

GREEN FOUNDRY CASE STUDIES

MATERIAL & RESOURCE CONSERVATION

LED Lighting Upgrade



Description

Over the last few years, general lighting technology improvements driven by the U.S. Dept. of Energy (DOE) efficiency standards continue to increase lighting reliability and functions. In 2016, this facility focused on the latest available technology by replacing fluorescent bulbs with light-emitting diode (LED) bulbs. In total, more than 7,000 T8 fluorescent bulbs were replaced,

Currently, approximately 600 fluorescent bulbs have been replaced with LED bulbs in various offices, walkways, and in production areas. The replacement plan includes efforts to replace faulty fluorescent bulbs as they fail. Since the initial lighting upgrade in 2012, more than 3,000 fluorescent bulbs have failed, which has demonstrated that they are half as reliable as suggested. In general, since 2012 the experience with fluorescent bulbs has cost the facility roughly \$25,000 in replacements and disposal fees.

Environmental Benefits

- Significantly reduce/eliminate broken fluorescent lamps in hazardous waste stream (55 lb./yr.).
- Significantly reduce/eliminate fluorescent lamp e-waste stream.
- Significantly reduce/eliminate working with mercury containing lamps.
- Reduce carbon footprint by 492 tons, which is equivalent to the estimated annual energy use of 52 typical homes.

Cost & Savings

- Although the initial purchase price is higher for more efficient lighting technologies than for traditional bulbs, significant savings are achieved over the life of the replacements. Costs were also offset by an incentive offered by the local utility company of \$4 per bulb. Total Investment for 7000 LED lamps was \$84,000 with a onetime incentive of \$28,000.
- Reduced lamp replacement and maintenance costs were estimated at \$70,000 annually and electricity savings were estimated as \$42,000 annually. Return on investment (ROI) for this project was approximately six months.

Other Benefits

- Enhanced lighting quality and employee morale.
- LED bulbs are roughly 50% more efficient and feature a 5-year warranty.
- Direct bulb replacement, easy conversion with no re-wiring or fixture modification

Applicability

- Currently, there are multiple local incentive program available, it is an opportune time to implement an LED lighting upgrade.
- Direct replacement LED lamps are easy to install and offer great incentives.

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