



National Federation of Glaziers

Excellence and Integrity in Glazing

CONDENSATION FACTS SHEET

Condensation can form on both the inside and the outside pane of double glazing

Interior condensation

Condensation affects all of our homes in varying degrees at some time or another, but some more than others. Whilst there exists much evidence to prove insulating glass helps combat condensation, whether as secondary sash or as sealed units, glass suppliers and installers cannot guarantee that it will eliminate or even reduce condensation.

The following, therefore, explains the causes of condensation and advises the home owner on how best to tackle the problem.

THE PROBLEM

Water exists in three forms: liquid, ice or vapour. It is the latter that causes condensation. The atmosphere around us is never completely dry and always contains some moisture even though it may not be visible. The warmer the air, the more moisture it can hold without forming a mist. There is however a limit to the amount of moisture air can hold. At this point the dew point is reached, and when this is exceeded, there is too much for the air to absorb and it condenses into droplets.

These droplets form on the coldest surface in the room. In buildings this would form on cold walls, mirrors and window and door surfaces. Thus the cause of condensation is oversaturation of the air; moisture condensing visibly on relatively cold surfaces. In the confined spaces of rooms in our homes, there is a greater risk of the air to absorb moisture, from cooking, bathing and even breathing, for example.

To cut down central heating running costs, improved insulation is applied to areas where heat losses occur, namely to the roof space and walls. And to reduce heat loss even further, windows and doors are often draught proofed. Draught proofing our homes may make them much more comfortable. Unfortunately, however, this will reduce the amount of fresh air entering and circulating the rooms and freely ventilating the home and keeping the moisture content of the air low.

If by restricting the heat loss we also restrict natural ventilation, which invariably results in a higher build up of humidity, there is obviously, then, a higher risk of condensation problems. This is especially so in winter when the air is colder outside. Good quality windows and doors will be most effective in this respect!

WHERE DOES MOISTURE COME FROM?

Moisture is produced by several different, normal living activities in the home, for example:

Breathing: Two adults sleeping in an unventilated room for 8 hours produce about 1 1/2 pints of water vapour.

Cooking: Steam is often seen near saucepans and kettles, then it seems to disappear. It is still there but it has been absorbed into the atmosphere, and although the atmosphere may remain clear, the water content in the air has risen.

Bathing and Laundry: Often these activities are major sources of atmospheric moisture indoors. Consider, when a hot bath is run, a lot of steam is given off, too much for the air to absorb, so the moisture condenses into liquid droplets.

Heaters: A flueless gas heater, or a paraffin heater, produces a great volume of water vapour.

HOW INSULATING GLAZING CAN HELP?

By installing double glazing of any kind, whether as sealed units or secondary sash, the room facet of the inside glass will not be as cold as that of a single pane. Where insulating glass is installed, condensation should not occur inside the cavity.

PERSISTENT CONDENSATION - WHAT TO DO?

There are two requirements in preventing condensation: the right amount of ventilation which limits the amount of water vapour in the air, and adequate heating which keeps indoor room surfaces warm.

Condensation on doors and windows means that the humidity is too high in the room. To reduce humidity, first get rid of some of the moist air. Where the condensation is slight or, as in the case of a bathroom, where it is temporary, this can be achieved by opening a vent window for a short while to ventilate the room.

More persistent condensation, such as in kitchens, where moisture is continually being produced in large quantities in the form of steam, can be reduced considerably by properly positioning fans or hoods.

The provision of more heat in rooms, particularly by heaters under windows, will reduce condensation by raising the air temperature, which, in turn, will increase the temperature of the surface of the glass. Double glazing may reduce condensation but may not always cure it.

Alternatively, De-humidifiers are available which may also help. They produce a cold surface (usually at the rear of the machine on small pipes) upon which the condensation droplets form, and are collected in a container in the unit. (This demonstrates the principles given above). The water, thus collected, is emptied on a regular basis. These machines are available in many home improvement stores.

Exterior Condensation

This natural phenomenon occurs when there are 2 panes of a glass sealed unit which vary considerably in temperature.

The temperature of the external pane can, particularly at night fall considerably, and different panes, even in the same window, may fall to different temperatures due to orientation and other external factors (trees, close buildings etc.). If the temperature falls below the dew point, then condensation will form on the outside pane.

The better the thermal insulation of the glass unit, the lower the temperature of the outside pane is likely to be. Building Regulations which were introduced for replacement window in 2002, and revised in 2006 and 2010, have demanded better insulation values. Although some advances have been made in window framing, the major improvements have been in the insulation values of the glass units.

Exterior condensation is an indication that the glass sealed unit is performing very effectively.