

## Air humidity has to rise very high before body feels discomfort

You can be sure that a hygrometer out of a gift shop is not good enough for determining the exact air humidity in your rooms. Your own perception also does not provide a very accurate measurement of the air humidity. Quite the contrary – the human body is often a fallible gauge for determining the air humidity and perception is often influenced by other factors like dust etc. In order to determine the air humidity, one should use a professional grade hygrometer or wet-and-dry bulb thermometer together with the relevant diagram.

## You can help increase the surface temperature of various types of windows

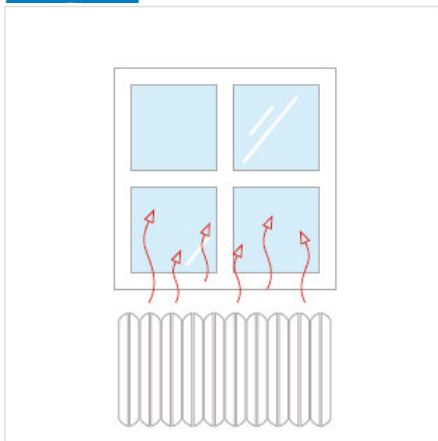
You can often help keep the temperature on the inner surface of glass as high as possible. First, you have to try and reduce the fall of cold air from the window to the floor. This can be ensured with a type of airing openings, which direct the air into the room. Then you would need to ensure a flow of warm air from a heating source and direct it upwards along the glass surface. For instance, if there is a heater underneath the window, there should not be a flower shelf above it without a sufficient gap for air between the shelf and the wall. One should also avoid curtains that would obstruct the flow of warm air along the window glass.

## Mist on windows is nothing new

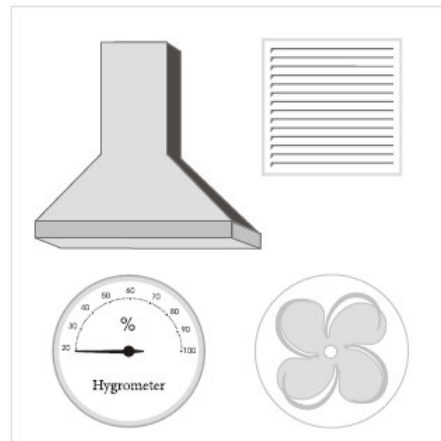
If your home has a 2- or 3-layered glass window, be it a combined window or an insulated glass window, you have a window with normal qualities. The window glass itself is the part of the wall with the poorest insulation – regardless of the type of the window and even if the glass is called “insulation glass” or “energy glass” etc. Different types of windows, basically use the same type of glass and if the conditions are adverse, problems with condensed humidity (mist) may occur on all types of window glass. If humidity condenses between the glass panes of a combined window, the air exchange between the glass panes is too low. If mist occurs between the glass panes of an insulated glass window, the seal surrounding the glass panes is leaking air and the window pane needs to be replaced. If condensed water and ice occur on the inner surface of the window glass, the air humidity in the room is probably too high (see the end of this booklet for more details on that).

## If the air temperature is too high, glass works as a water separator

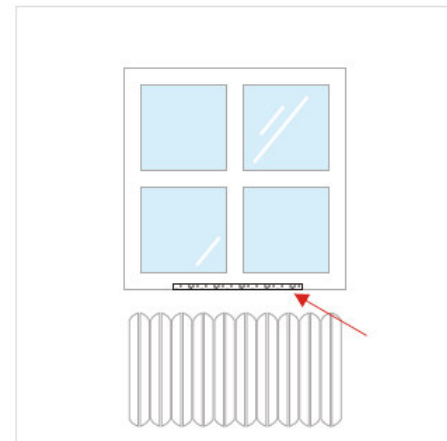
There is a metal strip installed along the edge of the glass between the glass panes of an insulated glass window. Due to this, the window pane is always colder around the edges, when the outdoor temperature is lower than the indoor temperature. The modern glass installation technique with its aluminium strips and the so-called drained and aired glazing rebates enhances the cooling effect on the outer edges of insulated glass even more when it is very cold outdoors. The air flow moving downwards along the inner surface of glass causes the lower edge of the glass to cool most. When the air humidity on the room is too high, the water steam in the air condenses on the coolest part of the glass. And if the temperature is low enough, the condensed steam turns to ice. Later, the ice melts and the water flows seeps between the window frame and the jamb or into unwanted places in the room.



Try reduce the fall of cold air from window to floor. This can be ensured with a type of airing openings, which direct the air into the room. Then you would need to ensure a flow of warm air from a heating source and direct it upwards along the glass surface.



By ventilating in accordance with Construction Regulations, we avoid excessive air humidity. There should definitely be a mechanical extraction ventilation opening above the stove. In order to determine the air humidity, use a professional grade hygrometer or wet-and-dry bulb thermometer together with the relevant diagram.



An additional ventilation function can be designed for windows. One option is to install airing channels through window sections. In such case, windows are equipped with ventilation flaps, which the users themselves can open and close. This also prevents excessively intensive air flow and the entry of flying insects.

## “I have condensation, but the neighbours don’t”

Perhaps you have discovered that you have more condensation than the neighbours. The difference mainly arises from the fact the air humidity is higher in the apartment or room where moisture occurs first. The fact that the difference is caused by the different temperatures of the outer edges of different types of insulated glass windows is of little relevance here, although distinctions can be made in some conditions. Surprisingly, it may happen that condensation starts occurring on a newly installed window, while you clearly remember that the old windows showed a lot less condensation.

Among other things, this may mean that the new windows are sealed better than the old ones, so that the ventilation in the room became considerably poorer after the old airy windows were replaced.

## Ice can break even mountains

It is important to avoid the occurrence of condensed water and ice, for we all remember from childhood school classes that ice can break mountains. Condensed water seeps between the window strip and the frame and between the frame and the seal, creating a gap when it freezes. This turns into a vicious circle with an ever increasing effect. Even if the water does not freeze, it still has a devastating effect on wood and the surface treatment.

## By ventilating in accordance with Construction Regulations, we avoid excessive air humidity

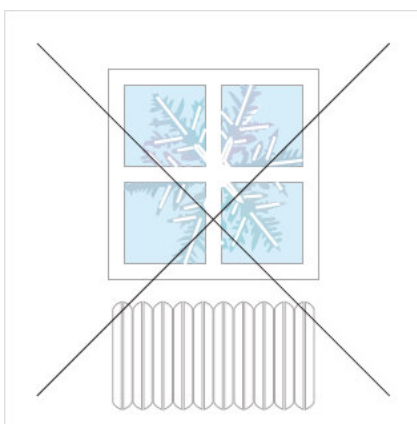
All apartments and houses are equipped with airing openings or opening windows in all rooms in accordance with regulations. In kitchens and bathrooms, these must be connected to a channel leading to the roof, or equipped with a ventilator. These airing openings must be opened during cooking and showering and doing the laundry, as these activities are likely to generate condensation on windows. The airing openings can in no circumstances be shut before the condensed moisture has disappeared. In most cases, additional airing is needed after cooking or bathing, in the form of an open window or a ventilator working at full power. It would be best, if the airing openings were kept constantly open. There must definitely be a mechanical extraction ventilation opening above the stove. In block houses where the natural ventilation is often poor on upper floors, a general mechanical extraction system must be installed on all floors.

## Is extraction from the kitchen, bathroom and washroom good? Are you drying clothes indoors?

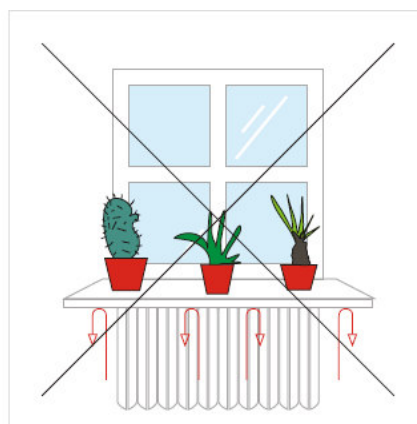
If you have condensation problems in your apartment, you should find out what could be wrong. For instance – are the airing openings in the kitchen and in the bathroom open? Is extraction through these channels somehow obstructed? Are you generating excessive air humidity in your apartment? Are you using air moisturisers? Are you washing and drying clothes in your apartment? You should wash and dry clothes in rooms built for that purpose and avoid the excessive use of air moisturisers. When the natural ventilation to the roof is poor, a mechanical extraction system should be installed, if possible .



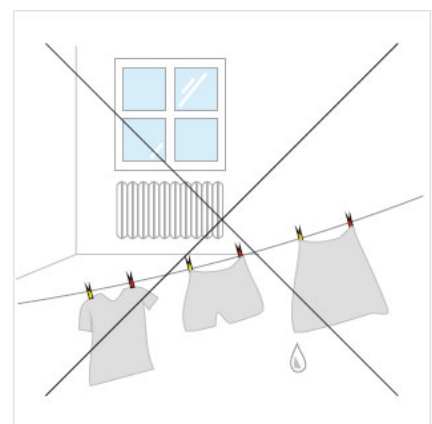
### What not to do



It is important to avoid the occurrence of condensed water and ice. Condensed water may seep between the window strip and the frame and between the frame and the seal, creating a gap when it freezes. This results in a vicious circle with an ever increasing effect. Even if the water does not freeze, it still has a devastating effect on wood and the surface treatment.



If there is a heater underneath the window, there should not be a flower shelf above it without a sufficient air gap between the shelf and the wall. The flow of warm air along the window glass is also obstructed by excessively wide window ledges as well as drawn curtains and plants placed on the window ledge.



Are you generating excessive air humidity in your apartment? Are you using air moisturisers? Are you washing or drying clothes in your apartment? You should wash and dry clothes in rooms built for that purpose and avoid the excessive use of air moisturisers. When the natural ventilation to the roof is poor, a mechanical extraction system should be installed, if possible.