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architectural lighting

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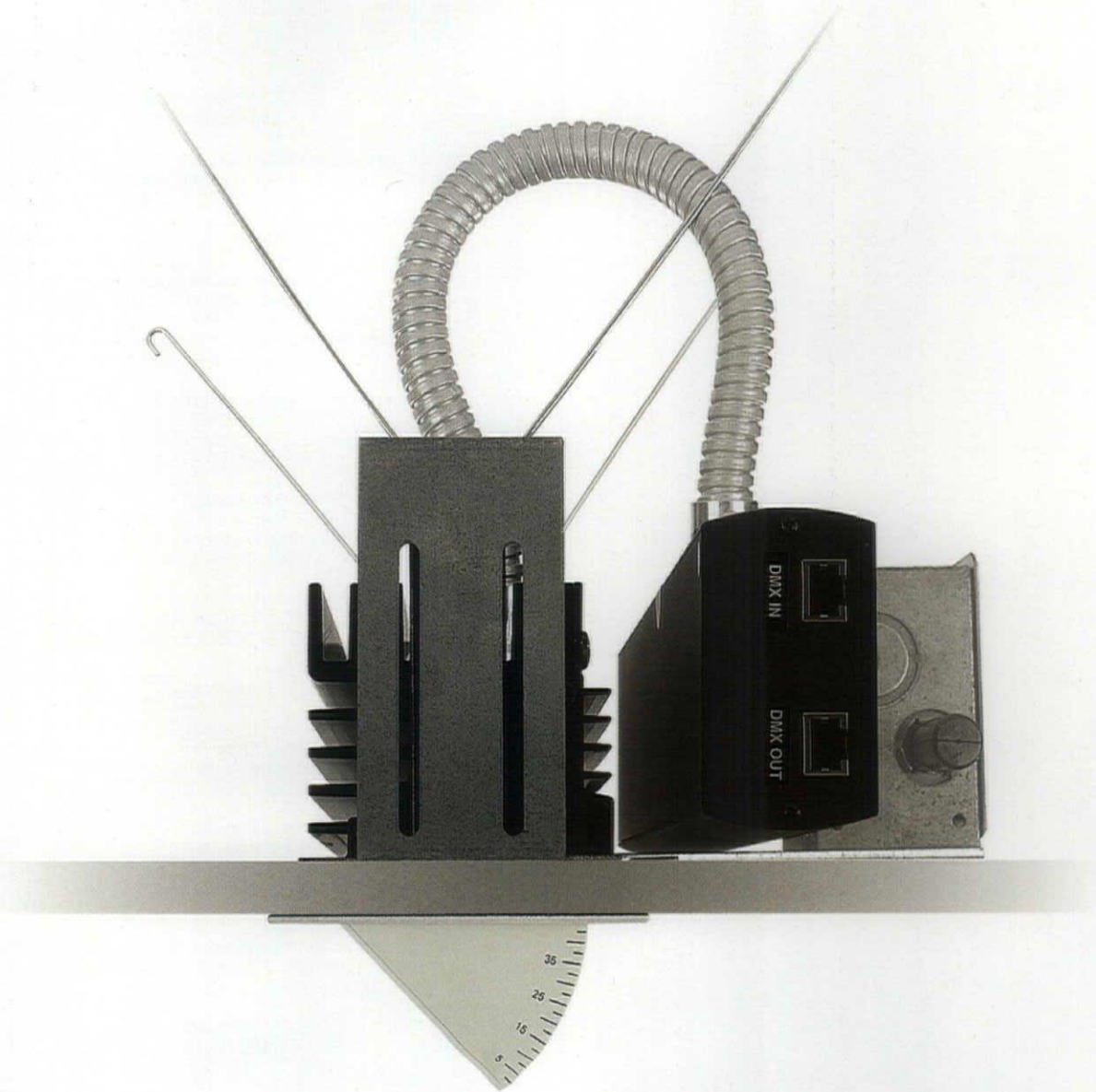
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AL architectural lighting (Vol. 22, No. 6 USPS 000-848, ISSN 0894-0436) is published seven times per year (bi-monthly, except monthly in March and June) by Hanley Wood, LLC, One Thomas Circle, N.W., Suite 600, Washington, DC 20005. Periodicals postage paid at Washington, DC and additional mailing offices. Printed in the USA. POSTMASTER: Send changes of address to Architectural Lighting, PO Box 3590, Northbrook, IL 60065.

Canada Post Publications Mail Agreement No. 40612608. Return undeliverable Canadian addresses to: Bleuchip International, PO Box 25542, London, ON N6C 6B2.

Distributed free of charge to individuals or firms engaged in the specification of lighting products in the US. Per year, all other US subscriptions \$48; Canada, \$60; foreign, \$96. Payable in US dollars. For subscription inquiries, address changes, and single copy sales (\$8.95 in the US, \$8.95 + postage outside the US, payable in advance) write to Architectural Lighting, PO Box 3590, Northbrook, IL 60065 or call 847-291-6221 or toll-free 866-260-8410.



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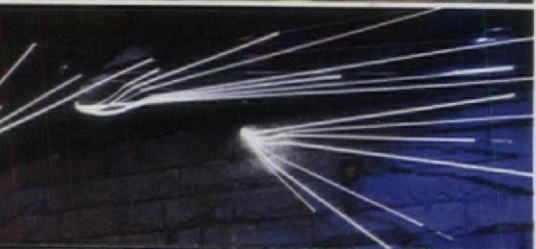
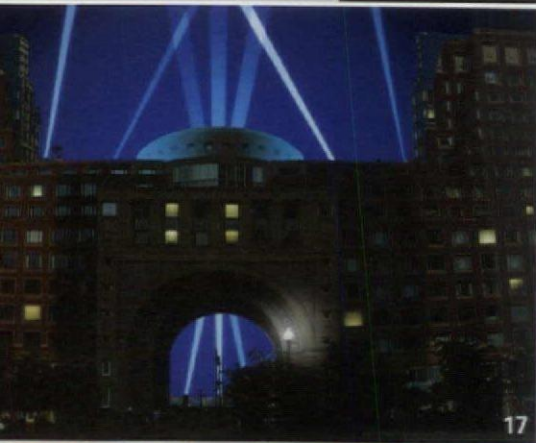
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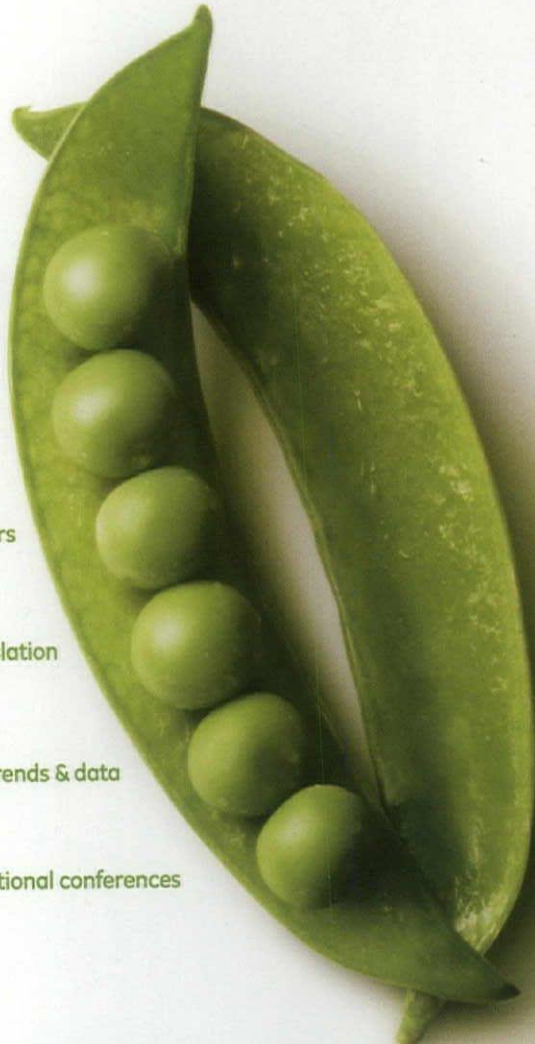
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**Cover:** The new distribution center for Cox Communications in Topeka, Kan., features a pre-engineered metal building system that envelops the 9,200-square-foot structure.

PHOTOGRAPHER MIKE SINCLAIR

**This page:** Rowe's Wharf, one of 10 sites included in the illuminaBoston lighting festival; a detail of the façade of the Santa Monica Civic Center parking structure; one of Intertek Testing Services' product testing lab facilities; the "This Way" Brooklyn Bridge Installation in New York.





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## National Lighting Week

**The past two years,**  
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has held a series of

roundtable discussions concurrent with both the American Institute of Architects (AIA) National Convention and Lightfair. Sustainability in its various nuances has been the focus of the conversations. This year's dialogue centered on the sustainability of the lighting profession itself, and two principal discussion threads emerged from both roundtables. (Part One from the AIA Convention appeared in the July/August 2008 issue and Part Two from Lightfair appears on p. 37.) First was the issue of education and what the lighting community needs to do to maintain and grow the student population studying lighting design. Second was what the lighting community as a whole can do to engage a larger public audience and impart to them that: one, there is such a thing as architectural lighting design; and two, that it makes a difference in the spaces in which we live and work.

One of the specific ideas from the Lightfair discussion is the implementation of a National Lighting Week. It is a proposition that seems so obvious it is hard to imagine that such a thing does not already exist. My Google search did, however, come across a National Lightning Safety Week held June 22–28, 2008.

In the current constructs of today's world, lighting is emerging as a more regular part of a larger public conversation, particularly when it comes to energy and efficiency. The lighting industry has not been driving this discussion. This cannot continue if the lighting design community expects itself to have a future. Instead, lighting designers and manufacturers must begin to take ownership of the energy conversation as it pertains to lighting so the public knows that central to any discussion about energy efficiency is the role and value of architectural lighting design. One way to accomplish this is by establishing a National Lighting Week.

To that end, ARCHITECTURAL LIGHTING calls on all members of the lighting profession—designers, manufacturers, schools, organizations, and fellow lighting publications—to join us in promoting the idea of a

National Lighting Week to be held the week of May 3, 2009, when the lighting industry will assemble in New York to celebrate the 20th anniversary of Lightfair. This seems like the opportune time to band together with a common purpose of promoting architectural lighting design through a grassroots advocacy campaign. In addition to the activities already being planned, there should be a series of programs specifically created for and open to the public, where they can hear firsthand from designers and manufacturers about the importance of lighting. Lightfair could institute a public access day, allowing a general audience to visit the trade show floor to see the range and diversity of products and ideas at work in the lighting industry. Exhibits showcasing the winning projects from all the major lighting design award programs—the A|L Light & Architecture Design Awards, Cooper Source Awards, GE Edison Awards, IALD International Lighting Design Awards, and IES International Illumination Design Awards, for example—could be set up on the trade show floor so the public could see the extraordinary work of lighting designers. These are but a few ideas to serve as a starting point. I know there are many more.

Establishing a National Lighting Week is a win-win situation. ARCHITECTURAL LIGHTING is here to serve as a forum for the exchange of ideas. I look forward in the coming weeks and months to hearing from you and discussing this initiative. Feel free to contact me via e-mail at [edonoff@hanleywood.com](mailto:edonoff@hanleywood.com), or through the comment function attached to this blog post online at [archlighting.com](http://archlighting.com). It is time to let the public know about the architectural lighting design community.

**ELIZABETH DONOFF**  
EDITOR

### NOV/DEC 2008 EXCHANGE QUESTION

How do you think the 2008 U.S. presidential election will impact the lighting industry? To be considered for print, responses are requested by Oct. 26, 2008.

SEND RESPONSES TO [EDONOFF@HANLEYWOOD.COM](mailto:EDONOFF@HANLEYWOOD.COM)



## INDUSTRY LETTERS

RESPONSE TO JULY 2008 A|L E-NOTES

**Jim Benya's blog** is a great addition to e-notes. I'm sure it will become an important forum for the industry.

**RANDY BORDEN**  
BORDEN LIGHTING  
SAN LEANDRO, CALIF.

**EDITOR'S NOTE: ARCHITECTURAL LIGHTING'S MONTHLY E-NOTES CAN BE SUBSCRIBED TO AT ARCHLIGHTING.COM.**

RESPONSE TO THE A|L LIGHT & ARCHITECTURE DESIGN AWARDS JULY/AUGUST 2008 ISSUE

**The July/August issue** is absolutely stunning and an excellent read. Certainly a keeper!

**LINDA G. MILLER**  
COMMUNICATIONS + MARKETING  
NEW YORK

RESPONSE TO THE JULY/AUGUST 2008 ARTICLE "DESIGNING FOR ENERGY EFFICIENCY," P. 59

**Thank you for correcting** the web version of the July/August 2008 Method article "Designing for Energy Efficiency" about our TG Couture Showroom in the Chicago Merchandise Mart. The web version of the project summary has 0.95 watts per square foot, which is about

60 percent below the allowable connected load. The print magazine listed 2.4 watts per square foot in the summary, the maximum allowed by energy code, not the actual installed system. Astute readers will find the correct information within the text of the article.

I would also like to acknowledge that our visually effective and highly efficient lighting was a team effort. Although I received mention in the article, a result of being the individual interviewed, several Atelier Ten designers collaborated with Lindsay Maki and myself to document, mock-up, and focus this project.

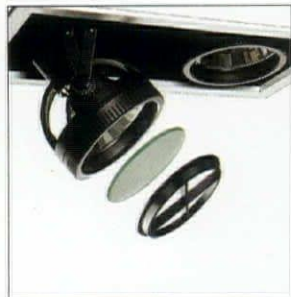
Many thanks for publishing our work.

**MARK LOEFFLER, DIRECTOR**  
ATELIER TEN CONSULTING DESIGNERS  
NEW HAVEN, CONN.

**EDITOR'S NOTE: TO LIST THE ENTIRE TEAM OR NOT TO? THIS IS A CONSTANT EDITORIAL DILEMMA, AND AS MUCH AS WE WOULD LIKE TO INCLUDE THE FULL TEAM LIST FOR PROJECTS WE DISCUSS, SPACE-WISE IT CURRENTLY IS NOT POSSIBLE.**

### Correction

In the article "Designing for Energy Efficiency," July/August 2008, the watts per square foot in the detail box should be listed as 0.95.

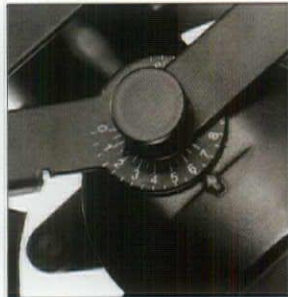


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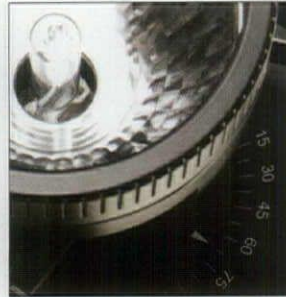
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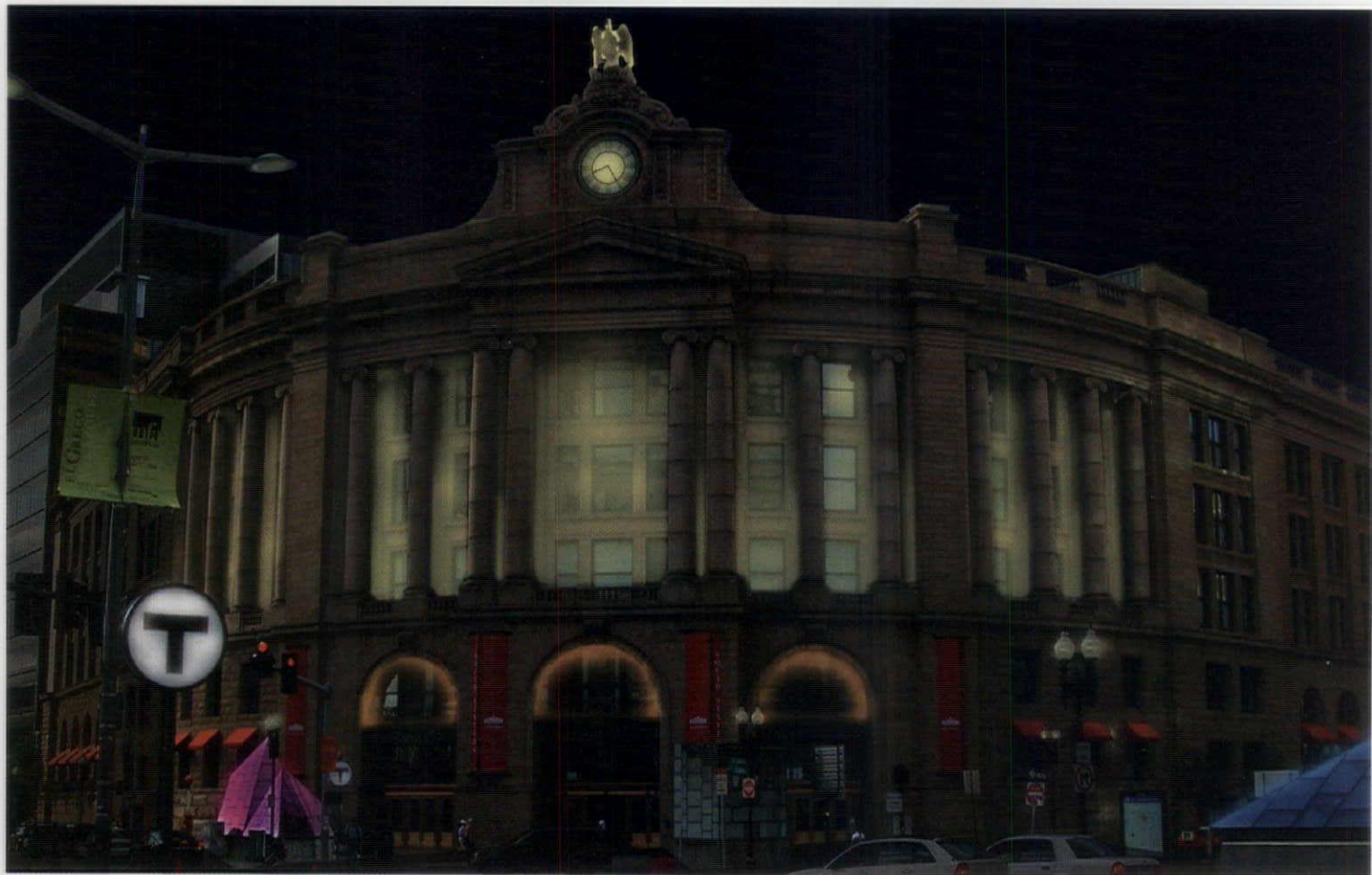
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# Bright Ideas



IlluminaleBoston, the city's first lighting festival, will run from Oct. 1–5, 2008. Organized by local lighting designer Lana Nathe, the festival draws on the talents of lighting professionals in the New England region to transform 10 sites throughout Boston. The façade of South Station (above) is one of the featured locations.

In early October, Boston weather begins its precipitous decline into the cold, the gray, and the dark. Most of us resign ourselves to the turn of the seasons, but Lana Nathe, principal of Boston-based Light Insight Design Studio, knew that a little lighting magic could transform the city into a sparkling autumnal vision. "Boston offers a truly unlit canvas at night—one that would not require much help to make a difference," she says. Inspired by the lighting festival in Frankfurt, during which hundreds of buildings are lit in whimsical ways during the international lighting trade show Light+Building, Nathe proposed a similar five-day celebration for Boston. This fall, IlluminaleBoston will coincide with the official opening of the Rose Kennedy Greenway—the 15 acres of new parkland that Boston gained when Interstate 95 was rerouted underground

during the Big Dig.

But overcoming a web of permitting, reluctant building owners, and city agencies to light 10 sites—five buildings, four bridges, and a temporary Ferris wheel—is not for the faint of heart. To get it done, Nathe called on 35 lighting colleagues in the area and solicited donations from lighting manufacturers. After a year of planning, her team chose sites that, as she explains, "reveal Boston's rich history and architecture." The projects include South Station, a stately 1889 granite edifice designed by 19th-century American architect H.H. Richardson, and Northern Avenue bridge, a rare 1908 operable steel swing bridge that is still standing thanks to the pluck of a few vocal advocates.

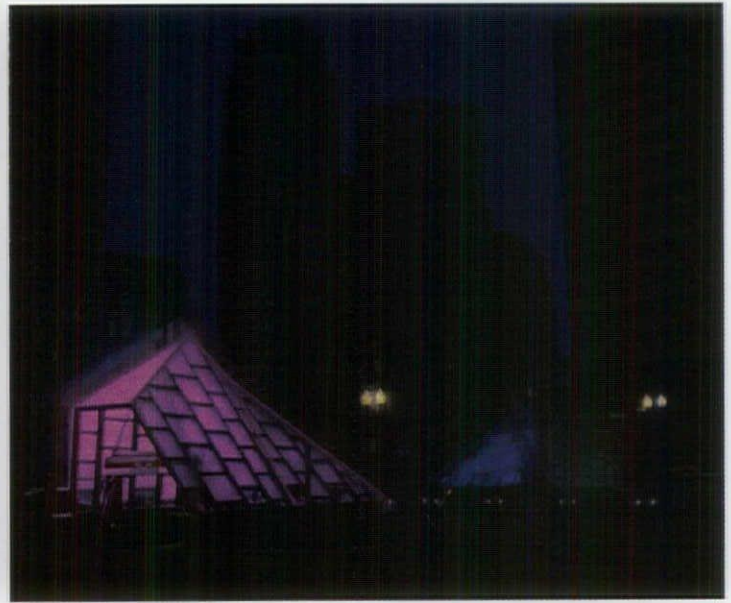
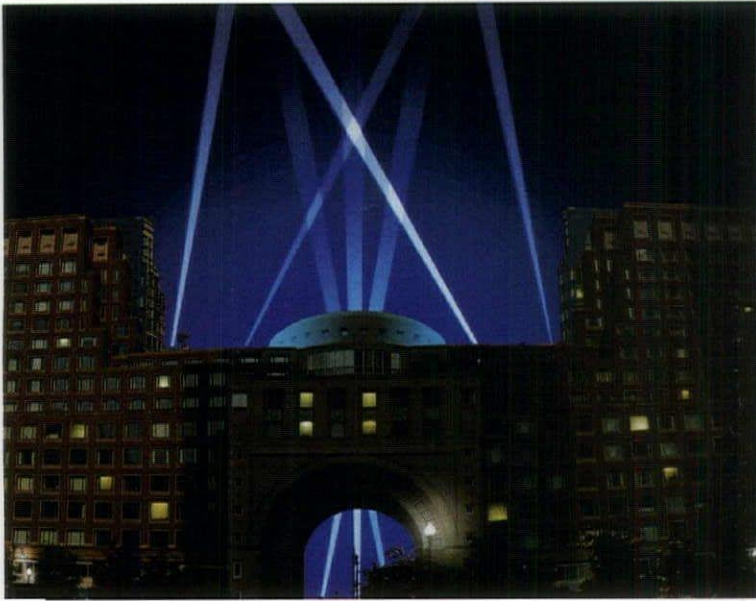
The festival does have some homegrown critics, including those who question using

energy to illuminate a few buildings when the United States is hunkering down for the next energy crisis. To address these concerns, Nathe asked her design teams to use the latest technology, including light-emitting diodes, when possible, and has ordered an energy audit for five of the sites at the conclusion of the festival. "Lighting does indeed take energy to produce results, but this is about creating excitement in the city," she says. IlluminaleBoston is on display from Oct. 1–5, 2008. Sites are illuminated from dusk to 11 p.m. For more information, go to [illuminaleboston.com](http://illuminaleboston.com). **RACHEL LEVITT**

*Rachel Levitt is the editor of Boston Home, Boston magazine's design quarterly. She received her Master of Architecture from the University of Pennsylvania.*

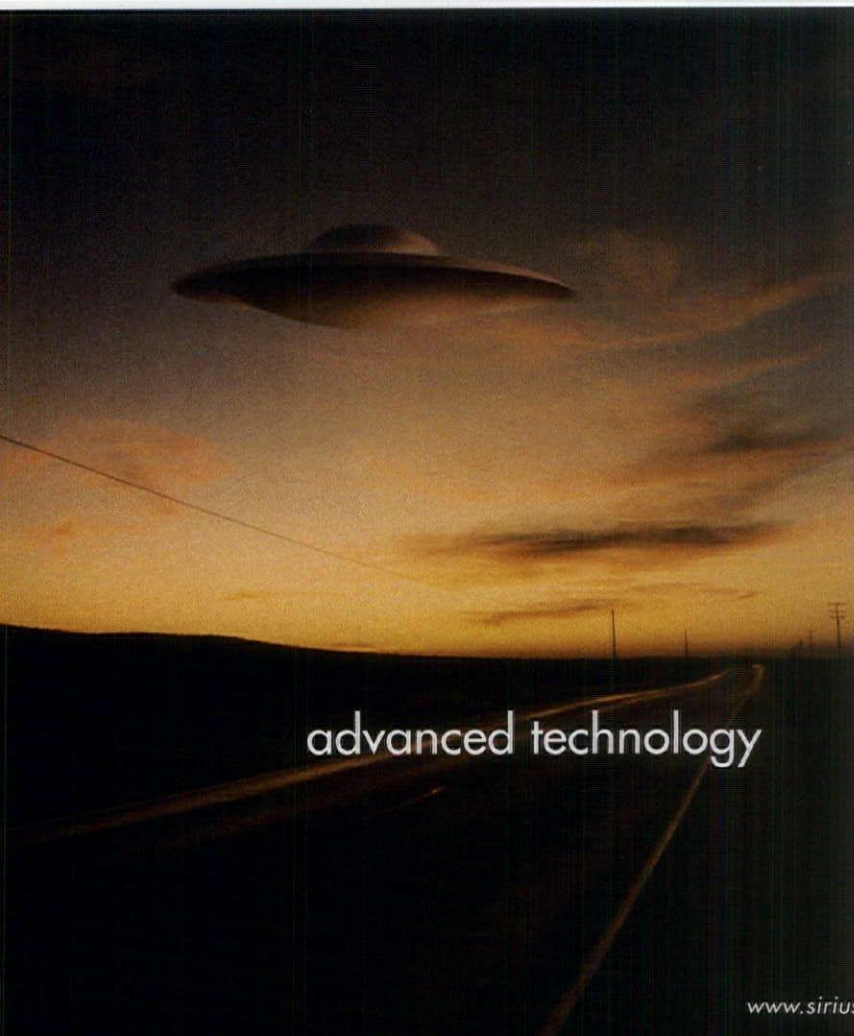


## INDUSTRY BRIEFS



PHOTOS COURTESY OF ILLUMINALEBOSTON

Encompassing 10 sites, *illuminaLEBoston*, the first lighting festival of its kind in the Boston area, celebrates the unique architectural landscape of the city. At Rowe's Wharf (above left), the installation by the Boston office of lighting design firm Available Light employs spotlights to create a crisscross pattern of light against the backdrop of the night sky while coordinating with the architectural form of the Boston Harbor Hotel. At the T subway entrance in front of South Station (above right), the lighting design team represented by members of two local firms—Parsons Brinckerhoff and Lux Lighting Design—washes the glass entry enclosures in colored light. For complete festival details go to [illuminaLEboston.com](http://illuminaLEboston.com).



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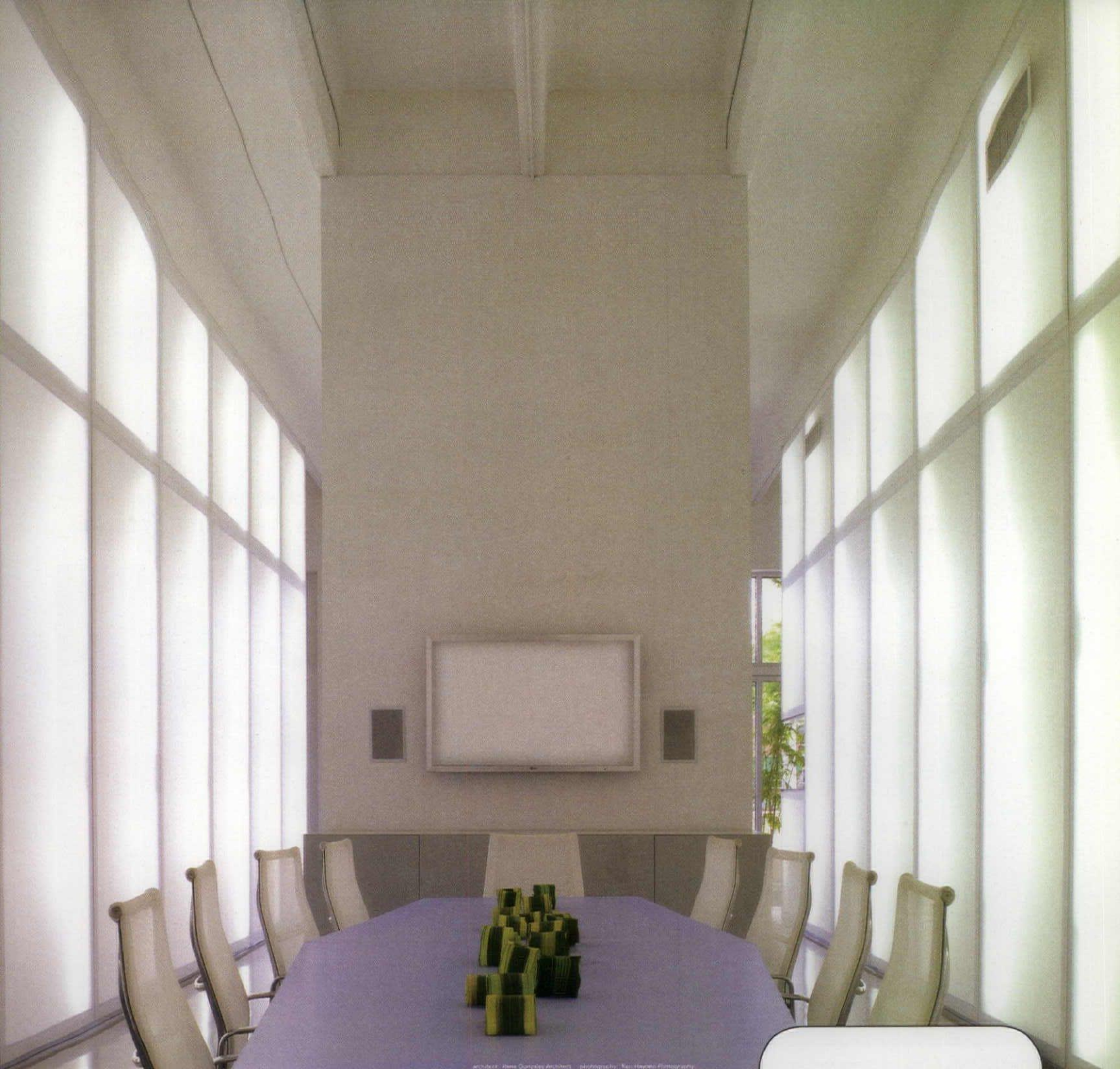
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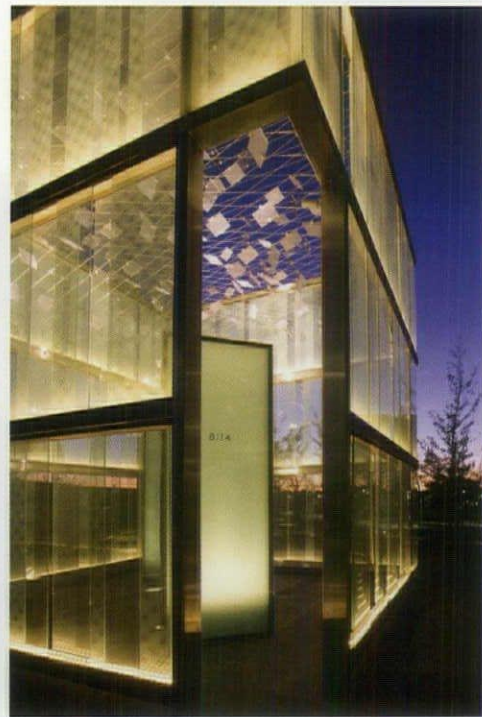
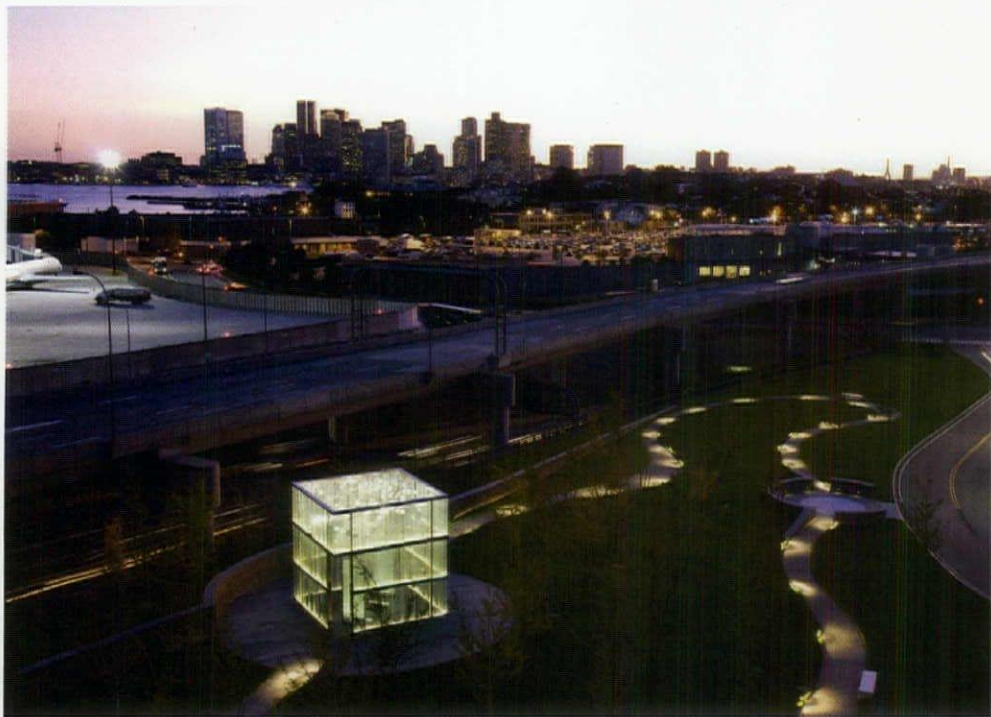
While seven years have passed since the Sept. 11, 2001, terrorist attacks, the day long will be remembered. Two memorials, each dedicated in September 2008, have been erected at both the Pentagon and at Logan International Airport in Boston as places for reflection and remembrance for those affected by the events of Sept. 11. Open 24 hours a day, seven days a week, these structures are the result of design competitions held to determine which submissions would be most fitting at each location.

to the glass and steel structure at night. "The path is lit minimally, just enough to meet the lighting requirements," explains Robert Linn, firm partner and architect at Moskow Linn. "We didn't want the path to be the main thing people noticed at night."

The paths bring visitors to the glass and steel structure, which is illuminated solely by natural light during the day. The inside features two 11-foot-tall, 4-foot-wide glass panels. One side shows the

# Thoughtful Tributes

**NEW MEMORIALS AT THE PENTAGON AND BOSTON'S LOGAN INTERNATIONAL AIRPORT REMEMBER THOSE WHO LOST THEIR LIVES SEVEN YEARS AGO DURING THE SEPT. 11, 2001, TERRORIST ATTACKS**



The Airport 9/11 Memorial at Logan International Airport features two walkways leading to the glass and steel structure that recall the flight path of the two aircraft that took off from Logan in 2001 (above left). The memorial has an open-air ceiling and two 11-foot-tall glass panels etched with the departure times of each plane and names of passengers and crew (above right).

In 2003, the Massachusetts Port Authority (Massport) selected a 2.5-acre site at Logan for the Airport 9/11 Memorial. A design competition was held to decide the memorial's look, and a committee made up of airline representatives, local design professionals, families of crew members, and Massport officials ultimately chose "The Place of Remembrance," a design by Boston-based Moskow Linn Architects. The local firm, with offices located just two subway stops away from the memorial site, teamed up with Boston-based lighting design firm Light This, which from the beginning helped the architects with their brainstorming process before they submitted their competition entry.

At the entrance to the memorial is a semi-circular seating area, and at night, 15W steplights located beneath the benches help give a soft glow to the perimeter. From this point of origin, visitors follow one of two walkways that resemble the flight paths of the two aircraft that took off from Logan on Sept. 11, 2001. Because the memorial is open 24 hours a day, metal halide lamps are used to define the path leading

departure time for each plane, while the other side is etched with the passenger names and crew aboard each flight. Linear T5HO fluorescent fixtures recessed into the stone illuminate the text on the glass. Linn points out that an interlayer between the glass panels allows the light to shine through, but prevents visitors from reading the text from the opposite side.

Light This president Daina Yurkus says cost and size are the two main elements that drove the lighting design. Light-emitting diode (LED) technology was used to illuminate the memorial because of its long-life expectancy and because the source could fit into the structure. LEDs, at about 4W per linear foot, are mounted within the memorial's framing and uplight the glass.

Featuring an open-air design, the architects describe the "roof" of the memorial as a fractured sky component, which is made up of 8-inch-by-8-inch glass panels situated at different angles and suspended from stainless steel cables. This element is accented by metal halide 39W PAR20 lamps at night, as the glass reflects and refracts the light.





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## INDUSTRY BRIEFS



Similar to how the design for the memorial at Logan Airport was selected, a worldwide competition was held for the creation of a memorial at the Pentagon. Keith Kaseman and Julie Beckman—a husband-and-wife team who run the firm Kaseman Beckman Advanced Strategies in Philadelphia—submitted the winning design, which features 184 cantilevered stainless steel benches, one for each person killed when American Airlines Flight 77 hit the Pentagon. The

The Pentagon Memorial, dedicated on Sept. 11, 2008, features 184 cantilevered steel benches, each engraved with a name of one of the victims who were killed on Sept. 11, 2001. The benches are arranged in a specific pattern by age and to distinguish who was on the flight and who was in the Pentagon.

benches, which rise from the ground, are arranged in a timeline fashion by victims' ages, from the youngest at 3 years old to the oldest at 71 years old. The memorial units also are positioned to distinguish victims who were on the flight from victims within the Pentagon.

Each bench has a pool of water beneath, running its length, with an induction lamp in a custom compartment underground at the leading edge of the cantilevered unit. At night, the light illuminates both the victim's name on the bench and the water below, creating an impressive and moving experience for visitors. The lamp and its housing had to meet strict requirements, be capable of operating year-round, and offer minimal maintenance. During the day, natural light illuminates the 2-acre space and also interacts with the "reflecting pools" at each memorial unit.

The Pentagon Memorial and the Airport 9/11 Memorial are designed to be places where family members, friends, and visitors can reflect on the Sept. 11, 2001, terrorist attacks. Playing an integral role in the creation of these memorials, the lighting designs for each not only enhance the architectural forms, but also provide a soothing atmosphere for contemplation while meeting the practical requirements of the sites. **JENNIFER LASH**

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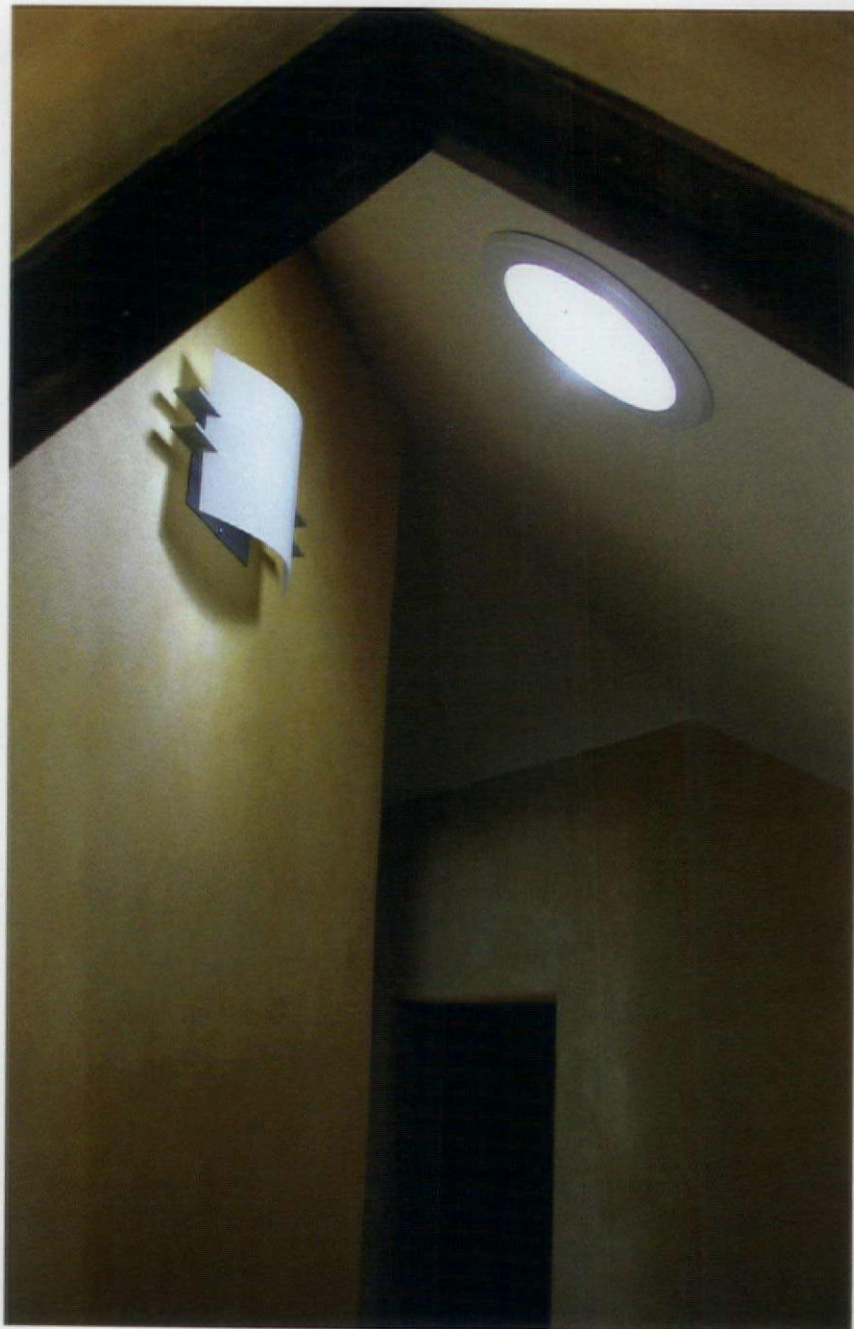


# Programs Educate Students, Lighting Community How to "Go Green"

**Knowledge is power**, and with energy efficiency being such a hot topic these days, it's no surprise that educational outreach programs are being created by lighting manufacturers and nonprofit organizations—such as recent offerings from Ohio-based lighting manufacturer TCP and Colorado-based nonprofit educational organization Solar Energy International (SEI).

Targeting K-12 schools, the "Green Schools Initiative" works with mayors and local municipalities to give schools a "green" makeover. In July, TCP announced that it is partnering with CBS Corp. and environmental media company EcoMedia as the official lighting sponsor of this program, which launches this fall in Chicago, Miami, and San Francisco. One K-12 school in each city will be chosen as the recipient of a green makeover, which may include elements such as solar panels, green roofs, tree planting, or an energy-efficient lighting retrofit. As the official lighting sponsor, TCP will provide the necessary energy-efficient lighting products to retrofit each of the selected schools. Designed to help students take a more active role in protecting the environment, the initiative asks students this fall to turn in submissions that express what "being green" means to them and why their school should win the makeover. Top entries will be featured on CBS television, radio, and outdoor media outlets, and the winning schools in the three cities will be announced in winter 2008, with the makeovers scheduled to be completed by spring 2009.

SEI's Renewable Energy Education Programs provide workshops and online classes on topics such as solar electricity, solar thermal, wind power, renewable fuels, sustainable home design, and natural house building. SEI also offers its Charitable Programs, which support schools, developing nations, international training, Native Americans, and tuition scholarships. One such program is Solar in the Schools, which is geared toward grades K-12 and strives to have students understand energy as it relates to living things on Earth. This solar program explores energy choices, costs, and solutions within communities. SEI is a membership-based organization, with donor contributions aiding in maintaining educational opportunities. Workshops are open to everyone, with SEI members receiving a reduced rate. More information can be found at [solarenergy.org](http://solarenergy.org). JL



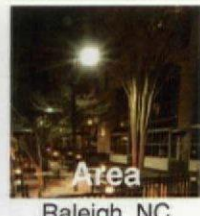
Participants in Solar Energy International's programs on sustainable home design learn about the benefits of implementing daylighting strategies. One way to help cut down on the use of electric lighting during the day is to install tubular skylights, such as the one shown above that is in a hallway of a private residence.

PHOTO COURTESY OF SOLAR ENERGY INTERNATIONAL





Parma Park, Italy



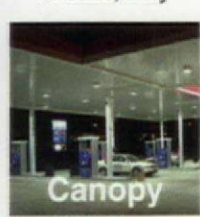
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# Lighting Research Center Develops Method to Measure Light Pollution

While electric lighting is helpful during non daylight hours in terms of safety, security, and improved economic development, too much nighttime illumination sometimes can cause problems, interfering with stargazing, animal health, or human sleep cycles. Scientists at the Lighting Research Center (LRC) at Rensselaer Polytechnic Institute in Troy, N.Y., have been studying this and have developed, according to a recent LRC press release, the first-ever comprehensive method for predicting and measuring various aspects of light pollution.

LRC's method, called Outdoor Site-Lighting Performance (OSP), enables users to quantify the performance of both existing and planned lighting designs and applications, which then allows them to minimize excessive light from leaving property boundaries. OSP addresses three aspects of lighting pollution: sky glow, which is the total amount of light leaving a property; light trespass, which is described as the amount of light that crosses from one property boundary to another; and discomfort glare, which is a prediction of the level at which light coming from a luminaire is uncomfortable for viewers. These three factors are independent of

one another, but each is measured by OSP, which lets users control and maximize the positive benefits of nighttime lighting.

Developed to assess outdoor lighting performance, the OSP method can be used with any commercial lighting software. Using the software, designers can create a calculation "box" that follows the property line between private and public spaces. To figure out values of glow, trespass, and glare, LRC scientists worked with application engineers and studied 125 lighting designs for four common nighttime lighting applications: car parking lots, roadways, sports fields, and plazas. Lighting engineers can use OSP currently, as it can help them compare various lighting design alternatives for the same site.

Scientists at LRC began this project in 2005, when lighting manufacturers approached the center in search of an objective and unbiased assessment of light pollution. The LRC's research was funded by Acuity Brands Lighting, Lumec, Philips Lighting, and R-Tech Schreder. Details of the OSP method have been published in the journal *Lighting Research Technology*, Vol. 40, No. 3, 2008. More information can be found via the LRC's website at [www.lrc.rpi.edu](http://www.lrc.rpi.edu). JL



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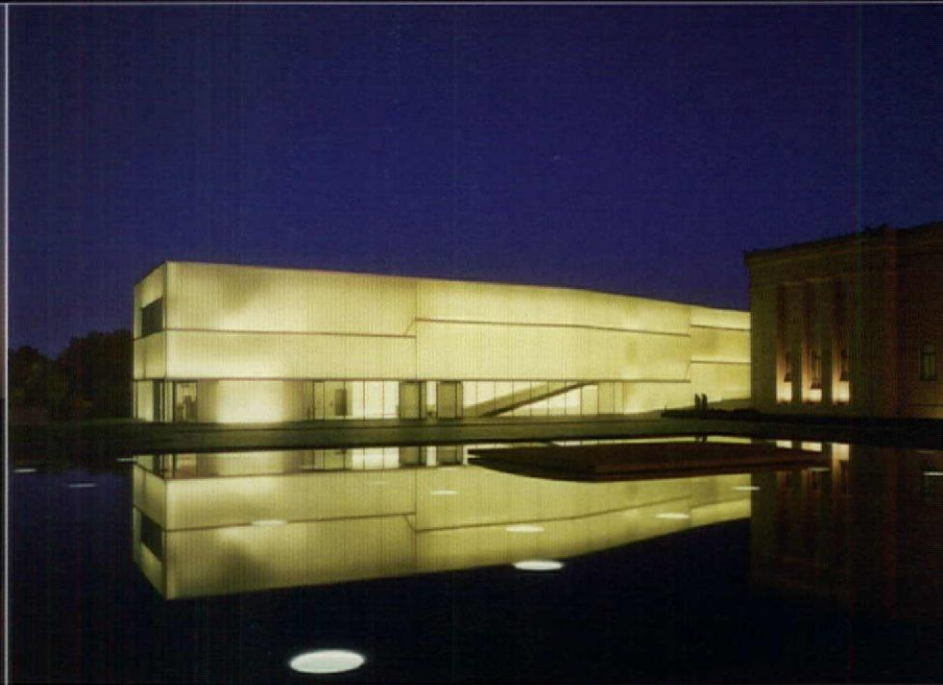
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# Home Depot Launches CFL Recycling Program



**Home Depot**, the largest home improvement retailer worldwide, also is the largest retailer of light bulbs in the United States. Compact fluorescent light (CFL) bulbs have made up a significant portion of those sales. In 2007, Home Depot sold more than 75 million CFLs and grossed more than \$77 billion in sales, but the big box retailer long has been criticized for not seeing the full consumer cycle through by offering a recycling program to support its sale of CFL products. That is no longer the case. On June 24, 2008, the company launched a new initiative, a national in-store CFL recycling program at all 1,973 of its locations in the U.S. This is the first recycling program of its kind offered by a retailer of this size in the country. "We waited to implement the program until we were sure that it could be seen through properly," says Jorge Fernandez, merchant for light bulbs at Home Depot, who also is responsible for all light bulb purchases for consumer sales for the company nationwide. Home Depot is no stranger to CFL recycling

Home Depot, the largest retailer of light bulbs in the United States, has launched a compact fluorescent light (CFL) bulb recycling program in all 1,973 of its U.S. locations. In 2007, Home Depot sold more than 75 million CFLs. Consumers can bring spent, unbroken CFLs to their local Home Depot and sales personnel will deposit the used lamps into specially marked containers (left). A national environmental management company will oversee the packing, transporting, and recycling of the lamps.

programs; a similar initiative has been under way in Canada since November 2007.

The new U.S. program is a free service that allows consumers to bring in any expired CFLs, so long as they are unbroken, to a Home Depot location. Customers present the CFLs to store personnel at the returns desk, who then deposit the spent lamps into designated containers that are located at the back of the store out of consumer view. Home Depot has contracted with a national environmental management company who will oversee the packing, transporting, and recycling of the lamps.

In keeping with the company's commitment to sustainable initiatives, Home Depot also has started an in-store energy conservation program to convert its light fixture showrooms and display light fixtures from incandescent lamps to CFLs by fall 2008. The expected energy savings for the retailer is estimated at close to \$16 million annually.

All of these environmentally focused steps are part of Home Depot's larger Eco Options program. Launched in April 2007, the classification program enables consumers to select products that have a reduced environmental impact. Energy Star, the program administered by the Environmental Protection Agency and the Department of Energy, estimates that if each household were to switch one incandescent light bulb to a CFL, the United States would save more than \$600 million in annual energy costs.

In addition to the sale of major brand-name light bulbs, Home Depot has its own proprietary line of CFLs called n:vision, manufactured by Technical Consumer Products. For more information on all of Home Depot's sustainable initiatives, go to [homedepot.com/ecooptions](http://homedepot.com/ecooptions). **ELIZABETH DONOFF**

## NEMA Backs "enLIGHTen America" Initiative to Reduce Energy Use, Costs

**A campaign launched** at Lightfair in May 2008 targets operators, building owners, and executives who make decisions regarding upgrading lighting products in unrenovated buildings. Dubbed "enLIGHTen America," the initiative, sponsored by the National Electrical Manufacturers Association (NEMA) on behalf of its member lighting companies, strives to reduce energy use and costs in 5 million existing commercial, institutional, and industrial buildings in the United States.

This industry initiative's goal is to raise awareness of its message among its target audience through communication tactics. Press releases, feature articles, direct mail, trade show graphics,

and a dedicated website are all tools that will help enLIGHTen America get off the ground. According to a NEMA press release, Secretary of Energy Samuel Bodman supports the campaign, inviting "our nation's leaders to become full participants in a national effort to make our buildings more energy efficient."

As part of this national campaign, NEMA has created a website, [nemasavesenergy.org](http://nemasavesenergy.org), that supplies tips, tools, and information on how to undertake a lighting upgrade and reap the benefits afterward. Members of the lighting industry who are interested in more information about this long-term effort to reduce energy consumption and expense should e-mail [lightinginfo@nema.org](mailto:lightinginfo@nema.org). **JL**

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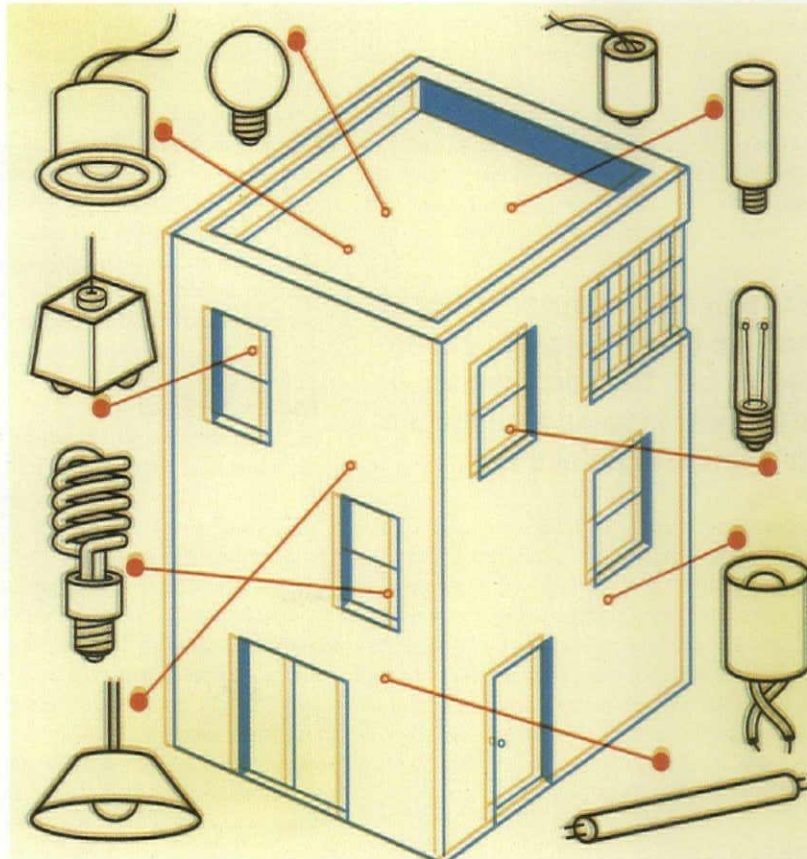
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## The Lighting Specification Process

JEAN SUNDIN DISCUSSES THE STEPS INVOLVED TO ENSURE A QUALITY SPECIFICATION PACKAGE



**Specifications are critical to** the success of lighting design work and ultimately make the project. One of the most essential aspects of producing a quality lighting design is to ensure that the lighting products specified are actually acquired and installed on a project. It sounds simple enough but in the reality of everyday practice, this is not always the case.

### THE ROLE OF THE SPECIFICATION

The purpose of a lighting specification is to chronicle the lighting products (and their locations) required to achieve the lighting design intent. The documentation needs to be clear and precise and typically includes the following three components: an outline specification, a lighting fixture schedule, and product data/manufacture catalog sheets. Together, this information is considered a lighting specification.

An outline specification is a written document that describes general conditions, product expectations, and execution of the work as related to the lighting products. This is typically done for every trade package on a project according to the Construction Specifications Institute (CSI) 50 divisions that standardize information, which is compiled into construction project manuals. Lighting specifications are located in Division 26—Electrical. The individual(s) in charge of preparing the lighting specification must coordinate with the team leader to

ensure that documentation is formatted properly and meets the specific project requirements in order to be included in the master specifications for a project—the complete set of specifications for every component of the project.

The lighting fixture schedule is usually in the form of a chart, matrix, or table. It provides a list of fixture types, which are keyed to the lighting drawings. It typically includes a brief description of the product, a manufacturer product ordering number, and lamp information (including lamp type, wattage, voltage, beam spreads, and color temperature, if applicable).

The final component of the lighting specifications is the product data/manufacture catalog sheets. These provide a “visual” reference of the product, which has been noted on the fixture schedule.

As mentioned above, the outline specification follows a rather strict guideline. However, there are several types of specification approaches that often are considered when preparing the lighting fixture schedule and product data/manufacture catalog sheets. The most common are: single-name, multiple-name, and performance specifications.

### SPECIFICATION TYPES

Single-name specifications (also known as proprietary specifications) typically are used when only one product is suitable for the application and/or no known



equivalent exists. This type of specification identifies the one and only product by manufacturer name and specific catalog number.

Multiple-name specifications are used when several available products meet the design, performance, and budgetary requirements of the project or application. In this instance, two or more products are listed by manufacturer name and catalog number. Alternatively, a multiple-name specification can be done by listing a preferred product, along with up to two alternates listed with manufacturer name only.

Lighting specifiers should keep in mind that no two products are truly "equal," as this would most likely involve copyright and patent infringements. Therefore, it is better to use the term "equivalent" and evaluate the photometric properties to determine if the lighting performance criteria will be fulfilled.

Multiple-name specifications, however, are not ideal for design intensive projects as they do not allow the project team to fully plan, budget, coordinate, and detail the design since which product ultimately will be provided to the project is unknown. In this case, there is another option to consider: performance specifications.

### **The construction process is a linear progression and it is not possible to "redefine" the lighting specifications after they have been issued for bid. The documentation must be clear and precise in order to stand alone when the specifier is not there to explain or defend it.**

Performance specifications identify as completely as possible both the quantifiable and qualitative aspects of a lighting product's performance. This is usually done by a detailed written description of the intended product and may be accompanied by product data/manufacturer catalog sheets of a product that meets the criteria. As a result, any product submitted for consideration must meet or exceed the performance characteristics set forth in the specification, instead of limiting the product selection to only two to three manufacturers. Since any product that meets the criteria can be submitted, it often generates the most competitive pricing.

#### **SPECIFICATION PREPARATION**

The preparation of lighting specifications is a continuous process that requires detailed coordination with each major project phase milestone deadline. Ultimately, the specifications must include all documentation necessary to assure proper bidding of the project. As such, it is an on-going process to make sure specifications are clear, accurate, and in line with the project requirements and/or any design changes. Specifiers should keep in mind; anything that is not clearly outlined by the lighting specifier ultimately may be decided by "others" including the contractors, distributors, or other team members. In the design phases (such as Schematic Design and Design Development), products are evaluated, lighting calculations are prepared, quotes are obtained, and design work and details are coordinated. In later phases of the project (such as Construction Documentation and Construction Administration), value engineering, design changes, final detailing, dimming control systems, and budget become a focus of the work related to the lighting specifications.

#### **TEAM COMMUNICATION**

One of the unique things about lighting is that it generally touches every aspect of a building from interior to exterior. Every space requires it. As such, lighting requires extensive coordination from master plan to a carefully considered trim detail. In addition, large projects often require collaboration with an extended team beyond the architects

including interior designers, acousticians, curtain wall consultants, electrical engineers, landscape architects, Leadership in Energy and Environmental Design (LEED) consultants, signage/graphic designers, and others. Communication between all team members, as well as accurate and timely information is essential so that design work and/or changes can be evaluated by the lighting specifier.

Even "small" changes in the project can create a huge amount of work to prepare and maintain accurate lighting specifications. For example, changes in wall material, color, and finishes have an impact on the light levels and lighting effects, which may require alternate lighting products. This, in turn, may require a change in lighting layout, which could affect power density/loads, dimming control systems, and sustainability issues.

Updates and/or revisions to the lighting specification should be highlighted so that they are easy to identify and reissued in accordance with project milestones and other documentation for the project. Often a change to the lighting specification requires additional work including lighting calculations to verify the revised product has a comparable performance. In addition, changes to spacing and location of fixtures may be affected; drawings and details need to be updated accordingly to reflect the change, as well as the coordination with various team members.

#### **REVIEW PROCESS**

Once the lighting specifications are complete, there are a series of steps that take place before final installation and project completion. This includes the bidding process, review of shop drawing submittals, samples, and/or mock-ups.

Shop drawing submittals need to be evaluated based on the final lighting specification documentation. Some of the evaluation criteria include: photometric and visual performance; overall product dimensions, especially recessing depth, if applicable; wattage, voltage, and light source; mounting devices; trim details and finishes; and accessories.

Mock-ups and tabletop demonstrations can be helpful to confirm and verify product characteristics and lighting performance during specification as well as in the final stages of a project. In addition, many reputable manufacturers often can provide a list of reference projects to view product installations.

#### **TO SUBSTITUTE OR NOT TO SUBSTITUTE?**

Most lighting specifiers agree that the substitution of fixtures is never ideal. A great deal of time, planning, and coordination goes into selecting the appropriate lighting product to fulfill the lighting design intent. Typically, the overall fixture performance, design appearance, and dimensions have been carefully considered and coordinated.

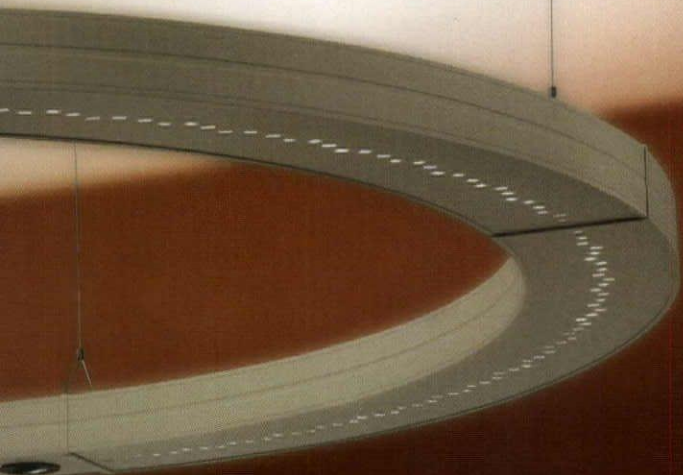
A variety of problems can arise when products are substituted. Although a product may appear similar, the photometric data may vary significantly, resulting in a difference in light levels, use of energy, or overall lighting effect. There also may be an impact on the design such as recessing depth coordination, variation in mounting devices, or lack of accessories and locking mechanisms.

The best solution is to specify the most appropriate and cost-effective product during the design and construction documentation process, and communicate its value to your client. When that is not possible, a lighting specifier should request developed calculations or any other information required for evaluation as a requirement to assure compliance with the design intent. This can help minimize substitutions by "less-than-serious" product contenders.

Sometimes "packaging" occurs when manufacturers, representatives, and/or distributors offer discounts for substituting the specified product with another brand that they regularly carry. Keep in mind, distributors can acquire any product but may provide more



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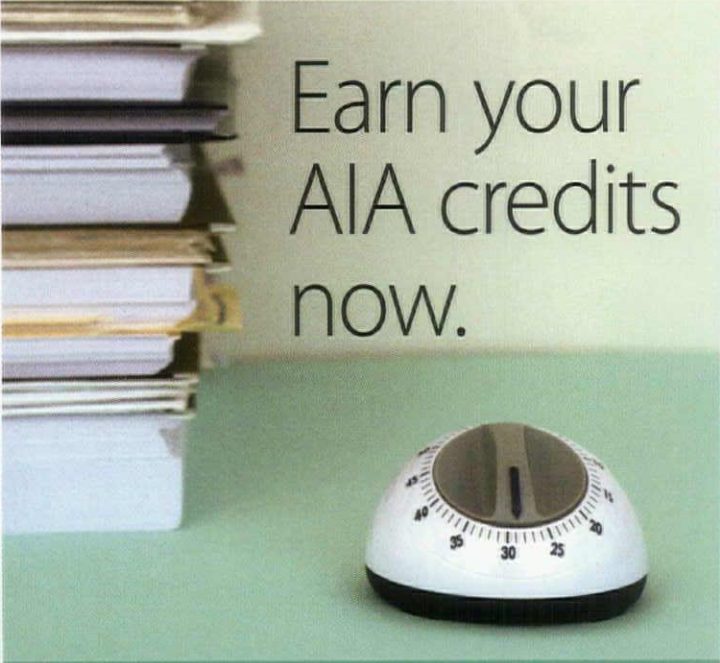
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## INDUSTRY REPORT

competitive pricing on products from manufacturers they are authorized to represent or with whom they have pre-existing relationships. Most qualified distributors and electrical contractors will provide the project as specified and documented.

### SPECIFICATIONS BEYOND THE UNITED STATES

Specifications for projects outside the United States require the same level of attention and detail, and usually more, if the specifier is not a native of the project location.

The lighting guidelines outlined in the Illuminating Engineering Society of North America (IESNA) Lighting Handbook are widely known and often referenced in international projects. Although lighting guidelines in other countries are similar, it is important to be familiar with any requirements that may be applicable in the region or country you are working such as the Canadian Underwriter's Laboratory (CUL), Chartered Institute of Building Service Engineers (CIBSE), British Standards, Deutsche Industrie Norm (DIN), etc.

Criteria for international projects include:

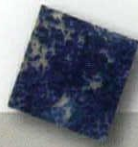
- Project location will have an impact on many things including manufacturer product availability, representation, budgeting, and commissions.
- Applicable codes and product ratings (i.e., UL, CUL, DIN, IP ratings, or other labels) that may be required in the jurisdiction the project is located.
- Voltage issues have an impact on power supplies, transformers, and the type and availability of equipment that can be specified for a project.
- Geographical lighting conditions of the project location such as daylight hours, climate and temperature issues, marine environments, etc.
- Consider regionally fabricated lighting products to demonstrate support for locally based manufacturers and product availability.

The International Association of Lighting Designers (IALD), in conjunction with the Lighting Industry Resource Council (LIRC), has developed a document titled "Guidelines for Specification Integrity," which suggests actions specifiers can take to prepare and preserve a specification of high integrity.

Lighting specifications essentially are a description of the design in "technical terms." Specifiers must be diligent about the specifications if they want to control the outcome of the design. The construction process is a linear progression and it is not possible to "redefine" the lighting specifications after they have been issued for bid. The documentation must be clear and precise in order to stand alone when the specifier is not there to explain or defend it. Better lighting specifications create better results. JEAN SUNDIN

*Jean Sundin is a founder and principal of New York-based Office for Visual Interaction. A professional member of the IALD, Sundin co-authored the organization's "Guidelines for Specification Integrity," used by lighting designers worldwide. She is a former board member of the IESNA, and a member of the PLDA and the U.S. Green Building Council.*

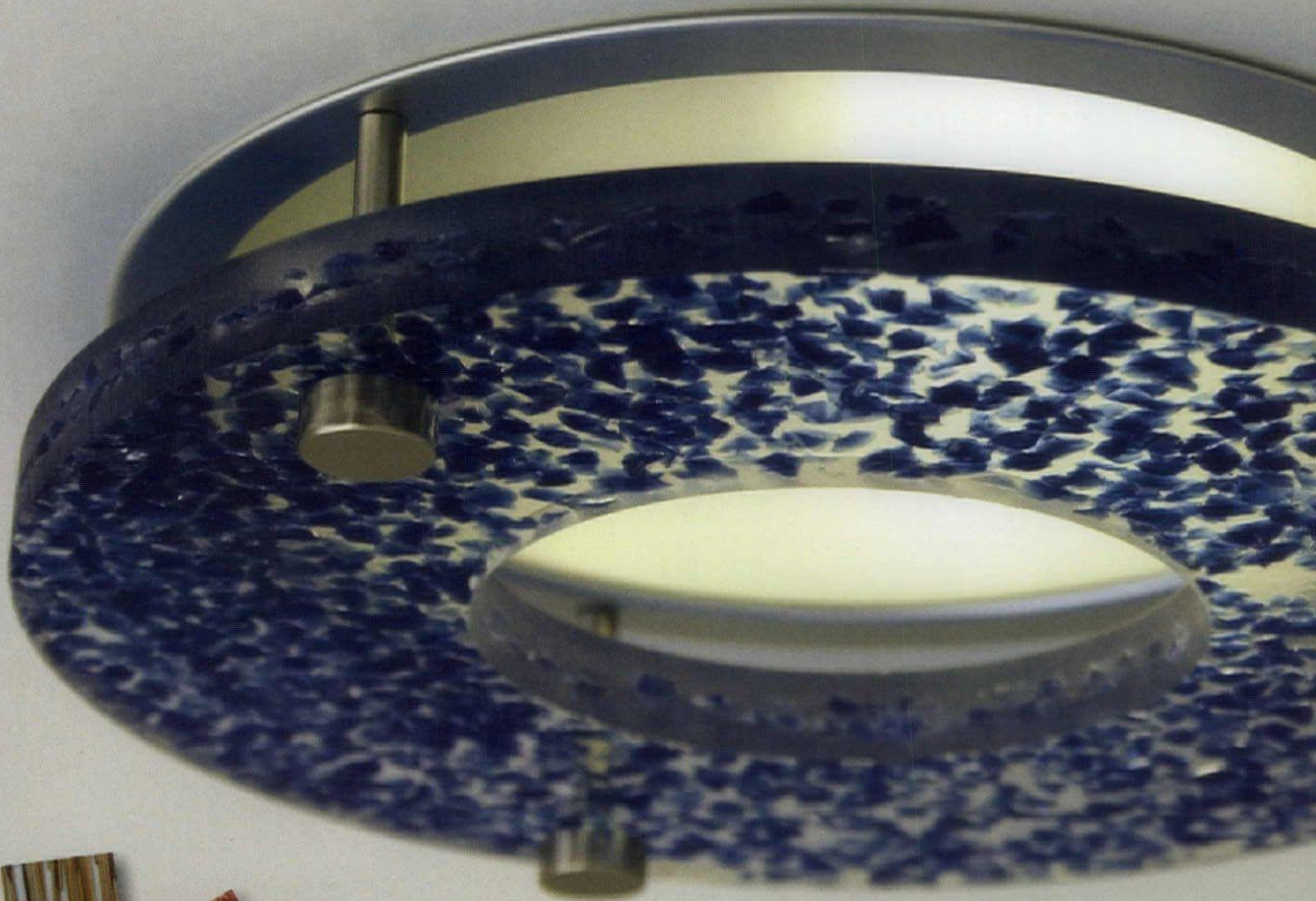




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## Professional Sustainability: Part Two

DESIGNERS AND MANUFACTURERS DISCUSS THE FUTURE OF THE LIGHTING PROFESSION



**Building on a series of roundtable discussions** ARCHITECTURAL LIGHTING magazine held in 2007 at the American Institute of Architects (AIA) National Convention and at Lightfair, A|L organized similar events at this year's two conferences/trade shows in Boston and Las Vegas, respectively. Expanding on last year's theme of sustainability and lighting, this year's conversations had a slightly different twist—professional sustainability.

In late May 2008 in Las Vegas, A|L gathered a group of highly respected members of the architecture and lighting communities representing both design and manufacturing to discuss the future of the profession and steps to be taken to ensure that there is new talent infused into the workforce and a continuity of lighting knowledge. Moderated by ARCHITECTURAL LIGHTING editor Elizabeth Donoff, participants included:

**Edward Bartholomew**, assistant professor, Integrated Design Lab, Department of Architecture, University of Washington, Seattle  
**Lisa Bornemann**, senior designer, H.E. Banks + Associates, San Francisco  
**Michael Gehring**, principal, Kaplan Gehring McCarroll Architectural Lighting, Los Angeles  
**Michael D. Kroelinger**, director and professor, School of Architecture, University of Nevada, Las Vegas

**Mark L. Roush**, director, NYC specifications marketing, Acuity Brands Lighting, New York

**Lee Waldron**, president, Grenald Waldron Associates, Philadelphia  
**Galina Zbrizher**, lighting designer, Total Lighting Solutions, Vancouver, British Columbia, Canada

**ED:** Welcome. About 10 days ago a group met in Boston at the AIA Convention. What came out of that conversation were some interesting suggestions about communication between practitioners and manufacturers, and what might be done to engage a larger public audience about the importance of lighting. Ultimately, each discussion strand kept coming back to education. So I'll start by asking: Should the lighting community be looking beyond itself to attract more students to study lighting?

**MG:** Luckily, where we are in Los Angeles, there are a lot of schools. We have a lot of people to choose from. We found it is easier to take someone who is architecturally trained and teach them lighting than the other way around. The vast majority of architects who work for firms hit a glass ceiling—they get frustrated and there is really nowhere for them to go. Lighting offers them another way to think about their career that might have more potential in the long term than they would have had otherwise.



## INDUSTRY REPORT

**ED:** Should architecture students be alerted to the fact that lighting is an option while they are still in school?

**MG:** Absolutely.

**MK:** In my 30-plus years of teaching architecture, I have always had the luxury of teaching at least one or two lighting classes. There are always a few students that became very serious about wanting to

**MR:** You have to give a contextual foundation for the student to understand the impact they are providing in a space.

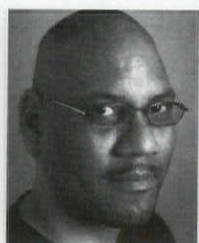
**LW:** Those students coming out of a theater lighting design background have a different kind of hands-on experience than architecture students, particularly in terms of being able to experiment in real space. Theater students have full-scale mock-up spaces in school—it's the way they are taught. It's not common in architectural educa-



Lisa Bornemann



Mark L. Roush



Edward Bartholomew



Galina Zbrizher



Michael Gehring



Michael Kroelinger



Lee Waldron

be lighting designers, and those students that do take these lighting classes understand enough when they enter into practice. There is a huge difference in their understanding of lighting than those students that get only half a semester of lighting in the context of an environment-controlled systems class.

**LB:** So it is a question of how it is presented?

**EB:** There is a real opportunity to train not only architecture students, but students in other disciplines as well, who are interested in how to "see light." This requires more than just developing content for a lighting class, it is about a comprehensive curriculum that addresses conceptual ideas about perception, vision, and light that needs to be ingrained in our programs at a consistent level. If such a thing existed—an assurance of some kind that basic lighting principles will be covered—a student will always have that background regardless of what profession they go into.

**MR:** There are magnitudes of education; there are also magnitudes of learning. Right now, lighting education consists of schools that do not even have a single class to schools that have degree programs in lighting. What we have tried to do with the IALD Education Trust is create an outreach program by sending "ambassadors of light"—IALD members—to speak to students and get them excited about architectural lighting. The earlier you can reach a student, the greater chance you have of them thinking about lighting and architecture as an integrated process. The quality of their interest, which is the way I prefer to talk about it, will determine whether or not they see lighting as a potential specialty or a potential area of interest, not just a building system.

**GZ:** Without light there is no architectural result. And let's not forget that when you talk about light, you have to do so in terms of the 24-hour life of a building—daytime and nighttime appearance. Part of the problem is that the profession is too compartmentalized, instead of looking at lighting as one whole thing.

**LB:** In programs that are not completely focused on lighting it is important to have some exposure to other classes. I had a psychology class that was beneficial because it got us thinking about behavioral response to light.

tion. Architecture students are always working on paper or the computer, everything is so virtual. Enabling students to actually see and experience a space is invaluable.

**ED:** Do offices need to promote an integrated studio approach?

**MG:** You cannot purposely construct an office that way; it is about the chemistry between people. Once you have the right group in place, it's up to the principal to mold the office.

**MR:** I think the lighting design profession just has a branding issue. A lot of us, in a sense, fly under the radar screen in terms of the general public having any sense about what we do.

**ED:** That raises an interesting idea about the need for a star personality or personalities for the profession. Is it necessary to have a "face" of the lighting design community?

**MG:** I do see a need to legitimize lighting design as a profession among architects. Lighting is not an alternative career anymore. I encourage people to finish architecture school even if they do not think they will practice because there are so many different things that you can do with that kind of design education.

**LW:** If you go to Wikipedia and type in "lighting design," you get an entry for theatrical lighting design, not an entry for architectural lighting design. We're not on the radar screen. You need something in mainstream, like a *Vanity Fair* fashion spread of lighting designers dressed in designer clothes. Something like that. You get my drift.

**MR:** There is a big difference between natural talent that bears celebrity and forced public relations. Tiger Woods has done more for golf than anyone prior. But that comes from a natural talent cultivated over a lifetime that changes the game to call attention to an icon. In turn, the icon bears out celebrity and that celebrity calls attention to a profession.

**LW:** There were golf celebrities prior to Woods—for example, Jack Nicklaus and Sam Snead—that made the sport into an international pastime as opposed to some iconic element that every kid wants to be.



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## INDUSTRY REPORT

**MR:** There are a whole list of potential stars, but they are known only to us in the lighting profession. They could emerge into the "public," but this needs to happen organically and not be forced.

**GZ:** We are not on the radar screen because our profession is not known to be a profession. First, we need to reach the masses, let them know who we are and what we do. If we want to sustain our profession, we need to convey our value on a broader scale.

**GZ:** We could reach out to manufacturers. They have the greatest access to the public. What if GE put the Edison Award winner on the packaging of the most commonly sold light bulb?

**MR:** Every comment points back to a standard of practice and how you communicate. Walking out of activities like this, what we usually lack is action steps. Just get one thing off the ground that can move forward toward these goals. It doesn't matter whether it is with an educational institution or some other form of effort, the bigger picture is the broader agenda.

**MR:** There is reasonable opportunity to call on the profession to create something like a National Lighting Week. It is the kind of thing that does not have to be recognized by anyone to say it is "official," until such time that it works so well that someone has to recognize it. It would not be unreasonable to call on the entire profession—manufacturers, educators, designers, and organizations—to speak at a school or a similar type of advocacy activity.

### **There is reasonable opportunity to call on the profession and create a National Lighting Week ... to call on the entire profession—manufacturers, educators, designers, and organizations—to speak at a school or a similar type of advocacy activity.**

**EB:** We also need to reach out to other representative minorities and underrepresented groups. We do not even make that effort.

**LW:** Yes, we need to broaden our message. It could start with elementary school students. Imagine if they saw one of us talk about our work and they went home and said to their parents, "We saw this presentation about these buildings being lit up; it was incredible." We need to give the public a connection point.

**LW:** If everyone made an effort to reach out beyond their comfort zone to tell someone that there is an industry and a profession, you could actually make something happen.

**ED:** The mission of the magazine is to promote dialogue. That certainly happened here today, and although the conversation has paused for the moment, it does not mean it has ended. I hope you will continue talking among yourselves.

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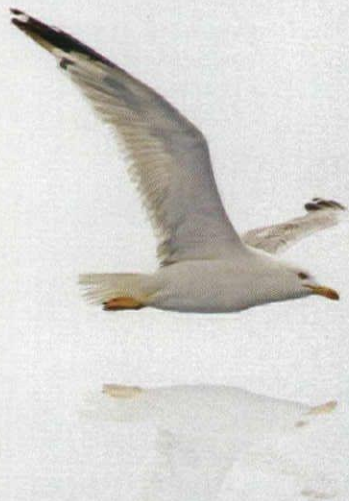
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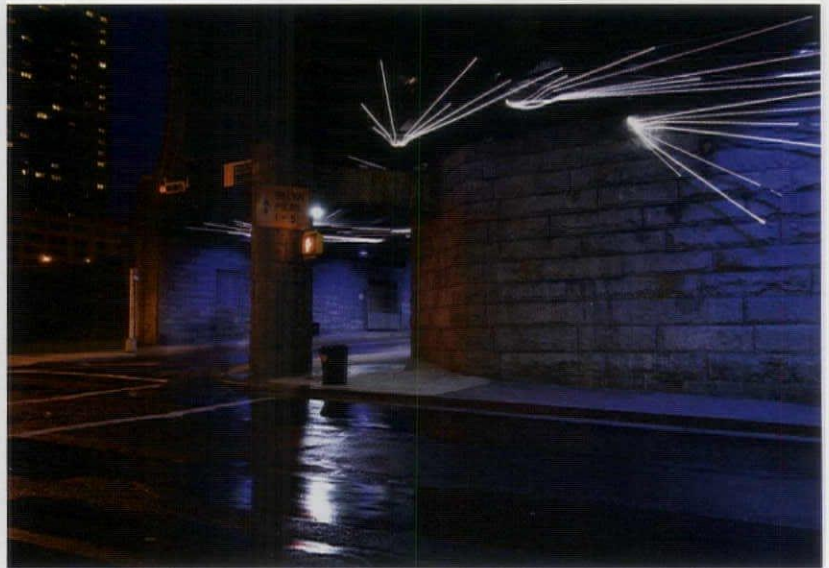
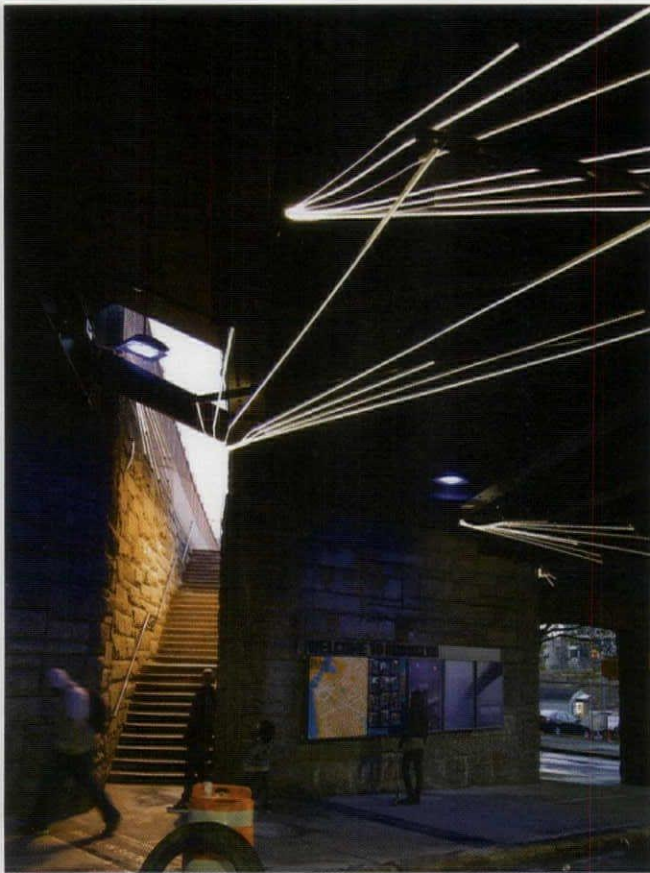


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# FEATURES

diane von furstenberg 44 | cox communications 48 | columbia center lobby 54 | santa monica parking 58



**Location** Brooklyn, N.Y. **Clients** City of New York, Percent for Art Program, and the DUMBO Business Improvement District **Design Team** KT3D, Brooklyn, N.Y. (architect); Tillett Lighting Design, Brooklyn, N.Y. (lighting designer) **Photographer** Seth Ely, Tillett Lighting Design, Brooklyn, N.Y. **Project Size** 15,000 square feet **Project Cost** \$600,000 **Lighting Cost** \$132,250 **Watts Per Square Foot** 0.28 **Manufacturers** BetaLED, Drama Lighting, Gardco

## “This Way” Brooklyn Bridge Installation

The underbelly of a busy freeway overpass is typically an overlooked area where darkness prevails. But in DUMBO—an acronym for Down Under the Manhattan Bridge Overpass, and the name for a historic Brooklyn waterfront neighborhood—light has transformed one such space from foreboding to inviting thanks to a collaboration between two firms—Tillett Lighting Design and interdisciplinary design studio KT3D.

The result of a competition that was commissioned by New York City's Percent for Art Program and the DUMBO Business Improvement District to commemorate the Brooklyn Bridge's 125th anniversary, the art installation, titled “This Way,” illuminates and directs visitors to the DUMBO entrance of the Brooklyn Bridge's pedestrian walkway, where a concealed staircase is cut into the bridge's masonry anchorage.

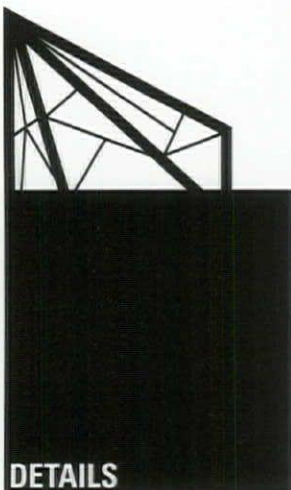
Unlike the Manhattan side of the bridge with its small greenway and opening onto City Hall Park, the Brooklyn side of the bridge and the DUMBO approach with its orange-hued high-pressure sodium lighting and insufficient signage did little to welcome pedestrians into the borough. Now, in addition to making the area feel safer, the installation also works in concert with new signage to improve wayfinding for residents and tourists alike. Mounted maps and signage at the bottom of the stairway guide visitors to local attractions they otherwise may have missed.

Inspired by the bridge's giant cables, lighting designer Linnaea Tillett and KT3D principal and architect Karin Tehve designed white arrow-like fixtures with “arms” composed of twisted fibers inside flexible PVC channels. Attached to the girders on the underside of the overpass with steel and aluminum supports, the linear fiber optic luminaires, each illuminated by a 150W metal halide lamp, point toward the obscured stairway. Because the installation had to provide both wayfinding and lighting for the street below, five-bar light-emitting diode (LED) downlights with white light illuminate the roadbed, while three- and two-bar fixtures with custom blue lenses light the perimeter of the overpass as well as the sidewalks. The downlights range from 79W to 128W, and each luminaire contains rows of 1W LEDs. While the white light was selected to connect the underpass to the bridge's span, blue was chosen “because we wanted a color that stood out from standard urban lighting, one that people could see from a distance, even at low light levels,” Tillett explains.

These simple, yet significant, improvements to the underpass are both aesthetic and practical. “This Way,” like other light art installations before it, has become a part of the urban landscape, addressing public safety and transforming a once residual space into the larger experience of the bridge—and of Brooklyn. **SALLIE MOFFAT**

A new permanent art installation titled “This Way” transforms the DUMBO entrance to the Brooklyn Bridge into a well-lit location for pedestrians and drivers alike (above right). Linear fiber optic luminaires with 150W metal halide lamps direct pedestrians to the stairway entrance (top right). LED downlights provide additional lighting for the sidewalk area and new signage (above left).





## DETAILS

**Project** Diane von Furstenberg Studio Headquarters, New York

**Client** Diane von Furstenberg, New York

**Architect** WORK Architecture Company, New York

**Lighting Designer** Tillotson Design Associates, New York

**Project Size** 35,000 square feet

**Project Cost** \$28 million

**Photographer** Elizabeth Felicella, New York

### Manufacturers / Applications

**Bartco** • T5 and T5HO fluorescent strip luminaires throughout

**Belfer** • Fluorescent cove light fixtures with dimming ballast

**Bomin Solar** • Heliostat mirrors

**CSL** • MR16 downlight throughout

**io Lighting** • Surface-mounted LED striplight grazer at stair

**Hera** • Halogen undercabinet millwork accent light

**Legion** • T8 fluorescent striplight at retail area

**Lighting Services Inc** • Recessed track MR16 luminaires at window display areas and lounge

**Nippo** • Seamlessline fluorescent striplight at penthouse

**Osram Sylvania** • Lamps throughout the project

### Philips Solid-State Lighting

**Solutions** • iColor MX PowerCore Series with color player and iPlayer2 controller keypad at façade

**Swarovski** • Crystals at stair

**Zumtobel** • Recessed fluorescent troffer at office areas

A dramatic stair lined with 3,000 Swarovski crystals and topped with a heliostat to gather light and bring it deep into the interior of the five-story space is the central feature of the new Diane von Furstenberg headquarters in New York (facing page).

## STAIR POWER

WORK Architecture Company's vision for Diane von Furstenberg studio headquarters is crystal clear

**Fashion designer Diane von Furstenberg** is best known for turning American sportswear on its ear in the 1970s with her signature wrap dress. A savvy businesswoman and style icon, she is just as notable for hanging out with Andy Warhol (his portrait of her hangs prominently in her office) and as a regular at Studio 54 as she is for running her eponymous company. Given her A-list persona, there is, of course, a certain amount of blurring between her personal life and the DVF brand. Her new 35,000-square-foot headquarters, designed by architects Amale Andraos and Dan Wood, founders of the New York City-based WORK Architecture Company (WORKac), reflects this crossover.

Tucked behind two landmarked façades (the building interiors were not subject to the same preservation requirements and were gutted) on Manhattan's west side in the meatpacking district, each level of the five-story studio headquarters—from the ground floor boutique to von Furstenberg's penthouse—is a different program and on a different point scale between public and private. This diversity raised two primary challenges for the architects: How to create a unified space out of the programmatic array, and secondly, how to light such a variety of spaces with a range of specialized needs arising from retail space, the showroom, offices, and the residential suite.

To link the spaces, Andraos and Wood's solution—a dramatic illuminated stairway—is as signature as their client. Seventy-seven steps slice through the middle of the building, flanked on either side by a flashy guardrail—3,000 Swarovski crystals hung from vertical stainless steel cables. The architects dubbed this unique assembly a "stairdelier," a cross between a stair and a chandelier. The stair is capped off with a faceted skylight, which crowns the uppermost landing.







## PRODUCTS



### Color Kinetics/Philips Solid-State Lighting Solutions iColor Cove MX Powercore [colorkinetics.com](http://colorkinetics.com)

The linear, color-changing iColor Cove MX Powercore is installed in architectural pockets at the bottom of the windowsills. The 12-inch-long RGB LED fixture is controlled by a data-formatting device that uses DMX or Color Kinetics' Light System Manager Ethernet protocol, which enables more than 16 million (24 bit) additive RGB colors. Available in a broad 70-degree by 70-degree beam pattern and a narrow optically focused beam pattern of 20 degrees by 60 degrees. CIRCLE 150



### Zumtobel Lighting Recessed Bivergence [zumtobel.us](http://zumtobel.us)

Installed in the DVF headquarters' offices, this high-performance recessed mounted fixture is available with one or two T5 lamps. Optional matte silver anodized aluminum louver blades are 17/16 inches deep and 2 1/2 inches on center. The 4-foot unit has a total of 18 cells, and the 5-foot unit has a total of 23 cells. An electronic ballast is integral to the fixture. CIRCLE 151

The stairway volume was conceived as a "shaft of light"—a way to bring daylight deep into the heart of the building. To enhance the amount of sun entering the space, the architects installed a heliostat mirror in the double-height penthouse space created by the diamond-shaped skylight. The heliostat tracks the sun and shoots light into the secondary and tertiary mirrors that run the length of the stair. During the day, the whole DVF studio space is bright and awash in glittery reflections as daylight pours in and is reflected off of the triangular crystals. "You can feel time in the space—the movement of clouds and the sun," Andraos says. "There's a connection between inside and outside. It is part of the overall concept to mix life and work and ideas."

In collaboration with WORKac, New York-based lighting designer Suzan Tillotson of Tillotson Design Associates installed a 15W, continuous 5000K high-output light-emitting diode (LED) fixture along the stair stringer for nighttime effects. The detail is understated. When the fixture is off, it does not call attention to itself, but when lit, a narrow beam of light hits the crystal, setting off prismatic reflections and implying a wall of light. But arriving at such an elegant solution was not easy. WORKac and Tillotson Design went through a number of mock-ups: testing and adjusting the scheme as the design developed and the architects researched different types of crystals. "It is very difficult to light smooth glass," Tillotson explains. "When the architects came up with the pattern and the triangular prism, it became the most difficult thing in the world to light. There isn't any surface to light. We experimented with lots of different LEDs. Warm, cool, nothing was bright enough. We had to use a very narrow, 5-degree Kelvin, daylight-colored lamp."

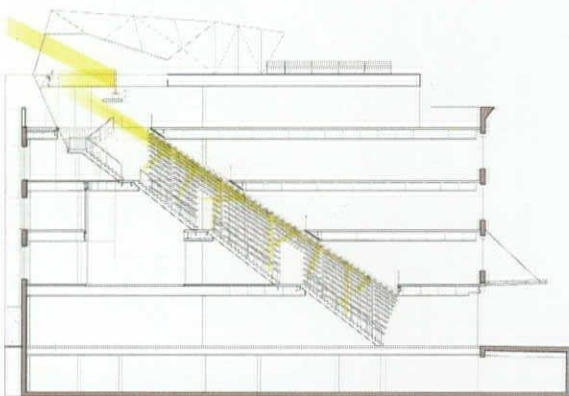
Initially, Tillotson thought to create a uniform lighting scheme in the DVF workspaces and on the showroom floors, but programmatic and energy demands necessitated a tailored approach. The scheme takes into account the footprint of each floor and how the ceiling is perceived from a stairway vantage point, because that approach places the ceiling plane in full view. Worried that a pattern of fluorescent fixtures would take over the office floors, she used indirect/direct fixtures with perforated metal louvers and T8 lamps, a softer lamp source than standard T5s.

The 5,000-square-foot showroom is a flexible space—clothing racks are continually repositioned and DVF hosts events and parties every season. In the display area, which runs along the façade, Tillotson used 200W track-mounted halogen fixtures with MR16 lamps. The double-height space holds an oversized conference/banquet table, but also is designed as a black box theater. Here, Tillotson used larger scale track heads with PAR38 lamps so that the DVF team could aim and control dramatic lighting for everyday use and/or special events.

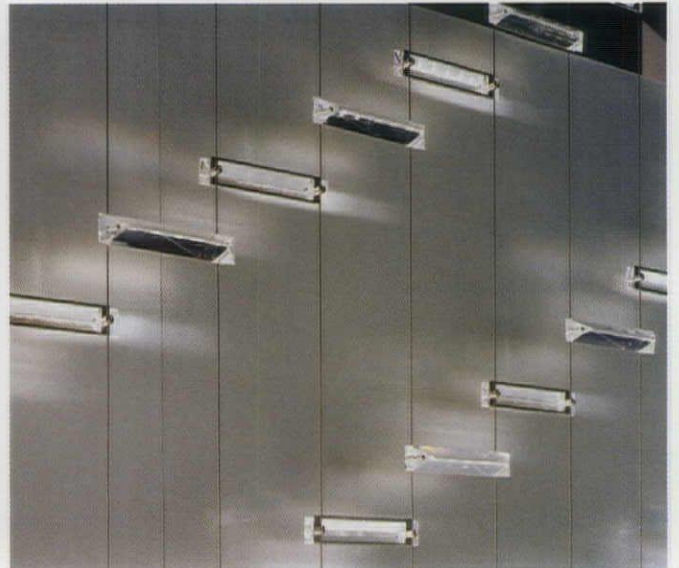
WORKac fashioned von Furstenberg's penthouse after her collection of jeweled baubles—as the diamond-shaped form emerges from the roof, one half covers her living quarters, the other the top of the stairwell. Yet, the entire team wanted to avoid over-illuminating the space, which would turn the most private of residential areas into a meatpacking-district beacon. Tillotson treated the space as the residential interior it is, using recessed adjustable 75W MR16 spots and niche lights where needed. A few warm-white LEDs are integrated into the skylight, but the design allows room for decorative light fixtures from von Furstenberg's personal collection. The gem-like skylight glows softly atop the brick building.

Lit up in shades of hot pink and fuchsia, the historic brick façade is where von Furstenberg's signature style gets full, public expression. High-intensity RGB color-changing LEDs are concealed in the windowsills on the office and showroom floors. After hours, when the shades are drawn, a 1-foot section with a 20-degree beam illuminates each window opening from a pocket at the bottom of the sill. Tillotson turned to an LED product with integrated color software management and programming capabilities to match the DVF brand colors. The lighting scheme invigorates a neighborhood that is rapidly moving from industrial warehouses, with a touch of underground nightlife, to one of Manhattan's trendiest neighborhoods. Yet the studio headquarters building is never ostentatious. Pink and sparkly, yes. Flashy, never. **MIMI ZEIGER**

Color-changing LEDs (facing page top) give the building a dynamic presence at night. A heliostat at the top of the stair (facing page bottom left) gathers sunlight, which reflects off the 3,000 crystals (facing page bottom center) that line the stair and are illuminated by LEDs at night (facing page bottom right). A section shows how the stair cuts through the building (left).











## DETAILS

**Project** Cox Communications,  
Topeka, Kan.

**Client** Henderson Development,  
Topeka, Kan.

**Architect and Lighting Designer**  
El Dorado Architects,  
Kansas City, Mo.

**Project Size** 9,200 square feet  
(including glass "link")

**Project Cost** \$800,000

**Lighting Cost** \$28,000

**Watts per Square Foot** 0.8  
(interior and exterior)

**Photographer** Mike Sinclair,  
Kansas City, Mo.

**Drawings** El Dorado Architects,  
Kansas City, Mo.

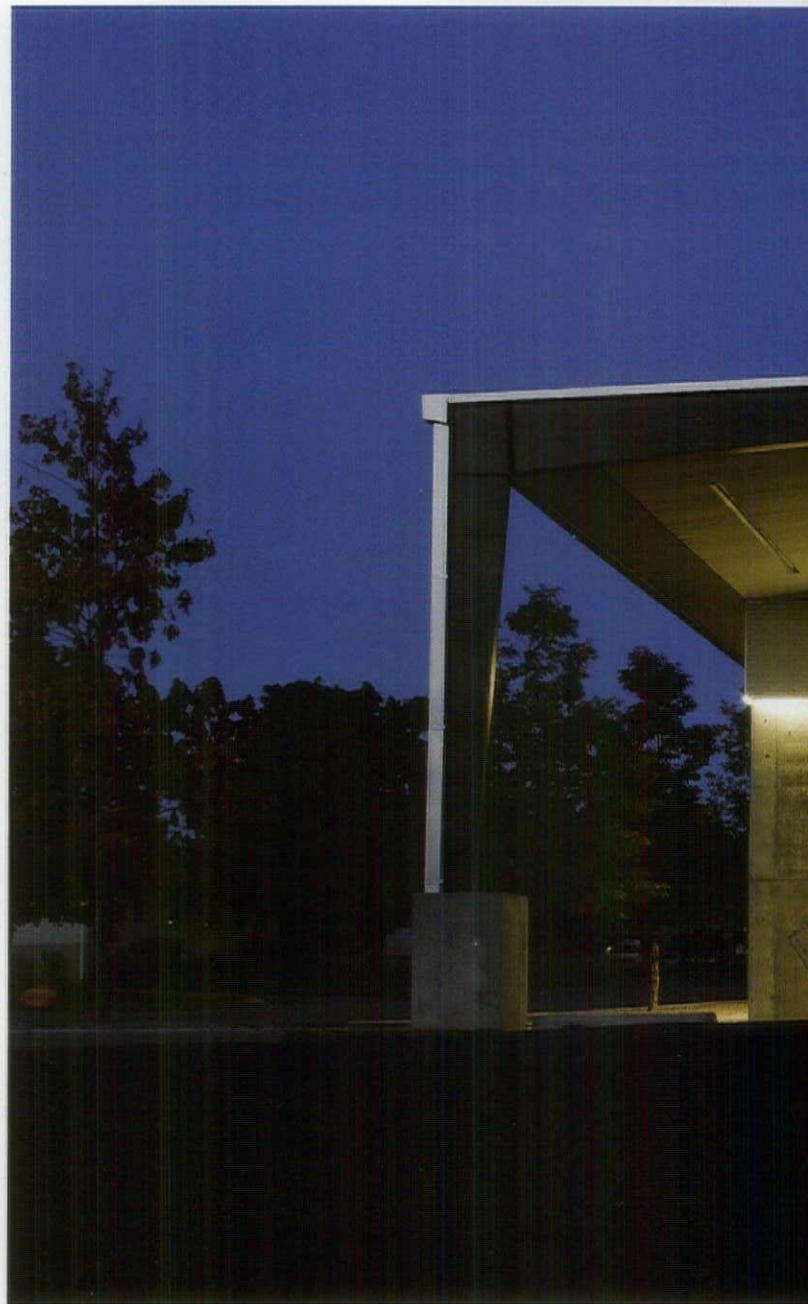
**Manufacturers / Applications**  
H.E. Williams • Interior uplighting  
and exterior light covers at soffit and  
stem walls

A.C.E. • Exterior ballasts

Manko Window Systems •  
Windows and clear anodized  
aluminum entry system

Unacled • Corrugated Galvalume  
siding, 601 series wall sheathing  
and siding

VP Buildings • Pre-engineered  
building and roofing systems



## PRECIOUS METAL

A simple yet dynamic lighting design helps set the tone for an outdated office park

The silhouette of a seemingly ordinary warehouse and its pre-engineered structure is transformed by light and becomes a thing of beauty as it sits against the Kansas landscape.





**The anchor tenant of a light industrial park** in Topeka, Kan., Cox Communications (CC) was in need of more space for its growing inventory—a new distribution center to respond to increased sales in the greater Topeka area. This was just the opportunity for CC's landlord, the owner of the office park who had inherited the outdated site from his father, to rewrite its architectural landscape by updating one building at a time.

With this vision, the owner called on El Dorado Architects, a 15-person Kansas City, Mo.-based firm, whose portfolio includes the award-winning Flex Storage Systems warehouse (see "Flex Systems," July/Aug 2006, pp. 32-33). Employing a similar design strategy, most notably the use of a pre-engineered building system to keep costs at bay, the architects applied their expertise and devised a structure that would set an innovative yet straightforward approach for future development for the entire industrial park site.

There were but three requirements from the client: that the building be durable, energy efficient, and that construction costs remained within the owner's budget of \$80 per square foot. As El Dorado principal Josh Shelton explains, "The client was interested in some low-tech strategies to help keep the heat down in the summer and hold energy costs down in terms of lighting. But, more than anything, he was looking for a building that functioned well."

Responding to these requirements, El Dorado chose a pre-engineered metal building system made from Galvalume—steel with a protective coating of zinc and aluminum—to envelop the 8,500-square-foot structure. "One of the things I love about these systems is that the shape of the steel is not designed by an architect, it's actually generated mathematically to create the most efficient way to achieve a given span," Shelton says. Structurally, the warehouse is organized into repetitive 30-foot bays, the sentiment of which is echoed outside with oak trees and louvered vents that keep in rhythm with the modular sections. The linear louvered vents—located at the base of the north and south façades—speak to the building's energy efficiency as they activate a convection cooling system, allowing outside air to enter the warehouse at floor level and replace hot air that exits through large roof vents.

With its controlled material palette, including steel, concrete, and glass, the building's design is a pragmatic response to its function. The lighting design is no exception. "From the beginning of this project, we weren't thinking about lighting as an additional element," Shelton notes. "We were thinking of it like a material, to the extent that it became part of the vocabulary of the building's skin details." Fully integrated into the building, the lighting is unobtrusive and restrained, yet, as a result of its thoughtful placement, becomes more than just

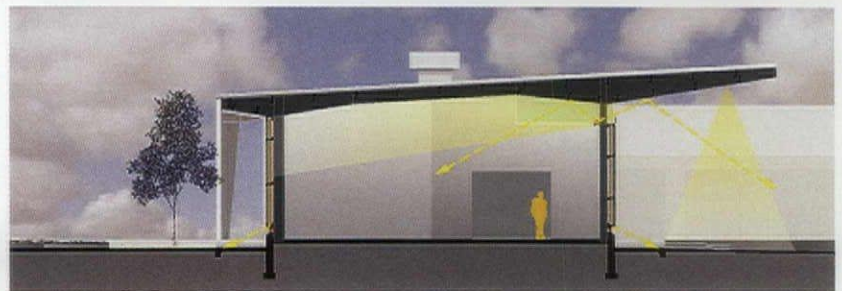
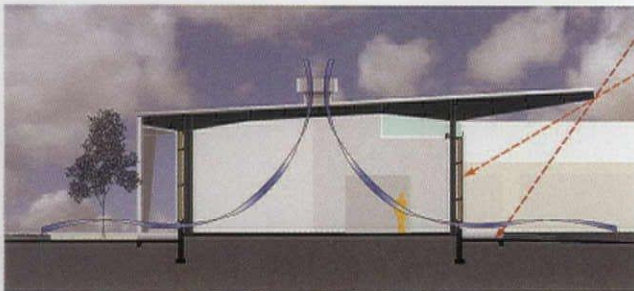
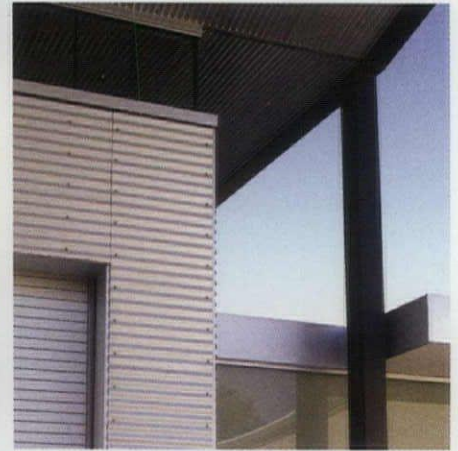








The warehouse uses only two light sources—natural light and T5HO 3500K linear fluorescent strips to articulate the building's volumes and surfaces (bottom right). Material transitions on the façade are distinguished by linear bands of light (facing page). At the clerestory, 4-foot T5HO lamps uplight the underside of the Galvalume roof (left). Louvered vents located at the base of the north and south façades activate a convection cooling system. Outside air is brought into the warehouse by floor-level vents and hot air exits via large vents on the roof (bottom left). The building's details do the talking as glass, steel, and concrete are combined to create a contemporary composition (below right).



another element of the design. Consequently, the building's architecture acts as a light fixture, the impetus for the firm to keep the lighting design in-house. "It is not uncommon for El Dorado to perform lighting design for projects with simple program requirements and/or tight fee budgets," Shelton says. "We are always seeking to integrate lighting into the core architectural systems that comprise any given project."

The warehouse's façade is a clean and contemporary composition of horizontal swathes of material in varying widths, including a concrete base, metal siding, clerestory windows, and a cantilevered roof. A band of light from 3500K T5HO fluorescent lamps in 4-foot lengths, located along the concrete foundation, provides pedestrian lighting for the sidewalks that run along the north and south faces of the building and the parking lot. A second linear accent of light occurs just above the clerestory windows, where 4-foot T5HO fluorescent strips, also 3500K, are staggered and recessed into the underside of the roof's overhang uplighting the Galvalume. The reflection on the metal surface directs a balanced ambient light onto the asphalt of the parking lot, providing a secondary level of illumination. On the south side of the building, linear

fluorescent strips in an overhead exterior soffit provide task lighting for vehicle loading and unloading. Indirect lighting above the clerestory windows is provided by 4-foot T5HO fluorescent lamps with reflectors, staggered 4 inches below the base of the 2-foot-by-6-foot windows. As Shelton points out, "There was a required structural member for lateral bracing that created a perfect little cove for uplighting the underside of the soffit." This practical approach was key to creating efficient expanses of indirect site illumination, eliminating the need for stand-alone fixtures, while highlighting the details of the steel skin. "We were interested in putting light where it was needed," Shelton says.

Inside, the lighting, as on the exterior, is minimal. The majority of illumination is supplied by a single run of industrial fluorescent fixtures that illuminate shelving on the north and south sides of the warehouse. At the southern end of the space, daylighting plays a significant role. Although the clerestory windows are shaded beneath the large roof overhang, indirect natural light fills the warehouse during the day; enough so that no electric light is needed to illuminate the southern shelving aisle.

Another aspect of the design that introduces natural light into the space is





## PRODUCT



### H.E. Williams T5 Staggered Ministrip [hew.com](http://hew.com)

The slim profile— $2\frac{3}{16}$  inches high by  $1\frac{1}{4}$  inches wide—of this linear fluorescent fixture is ideal for cove-lighting applications. Available with either surface or suspended mounting options, a 6-inch housing offset ensures even illumination. An electronic ballast is a standard feature, and the finish is a reflective white powder coat. **CIRCLE 152**

the glass "link" that connects the new warehouse to the company's existing office building. The low-slung glass box forms a natural transition between the two spaces. Frosted glass panels minimize glare, but natural light still enters the space during the day. At night, the glass box glows, illuminated by fluorescent lamps that wash the ceiling with light.

Surrounded by nondescript, box-like buildings built during the 1960s and '70s, the new warehouse with its soaring cantilever, elegant proportions and striking metal skin commands a larger site presence than its 40 by 200 foot-print. Bringing a modern aesthetic to the office park while employing simple strategies to keep energy demands to a minimum, the building also connects with its environment. "One of the things that I didn't anticipate is how the building interacts with natural light," Shelton says. "There's something about the way the sun—especially in the evening—rakes across the Galvalume siding. The building becomes fluid and silky, much softer than you would expect of a metal building." Smooth, subtle, and efficient, the new distribution center is setting the standard for the structures to come. **SALLIE MOFFAT**



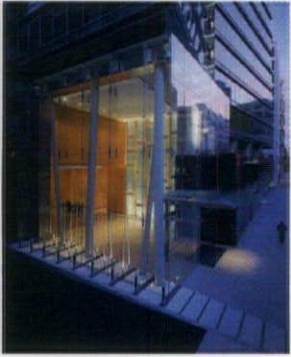


By day the warehouse strikes an elegant pose as sunlight helps define the metal Galvalume surfaces (left). A band of light from 3500K T5HO fluorescent lamps in 4-foot lengths, located along the concrete foundation, provides pedestrian lighting for the sidewalks that run along the north and south faces of the building and the parking lot (above).









## GLOWING GLASS

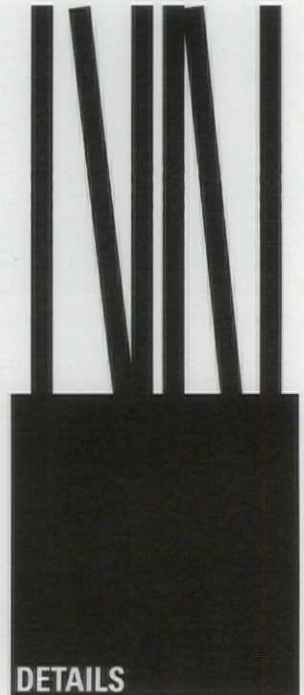
A distinctive "lightbox" lobby treatment makes a Washington, D.C., office building stand out

It's not difficult to pinpoint which building along 15th Street Northwest in downtown Washington, D.C., is the Columbia Center. Completed in 2007, its glass curtain wall façade and glowing "lightbox" lobby stand out amid the surrounding drab 1970s precast concrete office buildings—which is exactly what the architect and client wanted. "When Monument Realty, the developer, came to us, they said, 'We want you to design a building that is not your typical D.C. box,'" explains Michael Hickok, principal of D.C.-based Hickok Cole Architects, the firm that worked on the project. "We want you to design a building that will transform this block." And transform it has, especially by creating a nighttime presence with light radiating from the lobby onto this downtown street just blocks from the White House.

Hickok Cole Architects took the reins on the project and ran an in-house design competition over several weeks to come up with the final design concept. "We like being able to draw on the talent of a lot of people in the firm," Hickok says. With the building having such a large footprint at 415,000 square feet, he notes that the greatest design challenge was how to bring people through the entry sequence from the building perimeter at 15th Street into the lobby and back toward the elevator core. Also, despite the building being on a mid-block site, it receives natural light on all four sides because of adjacent public alleyways. "If we put the lobby in the center of the façade, you'd be left with slender retail spaces on either side, and you'd be challenged to take people 200 feet deep into the site without any natural light," Hickok points out. As a result, the architects moved the entry lobby to the southeast corner of the site, and that is where the idea of a lightbox was developed.

Knowing the lobby had to be of a certain scale to be seen from blocks away, the idea of a "three-story glass cube" emerged, Hickok says. While the design team was happy with this solution, it did have to address the fact that one long face of the entry overlooks the alley adjacent to the Columbia Center's neighbor, the Washington Post. "It's not the greatest view; the wall is blank and you can look back and see their loading dock," Hickok notes. "We were contemplating some way of screening that a little bit from the lobby without blocking light." Numerous options were discussed, including talk of using trees either outside or inside the lobby. Installing an interior bamboo garden was suggested, but the architects were not sure about using the real plant. Eventually, the idea for light rods shaped like bamboo emerged. "It would be sculptural and abstract but do the same thing the actual bamboo would do," Hickok says. "It would provide immediate scale while also serving as a screen."

It took the team from Chevy Chase, Md.-based Claude R. Engle Lighting Consultant about seven mock-ups to find the right plastic for the custom-made artificial bamboo rods, says firm vice president John Wood. "We had the manufacturer



### DETAILS

**Project** Columbia Center Lobby, Washington, D.C.

**Client** Monument Realty, Washington, D.C.

**Architect** Hickok Cole Architects, Washington, D.C.

**Lighting Designer** Claude R. Engle Lighting, Chevy Chase, Md.

**Project Size** 415,000 square feet (building); 4,200 square feet (lobby)

**Photographer** Prakash Patel, Washington, D.C.

#### Manufacturers / Applications

**Belfer** • Fluorescent cove light fixtures in the elevator core

**B-K Lighting** • Low-voltage flush uplights with remote transformer

**Edison Price** • Incandescent wall-washers and downlights in lobby

**Ensinger** • Custom bamboo rods

**Hydrel** • Incandescent uplights to illuminate the dichroic glass wall

**Pulp Studios** • Dichroic glass

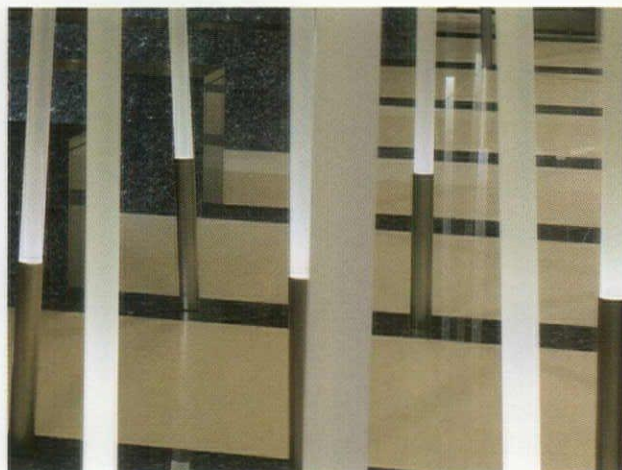
The Columbia Center differs from adjacent buildings on 15th Street in downtown Washington, D.C., with its glass façade. The lightbox lobby receives abundant natural light during the day and is visible from blocks away at night (facing page).



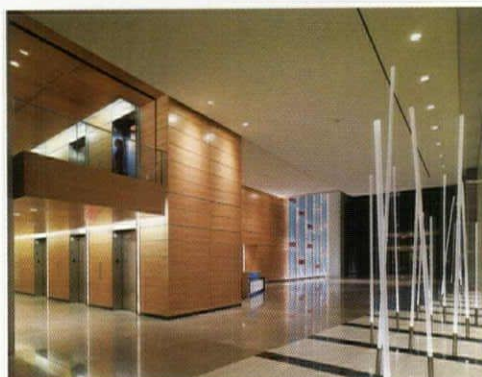
## PRODUCTS



**Hydrellum 4000 Series In-Grade** [hydrellum.com](http://hydrellum.com)  
Used to uplight the dichroic glass wall in the lobby, these flush-mounted uplights use quartz 250W PAR 38 lamps. This luminaire family recently was discontinued upon the launch of Hydrellum's Paradox Architectural In-Grade formation. CIRCLE 153



**Ensinger Custom Frosted Acrylic Rod** [shopforplastics.com](http://shopforplastics.com)  
Tasked with designing custom acrylic rods resembling bamboo, Washington, Pa.-based plastics manufacturer Ensinger created a product 2 inches in diameter with varying lengths from 8 feet to 14 feet, depending on orientation. Illuminated by fiber optic projectors using 150W metal halide lamps, the rods are all one brightness and not dimmable. The tops of the rods are painted white to help reflect light that reaches the top of the rods back down throughout the tube. CIRCLE 154



paint the top of the plastic white, so it bounces the light back down the tube when the light gets to the top." The 2-inch-diameter rods ranged in length from 8 feet to 14 feet depending on their orientation, and are placed randomly in small groups of two or three along the east side of the lobby. Illuminated with a fiber optic projector using 150W metal halide lamps, it was necessary to cut through the slab and surface-mount the illuminators on the garage ceiling below. One fiber optic illuminator can light five bamboo rods, which are one brightness and not dimmable.

To support the overall structure, a large building column typically would have had to be located in the southeast corner, where the lobby is housed. Rather than installing a large, obtrusive column, the architects played off the bamboo idea of the light rods and broke it up into several smaller columns. "Some of them are angled off each other and spread out a little bit so they're really more akin visually to the bamboo than they are to a structural column," Hickok notes.

The main feature in the lobby is the three-story dichroic glass wall, which originated from the idea of creating an "abstract waterfall," Hickok explains. The dichroic glass panels, in 3-foot-6-inch by 1-foot strips, are located between laminated blue glass and are illuminated from top and bottom with quartz 250W PAR38 lamps (three per panel) that are mounted flush in the floor and on a surface-mounted track in a cove at the ceiling line. The dichroic glass panels, which Hickok says "catch the light from different angles beautifully," do not run up the wall continuously and expose the wood surface behind them.

There is not much downlighting used throughout the lobby, which is possible because of the large amount of natural light received during the day and the glow of the electric light at night. Walking through the lobby toward the elevators, perimeter walls are illuminated with lensed wallwashers using PAR lamps. Fluorescent cove lights with T8 lamps illuminate the elevator cab area. Wood says there is a lot of wattage used throughout, but it is all managed with a lighting control system set to four scenes: daylight, dusk, night image, and night security. Because of the abundance of natural light in the space, much of the electric lighting is off during the day.

"We didn't want the lightbox to be an ice cube kind of space," Hickok says. "We wanted it to be a warm, inviting space." This was achieved by the materials selected to complement the lighting: wood paneling and light-colored floor stone in an effort to bounce around as much natural and electric light as possible to illuminate the lobby. Day or night, the lightbox fulfills its goal by setting the Columbia Center apart from the rest of the buildings on 15th Street in the nation's capital, using light to attract attention to the three-story glass lobby and the building itself. **JENNIFER LASH**

Structural columns are angled to mimic the bamboo light rods (top left) along the east side of the lobby. The elevator core (bottom left), illuminated by fluorescent cove lighting, is located about 200 feet from the lobby entrance. The dichroic glass wall (facing page) is the main feature of the lobby space, created from the idea of an "artificial waterfall."







# PROGRESSIVE PARKING

An inventive and colorful lighting scheme provides a new take on a typically mundane project type







## DETAILS

**Project** Santa Monica Civic Center parking structure, Santa Monica, Calif.

**Executive Architect** International Parking Design, Irvine, Calif.

**Design Architect** Moore Ruble Yudell Architects & Planners, Santa Monica, Calif.

**Lighting Designer** Francis Krahe & Associates, Los Angeles

**Project Size** 300,000 square feet

**Project Cost** \$31 million

**Lighting Cost** \$1 million

**Watts per Square Foot** 1

**Photographer** John Edward Linden Photography, Woodland Hills, Calif.

### Manufacturers / Applications

**Lam** • T5HO indirect/direct pendants in parking area; surface-mounted fixtures at elevator lobbies, rooftop perimeter and photovoltaic structure  
**Paramount** • T5HO surface-mounted fixtures at stairwells

**NSI Products** • Four colors of neon on garage façades

**Woodbridge Glass Fabricators** • Custom glass panels on garage façades

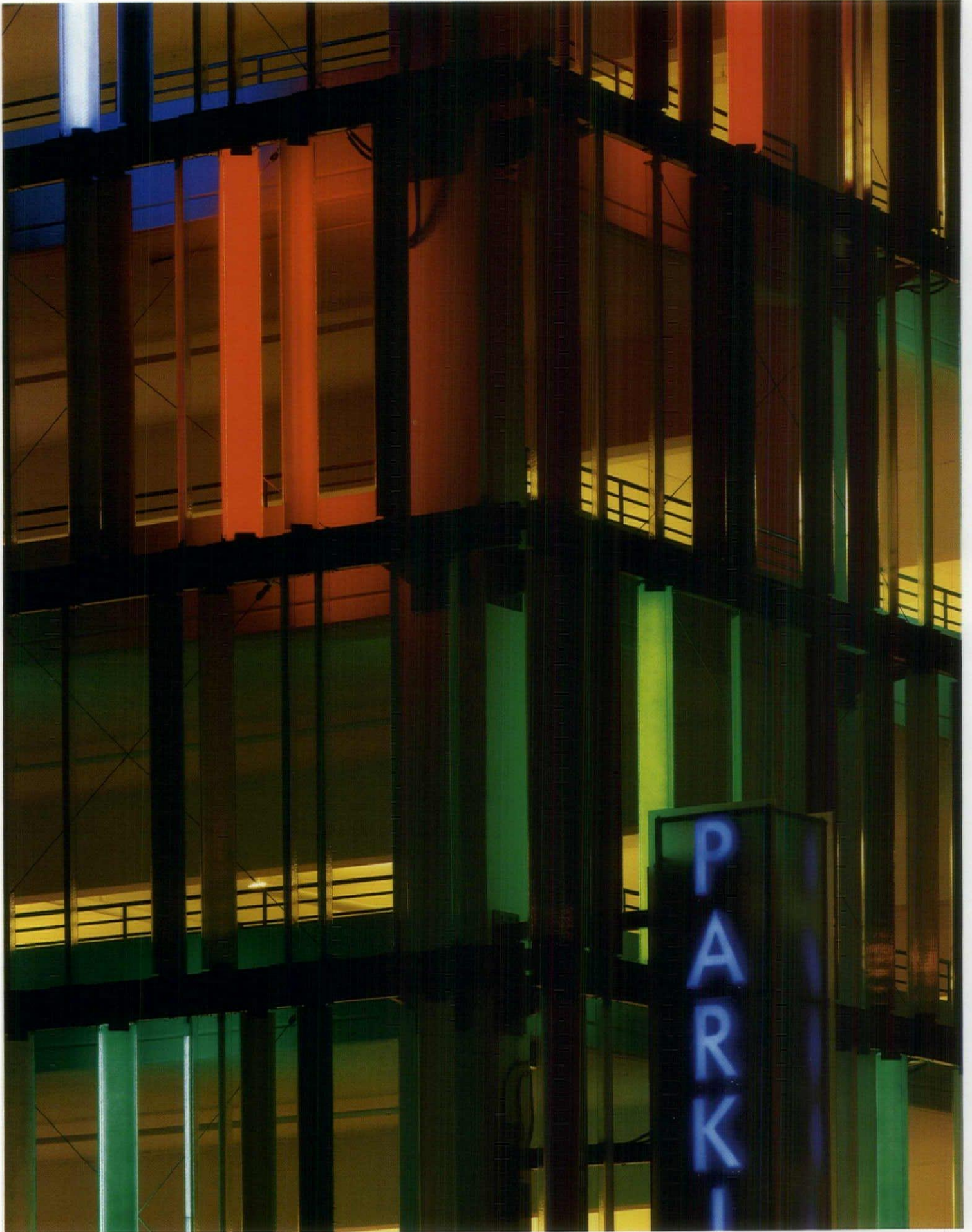
**Located at the intersection of Fourth and Olympic**, the Santa Monica Civic Center parking structure has become a highly visible and intriguing landmark for the city. The eight-story, 900-car facility fearlessly embraces color and transparency, reimagining the very notion of a parking garage and creating a welcoming new "front door" for the civic center.

Success of the project's lighting design can be credited to Los Angeles-based lighting design firm Francis Krahe & Associates (FKA). Together with the executive architect, International Parking Design of Irvine, Calif., as well as the design architect, Santa Monica, Calif.-based Moore Ruble Yudell Architects & Planners, FKA developed a seamlessly integrated lighting concept that includes interior parking areas, exterior façade, perimeter landscape lighting, and graphic signage.

With the City of Santa Monica as the client, there were many individuals involved in the overall design process. Complex design reviews were

Seen from California Interstate 10, the Santa Monica Civic Center parking structure serves as a gateway to the city with its colorful façade treatment.







conducted involving a committee of individuals representing areas of maintenance, finance, and community outreach. Multiple rounds of redesign and budget compliance presented the team with a challenging goal of balancing function and aesthetics, financial, and sustainability concerns. Despite the challenges faced over the course of the six-year process, a shared desire remained to turn a seemingly simple concrete structure into an appealing piece of architecture.

The final design, completed in March 2007, is a surprisingly lively building that creates a beautiful new gateway to the civic center, both by day and at night. Le Nguyen, senior lighting designer at FKA, describes the aesthetic as "optimizing daylight views and transparency, with colorful variation relating to the City of Santa Monica's vibrant culture." At night, a similar emphasis was placed on transparency so that the garage would "glow and radiate like a lantern."

Color specialists at Moore Ruble Yudell Architects went through a series of studies to create a palette of hues that are incorporated into the laminated, U-shaped glass channels, which hang from the core concrete structure and respond to the varying urban contexts of the garage's four façades. The lighting designers explored light-emitting diodes (LEDs) and fluorescent lamps as possible light sources to enhance the tone of the exterior colored glass panels; however, after several design and budget reviews and full-scale mock-ups, the team settled on neon as the illumination source that met both the aesthetic and cost criteria. The decision to use a neon source rather than LEDs was in part a circumstance of timing. "The whole exercise of purchase and bid happened when LEDs were just becoming prevalent in the market," Nguyen explains. "If it had been a few more months, we probably would have selected LEDs."

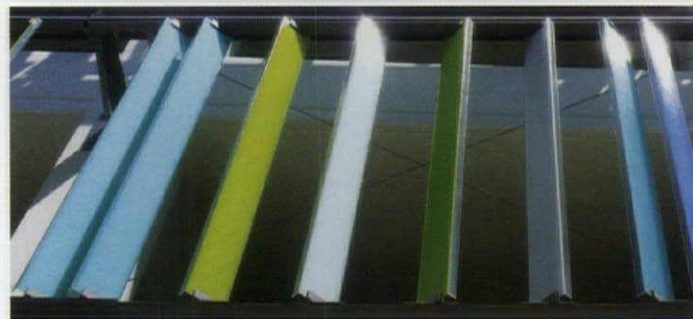
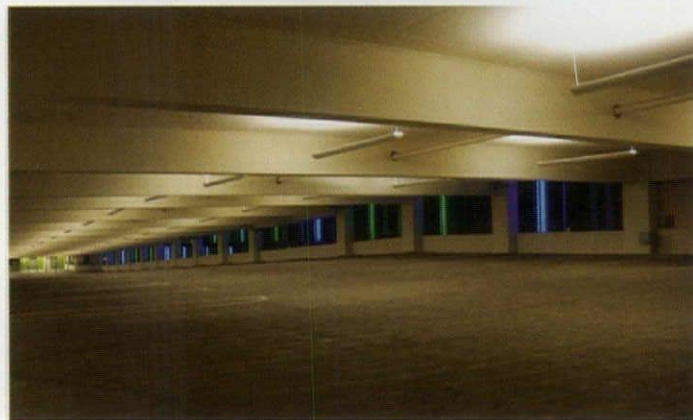
As the lighting team worked to understand the skin of the building, it became critical to develop an interior lighting system that would not interfere with the visibility or the transparency of the façade. Safety was a major concern for the city given the structure's adjacency to municipal buildings, including a courthouse. Consequently, the city required increased interior illuminance criteria of 5 to 20 footcandles and a uniformity ratio of 4:1, approximately 5 to 20 times greater than Illuminating Engineering Society recommendations. To balance security requirements with issues of glare control and maintenance ease, the design team at FKA selected indirect lensed 3000K T5HO fluorescent pendants to light the interior of the garage. Through a combination of lighting controls and strategic placement, the warmth of the interior white light radiates through the parking structure without overwhelming the color articulation on the façade.

Known for being a progressive community, the City of Santa Monica has an enthusiastic commitment to protecting the environment, improving quality of life, and promoting sustainability. A variety of sustainable and environmentally conscious decisions were made during the design process, including those made in regard to the lighting.

To optimize the use of daylight in the parking garage, daylighting models were calculated to evaluate sunlight patterns and establish interior lighting zones, which are in turn controlled via photocells. A 19,200-square-foot, 181-kilowatt installation of solar photovoltaic panels takes advantage of available solar power, acting as a shading device for the top level parking area and creating an on-site renewable energy source for the entire building. To address concerns about light trespass onto neighboring properties, rooftop lighting is concealed in perimeter handrails with a modified glare-control louver optic. As a result of the project's commitment to environmental responsibility, the parking structure received a Leadership in Energy and Environmental Design (LEED) Certified rating from the U.S. Green Building Council.

Over the lifetime of the project, the design team never lost sight of its goal to create a visually appealing "gateway" for the new Santa Monica Civic Center. The building has become what Nguyen describes as "the antithesis of a parking structure." By implementing qualities of transparency and color into what otherwise typically might be described as a mundane building type, the architectural and lighting design teams were able to provide a unique and memorable experience to those using the parking garage while also giving the City of Santa Monica an architectural icon of which it can be truly proud. **MEGAN CASEY**

By day the sun saturates the color of the façade's glass channels (bottom), and at night the color is further accentuated by neon sources (facing page). The garage's proximity to municipal buildings necessitated city-required illumination-level increases. To meet these guidelines, the lighting designers selected an indirect/direct 3000K T5HO fluorescent pendant (below).



## PRODUCTS

### Lam Lighting Literod [lamlighting.com](http://lamlighting.com)

This linear fluorescent fixture with an extruded aluminum housing is available with direct, direct/indirect, and indirect optics. The fixture has three lamp options: T8, T5, or T5HO; three diameter choices: 4, 6, or 8 inches; and three length selections: 4, 8, or 12 feet. The housing can be rotated 358 degrees after installation.

CIRCLE 155



VLADIMIR PAPERNY

### Lam Lighting Choices [lamlighting.com](http://lamlighting.com)

A linear pendant with an extruded aluminum housing and a specular aluminum reflector, the Choices family of luminaires is available in both direct/indirect and indirect formats. The fixture can be used with T8, T5, and T5HO fluorescents, configured with one, two, or three lamps, and specified in three lengths: 4, 8, or 12 feet. The top of the fixture can be open or covered by a clear acrylic lens. CIRCLE 156





The Reef Atlantis  
Paradise Island, Bahamas  
Lighting Designer: Lighting Design Alliance  
Photographer: George Gruel, Oddstick Studio



Halo® LED Recessed



IRiS® Squares



Lumière® Monaco 6002A



Portfolio™ Downlights



io® line series 1.5

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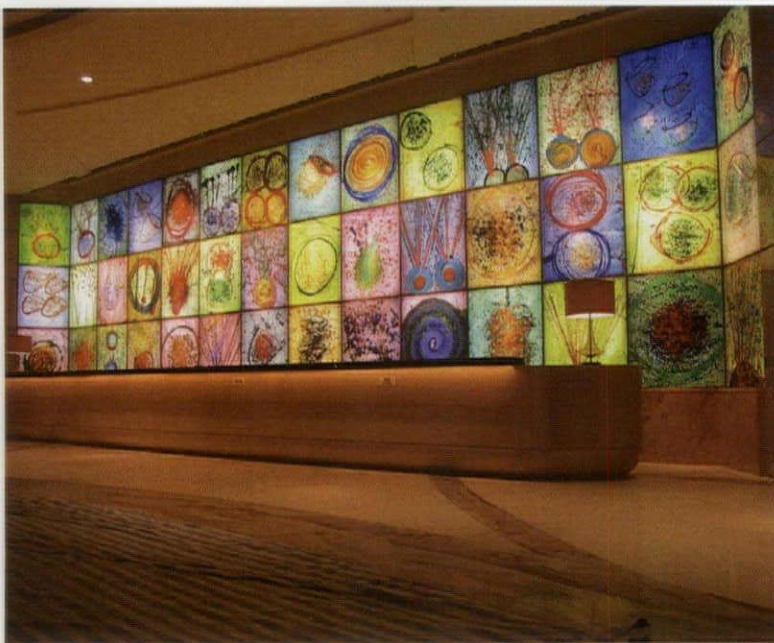


# CHIHULY LOBBY INSTALLATION, Macau

**Project** Chihuly Lobby Installation, MGM Grand, Macau **Design Team** Dale Chihuly, Chihuly Studio, Seattle (artist); Studio Lux, Seattle (lighting designer)

**Photographer** Thomas Gray, Chihuly Studio, Seattle **Manufacturers** Erco, GE, io Lighting, Viabizzuno

**CHALLENGE** Creating a lighting design for two installations by artist Dale Chihuly in the MGM Grand Macau was no easy task. Lighting designers Jim Sultan and Christopher Thompson of Seattle-based Studio Lux had their work cut out for them with this fast-paced project, for which they had only eight months to decide how to illuminate these two very different pieces of artwork located in the hotel lobby. Sultan and Thompson introduced Chihuly, accustomed to working with incandescent lamps, to ceramic metal halide and light-emitting diode (LED) technology with this project. The lighting design team showed Chihuly that he did not have to give up the characteristics he is used to from incandescent sources in terms of color rendering, beam spread, and performance. The distance between Seattle and Macau posed a particular challenge, but through a series of mock-ups, "everything was determined in how it would go together here in Seattle," Sultan explains, noting that all aspects were then replicated in Macau in the final installation.



The "Fiori Di Paradiso Drawing Wall" (above left) sits behind the reception desk at the MGM Grand Macau. It is made up of 45 different art panels, backlit by 5000K LED strips. Also located in the lobby, the "Fiori Di Paradiso Ceiling" sculpture (above right) is illuminated by a mix of 20W and 35W ceramic metal halide lamps located above the ceiling.

**SOLUTION** With various design teams spread around the world working to get the MGM Grand Macau ready to open, this project was difficult to pull together. "From a coordination standpoint, it was probably one of the most complicated projects we've worked on," Thompson admits. With the bulk of the lighting design work accomplished in Seattle, Sultan notes that he took three trips to China to assist with the lighting system, and he supervised every installed fixture. While Studio Lux does the majority of lighting for Chihuly's artwork, this project for the MGM Grand is one of the larger installations the firm has done, and Thompson says it was complicated to design a layout and make sure it was executed flawlessly.

The MGM Grand Macau lobby features two Chihuly pieces: the red "Fiori Di Paradiso Ceiling" glass installation, measuring 55 feet long and 30 feet wide, and the "Fiori Di Paradiso Drawing Wall." Located behind the reception desk, the drawing wall features 45 different glass panels and is 55 feet long and 15 feet high. With each piece having its own unique qualities, each installation also received its own lighting design solution.

"Fiori Di Paradiso Ceiling" is nestled between two large marble columns situated 60 feet apart in the hotel's main lobby. While many commercial interior settings might use large theatrical-style fixtures, Thompson said in this case, the sculpture required that the luminaire selected would "disappear" into the ceiling. With only a few visible lamps, 100 fixtures are located above the ceiling—80 with 20W ceramic metal halide lamps and 20 with

35W ceramic metal halide lamps. Sultan says the color of the artwork presented a challenge as red is difficult to light, but the 3000K color temperature of the lamps gave them the result they were after. Numerous studies were conducted to figure out how to avoid glare when illuminating the glass work, and the lighting system was "quite technical to put together," Sultan notes.

The "Fiori Di Paradiso Drawing Wall," made up of 45 panels with Chihuly drawings infused onto the glass, is illuminated from the front and back by two different lighting systems. First, the luminous panels are backlit with more than 200 high-output LED strips mounted vertically about 12 inches apart and controlled on a 10V dimming system. The use of LED technology to illuminate this artwork is a first for Chihuly. Studio Lux selected a color temperature of 5000K because, as Sultan explains, the cooler-toned LEDs better showed off the artwork. In addition to the LEDs, the drawing wall also is lit from above by a combination of narrow spot and spot 50W AR111 lamps concealed in a trough. The 55-foot-long track has a total of 70 lampheads and features three separately dimmed circuits so that as the dimming scenes change, balanced light occurs throughout.

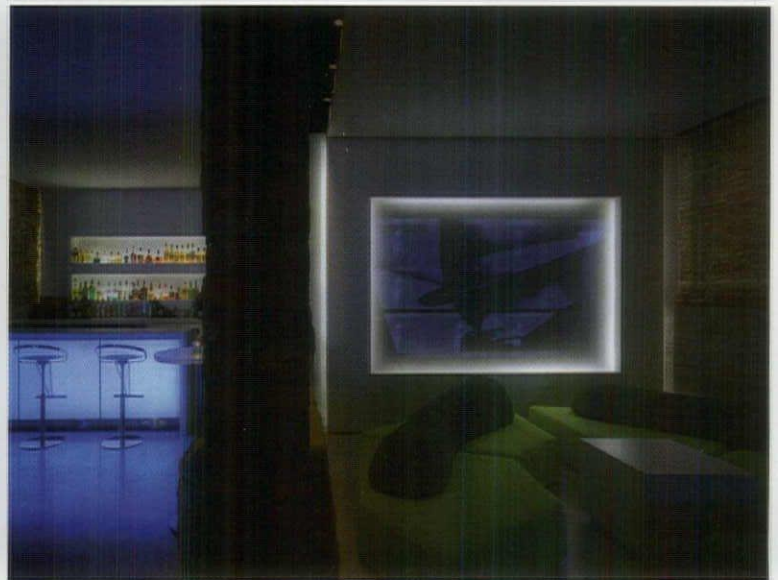
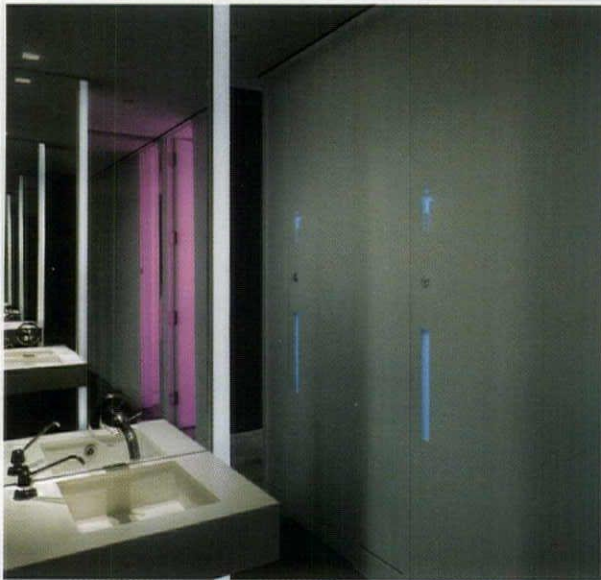
The expansive MGM Grand Macau lobby is enhanced by these two glass art installations that Sultan says helped drive a paradigm shift in Chihuly's studio from incandescent to ceramic metal halide and LED technology. The success of this lighting design is the result of much collaboration and is proof that the artwork benefits from the use of new light sources. **JENNIFER LASH**



## L2 LOUNGE, WASHINGTON, D.C.

**Project** L2 Lounge, Washington, D.C. **Design Team** Lehman Smith McLeish, Washington, D.C. (architect and interior designer); MCLA Architectural Lighting Design, Washington, D.C. (lighting designer) **Photographer** Prakash Patel, Washington, D.C. **Project Size** 4,450 square feet **Watts per Square Foot** 3.24  
**Manufacturers** Birchwood Lighting, Color Kinetics, Lutron, ProLume, USA Illumination, Times Square Lighting

**CHALLENGE** Located in Washington, D.C.'s Georgetown neighborhood, L2 Lounge brings a sense of its exterior surroundings indoors with the space's exposed brick, stone walls, and concrete floors. The high-end neighborhood is fitting for the members-only club (although non-members may be granted entry for a price if space permits). L2's design contrasts rough walls and smooth surfaces throughout, such as white fabric ceilings, white lacquer panels, and backlit glass. This posed a challenge in regard to lighting the space, according to Maureen Moran, principal of Washington, D.C.-based MCLA Architectural Lighting Design, who says she was surprised by the reflectance levels. "In most clubs or lounges, you don't have a white ceiling," she notes. "One of the challenges was to get the lounge dark enough." Working with the architect, Lehman Smith McLeish, and the client, MCLA developed a lighting scheme that is completely dimmable, uses approximately 80 percent light-emitting diode (LED) technology, and captures the underground feel of the space, which includes four lounge areas, while utilizing the white surfaces throughout.



Stalls in the unisex bathrooms have a profile cutout of a man or a woman, which are backlit in either blue or pink (above left). Video screens are framed by strips of warm white LEDs while the bar also features LEDs, concealed in glass panels (above right). The coat check (facing page) is illuminated by color-changing LEDs behind laminate glass panels.

**SOLUTION** When the team from MCLA first saw the space, the designers immediately thought to use color knowing that the client wanted a lighting design that was unique and upscale, Moran notes. She adds that LED technology was an appropriate lighting solution for the project because of the low-level light situations associated with a lounge space.

Upon entering the exclusive club, patrons find themselves in a narrow entryway, illuminated by a wall of color-changing LED laminate glass panels on one side and white lacquer panels on the opposite wall. This vestibule is bathed in a soft colored glow as the paneled wall, which surrounds the coat check, is the sole illumination source in the space and is backlit with RGB 1W LEDs each individually controlled to create different color combinations. As Moran explains, additional lighting was not necessary in this area because the lighting creates the illusion that both walls are backlit, in turn filling the entire space with light.

Glass doors from the coat check hall lead the clientele into L2, which features two bars and four lounge spaces separated by stone walls. Video displays, able to show dynamic effects and patterns, are used throughout the project, with one lounge space even projecting images onto its white fabric ceiling. To offset the video display walls from the stone surfaces, strips of warm white 3000K 1W LED grazers frame the video screens. While eye-catching in their own right, Moran notes that the video components, not part of the lighting scheme completed by MCLA, blend into the space nicely and do not distract from the other lighting elements.

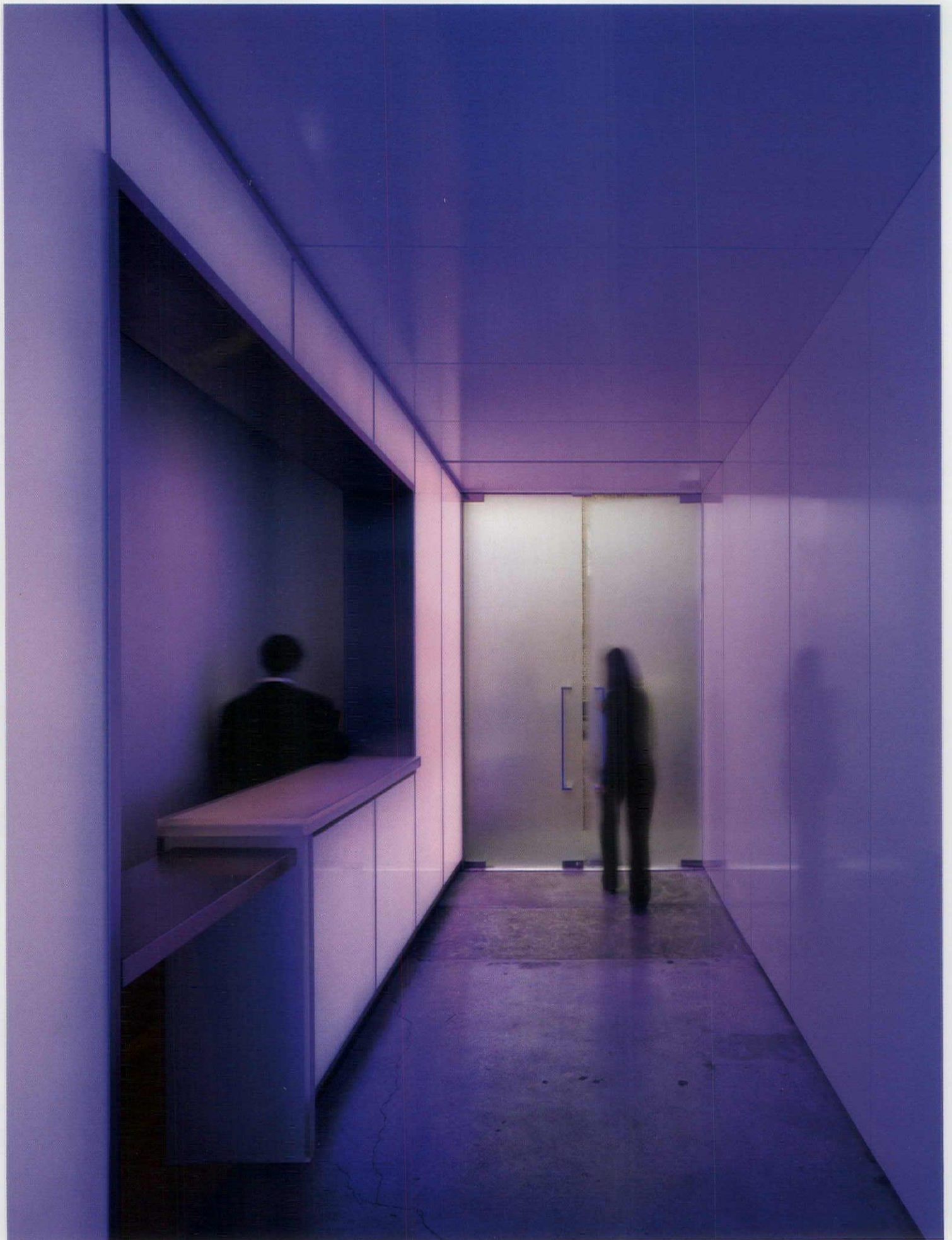
Not wanting to penetrate the acoustic stretch fabric ceilings of the

lounges with downlights, the design team kept all lighting at the perimeter with 50W PAR30 halogen track spots slid between the wall and where the fabric ceiling stops. Moran notes that a spread lens is used on the spots to enhance the texture of the walls. While the architects were curious if there would be enough light in the space, Moran says she always was confident that there would be, although she admits that she was surprised at just how much the finished design could be dimmed while still providing adequate light levels.

In addition to the coat check area, color-changing backlit panels also are used along the front of the two bars. Moran says the client was very much involved in the programming of the lighting scheme, and there are a variety of preset programs to choose from, depending on the occasion. Color also is used in the unisex restrooms, where the individual stalls have a profile cutout of a man or woman, backlit in either blue or pink by 35W MR16 wallwashers with a dichroic custom color lens from within the stall.

The prestige of L2 is heightened by its location in Cady's Alley, an upscale part of Georgetown recently developed into what Moran calls a "design center," featuring numerous furniture chains, antique stores, and boutiques amid the cobblestone pathways and brick buildings. The design team created a classy lounge-appropriate lighting scheme for this high-end space by embracing the opportunity to use LED technology as the main light source, while at the same time achieving the sophistication, ambiance, and quality sought after by the client. **JENNIFER LASH**







# GRACIOUS HOSTS



**1. MMCKENNA BETTYLOU MMCKENNA.COM**

Simply placed over a wine glass, this cordless rechargeable lamp is engineered for optimum light output by a lens and reflector. The lamp shines for more than seven hours and uses light-emitting diode (LED) technology. Proprietary circuitry monitors the battery's charge state, maintains constant brightness, and checks for short circuits. **CIRCLE 125**

**2. ZUMTOBEL SCOFFINE SFERA ZUMTOBEL.US**

Created in collaboration with designer Matteo Thun, the Sconfine Sfera pendant features a partly transparent luminaire covering with chrome coating. In addition to directly emitted light, light within the fixture is reflected, making it seem to float. The luminaire is available with various light sources, including LED technology. **CIRCLE 126**

**3. LUCEPLAN PLISSÉ LUCEPLAN.COM**

Working with French designer Inga Sempé, Luceplan introduces the Plissé suspension lamp, which uses a double pantograph system, allowing users to increase and decrease its extension. A pleated lampshade made up of technical aluminum material and polyester covers the steel structure of the lamp. The width of the shade ranges from 24 inches to 63 inches while still distributing light evenly. **CIRCLE 127**

**4. TARGETTI POUlsen CAMPBELL TARGETTIPOULSEN.COM**

Campbell features shades made from mouth-blown clear glass with sand-blasted, frosted stripes. The direction of light changes as it is refracted through the shade, and the frosted stripes give the luminaire depth while alleviating glare from the provided source, which is either a 40W reflector R50 E14 lamp or a 75W reflector R80 E27 lamp. **CIRCLE 128**

**5. BOCCI 21 BOCCI.CA**

The 21 series, inspired by how barnacles appear on a rock surface, features thin-wall raw white porcelain wrapped around trumpet-shaped frosted blown Borosilicate glass. Designed to be clustered in groups, each luminaire is unique because of its fabrication process. **CIRCLE 129**

**6. LINDSEY ADELMAN STUDIO BUBBLE SERIES LINDSEYADELMAN.COM**

Each chandelier is made to order with locally crafted custom metal fillings and hand-blown glass globes. The glass is available in clear, gold foil, or with a technique called murrine. The modular system allows many configurations to be built using the same core parts, and because they use mechanical connections instead of welding, the chandeliers can be disassembled for reuse if the client's needs change. **CIRCLE 130**





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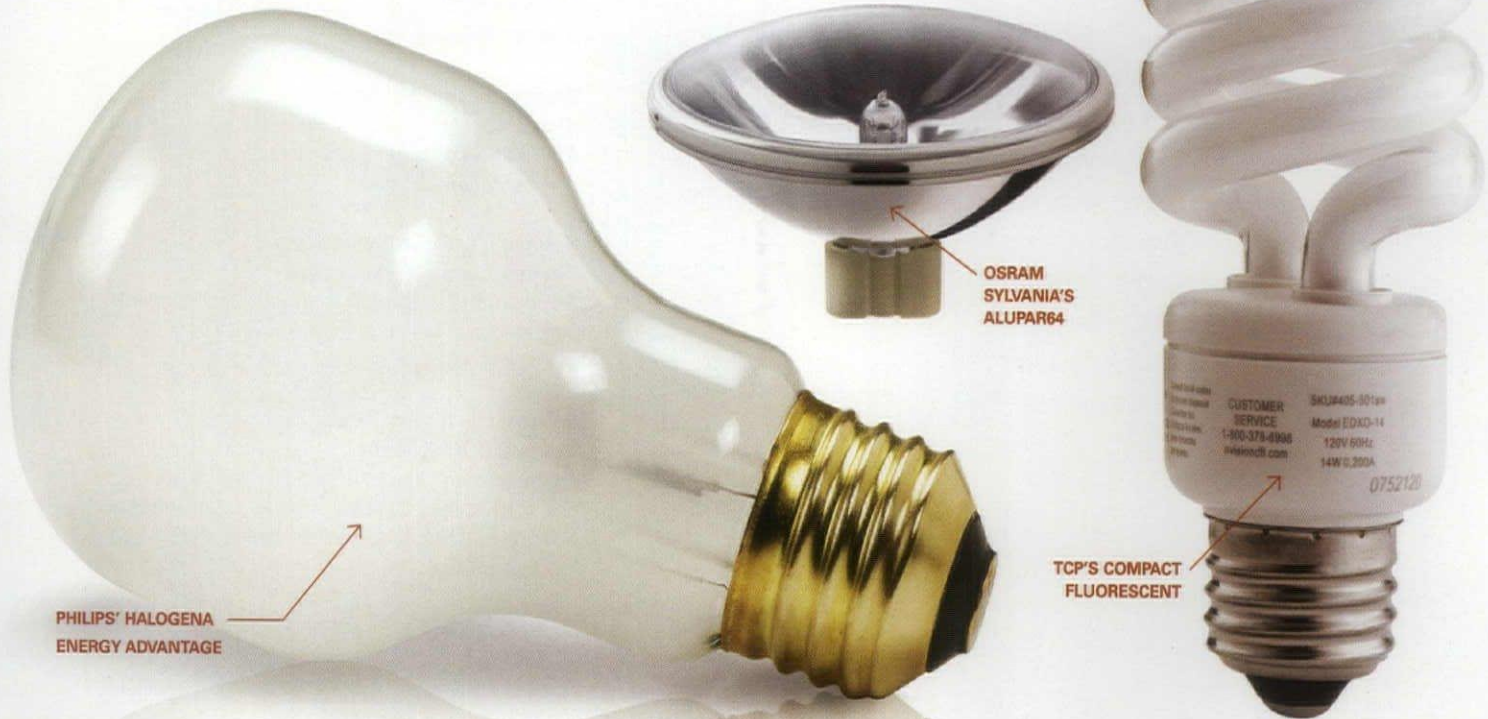
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# Choosing Illumination Sources

PICKING THE RIGHT LAMP SOURCE FOR THE RIGHT APPLICATION



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**Selecting the right lamp** often can be a daunting task given the numerous factors a designer must take into account. There are external considerations such as price and recycling options. But when it comes to source performance, the designer must first consider the lamp base; next, the shape and treatment of the envelope, or bulb; and finally, the illumination source itself. Common sources include incandescent, fluorescent, metal halide, and high- and low-pressure sodium. Each source type is associated with a particular application. Traditionally, incandescent is used for residential scenarios because of its pleasing warm color temperature and high color rendering capabilities. Fluorescent sources often are found in hospital, office, and institutional settings because of their lower maintenance and operating costs. Exterior spaces commonly are lit with metal halide and high-pressure sodium. Low-pressure sodium use is diminishing, but is still found on certain roadways and in parking lot applications.

The outline that follows aims to create a quick reference guide that categorizes the primary illumination sources used in lighting design today. One source not listed is light-emitting diodes (LEDs). The popularity and efficiency of these miniature point sources is escalating at great speed, and advances in solid-state lighting technology and manufacturing is happening almost weekly. Housings and optics for LED-based luminaires is just now beginning to correspond to the specifics of this unique light source, and its light characteristics demand different evaluation criteria when it comes to source selection for design applications. **JEN BICKFORD**

## INCANDESCENT

**Source:** Standard filament, standard voltage

**Shapes:** A, G, P, S, and T; reflector lamp; ellipsoidal reflector lamp

**Applications:** Used in residential, hospitality, and retail illumination because of its warm color and low cost.

**Wattage:** 1–500

**Distribution:** Clear: point source, general | Frosted: diffuse, general | Spot or flood: directional

**Source:** Tungsten halogen

**Shapes:** Halogen A-lamp; small bi-pin; double ended; PAR

**Applications:** A more efficient and longer-life substitute for the standard filament. Halogen lamps have more light in a smaller envelope.

**Wattage:** 1–1,000

**Distribution:** Clear: point source, general | Frosted: diffuse, general | Spot or flood: directional

**Source:** Tungsten halogen, low-voltage

**Shapes:** Miniature bi-pin capsules, MR and PAR

**Applications:** Seen in residential, hospitality, retail display, museums and galleries, and landscape lighting where beam control is important and accent lighting is desired.

**Wattage:** 1–100

**Distribution:** Clear: small point source, general | Spot or flood: directional

**Color temp (K):** 2,300–3,500

**CRI:** 100

**Dimming:** Full range of adjustability from 0–100%

**Average lamp life (h):** 2,000

**Lumen loss over time:** Very good

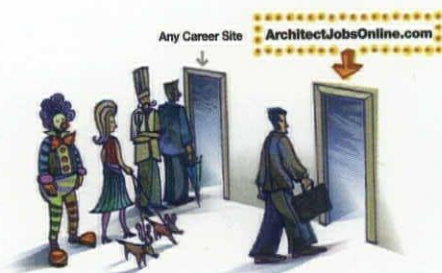
**Efficacy (lm/W):** 9–35

Information applies to incandescent sources



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**DETAILS METHOD**

**FLUORESCENT**

**Source:** Electric arc, ballast  
**Shapes:** Linear, circular, and U-bent  
**Applications:** The choice light source for institutional and commercial buildings because of their low cost and energy efficiency.

**Source:** Electric arc, ballast  
**Shapes:** pcl, pl  
**Applications:** Used in downlighting in commercial and institutional spaces.

**Source:** Electric arc, self-ballasted  
**Shapes:** Compact Edison base  
**Applications:** A good alternative to the standard incandescent lamp if energy efficiency is more important than light quality.

**Source:** Electric arc, ballast, cold cathode  
**Shapes:** Not applicable  
**Applications:** Can be formed into any shape and color of light. Typically used for cove lighting and building outlining; also can be shaped and formed as required.

**Source:** Electric arc, transformer, neon  
**Shapes:** Not applicable  
**Applications:** Commonly used for color accents in signage and special effects.

**Distribution:** Diffuse, general  
**Wattage:** 5-215  
**Color temp (K):** 3,000-6,500  
**CRI:** 50-85  
**Dimming:** Dimmable with specific electronic ballast 10-100% / Non-dimmable  
**Average lamp life (h):** 20,000  
**Lumen loss over time:** Fair to very good  
**Efficacy (lm/W):** 65-80

Information applies to fluorescent electric arc sources

**Source:** Radio waves, generator and power coupler, induction  
**Applications:** Street lighting, pedestrian lighting, and areas that are difficult to maintain.  
**Distribution:** 55-165  
**Wattage:** 2,700-4,000  
**CRI:** 80  
**Dimming:** Non-dimmable  
**Average lamp life (h):** 100,000  
**Lumen loss over time:** Very good  
**Efficacy (lm/W):** 50-60

**HIGH-INTENSITY DISCHARGE (HID)**

**Source:** Mercury, ballast  
**Shapes:** BT, E, ED, ET, PAR, and R  
**Applications:** An older source, still seen in security lighting and some streetlights.





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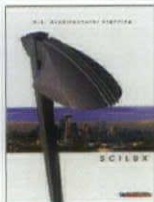
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## DETAILS METHOD

**Distribution:** Clear: point source, general |

Spot or flood: directional

**Wattage:** 50-1,000

**Color temp (K):** 3,200-7,000

**CRI:** 20-45

**Dimming:** Possible with additional equipment and a special circuit.

**Average lamp life (h):** 16,000-24,000

**Lumen loss over time:** Fair

**Efficacy (lm/W):** 25-65

**Source:** Metal halide, ballast

**Shapes:** BD, BT, E, ED, ET, and T

**Applications:** Standard metal halide sources are used in lighting parking lots, streets, landscapes, building façades, and sports arenas.

**Distribution:** Clear: point source, general

**Source:** Metal halide, ballast

**Shapes:** Ceramic metal halide: PAR, MR, AR111, R

**Applications:** Ceramic metal halide sources are being used in retail, display, and commercial buildings because of the improved color temperature and CRI.

**Distribution:** Spot or flood: directional

**Wattage:** 20-2,000

**Color temp (K):** 3,000-4,500

**CRI:** 60-95

**Dimming:** Possible with additional equipment and a special circuit.

**Average lamp life (h):** 1,500-20,000

**Lumen loss over time:** Good

**Efficacy (lm/W):** 45-11

Information applies to HID metal halide sources

**Source:** High-pressure sodium, ballast

**Shapes:** BD, BT, E, ED, ET, and T

**Applications:** roadway lighting, tunnels, parking lots, and industrial workspaces.

**Distribution:** Clear: point source, general

**Wattage:** 35-1,000

**Color temp (K):** 1,900-2,700

**CRI:** 21-65

**Dimming:** Possible with additional equipment and a special circuit.

**Average lamp life (h):** 16,000-40,000

**Lumen loss over time:** Very good

**Efficacy (lm/W):** 40-140

**Source:** Low-pressure sodium, ballast

**Shapes:** Not applicable

**Applications:** An older source, still seen in security lighting and some roadway lighting.

**Distribution:** Clear: point source, general

**Wattage:** 18-180

**Color temp (K):** 1700

**CRI:** Not applicable

**Dimming:** Non-dimmable

**Average lamp life (h):** 18,000

**Lumen loss over time:** Very good

**Efficacy (lm/W):** 100-180

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# 2008 Lightfair Innovation Awards

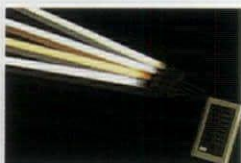
The 2008 Lightfair International (LFI) Innovation Awards did not disappoint as more stringent guidelines for product submissions went into effect this year, along with the addition of the "LFI Attendees' Choice Award" for the most innovative new product. This new award allowed those at Lightfair, with the exception of manufacturers, exhibitors, press, and guests, to cast their vote online for what they considered to be the "Best in Show" product.

The awards presentation program, co-sponsored by ARCHITECTURAL LIGHTING and eLumit and held May 28, 2008, on the first day of the trade show, recognized 14 lighting products, including the Most Innovative Product of the Year, Technical Innovation, Design Excellence, Judges' Citation, and the Best of Category awards, which are given in each of the individual product categories. Five lighting industry professionals made up the awards jury: Joseph Good III of Spectrum Professional Services, Salt Lake City; Andy Luong of Finnegan Erickson Associates, Henderson, Nev.; Sean O'Connor of Sean O'Connor Associates Lighting Consultants, Beverly Hills, Calif.; Russ Owens of West Coast Design Group, San Juan Capistrano, Calif.; and Michael John Smith of MJS Lighting Consultants, Houston. Winners were selected from a pool of 184 products. To be eligible for submission, products must have been brought to market during the 12 months prior to Lightfair. For details about the 2009 awards submission process, go to [lightfair.com](http://lightfair.com). **JENNIFER LASH**

## California Energy Commission SPOT Version 4.0 [archenergy.com/SPOT/](http://archenergy.com/SPOT/)

**ATTENDEES' CHOICE AWARD; MOST INNOVATIVE PRODUCT OF THE YEAR; BEST OF CATEGORY: RESEARCH, PUBLICATIONS, SOFTWARE, UNIQUE APPLICATIONS**

The Sensor Placement + Optimization Tool (SPOT) Version 4.0 software snagged the top honor at the LFI Innovation Awards as the Most Innovative Product of the Year. Developed by Architectural Energy Corp. with support of other organizations, including the California Energy Commission, the software tool assists designers in quantifying the electric lighting and annual daylighting characteristics and energy use of a given space. Using a Microsoft Excel platform, the software is available at no cost, handles top and side daylight sources, and can model any electric lighting source. **CIRCLE 135**



## Feelux Lighting DimSlim [feelux.com](http://feelux.com)

**BEST OF CATEGORY: CONVENTIONAL LAMPS**

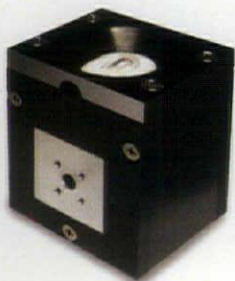
Offering designers a fully dimmable T5 fluorescent lighting system with a built-in electronic ballast and aluminum body, the DimSlim uses a three-pin fixed or

flexible modular linking system, and can provide a continuous line of light. With a dimming range of 10 percent to 100 percent, the fixture saves 80 percent of energy consumption at the highest level, according to the manufacturer. Operated by a wall-mounted controller, DimSlim can simulate the light of changing seasons, and various times of day such as sunrise, midday, and sunset. **CIRCLE 136**

## Luxim LIFI STA-40-01 [luxim.com](http://luxim.com)

**BEST OF CATEGORY: SPECIALTY LAMPS**

This street and area lighting luminaire, in development for November 2008 production, delivers 22,000 lumens, with 120 lm/W source efficiency, and a life span of 30,000 hours, according to the manufacturer. The compact directional beam features a color rendering index of 95 and is easily retrofitted into existing fixtures, offering efficiency improvement up to 70 percent. The product is dimmable, remotely addressable, and able to work with control systems to enable energy-saving modes such as daylight harvesting, occupancy sensing, and demand response dimming. **CIRCLE 137**



## Osram Sylvania PowerSHED High Efficiency Demand Response Ballast [sylvania.com](http://sylvania.com)

**TECHNICAL INNOVATION; BEST OF CATEGORY: BALLASTS, TRANSFORMERS**

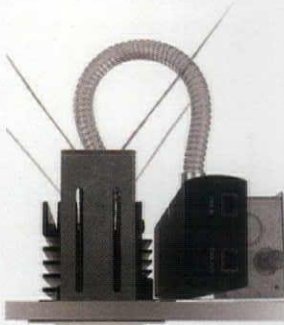
The PowerSHED ballast features instant-start technology with a built-in power line carrier signal receiver for automated dimming response. The product uses a building's existing wiring, and building owners can add demand response capabilities without the expense of pulling extra wires to fixtures. The universal voltage ballast, with a .87 ballast factor, has lamp striation control and will permanently reduce lighting loads as each three-lamp fixture immediately saves up to 14W when used with the company's Super Saver 28W T8 lamps. **CIRCLE 138**

## Strini Art Glass/Lighting Haiku Chandelier [striniartglass.com](http://striniartglass.com)

**JUDGES' CITATION FOR RECYCLED CONTENT; BEST OF CATEGORY: CHANDELIERS, PENDANTS, SCUNCES, TASK LIGHTS, AND DECORATIVE LUMINAIRES**



This custom chandelier from Hawaii-based Strini Art Glass/Lighting is made from recycled glass and iron. Measuring 42-inches long by 22-inches wide, the product is illuminated by compact fluorescent lamps with a medium base socket. The glass is available in a variety of colors and textures. **CIRCLE 139**



## Lightolier, a Philips Brand ColorWash Linear [lightolier.com](http://lightolier.com)

**BEST OF CATEGORY: DOWNLIGHTS, WALLWASHERS, ACCENT LIGHTS**

The ColorWash family of luminaires creates high-quality white light while also incorporating high-power linear light-emitting diode red, green, blue, and amber (RGBA) technology, which is thermally protected with a color sensor and monitors and adjusts to ensure continuous, consistent color output. With an extruded aluminum housing, integral heat sink, and color mixing chamber, the luminaire features a tempered glass lens with fine prisms that helps minimize the appearance of the RGBA sources. **CIRCLE 140**

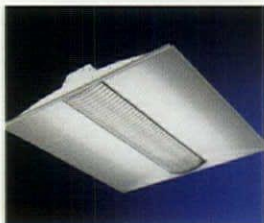




**Con-Tech Lighting** CTL8028A22MBT Optica  
[con-techlighting.com](http://con-techlighting.com)

**BEST OF CATEGORY: TRACK, LOW-VOLTAGE, CABLE, AND RAIL SYSTEMS**

Optica, a 22W ceramic metal halide track fixture, features a "cool-to-the-touch" adjustment for spot, narrow flood, or flood beam distributions. The luminaire has a die-cast aluminum housing and offers 360-degree horizontal rotation, 180-degree vertical rotation, and lockable, precision aiming adjustment. **CIRCLE 141**



**Cooper Lighting** Corelite Class R Ultra Shallow Recessed Series  
[cooperlighting.com](http://cooperlighting.com)

**BEST OF CATEGORY: FLUORESCENT-BASED TROFFERS, SUSPENDED, SURFACE LUMINAIRES**

The Class R's low-profile housing shape works well in constrained plenum spaces and offers easy installation in half the space required for traditional lay-in ceilings, according to the manufacturer. Using T5 lamps, the series features four shielding options: lensed, micro baffle, round perforated, and rectangular perforated. A co-extruded lens integral to all shielding options is made of either clear or frosted acrylic, and helps create task lighting and luminous vertical wall surfaces. The fixture can work together with various dimming and control systems. **CIRCLE 142**



**Bartco Lighting** Re-LT5-G2  
[reledsystems.com](http://reledsystems.com)

**BEST OF CATEGORY: SPECIALTY, HARDWARE, LAMP HOLDERS, COMPONENTS**

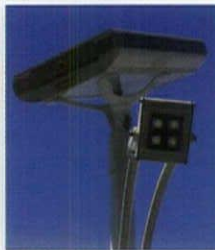
The Re-LT5-G2 from ReLED Systems, a division of Bartco Lighting, offers an output of 80 lm/W and is able to replace linear fluorescent T5 lamps with an energy-efficient LED alternative, according to the manufacturer. Rotating 180 degrees for precise directional lighting, the product is said to maintain a 50,000-hour lamp life with 70 percent lumen maintenance. The LEDs are available in warm white (3000K), cool white (4000K), and daylight (6000K) color temperatures. **CIRCLE 143**



**Bodine, a Philips Brand** Bodine BSL23C Emergency LED Driver  
[bodine.com](http://bodine.com)

**BEST OF CATEGORY: INDUSTRIAL, VANDAL, EMERGENCY, EXIT AND EMERGENCY LIGHTING**

This emergency light-emitting diode (LED) driver is able to work with an AC LED driver to convert new or existing LED fixtures into emergency lighting. When AC power fails, the BSL23C switches to emergency mode, operating the LEDs at a reduced lumen output. When power is restored, the driver automatically reverts back to its charging mode. The product is suitable for indoor and damp locations, and can be used with an LED lighting load of up to 3.1W for 90 minutes at a rated current of 200 milliamps, according to the manufacturer. **CIRCLE 144**



**Carmanah Technologies** Solar Area Lighting Solution  
[carmanah.com](http://carmanah.com)

**JUDGES' CITATION; BEST OF CATEGORY: ROADWAY, SPORTS, FLOODLIGHTS, OUTDOOR, ARCHITECTURAL, SITE LIGHTING**

This solar-powered light-emitting diode luminaire is a stand-alone lighting solution that can be easily installed and used to illuminate parks, paths, and other outdoor areas. The lighting system offers three operating profiles: split night, when the luminaire varies intensity between dusk and dawn; fixed night, when the luminaire comes on at dusk for a fixed number of hours and then turns off; and all night, when the luminaire remains on from dusk to dawn with a constant light intensity. Automatic light control allows the unit to recognize available light and adjust the contrast between available energy sources and light output. **CIRCLE 145**



**Q-TRAN** Direct Burial Series  
[q-tran.com](http://q-tran.com)

**DESIGN EXCELLENCE; BEST OF CATEGORY: LANDSCAPE, POOL, AND FOUNTAIN**

As part of the Q-Scape system, the direct burial series includes Q-Vault, which installs in-ground and allows Q-Set casettes to be interchanged to meet varying wattage requirements. Featuring ease of installation, high performance, low maintenance, and long life, according to the manufacturer, all toroidal transformers offer a 10 percent to 15 percent energy savings over industry standard models. Installation tools are located in the product container, and the black composite housing is watertight, measuring 9.5 inches long, 16.5 inches wide, and 12.5 inches deep. **CIRCLE 146**



**Top Nanosys** Lumisys Transparent LED Signboard  
[topnanosys.com](http://topnanosys.com)

**BEST OF CATEGORY: THEATRICAL, SPECIALTY LUMINAIRES**

Consisting of LED chips and polymer-based films coated with transparent and conductive nanomaterial, Top Nanosys' LED signboard offers flexibility and transparency. Designs with curves and waves are achievable with this signboard, and the product's light weight allows for easy installation. **CIRCLE 147**

**Lighting Control & Design** Wireless Photocell  
[lightingcontrols.com](http://lightingcontrols.com)

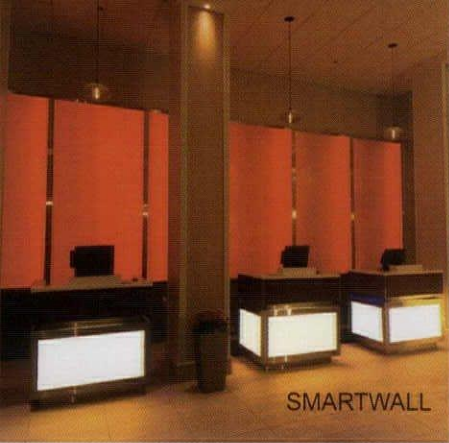
**BEST OF CATEGORY: CONTROLS, DAYLIGHT INTEGRATION, AND SYSTEMS**

The Wireless Photocell works with Lighting Control & Design's all-digital GR 2400 lighting control system, features no power cables or batteries, and can be mounted within 90 feet of the wireless receiver.



The photovoltaic cell requires 5 foot-candles of light during at least part of the day to be able to charge the capacitor, which will allow for 68 hours of usage without recharging, according to the manufacturer. The receiver location is easily movable to optimize the wireless system and to ensure that the signal is received from each of the wireless devices. **CIRCLE 148**

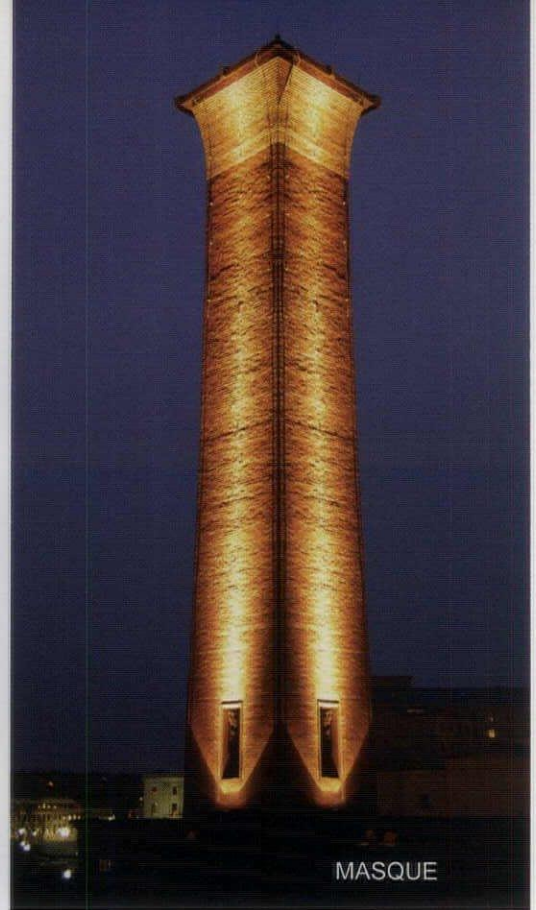




SMARTWALL



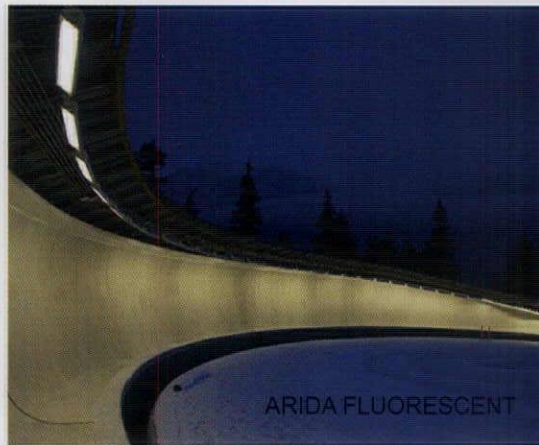
TAOS DECO



MASQUE



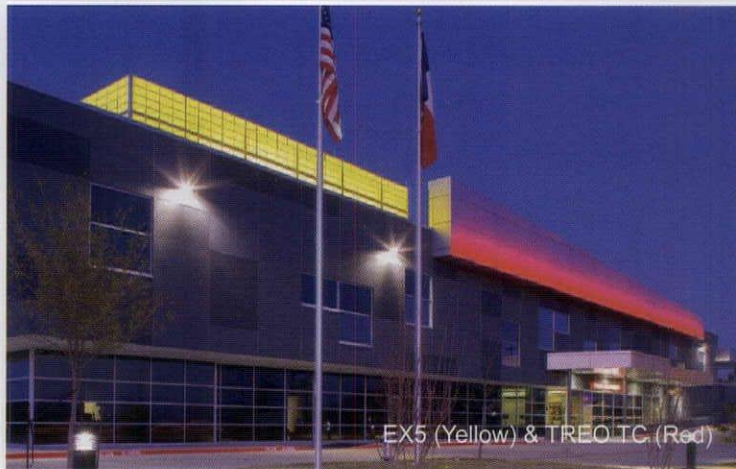
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ILLUSIONS



EX5 (Yellow) & TREQ.TC (Red)



VAS

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# Dr. U and Mr. L

JIM BENYA OFFERS HIS THOUGHTS ON THE PRODUCT TESTING PROCESS



A technician from Intertek Testing Services NA, which offers the ETL mark, checks different plugs as part of the safety testing that lighting products must undergo to receive mark listings for intended use. Along with the Underwriters Laboratories, which offers the UL mark, the two companies service a good portion of the lighting industry.

**I remember when we proudly** made downlights from coffee cans. A porcelain socket, a little black paint, some zip cord, and a hole saw was all there was to it. With a little deftly applied spackling compound, you could have a trim-free, zero sight line, low-cost flangeless downlight. Those were the days. Dangerous, perhaps, but do not worry about that brown spot on the ceiling.

Back then, do-it-yourself lighting was not code complying. Today, that has not changed. Basic electrical code requirements in the United States require that every product must be *listed* for its intended use. Listed means tested by a qualified laboratory for conformity to a set of standards that ensure safety under all conditions of use and abuse.

That is the point of Underwriters Laboratories (UL), the 114-year-old widely recognized testing company. UL sets the standards for design and testing that affect every luminaire in the U.S. and Canada. UL is one of a number of companies that perform the actual testing and listing of products. Another testing service that has a good portion of the lighting market is Intertek Testing Services NA, which offers the ETL mark. However, whether the product bears the UL label or the mark of

another testing lab, the standards being met are still UL.

Worldwide, similar organizations play this role. In the European Union (EU), products must meet European Directive requirements, and those that pass receive the *Conformité Européene* (CE), French for "European Conformity," label. The difference between the EU and U.S. is that the U.S. requires independent testing and CE allows manufacturers to self-certify.

The real issue surrounding UL is whether its standards are current, necessary, cost effective, and fair. Most U.S. fixture makers (including those with offshore manufacturing) are resigned to meeting UL and many have set up in-house UL testing labs to do the work, keeping costs low. But for designers, inventors, and offshore lighting companies, UL can appear as a huge obstacle to bringing new lighting products into the marketplace. Moreover, with the threatened onslaught of new light-emitting diode (LED) technology, getting through the UL process threatens to become a barrier because of UL's deserved reputation for being intransigent and slow to accommodate new materials, concepts, and techniques.



**The Good Dr. U**

Those with an understanding of the breadth of the lighting industry realize how many different lamps, ballasts, and materials are used. Combine that with the limitless supply of design ideas, and it is easy to understand why a very complex set of standards and rules are needed to ensure safety. The situation is further complicated by



the need to anticipate the likely abuses of each luminaire, ranging from wide temperature swings to improper installation, physical abuse, and the prying fingers of children. UL's lighting standards respond with requirements that are surprisingly consistent, if not a bit conservative.

In general, UL standards consist of two principal groups: design and manufacturing requirements, and testing requirements. Design and manufacturing requirements specify wire gauge, insulation class, sockets, ballasts, wireway cross section, terminal clearance, terminal safety, ground terminals, and a host of other things that over the years have proved to provide safe and reliable measures. Testing requirements mostly are focused on thermal safety and check to make sure that safe temperatures are not exceeded, especially where luminaires can be touched or come into contact with other building materials.

Larger manufacturers often have UL-certified testing labs in-house, subject to unscheduled spot checks by UL inspectors and periodic audits of their testing procedures and equipment. Smaller manufacturers face the higher costs of submitting products to an independent test lab. In some cases, luminaires can be listed with little or no actual testing. If built according to specific rules concerning wiring, sockets, physical

connections, and other characteristics, a product can be listed without a test. Generally, this is limited to incandescent fixtures with open tops and limited wattage, such as table lamps, sconces, and chandeliers. This allows for low-cost listing of decorative and custom lighting.

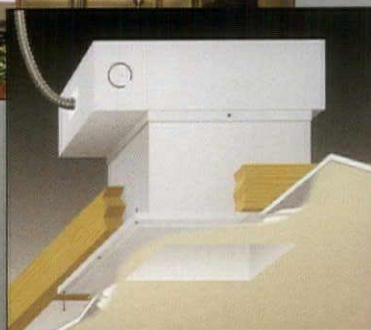
**The Bad Mr. L**

But despite the safety checks that UL procedures ensure, manufacturers outside the U.S., particularly European-based companies, have expressed concern about the process itself. They question whether different "rules" are being applied to non-U.S. lighting manufacturers. Of concern is what appears to be a more elaborate bureaucratic process, including inspections before each individual shipment is sent overseas that adds another step in the process for these non-U.S. manufacturers trying to bring their products to the U.S. marketplace.

To address some of these concerns, non-U.S. lighting companies often will partner with U.S. manufacturers in a distributor-like relationship. The U.S.-based company takes responsibility for obtaining the UL listing and assembling the fixtures in a U.S. facility. It also enables product stock to reside in the U.S. and a faster delivery time to the customer. For instance, Energie Lighting, located in Golden, Co., specializes in bringing some of the most preeminent European lighting manufacturers to a North American audience.

Then, there is LED lighting. With its low-wattage, low-voltage, and low-heat, the LED begs the necessity and cost of UL. Overall, the process of listing and testing has proved its worth. The key is that it remains true to its independent "third-party" roots and not hinder the delivery of new products to the marketplace. **JAMES R. BENYA**

# When a hole in your ceiling is *a good thing.*

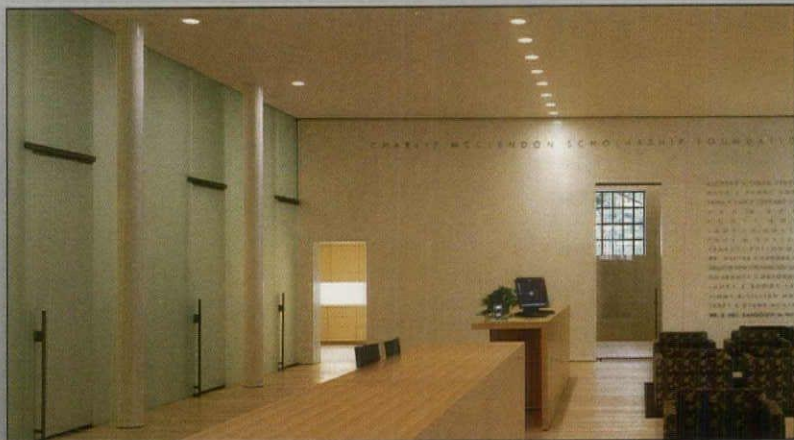


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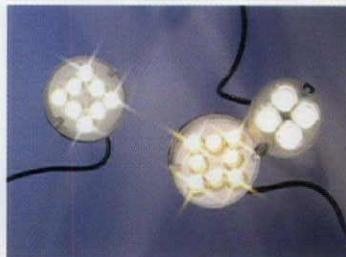


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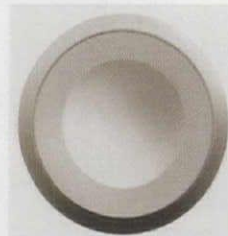


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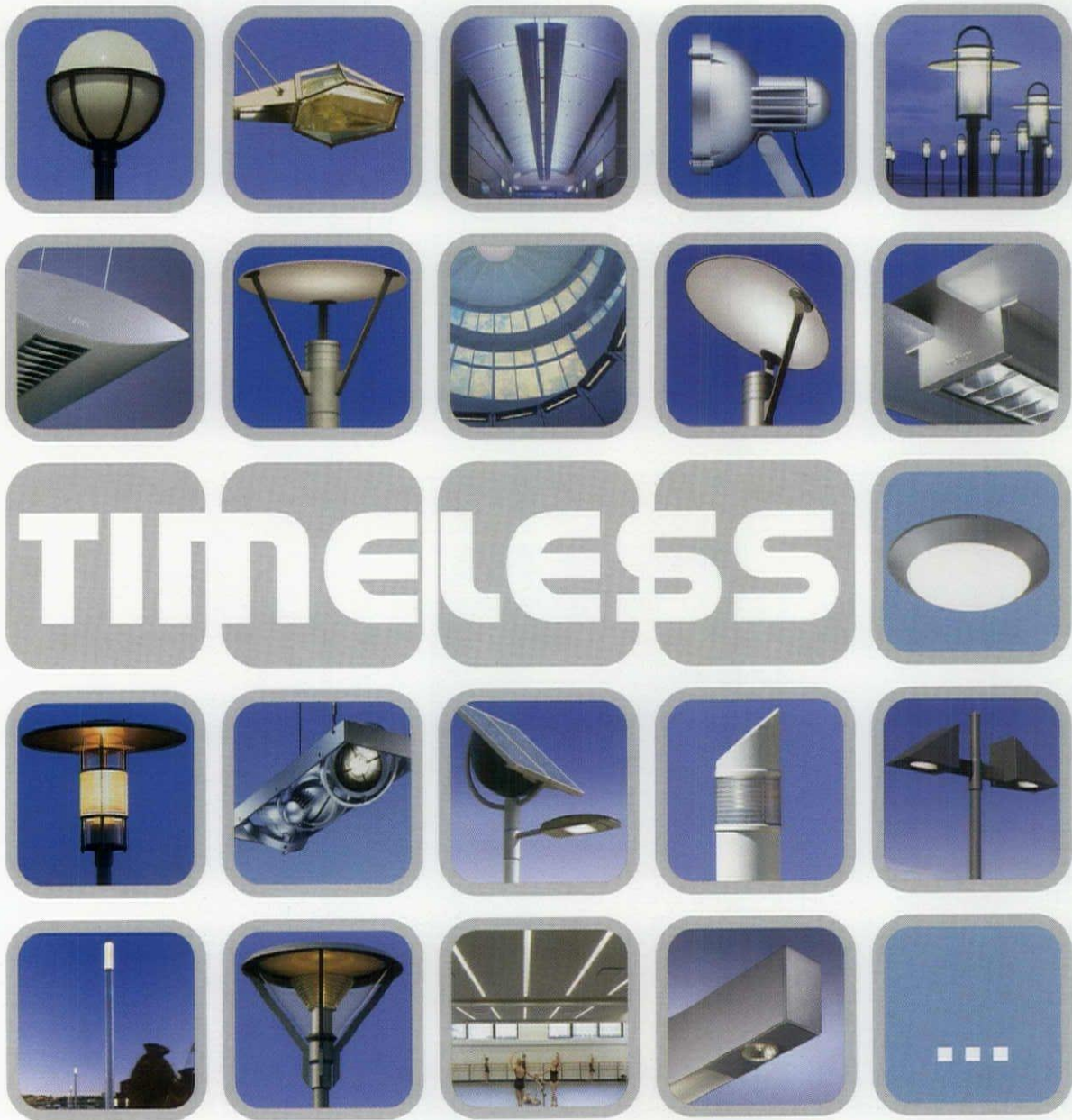
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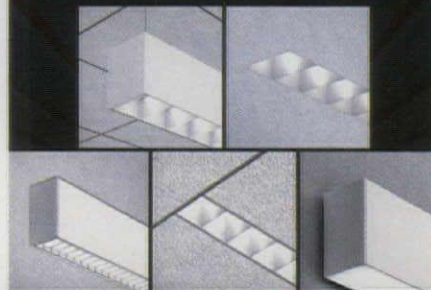
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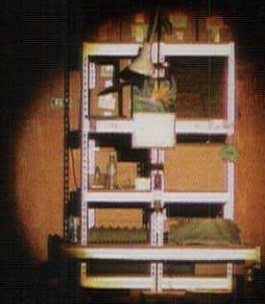
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## Economic Direction

The U.S. economy has yet to pull out of its slump and with the announcement on Sept. 8, 2008, that the U.S. government was taking control of the country's two largest mortgage finance companies—Fannie Mae and Freddie Mac—it is unclear how much bleaker the economic forecast will be before a rebound can start to occur. To take the "pulse" of its readership and hear how members of the lighting community are responding to the present situation, ARCHITECTURAL LIGHTING's Sept/Oct exchange question asks: With the slowdown in the current U.S. economy, what effect is it having on your firm/company's workflow and projected workflow for the next 12–18 months?

On the current events front, the next several months will be filled with news and change. ARCHITECTURAL LIGHTING invites readers to respond to the upcoming exchange questions:

**Nov/Dec 2008:** How do you think the 2008 U.S. presidential election will impact the lighting industry? DEADLINE: OCT. 26, 2008

**Jan/Feb 2009:** What are your thoughts on/concerns for the economic outlook of the lighting industry in 2009? What steps will you take at your firms and companies to adjust and respond to the current marketplace? DEADLINE: DEC. 19, 2008

Responses are always welcome to Exchange topics. Replies and proposed exchange question topics can be submitted to [edonoff@hanleywood.com](mailto:edonoff@hanleywood.com).



**DEREK PORTER** PRINCIPAL  
**DEREK PORTER STUDIO**

Yes, the economy seems to be having an effect on our work. Recently we've had multiple large civic projects put on hold because of uncertainties with the economy. Being a small company (seven total staff), losing one or two large projects has a dramatic impact on workload and cash flow. As a result, we currently are jockeying to secure smaller and less compelling jobs that we might otherwise be less willing to take on as well as introducing ourselves to new clients with the

hope of landing work. This is a significant shift in focus (I imagine for many other lighting design firms as well), where only weeks ago our company was turning down job prospects and working beyond normal capacity to simply meet the project needs to which we were committed. Now, though far from being low on work, we are forecasting weeks/months ahead recognizing that we don't have that backlog that's been present for the past couple of years.

Aside from the impact this national economic trend has on me, locally with my company, I'm increasingly aware of the delicate balance such a society of ours has—its dependency on consumerism and consumption in general. I hope the current energy and climate changes we are experiencing in conjunction with the projected changes in political leadership foster an ethical wake up for our nation. I'm sure most of us individually will endure the brunt of the strains ahead. It seems the bigger question is how we as a unified nation react toward positive change, adjust our working methods in support of improved standards, balance our actions (personally and professionally) for the better good of our society, and teach others the benefits of global responsibility.

### **SAM GUMINS** PRESIDENT **LUXO**

Quarter by quarter, we've all watched the U.S. economy bully an increasing number of friends and colleagues, inside and outside the lighting world. Those of us who have escaped the bully's wrath so far admit (with more trepidation than satisfaction) that the economic slowdown has not slowed our growth. To what do we attribute this good fortune? Our research and development folks credit the power of good product, our salespeople the power of strong relationships, and our accounting folks the power of prayer. What we have seen is the disproportionate pain felt by those residentially focused, by those competing solely on price or decorative novelty, by those measuring their sales in the billions (and therefore trending like the market or actually causing the market to trend), and by those lacking diversified offerings. The market is progressing in its understanding of the payback of good lighting relative to the overall energy spent and placing higher value on lighting solutions that are energy-efficient, ergonomic and well designed. Yet, even those of us with growing top lines are battling to maintain our bottom lines, especially those of us whose products

hail from such exotic lands as Europe, where today's U.S. dollar is worth less than yesterday's lira. We do not know if the worst is behind us, or if millions of energized voters will deliver new leadership and gas prices below \$4 per gallon for the trucks that transport our fixtures cross-country, we do know that we have no choice but to distinguish ourselves through innovation and service.

### **FRANCESCA BETTRIDGE** PRINCIPAL **CLINE BETTRIDGE BERNSTEIN LIGHTING DESIGN**

In my experience I think New York is always a little more on a lag time from the rest of the country in terms of the slowdown of the economy and how it hits. The first thing we saw was some jobs that we were expecting to start either being put on hold, being postponed, or becoming slower to start. We have had some projects where the client is downsizing the building and the architect is redesigning. Those are obvious reactions to the economy.

Strangely enough, we have had nonstop requests for proposals (RFPs). That seems to be saying there is a lot of activity going on. But with all of these RFPs, the schedules are even tighter than usual. It has been that way for the past five to six years. We are more likely to hear that design documents for a large job are wanted in two to three weeks. That puts a lot more stress on offices. You have commitments, but at the same time you are anxiously looking at the economy and you don't want to say no to potential work.

The other thing about the proposals, and I see this because I've been doing this a long time, is that we are getting answers back that say we are too expensive. We are trying to "sharpen our pencils," but now we are hearing that people are accepting offers for amounts that we know just cannot be accomplished. This speaks to the demands for our services. The scope of our services is expanding and clients and architects have not yet acknowledged that if, for example, you do a LEED project, it requires more fee in terms of coordination, meetings, energy calculations, proving your energy allowances, etc. There is a lag time acknowledging that it costs us more to be energy efficient in our design while still trying to define a design that is innovative and thoughtful. The RFPs also are being written in such a way that it is almost eliminating your ability to go back for additional services. Customary practice is being changed without our input, unless we speak up.

What this all boils down to is people are getting more and more caught up in the demands of what clients are asking for, which seems to be an expanding scope of services—services that are not traditionally the responsibility of the consultants, but rather are supposed to be overseen by the architect and contractor. I think the more experienced you are, the more you are caught in a vice because you know all the things that can go wrong. It is very hard to make a decision on how you are going to handle this. I see the present situation not so much as a slowdown but as hysteria in RFPs. There is a tremendous amount of transition and anxiety going on. This atmosphere makes you ask some important questions and asks you to look at your business, your company image, and what you can do to reposition yourself, if need be.