



Safer Nights

Proper outdoor lighting sends people a perceptible message that security is addressed.

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Do you live in a place tainted by light pollution? According to NASA, 99% of Americans do.

Light pollution is a general term, encompassing all unwanted and unnecessary outdoor night lighting effects, including skyglow, light trespass and glare. Skyglow is caused by inadequately designed, unshielded and improperly aimed fixtures. Light trespass is when light crosses property lines from surrounding properties or roadways. For example: a security floodlight from a shopping center illuminates your backyard. Glare, on the other hand, is when too much illumination is applied to one area, which is commonly produced by high-wattage floodlights.

Why has America gone night lighting obsessive? In part, it is because fear of the dark is as old as fear itself. Increasing crime has been generating more fear. It is leading us to replace the night skies with an orange-ish twilight zone.

Will these bright lights that make the stars disappear in the sky really create safer nighttime communities? Academic studies performed over the last several years have shot down the myth "more light is better." Over lighting does not reduce crime; in fact, it merely alleviates fear of crime, creating a false sense of security. Excessive lighting can actually increase danger because it creates deep shadows where criminals are inclined to lurk.

Lighting does not guarantee 100% security. After all, crimes occur in



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broad daylight. But lighting should be a large element of a company's security plan. When determining the security needs for a property, consider the use of LED parking lot fixtures. Choose LED exterior lighting fixtures that direct light downward towards surfaces within the field of view, which makes more effective use of the light and limits light pollution.

DEVELOPING A SECURITY-BASED LIGHTING PLAN

The first consideration in developing a lighting plan is for the security department to determine how lighting fits into and furthers the goals of the company's overall security program.

The proper outdoor lighting sends people a perceptible message that security is addressed.

The Illuminating Engineering Society of North America (IESNA) recommends light levels of 1 to 3 footcandles (the U.S. measurement of how bright the light is 1 foot away from the source). Academic research indicates that this level makes people feel safe and that if more light is used, they do not feel more secure. In addition, levels of 1 to 3 footcandles make colors and features more visibly noticeable and distinctive.

When engineering a lighting system, you should ensure that areas of the property are lit at approximately the same light level. If the light level of a parking lot is not uniform, people lose their ability to see clearly at a distance, thus limiting their response time to surrounding activity. In addition, patrons can misinterpret their environment with non-uniform lighting. For example, shadows may be perceived as edges.

The IESNA recommends a uniformity ratio not greater than 4:1, average-to-minimum for a parking facility. Meaning, if the average foot-candle measurement for an area is 4 footcandles, the level for any part of that area should never be less than 1 footcandle.

What should you do to implement an effective parking lot lighting system deriving from the security concerns of your customers?

1. Parking lots should be illuminated

with LED light fixtures that allow for uniformity, (not allowing any dark areas in the parking lot).

2. Parking lots should be illuminated so one can identify a human face.

3. Wire cages or industrial strength shatter-resistant lenses should be placed over the light to deter vandalism.

4. Position lighting fixtures to prevent glare areas and blind spots.

In improving security, what are the advantages of LED parking lot lighting?

COST ADVANTAGES OF LEDs

1. *Longer Operating Life:* LED manufacturers claim lifetimes of up to 100,000 hours (with less than 40% lumen depreciation after 100,000 hours of operation). This is several times greater than the operating life of conventional lighting. Because LEDs may last more than 10 years, the company saves the costs associated with replacing parking lots lights on a regular cycle when using conventional lighting.

2. *Low Power Requirements:* LEDs require low direct current voltage and low power to operate. This ultimately results in reduced energy use. Energy and cost savings associated with the use of LED parking lot lights have been estimated to be approximately 80% when compared to conventional lighting.

3. *Environmental Attributes:* LEDs contain no hazardous mercury, lead or toxic chemicals; eliminating any costs associated with proper disposal at the end of its useful life.


OPERATING ADVANTAGES OF LEDs

1. *Color Rendering:* LEDs produce such light that provides an accurate rendering of an object's natural color. LED parking lot lights have been designed to produce a warm, white light that range from 85 to 90 (on a scale of 100)

on the color rendering index (CRI). Compared to conventional lighting, this is at least a 20% improvement in a patron's ability to discern color difference in objects in your parking lot area.

2. *Operating Attributes:* LEDs do not require any "strike" time. They instantly come on and off, and on/off cycling does not affect lifetimes. As LEDs fail, they dim rather than turn completely off. LEDs are dimmable and operate without generating excessive heat. LEDs are much less fragile and less susceptible to vandalism, breakage or damage from high winds and vibrations.

Lighting for security or safety does not imply bright lighting. Effective security-based parking lot lighting allows patrons to see clearly and feel secure in their surroundings while providing sufficient illumination to deter potential criminals.

LED parking lot lighting that directs light downward, towards surfaces within the field of view, makes more effective use of the light and should be an important part of any security system. Parking lot lighting alone cannot guarantee human safety but if engineered wisely, lighting is a valuable tool that can increase security and safety while decreasing light pollution. Used unwisely, it can waste precious resources and actually detract from these goals. 

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