THE ART OF ENERGY EFFICIENCY

HALLIE FORD MUSEUM OF ART INVESTS IN LED LIGHTING TECHNOLOGY TO SAVE ENERGY AND IMPROVE VISITOR EXPERIENCE

At the Hallie Ford Museum of Art, located on the Willamette University campus in Salem, Ore., an ambitious plan to upgrade lighting is paying off in energy savings and an enhanced visitor experience.

Under the direction of exhibition designer David Andersen, the museum replaced its older halogen lamps with LED lamps. The museum expects to reduce the lighting portion of its energy use by 75 percent, and earned $5,760 in cash incentives from Energy Trust of Oregon from this energy-saving investment.

"With our lights on up to 10 hours a day, our energy draw from lighting alone is enormous," said Andersen. "We needed to find a way to reduce our energy use without affecting how visitors view art in the galleries. Unlike other businesses, we can't simply turn our lights on and off during the day to save energy."

Two years ago, Andersen and Art History Professor Ann Nicgorski procured a small grant from Willamette University— which embraces sustainability as one of its core values—to explore the potential of LED lighting in the museum. The duo conducted a side-by-side experiment in which they split a single gallery in two with halogen lighting on one side and LED on the other. They asked visitors to comment on the different lighting options and assess which one did a better job of illuminating the art on display. Andersen's observations combined with public comment convinced him that LEDs were the better technology.

PROJECT-AT-A-GLANCE

PROJECT BENEFITS

- Lower operating and energy costs
- Improved light quality in galleries
- Improved visitor experience
- Improved temperature control
- Reduced maintenance

PROJECTS

- LED lighting upgrade

FINANCIAL ANALYSIS

- $18,828 in project costs
- $5,760 in cash incentives from Energy Trust
- $4,493 estimated annual energy cost savings

ESTIMATED ANNUAL SAVINGS

- 55,000 kilowatt hours

Energy Trust of Oregon

"The real seal of approval came when the U.S. Department of Energy completed several studies of LED retrofits in museum settings including the Smithsonian American Art Museum, the J. Paul Getty Museum, and the Jordan Schnitzer Museum of Art," said Andersen. "The studies measured the impact of LEDs on a museum environment and showed that LEDs are really good, and if anything, may be better for artwork than the lamps we were using at the time."

The museum's halogen lamps generated heat, which can be harmful to delicate artwork. Andersen was certain that the new LED technology could decrease the facility's energy use and lower the heat buildup in the galleries, producing additional energy savings through reduced demand on the HVAC system.

Andersen worked with Forever Green Illumination to research and test over 30 lamps from nearly 15 manufacturers, before settling on lamps from LEDnovation of Tampa, Florida. Using its existing track and fixtures, the museum replaced 483 halogen lamps with an equal number of LED lamps in its five exhibition galleries. In order to achieve the optimal light, he used three different profiles of bulbs, including 30 PAR 38s, 344 PAR 30s and 109 MR16s.

"People comment that the artwork looks better but they don't know why," he continued. "The LEDs have better color rendition and provide a warm, even blanket of light across an entire canvas, which enhances the experience of viewing an art piece."

The project expects to save more than 55,000 kWh of electricity annually, which equals a projected $4,500 in annual energy cost savings. An anonymous donor with a commitment to sustainability funded Willamette University's portion of the project cost.

"We used to change at least one light bulb every two days; with these new LED lamps good for 50,000 hours each—or up to 20 years with normal use—we can put that time back into other ways to enhance the museum," he said.

"The museum is proof that a simple change in lighting can save energy and reduce maintenance and repair costs, and improve our interior environment all at the same time."

David Andersen
exhibition designer
Hallie Ford Museum

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