

Outdoor Lighting Ordinance

Creation of Task Force
 - Policy Order D-29

Model: The task force used an amount of time for any that is appropriate to allow for the review and approval of outdoor areas, in its own regulated light fixtures and also to allow and the public to take, making light pollution and preventing energy consumption.

DRAFT ORDINANCE HIGHLIGHTS

APPLICABILITY - New, replacement, substantial renovation, or existing

COLOR TEMPERATURE STANDARDS

PRESCRIPTIVE OR PERFORMANCE STANDARDS

INSPECTIONAL SERVICES DEPARTMENT OVERSIGHT

EXEMPTIONS

APPLICABILITY

COLOR TEMPERATURE
 Light source may not exceed 3,500 Kelvin

Kelvin Color Temperature Scale

EXCEPTION: Facade and landscape lighting (commercial or residential) is exempt from the color temperature standard.

TWO STANDARDS

PRESCRIPTIVE - Geared to residential & small commercial property owners.

PERFORMANCE - Geared to larger commercial properties &/or those looking for more creative lighting design.

INSPECTIONAL SERVICES DEPARTMENT

Fit to Election Years

| Significant Lighting Plan Req'd | Prescriptive Requirements | Performance Requirements |
|---------------------------------|---------------------------|--------------------------|
| Projects over 100 SF | All | All |

Administrative Review

Must demonstrate:

- Compliance with prescriptive and/or performance standards.
- Compliance with all applicable CDD/Community Development standards, codes, rules, or policies.

Requirements:

- Enforcement Officers
- Code Analysts
- At least one staff

Exemptions

Signifies of:

- Public ways, public parks, or public art
- Public monuments, statues, or the national flag
- Theatrical or television production or performance areas
- Construction areas OR Emergency conditions
- Seasonal Lighting
- Sports facilities
- Some historic buildings
- Required by federal, state, local laws or public safety
- Underwater lighting of ponds

Lighting undertaken as a result of a City appointed panel

Education and Outreach

What it all means

Use either the Prescriptive Standard or the Performance Standard

Outdoor Lighting Ordinance

Creation of Task Force
 - Policy Order D-29

Model: The task force issued an advisory on color lighting that is applicable to all outdoor lighting and performance of outdoor areas, in its own regulated light fixtures and also to other outdoor lighting products, reducing light pollution and preventing energy consumption.

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INSPECTIONAL SERVICES DEPARTMENT

File to Election Files

| Significant Lighting Plan Req'd | Prescriptive | Performance |
|---------------------------------|--------------|-------------|
| Projects over 100 SF | Yes | Yes |
| Projects over 100 SF | No | No |

Administrative Review

Must demonstrate:

- Compliance with prescriptive standards for applicable projects over 100 SF
- Compliance with performance standards for applicable projects over 100 SF

Enforcement

- Enforcement Officers
- Complaints
- Violations
- Non-compliance

Exemptions

Signifies of:

- Public Works, public parks, or public art
- Public monuments, statues, or the national flag
- Theatrical or television production or performance areas
- Construction areas OR Emergency conditions
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Use either the Prescriptive Standard or the Performance Standard

Creation of Task Force - Policy Order O-29

Mission: The intent being to permit an amount of outdoor lighting that is appropriate to allow for the safe use and enjoyment of outdoor areas, while also **mitigating light trespass** and **glare** to abutters and the public at large, **reducing light pollution**, and **promoting energy conservation**.

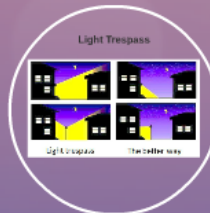
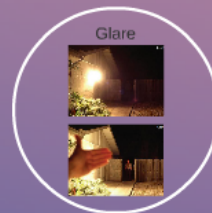
Basis of Work - Model Lighting Ordinance

- Developed by the International Dark Sky Association and the Illuminating Engineering Society (IES) of North America over a seven-year period.
- Purpose of MLO was "to address the need for strong, consistent outdoor lighting regulation in North America."
- "MLO encourages communities to adopt comprehensive outdoor lighting ordinances without devoting extensive staff time and resources to their development."
- "The MLO outdoor lighting template is designed to help municipalities develop outdoor lighting standards that reduce glare, light trespass and skyglow."



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Glare



Light Trespass



Light trespass

The better way

Sky Glow



DRAFT ORDINANCE HIGHLIGHTS

APPLICABILITY - New, replacement, substantial renovation, or existing

COLOR TEMPERATURE STANDARDS

PRESCRIPTIVE OR PERFORMANCE STANDARDS

INSPECTIONAL SERVICES DEPARTMENT OVERSIGHT

EXEMPTIONS

APPLICABILITY

NEW or REPLACEMENT LIGHTING

Must comply after effective date

SUBSTANTIAL RENOVATION

(Over 50% GFA building OR exterior wall area)

Must comply after effective date

EXISTING

Must comply w/i five (5) years of effective date

BUT - Encouraged to eliminate/minimize light trespass by:

- Changing the bulb, shielding, or fixture

APPLICABILITY

NEW or REPLACEMENT LIGHTING

Must comply after effective date

SUBSTANTIAL RENOVATION

(Over 50% GFA building OR exterior wall area)

Must comply after effective date

EXISTING

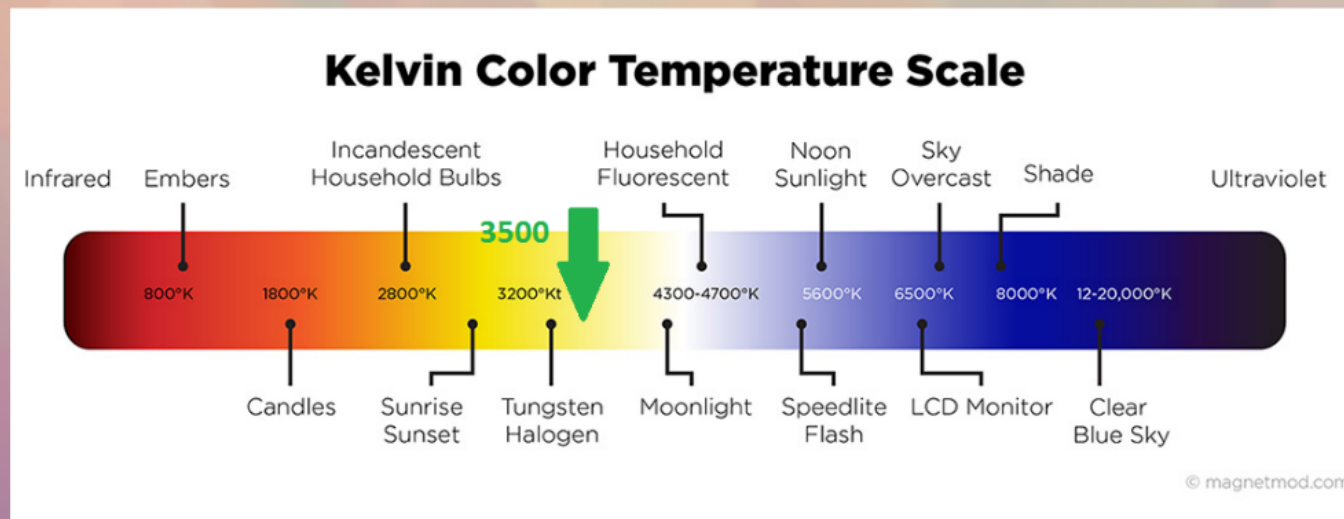
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PERFORMANCE - Geared to larger commercial properties &/or those looking for more creative lighting design



Outdoor Lighting Category 1

- Unshielded or partly shielded placed not less than 4 feet apart
- Lumen Max 315
- Maximum height 12 feet



Outdoor Lighting Category 2

Up to two unshielded or partly shielded in a main entry area, placed not less than 4 feet apart

Lumen Max 630

Maximum height 12 feet



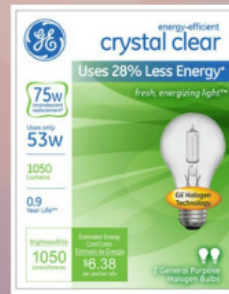
Prescriptive Standard

Light Category - Shielded or unshielded

Maximum Lumen Level

Maximum Height above surface to be illuminated

Licensed electrician



Outdoor Lighting Category 4

Shielded directional light fixtures for parking areas, driveways, or outdoor loading bays

Lumen Max 1,260

Maximum height 14 feet



Outdoor Lighting Category 3

Shielded directional light fixtures, placed not less than 4 feet apart, for entries, walkways, and architectural lighting.

Lumen Max 1,050

Maximum height 12 feet



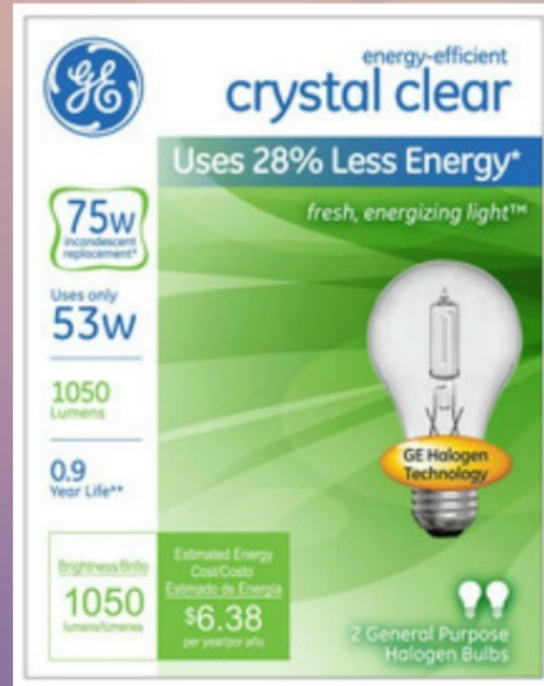
Prescriptive Standard

Light Category - Shielded or unshielded

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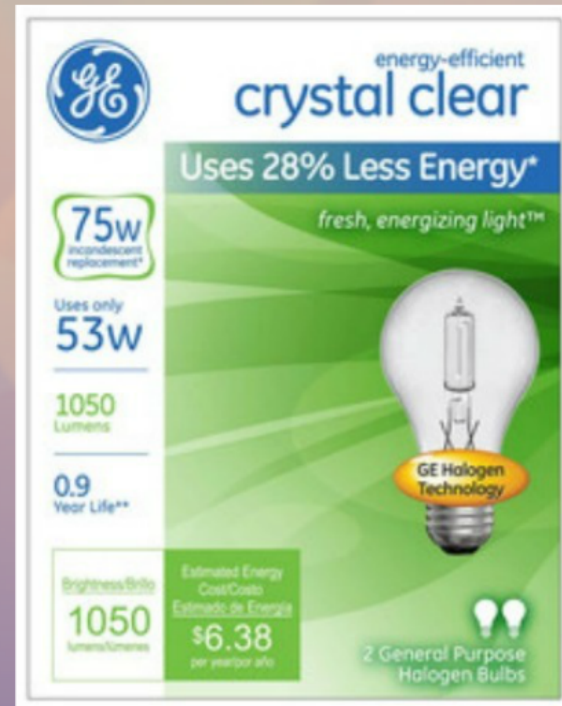


Outdoor Lighting Category 3

Shielded directional light fixtures, placed not less than 4 feet apart, for entries, walkways, and architectural lighting.

Lumen Max 1,050

Maximum height 12 feet



energy-efficient
crystal clear

Uses 28% Less Energy*

fresh, energizing light™

75w
incandescent
replacement

Uses only
53w

1050
Lumens

0.9
Year Life**

Brightness/Bulb
1050
Lumens/Bulbs

Estimated Energy
Cost/Costs
Estimated in Energy
\$6.38
per year/1000 hrs

GE Halogen
Technology

2 General Purpose
Halogen Bulbs

Outdoor Lighting Category 4

Shielded directional light fixtures for parking areas, driveways, or outdoor loading bays

Lumen Max 1,260

Maximum height 14 feet

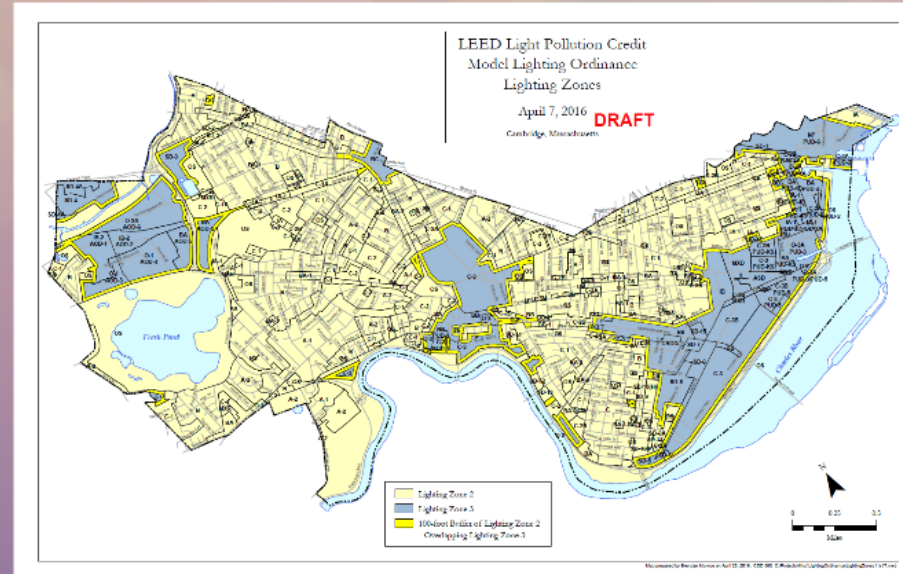


Performance Standard

Based on the USGBC LEED Light Pollution Reduction Credit V4

Lighting plan submitted by licensed architect or engineer

Must refer to lighting zones as defined in the ordinance.



LEED Light Pollution Credit
Model Lighting Ordinance
Lighting Zones

April 7, 2016 **DRAFT**

Cambridge, Massachusetts



Map prepared by Brendan Monroe on April 20, 2016. CDD GIS C:\Projects\Misc\LightingOrdinance\LightingZones\11x17.mxd

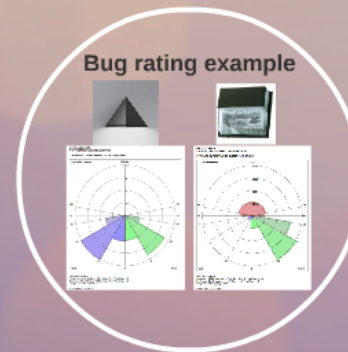
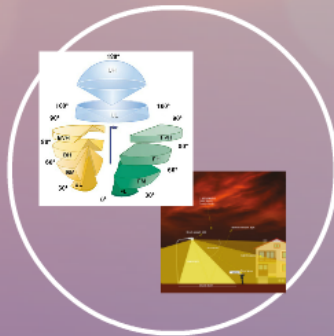


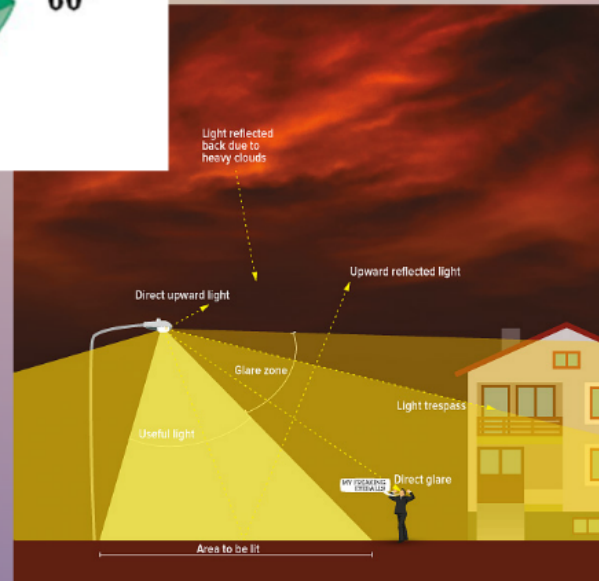
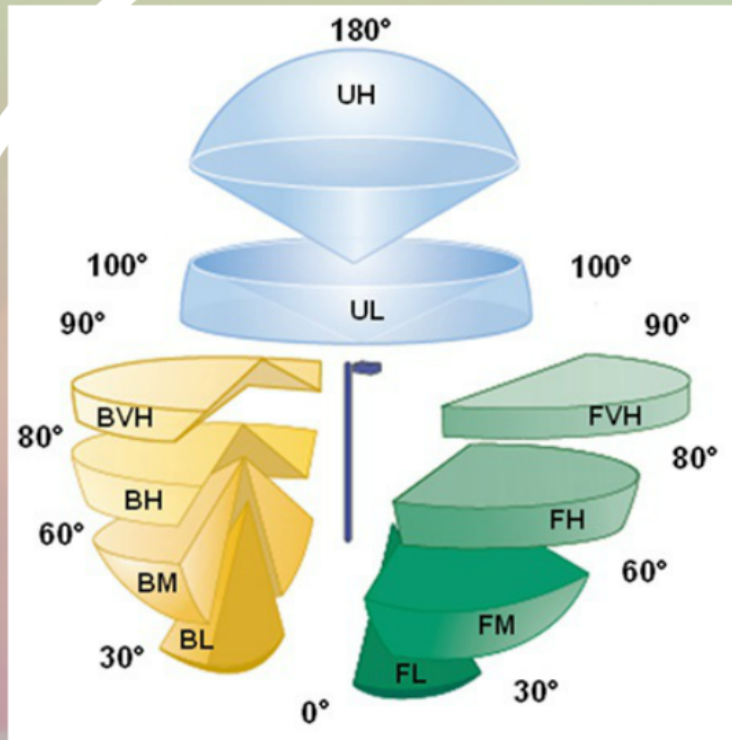
Option 1 - BUG Rating

Backlight, Uplight, and Glare (BUG) Ratings

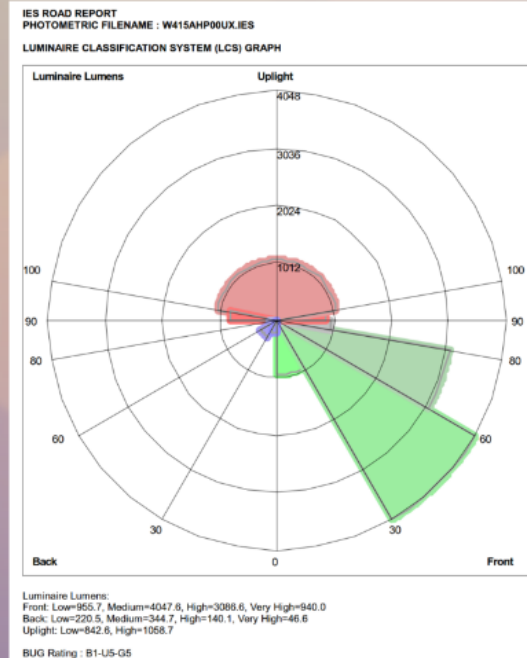
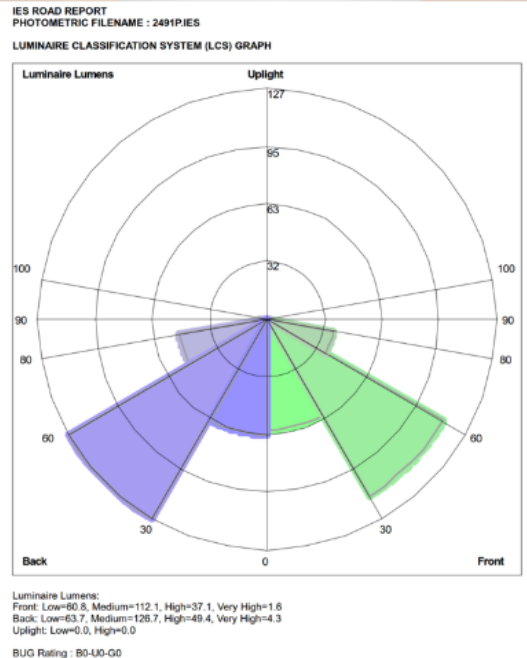
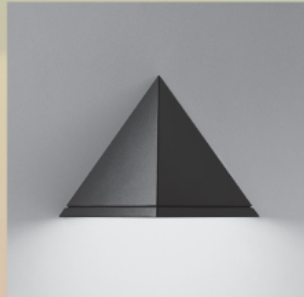
Fixture-based system

Developed by IES to make comparing and evaluating outdoor luminaires fast, easy and more complete than older systems.





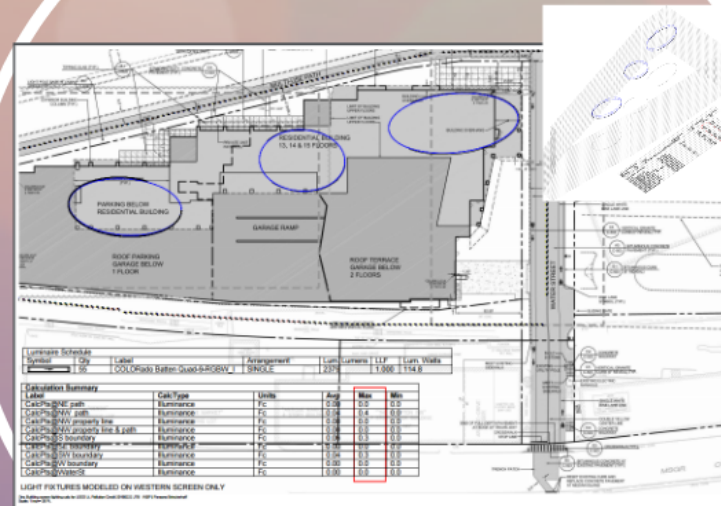
Bug rating example



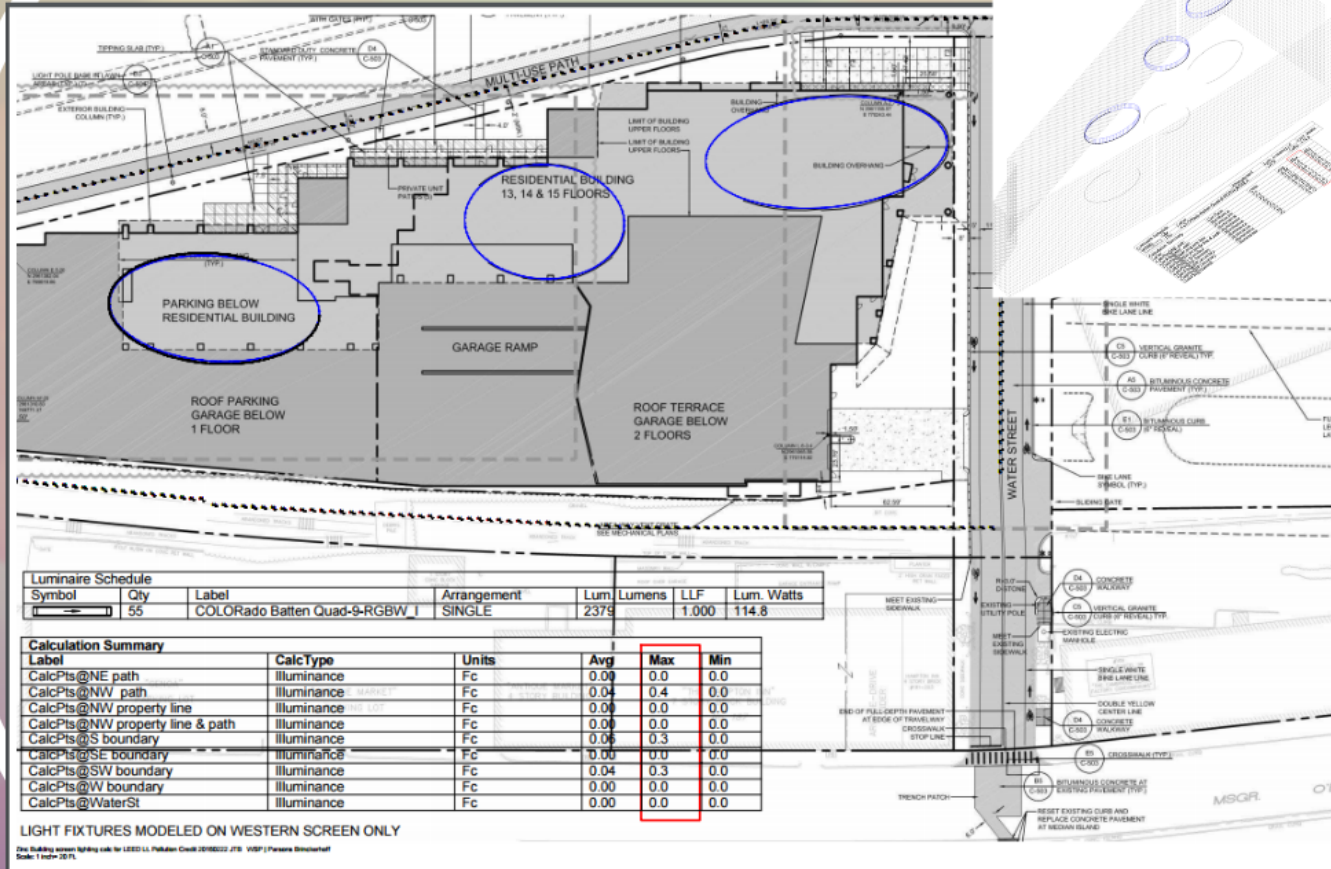
Option 2 - Calculation Method

Computer modeling

Calculation Method Example



Calculation Method Example



INSPECTIONAL SERVICES DEPARTMENT

| File for Electrical Permit | | |
|----------------------------|---------------------|---------------------|
| | Prescriptive | Performance |
| Sign Affidavit | Electricians | Architects/engineer |
| Lighting Plan Req'd | Projects over 10KSF | All |

| Administrative Waiver |
|--|
| Must Demonstrate: |
| (a) demonstrably unreasonable hardship on the applicant |
| OR (b) materially detrimental to health, safety, or welfare |

| Enforcement: |
|-----------------------|
| Enforcement Officials |
| Complaints |
| Violation Remedy |

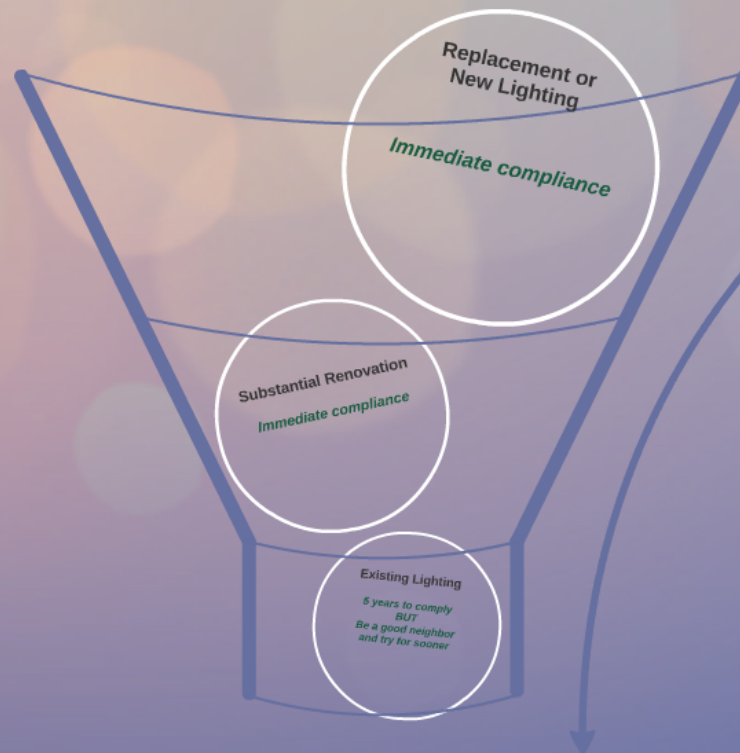
Exemptions

Lighting of:

- Public ways, public parks, or public art
- Public monuments, statuary, or the national flag
- Theatrical or television production or performance areas
- Construction areas OR Emergency conditions
- Seasonal Lighting
- Sports facilities
- Some historic buildings
- Required by federal, state, local laws or public safety
- Underwater lighting of pools
- Lighting undertaken as a result of a City-appointed panel

What it all means

Use either the Prescriptive Standard
or the Performance Standard



Replacement or New Lighting

Immediate compliance

Substantial Renovation

Immediate compliance

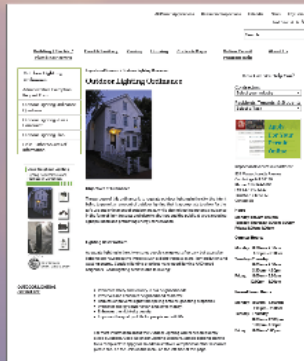
Existing Lighting

*5 years to comply
BUT*

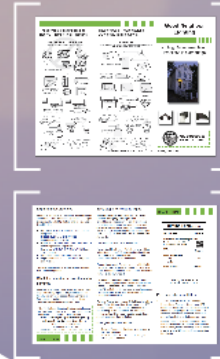
*Be a good neighbor
and try for sooner*

Education and Outreach

ISD Web pages



Good Neighbor Brochure



ISD Web pages

All Permit Applications Restaurant Inspections Calendar News City Home
Text Size: A A A


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Outdoor Lighting Ordinance

Inspectional Services > Outdoor Lighting Ordinance

Outdoor Lighting Ordinance



How Can We Help You?

Contractors
Select your industry ▼

Residents, Tenants, & Students
Select a Task ▼

[Apply For Your Permit Online](#)


Inspectional Services Department
831 Massachusetts Avenue
Cambridge MA 02139
Phone: 617-349-6100
Fax: 617-349-6132
TDD: 617-349-6112
[Contact Us](#)

Hours
Monday: 8:00am-8:00pm
Tuesday-Thursday: 8:00am-5:00pm
Friday: 8:00am-1:00pm

Counter Hours:
Monday: 8:00am - 9:30am
4:30pm - 6:30pm
Tuesday - Thursday:
8:00am - 9:30am
3:30pm - 4:30pm
Friday: 8:00am - 9:30am
12:00pm - 1:00pm

Record Room Hours:
Monday: 8:00am - 12:00pm
1:00pm - 7:00pm
Tuesday - Thursday:
8:00am - 12:00pm
1:00pm - 4:30pm
Friday: 8:00am - 1:00pm

Good Neighbor Lighting
Lighting Requirements and Practices in Cambridge.



Objectives of Ordinance

The purpose of this ordinance is to regulate outdoor lighting in the city, the intent being to permit an amount of outdoor lighting that is appropriate to allow for the safe use and enjoyment of outdoor areas, while also mitigating potential nuisance in the form of light trespass and glare to abutters and the public at large, reducing light pollution and promoting energy conservation.

Lighting Best Practices

Adequate lighting in the city ensures people can go out after dark but excessive lighting can have negative impacts such as light trespass, glare, light pollution and wasting energy. Sensible lighting practices make good lighting AND good neighbors! Good lighting achieves the following:

- Promotes safety and security in our neighborhoods.
- Preserves and enhances neighborhood character.
- Reduces or prevents light from spilling onto neighboring properties.
- Promotes energy conservation and saves money.
- Enhances the night-sky beauty.
- Improves the quality of life for people and wildlife

For more information about the Outdoor Lighting Ordinance, frequently asked questions, Good Neighbor Lighting Brochure, sample lighting plan; to file a complaint; to apply for an Administrative Exemption; or other resources, please click on the LINKs in the menu on the left-side of this page.

OUTDOOR LIGHTING ORDINANCE

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[Codes & Maps](#)

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Outdoor Lighting Ordinance

[Administrative Exemption Request Form](#)

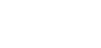
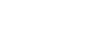
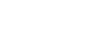
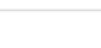
[Outdoor Lighting Ordinance Questions](#)

[Outdoor Lighting - File a Complaint](#)

[Outdoor Lighting Plan](#)

[Links - Other Sources of Information](#)

Good Neighbor Lighting
Lighting Requirements and Practices in Cambridge.



City of Cambridge
DRAFT-10/2015 DRAFT

OUTDOOR LIGHTING ORDINANCE

[Inspection Services](#) > [Outdoor Lighting Ordinance](#)

Outdoor Lighting Ordinance



Objectives of Ordinance

The purpose of this ordinance is to regulate outdoor lighting in the city, the intent being to permit an amount of outdoor lighting that is appropriate to allow for the safe use and enjoyment of outdoor areas, while also mitigating potential nuisance in the form of light trespass and glare to abutters and the public at large, reducing light pollution and promoting energy conservation.

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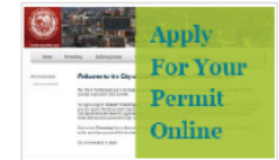
How Can We Help You?

Contractors

Select your industry ▼

Residents, Tenants, & Students

Select a Task ▼



Inspection Services Department

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Good Neighbor Brochure

Good Neighbor Lighting
Lighting Requirements and Practices in Cambridge

These types of fixture designs **DO NOT** comply in all locations.

Unacceptable / Discouraged

These types of fixture designs **DO** comply in all locations.

Acceptable

City of Cambridge DRAFT 4/12/16

Priority: 4/12/16

Lighting best practices

Adopt lighting sources, colors, and placement of outdoor areas. Excessive lighting causes light pollution, glare, light pollution and energy waste. Good lighting:

- Promotes **SAFETY** and **SECURITY** in our neighborhoods.
- **PRESERVES** and **ENHANCES** neighborhood character.
- **Reduces or PREVENTS** LIGHT TRASPASS and light pollution impacts.
- Promotes **ENERGY CONSERVATION** and saves money.
- **Enhances the NIGHT-SKY QUALITY**.
- Improves the **QUALITY OF LIFE** for sleep and health.

Some lighting practices make good lighting hard to achieve:

What if a neighbor has problematic lighting?

Please share this brochure, particularly the "Easy Steps for Existing Lights" with your neighbor. If a friendly conversation does not resolve the issue, feel free to contact Cambridge's Inspection Services Department in the Appendix.

Appendix, Walkways, A Parade Lighting

Fencing Areas, Driveways & Outdoor Lighting

Other good practices include:

- Check for leaks to illuminate your property, not your neighbors.
- Use manufacturer-suggested wattage to avoid light trespass.

Lighting Facts

| | |
|-------------------------------------|------------|
| Brightness | 800 lumens |
| Estimated Yearly Energy Cost | \$1.57 |
| Estimated Yearly Energy Cost | \$1.57 |
| Light Appearance | 2700K |
| Energy Used | 10 watts |

The light appearance must be below 3500 K.

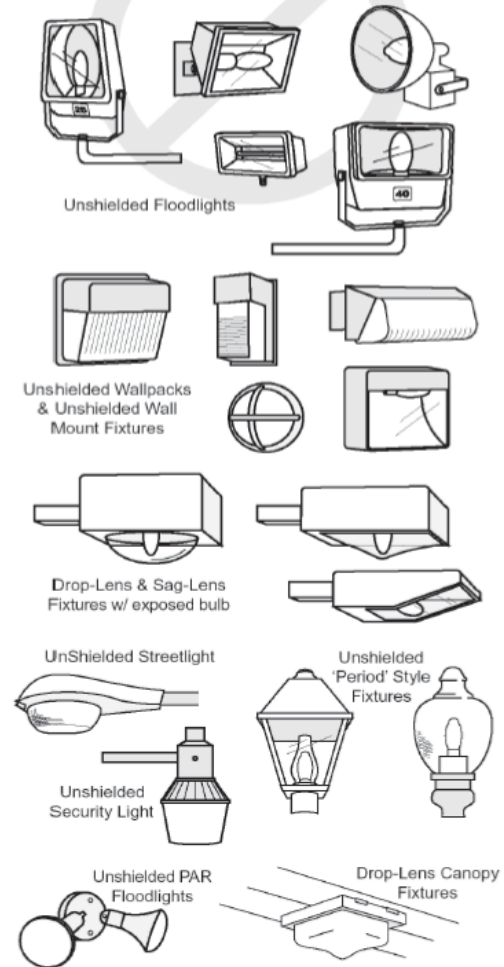
Easy steps for new lights

1. Always consult with the Cambridge Inspection Services Department (ISD) at 311-362-6262 or 311-362-6262 for advice and proper permitting procedures. Licensed contractors need an approved permit from ISD prior to lighting work.
2. Review the light fixture requirements listed in the "Proceptive Standards" of lighting the various areas, taking all requirements into account, including height, wattage, and recommended bulb type.

These types of fixture designs
DO NOT comply in all locations.

Unacceptable / Discouraged

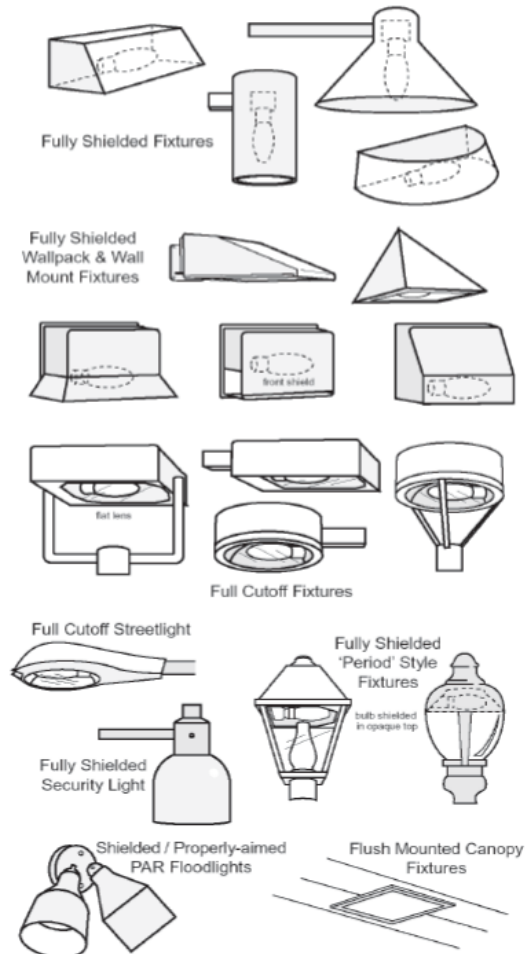
Fixtures that produce glare and light trespass



These types of fixture designs
DO comply in all locations.

Acceptable

Fixtures that shield the light source to minimize glare and light trespass and to facilitate better vision at night



This illustration courtesy of Bob Crelin / NELPAG

Good Neighbor Lighting

Lighting Requirements and Practices in Cambridge



City of Cambridge
DRAFT: 4/1/2016

Photo by Jeffrey Berg

Lighting best practices

Adequate lighting ensures safety and enjoyment of outdoor areas. Excessive lighting causes light trespass, glare, light pollution and energy waste. Good lighting:

- Promotes **SAFETY** and **SECURITY** in our neighborhoods.
- **PRESERVES** and **ENHANCES** neighborhood character.
- Reduces or **PREVENTS LIGHT TRESPASS** onto neighboring properties.
- Promotes **ENERGY CONSERVATION** and saves money.
- Enhances the **NIGHT-SKY BEAUTY**.
- Improves the **QUALITY OF LIFE** for people and wildlife.

Sensible lighting practices make good lighting AND good neighbors!

What if a neighbor has problematic lighting?

Please share this brochure, particularly the “Easy steps for existing lights,” with your neighbor. If a friendly conversation does not resolve the issue, feel free to contact Cambridge’s Inspectional Services Department to file a complaint.

The full Outdoor Lighting Ordinance is located in Section 15.22.010 in the Cambridge Municipal Code. For more information:
www.cambridgema.gov/outdoorlighting
or **Inspectional Services Department**
831 Massachusetts Avenue
Cambridge, MA 02139
Phone: 617-349-6100 | TDD: 617-349-6112

DRAFT DRAFT

Easy steps for existing lights

Meeting the new requirements can be as easy as changing your light bulb! Use the lowest lumens necessary to safely illuminate the space; save money on energy costs; and eliminate light pollution. Look at the *Lighting Facts* label (example at right) that is on all light bulb packages to determine if it meets the City standards.

These simple rules cover most lights:

Facing the Neighbors. Partially or unshielded light fixture can be 315 lumens placed not less than 4 feet apart and mounted up to 12 feet above the surface to be illuminated.

Facing the Street. Partially or unshielded light fixture can be 630 lumens placed not less than 4 feet apart and mounted up to 12 feet above the surface to be illuminated.

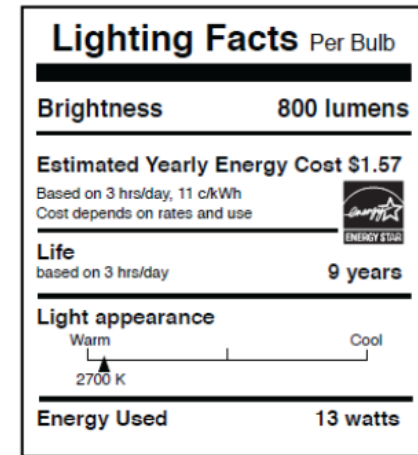
Entrances, Walkways, & Facade Lighting. Fully shielded light fixtures can be 1,050 lumens placed not less than 4 feet apart and mounted up to 12 feet above the surface to be illuminated. They also must be located and aimed to minimize light pollution.

Parking Areas, Driveways & Outdoor Loading Bays. Fully shielded light fixtures can be 1,260 lumens placed not less than 4 feet apart and mounted up to 14 feet above the surface to be illuminated. They also must be located and aimed to prevent light pollution.

Other good practices include:

- Redirect fixtures to illuminate your property, not your neighbor’s.
- Use manufacturer-provided shieldings to direct light as needed.

DRAFT DRAFT



The light Appearance must be below 3500 K.

Easy steps for new lights

1. Always consult with the Cambridge Inspectional Services Department (ISD) about the applicable electrical and energy codes and proper permitting process. A licensed electrician needs an approved permit from ISD prior to beginning work.
2. Review the light level requirements listed in the Prescriptive Standards outlining the lumen limits, fixture shielding requirements, mounting height limits, and recommended bulb limits.

Outdoor Lighting Ordinance

Creation of Task Force
 - Policy Order D-29

Model: The task force used an amount of outdoor lighting that is appropriate to allow for safe use and enjoyment of outdoor areas, while also mitigating light pollution and glare to adjacent and/or public spaces, reducing light pollution and preventing energy consumption.

DRAFT ORDINANCE HIGHLIGHTS

APPLICABILITY - New, replacement, substantial renovation, or existing

COLOR TEMPERATURE STANDARDS

PRESCRIPTIVE OR PERFORMANCE STANDARDS

INSPECTIONAL SERVICES DEPARTMENT OVERSIGHT

EXEMPTIONS

APPLICABILITY

COLOR TEMPERATURE
 Light source may not exceed 3,500 Kelvin

Kelvin Color Temperature Scale

EXCEPTION: Facade and landscape lighting (commercial or residential) is exempt from the color temperature standard.

TWO STANDARDS

PRESCRIPTIVE - Geared to residential & small commercial property owners.

PERFORMANCE - Geared to larger commercial properties &/or those looking for more creative lighting design.

INSPECTIONAL SERVICES DEPARTMENT

Fit to Election Years

| Significant Lighting Plan Req'd | Prescriptive Requirements | Performance Requirements |
|---------------------------------|---------------------------|--------------------------|
| Projects over 100 SF | All | All |

Administrative Review

Must demonstrate:

- Compliance with prescriptive and/or performance standards
- Compliance with all applicable CDD/Community Development standards, codes, rules, or policies

Requirements:

- Enforcement Officer
- Compliance
- At least one copy

Exemptions

Signifies of:

- Public ways, public parks, or public art
- Public monuments, statues, or the national flag
- Theatrical or television production or performance areas
- Construction areas OR Emergency conditions
- Seasonal Lighting
- Sports facilities
- Some historic buildings
- Required by federal, state, local laws or public safety
- Underwater lighting of ponds

Lighting undertaken as a result of a City appointed panel

Education and Outreach

What it all means

Use either the Prescriptive Standard or the Performance Standard