

Buildings which are too damp or too dry can be bad for occupants' health.

This fact has been well established by many reports including those of the World Health Organisation and the Institute of Medicine.

Your windows are a major contributor to the control of moisture in your home.

Time to 'break the mould' and understand how condensation happens and what you can do about it.

Introduction

It's that time of year. When the air outside is cold and the heating is on inside, condensation in conservatories or windows can become a real problem. Condensation is a common problem that is found in many locations and not just on your windows. For example, your WC cistern in the bathroom, car windscreen in winter or the morning dew on the grass.

Cold spots, moisture generation, poor ventilation and inefficient heating are all common causes of condensation, here's our low-down on condensation in conservatories and on windows – what's good, what's bad and how to deal with it.

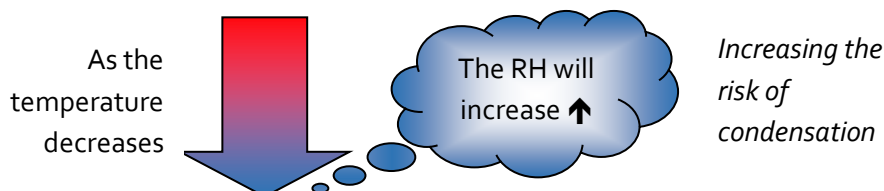


What is Condensation?

Simply put if moisture laden air meets a cold surface, condensation will occur. However, there are many variables involved and so it is not so simple.

We generate moisture vapour into the air by our activities within the home such as washing, cooking, cleaning, drying, even breathing (therefore we even generate moisture while we sleep). The air within a building only has capacity to hold a certain amount of this moisture vapour and the warmer the temperature of the air, the more it can hold. The amount of moisture vapour in the air is measured as a percentage of its capacity and this is termed the Relative Humidity (RH). To reduce the risk of condensation it is best to try and keep the relative humidity as low as possible but realistically as we are constantly generating moisture, then if we can keep it to below 60% then we have a chance.

The big problem we have is that the temperature and the relative humidity are indirectly linked – as one goes up, the other comes down.



The World Health Organisation (2009) recommends that the relative humidity be maintained below 75% to limit fungal growth in buildings and in addition, states that relative humidity greater than approximately 50% increases indoor dust mite levels. Both situations can start affecting people's health, particularly those with existing chest problems.

My House or Conservatory is Insulated so why do I get Condensation?

The energy efficiency of buildings has improved over the years as we have replaced old draughty windows with double glazing, insulated cavity walls and roof spaces. This extra insulation and draught proofing make for a warmer home, but in older properties it can reduce natural ventilation which traps moisture in the room. When the room or conservatory cools down overnight or when it's not being used, the moist air condenses and mists up the glass as this is probably the coolest part of the room. Without proper ventilation, this condensation can start to build up causing damp and mould in homes and conservatories. So, if your house is well insulated, reducing the amount of moisture generated in your home will assist in reducing the risk of condensation. One way to reduce moisture is to fit extractor fans in bathrooms, utility rooms and kitchens, all areas where moisture is generated more.



If you use your conservatory during the colder months, it is possible that you will suffer from condensation. Moisture that builds up in the conservatory will form condensation when the space cools down again when not in use. Condensation in conservatories can be a serious issue where the roofs, windows and doors of older, inefficient conservatories are poorly insulated. Opening a window for ventilation will allow fresh air in to help reduce the moisture level. If the problem is particularly bad, it may be necessary to update the glazing and roof with modern, more energy efficient products to make it a better space to live in during the winter months.

Condensation on the Outside of Conservatories and Windows

With modern, highly insulated windows it is possible to see condensation on the outside of the windows. If you have condensation on the outside of your conservatory or the outside of your windows, it means that your windows are performing well. So, although it may obscure your view a bit, while it evaporates, there is nothing to worry about.

So why does condensation form on the outside of windows? This can happen after modern energy efficient



double glazed or triple glazed windows are installed. These windows are manufactured with highly insulated glass units (IGUs) including argon gas fill and a warm edge spacer bar, with a window frame that is highly insulated and draught free. The insulated windows keep much more of the heat inside so rooms are warmer and more comfortable. But it also keeps the cold air out and it's this cold air which can then condensate on the outside pane of glass. Just like dew on the morning grass.

Although it can be a nuisance having condensation outside, it is a great indication that your windows are performing as they should!

A condensation example in a room

The air in a room is measured at a temperature of 20°C and a recommended relative humidity of not more than 50% (Figure 2). As this circulates, it could be cooled to 15 °C and its relative humidity would then increase to 70% (as the air now has a lower ability to hold moisture vapour - despite it only having the same amount of moisture in it).

If the temperature is decreased further to 9 °C, the relative humidity reaches 100% and water will condense on surfaces at such temperatures.

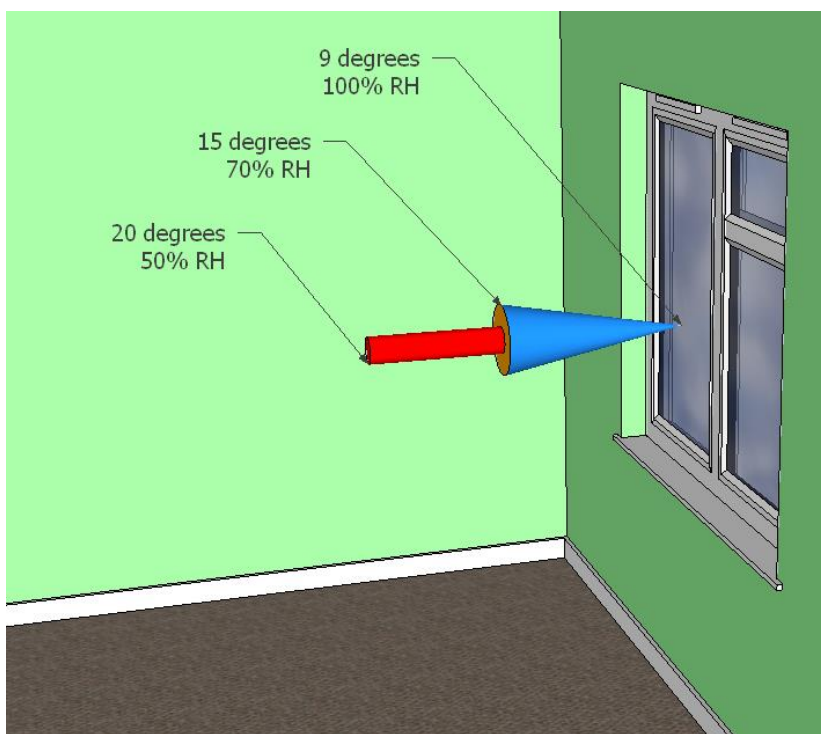


Figure 2

Therefore, when the temperature in houses decreases locally (e.g. at window panes, unheated sections of the house or poorly insulated walls), the relative humidity rises, there is a higher risk of condensation occurring and accelerates microbial growth (mould can grow).



If you have had new windows installed, then the reveal to the side of the window may now be at a lower temperature than the glass itself owing to its improved thermal performance and so damp patches may appear here which are often misconstrued as incoming damp issues.

Preventing Condensation in Conservatories and the Home

There are small changes you can make to help reduce the condensation problems in your home. Opening a window when taking a bath or doing the washing up can let out any steam that's created. Or better still, fit a good quality extractor fan preferably with a humidistat which will monitor the relative humidity in the room

and automatically switch itself on if required. Utilising cooker hood ventilation while cooking and ensuring that tumble dryers are vented outside or have a built-in condenser, will also greatly reduce moisture build up in your wet rooms. In addition, try to dry washing in a well-ventilated room if you can't hang it outside.

It's worth opening a window and pulling back window coverings like blinds and curtains once a day, to improve the flow of fresh air around your home.

If your condensation is persistent, a dehumidifier can prove to be a good investment if you are not able to replace your windows or conservatory glazing. A dehumidifier will draw the moisture out of the air to reduce the chance of condensation forming on the windows.

Choosing Replacement Windows or Conservatory Glazing to Prevent Condensation

Significant condensation on the inside of your windows is often a sign of poor insulation and if left untreated, may cause damp and mould. If your budget allows it, fitting highly insulated new windows is usually an effective way to prevent condensation from occurring in your home.

If you are considering this for your house or conservatory, opting for windows with a higher thermal performance is often the best choice to reduce condensation and save energy. There are many different styles and manufacturers of windows available and you can check how energy efficient by choosing new windows with a Window Energy Rating. This is a traffic light style label that rates windows from A** to G and is like the one you see on new fridges or freezers. It's also a good idea to discuss your condensation problem with the installer as it is possible to add ventilators into new windows which can improve the flow of fresh air in to the room.

General good practice in reducing condensation

- Produce less moisture vapour; for example, use lids when cooking, avoid drying clothes indoors.
- Extract moisture at source; for example, use extract fans if available, open windows to ventilate, leave background ventilators open such as trickle ventilators.
- Maintain a consistent level of heating.

Additional Information

- You can find a trusted, local installer on our Certass Contractor Search page.
- World Health Organisation: Dampness and Mould (<http://apps.who.int/iris/bitstream/handle/10665/164348/E92645.pdf;jsessionid=FFEC50D7323AFB8DF2F4FC713A8EE424?sequence=1>)
- UK Centre for Moisture in Buildings (<http://www.ukcmb.org/>)
- Health and Moisture in Buildings (<http://www.ukcmb.org/health-and-moisture-in-buildings-report>)

We hope you have found this useful and informative.....

If there are any topics that you think you would benefit from, please let us know as soon as possible and if possible, we will add them to the agenda.