Passive Solar Control Glass

CARDINAL CG
A CARDINAL GLASS INDUSTRIES COMPANY

ENGINEERING THE FUTURE OF COATED GLASS

When the weather turns frigid, Cardinal LoĒ-180™ glass is the perfect cold remedy. It keeps homes warmer and more comfortable by blocking heat loss to the outside and letting the sun's heat stream in. With a glass U-Factor of just 0.26 and an SHGC of 0.69, LoĒ–180 is the ideal product for passive solar applications. It extends a warm welcome home while achieving the highest ER values.

Regardless of where your home is located, choosing windows that provide you with the highest level of comfort and energy savings year-round is extremely important. And choosing the right glass for your windows is the most important factor in the decision. Go beyond ordinary low-e glass – choose Cardinal LoĒ-180, the ideal choice for passive solar designs.

During cold weather, the insulating effect of your windows has a direct impact on how your rooms feel. Typically, 75% of the exposed surface of a window is glass, and the temperature of the room side of the glass directly affects the air temperature in the room. The better insulated the window glass, the warmer your room will be.

INSIDE GLASS AND OUTSIDE TEMPERATURES

The table below compares the room-side center of glass temperatures of different glass types against two different winter conditions.

IG TYPE AND COATING	OUTSIDE TEMPERATURES	
	VERY COLD OUTSIDE -20ºF (-30ºC)	COLD OUTSIDE 20ºF (-10ºC)
	INSIDE TEMPERATURES	
Single-pane, Clear	0ºF (-19ºC)	31ºF (-3ºC)
Double-pane, Clear	37ºF (2ºC)	51ºF (9ºC)
Ordinary low-e (air fill)	46ºF (7ºC)	57ºF (13ºC)
LoĒ-180 (air fill)	**48ºF (9ºC)**	**58ºF (14ºC)**
LoĒ-180 (argon fill)	**51ºF (10ºC)**	**60ºF (15ºC)**

The superior insulating capability of Cardinal LoĒ-180 is a key factor in the construction of comfortable windows for cold climates. The dramatic comfort improvement from windows with warm glass surfaces also means the relative humidity of the indoor air can be controlled and maintained properly. Proper humidity levels (not too much, not too little) will improve comfort and promote a healthier living environment.

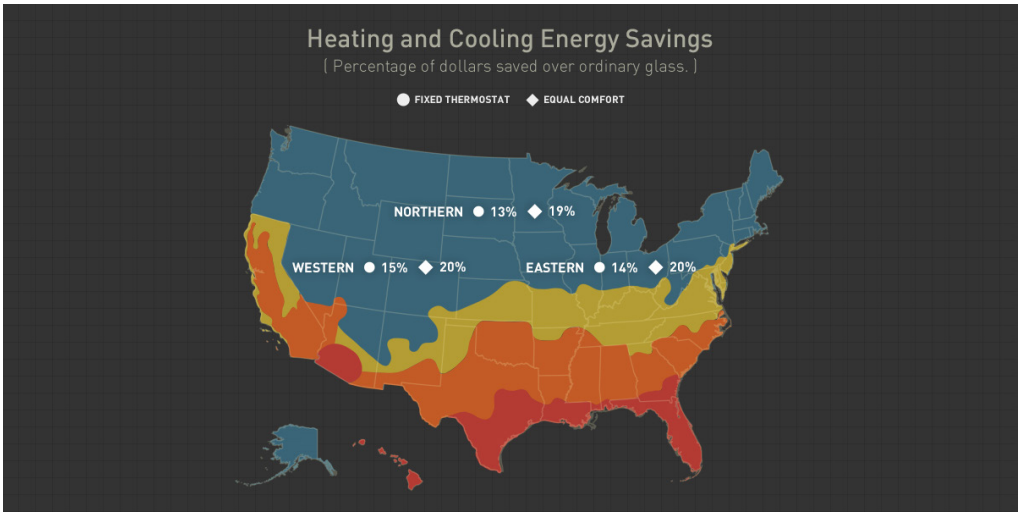
Cardinal LoĒ-180 delivers outstanding cold weather performance – its insulation value is excellent with a low 0.26 U-Factor. And with an SHGC of 0.69, it lets the winter sun's heat pass into the home. It also blocks 71% of the sun's harmful UV rays. While blocking out the cold and UV rays, it lets the daylight stream in – more light than ordinary low-e glass.

Our unique coating stops thermal loss.

Cardinal employs a state-of-the-art sputter coating process that is unmatched by any other glass manufacturer. The glass is coated with a microscopically thin, optically transparent layer of silver sandwiched between layers of anti-reflective metal oxide coatings. A protective coating is applied to assure durability and long life. The coating is virtually invisible to the eye – it's just like looking through clear glass.

Glass so smart, it controls comfort.

Although windows provide beautiful views and wonderful natural light, they can also account for up to 50% of the heating and cooling energy consumed in a home. In the winter, Cardinal LoĒ–180 helps your home stay warm and cozy by blocking heat loss to the cold weather outside. Summer solar gain is about 10% less than ordinary double pane clear glass and the low U-Factor blocks heat gain from the hot weather outside. In short, it can save energy year-round.



** Thermostat settings are the largest variable in establishing the heating and cooling energy savings potential with window replacements. If you tolerate the discomfort from your current windows and don't change thermostat settings with the weather, consider the savings suggested from the "Fixed Thermostat" column. If on the other hand you frequently adjust the thermostat, add space heaters to compensate for cold rooms, or close drapes/blinds to block the sun, consider the additional savings suggested in the "Equal Comfort" column.*

GLASS COMPARISONS

IG TYPE AND COATING	VISIBLE LIGHT			FADE TRANSMISSION		SOLAR	U-FACTOR	
	TRANSMITTANCE	EXTERNAL REFLECTANCE	INTERNAL REFLECTANCE	UV	ISO	HEAT GAIN COEFFICIENT	AIR FILL IP / SI	ARGON FILL IP / SI
Single-pane, Clear	90%	8%	8%	0.71	0.84	0.86	1.04 / 5.91	—
Double-pane, Clear	82%	15%	15%	0.58	0.75	0.78	0.48 / 2.73	—
Ordinary low-e	76%	17%	17%	0.50	0.68	0.72	0.34 / 1.93	0.30 / 1.70
LoĒ-180	**79%**	**15%**	**15%**	**0.28**	**0.62**	**0.68**	**0.31 / 1.76**	**0.26 / 1.48**

LoĒ-180 always exceeds expectations.

Cardinal I.Q. (Intelligent Quality Assurance Program) ensures the quality of every piece of glass. Using our own patented inspection systems, we thoroughly examine the glass from start to finish.

LoĒ-180 can be purchased in hurricane-resistant laminated glass, as well as in a variety of shapes and sizes.

To learn more about LoĒ-180 and other Cardinal Glass products, ask your window manufacturer, contractor or architect.

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