



Dealing With Condensation

What is condensation?

Air carries water in the form of water vapour, and the warmer the air the more water vapour can be carried. The measurement of the amount of water in the air is called *humidity* and air with a high water content is said to have a high humidity.

Cool air holds less water than warm air, so if very humid warm air cools down when it comes into contact with a colder surface it must get rid of some of the water it holds. This excess water is deposited on to the colder surface and we may see it as drops of liquid water running down a window pane, for example. We call this *condensation*.

The water in the air can come from a variety of activities within the home, for example,

- cooking and boiling kettles
- washing clothes
- ironing/drying clothes indoors
- oil and bottled gas heaters
- baths and showers
- even breathing !

All houses will suffer from some condensation from time to time, but severe condensation is a very common problem particularly in cold weather and in older houses.

As well as water streaming down windows and on to the window sills and walls beneath, water may collect directly on walls, especially behind large pieces of furniture and curtains.

If wood, wallpaper and plaster are badly affected they will become permanently damp and unsightly mould will start to grow (usually the black spot mould *Aspergillus niger*). Over a prolonged period, wood will rot and plaster may become perished.

When does condensation happen?

Condensation always occurs when humid air is cooled below the temperature at which it can hold the amount of water it has absorbed.

If the air is fairly dry, it can be quite cold before water starts to condense. The more water held in the air, the higher the temperature at which condensation starts, and in very humid conditions condensation will be found even on quite warm surfaces.

How can it be cured?

Curing severe condensation can be complicated, because it is affected by temperature, humidity and ventilation and also because the source of the water in the air is often unavoidable - we cannot usually cut down on washing, cooking and breathing !

There are three main areas of attention, and all should be looked at if you have a problem.

I. Reducing the Humidity

It is impossible to stop water getting into the air completely, and medical evidence suggests that high humidity can be beneficial to people with respiratory problems.

It is sensible, though, to keep activities which produce a lot of water vapour localised. As the areas in a house where steam is produced are usually warm, condensation will be less than if the humid air spreads to the colder parts of the house.

1. Keep internal kitchen and bathroom doors closed when these rooms are in use (and for some time afterwards).
2. Dry clothes out of doors (not on radiators) and always vent a tumble dryer directly to the outside.

3. Avoid forms of heating which produce a lot of water vapour e.g. bottled gas heaters.

4. Use an automatic or whistling kettle.

5. Deal with any other types of damp from which the house suffers - rising damp and penetrating damp will both contribute to condensation and will cause other damage as well.

II. Removing the Humid Air

If very humid air can be removed from the house quickly, it will not have time to cause condensation. The key to this is good ventilation *near the source*. This ventilation is best if it is *forced* ventilation, i.e. the use of extractor fans, especially in kitchens and bathrooms.

1. When cooking and after bathing, open a window or use a cooker hood or extractor fan vented to the outside.

2. Never draught-proof a room to the point where there is no air circulating through it; even breathing will then result in condensation. This may mean losing a little heat, but the resulting dryer air will generally feel more comfortable than a clammy atmosphere.

3. Move large items of furniture a little away from exterior walls so that air can circulate behind them.

4. Investigate blocked up chimneys and make sure there is sufficient ventilation to them. If a chimney is bricked up without installing an air brick, condensation can occur inside the chimney and may eventually soak through into the room.

5. Keep cellar and sub-floor areas well ventilated and check periodically that cellar windows are open a little and air bricks are not blocked. If possible ensure that there are two ventilation points so that air circulates through them. Leave any internal cellar doors ajar.

6. When insulating a loft space (and especially if it is also boarded and/or clad) leave plenty of space at the eaves for ventilation. If there is not enough air circulation in a loft,

condensation can soak the roof timbers and lead to mould and rot attack in the roof timbers.

7. Remember that new plaster will take several weeks or even months to dry out and can add to condensation problems whilst this is happening - so increase the ventilation and background heat in recently re-plastered rooms.

8. Consider using a dehumidifier where excessive moisture cannot be avoided. These suck in air and extract the moisture from it, collecting it as water in a container or piping it to a drain. We offer the hire of these for short periods to see if they will help the problem or when drying out rooms after renovation work or flooding. Be careful not to dry out plaster and woodwork too quickly or cracking and warping may occur. If a damp house is to be left empty for some time a dehumidifier may be more cost-effective than over heating in preventing damage to furnishings and the fabric of the building. (Be sure that it is plumbed to a drain or switches off automatically when full).

III. Keeping the Moisture in the Air

Except in very wet or cold conditions air will hold a lot of water vapour. It is only when this air is cooled significantly that a problem arises, so keeping heat in a room and eliminating cold surfaces will prevent condensation (but remember that very humid warm air will always find the coolest surface to condense on).

1. Do not let a room get very cold for long periods. Check unused rooms frequently for condensation and keep them ventilated and heated a little as even relatively dry air will cause condensation if it is cooled enough. Only use dry sources of heat and keep interior doors closed to prevent humid air getting in to the unused room from the more active parts of the house.

2. Insulate to make the most of the heat you have and avoid large heating bills.

3. An easy solution to condensation on windows is double-glazing. Sealed units with a sufficiently large air gap will also reduce direct heat loss and should have the added

benefit of being completely draught-proof. Secondary glazing is cheaper and several DIY methods are available, but if these are not well sealed moist air will get into the gap and condense on the outer window. This can be significantly reduced by putting packets of silica gel crystals into the gap to absorb the moisture from the air. (Several proprietary products are available on the market from DIY outlets).

4. Very cold walls can be lined with an insulating material (such as thin polystyrene) and then decorated. Cavity wall insulation, a more expensive but usually cost effective option, will give better results. Insulate all lofts and dormer walls to prevent condensation on ceilings and walls.

5. If a timber floor is cold, seal the gaps between floor boards or lay a thick underlay. (Inspect the floor for decay before fastening down a permanent covering). Do not treat the problem by reducing the ventilation to the sub-floor or cellar beneath - you will just move the condensation and its resulting problems out of sight and cause more problems !

6. Water pipes and tanks in kitchens, bathrooms and roof spaces can attract lots of condensation which drips off the lowest point resembling a leak and concentrating damage. Lagging pipes with foam tubes or wrapping these with insulating materials will prevent this.

How are the Effects of Condensation Treated?

First and foremost, do all you can to cure or reduce the condensation by following the guidelines above.

Treat mould on woodwork and walls with a proprietary fungicide/cleaner or household bleach. In cases of severe problems redecorating will probably be necessary. If the condensation cannot be cured completely you will need to inspect affected areas and repeat the treatment periodically.

Where condensation is unavoidable (bathrooms and kitchens) decorate walls with suitable water-repellent tiles, paints or other wall-coverings.

If woodwork has been affected badly enough for wet rot or dry rot to attack it, it should be replaced with new timber. Dry rot attack will require more extensive specialist treatment to prevent it recurring in other parts of the house.

If plaster work has become wet it may have perished and will need replacing with suitable plaster.

Our clients, or their tenants, may need a quick solution to condensation problems that are occurring in their property. The installation of a dehumidifier for a few weeks will help a severe condensation problem, but should not be used alone as a method of condensation control. As soon as the machine is switched off or removed, the condensation problem is likely to come back. We can hire out a suitable machine for this if required. Please contact us.

This leaflet is for guidance only, and is not intended to provide an exhaustive technical description of the subject. It does not form any part of any contract.

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