

Outdoor Lighting Basics— A Quick Guide to Limiting Light Pollution

Quick Summary

To minimize the harmful effects of light pollution, try these lighting tips...

Lighting should: Be fully shielded - pointed downward... Only be on when needed... Only light the area that needs it... Be no brighter than necessary... Minimize blue light emissions at night

We need lighting for safety at night. However, many outdoor lights are undirected and waste energy, while causing light pollution and negative health effects for humans and wildlife. Many residents in this area value a natural nighttime environment.

Proper outdoor lighting begins with lighting standards which form a proverbial "Three-Legged" stool.

The legs of the stool are:

1. Shielding
2. Appropriate lighting levels
3. Lighting Color

These three basic design principles form the foundation for good outdoor lighting design, and when applied correctly will reduce light pollution.

Shielding

Outdoor lighting should be "fully shielded", meaning no light above a 90-degree angle. Shine lights down, not up. Direct lighting at desired areas, use only where needed.

The goal of fully shielded light fixtures is to prevent:

- ~ Light trespass--light falling where it is not wanted or needed. Light trespass can create problems for neighboring and distant properties.
- ~ Glare--intense and blinding light that can cause discomfort and temporary blindness.
- ~ Skyglow--reduces our ability to view celestial objects due to scattered light and reflection from sources on the ground. Light is redirected into the sky.

Appropriate lighting levels

Outdoor lighting can easily become excessive or "cluttered". Appropriate lighting levels means practically managing the amount of outdoor lighting in terms of duration and areas illuminated.

- ~ Lumens--a measurement unit of the brightness from a light source.
 - ~ Clutter--excessive grouping of light sources that creates a bright and confusing environment.
- Timers, motion sensors, dimmer switches, and turning lights off when not in use can improve lighting levels.

Lighting Color

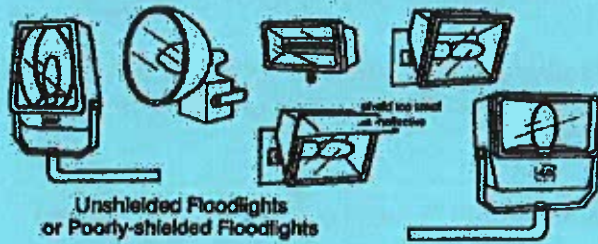
The color of the light bulb is important. Cool, blue spectrum lights (sold as 'daylight' bulbs) are good in the day time, but not good for vision or human health at night. Blue light at night reduces melatonin. It's linked to macular degeneration, depression, and cancer, and causes problems for wildlife and pollinators.

- ~ Kelvin—a temperature scale used to measure light warmth or coolness. Bulbs for night should be rated 3000 Kelvin or less - good for health and limiting light pollution.

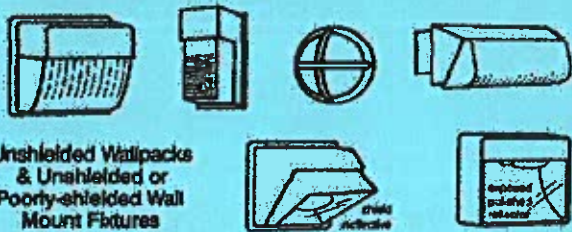
Examples of Acceptable & Unacceptable Lighting Fixtures

Unacceptable / Discouraged

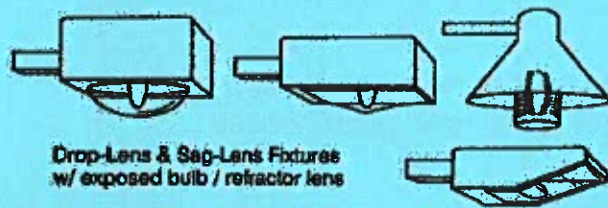
Fixtures that produce glare and light trespass



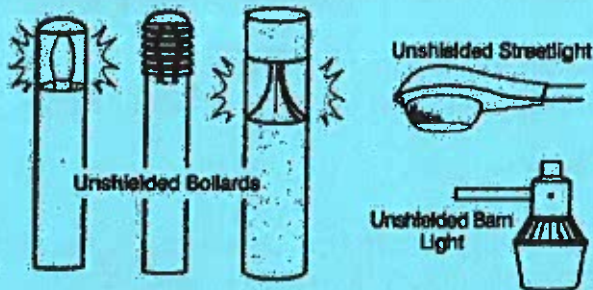
Unshielded Floodlights or Poorly-shielded Floodlights



Unshielded Wallpacks & Unshielded or Poorly-shielded Wall Mount Fixtures



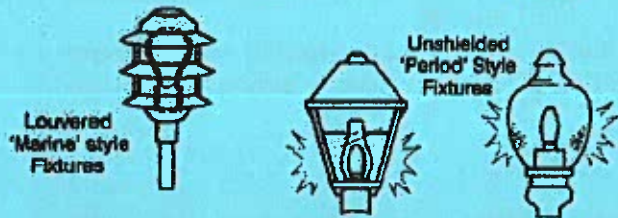
Drop-Lens & Sag-Lens Fixtures w/ exposed bulb / refractor lens



Unshielded Bollards

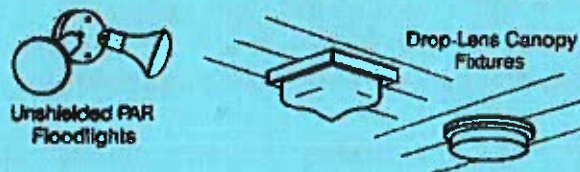
Unshielded Streetlight

Unshielded Barn Light



Louvered 'Marine' style Fixtures

Unshielded 'Period' Style Fixtures

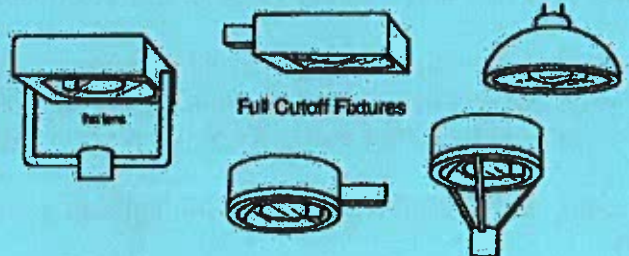


Unshielded PAR Floodlights

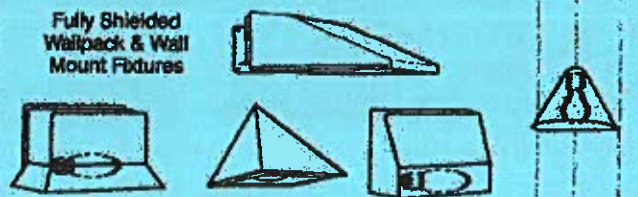
Drop-Lens Canopy Fixtures

Acceptable

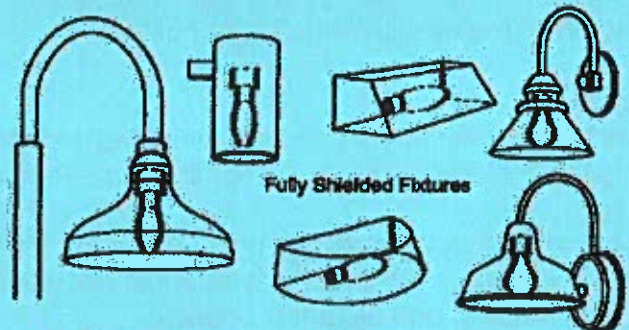
Fixtures that shield the light source to minimize glare and light trespass and to facilitate better vision at night



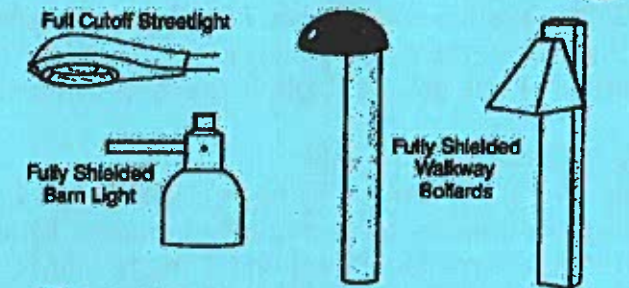
Full Cutoff Fixtures



Fully Shielded Wallpack & Wall Mount Fixtures



Fully Shielded Fixtures



Full Cutoff Streetlight

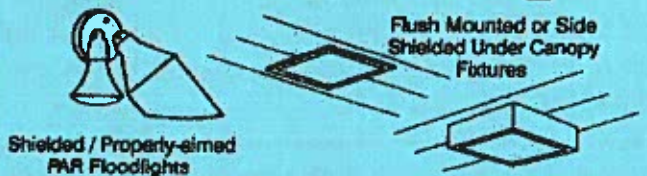
Fully Shielded Barn Light

Fully Shielded Walkway Bollards



Fully Shielded Decorative Fixtures

Fully Shielded 'Period' Style Fixtures



Shielded / Properly-aimed PAR Floodlights

Flush Mounted or Side Shielded Under Canopy Fixtures