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THIRD READING

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Bill No: AB 2382  
Author: Lee (D), et al.  
Amended: 8/22/22 in Senate  
Vote: 21

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SENATE GOVERNMENTAL ORG. COMMITTEE: 10-3, 6/28/22  
AYES: Dodd, Allen, Archuleta, Becker, Bradford, Hueso, Kamlager, Portantino,  
Rubio, Wilk  
NOES: Nielsen, Jones, Melendez  
NO VOTE RECORDED: Borgeas, Glazer

SENATE APPROPRIATIONS COMMITTEE: 6-1, 8/11/22  
AYES: Portantino, Bates, Bradford, Laird, McGuire, Wieckowski  
NOES: Jones

ASSEMBLY FLOOR: 72-0, 5/23/22 - See last page for vote

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**SUBJECT:** Light pollution control

**SOURCE:** Santa Clara Audubon Society

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**DIGEST:** Requires state agencies, with certain exceptions, to ensure that outdoor lighting fixtures installed or replaced on or after January 1, 2023, on a structure or land that is owned, leased, or managed by the state agency is shielded, as defined, and meets additional minimal illuminance criteria, as specified.

*Senate Floor Amendments* of 8/22/22 add additional definitions for “correlated color temperature” and “light trespass,” as specified; clarify the definition of “shielded;” expand exceptions to the shielded requirement; and, add legislative findings and declarations, as specified.

**ANALYSIS:**

## Existing law:

- 1) Establishes the California Building Standards Commission, within the Department of General Services (DGS), and tasks it with approval and adoption of building standards and codification of those standards into the California Building Standards Code.
- 2) Requires the State Energy Resources Conservation and Development Commission to adopt, among other regulations, lighting and other building design and construction standards that increase efficiency in the use of energy for new residential and nonresidential buildings to reduce the wasteful, uneconomic, inefficient, or unnecessary consumption of energy, including energy associated with the use of water, and to manage energy loads to help maintain electrical grid reliability.
- 3) Defines “state agency” to include every state office, officer, department, division, bureau, board, and commission. State agency does not include the California State University unless explicitly provided for.

## This bill:

- 1) Requires state agencies to ensure that an outdoor lighting fixture that is installed or replaced on or after January 1, 2023, on a structure or land that is owned, leased, or managed by the state agency is shielded and meets all of the following criteria:
  - a) Uses a lamp with a correlated color temperature that does not exceed 2700 Kelvin.
  - b) Uses the minimal illuminance required for the intended purpose of the outdoor lighting fixture, with consideration to recognized building and safety standards, including, but not limited to, recommended practices adopted by the Illuminating Engineering Society.
  - c) Is either dimmable to no more than 50% of its maximum possible brightness, is extinguishable by an automatic or manual shutoff device, or is motion-activated with a duration fewer than 15 minutes, as specified.
- 2) Makes the following circumstances exempt from the above requirements:
  - a) A federal law or regulation that preempts state law.

- b) A local municipal or county ordinance that more stringently control light trespass or glare or conserve the natural night sky.
  - c) The outdoor lighting fixtures are advertisement signs or other fixtures on interstate highways or federal primary highways.
- 3) Exempts the following situations from the bill for the purposes of a compelling safety interest or if an existing legal requirement requires such lighting:
- a) Navigational lighting for aircraft safety.
  - b) Outdoor lighting needed for the safe navigation of watercraft, including, but not limited to, lighthouses and outdoor lighting in marinas.
  - c) Outdoor lighting fixtures necessary for worker health and safety or public health and safety, as specified.
  - d) Lighting that is used by law enforcement officers, firefighters, medical personnel, or correctional personnel, as specified.
  - e) Lighting intended for tunnels and roadway underpasses.
  - f) Outdoor lighting used for programs, projects, or improvements of a state agency relating to construction, reconstruction, improvement, or maintenance of a street, highway, or state building, structure, or facility.
  - g) Outdoor lighting on historic sites or structures, to the extent necessary to preserve the historic appearance.
  - h) Lighting sources of less than 1,000 lumens, including, but not limited to, seasonal and decorative lighting.
  - i) Other circumstances where a significant interest exists to protect safety or state property that cannot be feasibly addressed by another method, including, but not limited to, lighting needed to discourage vandalism of state agency buildings, structures, and facilities.
- 4) Requires a state agency, if an exemption applies, to make reasonable efforts to install fixtures and employ light management practices that conserve energy, minimize light trespass, and preserve the dark sky while still fully meeting the purposes and requirements of the light fixtures.
- 5) Defines “correlated color temperature” to mean the temperature, measured in Kelvin, of a radiating black body that presents the same apparent color to the human eye as the light source.
- 6) Defines “light trespass” to mean light emitted by an outdoor lighting fixture that shines beyond the boundary of the property on which the fixture is located.

- 7) Defines “outdoor lighting fixture” to mean an outdoor artificial illuminating device or luminaire, whether permanent or portable, including, but not limited to, artificial illuminating devices installed on a building or structure and used for illumination or advertisement, including, but not limited to, searchlights, spotlights, and floodlights, used for architectural lighting, parking lot lighting, landscape lighting, billboards, or street lighting. “Outdoor lighting fixture” does not include artificial illuminating devices that are worn or held in the hand, including flashlights, lanterns, and headlamps.
- 8) Defines “shielded” to mean all of the light rays emitted by an outdoor lighting fixture in its installed position, either directly from the lamp or indirectly from the fixture, are projected below a horizontal plane running through the lowest point on the fixture where the light is emitted and effectively obscures visibility of the lamp.
- 9) Includes legislative findings and declarations related to lighting fixtures and light pollution, as specified.

## Comments

*Purpose of the Bill.* According to the author’s office, “increased light pollution throughout California and globally is disrupting the circadian rhythms and migratory patterns of animals, which is harming our ecosystems. According to the National Audubon Society, 80% of birds that migrate do so at night using the dark skies to help them navigate to and from their breeding grounds. In addition to disrupting circadian rhythms, excessive artificial light at night (ALAN) can also disorient birds, which can result in fatal collisions. To address this issue, AB 2382 will require outdoor lighting fixtures on state buildings and structures to have an external shield to direct light to where it is needed or be equipped with a shutoff device. This sensible reform promotes safety for migratory birds, ecosystems, and people.”

*Light Pollution.* Light pollution, also known as ALAN, is caused by increasingly large urban areas and the excessive and inefficient use of lights. Light pollution is characterized by sky glow (brighter sky in urban areas), light trespass (shining of lights in unneeded or unwanted areas), and glare (brightness resulting in visual discomfort).

Light pollution can directly impact human health by interfering with natural circadian rhythms caused by a decrease in the amount of melatonin produced in the body. Sleep disorders, depression, cancer, and other adverse health conditions have been linked to circadian disruption. Studies have demonstrated that light

pollution can also alter the behavior of wildlife, often resulting in the death or decline of species such as turtles, birds, fish, reptiles, and other wildlife.

*Other States.* Nineteen states, the District of Columbia, and Puerto Rico have enacted laws to reduce light pollution. "Dark skies" laws typically require outdoor lighting fixtures to be shielded so that light is emitted downwards only, to use low-glare or low-wattage lightbulbs, or to be restricted during certain hours.

*California Green Building Standards Code.* In 2007, the Building Standards Commission developed green building standards for non-residential structures and any other buildings or structures that are not under the jurisdiction of another state agency. The California Green Building Standards Code (CALGreen) currently imposes specific light pollution reduction standards for non-residential buildings. Outdoor lighting systems must be designed and installed to prevent light escaping in unwanted or unnecessary directions from an outdoor light fixture. CALGreen specifies that if a local ordinance is more stringent than the CALGreen requirements, the building owner must comply with the local ordinance. CalGreen currently exempts a variety of light fixtures, including but limited to those used for aviation; landscaping; temporary use outdoors; sports and athletic fields, and children's playgrounds; tunnels, bridges, stairs, and ramps; and lighting for industrial sites. CALGreen also exempts emergency lighting; building façade meeting specified requirements; and some custom lighting features.

This bill requires state agencies to ensure that outdoor lighting fixtures installed or replaced on or after January 1, 2023, on a structure or land that is owned, leased, or managed by the state agency is shielded, as defined, and meets additional minimal illuminance criteria. The bill includes a number of exemptions from the requirement including when federal law or regulation preempts state law, a local ordinance establishes more stringent requirements, or the outdoor lighting fixtures are advertisement signs or other fixtures on interstate highways or federal primary highways.

Additionally, the bill exempts situations where a compelling safety interest or existing legal requirement requires such lighting, including any of the following: navigational lighting for aircraft safety; outdoor lighting needed for the navigation of watercraft; fixtures necessary for worker health and safety or public health and safety; for use by law enforcement, firefighters, medical personnel, or correctional personnel; lighting for tunnels and underpasses, historic sites or structures; and seasonal and decorative lighting, as specified.

This bill requires state agencies to consider cost efficiency, energy conservation, minimization of light trespass and glare, and preservation of the natural night environment.

### **Related/Prior Legislation**

AB 1710 (Lee, 2022) would have stated the intent of the Legislature to enact legislation relating to the regulation of residential and outdoor light-emitting diodes fixtures that create artificial light pollution at night, which causes harmful environmental and public health effects, as specified. (Never referred to an Assembly Committee)

**FISCAL EFFECT:** Appropriation: No Fiscal Com.: Yes Local: No

According to the Senate Appropriations Committee:

- Unknown General Fund costs, likely in the millions of dollars, to replace light fixtures for over 24,000 state-owned buildings and structures according to the criteria specified in this bill. These costs will likely be spread out over an unknown amount of time based on a replacement schedule to be determined by DGS. Actual costs will be job specific and depend on the type and number of fixtures being replaced and installed for each building.
- Unknown, potentially significant General Fund costs to replace light fixtures on leased buildings. State costs will vary from minor to significant, to the extent that a lessor requires the state to cover costs associated with replacing light fixtures.
- Unknown, potentially significant costs to include light fixtures meeting the specified criteria on newly constructed buildings. Generally, DGS notes that new construction is covered by the California Green Building Standards Code's (CALGreen) backlight, upright, and glare regulations. Any costs for compliant light fixtures in regard to new construction would be absorbed by existing project resources and included in the overall costs of construction.

**SUPPORT:** (Verified 8/22/22)

Santa Clara Valley Audubon Society (source)  
American Bird Conservancy  
California Institute for Biodiversity and Defenders of Wildfire  
Citizens Committee to Complete the Refuge  
Cornell Lab of Ornithology  
Defenders of Wildlife

Environmental Justice Coalition for Water  
Friends of Harbors, Beaches and Parks  
Green Foothills  
Hills for Everyone  
Los Angeles Audubon Society  
Midpeninsula Regional Open Space District  
San Diego County Chapter of the International Dark Sky Association  
Santa Clara Valley Open Space Authority  
Save the Bay  
Sierra Club California  
The Urban Wildlands Network  
Wildlands Network

**OPPOSITION:** (Verified 8/22/22)

California Sign Association

**ARGUMENTS IN SUPPORT:** In support of this bill, the Santa Clara Valley Audubon Society writes that, “[e]xcessive night light attracts nocturnal-migratory birds and diverts them from safe migration routes to human environments, where they are more susceptible to collisions with buildings and other human-made structures. A study found that reducing indoor artificial night light by half can result in roughly 60% fewer bird collisions. Insects are attracted to light as well, and when caught in a light plume of a light fixture, they circle around it until they die or the light is extinguished.”

**ARGUMENTS IN OPPOSITION:** Opponents of the bill state that the “California Sign Association, serving California since 1959, has serious concerns about the ramifications of this legislation. We are not opposed to feasible and practicable measures that reduce light pollution, provided signage restrictions do not adversely affect the advertising message, that illumination is sufficient to convey the message, and the legislation actually does what it seeks to do.”

**ASSEMBLY FLOOR:** 72-0, 5/23/22

**AYES:** Arambula, Bauer-Kahan, Bennett, Bigelow, Bloom, Boerner Horvath, Bryan, Calderon, Carrillo, Cervantes, Chen, Choi, Cooley, Cooper, Cunningham, Megan Dahle, Daly, Davies, Flora, Mike Fong, Fong, Friedman, Gabriel, Gallagher, Cristina Garcia, Eduardo Garcia, Gipson, Gray, Grayson, Haney, Holden, Irwin, Jones-Sawyer, Kalra, Kiley, Lackey, Lee, Levine, Low, Maienschein, Mathis, Mayes, McCarty, Medina, Mullin, Muratsuchi, Nazarian, Nguyen, Patterson, Petrie-Norris, Quirk, Quirk-Silva, Ramos, Reyes, Luz Rivas,

Robert Rivas, Rodriguez, Salas, Santiago, Seyarto, Smith, Stone, Ting,  
Valladares, Villapudua, Waldron, Ward, Akilah Weber, Wicks, Wilson, Wood,  
Rendon

NO VOTE RECORDED: Aguiar-Curry, Berman, Mia Bonta, O'Donnell, Blanca  
Rubio, Voepel

Prepared by: Brian Duke / G.O. / (916) 651-1530  
8/23/22 15:10:25

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