

# Versalux®



## FLORIDA MODEL LIGHTING ORDINANCE FOR MARINE TURTLE PROTECTION (“TURTLE GLASS”)

Development along the Florida coastline requires a special consideration when designing and constructing a building – the safety of indigenous marine turtle hatchlings. It has been discovered that, at night, light shining brightly from buildings within line of site of the seashore attracts marine turtle hatchlings away from their natural environment at sea.

Due to the phenomena, the Florida Model Lighting Ordinance for Marine Turtle Protection requires architectural glass to transmit no more than 45% of interior light from inside coastal buildings located adjacent to marine turtle nesting areas. Originally, Versalux® Blue 2000 was intended to transmit more than 45% of interior light. But, research indicated that a darker blue glass would not only better serve environmental needs, it would be more attractive than many alternative products. The resulting Versalux® Blue 2000, by transmitting only 43% of light, complies with the coastal lighting code and has become the product of choice for numerous Florida coastal buildings. Since the introduction of Versalux Blue 2000, additional products have been developed by ACH Float Glass that comply with the ordinance as shown in the chart below.

PRODUCT	Glass Thickness Nominal	Product Type	Coated Glass Surface	Transmittance %			Outdoor Reflectance %		Indoor Reflectance %	Customary System Values					Metric Value		
				Total Solar	Visible	Ultra Violet <sup>e</sup>	Total Solar	Visible	Visible	U-Value <sup>a</sup>		Shading Coefficient	Solar Heat Gain Coefficient	Relative Heat Gain <sup>d</sup> BTU FT <sup>2</sup>	K-value <sup>a</sup>		Relative Heat Gain <sup>d</sup> W/m <sup>2</sup>
	Inch (mm)			Winter Nighttime	Summer Daytime	Winter Nighttime	Summer Daytime	Winter Nighttime	Summer Daytime								
Versalux® Blue 2000	1/4 (6mm)	Tinted	-	30	43	14	5	5	5	0.99	0.90	0.58	0.50	128	5.61	5.14	405
	5/16 (8mm)	Tinted	-	22	33	9	4	5	5	0.98	0.89	0.52	0.44	116	5.54	5.08	364
Versalux® Blue 2000R	1/4 (6mm)	Tinted Reflective	1	16	16	4	27	35	9	0.99	0.90	0.38	0.32	89	5.61	5.54	280
		Tinted Reflective	2 <sup>✓</sup>	16	16	4	7	9	35	0.99	0.90	0.46	0.39	105	5.61	5.14	328
Versalux® Blue 2000T	1/4 (6mm)	Tinted Reflective	1	24	29	10	25	34	12	0.99	0.90	0.45	0.39	103	5.61	5.13	323
		Tinted Reflective	2 <sup>**</sup>	24	29	10	9	12	34	0.99	0.90	0.51	0.44	115	5.61	5.13	362
	5/16 (8mm)	Tinted Reflective	1	17	23	7	25	32	8	0.98	0.89	0.40	0.34	92	5.34	5.08	291
		Tinted Reflective	2 <sup>**</sup>	17	23	7	7	8	32	0.98	0.89	0.47	0.46	106	5.54	5.08	334
Versalux® Green 2000R	1/4 (6mm)	Tinted Reflective	1	16	26	4	27	35	16	0.99	0.90	0.37	0.32	88	5.61	5.14	276
		Tinted Reflective	2 <sup>✓</sup>	16	26	4	8	16	35	0.99	0.90	0.45	0.38	102	5.61	5.14	321
	5/16 (8mm)	Tinted Reflective	1	11	23	3	27	35	13	0.98	0.89	0.35	0.29	82	5.54	5.07	258
		Tinted Reflective	2 <sup>✓</sup>	11	23	3	8	13	35	0.98	0.89	0.42	0.36	87	5.54	5.08	306
Versalux® Green 2000T	5/16 (8mm)	Tinted Reflective	1	19	41	6	23	33	16	0.98	0.89	0.42	0.36	97	5.54	5.07	305
		Tinted Reflective	2 <sup>✓</sup>	19	41	6	8	16	33	0.98	0.89	0.48	0.41	107	5.55	5.08	339

Contact your ACH Float Glass Regional Sales Manager for information on additional Versalux “Turtle Glass” Products

# Versalux®

## Footnotes Apply to Tinted and Reflective Versalux® Monolithic, Insulated with Clear and Insulated with Low-E

<sup>1</sup> Pyrolytically Applied Low Emissivity Coating on Clear Float Glass. Coated Surface Emissivity .154 and Total Solar Reflectance 12 - 13%

<sup>2</sup> MSVD (sputter) Applied Low Emissivity Coating on Clear Glass. Coated Surface Emissivity .043 and Total Solar Reflectance 43%

▽ Light to Solar Gain Ratio (LSG) is Visible Light Transmittance ÷ Solar Heat Gain Coefficient. (*Spectrally Selective Glazing has VLT of ≥ 40% & LSG ratio of ≥ 1.25 as outlined in Federal Technology Alert DOE/EE-0173, Federal Energy Management Program.*)

@ Air Space Filling: Dark Bands Argon Filled – Light Bands Air Filled

▴ It is recommended these products be heat treated (heat strengthened or fully tempered) to withstand solar induced thermal stresses.

\*\* These products may require heat treating to withstand solar induced thermal stresses when the reflective coating is glazed towards the building's interior. (See pages 11-15).

- a The Winter Nighttime U/R Values (K Values) are based on an outdoor temperature of 0°F (-17.8°C) an indoor temperature of 70°F (21°C) 15 mph (24km/h) outdoor air speed and no sun. The Summer Daytime U/R Values (K Value) are based on an outdoor temperature of 89°F (32°C), an indoor temperature of 75°F (24°C), a 7.5 mph (12km/h) outdoor air speed and a solar intensity of 248 BTU/Hr. per Ft<sup>2</sup> (790 w/m<sup>2</sup>.)
- b Shading Coefficient is the ratio of solar heat gain through a glass/or glass and shading combination compared to that of unshaded 1/8" (3.0mm) clear float glass at normal incidence. The shading coefficient of 1/8" (3.0mm) clear float glass is 1.00.
- c Solar Heat Gain Coefficient is the solar heat gain through glass relative to the incident solar radiation. SHGC is equal to approximately 86% of the shading coefficient.
- d Relative Heat Gain is the combination of solar heat gain (transmitted and that amount of absorbed energy that is conducted or convected to the interior) and heat transfer due to the indoor/outdoor temperature differential. (Based on an ASHRAE solar heat gain factor of 200 BTU/Hr. per Ft<sup>2</sup>. (637 w/m<sup>2</sup>) and outdoor air 14°F (7.8°C) warmer than indoor air with no shading devices.)
- e From LBNL Window 5.2 v5.2.12 Computer Analysis (300-380 nanometers.) Environmental conditions assumed: NFRC 100-2001 summer and NFRC 100-2001 winter.

Performance data represents center of glass values calculated under the guidelines of LBNL Window 5.2 v5.2.12 computer analysis, assuming an air mass of 1.5.

For values calculated under Window 4.1, visit our website at [www.versaluxglass.com](http://www.versaluxglass.com)