



## MOULD AND CONDENSATION IN YOUR HOME



Indoor condensation can cause damage to fabrics, discolour paint and wallpaper but, more importantly, it promotes conditions suitable for the growth of mould.

When water is heated it changes into vapour. Condensation occurs when the vapour cools and changes it back into liquid. When air is humid condensation will occur at the slightest drop in temperature. For example, the droplets of water that form on the mirror or window of an unventilated bathroom while taking a hot shower or bath. In most Western Australian homes, indoor condensation is the main source of moisture for the growth of mould.

### WHAT IS MOULD?

Mould is a fungal growth. It grows in homes under the right conditions of dampness, darkness & poor ventilation: e.g. bathrooms or kitchens, cluttered storage or basement areas, flooded areas, plumbing pipes and outdoors in humid environments.

Walls, timber, carpet, furniture and fabrics can harbour mould if they stay damp for extended periods of time.



### HEALTH EFFECTS OF MOULD

Not all people are adversely affected by mould. However it can emit particles that may cause some people to sneeze. This is not necessarily an allergy; like a dust storm, it is a reaction to the particles in the air. Often, moulds can also release a musty odour which can be disagreeable.

Toxic moulds produce mycotoxins that can pose serious health risks. Some studies claimed that exposure to high levels of mycotoxins can lead to neurological problems and in some cases death. Prolonged exposure *may* be particularly harmful. Research in this area has not been conclusive.

Symptoms caused by mould allergy may include:

- Respiratory illness or asthma;
- Watery, itchy, red eyes;
- Chronic cough;
- Headaches or migraines;
- Rashes (dermatitis);
- Tiredness;
- Sinus problems, blocked nose; and
- Frequent sneezing;

Individuals with persistent health problems that may be fungi-related are advised to see their GP for a referral to a practitioner trained in environmental medicine or related specialties and are knowledgeable about these types of exposures.





## HUMIDITY IN THE HOME

Humidity in a structurally sound home comes from kitchens & bathrooms: from clothes dryers, un-flued gas heaters, washing machines, showers, fridge drip trays, indoor plants, and evaporation from your body & breathing. Once water vapour is in the air, it easily travels to other areas of the house where it may come into contact with cooler surfaces and condense.

The most common places for condensation to occur are windows, un-insulated exterior walls and bedrooms. Corners of rooms are also prone because they tend to be cooler and have less air movement.

Moisture can be retained in walls depending on the finish. Many interior finishes retain some levels of moisture. The interior finish is a critical factor affecting the growth of mould. Flat paints, plasters and untreated wood are more prone to moisture absorbency than semi-gloss or gloss painted surfaces and treated timbers.

High levels of humidity in the home are usually due to temporary sources of vapour generation such as a boiling kettle, or a hot bath, etc. However, new houses often have higher indoor humidity levels during the first few years as the concrete, plaster, paint and wood furnishings dry out. Older houses may have ongoing problems with dampness because of structural breakdown such as broken roof tiles, poor cavity wall ventilation and rising damp.



## CONTROLLING CONDENSATION AND MOULD

The main ways of controlling condensation & mould are:

- Ventilation
- Heating
- Insulation
- Removal

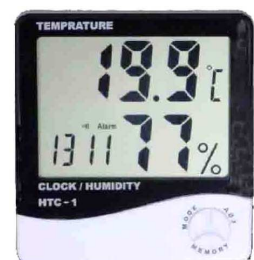


### VENTILATION

- Open windows and doors to ventilate the home and reduce the humidity level. Don't forget the attic, basement and crawl spaces;
- Install and use mechanical ventilation (exhaust fans) that are vented to outside air, particularly in the bathroom and in the kitchen while cooking. This can eliminate much of the moisture that builds up from everyday activities; and
- Consider installing ventilation over appliances producing moisture, such as dryers, stoves, & kerosene heaters, or leave windows ajar while they are on.

### HEATING

- Keep indoor moisture low. Relative humidity should be below 60% (ideally 30%-50%). Relative humidity can be measured with a humidity meter, a small, inexpensive instrument available at most hardware stores;
- Maintain low constant heat when weather is cold or wet. Continuous, even heating is better than short bursts; and
- Install heating in the bathroom such as heat globes.





## INSULATION

- Condensation forms more easily on cold surfaces, for example walls and ceilings. In many cases, those surfaces can be made warmer by improving insulation; and
- Insulate hot and cold surfaces, such as water pipes.

## REMOVING MOULD

- Eradicate mould when it occurs. It is hard to remove when it has been there a while;
- Do not dry brush the area. This could release spores into the air which can spread the mould further as well as cause an allergic reaction in some people; and
- There are several treatments for mould:
  - Tea Tree Oil is effective. A 3% solution or 2 teaspoons in a spray bottle with 2 cups of water will suffice. Shake well before each use;
  - Kill mould from surfaces with an 80% white **fermented** vinegar solution (available from supermarkets). After applying the mixture, leave for at least 20 minutes and then lightly sponge with clean water;
  - Remove the mould physically. Killing, but not removing the mould may allow it to grow back; and
  - Don't use bleach. Bleach has a high pH which makes it ineffective to kill mould. It simply bleaches it, so it looks like it has disappeared.



**REMEMBER: The only lasting cure for mould is to reduce the dampness!**

## GENERAL HOUSEHOLD MAINTENANCE

### *Structural*

- Check the roof for leaks and broken tiles regularly;
- Fix leaky plumbing as soon as possible;
- Ensure weep holes on the outside of the building are not blocked. Weep holes allow drainage of water and the escape of vapour pressure from internal walls;
- Over winter and spring the weep holes in window frames (aluminium frames) can get clogged. If clogged, water will stand in the lower window frame sections;
- Check for doors or windows that may have broken seals;
- Ensure vents and air ducts are not clogged;
- Check for leaky toilets and that bathtub & kitchen sinks seals are undamaged;
- Swollen or crumbling walls or buckling floor boards should be removed; and
- Check for stained ceiling or wall tiles.

### *Cleaning*

- Clean your bathroom frequently;
- Clothes & shoes must be dry before storing them;
- Clean evaporation trays in air conditioners, & refrigerators frequently;
- Cool mist or ultrasonic humidifiers should be cleaned according to manufacturer's instructions and refill with fresh water daily;
- Wipe away moisture on windows and walls to keep your home dry;





## Delivering a Healthy WA

- Carpets/rugs should be regularly aired & cleaned to prevent mould harbourage; and
- If flooding occurs it is important to clean & dry the area immediately or preferably within 24-48 hours to prevent mould growing. Water-damaged carpets & building materials can harbour moulds & bacteria. It may be necessary to remove the carpet as the mould may be impossible to remove completely.

### **Wardrobes/cupboards**

- Allow plenty of ventilation in wardrobes. Leave doors open if possible.
- If your wardrobe has been affected by mould growth, investigate the source of moisture and treat as soon as possible. Remove mould and allow to completely dry.
- Use a semi-gloss paint on wooden surfaces. Untreated woods are more prone to moisture absorbency than semi-gloss painted surfaces and treated timbers.



### **Other**

- Consider installing sky lights in darker areas;
- Minimise the number of indoor plants;
- When filling your bath, add cold first, this reduces the steam produced; and
- Let the sun into your home by opening curtains.

## **GARDEN MAINTENANCE**

- Don't let the building foundation stay wet. Provide drainage from roof guttering and slope the ground away from the foundation of the building.
- Ensure garden beds are not higher than the foundation of the building. This will prevent moisture migrating into the wall.
- Clean roof gutters regularly.
- Downpipes should drain into soakwells to ensure drainage away from the house;
- Prune overhanging trees near the roof.

Useful sites on Mould that may assist you include:

- *Guidelines on assessment and remediation of fungi in indoor environments by the New York City Department of Health, 2000.*  
<http://www.nyc.gov/html/doh/html/epi/mold.shtml>
- *MyDr.com.au*  
<http://www.mydr.com.au/allergy/allergy-proof-your-home>

**Remember:** When cleaning mould you must remember to wear gloves, glasses or goggles, and a respirator or face mask to protect yourself from mould spores.





### ??? Frequently Asked Questions ???

#### ***My house has a mouldy smell but I can not see any mould. Where is it?***

It is possible that mould may be growing on hidden surfaces, such as:

- Opposite side of dry walls, wallpaper or panelling;
- Roof materials above ceiling tiles (due to leaks or insufficient insulation). Cement roof tiles may lose their outer glaze and absorb moisture into roof spaces;
- Underside of carpets and pads, or curtains;
- Inside walls around pipes (with leaking or condensing pipes), and drains;
- The surface of walls behind furniture (where condensation forms);
- Condensate drain pans inside air handling units;
- Porous thermal or acoustic liners inside ductwork;
- Dry wall (also known as wallboard or gypsum board) with vinyl wallpaper over it or wood panelling, may act as vapour barriers, trapping moisture underneath;
- Insulation; and
- Wood siding where the paint has cracked and water has intruded.

#### ***My carpet has been affected by mould growth, and the mould keeps growing back. What can I do?***

It is necessary to thoroughly clean & dry water-damaged carpets immediately. It is very difficult to completely rid such materials of biological contaminants, and it may be necessary to remove and replace the carpet & underlay.



#### ***I am renting a property and there is mould growing in the building. What should I do?***



Mould & mildew caused by structural faults or leaks should be remedied by the owner, but the tenant must ensure there is adequate ventilation & humidity is kept to a minimum to avoid mould problems in winter.

If you have taken measures to ensure the building is properly heated & aired and mould is still growing, you should raise the issue with the owner or property agent. Tenants seeking further advice may wish to contact the Western Australian Tenants Advice Service (TAS) Metro Advice Hotline on 9221 0088 or the Country Advice Hotline on 1800 621 888.

Tenants or a landlords with an unresolved issue may also contact the Department of Commerce Consumer Protection Division on 1300 304 054. Your local government's Environmental Health Officer may also be able to offer some advice.





Delivering a Healthy WA

***I have heard some species of mould can be toxic. How can I find out what species the mould in my house is?***

If you would like to get the mould on your property tested to determine what species it is, look in the yellow pages under 'Analysts' for a list of analytical laboratories that may assist you in the species identification.

***I have tried everything to get rid of mould, & nothing works. Who can help me?***

If you have taken measures to prevent mould from growing in your building and you are still having problems, you may wish to seek the services of a building consultant/building inspector.

Look in the yellow pages under 'building consultant' or 'building inspector' for a list of companies who may assist you with advice on structural and moisture damage to your building.



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For Further Advice contact the Applied Environmental Health Branch from the Western Australian Department of Health on (08) 9388 4999 or contact your local council Environmental Health Officer.

