8/8/2022

83-O-22

AN ORDINANCE

Amending Title 4 of the City Code, "Building Regulations," by Adding Chapter 24 - Bird Friendly Building Design

WHEREAS, this building ordinance has been created to address the role of the City of Evanston's built environment in the annual loss of up to one billion birds due to glass collisions in the United States,

WHEREAS, birds provide valuable and important ecological services,

WHEREAS, the City of Evanston has recorded approximately 280 species of resident and migratory birds,

WHEREAS, millions of birds migrate through the Evanston and Chicago corridor each spring and fall,

WHEREAS, new buildings can be designed to reduce death from collisions with minimal additional cost if incorporated into the building's design,

WHEREAS, reducing light pollution has been shown to reduce bird deaths from collision with windows,

WHEREAS, bird friendly practices often go hand-in-hand with energy efficiency improvements and

WHEREAS, the Building & Inspection Services Division and Bird Friendly Evanston has modified a set of criteria originally developed by the Chicago Department of Planning and Development, Chicago Bird Collision Monitors, Chicago Audubon Society and other interested departments and individuals to encourage

inclusion of bird friendly design strategies into development projects to reduce bird collisions and death

WHEREAS, Title 4, Chapter 24 of the Evanston City Code is being created to establish bird safe standards for new building construction and where the alteration of a building includes the replacement of all exterior glazing to reduce bird mortality from circumstances that are known to pose a high risk to bird and are known to be "bird hazards". While these controls do not apply retroactively, the purpose of these controls is to ensure new construction is bird safe and to decrease existing bird hazards over time. The bird safe standards will be located in the City of Evanston Bird Friendly Building Design Guide attached hereto as Exhibit A.

WHEREAS, development projects can alternatively commit to comply with the most current version of the Leadership in Energy and Environmental Design (LEED) Pilot Credit 55 – Bird Collision Deterrence issued by the U.S. Green Building Council with a similar goal of reducing bird collisions with buildings.

NOW, THEREFORE, BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF EVANSTON, COOK COUNTY, ILLINOIS, THAT:

SECTION 1: Title 4 of the Evanston City Code of 2012, as amended, is hereby further amended and revised to add Chapter 24 as follows:

CHAPTER 24 – BIRD FRIENDLY BUILDING DESIGN

24-1-1. – ADOPTION.

Pursuant to its home rule powers, the City of Evanston hereby adopts by reference as its standard for bird-friendly building design, the City of Evanston Bird Friendly Building Design Guide.

There shall be a copy of the City of Evanston Bird Friendly Building Design Guide kept on file for public inspection in the City Clerk's office.

SECTION 2: All ordinances or parts of ordinances in conflict herewith are hereby repealed.

SECTION 3: If any provision of this ordinance or application thereof to any person or circumstance is held unconstitutional or otherwise invalid, such invalidity shall not affect other provisions or applications of this ordinance that can be given effect without the invalid application or provision, and each invalid provision or invalid application of this ordinance is severable.

SECTION 4: The findings and recitals contained herein are declared to be prima facie evidence of the law of the City and shall be received in evidence as provided by the Illinois Compiled Statutes and the courts of the State of Illinois.

SECTION 5: This ordinance shall be in full force and effect thirty (30) days after its approval and passage. For projects in design concurrent with the adoption of this ordinance, the Building Official is authorized to accept construction documents designed without Bird Friendly provisions for up to one hundred and eighty (180) days after this ordinance's approval and passage.

Introduced: August 8, 2022

Approved:

Adopted: September 12, 2022

September 14, 2022

Daniel Biss

Daniel Biss, Mayor

Attest:

Stephanie Mendoza

Stephanie Mendoza, City Clerk

Approved as to form:

Nicholas E. Cummings

Nicholas E. Cummings, Corporation Counsel

EXHIBIT A

Each year in the U.S. alone, up to one billion birds die from collisions with glass windows and walls. American Bird Conservancy is dedicated to finding and promoting solutions to bird mortality caused by glass.

Birds are essential features of healthy ecosystems, providing critical services, for example, by consuming insects and regenerating habitat. They also have cultural significance for many people and make environments healthier. Bird mortality from collisions with glass is a serious conservation concern because of the huge number of birds harmed, but we have solutions to design bird-friendly new construction without increasing costs.

Our book, Bird-Friendly Building Design, was created for anyone interested in designing structures that minimize bird deaths. In particular, it's useful for developers, architects, and building owners working with LEED Pilot Credit #55 – Reducing Bird Collisions. It's also a resource for regulators and builders researching the application of guidelines for buildings. **Download or order the book at collisions.abcbirds.org**

When birds hit glass, many leave no mark; others leave a feather or smudge. Imprints like this one, made by the oil birds use to protect their feathers, are a vivid demonstration of the dangers glass can pose to birds. Photo by Bill Gracey

We thank the Leon Levy Foundation for their support of our Glass Collisions Program.

AMERICAN BIRD CONSERVANCY

CONTACT: Christine Sheppard, Ph.D., Director, Glass Collisions Program
csheppard@abcbirds.org | 646-661-1862 | **abcbirds.org**

Bird mortality from collisions with glass is a serious conservation concern, but we have solutions to design bird-friendly new construction without sacrificing design flexibility or increasing costs.

Secrets of Bird-Friendly Design

- Incorporate bird-friendly design concepts from the beginning.
- Bird-friendly design overlaps with solar shading, glare control, distinctive design aesthetic, security, thermal control, energy efficiency, and more.
- Multiple bird-friendly strategies can be applied to a single building, reflecting relative priorities for different parts of the building envelope.

Strategy 1: Use external solar or security screens, shades or grilles, like these motorized solar shades.

Strategy 2: Use bird-friendly glass. Here, dark, reflective glass incorporates a pattern of fritted lines visible to birds.

Strategy 3: Use less glass.

PHOTOS: Clockwise from top right: Christine Sheppard; John Geib; Ramon Duran

AMERICAN BIRD CONSERVANCY

American Bird Conservancy is dedicated to conserving birds and their habitats throughout the Americas. With an emphasis on achieving results and working in partnership, we take on the greatest problems facing birds today, innovating and building on rapid advancements in science to halt extinctions, protect habitats, eliminate threats, and build capacity for bird conservation. **abcbirds.org**

PREVENTING BIRD COLLISIONS IN EVANSTON: BUILDING WITH BIRDS IN MIND

Ornithologists estimate that **between 500 million and 1 billion birds die from flying into glass windows every year in the United States**.* Window collisions are a leading cause of bird mortality and of population declines for species such as Wood Thrush, Canada Warbler and Golden-winged Warbler.

Evanston is a stopover point for birds that migrate over Lake Michigan at night. Around 280 species – and millions of birds - migrate through Evanston and Chicago, and stop at our lakefront every spring and fall. **Tens of thousands of dead and injured birds have been found over the past 10 years in Evanston, at lakefront buildings, high rise buildings downtown and at residences.** Building designs and considerations to avoid or treat:

- Glass that mirrors the surrounding landscape, trees, sky, or lakeshore;
- Invisible barriers such as a glass railing, walkway, sound barrier, or bus shelter;
- Potted plants or trees inside glass, such as atria, offices or homes;
- Transparent glass corners, skybridges, greenhouses, or narrow passages showing habitat or open sky on the other side;
- Glass adjacent to green roofs or terraces;
- Light from higher windows during night migration;
- Guy wires, antennae and roof lighting;

Fortunately, bird-friendly glass products and design guidelines are becoming common and lower cost, as cities such as New York City, Chicago and San Francisco require bird-friendly design. Designers can follow U.S. Green Building Council's LEED 55 Pilot Credit: Bird Collision Deterrence, use treated glass that birds can see, or configure their designs to avoid collisions. Bird-friendly design should not significantly increase costs if considered from the outset of the process. In addition, many attractive retrofits (e.g., films, filaments, screens) are available for existing buildings.

See American Bird Conservancy's *Bird-Friendly Building Design* resource guide, including lists of tested bird-safe glass products and window films at https://abcbirds.org/glass-collisions/

Warblers, thrushes, sparrows, flycatchers, grosbeaks, hummingbirds, catbirds, blackbirds, cuckoos, swifts, swallows, vireos, and a wren, kinglet, bunting and oriole are among the 103 birds that were found at Northwestern University buildings over three weeks in Spring 2017. Photo Credit: Allison Sloan, Evanston.

*Source: Loss, S. R., Will, T., Loss S. S., & Marra, P. P. (2014). Bird–Building Collisions in the United States: Estimates of Annual Mortality and Species Vulnerability. *The Condor*, 116(1). pp. 8-23.

Bird Friendly Building Design Guide

Photo by: Patrick Hughes, Jr.

City of Evanston, Community Development
June 2022

Table of Contents

Introduction

Building and urban environments are dangerous to birds as they are typically unable to recognize glass and other transparent or reflective materials as solid barriers. Birds are also attracted to and disoriented by artificial light emitted from buildings. This puts birds at even greater risk of collisions, often with fatal consequences.

The Smithsonian estimates that up to 1 billion birds die in the U.S. each year from collisions with buildings (American Bird Conservancy). In 2019, the Cornell Lab of Ornithology identified Chicago as top of the list of US cities that pose the greatest potential danger to migrating birds due to its geography and light pollution. The City of Evanston shares those features and is uniquely positioned in the heart of North America's most trafficked aerial corridors posing a serious threat to the passage of migrant birds. Migratory birds are a critical part of a healthy environment and their protection has local and global importance.

The City of Evanston has adopted policy to encourage inclusion of bird-friendly design strategies into development projects to reduce bird collisions and death. These practices include consideration of the overall architectural design to reduce hazards, the use of bird friendly materials, especially glass, review of exterior and interior lighting, the provision of controls to reduce or eliminate lighting at critical migration times, and consideration of site planning and landscape design to reduce other potentially hazardous situations.

The guide modifies a set of criteria originally developed by the Chicago Department of Planning and Development, in conjunction with Chicago Bird Collision Monitors, Chicago Audubon Society, and Chicago Ornithological Society, and includes sections that were written and designed by Claire Halpin. Representatives from the City of Evanston's Building & Inspection Services Division and the Office of Sustainability, along with Bird Friendly Evanston, reviewed and modified the guide for use by the City of Evanston.

Applicability

What buildings and projects are required to comply with the Bird Friendly Building Design Ordinance?

The Bird Friendly Building Design Ordinance applies to all planned developments, new commercial, multifamily and industrial construction projects and renovation projects of an existing building that includes the replacement of 100% of the exterior glazing (whether installed simultaneously or in planned stages). For projects in design concurrent with the adoption of the Bird Friendly Building Design Ordinance, the building official is authorized to accept construction documents designed without Bird Friendly provisions for up to one hundred and eighty (180) days after the ordinance's approval and passage.

What buildings and projects are NOT required to comply with the Bird Friendly Design Ordinance?

Projects not subject to the ordinance requirements include detached one-and two-family dwellings and multiple single-family dwellings (townhouses) and residential buildings three stories or less in height above grade.
Exceptions can be granted by the Community Development Department for a building or structure that is a designated landmark or located within a local historic district.

In addition to projects required to comply with the Bird Friendly Building Design Ordinance as part of their project, all other projects are encouraged to incorporate bird friendly building design as outlined in this guide.

Definitions

High Risk Features: Components and areas of a building facade or structure that have been identified as particularly susceptible to bird-glass collisions (for example glass railings or fly-through conditions). See **Bird Friendly Building Compliance Standards** for a full list of areas and project components included in this category.

Zone 1/High Risk Zone: The most hazardous areas of building facades are the ground level and lower stories, as well as facade zones directly above roof terraces or vegetated roofs. In these areas local birds and migrants searching for food and shelter are most likely to fly into glazed façades that reflect surrounding vegetation, sky, and other attractive features. See **Bird Friendly Building Compliance Standards** for parameters defining the limits of Zone 1.

Zone 2/Medium Risk Zone: Building facade areas not included in Zones 1 or High Risk Features. Typically these are at higher elevations on a facade. See **Bird Friendly Building Compliance Standards** for parameters defining the limits of Zone 2.

Material Threat Factor (MTF): An index developed by the American Bird Conservancy (ABC) to assign scores that provide a relative measure of birds' ability to see and avoid patterned glass and other materials (see https://abcbirds.org/glass-collisions/threat- factor-rating/ for more information about ABC's threat factors). A lower score indicates a material that is more visible to birds than a higher score. The lowest MTF (1) indicates a solid, non-transparent, non-reflective material such as masonry or stucco. The highest MTF (100) indicates the most hazardous materials that are highly reflective and/or highly transparent. ABC maintains a database of materials and their threat factors and is also developing a prescriptive standard for materials that have not yet been tested.

Building Collision Threat Rating (BCTR): A calculated threat rating of a facade zone based on the material threat factor (MTF) of each of its component materials proportional to the amount of area of each material in a given facade zone. A lower threat rating indicates a lower risk of collisions. See tables in Section V.

Fly-through conditions: A building design feature where there is line of sight from one glazed portion of the exterior façade to another such as glass corners, greenhouses, skyways, glass walkways, bus shelters, guard shelters and entryways.

Interior landscaping: Plants (artificial or natural) located inside a building with visibility to the exterior through the building façade. This does not include landscaping visible through the roof plane (i.e. skylights).

Related terms defined elsewhere in the Evanston Zoning Ordinance:

Building Height: Refer to *Evanston Zoning Ordinance Section 6-18-3 for "Building Height, Absolute", "Building Height, Mean"*

Façade: Refer to *Evanston Zoning Ordinance Section 6-18-3 for "Building Height, Absolute", "Building Height, Mean"*

Grade: Refer to *"Façade of the Principal Building, Front-Facing", "Façade of the Principal Building, Street Facing", "Grade, Established"*

Bird Friendly Building Compliance Standards

The bird friendly building design ordinance requires projects to comply with the requirements outlined in each of the categories as follows:

1. **Building facade using Option A or B or Both** (A building may employ a combination of Solutions from Compliance options A and B)
2. **Exterior Lighting**
3. **Exterior Components**

1. Building Facade

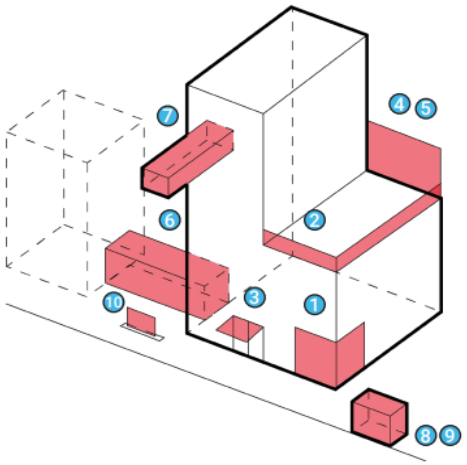
Compliance Option A

Projects must comply with requirements outlined in each of the 3 categories below (High Risk Features, Zone 1 and Zone 2) as applicable.

Note: Projects satisfying LEED Pilot Credit 55: Bird Collision Deterrence shall be deemed to have met the City's Bird Friendly Building Design Ordinance requirements.

High Risk Features

High risk features such as glass railings, awnings, windbreak panels, acoustic barriers, skywalks, bus shelters, exterior decorative panels, fly-through conditions, and other ground level features shall have a Material Threat Factor (MTF) of 30 or less:

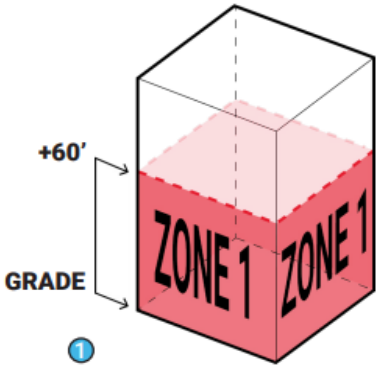


1. All exterior fly-through conditions
2. Railings
3. Awnings
4. Windbreak/ windscreen panels
5. Acoustic barriers
6. Ground level building links
7. Skywalks (elevated walkways)
8. Bus shelters
9. Guard shelters
10. Exterior decorative panels or signage

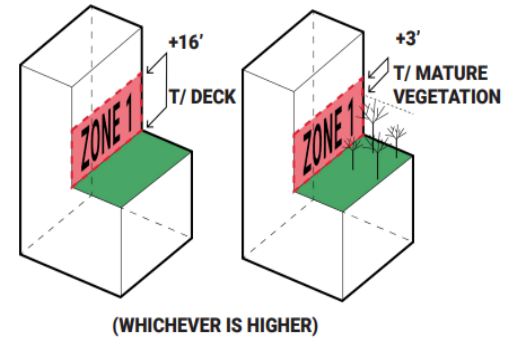
ZONE 1 (high risk facade areas)

The following facade areas shall have a Building Collision Threat Rating (BCTR) of fifteen (15) or less, calculated according to the table provided in part V.

1 - Facade areas up to sixty (60) feet above grade;



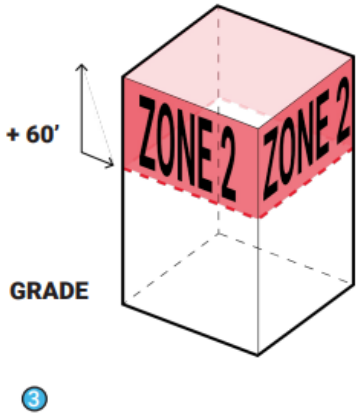
2 - Facade areas up to sixteen (16) feet (or three (3) feet above the height of mature vegetation, whichever is higher) above green roofs, roof gardens, or landscape/amenity decks.



ZONE 2 (medium risk facade area)

The following areas shall have a Building Collision Threat Rating (BCTR) of thirty (30) or less, calculated according to the table provided:

3 - Facade areas greater than sixty (60) feet above grade, except as described in Zone 1 above.



Compliance Option B

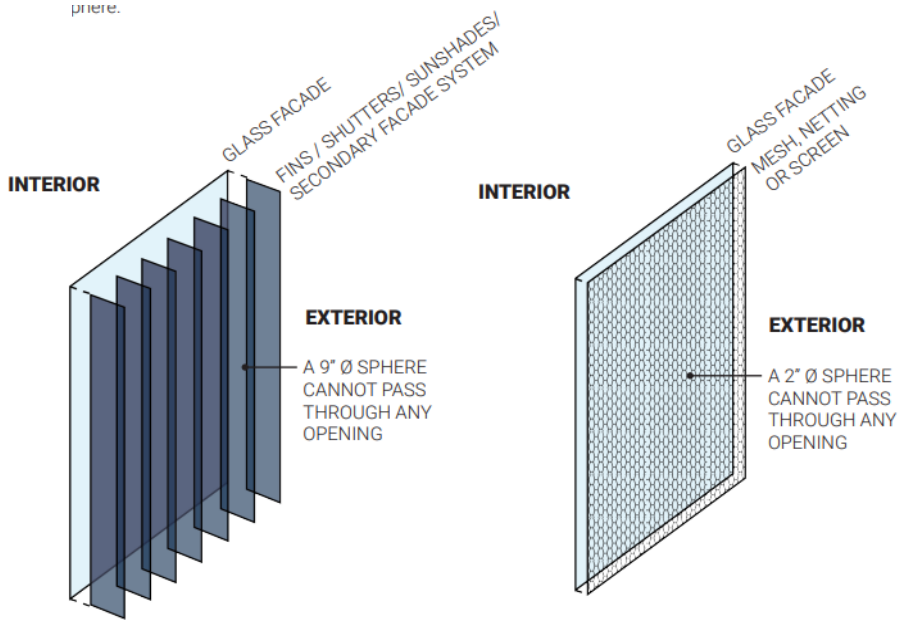
In lieu of providing the calculated facade BCTR, protect the above designated glass areas with any of the following external features:

1. Secondary facades, shutters, sunshades, or other permanent features greater than 2 inches in thickness (excluding any support framework, standoffs, mounting accessories, etc.) with openings such that a 9-inch diameter sphere cannot pass through any opening. Distance from the face of glass to the edge of the feature shall not exceed the thickness of the feature.

   Example: If a 6-inch-deep vertical sunshade system is to be installed, the sunshade cannot be located more than 6 inches away from the face of the glass and cannot have any openings larger than a 9-inch diameter sphere.

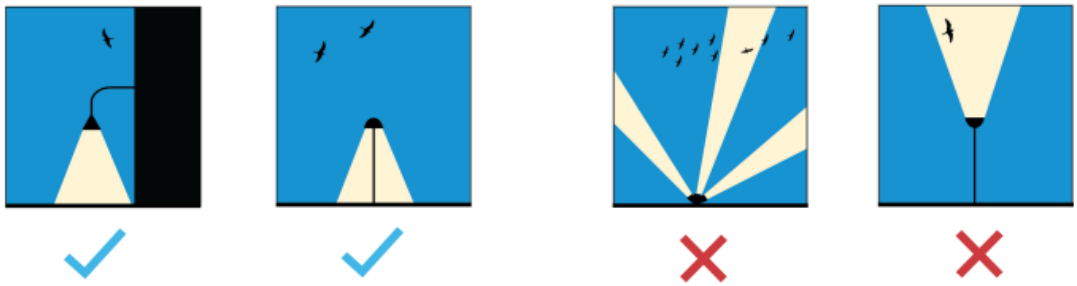
OR

2. Meshes, netting, screens, or other permanent features less than 2-inch thickness with openings such that a 2-inch diameter sphere cannot pass through any opening.



2. Exterior Lighting

The following types of exterior lighting are prohibited: mercury vapor luminaires, searchlights, sky beams, upward-directed fixtures, and aerial lasers. All exterior lighting fixtures shall be full-cutoff to minimize up- lighting conditions.

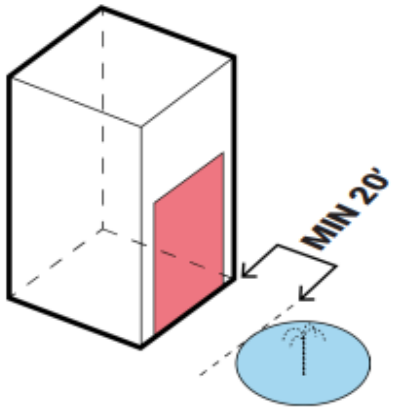


Buildings must have controls to extinguish exterior and decorative lighting on the upper stories of buildings after 11 p.m. each evening and leave lights off until daylight from March 15 to June 15 for the spring migration, and again from August 15 to November 15 for the fall migration. Tenants on the upper floors are encouraged to turn out lights or draw blinds after 11 p.m.

3. Exterior Features

At grade ventilation grates within twenty (20) feet of glass facades shall have openings such that a 3/4- inch diameter sphere cannot pass through any opening.

Exterior pools and fountains shall not be located closer than twenty (20) feet to glass façade areas.



Permit Review and Document Submittal Requirements

Projects required to comply with the bird friendly building design ordinance will provide the following documents and information at the time of project submission.

1 - Statement on drawings: All exterior materials, components, glazing and lighting have been evaluated for compliance with the City of Evanston Bird Friendly Design Ordinance..

2 - Dimensioned elevations. Show all relevant facades and structures.

> **For compliance option A:** Indicate where facade zones 1 and 2 occur. Indicate where high risk features occur. Indicate and key facade materials to the building facade Material Threat Factor table. For projects satisfying LEED Pilot Credit 55: Bird Collision Deterrence, submit LEED registration documentation demonstrating intended compliance..
>
> **For compliance option B:** Indicate secondary facade, shutter, sunshade, mesh, netting or screen system on elevations. Provide details of the system demonstrating compliance.

3 - Building Facade Material Threat Factor Table for each zone. Table to be shown on the drawing set. See template provided herein.

4 - All exterior lighting to be shown in drawings. Provide light fixture schedule and fixture cut sheets for exterior lighting demonstrating compliance.

Sample Drawing Set Page

Sample table shown with example materials and areas.

BCTR TABLE: HIGH RISK FEATURES				
LABEL	**LOCATION**	**MATERIAL TYPE**	**MTF (Material Threat Factor) Must be 30 or less**	
GL-1	Bus Shelter	"ABCD" glass, insulated unit with x coating, Y frit	24	
GL-2	Glass Railing	"XYZ" glass low iron, tempered	20	
MTL-1	Balcony Railing	Painted metal pickets	1	

BCTR TABLE: ZONE 1 HIGH RISK					
LABEL	**TYPE**	**MTF (Individual Material Threat Factor)**	**FACADE AREA (SF)**	**FACADE FACTOR (MTF x area)**	
MAS-1	Masonry	1	6600	6600	
GL-1	"ABC" glass, insulated unit with x coating, Y frit	24	3000	72000	
GL-2	"XYZ" glass, UV pattern	28	2000	56000	
GL-3	Clear, Low-Iron Glass	100	400	40000	
		TOTAL FACADE AREA (FA) ZONE 1	**12,000**	**174600**	SUM FF
			BCTR ZONE 1 (SUM FF/TOTAL FACADE AREA)	**14.6**	
			Y/N	**ZONE 1 BCTR MUST BE <15**	
				3.33%	

BCTR TABLE: ZONE 2 MEDIUM RISK					
LABEL	**TYPE**	**MTF (Individual Material Threat Factor)**	**FACADE AREA (SF)**	**FACADE FACTOR (MTF x area)**	
MAS-1	Masonry	1	4000	4000	
GL-1	"ABC" glass, insulated unit with x coating, Y frit	24	3600	86400	
GL-2	"XYZ" glass, UV pattern	28	2400	67200	
GL-3	Clear, Low-Iron Glass	100	2000	200000	
		TOTAL FACADE AREA (FA) ZONE 2	**12,000**	**357600**	SUM FF
			BCTR ZONE 2 (SUM FF/TOTAL FACADE AREA)	**29.8**	
				ZONE 2 BCTR MUST BE <30	

Compliance and Penalty

Verification of compliance with the Bird Friendly Building Design Ordinance will be a condition of the Final Certificate of Occupancy and prepared by the Designer of Record.

Should a project fail to meet the provisions of this Guide, the developer of said project, or its agents, successors, or assigns, shall owe the City a penalty to be calculated by the following formula:

P = PF × 0.75% where P is the penalty in dollars and PF is the building permit fee for the project.

Resources

Bird Friendly Evanston:
https://www.ensbc.org/bird-friendly-evanston.html

American Bird Conservancy products database:
https://abcbirds.org/glass-collisions/products-database/

American Bird Conservancy - GLASS COLLISIONS: PREVENTING BIRD WINDOW STRIKES
https://abcbirds.org/glass-collisions/

Bird Friendly Chicago
https://birdfriendlychicago.org https://birdfriendlychicago.org/solutions

Chicago Bird Collision Monitors
https://www.birdmonitors.net

Examples of Bird Friendly Design in the City of Evanston

Robert Crown Community Center
Evanston, IL
Woodhouse Tinucci Architects

(text describing bird friendly design features included in the project)