



GUARDIAN 275® DATA SHEET

FOR 2-3/4 INCH SYSTEMS

WWW.MAJORSKYLIGHTS.COM

(888) 759-2678

TEST DESCRIPTION	TEST METHOD	RESULTS/COMMENTS
FLAMMABILITY		
<i>Flame Spread</i> <i>Smoke Development</i>	<i>Interior Sheet</i> <i>Class "A" Exterior Sheet</i> <i>Insulation</i>	ASTM E-84 UL 723, ANSI/NFPA #255 UL 723 ASTM E-84, ANSI/NFPA #255 ASTM E-84 UL 723, ANSI/NFPA #255
		Flame Spread: 10 Smoke Development: 300 Flame Spread: 15 Smoke Development: 350 Flame Spread: 5 Smoke Development: 0
2009 INTERNATIONAL BUILDING CODE REQUIREMENTS		Section 2606.4 Section 2606.4
		Flame Spread: No Requirement Smoke Development: <450
<i>Burn Extent</i>	<i>Interior Sheet</i> <i>Ultimate Series™ Exterior Sheet</i>	ASTM D-635 ASTM D-635
		CC1 - less than 1.0 inch CC2 - less than 2.5 inch/min
2009 INTERNATIONAL BUILDING CODE REQUIREMENTS		Section 2606.4
		Material shall have a CC1 or CC2 classification
<i>Self-Ignition</i>	<i>Interior Sheet</i> <i>Class "A" Exterior Sheet</i> <i>Ultimate Series™ Exterior Sheet</i>	ASTM D-1929 ASTM D-1929 ASTM D-1929
		Flash Ignition: 872°F (467°C) Spontaneous Ignition: 912°F (489°C) Flash Ignition: 925°F (496°C) Spontaneous Ignition: 937°F (503°C) Flash Ignition: 752°F (400°C) Spontaneous Ignition: 860°F (460°C)
2009 INTERNATIONAL BUILDING CODE REQUIREMENTS		Section 2606.4
		Material shall have a self-ignition temperature greater than 650°F
<i>Class "A" Skylight System</i>	<i>Class "A" Exterior Sheet</i> <i>Ultimate Series™ Exterior Sheet</i>	ASTM E-108 ASTM E-108
		Class "A" Unlimited Slope Class "A" Burning Brand Unlimited Slope
ADHESIVE BOND STRENGTH		
<i>Adhesive Bond Strength</i>	<i>Un-Aged</i> <i>Aged by ASTM D-1037</i> <i>Un-Aged</i> <i>Aged by ASTM D-1037</i>	ASTM D-1002 (Shear) ASTM C-297 (Tensile)
		563 psi 1212 psi 557 psi 914 psi
IMPACT & LOADING		
<i>Small Missile Impact Protection</i>		ASTM E-1996
		Missile A, Wind Zone 1
<i>Impact Strength</i>	<i>Standard Glazing</i> <i>Ultimate Series™ High-Impact Exterior Glazing</i> <i>High-Impact Interior Glazing</i> <i>Class "A" Glazing</i>	UL 972 UL 972 UL 972 UL 972
		No Penetration: >70 ft-lbs No Penetration: >361 ft-lbs No Penetration: >245 ft-lbs No Penetration: >90 ft-lbs
UL 972 REQUIREMENTS		Section 6.2.1 (Standard Test) Section 6.5.1 (High-Energy Test)
		The material shall withstand five 50ft-lbs impacts The material shall withstand one 200ft-lbs impact
<i>Uniform Load Deflection - PANEL ONLY</i>		ASTM E-72
		Panel Deflection: <3.0% Permanent Set after 5 min: <0.5%
<i>Concentrated Load Test</i>		ASTM E-661
		No Failure: 400 lbs Concentrated Load (57psi) No Failure: 150 ft-lbs Impact Load
<i>Structural Performance</i>		ASTM E-330
		Max Deflection of Structure: <L/125 @ 20psf Permanent Set: <0.05% @ 40psf Proof Load
2009 INTERNATIONAL BUILDING CODE REQUIREMENTS		Table 1604.3
		Exterior Walls with Flexible Finishes shall have a deflection limit no less than L/120
AAMA/WDMA/CSA 101/I.S.2/A440-05 REQUIREMENTS		Section 5.3.4.3
		There shall be no permanent deformation in excess of 0.2% for Architectural Class Products
INFILTRATION		
<i>Air Infiltration</i>		ASTM E-283
		< 0.01 cfm/ft ² @ 6.24psf
AAMA/WDMA/CSA 101/I.S.2/A440-05 REQUIREMENTS		Section 5.3.2.1 & Table 6
		Test specimen shall have a maximum allowable air leakage rate no greater than 0.1 cfm/ft ²
<i>Water Penetration</i>		ASTM E-331
		No Water Penetration @ 12psf
AAMA/WDMA/CSA 101/I.S.2/A440-05 REQUIREMENTS		Section 5.3.3.2
		At no time during the duration of test shall water penetrate the inner plane of the test specimen

NOTE: All information is based on testing as reported by independent test agencies. Major Industries, Inc. strives to create the most advanced product in the daylighting industry. As a result, products, materials and test results are subject to change without notice. Values may also vary with custom system configurations. Please contact Major Industries, Inc. with any questions.

Updated:
May 4, 2012



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TEST DESCRIPTION

TEST METHOD

RESULTS/COMMENTS

LIGHT TRANSMISSION

Visible Light Transmission (LT) ASTM E-972 See Table Below
UV Transmittance

**Light Transmission values are based on an incident angle normal to the plane of a representative panel, and are determined using the ASTM E-972 standard.

Solar Heat Gain Coefficient (SHGC) NFRC 201 See Table Below

**SHGC values are for comparative analysis and are determined using the NFRC 201 standard.

**SHGC is 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. (SC = 1.15 x SHGC)

THERMAL PERFORMANCE

NFRC Certified U-Values NFRC 100 See Table Below
 2000mm x 2000mm (78-3/4" x 78-3/4") System

**Center of Panel U-factor values determined by NFRC test methods. For glazing comparisons only.

Certified System U-factor values are for comparative analysis and are determined using criteria defined by NFRC, which requires simulation and validation testing of both **standard and **thermally improved** assembled skylight / wall systems measuring 2000mm x 2000mm (78-3/4" x 78-3/4") consisting of 2 translucent panels, 3 vertical rafters / mullions and perimeter head and sill.

Condensation Resistance Factor (CRF) AAMA 1503.1 See Table Below

**Values are based on testing performed on thermally broken glazing panels.

GUARDIAN 275 [®] PERFORMANCE DATA	FACE SHEET COLOR COMBINATIONS			
	Exterior Sheet Color / Interior Sheet Color			
	Crystal / Crystal	Crystal / White	White / Crystal	White / White
Light Transmission				
No Insulation (%)	64	40	31	24
Insul 24 (%)	33	25	21	18
Insul 15 (%)	23	19	17	15
IMG 125 (%)	7	5	5	4
Solar Heat Gain Coefficient				
No Insulation	0.52	0.38	0.31	0.24
Insul 24	0.24	0.21	0.18	0.15
Insul 15	0.22	0.19	0.17	0.14
IMG 125	0.09	0.09	0.07	0.06
Center of Panel U-factor				
No Insulation	0.48			
Insul 24	0.20			
Insul 15	0.17			
IMG 125	0.08			
Certified System U-factor	Wall System		Sloped System	
	Non-Thermally Broken	Thermally Broken	Non-Thermally Broken	Thermally Broken
No Insulation	0.60	0.58	0.66	0.64
Insul 24	0.32	0.30	0.39	0.36
Insul 15	0.29	0.27	0.36	0.33
IMG 125	0.21	0.20	0.27	0.25
CRF	Vertical Wall - 81 / Sloped Glazed - 75			
UV Transmittance	<0.01			

Additional sheet colors available. Please contact Major Industries, Inc. for related performance data.

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TEST DESCRIPTION	TEST METHOD	RESULTS/COMMENTS
WEATHERING		
<i>Color Difference</i>	<i>Ultimate Series™ Exterior Sheet</i>	ASTM D-2244
<p>ΔE = 2.23 after 15 yrs</p> <p>**Delta E readings on uncoated white samples exposed to fifteen years full spectrum solar radiation. **Accelerated per ASTM G90-05 - Standard Practice for Performing Accelerated Outdoor Weathering of Nonmetallic Materials Using Concentrated Natural Sunlight **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>		
<i>Taber Abrasion Test</i>	<i>Ultimate Series™ Exterior Sheet (White)</i> <i>Ultimate Series™ Exterior Sheet (Crystal)</i>	ASTM D-4060 ASTM D-4060
<p>1000 cycles @ 500 grams = 32.5 mg wt. loss 1000 cycles @ 500 grams = 32.5 mg wt. loss</p> <p>**Taber Abrasion Test results are irrelevant 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>		
HURRICANE SYSTEM		
<i>Air Infiltration</i>	<i>Wall System</i> <i>Skylight System</i>	ASTM E-283 ASTM E-283
<p>< 0.01 cfm/ft² @ 6.24 psf < 0.05 cfm/ft² @ 6.24 psf</p>		
<i>AAMA/WDMA/CSA 101/I.S.2/A440-05 REQUIREMENTS</i>		Section 5.3.2.1 & Table 6
<p>Test specimen shall have a maximum allowable air leakage rate no greater than 0.1 cfm/ft²</p>		
<i>Water Penetration</i>	<i>Wall System</i> <i>Skylight System</i>	ASTM E-331 ASTM E-331
<p>No Water Penetration @ 15 psf No Water Penetration @ 15 psf</p>		
<i>AAMA/WDMA/CSA 101/I.S.2/A440-05 REQUIREMENTS</i>		Section 5.3.3.2
<p>At no time during the duration of test shall water penetrate the inner plane of the test specimen</p>		
<i>Structural Performance</i>	<i>Wall System</i> <i>Skylight System</i>	ASTM E-330 ASTM E-330
<p>Max Deflection of Structure: <L/120 @ 65psf Permanent Set: <0.1% @ 135psf Proof Load Max Deflection of Structure: <L/180 @ 65psf Permanent Set: <0.2% @195psf Proof Load</p>		
<i>2010 FLORIDA BUILDING CODE REQUIREMENTS</i>		Table 1604.3
<p>Exterior Walls with Flexible Finishes shall have a Deflection limit no less than L/120 Non Supporting Ceilings shall have a Deflection limit no less than L/180</p>		
<i>AAMA/WDMA/CSA 101/I.S.2/A440-05 REQUIREMENTS</i>		Section 5.3.4.3
<p>There shall be no permanent deformation in excess of 0.2% for Architectural Class Products</p>		
<i>Windborne Debris Impact Protection</i>	<i>Wall System w/ Ultimate Series™ High-Impact Ext. Sheet</i> <i>Skylight System w/ Ultimate Series™ High-Impact Ext. Sheet</i>	ASTM E-1996 ASTM E-1996
<p>Passed: Missile D, Wind Zone 3 Passed: Missile D, Wind Zone 3</p>		
<i>Cyclic Load Testing</i>	<i>Wall System w/ Ultimate Series™ High-Impact Ext. Sheet</i> <i>Skylight System w/ Ultimate Series™ High-Impact Ext. Sheet</i>	ASTM E-1886 ASTM E-1886
<p>Passed: ±65psf Passed: ±65psf</p>		
MISCELLANEOUS		
<i>Blast Testing</i>		GSA - TS01-2003 UFC 4-010-01
<p>Condition "1" - Hazard Level "None" Medium Level of Protection</p>		
<i>Field Test</i>	<i>(Motorola Building) Water Penetration</i> <i>Water Leakage</i>	ASTM E-783 ASTM E-1105 AAMA 501.2
<p>Passed: < 0.01 cfm/ft² @ 6.24 psf Passed: No Leakage Passed: No Leakage</p>		
<i>Field Test</i>	<i>(DeAnza College) Deflection</i>	2001 CBC
<p>No Failure @ 80 psf</p>		
<i>Florida Building Codes and Standards</i>	<i>Wall System</i> <i>Wall System</i> <i>Skylight</i>	FL#10280-R1 FL#13504 FL#13456
<p>Approved - Windzone 2 Missile Level C Approved - Windzone 3 Missile Level D Approved - Windzone 3 Missile Level D</p>		
<i>NYC Material and Equip. Acceptance</i>		MEA 289-99-M
<p>MEA Approved</p>		
<i>Texas Department of Insurance</i>		RWA - 01
<p>TDI Approved</p>		
<i>ICC-ES Evaluation Report</i>		PFC-5620
<p>ICC-ES Listed</p>		

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