

Northern Arizona University Building Shines with Innovative Lighting Design

Northern Arizona University (NAU) was recently recognized in two categories for excellence and leadership in interior lighting by the Interior Lighting Campaign.

- Best Use of Lighting Controls, and Exemplary Higher Education Sector Recognition: NAU is expected to achieve energy savings of 46 percent at its new 94,400-square-foot Student and Academic Services Building in Flagstaff, Arizona, based on a comparison of LED lighting vs. standard code-compliant fluorescent lighting.

The university's new Student and Academic Services Building was designed with a comprehensive suite of energy efficient lighting features. These features include space-by-space light level controls to enable scheduling as well as dimming in individual offices, conference rooms, and classrooms. Daylight harvesting controls were added to provide automatic dimming in areas with windows where sunlight can supplement electric lighting. LED sources were installed in all interior and exterior light fixtures.

NAU serves 21,100 students at its Flagstaff campus with over 150 degree programs, including green building classes, and it practices what it teaches. The university achieved a LEED (Leadership in Energy and Environmental Design) gold certification for the building. In recognition of its sustainability efforts, NAU was recognized this year by Sierra Club's Cool Schools Report as the 51st most sustainable university in the nation.



The university installed nearly 770 troffers with 30-W, 32-W, and 39-W LED luminaires. Photo courtesy of Kyle Zirkus Photography Copyright 2016.



Northern Arizona University's new 94,400 square foot Student and Academic Services building houses faculty and staff offices, student services, and classrooms to serve the 21,100 students attending the Flagstaff campus. Photo courtesy of Kyle Zirkus Photography Copyright 2016.

2016 Best Use of Lighting Controls and Exemplary Higher Education Sector Recognition

Energy Savings*	77,600 kWh per year; 46% (30% equipment/16% controls)
Annual Energy Cost Savings	\$6,600
Number of Troffers	770
Total Area of Project	94,400 ft ² Student and Academic Services Building
*Site was new construction and compared to typical equipment used in codes analysis	

“We wanted a good user experience when it came to lighting controls. We looked for something that was easy to use and understand, but also saved as much energy as possible”

— Kelly Davis, NAU Facility Services Project Manager

Keys to Success

Northern Arizona University had several reasons for using LED troffers in the new student services center. Energy and cost savings were their primary motivations. The efficient lighting design also helped them meet the requirements for LEED gold certification. The Arizona Public Service Electric Company offered incentives for energy efficient lighting, which the university applied for and received. The university did not calculate return on investment for this project or look at payback because this was a new construction, rather than a retrofit.

Project Methodology

The university worked with DWL Architects and LSW Engineers in the lighting design and selection. Troffer lighting models included a Metalux LED 2-foot x 2-foot recessed architectural troffer and a small number of 2-foot x 2-foot Focal Point troffers.

Lighting controls include auto-off vacancy sensors with manual-on controls in offices; auto-on/off occupancy sensors in restrooms, classrooms and conference rooms; and daylight harvesting controls in spaces with windows.

Tips and Best Practices

- ▶ Working with a knowledgeable designer can help improve overall project savings with optimum fixture selection, spacing and placement.
- ▶ Adding controls to LED lighting will garner energy savings often “left on the table.”
- ▶ Installing daylight harvesting controls in spaces with windows maximizes the use of daylight and energy savings.
- ▶ Projects that specify LED lighting and controls may be eligible for utility incentives that will help offset costs of more efficient lighting systems.
- ▶ In new construction, LED lighting can play a big part in meeting LEED certification goals.

Learn More

Through the [Better Buildings Alliance](#), members across different market sectors work with the U.S. Department of Energy’s (DOE) exceptional network of research and technical experts to develop and deploy innovative, cost-effective, energy-saving solutions that lead to better technologies, more profitable businesses and better buildings in which we work, shop, eat, stay and learn.

Learn more about how to join the Better Buildings Alliance’s Interior Lighting Campaign (ILC) at <https://interiorlightingcampaign.org/>. The ILC is a recognition and guidance program designed to help facility owners and managers take advantage of savings opportunities from high-efficiency interior lighting solutions. As of January 2017, ILC participants are collectively saving close to \$13 million annually across approximately 95 million square feet by upgrading to high-efficiency interior lighting solutions.

Find more resources and guidance on lighting in the [Better Buildings Solution Center](#).