

Opening the Door to Energy Savings

IAC and NC E3 Collaborate to help automated entry systems manufacturer save

Summary

Besam North America/Assa Abloy, located in Monroe, NC, is a leading manufacturer of automated entrance solutions for commercial facilities. The NC State University Industrial Assessment Center and the NC State Industrial Extension Service's E3: Economy, Energy, Environment, initiative collaborated to provide Besam with targeted energy, waste, and productivity surveys.

The energy survey yielded seven recommendations, of which five have already been implemented with the other two under consideration. The implemented savings are estimated to be \$25,000/yr., almost 17% of the total energy use. The total cost of the recommendations was \$46,904 resulting in a simple payback period of less than two years.



Besam North America/Assa Abloy saves energy through collaboration with the NC State University IAC and E3 Programs. Photo courtesy of Besam.

Company Background

Besam Entrance Solutions, a subsidiary of Sweden's ASSA ABLOY, employs 140 people at their Airport Road facility in Monroe, NC. Products produced include automated sliding, swing and revolving doors typically found in commercial, office, medical and larger retail buildings.

The production facility, located in Monroe, NC houses about 119,000 ft² of manufacturing and office space.

Assessment Approach

The IAC is a technical provider for the state's E3 initiative. NC E3 leverages resources from federal, state and local experts, including private industry partners, to help manufacturers identify and implement energy and sustainability measures. For Besam, the energy team consisted of students and faculty from NC State University. The energy assessment was conducted in May of 2011, and was led by NC State IAC Assistant Director, Dr. Stephen Terry.

The IAC team met with plant personnel and toured the facility. Detailed measurements were made to help quantify savings from the identified opportunities. The potential measures were then presented to plant management.

The most impactful recommendations are as follows:

Saving Opportunities

Lighting

Approximately 198 lighting fixtures in the facility utilize 400-Watt metal halide lamps, which use 459 Watts including the ballast. New fluorescent high bay fixtures offer a one-to-one replacement of the metal halide fixtures while offering significant energy savings. Besam is well underway in exchanging all metal halide fixtures to fluorescent at the time of this report, resulting in an estimated savings of more than \$13,000 annually.

Rate Schedule Classification

To qualify for rate OPT-1 a facility has to be classified as "Manufacturing Industries" and use more than 50% of their electrical energy for manufacturing. This facility was until recently used primarily as an engineering center and not for manufacturing. By switching the plant's rate and designation, the client will realize an immediate savings of \$9,700.

| Assessment Recommendations (AR) | Annual Resource Savings | Total Annual Savings | Capital Costs | Other Costs | Simple Payback |
|--|--------------------------------------|----------------------|-----------------|----------------|------------------|
| Switch electric rate schedule | N/A | \$11,000 | \$0 | \$100 | Immediate |
| Convert 400 Watt metal halide to fluorescent and install occupancy sensors | 204,938 kWh 565 kW-months | \$13,126 | \$45,273 | \$0 | 3.4 years |
| Install high efficiency lamps and electronic ballasts with occupancy sensors | 18,635 kWh 19 kW-months | \$1,177 | \$0 | \$1,431 | 1.2 years |
| Reduce compressor air pressure | 4,719 kWhh 10 kW-months | \$280 | \$0 | \$0 | Immediate |
| Repair leaks in compressed air lines | 5,263 kWh 11 kW-months | \$193 | \$0 | \$100 | 0.5 years |
| Total | 233,555 kWh 604 kW-months | \$25,776 | \$45,273 | \$1,631 | 1.8 years |

Education and Collaboration

The [NC E3](#) program assists manufacturers in operating in a more efficient, competitive and sustainable manner, ultimately resulting in a more profitable business. E3 manufacturers participate in assessments and training and are provided with recommendations on how to reduce their environmental impact, improve efficiency, generate measurable cost savings, and support sustainability education and awareness.

E3 supports sustainable manufacturing and is supported by six federal agencies: the U.S. Department of Commerce, the U.S. Environmental Protection Agency, the U.S. Department of Labor, the Small Business Administration, the Department of Energy and the U.S. Department of Agriculture.

Currently, more than 35 manufacturers throughout the state of North Carolina are participating in this initiative.

To date, the IAC and Energy Solutions group at NC State University has worked with eleven E3 manufacturers to identify over \$1 million in energy savings, of which \$90,842 has been implemented and realized in less than a year. Carbon reductions will top 90 tons upon final implementation.

Productivity Benefits

Besam is inherently award of conservation and productivity advantages and is committed to a continuous improvement plan to realize additional gains in these aspects of their operation as well.

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