

JANUARY/
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architectural lighting

The High Life

Taking Advantage of the CRI
Heavy Metal: The New Face Of Fixtures
Interview: Teal Brogden

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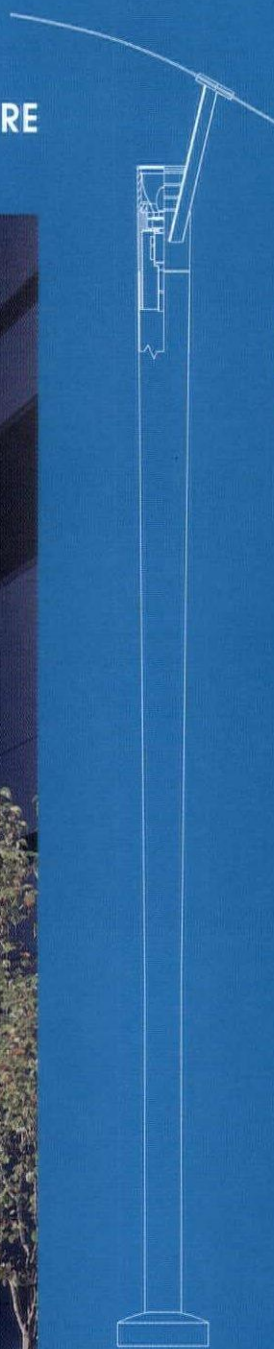
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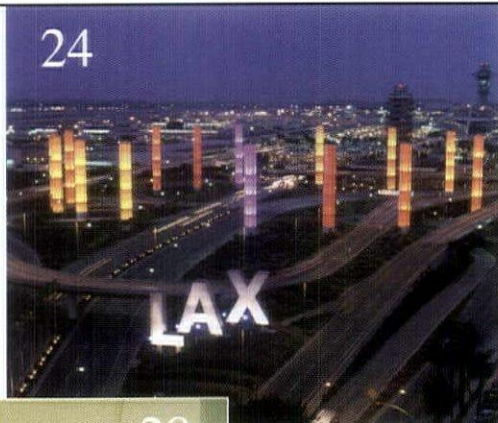
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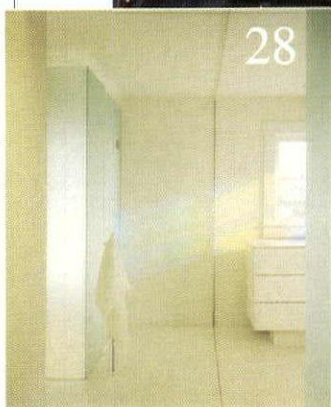


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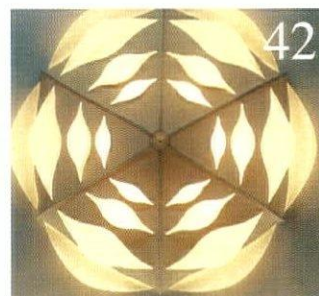
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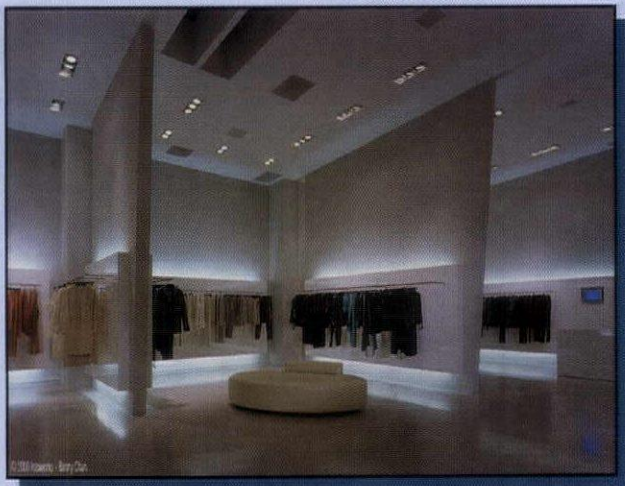
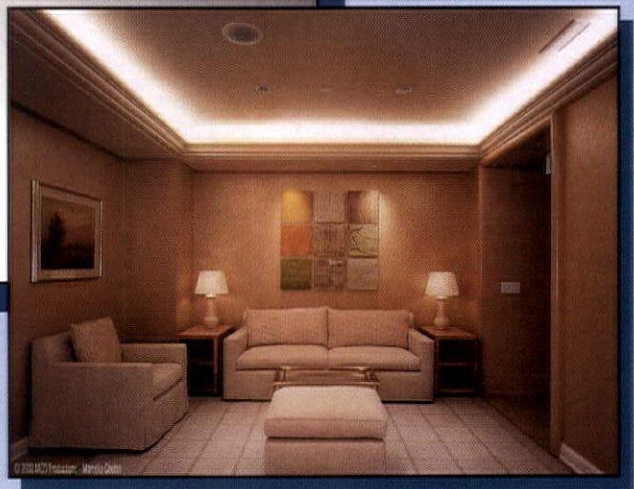
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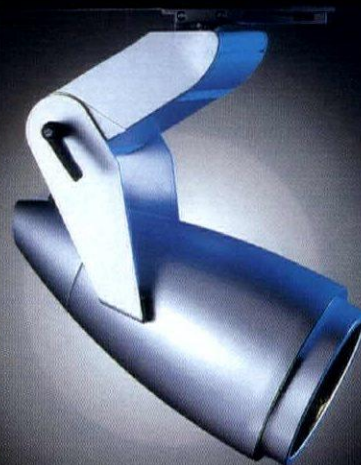


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A FRESH PERSPECTIVE

Creativity in design is as important to the staff of *Architectural Lighting* as it is to those who regularly read our pages. And as everyone knows, inspiration is the key to creativity in all of its incarnations. Well, what inspires you? I have asked that question countless times to professionals in our industry and the answers have ranged from the tangible—nature, architecture, collaborative design team—to the abstract—beauty, challenge, innovation. But no matter how the responses vary, there has always been consensus on this: A fresh approach and revived perspective are critical to maintaining design integrity.

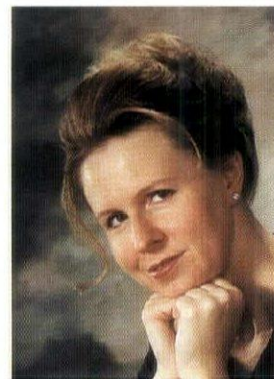
In preparation for *Architectural Lighting's* 15th anniversary, our staff decided to take a step back to focus on *rediscovering* what it is that motivates us, and to capture its spirit and translate it into reality. You—and the creativity with which you approach the challenges, develop the solutions and ultimately, present a design statement—are what drives us in our quest for editorial excellence, both visually and verbally. Like you, we attempt to blend the art and science intrinsic to lighting design and present the union in an integrated, comprehensive package. A progressive one. And like you, it is imperative that we stay one step ahead, proactively leading the interests of our audience.

Rejuvenation. This became our word of the day, so to speak, in planning the 2001 redesign of *Architectural Lighting*. We've infused the publication with a little "editorial alchemy," devised to keep the magazine fresh and invigorated in its appearance and interesting in its approach. You know, some minor tweaking—not major surgery—to update our pages with the intent of making a good magazine even better. The graphics are livelier, the writing snappier, the layouts streamlined.

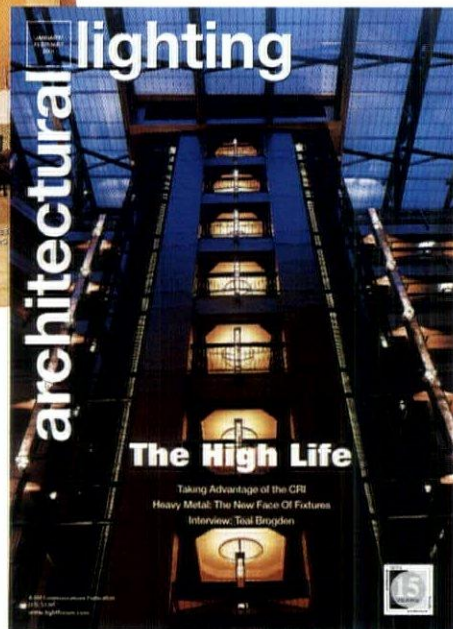
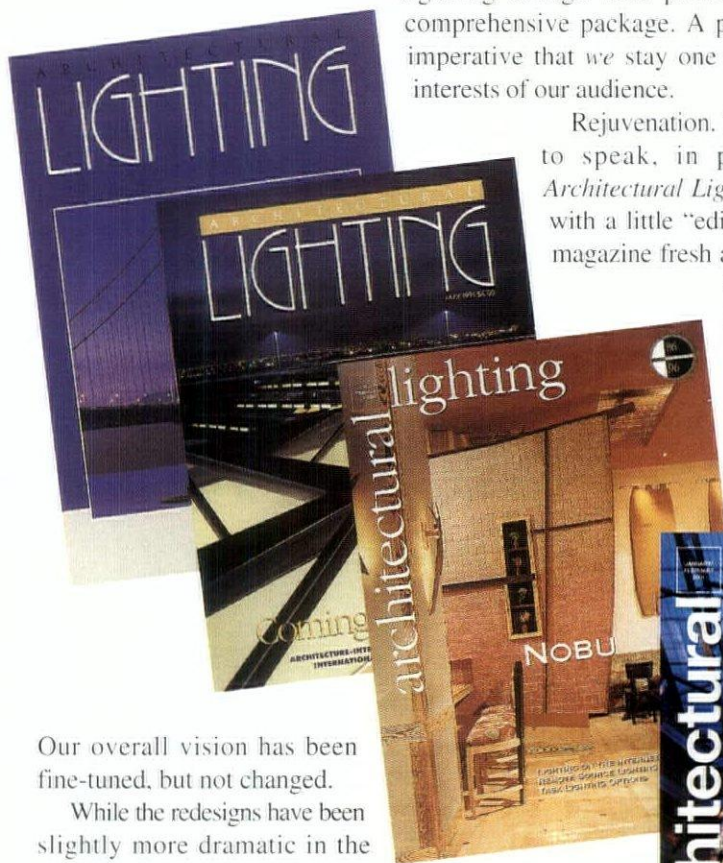
Our overall vision has been fine-tuned, but not changed.

While the redesigns have been slightly more dramatic in the past—as evidenced here with the first design in 1986—this most recent revamp is about the strength of subtlety. We believe it is often the slightest nuances that yield the highest impact. We hope you agree.

Feedback is important to us. If you get a minute, let us know what you think. We realize that times continue to change and interests continue to shift. And we firmly believe that rejuvenation is an on-going process, not a one-shot deal.



Christina Trauthwein,
Editor-in-Chief



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To the Editor:

I just finished reading the October 2000 Applications Issue. I'd like to compliment you on the in-depth coverage of the development of the lighting for the spaces profiled. It's especially nice to see details of special lighting elements that are often unclear in photos or text descriptions.

I do, however, have one criticism. The article on the Pfizer Childcare Center mentioned a lighting designer, but nowhere in the article is the lighting designer named. It's bad enough when interior design and architecture magazines leave out the lighting designer in the credits but for a magazine named, *Architectural Lighting*, it's inexcusable!

Denise B. Fong
Candela

(Editor's note: We apologize for omitting Richard (Rick) Shaver from the list of credits. Shaver worked with architect Martin E. Rich to develop an appropriate lighting solution.)

To the Editor:

Ouch! Your guru just bad-mouthed my life's work. "Fiber-optic Lighting: A Status Report" isn't cutting edge. It's good writing. But wrong! How can a status report be so in the dark? And with an insulting tone too!

Right off, I am offended. Fiber optics is stated as only good for those real special uses like "over piranha tanks." Try the facts.

Fiber-optic lighting is used to illuminate everything from Jefferson's draft of the Declaration of Independence to famous costumes at Hollywood Casinos. Fiber optics light the interior of FDR's Air Force One, 3,600 wine bottles in a New York gourmet restaurant, fighting dinosaurs at the Smithsonian, dioramas of rain forests, restaurant decor, signs, building sides, war memorials in Washington, D.C. and the list goes on.

It's more than neon. A single 1/8-in.-diameter fiber, using only 4W of power, can put 300 fc in a 3-in. diameter without spill from 36 in. away to perfectly frame a product. It can also light a painting with an 18-in.-diameter beam at 10 fc from a hidden luminaire 18 ft. away. That same 4W fiber-optic luminaire can zoom from 5 to 50 degrees and light a 6-ft. circle on the floor to 2 fc from a 10-ft. ceiling. It can light a stairwell from inside of the banister, light jewels at 100 fc inside cases with no heat or create a realistic Federalist candle chandelier for a historic building.

My home is full of it. I read under it, eat under it, use it everyday. I manufacture it. You couldn't pay me to go back to yellow light produced from hot tracks hanging like tin cans from my ceiling. And my customers feel the same. I promise, no one would rave if it were just "wiggle a piece of fiber and making it change color."

Plus, the author says manufacturers are "trying to legitimize the fiber industry"? Just what is "legitimate" lighting? Fiber-optic products can meet UL Standard 153 for portable lamps or UL 1571 for recessed light fixtures. Complete photometry, applications and specifications are available to those

who seek them out. Fiber and hardware are available with unconditional replacement warranty for 10 years.

The comment, "saving on maintenance costs and potentially on energy costs as well," is irresponsible. With rolling blackouts in California and rising energy costs everywhere, you need tools to meet Title 24. Good fiber-optic installations save from 50 percent (if replacing fluorescents) to 70 percent (if replacing tracklights) of the energy. One of our customers removed 700 framing projectors and used only 40 fiber-optic projectors removing 660 light fixtures from their installation.

And who quoted costs? Our typical system complete with everything averages \$2,500 for 32 lights. That's \$78 a light, well below his cost targets.

Finally, what has market maturing to do with fiber optics? Maturity means commodity, generic and common. The lighting industry is never this. Has it been so long that the lighting industry has forgotten what innovation is? Proprietary products are never sold in "a competitive environment in which technology information—such as how to best do fiber-illuminator couplings—was held close to the vest." What technical secrets? Read the patents. It's published data.

Do you want to buy from a number of sources? No. Knock-offs are a staple in the lighting industry, not in fiber optics. There are incredible penalties for imitation. Infringers pay. End-users are even required to remove infringing hardware. This means only a few manufacturers deliver performance. For your application, you most likely will have one manufacturer's products that will work well.

So let's get a reality check. Fiber optics' foundation is innovation and technical excellence, not just imagination. Yes, you can be creative. Yes, it has a great "ahhhh" factor. But if you are getting poor performance, it isn't because the market hasn't matured. It's because you're talking to the wrong company.

Ruth Ellen Miller
President, NoUVIR Research

Author of the article, David Houghton, P.E., responds:

I'm not sure where we disagree. The points I made in my story were: 1) Fiber systems are wonderful for special applications (i.e. UV-sensitive manuscripts and piranha tanks) and they often make sense for outdoor lighting; 2) fiber systems are still generally not cost-effective for general area lighting, such as downlights; 3) the industry is restructuring to deliver more consistent, predictable and realistic results.

Like any lighting technology, fiber optics is not the ultimate solution to every problem. It is misleading to state that fiber optics is the solution to the energy pinch—yes, they can save energy in certain applications, but they can also be misapplied; and the system losses are still significant compared to direct illumination.

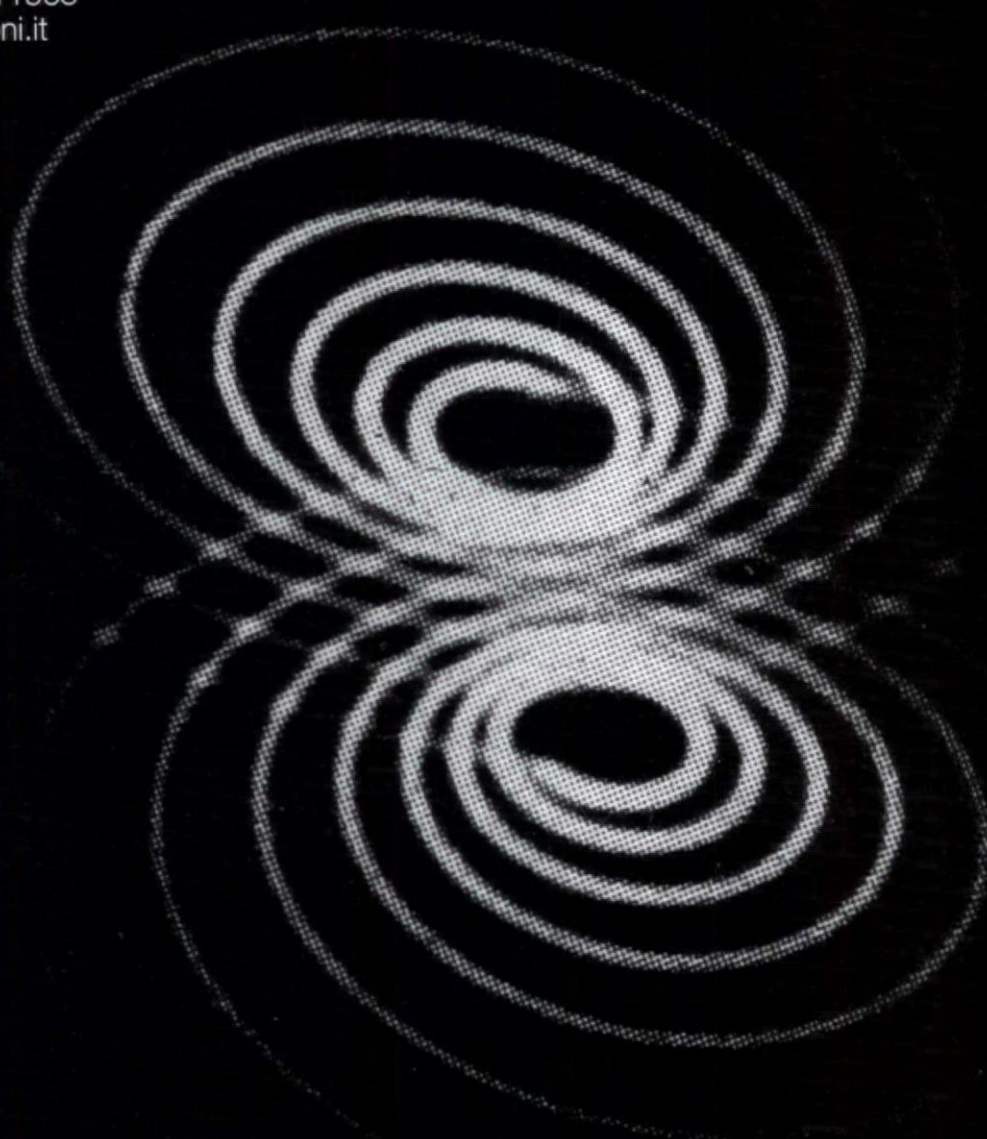
The fiber optics industry is indeed about innovation. From its well-established market for special applications, fiber is continuing its expansion into more and more practical uses. The story intended to present a balanced view on that progress.

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4TH ANNUAL EELA CONFERENCE TARGETS ENERGY EFFICIENCY

The fourth annual EELA Enlightening America 2001 Conference and Trade Show opens at Philadelphia's Adam's Mark Hotel on March 25, 2001. This year's theme, "The Partnership in Lighting—Advanced Thinking in Energy Efficiency," hopes to unite facility owners and managers with the lighting marketplace. Keynote speaker, Willard Warren, engineer and columnist, will kick off the show with an overview of lighting, deregulation and current energy-efficient lighting technologies. For more information, contact the EELA at P.O. Box 727, Princeton Junction, NJ 08550; phone: (609) 799-4900, fax: (609) 799-7032, email: eela@eela.com, website: www.eela.com.

LIGHTTECH LAUNCHES TECHNOLOGY CENTER AND EXPANDS

Lighttech Electronic Industries, Ltd., a lighting power supplies company, has announced the launch of a new Global Technology Center and expanded its North American headquarters. The new technology center is based in Northern Lod Technology Park, Israel and Lighttech's North American headquarters is located in Tampa, FL. For more information, visit www.lighttech.co.il/.

SUPER VISION OPENS THE PULSE

Super Vision has opened a new 3,500-sq.-ft. application showroom and training facility in the company's headquarters in Orlando, FL. The "Pulse" facility will be used to demonstrate fiber-optic and LED lighting applications in a real-world setting and is open to architectural and lighting design firms, lighting agents, pool builders and sign companies.

ON THE WEB ...

MagneTek Lighting Products Group has added a new "Ballast Specs" page to its website at www.magnetek.com/ballast. This interactive tool allows quick access to MagneTek ballast specification information.

Visitors to **Bega-US'** new website at www.bega-us.com can find Bega products by product number or graphical index. Indexed photometry files and product data sheets are also available for downloading.

In March, the first chapter of **Erco Leuchten's** Internet-based encyclopedia of light will be available at www.erco.com. Titled, "Lighting Control," this online tool will allow

visitors to research via interactive animation the use of lighting controls in architecture and access virtual spreadsheets for use in projects.

SPI Lighting's newly launched website at www.spilighting.com features application photos, product information and photometrics. Specifiers can access a design guide, product descriptions and catalog information, as well as download photometric files.

Lithonia Lighting's Online Design Guide at www.lithonia.com/IndustrialLighting provides information on the company's industrial lighting products and their use as well as best practices and design tips.

VARON LIGHTING FORMS

Varon Lighting, Inc., a new multinational lighting and components manufacturer, has formed near Chicago. Headed by president and CEO C. Joseph Incrocci, Varon is the parent company of manufacturers Thomson Research Products, TSAO Designs, Malcorp (Manufacturers Lighting Corp. of Mexico) and Varon Outdoor Lighting Group. James Hudson has been named president of the Varon Electronics and Technology Group and president and COO of Thomas Research Products. Walter Coleman is president and COO of TSAO Designs; Robert Delgado, general manager and COO of Malcorp; and Perry Romano, president of the Varon Outdoor Lighting Group.

Varon Lighting can be contacted at 1111 North Old Rand Road, Wauconda, IL 60084; phone: (847) 487-8203, fax: (847) 526-9259, email: varonlighting@aol.com.

ON THE MOVE ...

ISR's Chicago office has moved to a new facility at 1997 Ohio Street, Lisle, IL 60532; phone: (610) 515-9100, fax: (630) 515-9171.

Bartco Lighting has relocated to 16792 Burke Lane, Huntington Beach, CA, 92647; phone: (714) 848-0892, fax: (714) 848-6843, website: www.bartcolighting.com.

"BEACON" TO SHINE IN BOSTON

The IES Northeastern Regional Conference, Beacon of Light, will be held June 20-23 at the Boston Park Plaza Hotel. Three days of CEU/LEU accredited lighting seminars and workshops will be offered along with special activities, such as the Welcome Cocktail Reception to be held on June 20; Tabletop Evening Event on June 21; Keynote Speaker Luncheons on June 21-22; and the International Illumination Awards Banquet on June 22.

For more information, contact Doreen Le May Madden at (781) 237-1989, dmadden@luxlightingdesign.com or visit www.iesnewengland.com, www.wneies.org/regindex.html.

CORRECTIONS

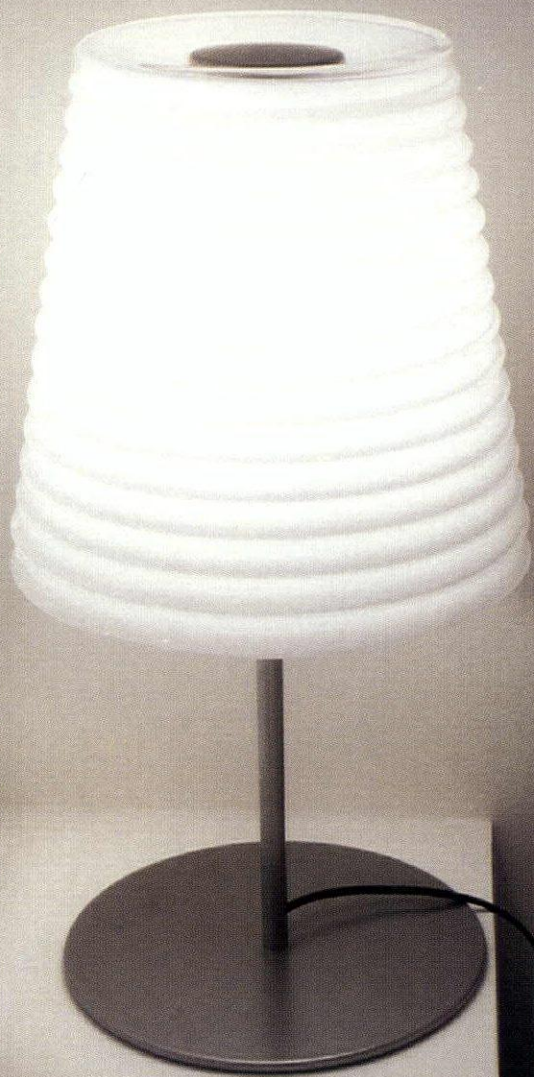
In the article, "Off-Broadway Productions," which appeared in the November 2000 issue, the building in Figure 4 (p. 32) is *not* a theater, but the Boston Public Library.

In "Fiber-optic Lighting: A Status Report," a photo caption on page 34 mistakenly identifies the source of the image as Starfire International; the image of the marine restaurant was provided by Starfibre International.

Architectural Lighting regrets the errors.

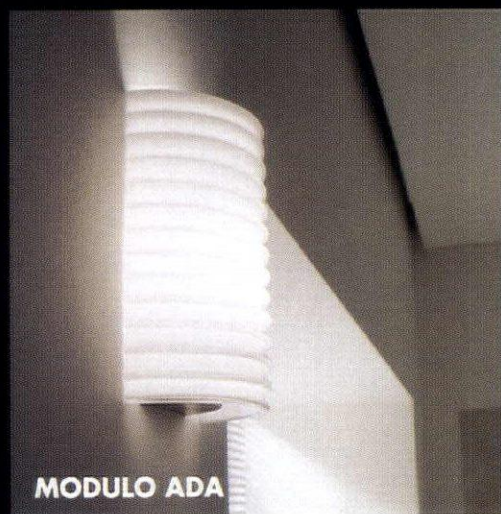
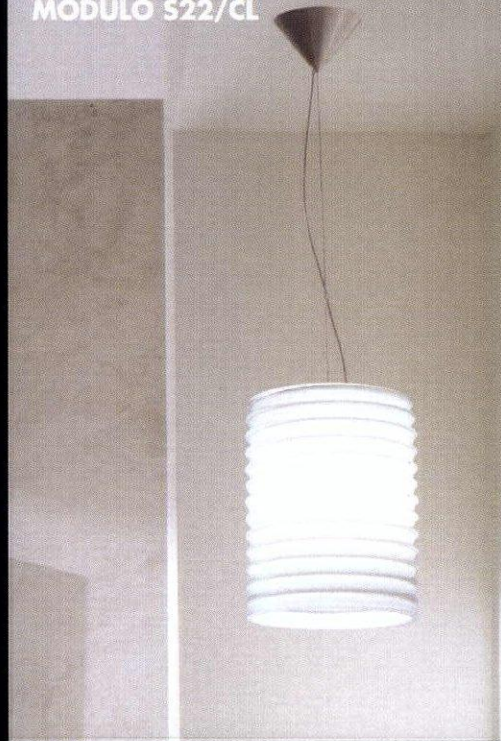
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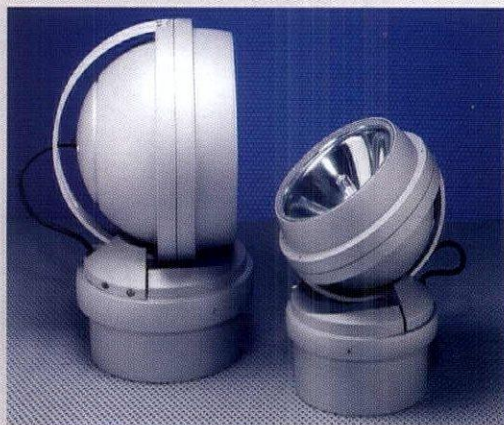
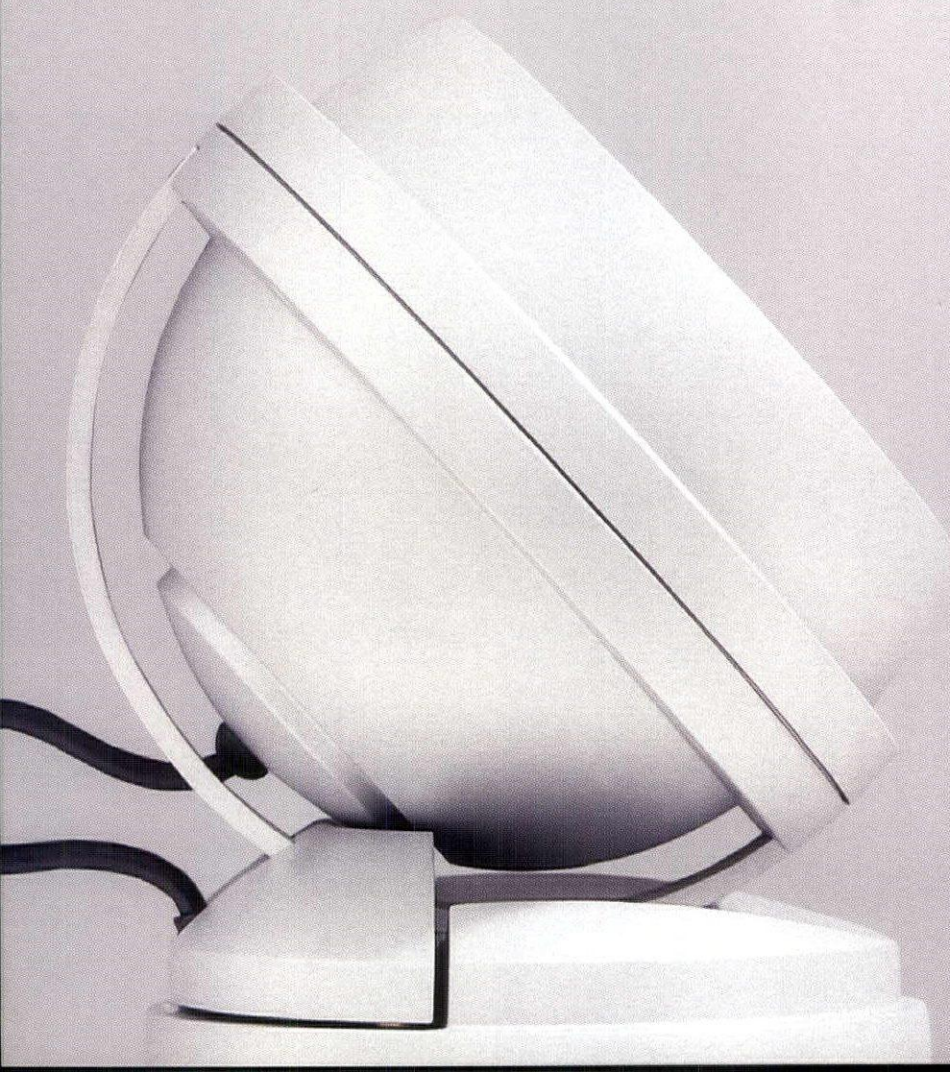
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Meyer Cohen, founder of Meyda Tiffany, passed away on December 31, 2000. Cohen began creating stained glass gifts for his friends and relatives as a hobby. He and his wife, Ida, established the Meyda Stained Glass Studio, which was originally operated from the basement in their home and later expanded to include stained glass lamps and decorative accessories for retail sales. In 1978, the Cohens relocated the business to downtown Utica, where they began to manufacture for the wholesale market. Meyda Tiffany is now headquartered in Yorkville, NY.

Lithonia Lighting has announced the retirement of chairman and CEO, **Jim H. McClung**, after 36 years with the company. During his tenure, Lithonia Lighting grew to become one of the largest lighting fixture manufacturers in the world with annual sales of \$1.5 billion.

President and CEO **Al Grossman** of Conservation Technology Ltd. (Con-Tech Lighting) has announced that he will retire in March from the company he co-founded in 1980.

Lightolier has appointed **Ken Mackenzie** director of marketing; **Denise Gregoire**, manager, electronic marketing; **Beatriz Oliveira**, Calculite product specialist; **Renee Cohen**, TechCenter manager; and **Jennifer Moran**, assistant product manager, Lytecaster.

Cooper Lighting has named **Roger Shea** VP of marketing.

Mi-Seon Lee and **Sara Rushton** have joined Horton Lees Brogden Lighting Design as designers.

Lutron Electronics has appointed **Michael W. Pessina** senior VP, supply chain operations management.

Dorene Maniccia has joined The Watt Stopper as manager of market segment development.

H.E. Williams has promoted **Tim Lamberth** to VP of sales and marketing. **Angie Alvarado** has joined H.E. Williams and Infinity Lighting as western regional sales manager.

Super Vision International has appointed **Jan Storment** national accounts manager.

Frank Dougherty has joined LEDtronics as domestic and international sales manager.

Ann Reo has joined Schuler & Shook.

Francis J. Santiago has been named senior VP, general lighting at Osram Sylvania.

JJI Lighting Group has promoted **James E. Haworth** to VP, general manager, Alkco Lighting and Quality Lighting; **Ian R. Ibbitson**, VP, general manager, Architectural Landscape Lighting and Lam Lighting Systems; **Victor Wittman**, VP, sales and marketing, Quality Lighting with additional responsibility for Metrolux Lighting; **Kevin J. Kasmiskie**, VP, sales and marketing, Lam Lighting; and **Vernon D. Dill**, VP, marketing, JJI Lighting Group.

Anderson & Howard Companies has promoted **Shad Arnold, LC, CLC, LS** to director of its lighting design & consultation division.

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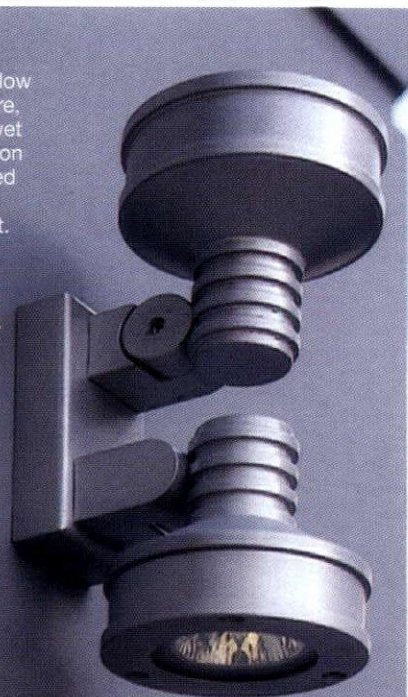
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2001 SCHEDULED EVENTS

March 14 "Food, Fantasy and Form: A Journey into the World of Restaurant Design," New York School of Interior Design, Arthur King Satz Hall, New York. Contact: (212) 472-1500.

March 21 "Hoop Dreams," Designers Lighting Forum, New York. Contact: (212) 613-1599.

March 25-27 Enlightening America 2001, Adam's Mark Hotel, Philadelphia. Contact: (609) 799-4900, eela@eela.com, www.eela.com.

March 29-31 Hospitality Design 2001 Expo & Conference, Sands Expo & Convention Center, Las Vegas, NV. Contact: (888) 200-8498, www.hdexpo.com.

April 2 "Quick Fixes—Lighting Solutions," Designers Lighting Forum, Los Angeles. Contact: (310) 535-0105, www.DLFLA.org.

April 2-3 AEE Seminar: "Fundamentals of Energy Management," Las Vegas, NV. Contact: (770) 925-9633, www.aeecenter.org.

April 4 "Hugh Hardy," New York School of Interior Design, Arthur King Satz Hall, New York. Contact: (212) 472-1500.

April 4-9 Euro luce 2001, Milan Fairgrounds, Milan, Italy. Contact: (39) 02725941.

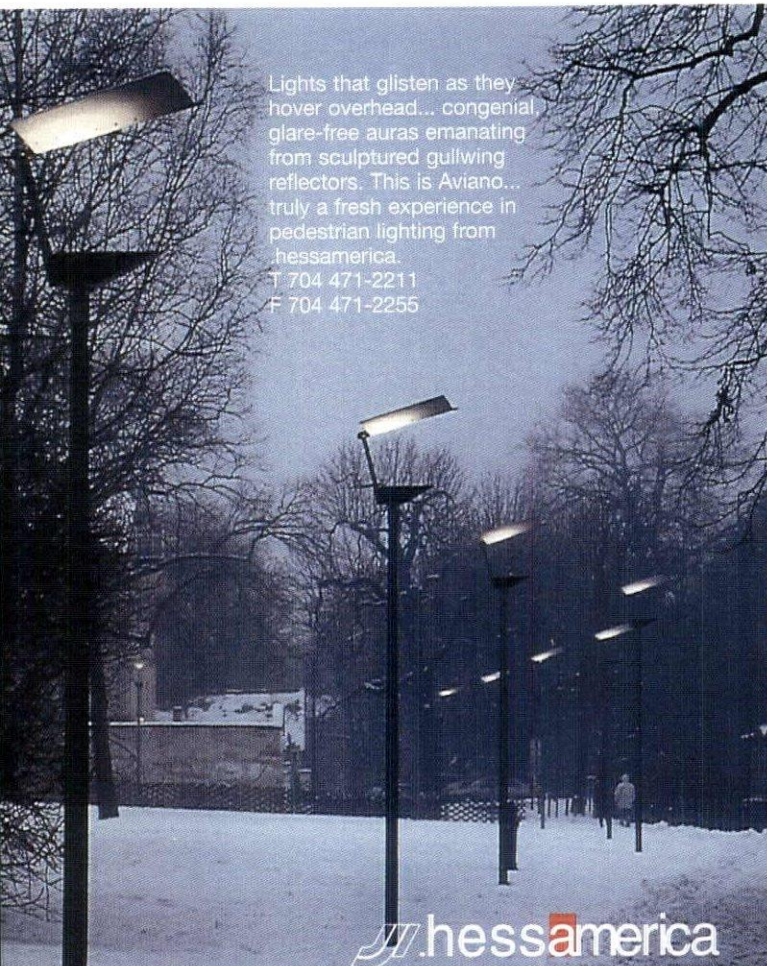
April 2-July 29 Light! The Industrial Age: 1750-1900, Carnegie Museum of Art, Pittsburgh, PA. Contact: (414) 622-3131.

April 11 "Architecture in Motion: Design for the Entertainment Ships of the Future," New York School of Interior Design, Arthur King Satz Hall, New York. Contact: (212) 472-1500.

April 22-24 IESNA Southeastern Regional Conference, Atlanta. Contact: S. Funkhouser at sfunkhouser@cda.com.

April 22-25 Lightstyle: International Trade Fair for Domestic Lighting, Messe Frankfurt, Frankfurt, Germany. Contact: (49) 69 75 75-0.

May 30-June 1 Lightfair International, Las Vegas Convention Center, Las Vegas, NV. Contact: (404) 220-2221, www.lightfair.com.



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June 7-10 IESNA Maritime Regional Conference, Halifax, Canada. Contact: Lee Hiltz at (902) 484-3008.

June 18-20 LUX Europa 2001: the 9th European Lighting Conference, University Cinema—Conference and Cultural Center, Reykjavik, Iceland. Contact: (354) 585 4309, conference@icelandtravel.is.

June 18-20 NeoCon World's Trade Fair, The Merchandise Mart, Chicago. Contact: (800) 677-6278, www.merchandisemart.com.

June 20-23 IESNA Northeastern Regional Conference—Beacon of Light, Boston Park Plaza Hotel, Boston, MA. Contact: dmadden@lux-lightingdesign.com, www.iesnewengland.com.

June 21-22 AEE Seminar: "Fundamentals of Energy Management," Memphis, TN. Contact: (770) 925-9633, www.aeecenter.org.

August 5-8 2001 IESNA Annual Conference, Ottawa, Canada. Contact: Valerie Landers at (212) 248-5000, ext. 117.

September 11-14 China International Lighting Exhibition 2001, Shanghai Everbright Convention & Exhibition Center, Shanghai, China. Contact: (301) 424-7060.

September 13-14 IIDEX/NeoCon Canada, The National Trade Centre at Exhibition Place, Toronto, Ontario, Canada. Contact: (800) 528-8700, www.merchandisemart.com.

September 23-25 World Workplace 2001, Kansas City, MO. Contact: (713) 623-4362.

October 14-17 IESNA Street & Area Lighting Conference, Orlando, FL. Contact: Valerie Landers at (212) 248-5000, ext. 117.

October 31-November 1 NeoCon New York, Jacob K. Javits Convention Center, New York. Contact: (800) 528-8700.

November 28-30 IALD Annual Meeting, Philadelphia. Contact: (312) 527-3677.

November 29-30 NeoCon West, Los Angeles Convention Center, Los Angeles. Contact: (800) 528-8700, www.merchandisemart.com.



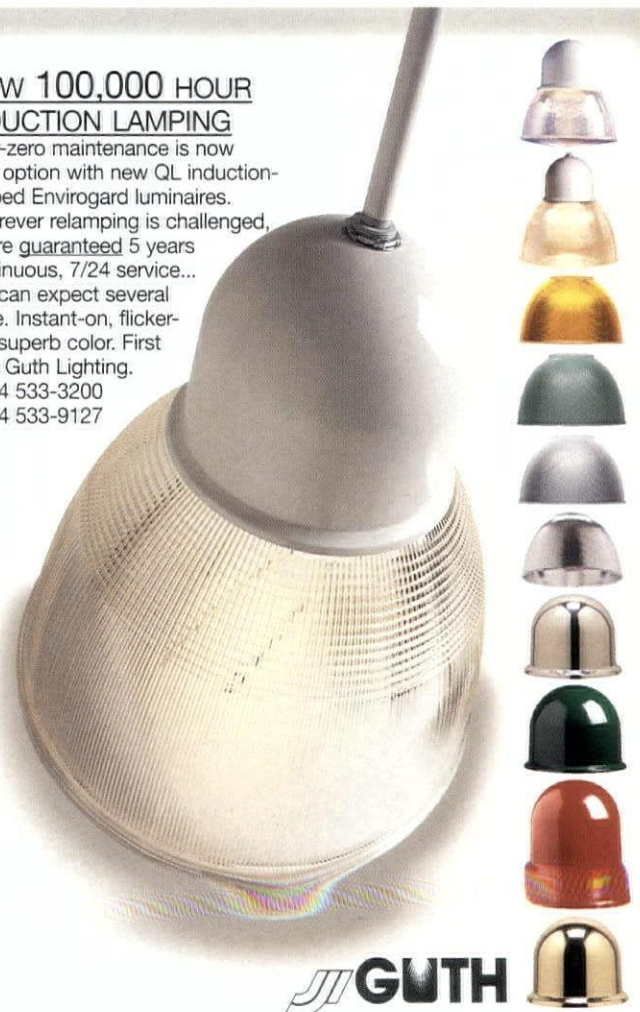
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Architectural Lighting goes one-on-one with Teal Brogden, senior design principal at Horton Lees Brogden Lighting Design. Teal's role in the firm recently expanded to include partnership responsibilities and the title, Director of Design, making her responsible for developing and establishing firm-wide design and production standards. She is committed to the design excellence for all of the firm's diverse projects and is involved in every aspect of the services offered including client contact, meetings, project conceptual design, programming and implementation, contract negotiations and design quality control. Teal blends her understanding of design with technical skills and hands-on experience to achieve unique, innovative design solutions. In addition, she is integral to the firm's business development and marketing strategies.

—Christina Trauthwein

Q: If someone had asked you, "What do you want to be when you grow up," you would have answered ...

A: A symphony conductor. Ever since I was a kid, music has touched me in such a very special way.

Q: Then why lighting design?

A: I'm completely tone-deaf and unfortunately, have no musical capability whatsoever.

My parents designed a couple of the homes that we had lived in and my father, who was an engineer that designed power plants, always did some interesting things with the lighting. Perhaps, that's where the seed was first planted in my mind.

I was enrolled in the architectural engineering program at the University of Colorado—I not only had an aptitude for design but was also very facile in math. I must confess, though, that my classes were rather boring and the only one that really interested me was the lighting design class. You can say I "stumbled" into the lighting industry through lighting professor David DiLaura. He's an incredibly inspirational professor and was an exceptional first mentor, expanding our lessons outside of the classroom to include a wide range of educational experiences. For instance, he hosts weekend retreats for students up in the mountains and brings in industry professionals as guest speakers. The last time I was invited, he sat me in front of the room and asked me to share my answers to some really provocative questions such as "What's it like being a woman in the profession" and "What's the biggest mistake that you've made."

Q: Well, what is it like?

A: I think our profession is incredibly friendly for women because it's a new field and there are so many opportunities. As long as you have a drive and a talent, it's all there for you. I haven't felt any kind of stigma at all.

When I first left school, if I ever ran into anyone who gave me the "Who's this little girl telling me what to do" look, I just whipped out some of my technical knowledge and it usually put them right in their place. I firmly believe that as soon as a woman shows she has professional skills, people will be very quick to respect her.

Q: And your biggest mistake?

A: At the time Professor DiLaura asked the question, I was working with a client and architect to resolve some disappointment on a project. The client had seen some images and a rendering that didn't accurately represent what we

were doing with the lighting design, and the architect didn't realize the importance of sharing this information with us. The project was near and dear to all of us and so anything less than resounding success was a pretty painful situation. In the end, I learned a significant lesson about the importance of communication and continually monitoring expectations all the way through the design process.

Q: What was your first job after college?

A: There was an IALD poster promoting an internship program. I was graduating and wanted to go to the Big Apple to work with the "big guys" and learn the ropes.

This was 1985. The profession was incredibly busy and anyone who showed enthusiasm and aptitude was given a role as a project manager. I worked for Fisher Marantz when I first started and was given a lot of responsibility right away working directly with some of the world's best architects. One of the first jobs that I worked on was the renovation of the Rainbow Room at the top of Rockefeller Center; another was the Four Seasons Restaurant with architect Philip Johnson.



"... lighting is a two-way street, a dialogue."

Q: What's your favorite type of project to work on?

A: One that has a strong concept. I think many designers would agree that if the architectural concept is strong and you can align yourself with that concept and understand it, it almost whispers to you what the lighting should be—the lighting grows quite naturally from the passion that's underlying the design.

Q: What's the biggest misconception about lighting designers?

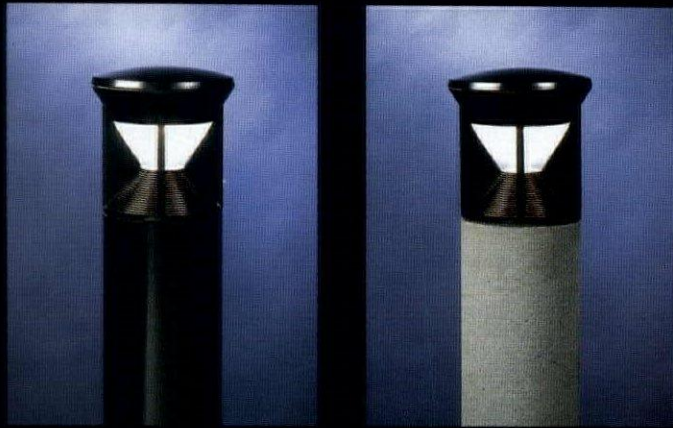
A: The first: Sometimes architects think that after hiring a lighting designer, they don't have to think about the lighting anymore. But lighting is a two-way street, a dialogue. And sometimes we struggle just to get the architects to even look at what we're doing. Second: We make a project more expensive. Sometimes we do. But essentially, what we do is make it better ... and make the money go further.

Q: What learning experience has impacted you most?

A: What's been the most expansive for me is working on projects all over the world. I've done a lot of work across the States and then enough work abroad to have a really wide

(Continued on page 18)

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(Continued from page 16)

breadth of experience. Just the differences in design culture between New York and Los Angeles can be extreme.

Q: The biggest difference between east and west coast?

A: The natural tendency toward energy conservation and more green building design—it's a huge issue for any architect we work with on the west coast. Certainly any project that we've worked on in Europe has had that in the forefront for years. Lighting designers respond to the architects that they work with. You're the strongest member of the team when you're responding to the tone that's set by the architecture. And generally, the architects on the west coast are a little more experimental and don't feel the

Q: What "words of wisdom" can/do you share with others?

A: I love to mentor people because I've been really fortunate to have great mentors. I would say, if you have the time, challenge yourself to learn by teaching.

Q: Do you practice what you preach?

A: No, I haven't taught a class in years—at least, not in the classroom, but I'm mentoring all the time. I find that when I teach, there are always a couple of students who really push you to expand.

Q: If you could present a topic about your profession, what would it be?

A: I think it'd be a forum, where I'd invite lighting designers and architects to discuss how we're working together as a profession

by the amount of work and requests for proposals, we haven't seen a slowdown.

Q: Who would you say are the most influential lighting designers to date?

A: Having worked with Paul Marantz, I would say that he was an incredibly inspiring mentor: Jules Horton, an inspiring personality; Howard Brandston and Lesley Wheel—and the whole first and second generation of lighting designers—defined it for us; and Ingo Mauer's product designs are wonderfully whimsical and innovative.

Q: The most inspirational architects?

A: Will Bruder, who designed the Phoenix Library with its stunning reading room on the top floor. He has an exceptional sensitivity to lighting and its effect on archi-

“... challenge yourself to learn by teaching.”

weight of the years of history of their profession. The clients are also different. On the east coast, they're more focused on quality; on the west, sometimes the focus is more on experimentation.

Q: What's one thing you wish architects/clients already knew about your job?

A: The importance of communication in their participation in the process. The most successful projects that I've seen are ones where the person managing the project is actually interested in lighting and becomes involved in the process. They want to know why you've chosen what you've chosen and basic information like what the color rendering index is all about. It's such fun to teach them. And it's great when they come up with some better ideas than you do, when you've worked together well enough that you have this wonderful coexistence in the world of conceptualizing lighting.

We tease architects we work with that we're trying to get them to become lighting nerds just like us. And how do you know when you're really a lighting nerd? When your friends start talking about lighting when you go places with them.

Q: What do you wish you could tell them but were hesitant to say to their face?

A: “Why did you hire us if you're not going to take our advice?” Occasionally, we'll work with an architect who has a strong concept that they really want to execute and we look at it and decide—through analysis—that their idea is really not going to work. We'll present our reasons and sometimes they won't listen.

and how we can take advantage of the advances in our technology. Since technology is moving so quickly—just look at the advances in AutoCAD—we have to make sure that in working together, we don't lose the passion that forms the foundation of what we do. It seems that we used to spend more time establishing common goals. Now, we sometimes skip that step—and the project suffers.

Q: Best innovation in the past few years?

A: It's both a blessing and a curse: What's happening with computer modeling and how quickly it can be done. The reason why it's a blessing? It can be a really wonderful tool helping us to assess things we couldn't before. And a curse? If it's not used properly, it can create unrealistic expectations. There are times when an architect will present a rendering without having consulted with us ahead of time, and light will be doing things that are just not physically possible.

Q: One word to describe lighting design in the 1980s? 1990s? The future?

A: In the '80s: Color; '90s: Energy—the green side of renewable energy and the impact of energy on lighting. And the future: Expansion—the stigma of a lighting designer being involved in product design is wearing off and lighting designers are expanding to provide a broader range of services.

Q: Outlook on the economy as it relates to the lighting industry?

A: So far, so good. It's obvious that we all share a great deal of sensitivity to the potential for a downturn, but right now, as evidenced

by the amount of work and requests for proposals, we haven't seen a slowdown. Another is Brad Cloepfil at Allied Workers Architecture. We collaborated on the Wieden+Kennedy ad agency in Portland and it's amazingly complex. I expect him to be a major player in the field—he also has a strong sense of light.

Q: Are there any examples of architecture that move you, motivate you to design?

A: A quaint project that I was fortunate to visit when I was in high school is the chapel at MIT, designed by Saarinen. It's a very simple project that essentially uses two elements of light but it's so powerful in both its concept and execution. Another example is a recording studio project that we're working on with David Lawrence Gray Architects. As inspiration, the architect studied a music notational system—a dynamic, visual system for defining music. The project has taken one of those systems and abstracted it into the founding concept for many aspects of the design.

Q: What's one thing you hope to accomplish in your lifetime you haven't yet?

A: To have a multidisciplinary design studio, a cross-pollination of different fields either under one roof or actively involved in projects together. I'd like to integrate other creative professions—even performance arts—into my professional life. In fact, often, it's not a light-related thing at all, but music or dance that inspires me. There was an experimental project called “Monsters of Grace” that involved computer animation choreographed to music. At the time, I was working on a difficult design project and while I watched the performance, the answer came to me. ■

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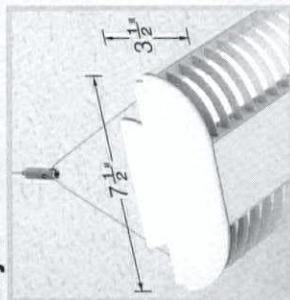
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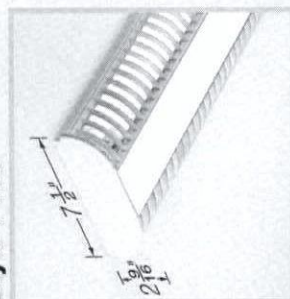
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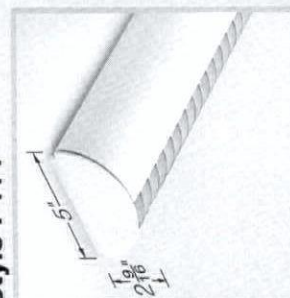
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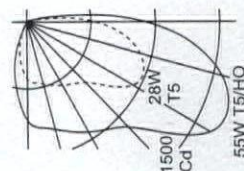


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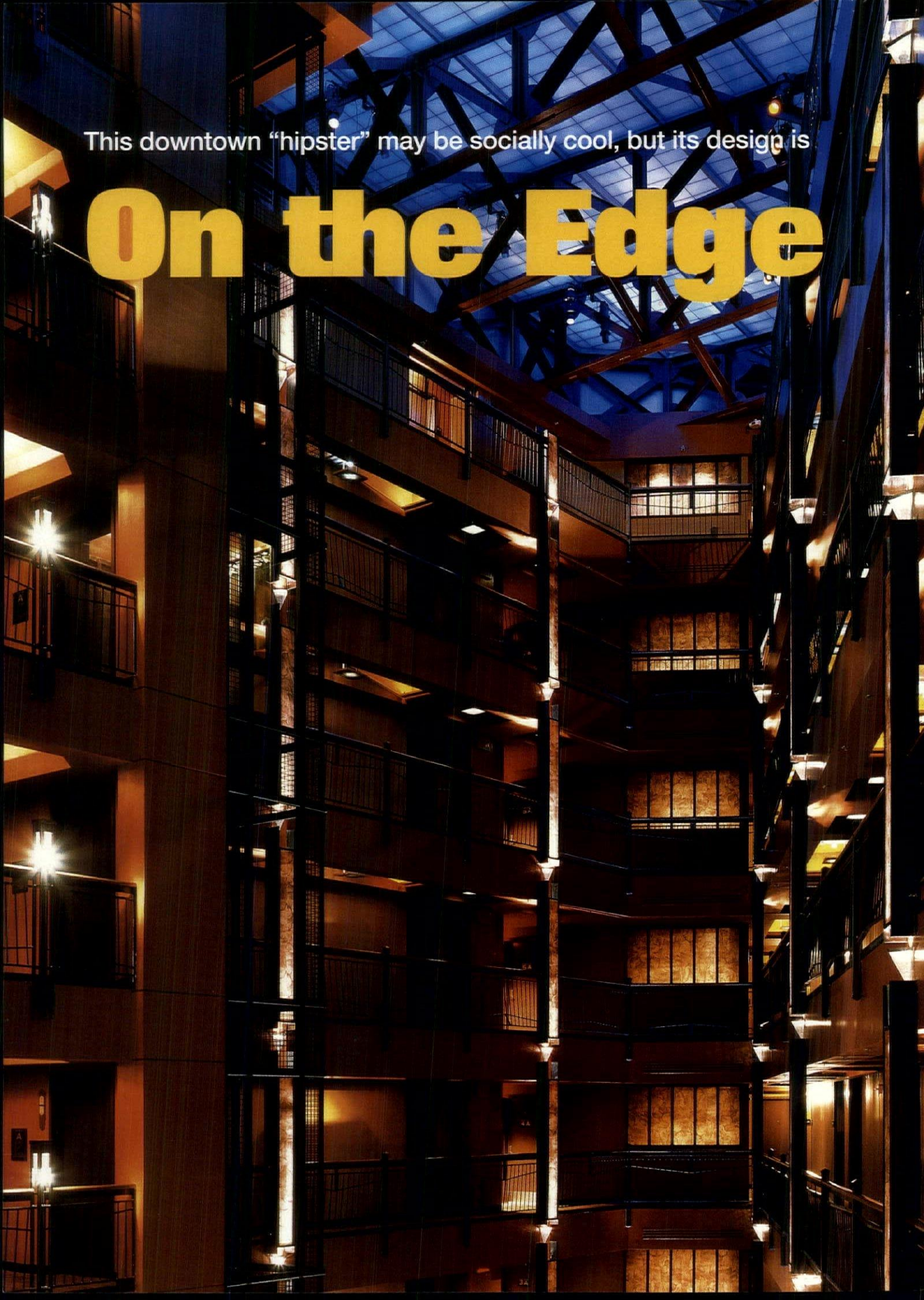


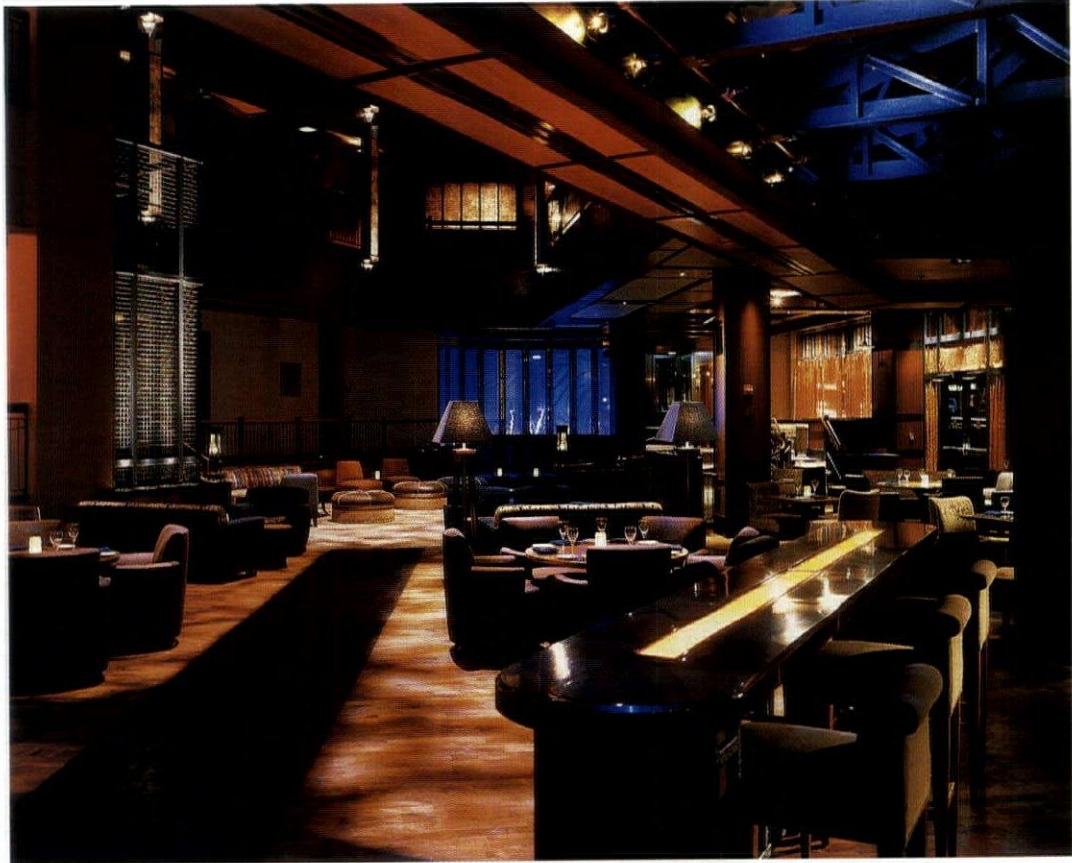
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Patents pending

This downtown “hipster” may be socially cool, but its design is

On the Edge





Cool drinks and hot celebs are embraced by a lighting scheme that enhances the rich colors and warm textures of the hotel's lounge. In the 80-ft.-high atrium, columns of light reinforce the verticality of the architecture. From above, light patterns are projected onto the atrium floor to designate different areas and infuse the open space with a feeling of intimacy.

BY ALICE LIAO, ASSOCIATE EDITOR

The imprint of the neighborhood is unmistakable. From the warehouse-style trusses that support the tinted blue skylight to the metal railings that delineate each floor—all enveloped in a warmth evocative of factory furnaces and heated iron—the Tribeca Grand Hotel is truly an expression of its location in the bowels of New York City. “We were challenged with creating a unique downtown experience and making the hotel architecturally special for a critical audience,” said lighting designer Paul Gregory, principal and president of Focus Lighting. “Many of the people who stay there are in architecture, design or the movie business, so we wanted a higher degree of finish, an edge.”

Constructed over a two-year period with a price tag of \$62 million, the eight-story, 203-room sister of the SoHo Grand is the first hotel to be built in the lower west-side community of Tribeca, which was once the shipping capital of the country and heart of the city's textile industry. The name—short for Triangle Below Canal Street—is whimsically echoed in the hotel's triangular configuration and the use of prismatic forms throughout its interiors. The mix of metal and glass and a palette of brick, rust and burgundy reflect the area's urban landscape and blue-collar roots. “We did

a lot of research, so the iron railing, the cages around the elevators all have some relationship to the past,” said architect Larry Bogdanow of Bogdanow Partners. “But the entire space is not meant to be a recreation of an 18th- or 19th-century loft building, nor is it meant to look like space age. It's meant to be sort of timeless—that's where particularly the lighting comes in. The lighting really drives the space.”

NATURAL ELEMENTS

The centerpiece, of course, is the 80-ft.-high atrium, which was inspired by other celebrated atrium buildings such as the Brown Palace Hotel in Denver and Los Angeles' Bradbury Building. One of only three in the city, the 10,000-sq.-ft. open space is anchored at its corners by architectural elements representing fire, water and a combination of the two. Hotel guests encounter the first upon entering the lobby. “The original design concept called for a water feature,” explained Bogdanow. “First, it was a waterfall and then a pool. We kept scaling back until we were asked to come up with something other than water.” In the end, a 10-panel steel mesh wall was erected to separate the lobby from the atrium. On its surface, waves of white light, projected from below

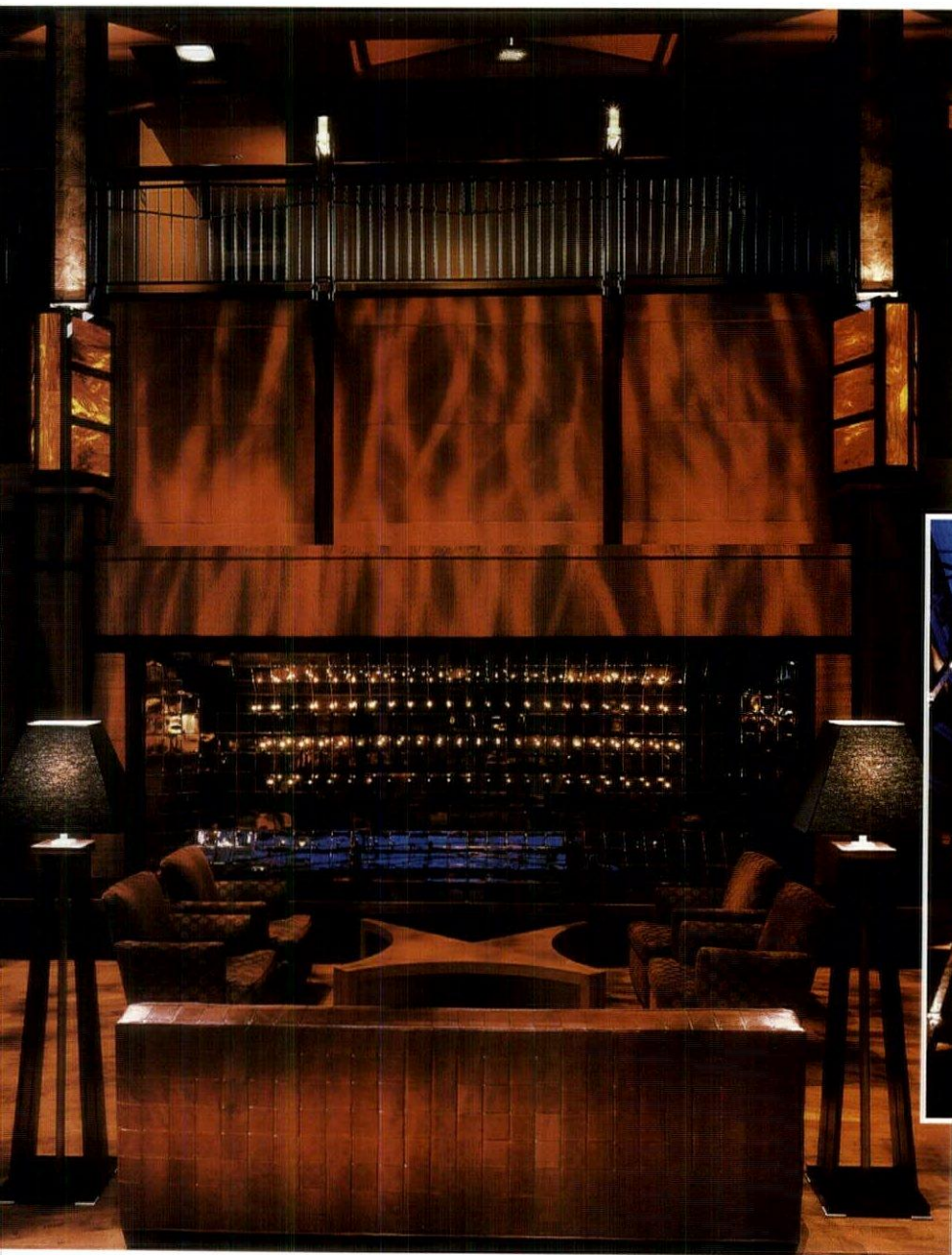
by custom theatrical projectors equipped with rotating glass disks, move and resemble reflections off of water. The projectors are concealed in a ledge along with MR16 fixtures fitted with blue dichroic glass, which accent the front of the wall. Forty 50W PAR20 medium flood lamps bathe the back of the panels in a deep blue.

In addition to preserving the privacy of an otherwise high-traffic corner of the atrium, the screen, as senior designer Brett Andersen noted, "also creates suspense by blocking the first look into the hotel and not immediately revealing the central atrium space." Instead, guests get their initial view of the soaring space by traveling down a sloped ramp studded with LED brick lights in custom housings designed by Focus. The lights are covered by pieces of art glass that recall the glass rondelles once recessed in Tribeca's sidewalks to bring light to underground vaults. "You can still see the little pieces of glass here and there in the cobblestone areas," said Gregory. "We tried to find materials that related to the old Tribeca image, so we walked around the

neighborhood and observed what made Tribeca unique."

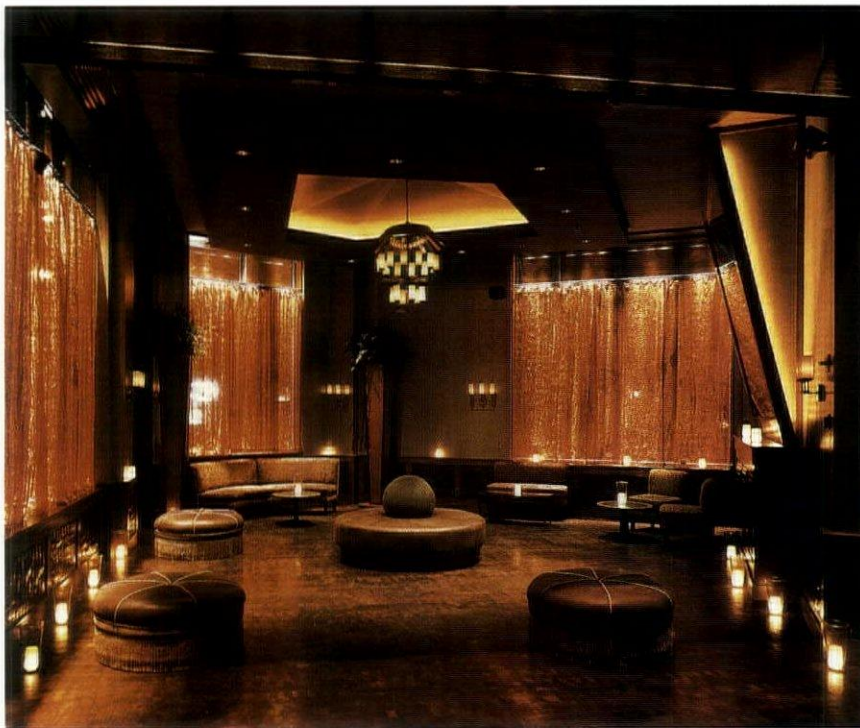
At the bottom of the ramp, one's eye is drawn to an open hearth illuminated by 66 paraffin lamps arranged in four horizontal rows. The warmth of the lamps is reinforced by the flame-like patterns projected onto the wall above and flanking custom sconces made of patterned glass and lamped with incandescent sources. The flame-effect is produced by four theatrical projectors, mounted on trusses 80 ft. above. "We positioned the projectors in locations easily accessible by a 6-ft. ladder from the room corridor on the eighth floor," said Gregory, "which makes the Tribeca a very maintainable hotel." Additional projectors used to differentiate areas of the atrium with patterns of light, as well as fixtures that provide general illumination are located on the trusses.

In the third corner, representing the combination of the two elements, "fire-water," the bar is lighted with a blend of warm and cool colors. MR16 track fixtures with dichroic glass infuse the skylight with blue, while quartz lamps accent bottles on



Decorative glass sconces flank an open hearth of 66 paraffin lamps, while above, flames of light add to the feeling of warmth. To create the effect, four projectors are mounted on skylight trusses accessible from the top floor. Because many of the projectors and fixtures lighting the atrium are mounted on the trusses, custom I-beam clamps with rotatable arms are used to position the lighting equipment in ideal locations, reduce fixture clutter and provide a clear view of the 100-sq.-ft. skylight. Illuminated from above by 20 1000W metal halide fixtures situated on an exterior tower, the frosted glass ceiling glows with a blue light in the evening.





Other highlights of the lighting design include a 20-lamp chandelier and six wall sconces that light the private dining room located beyond the bar. Wired to a 18-channel 24V flicker generator, the fixtures appear to be illuminated with candlelight. Silk organza curtains, which preserve the intimacy of the space and continue along the windows throughout the reception and lobby areas, are lit with AR70 lamps recessed in a pocket above.

shelves set against a backdrop of tinted glass. Fluorescent strips light the shelves from below and the backlit backdrop takes on the color of scotch. In the countertop of both the main bar and freestanding bar, a centered stripe glows with neon light.

BLUE SKY

The verticality of the atrium is visually amplified by glowing columns constructed of I-beams fronted by fabric and fiberglass panels. Backlit with PAR20 lamps in custom steel-mesh fixtures, the panels appear as continuous beams streaking upward to the skylit ceiling. "The blue skylight is kind of the pay-off when you walk into the space," said Gregory. During the day, natural light penetrates the frosted glass to illuminate the open space. At night, 20 1000W metal halide fixtures, mounted above an exterior tower and controlled on an astronomic timeclock, transform the ceiling into a cobalt-blue sky. "Adding that blue light was really an inspiration on Paul's part," commented Bogdanow, "because a skylight is like a black hole at night."

Because each floor opens onto the atrium, ceiling coffers in the room corridors are visible from the ground floor. Focus also utilizes them to further dramatize the atrium's upward soar. "When we realized that the ceilings were immediately noticeable from the lobby, we decided to light all of those surface areas," said Gregory. "The easiest way seemed to be with a simple fluorescent fixture on either end, which also allowed us to put some color on the ceiling." Lining the edges of each coffer, the linear fluorescent fixtures are fitted with color sleeves that range in shade from deep amber for the lower floors to light gold for the higher levels and as a result, intensify the sense of vertical distance. To provide visual interest and according to Bogdanow, "confuse you on the fact that you're in a low-ceiling corridor," the coffers are also punctuated at their center by MR16 accent lights shielded with perforated acrylic panels. Gregory commented, "The MR16 lamps shoot light down onto the corridor floor and provide a little white sparkle."

Access to the rooms is via glass-enclosed elevators. Inside,

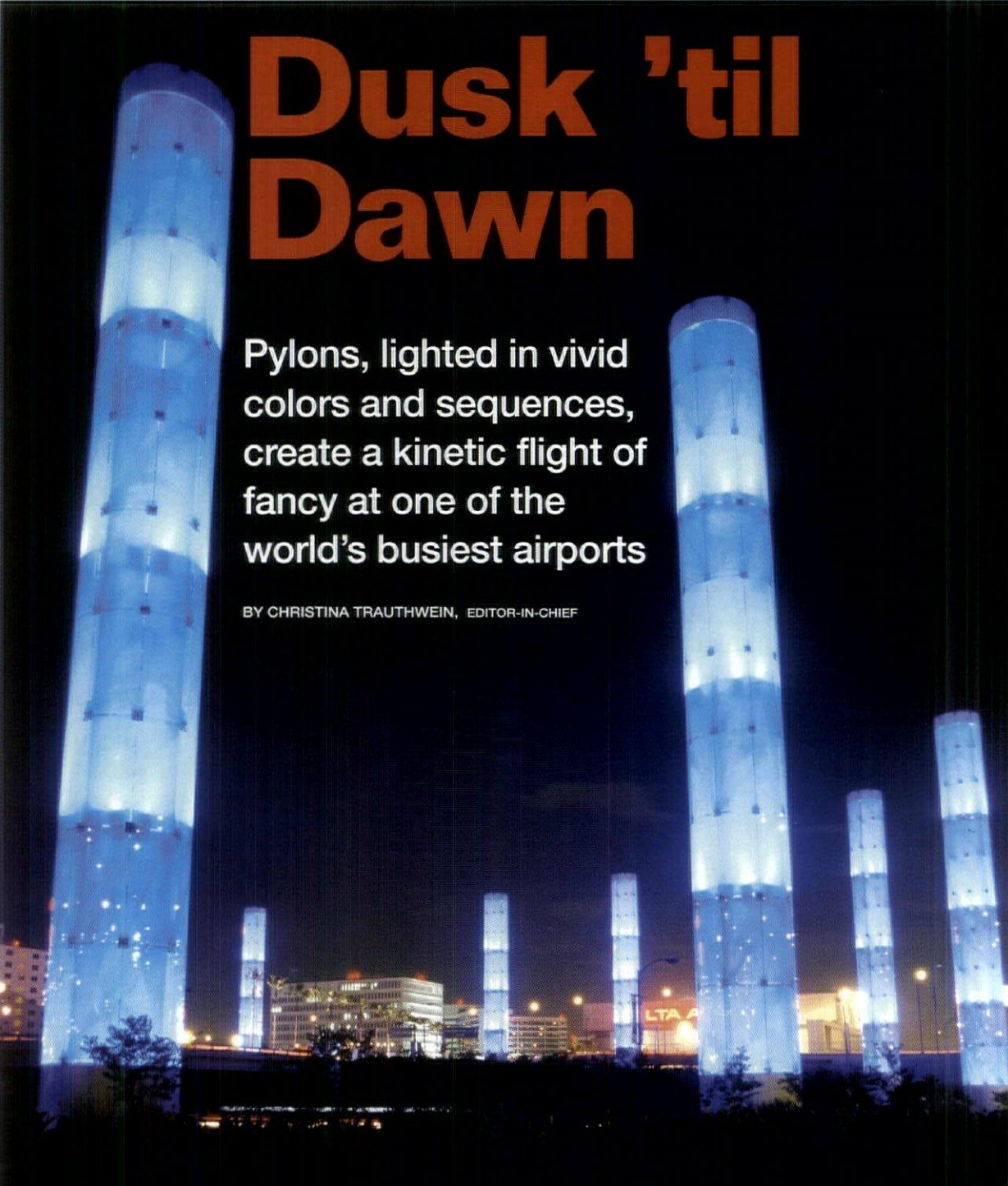
clusters of ship's prisms, once used to light lower decks before electricity was available, adorn the ceiling and are lit by a single A-lamp. The prisms also serve as jewel caps on newel posts throughout the hotel.

"The whole project included an incredible number of special little details," said designer Sepp Spenlinhauer. "There's hundreds of little views." The repetition of details fosters a continuity from area to area, while the multitude of "views" contributes to the overall feeling of intimacy and ease by carving out pockets of private space. Allowing separate control of the individual lighting effects responds to the need for maximum flexibility in the public spaces, which function as cafe, bar, lounge and lobby. "The control system and the programming of the dimming became very important," noted Bogdanow, "because the public spaces have different zones, time settings and scenes—the light has to be changeable."

Yet despite the multiplicity of its makeup, the hotel's allure is consistently and uniquely Tribeca. Gregory noted, "This was really a wonderful project because the lighting designer, architect and interior designer all worked together to create one feeling, one emotion." ■

DETAILS

PROJECT Tribeca Grand Hotel LOCATION New York City
 OWNER Hartz Mountain Industries ARCHITECT Bogdanow
 Partners; Tsao McKown LIGHTING DESIGNER Focus
 Lighting—Paul Gregory, principal designer; Brett Andersen,
 project designer; Sepp Spenlinhauer, designer
 PHOTOGRAPHER Paul Warchol LIGHTING MANUFACTURERS
 Juno Lighting; Edison Price; NuLux; Atlantic; RSA; Lumiere;
 B-K Lighting; Litelab; Specialty Lighting; Belfer; Lucifer
 Lighting; A & L Lighting; PMC Fluorescent; ETC; Egoluce;
 Terzani; Flos; Originals 22; D'Lights; Limburg; George
 Kovacs; House of Troy; Holly Solar Enterprises; Magic
 Gadgets; Strand Controls



Dusk 'til Dawn

Pylons, lighted in vivid colors and sequences, create a kinetic flight of fancy at one of the world's busiest airports

BY CHRISTINA TRAUTHWEIN, EDITOR-IN-CHIEF

While visitors to Los Angeles International Airport, known more commonly to the 60+ million travelers who use it as LAX, may be in awe of the spectacular light display that welcomes them, it is the story behind the "attraction," or what is reportedly dubbed by locals as the Psychedelic Stonehenge, that is truly awesome. The project—illuminated towers that serve as guideposts to the airport's entrance, and which lighting designer Dawn Hollingsworth likens to "an exciting drive through a through a pinball machine"—is surely successful in its visual simplicity, but it's the complexity of the *process*, and the execution of the lighting solution, that are particularly meritorious.

The design concept for this LAX project—which opened in time for the 2000 Democratic National Convention—called for signature-style landscape lighting, a series of 15 110-ft.-tall towers forming a 560-ft.-diameter circle at the entrance to the airport and another 15 smaller towers stretching down Century Blvd. to create a gateway of light and animation that leads visitors to the destination. And while the master plan, which included performance specifications that outlined the scope of the job, provided the general idea for the enhancement project, it became the charge of the design-build team to bring the concept to reality and engineer all the details. And when it comes to details, there are more than a few.



Photos (opposite, left and below): ©Allan Toft

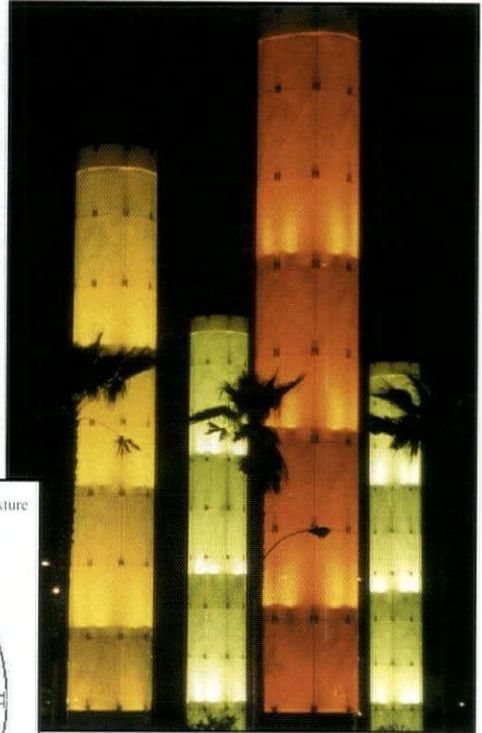
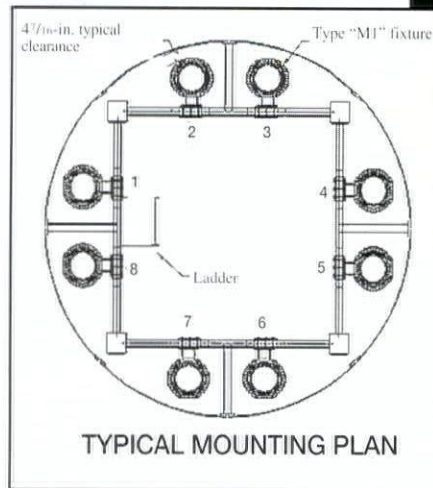


Photo: ©Tom Paiva



Tight space considerations made installation difficult, but the resulting solution is remarkable: The colorful pylons glow from within to make a strong visual statement at the airport.

Inherent in the design-build approach—a process growing in demand, and one new to the lighting designers of this project—is a tremendous amount of preliminary work. “We had never before been contracted into a design-build project,” said Hollingsworth, a principal of Moody Ravitz Hollingsworth Lighting Design Inc. (MRH) and Lighting Dimensions International’s recently named Architectural Lighting Designer of the Year (for her work on this project). “Prior to the bid being awarded, we worked tirelessly to develop basic layouts and concepts, an equipment list and a budget. There was just an overwhelming amount of time and effort put into a solution before it was even ours to design.”

“Surprisingly, with the scale and size of the project, it was incredible we were actually able to get the volume of equipment that we have on this,” said Hollingsworth. “It’s the largest automated lighting project in the world at this time.” In fact, there are more than 700 fixtures used—and of an “intelligent” type. “We’re talking Olympic-size proportions, literally,” noted Hollingsworth. “In terms of volume and automated gear, it’s what the 2000 Games used for the opening and closing ceremonies.” And that was only temporary, lasting 17 days. This is permanent. “Not to mention, of course, that we had to ‘talk’ to fixtures that are a mile away from the control station,” Hollingsworth added. And she’s serious. One literally has to drive to the control station and then get back in the car to drive to the first pylon. Talk about an overwhelming scale.

MEETING THE CHALLENGE

Okay, so all the towers were to be internally illuminated and capable of changing color remotely. Sounds like a simple task, right? After all, if you design one, you’ve designed them all, or so thought the lighting designers at MRH. Instead, this project turned out to be “the biggest challenge of my career,” said Hollingsworth, “and often times, a seemingly endless process.” An overriding factor that made this project a particularly tough one can be summed up in a word: constraints ... in working with the structural elements, which, by the way had to deal with three earthquake faults that happen to intersect at that area; in trying to fit all the required equipment in the towers, whose size had already been determined; and in getting the conduit over the overpasses and around traffic. Just to name a few things. “It was truly a phenomenal undertaking and what I learned on this project was amazing insofar as the execution of a job,” explained Hollingsworth. “Each pylon had to be studied independently. Lighting placement was driven by the steel placement, structural concerns and accessibility. Computer renderings and mockups had to be built in order to completely understand the scale in which we were working.”

In order to meet the demands of changing color and even distribution across the glass with no structural shadows, fluorescent, cold cathode, neon and even LED sources were thoroughly researched. The conclusion was to use architectural color changing fixtures for their compact size and limited power requirements. “As a matter of fact, our solution uses

about 66-percent less energy than any other," noted Hollingsworth. "You look at the maintenance tradeoff (for lamp life, which ranges from 2,000-9,000 hours) versus the energy consumption, and from an energy standpoint, it's really worth it."

TOWER POWER—SEPULVEDA PYLONS

Designing the Sepulveda Blvd. pylons, which are arranged in a circle around the intersection, required extensive research and mockups. The challenge was to evenly light the towers of frosted glass with no structure or fixture shadows from the inside. After the structural requirements for wind loading and seismic were engineered, the first job was to translate the steel structure and glass into 3D with AutoCAD. This, according to Hollingsworth, would be the only way to verify fixture clearances.

Though each pylon measures 12 ft. in diameter, the actual working space within the steel structure is substantially smaller. "Once we had factored in electrical panels and panel clearances, ladder clearances and OSHA requirements, we were almost out of space," said MRH lighting designer Jeremy Windle.

Four rings of eight fixtures are installed in each pylon. Each fixture covers 45 degrees of glass, providing a total of 360 degrees of coverage. Maintenance platforms were added 5 ft. below each lighting position to allow for easier access for service and relamping.

"We had to design custom 3/8-in. steel mounting brackets to attach the fixtures to the existing steel frame," said Windle. With each fixture weighing more than 100 lbs., the brackets themselves had to be reviewed by the structural engineer.

Working with the electrical engineer, the power requirements for both fixture power and control were determined and a layout of switchgear was finalized for the base of each pylon. Since the pylon lighting is all fed from street lighting power, the fixtures operate at 277V. In order to operate the control electronics in each pylon, a step-down transfer provides 120V power to the electronics.

Power and control lines were run in opposite corners of the structure to avoid the possibility of interference. An isolated DMX feed controls eight lights at each level of the pylon. Adjacent fixtures on each face are addressed identically to cut the number of channels in half. Even with this measure, the 15 pylons use more than 2,000 channels of DMX.

FLIGHT PATTERN—CENTURY PYLONS

Eleven of the originally planned 15 glass towers are installed on Century Blvd. They line the median strip that stretches the distance from Sepulveda Blvd. to the freeway and grow in height from 25-60 ft., suggesting the flight path of an airborne plane. The median width, however—only about 8-9 ft.—limited the pylons to only 6 ft. in diameter, half the size of their Sepulveda counterparts. Said Hollingsworth, "This meant we had to find a second solution for these pylons because the equipment used on the larger towers wouldn't fit."

"Our initial 3D AutoCAD modeling showed that the interior of the structures was significantly smaller than even imagined," said Hollingsworth. "On our recommendation, a mockup of the structure was completed and the reality of what we were attempting set in." What the designers were faced with was the fact that the completed steel superstructure was hardly large enough for a ladder—resulting in a single pole ladder that runs up the middle of the tower for access—and certainly too small to

INSIDE INFO ...

What's actually in the towers and other useful facts

CENTURY BLVD. MEDIAN PYLONS

How many: 11 arranged along the boulevard for almost a mile

Height: 25-60 ft.

Diameter: 6 ft.

Materials: steel truss structure with translucent glass cladding

Glass thickness: 3/8 in. with protective film on inner face

Lighting equipment: In each tower—16-40 Altman Outdoor PAR CDM fixtures with Wybron Mariner CXI color changers and Philips 150W T6 MasterColor metal halide lamps (4000K)

GATEWAY PYLONS AT SEPULVEDA

How many: 15 forming a circle 560 ft. in diameter

Height: 88-110 ft.

Diameter: 12 ft.

Materials: steel truss structure with translucent glass cladding

Glass thickness: 3/8 in. with protective film on inner face

Lighting equipment: In each tower—32 Martin Professional Exterior 600 automated color-changing washlights with Philips 575W MSD 575 metal halide lamps (5600K)

GATEWAY SIGNAGE (L-A-X)

Height: 32 ft.

Lighting equipment: Kim Lighting AFL10 Architectural Floodlights with fixed hoods and various beam patterns with Philips 100W ED17 MasterColor metal halide lamps (3000K); Kim Lighting AFL20 Architectural Floodlights with fixed hood and spot distribution with Venture Lighting 250W ED28 Designer Color metal halide lamps (Blue Deluxe)

LANDSCAPING

Lighting equipment: Lumiere Coronado in-ground fixtures with Philips 70W PAR30 MasterColor metal halide lamps (4000K spot distribution); Hydrel 7000 Series exterior floodlights (tight spot distribution) with Philips 70W T6 MasterColor metal halide lamps (4000K)

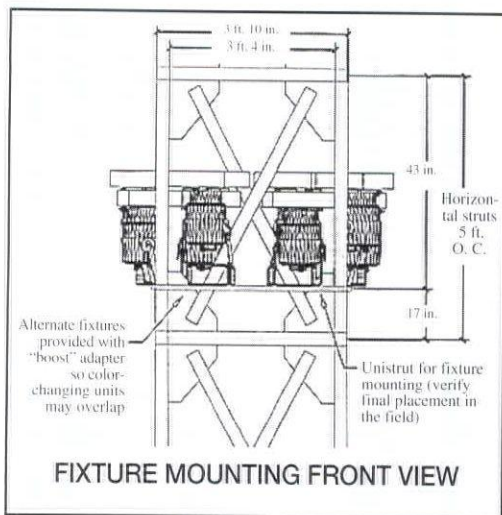
CONTROLS

Four synchronized units customized to include an astronomical timeclock with more than 2,000 channels running on six universes of DMX

Equipment: Martin Professional Proscenium DMX512 lighting playback controller; Candela Controls custom control device for additional DMX relays

contain all of the electrical gear required to power the fixtures and color changers.

"In order to fit the fixtures into the confines of the tower," said Hollingsworth, who noted that there is hardly 1 1/2 in. from the fixtures to the glass, "we were required to stagger the fixtures, also arranged in a ring of eight, with a 4-in. vertical



The pylons on Century Blvd. increase in height, suggesting “take off.” The particularly small dimensions of the structures challenged the lighting designers to come up with a second solution to this set of 11 towers.

offset to accommodate the steel structure and allow the color changers to overlap at the corners.” The PAR fixtures utilize metal halide sources and cannot be dimmed, so a “blackout” Mylar frame was added to the color scroll to “dim” the fixtures. DMX relay drivers were installed to switch the fixtures on and off from the playback controller.

All fixtures are powder-coated in a matte gray finish. The manufacturer’s original off-white finish created hot spots inside the tower when illuminated by the fixtures from below. Black fixtures were experimented with but they appeared to create dark patches by not reflecting any light at all. The structural steel and all components inside are also painted in the same matte gray finish.

“Due to the tight amount of space, it was especially hard to ensure there would be no shadowing,” said Hollingsworth. “We knew the only way to get the glass illuminated was to diffuse it and graze it because there just wasn’t enough room. And if we tried to shoot across and get any kind of distance we’d end up with too many internal shadows.” The lighting designers worked with the glass manufacturer to get the right amount of coating on the 3/8-in. clear glass: two films of diffusion plus a layer of safety film made it about 68-percent transmissive.

CONTROL CENTER

With the placement of the light fixtures completed, it was necessary to determine how, exactly, all of the lighting was going to be controlled. With such a large quantity of automated fixtures, the channel demands proved to be substantial.

Operating the system is a network of four PCs running the software. Three computers generate the six universes of DMX required, while a fourth acts as a master controller. Five universes of DMX512 control the fixtures in the Sepulveda pylons while a single sixth universe of DMX controls the fixtures on Century.

All of the DMX signals generated from the controllers are transmitted over fiber optics before they are converted back to conventional copper, optically isolated at the base of each pylon and distributed to the fixtures.

Additional DMX relays, controlled from a custom device,

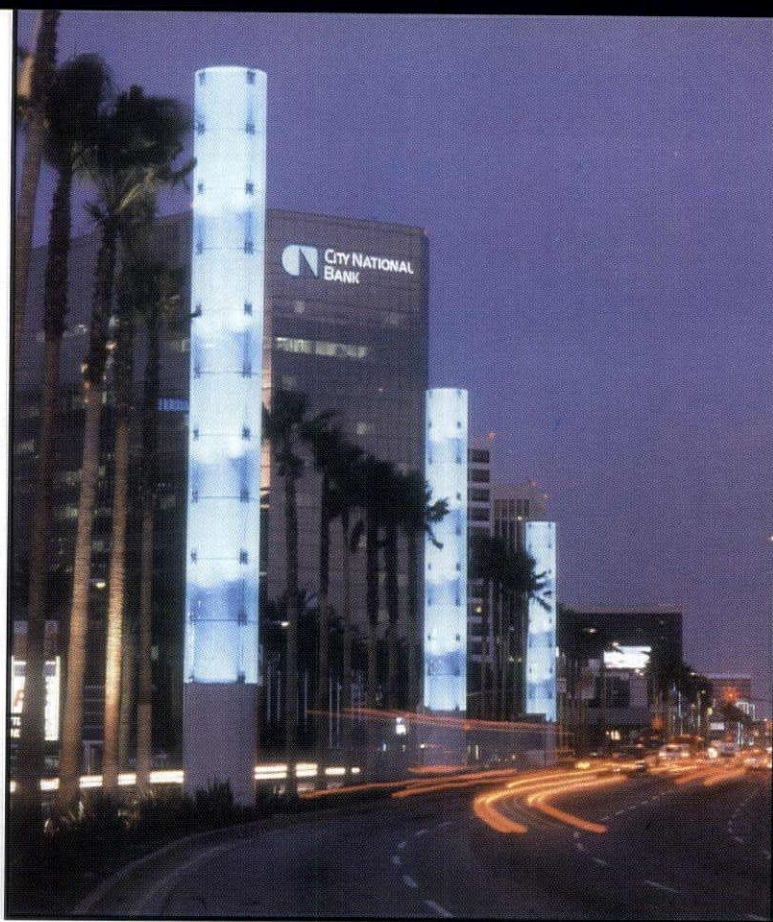


Photo: ©Tom Paiva

switch landscape lighting and the Century fixtures on and off without the need of an independent timeclock.

For initial programming of the system, a custom console with twin processors was used to generate the six universes of DMX needed. Once finished, the program was “snapshot” into the controllers.

“The most rewarding aspect of the project, when all is said and done, is to know that we overcame an enormous number of obstacles to make this happen,” said Hollingsworth. “We worked through technical challenges to know that the project has brightened up not only the area, but also the experience for the travelers to LAX, which can often be rather unpleasant. Hey, maybe the trip to the airport isn’t so bad after all.”

DETAILS

PROJECT LAX Gateway **OWNER** Los Angeles World Airports **LOCATION** Los Angeles International Airport, CA
PHOTOGRAPHER Tom Paiva; Allan Toft
LIGHTING MANUFACTURERS see “Inside Info” (opposite)

DESIGN TEAM

ARCHITECT Ted Tokio Tanaka Architects **LIGHTING** Lighting Design Alliance **ENGINEERING** Ove Arup & Partners (California) **LIGHTING ARTIST** Paul Tzanetopoulos

DESIGN-BUILD TEAM

ARCHITECT Nadel Architects **LIGHTING DESIGNER** Moody Ravitz Hollingsworth Lighting Design Inc.—Dawn Hollingsworth, LC; Jeremy Windle, LC; Erin Powell
ELECTRICAL ENGINEER Boyle Engineering—Irving Selden
ELECTRICAL CONTRACTOR Helix Electric **LIGHTING PROGRAMMER** Mark Pranzini **SYSTEM INTEGRATOR**

Carl Wake, Martin Professional

Northern Exposure

The poetic lighting of this Oklahoma City guest house pays tribute to a famous photographer and the land that he loved

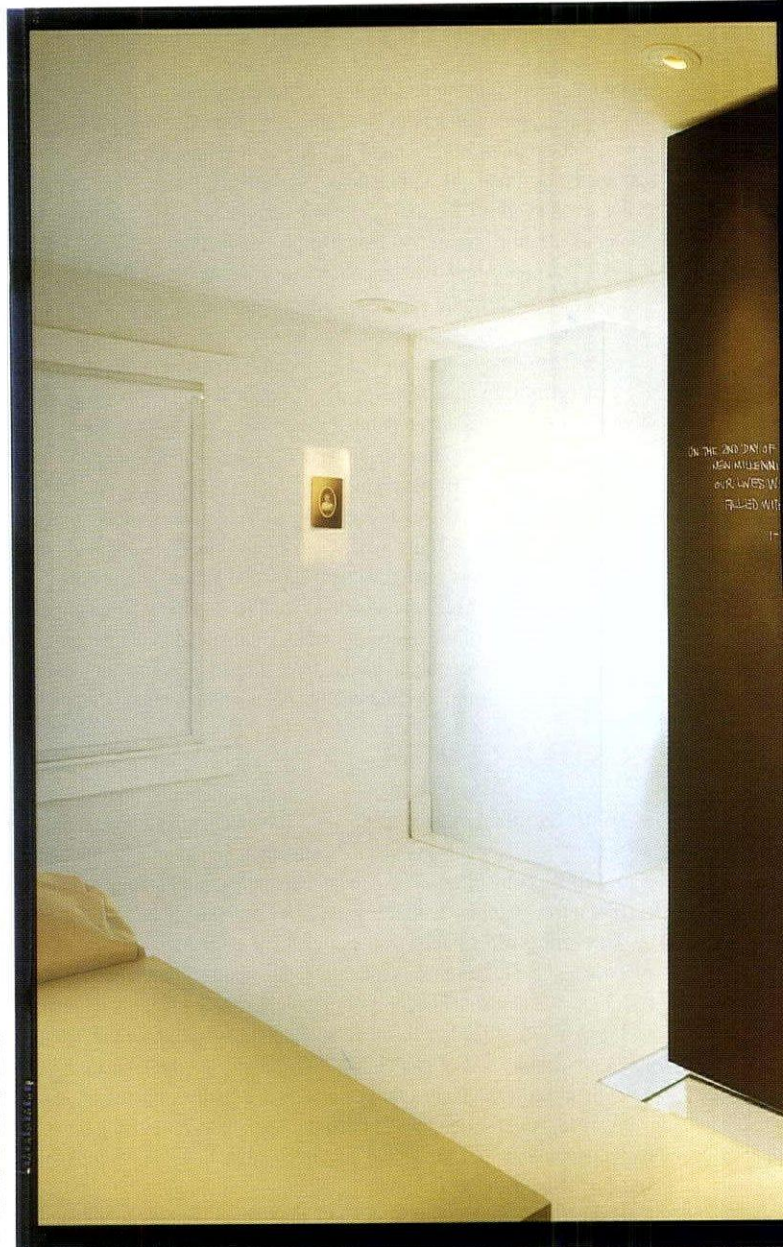
BY JEAN GORMAN, CONTRIBUTING EDITOR

“On the second day of the new millennium, our days were filled with light.”

That was how recent visitors described their experience while staying at the guest house/retreat of a longtime resident of Oklahoma City. The owner, who is the granddaughter of North Losey, one of Oklahoma's best-known documentary photographers, asks each of her guests to record their thoughts and feelings about the place in chalk inscriptions on a slate panel on one side of a column that pierces through the center of the house. Later, she transcribes their thoughts into a diary. Like the photographs Losey made at the turn of the 19th century, these inscriptions capture elusive impressions of the ephemeral spirit of Oklahoma, which had been Native American territory just before the photographer moved there in 1889 to participate in one of five government-sponsored land runs in the region that gave white settlers the chance to rush in and stake their claim. The concisely expressed sentiments also speak volumes on architect Rand Elliott's ability to gracefully interpret the spirit of the place in his redesign of the guest house, which not only brings the interiors into the present but establishes a firm connection between the house and its historical context.

In homage to the late photographer, Elliott chose light as the essential medium for his artistic expression, using it to synthesize many layers of meaning into 400 sq. ft. of space. "Light presented a way to establish a connection between this space and North Losey as an individual because light is essential to create a photograph," said Elliott. His poetic use of light also pays respects to the sacred values of the Native Americans who have populated the area for centuries. "I always connect my projects to place," said Elliott.

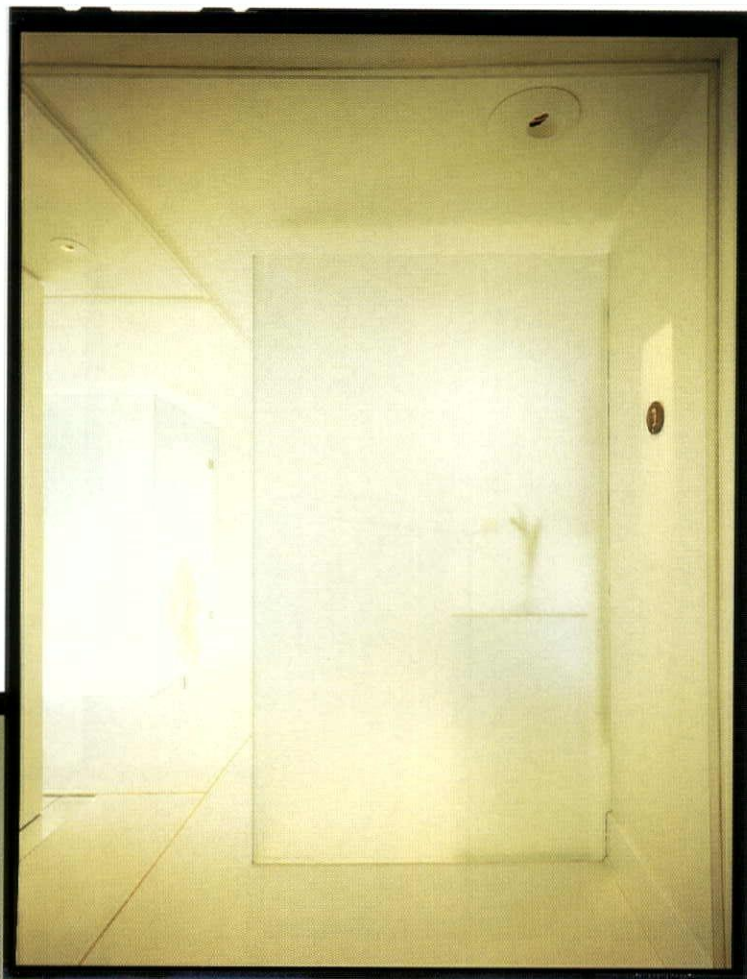
A flue stack covered with plaster and a slate panel remains from the original structure. Piercing through both floors of the structure, it is accentuated with light from above with 50W recessed low-voltage sources as the element "that roots the house to the ground." It is illuminated from below through a glass surround, which allows guests to peer through to the garage below. Guests inscribe thoughts about their visit on the slate panel in chalk.



An emphasis on light ties the guest quarters to territorial photographer North Losey, who moved there in 1889, and to the heritage of the Native Americans, who have occupied the surrounding area for centuries. A view into the room shows two of four light vessels containing functional areas of the room.

These enclose the lavatory and shower, two others surround the toilet and closet. Positioned in front of windows, the vessels glow with sunlight during the day. At night, ceiling-recessed halogen floods fill them with light that reflects off the white-painted floor. A projector lamp highlights a sepia-tone photograph taken by North Losey, again linking the idea of light to the spirit of the photographer.

Photos: ©Hedrich Blessing



The guest house, which the owner calls North in honor of her grandfather, is a two-story, freestanding structure situated on the property 50 ft. from the main house. Elliott gutted the entire structure, creating a garage on the lower level and an airy, one-room living space on the second. The second-level guest quarters are punctuated with a series of compact, floor-to-ceiling, glass-enclosed containers, or “vessels” as the architect refers to them, which define four distinct functional zones—a closet, a toilet area, a shower and a lavatory. The vessels, which the architect strategically positioned in front of windows on each of the four sides of the almost-square-shaped space, also glow with ethereal light. “These light vessels suggest images being formed on a piece of film—they provide a way to translate architecturally the idea of light and its relationship to photography,” Elliott explained.

LIGHT OF DAY

During the day, the vessels glow with the natural light of the sun. Filtered through the glass panels, this light changes depending on the time of day as the sun follows its natural arc from east to west, permeating the eastern vessel with clear morning light, the southern vessel with the hot afternoon noon light, the northern vessel with muted echoes of this light and the western vessel with the waning light of the setting sun. “The character of the light actually allows you to tell what time it is,” said Elliott. The quality of the light also shifts with the weather, entering sharply on a clear day, mistily on a cloudy one. Each new season also brings a transformation in the appearance of the light, offering yet more opportunities for the sensitive observer to witness the variations in mood of this singular location. At night,



In the lavatory, the architect covered the back of the hinged mirror with holographic film. When the mirror is left slightly open at sunset, the film breaks the sunlight into its spectral colors, which appear like a rainbow briefly on the nearby wall each evening before slipping away.

each vessel glows with the light of a single ceiling-recessed 75W halogen flood lamp, which shoots downward toward the white-painted floor and bounces back up to fill the containers with diffused illumination.

Elliott amplified the connection between light and photography by using ceiling-recessed projector fixtures fitted with 100W halogen lamps and adjustable shutters to accentuate four different photographs taken by North Losey. "Each photo is highlighted with a different shape of light in different sizes, depending on the shape and size of the photo," Elliott said. "I wanted to create a play of light that relates not only to the photo but to the idea of taking a photo."

FOUR PLAY

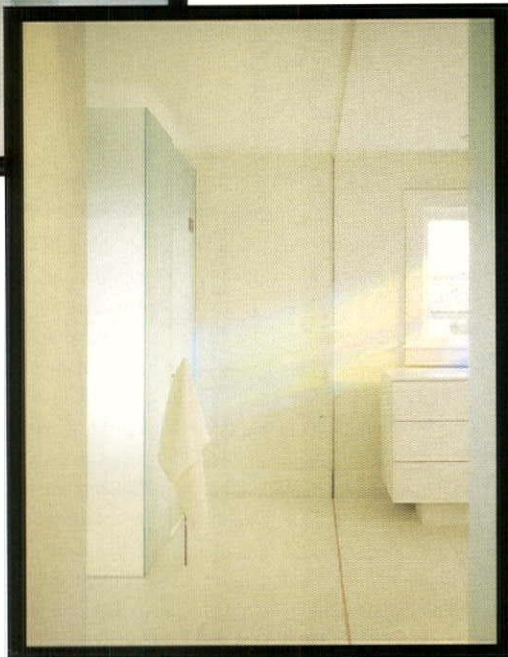
The placement of the vessels on each of the four walls and the emphasis on the four photographs also give the space its connection to the Native American of the region. "The number four plays an important role in all things that derive from Native American tradition," Elliott noted. "It is sacred in many ways, as it relates to the four seasons, the four cardinal directions and the four sacred colors—red, yellow, black and white." In this respect, the seasonal

and directional influences of the light also tie the spirit of the place to the history of the land on which the house sits.

The column in the center of the space is the only interior vestige of the original structure, which has landmark status. It, too, is celebrated with light. "It is the original flue stack," said Elliott, "and it literally penetrates the structure through both floors and roots it to the ground." To highlight this connection to its origins and to the land, Elliott re-applied white plaster to the column, added slate on one, then illuminated all four sides from above with four recessed low-voltage 50W MR16 wall-washers. He also surrounded the base of the column with a slit of glass that allows the visitor to look through to the garage below and provides an opening for the uplight of four 50W recessed wall-washer lamps below to illuminate the base.

WHITE ROOM

Elliott covered the windows that were not surrounded with glass enclosures with white blackout shades and painted the walls of the entire room white, which, in effect, dematerializes the physical aspects of the space and allows the blocks of light to take center stage as the formal elements. "If you were in this space and squinted your eyes, the boundaries of the space would disappear," said Elliott. "All you would sense is glowing vessels of light, you'd feel lost in a sea of light." The *piece de resistance* in this architectural ode to light is a fleeting rainbow that drifts across the western wall as the sun sets. The rainbow can be seen when the mirror above the dressing table is slightly opened at the end of the day. By placing a piece of holographic film on the back of a mirror that covers this single window not surrounded by a vessel, the architect allowed the light of the early evening sun to be refracted into its spectrum and reflected on the wall for 10 to 20 minutes before retiring into



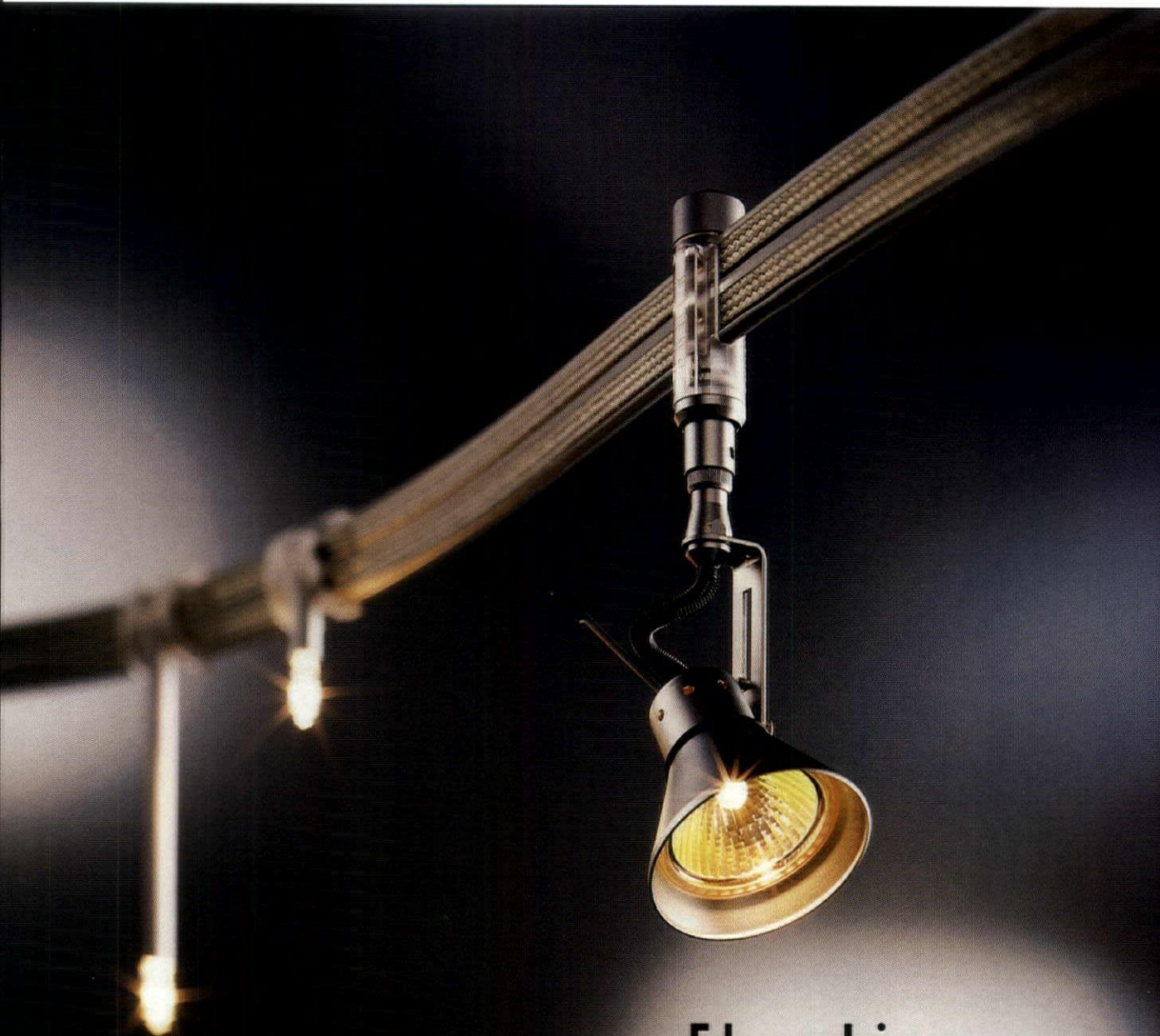
the night. "It's the most spectacular celebration of light, arriving to reveal all of its colors, then slipping away like a ghost," said Elliott, noting that Losey knew that the low winter sun in this area contains a rainbow that quietly comes and goes in the late afternoon. "He knew the Oklahoma light. He would understand." ■

DETAILS

PROJECT North Residence LOCATION Oklahoma City, OK
 ARCHITECT/LIGHTING DESIGNER Elliott + Associates—
 Rand Elliott, FAIA; Michael Hoffner, AIA PHOTOGRAPHER
 Hedrich Blessing LIGHTING MANUFACTURERS Elco;
 Lightolier; Halo; Metalux; Lithonia

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EFFECTIVE USE OF THE CRI



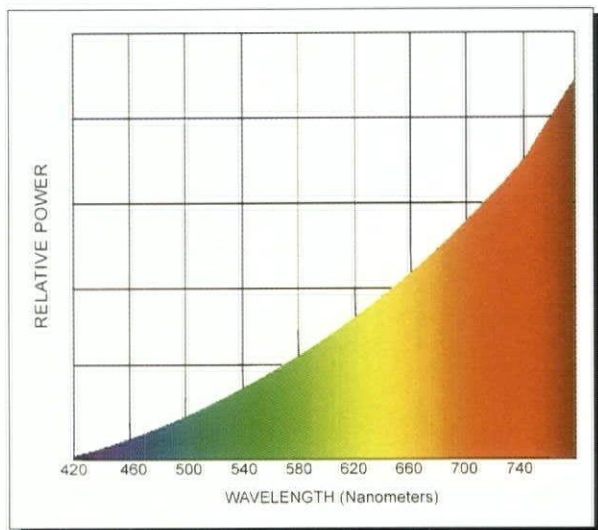
BY RUTH BEALS

When designers use the term “color rendering” in reference to lamps, they usually are talking about how the lamp’s color spectrum will affect the color of the materials it illuminates. Along with other color-rendering qualifying indicators, the Color Rendering Index (CRI) should be considered during the selection and specification of lamps. CRI is the only color-rendering rating published in lamp manufacturers’ product literature. Knowing what it means and how it can be used with other lamp characteristics can assist designers in making effective lamp choices.

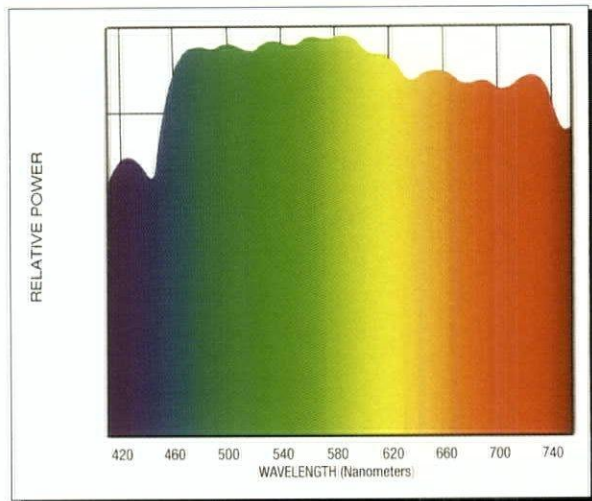
The ultimate color appearance of any object depends on the illuminating light source’s spectrum and the amount of light emitted, the object’s ability to reflect light and the color vision of the viewer. The most effective lamp selection comes from an understanding of a lamp’s attributes—CRI rating, color temperature, Spectral Power Distribution (SPD), lumens—as well as a visual examination of materials as illuminated by the lamp. This article provides a background of CRI, as well as a recommended design process for determining a lamp’s color-rendering capabilities.

SPECTRUM DETERMINES COLOR

The color appearance of any object is strongly influenced by the illuminating lamp’s spectrum and color temperature. The spectrum has differing energies or wavelengths that, when reflected or transmitted by materials, are interpreted by our eyes and brain as colors. When these energies are absorbed by materials, they become heat. A lamp’s spectrum, as indicated by its SPD, will ultimately determine the source’s rendering capability. A lamp’s color temperature indicates its own color appearance (yellow, white, blue-white) and usually the color palette in which it



The blackbody radiator, when heated to 2700K, has a SPD similar to the incandescent lamp. While it is not a continuous spectrum, the energies in the blues and purples are not as strong as in the yellows and reds. This reference source is used for lamps with color temperatures up to 5000K.



The SPD of daylight shows that daylight has a continuous spectrum with high energies in all colors. Daylight references are used for lamps with a color temperature higher than 5000K.

has the most energy. Color temperature determines if the light source is regarded as warm, mid-range or cool.

CRI TEST PROCEDURES

CRI is a complex measurement of the color-rendering capability of a lamp, only allowing comparisons between lamps with the same or very similar color temperatures. It should not be used to compare warm lamps against cool lamps, or either against mid-range lamps.

The *General CRI*, commonly published in lamp manufacturers’ literature as CRI, is a rating of the average amount of colorimetric shift in eight test colors illuminated by the lamp, as measured against a reference source of a matching color temperature. A rating of 80 or above indicates little shift. The lower the rating, the greater the shift. Differences in five points or fewer may be difficult for people to discern. The General CRI does not indicate the shift in any particular color, the direction of the shift nor the amount of the shift. The *Special CRI* consists of individual ratings of the shift in the eight test colors and an additional six test colors, indicating the amount of shift for each test color, not the direction. The first eight test colors are moderately saturated versions of a red, yellow, blue and a variety of greens and purples. Together they represent how a broad range of colors would react under a lamp’s spectrum. The next four colors, nine through 12, are the saturated versions of red, yellow, green and blue. Color 13 is a light yellowish pink, also called “Caucasian complexion” and 14, a moderate olive green called, “leaf green.”

For either index, color temperature of the test lamp must be evaluated first. For incandescent, the color temperature is considered a true value and for a gaseous discharge lamp, the correlated color temperature (CCT), considered an approximate value, is determined. A reference source having a matching color temperature to that of the lamp is then

chosen. When the lamp's color temperature or CCT is 5000K or less, the reference source is a blackbody radiator; when it's over 5000K, the reference source is a phase of daylight. To understand the concept of a blackbody radiator, imagine a piece of metal being heated and turning from black to yellow, orange, red, white and then to blue-white, with the temperature being measured in Kelvin (K) degrees rather than Fahrenheit.

The chromaticities, or color measurements, of the 14 test colors are established under the reference sources, indicating the exact color energy being reflected to our eyes from the test color. The colors are then measured under the test lamp, and this set of chromaticity diagrams is examined against the original for any colorimetric shifts. The Special CRI is determined for each color; the General CRI is then calculated.

The designated reference sources—blackbody radiator and daylight—are calculated from standard values that describe their spectral energy. These sources have a specific color spectrum and because they serve as references, are automatically considered to have "excellent" color-rendering properties. However, "excellent" here is a misleading description. While both references have a continuous spectrum, or energy in each wavelength, and have a 100 CRI (the highest rating), the blackbody's spectrum, like that of an incandescent lamp, has an uneven distribution of wavelength energy. It is much weaker in the blue-violet and blue energies, which makes its use as a reference source and its 100 CRI rating questionable. Daylight's continuous spectrum is much more even in its wavelength energies. While often considered a cool source, it is the accepted standard for precise color matching.

OTHER INDICES

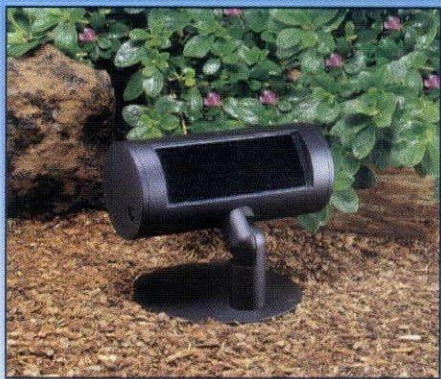
Other color rendering indices have not been widely accepted. The Color-Preference Index is similar to CRI, yet it uses more saturated colors for the test samples. Consequently, the term "preference" is problematic, because the choice of saturated test colors implies that

History of the CRI

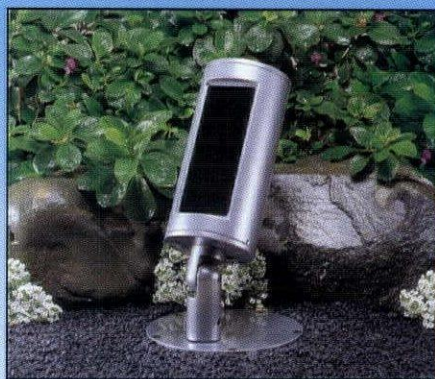
The history of the development of the CRI began in 1670 when Isaac Newton identified color wavelengths in light by refracting them through a prism. Great strides in the understanding of color vision and the development of color measurement flourished in the 19th century through the work of Palmer, Young, Maxwell, Helmholtz and Hertz. In the early 1930s, advanced color measurement equipment evolved and the blackbody radiator was conceived. Rapid development and use of new fluorescent and HID lamps in the 1940s and '50s drove the need for some measure of a lamp's color-rendering ability. At the same time, industry realized the importance of accurate color rendering in determining quality characteristics of food, fibers and dyestuffs, gemstones, printed materials and other products. Merchandisers became aware of the relationship of color attraction to sales.

Committees within the International Commission on Illumination (CIE) and the Illuminating Engineering Society of North America (IESNA) were formed in the 1950s and developed the CRI that was eventually introduced in 1964. Dorothy Nickerson, with the Agricultural Marketing Service of the U.S. Dept. of Agriculture, published the seminal paper on CRI in 1960 that discussed the need for CRI, the standards established and the progress of these committees. The CIE is the reference source for definitive information and publishes updates to the original CRI procedures.

people prefer rich, saturated colors. The Color Rendering Vectors (CRV) system tests 215 colors and indicates changes in the quantity or direction of shift through color comparison sample cards and a vector diagram. Check with lamp manufacturers for their use of these




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systems. The Lighting Research Center at Rensselaer Polytechnic Institute and the ASTM E12.11 subcommittee are examining other systems that analyze an object's color appearance under lamps. For several years, various organizations and scientists have been looking at alternatives and revisions to CRI. However, at present, CRI is still the simplest way to provide information on the color-rendering properties of light sources.

A DESIGN PROCESS

When selecting lamps for a project, color rendition can be an important parameter to consider. The specification procedure begins during

the programming phase of the design process. The ninth edition of the *IESNA Lighting Handbook* recommends examination of the following categories: human needs, the architecture and project economics and environment. Examples of color considerations within these areas are listed in Figure A (see page 37).

The programming needs and criteria appropriate to the general design should be considered and integrated into the design in the schematic stage, along with consideration for the:

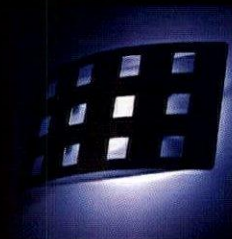
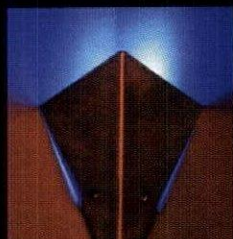
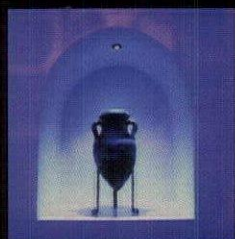
- illuminance needed for good color rendering
- warm, mid-range and cool palettes within spaces

- first impressions of a space
- placement of materials that may cause simultaneous contrast or other illusions affecting color appearance
- effect of shade and shadows
- subsequent similarity from one space to another in warm to cool palettes
- areas illuminated by combinations of light sources—lamps and daylight
- impressions caused by the color of light sources
- angle of materials in relationship to the light source
- length of time adaptation may take
- code requirements
- appearance of materials and/or space under comparative lamps in light boxes and in full-scale mockups
- the appearance of a space through computer-generated renderings

During the design development phase, specific lamps should be reviewed, inspected and tested to determine if they deliver the color-rendering properties desired. To select the lamp with the most appropriate color-rendering capabilities, these lamp characteristics should be concurrently considered: CRI, color temperature, SPD, light output and direction. CRI provides a basis on how well the lamp renders color and the color temperature provides an indication of the appropriate palette for which the lamp should be used: warm, mid-range or cool. The SPD supplies a picture of the lamp's spectral energy and can be evaluated for spectral strengths and weaknesses. Determination of the required lumen output and direction of the beam ensures that enough light reaches the object to cause sufficient illuminance.

Incandescent lamps, including halogens, with color temperatures of 2700K to 3000K and CRIs well above 90, are often used to enhance warm palettes. Although filament light sources in general are rated as "excellent" in color rendering, standard incandescent types can distort cooler colors, especially at low light levels. Fluorescent lamps are available in a large variety of color temperatures, ranging from 2700K to 6500K, and CRIs of 90 to the low 50s. For example, compact fluorescent lamps come in 2700K and 3000K for warm palettes, 3500K for mid-range or mixed palettes and 4100K for cool palettes—all with CRIs of 80 to 85. Linear fluorescent lamps, such as T8 and T5 types, are the sources of choice today in retail and commercial installations where color rendition is important. HID lamps have a range of color temperatures from 1800K to 6400K and CRIs from 85 to 10. With this wide assortment of lamps to choose from, designers can specify those with the appropriate CRI, color temperature, SPD, lumen output and shape to heighten the color of finishes, skin tones,

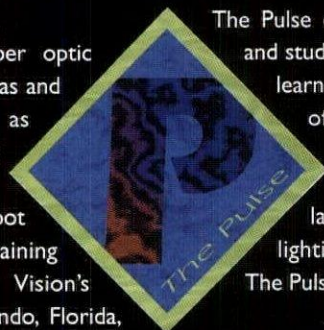
(Continued on page 37)



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The A

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d2.5" h5.5" 160"
35w/12v
Diffuser: White
Metal: Chrome/
Satin Chrome



Mondo Magnet

d 2" h6"
50w/12v
Metal: Chrome/Satin Chrome



Polo Magnet

d1.5" h7"
50w/12v
Metal: Chrome/Satin Chrome



Beta Magnet

h7.5"
50w/12v
Metal: Chrome/Satin Chrome



Malou Magnet

d2.5" h5.5"
35w/12v
Diffuser: White
Metal: Chrome/Satin Chrome

d1.5" h7" 160"
20w/12v MR16
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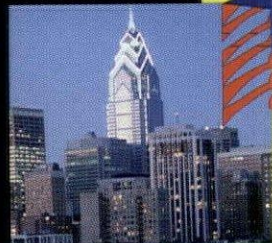
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Venture Lighting

Vince Lostumbo
Advance Transformer

Bill Siffard
RENOVA

(Continued from page 34)

artwork and other materials and products.

While the lamp is the primary source, the fixture is considered the secondary source. Visually examine and test the size of the opening, finishes and louvers, lenses and/or shades to ensure that the lamp's color-rendering qualities are not compromised. Economic and environmental considerations should be completed at this time.

The lamps are specified in the design documentation phase. Designers must include exact information on each specific lamp needed for the project. Do not allow any substitutions. Proper budgeting in this and all phases helps your client to prepare for the purchase of the specified lighting equipment.

The contract administration phase is the time to visually inspect and confirm use of specified products and their performance. The designer should develop client specification books with information on replacement purchases and maintenance procedures. Ideally, a post-occupancy evaluation is performed after the project is operational to ascertain the achievement of design goals and the satisfaction of the users.

SEEING IS BELIEVING

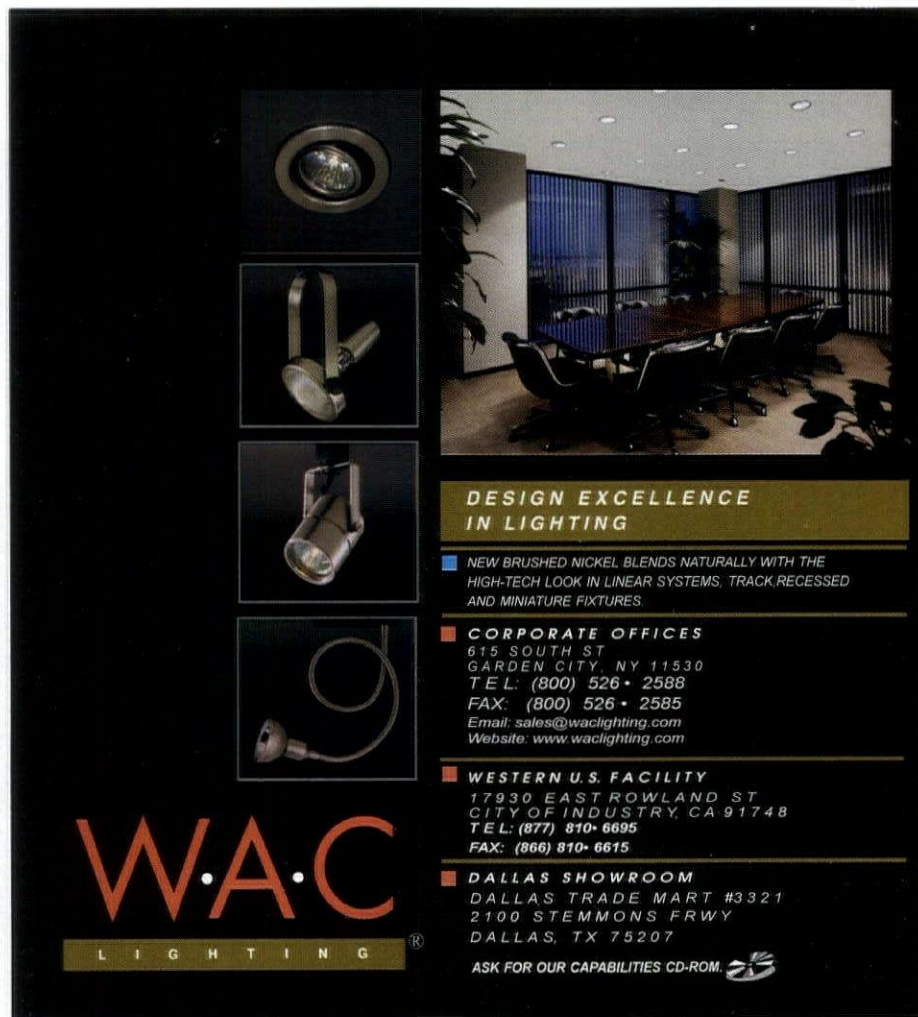
Often the most difficult aspect of the designer's job is to educate their clients on the importance of quality lighting and on how lamps affect color rendering. While many people maintain that they dislike fluorescent lighting because of its color rendering, they may not be aware of the advances in lamp technology over the past two decades. Educate clients and test lamps by installing lighting demonstration areas in your design offices or as a mockup on their site. A variety of lamp and fixtures can be integrated into resource rooms, conference rooms or corridors for both presentation and experimentation. For most people, seeing is believing. The easiest way to convince a client of how a lamp renders color is to show them. When they see superior color representation, they will want to budget for quality color rendering and for you to specify the best lamps for their projects. ■

Turn the page to take the quiz.

Ruth Beals, Ringling School of Art and Design, was the 2000 Edison Price Fellow, granted by the Nuckolls Fund for Lighting Education. She was sponsored to research the CRI by Pamela Horner, IES, manager of GL Education at Osram Sylvania's Lightpoint educational center in Danvers, MA.


Figure A. Color Considerations for Quality Lighting

Human Needs	
Visibility	Strong color contrast supports visibility.
Visible Performance for Task Performance	Color contrast is the basis of all object identification. Tasks may require color discrimination, such as evaluating digitally originated printed materials, selecting objects based on color and identifying objects' quality differences based on color.
Social Communication	Complimentary rendering of skin tones is desired.
Mood and Atmosphere	Accurate color impressions of objects and surroundings may be desired or unexpected color impression may be the goal.
Health, Safety and Well-being	Some color usage can induce negative or ill feelings. Specific colors are associated with safety commands.
Aesthetic Judgement	Color impressions are needed to complete some aesthetic judgements.
Architecture	
Form	Angle, amount of light and the strategic placement of color light can cause forms or shapes to be more or less pronounced.
Composition	Surfaces can reflect color spectra onto other surfaces or objects, altering color impressions.
Style	Accurate color impressions are needed for style appreciation.
Economics & Environment	
Installation	Color appearance can be affected by fixture reflectors and lenses and by ballast output.
Maintenance	Color rendering can be negatively affected by lamp blackening.
Operation	Dimming can affect lamp rendering.
Energy	Lamps with spectra that support visibility can use less energy in their operation.



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NCQLP QUIZ

- 1. The CRI rating can be used to help compare color rendering properties of lamps having the same:**
 - A. Size and shape
 - B. Color temperature or correlated color temperature
 - C. Light source
 - D. Wattage
- 2. A wide variety of color temperatures and CRIs is available in:**
 - A. Incandescent lamps
 - B. Daylight
 - C. Fluorescent and HID lamps
 - D. Fluorescent and incandescent lamps
- 3. The General CRI does not indicate:**
 - A. The amount of shift in a color
 - B. The direction of shift in a color
 - C. Which colors shift
 - D. All of the above
- 4. The reference source used to determine the CRI for a 3500K lamp is:**
 - A. Daylight at noon
 - B. The blackbody radiator heated to the same color temperature
 - C. A halogen lamp
 - D. Daylight at the same color temperature
- 5. The commonly publicized CRI rating is:**
 - A. An average of the shift in eight moderately saturated test colors
 - B. An average of the shift in primary and secondary colors
 - C. An average of the shift in 14 highly saturated test
 - D. An average of the shift in one specific color

Responses should be addressed to Christina Trauthwein, Architectural Lighting Magazine, One Penn Plaza, New York, NY 10119; faxed to 212-279-3955 or emailed to ctrauthwein@billcom.com. All questions must receive correct responses to obtain 0.5 LEU credit.

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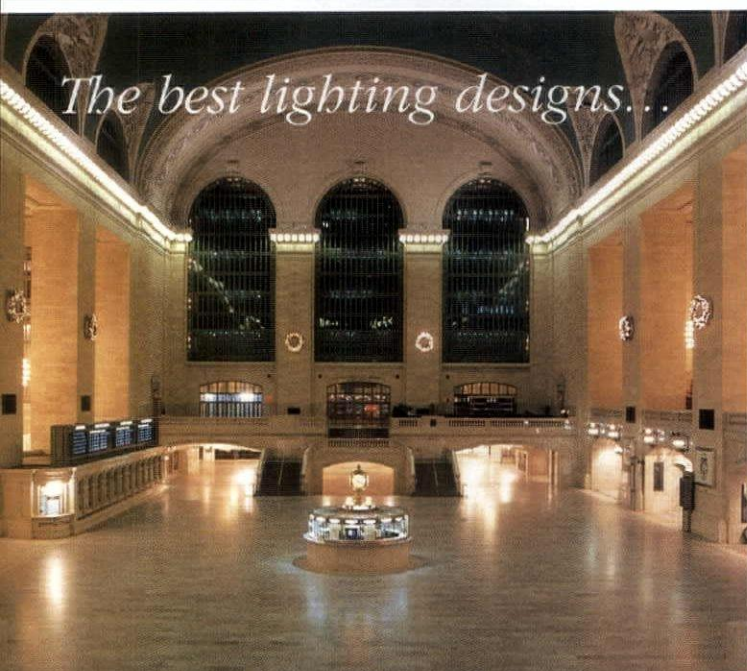


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HEAVY METAL: INDUSTRIAL CHIC

BY DAVID HOUGHTON, PE, CONTRIBUTING EDITOR

A few years ago, Prudential Lighting designer Jon Steele was having lunch with Southern California architect Ray Varella and the idea came up to make lighting fixtures out of unpainted metal to go with the new, raw office spaces that were then becoming popular. "People laughed at the idea, but we sold a bunch of them," recalled Steele. "I think designers were tired of the same old painted finishes." Prudential now offers most of their architectural fixtures with the galvanized finish and even uses copper and stainless steel on request.

Why is the industrial look hot now? Specifiers and designers point to the new generation of Internet, electronics and "idea" companies that want to distinguish themselves from the commercial spaces of yesterday. "The dot-com crowd is looking for offices that are funky, fun and playful," said Teal Brogden of Horton Lees Brogden Lighting Design. "In part, it's a reaction to the quiet, refined quality of spaces used by bankers and other traditional businesses," she added.

To create the industrial look, architects expose the structure, the skin and life-support systems of buildings and finish the spaces with materials such as sheet metal, plywood and concrete. The drop ceiling is skipped entirely and steel, concrete or timber beams are exposed—along with ductwork and piping. In addition to the edgy look and feel, there are practical benefits to these simple materials: low cost and fast lead times for companies on the move. In the past few years, some companies have outgrown their space two or even three times in one year, so the industrial design ethic is in part about flexibility and impermanence.

THE ART OF EXPOSURE

Prudential's galvanized fixtures have gone into places such as the Los Angeles offices of Internet company Rare Medium, where each employee is issued a Razor scooter to circulate on the 40,000-sq.-ft. building's interior concrete walkways. Sometimes the

Ledalite's Techspace finish combines natural steel with colorful translucent end caps. The option is part of the Steelform brand, which is aimed at the design-build market.

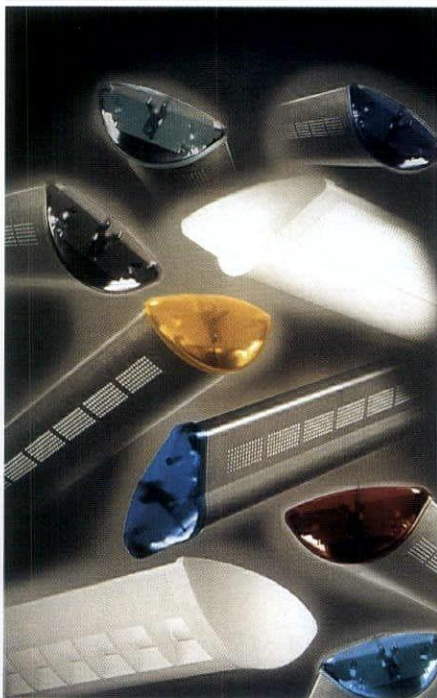


The American office in the new millennium: the drop ceiling is gone and the metal fixtures are exposed. For linear pendants, the trend is toward a more prominent downward component.

industrial look goes beyond the fixture itself; in another office space, the power feed to linear galvanized pendants runs through a 1/4-in. flex conduit from exposed surface-mounted junction boxes. "We need to make our fixtures fit into the overall space," said Steele. "When the architect is painting graffiti all over the floors, you don't really want a pretty white fixture."

Another example of the industrial look in lighting fixtures is Ledalite's Techspace finish, available on their Venza and Soleo linear pendants. This option combines a natural steel finish and colored translucent end caps that come in seven different colors (à la iMac). Techspace is part of Ledalite's Steelform brand, targeted at the design-build market. "We wanted to create a distinctive look for new office spaces," said Ledalite's Andy Vine. The colored caps can be mixed and matched for more design flexibility.

The trend is not limited to linear fixtures; witness the "Industrial" line of downlights from Delray: the Rocket, Sonar and Radar. "We wanted downlights with a 1950's look, but the latest technology and performance," explained Steve Babbitt, product designer for Delray. Some of these fixtures were created by simply taking recessed CFL downlight cans and surface-mounting them so their guts





(cleaned up a bit) are exposed. In addition to sharp design, Delray pays attention to photometrics and lamp/ballast technology. Their downlights come with carefully designed reflectors for controlled illumination and offer standard options such as digital dimming (for more on digital dimming, see Lightfair Report, *Architectural Lighting*, June 2000).

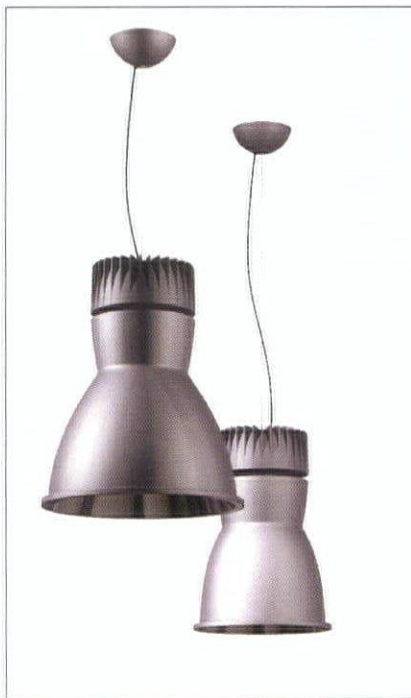
The Delray Radar II was created for the Portland offices of advertising agency Wieden+Kennedy, another example of the new type of commercial space where these fixtures are at home. Although the building shell is 90 years old, its new tenants dream up marketing ideas while surrounded by concrete, glass and glulams. The building's central atrium hosts concerts, lectures and dramatic performances, and the space doubles as a modern-art gallery. The surface-mounted Radar downlights fit right in with the space's clean lines, industrial textures and minimalist attitude.

Linear pendants are primarily indirect—most of their light goes up to be bounced back down to the work area. Lonnie Cooper, a lighting rep with the Colorado-based Lighting Agency, has noticed that the industrial look often suggests a more downward (direct) component, for two reasons. First, some architects are removing the drop ceiling and painting the structural ceiling black to achieve a different effect. This obviously kills the indirect reflection surface, so the light needs to be directed downward. (Even with lighter colors schemes, reflectivity is usually much lower than with acoustic ceiling tiles.) Another case where the designer needs more direct light from pendants is in vaulted or extra-high ceiling spaces, such as high-bay industrial buildings converted to offices.

There is a technical downside to the downlight component: it is more difficult to use the new T5/HO lamp, which is gaining some momentum in linear pendants because of its superior efficiency, optical capability and lumen maintenance. The T5/HO is generally too bright to be used in a direct downlight, although there are exceptions (see article in March/April 2000 issue of *Architectural Lighting*).

SIMPLE MODIFICATION

Another way industrial spaces are being lighted for commercial uses is to actually use modified industrial fixtures. Lonnie Cooper has



To complement the new, exposed offices favored by the Internet generation, fixtures are looking sleekly metallic and unapologetically minimalist. (Clockwise from above): Many of Prudential's architectural fixtures, such as its Vader direct/indirect series, are offered in a galvanized finish with copper and stainless steel options also available on request. From Delray Lighting, CFL downlights, no longer recessed in drop ceilings, are suspended from ceilings, as in the Rocket series. In Wieden+Kennedy's Portland offices, Radar II fixtures are surface-mounted.

seen Lithonia's AF Industrial fluorescent striplights—unadorned, white boxes plus tombstones, usually concealed behind coves or surface-mounted in boiler rooms—fitted with metal

wing-shaped reflectors and suspended upside-down (pointed up) to illuminate a large engineering office.

Most expressions of the industrial look in fixtures involve relatively minor changes to surface treatments. Although it might seem less expensive not to paint a fixture, it usually turns out to add slightly to the cost. Steele points out that galvanized steel costs more than the cold-rolled steel usually used to form linear pendants, although that is largely a volume issue. And even if they don't look painted, most manufacturers offering metal finishes apply a clear powder coat for durability and a consistent look. "You can't really make a fixture out of plain uncoated steel," said Ledalite's Vine. Steele estimates that the industrial finishes add about \$5 per linear foot (contractor cost), but the overall cost is still within the \$20–30-per-foot range that has become the window for competitive pricing on linear pendants.

Is the industrial look a long-term design ethic or just a passing fad? Steele thinks it will be around for another three or four years before moving along to "something else." "These things are cyclical," said Steele. "We are still seeing expanding sales, but I don't really expect the look to last 10 years." He then hedged his bet. "On the other hand, if I could predict the future, I might be in a different business—like the stock market." ■

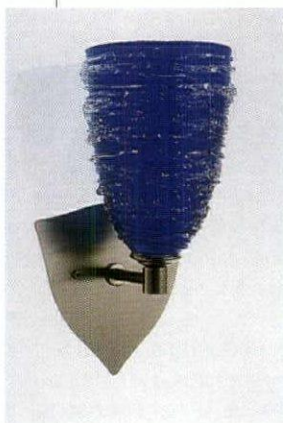
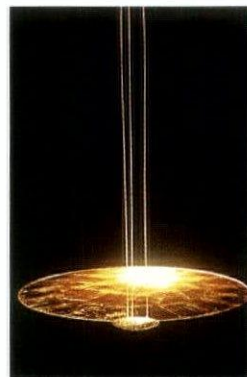
DECORATIVE LIGHTING

Designed by Barbara Barry for **Boyd Lighting**, Palos Verdes fixtures feature a slender drum shape formed of hand-rolled, custom-designed aluminum rings. The pendant is supported by four rods symmetrically placed and suspended from a satin nickel ceiling canopy with a matching outer ring. Palos Verdes is available with incandescent or fluorescent lamping. Finish is satin aluminum. **Circle No. 30**



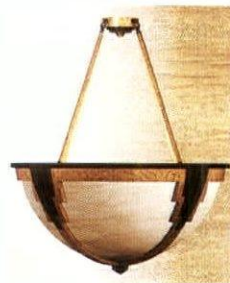
TSAO Designs' G-8 Collection offers ceiling-, pendant- and wall-mounted glass fixtures. On ceiling-mounted and pendant models, a ribbed metal rod descends from the electrical junction box through the center of a molded, sand-etched glass diffuser and is capped at the end by a metal disc and threaded ball. Four vertical rods support the diffuser on pendants and wall fixtures. Diffusers are available in various diameters. Wall fixtures accept incandescent A-lamps; ceiling and pendant models use incandescent or 13W PL series U-shaped compact fluorescent lamps. **Circle No. 31**

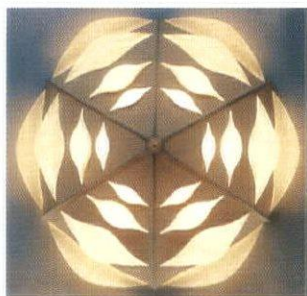
From **Catellani & Smith**, Light Machine System pendants are available in a variety of shapes and sizes. Constructed of iron and aluminum, the pendants feature diffuser disks lined with gold or silver leaf and suspended by brass or nickel rods. On Light Machine System Model B (shown), the diffuser disks measure 32 in. and 6 1/8 in. Illumination is provided by one double-ended 90W (max.) 12V halogen lamp. **Circle No. 32**



2thousand Degrees' new Nest fixture features a blown-glass shade wrapped with threads of clear glass. The small pendant measures 4 1/2 in. wide and 7 in. high; the small sconce (shown) is 4 1/4 in. x 9 1/4 in. A 7-in. x 12-in. pendant and 8-in. x 15-in. sconce are also available. The hardware is offered in five metal finishes: satin nickel, polished nickel, satin brass, bronze and black. **Circle No. 33**

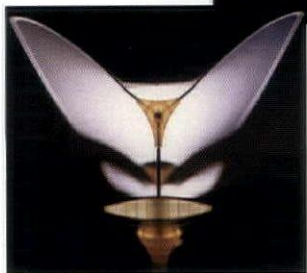
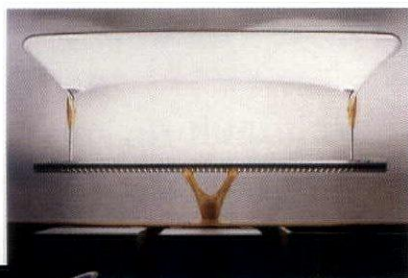
The Deco-inspired CH-153 pendant fixture by **R. Jesse & Co.** is molded from white slump glass and rests on a birds-eye maple frame overlaid with mahogany. The pendant uses three lamps, 100W max. each, and measures 28 1/2 in. in diameter with a depth of 12 1/2 in. The glass portion is also available in bulls-eye and light caramel. The drop can be specified to any length. **Circle No. 34**





Aqua Creations' Mandala is formed from sandblasted polycarbonate and matte PVC, covered in Techtexile. Designed by Ayala Serfaty to evoke African tribal tattoos, the fixture is available in wall- and ceiling-mounted versions. The shade sports a series of three-dimensional oblong slits. The wall/ceiling-mounted Mandala (shown) has a diameter of 25 in. and depth of 12 in. and accommodates six 40W E14 lamps. **Circle No. 35**

Designed by Anders Fahrenhorff for Smed International, **Axis Lighting's** Spectrum provides a balance of indirect reflected light and direct light. When integrated with furniture, the fixture is offered in a 30-in.- or 54-in.-long model with a single-point support. Pendants are available in 4-ft. or 8-ft. nominal lengths and use 48-in. standard mounted center points. The housing is constructed of powder-coated, 18-gauge sheet steel. Cosmetic and structural components are Lexan polycarbonate. Lamping options include two T8 and two or four T5 or T5/HO sources. **Circle No. 37**



The Asian-flavored Aurora L-5S accent lamp from **Cherry Tree Design** is crafted from notched and fitted wood pieces and sits above the floor on four curved legs. The fixture is offered in detailed walnut, cherry, maple or black lacquer, and a variety of shade options. Aurora L05S measures 20 in. x 9 in. and uses a single 75W lamp. **Circle No. 39**



The HL family of pendant, ceiling, sconce, wall and post fixtures from **Luraline** is available with incandescent, fluorescent and HID lamping options. Fixtures feature housings made of heavy-wall spun aluminum alloy and heavy-wall extruded aluminum alloy arms/stems. Diffusers are clear prismatic, vapor-tight, bullet-style glass globes that are tempered on HID models. The HL series is offered in a choice of 15 painted finishes. **Circle No. 36**

By **Excelite**, the Orbis series is marked by its lift-and-rotate round diffusers available in translucent faux alabaster or uniform color. Produced in three diameters, Orbis fixtures are suited for ceiling, pendant or wall mounting and designed for fluorescent lamps up to two 32W triple tubes. Ceiling-mounted XO17-WA (shown) features a 17-in., white faux alabaster diffuser. **Circle No. 38**



From the Birmingham series by **Norwell Mfg.**, Model 8121 is offered with a square- or pyramid-shaped glass diffuser and illuminated with a single 100W Edison-socket lamp. The sconce measures 5 in. wide, 9 in. high and extends 8 in. Available finishes are polished chrome and brushed nickel. **Circle No. 40**

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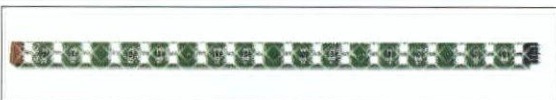


For more information, contact Aromat Corp. at (888) 4-AROMAT, www.aromat.com.

Circle No. 23

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Boca Flasher LED lighting strips are great replacements for many conventional lighting situations. Boca's light strips are available with five standard colors in single or double rows. The extended life of LEDs, coupled with the energy savings and high output, makes Boca's strips a tremendous addition to many projects.

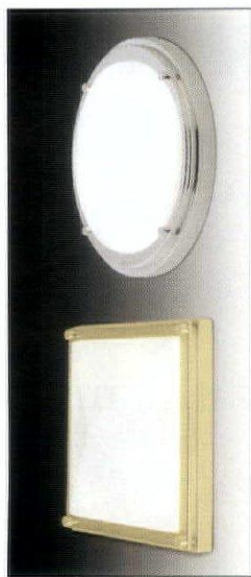


Boca Flasher is a U.S.-based company focused on the manufacture and distribution of LED lighting products for the architectural, retail, display and entertainment industries. The company's current product line includes low-wattage, high-output LightBulbs, LED Linear Strips, Color Changers and MR16 Replacement Lamps.

For more information, visit www.bocaflasher.com.

Circle No. 24

Davis/Muller



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Circle No. 25

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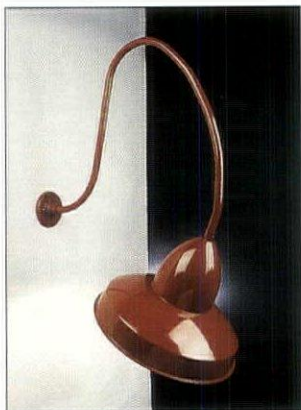
Requests for quotations will be promptly processed.

Call Wes Palmer, president, at (941) 753-1881, fax (941) 355-3371 or email: dpalmer819@worldnet.att.net.



Circle No. 26

Luraline Products Co.



Luraline presents Confetti, part of its new Designer Series set to debut at Lightfair 2001.

Confetti adds a festive twist to the traditional RLM with a multitude of options for creating colorful, custom-tailored designs. Available in cord- or stem-hung pendant and wall-mount configurations with a choice of incandescent, halo-

gen or compact fluorescent lamping. Reflectors are constructed of heavy-wall spun aluminum alloy with clear, prismatic conical drop lens or wire guard optional. Offered in a full palette of bright colors, with custom matching upon request.

Confetti adds a whimsical touch to any residential, commercial, indoor or outdoor application.

For more information, call (800) 940-6588 or visit www.luraline.com.

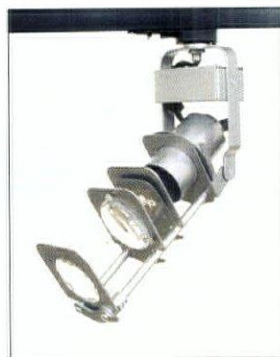
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Times Square Lighting

The SK75Z is a high-tech Skeletal 75W MR16 pattern Projector. An integral 12V transformer powers the low-voltage MR16 lamp.

The SK75Z features a zoom lens system that allows the user to select different beam spreads. A built-in pattern holder will accept either stainless steel or glass patterns. The SK75Z can be track-, surface- or clamp-mounted. Custom patterns can be produced within a week.

For more information, contact Times Square Lighting at 5 Kay Fries Drive, Stony Point, NY 10980; phone (845) 947-3034, fax (845) 947-3047, email: info@tslight.com or visit www.tslight.com.



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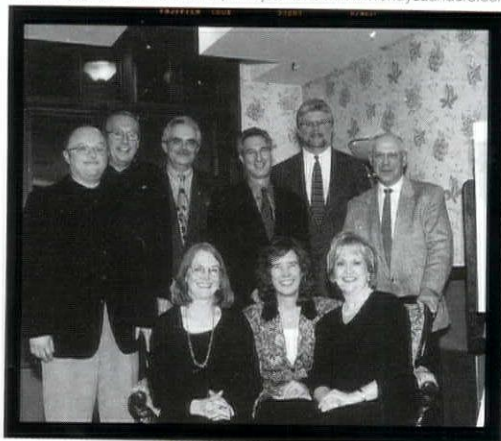
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The 31st annual IALD meeting was held November 30, 2000 in Boulder, CO. Eighty-five members attended the event, which was highlighted by the induction of three new Fellows, the first educational conference, as well as the announcement of the Election 2001 results.

Elected director of external affairs is James Benya, IALD, Benya Lighting Design, while Mary Claire Frazier, IALD, Candela Architectural Lighting Design was chosen by the IALD Board of Directors to complete Benya's term as director of education. John Bos, IALD, Bos Lighting Design was newly elected as director at large, and reelected to the Membership Committee was Larry French, IALD, Auerbach+Glasow. Pamela Hull Wilson, IALD of PHW Architectural Lighting Design was also appointed to the Membership Committee.

The meeting was sponsored by Clanton & Associates, Lehigh Electric Products, Lutron Electronics and Rambusch Decorating. The IALD Boulder organizing committee was Clanton & Associates, Inc., Hefferan Partnership, Inc. and Virvatuli Lighting Design LLC.

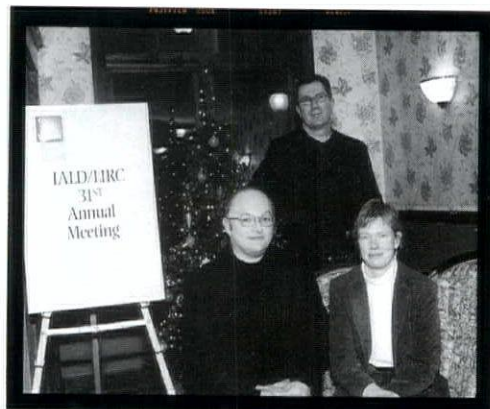
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The IALD Board of Directors are (standing, left to right): Randy Burkett, FIALD; Philip Gabriel, IALD; Francis Rubinstein, FIES; Mitchell Kohn, IALD; James Benya, IALD; and Theodore Ceraldi, AIA. Seated left to right are: JoAnne Lindsley, FIALD, chair; Nancy Clanton, IALD; and Barbara Bouyea, IALD. (Graham Phoenix, IALD is not pictured.)



Boulder host committee (front row, left to right): Nancy Clanton, IALD and Virva Nilson; (back row, left to right): Steve Hefferan, IALD and Carol Degenhart.



The newly inducted Fellows are: Randy Burkett, FIALD and Helen Diemer, FIALD (seated); and Lee Waldron, FIALD (standing).



The meeting also featured educational seminars that addressed the business and legal aspects of the lighting profession. Robert Prouse, IALD of Brandston Partnership (left) and Michael Souter, IALD of Luminæ Souter Lighting Design spoke to a rapt audience about the "The Future of Your Firm." (Look for an article in our March issue.)



Sixteen companies participated in tabletop exhibits. Paul Morgan, IALD reviews new products with Edwin Rambusch at the Rambusch Decorating exhibit.