



Service/Product Provider

Pearl Street LED Lighting Systems

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Business: LED Lighting Projects & Services

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Industrial Partner

Merck & Co.

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Business: Pharmaceuticals / Health Care

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Merck upgrades lighting to 100% LED at aviation hanger; reduces lighting energy by over 75%

Project Scope

Merck's 30,000 square foot corporate aviation facility is located at the Trenton-Mercer County Airport in Trenton, NJ. The original hanger and exterior lighting systems were HID metal halide fixtures and the interior flight support and administration areas were T8 fluorescent. Pearl Street Systems worked closely with Merck to convert all of the lighting systems (nearly 700 fixtures) to highly efficient and reliable LED technologies with energy-saving controls.

Project Summary

Pearl Street Systems performed the design, furnished the equipment and commissioned the systems. The centerpiece of the project was the upgrade of the hanger high-bay lighting from previously 1000 Watt HID fixtures to 215 Watt LED. For the controls, lighting zones were established to dim unoccupied areas, saving additional energy and extending the life of the LED fixtures. At the commissioning phase, light levels were precisely adjusted to the aircraft mechanic requirements. For the aircraft technical support and administration areas, occupancy, daylight harvesting, and personal dimming control strategies were incorporated.

- **Energy Savings**
228,000 kWh annually (\$41,000 reduction in annual utility costs)
- **Investment**
\$170,000 net cost (received \$75,000 utility rebate)
- **Financial Return**
Simple Economic Payback of 3.2 years (includes maintenance savings benefits)
- **Other Benefits**
Improved light quality, enhanced safety/security and virtual elimination of lighting maintenance

Monitoring & Verifying Energy Savings

Energy savings were determined by comparing nameplate Wattages/runtimes of the original and upgraded systems. Verification confirmed savings through analysis of hourly facility kW demand data.

Distinguishing Value

Pearl Street worked closely with the site to establish the optimum light levels and control strategies.