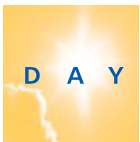


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THE BIMONTHLY NEWSLETTER OF THE DAYLIGHTING COLLABORATIVE

[www.daylighting.org](http://www.daylighting.org)

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DAYLIGHTING  
collaborative®

Thank you to the members who support the Daylighting Collaborative's mission of **lighting every building using the sky**:

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## SKYLIGHTING OR DAYLIGHTING—THERE DEFINITELY IS A DIFFERENCE!

By Grant Grable, LEED® AP—Vice President, Sales & Marketing, SUNOPTICS

The use of skylights for the main source of illumination in a building has taken center stage over the last year as building codes have been rapidly changing around performance standards and requirements. One of the biggest issues regarding skylights is the value of thermal efficiency versus the value of high light transmission and diffusion. There is a lot of confusion both in the market place as well as in engineering circles regarding which is more valuable.

No wonder there's confusion. In 2008 the U.S. EPA and U.S. DOE released the new Energy Star standards for residential skylights. These standards call for a low solar heat gain coefficient (SHGC) and low U-values. That same year, the U.S. DOE Building Technologies Program released their report, *Commercial Building Toplighting: Energy Saving Potential and Potential Paths Forward*, which called for maximizing visible light transmission and diffusion where U-Value and SHGC are not as significant an issue. You may ask, "How can this be?" The answer is simple really. It comes down to the use of daylighting controls and shutting off electric lighting.

If you do not use daylighting controls in buildings with skylights and HVAC systems you are actually increasing your cost of energy through heat loss and an increase in solar heat gain. At that point it doesn't matter what the thermal efficiency of the skylight is. If it is less than the R-Value of the roofing insulation it will be an energy loss for the building.

However, the single greatest opportunity with skylights isn't in their thermal efficiency, but in their ability to provide natural lighting and fully replace electrical lighting for a majority of daylight hours. The U.S. DOE report emphasizes this point in their research. They modeled buildings in Burlington, Vermont with high heating degree days and low solar loads as well as buildings in Phoenix, Arizona with high solar loads and high cooling degree days. The report shows that in both climate conditions the greatest value of a skylight was its ability to maximize visible light transmission and diffusion to shut off electric lighting for the most hours. The report also goes on to state that, "SHGC and U-value of the skylight

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## UPCOMING EVENTS



### VISIT OUR BOOTH AT GREENBUILD

The Daylighting Collaborative will have a booth at the Greenbuild International Conference and Expo in Phoenix, Arizona on November 11–13, 2009.



### PRE-CONFERENCE WORKSHOP

Jim Benya and Abby Vogen Horn will present *Lighting and Daylighting Design with Efficiency*, a 300-level pre-conference workshop, November 10, 2009 at Greenbuild. This full-day training will examine the latest technologies and strategies to achieve superior lighting design that is essential for energy efficient and high performance buildings. For more details, please [click here](#).

*continued from page 1*—**SKYLIGHTING OR DAYLIGHTING**

should be as low as possible. However, because heating and cooling energy losses are small relative to lighting energy savings, if reducing SHGC or U-value results in any significant reduction in VT (visible transmittance) it is generally not a beneficial trade off at SFR's (skylight to floor ratios) in the range expected to be economically optimal, i.e., below 5%." The State of California also recognized this in their 2009 release of the California Title 24 state energy code. Even in the coldest climate of the California Mountains, the U-value requirement of a plastic skylight is only 1.04 U or an R-0.96. SHGC is high at .57 and the state mandates lighting controls when using these types of daylighting devices.

Daylighting a building is a powerful energy efficiency tool that provides many attributes beyond just the energy savings. However, there is a distinction that must be drawn between just putting in skylights and using daylighting with controls to shut off electric lighting. After all, there's no greater efficiency than off.

## TECHNOLOGY AND RESEARCH UPDATE

The Illuminating Engineering Society (IES) is updating their Recommended Practice for Daylighting (RP-5). It is currently in the review process. If you have questions or would like information regarding the release of the updated document, please contact IES at 212.248.5000.

## DID YOU KNOW...

### University of Minnesota Team Wins Solar Decathlon Lighting Design Competition with Integrated Daylighting

The 2009 Solar Decathlon recently completed its competition with Team Germany taking overall honors in this biennial event. The Solar Decathlon challenges students to design buildings that use renewable energy and are energy efficient.

We'd like to highlight the University of Minnesota which took first place in the lighting design competition. Their first place win in this competition was largely due to the "aesthetically pleasing lighting design, which creatively used natural and artificial light to meet the needs of the user while maintaining high efficiency."

Their daylighting design was seamlessly integrated into the project and the control system was intuitive to use, to paraphrase one of the judges comments.

There appears to be a lot we can learn from the University of Minnesota students. Visit [www.solardecathlon.org](http://www.solardecathlon.org) for additional results on team honors.

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## TRAINING UPDATE

**Introduction to Daylighting** brought to you by the Green Roundtable and presented by Holly Wasilowski.

**Tubular Daylighting Devices** brought to you by Solatube provides an introduction to daylighting and tubular daylighting devices.

**The Collaborative for High Performance Schools** (CHPS) has five three-hour 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.

*continued from page 2—DID YOU KNOW...*

### **ComEd Smart Ideas for Your Business Program Provides Incentives for Daylighting**

ComEd (serving Chicago and Northeast Illinois) has developed a new construction offering as part of their *Smart Ideas for Your Business* program. They offer financial incentives and technical assistance to projects that seek to improve energy efficiency (which includes daylighting). There is also a daylighting specific incentive that will be offered starting October 31, 2009 for projects less than 20,000 square feet.

If you are working on a new construction project in the ComEd service territory in Illinois, visit [www.comed.com/bizincentives](http://www.comed.com/bizincentives) or email [comedsmartideas@ecw.org](mailto:comedsmartideas@ecw.org) to find out more.

## RESOURCES

In addition to some of the more well-known modeling tools, there are a number of other resources and tools available to help you develop your daylighting design. While these tools may provide insight into a single aspect of a design only, you may find them useful. We make no warranty as to the rigor of analysis or accuracy of results:

**Chhaya** is an Excel-based design tool that combines shading analysis with energy analysis.

**Sustainable by Design** provides an array of limited tools free for use (with a request for a donation if you find them useful).

**Back of the Envelope Calculator** is an interactive spreadsheet with graphing to show energy performance interaction among building systems.

## DAYLIGHTING COLLABORATIVE MEMBERSHIP

Join the Daylighting Collaborative and connect with the design and construction professionals who need your products and services to deliver sustainable, energy efficient, carbon neutral buildings. Membership will connect you to more than 10,000 highly motivated and qualified customers who are looking for products and technical solutions. Align your organization with an objective, nationally-known resource for design professionals who want to incorporate daylighting into their designs. Contact Peggy Heisch at 608.238.8276 x139 or [pheisch@ecw.org](mailto:pheisch@ecw.org) for more information.