

Lighting Upgrade and Bluetooth Mesh Control Network Deliver Major Energy Savings for DS Services

The essential nature of DS Services' bottling facility in Mableton, Georgia meant the company continued operations throughout the COVID-19 shutdown. By continuing to focus on the urgency of improving the facility's energy performance, however, the project team was able to design and install an LED lighting network controlled by Bluetooth mesh networked controls that will realize savings exceeding \$100,000 annually as well as improving lighting quality.

Background

The 150,000 ft² DS Services facility in Mableton, Georgia houses 24/7 water bottling operations across production, warehouse and office spaces. A total of 180 employees maintain round-the-clock production supplemented by conventional administrative and supervisory work schedules. The company had a variety of legacy light sources, including HID and fluorescent lighting, throughout its work spaces and only manual switches for control functions.

The project team, spearheaded by Pentalux and Contemporary Energy Solutions, proposed conversion of the lighting to LED and a Bluetooth mesh control network that would rely on occupancy-based control for maximum energy savings. TruBlu™ control devices from mwConnect, software from mwConnect's technology partner, Silvair and a range of fixtures from other manufacturers were selected.



Streamlining the Installation

The project team knew it would be able to streamline the entire project by designing control zones and strategies at the outset, using the web-based commissioning tool. This was particularly important, due to the fact that the DS Services facility was in full operation during the COVID pandemic as an essential service, and the need for swift installation and commissioning was critical. "We were able to design the entire project via the web portal," notes Romano Vlastelica, Founder, Pentalux, "from creating the zone strategy to identifying the zones and assigning specific control devices to each zone. This enabled us to hand off detailed operational guidance to the installing contractor." The contractor, Contemporary Energy Solutions, was able to commission portions of the project as the installing team went along; for instance, if 30 fixtures and controls were installed each

day, that section was also commissioned. This saved a significant amount of time over the course of the installation. Vlastelica estimates that approximately 30 installation/commissioning work-hours, representing \$4,000 in labor savings, were saved by using this capability. In the production and warehouse areas, totaling 130,000 ft² of space, the project team selected high bay LEDs and mwConnect fixture PIR Sensor Controllers for each fixture. This enabled the team to deploy an aggressive occupancy-based control strategy using 5-minute time delays to trigger reduced light levels or OFF with non-occupancy. From full ON output, lighting automatically dims to 50% after five minutes of non-occupancy; after a further five minutes of non-occupancy, the controlled fixture turns off. Upon an occupancy

signal from the sensor, the fixture turns back on to 100%.

In the remaining 20,000 ft² of space, devoted to offices and other administrative space, linear LED lighting was selected along with mwConnect fixture controllers for each fixture as well as either a ceiling sensor or wall switch for each control zone, depending on the size and configuration of each space. The control strategy in these spaces was a full-ON output with occupancy detection. After 10 minutes of non-occupancy, lighting dims to 50% and after a further five minutes, lighting turns off.

A total of 550 fixtures were installed, with approximately 585 control nodes (including wall and ceiling sensors for offices). Installation was completed in late April 2020. The project team estimates approximately \$110,000 in annual energy savings, realized from the combined lighting and controls upgrade. Approximately 30% of the total energy savings was attributable to the controls portion of the upgrade. These were verified by power metering lighting circuits before and after the project.

“The client was very pleased with the results of the lighting and controls project at the Mableton facility,” said Tony Savalle, mwConnect Eastern Regional Sales Manager. “Not only did the project realize substantial energy savings, it achieved a significant improvement in lighting quality throughout the workspaces. The client has completed a similar retrofit at its Katy, Texas facility and may consider other locations in the future.”



Project Participants

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