

INCANDESCENT LAMPS HAVE HIGH ENERGY USE AND SHORT LIFE

Many exterior entry and walkway lights in residential and commercial applications use incandescent lamps because they are small and inexpensive. However, they are inefficient and burn out quickly—typically four times per year if operating all night—causing high operating costs and security concerns. Fixtures can also use compact fluorescent lamps (CFLs), typically last two to four years but are expensive and can be difficult to fit into existing fixtures. Additionally, replacing burned-out pin-based CFLs can be difficult since retail stocking is inconsistent.

The Light-Emitting Diode (LED) Hybrid Outdoor Fixture combines cutting-edge LED technology with an occupancy sensor and incandescent lighting to reduce operating costs below those of incandescent lamps and CFL fixtures.



The low wattage LED light turns on at dusk and operates through the night.

LED HYBRID OUTDOOR FIXTURE

A PHOTOCELL CONTROLS A 5-WATT AMBER LED ARRAY FOR CONTINUOUS NIGHTTIME OPERATION, PROVIDING PLEASANT, LOW-LEVEL AMBIENT LIGHT. AN OCCUPANCY SENSOR TURNS ON THE INCANDESCENT LAMP WHEN MOTION IS DETECTED, FLOODING THE AREA WITH BRIGHT LIGHT. AFTER A FEW MINUTES, THE OCCUPANCY SENSOR TURNS OFF THE INCANDESCENT LAMP WHILE THE LED ARRAY CONTINUES TO ILLUMINATE THE AREA.



The technology is available as an entry or porch fixture suitable for commercial, institutional, or residential applications.

The California Lighting Technology Center worked with manufacturers to develop various concepts for LED exterior fixtures.

ENVIRONMENTALLY SOUND AND ENERGY EFFICIENT

This fixture is expected to cut operating costs 50–90 percent, depending on occupancy, while giving building owners and occupants peace of mind that the long-life LEDs will provide illumination for years to come. The LEDs meet the California Energy Commission's 2005 Title 24 Building Efficiency Standards requirement of 40 lumens/watt.



LED Outdoor Hybrid Fixture display at the California Lighting Technology Center

Benefits

- The combination of LED, incandescent, and occupancy sensor uses less energy than CFLs alone.
- Continuous LED lighting eliminates dark spots commonly associated with motion sensor systems.
- With a life of 10–15 years, LEDs provide light when incandescent lamps burn out.

INTERESTED?

Hotel/motel staff, apartment managers, university housing staff, lighting manufacturers and specifiers, code developers, contractors, and utility staff can use the information on this system.

Key next steps include:

- *Building Owners/Managers and Lighting Specifiers*—Specify the LED Hybrid Outdoor Fixture.
- *Utility Staff*—Educate audiences on the technology's benefits and offer incentives for this product category.
- *Code Developers/Implementers*—Accept the technology within new and existing codes.
- *Manufacturers*—Develop similar fixtures for mass-market use.

This product is available from Shaper Lighting by special order (www.shaperlighting.com).

The Watt Stopper Inc. is developing a similar unit—a security light using two flood lamps, an occupancy sensor, and an LED that operates all night long (www.thewattstopper.com).

Hunter Lighting Group is preparing a fixture of this type for the residential consumer market (<http://www.hunterkenroy.com/>).

This project was part of the PIER Lighting Research Program. To view the project results, as well as other current research activities, visit www.energy.ca.gov/pier.

Additional information about this technology can be found on the following websites:

- PIER contractor site: www.archenergy.com/lrp/products/ledhybrid.htm
- PIER researcher site: www.cltc.ucdavis.edu (under projects)



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PROVIDING SECURITY
AND ENERGY
EFFICIENCY TO
OUTDOOR LIGHTING



Public Interest
Energy Research