

LIGHTING ENERGY EFFICIENCY IN PARKING CAMPAIGN

Overview

With 7 hospitals and 22 physician locations serving more than 9 Wisconsin counties, ThedaCare has ample room to implement and reap the benefits of building efficiency measures. At the Appleton Medical Center, ThedaCare's Lighting Energy Efficiency in Parking (LEEP) Campaign Award winning project involved replacing inefficient medium-wattage HID lighting fixtures at a 126,000 square foot parking structure with high efficiency low-wattage LED fixtures. The resulting energy savings exceed 80 percent of the previous usage. A 100-year old company and the third largest health care employer in Wisconsin, ThedaCare has now implemented LED exterior lighting throughout Appleton Medical Center.



Appleton Medical Center. Image courtesy of Thedacare

Keys to Success

The project grew out of ThedaCare's lighting team, a subgroup of its energy team, which in turn is an arm of the sustainability steering committee, and was supported by funding set aside for energy efficiency projects. Paul Linzmeyer, ThedaCare's sustainability leader, saw many opportunities for improved energy efficiency when he completed an assessment of the facility's footprint in 2013. He identified several high priority energy projects, but chose to begin with the parking ramp lighting because it was high profile and provided a strong financial return on investment.

"I knew we could get buzz right away with this, with both patients and staff. People noticed immediately that it was a different kind of light. The way it gets rid of dark spots is just incredible."

*Paul Linzmeyer, sustainability leader,
ThedaCare*

At the outset he brought in utility representatives, contractors and facilities team staff to discuss the lighting project, review the benefits, and discuss the concept of total cost of ownership. Linzmeyer credits that early meeting with helping develop a vision of where ThedaCare wanted to go with its lighting. LED lighting quality, safety and effect on neighbors were included in project assessment.

Results	
Energy Savings	155,000 kWh, a savings of 86%
Lighting Power Density (W/sq. ft.)	0.03, a reduction of 86%
Installation and Maintenance	Replaced inefficient medium-wattage HID lighting fixtures in a 125,000 square foot parking structure with high efficiency low-wattage LED fixtures.
Overall Performance	On implementation of the directional LED lighting, the problem of light pollution evaporated overnight. Additionally, reduced maintenance costs and improved security are on par with the energy savings. Positive comments from security, staff, and neighbors have underscored the added value.

“There’s much more to the story than just energy, and we have to market it that way. The value of sustainability work typically isn’t just in energy reduction, though that may be what gets people to pay for it.”

Paul Linzmeyer, sustainability leader, ThedaCare

At 155,000 kWh/year, the energy savings were a nice start; the project will pay for itself in just four years. The project also got a financial boost from Wisconsin’s Focus on Energy incentive program. More information about the Focus on Energy program can be found here:

<https://focusonenergy.com/business>.

Lessons Learned

- ▶ One additional benefit was greatly reducing lighting overflow into the nearby residential areas. Due to the concrete overlay parking lot, Appleton’s neighbors in the surrounding community had sometimes complained about the glare from the facility’s parking lot lighting. On implementation of the directional LED lighting, the problem of light pollution evaporated overnight.
- ▶ Ancillary benefits included reduced maintenance costs and improved security and are on par with the energy savings; they helped sell the project. Positive comments from security, staff, and neighbors have underscored the added value.
- ▶ Project implementation was relatively seamless. Linzmeyer credits the manufacturer, Acuity Brands, Inc., along with Crescent Electric, Michels Corporation, and Elan Lighting as excellent contributors to the research, design, selection, and installation process. The contractors worked with ThedaCare’s lighting team not only to move the project through to completion but also to help submit the project for the LEEP award.
- ▶ Considering the project in retrospect, Linzmeyer would make one change if he had it to do over again: the addition of motion detectors. “Now that we can see how the lights work, we realize we could have some of them off when there’s nobody moving. But every parking structure is different; I’m not sure I could have anticipated it from doing another project.”

“We’re creating champions for what we’re doing among staff, patients and in the community. It’s a different way of doing business.”

Paul Linzmeyer, sustainability leader, ThedaCare

2014 LEEP Award: Highest Percentage Energy Savings in a Retrofit at a Single Parking Structure	
Location:	Appleton Medical Center Appleton, WI
Parking Area:	126,000 sq. ft. (388 spaces and 128 fixtures)
Solution:	Replace HID with LED

Next Steps

ThedaCare has installed LED lighting in several of its parking lots with similar results and has plans to retrofit three more sites and about a million square feet by spring of 2015. Along the way, the LEEP campaign was a welcome discovery. “It’s a great idea to share best practices around parking lot lighting,” says Linzmeyer.

The lighting team continues to explore other LED applications with sensitivity to the challenges of a healthcare environment. Linzmeyer is even testing LED troffers in his own office and considering operating rooms as possible next candidates.

Learn More

Through the [Better Buildings Alliance](#), members across different market sectors work with the U.S. Department of Energy’s (DOE) exceptional network of research and technical experts to develop and deploy innovative, cost-effective, energy-saving solutions that lead to better technologies, more profitable businesses, and better buildings in which we work, shop, eat, stay, and learn.

Learn more about how to join the Better Building Alliance’s Lighting Energy Efficiency in Parking Campaign, at www.leepcampaign.org/. LEEP Participants are collectively saving over 120 million kilowatt-hours and over \$10 million annually across 430 million square feet of lots and garages by upgrading to high efficiency parking lighting.

Find more resources and guidance on lighting in the [Better Buildings Solution Center](#).