Lighting Innovations for Today

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Agenda

- Why Lighting Innovation
- Elements of Lighting Innovation
- The Time is Right
- New Installations vs. Retrofit
- Buyers Beware
- Good Applications for Today & Tomorrow
- A Closer Look at Lunera Lighting
Why Lighting Innovation

- The best efficiency dollar you can spend
- Applicable to existing and new buildings
- Spend a little or a lot
- Value beyond efficiency
Elements of Lighting Innovation: Lighting Sources

- LED
- Ceramic Metal Halide
- High Efficiency Halogen
Elements of Lighting Innovation: New Approaches to Lighting

- Lighting panels and forms (OLED)
- Advanced Lighting Controls
- Integrated Buildings
The Time is Right

- The LED market is stabilizing, with regards to chipsets and price
- LED adoption rates continue to grow
- LED efficiency payback periods continue to decrease and may be cost neutral or advantaged at initial Bill of Material and magnified with labor and controls also considered
- Lighting continues to be the greatest energy use in commercial buildings, averaging 38%, and LED is the quickest most cost effective way to achieve energy savings and sustainability goals
Considerations for Lighting Innovations

New Construction Projects

- Unlimited possibilities
- Employ latest technologies at lowest installed cost
  - architectural lighting
  - advanced controls
  - demand response

Retrofit Installations

- Many plug-and-play opportunities
- Potentially lowest cost of ownership, short and long-term
- Continued flexibility to upgrade in the future
- Use savings to buy more savings
Buyers Beware

- Time to start thinking about lighting innovations across traditional grades: good, better, best or contractor, spec, architectural
  - just because product is being sold, doesn’t mean it is a good product
  - just because it saves energy doesn’t mean it is a good product
- Consider total cost of ownership, when choosing desired lighting innovation
  - product safety
  - impact on the space function & people
  - product cost
  - install labor
  - product complexity
  - what happens when the technology chosen breaks or is no longer available
Considerations for Applications Today

- **LED lamps**
  - equivalent or better light
  - energy savings
  - color accuracy
  - maintenance savings
  - do not bypass ballasts

- **LED fixtures**
  - equivalent or better light
  - energy savings
  - color accuracy
  - dimming
  - maintenance savings/req.

- **Sensor controls**
  - impact on space and people
  - performance characteristics
  - installation required
  - system integration today/future
Considerations for Applications Tomorrow

- The Future of General Lighting
  - light becomes integral to design
  - highest light efficiency without compromising space design
  - constant color and intensity tuning enhances ambiance and productivity

- Low Voltage Lighting Networks
  - more efficiency through controls
  - lower installation costs
  - ultimate space flexibility
  - simplifies controls architecture
  - share sensors across systems

- Automated Demand Response
  - response opportunities across enterprise holdings
  - truly integrated building systems
  - dynamic building commissioning
A Closer Look at Lunera Lighting

Lunera Lighting is…

- Simple to Install
- Reliable to Operate
- Valuable to Own

- Founded in 2008 and commercialized the first LED lighting in 2009
- Exclusively LED technology for commercial interior general lighting
- Innovative Designs, BallastLED™ Technology
- Engineering and product development in Silicon Valley, CA
- 500+ project installations across 15M ft²
- Quick Delivery
Questions?

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