ORNILUX® Bird Protection Glass
Frequently Asked Questions

Q. Why is bird friendly glass important?

A. Researchers estimate that up to one billion birds are killed each year in North America due to collisions with glass on human-built structures, making bird collisions one of the most significant causes of avian mortality globally (collisions are typically cited as #2 for avian mortality. Habitat loss is #1). It is the reflective and transparent characteristics of glass that create the danger for birds, as they cannot see it as a barrier. Birds are attracted to the sky and trees reflected by or on the other side of a window or railing and collide fatally with the glass. To prevent these collisions, glass must somehow be made visible to birds.

Q. What is bird friendly glass?

A. In general, bird friendly glass can be created using a variety of glass types, including glass that has an acid-etched, silk-screened or direct-to-glass printed design on the glass. It can be glass with an applique’ applied to the surface, or laminated glass with a printed interlayer. The key is meeting the 2 x 4 Rule. See 2 x 4 Rule defined below. These solutions, while being effective for collision mitigation, also mean that the pattern is always visible to the human eye. This represents a potential disadvantage because the architect may want the glass to be “transparent” with no visible pattern to the human eye.

![What we see vs. What the birds see](image)
Q. How does ORNILUX Bird Protection Glass vary from other types of bird friendly glass?

A. With the understanding that birds can see light in the ultraviolet spectrum, bird-friendly glass innovator, ARNOLD GLAS developed ORNILUX Bird Protection Glass. The glass has a patterned, UV reflective coating making it visible to birds, yet maintains a high transparency to the human eye.

ORNILUX is tested with American Bird Conservancy’s industry-standard, tunnel test protocol and has achieved ABC’s “Effective” rating which indicates a minimum of a 70% avoidance score. It is eligible for consideration in the LEED Pilot Credit 55: Bird Collision Deterrence Innovation Credit.

Q. What are the different types of bird friendly glass available?

A. Other bird friendly glass options include acid-etched glass—solid or patterned, and glass with a ceramic paint digital image applied. GGI provides these options as well, resulting in a full range of bird friendly glass options. The other glass options become a decorative element that is visible to humans and to birds. Keep in mind, however, that ORNILUX is tested and approved by the American Bird Conservancy, which supports LEED.

Many alternative bird friendly products require a surface #1 coating, which can result in higher maintenance. Acid-etched glass is an example of a surface #1 coating [or treatment].

Q. What is the 2 x 4 rule?

A. Most birds will not attempt to fly through horizontal spaces less than 2” high, or through vertical spaces 4” wide or less. This concept has become known as the 2 x 4 Rule.

Q. What is biomimicry?

A. Biomimicry is an approach to innovation that seeks sustainable solutions to human challenges by emulating nature’s time-tested patterns and strategies. With Biomimicry at its roots, ORNILUX was inspired by how spiders might use UV reflectance in the silk used to spin their webs. Its pattern complies with the 2 x 4 Rule.

Q. Does bird friendly building design offer potential LEED credits?

A. Yes. Bird friendly building design can potentially offer 1 LEED credit. Visit this site for more information. https://www.usgbc.org/search/bird%20friendly%20design

Pilot Credit 55: Bird Collision Deterrence: Existing Buildings and New Construction. This has established an important incentive for architects and building owners to adopt bird-friendly design methods.
Q. What North American geography represents the greatest demand for bird friendly glass?

A. There are cities across North America that now have voluntary, sometimes mandatory regulations around the use of bird-friendly glass and design techniques. These are locations where there is a high awareness of the issue and strong advocacy: San Francisco and surrounding cities, Portland, Seattle, Chicago, New York, Philadelphia, Toronto and many others. Many of these cities correlate with the major bird migration paths through North America.

Bird-Friendly Building Regulations or Activities

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<table>
<thead>
<tr>
<th>CITY</th>
<th>MANDATORY REGULATIONS FOR BIRD-FRIENDLY BUILDINGS</th>
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<tbody>
<tr>
<td>Los Angeles</td>
<td>OCEAN FRONT</td>
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<td>OCEAN FRONT</td>
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* High potential market areas for bird protection glass

Q. How I can meet both bird friendly design and energy code requirements?

A. ORNILUX IGU’s are produced with one of many Arnold Glas low-E and solar control coatings. All configurations have been tested and approved by the American Bird Conservancy and can be incorporated into either dual or triple insulating glass units providing both collision mitigation, and meeting energy code requirements. See product performance data on our website for details.
Q. How do I purchase ORNILUX?

A. GGI is the exclusive distributor in North America for ORNILUX. You may purchase ORNILUX Mikado from GGI in full case quantities as follows:

1. GGI will sell ORNILUX to laminated glass fabricators as a raw coated glass substrate with the understanding that the finished product must be a triple laminated glass with the ORNILUX Mikado coating on the #2 and #5 surfaces.

2. GGI will sell cases of ORNILUX triple-laminated as finished product to be used in monolithic applications, or as part of a double or triple insulated glass unit.

Q. What sizes and thicknesses are available?

A. ORNILUX is available in 88 1/2” x 126” (2250 mm x 3210 mm). Other sizes can be made available. And, jumbo sizes are available. The thicknesses available are 4, 6, 8, 10 and 12 mm.

Q. Is there a shelf life for ORNILUX Mikado glass?

A. The ORNILUX Mikado does have a shelf life specific to the raw coated glass product. There is no shelf life applicable to the “finished” laminated glass product.

   For unopened cases, the shelf life is one (1) year from date of manufacture. Once the case is opened, the product should be used within three (3) months or sooner.

Q. What is the lead time on ORNILUX?

A. The average lead time for ORNILUX is 10-12 weeks. Contact your GGI sales representative for pricing and lead time.

Q. What is the warranty on ORNILUX?

A. Arnold Glas provides a ten (10) year limited warranty from the date of manufacture providing the product is stored properly and tempered or heat-strengthened according to the requirements of ASTM C-1048. View warranty for complete details. [www.generalglass.com/products/birdfriendlyglass](http://www.generalglass.com/products/birdfriendlyglass)

Q. Can I combine ORNILUX with a different low-e brand for IGU?

A. ORNILUX and the range of Arnold Glas low-e and solar control coatings have been tested and approved by the American Bird Conservancy. DO NOT use a different low-e coated glass product without first pursuing this same testing and approval to ensure the product will meet collision deterrence performance requirements.

This process should be pursued well in advance because the ABC only performs the
test two times per year: spring and fall. You may contact GGI for costs associated to the testing and approval process. marketing@generalglass.com

Q. What are the current tested and approved configurations for ORNILUX?

A. See image below and product information sheet for configurations and performance data.

Technical specification
Currently available builds: Double Insulating Glass

ORNILUX mikado advance N34
ORNILUX mikado Uno N10
ORNILUX mikado A 70
ORNILUX mikado A 50
ORNILUX mikado A 40

VLT: 77%
SHGC: 0.58
TS: 77%

VLT: 66%
SHGC: 0.44
TS: 74%

VLT: 66%
SHGC: 0.33
TS: Updated 80

VLT: 58%
SHGC: 0.30
TS: 63

VLT: 50%
SHGC: 0.28
TS: 75%
*not tested build up

VLT: 41%
SHGC: 23%
TS: 75%
Technical specification

Currently available builds: Triple Insulating Glass & Laminated Glass

ORNILUX mikado
advance N34

ORNILUX mikado
Mono 12mm

ORNILUX mikado
Mono 36mm

12mm overall
4mm Mikado
4mm clear
4mm Mikado
(0.76mm PVB)

VLT: 69%
SHGC: 0.48
TS: Updated: 71%

VLT: 84%
SHGC: 0.73
TS: 64%

VLT: 76%
SHGC: 0.61
TS: 69%

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