

Repairs & Maintenance

Jeff Gatzow

serving up savings By Jeff Gatzow

Upgrading to exterior LED luminaires yields big improvements for QSRs

Like any business, quick-serve restaurant (QSR) chains know the importance of reducing their operating costs and realize the money-saving potential inherent in energy efficiency. Since lighting accounts for nearly 13 percent of all the energy used in a restaurant, lighting upgrades offer a tremendous opportunity to lessen energy costs and maintenance expenses, reduce a QSR's carbon footprint, and make the facility feel inviting and safe.

Reducing Energy Consumption and Costs

Regular customer traffic and long hours of operation are inherent for a QSR. This means lights and other equipment are kept on for significant periods of time.

The Environmental Protection Agency estimates that if a restaurant cuts its energy costs by just 20 percent, profits could increase by 30 percent or more. Restaurants tend to operate with narrow profit margins and have pretax income that is 4 to 7 percent of total revenue. So, achieving just a 20-percent reduction in energy costs will translate directly into an additional 1 percent in profit. And energy efficiency comes with additional financial dividends, such as tax incentives, rebates and other deductions.

One key to making day-to-day operations more energy efficient and sustainable is through the installation of exterior and interior LED luminaires.

Outdated and Burned-Out Technology

Metal halide fixtures are the typical exterior lighting technology installed in parking lots, and they regularly burn out. Each light costs \$50 to \$70, plus labor hours, because facility personnel need to rent a bucket truck to change the lights. So QSRs often delay repairing them until sections are poorly illuminated.

Unfortunately, as soon as a group of lights is repaired, other fixtures burn out. Also, as the lights age, the quality of light decreases, which causes different color lighting in various areas. However, by upgrading to exterior LED luminaires, QSRs ensure their parking lots are well lit to serve guests while simultaneously saving energy.

LED Luminaires

Faced with stiff competition in the food-service industry, restaurants need to find methods to attract customers. While it is imperative for a location to feel inviting and safe, lighting doesn't need to be inefficient to be effective.

Exterior lighting has three primary functions: safety, security and ambiance. With sustainability and design now complementing each other, LED luminaires for outdoor general lighting provide a win for everyone.

LED lighting uses 50 to 80 percent less electricity than traditional lighting. The lights last up to 100,000 hours, with average lifetimes of 10 or more years in a QSR environment. Typically, a QSR LED installation will realize a payback in five years or less from energy and maintenance savings. The restaurant can enjoy a quicker payback if rebates are available through a local utility company.

Thanks to upgraded interior kitchen lighting, employees are able to see better while cooking and processing orders because LED luminaires provide brighter illumination with fewer shadows and deliver crisp, uniform illumination throughout the kitchen. The illumination is also critical in the food-prep area for raising productivity, optimizing cleaning and increasing worker safety.

Considerations

When contemplating lighting upgrades, you should consider a number of factors, such as the total cost of ownership, not just the initial cost; the metrics and the different ways lighting performance is measured; and the environment—how the physical dimensions, uses and space conditions impact lighting needs. Additionally, selecting a manufacturer is critical because not all products are created equal.

During this process, be sure to compare:

- Wattage, lumen output and life expectancy
- Light distribution, uniformity and glare
- Light color (correlated color temperature)
- Appearance
- Maintenance
- Rating for water and dust infiltration
- Warranty

Color, Brightness and Lumen Depreciation

As metal halide fixtures age, the quality of light decreases, causing different color lighting in various areas. LED luminaires maintain the same natural white or cool white color throughout their entire lifespan. And LED luminaires provide uniform, targeted illumination that improves nighttime visibility.

While LED luminaires experience lumen depreciation over a period of time, they do so at a much slower rate than traditional lighting fixtures. For an LED fixture, the rated lifespan is the point at which it retains 70 percent of its initial light output. For example, if a 50,000-hour LED lamp emits 17,000 lumens initially, it will produce approximately 11,900 lumens at the 50,000-hour mark.

As a comparison, high-intensity discharge (HID) lamps will lose about half their brightness by the time they reach half of their rated lifespan. So, if a 400-watt HID bulb is rated for 10,000 hours and emits 17,000 lumens initially, it will only produce about 8,500 lumens at the 5,000-hour mark. What's even more unfortunate is that power consumption remains the same. The 400-watt HID bulb will still be consuming 400 watts but with a light output that is half of what it started with.

Sonic Brightens Business

Four years ago, Oklahoma City-based Sonic Corp. launched a refresh initiative with 400 corporate-owned locations. Each drive-in received a total exterior facility upgrade that covered everything a customer sees from the time they pull into the parking lot until they pull out: a fresh coat of paint on all exterior metal surfaces, repairs to the parking lot, restroom upgrades, refreshed landscaping and improvements to the dumpster area as needed. However, the most important part of the refresh was the lighting overhaul. Most of the drive-ins were converted from metal halide parking lot lights to LED luminaires.

"It's been amazing for our drive-ins," said Wayne Brayton, Vice President of Facilities and Equipment. "Not only does LED provide much better lighting, we're using less electricity, realizing energy savings, and reducing repair and maintenance, and we're getting rebates from the utility companies."

Brayton first learned about upgrading to LEDs at a RFMA continuing education course. While he went in skeptical, he came out convinced about the technology's benefits. After the initial comparative pilot program, the company has since made \$2 million in LED lighting upgrades at these 400 drive-ins and has received \$300,000 in rebates.

"This is the best rollout program I've ever been involved in, and I've been in the restaurant business for 30 years," Brayton said. "Customers have even called and provided positive feedback about the new lights."

After the company conducted energy and maintenance savings calculations, they have been strongly encouraging franchise owners to upgrade to LED luminaires. It is an option now, but it may become a standard in the future.

One franchisee who has "seen the light" is D.L. Rogers Group, which is based in North Richland Hills, Texas. Founded in 1967, D.L. Rogers operates 231 drive-ins generating \$300 million in annual sales.

As a forward-thinking company, D.L. Rogers recently conducted comparison testing between metal halide and LED. The LED luminaires won hands down with light uniformity, energy savings and, in particular, a reduction in maintenance expenses. The metal halide fixtures required changing burned-out bulbs that only lasted one to two years— compared with up to 10 years with LEDs—an expensive and time-consuming ordeal that required the rental of a bucket truck.

In their ongoing effort to improve parking lot lighting performance and security and reduce energy costs, this franchisee recently installed LED luminaires at seven new locations and retrofitted one existing Sonic.

"The high-quality LED light makes everything appear brighter and safer— and that translates into a better customer experience," said Darrell L. Rogers, Chairman of D.L. Rogers Corp.

Utility rebates of 10 to 15 percent for each light added to the energy savings. Rogers estimates that the new LED luminaires should provide payback in 2.5 years and the financial savings compound after that. These Sonic locations anticipate more than a decade of virtually maintenance-free lighting operation.

The LED luminaires provide dramatically improved uniformity, eliminating dark spots between fixtures.

"It just didn't make sense to build new restaurants with the latest technology and building materials but install outdated lighting fixtures," Rogers said. "The LED luminaires provide very consistent and uniform illumination without having any light spilling to adjacent properties."

The parking lot and restaurant perimeter are all brilliantly illuminated, providing a welcoming and safe environment for patrons and employees.

Jeff Gatzow is Vice President of California-based Optec LED Lighting. He has worked in the sign and lighting business for 29 years, the past five with Optec, overseeing product development, sales/ distribution and marketing. He is an active member RFMA and the Illuminating Engineering Society of North America (IESNA).