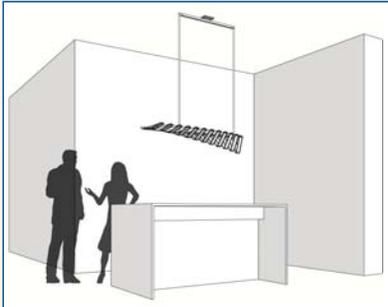


Industry Collaboration Demonstrates OLED Lighting

Organic light-emitting diodes (OLEDs) have entered the lighting market as a viable technology for lighting applications where a thin profile and special aesthetics are desired. With efficacy expected to exceed 150 lm/W by 2020, OLEDs have the opportunity to change architectural lighting practice. Yet little is known about how well OLED lighting would work in homes and businesses. The LRC, under NYSERDA funding, formed a collaboration of New York State lighting, architecture, and electronics industry leaders to demonstrate the potential for OLED lighting.



OLED luminaire conceptual design by EYP Architecture & Engineering.

LRC OLED Lighting Research

<http://www.lrc.rpi.edu/programs/solidstate/OLED-LEAP.asp>

Industry Partners

EYP Architecture & Engineering, LED Specialists, OLEDWorks

Sponsor

New York State Energy Research and Development Authority (NYSERDA) (Agreement 34929)

24 OLED panels

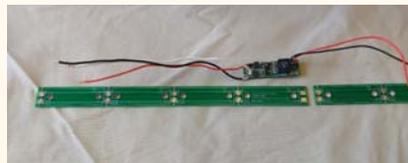
- 3000 K, 92 CRI, 60 GAI
- 240 mA, 4.9 W per panel (118 W total)
- ~250 lm per panel, est. 6000 lm total
- 52 lm/W

Luminaire

- 146 W input power at max. light output
- 41 lm/W
- Power supply: 88% efficient
- Drivers: 91% efficient, 240 mA, 500 Hz
- Dimmable: 100%–25%



OLED panels by OLEDWorks



Custom driver designed by LED Specialists.

Demonstration and evaluation

The luminaire was assembled by LRC staff, which also performed component and system evaluations. It was installed at the EYP office in Albany, N.Y., where informal feedback was gathered from EYP staff and visitors, who gave positive responses.

While the energy efficiency of the prototype showed that OLEDs are not yet competitive with LED or fluorescent lighting, the demonstration indicated that OLED technology continues to improve. Challenges still exist for integrating OLED panels into lighting products. Coordination is needed by all stakeholders for successful transition from light source to luminaire.

Luminaire development

To showcase the potential of OLED lighting and to better understand the unique challenges of this technology, the LRC and its partners custom-designed an OLED luminaire for demonstration and evaluation. EYP Architecture & Engineering, which brought the architectural designer and end-user perspective, created the luminaire conceptual design and hosted the site demonstration. OLEDWorks, which brought the light source manufacturer perspective, developed the OLED panels for the luminaire. LED Specialists, which brought the electronics and controls perspective, designed custom drivers for the OLED panels. The LRC, which brought the luminaire integrator perspective, conducted the mechanical and electrical engineering of the luminaire, including 3-D printing of the OLED panel holders and connectors.



Installation at EYP headquarters in Albany, N.Y.