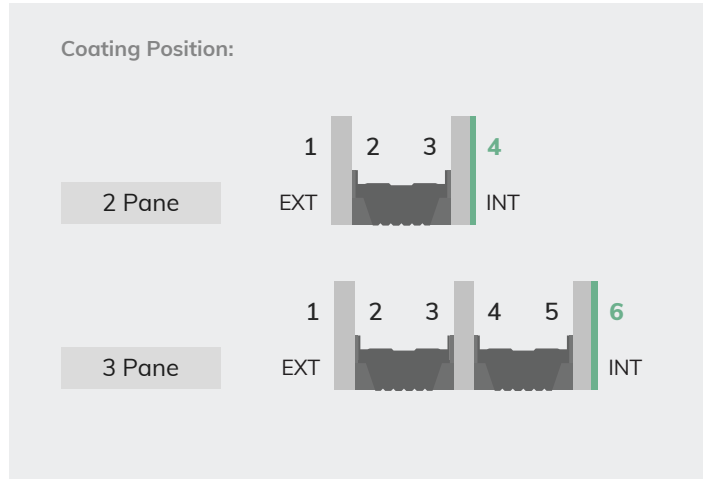
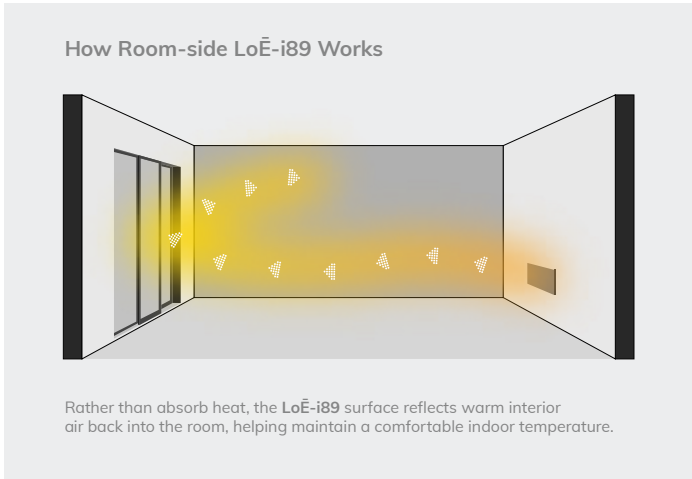


LoE-i89

Enhanced Winter Performance Glass

Cardinal LoE-i89™ is our advanced room-side coated glass offering enhanced energy efficiency. This innovative glass significantly lowers U-Factor, especially when paired with our LoE™ coatings. Its easy-to-clean, haze-free design ensures clear views, reducing the need for triple-pane windows for energy-saving compliance. LoE-i89 reflects internal heat back into the room, optimizing warmth and comfort.



Benefits of LoE-i89

- ✓ Maximum Occupant Comfort
- ✓ Low Visible Reflectivity
- ✓ High Visible Transmittance
- ✓ Enhances Regular LoE Coatings

LoE-i89 is durable, scratch-resistant, and easy to maintain. When installed in a triple-pane unit, it provides the lowest U-factors possible. It is easy to clean with any regular household cleaner.

How does LoE-i89 affect indoor condensation?

If interior humidity is too high, condensation can occur along the bottom edge of the window view area. IG units with a low-E coating and a warm edge spacer greatly reduce the risk of perimeter condensation. While LoE-i89 reflects heat back into the room, the center-of-glass surface temperature will be slightly cooler. However, the windows ability to resist condensation is driven by the indoor/outdoor temperatures and the relative humidity inside.

- Annealed / Tempered
- Custom shapes & sizes
- No Haze
- Thickness: 2.2 to 6mm
- Max dimensions: 96" x 144"
- Laminated options

Note: LoE-i89 is available as annealed, heat-strengthened or tempered glass.

ENERGY STAR 7.0

ENERGY STAR® is a program run by the U.S. Environmental Protection Agency (EPA) that promotes energy efficiency in consumer products, including windows. ENERGY STAR 7.0 is the latest version of the ENERGY STAR program's requirements for windows.

LoE-i89 can be used to meet the criteria for **all four climate zones** in either a dual or triple pane, depending on the criteria.

Whole-Window Performance Criteria

	U-Factor	SHGC	
▶ Northern	≤0.22	≥0.17	Prescriptive
	=0.23	≥0.35	
	=0.24	≥0.35	Equivalent Energy Performance
	=0.25	≥0.40	
	=0.26	≥0.40	
▶ North-Central	≤0.25	≤0.40	
▶ South-Central	≤0.28	≤0.23	
▶ Southern	≤0.32	≤0.23	



3/4" Dual Pane with 3mm Glass • 1" Triple Pane with 3mm Glass • 90% Argon

Center-of-Glass Performance

	VISIBLE LIGHT		FADING			U-FACTOR		
	Transmission	Exterior	UV	ISO	SHGC	Air Fill	Argon Fill	
						IP / SI	IP / SI	
Dual Pane	▶ Clear / LoE-180	79%	15%	29%	63%	0.69	0.31 / 1.74	0.26 / 1.49
	▶ LoE-180 / LoE-i89	77%	15%	27%	61%	0.62	0.24 / 1.37	0.21 / 1.19
	▶ LoE ³ -366 / Clear	65%	11%	5%	43%	0.27	0.29 / 1.65	0.24 / 1.37
	▶ LoE ³ -366 / LoE-i89	63%	11%	5%	42%	0.27	0.23 / 1.30	0.20 / 1.11
Triple Pane	▶ LoE ³ -366 / Clear / LoE-180	57%	15%	2%	36%	0.24	0.16 / 0.90	0.13 / 0.72
	▶ LoE ³ -366 / LoE-180 / LoE-i89	56%	15%	2%	35%	0.24	0.14 / 0.78	0.11 / 0.63

LBNL Window 7 per NFRC100 conditions. LoE-i89 can be combined with any Cardinal LoE product.



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Contact Cardinal CG to learn more about LoE-i89 and other Cardinal glass products.

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