

## HUBBELL MANUFACTURING FACILITY ACHIEVES TRIFECTA OF ENERGY SAVINGS, IMPROVED SAFETY AND GOING GREEN WITH LIGHTING CONVERSION



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As energy costs continue to rise, the discussion of conserving energy has elevated from management meetings to an operational priority for many commercial enterprises throughout the country.

For market segments such as commercial, industrial, healthcare, institutional, and retail, among others, Columbia Lighting has designed a comprehensive line of energy saving fluorescent lighting fixtures under the banner of "createchange." Designed specifically for the industrial segment comprised of manufacturing facilities and distribution centers, the fixture of choice is the LHV VersaBay® Fluorescent High Bay Luminaire.

The VersaBay® product offers companies the opportunity to benefit in many ways from a lighting conversion. Reduced annual operating costs, improved illumination levels, and decreases of up to 50% in energy costs and consumption are just some of the proven results. Other advantages realized include greater productivity, improved product quality, and a positive impact on safety.

To lead by example, Columbia Lighting is showing sister companies within the Hubbell Inc. family how to effectively reduce energy costs while simultaneously improving the bottom line. An example of this effort is the Hubbell Power Systems facility in Aiken, SC.

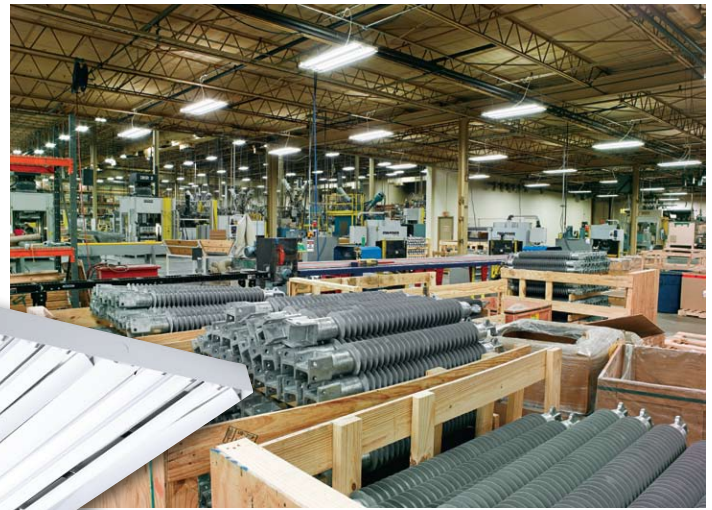
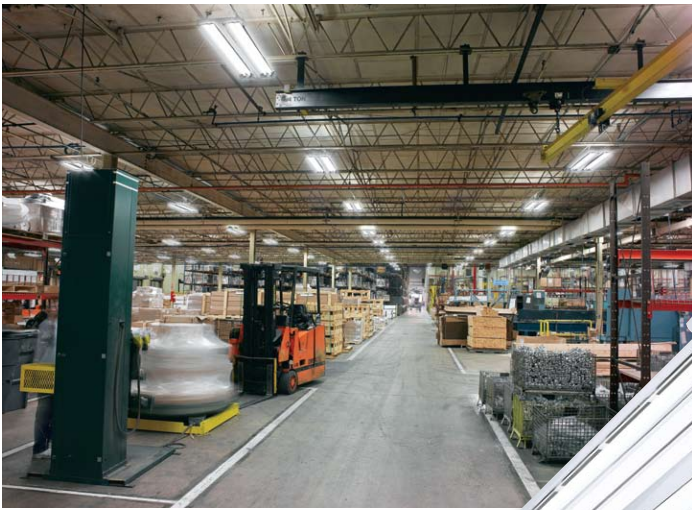
Opened in the late 1960s, the Aiken facility was originally configured with more than six hundred 150 Watt HID low bay, high-pressure sodium fixtures (HPS). Then in the late 80s to early 90s the manufacturing areas of the Aiken plant were re-fixture with 400 Watt

HID metal halide. Areas identified as warehousing were not converted and remained lit with HPS fixtures which produced an orange/yellow light and an average light intensity of 27 foot candles, a level of illumination not conducive to most manufacturing activities.

By comparison, nearly five hundred HID Metal Halide fixtures in the low bay manufacturing areas of the plant provided an average light intensity of 41 foot candles. "Though the metal halide fixtures provided a far superior light to the 40-year old HPS units, the illumination levels were far from optimal", said Jim Raines, Hubbell Power Systems Director of Technical Services.

With a final plant expansion in 1998, doubling the size of the Aiken plant, another almost six hundred 400 Watt metal halide fixtures (later relamped with 360 Watt shrouded lamps) were added to illuminate the new high bay area. With the relamping, the high bay area had an average light intensity of 31 foot candles.

"As we lived with our HID configurations, and as energy costs continued to escalate, disadvantages of our existing lighting system became more and more of an issue. For example, we discovered our HID fixtures on average used 60% more energy than a fluorescent equivalent fixture. Initial color rendering was less than desirable and as lamps aged light emitting power decayed by 50% over the life of the lamp. As a result it seemed like we were always relamping," Raines noted. Another disadvantage was the 6 to 7 minutes it would take for the HID fixtures to re-strike following a power interruption. When you're in a production process, waiting 6 or 7 minutes for the



lights to come back can be quite the disruption, Raines said. Lastly, he noted, HID's characteristically operate at twice the surface temperatures as modern fluorescent fixtures which negatively impacts the HVAC expenses during the hot South Carolina summers.

Discussing its needs with Columbia Lighting, which is headquartered in Hubbell Lighting's new corporate facilities just 130 miles from Aiken, Hubbell Power Systems was pleased to learn they could achieve improved illumination for about half the operating costs. Surely better light would not only improve productivity, but also offer a significant boost in safety compliance.

As confirmation, a representative from Columbia Lighting visited the Aiken facility to see the current lighting scheme first hand. He gathered information provided by plant management including drawings detailing the current lighting scheme, facts concerning roof configuration, model and quantity information on current fixtures, annual hours of operation, current electrical rate, and information specific to the types of manufacturing conducted within the various plant departments as well as emergency lighting details.

With this information Columbia prepared three different lighting simulations detailing performance characteristics that could be anticipated from numbers of fixtures, numbers of lamps, foot candles, costs, and expected return-on-investment, among other criteria. In addition to submitting these findings, Columbia provided Hubbell Power Systems several of their fluorescent fixtures employing an actual T5 and mock-up. They wanted Power Systems to experience the crisp, clean illumination the fixtures produced.

With documentation and tests completed, the work of converting the Aiken plant from HID high pressure sodium and metal halide to VersaBay 4-lamp T8 (low bay) and 6-lamp T8 (high bay) fluorescent fixtures began in July of 2008. By winter the same year, the conversion to obtain the optimal level of light in the most energy efficient manner was complete.

Fixtures were exchanged one for one. In Aiken's Low Bay Area (One), 400 Watt MH HID fixtures were replaced with 4 foot, 4-lamp

T8 fluorescent fixtures producing 67 foot candles on average versus the 41 foot candles they had. In Low Bay Area (Two), 150 Watt HPS fixtures were also replaced with 4 foot, 4-lamp T8 fluorescent fixtures providing 67 foot candles on average compared to the 27 foot candles they had. And, in the High Bay Area 400 Watt metal halide fixtures were replaced with 4 foot, 6-lamp T8 fluorescent fixtures creating 36 foot candles on average compared to the previous 31 foot candles.

In addition to providing improved light at less cost, 12 percent of the installed VersaBay® fluorescent fixtures are equipped with emergency backup battery packs. In compliance with the Life Safety Code, NFPA 101 Sections 5—8 through 5—10, these fixtures are strategically located throughout the plant to ensure that evacuation procedures are followed in an efficient and safe manner in the event of an emergency.

Finally, the cost savings speak for themselves. In addition to significantly lowering its energy costs, the plant wide conversion qualified for tax deductions allowed through the Energy Policy Act of 2005 (EPA 2005). Including an annual energy savings of at least \$122,000+ and the EPA 2005 tax deduction of nearly \$58,000, a first year savings close to \$200,000 was realized.

With an overall project payback of two years, other conversion advantages include a staggering energy consumption reduction of 2,000,000 KWH per year, the equivalent of planting 6,000 trees or taking 250 cars off the road.

Hubbell Power Systems great success at the Aiken facility has reverberated throughout the company. As a result, the PCore facility in LeRoy, NY is now going ahead with relighting its location. Further, authorization for expenditure (AFE) requests from other HPS subsidiaries – Wadsworth, Allen Street, the platform Distribution Center, and the Connectors Division in Leeds, Alabama – are in various stages of preparation.

The use of Columbia Lighting fixtures in the Aiken manufacturing facility is an example of how leadership can begin at home within a corporation, significantly improving safety, reducing energy consumption and expanding green efforts. ■