Low-E 4th Surface Technology By Pilkington Glass

Looking for a revolutionary way to obtain energy efficient glazing and indoor comfort? The solution is Low-E 4th Surface Technology with Pilkington **Energy Advantage™** Low-E Glass.

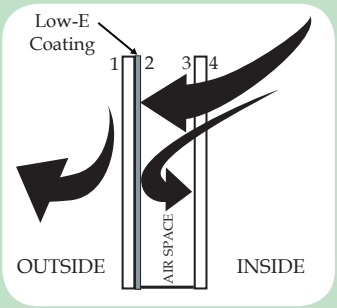
Low-E coatings applied on two surfaces of an IGU significantly reduce the center-of-glass U-Factor. Low-E 4th Surface Technology allows double-glazed IGU's to achieve 12% better thermal performance than triple-pane IGU's.

Adding Pilkington **Energy Advantage™** to the #4 surface of a Low-E IGU can achieve R-5 insulating performance.

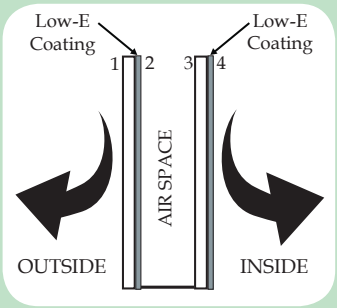
Infrared heat is room heat generated inside a building. It is heat at or near room temperature. Adding a pyrolytic Low-E coating to the #4 surface reflects infrared heat back into the house, reducing the amount of radiant heat loss through the glass.

Applying two pyrolytic Low-E lites in an IGU reduces the center-of-glass U-Factor by 45%, compared to an IGU with two panes of standard clear glass. Two pyrolytic Low-E lites on the #2 and #4 surfaces of an IGU reduces the center-of-glass U-Factor by 21%, compared to an IGU with a pyrolytic Low-E and a clear lite.

How Does Low-E 4th Surface Technology Improve Performance?



In cold weather conditions, the coating on the #2 surface reduces room heat (or infrared energy) from transferring across the airspace toward the outside. By adding a second Low-E coating to the #4 surface the thermal insulation is improved.



A Low-E coating on the #4 surface reflects room heat, back inside in cold weather conditions. This reduces the radiant heat loss and improves the overall insulation of the IGU.

Pilkington Energy Advantage™, a Clear Choice for a Passive Solar Pyrolytic

Pilkington **Energy Advantage™** is the clearest of the Low-E technologies. It allows solar infrared heat to easily pass through the glazing. With Pilkington **Energy Advantage™** there is no off angle color as found with common sputter coated products.

Pilkington **Energy Advantage™** is known as a leading passive solar glazing product in the market. The pyrolytic Low-E coating provides thermal insulation by reducing heat loss.

Most sputter coated Low-E products reflect solar infrared heat, lowering the solar heat gain and minimizing the benefits of passive solar heat.

Sputter coated glass products have limitations. The coating can be scratched or damaged in fabrication, and can potentially deteriorate with exposure to air, giving the product a limited shelf life. Much of the fabrication process, including bending and tempering, must often be done before the glass is coated. Edge deletion is usually recommended for sputter coated insulating glass units.

Insulating Glass Performance Data [1, 10]

	Nominal Glass Thickness		Visible Light[2]			Solar Energy[2]			U-Factor[5]						Solar Heat Gain Coefficient[7]	Shading Coefficient[8]
			Transmittance[3]	Reflectance[4] %		Transmittance[3] %	Reflectance[4] %	UV Transmittance[2] %	U.S. Summer*		U.S. Winter*		Europe**			
	in.	mm		Outside	Inside				Air	Argon	Air	Argon	Air	Argon		
Standard Clear Glass Outer Lite and Standard Clear Glass Inner Lite	3/32	2.5	82	15	15	74	14	61	0.51	-	0.48	-	2.8	-	0.78	0.90
	1/8	3	81	15	15	71	13	57	0.51	-	0.48	-	2.8	-	0.76	0.88
	5/32	4	80	15	15	67	12	52	0.50	-	0.48	-	2.8	-	0.74	0.85
Pilkington **Energy Advantage™** Outer Lite (#2 Surface) and Pilkington **Optifloat™** Clear Inner Lite	3/32	2.5	77	17	18	67	16	58	0.33	0.28	0.34	0.29	1.9	1.6	0.70	0.81
	1/8	3	77	17	17	66	16	55	0.33	0.28	0.34	0.29	1.9	1.6	0.69	0.80
	5/32	4	77	16	17	64	15	53	0.33	0.28	0.34	0.29	1.9	1.6	0.69	0.79
Pilkington **Energy Advantage™** Outer Lite (#2 Surface) and Pilkington **Energy Advantage™** Inner Lite (#4 Surface)	3/32	2.5	72	18	19	60	17	47	0.25	0.22	0.26	0.23	1.6	1.4	0.66	0.76
	1/8	3	72	18	19	58	17	46	0.25	0.22	0.26	0.23	1.6	1.4	0.65	0.75
	5/32	4	71	18	19	57	17	44	0.25	0.22	0.26	0.23	1.6	1.4	0.64	0.74

Insulating units constructed of equal glass thickness and 1/2" (12.7 mm) airspace

*U.S. U-Factor (Btu/hr.sq ft. °F) is based on NFRC/ASTM standards, **European U-Factor (W/sq m K) is based on EN 410/673 (CEN) standard

All performance values are center-of-glass values calculated by the LBNL Window 5.2 program. See Pilkington Architectural Product Guide for explanation of footnotes.

Double-Glazing Units with the Performance of Triple-Glazing Units

Enhance thermal performance without investing in the additional time and raw materials to produce triple-pane windows.

- No additional raw materials required;
- No additional capital investments necessary;
- Easily integrated into current fabrication process;
- Lighter construction.

Pyrolytic Power with Low-E 4th Surface Technology

Pilkington, the world leading brand in pyrolytic coatings, has revolutionized Low-E coating surface technology with the improved clarity, enhanced performance and pyrolytic benefits of Pilkington **Energy Advantage™**.

- Superior thermal control;
- Low U-Factor;
- High solar heat gain;
- Durability of a pyrolytic;
- No edge deletion required for an IGU;
- Easily handled, tempered, cut, bent, laminated, insulated and heat-strengthened;
- Unlimited shelf life.

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