



Technical Hotline

Bird Safety and StoVentec® Glass
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StoVentec® Glass

Stoventec Glass is an open joint drained and back-ventilated rainscreen wall system from a single source that combines superior air and weather tightness with excellent thermal performance and fire protection. It incorporates noncombustible continuous exterior insulation and a continuous air and moisture barrier with StoVentro™ Sub-construction and StoVentec Glass Panel to produce an advanced high performance wall assembly.



Bird Safety and StoVentec® Glass

What is the problem?

The human-built environment can pose a substantial, invisible threat to birds simply because they perceive the world differently and may not detect highly reflective and/or transparent building surfaces such as glazing or polished, mirror-like metal. Avian vision is more monocular, focusing on overall surroundings and periphery with much less binocular, straight-ahead focus and depth perception than humans. Plus, birds simply do not understand our constructed environments as we do, although humans still sometimes accidentally bump into glass. Bird in-flight collisions with buildings are a frequent occurrence, often resulting in injury or fatalities, particularly for migratory birds traveling through unfamiliar territory. The issue is not limited to high-rise construction as it is estimated nearly half of bird collisions happen at single-family homes. Generally, the more glass present on a structure, whether transparent curtain walls, picture windows, or glass balcony railings, the greater the chance of bird collisions.

States, municipalities, and many public and private institutions are issuing mandatory or voluntary policies to address the problem. There is pending federal legislation to require the General Services Administration to develop and implement bird safety measures for federal public buildings. And there are many options to prevent harm to birds caused by the built environment.

What are the solutions?

There are many material and design choices available to greatly reduce or even eliminate the threat of bird impacts. With respect to resources and education, [The Bird-Friendly Building Design](#) guide from the American Bird Conservancy goes into great detail as does the National Glass Association's [Best Practices for Bird-Friendly Glazing Design](#) document. USGBC offers LEED credit for Bird Collision Deterrence. Links to these resources and others are provided above because this Tech Hotline is only a brief overview.

Bird-Friendly Glazing

Science has provided knowledge used directly in new building materials and retrofit options to prevent or reduce bird-building collisions. As previously mentioned, avian vision is different than our own but one key feature is very helpful for making glass more bird safe without compromising the known benefits for humans - many bird species see much more **ultraviolet light** than we do. (continued)

Resource Links

[American Bird Conservancy - Bird-Friendly Building Design](#)

[USGBC LEED v 4.1 Innovation: Bird Collision Deterrence](#)

[National Glass Association - Best Practices for Bird-Friendly Glazing Design](#)

[NYC - Local Law 15 of 2020](#)

[National Standard of Canada - CSA A460:19](#)

Glass transparency, reflectivity, and the corridor/passage effect pose a triple threat to birds:

Transparency - birds see indoor plants, such as trees in large atriums and can be lured towards what they view as habitat or a possible food source.



Reflectivity - mirroring of trees, vegetation, sky, and clouds on glass can cause birds to fly towards unseen barriers.



Corridor/Passage Effect - Birds routinely fly through forests and gaps between branches of trees. Glass aligned on opposite ends of a structure can create what appears to be a passage, particularly when vegetation is visible.





What are the solutions? (continued)

UV reflective and/or absorptive panels or patterns can be manufactured into new glass that many birds are able to distinguish and thus avoid. Human eyes, meanwhile, cannot typically see the effect of UV treatments. However, UV light levels are low in the early morning and late afternoon and research indicates some species such as hummingbirds and raptors may not sense UV as well as others, so this solution alone is not always sufficient.

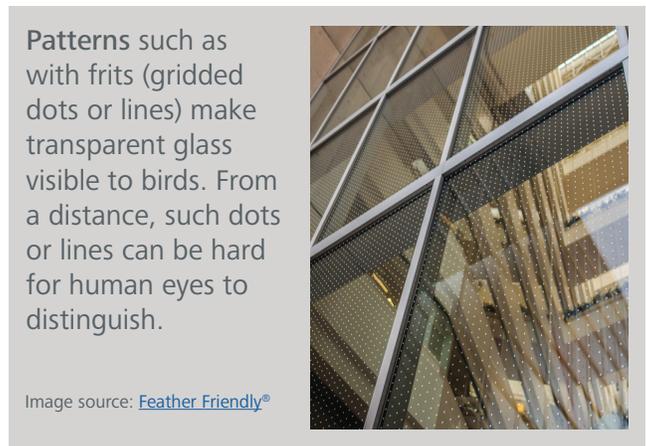
Patterns (frits, screen prints, films, decals, and tapes) added to glass during manufacturing or retrofitted on existing windows that follow the **2x4 (2x2) Rule** deter collisions. Birds are good at knowing their body size, including wing span in flight, and will not attempt to fly through spaces too narrow for them. The 2x4 rule means using horizontal lines or elements spaced no more than 2 inches apart and vertical lines/shapes no wider than 4 inches apart in order to deter songbirds. Hummingbirds need even smaller gaps for deterrence, thus a 2x2 Rule is used in the LEED Innovation credit for Bird Collision Deterrence.

Opaque, etched, stained, fluted/channeled, and/or frosted glass are excellent design options that scale back or eliminate the transparency, reflectivity, and passage effect threats to birds in flight.

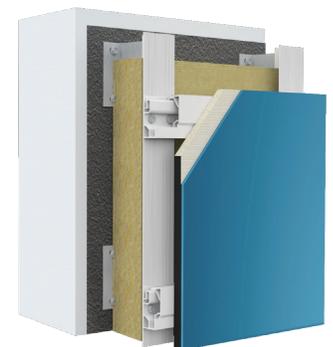
Screens, louvers, decorative fins and other shading elements are also important tools that benefit birds outside as well as human building occupants inside.

What about StoVentec® Glass?

StoVentec Glass is an opaque glass rainscreen with a variety of bird-friendly design options. Simply put, StoVentec Glass isn't clear. Solid color is applied to the rear face of each glass panel which is also adhered to our Carrier Board to add durability and create a mounting mechanism. Our standard glass is glossy (reflective) but matte etching is available. Custom screen pattern printing is also available.



StoVentec Glass panels are an opaque assembly. Etched/matte glass and screen printing patterns are available design options.



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For more information on this Tech Hotline, please contact Sto Technical Services.

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