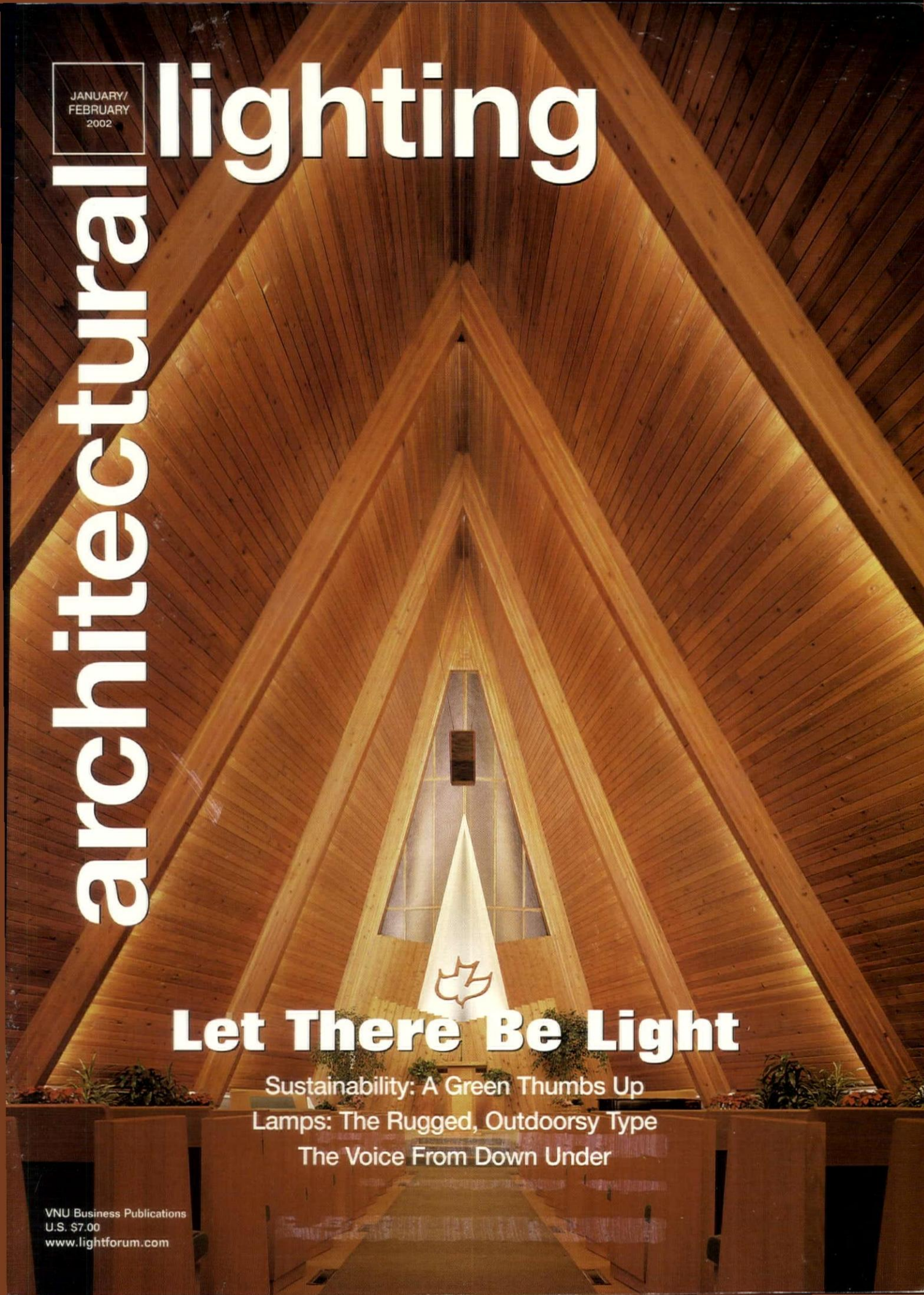

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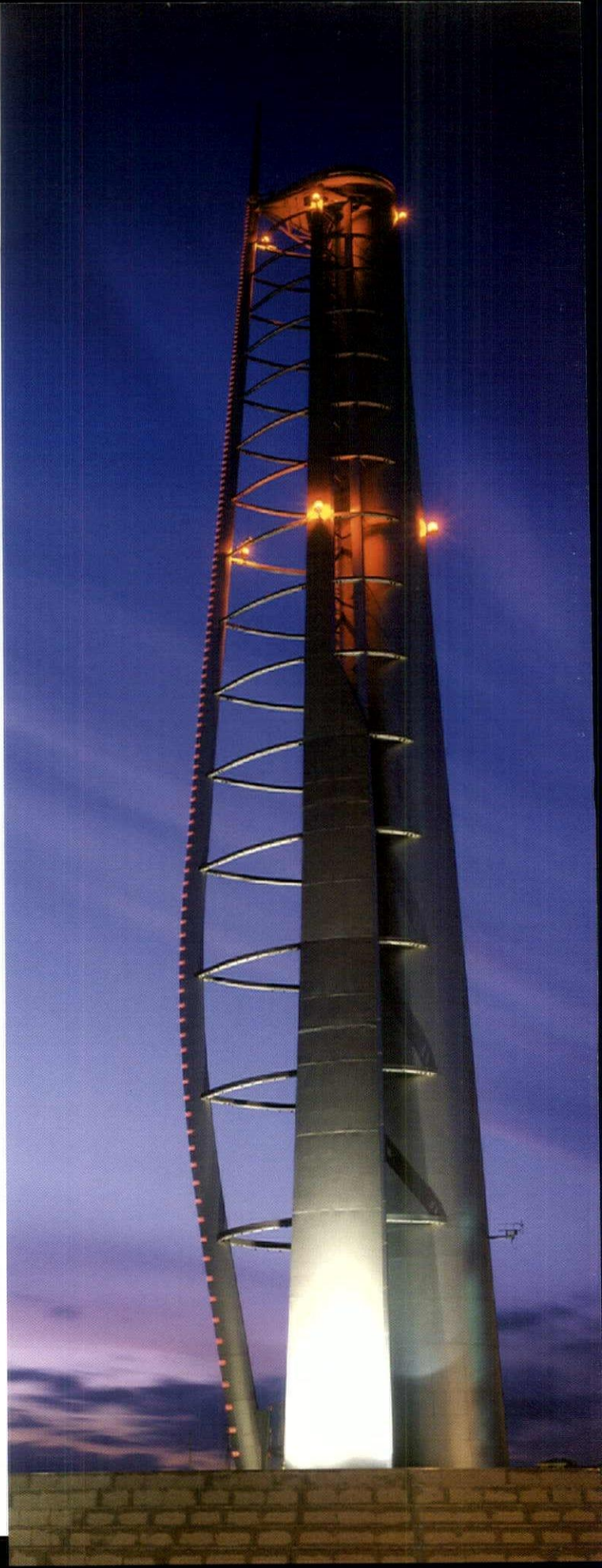

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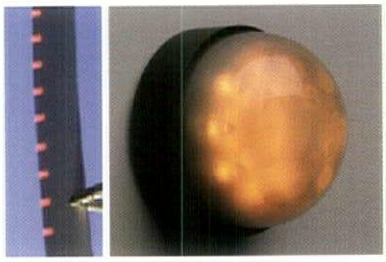

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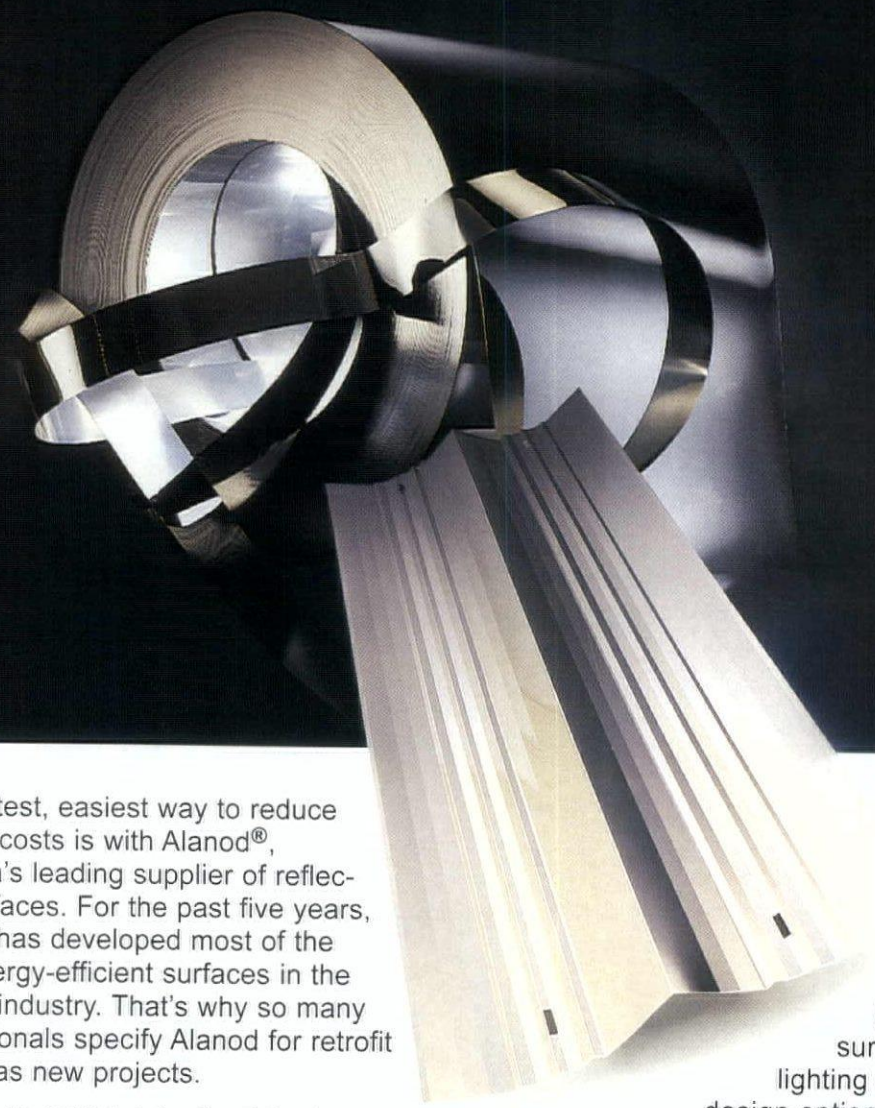

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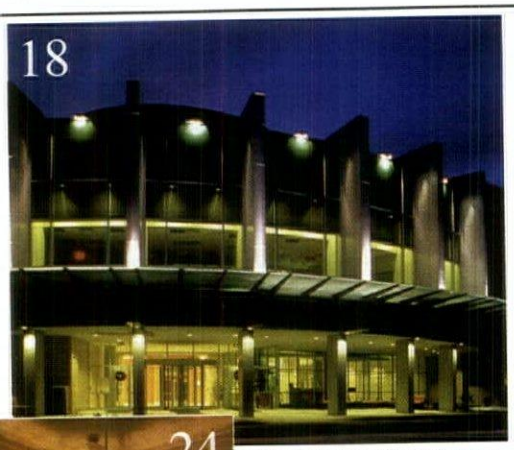
contents



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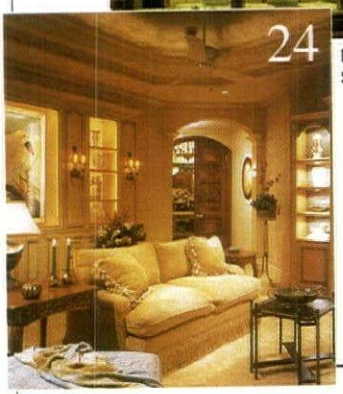

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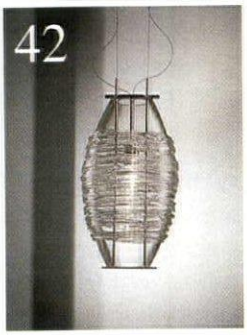
DEPARTMENTS



DECORATIVE LIGHTING

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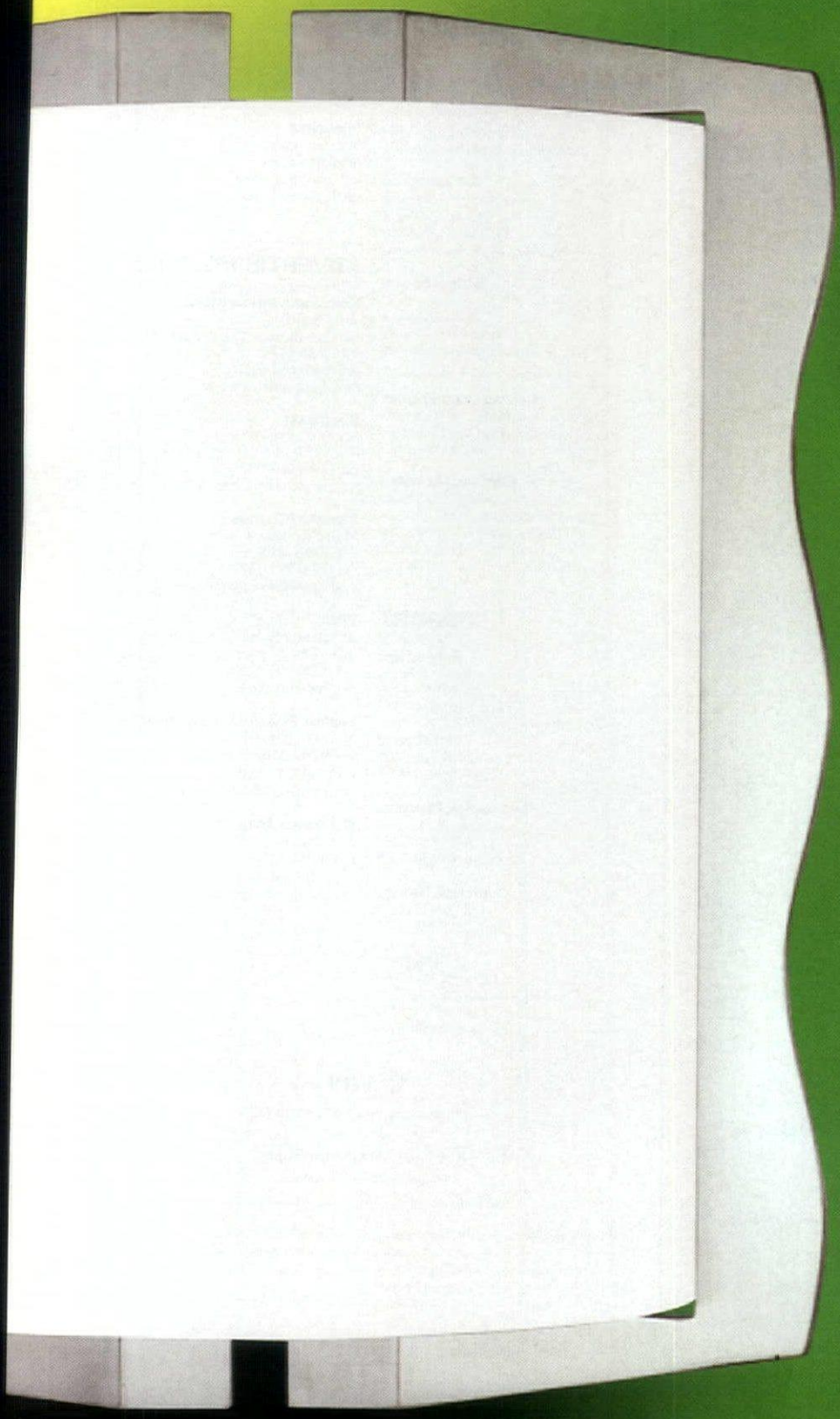

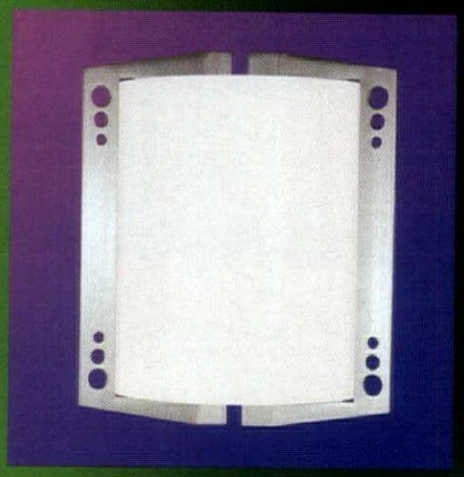

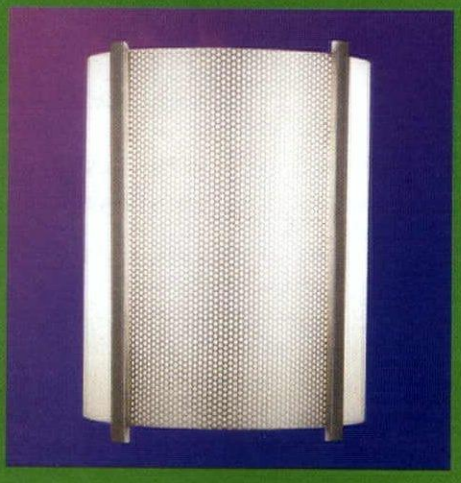

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editor'snote

Christina Trauthwein,
Editor-in-Chief

I recently had the experience of explaining to someone what it is I do for a living. And while that person, who, by the way is educated and successful, could comprehend the job of an editor and the role of a writer—and even the concept of magazine publishing—the quizzical look came when I expressed to him *what* it is I write about. Architecture got a nod. Design received affirmation. And "light bulbs" and fixtures made the cut. It was the idea of lighting *design* (and, believe me, the fact that there are even people who do that for a living!) that just wasn't grasped.

"What kind of lighting—table lamps?" he queried. "I have a nice one in the hall."

"No," I replied. "The lighting of an interior, an exterior. Let me explain …"

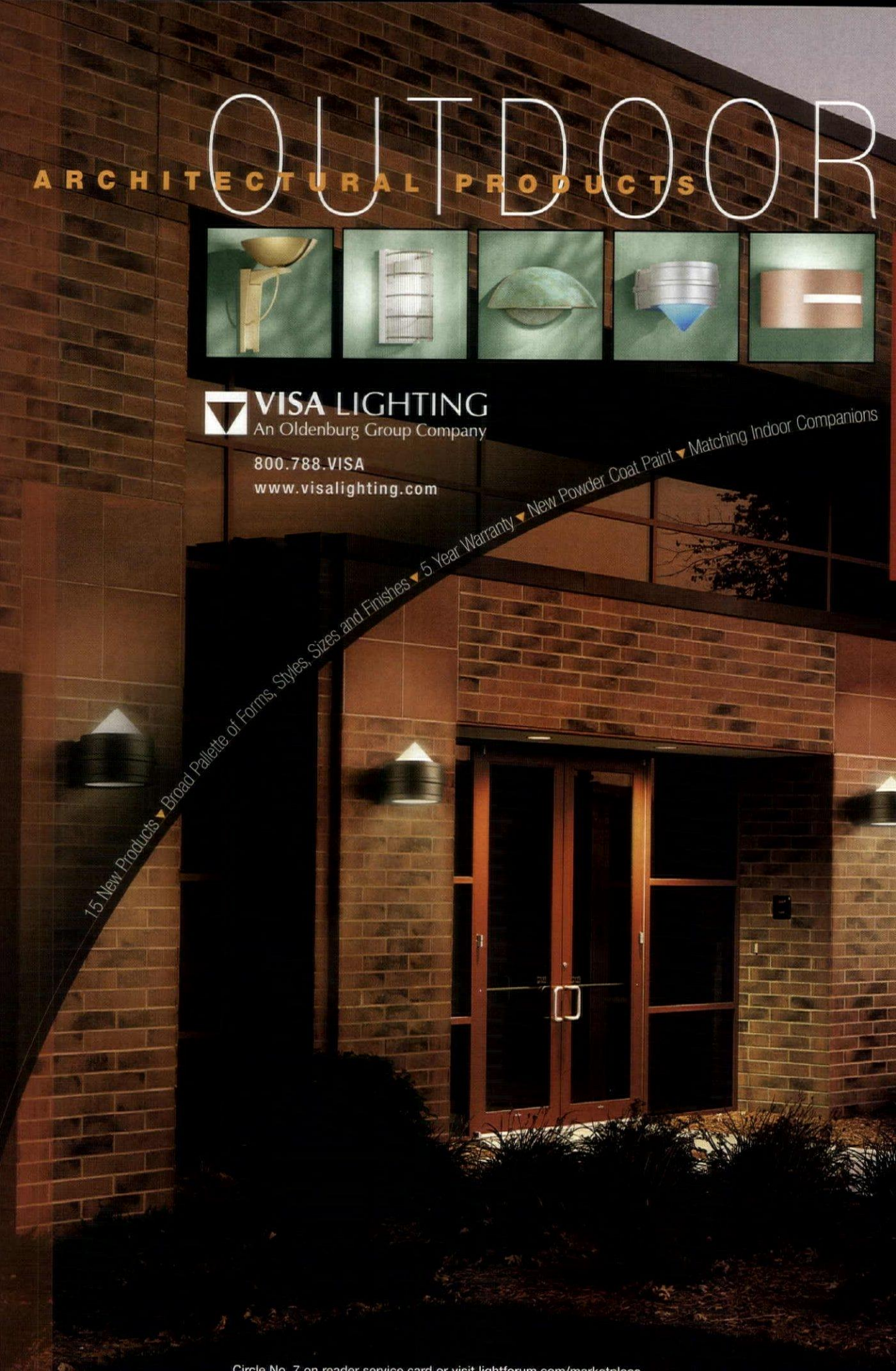
"Oh," he continued, rather discouraged. "But how can *light* be designed?"

This dialogue, which has actually played out many times on many occasions throughout the years, is not unlike what I see my sales force go through in defining their careers—hey, they sell *space*, nothing concrete, nothing physical, right? It's often met with a raised brow or shrugged shoulder too. And if there's one thing I've learned, it's the intangible that's often hard for people to grasp. No matter who it is.

As I write this, I'm entirely aware that this is a prime example of what one would call preaching to the choir. After all, as lighting designers, the biggest challenge in your profession often surfaces before you even begin the drawings. It's getting to that point. And it is just that point I thought I'd reiterate here, in words taken from my recent interview with the new president of the IALD and a long-time, well-respected lighting designer, André Tammes. The complete interview begins on page 14, but here is an excerpt from the two-hour discussion we had, which summarizes the frustrations—and hopes—that are common to all who share in this field:

"I'd like lighting designers to get to the point of gaining acceptance—to make others aware that we, as professionals, have something of value to offer, that we're not indulging ourselves in a flight of fancy and just *having fun. When design professionals enter into a relationship with clients, the clients must be made to realize and fully understand our function and the services, skills and benefits our expertise brings to them and ultimately the project. If that basic principle is not immediately understood, then the whole relationship is badly founded. But don't assume that others see the light. They don't. Or can see the light. They can't. Of course, they're aware of light, but they don't necessarily understand the variable and we mustn't assume that they do. The reality is that a great number of people—by far the majority—including sadly enough architects and other design professionals, don't understand what is designable about lighting. It is our job to educate them."*

Cover Photo: ©Scott Rothwall Photography



IALD HONORS LIGHTING DESIGN VETERANS

At its 32nd annual meeting held November 28-29 in Philadelphia, the IALD presented its third Lifetime Achievement Award to Howard Brandston, FIALD, FIES in recognition of his more-than-40-year career as a lighting designer and his efforts to elevate the profession of lighting design. Brandston was honored at a gala dinner, which also celebrated the induction of lighting designers Motoko Ishii and Derek Philips into the IALD College of Fellows.

Election results for four open board positions were announced at the Philadelphia event as well. As of January 1, 2002, André Tammes, IALD, will assume the position of president; Nancy E. Clanton, IALD, director of finance; Alfred R. Borden, IV, IALD, director of marketing & communications; and David Mintz, FIALD, director at large. Laura Antonow and Michael Souter were elected to serve on the membership committee.

The 2001 meeting was also highlighted by the IALD's Second Annual Education Conference, which offered a series of professional development seminars. Tapes of the seminars are available. For more information, contact the IALD by phoning (312) 527-3677 or faxing (312) 527-3680.

ENERGIE IMPORTS INTERNATIONAL DESIGNS

A new firm, Énergie, has been launched to import lighting product designs from foreign manufacturers. With headquarters in Lakewood, CO and an assembly/distribution operations center in West Michigan, Énergie is the first company focused entirely on offering U.S. specifiers lighting products from foreign manufacturers. For its initial offering, Énergie has assembled a portfolio of 15 product families from German manufacturer, Trilux-Lenze GmbH + Co KG, which is based in Arnsberg, North-Rhine Westphalia, and Belgian firms, Wever & Ducre and Multiline. For more information, visit Énergie's website at www.energielighting.com.

COOPER LIGHTING OPENS SOURCE IN PEACHTREE CITY

Cooper Lighting has announced the opening of Source, the Cooper Lighting Center, at the new corporate division headquarters in Peachtree City, GA. The 35,000-sq.-ft. training and education center is comprised of nine application areas, seven showrooms, an auditorium, a Fundamentals/Technology room and is expected to service approximately 500 students annually. For more information, phone (770) 486-4800 or visit www.cooperlighting.com.

NSI SPINS OFF ACUITY BRANDS, INC.

National Service Industries, Inc. (NSI) has selected Acuity Brands, Inc. as the name for its lighting equipment and chemicals spin-off company, which was slated to separate from NSI at the end of November. The lighting equipment business will operate through the subsidiary, Acuity Lighting Group, which includes Lithonia, Holophane and other lighting brands. The chemicals business will operate through the subsidiary, Acuity Specialty Products Group. Acuity Brands is headquartered in Atlanta.

OSRAM ESTABLISHES GLOBAL PHOTO-OPTIC DIVISION

Osram GmbH in Munich, Germany, has announced the formation of a Global Photo-Optic division, which, according to the company, will enable the business to expand its worldwide presence. "Today, sales are evenly distributed across Europe, the U.S. and Asia and products are developed and made on three continents," said Dr. Wolf-Dieter Bopst, president of Osram. "In taking things a step further to become a worldwide division, we will promote technology leadership and provide innovative products across borders in advance of the market."

MERGERS AND ACQUISITIONS

Hollands Licht, Carillon Projects and Fröger Enkelaar | Communication have merged to form a new firm, EXP, which offers strategic consultancy, concept development, creation and design, production and organization for corporate and brand events, retail environments, leisure and theme parks, museums, exhibitions and public spaces. EXP is located at Amsterdamsestraatweg 15, 1411 AW Naarden, the Netherlands. To contact the company, write P.O. Box 5124, 1410 AC Naarden, the Netherlands, phone (31) (0)35 6997399, fax (31) (0)35 6997390, email office@expnl.com or visit www.expnl.com.

Cannon Design has announced its merger with Johnston Sport Architecture, Inc., a Canadian design firm specializing in sports, recreation and wellness facilities. Following the merger, Cannon Design's Canadian practice will be known as Cannon Johnston Sports Architecture. Robert Johnston, AIA, MRAIC, principal of Johnston Sports Architecture, has been named a principal of Canon Design.

Following its purchase by CCA Global Partners, national lighting cooperative, Ilucio, has changed its name to **Lighting One**. Lighting One is headquartered in Atlanta and can be contacted by phone at (770) 424-1044 or email at jcarmichael@ccaglobal.com.

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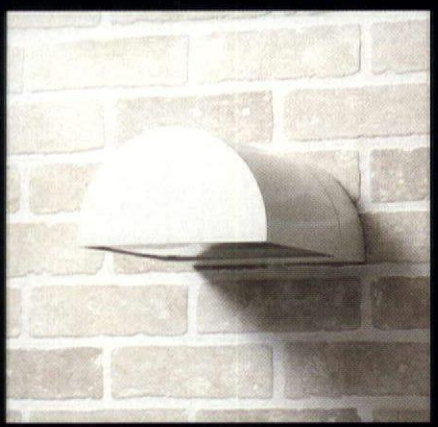

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Wall Form


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STINGRAY LIGHTING RECEIVES AWARD AND RELOCATES

Stingray Lighting, Inc. has been awarded the Clean Air Award by California state agency, the South Coast Air Quality Management District (AQMD). The South AQMD is the lead government agency in California for addressing air-quality problems in the four smoggiest counties in the country: Los Angeles, Orange, Riverside and San Bernardino.

Stingray Lighting has also completed its move to a new, larger headquarters plant and office building in southern California. Stingray is now located at 976 S. Andreasen Drive, Escondido, CA 92029. To contact the company, phone (760) 871-3000, (888) 577-8464, fax (760) 871-3013 or visit www.stingraylighting.com.

NEW LOCATIONS, NEW FACILITIES

Lighting Design Alliance is celebrating its 10-year anniversary with the opening of a midwest office. Headed up by Julie Reeves and Dave Doubek, AIA, the new Chicago office is located at 5450 Sears Tower, 233 South Wacker Drive, Chicago, IL 60606. To contact the new office, phone (312) 903-0075 or fax (312) 993-0513.

The Mintz Lighting Group has relocated to the historic National Newark Building in the heart of Newark's revitalized cultural and business district. The firm's new address is 744 Broad Street, 25th floor, Newark, NJ 07102. To contact The Mintz Lighting Group, phone (973) 286-1100, fax (973) 286-1102, email design@mintzlighting.com or visit www.mintzlighting.com.

Edison Price Lighting has moved to 41-50 22nd Street in Long Island City, NY 11101. To contact the company, phone (718) 685-0700, fax (718) 786-8530 or visit www.epl.com

Simkar Corp. has opened a 40,000-sq.-ft. assembly and distribution facility in Las Vegas, NV to expedite delivery to western U.S. customers and assemble products requiring voltage variations and specialty ballasts.

CORRECTIONS

On page 22 in *Architectural Lighting's* 2002 Lighting Source Directory, the phone and fax numbers and city listed for Edison Price Lighting were incorrect. The company has relocated to Long Island City, NY (see "On the Move" above) and can be contacted by phone at (718) 685-0700 or fax at (718) 786-8530. The company's website is www.epl.com.

In B-K Lighting's company profile on page 77 of the same issue, photos were mislabeled. The correct caption for the top image is "Choose from a variety of faceplates, all rated for driveover applications." The photo in the center should be labeled, "Innovative Hydro-Lock™ and Opti-Lock™ technology." The caption for the bottom image should read, "Cutaway view of our Precision2™ In-Grade Luminaire."

Architectural Lighting regrets the errors.

NEWS

people

Osram Sylvania has named **Paul Caramagna** VP and general manager of the NAFTA region and **Alan Weiss** VP and general manager of Electronic Controls Systems. **Bernd Schaefer** has been appointed general manager of the Global Photo-Optic division of Osram GmbH.

Lithonia Lighting has promoted **Wes Wittich** to executive VP/CFO; **Ken Morgan**, executive VP/general manager; **Jeff Kernan**, executive VP/chief supply chain officer; **Larry Miller**, senior VP, organizational development; **Bill Astary**, senior VP, business development; and **Tom Naramore**, senior VP, global sourcing.

Kenneth Guldalian has been appointed VP of sales at TSAO Designs. The company has also named **Ira Gaber** manager of new product development; **Dory Kaminski**, office manager; and **Patricia deCicco**, customer service manager.

Frank Gordon has rejoined High End Systems as CEO.

The National Council on Qualifications for the Lighting Professions (NCQLP) has elected **Joseph M. Good** of Spectrum+Bennion as the new NCQLP president.

Venture Lighting International has named **Peter Weller** VP of sales.

Litetronics International, Inc. has appointed **Mark Ivancic** CFO/COO.

Doug Carver has joined Super Vision as the company's national accounts sales manager.

Carrie Knowlton has rejoined the New York office of Horton Lees Brogden Lighting Design as special projects coordinator.

Rick Baird has been named western regional sales manager for the landscape division of Hadco.

Holophane has appointed **Dick Bagni** media market specialist, west coast and **Robert Gwaltney** media market specialist, east coast.

Einhorn Yaffee Prescott has named **Binh Vinh, AIA** principal; Vinh also leads the firm's corporate, science and technology design practice.

Papadatos Associates PC has promoted **Pierre E. Guariglia, RA** to senior associate.

Cesar Pelli & Associates Architects has named **Masa Ninomiya** and **John A. Apicella** senior associate and **Gabriel Bekerman**, **David W. Hess**, **Sam Kirby**, **Martina Y.C. Lind** and **Robyn Sandberg** associate.

SOSH Architects has appointed **Mark Petrella, AIA** and **William McLees, RA** senior associate.

Cynthia McCracken has joined Retail Planning Associates as VP account executive specialty sales.

2002 SCHEDULED EVENTS

March 4 Designers Lighting Forum of Los Angeles: "Historic Design & Restoration Lighting," Department of Water & Power Building, Los Angeles. Contact: (310) 535-0105, www.DLFLA.org.

March 13 IESNY Program: "Total Control," New York. Contact: (718) 951-6773, www.iesny.org.

March 21-22 LED Lighting Institute, Lighting Research Center, Troy, NY. Contact: Dan Frering (518) 687-7149, frerid@rpi.edu, www.lrc.rpi.edu/LEDInstitute/LEDform.html.

March 21-23 The 3rd International Lighting Fair, China International Exhibition Center, Beijing, China. Contact: Ms. Qiao Aiying (8610) 82570742, fax (8610) 82570740, hpw@163bj.com, www.happing.com.

April 1 Designers Lighting Forum of Los Angeles: "Annual Student Design Awards Scholarship Competition," Department of Water & Power Building, Los Angeles. Contact: (310) 535-0105, www.DLFLA.org.

April 10 IESNY Program: "Recommended Practices Revisited," New York. Contact: (718) 951-6773, www.iesny.org.

April 14-18 Light+Building, Frankfurt am Main, Frankfurt, Germany. Contact: (770) 984-8016, fax (770) 984-8023.

April 24 Designers Lighting Forum of New York: "Toying With Light," New York. Contact: (212) 613-1599, www.dlfny.com.

May 6 Designers Lighting Forum of Los Angeles: "Light Dining—Restaurant Lighting Design," Department of Water & Power Building, Los Angeles. Contact: (310) 535-0105, www.DLFLA.org.

May 8 IESNY Program: "Lighting for Video Conferencing," New York. Contact: (718) 951-6773, www.iesny.org.

May 15 Designers Lighting Forum of New York: "Merging Light and Office Furniture," New York. Contact: (212) 613-1599, www.dlfny.com.

May 18-21 International Contemporary Furniture Fair, Jacob K. Javits Convention Center, New York. Contact: (800) 272-SHOW, (914) 421-3206, fax (914) 948-6194.

June 3-5 Lightfair International, Moscone Center, San Francisco. Contact: (404) 220-2221, www.lightfair.com.

June 10 Designers Lighting Forum of Los Angeles: "Light as Art & Annual Mixer," Museum of Neon Art, Los Angeles. Contact: (310) 535-0105, www.DLFLA.org.

June 16-18 Southeast Regional IESNA Conference, Asheville, NC. Contact: Danny Yanusz (336) 605-5888, Jim Edmonds (336) 917-2011 or email dyanusz@professionallighting.com.

The featured guest of our Profiles column this month is André Tammes, principal of Lighting Design Partnership (LDP). Tammes began his career in 1960 in stage lighting design, which eventually led to the field of theater consultancy, then ultimately to architectural lighting design. In 1984, Tammes co-established the first professional design group in the UK that focused solely on lighting design—LDP—and currently leads the firm from a base in Sydney, Australia, into markets in Australia, Southeast Asia and India. In addition to managing an office of eight people, Tammes is actively involved in directing the design for the renewed lighting of the Sydney Opera House, aspects of the new third terminal at Changi Airport in Singapore, two major convention centers in Malaysia and the lighting planning for a new federal government city at Putrajaya, Malaysia. In addition to his post as visiting professor in Light and Lighting at the Bartlett School of the Built Environment, University College, London, Tammes is a member of the recently formed UK Society of Light & Lighting (MSLL) and the Society of Theatre Consultants. An avid member of the IALD, which Tammes joined in 1985, he has served as a board member, secretary of the board, vice president international and most recently has been appointed president of the association.

—Christina Trauthwein

Q: You began your career in the theater like so many other lighting designers. How did that progress into a profession in architectural lighting design?

A: I started working at 17 in the British theater—in what was then known as Weekly Rep (Repertory). I was a very young assistant stage manager and filled other assorted roles in various theaters dotted around the UK—living, of course, on next to nothing but the smell of the theater. And it was really from those experiences that I started to become intrigued by stage lighting, which in many senses was in its infancy in the early 1960s. So I started to cut my teeth on lighting while still doing everything else like painting the scenery and stoking the boiler. I moved very rapidly to exclusively working in stage lighting at the Chichester Festival Theatre, which was at the time, the precursor to the National Theatre of Great Britain, then returned to my native Edinburgh, Scotland. In 1965, a stage company that was essentially seen as the National Theatre of Scotland took the welcome move of making me into a full-time stage lighting designer. And that was a tremendous move. It was almost unprecedented in the UK for a drama company to have a permanent stage lighting designer. I went on to become interested in commercial opportunities and decided to start a small company called Northern Light, which specialized in the entertainment business. In the midst of all this, I became intrigued by the fact that there were a lot of new theaters being built in the UK—a big push by small towns all over the country—and the problem was that the architects that were engaged to design these theaters really didn't have any ideas about how theaters worked and the technology required. So I evolved from working as a stage lighting designer and working as an equipment supplier into being a theater consultant, advising architects about the finer details of designing theaters. This introduced me to the architecture, engineering and construction process, which in turn, led to the realization that architectural lighting was really in crisis. The people doing the lighting for the architecture were the equivalent of stage electricians in the theater. If we could get past it there, then why not in architecture? I started to feel around and propose to architectural colleagues that I give advice on the architectural lighting aspects of the theater, and subsequently, they came to me for other buildings.

Q: This was 1978. Were you alone in the architectural lighting field at the time?

A: At that point, there was only one person doing architectural lighting and that was Derek Phillips. And Derek was working as both an architect and lighting designer. I rang Derek and told him that I was thinking of going into architectural lighting and asked him for tips on entering the field. And he said, quite simply, "Don't do it."

Derek was doing his thing in England and I was doing mine in Edinburgh. Eventually, one of the problems became that I didn't know how to make a living out of architectural lighting because, at that time, you couldn't live on the fees alone; I initially operated on a design and supply basis out of sheer necessity. But then I met a young man named Jonathan Speirs who came to me as an architectural student from Aberdeen University. He was preparing a dissertation on the relationship between theatrical and architectural lighting. Eventually, I asked him to come join me because his architectural knowledge and education would be very useful and his enthusiasm was attractive. That evolved quickly to a point where I suggested we join forces—and that was the beginning of Lighting Design Partnership (LDP). We both strongly believed that we couldn't continue selling equipment; it's not a clever idea if you're trying to promote a professional service. So that precipitated the launch of LDP as a fully-fledged, purely fee-based lighting consultancy. With the exception of Derek, who was combining it with architecture, it is true to say we were the first genuine lighting-only consultant firm. The business grew rapidly and took on a lot of very talented people like Barry Hannaford, Mark Major, Douglas Brennan and Graham Phoenix and we operated from both Edinburgh and London. We started doing some exceedingly interesting projects with architects like Richard Rogers, Nicholas Grimshaw and Terry Farrell. In fact, it was the Rogers team that precipitated our opening in London because they came to us and asked us to work on the conversion of the old fish market in London to the world's largest financial trading floor. The only catch: We had to open an office in London.

Q: And you continued to grow from there. But there were significant changes to LDP along the way.

A: Yes. Along with everyone else, we hit the recession of the early 1990s and had to downsize considerably, shifting from a high of 40 people to about 15, which, as you can imagine, was painful. The character of the firm changed, as it is really the people that shape the nature of the group. One of

(Continued on page 16)

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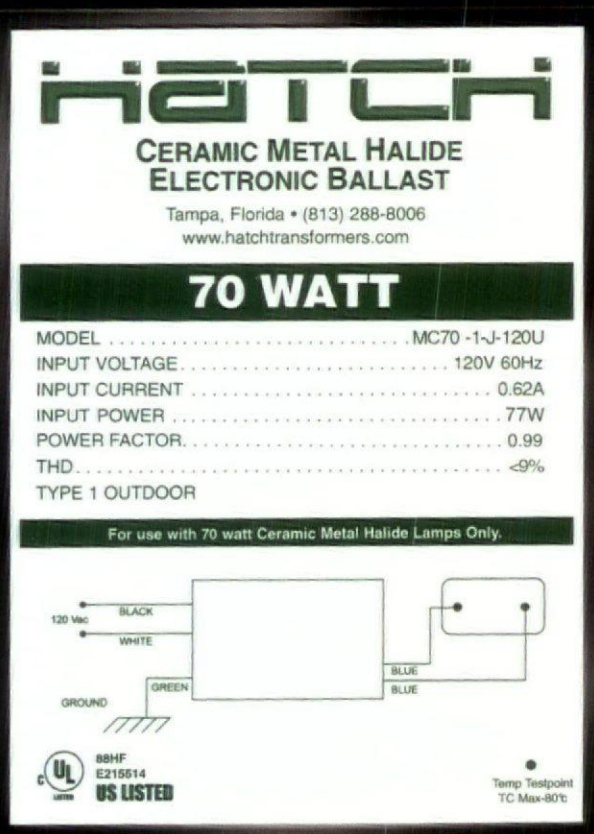

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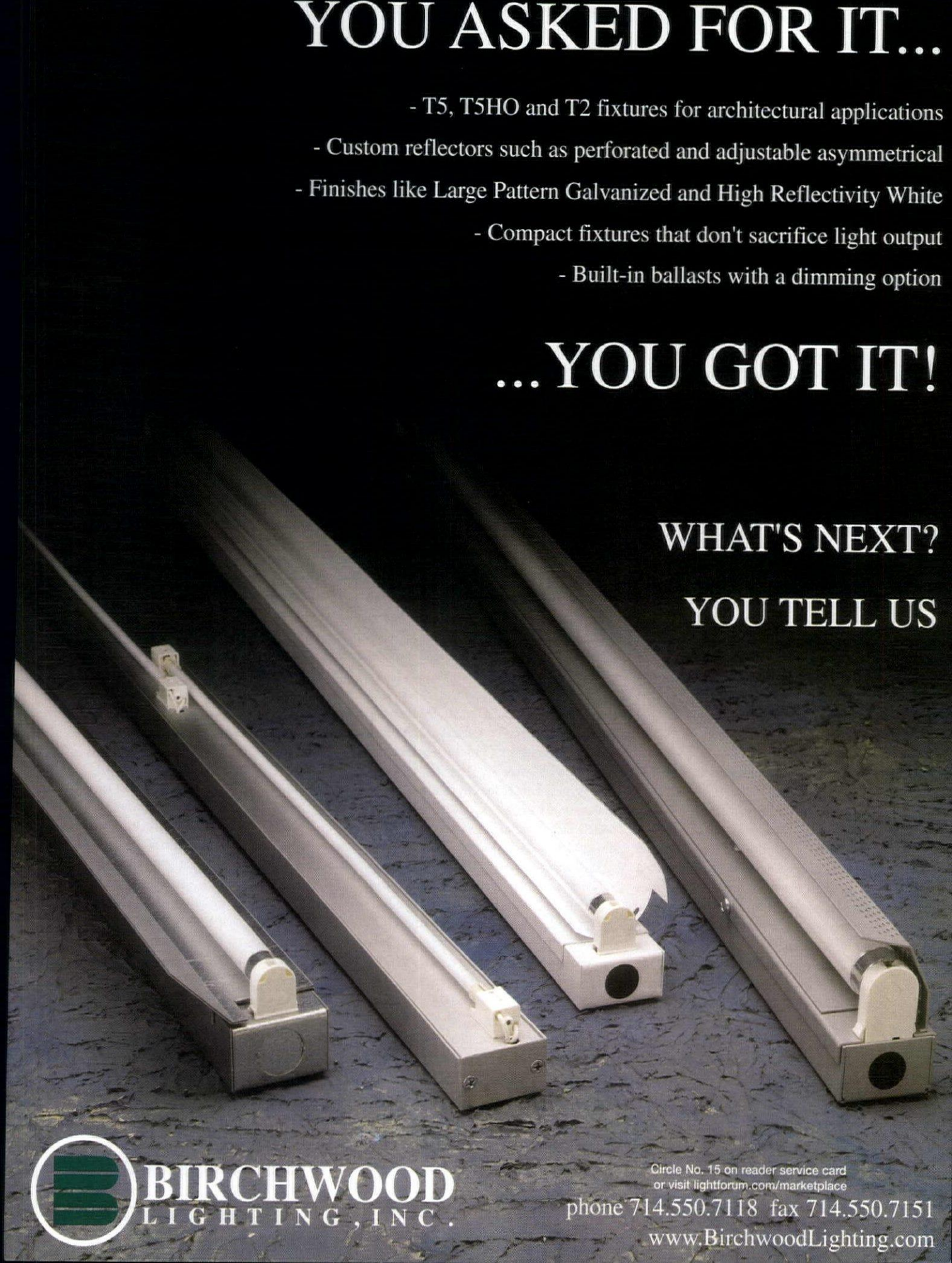

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the things that came out of all of this, however, is that we were afforded new opportunities to work in far-away fields. We had always worked in Scandinavia and throughout Europe but we began to get work in India and Australia. One job in Australia led to the next and by that time I was hooked. I loved the country, loved the people and was prepared to service that love affair by commuting from the UK to Australia, but that was hard work and the long, repetitive commute became hellish. Two opportunities arose to convince us it was time to open an office there and to develop a marketplace for our services—the Sydney Opera House and the Sydney Olympic Stadium—and I moved. Australia represented good geographic diversification and gave us a strong foothold on the other side of the world to service northwards into Asia.

The upshot of my decision was that the people who remained behind in the UK to run LDP/UK felt they didn't want to go on running the firm the way it was, so they made a number of changes that gave birth to a three-headed situation: PhoenixLarge/LightMatters in London headed by Graham Phoenix; the Scottish end of LDP, the original LDP, joining forces with DPA Lighting Consultants and Nick Hoggett and Barry Hannaford; and finally, a group of people who had worked with LDP years ago, wanted to continue the LDP name and build on the reputation of the original company—and that became LDP International, based in Edinburgh.

Q: How was your interest in lighting first ignited?

A: I think my very first memory of being utterly intrigued by the properties and qualities of light dates back to my childhood. My father had a little leather-covered box and in that box was the most beautiful prism. I remember closing my curtains in my bedroom—we lived in Amsterdam at the time—and just allowing a chink of light into the room and putting the prism in the light and holding up a piece of white paper to see the rainbow result. I was fascinated. I think another reason I got into lighting has to do with the fact that for the majority of my youth, I was raised in a 16th-century house just outside Edinburgh that didn't have electricity. Instead, we had an amazing machine that made gas out of high-octane aircraft fuel and the resulting light quality was just amazing. You'd walk down the corridors in this large, slightly gloomy house and these gas mantels were pulsing with a greenish, yellowish kind of light. We also used candles and oil lamps. I think that childhood experience somewhere planted the seed of my appreciation for the quality of light.

Q: What's your favorite type of project?

A: The single most interesting area work I enjoy is designing the lighting for classic old buildings. First, I love the types of buildings—and I have to say, living in Australia I sorely miss them. It's a great loss to me not to be able to work on ancient buildings. The other reason is that I was not trained as an architect; therefore, I like to walk the space to gain a true physical comprehension of it and an existing building affords that opportunity. I hasten to add that it doesn't mean I can't walk the space on paper—every lighting designer has to learn to convert two-dimensional drawings into three-dimensional spaces—but I'm lazy, so I like walking it for real. Being in the physical environment also gives you a great value of the interplay of natural light in the space, which in a sense cues you in with the electric light.

But then, I have two other areas that I personally enjoy. We've become exceedingly involved in the past 10 years in the field of urban lighting planning. And I think we can lay claim to being one of the pioneer firms in that field. We did our very first lighting master plan for Edinburgh in 1989, so we've been at it for some time. And I'm currently working on a new 320,000-population city that is being built in Malaysia called Putrajaya. Talk about seeing things on paper, here's a whole city on paper—and it's massive! I'm interested in that field because it treats the city as a stage. What does the cityscape comprise, what are the uses, what's happening in the various parts of the city at night and how can you reflect that with a particular quality of light, bearing in mind all of the practical requirements of lighting such as safety and security? Integrating all the luminous elements is fascinating. And what's pleasing is that cities all around the world have become more tuned in to the need for this. But they also see the paradox: How can you plan for everything else—and you do, seeing as it all has to go through a pretty rigorous planning process—and yet the one thing that reveals all the planned buildings and streets at night, namely the light, doesn't get planned? Isn't this a bit silly, folks?

And finally, the third area of work I really enjoy is almost anything auditorium-based because of my background. Again, one of my great favorites is working on existing old theaters and refurbishing them. That's why the Sydney Opera House is a synthesis of all my favorites: Great architecture; contribution to the presentation of the city at night; and it's an auditorium building. The work of the architect, Jørn Utzon, is something that moves far beyond architecture. His creations are utterly and totally inspirational. One of the biggest days in my life will be when our lighting design for it is finally switched on. The design for the exterior lighting is exceedingly challenging because it's surrounded on three sides by water.

Q: As the new president of the IALD, what plans do you have for the association?

A: To make the IALD the organization that no lighting designer can afford not to be a member of. That summarizes it. We need to offer lighting designers a range of services and facilities that are of such pragmatic and practical value to them that not only do they want to join it, they have to join it.

Q: What can you bring to the table as an international president?

A: It is a fact that in appointing me as president that the IALD members have set a precedent; there's never been anybody in this position outside the U.S. with the exception of Phil Gabriel, who is from Canada. What I take from that is that the membership is interested in developing the international dimension of the organization. Now, that immediately brings up the issue of global union, ELDA and why that didn't work. I'm not really going to comment on that except to say one thing: My perception is that IALD members did not reject the idea in principle—that the organization only wants to focus on America—but that the mechanics weren't right. In fact, I think electing me to the position of president underscores the belief that the organization does want to have a world presence. I think what I bring to the table is the fact that I am an internationalist—I'm based internationally and constantly travel the world. Hopefully, what I can bring to IALD is a perspective based on working and traveling through many countries and getting very close to what people's expectations are and what their needs are of lighting designers in other countries throughout the world. I'm not the only person who could do that; clearly there are American lighting designers who are qualified in that respect, but they're not based abroad. ■

"I'd always like to be remembered as an enthusiast and a good advocate for using light well."

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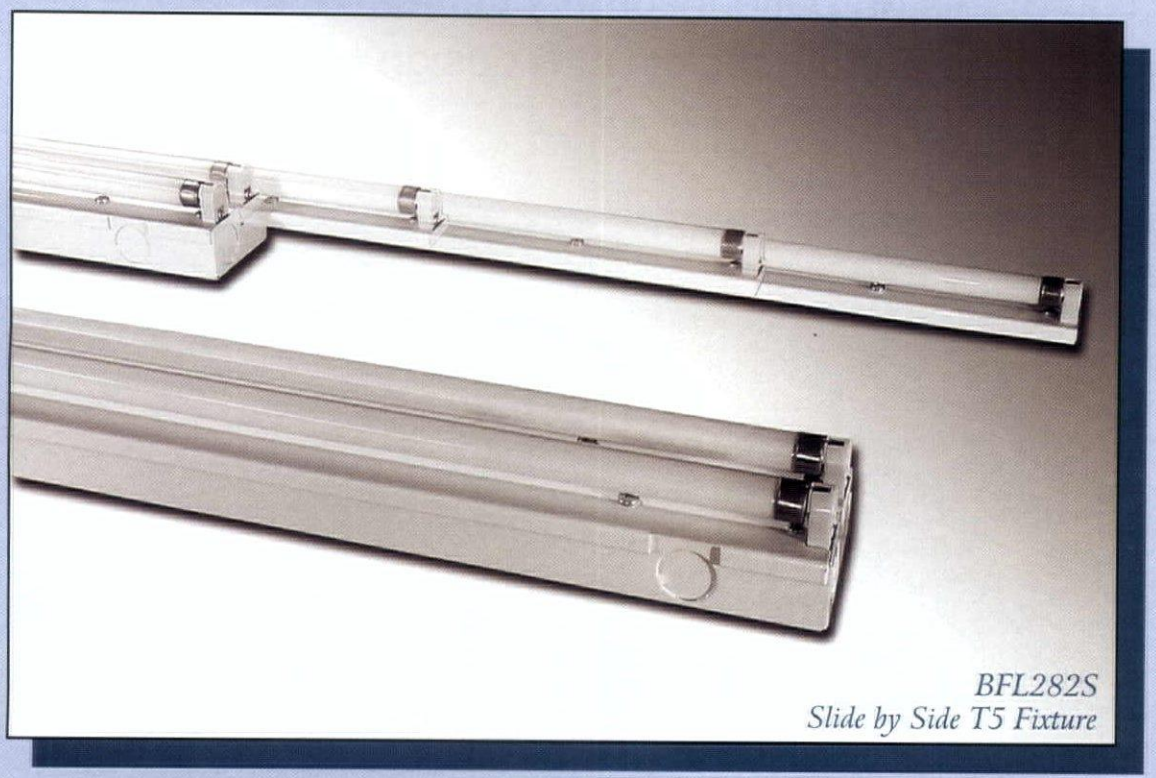

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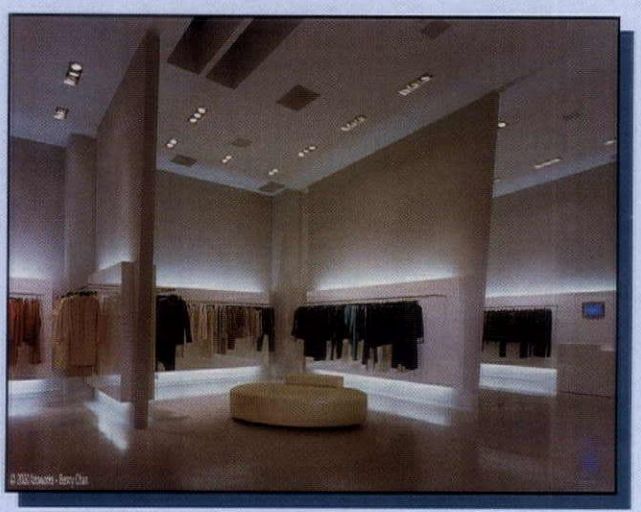

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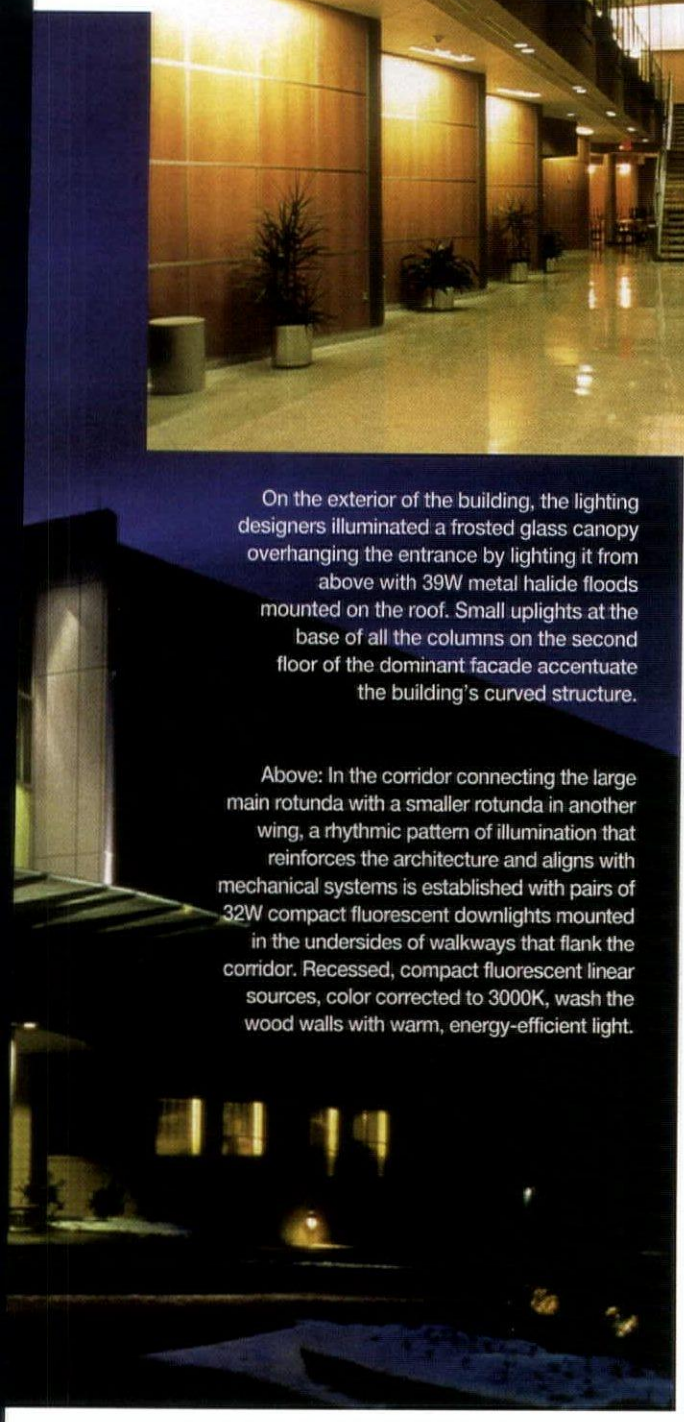
Health Benefit

The lighting of this outpatient surgery center became one of the primary cares of both the client & design team

BY JEAN NAYAR, CONTRIBUTING EDITOR

PHOTOS: © ANDREW HOFF

On the exterior of the building, the lighting designers illuminated a frosted glass canopy overhanging the entrance by lighting it from above with 39W metal halide floods mounted on the roof. Small uplights at the base of all the columns on the second floor of the dominant facade accentuate the building's curved structure.



Above: In the corridor connecting the large main rotunda with a smaller rotunda in another wing, a rhythmic pattern of illumination that reinforces the architecture and aligns with mechanical systems is established with pairs of 32W compact fluorescent downlights mounted in the undersides of walkways that flank the corridor. Recessed, compact fluorescent linear sources, color corrected to 3000K, wash the wood walls with warm, energy-efficient light.

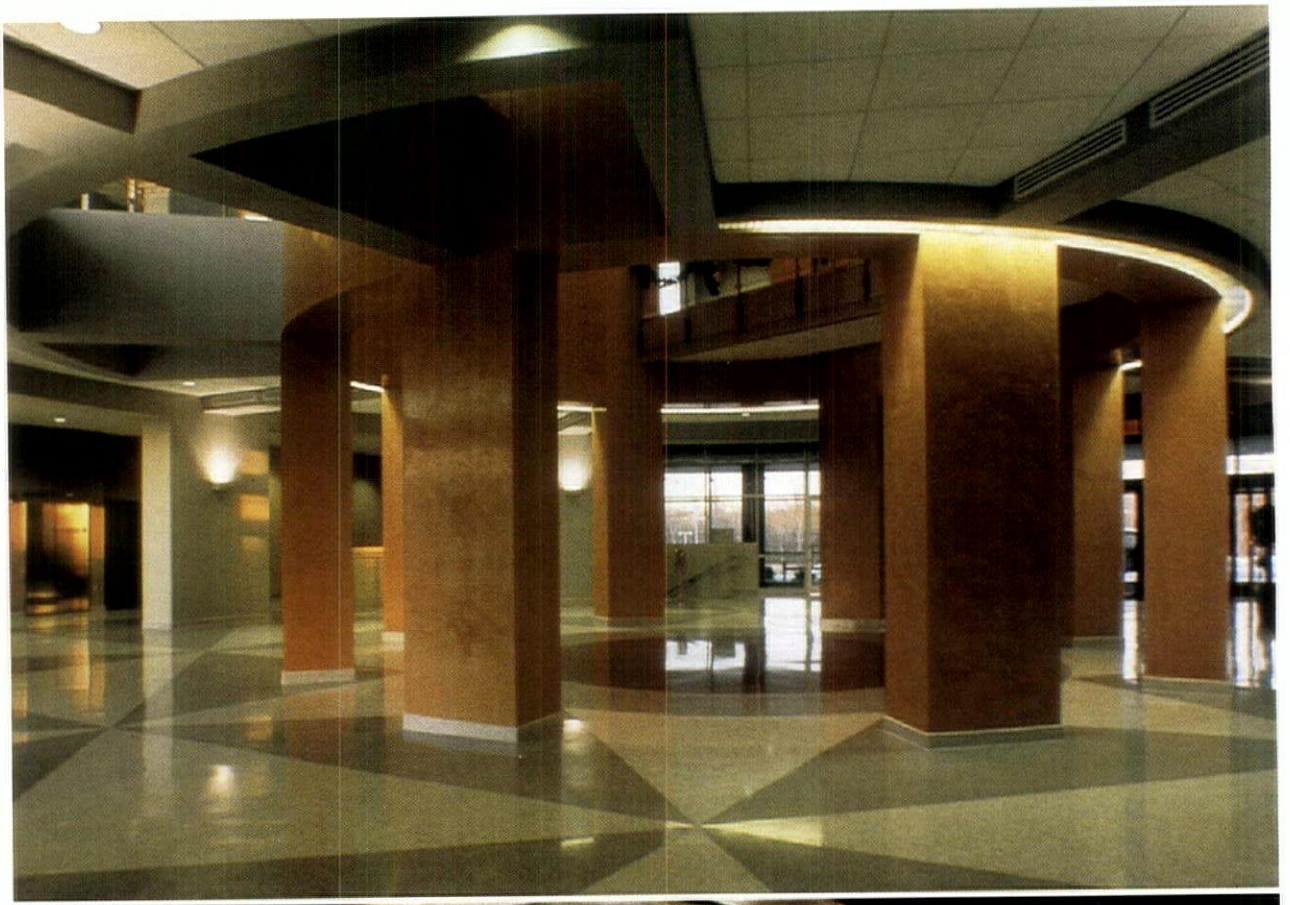
As with businesses in any other industry, healthcare providers need to make the most of every competitive advantage they can to keep themselves—like the clients they serve—healthy. One of the keys to the success of Pinnacle Health Systems, a Harrisburg, PA-based, charitable community healthcare system offering services to people of all ages and backgrounds, is its well-designed facilities. And integral to the thoughtful design of its newest facility, the Fredrickson Outpatient Surgery Center, which was built on the outskirts of Harrisburg, is its conscientious lighting scheme.

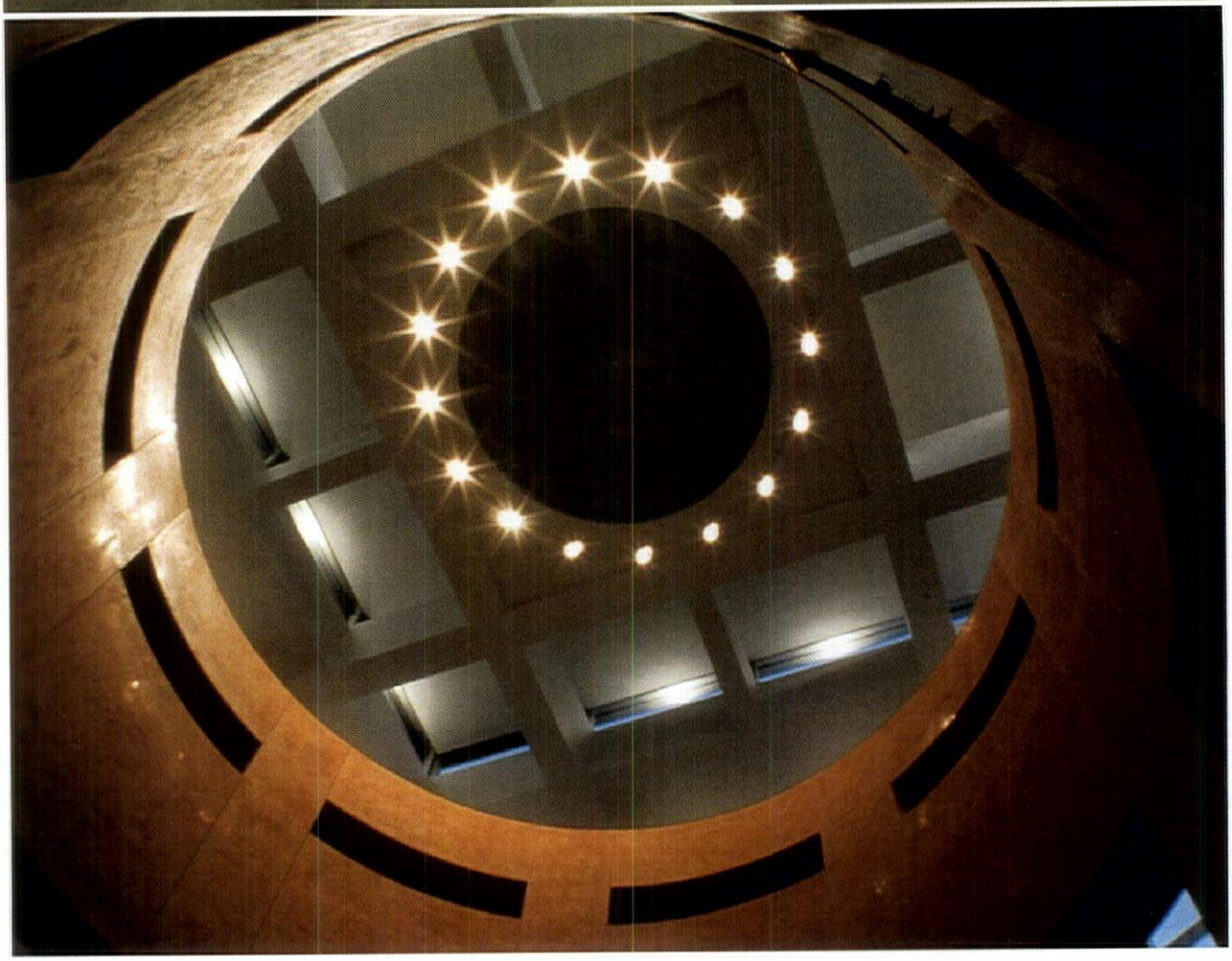
Designed by Philadelphia-based Granary Associates Architects, the new building is actually a kind of boutique, full-service surgery center, complete with resources for outpatient testing, surgery rooms, OB/GYN and pediatric offices, a sports fitness center and a medical library, which is open to patients. According to Shawn Good, a lighting designer from Brinjac Engineering, which developed the lighting for the entire facility, the architects told him they wanted the illumination to complement what they called the "Jetsonian look" of their architecture and interiors. Good interpreted this to mean a modern aesthetic that was also warm and friendly. Brinjac's lighting design not only enhances the architecture of the facility but provides an inviting ambience for patients and doctors, the best of whom Pinnacle wanted to attract into its leasable spaces.

Some of the most compelling design features are showcased in the public spaces. Upon entering the $23 million, 136,000-sq.-ft. facility, for example, visitors are drawn into the main lobby by the warmth and visual appeal of the glowing walls of a rotunda just beyond the primary entrance. The interior of this cylindrical volume—which is hand-rubbed with a spicy-orange finish that is both matte and glossy in different places—rises through the three-story height of the facility and creates a dramatic focal point.

WELL-ROUNDED SPACE

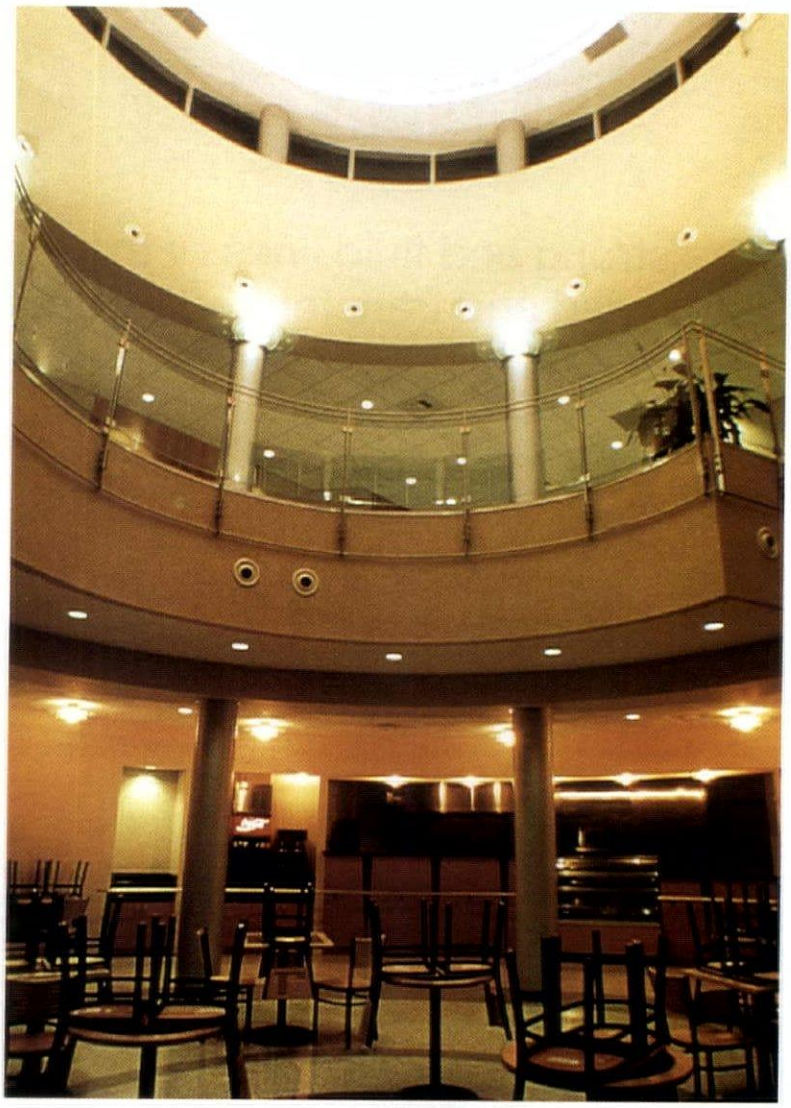
To enhance this feature and provide ambient illumination to this part of the building, the lighting designers employed a series of imaginative lighting techniques. The base of the rotunda, painted the warm orange hue inside and out, is defined by a thick, circular wall with massive, punched-out openings. A ring of 40W fluorescent lights—set in a cove in the first-floor ceiling and controlled with specular louvers—encircles the outer edges of the rotunda, accentuating its warm color as well as its round shape. "Because people are drawn to the rotunda and look up as soon as they enter it, we were concerned with reflection on the inside," said Good. To minimize glare yet highlight the inherent sparkle and shine of the interior walls of the rotunda, the lighting designers aimed a ring of adjustable, color-corrected 70W PAR38 metal halides—recessed in a circular reveal at the top of the three-story rotunda—in a spiral pattern. "This approach creates a sense of movement within the 'chimney' and keeps the light from blinding people as they look up because they will not look directly into any light source," Good explained. This light also simulates the effect of daylight and accentuates the depth of the walls at the second level as it pours through the punched-out openings. Another layer of light illuminates the cavity at night, where 39W metal halide floodlights, mounted on top of the "chimney," uplight the ceiling, as additional 39W metal halide floodlights mounted on the roof shine through clerestories and graze the ceiling, giving it additional texture.





Opposite: A ring of 40W fluorescent lights—set in a cove in the first-floor ceiling and controlled with specular louvers—encircles the outer edges of the rotunda, accentuating its warm color as well as its round shape. To minimize glare yet highlight the inherent sparkle of the warm-colored, hand-rubbed finish of the interior walls of the main rotunda, the lighting designers aimed a ring of adjustable, color-corrected 70W PAR 38 metal halides—recessed in a circular reveal at the top of the three-story rotunda—in a spiral pattern.

Right: In a smaller rotunda, containing a public cafeteria, sources with two color temperatures create a sense of drama. At the lower level, 90W and 150W A-lamps inside custom frosted jelly jar-like sconces bathe the cafeteria in a warm glow. Above, a collar-like ring of columns brings punctuation points of cool light to the upper reaches of the space with elliptically shaped metal halides hidden within acrylic rings at the top of each column to wash the ceiling.



Along a corridor connecting this large rotunda to a smaller rotunda in another wing of the facility, sloped wood-paneled walls along one side lend visual interest to the long expanse of space and conceal the surgery center on the other side. To highlight the walls and draw visitors down the corridor, the lighting designers created a rhythmic pattern of illumination that reinforces the architecture and aligns with mechanical systems by introducing pairs of 32W compact fluorescent downlights into the undersides of walkways that flank the corridor and are suspended from threaded rods in the ceiling of the double-height space. Recessed, compact fluorescent linear sources, color-corrected to 3000K, wash the wood walls with warm, energy-efficient light.

In the small rotunda, the lighting designers wanted to create an ambience of grandeur and at the same time, invite visitors and employees to the public cafeteria situated in its core. To achieve this, they used sources with two color temperatures to create a sense of drama. At the lower level, 90W and 150W A-lamps inside custom frosted jelly jar-like sconces bathe the cafeteria in a warm glow. Above, a collar-like ring of columns brings punctuation points of cool light to the upper reaches of the space with elliptically shaped metal halides hidden within acrylic rings at the top of each column. These also wash the ceiling with light and make it seem farther away than it really is.

NIGHT RHYTHM

The same thoughtful attention to illumination is evident outside, where a split-block feature wall is uplighted with HPS well-lights, which highlight its yellow hue with a rhythmic pattern. The lighting designers also illuminated a frosted glass canopy overhanging the entrance by lighting it from above with 39W metal halide floods mounted on the roof. Elliptically shaped sources keep the beam of light on the canopy, not beyond it. Small uplights at the base of all of the columns on the second floor of the dominant facade accentuate the building's structure. A series of compact fluorescent downlights at the tops of the columns of the lower level highlights the columns and reinforces the curved shape of the building.

The owners' emphasis on a well-designed building has already paid off. The facility is already fully leased and Pinnacle Health Systems is in the planning stages for an addition to provide more tenant space. Fortunately, the base building was designed with the flexibility to expand from the start. ■

DETAILS

PROJECT Fredrickson Outpatient Surgery Center **LOCATION** Mechanicsburg, PA **OWNER** Pinnacle Health System **ARCHITECT** Granary Associates Architects—Bill Hendrickson, AIA **LIGHTING DESIGNER** Brinjac Engineering—Shawn Good, EIT, LC, David Shaeffer **ENGINEER** Brinjac Engineering—Gig Settle, PE, Steve Neiman, EIT **PHOTOGRAPHER** Andrew Hoff **LIGHTING MANUFACTURERS** Advent; Kurt Versen; Design Plan; Hydrel; Sterner Lighting; Kim Lighting; Kenall; Lithonia Lighting; Visa Lighting; Phillips Lighting

Amazing Grace

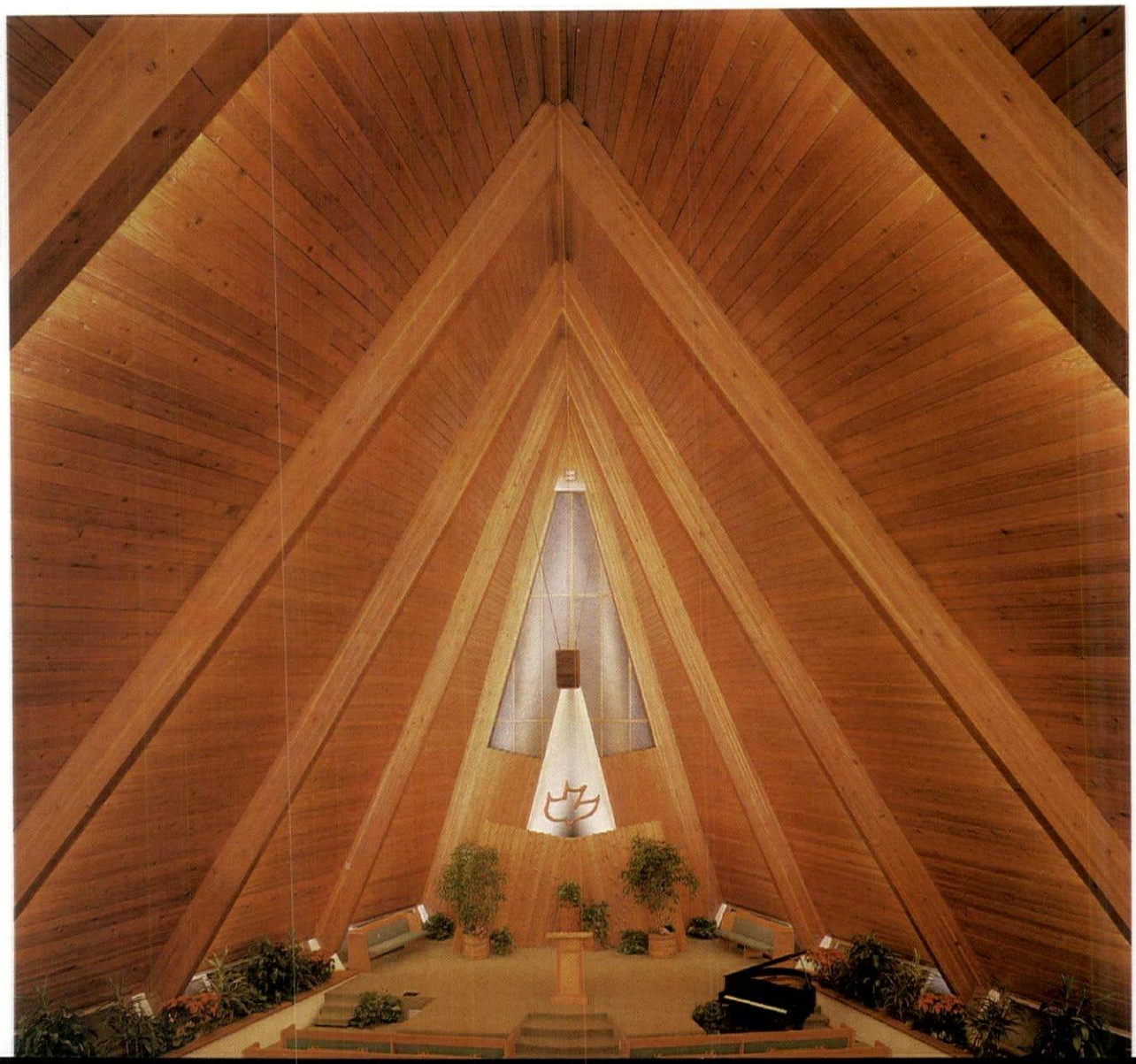
The strong and fluid lines of this California chapel are enhanced and transformed by understated lighting

BY CHRISTINA TRAUTHWEIN, EDITOR-IN-CHIEF

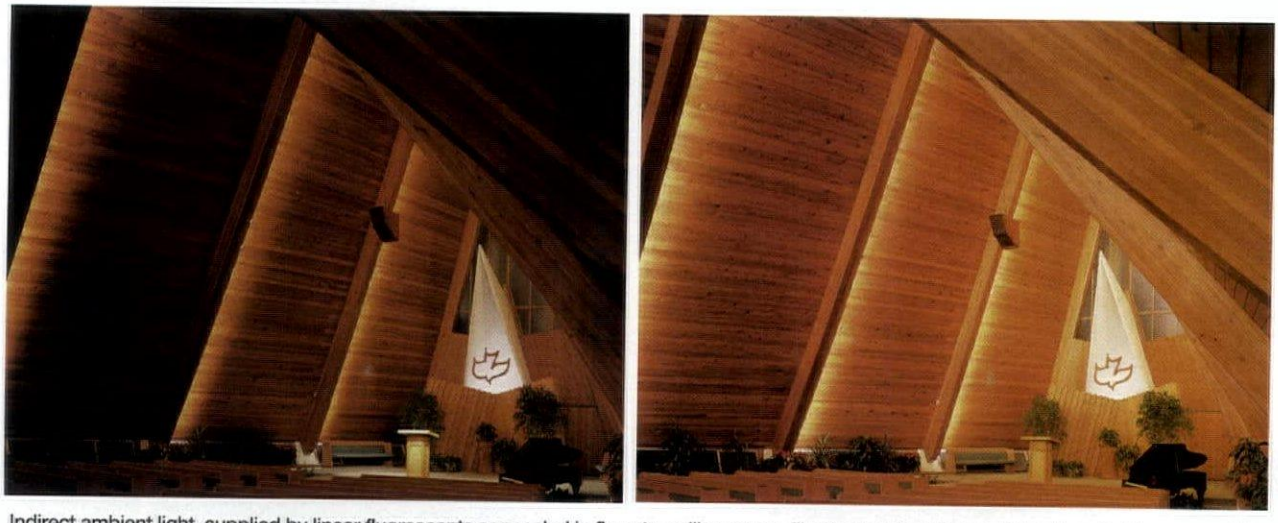
They say God is in the details. But it's not only the details, but often the absence thereof—the pure simplicity—in which a heavenly presence may be found. Take, for instance, the Calvary Chapel of the Canyons in Silverado, CA. A very serene beauty emanates from this informal A-frame structure set aglow by an equally modest lighting system. No bells or whistles. No glamorous decoration. Yet, the result is well, *simply* stunning…and reverent not only of the chapel's intent, but of its form.

"A good lighting design should embrace, and if at all possible, elevate the architecture of a project," explained lighting designer Shad Arnold, whose lighting solution gave "an old structure new life." For Arnold, the objective was to highlight what he deems the centerpiece of the project—the unique all-wood construction. "The design would have to satisfy the basic lighting requirements but I wanted to reinforce and contribute to the inherent strength and beauty of the architecture," said Arnold. "That was essential."

Originally built in 1960, the sanctuary of this non-denominational church was lighted with incandescent lamps mounted to the beams (or, as Arnold points out, "literally nailed to them") and aimed straight downward, which produced distinct



Photos: ©Scott Rothwall Photography



Indirect ambient light, supplied by linear fluorescents concealed in floor-to-ceiling coves, illuminates the interior of the chapel with a warm, rich glow. The system can be dimmed to various settings to accommodate the variety of activities that occur in the space.

pools of light in the 150-seat space. "During evening services, people would gravitate towards these pools and gather underneath them just to be able to read," noted Arnold. "At its highest level, there was only 12 fc of light." To top this, the system was controlled by an obsolete 5000W "steering wheel" rheostat. Aside from the most obvious facts—the system was outdated and not particularly efficient—the original plan did not adequately address the needs of the congregation and prohibited the magnificent structural forms and textures from being noticed. The newly designed system enhances the symmetry of the A-frame to its fullest potential and draws out the warmth of the tongue-and-groove knotty pine used throughout the project, creating an inviting environment.

Arnold chose to employ indirect ambient light to completely illuminate the 3,300-sq.-ft. space and to define the distinct character and dominant shapes of the interior wood structure—a building composed of 7-degree continuous pitched bevel draw beams reaching 43 ft. at the apex, creating a twisted concave A-frame. And while the lighting belies an apparent simplicity, the indirect cove system proved to be very complex, according to Arnold.

A custom cut-to-match cove—running from floor to ceiling on the stage side of each beam—was specified by Arnold. The client's desire for warm and inviting lighting with energy-efficient performance was achieved through the use of continuous stagger-strip fixtures with 3000K high-CRI T8 fluorescent lamps and full-range dimming ballasts, which provide maximum flexibility and reduction in overall lighting costs, housed within the coves of the six archways. "The lamps are positioned about an inch away from the wood, so the light is directed alongside the cove, running with the wood," said Arnold. The warm indirect light spills over the coves, creating visual comfort and an ideal environment for reading, study and various ceremonies. At the same time, the fixtures are entirely obscured from view so as not to detract from the chapel's clean architectural lines. "Decorative fixtures or chandeliers, which are often found in places of worship, were specifically avoided here so that the architectural plane would remain uninterrupted by competing forms," said Arnold. The light coves change in dimension and span at every beam—due to the collapsing A-frame structure—and adjusting for uniformity and balance, while at the same time endeavoring to keep the light sources concealed, was often tricky.

In addition to the ambient light, Arnold chose to discreetly employ miniaturized stage lighting. Low-voltage MR16 halogen spotlights with dichroic color filters are also concealed in the coves to offer precise stage, or altar, lighting—all operating within preset scenes.

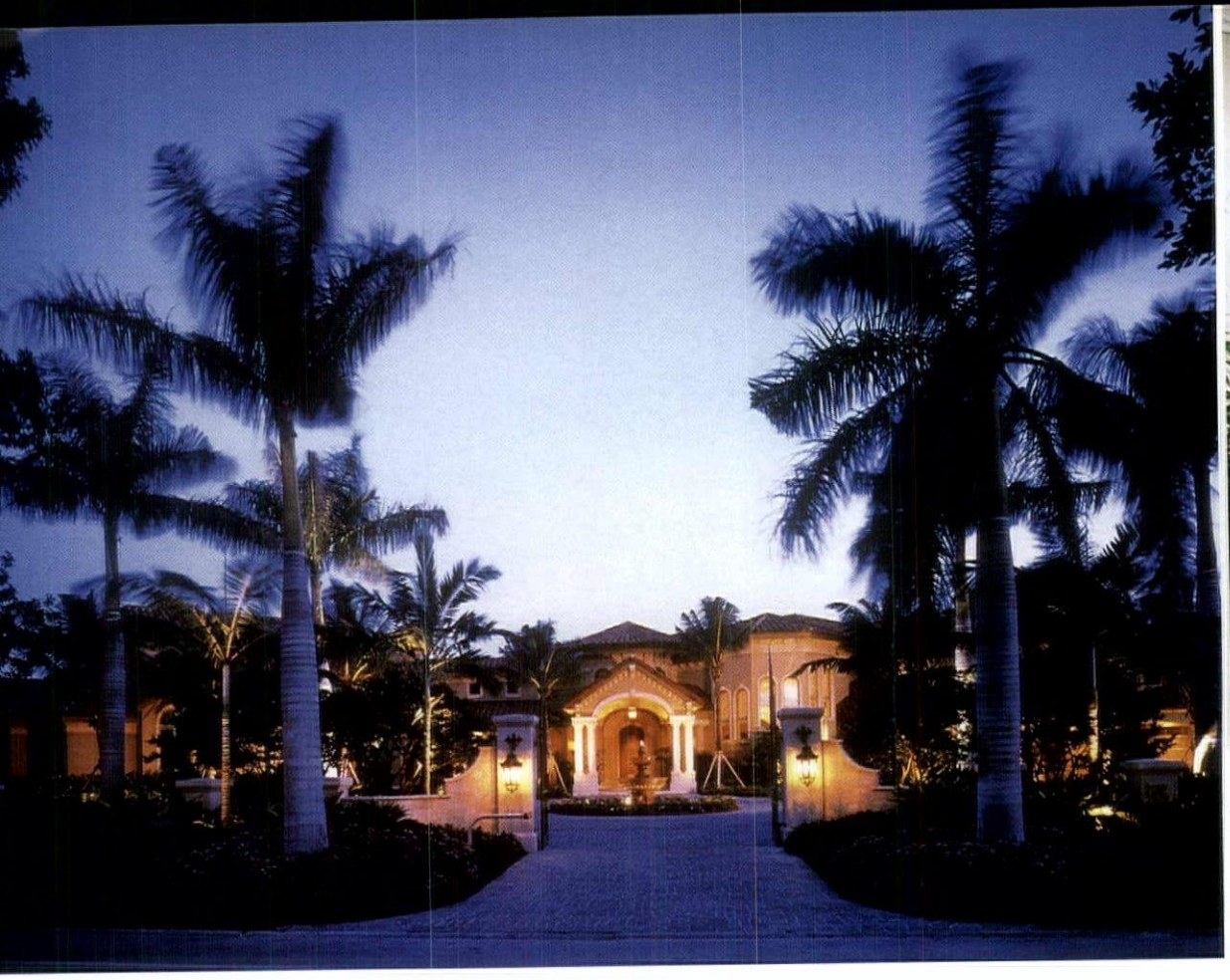
The lighting design for the Calvary Chapel of the Canyons—Silverado, CA, which incidentally, cost $17,300 for the supply and installation of materials and came in at 1.42 W/sq. ft., has received numerous awards including a 2000 GE Edison Award of Merit, a 2000 Lumen Award and 2000 IESNA International Illumination Design Awards for Interior Lighting Design at various regional and international levels. But perhaps more important than those prestigious distinctions, Arnold received praise from the client, Pastor Larry DiSimone. "Shad designed the lighting system for our church sanctuary, which has turned out to be beyond our expectations," he said. "The lighting designer had not only the experience and skill, but also the creative edge that beautified the interior of our church."

"I think 20 or 30 years from now, I'll still look back at the project and hold a lot of professional pride in it," Arnold commented. "When I tell people of the strip fixtures, they seem to think there's a cheapness to that. But I do think that sometimes a simple or cost-effective solution can be just as beautiful as anything else if done correctly. Coming up with the right solution for the architecture is so important. And I think we did." Added Arnold, "The amount of weddings held at the chapel has increased tremendously due to the new lighting. I think that's rewarding in and of itself." ■

Editor's note: *At the time of completion of this project, Shad Arnold was director/senior designer at Anderson & Howard in Irvine, CA. Corporate downsizing recently eliminated the division. Arnold may now be reached at shadarnold@earthlink.net.*

DETAILS

PROJECT Calvary Chapel of the Canyons **LOCATION** Silverado, CA **LIGHTING DESIGNER** Shad Arnold, LC, CLC, LS (former director/senior designer A&H Design & Consultation in Irvine, CA) **ELECTRICAL DESIGNER** P2S Engineering—Gary Jewell **MASTER ELECTRICIAN** Bill Mileham **PHOTOGRAPHER** Scott Rothwall Photography **LIGHTING MANUFACTURERS** GE; Lutron; Cooper—Metalux, Halo, Iris



Photos: © Laurence Taylor

House Beautiful

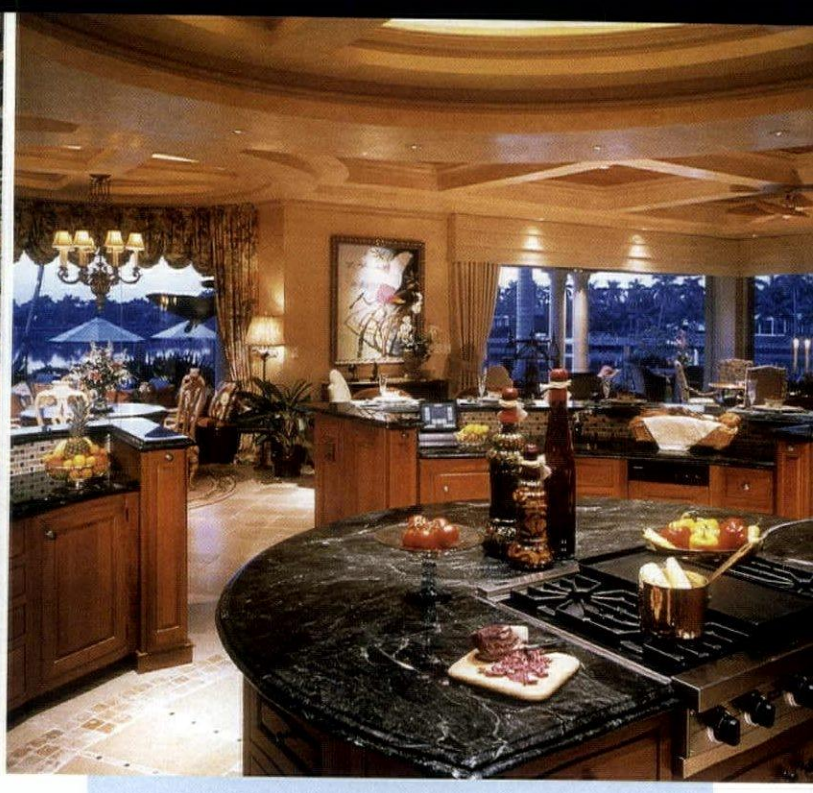
An intimate pairing of architecture and light give this Florida residence one-of-a-kind appeal

BY ALICE LIAO, SENIOR EDITOR

For local Floridians and those in the know, the address alone is enough to inspire visions of sprawling estates, glittering parties and modern-day Gatsbys, cell phones in hand, strolling purposefully toward the boat out back. Yet this 12,000-sq.-ft., Port Royal residence distinguishes itself with something else: A true marriage of architecture and light that cloaks the house in understated elegance and makes keeping up with the Joneses an underachiever's sport. Designed by Donald Evans of the Evans Group and lighted by Wayne Kahn, formerly of the now defunct Integrated Electronic Environments and currently with Advanced Audio Design, the house not only embodies the upscale refinement one would expect in such an exclusive neighborhood, but also capitalizes on Florida's temperate climate and fully responds to the owner's need for comfort, flexibility and a dramatic showcase in which to display prized collections and entertain guests.

Close collaboration among design team members and trades was important in effecting the seamless integration of light and form throughout the house. "The project was challenging because the client didn't want the light sources to be visible and many of the architectural details were made out of stone or entailed built-in custom work," said Kahn. "We had to work with the different trades to ensure that when they cast the stone columns, for example, there was enough room to install lighting." Early involvement was also instrumental. "We bring in lighting consultants very early on," said Evans. "Most people don't understand that lighting is not something that you just do on the side. So we have to educate them, teach them that it takes a team of professionals who have to work hand-in-hand and overlap in what they do to build a perfect home today. And that's what this residence is—a perfect home."

According to Evans, little was left to chance in the conception and construction of the residence. "There was no guesswork," he said. "We knew exactly where every piece of artwork and furniture would go. We didn't put the house in the ground until everyone had done their job 100 percent and was in agreement."



The result is an exquisite 180-ft.-long structure consisting of two separate wings connected by a rotunda. The lighting solution lends nighttime beauty to the surrounding landscape of the house while imparting to its interiors a golden light and a sense of comfortable luxury—which, according to Evans, accounts for the abundance of photographs taken of the house at night. "When we sent the photographer down, we told him that daytime shots are no good because on this house, lighting is the name of the game," said Evans. "This house actually feels better with the lighting on."

The inclusion of computerized controls and a layered system of direct, indirect and decorative lighting provide the flexibility required in a house that serves as private dwelling by day and, at night, a site for frequent gatherings of Naples' rich and influential. "If you live in Port Royal in Naples, you entertain a lot, so we knew that this house would be seen," said Evans. "Consequently, a great deal of the budget went toward fulfilling that aspect."

The generous lighting budget allowed the design team to exercise their creativity and design dynamic effects, a freedom not always possible on other projects, because, as Kahn noted, "in other houses, people might not place as much value on that."

"The value placed on lighting design is sometimes what separates extraordinary residences from that which are more mediocre," said Kahn. "It's actually the lighting inside the house that's making the difference." ■

Opposite: With Florida's balmy temperatures often leading residents to leave doors and windows open for fresh air, Kahn illuminated the exterior rotundas, pergolas and courtyards to establish a visual flow from outside to inside. Said Kahn, "The client wanted it all to feel like one big space." Lighting the shrubbery, MR16 uplights mounted in the ground highlight texture while metal halide spotlights, also in the ground, splash drama onto the canopies of Royal Palms. Bent custom copper channels equipped with striplights indirectly light steps for safety. Out front, a series of MR16 well-lights located at the base of pillars delineates a wall extending the length of the residence and forms a kind of luminous welcome.

In the private courtyard (above left), where an atmosphere of solitude was desired and an illusion of moonlight created, stake-mounted AR111 fixtures and underwater pond lights combine to uplight a fountain, producing delicate reflections of dancing light on a wall. MR16 floodlights mounted on a trellis heighten the mood with supplementary illumination.

The sense of visual drama continues inside, slightly shifting from room to room and from day to night. In the large, open space (above right) constituting the kitchen, living room and dining area, ceiling cutouts ringed with xenon light provide indirect illumination, while MR16 pinspots integrated into the dropped sections create an illusion of crosses floating in the space. The pinspots also highlight artwork, accent columns and drapery and ensure that light levels in the kitchen are sufficient for cooking and entertaining. "The kitchen lighting had to be flexible enough that you can cook in there and have plenty of light," said Kahn, "but at the same time, be dimmable to lower levels for dinner parties and integrate with the rest of the space."

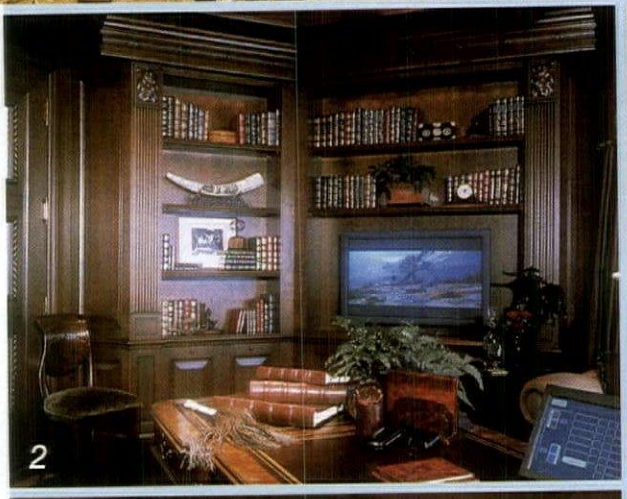
To provide flexibility, a sophisticated control system was installed that not only offers different schemes for different moods, but because the space is partially enclosed by large expanses of glass, also accommodates changes in daylight levels throughout the day. "During the day, we wanted to accentuate the artwork, but also have lighting suitable for reading," said Kahn. "Because of the glass, we programmed the lighting control system to adjust for evening and daytime levels."

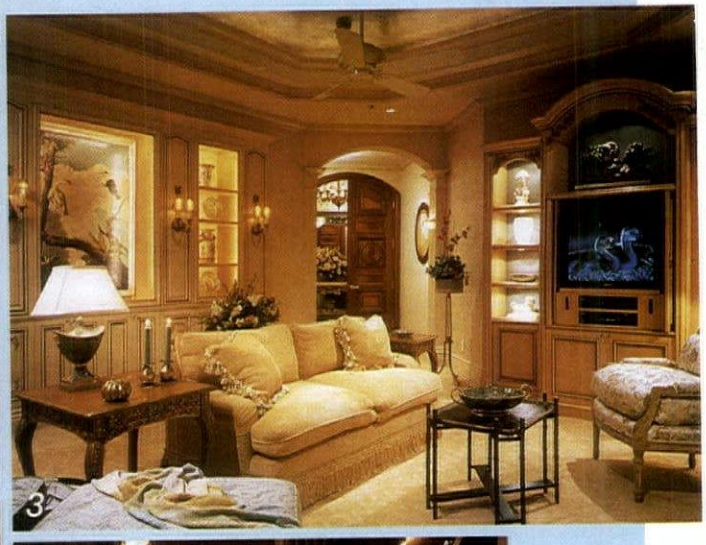
Additional fixtures for ambient lighting is recessed overhead, while a chandelier suspended over the dining table and incandescent floor lamps scattered in the living room and dining area complement the aesthetics of the space, add punch and promote atmosphere.

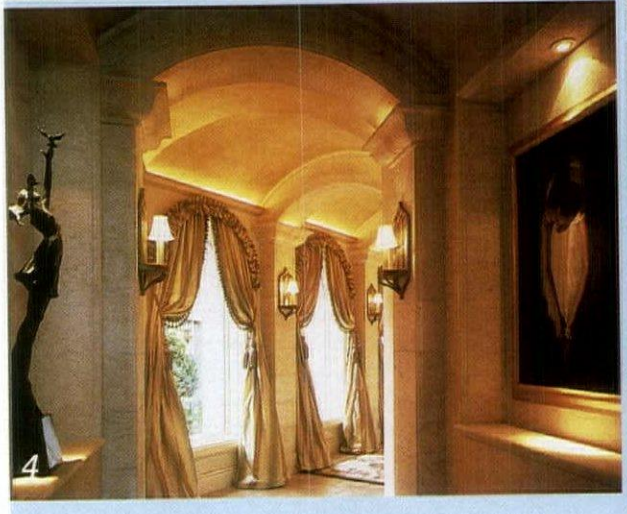
DETAILS

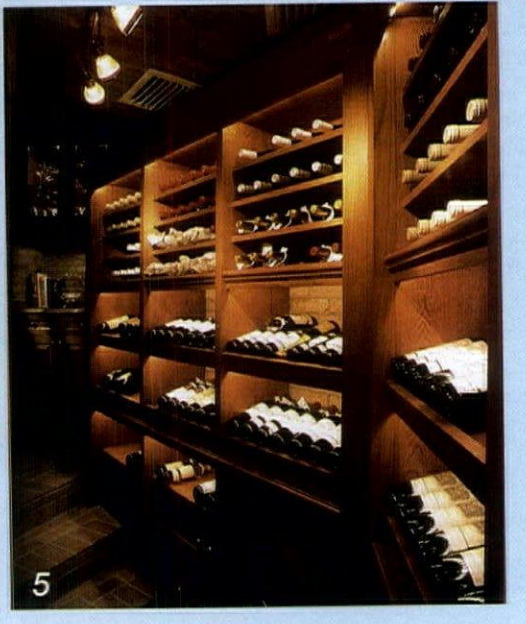
PROJECT Private Residence **LOCATION** Naples, FL **ARCHITECT** The Evans Group—Donald Evans **LIGHTING DESIGNER** Advanced Audio Design—Wayne Kahn (formerly of Integrated Electronic Environments) **PHOTOGRAPHER** Laurence Taylor **LIGHTING MANUFACTURERS** B-K Lighting; Lucifer; Cooper Lighting/Iris; Wendel Lighting; Lumière; CSL; Tech Lighting; Lutron; Osram Sylvania

Although a similar palette of fixtures is applied throughout the house to suffuse it with a golden light, Kahn differentiates the rooms by picking out architectural details, shifting visual focus and highlighting artwork. "Because there is so much indirect lighting, I tried to mix up the ways we illuminated each room, so that people, when in them, would have a different experience," said Kahn. In the great room (photo 1), special emphasis is given to the bar, cabinets and display of ornaments. MR16 pinspots and undercabinet fixtures, fitted with xenon lamps and concealed behind mahogany shelves in custom-built grooves, backlight the objects to emphasize negative shape. For general lighting, additional pinspots, table lamps and downlights fill the space with warmth.









In the study (photo 2), pinspots are again paired with covelighting to supply the ambient illumination for the room. For the books and artifacts on shelves, Kahn worked extensively with cabinet manufacturers to ensure that fixtures were detailed in properly. "We decided to use these library bookshelf fixtures that connect through the wood with a brass bar and thus eliminate the need for wires," said Kahn. "To specify and install the cabinet lighting correctly involved close cooperation with the cabinet manufacturers."

A total of 21 MR16 lamps, each fitted with blue filters, helps bring out the sparkle from a collection of crystal in the sitting room (photo 3). Overhead and along the perimeter, xenon covelighting and cabinet lighting infuse the space with an overall glow that is punctuated by incandescent sconces and table lamps.

Other highlights of the project include a 60-ft.-long hallway (photo 4) leading from the main house to the guest wing. Its barreled ceiling is illuminated with xenon covelights tucked behind molding and its impressive stone columns accented with custom-designed, 20W incandescent sconces. MR16 spotlights dramatically call attention to artwork contained in niches. In the wine cellar (photo 5), whose sloped ceiling presented some difficulty, a bendable track is mounted to the inclined plane and equipped with MR11 fixtures that graze a brick wall and light the racks of bottles. The collection is indirectly illuminated by undercabinet fixtures lamped with xenon sources. Kahn noted, "The light wattage was taken into consideration when calculations for refrigeration in the wine cellar were made."

Sustainable Design—Getting the Green Light

BY MARK LOEFFLER, LC

"Sustainable lighting design meets the qualitative needs of the visual environment with the least impact on the physical environment."

That is the working definition developed by the recently formed IALD Sustainability Committee, which first gathered at the IALD Annual Conference in Philadelphia in November 2001. "The new Sustainability Committee of the IALD will provide a useful forum for those designers who have been implementing sustainable design concepts and processes to share among themselves and with other design professionals," said committee chairperson Samantha Holloman of Hayden McKay Lighting Design. The initial meeting included JoAnne Lindsley of Lindsley Consultants; Jim Benya, Benya Lighting Design; Ron Kurtz, Randy Burkett Lighting Design; David Nelson, Clanton & Associates; Leslie North, OWP&P Engineers; Sara Schrager, Warfel-Schrager Architectural Lighting; and myself, The RETEC Group. That roster has already grown to more than a dozen IALD members actively working in areas of green design. A new listserv has been added to the IALD website (www.iald.org) to facilitate members' interaction on these issues.

The committee's first challenge was to define "sustainable lighting design." While adept at working with energy efficiency goals, most lighting designers are not yet associated with the growing green building trend. "This committee's work, both within the IALD and through outreach programs with other associations," said Holloman, "will enable lighting designers to bring more options to the design table for recognizing and increasing lighting's potential contribution to the sustainability of buildings."

A new level of awareness in the lighting industry was evident during 2001. I participated on a "Sustainable Design" panel moderated by Leslie North at the IESNA Annual Conference in Ottawa in August. At the IALD conference in Philadelphia, Clanton and Naomi Miller conducted a well-attended sustainable lighting design seminar. In February 2002, Benya is delivering the keynote address provocatively entitled, "Green Lighting or Green Baloney," to the Energy-Efficient Lighting Systems conference in Tucson, AZ (sponsored by *Architectural Lighting*).

In some ways, this is old news. Lighting designers have long been advocating awareness for the importance of lighting quality—the primary goal of sustainable lighting design—and energy efficiency—a major element in the green building approach. However, relatively few lighting designers actively market themselves as green.

Noting the rapid public acceptance of green building principles, Jim Benya said, "IALD designers are the most qualified to represent what is good lighting. We have a responsibility to actively set standards for how lighting quality is defined as part of green building. If we don't do it, someone will do it for us."

The committee's broad working definition of sustainable lighting design is inspired by the oft-cited United Nations definition of sustainable development (by the 1987 Brundtland Commission) as "seeking to meet the needs of the present generation without compromising the ability of future generations to meet their own needs." Sustainability is associated with the notion of the "triple bottom line" for which success is measured in terms of economic, environmental and social impacts.

An integrated daylighting and electric lighting system was designed by Clanton Associates for the award-winning green building Deramus Education Pavilion at the Kansas City Zoo.
Photo: © Michael Mutmansky

This sustainable approach to lighting design includes:

Collaborating with other design disciplines to further green building practices. Lighting designers are not automatically thought of as green design advocates. The committee quickly determined that we should not only communicate our mission to our own membership, but also connect with other leadership organizations to raise our sustainability profile and to

encourage other lighting organizations to follow suit. This initial outreach effort will target the U.S. Green Building Council (USGBC), the AIA Committee on the Environment and the International Dark Sky Association, as well as IESNA, LIRC and NCQLP.

The USGBC has become the leading organization for the sustainable design industry in the United States. Started in 1993, it has grown to more than 1,000 organizational members in design, consulting, government, corporate, not-for-profit and manufacturing sectors. It also administers the influential Leadership in Energy and Environmental Design (LEED) green building rating system. Several points in the LEED system pertain directly to lighting design, including goals for minimizing light pollution, maximizing daylighting and reducing energy use.

"It is important for lighting designers to have exposure to that kind of commitment," said Nancy Clanton, "especially to help architects and clients learn about lighting quality." Her firm and committee member David Nelson serve on both the AIA COTE and the LEED technical advisory board.

Within the lighting industry, the IESNA and LIRC will be critical links for lighting designers to work with engineers and manufacturers to create new awareness and markets for green techniques and technologies. It is also expected that the committee's scope will extend beyond its current U.S. focus as its existence becomes better known.

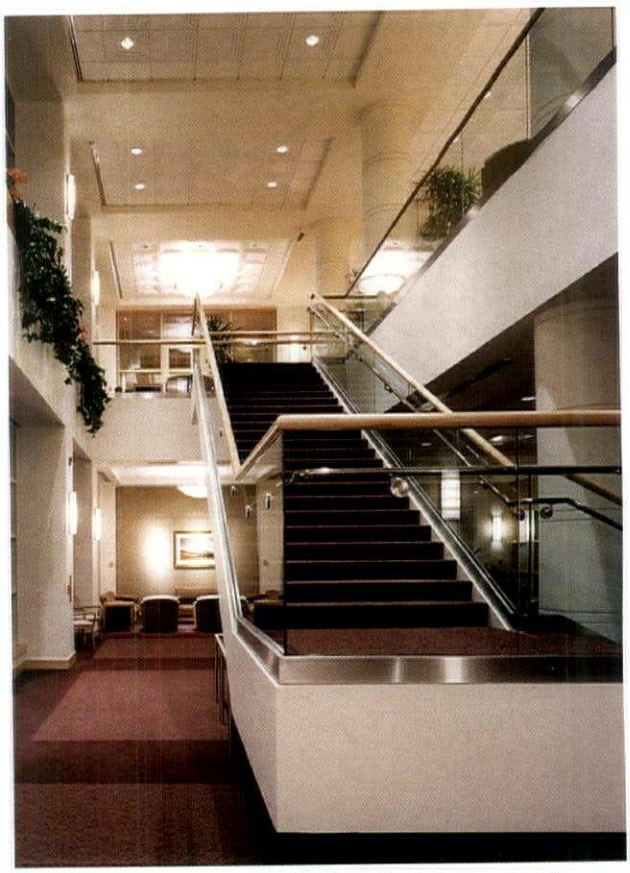
Maximizing the use of daylighting. Daylight should be considered a primary light source in interior lighting systems. This is the first step in creating a lighting design that makes the most effective use of energy. It is also a highly regarded attribute of sustainable design, prized by building occupants.

Thinking of daylight as a fundamental and essential light source can radically reorganize lighting design considerations. It also causes the lighting designer to have a greater voice in the building orientation, window design, interior space configuration and interior finish selection.

"Looking at daylighting as part of the whole lighting design lets us better advise architects," said Clanton. "We can rethink electric lighting as a supplementary source in a three-dimensional sense, not just design by reflected ceiling plan."

For the U.S. EPA Headquarters project, which incorporates four adjacent buildings in the Federal Triangle in Washington DC, Hayden McKay designed a lighting system to maximize and reinforce the daylighting. "These are historic buildings originally designed in the 1920s for daylighting," said McKay. "We had to keep the original government-issue colors and deal with prescribed partition heights, but we have high ceilings and shallow floor plates that allow everyone access to daylight and views for these large open-plan spaces." The linear direct/indirect luminaires are mounted to the soffit concealing mechanical equipment to supplement the daylighting. By placing the circulation space along the window wall, the daylight is better distributed and the luminaires could be moved further into the space. The window wall is illuminated with compensatory lighting to reduce contrast glare.

Minimizing the use of energy. Energy efficiency is common practice for lighting designers. The professional lighting community has been intimately involved with developing standards for "energy-effective" practices that enable energy savings without restricting design quality.



The efficient, low-maintenance lighting system designed by The RETEC Group for the Student Village Dormitory at Boston University uses luminaires and lamps from manufacturers with environmental management programs. Photo: © Richard Mandelkorn

This is inherently sustainable with the benefits of avoiding power plant emissions and reducing operating costs. Lighting unavoidably uses energy but new technologies and lighting design techniques have greatly diminished energy use in new and renovated buildings. Designers will increasingly confront new energy code requirements that must be balanced by the need for high-quality illumination.

Energy conservation and efficiency is the largest category of green design measures in the LEED rating system. This is the category in which lighting designers can have the greatest effect on the long-term sustainability of a building. As JoAnne Lindsley, the original chairperson of the lighting committee for IES/ASHRAE Standard 90.1, noted, "Lighting energy issues are morphing into sustainability issues." Starting in 1990, Lindsley, Helen Diemer and other IALD members began meeting with EPA and DOE to represent the lighting designers' perspective in the development of new energy standards and codes. "Our work on energy addressed lighting quality issues, too," Lindsley said. "That led to forming the Metrics of Quality Committee, which led to forming the Quality of the Visual Environment Committee, which has led to some valuable research. Lighting designers are real players in those areas and the Sustainability Committee is a further enrichment to that effort."

Avoiding skyward illumination. Light pollution or "sky glow" has become a public awareness issue that lighting designers increasingly must address. While involvement with USGBC and LEED was flagged as

important by the committee, the need to collaborate with other organizations that influence public perception and governmental policy regarding lighting was also obvious. This is especially true with the International Dark Sky Association (IDA), which has emerged as a powerful advocate for restricting light pollution.

"The IESNA is working with IDA to draft a model exterior lighting ordinance," noted Benya, who serves on the IDA board along with Clanton and Miller. "Light pollution is gaining public interest. Some local ordinances are well written while some others are unworkable."

Restricting light pollution has some obvious implications for lighting designers. Entire design approaches to landscape and exterior lighting dependent on uplighting may have to be reconsidered. Even designs that fully restrict any upward illuminance may cause objectionable amounts of reflected light. But designers are optimistic about finding a balance between lighting and dark sky objectives. "I believe we are successfully working toward a meeting of the minds between IDA and the professional lighting community," said Benya.

"greenwash," things like environmental statements on manufacturers' websites or in catalogs can be genuine indicators of stewardship. Many companies have implemented environmental management systems, pollution prevention measures, packaging reduction techniques and recycling programs that exemplify this kind of commitment.

Advocating the development and use of renewable energy and other sustainable building materials and technologies. Lighting designers will increasingly find themselves in a position to advocate green building techniques. This may involve the application of renewable energy technologies, especially photovoltaic systems, as well as alternative materials and finishes. But this leads to complex questions of offsetting benefits and attributes of these materials. For example, the production of photovoltaic systems is necessarily energy-intensive and utilizes environmentally sensitive materials, but generates "free" electricity from solar energy.

More pertinent to lighting designers are concerns about making choices between different luminaire and electrical component materials. "I understand the need for lighting

Lighting designers will increasingly find themselves in a position to advocate green building techniques ... this advocacy role represents a new level of responsibility and opportunity.

Ensuring system durability and maintainability. Durability and maintainability are hallmarks of good lighting design that can go unrecognized as an intrinsically green practice. It stands to reason that a system that will perform the longest with the least effort to properly maintain is the best economic and environmental value.

"Standardizing lamps and minimizing the quantity of different lamp types within a facility help ensure that the design has a life beyond the initial installation that is consistent with the design intent," said Leslie North. Citing a recent hospital project she designed with durability, access, uniform lamping and long-term maintenance especially in mind, she said, "This goes a long way to establishing credibility with a client and their maintenance personnel."

Encouraging environmentally responsible manufacturing processes. At the IESNA "Sustainable Design" presentation in Ottawa last year, Ron Westwood from Lightolier, Paul Walitsky from Philips Lighting and Peter Bleasby from Osram Sylvania described their companies' activities in various aspects of sustainable manufacturing practice. Whether as part of its operating philosophy, research and development, public advocacy or manufacturing excellence programs, a company can demonstrate its commitment to environmental responsibility. Lighting designers can encourage this kind of commitment by not only admiring it, but by actively considering it in what they choose to specify.

In my own practice, I am increasingly seeking out companies that demonstrate at least some indication of environmental awareness. Although sometimes derided as

quality and energy efficiency, but how should I judge whether it would be better to use steel or aluminum housings or different kinds of plastics for instance?" asked Nick Ferzacca, head of the electrical department for Symmes Maini McKee Associates, an A/E firm in Cambridge, MA, who coincidentally called me during the process of assembling this article. We agreed that this is relatively uncharted territory for lighting designers and manufacturers that needs evaluation and research.

The lighting industry will inevitably be confronted with these kinds of environmental impact questions that have already been encountered by many other industries. Sustainable design and the LEED system place considerable value in the use of recycled and recyclable materials. This extends to reducing embodied energy—the manufacturing and transportation energy required to deliver products to the job site—and to minimizing packaging waste to product disposal, take-back and disassembly programs.

As with all the other aspects of sustainable lighting design listed by the IALD Sustainability Committee, this advocacy role represents a new level of responsibility and opportunity for lighting designers. ■

Mark Loeffler, LC is the lighting and sustainable design practice leader for The RETEC Group, an environmental consulting firm. He is also LEED accredited and is based in New Haven, CT.

MUSEUMS: THE ART OF THE CONCEPT

BY PAUL MARANTZ, FIALD & CHARLES STONE, IALD IN COLLABORATION WITH ALICE LIAO, SENIOR EDITOR

Museums have become in many ways the churches of today, providing people with a place on the weekends to gather, relax, learn and for some, reach aesthetic and spiritual fulfillment. They're festive, often cheaper than a movie and more social. Museums have become an essential focus of life and major cities today are hard-pressed not to want one to call their own. In fact, some say that a city isn't truly great unless it has a few wonderful museums.

In broaching the subject of museum lighting, one may first want to ask, "What is a museum after all?" The answers are vast, encompassing a range of environments whose key attractions are not only paintings and sculptures, but also whales and micro-computer chips and exhibits designed in much the same way as booth displays at trade shows. Some museums need very little illumination, housing exhibitry that's already lighted or composed of light. Yet, designing for a museum, at its most fundamental, is not that different from designing for an office, restaurant or airport, because in the end, light has to do what the program of that specific institution asks it to do. So, when embarking on a museum project, one has to define what the program is: What kind of museum is it?

Because museums vary in type, the techniques and solutions required to illuminate them cover a broad spectrum as well. At one end, the strategy may call for techniques used in retail environments. At the other, the lighting designer must imagine how an artist, deceased for 400 years, saw his painting and then perhaps attempt to recreate the original viewing conditions. Is that possible? Knowing that there was no electric light more than a 100 years ago, one can imagine that any attempt at a faithful reproduction will ultimately fall short—unless one builds a museum similar to an artist's loft where all the artwork is illuminated by north-facing windows and candlelight.

Although discussions on art gallery lighting design often center on the quantity, color and filtration of the light and the harmfulness of UV, a more meaningful approach at the onset of a project raises questions that help determine the kind of environment in which visitors will view art and the experience they will have within the environment. Will being in the gallery in and of itself be an enjoyable experience? Or should the gallery be "neutral"? Will it be a minimalist, modern Zen-like experience or some derivation of the original circumstances in which the painting was produced?

In museums that serve as memorials to a people or a historical episode, the strategy may extend beyond simply illuminating displays of artifacts and documents to evoking an atmosphere and taking on an active role in the overall "story" of the institution. For example, at the Holocaust Museum in Washington, D.C., the sharp play of light and shadow is used to create a sense of mourning and elicit an emotional response from visitors.

POINT OF VIEW

Museums by their nature are the extension of a philosophy either of an institution or of a director. Therefore, sometimes projects may encounter mid-course corrections following the departure of a director. Successful projects often involve directors with passionate points of view, which were then carried out. At Los Angeles' Getty Museum, the director mandated that, for the maximum number of hours possible everyday, all of the artwork be illuminated with daylight. This strong stance drove the architecture and the lighting design in each room and led to the inclusion of a sophisticated louver system.

A meaningful approach at the onset of a museum project raises questions that help determine the kind of environment and the experience.

Some museum directors may prefer a controlled environment to ensure that one-time visitors can see exhibits under optimal lighting conditions, while others will want a blend of electric and natural light. At the Monterrey Contemporary Art Museum in Mexico, the dark and dramatically illuminated galleries are connected by arcades and bright passageways with windows that look out at the region's famed mountains. Typically, the upper floors of a museum will have daylight issues, while the lower floors consist of non-daylit galleries for temporary exhibits that may have stringent light level requirements. Of course, there are exceptions and most facilities incorporate daylighting to some degree.

For many, the appeal of daylight is its color and capriciousness. Rooms solely illuminated with electric light—windowless rooms—are easiest to design, but can induce boredom and sleepiness. The integration of daylight is one of the most interesting and core activities in museums that display art and requires the resolution of a host of conservation concerns, including quantity of light and the effects of UV light. UV light, of course, is not the only wavelength that harms paintings, but because it is imperceptible to the human eye, it can be eliminated without affecting the viewing experience.

Recently, there's been a big push to include the outside world in the experience of a museum. As a result, windows offering views to the outside have become

important to remind visitors of where they are and what time of day it is. Yet daylight is always changing—sometimes every five minutes. And geography and the shift in seasons can all play a part in the lighting and experience of a work of art and therefore, may inform the lighting design. Should the same painting seen 10 times appear different each time or should the influences of daylight and other variables, though present, be barely discernible? These are questions that should be resolved early on.

One of the great dilemmas in a museum project occurs when a client has given little thought to what they want out of light or what they want it to do. The lighting designer's responsibility then is to present all possibilities and pursue a point of view. To have all involved parties collaborate on a point of view is better than to have a client say after the completion of the project, "Well, this isn't exactly what we had in mind." There is no "what we had in mind" after it's happened. Occasionally, this may be difficult for lighting designers, as some architects prefer to insulate the consultant team from the client in order to pursue their own design objectives.

ARCHITECTURAL CONCERNS

Although the lighting solution should also consider architectural point of view and architectural style—is the architect a modernist, classicist or is he a modernist told to be more classical?—one of the lighting designer's most critical tasks in collaborating with an architect on a museum is to "walk through" the museum with the architect to ensure that the human eye's ability to adapt to changes in light levels is incorporated not only into the lighting plan, but also into the design of the building. For example, should light-conditioning spaces such as corridors and lobbies be added to help the eyes negotiate the transition from 10,000 fc of sunlight to the 10 fc of a gallery and where? How long should the corridor be and how much space is needed? As window placement, the light transmission properties of different glasses and architectural screens can all contribute to aiding eye adaptation, so can the careful ordering of galleries that have different lighting requirements. Make sure that the first galleries encountered are not the darkest. For a more gradual shift, initial galleries should have light levels of 25 or 30 fc—not 5 fc. Every step into and through the museum should be considered a part of the lighting design, because how the eye is affected as one moves through the spaces is important to its effectiveness.

Other issues pertain to the materials and colors of surfaces in the individual environments. How reflective are the walls and floors? Will they be painted or stained or will they be white? All of these elements will impact the relationship of the environment to the work of at and ultimately, the visual experience of the art.

THINKING TECHNICALLY

After the general discussions about point of view and architecture, probably the first technical questions to ask are: Where is the art? How much flexibility does the museum want? Figuring out where art will be—in which courtyards, on which pedestals, which walls—can be a technical exercise, whose resolution needs to be tempered with a recognition that almost inevitably, sooner or later, art will be everywhere. Nevertheless, because curators, conservators and museum trustees will talk about flexibility, a certain degree of it must also be factored into the lighting design. This in turn will most likely prompt the question, "How much will it cost?" The general rule is: The more flexibility one has, the more it will cost.

Tied to flexibility is the possible evolution of the institution. How might it change? While some museums are new free-standing buildings, more often than not, a project may entail renovating parts of a museum and perhaps an addition. Unlike other types of buildings, museums can usually be expected to expand or evolve. And although no one can really predict the

And although no one can really predict the future, one can envision what might happen and decide whether to cater to future thinking.

can envision what might happen and decide whether to cater to future thinking. In some cases, the project is a new addition that will require some flexibility but also need to integrate with an existing part of the institution, which will remain as is. This could entail incorporating elements from the original building or researching the history of the museum.

Observing the culture of how an institution executes and maintains the lighting of its exhibits and spaces, speaking to the people who actually do the lighting everyday may prove to be extremely helpful. Find these people in your initial visits to the institutions that are expanding. Even better, find them when they're actually on a ladder installing lighting. These are usually the best conversations in which to learn vital information such as which lamps are giving them trouble or which fixtures can their local supplier send over in an hour. These encounters are often the only opportunity to acquire that kind of knowledge, and the insight gained can be as valuable as any new lighting idea that a designer brings to the table.

Shaping a point of view and creating an appropriate lighting strategy are what steer a project and decide the technical details down the road, such as what fixture to use, and the elimination of UV. While these are all important technique-related questions that have to be resolved, they are not what gives a project its liveliness and coherence. One of the great technical concerns these days is what light source to use. With recent technological developments broadening the palette of acceptable sources—depending on the type of venue and application—to include fluorescent, metal halide and even fiber optics, the possibilities are expansive. However, what needs to be accomplished before making any kind of selection is to develop a kind of infrastructure, which in a museum, determines where all the lighting will be and how all of the integration is planned.

Lighting is not supposed to be something that is glued onto the architecture, but something that the architecture is about. It should be enveloped, incorporated so that when one enters the building, one is persuaded that everyone involved in the museum's making thought about its every aspect and that it all fits together in a way that takes one's breath away. ■

Paul Marantz, FIALD and Charles Stone, IALD are principals in the New York City-based lighting design firm of Fisher Marantz Stone. The firm has designed the lighting for many museums and is the recipient of numerous lighting design awards.

Editor's note: This is part one in a two-part series on museum lighting. The second article, to appear in the April/May issue of* Architectural Lighting, *will hone in on the specific techniques of lighting a museum.

INDUCTION TECHNOLOGY: A NEW GENERATION OF LIGHT

BY DAVID HOUGHTON, PE, CONTRIBUTING EDITOR

When the wizard Gandolf walked into the caves in *Lord of the Rings*, he turned the globe atop his scepter into a glowing source of light. So far, lighting engineers can only perform this trick in the movies, but they are always working on new ways to create light. One relatively new source type is the induction light, which makes phosphors glow without the usual electrodes.

The main attraction of induction lighting is incredibly long lifetime. In a fluorescent lamp, the electrodes at either end are the weakest link, and the lamp usually fails when the cathode coating on one of the electrodes is depleted after 15,000–20,000 hours. Induction lamps have no such electrodes, so their rated lifetimes are as long as 100,000 (that's over 11 years, running 24/7!). They also have good vibration resistance and low starting temperatures, making them a good choice for rugged operating environments.

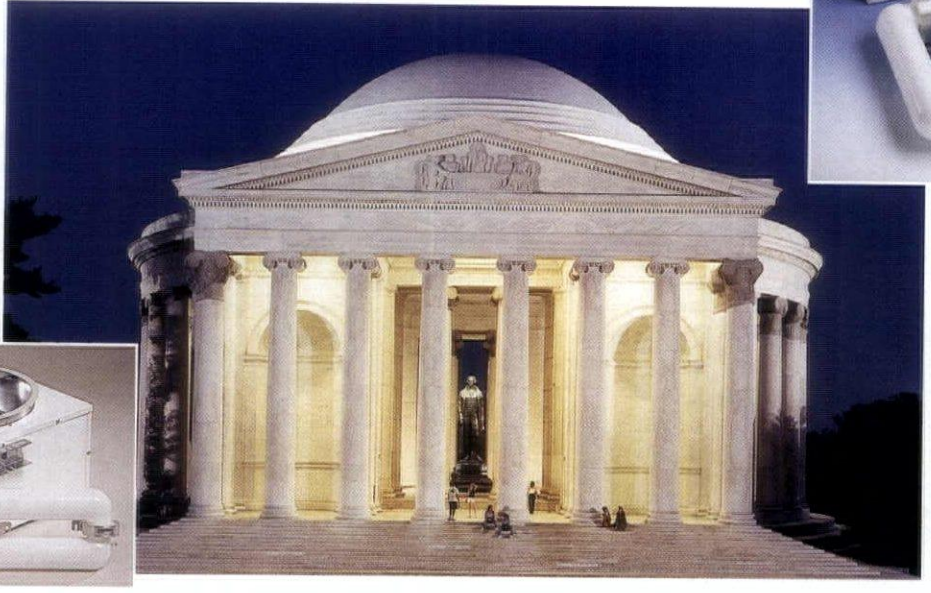
Induction lamps are *discharge lamps*, where the idea is to get mercury or other atoms to elevate their energy level, then discharge a photon as they fall back to normal. Induction lamps differ from fluorescents—their closest relative in the lighting family—in the way they energize the mercury atoms. Instead of striking an arc between electrodes in a tube, an electromagnetic field is generated by a carefully shaped coil. The field created by the coil *induces* a current flow in the gas/mercury blend within the lamp. This current excites the mercury atoms and starts the flow of photons. Mercury atoms emit UV photons; phosphors lining the lamp wall absorb the UV photons and in turn emit visible photons.

Like high-quality fluorescents, induction lamps offer instant strike, instant restrike, color stability, 80+ CRI, high power factor and low THD. A ballast—in this case called a *field generator*—is required to provide the power electronics that drive the induced current in the lamp. Finally, induction lamps have a *coupling device* that wraps the induction coils around some part of the lamp itself. Induction technology is not dimmable at this time, but it could be in the future.

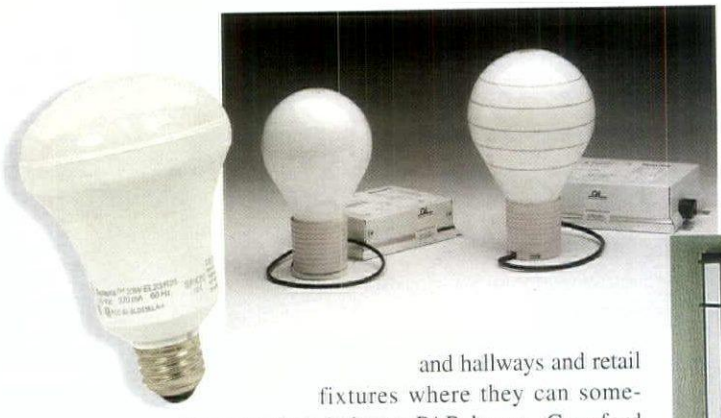
THE LAMPS

The first lighting product to use induction technology was the Philips QL lamp, originally introduced in Europe in 1990 and in the U.S. in 1992. The QL is a globe-shaped lamp available in three sizes at 55W, 85W and 165W, and two color temperatures at 3000K and 4000K. With the coupling device at its base, it looks a bit like an overgrown A-lamp. The separate 2.65MHz field generator is rated for operation at or below 75 degree Celsius; its lifetime is cut in half for each 10-degree Celsius rise above that temperature. Lumen maintenance is 70 percent at 60,000 hours and 55 percent at 100,000 hours. Philips product specialist, Austin Cahill, says that the QL is primarily an OEM product and that the market is growing, particularly for outdoor installations such as tunnel and freeway sign illumination.

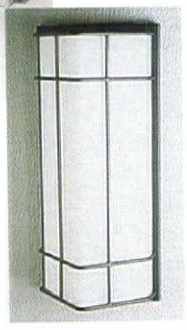
GE Lighting's Genura lamp was the next on the scene, although its emergence in the U.S. market was fitful. This 23W lamp is a self-contained induction lamp with a standard Edison screwbase. With its relatively low light output (1100 lumens) and 15,000-hour lifetime, the Genura is really more akin to a screw-in compact fluorescent. The Genura is available in color temperatures of 2700K and 3000K and is not dimmable. Gary Crawford of GE Lighting says that although the lamp is available in some retail stores, it is mostly a commercial product sold through distributors. Applications include downlights in hotel lobbies



Osram Sylvania's Icetron lamps (above) housed in Indy Lighting's downlight fixtures (left inset) illuminate the portico area and columned walk around the Jefferson Memorial in Washington, D.C., providing improved visibility and safety at night.



GE Lighting's Genura lamp (inset) can be used in applications including retail environments. The Philips QL lamp (left) is suited for applications such as tunnels. Eclipse Lighting's Galileo series (below) now includes fixtures for induction sources. Induction lighting is a good choice for hard-to-reach fixtures, such as the downlights in this airplane hangar (bottom) that use Philips QL lamps.



and hallways and retail fixtures where they can sometimes replace halogen PAR lamps. Crawford says that the Genura actually handles hot environments better than compact fluorescent alternatives.

Although it is now a forgotten chapter in history, in 1992, a media campaign blanketed the country, touting the "lamp of the future"—the so-called E-lamp from Intersource Technologies. The E-lamp was an induction lamp that was first targeted at the downlight market. Unfortunately, the company seemed to have spent more of its funds on marketing than on engineering, and the product never made it to shelves.

The next induction lamp to reach the market was the Osram Sylvania Icetron, introduced in 1996. The Icetron lamp has two cylindrical field sources at opposite ends of a rectangular tube and is available in 100W and 150W models; a 75W version is due for release. Color temperatures are 3500K and 4100K, and lumen maintenance is 70 percent at 60,000 hours and about 64 percent at 100,000 hours. Like the QL, Icetron has a separate field generator; its rated maximum temperature is 70 degrees Celsius.

"The product's acceptance rate was slow at first, but now we're finding applications that go beyond our initial focus," said Dwight Kitchen, manager of commercial engineering at Osram Sylvania. One such application is the Jefferson Memorial in Washington, D.C. where Icetron is used to light the portico area of the structure. Added Kitchen, "This increased demand for Icetron has resulted in our decision to launch a 75W version later this quarter."

THE FIXTURES

Jacques LeFevre, president of Indy Lighting, remembers the introduction of induction sources in the early '90s. "The first applications were outdoors and the lamps were quite expensive, so we didn't get too excited," said LeFevre. (Indy specializes in specification-grade fixtures for retail and commercial environments.) "But a couple of years ago, our customer base started to show an interest in induction lighting because of the long life, so we began working on fixtures for places like escalator wells and ceilings over open mall areas." Their first product was an induction downlight using the Icetron lamp that was installed above escalators and outside entrances to several Dillard's department stores. Indy now offers standard fixtures using both the 100W Icetron and the 85W QL lamps. Although LeFevre is enthusiastic about induction technology, he wants to be sure that limitations such as temperature control of the generators are addressed. He added, "Premature failures are always bad, but in the places we're putting these fixtures, they would be very costly to replace."

Bob Fiermuga is the owner of Eclipse Lighting, a company that specializes in decorative outdoor luminaires. He said, "We are fascinated by induction technology—we think some of the bigger manufacturers may be overlooking this market." Eclipse offers the 55W and 85W QL lamp in its Galileo outdoor wall sconce, as well as in several institutional and vandal-resistant fixtures. "Induction lighting is a premium system, but the maintenance benefits are worth it," said Fiermuga. "The public sector in particular is always looking

for ways to trim their maintenance budgets." He also thinks that induction lighting makes sense for parking garage illumination. Although maintenance access is not difficult for these fixtures, they usually burn 24 hours a day, making the long lifetime an attractive feature. Eclipse offers four different garage fixtures that use either the 165W QL and the 150W Icetron lamp.

Another good place for induction lighting is in bollards. "We've been amazed at the interest in induction-lit bollards," said Kathleen Romfoe, product manager for Phoenix Products Co., an outdoor luminaire OEM. "Owners like the fact that you can put them out there and forget about them. We're selling them to municipal governments." Phoenix offers the 55W and 85W QL lamps in most of their bollards and in some shaded pendants and gooseneck fixtures.

Some of the key applications for induction lighting are roadway environments, particularly in tunnels and underpasses where maintenance is a real challenge. Robert Small, an engineering specialist with the Texas Department of Transportation (TxDOT), says that to change some lamps over roadways requires a small battalion of workers, including bucket trucks equipped with crash cushions, flashing arrow vehicles, cone placement and retrieval, and even police cars. TxDOT is now installing three different types of induction fixtures on a testing basis in the Spring Valley Tunnel in Dallas. "If we get the expected lifetime out of these lamps, we won't be going out there to touch them for 20 years," said Small, noting that test installations are also underway or planned in El Paso, Austin and Ft. Worth.

The Texas installations demonstrate an additional benefit of induction technology: luminaire positioning. Typically, sodium fixtures are mounted to the side of the roadway for maintenance access, so they must throw light across the road. The induction fixtures can be mounted right over the road where they can more effectively and evenly illuminate the road surface.

LINGERING CONCERNS

Induction sources pose technical challenges, most of which have been addressed by vendors now that the technology is nearly a decade old. Early systems faced concerns about electromagnetic interference from the field generators, but today's products meet FCC 47CFR Part 18 Non-Consumer certification, and complaints are just about non-existent.

LeFevre points out that the relatively small lumen package of the induction sources poses a challenge for luminaire designers. He said, "We want to put these things in high-ceiling areas to get the maintenance benefits, but you need a lot of light to reach the floor from up there." The larger 165W Philips QL lamps have helped address this problem. Another consideration is that the induction sources are essentially big blobs of light, so it's more difficult to design an effective reflector for them than the small arc tube of HID sources. Eclipse's Bob Fiermuga notes that the shape of the QL lamp makes it more applicable for refractor-type downlights, while the flat profile of the Icetron makes it more appropriate for cutoff-type floodlights.

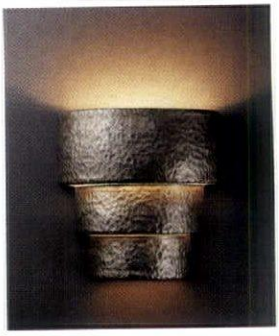
A final concern is the temperature sensitivity of the generator, which is a solid-state electronic device that can fail prematurely if it gets too hot. While HID systems can operate at temperatures of 90-105 degrees Celsius, induction systems are limited to the 70-75-degree Celsius range. Danny Lambeth, president of Infinity Lighting, explains that his engineers have been working for the past four years to solve the temperature limitations associated with induction technology. "If you exceed the rated temperature, the warranty is out the window," he said. Still, with careful design and testing, Lambeth thinks induction technology can do the job. He noted, "If you can design an induction fixture that can handle the heat, is watertight and explosion proof, it's a home run." ■

productpicks

DECORATIVE FIXTURES

Derek Marshall Lighting's Phoenix wall sconce features American art glass that is shaped in the kiln, carefully ground and then drilled for attachment to custom mounting hardware. Each piece of glass is one of a kind. A variety of glass choices is available, including confetti art glass (shown). Phoenix measures 7 in. wide and 12 in. high with a 4-in. extension. Lamping options include incandescent, fluorescent or halogen sources rated up to 100W. ADA-compliant and UL-listed. **Circle No. 50**

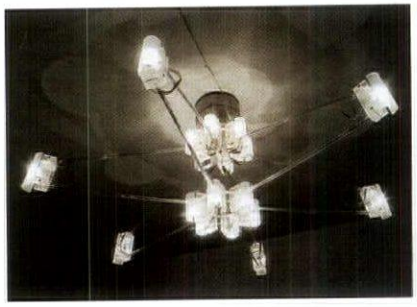
Designed by Doyle Crosby for **Boyd Lighting**, the Stripe sconce is offered in five colors and three sizes. Available with a choice of fluorescent or incandescent lamping, the sconces are constructed from interlocking frames of laser-cut aluminum and finished in satin aluminum or anodized bronze. A diffusing material behind the hand-slumped water glass provides even illumination. Stripe is ADA-compliant. **Circle No. 51**



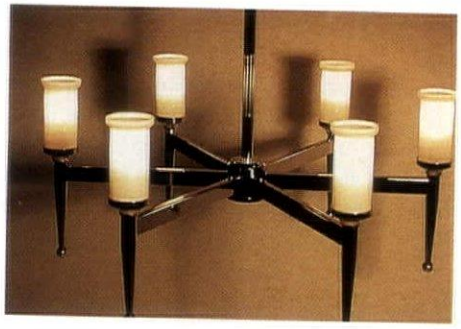
From the **Justice Design Group's** Hammered Collection, the Small Terrace sconce, Model 2226 HMPW, is formed of textured ceramic finished in either hammered copper, hammered brass, hammered pewter or hammered iron. The fixture is 10½ in. high and 10¾ in. wide with a 6½-in. projection. Lamping options include two 100W A19 incandescent sources, one 13W PL-S twin-tube and two 13W PL-C quad-tube fluorescent sources. **Circle No. 52**

Illumination Experiences' Kioto series is characterized by a tapering tower of clear crystal wrapped with strands of molten glass and chrome-plated metal details. The crystal tower is 19 in. high and 11¾ in. in diameter. Kioto uses incandescent sources and is available in pendant (shown), table lamp and floor lamp models. **Circle No. 53**

From **Baldinger Architectural Lighting**, the Finlandia Collection features original lighting designs by Alvar Aalto, Finnish architect Juha Leiviskä and Marie Gullichsen and Ben af Schultén of Artek, a company founded by Aalto to manufacture his designs. Model FC30333313 (shown), also known as the "Beehive," was designed by Alto in 1953-54 and sports layers of painted matte white steel and brass. The fixture is 13 in. in diameter and uses incandescent sources. **Circle No. 54**

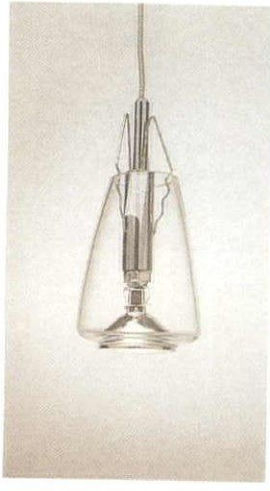


From **Opera Nuda**, the A.I.D.A. is a ceiling-mounted fixture formed of Plexiglas and stainless steel. Informed in part by anatomy, its design features wires that function as "blood vessels," which pump electric energy through the whole fixture. In its closed position, A.I.D.A. measures 25 x 25 x 142 cm. Open, A.I.D.A. measures 132 x 132 x 45 cm. Illumination is provided by 18 5W halogen sources. **Circle No. 55**



R. Jesse & Company's VN-360 pendant measures 25 in. in diameter and is equipped with six handblown white glass cups designed for 20-40W lamps. VN-360 is offered with a standard 4-ft. overall drop, but can be specified for any length. Finishes are antique iron, black iron, nickel, gunmetal and seal (shown). **Circle No. 56**

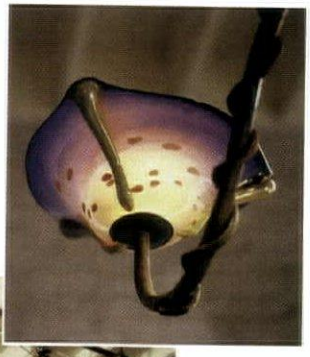
Designed by Christopher Poehlmann for **Ilex Architectural Lighting**, the Double-Up pendant features European mouth-blown glass, measures 13⅘ x 5⁹⁄₁₀ in. and uses one 150W medium-base #26 incandescent or halogen lamp. Double-up is available in three colors of "splashed" glass: Indigo, Limon and Tangerine. Mounting options include custom-length tubing in various finishes as well as aircraft cable and black cord. **Circle No. 57**

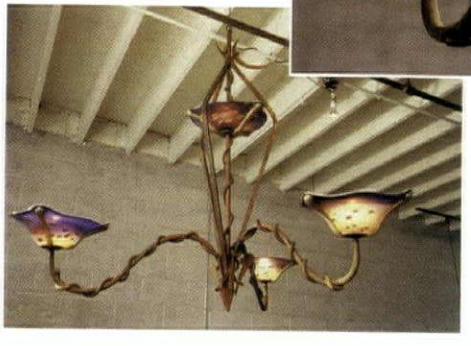


D'ac Lighting's Osaka pendant sports a molded clear glass shade that allows the visible tubular chromed lamp body, MR16 halogen lamp with diachronic reflector and shade suspension mechanism to be visible. Bonded silver metal aircraft cable suspends the fixture 50 in. from a chromed ceiling canopy, which houses the low-voltage transformer. Osaka uses a single 35W bi-pin MR16 lamp with an integrated diachronic reflector and glass shield. Osaka may be specified for use with D'ac low-voltage track lighting systems. **Circle No. 58**

From **Murray Feiss'** Gotham Collection, Model F1674/GS (Gilded Silver) is a 1930s-inspired chandelier featuring four alabaster glass shades and measuring 18 in. high and 22 in. in diameter. Designed by Pasquale Miranda, the fixture is illuminated with four incandescent candelabra lamps (60W maximum). The collection also includes sconces and ceiling pendants. **Circle No. 59**

Rock Cottage Glassworks' Poseidon chandelier is formed of four fonts, each consisting of a blown glass shade and wrought iron arm. Each of the three lower fonts uses one medium-base 60W incandescent lamp, while on top, illumination is provided by three 40W candelabra lamps. The fixture measures approximately 60 in. high and 72 in. in diameter. **Circle No. 60**





Catellani and Smith's Out Collection offers three designs: Luna nel Pozzo, Luce che dipinge and Fil de Fer. Luna nel Pozzo or Moon in the Well (above) features halogen lamps submerged in a pool of water at the base of an aluminum fixture. The interior is available in silver or gold leaf. Fil de Fer gathers wires together to form a sphere that is reminiscent of tumbleweed and lighted with double-ended halogen lamps. Luce che dipinge—The Light that Draws—juxtaposes a brass shade and canvas to "draw" shapes in light. **Circle No. 61**

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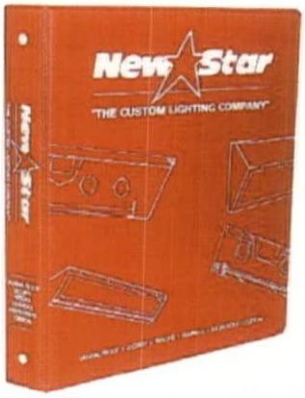

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endpoint

The Sky's the Limit

BY SUSAN HARDER

In an opening scene of the popular TV show, "The West Wing," a well-lit White House at night is portrayed against a backdrop of a starry night sky. This idealized image, of city lights and stars co-existing, may be hard to believe, but it is not impossible: In fact, it is inevitable, as the "dark sky" movement gains momentum worldwide.

First to sound the alarm on the disappearing stars in the night sky, astronomers formed the International Dark Sky Association (IDA) in order to preserve their ability to view the stars from the observatories surrounding Tucson, AZ. Tucson's ordinance (one of the first enacted in the country) directs that artificial light be kept out of the sky and aimed at its intended target in the appropriate amount. In downtown Tucson, a city of 850,000 residents, the Milky Way is visible.

It is only in the last several decades that our celestial canopy, so highly valued throughout history for its beauty, information and inspiration, has been disintegrating due to bad lighting practices and poor fixture design. The familiar orange "sky glow," obliterating the stars and enveloping our cities, is an indication of financial waste, as well as environmental and health damage.

It is estimated that "wasted light," which serves no useful purpose, costs Americans over $2.5 billion every year. The environmental damage includes over 100 million bird carcasses collected at the base of buildings illuminated throughout the night during migration season. Birds migrate at night and, in part, navigate by the constellations. Bright, upwardly directed and reflected lights cause them to lose their way, dying in collisions, exhausted and disoriented. Among the human health concerns is interference with dark night melatonin production and consequent tumor growth, specifically breast cancer.

Lighting professionals, no doubt, already design lighting plans that conserve energy by not exceeding IESNA illumination levels and by minimizing light trespass. Dark sky advocates ask that they additionally consider the star-filled night sky as a valued element to be protected and conserved. For information, lighting professionals and their clients can visit the website for the IDA at www.darksky.org, which is rich with examples of good (and bad) lighting, "dark sky-friendly" fixtures, as well as educational handouts, information sheets, news articles and a newsletter. A model outdoor lighting ordinance is provided along with a directory of ordinances already enacted in states and municipalities. These ordinances only regulate reasonable intensity, directional control, trespass, duration and shielding requirements.

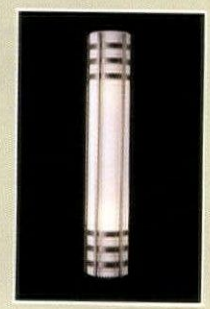
The spread of good ordinances across the country requiring thoughtful planning can be welcomed and endorsed by lighting professionals. Ordinances offer opportunities to redesign and retrofit, according to the improved specifications. (As this is written, we await the New York State Governor's signature on a "light pollution" bill.) Additionally, there is often a cost benefit to justify retrofits.

"It is estimated that 'wasted light,' which serves no useful purpose, costs Americans over $2.5 billion every year."

Unlike air and water pollution, light pollution can be reversed, not only without sacrifice, but with a multitude of savings. It is entirely possible, practical and desirable to provide necessary illumination while respecting the natural nocturnal sky and environment.

Susan Harder, a member of the International Dark Sky Association, is a resident of New York and a full-time citizen activist in the "dark sky" movement.

IDA presents an annual award for a quality lighting design and installation, given to the designer and the owner of the facility. Criteria is based on IDA quality lighting precepts: Freedom from glare, rational lighting levels, minimum obtrusive lighting, energy efficiency, good nighttime ambiance and minimum impact on man-made sky glow. The goal of a quality lighting installation is "environmentally friendly, economically sensible." IDA is a nonprofit, educational organization based in Tucson, AZ.



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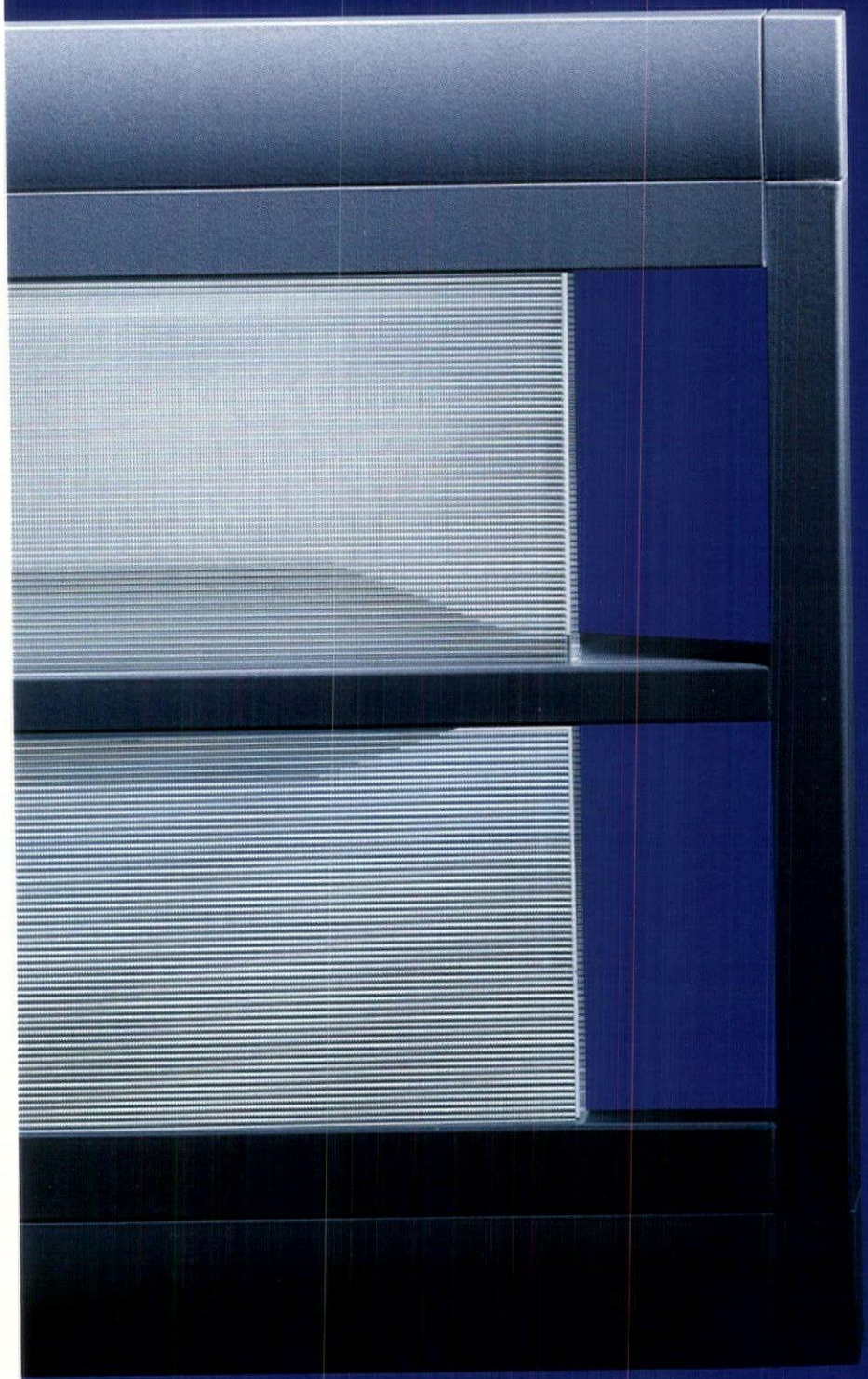

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