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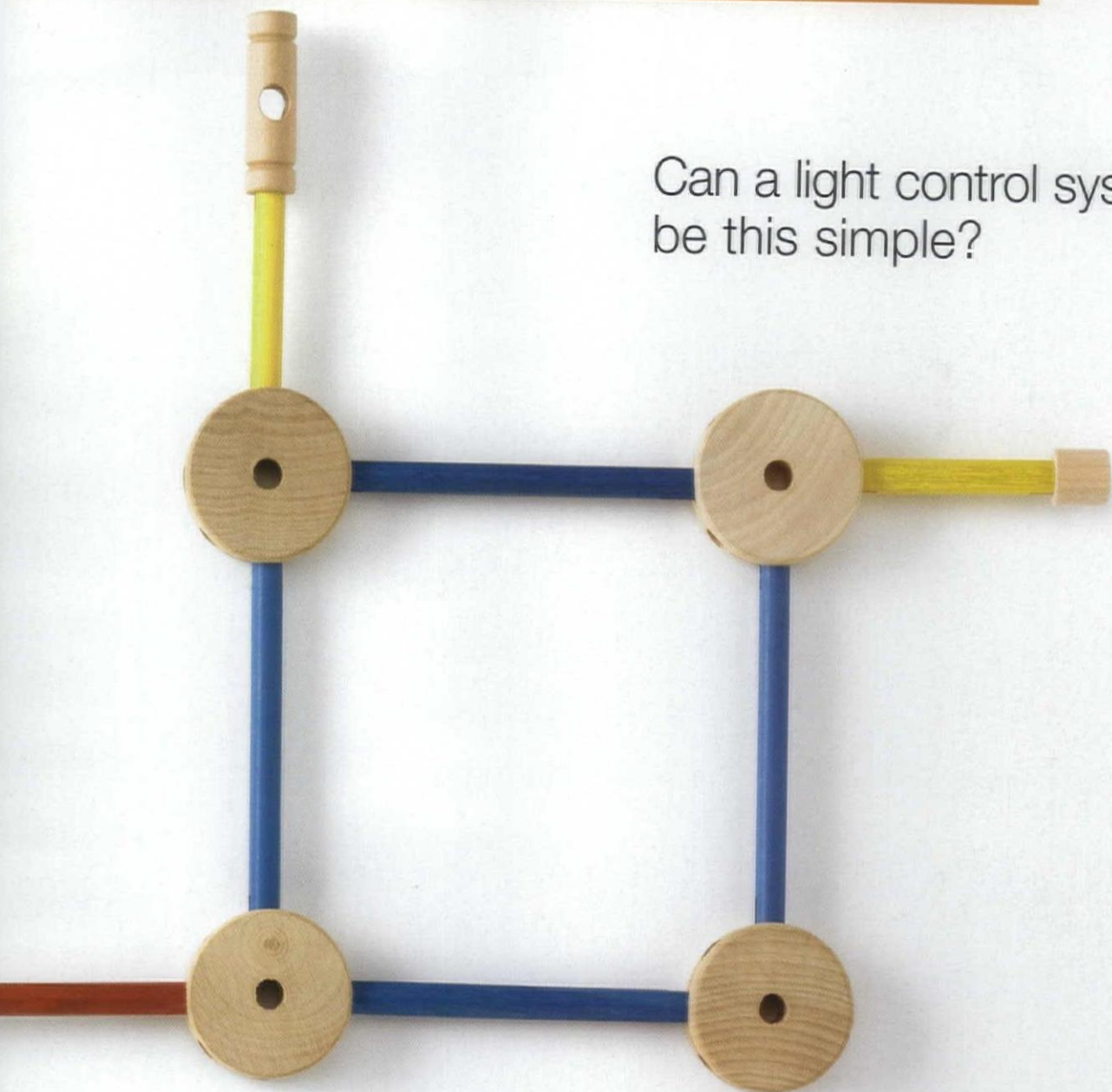
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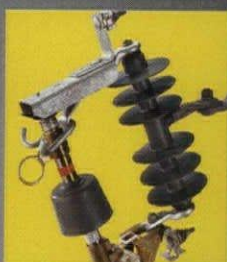
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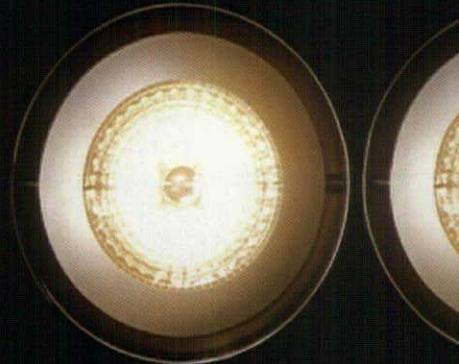
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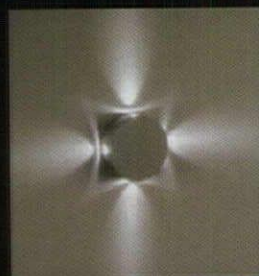
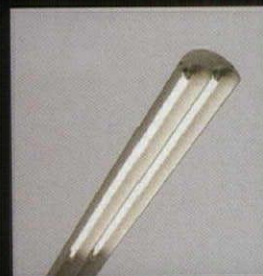
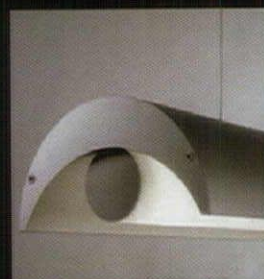
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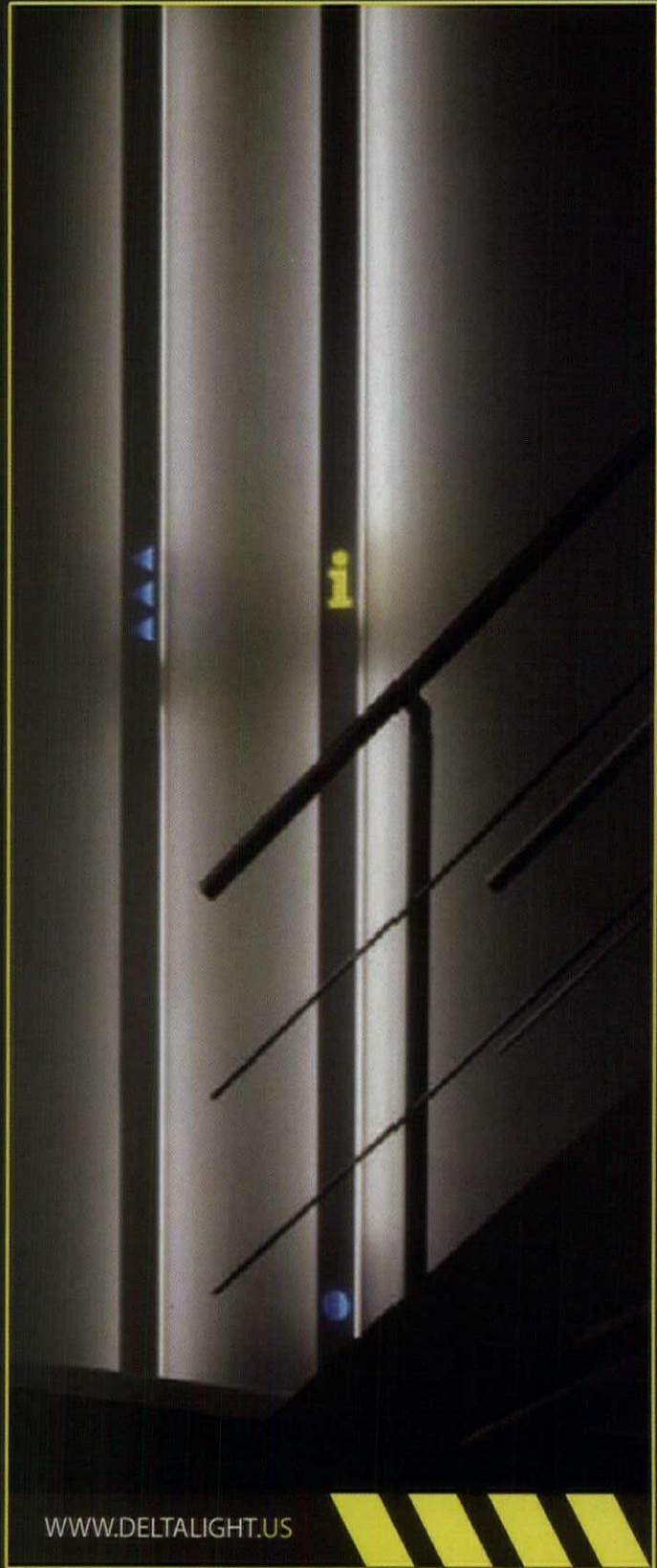
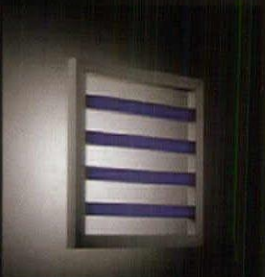
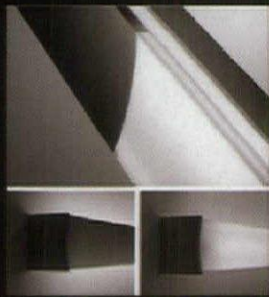
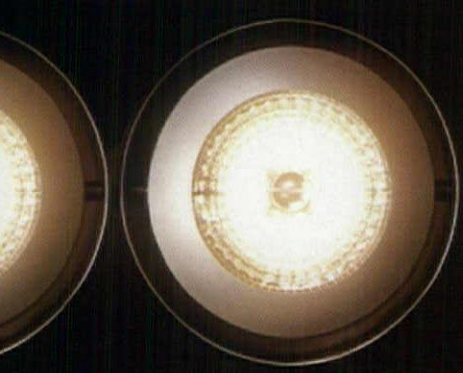
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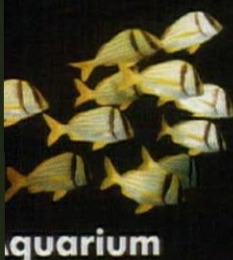
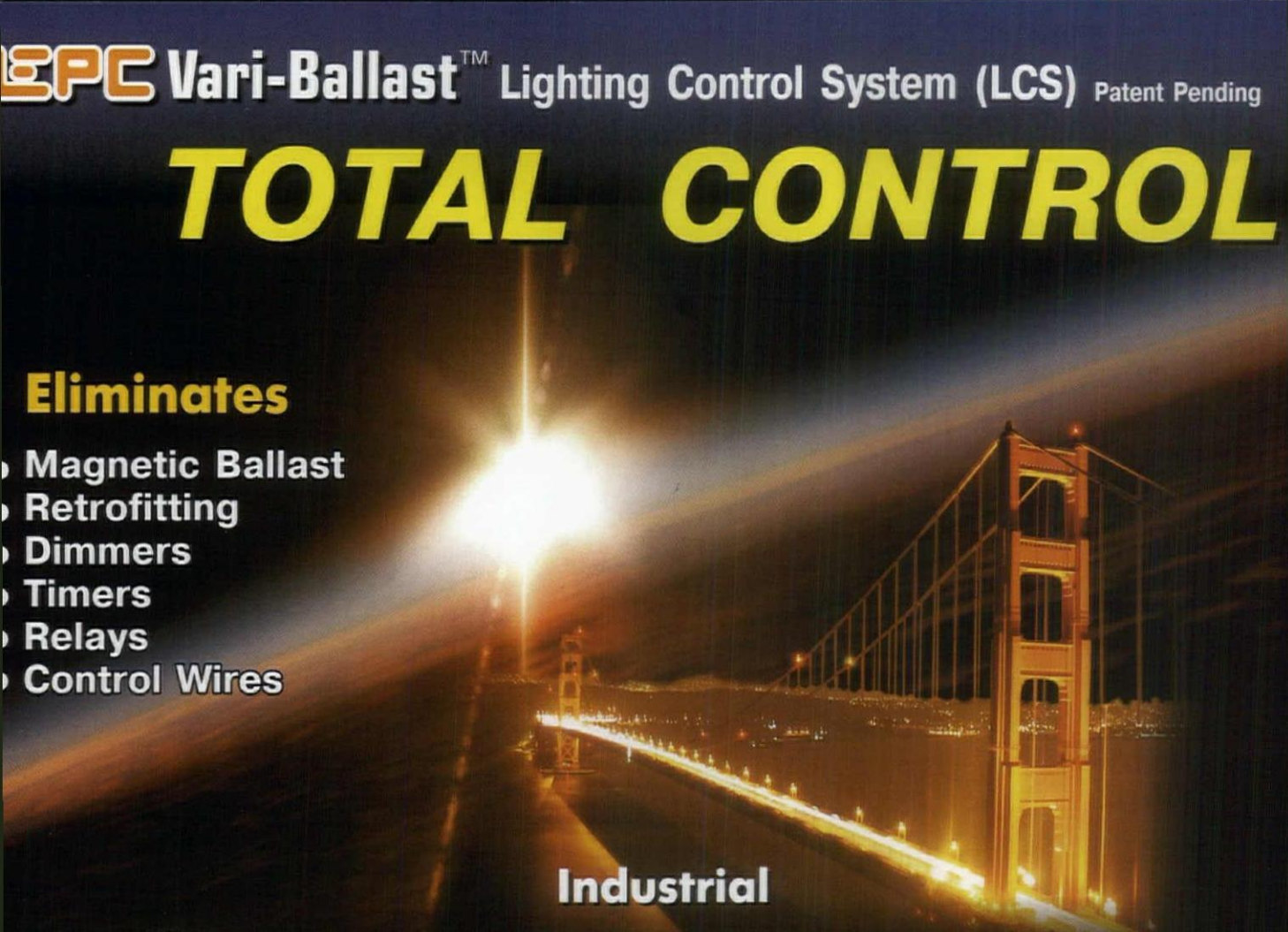
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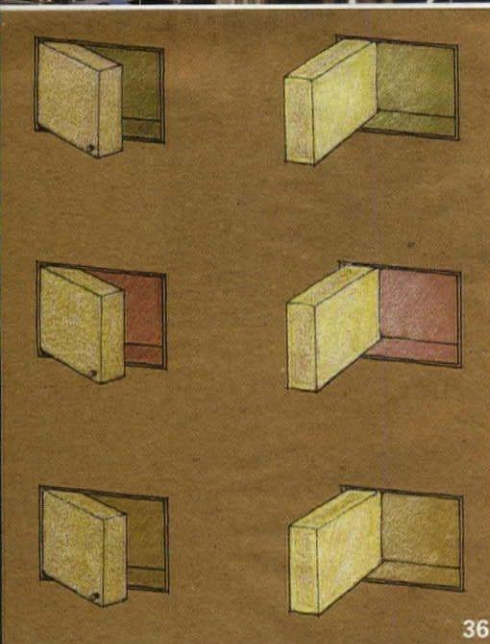
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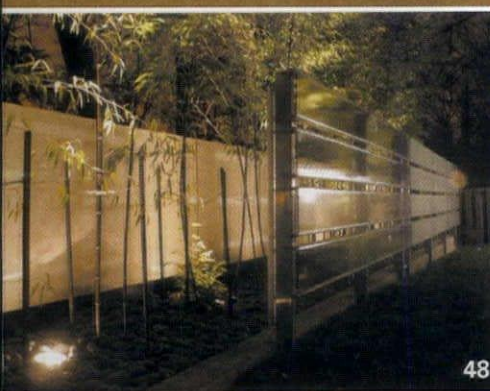
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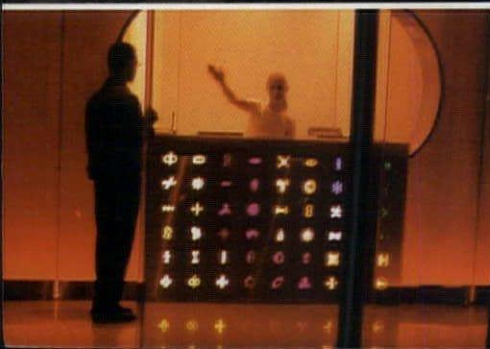
19





36




48



industry

- 13 **comments**
- 19 **briefs** / Lighting as Urban Design Catalyst
- 20 **letters** / Readers react to Jan/Feb 2005 editorial "Speak Up"
- 25 **report** / Lighting Education: Who, What, Where, and Why 
- 72 **exchange** / Where does lighting fit into an architectural education? 


projects

- 35 **highlight** / The Museum of Modern Art, New York City
- 36 **hospitality** / In the Pink 
- 40 **performing arts** / Unified through Light

OUTDOOR LIGHTING FOCUS


- 47 **project** / MCTC Parking Garage, Minneapolis
- 48 **project** / Rodgers Fence, Alexandria, Virginia
- 50 **products** / The Great Outdoors

details

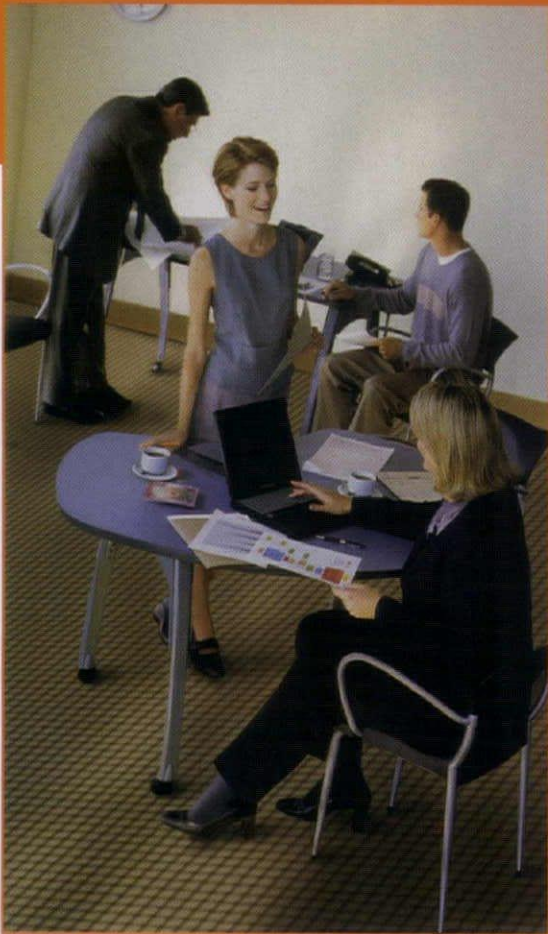
- 53 **method** / Capturing Color and Texture with Light
- 57 **technology** / Accessorizing with Lenses, Louvers + Color 
- 71 **ad index**

Cover: The Overture Center for the Arts shapes light to dramatic effect, creating an environment appropriate for artistic expression. PHOTO JEFF GOLDBERG/ESTO

This page: City of Ghent, winner of the 2004 International City-People-Light Award, Belgium; Sketches by Focus Lighting for Semiramus Hotel, Athens; Rodgers garden fence by night, Alexandria, Virginia; Reception desk at Semiramus Hotel.

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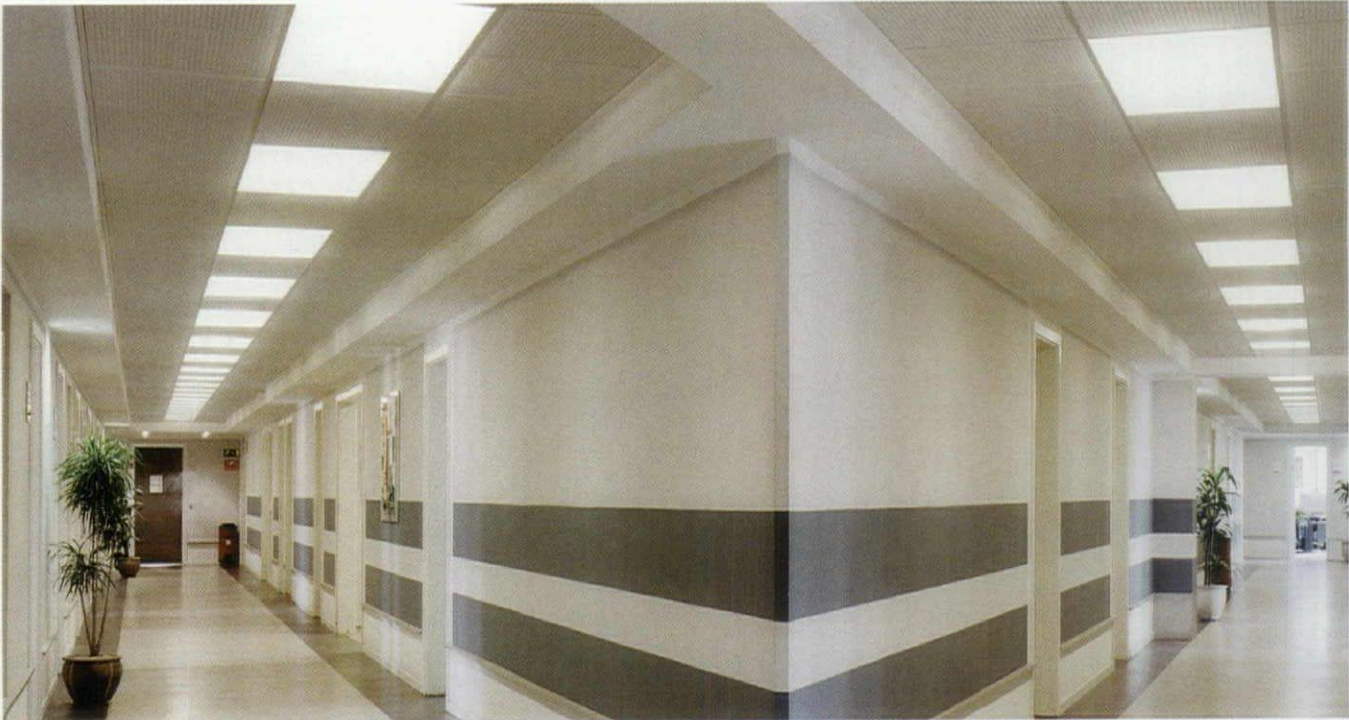


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Just Keep Talking

I KNEW YOU HAD SOMETHING TO SAY. A|L's readers do have opinions and they are willing to voice them. It just took a little prompting.

We received a number of letters in response to my entreaty in the Jan/Feb 2005 editorial "Speak Up," and to the Exchange question about education. (For letters, see page 20; for Exchange commentary, see page 72.) Designer Bruce Hostetter's comments in reaction to the editorial were particularly thoughtful, and I think, on the mark. We are too busy, which makes us too tired; because we are too busy, and thus too tired, we become professionally alienated, intellectually and psychologically isolated from our fellow practitioners by a chasm of over-extension.

However, Hostetter suggests that making time for the kind of interaction that the Exchange column or letters to the editor stand for—rather than adding to the stress our schedules cause—could actually revive the energy and enthusiasm we need to make our professional lives not only productive, but fulfilling. I think he is right, and I will take the prescription a step further: There should be two stages to a conversation of this nature. The first is to get the issues on the table; the second is to find constructive solutions. The former is easy (who doesn't like an excuse to voice his or her opinion?); the latter is extremely difficult.

Rather than the exception, dialogue of this nature is the rule in academia—perhaps to a fault in a liberal arts education, where a disproportionate amount of time seems given over to theorizing rather than practicing. Or so I thought as a student. Upon entering the workforce, I realized that complaining about the lack of balance between the two was a luxury. Outside of the academic environment there is little opportunity or encouragement in most professions to "think" purely for the sake of contemplation. We, the workforce, just have to "do"—to make deadlines, to make money, to make our customers and our employers happy.

Students have a special energy, an energy that could serve us all well in our professional lives. Admittedly, youth, inexperience, and unadulterat-

ed idealism have something to do with it. But, could it also be that their passion and interest is fueled by the opportunities for dialogue and the sharing of ideas that an academic environment provides? Absolutely, and one does not need to be young, naive, or romantic to benefit from this dialogue. One just needs to have the time.

We must make that time—and our employers need to help. Not just pay lip service, but actually create a corporate culture that encourages the regular exchange of ideas by allowing a break from work; by providing the venue and maybe the coffee and doughnuts; and by valuing its human resource as much as it does revenue. Dialogue among professionals, regardless of whether a dollar sign is attached, will be valuable in the long run, as employees remain engaged, energetic, and passionate about their work.

Bruce Hostetter, in his letter, asked me to give priority to comments from readers that are generated by a conversation with a colleague. I will. Likewise, another letter-writer suggested that making the Exchange question more prominent would encourage more response. We have; it is included on this page.

See, dialogue is productive, so keep talking.

EMILIE W. SOMMERHOFF
EDITOR-IN-CHIEF

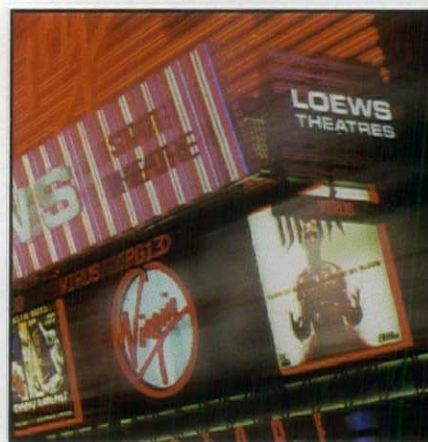
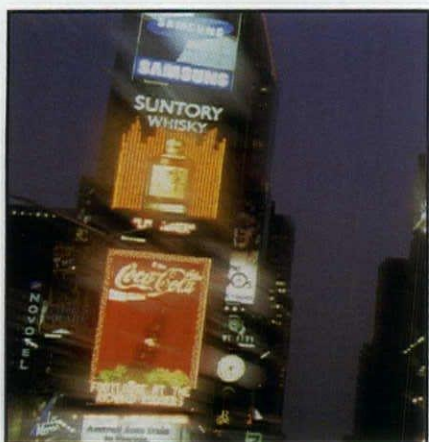
APRIL 2005 EXCHANGE QUESTION:

In order to practice architectural lighting design, should individuals be required to attend an accredited degree program, followed by professional work experience and a licensing exam? Would establishing an education and licensing procedure for lighting designers more in line with the training of architects, landscape architects, and engineers contribute to a more legitimized view of lighting designers and the role of lighting in the architectural design process?

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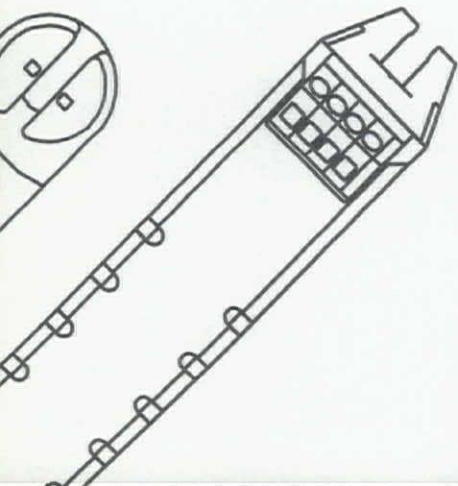
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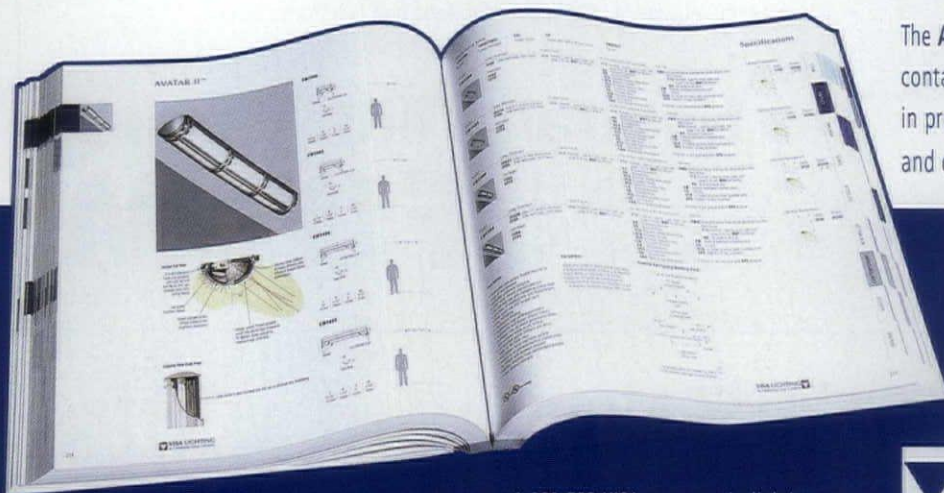
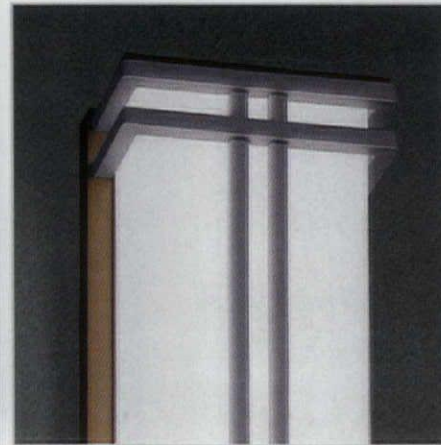
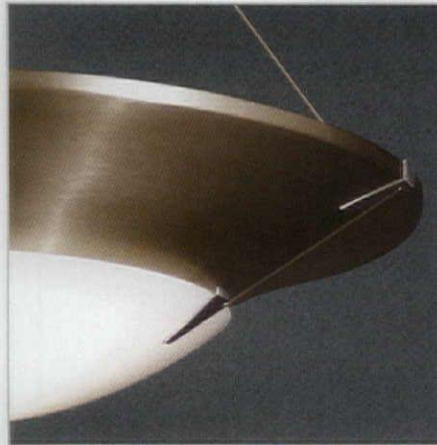
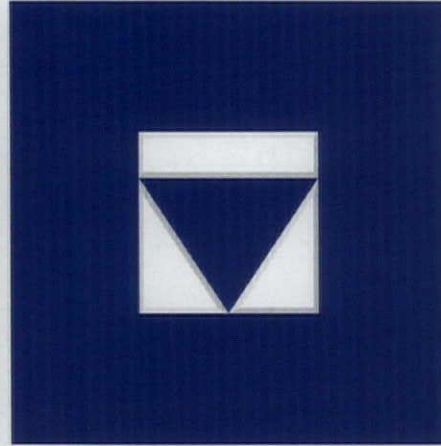
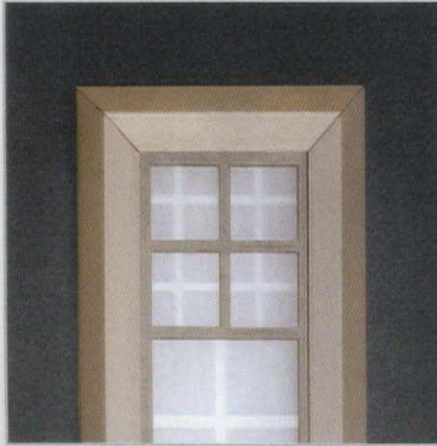
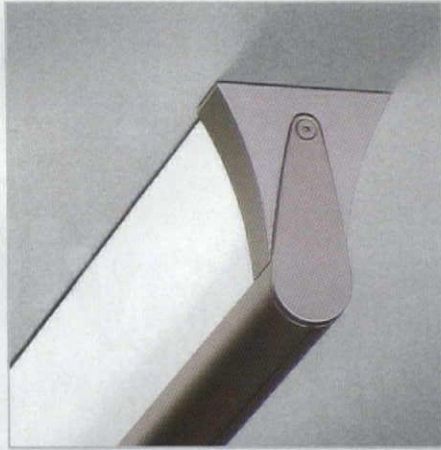
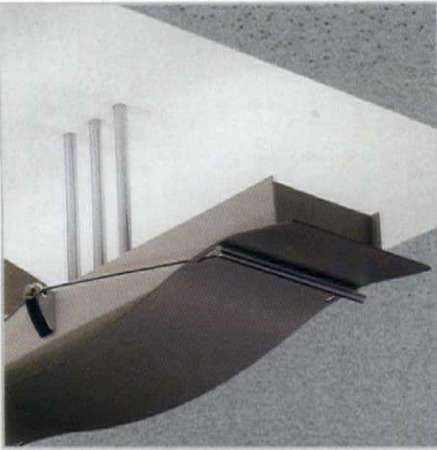
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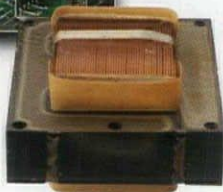
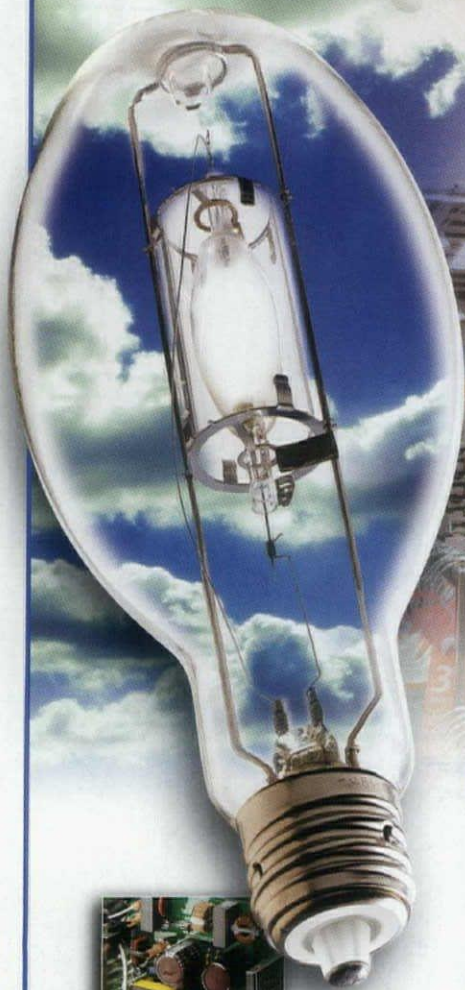
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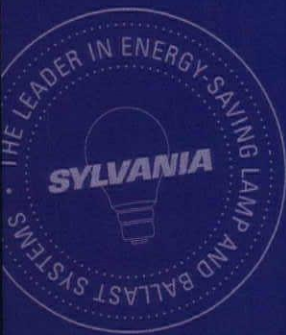
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LIGHTING AS URBAN DESIGN CATALYST

FROM BROOKLYN TO BEVERLY HILLS TO BELGIUM, cities and municipalities around the world are paying attention to their streets. Acknowledging that lighting elements can foster a safer and more aesthetically pleasing nightscape, several cities have embarked on programs to beautify their streetscapes. As these three projects prove, no matter the density of the urban environment or the economic resources of the city, lighting plays an important role in revitalization and continued growth.

LIGHTING THE BOULEVARD, BROOKLYN

Atlantic Avenue is one of Brooklyn's main thoroughfares. With the natural process of a city's physical and economic evolution, the avenue has seen good and bad times. The result is gaps in streetscape amenities, including trees and lighting. Funded by the Atlantic Avenue Local Development Corporation (AALDC), a nonprofit group focused on the economic development of the avenue, a civic lighting program called "Lighting the Boulevard" is underway to renew the streetscape, both by day and night, and equally important, to encourage neighborhood pride.

To create this vision, lighting designer Leni Schwendinger has designed a family of doorway luminaires using high-performance 1W LEDs from Osram Sylvania. The goal is to illuminate 150 residential and commercial doorways between Hicks Street and Fourth Avenue. This section was chosen as the starting point because it is a historic district; has an assortment of building types, storefronts, and doorways; and is fast becoming home to many new stores. The project is a component of a multi-year master plan for the entire avenue, which has re-emerged as a vital link between the Brooklyn Bridge Park, the Brooklyn Academy of Music Cultural District, and the Atlantic Yards retail and entertainment complex. There is relatively little cost to the tenants, and building owners have welcomed the lower energy costs, the chance to customize the fixture in their respective storefronts, and to engage in community affairs.

A pilot program, funded entirely by the AALDC, illuminated 10 doorways between Hoyt and Bond streets last November. The premise behind the design concept is that each doorway contributes to the civic space of the street. There are two basic luminaire types: a ceiling and a

doorway-mounted option. Light is cast on the doorway and a portion of the sidewalk. A new illuminated night streetscape will foster a sense of security, thereby allowing people to stay out later, in turn generating more pedestrian traffic, which means more business for local shop keepers and restaurants. "The simple gesture of a light in each doorway can make a big difference in the overall welcoming quality of the street," says Schwendinger.

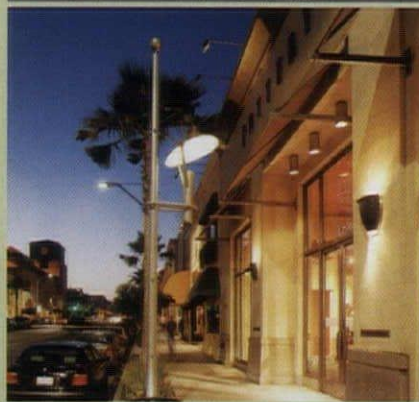
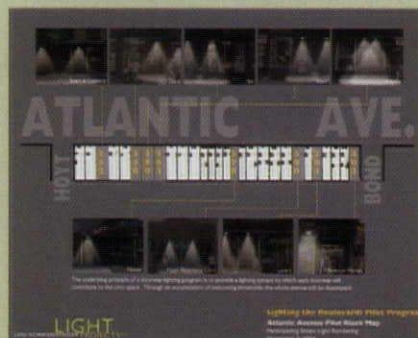
URBAN DESIGN PROGRAM, BEVERLY HILLS

Beverly Hills' recent facelift is a result of discussions between property owners and tenants in the Business Triangle—a five street area. Although the project was completed last year, the discussions date back to the 1990s, when a master plan was established to coordinate design and funding for this private-public partnership.

The City of Beverly Hills developed the "Urban Design Program" of pedestrian-oriented improvements to respond to an upswing in the local economy, and maintain a competitive business edge. To implement a district-wide parking strategy, improve the lighting of public spaces along with the general infrastructure, and highlight the retail strengths of the city, sidewalks were widened, and mid-block crosswalks for north/south bound streets installed along with new streetlight and traffic signal poles, street trees, and landscaping. Lighting designers Chip Israel and Kelly Jones, of Los Angeles-based firm Lighting Design Alliance, worked with manufacturer Selux. An existing European-style cutoff and indirect pole in the company's catalog was reconfigured to meet ADA, California, and City of Beverly Hills requirements. A custom-arm fixture was designed to top the luminaire. The project seems a success, since there is now talk of expanding beyond the five-block area and creating a simplified version of the luminaire design.

INTERNATIONAL CITY-PEOPLE-LIGHT AWARD

Ghent, Belgium, received the €5,000 first prize in the 2004 International City-People-Light Award. Created in 2003 by Philips Lighting in conjunction with the Lighting Urban Community International Association, the program was initiated to recognize towns and cities that "best demonstrate the value that lighting can add to an area's cultural and architectural her-



Brooklyn; Beverly Hills; Ghent (top to bottom).

itage and nocturnal identity, while respecting environmental regulations."

Ghent was selected from 14 international entries. Lighting designer Roland Jéol and architect Filip Vanhaverbeke's lighting scheme celebrates the architectural heritage of the historic St. Michael quarter. Buildings and streetscapes are illuminated, creating a sense of security, providing better navigation and an overall nighttime appearance for the town.

Along with Ghent, Copenhagen and Caltagirone, Italy, received recognition for their urban lighting projects. **ELIZABETH DONOFF**

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LETTERS TO THE EDITOR

IN RESPONSE TO THE JAN/FEB EDITORIAL "SPEAK UP. I CAN'T HEAR YOU":

I was struck by your lament: why don't more of us write? I have given your question a fair amount of thought. If you're finding our level of response disappointing, maybe it has something to do with a combination of the demands on our time and our quality of professional life. It is not enough to blame increasing pressures to do more in less time for the same or a diminished fee. It has to do more with the energy that remains when work is done. When we individually don't have time to add perspective to our work, which is what your Exchange column does, it is a sign to me that many of us are professionally alienated from our work.

Just as our society faces greater forces of alienation, so do our professionals. One of the signs of alienation is isolation, lack of intimacy, and compensation. If the alienating forces are too great, we would rather watch MTV than write A|JL. I work as a consultant now at a respected firm, but even here, there is little time during the course of the work week for deep discussions, other than our weekly team meetings.

So if we are stuck with our clients' unrealistic time frames and we are unwilling to compromise our dedication to quality, which leaves us too depleted to write; if it takes reflection about what we do to feel engaged in our profession, which is what happens when we write A|JL (but we don't have time to do that); if it takes perspective and dialogue with others in our profession to feel like there is any hope in putting back the soul of lighting, which is inextricably linked to the sharing of ideas and questioning conventions, then how can we be expected to be teaming with contributions?

If this perspective on the problem has anything to do with reality (and it does describe my own), then what is the solution? I believe that the remedy for social and professional alienation is to relate to others in a way that is meaningful and intimate. When we write, we are relating remotely to a community of professionals and that connection to community is also part of the remedy. But what will give us even more connection is connecting personally. We need to go to lunch with a workmate or have coffee before work. We need to temporarily suspend our belief that work is all that matters and nurture whatever passion got us into lighting in the first place.

I am doing that when I will meet with a colleague to talk about how architects don't value our work, among other things. I promise to write about our conversation to your magazine in response to this month's question. Ask your readers to do the same in the next issue. Give priority to the letters that come from a conversation with a colleague. See what happens. Sometimes when we feel overwhelmed, the idea of taking time out seems to add stress. But if we connect with those we work with and value, stress can be reduced because we feel more connected to our work; more in control of our destinies—a good treatment plan for professional alienation.

I appreciate you stimulating us to think and write.

BRUCE HOSTETTER, IES, LEED, AP
ReaLight Design, Fullerton, CA

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LETTERS TO THE EDITOR

IN RESPONSE TO JAN/FEB EDITORIAL, CONTINUED:

You may consider looking within prior to condemnation of readers for not responding to your request for feedback. Not every reader pours over every issue of the periodicals they have at hand, so it is understandable

that the last page is looked over. Most magazines present feedback at the front of each issue. If you want responses, make it clear through a thoughtful integration of an exchange effort in your magazine and consider a layout redesign. Look past expecta-

tion, look into feedback and continue to provide the best information on lighting.

KEVIN SNOOK, AIA, Project Architect
Valerio Dewalt Train, Chicago, IL

I found your rage well founded and relevant: I will trouble you with my highly opinionated views on the subject. If I had to pick the biggest shortcoming in the lighting industry, it would be the cheap cowardly ways lighting is brought into architectural spaces! First and foremost: the God-forsaken CAN LIGHT! This "lighting solution" has been applied in stunning structures. Where truly fantastic statements can be made, the industries of lighting and architecture shoot cheap can lights into the ceiling, saying it provides competent lighting. If these people worked in the automotive world, we'd have a broomstick in place of our ergonomical, titanium-covered shifters. The second gripe is the designer who fills a space with table and floor lamps. The resulting effect is "the lamp store" look. The architectural world needs to realize that lighting design is a highly specialized field that requires teams of people that solely focus on lighting. As with architecture, lighting design is part form and part function. Curriculums must first identify that lighting is a separate specialized field that requires dedicated professionals that have done the ground work to deliver not only a competent amount of light, but also with the complimentary aesthetics and layout.

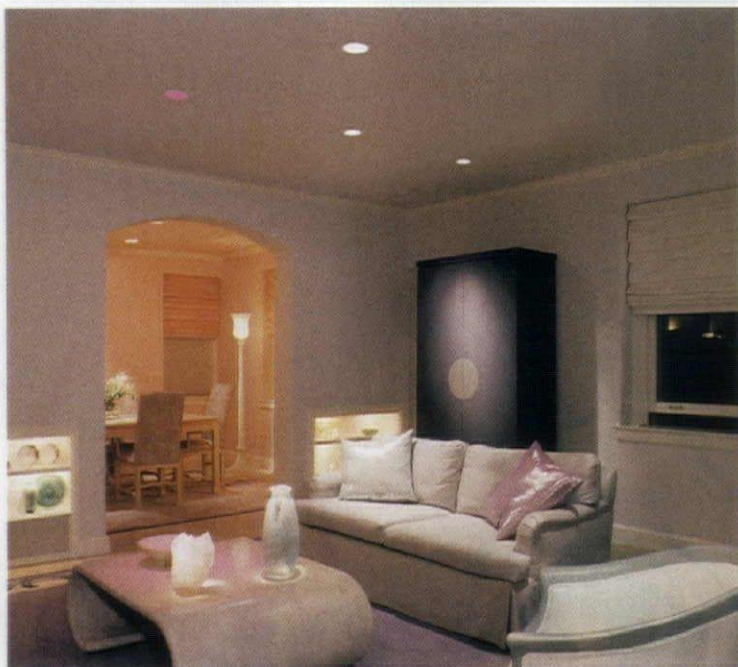
MISHA SCHMIED, Designer,
BDR International

IN RESPONSE TO THE JAN/FEB EXCHANGE QUESTION:

I agree with Jesse Lilley with regard to the importance of ensuring that we do not create an eyesore. Tilotyama Nandy seems to have a point about "colored light pollution" in Asia based on the example in the article "All Dressed Up." The Galleria West is described as a "high-end mall" but the illuminated façade seems more appropriate to Times Square. On the whole, my attitude toward color is the trite "less is more." A little accent color is effective; a huge multicolored façade is garish.

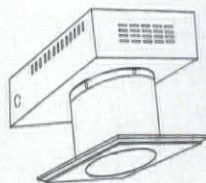
WILLIAM J. REDMOND JR., PE
Senior Electrical Engineer
GPI Greenman-Pedersen, Rockville, MD

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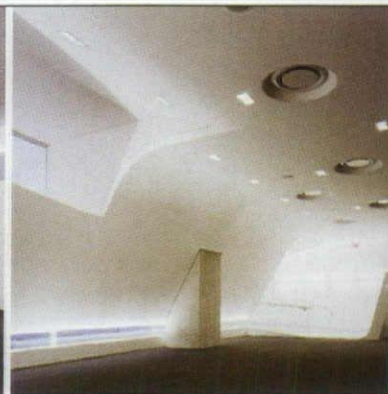
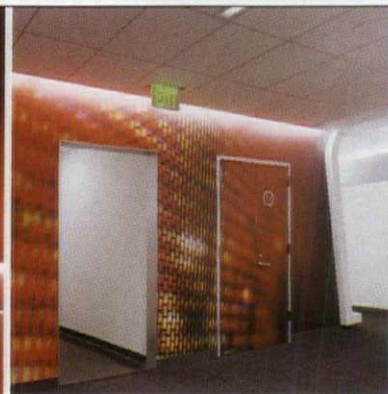
architect: Neil M Denari Architects, Inc. lighting design: Lighting Design Alliance photography: Benny Chan/Fotoworks



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Lighting Education: Who, What, and Where

THE IALD EDUCATION TRUST WAS ESTABLISHED IN 1999 TO promote the profession of lighting design by investing in and furthering the existence of lighting education programs. While it takes its name from the organization that conceived of it, the Trust is actually a stand-alone entity for tax and administrative purposes, independently raising revenue and determining how to spend it. The Trust has awarded over \$50,000 in scholarships since 1999. It also sponsors seminars for designers, students, and building owners interested in lighting design; conducts research; and provides programs around the country with teaching tools for the purpose of lighting education. The Trust has given out over 100 light meters in the last five years; this year, the organization is developing a program to donate optics kits, developed in conjunction with Holophane, to interested schools.

The following survey of lighting education programs provides the industry with a snapshot of what is available to students who wish to dedicate their educational years to the study of light. It is the second such survey; the first was conducted a decade ago by the IALD, before the existence of the Trust. In that time, two programs have been lost in California and Kansas, tuitions have gone up, and curriculums have changed; but the importance of

lighting education remains the same. Effective programs will provide the industry with its next generation of designers.

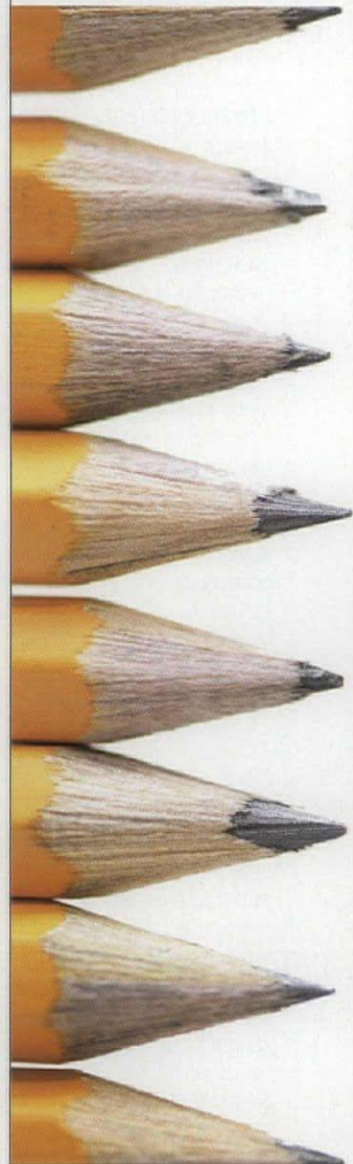
WHAT THIS SURVEY IS:

- An overview of schools with programs in architectural lighting design, engineering, or science.
- In this survey, an architectural lighting design program is defined as having at least five courses in lighting design and at least one instructor or professor who devotes the majority of his/her teaching time to lighting design. (These are referred to by the Trust as Tier 1; Tier 2 schools have programs with more than two lighting classes, but do not have a dedicated lighting degree or dedicated faculty.)
- Programs should offer a degree or certificate, bachelors or masters, or at least a major or minor in architectural lighting.
- This is a general guide to identify a starting point, and a sense of each program's offerings.

WHAT THIS SURVEY IS NOT:

An in-depth and detailed view of all lighting education offerings at the university level. The names of degrees, degree requirements, quarters versus semesters, course content, course credits systems, electives, and required courses varies at each school.

The IALD Education Trust's recent survey of lighting education programs offers incite into who, what, and where will produce the next generation of lighting designers.



LIGHTING DESIGN PROGRAMS

PARSONS SCHOOL OF DESIGN, New School University, New York City;

www.parsons.edu/architecture

DEGREE Master of Fine Art **DEPARTMENT** Architecture, Interior Design and Lighting

PROGRAM OVERVIEW The two-year, 64-credit MFA degree provides an interdisciplinary education in the intellectual, aesthetic, and technical aspects of lighting design. The MFA curriculum combines technical and design training with a rigorous study of the phenomenology, history, and evolving theories of light in regard to social practice. Students have four required electives in the graduate and undergraduate programs in architecture and interior design.

FACULTY/CONTACT Peter Wheelwright, Department Chair; pwheel@newschool.edu

TUITION \$32,000 (2004)

YEARLY GRADUATES 24

CURRICULUM **STUDIO 1:** Light, Vision, and Representation; Principles of Lighting; Light Perception and Culture 1; History of Architecture or Issues and Practices in Modern Architecture; **STUDIO 2:** Natural and Technological Light; Daylight & Sustainability; Influences of Light; Cultural Histories; **STUDIO 3:** Public Light/Private Practice; Thesis Preparation; Luminaire and Systems Technology; Luminaire Design; Multi-discipline Elective; Thesis Studio; Light Perception and Culture II; Professional Practice; Multi-discipline Elective

PENNSYLVANIA STATE UNIVERSITY, University Park, Pennsylvania; www.engr.psu.edu

DEGREES

Bachelor of Architectural Engineering
 Master of Engineering in Architectural Engineering
 Master of Architectural Engineering (integrated with the Bachelor degree)
 Master of Science in Architectural Engineering
 PhD in Architectural Engineering

DEPARTMENT Architectural Engineering

PROGRAM OVERVIEW Students in the lighting and electrical option of the Architectural Engineering undergraduate program have the skills and knowledge necessary to create high-quality lighting systems, and safe and effective electrical distribution systems. The lighting coursework consists of lectures, laboratory exercises, homework, and design projects, where students work both in teams and as individuals. Students apply many of the leading lighting and system design and analysis software tools, such as AGI-32, Lumen-Designer, Radiance, Lightscape, and Photopia.

FACULTY/CONTACT Richard Mistrick, rmistrick@psu.edu; Martin Moeck, mmoeck@engr.psu.edu

TUITION Approximately \$21,500 (non-Pennsylvania resident, 2004)

YEARLY GRADUATES Approximately 18 students per year in the Lighting/Electrical Option graduate with a Bachelor of Architectural Engineering. Typically, about six of these students also receive the Integrated Master of Architectural Engineering. Additionally, four to seven full-time Master of Engineering, Master of Science, and PhD students typically study lighting at the graduate level each year.

CURRICULUM Fundamentals of Electric and Illumination Systems; Basic Theory of Building Illumination; Advanced Architectural Illumination; Computer Aided; Lighting Design and Analysis; Senior Design Project I and II; Daylighting; Space and Light Theory; Luminous Flux Transfer; Luminaire Optics; Stage Lighting Design; Sensation and Perception; Experiential Psychology of Visual Perception

RENSSELAER POLYTECHNIC INSTITUTE, Lighting Research Center, Troy, New York; www.lrc.rpi.edu

DEGREES

Master of Science in Lighting (two-year, 48-credit program)
 Master of Science in Architectural Sciences, with a Concentration in Lighting (nine-month, 30-credit degree)
 PhD in Architectural Science, with a Concentration in Lighting

DEPARTMENT Lighting Research Center, School of Architecture

PROGRAM OVERVIEW The Lighting Research Center's mission is to advance the effective use of light and create a positive legacy of change for society and the environment. The program is the leading university-based research center devoted to lighting. Its research programs cover a range of activities, including both laboratory testing of lighting products and real-world demonstration and evaluation of lighting products and designs.

FACULTY/CONTACT Mark Rea, Director, ream@rpi.edu; Russ Leslie, Associate Director, leslir@rpi.edu; Dan Frering, Manager of Education, frerid@rpi.edu; Yukio Akashi, akashi@rpi.edu; Andrew Bierman, bierma2@rpi.edu; John Bullough, bulloj@rpi.edu; Mariana Figueiro, figuem@rpi.edu; Michele McColgan, mccolm@rpi.edu; Peter Morante, moranp@rpi.edu; Nadarajah Narendran, narenn2@rpi.edu; John Van Derlofske, vandej3@rpi.edu.

TUITION \$28,800 (2004-05)

YEARLY GRADUATES AVERAGE 8 to 10

CURRICULUM MASTER OF SCIENCE IN LIGHTING: Light (the Physics of Light); Lighting Design; Human Factors; Lighting Technologies and Applications; Light and Health; Lighting Research Design; Lighting Workshop; Master's Thesis; Leadership Seminar

CURRICULUM MASTER OF SCIENCE IN ARCHITECTURAL SCIENCES, WITH A CONCENTRATION IN LIGHTING: Light (The Physics of Light); Lighting Design; Human Factors; Advanced Project in Lighting I; Lighting Technologies and Applications; Light and Health; Lighting Research Design; Advanced Project in Lighting II

RYERSON UNIVERSITY, Toronto, Ontario, Canada; ce-online.ryerson.ca/ce/calendar/

DEGREE Graduate Certificate **DEPARTMENT** Communication and Design

PROGRAM OVERVIEW This multi-disciplinary certificate is designed to provide students with the broad knowledge base and wide skill range required as professionals in the lighting industry. Due to changes in the lighting industry, largely centered around increased legislative acts limiting energy budgets, there is a need for skilled lighting designers. Graduates of this program are working to design buildings, which are environmentally responsible and ergonomically sound, and with enhanced vision for health and safety.

FACULTY/CONTACT Gerry Cornwell, gerry@cornwell.ca

TUITION \$604 (C\$ per one-semester course)

YEARLY GRADUATES 8 to 12

CURRICULUM (SEVEN CREDITS REQUIRED FOR CERTIFICATE): Lighting Fundamentals; Human Factors in Lighting; Introduction to Lighting Design; Lighting Energy Management; Introduction to Daylighting Design; Advanced Lighting Design; Entertainment Lighting Practicum; Lighting Design Practicum; Lighting Research Practicum

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TEXAS CHRISTIAN UNIVERSITY, Fort Worth, Texas; www.tcu.edu

DEGREE Bachelor of Science in Interior Design, with a Lighting Minor **DEPARTMENT** Design, Merchandising, and Textiles
PROGRAM OVERVIEW TCU offers an accredited Interior design program with six studio design courses. The Lighting Minor is intended to enhance the design program by offering an interdisciplinary series of lighting courses that provides lighting education across the complete spectrum of experiences that a practicing interior designer might encounter in professional practice. Additionally, the Lighting Minor strengthens the studio design experience by adding lighting knowledge throughout the curriculum. Finally, the Lighting Minor emphasizes actual hands-on lighting experiences through theater courses and the Lighting for Visual Presentation class which includes the Lighting Designer in Residence series.

FACULTY/CONTACT Fred Oberkircher, f.oberkircher@tcu.edu; Laura Prestwood, l.prestwood@tcu.edu

TUITION \$19,700 per year

YEARLY GRADUATES 4 to 6

CURRICULUM (ALL OF THE FOLLOWING COUNT FOR THREE CREDITS) Lighting Fundamentals; Lighting for Visual Presentation; Lighting Thesis Arranged; Intro to Stage Lighting; Advanced Stage Lighting; Dance Lighting; Behavioral Psychology; Basic Photography; Light Color and Space; Light and Health

"More folks from every aspect of lighting need to have a continuing involvement. We need many more programs. I will know that the lighting industry education efforts have succeeded when I don't have to explain to people what a lighting designer is when they ask me what I do for a living." **HOWARD BRANDSTON**, LIGHTING PRACTITIONER AND EDUCATOR

"My personal view is that education has a dual role—as a highly positive networking tool, as well as a practical necessity. Once one looks at education from this perspective, it takes on greater importance for the industry as a whole." **MARY RUSHTON-BEALES**, DIRECTOR OF EDUCATION FOR THE IALD

For complete transcripts of interviews with Howard Brandston, Mary Rushton-Beales, and others on the topic of lighting education, visit www.archlighting.com.

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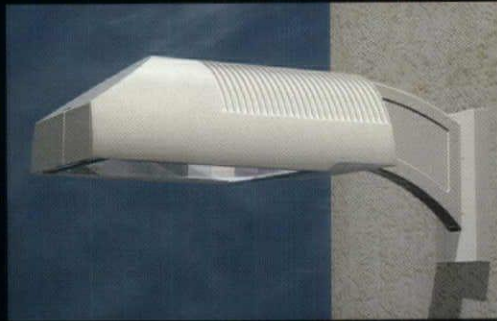
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DEGREES

Bachelor of Science in Architectural Engineering

Bachelor of Science in Civil Engineering

Master of Science in Civil Engineering

PhD in Civil Engineering

DEPARTMENT Civil, Environmental, and Architectural Engineering

PROGRAM OVERVIEW Students following the lighting and electrical option in the Architectural Engineering undergraduate curriculum take a minimum of five lighting courses. The lecture and laboratory course work helps students learn the theory of light, vision, and computations. The design and studio course work helps students learn design principles, apply theory, and solve lighting design problems. Lighting students have a paid summer internship after their third year which provides near-professional experience.

FACULTY/CONTACT David L. DiLaura, david.dilaura@colorado.edu; Robert Davis, robert.g.davis@colorado.edu

TUITION \$10,900 (non-Colorado resident, 2004)

YEARLY GRADUATES 15 graduate with a Bachelor of Science in Architectural Engineering in the lighting and electrical option; 2 graduate with the Master of Science with a lighting focus

CURRICULUM Illumination 1 (basic lighting engineering and design); Illumination 2 (lighting design); Lighting Engineering Laboratory; Luminous Radiative Transfer; Exterior Lighting Systems; Architectural Daylighting; Computer Graphics in Lighting; Lighting Systems Engineering; Lighting Equipment Design; Psychology of Visual Perception; Theater Lighting 1; Advanced Radiative Transfer; Senior Design Course



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DEGREES

Bachelor of Science in Architectural Engineering
 Master of Architectural Engineering
 Master of Engineering in Architectural Engineering
 PhD in Engineering

PROGRAM Architectural Engineering

UNDERGRADUATE PROGRAM OVERVIEW Architectural Engineering is the engineering design of buildings. Students have the option to specialize in either the design of building structural systems, building mechanical and acoustical systems, or building lighting and electrical systems. The first two years are common to all three and include the same math and science courses found in all engineering programs. The intent of the AE program is to develop both breadth and depth. Students are required to have a good understanding of building systems, while also having a specialized focus in their chosen option areas.

FACULTY/CONTACT Kevin W. Houser, khouser@unlnotes.unl.edu; Dale K. Tiller, dtiller@unlnotes.unl.edu; Clarence E. Waters, cwaters@unlnotes.unl.edu

TUITION www.unl.edu/regrec/registration/tuition.shtml

CURRICULUM Lighting Fundamentals; Lighting II: Theory, Design and Application; Interdisciplinary Team Design Project; Daylighting; Light Sources; Lighting Metrics; Color; Behavioral Sciences for Lighting Research; Psychological Aspects of Lighting; Current Research in Illuminating Engineering

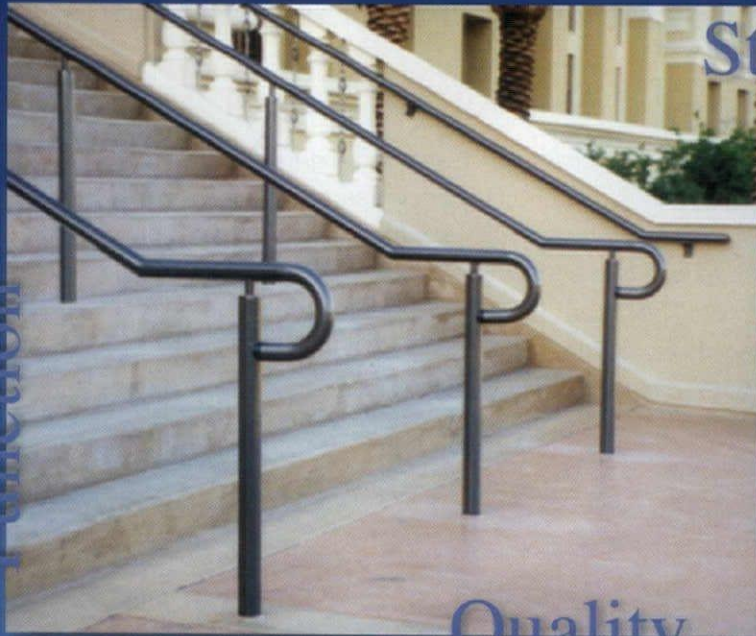
SCHOOLS WITH MORE THAN TWO LIGHTING CLASSES, (part of Tier 2)

- Cal Poly SLO: Five lighting classes in Architecture, Margot McDonald 805.756.1298
- Kansas State: Three classes in Architectural Engineering, John Lewis-Smith, 785.532.5992
- Lawrence Technical University, Michigan: Four classes in Interiors, Virginia North 248.204.2848
- University of Kansas: Four classes in Architecture, Thomas E. Glavinich, 785.864.3435
- University of Wisconsin, Madison: Six classes in Theater, Linda Essig 608.263.3934
- University of Florida, Gainesville: Two in Architecture, seven in Theater, S. Kaye 352.392.2038; two in Interiors, M. Gold 352.392.0215

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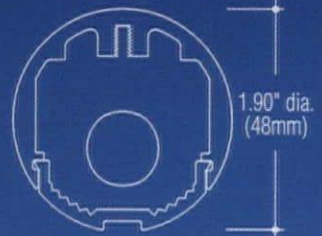
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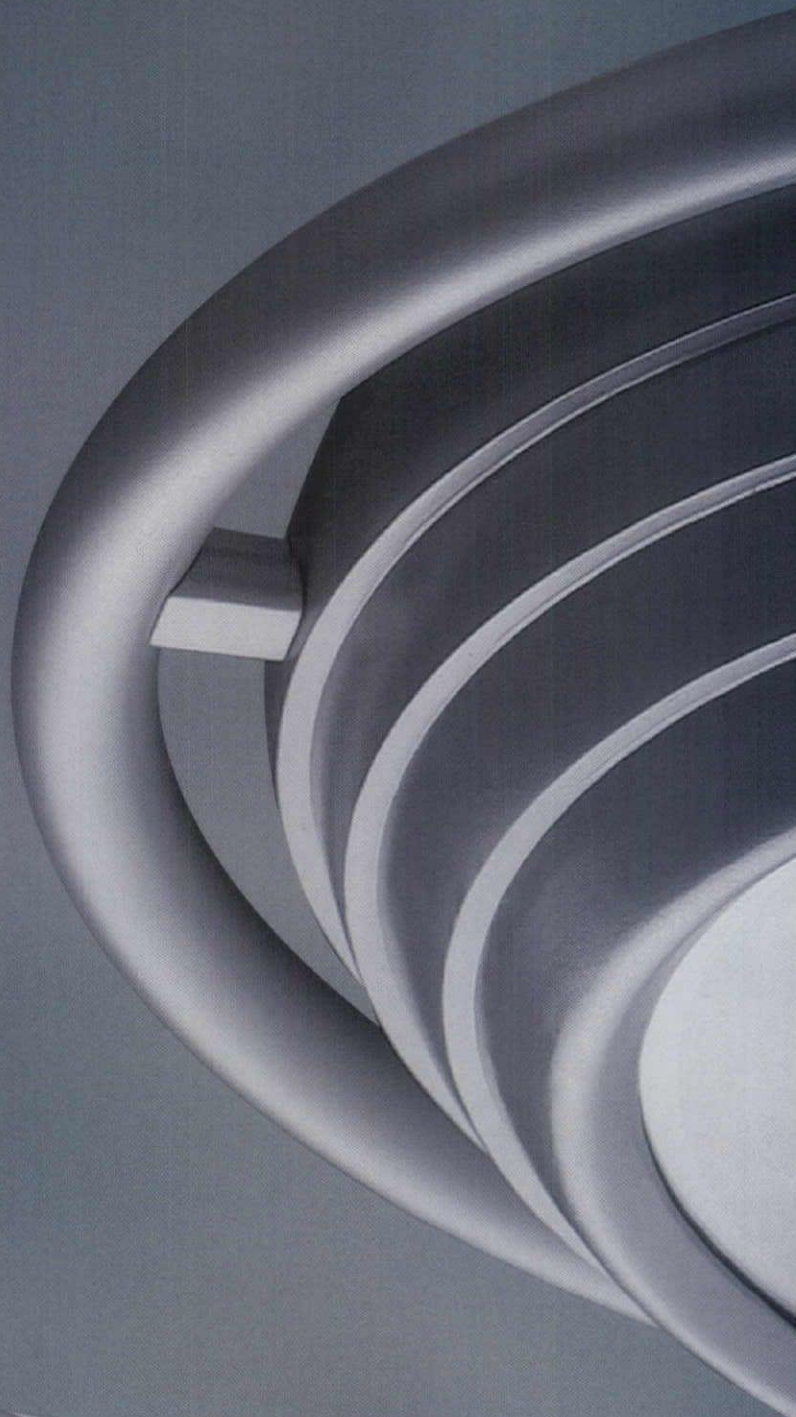




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WHEN I MOVED TO NEW YORK JUST OVER A DECADE AGO, STRAIGHT OUT OF architecture school, I decided to wait one year before I joined a museum. The idea was to see which institution I visited most often in order to spend my beginner's salary wisely. It became clear very quickly that I would not have to wait a full year: the place I kept revisiting was the Museum of Modern Art. Certainly its architecture department and architecturally focused exhibits had a lot to do with my selection, but it was also the way in which the painting, drawing, photography, and film collections presented art in an interdisciplinary way.

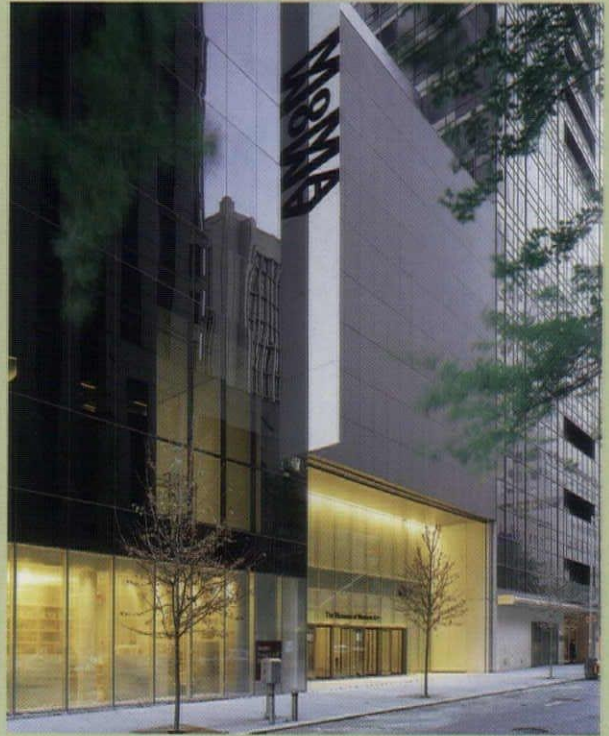
I have not yet developed a new relationship with the complex of buildings that opened last November. Two visits compared to 10 year's worth—it will take some time to relearn my path of movement in the new museum. And it is not just about reconnecting with the space and experiencing the art. I spent my first visit trying to find signature pieces, along with my favorites, only to realize that the collection is completely reorganized and includes many new acquisitions.

It seems odd that an institution with a heritage of breaking new ground, and pushing boundaries in the art world, should choose such a quiet architectural statement for its new home. The elaborate selection process for an architect included several heavyweights, so it was a surprise when the museum chose Japanese architect Yoshio Taniguchi for the commission. Well known in his native country with several museums to his credit, MoMA would be his first commission in the United States. In an era of statement museums like Bilbao, Taniguchi was famously quoted as saying he wanted to create an invisible architecture that would let the art speak. Unfortunately, at times, this "invisibleness" reads too starkly as indifference and creates several impersonal moments: for example, the 110-foot-tall atrium. This space features Barnett Newman's *Broken Obelisk*, a 25-foot-tall Cor-Ten steel sculpture of an upside-down obelisk balancing on the point of a small pyramid. Monet's *Water Lilies* and other large-scale works grace the surrounding walls, but it is not a place that makes you want to stay and look at the art. With views beyond into other galleries, and visitors "people-watching" from the bridge overpasses, the space is abuzz with noise, not the contemplative quiet of an art gallery.

The lighting—a collection of track spotlights, recessed can-lights, and daylight—does what it should. In its subtleness it supports the architect's vision of a subdued architecture. It is not the lighting's role or responsibility to make a statement. And yet these oversized spaces give way to a few beautifully articulated and intimate moments. One is the area just off the main lobby, that looks out to the sculpture garden—an intermediate space with a shallow stair that has a residential quality.

In his remarks at the press preview, museum director Glenn Lowry explained that since its inception, the museum has always been a laboratory in which the public can participate. Part of the museum's mission is to present the collection in new and innovative ways, and to suggest ways to think about the art of our time. At the moment, the new museum is like an elegantly reserved stranger. I hope that overtime she finds a way to lighten up, and show her true colors. **ELIZABETH DONOFF**

DESIGN ARCHITECT: Taniguchi and Associates, Tokyo; **EXECUTIVE ARCHITECT:** Kohn Pederson Fox, New York City; **LIGHTING CONSULTANT:** George Sexton Associates, Washington, D.C.; **PHOTOS:** Timothy Hursley, courtesy of MoMA.







At the Semiramus in Athens, color-changing LEDs sandwiched between pink glass and a white wall create an array of "sunset" colors, giving guests a warm glow. Room numbers are a thing of the past at Semiramus; here, guests locate their room using symbols, which light up on the front desk panel when they have a message (above). Once in their room, they can view the scenery from balconies of backlit green-tinted glass (facing page).

in the pink

COLORED GLASS AND LIGHT COMBINE TO CREATE A JUICY HOTEL EXPERIENCE.

THE 2004 OLYMPICS MAY BE OVER, BUT THE HOST CITY OF ATHENS HAS SOME wonderful architecture (an updated sports stadium by Santiago Calatrava, for example) as a result—and at least one very cool hotel. With interiors designed by Karim Rashid and a lively lighting concept crafted by New York City firm Focus Lighting, the 52-room Semiramus, which opened for the Olympics last summer, seems to make a stronger statement than even gathering 202 countries and 11,000 athletes together in one city did. The message: fun, fun, fun.

Much of the boutique hotel's impact has to do with the juicy colors that seem to flow over and beyond the structural boundaries—through balconies, out the front entrance, up and down walls, and across the ceiling plane. This effect is a result of light's interaction with the colored glass that exists throughout. The most apparent example of their communion is the four stories of balconies visible from the exterior. Wrapped with green-tinted glass, the guest-room lookouts interact playfully with sunlight during the day; at night, backlit by 9W fluorescent steplights located on either side of the balcony door, the lemony silhouette of the table and chairs suggest the trendy hospitality inside.



Backlit with blue-gel fluorescents, the fritted-glass floor that feeds visitors into the lobby continues the project's colorful alliance of glass and light. Around the white cutout of the reception desk, a lightly frosted glass wall—up and downlighted with LEDs—slowly rotates through a color cycle, as do LED-illuminated ceiling slots that stretch across the lobby. "These are soft, beautiful colors," says Paul Gregory, principal designer. "They are the

colors of sunset when the sun is coming through at a low angle and everyone has a warm, rich glow. People look good because of all the pink." Indeed, under Rashid's direction, pink became the color of choice throughout the space, such as in the second-floor lounge area where a rose-tinted glass wall faces an amber glass railing. Even the cantilevered bedside tables are fabricated from pink glass. "Karim wanted to be sure that pink would be the overriding factor, which

I didn't agree with immediately—I thought it would be too pink—but it worked," says Gregory, who notes that the filter is mild enough that blues and lavenders can come through. "We can get anything with a little red in it."

Quirky details, brought to the fore with light, contribute to the Semiramus's unique character. Each guest room in the hotel has



The curvaceous detail in the second-floor lounge ceiling is actually a luminaire, intended to look like "stars, with flickering lights." Fiber optic points are lit with an easily accessible metal halide source. Incandescent fixtures recessed in the wall uplight the disco-like ceiling element.

its own symbol, rather than a room number; these appear as backlit glass cutouts at the front desk. If a guest has a message, the symbol corresponding to his or her room will light up. Communication is taken to a new level, not just here but throughout the hotel. Hanging paper "do not disturb" signs are rendered obsolete by LED "message boards" on the floor in front of each guest room, which tie back into and deliver the guests' wish list to a central switchboard. Wayfinding was also considered in the design, and again interpreted specifically with light. Each of the four floors has a dedicated color—lime, pink, orange, and white—which the designers incorporated by backlighting colored acrylic lenses, which are recessed in the ceiling, with white LEDs. (Unlike the lobby, the colored lighting effect in the hallways is static. The slot in the ceiling plane was originally intended to not only light the hallway, but to actually lead guests to their rooms. The keycard would trigger a sensor in the luminaire that would then light the distance to the guest's room. While this element was cut for budgetary reasons, the wiring is in place, should the hotel want to implement the idea.

The lighting design at Semiramus is obviously inclined toward LEDs, but this is because the technology was "right" for the reality of the project. "The LED presence is strong, but not just for the purpose of having LEDs," says Gregory. "We didn't have a lot of room in the ceiling, for example, so what could we put up there that would fit in under 2 inches and provide an even, glowing band? With fluorescent, we wouldn't be able to get our fin-

gers in the slot to remove the lamp and there would be a socket shadow." Where LEDs are used in the lobby, it became a question of maintenance, since the color-changing luminaires would be sealed into the wall—a scenario familiar to the designer from his work on Morimoto restaurant in Philadelphia. "We sealed in the LEDs at Morimoto," says Gregory. "It has been four years and they still work great." **EMILIE W. SOMMERHOFF**

DETAILS


PROJECT Semiramus Hotel, Athens

INTERIOR DESIGNER Karim Rashid Inc., New York City

LIGHTING DESIGNER Focus Lighting, New York City

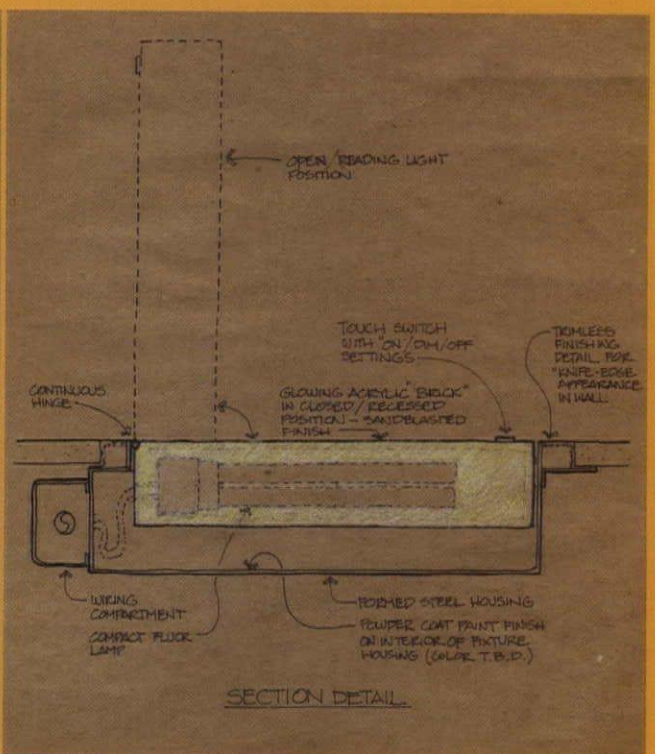
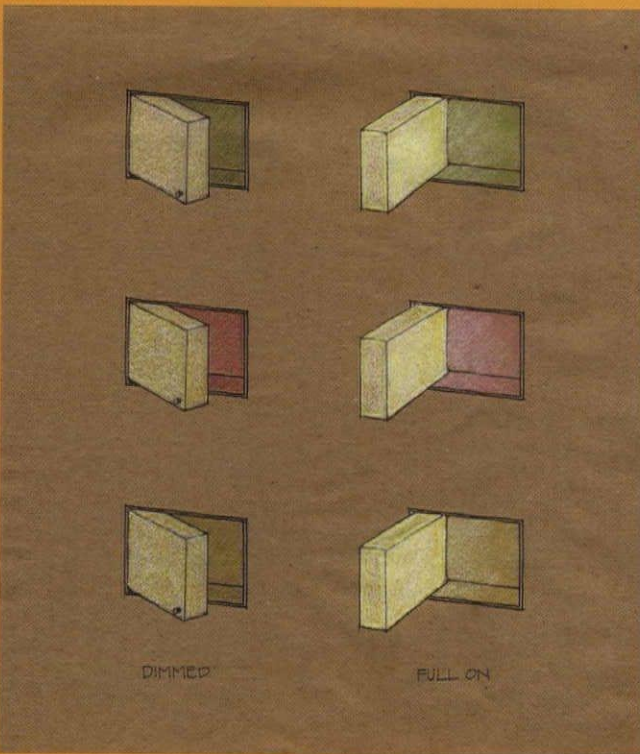
PHOTOGRAPHER Jennifer Alexander/Focus Lighting, except where noted

MANUFACTURERS FiberPro Solutions (custom lighting; fiber optic installation; single and color-changing LEDs); Ghidini Neo; Unilamp

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The guest rooms are a special experience. Above the beds, installations by New York artist Megan Lang are backlit to create an interesting detail and comfortable ambient light. Focus Lighting designed the hinged reading lamps on either side of the bed, which are lamped with fluorescents. Normally dimmed to 50 percent, the sconces reach full brightness when pivoted outward (design drawings, below). And the best part: The bathrooms—also encased in colored glass—are well lit, with nine different luminaires. “They went nuts, asking how we could have nine lights,” says Gregory. “They thought it was a ridiculous amount of light, but I recently saw a speaker at the Hospitality Design show, who said the biggest change in hotel bathrooms was additional light.” That fact alone would make the high price tag worthwhile to any woman who has tried to apply makeup in a standard hotel bathroom.



SKETCHES COURTESY FOCUS LIGHTING





Madison, Wisconsin's Overture Center for the Arts combines existing and new facilities. The landmarked 1920's façade of the rotunda (above right) is capped with a glass dome that subtly mirrors the Capitol building's dome two blocks north, while the new concert hall addition becomes a sparkling centerpiece for the city at night (above left). Lighting design firm Cline Bettridge Bernstein's custom ceiling-suspended pendants provide an elegant illuminated accent to the spectacle of the 88-foot-high lobby defined by a curtain wall of 91 low-iron white glass panels (facing page).

UNIFIED THROUGH LIGHT

A coordinated system of illuminating spaces from lobby to theater enlivens a performing arts center.

SOON AFTER CESAR PELLI WON THE COMMISSION TO DESIGN MADISON,

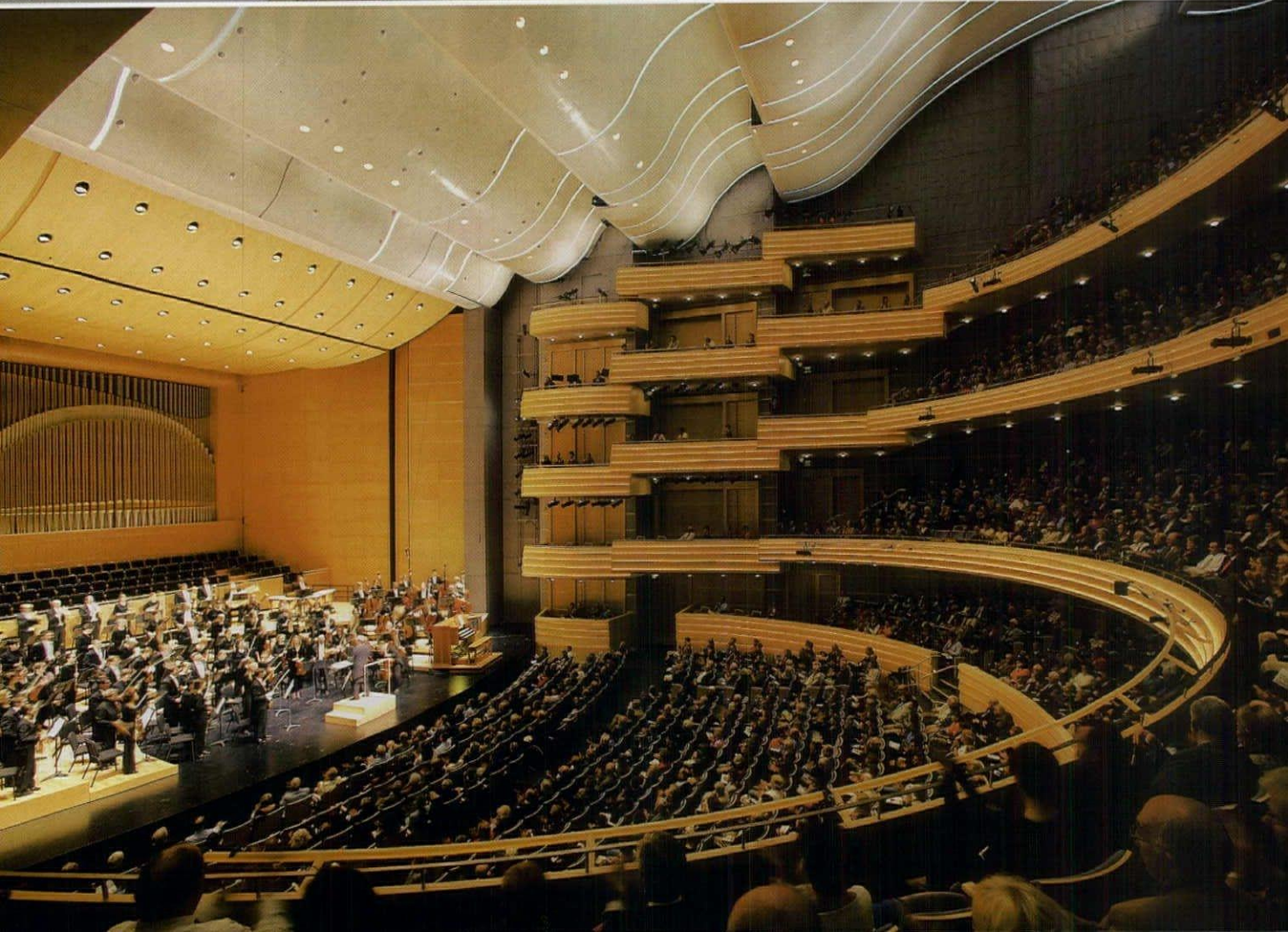
Wisconsin's Overture Center for the Arts—a downtown, city-block-sized multi-arts complex that knits together an architecturally diverse array of existing structures and new spaces—the Argentine-native called upon his longtime collaborator Francesca Bettridge, principal of Manhattan's Cline Bettridge Bernstein Lighting Design (CBBLD). This was not the first collaboration for the pair, who have a portfolio of several projects to their credit, including arts facilities from Duluth, Minnesota, to Osaka, Japan. Knowing each other's working method proved key in realizing (along with Potter, Lawson & Flad, as architect of record) Overture's lighting design, an illumination system that serves the building's architectural intent and signifies its civic function.

In lighting this urban center, which cost more than \$200 million, and was funded with a single gift from a husband-and-wife client, Pelli, PLF and CBBLD worked tirelessly and intimately with their client to develop the lighting program for the first phase of Overture's main areas—the rotunda, the glass-enclosed lobby, and the concert hall. (A second phase of this performing and visual arts complex is slated for completion in 2006.) From the design team's research emerged solutions to visually link the diversely styled spaces by replicating variations of the fixture design, white light quality, and colored light programming. In doing so, the designers transformed this building into a vehicle for conveying facility function, enhancing visitor circulation, and engaging Madison residents.

SKYLINE BEACON

In Overture's three-floor rotunda, the signature entrance and the nodal hub where the complex's numerous corridors intersect, the dramatic experience of theater-going takes shape. For this concentric-shaped space, CBBLD devised a four-tier arrangement of low-voltage, color-changing LED strip lights. Bettridge neatly tucked this theatrical element within parapet coves to accentuate the rotunda's cylindrical dimension. The colored lighting visually connects visitors to the theatrical experience and resembles the cove-embedded triphosphor ribbon of neon light encircling the rotunda staircase adjacent to the space.

After creating full-scale mock-ups to study the lighting effect, Bettridge selected a DMX system and iPlayer 2 to power the rotunda's dimmer-controlled LEDs, which can produce as many as 20,000 colors in a multitude of combinations. Together, these control systems play two-hour-long color sequences that display an array of vertical cross-fades appropriate for an evening's specific program, an event's particular theme, or a special performance in the basement-level Rotunda Stage, visible through an aperture in the rotunda's floor. These lighting programs add character to Madison's low-lying skyline with a dramatic pageant of continuous color primarily ranging from blue to lavender to white. To develop a color scheme that tied the complex together with a contemporary palette appropriate to Madison and respected each space's function, the client hired New York City colorist Donald



Kaufman, whose ties to Madison date back to his college days. The rotunda's color scheme was devised to accentuate the architecture and signify—through a subtly shifting palette—the progression of an evening's events, from pre-performance to intermission to post-performance. "The lighting can become any color," explains Bettridge. "Since it is smart lighting it can change, getting more intense as it moves up and down or vertically."

STREETSCAPE JEWEL

Devising a program to light Pelli's north-facing lobby proved most challenging. This signature space—drenched in natural light during the day, sparkling on the streetscape at night—prepares visitors to transition from the everyday urban world into the special environment of the concert hall. To warm the minimalist interior, CBBLD created soft pools of light generated by PAR56 accent recessed downlights. The lighting firm also designed a custom ceiling-suspended pendant (see "Luminous Jewelry," page 44) comprised of five layers of overlapping white glass, each shaped like a billowing ribbon, and positioned in an alternating horizontal and vertical pattern. The fixture creates a playful sparkle that contrasts with the lobby's austere rectilinear dimensions. More than 100 strategically positioned pendants throughout the lobby soften the immense space to create a more human-oriented scale, and transform it into an elegant public setting where visitors can converge for informal gatherings and formal functions.

To light the transition lobbies between the actual lobby and the concert hall, Bettridge developed a wave-shaped glass rod fixture that resembles the billowing ribbon of glass adorning the lobby pendants and the ribbon of light that defines the rotunda staircase. These fixtures resolve what Pelli senior associate Anne

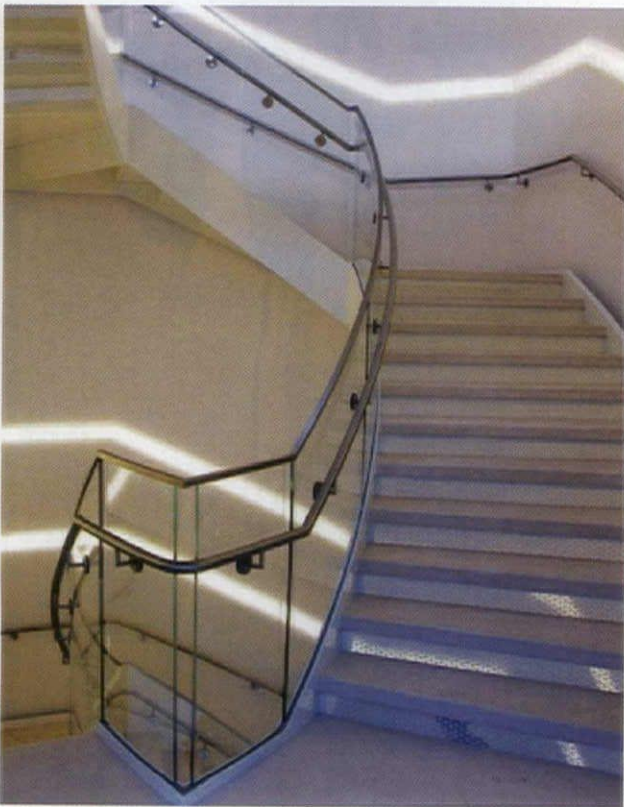
Gatling Haynes says was the challenge in lighting this building: to develop a balanced and unified system of illuminating spaces with both natural and electric light from lobby to theater.

ORCHESTRAL ILLUMINATION

Once inside the 2,253-seat acoustical chamber, visitors encounter a cornucopia of curves recalling Bettridge's billowing ribbon design, most notable in the parapets that enclose the balconies, and in the undulating ceiling panels that channel sound and conceal the catwalk and the quartz floodlights. In addition to the dimmer-controlled PAR56 accent fixtures and crystal-trimmed downlights (customized to maintain acoustical integrity) that provide general lighting, the hall glows with the help of low-voltage tube lights tucked inside the parapet coves. To accentuate the ceiling and bring a subtle and continuous variation, Bettridge added fiber optic lighting that is powered by fanless illuminators to eliminate noise and programmed to mirror the rotunda's lighting scenes. As the rotunda's sequence plays out, so too does the fiber optic color scheme in the concert hall, in unison with the rotunda, creating a visual link between activity in the hall and life within the complex. It is a link similar to the relationship established by the lobby's glass curtain wall: Visually, it connects the interior and exterior; functionally, it operates as a proscenium, where the city becomes a living drama for theater-goers and the complex becomes a living sculptural form for pedestrians.

The designers credit their client with pushing them to move beyond normal expectations and to generate innovative lighting solutions that help knit together Overture's diverse series of spaces. "No one on this team," says Haynes, "will ever have a collaborative experience like this again." **JOSEPH DENNIS KELLY II**

The rotunda is the hub of the entire Overture complex. At each floor level overlooking the space, low-voltage, color-changing LED striplights ring the parapet coves. Seating areas and galleries allow theater-goers a place to view the color-changing effects (facing page, top left and right). Inside the concert hall, the ceiling billows with fiber optic ribbons of light (facing page, bottom). This ribbon effect is echoed in the stair adjacent to the rotunda, whose signature feature is comprised of cove-embedded neon light (below).



DETAILS

PROJECT Overture Center for the Arts, Madison, Wisconsin
ARCHITECT Cesar Pelli & Associates, New Haven, Connecticut
ARCHITECT OF RECORD Potter Lawson & Flad, Madison, Wisconsin
LIGHTING DESIGNER Cline Bettridge Bernstein, New York City
PHOTOGRAPHER Jeff Goldberg/Esto, Brent Nicastro (this page)

MANUFACTURERS

Bega
 Cole Lighting
 Color Kinetics
 Edison Price
 Elliptipar
 ETC
 Hydrel
 Legion
 Leucos
 Lighting Services Inc
 Louis Poulsen
 Lumenyte/Drama Lighting
 Q-Tran
 Sirmos
 Specialty Lighting
 Starfire Lighting
 Winona Lighting
 Zumtobel Staff Lighting

APPLICATION

Seat-mounted LED aisle lights
 Wall-mounted theater stiplights
 Color-changing LEDs in rotunda
 Recessed fixtures throughout
 Lobby wall washers, catwalk uplights
 Building controls
 In-grade uplights at entry
 Elevator fluorescent striplights
 Decorative trim on theater downlights
 Gallery wallwashers and accent lights
 Fixtures in rotunda and donor lounge
 Fiber optic ceiling slots in theater
 Remote transformers
 Resin-molded lens in rotunda stair
 Wallwash art lighting
 Low-voltage striplighting in balconies
 Custom lobby pendants
 MR downlights in rotunda

LUMINOUS JEWELRY

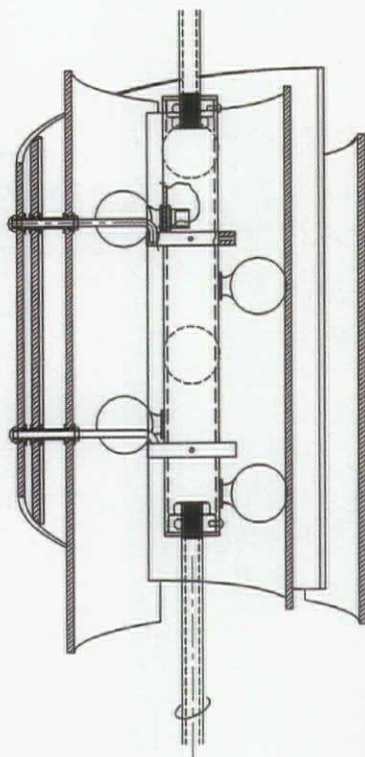
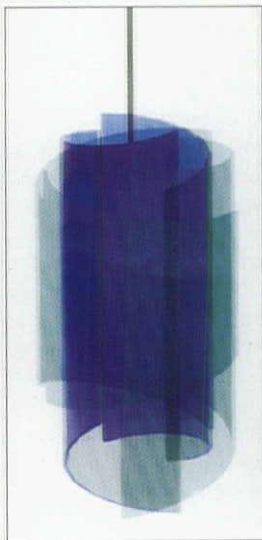
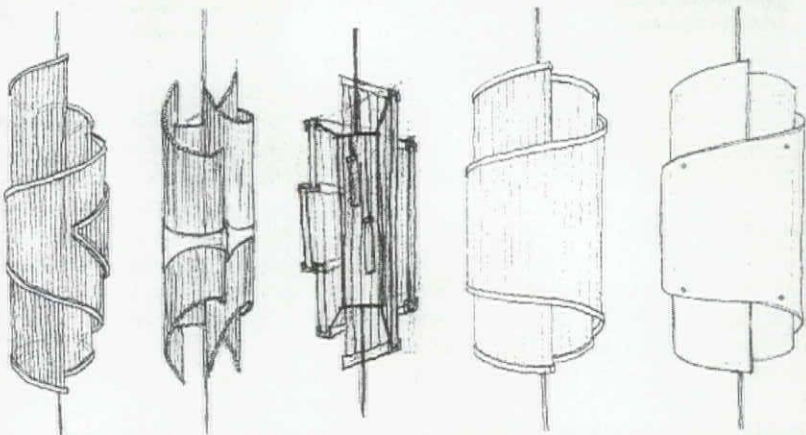
More than 100 pendants adorn Overture's lobby, and aptly symbolize the commitment of the project's client to realize every detail with the best solution.

Working closely with architect Cesar Pelli and CBBLD principal Francesca Bettridge, in an effort that lasted nearly two years, the client pushed the designers to produce an engaging lighting system. Following Pelli's dictate that forbid attaching fixtures to the glass curtain wall and stone-clad interior columns, Bettridge devised a network of sconce-size ceiling-suspended, low-voltage pendants, a fixture comprised of five layers of overlapping glass that she describes as interior jewelry.

Bettridge explained her design to Pelli's team and the client by showing pictures of actual fixtures alongside sketches and computer models of her preliminary ideas. She found specific inspiration in a clear and frosted glass sculpture by Louis Poulsen titled "PH/Septima" (circa 1927), a spherical object that led to the creation of his metal artichokes.

The design was refined with the help of Winona Lighting as the cardboard models were transformed into working mock-ups, ultimately arriving at the final design, which is illuminated by six 25W white G lamps. After the client approved the pendant design, Bettridge turned her attention to finding—with Winona's assistance—an iron-free glass that would produce the white light her client desired. Only after much searching did Bettridge discover Spectrum Glass, which then worked under her direction with Canadian glass fabricator MonX. Together they carefully molded the customized glass into the billowing ribbons that Bettridge designed, and Winona manufactured, as an alternating horizontal and vertical pattern that Bettridge found produced the best sparkle possible.

What emerges from this effort is a pendant eliciting a playfulness and an elegance that contrasts and complements the lobby's formal and austere design, and visually unifies this multi-purpose complex arts center into a single civic structure. **JOSEPH DENNIS KELLY II**





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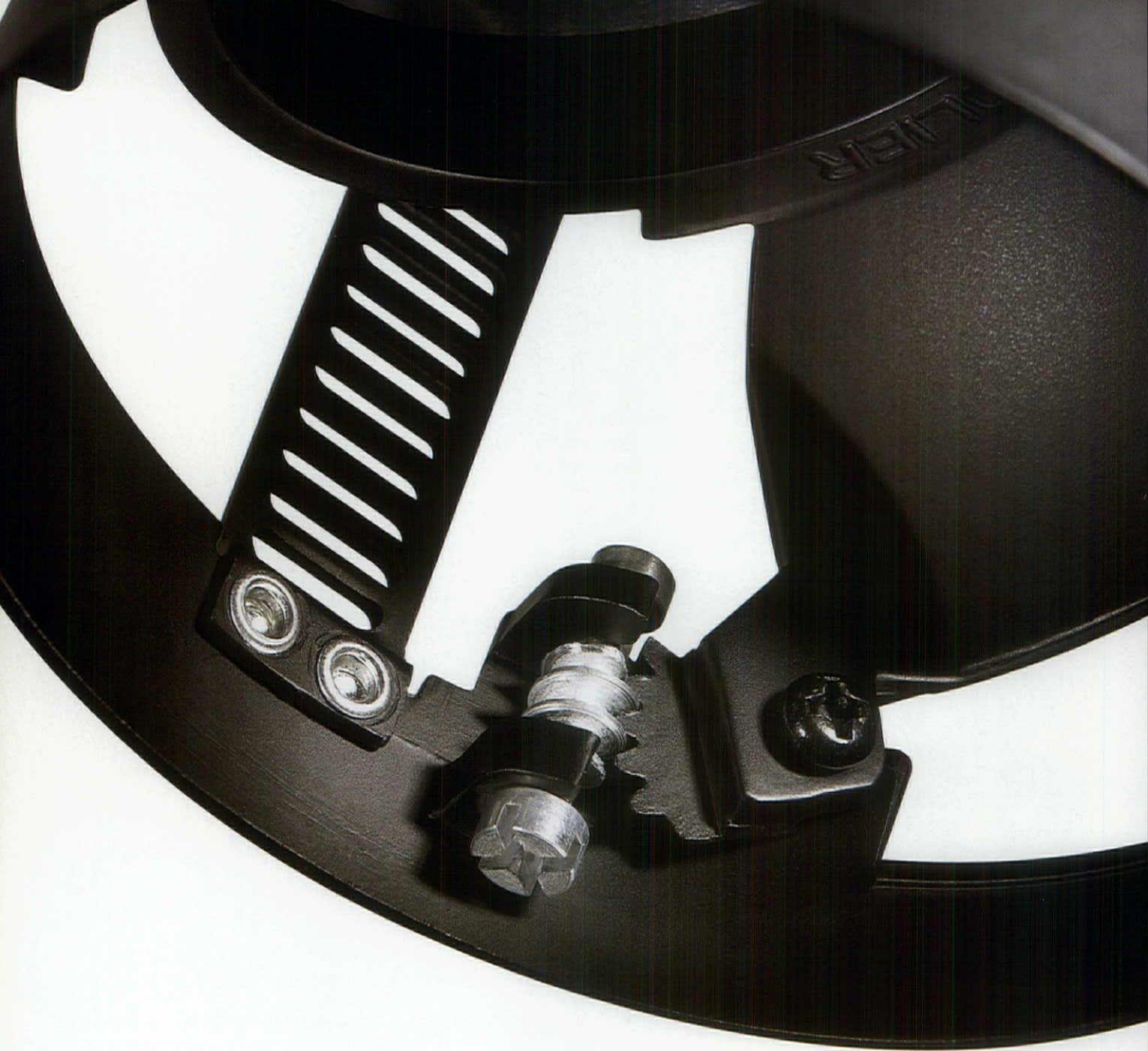


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MCTC PARKING GARAGE, MINNEAPOLIS

CHALLENGE Typically, renovating an urban parking structure allows limited opportunity for a strong architectural statement, never mind an innovative lighting solution. So when asked to expand a parking garage for the Minneapolis Community and Technical College (MCTC), the architect and lighting consultant recognized an opportunity to overcome this long-standing dilemma.

ARCHITECTURAL AND LIGHTING SOLUTION The team of Bentz/Thompson/Rietow Architects of Minneapolis, with lighting design firm Schuler Shook, also of Minneapolis, created user-friendly drama via a lighting effect that camouflages the existing parking ramp and emphasizes the site as a gateway to the area. (The campus is located in downtown Minneapolis on Hennepin Avenue, a major access thoroughfare for the city's theater district.)

To accommodate a growing student body, MCTC built a fourth level atop the parking structure, originally constructed in the 1970s, to provide 220 additional parking spaces. The school's administration also saw the expansion as an opportunity to link the facility visually with the adjacent campus. "First, the exposed concrete spandrel panels, which had turned a mottled gray over the years, were stained to match the light yellow brick accent bands of the classroom and administrative building across the street," says design principal R. Bruce Cornwall of Bentz/Thompson/Rietow. Painted steel, anodized aluminum, brick, and glass materials also recall details from other campus buildings.

Most parking garages are wrapped in solid opaque materials that give them a foreboding fortress-like appearance. "Our solution was to use light in combination with building materials that would emphasize luminance and make the structure seem less bulky," says Cornwall.

To achieve this, anodized-aluminum industrial grating was turned on its end to create the skin and row of "light columns" that march down the front façade of the facility. The panels are fastened to painted steel brackets, and the light columns topped with frosted acrylic discs. Placed at the columns and gratings are 400W metal halide floodlights. Their glow reflects off the metal skin, giving it a silvery patina that spills onto the sidewalk.

Schuler Shook partner Michael DiBlasi says that the lighting plan was based on an overall design program to make the building look attractive both day and evening. The bar grating and the glass caps atop the columns are relatively common building materials that the designers used creatively. "The bar grating acts like scrim on a theater stage," DiBlasi points out. "Depending on the angle of the source, its surface reflects the light in different ways."

All former high-pressure sodium lamps were removed and the structure uniformly illuminated with metal halide lamps from Philips, housed in fixtures from BD Lighting and Kim. "This transformed the structure in the evening to blend with two adjacent buildings that we had previously lit with metal halide—the Basilica of St. Mary and the library, creating a ribbon of pleasing white light along the streetscape," DiBlasi notes. To accommodate changes in the building's elevations, four different wattage lamps are in use: 70, 175, 275, and 400, the latter as a tight spot for the columns.

"The discs capture the projected light from the base of the columns to create a halo," explains Cornwall. He notes that the "halo" reference works well with the nearby basilica, which the architect complemented in aspects of the structure's design: The curved form of the grillwork references the dome and stone detailing of the historic landmark, while its transparency both enables a view of the church and hides the mundane parking structure.

Anchoring the façade are stair towers topped with green channel glass. Inside, 175W metal halide uplight/downlight wall sconces are perceived as softly diffused beacons that establish the building's new contemporary presence in the surrounding cityscape. Pole lights, 25 feet tall and fitted with 400W metal halide, provide illumination for the open top level. At the entrance are coordinating 12-foot-high pole lights with 250W metal halide. Existing interior pendant-mount luminaires were refitted with 175W metal halide and feature a vandal-resistant acrylic lens. Decorative wall sconces provide accent illumination. To address the safety concerns associated with parking facilities, the design actually exceeded code requirements.

MCTC president Phil Davis praises the finished product. "The project complements our new library and creates a striking gateway to the campus and downtown Minneapolis." **VILMA BARR**

DETAILS

PROJECT | Minneapolis Community and Technical College parking garage, Minneapolis

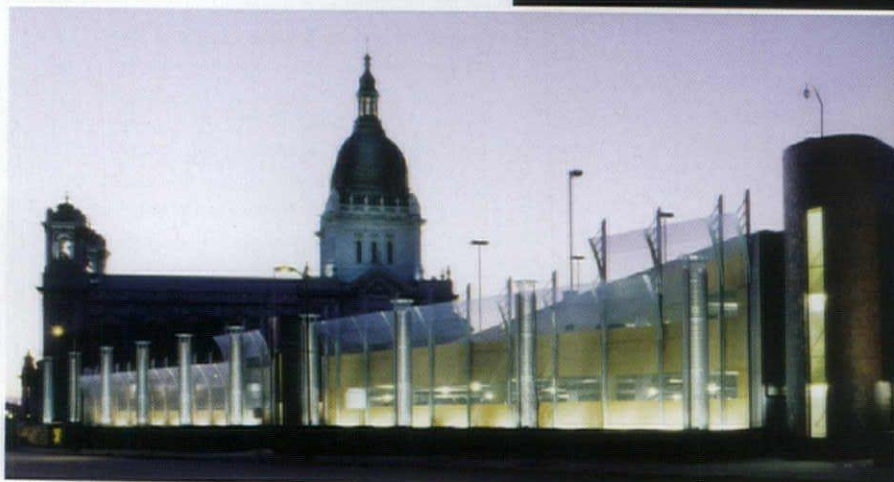
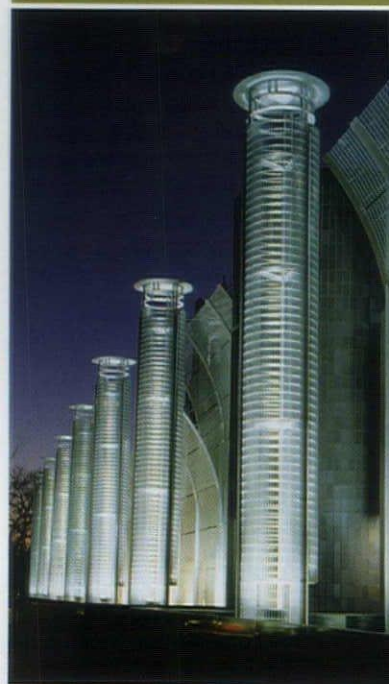
CLIENT | State of Minnesota

ARCHITECT | Bentz/Thompson/Rietow Architects, Minneapolis

LIGHTING CONSULTANT | Schuler Shook, Minneapolis

PHOTOGRAPHER | Philip Prowse

MANUFACTURERS | BD Lighting, Condaz, Gardco, Kim, Lithonia, Lumark, Profilitec, Philips, Quality Lighting



RODGERS GARDEN, ALEXANDRIA, VIRGINIA

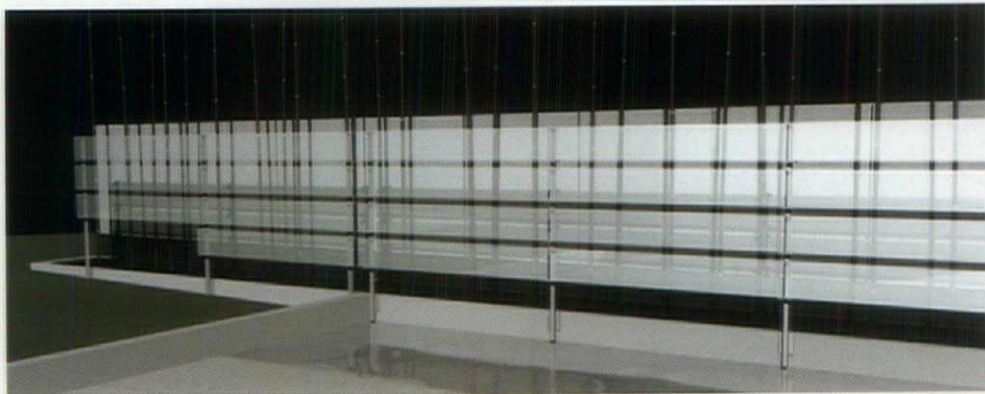
DETAILS

PROJECT | Rodgers Garden, Alexandria, Virginia

DESIGN TEAM | ColePrévost (architecture); WorkshopDC (landscape architecture); Tom Lindblom (lighting design); Brian Walsh (lighting programming)

PHOTOGRAPHER | Cristian Molina

MANUFACTURERS | BK Lighting, Color Kinetics



CHALLENGE Different sites present different challenges. In the case of this small residential corner lot in Alexandria, Virginia, a suburb just across the Potomac River from Washington, D.C., the client wanted to hide a group of heavy power lines that run along the edge of his property on a shared lot line. While some design solutions might have responded simply, this project involved an innovative solution that accomplishes the utilitarian task of screening the wires by creating a sculptural and landscaped edge for the property, while remaining neighborly.

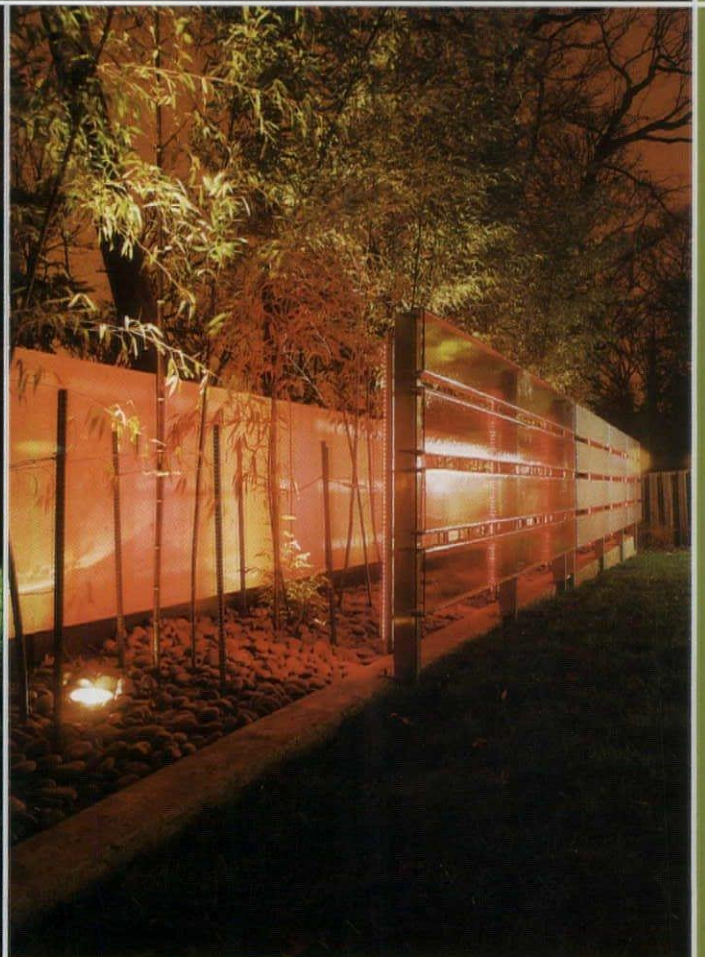
ARCHITECTURAL AND LIGHTING SOLUTION This was not the first collaboration between client and architect, nor among the members of the design team that included architectural, landscape, and lighting professionals. "It is a charged and fluid working process," explains Robert Cole, principal of ColePrévost, the D.C. architectural firm responsible for the project. Acknowledging his enthusiastic and informed client, Cole explains, "He often appears at design meetings with a large filing box stuffed with clippings from magazines, newspapers, books, and digital images he has snapped from his travels. We show him images of where we are in the thought-process and he responds." In addition to creating a screen for the wires, there was also the need to remediate a drainage issue on the site: the clay-saturated soil creates heavy water run-off after it rains.

Since a wall would not necessarily hide the wires or remedy the drainage problem, Cole sought another solution, exploring the use of plant materials. Working with landscape architects Rhonda and Doug Dahlkemper, principals of their own practice called WorkshopDC, Cole chose a fast-growing, exotic bamboo, the stem of which turns shiny-black with green flecks and reaches a mature height of between 26 to 30 feet. To facilitate the growth of this plant material, yet temper its invasive characteristics, the team designed a reinforced garden bed measur-

ing 4 1/2 feet deep, 4 1/2 feet wide, and 45 feet long. When the client mentioned he would only see the space at night after work, Cole called in lighting designer Tom Lindblom.

The fifth collaboration in a series of small projects with the client, Cole saw this outdoor space's potential to become a "zen-like garden feature" and a way to inform the design direction for the client's new house on the same site. The garden-fence area uses a sophisticated series of textured materials. Mexican river gravel anchors the bamboo in the ground plane, providing another layer to address the drainage issue, while in-ground floodlights with an MR16 lamp and honeycomb baffle graze the bamboo from below. In front of the bamboo, a wall of structural channel glass panels, turned horizontally and modulated in sections, provides a visual base for the plant material. Vertical stainless-steel supports used to stiffen the glass wall facilitate a place for the second lighting element, 4-foot-long LED iColor Fresco lightsticks. The back of this layered three-dimensional wall is a fiberglass-reinforced concrete board. It acts as a neutral backdrop for the shadowy patterns of bamboo and horizontal glass members. The board also absorbs the intensity of the client-selected palette of royal blue, purple and red, and shields the light from spilling over into the neighbor's backyard. The lightsticks are linked to an iPlayer 2 module and keypad, and there are eight presets that allow horizontal and vertical color-changing patterns.

By all accounts this is an elaborate response to a straightforward task—a client's desire to visually hide power lines from view. But sometimes "small projects" lead to dynamic solutions. In this instance the client's interest in design allowed a collaborative effort between architecture, landscape, and lighting. What started simply as an idea about a screen ultimately developed into a landscaped dimensional space, as the design team interpreted and explored the meaning of boundaries and edges. **ELIZABETH DONOFF**



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ARCHITECTURAL AREA LIGHTING | PIVOT | AAL.NET

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A pole-mounted solution for lighting architectural areas, roadways, and pedestrian pathways, the Gantry features a unique movable support strut that provides an adjustable mounting height of +/- 60 inches to horizontal, and a 180-degree luminaire swivel. Two shallow-profile fixtures are available and can accommodate 100W to 400W metal halide lamps. Available in single, twin arm, and wall-mounted models, all are classified as full cut-off. The housing is constructed of die-cast aluminum with double latching for toolless entry. A tempered glass lense is sealed in place with a one-piece silicone gasket. **CIRCLE 151**



FORMS + SURFACES | TRIADA | FORMS-SURFACES.COM

This newest addition to the company's lighting product line was designed and developed for Miami Beach, Florida, as part of the city's revitalization plan for the North Beach Recreational Corridor. This adaptable pole-top luminaire is available with or without directional shields that minimize wrap-around light and bypass glow. The head is fabricated from solid cast aluminum, and the luminaire is available in a durable powder-coat finish in three standard colors: black, silver, and evergreen. It may be specified in heights up to 12 feet, and is UL and CUL listed for wet locations. **CIRCLE 152**



LURALINE | REFLECTA SERIES | LURALINE.COM

This series of traditional, angled, tapered and wave designs is intended for outdoor use. Reflecta shades are suitable for exteriors and interiors of restaurants and shopping centers, including above and below awnings, on building façades, or as signage lights or wall washers. Reflecta is offered in a standard white finish, in bright colors or galvanized looks upon request. Fixtures are constructed of aluminum and available with choice of bare lamp or enclosed lamping, with incandescent, compact fluorescent, high-pressure sodium or metal halide lamping options. **CIRCLE 153**



KICHLER LANDSCAPE LIGHTING | TERRA COTTA | KICHLER.COM

One of several new designs in the company's path lighting offerings, the Terra Cotta low-voltage luminaire is fabricated from an aluminum construction with a ceramic shade finished in natural matte terra cotta with a textured architectural bronze finish. Measuring 26 inches high, by 7 inches in diameter, an 8-1/2-inch extension is also available. Optional mounting accessories include a surface-mounted flange and a tree/surface mounting bracket. Terra Cotta is UL and CUL listed. **CIRCLE 154**



LOUIS POULSEN | KIPP CUT-OFF | LOUISPOULSEN.COM

A new addition to the Kipp family of outdoor luminaires, this cutoff version offers an attractive option where local ordinances prohibit the use of semi-cutoff or non-cutoff luminaires. In daylight there are no readily apparent differences between the cutoff version and the original luminaire. When lit, though, the center cone of the cutoff luminaire is opaque and meets IESNA cutoff classifications, in contrast to the semi-cutoff Kipp where the cone glows. The fixture can be used with QL, ceramic metal halide, high pressure sodium, metal halide, and A-23 lamps ranging from 85 to 200W. It is available in four powder coated finishes, and is CUL listed for wet locations. **CIRCLE 155**

CAPTURING COLOR AND TEXTURE WITH LIGHT

STEPS TOWARD CREATIVE AND COMPLEX EFFECTS

JESSICA N. JOHNSON

PERCEPTION, BY DEFINITION, IS THE PROCESS OF BECOMING AWARE DIRECTLY through any of the senses, especially sight or hearing. Many variables can affect the perception of objects and spaces, including light, which has the ability to draw out the positive qualities of color and texture while disguising the negative. By understanding the basic issues and following a few key steps, designers can combine light with color and texture to produce complex effects.

Lighting designers, Ann Kale, principal of Ann Kale Associates in Santa Barbara, California, and Renee Cooley, partner at Cooley Monato Studio in New York City, share their expertise on the topic.

COLOR

Color has both a technical and a psychological relationship to lighting. Technically, the particular color one wants to enhance in a space must be present in the light source. Cooley uses the example of a red apple: "If you want the color of the apple to come out, you should make sure that there is red in your light source. If you have zero red—say you have a green light—that apple is going to be black." Furthermore, objects can be thought of as absorbing all colors except the colors of their appearance, which are reflected. This same red apple, illuminated by white light, absorbs most of the wavelengths except those corresponding to red light. The object reflects these red wavelengths, and it appears red.

If a designer wants to accentuate a particular color, Kale suggests throwing that same color light on the colored wall or surface. "It will pop! It gives an absolutely wonderful effect."

Color can also incite psychological reactions, as Cooley has learned through years of experience. "Colors mean different things to different people, but for the most part, red is warm and blue is cool. It's always about how you use the color and in what proportion it is used relative to the materials in the space," she says. Here are issues to consider when emphasizing color with lighting.

1. UNDERSTAND THE OVERALL CONCEPT OF THE SPACE, INCLUDING THE EMOTIONAL RESPONSE OCCUPANTS SHOULD HAVE.

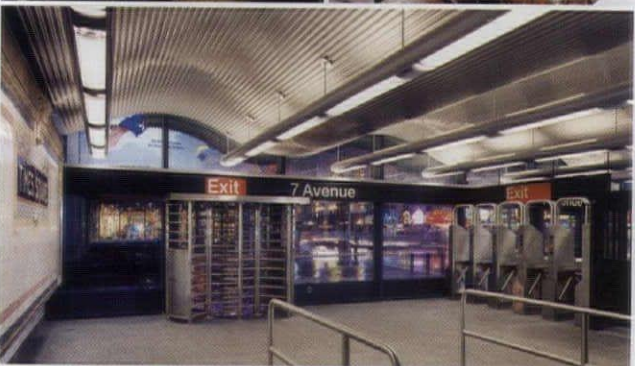
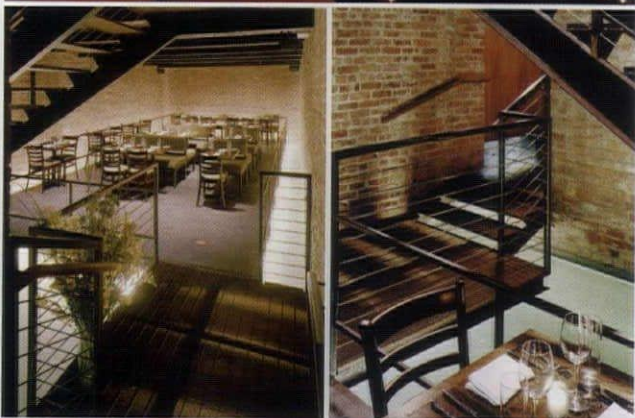
A visitor's initial response to an environment should be emotional, according to Kale. The first step to achieving this is to walk the floor plan with the architect or interior designer and discuss all aspects of the space, including the materials and color palette. "As lighting designers," says Cooley, "we need the same mental picture that the architect or interior designer has, and then we implement that vision and enhance it through lighting."

2. DECIDE WHICH ASPECTS OF THE PROJECT SHOULD BE EMPHASIZED.

At this point in the process, it is important to prioritize. Kale explains, "When you want to emphasize something, you throw a lot of light on it, and when you don't, you let it fade more into darkness or dimness." This is when it is imperative to understand what colors you are lighting. Remember to include that particular color in the lighting source to attain the maximum effect.

3. DETERMINE IF A WARM OR COOL LIGHT SHOULD BE USED.

For spaces where people are the most important objects, Kale suggests applying a warm light, such as with an amber or peach color filter, because it helps enhance skin tones. In general, Cooley adds,



LE MERIDIEN HOTEL, Minneapolis

LIGHTING: COOLEY MONATO STUDIO INTERIOR DESIGNER: YABU PUSHSELBERG

Color played a critical role in this project, which was "first and foremost about mood," says designer Emily Monato. In the first-floor bar, a red interior creates a sexy, theatrical atmosphere. (PHOTO: DAVID JOSEPH)

SUBA RESTAURANT, New York City

LIGHTING: ANN KALE ASSOCIATES ARCHITECT: ANDRE KIKOSKI

"This project was about the texture," says Ann Kale, who notes that lighting brick is hard "because it can look mean." (PHOTO: PETER AARON/ESTO)

TIMES SQUARE SUBWAY, New York City

LIGHTING: ANN KALE ASSOCIATES ARCHITECT: FOX & FOWLE ARCHITECTS

Uplighting a corrugated metal ceiling creates sparkle. (PHOTO: ANDREW GORDON)

"use warm light in residential spaces and similar environments, like a hotel lobby." Cosmetic counters also require warm light for these reasons.

Cooley suggests using a "neutral color temperature when presenting art work, such as 3500K for fluorescent or 3000K to 3200K for halogen, because it is less biased to either warm or cool; therefore, you are not applying additional bias on top of what the artist intended."

4. MATCH COLORS UNDER THE SAME LIGHTING CONDITIONS THAT WILL BE USED IN THE SPACE. Remember, outside light on a sunny day is 5000K; colors that work under natural lighting conditions will not appear the same under 3500K fluorescent, for example.

TEXTURE

Using light to enhance texture is a favorite tool among lighting designers. Cooley and Kale both believe that, if there is a texture being used, designers should draw that out. There are several steps to consider when using light to enhance texture in a space:



Like color, texture is crucial to Le Meridien's aesthetic. This art installation of individually strung pieces of paper and the wood veneer wall are vertically grazed with light from a track fixture recessed between the ceiling and perimeter wall. (PHOTO: DAVID JOSEPH)

1. UNDERSTAND THE CHARACTERISTICS OF THE DIFFERENT MATERIALS BEING USED. What is the lightness or darkness of the material in terms of value? What is the color of the material? Does it have a texture? Is there any specularly associated with the material?

The answers to these questions will affect the way the textured surface is lit.

2. DETERMINE WHICH SURFACES SHOULD BE HIGHLIGHTED, AND WHICH SHOULD RECEDE. "Emphasizing texture can be great, but it can also be a mistake. You have to be careful," says Kale. Ask yourself, is the texture you are trying to enhance in a vertical or horizontal position. "When you have something like a mesh or a texture that is hanging (a vertical surface), graze that surface and hit it at a higher angle in order to avoid shadows." Contrasting this, she adds that grazing is something you do not want to do on drywall unless you are certain of the excellent craft of the installation. "Anytime you want to avoid texture," Kale further explains, "do not graze. Assuming the texture you are lighting is a vertical surface, you want the light to come in horizontally."

3. UNDERSTAND THE REFLECTIVE QUALITIES OF THE MATERIALS BEING ILLUMINATED. A material's specularly determines the amount of visible texture and the light pattern. More texture and light pattern will be apparent with a matte surface, because the light reflected off that surface is diffused. Similarly, a shiny (more specular) material becomes a reflector because it is collimated, meaning it creates a mirrored image on the surface. With reflective surfaces, Kale says, "you don't really emphasize the texture as much; instead it becomes a material to put light in front of and let it show that reflection."

4. BUILD FLEXIBILITY INTO THE POSITIONING OF THE FIXTURES. One of the most important steps in lighting texture is incorporating flexibility into the fixture positioning. This will allow a designer to make adjustments to find the angle that works best with the texture. When lighting a brick wall, for example, says Kale, "you want to hit the wall at just the right angle because if you push it too far, you wash out the texture; if you come in too close, you over-emphasize the texture and it becomes shadowy."

Ultimately, the challenge is to create a lighting scheme that interacts respectfully with color and texture. "The beauty of the objects, finishes, and architecture should be shown," says Cooley, "but the lighting should not call much attention to itself." ■

Jessica N. Johnson is a project manager in New York. She received her Master of Architecture from North Carolina State University.

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• **Soft-focus lens**, which consists of a very fine pattern of ridges and depressions. This lens is about 92 percent efficient, removing almost all halation and striation without significantly affecting the beam spread or candlepower. For instance, when added to a narrow spot lamp, the beam will be softened to a spot distribution, adding a few

degrees to the beam. A soft-focus lens preserves the "punch" of the beam while removing striation and halation.

• **Spread lens**, which can either be a sand-blasted lens, an acid-etched lens, a prismatic lens, or a lenticular (pressed) lens. A spread lens changes the beam of the lamp

significantly in all directions, creating a flood out of a spot. A spread lens tends to remove the punch from the beam, with the resulting light becoming a wash with very soft edges. Efficiency varies with lens type, but in general spread lenses are 50 to 70 percent efficient. Personally, I tend to use this lens less often than the soft focus lens; a typical application for a spread lens would be an extremely broad and even wash.

• **Linear lenses**, which consist of linear prisms running in one direction. This lens, also called a beamsplitter, elongates the beam in one direction and shortens it in the other, turning a round beam into an oval. When used with a spot lamp, the effect is dramatic, often creating a long, skinny beam of light. When used with a flood lamp, the effect is more subtle, turning a round beam into a moderate oval. Linear lenses are not very efficient, but the effects are unique.

Two or more beam control lenses can be used together, but the resulting loss of efficiency makes this concept undesirable. The "art" of focusing is combining the appropriate wattage and beams spread, with the proper lens, to achieve the right result.

COLOR CONTROL

The increase in vibrant colored light using theatrical color-changing instruments has been a great development in lighting design over the past decade. But for accent and display lighting, fixed color lenses, including filters for UV and IR light, can also be used, perhaps in a more subtle manner. Commonly used color lenses include:

• **Saturated color lenses**, including red, green, blue, magenta, cyan (aqua), and yellow. I also like to use amber and orange. Mostly these are applied for fun, creating an effect in which the light becomes artwork.

• **Color-correction lenses**, including color temperature warming (cosmetic peach), color temperature cooling (light blue), and minus green (cosmetic pink). For instance, every glass-backed MR16 lamp and most quartz metal halide have a tendency to turn slightly green, so adding a cosmetic pink filter creates a more attractive scene. These lenses can be stacked; for instance, a warming lens with pink will make an MR16 look like an R20, but with candlepower.

(CONTINUED ON PAGE 60)

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JAMES BENYA

IN MODERN ARCHITECTURAL LIGHTING, LIKE IN THEATER, we use a combination of general or ambient lighting ("fill") and accent or focal lighting ("key") to create scenes. The greater the contrast between focus and background, the greater the dramatic effect. But unlike in the theater, architectural accent lights must be small, efficient, relatively inexpensive, and innocuous (if not attractive). We tend to use directional lamps, like AR, MR, PAR and R, because the lamp is the reflector, and the resulting luminaire is fairly small. There are also luminaires that use small lamps and have an integral reflector; these are especially important for the new low-wattage ceramic metal halide lamps.

The problem with most architectural lighting equipment is that the quality of the projected beam is poor. The best lamps, like the incandescent PAR36, have beautiful beam patterns that can be aimed at artwork and architectural details and create predictable results. But the filaments and reflectors in many modern lamps like the MR16 and the PAR halogen lamps create beams of light that have striation, halation, and ragged edges. Aimed at artwork, the average MR16 lamp will create a scallop, a hot spot, a halo ring or two, and uneven streaks of light, not to mention a slight green tinge and color temperature about 300K

greater than the ambient. This can be—and should be—fixed as part of a process many lighting designers call "focusing." One might ask why we use lamps and luminaires that have so many foibles. The answer is simple—cost and availability. MR16s are available at Home Depot, but good luck finding an AR lamp in stock anywhere in Des Moines.

Focusing is a term borrowed from theatrical lighting, and in architectural lighting it has a similar result, even though the "focus" of a condensing lens system is almost never involved. Rather, focusing consists of four main activities: beam selection, beam modification, color, and shielding.

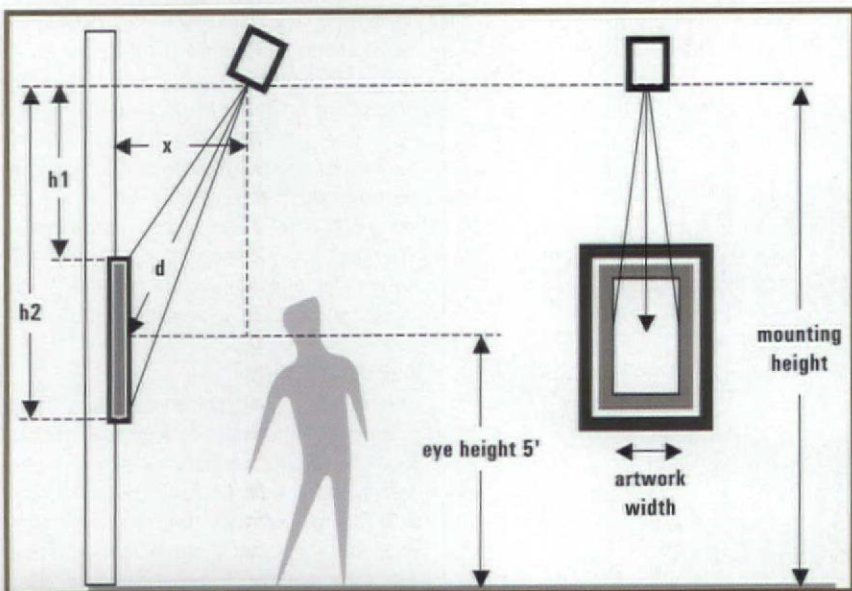


DIAGRAM 1 DETERMINING BEAM SPREAD

BEAM SELECTION

Most projector lamps, such as PAR and MR types, are sold according to candlepower type. (For the principal candlepower types, refer to Table 1, this page.)

To determine the intended beam spread, find the angle needed to illuminate the object using Diagram 1 (this page). The diagram is a version of the distance squared law that lighting designers have long since memorized. Then, find a lamp that produces the candlepower and beam spread matching the requirements.

Most conventional lamps are "axial beam" lamps, meaning that the filament is oriented along the axis of the reflector to create a round beam. But certain lamps, especially high-wattage PAR56 and PAR64 lamps, employ a longitudinal filament, so the projected beam is oval in shape. For instance, a 1000W PAR64 narrow spot has a beam that is 8 by 20 degrees; the 1000W PAR64 medium flood has a beam-spread 10 by 30 degrees. This means that during focusing, the beam must be rotated correctly to achieve the desired effect.

BEAM CONTROL

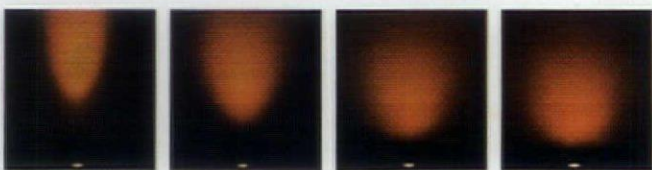
In order to tame the bad beam behavior of lamps like the MR16, one typically uses an accessory lens in place of the clear glass lens usually supplied with MR16 fixtures. For other lamps, an accessory holder may also be needed. Professional lighting gear, especially for museums and high-end residential lighting, is often designed to permit stacking two or more lenses or other media. The three most common beam shaping lenses are:

(CONTINUE ON PAGE 58)

TABLE 1 CANDLEPOWER TYPES

DESIGNATION	BEAM ANGLES	APPLICATIONS
TITLES MAY VARY AMONG MANUFACTURERS	APPROXIMATE; MAY VARY AMONG MANUFACTURERS	
VERY NARROW SPOT (VNSP)	UP TO ABOUT 6°	VERY LONG THROW OR EXTREMELY SMALL, INTENSE HIGHLIGHTS
NARROW SPOT (NSP)	BETWEEN 6° AND 10°	LONG THROW OR SMALL INTENSE HIGHLIGHTS
SPOT (SP)	BETWEEN 10° AND 16°	LONG THROW OR INTENSE HIGHLIGHTS
NARROW FLOOD (NFL)	BETWEEN 17° AND 28°	MEDIUM THROW OR HIGHLIGHTS
MEDIUM FLOOD (MFL) or FLOOD (FL)	BETWEEN 29° AND 40°	SHORT THROW OR FILL LIGHT
WIDE FLOOD (WFL)	BETWEEN 40° AND 60°	SHORT THROW, WASH OR FILL LIGHT
VERY WIDE FLOOD (VWFL)	ABOVE 60°	VERY SHORT THROW, WASH OR FILL LIGHT

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• **Special filters**, which are usually employed for artwork protection. UV filters are commonly used in museums, and cold mirror IR filters can also be used in critical applications. (Note: Be careful with the cold mirror lens. Ninety percent of the energy of an incandescent lamp becomes heat, and reflecting the IR back into the luminaire can overheat the lamp, socket,

and wiring, causing disastrous results.)

Lenses can be stained or dyed glass, dichroic-coated glass, or theatrical gel. Each type has advantages: The stained glass lens is durable and the color of the beam is consistent. The dichroic can produce vibrant color, but often creates color shift and color halation. The gel has a short life and is sel-

dom used with smaller luminaires and lamps like MR16s owing to heat; glass lenses, however, can expand without cracking.

SHIELDING

Most architectural light sources like PAR and MR lamps emit light throughout the hemisphere beyond the face of the lamp. Generally, only the beam and a bit of the field is useful, the rest of it becoming glare. (See Diagram 2, below.) While it seems that glaring lamps are part of many European and Asian projects, in North America and especially in museums and galleries, glare control is an essential part of good lighting design practice.



Glare reduction amounts to preventing the outside field from leaving the luminaire at all. Most recessed luminaires and some monopoint/track luminaires shield the glare with a combination of recess depth and cone, which "baffle" the light from exiting the luminaire at unacceptable angles. A good example is the matte-black ribbed baffle commonly used on low-cost downlight trims. There are a number of track luminaires that employ a recessed lamp and ribbed baffle to effect the same result.

But when accessorizing most architectural lighting, including recessed, track and monopoint accent lights, luminaire size often restricts shielding options to very few choices. (For shielding accessories, see Table 2, page 62)

ACCESSORIZING

One of the MR16 luminaire's better qualities is that it is generally required to have a safety glass in front of the lamp itself. In almost every luminaire, you can replace the clear glass with an accessory lens, and often a snoot as well. To light moderately-sized artwork in residential and hospitality (CONTINUED ON PAGE 64)

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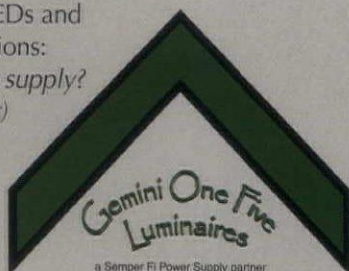
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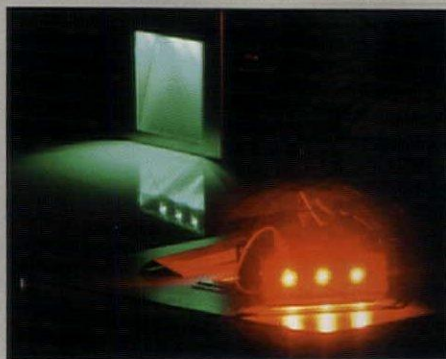
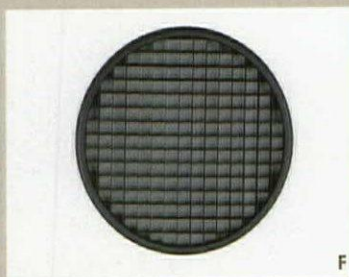
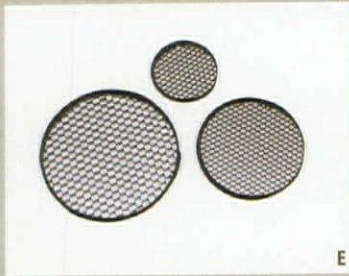


TABLE 2 SHIELDING ACCESSORIES

NAME	BENEFITS	DRAWBACKS
BARN DOORS (A)	Flexible; allows field adjustment and tuning for critical shielding; preserves full candlepower and beamspread.	Large and unattractive; sometimes used inappropriately to try to "shape" the beam.
EXTERNAL SHIELD (G) or BAFFLE	Attaches to the exterior of the luminaire; simple and permits tuning for site specific shielding; preserves full candlepower and beamspread; typically used on rectangular exterior luminaires.	Unattractive; can't be used on many luminaire styles; shielding angles may be limited.
TUBE BAFFLE or "SNOOT" (C)	Attaches to front of luminaire; extends to permit tight shielding; typically used on luminaires with round apertures; preserves full candlepower and beamspread; can be used to eliminate field.	Unattractive; won't fit many luminaire styles.
RADIAL and CROSS HAIR LOUVERS (D), and LARGE SQUARE CELL LOUVERS (F)	Slightly thicker than a lens; fits into many luminaires; maintains most of original candlepower and beamspread; can be innocuous or even appealing.	Limited shielding angles; may not fit in many luminaires.
SMALL SQUARE and HEXAGONAL CELL LOUVERS (B, E)	About the thickness of a lens; fits into many luminaires; produces maximum shielding in minimum volume; innocuous; can be used to eliminate field.	Considerable reduction in candlepower; possible reduction in beamspread angle.



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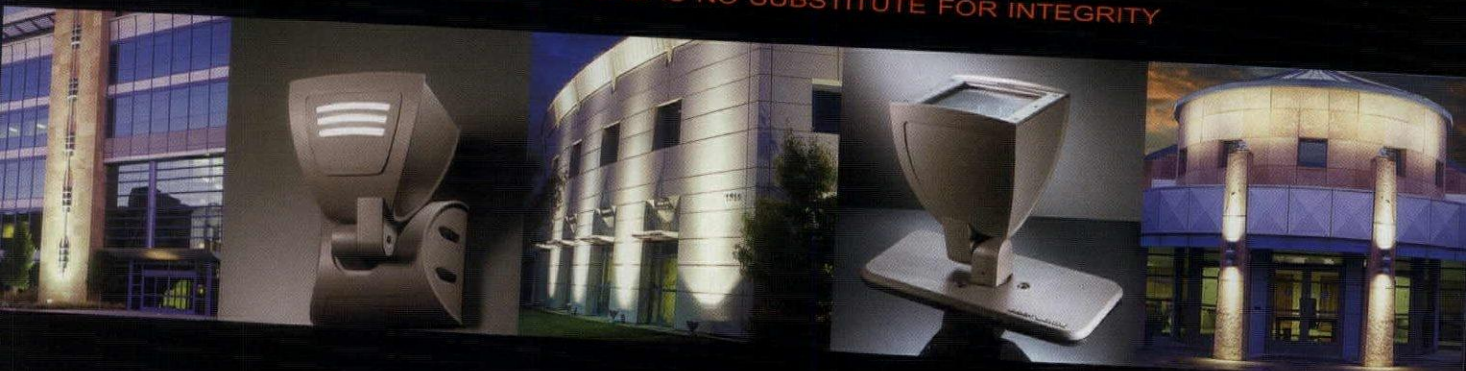
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settings, for example, I use a 25 degree, 37W IR or 50W standard MR16 with a soft-focus lens and snoot in an inexpensive gimbal ring track or recessed luminaire.

To accessorize a PAR luminaire, it is often necessary to select a product with clips that hold lenses and other media. These clips are usually standard equipment on "museum

grade" track lighting, but for ordinary track and recessed lighting, the clips may need to be specified separately. For MR16 luminaires, you can add a screw-on accessory holder that clamps only onto the lamp—a very useful accessory, especially when working with the delicate lampholders used on low-voltage monorail systems.

PATTERN PROJECTION

It has become popular to throw a light pattern onto a wall or floor. However, while there are "add-on" accessories that turn track luminaires into pattern projectors, great results require using a fixture specifically designed to project a focused, collimated beam of light. Most projectors use ellipsoidal optical systems and condensing lenses that permit the use of gobo patterns or slides, iris or shutters, and various focal-length lenses. While interesting patterns are possible by placing perforated metal or other materials in front of a clear MR16 lamp, don't expect to project a bright, clear image—for example of a company logo—without moving from ordinary architectural lighting into the realm of heavy-duty display and theatrical equipment. ■

James Benya is a professional lighting designer and principal of Benya Lighting Design in Tigard, Oregon. He serves on the editorial advisory board of A|L.

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RELEVANT LIGHTING TERMS

BEAM The visibly bright cone of light projected by a directional luminaire. Technically, it is the portion of the projected light between 50 percent and 100 percent of the center beam candlepower.

FLAT BEAM A beam that appears almost homogeneously even.

DEEP BEAM A distinct bright spot in the middle of a beam.

SOFT-EDGED BEAM A gradual dissolve between beam and field.

HARD-EDGED BEAM An abrupt difference between beam and field.


FIELD The visible, but less bright cone of light projected by a directional luminaire. Technically, it is the portion of the projected light between 10 percent and 100 percent of the center-beam candlepower.

STRIATION Unevenness caused by streaks of brightness in a beam or field of light.

HALATION A bright ring or halo, usually appearing in the field of light or beyond.

SCALLOP The geometric shape of light caused when a cone-shaped beam intersects a surface (such as a wall) at an angle.

WASH A very wide, soft edge.

 more information at WWW.ARCHLIGHTING.COM

A|L LIGHT & ARCHITECTURE DESIGN AWARDS

Architectural Lighting announces the second annual A|L LIGHT & ARCHITECTURE DESIGN AWARDS honoring projects in the field of architectural lighting. Unlike other programs, the A|L DESIGN AWARDS first recognize and reward excellent designs within the unique criteria of a specific category. Then, for exceptional accomplishments, A|L will award the A|L VIRTUOUS ACHIEVEMENT (ALVA) AWARDS to acknowledge projects that achieve the best lighting design on a budget; the best design in a LEED-rated building; the best incorporation of daylight; and the best use of color. A|L believes these final four categories are increasingly important considerations for its readers, and therefore hopes to identify and showcase successful examples. All winning projects will be published in the July/August 2005 issue of A|L, and will be featured on archlighting.com for three months.

Deadline: Monday, May 17, 2005

Categories for the A|L LIGHT & ARCHITECTURE DESIGN AWARDS (*must check one*):

- Corporate/Institutional
- Entertainment/Cultural
- Healthcare
- Hospitality
- Outdoor
- Residential
- Retail
- Transportation

Projects may also be submitted for the
A|L VIRTUOUS ACHIEVEMENT AWARDS
(*check all for which you would like this
project considered*):

- Best Lighting Design on a Budget
- Best Lighting Design in a
LEED-Rated Building
- Best Incorporation of Daylight
- Best Use of Color

Entrant
Contact Name
Address
City, State, Zip
Phone Number
E-mail
Project Location
Client
Photographer
Fee: \$130 (first entry) \$ <input type="text"/>
\$95 (subsequent entries) \$ <input type="text"/> Questions? Call 646-654-5775.
Total \$ <input type="text"/>

(*Make checks payable to Architectural Lighting.*)

I certify that the parties credited executed the submitted project and that it meets all eligibility requirements. I understand that *Architectural Lighting* magazine may disqualify any entry that fails to meet submission requirements. I grant *Architectural Lighting* magazine sole first publication rights to the project. (Signer must be authorized to represent those credited.)

Signature
Name
Date

Send entries to:

A|L LIGHT & ARCHITECTURE DESIGN AWARDS
770 Broadway, 4th Floor, New York, NY 10003

A|L reserves the right to reject any entry and to terminate the competition at any time. Any disputes relating to the competition shall be resolved exclusively by A|L and the panel of judges. This contest is governed by New York laws without regard to its conflict of laws principles. All entrants and clients submit themselves to the exclusive jurisdiction of courts in the southern district of New York.

ELIGIBILITY

1. Design professionals practicing in the United States, Canada, or Mexico may enter one or more submissions. Projects need not be located in those countries, however.

2. Projects must be completed after July, 2004

SUBMISSION REQUIREMENTS

3. All entry materials must be contained in one large envelope per project, with the submitting firm and project name printed on the outside of the envelope. Include in the envelope one photocopied set of all entry materials, as well as printouts of the digital images. (Photocopies and printouts may be black and white.)

4. Each submission must be accompanied by a **signed entry form and a check** covering the entry fee (see Entry Fees below). The form may be photocopied. Both the form and check should be included in the project envelope.

5. A **project fact sheet** must also be contained in each envelope. It should include (a) the project name, location and date of completion; (b) the project category, and whether the submission should be considered for any number of the four ALVA Awards (see Categories below); (c) project size in square feet; (d) watts per square foot; and (e) lighting installation cost.

Include a second page with a **brief written description** (no more than 600 words) of the client's goals, the challenges posed by the project and the design solutions applied. Submissions being considered for any of the four ALVA Awards should include an explanation (no more than 350 words) per ALVA category of why it excels in this/these category(ies). The digital image files should be numbered and keyed to the 600-word and/or 350-word description(s) to clarify what is depicted.

6. **Images must be in digital format.** Additional image submission requirements: (a) one CD per project; (b) either TIF or PSD file format; (c) 300 dots-per-inch resolution; (d) dimensions of 1200x1200 pixels (either the height or width should be a minimum of 1200 pixels). Please include no fewer than 7 and no more than 12 images. Label the image files using a consistent titling protocol, including the project name and numbers that correspond to the written descriptions.

7. Please avoid the use of fill light when photographing the project; if its use is unavoidable, identify which shots include fill light.

8. To maintain anonymity during the judging process, no names of entrants or collaborating parties may appear on any part of the submission except on the signed entry form and on the project envelope.

CATEGORIES

9. Identify each submission on its entry form and on the project fact sheet as one of the following eight categories. (A|L reserves the right to change the category of a submission.)

- Corporate/Institutional • Healthcare
- Hospitality • Entertainment/Cultural
- Retail • Residential • Outdoor
- Transportation

(Projects will not be judged against each other, but rather as superior examples of a lighting design solution within their category. Therefore, each category may have more than one winner or no winner at all; likewise, the number of entrants within the category will not impact whether there is a winner or how many.)

10. Appropriate submissions may also be considered for any of the four A|L Virtuous

Achievement (ALVA) Awards. Entrants must indicate that a project should be considered for these awards on the entry form and on the project fact sheet. These awards require the following additional information:

Best Lighting Design on a Budget

Entrants must include an explanation (no more than 350 words) clarifying why theirs is a budget project; in addition, they must include project construction costs, lighting materials costs, and lighting and electrical subcontractor costs (preferably on a per-square-foot basis). Judges understand costs are relative to project type; however, they reserve the right to determine whether it is truly a budget project.

Best Lighting Design in a LEED-Rated Building

Entrants must demonstrate that the lighting design contributed two or more points to a building's LEED rating.

Best Incorporation of Daylight

Entrants must include an explanation (no more than 350 words) clarifying how the project integrates daylighting with electric lighting. In addition, entrants must include ASHRAE 90.1 or LEED documentation indicating that daylighting provides persistent on-peak energy savings.

Best Use of Color

"Use of Color" may be interpreted liberally; however, judges will be asked to consider the complexity of the design.

JUDGING

11. An independent panel of judges will award prizes to projects at their sole discretion, based on the complexity of the program and the lighting solutions applied.

12. Judging will take place in June 2005. Winning entrants will be notified in late June 2005, and their projects will appear in the July/August 2005 issue of A|L.

PUBLICATION

13. Winners of the A|L Design Awards grant A|L first publication rights for their winning projects for the magazine's July/August 2005 issue. If the submission wins, the entrant agrees to provide further information and publication-worthy graphic materials as needed by A|L.

14. Winners of the A|L Design Awards agree to have their projects and names published in A|L and in any other media and must secure permission for publication from clients and photographers prior to entry.

15. Winners will be required to sign and return within a specified time a Publicity Release. Winners will also be required to sign a document stating that the entry is the original work of the winner and does not infringe on any proprietary right, including but not limited to copyright, trademark, and the rights of publicity and privacy of any party, and grants A|L the right to use the entry in print and electronic medium.

ENTRY FEES

16. Each submission must be accompanied by a check covering the entry fee (\$130 for the first entry; \$95 for subsequent entries). Make check payable to *Architectural Lighting* (Canadian and Mexican entrants, send drafts in U.S. dollars.)

DEADLINE

17. Entries must be received by May 17, 2005.

RETURN OF ENTRIES

18. A|L will ONLY return entries that provide a self-addressed stamped envelope. A|L shall not have liability for damaged or misplaced entries.



LIGHTFAIR INTERNATIONAL'S DAYLIGHTING INSTITUTE™ is part of a dramatically new design community event coming to New York City this spring. Architects, designers, engineers and industry professionals will find inspiration in the Daylight Institute's intensive CEU-accredited course on daylighting design, just part of the dynamic new experience that is LFI in 2005.

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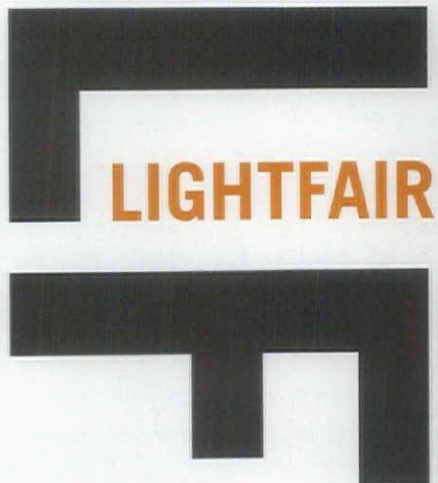
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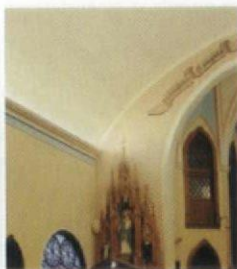
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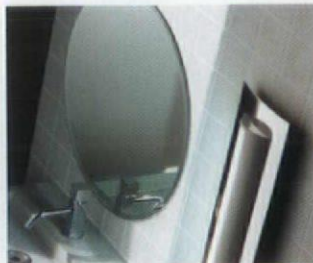
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CLC Series—Cornice Cove Light. This wall-mounted cove system combines a continuous decorative cast GRG (glass-fiber reinforced gypsum) cove with a high-performance cove lighting system. The asymmetric reflector distributes uniform light into the space without noticeable socket shadowing. Lamp options are biax, T5, or T8 fluorescent. The cove casting is offered in three standard styles as well as custom, and is provided in 8 foot sections. Visit our website at www.elplighting.com, or call (626) 579-0943 for more information. **CIRCLE 166**



Estiluz

Luce (1348). This beautiful ADA wall sconce designed by Mercurea for the company Blauet is rated for bathrooms. Materials used are metal and glass and the finishes available for the metal plate are chrome and gray. It uses a 55W 2G11 fluorescent bulb. It is 26 3/4 inches long. For more information, visit www.estiluz.com and www.blauet.com. **CIRCLE 167**



GE Consumer and Industrial Lighting

GE Lighting products can lighten up your bottom line. In fact, you can cut your energy costs by 44 percent when you replace T12 technology with the F28 UltraMax system. And that's just the beginning. To see the full line of GE lighting products, visit www.gelighting.com. **CIRCLE 168**



LEDtronics

The Series SLL003 Ultra Slim Shoebox LED Cluster Light Module is a revolutionary lighting product delivers the longevity, reliability and energy-efficiency of LED lighting technology in a low-profile fixture that is just 1 1/2 inches high and weighs only 14 pounds. Featuring 400 incandescent white 5mm LEDs mounted on a PCB, it consumes only 20W, emits 656 candela of light, gives off 700 lumens, and has a color temperature of 3000K - 3500K. Optional colors are red, green, orange, yellow, cool white and blue. IESNA-applicable test results may be downloaded from the LEDtronics website: www.ledtronics.com. **CIRCLE 169**



Lightolier

MINI BEAM is a highly efficient, direct/indirect recessed luminaire with a 4 inches wide perforated basket that utilizes T5 lamp technology. Its evenly illuminated cavity provides balanced brightness illumination to any space. In a large room, it can provide 47 maintained foot-candles at only .83 watts per square foot. **CIRCLE 170**



Lithonia

A New Standard in Fluorescent Lighting. RT5 Volumetric Recessed Lighting by Lithonia Lighting provides a superior alternative to parabolics. It is the first fixture to fill the entire volume of space with light, delivering the ideal amount to walls, cubicles and work surfaces, while being efficient, affordable and unobtrusive. RT5 provides up to a 33 percent savings in energy. **CIRCLE 171**



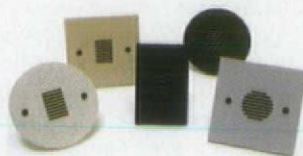
Architectural Area Lighting

The new Providence from AAL offers legendary lighting performance in a traditional form. Optical systems include full-cutoff vertical and horizontal reflectors, as well as a cutoff, indirect version for even, glare-free illumination. Available up to 175W, the Providence can be ordered with T6 metal halide lamps, electronic and pulse-start ballast options. For more information visit, www.aal.net/providence. **CIRCLE 160**



B-K Lighting

Introducing specification-grade architectural louvered fixtures for MR16 lamps by B-K Lighting. The louvered fixtures include solid faceplates (aluminum or brass); fixed or adjustable lamp positions; straight or 30-degree angled louvers; round or rectangular louver patterns on square, round, or rectangular faceplates; and junction box or core drill mounted. **CIRCLE 161**



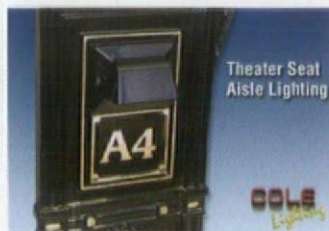
Bartco Lighting

BAM! One more reason to use Bartco Lighting. Uplighting, wallwashing, and task lighting is now possible with Bartco Lighting's new BAM series arm-mount kits. Three mounting systems are available for several of our remote ballast display luminaires (BFL290 shown). In addition, individual fixtures can be ganged together for continuous runs. For more information, see us at LightFair International, booth number 1767, or visit our website at www.bartcolighting.com. **CIRCLE 162**



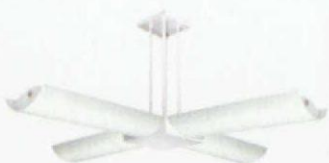
C.W. Cole Lighting

C.W. Cole Lighting introduces the T141 Steplite. A low-profile fixture for a variety of interior uses where low light levels are desired. The fixture utilizes low-wattage, long-life incandescent lamps, which fulfill the lighting requirement. Typical applications include theaters, auditoriums, restaurants, and lecture halls where sharp light cutoff is desired. For more information, visit www.colelighting.com. **CIRCLE 163**



Con-Tech Lighting

Quatro is an exciting new indirect pendant that features energy-efficient fluorescent lamps and exquisite faux alabaster diffusers. The diffuser is available in 10 different finishes and colors to match any décor. The unique "X" shape offers a more uniform light distribution than simple linear fixtures. For more information, visit www.contechlighting.com. **CIRCLE 164**



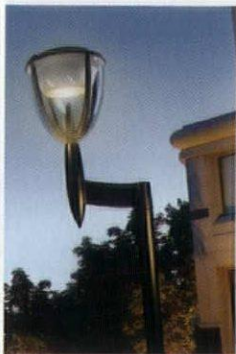
Cooper Lighting

Amertrix, a new Cooper Lighting brand, has introduced a line of asymmetrical indirect luminaires featuring unique styles with innovative design features such as toolless entry, a hinging doorframe, a unique reflector system, and an integrated pointGrab aiming and locking system achieving optimal uniformity. Visit www.amertrixlighting.com for information. **CIRCLE 165**



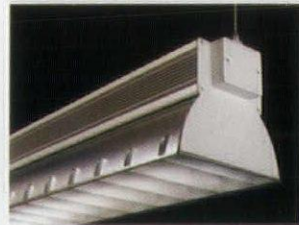
Lumec

Inspired by classical and contemporary elements, the Callisto Series casts a timeless light on any environment. Intended to preserve the dark skies, the combination of two lighting technologies provides for maximum light control while contributing to the spirit of its settings. The Callisto Series: Helping to shape a new era. **CIRCLE 172**



Metalumen Manufacturing

The ARMATURA line, available in three unique designs, is one of the newest products from Metalumen Manufacturing. It is a finely crafted, minimalist-design linear lighting system. It provides architects and interior designers with a high-tech, industrial aesthetic in a sleek direct luminaire, which radiates down light in architectural spaces. For more information call, (519) 872-4381. **CIRCLE 173**



Mills Architectural Lighting

Mills Architectural Lighting specializes in the design and manufacturing of lighting fixtures for public institutions, houses of worship and hotels. Our lanterns feature all-cast aluminum or steel frames with glass panels and are available with many lamping options and are built site specific. Please visit www.millslighting.com for details and specifications. **CIRCLE 174**



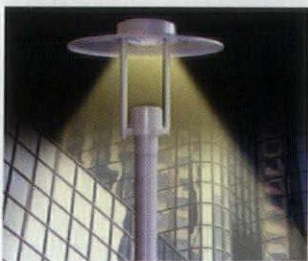
Sea Gull Lighting

Ambiance Lighting Systems lets you design with light. And now, the new L3 (Long, Life, Lamp) festoon delivers the longest life (even longer than LEDs!) with approximately 150,000 hours at 23V. The L3 is the perfect solution for challenging cove and perimeter installations. For information, visit www.SeaGullLighting.com or call (800) 347-5483. **CIRCLE 175**



Selux

The Selux Saturn Cutoff/Full Cutoff meets evolving design trends for the most demanding environmental and legislative challenges, with high-quality construction, excellent performance in a cutoff or full-cutoff configuration! Saturn Cutoff uses a T6 metal halide lamp up to 150W. Please visit the "Full Cutoff" section in Products/Exterior at www.selux.com/usa for more details. **CIRCLE 176**



Semper-Fi

Semper-Fi Power Supply manufactures UL-listed indoor and outdoor remote transformers that ensure no noise, no maintenance and full light output. Indoor units can be recessed into an insulated wall with up to eight transformers in an enclosure. Outdoor transformers include above-grade stainless or direct burial. **CIRCLE 177**



Special FX

Special FX manufactures the most cost-effective permanent color filter solutions for all types of lighting design projects. High-performance FX products include DichroX hybrid dichroic lenses, EZ Glass filters, FadeNot color media, fluorescent sleeves T12 thru T5HO, compact fluorescent solutions, and polycarbonate. FX can match any color, including color-correction filters for many types of light sources. All products are tested and guaranteed for your specific application, with personalized attention to each project. **CIRCLE 178**



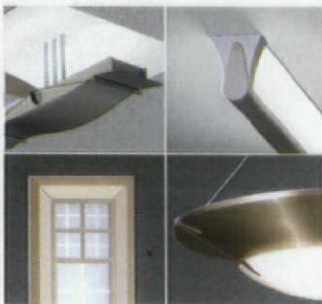
Osram Sylvania

OSRAM SYLVANIA is the North American lighting operation of OSRAM GmbH. Together we are the second-largest lighting and materials enterprise in the world. We manufacture a wide range of lighting products, including automotive, electronic and magnetic ballasts, and precision materials and components for industrial and commercial users, OEMs, and consumers. **CIRCLE 179**



Visa Lighting

Over 400 of Visa Lighting's products now include an "XPS" option, and are available for 10-day express shipment by simply adding the XPS option code to the catalog number. Most finishes and options are included, and we have no minimum or maximum order restrictions on the program. **CIRCLE 180**



Vossloh-Schwabe

VS-lampholders for T5 lamps (G5 socket) possess excellent heat resistance, durability, reliability, and safety to enable T5 lamps to take advantage of their full potential within a luminaire system. **CIRCLE 181**

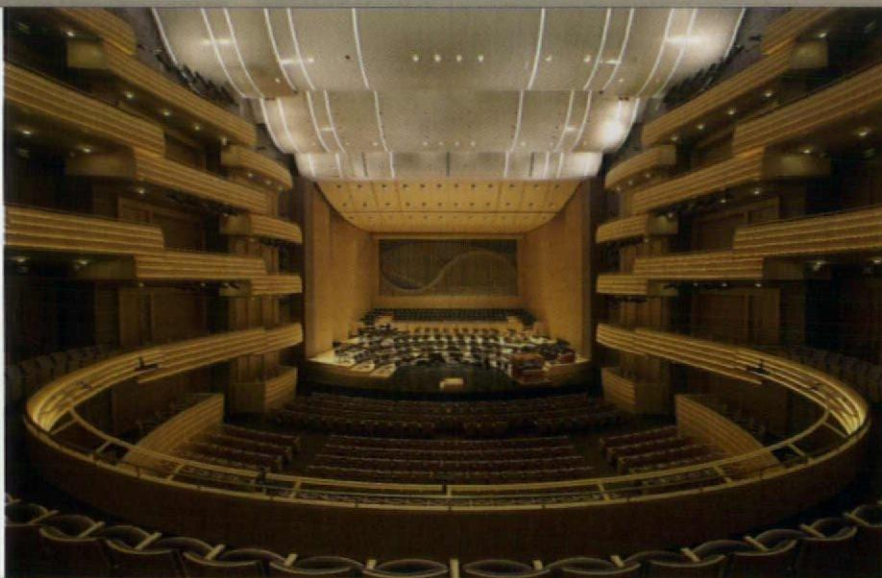


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Overture Center, Madison, Wisconsin
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What is the role of lighting in an architectural and design education?

more commentary at
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Lighting designers don't feel architects understand or value their work. Architects feel they can handle basic lighting requirements themselves. So where does the communication

between architecture and lighting start? In a formalized design education? How and should architectural programs better incorporate lighting into their curriculums?

THIS MONTH, WE ARE EXCITED TO SAY, THERE WERE TOO MANY RESPONSES TO PRINT. PLEASE VISIT WWW.ARCHLIGHTING.COM FOR ADDITIONAL PERSPECTIVES FROM THE INDUSTRY.

PETER M. WHEELWRIGHT, CHAIR, DEPARTMENT OF ARCHITECTURE, INTERIOR DESIGN, AND LIGHTING | PARSONS SCHOOL OF DESIGN

Our department recently matriculated the first class of lighting students into its new MFA program in Lighting Design. Among the more significant aspects of this program is that these graduate lighting students share both required and elective courses with the entering graduate architecture students. This new teaching structure provides lighting students with immersion in the broad and rigorous nature of architectural education, while offering architecture students exposure to the deeper possibilities inherent in an emerging field of design and inquiry.

Ultimately, however, the onus falls on lighting. For lighting design to achieve a competence that is recognized and valued by architects, it must mature as an academic discipline. Like architecture, it must begin to critically understand its own history, to openly theorize its practices, and imagine its role not as a service discipline, but rather, as making an important and necessary contribution to the production of social space. It must come into its own light.

JODY BROTHERSTON, ASID

During my education in graduate school, the professors NEVER taught lighting design, but suggested as interior designers, we call in a lighting designer. That is still happening at both the educational and professional practice levels. I have a great respect for lighting designers, but students need to learn more than a phone number.

As chair of an interior design program for 15 years, I was determined to make sure students understood lighting design. Although we did not have a separate course in lighting, it was addressed in all studio problems. Leading lighting designers were invited to visit the university, presenting lighting design fundamentals and working in the studio with students. It was an excellent experience, one I encourage architecture and interior design programs to develop.

The way to improve dialogue among these disciplines is to encourage a lighting course for architecture and interior design students. One way to implement an understanding of lighting is to require lighting design skills in educational accreditation standards.

HOWARD BRANDSTON, PRINCIPAL | BRANDSTON PARTNERSHIP

In "formalized education" it would be good if architects were taught that the lighting they have learned is only basic, and that like architecture, they need to serve "apprenticeship" time before they can apply it on their own. This one step would heighten awareness of when a specialist's hand might be a benefit to their projects.

BRIAN STACY, SENIOR LIGHTING DESIGNER | ARUP LIGHTING

It seems most accredited architecture programs have some lighting component, if not full classes. Given the supply and demand of the industry, what we need is a betterment of the programs out there. I would like to see some of the programs push the creative boundaries with conceptual thinking about how light impacts architecture, perception, and usability. An area of weakness with many programs is not having robust enough technical aspects.

KEVIN SNOOK, PROJECT ARCHITECT | VALERIO DEWALT TRAIN

The obstacle that architecture schools face is giving the best education through a balance of program material. The concept of light in architecture is critical; if it isn't presented as such, then perhaps that should change. Also, the number of lighting focused programs is likely related to demand.

A lighting consultant should be considered for most projects. The obstacle many architects face regarding lighting is time and money. Unless a project or client calls for it, it is hard to justify bringing on an added consultant. It is a process of educating clients.

So, what's the solution? We learn application through on-the-job training. Just as architects have a mission to educate clients on architecture, so must architects, interior designers, industrial designers, and contractors learn from each other. To improve understanding of lighting, I propose providing effective lighting education to architects and interior designers in the form of industry marketing, periodical articles, journals, books, and seminars. I appreciate the work that lighting designers do—I just need more resources to make their work and the work I do happen together.

WILLIAM J. REDMOND JR. | GPI GREENMAN-PEDERSEN

And then there are the engineers. Until the IBC and local jurisdictions rammed ASHRAE 90.1 down architects' throats, it was like pulling teeth to get architects to select more energy-efficient lighting. Too often the "look" is more important than the performance. I admit that my emphasis is on the performance, and I will readily defer to the architect or lighting consultant on aesthetic issues.

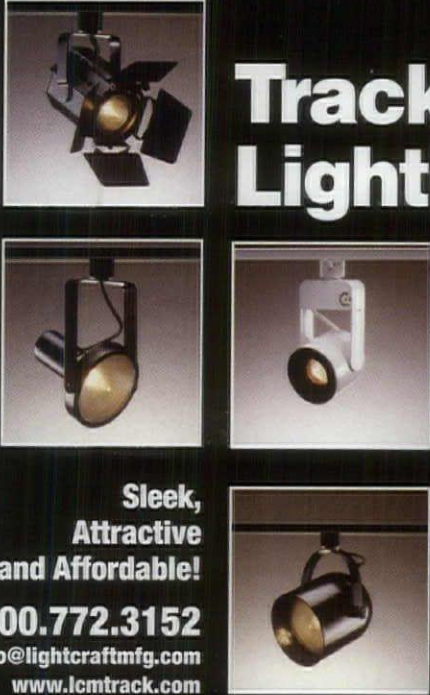
WILLARD WARREN | WILLARD L. WARREN ASSOCIATES

I've taught Illuminating Engineering to EE's and lighting design to interior designers and architects, and the only similarity is the vocabulary. Twenty-five years ago, Richard Hayden, Jules Horton, and I sat down with Leslie Wheel to discuss the subject of professional recognition for lighting designers. Dick, Jules, and I are registered professionals, and it seemed obvious to us that the IALD should seek such accreditation. Leslie dissented, pointing out that an exam with a lot of math would be required, and while we were proficient in that skill, she was not. But none of us could design the lighting of a hotel as expertly as she could. She said that Dick could visualize a grand space, and she could create the look he wanted, but depended on engineers like Jules and myself to tell her where the lumens would wind up. Leslie viewed lighting design as a collaborative venture, where skills are shared and the combination of imagination, creativity, and engineering are all brought to bear.

Some years later, the Feltman Chair in lighting at the Cooper Union was created. Here, lighting is taught as an interdisciplinary subject to students from the schools of Art, Architecture and Engineering. Lighting design should be taught in an institution that allows interaction between these disciplines, because that's what is necessary in the real world, and the earlier they get to collaborate with other professionals, the better the lighting designs will be and the better that common vocabulary will be understood by all.

PAGE	ADVERTISER	CIRCLE NO.
21	Alanod	2
67, C4	Architectural Area Lighting	160, 34
24, 67	Bartco Lighting	49, 162
51, 67	B-K Lighting	7, 161
32, 67	C.W. Cole	50, 163
28, 67	Con-Tech Lighting	73, 164
55, 67	Cooper Lighting	78, 165
8	Delray Lighting	40
22, 68	Engineered Lighting Products	42, 166
20, 68	Estiluz	100, 167
6-7	FAD Lighting	95
34	Gardco Lighting	98
12, 68	GE Consumer & Industrial Lighting	59, 168
4-5	Hubbell	105
9	IEPC Corp	101
63	Insight Lighting	74
29	Kim Lighting	12
18, 68	Ledtronics	83, 169
31, C3	Leviton	63, 46
71	Light Craft Manufacturing	103
66	Lightfair 2005	75
46, 68	Lightolier	35, 170
11, 68	Lithonia Lighting	77, 171
52, 69	Lumec	108, 172
C2-1	Lutron Electronics	9
59	Martin Architectural	54
23	Mechoshade	44
30, 69	Metalumen Mfg. Inc	91, 173
69	Mills Architectural Lighting	174
17, 70	Osram Sylvania	38, 179
60	Pathway Lighting	16
2-3	Prescolite	28
27	Prudential Lighting	47
58, 69	Sea Gull Lighting	67, 175
45, 69	Selux	85, 176
61, 69	Semper Fi Power Supply	96, 177
64	Sentry Electric Corp	56
56, 70	Special FX Lighting	79, 178
33	Tech Lighting	8
54	Traxon	65
16	Venture Lighting	104
15, 70	Visa Lighting	21, 180
14, 70	Vossloh-Schwabe	107, 181
62	WAC Lighting	72

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