

Weather Shield Thermal Performance Criteria

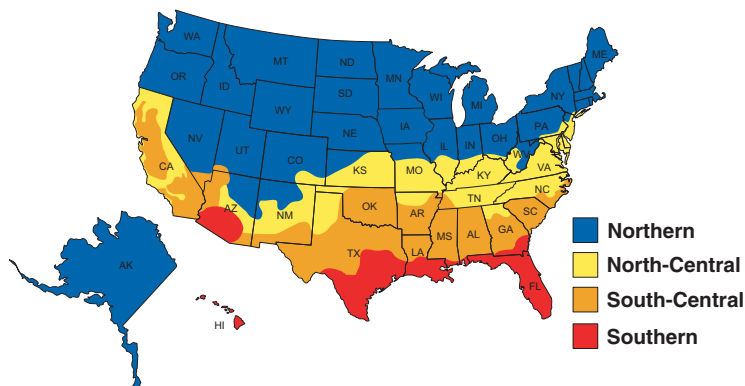


Weather Shield®
Premium Windows & Doors



As a proud ENERGY STAR® partner, we ensure our products are rated, certified and labeled for U-Value and Solar Heat Gain by the National Fenestration Rating Council (NFRC). The 2010 ENERGY STAR criteria for residential windows and doors are tailored to four Climate Zones. A product's energy efficiency for a given climate is based on its impact on heat gain and loss in cold weather and heat gain in warm weather.

United States ENERGY STAR Criteria



Windows

Climate Zone	U-Factor ¹	SHGC ²	
Northern	≤0.30	Any	Prescriptive
	= 0.31	≥0.35	Equivalent Energy Performance
	= 0.32	≥0.40	
North-Central	≤0.32	≤0.40	
South-Central	≤0.35	≤0.30	
Southern	≤0.60	≤0.27	

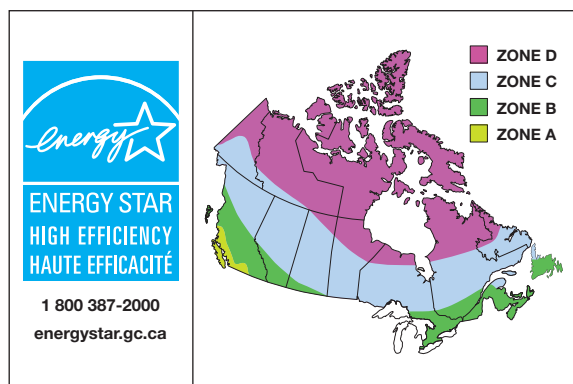
Doors

Glazing Level	U-Factor ¹	SHGC ²
Opaque	≤0.21	No Rating
≤ 1/2-Lite	≤0.27	≤0.30
> 1/2-Lite	≤0.32	≤0.30

¹ Btu/h • ft² • °F

² Fraction of Incident solar radiation

Canadian ENERGY STAR Criteria



ENERGY STAR Requirements for Windows (Effective October 1, 2010)

Zone	Heating Degree-Day Range	Compliance Paths		
		Energy Rating (ER)	or	U-Factor
		Minimum ER (unitless) Maximum U-Factor 2.00 W/m ² • K (0.35 Btu/h • ft ² • °F)		Maximum U-Factor W/m ² • K (Btu/h • ft ² • °F) Minimum ER (unitless)
A	≤ 3500	21	or	1.80 (0.32) 13
B	> 3500 to ≤ 5500	25	or	1.60 (0.28) 17
C	> 5500 to ≤ 8000	29	or	1.40 (0.25) 21
D	> 8000	34	or	1.20 (0.21) 25

ENERGY STAR Requirements for Doors (Effective October 1, 2010)

Zone	Heating Degree-Day Range	Compliance Paths		
		Energy Rating (ER)	or	U-Factor
		Minimum ER (unitless) Maximum U-Factor 2.00 W/m ² • K (0.35 Btu/h • ft ² • °F)		Maximum U-Factor W/m ² • K (Btu/h • ft ² • °F) Minimum ER (unitless)
A	≤ 3500	21	or	1.80 (0.32) 13
B	> 3500 to ≤ 5500	25	or	1.60 (0.28) 17
C	> 5500 to ≤ 8000	29	or	1.40 (0.25) 21
D	> 8000	34	or	1.20 (0.21) 25

¹ The U-factor measures how well a window/door prevents hot or cold from transferring through the product. The lower the U-factor, the more energy efficient the material.

² The Solar Heat Gain Coefficient (SHGC) measures how well a window or door prevents heat from passing through it. The lower the window or door SHGC, the less heat it allows to pass through it.

Patio Doors are tested to the specification of > 1/2 lite panel.

All units are tested in accordance to National Fenestration Rating Council (NFRC) procedures. U-Factors are derived from computer simulations using WINDOW 5.2 and THERM 5.2 programs. Simulations are then verified by testing in accordance with NFRC 100-04.

The performance of windows and doors may be affected by factors beyond Weather Shield's control, such as handling and installation, construction details of the building, exposure conditions, maintenance, normal wear and tear, migration of an inert gas from the insulated glass unit and the like. Ratings (for example, R or U-factors, infiltration tests, etc.) are for comparison purposes only. While Weather Shield products are manufactured to meet or exceed published ratings, it is not possible to guarantee that they will meet or exceed those ratings after they have been installed, and this is specifically excluded from any warranty.

Weather Shield reserves the right to change its products without prior notification. Please verify with labels on products to confirm ratings and test dates. Ratings vary based on glazing, grilles, etc. This information is accurate based on the date specified on the test date referred to in the document.

Thermal Performance Data

Aspire Double Hung Windows



Weather Shield®
Windows & Doors

ENERGY PERFORMANCE DATA							CANADIAN ENERGY PERFORMANCE DATA			
NFRC Total Unit Calculations ^a							ENERGY STAR			
Grille Option	Glazing thickness	Glazing Option	U Value	Solar Heat Gain Coefficient	Visible Light Transmittance	Condensation Resistance Rating	US Energy Star			
							N	NC	SC	S
							U-Value (metric)	Air Infiltration L/s/m2	Energy R Rating	
							A	B	C	D
No Grilles	3/4"	Clear Insul	0.44	0.57	0.60	45				
	3/4"	Insul Low-E	0.31	0.31	0.53	56		Y		
	3/4"	Insul Low E w/Argon	0.28	0.31	0.53	59	Y	Y		
	3/4"	Zo-e-shield 5	0.31	0.21	0.47	56		Y	Y	Y
	3/4"	Zo-e-shield 5 w/ Argon	0.28	0.20	0.47	60	Y	Y	Y	Y
	3/4"	Zo-e-shield 5 Extreme	0.26	0.19	0.43	44	Y	Y	Y	Y
	3/4"	Zo-e-shield 5 Extreme w/ Argon	0.24	0.19	0.43	48	Y	Y	Y	Y
	3/4"	Zo-e-shield 6	0.28	0.19	0.42	37	Y	Y	Y	Y
	3/4"	Zo-e-shield 6 w/ Argon	0.25	0.19	0.42	45	Y	Y	Y	Y
5/8" - 13/16" GIA	3/4"	Clear Insul	0.44	0.51	0.54	45				
	3/4"	Insul Low-E	0.31	0.28	0.47	56		Y	Y	
	3/4"	Insul Low E w/Argon	0.28	0.28	0.47	59	Y	Y	Y	
	3/4"	Zo-e-shield 5	0.31	0.19	0.42	56		Y	Y	Y
	3/4"	Zo-e-shield 5 w/ Argon	0.28	0.18	0.42	60	Y	Y	Y	Y
	3/4"	Zo-e-shield 5 Extreme	0.26	0.17	0.38	44	Y	Y	Y	Y
	3/4"	Zo-e-shield 5 Extreme w/ Argon	0.24	0.17	0.38	48	Y	Y	Y	Y
	3/4"	Zo-e-shield 6	0.29	0.17	0.37	37	Y	Y	Y	Y
	3/4"	Zo-e-shield 6 w/ Argon	0.26	0.17	0.37	45	Y	Y	Y	Y
Over 7/8' GIA or SDL	3/4"	Clear Insul	0.44	0.45	0.47	45				
	3/4"	Insul Low-E	0.31	0.25	0.41	56		Y	Y	Y
	3/4"	Insul Low E w/Argon	0.28	0.25	0.41	59	Y	Y	Y	Y
	3/4"	Zo-e-shield 5	0.31	0.17	0.37	56		Y	Y	Y
	3/4"	Zo-e-shield 5 w/ Argon	0.28	0.17	0.37	60	Y	Y	Y	Y
	3/4"	Zo-e-shield 5 Extreme	0.26	0.16	0.33	44	Y	Y	Y	Y
	3/4"	Zo-e-shield 5 Extreme w/ Argon	0.24	0.16	0.33	48	Y	Y	Y	Y
	3/4"	Zo-e-shield 6	0.29	0.16	0.33	37	Y	Y	Y	Y
	3/4"	Zo-e-shield 6 w/ Argon	0.26	0.16	0.33	45	Y	Y	Y	Y

^a Total Unit calculations are derived from computer simulations that are then verified by 3rd party testing in accordance with NFRC 100-04.

US Qualification Criteria	Climate Zone	U-Factor	*SHGC
 As of January 2010	Northern	<=0.30	Any
		<=0.31	>=0.35
		<=0.32	>=0.40
	North-Central	<=0.32	<=0.40
	South-Central	<=0.35	<=0.30
	Southern	<=0.60	<=0.27

* SHGC = Solar Heat Gain Coefficient

Thermal Performance Data

Aspire Double Hung Picture Windows (9310 Direct Set)



Weather Shield®
Windows & Doors

ENERGY PERFORMANCE DATA							 ENERGY STAR				CANADIAN ENERGY PERFORMANCE DATA			 ENERGY STAR			
NFRC Total Unit Calculations ^a											U-Value (metric)						
Grille Option	Glazing thickness	Glazing Option	U Value	Solar Heat Gain Coefficient	Visible Light Transmittance	Condensation Resistance Rating	US Energy Star							CANADA Energy Star			
							N	NC	SC	S				A	B	C	D
No Grilles	3/4"	Clear Insul	0.45	0.67	0.71	48					2.56	0.01	23				
	3/4"	Insul Low-E	0.30	0.36	0.62	64	Y	Y			1.70	0.01	23	Y			
	3/4"	Insul Low E w/Argon	0.26	0.36	0.62	67	Y	Y			1.48	0.01	28	Y	Y		
	3/4"	Zo-e-shield 5	0.30	0.24	0.56	65	Y	Y	Y	Y	1.70	0.01	17	Y			
	3/4"	Zo-e-shield 5 w/ Argon	0.26	0.24	0.56	67	Y	Y	Y	Y	1.48	0.01	22	Y	Y		
	3/4"	Zo-e-shield 5 Extreme	0.24	0.22	0.50	45	Y	Y	Y	Y	1.36	0.01	23	Y	Y	Y	
	3/4"	Zo-e-shield 5 Extreme w/ Argon	0.21	0.22	0.50	49	Y	Y	Y	Y	1.19	0.01	27	Y	Y	Y	Y
	3/4"	Zo-e-shield 6	0.26	0.22	0.50	42	Y	Y	Y	Y	1.48	0.01	20	Y	Y		
	3/4"	Zo-e-shield 6 w/ Argon	0.23	0.22	0.50	46	Y	Y	Y	Y	1.31	0.01	24	Y	Y	Y	
5/8" - 13/16" GIA	3/4"	Clear Insul	0.45	0.60	0.64	48					2.56	0.01	19				
	3/4"	Insul Low-E	0.30	0.33	0.56	64	Y	Y			1.70	0.01	22	Y			
	3/4"	Insul Low E w/Argon	0.26	0.32	0.56	67	Y	Y			1.48	0.01	26	Y	Y		
	3/4"	Zo-e-shield 5	0.30	0.22	0.50	65	Y	Y	Y	Y	1.70	0.01	15	Y			
	3/4"	Zo-e-shield 5 w/ Argon	0.26	0.22	0.50	67	Y	Y	Y	Y	1.48	0.01	20	Y	Y		
	3/4"	Zo-e-shield 5 Extreme	0.24	0.20	0.45	45	Y	Y	Y	Y	1.36	0.01	22	Y	Y	Y	
	3/4"	Zo-e-shield 5 Extreme w/ Argon	0.21	0.20	0.45	49	Y	Y	Y	Y	1.19	0.01	25	Y	Y	Y	Y
	3/4"	Zo-e-shield 6	0.27	0.20	0.44	42	Y	Y	Y	Y	1.53	0.01	18	Y	Y		
	3/4"	Zo-e-shield 6 w/ Argon	0.24	0.20	0.44	46	Y	Y	Y	Y	1.36	0.01	22	Y	Y	Y	
Over 7/8" GIA or SDL	3/4"	Clear Insul	0.45	0.54	0.57	48					2.56	0.01	15				
	3/4"	Insul Low-E	0.30	0.29	0.50	64	Y	Y	Y		1.70	0.01	19	Y			
	3/4"	Insul Low E w/Argon	0.26	0.29	0.50	67	Y	Y	Y		1.48	0.01	24	Y	Y		
	3/4"	Zo-e-shield 5	0.30	0.20	0.45	65	Y	Y	Y	Y	1.70	0.01	14	Y			
	3/4"	Zo-e-shield 5 w/ Argon	0.26	0.20	0.45	67	Y	Y	Y	Y	1.48	0.01	19	Y	Y		
	3/4"	Zo-e-shield 5 Extreme	0.24	0.19	0.40	45	Y	Y	Y	Y	1.36	0.01	21	Y	Y	Y	
	3/4"	Zo-e-shield 5 Extreme w/ Argon	0.21	0.18	0.40	49	Y	Y	Y	Y	1.19	0.01	24	Y	Y	Y	Y
	3/4"	Zo-e-shield 6	0.27	0.18	0.40	42	Y	Y	Y	Y	1.53	0.01	17	Y	Y		
	3/4"	Zo-e-shield 6 w/ Argon	0.24	0.18	0.40	46	Y	Y	Y	Y	1.36	0.01	21	Y	Y	Y	

^a Total Unit calculations are derived from computer simulations that are then verified by 3rd party testing in accordance with NFRC 100-04.

US Qualification Criteria	Climate Zone	U-Factor	*SHGC
 As of January 2010	Northern	<=0.30	Any
		<=0.31	>=0.35
		<=0.32	>=0.40
	North-Central	<=0.32	<=0.40
	South-Central	<=0.35	<=0.30
	Southern	<=0.60	<=0.27

* SHGC = Solar Heat Gain Coefficient