


All- climate glass



CARDINAL CG  ENGINEERING THE FUTURE OF COATED GLASS
A CARDINAL GLASS INDUSTRIES COMPANY



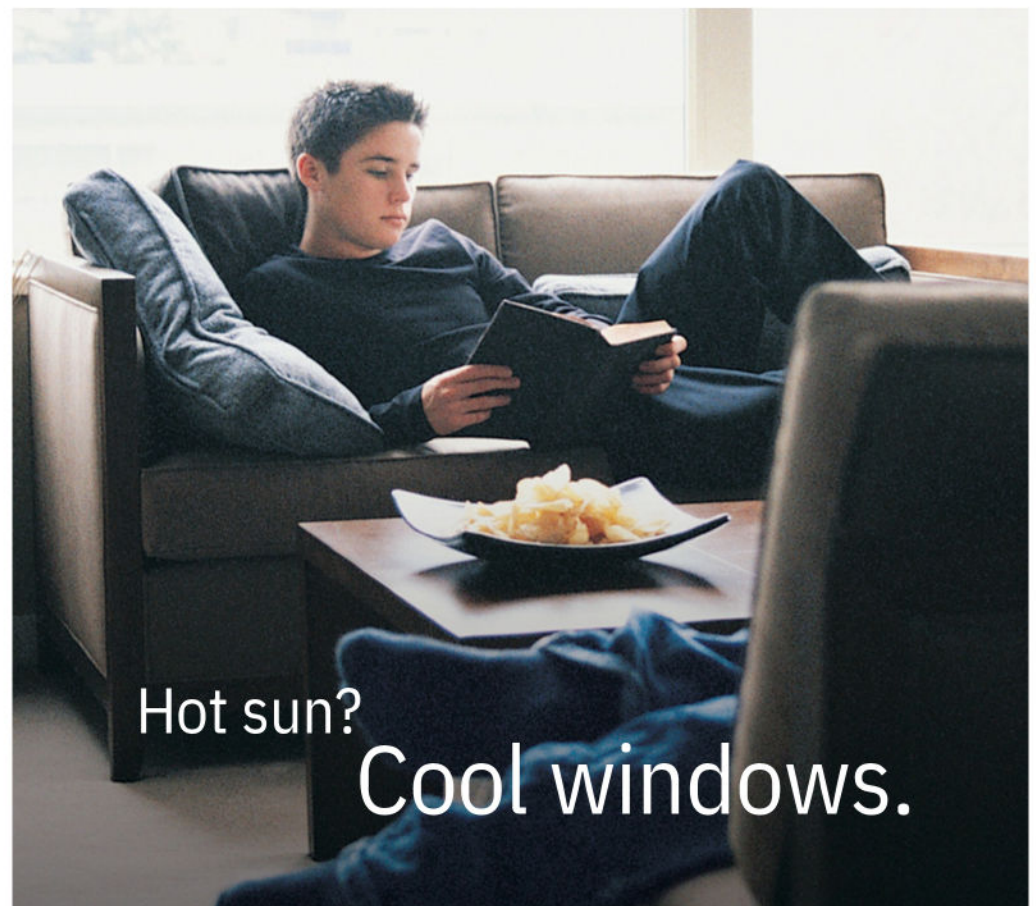
Who says you can't do anything about the weather? Cardinal LoE² coated glass provides year-round comfort in all types of weather. In summer, it rejects the sun's heat and damages UV rays. In winter, it reflects heat back into the room.

Cardinal LoE² glass comes in two variants, LoE²-272 and LoE²-270. LoE²-272 offers slightly more light transmission, while LoE²-270 provides slightly 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 LoE² glass help you handle the weather – any weather.

When the temperature rises, ordinary glass simply lets the heat in. Cardinal LoE², however, has been specially formulated to reject the sun's heat and damaging rays, keeping your home cool and comfortable. The patented LoE² coating provides high-performance solar control and visual visibility. The end result of all this engineering is that Cardinal LoE² provides the ultimate in comfort by reducing window heat gain by 50% or more compared to ordinary glass.



Hot sun?
Cool windows.

Cold outside, comfortable inside.

In cold weather, the insulating effect of your windows has a direct impact on the temperature in your rooms. Typically, 75% of a window's exposed surface is glass, and the temperature on the inside of the glass directly affects the air temperature in the room. The better the insulation, the warmer your room will be.

Indeed, the Efficient Windows Collaborative (www.efficientwindows.org) suggests that when the glass surface temperature falls below 52°F, there is a risk of thermal discomfort. To maintain optimal comfort during winter, choose a glass product that produces surface temperatures that will remain above this point during the coldest outdoor conditions.



INDOOR AND OUTDOOR TEMPERATURE

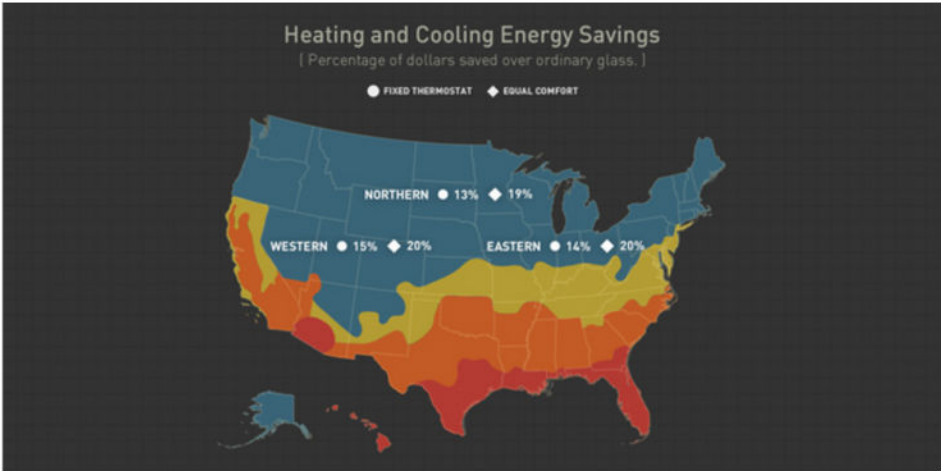
The table below compares the room-side center of glass temperatures of different glass types against two different winter conditions.

GLASS TYPE AND COATING	OUTSIDE TEMPERATURES	
	VERY COLD OUTSIDE -20°F (-30°C)	COLD OUTSIDE 20°F (-10°C)
	INDOOR TEMPERATURES	
Single panel, transparent	0°F (-19°C)	31°F (-3°C)
Double panel, transparent	37°F (2°C)	51°F (9°C)
Regular Low-e (air-filled)	46°F (7°C)	57°F (13°C)
LoE ² -272/270 (air-filled)	49°F (9°C)	58°F (14°C)
LoE ² -272/270 (argon filled)	52°F (10°C)	60°F (15°C)

The superior insulating capacity of Cardinal LoE² glass is a key factor in building comfortable windows for cold climates. The dramatic improvement in window comfort with warm glass surfaces also means that indoor relative humidity can be properly controlled and maintained. Proper humidity levels (not too much, not too little) will improve comfort and promote a healthier living environment.

Glass is so smart, it controls your comfort.

While windows offer beautiful views and wonderful natural light, they can also account for up to 50% of the heating and cooling energy used in a home. In the summer, Cardinal LoE² keeps your home cool and comfortable by rejecting the sun's heat and harmful rays. In the winter, it helps your home stay warm and comfortable by blocking heat loss to the cold outside. In short, it can save energy all year round.



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

GLASS COMPARISONS

GLASS TYPE AND COATING	VISIBLE LIGHT			TRANSMISSION WEAKENING		SOLAR	U-FACTOR	
	TRANSMISSION	EXTERNAL REFLECTION	INTERNAL REFLECTION	UV	ISO	HEAT GAIN COEFFICIENT	IP/SI AIR FILLING	ARGON FILLING IP/SI
Single panel, transparent	90%	8%	8%	0.71	0.84	0.86	1.04 / 5.91	—
Double panel, transparent	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
LoE2-272	72%	11%	12%	0.16	0.55	0.41	0.30 / 1.70	0.25 / 1.42
LoE2-270	70%	12%	13%	0.14	0.53	0.37	0.30 / 1.70	0.25 / 1.42

La différence est évidente.



Cardinal LoE² verre est idéal pour toutes les conditions météorologiques dans la plupart des climats. En été, son revêtement breveté bloque 86% des rayons ultraviolets nocifs du soleil et 63% de la chaleur du soleil. Il surpasse même le verre teinté souvent utilisé dans les climats chauds. Vous pouvez voir dehors et la lumière brille dedans, sans le bronze lourd ou les teintes de couleur fumée pour assombrir la personnalité de votre maison. En hiver, il renvoie la chaleur dans les pièces.

Le verre LoE² peut également être acheté en verre feuilleté résistant aux ouragans et dans une variété de formes et de tailles.

Pour en savoir plus sur LoE² et autres produits en verre Cardinal, contactez votre fabricant de fenêtres, entrepreneur ou architecte.

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