

# Outdoor Lighting

## Tips to Avoid Light Pollution

### What is good outdoor lighting?



Outdoor lighting is good when the right amount of light is provided for the seeing task, from a source that is shielded and aimed so it cannot readily be seen and is turned on only when needed. In short, good lighting doesn't pollute.

### What is Light Pollution

There are three elements of light pollution: light trespass, glare and sky glow.

- Light trespass is light cast where it doesn't belong or isn't wanted or needed. An example would be light shining in a neighbor's bedroom window or into an ecologically sensitive area.
- Glare is light that is so bright that it creates a nuisance or a hazard or inhibits our ability to see effectively. The most familiar example is the bright light from an oncoming vehicle at night.
- Sky glow is caused by light projected up into the night sky, either directly or by reflection, which lights up particulate matter in the air, thereby obscuring our view of the stars.

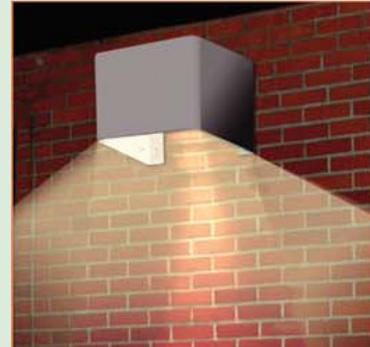
### Benefits of Good Lighting

Good Lighting:

- Saves energy – wasted light squanders energy and the generation of wasted energy unnecessarily pollutes the atmosphere.
- Saves money – wasted light wastes electricity, resulting in needless expense.



Unshielded Wall Pack



Shielded Wall Pack

- Is friendly to birds, insects and animals – wasted light at night adversely impacts the environment by disrupting the feeding, migration and reproductive habits of nature's creatures and causing them to be vulnerable to predation.
- Is friendly to vegetation – light at night confuses the phototropic process of trees, causing them to grow erratically.
- Reduces sky glow – wasted and poorly directed light at night lights up the sky and obliterates our view of the stars.
- Fosters good health – light shining in neighbors' bedroom windows all night may jeopardize their health in various ways.
- Keeps light out of peoples' eyes – glare can "blind" us, thus slowing our reaction time and decreasing our ability to see and move about safely.
- Enhances safety and security – bad lighting can create deep shadows in which intruders might hide. Such shadows can also obscure tripping hazards and jeopardize safety.

### Achieving Good Lighting

Good lighting is easy to achieve when a few simple rules are followed:

- Decide what needs to be lighted, what doesn't need to be lighted and what shouldn't be lighted. If it's a tennis court, a pool apron, a parking area, driveway or a path, that's what

should be lighted, not neighboring properties too.

- Determine how much light is needed to comfortably perform the task. Most will agree that the light from the full moon is quite adequate to permit us to safely and effectively walk about after the sun goes down. Full moon is between 0.01 and 0.02 footcandles. Except for certain sports, lighting to 1,000 times that, 10 – 20 footcandles, might be considered as irresponsible.
- Select a fixture that is capable of directing the light where it needs to be placed, not into peoples' eyes and off site. Fixtures come in an endless variety of light distributions, from omni directional to a narrow-beam spot light. A typical post light and most porch lights are basically omni directional (light emitted in all directions, up, down and all around). Floodlights are directional but capable of projecting the light beam to a greater distance. To keep the light on the parking space, driveway, court or path, as an example, the fixture must be capable of aiming the light to those surfaces with minimum of wasted spill.



- Select a bulb type and wattage that provide the amount of light needed. A 100-watt light bulb, or 4 25-watt candle shaped bulbs in a post-top or building entrance light is excessive and wasteful. A 40-watt incandescent or 7-watt compact fluorescent will produce the same lighting effect without the glare and energy waste. Similarly, using a 400-watt fixture to light a parking area when a 100-watt would do the job adequately is over kill.
- Aim and shield the fixture so the light goes where it is supposed to go and so the bulb is not visible at normal viewing angles. Floodlights should be aimed down, not straight out or up. Dusk to dawn lights should have their plastic refractors replaced with a reflector.
- Turn lights off when not needed. Unless there is all-night activity on the site, and there rarely is at most sites, turn lights off at the end of the evening rather than operating them dusk to dawn. To do that, automate the process by installing a time clock that in conjunction with a photocell, turns the lighting on at dusk and off at the end of the evening. Consider an interval timer for tennis court and pavilion lighting that automatically extinguishes the lighting at the end of the preset time.



Proper outdoor lighting can prevent light pollution and allow for spectacular star gazing as seen here from Cherry Spring State Park.



Confused Tree

### More Information

For more information on proper outdoor lighting techniques contact:

**Pennsylvania Outdoor Lighting Council**  
C. Stanley Stubbe  
610.326.1402  
[POLCouncil@cs.com](mailto:POLCouncil@cs.com)