

FOCUS ON CASE STUDIES: LED LIGHTING

THE PROBLEM

The La Crosse Law Enforcement Center had fluorescent T8 fixtures throughout the majority of the facility. Due to constant building occupancy, some lights had very long burn hours and needed frequent replacement. Fluorescent technology has two different components that can burn out – the lamp and the ballast. Not only was this recurring equipment replacement costly, in some locations it was also posing a significant safety hazard.

The La Crosse Law Enforcement Center houses inmates in a dorm style setting called pods. Lighting fixtures in these pods are approximately 20 feet high, and require a lift for bulb replacement along with inmate relocation. The shuffling of prison inmates to replace fluorescent light bulbs was an unnecessary safety threat that was leading to major maintenance issues for this facility.

THE APPROACH

New fluorescent lamps are rated for an average life of 42,000 hours, or around five years in a 24x7 usage facility. However, due to extended usage, many bulbs weren't meeting that criteria. The facility needed to reduce the amount of lighting maintenance and eliminate the safety concerns caused by displacing inmates and moving equipment. In addition, the facility hoped to reduce operating costs and save energy while continuing to meet state mandated lighting levels. Identifying a low maintenance, energy efficient lighting system was of top priority for the county.

THE SOLUTION

In October 2015, a walkthrough of the facility was conducted with a Focus on Energy Advisor and local Trade Ally, where it was suggested that the facility install LED tube lights in the existing linear fluorescent fixtures. This solution would:

- **Improve color rendering and color temperature**
- **Offer a low environmental impact with no mercury to be recycled**
- **Deliver instant “on” capabilities**
- **Not be affected by cold temperatures or frequent on/off switching**
- **Increase the life expectancy of the lamp (estimated up to 80,000 hours or 12+ years in a 24x7 space)**
- **Provide a high efficiency replacement option (amount of light emitted per watt of energy used)**

Although the initial cost of LEDs are higher, the low maintenance requirement, high lumen output, energy efficiency, and long lifetime of the bulbs made this technology the perfect solution for the facility's needs. As an added bonus, the retrofit was exceptionally fast due to utilization of the existing fixtures.

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Project Breakdown:

- **Equipment Installed: Direct replacement of fluorescent T8 lamps with LED Tube technology.**
- **Benefits: 12+ Years Estimated Useful Life**
- **Annual Energy Savings: 269,730 kWh and 38 on peak kW**
- **Focus on Energy Incentive: \$20,933**
- **Payback: 4 Years**

“Working with Focus on Energy added significant value to this project. Not only was the process relatively easy and seamless, but it also was a maintenance time saver.”

**Jim Speropulos,
Facility Director**

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