

Mid Sussex District Council

CONDENSATION AND DAMPNESS



‘Condensation’

Dampness caused by condensation is by far the most common cause of dampness in buildings and affects millions of homes in the UK every year, both old and new, but is particularly common in properties which are poorly heated and poorly insulated.

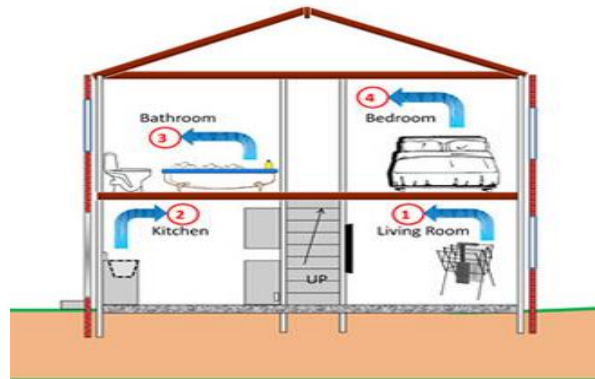


Condensation is directly associated with mould growth and staining, damaging wallpaper, wall surfaces, window frames, furniture and clothing, usually getting worse in the winter. In many cases, the mould and its spores (‘seeds’) can increase the risk of illness such as asthma and bronchitis, increases the numbers of dust mites due to the moist conditions and causes the ‘musty’ odour.

What is condensation?

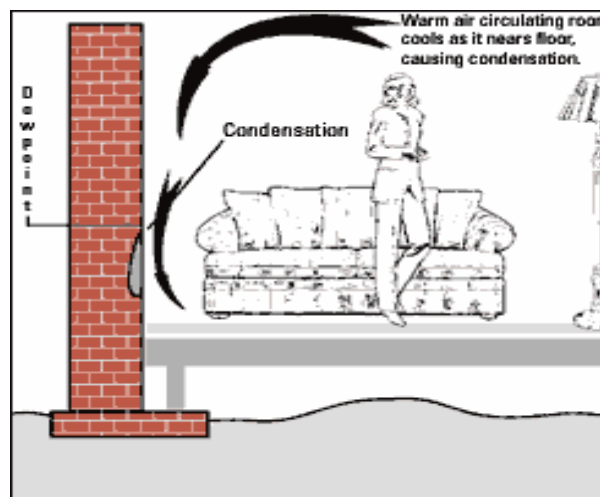
All air contains a certain amount of `invisible` water vapour. The higher the temperature of the air the more water vapour it can hold. Condensation frequently occurs when air carrying vapour comes into contact with a cool surface. At this reduced temperature less water can be held and it is deposited. It is for this reason that a bathroom mirror steams up after a shower or a window when you breathe on it.

Causes of Condensation



What causes condensation?

Condensation is the formation of liquid drops of water from water vapour. It is in the atmosphere and usually occurs as a parcel of rising air, then expands and cools to the point where some of the water vapour molecules come together faster than they are torn apart from their thermal energy. It also occurs on hard surfaces, such as the formation of dew, water condensing on a glass of ice water or on the inside of windows during winter, is the result of those surfaces' temperature cooling below the dew point of the air which is in contact with them. The dew point temperature is defined simply as the temperature at which water vapour, when cooled, will begin to condense to the liquid phase.



The air we breathe also holds amounts of water vapour, depending on its temperature. If warm moist air is cooled by any cold surface it is no longer able to hold the same amount of water vapour. The air-borne moisture turns into droplets of water and collects on the cold surfaces.

Condensation moisture in the air can come from a variety of sources in your property. Water vapour is produced in relatively large quantities from normal day to day activities which inevitably can lead to condensation in the property. For example, a five person household puts about 10 litres of water into the air every day. More examples include:

- Breathing (asleep) 0.3 litres
- Breathing (awake) 0.85 litres
- Cooking 3 litres
- Personal washing 1.0 litres
- Washing and drying clothes 5.5 litres
- Heating - especially paraffin and flue less gas heaters
- Moisture can also be drawn from a buildings structure into the internal air; from below the floor or through the walls and ceilings.

When is it a problem?

Every home gets condensation at some time – usually when lots of moisture and steam are being produced – for example, when showering or using the bath, when a main meal is being cooked or when clothes are being washed and dried.

It is also quite normal to find your bedroom windows misted up in the morning after a cold night. There is nothing you can do to stop this.

How do you know it is condensation?

Condensation mainly occurs internally on cold walls and other cold surfaces - for example, tiles, glass, metal framed windows, cold water supply pipes and wash hand basins and often results in black mould growing on walls and around window frames.



What can you do about it?

The four main ways to effectively deal with condensation are:

1. Produce less water vapour or steam in your home.
2. Do not let the water vapour and steam that is produced spread all round the house – close kitchen and bathroom doors.
3. Keep your home ventilated
4. Keep your home warm

How to produce less water vapour and steam

- Hang your washing outside to dry if at all possible, or hang it in the bathroom with the door closed and a window slightly open or use the extractor fan. Do not be tempted to put your clothes on radiators or in front of a radiant heater.



- Keep kitchen and bathroom doors closed to prevent moisture escaping into the rest of your home.
- Always cook with pan lids on, and turn the heat down once the water has boiled. Only use the minimum amount of water for cooking vegetables.
- When filling your bath, run the cold water first then add the hot – it will reduce the steam by 90% which leads to condensation.
- Try to avoid the use of bottled gas heaters; these produce about 4.55 litres of moisture from each gas cylinder.
- Do not use your gas cooker to heat your kitchen as it produces moisture when burning gas.

How to ventilate your home

Ventilation can help to reduce condensation by removing moist air from your home and replacing it with drier air from outside

- Be careful not to `over-ventilate` your home when it is cold, as it will cause the temperature inside to drop and make condensation more likely. It will also increase your heating costs
- Help to reduce condensation that has built up overnight by `cross ventilating` your home – open a small window downstairs and a small window upstairs (They should be on opposite sides of the house, or diagonally opposite if you live in a flat). At the same time, open the interior room doors, this will allow drier air to circulate throughout your home. Cross-ventilation should be carried out for about 30 minutes each day.
- Ventilate your kitchen when cooking, washing up or washing clothes by hand. Open a window slightly to allow moisture to escape and use your cooker extractor hood or extractor fan, if you have one.



- Ventilate your kitchen and bathroom for about 20 minutes after use by opening a small top window. Use an extractor fan if possible – they are cheap to run and very effective.
- Ventilate your bedroom by leaving a window slightly open at night, or use the trickle ventilators if fitted.
- To reduce the risk of mildew on clothes and other stored items, allow air to circulate round them by removing `false` wardrobe backs or drilling breather holes in them. You can place furniture on blocks to allow air to circulate underneath. Keep a small gap between large pieces of furniture and the walls, and where possible place wardrobes and furniture against internal walls. Pull shelves away from the backs of wardrobes and cupboards. Never overfill wardrobes and cupboards as it restricts air flow.
- If you use a tumble drier, make sure it is vented to the outside or that it is of the new condensing type.

How to heat your home

Warm air holds more moisture than cooler air and is more likely to deposit droplets of condensation round your home. Air is like a sponge; the warmer it is, the more moisture it will hold.

- Heating one room to a high level and leaving other rooms cold makes condensation worse in the unheated rooms. Therefore it is better to have a medium-to-low level of heat throughout the house.
- The problem can be made worse if you only put the heating on for an hour in the morning and an hour at night. In this case only the air is warmed, and building fabric itself stays cold, so there is more chance of warm wet air being in contact with cold surfaces.
- The best approach to heating in order to reduce condensation, assuming you have already taken the other three main steps indicated above, is to heat your home at a low level for a long time.
- Keep the heating on but set it to provide just a minimum of background heating. This will warm the whole building up and keep it warm, so there are no cold surfaces.



Simple steps you can do straight away

You will need to deal with condensation in the appropriate way as indicated above, but meantime:

- Dry your windows and windowsills every morning, as well as surfaces in the kitchen or bathroom that have become wet. Wring out the cloth rather than drying it on a radiator.

- Clean off and remove any mould that you may already have in your home, this can be in a number of ways:-
 - **With Detergent and Water** - A solution of detergent and warm water can be used to scrub surface mould off non-porous surfaces. Although detergent itself does not kill mould, if the mould is on non-porous materials then the solution does not need to kill it as long as you completely clean away all the mould on the surface.
 - **With Chlorine Bleach and Water** – *(make sure you wear protective eyewear, gloves, and a face-mask, as contact with the spores can be harmful. Also open windows or use a fan in the room while working).* - mix up a solution of chlorine bleach and water – usually 1 part bleach to 3 parts water, or get hold of a household detergent with bleach as an active ingredient; using a stiff-bristled brush, scrub the blackened area and rinse off.
 - **With Baking Soda** - Baking soda is well known as a natural and safe household cleaner - Add one quarter of a tablespoon of baking soda to a spray bottle of water; Shake the bottle to dissolve the baking soda into the water; Spray the affected area with the baking soda and water solution; then use a sponge or scrubbing brush to make sure to remove all the mould from the surface; once you've scrubbed away the mould rinse the surface with water to remove any residual mould on the surface; spray the area with the spray bottle again and let the surface dry. This will kill any leftover mould and prevent the mould returning.
 - **With Tea Tree Oil** - Of all the natural mould killing solutions tea tree oil is the most effective. Although expensive, a small amount of tea tree oil goes a long way in killing mould and is harmless to people and pets. It is also antifungal and antibacterial. - add water to a spray bottle and

tea tree oil at the ratio of 1 teaspoon per cup of water; spray the solution on the affected surface; there is no need to rinse since leaving the tea tree oil on the surface will kill the mould and prevent it from returning.

