

# Saint-Gobain/CertainTeed



Saint-Gobain is a world leader in the manufacturing and distribution of innovative, sustainable building products and high-performance materials for the habitat and construction markets. Saint-Gobain is dedicated to implementing energy systems optimization projects across their facilities that result in enhanced energy, and financial and human benefits. The company partnered with SmartWatt to complete an energy systems optimization project at their CertainTeed manufacturing plant and distribution facility in Maryland.

## THE CHALLENGE

The manufacturing plant and distribution warehouse were outfitted with a mix of fluorescent, metal halide, and high pressure sodium light fixtures equipped with dimmable ballasts and individual on/off fixture motion sensors. The lighting system was five years old and created the following challenges for the customer:

- Maintenance Costs & Time:** The metal halide fixtures installed in the manufacturing plant were improperly equipped with dimmable ballasts, resulting in ballast failure and replacement within one year of installation. Additionally, the metal halide fixtures' brightness degraded rapidly, requiring frequent re-lamping to maintain desired light levels.
- Energy Costs:** The lighting system was energy intensive and expensive to run, due to the inefficient lighting technologies and simple on/off controls.
- Uneven Distribution of Light:** The layout of fixtures caused light levels to be uneven in areas and irregularities in foot candles across the plant. Additionally, the fixture layout was not designed with the unique spaces and tasks taken into account. This resulted in light levels that met OSHA requirements, but were lower than what is optimal for individual tasks.



“SmartWatt brought the expertise that I wanted. I needed someone who was experienced and would help me determine what my needs were and how to meet them most efficiently. That was SmartWatt.”

- Mike Spirawk, Continuous Improvement Engineer



## THE SOLUTION

To reduce the costs to operate and maintain the lighting systems, and increase light levels for staff, a new lighting and advanced lighting control system was installed throughout interior and exterior areas.

- **Lighting Design:** A new fixture layout was designed to provide a more even distribution of lighting. The new layout included the removal of unnecessary fixtures, plus the addition of new fixtures in areas that required higher light levels to optimally complete specific tasks.
- **LED Lighting:** LED lamps were installed throughout production, office, racking, and loading dock areas, and throughout the parking lot. The LED lamps installed required a lower wattage than the original fixtures, while still providing equivalent or higher light levels.
- **Advanced Lighting Controls:** A wireless advanced lighting control system was installed in the manufacturing plant, allowing fixtures in the same area to be grouped together and dimmed automatically to 5-10% of brightness based on a preset schedule or zone occupancy. The ability to dim fixtures instead of turning them off completely, provided substantial savings, while still giving enough illumination to alleviate safety and security concerns.

## THE IMPACT

The new lighting design, light levels, and even distribution of light has resulted in positive feedback from the users of the space. With the advanced lighting controls, the customer has the ability to group fixtures from a similar area together so that they respond the same – dimming when the floor is unoccupied or coming on all at once when activated by motion. With the HID system, each fixture had its own sensor, causing lights to turn on one-by-one. Mike Spirawck called this the “Paparazzi Effect,” stating that “Staff disliked it and felt it was distracting. With the new lighting system, I have heard nothing but positive feedback from the people on the floor. It looks great and everybody loves it.”

Additionally, the cost to maintain and operate the lighting systems has been reduced dramatically, due to the efficiency and long life-span of LEDs, and the ability to control fixtures at a more granular level with the advanced control system.

### Distribution Warehouse

**92%** / lighting cost reduction

Annual lighting energy reduction: **121,251 kWh**

CO<sub>2</sub> reduction: **181,876 lbs**

### Manufacturing Plant

**82%** / lighting cost reduction

Annual lighting energy reduction: **1,634,538 kWh**

Estimated payback period: **2.9 years**