AGENDA

• Presentation goals
• Background – CSA
• CSA bird friendly standard
• North American bird friendly regulations
PRESENTATION GOALS

- Understand CSA and their goal in developing a bird friendly building standard
- CSA’s approach in creating the standard & the implications for the Canadian and US markets
- Standards adopted by cities and municipalities across North America to date

CSA GROUP – ABOUT US FROM THEIR WEBSITE

- Similar “raison d’être” as ASTM
CSA GROUP – TWO ORGANIZATIONS

At CSA Group, we excel in addressing emerging, complex issues and technologies. CSA Group is comprised of two organizations: Standards Development and Testing, Inspection, & Certification.

The mission of CSA Group’s Standard Development organization is to enhance the lives of Canadians through the advancement of standards in the public and private sectors. We are a leader in standards research, development, education, and advocacy. The technical and management standards developed with our 10,000 members improve safety, health, the environment, and economic efficiency in Canada and beyond.

CSA – STANDARDS DEVELOPMENT GROUP

Helping hold the future to a higher standard

CSA Group has a member base of over 9,000 volunteer experts with deep technical knowledge and expertise. These members help to develop standards that meet the needs of a broad array of industries and stakeholders. CSA Group:

- Has more than 1,000 committees focused on standards development
- Has developed and maintained over 3,000 codes and standards - many referenced in legislation
- Develops training and other value-added products that provide additional understanding of our standards and support their implementation
- Proactively conducts research that facilitates future standards development and provides guidance into new and emerging topics and technologies

Accredited by Standards Council of Canada (SCC) in Canada and American National Standards Institute (ANSI) in the U.S, CSA Group actively participates in international standards development and harmonization efforts through other global organizations, including the International Organization for Standardization (ISO) and the International Electrotechnical Commission (IEC).
CSA – STANDARDS DEVELOPMENT APPROACH

For a century, CSA Group has relentlessly led the drive for a better, safer, more sustainable world. Today, CSA achieves this vision through standards development, supported by technical research and training.

CSA Group harnesses the knowledge, experience and expertise of volunteer members from all walks of life. We help create real solutions – full-scale standards documents or other deliverables, such as guidelines or working agreements.

The CSA standards development process contains technical rigor with a transparent, consensus-based approach that:

- Integrates feedback from a range of voices, so everyone has an opportunity to be heard
- Draws on the experiences of over 1,000 in-house technical experts and more than 1,000 volunteer subject matter experts from across the globe.

CSA reached out to NA glass industry stakeholders and supply chain

CSA BIRD FRIENDLY BUILDING DESIGN COMMITTEE

- Municipalities
- Interest groups
- Floaters
- Transformers
- Fabricators
- Building owners
- Architects
- Ornithological experts
CSA – STANDARDS DEVELOPMENT PROCESS

Development Process

1. Requests/ Evaluation/ Authorization
2. Assign to Committee
3. Notice of Intent
4. Meetings/ Draft
5. Public Review
6. TC Reaches Consensus
7. Internal Review (Quality/Pre-eds)
8. Technical Content Approval
9. Procedural Approval
10. Final Edits/ Publication
11. Dissemination
12. Maintenance

Public review ended Jan 20th, 2019.
Standard is expected to be approved & published in July 2019.
CSA A460 – BIRD-FRIENDLY BUILDING DESIGN

CSA A460 - SCOPE

1.1 General

This Standard covers bird-friendly building design in both new construction and existing buildings. It establishes performance measures for glazing for overall building and site design. This Standard aims to reduce bird collisions with buildings. Performance requirements are used in this when possible, and prescriptive requirements are used when necessary. When innovative products are used a test report shall be issued. Certification procedures are not part of this Standard.

This Standard considers design aspects of glazes, buildings, and sites from the point of view of bird strikes only. Other standards and codes make recommendations regarding energy efficiency, building occupant comfort, glazing safety, light spill, etc., which are not specifically addressed here.
2 Reference Publications
This Standard refers to the following publications, and where such reference is made, it shall be to the edition listed below.

- American Bird Conservancy
  *Bird-friendly Building Design, 2015*

- City of Markham, Ontario
  *Bird-Friendly Guidelines, 2013*

- City of Portland, Oregon

- City of San Francisco, California
  *Standards for Bird-Safe Buildings, 2011*

- City of Toronto, Ontario
  Bird-friendly Best Practices — Effective Lighting, 2018
  Toronto Green Standard, 2018*

CSA A460 MAIN SECTION: REQUIREMENTS

4 General requirements
Strategies to minimize collision risks to buildings include treatment of building materials, and appropriate building integrated structures.

4.1 Required elevation treatment
Bird-collision-mitigation strategies shall be present to a height of 16 m from grade or to the height of the adjacent mature tree canopy, whichever is greater. Any untreated areas within 16 m from grade shall not include fly-through conditions.

Where there are plantings adjacent to green roofs and/or rooftop vegetation, the height of the bird mitigation strategy shall be 4 m from the base of the green roof.

4.2 Glazing
Glazing material includes vision and non-vision glass

4.2.1 General
Strategies to minimize the collision risks posed by glazing material include visual markers that are solid and not hollow. To minimize collision risk, treatment within 16 m from grade shall include:

a) A minimum of 85% of all glazing material, and

b) All glazing material that creates fly-through conditions
**CSA A460 MAIN SECTION: REQUIREMENTS**

4.2.2 Visual markers

4.2.2.1 General
Visual markers shall be present in order to make the glazing material visible to birds. Visual markers can be made of, but not restricted by, the following list:

- a) Acid etch visual markers;
- b) UV markers;
- c) Fritted glass;
- d) Film; or
- e) Non film adhesive markers

4.2.2.2 Size
Visual markers shall be a minimum of 4 mm in diameter for individual elements or a minimum of 2 mm wide by 8 mm long for linear elements.

4.2.2.3 Density pattern
There shall be no more than 50 mm between visual markers.

4.2.2.5 Glass surface
Visual markers shall be on the first (exterior) surface of the glazing.

**CSA A460 MAIN SECTION: REQUIREMENTS**

4.2.3 Fly-through conditions

4.2.3.1 General
All fly-through conditions up to 16 m shall be subject to bird-mitigation strategies. Buildings shall be designed to minimize fly-through conditions and black hole/passage effects. If present, these architectural elements shall be treated in the same way as the regular glazing.

4.2.3.2 Glass Corners
Glass corners shall be treated for 5 m in each direction, extending from the corner.

4.2.3.4 Balcony railings
Glass balcony guards/guardrails shall be treated in the same way as regular glazing.

**Fly-through condition** – a condition created when architectural elements provide birds with a clear line of sight to sky or vegetation on the other side, or where clear glass corners meet. Examples include glass corners, parallel glass, building-integrated or free-standing glass, at-grade glass guards/guardrails, and glass parapets.
U.S. – FEDERAL BIRD FRIENDLY REGULATIONS

The Federal Bird-Safe Buildings Act of 2017 (pending)
This bill requires each public building constructed, substantially altered, or acquired by the General Services Administration (GSA) to meet the following standards:

- At least 90% of the exposed façade material from ground level to 40 feet shall not be composed of glass or shall be composed of glass employing elements that preclude bird collisions without completely obscuring vision, ultraviolet (UV) patterned glass that contains UV-reflective or contrasting patterns that are visible to birds, patterns on glass designed in accordance with a rule that restricts horizontal spaces to less than 2 inches high and vertical spaces to less than 4 inches wide, opaque, etched, stained, frosted, or translucent glass, or any combination of these methods (modified glass);
- At least 60% of the exposed façade material above 40 feet shall meet such glass standard;
- There shall not be any transparent passageways or corners;
- All glass adjacent to atria or courtyards containing water features, plants and other materials attractive to birds shall meet the modified glass standard; and
- Outside lighting shall be appropriately shielded and minimized.

GSA must: (1) ensure that actual bird mortality is monitored at each public building; and (2) reduce exterior building and site lighting for each public building, where practicable.


---

California

California Green Building Code: CALGreen
Statewide Voluntary Guidelines adopted January 1, 2011
[http://www.bsc.ca.gov/Home/CALGreen.aspx](http://www.bsc.ca.gov/Home/CALGreen.aspx)

City of Oakland, CA
Legislation adopted June 15, 2013
Applies to buildings adjacent to parks, water bodies & green spaces

City of Palo Alto, CA
Voluntary guidelines adopted March 6, 2015
[https://www.cityofpaloalto.org/civicax/filebank/documents/49886](https://www.cityofpaloalto.org/civicax/filebank/documents/49886)

City of Sunnyvale, CA: Design Guidelines for Bird-safe Buildings
Voluntary guidelines adopted January 28, 2014

City of San Jose, CA: Bird-Safe Building Design Standards
Voluntary guidelines adopted September 25, 2014

City of San Francisco, CA: Bird-safe Building Standards
Legislation adopted November 30, 2011
First legislation of its type in the U.S. for a major city
Illinois

**Village of Barrington, IL:** City Council Resolution 10-3959
Guidelines adopted December 13, 2010
http://www.barrington-il.gov/home/showdocument?id=1696

**City of Highland Park, IL:** Section 170.105 Bird Friendly Construction
Legislation adopted February 14, 2011
Mandatory to certain Municipal buildings
http://www.cityhpil.com/documentcenter/view/508

**Cook County, IL** (unincorporated: does not include Chicago): Benchmarks and Beyond
Legislation adopted July 8, 2008
Applies to all new construction and all building renovations
http://www.b3mn.org

**Chicago, IL:** Bird-Safe Building Design Guide
In 2008, Chicago became the first American city to develop voluntary bird-friendly design elements to reduce the likelihood of bird collisions.

Maryland

**Maryland Bird-Safe Buildings Act of 2018:** Department of General Services – Bird-Safe Building Standards (pending)
Requiring the Department of General Services to establish certain standards for State buildings to minimize adverse impacts on birds; requiring each building constructed, acquired, or substantially altered by the Department to meet the standards to the extent practicable; requiring the Department to reduce the lighting of existing public buildings in a certain manner; and requiring the Secretary of General Services to adopt certain regulations.

Minnesota

**State of Minnesota:** B3 Program - Buildings, Benchmarks and Beyond
Requires all state owned and leased buildings to turn lights out at night.
Legislation adopted May 1, 2013
Designed to parallel LEED Pilot Credit 55
http://www.b3mn.org

**City of Minneapolis:**

Michigan

**State of Michigan:** Safe Passage Great Lakes
State owned buildings turn lights out at night during the spring and fall migration. Private building owners encouraged to turn lights off.
New York

New York State: NYS Assembly Bill A8779 (pending)
An act to amend the administrative code of the City of New York in relation to deterring bird collisions on construction sites by adopting safety measures including but not limited to bird friendly building glass or other building construction and design techniques incorporating bird-safe building materials and design features.
https://legiscan.com/NY.bill/A8779/2017

Oregon

City of Portland, OR: City Council Resolution (non-binding)
Legislation adopted July 2012 First Edition
Voluntary Guidelines scheduled for implementation July 9, 2018.
http://www.portlandoregon.gov/bps/article/446308

Washington DC

DC Department of Environment and Energy (DOEE): Proposed Bird-Friendly Changes to the DC Green Building Code (pending)
DOEE, DC Department of Transportation (DDOT), DC Department of Consumer and Regulatory Affairs (DCRA) and other agencies will begin the three-year cycle of reviewing the DC Building Code for possible changes. This will improve the building code by adopting architectural and lighting standards to improve bird safety as part of the city's commitment to energy conservation and green building.

Jurisdictions with Bird-Friendly Initiatives

Canada

City of Calgary, Canada: Bird-Friendly Urban Design Guidelines
Voluntary Guidelines Adopted March 2011

City of Markham, ON: Bird-Friendly Guidelines / Bird-Friendly Review Procedures in Site Plan Application
Council adopted January, 2014
Markham has mandatory regulations regulated through Site Plan Control that apply to almost all new construction.

City of Toronto, ON: Toronto Green Standard (TGS) Bird Collision Deterrence
Council adopted October 27, 2009
Toronto has mandatory regulations regulated through Site Plan Control that apply to almost all new construction. The City also utilizes an incentive program that is intended to encourage a higher standard of bird-friendly design be incorporated into new buildings.

City of Vancouver, BC: Bird Friendly Design Guidelines – Considerations for Development Permit
Council adopted January 2015
Voluntary guidelines follow from the Vancouver Bird Strategy. Their use is encouraged in the design of buildings and landscaped areas on private and public property, and in the review of such proposals in conjunction with a district schedule of the Zoning and Development By-law or Official Development Plans for development permit applications.
Bird Friendly Design Guidelines Explanatory Note:
### Bird Friendly Guidelines by City or State

<table>
<thead>
<tr>
<th>State</th>
<th>City</th>
<th>Mandatory/Voluntary</th>
<th>Description/Markers</th>
<th>Surface</th>
<th>Portion of Building Affected</th>
</tr>
</thead>
<tbody>
<tr>
<td>OR</td>
<td>Portland</td>
<td>Mandatory</td>
<td>2 x 4 Rule</td>
<td>#1 if acid etch; otherwise #2</td>
<td>If &gt; 3000 sf glass façade, then treat below 60', 90% affected</td>
</tr>
<tr>
<td>CA</td>
<td>San Francisco</td>
<td>Mandatory</td>
<td>&quot;Visual Markers&quot;</td>
<td>Not Specified</td>
<td>60' upstream grade, primary façade and sides of bldg</td>
</tr>
<tr>
<td>CA</td>
<td>San Francisco</td>
<td>Mandatory</td>
<td>&quot;Visual Markers&quot;</td>
<td>Not Specified</td>
<td>Free standing glass (walkways, screen walls) &gt; 24 sf</td>
</tr>
<tr>
<td>CA</td>
<td>Oakland</td>
<td>Mandatory</td>
<td>2 x 4 Rule</td>
<td>Not Specified</td>
<td>60' up from grade</td>
</tr>
<tr>
<td>CA</td>
<td>San Jose</td>
<td>Voluntary</td>
<td>Per ABC</td>
<td>Not Specified</td>
<td>40' up from grade</td>
</tr>
<tr>
<td>CA</td>
<td>Sunnyvale</td>
<td>Mandatory</td>
<td>&quot;Visual Markers&quot;</td>
<td>Not Specified</td>
<td>60' up from grade</td>
</tr>
<tr>
<td>MI</td>
<td>Minneapolis</td>
<td>Voluntary</td>
<td>specified (refers to Toronto practices, but also</td>
<td>not specified</td>
<td>would prefer all glazing treated</td>
</tr>
<tr>
<td>IL</td>
<td>Chicago</td>
<td>Voluntary</td>
<td>not specified, but they refer to Toronto's practices</td>
<td>not specified</td>
<td>not specified</td>
</tr>
<tr>
<td>NY</td>
<td>New York City (written by NY Audubon society)</td>
<td>Voluntary</td>
<td>2&quot; x 4&quot; spacing necessary, size of marker not specified, UV ok but not effective for some species.</td>
<td>either surface</td>
<td>not specified</td>
</tr>
</tbody>
</table>

### Bird friendly Guidelines - Canada

<table>
<thead>
<tr>
<th>Province</th>
<th>City</th>
<th>Mandatory/Voluntary</th>
<th>Description/Markers</th>
<th>Surface</th>
<th>Portion of Building Affected</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ontario</td>
<td>Markham</td>
<td>Mandatory</td>
<td>2 X 4 rule, dot to be greater than 5mm. UV products</td>
<td>not specified for frt or etch. #1 surface if using</td>
<td>16 metres up from grade, 85% of glazing</td>
</tr>
<tr>
<td>Ontario</td>
<td>Toronto (city owned buildings)</td>
<td>Mandatory</td>
<td>2 x 2 spacing 5mm dot or larger, markings must be high contrast to the glazing. UV products allowed</td>
<td>#1 preferred but #2 acceptable</td>
<td>16 metres up from grade, 85% of glazing to be treated.</td>
</tr>
<tr>
<td>Ontario</td>
<td>Toronto (private development)</td>
<td>Mandatory</td>
<td>4&quot; x 4&quot; dots 5mm or larger (changing to 2&quot; x 2&quot; in 2020), high contrast</td>
<td>#1 or #2, (#1 only in 2020)</td>
<td>16 metres up from grade, 85% of surface to be treated</td>
</tr>
<tr>
<td>Ontario</td>
<td>Vaughan</td>
<td>Mandatory</td>
<td>2&quot; x 4&quot; spacing, 3mm minimum size marker</td>
<td>#1 surface mandatory</td>
<td>treat glazing 16 metres up from grade, 85% to be treated</td>
</tr>
<tr>
<td>Ontario</td>
<td>Ottawa</td>
<td>Voluntary</td>
<td>2&quot; x 2&quot; spacing, any pattern of high contrast markers on low reflectance glass markers</td>
<td>#1 surface</td>
<td></td>
</tr>
<tr>
<td>Quebec</td>
<td>Montreal</td>
<td>non-existent</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>British Columbia</td>
<td>Vancouver</td>
<td>Voluntary</td>
<td>3&quot; x4&quot; spacing, size of marker not specified.</td>
<td>#1 surface (&quot;markers on interior surface are less effective&quot;)</td>
<td>up to 4th floor of building</td>
</tr>
<tr>
<td>Alberta</td>
<td>Calgary</td>
<td>Voluntary</td>
<td>4&quot; x 4&quot; spacing. No size of marker specified.</td>
<td>not specified</td>
<td>up 16 metres from grade</td>
</tr>
</tbody>
</table>