

Thermo-Tech Glass Options

Your satisfaction is reflected in everything we do.



At the heart of Thermo-Tech® Premium Custom Windows & Doors are glass options available for a range of performance levels.

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Selecting The Right Glass

Thermo-Tech® Premium Windows and Doors offers energy-saving glass performance packages to fit a variety of needs. Each are thoroughly tested for thermal performance to the most widely recognized national standards. This ensures that our windows will provide a lifetime of reliable, energy saving performance.



GLASS

Thermo-Tech windows feature two or three panes of double-strength glass to provide superior energy efficiency and increased comfort. The spaces between the panes are filled with argon gas for optimal insulation and sound proofing.

LOĒ COATINGS

 $Lo\bar{E}$ coatings are reflective layers added to the glass to control heat transfer through the windows and can significantly reduce energy loss. An added benefit is the reduction of harmful ultraviolet (UV) and infrared (IR) light that can pass through glass and cause fading of furniture, floors, and drapes.

U-VALUE

U-value is a measure of how well the window prevents heat transmission between the inside and outside of the home. The lower the U-value, the better the window is at reducing heat loss.

R-VALUE

R-value indicates the resistance to heat flow through a window. The higher the R-value, the better the window is at reducing heat loss from the home.

SOLAR HEAT GAIN

Solar heat gain measures how well a window blocks heat caused by sunlight. The lower the window's solar heat gain, the less solar heat is allowed into the home by the window.

ENERGY STAR®

Thermo-Tech is a voluntary partner with ENERGY STAR[®], an independent government-backed program designed to help protect the environment through superior energy efficiency. (See reverse side for ENERGY STAR[®] information.)

VISIBLE LIGHT

The visible transmittance (VT) is an optical property that indicates the fraction of visible light transmitted through the window. All Thermo-Tech windows balance maximum performance and visible light.



LoĒ²272 LoĒ³366 LoĒ³366-i89 Double-Pane Visible Light Transmittance

Thermo-Tech Glass Options



HIGH PERFORMANCE LoE² 272/Argon

Double-insulated glass with a dual coating of LoE on one glass surface

Thermo-Tech windows come standard with double-pane insulated LoĒ² 272 glass featuring two panes of double-strength glass with an argon gas filled airspace for superior insulation. This option improves heating efficiency by nearly doubling the insulating power over ordinary clear glass, and blocks enough solar heat that cooling loads can be cut by 25% or more. Fading of furniture, floors, and drapes is reduced by filtering out 84% of the Sun's harmful ultraviolet rays. Thermo-Tech products utilizing this High Performance Glass meet Energy Star guidelines in casements, fixed casements, direct sets, and awnings.



PREMIUM HIGH PERFORMANCE LoĒ³ 366/Argon

Double-insulated glass with a triple coating of LoE on one glass surface

Our double-pane insulated Lo \bar{E}^3 366 heat-reflecting glass adds even more insulating power for premium thermal performance. Double-strength heat-reflecting glass with an Argon filled airspace delivers a balance of solar control, thermal performance, and high visibility to optimize home energy savings and comfort. Plus, this option provides additional fade protection by blocking 95% of the Sun's harmful ultraviolet rays. Thermo-Tech products utilizing this Premium High Performance Glass meet Energy Star guidelines in casements, fixed casements, direct sets, and awnings.



ULTIMATE HIGH PERFORMANCE LoE³ 366/Argon/i89

Double insulated glass with a triple coating of LoE on one glass surface, and one coating of i89 on the interior surface

Thermo-Tech's Ultimate High-Performance glass delivers a "twin punch". It offers all the benefits of our Premium High-Performance glass while maximizing thermal and visibility benefits, compared to other double-pane options, by adding a LoĒ i89 coating on the interior glass surface. Together this combination ensures the greatest thermal performance in all dual-pane applications. Thermo-Tech products utilizing this Ultimate High Performance Glass meet Energy Star guidelines in single hungs, double hungs, casements, fixed casements, direct sets, sliding windows, awnings, and patio doors.



Energy Guard Triple Insulated Glass (Energy Star Most Efficient)

Triple insulated glass with a triple coating of LoE on two glass surfaces

Get the maximum energy savings, comfort, ultraviolet protection, and the superior sound proofing of Thermo-Tech's Energy Guard glass. Energy Guard windows incorporate three layers of double-strength glass with LoĒ³ 366 on two glass surfaces, and two half-inch argon gas filled insulated air spaces. This option meets Energy Star's <u>Most Efficient</u> criteria in the North/Central, South/Central, and Southern Zones, and is available in casements, fixed casements, direct sets, and awnings.



Energy Guard PLUS Triple Insulated Glass (Energy Star Most Efficient) Triple insulated glass with a double coating of high-performance LoĒ on two glass surfaces

Energy Guard PLUS triple-pane glass meets Energy Star <u>Most Efficient</u> standards for many tough climates including the Northern zone. Get maximum energy savings, comfort, ultraviolet protection, and sound proofing PLUS the added solar heat-gain necessary to optimize home heating during frigid Northern winter months. Energy Guard PLUS utilizes three layers of double-strength glass with Lo^E² 272 on two glass surfaces, and two half-inch argon gas filled insulated air spaces. Energy Guard PLUS is available in casements, fixed casements, direct sets, and awnings.

Performance Data

HIGH PERFORMANCE LoE² 272/Argon

Double Insulated Glass with LoE² 272/Argon on one glass surface

ТҮРЕ	GLASS TYPE	U-VALUE	R-VALUE	SOLAR HEAT GAIN NO/GRIDS	SOLAR HEAT GAIN W/GRIDS	VISIBLE LIGHT NO/GRIDS	VISIBLE LIGHT W/GRIDS	CONDENSATION RESISTANCE	U.S. ENERGY STAR ZONES NO/GRIDS	U.S. ENERGY STAR ZONES W/GRIDS
CASEMENT	LoĒ2 272/Argon	.27	3.70	.28	.26	.48	.43	58	N, NC	N, NC
HORIZONTAL SLIDER	LoĒ2 272/Argon	.30	3.33	.33	.30	.57	.51	55	NC	NC
SINGLE-HUNG	LoĒ2 272/Argon	.30	3.33	.33	.30	.57	.50	54	NC	NC
DOUBLE-HUNG	LoĒ2 272/Argon	.30	3.33	.31	.28	.53	.47	55	NC	NC
DIRECT-SET PICTURE WINDOW	LoĒ2 272/Argon	.27	3.70	.37	.33	.64	.57	57	N, NC	N, NC
FIXED CASEMENT PICTURE WINDOW	LoĒ2 272/Argon	.27	3.70	.33	.30	.56	.50	57	N, NC	N, NC
AWNING	LoĒ2 272/Argon	.27	3.70	.28	.26	.48	.43	57	N, NC	N, NC
SLIM LINE PATIO DOOR	LoĒ2 272/Argon	.30	3.33	.33	.30	.58	.51	52	N, NC	N, NC
CLASSIC FRENCH PATIO DOOR	LoĒ2 272/Argon	.30	3.33	.29	.25	.49	.42	54	N, NC	All

PREMIUM HIGH PERFORMANCE LoE³ 366/Argon

Double insulated Glass with LoE³ 366/Argon on one glass surface

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ТҮРЕ	GLASS TYPE	U-VALUE	R-VALUE	SOLAR HEAT GAIN NO/GRIDS	SOLAR HEAT GAIN W/GRIDS	VISIBLE LIGHT NO/GRIDS	VISIBLE LIGHT W/GRIDS	CONDENSATION RESISTANCE	U.S. ENERGY STAR ZONES NO/GRIDS	U.S. ENERGY STAR ZONES W/GRIDS	
CASEMENT	LoĒ3 366/Argon	.26	3.85	.19	.17	.43	.39	58	All	All	
HORIZONTAL SLIDERS	LoĒ3 366/Argon	.29	3.45	.22	.20	.51	.46	55	NC, SC, S	NC, SC, S	
SINGLE-HUNG	LoĒ3 366/Argon	.29	3.45	.22	.20	.51	.45	55	NC, SC, S	NC, SC, S	
DOUBLE-HUNG	LoĒ3 366/Argon	.29	3.33	.21	.19	.48	.43	55	NC, SC, S	NC, SC, S	
DIRECT-SET PICTURE WINDOW	LoĒ3 366/Argon	.26	3.85	.24	.22	.57	.51	58	All	All	
FIXED CASEMENT PICTURE WINDOW	LoĒ3 366/Argon	.26	3.85	.22	.20	.51	.45	57	All	All	
AWNING WINDOW	LoĒ3 366/Argon	.26	3.85	.19	.17	.43	.39	57	All	All	
SLIM LINE PATIO DOOR	LoĒ3 366/Argon	.29	3.45	.22	.20	.52	.45	53	All	All	
CLASSIC FRENCH PATIO DOOR	LoĒ3 366/Argon	.30	3.33	.19	.17	.44	.38	55	All	All	

ULTIMATE HIGH PERFORMANCE LoE³ 366/Argon/i89

Double insulated Glass with LoE³ 366/Argon on one glass surface and i89 on interior surface

ТҮРЕ	GLASS TYPE	U-VALUE	R-VALUE	SOLAR HEAT GAIN NO/GRIDS	SOLAR HEAT GAIN W/GRIDS	VISIBLE LIGHT NO/GRIDS	VISIBLE LIGHT W/GRIDS	CONDENSATION RESISTANCE	U.S. ENERGY STAR ZONES NO/GRIDS	U.S. ENERGY STAR ZONES W/GRIDS
CASEMENT	LoĒ3 366/Argon/i89	.23	4.35	.18	.17	.42	.38	46	All	All
HORIZONTAL SLIDERS	LoĒ3 366/Argon/i89	.25	4.00	.22	.20	.50	.44	44	All	All
SINGLE-HUNG	LoĒ3 366/Argon/i89	.25	4.00	.21	.19	.50	.44	43	All	All
DOUBLE-HUNG	LoĒ3 366/Argon/i89	.25	4.00	.20	.18	.47	.42	44	All	All
DIRECT-SET PICTURE WINDOW	LoĒ3 366/Argon/i89	.22	4.55	.24	.22	.56	.50	46	All	All
FIXED CASEMENT PICTURE WINDOW	LoĒ3 366/Argon/i89	.22	4.55	.21	.19	.50	.44	45	All	All
AWNING WINDOW	LoĒ3 366/Argon/i89	.23	4.35	.18	.17	.42	.38	45	All	All
SLIM LINE PATIO DOOR	LoĒ3 366/Argon/i89	.25	4.17	.22	.19	.51	.44	42	All	All
CLASSIC FRENCH PATIO DOOR	LoĒ3 366/Argon/i89	.26	3.85	.19	.16	.43	.37	44	All	All

Energy Guard Triple Insulated Glass (Energy Star Most Efficient) Triple insulated glass with high-performance LoE³ 366/Argon on two glass surfaces

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ТҮРЕ	U-VALUE	R-VALUE	SOLAR HEAT GAIN NO/GRIDS	SOLAR HEAT GAIN W/GRIDS	VISIBLE LIGHT NO/GRIDS	VISIBLE LIGHT W/GRIDS	U.S. ENERGY CONDENSATION RESISTANCE	U.S. ENERGY STAR ZONES NO/GRIDS	U.S. ENERGY STAR ZONES W/GRIDS	U.S. ZONES ENERGY STAR MOST EFFICIENT NO/GRIDS	U.S. ZONES ENERGY STAR MOST EFFICIENT W/GRIDS
CASEMENT	.18	5.56	.16	.15	.31	.28	72	All	All	NC, SC, S	NC, SC, S
AWNING WINDOW	.18	5.56	.16	.15	.31	.28	71	All	All	NC, SC, S	NC, SC, S
DIRECT-SET PICTURE WINDOW	.16	6.25	.21	.19	.41	.37	71	All	All	All	NC, SC, S
FIXED CASEMENT PICTURE WINDOW	.16	6.25	.19	.17	.36	.33	71	All	All	NC, SC, S	NC, SC, S

Energy Guard PLUS Triple Insulated Glass (Energy Star Most Efficient) Triple insulated glass with high-performance LoĒ² 272/Argon on two glass surfaces

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TYPE	U-VALUE	R·VALUE	SOLAR HEAT GAIN NO/GRIDS	SOLAR HEAT GAIN W/GRIDS	VISIBLE LIGHT NO/GRIDS	VISIBLE LIGHT W/GRIDS	U.S. ENERGY CONDENSATION RESISTANCE	U.S. ENERGY STAR ZONES NO/GRIDS	U.S. ENERGY STAR ZONES W/GRIDS	U.S. ZONES ENERGY STAR MOST EFFICIENT NO/GRIDS	U.S. ZONES ENERGY STAR MOST EFFICIENT W/GRIDS
CASEMENT	.18	5.56	.24	.22	.38	.35	71	All	All	All	All
AWNING WINDOW	.18	5.56	.24	.22	.38	.35	71	All	All	All	All
DIRECT-SET PICTURE WINDOW	.16	6.25	.31	.28	.51	.46	71	N, NC	N, NC	N, NC	N, NC
FIXED CASEMENT PICTURE WINDOW	.17	5.88	.28	.25	.45	.40	70	N, NC	All	N, NC	All

South/Central Northern Heating & Cooling Mostly Heating North/Central Southern Heating & Cooling Mostly Cooling



*Doors meet ENERGY STAR at .30 U-Factor. SHGC may vary by zone.

Most Efficient 2017

Zone	U-factor ¹	SHGC ²		
Northern	≤ 0.20	≥ 0.20		
North/Central	≤ 0.20	≤ 0.40		
South/Central	≤ 0.20	≤ 0.25		
Southern	≤ 0.20	≤ 0.25		

Indicates Energy Star* compliance for appropriate glazing zone. The Energy Star[®] program was developed by the U.S. Department of Energy and the Environmental Protection Agency to help consumers identify products that save energy. Requirements for windows are tailored to meet the energy needs of the country's four different regions - Northern, North/Central, South/Central and Southern. Energy Star* windows must be rated, certified and labeled by the National Fenestration Rating Council (NFRC) for U-Factor and Solar Heat Gain Coefficient (SHGC).



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All tests conform to NFRC 100-2010, NFRC 200-2010, NFRC 400-2010, NFRC 500-2010 procedures.

