Questions about Windows and Condensation?

NFRC Has the Answers
In today's market, there are so many window products to choose from it can be overwhelming. Fortunately, the National Fenestration Rating Council (NFRC) has developed a rating system and label that allow consumers to understand how the product performs in several areas and provides a fair, uniform method for comparing products. In addition to ratings for U-factor, Solar Heat Gain Coefficient (SHGC), Visible Transmittance (VT), and Air Leakage ([AL] -- see www.WindowRatings.org for more information on these ratings), NFRC also has an optional rating for Condensation Resistance. In 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. Condensation on window surfaces can reduce visibility and, in some cases, damage curtains, walls, carpets, and even the window itself.

What is Condensation?
Condensation, which can appear as a light coating of water or frost, forms on any surface when the temperature of that surface is less than its dew point temperature. For example, if the temperature of the glass in a window is 50°F and the dew point temperature for the glass is 55°F, condensation will form on the surface of the glass. The dew point temperature of any surface is directly related to the amount of moisture that is in the air (relative humidity). It is also related to the temperature of the air in the room, which is known as ambient air temperature. As the relative humidity in a room increases, the dew point temperature also increases, which means that a surface is more likely to show moisture even at warmer temperatures. As the relative humidity starts reaching levels near 100%, moisture will form on almost any surface, no matter what the temperature of that surface. For example, bathroom and kitchen areas typically have higher humidity conditions at certain times of the day. On the other hand, surfaces in living or working areas, where the relative humidity is low, have lower chances for the formation of condensation.

How to Stop Condensation on Windows
To increase the resistance of windows to the formation of condensation, it is important to maintain the surface temperature of the window above the dew point. To accomplish this, manufacturers must reduce the amount of heat that transfers through a window, which is called the thermal transmittance or U-factor of the overall window product. The lower the U-factor of a window, the better the window is at keeping heat inside the room and the lower the potential that condensation will form on a surface of the window unit.

NFRC recognizes three parts to a window: the center-of-glazing, the edge-of-glazing, and the frame. Heat from inside the house will conduct its way through the
NFRC administers an independent, uniform rating and labeling system for the energy performance of fenestration products, including windows, curtain walls, doors, and skylights.

For more information on NFRC, please visit our Website at www.nfrc.org or contact NFRC directly at 301.589.1776.