ENERGY RATING COMPARISON SPECIFICATIONS

PICTURE TOTAL WINDOW	Clear Double	Advantage E Double	Advantage 1	Clear Triple	Advantage E Triple	Advantage 2	Advantage 3
Energy Rating	-13	-1	3	3	7	9	11
CDN U-Value	2.60	1.96	1.75	1.70	1.36	1.26	1.01
CDN R-Value	0.38	0.51	0.57	0.59	0.74	0.79	0.99
US U-Value	0.45	0.34	0.30	0.30	0.24	0.22	0.18
US R-Value	2.22	2.94	3.33	3.33	4.17	4.55	5.56
NFRC 100-91 Size AA	0.45	0.34	0.30	0.30	0.24	0.22	0.18
NFRC 100-91 Size BB	0.46	0.34	0.31	0.30	0.24	0.22	0.18
SHGC **Air Infiltration (m^3/h/m)**	0.62 0.19	0.58 0.19	0.58 0.19	0.56 0.19	0.52 0.19	0.52 0.19	0.46 0.19

AWNING/CASEMENT	Clear Double	Advantage E Double	Advantage 1	Clear Triple	Advantage E Triple	Advantage 2	Advantage 3
Energy Rating	-19	-10	-7	-7	-3	-2	-1
CDN U-Value	2.30	1.83	1.68	1.61	1.36	1.29	1.10
CDN R-Value	0.43	0.55	0.60	0.62	0.74	0.78	0.91
US U-Value	0.40	0.32	0.29	0.28	0.24	0.23	0.20
US R-Value	2.50	3.13	3.45	3.57	4.17	4.35	5.00
NFRC 100-91 Size AA	0.40	0.32	0.29	0.28	0.24	0.23	0.20
NFRC 100-91 Size BB	0.42	0.32	0.30	0.29	0.24	0.23	0.19
SHGC **Air Infiltration (m^3/h/m)**	0.45 0.23	0.42 0.23	0.42 0.23	0.40 0.23	0.37 0.23	0.37 0.23	0.33 0.23

CENTER OF GLASS	Clear Double	Advantage E Double	Advantage 1	Clear Triple	Advantage E Triple	Advantage 2	Advantage 3
CDN U-Value	2.82	2.04	1.79	1.77	1.36	1.24	0.94
CDN R-Value	0.35	0.49	0.56	0.56	0.74	0.81	1.06
US U-Value	0.49	0.35	0.31	0.31	0.24	0.22	0.17
US R-Value	2.04	2.86	3.23	3.23	4.17	4.55	5.88
SHGC	0.76	0.71	0.71	0.68	0.64	0.64	0.56

MISC.	Clear Double	Advantage E Double	Advantage 1	Clear Triple	Advantage E Triple	Advantage 2	Advantage 3
SC	0.89	0.83	0.84	0.80	0.76	0.76	0.72
Visible Transmittance	82%	76%	76%	75%	69%	69%	65%
Ultraviolet Trans.	70%	60%	60%	58%	49%	49%	42%
Infrared Trans.	68%	55%	55%	52%	44%	44%	36%

CAN/CSA A440-M90	Picture	Awn./Cas.
Air Infiltration	A3	A3
Water Penetration	B3	B4
Wind Load Resistance	C3	C4

Notes and Definitions:

1. All glass lites are 3mm (1/8") thick with Super Spacer bar.
2. Dual pane units have a 14.3mm (9/16") space, and Tri-pane units have two 14.3mm (9/16") spaces.
3. Canadian U-values, SHGC, and ER ratings were calculated by Enermodel Engineering Ltd. using the frame 3.10 and Version 3.0 computer programs, in accordance with the CSA standards.
4. U.S. total window, center of glass U-values and NFRC 100-91 Total Window U-values were calculated by Enermodel Engineering Ltd. using the window 4.1 and Frame 3.10 computer programs, in accordance with the NFRC 100-91 procedure.
5. CAN/CSA-A440-M90 test results by AGRA Earth & Environmental.
6. SC, visible / ultraviolet / infrared transmittance values were taken from PPG data sheets.
7. Total Solar 300 to 2100 nm, Visible light 380 to 770 nm, Ultraviolet Transmittance 300 to 400 nm, Infrared Transmittance 800 to 2100 nm

Advantage E Double
Double Pane, Air fill, 1 LowE surface.

Advantage E Triple
Triple Pane, Air Fill, 1 LowE surface

Advantage 1
Double Pane, Argon Fill, 1 LowE surface

Advantage 2
Triple Pane, 1 Argon and 1 Air Fill, 1 LowE surface

Advantage 3
Triple Pane, 2 Argon Fill, 2 LowE surfaces.

Energy Rating (ER):
A new window energy performance rating system, established by the Canadian Standards Association (CSA). The ER system rates the total window, factoring in solar heat gain, transmittance losses, and air leakage losses. The larger the number the more energy efficient the window.

U-Value:
A measurment of heat loss. The larger the number, the more heat a window will lose. The smaller the U value the better.

R-Value:
The resistance to heat loss. The larger the number the better.

NFRC (National Fenestration Rating Council):
NFRC 100-91: Determining Fenestration Product Thermal Properties (currently limited to U-values) dated June 28, 1991. This is a U.S. standard for measuring total window U-values.

Visible Transmittance:
The percentage of light energy striking a given glazing that is passed through. Higher numbers mean more light will enter a space and views out will appear brighter.

Solar heat Gain Coefficient (SHGC):
The percentage of solar radiation that ends up as heat energy in your home.

Shading Coefficient (SC):
the relative measure of the total amount of solar energy that enters a building space through the glass compared with 3mm (1/8") single clear glass. Lower numbers mean less energy is transmitted.