Maximum energy savings with lighting controls

By Dave Viveiros, Product Engineering Specialist, Cooper Controls

Previous articles in Enlighten have addressed the need to incorporate lighting controls in daylighting designs. Through the use of lighting controls, we are able to realize the electrical energy savings made possible by the implementation of daylighting techniques. Lighting controls ensure that only the minimum amount of artificial light is contributed to maintain the desired level of illumination in a space. These controls can take many forms and vary in their levels of complexity.

lighting controls

On the low end, an occupancy sensor with integrated photosensor will contribute artificial lighting to an occupied space only when ambient light levels are below a set threshold. These sensors serve as good stand-alone solutions for spaces like offices and conference rooms with windows. Switching systems with photosensor input capabilities can perform multi-level switching of lighting loads in response to natural light contributions. A system of this type works well in large open office areas. Switching thresholds and deadbands can be programmed to minimize...
any potential distractions caused by automatic switching of light sources. High end systems incorporate continuous dimming, resulting in the absolute minimum levels of electric lighting use for a given application. The most versatile of these systems can implement either open or closed loop dimming algorithms.

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Technology and research update

Commissioning Photo Sensor Based Lighting Controls for Daylight Harvesting: a presentation by Konstatinos Papamichael, Ph.D., Associate Director with the California Lighting Technology Center.

Wireless Integrated Photosensor and Motion Sensor System: a video case study from the California Lighting Technology Center.


Training update

eQUEST...the QUick Energy Simulation Tool on October 19-20, 2010 in Wauwatosa (Milwaukee), Wisconsin

The eQUEST energy modeling tool provides various levels of user sophistication and functionality, making it useful for "big picture" early design decisions as well as the detailed fine-tuning of advanced building systems.

Lighting and Daylighting Design with Efficiency October 6, 2010 in Oak Brook, Illinois

October 7, 2010 in Hudson, Wisconsin

Learn the art of efficient lighting design and the science of lamps, ballasts, luminaires and controls from Jim Benya, electrical engineer, lighting designer, consultant, and principal of Benya Lighting.

Holy Wisdom Monastery Case Study+Tour on October 28, 2010 in Middleton, Wisconsin

A guide to the highest-rated LEED-NC building in the United States.
their designs. Contact Peggy Heisch at 608.238.8276 x139 or pheisch@ecw.org for more information.

The Collaborative for High Performance Schools (CHPS) has various seminars available on designing high performance schools.

Basics of Daylighting in a Green Environment from Southface provides an introduction to the use of daylighting in commercial spaces.

Lighting Control & Design offers continuing education courses for professional development credit for Architectural (AIA/CES) or Engineer license renewal.

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