



LED Solutions Improve Lighting Performance and Efficiency at Detroit Metropolitan Airport, Saving Approximately \$1.2 Million Per year

Location:
Detroit Metropolitan Airport

Segment:
Lighting

Challenge:
Improve lighting in parking facilities, reduce energy consumption, save on maintenance and shrink carbon footprint.

Solution:
Installing efficient McGraw-Edison Valet and Galleon LED fixtures from Eaton's lighting division.

Results:
Replacing metal halide fixtures with new LED luminaires and controls, the Airport Authority saves an anticipated overall energy and maintenance savings of approximately \$1.2 million annually.

"Replacing inefficient parking garage lighting with LED fixtures is one of the most practical energy-efficient upgrades a city or business can make to save energy, reduce costs and lower carbon dioxide emissions."

Mark Eubanks, president of Eaton's lighting division

Background

The Detroit Metropolitan Airport (DTW), operated by the Wayne County Airport Authority (WCAA), is Michigan's largest airport, offering approximately 1,200 flights to 150 destinations worldwide. Maintaining an airport that hosted more than 32.4 million travelers in 2013 requires sufficient lighting all day, every day.

Challenge

A total of 6,050 metal halide lighting fixtures kept the airport's parking garages well-lit for many years, but the WCAA began researching alternatives that, according to CEO Tom Naughton, would "improve the lighting in our parking facilities, reduce energy consumption, save on maintenance costs and shrink our carbon footprint."

The outmoded metal halide light fixtures in both airport parking garages, the Blue Deck and the McNamara Terminal Parking Structure, used approximately

11,128,000 kilowatt hours annually. On average, these fixtures had to be replaced every 13 months, resulting in costly maintenance. In response, the WCAA desired an alternative to metal halide light fixtures that would be more energy efficient and cost effective.

According to Naughton, "Our team invested a significant amount of time field testing 12 different lighting fixtures and visiting local municipalities that completed parking garage lighting upgrades to take into account their lessons learned and implement best practices for a results-driven end product."

The search included finding a suitable replacement that would support the WCAA's commitment to sustainable practices as well as improve optical lighting performance in both parking structures.



Powering Business Worldwide

Solution

After multiple trials of light fixtures in actual locations within the parking garages, WCAA's Infrastructure and Engineering Department along with Walker Parking Consultants recommended replacing the metal halide fixtures with light-emitting diode (LED) lights from Eaton. The decision was made in part because LEDs have a long life, are more shock resistant and light up more quickly after power interruptions than metal halide lights.

In order to keep the Blue Deck parking garage lit, 2,400 re-positioned 73-watt McGraw-Edison Valet LED fixtures were chosen to replace 1,200 existing 210-watt metal halide fixtures. Additionally, Galleon LED pole-mounted fixtures were selected to replace the 4,800 existing 210-watt fixtures in the McNamara Terminal Parking Structure. The new lighting fixtures reduce the annual energy consumption by more than 7,345,000 kilowatt hours.

Eaton also incorporated the LumaWatt outdoor wireless control and monitoring system to manage the lighting levels in accordance to pedestrian and traffic safety needs. With the LumaWatt system, LED products are able to reduce light levels during low-usage hours, increase the lighting on demand with occupancy sensors, and harvest daylight, which moderates power to the fixtures for additional energy savings

Results

Replacing the metal halide fixtures with LED luminaires results in 66 percent energy savings, which is equivalent to powering 880 U.S. households for one year. Additionally, an annual reduction of 7,000 metric tons of carbon dioxide corresponds to taking 1,350 passenger vehicles off the road.

Furthermore, in contrast to the existing 13-month replacement schedule, the McGraw-Edison LED fixtures are designed to last more than 60,000 hours, guaranteeing lighting levels for at least 10 years. The anticipated overall energy and maintenance savings equates to approximately \$1.2 million annually.

"Replacing inefficient parking garage lighting with LED fixtures is one of the most practical energy-efficient upgrades a city or business can make to save energy, reduce costs and lower carbon dioxide emissions," said Mark Eubanks, president of Eaton's lighting division. "This project is a great example of how to increase overall efficiencies and performance to provide a safe and well-lit environment, all while helping save the airport energy and maintenance costs."

About Eaton

Eaton delivers a range of innovative and reliable indoor and outdoor lighting solutions, as well as controls products specifically designed to maximize performance, energy efficiency and cost savings. Eaton lighting solutions serve customers in the commercial, industrial, retail, institutional, residential, utility and other markets.

Eaton's electrical business is a global leader with expertise in power distribution and circuit protection; backup power protection; control and automation; lighting and security; structural solutions and wiring devices; solutions

for harsh and hazardous environments; and engineering services. Eaton is positioned through its global solutions to answer today's most critical electrical power management challenges.

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Before new lighting system



After new lighting system

Eaton
1000 Eaton Boulevard
Cleveland, OH 44122
United States
Eaton.com

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