

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 for parking facilities, lighting industry news, new outdoor lighting industry standards, and new technology lighting installations.

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.

Parking Facilities, Lighting and Color Rendition

For parking facility owners and operators utilizing CCTV cameras for security purposes, the type of light source used at the parking facility is an important consideration. Different light sources provide different levels of color rendition. True color rendition enables security cameras, recording equipment, security personnel and patrons to see and record the true color of an object. Good color rendition also allows people to identify someone walking towards them from 20 to 30 feet away.



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Color rendering, expressed as a rating from 0 to 100 on the Color Rendering Index (CRI), describes how a light source makes the color of an object appear to human eyes and how well subtle variations in color shades are revealed. The higher the CRI rating is, the better

its color rendering ability. Light sources with high CRI numbers are recommended for optimal recognition either live or on a recording playback.

Many parking facilities commonly use high-pressure sodium (HPS) lamps as they are readily available and inexpensive. HPS is not a good choice for use with video security systems due to its low CRI, generally in the 22 to 70 range. Crime Prevention Through Environmental Design (CPTED) practitioners recommend metal halide (MH) bulbs for parking facilities, whether or not they are using a video security system, as MH provides CRI's of 65 to 90. Other light sources such as Light Emitting Diode (LED) and Induction are now available. These also provide white light and high color rendition along with longer life and reduced maintenance requirements.

Along with the CRI of a light, color temperature is also a factor to consider in lighting. Color temperature is stated as a unit of absolute temperature, the Kelvin (K). Color temperatures above 5,000K are called cool colors (blue-white) and below 3,000 K are called warm colors (yellow-white through red). Cool light is preferred for visual tasks because it produces higher contrast than warm light. Sunlight ranges from 5,000K to 6,500K and lamps in this range will give the perception of daylight.

It should be noted that color temperature is not the same as color rendering and doesn't describe or predict the ability of that light source to render color accurately. The two measures should be used together to select a light source that will best achieve the desired lighting characteristics.

Municipal Solid-State Street Lighting Consortium Update

The Municipal Solid-State Street Lighting Consortium (MSSLC), sponsored by The U.S. Department of Energy (DOE), was established in mid-2010. MSSLC is actively working to carry out its vision and mission of accelerating the adoption of high performance solid-state street and area lighting through end-user collaboration in the areas of performance, evaluation, application and standardization. MSSLC is a users group focused on the needs of participants making investments in street and area lighting.

- As of March 2011, there are 263 primary membership organizations in MSSLC representing 158 municipalities, 50 utilities, 31 municipally owned utilities and 24 non-municipal governments. The 269 Primary Member delegates, 24 Advisory delegates, 196 guests, 3 media members and 24 pending memberships come from across the United States, plus Australia, Canada, Dubai, Greece, Guam, Hong Kong, Israel, Jordan and Mexico.
- The Consortium held its first annual meeting September 29, 2010, following

the Illuminating Engineering Society's 29th annual Street and Area Lighting Conference in Huntington Beach, CA. The MSSLC conference, attended by 94 participants, outlined the vision and mission, membership statistics, key objectives and a strategic direction for the Consortium for 2011 and beyond.

- The first of a series of Regional MSSLC workshops took place September 30, 2010, as the City of Los Angeles Bureau of Street Lighting hosted the Southwest Region Workshop. The 60 workshop attendees heard presentations on LED Roadway Luminaire Specifications, understanding LM-79 and LM-80 reports, LED and Luminaire Life, Cost/Benefit Analysis for LED Street Lighting, Calculating Light Loss Factors, and LED Street Lighting and Electrical System Compatibility.
- The Regional Workshop series continued in 2011 with a Southeast Region Workshop in Tampa, FL, in February and a North Central Region Workshop in Kansas City, MO, in March. Approximately 60 attendees at each Workshop heard

presentations similar to those made in Los Angeles. Regional Workshops are planned for the balance of 2011 in Philadelphia, Detroit, Seattle, San Jose and Texas.

- In April 2011, MSSLC released its draft of a Performance Specification for LED Roadway Lighting for review and public comment by members and non-members (including manufacturers). A final version will be made available to members for use in their own street lighting projects.

Georgia Power supports the vision and mission of the MSSLC and is a primary member of the Consortium. In addition, three representatives of Georgia Power's Lighting Services business unit are actively involved with the Consortium as a member of the Executive Board and as Chairmen of the Education and Communications Committees.

Municipal Solid-State
STREET LIGHTING
CONSORTIUM

OUTDOOR LIGHTING INDUSTRY NEWS

The National Electrical Manufacturers Association's (NEMA) Lamp Section, published in February 2011, *LSD 14 – Guidelines on the application of Dimming to High-Intensity Discharge Lamps*.

This white paper provides guidance on the application, combination, and practice of dimming high-intensity discharge (HID) lighting systems. High-pressure sodium, metal halide, and mercury vapor technologies are discussed and it is noted that each technology responds differently to manipulation. The paper states that while the dimming of HID lighting systems is an excellent energy saving strategy, these systems can present unique performance challenges. *LSD 14* offers clear recommendations for dimming various HID lighting systems that ensure both energy savings and satisfactory performance.

LSD 14 can be downloaded at no charge by visiting

www.nema.org/stds/lsd14.cfm.

NEMA also published two American National Standards Institute (ANSI) C136 series standards for roadway and area lighting in March 2011.

- **ANSI C136.15-2011** American National Standard for Roadway and Area Lighting Equipment – Luminaire Field Identification
- **ANSI C136.36A-2010** American National Standard for Roadway and Area Lighting Equipment – Aluminum Poles **ANSI C136.15**, last revised in 2009, provides marking guidance for outdoor luminaires using a variety of lighting sources. The standard is intended to be used by utilities and area lighting planners that install and maintain roadway and area lighting systems. **ANSI C136.36A** is a new standard and details construction

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and performance specifications for aluminum lighting poles used in roadway and area lighting applications.

Copies of these standards may be purchased by visiting <http://www.nema.org/stds/c136-15.cfm> and <http://www.nema.org/stds/c136-36a.cfm>.

In the solid-state lighting field, the Illuminating Engineering Society of North America (IESNA) is approaching the completion of *TM-21*, a technical memorandum which will present a method for estimating lumen maintenance of LED packages, arrays and modules.

TM-21 is intended for use with another IES test method, *LM-80*, which provides a procedure for measuring lumen maintenance, but does not provide a method for using that data to extrapolate in time an estimate of 70% lumen maintenance. This is a key industry measurement as the solid-state lighting industry consensus is that an LED module's useful lifetime ends when initial lumen output has declined by 30%, a point generally referred to as L70. It is expected that *TM-21* will provide a method to determine the point in time, expressed as hours of use, when lumen output will fall to 70% of its initial value.

IES is also conducting a regularly scheduled two-year committee review, designed to keep pace with the rapid development of solid-state lighting technology, of its *LM-79* (Approved Methods of Electrical and Photometric Measurement and Lumen Maintenance Measurement) and *LM-80* (Measuring Lumen Maintenance of LED Light Sources) publications in its Lighting Measurement Series.

Also in the solid-state lighting field, NEMA recently published two new standards. *SSL 1-2010* (Electronic Drivers for LED Devices, Arrays, or Systems) focuses on driver performance, the component which many in the industry feel is likely to fail before the other LED luminaire components. This new publication may enable manufacturers to design drivers capable of lasting as long as LEDs.

SSL 6-2010 (Solid-State Lighting for Incandescent Replacement – Dimming) deals with the ability of LED replacement lamps intended to replace screw base general service incandescent lamps to be dimmed. In concept, LEDs are dimmable, but only if the LED driver has dimming capability and is compatible with the dimming control used.



Illuminating Engineering Society of North America (IESNA) Street and Area Lighting Conference

The premier event for street and area lighting practitioners is the annual IESNA Street and Area Lighting Conference. The 29th annual conference took place last September and was attended by over 500 outdoor lighting professionals, including representatives of Georgia Power's Lighting Services business unit.

The 2 ½ day conference provided 19 educational presentations on topics including Federal Legislation, New Technology, Industry Trends, Energy Efficiency, Street Light Outage Tracking, and the Influence of Light on Human Health. Case study presentations provided information on both pilot demonstrations and large scale installations of new technology street lighting.

The conference also provided breakout sessions for discussion and information sharing on topics such as funding lighting projects, technology, lighting design, and utility issues. A lighting manufacturer's exhibit area featured the latest products for street and area lighting applications.

U.S. Department of Energy Solid-State Lighting Program

The DOE and its partners continue working to accelerate advances in solid-state lighting – a technology that promises to fundamentally alter lighting in the future.

Research and Development Programs and Market-Based Programs

such as SSL Quality Advocates, the CALiPER Program, Gateway Demonstrations, and the MSSLC aim to accelerate market introduction of high-efficiency, high-performance SSL products and drive the lighting industry to higher levels of efficiency and quality than they

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might otherwise achieve.

The DOE organizes three annual workshops to bring together a diverse gathering of participants—government, industry, academia, research institutions, energy efficiency organizations, utilities, retailers, and designers – to share insights, ideas, and updates on the rapidly evolving SSL market. The SSL Technology R&D workshop and the SSL Manufacturing R&D workshop took place in February and April of 2011. The SSL Market Introduction workshop is scheduled in July 2011.

Georgia Power's Lighting Services business unit participates in these workshops to stay abreast of developments in SSL outdoor lighting technology and voice the needs and concerns of electric utilities regarding new outdoor lighting technology.

More information about the DOE Solid-State Lighting Program can be found at <http://www.eere.energy.gov/buildings/ssl/>

OTHER LIGHTING NEWS

Indoor Lighting

In December 2007, the federal government enacted the Energy Independence and Security Act of 2007, which requires all general-purpose light bulbs that produce 310–2600 lumens of light be 30% more energy efficient than current incandescent bulbs by 2012 to 2014. The efficiency standards will start with 100-watt bulbs in January 2012 and end with 40-watt bulbs in January 2014. The same efficiency standards went into effect in California in January 2011.

Light bulbs outside of this range are exempt from the restrictions (less than 40 Watts or more than 150 Watts). Also exempt are several classes of specialty lights, including appliance lamps,

rough service bulbs, 3-way bulbs, colored bulbs, and plant lights. By 2020, a second tier of restrictions become effective, requiring all general-purpose bulbs to be at least 70% more energy efficient and to produce at least 45 lumens per watt. Exemptions from the Act include reflector flood, 3-way, candelabra, colored, and other specialty bulbs.

Replacement lamps for current incandescent products are expected to be compact fluorescent (CFL), halogen, solid-state lighting (LED) or incandescent products which meet the new energy efficiency standards.

LED Outdoor Lighting Test, Demonstration and Installation Sites

The last issue of Bright Ideas (Volume 8) provided information and photos of several of the LED lighting test, demonstration and installation sites installed by Georgia Power. One of the demonstration sites described was the LED outdoor lighting conversion at the Georgia Power headquarters building in downtown Atlanta. At the time of publication, before and after photos of the site were not available. We are pleased to share the photos below with you. The photo on the left is one of the parking areas taken before the conversion and shows the area lit with metal halide area lights. The photo on the right shows the same parking area with the new LED area lights. No poles were moved or added and only the light fixtures were changed.



Metal Halide



LED

LED Outdoor Lighting Installation – College Town - Atlanta

College Town is an area of Atlanta that is home to three prominent historically black colleges and universities – Clark Atlanta University, Morehouse College and Spelman College. Recently, the Atlanta Housing Authority (AHA), the largest housing agency in Georgia and one of the largest in the nation, began the redevelopment of a 12 acre site in the College Town area adjacent to the Morehouse campus as part of its commitment to delivering quality affordable housing and spurring community development.

The master plan is for College Town to be the catalyst for the redevelopment of the surrounding neighborhood. College Town will be comprised of a mixed-income community totaling 808 units. The main

residential development is a community of mid-rise and garden-style apartments and the town square and mid-rise residential buildings with retail space on the ground floor will be the economic anchor of the community.

The developer of the property originally planned on using conventional high-intensity discharge lighting for the streets and sidewalks of the community. When plans were submitted to the City of Atlanta Planning Commission for approval, the commission asked the developer to incorporate new energy saving lighting technology into the final plans. The developer, working with Georgia Power's Lighting Services business unit, chose to use LED street and roadway lighting for

this project. These lights provide energy savings over conventional outdoor lighting technology as well as an enhanced feeling of safety and security to residents of the College Town community.

Installation of 41 Philips Lumec Roadstar LED roadway fixtures and 70 Philips Lumec Serenade DSX series decorative post top LED fixtures was completed in early December 2010 by Georgia Power. All poles and pole locations were new for this project.

Georgia Power Improves Condominium Lighting



As Community Manager for Walden Lake Condominiums in Decatur, GA I would like to personally thank William Cunningham of the Outdoor Lighting Department for his patience in working with me and the Board of Directors to review options available to enhance the outdoor lighting needs for this community.

The lighting was installed and compliments are received both from the Board and neighbors on a regular basis as this has resulted in a much brighter community.

Thanks Again.

— Christy Barber,

*Senior Manager, Associate Broker, CMCA, AMS,
Today Management, Inc.*

The Walden Lake Condominium property was experiencing break-ins in unoccupied homes and in cars on the property. The property had had twenty-three 150 watt High Pressure Sodium post top fixtures. Lighting was upgraded to 350 watt Metal Halide Torch post top fixtures (bright white light) and two more fixtures were added in additional locations. With this enhanced lighting system on the property the homeowners feel safer, and they enjoy the attractive new decorative lights as they drive in the property.

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