

Learning from the Past

Pioneers Had the Right Energy-Efficiency Mentality

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Windows & Doors

Years ago, when the American West was being settled, pioneers started preparing for the harsh winters during summer. If they didn't chop enough firewood during the warm months, they wouldn't have enough to make it through the cold season. With survival at stake, they took energy planning seriously.

Now that Summer 2010 is here, the same principles used hundreds of years ago are still as important as ever. It's time to look ahead to next winter. Today's energy-efficiency planning is a year-round endeavor, as heating and cooling costs don't take time off. That's why homeowners are looking to you to provide window and door solutions that fit with a sound energy plan.

Conservation and efficiency haven't always been buzzwords in the homebuilding community. The technology we have today to manufacture energy-saving homes has progressed significantly in the past 40 years. For example, the winner of JELD-WEN's recent Utility Bill Bailout Contest lives in a 1970s ranch-style home in Katonah, New York, that was one of the most inefficient we had ever seen. The old windows were so thin that the residents kept the drapes closed almost all year, in an attempt to conserve heat. A transom above a door turned out not to be a window at all, but rather just a thin pane of glass installed in the opening. The house was freezing and the owners were at the end of their rope.

This spring, we installed new windows and doors in the home and will be tracking the energy savings the couple achieves this coming winter. Our

prediction is that it will be significant, as the previous year's contest winners realized a 50% reduction in their heating oil bill after an energy makeover.

The overall point is that there are millions of homes in the United States like our winners that could benefit from better energy planning and a little of the pioneering mentality. Estimates put the number of inefficient, single-pane windows in American homes at about a billion. One billion! That's a lot of wasted energy that could otherwise be saved.

So now is the time to think like a pioneer and concentrate on energy going forward. How can you make your projects more energy efficient? Here are a few frequently asked energy-efficiency questions and answers to help you out:

- *What is low-E glass, and what role does it play in a window's efficiency?* Low-E, meaning "Low-Emissivity," is an extremely thin layer, or more commonly several layers, of metallic particles applied to the glass which, in simple terms, allows the glass to act like a sieve. Long wavelengths, or heat, are filtered out, while short wavelengths (the visible light spectrum) are allowed to pass through.
- *Are different types of windows recommended for different climates?* Yes, depending on the region of the country, there are regional energy-code requirements. There are guidelines for products in four climate zones. To be Energy Star qualified, products must be optimized to meet any area's specific demands. For example, windows in northern states should help reduce heat loss in the winter. Energy Star is a great resource for finding the requirements for specific regions of the United States, and offers an Energy Star Home Advisor page on its website to help you with your region's specifications.
- *What is U-factor and what does it mean?* U-factor is a number that represents the rate of heat loss through a window or door. The lower the

number, the greater a window resists the transfer of heat. A U-factor of 0.35 or lower represents good insulating value.

- *What is a Solar Heat Gain Coefficient and what does it mean?*

Commonly referred to as a SHGC, this attribute measures how well a window blocks heat from sunlight. It is expressed as number between 0 and 1 and the lower the SHGC the better, meaning it transmits less solar heat.

- *Are there any rebates currently available for installing energy-efficient windows?* The incentive to take action and replace older, inefficient products with high-performing models is greater than ever. Under the government's Recovery and Reinvestment Act, stimulus tax credits for qualified energy-efficiency improvements related to items including windows and doors are available for up to \$1,500. The federal requirements stipulate that qualified products must be installed between Jan. 1, 2009 and Dec. 31, 2010.

- *Should you use different types of windows in different parts of the home to maximize efficiency?* Many architects select windows for an entire house that are similar in appearance, material style, and features to achieve a consistent look. One consideration to think about is exposure. Windows facing south or west should include glass with a low solar-heat gain coefficient to reduce radiant heat from the sun.

- *What are the advantages of windows with multiple panes of glass, or insulating glass?* Multiple panes of glass offer more protection and increased energy performance. JELD-WEN offers a triple-pane window with three panes of glass and two insulating air spaces. With this glass package we can combine low-E coatings and double-up on gas fills to achieve outstanding U-value and solar heat-gain performance. Besides the obvious benefit of increased energy performance, a side benefit of triple panes is reduced sound transmission.

- *What benefits does gas between the glass panes offer?* Gas between the panes is an effective energy-saving measure. In a sealed glass

insulating unit, air currents between the two panes of glazing carry heat to the top of the unit and settle into cold pools at the bottom. Filling the space with a less conductive, more viscous, or slow-moving gas like argon minimizes the convection currents within the space, conduction through the gas is reduced, and the overall transfer of heat between the inside and outside is reduced. The result is a higher insulating value, which reduces energy costs for the homeowner.

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