



CLEAR CREEK
WINDOWS
by Walker

Comparisons of Different Low-E Insulated Glass Units

Peter Walker introduced Low-E glass to Kingston homeowners more than 30 years ago and has seen the many significant improvements in Low E technology over the years. Peter now uses a variety of Low E glass in his projects to suit the needs of his clients. He has used as many as three different types of Low E glass in one individual home, depending on the needs of the specific room in the home.

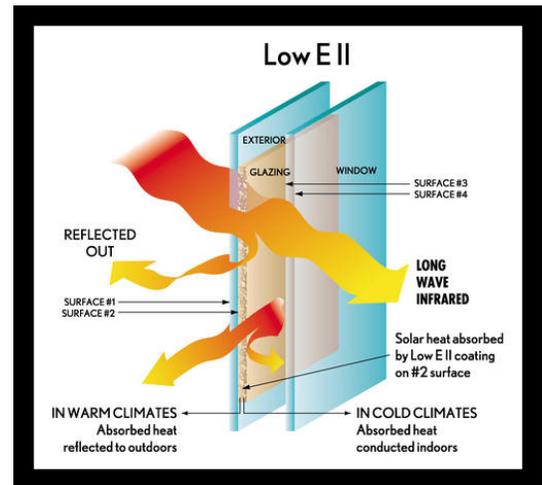
Practical Implications of Low E:

For houses with large expanses of glass facing south, it is as important to consider the solar heat gain coefficient as it is to consider the winter “R” value or “U” value. If the wrong Low E glass is chosen, a heating duct design that delivers enough heat to a south-facing room on a winter night may not be able to deliver enough air-conditioning to the same room on a summer day. With the correct Low E glass, air-conditioning may not even be necessary. Owners of homes with south-facing views also need to consider the UV fading transmission of the glass chosen. It is pointless to put in large windows to take advantage of a great view if you have to keep them covered in blinds or drapes to protect your art work, furniture, and wood floors. Any homeowner with a south-facing living room window will benefit from upgrading to a product such as Cardinal LoE3 -366, ClimaGuard 70/36 or AGC Comfort Select 40. For a nominal cost one can greatly extend the life of drapery, furniture and artwork.

There are now many different kinds of Low E glass. In order to choose the Low E glass suited to the needs of a specific room, it is helpful to understand the following terms:

Solar Heat Gain Co-efficient – The amount of solar radiation that enters a building as heat. The lower the number, the better the glazing is at preventing solar gain, and hence at lowering air-conditioning costs. This implies that the lower the solar heat gain co-efficient, the more comfortable your south and west facing rooms will be in the summer.

Fading Transmission – The portion of energy transmitted in the spectral region from 300 to 700 nanometers. This region includes all of the ultraviolet energy and most of the visible spectrum,



and will give the best representation of relative fading rates. The lower the number, the better the glass is for reducing fading potential of carpets, interior furnishings, natural finishes on wood floors, and artwork.

U-Factor – This represents the heat flow rate through a window expressed in BTU/hr/ft²/oF, using winter weather conditions of 0oF outside and 70oF inside. The smaller the number, the better the window system is at reducing heat loss.

R-Factor – The inverse of U-Factor. An R-factor of 4.2 translates into one-half the heat loss of an R-factor of 2.1. A window’s resistance to heat flow is measured by R value. The higher the number, the more effective the window is at reducing heating and cooling costs. There are two R-values to consider for your windows: one for the glass itself (usually measured at the center of the window) and one for the whole unit, including the frame. A window’s resistance to heat flow may also be reported by some manufacturers as a U-value. As “U” is the inverse of R, the smaller a window’s U-value, the better a window will perform.

Information on the following chart is derived from the respective glass manufacturers' websites, accessed spring 2014. Figures are meant to be used for “approximate comparisons only”, as different manufacturers may test using slightly different glass or air space thicknesses.

Product	Visible light transmission	Solar Heat Gain Coefficient	Centre-Glass Winter U-Value	Centre-Glass Winter R-Value	UV Fading Transmission	UV Damage Weighted Transmission
RECOMMENDED FOR NORTH AND EAST FACING WINDOWS						
Energy Advantage – Coating on surface #3	77%	0.75	0.29	3.45		
AGC Comfort Select 73	74%	0.72	0.29	3.45	43%	
PPG Sungate 500	76%	0.70	0.31	3.23	49%	0.66
PPG Sungate 600	73%	0.70	0.29	3.45	45%	0.63
Cardinal LoE ² -180	79%	0.69	0.26	3.85	63%	
Guardian Clima Guard 80/70	81%	0.69	0.27	3.70	41%	
Energy Advantage - Coating on surface #2	77%	0.69	0.29	3.45		
Guardian Clima Guard 75/68	75%	0.68	0.28	3.64	45%	
PPG Sungate 400	78%	0.68	0.28	3.57	32%	0.64
Energy Advantage – Coating on surface #2 and #4	72%	0.65	0.23	4.35		
RECOMMENDED FOR SOUTH AND WEST FACING WINDOWS						
Cardinal LoE ² -272	72%	0.41	0.25	4.00	55%	
AGC Comfort Select 40	72%	0.39	0.25	4.00	19%	
PPG Solarban 60	72%	0.39	0.25	4.00	21%	0.56
Guardian Clima Guard 71/38	71%	0.39	0.24	4.10	24%	
RECOMMENDED FOR LARGE EXPANSES OF GLASS FACING SOUTH OR WEST						
PPG Solarban 67	55%	0.29	0.25	4.00	13%	0.41
Cardinal LoE ³ -366	65%	0.27	0.24	4.17	43%	
PPG Solarban 70XL	64%	0.27	0.24	4.17	6%	0.43