FLAP Canada's *BirdSafe® Building Standard* provides guiding principles to help mitigate the potential for bird-building collisions at new and existing buildings. Developed in 2010, this standard has been adopted by industry professionals, standards associations, not-for-profit organizations and government agencies across North America. When undergoing a *BirdSafe® Building Risk Assessment*, any building façade that receives a lethal rating must comply with this standard.

BirdSafe® Building Standard for Mitigating Daytime Bird-Window Collisions

For Glass and Other Polished Materials

NEW & EXISTING BUILDINGS	
Marker Surface	Apply visual markers to the first (exterior) surface of glass to disrupt the transparency and reflectivity of glass.
Marker Density	Visual markers patterns should not have reflective or transparent openings larger than 5 cm apart vertically and/or 5 cm horizontally.
Marker Contrast	Markers must stand out in contrast to transparent or reflective exterior materials under varying daylight conditions.
Marker Size	The diameter of a marker is to be no less than 6 mm.
Marker Coverage	Markers are to cover entire exterior glass surfaces up to 16 metres above grade or to the top of the mature tree canopy, whichever is greater. Where government requirements allow for a percentage of untreated glass surfaces within this range, a full risk assessment is required to determine the threat level of these untreated areas. Markers must be applied to all façades that receive a lethal rating within this range.
Glass Panels	Visual markers are to be applied to both exposed surfaces of single pane glass (e.g. transparent railings, sound barriers, wind brakes).
NEW CONSTRUCTION	
Shaded Façades	Glass beneath overhangs and awnings are to be treated with visual markers.
Building Envelope	Building envelopes behind railing systems (e.g. balconies, decks, vegetated roof and terraces) are to be treated with visual markers.
Fly-through Conditions	Design features that create fly-through conditions are to be treated with visual markers on all exterior glass surfaces (e.g. windbreaks, shelters, sound barriers, railings, link-ways, corners).
Spandrels Glass	Use non-reflective opaque spandrels.
Building Envelope	Provide at least 60% of the exterior surface of the building as non-reflective opaque materials.
EXISTING BUILDINGS	
Determine Façade Risk	Undergo a full risk assessment to determine the threat level of each façade. Markers must be applied to all façades that receive a lethal rating.

Definitions

- **BirdSafe® Visual Marker**: a pattern of any shape that meets a certain density, uniformity, size and contrast that is etched into, applied onto or is in front of the first surface of glass.
- **Contrast**: Visual markers that are clearly visible on glass surfaces under varying daylight conditions.
- **Façade**: any structural element of a building that could pose a specific risk to bird collisions.
- **Fly-through conditions**: where transparent corners of glass and/or parallel glass provide a clear line of sight to birds.
- **Polished Materials**: smooth and shiny surfaces that reflect the surrounding environment (e.g. steel, stone, plastic).
- **Spandrel Glass**: mirrored, tinted or opaque glass used to conceal building components such as columns, floor slabs and HVAC systems located between areas of vision glass.

Specifications

- When applying UV treatments, ensure these patterns reflect 20-40% over the 300-400 nanometer wavelength and that the UV coating be applied to the first surface of glass.
- Any polished material adjacent to green roofs or vegetated terraces are to be treated with visual markers up to 16 metres above grade or to the top of the mature tree canopy, whichever greater.

Treatment Strategies

Applied to Glass

- Etched glass
- Fritted glass
- Films
- Digital printing
- Silk screening
- UV coating
- Channel glass
- Stained glass

In Front of Glass

- Exterior screens
- Shutters
- Grilles
- Louvres
- Cords/cables
- Living walls
- Sun Shades

PERFORMANCE REQUIREMENTS FOR RETROFIT PRODUCTS	
Quality Assurance	Use qualified personnel skilled in the installation of the chosen visual marker(s), having a minimum of 2 years proven experience of installation of similar material.
Product Warranty	Ensure that the manufacturer's exterior surface application product warranty against deterioration is a minimum of 8 years. The marker material must facilitate removal without damaging the glazed and/or polished materials.
Sample Installation	Apply sample installations to verify the strength of visual marker density, contrast, size and their aesthetic effects.

BirdSafe® Building Standard for Mitigating Nighttime Bird-Building Collisions

NEW & EXISTING BUILDINGS

Interior Lighting

- Turn off all lights in unused interior spaces.
- Draw blinds when interior spaces are occupied, i.e. work stations.
- Turn off non-security overhead lighting in occupied spaces.
- Encourage the use of task lighting at work stations.
- Human safety and building security lighting should be isolated to areas as the law and code requires.
- Switch to cleaning of interior spaces during daylight hours.
- Dim lights from 11pm to 6am in public areas, i.e. lobbies, atria, retail, etc.
- Install motion sensors or an auto shutoff system with a maximum 30-minute vacant period.

Exterior Lighting

- Install only shielded, downward directed fixtures.
- Exterior architectural lighting fixtures are limited to grade level.
- Lighting should be limited to areas where required for safety and security.
- Prohibit spots, floods and advertising lighting during bird migration months: March through May and August through October.