



Planning and Development Department
Land Use Planning Division

STAFF REPORT

DATE: March 2, 2022
TO: Members of the Planning Commission
FROM: Zoe Covello, Assistant Planner
SUBJECT: Bird Safe Berkeley Requirements Referral

SUMMARY

On November 12, 2019, the Community Environmental Advisory Commission presented an action item to the City Council, recommending that the City of Berkeley amend the Berkeley Municipal Code (BMC) to include a new Chapter establishing bird safety requirements for new construction and significant renovations, as well as a new Chapter establishing a Dark Skies Ordinance. City Council unanimously adopted the Bird Safe Berkeley Requirements Referral (see Attachment 1) requesting the City Manager develop a response. This report provides background on bird safety requirements and recommends next steps for Planning Commission's consideration.

BACKGROUND

Birds do not have the same depth perception or contrast sensitivity as humans; as such they cannot see glass. And at night, which is when most birds migrate, guided by magnetic sensors in their retinas that pick up on red and warm-white light, light distracts and disorients them, often leading to collisions.¹ It's estimated that between one hundred million and one billion birds die every year in collisions with manmade structures.² According to the Audubon Society, bird collisions with windows are a leading cause of human-induced bird deaths in the United States, second only to outdoor house cats.

Why is it relevant to Berkeley?

Berkeley is located within the Pacific Flyway, a major migratory route for birds. When birds encounter unfamiliar urban areas along the migratory path, they are at particular risk for collisions and death. The City is also adjacent to the San Francisco Bay, one of North America's most ecologically important estuaries and an international biodiversity hotspot because of the large number of birds, animals, and plants found there, many of

¹ <https://www.audubon.org/news/building-collisions-are-greater-danger-some-birds-others>

² http://nas-national-prod.s3.amazonaws.com/documents/loss_et_al_bird-building_collisions_condor_2014.pdf

which are found nowhere else. The region is also recognized as a site of “Hemispheric Importance” for shorebirds by the Western Hemisphere Shorebird Reserve Network.³ Alameda County has recorded 407 species of resident and migratory bird species, including Least Terns, Ridgway’s Rails, and a variety of other uniquely local and/or threatened species.

As pointed out in the CEAC report, new buildings can be designed to reduce bird deaths from collisions without compromising cost or aesthetics. Many compliance methods can be incorporated into design or construction with no additional cost or effort for architects or engineers, and in some cases, bird safe measures help achieve other desirable environmental goals -- like improved building energy efficiency.

Existing bird safety regulations in Berkeley

There are currently no bird safety measures required for newly constructed or renovated buildings in Berkeley. There are some zoning regulations providing guidance or limitations on outdoor lighting (see BMC [23.304.100\(E\)](#) [Site Features in Residential Districts], BMC [23.304.130\(C\)\(2\)](#) [Non-residential Districts Abutting a Residential District], as well as the City of Berkeley’s Downtown Area Plan and the Southside zoning regulations (BMC [23.204.100\(B\)\(5\)\(c\)\(vii\)](#))), but there is no citywide policy preventing excessive light pollution.

What do bird safe requirements look like?

In an effort to mitigate these deaths, municipalities around the country have started adopting bird safety requirements – which primarily take the form of requiring bird safe glass and reducing light pollution at night.

Glass and façade treatments are the most common methods of prevention, and include solutions such as fritted and frosted glass, angled glass, ultra-violet glass, and film and art treatment of glass. The “2 by 4 rule” - patterns of 1/4-inch dots or stripes 4 inches apart horizontally or 1/8-inch dots or stripes 2 inches apart vertically - and other patterns that meet that rule, were found to greatly reduce bird-glass collisions.

Other primary methods of prevention include, but are not limited to:

- Installing exterior screens or netting
- Reducing large areas of transparent or reflective glass
- Keeping curtains or shades drawn
- Turning non-emergency lighting off at night (particularly during migration in February-May and August-November)⁴
- Putting lights on timers or photo-sensitive switches
- Cleaning buildings in the daytime
- Locating greenery away from clear glass
- Site design measures like fine-grained ventilation grates and gardens without mirrors

³ <https://ca.audubon.org/conservation/conservation/seas-shores/san-francisco-bay>

⁴ <https://www.bloomberg.com/news/features/2022-01-04/how-to-design-buildings-to-prevent-bird-crashes>

How are municipalities implementing requirements?

There are a variety of ways these regulations can be implemented. The referral suggests creating a new chapter in the Zoning Ordinance. Here are some other options, as well as the pros and cons of each option, as identified by the City of Emeryville:

- CEQA Review – The city could develop and apply general standards to mitigate potential impacts on migratory wildlife, which is part of the standard CEQA checklist for projects requiring environmental review.
- Project Conditions of Approval – Standard Conditions of Approval for projects could be amended to include new enforceable standards for bird safe measures for applicable projects.
- Design Guidelines – The Design Guidelines could be modified to include a section that would include standards that apply to applicable projects during Design Review. This would provide some flexibility in enforcement, as guidelines are not regulations and projects that bypass discretion are not subject to review or compliance.
- Planning Regulations – The Berkeley Municipal code could be amended to include new standards (as proposed by CEAC), providing consistent application to all projects.

Building Regulations – The Berkeley Municipal Code could be amended to include new standards under a local building code amendment, which would apply to all projects requiring a building permit.

Existing ordinances in Bay Area cities

San Francisco adopted the first bird-safe building ordinance in the United States in 2011, requiring glass façade treatment be applied to the lower 60 feet of buildings within a 300-foot buffer of two-acre open spaces. Oakland followed San Francisco, adopting measures applicable to buildings adjacent to one-acre open spaces. Similarly, Richmond adopted an ordinance in 2016 requiring the treatment of the lower 60 feet of glass adjacent to one-acre open spaces and panes with areas of 24 feet or more.

Alameda has also developed a bird safety ordinance, adopted in 2018, which applies to new construction and window replacements, as well as lighting. Both Emeryville's 2020 building standards ordinance and CEAC's recommended amendments to the zoning ordinances are modeled after Alameda's. A table detailing bird safe requirements in Alameda, Emeryville, Oakland, and CEAC's recommended ordinance is attached (see Attachment 2).

DISCUSSION

The referral includes two draft ordinances for Planning Commission's consideration. Staff proposes the following approach to this referral:

1. *Identify Implementation Opportunities and Challenges:* As stated above, draft language in the referral is similar to ordinances adopted in Emeryville and

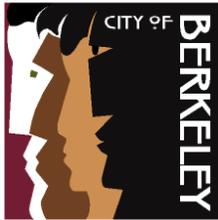
Alameda a few years ago. Staff will reach out to planning staff in Emeryville and Alameda regarding lessons learned from ordinance implementation and suggest any necessary modifications.

2. *Confirm Consistency with California Building Code:* Since California Building Code is amended on a three-year cycle, staff will check with the Berkeley Building Official to ensure there are no conflicts in proposed zoning language and local or California Building Code.
3. *Confirm Consistency with Design Guidelines:* The Design Review Committee (DRC) has reviewed this referral and expressed an interest in seeing it move forward. Staff will work with the Secretary of the DRC to ensure the Committee's comments are addressed and that the Committee is informed of the referrals' progress as it makes its way through the public review.
4. *Redraft Zoning Language According to the BZO Style Guide:* The Baseline Zoning Ordinance or BZO – now referred to as the Zoning Ordinance – included a style guide. Since this referral predated adoption of the BZO, the draft ordinances will need to be modified to follow the style guide.
5. Finally, staff requests that the Commissioners consider the following questions:
 - Does the Commission suggest modifications to staff's proposed approach?
 - Should the standards apply citywide, or near large open spaces with vegetation and/or water?
 - Should the standards apply to the lower 60 feet of buildings or to the entire building?
 - Does the Commission have any other suggestions to inform the drafting of bird safe building standards in Berkeley?

After receiving this information, staff will draft a new ordinance or ordinances that follow the BZO style guide. This draft ordinance will then be shared with Planning Commission for consideration and development of a recommendation to City Council.

ATTACHMENTS

1. CEAC Report / City Council Referral
2. Local Ordinance Comparison Table



Community Environmental Advisory Commission

ACTION CALENDAR
November 12, 2019

To: Honorable Mayor and Members of the City Council
From: Community Environmental Advisory Commission (CEAC)
Submitted by: Ben Gould, Chairperson, CEAC
Subject: Bird Safe Berkeley Requirements

RECOMMENDATION:

Refer to the Planning Commission and the City Attorney the attached ordinance amending Berkeley Municipal Code Title 23C, adding a new Chapter 23C.27 establishing bird safety requirements for new construction and significant renovations and a new Chapter 23C.28 establishing a dark skies ordinance, for review and approval.

FISCAL IMPACTS OF RECOMMENDATION:

Potential for small additional ongoing costs associated with slightly increased requirements for staff review of new construction proposals to ensure compliance.

CURRENT SITUATION AND ITS EFFECTS

Bird safety is aligned with the City of Berkeley's Strategic Plan, advancing our goal to be a global leader in addressing climate change, advancing environmental justice, and protecting the environment.

According to the Audubon Society, bird collisions with windows is a leading cause of human-induced bird deaths (second only to outdoor house cats). Berkeley is located in the midst of the Pacific Flyway, a major migratory route for birds including hummingbirds, robins, blackbirds, numerous shorebirds, raptors, and more. When these birds encounter unfamiliar urban areas along the migratory path, they are at particular risk for collisions and death.

At present, there are no bird safety measures required for new construction or renovations. As a result, it is possible that new and existing buildings may incorporate features which pose preventable hazards to local and migratory birds.

Unfettered outdoor lighting also poses known risks to birds, as well as generating unwanted light pollution. The City of Berkeley's Downtown Area Plan¹, as well as

¹ Lighting, City of Berkeley Downtown Area Plan. Accessed August 2019:
https://www.cityofberkeley.info/uploadedFiles/Planning_and_Development/Level_3_-_DAP/Chapter%2012%20Lighting.pdf

Bird Safe Berkeley Requirements

ACTION CALENDAR
November 12, 2019

Southside zoning regulations (BMC 23E.52.070.F.7), provide guidance or limitations on outdoor lighting, but no general policy exists citywide to prevent excessive light pollution from outdoor lighting.

At its September 12, 2019 meeting, the Community Environmental Advisory Commission voted to recommend the adoption of Bird Safe Berkeley requirements. Moved by Goldhaber, second by Hetzel, carried 6-0-0-2 (Ayes: Simmons, Ticconi, Hetzel, De Leon, Goldhaber, Gould. Noes: None. Abstained: None. Absent: Varnhagen, De Leon).

BACKGROUND

Berkeley is in the midst of the Pacific Flyway, a major migratory route for birds. The city is also adjacent to San Francisco Bay, one of North America's most ecologically important estuaries and a site of Western Hemispheric importance for shorebirds and waterfowl. Alameda County has recorded 407 species of resident and migratory bird species, including least terns, Ridgway's rails, and a variety of other uniquely local and/or threatened species.

New buildings can be designed to reduce bird deaths from collisions without compromising cost or aesthetics – in fact, many of the compliance methods in the attached ordinance can be incorporated into design or construction with virtually no additional cost or difficulty for architects or engineers, and in some cases facilitate achieving other environmental goals (like improved building energy efficiency).

Several other Bay Area cities have adopted bird safety ordinances, including San Francisco, Oakland, Alameda, and Richmond. The attached proposed ordinance is developed from the City of Alameda's adopted ordinance.

In addition, birds are drawn to light, whether from the moon or artificial lights, and lights affixed to buildings or structures pose a risk that birds may crash into them. A special danger comes from very bright lights, as well as lights aimed upward.

ENVIRONMENTAL SUSTAINABILITY

Implementing the Bird Safe Berkeley ordinance will ensure new construction does not pose undue hazards to local and migratory birds, thereby reducing human impact and benefiting the environment.

CALIFORNIA ENVIRONMENTAL QUALITY ACT (CEQA)

The proposed amendment to BMC Title 23C is categorically exempt from CEQA under CEQA Guidelines Sections 15061(b)(3), 15307, and 15308.

RATIONALE FOR RECOMMENDATION

Bird Safe Berkeley Requirements

ACTION CALENDAR
November 12, 2019

Berkeley's strategic plan calls for being a global leader in protecting the environment. The bird-safe glazing design standards contained within have been found to be effective at reducing or eliminating bird deaths, and can be implemented with little or no additional costs. The window size threshold for requiring implementation is the most stringent in the nation, and as a result adopting this policy strongly aligns with Berkeley's strategic plan. The dark skies ordinance is straightforward and simple, yet effective at reducing excessive and unwanted light pollution while conserving energy.

ALTERNATIVE ACTIONS CONSIDERED

CEAC considered taking no action on bird safety standards, but concluded that the environmental benefits substantially outweighed the burden imposed. CEAC also considered a less stringent window size requirement (of twenty-four (24) square feet instead of eight (8) square feet), but determined that window size was not a significant factor in either bird safety or cost or ease of compliance.

CEAC considered taking no action on dark skies, but concluded that the environmental benefits outweighed the burden imposed. CEAC also considered a more stringent dark skies ordinance, but concluded it would be unnecessarily difficult to enforce with minimal additional benefits.

CITY MANAGER

The City Manager takes no position on the content and recommendations of the Commission's Report.

CONTACT PERSON

Ben Gould, Chairperson, CEAC, 510-725-9176

ORDINANCE NO. -N.S.

AMENDING BERKELEY MUNICIPAL CODE TITLE 23C TO ESTABLISH GENERAL REQUIREMENTS FOR BIRD SAFETY IN BUILDINGS AND EXTERIOR LIGHTING FIXTURES; ADDING CHAPTER 23C.27 AND CHAPTER 23C.28

BE IT ORDAINED by the Council of the City of Berkeley as follows:

Section 1. That the Berkeley Municipal Code Chapter 23C.27 is added to read as follows:

**Chapter 23C.27
BIRD SAFETY**

Sections:

- 23C.27.010 Purpose**
- 23C.27.020 Applicability**
- 23C.27.030 Exemptions**
- 23C.27.040 Standards**

23C.27.010 Purpose

The purposes of the Bird Safety related regulations contained in this Chapter is to reduce bird mortality from windows or other specific building features known to increase the risk of bird collisions.

23C.27.020 Applicability

The bird-safe building standards apply to the following types of projects when such projects require a building permit:

A. New Construction. New buildings with two (2) or more stories, and one or more façades in which glass constitutes fifty percent (50%) or more of the area of the individual façade. The bird-safe glazing requirement must be met on any window with dimensions of at least two (2) feet by four (4) feet, or an area of eight (8) square feet or more, located on such façade.

B. Window Replacement. On buildings with two (2) or more stories, and one or more facades in which glass constitutes fifty percent (50%) or more of the area of the individual façade, replacement of any window or other rigid transparent material with dimensions of at least two (2) feet by four (4) feet, or an area of eight (8) square feet or more. The requirement does not apply on existing windows that are not proposed to be replaced.

C. New or Replaced Glass Structures. Any structure that has transparent glass walls twenty-four (24) square feet or more in size, including but not limited to freestanding glass walls, wind barriers, skywalks, balconies, greenhouses, and rooftop appurtenances.

23C.27.030 Exemptions

The bird-safe building standards shall not apply to the following:

A. The replacement of existing glass on historic structures. However, the standards shall apply to new exterior additions to historic structures, and new construction on the site of historic structures, that are differentiated from the historic structures, if determined by the Planning Director to be consistent with the Secretary of the Interior's Standards for the Treatment of Historic Properties.

B. Glazing on the ground floor of commercial storefronts directly fronting a public street, alley, or sidewalk.

23C.27.040 Standards

A. Bird-Safe Glazing Requirement. At least ninety percent (90%) of the glazing on any building façade or freestanding glass structure shall include features that enable birds to perceive the glass as a solid object. The requirement can be satisfied by using one or more of the following treatments to be determined by the Planning Director as part of an application for a building permit:

1. External screens installed permanently over glass windows such that the windows do not appear reflective.
2. Light-colored blinds or curtains.
3. Opaque glass, translucent glass, or opaque or translucent window film.
4. Paned glass with mullions on the exterior of the glass.
5. Glass covered with patterns (e.g., dots, stripes, images, abstract patterns, lettering). Such patterns may be etched, fritted, stenciled, silk-screened, applied to the glass on films or decals, or another method of permanently incorporating the patterns into or onto the glass. Elements of the patterns must be at least one-eighth (1/8) inch tall and separated no more than two (2) inches vertically, at least one-quarter (1/4) inch wide and separated by no more than four (4) inches horizontally, or both (the "two-by-four rule").
6. Ultraviolet (UV)-pattern reflective glass, laminated glass with a patterned UV-reflective coating, or UV-absorbing and UV-reflecting film that is permanently applied to the glass. Where patterns are used, they shall meet the two-by-four rule.
7. Other glazing treatments providing an equivalent level of bird safety and approved by the Planning Director as part of building plan review.

B. Alternative Glazing Compliance. As an alternative to meeting subsection 4(a), Bird-Safe Glazing Requirement, an applicant may propose building and fenestration designs and/or operational measures that will minimize bird collisions and achieve an equivalent level of bird safety. The applicant shall submit a bird collision reduction plan along with the application for design review or other discretionary permit required for the project. The bird collision reduction plan shall be prepared by a qualified biologist. Design and operational solutions may include but need not be limited to the following techniques, singularly or in combination:

1. Layering and recessing glazed surfaces.
2. Angled or faceted glazing that minimizes reflectivity and transparency.
3. Louvres.
4. Overhangs and awnings.
5. Glass block.
6. Bird netting with openings one (1) square centimeter or smaller.
7. Decorative grilles that allow birds to perceive the grilles, together with the glass behind them, as solid.
8. Glass embedded with photovoltaic cells.
9. Placement of landscaping in such a way as to minimize bird collisions.

Section 2. That the Berkeley Municipal Code Chapter 23C.28 is added to read as follows:

**Chapter 23C.28
DARK SKIES**

Sections:

- 23C.28.010 Purpose**
- 23C.28.020 Applicability**
- 23C.28.030 Exemptions**
- 23C.28.040 Standards**

23C.28.010 Purpose

The purpose of the Dark Skies ordinance is to ensure exterior light fixtures are pointed downwards and turn off whenever possible, minimizing light pollution, sky glow, and hazardous risks to birds, while ensuring adequate illumination for safety, security, and the enjoyment of outdoor areas, including travel on public roads.

23C.28.020 Applicability

The dark skies ordinance applies to any project that requires a building permit or electrical permit for:

A. New exterior lighting, including lighting fixtures attached to buildings, structures, poles, or self-supporting structures; or

B. Additions or replacements of existing exterior light fixtures, including upgrades and replacements of damaged or destroyed fixtures.

23C.28.030 Exemptions

The following types of lighting are exempt from the requirements of this subsection:

A. Emergency lighting. Temporary emergency lighting used by law enforcement or emergency services personnel, a public utility, or in conjunction with any other emergency service.

B. Construction lighting. Temporary lighting used for construction or repair of roadways, utilities, and other public infrastructure.

C. Lighting Required by Building Code or Other Regulations. Lighting for exit signs, stairs, ramps, points of ingress/egress to buildings, and all other illumination required for building codes, OSHA standards, and other permitting requirements imposed by state, or federal agencies.

D. Signs. Signs and sign lighting.

E. Athletic Field Lights. Athletic field lights used within a school campus or public or private park.

F. Neon, Argon, and Krypton. All fixtures illuminated solely by neon, argon, or krypton.

G. Water Features. Lighting used in or for purposes of lighting swimming pools, hot tubs, decorative fountains, and other water features.

H. Flag Lighting. Lighting used to illuminate a properly displayed United States flag and/or State of California flag.

I. Holiday Displays. Seasonal and holiday lighting.

J. Temporary Lighting. Temporary lighting allowed under a permit.

K. Historic Fixtures. Historic lighting fixtures or fixtures that exhibit a historical period appearance, as determined by the Planning Director.

L. Architecture, Historic Structures, and Public Art. Lighting on historic structures, special architectural features, public art, monuments, and other similar objects of

interest shall be exempt if the lamps emit less than one thousand six hundred (1600) lumens per fixture and together draw less than one hundred (100) watts. However, the standards shall apply to new exterior additions to historic structures, and new construction on the site of historic structures, that are differentiated from the historic structures, if determined by the Planning Director to be consistent with the Secretary of the Interior's Standards for the Treatment of Historic Properties.

M. Low-Voltage Landscape Lighting. Low-voltage landscape lighting such as that used to illuminate fountains, shrubbery, trees, and walkways, provided that it uses no more than sixty (60) watts and no more than seven hundred and fifty (750) lumens per fixture.

23C.28.040 Standards

To minimize the harmful effects of light pollution, new construction and major renovation projects shall meet the following standards:

- A. Outdoor lighting shall be no brighter than 3000 Kelvin.
- B. Outdoor lighting shall be shielded and directed, with a full cut off fixture of no more than 2.5% of lamp lumens at or above 90°, and no more than 10% of lamp lumens at or above 80°.
- C. Wherever feasible, require motion sensors or timers to prevent unnecessary energy use and light pollution.
- D. Light shows and beams of light are not permitted during spring or fall migration seasons, roughly February 15 to May 31, and August 15 to November 30, respectively.

Bird Safety Berkeley Referral - Local Ordinance Comparison Table

Sections					
Jurisdiction	Form of Standard	Purpose	Applicability	Exemptions	Standards
Berkeley	Proposed Planning Regulations (amendment to municipal code) – as recommended by CEAC)	Purpose of Bird Safety Ordinance: To reduce bird mortality from windows or other specific building features known to increase the risk of bird collisions.	Standards that apply to projects that require a building permit: a) New Construction. New buildings with two (2) or more stories, and one or more façades in which glass constitutes fifty percent (50%) or more of the area of the individual façade. The bird-safe glazing requirement must be met on any window with dimensions of at least two (2) feet by four (4) feet, or an area of eight (8) square feet or more, located on such façade. b) Window Replacement. On buildings with two (2) or more stories, and one or more facades in which glass constitutes fifty percent (50%) or more of the area of the individual façade, replacement of any window or other rigid transparent material with dimensions of at least two (2) feet by four (4) feet, or an area of eight (8) square feet or more. The requirement does not apply on existing windows that are not proposed to be replaced. c) New or Replaced Glass Structures. New or Replaced Glass Structures. Any structure that has transparent glass walls twenty-four (24) square feet or more in size, including but not limited to freestanding glass walls, wind barriers, skywalks, balconies, greenhouses, and rooftop appurtenances.	Standards shall not apply to the following: A. The replacement of existing glass on historic structures. However, the standards shall apply to new exterior additions to historic structures, and new construction on the site of historic structures, that are differentiated from the historic structures, if determined by the Planning Director to be consistent with the Secretary of the Interior’s Standards for the Treatment of Historic Properties. B. Glazing on the ground floor of commercial storefronts directly fronting a public street, alley, or sidewalk.	A. Bird-Safe Glazing Requirement. At least ninety percent (90%) of the glazing on any building façade or freestanding glass structure shall include features that enable birds to perceive the glass as a solid object. The requirement can be satisfied by using one or more of the following treatments to be determined by the Planning Director as part of an application for a building permit: <ol style="list-style-type: none"> External screens installed permanently over glass windows such that the windows do not appear reflective. Light-colored blinds or curtains. Opaque glass, translucent glass, or opaque or translucent window film. Paned glass with mullions on the exterior of the glass. Glass covered with patterns (e.g., dots, stripes, images, abstract patterns, lettering). Such patterns may be etched, fritted, stenciled, silk- screened, applied to the glass on films or decals, or another method of permanently incorporating the patterns into or onto the glass. Elements of the patterns must be at least one eighth (1/8) inch tall and separated no more than two (2) inches vertically, at least one-quarter (1/4) inch wide and separated by no more than four (4) inches horizontally, or both (the “two-by-four rule”). Ultraviolet (UV)-pattern reflective glass, laminated glass with a patterned UV reflective coating, or UV-absorbing and UV-reflecting film that is permanently applied to the glass. Where patterns are used, they shall meet the two-by-four rule. Other glazing treatments providing an equivalent level of bird safety and approved by the Planning Director as part of building plan review. B. Alternative Glazing Compliance. As an alternative to meeting the above Bird Safe Glazing Requirement, an applicant may propose building and fenestration designs and/or operational measures that will minimize bird collisions and achieve an equivalent level of bird safety. The applicant shall submit a bird collision reduction plan along with the application for design review or other discretionary permit required for the project. The bird collision reduction plan shall be prepared by a qualified biologist. Design and operational solutions may include but need not be limited to the following techniques, singularly or in combination: <ol style="list-style-type: none"> Layering and recessing glazed surfaces. Angled or faceted glazing that minimizes reflectivity and transparency. Louvres. Overhangs and awnings. Glass block. Bird netting with openings 1 square centimeter or smaller Decorative grilles that allow birds to perceive the grilles, together with the glass behind them, as solid. Glass embedded with photovoltaic cells

Bird Safety Berkeley Referral - Local Ordinance Comparison Table

					<p>9. Placement of landscaping in such a way as to minimize bird collisions.</p>
		<p>Purpose of Dark Skies Ordinance: To ensure exterior light fixtures are pointed downwards and turned off whenever possible, minimizing light pollution, sky glow, and hazardous risks to birds while ensuring adequate illumination for safety, security, and enjoyment of outdoor areas, including travel on public roads.</p>	<p>The dark skies ordinance applies to any project that requires a building permit or electrical permit for:</p> <p>a) New exterior lighting, including lighting fixtures attached to buildings, structures, poles, or self-supporting structures; or</p> <p>b) Additions or replacements of existing exterior light fixtures, including upgrades and replacements of damaged or destroyed fixtures.</p>	<p>The following types of lighting are exempt from the requirements of this subsection:</p> <p>A. Emergency Lighting. Temporary emergency lighting used by law enforcement or emergency services personnel, a public utility, or in conjunction with any other emergency service.</p> <p>B. Construction Lighting. Temporary lighting used for construction or repair of roadways, utilities, and other public infrastructure.</p> <p>C. Lighting Required by Building Code or Other Regulations. Lighting for exit signs, stairs, ramps, points of ingress/egress to buildings, and all other illumination required for building codes, OSHA standards, and other permitting requirements imposed by state, or federal agencies.</p> <p>D. Signs. Signs and sign lighting.</p> <p>E. Athletic Field Lights. Athletic field lights used within a school campus or public or private park.</p> <p>F. Neon, Argon, and Krypton. All fixtures illuminated solely by neon, argon, or krypton.</p> <p>G. Water Features. Lighting used in or for purposes of lighting swimming pools, hot tubs, decorative fountains, and other water features.</p> <p>H. Flag Lighting. Lighting used to illuminate a properly displayed United States flag and/or State of California flag.</p> <p>I. Holiday Displays. Seasonal and holiday lighting.</p> <p>J. Temporary Lighting. Temporary lighting allowed under a permit.</p> <p>K. Historic Fixtures. Historic lighting fixtures or fixtures that exhibit a historical period appearance, as determined by the Planning Director.</p> <p>L. Architecture, Historic Structures, and Public Art. Lighting on historic structures, interest shall be exempt if the lamps emit less than one thousand six hundred (1600) lumens per fixture and together draw less than one hundred (100) watts. However, the standards shall apply to new exterior additions to historic structures, and new construction on the site of historic structures, that are differentiated from the historic structures, if determined by the Planning Director to be consistent with the Secretary of the Interior’s Standards for the Treatment of Historic Properties.</p> <p>M. Low-Voltage Landscape Lighting. Low-voltage landscape lighting such as that used to illuminate fountains, shrubbery, trees, and walkways, provided that it uses no</p>	<p>To minimize the harmful effects of light pollution, new construction and major renovation projects shall meet the following standards:</p> <p>A. Outdoor lighting shall be no brighter than 3000 Kelvin.</p> <p>B. Outdoor lighting shall be shielded and directed, with a full cut off fixture of no more than 2.5% of lamp lumens at or above 90°, and no more than 10% of lamp lumens at or above 80°.</p> <p>C. Wherever feasible, require motion sensors or timers to prevent unnecessary energy use and light pollution.</p> <p>D. Light shows and beams of light are not permitted during spring or fall migration seasons, roughly February 15 to May 31, and August 15 to November 30, respectively.</p>

Bird Safety Berkeley Referral - Local Ordinance Comparison Table

				<p>more than sixty (60) watts and no more than seven hundred and fifty (750) lumens per fixture.</p>	
<p>Mountain View</p>	<p>Amendment to the Green Building Code</p> <p>Also developed Bird Safe Design Standards and Guidelines and Nesting Bird Protection Standards and Guidelines for the North Bayshore Precise Plan</p>	<p>Purpose of the Bird Safe Design Standards: To minimize adverse effects on native and migratory birds, new construction and major renovations will incorporate design measures to promote bird safety. These measures will help reduce the likelihood of building collision fatalities through façade treatments and light pollution reduction. These measures apply to both residential and non-residential land uses except where specified.</p>	<p>Per the Green Building Code: Bird-safe glass shall be installed on the exterior of the structure where:</p> <p>a) The structure is equal to or greater than ten thousand (10,000) square feet; or b) The applicable precise plan requires it.</p> <p>Additionally, the mandatory new construction green building requirements requires bird-safe glass installed in:</p> <p>a) Mixed-use buildings greater than or equal to 10,000 sf b) Hotels greater than or equal to 10,000 sf c) Commercial buildings greater or equal to 10,000 sf</p> <p>Design standards are applicable in the North Bayshore neighborhood.</p> <p>Nesting bird protection standards are applicable to all new construction, building additions, building alterations, and tree/shrub removal.</p>	<p>Per the Design Standards as outlined in the North Bayshore Precise Plan:</p> <p>Exceptions to the design requirements. The City may waive or reduce any of this chapter’s bird safe design requirements based on analysis by a qualified biologist indicating that proposed construction will not pose a collision hazard to birds.</p>	<p>Per the Design Standards as outlined in the North Bayshore Precise Plan:</p> <p>Bird Safe Design Standards</p> <p>A. All new construction, building additions, and/or building alterations shall adhere to the Bird Safe Design standards in the North Bayshore Precise Plan.</p> <p>B. Façade treatments. No more than 10% of the surface area of a building’s total exterior façade shall have untreated glazing between the ground and 60’ above ground. (Ex. Opaque glass, covering clear glass surface with patterns, using paned glass with fenestration patterns, using external screens over non-reflective glass)</p> <p>C. Occupancy Sensors. For non-residential development, occupancy sensors or other switch control devices shall be installed on non-emergency lights. The lights should be programmed to shut off during non-work hours and between 10pm and sunrise.</p> <p>D. Funneling of flight paths. New construction shall avoid funneling of flight paths along buildings or trees toward a building façade.</p> <p>E. Skyways/Walkways/or Glass Walls. New construction and building additions shall avoid building glass skyways, walkways, freestanding glass walls, transparent building corners. New construction and building additions should reduce glass at the tops of buildings, especially when incorporating a green roof into the design.</p> <p>Guidelines</p> <p>A. Bird collision best management practices to promote bird safety.</p> <ol style="list-style-type: none"> 1. Collision monitoring 2. window covering 3. Work station lighting and window coverings 4. Daytime maintenance <p>B. Handling of food waste (to avoid attracting wildlife)</p> <p>Nesting Bird Protection Standards</p> <p>A. Pre-activity surveys. If construction, building additions, or removal of trees and shrubs occurs between February 1 and August 31, pre-activity surveys for nesting birds shall be conducted by a qualified biologist.</p> <p>B. Nest buffers. If an active nest is found sufficiently close to work areas to be disturbed by these activities, the biologist in coordination with the California Department of Fish and Wildlife, shall determine the extent of a disturbance-free buffer zone to be established around the nest. Typical buffer zones are 300 feet for raptors and 100 feet for non-raptors.</p> <p>Guidelines</p> <p>Avoidance of nesting season. If construction, building additions, or removal of trees and shrubs is scheduled to take place outside the nesting season, impacts to protected nesting birds would be avoided.</p>

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<p>Emeryville <i>(looked to Alameda as basis for their ordinance)</i></p>	<p>Building standards (ordinance amendment to zoning code) Article 8. Bird Safe Buildings.</p>	<p>The purpose of the Bird Safe Buildings Ordinance: To reduce the risk of bird-to-building collisions.</p>	<p>Standards are applied to projects that require a building permit: a) New Construction. New buildings, additions, and renovations involving new glass or other rigid transparent material. b) Window replacement. Any replacement window, glass door, or other rigid transparent material. c) Glass structures. Any new or replacement structure that has transparent glass or rigid transparent walls, including but not limited to freestanding glass walls, wind barriers, skywalks, balconies, greenhouses, gazebos, pavilions, passageways, and rooftop appurtenances.</p> <p>The bird-safe glazing requirement must be met on any window or contiguous glazed segment (area with mullions and/or frames) with an area of 12 sf or more.</p>	<p>N/A</p>	<p>A. Bird-Safe Glazing Requirement. At least 90% of the glazing on any building facade or glass structure, and all glass near plants or water features shall include features that enable birds to perceive the glass as a solid object. The requirement can be satisfied using one or more of the following treatments:</p> <ol style="list-style-type: none"> External screens installed permanently over glass such that the glass does not appear reflective. Translucent or opaque glass or film applied to glass. Glass covered with patterns such as dots, stripes, images, art, or abstract patterns. Such patterns may be etched, fritted, stenciled, silk-screened, or applied to the glass as films or decals, or other method of permanently incorporating the patterns into or onto the glass. Elements of the pattern must meet the 2x4 rule. Weatherproof grates, netting or cords mounted outside of the glass, near but not touching the glass, meeting the 2x4 rule. Grooved glass block. Other glazing treatments providing an equivalent level of bird safety and approved by the Planning Director. <p>B. Alternative Compliance. An applicant may propose building and fenestration designs that will minimize bird collisions and achieve an equivalent level of bird safety. The applicant shall submit a bird collision reduction plan along with their project application. Shall be prepared by a qualified biologist. Design solution may include, but need not be limited to:</p> <ol style="list-style-type: none"> Layering and recessing of glazed surfaces Angled or faceted glazing that minimizes reflectivity and transparency Louvre or grates not meeting the 2x4 rule Overhangs or awnings Clear (non-grooved) glass block Grilles that allow birds to perceive them Glass embedded with photovoltaic cells Placement of landscaping in such a way as to minimize bird collisions, including but not limited to placing outdoor plants directly against windows <p>C. Interior Lighting</p> <ol style="list-style-type: none"> Nonresidential spaces shall have automatic light shutoff systems using timers, photo sensors, motion sensors, or a combo thereof Shades, blinds, curtains, or other window coverings for all windows shall be included as part of the construction project for which the building permit is issued <p>D. Site Design</p> <ol style="list-style-type: none"> No mirrors shall be placed in or near planted areas or water features or in locations where they would reflect trees, plants, or water Vent grates shall meet the 2x4 rule
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<p>Alameda</p>	<p>Building standards (ordinance amendment to zoning code)</p>	<p>Bird Safe Glass</p> <p>To reduce bird mortality from windows or other specific building features known to increase the risk of bird collisions.</p>	<p>Apply to the following types of projects when applying for a building permit:</p> <p>a) New Construction. New buildings that are greater than 35' in height and have one or more façade in which glass constitutes 50% or more of the area of an individual façade. The req must be met on any window or unbroken glazed segment with an area of 12 sf or more</p> <p>b) Window Replacement. On buildings that meet the 35'/50%, the replacement of any window or other rigid transparent material with 12 sf or more. Does not apply to existing windows that are not proposed to be replaced.</p> <p>c) New or Replaced Glass Structures. Any structure with transparent glass walls or any unbroken glazed segment 24sf or more in size, including but not limited to freestanding glass walls, wind barriers, skywalks balconies, greenhouses and rooftop appurtenances.</p>	<p>Shall not apply to the following:</p> <p>A. Historic Structures. The replacement of existing glass on historic structures. However, the standards shall apply to new exterior additions to historic structures and new construction on the site of historic structures that are differentiated from the historic structures</p> <p>B. Glazing on Commercial Storefronts. The ground floor of commercial storefronts directly fronting a public street, alley, or sidewalk.</p>	<p>A. Bird Safe Glazing Requirements. At least 90% of the glazing on any building façade or freestanding glass structure shall include features that enable birds to perceive the glass as a solid object. The requirement can be satisfied using one or more of the following treatments to be determined by the Planning Director as part of an application for a building permit:</p> <ol style="list-style-type: none"> 1. External screens installed permanently over glass windows such that the windows do not appear reflective. 2. Light colored blinds or curtains. 3. Opaque glass, translucent glass, or opaque or translucent window film. 4. Paned glass with mullions on the exterior of the glass. 5. Glass covered with patterns (e.g., dots, stripes, images, abstract patterns, lettering). Such patterns may be etched, fritted, stenciled, silk-screened, applied to the glass on films or decals, or another method of permanently incorporating the patterns into or onto the glass. Elements of the patterns must meet the 2x4 rule. 6. UV-pattern reflective glass, laminated glass with a patterned UV-coating, or UV-absorbing and UV-reflecting film that is permanently applied to the glass. Where patterns used, must meet 2x4 rule 7. Other glazing treatments providing an equivalent level of bird safety and approved by the Planning Director as part of the building plan review. <p>B. Alternative Compliance. Alternative to meeting 4a, must present a bird collision reduction plan prepared by a biologist. Design/solutions may include the following:</p> <ol style="list-style-type: none"> 1. Layering and recessing glazed surfaces 2. Angled or faceted glazing that minimizes reflectivity/transparency 3. Louvres 4. Overhangs/awnings 5. Glass block 6. Bird netting 7. Decorative grilles 8. Glass embedded with photovoltaic cells 9. Placement of landscaping in such a way as to minimize bird collisions
		<p>Dark Skies Ordinance</p> <p>A. Allow adequate illumination for safety, security, utility, and the enjoyment of outdoor areas.</p> <p>B. Prevent excessive light and glare on public roadways</p>	<p>Unless otherwise expressly stated, the standards of this subsection (c), Outdoor Lighting, apply to any project that requires a building permit or electrical permit for:</p> <p>a) New exterior lighting, including lighting fixtures attached to buildings, structures, poles, or self-supporting structures; or</p> <p>b) Additions or replacements of existing exterior light fixtures, including upgrades and replacements of damaged or destroyed fixtures</p>	<p>Exemptions. The following types of lighting are exempt from the requirements of this subsection (c), Outdoor Lighting:</p> <p>A. Emergency Lighting. Temporary emergency lighting used by law enforcement or emergency services personnel, a public utility, or in conjunction with any other emergency service.</p> <p>B. Construction Lighting. Temporary lighting used for the construction or repair of roadways, utilities, and other public infrastructure.</p> <p>C. Airport Lighting. Lighting for public and private airports and any other uses that are regulated by the Federal Aviation Administration.</p>	<p>Standards. Exterior lighting shall be consistent with these standards:</p> <p>A. Shielding. All exterior lighting fixtures shall be fully shielded, and lighting shall be directed downward, with the following exceptions:</p> <ol style="list-style-type: none"> 1. Low-voltage Landscape Lighting. Low-voltage landscape lighting such as that used to illuminate fountains, shrubbery, trees, and walkways, may be unshielded provided that it uses no more than sixty (60) watts, or twelve (12) watt equivalent LED, and emits no more than seven hundred fifty (750) lumens per fixture. 2. Architecture and Public Art. Uplighting may be used to highlight special architectural features, historic structures, public art and monuments, and similar objects of interest.

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		<p>and private properties.</p> <p>C. Minimize artificial outdoor light that can have a detrimental effect on human health, the environment, astronomical research, amateur astronomy, and enjoyment of the night sky.</p> <p>D. Minimize light that can be attractive disorienting, and hazardous to migrating and local birds.</p>		<p>D. Lighting Required by Building Codes or Other Regulations. Lighting for communication towers, exit signs, stairs/ramps, points of ingress/egress to buildings, and all other illumination required by building codes, OSHA standards, and other permitting requirements imposed by state or federal agencies.</p> <p>E. Signs. Signs and sign lighting. (See Section 30-6.6, Illumination of Signs, for sign lighting standards.)</p> <p>F. Athletic Field Lights. Athletic field lights used within a school campus or public or private park, provided, however, that athletic field lights shall be selected and installed so as to minimize glare and light trespass outside the playing area. Athletic field lights shall be turned off no later than 11:00 p.m. or where an event requires extended time, no later than thirty (30) minutes after conclusion of the event.</p> <p>G. Neon, Argon, and Krypton. All fixtures illuminated solely by neon, argon, or krypton.</p> <p>H. Fossil Fuel Light. All outdoor light fixtures producing light directly through the combustion of fossil fuels, such as kerosene lanterns, and gas lamps.</p> <p>I. Water Features. Lighting used in or for the purpose of lighting swimming pools, hot tubs, decorative fountains, and other water features.</p> <p>J. Flag Lighting. Lighting used to illuminate a properly displayed United States flag and/or State of California flag.</p> <p>K. Holiday Displays. Seasonal and holiday lighting</p> <p>L. Temporary Lighting. Temporary lighting allowed under a Special Events Permit or Film/Photography Permit</p>	<p>Lamps used for such uplighting shall use less than one hundred (100) watts, or twenty (20) watt equivalent LED, and emit less than one thousand six hundred (1,600) lumens per fixture.</p> <p>3. Historic Lighting Fixtures. Lighting fixtures that are historic or that exhibit a historical period appearance, as determined by the Planning Director, need not be fully shielded.</p> <p>B. Light Trespass. Exterior lighting shall be directed downward and away from property lines to prevent excessive glare beyond the subject property. No light, combination of lights, or activity shall cast light exceeding one (1) foot-candle onto an adjacent or nearby property, with the illumination level measured at the property line between the lot on which the light is located and the adjacent lot, at the point nearest to the light source.</p> <p>C. Correlated Color Temperature for Light-Emitting Diode (LED) Lighting. All LED light sources shall have a maintained correlated color temperature of less than or within the range of two thousand seven hundred to three thousand (2,700—3,000) Kelvins.</p> <p>D. Security Lighting. Adequate lighting shall be provided to protect persons and property and to allow for the proper functioning of surveillance equipment.</p> <ol style="list-style-type: none"> 1. Security lighting shall consist of shielded fixtures that are directed downward. Floodlights shall not be permitted. 2. Vertical features, such as walls of a building, may be illuminated for security to a height of eight (8) feet above grade. 3. Security lights intended to illuminate a perimeter, such as a fence line, are allowed only if regulated by a programmable motion detection system and compliant with the light trespass limitations in subsection (b). 4. Security lighting fixtures that utilize one hundred (100) or more watts, or twenty (20) watt equivalent LED, or emit one thousand six hundred (1,600) or more lumens shall be controlled by a programmable motion-sensor device, except where continuous lighting is required by the California Building Standards Code. <p>E. Parking Lot Lighting. Parking lot lighting shall be consistent with the standards of Section 30-7.17, Illumination of Parking Areas.</p> <p>F. Service Station Canopies. Service station canopies are subject to the following standards:</p> <ol style="list-style-type: none"> 1. Lighting fixtures in the ceiling of canopies shall be fully recessed in the canopy. 2. Light fixtures shall not be mounted on the top or fascia of such canopies. 3. The fascia of such canopies shall not be illuminated, except for approved signage. <p>G. Street and Park Lighting. Lighting installed within a public or private right-of-way or easement for the purpose of illuminating streets or roadways and lighting in City parks shall be in accordance to lighting</p>
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					<p>standards of the Public Works Department and Alameda Recreation and Parks Departments, except all LED lighting shall have a maintained correlated color temperature of less than or within the range of two thousand seven hundred to three thousand (2,700—3,000) Kelvins.</p> <p>Code Compliance. All exterior lighting shall be consistent with all applicable parts of the California Building Standards Code. In the case of any conflict between the standards of this section and the California Building Standards Code, the later shall prevail.</p>
Oakland	Bird Safety Measures added to Building Permit Requirements	N/A	<p>Applies to all construction projects which include glass as part of the building’s exterior and at least one of the following:</p> <ul style="list-style-type: none"> a) The project is located immediately adjacent to a substantial water body (e.g. Oakland Estuary, SF Bay, Lake Merritt) b) The project is located immediately adjacent to rec area or park larger than 1 acre which contains substantial vegetation c) The project includes a substantial vegetated or green roof but excluding container gardens d) The project includes an existing or proposed substantial vegetated area (generally contiguous one acre in size or larger) located directly adjacent to project buildings. e) The structure contains an atrium which will contain vegetation. 	N/A	<p>A. Bird Collision Reduction Measures Requirement: Project applicant shall submit a Bird Collision Reduction Plan for City review and approval to reduce potential bird collisions to the max feasible extent. The Plan shall include all of the following mandatory measures, as well as applicable and specific project Best Management Practice (BMP) strategies to reduce bird strike impacts to the maximum feasible extent. The Project applicant shall implement the approved Plan. <i>Mandatory measures include all of the following:</i></p> <ol style="list-style-type: none"> 1. Comply with federal aviation safety regulations for large buildings by installing minimum intensity white strobe lighting with three second flash instead of solid red or rotating lights. 2. Minimize the number of and co-locate rooftop-antennas and other rooftop structures. 3. Monopole structures or antennas shall not include guy wires. 4. Avoid the use of mirrors in landscape design. 5. Avoid placement of bird-friendly attractants (i.e. landscaped areas, vegetated roofs, water features) near glass unless shielded by architectural features taller than the attractant that incorporate the bird friendly treatments no more than two inches horizontally, four inches vertically, or both (the “two-by-four” rule). <p>B. Glazing Treatments Apply bird friendly glazing treatments to no less than 90 percent of all windows and glass between the ground and 60 feet above ground or to the height of existing adjacent landscape or the height of the proposed landscape. Examples of bird friendly glazing treatments include the following:</p> <ol style="list-style-type: none"> 1. Use of opaque glass in window panes instead of reflective glass. 2. Uniformly cover the interior or exterior of clear glass surface with patterns (e.g., dots, stripes, decals, images, abstract patterns). Patterns can be etched, fritted, or on films and shall have a density of no more than two inches horizontally, four inches vertically, or both (the “two-by-four” rule). 3. Install paned glass with fenestration patterns with vertical and horizontal mullions no more than two inches horizontally, four inches vertically, or both (the “two-by-four” rule). 4. Install external screens over non-reflective glass (as close to the glass as possible) for birds to perceive windows as solid objects.

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					<p>5. Install UV-pattern reflective glass, laminated glass with a patterned UV reflective coating, or UV-absorbing and UV-reflecting film on the glass since most birds can see ultraviolet light, which is invisible to humans.</p> <p>6. Install decorative grilles, screens, netting or louvers, with openings no more than two inches horizontally, four inches vertically, or both (the “two-by-four” rule).</p> <p>7. Install awnings, overhangs, sunshades, or light shelves directly adjacent to clear glass which is recessed on all sides. Another option is to use louvers with 2” x 4” spacing.</p> <p>8. Install opaque window film or window film with a pattern or design or marketing message which also adheres to the 2” x 4” rule for coverage.</p> <p>C. Reduce Light Pollution Examples include the following:</p> <ol style="list-style-type: none"> 1. Extinguish nighttime architectural illumination treatments during bird migration season (February 15 to May 31 and August 1 to November 30). 2. Install time switch control devices or occupancy sensors on non-emergency interior lights that can be programmed to turn off during non-work hours and between 11:00 p.m. and sunrise. 3. Reduce perimeter lighting whenever possible. 4. Install full cut off, shielded or directional lighting to minimize light spillage, glare or light trespass. 5. Do not use beams of lights during the spring (February 15 to May 31 or fall migration (Aug 15 to November 30). <p>D. Bird Safety B.M.P.s to include the implementation of a building operation and management manual that promotes bird safety. Example measures in the manual include the following:</p> <ol style="list-style-type: none"> 1. Donation of discovered dead bird specimens to an authorized bird conservation organization or museum (i.e. U.C. Berkeley Museum of Vertebrate Zoology) to aid in species identification and to benefit scientific study, as per all federal, state and local laws. 2. Distribution of educational materials on bird-safe practices for the building occupants. Contact Golden Gate Audubon or American Bird Conservancy for materials. 3. Asking employees to turn off task lighting at their work stations and draw office blinds, shades, curtains or other window coverings at end of work day. 4. Install interior blinds, shades, or other window coverings in windows above the ground floor visible from the exterior as part of the construction contract, lease agreement, or CC&Rs. 5. Schedule nightly maintenance during the day or to conclude before 11 p.m., if possible. <p>When Required: Prior to approval of construction-related permit Initial Approval: Planning and Zoning Division Monitoring/Inspection: Building Services Division</p>
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					<p>E. Implementation of Bird Collision Reduction Plan After Construction Requirement: The project applicant shall continue to implement the approved Bird Collision Reduction Plan following construction of the project. When Required: Ongoing Initial Approval: N/A Monitoring/Inspection: Building Services Division</p>
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