



**G. James** is glass

[glass performance guide >](#)

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# 1. Forward

The G.James Glass Division is Australia's most comprehensive and technologically advanced processor of glass products. Continual and significant investment in product development, technology, equipment, business resources, infrastructure and quality control systems ensure that all processes – including cutting, edging, laminating, toughening (inc. curving), double glazing, coating, profiling and painting – remain at world best standards.

Since the release of the G.James Glass Handbook, not only have new products been developed but so has the need for more energy efficient glazing materials. New software has also been developed to calculate the critical performance of various glass substrates, and as such **the data presented herein supersedes those figures presented in the Glass Handbook.**

Just as G.James remains at the forefront of developments within the glass industry, we consider it vitally important that those who determine the composition of structures – be it a house or high-rise, are also kept updated with relevant design information.

It is with pleasure therefore that we issue the G.James Glass Performance Guide, a supplementary publication to the Glass Handbook. It is hoped this guide will be a valuable resource for architects, designers and specifiers in their quest to satisfy their various environmental, occupant comfort, budgetary and design criteria.

**Should you require further assistance or information on any product contained within this guide, please contact the G.James Technical Advisory Service on 1800 452637.**  
(GJAMES)

## 2. Product Range

G. James proudly manufactures and markets the following glass products:

**Colourlite®:** Solid, opaque ceramic painted glass ideally suited to spandrel and cladding applications.

**Optilight®:** High performance, Low E coated laminated glass products. Available in a wide range of tones and performances.

**Optilight® Excel:** G. James' range of high performance, Low E coated laminated glass products incorporating a spectrally selective interlayer (Vanceva® Solar). This interlayer was jointly developed by G. James and leading international interlayer manufacturer, Solutia. Optilight Excel is available in a wide range of performances and tones.

**Patternlite®:** Patterned ceramic painted glass available in standard dots, reverse dots, stripes, gum leaf or custom design patterns.

**Solarplus®:** Airco (off-line) processed, reflective and Low E coated solar control glass deposited under vacuum using magnetron sputtering. Solarplus is available in monolithic or laminated form and can be incorporated into Twin-Glaze units.

**Solarplus® Low E Twin-Glaze Unit:** A Twin-Glaze unit incorporating sputtered, Low E coated glass. The combination of the silver-based, Low E coating in an insulated glazed unit provides superior thermal performance.

**Solect®:** High performance, Low E coated laminated glass specifically designed for residential applications. Available in blue, green and grey tones.

**Twin-Glaze Unit:** A module consisting of two or more panes of glass separated by an aluminium spacer (filled with desiccant to eliminate condensation). The unit is made air tight with a primary seal of polyisobutylene (PIB) and a silicone secondary seal. Is also known as an insulated glass (IG) unit.

### Special Purpose Products

**ArmaClear®:** Multi-ply laminates specifically designed and tested to absorb most forms of attack. ArmaClear Bullet Resistant (BR) products range in thickness from 28mm to 45mm and provide a protective barrier against the most common weapons and ammunition while maintaining normal vision. ArmaClear Physical Attack (PA) multi-ply laminates resist penetration from attack by various hand held implements (excluding weapons).

**Imagelite®:** Have your favourite photo, company logo or special design digitally enlarged to become an integral part of the glass substrate.

**TransClear®:** A high performance glazing system offering superior protection against sudden impact and/or dangerous projectiles and suitable for a wide range of transport applications.

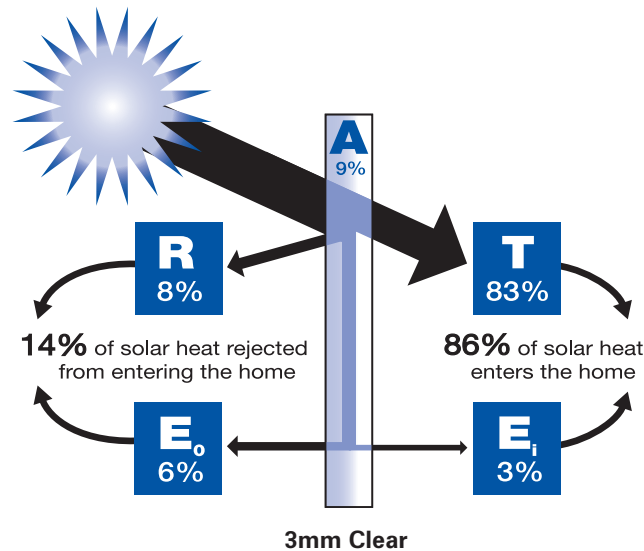


Woodside Building, Perth

# 3. Understanding the Data

## (i) RAT Equation

When the solar spectrum (sunlight) strikes glass, one of three things occurs, it is either reflected (R), absorbed (A) or transmitted (T) in different proportions depending on the glass type. As this fragmentation accounts for 100% of the energy, the sum of the reflection, absorption and transmission is equal to 100% (or 1). Simply expressed:  $R + A + T = 100\%$  (or 1).



R = Reflection  
A = Absorption  
T = Transmission  
E = Emission

With reference to the diagram above and using 3mm clear glass as an example, 8% is reflected, 9% absorbed and 83% transmitted – total 100%. Emission is the loss of absorbed heat directed either towards the exterior or interior by re-radiation.

The Solar Heat Gain Coefficient (SHGC) is the proportion of the spectrum transmitted and absorbed through the glass.

$$T + E_i = \text{SHGC}$$

For 3mm clear glass, the SHGC is 86% or 0.86.

## (ii) Performance Terms

Following is an explanation of the terms used in the performance charts contained within this booklet.

**Shading Coefficient (SC):** The ratio of *solar heat gain through a particular glass product* compared to the *solar heat gain through 3mm clear glass*. The lower this figure the better the glass performs at excluding and eliminating solar radiation and heat.

**Solar Reflectance External:** Percentage of ultra-violet (UV), visible and infra-red (IR) energy (wavelength range 290 - 2500nm) reflected by the glass surface to the outside.

**Solar Transmittance:** Percentage of ultra-violet (UV), visible and infra-red (IR) energy (wavelength range 290 - 2500nm) transmitted through the glass to the inside.

**Solar Heat Gain Coefficient (SHGC):** The directly transmitted solar heat and absorbed solar radiation which is re-radiated, conducted or convected to the building's interior. It is a measure of the performance of a particular glass compared to no glazing at all. No glazing at all being 100% or 1. The lower this figure the better the glass is able to exclude and eliminate solar radiation and heat.

**U-value (W/m<sup>2</sup>.K):** A measure of the air-to-air heat transmittance due to thermal conductance and the difference in indoor and outdoor temperatures. As the U-value decreases, so to does the heat transferred through the glass product. The lower the U-value the better the insulation.

**Visible Light Reflectance External:** Percentage of visible light (wavelength range 380-780nm) reflected by the glass surface to the outside.

**Visible Light Reflectance Internal:** Percentage of visible light (wavelength range 380-780nm) reflected by the glass surface to the inside.

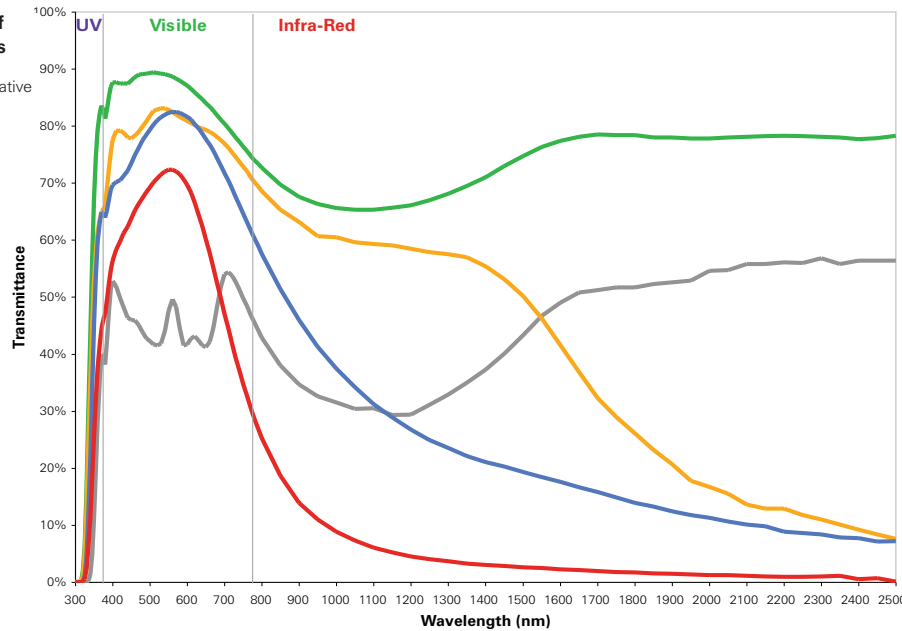
**Visible Light Transmittance:** Percentage of visible light (wavelength range 380-780nm) transmitted through the glass. The higher this figure the more daylight the glass allows to enter the building.

# 3. Understanding the Data cont'd

## (iii) Spectral Plots

**Figure 1\* – Solar Transmittance of Various Glass Products**

\*These plots are for comparative purposes only.

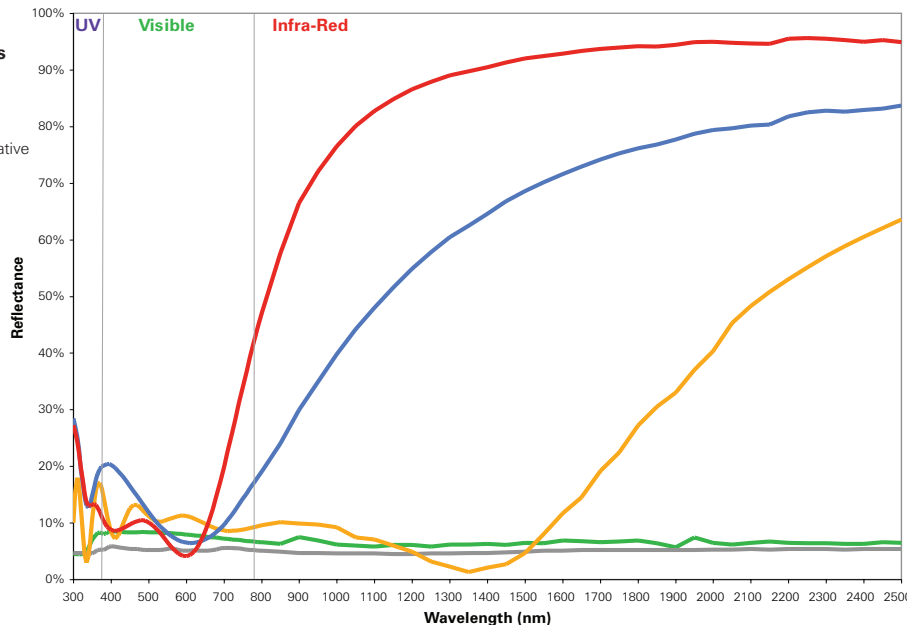


- 6mm Clear (88/77)
- 6mm Grey (44/42)
- 6mm Pyrolytic Low E (82/66)
- 6mm Single Low E (81/54)
- 6mm Double Low E (70/35)

**Figure 2\* – Solar Reflectance of Various Glass Products**

(Shown for the film side of Low E Products)

\*These plots are for comparative purposes only.



- 6mm Clear (8/7)
- 6mm Grey (5/5)
- 6mm Pyrolytic Low E (11/11)
- 6mm Single Low E (9/29)
- 6mm Double Low E (7/44)

The solar spectrum is the energy that is radiated from the sun. It is measured by wavelength in units of nanometers (1nm=0.000000001m). The component of the solar spectrum that reaches the Earth's surface can be divided into three bands:

- Ultra Violet Radiation (UV) 290-380nm
- Visible Light Radiation (Visible) 380-780nm
- Near Infra-Red Radiation (IR) 780-2500nm

The UV portion of the spectrum accounts for 2% of the energy, the Visible 47% and the IR 51%. The human eye can only see the Visible portion of the spectrum and the IR portion is felt as heat. The lower the wavelength, the higher the intensity of the energy, and this is why ultraviolet (UV) rays cause more damage, particularly to humans, than infra-red (IR).

Figures 1 and 2 show the transmittance and reflectance of five glass products over the solar spectrum. These products are:

- 6mm Clear
- 6mm Grey Body Tint
- 6mm Clear Pyrolytic Low E (Energy Advantage)
- 6mm Clear Single Low E (Solarplus LE80i Clear)
- 6mm Clear Double Low E (Solarplus DLE70 Clear)

The numbers beside each product in the legend indicate the percent of visible/solar transmittance or reflectance.

### Transmittance

6mm Clear shows the highest transmittance across the entire spectrum. This means it allows both a large amount of visible light and heat through the glazing. To reduce the heat transmitted whilst maintaining a high light transmittance, a Low E product is recommended because of its high visible and low IR transmittance. A body tint glass, such as a grey decreases both the IR and Visible Light transmittance and can also reduce glare.

NOTE: G.James recommends that glass samples be viewed under both natural and artificial lighting conditions before finalising your selection.

## 3. Understanding the Data cont'd

### Reflectance

Clear and grey body tints show low visible and solar reflectance. The three Low E products have low visible reflectance and differing levels of IR reflectance depending on the type of Low E product. Due to its high IR reflectance, the Double Low E product is the best for heat reflection for the glass types shown.

### Emittance

This is a measure of the far IR reflectance, which extends past 2500nm. The higher the IR reflectance, the better it reflects heat and the lower the emittance – hence the term Low E.

### (iv) Window 5.2 & NFRC

#### Window 5.2

A MS-Window based, software-modelling program used to determine the optical and thermal performance properties of glass and windows. The program was developed by LBNL (Lawrence Berkeley National Laboratory) and contains the International Glass Database (IGDB), which is an extensive collection of glazing products from G.James and other glass manufacturers.

Window 5.2 supercedes the earlier MS-DOS based version, Window 4.1 which was used for calculating figures included in the *G.James is Glass Handbook*. It is available to download from the Internet at <http://windows.lbl.gov/software/window/window.html>.

#### NFRC 100-2001

A National Fenestration Rating Council (NFRC) document specifying the environmental conditions and procedures used to determine the performance characteristics of a glazing. Environmental conditions include wind speed, internal & external temperatures, solar radiation levels and heat transfer coefficients.

The NFRC is a 'non-profit organization that administers the only uniform, independent rating and labelling system for the energy performance of windows, doors, skylights, and attachment products' in the United States. One of their main functions is to 'establish uniform procedures for determining the various energy performance ratings' of glazing materials.

Different environmental conditions, eg. European, Australian National Average Conditions (ANAC), alter the parameters used in the calculation of performance data, resulting in different values. Care should be taken when comparing performance figures to ensure they are calculated using the same environmental conditions.

All the performance data in this publication was calculated using Window 5.2 and NFRC 100-2001 environmental conditions. Variations with previously published data are due to minor changes in the Window 5.2 software compared to Window 4.1.

### (v) Energy Efficiency & the BCA 2005

#### Conductance & Solar Heat Gain

##### Residential Building Code: Class 1

Currently, Class 1 of the BCA (Building Code of Australia) uses whole window performance, (ie. both the glass and frame) based on Australian National Average Conditions. The values required are:

- Conductance (U-value) and
- Solar Heat Gain Coefficient (SHGC)

These performance figures are **not** presented in this document but are available from the WERS website <http://www.wers.net/> or the latest release glazing libraries in the rating software programs FirstRate and NatHERS.

##### Residential Building Code: Classes 2-4

For the use of alternative glazing under the Deemed-to Satisfy Provisions, whole window performance data is required to be based on NFRC conditions. As there is currently no whole window systems rated using NFRC conditions, the whole window performance is obtained by multiplying the glass performance data, Conductance (U-value) and Solar Heat Gain (SHGC) by a frame factor. Refer to the BCA-Classes 2-4 for further details.

The glass performance data in this publication is based on NFRC 100-2001 conditions and can be used to determine the glazing performance.

##### Commercial Building Code: Classes 5-9

This document is currently under development, refer to the ABCB (Australian Building Codes Board) for further details.

## 4. Design Considerations

### Viewing Samples

G. James recommends that glass samples be viewed under both natural and artificial lighting conditions before finalising your selection.

### Thermal Safety

A thermal safety assessment is recommended to determine if heat treatment of the selected glass is required to avoid thermal fracture of the glass. Check with your G. James representative for advice.

### Glass Handling & Cleaning

As each glass product is unique, please contact your G. James representative for comprehensive handling and cleaning instructions.

### Maximum & Minimum Sizes

The maximum and minimum sizes are determined by the product selected and the processing required to achieve the final product, ready for installation. Check with your G. James representative for advice.

### Façade Reflectance

Some councils have building regulations determining the maximum visible light reflectance of glazing products. Check with your G. James representative or relevant council for advice.

**Should you require performance data for other G. James products then please contact your G. James representative on 1800 452637.**  
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### Registered Names

- Solarplus, Optilight, Solect, Colourlite, Patternlite, ArmaClear, TransClear and Imagelite are registered names of G. James Australia Pty Ltd.
- Arctic Blue, Evergreen, Supergrey and Energy Advantage are registered names of Pilkington.
- Azuria, Caribia and Optigray are registered names of PPG Industries.
- Panasap is a registered trade name of P.T. Ashimas Flat Glass Co., Ltd.
- Vanceva is a registered trade mark of Solutia.



Woodside Building, Perth

G. James welcomes your feedback on this publication, please go to [www.gjames.com.au](http://www.gjames.com.au).

### Disclaimer

G. James has been careful and diligent to ensure the accuracy of all the information contained in this guide but to the extent limited by law G. James accepts no responsibility for any inaccuracies of any kind.

Due to continual product development G. James reserves the right to alter product specifications without notice.

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# 5. Performance Charts

Monolithic Glass	Visible Light Transmittance (%)	Visible Light Reflectance External (%)	Visible Light Reflectance Internal (%)	Solar Transmittance (%)	Solar Reflectance External (%)	Centre of Glass Results - NFRC 100-2001		
						U-value	SHGC	SC
3mm Clear	90	9	9	85	9	5.9	0.87	1.00
4mm Clear	89	8	8	81	7	5.9	0.85	0.97
5mm Clear	89	8	8	80	7	5.9	0.83	0.96
6mm Clear	88	8	8	77	7	5.8	0.82	0.94
8mm Clear	87	9	9	72	8	5.7	0.78	0.89
10mm Clear	86	8	8	70	7	5.7	0.77	0.88
12mm Clear	84	8	8	64	6	5.6	0.73	0.84
15mm Clear	85	8	8	66	7	5.5	0.74	0.86
19mm Clear	81	8	8	55	6	5.4	0.67	0.78
25mm Clear	78	7	7	49	6	5.2	0.63	0.73
4mm Starphire	91	8	8	90	8	5.9	0.91	1.04
6mm Starphire	91	8	8	89	8	5.8	0.90	1.03
10mm Starphire	91	8	8	87	8	5.7	0.89	1.02
12mm Starphire	91	8	8	86	8	5.6	0.88	1.01
<b>Monolithic Body Tint Glass</b>								
4mm Green	82	8	8	58	7	5.9	0.68	0.79
5mm Green	79	7	7	51	6	5.9	0.64	0.74
6mm Green	77	7	7	47	5	5.8	0.61	0.71
10mm Green	63	7	7	30	6	5.7	0.50	0.58
4mm Grey	54	6	6	54	6	5.9	0.65	0.76
5mm Grey	50	6	6	48	5	5.9	0.62	0.71
5mm Panasap Dark Grey	20	5	5	38	6	5.8	0.55	0.64
6mm Grey	44	5	5	42	5	5.8	0.58	0.67
10mm Grey	28	5	5	26	5	5.7	0.47	0.55
12mm Grey	19	5	5	17	4	5.6	0.42	0.49
6mm Optigray	23	5	5	19	5	5.8	0.42	0.50
6mm Supergrey	9	4	4	8	4	5.8	0.35	0.41
6mm Bronze	54	6	6	50	5	5.8	0.63	0.73
10mm Bronze	39	5	5	34	5	5.7	0.53	0.61
12mm Bronze	29	5	5	25	5	5.6	0.47	0.55



# 5. Performance Charts

Monolithic Body Tint Glass <small>cont'd</small>	Visible Light Transmittance (%)	Visible Light Reflectance External (%)	Visible Light Reflectance Internal (%)	Solar Transmittance (%)	Solar Reflectance External (%)	Centre of Glass Results - NFRC 100-2001		
						U-value	SHGC	SC
5mm Panasap Blue	61	7	7	47	6	5.8	0.61	0.71
6mm Panasap Blue	56	6	6	41	6	5.8	0.57	0.67
6mm Arctic Blue	56	6	6	35	5	5.8	0.53	0.62
10mm Arctic Blue	41	5	5	22	5	5.7	0.44	0.52
4mm Azuria	75	7	7	40	5	5.9	0.56	0.66
6mm Azuria	68	7	7	32	5	5.8	0.51	0.59
10mm Azuria	57	6	6	23	5	5.7	0.45	0.53
12mm Azuria	49	6	6	19	5	5.6	0.43	0.50
4mm Evergreen	74	8	8	45	6	5.9	0.60	0.69
5mm Evergreen	73	7	7	42	5	5.9	0.58	0.67
6mm Evergreen	67	6	6	34	5	5.8	0.52	0.61
6mm Caribia	68	7	7	32	5	5.8	0.51	0.60
<b>Laminated Glass</b>								
6.38mm Clear	88	9	9	74	8	5.8	0.79	0.92
8.38mm Clear	86	9	9	68	7	5.7	0.75	0.87
10.38mm Clear	85	9	9	64	8	5.6	0.72	0.84
12.38mm Clear	84	8	8	61	7	5.6	0.70	0.81
6.76mm Double Clear	88	9	9	74	8	5.7	0.79	0.91
8.76mm Double Clear	87	9	9	67	7	5.6	0.75	0.86
10.76mm Double Clear	85	9	9	63	7	5.6	0.72	0.83
12.76mm Double Clear	84	9	9	60	7	5.5	0.70	0.80
<b>Laminated Body Tint Glass</b>								
6.38mm Grey	44	6	6	49	6	5.8	0.62	0.72
8.38mm Grey	43	6	6	45	6	5.7	0.59	0.69
10.38mm Grey	42	6	6	42	6	5.6	0.58	0.67
12.38mm Grey	43	7	7	40	6	5.6	0.56	0.65
6.38mm Cool Grey	51	7	7	41	7	5.7	0.56	0.66
8.38mm Cool Grey	52	7	7	39	6	5.7	0.56	0.65
10.38mm Cool Grey	51	7	7	37	7	5.6	0.54	0.63
12.38mm Cool Grey	50	7	7	35	6	5.6	0.53	0.62

# 5. Performance Charts

Laminated Body Tint Glass <small>cont'd</small>	Visible Light Transmittance (%)	Visible Light Reflectance External (%)	Visible Light Reflectance Internal (%)	Solar Transmittance (%)	Solar Reflectance External (%)	Centre of Glass Results - NFRC 100-2001		
						U- value	SHGC	SC
6.76mm XL121	48	7	7	34	6	5.7	0.53	0.61
8.76mm XL121	48	6	7	33	6	5.6	0.52	0.60
10.76mm XL121	47	7	7	32	6	5.6	0.51	0.59
12.76mm XL121	47	7	7	31	6	5.5	0.50	0.59
6.76mm Double Grey	24	5	5	33	5	5.7	0.52	0.61
8.76mm Double Grey	23	5	5	30	5	5.6	0.50	0.58
10.76mm Double Grey	22	5	6	27	5	5.6	0.48	0.56
12.76mm Double Grey	21	5	5	25	5	5.5	0.47	0.55
6.38mm Green	72	8	8	65	7	5.8	0.73	0.84
8.38mm Green	70	8	8	59	7	5.7	0.69	0.79
10.38mm Green	69	8	8	55	7	5.6	0.66	0.77
12.38mm Green	69	7	7	52	6	5.6	0.65	0.75
6.76mm XL141	73	7	7	50	6	5.7	0.63	0.73
8.76mm XL 141	69	8	8	45	6	5.6	0.60	0.69
10.76mm XL141	71	7	7	44	6	5.6	0.59	0.69
12.76mm XL141	71	7	7	44	6	5.5	0.59	0.69
6.76mm Double Green	60	7	7	57	6	5.7	0.68	0.78
8.76mm Double Green	58	7	7	50	6	5.6	0.63	0.73
10.76mm Double Green	56	7	7	46	6	5.6	0.61	0.70
12.76mm Double Green	55	7	7	44	7	5.5	0.59	0.68
6.38mm Bronze	53	7	7	52	6	5.8	0.65	0.75
8.38mm Bronze	51	7	7	47	6	5.7	0.61	0.71
10.38mm Bronze	50	6	8	44	6	5.6	0.59	0.69
12.38mm Bronze	50	6	6	42	6	5.6	0.58	0.67
6.76mm Double Bronze	32	6	6	37	6	5.7	0.55	0.64
8.76mm Double Bronze	31	6	6	33	5	5.6	0.52	0.60
10.76mm Double Bronze	29	6	6	30	6	5.6	0.50	0.58
12.76mm Double Bronze	29	6	6	28	6	5.5	0.49	0.57

# 5. Performance Charts

Tinted Laminated Glass	Visible Light Transmittance (%)	Visible Light Reflectance External (%)	Visible Light Reflectance Internal (%)	Solar Transmittance (%)	Solar Reflectance External (%)	Centre of Glass Results - NFRC 100-2001		
						U-value	SHGC	SC
6.38mm Cool Blue	74	7	7	67	7	5.8	0.75	0.86
8.38mm Cool Blue	73	8	8	62	7	5.7	0.71	0.82
10.38mm Cool Blue	72	8	8	59	7	5.6	0.69	0.80
12.38mm Cool Blue	70	8	8	55	7	5.6	0.66	0.77
6.38mm Sky Blue	58	6	6	59	7	5.8	0.69	0.80
8.38mm Sky Blue	57	7	7	57	8	5.7	0.67	0.78
10.38mm Sky Blue	56	7	7	51	6	5.6	0.64	0.74
12.38mm Sky Blue	56	7	7	48	6	5.6	0.62	0.72
6.76mm XL151	47	7	7	36	6	5.7	0.54	0.63
8.76mm XL151	47	7	6	34	6	5.6	0.53	0.61
10.76mm XL151	48	7	7	35	6	5.6	0.53	0.62
12.76mm XL151	47	7	7	33	6	5.5	0.52	0.61
6.76mm Double Cool Blue	64	7	7	61	7	5.7	0.70	0.81
8.76mm Double Cool Blue	62	7	7	55	7	5.6	0.67	0.77
10.76mm Double Cool Blue	60	7	7	52	6	5.6	0.64	0.74
12.76mm Double Cool Blue	59	8	8	48	7	5.5	0.62	0.72
6.76mm Double Sky Blue	39	6	6	49	6	5.7	0.62	0.72
8.76mm Double Sky Blue	38	6	6	46	7	5.6	0.60	0.69
10.76mm Double Sky Blue	37	7	7	39	7	5.6	0.56	0.65
12.76mm Double Sky Blue	37	6	6	37	6	5.5	0.55	0.64
<b>Vanceva® Colour Laminated Glass</b>								
6.38mm Vanceva Coral Rose	76	7	7	70	7	5.7	0.77	0.89
6.38mm Vanceva Aquamarine	77	7	7	69	7	5.7	0.76	0.87
6.38mm Vanceva Smoke Gray	78	7	7	67	6	5.7	0.75	0.86
6.38mm Vanceva Golden Light	85	8	8	69	7	5.7	0.76	0.88
6.38mm Vanceva Ruby Red	48	6	6	62	6	5.7	0.72	0.83
6.38mm Vanceva Sapphire	52	6	6	55	6	5.7	0.67	0.77
6.38mm Vanceva Sahara Sun	78	8	9	63	7	5.7	0.72	0.83

# 5. Performance Charts

Vanceva® Colour Laminated Glass cont'd	Visible Light Transmittance (%)	Visible Light Reflectance External (%)	Visible Light Reflectance Internal (%)	Solar Transmittance (%)	Solar Reflectance External (%)	Centre of Glass Results - NFRC 100-2001		
						U-value	SHGC	SC
6.38mm Vanceva Evening Shadow	49	5	6	48	5	5.7	0.62	0.72
6.38mm Vanceva Arctic Snow (Translucent)	57	13	13	53	10	5.7	0.64	0.74
6.38mm Vanceva Cool White (Soft White)	80	10	10	70	8	5.7	0.76	0.88
6.38mm Vanceva Pure White	7	63	63	8	49	5.8	0.21	0.25
6.38mm Vanceva Deep Red	15	6	6	38	6	5.7	0.55	0.64
6.38mm Vanceva True Blue	14	5	5	42	6	5.7	0.57	0.67
<b>Solect® Laminated Glass</b>								
6.38mm Solect Clear	81	11	11	63	9	3.6	0.68	0.78
6.38mm Solect Green	71	10	11	40	7	3.6	0.49	0.58
6.38mm Solect Grey	47	8	10	33	8	3.6	0.43	0.51
8.38mm Solect Grey	47	8	10	33	7	3.6	0.44	0.51
10.38mm Solect Grey	46	8	11	31	7	3.6	0.42	0.50
12.38mm Solect Grey	46	8	10	30	7	3.6	0.42	0.49
<b>Optilight® HL Laminated Glass</b>								
6.38mm Optilight HL119 (S4)	81	11	11	63	9	3.6	0.68	0.78
10.76mm Optilight HL119 (S4)	79	11	12	57	9	3.6	0.63	0.73
6.38mm Optilight HL129 (S4)	39	7	10	40	7	3.6	0.49	0.57
10.76mm Optilight HL129 (S4)	38	7	10	34	7	3.6	0.45	0.52
6.38mm Optilight HL139 (S4)	66	9	11	54	9	3.6	0.60	0.70
10.76mm Optilight HL139 (S4)	65	9	11	49	8	3.6	0.57	0.66
6.38mm Optilight HL149 (S4)	49	8	10	44	8	3.6	0.52	0.61
10.76mm Optilight HL149 (S4)	46	7	10	38	7	3.6	0.48	0.56
6.38mm Optilight HL159 (S4)	53	7	10	49	8	3.6	0.56	0.66
6.38mm Optilight HL169 (S4)	68	9	11	56	9	3.6	0.62	0.72
10.76mm Optilight HL169 (S4)	66	9	11	48	8	3.6	0.56	0.65
10.76mm Optilight HL219 (S4)	70	10	11	36	7	3.6	0.47	0.54
10.76mm Optilight HL229 (S4)	33	6	10	20	6	3.6	0.35	0.41

# 5. Performance Charts

Optilight® HL Laminated Glass cont'd	Visible Light Transmittance (%)	Visible Light Reflectance External (%)	Visible Light Reflectance Internal (%)	Solar Transmittance (%)	Solar Reflectance External (%)	Centre of Glass Results - NFRC 100-2001		
						U-value	SHGC	SC
10.76mm Optilight HL239 (S4)	55	8	11	29	7	3.6	0.41	0.48
10.76mm Optilight HL249 (S4)	39	7	10	22	6	3.6	0.36	0.42
10.76mm Optilight HL269 (S4)	56	9	11	30	7	3.6	0.42	0.49
10.76mm Optilight HL319 (S4)	36	6	10	29	6	3.6	0.41	0.48
10.76mm Optilight HL329 (S4)	18	5	9	19	5	3.6	0.33	0.39
10.76mm Optilight HL339 (S4)	31	6	9	26	6	3.6	0.39	0.46
10.76mm Optilight HL349 (S4)	22	6	9	20	6	3.6	0.34	0.40
10.76mm Optilight HL369 (S4)	31	6	10	26	6	3.6	0.39	0.45
10.76mm Optilight HL419 (S4)	44	8	10	35	7	3.6	0.45	0.53
10.76mm Optilight HL429 (S4)	22	6	10	22	6	3.6	0.36	0.42
10.76mm Optilight HL439 (S4)	36	6	10	30	6	3.6	0.42	0.49
10.76mm Optilight HL469 (S4)	36	7	10	31	7	3.6	0.42	0.50
10.76mm Optilight HL5a19 (S4)	49	8	11	27	6	3.6	0.39	0.46
10.76mm Optilight HL5a29 (S4)	26	5	9	16	5	3.6	0.31	0.37
10.76mm Optilight HL5a39 (S4)	39	7	11	21	6	3.6	0.35	0.41
10.76mm Optilight HL5a69 (S4)	40	7	10	22	6	3.6	0.36	0.42
10.76mm Optilight HL5p19 (S4)	50	8	11	31	6	3.6	0.42	0.50
10.76mm Optilight HL5p29 (S4)	25	6	9	19	6	3.6	0.33	0.39
10.76mm Optilight HL5p39 (S4)	41	7	11	26	6	3.6	0.39	0.45
10.76mm Optilight HL5p69 (S4)	44	7	10	28	6	3.6	0.40	0.47
10.76mm Optilight HL719 (S4)	60	9	11	25	6	3.6	0.38	0.44
10.76mm Optilight HL729 (S4)	29	6	10	13	5	3.6	0.29	0.34
10.76mm Optilight HL739 (S4)	50	8	11	20	6	3.6	0.34	0.40
10.76mm Optilight HL769 (S4)	51	8	10	21	6	3.6	0.35	0.41
6.38mm Optilight HL819 (S4)	71	10	11	40	7	3.6	0.49	0.58
10.76mm Optilight HL819 (S4)	61	9	11	27	6	3.6	0.40	0.47
10.76mm Optilight HL829 (S4)	29	6	9	14	5	3.6	0.30	0.35
10.76mm Optilight HL839 (S4)	49	7	10	22	6	3.6	0.36	0.42
10.76mm Optilight HL869 (S4)	50	7	10	22	6	3.6	0.36	0.42

# 5. Performance Charts

Optilight® Excel Laminated Glass	Visible Light Transmittance (%)	Visible Light Reflectance External (%)	Visible Light Reflectance Internal (%)	Solar Transmittance (%)	Solar Reflectance External (%)	Centre of Glass Results - NFRC 100-2001		
						U-value	SHGC	SC
6.76mm Optilight Excel Elephant Hide (S4)	45	7	10	29	6	3.6	0.41	0.47
8.76mm Optilight Excel Elephant Hide (S4)	44	7	10	27	7	3.6	0.39	0.46
10.76mm Optilight Excel Elephant Hide (S4)	44	8	11	26	7	3.6	0.39	0.46
12.76mm Optilight Excel Elephant Hide (S4)	45	8	11	28	7	3.5	0.40	0.47
13.14mm Optilight Excel WTF Elephant Hide (S4)	38	7	10	23	6	3.5	0.37	0.43
8.76mm Optilight Excel Storm Grey (S4)	40	6	10	20	5	3.6	0.34	0.40
10.76mm Optilight Excel Eucalypt (S4)	38	7	10	18	5	3.6	0.32	0.38
12.76mm Optilight Excel Midnight (S4)	21	6	10	14	5	3.5	0.30	0.35
10.76mm Optilight Excel Baltic Sea (S4)	27	6	10	13	5	3.6	0.29	0.34
10.76mm Optilight Excel Oceanic (S4)	29	6	10	16	5	3.6	0.31	0.37
8.76mm Optilight Excel Blue Balm (S4)	37	7	10	16	6	3.6	0.31	0.36
10.76mm Optilight Excel Sky Eyes (S4)	35	7	10	13	6	3.6	0.29	0.34
9.76mm Optilight Excel Tea Tree Green (S4)	34	6	10	15	6	3.6	0.30	0.36
10.76mm Optilight Excel Deep Mooring (S4)	33	7	10	14	6	3.6	0.29	0.34
6.76mm Optilight Excel Green Gum (S4)	67	10	11	41	7	3.6	0.50	0.58
8.76mm Optilight Excel Green Gum (S4)	63	9	11	38	7	3.6	0.48	0.56
10.76mm Optilight Excel Green Gum (S4)	65	9	11	37	7	3.6	0.48	0.56
12.76mm Optilight Excel Green Gum (S4)	66	8	10	37	7	3.6	0.47	0.55
8.76mm Optilight Excel Clean Green (S4)	59	8	10	30	7	3.6	0.42	0.49
10.76mm Optilight Excel Garnish Green (S4)	54	8	11	24	6	3.6	0.38	0.44
8.76mm Optilight Excel Irish Mist (S4)	38	7	10	24	6	3.6	0.38	0.44
10.76mm Optilight Excel Rainforest (S4)	30	6	10	19	5	3.6	0.33	0.39
10.76mm Optilight Excel Olive Vine (S4)	35	6	10	22	6	3.6	0.36	0.42
10.76mm Optilight Excel Aqueous (S4)	40	7	10	18	6	3.6	0.33	0.39
10.76mm Optilight Excel Blue Venus (S4)	40	6	10	21	5	3.6	0.35	0.41
10.76mm Optilight Excel Island Sea (S4)	49	7	10	18	5	3.6	0.33	0.39
9.76mm Optilight Excel Green Velvet (S4)	50	7	10	21	6	3.6	0.35	0.41
6.76mm Optilight Excel Oasis Spring (S4)	45	7	10	31	7	3.6	0.42	0.49

# 5. Performance Charts

Optilight® Excel Laminated Glass cont'd	Visible Light Transmittance (%)	Visible Light Reflectance External (%)	Visible Light Reflectance Internal (%)	Solar Transmittance (%)	Solar Reflectance External (%)	Centre of Glass Results - NFRC 100-2001		
						U-value	SHGC	SC
8.76mm Optilight Excel Oasis Spring (S4)	44	7	10	28	7	3.6	0.40	0.47
10.76mm Optilight Excel Oasis Spring (S4)	42	7	10	27	7	3.6	0.40	0.46
12.76mm Optilight Excel Oasis Spring (S4)	43	7	11	28	7	3.5	0.40	0.47
8.76mm Optilight Excel Sea Spray (S4)	40	7	10	21	6	3.6	0.35	0.41
10.76mm Optilight Excel Coastal Fringe (S4)	38	7	10	18	5	3.6	0.33	0.39
8.76mm Optilight Excel Odyssey (S4)	27	6	10	19	6	3.6	0.33	0.39
10.76mm Optilight Excel Blue Steel (S4)	21	6	9	14	6	3.6	0.30	0.35
10.76mm Optilight Excel Blue Bottle (S4)	28	6	10	14	6	3.6	0.29	0.35
10.76mm Optilight Excel Turkish Bath (S4)	29	6	10	16	5	3.6	0.31	0.37
8.76mm Optilight Excel Ice Mint (S4)	37	7	10	16	6	3.6	0.31	0.37
10.76mm Optilight Excel Pacific Sky (S4)	34	6	10	13	5	3.6	0.29	0.34
9.76mm Optilight Excel Atlantis (S4)	34	6	10	15	5	3.6	0.30	0.36
10.76mm Optilight Excel Outer Reef (S4)	34	6	10	14	5	3.6	0.30	0.35
<b>Solarplus® Monolithic Reflective Glass - TS &amp; TE Series</b>								
6mm TE10 on Clear (S2)	9	30	29	5	36	4.5	0.18	0.22
6mm TS21 on Clear (S2)	20	22	34	14	21	4.9	0.30	0.36
6mm TS21 on Green (S2)	18	18	34	9	12	4.9	0.29	0.35
6mm TS21 on Grey (S2)	10	9	34	7	10	4.9	0.29	0.34
6mm TS21 on Bronze (S2)	12	11	34	9	13	4.9	0.29	0.34
6mm TS21 on Panasap Blue (S2)	13	13	34	8	10	4.9	0.29	0.34
6mm TS21 on Arctic Blue (S2)	12	12	34	6	9	4.9	0.28	0.33
6mm TS21 on Azuria (S2)	16	15	34	6	9	4.9	0.28	0.33
6mm TS21 on Evergreen (S2)	16	15	34	7	9	4.9	0.29	0.34
6mm TS30 on Clear (S2)	29	17	30	21	16	5.3	0.38	0.44
6mm TS30 on Green (S2)	25	14	30	13	10	5.3	0.35	0.41
6mm TS30 on Grey (S2)	14	8	30	11	8	5.3	0.33	0.39
6mm TS30 on Bronze (S2)	17	8	30	15	10	5.3	0.35	0.41

# 5. Performance Charts

Solarplus® Monolithic Reflective Glass - TS & TE Series <small>cont'd</small>	Visible Light Transmittance (%)	Visible Light Reflectance External (%)	Visible Light Reflectance Internal (%)	Solar Transmittance (%)	Solar Reflectance External (%)	Centre of Glass Results - NFRC 100-2001		
						U-value	SHGC	SC
6mm TS30 on Panasap Blue (S2)	19	10	30	12	8	5.3	0.34	0.40
6mm TS30 on Arctic Blue (S2)	18	10	30	10	8	5.3	0.33	0.38
6mm TS30 on Azuria (S2)	23	12	30	10	8	5.3	0.32	0.38
6mm TS30 on Evergreen (S2)	23	12	30	10	8	5.3	0.33	0.39
6mm TS40 on Clear (S2)	40	11	24	31	11	5.5	0.47	0.55
6mm TS40 on Green (S2)	35	8	24	19	7	5.5	0.41	0.48
6mm TS40 on Grey (S2)	19	6	23	16	6	5.5	0.39	0.45
6mm TS40 on Bronze (S2)	24	7	23	21	8	5.5	0.42	0.49
6mm TS40 on Panasap Blue (S2)	27	7	23	18	7	5.5	0.39	0.46
6mm TS40 on Arctic Blue (S2)	25	7	23	14	6	5.5	0.37	0.44
6mm TS40 on Azuria (S2)	31	8	23	13	6	5.5	0.36	0.43
6mm TS40 on Evergreen (S2)	30	8	23	14	7	5.5	0.37	0.43
6mm TS50 on Clear (S2)	50	7	19	40	7	5.6	0.55	0.64
6mm TS50 on Green (S2)	44	7	18	25	6	5.6	0.45	0.52
6mm TS50 on Grey (S2)	24	6	18	21	6	5.6	0.42	0.50
6mm TS50 on Bronze (S2)	29	6	18	27	6	5.6	0.46	0.54
6mm TS50 on Panasap Blue (S2)	33	6	18	22	6	5.6	0.43	0.50
6mm TS50 on Arctic Blue (S2)	30	6	18	18	6	5.6	0.40	0.47
6mm TS50 on Azuria (S2)	38	6	18	17	6	5.6	0.39	0.46
6mm TS50 on Evergreen (S2)	38	7	18	19	6	5.6	0.41	0.48
<b>Solarplus® Monolithic Reflective Glass - SS &amp; SC Series</b>								
6mm SS08 on Clear (S2)	8	42	37	6	34	4.5	0.20	0.24
6mm SS08 on Green (S2)	7	34	38	4	18	4.5	0.22	0.27
6mm SS08 on Grey (S2)	4	13	37	3	13	4.5	0.23	0.27
6mm SS08 on Bronze (S2)	5	18	38	4	19	4.5	0.22	0.27
6mm SS08 on Panasap Blue (S2)	5	21	38	3	15	4.5	0.23	0.27
6mm SS08 on Arctic Blue (S2)	5	20	39	3	13	4.5	0.23	0.27



# 5. Performance Charts

Solarplus® Monolithic Reflective Glass - SS & SC Series cont'd	Visible Light Transmittance (%)	Visible Light Reflectance External (%)	Visible Light Reflectance Internal (%)	Solar Transmittance (%)	Solar Reflectance External (%)	Centre of Glass Results - NFRC 100-2001		
						U-value	SHGC	SC
6mm SS08 on Azuria (S2)	6	28	38	3	14	4.5	0.23	0.27
6mm SS08 on Evergreen (S2)	6	28	37	3	14	4.5	0.23	0.27
6mm SS14 on Clear (S2)	14	33	34	10	27	4.6	0.25	0.30
6mm SS14 on Green (S2)	12	26	35	6	15	4.6	0.25	0.30
6mm SS14 on Grey (S2)	6	10	35	5	11	4.6	0.25	0.30
6mm SS14 on Bronze (S2)	8	14	36	7	16	4.6	0.25	0.30
6mm SS14 on Panasap Blue (S2)	9	17	35	5	12	4.6	0.25	0.30
6mm SS14 on Arctic Blue (S2)	8	16	35	5	11	4.6	0.25	0.30
6mm SS14 on Azuria (S2)	10	22	35	4	12	4.6	0.25	0.30
6mm SS14 on Evergreen (S2)	10	22	35	5	11	4.6	0.25	0.30
6mm SS22 on Clear (S2)	20	24	34	16	20	5.0	0.32	0.38
6mm SS22 on Green (S2)	17	20	33	10	12	5.0	0.30	0.36
6mm SS22 on Grey (S2)	9	9	34	8	9	5.0	0.30	0.35
6mm SS22 on Bronze (S2)	12	11	34	11	12	5.0	0.31	0.37
6mm SS22 on Panasap Blue (S2)	13	13	34	9	10	5.0	0.30	0.35
6mm SS22 on Arctic Blue (S2)	12	13	33	7	9	5.0	0.29	0.34
6mm SS22 on Azuria (S2)	16	15	33	7	9	5.0	0.29	0.35
6mm SS22 on Evergreen (S2)	15	15	34	7	7	5.0	0.30	0.35
6mm SC22 on Clear (S2)	23	21	30	19	17	5.2	0.36	0.43
6mm SC22 on Green (S2)	21	16	30	12	10	5.2	0.33	0.39
6mm SC22 on Grey (S2)	11	8	30	10	8	5.2	0.33	0.38
6mm SC22 on Bronze (S2)	14	10	29	13	9	5.2	0.34	0.40
6mm SC22 on Panasap Blue (S2)	15	12	30	11	9	5.2	0.33	0.39
6mm SC22 on Arctic Blue (S2)	15	11	29	9	8	5.2	0.32	0.38
6mm SC22 on Azuria (S2)	18	14	30	8	8	5.2	0.31	0.37
6mm SC22 on Evergreen (S2)	18	14	30	9	8	5.2	0.32	0.37
6mm SC30 on Clear (S2)	30	14	26	25	12	5.4	0.43	0.50
6mm SC30 on Green (S2)	26	13	26	16	9	5.4	0.37	0.44

# 5. Performance Charts

Solarplus® Monolithic Reflective Glass - SS & SC Series cont'd	Visible Light Transmittance (%)	Visible Light Reflectance External (%)	Visible Light Reflectance Internal (%)	Solar Transmittance (%)	Solar Reflectance External (%)	Centre of Glass Results - NFRC 100-2001		
						U-value	SHGC	SC
6mm SC30 on Grey (S2)	14	7	26	14	7	5.4	0.37	0.43
6mm SC30 on Bronze (S2)	17	8	25	16	7	5.4	0.38	0.44
6mm SC30 on Panasap Blue (S2)	19	9	26	14	7	5.4	0.36	0.42
6mm SC30 on Arctic Blue (S2)	19	8	27	12	6	5.4	0.35	0.41
6mm SC30 on Azuria (S2)	23	11	26	10	7	5.4	0.34	0.40
6mm SC30 on Evergreen (S2)	22	11	26	11	7	5.4	0.34	0.40
6mm SC40 on Clear (S2)	39	10	21	33	8	5.6	0.50	0.59
6mm SC40 on Green (S2)	35	9	20	21	7	5.6	0.42	0.50
6mm SC40 on Grey (S2)	19	6	20	19	6	5.6	0.41	0.48
6mm SC40 on Bronze (S2)	24	6	19	22	6	5.6	0.43	0.50
6mm SC40 on Panasap Blue (S2)	26	7	19	19	6	5.6	0.41	0.48
6mm SC40 on Arctic Blue (S2)	24	7	21	15	6	5.6	0.38	0.45
6mm SC40 on Azuria (S2)	30	8	20	14	6	5.6	0.37	0.44
6mm SC40 on Evergreen (S2)	30	8	20	15	6	5.6	0.38	0.45
<b>Solarplus® Laminated Reflective Glass - SL Series</b>								
6.38mm Solarplus SL10 Clear (S2)	13	40	41	10	36	5.8	0.26	0.31
10.76mm Solarplus SL10 Clear (S2)	11	40	41	8	33	5.6	0.26	0.31
10.76mm Solarplus SL10 Grey (S3)	8	12	35	7	14	5.6	0.32	0.37
10.76mm Solarplus SL10 Green (S3)	12	26	36	8	22	5.6	0.30	0.36
10.76mm Solarplus SL10 Bronze (S3)	8	16	37	7	15	5.6	0.31	0.37
10.76mm Solarplus SL10 Cool Blue (S3)	12	26	34	9	23	5.6	0.30	0.35
6.38mm Solarplus SL20 Clear (S2)	26	26	27	20	24	5.8	0.37	0.43
6.38mm Solarplus SL20 Grey (S3)	13	11	27	13	14	5.8	0.35	0.42
6.38mm Solarplus SL20 Green (S3)	23	19	25	19	19	5.8	0.38	0.44
6.38mm Solarplus SL20 Bronze (S3)	15	13	26	14	15	5.8	0.36	0.42
6.38mm Solarplus SL20 Cool Blue (S3)	24	20	24	20	20	5.8	0.38	0.45
6.76mm Solarplus SL20 Gold (S3)	20	19	26	16	20	5.7	0.36	0.42

# 5. Performance Charts

Solarplus® Laminated Reflective Glass - SL Series cont'd	Visible Light Transmittance (%)	Visible Light Reflectance External (%)	Visible Light Reflectance Internal (%)	Solar Transmittance (%)	Solar Reflectance External (%)	Centre of Glass Results - NFRC 100-2001		
						U-value	SHGC	SC
10.76mm Solarplus SL20 Clear (S2)	26	24	24	19	21	5.6	0.37	0.44
10.76mm Solarplus SL20 Grey (S3)	14	9	22	13	10	5.6	0.37	0.43
10.76mm Solarplus SL20 Green (S3)	22	17	24	16	15	5.6	0.37	0.44
10.76mm Solarplus SL20 Bronze (S3)	17	11	22	14	11	5.6	0.37	0.44
10.76mm Solarplus SL20 Cool Blue (S3)	23	17	23	17	16	5.6	0.38	0.45
6.38mm Solarplus SL30 Clear (S2)	37	18	18	29	17	5.8	0.45	0.53
10.76mm Solarplus SL30 Clear (S2)	37	17	18	27	15	5.6	0.45	0.52
10.76mm Solarplus SL30 Grey (S3)	18	8	16	16	9	5.6	0.40	0.46
10.76mm Solarplus SL30 Green (S3)	30	13	17	23	11	5.6	0.43	0.50
10.76mm Solarplus SL30 Bronze (S3)	22	9	16	18	9	5.6	0.41	0.48
10.76mm Solarplus SL30 Cool Blue (S3)	33	12	15	26	11	5.6	0.45	0.53
6.38mm Solarplus SL40 Clear (S2)	48	13	14	38	12	5.8	0.53	0.62
10.76mm Solarplus SL40 Clear (S2)	45	13	14	33	11	5.6	0.50	0.58
10.76mm Solarplus SL40 Grey (S3)	24	7	10	22	7	5.6	0.44	0.52
10.76mm Solarplus SL40 Green (S3)	39	10	11	30	9	5.6	0.49	0.57
10.76mm Solarplus SL40 Bronze (S3)	29	7	10	25	7	5.6	0.46	0.54
10.76mm Solarplus SL40 Cool Blue (S3)	40	10	12	31	9	5.6	0.50	0.58
6.38mm Solarplus SL50 Clear (S2)	61	10	9	49	9	5.8	0.62	0.71
10.76mm Solarplus SL50 Clear (S2)	59	9	10	44	8	5.6	0.58	0.68
10.76mm Solarplus SL50 Grey (S3)	30	6	7	28	6	5.6	0.49	0.57
10.76mm Solarplus SL50 Green (S3)	49	8	8	38	7	5.6	0.55	0.64
10.76mm Solarplus SL50 Bronze (S3)	34	6	8	29	6	5.6	0.49	0.57
10.76mm Solarplus SL50 Cool Blue (S3)	51	8	8	40	7	5.6	0.56	0.65
6.38mm Solarplus SL60 Clear (S2)	66	9	9	55	8	5.8	0.66	0.76
10.76mm Solarplus SL60 Clear (S2)	67	8	8	50	7	5.6	0.63	0.73
10.76mm Solarplus SL60 Grey (S3)	34	6	6	33	6	5.6	0.52	0.61
10.76mm Solarplus SL60 Green (S3)	54	7	7	43	7	5.6	0.58	0.67
10.76mm Solarplus SL60 Bronze (S3)	38	6	7	33	6	5.6	0.52	0.60
10.76mm Solarplus SL60 Cool Blue (S3)	58	7	7	46	6	5.6	0.61	0.70

# 5. Performance Charts

Solarplus® Laminated Reflective Glass - TS & TE Series	Visible Light Transmittance (%)	Visible Light Reflectance External (%)	Visible Light Reflectance Internal (%)	Solar Transmittance (%)	Solar Reflectance External (%)	Centre of Glass Results - NFRC 100-2001		
						U-value	SHGC	SC
6.38mm TE10 Clear (S2)	10	20	20	6	28	5.8	0.26	0.31
10.76mm TE10 Clear (S2)	10	19	20	6	23	5.6	0.28	0.33
6.38mm TS21 Clear (S2)	24	23	22	16	26	5.8	0.33	0.39
10.76mm TS21 Clear (S2)	25	21	22	15	21	5.6	0.35	0.41
6.38mm TS21 Grey (S3)	13	9	19	11	14	5.8	0.34	0.40
10.76mm TS21 Grey (S3)	12	9	22	9	12	5.6	0.34	0.40
6.38mm TS21 Green (S3)	21	17	21	14	20	5.8	0.34	0.40
10.76mm TS21 Green (S3)	20	16	22	13	16	5.6	0.35	0.41
6.38mm TS21 Bronze (S3)	15	11	20	11	14	5.8	0.34	0.40
10.76mm TS21 Bronze (S3)	15	11	22	10	12	5.6	0.34	0.40
6.38mm TS21 Cool Blue (S3)	22	18	20	16	21	5.8	0.35	0.41
10.76mm TS21 Cool Blue (S3)	20	17	22	13	18	5.6	0.35	0.41
6.38mm TS21 Sky Blue (S3)	17	12	21	13	18	5.8	0.34	0.40
10.76mm TS21 Sky Blue (S3)	16	12	22	11	15	5.6	0.34	0.40
6.38mm TS30 Clear (S2)	33	19	18	23	20	5.8	0.41	0.47
10.76mm TS30 Clear (S2)	33	18	19	21	18	5.6	0.40	0.47
6.38mm TS30 Grey (S3)	17	8	18	15	12	5.8	0.37	0.44
10.76mm TS30 Grey (S3)	16	8	16	13	10	5.6	0.37	0.44
6.38mm TS30 Green (S3)	28	14	17	20	16	5.8	0.40	0.46
10.76mm TS30 Green (S3)	27	13	18	18	13	5.6	0.39	0.46
6.38mm TS30 Bronze (S3)	19	10	17	16	12	5.8	0.38	0.44
10.76mm TS30 Bronze (S3)	19	10	19	14	11	5.6	0.37	0.44
6.38mm TS30 Cool Blue (S3)	28	15	18	20	18	5.8	0.39	0.46
10.76mm TS30 Cool Blue (S3)	27	15	18	19	15	5.6	0.39	0.46
6.38mm TS30 Sky Blue (S3)	22	11	17	18	15	5.8	0.39	0.45
10.76mm TS30 Sky Blue (S3)	21	11	18	16	13	5.6	0.38	0.45
6.38mm TS40 Clear (S2)	45	14	14	33	15	5.8	0.49	0.57
10.76mm TS40 Clear (S2)	44	12	14	30	12	5.6	0.48	0.56
6.38mm TS50 Clear (S2)	56	11	11	43	10	5.8	0.57	0.66
10.76mm TS50 Clear (S2)	55	10	11	39	9	5.6	0.55	0.64

# 5. Performance Charts

Solarplus® Laminated® Reflective Glass - SS Series	Visible Light Transmittance (%)	Visible Light Reflectance External (%)	Visible Light Reflectance Internal (%)	Solar Transmittance (%)	Solar Reflectance External (%)	Centre of Glass Results - NFRC 100-2001		
						U-value	SHGC	SC
6.38mm SS08 Clear (S2)	11	45	28	8	42	5.8	0.23	0.27
10.76mm SS08 Clear (S2)	11	43	31	8	34	5.6	0.26	0.30
6.38mm SS08 Grey (S3) (One-way Mirror)	5	11	47	5	18	5.7	0.29	0.34
6.38mm SS14 Clear (S2)	17	36	25	12	34	5.8	0.29	0.34
10.76mm SS14 Clear (S2)	16	36	25	11	30	5.6	0.29	0.34
6.38mm SS22 Clear (S2)	25	26	21	19	25	5.8	0.36	0.42
10.76mm SS22 Clear (S2)	25	25	21	17	21	5.6	0.36	0.42
<b>Solarplus® Laminated Reflective Glass - SC Series</b>								
6.38mm SC22 Clear (S2)	27	25	21	21	22	5.8	0.38	0.45
10.76mm SC22 Clear (S2)	25	25	20	18	20	5.6	0.37	0.44
6.38mm SC30 Clear (S2)	33	19	18	27	17	5.8	0.44	0.51
10.76mm SC30 Clear (S2)	32	20	18	23	16	5.6	0.42	0.49
6.38mm SC40 Clear (S2)	45	14	13	36	12	5.8	0.52	0.60
10.76mm SC40 Clear (S2)	43	14	12	32	12	5.6	0.49	0.57
<b>Optilight® Solarplus® Laminated Reflective - SL Series</b>								
10.76mm Solarplus SL10 Clear Low E (S2 & S4)	13	37	37	9	31	3.5	0.20	0.24
10.76mm Solarplus SL20 Clear Low E (S2 & S4)	27	23	24	18	19	3.5	0.29	0.35
10.76mm Solarplus SL30 Clear Low E (S2 & S4)	34	17	19	23	15	3.5	0.34	0.40
10.76mm Solarplus SL40 Clear Low E (S2 & S4)	41	14	16	28	12	3.5	0.39	0.46
10.76mm Solarplus SL50 Clear Low E (S2 & S4)	53	9	13	36	8	3.5	0.47	0.54
10.76mm Solarplus SL60 Clear Low E (S2 & S4)	60	8	11	42	7	3.5	0.51	0.60
<b>Twin-Glaze Units Clear</b>								
3mm Clear / 6mm Air / 3mm Clear	81	15	15	71	13	3.2	0.76	0.88
3mm Clear / 9mm Air / 3mm Clear	81	15	15	71	13	2.9	0.76	0.88
3mm Clear / 12mm Air / 3mm Clear	81	15	15	71	13	2.7	0.76	0.88
4mm Clear / 6mm Air / 4mm Clear	80	15	15	67	12	3.1	0.74	0.85
4mm Clear / 9mm Air / 4mm Clear	80	15	15	67	12	2.9	0.74	0.85

# 5. Performance Charts

Twin-Glaze Units Clear <small>cont'd</small>	Visible Light Transmittance (%)	Visible Light Reflectance External (%)	Visible Light Reflectance Internal (%)	Solar Transmittance (%)	Solar Reflectance External (%)	Centre of Glass Results - NFRC 100-2001		
						U-value	SHGC	SC
4mm Clear / 12mm Air / 4mm Clear	80	15	15	67	12	2.7	0.74	0.85
5mm Clear / 6mm Air / 5mm Clear	79	15	15	65	12	3.1	0.72	0.83
5mm Clear / 9mm Air / 5mm Clear	79	15	15	65	12	2.9	0.72	0.83
5mm Clear / 12mm Air / 5mm Clear	79	15	15	65	12	2.7	0.72	0.84
6mm Clear / 6mm Air / 6mm Clear	78	15	15	61	12	3.1	0.70	0.81
6mm Clear / 9mm Air / 6mm Clear	78	15	15	61	12	2.8	0.70	0.81
6mm Clear / 12mm Air / 6mm Clear	78	15	15	61	12	2.7	0.70	0.81
<b>Twin-Glaze Units Monolithic Body Tint</b>								
6mm Green / 12mm Air / 6mm Clear	68	12	13	39	8	2.7	0.50	0.57
6mm Grey / 12mm Air / 6mm Clear	39	7	12	33	6	2.7	0.51	0.59
6mm Bronze / 12mm Air / 6mm Clear	48	8	12	39	7	2.7	0.40	0.47
6mm Panasap Blue / 12mm Air / 6mm Clear	50	9	13	34	7	2.7	0.39	0.45
6mm Arctic Blue / 12mm Air / 6mm Clear	50	9	13	29	6	2.7	0.29	0.34
6mm Azuria / 12mm Air / 6mm Clear	61	11	13	28	7	2.7	0.21	0.25
6mm Evergreen / 12mm Air / 6mm Clear	59	10	13	28	6	2.7	0.45	0.53
6mm Caribia / 12mm Air / 6mm Clear	60	10	13	28	6	2.7	0.39	0.46
6mm Optigray / 12mm Air / 6mm Clear	21	5	12	15	5	2.7	0.45	0.53
6mm Supergrey / 12mm Air / 6mm Clear	8	4	11	6	4	2.7	0.41	0.48
<b>Twin-Glaze Units Monolithic Body Tint with Pyrolytic Low E</b>								
6mm Low E (EA) (S2) / 12mm Air / 6mm Clear	73	16	17	52	13	1.9	0.62	0.71
6mm Green / 12mm Air / 6mm Low E (EA) (S3)	64	13	15	33	9	1.9	0.45	0.52
6mm Grey / 12mm Air / 6mm Low E (EA) (S3)	37	7	14	28	7	1.9	0.41	0.47
6mm Bronze / 12mm Air / 6mm Low E (EA) (S3)	45	9	14	33	9	1.9	0.46	0.54
6mm Panasap Blue / 12mm Air / 6mm Low E (EA) (S3)	46	10	14	29	8	1.9	0.40	0.47
6mm Arctic Blue / 12mm Air / 6mm Low E (EA) (S3)	46	9	14	25	7	1.9	0.36	0.42
6mm Azuria / 12mm Air / 6mm Low E (EA) (S3)	56	12	15	24	7	1.9	0.34	0.39
6mm Evergreen / 12mm Air / 6mm Low E (EA) (S3)	55	11	15	25	7	1.9	0.35	0.41

# 5. Performance Charts

Twin-Glaze Units Monolithic Body Tint with Pyrolytic Low E	Visible Light Transmittance (%)	Visible Light Reflectance External (%)	Visible Light Reflectance Internal (%)	Solar Transmittance (%)	Solar Reflectance External (%)	Centre of Glass Results - NFRC 100-2001		
						U-value	SHGC	SC
6mm Caribia / 12mm Air / 6mm Low E (EA) (S3)	56	12	15	24	7	1.9	0.34	0.40
6mm Optigray / 12mm Air / 6mm Low E (EA) (S3)	19	6	13	13	5	1.9	0.24	0.28
6mm Supergrey / 12mm Air / 6mm Low E (EA) (S3)	7	4	13	5	4	1.9	0.16	0.18
<b>Twin-Glaze Units Solarplus® Reflective - TS &amp; TE Series</b>								
6mm TE10 on Clear (S2) / 12mm Air / 6mm Clear	8	31	31	4	36	2.3	0.12	0.14
6mm TE10 on Clear (S2) / 12mm Air / 6mm Low E (EA) (S3)	7	30	30	4	36	1.8	0.10	0.12
6mm TE10 on Clear (S2) / 12mm Air / 6mm LE80i on Clear (S3)	7	31	27	3	36	1.8	0.10	0.11
6mm TS21 on Clear (S2) / 12mm Air / 6mm Clear	19	23	35	11	21	2.4	0.22	0.25
6mm TS21 on Green (S2) / 12mm Air / 6mm Clear	16	18	36	8	12	2.4	0.20	0.23
6mm TS21 on Grey (S2) / 12mm Air / 6mm Clear	9	9	36	6	10	2.4	0.19	0.22
6mm TS21 on Bronze (S2) / 12mm Air / 6mm Clear	11	11	36	8	14	2.4	0.20	0.23
6mm TS21 on Panasap Blue (S2) / 12mm Air / 6mm Clear	12	13	35	7	10	2.4	0.19	0.22
6mm TS21 on Arctic Blue (S2) / 12mm Air / 6mm Clear	11	12	35	5	9	2.4	0.18	0.21
6mm TS21 on Azuria (S2) / 12mm Air / 6mm Clear	14	16	35	6	9	2.4	0.18	0.21
6mm TS21 on Evergreen (S2) / 12mm Air / 6mm Clear	14	15	36	6	9	2.4	0.19	0.22
6mm TS21 on Clear (S2) / 12mm Air / 6mm Low E (EA) (S3)	17	23	34	10	21	1.9	0.19	0.22
6mm TS21 on Green (S2) / 12mm Air / 6mm Low E (EA) (S3)	15	18	34	7	12	1.9	0.16	0.19
6mm TS21 on Grey (S2) / 12mm Air / 6mm Low E (EA) (S3)	8	9	34	5	10	1.9	0.15	0.17
6mm TS21 on Bronze (S2) / 12mm Air / 6mm Low E (EA) (S3)	10	11	34	7	14	1.9	0.16	0.19
6mm TS21 on Panasap Blue (S2) / 12mm Air / 6mm Low E (EA) (S3)	11	13	34	6	10	1.9	0.15	0.18
6mm TS21 on Arctic Blue (S2) / 12mm Air / 6mm Low E (EA) (S3)	10	12	34	5	9	1.9	0.14	0.17
6mm TS21 on Azuria (S2) / 12mm Air / 6mm Low E (EA) (S3)	13	16	34	5	9	1.9	0.15	0.17
6mm TS21 on Evergreen (S2) / 12mm Air / 6mm Low E (EA) (S3)	13	15	34	5	9	1.9	0.15	0.17
6mm TS21 on Clear (S2) / 12mm Air / 6mm LE80i on Clear (S3)	17	23	31	9	22	1.8	0.18	0.20
6mm TS21 on Green (S2) / 12mm Air / 6mm LE80i on Clear (S3)	15	18	32	7	12	1.8	0.15	0.18
6mm TS21 on Grey (S2) / 12mm Air / 6mm LE80i on Clear (S3)	8	9	31	5	10	1.8	0.14	0.16
6mm TS21 on Bronze (S2) / 12mm Air / 6mm LE80i on Clear (S3)	10	11	31	6	14	1.8	0.15	0.18
6mm TS21 on Panasap Blue (S2) / 12mm Air / 6mm LE80i on Clear (S3)	11	13	31	5	10	1.8	0.14	0.17
6mm TS21 on Arctic Blue (S2) / 12mm Air / 6mm LE80i on Clear (S3)	10	12	31	5	9	1.8	0.14	0.16

# 5. Performance Charts

Twin-Glaze Units Solarplus® Reflective - TS & TE Series cont'd	Visible Light Transmittance (%)	Visible Light Reflectance External (%)	Visible Light Reflectance Internal (%)	Solar Transmittance (%)	Solar Reflectance External (%)	Centre of Glass Results - NFRC 100-2001		
						U-value	SHGC	SC
6mm TS21 on Azuria (S2) / 12mm Air / 6mm LE80i on Clear (S3)	13	16	31	5	9	1.8	0.14	0.16
6mm TS21 on Evergreen (S2) / 12mm Air / 6mm LE80i on Clear (S3)	13	15	31	5	9	1.8	0.14	0.17
6mm TS30 on Clear (S2) / 12mm Air / 6mm Clear	27	18	33	17	17	2.5	0.28	0.33
6mm TS30 on Green (S2) / 12mm Air / 6mm Clear	23	15	32	11	10	2.5	0.24	0.28
6mm TS30 on Grey (S2) / 12mm Air / 6mm Clear	13	8	32	9	8	2.5	0.22	0.26
6mm TS30 on Bronze (S2) / 12mm Air / 6mm Clear	16	9	32	12	10	2.5	0.25	0.29
6mm TS30 on Panasap Blue (S2) / 12mm Air / 6mm Clear	17	10	32	10	9	2.5	0.23	0.27
6mm TS30 on Arctic Blue (S2) / 12mm Air / 6mm Clear	16	10	32	8	8	2.5	0.22	0.25
6mm TS30 on Azuria (S2) / 12mm Air / 6mm Clear	21	12	32	8	8	2.5	0.21	0.25
6mm TS30 on Evergreen (S2) / 12mm Air / 6mm Clear	20	12	32	9	8	2.5	0.22	0.26
6mm TS30 on Clear (S2) / 12mm Air / 6mm Low E (EA) (S3)	25	18	31	15	17	1.9	0.25	0.29
6mm TS30 on Green (S2) / 12mm Air / 6mm Low E (EA) (S3)	22	15	31	10	10	1.9	0.20	0.23
6mm TS30 on Grey (S2) / 12mm Air / 6mm Low E (EA) (S3)	12	8	31	8	8	1.9	0.18	0.21
6mm TS30 on Bronze (S2) / 12mm Air / 6mm Low E (EA) (S3)	15	9	31	10	10	1.9	0.21	0.24
6mm TS30 on Panasap Blue (S2) / 12mm Air / 6mm Low E (EA) (S3)	16	10	31	9	9	1.9	0.19	0.22
6mm TS30 on Arctic Blue (S2) / 12mm Air / 6mm Low E (EA) (S3)	15	10	31	7	8	1.9	0.17	0.20
6mm TS30 on Azuria (S2) / 12mm Air / 6mm Low E (EA) (S3)	19	12	31	8	8	1.9	0.17	0.20
6mm TS30 on Evergreen (S2) / 12mm Air / 6mm Low E (EA) (S3)	19	13	31	8	8	1.9	0.18	0.21
6mm TS30 on Clear (S2) / 12mm Air / 6mm LE80i on Clear (S3)	25	18	28	14	17	1.8	0.23	0.26
6mm TS30 on Green (S2) / 12mm Air / 6mm LE80i on Clear (S3)	21	15	28	10	10	1.8	0.19	0.22
6mm TS30 on Grey (S2) / 12mm Air / 6mm LE80i on Clear (S3)	12	8	28	7	8	1.8	0.17	0.19
6mm TS30 on Bronze (S2) / 12mm Air / 6mm LE80i on Clear (S3)	14	9	28	9	11	1.8	0.19	0.22
6mm TS30 on Panasap Blue (S2) / 12mm Air / 6mm LE80i on Clear (S3)	16	10	28	8	9	1.8	0.17	0.20
6mm TS30 on Arctic Blue (S2) / 12mm Air / 6mm LE80i on Clear (S3)	15	10	28	7	8	1.8	0.16	0.19
6mm TS30 on Azuria (S2) / 12mm Air / 6mm LE80i on Clear (S3)	19	12	28	7	8	1.8	0.16	0.19
6mm TS30 on Evergreen (S2) / 12mm Air / 6mm LE80i on Clear (S3)	19	13	28	8	8	1.8	0.17	0.19
6mm TS40 on Clear (S2) / 12mm Air / 6mm Clear	36	12	27	25	11	2.6	0.37	0.43
6mm TS40 on Green (S2) / 12mm Air / 6mm Clear	32	9	27	16	7	2.6	0.29	0.34
6mm TS40 on Grey (S2) / 12mm Air / 6mm Clear	17	7	26	13	7	2.6	0.27	0.31
6mm TS40 on Bronze (S2) / 12mm Air / 6mm Clear	21	7	26	17	8	2.6	0.30	0.35



# 5. Performance Charts

Twin-Glaze Units Solarplus® Reflective - TS & TE Series cont'd	Visible Light Transmittance (%)	Visible Light Reflectance External (%)	Visible Light Reflectance Internal (%)	Solar Transmittance (%)	Solar Reflectance External (%)	Centre of Glass Results - NFRC 100-2001		
						U-value	SHGC	SC
6mm TS40 on Panasap Blue (S2) / 12mm Air / 6mm Clear	24	8	26	15	7	2.6	0.28	0.32
6mm TS40 on Arctic Blue (S2) / 12mm Air / 6mm Clear	23	7	26	12	6	2.6	0.26	0.30
6mm TS40 on Azuria (S2) / 12mm Air / 6mm Clear	28	9	27	12	7	2.6	0.25	0.29
6mm TS40 on Evergreen (S2) / 12mm Air / 6mm Clear	27	9	27	12	7	2.6	0.25	0.29
6mm TS40 on Clear (S2) / 12mm Air / 6mm Low E (EA) (S3)	34	12	26	22	12	1.9	0.33	0.38
6mm TS40 on Green (S2) / 12mm Air / 6mm Low E (EA) (S3)	30	9	27	15	7	1.9	0.25	0.29
6mm TS40 on Grey (S2) / 12mm Air / 6mm Low E (EA) (S3)	16	7	26	11	7	1.9	0.22	0.26
6mm TS40 on Bronze (S2) / 12mm Air / 6mm Low E (EA) (S3)	20	7	26	15	8	1.9	0.26	0.30
6mm TS40 on Panasap Blue (S2) / 12mm Air / 6mm Low E (EA) (S3)	22	8	26	13	7	1.9	0.23	0.27
6mm TS40 on Arctic Blue (S2) / 12mm Air / 6mm Low E (EA) (S3)	21	7	26	11	6	1.9	0.21	0.24
6mm TS40 on Azuria (S2) / 12mm Air / 6mm Low E (EA) (S3)	26	9	26	10	7	1.9	0.20	0.23
6mm TS40 on Evergreen (S2) / 12mm Air / 6mm Low E (EA) (S3)	25	9	26	11	7	1.9	0.21	0.24
6mm TS40 on Clear (S2) / 12mm Air / 6mm LE80i on Clear (S3)	33	12	24	20	13	1.8	0.30	0.34
6mm TS40 on Green (S2) / 12mm Air / 6mm LE80i on Clear (S3)	29	9	24	13	7	1.8	0.23	0.27
6mm TS40 on Grey (S2) / 12mm Air / 6mm LE80i on Clear (S3)	16	7	23	10	7	1.8	0.20	0.23
6mm TS40 on Bronze (S2) / 12mm Air / 6mm LE80i on Clear (S3)	19	7	23	13	9	1.8	0.23	0.27
6mm TS40 on Panasap Blue (S2) / 12mm Air / 6mm LE80i on Clear (S3)	22	8	23	12	8	1.8	0.21	0.25
6mm TS40 on Arctic Blue (S2) / 12mm Air / 6mm LE80i on Clear (S3)	21	7	23	10	6	1.8	0.20	0.23
6mm TS40 on Azuria (S2) / 12mm Air / 6mm LE80i on Clear (S3)	26	9	24	10	7	1.8	0.19	0.22
6mm TS40 on Evergreen (S2) / 12mm Air / 6mm LE80i on Clear (S3)	25	9	23	10	7	1.8	0.19	0.23
6mm TS50 on Clear (S2) / 12mm Air / 6mm Clear	45	9	23	32	8	2.6	0.44	0.51
6mm TS50 on Green (S2) / 12mm Air / 6mm Clear	39	9	23	21	7	2.6	0.33	0.39
6mm TS50 on Grey (S2) / 12mm Air / 6mm Clear	21	6	22	17	6	2.6	0.30	0.35
6mm TS50 on Bronze (S2) / 12mm Air / 6mm Clear	26	6	22	22	7	2.6	0.35	0.40
6mm TS50 on Panasap Blue (S2) / 12mm Air / 6mm Clear	29	7	22	18	6	2.6	0.31	0.36
6mm TS50 on Arctic Blue (S2) / 12mm Air / 6mm Clear	27	7	22	15	6	2.6	0.28	0.33
6mm TS50 on Azuria (S2) / 12mm Air / 6mm Clear	34	8	23	14	6	2.6	0.27	0.32
6mm TS50 on Evergreen (S2) / 12mm Air / 6mm Clear	34	8	22	16	6	2.6	0.29	0.34

# 5. Performance Charts

Twin-Glaze Units Solarplus® Reflective - TS & TE Series cont'd	Visible Light Transmittance (%)	Visible Light Reflectance External (%)	Visible Light Reflectance Internal (%)	Solar Transmittance (%)	Solar Reflectance External (%)	Centre of Glass Results - NFRC 100-2001		
						U-value	SHGC	SC
6mm TS50 on Clear (S2) / 12mm Air / 6mm Low E (EA) (S3)	42	10	23	28	9	1.9	0.40	0.46
6mm TS50 on Green (S2) / 12mm Air / 6mm Low E (EA) (S3)	36	9	23	18	7	1.9	0.29	0.33
6mm TS50 on Grey (S2) / 12mm Air / 6mm Low E (EA) (S3)	20	6	22	14	6	1.9	0.26	0.30
6mm TS50 on Bronze (S2) / 12mm Air / 6mm Low E (EA) (S3)	24	6	22	19	7	1.9	0.30	0.35
6mm TS50 on Panasap Blue (S2) / 12mm Air / 6mm Low E (EA) (S3)	27	7	22	15	6	1.9	0.26	0.31
6mm TS50 on Arctic Blue (S2) / 12mm Air / 6mm Low E (EA) (S3)	25	7	22	13	6	1.9	0.23	0.27
6mm TS50 on Azuria (S2) / 12mm Air / 6mm Low E (EA) (S3)	32	8	23	13	6	1.9	0.23	0.26
6mm TS50 on Evergreen (S2) / 12mm Air / 6mm Low E (EA) (S3)	32	8	22	14	6	1.9	0.24	0.28
6mm TS50 on Clear (S2) / 12mm Air / 6mm LE80i on Clear (S3)	41	9	21	24	11	1.8	0.35	0.41
6mm TS50 on Green (S2) / 12mm Air / 6mm LE80i on Clear (S3)	36	9	20	17	7	1.8	0.27	0.31
6mm TS50 on Grey (S2) / 12mm Air / 6mm LE80i on Clear (S3)	19	6	20	13	7	1.8	0.23	0.26
6mm TS50 on Bronze (S2) / 12mm Air / 6mm LE80i on Clear (S3)	24	6	20	16	8	1.8	0.27	0.31
6mm TS50 on Panasap Blue (S2) / 12mm Air / 6mm LE80i on Clear (S3)	27	7	20	14	7	1.8	0.24	0.28
6mm TS50 on Arctic Blue (S2) / 12mm Air / 6mm LE80i on Clear (S3)	25	7	20	12	7	1.8	0.22	0.25
6mm TS50 on Azuria (S2) / 12mm Air / 6mm LE80i on Clear (S3)	31	8	20	12	6	1.8	0.22	0.25
6mm TS50 on Evergreen (S2) / 12mm Air / 6mm LE80i on Clear (S3)	32	8	20	13	7	1.8	0.23	0.26
<b>Twin-Glaze Units Solarplus® Reflective - SS Series</b>								
6mm SS22 on Clear (S2) / 12mm Air / 6mm Clear	18	24	35	13	20	2.4	0.23	0.27
6mm SS22 on Green (S2) / 12mm Air / 6mm Clear	16	20	35	8	12	2.4	0.20	0.24
6mm SS22 on Grey (S2) / 12mm Air / 6mm Clear	8	9	35	6	9	2.4	0.19	0.23
6mm SS22 on Bronze (S2) / 12mm Air / 6mm Clear	11	11	35	9	12	2.4	0.21	0.25
6mm SS22 on Panasap Blue (S2) / 12mm Air / 6mm Clear	12	13	35	7	10	2.4	0.20	0.23
6mm SS22 on Arctic Blue (S2) / 12mm Air / 6mm Clear	11	13	35	6	9	2.4	0.19	0.22
6mm SS22 on Azuria (S2) / 12mm Air / 6mm Clear	15	15	35	6	9	2.4	0.19	0.22
6mm SS22 on Evergreen (S2) / 12mm Air / 6mm Clear	14	17	35	6	10	2.4	0.19	0.22
6mm SS22 on Clear (S2) / 12mm Air / 6mm Low E (EA) (S3)	17	24	33	11	20	1.9	0.20	0.24
6mm SS22 on Green (S2) / 12mm Air / 6mm Low E (EA) (S3)	15	20	33	7	12	1.9	0.17	0.19

# 5. Performance Charts

Twin-Glaze Units Solarplus® Reflective - SS Series cont'd	Visible Light Transmittance (%)	Visible Light Reflectance External (%)	Visible Light Reflectance Internal (%)	Solar Transmittance (%)	Solar Reflectance External (%)	Centre of Glass Results - NFRC 100-2001		
						U-value	SHGC	SC
6mm SS22 on Grey (S2) / 12mm Air / 6mm Low E (EA) (S3)	8	9	34	6	9	1.9	0.16	0.18
6mm SS22 on Bronze (S2) / 12mm Air / 6mm Low E (EA) (S3)	10	11	33	8	12	1.9	0.18	0.20
6mm SS22 on Panasap Blue (S2) / 12mm Air / 6mm Low E (EA) (S3)	11	14	34	6	10	1.9	0.16	0.19
6mm SS22 on Arctic Blue (S2) / 12mm Air / 6mm Low E (EA) (S3)	10	13	33	5	9	1.9	0.15	0.17
6mm SS22 on Azuria (S2) / 12mm Air / 6mm Low E (EA) (S3)	14	16	33	6	9	1.9	0.15	0.18
6mm SS22 on Evergreen (S2) / 12mm Air / 6mm Low E (EA) (S3)	13	17	34	6	10	1.9	0.15	0.18
6mm SS22 on Clear (S2) / 12mm Air / 6mm LE80i on Clear (S3)	17	24	31	10	21	1.8	0.19	0.21
6mm SS22 on Green (S2) / 12mm Air / 6mm LE80i on Clear (S3)	15	20	30	7	12	1.8	0.16	0.18
6mm SS22 on Grey (S2) / 12mm Air / 6mm LE80i on Clear (S3)	8	9	31	5	9	1.8	0.14	0.17
6mm SS22 on Bronze (S2) / 12mm Air / 6mm LE80i on Clear (S3)	10	11	31	7	12	1.8	0.16	0.19
6mm SS22 on Panasap Blue (S2) / 12mm Air / 6mm LE80i on Clear (S3)	11	13	31	6	10	1.8	0.15	0.17
6mm SS22 on Arctic Blue (S2) / 12mm Air / 6mm LE80i on Clear (S3)	10	13	31	5	9	1.8	0.14	0.16
6mm SS22 on Azuria (S2) / 12mm Air / 6mm LE80i on Clear (S3)	14	15	31	5	9	1.8	0.14	0.17
6mm SS22 on Evergreen (S2) / 12mm Air / 6mm LE80i on Clear (S3)	13	17	31	5	10	1.8	0.14	0.17
<b>Twin-Glaze Units Solarplus® Reflective - SC Series</b>								
6mm SC22 on Clear (S2) / 12mm Air / 6mm Clear	21	21	32	16	17	2.5	0.27	0.31
6mm SC22 on Clear (S2) / 12mm Air / 6mm Low E (EA) (S3)	20	21	31	14	17	1.9	0.23	0.27
6mm SC22 on Clear (S2) / 12mm Air / 6mm LE80i on Clear (S3)	19	21	28	12	18	1.8	0.21	0.24
6mm SC30 on Clear (S2) / 12mm Air / 6mm Clear	27	15	29	20	12	2.6	0.32	0.38
6mm SC30 on Clear (S2) / 12mm Air / 6mm Low E (EA) (S3)	25	15	28	18	13	1.9	0.28	0.33
6mm SC30 on Clear (S2) / 12mm Air / 6mm LE80i on Clear (S3)	25	15	26	15	14	1.8	0.25	0.29
6mm SC40 on Clear (S2) / 12mm Air / 6mm Clear	32	11	25	27	9	2.6	0.39	0.45
6mm SC40 on Clear (S2) / 12mm Air / 6mm Low E (EA) (S3)	33	11	24	23	10	1.9	0.35	0.40
6mm SC40 on Clear (S2) / 12mm Air / 6mm LE80i on Clear (S3)	33	11	22	20	11	1.8	0.30	0.35
<b>Twin-Glaze Units Solarplus® Low E</b>								
6mm LE80i on Clear (S2) / 12mm Air / 6mm Clear	72	13	15	44	22	1.8	0.52	0.60
6mm LE80i on Green (S2) / 12mm Air / 6mm Clear	63	11	14	30	11	1.8	0.38	0.43

# 5. Performance Charts

Twin-Glaze Units Solarplus® Low E cont'd	Visible Light Transmittance (%)	Visible Light Reflectance External (%)	Visible Light Reflectance Internal (%)	Solar Transmittance (%)	Solar Reflectance External (%)	Centre of Glass Results - NFRC 100-2001		
						U-value	SHGC	SC
6mm LE80i on Grey (S2) / 12mm Air / 6mm Clear	34	7	13	23	10	1.8	0.32	0.36
6mm LE80i on Bronze (S2) / 12mm Air / 6mm Clear	42	7	13	29	14	1.8	0.37	0.43
6mm LE80i on Panasap Blue (S2) / 12mm Air / 6mm Clear	47	9	13	26	10	1.8	0.34	0.39
6mm LE80i on Arctic Blue (S2) / 12mm Air / 6mm Clear	45	8	13	22	8	1.8	0.30	0.35
6mm LE80i on Azuria (S2) / 12mm Air / 6mm Clear	55	10	13	22	8	1.8	0.30	0.35
6mm LE80i on Evergreen (S2) / 12mm Air / 6mm Clear	54	10	14	23	8	1.8	0.31	0.35
6mm LE70i on Clear (S2) / 12mm Air / 6mm Clear	62	11	15	36	20	1.8	0.44	0.51
6mm LE70i on Green (S2) / 12mm Air / 6mm Clear	54	10	15	25	10	1.8	0.33	0.38
6mm LE70i on Grey (S2) / 12mm Air / 6mm Clear	30	7	14	20	10	1.8	0.28	0.33
6mm LE70i on Bronze (S2) / 12mm Air / 6mm Clear	36	7	14	24	14	1.8	0.33	0.38
6mm LE70i on Panasap Blue (S2) / 12mm Air / 6mm Clear	40	7	14	21	9	1.8	0.30	0.35
6mm LE70i on Arctic Blue (S2) / 12mm Air / 6mm Clear	38	7	14	19	7	1.8	0.27	0.31
6mm LE70i on Azuria (S2) / 12mm Air / 6mm Clear	48	8	14	19	7	1.8	0.27	0.32
6mm LE70i on Evergreen (S2) / 12mm Air / 6mm Clear	47	8	15	19	7	1.8	0.28	0.32
6mm LE60i on Clear (S2) / 12mm Air / 6mm Clear	53	10	15	32	20	1.8	0.39	0.46
6mm LE60i on Green (S2) / 12mm Air / 6mm Clear	48	9	15	23	9	1.8	0.31	0.36
6mm LE60i on Grey (S2) / 12mm Air / 6mm Clear	25	6	15	17	10	1.8	0.26	0.30
6mm LE60i on Bronze (S2) / 12mm Air / 6mm Clear	31	6	14	21	14	1.8	0.30	0.34
6mm LE60i on Panasap Blue (S2) / 12mm Air / 6mm Clear	36	7	15	20	9	1.8	0.28	0.32
6mm LE60i on Arctic Blue (S2) / 12mm Air / 6mm Clear	34	7	15	17	8	1.8	0.25	0.29
6mm LE60i on Azuria (S2) / 12mm Air / 6mm Clear	42	8	15	17	7	1.8	0.26	0.30
6mm LE60i on Evergreen (S2) / 12mm Air / 6mm Clear	41	8	15	18	7	1.8	0.26	0.30
6mm LE54i on Clear (S2) / 12mm Air / 6mm Clear	48	10	17	29	20	1.8	0.36	0.42
6mm LE54i on Green (S2) / 12mm Air / 6mm Clear	42	8	16	20	9	1.8	0.28	0.32
6mm LE54i on Grey (S2) / 12mm Air / 6mm Clear	23	6	16	15	10	1.8	0.24	0.28
6mm LE54i on Bronze (S2) / 12mm Air / 6mm Clear	28	7	16	19	13	1.8	0.27	0.32
6mm LE54i on Panasap Blue (S2) / 12mm Air / 6mm Clear	32	7	16	18	9	1.8	0.26	0.30
6mm LE54i on Arctic Blue (S2) / 12mm Air / 6mm Clear	30	7	16	15	7	1.8	0.24	0.28
6mm LE54i on Azuria (S2) / 12mm Air / 6mm Clear	38	8	16	16	6	1.8	0.24	0.28
6mm LE54i on Evergreen (S2) / 12mm Air / 6mm Clear	37	8	16	16	7	1.8	0.24	0.28

# 5. Performance Charts

Twin-Glaze Units Solarplus® Low E cont'd	Visible Light Transmittance (%)	Visible Light Reflectance External (%)	Visible Light Reflectance Internal (%)	Solar Transmittance (%)	Solar Reflectance External (%)	Centre of Glass Results - NFRC 100-2001		
						U-value	SHGC	SC
6mm LE50i on Clear (S2) / 12mm Air / 6mm Clear	44	12	16	27	21	1.8	0.35	0.40
6mm LE50i on Green (S2) / 12mm Air / 6mm Clear	40	10	16	19	10	1.8	0.27	0.31
6mm LE50i on Grey (S2) / 12mm Air / 6mm Clear	21	7	16	14	10	1.8	0.23	0.27
6mm LE50i on Bronze (S2) / 12mm Air / 6mm Clear	26	7	16	18	14	1.8	0.26	0.31
6mm LE50i on Panasap Blue (S2) / 12mm Air / 6mm Clear	30	8	16	17	9	1.8	0.25	0.29
6mm LE50i on Arctic Blue (S2) / 12mm Air / 6mm Clear	29	7	15	14	7	1.8	0.23	0.27
6mm LE50i on Azuria (S2) / 12mm Air / 6mm Clear	36	9	16	15	7	1.8	0.23	0.27
6mm LE50i on Evergreen (S2) / 12mm Air / 6mm Clear	35	8	16	15	7	1.8	0.23	0.27
6mm LE40i on Clear (S2) / 12mm Air / 6mm Clear	36	18	17	22	24	1.8	0.29	0.34
6mm LE40i on Green (S2) / 12mm Air / 6mm Clear	31	15	17	15	12	1.8	0.23	0.27
6mm LE40i on Grey (S2) / 12mm Air / 6mm Clear	17	8	18	11	11	1.8	0.20	0.23
6mm LE40i on Bronze (S2) / 12mm Air / 6mm Clear	20	9	18	14	15	1.8	0.22	0.26
6mm LE40i on Panasap Blue (S2) / 12mm Air / 6mm Clear	23	10	18	13	10	1.8	0.21	0.25
6mm LE40i on Arctic Blue (S2) / 12mm Air / 6mm Clear	22	9	18	11	8	1.8	0.20	0.23
6mm LE40i on Azuria (S2) / 12mm Air / 6mm Clear	28	12	18	12	8	1.8	0.20	0.24
6mm LE40i on Evergreen (S2) / 12mm Air / 6mm Clear	27	11	18	12	8	1.8	0.20	0.23
<b>Twin Glaze Units Solarplus® Double Low E</b>								
6mm DLE70 on Clear (S2) / 12mm Air / 6mm Clear	62	11	13	29	30	1.7	0.35	0.40
6mm DLE70 on Green (S2) / 12mm Air / 6mm Clear	55	10	12	22	11	1.7	0.30	0.34
6mm DLE70 on Grey (S2) / 12mm Air / 6mm Clear	29	6	11	15	13	1.7	0.23	0.27
6mm DLE70 on Bronze (S2) / 12mm Air / 6mm Clear	34	7	12	18	18	1.7	0.25	0.29
6mm DLE70 on Panasap Blue (S2) / 12mm Air / 6mm Clear	38	8	12	18	10	1.7	0.25	0.29
6mm DLE70 on Arctic Blue (S2) / 12mm Air / 6mm Clear	37	7	12	16	8	1.7	0.23	0.27
6mm DLE70 on Azuria (S2) / 12mm Air / 6mm Clear	47	9	12	18	7	1.7	0.25	0.30
6mm DLE70 on Evergreen (S2) / 12mm Air / 6mm Clear	49	8	12	18	8	1.7	0.26	0.30
<b>Colourlite®</b>								
6mm High Opacity White painted on Clear	0	37	65	0	26	5.8	0.23	0.28
6mm Cement painted on Clear	0	30	47	0	22	5.8	0.25	0.29
6mm Pewter painted on Clear	0	18	25	0	15	5.8	0.27	0.32

# 5. Performance Charts

Colourlite® cont'd	Visible Light Transmittance (%)	Visible Light Reflectance External (%)	Visible Light Reflectance Internal (%)	Solar Transmittance (%)	Solar Reflectance External (%)	Centre of Glass Results - NFRC 100-2001		
						U-value	SHGC	SC
6mm Gannat painted on Clear	0	10	14	0	10	5.8	0.28	0.34
6mm Denim painted on Clear	0	12	15	0	12	5.8	0.28	0.33
6mm Hawthorne Green painted on Clear	0	8	11	0	7	5.8	0.29	0.34
6mm Black painted on Clear	0	5	8	0	5	5.8	0.30	0.35
<b>Patternlite® - Standard Dot (39% Coverage)</b>								
6mm High Opacity White painted on Clear	54	19	30	47	15	5.8	0.58	0.68
6mm Cement painted on Clear	54	17	23	47	13	5.8	0.59	0.68
6mm Pewter painted on Clear	54	12	15	47	10	5.8	0.60	0.69
6mm Gannat painted on Clear	54	9	10	47	8	5.8	0.60	0.70
6mm Denim painted on Clear	54	10	11	47	9	5.8	0.60	0.70
6mm Hawthorne Green painted on Clear	54	8	9	47	7	5.8	0.61	0.70
6mm Black painted on Clear	54	7	8	47	6	5.8	0.61	0.71
<b>Patternlite® - Standard Stripe (50% Coverage)</b>								
6mm High Opacity White painted on Clear	44	23	36	39	17	5.8	0.52	0.60
6mm Cement painted on Clear	44	19	27	39	15	5.8	0.53	0.61
6mm Pewter painted on Clear	44	13	17	39	11	5.8	0.54	0.62
6mm Gannat painted on Clear	44	9	10	39	9	5.8	0.54	0.63
6mm Denim painted on Clear	44	10	12	39	10	5.8	0.54	0.63
6mm Hawthorne Green painted on Clear	44	8	11	39	7	5.8	0.55	0.64
6mm Black painted on Clear	44	7	8	39	6	5.8	0.55	0.64
<b>Patternlite® - Standard Reverse Dot (61% Coverage)</b>								
6mm High Opacity White painted on Clear	34	26	43	30	19	5.8	0.45	0.53
6mm Cement painted on Clear	34	21	32	30	16	5.8	0.46	0.54
6mm Pewter painted on Clear	34	14	19	30	12	5.8	0.48	0.55
6mm Gannat painted on Clear	34	9	11	30	9	5.8	0.49	0.57
6mm Denim painted on Clear	34	10	12	30	10	5.8	0.48	0.56
6mm Hawthorne Green painted on Clear	34	8	10	30	6	5.8	0.50	0.58
6mm Black painted on Clear	34	6	8	30	6	5.8	0.49	0.58

#### Disclaimer

The performance data presented in these tables are based on spectrophotometric measurements of samples. These samples are representative of factory production and actual values may vary due to variation in the production process. G.James Australia Pty Ltd disclaims any liability from loss or damage arising from the use of such data.

## glass performance guide >

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