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## PRODUCT DATA SHEET

PRODUCT LINE: GlasPro-GL

COLLECTIONS: GlasPro-“Bird Safe Glass”

GlasPro-“BIRD SAFE GLASS” is available as a standard in clear and also available in Low Iron. It is a Laminated Glass product that can be combined into any High-Performance Low E Insulated Glass. This product uses special technology that provides a highly effective anti bird collision avoidance. While nearly invisible to humans, birds see the pattern as a barrier that they cannot fly through and therefore avoid it. This glass should not be combined with a reflective coated glass nor a tinted glass as these configurations have not been tested.

**Available Thickness:** GlasPro-“BIRD SAFE GLASS” is available in a wide variety of thicknesses and can be combined into IG units as needed

**Max Sizes:** GlasPro-“BIRD SAFE GLASS” is available up to 60x144 but larger sizes are possible. Special consideration must be taken for any sizes larger than list above. Please contact GlasPro for more information

### GlasPro-“BIRD SAFE GLASS”

All GlasPro-“BIRD SAFE GLASS” products meet or exceed the following standards

1. ASTM C 1036 Specification for Flat Glass
2. ASTM C 1172 Specification for Laminated Architectural Flat Glass
3. C1048-04 Heat Treated Flat Glass (if applicable)
4. ANSI Z97.1-2004 Glazing Materials Used in Buildings-Safety performance
5. 16 CFR 1201: Safety Standard for Architectural Glazing Materials
6. C1376-03 Pyrolytic Coated Glass
7. E773-01 Test Procedure for IG Units
8. E774-97 IG Unit Durability
9. American Bird Conservancy Avoidance Index of 79% (Substantially higher than competing glass products) Test report below

### Exterior and Interior Rated Products

All GlasPro-“BIRD SAFE GLASS” products are rated for Exterior and Interior use and carry a full warranty for either installation. The ink used in the creation of the avoidance pattern has been rated for a 30 year life span.

## **Sustainability Performance**

### LEED Category: Energy and Atmosphere

Credit 1: Optimize Energy Performance

LEED Credit: 1-10 points

GlasPro-“BIRD SAFE GLASS” Contribution: GlasPro-“BIRD SAFE GLASS” offers a wide range of options that can contribute significantly to solar heat gain reduction in structural glazing applications.

These high-performance options allow architects to specify more glazing in their designs to help meet the requirements for the Energy and Atmosphere category.

### LEED Category: Materials and Resources

Credit 4: Recycled Content

LEED Credit : 1-2 points

GlasPro-“BIRD SAFE GLASS”, as supplied to the consumer, may be recycled into secondary materials for various markets.

### LEED Category: Indoor Environmental Quality

Credit 8: Daylight & Views

LEED Credit : 1-2 points

GlasPro-“BIRD SAFE GLASS” Contribution: Daylight reduces heat gain created by artificial light. GlasPro-“BIRD SAFE GLASS” can contribute to Solar Heat Gain Performance which allows architects to use more glazing in the overall building design without increasing loads on the building’s Heating Ventilation and Cooling (HVAC) systems.

## **Tunnel Testing Report 3M Spring 2015**

Date: 6/15/2015

Testing dates: May 3 – June 6, 2015

Facility: Powdermill Nature Reserve

### Testing notes

1. Avoidance Index (AI) Scores indicate the % of trials in which birds flew towards the control. Scores range from 50% - 100%. (50% is an effectively random distribution, as the birds are not indicating a preference.) Please note that the Avoidance Index, is not the actual rate of avoidance, since the sample may include birds that randomly chose to fly towards the control rather than making an active choice.
2. 80 trials were run for this sample, with 77 useable flights

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3. All samples tested *with* background
4. For UV samples: Because mirrors reflect a lower percentage of UV than human-visible wavelengths, test scores may underestimate effectiveness of samples (see Roessler, M., Laube, W. & Weihs, P. (2007):Vermeidung von Vogelanzprall an Glasflächen. Experimentelle Untersuchungen zur Wirksamkeit von Glas-Markierungen unter natürlichen Lichtbedingungen im Flugtunnel II. At <http://www.windowcollisions.info/e/bibliography.html>)
5. As of June 2015, MT Scores are calculated  $(1 - AI) \times 100$ . Note that this calculation is being reviewed by the LEED Pilot Credit committee and is subject to change.

### Materials tested:

#### GLASPRO SAMPLE

Single Pane with UV reflecting pattern of vertical stripes.

AI Score: 79% Useable Flights:77 MT Score: 21

Confidence Interval: 68% - 88% ( $p < 0.001$ )

### Impact of Lighting Conditions

	Avoidance Index			# of usable flights		
	Sunny	Partly Cloudy	Cloudy	Sunny	Partly Cloudy	Cloudy
GlasPro	0.84	0.66	0.74	43	3	31

### Discussion:

With an AI of 79%, this sample significantly exceeds the American Bird Conservancy’s minimum standard for effective bird collision deterrent materials of 70%. Note that the AI under sunny conditions, 84%, is statistically significant, although approximately the same amount of usable flights were conducted under sunny conditions compared to other samples. Also, the tunnel may significantly underestimate UV patterns. Should this material go into commercial production, it would be eligible to use ABC’s Effective Solutions logo, and be featured on ABC’s Effective Solutions website, which will launch later this summer.

### Glass Handling and Storage

Care needs to be taken during handling and glazing to ensure that glass damage does not occur. Do not allow glass edges to contact the frame or any hard surface during installation Refer to the Glass Association of North America (GANA) glazing manual for proper handling instructions.

Improper glass storage may result in damage to glass, glass surfaces or coatings. Store glass crates properly to prevent them from tipping. Also, ensure proper blocking and protection from outside elements.

GlasPro recommends a 5-8° lean against two wide, sturdy uprights, which are capable of withstanding the crate weight.

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Once the glass is installed the general contractor or building owner should provide for glass protection and cleaning. Weathering metals, alkaline materials or abrasive cleaners may cause surface damage. Windblown objects, welding sparks or other material that contacts the glass surface during construction may cause irreversible damage.

### **Maintenance and Cleaning**

To maintain aesthetics, it is important to clean the glass during and after construction. For routine cleaning, use a soft, clean, grit-free cloth and a mild soap, detergent, or window cleaning solution.

Rinse immediately with clean water and remove any excess water from the glass surface with a squeegee. Do not allow any metal or hard parts of the cleaning equipment to contact the glass surface.

### **Framing Deflections**

Refer to the GANA glazing manual for information on adequate framing systems. You are required to comply with industry standards for framing deflection.

### **Non-Rectangular Glass Shapes**

GlasPro can cut virtually any shape glass required for your project from CAD files or full size patterns. Full size patterns must be submitted to GlasPro for evaluation. Pattern Charges may apply.

### **Warranty Information**

GlasPro-“BIRD SAFE GLASS” products carry a 5 year limited warranty. Contact our order desk for copies of our product warranties.

### **GlasPro-“BIRD SAFE GLASS” Inspection Guidelines**

See ASTM C 1172-03

GlasPro-“BIRD SAFE GLASS” products may be used in structural glazed applications. GlasPro recommends Dow 795 or Dow 999.