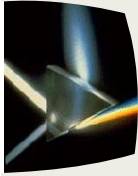




▶ DEEP IN THE SEAS IS A WORLD OF LIGHT THAT THOSE OF US ON LAND HAVE YET TO COMPLETELY UNDERSTAND .....2



▶ HOUSE PASSES LEGISLATION FOR LIGHTING AND ENERGY STANDARDS.....3



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NOVEMBER 2007

# Rocky Mountain Monthly

IESNA ROCKY MOUNTAIN SECTION

WWW.IESRMS.ORG

## OUTDOOR LIGHTING

### *The Good, the Bad, and the Ordinances*

You've seen it... you know you have. It's the kind of outdoor lighting that makes you wonder "just what was the designer thinking?" You've also witnessed and appreciated a variety of good outdoor lighting designs.

Please join us for a unique look at what makes or breaks a lighting design and see how our local ordinances, or the lack of

ordinances, affect our night environment. We will be taking a fun look at our night environment with lively discussions about where we are at with outdoor lighting, and where we might be headed.

Presented by Mike Rogers, LC, LEED-AP.



Register for this meeting right now!



Click here to be automatically directed to the registration website.

## ORDINANCES MEETING DETAILS

**Date:** Tuesday, November 13, 2007

**Location:** Original Brooklyn's

**Time:** 5:30pm

**Deadline for RSVP is Monday, November 12**

**Cost:** \$22 Members  
\$27 Non-Members  
FREE Students

Students attend free thanks to...



DIRECTIONS?  
CLICK HERE



Wisdom,

Wonders,

and

Wit

## BIOLUMINESCENCE

Bioluminescence is the production and emission of light by a living organism as the result of a chemical reaction during which chemical energy is converted to light energy. It is generated by an enzyme-catalyzed chemoluminescence reaction, wherein the pigment luciferin is oxidised by the enzyme luciferase. Adenosine triphosphate (ATP) is involved in most instances.

Bioluminescence is a form of luminescence, or "cold light" emission; less than 20% of the light generates thermal radiation. It should not be confused with fluorescence, phosphorescence or refraction of light.

Ninety percent of deep-sea marine life is estimated to produce bioluminescence in one form or another. Most marine light-emission belongs in the blue and green light spectrum, the wavelengths that can transmit through the seawater most easily. However, certain loose jawed fish emit red and infrared light.

Non-marine bioluminescence is less widely distributed, but a larger variety in colors is seen. The two best-known forms of land bioluminescence are fireflies and New Zealand glow worms. Other insects, insect larvae, annelids, arachnids and even species of fungi have been noted to possess bioluminescent abilities. Some forms of bioluminescence are brighter (or only exist) at night, following a circadian rhythm.

Bioluminescence is used as a lure to attract prey by several deep sea fish such as the anglerfish. A dangling appendage that extends from the head of the fish attracts small animals to within striking distance of the fish. Some fish, however, use a non-bioluminescent lure.

Certain squid and small crustaceans use bioluminescent chemical mixtures, or bioluminescent bacterial slurries in the same way as many squid use ink. A cloud of luminescence is expelled, confusing or repelling a potential predator while the squid or crustacean escapes to safety. Every species of firefly has larvae that glow to repel predators.

While most marine bioluminescence is green to blue, the Black Dragonfish produces a red glow. This adaptation allows the fish to see red-pigmented prey, which are normally invisible in the deep ocean environment where red light has been filtered out by the water column.

*Image of bioluminescent red tide event of 2005 at a beach in Carlsbad California showing brilliantly glowing crashing waves containing billions of *Lingulodinium polyedrum* dinoflagellates.*

EDUCATION  
INFORMATION

2008

LIGHTFAIR

INTERNATIONAL

The future. Illuminated.

Registration will open  
March 3, 2008

Please note NEW day  
pattern for 2008 only:  
Institutes are Monday  
and Tuesday.

Trade Show and  
Conference take place  
Wednesday through  
Friday.

Lightfair Institute  
May 23-27, 2008

Daylighting Institute  
May 26-27, 2008

Trade Show &  
Conference  
May 28 - 30, 2008

Las Vegas  
Convention Center

Las, Vegas, Nevada

# GOVERNORS GO GREEN

One of the latest trends in the greening of governor's mansions is the installations of solar panels. New York Governor Eliot Spitzer's wife announced a plan in early May to install solar panels at the Albany mansion. One will shade the parking lot and eventually allow electric cars to recharge. No capital funds will be used for this and other energy-cutting projects, which are expected to cut in half the mansion's electrical energy use and greenhouse gas emissions. In Florida, solar panels have been installed to head Governor Charlie Crist's pool. That will reduce carbon emissions by 20 percent, at a savings of \$3,500 in its first year. Colorado Governor Bill Ritter had two solar panels installed on his governor's mansion in an effort to boost his plans for energy efficiency in state government. The panels will offset 10.5 tons of carbon dioxide per year.



## House Passes Energy Legislation / Sets New Federal Energy Standards for Lighting

The House of Representatives passed new legislation on August 4 containing numerous provisions that promote energy efficiency. In a rare Saturday session, the House passed by a vote of 241-172 H.R. 3221 New Direction for Energy Independence, National Security, and Consumer Protection Act and by a vote of 221-189 H.R. 2776 Renewable Energy and Conservation Tax Act of 2007.

"We commend the House for advancing the use and deployment of energy-efficient electrical products and renewable energy, and we look forward to working on the legislation as it moves to a conference committee



with the Senate," said NEMA President and Chief Executive Officer Evan R. Gaddis.

H.R. 3221 contains numerous NEMA-backed provisions to further energy efficiency. NEMA-specific provisions include new federal energy conservation standards for premium efficiency motors, metal-halide lighting fixtures, incandescent reflector bulbs, and standby power.

The bill also contained provisions to support the "smart" transmission and distribution grid, federal leadership in purchasing energy-efficient technologies, energy savings performance contracts, and high-performance "green" buildings.

H.R. 2776 contained NEMA-specific tax provisions to extend the energy-efficient commercial building tax deduction through 2013,

and five-year accelerated depreciation for advanced electricity meters.

NEMA championed several legislative provisions and worked over the past several months with various House committees to advance energy-efficiency tax and policy proposals, including the Senate passed its counterpart to HR 3221 in June, and the two bills must now be reconciled in a joint Conference Committee. A House provision on new light bulb standards is one area that must be worked out during conference. Action on a Senate energy tax package is also still needed.

WELCOME

NEW SECTION

MEMBERS

Val Lawrence,  
George Lacey Sales,  
Denver

Allison Leonard,  
Beaudin Ganze  
Consulting Engineers  
Lakewood

Steven Nicola,  
Denver

James McNeill, Jr.,  
University of Colorado

### Lighting Ordinances

Original Brooklyn's

November 13

In November, join us as we meet with "code master" Mike Rogers to review and discuss Colorado Lighting Ordinances.

## 2007-2008 Upcoming Section Events

### LED Expo

Original Brooklyn's

February 12

Join us as we partner with DLF in a tour of one of Denver's great sports venues and discuss egress lighting, code compliance, sports lighting, and the VE process.

### Holiday Lights Tour

Downtown Denver / Denver Zoo

December 11

Join us for a friends and family evening as we take a tour of the highlights of holiday lights around Downtown Denver and at the Denver Zoo's ZooLights!

### IES/DLF Stadium Tour

Invesco Field at Mile High

January TBD

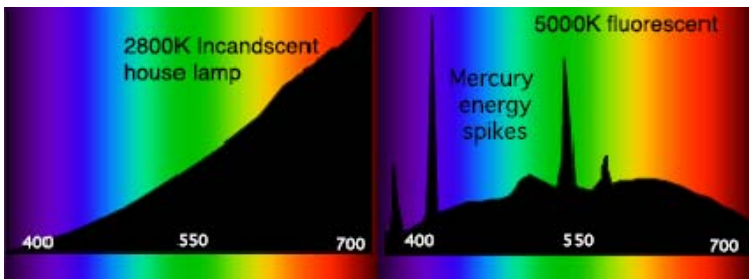
Join us as we partner with DLF in a tour of one of Denver's great sports venues and discuss egress lighting, code compliance, sports lighting, and the VE process.

### Lighting Forensics

Original Brooklyn's

March 11

We explore in depth design considerations when working in dark spaces, parking garages, secure facilities, and detention centers with a presentation by a leader in the field.



# Shining Daylight on "FULL SPECTRUM" Lamps



Daylight in Seattle is silver. Northern New York sunlight in late September is the color of warm honey. Skylight in Colorado is so blue it makes your eyes cringe. Atmospheric conditions cause daylight to differ by region and time of year. The movement of the planet causes daylight to change dynamically over each second of the day. Exposure to daylight has a quantifiable effect on the rhythms of the human body. Certain lamps are currently marketed as "full-spectrum" or "daylight" lamps. These terms are meaningless. The implied health claims that are to accrue from these lamps have no basis in independent research.

When sunlight hits the atmosphere our nitrogen rich envelope of air causes the blue portion of the spectrum to scatter and diffuse. This effect is called Rayleigh scattering and is why the sky is blue. Airborne particles of dust, water vapor and pollution also alter the spectral character of daylight.

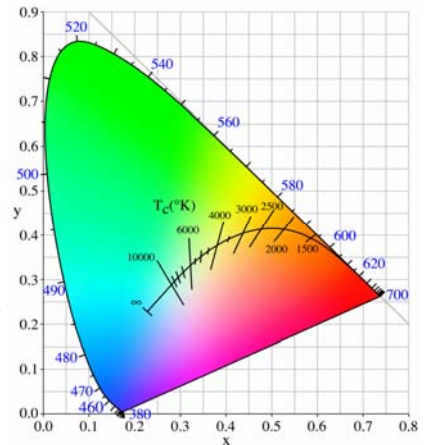
The spectral power distribution of the sun can be represented by a smoothly changing "analog" curve. The spectral power distribution of any electric light source will be static and, in the case of a fluorescent lamp, digital in nature. The inside of a fluorescent lamp is coated with a collection of phosphors that fluoresce in individual spectra; primarily red, green, and blue.

The human brain fills in the blanks. Effects that are too subtle for the human eye to detect are readily apparent to the camera.

A comparison between the spectral power distribution curve of a standard fluorescent lamp with a CRI greater than .85 and a color temperature of 4100 Kelvin and a lamp claiming to be "full-spectrum" yields very little difference. Neither lamp comes close to mimicking actual daylight in any respect.

The spectral qualities of daylight are too ephemeral to define in anything but the most arbitrary terms. This general definition of daylight becomes meaningless when applied to electric lighting. Attempting

to paste the benefits of daylight onto over priced fluorescent lamps is the work of charlatans.



CIE (1931) xy chromaticity diagram including the Planckian locus, with temperatures indicated. Wavelengths of monochromatic light are shown in blue. The lines crossing the Planckian locus are lines of constant correlated

## Congratulations to our 5-9 Year Members!

Congratulations on your anniversary to those of you who have been an IESNA member for five, six, seven, eight, or nine years! We'll be awarding Society Membership Pins to each of these members at the November section meeting, so if you're name is on the list, be sure to show up!

- |                 |                 |                  |                  |
|-----------------|-----------------|------------------|------------------|
| Adam Perry      | Diana Plasha    | Marla Stauth     | Sandra Vasconez  |
| Amelia Ward     | Don Ackerman    | Michael Rogers   | Shane Lacey      |
| Carl Gould      | Dru Wallon      | Patrick Garey    | Stephen Geyer    |
| Clarence Dillon | Gary Leopold    | Paul Torcellini  | Steve Woodward   |
| Daniel McCord   | Gary Schroeder  | Phil Goldrosen   | Thomas Rorabaugh |
| David English   | Jon Memsic      | Robert Summers   | Timothy Flanagan |
|                 | Justin Kerns    | Robin Millyard   | Zach Rogers      |
|                 | Laura Weilert   | Ron Bourgault    |                  |
|                 | Laurence Kinney | Sandra McCardell |                  |
|                 | Leo Mendoza     |                  |                  |
|                 | Marc Sacconi    |                  |                  |
|                 | Marcus Vahling  |                  |                  |
|                 | Mark Layfield   |                  |                  |



**DON'T FORGET TO VOTE**  
**Tuesday, November 6**

### Section Officers

- |                |               |
|----------------|---------------|
| President      | Jim Blakley   |
| Vice President | Tyler Wise    |
| Secretary      | Nancy Johnson |
| Treasurer      | Val Lawrence  |

### Board of Managers

- |                      |                          |
|----------------------|--------------------------|
| Awards Chairman      | Jeff Kramer              |
| Educational Chairman | Leora Radetsky           |
| IIDA Awards Chairman | Leo Mendoza              |
| Membership Chairman  | Mike Rogers              |
| Past President       | Marla Stauth             |
| Committee Members    | David Keith, Scott Payne |

