



Guardian 275[®] Data Sheet

for 2-3/4 inch Systems

www.majorskylights.com

(888) 759-2678

TEST DESCRIPTION	TEST METHOD	COMMENTS/RESULTS
FLAMMABILITY		
Flame Spread	<i>Interior Sheet</i>	ASTM E-84 UL 723, ANSI/NFPA #255
Smoke Developed	<i>Class "A" Exterior Sheet</i>	UL 723 ASTM E-84, ANSI/NFPA #255
	<i>Insulation</i>	ASTM E-84 UL 723, ANSI/NFPA #255
Burn Extent	<i>Interior Sheet</i>	ASTM D-635
	Ultimate Series™ Exterior	ASTM D-635
Self-Ignition	<i>Interior Sheet</i>	ASTM D-1929
	Ultimate Series™ Exterior	ASTM D-1929
<p>All interior FRP sheets comply with ICC evaluation report # ER-1412 All exterior FRP sheets comply with ICC evaluation report # ESR-2026</p>		
Class "A" Skylight System	Ultimate Series™ Exterior	ASTM E-108
	Ultimate Series™ Exterior	ASTM E-108
	Ultimate Series™ Exterior	UL 790
<p>Class "A" Unlimited Slope Class "A" Burning Brand Unlimited Slope Class "A" Low Slope (2/12 or less)</p>		
ADHESIVE BOND STRENGTH		
Adhesive Bond Strength		ASTM D-1002 (Shear)
		ASTM C-297 (Tensile)
Aged Adhesive Bond Strength		by ASTM D-1037 (Aging)
	Listed on above report	ASTM D-1002 (Shear)
	Listed on above report	ASTM C-297 (Tensile)
IMPACT & LOADING		
Impact Strength	Ultimate Series™ Exterior	UL 972
	Ultimate Series™ Hi-Impact Exterior	UL 972
	Ultimate Series™ Exterior (British Standard)	UL 972
	Class "A" Exterior Sheet	UL 972
Small Missile Impact Protection		ASTM E-1996
Uniform Load Deflection		ASTM E-72
<p>**ASTM E-72 test is designed to test only a panel. It does not utilize the framing strength.</p>		
Concentrated Load Test		ASTM E-661
Structural Performance Check		ASTM E-330
	@ 20 psf design pressure	Maximum Deflection of Panel = 0.862" Permanent Set = 0.116"
	@ 30 psf design pressure	Maximum Deflection of Panel = 1.387" Permanent Set = 0.131"
<p>**Test consists of panels with 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.</p>		
INFILTRATION		
Air Infiltration	ASTM E-283	Exceeds Requirements of:
	@ 20 psf design pressure	< 0.01 cfm/ft ² @ 1.57 psf
	@ 30 psf design pressure	< 0.01 cfm/ft ² @ 6.24 psf
Water Penetration	ASTM E-331	
	@ 20 psf design pressure	No Water Penetration @ 12 psf
	@ 30 psf design pressure	No Water Penetration @ 12 psf

NOTE: All 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.

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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
AAMA 1503.1

See Table Below

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 [®] 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
Center of Panel U-Factor												
No Insulation	0.48											
Insul 24	0.20											
Insul 15	0.17											
IMG 125	0.08											
System U-Factor	Standard / Thermally Broken											
No Insulation	Sloped System - 0.56 / 0.54						Wall System - 0.58 / 0.54					
Insul 24	Sloped System - 0.29 / 0.26						Wall System - 0.28 / 0.25					
Insul 15	Sloped System - 0.25 / 0.23						Wall System - 0.25 / 0.22					
IMG 125	Sloped System - 0.17 / 0.15						Wall System - 0.17 / 0.15					
Light Transmission												
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
Solar Heat Gain Coefficient												
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
CRF	Sloped Glazed - 77 / Vertical Wall - 81											
UV Transmittance	<0.01											
Solar Transmittal (Ts)	.04 - .54											
Reflective (Rs)	.21 - .73											

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WEATHERING		
Color Difference	Ultimate Series™ Exterior	ASTM D-2244
		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>		
Taber Abrasion Test	Ultimate Series™ Exterior (White) Ultimate Series™ Exterior (Crystal)	ASTM D-4060 ASTM D-4060
		500 grams @ 1000 cycles = 32.5 mg wt. loss 500 grams @ 1000 cycles = 32.5 mg wt. loss
<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>		
Additional Information on Taber Testing		
HURRICANE SYSTEM		
Air Infiltration	ASTM E-283	Exceeds Requirements of:
	Wall System @ 65 psf design pressure	< 0.01 cfm/ft ² @ 6.24 psf
	Skylight System @ 65 psf design pressure	0.04 cfm/ft ² @ 6.24 psf
Water Penetration	ASTM E-331	No Water Penetration @ 15 psf
	Wall System @ 65 psf design pressure	No Water Penetration @ 15 psf
	Skylight System @ 65 psf design pressure	No Water Penetration @ 15 psf
Structural Performance Check	ASTM E-330	Max Deflection of Structural Member = 0.829"
	Wall System @ 65 psf design pressure	Permanent Set = 0.074" @ 130 psf proof load
	Skylight System @ 65 psf design pressure	Max Deflection of Structural Member = 0.499"
		Permanent Set = 0.148" @ 195 psf proof load
<p>**Test consists of panels with framing. Test is consistent with the glass skylight, window, & curtainwall industry.</p> <p>**Test is designed to check an entire system as opposed to other "glazing only" tests.</p>		
Windborne Debris Impact Protection		
	Wall System with Ultimate Series™ Hi-Impact Exterior	ASTM E-1996
	Skylight System with Ultimate Series™ Hi-Impact Exterior	ASTM E-1996
		Passed: Missile D, Wind Zone 3 Passed: Missile D, Wind Zone 3
Cyclic Load Testing		
	Wall System with Ultimate Series™ Hi-Impact Exterior	ASTM E-1886
	Skylight System with Ultimate Series™ Hi-Impact Exterior	ASTM E-1886
		Passed: ±65psf Passed: ±65psf
MISCELLANEOUS		
Blast Testing	GSA - TS01-2003 UFC 4-010-01	Condition "1" - Hazard Level "None" Medium Level of Protection
Field Test	Air Leakage ASTM E-783	Passed: < 0.01 cfm/ft ² @ 6.24 psf
	(Motorola Building) Water Penetration ASTM E-1105	Passed: No Leakage
	Water Leakage AAMA 501.2	Passed
Field Test	(DeAnza College) Deflection per 2001 CBC	No Failure @ 80 psf
Florida Building Codes and Standards	Wall System FL#10280-R1	Approved - Windzone 2 Missile Level C
	Wall System FL#13504	Approved - Windzone 3 Missile Level D
	Skylight FL#13456	Approved - Windzone 3 Missile Level D
NYC Material and Equip. Acceptance	MEA 289-99-M	MEA Approved
Texas Department of Insurance	RWA - 01	TDI Approved
ICC-ES Evaluation Report	PFC-5620	ICC-ES Listed

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