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DIVERSE DESIGNS AND THEIR SOURCES

SEPT/OCT 2006
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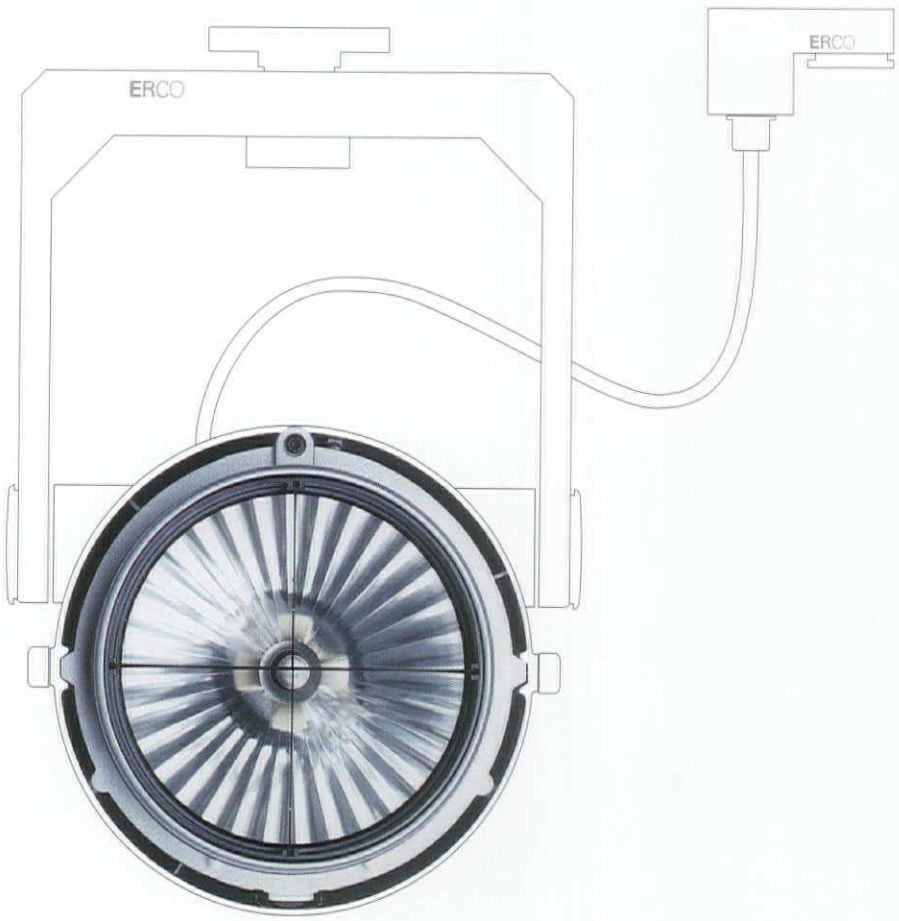

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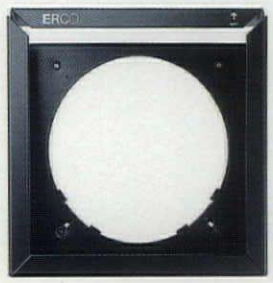

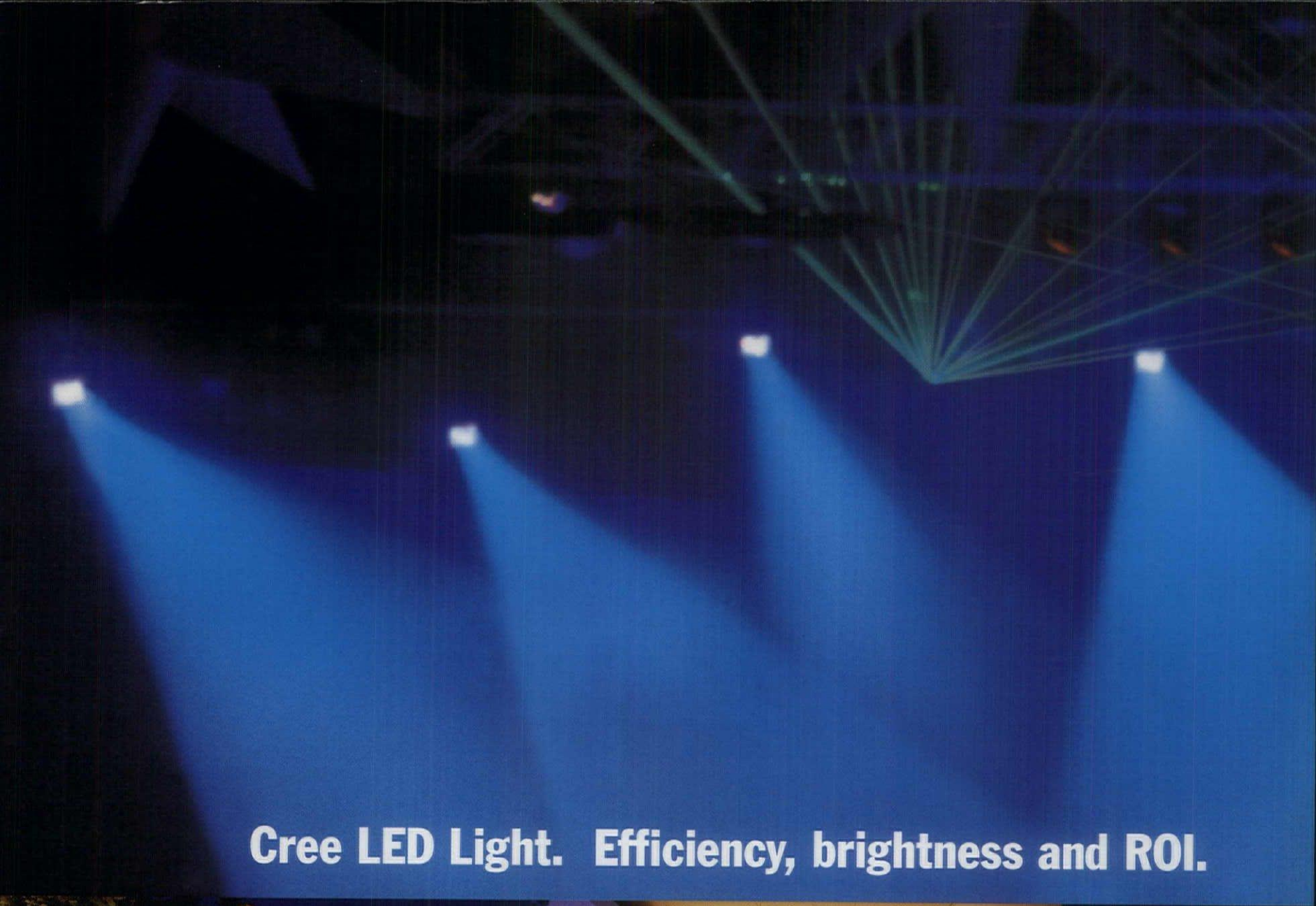
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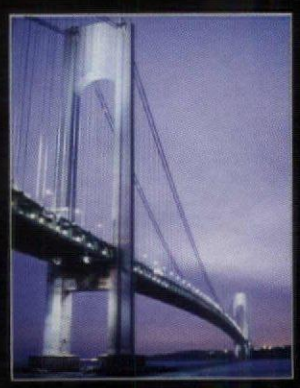

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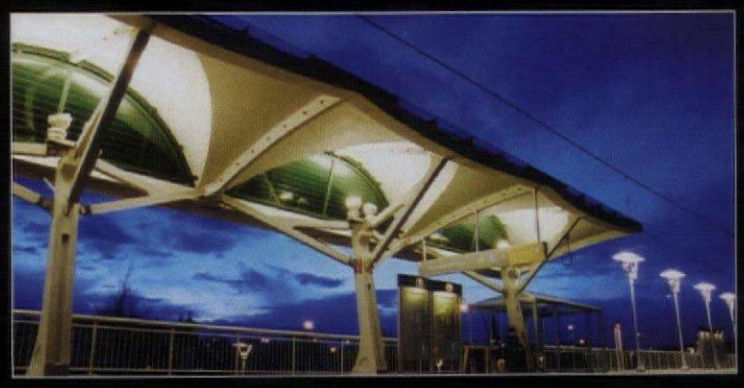
Brooklyn, NY



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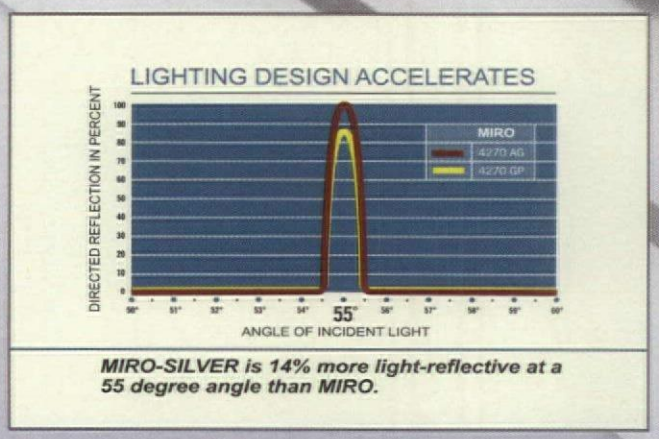

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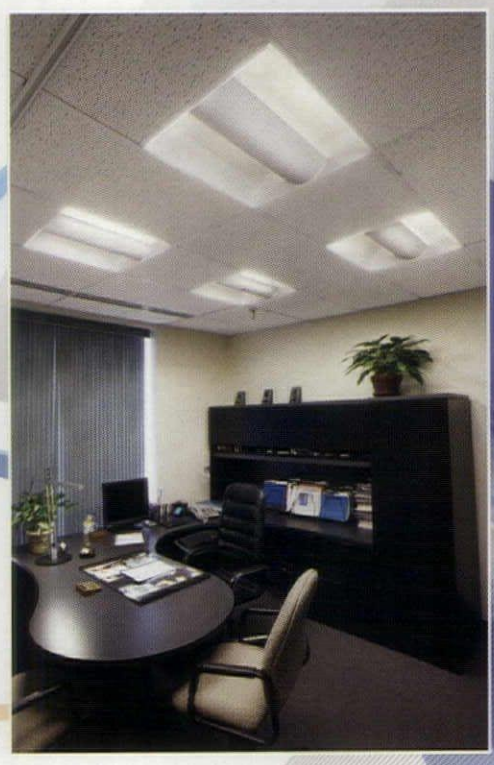

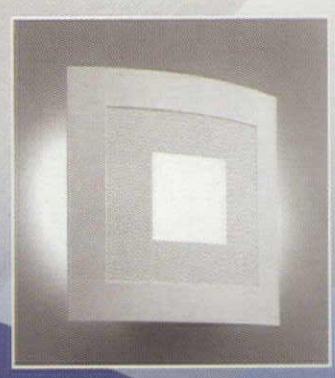

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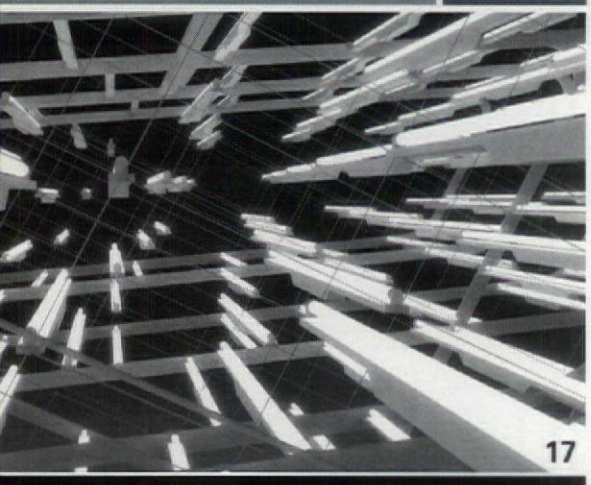

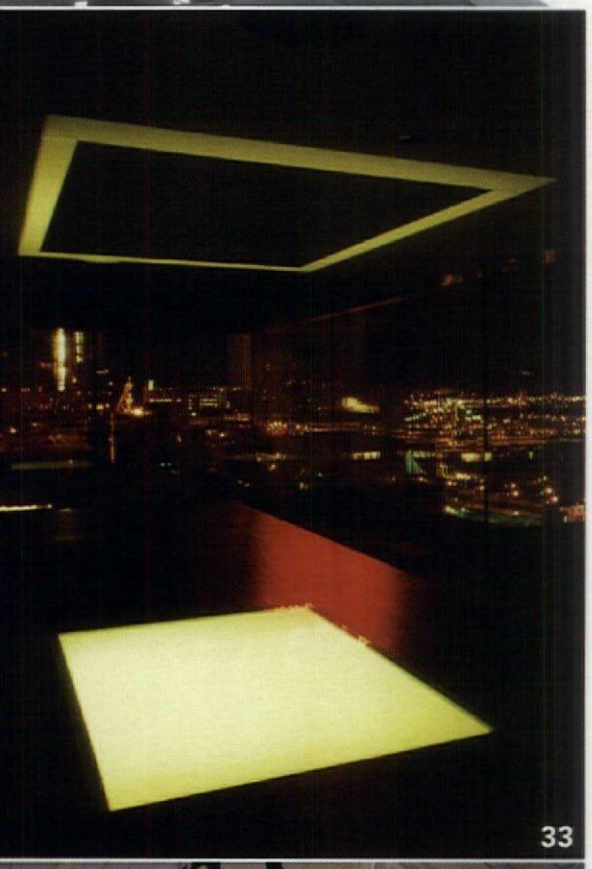

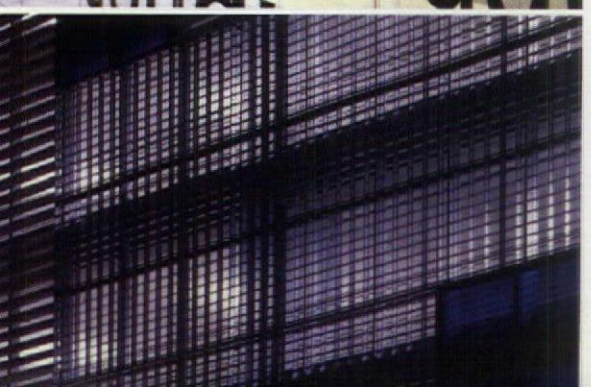

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RELIGIOUS LIGHTING FOCUS

details

Cover: 7 World Trade Center's podium screen wall interactive light feature. PHOTO: DAVID SUNDBERG/ESTO

This page: Fluoroscape, a temporary installation at the SCI-Arc Gallery in Los Angeles; Dowling Studio lobby at the Guthrie Theater in Minneapolis; Lobby of ImageNet's Oklahoma City headquarters, designed by Elliott + Associates Architects; and a façade detail of the Consolidated Rental Car Facility at the Fort Lauderdale/Hollywood Airport in Florida.

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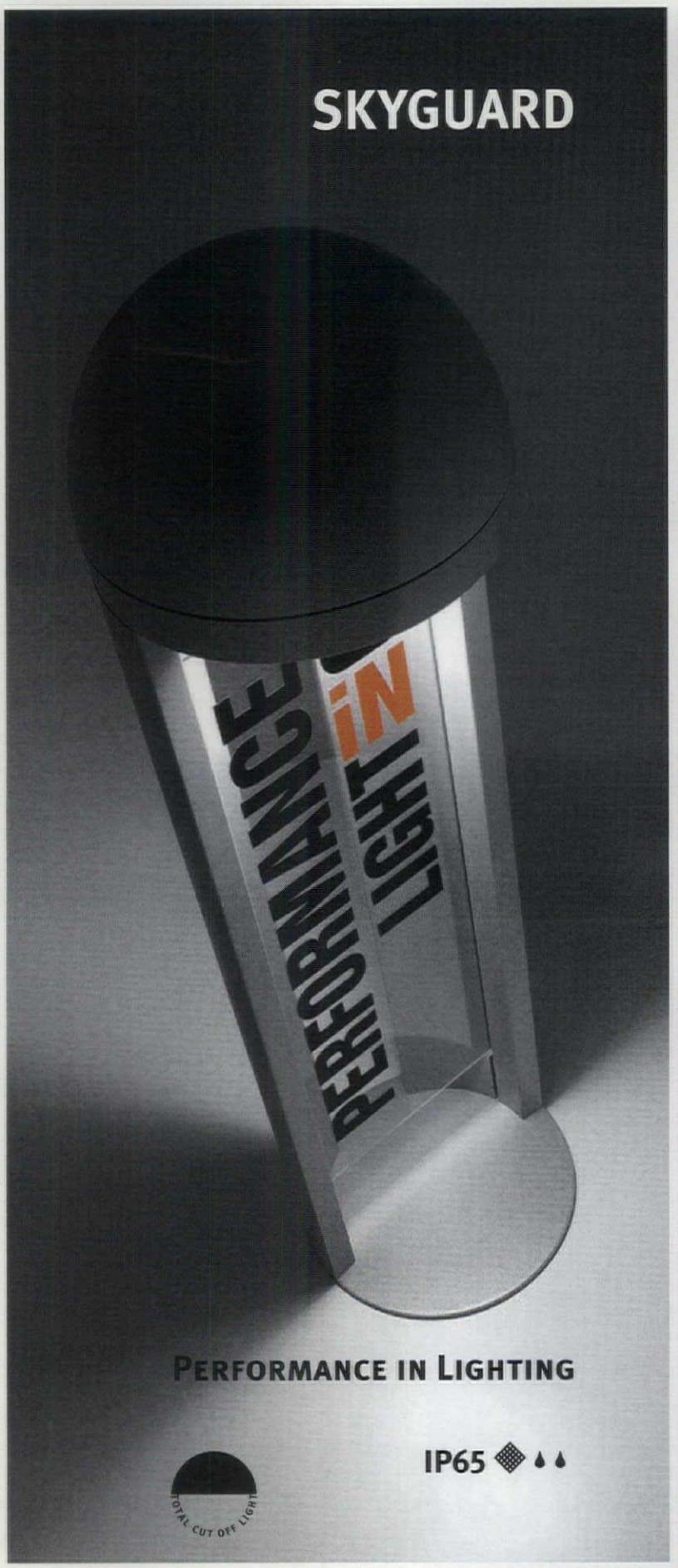

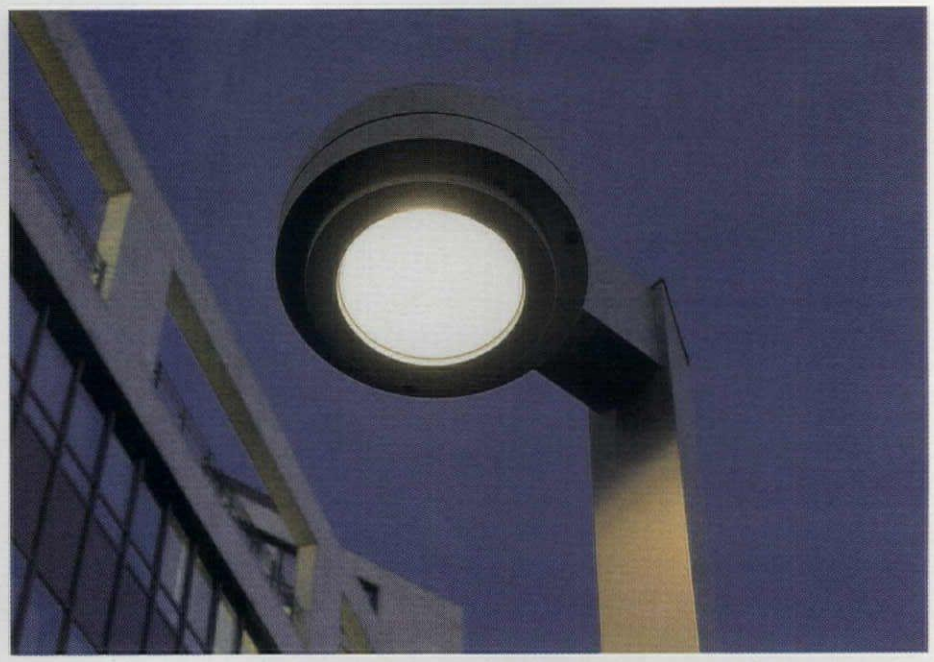

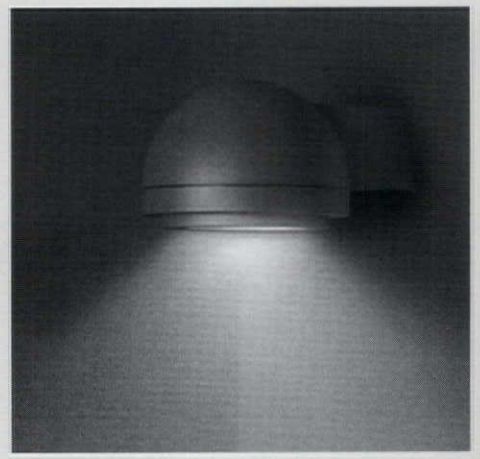

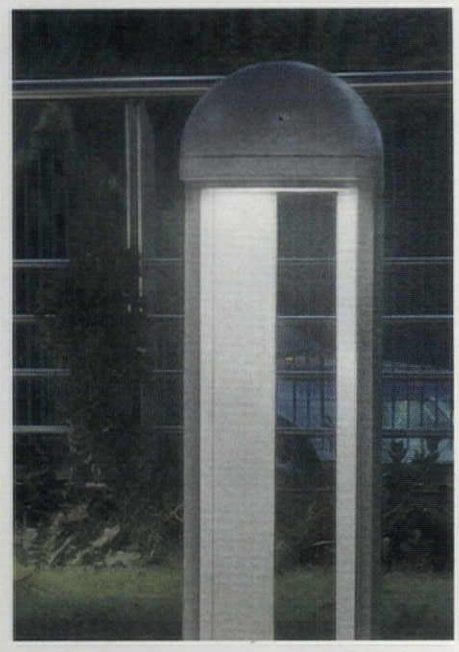

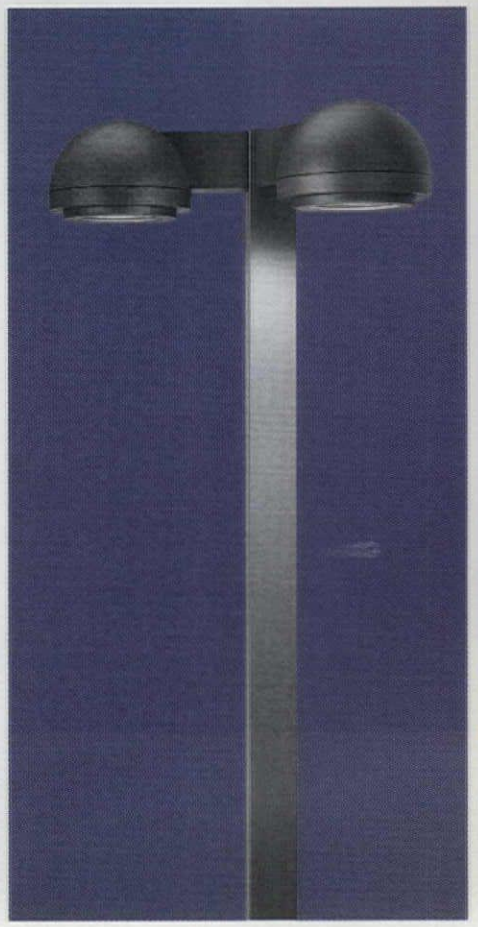

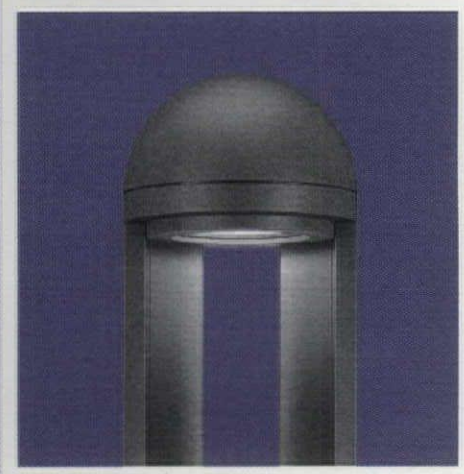

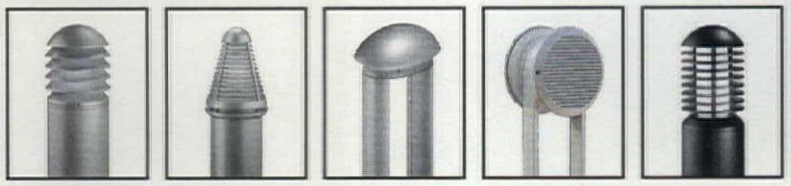

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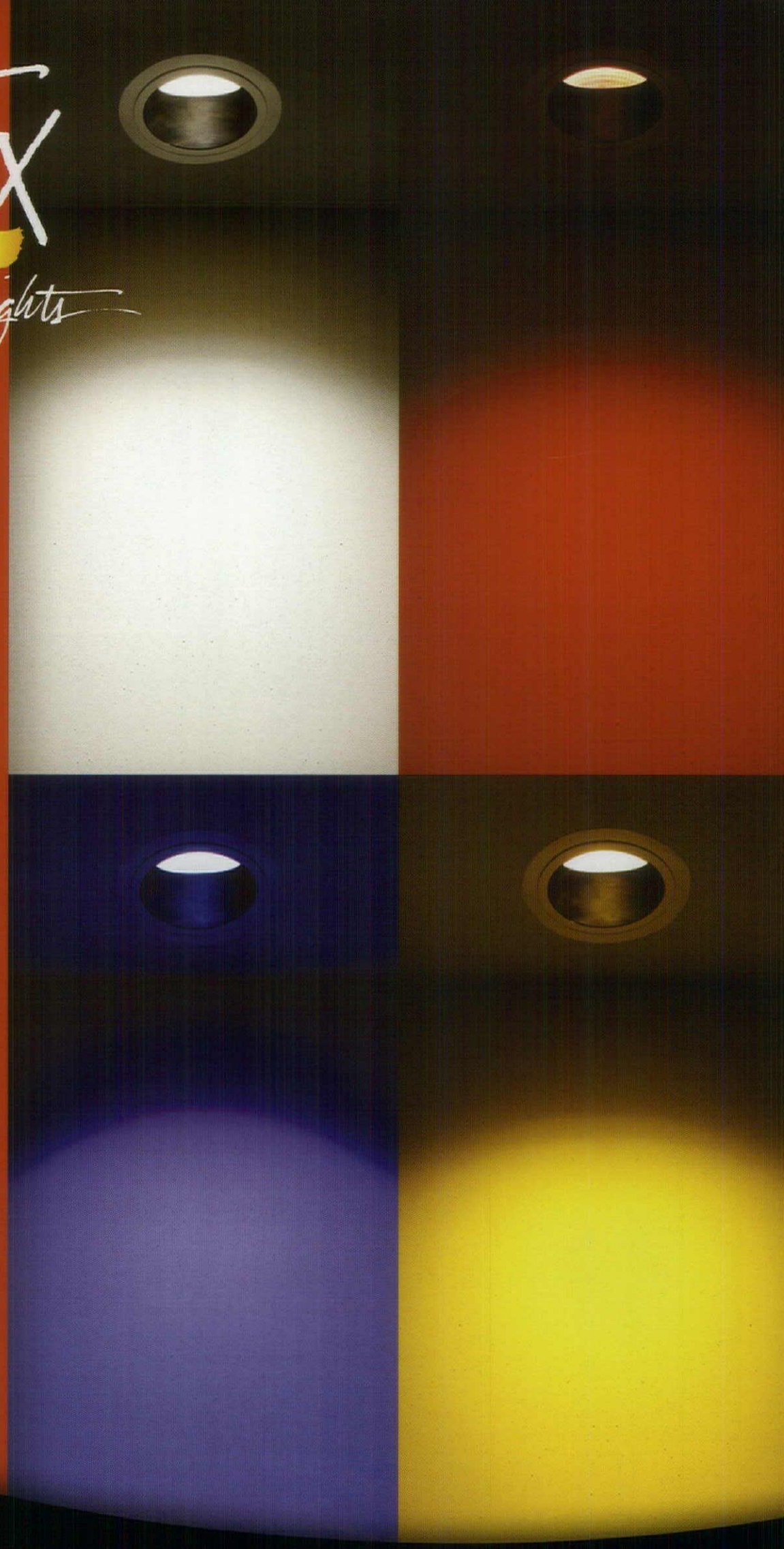

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PHOTO BY SPENCER LUM

A Full Integration

It is fair to say that my lighting education began when I started working at this publication. Ironic, perhaps, given that I have a professional degree in architecture, but not all that surprising given the demands placed on an architectural design curriculum to educate future practitioners on the complexities of the design process and the architectural profession as a whole. Having informally polled friends and colleagues who also studied architecture, I know that I am not alone with the lack of lighting in my design education. Some reported the occasional requirement of a sun-path study, but for the most part, lighting was relegated to the small smattering of building technology classes. And that is the problem. Lighting is more than just a building system and it needs to be described and presented to architecture students as such.

In my own studio experience there was most definitely a distinction between a discussion of light and a discussion of lighting. As students, we had an awareness of natural light and its interaction with surfaces, and the way in which a building could function as an aperture. That, however, is where the conversation ended. The idea was never extended to include the concept that, just as natural light could be manipulated and influence a space, similar effects could be achieved with electric forms of illumination, or that there was even such a discipline devoted strictly to architectural lighting. Rather, lighting was confined to a discussion of how many recessed fixtures you could put in a 2-foot-square ceiling grid.

Just as architecture students have some sense that there is a structural, mechanical, electrical, plumbing, and landscape component to design, the same should hold true for lighting. There are easy solutions to introduce lighting into an architectural curriculum without interfering with pre-existing academic structures—invite lighting designers to lecture at architecture schools and speak about their work, or invite a lighting practitioner to sit in on semester jury reviews. While I'm sure this currently happens to some extent, it needs to happen a lot more. Students of architecture need to understand lighting not in terms of an item that can be value engineered out of a project, but rather as a critical design element and component of the architectural process.

There are numerous initiatives within the lighting community working to help close this gap between architecture and lighting. The International Association of Lighting Designers (IALD) Education Trust is developing an architecture school outreach program contacting schools to inquire how lighting practitioners can help develop lighting course offerings or curriculums. In partnership with manufacturers Lucifer Lighting and Holophane, lighting kits and light meters have been distributed to architectural and lighting programs throughout the United States. On the manufacturer side, several companies, such as Luraline and UltraLights sponsor student lighting competitions. There are grant opportunities, such as the Howard Brandston Student Lighting Education Grant, which is open to lighting and architecture students, and the IALD Education Trust provides several scholarships as well. These are but a few of the opportunities available.

During a visit to Minneapolis this summer, I had the opportunity to meet with several local firms. It was interesting to discover the number of them that had in-house lighting designers, or, if they worked with an external lighting consultant, that there was a lengthy history of project collaboration. Telling, because it shows an understanding of lighting's place in architectural design and that communication between disciplines is key. There is no reason why this type of communication should not start in school. Although there are a handful of degree-granting lighting programs—Parsons, Penn State, RPI, Ryerson, Texas Christian University, Colorado, and Nebraska—architectural curriculums need to acknowledge lighting in a way that most do not already do.

Lighting has the opportunity to bridge the gap between architecture and engineering. It can be both technical and aesthetic, and in that, is very different from either of those disciplines. That perhaps is lighting's strength and why it should not be dismissed in the overall design equation.

The design process and resulting projects are better served when designers speak the same language. An architectural student well-versed in lighting is a better-educated architectural practitioner, and that can only benefit both architecture and lighting.

ELIZABETH DONOFF
SENIOR EDITOR

NOV/DEC EXCHANGE QUESTION

Architects and lighting designers are no longer restricted to practicing their craft in the immediate vicinity of their local city or state. The dynamics of globalization have changed all that. Today, it is just as easy for a firm to be working on a project halfway around the world, as it is to be just a few block away.

What are some of the issues facing architects, lighting designers, and manufacturers as they enter the realm of global practice? What are the cultural influences on the design process when working abroad?

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IT IS THAT UBIQUITOUS TOOL THAT FINDS ITS WAY ON TO EVERY DESIGNER'S DRAFTING BOARD, DESK, OR worktable—the Luxo lamp, the L-1 to be exact. An iconic object of design in its own right, it has assisted countless architects, lighting designers, artists, and engineers during the design process. It is even the star of its own animated short film, one that launched multi-billion-dollar movie company, Pixar.

Conceived in 1937 by Jacob Jacobsen, a Norwegian lighting designer and engineer originally trained in textile manufacturing, the fixture's design was inspired by George Carwardine's 1934 Anglepoise lamp and its spring-arm balancing system that allowed for easy movement, yet enabled the entire fixture to remain in position.

In 1937, Jacobsen, a savvy businessman, founded the manufacturing company Luxo to produce the L-1. By 1940 he had acquired production rights for the Anglepoise in both Scandinavia and the United States. To make the L-1 a commercial success, Jacobsen engineered refinements to the shade shape and stand connection. Functional, utilitarian, technically proficient, and aesthetically pleasing, it is no wonder that, to date, over 25 million L-1 lamps have been sold. And it is certain, no matter countless attempts to mimic this feat of engineering and design—that Luxo lamps will continue to find their way onto the desks of future generations of designers. **A|L**

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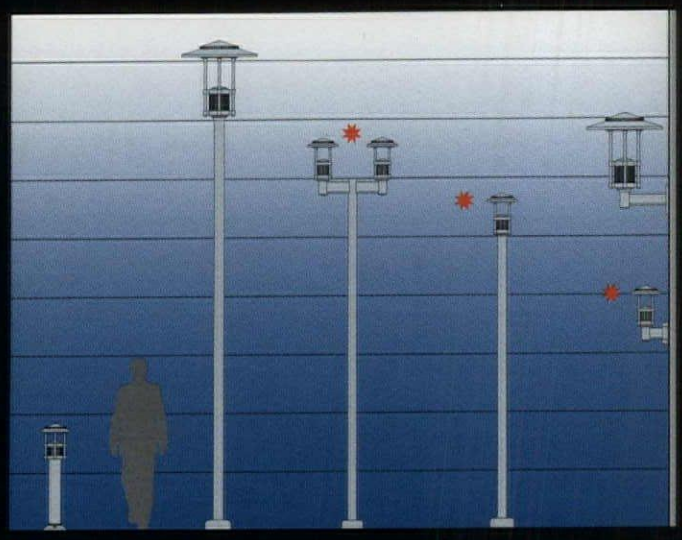

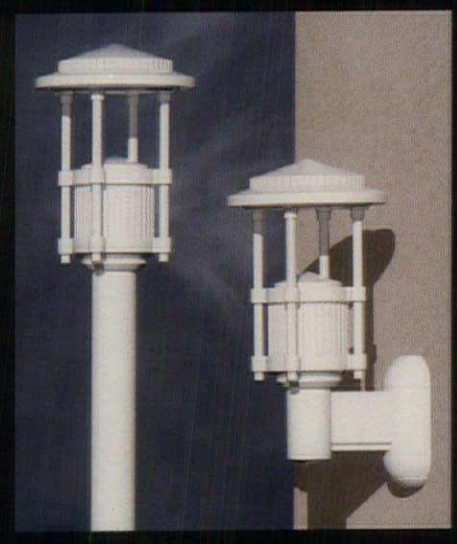

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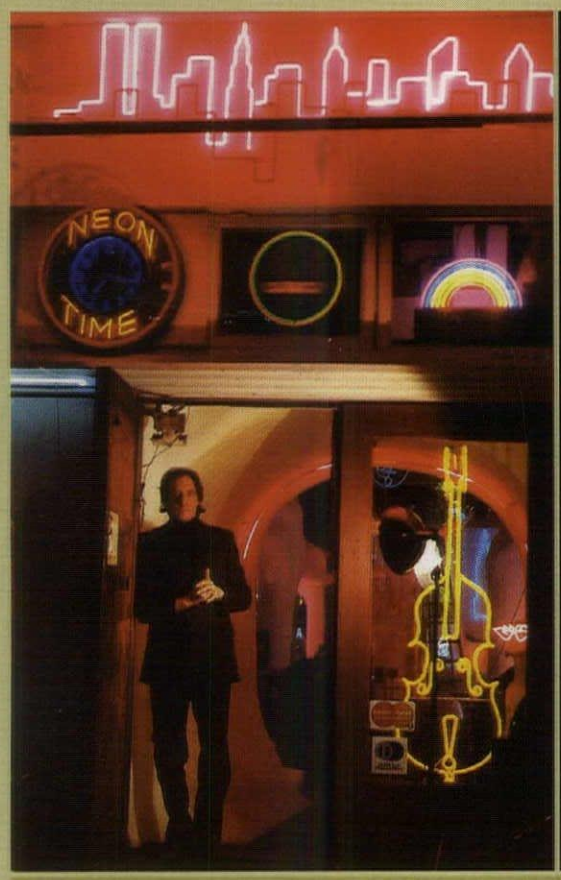
REMEMBERING A LIGHTING PIONEER: RUDI STERN (1936 - 2006)



Rudi Stern at the Let There Be Neon studio and gallery in 1980 (left). One of Stern's neon pieces, a bed (right).

- Born: November 30, 1936, New Haven, CT.
- Studied painting and trained with artists Hans Hoffman and Oskar Kokoschka.
- Bachelor's degree in studio art from Bard College, 1958; master's from the University of Iowa, 1960.
- Moved to New York City in the mid 1960s and met artist Jackie Cassen.
- Late 1960s worked with Cassen on avant-guard light shows, the most notable being "psychedelic celebrations" for LSD advocate Timothy Leary.
- 1969 founded Global Village, an experimental video and performance art space in New York City.
- 1972 founded Let There Be Neon, a studio and gallery in New York City devoted to the art of neon.
- Designed neon signs for Broadway productions including "Kiss of the Spider Woman" and installations for performance artists Laurie Anderson and Nam June Paik.
- 1999-2001 created and produced "Theater of Light" a multimedia light installation using multiple screens, thousands of painted glass slides and over 30 projectors.
- 1992, made the documentary film "Haiti: Killing the Dream" with Katharine Kean.
- Published several books including *Let There Be Neon*, 1979 and its sequel *The New Let There Be Neon*, 1988.

PHOTOS: ABE REZNY (LEFT); JEFF FRIEDMAN (RIGHT)

A REMEMBRANCE

By Jeffrey I.L. Miller, IALD

Rudi died last month in Cadiz, Spain where he had been living with his wife Rafaella Trivi and their daughter Stella for the past few years. While recuperating from surgery, he called to tell me of an opportunity he had to produce a light show in the plaza of a small town nearby. He was seeking support from the mayor for this 'civic' event. I knew enough not to dismiss his vision of "A Celebration of Andalucian Light," because for Rudi, the emotional power of light was an absolute, and for him, creating in light was a basic human gift that should be shared. Over the years, in places around the world, I watched him manipulate light and witnessed those transformational moments that many lighting designers and lighting artists seek but seldom realize. This generosity of spirit was pervasive throughout his career, as venues changed and as he moved from light projections to neon and video and back to projections.

In the '60s it then was colored oil on overhead projectors at the Fillmore East, later the Tokyo "environments", 'neon cat scratches for a 78 story building' in Hong Kong, his Theatre of Light projection compositions and a documentary on Haiti, which he directed with Katharine Kean. There's a photo somewhere of Rudi receiving an award from Fidel Castro at the Havana Film Festival.

For him, light could only be an immersive sensual thing, no numbers and even less discussion. While much has been mentioned of his early psychedelic light shows with Timothy Leary, frankly I don't believe that the tabs in the refrigerator affected him very much. Rudi was always more lumia than lumen; he was born to novial gold and bromo blue.

Chiding me recently about our lighting design practice, Rudi warned me (again), against becoming a "Lighting Information Worker", a purveyor of 'Dots for Dollars'. He reminded me that lighting which doesn't inspire or touch the heart was not worthy of our efforts.

Thank you, Rudi.

Jeff Miller is a lighting designer in Seattle, Washington

In 1972 when Rudi opened Let There Be Neon, the craft of neon was gasping for its last breath. By recognizing its beauty and artistic potential he was able to bring together many of us who soon found new expressive ways to form their palettes with light. Out of the bars and into living rooms! Graphic designs, architectural cove lighting, and neon furniture was only the beginning of what has become acceptable forms of interior design. His vision and infectious enthusiasm that Let There Be Neon's spirit was founded on continues today. I will continue to ask myself at crucial moments, "What would Rudi do?"

Jeff Friedman
Owner, Let There Be Neon

BRANDSTON HONORED WITH KELLY AWARD

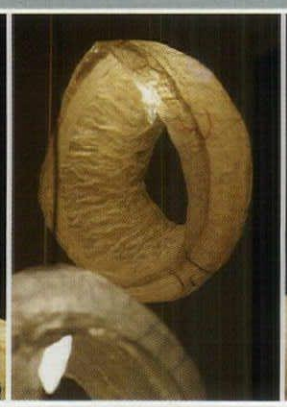
HOWARD BRANDSTON, ELDER STATESMAN OF THE LIGHTING DESIGN COMMUNITY, WAS HONORED ON September 13, 2006 with the 2006 Richard Kelly Award, presented by the Illuminating Engineering Society New York Section (IESNY), in a ceremony held at the Con Edison Auditorium in New York. The award, the highest accolade given by the Section, recognizes distinguished members of the lighting community who have made significant lifetime contributions to the field of lighting design and the lighting community as a whole. The honor makes specific recognition of Brandston's many contributions to lighting education. Since its creation in 1992, the award, named to commemorate the legacy of architect and lighting designer Richard Kelly, has been presented to only three individuals—lighting pioneer Edison Price, lighting designer Jeffrey Milham of Design Decisions, and Harry Gerstel, founder of Gotham Lighting.

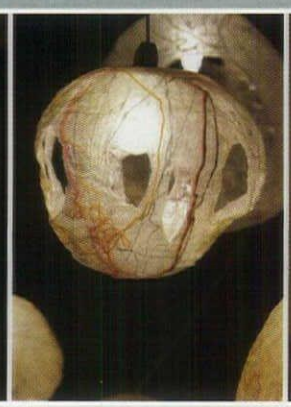
With over 40 years of industry experience, Brandston, a practitioner and an educator, has been involved with some of the most recognizable architectural projects of the last several decades, including the renovation of the Statue of Liberty and the Petronas Towers in Kuala Lumpur. In addition, he has taught and lectured at architecture and lighting programs throughout the United States. In 1981, through the IESNA, he established and endowed the Howard Brandston Student Lighting Design Education Grant. In his acceptance speech, Brandston stated, "What a waste my life would be if I did not in some way follow the model of Richard Kelly and the example set by Stanley McCandless, to send some well-educated people into the profession to reshape it, carry it on, and grow it, through leadership and education, or the next generations to come."

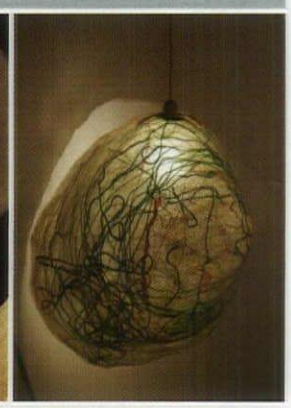
An informal panel discussion touching on Brandston's career and lighting education topics followed the award presentation. Panelists included Scott M. Ageloff, dean of the New York School of Interior Design; C. Brooke Carter, senior designer, Domingo Gonzalez Associates; Jimalee Dakin, director of the Jim H. McClung Lighting Center, Acuity Brands Lighting; and Derek Porter, director of the MFA Lighting Program at Parsons the New School for Design.

The deadline for the 2007 Howard Brandston Student Lighting Design Education Grant is May 1, 2007. The competition brief is posted at: www.iesna.org/PDF/Awards/Brandston/brandston07.pdf. **A|L**

LONDON'S BRIGHTER DESIGN WEEK







Nine hanging lamps in amorphous housings made of recycled and melted plastic of varying colors, shapes, and translucencies comprised the installation of London-based architect and designer Francesco Draisci's (above and below). The organic form and simple design of his booth were a welcome break from the busy and flashy surrounds.

THIS YEAR, LONDON DESIGN WEEK WAS NOTICEABLY PUNCTUATED WITH THE launch of 100% Light (see "100% Light" April/May 2006, page 22). Situated between the related 100% Design and 100% Detail events at London's Earls Court, the show comprised a mix of lighting products and designers catering to both mainstream consumer and architectural clients. Accompanying seminars were held in the exhibition hall, and included topics ranging from light's impact on urban spaces to the LED revolution.

LEDs and related fixtures had a strong presence throughout 100% Light, and yet here those products were better designed and better functioning than those at most lighting exhibitions, indicating that making the transition to the new technology is increasingly feasible. One firm, London-based Studio Make Light, stood out for its clever and successful portfolio, which contained an LED chandelier with mechanical moving wings and LEDs suspended in translucent light bulbs.

Other highlights included the booths of two exhibitors Deltalight and conciLUCE. Alongside their trademark cube-heavy and minimalist designs, Belgium-based Deltalight introduced new products and opened its studio doors at an off-site event across the city at Hoxton Square. ConciLUCE's luminaires—which ranged from bold and simple geometries to complex, fractal-like polygons—were the most varied, and touched upon many of the major trends that appeared throughout the event, including the use of playful and tactile materials.

One of the more interesting displays of the 46 stalls belonged to London-based architect and designer Francesco Draisci, whose installation was comprised of nine hanging lamps in amorphous housings made of recycled and melted plastic of varying colors, shapes, and translucencies. The booth's organic form and simple design were a welcome break from the flashy surrounds.

The theme of recycling and reuse carried through to design events throughout the city, especially those, such as 100% East that showed the work of emerging designers. "Reuse" is becoming a theme of choice for the design population and a topic particularly well suited to lighting, an industry concerned with energy efficiency. Among new designs, types of products, and technologies, this year's London Design Week painted a promising account of the industry's future, hopefully cementing a place for 100% Light in years to come. **JAFFER KOLB**

Jaffer Kolb, previously an assistant editor at the Architect's Newspaper, is a design writer based in London while pursuing a masters degree in urban planning at the London School of Economics.

PHOTOS COURTESY OF FRANCESCO DRAISCI

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BUILDING WITH LIGHT

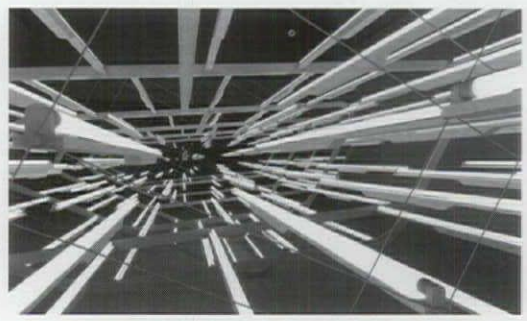
Heather Carson's site-generated "light/HANGAR" installation cycles through a sequence of 53 cues, during which fluorescent and sodium vapor sections are illuminated piece by piece. This articulates the positive versus the negative space of the structure, with sodium lamps responding to the perimeter or skin, while fluorescents respond to the trusses or skeleton (above).

NOW RUNNING THROUGH DECEMBER 2, 2006, LIGHT-SENSITIVE—AN EXHIBITION OF PAINTING, SCULPTURE, AND photographs that "embody an internalized sense of spatiotemporal luminosity with a refined minimal aesthetic"—will be on view at the ARENA 1 Gallery, a 22,000-square-foot historic hangar at the Santa Monica airport in California.

The exhibition includes the work of four artists: Katherine Finkelpearl, Anthony McCall, Iain Slack, and Heather Carson, whose site-generated installation called "light/HANGAR" is constructed on the steel trusses of the structure's ceiling. "Walking into the airport hangar for the first time there was no question that the space above—the hangar itself—was the most interesting thing architecturally," Carson explains. "I like to respond to real materials and spaces that are built or constructed with a purpose."

Carson's installation measures 73 feet wide by 45 feet tall and is made up of 321 fluorescent fixtures and 48 sodium vapor fixtures. Using 36 digital relay switches, it cycles through a sequence of 53 cues, during which fluorescent and sodium vapor sections are illuminated piece by piece. "I use the sodium and fluorescent lamps in the same plane to articulate positive space versus negative space—the wireframe versus the 'walls,'" Carson says. "The sodium lamps respond to the perimeter or skin of the building, while the fluorescents respond to the trusses or skeleton. You get to savor each ingredient and then feel it build to a whole." For more information, visit www.santamonicaartstudios.com or www.heathercarson.com. **A|L**

FLUOROSCAPE 2006



AN EXPLORATION OF LIGHT AND ARCHITECTURE, AND THE SPATIAL ENVIRONMENT THE TWO CAN CREATE WHEN JOINED, FLUOROSCAPE 2006 ILLUMINATED THE SCI-Arc Gallery for six weeks, from August 4 through September 17, 2006. Designed by Los Angeles-based Neil M. Denari Architects in collaboration with Bartco Lighting and a group of SCI-Arc students, the installation investigated "the oxymoronic concept of vaporous solidity," wrote Neil Denari in an article for A|L's former sister publication, *Architecture* (September 2006). With Bartco's technical expertise, the metal ballast boxes were customized into a fluid element that supports the formal whole. Seven laser-cut, powder-coated, 3/16-inch-thick steel ribs provide the frame that contains the 224 fluorescent tubes. "The effect is a blinding, overlit object, whose geometric finiteness is undermined by the tremendous glare and seemingly infinite fall-off of light," explained Denari. A gallery in Berkeley, California, is tentatively scheduled to host the installation again next spring. **A|L**

TIR AND ITS LEXEL CONSORTIUM

TIR SYSTEMS INTRODUCED ITS LEXEL TECHNOLOGY IN 2005 AS A NEW LIGHT SOURCE THAT WOULD ACCELERATE THE adoption of solid-state lighting into mainstream illumination ("Lightfair and Euroluce: A Tale of Two Trade Shows," May/June 2005, page 62). As the first, fully integrated, LED-based light source, Lexel is designed specifically to produce high-quality white light essential for general lighting applications. By incorporating breakthroughs in thermal, optical, drive, and feedback technology, the resulting product enables lighting manufacturers to take advantage of solid-state lighting. And a growing number of manufacturers have taken notice.

Eight well-known global manufacturers have joined TIR's Lexel consortium, a group of companies developing and marketing lighting products based on its technology. To date, U.S. participants include: Kentucky-based Genlyte Group, New York-based Lighting Services Incorporated, Texas-based Lucifer Lighting Company, and Ardee Lighting (a brand of the Genlyte Group). International members are Zumtobel in Austria, Spectral and Semperlux in Germany, and Daiko in Japan.

The manufacturers' draw to this technology is particularly interesting. Lucifer Lighting CEO Gilbert Matthews explains that one of the company's reasons for partnering with TIR is because of the circuitry. With Lexel, manufacturers no longer have to coordinate separate components because the technology provides a complete system. He says that TIR offers a "one stop package" where "everything is integrated."

From TIR's perspective, Grant Harlow, vice president of product and marketing development, explains that the company realizes the value of the distribution channels and brand-name influence of big-name manufacturers. Rather than compete with these companies, Harlow says, "It would be better if we partnered with them to develop products based on [Lexel] technology and work with them directly through their sales channels."

Though there are no current plans to sell the company, TIR Systems is, according to Harlow, "looking at a number of different ways as to how we can grow our business, and those ways would generally include an arrangement with another company." However, no particular company can be named at this time. For more information, visit www.tirsys.com. **JESSICA N. JOHNSON**

PHOTOS: HEATHER CARSON (TOP); RENDERING COURTESY OF BARTCO LIGHTING

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LEADING THE WAY

HUNDREDS OF ARCHITECTURE STUDENTS FROM AROUND THE WORLD PAR-ticipated in the 2006 Leading Edge Student Design Competition, which, in its 13th year, continues to support the study of sustainable and energy-efficient building practices in architectural education. This year, two first-place and three second-place prizes were awarded.

Administered by the New Building Institute and sponsored by Southern California Edison, California Energy Commission, Pacific Gas & Electric, Sacramento Municipal Utility District, and glass fiber manufacturer Owens Corning, the competition challenged students to incorporate principles of energy efficiency and sustainability as a basic standard of building design into their project designs.

CHALLENGE ONE

First place: **Jason Conner of CalPoly San Louis Obispo.**

Second place (tied): **Colby Moeller of the University of Arizona and the team of Scott Rothi, Chris York, and Bryce Sigourney of CalPoly San Louis Obispo.**

CHALLENGE TWO

First place: **Michaela Baker and Michael Scott of CalPoly Pomona.**

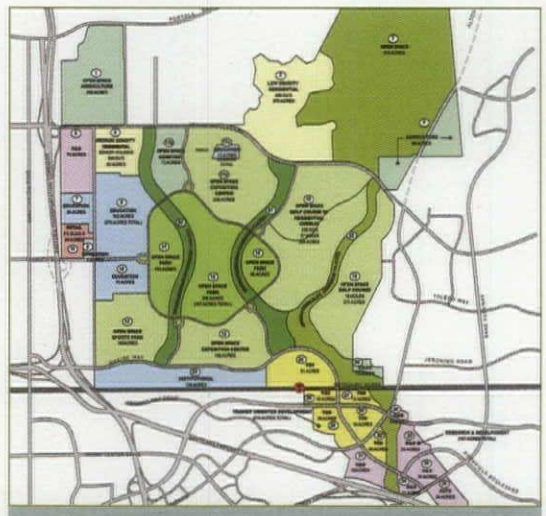
Second place: **Brad Fowers, CalPoly Pomona.**

Open to all students of architecture, engineering, drafting, and environmental design at two-year colleges, technical schools, and four- and five-year institutions, the competition is divided into two design challenges: Challenge One for students above their second year in training, and Challenge Two for those in their first or second year. First- and second-place winners in both categories received $3,000 and $2,000 respectively.

The jury, selected for their design experience and knowledge of energy efficient and environmentally responsive design and construction, was made up of Gregg D. Ander of Southern California Edison (one of A|L's advisory board members); Professor Margot McDonald of Cal Poly, San Luis Obispo; and architect Hank Koning, principal of Koning Eizenberg Architecture.

In Challenge One, students were invited to design a nature museum and interpretative center on a 40,000-square-foot site, which would house classrooms for environmental education, sections for interpretative displays, and a small media presentation area for showing video and film. Challenge Two required a park office and snack bar on an 8,000-square-foot site that included staff offices and indoor/outdoor public seating areas.

The winning approaches included extensive use of daylighting, natural ventilation, solar shading, passive cooling, and use of sustainable materials. Because the competition spoke to energy efficiency, each of the winning entries included designs with a high level of natural light, while simultaneously attempting to avoid solar heat gains. The focus of Michaela Baker and Michael Scott, first place winners of Challenge Two, was to get indirect lighting throughout the entire building using a variety of shading devices that would block out the direct sunlight in the summer and allow light in during the winter. They achieved this by using adjustable vertical louvers on the east and west sides of the building, and horizontal louvers in the front. In addition, a light scoop located on the ceiling would bring indirect light into the main atrium/snack bar.

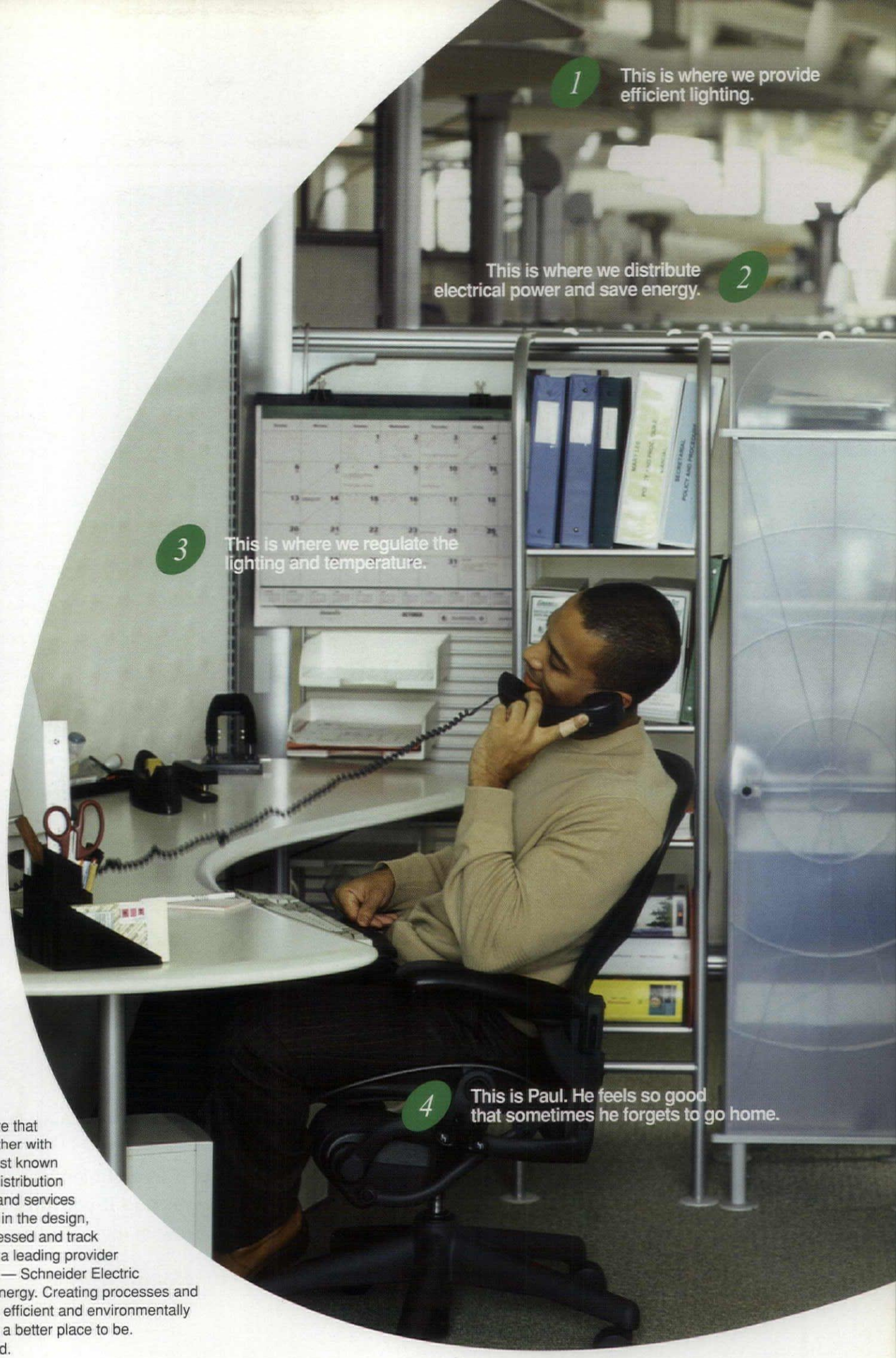


The location chosen for this year's competition was the Orange County Great Park in Irvine, California.

IMAGE COURTESTY OF WWW.LEADINGEDGECOMPETITION.ORG

Design Judge Margot McDonald says, "Architecture students in both challenge categories generated evocative designs that addressed aesthetics, energy, and green design. This type of design thinking is critical to society and the environment if we are to meet the challenges of climate recovery in the decade ahead."

Visit www.leadingedgecompetition.org for more information. **A|L**



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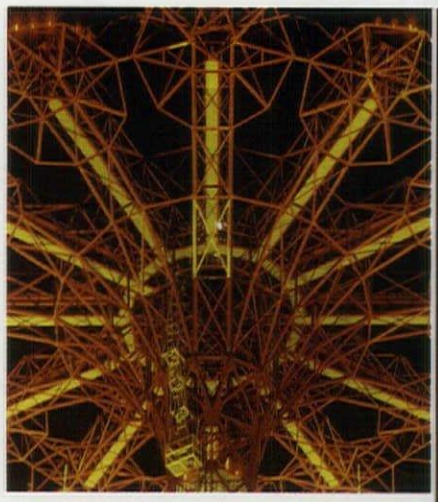
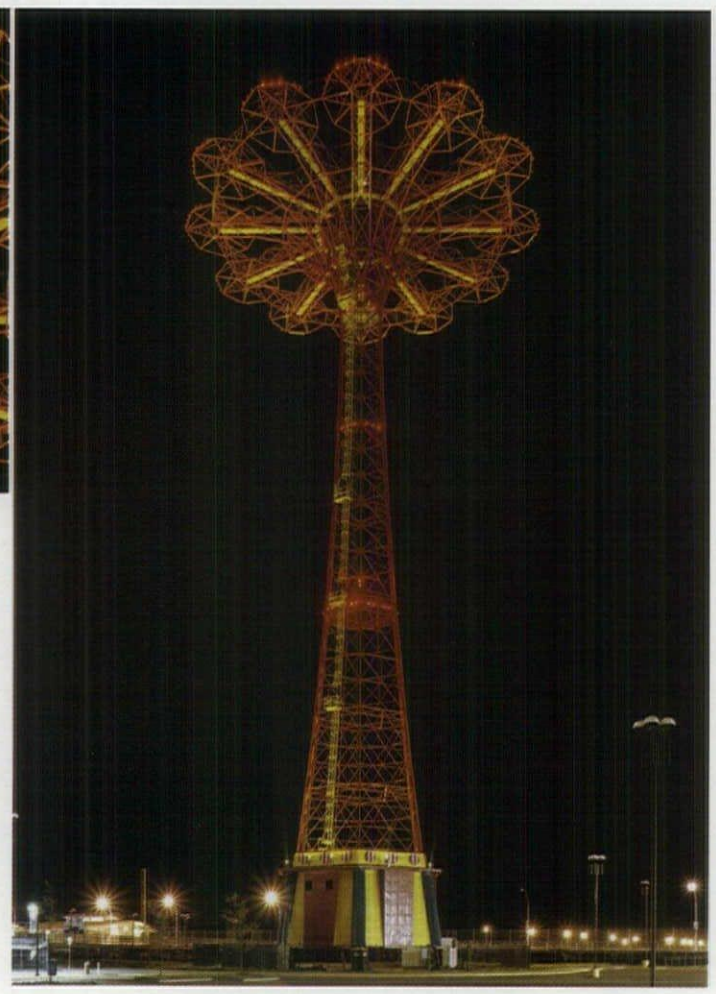


PARACHUTE JUMP

AFTER 37 YEARS IN THE DARK, CONEY ISLAND'S famous Parachute Jump ride is once again lighting up Brooklyn's skyline. New York-based lighting design firm Leni Schwendinger Light Projects has created a series of colored illumination scenes to play throughout the year, which use custom-design LEDs engineered by New York-based Phoster Lighting. **A|L**



INTERNATIONAL INDUSTRY REPORTS

ADDING TO ITS LONG LIST OF LIGHTING MARKET REPORTS, THE center for industrial studies (CSIL), a Milan-based independent research and consulting company, has issued two new publications: *The European Market for Lighting Fixtures* and *The Lighting Fixtures Industry in China.*

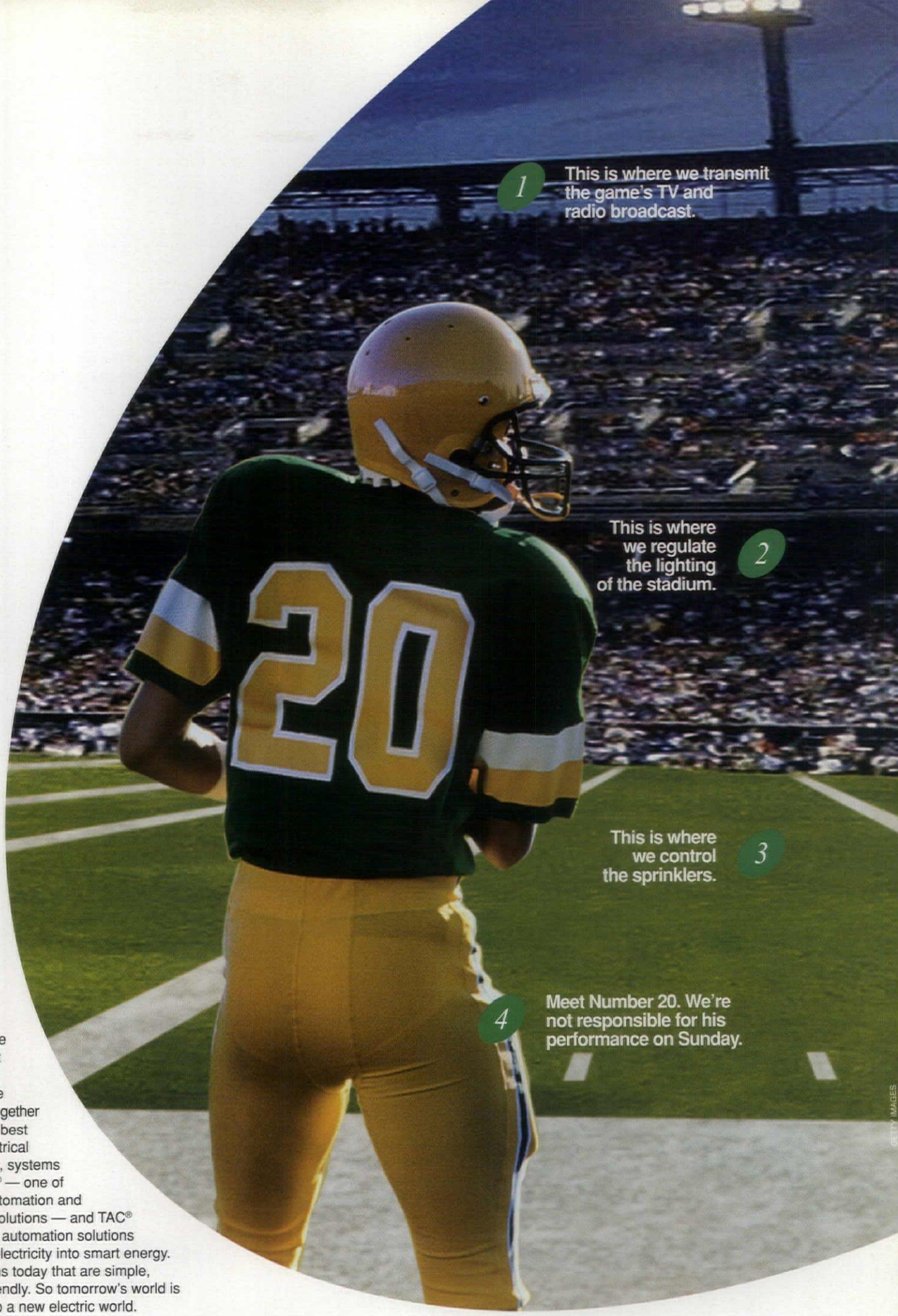
Both the 132-page China report and the 198-page European report—covering 16 countries—offer a comprehensive picture of their respective lighting fixtures industries, providing trends in production and consumption, imports and exports for both indoor and outdoor lighting, as well as data on the supply structure and company profiles.

The report also provides a production breakdown by application, such as residential, commercial, and outdoor lighting, and by source, including incandescent, fluorescent, and LED. Industry areas, such as Residential in the China report and Decorative in the European report, are divided into categories, such as style and fixture type.

According to CSIL, the development processes occurring in the lighting sector—as well as the appliance, furniture, and furnishing sectors—have attracted international attention, and are at the heart of new public policies for development in Europe.

For more information, or to purchase these and previous lighting industry reports covering Australia, India, the United States, and Russia, visit www.csilmilano.com. **A|L**

PHOTOS COURTESY OF LENI SCHWENDINGER LIGHT PROJECTS



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LIGHT EXPOSURE AND MEDICAL ERROR

LEGITIMIZING AN OFTEN-DISCUSSED TOPIC, CALIFORNIA-BASED CENTER FOR HEALTH DESIGN (CHD)—A research and advocacy organization to improve the quality of healthcare through building architecture and design—has released research evidence proving that appropriate exposure to natural and electric light in hospitals and clinics is critical to the health and well being of patients and staff. CHD is a nonprofit organization whose mission is to transform healthcare settings into healing environments that improve outcomes, a subject that is explored in a paper by CHD director of research Anjali Joseph, Ph.D. Published online in August 2006, the report is titled, "The Impact of Light on Outcomes in Healthcare Settings."

Funded by the Robert Wood Johnson Foundation—a philanthropic organization devoted to improving health and health care through training, education, and research—the 12-page paper submits that studies (found in peer-reviewed journal articles and research reports published in medicine, psychology, architecture, ergonomics, and lighting design periodicals and books) show a direct relationship between higher light levels and better performance of complex visual tasks, and that light requirements increase with age. By controlling the body's circadian systems, light impacts outcomes in healthcare settings by reducing depression among patients, decreasing lengths of hospital stays, improving sleep, lessening agitation among dementia patients, and easing pain. Additionally, light is vital to vitamin D metabolism in the human body. Various forms of light exposure also offer benefits among staff, including improving the adjustment to night-shift work. Access to daylight and the presence of windows in the workplace has also been linked with increased satisfaction with the work environment.

While daylight and electric light can be combined to create a similar effect, the incorporation of natural light is encouraged because of its mutual benefit to patients and staff with zero delivery cost. Though electric lighting is required throughout hospitals, its need can be reduced by efficient utilization of sunlight where possible.

Dr. Joseph believes that these findings can be applied beyond hospitals and clinics. "The importance of light exposure for work performance, maintaining circadian rhythms, and moods are universal and are just as applicable in hotels, residences, and office settings. In any of these situations, it is also important to keep in mind that light levels should be appropriate with an opportunity to control light levels and glare."

The paper, in PDF, is available at no charge via the organization's website. For more information, visit www.healthdesign.org/research/reports. **JESSICA N. JOHNSON**

CORRECTIONS Two items were inaccurately identified in the July/August 2006 issue: In "Detroit Athletic Club" Tigers Park should have been referred to as Comerica Park • In "Morimoto NYC" the photographer was David Joseph and the images were courtesy of the Starr Restaurant Organization.

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Finding the Light Online

BY JENNIFER BRITE

IT IS SOMETIMES HARD TO IMAGINE LIFE BEFORE THE INTERNET: CUT sheets in pdf format are now just a click of the mouse away—even at 3 a.m. the morning before a project is due. FTP sites and services such as E-Builder and web-based project management software such as Buzzsaw make collaboration with someone in Shanghai almost as easy as with the person in the next cubicle. But the web's place in the lighting universe has been slow to take shape.

ONLINE TOOLS

Lighting manufacturers were once hesitant to release anything but the most cursory product literature on their websites for fear competitors would steal valuable trade secrets or contractors would use the information to substitute alternative products. A decade later, most take the opposite view: the easier spec sheets and images are to obtain, the more likely architects and designers are to choose their product. Some of the larger manufacturers have taken things a step further and now offer online tools that help practitioners design an entire project around their product offerings.

Launched in May 2005, Lightolier's Designing with Light (designingwithlight.com), one of the most comprehensive online tools, allows specifiers to create unique project management profiles to which they can save product information and quantities, lead times, and budget pricing, before contacting a sales representative or distributor.

For Lightolier and other manufacturers, the web acts as an extension of its sales force, allowing it, with fewer resources, to reach more people. Says Melissa Hertel, specification marketing manager for Lightolier, "Our sales team cannot possibly reach the over 100,000 designers currently practicing."

Another benefit of the online world is timeliness. Manufacturers are able to market themselves in line with current issues, such as sustainability. In May of this year, Osram Sylvania (sylvania.com) released an online calculator that allows users pursuing the U.S. Green Building Council's Leadership in Energy and Environmental Design certification for Existing Buildings (LEED-EB) to determine the mercury content in the lamps scheduled for their lighting schemes.

However, an online tool provided by a particular manufacturer has a major drawback for specifiers: it only supplies products from one company. A site and service initiated by lighting design firm Horton Lees Brogden Lighting Design (HLB) in 2002, eLumit.com is a new breed of tool providing product information from 60 manufacturers, who pay an annual listing fee to be included. (Designers, who must only register to use the service, can also specify products from companies that do not participate, but they must write all of the technical details for those products into the tool, rather than choosing a product and having all of the details supplied for them.)

Carrie Knowlton, eLumit's business development manager and associate at HLB, says the idea came out of the firm's everyday work. "We had been using an internal database for specifications for many years, but we couldn't link to the Internet and access specification sheets or find new products. We realized there was real potential if we automated the process in a way that would bring up product details quickly and would reduce errors."

Their hunch was right, and, from July 2005 to July 2006, the site has seen a 68 percent increase in registered users and a 22 percent jump in participating manufacturers. Future plans include expanding lamping options (allowing users to choose criteria such as color temperature), incorporating CAD drawings, and providing the status of product orders. Though all of these tools help lighting designers to one degree or another, the industry still does not have a comprehensive "one-stop shop" for detailed product information from all lighting companies, no matter their size.

(NOT) CUTTING OUT THE MIDDLE MAN

Additionally, the web has failed to become an active channel for specification-grade lighting-fixture sales directly from manufacturers. Although there are a few exceptions, for example, Connecticut-based lighting manufacturer Tambient (tambient.com), many companies are not ready to disrupt their sales chain. Some fear they will endanger the relationships they have sought to build with distributors, while others want to avoid small-scale customers in favor of large distributors they know to have good credit histories.

However, Craig DiLouie, principal of Zing

So Who's Online?

Architectural Lighting magazine's first website launched in 1995 under the name qualitylight.com (it has since switched the url to archlighting.com), and during that time, the A|L editors have learned a great deal about who is searching for lighting-related content online and what they expect to find. As is often the case, a large number of archlighting.com's users, approximately 40 percent, do not reside in the United States. Product information is also extremely important to our online readers, as shown in numerous surveys conducted by the magazine. Because of this, in February 2006, archlighting.com expanded its product coverage, creating 12 searchable categories. The site's audience is split down the middle by gender, with about 80 percent falling into the 35 and older age range. Virtually all have at least some college education and a third have a post-graduate degree. An interesting detail uncovered in a survey conducted in May of this year by A|L's sister magazine, *Architecture*, found that podcasting has been slow to catch on, with only eight percent of respondents having subscribed to a show for work purposes.

TABLE 1 *USER-GENERATED SITES (SHOWN IN BOLD) COMPRISE FIVE OUT OF THE TOP 10 FASTEST GROWING WEB BRANDS. **

Brand	Content/Purpose	Unique Users JULY 2005**	Unique Users JULY 2006**	Percent of Growth
HSBC	Banking	1,290	6,377	394%
Sonic Solutions	Digital media software manufacturer	1,098	3,740	241%
Associated Press	News site	2,901	9,692	234%
ImageShack	**Photo sharing**	**2,324**	**7,745**	**233%**
Heavy	**Video sharing**	**965**	**3,021**	**213%**
Flickr	**Photo sharing**	**2,105**	**6,346**	**201%**
ARTIST Direct	Music news and downloads	1,131	3,219	185%
Partypoker	Online gambling	2,127	6,043	184%
MySpace	**Social networking**	**16,239**	**46,025**	**183%**
Wikipedia	**User-edited and written encyclopedia**	**10,387**	**29,176**	**181%**

TABLE 2 *PODCASTING GAINS A FOOTHOLD IN THE UNITED STATES.*

	Number of people who downloaded a podcast in June 2006	Percent of total online population
Audio	9,205,981	6.6%
Video	5,563,867	4%

Table 1 * Source: Nielsen//NetRatings. With a minimum unique audience of 750,000 in July 2006. ** Unique users in millions.
Table 2 Source: Nielsen//NetRatings, July 2006.

Communications and editor of LightNOW, an online newsletter published on Lightsearch.com, predicts many companies will change their thinking on this subject in the coming years.

"Gradually, forward-thinking manufacturers will continue to evolve from website-as-catalog to website-as-sales-rep, providing the ability to build fixture schedules and request pricing. This will be particularly valuable for smaller manufacturers."

Lighting designer James Benya, principal of Benya Lighting Design in West Linn, Oregon, takes a tougher stance. "Today, if you don't add value, you're dead meat. Many distributors don't add much value, but expect the lion's share of the profit."

Others do not necessarily feel distributors need to be cut out of the process. Rather, they feel the Internet best serves the lighting industry by providing more information more quickly. For example, eLumit has no plans to allow participating manufacturers to sell products directly on its site. Instead, according to Knowlton, because companies can see when one of their products has been specified, they can better determine pricing because their sales reps do not have to wait until the last minute. They can also better defend a specification against a contractor who may want to substitute one product for a less expensive one.

LOOKING AHEAD

After the infamous dot-com bubble burst in 2001, the future of the Internet was uncertain. Since then, a growing group of websites and online services have emerged that encourage users to actively participate and, in some cases, actually provide content. According to a report released for the month of April 2006 by Nielsen//NetRatings, which is owned by A|L's parent company VNU, 45 percent of web users in the United States visited at least one of the top ten social networking sites, which include blogs, as well as sites such as MySpace.com.

By contrast, unlike allied professions, such as architecture, that have a tradition of dialogue and a wide variety of blogs and forums to support this, there are few places online dedicated specifically to lighting professionals that promote interaction and discussion of important issues. On one hand, this is not surprising considering the small size of the lighting community. On the other hand, there is an opportunity for individuals or groups to bring the inspiration and creativity so often found in lighting to the web.

A notable exception is Starry Night Lights (starrynightlights.com/blog), a blog by a Utah-based lighting distributor of the same name. Produced by Anthony Arrigo, the company's president, it focuses on dark-sky issues and is updated on a weekly basis. Recent topics have included companies that continue to keep outdoor lights on after business hours and a discussion of sea-turtle-friendly fixtures. Though the blog certainly has a business purpose (it is not shy about announcing things like Starry Night Lights's new product offerings), Arrigo explains his main goal when starting the venture was to educate consumers, government officials, and zoning boards about the effects of lighting pollution. "The blog gets our name out there, which is always a good thing, of course," Arrigo says. "But in reality it doesn't get a ton of traffic. It's more of a way for me to vent about issues I'm passionate about. It's more about encouraging a conversation than anything else."

What the future may hold is anyone's guess, but as manufacturers find more ways to make the web profitable for them, and lighting designers become more comfortable turning to the Internet for both practical information and inspiration, the lighting community's online presence is sure to grow. Unlike print publications, which necessarily have a predominantly one-way relationship with their readers, new media welcomes and, in fact, relies upon its users to take a more active role. Without the participation of all professionals—from interns to senior practitioners—the web will never serve the lighting world to its fullest capacity.

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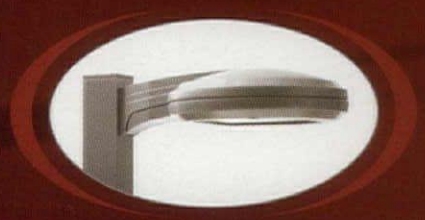

AREA & SITE

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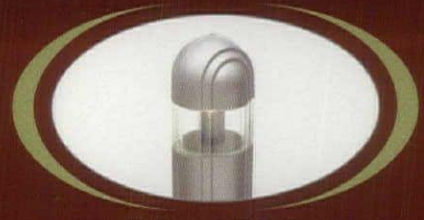

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ONCE AGAIN THE BANKS OF THE MINNEAPOLIS RIVERFRONT ARE ABUZZ. UNLIKE THE INDUSTRY OF THE PAST, SPECIF-ically flour milling, which contributed to this part of the Mississippi's livelihood, today's renewal comes from the arts, and at the fore is the Guthrie Theater. Founded in 1963 by Sir Tyrone Guthrie, the nationally recognized theater company has been the training ground and repertoire space for some of the stage greats, such as Hume Cronyn and Jessica Tandy.

The Guthrie's original home, on the Walker Art Center campus across town, was designed by noted Minneapolis architect Ralph Rapson. Its signature feature was a thrust stage that brought actors closer to the audience and provided an intimate theater-going experience. But, over time, as the Guthrie grew, the original facility could no longer meet the active theater company's requirements. Several successful capital campaigns and the leadership of artistic director Joe Dowling, who joined the Guthrie in 1994, have brought the theater to its present home on the Minneapolis riverfront.

The new Guthrie is a building that needs to be visited in person. The sense of place, the play of materials, the richness of color, and the way in which images are superimposed on both horizontal and vertical surfaces throughout the building's exterior and interior, is not something that easily translates through photographs. Designed by architect Jean Nouvel in a collaboration with local Minneapolis firm Architectural Alliance, the building's complete realization is a testament to the hard work of teams on both sides of the Atlantic.

The building's form—a series of differently shaped and scaled volumes—takes its cue from the industrial aesthetic of the adjacent riverfront flourmills. But the real treat is on the inside, in the atmospheric interiors with their signature colors of red, blue, and amber yellow. Through a design concept centered on themes of darkness, shadow, and reflection, the visitor is transformed into active theater participant. But it was not an easy project to illuminate. That challenge went to lighting designer Hervé Descottes and his team at New York-based L'Observatoire International. "My goal was to protect the design of the architect," explains Descottes. "It was extremely challenging because while the concept was based on mystery, contrast, and shadows, it was also about uniformity."

Nouvel's working style is an intuitive process and, as such, his design was in constant evolution right up until the building's opening. In order to articulate a lighting scheme that would respond to the architecture, Descottes approached the lighting composition as a frame that would be flexible and could change as the design evolved from schematics to construction. A palette of fluorescent, incandescent, halogen, and cold cathode sources were chosen for their ability to articulate the play and depth of darkness that the theater complex's architecture required. Generally, lighting elements are either located at the floor edge or at the top of partitions. "We decreased the intensity and warmed up the lighting as you go deeper and closer to the main spaces," explains Descottes. Because Nouvel wanted surface planes to be kept free of punctuations, recessed downlights could not be used, save for specific locations like the center strip of the fourth-floor lobby ceiling.

One of Nouvel's key design decisions in organizing the 285,000-square-foot building was to take advantage of the Mississippi River views. To achieve this meant raising the complex's two primary theaters—the 1,100-seat Wurtele Thrust Stage and the 700-seat Proscenium Stage—50 feet above street level. The 200-seat Dowling Studio, a black-box experimental theater space, is located above on the ninth floor. A series of public lobbies provides a variety of internal and external viewing experiences and links the three distinctive theaters. On the fourth floor, this space is arranged along a linear spine that runs perpendicular to the building's entrance. To the south, this corridor bridges across the street to the set workshops, rehearsal spaces, and offices, although visitors are not able to physically cross; they are only permitted a visual link through a blue glass window wall. To the west, the corridor takes the form of a ramp. Referred to as the "endless bridge," this cantilevered portion of the building leads one toward the river, both visually and physical, and is reinforced with the exclamation point of an exterior balcony from which to view the Mississippi.

No doubt for patrons who knew the previous Guthrie Theater, the new building and its moody interiors will take some getting used to. But for those who are willing to suspend disbelief, much like the experience of theater, the new Guthrie draws you in, creating a complete sensory experience while celebrating Minneapolis's rich heritage. **ELIZABETH DONOFF**

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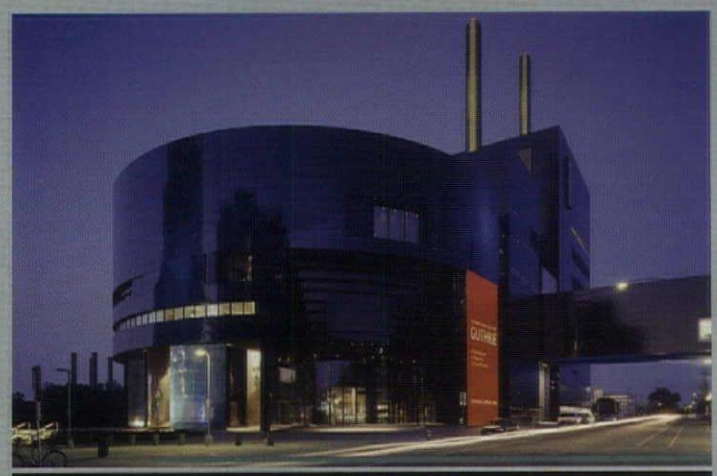
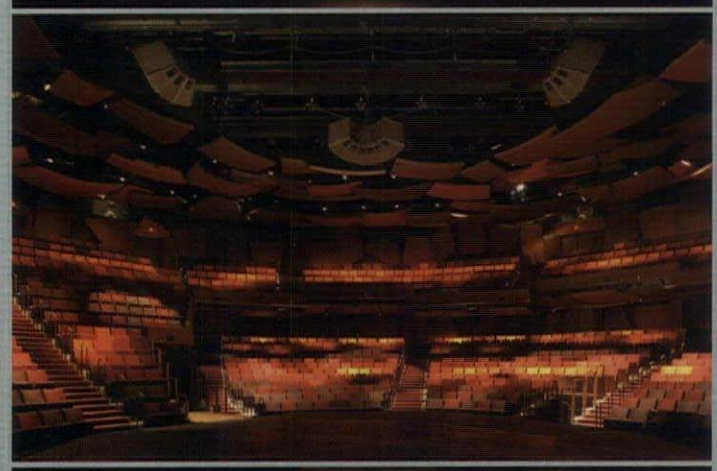


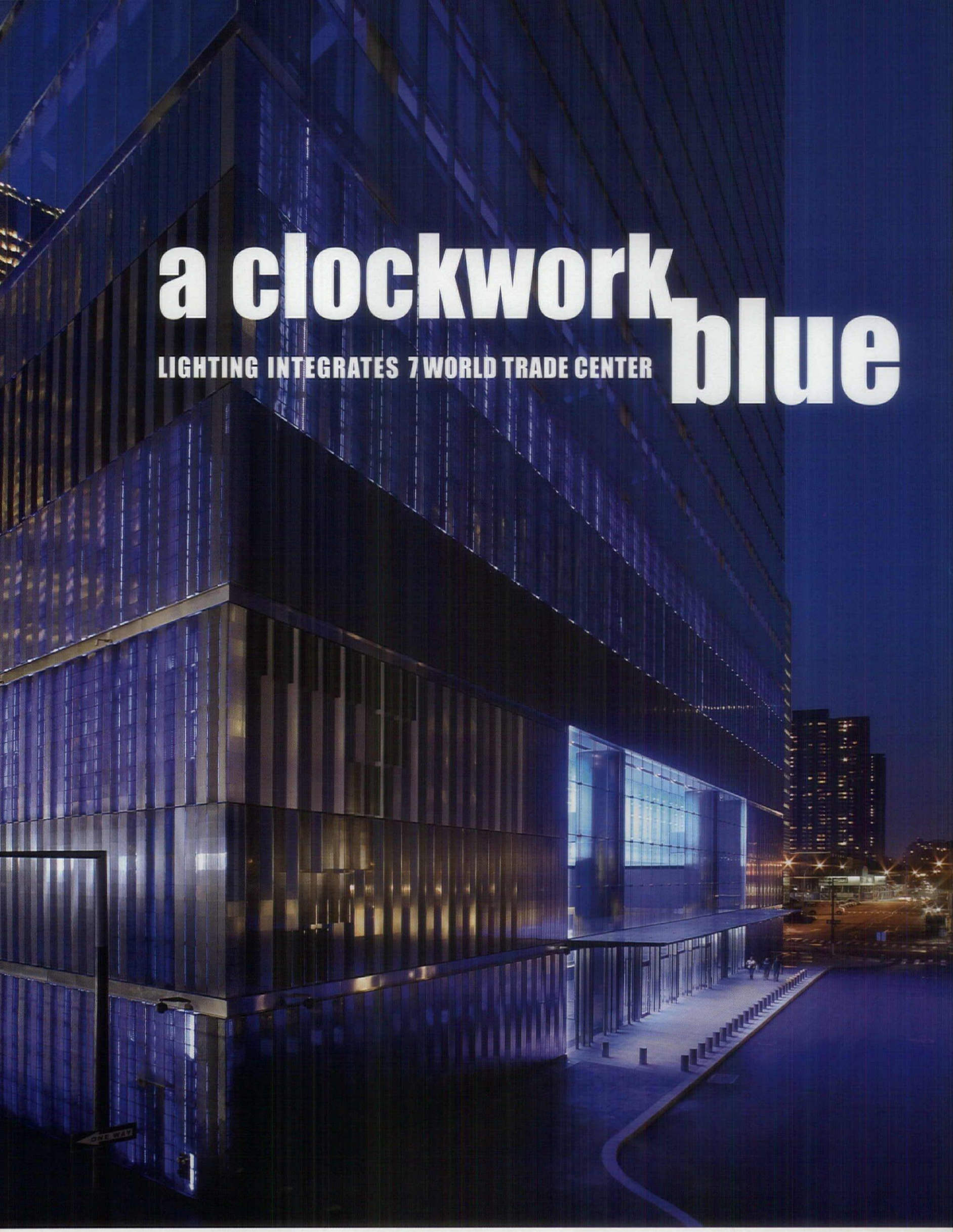


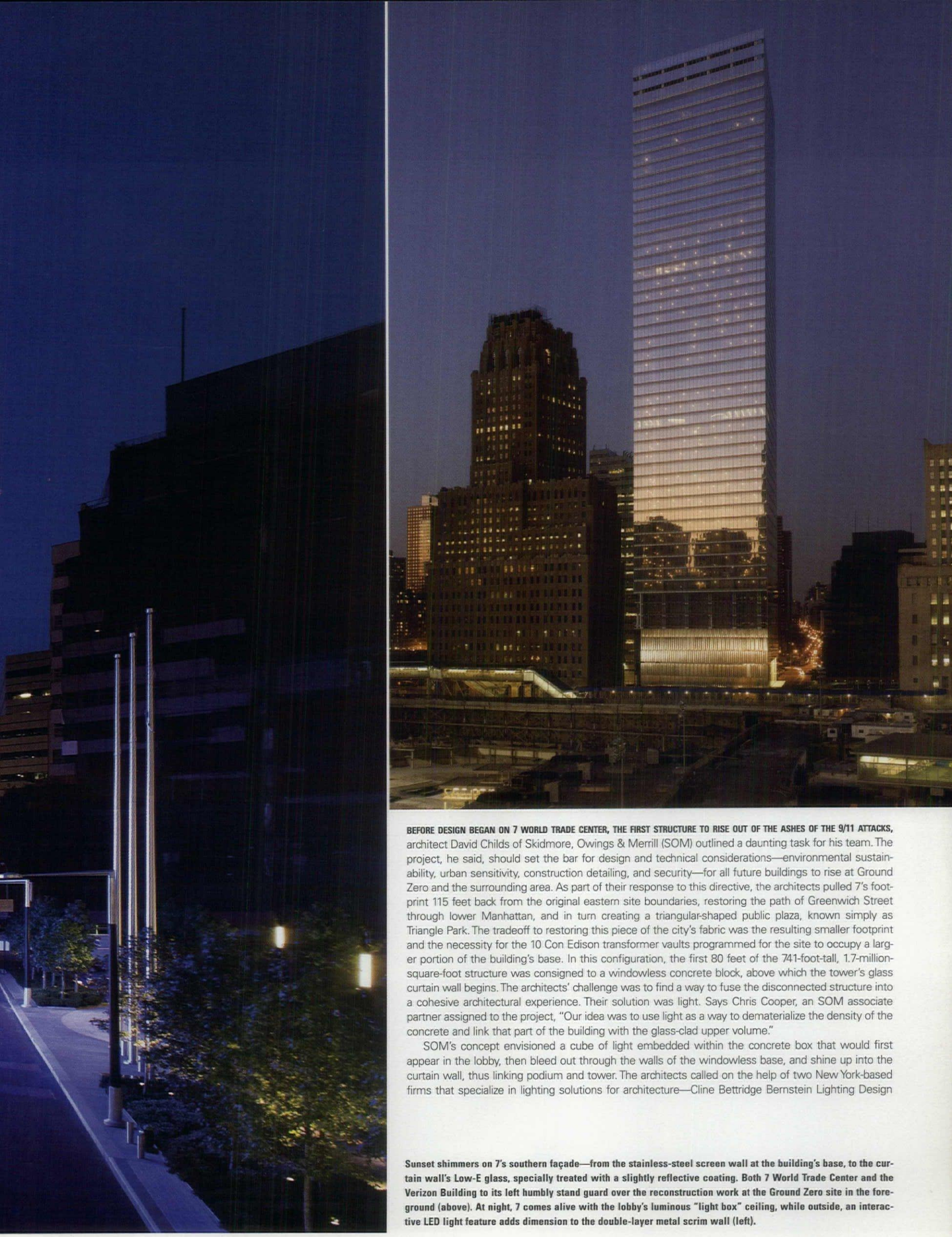
The Guthrie at night (top) comes alive with its rich blue façade and LED masts that display the current performance titles. Recessed downlights accent the center of the fourth-floor lobby (second from top). The complex's main stage—the 1,100 seat Wurtele Theater—recreates the signature thrust stage (third from top). An amber glass cantilevered lobby, along with a theater wall that opens like a garage door, are two of the features of the 200-seat Dowling theater (bottom).

PROJECT: The Guthrie Theater
LOCATION: Minneapolis
DESIGN ARCHITECT: Ateliers Jean Nouvel, Paris
ARCHITECT OF RECORD: Architectural Alliance, Minneapolis
LIGHTING DESIGNER: L'Observatoire International, New York
PROJECT MANAGER: Keewaydin Real Estate Advisors, Minneapolis
PHOTOGRAPHERS: Roland Halbe (image at top); Atelier Jean Nouvel (second image from top); Gallop Studios (third image from top and above). All images courtesy of The Guthrie Theater, Minneapolis.

a clockwork blue

LIGHTING INTEGRATES 7 WORLD TRADE CENTER





BEFORE DESIGN BEGAN ON 7 WORLD TRADE CENTER, THE FIRST STRUCTURE TO RISE OUT OF THE ASHES OF THE 9/11 ATTACKS, architect David Childs of Skidmore, Owings & Merrill (SOM) outlined a daunting task for his team. The project, he said, should set the bar for design and technical considerations—environmental sustainability, urban sensitivity, construction detailing, and security—for all future buildings to rise at Ground Zero and the surrounding area. As part of their response to this directive, the architects pulled 7's footprint 115 feet back from the original eastern site boundaries, restoring the path of Greenwich Street through lower Manhattan, and in turn creating a triangular-shaped public plaza, known simply as Triangle Park. The tradeoff to restoring this piece of the city's fabric was the resulting smaller footprint and the necessity for the 10 Con Edison transformer vaults programmed for the site to occupy a larger portion of the building's base. In this configuration, the first 80 feet of the 741-foot-tall, 1.7-million-square-foot structure was consigned to a windowless concrete block, above which the tower's glass curtain wall begins. The architects' challenge was to find a way to fuse the disconnected structure into a cohesive architectural experience. Their solution was light. Says Chris Cooper, an SOM associate partner assigned to the project, "Our idea was to use light as a way to dematerialize the density of the concrete and link that part of the building with the glass-clad upper volume."

SOM's concept envisioned a cube of light embedded within the concrete box that would first appear in the lobby, then bleed out through the walls of the windowless base, and shine up into the curtain wall, thus linking podium and tower. The architects called on the help of two New York-based firms that specialize in lighting solutions for architecture—Cline Bettridge Bernstein Lighting Design

Sunset shimmers on 7's southern façade—from the stainless-steel screen wall at the building's base, to the curtain wall's Low-E glass, specially treated with a slightly reflective coating. Both 7 World Trade Center and the Verizon Building to its left humbly stand guard over the reconstruction work at the Ground Zero site in the foreground (above). At night, 7 comes alive with the lobby's luminous "light box" ceiling, while outside, an interactive LED light feature adds dimension to the double-layer metal scrim wall (left).

(CBBLD), who could take SOM's concepts and make them work fixture to fixture, and James Carpenter Design Associates, whose expertise lies in controlling light with surface and material. In collaboration with James Carpenter, who had previously worked with David Childs and CBBLD on the Time Warner Center at Columbus Circle, the architects developed a cladding surface for the Con Edison vaults that interacts with electric as well as natural light—a stainless-steel screen-wall system. Fabricated by Johnson Screens, a company that normally manufactures its product for hydroelectric dams, the wall system is composed of 5-foot-wide modular panels of varying height that incorporate two surfaces (one interior and one exterior) of vertically strung stainless-steel bars. Each bar is triangular in plan, with the apex welded to the panel framing at varying angles, forming an "a-b-a-b" pattern of four vertical stripes per panel. During the day, sunlight plays across this patterned surface in much the same way that it moves across the slightly reflective coating on the Low-E glass of the curtain wall. At night, the inner screen layer takes over, acting as a reflective backdrop to a customized LED lighting feature designed by CBBLD.

"For years, people have been used to seeing LEDs in large-screen applications like you see in Times Square," says senior associate Michael Hennes of CBBLD, "but incorporating LEDs into a curtain wall or building requires an integration of the trades that goes beyond providing hangers for signage." The only available location to install a fixture within the screen wall was at the joint between panels. For aesthetic reasons, SOM wanted to keep that joint down to a mere 1-inch width, leaving a very narrow space for the lighting feature. Working closely with manufacturer LED Effects, CBBLD designed a waterproof fixture (the screen wall is cleaned with a power hose) that fits within the joint, while casting light at contrasting angles against the inner screen wall. Here, the patterning of the screen was also essential, as it helped diffuse the light evenly across the surface, while avoiding hot spots. To provide maintenance access, CBBLD arranged the fixtures on quick-connects, which are attached to the back of the fascia joint-covering panels and are easily removed.

Inside, the light feature takes the form of a point-supported-glass-clad box, which fills the upper portion of the double-height lobby volume. While the architects decided on blue as the color of the curtain wall light feature for its peaceful, calming effect, its lobby counterpart, which serves practical lighting purposes during the day, had to glow white. Rather than flip a switch at an appointed hour to go between day and night modes, CBBLD created a smoother transition by throwing a bit of red into the mix. They also chose fluorescent lamps for the interior instead of LEDs. "LEDs are great for effects,"

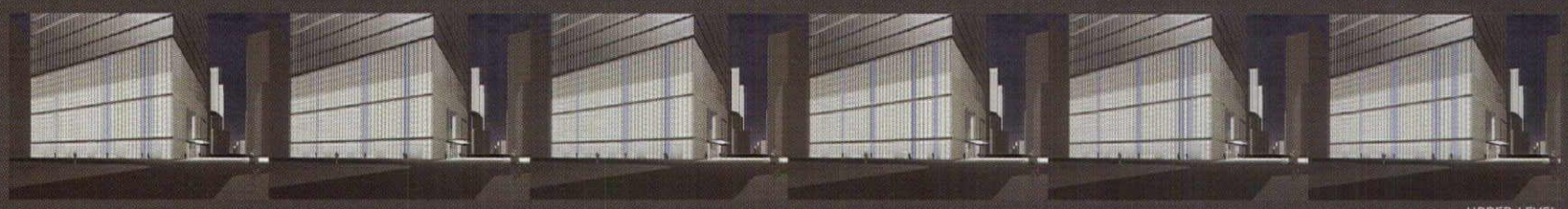
The number "7" emerges from the podium screen-wall panels (facing page, top). Visitors are greeted in the lobby by an art wall installation of streaming text, designed by artist Jenny Holzer (above). The other main lobby feature is a point-supported-glass-clad box, which fills the front portion of the double-height volume. By day, the "light box" is illuminated in white with tri-phosphor fluorescent lamps. By night, it switches to a cool blue (left) to match the building's exterior. Incandescent accent lights line architectural coves along the lobby's perimeter (facing page, bottom).

comments Hennes, "but they didn't provide enough general illumination for the lobby space." Hidden behind the glass, which has a light-diffusing interlayer, the fluorescent fixtures are composed of three-lamp strips on dimming ballasts that control each lamp separately. Each fixture holds three T5s with color in the phosphor—one blue, one red, and one white. This avoided the dimming effects of colored gels and allowed for an even tone of light.

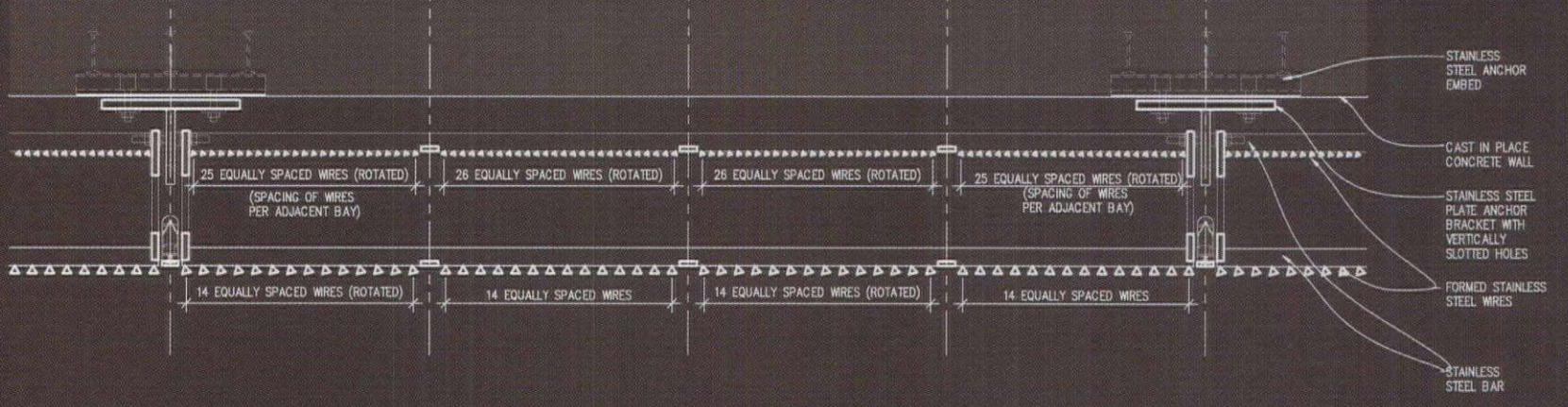
All of the fixtures, interior fluorescents and exterior LEDs, link back to a dimming control system. As daylight wanes and the sky takes on the purple tones of sunset, the lobby volume itself transforms into a violet-glowing space. Then, as twilight and darkness descend, the lobby transitions to a cool blue color. This color change is also echoed by 116 LED floodlights, incorporating red, blue, and white LEDs, situated on 6-foot centers around the top of the screen wall, which shine up into a glass-louvered mechanical level. The rest of the screen-wall lighting, however, incorporates only white and blue LEDs. It also comes on as night falls, glowing cool blue.

Cool blue, then, is the primary color of 7's night, except for two unique elements of the lighting system. The first is an interactive feature designed by Kinecity located on the north and south façades, which, unlike the east and west façades, are solid screen walls without lobby or loading dock openings. Motion sensors embedded in the screen wall detect the movement of people on the sidewalk and track their passage with a scrolling, illuminated deep-blue bar that extends the full height of the screen wall. "It's like street theater," says Chris Cooper. The second exception to the cool-blue wallpaper is that every hour, on the hour, the entire lighting feature transitions to deep blue and then back to cool blue, just like clockwork.

No matter whether one approaches 7 from the north on Greenwich Street, sits gazing at it from Triangle Park to the east, or spots the building from the south across the expanse of Ground Zero, day or night, it is hard to believe that this is a glass box sitting on an 80-foot-high metal-clad concrete podium. So effective was the designers' control of daylight and use of electric sources, the absence of windows, for example, at the building's base feels completely natural and intended, a testament to what can be achieved when lighting and architecture become one. **AARON SEWARD**



UPPER LEVEL



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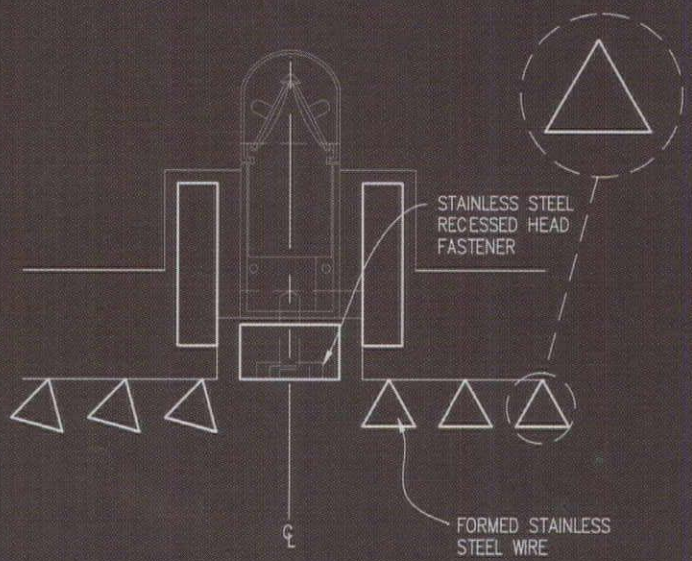


UPPER LEVEL

A stainless-steel podium screen-wall system with an interactive LED lighting feature conceals 10 Con Edison transformer vaults located at the building's base (top). Sensors embedded in the wall detect people's movement, and mark their passage with a scrolling blue bar that runs the full height of the screen wall (middle). The podium wall is comprised of five-foot-wide modular panels of varying height that incorporate an interior and exterior layer of vertically strung, triangular-shaped stainless-steel bars. The bars are attached at different angles forming an "a-b-a-b" pattern (above). A detail of the vertical bars at the mullion joint (right).

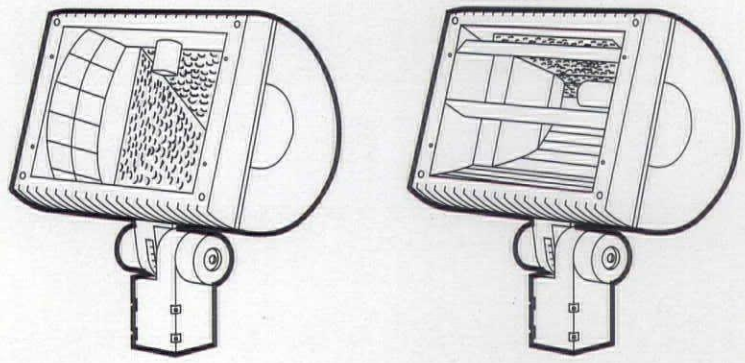
DETAILS

PROJECT 7 World Trade Center, New York
DEVELOPER/OWNER Silverstein Properties, New York
LANDOWNER Port Authority of New York and New Jersey
ARCHITECT Skidmore, Owings & Merrill, New York
LIGHTING DESIGNER Cline Bettridge Bernstein Lighting Design, New York
COLLABORATING ARTISTS James Carpenter Design Associates, New York (podium screen wall); Jenny Holzer, New York (art wall installation in lobby)
LANDSCAPE DESIGNER Ken Smith Landscape Architect, New York
PROJECT SIZE 1.7 million square feet
PHOTOGRAPHER David Sundberg/Esto

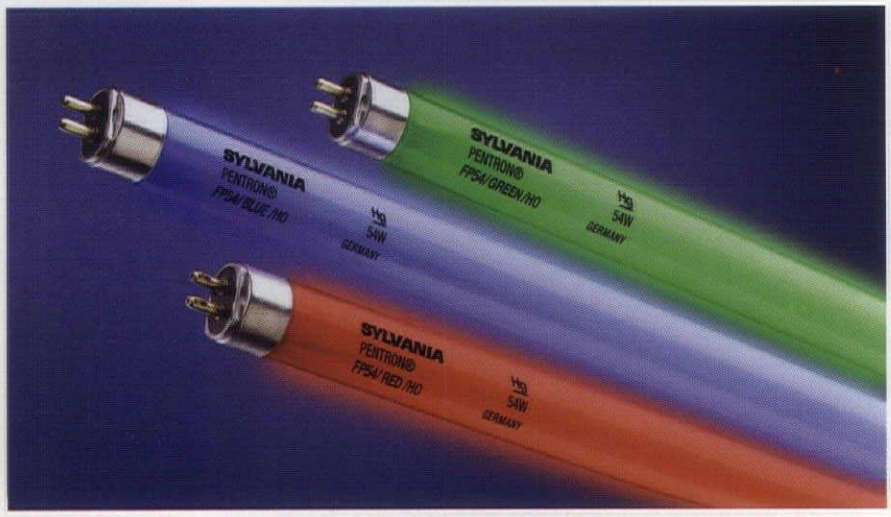
MANUFACTURERS	APPLICATIONS
Cathode Lighting Systems	Surface-mounted, continuous linear desk fascia uplight at lobby reception desk
Design Plan	Custom-designed LED exterior-grade strip fixture at stainless-steel podium screen wall
Edison Price	Recessed compact fluorescent downlights in elevator lobbies; recessed metal halide adjustable downlights at exterior loading dock; compact fluorescent downlight at typical core restrooms
Kim Lighting	Surface-mounted metal halide uplights at exterior tower crown
LED Effects	Custom-designed LED exterior-grade strip fixture at stainless-steel podium screen wall
Legion Lighting	Fluorescent lighting in lobby glass-box light feature; surface-mounted T5 fluorescent strip in elevator cabs
Lighting Services Inc	Incandescent adjustable accent light in architectural slot in lobby portion of high ceiling near glass/cable wall
Lightolier	Fluorescent troffer at ground-floor back-of-house offices and typical tenant corridors
Linear Lighting	Perimeter louvered wallwasher at ground-floor elevator lobbies
NeoRay	Fluorescent striplights in typical core restrooms
Osram Sylvania	T5 colored phosphor lamps in lobby glass-box light feature; lamps used throughout the project
Specialty Lighting Industries	Surface-mounted linear low-voltage lensed striplight integrated into canopy structure faceplate
Venture Lighting	250W, 4000K pulse-start metal halide lamps for exterior tower crown floodlights

LIGHTING SERVICES INC | 500 SERIES | LIGHTINGSERVICESINC.COM
This series of quartz halogen incandescent 500W PAR56/64 adjustable spotlights is suited for long-throw applications in areas that require high-intensity accent lighting. The luminaire measures 7 3/4 inches wide by approximately 10 inches tall and is constructed of heavy-gauge steel and aluminum, with full yokes for universal swiveling. Available in five standard finishes, a full complement of accessories is also available. At 7 World Trade Center, this fixture is recessed in an architectural slot in the main lobby's portion of high ceiling. CIRCLE 145

KIM LIGHTING | AFL20 ARCHITECTURAL FLOODLIGHTS | KIMLIGHTING.COM
This family of architectural floodlights has a range of seven standard beam patterns from wide flood to horizontal spot. Each fixture housing is fabricated from a die-cast, low-copper aluminum in a cylindrical shape with integral cooling fins over its entire length. Several accessories and finishes are available. For 7 World Trade Center, the lighting designers selected this luminaire—with 250W, 4000K pulse-start metal halide lamps for their consistent color—in order to illuminate the building's exterior tower crown. CIRCLE 146



OSRAM SYLVANIA | PENTRON PRIMARY COLOR LAMPS | SYLVANIA.COM
These 28W T5 and 54W T5HO lamps produce red, green, or blue light by using special phosphors, rather than modifying white light sources with external filters. For 7 World Trade Center, the lighting designers selected these lamps in red, blue, and standard white, to be used in the linear fluorescent micro-profile strips horizontally mounted in the lobby ceiling glass-box light feature. Prior to their installation on this project, these lamps were a European-only offering. Now, these tri-phosphor lamps are available for specification in the United States. CIRCLE 147



A PORT IN A STORM

A HARBOR REVITALIZATION PROJECT TAKES A SUBTLE, ENERGY-EFFICIENT APPROACH TO ITS LIGHTING SCHEME.

In 2004, Munich-based firm Pfarré Lighting Design was charged with the lighting scheme for several historic structures in a revitalized section of Bremerhaven, Germany's harbor. A nineteenth-century lighthouse, the Simon Loschen Tower (facing page) shines with a combination of in-ground uplights, beamers on surrounding poles, and fluorescent strips to backlight the upper windows. A similar strategy illuminates the Bridge House (above). A combination of white and green LED arrays give character to the adjoining bridges (below).

Mast 2
bestehender Multifunktionsmast
h: 14,00 m
Lichtpunkthöhe: 5,60 m

Strahler:
ERCO Beamer Nr. 34058, HIT, 70W / 230V
+ Aufnahmering ERCO 74403
+ Skulpturenlinse ERCO 74473
Traverse / Befestigung an Masten
siehe Plan PLD bhv 03

Großsteinpflaster bruchrauh gebunden

Großsteinpflaster bruchrauh ungebunden

Großsteinpflaster bruchrauh ungebunden

2 Stg 35/ 17

Mast 3
bestehender Mast
h: 6,00 m
Lichtpunkthöhe: 4,35 m

Strahler:
ERCO Beamer Nr. 34058, HIT,
+ Aufnahmering ERCO 74403
+ Skulpturenlinse ERCO 74473
Traverse / Befestigung an Maste
siehe Plan PLD_bhv_03

Rasenböschung
Stg 1 : 2,5

Klinkertreppe
16 Stg 14/35

historische Leuchte
entfällt

1 Stg 40/ 6

Loschenturm

Rasenpflaster

Klinker Reihenverband hochkant
mit umlaufender Läuferschicht (hochkant)

Linsenwandfluter
ERCO 33715, d: 247mm
HIT, 35W/230V
+ Einbaugehäuse ERCO 33982
+ Betonsockel

Rasenböschung
Stg 1 : 4

Bodenfluter
ERCO Visor 33301, d: 247mm
10W/230 V
+ Einbaugehäuse ERCO 33977

justierbare Bodeneinbauleuchte
ERCO 33710, d: 247mm
50W/12 V, Trafo eingebaut
+ Skulpturenlinse ERCO 33952
+ Einbaugehäuse ERCO 33960
+ Betonsockel

historische Leuchte
entfällt

Blockstufentreppe
17 Stg 12,5/ 50

Großsteinpflaster bruchrauh
ungebunden verlegt

Großsteinpflaster bruchrauh
mit Rasenfuge

Blockstufentreppe
14 Stg 14,7/35

Großsteinpflaster gerade
ungebunden

Grenzplatte
172/120/ 12

Strahler:
ERCO Beamer Nr. 34058, HIT, 70W / 230V
+ Aufnahmering ERCO 74403
+ Skulpturenlinse ERCO 74473
Traverse / Befestigung an Masten
siehe Plan PLD bhv 03

Großsteinpflaster
bruchrauh ungebunden

Hochbord

Handlauf mit Untergurt
und Holzauflage klein
Höhe 85cm

Mast 4
bestehender Mast
h: 6,0 m
Lichtpunkthöhe: 4,35 m

Großsteinpflaster
bruchrauh ungebunden

Großsteinpflaster bruchrauh
gebunden

ONE OF GERMANY'S BUSIEST PORTS, BREMERHAVEN'S SEA-FACING PERIMETER IS A 1,350-ACRE INDUSTRIAL maze of docks and container terminals—hardly a destination for residents and tourists. But waterfront reclamation projects being the international rage, developer BEAN (Bremerhavener Entwicklungsgesellschaft Alter/Neuer Hafen) initiated an ambitious plan for one 20-acre area of the harbor.

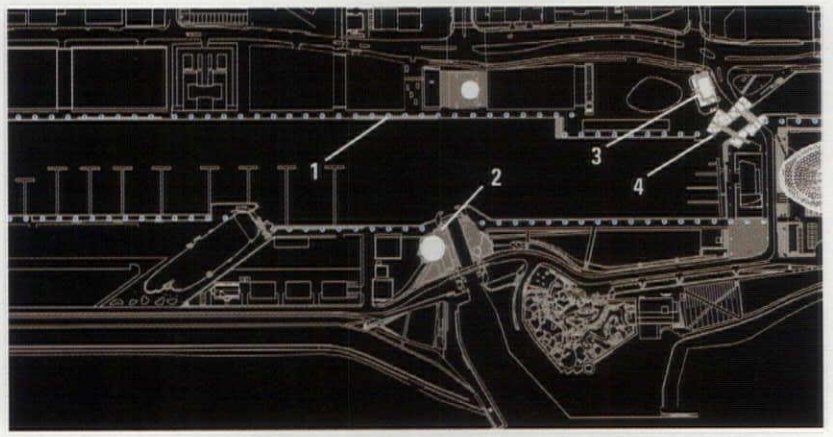
Kranzberg, Germany-based landscape architecture firm Latz+Partner won the design competition in 2001, and began developing a masterplan for the project, the philosophy behind which, the firm explains, was a "metamorphosis out of traditional elements. It refers to the existing urban pattern to guarantee long-term use and development." Critical to the project's success was a fluid, inviting lighting strategy, and the landscape architect began by "developing a hierarchy of light levels," says Gerd Pfarré, whose Munich-based firm Pfarré Lighting Design was hired in 2004 to further refine the scheme. Before he joined the team, however, Latz+Partner installed ninety-nine 47-foot-tall poles topped with blue LEDs that skirt the basin. About this element, Pfarré is complimentary, noting the string of lights helps establish a sense of place and perspective. "They give the feeling that the space belongs to the city again," he says.

Near the basin are several historical buildings, and these the landscape architect turned over to Pfarré's firm to light: a nineteenth-century lighthouse, a complex of bridges and bridge houses (with engine and control rooms), and the Maritime Office. For all, the lighting approach was humble, avoiding, as Pfarré charmingly puts it, the "sugar frosting." "We did not want to create a monument or eye-catcher. We wanted to respect the architecture and the form," he explains.

The Simon Loschen Tower, as the lighthouse is officially named, is still in operation, thus, avoiding glare for incoming ships was essential, as was maintaining the integrity of the historical façade. The lighting approach also provides a stepped three-dimensional effect as it proceeds up the tower: the bright glow at the base decreases in intensity, until about midway, when the light source seems to shift from the outside in as the windows are backlit with T5 fluorescent tubes, two per floor. No fixtures are attached to the façade. The glow from the base to about 40 feet is achieved with in-ground luminaires lamped with 35W metal halide lamps (two per side). The rest of the lighthouse exterior is illuminated with four 70W metal halide spotlights fitted with sculptural lenses that shape the beam to the vertical form of the tower. The spots are placed on streetlamps and pylons around the structure. A custom LED profile hidden behind the balustrade that circles the lighthouse tower indirectly illuminates the crown, and a narrow 6-degree 35W metal halide spot accents the weather vane at the top.

Nearby, the Bridge House, equipment rooms, and two bridges they control are lit with a similarly respectful approach. The same 35W metal halide in-ground uplights call out the façade, while T5s illuminate the windows from within. Custom LEDs, carefully disguised (to accommodate historic preservation requirements) are fitted under the lip of the railing, and glow in two colors: a warm white for the inside of the bridge and a "gaslight" green—both colors created with a color filter—for the exterior. The Maritime office building benefits from the same in-ground uplights, with the sole bit of "sugar frosting" Pfarré allowed on the project: a Louis Poulsen pendant in its foyer.

Asked what most distinguishes the project, Pfarré points to its energy use: the lighthouse, for example, came in at 1,200 watts, and consequently won the 2006 IIDA Energy/Environmental Design Award of Excellence. (The entire project received a 2006 IIDA Award of Merit.) He also finds satisfaction in its humility. "The lighting looks like it has always been there. For me, it is more interesting if they—the inhabitants and tourists—can't name why they like it. They just like it and they come back." **EMILIE SOMMERHOFF**



1 LED POLE LIGHTS
2 LIGHTHOUSE
3 MARITIME OFFICE
4 BRIDGE COMPLEX

SITE PLAN

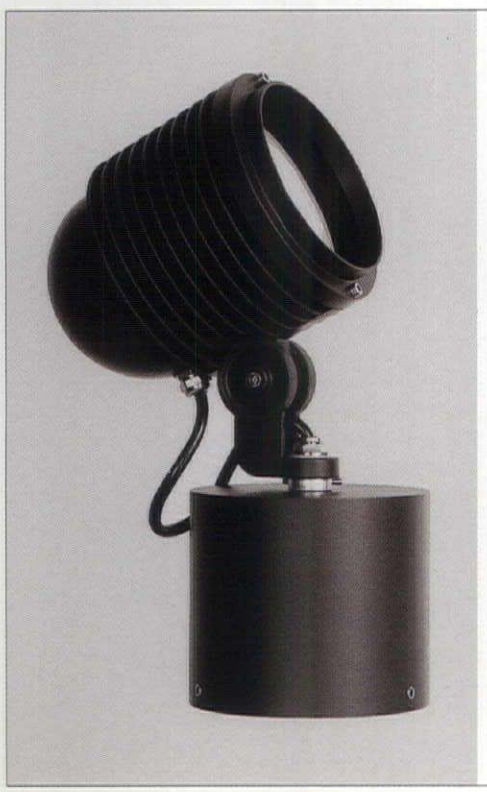
A site plan (facing page) illustrates the lighting scheme for the Simon Loschen Tower, one of three historical structures illuminated by Pfarré Lighting Design. The harbor plan (above) clarifies the relationship of the three projects to each other. It also shows the blue-LED-topped poles that ring the harbor basin, an idea conceived by landscape architecture firm Latz+Partner.

DETAILS

PROJECT Bremerhaven Old/New Harbor, Germany
DEVELOPER BEAN (Bremerhavener Entwicklungsgesellschaft Alter/Neuer Hafen), Germany
LANDSCAPE ARCHITECTS Latz+Partner, Kranzberg, Germany (Phases 1 to 5); Latz-Riehl+Partner, Kassel,, Germany (Phases 6 to 8)
LIGHTING DESIGNER Pfarré Lighting Design, Munich
PHOTOGRAPHER Markus Tollhopf, Hamburg

MANUFACTURERS	APPLICATIONS
Bega	35W metal halide narrow-beam accenting lighthouse tower's tip
Erco	35W metal halide in-ground uplights on all historical façades; 70W metal halide spotlights with sculptural lens highlighting upper section of lighthouse; lighting on trees and staircase near lighthouse
Louis Poulsen	Pendant in foyer of Maritime Office
Osram	39W T5 fluorescent tubes backlighting lighthouse and Bridge House windows

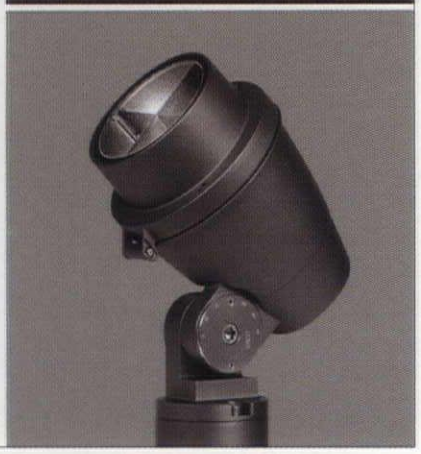
PRODUCTS



BEGA | FLOODLIGHT | BEGA.COM
This luminaire features a one-piece die-cast aluminum housing with integral cooling fins and stainless-steel hardware. It is fully adjustable (90 degrees vertical and 360 degrees horizontal), with the ability to be locked in a fixed position. The lamp enclosure/optical system consists of a die-cast clamping ring, and clear tempered glass with molded high-temperature silicone rubber gasketing secured with captive-socket screws. Available in black, white, bronze, silver, and Eurocoat. IP65-rated. CIRCLE 175

ERCO | TESIS IN-GROUND | ERCO.COM
Featuring a screw-fastened cover ring with flush safety glass and a corrosion-resistant aluminum housing with no-rinse surface treatment, this in-ground flood has wallwash or darklight (40-degree cut-off) reflector options. The safety glass can be driven over by vehicles with pneumatic tires. Temperature at the light aperture is 64 degrees Celsius. IP68-rated. CIRCLE 176

ERCO | BEAMER II | ERCO.COM
The housing, hinge, and mounting bracket of this luminaire feature corrosion-resistant cast aluminum with a no-rinse surface treatment. Its head allows for a 130-degree tilt and contains a spot reflector in aluminum, silver anodized, and mirror finishes, which provides a cut-off angle of 50 degrees. Mounting accessories and lenses are available separately. IP44-rated. CIRCLE 177



DEFINING IMAGE

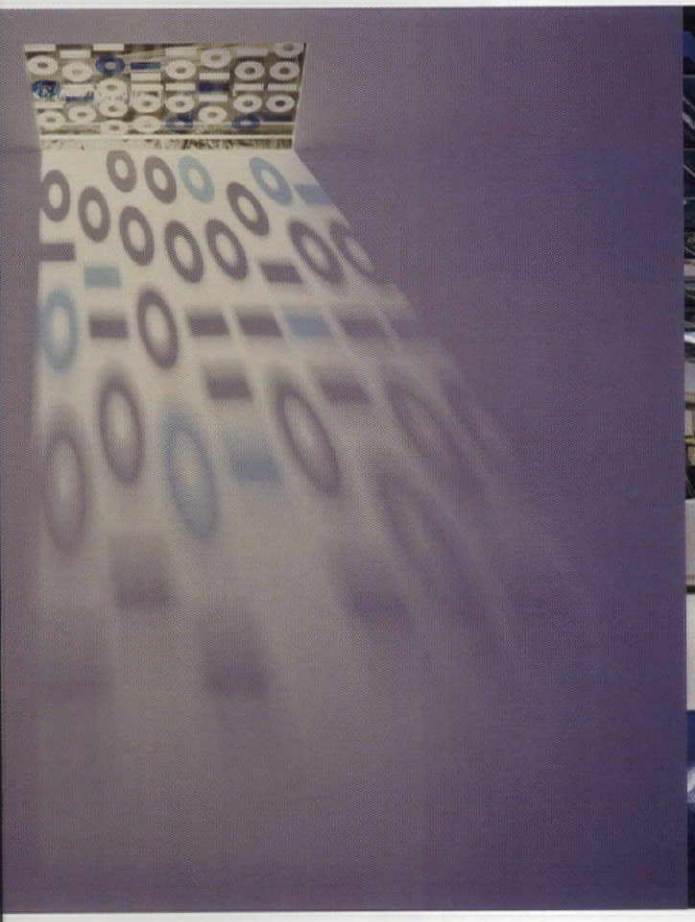
AN EVOCATIVE LIGHTING SCHEME HELPS A GROWING COMPANY BUILD ITS BRAND—AND ITS BUSINESS.

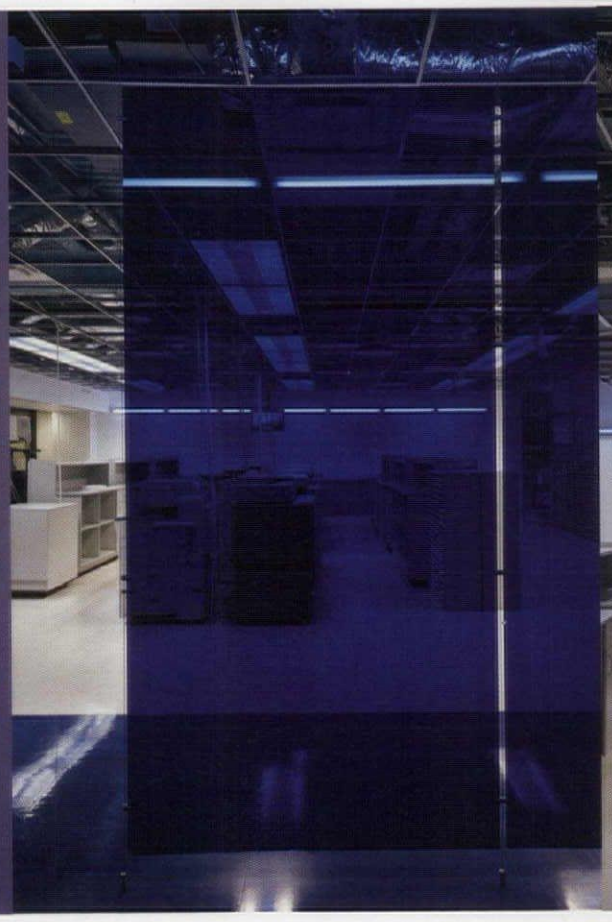
START TALKING ABOUT THE MECHANICS OF A BUSINESS'S BACK-OFFICE OPERATIONS—AND WITHIN SEConds you will see the eyes of the average person glaze over. But with characteristic artistry and passion, Oklahoma City-based architect Rand Elliott and his firm, Elliott + Associates Architects, have turned a series of office spaces for ImageNet, an expanding national litigation support company, into visually poetic expressions of the most mundane business functions, bringing these routine activities to life. And key to the architects' design for these spaces is their imaginative, engaging approach to light.

Like many companies in the digital era that have evolved from the copy business or the business of selling copy machines, ImageNet offers services that go beyond document reproduction to information analysis and document management. "When we first created the company's new headquarters in Oklahoma City," says Elliott, "we wanted to get away from the idea of rooms of industrial production work being done on copy machines in basements, and instead define a space that allows ImageNet's customers to understand on a more artistic level the nature of the service it provides."

In his design for the Oklahoma City office, Elliott used simple materials, readily available light sources—fluorescent tubes and low-voltage halogen—and colored illumination to achieve a variety of inspired conceptual objectives. To create a vibrant first impression, Elliott employed white-painted drywall and laminate for a crisp contemporary backdrop. Both the reception and operational spaces of the office evoke a sense of order and inspire client confidence in the firm's ability to reproduce, store, and manage critical documents. These spaces also exude a retail-like polish that infuses this back-of-house service provider's environment with front-of-house flavor, giving it a fresh, forward-looking image. The architect also used inventive illumination techniques to call attention to the technology used to perform ImageNet's services in an abstract yet useful way. Finally, Elliott artfully employed light to provide a visual link with the office's locale.

Elliott used a similar approach to achieve the same goals at several of ImageNet's additional locations, which include offices in Cleveland, Houston, Tulsa, Dallas, and Washington, D.C. In the 3,380-square-foot Dallas location, for example, visitors and employees enter a bright volume containing a sleek white laminate reception desk placed in front of a vibrant blue wall, which references ImageNet's corporate color. Straightforward illumination techniques bring energy and symbolic meaning to this space with artistic flourish. For instance, the focused light of a recessed low-voltage 50W MR16 halogen fixture reflects off an 11-inch-by-17-inch mirrored panel, which is placed atop a white laminate pedestal on one side of the space and represents the dimensions of a standard-





Upon entering ImageNet's Dallas office, visitor's are greeted by a white laminate reception desk. Adjacent, an illuminated column of paper lends a sculptural feature, bringing an artistic quality to the space (facing page, left). In the reception area, binary code—printed onto mirrored surfaces and Plexiglas panels, then highlighted using MR16 lamps—is reflected onto the walls and ceiling (facing page, right and above left). Fluorescent lamps with blue tube guards line the perimeter of the back-of-house work rooms (above middle and right). The color blue, used to delineate front- and back-of-house operations, is also ImageNet's corporate color.

size sheet of copy paper, to cast a pattern of numerals—specifically zeros and ones—onto the ceiling.

"The ingredients in information technology are the zeroes and ones of the binary system, which allows data to travel through space," says Elliott, who translated the vowels of the alphabet into binary code and had them imprinted on the mirror used in this technique to help illustrate the technology. Similar methods allow the binary equivalent of the company's name to be cast onto the wall through laser-cut vinyl letters mounted on an 11-inch-by-17-inch piece of Plexiglas in the ceiling, which is illuminated with a low-voltage lamp. Similarly, the binary translation of the longitude and latitude of the office's global location is cast from an opening in one wall onto the floor.

A standard palette of fixtures and techniques also enlivens other symbolic references sprinkled throughout the lobby and other office areas. Behind the reception desk, a stack of 25,000 sheets of 8 1/2-inch-by-11-inch copy paper stands as an iconic emblem illustrating the volume of paper that a client company might use over the course of a week, or even a month. Light from a recessed low-voltage MR16 grazes the linear column of paper and its textured surface, serving as a recurring sculptural element in each of the company's offices designed by Elliott, as well as a visual demonstration tool often used by its employees. Colored illumination created by using blue sleeves over surface-mounted T5 fluorescents further echoes the company's corporate color and fills the office's spaces with a futuristic glow. In the Dallas office, this azure light emanates from beneath the lower front edge of the reception desk and fills the hall that leads from the lobby to the operations space. A large letter "D," made of acrylic mirror and mounted at the end of the hall, is illuminated from above with a recessed low-voltage MR16 and offers another subtle reference to the office's location. "Dallas is known as 'the Big D,'" explains Elliott, adding that each office he designed includes unique visual cues that link it to its city. In the 4,877-square-foot Washington, D.C., office, for instance, light cast through theatrical gobos was used to create the impression of falling cherry blossoms in a blue-infused corridor that aligns with one of the axes of Pierre L'Enfant's original eighteenth-century master plan for the city.

According to Elliott, shortly after ImageNet's Oklahoma City offices were completed, the company invited a potential client to visit its new space and swiftly closed the deal. Its managers called the architect to let him know of the news, attributing their success to his design. As ImageNet continues to expand into new markets, it appears as though a little light has gone a long way toward brightening the future of this growing business. **JEAN NAYAR**

Ceiling-mounted T8 fluorescents with blue tube guards transform a corridor in the Dallas office into a container of blue light. Looking down the hallway toward the reception desk, the left-hand wall, constructed of 1/4-inch-thick transparent blue dichroic acrylic, reflects and amplifies the blue light (above left). In the Oklahoma City headquarters, a series of acrylic word panels line the reception area (above middle). Each office is visually linked to its location. In Washington, D.C., for example, a pattern of cherry blossoms is projected onto the corridor floor. The same hallway aligns with one of the axes of Pierre L'Enfant's original eighteenth-century master plan for the city (above right).

DETAILS

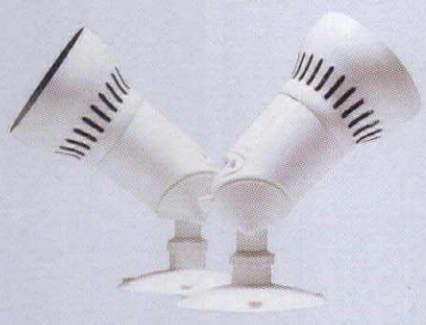
ARCHITECT Elliott + Associates Architects, Oklahoma City
PHOTOGRAPHER Robert Shimer/Hedrich Blessing

PROJECT ImageNet, Dallas
PROJECT SIZE 3,380 square feet

MANUFACTURER	APPLICATION
Canlet	PAR38 adjustable fixture in lobby ceiling aimed onto reception desk and paper column
Juno	Recessed fixtures in lobby ceiling aimed at reflective mirrors; monopoint mount with vertical adjustment aimed from work area through window in northwest lobby corner to cast pattern onto floor, and at west end of corridor shining onto letter "D" and reflecting onto blue floor
Lithonia	Single-strip fluorescent surface-mounted accent lights with blue tube guards at hallway and above marker board; double-strip fluorescents vertically surface-mounted in storage room with blue tube accent slot through the northwest corner of the lobby
Primus	Undercounter fixture with remote ballast at reception desk

PROJECT ImageNet, Washington, D.C.
PROJECT SIZE 4,877 square feet

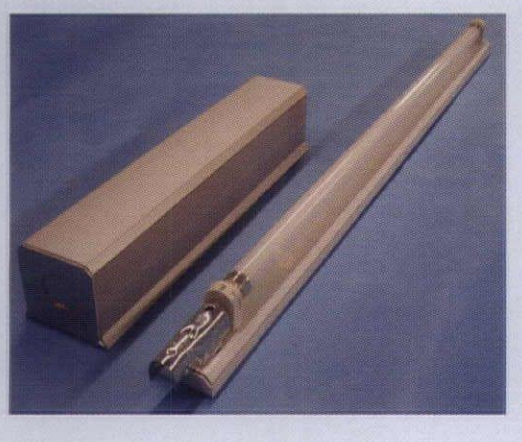
MANUFACTURER	APPLICATION
First Source Lighting Products	Blue tube guards for fluorescent lamps
GAM	Pink sheet inside Halo framing projector casting pink circle/cherry blossom color in main corridor
Halo	Monopoint adjustable fixture at art locations and reception desk accent light; monopoint framing projector in main corridor
Lithonia	Single-strip fluorescents with blue tube guards in corridors; double-strip fluorescents in work room
Primus	Undercounter fixture with remote ballast at reception desk and work counter in sales room
Rosco	Gobo pattern inside halo framing projector casting white dots/cherry blossom abstraction in main corridor



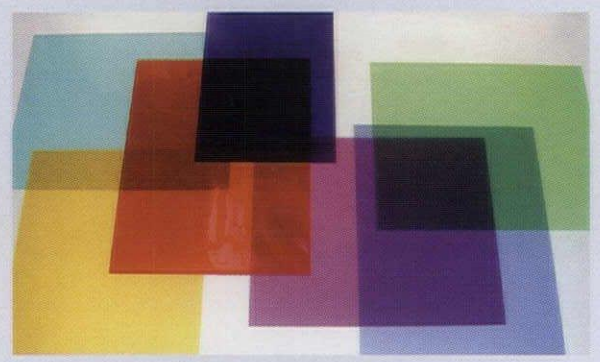
CANLET | PARMATE | CANLET.COM
This indoor/outdoor PAR38 adjustable luminaire is used in the lobby ceiling of ImageNet Dallas to highlight the reception desk and adjacent column of paper. It is available as a single, double, or triple lampholder and features a low-profile snap-on shroud to reduce glare and spill light, and ensure minimum lamp exposure. The fixture contains a self-locking thumb clip for easy, tool-less adjustments and is offered in Arctic white, black, architectural grey, and verde green. **CIRCLE 135**

LITHONIA LIGHTING | S SERIES | LITHONIA.COM
This cold-rolled steel fixture has a slim channel for easy handling in wall-mounted or row applications, as in the corridors of both ImageNet Dallas and D.C., where a row of 32W surface-mounted luminaires (fitted with blue tube guards) provide general and task lighting. Available in lengths of 18 inches, 24 inches, 36 inches, and 48 inches, the luminaire has a high-gloss baked-enamel finish. Asymmetric and symmetric reflectors are offered. **CIRCLE 138**

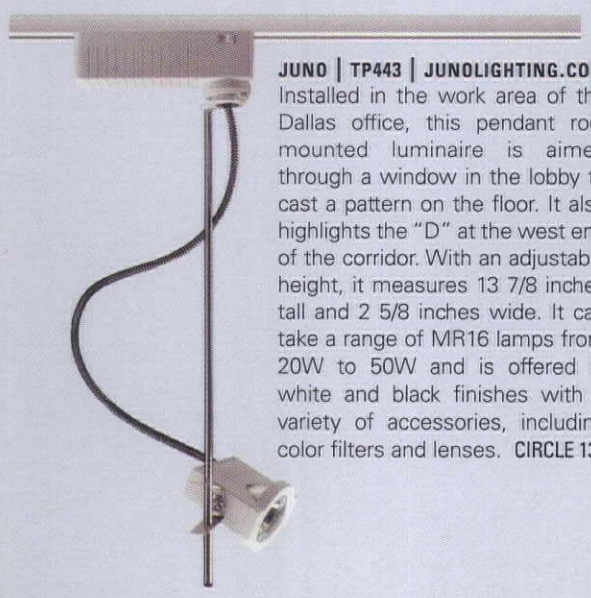
ROSCO | SNOW DOTS | ROSCO.COM
Used to create the cherry blossom pattern on the main corridor floor of ImageNet's D.C. office, the Snow Dots gobo is acid etched using a precise double-sided process on .005-inch stainless steel to ensure the gobo's long life and exact image details. **CIRCLE 139**



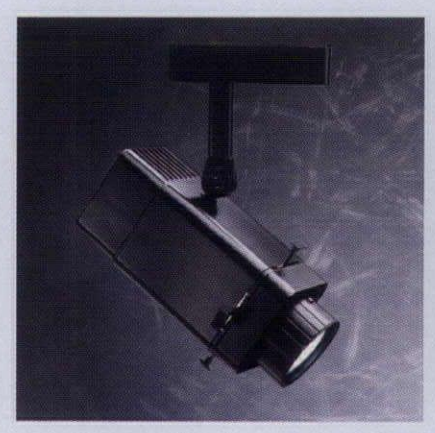
PRIMUS LIGHTING | ALX4-T5 SERIES | PRIMUSLIGHTING.COM
Commonly used in coves, pockets, and display cases, this small-profile linear fluorescent accent light measures only 1 3/8 inches wide. Its snap-together housing is constructed of extruded aluminum. At both ImageNet Dallas and D.C., this fixture (powered by a remote ballast, shown) acts as a reception desk undercounter light. In the D.C. location, it also illuminates the sales-room work counter. **CIRCLE 136**



GAMPRODUCTS | GAMCOLOR SHEETS | GAMONLINE.COM
GamColor sheets, available in 135 GamColors, can be easily cut to size with scissors. The polyester sheets are deep dyed, not surface coated, so colors will not evaporate. For ImageNet's D.C. office, a pink sheet was placed inside the framing projectors in the main corridor in order to cast a pink circle on the wall, as well as to create the pink hue of the cherry blossom pattern on the corridor floor. **CIRCLE 140**



JUNO | TP443 | JUNOLIGHTING.COM
Installed in the work area of the Dallas office, this pendant rod-mounted luminaire is aimed through a window in the lobby to cast a pattern on the floor. It also highlights the "D" at the west end of the corridor. With an adjustable height, it measures 13 7/8 inches tall and 2 5/8 inches wide. It can take a range of MR16 lamps from 20W to 50W and is offered in white and black finishes with a variety of accessories, including color filters and lenses. **CIRCLE 137**



HALO | L2756 | HALOLTG.COM
This low-voltage framing projector—used at ImageNet D.C. to cast the cherry blossom pattern and pink circle in the main corridor—has a spring-tensioned adjustable barrel and four framing shutters to provide precise beam pattern control. It can rotate 338 degrees horizontally and pivot vertically from 0 degrees to 90 degrees. The fixture takes a 75W MR16 lamp and is available in a black or white finish. **CIRCLE 141**

HALO | L2770 | HALOLTG.COM
Installed in the D.C. office to illuminate the reception desk and the sculptural column of paper, the L2770 is a low-voltage fixture that uses 12-volt MR16 lamps. Horizontally rotatable to 338 degrees and vertically adjustable to 90 degrees, the fixture is offered in white or matte black and can accept two lenses or filters, or a combination of both. **CIRCLE 142**

MAKING LIGHT OF THE SITUATION

LIGHTING CHALLENGES CREATE OPPORTUNITIES FOR ART

LIGHTING ARCHITECTURE IS NOT WITHOUT ITS UNIQUE CHALLENGES, AS THE DESIGN TEAM OF THE NEW NINE-STORY MULTI-USE Consolidated Rental Car Facility at the Fort Lauderdale/Hollywood Airport found when faced with factors, such as budgetary constraints and Federal Aviation Administration (FAA) concerns, that forced them to refocus their design strategies. But the project is better for it, thanks to the highly collaborative process between architect Spillis Candela DMJM, electrical engineer Steven Feller + Associates, and manufacturers' representative Lighting Dynamics. The facility, which provides for a future automated people mover, is the largest and most sophisticated of its kind in the nation to date, and, at 4.4 million square feet, is one of the largest single structures in Florida. It accommodates 12 rental car companies with garage space for 9,000 cars.

The facility's close proximity to the airport merited special consideration for the project's exterior lighting scheme. The FAA was concerned that uplighting the façade would create glare and potentially interfere with aircraft landings. Additionally, budgetary constraints forced the designers to be creative with options for the façade lighting, which evolved into a carefully articulated louvered metal screen compatible with the airport context, specifically the terminal building opposite, but avoiding the look of a typical parking garage.

Because the facility serves as a gateway to the airport, the architects wanted to create an iconic structure, which they discovered by focusing their efforts inward: they made the building glow from within, thus eliminating the need for exterior fixtures and potential glare. By mounting economical garage luminaires behind the louvered façade system, the backlit surface appears translucent, creating an effect that is both mysterious and dramatic.

The most complex lighting challenge on the project, according to Spillis Candela project director Ron Pales, was the illumination of the bus canopy, which is constructed of a space frame lined with thick frosted glass. Though its main purpose is to provide shelter, the illuminated canopy activates the ground plane, becoming an architectural feature through the use of ambient lighting. To achieve this effect, the architects and electrical engineers chose architectural floodlights with medium-flood optics controlled by external barn doors. Attached to pipes on top of the space frame, the fixtures are aimed downward and diffused by the frosted glass.

When modeling the canopy and calculating photometrics, the engineers had to consider the slope and curve of the space frame, as well as the ascending angle of the glass. The fixtures required careful aiming that took into account the transmission quality of the glass. The engineers also had to avoid overlighting the area, so that the canopy's glow would not interfere with the color-illuminated entry portals, located directly behind and on either side of the canopy.

The façade is punctuated by six entryways. Titled "Luminous Portals," these sculptural elements were designed by New York-based James Carpenter Design Associates, who was selected by Broward County as part of its Art in Public Places program. The angled portals are constructed of aluminum panels lined with crystalline glass and backlit by LEDs. As visitors pass through and the doors slide open, the fixtures are activated and cycle through a sequence of eight colors, including hot pink, green, blue, and purple.

The portals celebrate the "act of passage," while creating an interstitial entry space that mediates between the busy exterior and the active lobby, all the while responding to both vehicular and pedestrian scales. Katharine Wyberg McClellan, project manager with James Carpenter Design Associates, explains, "The portals become luminous markers along the roadway, as well as visual connections to the arrivals area of the main airport terminal."

Inside the vast lobby space, code restraints forced the architects to reconsider their original scheme of a perforated-metal-concealed, high-wattage pendant lighting system. However, Spillis Candela DMJM lead designer Michael Kerwin found an unconventional solution through a classic medium—the napkin sketch. Kerwin's design involved "light cubes" placed in a seemingly random arrangement to lend texture to the lobby's high ceiling and to provide a contrasting shape to the curvilinear form of the space.

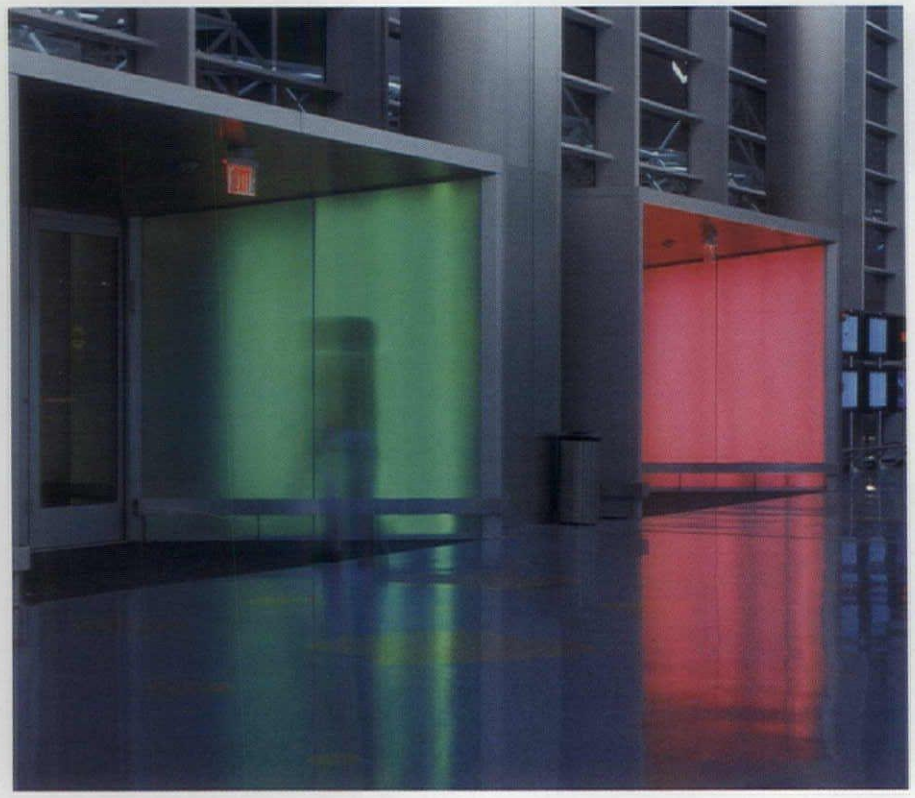
The architects worked closely with the electrical engineer to ensure that the lighting was distributed evenly, a task that was complicated by the non-linear spacing of the fixtures, as well as by the sheer size of the two-story lobby. A prototype for the "light cube" was constructed from a standard 2-foot-square recessed industrial metal halide fixture. The architects then worked with Shaper Lighting to replace the prismatic glass lens with a 2-foot-square acrylic cube. However, the design team encountered a roadblock when the building inspector refused to approve the fixture due to concerns about the acrylic tube attachment to the fixture. Because the architects had, in effect, designed a new luminaire, it was not UL listed; however, the fixture was put through the UL process and finally approved.

Gateway to the Fort Lauderdale/Hollywood Airport in Florida, the nine-story Consolidated Rental Car Facility glows from within to eliminate potential glare and interference with aircraft landings. A bus canopy lines the front of the louvered metal façade, which is punctuated by six interactive "Luminous Portals" (facing page). Blue windows are integrated into the facility's backlit screen. At night, the surface appears translucent, creating a dramatic effect (below).

Beyond the lobby, curved and textured corridor walls provided an opportunity for drama and shadow through wallwashing. However, the mechanical equipment, fire sprinkler pipes, and other building system components had to be located within the dropped ceiling, leaving no room for recessed fixtures. Instead, the architects created a special detail—a reverse soffit—to house the wide-beam downlights. The result is a ceiling that appears to float.

The lighting design of the Fort Lauderdale/Hollywood Consolidated Rental Car Facility unfolded as the project evolved and is an integral component of its architecture. Yet the lighting became an entity unto itself: In some instances fixtures serve as volumes, while at other moments they disappear entirely to highlight the structure's form. The building itself is sculptural, but the way in which it is lit makes it an art form. **MURRYE BERNARD**

An exterior view of the rental car facility and its louvered metal façade (above). Inside the two-story lobby, illumination is provided by 72 acrylic "light cubes" (below). Visitors enter the facility through one of six "Luminous Portals." These entrances respond to movement, changing colors as people enter and exit (facing page, top). The design team used downlights to highlight some of the facility's curved textured walls, creating a play of shadows (facing page, bottom).

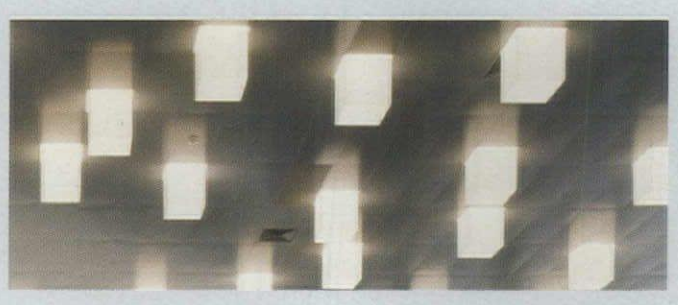


DETAILS

PROJECT Consolidated Rental Car Facility, Fort Lauderdale/Hollywood Airport, Florida
ARCHITECT Spillis Candela DMJM, Coral Gables, Florida
ELECTRICAL ENGINEER Steven Feller + Associates, Fort Lauderdale, Florida
MANUFACTURERS' REPRESENTATIVE Lighting Dynamics, Fort Lauderdale, Florida
LUMINOUS PORTAL DESIGN James Carpenter Design Associates, New York
PHOTOGRAPHERS Nick Merrick/Hedrich Blessing (except where noted)
PROJECT SIZE 4.4 million square feet

MANUFACTURERS	APPLICATIONS
FC Lighting	Luminaires illuminating helix drive in parking garage
Invue	Busway canopy floods
LDPI Lighting	Elevator pit lighting
LSI Industries	Landscape bullets for palm trees
Lumark	Parking garage entrance, general lighting, rooftop luminaires and poles; rooftop stair-tower access wall sconce; connector corridor illumination
McGraw-Edison	Façade floodlighting and roadway lighting
Metalux	Office parabolics; stairwell, service area, corridor, and generator-room lighting
Portfolio	Interior downlights, curved wall accents, and wallwashers
Shaper Lighting	Custom acrylic cubes in lobby ceiling
Sure-Lites	Interior and exterior exit signs

PHOTO TOP LEFT BY BRIAN GULICK, KITTERY POINT, MAINE



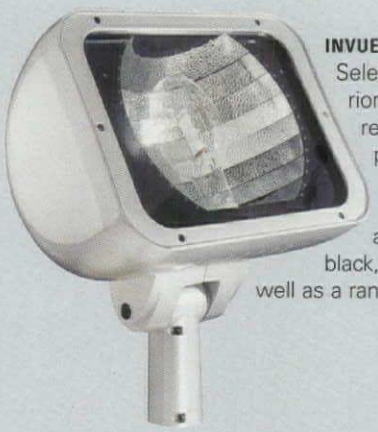
SHAPER LIGHTING | ACRYLIC CUBE | SHAPERLIGHTING.COM
In the facility's two-story lobby, 72 of these custom 2-foot-square acrylic cubes are randomly arranged on the ceiling. Chosen for their aesthetic appearance and their ability to be attached to a recessed 2-foot-square fixture, the cubes are constructed of 1/4-inch-thick white acrylic, open at the top with a 1/4-inch-thick flange. CIRCLE 155

LDPI LIGHTING | 381 SERIES | LDPI-INC.COM
Used in the facility's elevator pits, the 381 wall-mounted fixture is constructed of die-cast aluminum and can take incandescent or fluorescent lamps. Optional dome or angle reflectors are offered. The luminaire is also available in pendant or ceiling-, box-, or stanchion-mounted versions. CIRCLE 156

MCGRAW-EDISON | PSC | MCGRAW-EDISON.COM
This multi-purpose luminaire—used in the facility's parking structure—measures 16 1/2 inches wide and 14 inches high. Its die-cast aluminum housing contains a specular aluminum reflector, which provides a low-glare, cutoff distribution to drivers while pushing light into the stall areas. It can take a variety of lamps, including metal halide and high pressure sodium, and is available in grey, bronze, black, and white. CIRCLE 159

METALUX | PARALUX III SERIES | COOPERLIGHTING.COM
This series was used to illuminate the facility's offices. Each luminaire has a 5 1/2-inch-deep housing, which has a baked-enamel finish. Semi-specular or specular louvers are available, as are a variety of trim types, including concealed and modular trim. Each fixture measures 2 feet by 4 feet and houses three lamps. A wide range of ballast options are offered, and louver colors include silver, gold, and white. CIRCLE 160

FC LIGHTING | FCSL SERIES | FCLIGHTING.COM
UL listed for interior and exterior wet locations, this corrosion-resistant die-cast steplight measures 11 3/4 inches wide by 13 3/4 inches high. Used to illuminate the helix drive in the parking structure, the fixture can take a compact fluorescent or LED sources, which are diffused by a 1/8-inch-thick tempered glass lens. Black, white, or custom finishes are available. CIRCLE 157



INVUE | VISION FLOOD | INVUELIGHTING.COM
Selected for this project for its optical performance and exterior barn doors, Vision Flood offers six optical systems and reflectors that focus lamp output into defined rectangular patterns. Two die-cast housing sizes are available and a heavy-duty knuckle provides infinite aiming flexibility. The fixture can take metal halide, pulse-start metal halide, and high pressure sodium lamps. Standard colors include black, bronze, grey, and graphite metallic. Custom colors, as well as a range of accessories, are offered. CIRCLE 161

PORTFOLIO | C9242 9210 | PORTFOLIO-LIGHTING.COM
Used to wash and accent the facility's interior walls, this low brightness 9 1/2-inch aperture wallwasher houses two compact fluorescent lamps. Its geometric stepped reflector maximizes flux towards the wall. Available in single and double wallwash versions, standard features include a low-iridescent finish on all reflector colors to eliminate a "rainbowing" effect and electronic ballasts. CIRCLE 158

MCGRAW-EDISON | AMF | MCGRAW-EDISON.COM
Also selected for this project for its superior optical performance, the AMF fixture was used to illuminate the facility's façade. It has a wide range of beam spreads, as well as a variety of optical designs, and can take a metal halide or high pressure sodium lamp. The luminaire measures 27 1/2 inches high by 21 7/16 inches wide and contains a heat- and impact-resistant tempered-glass lens. A corrosion-resistant polyester powder-coat finish is offered in a variety of colors. CIRCLE 162

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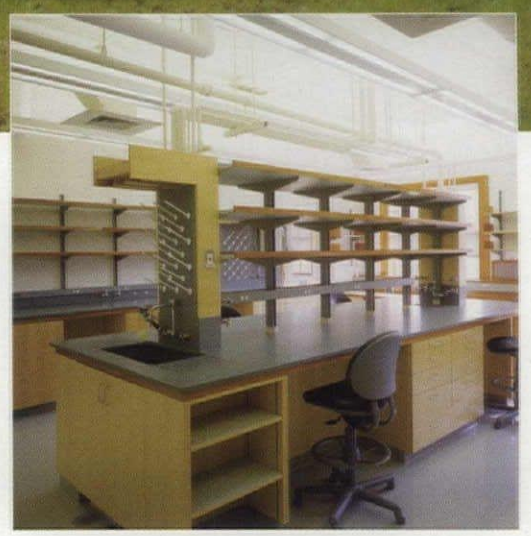
Genetic Research Building Bar Harbor, ME
Architect – Payette Associates Inc.
M/E/P engineer – Bard, Rao, Athanas
Structural Engineer – Zaldastani Associates Inc.
Photography – Brian Vanden Brink



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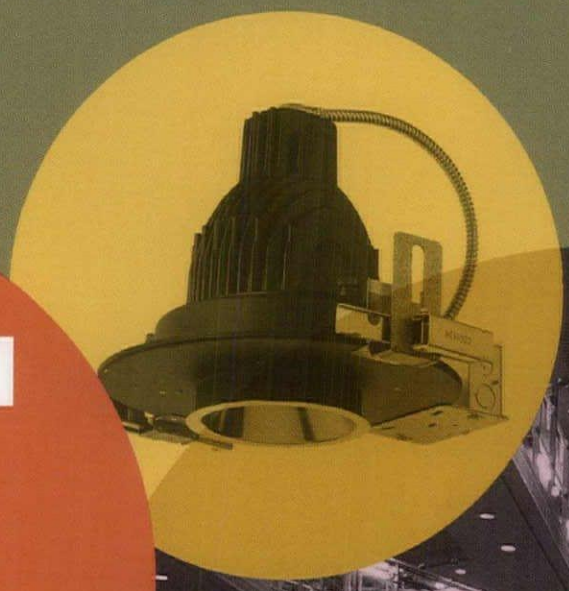

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FISH INTERFAITH CENTER, ORANGE, CALIFORNIA

CHALLENGE The stated mission of the Fish Interfaith Center, located on the campus of Chapman University in Orange, California, is to provide a sacred space to inspire and assist people as they explore, discover, and deepen their spirituality. The team's challenge was to reflect this agenda in the design in a way that speaks to the various religions represented on campus.

ARCHITECTURAL AND LIGHTING SOLUTION To convey a universal spirituality, architect David C. Martin, design partner of AC Martin Partners, focused on several fundamental elements: sky, water, celestial bodies, and light. And rather than traditional religious iconography, the design team employed the work of five artists—Norie Sato, Lita Albuquerque, Susan Narduli, Richard Turner, and Michael Davis.

Martin was interested in the experience of the building as a journey, where visitors first ascend a series of steps toward an outdoor platform that marks a gathering place in front of the Center. From there, through Norie Sato's front doors, a path—bisected by Lita Albuquerque's 8-inch-wide flush glass-tile trough that runs the entire length of the vestibule—guides visitors toward the entrance of the main chapel. Moving along this corridor, exterior views start to disappear, the glass becomes more obscure, and the quality of natural light changes as it filters in from an increasingly higher point along the wall.

Martin joined forces with Los Angeles-based lighting design firm Francis Krahe & Associates to create a lighting scheme that imbued the chapel with a sense of spirituality, without being obvious about the techniques employed. "The lighting is intended to be fairly straightforward to keep the focus on the journey," says Francis Krahe.

Within the main chapel, where the ceiling height rises to 40 feet (from 18 feet in the vestibule), the objective for the main volume is clear. "We wanted the quality of light to be unlike any other space on campus," Martin explains. Thick, seemingly freestanding walls allow daylight to enter through small colored-glass openings, reminiscent of Le Corbusier's Chapelle Notre-Dame-du-Haut in Ronchamp, France. The color palette is organized around the sun's path, and conveys the hues associated with its natural color temperatures throughout the day. On the east side, morning light illuminates blue and green glass, while red dominates the southern façade. Orange glass on the west wall finally transitions to yellow on the north. An LED strip uplight at the base of each opening illuminates individual alcoves at night with a soft glow, transferring color to the exterior.

At the room's perimeter, 500W PAR56 halogen downlights and wallwashers softly illuminate the chapel walls and emphasize the geometry of its box-shaped interior. Because the space is also used for concerts, eight 500W PAR56 yoke-mounted accent lights are recessed into vertical slots in the sidewalls flanking the alter. These fixtures are programmed and controlled through a dimming system.

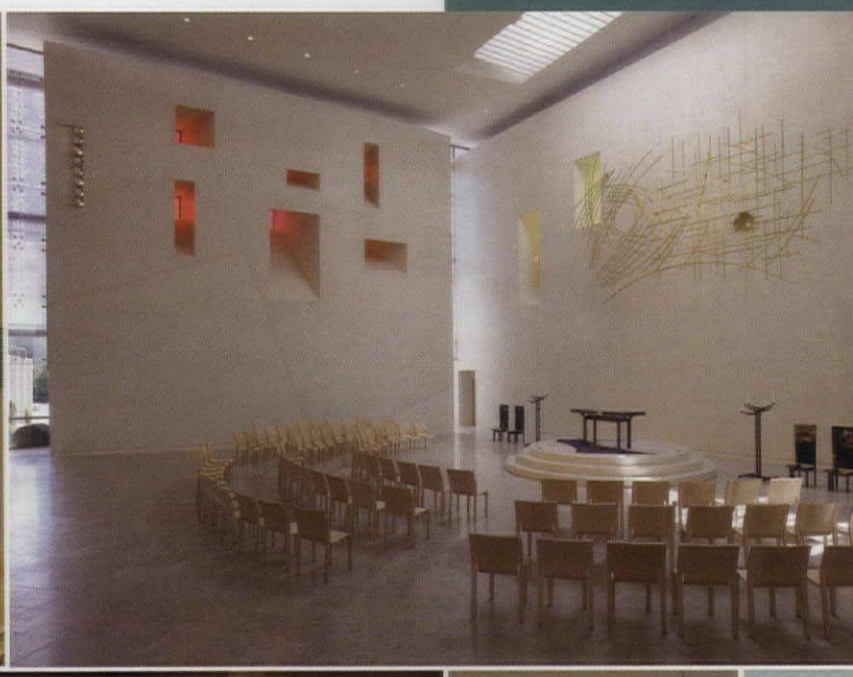
Artist Susan Narduli's Garden of the Senses and columbarium extend the worship space to the exterior, where rock-like onyx benches are internally illuminated by warm 2800K neon, and onyx shard sculptures are lit by outdoor-rated fluorescent striplights. With little additional exterior lighting, these softly glowing elements form the visitor's understanding of the garden space. Along the columbarium's perimeter, 3000K 26W compact fluorescent wall-mounted steplights provide low-level lighting, causing the marble walls to glow.

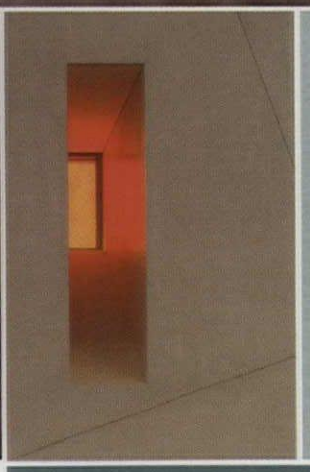
Form and lighting are handled simply, allowing visitors to reflect on their own spirituality. The universal atmosphere of the Center is evident: it serves 15 groups representing 9 different religious traditions engaged weekly in over 30 activities. **JESSICA N. JOHNSON**

DETAILS

PROJECT | Merle and Marjorie Fish Interfaith Center, Chapman University, Orange, California
DESIGN TEAM | AC Martin Partners, Los Angeles (architect); Francis Krahe & Associates, Los Angeles (lighting designer)
PHOTOGRAPHER | Tim Griffith, San Francisco
PROJECT SIZE | approximately 12,000 square feet
MANUFACTURERS | Bega, Edison Price, Elliptipar, Hess, Louis Poulsen, Lutron, NSI Works, Paramount Lighting, TIR

Colored-glass openings in the east (below left) and south (below right) chapel walls play to the sun's natural hues. A flush glass-tile trough guides visitors along the vestibule (bottom left). Outside, glowing "rocks" illuminate the Garden of the Senses (bottom middle). Window detail (bottom right).





BIGELOW CHAPEL, NEW BRIGHTON, MINNESOTA

DETAILS

PROJECT | Bigelow Chapel, New Brighton, Minnesota
DESIGN TEAM | Hammel, Green and Abrahamson, Minneapolis (architect); Schuler Shook, Minneapolis, (lighting designer)
PHOTOGRAPHER | Paul Warchol, New York
PROJECT SIZE | 5,300 square feet (overall); 2,200 square feet (sanctuary)
PROJECT COST | $3.2 million
MANUFACTURERS | B-K Lighting, FontanaArte, Lucifer, Lutron, Tech Lighting

CHALLENGE A short drive from downtown Minneapolis, Bigelow Chapel, on the Twin Cities campus of the United Theological Seminary, merges ecclesiastical architectural traditions with contemporary design, creating a house of worship that responds to its specificity of place and beyond. To arrive at this solution, the design team sought a form and material palette that would create a space infused with spirituality, and that would also provide worshipers with a neutral, yet serene, environment for reflection and contemplation. The result is a design that relies on illumination as its primary form-giver.

ARCHITECTURAL AND LIGHTING SOLUTION Program and practical considerations required that the new 5,300-square-foot chapel connect to an existing classroom building, provide a flexible sanctuary space to seat 220 people, and respond to the campus. For architect Joan Soranno, vice president and design principal with Hammel, Green and Abrahamson (HGA), the chapel's site was clear—on the campus's eastern edge where it would provide a logical endnote to the U-shaped arrangement of seminary buildings. Working from the outside in, Soranno used the adjacent architecture—flat-roofed, buff-colored, brick-clad structures—as a reference point. The language of horizontal and vertical planes extends to the new construction: The "bell tower"—a pair of walls, 42 and 40 feet high, respectively—expresses this verticality; while the roof plane over the chapel's main volume extends to provide a partial canopy to an adjacent outdoor space, accentuating the building's horizontality.

Having researched religious structures in preparation for the project, Soranno was well versed in the architectural themes commonly found in this building typology—progression, repetition, luminosity, and warmth. Soranno and the architectural team sought to find a contemporary interpretation that would call upon these gestures without being too literal. With the aid of computer renderings, the architects studied how light would filter through the space. In the resulting architectural concept, based on "planes of light," illumination functions simultaneously as material, finish, and "meditative device." A combination of carefully placed incandescent and xenon sources supplement the daylight to extend the warm sanctuary feeling after dark.

Collaborating with Soranno was lighting designer Michael DiBlasi of Schuler Shook's Minneapolis office. "Our goal was to be supportive of the architecture," DiBlasi explains. "It wasn't about decorative fixtures, but rather about being as light-handed as possible; to be discreet, and to fortify the big gestures."

The jewel-like quality of the sanctuary space is accomplished with a series of wood-veneer panels sandwiched between two sheets of 1/8-inch non-reflective acrylic and inserted into curved wooden frames. The tissue-paper-like thinness of the panels is a feat unto itself. Each piece, from a single big-leaf maple tree, is shaved to one-thirty-second of an inch thick. The millwork alone took two years to develop, and Soranno's team paid considerable attention to the curvature of these six "wood ribbons," composing the panels' arrangement to coordinate with the wood's quilted pattern. The choice of wood, specifically maple, for its grain and warm tone, was a conscious decision, chosen to provide an ambient glow. Adding to the sanctuary's continuous spatial experience, 50W MR16 lamps are ceiling-mounted on telescoping stems within the 3-foot-wide bands between each wood ribbon, and align exactly with the curvature of the wood frames.

Circulation into the sanctuary space occurs via the main processional path, a ramp that runs along the eastern edge of the sanctuary leading to the classroom building. Here, a clerestory window provides ambient light during the day, while at night, a 24-volt xenon striplight system, chosen for its warm and diffuse light and long lamp life, provides a similar effect. Segments of the wood ceiling soffit above the ramp extend into the sanctuary, knitting together the wooden strips that line the interior. The Narthex, to the north, functions as a second entry, where a single pendant with a 100W A-lamp serves as a sculptural element.

Bigelow Chapel embraces and celebrates the beauty of natural light. As architectural gestures interact with materials, light's ephemeral qualities change based on time of day and season. An exercise in elegant simplicity and thoughtful restraint, the design team has created a contemporary place of worship that is rooted in timeless traditions. **ELIZABETH DONOFF**

A play in geometric compositions, Bigelow Chapel artfully combines space, form, and light. At night, the building glows from within, as electric sources interact with the maple-detailed interior to create a warm ambient glow (above). Incandescent luminaires are discretely positioned to complement the architectural gestures (facing page, top). During the day, natural light filters through the space for a serene, contemplative environment. A picture window frames a single tree, providing a visual connection to nature and the meditation garden beyond (facing page, bottom).

LET THERE BE LIGHT

LIGHTING SERVICES INC | 230 SERI | LIGHTINGSERVICESINC.COM
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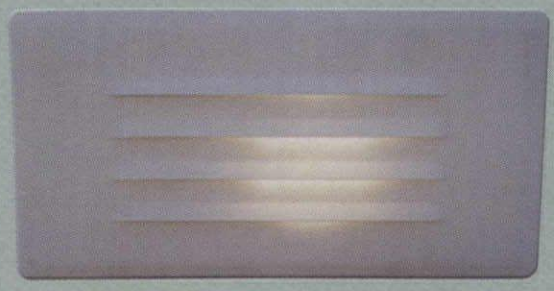
THOMAS LIGHTING | DEL SOL | THOMASLIGHTING.COM
A twist on traditional Spanish wrought-iron design, the Del Sol chandelier measures 26 inches wide by 25 inches high and is constructed of hand-crafted forged elements. Each of the luminaire's six lamps is housed in a blown-glass shade. The fixture family includes pendants and wall sconces, as well as other chandeliers in various styles and sizes. CIRCLE 131

GOTHAM | GQ ELLIPSOIDAL DOWNLIGHT | GOTHAMLIGHTING.COM
Designed for high-ceiling environments, this family of 6-inch-aperture downlights contains a hybrid ellipsoidal optical system configurable for narrow-, medium-, or wide-beam distributions. Fixed and tilt versions allow for continuous adjustment and a lockable beam. Fixtures can be suspended in acoustical panels, have a 360-degree rotation, and can house a range of T4 lamps. Trim colors include black, clear, pewter, champagne, and gold. CIRCLE 128

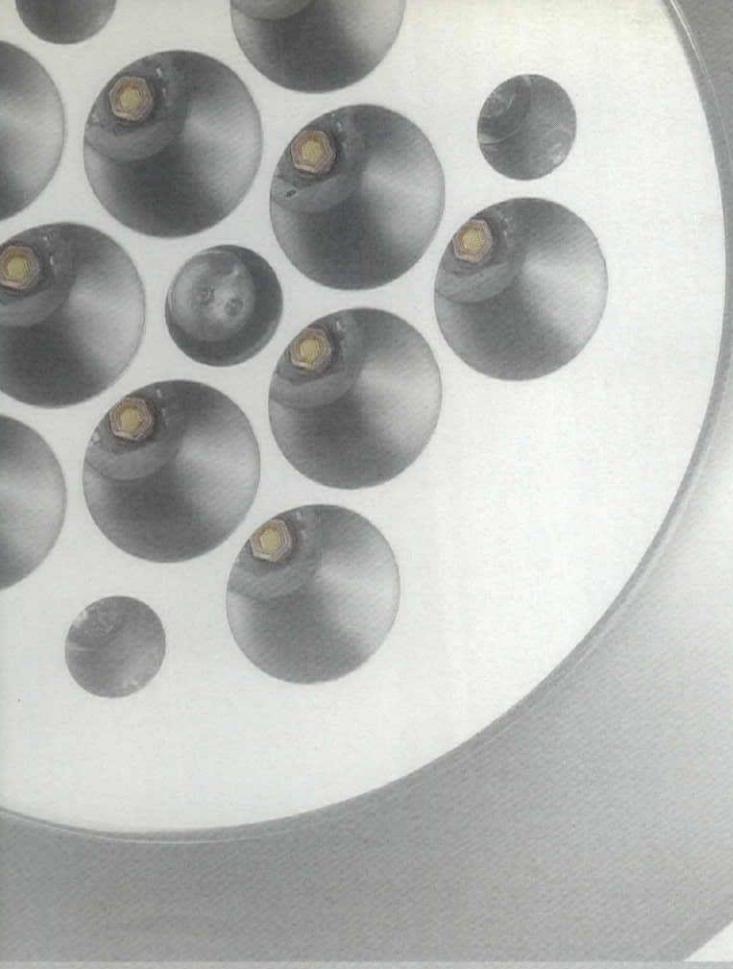
STYLICON | CLAIR DE LUNE | STYLICON.COM
Part of a family that includes pendants, semi-flush, and flush-mounted luminaires, the Clair de Lune wall sconce measures 8 inches wide and 23 inches high. An inner porcelain shade, adorned with a carved design, projects an intricate pattern onto an outer fabric frame. The fixture takes an A19 incandescent or a BT15 halogen lamp and features satin-nickel detailing. CIRCLE 130



2THOUSAND DEGREES | MADISON | 2THOUSANDDEGREES.COM
Measuring 19 inches wide at the base and 19 inches tall, the Madison pendant has a tapered square fabric shade. From inside, a glass diffuser creates softly filtered ambient light, provided by four 100W incandescent lamps or four 26W or 32W fluorescent lamps. The fabric shade is available in black, white, or desert clay (shown), and canopy finishes include black, satin nickel, or white. CIRCLE 132

DMF LIGHTING | DSL1 | DMFLIGHTING.COM
Ideal for aisle, ramp, and step illumination, the DSL1 has a thermally protected housing and can be installed inside or out. The fixture takes both incandescent and compact fluorescent lamps and measures 9 7/16 inches wide by 5 3/4 inches high. Trim colors are available in white or black. Louvered-glass (shown) or etched-glass trim styles are offered. CIRCLE 129

PHILIPS | AURELLE CANDLES | LIGHTING.PHILIPS.COM
Ideal for both indoor and outdoor applications, this series of rechargeable flickering LED candles contains two LEDs that provide up to 10 hours of illumination. Each candle comes with a recharger, adapter, and frosted-glass cover, available in four decorative shapes: round, triangle (shown), square, and tulip. CIRCLE 133



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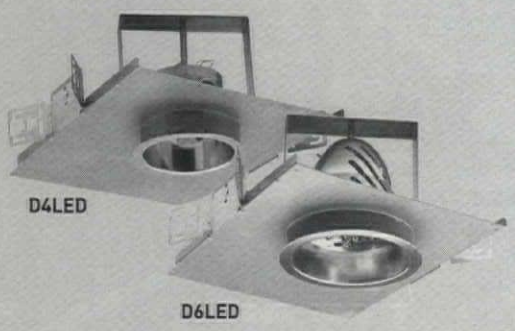

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Halo Architectural Track System shown in application photo.

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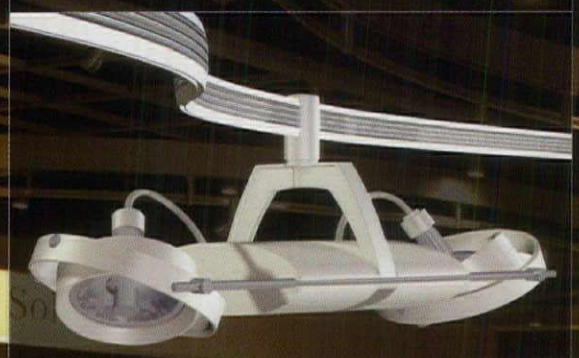

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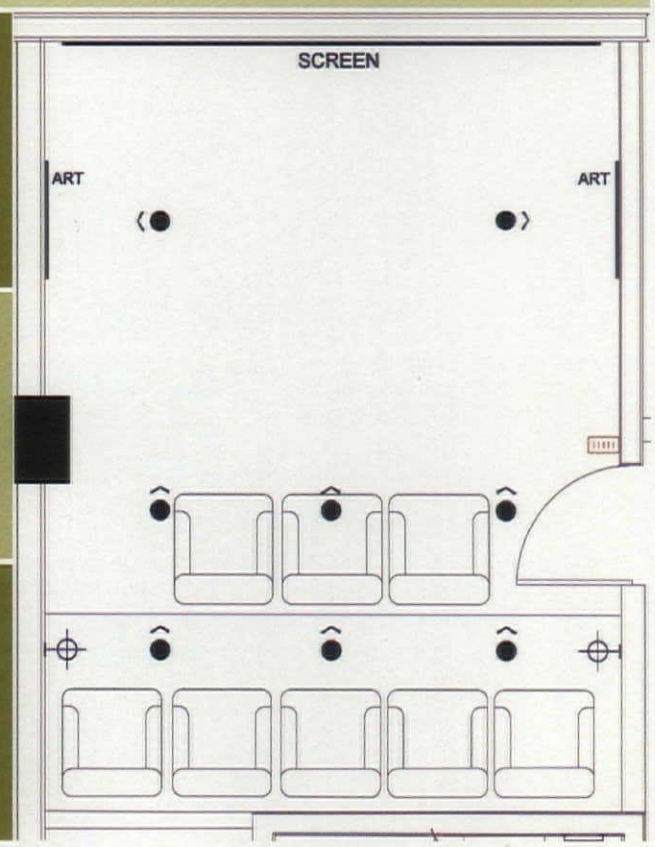
Lighting for a Home Theater Experience

BY SCOTT OLDNER

WHAT TO CONSIDER WHEN PLANNING A HOME ENTERTAINMENT ROOM

The best downlight arrangement for glare control is deep-recessed fixtures with AR111 or MR16 lamps (above). A plan diagram indicates the location of downlights, which, when positioned over each viewer's lap provides glare-free illumination for finding refreshments (below).



ALL IMAGES PROVIDED BY SCOTT OLDNER

THE WORLD IS A STAGE, AND TODAY'S HOMES ARE INCREASINGLY SO. Drama, comedy, and tragedy emanate from the sound and video devices we choose, and, particularly in high-end residences, whole rooms are being allocated to the experience. More often, however, residential video entertainment spaces are multifunctional and vary greatly in layout, seating configuration, daylight penetration, and materials. But whatever shape they take, home theaters have unique lighting requirements, such as perimeter wall illumination, downlighting over seating areas, safety lighting, and preset dimming.

UNDERSTAND THE SPACE

Rooms dedicated to movie watching only—the traditional "home theater"—have clearly defined lighting conditions that imitate commercial theaters. They also have unique space design characteristics: The rectilinear box theater has no windows, and entry doors are designed to avoid light leaks from adjacent spaces. Some have video editing booths that provide easy access to sound and projection equipment and lighting controls. A smaller percentage use rear projection, similar to public movie theaters. A rectilinear layout lends a commercial theater feel, allowing the interior design to mimic its larger counterpart, with draperies or fabric along walls, and ceiling treatments for sound absorption.

Creating an appropriate lighting plan for an in-home entertainment center requires studying the interiors and architecture in order to identify the interior design elements to be illuminated, and the

The National Association of Home Builders (NAHB) 2005 State of the Home Builder survey reports that 58 percent of new homes (nearly 725,000) included a home theater upgrade package.

quality and quantity of light fixtures needed to achieve a visual balance. Do not skimp on quality when it comes to the lighting and dimming systems; you risk hampering the movie-watching experience with glare and buzzing lamps or dimmers. When the projector alone costs $35,000, it should be easy to justify a budget for good lighting.

Plot the location of draperies, wall fabric, furniture, steps, and ceiling or wall coves, as this will help determine visual hierarchy. Our eyes see vertical surfaces first, so for non-movie-watching activities, the brightest surfaces should be the side walls. When dimmed very low for a show, perimeter wall lighting will give the viewer a sense of space and event. Use recessed adjustable downlights to graze curtains, spotlight artwork, or wash the adjacent walls if they feature a special material, such as wood or fabric. Small-aperture adjustable recessed MR16s provide low-glare wallwashing when outfitted with frosted lenses and lamps with a wide beam spread.

SCREEN DISTRACTIONS

During movie watching, the screen is the highest priority and, to keep viewers' attention concentrated there, the lighting must defer to it. Glare-free luminaires are critical tools toward this end. Conceal sources so that, during the movie, they are never as bright as the screen. Good-quality (and higher-cost) recessed downlights place the lamp further inside the fixture, thus controlling glare and keeping stray light off the screen more effectively than residential-grade fixtures, which are less expensive. The best downlight arrangement for glare control is deep-recessed fixtures with AR111 or MR16 lamps. The AR111 lamp has less glare potential than the MR16, eliminating the need for louvers. Positioned over the laps of seated viewers and dimmed to 2 to 8 percent during show time, these fixtures provide glare-free illumination for activities like finding your refreshments. Downlights focused on the screen wall should be in an "off" position for movie watching.

ARCHITECTURAL CONSIDERATIONS

A lighting solution that conceals the source, ceiling and wall coves also provide an interesting visual detail and help define the architectural dimensions of a space. Use halogen or xenon striplighting or LEDs for white light coves so that

LIGHTING FOR MULTI-USE HOME THEATER SPACES

Since most surround-sound speakers can be recessed in ceilings or walls, any space—from the living room/den to the bedroom, breakfast nook, or library—can be adapted to become a home theater. Here are a few pointers for creating a multi-media experience in a multifunctional space.

- Consider the particular space's many tasks—whether that be eating dinner, entertaining guests, or sleeping—and carefully plan a lighting scheme that meets those requirements, in addition to those of a home theater.

- Regardless of the room's primary task, recessed downlights over the seating area is a must for the low light level movie-watching scene.

- Look for any source of brightness that could be reflected in the screen, such as windows and lampshades, because living rooms, dens, etc. are more likely to have highly reflective plasma monitors or LCD televisions. (The traditional home theater room, on the other hand, generally consists of a projector and screen that is not made of a glossy material.)

- Control glare by using specification-grade downlights, louvers on MR16 downlights, and keeping fixtures out of the viewer's line of site.

- Inform the designer responsible for the interiors of any daylight reflections from windows or doors that oppose the screen wall that could possibly change the space plan. Inform the owner of any possible resulting glare.

- Table and floor lamps can cause veiling reflections, and should be turned off during the movie.

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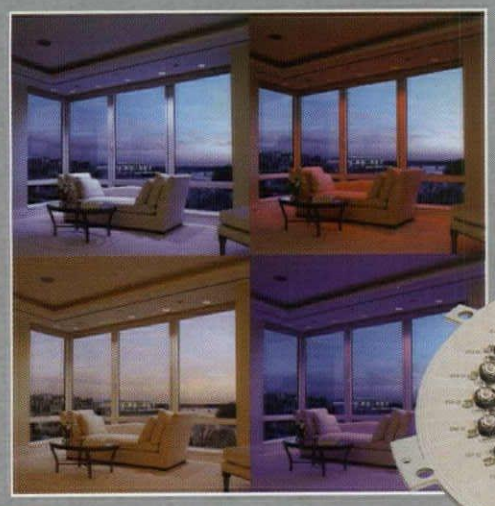

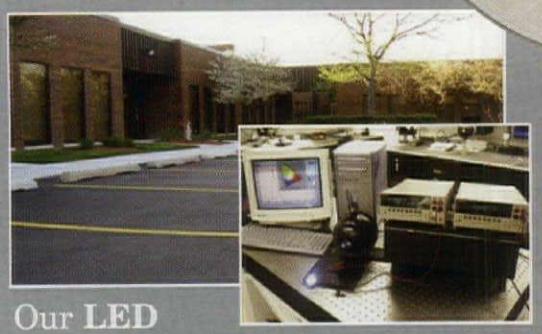

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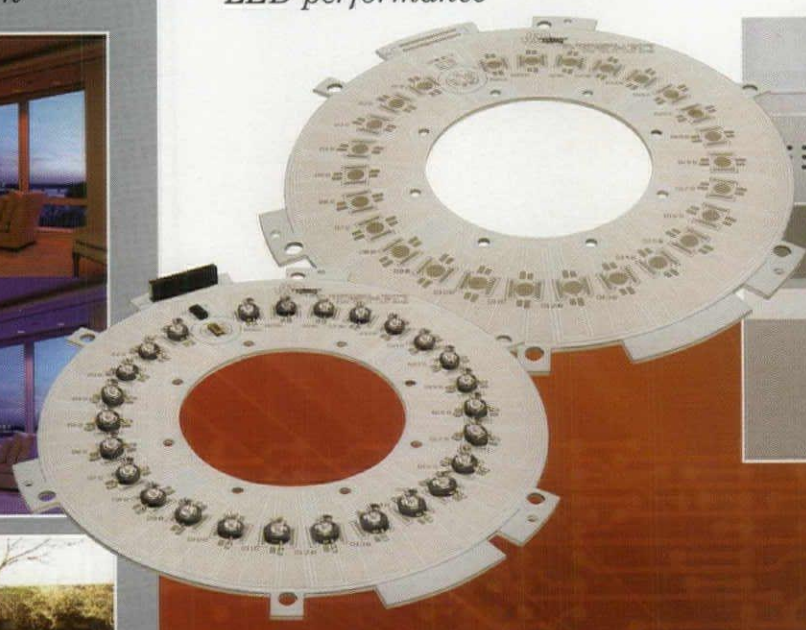

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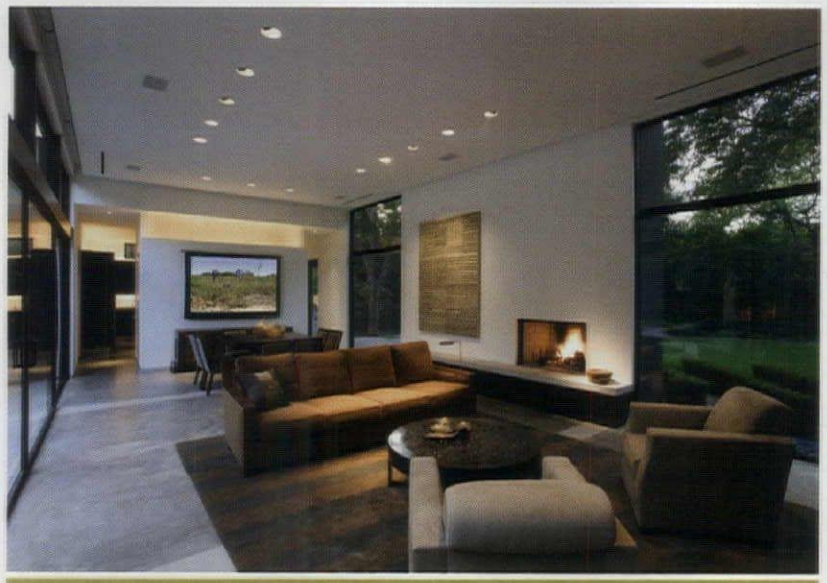

Plotting the location of each fixture will ensure the room's visual balance. In addition, wall coves provide an interesting visual detail and help to define the architectural dimensions of the space (above).

they can be dimmed to low levels, but remember that, unlike other sources, LEDs do not shift to a warmer color temperature when dimmed. (A warmer color helps make the space cozy and won't compete with the cooler color temperature of the screen.) Colored lighting from cold cathode or LEDs enhances the "special event" nature of the home theater, but should be programmed to "off" during the show, as these sources tend to flicker at low light levels. As in a commercial theater setting, safety is a consideration. Illuminate stairs from above with pin spots or install steplights that are invisible from the sitting position.

USE A PRESET DIMMING SYSTEM

A preset control system is essential for all home theaters. Options range from retrofit wireless dimmers to stand-alone preset tools to a portion of a whole-house dimming and control system. Each lighting technique or zone (i.e. downlights, art accents, wallwash fixtures, steplights, coves, or curtain grazers) should operate on its own dimmer. Locate bulky dimming systems and control panels in nearby closets, and use keypads or touch screens to minimize visible wall clutter. Dimming controls should also be located close to audio-visual (AV) equipment for ease of integrated connections where programmers can test and program the two systems with minimum effort.

Convenience is always appreciated. A hand-held device will allow viewers to control the lights without having to stand up during a movie. Generally, consumer universal remotes starting around $100 have the IR (infrared) codes for most preset dimming systems from major manufacturers. Even some PDA devices with "consumer IR" can control AV devices and lighting and are as easy as programming your TIVO for recording your favorite programs.

Most AV installers will provide a screen-driven universal remote. For the ultimate in reliability, use a radio frequency remote or touch panel with an RS-232 link between AV and lighting controls. IR code remotes are not always reliable when transmitting long macros for home theater functions. Keep macros short when using IR. Finally, preset lighting scenes should include non-movie settings, such as START/FINISH, and PAUSE for bathroom or refreshment breaks in the middle of the show.

Lighting is often the last material applied to a space and reveals the elements within; but with home theaters, lighting is the first element that can improve or ruin the quality of the experience.

Scott Oldner designs lighting for residential, hospitality, and specialty architainment spaces. His firm, Scott Oldner Lighting Design, is based in Dallas. He has received two Craig A. Roeder Memorial Awards and the firm's portfolio of work shows the entertainment influence from his musical career.

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The Program

11:30 a.m. to 12:15 p.m.	Networking Reception
12:15 p.m. to 1:00 p.m.	Luncheon Hosted by Normal Kamali, CEO, Norma Kamali, Inc.
1:00 p.m. to 1:20 p.m.	Keynote Speech by Sir Harold Evans, Editor at Large of The Week Magazine and author of two critically acclaimed histories of *America: The American Century* and, most recently, *TThey Made America: Two Centuries of Innovators from the Steam Engine to the Search Engine*
1:20 p.m. to 2:15 p.m.	Presentation of Women in Design Awards, Rising Star Award, and Icon Award

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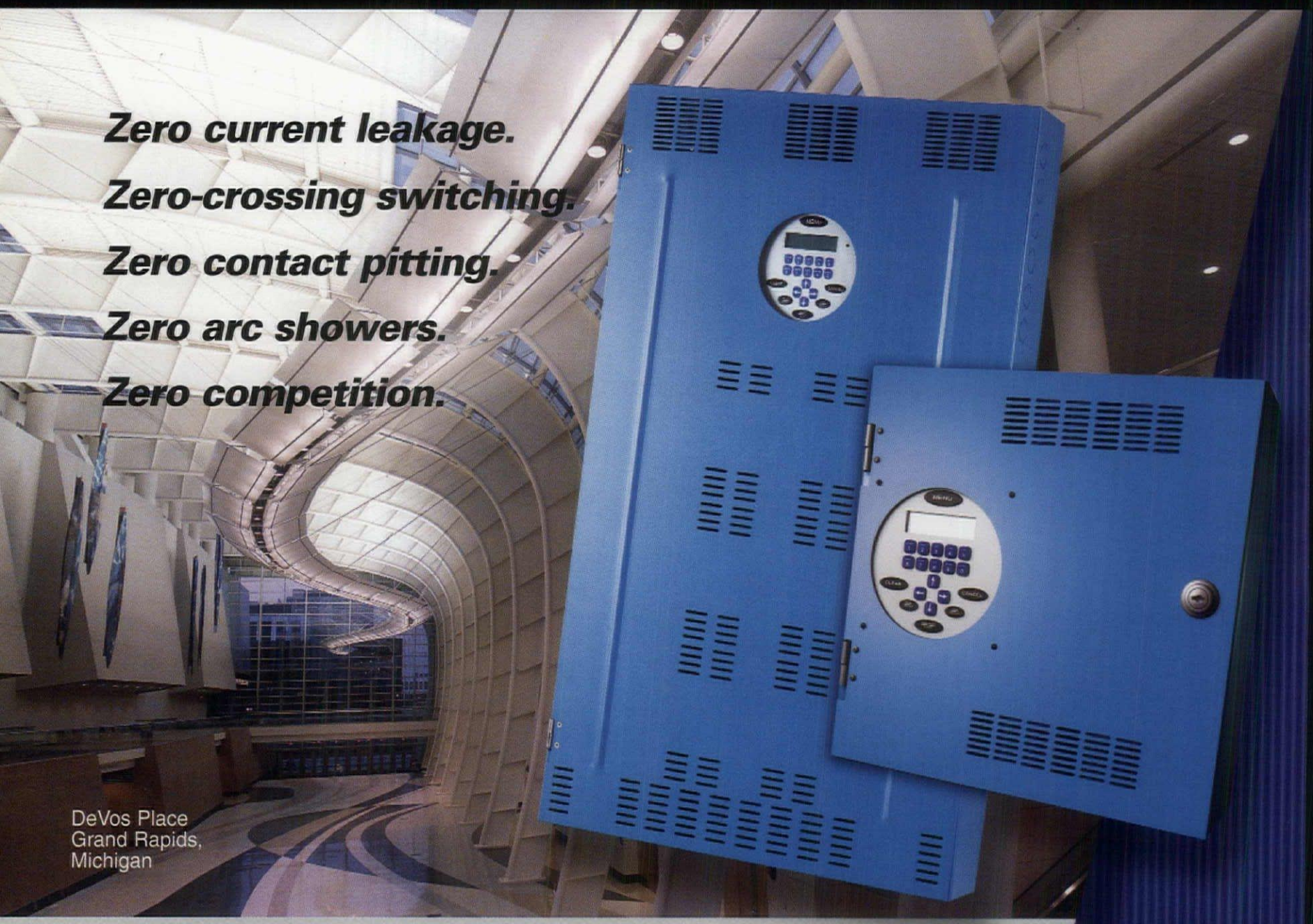

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State-of-the-Art Dimming for Dummies: Part Two

BY JAMES BENYA

UNDERSTANDING HOW DIMMING SYSTEMS ARE ASSEMBLED

In the first part of this series on dimming, which appeared in Architectural Lighting's June 2006 issue ("State-of-the-Art Dimming for Dummies: Part One," page 87), lighting designer James Benya discussed the principles of dimming. Here, in Part Two, he continues with how dimming systems are put together.

IN A ROOM WITH A SINGLE LUMINAIRE, SUCH AS A DINING room with a chandelier, one dimmer (or switch) is probably fine. But add another fixture or two—accent lights or sconces—and you'll need several dimmers in order to vary light levels and create "scenes." At which point, you'll want the dimmers to work in unison, and soon you'll need a dimming system.

Long before electronic dimmers became common to architectural environments, theaters utilized arrays of coordinated dimming devices built into large electrical assemblies. It might have taken several electricians turning monster dials and throwing huge switches, but scenes could be created "on cue." Electronics made dimming systems smaller, faster, and more versatile. But the concept of creating a "scene" by dimming several groups of lights in unison originated back in the days when saltwater tanks were used to facilitate the task.

With the digital age, fundamental advances have been made in dimming technology. No longer are the dimmers located in one box, panel, or rack, like traditional systems. Now the "dimmer" can be anywhere, and do just about anything. But that does not mean that dimming systems are becoming entirely digital. To the contrary, there is still a need for the traditional analog approach to dimming.

The lighting industry, especially the theatrical segment, has done a reasonable job of standardizing dimming system "architecture," which includes the wiring standards and communication protocols for both traditional and digital systems. The electrical industry has made similar progress with general communication wiring standards. But as will be explained below, in architectural dimming systems, considerable variety still exists across systems and protocols.

ANALOG VERSUS DIGITAL

Throughout the electronics universe, inherent technologies are rapidly changing from analog to digital. Think of stereos, televisions, telephones, alarm systems, and cellphones. It was bound to happen to lighting.

However, light itself is analog. For instance, consider music. A record turntable or tape cassette is analog, meaning the signal itself can be listened to if amplified. But a compact disc or MP3 is digital, so you cannot listen to music until it is converted from bits of data to an analog sound signal. Likewise, a digital control signal can cause light to be generated. The question is, where does the transition from digital bits to analog light occur?

The simplest lighting control systems feature all analog components. A slider control generates a DC voltage (analog) proportionate to the slider position. This signals a power dimmer (also analog) to vary the power that drives the lamp at line voltage, the amount of light proportionate to the voltage (analog). However, today's most complex systems can be entirely digital. Take for example an LED color-changing controller. A digital program or sequence controls a digital driver or power supply, which sends digital power pulses to light emitting diodes.

"With the digital age, fundamental advances have been made in dimming technology. No longer are the dimmers located in one box, panel, or rack, like traditional systems. Now the 'dimmer' can be anywhere, and do just about anything."

TRADITIONAL LIGHTING CONTROL SYSTEMS

Once upon a time, dimming systems used a combination of relays and a low-voltage DC signal (usually between 0 and 10 volts) to engage the actual dimmer. This technology still exists today in low-cost theatrical and entertainment lighting systems, and in small-scale architectural fluorescent dimming. These are true Analog-Analog-Analog (AAA) systems: analog all the way. Their biggest advantages are low cost, simplicity, and durability; however, they have limited capabilities and generally do not support complex projects. Good examples of all-analog systems include most of today's simple daylighting controls that use 0- to 10-volt ballasts.

More recently, digital "brains" have been added to traditional dimming systems. Control signals originate from pushbuttons, time clocks, and other binary or digital devices, and are transmitted from the point of origin to the dimmer using a low-level digital signal. This Digital-Analog-Analog (DAA) structure is employed by most of today's conventional dimming systems (in other words, using central dimmers) in both architectural and theatrical applications. Dimming and switching cabinets or racks are located strategically around the building and may hold dozens of dimmers and/or relays. To communicate between cabinets and from control stations, almost all of these systems use the EIA RS-485 wiring standard, a specific twisted-pair wiring method that permits high-speed data communications over long cables. The control protocol, or language, varies: the theater industry uses a common standard called DMX-512, but architectural systems often use a proprietary protocol.

MODERN DISTRIBUTED DIMMING

With the advent of moving lights and dimming of HID and fluorescent lamps, the actual dimming element has moved from a central cabinet or rack to the luminaire itself. Additional communications, including movement instructions and feedback from the fixture to the control console (such as failed lamp notification), became possible. Power wiring was also simplified in this arrangement.

Worldwide, the current direction of development for dimming systems is Digital-Digital-Analog (DDA), and the "dimmer" itself is combined with the luminaire whenever possible. In architectural lighting, the best example of this is DALI (Digital Addressable Lighting Interface), in which the actual dimmer is part of a fluorescent ballast or a low-voltage transformer. The completely digital system (Digital-Digital-Digital (DDD)) is pretty much unique to LEDs. But from a design standpoint, these two approaches have a lot in common.

SIGNALING METHOD

Another categorization of dimming systems involves how the signal is sent. This has become a significant design decision, with more options expected in the future. Most lighting systems are hard-wired, meaning

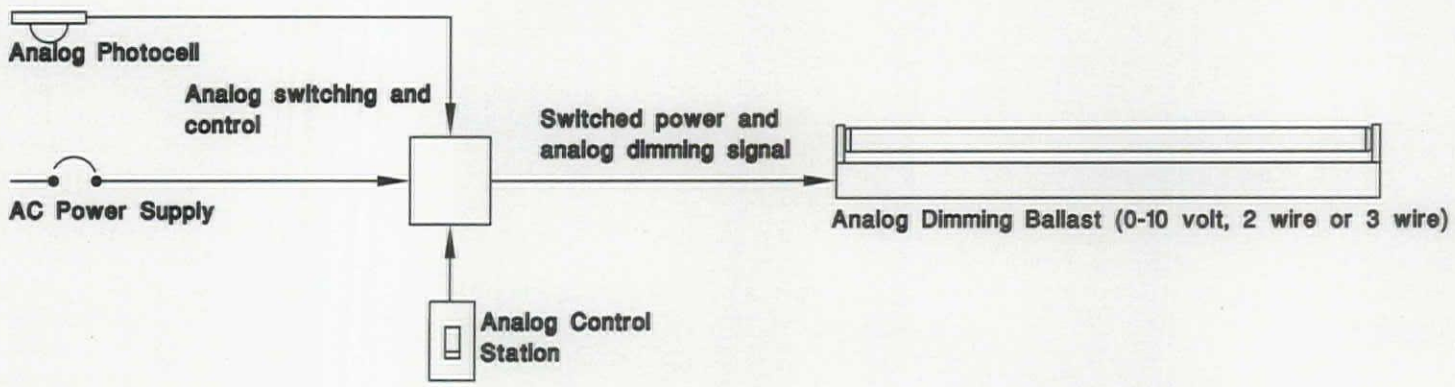
Dimming System Categories

System Type	Control Signal Signaling	Dimming Device Input Signal	Power to Source
Analog-Analog-Analog (AAA)	Analog	Analog	Analog
Digital-Analog-Analog (DAA)	Digital	Analog	Analog
Digital-Digital-Analog (DDA)	Digital	Digital	Analog
Digital-Digital-Digital (DDD)	Digital	Digital	Digital

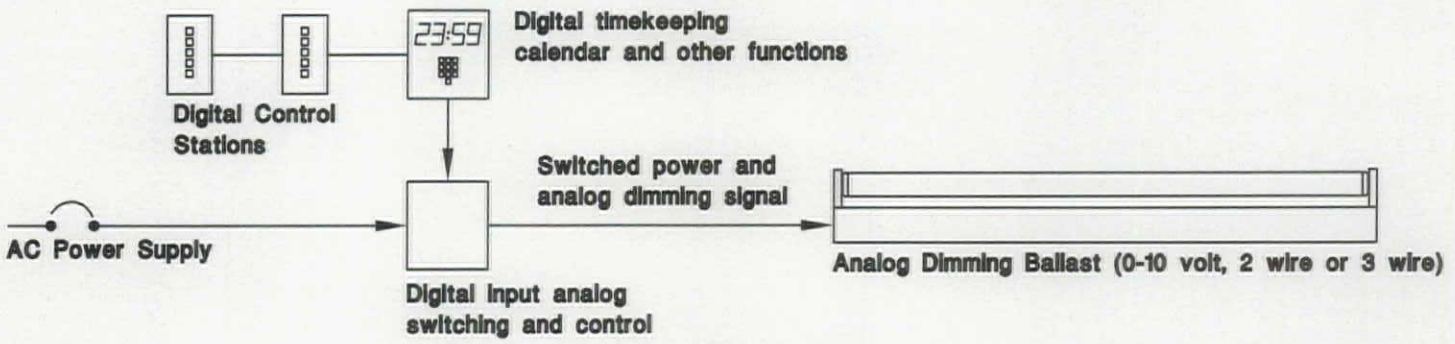
Note: Manufacturers' catalogs will not necessarily offer this level of clarity. There is a lot of competition in the industry, and thus subtle differences among technologies regarding where digital ends and analog begins. But these categories offer the best model for apples-to-apples comparison, and will suit even the most critical specifier's needs.

Types of Dimming Systems

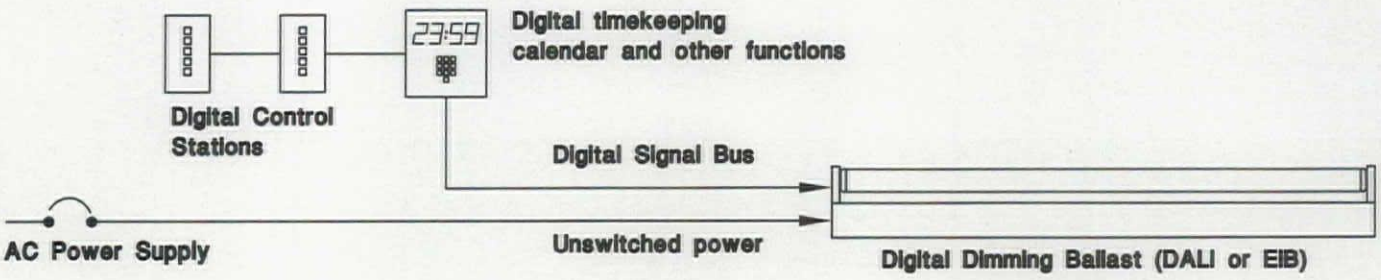
Control Initiation — Power Control — Lamp Dimming



Analog Analog Analog



Digital Analog Analog



Digital Digital Analog

The diagram above illustrates the components and sequence of events associated with each type of dimming system. An example of an Analog-Analog-Analog (AAA) systems is a hard-wired slide dimmer system. An example of a Digital-Analog-Analog (DAA) system is a modern architectural large-scale dimming system with a central panel. Finally, an example of a Digital-Digital-Analog (DDA) system is one that requires programming and commissioning, such as DALI.

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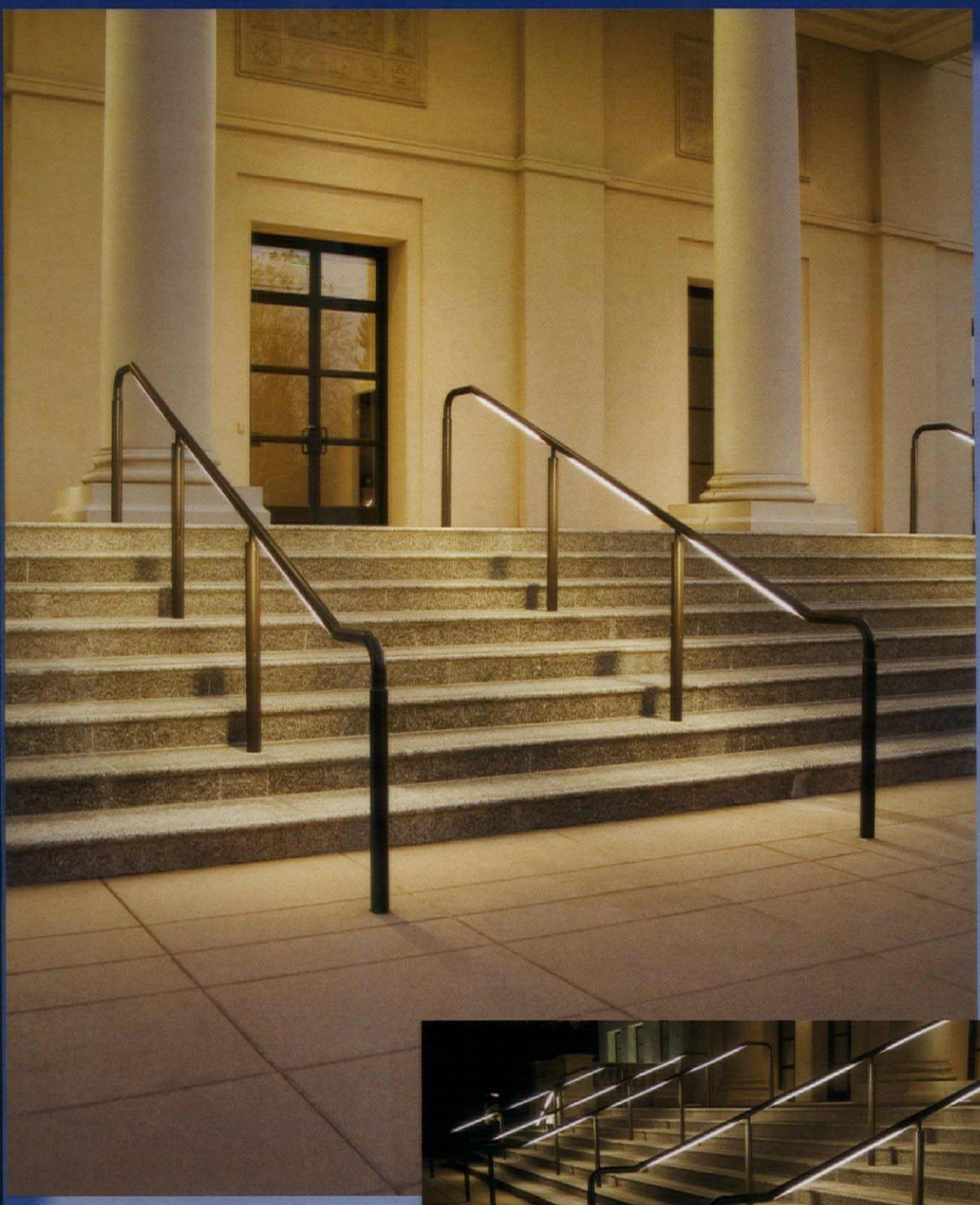

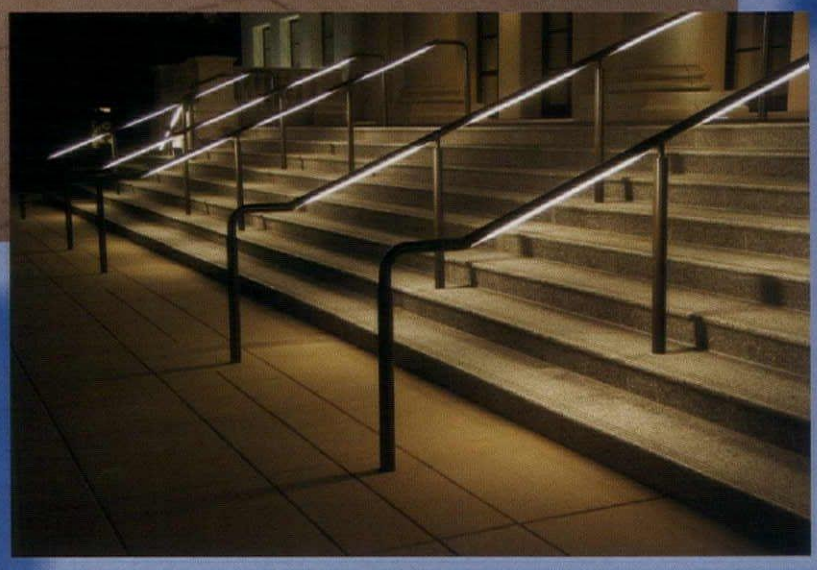

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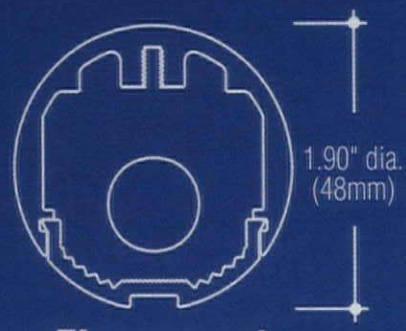
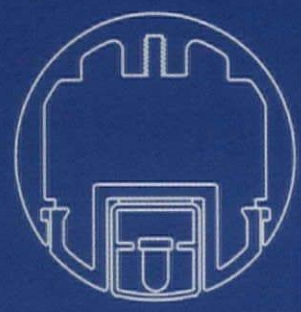


Fluorescent



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that wires are used for the control signal as well as for power. Some new systems use radio frequency (RF), meaning that signals are sent using radio waves and therefore do not require separate control wires. A third type, power line carrier (PLC), sends control signals through the building's power wires. As a general rule, hard-wired control systems are the most reliable, and should be used whenever possible. However, it can often be difficult to pull control wires through existing building infrastructure, and both the RF and PLC systems allow fairly powerful lighting control systems to be installed with minimum additional wiring.

DESIGN CONSIDERATIONS

First, recognize that simple wallbox dimming systems, including those that gang together several dimmers to create small systems, have many practical applications. One step up, a properly designed, simple network of four-scene preset dimmers can work together to allow a home, church, or small group of spaces to do almost everything you might need. Don't overdesign a control system just because you can.

Next, consider the pros and cons of the possible systems. As a rule of thumb, the more "digital" the system becomes, the easier it is to wire, but the harder it is to program. With an AAA system, if the wires are connected properly, you turn it on and it works. With a DDA system, once wired and plugged together properly, the installation is only 50 percent complete; the other 50 percent is setting addresses and programming.

For high-end residential lighting systems, the trend is DDA, whether hard-wired, RF, or PLC. This eliminates the dedicated dimmer panels of the DAA systems, meaning the production electricians can wire a home without any special requirements, thereby saving on equipment and labor costs.

For non-residential lighting, DAA systems employing central dimming panels are still a good choice for hotel function spaces, restaurants, conference centers, houses of worship, and other facilities where there is a heavy concentration of load in one room or area. A panel full of dimmers is often still the least expensive way to go, especially if the loads are mostly comprised of tungsten lamps. These systems have few programming requirements, so start-up and commissioning are relatively easy processes. However, if the building is large and lighting power levels are relatively low, such as office buildings, airports, and convention centers, consider the latest generation of DDA systems. They allow the distribution of unswitched, undimmed branch power, meaning many fewer home runs even if the design has numerous zones of different control.

Keep in mind that there are two schools of thought about where control occurs. The DALI system requires addressing and programming for each ballast, a time-consuming process that adds considerable start-up costs. Other systems have distributed zone controllers that can use conventional dimming and non-dimming ballasts, with only the zone controller being programmed. DALI offers the greatest flexibility and control potential, but the zone control approach will probably cost less.

At the top of the heap is a combined DAA/DDA system that permits the use of both central dimming and switching panels and distributed controls, depending on the part of the building. My firm is presently designing this type of system for Tucson International Airport. Distributed switching and dimming with automated daylighting and shading system controls are used throughout the concourses, which are long, narrow buildings with dispersed lighting loads and the need for different zones due to daylighting and use schedules. However, in the terminal building, especially where loads are concentrated in the meeting center and principal restaurant, a more conventional DAA dimming panel and controllers are preferable. All are connected together and the master control is accessible from the airport engineer's office.

Presently, large-scale control systems are almost exclusively hard-wired, but that is about to change. New wireless technologies are being developed to allow the easy application of lighting control to buildings and campuses without the need for control wiring. Given the difficulties from a commissioning standpoint that have been had with programming digital hard-wired systems, I think this will take some more time to develop, but in the long run, may permit very powerful and inexpensive systems.

FINAL WORDS

Digital dimming lends itself to integration with other control systems, such as theatrical consoles, building or home automation systems, audio-visual touch-screen equipment, and fire or alarm systems. If this is the design plan, make sure the two are properly programmed and they work as planned. Most manufacturers of dimming systems have considerable experience with connections to the more popular automation systems, so be sure to take advantage of this on your project by ensuring the connection between the two is electrically simple and easy to program.

A bigger concern is that designers are often tempted to make the lighting control system do too much. Make your systems easy to use. One of the top dimming manufacturers taught me the phrase "intuitive and self teaching." Don't rely on engraving—because some people can't or won't read. Use a thoughtful combination of location, device size, type of action, indicating lights, and limited number of choices. Regardless of whether you are controlling a living room or the central command room for the Pentagon, keep lighting in perspective. Our lighting and controls design serves the room, not the other way around.

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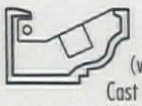
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LIGHT MEASURING EQUIPMENT

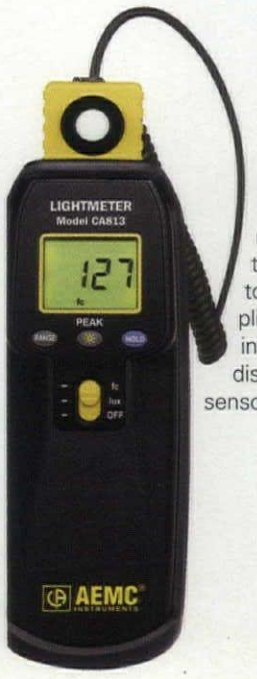
A PLETHORA OF LIGHT MEASUREMENT DEVICES ARE AVAILABLE ON THE MARKET, BUT, IN MOST CASES, THE tool that a lighting designer will most likely reach for time and time again is the illuminance meter. Most instruments have three main components: a body, a photo cell, and a readout. When a light-level reading is taken, the photo cell captures the energy of light in a given area and converts it to an electric current. The meter then reads this current and calculates the equivalent value in footcandles or lux (metric). But remember, a light meter is only a guide. Glenn Heinmiller, senior associate at Cambridge, Massachusetts-based lighting design firm Lam Partners, uses an illuminance meter as a reference point. "I don't care as much what the light meter says, but what my eyes say and what the occupants say." In other words, while a light meter can be a wonderful reference tool, don't fall into the trap of designing by numbers.

THE COOKE CORPORATION | CAL-LIGHT | COOKECORP.COM
The three models in the Cal-Light series of light meters contain an ergonomically designed angled sensor that allows for simultaneous measurement and readout without interference from the operator. Its silicon photodiode with photopic and cosine correction assures precise measurements. On auto, the device's measuring range is between 0.1 to 40,000 footcandles or lux. **CIRCLE 180**

KONICA MINOLTA SENSING AMERICAS | LS-110 | SE.KONICAMINOLTA.US
The LS-110 luminance meter features a through-the-lens viewing system and a single-lens-reflex optical system for accurate targeting and can measure from .01 to 999,900 cd/m2. It has an acceptance angle of one-third of a degree, is equipped with user calibration and color-correction functions, and can determine the percent ratio of the measured luminance, as well as the peak luminance measured. The device is just over 8 inches tall and can be operated from a PC. **CIRCLE 183**

EXTECH INSTRUMENTS | LT300 | EXTECH.COM
With a remote light sensor—attached to the meter with a coiled cable that expands up to 2 feet—the LT300 measures illuminance up to 20,000 footcandles. The device can store maximum and minimum readings and offers both cosine and color-corrected measurements. A data hold freezes the reading in the large backlit LCD display, which contains an analog bar graph. The meter is just under 6 inches tall, approximately 3 inches wide, and just over 1 1/2 inches thick. **CIRCLE 181**

KONICA MINOLTA SENSING AMERICAS | T10 | SE.KONICAMINOLTA.US
This illuminance meter is a modular instrument and can adapt to various system configurations. Four models are available, including one for small areas and another for underwater measurements. The device allows for digital output to a PC and can be connected to a recorder for continuous analog recording of single and multi-point measurements. It measures almost 7 inches tall and just over 2 inches wide. **CIRCLE 182**



AEMC INSTRUMENTS | CA813 | AEMC.COM
Designed for one-handed operation and to match CIE photopic (human eye) response, the CA813 illuminance meter is, according to the manufacturer, suited for OSHA compliance testing in workplace, classroom, and industrial settings. It features a 3 1/2-digit display, a hold function, and has a removable sensor for remote reading. **CIRCLE 184**

SPECTRA CINE | SPECTRA CANDELA II | SPECTRACINE.COM
The Spectra Candela II is available in two models, C305 (shown) and C310. Both contain a backlit LCD screen and measure illuminance in footcandles and lux, but the latter is more advanced, with the ability to determine luminance measurements from 0.1 to 700,000 footlamberts or candelas per meter squared (cd/m2) with a 1-degree PhotoSpot attachment. Each device can store up to two readings, calculate contrast ratios, and perform an average of multiple readings, as well as continuous averaging. **CIRCLE 185**

GOSSEN | MAVOLUX 5032 | GOSSEN-PHOTO.DE
This digital illuminance and luminance (with attachment) meter features a USB interface, can store up to 100 values, and comes with software for processing the collected data. It is able to take in two measurements per second, but intervals can be preset for continuous or specific lengths of time. The meter allows for high light intensities, such as bright daylight, and measuring range selections can be made automatically or manually. **CIRCLE 186**

PHOTO RESEARCH | PR-525 COLORMATE | PHOTORESEARCH.COM
The PR-525 ColorMate illuminance meter features a backlit touch-screen LCD display, USB interface, secure digital card capable of storing over 50,000 measurements, and rechargeable battery. It can be triggered remotely and can be outfitted with up to 15 remote heads, all individually addressed and controlled from a PC, and has an illuminance range of 0.001 to 40,000 footcandles. For luminance measurements, a SpotMate replaces the standard cosine diffuser. **CIRCLE 187**

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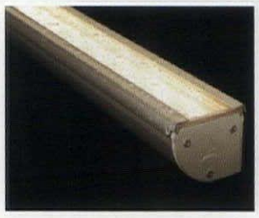

The 115 Series is a linear lighting solution that is ideal for smaller applications. Its small T5 fluorescent lamp is combined with a 2-inch-by-2-3/8-inch housing all engineered with an integral electronic ballast rated for 0-degree starting, IP64 approved wet-location operation, and a choice of mounting options and louver combinations. For more information, visit www.ardeelighting.com. **CIRCLE 164**

Kim Lighting

The MiniBounce—Kim Lighting's new lantern-style luminaire designed for commercial, residential, and hospitality area lighting—distributes illumination onto the ground, with a controlled uplight feature using Kim's patented cutoff optical system. Available in wall and pole mount to complement the larger-scale Bounce luminaire and companion Bollard. MiniBounce offers a perfect blend of style with a traditional appearance, creating a unique addition to the Bounce family. Visit www.kimlighting.com. **CIRCLE 168**

Bartco Lighting

The XLS290 LED display luminaire is based around 11 1/2-inch-length modules and incorporates either six or eight high-output LEDs. An integrated dedicated 9W driver produces 35 lm/W, while minimizing heat generation and prolonging lamp life (50,000-hour expectancy). Up to 12 LED modules can be joined electrically via quick-connects and mount inside a 1 3/8-inch-diameter aluminum extrusion available in a variety of finishes. A clear acrylic lens redirects light, maximizing distribution for display-case applications. **CIRCLE 165**

SCHOTT

SCHOTT Borofloat Borosilicate Sheet Glass has a transmission level that surpasses even some high-quality optical glasses. Borofloat exhibits a 3.25 CTE, which means that it withstands thermal shock and is ideally suited for the high temperatures required by today's lighting fixtures. Contact us via email at borofloat@us.schott.com, or online at www.us.schott.com/borofloat. **CIRCLE 169**

Delray Lighting

New High-Performance Ceramic Metal Halide Downlights: high performance, high output, high comfort, no glare, no distortion. Presented in 6-, 8-, and 9-inch apertures, plus a 9-inch adjustable PAR with translating center optical feature. Available in 39W, 70W, 100W, and 150W for medium-base lamps rated for open enclosures. Fuse and re-strike options available for all fixtures. For further information, contact your local Delray representative, or visit www.delraylighting.com. **CIRCLE 166**

Times Square Lighting

The MC202 is available in 120V or 277V and utilizes 20W PAR20 ceramic metal halide lamps. These lamps last two to three times longer than standard incandescent or halogen PAR lamps with a rated average life of 7,500 hours. Each fixture features an electronic vertical ballast with an adjustable self-locking head and hinged front for easy re-lamping. An internal accessory ring accommodates louvers, glass filters, barndoors, and hoods. For more information, visit www.tslight.com, or call 845.947.3034. **CIRCLE 170**

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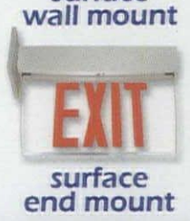
surface wall mount



surface end mount

recessed ceiling mount

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The architectural emergency light. Designed with high output LEDs, numerous decorative finishes and easy installation. Normally On versions available.

Caliber and Splendore finishes:

(consult factory for other available finishes)

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A|L LIGHT & ARCHITECTURE design awards

ROUNDTABLE DISCUSSION

A forum for critical discussion regarding topics relevant to lighting and architecture, the winning projects in this year's A|L Light & Architecture Design Awards will serve as a launching point for a conversation exploring the collaborative process between architects and lighting designers as discussed/considered by the designers involved in this year's winning projects.

WHERE: *Parsons The New School for Design, Wollman Hall, 65 East 11th Street, New York*

WHEN: *Tuesday, October 24, 2006, at 6:30 p.m.*

Visit ***WWW.ARCHLIGHTING.COM*** *for details.*

This program is organized in conjunction with the Department of Architecture, Interior Design and Lighting, Parsons the New School for Design.

The Specification Process

Ensuring a lighting scheme sees its full implementation, along with the designer's intended product selection, is difficult. Designers: How often do you know which manufacturers were ultimately installed on your projects? Manufacturers: How do you track and then publicize the application of your products? All: What steps can be taken to guarantee the integrity and transparency of the lighting specification process?

more information at WWW.ARCHLIGHTING.COM

OPEN LINES OF COMMUNICATION

MATTHEW TIRSCHWELL, PRINCIPAL | **TIRSCHWELL & CO.**

It really depends on the type of project. I have found that on high-end residential projects there is virtually no crossover of products, unless there is a specific issue (i.e. recess depth). Even with excessive lead times (by far the biggest issue), we will usually field a call from the supplier or construction manager regarding the issue, and if we have some direct communication with the manufacturer, to move things along. That open line of communication has been extremely valuable with specific manufacturers.

However, in commercial projects, despite the manufacturers', sales reps', and my involvement, non-specified products still end up on projects. I will sometimes be notified before the order is placed, but the owner or architect will not take a stand, essentially picking which battles to fight, since there are other issues they would rather win. The project ultimately suffers.

What we have now started to place on our specifications is the bare minimum lead time for lighting fixtures. For example, one manufacturer might have an eight-to-twelve-week lead time. We will write into our specifications that the fixture has a minimum lead time of twelve weeks, so there is no longer that excuse from the contractor. However, nothing can be full proof. Write perfect specifications, with the performance and the options you demand, and stand behind them. You may not win, but you will hold yourself and the lighting design community in high regard.

RON PALES, ASSOCIATE PRINCIPAL | **SPILLIS CANDELA DMJM**

In a nutshell, I rarely know whether or not the originally specified manufacturer was used unless there were issues. Contractors rarely follow proper substitution procedures required by the specs. In cases where a substitution is requested, it is not necessarily used. We find out most often through our lighting representatives and then, as often as not, only when there is a problem. The worst case is when we see the installation and are not pleased with the result of an unapproved substitution. Rarely will an owner support us in a demand for removal of the wrong fixture, as long as it is not a code issue.

BARBARA CIANCI HORTON, PRESIDENT | **HORTON LEES BROGDEN LIGHTING DESIGN**

How often do you know which manufacturers were ultimately installed on your projects? One hundred percent of the time. In our firm, we have implemented several initiatives that have helped us maintain the integrity of our specifications. First, we do our homework and select multiple products that meet the criteria (design aesthetic, technical issues, budget, and schedule). When you learn this up front and communicate the issues to the client/design team, you have fewer surprises later on. Second, we use eLumit.com to create our lighting specifications online, and use the e-mail tools to send the manufacturer and rep our specs early on, as well as updates throughout the design process. This opens a dialogue with the manufacturers and representatives early on and at our discretion, which results in fewer errors, more budget information, better details, and tighter specifications. Communicating with our local rep, the destination rep, and the manufacturer helps inform everyone so that they can do their job in working with the distributor and contractors. We also try to use multiple name specs, which helps inform us on budget in Schematic Design. We have also encouraged owners to have two name specs and bid to multiple distributors. We provide the spreadsheet and review the line items with the client/design team so that together we make the choices—not the contractor or distributor. Unfortunately, lighting and controls have what I call "blurry" pricing. We budget our projects throughout the process and can see where a quality error, miscommunication, or mark-up abuse occurs. We'd love to see more manufacturers publish their pricing and streamline the process.

PATRICIA HUNT, SENIOR ASSOCIATE AND LIGHTING DESIGNER | **HGA**

The more members of the design/construction team (owner, lighting designer, architect, electrical engineer, general contractor, and electrical contractor) that are in agreement on the goals of the project, the less the problem of getting the right products.

In our area of the country (Midwest) "packaging" the lighting is the rule. One way we control the general lighting manufacturers we choose is to select luminaires from the manufacturer rep's offerings. In other words, create our own "packages." For special effects or signature luminaires, we specify an allowance price for the desired lighting.

When the contractor is ready to order the fixtures, he supplies submittal drawings for our review, and we verify that the intended luminaires are being supplied with appropriate options and features. Verifying details saves countless headaches later. We also field verify that what the submittal drawing indicated was actually installed. If not, we have the wrong luminaire replaced with the correct luminaire. Finally, if we are diligent, we can build a reputation for making our specifications stick.

QUALITY CONTROL

GERARDO OLVERA, LIGHTING DESIGNER | **ISOMETRIX LIGHTING + DESIGN**

In the majority of our projects we control the specification and overview the procurement process in order to monitor the quality of the installation. This enables us to know exactly what is being installed on site. We rarely get involved in projects where we are unable to control the specification quality/standard.

An open dialogue between contractor and designer should enable a transparent process where there are no hidden agendas. Another way to ensure that the specification remains intact would be to demonstrate with mock-ups and/or samples the intended effect, and perhaps compare different effects achieved by different products. This way the client, contractor, and designer are able to discern and agree or disagree on a particular specification issue.

THE MANUFACTURER'S PERSPECTIVE

SANDY LANGER, PRESIDENT | **LIGHTING DYNAMICS**

Having functioned as a manufacturers' representative for the past 27 years, I have seen very little done by manufacturers on a consistent basis to track and publicize their applications. What usually happens is that a manufacturer decides on an advertising campaign for a particular brand or style, and then canvasses their reps for applications worthy of being photographed.

The specifier needs to become more assertive in the review process. We see specifiers that don't really care what ends up on a project, specifiers that care but feel powerless, and other specifiers that always seem to get what they want. Granted, a certain class of clients is more receptive to the specifier maintaining control, but I believe that much more can be done at all levels to ensure the integrity of specifications, and that starts with the wording of the specifier's contract, where it should clearly state that the specifier has review rights on whatever material they are specifying. Similarly, Construction Administration should be a part of the contract whenever possible. Lastly, any cost-saving considerations requested by the owner or the general contractor requires re-specification of the lighting materials.

THE REAL COST

PAUL ZAFERIOU, PRINCIPAL | **LAM PARTNERS**

This issue strikes at the heart—or gut—of our practice because changes to the specified fixture package during construction (for whatever reason) can seriously compromise the design and detailed coordination that went into the project. Therefore, we make an effort to stay as tuned in as possible to fixture packaging, value engineering efforts, and to retain the responsibility to review fixture submittals as part of our scope on every project. While we prefer to think of lighting design as a creative blend of art and science for the purpose of making wonderful spaces, it also involves the buying and selling of products. This exchange of money sometimes leads to influence peddling and decision-making by others who are not motivated to meet the qualitative or programmatic goals that have been established for the installation. This is why it is important for lighting designers to understand the real cost of the products they specify and their availability. Our industry needs to come clean on what lighting products actually cost. With our best efforts, I estimate that we know which products have been installed on approximately 80 to 90 percent of our projects.

GUIDELINES FOR SPECIFICATION INTEGRITY

MARK LOEFFLER, LIGHTING & SUSTAINABLE DESIGN DIRECTOR | **THE RETEC GROUP**

Because we work closely with our manufacturers' sales reps during the design development and construction documentation phases, we almost always know what products get installed on our projects. We may not always fully control the final selection, but we use techniques detailed in the *IALD Guidelines for Specification Integrity* to both define our equipment expectations and to guard against surprises. Even if substitutions are made against our advice, our sales reps make sure we know what's going on with our projects. That relationship is critical for maintaining quality product for quality lighting.

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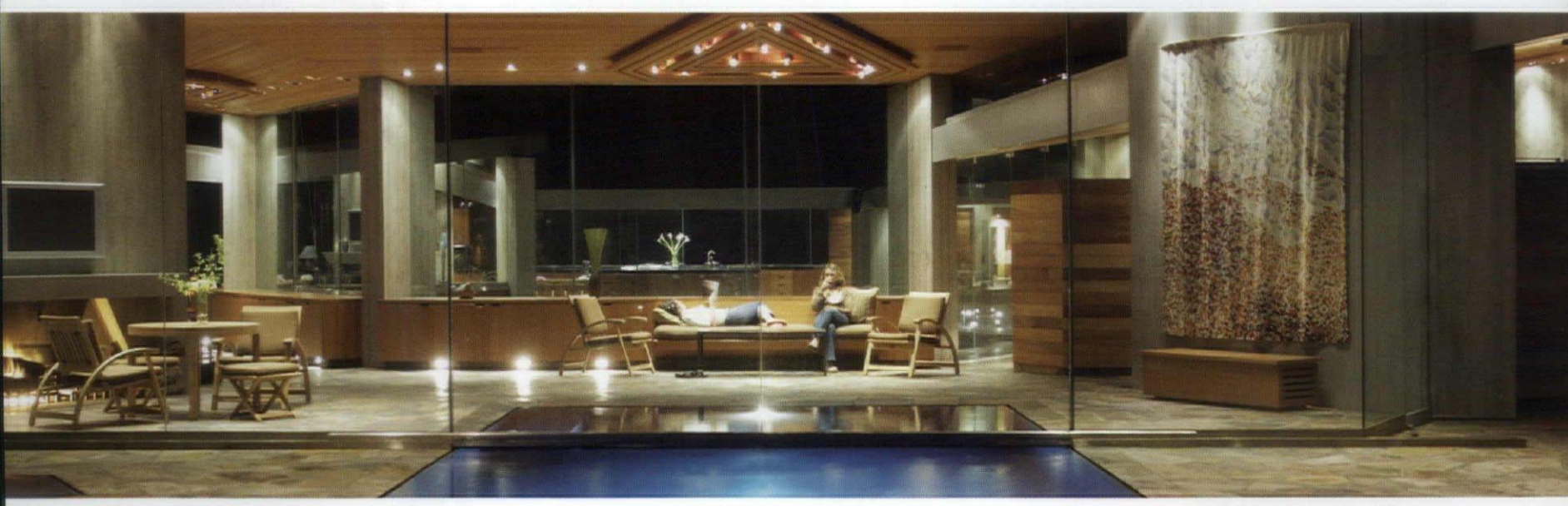

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