

Silver Beauty Reduces Lighting-Related Energy Use by 95%

Chicago-Area Warehouse Management Company
Reduces Per Square Foot Lighting Costs to 3.9¢,
Saving More Than 1,237,626 kWh Annually

Founded in 1914, Silver Beauty is a growing warehousing management company that builds and leases warehouses in the Chicago area. With more than 391,560 ft² of space under management, the company has more than doubled its inventory over the last ten years, including the addition of two warehousing facilities in the Clearing Industrial Park. Constructed in 2002 and 2009, respectively, the facilities are located on the outskirts of Chicago with easy access to transportation routes. They house Midwest warehousing operations for Graham Packaging, a worldwide leader in the design, manufacture and sale of rigid plastic containers.

Built with the philosophy that highly efficient, well-designed facilities result in satisfied, long-term tenants—the bread and butter of Silver Beauty’s business—the company’s management team has a relentless focus on evaluating all available options before committing to capital improvements for any of its warehousing facilities. So when the need arose to replace the lighting in Warehouse #5, a 177,413 ft² unheated facility that operates on a 24x7 basis year-round, the search for a new solution was wide-ranging and exhaustive.

MANY CHALLENGES, ONE SOLUTION

At the center of Silver Beauty’s decision to replace Warehouse #5’s 1000W metal halide fixtures were four fundamental challenges: the fixtures consumed too much energy, didn’t perform particularly well in unheated environments in a cold winter climate, couldn’t be easily dimmed or turned off and, to the chagrin of the tenants, had developed a “hum” that was increasing in intensity and deemed irresolvable by the fixtures’ manufacturer.

While state-of-the-art at the time of installation, significant changes in lighting technology—particularly in the areas of energy efficiency and light output—suggested that Warehouse #5’s challenges were solvable. Working with their energy efficiency consultant, Green Light Midwest, Silver Beauty began a comprehensive review of its options, involving more than 30 LED fixture manufacturers, an equal number of fluorescent alternatives, and a thorough review of new fluorescent induction technologies. Leaving no stone left unturned, the Silver Beauty management team selected the Intelligent LED Lighting System from Digital Lumens.

SAVINGS ON TOP OF SAVINGS

With documented savings of 90%, the Intelligent Lighting System has reduced the facility’s \$78,335 annual operating budget for lighting Warehouse #5 to just under \$4,078. According to the managing director of Silver Beauty, Gary Raymond, the energy savings are driven by a level of control over lighting that is unmatched within the LED lighting arena.

“The overwhelming success of our lighting installation goes well beyond the savings we immediately accrued by simply switching out our metal halide fixtures for the much more efficient LEDs from Digital Lumens,” said Gary Raymond, Managing Partner for Silver Beauty. “Due to the range of smart capabilities included with its systems—motion and daylight harvesting sensors in each fixture, for example—we are saving an additional 75% of the remaining energy use. All told, that means we are using well under 10% of the roughly \$78,335 annual costs we had with all metal halide lighting. And the best part is that our LED lighting looks fantastic and performs flawlessly within the entire range of temperatures in which our facility operates.”

Silver Beauty Real Estate
Silver Beauty

LOCATION

Chicago, IL

FACILITY SIZE

177,413 ft²

OPERATIONAL SCHEDULE

24 x 7

ENVIRONMENT

Ambient Warehouse

PREVIOUS LIGHTING SOLUTION

1000W Metal Halide

SHIFTS

3

RESELLER

Green Light

UTILITY PARTNER

ComEd

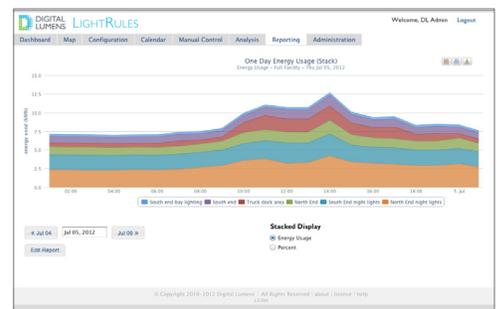


Figure 1: Using the integrated LightRules reporting capabilities, the management team has detailed information on lighting use, such as kWh used and occupancy patterns.

With the Intelligent Lighting System, Silver Beauty gained brighter, higher quality light that is better suited to the operating realities within its facility, at a fraction of the annual operating costs of its metal halide fixtures. Other important criteria that impacted Silver Beauty's decision to select the Digital Lumens system included its ability to deliver:

- **Higher quality light that comfortably exceeds the 70% efficiency improvement required for rebates from ComEd, Silver Beauty's utility company.** With an equivalent foot-candle reading—three feet off the floor—the previous metal halide lamps consumed approximately 138,000 watts of electricity each hour versus **[31,740]** for the Digital Lumens 18,000-lumen fixtures.
- **Significant additional savings by enabling facility management to easily control lighting behaviors, such as when a fixture (or groups of fixtures) turn off or what the dimming levels are.** When a space is unoccupied in Warehouse #5, for example, lighting is dimmed to 40% in well-traveled aisles and 10% elsewhere for security purposes. Lighting instantly turns back on when personnel, such as a rapidly moving forklift operator, trigger an occupancy sensor.
- **Daylight harvesting capabilities that fully leverage all of the natural light from Warehouse #5's extensive skylight system.** On sunny days, skylights provide up to 40% of the lighting needed to illuminate the warehouse. Because the Digital Lumens fixtures have integrated daylight sensors, they assess available ambient light and dim or turn off when enough natural light is present to meet the facility's 20 foot-candle target.
- **Rapid on/off cycling.** Unlike metal halide lamp sources, LEDs perform exceptionally well in cold temperature environments (e.g. Chicago winters) and can be cycled on/off millions of times, without compromising fixture lifetime or lumen output, throughout its 50,000±hour lifespan. For Warehouse #5, this equates to years of additional service without the need to re-lamp or otherwise touch a lighting fixture.
- **Quiet operation.** The Digital Lumens system operates silently, eliminating the humming sound from the previous fixtures.

“About four years ago, we installed T5 fluorescents in another warehouse and there is no question that their performance diminishes in cold, unheated spaces, and with frequent on-off cycles,” said Mr. Raymond. “In fact, while we expected our T5 lamps to last over 33,000 hours, we are consistently re-lamping significantly sooner, in the 10,000- to 15,000-hour range. Part of that is due to cold temperature operation, but also because each time the T5 motion sensors turn the lights on or off, we shorten the life of those lamps. At 26-foot high and 6 lamps per fixture, changing T5 lamps is a hassle that requires our tenant to rent a cherry picker. You can easily imagine why they are thrilled with the Digital Lumens system in this facility.”

INTELLIGENT LEDS VERSUS FLUORESCENTS

As forklift operators rapidly move through the facility to accomplish their tasks, how quickly lights are turned on and off, or dimmed, has direct implications on safety and energy savings.

In another facility, for example, fluorescent lights are dimmed by turning off four of the six lamps in the fixture. This means that granular dimming settings, such as 40% for aisles and 10% for security lighting in less traveled areas, is not possible. Furthermore, the fluorescent lighting takes a few seconds to ramp back up to full illumination, unlike LEDs which instantaneously return to full on, so forklift operators are often well into a space before light levels return to 100% lighting.

Alternatively, with the Digital Lumens LED system, highly granular dimming settings—fixture-by-fixture—are easily set and adjusted, providing much greater control and energy savings. Silver Beauty is using the Intelligent Lighting System to:

- **Fine-tune fixture or system-wide settings** (via LightRules lighting management software) to try different ‘what-if’ lighting scenarios, such as how long a fixture remains on after a space is vacated or dimming settings. This enables Silver Beauty's tenant, Graham Packaging, to continuously optimize how lighting is used within its facility to safely achieve additional energy savings. The ability to save lighting ‘scenarios’ in LightRules enables facility management to quickly and easily return to previously saved settings or create new ones.
- **Gain insights into how lighting is used** within the facility and document the results of modifications. Using the LightRules lighting management and reporting capabilities, the management team has detailed, fixture-by-fixture information on lighting use, such as kWh used, occupancy patterns and average on times by hour, day or any other management-defined interval.
- **Reconfigure settings** to accommodate changing operational needs. The warehouse is a multi-tenant facility and as space needs change, the Intelligent Lighting System provides the flexibility Silver Beauty needs to quickly adjust without hiring electricians, renting a cherry picker, or touching a light fixture.

“Not only is our primary tenant, Graham Packaging, getting the full benefit of our lighting investment through dramatically lower utility bills, but they are also getting much higher quality lighting that can be tailored to meet their specific operational needs,” continued Mr. Raymond. “The Digital Lumens system is an important component of our strategy to offer tenants superior solutions that reduce operating costs, providing us with a significant edge in the competitive marketplace for leased warehouse space in Chicago.”

Reseller Partner: Green Light, a consulting firm that helps tenants and property owners reduce the operating expenses associated with energy consumption by taking advantage of the technological advances in efficient lighting, environmental controls, and building envelope efficiency (www.greenlightnational.com).