Performance Data Table - Comparison of Acrylic / Glass / Roof Panels

Type	Layers	Colour	Gas Fill	Tvis	SC	SHGC	LSG	R Value	U Value
	6mm.								
Acrylic	Single-glazed	Clear		0.92	0.89	0.77	1.19	1.10	0.90
		Medium White		0.42	0.38	0.33	1.27		
		Bronze		0.27	0.53	0.46	0.59		
	1/2"								
Acrylic	Double-glazed	Clear		0.86	0.94	0.82	1.05	2.04	0.49
		Bronze		0.53	0.75	0.65	0.82		
		Solar White		0.37	0.53	0.46	0.80		
Glass	Single-glazed	Clear		0.89	0.95	0.82	1.09	0.91	1.10
		Bronze		0.55	0.74	0.64	0.86		
		Green		0.74	0.68	0.59	1.25		
	5/8"								
Glass	Double-glazed	Clear	Air	0.78	0.90	0.70	1.11	2.21	0.45
		Bronze	Air	0.48	0.59	0.51	0.94		
		Green	Air	0.66	0.54	0.47	1.40		
	5/8"								
Glass	Double-glazed	Clear	Air	0.72	0.73	0.57	1.26	3.04	0.33
Solarban60	LowE (2)	Bronze	Air	0.45	0.45	0.39	1.15		
		Green	Air	0.61	0.45	0.39	1.56		
	1/2"								
Glass	Triple-glazed	Clear	Air	0.70	0.81	0.53	1.32	3.23	0.31
Solarban60	LowE (2)	Bronze	Air	0.42	0.43	0.37	1.14		
		Green	Air	0.61	0.44	0.38	1.61		
.032" Aluminum Canopy Panel				0				0.61	1.64
2 5/16" EPS Insulated Laminated Panel				0				11	0.09
4" EPS Insulated Laminated Panel				0				19	0.05

Abbreviations and definitions :

Tvis : is the ratio of visible light directly transmitted through the glass (Light Transmittance)

SC : is the Shading Coefficient

An alternative measure of the heat gain through glass from solar radiation. Specifically, the shading coefficient is the ratio between the solar heat gain for a particular type of glass and that of double-strength clear glass. **A lower shading coefficient indicates lower heat gain.**

SHGC : is the Solar Heat Gain Coefficient

The percent of solar energy incident on the glass that is tranferred indoors, both directly and indirectly through the glass. The direct gain portion equals the solar energy transmittance, while the indirect is the fraction of solar incident on the glass that is absorbed and re-radiated or convected indoors. For example, 1/8" uncoated clear glass has a SHGC of approximately 0.86, of which 0.84 is direct gain (solar transmittance) and 0.02 is indirect gain (convection/re-radiation)

LSG : is the Light-To-Solar Gain

Ratio of the visible light transmittance to the Solar Heat Gain Coefficient. LSG=Tvis/SHGC. ***A higher LSG ratio means sunlight entering the room is more efficient for daylighting*** , especially for summer conditions where more light is desired with less solar gain. This ratio is the measurement used to determine whether the glazing is " spectrally selective, " which is defined by the US Dept. Of Energy as 1:25 or higher.

R-Value :

A measurement of the resistance of the glazing to heat flow. It is determined by dividing the U-Value into 1, (R-Value = 1/U-Value). ***A higher R-Value indicates better insulating properties of the glazing.*** R-Value is not typically used as a measurement for glazing products and is referenced here to help understand U-Value.

U-Value (U Factor)

A measure of the heat gain or loss through glass due to the difference between indoor and outdoor air temperatures. It is also referred to as the overall coefficient of heat transfer. A lower U-Value indicates better insulating properties.

Conclusions :

The most energy efficient roof systems are the EPS insulated. They have the highest R-Values and lowest U-Values. If you wish to have individual skylights in your insulated roof or an entire roof with any type of glazing, you need to decide if you wish to see through it. Clear glazing will allow the highest heat transfer (U-Value). To lower the heat transfer rate in glass; use LowE/Argon Gas or tinted or reflective glasses. If you wish only to allow luminating light in; the most effective / economical method would be to use the Solar White or HeatStop acrylics. In the wall systems the greater amount of glass used result in a higher U-Value. Either reduce the amount of glass and increase the amount of EPS insulation or use the specialty glasses.