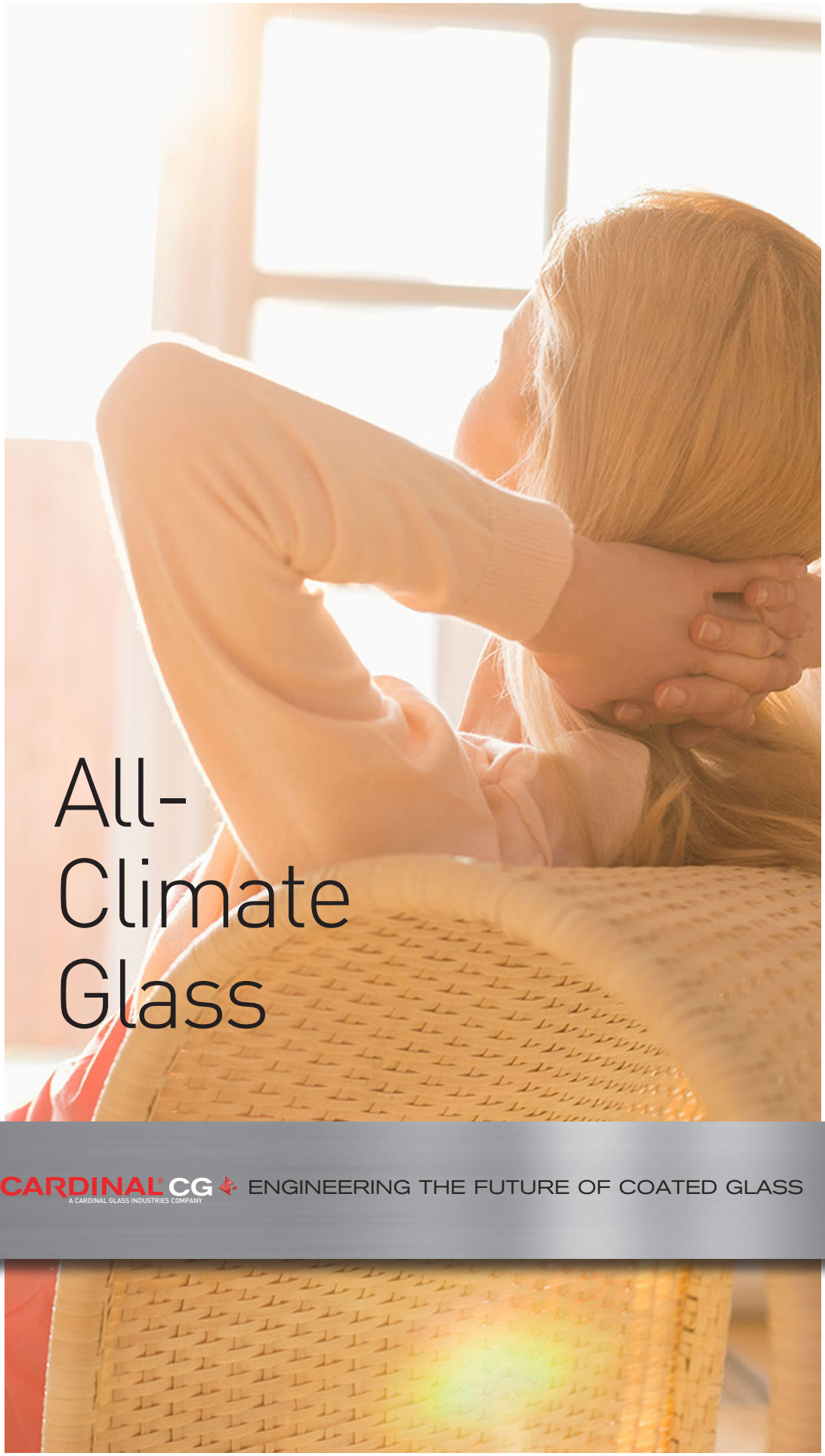


All-Climate Glass

CARDINAL CG
A CARDINAL GLASS INDUSTRIES COMPANY

ENGINEERING THE FUTURE OF COATED GLASS

Who says you can't do anything about the weather? Cardinal's LoĒ² coated glass delivers year-round comfort in all types of weather. In summer, it rejects the sun's heat and damaging UV rays. In winter, it reflects heat back into the room.

Cardinal LoĒ² glass includes two variations, LoĒ²-272 and LoĒ²-270. LoĒ²-272 offers a little more light transmittance, while LoĒ²-270 gives a little more solar control.

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 that decision. Go beyond ordinary low-E glass. Let LoĒ² glass help you handle the weather – any weather.

When the temperature is heading to the top of the thermometer, ordinary window glass simply welcomes in the heat. Cardinal LoĒ², however, has been specially formulated to reject the sun's heat and damaging rays and keep your home cool and comfortable.
The patented LoĒ² coating provides high-performance solar control and visual clarity. The end result of all this engineering is that Cardinal LoĒ² provides the ultimate in comfort because it reduces window heat gain by 50% or more when compared to ordinary glass.

Frigid outside, cozy inside.

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.

In fact, the Efficient Windows Collaborative (www.efficientwindows.org) suggests that when glass surface temperatures fall below 52°F, there is a risk of thermal discomfort. To maintain the best comfort during the winter, select a glass product that produces surface temperatures that will stay above this point during the coldest outdoor conditions.

INSIDE GLASS AND OUTSIDE TEMPERATURES

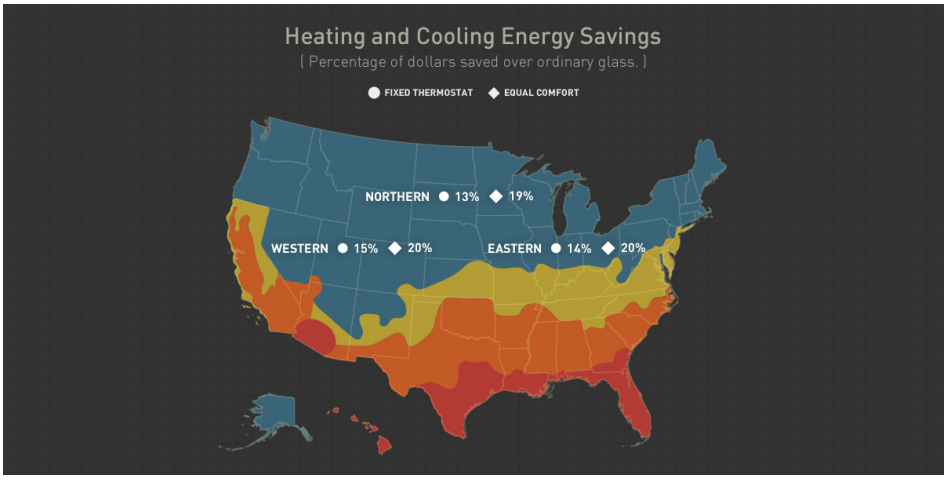
The table below compares the room-side center of glass temperatures of different glass types against two different winter conditions.

IG TYPE AND COATING	OUTSIDE TEMPERATURES	
	VERY COLD OUTSIDE -20°F (-30°C)	COLD OUTSIDE 20°F (-10°C)
	INSIDE TEMPERATURES	
Single-pane, Clear	0°F (-19°C)	31°F (-3°C)
Double-pane, Clear	37°F (2°C)	51°F (9°C)
Ordinary low-e (air fill)	46°F (7°C)	57°F (13°C)
LoĒ²-272/270 (air fill)	**49°F (9°C)**	**58°F (14°C)**
LoĒ²-272/270 (argon fill)	**52°F (10°C)**	**60°F (15°C)**

The superior insulating capability of Cardinal LoĒ² glass 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.

Glass so smart, it controls your 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 summer Cardinal LoĒ² keeps your home cool and comfortable by rejecting the sun's heat and damaging rays. In the winter it helps your home stay warm and cozy by blocking heat loss to the cold 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	
	TRANSMIT-TANCE	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
LoĒ²-272	**72%**	**11%**	**12%**	**0.16**	**0.55**	**0.41**	**0.30 / 1.70**	**0.25 / 1.42**
LoĒ²-270	**70%**	**12%**	**13%**	**0.14**	**0.53**	**0.37**	**0.30 / 1.70**	**0.25 / 1.42**

The difference is clear.

Cardinal LoĒ² glass is ideal for all weather conditions in most climates. In summer, its patented coating blocks 86% of the sun's harmful ultraviolet rays and 63% of the sun's heat. It even outperforms the tinted glass often used in warm climates. You can see out and the light shines in, with no heavy bronze or smoke colored tints to darken the personality of your home. In winter, it reflects heat back into rooms.

LoĒ² glass can also be purchased in hurricane-resistant laminated glass and in a variety of shapes and sizes.

To learn more about LoĒ² and other Cardinal glass products, ask your window manufacturer, contractor or architect.

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