Driving Innovation with Product Specification

ET Summit, Pasadena, CA
October 17, 2012

Steven Mesh, LC, IESNA

Lighting Education & Design

照明教育和设计

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Steve Mesh professional affiliations

- Illuminating Engineering Society
  - ✓ U.S. Northeast Regional Vice President, 2007-2008
  - ✓ Energy Management Committee member for 20 years
  - ✓ Quality of the Visual Environment Committee member
  - ✓ IES/New York section Education Committee chairperson, 1999-2001
- American Institute of Architects – Registered Provider, 2003-2008
- International Association of Lighting Designers
  - ✓ 1997 Intern Program administrator
- Invited speaker:
  - ✓ LightFair (US – 1992, 2007-2012)
  - ✓ Lux Pacifica (New Delhi, 2002)
- **Lighting for Tomorrow** judge – 2011

EAA Young Eagles pilot

Steve Mesh lighting design projects

- All project types:
  - ✓ Office, industrial, schools, hospitals, residential, hospitality, historic renovation, museum, special use, exterior
- Noteworthy projects:
  - ✓ Mick Jagger townhouse … *New York City*
  - ✓ Killiney Road office building … *Singapore*
  - ✓ Cathedral of the Holy Cross … *Boston*
  - ✓ University Club … *New York City*
  - ✓ William Devane residence … *Sundance, Utah*
  - ✓ Brower Commons dining hall, Rutgers University … *New Jersey*

“**Lighting for Tomorrow**” competition

- Annual awards program active for the past 10 years
- Sponsored by a variety of energy/utility companies throughout North America
- Judged by a panel of industry experts

LIGHTING for tomorrow

"**Lighting for Tomorrow**" competition

- **Lighting for Tomorrow**, launched in 2002, is organized by the American Lighting Association (ALA), the Consortium for Energy Efficiency (CEE) and UL.

- Products are organized into broad categories such as LED fixtures, lamps, controls and retrofit kits. Increasingly, **Lighting for Tomorrow** has added categories based on the increasing complexity of lighting and controls for residential use.

- It also encourages homeowners to consider a "systems" approach to solving their residential lighting needs (*for example, using LED fixtures and appropriate control devices*).

What is
Lighting for Tomorrow not
designed for?

Cathedral of the Holy Cross, Boston

(before)

Cathedral of the Holy Cross, Boston

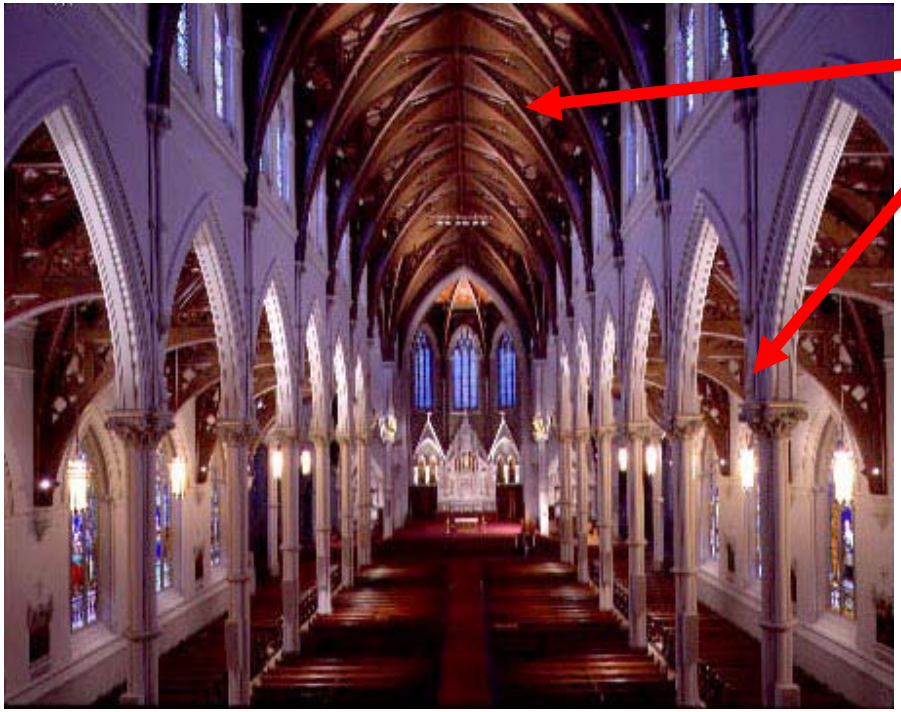
"Energy efficiency" achieved by replacing point source lamps with screw-in CFLs – O.M.G.!

(before)

Cathedral of the Holy Cross, Boston

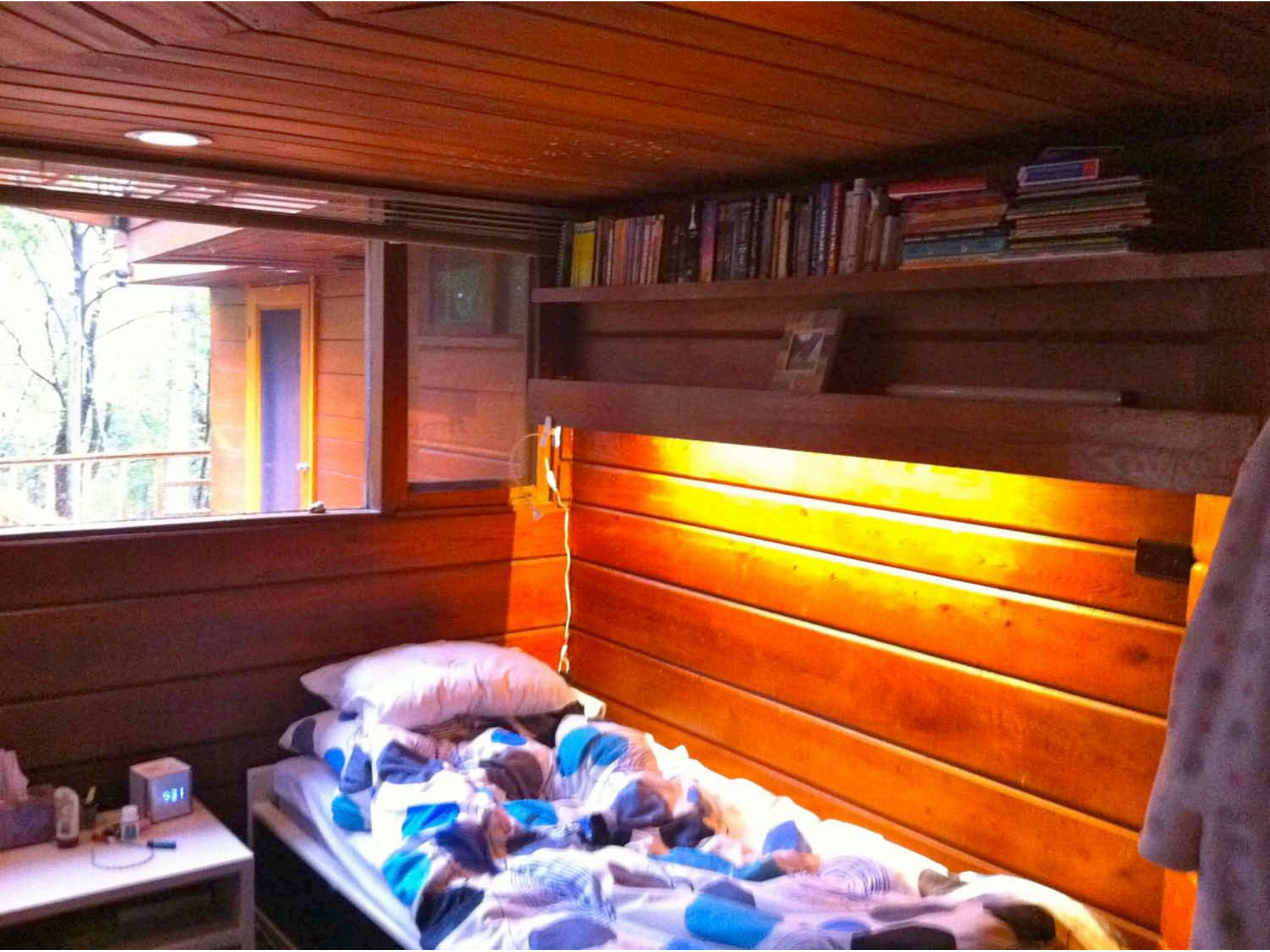
(after)

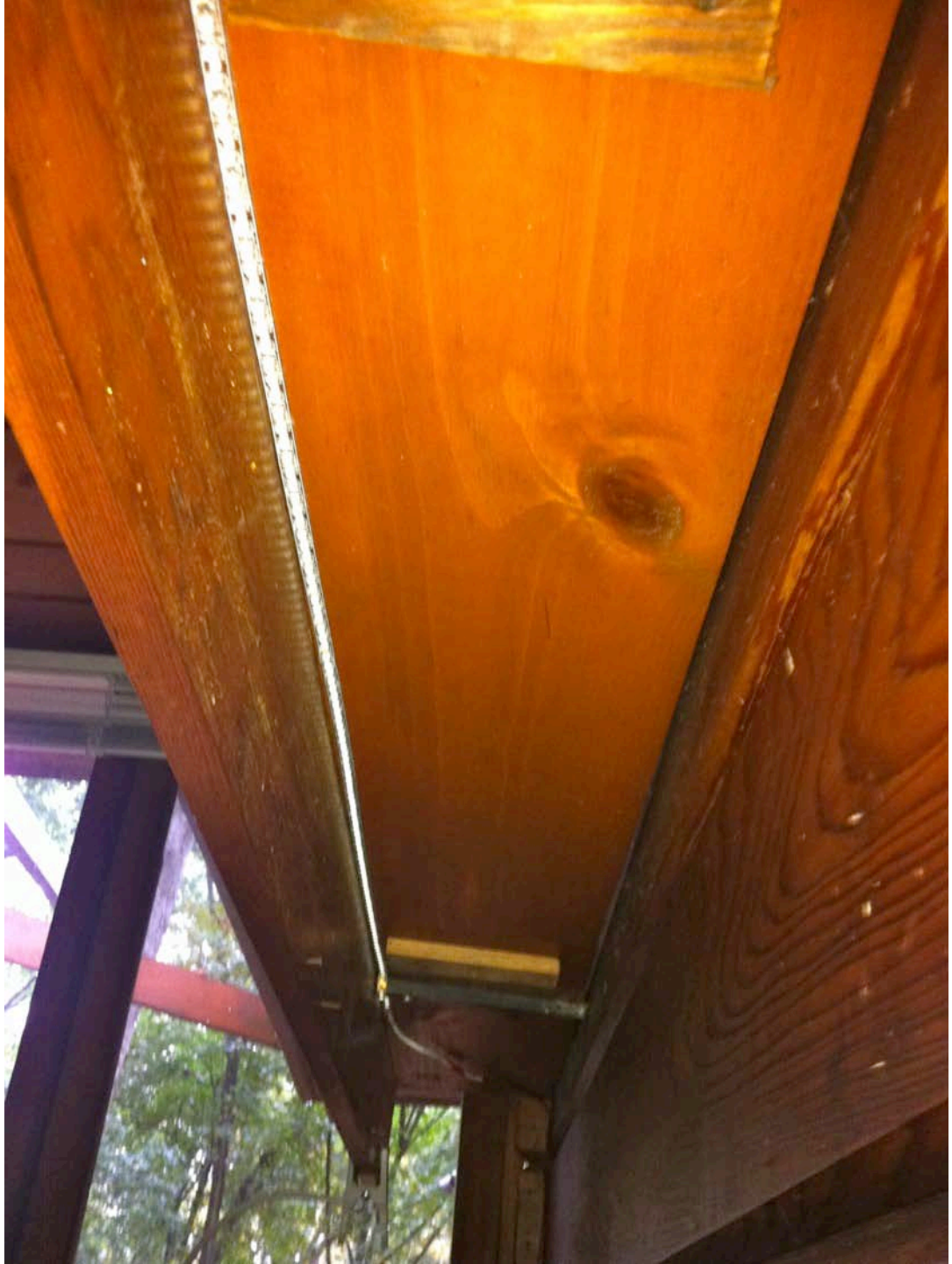
Cathedral of the Holy Cross, Boston



Lighting the ceiling 100’ above the nave floor was achieved by using Q300PAR56 lamps in museum-grade track fixtures. These had to be tilted and rotated, and the lamps had to be “spun” on axis since the beam is rectangular. Then all adjustments had to be “locked”. This is **not** a residential grade fixture!

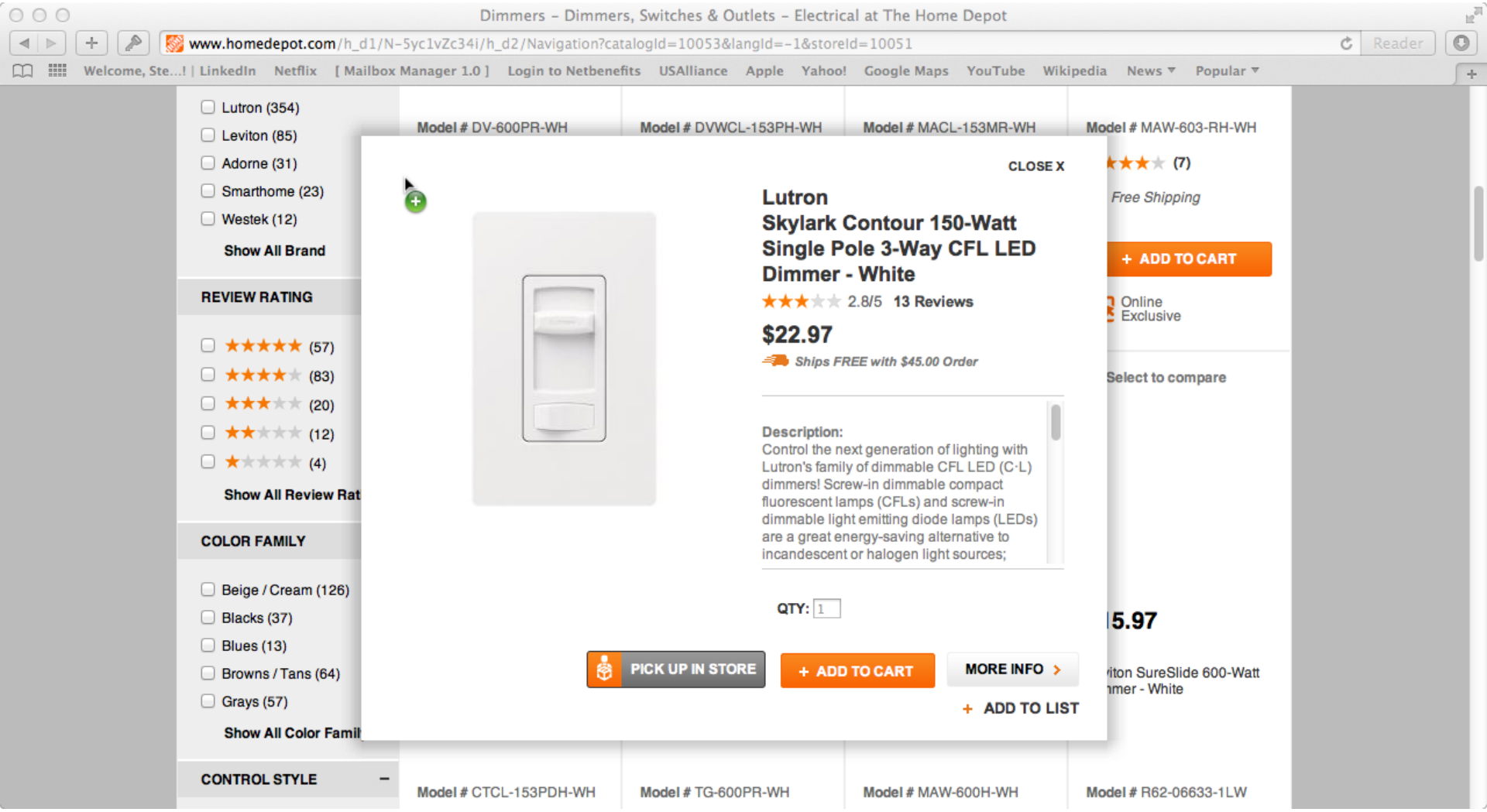
What is
Lighting for Tomorrow
designed for?





Lutron CL dimmer (2011 LFT award winner)

Lutron CL dimmer (2011 LFT award winner)



LIGHTING for tomorrow

LED Fixture Entries

Fixture Categories

- Under-cabinet lighting
- Portable desk/task lights
- Recessed downlights
- Pendants
- Ceiling mounts
- Cove lighting
- Track lighting
- Table and floor lamps
- Chandeliers
- Wall sconces
- Step lighting
- Porch lighting

Minimum Requirements

- Accent lights: 35 lumens/watt
- Cove mounts: 45 lumens/watt
- Downlights recessed, pendant, surface mount: 42 lumens/watt
- Outdoor post-mounted luminaires: 35 lumens/watt
- Under cabinet luminaires: 29 lumens/watt
- All inseparable SSL luminaires: 70 lumens/watt
- All other luminaires: 65 lumens/watt
- Allowable CCTs - 2700 K, 3000 K, and 3500 K
- Allowable CRI - Interior: 80 Exterior: 75

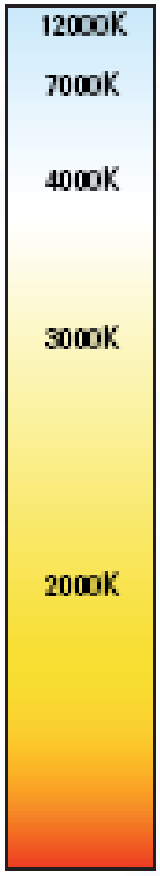
Evaluation Criteria

1. Color Appearance
2. Color Rendering Ability
3. Appropriate Illuminance
4. Application Efficiency
5. Value
6. Aesthetic Appearance and Style
7. Bonus Points

1. Color Appearance

Scale: 1-5

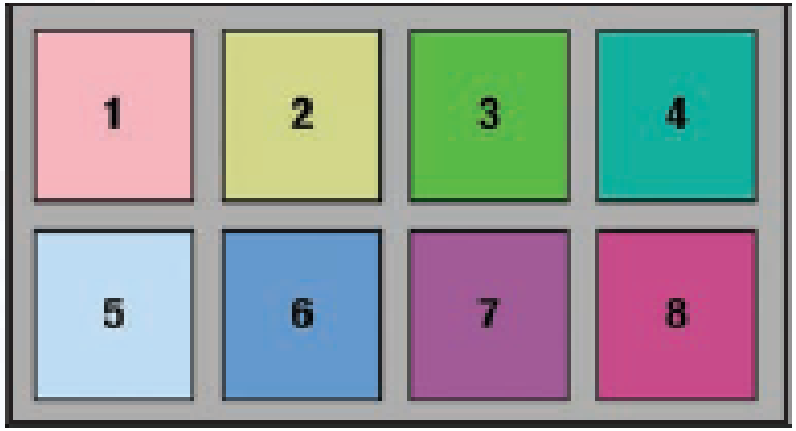
- Appropriate for the application?
- Will consumers find it acceptable?
- Does color change when viewed from different angles?
- Does the color shift when dimmed?
- CCT value one input
- Subjective evaluation



2. Color Rendering

Scale: 1-5

- Do colors "look right" under the light source?
  - ✓ Any particular weaknesses?
- How does it compare to incandescent / fluorescent references?
- CRI value one input
- Subjective evaluation



3. Appropriate Illuminance

Scale: 1-5

- Is the quantity of light acceptable for the application?
- Is the light distributed appropriately for the task?
- Is there glare at typical viewing angles?
- Footcandle/lux meter available
- Lumens value one input
- Subjective evaluation

4. Application Efficiency

Scale: 1-5

- Does the fixture deliver the appropriate light levels for the intended task using less wattage than traditional sources?
- Does this fixture take advantage of using an LED light source?

5. Value

Scale: 1-5

- Do you think the product provides good value for money?
- Does the performance and materials appea to be commensurate with the price range?
- Is it likely to meet established price points?

Scale: 1-5

6. Aesthetic Appearance and Style

- What is your opinion of the luminaire's appearance? (when off, when on)
- Are the materials used compatible with residential use?
- Is the luminaire both attractive and functional?

7. Bonus Points

Scale: 1 point each

- No off-state power consumption
- Dark sky friendly
- Dimmable
- “Green” design / sustainability
- Innovation
  - ✓ Form factor - Point source
  - ✓ Durability - Thermal management
  - ✓ Weight - Materials
  - ✓ Directionality - Advantages over other light sources
- Other

Recap: LED Fixture Evaluation

1. Color Appearance
2. Color Rendering Ability
3. Appropriate Illuminance
4. Application Efficiency
5. Value

Each scored on a scale of 1-5

6. Appearance & ~~Style~~
7. ~~Bonus Points~~

One point each
Max. 6 points

Total Possible Points = 36

2012 Lighting for Tomorrow Awards

American Lighting Association Conference
September 11, 2012
Scottsdale, AZ

10 Year Anniversary

Two main competitions:

- Solid State Lighting Competition
  - 67 LED Fixtures entered
  - 14 LED Retrofit Kits entered
  - 34 LED Replacement Lamps entered
- Lighting Controls Competition
  - 10 Lighting Control Devices entered

Objective: to encourage and recognize excellence in design and performance of energy-efficient lamps, controls and fixtures for residential lighting.

Competition Organizers

2012 Sponsors

2012 Judging Panel

Judge	Organization
Randy Allison	UL
Tim Beam	Accuserv
Brian Friedman	BC Hydro
Keith Graeber	California Lighting Technology Center
Larry King	**Capital Lighting, Inc ***
Linda Morley	**Dominion Electric Supply Company, Inc. ***
Maury Wright	LEDs Magazine

*** ALA Member Showroom**

Solid State Lighting Fixtures

Winner

AFX Lighting

- Centre Contemporary LED Pendant

Winner

Cooper Lighting

- IRiS P3LED

Winner

Hinkley Lighting

- ATLANTIS

Winner

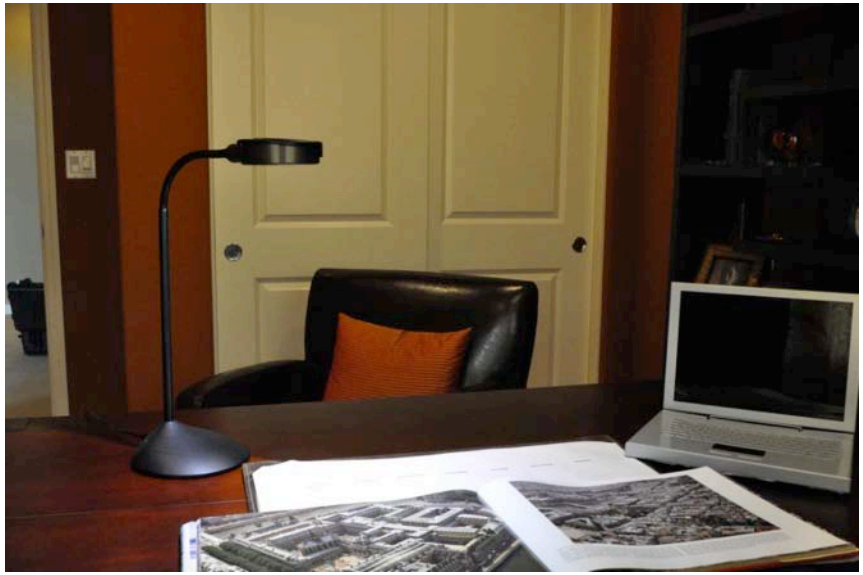
Tech Lighting

- Unilume LED Undercabinet

Honorable Mention

Cielux, a division of DiCon Lighting

- Flex LED Desk Lamp



Honorable Mention

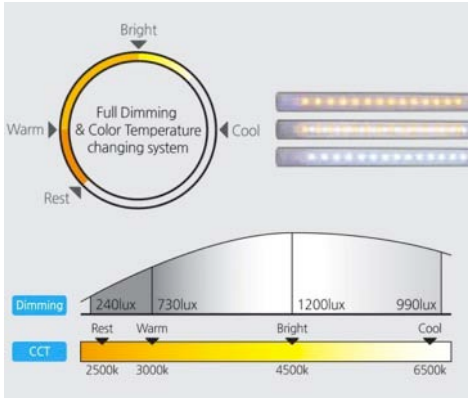
LittleFootprint Lighting

- HeronLED Personal Task Light

Honorable Mention

Prism Co., Ltd

- Prism LED Desk Lamp



Honorable Mention

Lithonia Lighting

- UCLD LED Cabinet Light

Honorable Mention

Good Earth Lighting

- LED Puck Kit

Honorable Mention

Evolution Lighting, LLC

- LED Six Light Fully Programmable Fixed Track

Honorable Mention

Evolution Lighting, LLC

- Contractor Series PAR30 Equivalent LED Linear Track

Honorable Mention

Juno Lighting Group

- Generation 3 LED Downlight

Honorable Mention

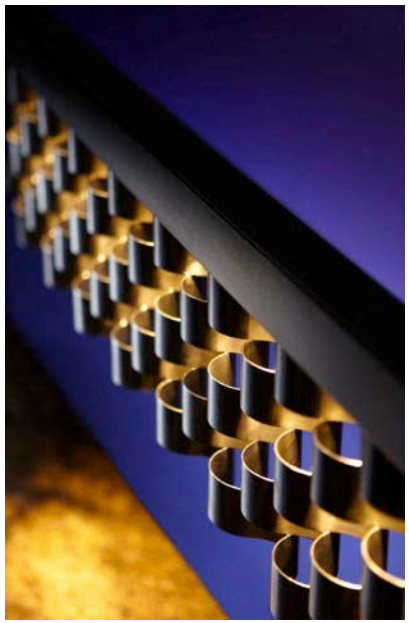
MaxLite

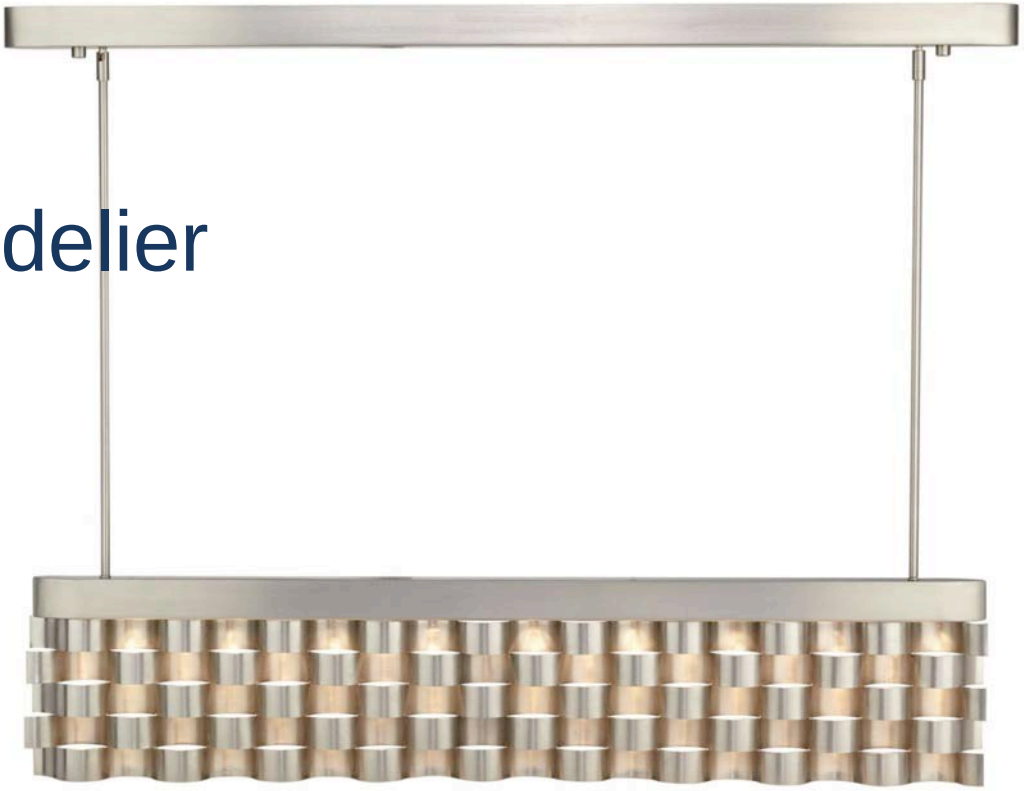
- LED Round Pendant

Special Recognition

Hart Lighting

- WaveForm Chandelier



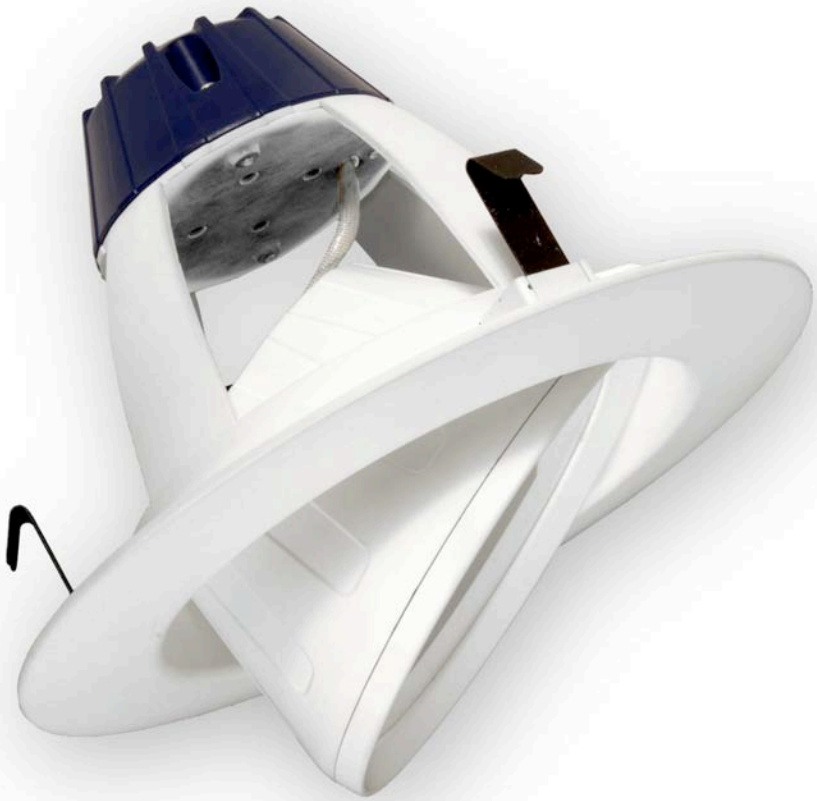


Solid State Lighting Retrofit Kits

Winner

OSRAM SYLVANIA

- ULTRA RT6 Gimbal



Honorable Mention

Lighting Science Group

- Glimpse

Solid State Lighting Replacement Lamps

Winner

Lighting Science Group

- Definity PAR30 Short-neck Bulb

Winner

Lighting Science Group

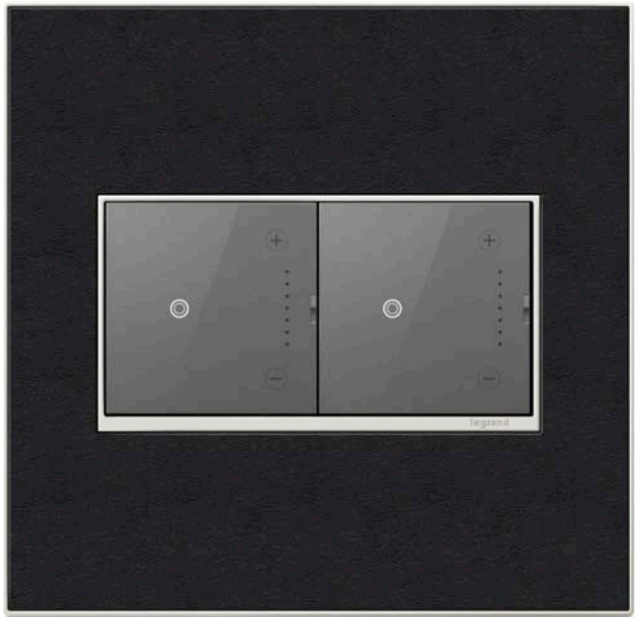
- Definity BR30 Bulb

Lighting Controls

Innovative Concept

Legrand

- adorne Event Controller

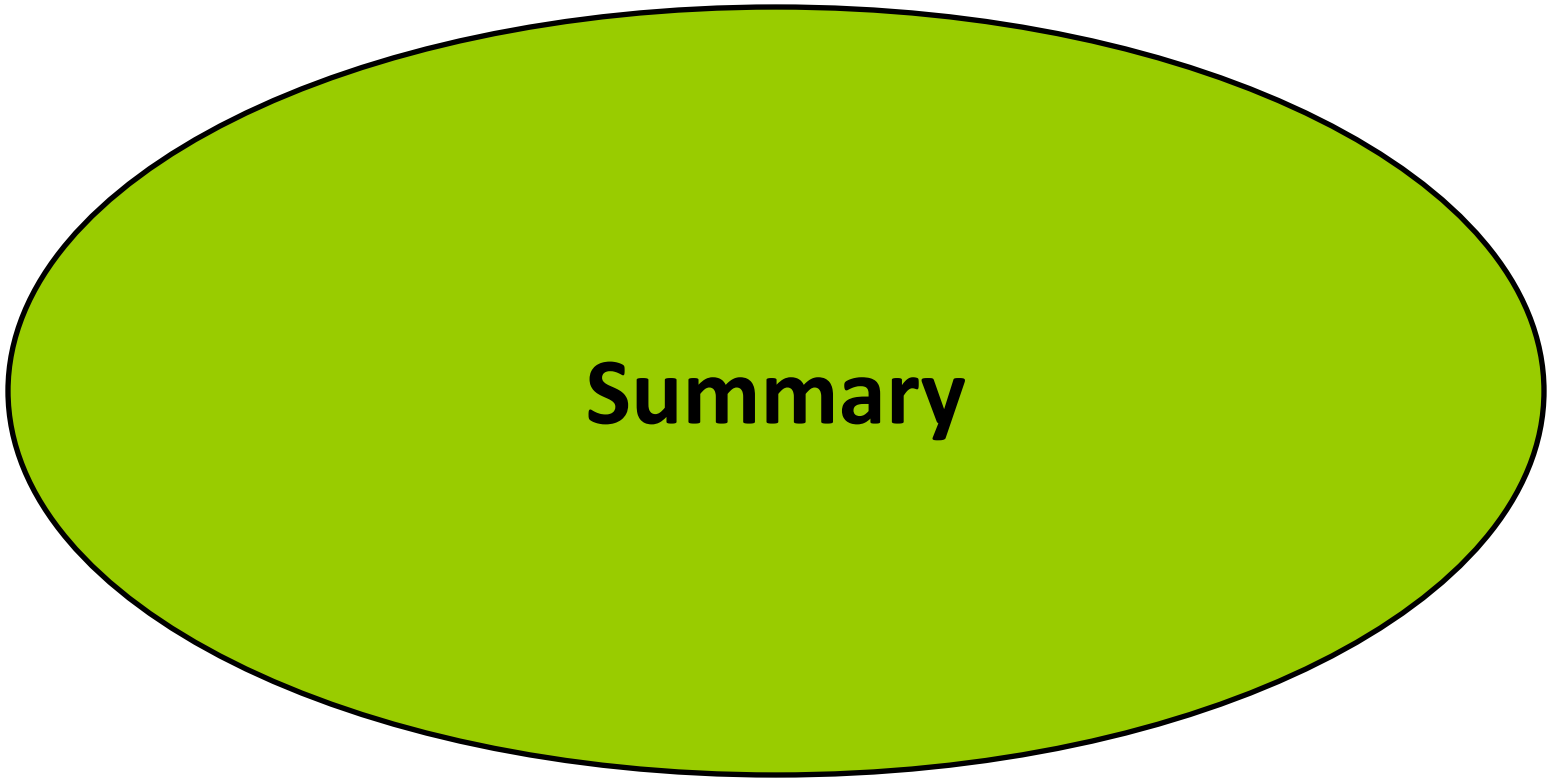


2013 Competition

Anticipated launch at January Dallas Market

- LED Fixtures
- LED Retrofit Kits
- LED Replacement Lamps
- Lighting Controls
- Energy Efficient Lighting Products designed for Seniors (potential new category)

All Manufacturers are invited to enter


Summary

Product availability

- **Lighting for Tomorrow** award-winning products are **not**, typically, sold in big-box stores. They are typically sold through **ALA-affiliated showrooms**. *(As seen earlier, there are exceptions – such as Lutron CL dimmers sold at Home Depot.)*

- Pull-through for increased sales of these products can also be achieved by recognition in utility incentive programs … or (at least) by inclusion on "pre-approved product lists" since they have met very specific criteria.

- **LFT** award-winning products do not help save energy – **unless they are actually sold**! What can help increase sales of LFT award-winning (and other) products?

LFT website – 2011 award winners

www.lightingfortomorrow.com/2011/pdfs/2011_Winners.pdf

www.lightingfortomorrow.com/2011/pdfs/2011_Winners.pdf

Welcome, Ste...! | LinkedIn Netflix [Mailbox Manager 1.0] Login to Netbenefits USAlliance Apple Yahoo! Google Maps YouTube Wikipedia News Popular

Winner: Holtkötter International, Inc. Bernie Chairside Reading Lamp

This new floor lamp provides comfortable, bright white light for reading and other detailed tasks, while allowing the user full dimming control as needed. The proprietary Dimm-System Punkt 1 (Dimm-System *P1) has been manufactured to control the low-voltage LED technology, allowing for a drastic reduction in the amount of energy used for the light output provided. Special features of this sophisticated proprietary dimming functionality include point dimming, soft on, delayed / soft off, and complete dimming cycle. Additionally, the specific use and application of the LEDs has been configured for soft light dispersion, reducing shadows and creating a better dispersion of heat.

Winner: Lithonia Lighting® Outdoor LED Versatile Area / Wall Light

The Outdoor LED, Versatile Area/Wall Light provides maintenance-free general illumination for outdoor use in residential and commercial applications. The fixture is ideal for any outdoor space requiring reliable safety and security with its sturdy, weather-resistant aluminum housing with a bronze finish. The 50,000 hour, maintenance-free fixture has a clear polycarbonate lens to protect the optics from moisture, dirt and other contaminants. It features an adjustable Dusk-to-Dawn photocell, standard, that automatically turns light on at dusk and off at dawn for convenience and energy savings. The photocell can be disabled by rotating the photocell cover. The fixture can be mounted on a wall or arm-mount (mounting arm sold separately). It is UL Certified to U.S. safety standards, wet location listed and has a five-year warranty. Operating temperature is -30°C to 40°C.

www.lightingfortomorrow.com

LFT website

- The **Lighting for Tomorrow** website contains the following:
  - ✓ Links to all past award-winning products (many are still sold, including fluorescent/CFL products)
  - ✓ Press releases
  - ✓ Links to product information and manufacturers' websites
  - ✓ Links to:
    - **ALA** (American Lighting Association)
    - **CEE** (Consortium for Energy Efficiency)
    - **UL** (Underwriters Laboratories)