

Public Review Draft

Proposed Addendum o to Standard 189.1-2023

Standard for the Design of High-Performance Green Buildings Except Low-Rise Residential Buildings

First Public Review (May, 2025)
(Draft Shows Proposed Changes to Current Standard)

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(This foreword is not part of this standard. It is merely informative and does not contain requirements necessary for conformance to the standard. It has not been processed according to the ANSI requirements for a standard and may contain material that has not been subject to public review or a consensus process. Unresolved objectors on informative material are not offered the right to appeal at ASHRAE or ANSI.)

Foreword

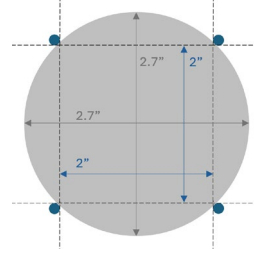
This proposed addendum introduces a new jurisdictional option with requirements for bird-friendly glazing design in buildings. Birds play an important role in our world and have a strong influence on the way we manage our environment. Birds help us understand changes in biodiversity, are useful barometers of variations in environmental conditions, help control insect populations, play a role in plant pollination, and contribute to our social and economic lives. However, bird collisions with buildings are the second principal cause of avian mortality in the United States, second only to cats. Birds may perceive transparent and reflective surfaces together with views of vegetation or sky in the built environment as fly-through conditions, resulting in up to 1 billion deaths from collisions with buildings annually in North America.

Research on bird-glazing collision prevention has guided the development of bird-friendly building design. Interrupting reflections and see-through conditions by creating visual markers on the glass at a specific spacing and geometry has been shown to significantly reduce bird collisions. This addendum specifies requirements for the location and characteristics of this type of glass, termed bird-friendly glazing. Primary risk areas are addressed including glazing in vertical fenestration, spandrel, skylights, glazed corners, fly-through conditions, and glazed railings up to 75 ft above grade, as well as glazing adjacent to roof areas with vegetation or water features. Different options are provided for compliant bird-friendly characteristics including glazing with a prescriptively specified pattern of visual markers, glazing compliant with the CSA A460:19 standard, or exterior attachments such as metal screens mounted over glazing.

The first option specifying a prescriptive pattern of visual markers is based on 2" spacing for lines, and on the '2 x 2' inch rule used for grid patterns but written in language that can apply to patterns other than just square grids. Following the approach taken with code requirements for railing openings in the building code, this specifies the maximum size circle (instead of a sphere as used with railings) that will fit between discrete visual markers. As shown in the figure below, the 2 x 2 grid results in a 2.7" diameter circle, but this approach has the advantage of also allowing other marker patterns with the same effectiveness in terms of openness.

As the risk of bird collisions can vary by location due to different bird populations, migratory patterns, and local environment, this addendum is written as a jurisdictional option.

Example of largest circle that will fit between markers in a 2 x 2 inch grid.



[Note to Reviewers: This addendum makes proposed changes to the current standard. These changes are indicated in the text by underlining (for additions) and ~~strikethrough~~ (for deletions) except where the reviewer instructions specifically describe some other means of showing the changes. Only these changes to the current standard are open for review and comment at this time. Additional material is provided for context only and is not open for comment except as it relates to the proposed changes.]

Addendum o to 189.1-2023

Modify Section 4.2 and Table 4.2

Modify the standard as follows:

4.2 Jurisdictional Options. The jurisdictional options listed in Table 4.2 provide jurisdictions the flexibility to adopt the code in a manner that is best suited to meet their unique environmental and regional goals and needs. The informative symbol “[JO]” after the section number indicates jurisdictional option provisions.

Table 4.2 may be used for the code adoption ordinance:

- Where “No” boxes are provided, the jurisdiction checks the box to indicate where that section is not to be enforced as a requirement in the jurisdiction. Where the “No” box is not checked, that section is adopted.
- Where a numerical value is listed to specify the level of performance, the jurisdiction shall indicate the required value to be adopted. Where a numerical value is not indicated, the value in the text is adopted without change.

In addition to the jurisdictional options listed in Table 4.2, the standard also provides for optional jurisdictional adoption of Informative Appendix G, “Option for Energy Efficiency Using the IECC Prescriptive Compliance Path.” Where the jurisdiction adopts Appendix G, compliance with Sections 7.3 and 7.4 of Standard 189.1 shall be as specified in Appendix G.

Table 4.2 Requirements Determined by the Jurisdiction (Normative in the IgCC)

Section	Section Title, Description and Directives	Jurisdictional Requirement
<u>5.3.7</u>	<u>Bird-Friendly Design</u>	<input type="checkbox"/> No

(Portions of table not shown are unchanged)

Modify Section 5.1 and insert new section 5.3.7 :

5.1 Scope. This section addresses requirements for *building projects* that pertain to site selection, site development, mitigation of *heat island effect*, light pollution reduction, bird-friendly design, and mitigation of transportation impacts.

....

5.3.7 [JO] Bird-friendly Design.

5.3.7.1 Bird-Friendly Glazing Required Locations. Bird-friendly glazing shall be installed in new buildings and additions, and where 25% or more of the *vertical fenestration area* is being replaced during existing building alterations. Bird-friendly glazing compliant with Section 5.3.7.2 shall be installed in the following locations:

- a. Not less than 90% of the area of vertical fenestration, glass spandrel, and skylights below 75 feet (23 m) above grade.
- b. For existing buildings, not less than 90% of the area of vertical fenestration being replaced below 75 feet (23 m) above grade.
- c. Not less than 90% of the area of vertical fenestration, glass spandrel, and skylights adjacent to and three stories or fewer above roof areas with vegetation or water features.
- d. Where glazed, all glazed corners, fly-through conditions, glazing adjacent to courtyards, skywalks, building connectors, railings, noise barriers, and wind barriers below 75 feet (23 m) above grade.

Exceptions to 5.3.7.1:

1. Buildings listed on the National Register of Historic Places.
2. Places of religious worship.

5.3.7.2 Bird-Friendly Glazing Characteristics

Where required by Section 5.3.7.1, qualifying bird-friendly glazing shall comply with not less than one of the following:

- a. The first or second surface of the glazing shall have solid fill visual markers not smaller than 1/8" (3 mm), not more than 2" (50 mm) between linear continuous visual markers, and a density pattern such that a circle with diameter no more than 2.7" (69 mm) will fit between discrete point visual markers.
- b. Clauses 3.3.1 through 3.3.3 of CSA A460.
- c. Glazing shall be covered by permanently-attached exterior building-integrated structures that do not have gaps larger than 2" (50 mm) in any dimension, including metal screens and fixed solar shading.
- d. Glazing shall have a bird-friendly configuration including markers and surface orientation approved by the AHJ.

(Informative Note: Refer to NGA DG01-21 Best Practices for Bird-Friendly Glazing Design in Informative Appendix L.)

Renumber subsequent subsections as 5.3.8 Mitigation of Transportation Impacts and 5.3.9 Building Project Site Waste Management

Insert Informative Note after Section 7.4.2.9

In Section 7, insert informative note at end of fenestration-related items after Section 7.4.2.9:

(Informative Note: Refer to Section 5.3.7 regarding bird-friendly design for fenestration. Where selected as a jurisdictional option, bird-friendly glazing will be required for fenestration in specified locations.)

Add new normative and Informative References in Section 11 and Appendix L:

Add new normative and informative references in Section 11 and Appendix L:

11. NORMATIVE REFERENCES

Reference	Title	Section
Canadian Standards Association (CSA) 178 Rexdale Blvd. Toronto, ON, M9W 1R3, Canada 1-800-463-6727 and 1-416-747-4000; www.csa.ca		
CSA A460:19	Bird-Friendly Building Design	5.3.7

INFORMATIVE APPENDIX L INFORMATIVE REFERENCES AND BIBLIOGRAPHY

Reference	Section
<u>National Glass Association</u> <u>344 Maple Avenue West, Suite 272</u> <u>Vienna, VA 22180, United States</u> <u>1-703-442-4890; www.glass.org</u>	
NGA DG01-21	Best Practices for Bird-Friendly Glazing Design 5.3.7
