

## Light Pollution Laws

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### Issue

This report summarizes Connecticut's laws that address light pollution and gives a brief overview of related laws in other states.

### Summary

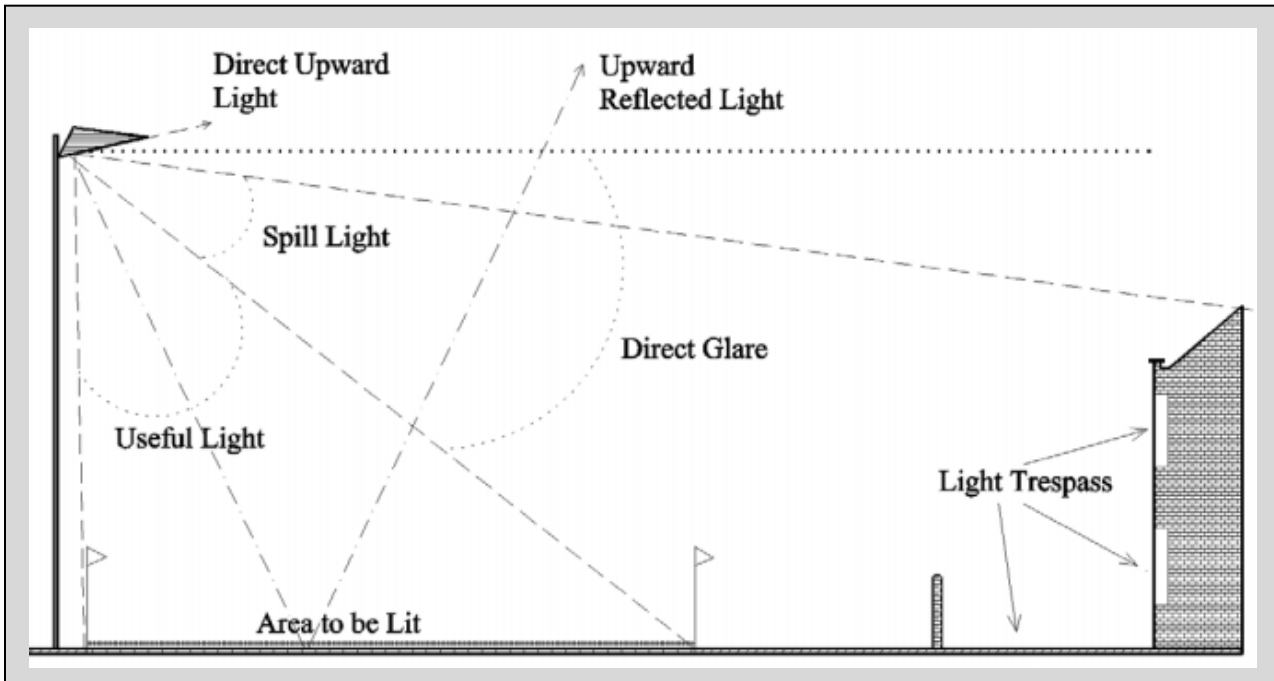
Light pollution is generally unwanted or harmful outdoor light and can take several forms, including glare and light trespass. Glare is direct light that reduces vision or causes discomfort and light trespass is light that shines beyond where it is intended to shine. The infographic below illustrates how, and in what forms, light pollution occurs.

Connecticut laws set requirements for (1) installing or replacing outdoor lighting systems installed with state or municipal funds on certain roadways or state grounds (CGS §§ [13a-110a](#) and [4b-16](#)) and (2) locating floodlights on state highway rights-of-way for the purpose of lighting up private property ([CGS § 13a-143d](#)).

Additionally, reducing light pollution from state facilities and public schools is incorporated into the requirements for meeting the state's building construction standards. State regulations require certain new construction and renovation projects that use state funds to utilize at least two of 15 specified site selection and development strategies, one of which aims to reduce light pollution by installing automatic controls and placing lights in certain locations, among other things (Conn. Agencies Regs. §§ [16a-38k-4](#) and [16a-38k-6](#)).

As of May 2016, at least seventeen other states had laws to reduce light pollution. Most of them, like Connecticut's laws, deal with outdoor lighting fixtures on state building or facility grounds or on public roads.

## Infographic: Light Pollution



Source: Institution of Lighting Professionals (formerly the Institution of Lighting Engineers), "Guidance Notes for the Reduction of Light Pollution," 2000. (Available online at: [www.gov.ie/SiteCollectionDocuments/Planning%20and%20building/SPG%20Lightpollution%202002.pdf](http://www.gov.ie/SiteCollectionDocuments/Planning%20and%20building/SPG%20Lightpollution%202002.pdf).)

## Outdoor Lighting Systems

Connecticut has laws aimed at limiting the amount of light that may go above the lights on public roadways and on the grounds of state buildings or facilities.

### *Roadways*

The law generally prohibits using state or municipal funds to install or replace a permanent roadway lighting system unless (1) it is designed to maximize energy conservation and minimize light pollution, glare, and light trespass; (2) it emits only as much light as needed for its intended purpose; (3) a full cutoff luminaire is used when the output is more than 1,800 lumens; and (4) the purpose of the light cannot be achieved by reducing the speed limit or installing passive or reflective lighting ([CGS § 13a-110a\(b\)](#)).

The law also prohibits a public utility company from installing or replacing a permanent lighting system for roadway lighting, if municipal funds pay for its operation,

### *Full Cutoff Luminaire*

*A full cutoff luminaire prevents direct light emissions above a horizontal plane through its lowest-emitting part. This generally means that the lighting must be designed to prevent light from going above the lamp.*

unless it (1) is designed to maximize energy conservation and minimize light pollution, glare, and light trespass; (2) emits only as much light as needed for its intended purpose; and (3) is a full cutoff luminaire when the output is more than 1,800 lumens and it is used on a municipal road ([CGS § 13a-110a\(e\)](#)).

Exceptions to the full cutoff requirement may be granted by the appropriate authority, either the transportation commissioner or the municipal chief election official, as applicable. The requirements also do not apply if the Office of Policy and Management (OPM) secretary determines that compliant new or replacement lights are not cost effective or the most appropriate alternative ([CGS § 13a-110a\(c\) through \(f\)](#)).

### ***State Buildings or Facilities***

The law generally prohibits using state funds to install or replace a permanent outdoor lighting system on state building or facility grounds unless it (1) is designed to maximize energy conservation and minimize light pollution, glare, and trespass; (2) emits only as much light as is needed for its intended purpose; and (3) is a restricted upright luminaire when the output is more than 1,800 lumens ([CGS § 4b-16\(b\)](#)).

#### ***Restricted Upright Luminaire***

*A restricted upright luminaire is a lighting system which prevents direct light above a horizontal plane through its lowest light-emitting part and only allows a 0.5% incidental upright from reflection off mounting hardware.*

The law exempts lighting units (1) on the grounds of a state corrections institution or facility, (2) required by federal regulations, (3) required for state Department of Transportation (DOT) storm operations, (4) required to light the U.S. or state flag, or (5) in a plan for DOT facilities where fewer than 25% of the lights will be replaced. The administrative services commissioner may waive the restricted upright requirement. The law does not apply if the OPM secretary determines that the lights that meet the requirements are not cost effective or the most appropriate alternative ([CGS § 4b-16\(c\)&\(d\)](#)).

### **Floodlights on State Highway Rights-of-Way for Lighting Private Property**

Connecticut law prohibits locating a floodlight intended to light up private property in a state highway right-of-way unless:

1. it is designed to maximize energy conservation and minimize light pollution, glare, and light trespass;

2. the maintained light levels it produces are at the minimum applicable levels recommended by the Illuminating Engineering Society of North America; and
3. it is sufficiently shielded and aimed so that (a) its direct light is not visible at any point on the highway where the viewing height is four feet or more and the distance from the pole is 70 feet or more and (b) there is no light trespass onto properties next to the one that the light is intended and its direct light is not visible at a viewing height of five feet or more at any point along the neighboring property line ([CGS § 13a-143d\(b\)](#)).

The law also prohibits putting a floodlight that will be used to light up private property in a state right-of-way when the property to be lit up is across a public highway from the utility pole on which the light will be mounted ([CGS § 13a-143d\(c\)](#)).

## **Building Construction Standards**

In addition, taking certain steps to reduce light pollution is a design option available for meeting new construction or renovation requirements for certain state facilities and public schools.

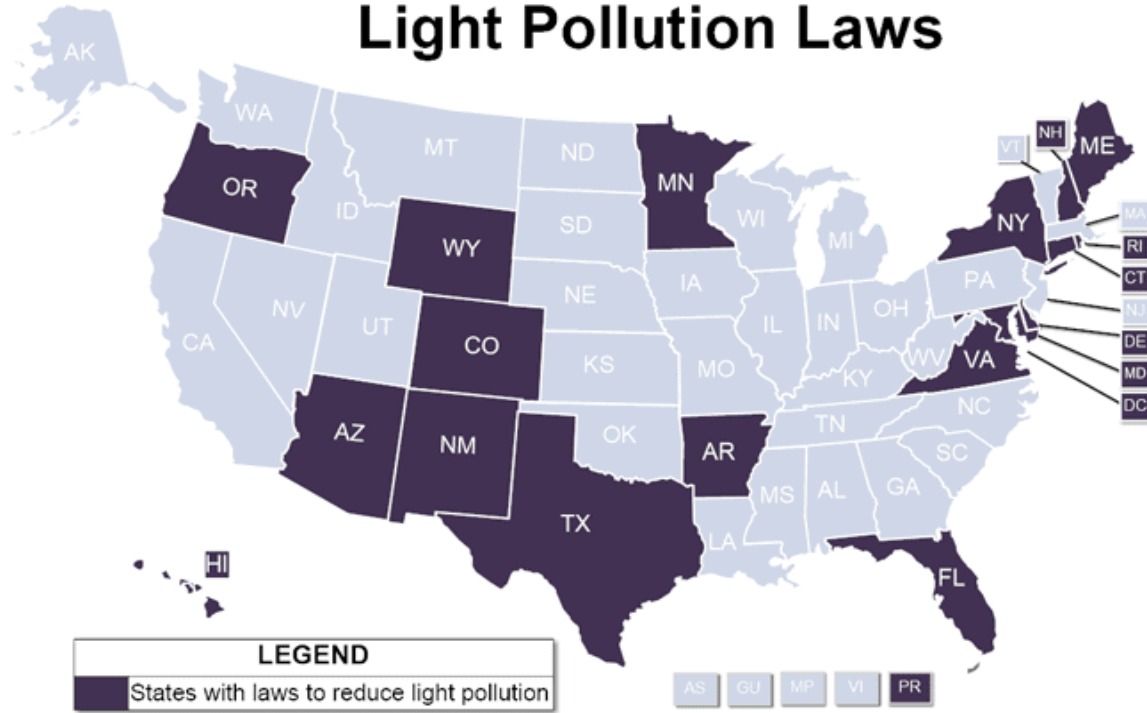
By law, new construction and renovation projects of certain state facilities and public schools must comply with state building construction standards, including energy use and conservation requirements. Specifically, the projects must implement a minimum number of strategies on things such as energy efficiency and renewable energy; water efficiency; recycling, reuse, and sustainability; and site selection and development. These standards apply to projects that cost a minimum amount and use a minimum amount of state funds, but projects may be exempt if meeting the standards is not cost effective ([CGS § 16a-38k](#)).

The strategies that the projects must implement are set out in regulation. Among other things, the regulations require that a project implement at least two out of 15 site selection and development strategies, which include one to reduce light pollution by doing such things as installing automatic light controls and limiting exterior lighting (Conn. Agencies Regs. §§ [16a-38k-4](#) and [16a-38k-6](#)).

## **Other States' Light Pollution Laws**

According to a May 2016 National Conference of State Legislatures (NCSL) report, 18 states plus Washington D.C. and Puerto Rico have laws aimed at reducing light pollution. NCSL reports that most of these laws, including Connecticut's, limit their scope to outdoor light fixtures on state building or facility grounds or on public roads. The most common law is to require that the fixtures emit light downward. Below is NCSL's map showing the states with these laws.

# Light Pollution Laws



Source: NCSL. "States Shut Out Light Pollution." May 23, 2016. (Available online at: <http://www.ncsl.org/research/environment-and-natural-resources/states-shut-out-light-pollution.aspx>.)

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