

Welcome to Bright Ideas, your source for information on outdoor lighting issues, products and ideas. Georgia Power's Lighting Services group works to bring you the most up-to-date information about the industry and your options for outdoor lighting.

In this issue, you can find the latest on outdoor lighting technology, outdoor lighting and crime prevention, and lighting legislation.

Call 1-888-768-8458 or visit outdoorlighting.georgiapower.com for more information about Georgia Power Outdoor Lighting. Our lighting experts will be happy to help you learn more about creating a bright, inviting outdoor environment for your business.

Outdoor Lighting: Crime Prevention through Environmental Design (CPTED) and Premises Liability

Premises liability lawsuits are often filed by crime victims against the owners and managers of properties where a crime took place. These cases are based on allegations that the owners and managers failed to provide adequate security and thereby contributed to the occurrence of the crime.

Claims of inadequate security include organizational, human and environmental design flaws. Charges often include factors such as weak locks, no access control, poor lighting, not enough or poorly trained security personnel, and poor management policies. These charges test the principles of CPTED, which often becomes a factor in court cases.

Research conducted several years ago on premises liability cases by the National Institute of Justice, part of the U.S. Department of Justice, found that:

- In order to find for the plaintiff, the jury must agree that the setting in which the crime occurred was critical and that had the property been designed or laid out differently and adequately guarded, the criminal would likely have been deterred or prevented from attacking.
- Courts use the "totality of the circumstances" test to determine whether security measures were inadequate and below generally accepted standards for a particular industry. Using this test, courts look at factors such as the nature of the business, locale, a lack of customary security precautions as an invitation to crime, and the experience of the particular landowner at other locations.
- The lack of prior similar crimes does not mean that a property owner should not take reasonable precautions to prevent crimes that most would agree should be reasonably foreseeable.

The same study noted that a large number of premises liability cases involved three business types: convenience stores, shopping centers and malls, and apartment buildings. In all cases, lighting was a factor.

- For convenience store crimes, perpetrators reported that they searched the area for the "right store" and rejected several because they were too brightly lit.
- Mall and shopping center cases revealed that many had lighting systems that hadn't been upgraded since they were built, had burned out lights, and had sections of the parking lots that failed to meet the recommended minimums of the Illuminating Engineering Society of North America. The cases also included areas where lighting was below the minimum needed for human beings to detect movement or objects.
- For apartment complexes, a typical allegation involved charges that the parking lot and area lighting was poor.

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The outdoor lighting experts at Georgia Power can conduct a free lighting analysis of your property and design and install an outdoor lighting system to help protect your employees, customers and property.

Crime Prevention and Outdoor Lighting

Lighting for safety and security: 90 percent of all crime occurs after dark

In the Summer 2009 issue of Bright Ideas, we discussed how outdoor lighting can be used as part of an overall approach to Crime Prevention through Environmental Design (CPTED). CPTED is a multi-disciplinary approach to deterring criminal behavior that emphasizes enhancing the perceived risk of being detected and getting caught.

Lighting has two purposes within the CPTED model: the illumination of human activity and security.

Below is more information on CPTED and outdoor lighting as they relate to parking lots and landscaping.

Parking: Lots of Crime

- 20% of all security-related lawsuits are related to crime in parking lots
- 40% of mall security-related lawsuits are related to crime in parking lots
- 1/3 result in unfavorable lawsuits
- \$1.2 million average per judgment

Mistakes in parking lot and structure lighting

- Poor understanding of lighting industry standards
- Poor lighting uniformity
- Lack of consideration of obstructions
- Poor understanding of lighting enhancements
- Inadequate consideration of glare and light trespass

Natural surveillance, which is a key CPTED concept, is also critical for safety in parking lots and on pedestrian paths to and from parking areas. It is important that landscaping does not disrupt critical areas of natural surveillance.

Landscaping: Improving Security

- Defines territory
- Controls access
- Creates ownership

Landscaping: Impeding Security

- Can become overgrown
- If improperly placed, may disrupt access control
- Can reduce visibility if poorly placed
- Can create ambush points if overgrown or improperly placed

For security purposes, a landscaping maintenance plan is critical. Trimming is needed to prevent growth that blocks sight lines and lighting.

CPTED recommends the 2 foot / 6 foot rule for landscaping.

Keep sight lines open by making sure that:

- No shrubs are taller than 2 feet above the ground
- No tree canopy is lower than 6 feet from the ground

These and other aspects of a CPTED plan can help improve security in the parking lots and areas around your business.

For more information about how outdoor lighting can be part of your business CPTED plan, contact Georgia Power's Outdoor Lighting team at 1-888-768-8458 or visit outdoorlighting.georgiapower.com.

Technology Update: LED Outdoor Lighting Test Sites

As mentioned in the last issue of Bright Ideas, Southern Company and its operating companies are taking part in several long-term tests of new lighting technology in conjunction with the Electric Power Research Institute (EPRI).

One of the sites that Georgia Power is participating in involves the replacement of a portion of the current high-intensity discharge (HID) lights in a parking lot of a customer-owned manufacturing facility northeast of Atlanta. In this test, 12 of the 30 current 400-watt metal halide (MH) cobrahead lighting fixtures will be replaced with 12 GE Evolve 203-watt LED fixtures and evaluated for performance and energy usage.

The test site has been mapped and initial light level readings have been taken. New lamps were installed in all of the cobrahead fixtures and lenses were cleaned prior to baseline light level readings being taken for later comparison with the LED fixtures. Special metering has been installed to

measure energy consumption of the current lighting as well as the new fixtures. The LED fixtures have been ordered and are expected to be installed on-site in early January 2010. We'll continue to provide updates on this test site and others in future issues of Bright Ideas.

A little over a year ago, Lighting Services installed its first outdoor lighting LED test fixture in a parking area at our headquarters in suburban Atlanta. We recently replaced three additional lights there with new LED fixtures. A decorative post top fixture was replaced with a new LED decorative post top fixture, a cobrahead parking lot fixture was replaced with a new LED area lighting fixture, and a third LED fixture was installed in an area that previously did not have a light. All fixtures are being evaluated for light levels, performance, etc., and we expect to add more test fixtures as they become available at this and other Georgia Power locations.



Technology Update: LED Trends and Future Outlook

The Illuminating Engineering Society of North America held its annual Street and Area Lighting Conference in Philadelphia in mid-September, and Georgia Power Outdoor Lighting staff were among the more than 450 outdoor lighting professionals in attendance. The conference provided attendees with 24 educational presentations on a wide variety of outdoor lighting topics and vendor displays of new products. Highlights from two presentations on new LED outdoor lighting technology are listed below.

Outdoor Lighting: Trends and Future Outlook

presented by James Brodrick, Manager, U.S. Department of Energy (DOE) Solid-State Lighting Program

Growing Interest in LED Outdoor Lighting Solutions

- Energy efficiency, long life, low maintenance, green technology

Where Do We Stand Today?

- LED products rapidly coming to market
- Some are very good and can compete with incumbent technology
- Many do not perform as claimed
- Exaggerated claims, confusion harm market acceptance

Lessons Learned from Market Introduction of Compact Fluorescent Lights

- Credible information is key
- Collaboration reduces confusion
- Focus on applications where LEDs can meet or exceed expectations

The Competition Is Mature, But Not Perfect

- There are problems with conventional technologies, often not well understood by users
- Outputs are highly variable and often not as advertised
- Actual performance over expected lifetime is highly variable
- Maintenance costs often are not well documented

LED Technology Is Still Evolving

- Technologies and controls are fundamentally different from conventional technologies
- Significant learning curve exists for manufacturers and buyers
- Unfamiliarity and lack of field data mean increased risk
- Lots of hype and misinformation
- Next generation devices introduced every six months
- Can save energy and provide high quality lighting in a growing number of applications
- Some LED products perform well, meet manufacturer claims and beat existing alternatives, but many do not

What LED Street and Area Lighting Can Do

- Well suited to applications where maintenance is costly or difficult

- Effectively addresses lighting perimeter requirements – enables you to put light where you want it, avoid light trespass
- Enhanced uniformity, color, facial recognition

What LED Lighting Cannot Do

- Not a magical panacea – cannot overcome bad design and challenging site conditions
- Not all LED products are created equal – careful product evaluation is needed
- Not a “Cut & Paste” technology – cannot replace existing technology without considerations of its unique requirements

A Look Ahead

- Steep learning curve, still many unknowns
- Rapid increase in installations, demonstrations
- Critical need to share results, lessons learned

LED Reality Check – Summary/What’s Next

presented by Mark McClear, Director, Business Development, Cree, Inc.

- Great progress in the last 12 months, accelerating and expected to continue
 - Real installations
 - Standards development
 - Improvements in technology and value for both LED and luminaire
- Reasons to buy LED are compelling – NOW
- Expect many new luminaire players to enter and field quality products in the U.S.
- Lots of marketing hype, misinformation, poor quality products as well – caveat emptor
- As an industry, we need to make progress on education; provide the tools to evaluate and the confidence to specify LED

The outdoor lighting experts at Georgia Power continue to actively monitor the changes in outdoor lighting technology, test new products and meet with manufacturers in order to make informed product selection decisions to meet customer expectations for quality, performance and economic viability in outdoor lighting products.

Outdoor Lighting Legislative Update

One of several major pieces of proposed legislation currently working its way through the U.S. Congress deals with energy and climate change. While media coverage has been focused on the proposed regulations to curb carbon emissions from manufacturing and power generation activities (cap and trade), another issue being addressed in the legislation would, if enacted, have a significant impact on those who manufacture, install and use outdoor lighting.

H.R. 2454, The American Clean Energy & Security Act of 2009, also known as the Waxman-Markey bill, was approved by the U.S. House of Representatives on June 26, 2009. Subtitle B, section 211 of the 1,437 page bill, as amended and approved on that date, contains four pages of new lighting efficiency standards for outdoor lighting.

In the original March 2009 draft of the bill, the new standards called for very aggressive lighting efficiency targets and implementation dates and contained ambiguous wording regarding the types of outdoor lighting fixtures covered by the bill. A revision to the bill was submitted to the House by the Edison Electric Institute (EEL) and sponsored by only four electric utilities (including Georgia Power). The revision was accepted and incorporated into the bill that was passed by the entire House, changing the requirements favorably for outdoor lighting.

In the U.S. Senate, the Clean Energy Jobs and American Power Act, also known

as the Boxer-Kerry bill, was released for review on Sept. 30, 2009. This bill does not contain any language regarding outdoor lighting but does contain a placeholder for inclusion of an outdoor lighting section. The National Electrical Manufacturers Association (NEMA) and EEL are working with various Senate staffs to develop language regarding outdoor lighting that is acceptable to these organizations and their members.

The Senate still needs to finalize and approve its proposed legislation. The Senate and House will then try to reach an agreement by approving either the House or Senate proposal or a hybrid legislation combining elements of both proposals. At this time, it is not known if this will be accomplished in 2009 or carry over into 2010 or beyond.

New outdoor lighting standards as proposed in H.R. 2454:

- Include common fixtures – Cobraheads, Floods, Post Tops, Area Lights, Open Bottoms
- Mandate initial luminaire efficacy of at least 50 lumens per watt for luminaires manufactured after Jan. 1, 2016
- Mandate initial luminaire efficacy of at least 70 lumens per watt for luminaires manufactured after Jan. 1, 2018
- Require dimming capability for area lighting (excludes roadway lighting)
- Propose elimination of mercury vapor lamps by Jan. 1, 2017

Implications for the outdoor lighting industry include:

- Some of the most commonly used outdoor lighting fixtures today do not meet the 50-lumen-per-watt standard and many more do not meet the 70-lumen-per-watt standard.
- To be capable of dimming, area lights will need to use electronic ballasts and/or redesigned photoelectric cells.
- There is not a clear definition of intended use by type of fixture (cobraheads used for roadways and area lighting, etc.).
- New LED fixtures may not be the answer as many do not meet the 50- or 70-lumens-per-watt standard today.

The outdoor lighting experts at Georgia Power are closely following this proposed legislation and will continue to take an active role in various industry organizations to develop reasonable and attainable new lighting standards that support the objectives of proposed energy and climate legislation.