



# Guardian 275<sup>®</sup> Data Sheet

for 2-3/4 inch Systems

[www.majorskylights.com](http://www.majorskylights.com)

(888) 759-2678

Test Description	Test Method	Comments/Results
<b>FLAMMABILITY</b>		
<b>Flame Spread</b>	<i>Interior Sheet</i>	<a href="#">ASTM E-84</a>
<b>Smoke Developed</b>		UL 723, ANSI/NFPA #255
	<i>Class "A" Exterior Sheet</i>	<a href="#">UL 723</a>
		ASTM E-84, ANSI/NFPA #255
	<i>Insulation</i>	<a href="#">ASTM E-84</a>
		UL 723, ANSI/NFPA #255
<b>Burn Extent</b>	<i>Interior Sheet</i>	<a href="#">ASTM D-635</a>
	<i>Ultimate® Series Exterior</i>	<a href="#">ASTM D-635</a>
<b>Self-Ignition</b>	<i>Interior Sheet</i>	<a href="#">ASTM D-1929</a>
	<i>Ultimate® Series Exterior</i>	<a href="#">ASTM D-1929</a>
<p>All interior FRP sheets comply with ICC evaluation report # ER-1412            All exterior FRP sheets comply with ICC evaluation report # ESR-2026</p>		
<b>Class "A" Skylight System</b>	<i>Ultimate® Series Exterior</i>	<a href="#">ASTM E-108</a>
	<i>Ultimate® Series Exterior</i>	<a href="#">ASTM E-108</a>
	<i>Ultimate® Series Exterior</i>	<a href="#">UL 790</a>
		Class "A" Unlimited Slope Class "A" Burning Brand Unlimited Slope Class "A" Low Slope (2/12 or less)
<b>ADHESIVE BOND STRENGTH</b>		
<b>Adhesive Bond Strength</b>		<a href="#">ASTM D-1002 (Shear)</a>
		<a href="#">ASTM C-297 (Tensile)</a>
		563 psi
<b>Aged Adhesive Bond Strength</b>		by <a href="#">ASTM D-1037 (Aging)</a>
	<i>Listed on above report</i>	<a href="#">ASTM D-1002 (Shear)</a>
	<i>Listed on above report</i>	<a href="#">ASTM C-297 (Tensile)</a>
		1212 psi
		914 psi
<b>IMPACT &amp; LOADING</b>		
<b>Impact Strength</b>	<i>Ultimate® Series Exterior</i>	<a href="#">UL 972</a>
	<i>Ultimate® Series Hi-Impact Exterior</i>	<a href="#">UL 972</a>
	<i>Ultimate® Series Exterior (British Standard)</i>	<a href="#">UL 972</a>
	<i>Class "A" Exterior Sheet</i>	<a href="#">UL 972</a>
		No Penetration: >60 ft-lbs No Penetration: >361 ft-lbs No Penetration: >60 ft-lbs No Penetration: >90 ft-lbs
<b>Small Missile Impact Protection</b>		<a href="#">ASTM E-1996</a>
		Passed: Missile A, Wind Zone 1
<b>Uniform Load Deflection</b>		<a href="#">ASTM E-72</a>
		"PANEL ONLY" Deflection = 3.42" @ 40 psf Permanent Set After 5 Minutes = 0.374"
**ASTM E-72 test is designed to test only a panel. It does not utilize the framing strength.		
<b>Concentrated Load Test</b>		<a href="#">ASTM E-661</a>
		No Failure
<b>Structural Performance Check</b>		<b>ASTM E-330</b>
		<a href="#">@ 20 psf design pressure</a>
		<a href="#">@ 30 psf design pressure</a>
		Maximum Deflection of Panel = 0.862" Permanent Set = 0.116" Maximum Deflection of Panel = 1.387" Permanent Set = 0.131"
**Test consists of panels <u>with</u> framing. Test is consistent with the glass skylight, window, & curtainwall industry.		
**Test is designed to check an entire system as opposed to other "glazing only" tests.		
<b>INFILTRATION</b>		
<b>Air Infiltration</b>		<b>ASTM E-283</b>
		<a href="#">@ 20 psf design pressure</a>
		<a href="#">@ 30 psf design pressure</a>
		Exceeds Requirements of: < 0.01 cfm/ft <sup>2</sup> @ 1.57 psf < 0.01 cfm/ft <sup>2</sup> @ 6.24 psf
<b>Water Penetration</b>		<b>ASTM E-331</b>
		<a href="#">@ 20 psf design pressure</a>
		<a href="#">@ 30 psf design pressure</a>
		No Water Penetration No Water Penetration

NOTE: All included information is based on testing as reported by independent testing agencies. We reserve the right to improve our products and retest, which may change results. Please contact Major Industries Inc. with any questions.

Updated:  
3/5/2010



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## Test Description

## Test Method

## Comments/Results

### THERMAL PERFORMANCE

#### NFRC Certified Insulating Values

80"x80" System

ASTM C-518

See Table Below

Values based on a 12"x24" grid pattern. (Other configurations available).

**\*\*Validated to NFRC 2004 requirements.**

\*\*NFRC requires validation testing of both *standard* and *thermally improved* assembled skylight systems measuring 80"x80" consisting of 2 translucent panels and 3 vertical rafters with perimeter head and sill.

(Site-built application) Tested at 20° slope and 15 mph wind.

\*\*NFRC requires validation testing of both *standard* and *thermally improved* assembled wall systems measuring 80"x80" consisting of 2 translucent panels and 3 vertical mullions with perimeter head and sill.

(Site-built application) Tested at 90° slope and 15 mph wind.

#### Condensation Resistance Factor (CRF)

ASTM C-236

See Table Below

AAMA 1503.1

### LIGHT TRANSMISSION

#### Light Transmission & Solar Heat Gain Coefficient

(LT)  
(SHGC)

ASTM E-972

See Table Below

#### Shading Coefficient

(SC)

SC = 1.15 x SHGC

\*\*SHGC is approximately 87% of the shading coefficient at a given solar incidence and has replaced the shading coefficient as the property to specify as it is a more accurate method of stating glazing performance in a building envelope.

GUARDIAN 275 <sup>®</sup> PERFORMANCE DATA 2.75"	FACE SHEET COLOR COMBINATIONS											
	Exterior Sheet Color / Interior Sheet Color											
	Crystal / Crystal	Crystal / White	White / Crystal	White / White	Ice Blue / Crystal	Ice Blue / White	Tan / Crystal	Tan / White	Aqua / Crystal	Aqua / White	Desert Rose / Crystal	Desert Rose / White
<b>Center of Panel U-Factor</b>												
No Insulation	0.48											
Insul 24	0.20											
Insul 15	0.17											
IMG 125	0.08											
<b>System U-Factor</b>	Standard / Thermally Broken											
No Insulation	Sloped System - 0.56 / <b>0.54</b>						Wall System - 0.58 / <b>0.54</b>					
Insul 24	Sloped System - 0.29 / <b>0.26</b>						Wall System - 0.28 / <b>0.25</b>					
Insul 15	Sloped System - 0.25 / <b>0.23</b>						Wall System - 0.25 / <b>0.22</b>					
IMG 125	Sloped System - 0.17 / <b>0.15</b>						Wall System - 0.17 / <b>0.15</b>					
<b>Light Transmission</b>												
No Insulation (%)	64	40	31	24	58	39	55	35	44	34	53	35
Insul 24 (%)	33	25	21	17	34	24	27	22	23	22	27	20
Insul 15 (%)	23	19	17	15	22	18	19	18	17	16	20	17
IMG 125 (%)	7	6	5	5	7	7	6	6	7	7	6	6
<b>Solar Heat Gain Coefficient</b>												
No Insulation	0.52	0.38	0.31	0.24	0.39	0.37	0.44	0.32	0.34	0.31	0.46	0.34
Insul 24	0.24	0.21	0.18	0.15	0.26	0.25	0.25	0.22	0.23	0.21	0.31	0.24
Insul 15	0.22	0.19	0.17	0.14	0.23	0.18	0.21	0.20	0.20	0.16	0.23	0.21
IMG 125	0.08	0.08	0.07	0.06	0.08	0.07	0.08	0.08	0.08	0.07	0.08	0.08
<b>CRF</b>	Sloped Glazed - 77 / Vertical Wall - 81											
<b>UV Transmittance</b>	<0.01											
<b>Solar Transmittance (Ts)</b>	.04 - .54											
<b>Reflective (Rs)</b>	.21 - .73											

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Test Description	Test Method	Comments/Results
<b>WEATHERING</b>		
<b>Color Difference</b>	<b>Ultimate® Series Exterior</b>	<b>ASTM D-2244</b>
		White Sample: Delta E = 2.86
<p>**Delta E readings on samples exposed to twelve years full spectrum solar radiation.</p> <p>**Accelerated (per ASTM G90-05 - Standard Practice for Performing Accelerated Outdoor Weathering of Nonmetallic Materials Using Concentrated Natural Sunlight)</p> <p>**All FRP face sheets are specifically formulated for architectural use. The exterior face sheets are formulated with state-of-the-art ultraviolet stabilizers. An additional UV protective coating is molecularly bonded to the weathering surface of the exterior face sheet. This coating acts as an additional weather barrier to enhance the life expectancy of the product.</p>		
<b>Taber Abrasion Test</b>	<b>Ultimate® Series Exterior (White)</b> <b>Ultimate® Series Exterior (Crystal)</b>	<b>ASTM D-4060</b> <b>ASTM D-4060</b>
		500 grams @ 1000 cycles = 32.5 mg wt. loss 500 grams @ 1000 cycles = 32.5 mg wt. loss
<p>**Taber Abrasion Test results are meaningless when comparing the weathering of Fiberglass Reinforced Polymer (FRP) panels. The Taber Abrasion Test was developed to test the hardness of a material coating (i.e. paint or anodize). Neither the hardness of the FRP resin nor the hardness of any coatings applied to the FRP provide for an accurate measure of the FRP sheet's ability to withstand weathering (i.e. UV, heat, cold, and acid rain).</p> <p style="text-align: right;"><a href="#">Additional Information on Taber Testing</a></p>		
<b>HURRICANE SYSTEM</b>		
<b>Air Infiltration</b>	<b>ASTM E-283</b>	Exceeds Requirements of:
	<b>Wall System</b>	< 0.01 cfm/ft <sup>2</sup> @ 6.24 psf
	<b>Skylight System</b>	0.04 cfm/ft <sup>2</sup> @ 6.24 psf
<b>Water Penetration</b>	<b>ASTM E-331</b>	No Water Penetration
	<b>Wall System</b>	No Water Penetration
	<b>Skylight System</b>	No Water Penetration
<b>Structural Performance Check</b>	<b>ASTM E-330</b>	Max Deflection of Structural Member = 0.829"
	<b>Wall System</b>	Permanent Set = 0.074"
	<b>Skylight System</b>	Max Deflection of Structural Member = 0.499"
		Permanent Set = 0.167"
<p>**Test consists of panels with framing. Test is consistent with the glass skylight, window, &amp; curtainwall industry.</p> <p>**Test is designed to check an entire system as opposed to other "glazing only" tests.</p>		
<b>Windborne Debris Impact Protection</b>	<b>ASTM E-1996</b>	Passed: Missile D, Wind Zone 3
	<b>Wall System with Ultimate® Series Hi-Impact Exterior</b>	Passed: Missile D, Wind Zone 3
	<b>Skylight System with Ultimate® Series Hi-Impact Exterior</b>	
<b>Cyclic Load Testing</b>	<b>ASTM E-1886</b>	Passed: ±65psf
	<b>Wall System with Ultimate® Series Hi-Impact Exterior</b>	Passed: ±65psf
	<b>Skylight System with Ultimate® Series Hi-Impact Exterior</b>	
<b>MISCELLANEOUS</b>		
<b>Blast Testing</b>	<b>GSA - TS01-2003</b> <b>UFC 4-010-01</b>	Condition "1" - Hazard Level "None" Medium Level of Protection
<b>Field Test</b>	<b>ASTM E-783</b> <b>ASTM E-1105</b> <b>AAMA 501.2</b>	Passed: < 0.01 cfm/ft <sup>2</sup> @ 6.24 psf Passed: No Leakage Passed
	<b>Air Leakage</b>	
	<b>Water Penetration</b>	
	<b>Water Leakage</b>	
<b>Field Test</b>	<b>per 2001 CBC</b>	No Failure @ 80 psf
	<b>(DeAnza College)</b>	
<b>Florida Building Codes and Standards</b>	<b>FL#10280-R1</b>	Approved
<b>NYC Material and Equip. Acceptance</b>	<b>MEA 289-99-M</b>	MEA Approved
<b>Texas Department of Insurance</b>	<b>RWA - 01</b>	TDI Approved
<b>ICC-ES Evaluation Report</b>	<b>PFC-5620</b>	ICC-ES Listed

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