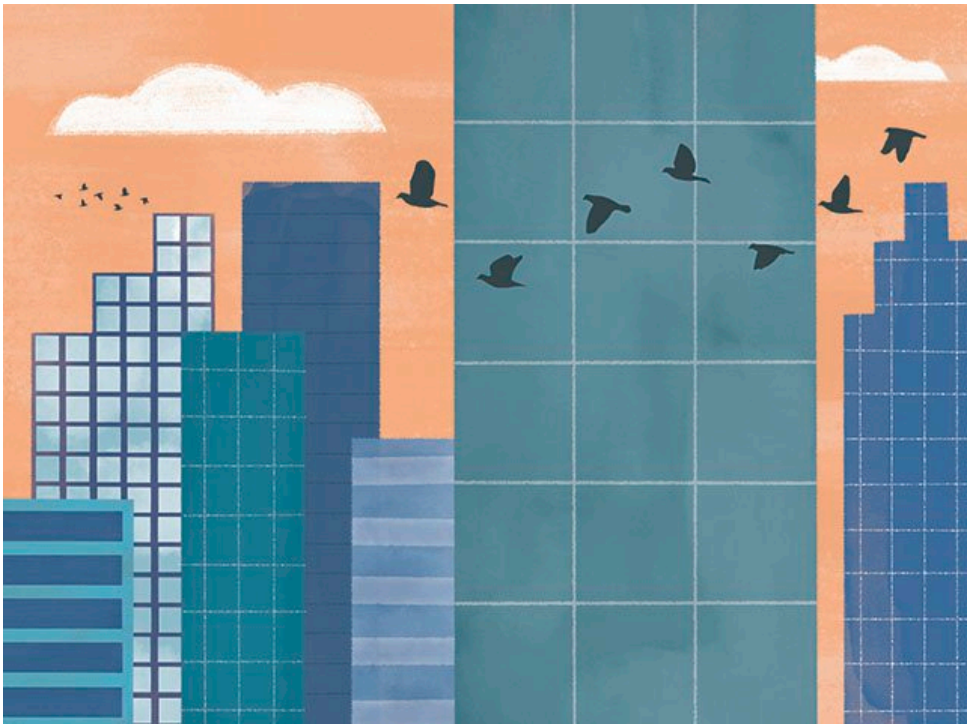
Deadly reflections

Glass is a popular construction material. Can it be made safe for birds?

BY LIZ MERFELD APRIL 28, 2016 5:00 AM



JOE ANDERSON

Depending on its momentum in flight, a bird thudding head-first into a window can suffer a range of often fatal injuries — broken beak, ruptured blood vessels, brain damage and fractures to its skull, neck or wings.

An estimated 50 million to 1 billion birds in the U.S. die this way every year. Their miscue? An inability to see glass for what it is. When birds see reflections of the sky or lush landscape in glass windows, they can't tell the reflections apart from welcoming habitat.

This unfortunate optical illusion can claim the lives of pretty much any avian species through all seasons, but collisions peak during migrations. Among its frequent victims are ruby-throated hummingbirds traveling to and from Central America.

Peter Cannon, a Madison resident and former regional director of the National Audubon Society, is speaking out about the toll that buildings with glass facades take on bird populations: "Why is the issue important to me? I don't want to see hummingbirds become rare!"

He says he has noticed that glass is becoming the "surface treatment of choice for major new construction in Madison and around the country." He sent his alder, Ledell Zellers, information from the American Bird Conservancy in hopes of influencing the architecture of new buildings, including the development queued up for Judge Doyle Square. The Common Council recently gave initial approval for two glass buildings to be constructed by Chicago-based Beitler for this development, behind the city's Municipal Building.

"I realized that the magnitude of the problem was such that I could not ignore a major threat happening in my own city," Cannon says. "Buildings last a long time. If we don't get

things right when the building is first built, the problem may still be with us in 50 to 100 years."

The company's president, J. Paul Beitler, says he takes the matter seriously and wants to minimize bird collisions. "No building can eliminate the possibility of a bird hitting a window," he says. "But we also know we can reduce the probability of that happening."

Daniel Klem Jr., a professor at Muhlenberg College in Allentown, Pa., sees two sets of solutions to what he calls a "critical animal welfare and conservation issue."

Short-term solutions include retrofitting existing clear and reflective panes with materials that cover the outside surface. Long-term solutions include using bird-safe sheet glass and plastic in remodels and new construction. Fritted or acid etching patterns transform windows into barriers that birds see and avoid.

But the most elegant solution, Klem believes, is sheet glass that uses ultraviolet signals that birds can see, but we cannot. He's currently working with manufacturers to develop and retail this product, so only prototypes exist today, he says.

When asked if he sees a trend toward bird-safe building designs in the U.S., he points to Chicago's Studio Gang Architects as a "terrific example" and to the best practices for builders recently published by the U.S. Fish & Wildlife Service. Klem calls the latter "a continuing governmental approach to stimulate volunteer efforts to protect birds."

He says that the best practices are aimed at government agencies "primarily in hopes of stimulating their responsible building practices within the U.S. government that in turn will spill over to the private sector." Still, Klem hasn't seen the kind of progress that would "significantly and meaningfully save more bird lives."

Things look brighter in Canada, where bird-safe architecture is "promisingly poised to increase nationwide because of the pressure of environmental laws spurred by a long history of media coverage," Klem says.

While the same laws don't exist here, there are resources for concerned developers and architects. The American Bird Conservancy offers a "Bird-Friendly Building Design" guide, teeming with examples of bird-safe buildings, like the School of Pharmacy building at the University of Waterloo, Canada. Architects had planned to cover the facade in glass and limestone but (because of the price tag) revised the design to incorporate watercolors of medicinal plants as photo murals.

Another is Cooper Square in New York City, which features "a skin of perforated steel panels fronting a glass/aluminum window wall," which saves energy as a bonus. The Studio Gang's Aqua Tower in Chicago, also designed with birds in mind, uses fritted glass and balcony balustrades to deter birds. In Philadelphia, the Wexford Science and Technology building facade features frosted glass.

Back home in Madison, all is not lost. The city recently earned the top status of "High Flyer" through Bird City Wisconsin, a conservation organization that recognizes communities for their bird-focused conservation and education activities.

This means Madison met 12 out of 39 criteria spread across five categories, such as habitat creation and protection, community forest management and public education.

Bryan Lenz, director of Bird City Wisconsin, reports that "there are many solutions to retrofit buildings that were not designed with birds in mind — which is pretty much every building."

Developers interested in reducing deadly bird strikes can seek LEED Pilot Credit 55 from the U.S. Green Building

Council. The credit requires them to do three things, says Lenz.

Developers must follow specific reflectivity guidelines that prevent building materials from being either highly reflective or perfectly transparent.

Addressing another pitfall for birds — being drawn to and disoriented by powerful artificial lights when migrating at night — the credit requires developers to use lights that are shielded or pointed downward, and to avoid using external lights to illuminate the building overnight.

Finally, credit-seekers must monitor collisions for a three-year period following construction to provide conservationists with data on which collision-reduction strategies are most effective.