

WINDOW CONDENSATION

THE COLD FACTS



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The Cold Facts

Anyone who has enjoyed a cold drink on a hot, sunny day understands condensation. You reach for your beverage, take a refreshing sip, and notice that your glass is “sweating.” Basically, the contents of the glass are cool while the outdoor air is warm and humid, creating the ideal conditions for condensation. No big deal, right? A few water droplets might land on your pants. But when a similar phenomenon happens to your home windows, it could be a cause for concern.

CLIMATE AND CONDENSATION

If you live in a colder climate, your home is subject to the opposite of the “cold drink” scenario. Warmer, more humid indoor air, compared to the temperature outside, can cause water droplets, frost and even ice to form on the inside of your windows.

More specifically, condensation occurs when the temperature of a surface – in this case, your windows – is less than its dew point temperature. The dew point temperature varies for every surface, and windows are more susceptible to condensation than other household surfaces because they tend to be the coldest part of a house. What’s more, as the relative humidity (the amount of moisture in the air) of a room increases, the dew point temperature of surfaces increase as well.

For example, when the temperature of the glass in your window is 45°F and its dew point temperature is 50°F, the result is condensation. The condensation will only evaporate when the window temperature rises to about 50°F.

In addition to obscuring your view, condensation can also do visible and invisible damage to your home. Curtains, carpets, and even the windows themselves can be affected. The structure of your home can also be compromised as moisture may permeate your walls and insulation.

A DIFFERENCE “U” CAN SEE

The good news is not every window is the same. As you have learned, increasing the temperature of the glass above its dew point temperature will eliminate condensation. On a cold day, when you would normally be heating your house, it is important to decrease the transfer of that heat through the window.



This is known as the **U-factor**; the thermal transmittance of the window. The lower the window’s U-factor rating – typically between 0.20 and 1.20 – the less warmth escapes your house, resulting in a decreased possibility of condensation forming.

The U-factor of any window product is actually determined by several factors, which work together to keep the glass condensation-free.

YOUR THREE-TIERED SOLUTION

The windows in your home are made up of three essential parts, each one with the potential to eliminate condensation inside your home. All three must be thermally efficient to prevent heat from being conducted out:

CENTER-OF-GLAZING

Multiple-glazed windows or insulating glass units are recommended over single-glazed windows for keeping condensation at bay. Additionally, energy-efficient and low-e coatings will further reduce the potential for condensation.

EDGE-OF-GLAZING

Condensation on the edge-of-glazing can likewise be reduced by choosing high performance dual-glazed or insulating glass units over single-glazed windows.

FRAME

Thermally improved framing materials such as vinyl and wood, instead of metal framing systems, reduce the chance for condensation formation.