



EarlKendrick

Building Surveyors



Condensation

A Guide for Clients

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Moisture is produced in all homes by breathing, cooking and washing. An average household produces 21 pints of water vapour per day. There is a limit to the amount of water vapour that air can contain — the warmer it is the more it can hold.

When the warm air comes into contact with a cold surface such as a window, or when too much vapour is put into the air, the moisture turns to liquid and forms as droplets of water — this is known as condensation.

What is condensation?

Condensation frequently happens in warm, wet rooms like kitchens and bathrooms. It can be seen on windows as ‘steaming up’ and as patches of dampness on walls and ceilings. Condensation frequently gives rise to the growth of mould especially when there is a sustained level of high humidity. The mould requires pure water to survive and this is what is produced by condensation. Without treatment the mould will continue to grow.

What causes condensation?

Condensation occurs either naturally, as a result of changes in temperature, or artificially by the actions of people themselves. Air naturally contains water vapour “humidity” and the amount of moisture that air will carry is related to its temperature.

Warm air holds more moisture than cold air. When warm air is cooled, such as when the heating is switched off at night, it will deposit the water that it can no longer retain as condensation on a cold surface such as that of a cold external wall or pane of glass.

Condensation in flats and houses is often a winter problem particularly where warm air is generated in living areas which then penetrates to the colder parts of the building.

To have condensation, moisture must be present in the air. Moisture can come from a number of different sources within a house such as:

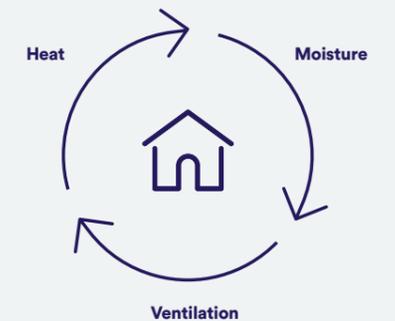
- Breathing (asleep) 0.3 kg of moisture produced;
- Breathing (awake) 0.85 kg of moisture produced;
- Cooking 3 kg of moisture produced;
- Personal washing 1.0 kg of moisture produced;
- Washing and drying clothes 5.5 kg of moisture produced;
- Heating — especially paraffin and flueless gas heaters. For every litre of paraffin burnt over one litre of moisture vaporises into air. Every carbon fuel produces some amount of water from combustion.

*(1 kg of water equates to 1 litre)

Water vapour is produced in relatively large quantities from normal day to day activities — a five person household puts about 10kg of water into the air every day.

Moisture can also be drawn from the structure of the building into the internal air for example, when there is an ongoing issue of dampness, water can be drawn through the external walls of the building.

In addition to the above, buildings can often lack or have insufficient natural ventilation to allow air into the building. In some cases residents block up vents to stop drafts and this can prevent warm moist air escaping, making things worse.



Mould

Small amounts of condensation can be found in most homes, but if it is not dealt with mould growth will occur. In severe cases this can make some health conditions worse. Mould is one of the most common visual symptoms of condensation together with water pooling on cooler surfaces such as window sills.

Condensation mould will often look like “black spots”.



For mould growth to occur there needs to be a sufficient amount of clean water available for extended periods of time.

What to do

Mould can be removed by washing the surface with a mild bleach solution. Special paints are also available which may help to prevent the growth of mould. However, the only permanent cure is to reduce the amount of moisture contained within the air within the property.

Ways to control condensation

There are three primary measures that can be taken to prevent condensation. These are:

1. **Increase ventilation** — to help remove moist air from the building and not allowing it to come in contact with cold surfaces.
2. **Increase insulation** — to prevent a cold surface reaching below the “Dew Point” temperature.
3. **Maintain consistent heating** — to prevent the structure from becoming cold or below “Dew Point”.

Practical measures which you can adopt

1. Leave heating on a low setting throughout the day in cold weather, rather than switching it on and off at certain times. Most buildings take a long time to warm up, particularly older buildings with solid external walls.
2. After a bath or shower, ventilate the room to the outside by opening the window. Try not to leave the bathroom door open so that moist air escapes into the house. Make sure the extractor fans are clean, maintained and working well.
3. Keep the bathroom doors shut when bathing/showering, keep the kitchen door closed when cooking and keep lids on pans. Try not to allow steam to build up in the house. Don't let kettles and pans boil longer than is necessary. If you have an extractor fan fitted make sure you use it when cooking or bathing.
4. Ideally dry clothes outside. When this is not possible, try drying clothes in a cool area of the house. Whilst this will take longer, less moisture can be held in cool air and with good ventilation, the risk of condensation is lower.
5. When people come in to your house with wet coats/shoes etc, hang them outside the living area to dry. Try to increase ventilation, allow the air within the house to change regularly. It may be possible to install trickle vents to existing windows and external walls.
6. If condensation forms on the windows, wipe it off.
7. Add or maintain mechanical ventilation/ extraction fans to areas which produce a lot of moisture, such as kitchens and bathrooms. Extractor fans are available with an air-moisture switch so that they operate automatically whilst there is moisture in the air.
8. Use a dehumidifier domestic dehumidifiers are available and can remove a significant amount of water from the air. Consideration could be given to installing a heat exchanger. A heat exchanger will remove the moist air from within rooms and reuse the thermal energy. This helps maintain a low level of air moisture/humidity which would otherwise be wasted.
9. Allow air to circulate behind furniture. Don't overfill cupboards and wardrobes. Leave a space between the wall and cupboard/wardrobe/sofa to allow air circulation. Make sure that air can circulate freely by fitting ventilators in doors. Leave a space at the back of the shelves.
10. Don't block air vents. If condensation still persists, there are still some other things you can try:
 - Install secondary glazing — to help insulate, but remember to also ventilate.
 - Consider installing new double glazed windows — Although this can be expensive and require planning consent the thermal efficiency will be much improved.
 - Lining the wall with thin expanded polystyrene sheeting — this will add an extra layer of insulation and prevent the surface from being at Dew Point temperature. The wall could then be finished with wallpaper or lining paper which can then be painted.
 - Install loft insulation — ceilings under the roof will suffer from condensation if the original construction of the roof/ceiling does not comprise of roof insulation. If there is no or little roof insulation, additional insulation could be installed or a false ceiling with insulation can be installed.

Further Information

- The National House Building Council publishes a guidance note on condensation in the home. Visit: <https://www.nhbc.co.uk/homeowners/homeowner-guidance-documents>
- The National House Building Council also gives advice on how to deal with condensation in new homes in its publication a Guide to Your New Home. Visit: <https://www.nhbc.co.uk/homeowners/homeowner-guidance-documents>
- The Association of Residential Managing Agents provide advice on how to deal with condensation. Visit: <https://arma.org.uk/downloader/tw3/Condensation.pdf>

Without significant expenditure some homes are unlikely to ever be condensation free, this is due to the original design of the building. However, by keeping your property properly maintained and being conscious about your living habits, lifestyle and surface finishes, you should be able to manage the amount condensation in your home.

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