Enhanced Winter Performance Glass

LoE 189

CARDINAL CG
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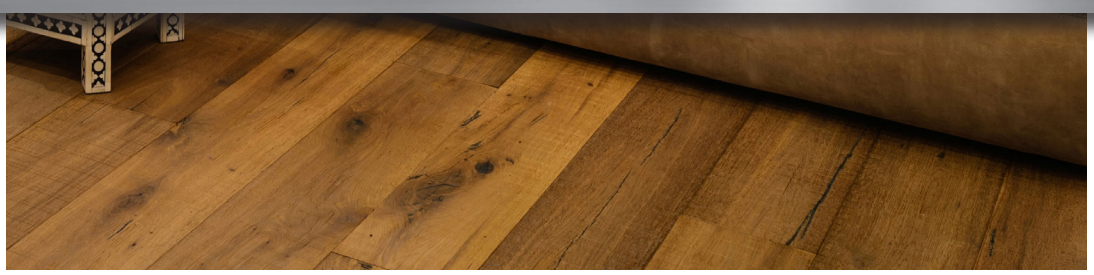
ENGINEERING THE FUTURE OF COATED GLASS



Introducing LoĒ-i89™, our new energy-saving 4th surface coated glass. It offers more light transmittance and less reflectance than LoĒ-i81. And it's now available in annealed making it less expensive. Yet it still delivers a center of glass U-Factor of just 0.20 when coupled with our LoĒ³ or LoĒ² glass and argon fill in a double-pane unit.

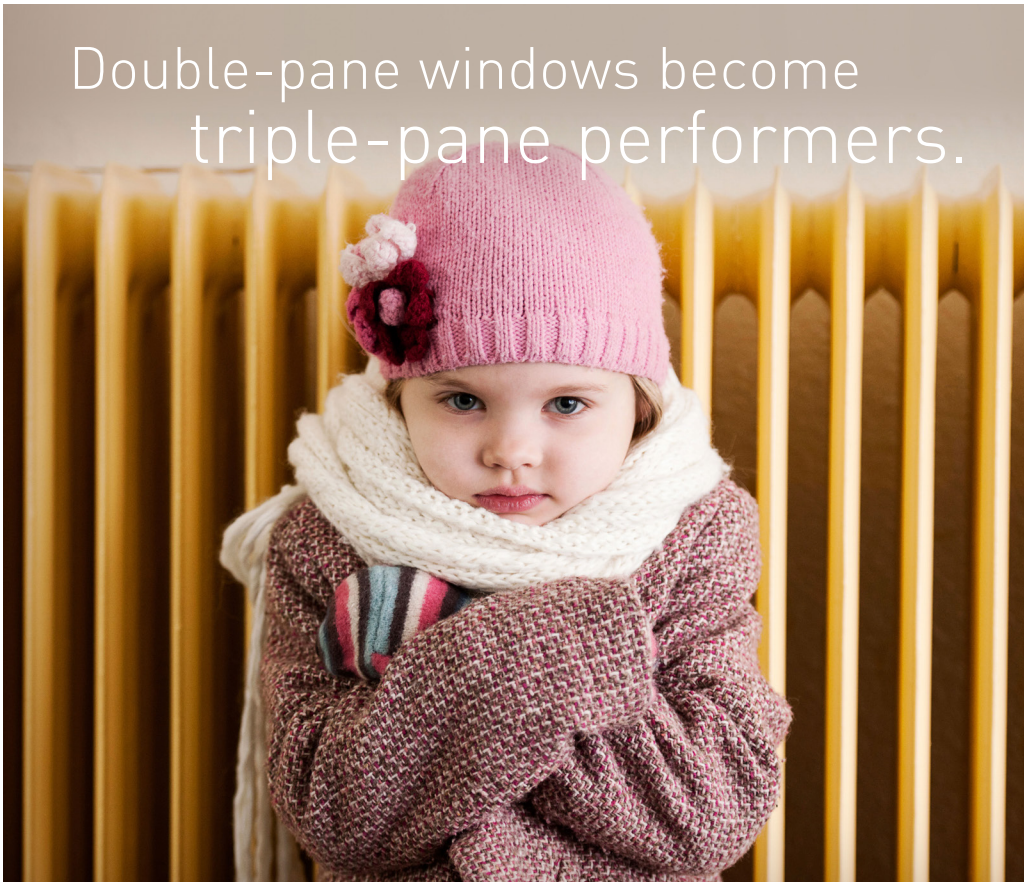
Without argon and with or without capillary tubes, the unit still delivers a U-Factor of just 0.23 – perfect for high altitudes. When LoĒ-i89 is used in conjunction with LoĒ³-366®, your windows are in compliance with ENERGY STAR guidelines across the country, including the stricter northern guidelines taking effect in 2014.

What's more, LoĒ-i89 is easy to clean and there's no haze to mar the view. That's our new LoĒ-i89, our enhanced performance glass.

There's no need to go to triple-pane windows to meet the various energy-saving guidelines. No need to invest in redesigning your windows and altering your manufacturing processes either. A double-pane IG unit with LoĒ-i89 can meet the guidelines.

LoĒ-i89 is sputtered onto the indoor lite, the #4 surface, thus reflecting escaping heat back into the room and lowering U-Factors. Coupled with our LoĒ² or LoĒ³ glass and argon fill, this double-pane unit delivers performance much better than clear triple-pane – a center of glass U-Factor of just 0.20 compared to 0.37 with clear triple-pane.

To surpass the U-Factor performance of our LoĒ-i89 double-pane unit, you would need to go to a triple-pane unit with a low-E coating in each gap.



Meets today's strictest energy efficiency guidelines.
With a center of glass U-Factor of only 0.20 (0.23 without argon) and SHGC of just 0.25, an insulating glass unit with LoĒ³-366 and LoĒ-i89 meets the most stringent energy standards – without going to a triple-pane unit. This allows you to offer more double-pane window options that can meet the proposed ENERGY STAR guidelines everywhere in the country.

The advantages are more than clear.
In addition to providing maximum energy efficiency in a double-pane unit, LoĒ-i89 offers several other customer-pleasing benefits.

Its surface is smooth and scratch resistant, making it easier to remove label residue and clean. And perhaps most importantly, there's no haze to mar the view. Rather than absorbing internal heat, LoĒ-i89 reflects it back into the room, making your living space feel warmer and more comfortable. Naturally, Cardinal IG units with LoĒ-i89 live up to the Cardinal reputation for long-range durability, delivering the industry's lowest failure rate – only 0.20% over 20 years.

Give homeowners another reason to love LoĒ-i89 units – include Neat® naturally clean glass on the outside. Your windows stay cleaner longer and clean easier. Finally, protect your windows in transit as well as on the job site with Preserve® protective film.

GLASS COMPARISONS

Double Pane with LoĒ-i89

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
LoĒ-180, LoĒ-i89	77%	15%	14%	0.27	0.61	0.62	0.24 / 1.36	0.21 / 1.19
LoĒ²-272, LoĒ-i89	70%	11%	11%	0.16	0.53	0.41	0.23 / 1.31	0.20 / 1.14
LoĒ²-270, LoĒ-i89	69%	12%	12%	0.14	0.51	0.36	0.23 / 1.31	0.20 / 1.14
LoĒ³-366, LoĒ-i89	63%	11%	11%	0.05	0.41	0.27	0.23 / 1.31	0.20 / 1.14

7/8" Triple Pane

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
LoĒ-180, LoĒ-180	70%	20%	20%	0.13	0.50	0.56	0.26 / 1.48	0.20 / 1.14
LoĒ²-272, LoĒ-180	63%	15%	18%	0.08	0.44	0.38	0.25 / 1.42	0.20 / 1.14
LoĒ²-270, LoĒ-180	62%	16%	19%	0.07	0.43	0.34	0.25 / 1.42	0.20 / 1.14
LoĒ³-366, LoĒ-180	57%	14%	18%	0.02	0.36	0.25	0.25 / 1.42	0.20 / 1.14

LoĒ-i89: a new low for window U-Factors.

LoĒ-i89 on the 4th surface of your windows allows you to get near triple-pane performance in a double-pane unit, and meet the toughest energy guidelines as well. Finally, LoĒ-i89 can be purchased in hurricane-resistant laminated glass in a variety of shapes and sizes.

To learn more about LoĒ-i89 and other Cardinal glass products, ask your contractor or architect.

FREQUENT QUESTIONS

Is LoĒ-i89 scratch resistant?
Yes. LoĒ-i89 has been extensively tested and enjoys the same scratch resistance as regular annealed glass.

How does LoĒ-i89 affect indoor condensation?
If the humidity in a home is too high, condensation can occur along the bottom edge of the window view area. Insulating glass units with a low-E coating and a warm edge spacer like Endur greatly reduce the risk of perimeter condensation. While LoĒ-i89 reflects heat back into the room, the center-of-glass surface temperature will be slightly cooler. However, the edge temperature, and ultimately the window's ability to resist condensation, is driven by the performance of the edge seal.

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