

Proposed lighting & dark sky bylaw - Background:

Massachusetts is the only state in the Northeast without regulations restricting outdoor lighting.

In the meantime, it is up to towns to regulate this. As Sandisfield population becomes denser, concerns and complaints about light trespass become more frequent. This bylaw aims to reduce light trespass issues, conserve energy, and make our town a safer place for everyone.

From the Berkshire Eagle 8/9/21:

“Light pollution — wasted artificial light that shines up into the atmosphere, creating smog-like conditions blocking the starry sky — amounts to wasted energy "to the tune of \$3 billion per year in the United States alone," [reports The New York Times](#).

“Here in the Berkshires, where we still can step out and behold the Milky Way, we are a rarity.

"About 85 percent of people in the United States live in communities where they cannot see the Milky Way at night," said Tim Brothers, a Massachusetts Institute of Technology astronomer and manager of the Wallace Astrophysical Observatory in Westford. "In the Berkshires, you have something special, and you should fight hard to keep it."

“...light pollution has been increasing nationally at a rate of 2.2 percent per year. In Massachusetts, that rate has been 4 to 6 percent.

It's not just a matter of legislation, it's a matter of education.

"If people could just tone down the lighting at their homes after 11 p.m., even that would be huge," he said.

3/10/22:

New Marlborough is drafting a ‘dark sky’ bylaw: Tim Brothers, vice president of the state chapter of the International Dark-Sky Association, says he hears every week from communities interested in shaping local rules to reduce light pollution. Brothers, who manages the Massachusetts Institute of Technology’s Wallace Astrophysical Observatory, said New Marlborough is wise to act before development brings additional unshielded light into its outdoor spaces.

“That’s the kind of approach we want to see,” he said of New Marlborough’s effort. “Doing something before it’s too late.” Brothers said that in addition to obstructing stargazing, unrestrained “upcast” lighting around houses and businesses can impair natural processes.

“It’s not just about the stars. There’s a whole host of safety effects,” he said. “You name it, light pollution is disrupting it.”

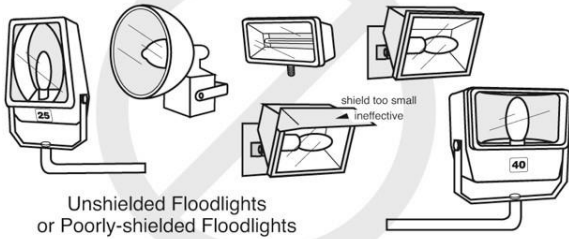
1B. “Shielded” lighting can be compared to dimming your vehicle headlights in traffic – also required by law. This is also a safety issue: unshielded security lighting is less effective.

1C. Color temperature of all lighting shall be 2700K or less. Most bulb packaging includes these numbers. Bluer light destroys melatonin and disrupts sleep for living things including people; it also scatters more than do warmer colors, both into the night sky and off of fog, creating glare and obscuring the vision needed for security.

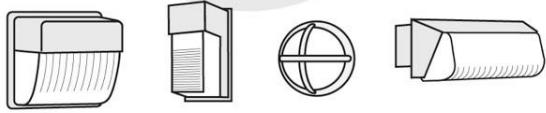
Examples of Acceptable & Unacceptable Lighting Fixtures

Unacceptable/Not Compliant

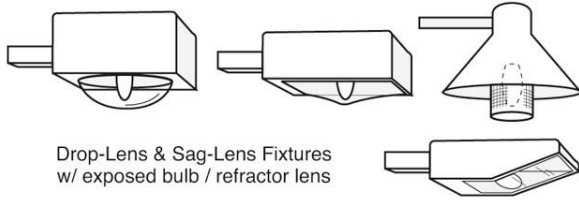
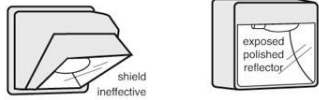
Fixtures that produce glare and light trespass



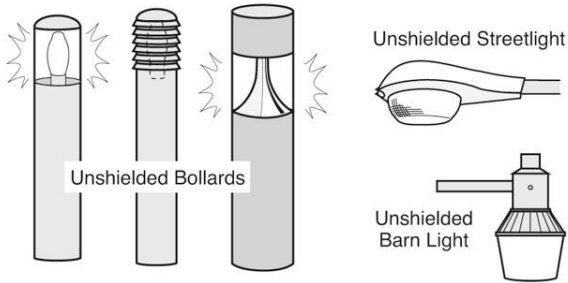
Unshielded Floodlights or Poorly-shielded Floodlights



Unshielded Wallpacks & Unshielded or Poorly-shielded Wall Mount Fixtures



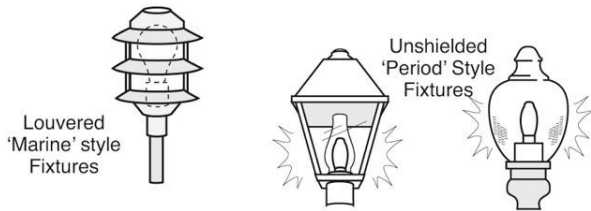
Drop-Lens & Sag-Lens Fixtures w/ exposed bulb / refractor lens



Unshielded Bollards

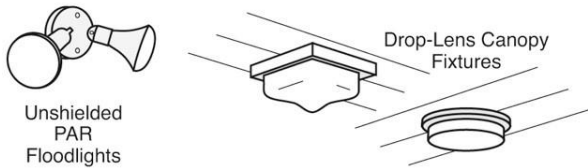
Unshielded Streetlight

Unshielded Barn Light



Louvered 'Marine' style Fixtures

Unshielded 'Period' Style Fixtures

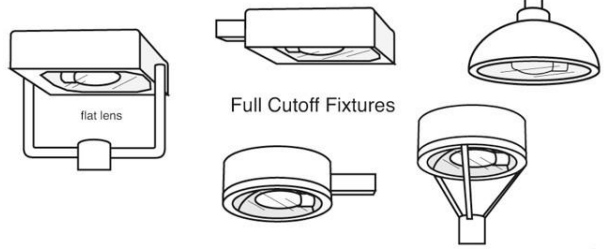


Unshielded PAR Floodlights

Drop-Lens Canopy Fixtures

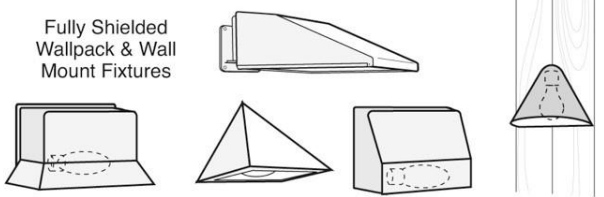
Acceptable/Compliant

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

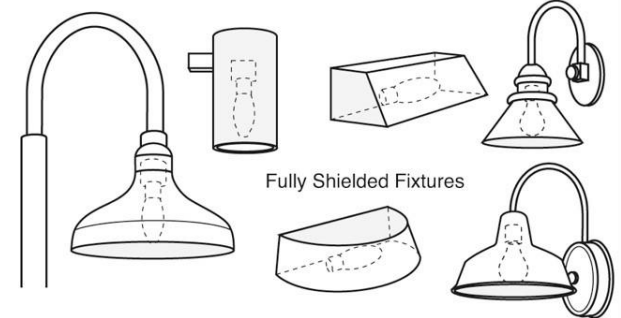


flat lens

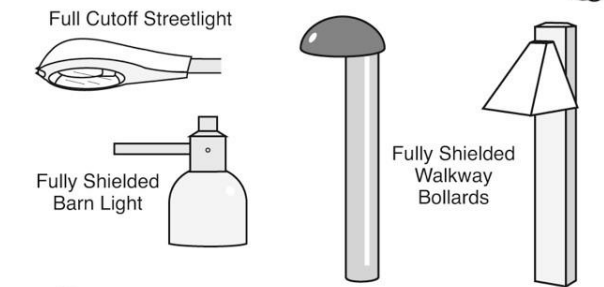
Full Cutoff Fixtures



Fully Shielded Wallpack & Wall Mount Fixtures



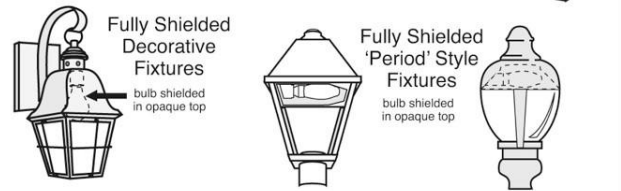
Fully Shielded Fixtures



Full Cutoff Streetlight

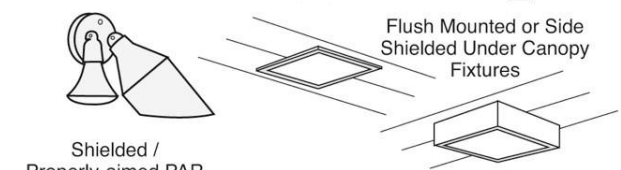
Fully Shielded Barn Light

Fully Shielded Walkway Bollards



Fully Shielded Decorative Fixtures

Fully Shielded 'Period' Style Fixtures



Shielded / Property-aimed PAR Floodlights

Flush Mounted or Side Shielded Under Canopy Fixtures

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To see if the Town will vote to accept a general Lighting Bylaw as follows:

Chapter VIII, Section 17. Lighting.

- 1. PURPOSE AND REGULATIONS.** The purpose of this Section 17 is to: (i) protect the rural character of the Town; (ii) protect the natural beauty of a dark sky, which can be viewed unimpeded from the encroachment of obtrusive glare and light pollution; (iii) promote the use of advanced lighting technology; (iv) control light trespass; (v) reduce energy loss to untargeted areas and (vi) balance the needs of economic development, human and animal safety and the Town's natural character through the regulation of Outdoor Lighting in new construction and changes of use.

- 2. STANDARDS.** The following standards apply to all new and replacement outdoor lighting fixtures:
 - A. No outdoor fixture shall cause light trespass beyond the site's side or rear property line, or onto a property opposite the street/front lot line, in excess of the following limits, which is considered a nuisance to a person on the adjacent property:
 - 0.05 horizontal or vertical foot-candles at any point on the subject lot line; and/or
 - 0.01 horizontal foot-candles at 15' or more beyond the subject lot line.

 - B. All lighting shall be directed downward and only onto areas required with full cut-off fixtures. Light dispersion above a ninety-degree or horizontal plane above the fixture is prohibited. The term "shielded" used hereafter is thus defined. Maximum fixture height (as measured above finished grade) shall be 16 feet

 - C. Lighting shall be designed, installed, directed and maintained to minimize viewing of the lighting element from any neighboring residential property, by way of orientation, shields, baffles, landscape screening and/or other mechanisms.

 - D. Color temperature of all lighting shall be 2700K or less. The use of mercury vapor lamps is prohibited. Further, any lighting that uses mercury vapor Lamps is not grandfathered by this bylaw and must be fully shielded within three (3) years of the effective date of this bylaw.

 - E. Wherever possible all lighting shall be motion activated, and/or dimmed or shut off via timers when not in use.

 - F. All non-essential lighting, including display, parking and area lighting, shall be extinguished by 11:00 pm or within one hour of the close of normal business hours. Lighting necessary for site security may be utilized at any time, provided it is approved for such purpose and conforms to the other provisions of this Section.

 - G. New Construction and Renovation. The provisions of this bylaw shall apply to all new construction and to the renovation of an existing building or structure or real property for which a building permit is required.

 - H. Legal non-conforming Lighting. All commercial and residential outdoor lighting that was lawfully installed prior to the effective date of this bylaw, but that do not comply with the requirements of this bylaw is declared to be legal non-conforming lighting. All legal non-conforming lighting may continue to be used and maintained after the adoption of this bylaw and any related codes or regulations, but shall be brought into compliance with its requirements upon the first to occur of any of the following: (i) A change of use or sale of a property, or any other modification requiring a special permit or building permit; (ii) A determination by the Select Board that the legal non-conforming lighting constitutes a public hazard or a nuisance; (iii) the replacement of any legal non-conforming lighting with new lighting equipment, not inclusive of lamps or similar consumable parts.

3. EXEMPTIONS. The foregoing standards shall not apply to:

- A. Lighting which consists of non-permanent installations utilized for temporary activities, such as construction work, fairs or festivals. However, searchlights, lasers and electronic displays are prohibited
- B. Illumination of architectural elements or decorative features, provided the lighting is targeted only on such objects and is directed and shielded so as to prevent glare and minimize viewing of the lighting element from any public street or adjacent property.
- C. Displays of the United States Flag. Where possible lighting shall be directed downward from above the flag.
- D. Motion-activated security lighting which is regulated by adaptive controls, such as timers, dimmers or motion-sensing switches.
- E. Outdoor sports lighting, if its design and installation adheres to the International Dark-Sky Association's Criteria for Community Friendly Outdoor Sports Lighting and which shall be extinguished within a half hour after the conclusion of play or practice.
- F. Any lighting for which the Select Board has explicitly granted an exception to these standards through a Site Plan Approval, which may establish parameters for acceptable light trespass or alternative fixtures based on the character of the site or neighborhood, limit hours of illumination, or impose other conditions consistent with the intent of this section.

4. EDUCATION

In addition to the regulations in this subsection, the Building Inspector shall provide to anyone applying for a building permit at least one brochure on Dark Sky lighting found at www.darksky.org, or similar brochures in their most current version including illustrations of examples, and include an online version of same as part of a Permit Eyes application. In the case of Special Permit applications, the Select Board shall provide such a brochure to any applicant.