Turtle Glass

INTRODUCTION

The purpose of this Product Application Bulletin is to explain "Turtle Glass" requirements, as well as outline multiple Guardian ClimaGuard Low-E solutions to meet the requirements.

OVERVIEW

All sea turtle species are endangered, and protection of these creatures is a priority across the State of Florida.

Sea turtles hatch on beaches and naturally follow the light of the moon reflected on the surface of the ocean to arrive at their permanent aquatic habitat. Artificial light near the horizon can confuse the turtles and cause them to migrate landward, after which they die of dehydration and exhaustion.

The Florida Model Lighting Ordinance serves as a legal basis for the protection of sea turtles by prohibiting beachfront activities and lighting circumstances that would interfere with the successful hatching of the animals. Approximately 70% of Florida's coastline is covered by local legislation based upon the model code.

Of particular importance, the Florida Model Lighting Ordinance requires the use of tinted glass, defined as a glazing product with no more than 45% visible (400-700 nanometer wavelength) light transmission, on all windows and glass doors of structures located within sight of the beach.

This requirement can be satisfied through the specification of an industry-standard performance coating on either a clear or colored float glass substrate such that visible light transmission is suitably reduced. In addition, a properly-specified performance coating can significantly limit heat transmission through a glass unit and deliver energy savings.

Florida Model Lighting Ordinance
https://www.flrules.org/gateway/chapterhome.asp?chapter=62b-55

Local Ordinance Information
http://myfwc.com/conservation/you-conserve/lighting/ordinances/

CLIMAGUARD PRODUCT SOLUTIONS

There are several ways to meet the requirements of the Florida Model Lighting Ordinance using Guardian ClimaGuard products. The number of Low-E coatings, the glass substrate itself, and any additional layers will affect the total visible light transmission (Tvis). Below are several options to reduce the visible light transmission (center of glass) to no more than 45%:

Single Low-E

Surface #2 Low-E	*IGU Tvis*	*Replacement Inboard Lite*	*Resultant Tvis*
55/27	55%	3.3mm Crystal Gray	45%

Double Low-E

**All makeups 3mm / 1/2" Gap / 3mm*

Surface #2 Low-E	*IGU Tvis*	*Additional Surface #3 Low-E*	*Resultant Tvis*
63/31	63%	55/27	42%
62/27	62%	55/27	41%
55/27	55%	62/27	41%
55/27	55%	63/31	42%
55/27	55%	55/27	36%

Laminated Glass

**Configuration: 3mm/.090/3mm + 1/2" gap + 3mm (PVB layer consisting of 0.030 Clear + 0.030 Colored + 0.030 Clear) Low-E facing air gap.*

Low-E	*Tvis - Clear PVB*	*Substitute Middle PVB Layer*	*Resultant Tvis*
71/38	69%	Light Brown	43%
		Light Bronze	40%
		Gray	35%
70/36	68%	Light Brown	42%
		Light Bronze	39%
		Gray	34%
63/31	61%	Light Brown	39%
		Light Bronze	35%
		Gray	31%
62/27	60%	Light Brown	39%
		Light Bronze	35%
		Gray	31%
55/27	53%	Blue Green	43%
		Light Brown	33%
		Light Bronze	31%
		Gray	27%

*Saflex PVB layers used in examples. Other PVB products can be simulated using the Guardian Performance Calculator
*Saflex is a registered trademark of Solutia Inc.

For additional information regarding handling, fabrication, or use of any Guardian glass product, please contact the Guardian Customer Engineering Group at 888-521-9734.