

Bird-Friendly Glass

Perform and Protect with Guardian Glass



Birds and architecture

It is estimated that up to one billion birds die each year due to building collisions.

- Humans use environmental cues to identify glass as a barrier – but birds cannot
- Various types of birds migrate extensive distances around the world and are at risk of colliding with glass before reaching their destination

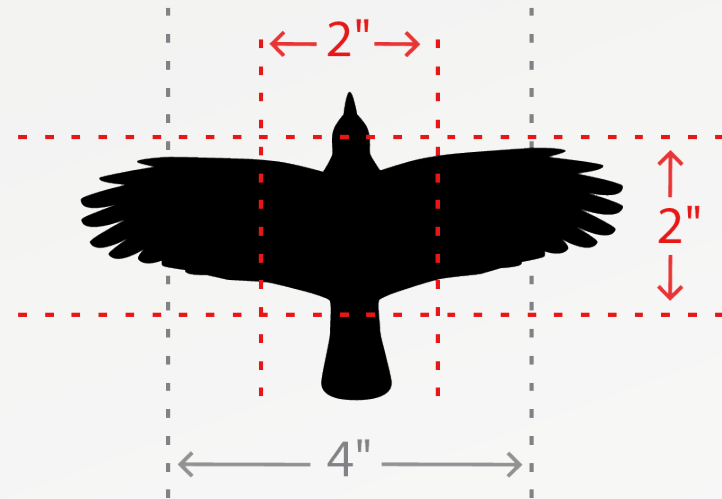


Regarding product design

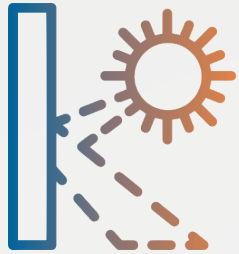
We understand and leverage bird physiology information when designing glass solutions.

Birds typically avoid flying through horizontal spaces less than 2" high or vertical spaces less than 4" wide.

The 2" x 4" Rule



Collision causes



Reflection

The mirroring of the surrounding area on glass



Transmission

Views through glass into buildings



Design

Building design and landscaping that blurs demarcation between natural and built environments



Lighting

Lighting inside or outside of buildings that attracts or confuses birds

Legislative impact

Growing recognition of this problem has prompted legislation at local and regional levels intended to reduce or eliminate collisions.

Voluntary impact

- LEED and Sustainable Design Initiatives
- Higher Education
- Municipal and Gov't buildings
- Convention Centers
- Healthcare



A vibrant, multi-colored bird, possibly a Dendroica, is perched on a dark brown branch. The bird has a bright blue head, a red breast, and a yellow-green back. The background is a soft-focus green, suggesting a natural habitat. A decorative graphic consisting of overlapping red and orange shapes is in the top left corner.

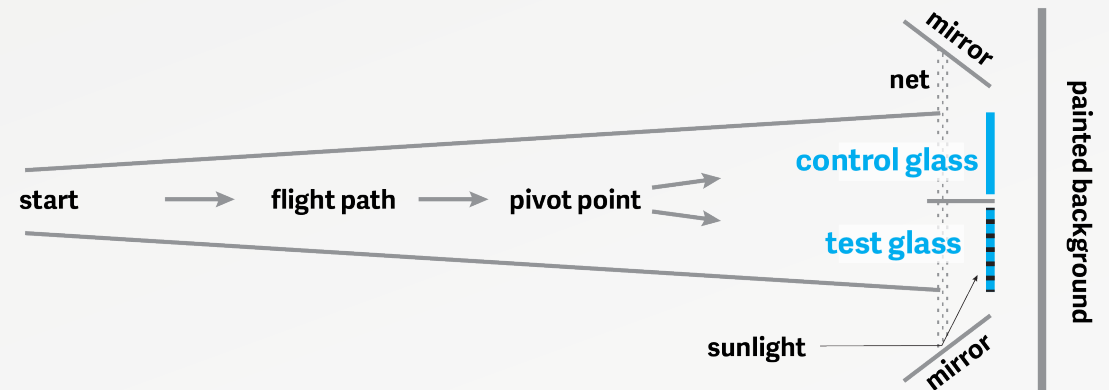
Bird-friendly testing and product comparison

Testing methods

- Various testing methods exist to analyze product safety and number of bird collisions
- Guardian bird-friendly products leverage the American Bird Conservancy (ABC) Tunnel Test – measuring product effectiveness in transmission

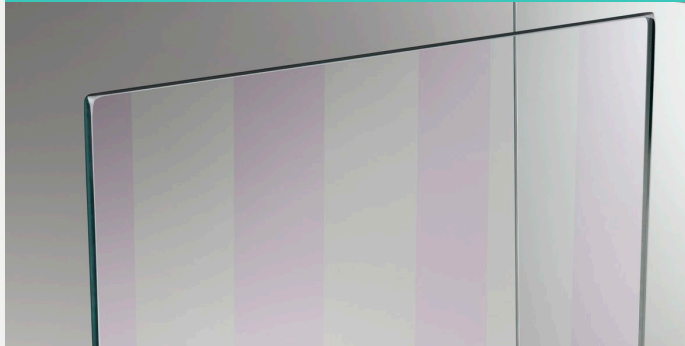


ABC Tunnel Test



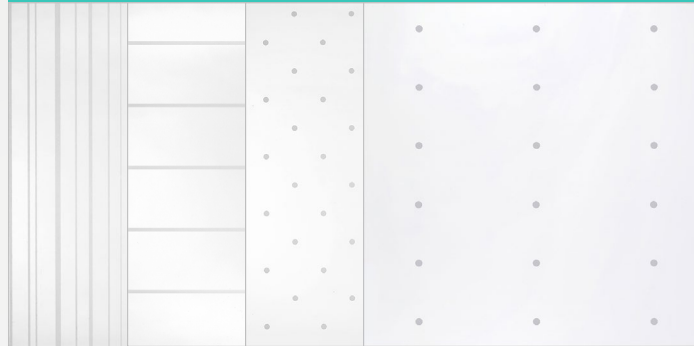
Guardian's Suite of Bird Friendly Options

Guardian Bird1st™ UV



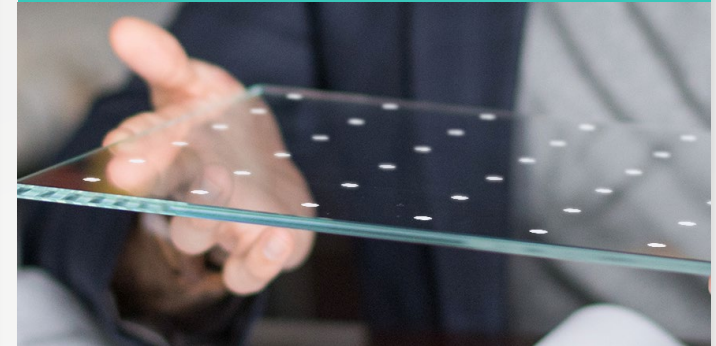
UV coating helps limit bird collisions while leaving views clear and open*

Guardian Bird1st™ Etch



Acid-etched glass with a range of aesthetic choices while mitigating bird collisions

Bird-friendly fritted glass



Most visible to the human eye, offers greatest data on efficacy of protecting birds

*The UV stripes are more pronounced when the glass is wet or when condensation forms. Surface residue can also make the stripes more visible.

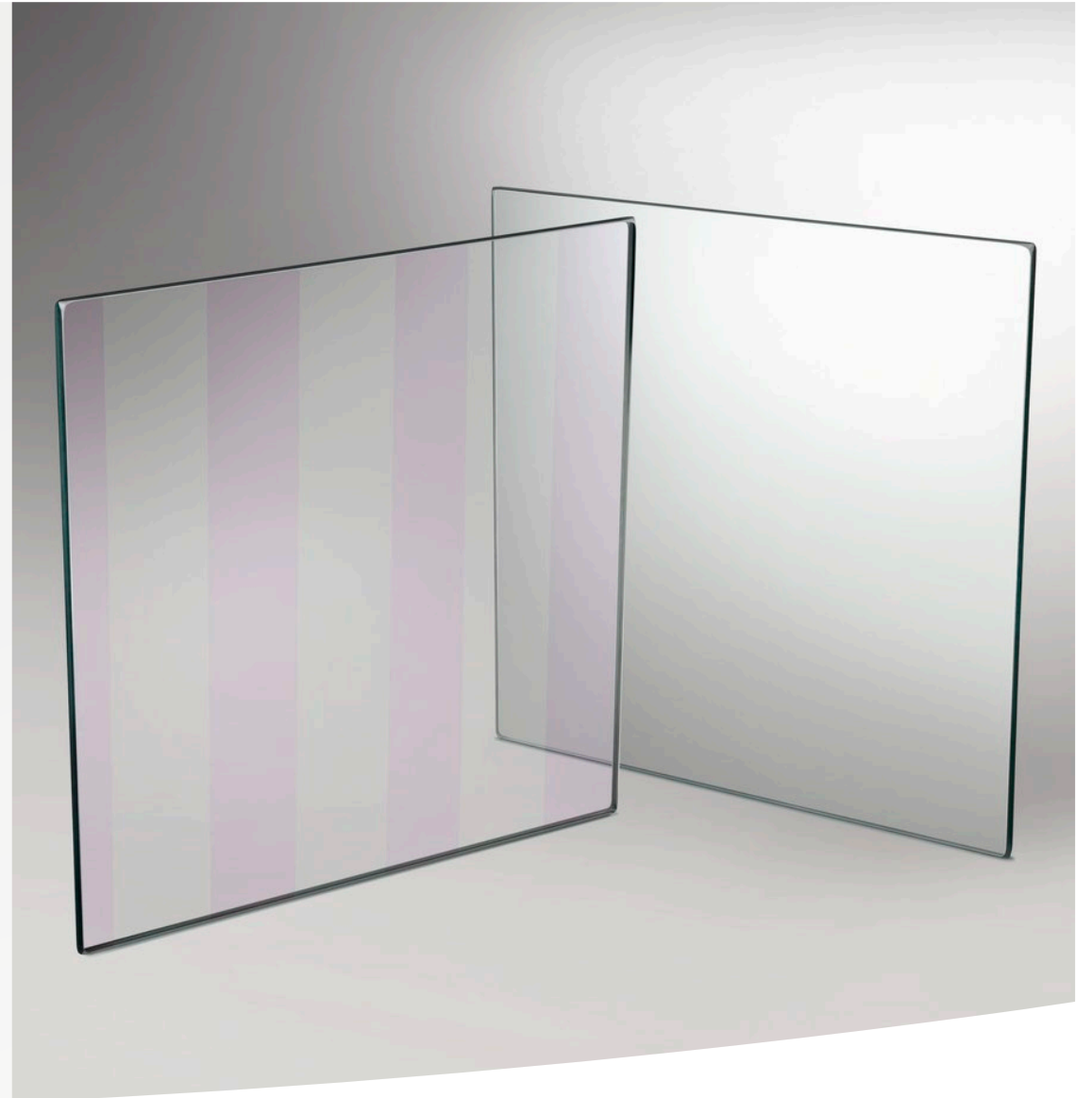


Why Bird1st™ UV?

UV coating visually signals impending barrier to birds while leaving views clear and open for humans.

Guardian Bird1st™ UV details

- **Pattern:** Vertical stripe orientation on surface 1
- **Standard IGU Configuration:** 1-5/16" double-paned IGU with laminated outboard
- **Available SunGuard® coatings:** Neutral 78/65, SN 68, SNX-L 62/34, SNX 62/27
- **Size:** 102" x 144" (maximum)*
- **Thickness:** 6mm (other thicknesses available upon request)
- **Safety:** Heat-treated, requires lamination (includes the inherent safety benefits of laminated glass)
- **Warranty:** 10 years



*finished sizes will be smaller due to cutting, yield and dependent upon fabricator capabilities and glass makeup

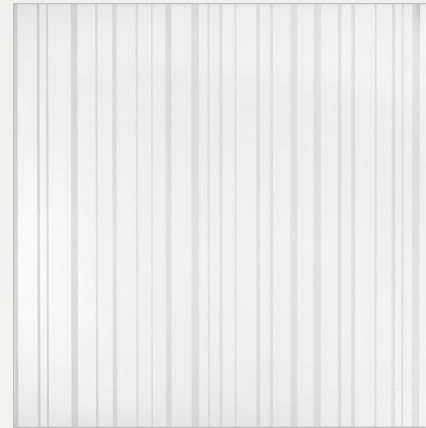


Why Bird1st™ Etch?

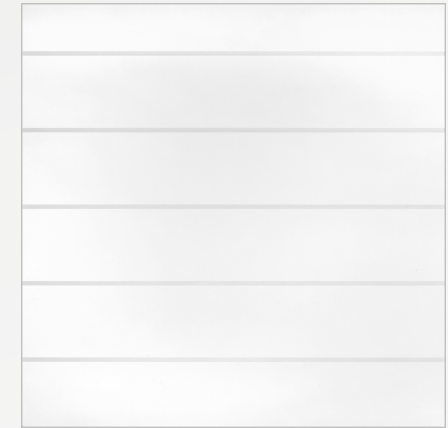
Gain greater flexibility in meeting both energy performance and bird safety requirements while delivering big on aesthetics through unique and striking acid-etch patterns.

Guardian Bird1st™ Etch details

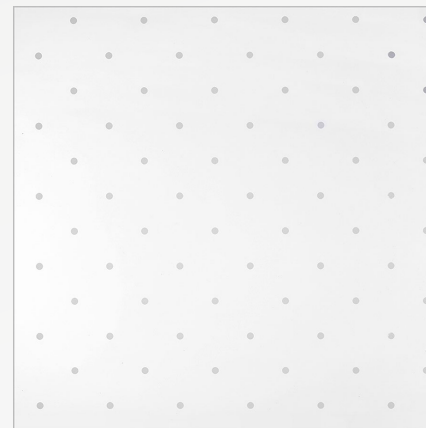
- **Four patterns:** Bird1st Etch 11, Etch 13, Etch 17 and Etch 21 on surface 1
- **Standard IGU Configuration:** 1" double-paned IGU
- **3 SunGuard Coatings:** SN 68, SNX 62/27, SNX 51/23
- **Size:** 96" x 130" (maximum)*
- **Thickness:** 6mm
- **Safety:** Heat-treated, laminated inboard lite optional
- **Warranty:** 10 years



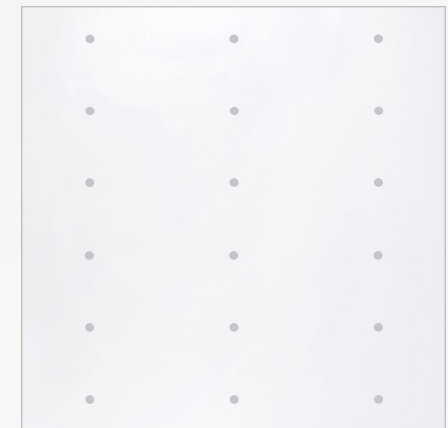
Bird1st™ Etch 11
THREAT FACTOR: 23



Bird1st™ Etch 13
THREAT FACTOR: 30



Bird1st™ Etch 17
THREAT FACTOR: 25



Bird1st™ Etch 23
THREAT FACTOR: 25

*finished sizes will be smaller due to cutting, yield and dependent upon fabricator capabilities and glass makeup



Why fritted glass?

Visible to both humans and birds, fabricators apply frit patterns paired with SunGuard® low-E coatings to help direct birds away from glass in an attractive neutral reflected color.

Fritted lites are supplied through our Select® Fabricator partners. Speak with a Guardian sales representative to learn more.

Guardian BF Fritted details

- **Four patterns:** 20% white dots; 40% white dots; 2" x 2" gray and white 6mm dots; 2" x 4" gray and white 6mm dots
 - **Standard IGU Configuration:** 1" double-paned IGU
 - **3 SunGuard Coatings:** SN-L 68, SNX-L 62/34, SNX 62/27
 - **Size:** Fabricator dependent
 - **Thickness:** Variable thicknesses
 - **Safety:** Heat-treated, laminated inboard lite optional
- *Threat Factor (TF)*
 - **21:** 20% white dots
 - **22:** 40% white dots
 - **20:** 2" x 2" gray and white dots
 - **25:** 2" x 4" gray and white dots

Sedgwick County Zoo

The Sedgwick County Zoo's new entrance welcomes visitors with broad expanses of glass that lend a luminous, airy feel, and there's more than meets the (human) eye: It features **Guardian Bird1st™ UV** with **SunGuard® SN 68**.

The result is a beautifully neutral and light-loving glass that features almost-invisible bands of contrast that help birds see it and avoid collision – along with excellent solar control to help manage heat and energy costs.





**We're here to help
your project take flight**