

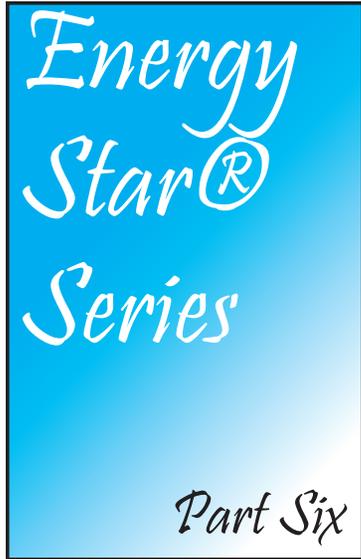
Understanding Energy Star: Windows

By Stacey Hawkins

Many people know that buying an Energy Star® home will save them money on their utility bills, and reduce the negative impact they have on the environment, but to understand why Energy Star homes are the way to go when purchasing a home, it's vital to understand what makes these homes truly more efficient.

Despite the popular myth that creating an Energy Star home is all about increasing a home's insulation, an Energy Star home is essentially a system, made up of many different components that work together to achieve not only energy efficiency, but a healthy, comfortable home.

Throughout the *Understanding Energy Star* series, Victor Fiume, general manager of The Durham Group and past president of the Ontario Home Builders' Association (OHBA) will explain the components that create an Energy Star Home, including Proper Sealing of the Outside Walls and Roof, Furnaces, Heat Recovery Ventilators (HRVs), Windows, Appliances, Below and Above Grade Insulation, Framing Techniques, Furnace Ducting and Return Air Systems, and Passive Solar Energy Techniques. Homeowners in the resale market can also reap the benefits of energy efficiency by incorporating some of the components



into their homes.

This week, the focus is on windows.

Windows are inherently inefficient, energy wise, compared to walls" says Victor. "But we make those tradeoffs in order to get a more livable home."

Every window in your homes is essentially a hole in the wall, with glass separating the inside from the outside.

Even the best windows have a resistance to heat or cold rating of less than R-6, whereas walls have a rating of R-22 (the higher the number the

better). With an Energy Star home, the windows are designed to reduce the amount of heat gained and lost from the house.

Recall from previous articles that heat moves to cold so it is important that the inside panel of glass remain as warm as possible in the winter and as cool as possible in the summer to avoid the transference of heat or cold to the window.

The closer the glass is to the inside wall of the house, the better the window will perform. The heat register is typically under a window and will heat the air in front of the window, but not the air in the recessed area.

Low E windows are now mandatory under the Ontario Building Code. Low E is a coating that goes on the glass that is used to control the amount of heat coming into the house from the sun. A typical window has two panes of glass and the coating can be put on the inside of the outer pane, or the outside of the inner pane.

The coating is designed to trap the heat from the sun inside the glass, therefore keeping the air around the window warmer. If the glass has not been treated, the sun will come right through the glass, and the glass itself will remain cold.

Coating the inside panel of glass allows the sun to come into the window and warm the air, which is preferable in the winter.

Coating the outside panel deflects the heat from the sun, keeping the inside of the window cooler, which is better in the summer. Both panes can be



coated, which is called low e squared.

The window can also be filled with argon gas, which slows the flow of heat molecules inside the window. The warmer the inside pane of glass is the less likely you are to experience condensation forming on your windows.

In an Energy Star home, insulating between the window frame and the wall is also better than what is found in traditional homes.

If the insulating is not done properly, the benefits of a low e argon window will be lost. One of the greatest sources of heat loss comes from poor window installation.

Next Week: Appliances.