

Window Condensation *Explained*

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Occasionally, customers express concern regarding the appearance of moisture on the inside of their new windows. We, along with other window manufacturers sometimes hear this comment when customers take ownership of a new home or upgrade their windows in an existing home. It generally occurs at the start of, and during the heating season.

One's first instinct is to blame the window. New windows are likely showing the condensation more than previous windows they have had because they are more airtight and have less air entering from the exterior. SWS Windows' air infiltration ratings are among the lowest in the industry! Air leaking in and around older windows evaporated the moisture before it could condense on the cooler glass surface. The appearance of condensation is a sign that there is excess humidity in the home and that humidity is drawn to the coolest surfaces, generally doors and windows.

Warm air holds more moisture than cold air. As the warm air cools, it cannot hold as much moisture so condensation will appear...much like a glass of ice water on a warm summer day. If temperature of the glass surface is below the dew point (the temperature at which moisture condenses), then the water vapor turns to visible drops of liquid.

Each window sash houses a sealed piece of insulated glass. That insulated glass, in essence becomes its own atmosphere, and the air within becomes layered. Warm air rises, and because humidity is attracted to cooler air, condensation will be more prevalent near the bottom of each sash. As the temperature outside the home drops, the inside surface of the insulated glass will also get colder and condensation will form at a lower relative humidity than on warmer days. In other words, the colder the air outside, the more likely condensation is to occur on the inside. Interior relative humidity should be at 40% or lower on colder days!

The focus should be on sources of indoor moisture. Vegetation, humidifiers, cooking, laundry, baths and showers are all contributing sources. Sometimes simply venting the area, or opening window treatments to allow for more air circulation will take care of the issue. In new construction, the wood, drywall, plaster and concrete all emit moisture as these materials acclimate and dry out over time. Moisture resulting from new construction can take up to a year or longer to dissipate.

Condensation can form on the exterior of windows, particularly during the autumn months. It confirms that the windows are doing a good job of keeping heat in the building. It is similar in nature to the interior condensation that we see manifest during the winter months. In this situation however, the cold spot on the window is on the exterior of the glass, and the condensation proves that the heat is being retained rather than lost. The condensation will evaporate once the external temperature rises.

Moisture condenses out of the air onto a cold surface that is below the dew point. The dew point varies with the air temperature and the amount of moisture it contains. In the spring and fall, the glass temperature can fall to a low level during the night and the dew point can be comparatively high during these seasons. The glass is more likely to be below the dew point in these conditions, so the moisture condenses onto the surface. With rain, excessive humidity and a corresponding temperature drop, conditions can be ideal for this phenomenon to occur.

Waiting a few days to see if this situation continues is often the most prudent approach. With a change in atmospheric conditions, the glass will clear and exterior condensation may not appear again until the exact conditions once again prevail. If the moisture is on the exterior of the glass only, there's nothing to worry about!