

## Understanding Condensation

Ever wonder why condensation forms on your windows—and what you can do to prevent it? Below is a collection of questions and answers designed to provide you with a better understanding of condensation and how you can minimize it.

### **What causes exterior condensation?**

Exterior condensation occurs when moist air comes into contact with cool surfaces, such as glass. This type of condensation appears when the dew point in the air is higher than the temperature of the glass. This occurs when a cool night follows a warmer day, most typically during the spring and fall seasons.

### **How does low-emissivity (Low-E) glass affect exterior condensation?**

Low-E glass reduces heat conducted through the glass from the warm interior of the home to the outside glass surface. Heat conduction can be reduced by as much as 50 percent with an efficient Low-E coated glass. This reflected heat energy reduces the outside glass temperature and can result in condensation on the glass. Exterior condensation is actually an indication that the insulating glass in the window is performing as it should.

### **What causes condensation between the panes of Glass?**

If your windows have condensation between the panes of glass, the windows seals have failed or are damaged and need to be replaced.

### **What causes condensation on the inside (interior home) glass surface of windows?**

Whenever there is excess humidity in a home, it manifests itself in the form of condensation on the coldest area of a wall, which is normally the windows. The warmer the air, the more moisture it will retain, so when air in your home comes in contact with the colder glass surface, it is subsequently cooled and moisture is released in the form of condensation on the glass.

### **Do windows cause condensation?**

No, condensation on windows is not the fault of the window. However, by

replacing drafty windows and doors or installing a new roof or siding, you are reducing air flow in your home and making it *tighter*. Tighter homes actually retain more humidity.

### **Where on a window does condensation normally form and why?**

Condensation often forms at the meeting rail and at the bottom of the lower sash on the interior of the glass. This is because when warm air cools, it falls down across the interior surface of the window at the same time the temperature of the air is falling. The air contacts the horizontal surface of the meeting rail, which acts like a dam, slowing the air's rate of fall and creating the perfect opportunity for the trapped water vapor to escape and form on the meeting rail's surface. The air then rolls over the edge of the meeting rail and again gains speed until it encounters the lower handle of the sash. At this point, the water vapor again makes its exit and lies at the bottom of the sash.

### **Can I reduce the condensation on my windows?**

Yes. In order to reduce condensation, humidity must be controlled and air movement must be generated. As the exterior temperature drops, the humidity level needs to decrease if condensation is to be controlled.

### **What steps can I take to reduce humidity in my home?**

The two main things you can do are to control sources of moisture and increase ventilation. To decrease or control excess humidity and condensation:

- Use exhaust fans in your kitchen, laundry and bathrooms.

- Vent gas burners, clothes dryers, etc. to the outdoors.

- Shut off furnace humidifiers and other humidifying devices in your home.

- Be sure that the ventilating louvers in your attic, basement or crawl spaces are open and amply sized.

- Open fireplace dampers to allow an escape route for moisture-laden air.

- Air out your house a few minutes each day.