

Industrial Maintenance and Plant Operation

March 1, 2006

SECTION: FIELD REPORT; Pg. 22

HEADLINE: Lamp Upgrade Improves Conditions, Cuts Energy

BYLINE: Staff

Firestone Building Products, an Indianapolis, IN-based manufacturer of commercial roofing systems, operates a nationwide network of 13 manufacturing plants. Each plant manufactures a variety of products, including single-ply and asphalt roofing membranes, polyiso insulation, and roofing accessories.

All of the plants are required to meet stringent quality control guidelines for each of these components. However, the company recently determined that the lighting systems in the facilities were not living up to these same quality standards. For this reason, **Firestone** Building Products has been upgrading their lighting systems with a Uni-Form pulse-start metal halide lighting system from Venture Lighting International based in Solon, OH.

The most recent retrofit project was completed at **Firestone's** 250,000-sq.-ft. manufacturing facility in Deforest, WI. This plant produces energy-efficient polyiso insulation that is compatible with all types of commercial roofing systems. Operating 24 hours, seven days a week, the ISO 9000-certified plant employs 200 workers.

"We realized that our lighting system has a direct impact on the quality of our manufacturing process, employee safety program and housekeeping procedures," says Tim Berry, plant manager at the Deforest facility. "The lighting needs to help us maintain our quality production standards. Proper lighting prevents dark areas, which create a potential for accidents. In addition, we have customers walking through our facility, so proper light levels helps us maintain a clean environment."

On this basis, **Firestone** determined its new lighting criteria would call for replacing their current yellow-colored lighting with a more natural light source. In addition to improving light levels for manufacturing and inspection, they were also seeking a 15% energy-cost reduction.

To determine how to go about achieving these goals, Deforest plant management called M&A Railroad and Electric Supply of Louisville, KY. Having just completed a relamping at its 125,000-sq.-ft. sister plant in Wellford, SC, M&A provided information to help **Firestone** decide on and implement a suitable lighting scheme.

M&A found that the Deforest facility utilized 1,000w high-pressure sodium (HPS) lamps. The CWA ballasts in 165 basic aluminum fixtures were mounted to ceiling heights ranging from 25 to 30 ft. Relamping the facility with HPS lamps could provide the required 50 ft.-candles of light, but would not offer the quality of light or color rendering needed for employees to complete their jobs accurately. M&A next investigated T5 and T8 fluorescent systems, as well as metal halide systems to determine the best fit. Based on the criteria of providing energy efficiency, white light and ease of retrofitting the lamps into the existing fixtures, M&A recommended a metal halide lighting system.

After determining the light source, M&A analyzed the type of metal halide system

that would not only deliver the white light, but also the energy savings. The firm recommended switching from the 1,000w HPS lamps to 875w Uni-Form pulse-start metal halide lamps with Opti-Wave ballasts from Venture, while maintaining the existing aluminum fixtures. The Uni-Form lamps were selected because of their color uniformity, CRI and high output of white light. According to the company, the lamps will also perform for more than 20,000 hours, with 70% percent lamp survival at end of rated life. The company required at least 20,000 hours of service to reduce lamp maintenance. Use of the Opti-Wave ballasts enhances lumens, improves color uniformity, ensures quieter operation and extends lamp life.

A three-man crew installed the lamps and ballasts in the plant's 165 fixtures over a three-week period. Each morning the installation crew met with the shop foreman to carefully work around the manufacturing schedule to ensure production was not interrupted. When the retrofit was completed, the results were dramatic. Crisp, white light replaced yellow light and improved overall visibility. The bulb/ballast combination reduced energy consumption by 20%. When dimming controls were added, **Firestone** reduced its lighting energy consumption at the facility by 40%.

"We're satisfied with the new lighting system," says Berry. "Our employees see well and we reduced our energy cost. Plus, we don't have to worry about lighting maintenance, which allows us to concentrate on manufacturing."

Venture Lighting International

Call 800-441-6180

LOAD-DATE: March 17, 2006