



Efficacy vs. Efficiency

Luminaire Efficacy Rating is calculated as luminaire output divided by luminaire watts input. By contrast, luminaire efficiency is the ratio of the total light output from the luminaire to the total output from the bare lamp(s) that fits into it. Luminaire efficiency is always lower than lamp efficiency because luminaire materials absorb some light.

HOK Principal Defines Success in Sustainable Design

A recent article in *Building Design and Construction* magazine featured an interview with William O'Dell, principal of Hellmuth, Obata + Kassabaum (HOK), a St. Louis, Mo.-based A/E firm, that has been at the forefront of sustainable design since the early 1990s. HOK's practical approach has demonstrated that "green design" doesn't need to cost more than conventionally built structures.

When asked to describe HOK's definition of sustainable design, O'Dell commented, "We don't take issue at all with the standard definition, which is 'making decisions to meet today's needs without impacting the ability of future generations to meet their needs.' But you have to boil that down and ask what does it mean for the designers who are making decisions every day on projects. When we started educating ourselves on sustainable design issues, we found how environmentally detrimental buildings really are. We also realized what a tremendous opportunity we have as designers to change that."

When working with engineers and contractors who are new to HOK and new to environmental issues, O'Dell said that dealing with environmental goals up front is very important because the goal setting process is educational. "Unless you can quantify the goals and go through an educational process, people won't really know what is possible and what the target is — whether it's energy consumption, water conservation or indoor air quality," he remarked.

O'Dell attributes HOK's success to looking at
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GIVE YOUR DESIGNS MORE BRIGHT FOR THE ENERGY BUCK: LUMINAIRE EFFICACY RATING FROM THE NATIONAL LIGHTING COLLABORATIVE

With generation resources in short supply and electricity rates likely to stay high, it's more important than ever in California buildings to squeeze all the lighting energy out of every kilowatt. Today's lamp innovations and electronic



Credit: Southern California Edison

The LER helps designers squeeze all the lighting out of every kilowatt in many kinds of fluorescent luminaires.

ballasts help achieve this, but lighting specifiers should ensure that the fixtures these lamps go into also maximize the building's energy investment in the long run.

To find an objective comparison of energy miserliness among fluorescent luminaires, lighting specifiers can refer to the Luminaire Efficacy Rating (LER) compiled by the National Lighting Collaborative. LER is part of a voluntary program implemented by the lighting industry, and specifiers can look for LER information on product literature. The LER and its "cost of light" calculation provide guidance on comparative energy efficiency and costs of fluorescent luminaire options. By adding LER to their specifications, lighting professionals can ensure energy efficiency in their designs and educate their clients about lighting project energy consumption.

LER was a result of the Energy Policy Act of 1992 (EPAct), which called for a voluntary national testing and information program for "widely used luminaires with the potential for significant energy savings." The federal government gave the lighting industry responsibility for creation of this program. The resulting stakeholders' working group, the National

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May 17-19 – Denver, Colorado
AIA 2001 National Convention and Exposition-Convention theme is 'Leaders and Partners in Creating Community'.

National conference and exhibition of the American Institute of Architects. Includes many sessions on green design. Contact: AIA Expo 2001 Show Management Hill, Holliday Exhibition Services, Inc. 380 Stuart Street, Boston, MA 02116
Tel: (617) 859-4475, Fax: (617) 859-4354
E-mail: aiaexpo@hcc.com
Web site: www.aiaexpo.com

June 3-6 – Kansas City, Missouri
Energy 2001: New Horizons-Solutions for the 21st Century

Fourth annual national energy management workshop and trade show. This year's tracks include Sustainable Building Design, Renewable Technologies, Facility O&M, and Deregulation, among others. Details available on the Web at www.energy2001.ee.doe.gov
Contact: (800) 395-8574
Web site: www.energy2001.ee.doe.gov

July 24-27 – Tarrytown, New York
ACEEE 2001 Summer Study: Increasing Productivity through Energy Efficiency

Covering a broad array of topics, including energy technologies, green products, design and performance of buildings, energy and environmental policies, and integration of renewable technologies onto buildings.
Contact: Rebecca Lunetta
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December 2-6 – Clearwater Beach, Florida
Performance of Exterior Envelopes of Whole Buildings VIII

Focus on research principles, practical applications, and European issues. Full-day special topics workshops before and after core conference.
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In addition to LER, LE5 also includes a calculation for the relative energy costs of each rated luminaire. This estimates "cost of light," the yearly lighting energy cost per 1000 lumens of light output using identical assumptions for operating hours and electricity price. But because application and operating conditions vary widely, NLC suggests using this number for comparison only, rather than as a prediction of actual energy usage.

METRICS FOR LIGHTING QUALITY ARE NEXT ON THE AGENDA

Right now the International Association of Lighting Designers and the Illuminating Engineering Society of North America are developing numerical metrics for quality of lighting. Specifiers will someday be able to use these as a tool to expand their practice beyond the horizontal foot-candle arena. In the meantime, specifiers can use LER to complement application criteria for choosing fluorescent luminaires—it's a powerful tool for bringing energy efficiency into the complex equation of lighting purchase and specification decisions.

You can order the NEMA Standards Publication LE5 free of charge from NEMA—phone (703) 841-3200 or fax (703) 841-3300 to receive your copy.

You can read more about LER at the Light Forum Web site produced by *Architectural Lighting Magazine* at <http://lightforum.com/technology/ler.html>, the main information source for this article.

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For a more detailed discussion of fluorescent luminaire efficacy and efficiency, see the LRC's Specifier Report, *Energy Efficient Ceiling Mounted Residential Luminaires* at www.lrc.rpi.edu. 