

Window Condensation

A practical guide to understanding window condensation & its causes

Condensation on windows is an alarming sign of excess humidity in a home. Most people attribute this to leaky windows. Windows do not cause condensation. On the contrary, the right windows can be a great help in controlling and reducing it. Condensation is becoming more of a concern because today's homes are more air tight and energy efficient; excess humidity in the air is now being trapped inside the home. Windows are often blamed because they are the first place that condensation can be seen, but what about between the walls and in the insulation in the attic? The moisture is there too. Your windows are actually serving as a warning sign: There is excess moisture in your home and you may need to do something about it.

What causes excess humidity?

Cooking, bathing, laundering, house plants, pets, humidifiers, unvented gas heaters, and even breathing-all contribute to the moisture in your home.

How much humidity is too much?

Some humidity is necessary for comfort and health. With older houses, it was (and still is) a struggle to keep enough moisture inside the house. A little fog on the lower corners of your windows now and then probably doesn't bother you, and it shouldn't. But when condensation covers the entire window and drips down along the walls ruining paint, plaster, or wallpaper, then there is a problem.

Reducing Window Condensation Inside Your Home:

To reduce the humidity in your home, here are some simple steps you can try:

- Vent clothes dryers, gas burners, etc. to the outdoors.
- Check all ventilation equipment is adjusted properly.
- Use kitchen and bathroom exhaust fans.
- Air out the kitchen, bathroom, and laundry room during and after use by opening a window for a few minutes.
- Make sure attic louvers remain open all year round and that crawl spaces are properly ventilated.
- Consult a local heating and ventilating contractor to help determine whether ventilation is adequate.
- Ensure humidifiers are correctly set according to the outside temperature.

Reducing Window Condensation Outside Your Home:

Exterior window condensation commonly occurs during the summer when outside humidity is high. This occurs when the window glass is cooled and comes into contact with warm, humid air. You may see condensation or dew on the exterior of your window when the air becomes saturated with water and the glass is colder than the dew point outside. High outdoor humidity, little or no wind, and a clear night sky are the main conditions that cause exterior window condensation. It is more likely to occur in the morning after a cool night and will evaporate as the sun warms up the glass. Here are some simple steps you can try to eliminate exterior condensation:

- Trim shrubbery near windows or doors.
- Raise the temperature setting on your air conditioner.

Why do I see condensation near the bottom of each sash?

Remember, each window sash is a self-contained unit with a sealed atmosphere. The air in this atmosphere becomes layered just as air does in any closed space, i.e. the coldest air settles at the bottom while the warmest goes to the top. This means the glass surface will be cooler near the bottom of each sash, thus condensation will first appear on this cooler surface.

The basic principle of reducing window condensation is extremely simple. When there's too much condensation on your windows, the humidity is too high in your home. You should take the necessary steps to reduce humidity until condensation disappears.

Maximum Recommended Humidity Levels*

Outdoor Air Temp	Inside Relative Humidity
-20°F or Below	Not over 15%
-20°F to -10°F	Not over 20%
-10°F to 0°F	Not over 25%
0°F to 10°F	Not over 30%
10°F to 20°F	Not over 35%
20°F to 40°F	Not over 40%

* Source: University of Minnesota Engineering Experiment Station