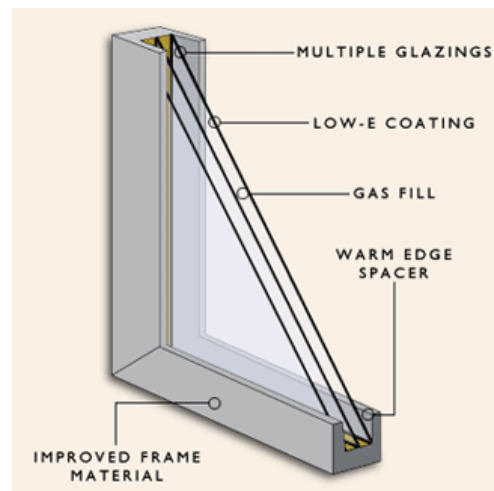


Energy Efficiency and High-performance Windows

Windows provide homes with light, warmth, and ventilation, but they can also negatively impact a home's energy efficiency. Energy costs can be reduced by installing energy-efficient windows in your home.

What Makes a Window "High Performance"?

- [Frame material and design](#)
 - Aluminum frames have high heat transfer rates and are energy inefficient
 - Fiberglass frames have low heat transfer rates and are energy efficient
- [Low-emissivity and/or solar control coatings](#)
 - Low E coatings on glazing reflect heat out during the summer and reflect heat in during the winter
- [Low conductance gas fills](#)
 - Gas fills between multiple panes minimizes convective loops and helps to reduce heat transfer between the inside and outside
- [Insulating spacer between glazings](#)
 - Spacers (and designs) which separate glazing layers are composed of materials which limit heat transfer between the inside and outside



Window Design Considerations

Before selecting windows for your home, determine what types of windows will work best and place them in locations to improve your home's energy efficiency.

- Every new window from any major manufacturer comes with an [energy performance rating](#) and a window label displaying these ratings. A window's energy efficiency is dependent upon all of its components including [frames](#), [glazing or glass](#), and [operation](#).
- Optimize [window orientation](#) in the home based on climate
- Optimize [window size/area by orientation](#)
- Optimize [shading conditions by orientation](#)

Window Selection

- ENERGY STAR® has established minimum energy performance ratings for [windows in each climate zone](#) (Prescott is Climate Zone 4). However, the ratings do not account for a home's design, such as [window orientation](#).
- Use this [window selection tool](#) as a guide in comparing energy costs in various types of windows and to [locate manufacturers](#).

Window Installation

- Energy-efficient windows must be properly installed and flashed to ensure that its energy performance is achieved and that it does not contribute to a home's [moisture problems](#) or air leakage.
- [View a slideshow](#) illustrating high-performance window design and proper installation techniques in Prescott-area residences

Benefits of High-performance Windows

Code-compliant windows, especially if ENERGY STAR qualified, offer benefits including:

- [energy cost savings](#)
 - [\(use this calculator to determine heating and cooling cost savings\)](#)
- [improved comfort](#)
- [less condensation](#) and [fading](#)
- potential for [HVAC downsizing](#)

Window Resources on the Internet

[Efficient Windows Collaborative](#)

[Dept of Energy Energy Efficiency & Renewable Energy](#)

[Building Science.com](#)

[Green Building Advisor.com](#)

[Cardinal Glass](#)