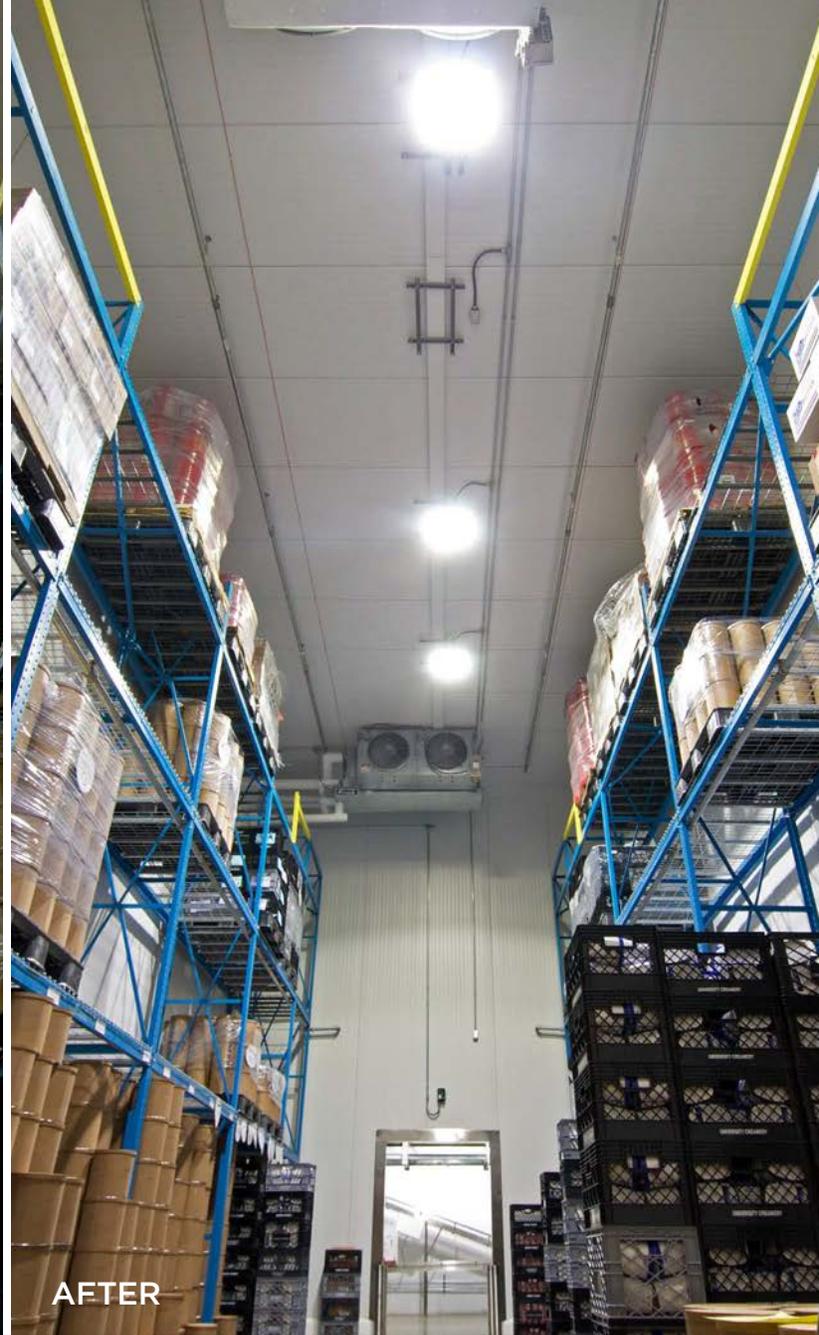




BEFORE



AFTER

Industrial - Upgrade

Penn State Berkey Creamery

University Park, Pennsylvania

- Significant energy and maintenance savings
- Dramatically better visibility
- Excellent fit for cold temperature applications as LED performance inherently increases as operating temperatures drop

UNIVERSITY CREAMERY IMPROVES FREEZER STORAGE EFFICIENCY IN MORE WAYS THAN ONE

“The new lights are terrific. They strike instantly, provide more lumens than our old induction lights, will last for years and are cost-effective. They are superb and we are planning to replace all of the metal halide lights in our processing room with LED luminaires from Cree.”

Thomas Palchak, *Manager,*
Penn State Berkey Creamery

OPPORTUNITY

The largest university creamery in the nation for over a century, Berkey Creamery at Penn State University (PSU) has outgrown its location many times. The most recent expansion brought a move to the first floor of a new Food Sciences building where everything but the lighting in the creamery's storage freezers was state-of-the-art.

The 15,000-square-foot facility provided more manufacturing and service space, but the induction lights in the deep freezers were causing safety and efficiency challenges for employees. Thomas Palchak, manager of the Penn State Creamery, challenged the PSU Physical Plant to solve this dilemma. Blair Malcom, electrical engineer for PSU Physical Plant Engineering Services, saw an opportunity to improve on those challenges by replacing the lighting with Cree luminaires.

SOLUTION

Five induction lights from the 27-foot-high hardener room freezer ceilings were replaced with three Cree Edge™ Series canopy lights—achieving better illumination and using 256 fewer watts. Three fixtures in the adjacent 14-foot-high blast freezer were replaced with three Cree Edge™ Series canopy lights, saving an additional 171 watts while achieving better light levels. The results were dramatic. The shadow-cast freezer rooms are now filled with a uniform, brilliant white light. Previously, the dimly lit hardener environment hampered workers' ability to locate ice cream containers. Workers can now maneuver easily around the freezers and quickly identify the container labels.

“One advantage of these lights,” noted Malcom, “is that Cree fixtures can be configured with the appropriate number of light bars to accommodate the amount of light needed in the space.” Anywhere from two to 12 light bars can be placed in each fixture. In the smaller freezer area, the fixtures use four light bars to illuminate the space, whereas in the large storage freezer with 27-foot ceilings, each fixture uses seven light bars.

With operating temperatures of minus 35°F and minus 25°F in the freezers, the Cree LED luminaires are estimated to operate an average 10 hours per day, five days per week, and only depreciate less than five percent over 10 years. Additionally, the refrigeration system has a reduced heat load from eliminating the induction lights that burned continuously, further saving on energy costs.

BENEFITS

The creamery management is impressed with the results. “The new lights are terrific,” said Palchak. “They strike instantly, provide more lumens than our old induction lights, will last for years and are cost-effective. They are superb and we are planning to replace all of the metal halide lights in our processing room with LED luminaires from Cree.”

Not only are these areas safer, the change will produce significant energy and cost savings. Additionally, as the temperature drops, Cree Edge™ Series LED luminaires inherently produce more light and last longer, further reducing maintenance.

Additional power savings are achieved from turning off the fixtures when not in use. Workers left the previous induction lights on continuously because they took so long to warm up to full brightness. The Cree luminaires light immediately, eliminating the need to have them on all the time. The combination of using fewer fixtures for shorter periods of time provides the creamery with a lower energy bill and a significantly reduced maintenance expense.

LED performance inherently increases in cold temperatures because the technology enables the luminaires to function better and last longer in colder environments. Traditional light sources generate more heat than LEDs, causing the refrigeration system to work harder to remove the heat.

In addition, lower temperatures typically reduce the efficacy of some traditional light sources (i.e. fluorescent). Therefore, more power is required to generate the desired illumination, creating an increased heat load on the refrigeration system.

In cold storage freezers like the Penn State Creamery where rapid blast chilling is done at minus 35°F and hardening and storage at minus 25°F, energy use is significantly reduced while efficiency and lumen maintenance are extended beyond the advantages already achieved by LED technology.

Cree IS LED Lighting

Learn more at: www.cree.com/lighting | info@cree.com | 800.236.6800



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