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# architectural lighting

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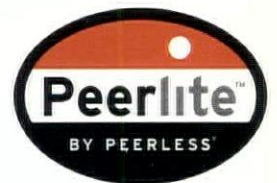
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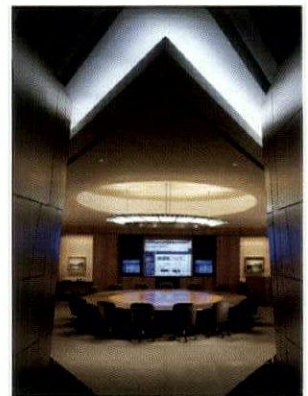
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## architectural lighting

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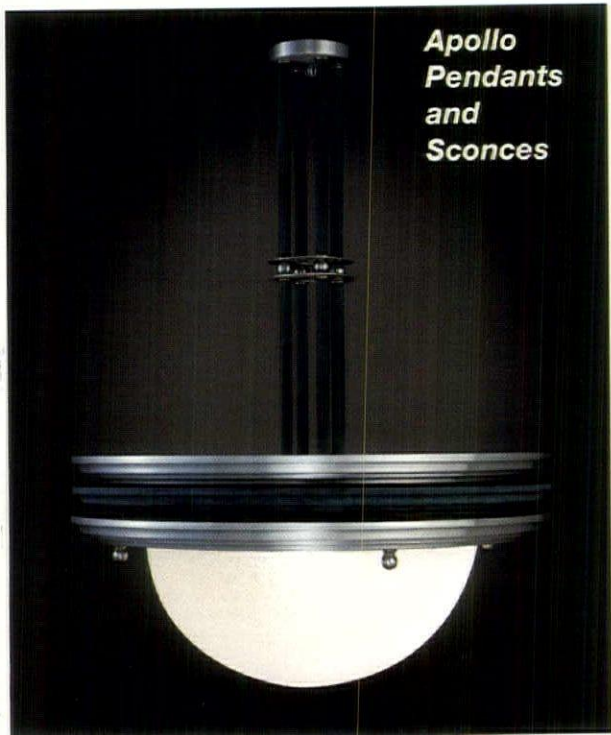
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## WHAT IS QUALITY LIGHTING DESIGN?

Lightfair is just around the bend and once again, lighting professionals anticipate the introduction of new products and the unveiling of new technology that will both facilitate and freshen their lighting designs. In gearing up for this year's show and preparing this issue, I was once again struck by how technology has been driving the design field—possibly more than we'd like to admit. But, as the saying goes, "necessity is the mother of invention." And this trend was largely born of the energy efficiency boom of the 1980s and early '90s when the development of new technologies was critical.

Although one still can't call lighting a high-tech field (despite some pretty amazing controls and innovations like the sulfur lamp), it is no longer the staid industry it once was. The bar is rising quickly. Every new advancement in technology, usually starting with the lamp manufacturers, had led to the development of new fixture designs—sometimes not as fast as we'd like, but eventually, it does happen. And specifiers enjoy many new choices of approach enabled by new technology. For example, the T5/HO lamp, which we cover on page 90, has resulted in smaller fixture designs that provide the benefits of indirect or indirect/direct lighting while being less architecturally obtrusive.

But has design become *too* technology driven? Has technology replaced technique? Light is a medium that affects and creates space and not just the product of a fixture. We must continue to be conscious of the light. It doesn't matter how much technology is thrown into a project; it is *technique* that reveals the space.

In the vast landscape of lighting design, there are many individual ideas on what quality lighting design is, but is there consensus? As we look to the IALD Awards to be presented at Lightfair, we do see great innovation in lighting design from which we can all learn. This and other award programs are at least one measure of what we consider quality lighting

design. After all, they are judged by our peers. But are there wholly objective criteria to defining quality design—beyond meeting the standards of what we all consider good practice? Most would agree that there must be a bridge between the purely engineering approach and aesthetics to achieve a cohesive end. The basics are imperative to achieving successful solutions—but how are execution of approach and expansion of ideas articulated, and can they be learned?

What's missing is schools of thought. Will there be rival schools in lighting design as there are in other disciplines such as architecture and interior design? Perhaps it is good that we all agree. Or do we?

Maybe each of us is an individual school of thought—there are many definitions of quality lighting depending on who you ask. Possibly the schools will develop around award winners and their tried-and-true approaches. As our field rapidly matures, it will be interesting to see if it becomes large and strong enough to support strongly defined competing ideas on how design should be done.

What do you think? What is quality lighting design? In an effort to make our magazine more interactive, *Architectural Lighting* has created an opportunity within these pages to let voices in the industry be heard and

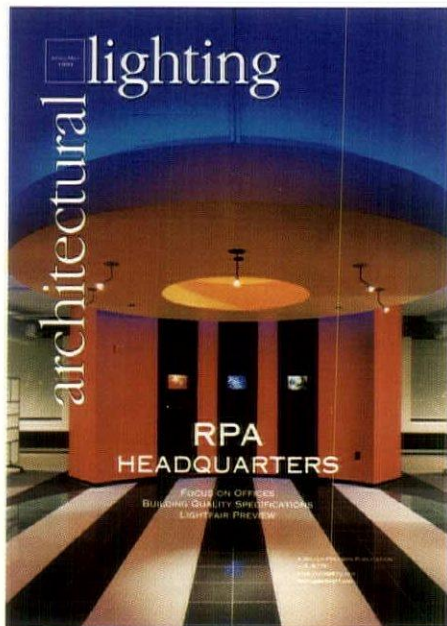
shared. Each month, "Light Points" (page 10) will pose a new question—usually pertaining to a subject discussed in the issue—and print the responses in a subsequent edition. But while the addition of this column was designed to provide readers with a forum for discussing specific issues, your thoughts and comments about *all* industry topics are always welcome.

We look forward to seeing you at Lightfair!



PHOTO BY CHRIS LAMB

CHRISTINA  
TRAUTHWEIN,  
EDITOR-IN-CHIEF

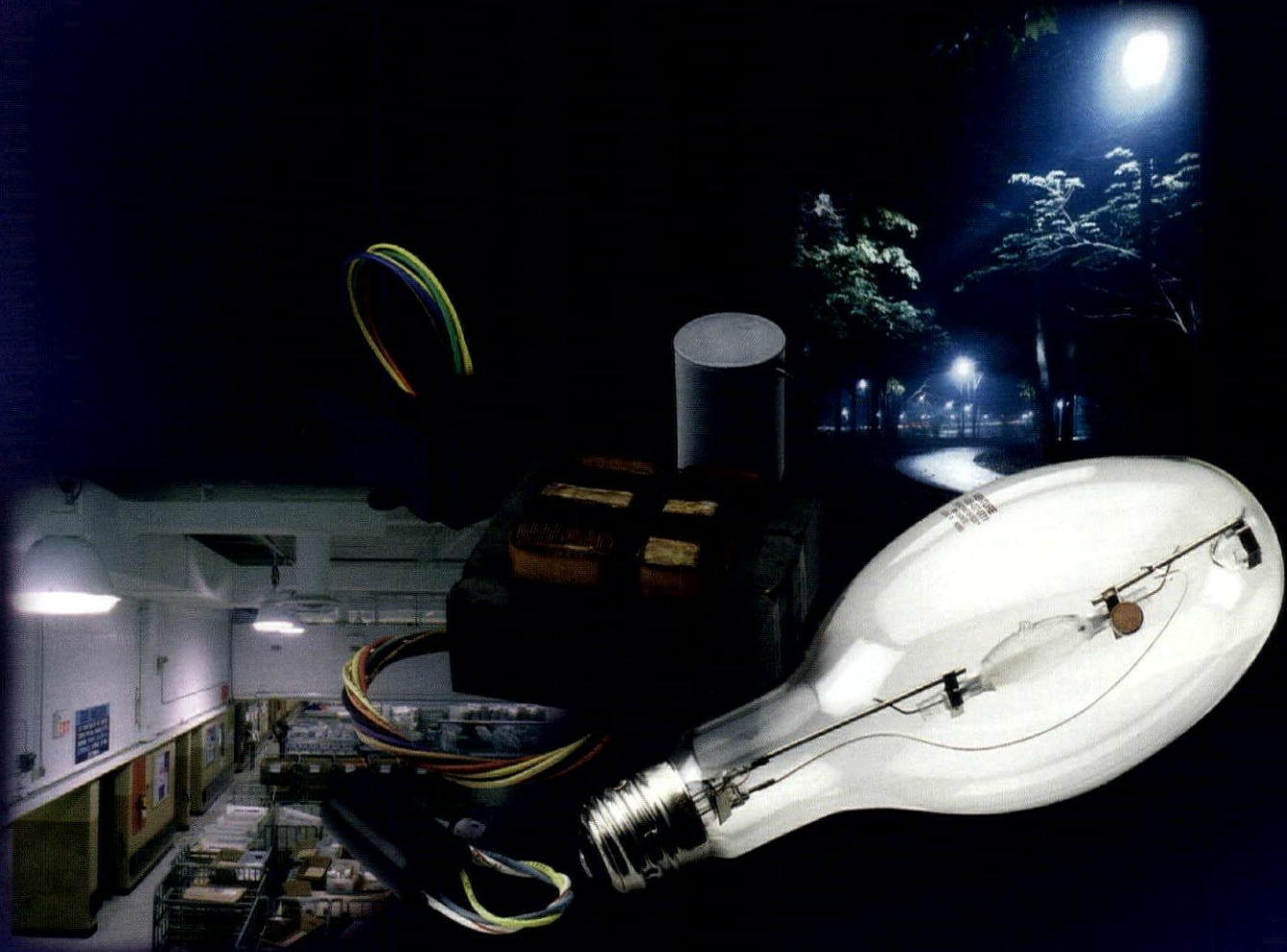


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In the last issue of *Architectural Lighting*, readers were asked: How do *you* hold specs?

**We have established** an in-house list of approved manufacturers (for the most commonly specified fixture types) that our company will consider on projects. Our basis for selecting a particular product for the application is established by evaluating product quality/performance, representation and service, delivery and familiarity with the products.

We will specify products on projects in the most efficient and fair manner we can. We will always try to maintain a competitive situation whenever possible by specifying at least two equal products (excluding some exceptions). We will also try to balance the schedule as much as possible so as not to give one manufacturer an unfair advantage.

We ask that lighting reps and supply houses respect that specification. We try our best to be fair and will consider their products on another project. This will allow for all the approved manufacturers to be equally active in bidding our projects.

It is often impossible to establish the perfect fixture schedule that will please everyone. If for some reason the reps or suppliers feel an unfair situation has occurred, we encourage them to let the project engineer know; we will either try to correct it or prevent it from happening on the next project.

— THE STAFF AT LANG ASSOCIATES, INC.  
Wausau and Green Bay, WI

**Only a great amount of tenacity** and the extra research involved to hold specs enable projects to come in at—or under—budget without compromising the design. I have found the results to be well worth the effort. A method I've fine-tuned over the past 10 years recently resulted in savings of \$134,000 on an \$85,000 lighting installation. In fact, this approach to holding specs has paid for my firm's lighting design services on a number of projects.

In order to write a competitive specification and not be overrun by other's packaging, you have to write the package yourself by building it into design specifications. Some jobs, because of their unique design requirements, cannot be successfully packaged. On those jobs, we rely on our relationships with manufacturers and manufacturers' sales agencies to preserve our specifications.

There have been times when we've been able to avoid extensive redesign and loss of design features by anticipating the "value engineering" numbers prior to the bid. For a recent project, we sat down with the contractor and evaluated the fixture costs along with the installation costs. My firm went back over every aspect of the project, down to recounting the fixtures, as if we were bidding it ourselves. We acquired cost data directly from the manufacturers, with numbers specific to our preferred design and our design alternates. We then negotiated special pricing for our clients prior to completing the fully documented five-name spec. The specification was created after evaluating the design implications of each packaging option and their associated cost implications in three versions of a custom spreadsheet. Any fixture alternates representatives could supply during the value-engineering process were solicited by us for evaluation. It is bringing the figures in writing to the table that enables us, as lighting designers, to work with contractors to save costs in ways that do not compromise the integrity of the project. We had both the architects' and the owners' full support in this process. While this eases the bid review process, it is not something that can be made up for in our fee for construction administration. This work was completed as an hourly additional service. Although the owner could not know it up front, the savings from authorizing this pre-bid cost analysis more than paid for our design fee on the project.

In today's building market, the condensing of the design processes to match the shortened building cycles can leave a design team without all the information needed to make decisions. The bidding processes have a tendency to occur at times more in sync with financial forces than design phases. It's important to take an active role and understand what information the contractor will have to assemble the pricing and offer recommendations for bid formats that best inform the design team about the true cost implications.

Cost evaluation processes are essential to lighting consultants for tightening the design, reducing overage and earning a reputation among architects, designers, contractors and suppliers for understanding the numbers. While understanding the numbers may seem basic, alternates and packages make it a truly complex issue. Each project will require a slightly different approach.

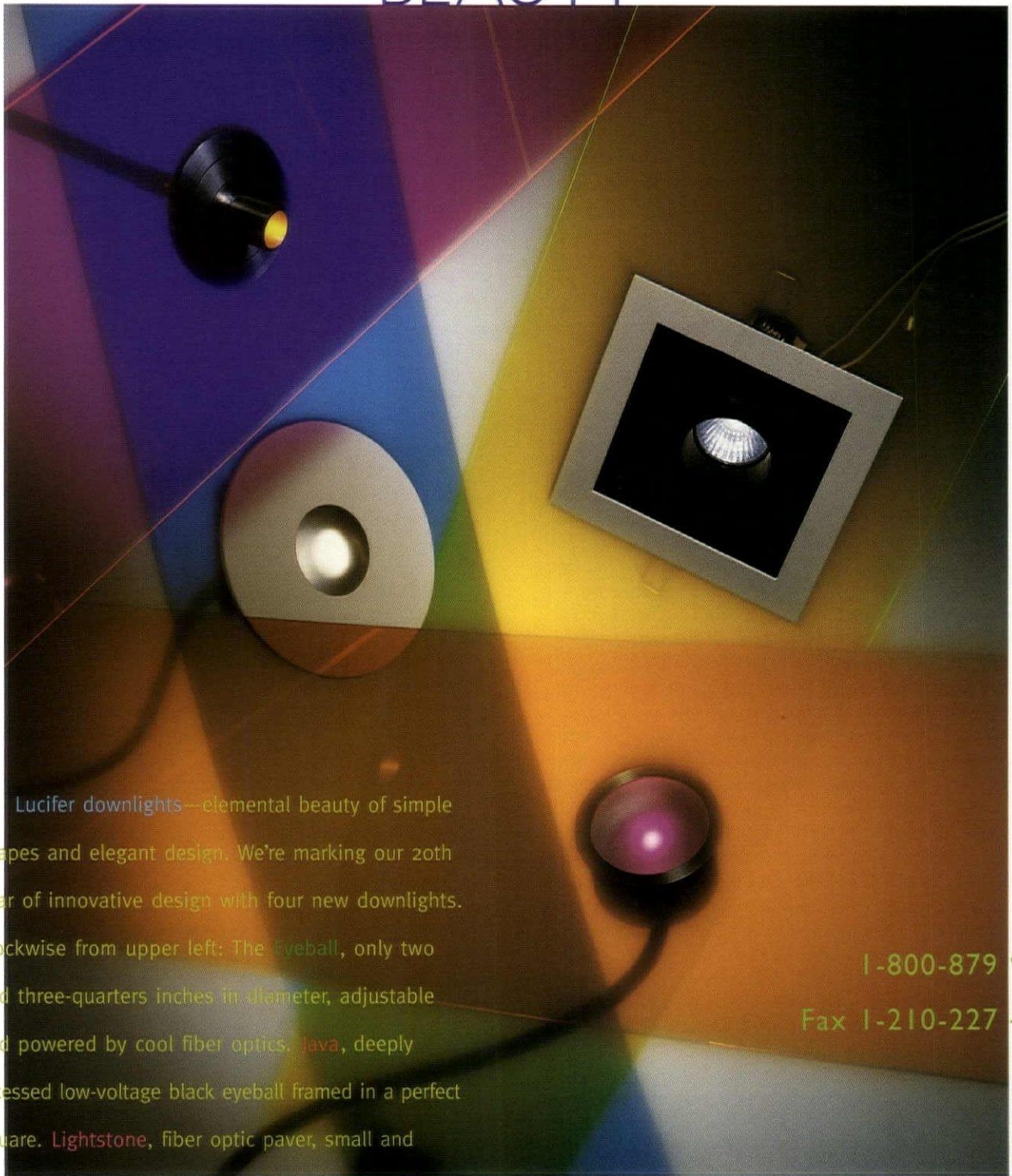
— DEBORAH WITTE, ASID, CID, MIES  
Principal, Lighting by Design, San Francisco

Talk to us...

Have you specified T5 fixtures?  
What were the results?

Fax your response to Christina Trauthwein at (212) 279-3955, or respond by e-mail to [ctrauthwein@mfi.com](mailto:ctrauthwein@mfi.com). Answers will be printed in the July issue.

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**To the Editor:**

Thank you very much for the lighting source directory issue. It is now a permanent fixture on my desk and I plan to refer to it constantly. It is very comprehensive, and a wonderful tool that will quickly get me where I need to go to find lighting resources.

I don't understand, though, why so much of the issue is devoted to the IALD. I recognize the names of many people I respect. I didn't find a single person from Wisconsin and very few from the Midwest, which tends to confirm my feelings that the organization is an elitist club. Just when I cleared the LC hurdle, here's another reminder that I can never be one of "them." I left gainful employment last year to start my own company. There are not enough lighting consulting dollars in Wisconsin to support what it is that we are trying to, so we buy and sell material to supplement our incomes. That activity automatically excludes us from applying for membership, which I think is unfair.

We are not a showroom, nor are we manufacturers' representatives. A lot of the lighting we find and specify is not available for sale through typical distribution here, and rather than just give up and accept a poor substitution, we find a way to get unique products to our clients, which sets our jobs apart in this marketplace. We feel this is a valuable service to our clients who then are able to get a quality of finished appearance that surpasses their expectations.

I can't believe that there are not IALD professionals who never buy lighting for their clients or accept gratuities and "finder fees" for specifying a particular manufacturer's products. I'll bet the practice is so widespread that most professionals just wink at it and deny it goes on...but hey, they're "in." We feel we're doing it honestly and above board by any standard. We don't accept substitutions and we don't believe that alike fixtures are equal. We make sure that what we specify has every chance to get to the job.

May I suggest that the IALD have a peer review of membership application requests as a necessary adjunct to their acceptance criteria. Rather than summarily disqualifying an applicant based on activities in a portion of the market they deem to be in conflict with their standards, perhaps they should be looking at what an individual has contributed to the industry, what their work looks like today and what they could do in order to advance the goals and standards of the organization's character.

There are members in the IALD who, because of their activities, would now be automatically disqualified from becoming a member in the first place. There exists the conflict that undermines the IALD's credibility for those of us who know the industry.

I respect your magazine, but the IALD membership listing was too "in-your-face" for my taste. If they paid your magazine to post the listing, perhaps you should have capped the pages as a "special paid advertising section." What about the members of the DLF or the IES or the list of people with certification? Professional standing in those groups means something to the people who belong to them, and they also subscribe to your magazine. Why not acknowledge them? Or aren't they important enough to the overall industry? Or is it that you have determined that there should be a glass ceiling defining an established Olympus in which only gods or goddesses may dwell? It seems that by listing the IALD membership you have snubbed the rest of us and denigrated the value of our accomplishments by championing a preferred status.

**Steven L. Klein, LC**  
*President, Klein Howard Lighting LLC*

**Editor's Response:** *The decision to print the IALD membership directory is indicative of Architectural Lighting's close relationship with and extreme respect for the organization and our involvement in cosponsoring their annual awards event, among other joint ventures. We do recognize, as a publication for the lighting industry, the importance in trying to set a higher standard of quality lighting design, and feel the IALD plays a significant role in that endeavor. Of course, they are not the only organization to support the advancement of the field. I do apologize if our overt listing of them suggests that.*

*Architectural Lighting is a strong supporter of any group or individual that embraces excellence in lighting design. We back the efforts of the NCQLP in developing certification so that the industry as a whole will acknowledge the importance of lighting designers as professionals. Next year, it is our intention to include those that have become certified in the Directory issue, and if the various DLF branches are willing to supply their membership lists, we will consider including them as well. Additionally, both Craig and I are members of the DLFNY and IES and have offered an open invitation to those organizations and the Lighting Industry Resource Council (LIRC) to hold meetings at the offices of Architectural Lighting. They have all accepted on various occasions. We continually support these groups' programs on many levels.*

*There are many accomplished designers that were not included in the Directory. We do value the achievements of all lighting professionals, both IALD members and non-members, and have clearly and continuously illustrated that by publishing projects from all members of your field.*

*This was our first Directory issue and all comments from the readers will be taken into consideration when planning future issues.*

**To the Editor:**

After reading Mr. Witt's thought-provoking letter in the January/February issue, I reread a copy of the Perspectives article I wrote two years ago about the "Gourmet" Lighting Rep. In it, I said that "meaningful savings come from honest competition of the primary fixtures, not from accepting non-equals on the specialty types."

I assume the "decorative fixtures" for Mr. Witt's library would be any that penetrate the architectural space and that his consultants chose competitive recessed fixtures. This certainly looks like a step in the right direction. I hope you will share the results of the process with your readers when the project is under contract and fixture orders are placed.

On the negative side, I assume the four reps chosen to participate are packaging agents. This drives another nail into the coffin of the "Gourmet" rep who is usually better suited to present decorative fixtures to the specification community—maybe he or she is already a dinosaur.

**Warren Meltzer**  
*Lake Creek Associates*

**To the Editor:**

How does Mr. Witt get his projects? Does he wine and dine his clients, expecting to receive the project? Engineers and lighting consultants depend on the knowledge of the manufacturer's representative to provide them with innovative insight and product information. This time saved is of great value. The same goes for a good architecture firm—their knowledge base is of great value to an owner. So, in making the specs a little harder to bid on by other reps who did not do anything seems fair. Stop complaining, Mr. Witt. How do laws get written? Lobbyists.... not congressmen.

*received via e-mail*



# Introducing A New Era In Lighting Controls

Here's exciting news for lighting designers, architects and specifiers alike. Leviton's Lighting Control Division has created an extensive new line of commercial and residential lighting controls that offer advanced digital and electro-mechanical technology, new styling, low profile and easy installation. So you can throw away that 20 year old technology that you've been using

and let these state-of-the-art box mounted dimmers add a wonderful new dimension to the ways you design around light. Contact Leviton's Lighting Control Division, your new single source supplier for all your dimming needs. Call 1-800-323-8920 or check out our website at [www.leviton.com](http://www.leviton.com)

  
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## ACQUISITIONS & VENTURES

**SPI Lighting, Inc.** has announced the acquisition of **Advent Lighting**, a manufacturer of architectural decorative and custom lighting fixtures. Advent Lighting will continue its operations in its new manufacturing facility in Appleton, WI.

**LSI Industries Inc.** has completed the acquisition through merger of **Mid West Chandelier Company** and **Fairfax Lighting Co.** Located in Kansas City, both companies

design, manufacture and sell fluorescent lighting fixtures for the retail and commercial markets. The new company will be known as LSI Mid West Lighting.

**Hubbell Lighting, Inc.**, a subsidiary of Hubbell Incorporated, has announced an agreement to acquire **Chalmit Lighting** from Whitecroft plc of the United Kingdom.

Based in Glasgow, Scotland, Chalmit manufactures lighting fixtures for hazardous and

corrosive locations and serves an array of customers in oil, gas, petrochemical, marine and general industrial markets.

**Cooper Lighting** and **Universal Sports Lighting** have entered into a joint venture to develop new sports lighting systems for the professional and amateur sports market. The business alliance is debuting with a new turnkey sports lighting system designed for outdoor athletic venues.

## GENLYTE CONSOLIDATES TWO DIVISIONS

Larry Powers, president and CEO of Genlyte Thomas Group LLC, has announced that the Los Angeles-based Accent Division will be consolidated with the Day-Brite Division in Tupelo, MS, effective April 16, 1999. The new entity will be known as Day-Brite/Capri/Omega.

The Accent Division consists of Capri downlighting and track, and Omega architectural downlighting. Capri and Omega brand responsibilities will be phased in at Tupelo.

## IES ANNOUNCES MIDWEST EVENT

The IES has announced the debut of Prairie Lights, which will take place September 17-18, 1999 at the Hyatt Regency in Chicago. Sponsored by the IESNA North Central Region and hosted by the IESNA Chicago Section, Prairie Lights will showcase the latest products and technology from lighting manufacturers and include seminars led by highly visible speakers from the industry. For more information, call (312) 640-8900.

## CALL FOR ENTRIES...

**Restoration and Renovation** is inviting proposals for conference presentations relating to restoration, renovation, rehabilitation and historically inspired new construction. Restoration and Renovation, the commercial trade exhibition and conference for the preservation, maintenance and re-creation of traditional buildings, period design and craft, will be held November 7-9, 1999 in Charleston, SC and February 27-29, 2000 in Boston.

Presentations for the Boston conference are being sought. Deadline is June 1, 1999. For more information, write to: Conference Manager, EGI Exhibitions, 129 Park Street, North Reading, MA 01864; phone (978) 664-6455, fax (978) 664-5822 or e-mail show@egiexhib.com.

Papers are being sought for the **1999 IES Australia and New Zealand Annual**

**Convention and Lighting Exhibition**, which will take place October 18-19 in Adelaide, South Australia. The theme for 1999 is "Then, Now and Beyond." For more information, contact Ray Earle by phone at 61-8-8235-9609, fax at 61-8-8235-9030 or e-mail at ats@eol.ieaust.org.au.

**The National Lighting Bureau (NLB)** is accepting submissions for the 20th annual National Lighting Awards Program. The awards program recognizes lighting applications that demonstrate the value of "High-Benefit Lighting," a term coined by the NLB to designate electric illumination designed to fulfill the purpose for which it is used, thus generating significant bottom-line savings.

This year, the entire program is located on the Internet, at [www.nlb.org](http://www.nlb.org), the Bureau's website. To be eligible for consideration, the project

must have been completed on or after January 1, 1996. Entries must be received no later than October 31, 1999.

**The New York Chapter of the Illuminating Engineering Society of North America** is inviting entries for the 1999 Richard Kelly Grant, an education grant recognizing and encouraging creative thought and activity in the use of light. Winners will receive cash grants up to \$2,000.

Eligibility is limited to persons 35 years of age or younger at the time of submission, working or studying in the U.S., Canada or Mexico. The deadline for submissions is June 11, 1999. For more information, contact Holly Bernard, The Richard Kelly Grant c/o IESNA, 120 Wall Street, 17th floor, New York, NY 10005; phone (212) 248-5000; fax (212) 248-5017.

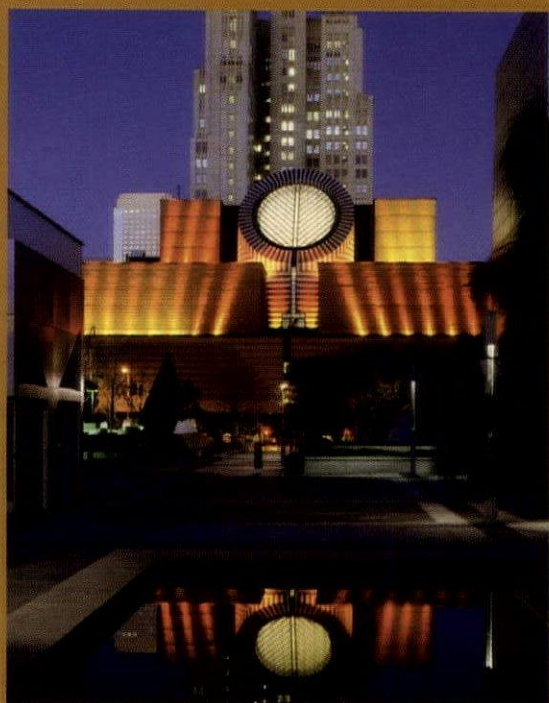


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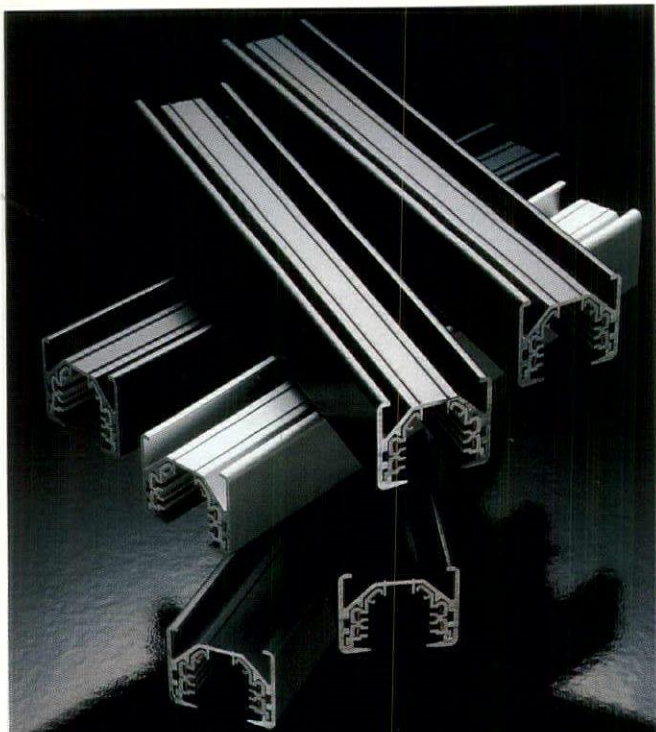
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## CONGRATULATIONS LCS!

The following people passed the NCQLP's Lighting Certification (LC) exam, which was administered on November 7, 1998. List courtesy of the NCQLP.

- |                                 |                                |
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| Mark Allen, LC                  | Sarena A. McComas, LC          |
| Shad Arnold, LC                 | Larry S. McKee, LC             |
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| Michael Barrere, LC             | Monik Mehra, LC                |
| Aravind Batra, LC               | Brian E. Mitarotonda, LC       |
| Andrew J. Beldecos, LC          | Jennifer Mitarotonda, LC       |
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| Nancy E. Clanton, LC            | Zoe Taylor Paul, LC            |
| E. Frank Clements, LC           | C. Peter Perkuhn, LC           |
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| Juanita A. Cox, LC              | Sidney A. Phillips, Jr., LC    |
| L. Mark Cywinski, LC            | Timothy C. Pike, LC            |
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| Michael Font, LC                | Stan G. Reynolds, LC           |
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| Anne Kustner Haser, LC          | Denise K. Simpson, LC          |
| Glenn Heinmiller, LC            | Deborah L. Smith, LC           |
| Robin Holthouser, LC            | Mark Spizzo, LC                |
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## WOLFERS ANNOUNCES OPENING OF DESIGN CENTER

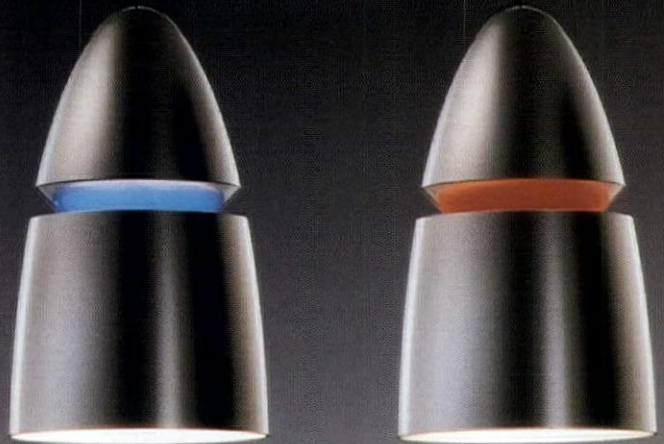
Wolfers Lighting, Standard Electric Company, has completed renovation of its state-of-the-art lighting showroom and design center, located at 103 North Beacon Street in Allston, MA. For more information or a tour of the 10,000-sq.-ft. facility, call Bonnie Forbes, showroom manager, at (617) 254-0700.

## FIBER OPTICS SUBCOMMITTEE SEEKS MEMBERS

The Fiber Optics Testing Procedure Subcommittee is seeking committee members who have experience in the fiber-optic industry and understand the needs for testing results. The subcommittee will develop a testing guide for fiber-optic components. Members should expect to travel and attend two meetings a year.

The subcommittee falls under the IESNA Testing Procedures Committee and is chaired by Don Smith of Lighting Sciences, Inc. Interested applicants should contact Rita Harrold at the IESNA office by phone at (212) 248-5000, ext. 115, fax at (323) 248-5017 or e-mail at rharrold@iesna.org.

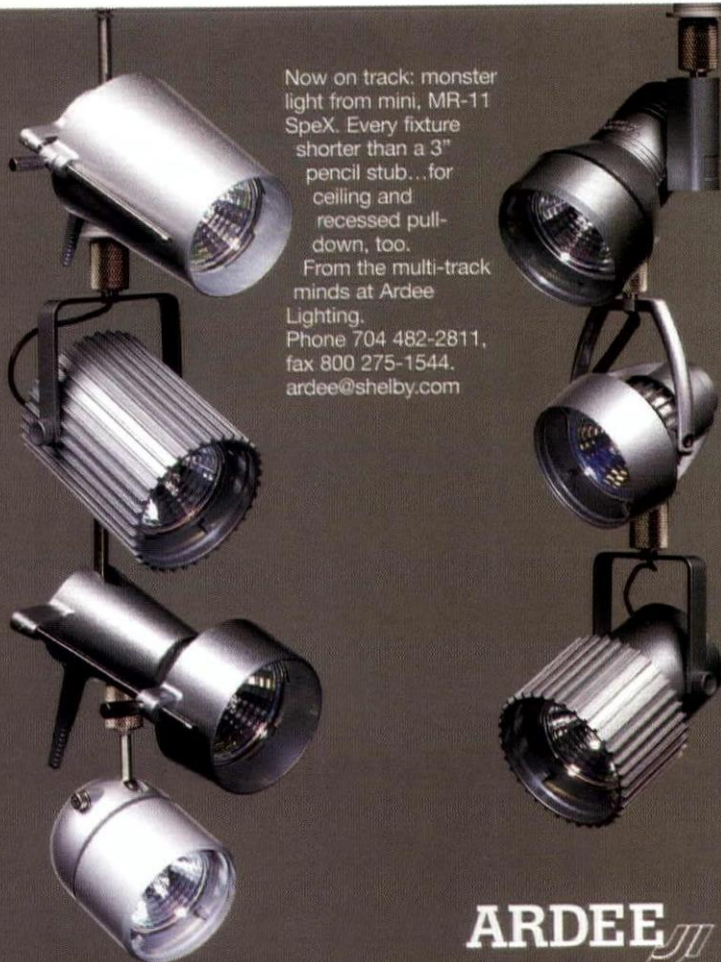
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## ON THE WEB...

**The Hillier Group**, an architectural firm, has announced the launch of its website at [www.hillier.com](http://www.hillier.com).

**Focal Point LLC** has introduced [www.focalpointlights.com](http://www.focalpointlights.com). Users can download product and application shots and obtain specification sheets and photometric reports. The website also links to industry data and resources.

**Prudential Lighting's** website is located at [www.prulite.com](http://www.prulite.com).

**Consentini Associates LLP** has launched a website at [www.cosentini.com](http://www.cosentini.com). The site provides information on the company's history, locations, and services and seminars offered.

**Shepley Bulfinch Richardson and Abbott** has announced the launch of their website at [www.sbra.com](http://www.sbra.com).

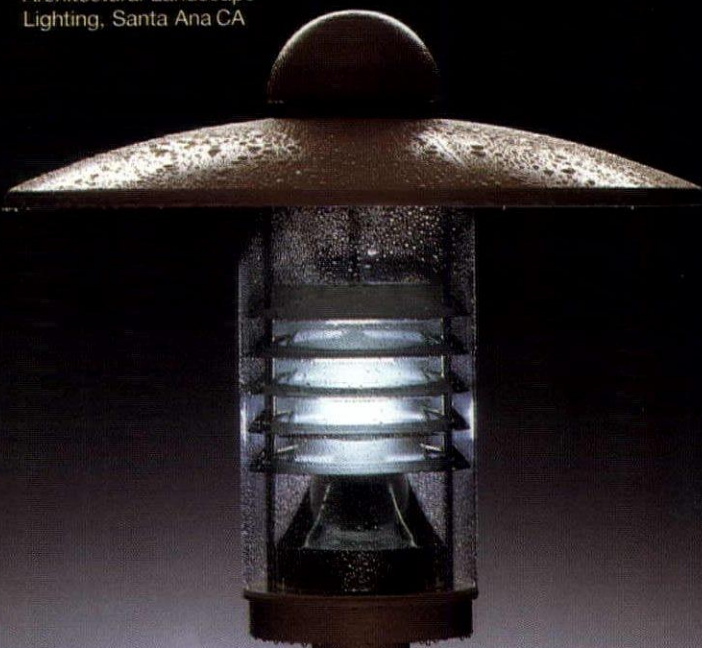
**The National Lighting Bureau's** website at [www.nlb.org](http://www.nlb.org) offers information on "High-Benefit Lighting." In addition, the website provides an overview of the bureau, a list of sponsors with links to their sites and information on the National Lighting Awards Program. Browsers can also download an Awards Program entry form.

## NEMA DRAFTS SPECIFICATION SYSTEM FOR COMPACT FLUORESCENTS

NEMA's Lamp Section has developed a draft Energy Star Screwbased Lamp System Specification. If passed, the Department of Energy (DOE) and the Environmental Protection Agency (EPA) will use this specification for the Energy Star Program/Green Lights. The Energy Star specification, recently published by the DOE, will be officially announced at Lightfair 1999, to be held in San Francisco in May. Compact fluorescent lamp manufacturers will label their lamps as Energy Star compliant after DOE finalizes the specification and signs memoranda of understanding with individual manufacturers.

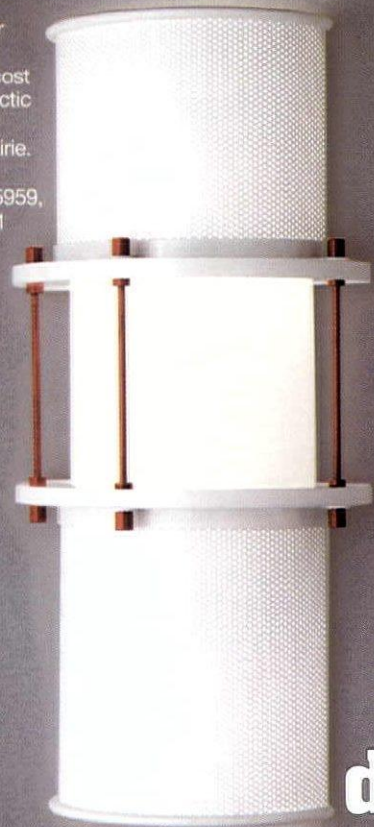
Through the development of this specification NEMA will provide guidance to the federal government on the development of voluntary energy efficiency programs.

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## LARGER DOE BUDGET MAY MEAN MORE RULES

For the fiscal year 2000, the Clinton Administration's increased budget proposal for the Department of Energy indicates that the DOE will accelerate the rulemaking for fluorescent lamp ballast energy efficiency standards. According to the National Electrical Manufacturers Association (NEMA), they will work to ensure that the DOE follows the process rule. If the DOE does not, future rulemakings may be compromised, said a spokesman for NEMA. A proposed rule is anticipated by August 1999; the final rule is expected by June 2000.

*Lamp Section:* If DOE publishes a final rule for ballast rulemaking that eliminates magnetic ballasts, it will affect sales of T12 lamps, the spokesman said. An increased budget will increase the DOE's "market pull" programs for compact fluorescent lamps. Market pull programs promote energy efficiency upgrades through private-public partnerships. The good news: NEMA will attempt to ensure that the DOE does not promote the sale of poor quality lamps through overemphasis on energy savings at the expense of quality.

*Luminaire Section:* If the DOE publishes a final rule for ballast rulemaking that eliminates magnetic ballasts, it will adversely affect sales of T12 lamps and luminaires, said the NEMA spokesman.

*Lighting Controls Council:* Increased FEMP funding will mean an increase in training for ESPCs. NEMA will work to get language in a new executive order on federal energy efficiency. NEMA will also monitor the DOE's research and development efforts.

## FIBER OPTIC DESIGNS FORMED

Fiber Optic Designs, a research and development company, has been formed in Yardley, PA to develop and market lighting and filtration products. The company operates two divisions: optoelectronics and UV filtering. Several energy-efficient lighting products are scheduled for introduction in 1999. To contact Fiber Optic Designs, call (215) 504-1964.

## ALBERT KAHN ASSOCIATES GAINS ISO CERTIFICATION

Albert Kahn Associates, Inc. has become one of the first architectural and engineering firms in the U.S. to receive ISO 9001 certification. To receive certification, a company must meet a range of stringent, international quality requirements.

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## ON THE MOVE...

**Vista Lighting and Morlite Systems, Inc.** have opened a new joint manufacturing and office facility. Providing 36,000 sq. ft. of open workspace, plus parking and loading-dock facilities, the new facility allows both companies to keep their headquarters and primary manufacturing in Erie, PA. The facility is located at 1805 Pittsburgh Ave., Erie, PA 16502.

**Ledtronics** has relocated to a new building at 23105 Kashiwa Court in Torrance, CA. The new facility is 63,000 sq. ft., providing more than three times the manufacturing space of their previous facility. Phone: (800) 579-4875.

**Leucos USA** has announced its expansion from a 9,000-sq.-ft. facility to a 26,000-sq.-ft. venue, located in Raritan Center, Edison, NJ. The new warehouse will better accommodate the recent distributorship of Venini lighting in the U.S. Phone: (732) 225-0010.

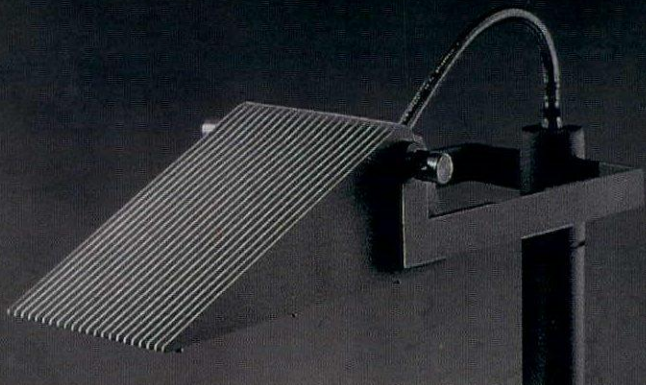
**Auerbach + Associates** and Auerbach + Glasow have relocated to 225 Green Street, San Francisco, CA 94111. Phone: (415) 392-7528.

**CU2HA's** Chicago office has expanded and relocated to 200 South Wacker Drive, Suite 3700, Chicago, IL 60606-5802. Established last year, the Chicago office provides the same level of services offered by the firm's headquarters in Princeton. Phone: (312) 258-1212.

**Motorola Lighting Inc.** has moved from its facility in Buffalo Grove, IL to a new, larger automated manufacturing facility in Lake Zurich, IL. The new facility will double Motorola's electronic ballast manufacturing capacity. Phone: (847) 726-6407.

## NEC TO ADDRESS ELECTRIC DISCHARGE LIGHTING

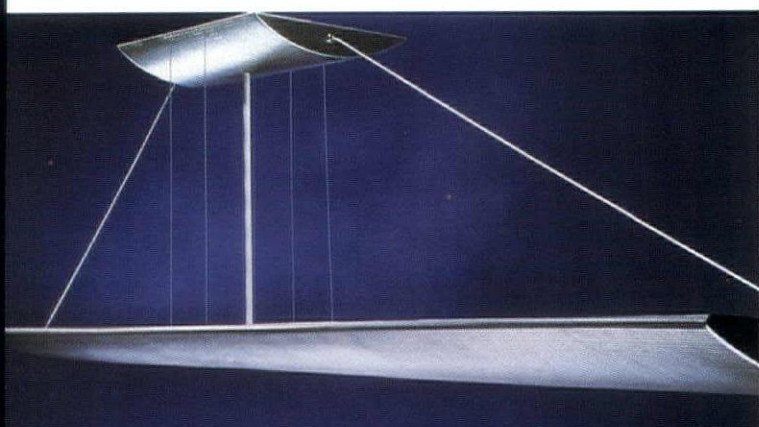
John Minick, NEMA Southeast field representative and NEMA's principal representative on the National Electrical Code (NEC) Code Making Panel (CMP) 1, has been appointed chairman of a NFPA NEC Technical Correlating Committee Task Group, formed to recommend appropriate action on Comment 1-176. Comment 1-176, related to Proposal 1-75 in the 1999 NEC revision cycle, proposed the addition of a definition for electric discharge lighting to Article 100 of the NEC. CMP 1 decided to place the proposal on hold. Minick plans to include members of CMPs 1 and 18 in the task force, which will then review the issue and propose a course of action to the technical correlating committee.



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## CON-TECH ANNOUNCES AWARDS COMPETITION

Con-Tech Lighting is seeking entries for the new annual 1999-2000 Sirius Awards competition. Cash prizes totaling \$3,500 will be awarded for outstanding creative lighting designs using Con-Tech Lighting's Sirius low-voltage lighting system. Con-Tech Lighting President Al Grossman will present the awards at the Con-Tech Lighting booth at Lightfair International 2000.

The deadline for submissions is December 31, 1999. For more information, contact Con-Tech Lighting, 3865 Commercial Avenue, Northbrook, IL 60062; phone (847) 559-5500.

## CORRECTIONS

In the 1999 Lighting Source Directory, the phone and fax numbers listed for The Watt Stopper correspond to their Texas office. The Watt Stopper's California phone number is (408) 988-5331 and fax number is (408) 988-5373.

Also in the Directory: Tivoli Industries' e-mail address was listed incorrectly. They can be reached at [Tivoli@Tivolind.com](mailto:Tivoli@Tivolind.com).

In our January/February 1999 issue, the architects for the Caesars Atlantic City Hotel project were Cope Linder Associates, not Brennan Beer Gorman/Architects, L.L.P.

*Architectural Lighting* regrets the errors.

## APPLIED ILLUMINATION ENGINEERING, SECOND EDITION

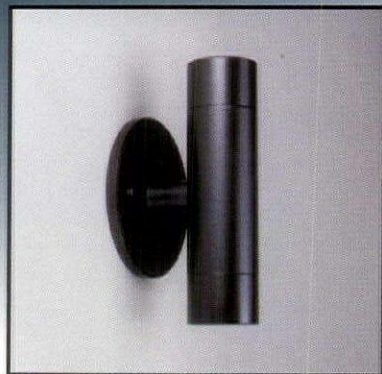
**Jack L. Lindsey, FIES**  
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This reference provides a fully illustrated guide to lighting design, specification and application. The full scope of light sources is examined, and basic methods for both indoor and outdoor lighting are presented along with optimum application strategies for a variety of sites. The second edition features a new chapter on skylights for industrial buildings, covering layout parameters and daylight availability calculations used to predict skylight performance. The chapter on lighting retrofits has been revised to emphasize methods for analyzing potential retrofits and examining how retrofit results can be predicted, how retrofit proposals should be evaluated and how common mistakes can be avoided. Lighting maintenance, as well as the economics of lighting design, including life-cycle cost analysis, are also covered. ISBN: 0-88173-212-5; 6 x 9; (hardcover); 514 pp., illus. Fax orders to: (770) 381-9865

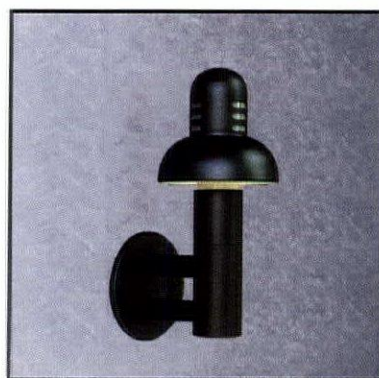
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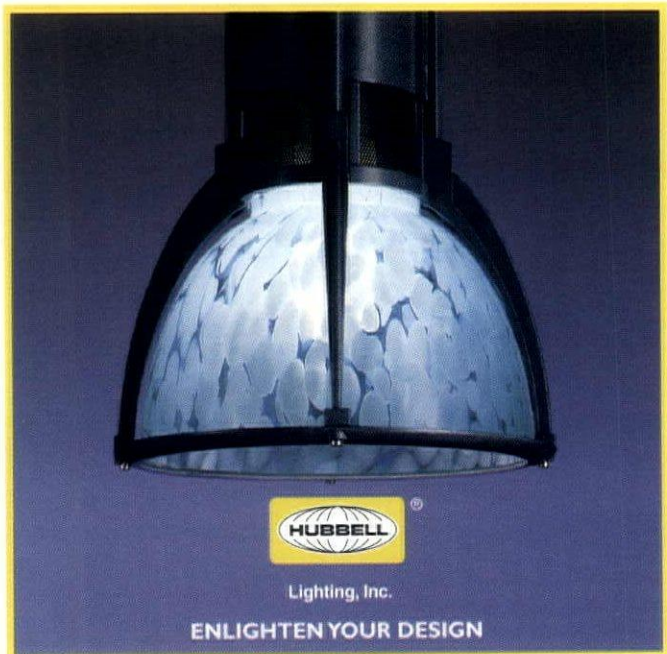
**Janet Lennox Moyer, IES, ASID**

*John Wiley & Sons, Inc.*

A national authority on this emerging field offers a comprehensive guide to the art and science of designing, erecting and maintaining an outdoor lighting system. Packed with detailed photos, sketches, plans and drawings, this resource presents in-depth coverage on how to plan, design and build a project. The book also includes a review of all technical components and materials and a discussion of specific issues of landscape design setting and its elements—plants, sculptures and structures, water features, etc. ISBN: 0-471-52726-2; 8 1/2 x 11 1/2; (hardcover); 304 pp., Illus. \$90.00. **To order, call: (800) CALL-WILEY**

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Photograph by Richard Saxton

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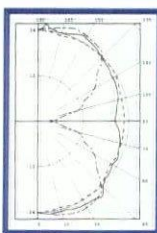
Its design, based on years of field observation and scores of laboratory tests and evaluations, features a unique, multi-strand configuration. And, unlike lesser fibers, it's made from only the finest, optical-grade material.



## Technical Innovation

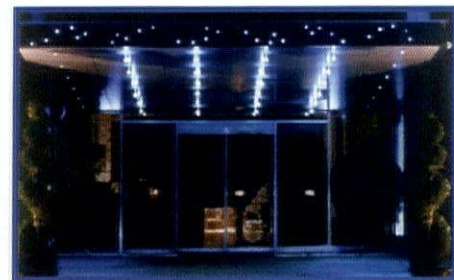
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## REVOLUTION IN LAMPS: A CHRONICLE OF 50 YEARS OF PROGRESS

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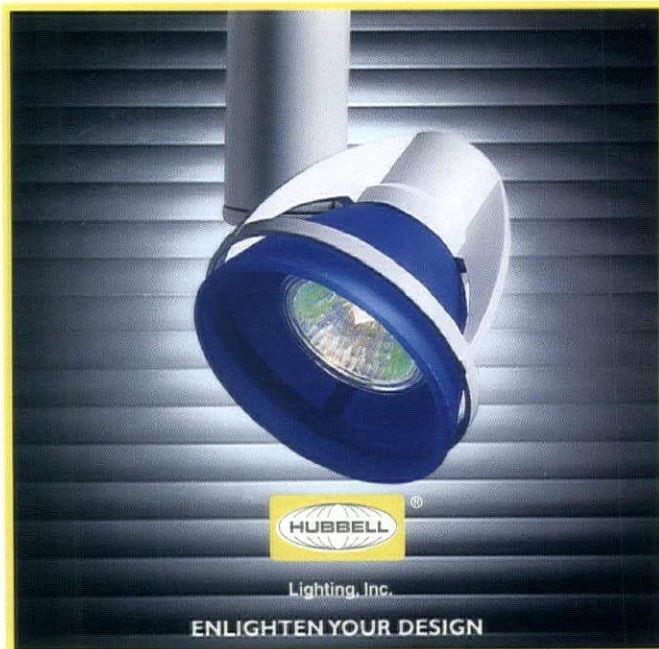
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EVENTS

**May 6-9** 131st Annual National Convention and Exposition of the American Institute of Architects, Dallas Convention Center, Dallas; (202) 626-1395.

**May 10-11** alt.office East Conference, New York Hilton & Towers, New York City; (800) 950-1314, ext. 2612.

**May 11-13 10th Annual Lightfair International 1999, Moscone Center, San Francisco; (404) 220-2221.**

**May 17** Foundation for Design Integrity Panel Discussion: "Create Knock-outs, Not Knock-offs," Niermann Weeks Showroom, New York City; (650) 326-1865.

**May 24-27** A/E/C Systems '99 and Build USA, Los Angeles Convention Center, Los Angeles; (800) 451-1196.

**June 7-9** NeoCon '99, The Merchandise Mart, Chicago; (800) 677-6728.

**June 17-18** Energy Management Congress, Disneyland Hotel, Anaheim, CA; (770) 925-9648.

**June 20-22** BOMA Annual Convention & The Office Building Show, Georgia World Congress Center, Atlanta; (703) 312-9172.

**June 23** Lumen Awards Banquet, New York City; (718) 951-6773, (800) 217-5445.

**June 24-25** AEE seminar: "Fundamentals of Lighting Efficiency," Chicago; (770) 925-9633.

**June 24-30** 24th Session of the CIE, Warsaw University of Technology, Warsaw, Poland; (phone) 43 1 714 31 870, (fax) 43 1 713 08 3818, e-mail: ciec@ping.at.

**July 12-16** Vision '99, The Waldorf-Astoria Hotel, New York City; (410) 923-2925.

**August 9-11** IESNA Annual Conference, New Orleans, LA; (212) 248-5000, ext. 117.

**September 13-14** AEE seminar: "Fundamentals of Lighting Efficiency," Cincinnati, OH; (770) 925-9633.

**September 14-17** ILE '99-The 6th International Lighting Exhibition, Shanghai Exhibition Center, Shanghai, China; (301) 654-2811.

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ARCHITECTURAL LIGHTING

## EDUCATIONAL FACILITIES

**September 17-18** Prairie Lights, Hyatt Regency, Chicago; (312) 640-8900.

**September 23-24** IIDEX/NeoCon Canada, National Trade Centre, Toronto, Ontario; (800) 677-6278.

**October 6-8** Balkan Light '99—1st Balkan Conference and Exhibition in Lighting, Varna, Bulgaria; (+359 2) 65-09-40/65- 09-55; e-mail: DENIMA@OMEGA.BG

**October 18-19** IES Australia and New Zealand Annual Convention and Lighting exhibition, Adelaide, South Australia; 61-8-8235-9609.

**October 20-23** Luminaire Asia '99, Singapore International Convention & Exhibition Centre, Singapore; (609) 987-1202.

**October 26** Branding 2000 Second Annual Executive Forum, Four Seasons Hotel, New York City; (800) 950-1314, ext. 2331.

**October 27-29** Design.y.c. (Interplan, The Design Show, City Lights), Jacob Javits Convention Center, New York City; (800) 950-1314, ext. 2331.

**October 28** 4th Annual North American Construction Forecast, National Press Club, Washington, D.C.; (800) 598-6434.

**November 7-9** Restoration and Renovation exhibition and conference, Charleston, SC; (978) 664-6455.

**November 8-9** AEE seminar: "Fundamentals of Lighting Efficiency," San Juan, Puerto Rico; (770) 925-9633.

### Lutron's Lighting Control Institute (610) 282-6280

- Fundamentals—Residential: **May 10-11; September 2-3.**
- Fundamentals—Commercial: **June 28-29; October 25-26.**
- GRAFIK 6000 Training Sessions: **September 23-24.**
- High-End Residential Seminar: **May 24-25; August 12-13; December 2-3.**
- Specification Seminar: **April 29-30; June 17-18; August 30-31; September 30-October 1; November 11-12.**

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Fisher Marantz Stone has named **Charles G. Stone II** managing principal.

Kevan Shaw Lighting Design has named **Alison Ford** associate.

**Todd Hensley**, ASTC has been named principal at Schuler & Shook, Inc.

**Frank Lupu** has joined Perkins & Will as associate principal, director of design.

**Mary Ann Thornam**, allied ASID, has joined Compass Design, LLC as director of design; **Bill McBain** joins as sales manager.

Hammel Green and Abrahamson, Inc. has appointed **Kent S. Mainquist** to CFO.

Culpeper, McAuliffe and Meaders, Inc. has named **James D. Dawkins** president and **William E. Cox** associate; **Ben H. Cook, Jr.** has joined as project architect.

CUH2A has named **Stephanie A. Belly, PE**, project manager; **Marian R. Jacobs**, senior designer, interiors; **John A. McSwieney, AIA**, project manager; **Stephen L. Oden**, project manager; **Daniel B. Rey, AIA**, senior designer, architecture; **Sarunas E. Rumsa**, senior project designer, Chicago; **Roland J. Salvato**, senior staff engineer, electrical engineering; and **Thomas M. Smith, AIA**, senior project designer.

**Glenn R. Bordfeld** has been appointed president and COO at Juno Lighting, Inc.

Cooper Lighting promoted to area VPs: **Sero Cardomone**, East Central area; **John Mabbott**, North Central area; **Lance Bennett**, Southwest area and **Mark Bolton**, Northwest area. **Geoff Marlow** has been named national sales manager, Atlite and **Brian Deady**, national sales manager, Industrial.

Lightolier has named **Earl Print** director of sales development and lighting education. **Mark Blechner** has joined as product manager, specification-grade decorative lighting.

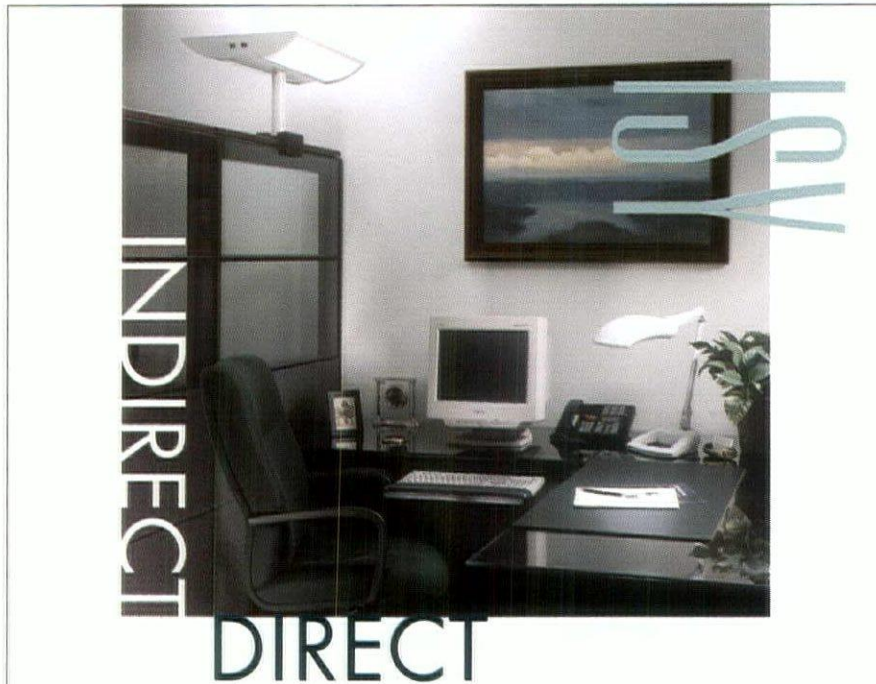
**Ira Minkoff** has joined D'ac Lighting as national sales manager.

Super Vision International has named **Cheryl O. Meyne** director of architectural lighting; **Earl Moore Jr.** joins as VP of sales and marketing.

Nessen Lighting has named **Roger Gerhardt** director of operations.

Waldmann Lighting Company has appointed **Robert L. Ross** office lighting sales manager.

ETC has named **Rob Raff** southeastern regional manager and **Leonard Wittman**, southwestern regional manager.



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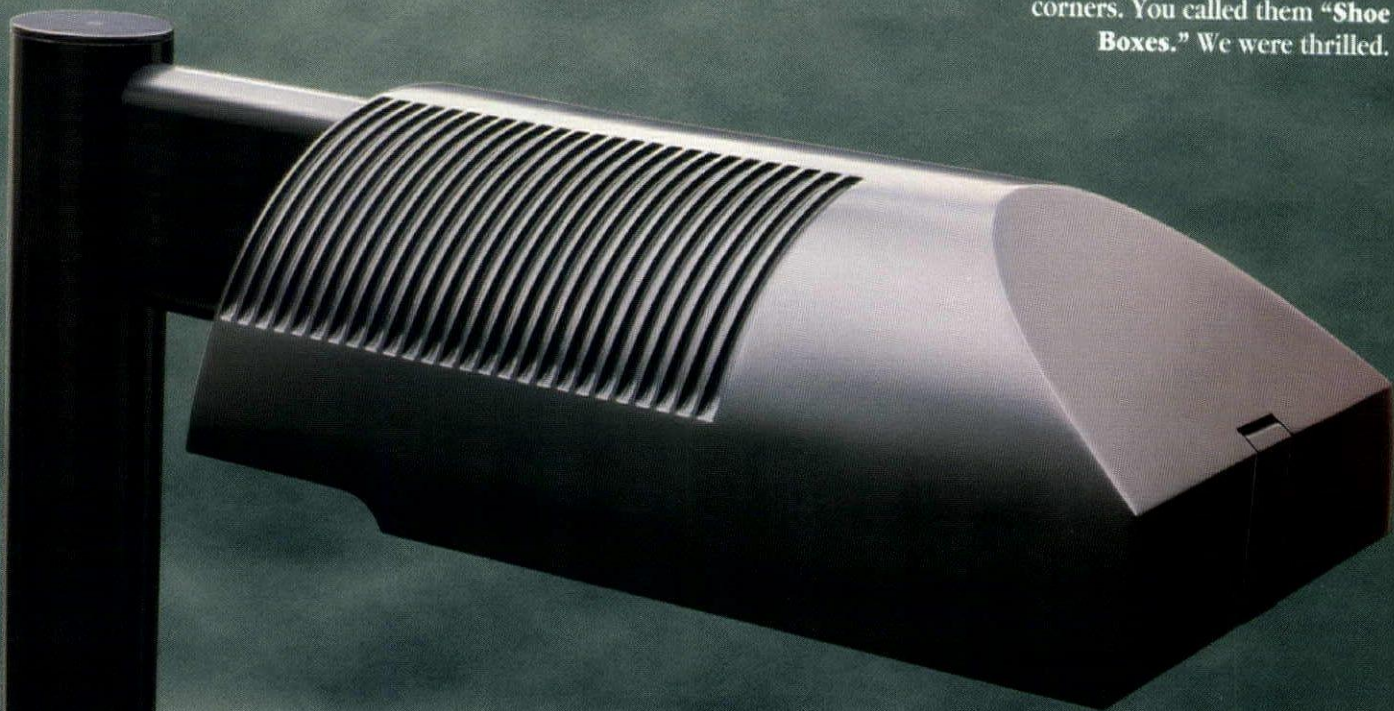
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For this month's *Insights*, Architectural Lighting interviews Gary Gordon, IALD, LC, founder and principal lighting designer of Gary Gordon LLC. Gordon has been designing lighting systems since 1983 and has published numerous articles on lighting design, as well as a book, *Interior Lighting For Designers*, published by John Wiley & Sons. Gordon has also taught graduate and undergraduate courses at the Lighting Institute at Parsons School of Design in New York. Gordon is a member of the International Association of Lighting Designers (IALD), where he has served on the Board of Directors. He is a member of the Illuminating Engineering Society of North America (IESNA), has served on the IES New York Section Board of Managers and is a founding director of the Nuckolls Fund for Lighting Education. As three-term president of the National Council on Qualifications for the Lighting Professionals (NCQLP), Gordon created the first national certification program for lighting professionals, a model now being used throughout the world.

—Christina Trauthwein

**AL:** How did you launch your career as a lighting designer?

**Gordon:** I began my career as an architect.

While working during the early 1980s, the firm at which I was employed received requests for energy-efficient lighting suggestions. No one at the firm knew or cared much about lighting so they gave it to the new kid on the block, which was me. To learn a bit more about the subject, I enrolled in a class at Parsons School of Design, taught by the man who wrote the book at the time—Jim Nuckolls. After two semesters, Jim mentioned to me that his partner, Carroll Cline, was looking for an assistant and wondered if I was interested in the position. With great naiveté, I thought I would work for Carroll for three months, learn everything there was to know about lighting, then return a better-informed architect. But it turns out that a few months wasn't enough time to learn everything about lighting; I worked with Carroll for three years. I became fascinated not only by the subject but by his clients who were internationally known architects. It was very exciting for a young architect to sit with someone like Robert Stern and discuss design ideas rather than drafting chair or door details, which is what my friends were doing. When Carroll and Jim dissolved their partnership in 1985, I started answering freelance requests from my apartment for both lighting and architectural projects. As my firm grew, however, I discovered that we lost money on the architectural projects, earned some on the lighting ones, and we've been doing solely lighting design for other architects since 1988.

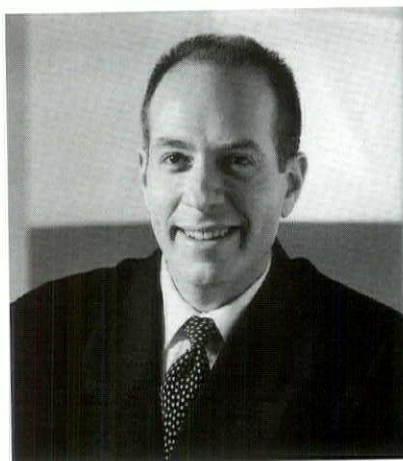
**AL:** What, or who, were some of your earliest influences?

**Gordon:** My grandfather played a significant role in my interest in pursuing a career in design. He used to take me to see buildings here in New York City. His favorite was the Flatiron building, which ironically, is where Carroll Cline had his office when I first went to work for him. So

my interest in architecture was inspired by my grandfather when I was very young—I wanted to be an architect when I grew up. My earliest lighting influences? Definitely Cline, and also Edison Price, who became a close friend and collaborator from the time I began my business until his fairly recent death.

**AL:** What do you think have been the most significant changes since the 1980s?

**Gordon:** First—as with the rest of the world—the great speed with which projects are designed and built. It seems that fast-track is almost slow now. Everything



PHOTOGRAPHY: RICHARD LEE

happens at break-neck speed. The second thing that has changed is the reliance on energy-efficient lighting equipment. Back in 1983, people weren't thinking very much about anything other than incandescent lamps and T12 fluorescent tubes. That was before compact fluorescent lamps or even more energy-efficient halogen lamps came on the market. I think the future of lighting design will focus on "energy-effective lighting"—energy-efficient light sources that also effectively deliver a high-quality lighting design.

**AL:** What technologies would you like to see improved or developed?

**Gordon:** As for lamp technology, lamp manufacturers must spend research and development dollars to develop energy-

efficient light sources that do two things: one, yield excellent color rendering and two, are contained in a compact point source. Smaller, good color rendering, energy-efficient light sources are sorely needed. My second category would be for the lighting fixture manufacturers: Develop lighting fixtures not necessarily in terms of lamp holders that provide electricity to the lamp, but optical instruments that can take new light sources and direct light to where it's needed for a specific task.

The most exciting development in the past few years has been compact sources that provide a higher lumen output and good color rendering. This includes the triple-tube compact fluorescent lamps as well as the improved-color ceramic metal halide lamps.

**AL:** What makes a successful lighting designer?

**Gordon:** First, patience. It requires a great deal of patience to think any problem through and to continue to think it through. People have often asked me in the past how we've come to design so many award-winning lighting projects. It is not some divine spark that somehow lands in the middle of the table and begets an interesting design solution. It's simply the amount of time that one spends on a project. All of the things that we've won awards for and have been recognized for are solutions that we've just thought about over and over again.

The second is passion. If you have a passion for what you do, then obviously, you're going to enjoy thinking things through. The joy that comes from solving problems aids immensely in the success of your work and of your day. On a more mundane level, one requires a knowledge of architecture and lighting technology, but that can be learned. Patience and passion cannot be learned. You have to come with that.

**AL:** What is the toughest issue facing the lighting designer today?

**Gordon:** The toughest issue we will face in

(Continued on page 32)

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(Continued from page 30)

the near future will be the health benefits of electric lighting. There's an enormous amount of research that's being done to demonstrate increased productivity, increased sense of well-being and the great debate about full-spectrum lighting and seasonal-affective disorder (light-related depression). It is my hope that lighting designers in the future are challenged by coming up with responsible solutions to these problems. I think the first step towards a solution is more scientific research into the health benefits or detriments of certain types of lighting. Then that information needs to be disseminated to lighting professionals.

**AL:** *How can lighting designers best grow their profession?*

**Gordon:** The latest statistics, although they vary somewhat, show that between 70 and 90 percent of all the floor space in the U.S. is not designed by lighting professionals. So the way to grow the profession is to make more people aware of the benefits of hiring a lighting designer. The work is out there and I think the profession will grow all by itself if end-users are aware that one, lighting designers exist and two, that they can contribute to the success of a project on all levels—economic, in terms of worker satisfaction, and the aesthetic appeal and enjoyment of the space.

**AL:** *How have you increased that awareness?*

**Gordon:** I'd like to think I did my part as a three-term president of NCQLP, giving birth to the world's first lighting certification. The more people that become aware of lighting certification and the fact that there are qualified practitioners to do the work, the more people that will hire lighting professionals.

**AL:** *Do end-users appreciate the value of being lighting certified?*

**Gordon:** They're definitely becoming aware of the issue. Last week, I attended a market transformation roundtable discussion in Washington, D.C. and there were 25 different organizations represented, both government and non-government. I was surprised that every single one of the people attending this day-long conference was not only aware of lighting certification, but was aware that NCQLP was the place to go for it. And, moreover, that people who carry the LC after their name are the qualified practitioners for

energy-effective lighting. It was very exciting and rewarding. I certainly remember plenty of years of giving talks about NCQLP with nobody knowing what the organization was or even what the letters stood for.

**AL:** *How do you counter any negative responses to the issue of certification?*

**Gordon:** Don't let fear of something new, different, unknown, or fear of passing the exam make you reluctant to take it. Certification in any industry does a couple of things. First, and the reason I was most interested in lighting certification, is that it

WHEN WE RAISE THE  
BAR OF  
PROFESSIONAL  
PRACTICE, THAT  
MEANS THERE ARE  
MORE PEOPLE DOING  
CREDIBLE WORK.

adds credibility to the profession, just like lawyers, doctors, accountants, architects and interior designers are all certified to do their work. It lets the public and allied professionals know that lighting is a profession and that professionals who practice lighting are willing to stand up and be responsible for their work. The second thing that certification does for all industries is to raise the bar of professional practice. I have said this many times: My biggest competition is bad lighting design. We are interviewed for new projects and unfortunately, a number of times, a client or potential client will tell me about how they got burned by a bad lighting experience. When we raise the bar of professional practice, that means there are more people doing credible work. And the more credible work there is, the more potential clients will want to hire a lighting professional because they've had a good experience.

The other thing that certification does, which I think is of critical importance for lighting, is that it drives curricula of higher education throughout the country. As a

textbook author and lecturer on lighting design, I've often received the question from educators around the country, "Where can we go to get information about how to establish a curriculum at our school?" And there is no place for them to turn. But in order for educators to prepare their students to one day sit for the LC exam, the knowledge and application base that forms the NCQLP exam becomes the basis of curricula. And, in reference to an earlier question, I think another way to grow the profession is by training and educating more lighting professionals.

**AL:** *Just how successful has the LC program been?*

**Gordon:** There are over 650 lighting certified professionals in this country. Anyone who is a lighting professional can and should take the exam. If you've been doing it for several years, you should take the exam to support the profession. If you're young, you should take it to support yourself and further your career. Let me share this anecdote: A man in his late 20s was working at a lighting education center. He took the LC exam the first time around and passed. I heard from him about a month ago. He said he left the facility last summer to open his own practice and he's selling his services with his LC credential. As a result, he's professionally and financially successful. It not only helps business owners sell their practices, but it helps individual employees in the marketplace by enabling them to ask for higher salaries because of their achievement in getting the credential; and it sets them apart from other contenders for new positions.

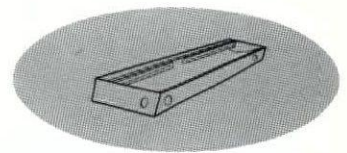
**AL:** *What is your design philosophy?*

**Gordon:** In each project we integrate lighting with the fabric of architecture and that means integrating the lighting concept with the architectural one. I don't believe that lighting can be successfully applied to someone else's thinking or someone else's space, but that it's the original designer—the original architect or interior designer—who really knows what should be emphasized or subdued. And we try to integrate our lighting concept with that initial thinking so that we can reinforce the architect's or interior designer's concept. And then we make very certain that the technology that produces light is integrated with the architecture, the technology that makes the building. ■

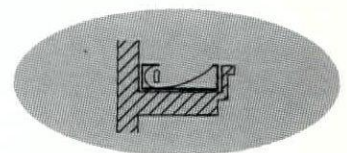


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## UNDERWATER WORLD

*At this aquarium, magic and fun are a "shore thing"*

BY CHRISTINA TRAUTHWEIN, EDITOR-IN-CHIEF

**CHALLENGE** Both the interior and exterior of the Long Beach Aquarium of the Pacific required a lighting design that would draw visitors to the site and immerse them in the wonders of the underwater world. Patrick Gallegos, principal of Gallegos Lighting Design (GLD), created a cohesive lighting design, making sure that the distinctive architectural features of the aquarium and lighting elements operate on the same wave length. Literally. The 157,000-sq.-ft. facility, which hosts some 550 species in nearly 100 living exhibits, is curvaceous in form, representing cascading waves—a visual metaphor for the aquarium's subject matter, the Pacific Ocean. "The building invites visitors to 'dive' into the ocean through aquatically inspired architecture, and then once inside, view the marine life that inhabits the ocean," said Gallegos. "What we needed to do as lighting designers was to enhance this effect. Lighting adds depth and dimension to the wave forms and creates the sense of immersion."

**METHOD** While GLD planned, designed and programmed the lighting for the aquarium's underwater tanks, scenic exhibits, walkways and service areas, it is the architectural lighting of the exterior and interior lobby that first grabs the attention of visitors.

From exterior through interior spaces, Gallegos developed a "living light" to create the experience. Exterior lighting highlights the impressive architecture at night, sculpting the building's form with color and directed light. Dimmable fluorescents, 1000W PARs and HID floodlights, fitted with color sleeves and dichroic filters respectively, create a dynamic progression of light that animates the building's shape: architectural "waves" appear to cascade onto each other. "We lighted each of the support columns, which, in turn, illuminate the undersides of the wavelike eaves to define the undulating character of the architecture," said Gallegos. Fixtures

with halogen PAR64 lamps are on individual dimmers to program the movement. The exterior lighting plays off the architectural layers to create depth and visual interest. Recessed uplights highlight the walls; signlighters with theatrical color sleeves illuminate the lower roof; while fixtures on the upper roof light the "breaking wave." "The dimmable fluorescents add the kinetic element," said Gallegos. "They are programmed to increase brightness as the wave approaches the 'shore' and then dim as it subsides."

Entrance to the lobby represents diving into the surf. To achieve this, Gallegos chose to layer the light, following the lines of the structural forms. In the lobby, lighting is carefully located to artistically enhance the space without impacting its clean architectural lines. Halogen accent lights, blue-colored cold cathode niche lighting and fluorescent pathlights layer the lighting in the lobby. All fixtures in the voluminous space are positioned for ease of maintenance. A suspended life-size whale sculpture, the focal point of the space, is uplighted to extend the undersea illusion. "With programming, a subtle shimmer on the underside of the curved ceiling suggests a view from within the waves," said Gallegos, "heightening the sense of diving below the surface of the ocean to enter the water world." ■

### DETAILS

**PROJECT**  
Long Beach Aquarium of the Pacific

**LOCATION**  
Long Beach, CA

**ARCHITECTS**  
Esherick, Homsey Dodge & Davis (EHDD); Hellmuth Obata Kassabaum (HOK)

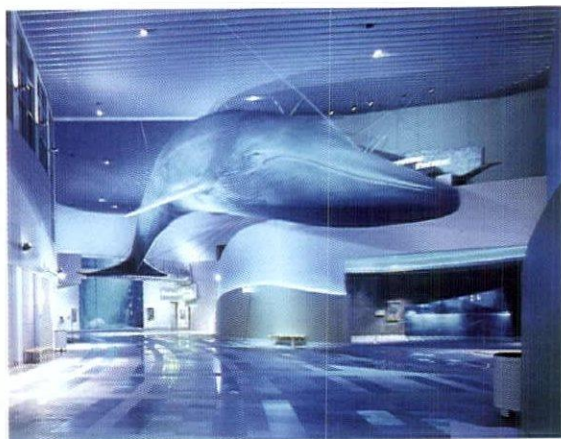
**LIGHTING DESIGNER**  
Gallegos Lighting Design—Patrick Gallegos, principal; Karl Haas; Araam Ebben

**EXHIBIT DESIGNER**  
Joseph Wetzell & Associates

**ENGINEER**  
Syska & Hennessy

**PHOTOGRAPHER**  
Wolfgang Peterson

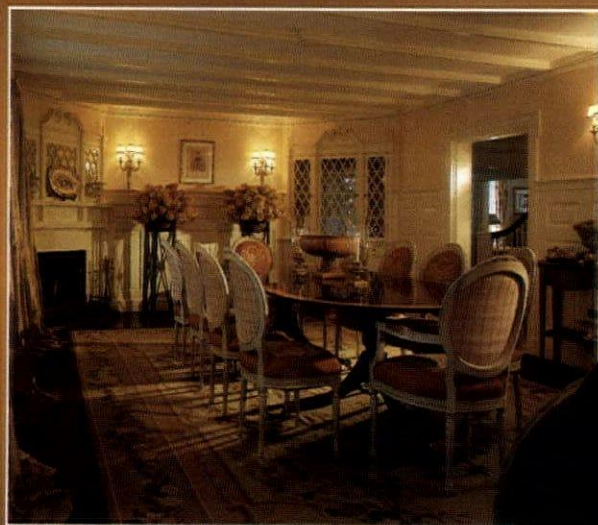
**LIGHTING MANUFACTURERS**  
Interior architectural: Altman; ETC; SPL; McPhilben; Louis Poulsen; Litecontrol; Lithonia; Peerless; Rambusch; exterior architectural: Altman; Hydrel; Kim; Lithonia; Louis Poulsen; Lumiere; McPhilben; California Cathode & Neon; Northstar; Forum; Gardco; Sterner; USI Columbia; control system: Strand



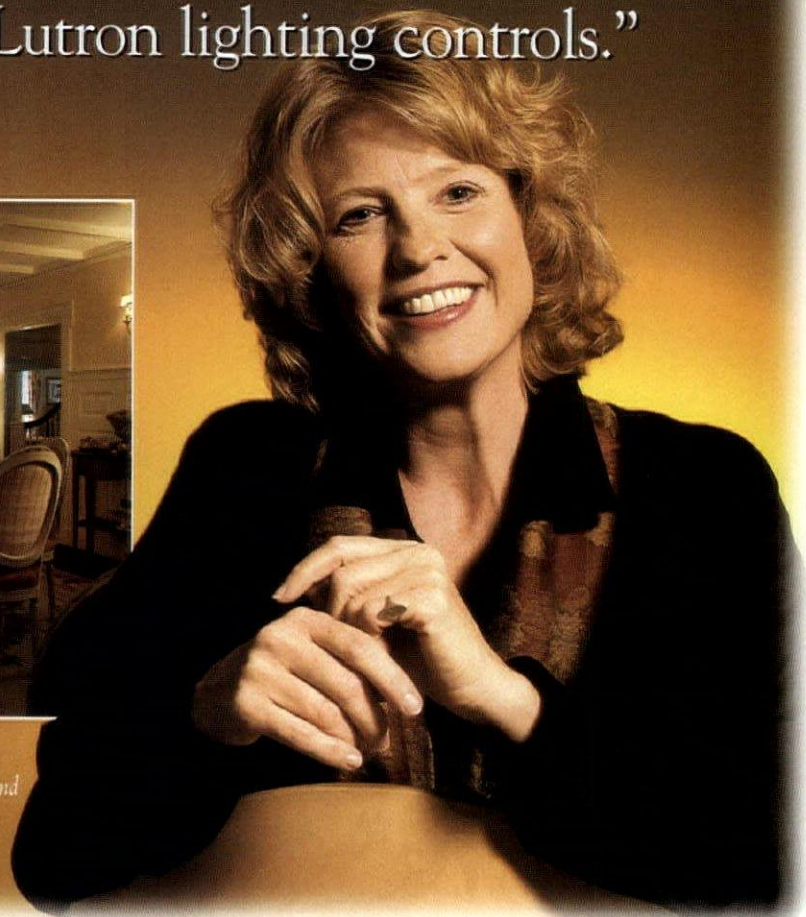
IN THE LOBBY OF THE AQUARIUM (ABOVE), LIGHTING REMAINS UNOBTRUSIVE TO THE UNDULATING ARCHITECTURAL PROFILE. THE CEILING IN THIS SPACE IS HIGH; FIXTURES ARE LAID OUT FOR ACCESSIBILITY FROM A SINGLE-MAN LIFT. THE EXTERIOR (RIGHT) BECKONS VISITORS WITH ANIMATED, CASCADING LIGHT FORMS. THE WARM INTERIOR LIGHTING GLOWS FROM WITHIN, ACTING AS A COUNTERPOINT TO THE COOL LIGHTING OF THE EXTERIOR.



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Barbara Kristiansen, Lighting Designer  
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Lighting designer Barbara Kristiansen knows the ultimate judge of her work is how well it functions. “I design within architectural and interior spaces to accent, reveal and illuminate. To me, dimming is crucial.” Ms. Kristiansen also specifies Lutron lighting controls because of the quality of their technical support. “When you call with a question, you talk to an engineer; someone who can help you with even the toughest problems and give you *accurate* information. That’s important to me and the electrical contractor.”

Ms. Kristiansen also knows the importance of keeping her clients satisfied, so she appreciates the way “Lutron’s aesthetic simplicity complements the surrounding environment” and how Lutron lighting controls save energy, extend lamp life, and add functionality to any location. As she says, “I know I can depend on Lutron. They’re a superb company with a reliable, high-quality product. And for support – they really are the best I’ve found.”

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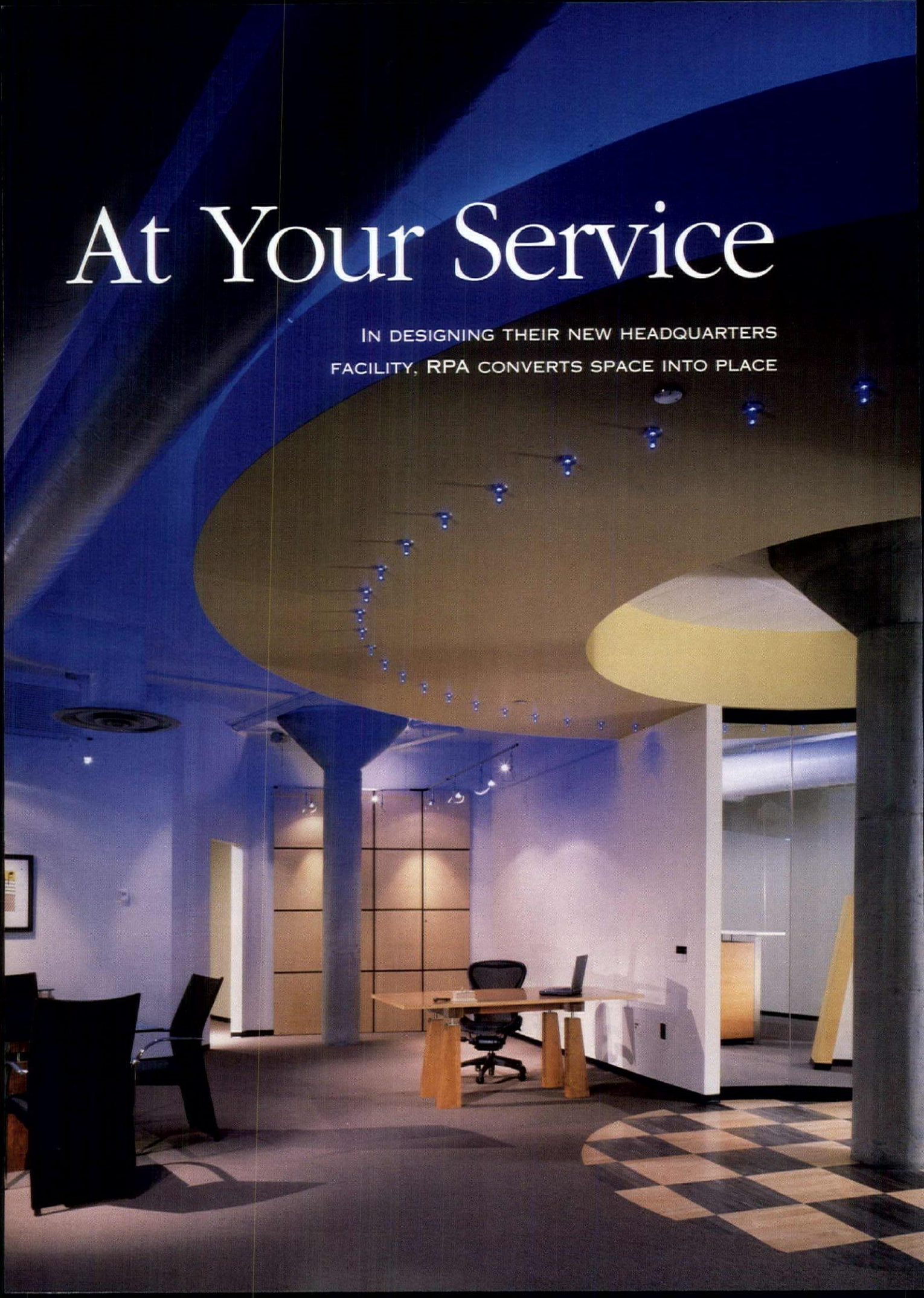
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# At Your Service

IN DESIGNING THEIR NEW HEADQUARTERS  
FACILITY, RPA CONVERTS SPACE INTO PLACE



BY CHRISTINA TRAUTHWEIN, EDITOR-IN-CHIEF

The Smith Bros. Hardware building project has proven to be a remarkable example of adaptive reuse of industrial architecture for the service industry. The 1925 landmark warehouse defied successful renovation for 15 years, was presumed unsalvageable and remained a fire-ravaged, graffiti-strewn eyesore in Ohio's capital city. That is, until Retail Planning Associates (RPA) undertook the project to make it its world headquarters building. According to RPA, the idea in the newly renovated 210,000-sq.-ft. facility was to go beyond the merely serviceable work habitat to one that optimized productivity.

"Lighting—as much as the interior furnishings—is critical in terms of the functionality of a space and in making it operational for business," said lighting designer Perry Kotick. "So in designing the lighting for our offices, we made sure to integrate it into the overall concept." Aside from the purely task-oriented aspects of the design, it was imperative that the solution be visually impressive. "There are probably very few times when somebody designing a space actually has to occupy it with all of their peers," said Kotick. "So anything that falls short of expectations is especially tough to deal with." Explained Kotick, "For this particular project, I was a designer doing lighting

THE CHAIRMAN'S OFFICE (OPPOSITE; BELOW) IS LIGHTED WITH A LOW-VOLTAGE SUSPENDED TRACK SYSTEM. "WE WANTED A COMPELLING FEATURE WHEN VIEWING THE INTERIOR SPACES FROM THE EXTERIOR OF THE BUILDING," SAID KOTICK. WHILE KOTICK CHOSE SLEEK TRACK FIXTURES TO ADD VISUAL INTEREST, HE DID ADD THAT THE SELECTION OF LOW-VOLTAGE POINT-SOURCE ILLU-



MINATION HAS OCCASIONALLY BEEN QUESTIONED. BUT KOTICK STANDS FIRM IN HIS DECISION, BASED ON THE FACT THAT THE PERIMETER OFFICES HAVE A TREMENDOUS AMOUNT OF DAYLIGHT,

WHICH ACTS AS THE AMBIENT LIGHT SOURCE. "THE TRACK FIXTURES BECOME THE DIMMABLE ACCENT LIGHTING, AND AT NIGHT, IT CREATES MAGIC," SAID KOTICK.

THE SOFFIT IS LIGHTED WITH COBALT-BLUE NEON, CREATING DIMENSION IN THE SPACE. COUPLED WITH THAT IS A FIBER-OPTIC LIGHTING COMPONENT. "I FELT FIBER OPTICS WAS NOT ONLY APPROPRIATE BUT THE BEST SOLUTION FOR WHAT WE WERE TRYING TO ACCOMPLISH; NAMELY CREATING A DYNAMIC, ENERGETIC AND REFRESHING SPACE," SAID KOTICK. THE FIBER-OPTIC SYSTEM CREATES MORE THAN 50 DECORATIVE POINTS OF GLOWING COLOR, GRABBING THE ATTENTION OF EMPLOYEES AND VISITORS ALIKE—ESPECIALLY, WHEN THE LIGHTS CYCLE THROUGH COLORS, AS REQUESTED BY THE CHAIRMAN. THE DIFFUSERS, WHICH WERE CUSTOM-DESIGNED BY RPA, FEATURE CLEAR ACRYLIC RODS, 1/2 IN. IN DIAMETER. CLARITY OF MATERIAL IS WHAT ADDS THE ELEMENT OF SPARKLE, EVEN DURING DAYLIGHT HOURS.

THE LOBBY (LEFT) WAS PRIMARILY DESIGNED FOR NIGHTTIME EXPOSURE. THE VOLUMINOUS SPACE IS VISIBLE FROM A NEARBY INTERSTATE HIGHWAY—THE LIGHTING SUCCESSFULLY CAPTURES THE EYES OF PASSERS-BY AND CONVEYS THE CORPORATE IMAGE TO THE SURROUNDING ENVIRONMENT. "THE LOBBY IS LIGHTED TO DEFINE THE SPIRIT OF CREATIVITY, WHICH IN TURN, DEFINES WHO WE ARE AT RPA," SAID KOTICK. THE PRIMARY MOTIF IS AQUATIC, AND LIGHTING HELPS TO CREATE THE THEME AS WELL AS ENHANCE IT. THE FOCAL POINT IS A FOUNTAIN. AS THE WATER GYRATES, THE LIGHT FROM FIXTURES PLACED IN THE POOL FORM A WAVELIKE EFFECT ON THE CEILING AND COLUMNS. A LARGE, WALL GRAPHIC IS FLOODLIGHTED WITH 175W METAL HALIDE WALL WASHERS TO INSPIRE FLUID MOVEMENT. BEAMS ARE CORE-DRILLED AND FITTED WITH RECESSED LOW-VOLTAGE SPOTLIGHTS THAT ILLUMINATE AND SILHOUETTE SUSPENDED DOLPHINS, WHICH CAST PLAYFUL SHADOWS ON THE SURROUNDING SURFACES.





THE DOUBLE-HEIGHT SPACE SURROUNDING THE MAIN STAIRCASE (LEFT) IS ACCENTED WITH NEON AROUND THE DOUBLE-COVE CEILING. FLUORESCENT IN THE BLUE-COLORED PERIMETER COVE CREATES A DRAMATIC BACKGROUND WITH A BURST OF LIGHT. EVEN THE INTERIOR FINISHES, SUCH AS THE SHEEN OF THE CHROME STAIRCASE, PICK UP THE COLORS FOR ADDED EFFECT. "WHEN LEADING CLIENTS FROM THE STAIRWELL AREA TO THE MAIN CONFERENCE ROOM WHERE WE PRESENT OUR DESIGNS, WE WANTED A STRONG BUILD-UP TO WHAT LIES AHEAD," SAID KOTICK. "WE ACCOMPLISHED THIS BY DESIGNING A CUSTOM SUSPENDED LIGHT FIXTURE WHICH APPEARS TO FLOAT AT THE ENTRY POINT." IT'S 15 FT. LONG AND IT MEASURES 5 FT. WIDE AT ONE END TAPERING TO 18 IN. AT THE WALL, AN IS UNDERLIT WITH NEON TO PRODUCE AN ORANGE-RED GLOW. THE FIXTURE APPEARS TO PENETRATE THE WALL, COMPELLING CLIENTS TO LOOK BEYOND.

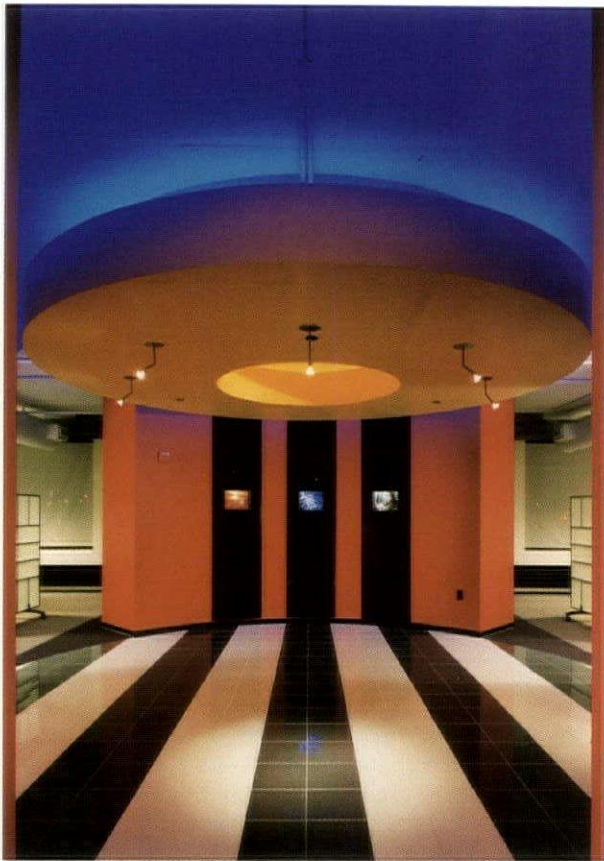
for other designers. Lighting for this space had to be particularly inspirational; in my mind, nothing can motivate people more than good, effective lighting. Lighting not just as a result of the fixtures, but even the fixtures themselves."

And in fact, in many of the spaces, it is the play of lighting on either the finishes or the architecture that adds drama and visual interest to the facility. And in others, exciting, innovative custom-designed fixtures lend themselves to the very aura of creativity. Which, of course, was not only the criteria for those occupying the space, but for the image it creates. "Every day, we're walking clients through here," said Kotick, "so this building not only became a headquarters for RPA, but a physical demonstration of our abilities as designers. And so often lighting isn't given its due, isn't thought of as being critical to the interior environment. Now, visitors have it on their minds and they start to realize how important it can be to the whole complexion of their space."

In general, Kotick uses lighting in all of RPA's spaces—lobbies, enclosed offices, workstation areas—to draw the eye to the effects of illumination. And he walks a fine line to do so: "Everybody

has a different level of light they prefer. Many designers, in my opinion, tend to overlight a space, compromising the personality of the space. I prefer allowing the light to interact with the space, with more dramatic, interesting and often, more comfortable results. However, if I'm not attentive to the illuminance levels, it could easily be considered underlighted." Rather than throw a tremendous amount of ambient light into a space, Kotick makes a point to kick light onto the surfaces to create depth and accent the architecture, supplementing with task-specific lighting where appropriate.

"When I first looked back on the design of the facility, I was a little surprised that we used so many different fixture types and design elements and varied techniques," said Kotick. "But when I looked at it again, it had to do with the fact that there are so many different functions we've incorporated under one roof. In the end, though, the functions are separated by space. It's a cohesive plan." And, according to Kotick, the best part is that not only do the interiors glow, but the lighting design is realized on the exterior. "From the outside, the building really comes to life at night," said Kotick. ■



## DETAILS

- **PROJECT** Retail Planning Associates
- **LOCATION** Columbus, OH
- **OWNER** Retail Planning Associates
- **ARCHITECT/INTERIOR DESIGNER** Retail Planning Associates
- **LIGHTING DESIGNER** Perry Kotick
- **PHOTOGRAPHER** Chun Y Lai
- **LIGHTING MANUFACTURERS** Light Project (decorative low-voltage monopoints); Invia Industries (custom fluorescent and specialty); Flos USA (decorative); Luceplan (decorative); Bruck Lighting Systems (track systems); Juno Lighting (track lighting); Indy Lighting (recessed cans and wall washers); Fiberstars (fiber optics); GE (lamps)

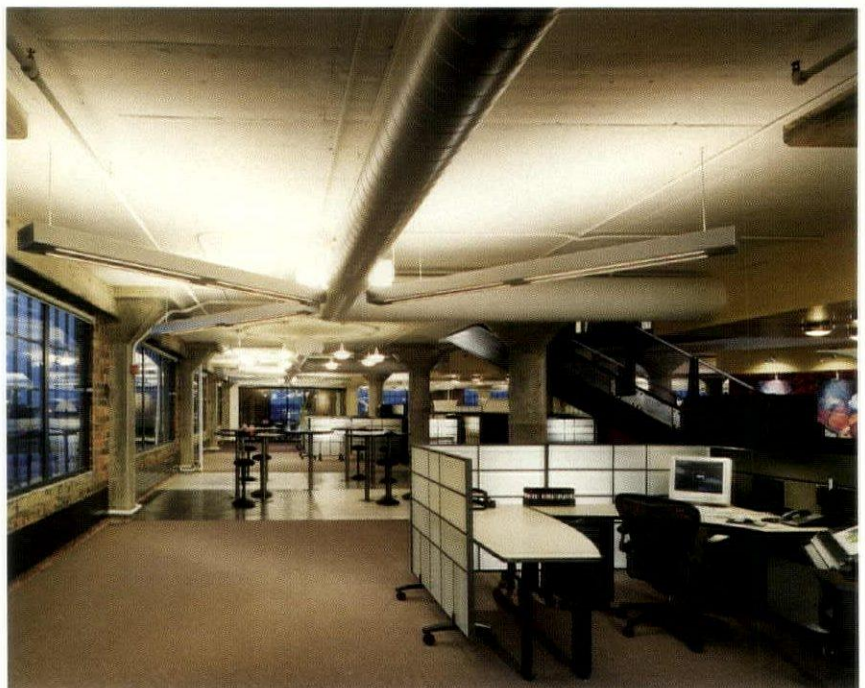
THE NEW MEDIA AREA (LEFT) IS DESIGNED TO WOW CLIENTS WITH COLORFUL AND BOLD DESIGN ELEMENTS. A DOUBLE-COVE CEILING IS ILLUMINATED WITH COBALT-BLUE NEON ON ONE LEVEL AND A GOLDEN YELLOW ON THE OTHER. "TO MAGNIFY THE BRILLIANCE AND CREATE COLOR UNIFORMITY, THE SURFACE IS PAINTED THE SAME HUE," SAID KOTICK. "IT AMPLIFIES THE YELLOW WAVELENGTH AND ADDS A TREMENDOUS AMOUNT OF PUNCH." CANTILEVERED MR16 FIXTURES WITH A POLISHED NICKEL FINISH ACCENT THE SPACE AND RECALL THE FUNCTIONS OF THE SMITH HARDWARE BUILDING.

THE OPEN-PLAN DESIGN STUDIO (BELOW) PRESENTED A CHALLENGE TO THE LIGHTING DESIGNER. "WE STARTED WITH A 9-FT. 10-IN. CEILING AND THEN HAD

TO DROP IN THE MECHANICALS," SAID KOTICK. "AS A RESULT WE WERE LEFT WITH A RELATIVELY LOW CEILING HEIGHT, WHICH WOULD CREATE A CAVE-LIKE EFFECT." UPLIGHTING THE CEILING LETS THE SPACE BREATHE BY RAISING THE APPEARANCE OF THE CEILING. "PLENTY OF DAYLIGHT ENTERS THIS SPACE," SAID KOTICK, "AND NATURAL ILLUMINATION IS DESIRABLE FOR MANY REASONS. BUT IN CERTAIN PARTS OF THE SPACE, WHERE THE BRIGHTNESS FROM THE WINDOWS IS ALMOST OVERWHELMING, IT CAN TEND TO FLATTEN THE REST OF THE SPACE." UPLIGHTING THE SPACE WITH ELECTRIC ILLUMINATION HELPS TO BRIGHTEN THE SURFACES AND COUNTERACTS THAT NEGATIVE EFFECT DAYLIGHT CAN HAVE ON A SPACE.

"TO KEEP THE VISUAL ELEMENTS INTERESTING," SAID KOTICK, "WE PATTERNED THE LIGHTING SYSTEM IN A CRISSCROSS MATRIX WITHIN EACH OF THE 20-FT. X 20-FT. SPACES BETWEEN THE COLUMNS." THE TOTALLY OPEN CUSTOM-DESIGNED FIXTURES, WHICH PROVIDE BOTH UP- AND DOWN-LIGHT, FEATURE A BRUSHED ALUMINUM HOUSING, REMINISCENT OF THE BUILDING'S INDUSTRIAL PAST. "FOR AN ENTIRELY FUNCTIONAL ELEMENT, THEY'VE REALLY ADDED SO MUCH TO THE SPACE IN TERMS OF DESIGN," NOTED KOTICK.

SITUATED AMIDST THE WORKSTATIONS IS WHAT RPA CALLS ITS "HAPPY THOUGHTS" LOUNGE. "IF YOU'RE STRESSED OR YOU'RE NOT BEING AS CREATIVE AS YOU SHOULD, YOU CAN GO THERE, SIT WITH A CUP OF COFFEE AND JUMP-START YOUR IMAGINATION," SAID KOTICK. THE LIGHT FIXTURES RESPOND TO THIS. CONTRARY TO THE MORE INDUSTRIAL-TYPE X-PATTERNED FIXTURES AND, GENERALLY, CONCRETE CEILINGS, THE FIXTURES IN THIS AREA ARE LIGHTER, SOFTER.



# Cut & Color

THE LIGHTING DESIGNERS FOR THESE HAIR SALONS—ONE IN THE NORTHEAST, THE OTHER, MIDWEST—SHAPE AND STYLE THE SPACES WITH LIGHTING ...AND ADD A FEW HIGHLIGHTS, TOO

BY JEAN GORMAN, CONTRIBUTING EDITOR

## *Leon & Company Salon*

A COMBINATION OF  
INDIRECT COVE LIGHT,  
DIRECT OVERHEAD  
ILLUMINATION AND  
DIFFUSE FILL LIGHT  
FROM BUILT-IN ETCHED  
GLASS SCONCES CREATE  
A LAYERED LIGHTING  
SCHEME IN THE  
STYLING AREA.

**A**mong the many issues to consider when designing a hair salon, appropriate lighting ranks near the top of the list. Stylists need direct light in order to precisely shear the locks of their clients; colorists demand light that renders hair of every shade of blonde, red, brunette and black that the sun does; clients benefit from diffuse light that flatters facial features and minimizes shadows; and owners want light that creates an inviting atmosphere but is also energy-efficient and easy to maintain.

When renovating a space for Leon & Co., an upscale coiffeur in Belmont, MA, architect Toshihiko Taketomo, along with lighting designer Jeffrey Berg of Berg/Howland Associates, kept these priorities straight and produced a multi-level lighting scheme that answers every one—and then some.

The first step, according to the architect, was to make the deep and narrow 1,700-sq.-ft. space feel more spacious and to bring a sense of daylight into the far reaches of the salon. He did this, he said, “by using light and architectural forms to manipulate the perception of the space.” The styling area, which is the principal space of the 21-seat salon, is composed of styling bays below and on either side of a long, central coffer, which leads the eye to a grand oval coffer over the coloring bar where technicians mix hair color. The lighting, according to Taketomo, “helps establish the hierarchy and organization of spaces.” To reinforce these patterns and extend the sense of the height of the spaces, linear fluorescent fixtures in coves illuminate the 9-ft. raised ceiling areas. Over the styling bays, where the ceiling drops to 7 ft. 6 in., compact fluorescent downlights within an articulated beam pattern lend definition and rhythm to the sequence of bays, while additional compact fluorescents within etched glass sconces built into pilasters flank the mirrors of each bay. Reflected in the mirrors, they expand the sense of space. “In anticipation of the effects of reflection, the pilasters, beams and sconces were designed and dimensioned to complete themselves in the mirrors,” said Taketomo.

### LAYERED LOOK

The varying color temperatures of the sources used in the styling area further accentuate the hierarchy of spaces and differentiate the lighting goals. “The lighting was layered in a progression of colors,” said Berg. “Driven by the client’s preference for cooler light, the coolest light was used in the cove to uplight the central ceiling vault and provide ambient illumination.” Warmer compact fluorescents in downlights along the







IN THE COLORING AREA, FLUORESCENT COVES OFFER DIFFUSE AMBIENT LIGHT, WHILE ADJUSTABLE HALOGENS WITH A CRI OF ABOUT 100 ARE FITTED WITH BLUE FILTERS TO PROVIDE APPROPRIATE TASK LIGHT THAT SIMULATES DAYLIGHT.

channels on either side of each bay provide direct light to highlight the heads of the clients. "Even warmer compact fluorescents are used in the sconces that frame the mirrors to provide diffuse fill light on the clients' faces," Berg said, noting that the color temperatures of these lamps are 3500K, 3000K and 2700K respectively.

#### SHEAR PERFECTION

In the styling area, a few additional steps were taken to refine the effects of the light. To soften any glare from the diffuse light of the built-in sconces, additional light from downlights was aimed at the pilasters to minimize the contrast between the light and the material surrounding it. The pilasters were also painted a warm off-white to reduce contrast and to soften hot spots. Behind an apron beneath a metal counter at the base of each mirror, hidden fluorescent strips offer an additional ambient light and a decorative accent, highlighting the wood paneling and granite flooring below.

In the coloring area, where chemicals would stain wood surfaces, metal is the dominant material. Here, a lower level of light was preferred, but lamps with a high coloring rendering index were crucial. The designers used staggered fluorescent strips in the overhead cove and ceiling-mounted adjustable 50W MR16 narrow floods with blue filters over each station to simulate the effect of daylight. The same sources were used in the shampoo area.

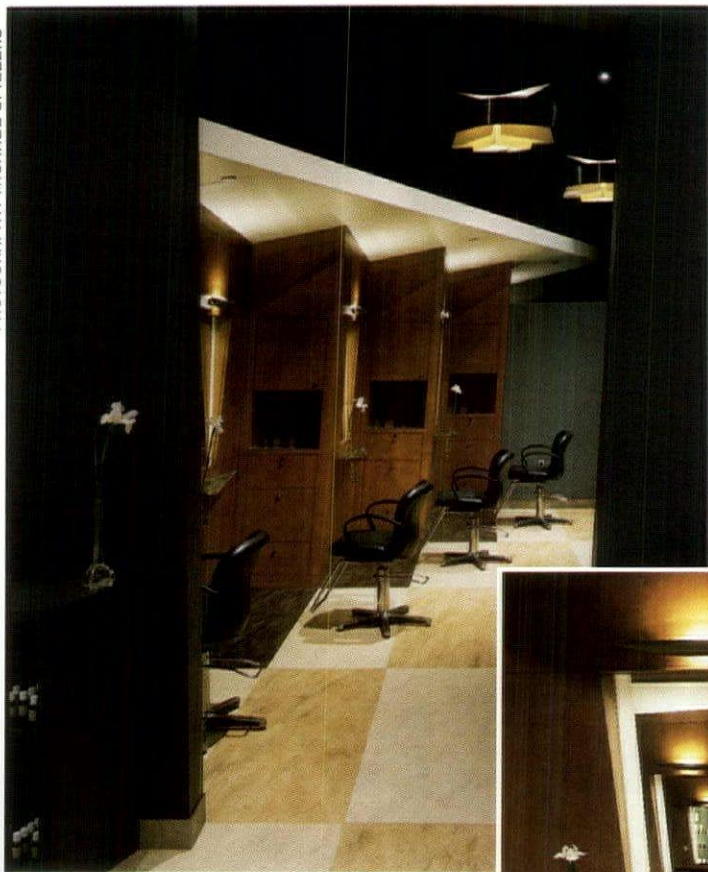
By using a combination of direct and diffuse light, the designers aimed to simulate natural light throughout the salon. The intensity of the light is modulated to the particular uses and character of each space. "The client liked the change in the quality of light from the styling area to the color and shampoo areas," said Berg, "which are more intimate, and therefore can have less light." He also noted that a residual benefit of the client's taste for cooler fluorescent light is a more efficient scheme and minimized heat in the space.

#### DETAILS

- **PROJECT** Leon & Company Salon
- **LOCATION** Belmont, MA
- **CLIENT/OWNER** Leon deMagistris
- **ARCHITECT** Toshihiko Taketomo
- **LIGHTING DESIGNER** Berg/Howland Associates, Inc.
- **STRUCTURAL DESIGNER** Weidlinger Associates, Inc.
- **GENERAL CONTRACTOR** Briarwood Custom Builders
- **PHOTOGRAPHER** John Horner
- **LIGHTING MANUFACTURERS** Edison Price (compact fluorescent downlights); Eastern (fluorescent strips); Halo (adjustable accent fixtures); GE (lamps); Osram Sylvania (compact fluorescents); Philips (T8 lamps)

# Xiphium

PHOTOGRAPHY: MICHAEL SPILLERS

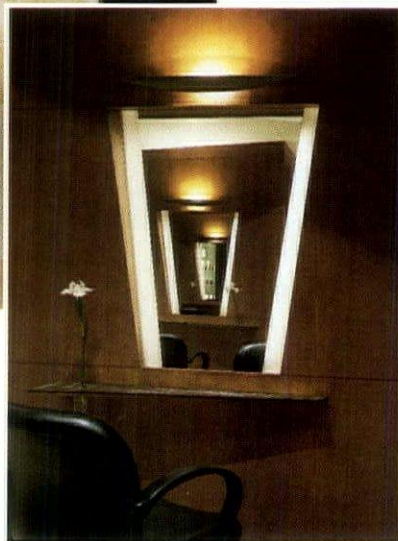


SUSPENDED DECORATIVE PENDANT FIXTURES, FITTED WITH 100W INCANDESCENT SOURCES, EXTEND THE ILLUSION OF THE IMPLIED CEILING PLANE ESTABLISHED OVER THE STYLING STATIONS AND PROVIDE AMBIENT AND TASK ILLUMINATION FOR STYLISTS. DECORATIVE SCONCES OVER THE MIRRORS UPLIGHT THE LOWERED CEILING PLANES AND ENHANCE THE ARCHITECTURAL CONCEPT WHILE PROVIDING FLATTERING SHADOW-FREE ILLUMINATION ON THE CLIENT. T8 FLUORESCENT SOURCES HIDDEN WITHIN COVES BEHIND BOTH SIDES OF THE MIRROR SUPPLEMENT THE DIFFUSE LIGHT AROUND THE CLIENT.

**H**air salons aren't what they used to be. Where a woman once might have gone for a hair cut, color or a perm, she can now go for an array of other services and products, including tanning beds, massages, manicures and pedicures. Furthermore, a salon is no longer the exclusive enclave of women, as stylists are now trained to cater to the needs of both genders and as men have become attuned to the subtleties involved in looking and feeling good.

When Vilma Subel planned to open her own salon, Xiphium, in a shopping mall in suburban Kansas City, she knew that the design would have to project a progressive image which savvy clients have begun to expect. She also wanted it to be as compelling and attractive as her clients would be after a beauty treatment

These were the requests she made of architect Alan Feingold of Feingold Associates Architecture & Design, who, with a limited budget, has turned an unremarkable 20-ft. x 75-ft. space within a suburban context into an inviting, stylish retreat. A promenade of sleek stations paneled with wood and punctuated with trapezoidal mirrors surrounded by halos of light sets a contemporary, sophisticated tone that is also relaxing and comfortable. And, according to the owner, one of the defining elements in this space is the lighting,



which appeals to both clients and staff, and men as well as women. "A client recently walked in for the first time and said that the lighting in the salon really grabbed her," said Subel. "The clients love the way the light complements their skin tone. The mirrors are back-lit so everybody looks awesome, but they also like the beauty of the fixtures themselves, which are almost like works of art," she added.

According to lighting designer Derek Porter, who worked closely with Feingold on the selection of fixtures, the notion of integrating decorative fixtures into the space was a catalyst in his design scheme. "A decorative fixture is an object that adds character and physical presence of light to a space," he said. "Architectural fixtures are engineered for their photometric and more technical traits, and their identity is buried in the architecture, but a decorative fixture can be a strong defining element that reinforces the architect's concept." Ultimately, his lighting composition includes an array of sleek, off-the-shelf decorative fixtures or surface-mounted sources that have been integrated into the custom casework.

## HEAD LIGHTS

In the reception area, for example, buoyant, willowy sconces fitted with a 50W MR16 lamp project from the wall and not only accent merchandise but reiterate the contemporary styling of the interior. A series of 50W low-voltage halogen sources with glass trims punctuates a suspended plane overhead, providing both ambient illumination and sparkling design definition to an architectural form that is echoed over the styling stations.

In the styling area, the architecture and lighting again

work in tandem to further define the visual flavor of the salon. The original, undistinguished shell of the space, including the 14-ft.-high ceiling, was painted black, which absorbs the light and allows the shell to recede from awareness. Styling stations constructed of cherry-stained millwork with metal trim are topped by lowered irregular partial ceiling planes, which are positioned at the same height as the suspended ceiling plane in the reception area. They flank a central passage and establish a new architectural ceiling identity within the long narrow space. A procession of suspended pendant fixtures, fitted with 100W incandescent sources, marches down the central passage at the same height as the lowered ceiling planes, giving the illusion that the implied ceiling plane extends over the center aisle.

A series of sconces over the mirrors at the stations uplights the lowered ceiling planes, further calling attention to their presence within the space. But in this area, the lighting had to do much more than enhance the design or provide general or accent illumination. The lighting also had to make clients look good. "When a client sits down, looks in the mirror, and is comfortable with the way he looks, that's the first step in our process," said Subel. It also had to render hair color clearly and be bright enough for the staff to shear their clients' locks with precision.

In order to illuminate the client with diffuse, glare-free, shadow-free light, the lighting designer installed T8 fluorescent sources hidden within coves behind both sides of the mirror at each station. Warm, 150W halogen upright from sconces, reflected off the white-painted lowered ceiling elements, provides additional flattering soft light on the client's face and

## DETAILS

- **PROJECT** Xiphium
- **LOCATION** Leawood, KS
- **OWNER** Tom and Vilma Subel
- **ARCHITECT** Feingold Associates Architecture & Design
- **LIGHTING DESIGNER** Derek Porter Studio, IALD, IES
- **MEP ENGINEER** West Davidson Reynolds, Inc.
- **GENERAL CONTRACTOR** Jim Stacer, Stacer Woodworking, Inc.
- **PHOTOGRAPHER** Michael Spillers
- **LIGHTING MANUFACTURERS** Flos; Resolute; Prisma; Les Actuels; Lithonia

head. The owner worked onsite with the architect and lighting designer to ensure that the suspended pendant fixtures, which provide both ambient and task illumination for the stylists, were positioned at a height that would offer sufficient illumination while minimizing glare.

In the back of the salon, where there are private massage rooms and a shampooing area, the light level is deliberately lower. Here, decorative wall sconces containing 300W halogen sources provide indirect ambient light, which is easy on the eyes of reclining clients and round out the grouping of decorative light fixtures used throughout the salons. Surface-mounted T8 fluorescents under suspended cabinets provide task light on the counters. Porter credits much of the success of lighting in this salon to both the architect and

client, who were willing to take design risks, study effects through mockups and make final adjustments in the field to compensate for the lack of information on predictable performance characteristics of decorative fixtures. ■



A SERIES OF 50W, LOW-VOLTAGE HALOGEN SOURCES WITH GLASS TRIMS PUNCTUATES A SUSPENDED PLANE OVERHEAD, PROVIDING BOTH AMBIENT ILLUMINATION AND SPARKLING DESIGN DEFINITION TO AN ARCHITECTURAL FORM THAT IS ECHOED OVER THE STYLING STATIONS.

# Reading Rainbow

HOLOGRAPHIC SURFACES REFRACT SUNLIGHT INTO EVER-CHANGING COLOR SPECTRUMS THAT DRAW LIBRARY VISITORS BACK FOR MORE

BY WANDA JANKOWSKI, CONTRIBUTING EDITOR

**M**arketing through design is the concept behind the renovation of the Kalamazoo Public Library's Central Facility in Kalamazoo, MI. Library trustees asked David Milling & Associates/Architects of Ann Arbor, MI to create a compelling destination that would draw the public back to use the library's resources again and again. Milling's innovative designs juxtapose old and new

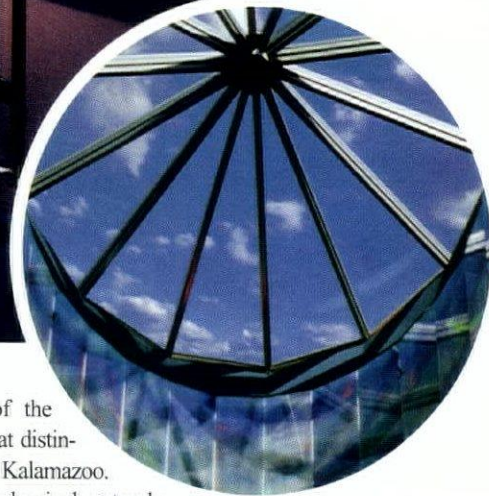
in the building's structure and blend art and technology in the lighting design to fulfill this challenge.

The Kalamazoo Public Library's Central Facility—one of five libraries to be renovated or newly constructed in the \$18.7-million improvement project—is the largest in scope. The original 80,000-sq.-ft. two-story structure, built in 1959 and designed by Kingscott Inc., drew its inspiration from LeCorbusier's Ville Savoye





AT THE TOP OF THE LIBRARY'S ROTUNDA, FULLY METALLIZED HOLOGRAPHIC FILM, BONDED TO AN ACRYLIC BACKING AND POSITIONED AROUND THE COLLAR OF THE DOME'S SKYLIGHT, PRODUCES AN ARRAY OF BRILLIANT COLORS WITH REFRACTED LIGHT. TO ADD MORE VISUAL INTEREST TO THE INTERIOR, ROWS OF PENDANT-HUNG METAL LANTERNS, WHICH ILLUMINATE THE AISLES BETWEEN STACKS, FEATURE COLORFUL GLASS ACCENTS.



and included a "floating" second floor.

Though none of the professionals involved with the original project is at Kingscott today, Milling invited the firm to join him as associated architects and engineers. "With such radical changes proposed for their building, it made sense to have them as a local representative of the design team," said Milling. "They provided engineering support and prepared construction documents for the renovation; it was a good partnership. We brought in the construction firm that built the original building, Miller-Davis of Kalamazoo, to serve as construction manager. There was a spirit of good will and excitement all around."

The renovation expanded the facility to 100,000 sq. ft., and Milling sought to maintain the architectural form of the original building while adding boldly contrasting new elements. The second-floor exterior was reskinned with floor-to-ceiling reflective glass accented with purple horizontal mullions, a color also now used to emphasize the exterior perimeter columns supporting the second floor. A new 100-ft.-diameter rotunda has been added, clad on the exterior with limestone, the material

used in many of the older buildings that distinguish downtown Kalamazoo.

The domed neoclassical rotunda interlocks with the original building and interconnects activities on all four interior levels. On the upper level of the rotunda, the column-free, two-story Reading Room is capped by the skylit dome with its *angel-wing* ceiling. This is also the space that most inspires visitors to return because of lighting effects created with holographic surfaces and a suite of lighting fixtures that make the environment, as Milling said, "magical."

#### RETURN TRIP

"We wanted to create an environment that would be ever-changing; that visitors could not fully appreciate in just one visit and would be motivated to return to see again," Milling explained. "And if they discover that this library is distinguished for its staff and resources, well, that's what we had in mind." He



added, "Natural light changes constantly. You don't see all its varied effects at once." This became one of the keys to the overall lighting scheme.

Milling first saw light artist Michael Hayden on the Discovery Channel's *The Next Step* program. "I was attracted to his work; he seemed to be a kindred spirit. Both of us have been fascinated with lighting effects all of our lives," said Milling. So he arranged a meeting with Hayden and they became friends as well as collaborators on all five of the Kalamazoo Library projects. "I try to use light creatively in buildings," Milling explained. "Michael showed us fiber optics and holographic film, and my design staff and I saw it as a way for architecture, technology and art to come together in a unified design."

The design team built foam-core models of all of them and used bits and pieces of various holographic films to suggest the potential. With encouragement from the Library's trustees, Hayden and Milling made a presentation to Kalamazoo's Gilmore Foundation, who responded with a substantial matching grant for the "integration of art and architecture." Additional funds came from private donations throughout the community, which resulted in an art lighting budget of \$500,000, more than half of which was allocated to the Central Library.

"Michael worked out the technical details and ensured that the holographic film was properly fabricated, laminated and installed," said Milling. At the top of the rotunda, fully metallized holographic film has been bonded to an acrylic backing and positioned around the collar of the dome's skylight. "When light hits these holographic mirrors, it is refracted around the room in an array of vivid colors, producing a kaleidoscopic effect," Milling explained. "The library takes on new and exciting characteristics each time a visitor returns." Beneath the skylit rotunda is what Milling calls the *Electrolier*. It is a sculptural floor lamp, 48 ft. in diameter, made of water-glass panels and laminated with translucent holographic film. The panels form four large scallops or wings that extend canopy-like over the Reading Room's seating area. The heightened interplay of color and light is enhanced by two rows of MR16s suspended on cables beneath each wing. Visitors can select a book from the Popular/Browsing Collection on the main floor, travel up a curving staircase to the second level Reading Room and read in comfort while being bathed in this rainbow of changing color and light.

## LIGHT READING

Enhancing these special effects is a suite of lighting fixtures created by Milling to produce task lighting as well as to aesthetically enhance the environment. Rows of pendant-hung metal lanterns illuminate the aisles between the stacks. Each is fitted with a compact fluorescent lamp within a reflector specially designed to enhance light output. The aluminum housings are accented with a combination of inset "jewels" made with cobalt-blue water-glass and five colors of dichroic glass. "The dichroic glass insets 'wink' at you," Milling said. "As you move throughout the room, the colors reflected off them change constantly." Monumental wall sconces at the perimeter feature a round diffuser made of cobalt-blue acrylic attached to vertical aluminum blades inset with cobalt-blue water-glass made especially reflective with laminated holographic film identical to that used in the *Electrolier*. Table lamps have cobalt-blue acrylic diffusers built onto wing-like aluminum frames. They are mounted onto the reading tables, designed by Milling and his staff, to provide compatible task lighting. Perimeter areas are lighted with recessed downlights fitted with cobalt-blue trims that continue the color scheme.

On the main level of the rotunda space, the environment is less exotic, except for the Internet stations. Here, Hayden intertwined fiber-optic tubing into double helixes running through the vertical trusses and designed the computer program that controls the synchronous changes of colors that make the Internet stations succeed as a coordinated suite.

The existing facility was transformed with a budget of less than \$100 per sq. ft. in construction costs, not including separate budgets for furnishings and special lighting. ■

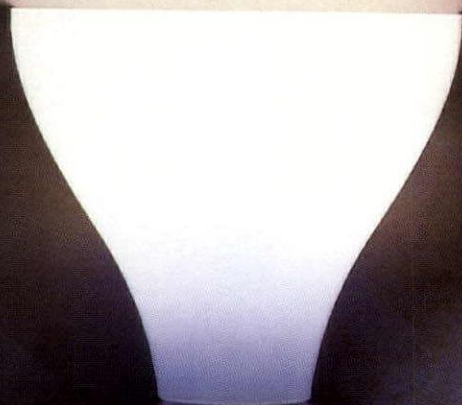
## DETAILS

- **PROJECT** Kalamazoo Public Library (KPL) Central Facility
- **CLIENT CONTACT** Saul Amdursky, KPL director
- **LOCATION** Kalamazoo, MI
- **ARCHITECT/INTERIOR/LIGHTING DESIGNER** David Milling, David Milling & Associates/Architects
- **ASSOCIATED ARCHITECT/ENGINEER** Kingscott, Inc.—architect-of-record
- **CONSTRUCTION MANAGER** Miller-Davis Co.
- **LIGHT ARTIST** Michael Hayden (holographic surfaces and fiber optics)
- **ART METAL** David McCalley, McCalley Rigging (*Electrolier* and other custom-designed lighting fixtures and furniture)
- **ART GLASS** Philip Vourvoulis, Glass-Tech (*Electrolier*, lanterns and wall sconces)
- **PHOTOGRAPHER** Fred Golden

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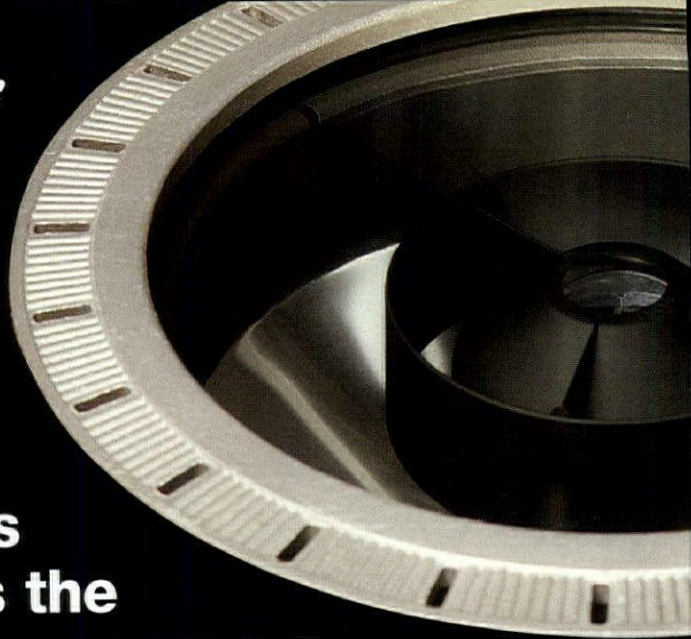
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According to respondents in the 1998 Architectural Lighting Lighting Specifier Market Study:

- 82 percent predict that their firm's lighting dollar volume will increase on office projects in the next 12 months
- Offices were the #1 type of project designed by firms in the past 12 months (16 on average)
- 82% predict that their firm's number of office projects will increase in the coming 12 months
- The average dollar value of office lighting projects in the past 12 months=\$750,000+

# Offices

**The ideal office** offers employees an environment where they can achieve peak performance in a comfortable setting. Proper illumination is essential to achieving that balance. A substantial amount of time and money are spent designing offices to optimize the space—and efficiently so. Selection and arrangement of furniture are a priority while lighting is an afterthought—often to the detriment of the worker and ultimately, the bottom line.

The latest in desks, ergonomic chairs and high-tech computer systems are purchased to improve day-to-day operations. Light surrounds the furnishings, equipment and most definitely the workers. Yet isn't it ironic that the one thing that fills and affects interiors the most, often receives the least attention? And, when it is considered, it is frequently viewed in terms of reducing expenses—that is, by lowering light output; turning off lamps and fixtures to save electricity; and leaving lamps in fixtures beyond their useful life to save maintenance dollars. Or some businesses spend considerable dollars to utilize energy-efficient lighting systems that will return their investment, but end up with a poorly lit environment. As a result, office productivity and efficiency are compromised.

Light has a major impact on the office environment, but it often continues to be held in low regard. The idea that "as long as there's light, any type will do" is still fairly prevalent. But what's encouraging is that lighting professionals, by increasing awareness about the quality of lighting and design, have made significant strides in the past few years to counter that notion. More and more corporations are turning to the lighting specifier for practical and effective solutions to lighting their offices. No longer will they accept harsh or uneven lighting or old technology in an environment that offers the latest technological advances in office equipment.

On the following pages, *Architectural Lighting* showcases some of the office projects you've recently completed—the solutions are as varied as the challenges—and new products to consider when specifying your next.

—Christina Trauthwein, Editor-in-Chief

More than a couple of the offices in our Report incorporate an abundance of daylight into the design, such as the new Hasbro and IBM headquarters facilities. This, however, is not always the case. Many times, offices occupy spaces with little to no daylight, as is the case for the offices of Intech Construction, featured in this section. Some points to consider when lighting a windowless office:

- Remember that the public feels they need more light than they actually do. By consciously underlighting a windowless space, you can create drama and still have sufficient light by putting light only where it really needs to be.
- Light the vertical wall surfaces to establish a sense of place.
- Identify task areas and key visual focal points and concentrate low-wattage, narrow-beam halogen or low-voltage sources onto these surfaces to provide a better quality of light, while minimizing costs.
- Think in reverse: Instead of saturating your design layout by determining broad ambient light levels and adding accents, select your focal elements and add fill light to supplement.

## Five tips for office lighting:

1. What is it that you really want to see? "When you put light into a space, it directs your eye," said D. Schweppe, Schweppe Lighting Design, Inc. "You must know what you want people to look at before you add light to the environment."
2. Where do you really need light? Does the entire space need to be illuminated? Or, does everything need to be lit to the same levels? "Identify the tasks to identify the type and quality of light required or desired," Schweppe said.
3. Understand what all the finishes are and how they react to light. Said Schweppe, "Truly understand how that faux finish or brushed metal will react to the type and quantity of light you are introducing to the space."
4. How much can you really spend? "Figure out where lighting will give you the most bang for the buck," said Schweppe. "Every space can have something special, but you have to think about it ahead of time."
5. Understand what the owner expects at the end and what the interior designer/architect expects at the end. Cautioned Schweppe, "They may not be the same, and you will have to please them both."

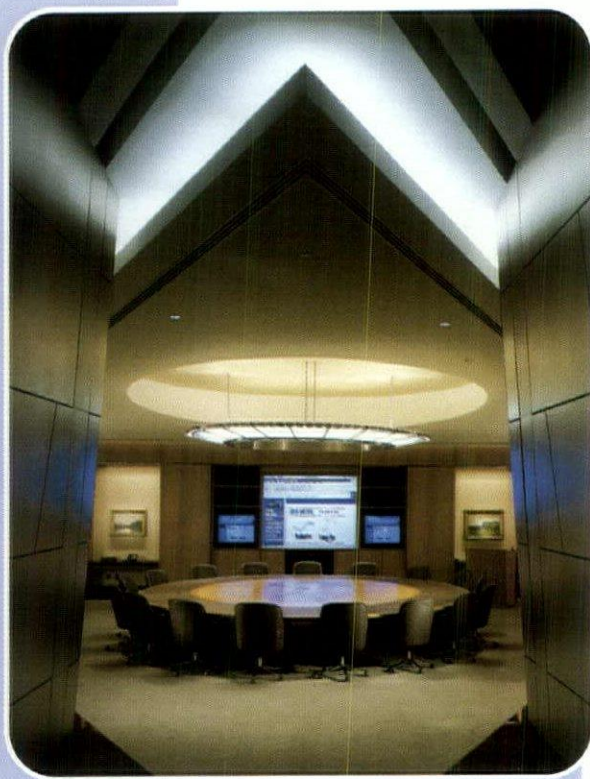
# Ship-Shape

In a building designed by Kohn Pedersen Fox with interiors designed by Swanke Hayden Connell Architects, the conference room, one small but important part of the new 275,000-sq.-ft. headquarters building for IBM, Armonk, NY, serves as the location for high-level, long-distance global meetings between top executives and clients. "As a result," said lighting designer Suzan Tillotson, Kugler Tillotson Lighting Design, "the room not only had to look great, the people in it also had to look good and feel comfortable—it had to be perfect."

But aiming for a perfect lighting solution in this space, particularly from a functional perspective, was no easy feat. The interior of the room reflects its role as a videoconferencing setting for corporate captains: rich finishes, luxurious furnishings and state-of-the-art audio visual equipment and voice and data connections. Other unique features of the space that set it apart from a run-of-the-mill conference room are its dramatic, high sloping ceiling, unique footprint and floor-to-ceiling windows, which are located in what Cynthia Kracauer, associate principal and director of special projects for SHCA, calls "the prow" of the space. The windows let in views of the surrounding landscape, adding to the visual appeal of the room. But they also posed the most demanding challenge for the lighting designers. "Nothing about the architecture was conducive to videoconferencing," said Tillotson. "Ideally, people

are positioned in a semi-circle facing the camera, with a U-shaped, or flat, windowless wall behind them. The light levels on people's faces are usually four times higher than the wall behind them."

In this room, the window walls converged to a point directly opposite the camera and behind the conference table, in effect creating a strong wash of backlight behind the people facing the camera and minimizing the appearance of light on their faces. Not only did the lighting design need to correct this problem, it also had to provide flattering illumination on people's faces, low-level, well-shielded light on the table to allow for note-taking and minimal illumination (no more than 20 fc) near the video view screen and camera wall. Initial plans for downlights and adjustable accent lights on the ceiling "looked like Swiss cheese," said Tillotson. "We had to create an object to do the work for us." After numerous partial mock-ups and extensive hand and computer calculations, the lighting designers, in collaboration with the interior designers, produced a massive, custom fixture, which they call "the mother ship," said Kracauer, "because it hovers."



## *Tips for lighting a videoconference room*

- Provide at least 70 fc of shadow-free vertical illumination on people's faces.
- If possible, use recessed, well-shielded fixtures (parabolic troffers with a batwing distribution usually work well).
- Control the light (no more than 20 fc) on the camera wall; if it's too bright, the camera won't be able to focus on the faces of people in front of the wall.
- Illuminate the other three walls to an average of 30 fc.
- Control all fixtures with dimmers to obtain the proper balance of brightness on all surfaces.
- Verify all light levels with audio-visual consultants since equipment requirements may vary.



It is circular in plan and conical in section, canted at the top to adapt to the sloping ceiling. While the suspended fixture is large in diameter—13 ft. 6 in.—enabling it to fulfill functional requirements, it is also slim in section, giving it a lightness that complements the clean, elegant atmosphere of the room. Made of stainless steel and water-white stippled glass laminated with PVB interlayers to control brightness, the ringlike fixture incorporates four separately dimmable layers of illumination: an outer ring of MR11 lamps designed to increase the quality and level illumination (the MR11s, fixed at a 20-degree angle and positioned behind ribbed glass diffusers—which spread the light vertically and enhance the sparkle from these sources—provide

75 fc of vertical illumination to supplement the light

on people's faces and allow for note-taking); a luminous glass plane illuminated by 40W biax compact fluorescent striplight fixtures with staggered sockets that provide the majority of ambient light in the room (the glass plane is canted to minimize reflection on the view screen); a 5.5W low-voltage xenon striplight, also mounted above the glass plane, which provides consistent flattering warm light in the room and ameliorates the shift in the color of the light that fluorescents emit when they're dimmed (their light turns gray below 50 percent of output); and an inner ring of 50W halogen T10 lamps, positioned 6 in. on center on a concealed wireway, which provide uplighting that minimizes the contrast between the fixture and the ceiling, while accenting the depth of the space overhead.

During videoconferencing, when it is necessary to reduce the natural light in the room, Kracauer noted that a full height motorized drapery, which interfaces with the dimming system linked to the videoconferencing system, blacks out the daylight coming through the windows. Other lighting includes fluorescents in coves around the perimeter of the 2,300-sq.ft. room and a few MR16 wall washers above credenzas. All the lighting is controlled by an eight-scene pre-set dimming system. According to Kracauer, the fixture not only addresses all of the lighting issues inherent in a videoconference room, it is also "a completely appropriate material expression of steel and glass for this space—it's like a beautiful piece of jewelry." —*Jean Gorman*

**DETAILS project** International Business Machines (IBM) Corporation headquarters ♦ **location** Armonk, NY ♦ **client** IBM Corp. ♦ **architect** Kohn Pedersen Fox Associates P.C ♦ **interior architect** Swanke Hayden Connell Architects ♦ **contractors** Whiting Turner; Structure Tone ♦ **lighting designer** Kugler Tillotson Associates ♦ **acoustical consultant** Cerami Associates, Inc. ♦ **structural engineer** The Cantor-Seinuk Group P.C. ♦ **mechanical, electrical, plumbing** Jaros, Baum & Bolles ♦ **civil and environmental** Ronald A. Freeman Associates ♦ **photographer** Peter Paige ♦ **fixture fabricators** Cornelius Architectural Products ♦ **lighting manufacturers** Lutron; Lightolier; LSI

# Inner Focus

The offices at Intech are located in a modest, post-war, International-style building in Philadelphia. Originally designed to house printing presses for the Philadelphia Bulletin, a now defunct daily newspaper, it was never intended to be a workplace. Intech served as the construction manager in the renovation of this building for use as commercial office space and, in the process, opted to locate its own offices in 20,000 sq. ft. of the structure. The firm called on the Hillier Group to turn the dark, 18-ft.-high-bay space into a pleasant, habitable office environment.

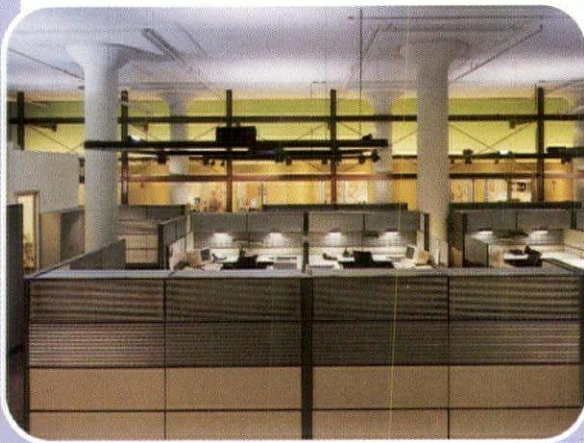
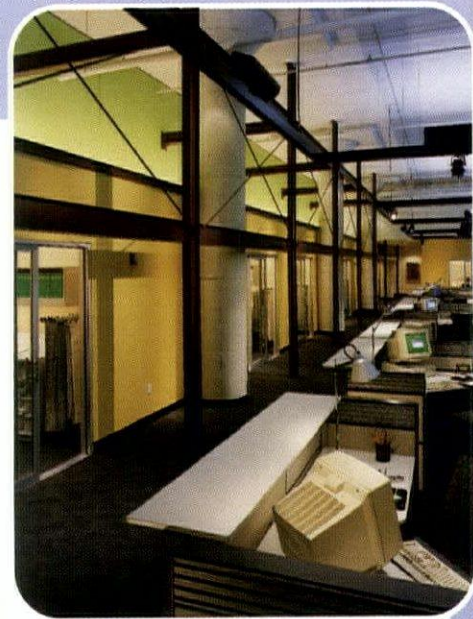
The solution, devised by principal architect Barbara Hillier and her team, relied upon creating interior drama through color and lighting. "In the absence of views and daylight, which people tend to expect, we looked to create exciting inward views," said Hillier. "Because of the height of the space, we had the opportunity to create vistas that would intrigue the eye, excite the senses and provide both foreground and background imagery. By controlling the height and shape of the built spaces within the volume, we could shape the perception of it. We introduced color to create the illusion of the horizons you'd get with a normal outside view and used richer textures to keep the eye stimulated."

In this context, the architects, along with lighting designer Lee Waldron of Grenald Waldron Associates, carefully controlled the lighting as well. "We were like photographers," said Hillier. "We lighted the surfaces we wanted to light." Waldron added, "We could be more artistic and sculptural with the light than usual because the owner was interested in getting a more creative atmosphere." One of the areas they chose to light was the colored wall surfaces, to heighten their dramatic role without bleaching them out. "We wanted the walls to glow," said Hillier. They did this by grazing the walls with 75W PAR30 lamps hidden behind the steel framework near the ceiling.

Another area where light played a major role was in the open office space. Here, the designers suspended what Hillier calls a "horizontal datum," or a series of large, suspended rectangular track sections, which help to articulate the two-story space without visually interrupting it. These suspended tracks also contain four 150W HQI metal halide uplights and a number of strategically placed 50W, narrow flood, low-voltage downlights that provide both soft reflected ambient light and focus accent light on the desktops. According to Waldron, the light level in the office area is about 30-35 fc (normally it might be about 45-50fc or higher), yet it is more than sufficient because of the absence of direct views to daylight. "The lighting lets the architectural forms read," said Waldron, "creating an atmosphere of high contrast and high drama. It's a theatrical technique." These sources and the way they are positioned also allow the colors to be rendered effectively, which was an important part of the design concept.

In the conference room, a suspended ceiling plane contains 75W PAR30 downlights to illuminate the table. A series of 50W MR16 monopoints around the perimeter of the plane scallops the walls, and seven to eight fluorescent channels mounted above the suspended ceiling plane uplight the ceiling and provide additional ambient light, while accentuating the floating effect of the suspended plane.

Will Schwartz, a co-owner of Intech, said he was skeptical that the concept would work but is amazed at the sense of openness within the space in spite of the lack of sunlight. "They accentuated the pluses of the space—the high ceilings and the structure—and minimized the minuses. It's a classy approach, and the track lighting is flexible. If someone wants more light, you can supplement it with more heads or just redirect it." —*Jean Gorman*



**DETAILS** project Intech Construction, Inc. ♦ location Philadelphia ♦ owner Intech Construction, Inc. ♦ architect/interior designer The Hillier Group Philadelphia-Barbara Hillier, project designer, Kimberly T. Mackenzie, project architect ♦ lighting designer Grenald Waldron Associates—Lee Waldron, principal ♦ contractor Intech Construction, Inc. ♦ photographer Tom Crane ♦ lighting manufacturers Capri; Focal Point; Flos; Juno; LSI; Lightolier; SPI Lighting

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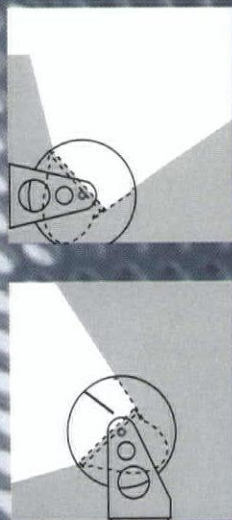


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# Even Trade

Although VDTs have become essential in daily office tasking, nowhere is their invasion more complete than in facilities such as the new trading floor of Fahnstock & Company, Inc., which was founded in 1881. "These days, practically everyone works on a computer screen so the issues are not confined to a trading floor—the Fahnstock trading floor is basically just a more extreme situation," said architect Richard Goldberg of RMC Design Associates. With traders and sales personnel each operating three or more terminals, the need for a lighting system that would provide sufficient ambient light without creating glare or distracting reflections on the screens was imperative.

Goldberg's solution preserves the open plan, ideal for minute-to-minute communication between traders, and responds to the design constraints of the space—the original steel structure of the space and a raised floor instead of electric poles to conceal the extensive wiring for the terminals. Sheetrock soffit, extending 2 ft., was constructed around the structural steel to contain the HVAC system and create 10-ft. high bays. Ceiling washers, each equipped with a single F40 twin-tube biax fluorescent lamp, were recessed in the vertical face of the soffits to produce an even horizontal throw that would be impossible with conventional cove-lighting.

Research in the early stages of the project led Goldberg to choose the newly introduced ceiling washers over conventional cove-lighting. "You

have to keep abreast of all the latest available materials, not just lighting products, but in this case, the ceiling products as well," said Goldberg. "Because we did some research, we were able to take standard off-the-shelf equipment and with little modification, install it to light the ceiling." The decision not to use customized cove-lighting reduced costs, saved construction time and involved some innovation on Goldberg's part. "The ceiling washers were intended for use in full-height walls when recessed ceiling light is unfeasible."

The ceiling washers work with high reflectance ceiling tiles to achieve a luminance of 50 fc, which is well within the IES/RP-1 standard. Composed of an acoustically transparent membrane adhered to fiberglass board, the white 2 x 2 tiles absorb sound and complement the soffits, also painted white.

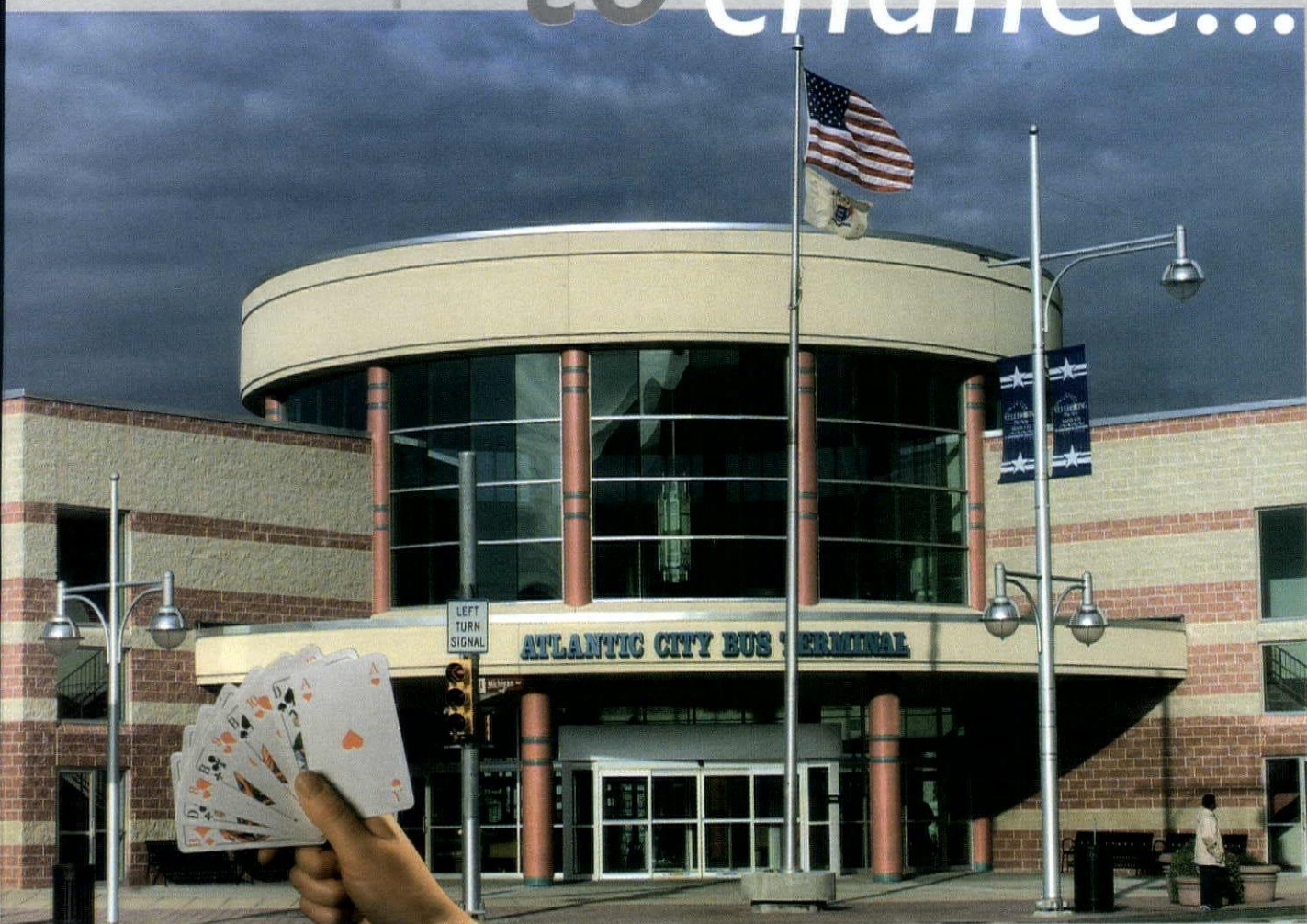
Supplying in-fill light to the 14-ft. span between soffits, pendants with two 4 ft. long T8 fluorescent lamps each and perforated housing were suspended in rows from the center of each bay. Said Goldberg, "Because the fixture itself can become like a black spot on the screen, you want to have some downlight from the fixture. You have to think of the screens."

Goldberg mused, "Though more extreme, Fahnstock in some ways was like a laboratory where the issues and solutions can apply to any office lighting design." —*Alice Liao*



**DETAILS** project Fahnstock & Company, Inc. (trading floor) ♦ location New York, NY architects RMC Design Associates, Inc.—Richard S. Goldberg, Robert R. Miller ♦ lighting designer RMC Design Associates, Inc.—Richard S. Goldberg ♦ electrical contractor Consolidated Electric Construction Co., Inc. ♦ photographer Dan Nelken ♦ lighting manufacturers Lightolier (ceiling washers); Neo-Ray (indirect/direct pendants); Armstrong (ceiling tiles)

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## URBI 1

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# Toy Story

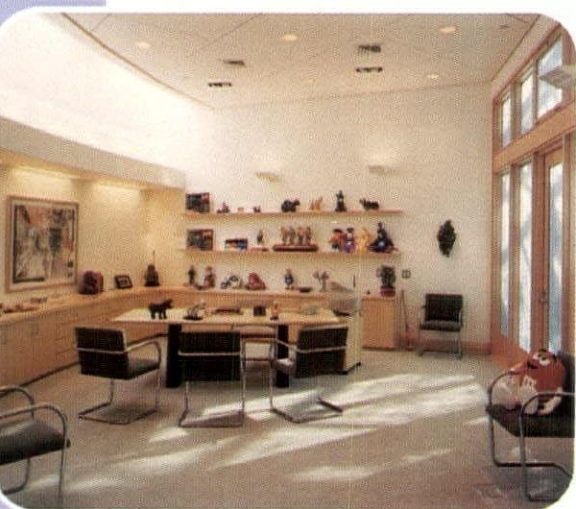
At Hasbro's Global Corporate Headquarters in Pawtucket, RI, daylight is as plentiful as the toys that are displayed throughout the building. Traveling through skylights, windows and fretted glass, the abundance of daylight helps transform what used to be home to an A&P supermarket into a viable corporate facility for a Fortune 500 company. "When you drive through the neighborhood and you come here, there's this great visual transition that happens," said lighting designer Matthew Tanteri. Light colors, playful touches and a lighting design that soothes and warms complete the transformation.

"We really tried to balance the daylighting with the electric lighting," said architect Lindsay Boutros-Ghali. A radial distribution of offices around a glass-enclosed atrium enables daylight to reach the executive offices. Glass panels of liquid crystal separate the offices from the atrium and allow executives to screen direct sunlight for added privacy. Inside the offices, arc-shaped skylights invite in further natural illumination via light wells. "During most days, the office provides enough daylight," said Tanteri. "In the summer, there's so much light at the task level and on vertical surfaces that you get a sense that the office is lit. It's a great use of daylight."

For Tanteri, controllability, convenience and satisfying energy requirements played key roles in designing the layered lighting of the executive offices. Using primarily fluorescent sources, Tanteri was able to choose lamps with lower wattages and keep the number of lamp types at a minimum. "We used 3000K tri-phosphor linear T8 and bi-x lamps to give a sense of daylight," said Tanteri. Wall washers recessed in a soffit below the skylights bathe the wall in a soft light, while above, a row of uplights project light onto the ceiling, creating in the evening the illusion of daylight still penetrating the skylights. Compact fluorescent lamps in sconces placed around the room and in downlights organized in a grid ceiling contribute general lighting. Four AR111s fitted with linear spreadlenses and controlled by dimmers illuminate display shelves. Excluding the accent lights, lighting in the executive offices is controlled in layers by on/off switches.

A combination of varying light fixtures, high-reflectance and high saturation colors and surfaces infuse the building with a playfulness, and in areas where sunlight is less accessible, mimic natural illumination. To light artwork tucked in niches, Tanteri set up a system of track lighting with MR16s, AR111s and quartz floodlights. In the outer spaces, wall-recessed fixtures using compact fluorescent lamps suggest daylight and resemble illuminated boxes. Throughout the transitional spaces, high-reflectance surfaces and variable, saturated colors add a sense of openness and light.

A pale palette and non-specular surfaces work with the lighting to maximize brightness in the offices. "The color, texture, finish of interior surfaces were made to work with and for the lighting," Tanteri commented. "With indirect, concealed lighting, the room becomes the fixture. It becomes the luminous surfaces you look at." —Alice Liao



**DETAILS** **project** Hasbro Global Corporate Headquarters ♦ **location** Pawtucket, RI ♦ **architect** Lindsay Boutros-Ghali, AIA, Lindsay Associates, Inc. ♦ **lighting designer** Matthew Tanteri, Tanteri & Associates, Inc. ♦ **photographer** Richard Mandelkorn, Richard Mandelkorn Photography ♦ **lighting manufacturers** Kurt Versen; Modular; LSI; Engineered Lighting Products; Legion Lighting; Alpha Lighting; Linear Lighting; Rambusch; Architectural Landscape Lighting; Specialty Lighting Industries; Wide-Lite; Designplan; Shaper; Limberg; Luceplan USA; Canlet; Kim Lighting; Lightalarms; Louis Poulsen; Crouse-Hinds



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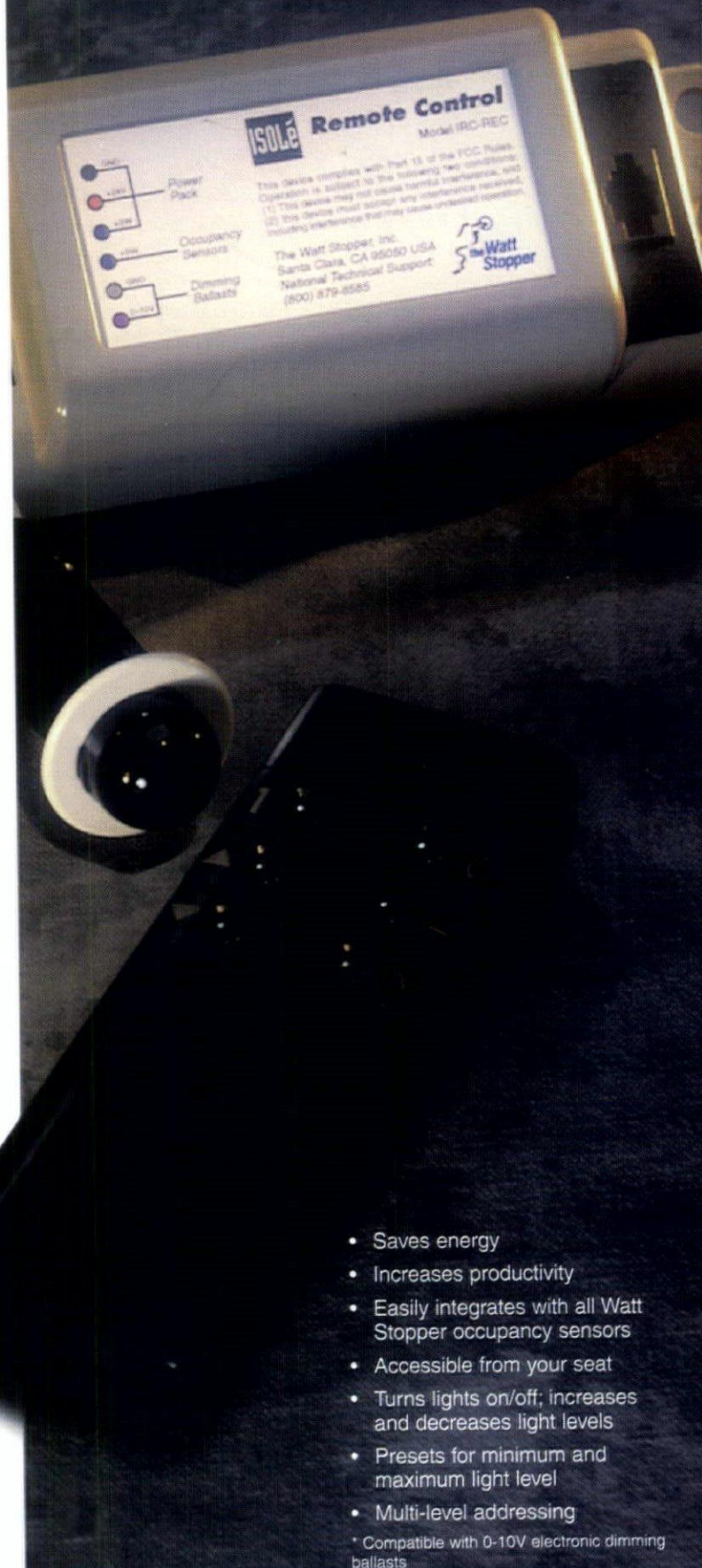
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# Side-by-Side

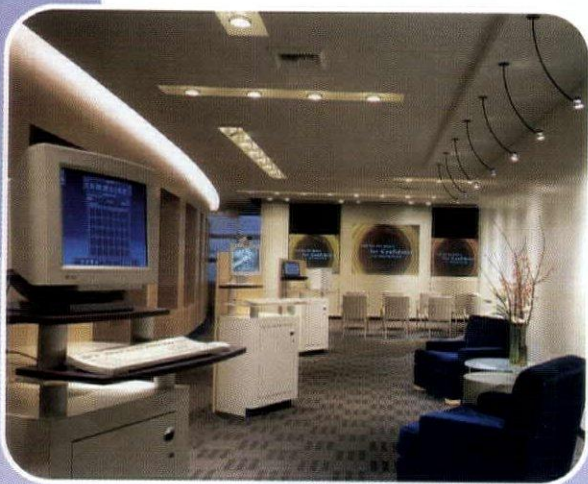
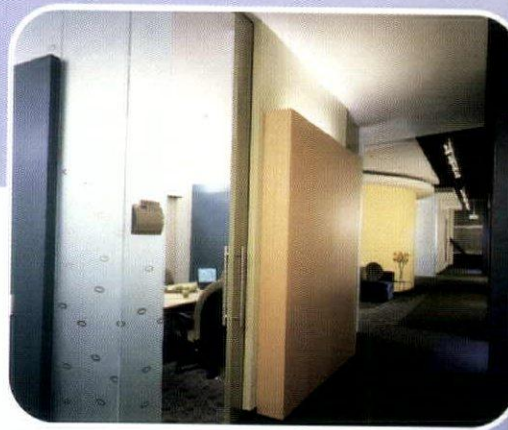
After visiting Networking Equipment Technologies' existing facility, whose outdated lighting systems were inappropriate for a computer-intensive environment, lighting designer Janet Nolan decided that a primarily indirect system with pendant-mounted fluorescents with a perforated metal downlight component would take advantage of the generous ceiling height, providing a pleasing balance of fixture and ceiling brightness. Achieving an illuminance of 35-40 fc at the worksurface, the system produces the right amount of ambient light for the staff members who work on computers all day. "What was interesting about the project was that even though the budget was very tight, we were able to use a very good, high-quality indirect pendant system in the open plan offices," Nolan remarked. "In other areas, we used inexpensive industrial-type fixtures."

Blending high-quality and industrial, custom and standard, Nolan designed a lighting solution that answers the client's multi-faceted needs and complements their corporate image without exceeding the budget of \$35 per sq. ft. According to Nolan, "NET was an interesting client because their lighting requirements included offices, a manufacturing facility and a customer conference and marketing center." Moving from eight buildings to three in the highly competitive Silicon Valley market, NET wanted their new headquarters to reflect an image of youthful sophistication and to attract talented recruits: team areas and reception convey a relaxed, non-corporate appearance.

Nolan lighted the various spaces to emphasize function as well as atmosphere. In a building where manufacturing and office functions occur side-by-side in an open plan, cable-suspended indirect fixtures provide glare-free illumination for end-users and assembly workers while highlighting the ceiling's multiple levels. In the central corridors of each building, track fixtures with theatrical gels accentuate the thematic color of the walls, ceiling and carpeting. Concealed wall-mounted fluorescent striplights and track fixtures bring an informal feel to the team area and call attention to the blue theme of the building. Rich materials, glass panels and warm, incandescent light grazing a canted wood wall contribute to the high-end appeal of the lobby.

Nolan's design heightens the role of the customer conference center, essentially a room for sales, by adding drama and flexibility. Industrial signlighters fitted with blue gel sleeves backlight the row of display windows, and low-voltage incandescent track lighting mounted vertically between the windows illuminates the product on show. A programmed preset dimming system and hand-held remote control allow the NET staff to control the lighting in each window when walking clients through the displays. Above, continuous fluorescent cove-lighting tops the display wall with a halo of light, separating it from the ceiling. Aimable monopoints mounted inside slots in the ceiling allow for changes in the arrangement of the freestanding display terminals; the slots arranged in a visually clean composition also create interest in the ceiling. Lighting in an informal meeting and presentation area is also controlled by a preset system. A row of low-voltage MR16 accents mounted on curved pendants adds liveliness to the room.

"NET does a lot of different tasks, so we weren't just designing office lighting," Nolan explained. "it was lighting for the hundreds of people working there."—Alice Liao



**DETAILS** project N.E.T. Headquarters Campus ♦ location Fremont, CA architect Gensler, San Francisco ♦ lighting designer Janet Nolan, J S Nolan + Associates Lighting Design ♦ photographer Toshi Yoshimi ♦ lighting manufacturers Lightolier (track lighting); Shaper Lighting (custom fixtures); Ledalite (indirect uplighting); Modular (monopoint pendants); Lutron (dimming and controls); Peerless; Kurt Versen; Williams; Linear Lighting; Stonco; Engineered Lighting Products

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This year marks the 10th anniversary of Lightfair International, the country's largest architectural and commercial lighting trade show. More than 14,000 architects, engineers and design professionals are expected to gather at the Moscone Center, May 11-13 to view the newest products and latest technology. Seminars in five tracks—design, professional development, business practices, energy & technology, environmental—will be offered. (See page 72 for schedule.) In addition to more than 325 exhibits, Italian and International lighting pavilions and educational presentations, there will be a variety of awards ceremonies and association events.

*Architectural Lighting* highlights some of the scheduled events and previews some of the special features planned for this year's show. For more information on any of the following events, visit Lightfair's website at [www.lightfair.com](http://www.lightfair.com). Information about attending, exhibiting, conference programs, workshops and seminars, travel, current exhibitors, special events, registration and more is included. For exhibitor information, contact Libby Morley at (404) 220-2215 or Danielle Gibbs at (404) 220-2205. For conference program information, contact Renee Gable at (404) 220-2217 or Angela Ausband at (404) 220-2221.

### Tours & Trips

Want to rest up before Lightfair? Wind down after the show? Relax and have fun with other lighting industry members prior to Lightfair on Sunday, May 9 from 9:00 am-1:00 pm, exploring the **history of San Francisco's architecture**. Led by a former Berkeley professor of architecture, the tour visits destinations that are models of architectural innovation. Sights include 19th-century Victorians, celebrity homes and the Gold Rush buildings of the Barbary Coast.

Interested in Asian culture? Visit San Francisco's **Chinatown** on Sunday, May

9 from 12:00-3:30 pm and tour Buddhist temples and a fortune cookie factory. A Dim Sum luncheon completes the experience.

Unwind after the excitement of Lightfair on Friday, May 14 from 9:00 am-3:00 pm by touring the coastal environment of northern Marin County, walking amongst 750-year-old Sequoia redwoods in **Muir Woods** and visiting the oceanside village of Sausalito. Or, if sipping wine amidst the beautiful landscape of Napa and Sonoma Valleys is more your style, join the **Wine Country Tour**. Friday, May 14 from 9:00 am-4:00 pm.

### IALD Awards Presentation and Celebration

A special event of note is the 16th annual IALD Lighting Awards reception, presentation and dinner, cosponsored by the International Association of Lighting Designers (IALD) and *Architectural Lighting*. This year's winners, among more than 130 entries, will be awarded on Wednesday, May 12 from 6:30-10:00 pm at the newly renovated and relighted San Francisco War Memorial Opera House (see page 66 for details and photos of the project). Tickets are \$140 (members) and \$175 (non-members) and can be purchased through Lightfair registration.

Judging for the IALD awards was held February 12-13 at the Marriott Solana in Dallas. Respected professionals from the architecture and lighting design communities judged the entries on their aesthetic and technical merits. Complete coverage of the winning submissions will be covered in the July issue of *Architectural Lighting*.

After the awards presentation, 10:00 pm-midnight, get ready to dance to the sounds of swing by attending the inaugural **IALD Education Trust Fund Benefit**. All proceeds from the event will go to benefit the Trust's efforts to promote lighting design education. Tickets are \$50 (IALD members); \$75 (non-members).

For more information, contact the IALD at (312) 527-3677.



California,

# Special Events

Tuesday, May 11

Kick off Lightfair from 8:00-9:30 am at the multi-media **New Product Showcase & Awards Presentation**, sponsored by *Architectural Lighting* and *inter.Light*. The much-anticipated presentation highlights new products introduced commercially within the last year. Find out which manufacturer submits the Best New Product of the Year, in addition to award winners in technical innovation, energy management and savings and design excellence. New for 1999: The Judges Citation Award and the Roeder Award.

**The Nuckolls Fund for Lighting Education Luncheon/Seminar** will be held at the Moscone Center from 12:15-1:45 pm. Jeffrey Milham, president of the Nuckolls Fund, will announce the recipient of the 1999 \$20,000 Nuckolls Fund Grant and the recipient of the 1999 \$5,000 Edison Price Fellowship Grant. In addition, Richard C. Peters will present his thoughts on "Light & Lighting," which addresses the need to manage light with creativity, imagination and precision.

*Mark your calendars for Lightfair 2000!*

*May 9-11, Javits Convention Center,*

*New York City.*

Wednesday, May 12

**The National Council on Qualifications for the Lighting Professions (NCQLP) Lighting Certified Luncheon**, at the Moscone Center from 12:15-1:45 pm, will address the merits of professional lighting certification. President Russ Churchill, PE, LC, FIES and directors of the NCQLP Board will recognize the 1999 class of LCs. Examination chair, James Benya, PE, FIESNA, IALD, LC will provide a report card on the LC examination's second year. Dean McCauley, RPA, will discuss "The Federal Interest in Lighting Certification."

Thursday, May 13

**The IESNA International Illumination Design Awards (IIDA) Luncheon Seminar** will be held from 12:15-1:45 pm at the Moscone Center. Don Newquist and Jim Zatovnik will provide attendees with the information needed to enter projects into the IIDA program.

The **Lighting Industry Resource Council (LIRC) Luncheon** will be held from 12:15-1:45 pm at the Moscone Center. Learn more about the LIRC, an IALD adjunct for manufacturers. Presenters will encourage discussion amongst audience members on issues such as specification integrity, national lighting distribution, developing a universal format for spec sheets and standard business practices.

New for 1999

The **10th Anniversary Cocktail Reception** is being held at Moscone Center on Tuesday, May 11 from 4:00-6:00 pm to celebrate Lightfair's 10th anniversary and officially thank exhibitors and attendees for their support over the past decade. Welcoming remarks will be made by architect John C. Portman, FAIA, Joseph Good, president, IESNA and Philip Gabriel, chairman, IALD. Complimentary beverages, light bites, a cake-cutting ceremony and musical entertainment round-out the reception. To recognize exhibitor excellence in pre-event marketing, Lightfair will present the first annual **Image Awards** at the 10th Anniversary Reception. This new program will offer exhibitors the opportunity to showcase their creative efforts and will award those marketing campaigns that promote an exhibitor's

participation in the trade show. For more information, contact Danielle Gibbs at (404) 220-2205, or [danielleg@lightfair.com](mailto:danielleg@lightfair.com). Following the reception, dance the night away at the **Birthday Bash** from 8:00-11:00 pm at Bimbo's 365 Club (1025 Columbus Ave.), a North Beach landmark.

On Wednesday, May 12 from 7:00-8:00 am, join Belfer Lighting for the **San Francisco Bay Walk** in memory of Craig A. Roeder. The event, which takes walkers from the downtown Marriott to Pier 39 and back for breakfast, will benefit The Nuckolls Fund for Lighting Education Inc., an endowment fund in support of college-level programs that inspire students with an understanding of light in architecture. For more information, visit [www.belfer.com](http://www.belfer.com).

# Here We Come!

During your stay in San Francisco, take time out to visit some Bay City hot spots with interesting and often innovative lighting designs. Join us on our four-page "tour" of just some of the work that's been done in San Francisco, a cultural blend of tradition and trend. So, before you check out, check some of these out...

## On the Waterfront

### *Fisherman's Wharf*

In 1996, the Port of San Francisco, recognizing the deterioration of the lighting environment, solicited proposals for a lighting master plan for Fisherman's Wharf, one of San Francisco's most visited areas. The first phase of construction implemented this master plan in the Inner and Outer Lagoons. Restoring the historic feel of this working wharf/tourist attraction and establishing a composition of lighting elements while reducing unwanted glare, number of lamp types, shadow zones and poor color rendering were the challenges.

Key points of relighting the Wharf:

- Almost 60 historically authentic custom light fixtures have been placed around the pedestrian walkways of the lagoons to provide ambiance and



nighttime safety. The fixtures, inspired by a 1918 photo of one of San Francisco's earliest electric street lights, use high-CRI ceramic metal halide light sources. The warm, incandescent-like color of these sources lends a clarity to the evening atmosphere.

- Fishing boats are brought back to life with high-mast, metal halide fixtures mounted on 30-ft. poles that are placed in strategic locations around the lagoons. Advanced optics—using a custom reflector and house-side internal cutoff louvers—give a broad distribution of light, but cut off glare.

- By illuminating building facades, a dramatic backdrop is created. Fluorescent uplights with cube cell louvers are mounted behind window sills, illuminating the spaces from within. Column uplights, using ceramic metal halide PAR38 lamps, are located just above ground level to accent the architectural facade features. Ceramic metal halide PAR38s also light the flagpoles.

**Lighting designer:** Auerbach + Glasow—Larry French, IALD, LC, principal; David Orgish, project manager; **Photographer:** Douglas A. Salin; **Lighting manufacturers:** Bega; Lithonia; Kim Lighting; Beacon Lighting; Devine Lighting; Greenlee Landscape Lighting; Philips Lighting



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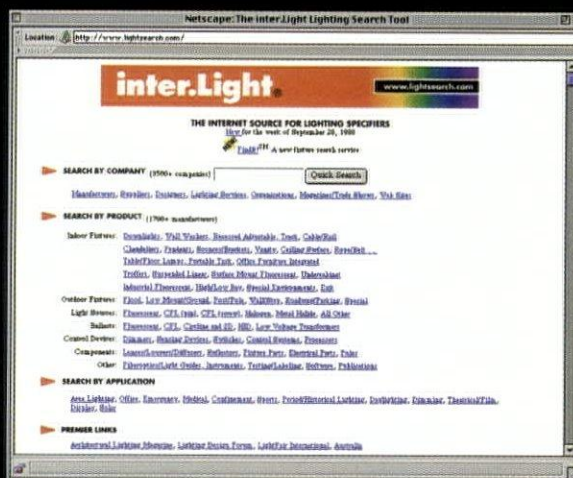
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## A Night at the Opera

### *War Memorial Opera House*

Part of the famed Beaux Arts San Francisco Civic Center complex, the San Francisco Opera House has been the venue for many historic performances and public events, including the preparation of the original Charter of the United Nations in 1945.

In 1989, the Loma Prieta earthquake caused significant cosmetic damage to the building as well as exposing the need for a major seismic retrofit. As part of the overall project, private funds were raised for the restoration and renovation of the main chandelier and audience chamber.

As the architectural lighting system had not had any significant upgrade since opening in 1932, light levels in the auditorium had deteriorated dramatically below original lighting design plans, averaging less than 0.5 fc. Within an 18-month period, the restoration had to be accomplished with the goal of significantly improving lighting levels and maintenance while making changes without disturbing the historic context.

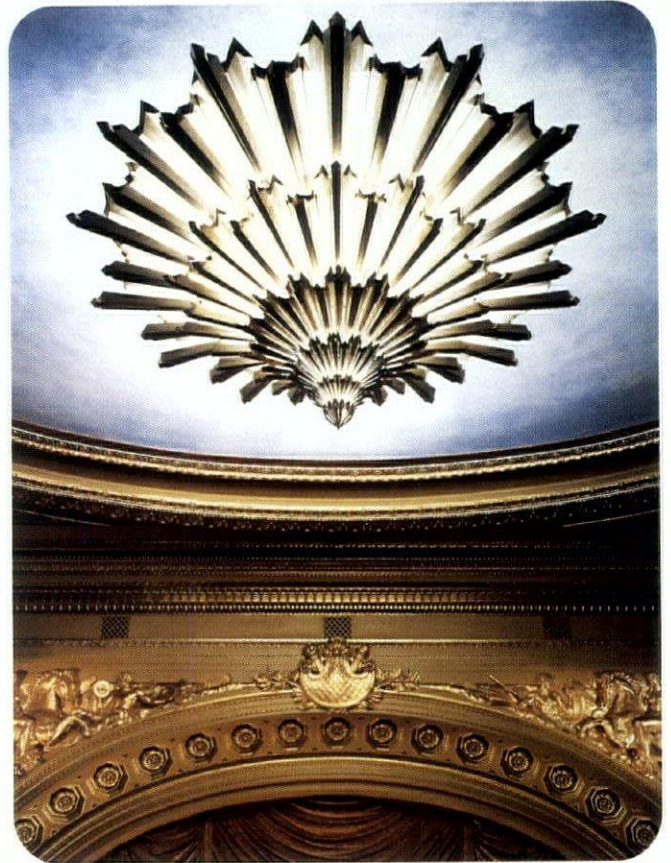
A primary feature of the restoration was the complete refurbishment of the massive main chandelier. Particular attention was paid to restoring it to its former glory while easing difficult maintenance issues. The impressive chandelier is 25 ft. in diameter, 14 ft. tall and has six tiers of radiating decorative fins. Original lamping included 540 general-service A-lamps. A major element of the chandelier, a powerful uplight component, had been removed sometime in the past.

More than 60 years of accumulated grime was cleaned from the exterior of the fixture. The interior was completely gutted, cleaned and parts were tightened. Halogen A-lamps were selected for long lamp life, color temperature and high efficacy. Preliminary computer light level calculations revealed that the uplight fixtures, mysteriously removed in the past, had contributed almost 80 percent of the original general illumination in the audience chamber.

The uplight component was restored using asymmetric throw floodlights with HIR T4 lamps.

Lighting designer Larry French received the 1998 Edwin F. Guth International Illumination Design Award (IIDA) for his work. Auerbach + Associates was part of the restoration team that received the 1998 National Preservation Honor Award and the 1998 California Preservation Foundation Design Award for the project.

**Lighting designer:** Auerbach + Glasow—Larry French, IALD, LC, principal; **Photographer:** Robert Canfield; **Lighting manufacturers:** Scott Architectural/Taylor Stokes





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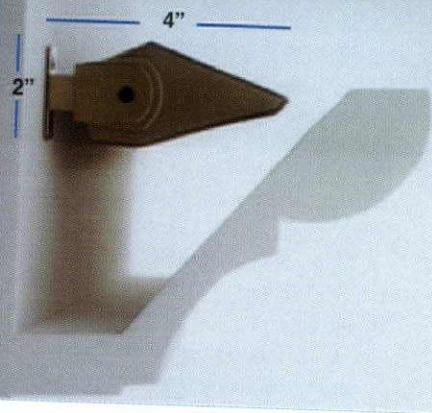
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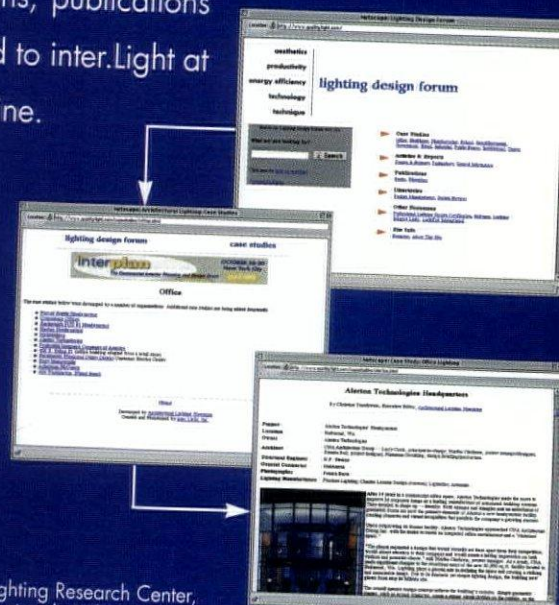


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## Meet Your New Lighting Library

The sponsors of the Quality Lighting Campaign bring you the Lighting Design Forum at [www.qualitylight.com](http://www.qualitylight.com), an on-line library of articles, links and resources. You'll find projects, articles on technique and technology, links to other organizations, publications and many other resources. The Lighting Design Forum is linked to inter.Light at [www.lightsearch.com](http://www.lightsearch.com), the on-line lighting product search engine.

[www.qualitylight.com](http://www.qualitylight.com)



The Lighting Design Forum is sponsored by Architectural Lighting Magazine, inter.Light, the IALD, Lighting Research Center, Lighting Design Lab, Northwest Energy Efficiency Alliance, National Lighting Bureau, Lightfair International, Ardee Lighting, Columbia Lighting, GE Lighting, JJI Lighting Group, Litecontrol, Luxo Corporation, Prescolite Lighting, Targett USA, T... Industries and WideLite.

## Honor Court

### *Palace of the Legion of Honor*

Located in Lincoln Park at 34th Avenue and Clement Street, is the California Palace of the Legion of Honor. Commissioned and given to the people of San Francisco by Alma de Bretteville Spreckels and her husband, sugar magnate Adolph B. Spreckels, the museum is dedicated to the memory of the 3,600 Californians who died during World War I. It opened on Armistice Day, November 11, 1924.

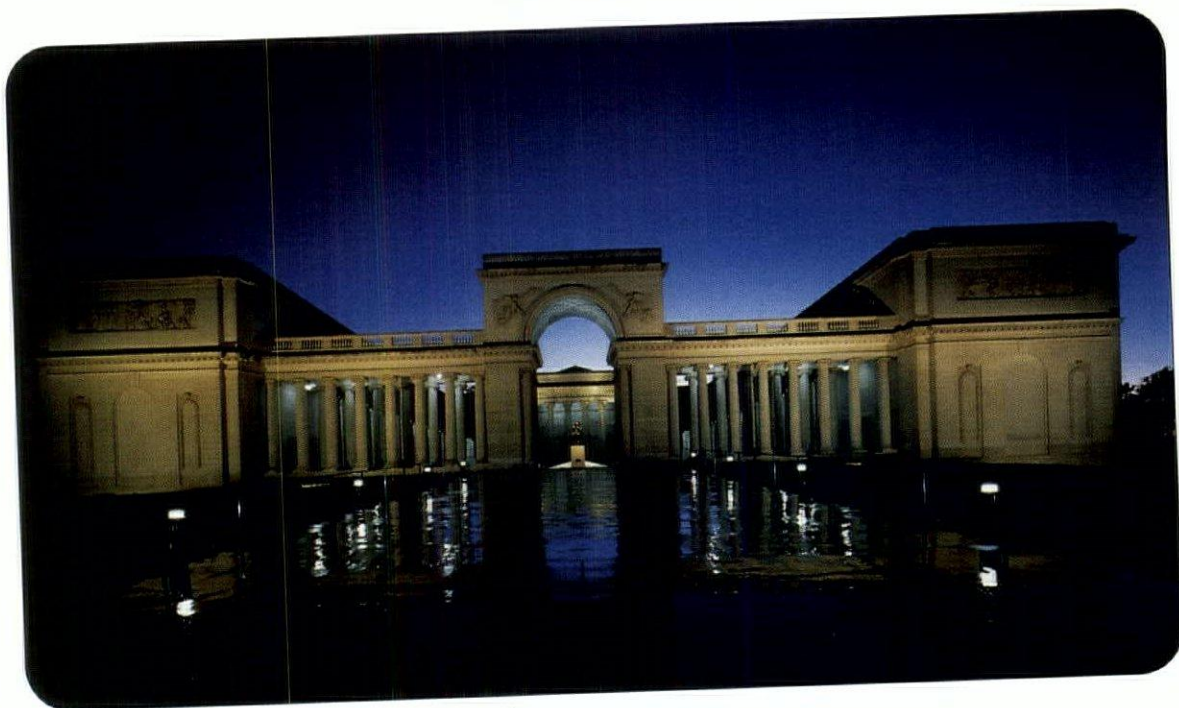
After a two-and-one-half year, \$36.5 million renovation, the museum was showcased in an entirely new light, underscoring the historic grandeur of the neoclassical building. One of the most apparent changes—and the first to be noticed—is the relighting of the exterior facade and colonnade of the historic building, as well as the outdoor sculpture and fountain, all addressed as works of art in and of themselves. For the first time, the Legion's signature artwork, an original cast of Rodin's *The Thinker*, which is central to the Court of Honor, had been properly and permanently illuminated by PAR38 HIR spots.

"The building elements we wanted to emphasize as 'art' are highlighted with tungsten halogen sources," said Patricia Glasow, principal designer. "Those elements in the landscape or circulation space are lighted with metal halide sources. We were careful not to overdo the facade and site lighting; so many buildings are grossly overlighted and garish. We wanted the building to be subtle, yet not lose any of its monumental presence at night."

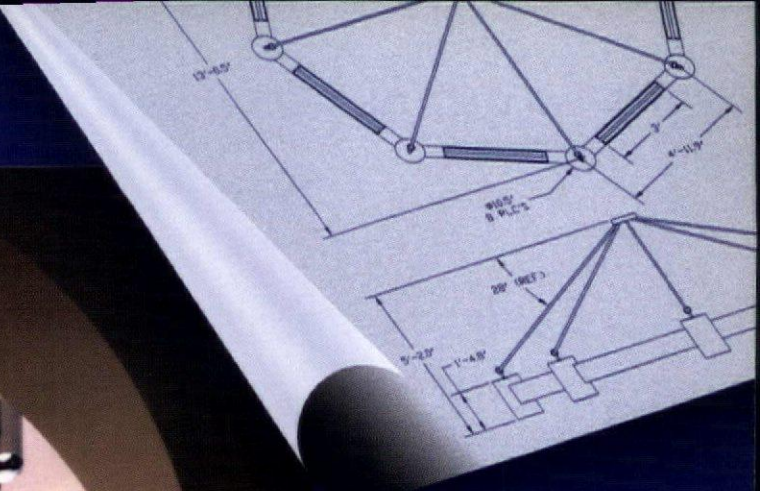
Inside the museum, Auerbach + Glasow designed and consulted on the lighting for the new and renovated galleries. The lighting design and architect team developed a clean, integrated aesthetic for the museum and incorporated the exacting specifications of the Fine Arts Museums' staff to enable the proper lighting of sensitive artwork as well as public areas.

Unique requirements for lighting the suspended 15th-century Spanish ceiling in the medieval galleries resulted in a specially designed suspended, low-voltage system. Other special lighting treatments include the illumination of several period rooms, programmable dimming systems for the Rosekrans Court, the renovated Rodin Gallery and the cafe.

**Lighting designer:** Auerbach + Glasow—Patricia Glasow, IALD, principal designer; **Photographer:** Douglas A. Salin; **Lighting manufacturers:** interior: Lightolier; Translite; Edison Price; Lithonia; Shaper; Colortran; exterior: Bega; Sterner; Hydrel; Kim; lamps: GE; Philips Lighting; Osram Sylvania



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## Landmark Decision

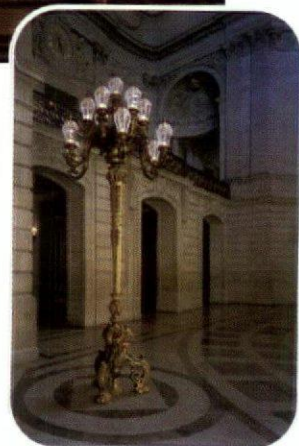
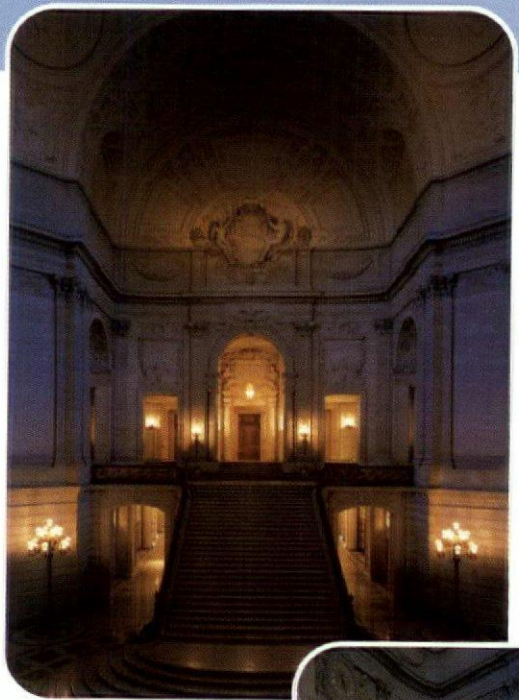
### San Francisco City Hall

San Francisco City Hall, part of the Civic Center Complex, officially reopened in January of this year after a four-year earthquake retrofit and restoration. The 83-year-old historic Beaux Arts building—and home to many newsworthy events—has been restored to its original regal elegance. Many visitors to City Hall might recall a bit of its history. In 1923 President Warren G. Harding's body lay in state in the rotunda; in 1954, the late Joe DiMaggio and Marilyn Monroe were married there; and in 1978, Mayor George Moscone and Supervisor Harvey Milk were assassinated in their offices. But few are probably aware that the stately building holds other claims to fame: It has its own federally protected typeface; it boasts, at 307 ft., the world's fifth tallest dome; and it may possibly be the largest building not attached to the ground (it now rests atop 600 base isolators). Now, the relighting of the exterior and many of its interior spaces can be added to City Hall's allure. Key points of the design:

- In terms of the exterior lighting, it was required that any project done in Civic Center use white light sources as part of a pilot project. "The idea was to eliminate the use of HPS and move to better color rendering sources," said lighting designer Angela McDonald. The building is very much an icon for the city, so the designers did try to create some visual connections by researching how the building had been illuminated in the past. "At the same time, we also realized that the technology available today gave us a lot of opportunities that did not exist then," said McDonald. After fairly extensive mock-ups, McDonald selected all 100W metal halide PAR lamps for four reasons: maintenance and lamp life; energy efficiency; color temperature and CRI; and appropriate optical control. "We added a light reduction screen to the fixtures in a few locations to reduce the intensity of the light where necessary." The exterior lighting remains consistent with all structures in the Civic Center Plaza master plan: lighting is concentrated in the shaft portion of the building to project depth; lighting in the base portion of the building is accomplished with decorative, historic, pedestrian-scale fixtures.

- Originally, a seismic retrofit was the sole cause for renovation; fortunately, the scope of the project extended to the relighting of the interiors. According to McDonald, historically inappropriate surface- and pendant-mounted linear fluorescent fixtures were installed in the early 1950s, and in many of the historical fixtures where the glass had been damaged, replacement materials were historically inaccurate. The majority of the original office lighting had all been removed from the building. "All that remained was in one portion of the building, where we found a dozen or so of the historic stems—with the glass shades gone—that had been retrofitted with fluorescent lamps," said McDonald. "We took the concept of the original fixtures and modified it slightly. This allowed us to do adequate and appropriate office lighting for today's standards with a fixture that very much references the original design."

- The rotunda space features decorative torchieres, providing visual interest at the main floor level. All of the lighting in the rotunda is tungsten halogen. At the colonnade level, an asymmetric wall washer behind each column lights the back wall of that level. One fixture between each of the columns lights the lower dome; another 24 aim up through the oculus in the lower dome to light the upper portion; all is controlled by a dimming system.



**Lighting designer:** Horton-Lees Lighting Design; **Photographers:** Jay Graham (exterior); Beverly Boos (interior); **Lighting manufacturers:** exterior: Phoenix Lighting; Hydrel; interior: Taylor/Stokes & Scott Architectural Lighting; LiteLab; Kurt Versen; Linear Lighting; Zumtobel Staff; Elliptipar; Peerless; Rejuvenation; Alkco; HE Williams; DayBrite; Strand; Lutron; Philips Lighting

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## CONFERENCE PROGRAM

*New for 1999: The conference program will have AIA, ASID, IIDA and IESNA accreditation and will provide NCQLP Lighting Education Units.*

### Tuesday, May 11

#### 8:00-9:30 am

- New Product Showcase & Awards Presentation, sponsored by *Architectural Lighting* and *inter.Light*

#### 10:30-11:30 am

- "Sony Metreon: Lighting an Urban Entertainment Center"; speaker: Patrick Gallegos, IESNA, IALD
- "Financial Planning for Small Businesses"; speaker: Dawn Hollingsworth, LC, IESNA
- "How to Be an Effective Specification Salesman and Not Just an Order Taker"; speakers: Sonny Sonnenfeld, IESNA, USITT; Mark Vasallo

#### 2:00-3:30 pm

- "Lighting for Special Needs"; speakers: Peter Boyce, Ph.D., FIESNA, CIBSE; Naomi Miller, IESNA, IALD, LC
- "Protecting Your Design"; speaker: Bruce Thompson, IESNA
- "Specs, Value Engineering, Packages & Substitutions"; speaker: Jim Fowler, IESNA

#### 3:45-5:15 pm

- "Custom Fixture Design"; speakers: Jeffrey T. Berg, IESNA, AIA; Jeffrey Sladen, DLF, AIA
- "Getting Noticed: Marketing for Small to Medium Businesses"; speaker: Kathryn Sprankle, SMPS
- "Update on Spec Integrity"; speaker: Randy Burkett, LC, IALD, IESNA, CIE
- "Photometrics 101"; speaker: Kevin W. Houser, IESNA, IIDA

### Wednesday, May 12

#### 8:30-9:30 am

- "Restaurant Lighting"; speaker: Paul Gregory, IESNA, USAA
- "Professional Liability"; speaker: Wendy Kress, Attorney at Law
- "Lighting Design Constraints Imposed by the 1999 National Electrical Code—the Myth, the Mystery and the Misery"; speaker: Michael Klein, IESNA, NFPA

#### 9:45-10:45 am

- "Office Lighting"; speaker: D.W. Schweppe, Jr., IALD, LC, IESNA, DLF
- "The Art of Writing the Contract"; speaker: Wendy Kress, Attorney at Law
- "Collecting Light: Evaluating & Preserving the History of Illumination"; speaker: Harold D. Wallace, Jr.

#### 11:00 am-12:00 pm

- "Urban Planning"; speakers: Jonathan Speirs, IALD, ELDA, RIBA; Mark Major, ELDA
- "Why Should You Hire a Lighting Professional?"; speakers: Renee Cooley, IESNA, DLF; Emily Monato, IESNA, IALD, DLF

### Pre-Show Conference

Monday, May 10

- "Daylighting"—*Barbara Erwine, IESNA, Lighting Design Lab*
- "Managing and Growing a Small to Mid-Sized Design Firm"—*Jerome A. Guerra, Zweig, White & Associates*
- "Lite-Bytes: Lighting for the 21st Century—Lighting Software Review"—*Emlyn G. Altman, Kling Lindquist*
- "Touch-Feely 101"—*Gina Vance, McCoy Vance Lighting Design*

- "A New and Radical Prescription for Lighting the Automated Workplace"; speaker: Sam Berman, Ph.D.

#### 2:00-3:30 pm

- "Remote Illuminating Systems"; speaker: Jeff McDonald, IESNA
- "Getting Ink"; speaker: Kristen Richards
- "Budgeting for Installation Costs"; speaker: Barbara Bouyea, IALD, IESNA

#### 3:45-5:15 pm

- "Museum and Gallery Lighting"; speakers: Steven Hefferan, IESNA, IALD; Elroy Quenroe, NAME, AAM
- "Macro Trends That You Need to Know"; moderator: Carol Jones, Associate IALD; speakers: James R. Benya, PE, FIESNA, IALD, LC; Dennis Cough
- "How to Photograph a Lighting Design Project"; speaker: Randy Borden
- "Lamp & Ballast Update"; speakers: Yunfen Ji, IESNA; Garry Wigglesworth, IESNA

### Thursday, May 13

#### 8:30-10:00 am

- "Residential Lighting Design"; speaker: Sarah J. Gibson, IESNA
- "Future Trends in Building Materials and Products"; speaker: Theodore Ceraldi, AIA
- "International Standardization and Organizations"; speaker: Dr. Michael L. Seidl, LITG, DIN

#### 10:30 am-12:00 pm

- "But Where Do We Put the Fixtures?—Lighting Historical Churches"; speakers: Robert Shook, IALD, IESNA, USAA; Lauri Tredinnick, IESNA
  - "Energy Legislation Update"; speakers: Carol Jones, Associate IALD; Jim Yorgy, IESNA, IEEE, CSI
  - "Using the Internet to Your Advantage"; speaker: Dennis Neeley, AIA
- #### 2:00-3:30 pm
- "Fluorescent vs. HID: 10 Rounds in the High Bay Arena"; speakers: Brooks Sheifer; Stan Walerczyk, IESNA
  - "New Skylighting Guidelines"; speaker: Lisa Hescong, IESNA
  - "Color Rendering Index and Its Obsolescence"; speaker: Edward Effron, DLF

## Exhibit hours

Tuesday, May 11: 10:00 am-6:00 pm

Wednesday, May 12: 10:00 am-6:00 pm

Thursday, May 13: 9:00 am-3:00 pm

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## BUILDING QUALITY LIGHTING SPECIFICATIONS

BY RANDY BURKETT, IALD, LC

The lighting specification is the foundation for a quality lighting design. The vision of the designer and, indeed, his client, can be fully realized only if a strong, defensible specification provides the necessary framework. Many promising lighting ideas born early in the project's design process never reach maturity, being eroded away during construction through substitutions and value engineering.

The following guidelines have been developed as an aid to the lighting specifier in the construction of comprehensive lighting specifications. Like any guideline document, this piece should be used as a foundation on which to build procedures tailored specifically to the needs of the individual designer. Differences in common business practices found across regions, actual job location and the nuances in day-to-day project flow are just a few of the influences on a specification's development that must be understood by the specifier.

This checklist is one of the documents being used as a resource by the IALD/LIRC (Lighting Industry Resource Council) in their development of a more complete set of specification integrity guidelines. Your comments and input would be welcomed.

### Foundation Elements

- ✓ Establish a policy on specification integrity and intellectual property.
- ✓ Develop a master specification/lighting fixture schedule.
- ✓ Get to know the products you specify.
- ✓ Develop a performance criteria checklist.
- ✓ Forge quality relationships with your local reps.
- ✓ Develop key contacts at factories.
- ✓ Keep current!

### Design Development Phase

- ✓ Communicate with decision-maker and secure support of design and specification policies.
- ✓ Establish product quality level and the budget's ability to support it.
- ✓ Identify both controllable and non-controllable influences on your specification process.
- ✓ Develop cost estimates during design.

### Construction Document Phase

- ✓ Secure pricing of all specified products, preferably distributor costs, on manufacturer's letterhead

and use in formulating accurate cost estimates. Disseminate information to key parties.

- ✓ Develop fully annotated lighting fixture schedule for incorporation into CDs.
- ✓ Develop lighting-related architectural integration details and custom fixture drawings.
- ✓ Provide Section 16000 lighting specifications or modify the engineer's document to include key lighting-related information.
- ✓ Distribute fixture schedule to local reps.
- ✓ Include factory contacts in the schedule for manufacturers that may be relatively unknown in the bidding region.

### Bidding Phase

- ✓ Participate in pre-bid meeting, if possible.
- ✓ Be prepared for review of substitutions, if they are permitted.
- ✓ Advise owner/client on lighting-related bid issues.
- ✓ If "value engineering" occurs on the project as a result of unfavorable bid results, be in a position with the decision-maker to manage the process for lighting review.

### Construction Phase

- ✓ Establish procedures, in advance, for the review of allowable deduct alternates.
- ✓ Advise decision-maker as to the compromises accompanying the acceptance of an alternate.
- ✓ Establish procedures, in advance, for review of samples, shop drawings and other submittal material.
- ✓ Assist, when possible, in expediting the delivery of product on the owner/client's behalf.

### Specification Tips

- Develop a checklist of standard notes to use when constructing project fixture schedules.
- Prepare the decision-maker in advance for probable attempts at substitution.
- Avoid knockoffs! Respect intellectual property.
- If "value engineering" is inevitable, position yourself to take the lead in redesign and/or respecification efforts.
- Insist on product unit pricing whenever possible, valid for both additions or deletions on the project. Unit pricing should be considered valid regardless of the disposition of unresolved substitutions or attempts to "package" the job.
- Make contractor responsible for the delay in product delivery due to attempts to substitute.
- Specifiers should be compensated for the review of substitutions and alternates. Client? Contractor?

(Continued on page 78)



# The Lighting Specification

*Sample cover letter for distributing Lighting Fixture Schedules to local manufacturer's representatives.*

Dear \_\_\_\_\_ :

Please review the attached lighting fixture schedule for correctness and completeness as it relates to those manufacturers which you represent. Should you discover any obvious discrepancies between the listed manufacturer's information and our design intent, notify us—preferably in writing, via fax—at your earliest convenience. This schedule is associated with:

Project: \_\_\_\_\_

Location: \_\_\_\_\_

Approximate Bid Date: \_\_\_\_\_

We are not asking for, nor will we consider at this time, suggestions for "alternates," "equals" or "substitutions" to the specified items.

We have attempted to provide you with as much relevant information as possible concerning this project and would appreciate your follow-through with the manufacturer to ensure that the bidding and construction process proceed smoothly.

Thank you for your time and cooperation.

\_\_\_\_\_  
*Lighting Designer*

Special Comments: \_\_\_\_\_

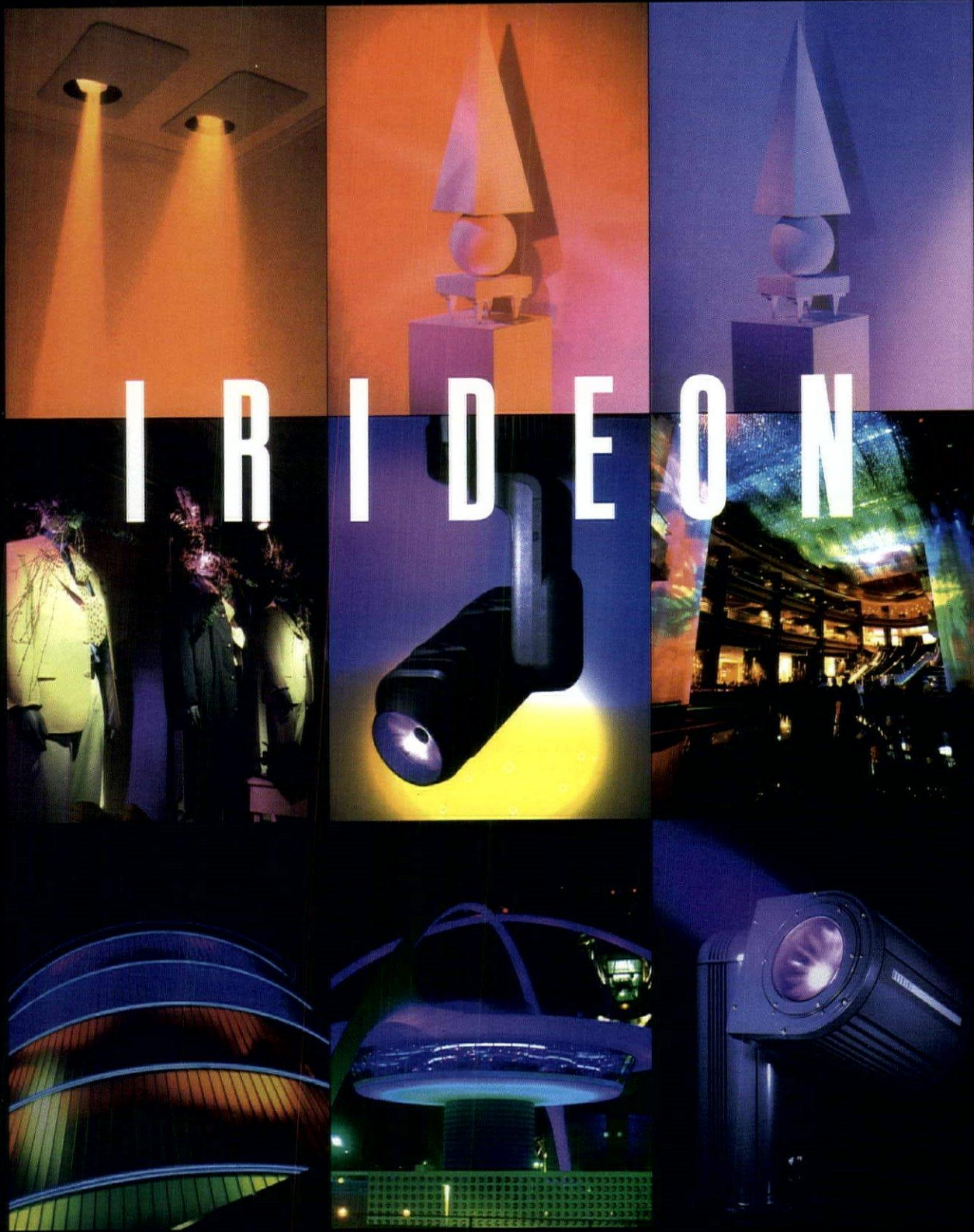
\_\_\_\_\_  
\_\_\_\_\_

**Turn the page to view a "Performance Criteria Checklist" sample.**

# ✓ Performance Criteria Checklist

## Track Lighting Systems

Manufacturers/Catalog #'s		Criterion Priority	Manufacturer 'A'	Manufacturer 'B'
1.	<b>Photometrics</b>			
	Efficiency	_____	_____	_____
	Distribution	_____	_____	_____
	Glare Control	_____	_____	_____
	Flexibility	_____	_____	_____
2.	<b>Ballasting/Transforming</b>			
	Magnetic or Electronic	_____	_____	_____
	Power Factor	_____	_____	_____
	Sound Rating	_____	_____	_____
	Harmonic Distortion	_____	_____	_____
	Energy	_____	_____	_____
	Temperature Sensitivity	_____	_____	_____
	Capacity	_____	_____	_____
3A.	<b>Construction: Luminaire</b>			
	Materials	_____	_____	_____
	Suitability	_____	_____	_____
	Aiming	_____	_____	_____
	Durability	_____	_____	_____
	User Friendliness	_____	_____	_____
	Adapter	_____	_____	_____
3B.	<b>Construction: Track</b>			
	Durability	_____	_____	_____
	Safety	_____	_____	_____
	Rigidity	_____	_____	_____
	Mounting	_____	_____	_____
	User Friendliness	_____	_____	_____
	Flexibility	_____	_____	_____
	Electrical Contact	_____	_____	_____
4.	<b>Aesthetics</b>			
	Size	_____	_____	_____
	Styling	_____	_____	_____
	Finish & Color	_____	_____	_____
	Detailing	_____	_____	_____
	Workmanship	_____	_____	_____
5.	<b>Procurement</b>			
	Cost	_____	_____	_____
	Availability	_____	_____	_____
	Shipping	_____	_____	_____
6.	<b>Manufacturer</b>			
	Previous Experience	_____	_____	_____
	Reliability	_____	_____	_____
	Quality Control	_____	_____	_____
	Follow-Through	_____	_____	_____
7.	<b>Post-Installation</b>			
	Maintainability	_____	_____	_____
	Replacement Parts	_____	_____	_____
	Environmental	_____	_____	_____
8.	<b>Other</b>			
	_____	_____	_____	_____
	_____	_____	_____	_____



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(Continued from page 74)

## SPECIFICATION TECHNIQUES

### Multiple Name Specification

- ✓ When several products meet your performance and budgetary needs, construct a competitive specification identifying acceptable manufacturers with specific catalog numbers.
- ✓ Avoid using "or equal" in specifications.
- ✓ List deduct alternates only on items felt to be candidates for potential cost reduction.

### Deduct Alternate Specification

- ✓ Construct a single-name base bid specification for the desired product, including:
  - Manufacturer's name and catalog #
  - Generic product description
  - Specific lamping requirements (spec. mfg. if needed)
  - Specific electrical characteristics (voltage, wattage, etc.)
  - Special notes concerning application, mounting, finish, etc.
- ✓ Construct a deduct alternate specification including the same level of informational detail provided for the base bid condition.
  - Outline bid specific instructions for inclusion in the contract documents.
  - Require unit pricing for base bid and deduct alternates.
  - Require that the base bid product be priced by the contractor, otherwise deduct alternate pricing is invalidated and his bid submittal will be considered incomplete.
  - Make sure that the deduct alternates are properly listed or referenced on the project's contract document bid form.
  - Include informational note in the specification (or on the fixture schedule) that distributor prices have been secured directly from the factory for this project, a record of which is in the possession of the owner.
  - Include lighting specifier's name and telephone number for contractor questions. Document inquiries.
- ✓ Collateral activities
  - Advise owner/client and design team of specification format, making sure there is clear understanding by all why this approach is being used. Decision-maker support is critical to the specification's success.
  - Secure unit pricing from manufacturers prior to going to bid.
  - Be prepared to delineate for decision-maker, differences between specified and alternate products.

### Performance Criteria Specification

- ✓ Some projects may require performance specifications

## Substitutions to Specified Products

- Whenever possible, lobby for a "no substitution" clause in the lighting products. Decision-maker must actively support this policy to assure compliance from the contractor.
- When a firm "no substitution" clause is not possible, or the decision-maker actually encourages substitutions, language should be included to assure a controllable process.
- Insist on substitution submittals for review ten working days prior to the bid date.
- Clearly identify for the contractor the specific requirements for substitution submittals.
- Regardless of outcome of the substitution review process, require contractor pricing of the base bid.
- State clearly in the specification documents (and pre-bid meeting, if possible) that failure to submit substitutions within the identified deadline constitutes a guarantee that the base bid product will be supplied.
- Adverse impact on product delivery caused by contractor attempts to submit substitutions for after-bid review should result in penalties.
- Identify who will pay for specifier review time.

or they could be preferred in some situations.

- ✓ Clearly identify all aspects of fixture performance that are important to the application.
  - Photometry (independent lab tests, 5-degree candela values, computer printouts, etc.)
  - Samples (non-returnable w/grounded cord & plug)
  - Construction (materials, finish, accessories, etc.)

### Custom Fixture Specification

- ✓ If several manufacturers are identified as capable of producing a custom design, they should be mentioned by name with a predetermined product reference number/code.
- ✓ Accept absolutely no substitutions on custom designs. Decision-maker must understand the rationale for this prior to bidding.
- ✓ Construct separate deduct alternate if budget may become an issue. This will keep the specifier more in control in case of "value engineering."

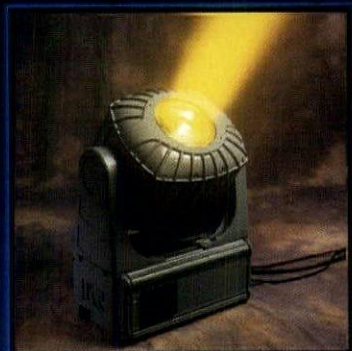
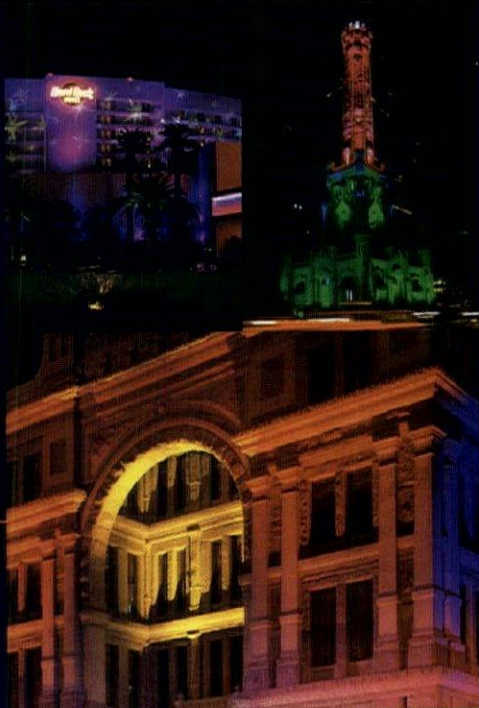
### Allowance Specification

- ✓ Listing allowances in a specification in lieu of a product can be advantageous in situations where designs are not finalized or where the substitution "climate" is hostile.
- ✓ Include enough information in the specification to allow the contractor to accurately price installation, electrical and special needs (weight, voltage, wattage, etc.).
- Allowance should be a "contractor net price." ■

Randy Burkett, IALD, LC is principal of Randy Burkett Lighting Design.

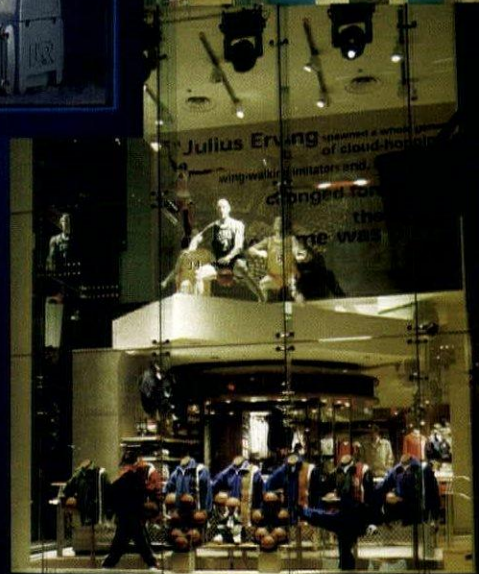
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## DESIGNING CUSTOM FIXTURES

BY DAVID RODSTEIN, LC

Custom fixtures can be a dangerous animal. There are too many design ideas that fall apart and burn up in the prototype stage. Often the fixtures come in over budget, late and under quality standards, leaving a lose-lose situation for all. The fixture of one's dreams becomes a nightmare to its builders/designer and installers. Following are some ideas on what to do—and *not* to do—in creating these grand visions of design.

### THE DESIGN PROCESS

Custom is a relative term. It can be a special color, finish or ballast in the case of discharge lamps. One can customize by checking different options on the order sheet. Built-in coves and soffits are usually the province of the builder. The problem areas lie in a completely new design.

Architects, interior and lighting designers are not usually trained to think in terms of mass production or how an assembly line runs. Although they understand space, form and structure, they can get into trouble with products that have to be replicated more than once. On the other hand, industrial designers and

mechanical engineers who can be expert at creating excellent lighting machines and who know manufacturing and mass production, can lack the sense of scale and the big picture in how a new fixture idea can fit into the entire building and lighting scheme.

Start from the inside out. Expert rendering skills can do more harm than good. What looks so good on paper is far from its reality. If possible, start with the internal components, draw around them, then give them twice the space needed. Build models if you can, then draw what you built.

Custom fixtures are required on projects for numerous and various reasons. Why to choose them and when to use them might include:

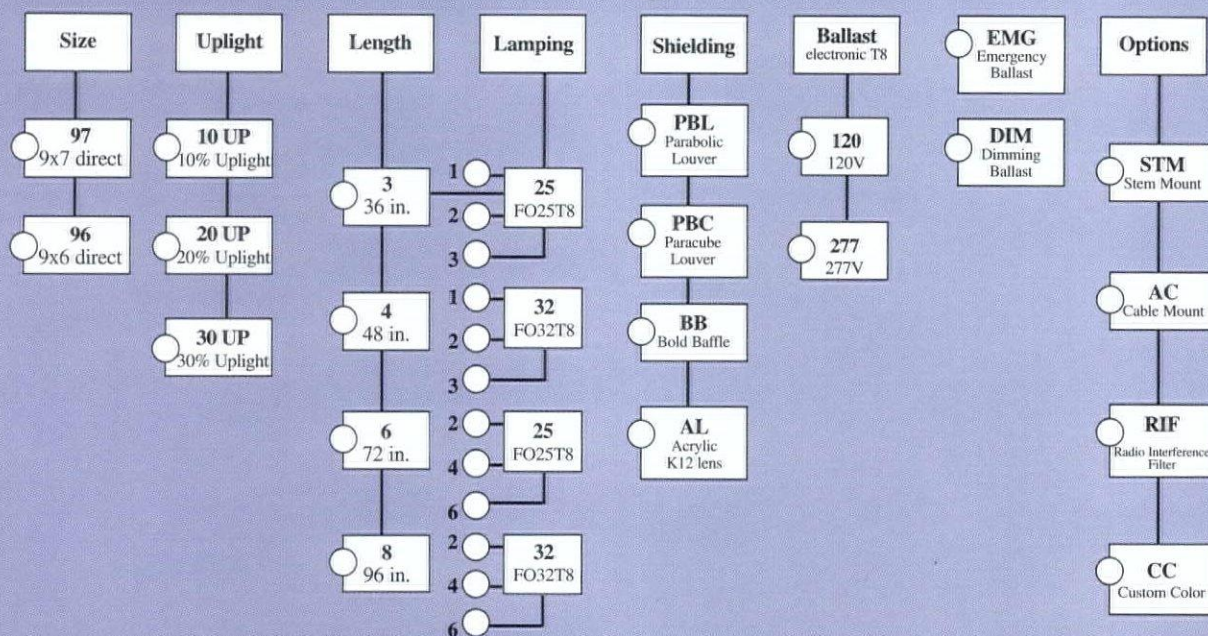
**Appearance.** A new or renovated building or space that pushes the envelope of innovative design often needs unique lighting fixtures integral with the design theme and importance of the space.

**Historic Preservation.** This can be taking existing visible fixtures and rewiring them, updating the lampings and/or reproducing damaged or missing units.

**Size.** Customization is often necessary when  
*(Continued on page 82)*

## CUSTOM LIGHTING BY CHECK MARK

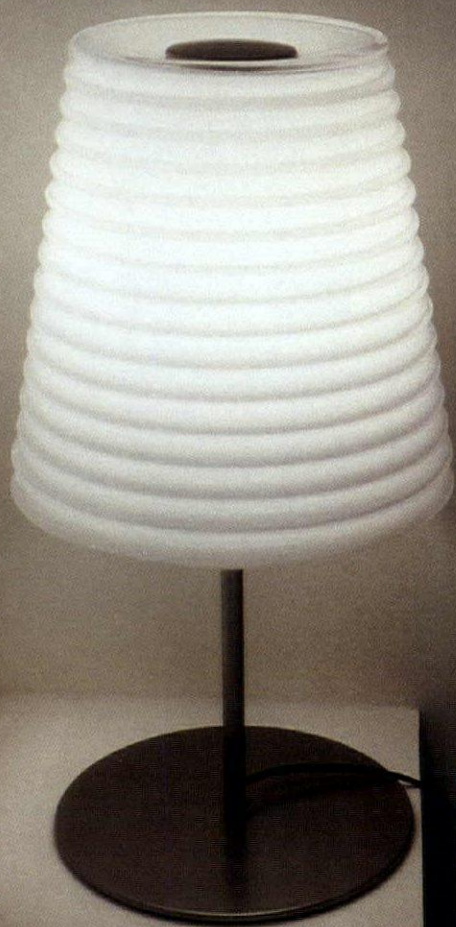
### Ordering Data



Courtesy of Hasco Lighting

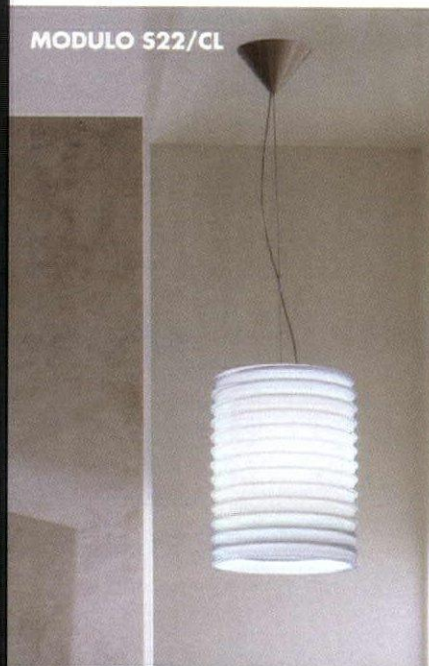
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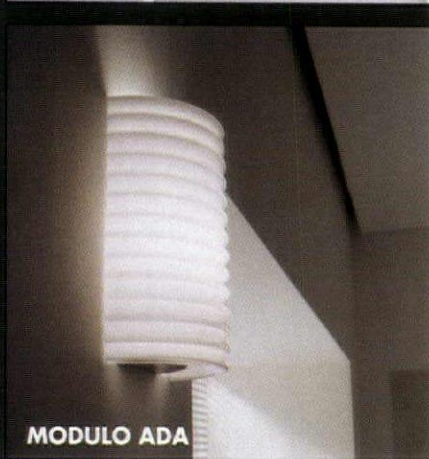


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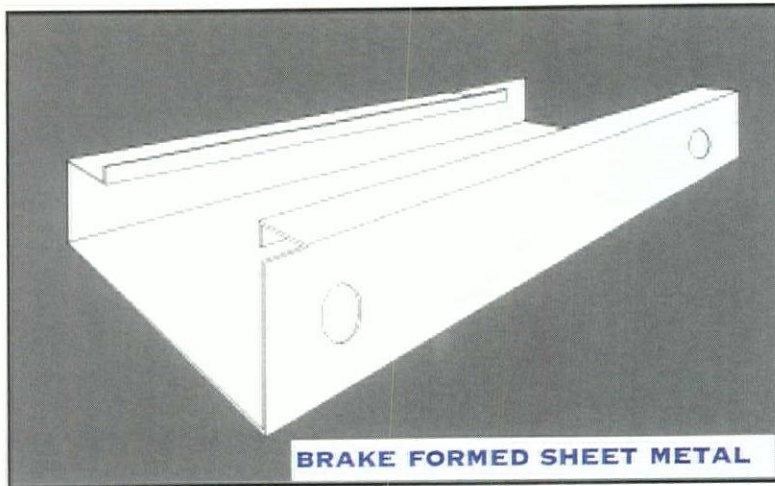


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(Continued from page 80)

designing American fixtures for a European building or reciprocal in conversion from metric to English sizes.

**Photometrics—special needs.** *For the visually impaired:* Much has been written about light levels, glare recovery, contrast and color. There are very few standard fixtures that effectively address this need. *For critical tasks:* Energy efficiency, high glare control and high illumination can be at odds with each other. Applications such as videoconferencing

spaces, medical facilities and NASA space craft have specific, and at times unusual, needs.

**Maintenance issues.** A very high ceiling or other obstacles that hinder accessibility may cause long-term problems in terms of relamping and maintenance. In addition, hostile environments such as weather, vandalism, etc. require special consideration.

## THE MATERIALS

Many materials behave like cats when we really want them to act like dogs. Materials do not bend and shape to please us. They basically do what they want, when they want, with or without provocation. Like cats, you have to work with them on their terms.

Understanding materials and designing for their properties results in a far better design than sketching a vacuous form that will never be manufacturable. Clothing fashion designers who sign their name to housewares and such do not usually stand the test of time. Fashion designers who know textiles and tailoring often do not have the in-depth knowledge of other fields. Rather, they often sketch an idea and have a

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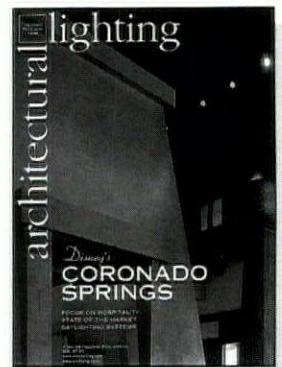
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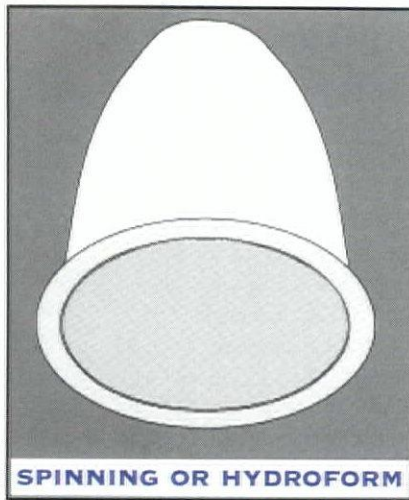


craftsperson and engineer clean up the mess.

Some of the most common materials to consider when designing custom fixtures include:

**Sheet metal (formed).** The basic unit of fixture design, it's inexpensive to work with and easy to manipulate. It bends, it curves, loves to be shot full of holes and can be cut into little paper dollies without too much pain. One caveat to selecting this material: anything attached to the inside of a sheet metal part is visible to the outside. Even welding leaves marks. Sheet metal is commonly used for strips, wrap-arounds and fluorescent reflectors.

**Sheet metal (spun).** This is a tried-and-true choice for round symmetrical forms. Undercuts can be implemented. Like bent sheet metal, all attachments from the inside are visible to the outside. Obtaining a high-gloss mirror finish can be labor intensive. It's common for high bay reflectors, urns, woks and metal globes.



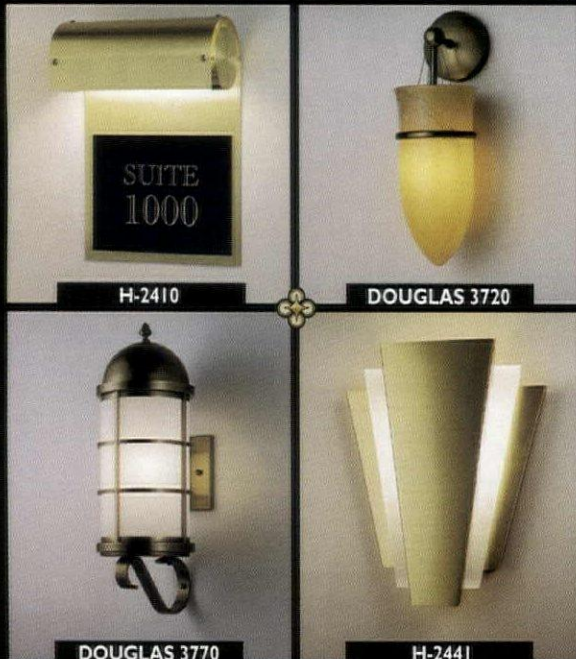
**Hydroform**—much like spinning, but with a smooth specular finish. Sharp corners or protrusions cannot work since they tear the mold. Hydroformed sheet metal is standard for anodized reflector cones or snow-shovel optic reflectors.

**Aluminum extrusion.** The best bet for long, lightweight designs; it can be designed to hold lots of brackets and screws, which will remain invisible to the outside surface. Another

plus: the fixture will not sag over long distances. It's easy to cut to length and fancy cross sections are rather effortless to achieve. The caveat, though, is that it a minimum number of pounds must be purchased. Aluminum extrusions are common for linear suspended fluorescent fixtures and "shoebox" outdoor fixtures. The track for track lighting is almost always extruded.

**Die-cast aluminum.** Use this for compound

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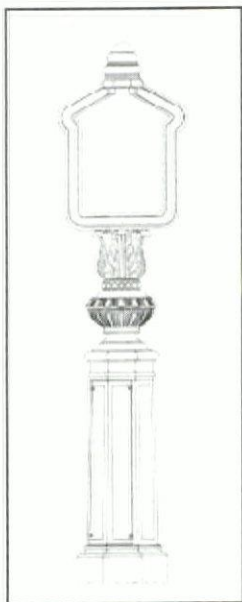
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### SAND CASTING

than ever. Plastic is at its worst when it is used to imitate wood, stone and marble finishes or any

curves, Boolean sections. Lots of little brackets can be replaced with one anchor station. Common uses are track heads, outdoor floodlights and recessed downlight frames. Beware of high tooling costs. Undercuts are not allowed. Which leads to:

**Sand casting**—can do the same as die casting but with little tooling cost. Achieving a high-gloss finish usually requires additional labor and may not be of consistent quality. Sand casting is ideal for small quantities, and common for iron and bronze outdoor light poles.

**Plastics.** The technology keeps improving to where it is more desirable to use

other material it isn't. Just like a polyester leisure suit, it looks tacky. Plastics are at their visual best when designed around the material's inherent properties. Ideal use of plastics: for diffraction and diffusion of light where glass is impractical.

**Vacuum formed**—A heated sheet is forced into a female mold using air pressure. Domes and lenses are formed through moderately priced tooling. Sharp corners and fasteners cannot be integral. Textures are possible. Styrene plastics yellow quickly and become brittle; try to avoid them. UV-grade acrylic for lighting is widely available and it is much more stable and durable.

**Injection molded**—Injection molding is a first cousin to die casting. Quality acrylics and polycarbonate plastic compounds specifically for lighting diffraction and diffusion are available. High tooling costs and long lead time practically eliminate it for custom lighting.

**Rim molded**—Reaction injection molding is a variant used for low quantity production runs. It is not possible to use in diffusion and diffraction of light, however, can be used for a fixture housing with a low-heat lamp source.

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**Extruded**—Plastic extrusion is most common for linear lenses. Diamond shapes or other patterns can be rolled on. Both wraparound lenses and linear fluorescent fixtures are a common applications. Substituting plastic extrusion for aluminum in a body is not practical, nor recommended, since it will sag without metal support.

Plastics come in various levels of flammability and hardness. Compounds should meet the standards of Underwriters Laboratories (UL) and the National Electrical Code (NEC). Plastics manufacturers that service the lighting field are usually members of the Illuminating Engineering Society (IES).

**Glass.** There are four types of glass: *soda-lime*, which is used for soda and beer bottles—avoid it; *tempered*; *lead crystal*; and *borosilicate*. Glass is forever: It does not rust or yellow, however, it will crack if provoked. It then gets real mad and cuts the next person to handle it. Tempered glass will take more abuse and will take heat without complaint. All glass requires special shipping because it's fragile and heavy. Glass hates to have holes drilled into it, especially near the edges.

This material is best used in historical or

architecturally significant installations where it is required by the type of use, or when the fixtures are to be viewed by generations to come. Try not to use glass in a chain hotel or retail establishment that gets remodeled every few years. If the fixture uses a halogen or HID source, it may necessitate the use of glass because of the heat requirements.

Quality plastics will work well in most installations and are far less brittle and more forgiving to rough hands.

#### FIXTURE ASSEMBLY

**Belt.** Fixtures are often assembled on moving belts, just like Henry Ford pioneered. It is usually the most cost-effective and expedient manufacturing method. One belt can turn out 50 to 300 fixtures in an hour with five to 20 assembly line workers. Such an assembly area lends itself to simple fixtures with relatively easy positioning and holding requirements.

**Table.** Complex fixtures especially with complicated wiring, many individual parts or hard-to-fit-in components, need to be assembled by an



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individual craftsman on a stationary workbench or table. This may be a relatively expensive way to build a product, however, the nature of the assembly may dictate this. Custom chandeliers and fixtures that contain crystal are an example of fixtures that are usually built using this method.

**Mountings.** Convenience of mounting is critical to avoid backcharges from contractors, who often do not read instruction sheets. How many times can you count a properly aimed downlight wall washer? Three-hand mounting requires two bodies. Wiring compartments need easy inspection. An excess number of screws and other hardware slows things down. Local regulations play a part.

#### POSSIBLE LANDMINES

**Cost.** Engineering and design time is critical: the more time allowed for the design stage will exponentially cut production costs. Do not skimp on this fee. Set up and tooling for small runs can be longer than the production cycle. Per unit price and tooling charge are an inverse relationship.

**Delivery.** Expect the fixture to arrive late. Coordination of delivery from various suppliers is needed. A pilot experimental production run should be implemented to work out any kinks that did not rear their ugly heads in the prototype phase. Modern cost accounting methods include the "learning curve." If a sample of a fixture needs regulatory testing, the timing can be at the agency's mercy.

**Heat.** Halogen and HID sources are the major consideration here. MR16s have been known to melt their pins in the socket. Electronics hate heat. Standard metal halide lamps often turn funny colors: just like your body at the wrong temperature—you run a fever and feel sick. Plastics, even in a fluorescent fixture, can cause overheating. Both UL and ETL (Electrical Testing Laboratories) have specific guidelines for testing and limits on temperature.

**Durability.** Ease of relamping without tools or need of three hands while standing on a ladder must be a major consideration. Remember: Those responsible for maintenance do not share the same

*(Continued on page 88)*

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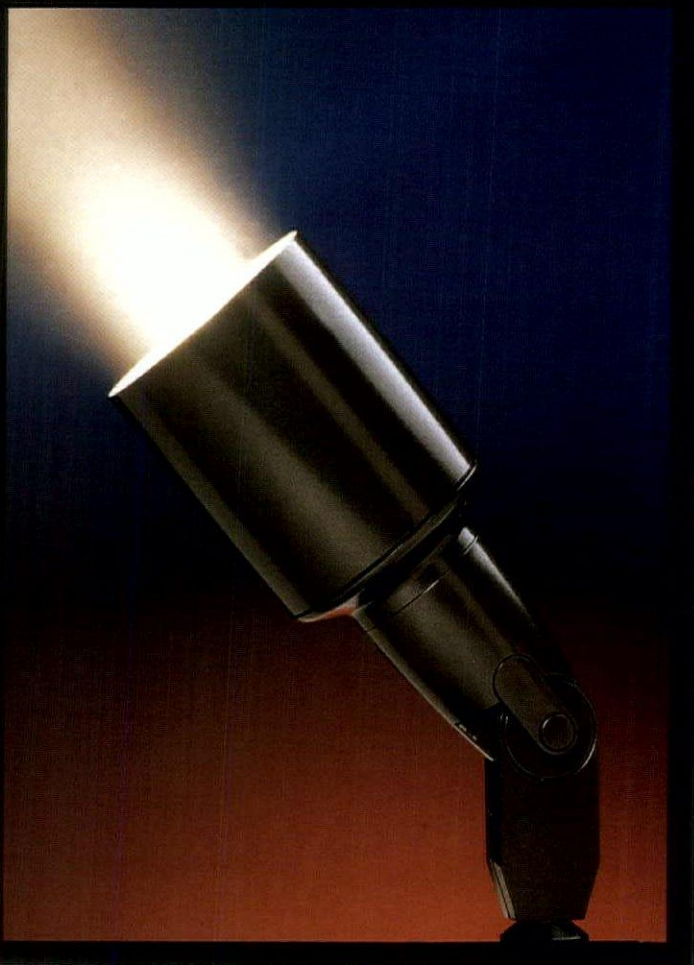
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Circle No. 49 on product service card

(Continued from page 86)

love for the fixture as its designer. The fixture should also stand the ravages of adolescents. Outdoor fixtures should use only tried and tested materials. Accelerated age testing is available and should be implemented if a new material is being considered or if a fixture is placed in a hostile climate.

**Consistent quality.** When a fixture has many sheet metal brackets, screws and fasteners, a single cast piece can replace all of those. The parts list should not take up more than two 8 1/2 x 11 landscape pages on a spreadsheet. Boeing is not in the lighting business.

**Regulatory approval.** NEC, UL, ETL and regional issues will slow down and restrict many design features. The West Coast states, New York and Chicago have special rules. Washington State has strict energy guidelines. Some typical rules are: a portable lamp must not tip over on a 15-degree incline; an outlet box can only hold 40 lbs.; heavier fixtures must be attached to building structure.

MANY MATERIALS BEHAVE LIKE  
CATS WHEN WE REALLY WANT  
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WITH THEM ON THEIR TERMS.

### EXPANDED OFFERINGS

The advantage of a custom fixture is that it can advance the state of the art. Many fixture manufacturers have a very conservative product line and a market follower outlook. Typically, manufacturers will not fund completely new products on speculation. A ground-breaking new custom design that is successful will often go into mass production; this creates a winning situation for all: The development cost and time is amortized on the first run; the designer can collect a royalty; and maybe most importantly, the lighting market has yet another product offering that will be bought on its merits instead of its price. A fixture that has a limited market does not need to continue production.

Original custom fixtures should be given a long lead time and be implemented when there are more than a few to be replicated. Again, design the fixture from the inside out. And, if there is a standard fixture or semi-custom solution available, try it first. ■

**References:** *Manufacturing and engineering consultation from Thomas C. Roberts, PE*

*David Rodstein, LC is the principal of Rodstein Design a firm that specializes in fixture design and architectural lighting design.*

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## T5 LAMPS: CREATING A LOW PROFILE

BY LOIS I. BURGNER, CONTRIBUTING EDITOR

As lamp technology continues its rapid advancement, a major trend is "thin is in." Fluorescent lamps are getting slimmer while packing more punch in terms of light output and efficacy. The T5 lamp, one such advancement, is becoming more popular as ballast and fixture manufacturers have begun developing a wide range of products—such as smaller fixtures—designed specially for this lamp.

### T 5 : J U S T T H E F A C T S

Tubular fluorescent lamps are coded with a letter, indicating its shape, and a number, which indicates its width. The T5 lamp is tubular (T) and  $\frac{5}{8}$  in. in diameter ( $5 \div 8$ ). It is therefore about 38 percent thinner than the T8 lamp, which is an inch in diameter.

The lamp's slimmer diameter does not mean that light output is sacrificed. A standard 4-ft. T8 lamp produces some 2,900 lumens; so does a standard 4-ft. T5. There is a high-output (HO) version of the T5 that produces 5,000 lumens in the 4-ft. length and 7,500 lumens in its 5-ft. length. Optimum lumen output is achieved at 95°F. This strong output results in efficacies up to 104 lumens per watt, depending on the length of the lamp. The T5 lamp also enjoys a Color Rendering Index (CRI) rating of 82-85 and a lumen maintenance of 95 percent.

"The key advantage of T5/HO lamps is that they provide a remarkably high lumen package in a small enclosure, allowing for high light levels with fewer lamps and, in many cases, a reduction in the amount of fixtures required in a space," said Dwight Kitchen, manager of commercial engineering at Osram Sylvania. "It's the low-profile package that manufacturers and designers have been looking for."

The lamp's small diameter, coupled with its 5,000-lumen output has allowed manufacturers to design sleeker fixture profiles with optical systems that deliver optimal photometric performance. According to Peter Ngai at Peerless Lighting, the improved optical systems enable the lighting designer to do what was previously impossible: space small-profile fixtures up to 15 ft. apart under 9-ft. ceilings, yet still achieve uniform light distribution and meet appropriate illuminance levels.

"It's a great step toward the development of energy-efficient, high color rendering

smaller sources," said Gary Gordon, principal, Gary Gordon LLC. "The smaller the source, the more easily it can be controlled by lenses, louvers and geometric contours, allowing lighting specifiers the design flexibility they want and need. This degree of optical precision is not possible with conventional T8 and T12 lamps." And since fewer lamps and ballasts are required to deliver almost the same illuminance level, system maintenance is simplified and visual clutter is removed from the ceiling plane—not to mention the reduction in initial investment and ongoing energy and maintenance costs.

### T 5 B A L L A S T S

To fit into these diminutive fixtures, niches and coves, T5 ballast profiles are approaching 1 in. in height. This too aids in the creation of smaller fixtures with less internal space dedicated to the electrical system. "The available space can then be used to either reduce the overall fixture size or increase the optical chamber," said Bill Foley, fluorescent product manager at Cooper Lighting. Dimming ballasts should be available this year.

T5 is designed specifically for use on electronic ballasts, ideally incorporating a sensing circuit that detects when the lamp reaches end of life and automatically shuts it off. As the emissive coating wears off the lamp's cathode, higher voltages are required to establish and maintain the arc. The higher voltages generate heat around the cathode, further degrading the cathode, demanding more voltage and generating more heat. This cycle can damage the socket or even break the bulb. Osram Sylvania promotes its QuickSense ballast and Energy Savings Inc. its Super LampGuard to address the issue. Because standard and HO lamps share the same socket, the ESI HO ballasts include a smart feature, so they will not overdrive a standard lamp if one is mistakenly installed.

### N E W F I X T U R E D E S I G N S

While their unique lamp lengths do not lend themselves to retrofitting existing T8 or T12 installations, T5 lamps offer opportunities for more efficient fixture designs for both new construction and major remodeling projects. Primarily, T5's compact size commands the creation of sleek and "discreet" fluorescent fixture designs. T5's smaller bulb diameter offers better optical control, thereby increasing fixture efficiency. The shorter lamp length allows for significantly greater fixture

design flexibility, especially in suspended ceiling applications for both conventional and metric ceiling grids. And the shorter lamp lengths permit fixture designers to place the lamps at the ceiling plane, resulting in new designs.

However, T5 may not prove the solution for all fixture types. Intense luminance in such a small envelope is the lamp's (particularly T5/HO) greatest drawback as well as its greatest attribute. "You can see the difference in intensity from



**OSRAM SYLVANIA'S** PENTRON T5 AND PENTRON HO T5 ( $\frac{5}{8}$ -IN. DIAMETER) LAMPS ARE AVAILABLE IN 3000K, 3500K AND 4100K AND FEATURE A CRI RATING OF 82. BOTH LAMP TYPES PROVIDE 95 PERCENT LUMEN MAINTENANCE OVER LIFE. THE

LAMPS ARE MATCHED WITH QUICKTRONIC ELECTRONIC BALLASTS, WHICH PROVIDE THE ADDED BENEFITS OF OPERATING THE LAMPS AT CONSTANT WATTAGE AND EXTENDING THE LIFE OF THE LAMP ON OCCUPANCY SENSORS AND CONTROL SYSTEMS; AND QUICKSENSE SENSING TECHNOLOGY, WHICH SHUTS THE LAMP OFF AT END OF LIFE. **CIRCLE NO. 78**



a T12 to a T8," said David Ranieri, VP of architectural indoor products at Lithonia Lighting. "Putting a T5 into a recessed troffer where it's visually apparent might be uncomfortable for the occupant of the space." Direct or even direct/indirect T5 fixtures should be carefully louvered, lensed or diffused to prevent visual discomfort, though fixture efficiency may be slightly compromised.

Standard and HO T5 lamps are succeeding in niche fixtures such as cove lighting, case lighting and wall-washing, and T5s are proliferating hand-in-hand with indirect office and retail lighting applications.

**Coves and case lighting.** The first applications of T5 lamps in the U.S. were in tight coves and valences and in display cases and cabinets. In displays, the thin lamps conceal easily behind fascia or in corners, and the efficient, cool-running lamps offer numerous advantages over incandescent, halogen or xenon striplights, also called tapelights. A linear T5 lamp (rated at 20,000 hours) can have an aesthetic advantage over xenon striplights (rated at 25,000 hours): the entire length of the T5 burns out at one time whereas the individual lamps of a striplight fail randomly, giving an unattractive gap-toothed appearance.

George Bosson, VP and general manager at Lam Lighting, cautioned that in some T5 fixtures, such as cove fixtures which are mounted very close to the wall, the problem of socket shadows is exacerbated; again because of the bulb wall's intense brightness. In applications where this may be a problem, look for staggered lamps or a fixture with a kicker reflector or louvers designed to lessen this effect.

**Recessed indirect.** T5 has also found a home in recessed indirects, a relatively new family of fixtures. Focal Point Lighting has redesigned its extensive line of recessed indirects (T8 and 40W compact fluorescent products) to accommodate T5. The Skylite line comes in 2x2 and a high-powered 2x4; the latter housing two pairs of compact fluorescents end-to-end. "Replacing the four CFLs with two T5/HO lamps eliminates shadowing between the lamp ends and provides an abundance of light," said Ann Reo, Focal Point's VP of product development and marketing.

Recessed indirects have a strong architectural presence. And because of their high brightness, Reo does not recommend her products for open offices. The distribution resembles a flat-lens troffer, so grocery stores and other retail spaces, hospitals, corridors, libraries,



**FEATURES OF PHILIP LIGHTING'S SILHOUETTE T5 FLUORESCENT LAMP INCLUDE: SLIM 5/8-IN. DIAMETER, CRI OF 85 IN 3000K, 3500K AND 4100K; 20,000-HOUR RATED LIFE; 97 PERCENT**

**LUMEN MAINTENANCE AT END OF LIFE; UP TO 104 LUMENS PER WATT; FOUR LENGTHS AND FOUR WATTAGES. HIGH-OUTPUT VERSIONS FEATURING INCREASED LIGHT OUTPUT (UP TO 70 PERCENT MORE LUMENS THAN STANDARD T5) HAVE BEEN SCHEDULED FOR RELEASE. CHECK FOR AVAILABILITY. CIRCLE NO. 79**

small offices and conference rooms are appropriate applications. Metalux Lighting, a division of Cooper Lighting, is introducing a new line it classifies as recessed direct/indirects, which are recommended for open offices. High-angle brightness is not as much of a concern at lower light levels, according to Cooper's Foley. "Except in highly sensitive VDT environments, Metalux's Ovation fixture provides appropriate lighting without the parabolics cave effect," Foley said.

**Indirect & Indirect/Direct.** Probably the most exciting development in fixture design has been in this area. The indirect and indirect/direct office lighting solution is ideal for T5. Such fixtures "intrude" into the space and designers tend to prefer smaller, more aesthetically designed products. "We can make the fixture much lighter, much narrower and much thinner, so that it starts to disappear in the space," said Hal Hansen, VP of marketing at Peerless Lighting, which recently launched a line of T5/HO fixtures. "When you go to the T5/HO, you get twice as many lumens. So as a result, we get in the size of one lamp the same amount of light as we would get with two T8 lamps or two (standard) T5 lamps."

The precise optical control achieved with such a small-diameter lamp can allow shorter suspension lengths, making indirect lighting now possible in many low-ceiling spaces. According to Bosson, T8 is still a very diffuse source. "With the T5, we're now down to 5/8 in. The lamp is so bright within such a concentrated area, that it's

LAMP	WATTS	LUMENS (initial @ 35°C/95°F)	EFFICACY (lumens per watt)	NOMINAL LENGTH (feet)	ACTUAL LENGTH (inches)	CRI	RATED LIFE (hours)	LUMEN MAINTENANCE (percent)	COLOR TEMPERATURE (°K)
T5	14	1350	96	2	21.61	82-85	20,000	95-97	3000/3500/4100
T5	21	2100	100	3	33.43	82-85	20,000	95-97	3000/3500/4100
T5	28	2900	104	4	45.24	82-85	20,000	95-97	3000/3500/4100
T5	35	3650	104	5	57.05	82-85	20,000	95-97	3000/3500/4100
T5/HO	24	2000	83	2	21.61	82-85	20,000	95	3000/3500/4100
T5/HO	39	3500	90	3	33.43	82-85	20,000	95	3000/3500/4100
T5/HO	54	5000	93	4	45.24	82-85	20,000	95	3000/3500/4100
T5/HO*	80	7500	94	5	57.05	82	20,000	95	3000/3500/4100
T5/C**	22	1800	82	-	OD=9	85	16,000	85	3000/3500/4100
T5/C**	40	3300	83	-	OD=12	85	16,000	85	3000/3500/4100

\*5-ft. HO available from Osram Sylvania \*\*Circular, available from Philips Lighting Co. fall 1999



ACCORDING TO PEERLESS LIGHTING, ITS DIMINUTIVE LINE OF INDIRECT FIXTURES WAS THE FIRST TO UTILIZE T5/HO. THE ECHOSTAR COMMUNICATIONS CORPORATION PROJECT IN LITTLETON, CO, WAS A DIFFICULT RENOVATION OF A RETAIL MALL INTO A COMPUTERIZED OFFICE SPACE. ECHOSTAR HAD DEALT SUCCESSFULLY WITH PEERLESS BEFORE, AND MANAGEMENT WAS ATTRACTED BY THE IDEA OF NOW USING FEWER, SMALLER, T5 FIXTURES. DUE TO THE UNUSUAL ARCHITECTURE, SOME SUSPENSION LENGTHS EXCEED 5 FT., BUT PEERLESS' HIGH-OUTPUT HOT-5 TECHNOLOGY MAINTAINS 30 FC THROUGHOUT THE SPACE. ECHOSTAR WAS SO PLEASED THAT IT HAS SPECIFIED THE SAME FIXTURE FOR CONVERSION OF A 100,000-SQ.-FT. STEEL MILL INTO A CALL CENTER IN PITTSBURGH, PA.

almost as if we have a linear array of single-point sources," he said. Capitalizing on the lamp's optical efficiency, these fixtures use reflectors to kick the bulk of the light off to the side. This creates uniform lighting across the ceiling plane, with no hot spot directly above the fixture.

Bosson claims that Lam has developed high-performance systems that can be suspended as close as 12 in. from the ceiling. Lam continues to develop new products with shorter suspension lengths and products with wider spacing ratios; products so low in profile that they virtually disappear and products with strong architectural presence. The next generation of fixtures, according to Bosson, will use lenses as well as asymmetric reflectors to control lamp distribution.

"T5 standard and HO lamps are designed to run optimally in an ambient temperature of 35°C (95°F), which

is somewhat higher than optimal for T8s and T12s," according to Terry Clark, president, Finelite, a manufacturer of T8, T5 and T5/HO indirect fixtures. "In most applications where the lamp is sealed inside a display case, heavily shielded in a recessed fixture or nestled in a cove, the ambient temperature reaches optimum. However, in indirect fixtures the lamps are largely exposed, suspended in space near the ceiling. The nominal T5/HO is 5000 lumens, but at the actual (operating) temperature, you're going to get 4500 lumens out of it."

Preliminary testing at Peerless, however, indicates that T5s in indirect fixtures are delivering rated lumens as advertised. Testing is ongoing. ■

*See page 94 for T5 fixtures.*



JASON COOPER, A SENIOR LIGHTING DESIGNER WITH MARCAD DESIGN, SPECIFIED LOW-PROFILE T5 STRIPS FROM BELFER LIGHTING IN SEVERAL DISPLAY CASES THROUGHOUT THE NEW MANDALAY BAY HOTEL & CASINO IN LAS VEGAS, INCLUDING THE WIDELY PROMOTED COIN GALLERY. "WHEN YOU'RE LIGHTING GLASS SHELVES, THERE'S VERY LITTLE ROOM," SAID COOPER. "YOU WANT THE CASES TO GLOW, BUT SINCE IT'S ALL GLASS YOU HAVE A HARD TIME FINDING A PLACE TO CONCEAL THE FIXTURE." HE CHOSE THE 3000K COLOR TEMPERATURE TO BLEND WITH HALOGEN ACCENT LIGHTING MOUNTED ON THE CEILING.

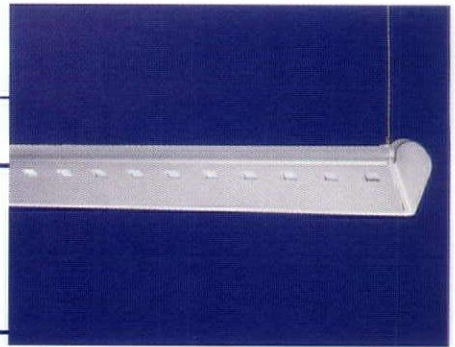
LEFT: REMOTE-BALLAST T5 FLUORESCENT FIXTURES LOCATED IN THE DISPLAY CASES HIGHLIGHT RARE COINS, BOOKS AND CURRENCY IN THE MUSEUM STORE AT THE TREASURES OF MANDALAY BAY MUSEUM.

RIGHT: REMOTE-BALLAST T5 FLUORESCENT FIXTURES LOCATED IN DISPLAY SHELF DOWNLIGHT SOUVENIR ITEMS AT THE STORE AT MANDALAY BAY.

PHOTOGRAPHY: HAZEL F. TIBBITTS (COURTESY OF BELFER LIGHTING)

## T5 FIXTURES

Part of the y2k series, **Lam Lighting's** Windows fixture features T5/HO optics, a low-profile housing and a cubic perforated aluminum extrusion. **Circle No. 80**

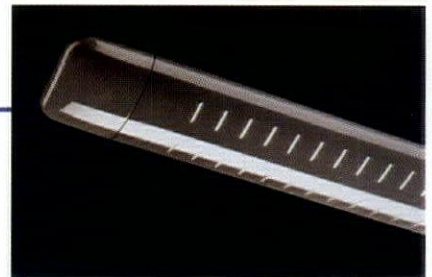


**Cooper Lighting's** new Metalux Ovation series recessed direct/indirect fixtures incorporate T5 lamp and ballast technology to provide lighting solutions for a variety of commercial lighting applications. Ovation is one of several fixtures developed by Metalux for use with T5 lamps. **Circle No. 81**



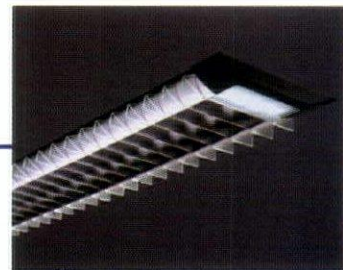
**Focal Point's** Skylite II 2X4 (two- or four-lamp recessed indirect with electronic ballast) is designed to accommodate both standard and T5/HO lamps. Features include a white reflector and perforated lamp shield. **Circle No. 82**

**Peerless Lighting Corp.'s** Diminutive Lightduct and Lightfin extruded aluminum fixtures are designed for Osram Sylvania's Pentron T5/HO lamp and ballast technology. The slim fixtures combine T5/HO lamping and patented Softshine optical systems to deliver even illumination. The fixtures are offered in colors to enhance interiors; in white to integrate with the architecture. Shown is Lightduct Indirect/Open. Osram Sylvania's lamps and ballasts are covered under a limited system warranty providing two years on the lamp and five on the ballast. **Circle No. 83**

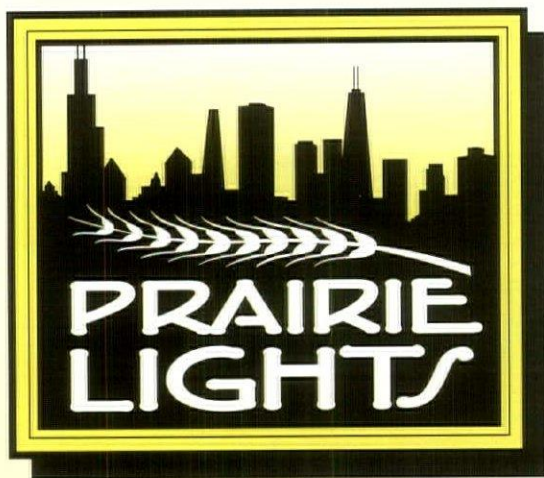


The additional brightness of T5/HO lamps can often create hot-spots in the reflective louvers of direct/indirect fixtures. **Ledalite Architectural Products'** Minuet direct/indirect T5/HO system features a redesigned parabolic louver to reduce lamp reflections in the side rails by 50 percent. Minuet is also available in semi-indirect and indirect options. Extruded aluminum housings permit mounting up to 16 ft. on center. Also available with standard T5 or T8 lamps. **Circle No. 84**

Liberto from **Zumtobel Staff Lighting** is a semi-recessed lighting fixture that may be connected into unbroken runs or capped with endpieces and used as individual fixtures. Liberto's 3 1/2-in.-deep housing is suited for shallow plenum applications. It is available in 6- or 9-in. apertures with the latest generation of T5 lamps. One- or two-lamp versions are available with specular, matte and white louver or opal lens options. Corona Louver shown. **Circle No. 85**



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### Architectural Details

Phone: (425) 822-1292

The Matthew #1600 is a classically styled wall sconce richly finished in antique brass with a pleated silk shade. Measuring 14<sup>1</sup>/<sub>4</sub> in. high x 9<sup>1</sup>/<sub>2</sub> in. wide with a 4-in. projection, it is suited for corridor lighting. Lamping is a single 13W compact fluorescent or one 60W B10 incandescent. All standard finishes are available as well as multiple custom finishes. CUL- and UL-listed for dry locations.



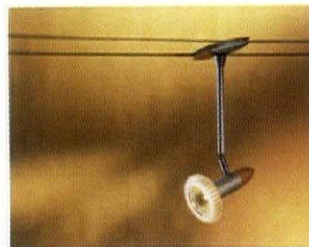
CIRCLE NO. 100

### Bruck Lighting Systems

Phone: (714) 424-0500

Bruck Lighting Systems is a manufacturer of innovative low-voltage cable and track systems. Shou, meaning "long life," was introduced at Lightfair in 1998 and has won two IIDA Acclaim Awards for Best Product Design.

Shou utilizes the classic cable system concept but adds a new twist by initiating a softer approach to fixture design. Shou fixtures are handcrafted out of wood, aluminum and opaque cased glass. Several Shou fixtures are now available with a choice of white, blue, green or pink glass.



CIRCLE NO. 103

### Architectural Lighting Systems, Inc.

Phone: (508) 823-8277

Architectural Lighting Systems, Inc. has introduced a new line of Extruded Aluminum Cove Lighting. Available in two sizes as well as the low-profile ADA-compliant series (shown), they can be custom-fit to any application. A complete line of matched fixtures is also available including pendants, sconces, valances and patient bedlights.



CIRCLE NO. 101

### Electronic Theatre Controls, Inc.

Phone: (608) 831-4116

The Irideon AR6 recessed luminaire is ETC's newest innovation in automated lighting projectors for indoor architectural applications. The luminaire features an unobtrusive recessed mounting arrangement with color change capability, patented Vari-Image patterns and motorized beam movement. The AR6 luminaire is available with various lamps and optional features that offer the customer a range of intensity, performance and price options.



CIRCLE NO. 104

### B-K Lighting, Inc.

(559) 438-5800

The ACV (Pat. Pend.) Valve System utilized in B-K Lighting's PAR30/PAR38 fixtures expels moisture-laden air from the hermetically sealed optical compartment, creating an internal vacuum and eliminating the possibility of condensation. For more details on the ACV Valve System and other B-K Lighting products, request our catalog.



CIRCLE NO. 102

### Elliptipar

Phone: (203) 931-4455

Combining Elliptipar's asymmetric reflector technology and the power of the Hex Tube compact fluorescent, Style 211 offers more light with 25 percent fewer fixtures to light walls 9 ft. or higher with exceptional efficiency and uniformity. The Hex Tube features low energy (32W or 42W), great color (3000K) and long life (10,000 hours). Style 211's semi-recessed design features adjustable aiming, a shallow recess depth and a snap-on hinged lens and rotary lampholder for easy relamping.

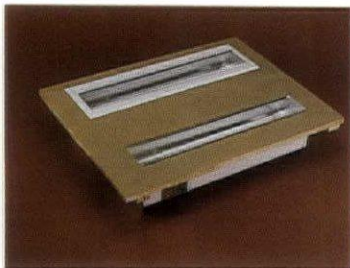


CIRCLE NO. 105

## Engineered Lighting Products

Phone: (626) 579-0943

The trimless fixture is here. Discerning architects and designers who don't like to see the trim of fixtures will appreciate our new trimless feature. Pictured by its trimmed counterpart, this option is available



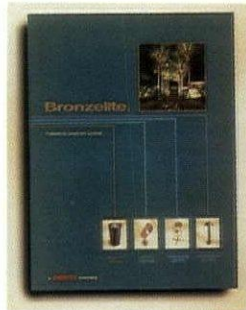
for most interior recessed ELP fixtures. Constructed to allow contractors to finish the wall right to the edge of the luminaire opening.

CIRCLE NO. 106

## Hadco, Inc.

Phone: (800) 331-4185

Bronzelite has provided specification-grade landscape and underwater lighting for nearly 30 years. Each luminaire is crafted from high quality materials for maximum performance, efficiency, durability and ease-of-installation. Choose from the beauty and durability of all-cast bronze or lightweight, impact-resistant composite housings.



CIRCLE NO. 109

## Fiberstars, Inc.

Phone: (800) 327-7877, (510) 490-0719

The new LinearEssence fiber-optic display lighting system from Fiberstars provides even, glare-free lighting without heat, UV or IR, making it ideal for lighting displays of art, rare books, perishables and other environ-



mentally sensitive objects. Because this patent-pending system features an optically-engineered light bar (normally hidden from view but shown here for demonstration purposes) that distributes light along its entire length, displayed items can change without requiring adjustments or alterations.

CIRCLE NO. 107

## High End Systems, Inc.

Phone: (512) 836-2242

Studio Spot 250 is ideal for retail, themed and corporate environments. It uses a patented reflector and optical train to produce a sharp, high-contrast image from seven high-resolution Lithopatterns, perfect for projecting company logos and brands. The fixture features a 13-position color wheel with fully replaceable dichroic filters and includes a four-position effect wheel with prisms and effects glass. 16 preset looks for stand-alone operation. Safety certified with ETL, CETL and CE listings.

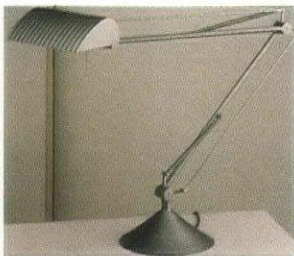


CIRCLE NO. 110

## Flos USA

Phone: (800) 939-3567, (516) 549-2745

Archimoon Eco, designed by Philippe Starck, is energy efficient, reduces shadows and glare, and increases productivity. Asymmetric light distribution and cutoff louvers reduce spillage of light onto VDT screens. The fixture uses an 18W compact fluorescent PLC lamp (10,000-hour lamp life). Archimoon Eco is suited for VDT environments in conjunction with an indirect ambient lighting system.

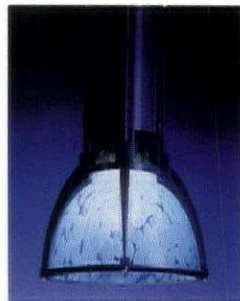


CIRCLE NO. 108

## Hubbell Lighting

Phone: (800) 270-3737

Hubbell Lighting's Ocean Pendant Series makes a visually stunning statement while providing exceptional performance and energy efficiency for a variety of applications. Fixtures are available in 150W and 250W tungsten halogen; 32W and 42W compact fluorescent; and 150W metal halide. Ice White or Black Storm fixture housings are available in 9- or 13-in. diameters. The standard reflector is Arabian Opal glass; additional special-order choices are available.

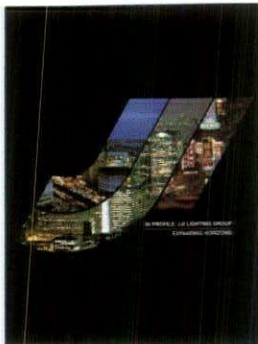


CIRCLE NO. 111

### JJI Lighting Group, Inc.

*(203) 869-9330*

Since its metamorphosis from Jac Jacobsen Industries, Inc. a decade ago, the JJI Lighting Group, Inc. has continued to grow. Since its acquisitions of Hoffmeister-Leuchten GmbH, Hess Form&Light GmbH and Ardee Lighting, JJI's 15 operating subsidiaries today provide a broad range of standard and "built-to-specification" lighting products. An overview is provided in a new 16-page color brochure that profiles each JJI subsidiary.



CIRCLE NO. 112

### Lighting Services Inc

*Phone: (800) 999-9574*

The new 297 and 37 Series specification-grade fixtures feature internal accessory clips for a clean architectural appearance, beam rotation locking for precise optical control and all-black finish for complete management of glare and light leakage. Ideal for architectural applications.



CIRCLE NO. 115

### Leucos USA, Inc.

*Phone: (732) 225-0010*

The Goccia family of lighting is the latest offering from Leucos by noted Venetian designers Renato Toso and Noti Massari. Goccia, or "drop" in English, is handblown by Murano artisans, placed in a mold and then redipped to produce the unique crystallized tip. Table lamps come in two sizes and are supported by a coated titanium base. Pendant lamps, offered in two lengths, have a suspension capability of up to 78 in. The brushed aluminum cone-shaped ceiling rosette hangs down or off center with a "swag" detail.



CIRCLE NO. 113

### Lightolier

*Phone: (800) 215-1068*

Lightolier's new track product family, Metallics, redefines track lighting with an exciting new blend of styles, materials and finishes coupled with major advances in flexibility and technology. Metallics combines sophisticated new finishes with advanced metal halide lamp technology and OmniSpot—the latest in low-voltage technology. Metallics is a modular system of adapters and shapes, in a variety of fixtures, including incandescent, advanced metal halide and low-voltage lamp sources to suit every need.



CIRCLE NO. 116

### Leviton Manufacturing Co., Inc.

*Phone: (800) 323-8920*

Introducing a new era in lighting controls...Leviton's revolutionary new generation of lighting control products will set a new standard within the industry for product engineering, performance and design for every major type of residential and commercial dimming and fan speed control product on the market today. The new family of products provides dramatically re-engineered versions of traditional devices.



CIRCLE NO. 114

### Lithonia Lighting

*Phone: (770) 922-9000*

The Verticals Series specification area fixture offers a total of four vertically lamped optics, with two that meet IES cutoff criteria. A selection of horizontally lamped optics provides maximum application flexibility. The series consists of round and square housing shapes with design features such as domed tops, accent reveals and optional contrast striping.



CIRCLE NO. 117



## Lithonia Lighting

Phone: (818) 362-9465

The Hydrel Ingrade M9000 Series from Lithonia Lighting includes the M9400, designed to accommodate color-corrected metal halide lamps in a unique 9-in. footprint housing; and the M9800—the first in-grade fixture to accommodate 400W mogul base lamps, providing the most powerful in-grade light available for floodlighting architectural features.



CIRCLE NO. 118

## Lumiram Corporation

Phone: (800) 354-5596

Developed by the Lumiram Corporation, the Chromalux White Beam MR16 is a recent addition to Lumiram's Chromalux Color Corrected lamp line. Made with pure Neodymium glass, it is designed to cut down the yellow emission of the spectrum, resulting in brighter and more vibrant colors as well as increased black and white contrasts. The color temperature of the new lamp is approximately 4200K and is designed to perform for an average of 5,000 hours.



CIRCLE NO. 121

## Lucifer Lighting

Phone: (210) 227-7329

Lucifer Lighting announces the latest addition to their line of small engineered fiber-optic downlights. The Eyeball, illuminated by cool, economical fiber-optic fibers, is 2 in. in diameter. It can be adjusted 20 degrees from vertical in all directions and then locked into position with a spanner wrench, which is included with the fixture. A detachable "snoot" aims the light beam and controls glare. Without the snoot, the Eyeball mounts flush with the ceiling or wall. Various finishes available.

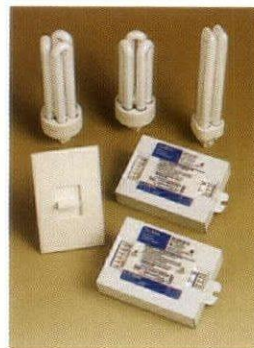


CIRCLE NO. 119

## Lutron Electronics Co., Inc.

Phone: (610) 282-3800

Originally introduced with a ballast for 32W, 4-pin compact fluorescent lamps, the Tu-Wire line now includes ballasts for both 26W, 4-pin triple- and quad-tube compact fluorescent lamps. All Tu-Wire electronic fluorescent dimming ballasts use only two wires for power and control and provide architectural dimming for compact fluorescent lamps down to five percent light output.



CIRCLE NO. 122

## Lumiere Design & Manufacturing

Phone: (805) 496-2003

Lumiere's Sedona series creates an exciting new category of outdoor luminaire—a distinctive series of fixtures featuring molded glass lenses that provide a variety of illumination patterns with virtually no glare. Versions available for bollard-type applications, path lighting and wall-mounted illumination. A variety of light sources is available, including MasterColor metal halide, fluorescent and low voltage.



CIRCLE NO. 120

## Luxo Corporation

Phone: (914) 937-4433

Luxo Corporation introduces Vind ambient ceiling and wall lighting as part of its Designer Series collection. There are three models: a pendant luminaire with an oval metal shade in textured gray with an opal white glass diffuser; a ceiling-mounted design and a wall-mounted design, both with a textured gray metal housing and an opal white glass diffuser. Each model is a contemporary, original Luxo design, illuminated by a 75W incandescent A-lamp.



CIRCLE NO. 123

### MagneTek

Phone: (615) 316-5100

MagneTek's newest ballasts have a smaller size and bottom exit connectors to easily fit on any junction wiring box. They are offered in two-lamp models for 13W, 18W or 26W 4-pin lamps and in one-lamp models for 26W and 32W 4-pin lamps. Side connector models are also available for surface-mount fixtures, wall sconces and outdoor fixtures.

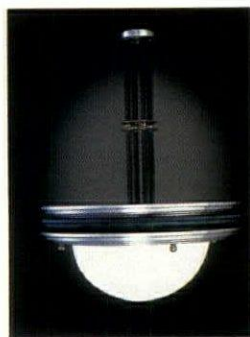


CIRCLE NO. 124

### The Original Cast Lighting, Inc.

Phone: (314) 863-1895

In the updated Apollo series, a variety of finishes, diffuser materials and lamping gives this series versatility for a wide variety of applications. Shown here is the APY-27LGZ-4DP1: Verde green and brushed aluminum with an Etruscan dome.



CIRCLE NO. 127

### Manning Lighting, Inc.

Phone: (920) 458-2184

Manning Lighting's DS-41 wall sconce lends a modern, sophisticated appearance to any interior. This ADA-compliant fixture features a polished stainless steel base and etched glass panel. Manning's Designer Series and ADA catalogs offer hundreds of high-quality pendants, wall sconces and ceiling-mounted lighting fixtures to choose from.



CIRCLE NO. 125

### Osram Sylvania

Phone: (978) 777-1900

Osram Sylvania's new highly efficient, slim Pentron and Pentron HO T5 lamps are available in 3000K, 3500K and 4100K, boast a CRI of 82, are rated for 20,000 hours of life and provide 95 percent lumen maintenance. Additionally, new end-of-life sensing, HO and dimming ballasts provide versatility for designers and fixture manufacturers.



CIRCLE NO. 128

### Neo-Ray Lighting

Phone: (718) 456-7400

Neo-Ray Lighting offers a complete line of architectural lighting products for commercial, institutional and industrial applications. The company's specialty is luminous indirect ambient lighting. The new line featuring T5 fluorescent lamp technology has a 6-in. x 2-in. slim profile and carries 9,000 lamp lumens with 85 percent efficiency and wide photometric distribution. Shown is a latest addition to the line: Viceroy.

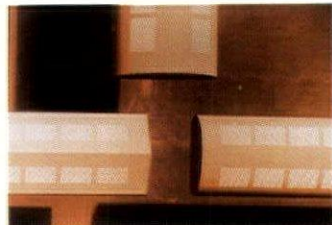


CIRCLE NO. 126

### Peerless Lighting Corporation

Phone: (510) 845-2760

Peerless Lighting Corporation has engineered its low-cost Peerlite Aero and Enzo fixtures to produce virtually glare-free light using high-efficiency HOT-5 technology. Prima offers T8 lamping where preferred. All Peerlite products are available as totally indirect fixtures or with a perforation pattern allowing a small percentage of downlight.

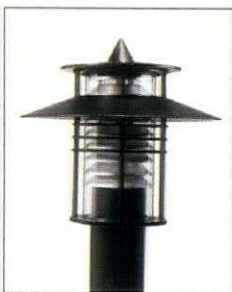


CIRCLE NO. 129

## Phoenix Products Company, Inc.

Phone: (414) 438-1200

Phoenix Products Company, Inc. is expanding its "Durability by Design" philosophy with the new Phoenix Intrigue Series. The Intrigue Series combines contemporary design with durable high-performance lighting in pole top lights, wall mounts, bollards, wall packs, step lights, accent lights, various specialty lights and more. With many design options and a variety of mounting capabilities, designers can create unique area and accent lighting effects and maintain the unified look of a family of fixtures.



CIRCLE NO. 130

## Robertson Worldwide

Phone: (708) 388-2315, (800) 323-5633

Robertson Worldwide announces a new line of quad tap CWA ballasts for HID lamps. Metal halide and HPS ballasts are now available for lamps ranging from 175W to 1000W, all covered by a three-year warranty. Cooler running units and lower watt loss are significant features that differentiate Robertson HID ballasts from the competition.



CIRCLE NO. 133

## Prescolite•Moldcast

Phone: (510) 562-3500

Recessed downlighting never looked so good, when fitted with Prescolite's Lite-Deco Series of colorful decorative trim rings. Lite-Deco trims mount readily and sturdily to a broad range of compact fluorescent, HID or incandescent recessed Lite Box downlights. Eight individual designs yield 24 option choices and color finish selections.

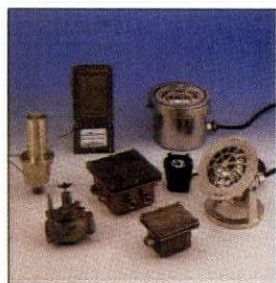


CIRCLE NO. 131

## Roman Fountains Corporation

Phone: (505) 343-8082

Roman Fountains Corporation offers a comprehensive line of low-voltage and line-voltage UL-listed submersible lighting fixtures for use in decorative architectural fountains and water display systems. A complete line of accessories, including submersible junction boxes, re-enterable potting compound, watertight cord strain relief fittings and brass conduit waterstop fittings is also available.



CIRCLE NO. 134

## Prima Lighting Corporation

Phone: (661) 775-4839

Prima Lighting Corp., a California-based company, announces its premier 12V flexible monorail system featuring a completely new image and concept. Designed to fit today's fashion track lighting, Orbit is available in a choice of two contemporary finishes—champagne and silver.



CIRCLE NO. 132

## SPI Lighting

Phone: (414) 242-1420

Renaissance is an elegant indirect luminaire combining advanced lighting technology with artistic expression. Choose from traditional or contemporary brass-plated trims. A complete family of fixtures—pendants, cluster, sconces, pier and ceiling mounts—allows consistent design throughout a space. Lamping options include metal halide, fluorescent and incandescent. Additional plated or painted finishes available.



CIRCLE NO. 135

### Se'lux Corporation

Phone: (800) 735-8927

Se'lux introduces CDO systems that offer an effective combination of lighting technology and information displays. Se'lux has recognized the ever-increasing requirement for public information on the streets. CDO systems provide urban designers a perfect solution to meet this need in a planned and integrated manner.



CIRCLE NO. 136

### Tivoli Industries

Phone: (714) 957-6101

Tivoli Industries' Mini Cove is a complete miniature cove lighting system with flexible Nory track. The track curves both laterally and radially providing highly functional, decorative cove lighting effects for ceilings, coves, soffits, display cabinetry and under counters. Mini Cove also functions as safety lighting for walkways, staircases and handrails, in all manner of commercial, institutional and residential applications. Low-watt festoon, wedge-based incandescent or xenon lamps with adjustable spacings illuminate the system.

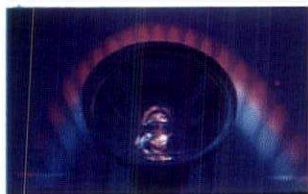


CIRCLE NO. 139

### Special FX Lighting, Inc.

Phone: (435) 635-0239

Special FX Lighting manufactures all types of permanent, non-fading color products for lighting, including Dichro•X hybrid dichroic lenses, color glass, non-fading color media, fluorescent sleeves, lenses and optics for all lighting applications. All color and filter numbers may be matched including UV and IR blocking films and glass.



CIRCLE NO. 137

### Ushio America, Inc.

Phone: (714) 236-8600

Ushio is proud to announce the Whitestar, our new 4200K high color temperature lamp. The spectral light distribution of the Whitestar is identical to daylight over the visible spectrum between 480nm and 630nm. Whitestar has a high CRI index and reduces UV emissions and infrared transmission up to 70 percent. Whitestar is available in a 12V, 50W version with a 36-degree beam angle and features a luminous intensity of 1200 cd with an average lifetime of 4,000 hours.



CIRCLE NO. 140

### Targetti USA

Phone: (714) 708-8765

Targetti USA introduces the Spectra wall sconce for a wide range of interior lighting specifications. Spectra embodies an original, contemporary architectural design with an array of high-performance lighting characteristics in a durable, affordable unit. A computer-enhanced spectral aluminum reflector creates a brilliant white, evenly distributed wall-washing effect above the fixture. A multi-layer dichroic lens, in a green or magenta tone, casts a diffused "splash" of color below. ADA compliant, CUL- and UL-listed.

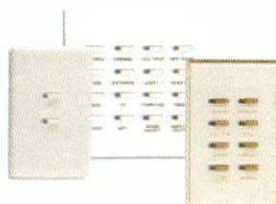


CIRCLE NO. 138

### Vantage Controls, Inc.

Phone: (800) 555-9891

The Vantage Home Automation System offers total home control with thousands of customizable lighting scenes and functions. Vantage controls any home system—lighting, security, audio/video, heating/cooling, draperies, pumps, fountains and motors. The addition of several colors and finishes makes the Vantage Home Automation System a fit for any home.



CIRCLE NO. 141

## Venture Lighting International

Phone: (440) 248-3510

Venture Lighting International introduces the 320W Uni-Form pulse start system for greater energy savings. Venture's 320W Uni-Form pulse start lamp offers the same lumen output as the 400W lamp while saving 80W in energy for applications in warehouses, factories and big box retail establishments. Lamps are available in open and enclosed styles with 4K color temperature. Ballasts come in CWA and energy-saving controlled current reactor designs.



CIRCLE NO. 142

## Architectural Lighting Magazine

[www.qualitylight.com](http://www.qualitylight.com)

At the Lighting Design Forum website at [www.qualitylight.com](http://www.qualitylight.com), lighting specifiers enjoy a library of information from organizations across the industry, including *Architectural Lighting*. Specifiers can also link to other organizations, the *inter.Light* product search engine at [www.lightsearch.com](http://www.lightsearch.com), and find other resources.

## W.A.C. Lighting

Phone: (800) 526-2588

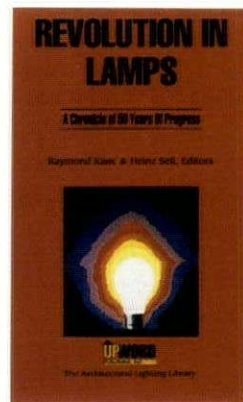
Extensive state-of-the-art line features innovative track heads and recessed housings/trims designed for task, accent, cove and general lighting, under- and in-cabinet, toe spaces and hard-to-light areas. Also available: miniature fixtures, surface mounts, pendants, rope lighting, linear systems, button lights, display lights, track extensions/suspensions and accessories.



CIRCLE NO. 143

## Architectural Lighting Magazine

*Revolution in Lamps: A Chronicle of 50 Years of Progress* by Raymond Kane & Heinz Sell, editors. This book offers a historical overview of the development of the light source from World War II to the present. Written by some of the engineers who worked for leading lamp companies during this time, it provides a fascinating and informative look inside the lamp industry and offers insight into the future of lighting. ISBN: 1-57730-125-0, \$75.00, 295 pages, illustrated. Call (800) 444-4881 to order.



## The Watt Stopper, Inc.

Phone: (800) 879-8585, (408) 988-5331

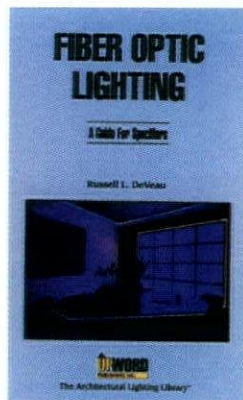
The new CS-200 personal desktop controller combines dimming control for overhead lighting, plug load switching and occupancy sensing. Part of the IRC family of integrated control products, the CS-200 utilizes a control-without-wires design that provides a new level of flexibility. Features include selectable presets and an easy integration with building automation systems and other lighting control systems.



CIRCLE NO. 144

## Architectural Lighting Magazine

*Fiber Optic Lighting* by Russell L. DeVea. This text provides technical and practical fundamentals regarding the technology and specification of fiber-optic lighting—covering components, systems, principles of operation and more. One of the first clear and comprehensive books on the subject, it is sure to be a valuable reference on this dynamic emerging technology. ISBN: 1-57730-525-6, \$50.00, app. 175 pages, illustrated. Call (800) 444-4881 to order.



## LIGHTFAIR INTERNATIONAL: LOOKING BACK AND GROWING FORWARD

BY RENEE GABLE

As many of you already know, Lightfair International is North America's largest architectural and commercial lighting trade show and the world's largest architectural and commercial lighting conference program. What you may not know is how it came to be and where it is going.

The Illuminating Engineering Society of North America (IESNA) and the International Association of Lighting Designers (IALD) joined forces with AMC, Inc. in 1990 to produce an event that would compete with Lighting World, the only lighting industry event, in place at that time. Lightfair International debuted April 10-12, 1990 in New York City at the New York Hilton & Towers. The first show opened with 85 exhibitors and 268 booths. Approximately 6,700 people attended the event which also included two workshops, 12 seminars and three special events. The successful launch of Lightfair International attracted the sponsorship of the IESNA and the IALD in 1991 and led to the disbanding of Lighting World.

The last decade has seen tremendous growth of the event. In its third year, Lightfair had doubled the number of exhibitors as well as its seminar offerings. The show had traveled to Chicago and back and in 1992, hosted its first dinner cruise. The number of booths doubled for the 1993 San Francisco show and by 1994, six companies—as opposed to one in 1990—had decided to take advantage of Lightfair's success by sponsoring events within the framework of the show. 1996 marked the beginning of the pre-show conference: four workshops providing attendees valuable industry information as well as continuing education credits. The addition of the pre-show conference reflected a strengthening of the show's interest in education, and continuing in that vein, last year's pre-show conference increased the workshops to five. Since its debut, the show has nearly tripled its seminars and exhibitors, and doubled its attendees.

By comparison, the 1999 event now boasts 900 booths with 325 exhibiting manufacturers, a conference program of 36 seminars and 4 workshops, and over 14,000 expected attendees in San Francisco. That is substantial growth by any industry standard. And maybe it's a sign of the times since the general growth in the construction market has been steady and is expected to continue in certain sectors such as office buildings, new school construction and public building projects. Additionally, retail, hotel, healthcare, industrial and residential construction has enjoyed a

steady increase over the past few years, providing the architectural and commercial lighting industry with sustained growth.

Which brings us back to the annual industry event that celebrates the architectural and commercial lighting industry with all its many facets. In addition to offering up-to-the minute technology and new product development in the exhibit hall and the leading educational seminars and workshops, Lightfair encompasses the spirit and energy of the industry by bringing together all professions in the specification process with the manufacturers, distributors and sales representatives. During the four days of the event, alliances are forged, partnerships are developed, new manufacturers and products are discovered, industry associations host annual presentations, excellent design is acknowledged and awarded, special events bring the masses together, luncheons are held honoring the work of pioneers in the industry, press conferences are held and business is done. All to improve the lighted environment.

But where is Lightfair International going? For those of us who have been working on this event for a long time, we remember when a 1,000-booth trade show was one of the highest goals for the event; now that benchmark has been raised to 1,500 booths. And record attendance was set at 15,500 in New York in 1997; now that benchmark has been raised to 20,000. But it's not all about quantity. It is also about quality, which is an on-going goal, and the next decade will provide the

opportunity to continue to improve the overall quality of exhibitors, attendees, educational programs, special events and industry association alliances. While the industry focuses on product development, manufacturing and specification, Lightfair International is focused on servicing the industry in an annual forum, which is conducive to quality industry business.

The real question is: What role does Lightfair International play for you? As we celebrate the last 10 years of this lighting industry event, it is only natural to look ahead and start planning for the next decade. Let us know how Lightfair International fits into your professional life and what ways you could be better serviced by it. Help us shape the future of your industry event for the next decade, and then let's talk again and evaluate how we're doing in 2009. See you there! ■

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