MIA Gets LEDs: Minneapolis Institute of Arts Upgrades to Efficient LED Lighting

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MIA lighting designer and technician

Getting the light right

There are few places where lighting is as important as in a gallery or museum. The art has to look great or people won't come to see it. So when the staff at the Minneapolis Institute of Arts started wondering if it was time to consider LED lighting to replace the halogens in the galleries, it caused a stir.

"Some of our colleagues were reluctant about using LEDs at their desks, so you can imagine how skeptical they were about using them in the galleries," says Shawn McCann, MIA's mechanical maintenance and utility specialist. "But we knew from using LEDs in our exit signs and elsewhere that we could be saving money with more efficient bulbs, so we wanted to explore it."

"At the time, LED lighting was still developing so it was hard to guide them toward a good solution," says Sara Terrell, Xcel Energy account manager. "You hate to tell people to wait on their efficiency plans, but that's what we decided to do until a better solution came along, and eventually one did."

The process was a long one, but was well worth their time and energy.

"Now that we're saving $149,000 a year in electric bills, it's easy to say we did the right thing," says Karl Shapansky, MIA lighting designer and technician. "But at the time it was hard to go through the process of testing various bulbs in several applications and locations."

Finding the right solution

No stranger to conservation and sustainability efforts, MIA's Green Team led the charge to upgrade to more efficient lighting. They started the process in 2007 and started receiving samples from all over the country. Packages would come one at a time with the promise of a solution.

"Our method wasn't very scientific," says Shapansky. "We'd plug them in and ask people their opinions."

They had several things to consider, including the cost of the bulbs, retrofitting them into the existing fixtures, the various types of bulbs they would need, the need to stock extras for specific artist requests as new exhibits came through, and the impact on the art itself.

Over the course of several years, the lighting market changed, the options grew and finally, a solution presented itself. The staff at MIA was ready to make the lighting leap.

FINANCIAL SNAPSHOT	
Project	Replaced over 8,300 halogen bulbs with LEDs throughout more than 140 galleries, common spaces and office areas
Approximate cost	$388,000
Xcel Energy rebate	$177,000
NEH grant	$62,000
Estimated annual energy savings	$149,000 or 1.7 million kWh
Estimated payback	Less than one year
Estimated maintenance hours saved by not changing bulbs	2,000 in the first five years

New lights, new look

Before making the purchase, the lights were tested in a few galleries. The new light made the art look fantastic, but that's when they noticed the paint problem.

The light gave the walls a yellow and purple cast. The installation was halted while the search for a new paint began.

"It added to the length of the project, but we had to fix it," says Shapansky.

With over 5,000 lights in its 140-plus galleries alone, the process of changing to the new LED PAR38 and PAR30 lamps took a long time. The team would remove the art from one gallery, install the lights, paint the walls, and replace the art. After two major phases spanning almost two years, it was done.

"The new lights improve the depth of the artwork, making it look crisp and detailed, especially bringing out greens, blues and purples," says Charles Walbridge, MIA photographer and Green Team leader. "The lights, combined with the neutral, warm, gray paint, really make the art stand out."

The museum itself is now a standout. The Minneapolis Institute of Arts is the first museum of its size to have 100 percent LED lighting in its galleries.

Reaction and discoveries

"People either love it or have no idea we made the change," says Shapansky. "I love it because the art looks great, but also because I can spend more time designing and less time up on the lift changing bulbs."

Shapansky used to replace 35 to 40 bulbs a week. Based on manufacturer's specifications, the new LEDs should last five to eight years, or about 22 times longer than halogens.

Several added benefits make the change even sweeter. The new bulbs use roughly one fifth of the energy that the old halogens use, reducing energy bills. They emit no ultraviolet (UV) and very little infrared (IR) rays, reducing impact on the art itself. They also burn cooler, helping MIA save on cooling costs. Anecdotally, security guards who spend hours at a time in the galleries say the improved light has improved their moods.

On the financial side, two things made the project feasible. First, a $62,000 Sustaining Cultural Heritage grant from the National Endowment for the Humanities helped ease the financial burden.

Second, MIA's electric utility, Xcel Energy, offered rebates as incentives to help defray the cost of new high-efficiency equipment. MIA received just over $177,000 in Xcel Energy rebates. Even better: the project will pay for itself in energy savings in less than a year.

Sharing the light

A few lights still need to be retrofitted in the behind-the-scenes areas at the museum, but in many applications there isn't an LED equivalent yet. McCann continues to work on it.

In the meantime, they're providing information to the nation's other galleries and art communities, speaking at the Smithsonian and a recent conference of the American Alliance of Museums about the benefits of LEDs and persevering through the trials and tribulations that come with the process.

"We've gotten calls from all over the country," explains Shapansky. "We're happy to share what we've learned so that others can reap the same benefits, and hopefully complete their projects even faster than we did."

For more about MIA's new lights and look, visit new.artsmia.org. For more about Xcel Energy's energy efficiency rebates and programs, visit xcelenergy.com/LightingEfficiency.

Benefits of LEDs

- They use less energy, therefore reducing electric bills
- The color closely resembles daylight making colors crisp
- They emit no UV and very little IR rays, reducing impact on the art
- They are cooler, generating less heat, reducing cooling costs