Light is control
Eastern Connecticut State University
Willimantic, CT

The situation.
Public Act 11-80 required a 10 percent reduction in energy usage for state buildings by January 1, 2013. In order to achieve this goal, the Connecticut Department of Energy and Environmental Protection launched a new program entitled Lead By Example, the department's first major energy initiative. The J. Eugene Smith Library of Eastern Connecticut State University was one of the first buildings selected to be upgraded for the Lead By Example program. Built in 1998, the library consists of four floors totaling 130,449 sq. ft. The facility is open for approximately 91 hours during an average week, with occupancy exceeding 50 people at any given time. The J. Eugene Smith Library is heated and cooled year-round and occupancy can be random, varying with exams and school work. Facility managers were looking to maximize energy savings while maintaining a safe and appropriate environment for studies.

The solution.
Eastern worked with Automated Building Systems, Inc. to provide a solution. No single energy savings strategy would be sufficient enough to meet the goals of Lead By Example, so Automated Building Systems specified the ENCELIUM Energy Management System (EMS) to meet the unique energy saving challenges at the J. Eugene Smith Library. The ENCELIUM EMS is a sophisticated, all-encompassing solution that is capable of integrating six lighting energy management strategies to maximize savings. Networked occupancy sensors were installed in the library to switch lights ON/OFF based on motion detection. Task tuning was implemented throughout the space to decrease illumination levels by 30% to provide just the amount of light that is recommended for how the space is used, which also reduces eye strain for the library occupants. In stack areas that were not often used, the lighting system had been powered unnecessarily from early in the morning until late in the evening. Time scheduling was employed to reduce the scheduled hours in these sections to match normal usage patterns. Outside of those hours, luminaires in these sections remain OFF unless occupancy is detected. Automated Building Systems further capitalized on energy savings opportunities by integrating the library's Alerton HVAC system with the ENCELIUM EMS time scheduling program. This integrated approach led to additional savings that would not be possible with a circuit-based control system. Complementary design strategies include daylight harvesting to reduce electric light in the presence of natural daylight.

Goals & Results

Maximize energy savings while maintaining a safe and well-lit environment for studies.

- **Estimated Annual energy cost savings: $114,000**
- **Estimated Annual kWh savings: 607,500 kWh**
- **Equivalent CO_2 emissions averted per year: 353,178 lbs of carbon dioxide (CO_2)**

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The product.
The ENCELIUM® Energy Management System is comprised of the ENCELIUM GreenBus™ communication network and the ENCELIUM Polaris 3D® software.

ENCELIUM GreenBus is a networked system designed specifically for controlling lighting to achieve maximum energy savings and optimum lighting comfort. It enables cost-effective, individual dimming control of all fixtures in a building by integrating peripheral devices, including luminaires, switches, and sensors, with front-end servers via dedicated ENCELIUM GreenBus cabling, into a complete programmable lighting solution.

ENCELIUM Polaris 3D is the central control software application used to configure, commission, and manage the ENCELIUM EMS system. It enables configuration of every lighting system parameter in a building for each individual user or space and establishes the baseline settings for the following system features: Daylight Harvesting, Occupancy Control, Smart Time Scheduling, Task Tuning, Personal Control and Load Shedding. With the ENCELIUM Polaris 3D software, facility managers can monitor any lighting irregularities and make adjustments directly from their own desktops or laptops.

The Strategies.
The ENCEIUM Energy Management System seamlessly integrates six energy management strategies:

- Smart Time Scheduling
- Daylight Harvesting
- Task Tuning
- Occupancy Control
- Personal Control
- Load Shedding

The bottom line.
Eastern Connecticut State University reduced the annual energy consumption for the J. Eugene Smith Library by an estimated 607,500 kWh eliminating the equivalent of 353,178 lbs of carbon dioxide per year. This translates to an estimated energy cost savings of $114,000 per year. The ENCELIUM EMS allows lighting to be dimmed down and HVAC turned OFF in rooms and areas that are not in use during scheduled hours. Energy consumption was reduced by 20% versus the same month of the prior year with the installation of the ENCELIUM EMS. These substantial savings will allow the ENCELIUM system to pay for itself in just over six years.

About OSRAM SYLVANIA, Inc.
OSRAM SYLVANIA is part of OSRAM Americas, a group of OSRAM companies located in North and South America. As a leader in lighting solutions and services, specializing in innovative design and energy saving technology, the company sells products for homes, businesses and vehicles under the brand names OSRAM, Traxon, ENCELIUM and SYLVANIA. The company's portfolio covers the entire lighting value chain of components, ranging from lamps, control units and optical semiconductors such as light-emitting diodes (LED) to luminaires, light management systems and lighting solutions. The OSRAM SYLVANIA and OSRAM Americas regional headquarters is located in Danvers, Massachusetts. For more information, visit www.osram-americas.com. /sylvania /sylvania

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