



Questions about Windows and Condensation?

NFRC Has the Answers

In today's market, architects, builders, and consumers have the opportunity to choose among many different windows. In colder climates that have a heating season, many home and building owners may have concerns regarding the formation of condensation on the inside of their windows.

What is Condensation?

Condensation is a formation of liquid water or ice on a cold surface. This is caused when the surface temperature is lower than its dew point temperature.

The dew point temperature of any surface is directly related to the amount of moisture that is in the air, known as relative humidity. It is also related to the temperature of the air in the room. As the relative humidity in a room increases, the dew point temperature also increases, which means that a surface is more likely to show condensation at warmer temperatures. For example, bathroom and kitchen areas typically have higher relative humidity conditions.

How is Condensation on Windows Reduced?

In order to reduce the formation of condensation on windows, it is important to decrease relative humidity, and increase the surface temperature above the dew point temperature.

Relative humidity can be decreased through the use of exhaust fans, ceiling fans, dehumidifiers, or opening of windows and doors.

Window surface temperatures can be increased by reducing the amount of heat transfer through the window. The measurement of heat transfer through the window is known as U-factor. The lower the U-factor, the lower the potential that condensation will form on a surface of the window.

What is Condensation Resistance rating?

NFRC has developed a standardized methodology for determining the potential formation of condensation on a window – called Condensation Resistance. Condensation Resistance is reported on a scale of 1 to 100. The higher the number, the better a product is at resisting condensation.

It should be noted that NFRC only reports condensation formation on the inside surfaces of the windows. In the real world, environmental conditions vary from the standardized environmental conditions used to determine Condensation Resistance. **This standard (NFRC 500) is not meant to predict condensation; rather it is meant to be a tool for rating and comparing window products and their potential for condensation formation.**

Both U-factor and Condensation Resistance may be found on the NFRC label, or supplied by the window manufacturer.

NFRC has additional information for selecting energy efficient windows on its Web site www.nfrc.org. Of special interest, see the *NFRC Certified Products Directory*, which lists hundreds of manufacturers and thousands of products authorized for certification by NFRC. If you need further information, contact our offices in Maryland (301-589-1776) or Kansas (785-862-1890).