



WINDOWS

Buying new and
improving existing
window performance

Your home's windows are probably the weakest part of your home's thermal barrier. If your home has single-pane windows, as almost half of U.S. homes do, consider replacing them. New double-pane windows with high performance glass (low-e or spectrally selective) are available.

When shopping for new windows, look for the National Fenestration Rating Council (NFRC) label; it means the window's performance is certified. Also, look for the Energy Star label.

In colder climates, select windows that are gas filled with low emissivity (low-e) coatings on the glass to reduce heat loss.

In warmer climates, select windows with spectrally selective coatings to reduce heat gain.

Building a new home? Offset some of the cost of installing more efficient windows by purchasing smaller, less expensive heating and cooling equipment.

If you decide not to replace your windows, there are steps you can take to improve the performance of the windows you have.

Cold climate window tips

- Install exterior or interior storm windows. The cost of new storm windows is usually about one-quarter the cost of new primary windows. Storm windows can reduce your heat loss through the windows by 25–50 percent. They should have weather stripping at all moveable joints; be made of strong, durable materials and have interlocking or overlapping joints.
- Install tight-fitting, insulating window shades on windows that feel drafty after weatherizing.
- Close your curtains at night. Open them during the day.
- Keep windows on the south side of your house clean to maximize solar gain.

Warm climate window tips

- Install white window shades, drapes, or blinds to reflect heat away from the house.
- Close curtains on south- and west-facing windows during the day.
- Install awnings on south- and west-facing windows.
- Apply sun control or other reflective films on south-facing windows to reduce solar gain.
- Sunscreens are often the least expensive window-shading option that preserves a view through the window. They must be installed on the exterior side of your windows to be effective. Sunscreens reduce the solar heating of insulated glass units.

Energy Star

Energy Star is a program developed by the U.S. Dept. of Energy (DOE) and the Environmental Protection Agency (EPA) to help consumers identify energy-efficient products and services. Visit www.energystar.gov.



If you live in a cold climate, close your curtains and shades at night. Open them during the day.

Low emissivity

Low emissivity (Low E) coatings on glazing or glass control heat transfer through windows with insulated glazing. Low-E coating is a microscopically thin, virtually invisible, metal or metallic oxide layer deposited directly on the surface of one or more of the panes of glass. The Low-E coating reduces the infrared radiation from a warm pane of glass to a cooler pane, thereby lowering the U-factor of the window. Different types of Low-E coatings have been designed to allow for high solar gain, moderate solar gain, or low solar gain. A Low-E coating can also reduce a window's visible transmittance unless you use one that's spectrally selective.

Spectrally selective

A special type of low-emissivity coating is spectrally selective. Spectrally selective coatings filter out 40 to 70 percent of the heat normally transmitted through insulated window glass or glazing, while allowing the full amount of light to be transmitted.

Spectrally selective coatings are optically designed to reflect particular wavelengths but remain transparent to others. Such coatings are commonly used to reflect the infrared (heat) portion of the solar spectrum while admitting a higher portion of visible light. They help create a window with a low U-factor and solar heat gain coefficient but a high visible transmittance.

Sources:

Wisconsin Energy Conservation Corporation, www.weccusa.org

National Fenestration Rating Council, www.nfrc.org

John Krigger, Saturn Resource Management. www.srmi.biz. Author of numerous energy efficiency books including "Surviving the Seasons and Residential Energy: Cost Savings and Comfort for Existing Buildings."

U.S. Dept. of Energy, Energy Efficiency and Renewable Energy, www.eere.energy.gov