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BOEING SLASHES ENERGY USE BY 57%

Savings Are Sky-High with DCL Technology at California Facility

NASHVILLE, Tenn. (July 19, 2011) – Inside Building 801 at the Boeing facility in Long Beach, California, there's no shortage of big brains and high-tech marvels. That's where the company is busy designing military aircraft such as the C17 "Globemaster III" transport plane for the U.S. Air Force.

The building houses a wide variety of impressive technologies, some of which have nothing to do with aviation. In fact, one of the latest additions is a brand new lighting system designed by Boeing facility engineer Jeff Haberman.

Haberman wanted to retrofit Building 801 with automated lighting controls that would significantly reduce the facility's overall energy needs. Specifically, he wanted three things:

- To add photocells for daylight harvesting in all the offices and areas around the perimeter of the building where windows were providing natural light
- To install occupancy sensors in all corridors, private offices, break rooms, and conference rooms
- To set up an automated scheduler to reduce light levels at specific times of day

In order to design the new system, Haberman identified three different technologies that could provide him with the capabilities he was looking for: 0–10V dimming, DALI dimming, and DCL® technology from Universal Lighting Technologies.

The first two solutions would force Boeing to install new control wiring throughout the building—an expensive prospect. They would also require a separate control system designed specifically for lighting. DCL, on the other hand, requires no additional control wiring. Instead, it communicates over the existing power circuits. Plus, DCL was fully compatible with the facility's existing Building Management System (BMS).

As a result, the estimated cost of a DCL retrofit was 40% lower than either of the other two options—and only 5% more than the cost of a traditional lighting system! What's more, the payback period for a DCL retrofit was less than 2.5 years, compared to approximately seven years for either of the other systems (including utility incentives).

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As you might guess, Boeing selected the DCL solution. According to Haberman, DCL required 90% less wiring than other systems, 60% less hardware, and 70% less programming. And he calls the installation "a piece of cake."

The entire installation took place in November and December of 2010. All told, 2,050 fixtures were replaced. Each new fixture contains either two or three 32-watt T8 lamps attached to high-efficiency DEMANDflex™ ballasts from Universal Lighting Technologies. Each DEMANDflex ballast was "tuned" during installation to the optimal light level (ballast factor) for its specific environment, helping to eliminate the common—and costly—problem of over-lighting. These ballasts are specifically designed for DCL technology in order to communicate with the BMS at the circuit level.

Every night, the BMS signals the ballasts to cut power by 50% at 6 p.m. while the cleaning crew is in the building. At 7 p.m., the lights turn off. Of course, anyone still working in the building has the ability to override these commands and temporarily keep the lights on in his/her area. This can be done from any desktop computer or from a password-protected touchscreen display near the elevators on each floor. In addition, occupancy sensors reduce power levels to 34% in each office or common area when they detect that these spaces are unoccupied. And photocells automatically reduce unnecessary artificial light in areas near windows whenever they detect sunlight.

Haberman calls the control system "pretty darned simple" and reports that employee reaction has been "very positive." And the results are outstanding: "We've seen a nearly 60% reduction in energy use for lighting," said Haberman.

In real-world numbers, the lighting system in Building 801 previously required 950,000 kWh per year. The number now is approximately 400,000 kWh per year. That amounts to a 57% reduction in energy costs for lighting alone, or a 15% reduction in the building's overall energy needs. "It works great," said Haberman. "No other system comes close."

As if that's not impressive enough, Boeing also participates in a Demand Response Program with its local utility. This allows the utility to automatically reduce power to Building 801's lighting system by 30% whenever the local power grid is near capacity. Not only does Boeing reduce its energy by 15.8 cents for every 1 kWh it saves through this program, but the utility provides Boeing with a $3 incentive for every 1 kWh saved as well.

How easy is it to reduce energy consumption and monthly power bills with DCL? According to Haberman, "Basically, it's bulletproof."

For more than six decades, Universal Lighting Technologies, Inc., has been bringing power and precision to the world's most innovative lighting. Headquartered in Nashville, Tenn., with operations and distribution worldwide, the products of Universal Lighting Technologies are marketed under the Universal® and Triad® brand names. Universal Lighting Technologies is focused on designing, manufacturing and distributing the industry's finest lighting ballasts and controls. Universal Lighting Technologies—*Energy Intelligence in Lighting.*

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