

CARDINAL LoE² GLASS

A CLEAR
difference



SUMMER

ALL-SEASON, ALL-DAY COMFORT

Indoors
daytime

Outdoors
daytime

75°



89°

Cardinal LoE² glass has patented coatings that reject the sun's heat and damaging rays.

WINTER

Indoors
nighttime

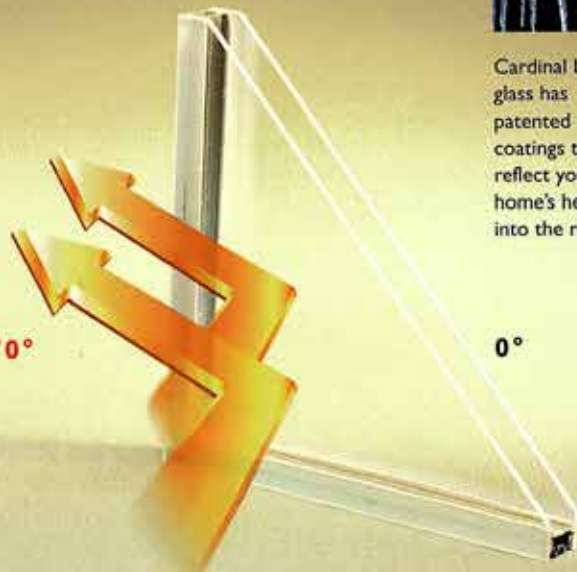
Outdoors
nighttime

70°



Cardinal LoE² glass has patented coatings that reflect your home's heat back into the room.

0°



Year-Round Savings

Although windows provide beautiful views and wonderful natural light, they can also account for up to 30 percent of the annual energy consumed in a home. Cardinal LoE² glass is designed to provide you with year-round savings and comfort by optimizing both the sun's heat and your home's heating and cooling systems. In the summer, LoE² keeps your home cool and comfortable by rejecting the sun's heat and damaging rays. In the winter, Cardinal LoE² glass helps your home stay warm and cozy by reflecting heat back into the room.

State-of-the-Art Process

In Cardinal's state-of-the-art sputter coating process, the glass is first coated with microscopically thin, optically transparent layers of silver sandwiched between layers of anti-reflective metal oxide coatings. A protective coating layer is then applied to ensure durability and scratch-resistance for long life. These invisible coatings provide the best clarity and performance of all low- and mid-emissivity glass products.

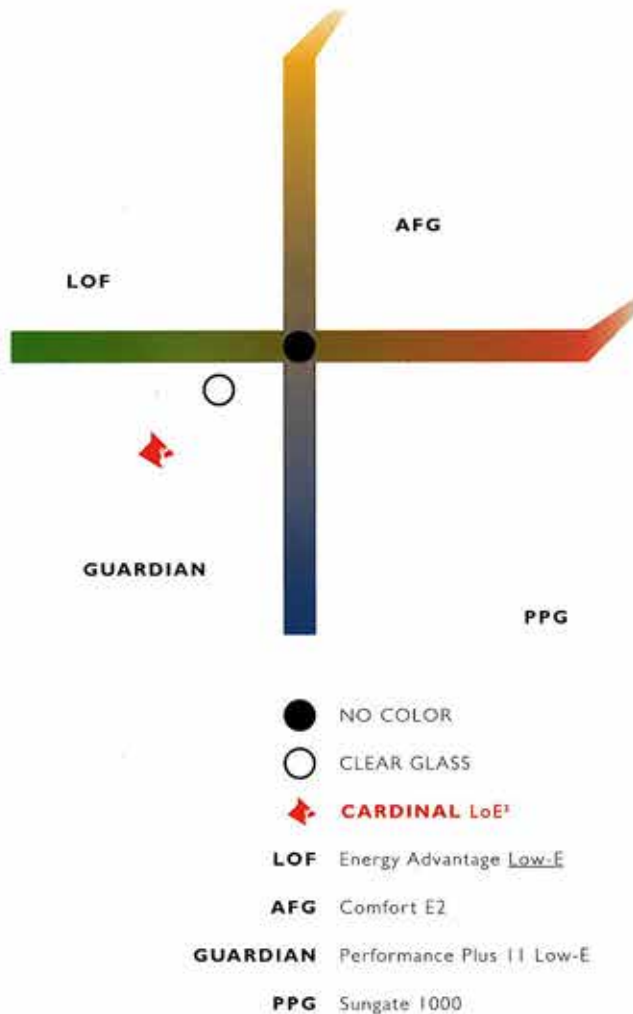
Visible Benefits; Invisible Coatings

Cardinal's LoE² patented coating blocks 84 percent of the sun's harmful ultraviolet rays and delivers a 96 percent performance improvement in winter nighttime insulation (R-value) compared to non-coated air-filled insulated glass. However, it is virtually invisible to the eye – just like looking through clear glass. In fact, Cardinal LoE² is the clearest, highest performing glass you can buy – no haze or bluish cast to mar your view like some lower-performing products. Cardinal LoE² glass even outperforms the tinted glass often used in warm, sunny climates. You see out and the sun shines in, with no heavy bronze or smoke-colored tints to darken the personality of your home.

The Clearest Glass Under the Sun

Cardinal LoE² is the clearest glass under the sun, providing you unhindered views, money savings and year-round comfort. In addition, many utility companies are now offering rebates for energy efficient window products. *So ask your contractor about Cardinal LoE² glass – clearly, the best choice.*

Outdoor Color Clarity Comparison
Cardinal LoE² versus
Clear Glass & Other Leading Brands*



* Insulating glass outdoor reflected color. Comparison based on Cardinal Field Sample Analysis.

IT'S WHAT YOU DON'T SEE
THAT MAKES US DIFFERENT.

CARDINAL LoE²

Regardless of where you live, choosing your windows is one of the most important decisions you'll make as you build or remodel your home. And choosing the right glass for your windows should be the most important factor in that decision. Why? Because the right glass can provide years of comfort and beauty while saving you hundreds of dollars on your energy bills.

The Clear Choice

Among the many glass products on the market, Cardinal LoE² is the one clear choice. With our patented coatings and superior energy ratings, Cardinal LoE² delivers the clearest, highest performing glass available today. From cold winter nights to hot summer days, you will enjoy viewing the great outdoors from the year-round, energy efficient comfort of your home. And, because Cardinal LoE² glass blocks most of the sun's damaging ultraviolet rays, it will help your curtains, carpets, furniture and wall coverings stay beautiful for years to come.

So make the choice that saves dollars and makes sense – choose windows that use Cardinal LoE² glass for your home.

Average Potential Annual Cost Savings*
(by zones)



Minimum Maximum

\$66	\$234
\$107	\$339
\$136	\$389
\$115	\$374
\$146	\$450
\$170	\$577
\$166	\$413
\$154	\$373
\$166	\$395

* Minimum savings calculated by comparing standard wood or vinyl windows using clear insulating glass with wood or vinyl windows using insulating glass, LoE² coating and gas fill.

Maximum savings calculated by comparing standard aluminum windows using single pane clear glazing with wood or vinyl windows using insulating glass units, LoE² coating and gas fill. Calculations based on average savings for a 2400 square foot home with 15% window to floor are a ratio and average energy costs.



Product Performance

(Gas - Fill)

Product	Visible Light Transmission %	Ultraviolet Light Transmission %	Winter U-Value	Solar Heat Gain Coeff.
Clear Insulating Glass	82	58	0.49	0.78
Pyrolytic Mid-E	75	47	0.30	0.72
LoE ² Insulating Glass	72	16	0.25	0.41

Shading Coefficient - (SC) The ratio of solar heat gain through a glazing to the solar heat gain through a single lite of 1/8" (3mm) clear glass. The lower the number, the better the glazing is at preventing solar gain.

Solar Heat Gain Coefficient - (SHGC) The amount of solar radiation which enters a building as heat. The lower the number, the better the glazing is at preventing solar gain.

Emissivity - A measure of a surface's ability to emit long-wave infrared radiation of room temperature radiant heat energy. Emissivity varies from 0 (no emitted infrared) to 1 (100% emitted infrared). The lower the emissivity, the lower the resultant U-Value.

UltraViolet Light Transmission - (UV) The amount of UltraViolet Light Transmission in the solar spectrum that is transmitted through a window which can cause fading. The lower the number, the better the window system is for reducing fading potential of carpets and interior furnishings.

Damage Potential - The amount of UltraViolet Light and Visible Light Transmission which is transmitted through a window which can cause fading. The lower the number, the better the window system is for reducing fading potential of carpets and interior furnishings.

U Value - This represents the heat flow rate through a window expressed in BTU/hr/ft²/F. using winter weather conditions of 0 degrees outside and 70 degrees inside. The smaller the number, the better the window system is at reducing heat loss.

Cardinal actively supports and participates in The National Fenestration Rating Council (NFRC).

