



Condensation & Mould Growth

Causes & Cures

Condensation occurs when water vapour in the air inside the house condenses on a cold surface. It can occur at any time of the year and is seen as misting or water droplets on windows, walls, tiled areas, concrete floors and toilet cisterns. The appearance of condensation and mould growth is a sign that the building or room in question is not being adequately heated and ventilated.

A wall may be cold and attract condensation for several reasons:

- Walls of rear extensions in older houses are more exposed and so may be colder.
- It may only be a 4 inch thick brick wall, especially where an old external toilet or coal house has been incorporated into the main house
- It may be facing north or the room may be inadequately heated or not heated at all.
- Trees, shrubs, alleyways or an adjacent building may shade the room or walls, preventing the sun from heating it up.
- A leak from a gutter or pipe may make part of a wall colder. In this instance the leak needs to be located and repaired.
- If the house is new, it may still be drying out.



Mould Growth

Mould spores are always in the air and growth occurs when mould spores germinate on contact with surfaces that are damp through condensation or rain water penetration. The mould takes the appearance of small black (most common), grey or green spots on the wall or other surfaces. Mould is most commonly seen around window reveals, on external walls and at high level in external corners. If you have mould growth at low level, it may not be rising damp. It may just be that that bit of the wall is at or below dew point.

WATER VAPOUR is created by normal, everyday living in your house such as breathing, perspiration, washing, cooking, bathing, drying clothes, and burning fuel, such as gas or paraffin.

The average family produces 20 pints (5 gallons or approximately 12L) of moisture every day. Think of it as two and a half builders buckets full of water and you will see the scale of the problem that the house has to cope with.

You can reduce this by:

- Keeping lids on pans when cooking, keeping the kitchen door closed and leaving the window open/extractor fan on.
- Drying clothes outside or piping the tumble dryer's moist exhaust air to the outside.
- Not drying your clothes indoors on airers or over radiators.
- Running the cold water for a bath before the hot water. Leave the bathroom door closed whilst the bath is filling to reduce the spread of steam. When you have finished, open the window wide for an hour or so, or until the last beads of moisture have disappeared from the windows and walls. If there is an extractor fan in this room, leave the window closed and leave the fan running for an hour or so. If you have a heater in the bathroom, turn it on at least one hour before you go in to the bathroom. If you have central heating, make sure that the air temperature in this room is not less than 21C. This is particularly important for people under 5 and over 60, or who have a long-standing illness.
- Not using liquid paraffin or bottled gas room heaters. These produce 8 pints (5L) of water vapour for every gallon of fuel burned. The water will end up condensing on your walls and windows.



Penetration of Condensation and Mould Growth

In 99.99% of cases, the cure for condensation and mould growth is heating and ventilating properly.

VENTILATION:

This is the normal escape route for moist air. As the air in your house circulates, it draws moist air to the outside through open windows, doors, trickle vents, extractor fans, airbricks and chimneys and is replaced by fresh air. *Outside air is always drier than the air inside your house.* If this exchange of air is poor or prevented, the air in the house becomes saturated and water vapour will condense on the nearest surface at or below dew point temperature. To allow fresh air to circulate you should consider some of these:

- Open all windows wide until the condensation disappears and then close them, leaving a 1/4inch (5mm) gap between the sash and the frame in each room.
- Ensure that trickle vents are open in double glazed windows.
- Keep bathroom and kitchen doors shut to help prevent moist air circulating to the rest of the home.
- Avoid still air pockets - areas between furniture and external walls and behind heavy curtains will encourage condensation to form, because there is no circulation of warm air to warm the wall and furniture. If it is not possible to put the furniture against an inside wall, leave a gap of at least 3" to 4" (75mm to 100mm). Do not over fill wardrobes, cupboards and chests of drawers.
- Do not put your mattresses directly on the floor.
- If you have nowhere to dry your clothes, ***take them to the launderette and dry them there.*** Failing this put them in the bathroom, turn on the heating, open the window or turn on the extract fan and close the door.
- Open windows when ironing.



HEATING

Warm air can hold more moisture than cold air so if your house is **heated adequately** you are less likely to suffer from condensation. Warm air cooling in the night *will still result in condensation, especially on or around windows during cold weather.* Most of this will evaporate as the **heating is turned on** again in the morning and the **windows are opened.**

If you suffer from condensation and mould growth during the winter, **it is important to understand why**, and what you can do to prevent, or at **least, reduce it.**

As the external air cools down, heat is lost from the structure to the outside atmosphere. *If the heat is not replaced quickly enough by the heating system, your walls will continue to cool until they fall below the "Dew Point Temperature".*

At this stage, you will notice that condensation will begin to occur.

The formation of condensation cools the wall even more, resulting in even more condensation occurring. This will continue happening until **you** do something about it.

You will notice that:

- Your house, clothing and bedding will feel cold and damp. There will be a musty, damp smell. You may see mould growth on furniture, external walls, in cupboards, drawers, on or around windows and on your clothing or bedding. Wallpaper may peel off around windows or other areas.
- It takes a long time before your heating begins to take effect, your walls stay cold to the touch and you will not feel properly warm as a result.
- Your fuel bills will increase substantially.
- You will find it more difficult to keep yourself warm, especially if you are elderly, ill, or spend a great part of your day in the house

The cure to this problem is to put more heat in until the wall is warmed to a temperature above dew point. (Don't forget ventilation.) **Yes, it will cost more initially to get the walls warmed up, but when they are properly dry, your heating bills will reduce.**



What more can I do?

Do not wait until it starts to turn cold before putting your heating system on.

Leaving the heating off until the weather turns cold will result in the walls losing all their stored heat. It will then take a lot longer (and a lot more money) for the heating system to warm them up sufficiently for you to feel comfortable.

DO turn your heating on at the end of September (or earlier if the weather cools), and set the main thermostat to a temperature of *not less than 21C*. If you have thermostatic radiator valves in your bedrooms, bathrooms etc., adjust these to achieve a temperature of *not less than 18C (aim for 21-22C in living rooms)*. The heating system will then automatically provide enough heat to maintain the structure above dew point.

Economy 7 or Night Storage Heaters, it is important to listen to the weather forecasts at night and adjust the input control to take account of the temperatures for the **next day**.

On most E7 or Night Storage Heaters there will be 2 knobs. Generally, the right hand one will control the heat input and the left hand one will control the heat output.

The left hand knob (the output control) controls a flap within the heater. To keep the room at a reasonable temperature you will need to adjust it to allow heat to escape gradually throughout the day. The control knobs are often marked with the numbers 1 to 10 around the outside. As a rough guide in mild weather, (outside air temperatures between 10 to 17 Celsius), the **input control** should be somewhere between 4 and 8. In cold weather (10 Celsius and below), turn it to 8 or above.

These types of heaters **will provide a minimum temperature of 18 Celsius**, however, this is not a comfortable temperature and you will find that it will probably be necessary to supplement the heating with a convector heater during periods of very cold weather.

Do not over-ventilate by leaving your windows wide open all day in cold weather – *your walls will lose all of the heat stored in them.*

DO open the windows wide for a short period of time in the morning say 30-60 minutes and then close them up, leaving a small gap between the sash and the frame of ¼ of an inch (5mm), or at any time that you see condensation forming on the glass.



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SALES & LETTINGS

DO mop up any water that accumulates on the window glass or window cills. Wring the cloth out in the toilet or washbasin, don't leave it wet on the cills. This will provide a moisture reservoir for future condensation.

Do NOT put your heating on for short periods of time (one hour or less) – *this will actually ensure that the problem becomes worse*. The air absorbs water vapour more quickly than the walls can warm up. When the heating is turned off, the air cools very quickly and condensation rapidly occurs, cooling the walls further.

DO put the heating on for at least 3 hours at a time. Set your timer to come on at 4 or 5 a.m (when the air is coldest) and to go off an hour *after* you leave for work. During the day, set it to come on at least an hour before you come home from work and to go off at least an hour *after* you go to bed.

If you are at home all day, put the heating on for not less than 3 hours at a time or leave the heating on full time, but at a lower temperature.

In extremely cold weather, it is a good idea to leave your heating on at a low level whether you are at home or not.



Removing Mould Growth

The steps to take are:

- 1. Wash the affected area thoroughly.** Use non-ammonia soap or detergent, or a commercial cleaner, in hot water, and scrub the entire area affected by the mould. Use a stiff brush or cleaning pad on cement-block walls or other uneven surfaces. Wet the surface first with detergent solution before scrubbing.
- 2. Rinse and Dry.** Use a damp cloth to rinse any residual detergent off the treated surface. A wet/dry vacuum cleaner can be helpful for removing water and cleaning items.
- 3. Disinfection.** Disinfectants are intended to be applied to thoroughly cleaned materials and are used to ensure that most micro-organisms have been killed. Therefore, do not use disinfectants instead of, or before, cleaning materials with soap or detergent. After thoroughly cleaning and rinsing contaminated materials, a solution of 10% household bleach (1½ cup household bleach per gallon of water) should be used as a disinfectant. Using bleach straight from the bottle is less effective than diluted bleach. Keep the disinfectant on the treated material for the prescribed time before rinsing or drying; typically 10 minutes is recommended for a bleach solution. When disinfecting a large structure, make sure that the entire surface is wetted (e.g., the floors, joists, and posts). Properly collect and dispose extra disinfectant and runoff.

WARNING: Bleach and disinfectant should be handled with caution. Bleach should never be added to ammonia or other chemicals; toxic gas will be produced. Wear gloves, mask and eye protection when using disinfectants. Bleach fumes can irritate the eyes, nose, and throat, and damage clothing and shoes. Make sure working areas are well ventilated.

- 4. Clean Up.** Discard any loose porous materials where mould growth cannot be removed or has become ingrained into the material (e.g., ceiling tiles, plasterboard, carpeting, and wood products). Bag and discard mouldy items; if properly wrapped, items can be disposed with household rubbish. Ensure humidity levels are kept down and place a fan heater near the affected area to dry out the treated materials.

Dry the affected areas for 2 or 3 days.