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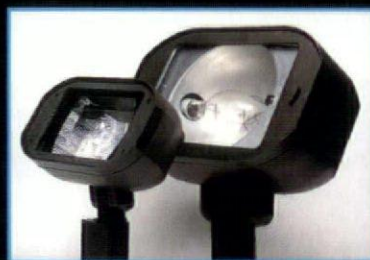
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Project: Cypress Creek Station, Fort Lauderdale, FL
Architect: Perez & Perez Architects Planners
Engineer: William A. Berry & Associates
Luminaire: 60° Forward Throw Indirect

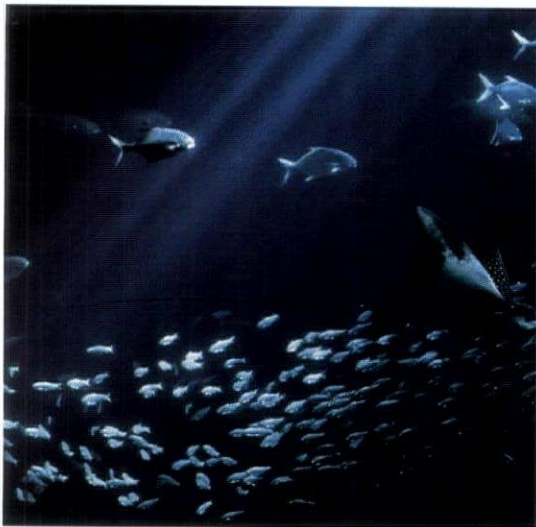
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beta lighting

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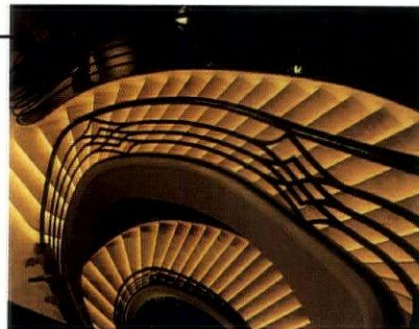
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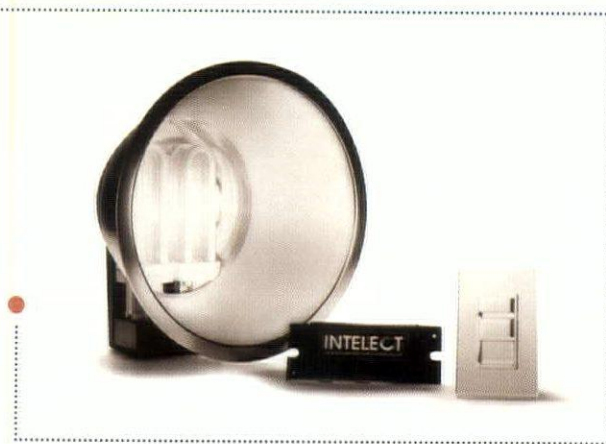
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Today, nothing matters more to a customer than how well a company responds. "What have you done for me lately?" has become "What have you done since lunch?" And at Prescolite, we've been doing plenty. For starters, we've introduced a new guaranteed quick-ship program, Prescolite Express. Second, we've introduced a customer involvement program that has led to 18 new product and customer service enhancements. And third, we're

responding with nine new product introductions – including our new two-lamp triple tube reflector series. Based on an optic concept we call Virtual Source™, this new series offers superior cutoff, ultra-low brightness, and an amazing 74% efficiency. Additionally, we've designed a patented electronic ballast, Intellect™, which operates all three wattage lamps (26W, 32W, or 42W) at full rated output, a universal socket which accepts all

three lamps, and a pre-focus method to precisely position the various lamp lengths – all industry firsts. But we didn't stop there. We also produce our own emergency battery packs and control products, making us the only manufacturer who can offer a single source warranty on fixtures, controls, ballasts, and batteries. So it's not all talk. At Prescolite, quality and innovation have always come first. And today, we're delivering them faster than ever.

Prescolite

A NEW QUALITY OF LIGHT.

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KNOWLEDGE: OUR GREATEST ASSET

Just when your brain registers "information overload," a new design challenge comes up, a new market emerges and the local rep calls to offer to demonstrate a dramatic new product. Because lighting professionals market their expertise, it's essential to keep up.

Because education is so important in this industry, we decided to cover it in this issue's Industry Focus. At a recent roundtable I attended, the participants were asked to bring an object that symbolized a trend in lighting today. I drew a computer on a piece of paper, ripped a hole in it, and when my turn came, I held up the paper and punched my watch through it. Obvious statement: There is a lot of information to gather and absorb—particularly with the advent of computers and the Internet—and little time to do it.

We polled 500 readers in a survey about how they view ongoing education and what sources of information are most important to them. We did not make a distinction between "education" and "information," considering them to be intertwined. Magazines came in first, manufacturers' reps second, Lightfair third. The choices are practical. Again, there's a lot to know and little time to learn it. That's why we also asked four leading designers to tell us how they fit education into their schedule. In the rest of the article, we offer a summary tour of some of the many sources of education available to the profession. We hope you'll find this a useful guide to finding some of the resources that make sense for you.

At *Architectural Lighting*, we're learning as well. One thing that surprised us was the strong demand for "back to basics" information in both the education survey and another we send out every year to ask you how well we're doing our job. We also learned that demand for product information exceeded our expectations.

This spring, *Architectural Lighting* will launch a tabloid-size "supply side" issue in addition to our current quarterly schedule, which we also hope to expand next year.

It will feature about 100 products in major categories PLUS stories about specification, technology, quality, materials and manufacturing processes. In a recent survey, readers overwhelmingly said they would find this new industry resource to be "highly valuable," so we're excited about its debut.

In addition, we will publish a series of technique articles on lighting fundamentals in upcoming issues. This issue, we talk with Markkus Earley at Lightolier's new TechCenter about various approaches to lighting different textures on vertical surfaces.

Starting in 1996, *Architectural Lighting* is proud to sponsor the IALD's Academy of Lighting Design, a traveling group of workshops.

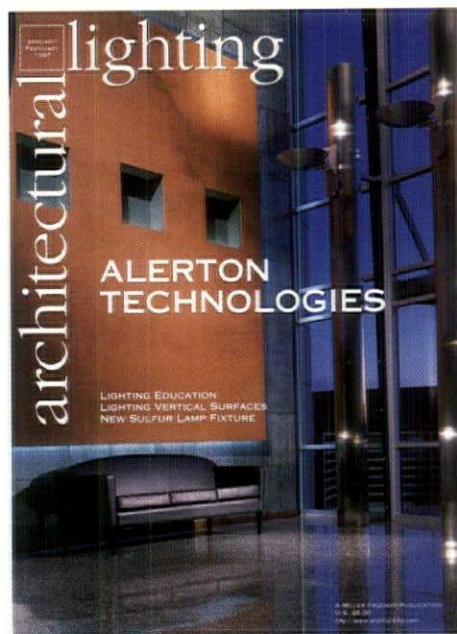
Finally, this year, we will begin developing a series of short, practical softcover books on lighting fundamentals, daylighting and other topics. And we will begin developing our advertising/Internet campaign to educate the end-user about quality lighting.

Welcome back from the holidays. We're pleased to introduce our first issue of 1997.

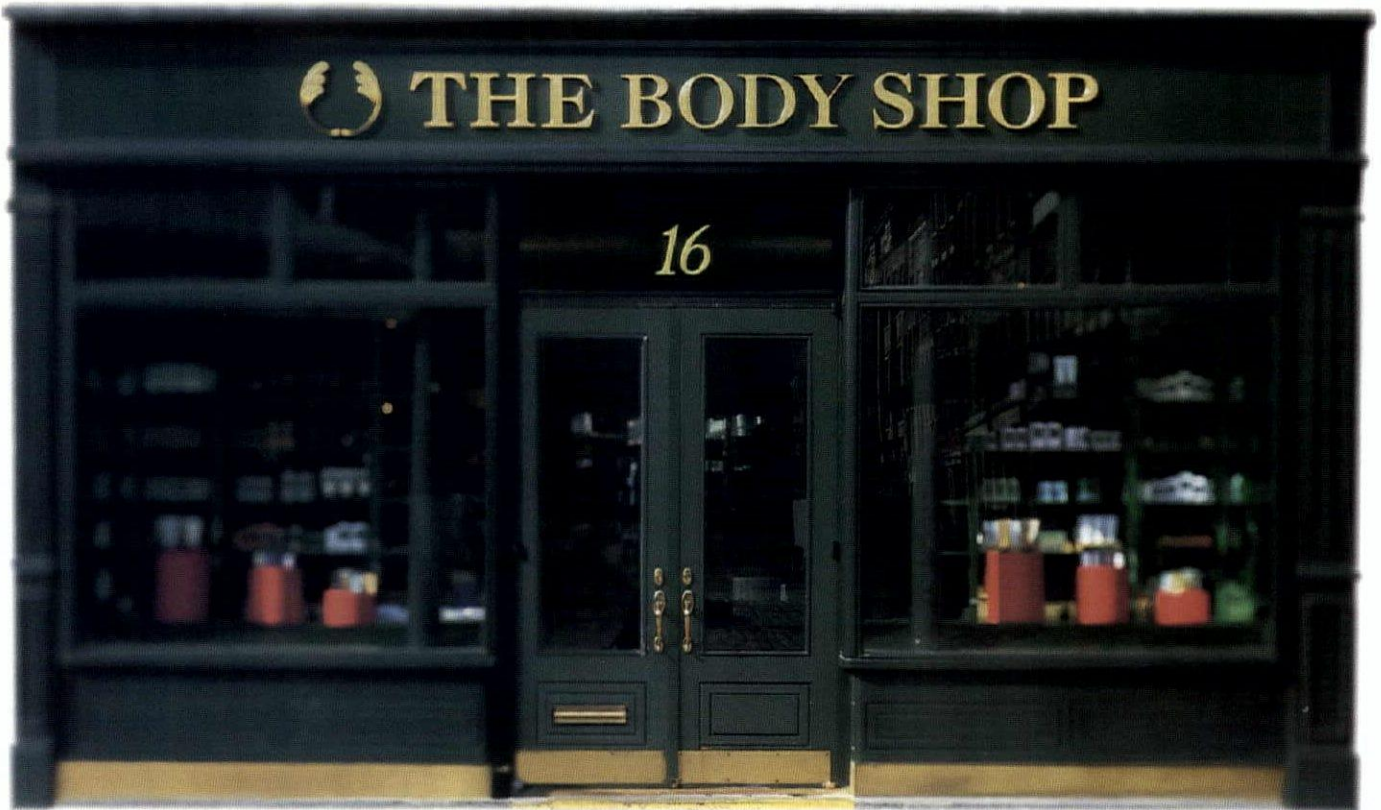
Inside this issue, you'll find a look at two projects in a challenging specialty application—aquarium lighting—that can teach us a lot we can take into other realms; a dream home that was also a dream to design; and an extremely creative commercial project that is this issue's cover story. We also go on-scene at the dramatic unveiling of a marriage between the new sulfur lamp and a new fixture from Cooper Lighting. You'll also find news updates, products and a Perspectives column by Warren Meltzer that discusses changes in the rep field and how they impact the industry.

On a lighter note, I'd like to tell everyone that Christina Trauthwein had a baby boy, Shane Matthew, and we're excited about having her back with us soon. On behalf of Christina, thank you for all of the cards and best wishes.

**CRAIG DILOUIE,
EDITOR-IN-CHIEF**



COVER PHOTO BY
PATRICK BARTA



IT'S NOT AS EASY AS YOU'D THINK,
GETTING A 3X4 INCH PACKAGE THROUGH
A 6X7 FOOT DOOR.



Walk in to The Body Shop anywhere in the world and there, amidst the Mango Body Butter, Brazil Nut Conditioner, and Banana Shampoo, you'll encounter a well-defined, environmentally minded business philosophy. One that guides both the way The Body Shop conducts itself, and also the expectations it places on the companies with which it elects to do business.

That is why it can be difficult for many companies to get

through the door at The Body Shop. Whether they're selling ingredients for the latest in aromatherapy or, well, lightbulbs.

But in OSRAM SYLVANIA, The Body Shop found an ideal business partner: One that could supply the lighting to create the desired store environment, and do so with both a product and a philosophy that was in keeping with The Body Shop's well-

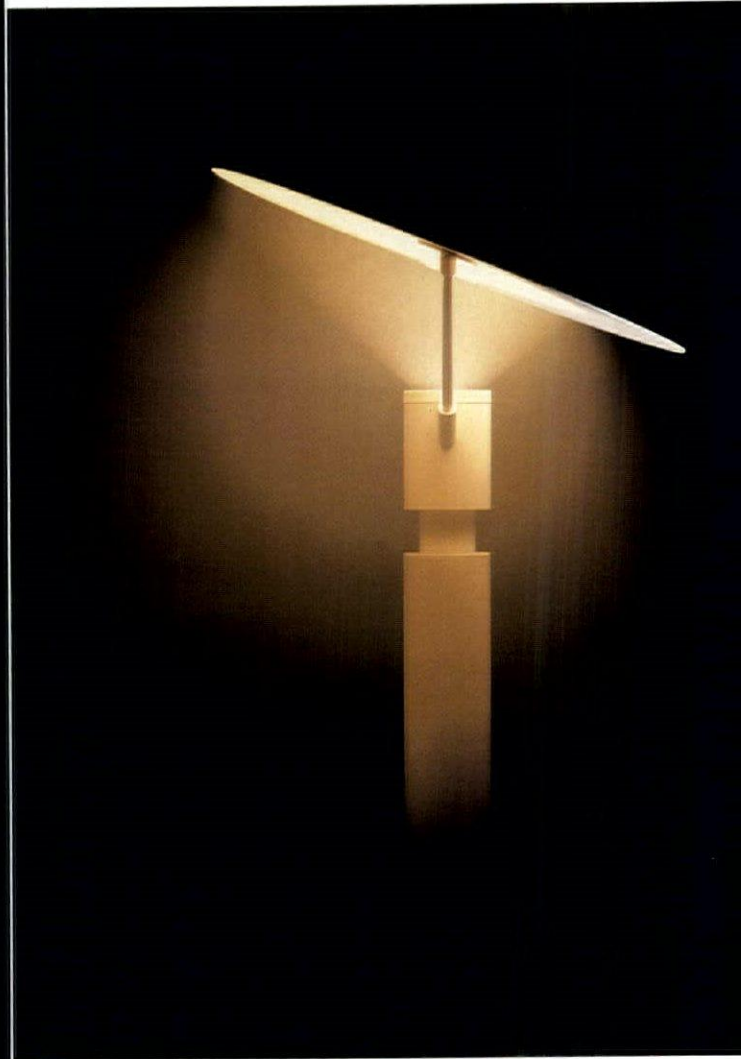
known commitment toward environmental responsibility.



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Specifically, what The Body Shop, and a growing number of other companies have found at OSRAM SYLVANIA, is an environmental initiative that is by far the most extensive within the industry. It's an initiative we call ECOLOGIC.™

ECOLOGIC is more than a single-product solution to today's environmental issues. It is a comprehensive family of lighting guided by our unique life-cycle approach to product development. One which looks at every stage of development to find ways we can improve upon the materials we use, the power we consume, and the waste we generate. This focus has led to the creation of smarter, safer product designs at our research and development facilities. We've also lowered—and in some cases even eliminated—mercury and lead levels during manufacturing.

To reduce non-recyclable waste, we switched to soy-based inks and cadmium-free paper stocks in our packaging. And, we're educating customers about all the benefits of energy-efficient lighting through LIGHTPOINT, the Institute for Lighting Technology.



But perhaps the proudest result of ECOLOGIC is a family of lighting products unparalleled in the industry. This family includes our new REDUCED-MERCURY OCTRON®/ECO T8 Linear and

CURVALUME®, which pass the TCLP test with the lowest mercury dose of any T-8 fluorescent lamps, and provide the great efficiencies that OCTRON T-8 lamps are

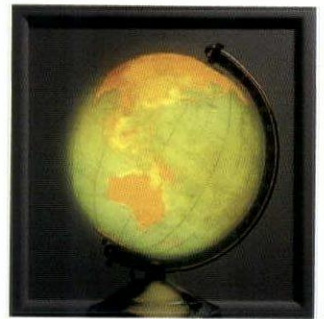
already known for. Our new COMPACT FLUORESCENT DULUX®/ECO lamps, which pass the TCLP requirements, and feature a variety of wattages and color temperatures.

Our HALOGEN CAPSYLITE®/ECO lamps, which meet disposal requirements with lead-free solder bases, while providing true, clean light. Our METALARC® PRO-TECH™ PAR/ECO lamps, which feature an industry-first lead-free base, and the most efficient form of metal halide white lighting available with no color shift.*

And finally, our HIGH PRESSURE SODIUM LUMALUX® PLUS/ECO lamps, the only HPS lamps to pass TCLP, with 90% less mercury than standard LUMALUX®, lead-free welded bases, and non-cycling technology to reduce maintenance costs.

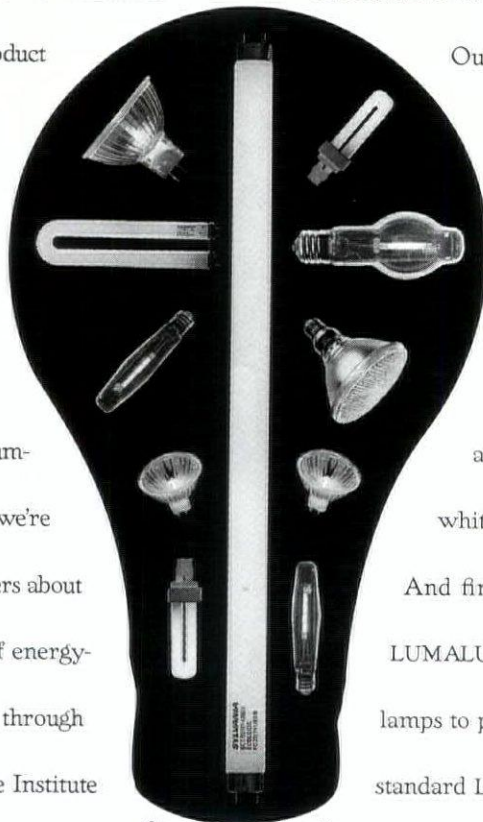
Through ECOLOGIC, we'll continue to meet and exceed today's toughest lighting standards. These are not the government's. Not even The Body Shop's. But our own. To see how we can help you, call us at 1-800-LIGHTBULB.

Or visit our Web site at <http://www.sylvania.com>.



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PRESCOLITE LAUNCHES EXPRESS SHIPPING PROGRAM

Prescolite of San Leandro, CA recently unveiled Prescolite Express, a nationwide quick-ship program covering more than 230 Prescolite products. Under Prescolite Express, products are shipped anywhere in the United States within five business days from receipt of the order at the company. Products covered in the first phase include recessed downlight products, specification-grade compact fluorescent downlights and emergency and exit lighting fixtures. The company plans to add hundreds of other products to the program in 1997.

According to Don Emmons, president of the Prescolite•Moldcast subsidiary of Lighting Corporation of America, the program was developed as a leadership response to demand for fast delivery for commercial building projects.

"If a lighting sales representative or distributor can deliver the right mix of products at the right time—at no increase in price—it often determines who gets the order," said Emmons. He added that Prescolite plans to distinguish itself by offering the fastest production and shipping capability in the industry.

Prescolite has established a dedicated staff for order processing, confirmation and production. Customers may split Prescolite Express orders from orders for other Prescolite products to be shipped to the same customer, without sacrifice to freight or volume discount structures. Orders are shipped from the company's facilities in San Leandro, CA; El Dorado, AK; Carrollton, TX; or from its regional distribution centers across the country.

For more information, fax the company's Literature Distribution Center at (509) 921-7539.

Prescolite Express follows Columbia Express, a quick-ship program launched in 1995 by Columbia Lighting. Columbia Express covers more than 300 of the company's most popular fluorescent fixtures for commercial, institutional and industrial applications. Products are shipped anywhere in the country within five business days from receipt of order, guaranteed or else the company will refund 20 percent of the fixture's price.

For more information about Columbia Express, call (509) 921-7400 or fax (509) 921-7539.

COMPANIES CERTIFY TO ISO QUALITY STANDARD

Osram Sylvania's Glass Technologies Plant in Versailles, KY has achieved certification under ISO 9002 standards and a recommendation for ISO registration after an audit by BVQI. According to the company, the certification completes the ISO efforts of the company's Precision Materials & Components business, which manufactures materials and components used in lamps and in a variety of other equipment and industries. The company's Manchester, NH plant, which makes HID products, was recently certified for ISO 9001 standards. The ISO 9001 and 9002 series cover all manufacturing and support activities except design.

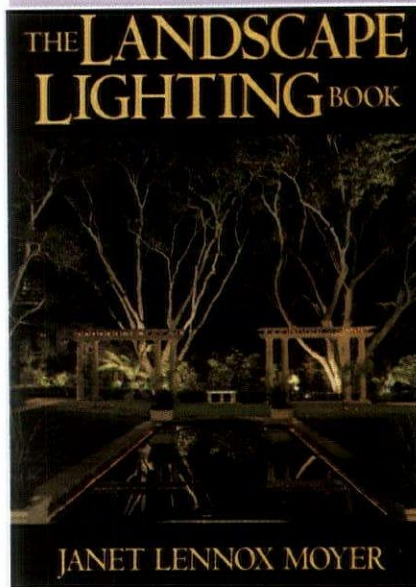
In Vancouver, British Columbia, Ledalite Architectural

Products, Inc., a North American manufacturer of linear lighting products, recently announced that it passed its regular recertification audit of compliance to the ISO 9001-94 quality assurance standard. To maintain certification, every ISO-registered company must successfully pass regular surveillance audits that ensure compliance to these internationally recognized standards. The two-day audit of Ledalite was conducted by the quality registrar division of KPMG.

ISO certification demonstrates that a facility meets the quality systems requirements set by the International Organization of Standardization based in Geneva, Switzerland.

BOOK NOTES

Janet Lennox Moyer's *The Landscape Lighting Book* (John Wiley & Sons, ISBN #0471-52726-2, 1996) provides a guide



to lighting all types of gardens, plazas, fountains and greenery, from urban to suburban, residential to commercial. It includes hundreds of detailed photos, sketches, plans and drawings that underscore the informative text and provide examples of lighting layouts. Topics covered include project development, applications, elements of design and materials and technology, backed by a manufacturers directory. The book is available for \$79.95. To order a copy, call (800) 225-5945 and ask for book number 0-471-52726-2.

RTKL FORMS PRESERVATION STUDIO

RTKL Associates, Inc., the architectural firm, recently formed a preservation studio at the firm's Washington, DC office. The new

group will focus on preservation, restoration and rehabilitation projects. Karl W. Stumpf, AIA, has been named director. Services

include preservation, rehabilitation, reconstruction, cultural resources management, conservation, adaptive use, survey and research as

well as the ability to draw upon other services at RTKL.

For more information call (202) 833-4400.



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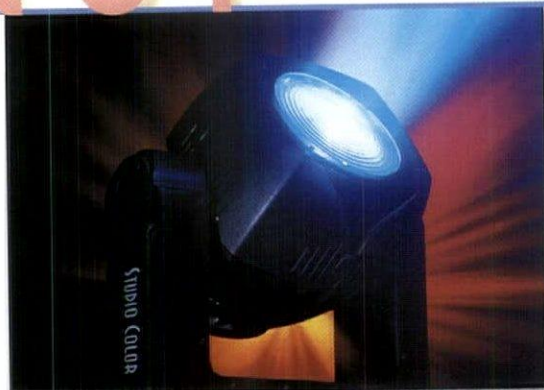
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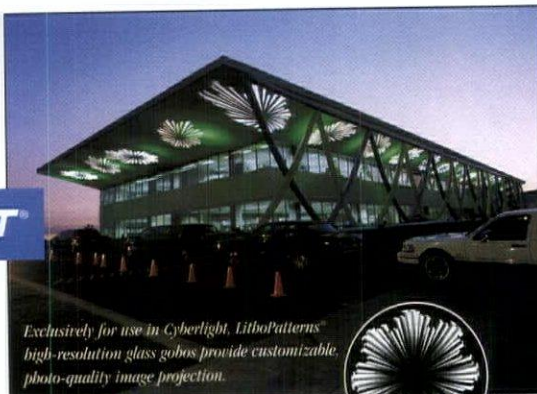
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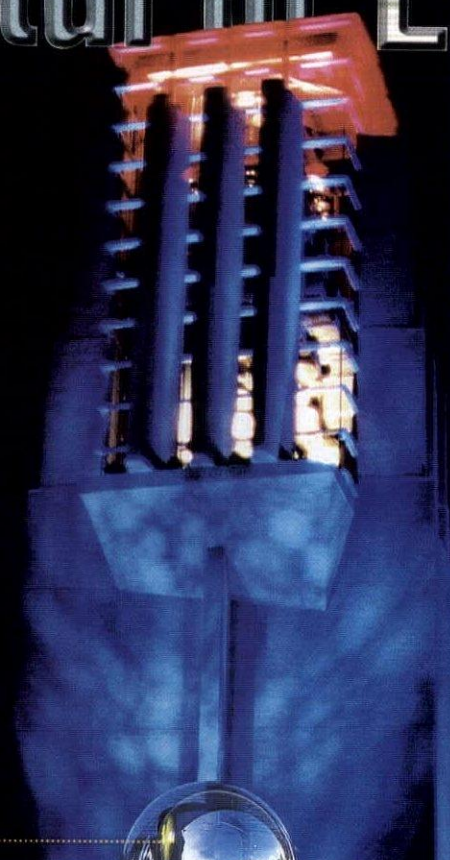
Archi-Textural Lighting

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automated wash luminaire

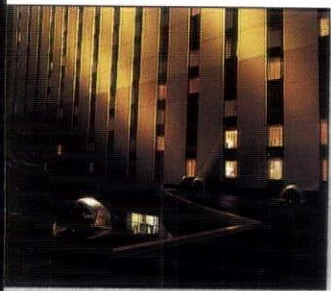
Winner, "Entertainment Lighting Product '96,"
Lighting Dimensions International 1996

Winner, "Product Innovation," *Professional Lighting & Sound Association 1996*



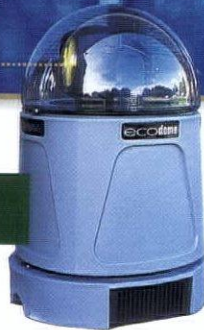
To receive your 1997 High End Systems *Architectural Lighting Designer's Tool Kit*, please call 512.836.2242, ext. 125, or visit our web site at <http://www.highend.com>.

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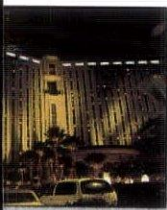
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HOLOPHANE ACQUIRES METALOPTICS

Holophane Corporation announced that it has acquired all of the stock of MetalOptics, Inc. of Austin, TX. MetalOptics designs, manufactures and markets energy-saving specialty fluorescent lighting fixtures for retrofit and new construction with annual sales of some \$20 million. MetalOptics is a pioneer in the fabrication of

fluorescent fixture reflectors using specular materials. According to Holophane Chairman and CEO John DallePezze, the acquisition allows Holophane to expand its fluorescent product offering which is currently smaller than its HID fixture lines, and provides greater custom fluorescent product-design capabilities.

The International Federation of Interior Architects/Interior Designers (IFI) has moved its office to Herengracht 162, 1016 BP Amsterdam, Netherlands, +31-20-422-1288, fax +31-20-422-3883, e-mail IFIDES@msn.com.

Tech Lighting has moved to larger facilities at 1718 West Fullerton, Chicago, IL 60614,

NOTABLE MOVES

(773) 883-6110, fax (773) 883-6130.

Wildfire, Inc. has moved to 5200 West 83rd Street, Los Angeles, CA 90045-3256, (310) 645-7787, (800) 937-8065, fax number is (310) 645-9009, e-mail UVFX@WildfireLA.com, Web www.WildfireLA.com.

Electronic Lighting Incorporated (ELI) has moved to an expanded headquarters facility at 37200 Central Court in Newark, CA 94560, (510) 795-8555, fax (510) 795-0870.

GLOBAL CFL SALES PEAK

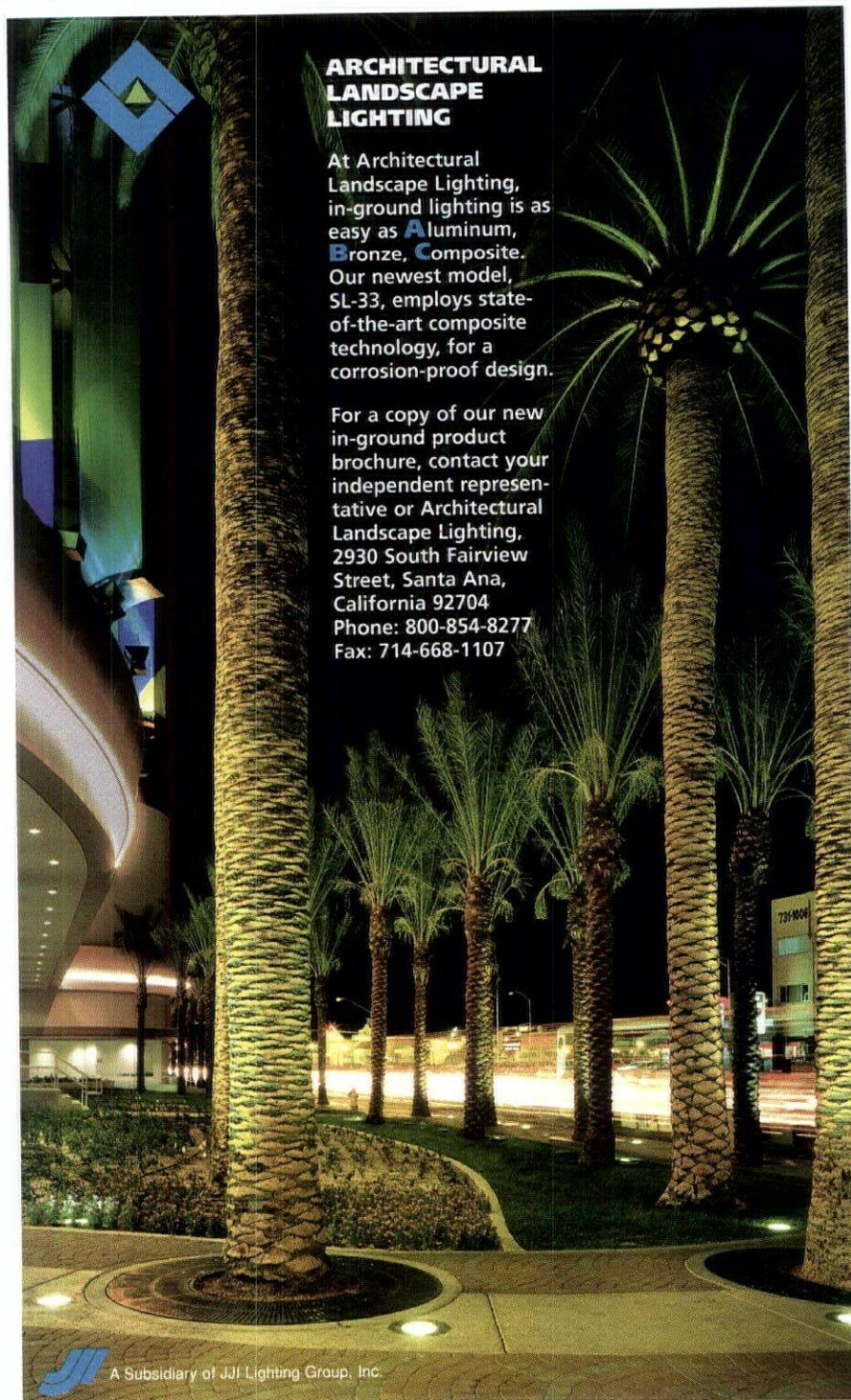
According to the International Association for Energy-Efficient Lighting, worldwide sales of compact fluorescent lamps increased to 240 million units in 1995, 15 percent higher than in 1994. U.S. sales increased by 10 percent; European sales increased by 8.5 percent. The greatest increase occurred in developing countries and the former Soviet Union.

In terms of production, China has become the world's largest producer of compact fluorescent lamps. In 1994, China produced about 60 million units, shadowing the second-largest producer, the United States, which produced 34 million units.

NEW LIGHTING ASSOCIATION

The International Specular Reflector Association (ISRA) has announced that it has broadened its scope and changed its name to reflect its new mission. Starting January 1 of this year, ISRA has become the Energy-Efficient Lighting Association (EELA), and its new mission encompasses all energy-efficient lighting technologies, and is targeted to all disciplines from the manufacturer to the end-user.


For more information about EELA, call (609) 799-4900 or fax (609) 799-7032.



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ARCHITECTURAL LIGHTING

GALITZINE NAMED VP AT EDISON PRICE



Dimitri D. Galitzine has been appointed vice president, custom lighting for Edison Price. Previously, he was president of his own design company, Fabrication Workshops, Inc., a producer of ornamental metal products including lighting. Prior to that, he was a partner at Pell Artifex Company in New York, a manufacturer of custom lighting. At Edison Price, his duties will include the custom modification of Edison Price designs to meet specific application requirements.

HNTB NAMES SINGLETON VP

HNTB Corporation, an international consulting firm, has named E. Crichton Singleton, FAIA as vice president and director of archi-

itecture at its Kansas City, MO office. Singleton brings to his position nearly 40 years' experience in architecture and urban design.

FITZGERALD PROMOTED AT LUXO CORPORATION

Frank Fitzgerald has been appointed national sales manager and head of the Office Contract and Electrical Lighting products group at Luxo Corporation, a manufacturer of task lighting, indirect/direct fixtures, wall sconces and floor lamps for the office market. Fitzgerald, who

had started with Luxo in 1982 in the shipping and receiving department and most recently served as head of Office Distribution sales and marketing, is now responsible for all marketing, sales and communications for the Office Contract and Electrical lighting products groups.

HOWARD TO HEAD NEW OSRAM SYLVANIA BUSINESS UNIT

Frederick B. Howard has been named vice president and general manager of a new business unit at Osram Sylvania. The new business, Electronic Control Systems, will be dedicated to ballast development, manufacturing, sourcing and

marketing. Previously, Howard was vice president and general manager of the company's Glass Technologies division headquartered in Exeter, NH. The new business unit is located at Osram Sylvania's headquarters in Danvers, MA.

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PHILIPS LIGHTING COMPANY

Philips Lighting Company's new Web site at www.philips.com/lighting is positioned as a "virtual magazine" for both consumers and lighting professionals. Initially, its focus is on how to light residential spaces, demonstrations and lighting techniques illustrated by several feature

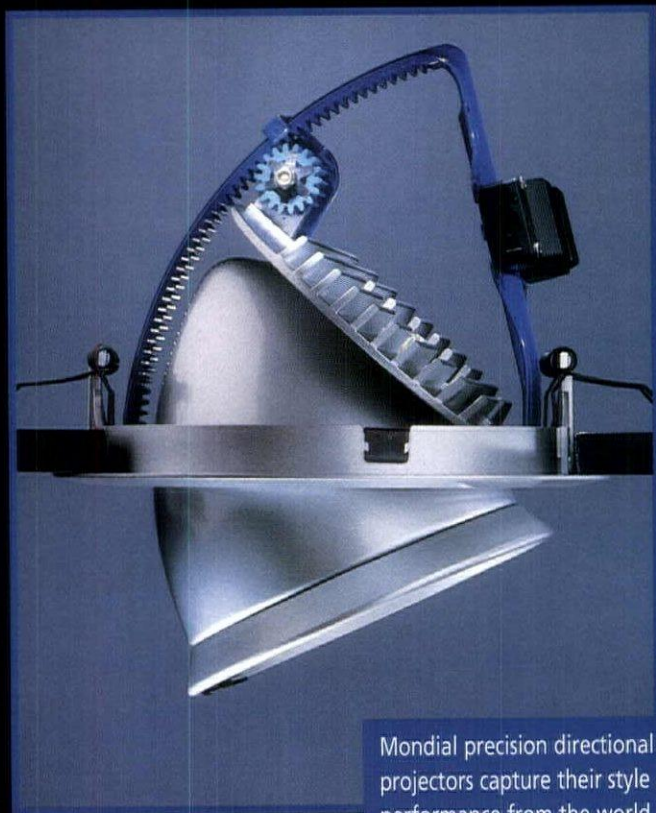
stories focusing on the Sphinx in Egypt, Amsterdam Arena, New York's Virgin Records Megastore and London's Big Ben (all lighted with Philips lamps). In the future, Philips will expand the site to include lighting solutions for retail, industrial and commercial applications.

ADVANCED LIGHTING TECHNOLOGIES

Venture Lighting's new Web site at www.adlt.com/venture offers information about metal halide technology along with a QuickSpec feature that allows users to quickly find the right metal halide lamp by application, product or family.



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LEDALITE

Ledalite Architectural Products Inc.'s new Web site at www.ledalite.com provides product information, on-line luminaire calculator, research articles and papers, free downloadable HELIOS radiosity software, photometry and specification data sheets, a company newsletter plus an e-mail message service that allows customer communication. Ledalite manufactures linear lighting fixtures.

THE WATT STOPPER

The Watt Stopper is now on the Web at www.wattstopper.com. The site provides product photos as well as information on features, applications and technological developments. The Watt Stopper manufactures automatic lighting, HVAC and office power control products.

BIBLIOGRAPHIC INDEX LAUNCHED

More than 50 construction industry journals are summarized and organized by subject on The ArchiText Construction Index on First Source Online, located at www.afsonl.com. Published by ArchiText of Chicago, the Index provides users quick access and search capabilities to industry articles on technical topics, products, firms and other information—more than 7,000 journal abstracts at any one time, according to the company.

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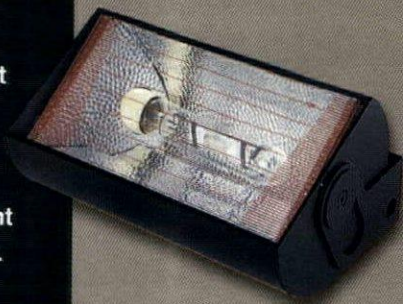
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SPI



SCHEDULED EVENTS IN 1997

Courses and events are listed through June 30 (plus IESNA Conference in August). Not all manufacturer-sponsored courses are listed; for complete listings, descriptions, prices and other

information, contact the manufacturer.—Ed

February 19-21, "Store Lighting," GE Lighting, Cleveland, (800) 255-1200.

February 24-26, "Lighting Residential Spaces," Philips Lighting, Somerset, NJ, (908) 563-3000.

February 26-28, "Lighting Fundamentals I: Lighting Basics," Cooper Lighting, (847) 956-8400.

March 3-7, "Fundamentals of Commercial & Industrial Lighting," GE Lighting, Cleveland, (800) 255-1200.

March 10-12, GE Lighting Conference, GE Lighting Institute, Cleveland, (800) 255-1200, www.ge.com/lighting/b2b.htm.

March 17-19, "The Energy Focus," Osram Sylvania, Danvers, MA, (508) 750-7464.

March 17-20, "Lighting Design & Application Workshop," Philips Lighting, Somerset, NJ, (908) 563-3000.

March 22-24, Globalshop retail design expo, McCormick Place, Chicago, (800) 646-0091.

March 24-26, "Lighting Essentials," Osram Sylvania, Westfield, IN, (508) 750-7464.

April 2-4, Desert Design Market & Conference, Phoenix Civic Plaza, Phoenix, (800) 995-1295.

April 2-3, Globalcon, Colorado Convention Center, Denver, P.O. Box 1026, Lilburn, GA 30226-9821.

April 7-9, "Lighting Design & Applications," Osram Sylvania, Danvers, MA, (508) 750-7464.

April 7-9, "Energy Management," GE Lighting, Cleveland, (800) 255-1200.

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SCHEDULED EVENTS IN 1997

April 16-17, Buildings/New York, New York Coliseum, New York City, (203) 840-5608.

April 16-18, "Industrial Lighting," GE Lighting, Cleveland, (800) 255-1200.

April 21-25, "Fundamentals of Commercial & Industrial Lighting," GE Lighting, Cleveland, (800) 255-1200.

April 23-25, "Lighting Fundamentals II: Design Basics & Applications," Cooper Lighting, (847) 956-8400.

April 28-May 1, Lightfair International, Jacob K. Javits Convention Center, New York

City; pre-show conference April 28; trade show conference April 29-May 1; (800) 856-0327; international subscribers call (972) 620-3036.

April 30, IALD Awards Dinner, Laura Belle, New York City, (212) 206-1281.

May 5-6, "Museum Lighting," GE Lighting, Cleveland, (800) 255-1200.

May 7-9, "Lighting Fundamentals I: Lighting Basics," Cooper Lighting, (847) 956-8400.

May 7-11, Environmental Design Research Association conference, "Space Design and

Management for Place Making," Montreal, (514) 330-4863.

May 12-14, "Lighting for Office Buildings," GE Lighting, Cleveland, (800) 255-1200.

May 19-21, "Lighting Essentials," Osram Sylvania, Danvers, MA, (508) 750-7464.

June 2-3, "Retail Lighting Seminar," Philips Lighting, Somerset, NJ, (908) 563-3000.

June 2-6, "Fundamentals of Commercial & Industrial Lighting," GE Lighting, Cleveland, (800) 255-1200.

June 9-11, Neocon, The

Buildings Show, The Merchandise Mart, Chicago, (312) 527-4141.

June 11-13, "Lamps, Ballasts & Controls: A Systems Approach," Cooper Lighting, (847) 956-8400.

June 12-13, "Healthcare Lighting," GE Lighting, Cleveland, (800) 255-1200.

June 16-19, "Lighting Design & Application Workshop," Philips Lighting, Somerset, NJ, (908) 563-3000.

August 18-20, IESNA Annual Conference, Westin Seattle Hotel, Seattle, (212) 248-5000 x117.

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In this issue, Architectural Lighting interviews Abe Feder, a pioneer of lighting design. Feder, the first independent lighting designer, practiced his craft in both the theatrical and architectural realms, thus creating a new profession integral to the design and architectural community.

To learn more about his career, projects and philosophy of lighting, call LaVerne Roston, *Lighting By Feder*, at (212) 262-0480 to order a copy of his video, *Feder: Master Lighting Designer*.

—Christina Trauthwein

AL: To begin, how do you describe lighting design?

Feder: It's revealment. How you reveal what someone else is doing and what you can add to it. We're talking about creating environments for human beings. We relate to human beings, what they see, what they don't see and how comfortable they are.

AL: You've been an integral part of lighting design for decades now—in fact, some credit you with starting the field. How has the industry changed during your career as a lighting designer?

Feder: There is confusion. We're talking as if there was an industry ... as if it was an accomplished science like medicine or construction. Therein lies a fallacy. Lighting, itself, is beyond our wildest imagination. I regard it with awe and the "industry" is still in its infancy.

In the theater, when I started, there was no such thing as lighting design. It didn't exist. It was mostly floodlighting. The whole idea was so young. I'm part of lighting's history and its evolution ... and it's still in its early stages of development.

The change in the lighting industry is purely mechanical—from weak to more powerful, large to miniature sources—but always within the "bottle."

AL: In the bottle? Meaning...?

Feder: What I mean is the emphasis is on product development, and just that. Not approach, as it should be. The elusiveness of light has never changed and the evolution of the light bulb—from its beginning to fluorescent to HPS and so on—are just phases of product development. Over the years and through all the developments, there still have been limitations. In my lifetime, I wish I could've done more. I'm restless with where we are.

AL: So do you feel there needs to be more of an emphasis on delving into new areas of design rather than technological developments?

Feder: Well, they go hand in hand. Unfortunately, can you have a symphony orchestra without tubas, violins, pianos? No. They are your instruments. But in that situation, there have been no profound changes in instrumentation.

It's because of this belief that I feel it's necessary to discover new directions in design. For instance, I have a young protégé who's trying to use a video approach to lighting an entire space. How good that is, I have no idea. But at least the *idea*—evolution, invention, imagination—is involved. We need to continue forward and stop focusing on pro-



ducts and solutions that were developed back in the 1950s.

AL: But if it helps achieve more advanced solutions, that sounds positive.

Feder: It is positive, but it's only a product development, not a product approach.

AL: What specific areas of architectural lighting need more exploration?

Feder: Basically, old thinking needs to be refreshed. Just because patterns of the past worked well when they were developed, doesn't mean they're practical for today. Go beyond the standards. Designers are still lighting offices and lobbies with ceiling-mounted 2x4 fluorescent fixtures. Now, is that how these spaces should be lighted? No. There needs to be more of an emphasis on indirect lighting. In tec-

hnique, I try to conceal the light sources. Tools should not be seen. Otherwise, they, themselves, intrude as forms. You see them and they compete with the beauty of the original design.

AL: When you entered the field of architectural lighting design, you brought some of your theater background and concepts with you.

Feder: Yes, the art of revealment. You're always lighting to flatter people and the design elements. Although, in my experience, the tragedy of most lighting designers at the moment is the evolution of color.

The incandescent bulb gave you a natural look. The makeup people loved it. Yet when the new lamps were developed—first fluorescent—it was a blue-white light. Blue-white! That's the idea of the bulb company promoting daylight. Baloney! Women looked like hell. *Vogue* magazine did an interview with me and I said that. Overnight, there was a demand for a warm white fluorescent lamp. These are the realities and truths.

AL: What would be your dream project?

Feder: Unfortunately, throughout my life and achievements, I never had the choice of what would be a dream project. The reality is that the world outside is the environment in which we live. So that's the next project. But, in answer to your question, I would have to say the Sistine Chapel. Michelangelo was on his back for many years—through eight Popes—and the lighting is terrible.

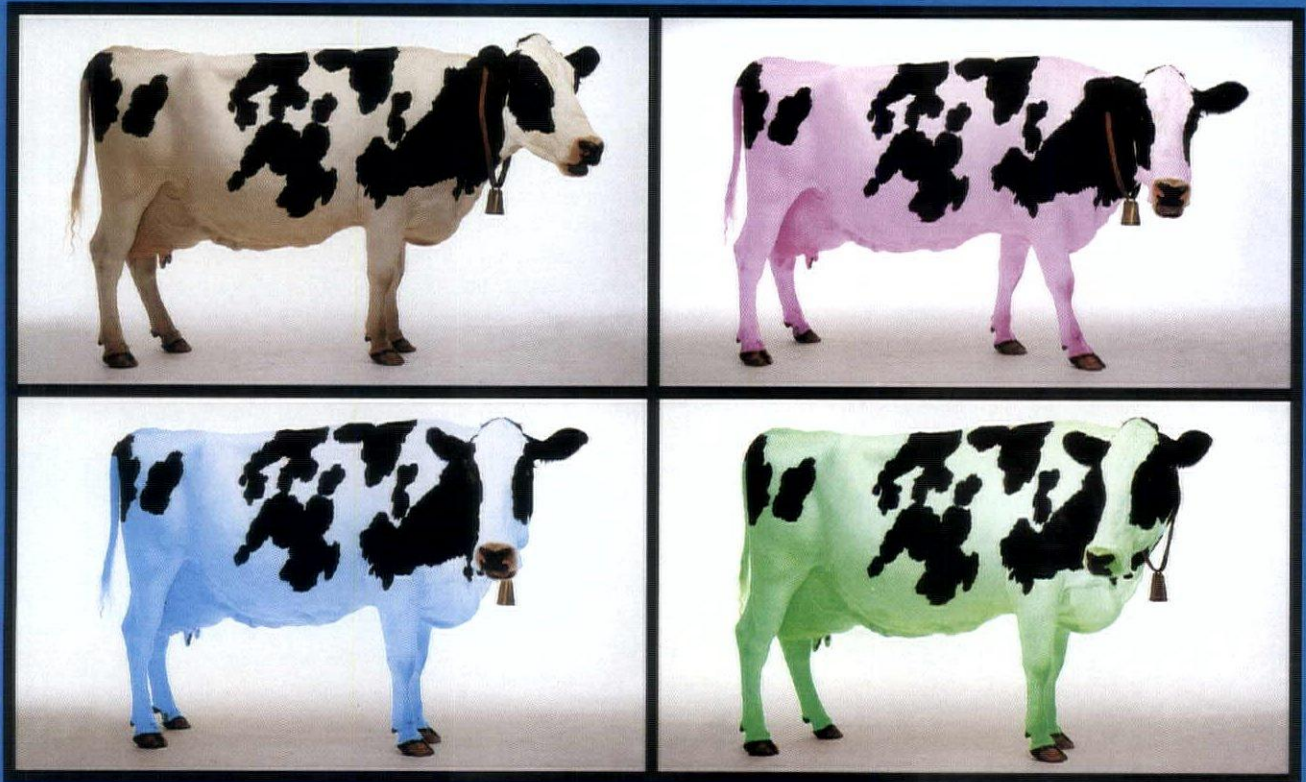
AL: So why don't you submit a proposal?

Feder: I have. But all corporations, including the Church, take their time. We'll see ...

AL: As a living legend, what kind of legacy do you want to give?

Feder: If I leave behind any legacy, it is to tackle the next job without fear. Don't be afraid of working with light in unknown ways. The evolution of light changes and challenges any permanence. It's part of the excitement that no other profession has. The imagination can soar.

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PHILIPS

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FOR THIS WASHINGTON STATE COMPANY,
CREATING A LASTING IMAGE MEANT GETTING

Into

BY CHRISTINA TRAUTHWEIN, EXECUTIVE EDITOR

After 14 years in a nondescript office space, Alerton Technologies made the move to improve its corporate image as a leading manufacturer of automated building systems. They decided to shape up—literally. Bold squares and triangles and an assortment of geometric forms are now the primary elements of Alerton's new headquarters facility, creating character and visual recognition that parallels the company's growing success.

Upon outgrowing its former facility, Alerton Technologies approached CNA Architecture Group Inc. with the desire to create an integrated office environment and a "statement space."

"The clients requested a design that would visually set them apart from their competition, would attract attention to their company and would create a lasting impression on both visitors and potential clients," said Martha Clarkson, project manager. As a result, CNA made significant changes to the storefront entry of the new 30,000 sq.ft. facility located in Redmond, WA. Lighting plays a pivotal role in defining the space and creating a striking and memorable image. Due to its dramatic yet simple lighting design, the building now glows from atop its hillside site.

THE LOBBY IS A TWO-STORY WEDGE THAT CONVERGES AT THE RECEPTION DESK AND FORCES A SLICE OF A LARGE CIRCLE THAT FORMS THE HUB FOR THE BUILDING'S TWO OFFICE WINGS. FLANKING THE ENTRANCE TO THE LOBBY ARE 14 FT. TEXTURED WALL-MOUNTED SCULPTURES PERIMETER-LIGHTED WITH WHITE NEON, WHILE THE LIGHT OF RECESSED FLUORESCENT LAMPS GLOW FROM THE SQUARE CUT-OUTS.

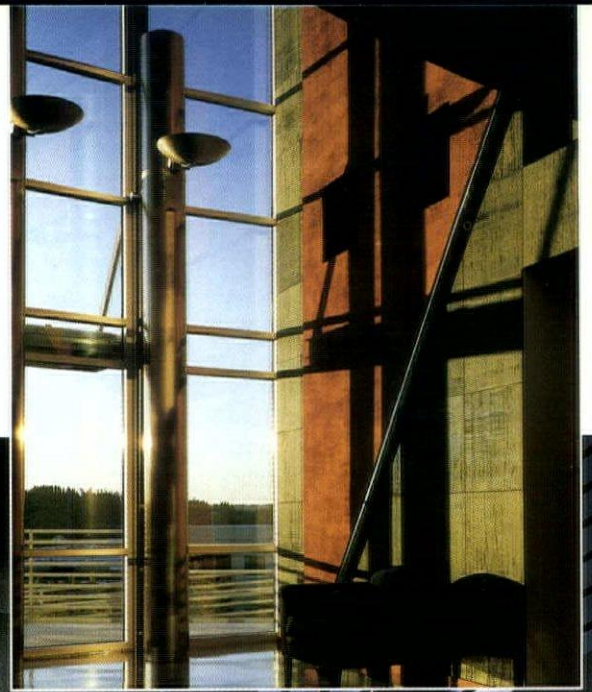
The overall interior design concept reflects the building's exterior. Simple geometric shapes, such as square windows, create a strong visual rhythm on the outside, so the architect incorporated these same shapes inside the building to create drama in the central lobby, or hub. The repetition of forms delineates circulation and office areas beyond the public entry. Triangles and circles balance the square forms and provide directional cues and visual orientation.

The two-story lobby is a contemporary-styled, wedge-shaped area that converges at a reception desk. The space is a slice of a large circle that forms the central hub, or pivot point, for the building's

"We used lighting as integral to the design of the lobby rather than adding it to the design, as is often the case," said Clarkson. "Instead of following a conventional lobby design where individual works of art are spotlighted on the walls, we built the art and then built the lighting into it."



Shape



two office wings, which angle away from the lobby on either side. The reception desk is part of a smaller circle at the center of the hub that also contains support spaces, an exercise facility and mechanical systems.

CUT IT OUT

Probably the most notable features of the lobby are the larger-than-life 14 ft.-high textured "wall sculptures" that flank the entrance. A huge square form covers most of one side wall, a triangle dominates the other. Individually, the square and triangle make strong statements, and together, they help bring proportion to the volume of the lobby and to unify the

asymmetrical elevations and other complexities of the space.

The forms were originally designed to be wood veneer but, said Clarkson, the selection of such material was neither cost effective nor feasible. After a process that included choosing, then discarding, fiberglass and plaster, the design team employed a local artist who developed a hybridized cement as a finish material for the forms built by the contractor.

White neon is recessed around the perimeter of the geometric shapes not only to enhance them, but so they appear to float off the wall. The neon highlights the forms without producing any glare.

In the center of each form is a single horizontal row of three recessed squares

that expose the building's inner core. The inset cubes are illuminated with recessed fluorescent tubes, which create a mystical glow emanating from within the cutouts. The square niches transfer the architectural rhythm from the exterior of the building to its interior by being lighted from below, mimicking windows.

The entry is uplighted both from within and without by custom stainless steel sconces seamlessly integrated with the cylindrical brushed stainless steel columns that line the lobby space. These sconces, which use halogen sources, are connected to a dimmer. Not only do the sconces highlight the columns, they illuminate the storefront entry as well, which is particularly noticeable as one approaches the building at night. By uplighting the ceiling, the sconces cause the window to glow, and deliver light to the middle of the space.

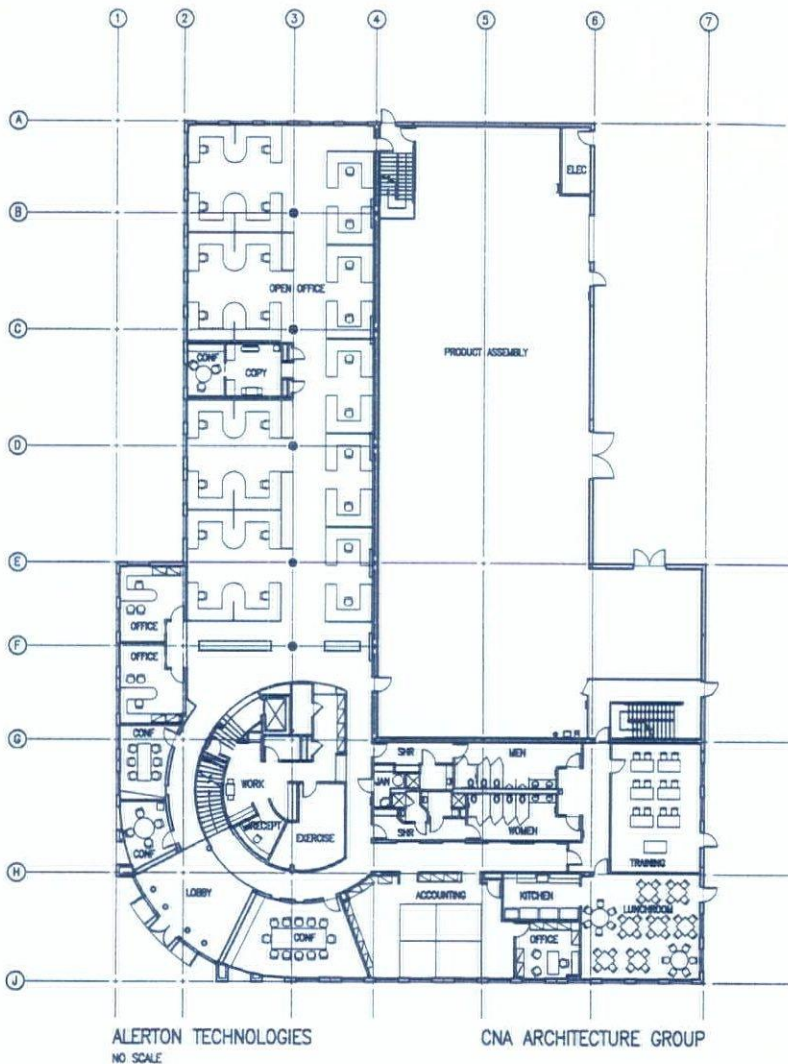
"We used lighting as integral to the design of the lobby rather than adding it to the design, as is often the case," said Clarkson. "Instead of following a conventional lobby design where individual works of art are spotlighted on the walls, we built the art and then built the lighting into it."

The rest of the lobby is lighted in a more utilitarian fashion. Metal halide downlights provide an extra punch of ambient illumination, and compact fluorescent fixtures deliver task light to the reception desk area. Decorative rings encircle the fixtures to keep with the sleek and contemporary theme of the lobby. Overall, the light level is fairly low and the space very soothing, although during daylight hours, the space is filled with sunlight.

"The clients wanted a glass entry because they have a great view of the surrounding territory and they wanted to capture that," said Clarkson.

SHAPELY FORMS

While the basic geometric forms are carried throughout the rest of the facility, the lighting in these areas serves a more functional than decorative role. A long corridor is made to seem less extended by breaking up its length with rectilinear patterns. Rectangular floor-to-ceiling sections alternate with canted wall projections that slant into the hall at the ceiling. These sections create angled lines that suggest the shapes of triangles and squares, following the general geometric theme. In the corridors, in addition to downlighting, halogen sconces are mounted



DETAILS

PROJECT Alerton Technologies' Headquarters ■ **LOCATION** Redmond, WA
 ■ **OWNER** Alerton Technologies ■ **ARCHITECT** CNA Architecture Group—Larry Cook, principal-in-charge; Martha Clarkson, project manager/designer; Brenda Ball, project designer; Madonna Goulding, design detailing/production ■ **STRUCTURAL ENGINEER** R.F. Stearns
 ■ **GENERAL CONTRACTOR** Halvorson ■ **PHOTOGRAPHER** Patrick Barta ■ **LIGHTING MANUFACTURERS** Peerless Lighting; Charles Loomis Design (custom); Lightolier; Artemide



on the columns to add sparkle without glare.

In the office area, as in the halls, rectangular recessed patterns alternate with jutting, canted projections along the top sections of wall to break up the horizontal regularity of the long space without limiting flexibility for systems furniture. Circles here are represented by brushed stainless steel columns that run the length of the building wing.

General lighting in this area is provided by suspended fluorescent indirect fixtures. In addition, fluorescent cove lighting assists in boosting general illumination in the work areas and adds visual interest by breaking up the space and adding depth to the ceiling. In general, the ambient light level is lower than that found in many office spaces, but it's what the client requested. "They had 2x4 fluorescents with acrylic lenses in the old space and received complaints about glare," said Clarkson. "So we supplemented the ambient lighting with undershelf task lighting at each work station so that people can control their own levels of illumination." ■

(TOP) IN THE OFFICE SPACE, RECTANGULAR RECESSES ALTERNATE WITH CANTED PROJECTIONS ALONG THE TOP SECTIONS OF WALLS TO BREAK UP THE HORIZONTAL REGULARITY OF THE LONG SPACE WITHOUT LIMITING FLEXIBILITY FOR SYSTEMS FURNITURE. (BOTTOM) WALL SCONCES ADD SPARKLE TO THE CORRIDOR WHILE SUSPENDED INDIRECT FLUORESCENT FIXTURES REDUCE GLARE IN THE OFFICES. AMBIENT LIGHTING IS SUPPLEMENTED WITH OCCUPANT-CONTROLLED UNDERSHELF TASK LIGHTING.





Aquatic

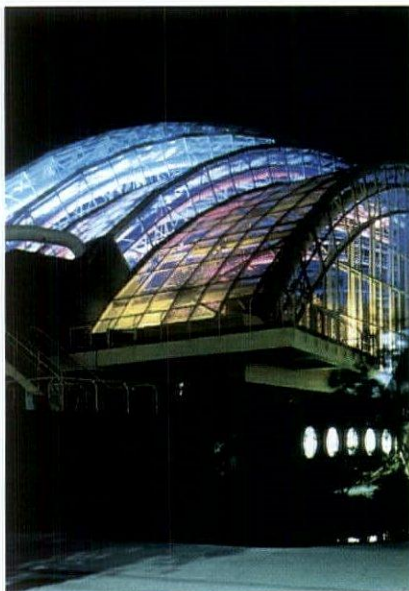
AT THE FLORIDA
AQUARIUM IN TAMPA,
FL, GALLEGOS
LIGHTING DESIGN
PRODUCED A
"MYSTERY OF THE
DEEP" AMBIANCE
IN THE SHARK TANK
USING SPECIALTY
1,000W COMPACT
SOURCE IODIDE
FIXTURES IN THE
FOREGROUND—
CREATING PIERCING
DRAMATIC LIGHT NEAR THE
VIEWING WINDOWS.

BY JEAN GORMAN, CONTRIBUTING EDITOR

Lighting an aquarium presents a unique set of challenges, the most significant of which is to provide light that is safe and life-sustaining for animals and plants. Another is to create an illusion of a real-life outdoor environment in which visitors can suspend disbelief as well as enjoy the experience without the visual interference of light fixtures. In addition to these curatorial and aesthetic concerns, the practical issues of maintenance and energy conservation must be considered.

These challenges were met at the Florida Aquarium and Sea World of Florida's Wild Arctic aquarium. While both are located in Florida, each presents a very different aquatic environment. The Florida Aquarium offers a look at the diversity and beauty of the state's aquatic habitats—from wetlands, bays and beaches to coral reefs and offshore ocean depths. The Wild Arctic aquarium simulates an Arctic theme complete with an explorers' station, beluga whales, polar bears, walrus, seals and many varieties of fish.

GALLEGOS LIGHTING DESIGN LIGHTED THE CLAMSHELL-SHAPED GLASS DOME OF THE FLORIDA AQUARIUM WITH METAL HALIDE FLAT-BEAM FLOODLIGHTS EQUIPPED WITH BLUE DICHROIC FILTERS.



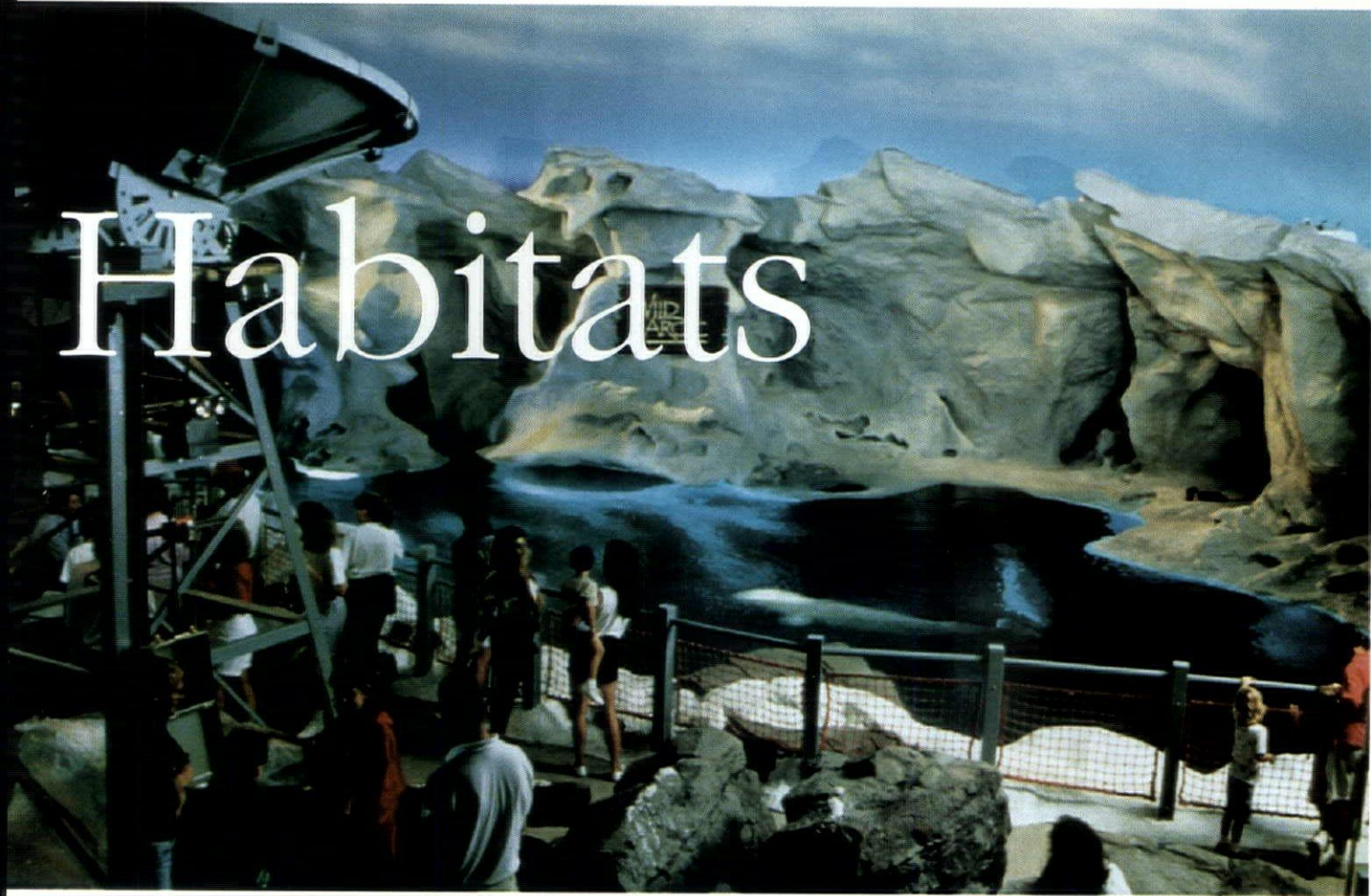
Besides similar challenges, the lighting in both aquariums also share results—helping to create the experience of the great outdoors within a modern building.

THE FLORIDA AQUARIUM

The Florida Aquarium, designed by Esherick, Homsey, Dodge & Davis in conjunction with Hellmuth, Obata & Kassabaum, is a three-level 152,000 sq.ft. facility holding more than one million gallons of fresh and salt water. Located on more than four acres of land in downtown Tampa, the \$84 million structure houses 24 exhibits, with about one-third of these beneath a clamshell-like glass-paneled dome.

The Aquarium, created to educate the public about the environment and conservation, also established itself as a signature icon for the area as it glows from within toward the nighttime sky with the help of Northridge, CA-based Gallegos Lighting Design.

Habitats



AT SEA WORLD OF FLORIDA'S WILD ARCTIC EXHIBIT IN ORLANDO, FISHER MARANTZ RENFRO STONE CREATED THE MULTI-HUED EFFECT OF A SUNRISE, SUNSET AND AURORA BOREALIS AGAINST THE DOMED CEILING OF THE EXHIBIT USING FIVE ROWS OF FLUORESCENTS COVERED WITH BLUE, LAVENDER, RED AND YELLOW GELS.

SUSTAINING LIGHT

Many aquatic habitats, particularly wetlands, are fragile ecosystems sensitive to environmental factors such as light. The glass dome admits daylight to support the growing organisms in the wetlands portion of the aquarium, where a wide range of plants and animals freely thrive and roam throughout the exhibit area.

Because other interior spaces required electric illumination in this three-story building, Gallegos Lighting Design worked with the aquarium's curators for five years to develop a lighting design that would be most sensitive to animals and plants. A key part of achieving this was to provide interior lighting programmed to brighten and dim on a schedule to mimic natural levels of illumination at

FOR THE WETLANDS EXHIBIT, LIGHTING DESIGNERS USED PAR64 HALOGEN LAMPS (SOME EQUIPPED WITH LAVENDER DICHROIC FILTERS TO SIMULATE A TWILIGHT ATMOSPHERE) TO PROVIDE FOCUSED ILLUMINATION IN WARM TONES WITH A VARIETY OF BEAM PATTERNS.



various time of the day. At the same time, says principal lighting designer Patrick Gallegos, "The interior lighting creates a romantic quality that stimulates the 'mysteries of the deep' that people expect to see in an aquarium."

To create the vivid blue glow at night, the lighting design team illuminated the dome itself with six 1,000W metal halide flat-beam floodlights equipped with blue dichroic filters for long-life color maintenance. Early in the evening, the resulting rich blue glow is enhanced with the warm tones of the exhibit lighting within, which varies in intensity as the exhibit cycles dim for mood as well as to promote natural cycles for animals later in the evening. To punch up the light during the day when it is cloudy, the lighting designers used metal halide directional accent lamps in key areas, which are

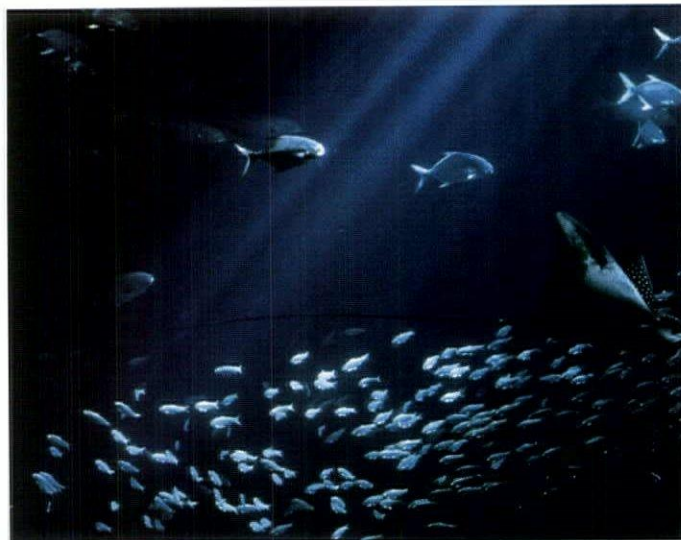
mounted to the structure overhead and positioned over the walking paths that surround the exhibits for ease of access, rather than over the exhibits themselves.

SETTING THE MOOD

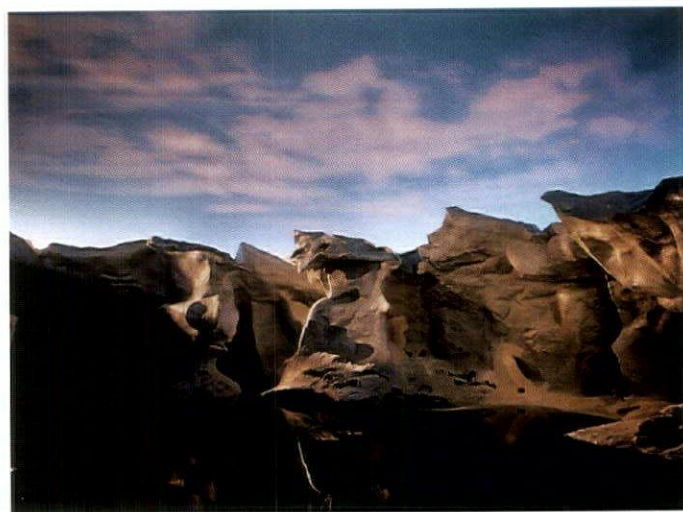
To provide flexibility in light levels in the Wetlands and Bays & Beaches exhibits, as well as to establish appropriate aesthetic moods, the lighting designers used PAR64 halogen lamps (some of which are equipped with lavender dichroic filters to simulate a twilight atmosphere), which provide focused illumination in warm tones and a variety of beam patterns. Programmed to maintain long lamp life as well as to bring out the natural textures of the environment, the lamps were aimed to focus light on the exhibit areas rather than on the walking paths, which are lighted with enough ambient and reflected light to ensure safety.

To light the smaller tanks in the underwater Coral Reefs and Offshore exhibit areas below, the lighting designers used hidden fluorescent strips with tubes of color to set the mood and provide a counterpoint to the diffuse light with narrow-beam 175-250W metal halide lamps. In the larger deep-water tanks, specialty 1,000W compact source iodide (CSI) fixtures were used in the foreground to create piercing dramatic light near the viewing windows, while the background recedes to enhance the sense of mystery.

"The CSI fixtures provide a tight beam that punches through 26 ft. water to create lighting that simulates sunlight or moonlight depending on what you put in front of it," said Gallegos. The designers



IN AN UNDERWATER TANK IN THE CORAL REEF EXHIBIT, SCHOOLS OF FISH ARE ILLUMINATED WITH SUNLIGHT-LIKE RAYS CREATED WITH NARROW-BEAM 175-200W METAL HALIDE LAMPS. ELLIPSOIDAL UNITS, WITH BEAM SPREADS RANGING FROM 19-50 DEGREES AND HIDDEN FROM THE REACH OF ANIMALS, ENHANCE THE SCULPTURAL QUALITIES OF THE MANMADE ROCK FORMATIONS.



also used smaller 175-250W metal halide lamps for accent lighting.

To enhance the mood along the pathway, the lighting designers also created a custom fixture featuring motorized lenses coupled with 75W MR16s to project an effect that simulates rippling dappled sunlight underwater. Throughout the aquarium, outdoor wet-location fixtures are used to guard against the corrosive nature of the salt water environment.

SEA WORLD OF FLORIDA

Sea World of Florida's Wild Arctic exhibit, which the public enters through a themed entrance, is housed beneath two ellipsoidal domes enclosing two separate environments. The first domed environment offers a 360-degree view of a simulated Arctic habitat housing beluga whales, harbor seals and 2,000 fish in a 460,000-gallon tank. The second dome is divided into two exhibits—one featuring walrus in a 120,000-gallon pool, which is encompassed by a fabricated rock and ice landscape; another showing polar bears, who inhabit a winter wonderland of ice with a 90,000-gallon pool.

CREATING ATMOSPHERE

To develop the lighting system, an extensive mock-up was created in the St. Louis Planetarium (St. Louis is the headquarters of the aquarium owner, Busch Entertainment Corporation, as well as the architectural firm, Peckham Guyton Albers & Viets, Inc.). From the beginning, there was concern that the

DETAILS

■ **PROJECT** The Florida Aquarium ■ **LOCATION** Tampa, Florida ■ **OWNER** The Florida Aquarium, Inc. ■ **ARCHITECT** Hellmuth, Obata & Kassabaum and Esherick, Homsey, Dodge & Davis ■ **LIGHTING DESIGNER** Gallegos Lighting Design; Patrick Gallegos, principal designer, Karl Haas, project designer ■ **EXHIBIT DESIGNER** Joseph A. Wetzel Associates ■ **ELECTRICAL ENGINEER** Syska & Hennessey ■ **LIGHTING MANUFACTURERS** Northstar, Quality Lighting, Electronic Theatre Controls, Strand Lighting, RLH Enterprises, Altman ■ **DEVELOPER** Kajima International, Inc. ■ **CONSTRUCTION** Turner/Kajima, a joint venture of Kajima Construction Services, New York, and Turner Construction Company, Orlando ■ **PHOTOGRAPHER** Patrick Gallegos

domes would never appear consistently blue, so a blue paint finish was considered for the ceiling during the mock-up phase. After experimenting with several rows of various colored fluorescent lamps and using a variety of colored gels over the daylight fluorescent lamps, the lighting design team discovered that it was unnecessary to paint the ceiling blue to accomplish the desired effect. By projecting blue fluorescent light onto the dead white dome ceiling surface, the desired even illumination of the dome was achieved.

"Based on the mock-up," said project designer Daina Yurkus of Fisher Marantz Renfro Stone, "we were able to transform the white domes of the exhibits into a chilly Arctic sky with five rows of dimming fluorescent lamps mounted in a cove masked by fabricated ice rock all around the bottom of the dome." By varying the intensity of the individual rows of fluorescents (two rows of blue, and one each of lavender, red and yellow) with a dimming system, a subtle palette of hues was achieved.

The lighting design team projected cloud images against the resplendent blue background of each dome; one side of one of the domes mimics the effect of the Aurora Borealis. This was executed by locating halogen and incandescent fixtures within a satellite tower prop beneath the beluga whale and seal dome, and from many hidden positions along the circumference of both domes behind the fabricated ice work. Each theatrical fixture was equipped with a colored glass filter and cloud template. The realism of the ever-changing sky and rolling cloud effect was enhanced by carefully programming, dimming and sequencing all the light fixtures.

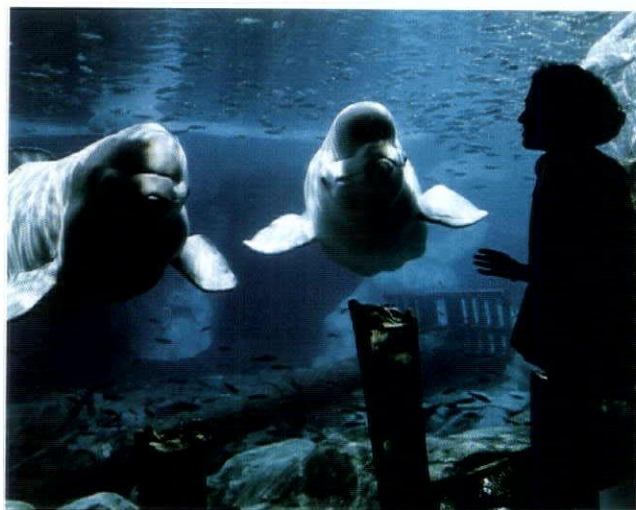
PROVIDING SAFETY

To maintain the illusion of an Arctic environment and



IN THE POLAR BEAR EXHIBIT, A COMBINATION OF GELLED FLUORESCENTS AROUND THE DOME AND ELLIPSOIDAL UNITS CREATE AN ARCTIC ATMOSPHERE.

IN ADDITION TO THE THEATRICAL LIGHTING, THE UNDERWATER BELUGA EXHIBIT WAS ILLUMINATED WITH THREE 1,000W METAL HALIDE FIXTURES TO PENETRATE THE WATER AND ENHANCE THE IRIDESCENT QUALITIES OF THE ANIMALS' SKIN.



because the audience has a 360-degree view of the dome in the first exhibit, one of the biggest challenges was to keep all fixtures hidden from view. Because the exhibits are completely manmade with no natural light entering the space, it was imperative to produce sufficient levels of light for the animals to live and at the same time enhance the aesthetic sculptural qualities of the concrete and fiberglass ice and rock formations. Several 550W ellipsoidal units with beam spreads that range from 19-50 degrees wide were hidden in chambers and pockets within the formations, safely out of reach of the animals, to provide additional illumination and enhance the texture of the ice-like surfaces by grazing over them. For safety reasons, the walrus and polar bear environments are viewed from behind glass.

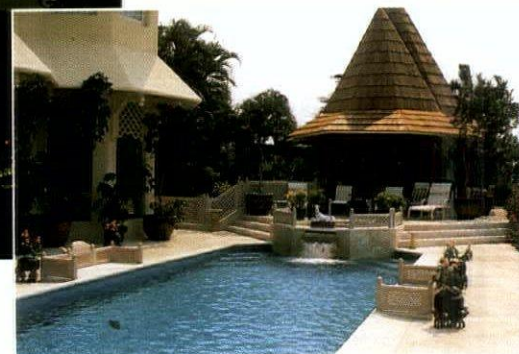
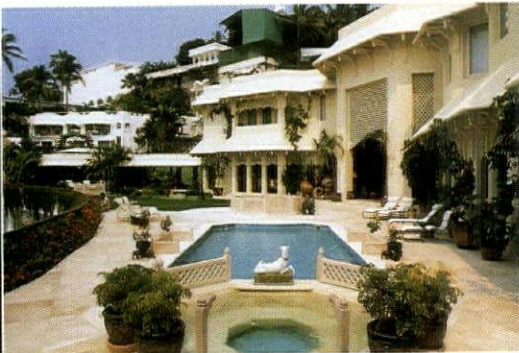
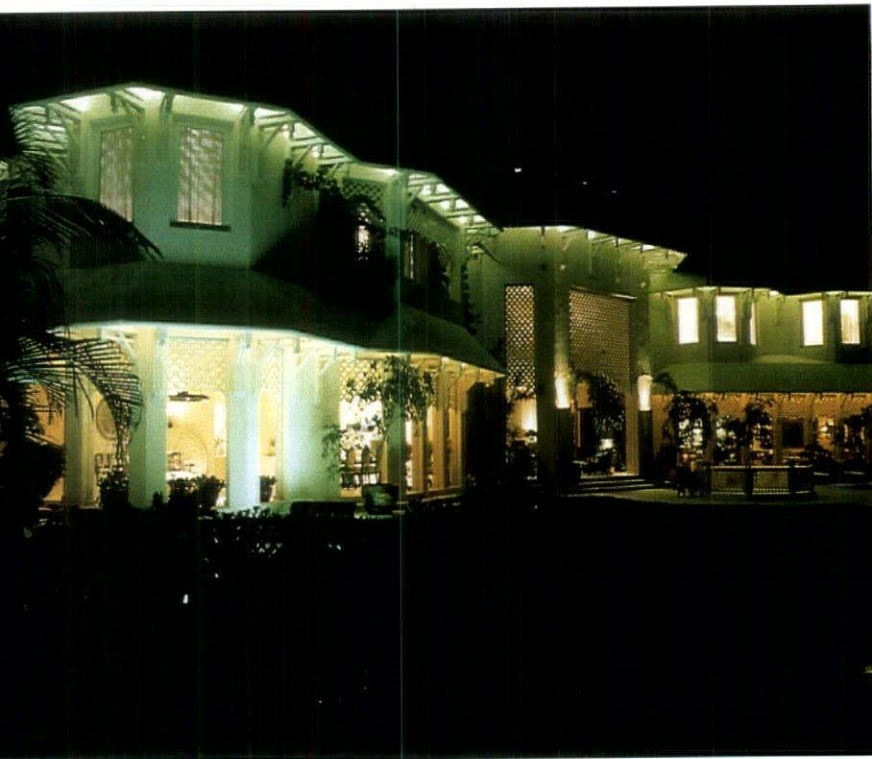
In fact, the entire polar bear exhibit is surrounded by a 15 ft. high concrete wall and an electrical fence to prevent the escape of the 1,000-lb. bears.

To light the underwater environments, other gelled incandescent theatrical fixtures were hidden within water-tight chambers above the public viewing windows. These positions enabled the lighting designers to accent the animals and emphasize the icy feeling of the sub-zero underwater environment. Working hand-in-hand with the architectural design team, the

lighting designers provided for a permanent theatrical lighting system that also offers the flexibility required to create the realistic Arctic sky illumination of the domes and thematic lighting effects. In addition, the lighting system is responsive to the special needs of the live animals and allows for ease of maintenance—by way of a series of back corridors behind the rock formations as well as via catwalk platforms located overhead. ■

DETAILS

■ **PROJECT** Sea World of Florida—Wild Arctic Exhibit ■ **LOCATION** Orlando, Florida ■ **OWNER** Busch Entertainment Corporation. ■ **ARCHITECT** Peckham Guyton Albers & Viets, Inc. ■ **LIGHTING DESIGNER** Fisher Marantz Renfro Stone; Charles Stone, partner-in-charge, Daina Yurkus, senior associate, Rob Schoenbohm, David Lander ■ **THEMING CONSULTANT** Suzanne Sessions, Inc. ■ **ELECTRICAL ENGINEER** Clark Richardson & Biskup ■ **LIGHTING MANUFACTURERS** Electronic Theatre Controls, Columbia Lighting, Pauluhn ■ **PHOTOGRAPHER** Courtesy of Sea World of Florida



Acapulco Gold

THIS CUSTOM PALATIAL
RETREAT IS LUXURY AT ITS
FINEST

BY EMILIE SOMMERHOFF, ASSISTANT EDITOR

Be glad this 35,000 sq.ft. Acapulco residence doesn't belong to the Joneses—it would be hard to keep up.

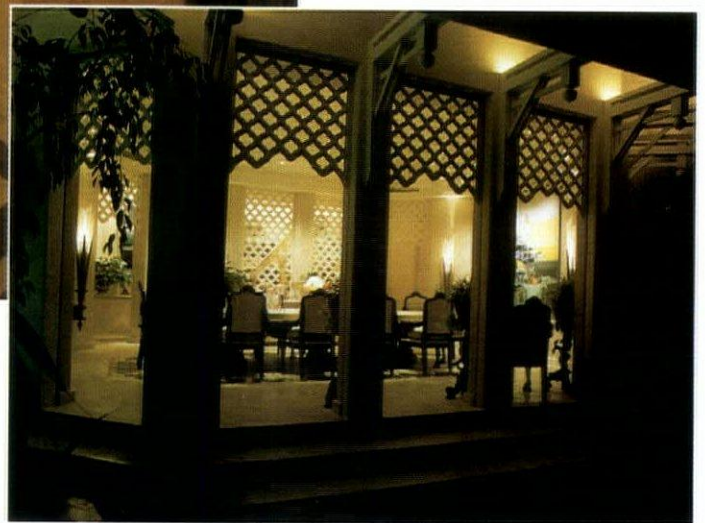
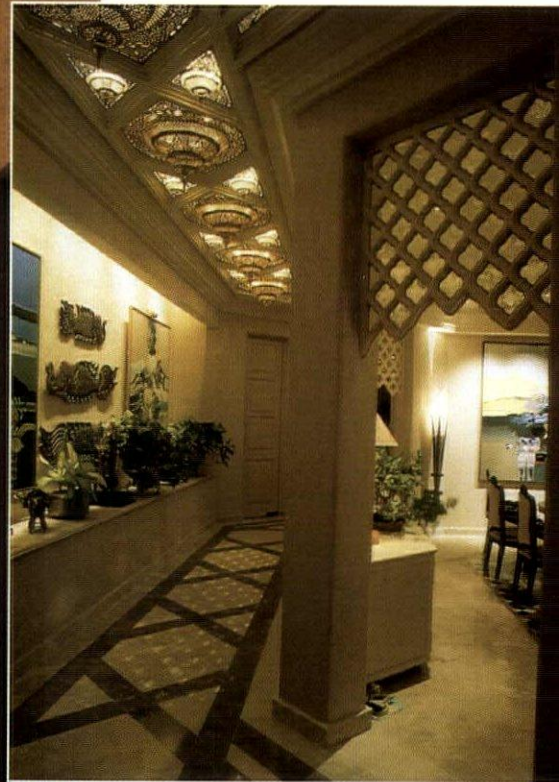
Set on a hill overlooking the Mexican resort town, the three-story custom house features a partially open-air *sala* (living room), an 80-person discotheque, a game room, private suites and an elaborate outdoor pond and pool area. The furnishings and artwork represent several trips around the world.

It is the architecture and lighting design, however, that would be most difficult to copy. The many intricate details of this space and its overall success as a structure are the result of a committed design team and several years of hard work.

But this house wasn't meant to be duplicated. The eccentricity of the space began with the unusual absence of its owner—typically a principal player in residential projects—from design decisions.

"The client had a very arm's-length kind of involvement," said lighting designer Charles Thompson, principal of Austin, TX-based Archillumine Lighting Design. "I met with him once, and that was the extent of it. This was truly a project committing confidence to the design team."

The motivating concept became, not surprisingly, to create a totally unique space. Said Thompson, "We were basically given carte blanche to make this house one of a kind."



THE MAIN ENTRY HALL IS ONE OF THE MOST EXCITING SPACES IN THE RESIDENCE, INCLUDING A VARIETY OF LIGHTING EFFECTS AND HARDWARE. THE ILLUMINATED CEILING IS A MULTI-COMPARTMENT SOFFIT WITH CUSTOM PUNCHED BRASS "LIGHT FIXTURES." EACH COMPARTMENT IS SEPARATED BY SHEET ROCK COVES AND IS CIRCUITED IN GROUPS TO ALLOW FOR A WIDE RANGE OF LOOKS VIA THE DIMMING SYSTEM. THE COVE ALONG THE RIGHT WALL IS ILLUMINATED WITH SURFACE-MOUNTED HIGH-PERFORMANCE WALL WASH FIXTURES TO PROVIDE UNIFORM INSTALLATION FROM TOP TO BOTTOM. ABOVE THE WALL WASH FIXTURES IS A SINGLE-CIRCUIT TRACK WITH LOW-VOLTAGE TRACK HEADS TO ACCENT ITEMS ON THE HORIZONTAL LEDGE. THE ADJACENT DINING ROOM IS SEPARATED BY THE PARTITION WITH OPENINGS CONTAINING CONCRETE FILIGREE. EACH OPENING ON THE FILIGREE PANEL CONTAINS HAND-CUT BEVELED GLASS. THE BEAUTIFUL PATTERN OF LIGHT ON THE FLOOR (LOCATED IN FRONT OF THE HORIZONTAL LEDGE) IS CREATED WHEN LIGHT FROM LOW-VOLTAGE DOWNLIGHTS INSIDE THE DINING ROOM IS REFRACTED THROUGH THE BEVELED GLASS.

UNIQUE PERSPECTIVE

Lighting design is a relatively new discipline in Mexico, where designers, electrical distributors and contractors have typically been the same people. Archillum was the first design firm hired by an agreement between long-time Mexico City-based architect J. B. Johnson, Arquitecto and interior designer Jerome Cavanaugh.

"They investigated a lighting designer out of frustration when they found themselves specifying the same thing over and over again," said Thompson. "They weren't really using design as a basis for lighting this house." Approaching this project from a design perspective was especially demanding, as the many rooms were really a series of vignettes, each having a unique style and therefore different lighting requirements.

The lighting details are both intricate and elegant, accommodating the overall "one of a kind" design theme, while simultaneously maintaining Thompson

and Gibson's desire to unify lighting with architecture and interior design.

In many cases, the lighting techniques involve a slight twist, presenting illumination where it is unexpected. The living room, for example, features two tables fabricated from green-tinted glass fragments, the stems of which are uplighted with fiber-optic strips buried in the marble floor. The end-lit fiber-optic sources incorporate a set of dichroic lens, giving the tables their rich color. The halogen source is hidden in a cupboard several feet away. Fiber optics were also used in the outdoor pond area. Threaded from the hardware on the lower level, through the pond and into the body of a cast bronze fish, the optic fibers illuminate the water pouring from the sculpture's mouth.

An assortment of unusual fixtures inspires one to take a second look. While Thompson and Gibson employed a variety of standard materials, custom fixtures—using primarily incandescent sources—appear throughout the space.

Many fixtures were purchased abroad and imported, including an extravagant chandelier above the billiard table in the game room, which had to be wired on site. Other fixtures, such as a custom pendant lantern located in one of the bedroom suites, were crafted in Mexico. Decorative punchings in the pendant lantern transform the glow produced by a clear incandescent source, casting a captivating pattern on the walls of the 2,000 sq.ft. room. A similarly intricate design is apparent in the punched brass ceiling of the main entry hall. Designed by Gibson, each individual section is a separate soffit detail with different circuits that enable the light levels to be dimmed and varied. Occasionally, even ordinary objects were transformed into lighting fixtures, such as the giant sea shell sculptures used in some areas as wall sconces.

While decorative lighting abounds, other regions in the house required concealing the light source and fixture. "Cove lighting was a good way to accomplish this," said Thompson. "It

THE BIRD COURT IS ON THE LOWEST LEVEL OF THE RESIDENCE, SITUATED BELOW THE MAIN SALA. NATURAL LIGHT FILTERS THROUGH THE THREE-STORY GARDEN. LUSH LANDSCAPING AND CASCADING ROCK WALLS DEFINE THE EAST FACE OF THE GARDEN. THE PLANTINGS FILTER INTO THE BIRD COURT SOFTENING THE MARBLE FINISHES. THE MYTHICAL BIRDS STAND UP TO NINE-FT. TALL, GIVING THE SPACE A WHIMSICAL FEEL. LOW-VOLTAGE, 50W MR16 ADJUSTABLE PINHOLE DOWNLIGHTS ACCENT THE BIRDS.

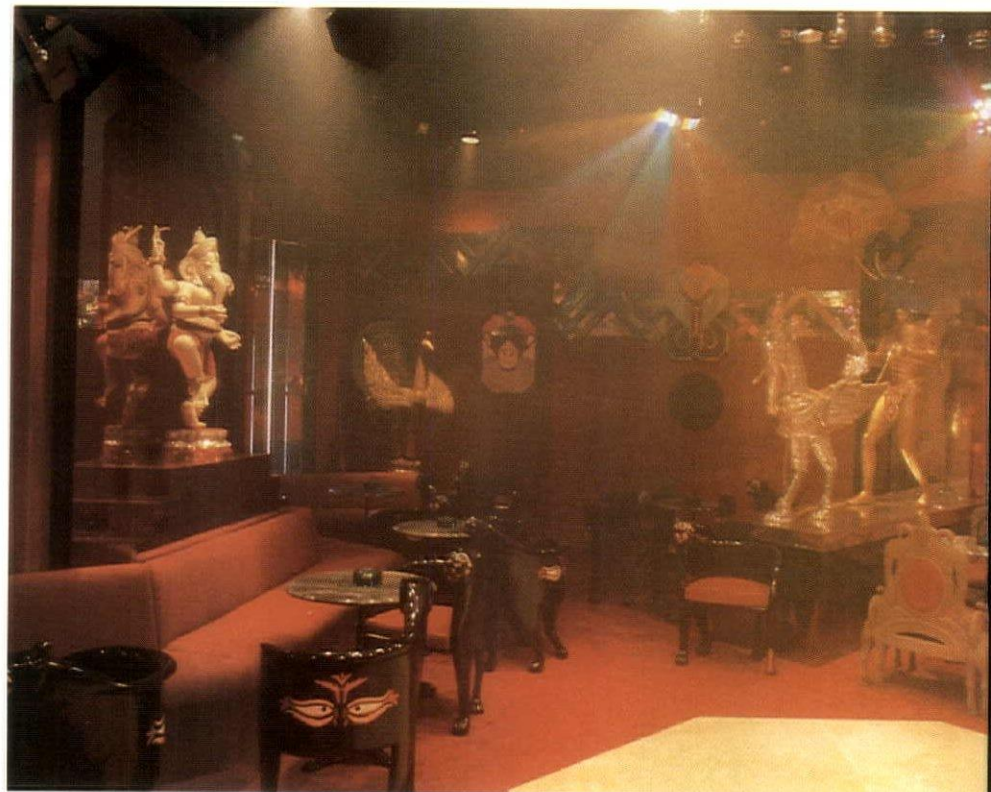
(SEE P. 36 FOR A DESCRIPTION OF THE GRAND STAIRCASE.)





THE MASTER BEDROOM IS A SPACE VIRTUALLY DEVOID OF COLOR. THE WHITE-ON-WHITE COLOR SCHEME PRESENTED A SPACE WITH PARTICULARLY HIGH REFLECTANCE. THE USE OF A LOW-VOLTAGE COVE AROUND THE INNER PERIMETER OF THE CEILING ALLOWS FOR A BRIGHT CEILING PLANE, REFLECTING OFF THE FLOOR. THE REMAINING SOURCES OF LIGHT IN THE ROOM ARE LAMPS AND A DECORATIVE CHANDELIER. THE FURNISHINGS MAINTAIN THE WHITE FINISH BUT ARE ALSO DECORATED WITH MIRROR OR CHROME ACCENTS. THE MARBLE FLOOR IS ACCENTED AROUND THE PERIMETER OF THE ROOM WITH A 12IN.-WIDE BAND OF MIRRORED GLASS FLOOR TILES.

THE DISCO IS A SUBSTANTIAL DEPARTURE FROM THE ATMOSPHERE OF THE REMAINDER OF THE RESIDENCE, THE WALL BECOMING BLOOD RED AND THE CEILING CAVITY PAINTED OUT BLACK. ALTHOUGH THE ENTERTAINMENT AND ARCHITECTURAL FIXTURES ARE INSTALLED EXPOSED IN THE CEILING CAVITY, THEIR PRESENCE ISN'T NOTICED DUE TO THE NATURE OF THE ENVIRONMENT: LOUD MUSIC, SMOKE AND ANIMATED LIGHT. THE SEATING IS HEAVILY CARVED WOOD CHAIRS AND BANQUETS ALONG THE WALL. LIFE-SIZE-LIKE FIGURES HAVE BEEN DECORATED WITH HIGHLY REFLECTIVE MIRROR AND COLORED GLASS CHIPS.





THE GRAND STAIRCASE (SEE OTHER VIEWS ON P. 34) CONNECTING THREE LEVELS IN THE SALA (MAIN LIVING SPACE) FORM A FLOW OF LIGHT. 24V FESTOON LAMPS IN A LOW-VOLTAGE RAIL SYSTEM WERE CHOSEN FOR TWO REASONS: 1) THE 24V SYSTEM REDUCED THE IMPACT OF VOLTAGE DROP OVER THE 12V VERSION OF THE SAME PRODUCT; 2) THE 24V SYSTEM REQUIRED FEWER LOW-VOLTAGE, SECONDARY BRANCH CIRCUITS. THE FLEXIBLE RAIL SYSTEM IS TUCKED UNDER THE NOSE OF EACH STEP, CONFORMING TO CURVING STEPS. INSTALLATION USES 5W LAMPS.

tends to give the space more height. There is a larger presence to the room as opposed to feeling dark and hemmed in."

ATTENTION TO DETAILS

The details of the lighting design are more comprehensive than meets the eye. An extensive computer dimming system imported from the U.S. controls light levels throughout the house, as well as the roll-up shutters in the open-air rooms. With approximately 1,000 lighting loads and 100 push-button stations, programming the system required several days on two different trips.

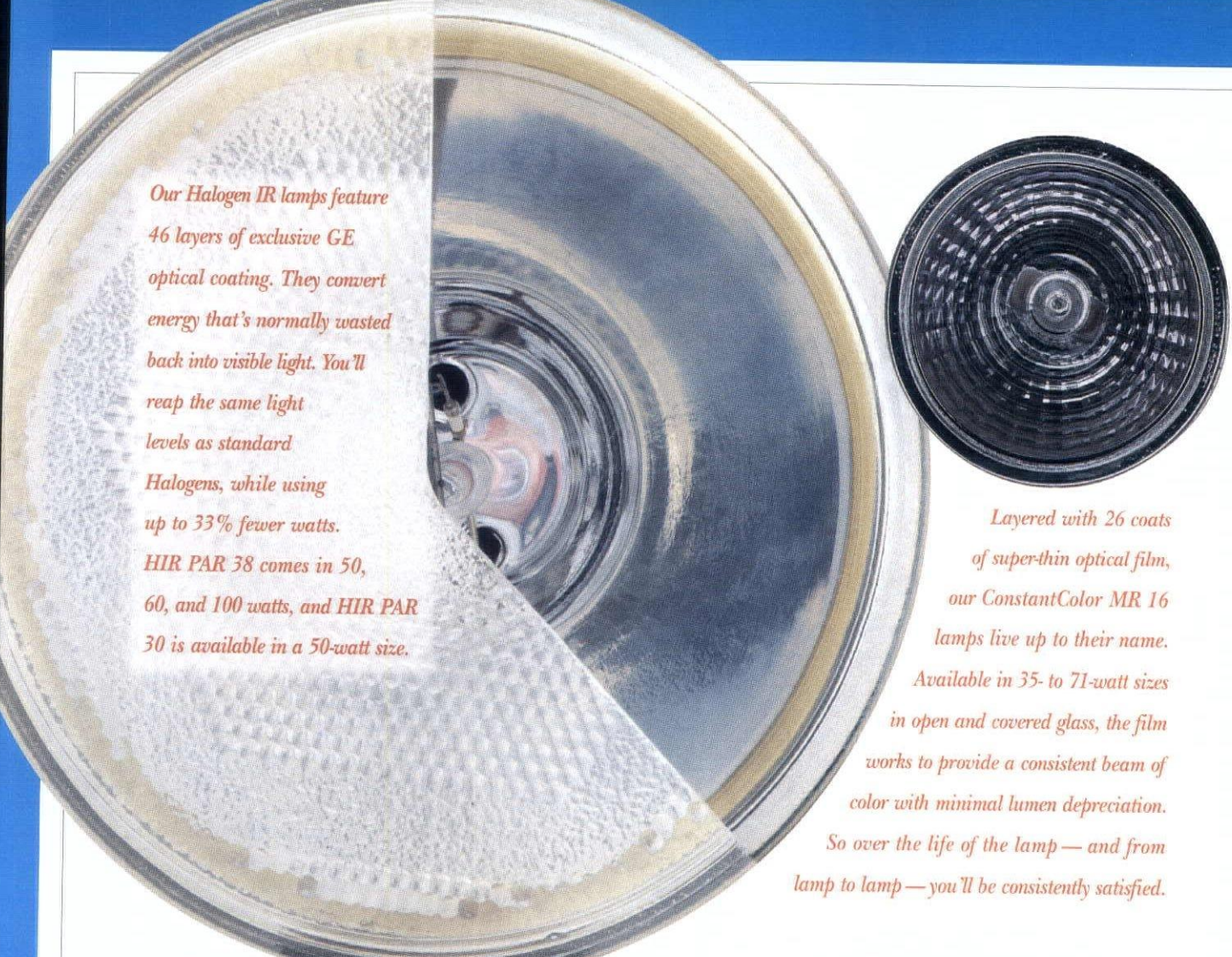
"We did a very detailed documentation of the lighting system," said Thompson. "To communicate those details to the people in Mexico, to get the equipment there, to get the contractor to install it and then to get down there to program it—I don't think many consulting firms could do that."

This house should have no trouble appealing to its occupants: every aspect has been attended to, quite literally down to the last lamp. While there were no energy codes per se, Thompson and Gibson were conscious of lamp life where bulbs would be difficult to replace. The exterior fixtures on the upper level of the house, for example, use 5W compact fluorescent lamps. "Since the owners are only going to be there a few weeks each year it would be unfortunate if, when they came to stay, the lights weren't working," said Thompson.

Quite the contrary; down to the last detail, the design works perfectly. ■

DETAILS

PROJECT Custom Residence ■ **LOCATION** Acapulco, Guerrero, Mexico ■ **ARCHITECT** Sr. J.B. Johnson; Arq. Ariel Chavela Flores; Arq. Eve Beckwith de Chavela ■ **LIGHTING DESIGNER** Archillum Lighting Design—Charles K. Thompson, Sarah J. Gibson ■ **INTERIOR DESIGNER** Sr. Jerome Cavanaugh; Sra. Carmen Garcia-Pimente ■ **ELECTRICAL CONTRACTOR** Acustica Y Electrica de Acapulco, S.A. DE CV—Ing. Victor H. Escudero Valverde, Ing. Eduardo Loria Casanova ■ **DISTRIBUTOR/ELECTRICAL SUPPLIER** Construlita, S.A. DE C.V. de Acapulco ■ **FIXTURE IMPORTER** Sr. Atilio Corneli—Grupo Atico ■ **PHOTOGRAPHER** Charles K. Thompson



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GE Lighting

Information

Lighting professionals work in a field that requires art and science. They must be teachers to the client so that he understands the value of quality lighting, and they must be students and learn so that they can deliver on their promises.

Today, as always, education is essential to achieve long-term success.

Unfortunately, finding the right sources of information can be confusing as manufacturers open new educational centers, the magazine publishing industry

IN A PROFESSION
DEMANDING EXPERTISE,
MANY SOURCES OF
EDUCATION ARE
AVAILABLE AND A NEW
CERTIFICATION IS JUST
AROUND THE CORNER

in the architectural field shrinks, associations work harder to support their members, the Internet continues its explosion and new books and publications are offered hot off the press.

In this article, we will take a look inside how *Architectural Lighting* readers view education, then survey some of the many tools available.

BECOMING "ILLUMINATED"

Because lighting professionals sell their expertise, it should come as no surprise that in a recent *Architectural Lighting* survey sent to a cross-section of 500 readers with almost 25% responding, all respondents said that continuing lighting education was extremely valuable (67%)

or at least somewhat valuable (33%) to them. But where do they go for answers?

Respondents said the top three most valuable sources of information that helped them keep up with developments in the profession were magazines (89%), manufacturers' reps (75%) and Lightfair and other conferences (43%).

They identified new products (40%), advanced lighting techniques (39%) and energy-efficient lighting (32%) as the top three areas where they needed to learn the most. It's interesting to note that lighting technique fundamentals (31%) and specialty applications (30%) followed close behind.

The choices make sense when one thinks about it. With limited time, lighting professionals are practical people.

Besides magazines, lighting professionals appear to rely heavily on the manufacturer for information, citing their local reps as their top "most valuable" source of information. A majority of respondents (64%) said they visited manufacturers' lighting education centers at least once every two years for education purposes—almost one-fifth (17%) said they attended several times each year. Manufacturers' education centers were identified fourth in the list of preferred sources of information, coming ahead of IESNA materials, independent centers and schools, Internet sites and "other."

Let's take a look at some of these sources of information: manufacturers, Lightfair, the IESNA, courses at independent sites, the Internet and some others, then we'll visit the progress of the industry's most comprehensive effort toward certification to date.

THE ROLE OF MANUFACTURERS

Manufacturers' reps ranked as the

second-highest most important source of information for today's lighting professional. In this section, we'll focus on manufacturer education centers, which ranked fourth after Lightfair. For an interesting perspective on how the rep field is changing, and how this could impact the lighting profession and industry, see this issue's Perspectives column by Warren Meltzer on Page 53.

The manufacturing community has become increasingly aggressive in product and technology education of specifiers in recent years, adding new education centers and taking advantage of the Internet and that old reliable, the newsletter.

While many specifiers are aware of established education centers such as the Philips Lighting Center, Osram Sylvania's LightPoint, the GE Lighting Institute and Cooper Lighting's The Source, several new centers opened their doors in 1996. And some existing centers expanded, such as LightPoint, which opened a new center at Osram Sylvania's Canadian operation and at the company's customer service center in Westfield, IN. See the Calendar Updates in this issue for new course schedules (Page 20).

Among the new arrivals, one of the most ambitious is Lightolier's TechCenter. Let's take a quick tour.

The TechCenter is a 5,000 sq.ft. facility housed at the company's headquarters and manufacturing plant in Fall River, MA. The floorplan is designed to help specifiers compare and contrast different types of lighting in various spaces.

Markus Earley, the manager of the TechCenter, is also its instructor. *Architectural Lighting* talked with Earley about different approaches to lighting various textures on vertical surfaces (see "Tips for Lighting Interior Wall Surfaces," Page 44).

Age

At the TechCenter, visitors are shown basic lighting principles and theatrical lighting techniques, then are guided through a series of environments—including retail, hospitality and residential (dining room, living room, bathroom, kitchen and foyer)—equipped with layers of Lightolier products. The layers, separately controlled, allow the visitor to sample different approaches to lighting the space. In addition to these spaces, another room lets visitors to view distribution patterns from more than 200 downlights (by clicking a mouse on a computer that reflects the ceiling layout). Additional showrooms demonstrate the company's controls, track fixtures and decorative fixtures.

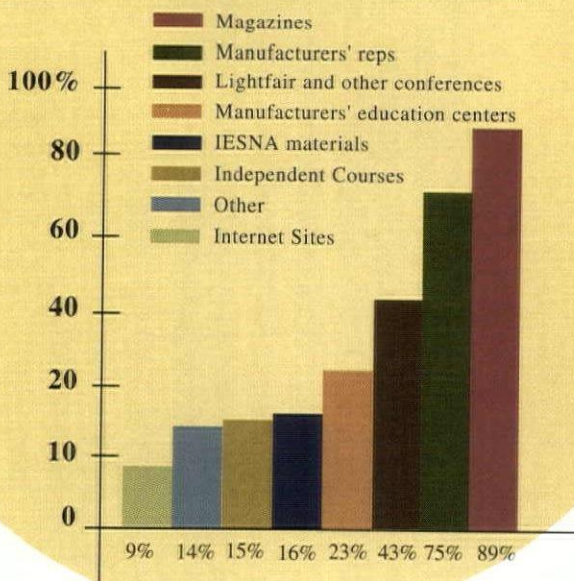
For more information about the TechCenter, call (800) 223-0726.

LIGHTFAIR'S EIGHTH YEAR Lightfair International offers the industry an excellent place to attend seminars on a wide range of topics, see new products, rub elbows and share experiences with colleagues.

In 1997, Lightfair returns to New York City's Jacob K. Javits Convention Center from April 28 to May 1. The pre-show conference is held April 28, offering a full day comprised of four workshops/CEU courses. The main conference, starting April 29, features 30 seminars, the return of the International Lighting Pavilion, and the New Product Showcase (co-sponsored by *Architectural Lighting* and *Inter.Light*). Conference program topics include daylighting, utility deregulation, theatrical lighting techniques, international lighting cultures, controls, color rendering and more. The trade show, meanwhile, will feature more than 325 exhibitors at over 800 booths.

To register, call (800) 856-0327 or (972) 620-3036. To learn more about the program, call Renee Gable at (404) 220-2217. For hotel information, call (212) 484-1228. For discounted airfare information, call (800) 929-4242 and ask for Group #358.

"WHAT THREE MEDIA ARE MOST VALUABLE TO YOU TO KEEP UP WITH DEVELOPMENTS IN YOUR PROFESSION?"

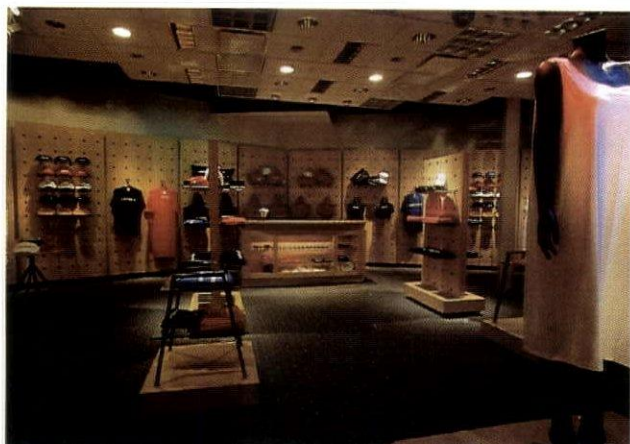
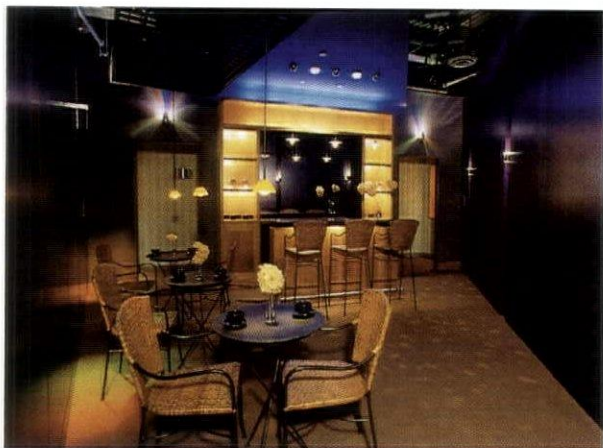


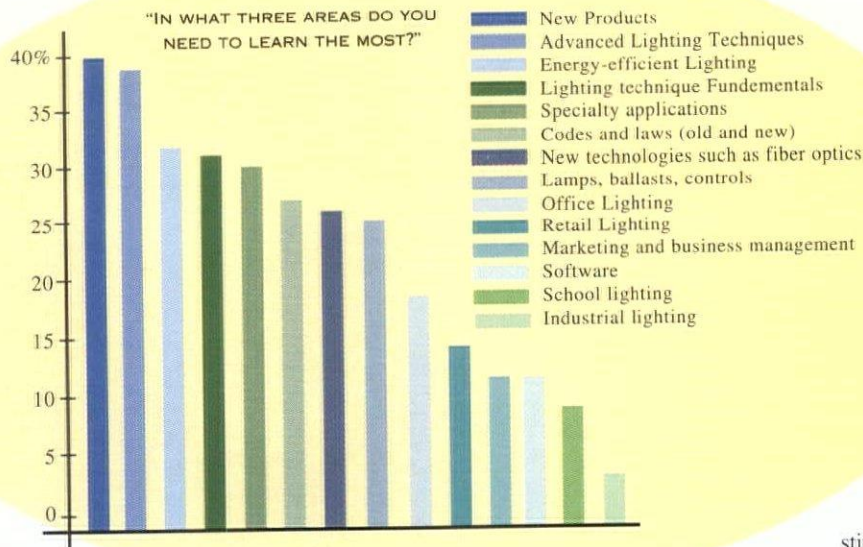
THE MISSION OF THE IESNA

For more than 80 years, the objective of the Illuminating Engineering Society of North America (IESNA) has been to communicate information on all aspects of good lighting practice to its members and to the lighting community and consumers through a variety of programs, publications and services. Here's a brief look at a few of these:

IESNA offers an education program with basic and intermediate level courses offered through its sections for people at various levels of experience: Introduction to Light and Lighting (ED-50), Lighting Education Fundamentals (ED-100), Intermediate Level Lighting Course (ED-150) and Roadway Lighting Fundamentals (ED-3). In addition, with each new published recommended practice on both indoor and outdoor applications, there is a

(LEFT) AT LIGHTOLIER'S TECHCENTER, VISITORS ARE TAKEN THROUGH A SERIES OF VIGNETTES THAT ALLOW THEM TO COMPARE AND CONTRAST VARIOUS APPROACHES TO LIGHTING THE SPACE. SHOWN IS THE HOSPITALITY VIGNETTE COMPLETE WITH BISTRO AND LOBBY BAR. MULTIPLE LIGHTING SCENES ARE CREATED THAT INCLUDE TRACK, DECORATIVE, RECESSED AND SURFACE-MOUNTED FIXTURES. (RIGHT) AT THE RETAIL VIGNETTE—OUTFITTED WITH A STOREFRONT WINDOW, TRANSACTION COUNTER, DISPLAY RACKS AND SHELVING—NUMEROUS LAYERS OF LIGHTING SYSTEMS ALLOW QUICK EVALUATION OF DIFFERENT DESIGN APPROACHES.





over the years and felt they were not as good as they could be. We wanted to raise the standard of education in our field."

The Academy of Lighting Design program is currently comprised of four courses, all accepted as continuing education units by associations such as IESNA, the International Interior Designers Association, the American Society of Interior Designers and the American Institute of Architects. The courses are:

- "The Fundamentals of Lighting Design," taught by James Benya, PE, CLEP, IALD, FIES, principal of Pacific Lightworks of West Linn, OR;
- "Humanizing Light for Interior & Exterior Environments," taught by Randall Whitehead, IALD, ASID

companion seminar package

suitable for use in either a three-hour teaching session or a one-day in-depth seminar on the topic. Instructional package programs are available for these topics: Interior Living Spaces, Casinos, Health Care Facilities and Art Galleries. CEUs can be gained for all IESNA educational courses.

In addition, in 1996 the IESNA launched a series of four 20-minute videotapes on the Background of Lighting, Light Sources, the Design Process and Energy Management, via a grant from the U.S. EPA. A 30-minute companion CD-ROM also is available with energy management as its focus. Additional educational materials on CD-ROM and at the Society's Web site are now being considered.

For more information about the IESNA's programs and publications, call the IESNA's Educational/Technical Development Department at (212) 248-5000, x115.

ACADEMY OF LIGHTING DESIGN

In 1996, the International Association of Lighting Designers (IALD) launched the Academy of Lighting Design, a traveling group of workshops co-sponsored by *Architectural Lighting* and Philips Lighting Company, and administered by AMC, Inc., the company that produces *Lightfair* International. The inaugural Fall 1996 program was held in November with two days of workshops taking place in San Diego, CA and Orlando, FL.

"We launched the Academy for two reasons," said Randy Burkett, president of the IALD. "The IALD was receiving an increasing number of requests from

organizations representing allied professionals—such as the AIA, ASID and the IIDA—for lighting courses that could be offered to their members. Plus we as designers had attended many CEU lighting courses

PERSPECTIVES ON EDUCATION—AND FINDING THE TIME FOR IT

"All designers need to keep up with formal education. I visit the manufacturers' education centers, which is good because I can also share experiences with other specifiers. You get to hear the horror stories, the solutions. But I rely more on monthly IESNA and DLF programs. Because of my limited time, it's more useful to me to attend a quick seminar that zeroes in on a hot topic. I also think the manufacturer's rep, while much-aligned, is a godsend to be an informed. I make time for all of this because it's a priority. My clients pay me to keep us informed."

—Addison Kelly, IALD, U.S. Lighting Consultants

"Lighting education is important, but I'd also like to see lighting professionals learn more about other disciplines, such as architectural detailing and the National Electrical Code®. We fit continuing education in at our company by paying for so many hours of it over each year. Often, we try to combine these efforts with business trips."

—Randy Burkett, IALD, Randy Burkett Lighting Design

"It's difficult to absorb everything that's going on, especially for a company principal. It was much easier as an employee. I try to read the magazines, go to Lightfair, attend lectures. But because of time pressures, I can only attend 25 percent of the lectures I sign up for. Senior staff members and manufacturer reps keep me up to date. I need practical info on a need-to-know basis—I often rely on the reps to put me in touch with the right answer people (and I respect a rep who keeps it short and to the point). That's why I like to work with companies with whom I can work directly—who can give me fast information when I need it."

—Ann Kale, IALD, Ann Kale Associates

"Certainly, staying abreast of the literature, such as magazines, is important. I also attend Lightfair as often as possible, because it's one place I can go and spend a concentrated amount of time on new products and technology. Carefully planned and scheduled meetings with reps—no more than 15-30 minutes, just new products—are helpful. And I believe that the Internet will grow in importance, because it offers 24-hour access to product data."

—Gary Steffy, FIALD, Garry Steffy Lighting Design

affiliate, principal of LightSource of San Francisco, CA;

- "Office Lighting," taught by Naomi Miller, IALD, IES, who directs The Delta Program at the Lighting Research Center; and
- "Energy Issues," also taught by Miller.

Renee Gable, conference & marketing director for AMC, pointed out that due to the success of the fall program, the Academy of Lighting Design will continue in 1997, with new fall dates and locations to be announced. For more information, call Danielle Varrone at AMC at (404) 220-2233.

INDEPENDENT CENTERS

Coast to coast, independent educational centers and schools offer formal lighting education. Among the most notable is the Lighting Research Center (LRC).

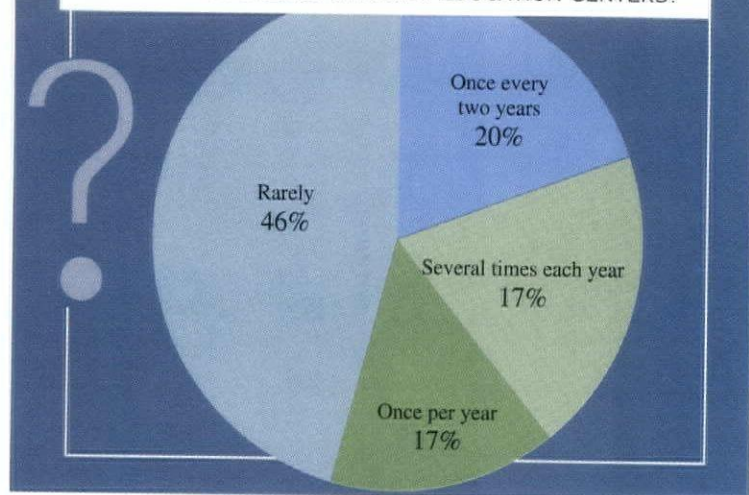
A unit of Rensselaer Polytechnic Institute's School of Architecture located in Troy, NY, the LRC was founded in 1988 by the New York State Energy Research and Development Authority. It is the largest academically based institution devoted to lighting education and research, offering the nation's only Masters in Science in Lighting degree. A two-year 48-credit curriculum combines a broad-based education spanning science, engineering, design and human factors with advanced research on a thesis topic. The center's 34 full-time faculty and staff work solely in lighting research and education, drawn from fields as diverse as physics, psychology, architecture, engineering and communications. The LRC also is one of the world's largest publishers of lighting information.

"The opportunities provided to students by the MS in Lighting program to meet, learn from, and work with leading lighting designers and manufacturers amply prepares these scholars to be lighting's future leaders," said Mark Rea, PhD, director of the LRC. "Our graduates have the education to transform the lighting industry."

In late 1996, the LRC received an endowed chair, the result of a generous \$1.5 million personal gift from Wayne Hellman, CEO of Advanced Lighting Technologies, Inc., whose 16 subsidiaries include Venture Lighting and other manufacturers of metal halide technologies and products with net 1995-1996 sales of \$54 million.

The endowment supports the research and educational activities of the LRC;

"HOW OFTEN DO YOU OR OTHER LIGHTING SPECIFIERS AT YOUR COMPANY ATTEND LIGHTING EDUCATION COURSES AT MANUFACTURER-SPONSORED EDUCATION CENTERS?"



specifically, the Wayne R. Hellman Chair is designed to "support academic excellence in teaching and research" as well as "foster a broader appreciation of lighting by all people."

The LRC also publishes *Lighting Listings*, which provides a list of contacts for various schools across the United States that carry a lighting curriculum.

For more information about the LRC's literature, curriculum and MS degree in lighting, call (518) 276-8716.

For the Pacific Northwest, the Lighting Design Lab (LDL) opened in 1989 as an independent lighting education center dedicated to improving efficient design practices and lighting quality. The LDL uses several training approaches including classes in fundamentals, workshops on applications and design techniques, "product knowledge days," and all-day seminars on topical issues. The LDL is sponsored

by a coalition of more than a dozen utilities, energy agencies and colleges, and is available to residents or projects within Washington, Oregon, Idaho, Montana, Utah and British Columbia.

For more information about the LDL, call (206) 329-9532.

ON THE WORLD WIDE WEB

While manufacturers' Internet sites have proliferated, inter.Light has been the most aggressive independent site and in our opinion, the most successful at achieving its goal.

Inter.Light, co-sponsored by *Architectural Lighting*, was established in September 1995 to 1) provide lighting specifiers with the most comprehensive and detailed on-line product search tool available, 2) to post, on a weekly basis, new product announcements from manufacturers, 3) to provide marketing support for lighting companies by "linking" pre-

RUBBING ELBOWS

Groups like the 63-year-old Designers Lighting Forum (DLF), now represented in most major cities, provide an opportunity for designers, architects, manufacturers, contractors, educators and students to meet monthly and discuss lighting topics.

Members also sit in on lectures, tour outstanding local lighting installations and attend product fairs.

For the New York chapter, annual dues are \$50.

The March program, "Controlling Daylight," will be held 5:30 p.m. (social hour)/6:30 p.m. (presentation) on March 19 at 570 Lexington Avenue in New York City. The April program, "Honor and Service Awards," will be held at Lightfair at Windows of the World, and the May program's topic is "Home Lighting: Accessorizing the Home with Light," (location to be announced). For more information about the New York chapter of DLF, call (212) 613-1599.



qualified lighting specifiers to company Web sites, and 4) to publish case studies of state-of-the-art lighting design and provide access to current research.

Inter.Light recently expanded its on-line lamp and ballast databases. The lamp database now includes tungsten halogen models. Search criteria include voltage, bulb type, wattage and beam designation. The ballast database has been expanded to include more than 500 models of T8 electronic and dimming ballasts.

Specification data presented includes voltage options, input wattage, light output, ballast factor, power factor, THD and current crest factor.

All told, inter.Light offers information on nearly 2,000 companies.

Inter.Light can be found on the World Wide Web at www.light-link.com. There is no fee for access.

NCQLP: NEW CERTIFICATION

An excellent means of both realizing

and demonstrating the benefits of education in any industry is to achieve certification. Today, the National Council on Qualifications for the Lighting Professions (NCQLP)—a coalition of lighting organizations and government—is working on an ambitious, comprehensive certification for all lighting practitioners.

The NCQLP's goals are to establish standards of professional competence across the entire lighting industry, then recognize qualified lighting professionals with certification. The NCQLP certification can be achieved by any individual involved in the design, engineering, specification, installation and management of lighting equipment and systems.

"The NCQLP certification program elevates the accepted standard of practice in the industry and improves the credibility of the profession," said Gary Gordon of Gary Gordon LLC, president of the NCQLP. "It yields wider public recognition for the benefits of well-lit environments. It also addresses the industry's need to recognize qualified lighting practitioners."

In August of 1996, the NCQLP conducted a job analysis and verification survey among 1,000 lighting professionals. In November, volunteers reviewed professional publications to identify a body of knowledge related to the job analysis, then wrote examination questions based on their research. By July of 1997, the NCQLP's goal is to establish testing standards, and volunteers will review and revise the questions to produce a final test.

On November 1, 1997, said Gordon, the NCQLP's testing agency will administer the first examination at test centers throughout the United States.

The IESNA has been working with the NCQLP to support its efforts to develop a certification process. The IESNA donated its data bank of examination questions previously used in the Society's Technical Knowledge Exam (TKE) for NCQLP's use in the knowledge component of the proposed certification exam. The IESNA stated that it now no longer offers the TKE, but instead will support the NCQLP effort.

For more information or to become an NCQLP volunteer, call Jaqueline Callahan, Executive Director, at (301) 654-2121. ■



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THE ACADEMY OF LIGHTING DESIGN

Circle No. 20 on product service card

TIPS FOR LIGHTING INTERIOR WALL SURFACES

BY CRAIG DILOUIE, EDITOR-IN-CHIEF

Taking a tour of Lightolier's new TechCenter (see "Information Age," Page 38), the group soon finds itself in the "Effects Hall." Markus Earley, manager of the TechCenter and its resident instructor, uses this space to demonstrate the effects of different light sources on various vertical surface textures.

Earley, formerly working with H.M. Brandston & Partners and as an adjunct assistant professor at Pratt Institute, was the first recipient of the IESNA's Richard Kelly Memorial Award in 1985. He later received a 1996 IESNA IIDA/EPRI Award for the lighting design of Lightolier's corporate headquarters.

"Walls are an essential element in the design of interior spaces," said Earley. "They are the broad brush strokes of the interior design composition and are central to interior space planning. Functionally, walls form volumes, offer privacy or security, and provide surfaces on which objects can be stored or displayed. Aesthetically, they entertain the eyes and influence our moods with their color, material, texture and shape."

Of course, "beauty is how you light it." Earley added that the perceived brightness of wall finishes is key to visual comfort, making proper lighting essential. Most important is the wall finish itself—lighter-colored finishes appear brighter and are therefore more comfortable, which is why most walls have reflectance values of 50-80 percent.

Earley offered a methodology for lighting these surfaces. The first step, he pointed out, is to decide which walls to light:

- Evaluate the design scheme and identify the types of walls proposed and how they might be used in the lighting scheme.
- Take an imaginary walk through the floorplan, picturing a "visual itinerary" through the spaces as if you were an occupant.
- Pay particular attention to what materials and colors are used on the walls. Are there

walls that have signage or pin-up surfaces? Will there be art? What walls bounce light onto adjacent worksurfaces?

- Based on the above, we can develop a hierarchy of walls, each with its own relative importance in the lighting scheme.

Using this information, said Earley, the next step is to decide how to light the selected walls following these guidelines:

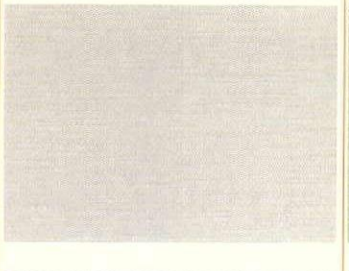
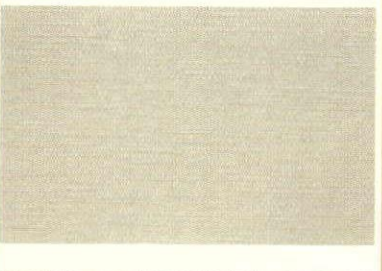
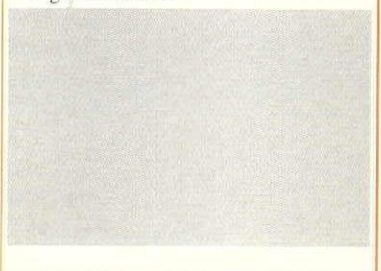



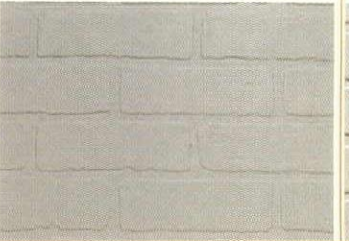


- Ask the right questions. Why are we lighting this wall? To see it from a distance? To view art? To accentuate the surface texture? What should the occupant see? An even wash of light, or aesthetically placed pools of brightness on the surface? The answers will affect the technique used.
 - Analyze the surrounding environment for clues as to what light source and fixture to use. For example, the proportions of a space and the construction materials will dictate available mounting locations, which in turn will influence how the wall can be lighted.
- Consider all other issues such as watts per sq. ft. limits, maintenance, and fixture and construction costs.

"There are many factors to consider when attempting to light a wall," said Earley. "The good news is that given the thought process and the myriad of light sources and fixtures available for lighting walls, there are only a few basic techniques that the designer needs to understand to put the equipment to work."

On the opposite page are three techniques for lighting vertical surfaces: indirect wall lighting, frontal wall lighting and grazing wall lighting. To show the effects of these approaches, we see them lighting three different light-colored surfaces from the TechCenter's "Effects Hall": fabric wall covering, stucco plaster and brick face. ■



"FUNCTIONALLY, WALLS FORM VOLUMES, OFFER PRIVACY OR SECURITY, AND PROVIDE SURFACES ON WHICH OBJECTS CAN BE STORED OR DISPLAYED," SAID EARLEY. "AESTHETICALLY, THEY ENTERTAIN THE EYES AND INFLUENCE OUR MOODS WITH THEIR COLOR, MATERIAL, TEXTURE AND SHAPE."

Lighting Technique:	INDIRECT WALL LIGHTING (mounted at ceiling plane 6" to 72" from wall)	FRONTAL WALL LIGHTING (mounted at ceiling plane 6" to 48" from wall)	GRAZING WALL LIGHTING (mounted above ceiling plane 6" to 18" from wall)
Description of visual effect:	<ul style="list-style-type: none"> • Soft ambient wash of light • Very uniform and diffuse • Washes out textures, low contrast • Hides imperfect surfaces 	<ul style="list-style-type: none"> • Soft to crisp-edge wash of light • Fairly uniform, brightest at top of wall • Reveals textures, medium contrast • Hides imperfect surfaces 	<ul style="list-style-type: none"> • Hard-edge wash of light • Least uniform, brightest at top of wall • Reveals textures, high contrast • Exaggerates imperfect surfaces
Types of fixtures available to create effect:	<ul style="list-style-type: none"> • Strip lights in upright architectural cove • Linear indirect cove fixture (concealed lamp) 	<ul style="list-style-type: none"> • Unit wall washers (round, square, or rectangular; open aperture or lensed) • Linear wall washers (direct lamp) 	<ul style="list-style-type: none"> • Linear slot wall washers • Socket strip in architectural slot • Track lights in architectural slot
Typical mounting methods:	<ul style="list-style-type: none"> • Built-in or prefabricated architectural cove, recessed 	<ul style="list-style-type: none"> • Recessed, semi-recessed, surface, track 	<ul style="list-style-type: none"> • Built-in or prefabricated architectural cove, recessed
Most likely light sources used to create effect:	<ul style="list-style-type: none"> • Fluorescent • Compact Fluorescent • Line or low voltage Incandescent strip (general distribution lamp) 	<ul style="list-style-type: none"> • Compact Fluorescent • Incandescent, halogen • Metal Halide (general distribution or directional lamp) 	<ul style="list-style-type: none"> • Incandescent, halogen • Metal Halide (directional lamp)
Recommended for:	<ul style="list-style-type: none"> • Smooth, matte to semi-gloss surfaces 	<ul style="list-style-type: none"> • Smooth, matte surfaces • Textured, matte to semi-gloss surfaces 	<ul style="list-style-type: none"> • Glossy surfaces, minimal reflected view of sources • Textured surfaces
Not recommended for:	<ul style="list-style-type: none"> • Revealing textured surfaces 	<ul style="list-style-type: none"> • Glossy surfaces, reflection of sources can be "glarey" 	<ul style="list-style-type: none"> • Smooth surfaces with imperfections
Other remarks:	<ul style="list-style-type: none"> • Can be used to bounce light onto adjacent work surface 	<ul style="list-style-type: none"> • Can be used to bounce light onto adjacent work surface 	<ul style="list-style-type: none"> • Horizontal plane directly below wall will have high illuminance
Visual effect on FABRIC WALL COVERING:			
Visual effect on STUCCO PLASTER:			
Visual effect on BRICK FACE:			

PRIVATE-PUBLIC PARTNERSHIP TURNS SULFUR LAMP INTO SULFUR SYSTEM

BY CRAIG DILOUIE, EDITOR-IN-CHIEF

Fusion Lighting, the U.S. Department of Energy, the Lawrence Berkeley National Laboratories and Cooper Lighting have partnered to turn the potential of the sulfur lamp into practical reality with a new indirect fixture incorporated into a freestanding kiosk. The announcement and demonstration was made at the renovated lobby of the Sacramento Municipal Utility District (SMUD) last November.

THE SULFUR LAMP

Developed with support from the U.S. DOE, Rockland, MD-based Fusion Lighting's Solar 1000 is a golf ball-sized quartz bulb containing non-toxic sulfur and inert argon gas at the end of a thin glass stick. A fan-cooled motor turns the lamp at 600 rpm while it is bombarded with focused microwave energy from the magnetron housed in the motor assembly. The microwaves excite the gas which in turn heats the sulfur, forming a brightly glowing plasma that itself could light a high school gym.

The lamp, developed in 1994, won *Popular Science's* 1995 Grand Award, an award from *Research & Development* as one of the top 100 innovations of 1995, and an award for technological innovation from *Discover*.

The complete unit draws 1,425 watts and operates at 200/208V, 60Hz to achieve full lumen output of 135,000 lumens and full brightness of 19 candela/mm² in about 15-20 seconds. Correlated color temperature is rated at 6000K and color rendering is rated at 79 CRI with no observable color shift. The energy output of the lamp (based on 502W) is low in ultraviolet (0.14 percent) and infrared (eight percent) and covers the full spectra of color, although in the prototype installation it appeared somewhat saturated in green. The design life of the system (excluding the filter and magnetron) is rated at 45,000 hours; the design life of the filter and magnetron is 15,000 hours.

The lamp's light can be dimmed, filtered, tinted and distributed in a variety of ways. Prior demonstrations relied on a light pipe to distribute the light, but this limited commercial potential in interior spaces. With such brightness and unique characteristics, a special fixture had to be designed.



THE COOPER LIGHTING FIXTURE. SPECIAL OPTICS HAD TO BE DESIGNED IN A PARTNERSHIP WITH SCIENTISTS AT THE LAWRENCE BERKELEY LAB TO ACCOMMODATE THE UNIQUE PHYSICAL AND ILLUMINATING CHARACTERISTICS OF THE SULFUR LAMP.

INTRODUCING THE FIXTURE

Cooper Lighting, a manufacturer of recessed, track, fluorescent, HID, exit and emergency light fixtures as well as modular wiring systems, worked with researchers at the Lawrence Berkeley Lab to develop a fixture that would accommodate the physical and illuminating properties of the Solar 1000 lamp.

The result is a fixture incorporated into a free-standing kiosk. The fixture is indirect with an efficiency of 85-88 percent, distributing light in a narrow, medium or wide pattern via modular reflector elements to accommodate various ceiling heights. According to Michael Siminovitch, staff scientist at the Lawrence Berkeley Lab, the free-standing kiosks are extremely adaptable. He pointed out that with a choice of reflectors and fixture mounting heights, a wide range of light levels and accommodation of many interior applications can be achieved.

A prototype fixture was introduced at the SMUD lobby, SMUD being chosen because the utility is highly regarded in the area of energy conservation. Two kiosks lighted the entire room, supplemented by perimeter recessed compact fluorescent downlights from Cooper for nighttime lighting.

It was impressive to see two small lamps brightly light a 2,000 sq.ft. space with an indirect fixture,



THE COOPER LIGHTING INDIRECT FIXTURE INSTALLED IN A FREE-STANDING KIOSK AT THE SACRAMENTO MUNICIPAL UTILITY DISTRICT (SMUD) LOBBY. TWO KIOSKS LIGHT THE ENTIRE 2,000 SQ.FT. ROOM. CIRCLE NO. 50

although further refinement of the prototype appeared to be needed to effect a more uniform distribution pattern on the ceiling. John Hollander, director of product development at Cooper Lighting, said the prototype was undergoing refinement and the fixture would be commercially available later this year. He sees it becoming popular in indoor spaces normally reserved for HID lighting, such as gymnasias, shopping malls, high- and medium-bay industrial spaces, assembly areas and other public spaces. He added that a variety of kiosk shapes could be manufactured to offer a choice of aesthetics, and that pendant- and wall-mounted versions are also being considered.

"This is an exciting and significant day for the lighting industry," said Fritz Zeck, president of Cooper Lighting, at the unveiling ceremony. "This partnership between government and the private sector has resulted in a tremendous breakthrough in the application of illumination and will change the way architects, engineers, lighting consultants and other specifiers look at lighting a wide variety of spaces."

DEVELOPING SULFUR LAMP PARTNERSHIPS

Moldcast Lighting and Fiberstars are among those companies that are also working with Fusion Lighting to develop new fixtures and equipment for the sulfur lamp.

Moldcast Lighting has partnered with the Lawrence Berkeley Lab to develop an outdoor area fixture. The engineering team chose the company's Landscape Chandelier series because of its ability to deliver uniform, low-brightness illumination.

"The Landscape Chandelier has an indirect optical system with light emanating from the source being focused by the collecting reflector onto the distributing

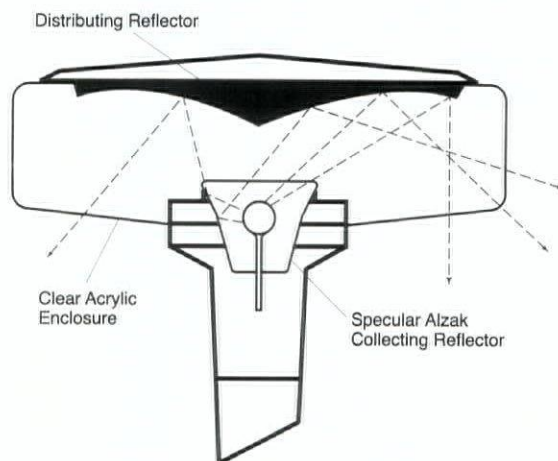
reflector above it," said Denis Wolfe, vice president of engineering (see drawing). "The unit's large fitter is also ideally suited for housing the required filter and magnetron."

John Taylor, director of product development, said Moldcast is currently conducting tests on a prototype installation.

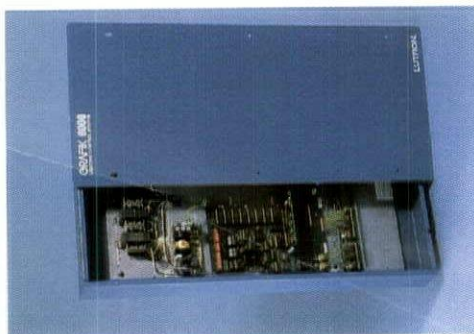
Fiberstars has also entered into a relationship with Fusion Lighting, in this case to develop and market a fiber optic lighting system utilizing a sulfur lamp as the light source. "One of our company's objectives is to provide a direct substitute for MR-16 recessed downlights," said David N. Ruckert, president of Fiberstars. "The sulfur lamp, with its powerful light output, is ideal for use in a fiber optic lighting system. We expect to market such a system in 1997."

In addition to its own in-house product design and engineering team, Fiberstars is working with Dr. Kurt Levens, an MIT scientist, in developing a fiber optic lighting system for sulfur lamps. According to Fiberstars, the company already has a patent pending on a unique optical coupling technology between the Fusion lamp and Fiberstars' fiber optic cable at the illuminator.

It's always interesting to hear about a new technology, but what's exciting is when companies, government and utilities work together to develop practical applications and products that give lighting professionals new choices. ■



MOLDCAST LIGHTING IS DEVELOPING A MODIFIED VERSION OF ITS LANDSCAPE CHANDELIER, AN OUTDOOR AREA FIXTURE, TO ACCOMMODATE THE SULFUR LAMP FOR OUTDOOR USE. CIRCLE NO. 51



LUTRON ELECTRONICS CO.

The Grafik 6000 computer-based lighting control system, designed for large commercial facilities and residences, consists of a central control panel and one or more field-configurable digital dimming panels. Touchbutton wallstations or hand-held wireless controls allow users to access the system. The PC- and Windows-based software allows set up of control zones, design and engineering, and monitoring. Numerous features. **Circle No. 53**

OSRAM SYLVANIA

Designed for standard U.S. buildings as well as metric specifications, Osram Sylvania's T5 lamp-and-electronic ballast system provides opportunities for smaller fixture designs. The lamp, rated at 82 CRI, is manufactured in four lengths: 563 millimeters (mm) (about 2 ft., producing 1,350 lumens); 863 mm (about 3 ft., 2,100 lumens); 1,163 mm (about 4 ft., 2,900 lumens) and 1,463 mm (about 5 ft., 3,000 lumens). Available in 4100, 3500 and 3000K. **Circle No. 54**



GE LIGHTING

Designed to rival the size of a standard A-lamp, GE Lighting's Heliac lamp employs a helical design to deliver more lumen output from a smaller lamp. Available in 32 and 42W plug-in or 4-pin-based models, which are dimmable and deliver 2,400 and 3,200 lumens respectively; and a 20W screw-in lamp with a light output of 1,200 lumens. Lamp life is rated at 10,000 hours. **Circle No. 55**

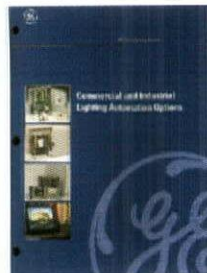


USHIO

Ushio's MR-16 reflector lamps are designed for long life with an average lamp life of 10,000 hours. The lamp features a 3150K color temperature, consistent color throughout lamp life, and an integral front glass lens that eliminates 90 percent of UV emission. Available in medium and wide beam spreads. UL-listed. **Circle No. 56**

GE TOTAL LIGHTING CONTROL (TLC)

A new 8-page color brochure from GE TLC describes the benefits of lighting automation and details the company's four levels of automation options—Remote Control Components, Softwired Contactor Panels, Learn Panels and Programmable Network Systems. Target applications for each product are given for a variety of uses including general commercial, industrial, retail and manufacturing. **Circle No. 57**



LEVITON MANUFACTURING CO.

The Decora-styled timer wall switches for timed control (intervals ranging from two minutes to 12 hours) were designed for a range of residential and light-commercial applications including heat lamps, foyer and outdoor lighting, hot tubs, spas, jacuzzis, attic and exhaust fans. Available in ivory, white and almond. UL-listed. **Circle No. 58**

LUMARK LIGHTING

Lumark Lighting, a division of Cooper Lighting, offers LumaWatt dimmers, a low-voltage bi-level HID dimming system. LumaWatt dimmers allow for high-low dimming of up to 25 HID fixtures per control module, and can be daisy-chained to accommodate more fixtures. The three-component system was designed for warehouses, distribution centers, parking garages, gymnasiums, sports arenas and other applications where maximum light levels are desired for occupancy and a lower light level for when the area is empty. **Circle No. 59**

PHILIPS LIGHTING COMPANY

Philips Lighting's low-mercury Alto fluorescent lamp technology, developed in 1995, has recently been added to the company's T12 Spec Econ-o-Watt line (F40 Spec 30, Spec 35 and Spec 41) and the premium T12 Ultralume Econ-o-Watt lamps (F40 3000/3500/4100/5000K). Lamps manufactured with Alto thereby allowing them to pass the U.S. EPA's Toxic Characteristic Leaching Procedure (TCLP) at any stage of life without a sacrifice in performance. **Circle No. 60**

ADVANCE TRANSFORMER CO.

The Mark X electronic dimming ballast offers full-range dimming of compact fluorescent lamps in applications such as downlighting. The ballast can continuously dim two 26W quad, four-pin compact fluorescent lamps from 100 percent to 5 percent of full light output directly from compatible 2-wire or 3-wire dimming control systems. Power factor is greater than 90 percent; available for 120V and 277V systems; total harmonic distortion is less than 10 percent at full light output and less than 20 percent at minimum light output. **Circle No. 61**



MACRO ELECTRONICS CORPORATION

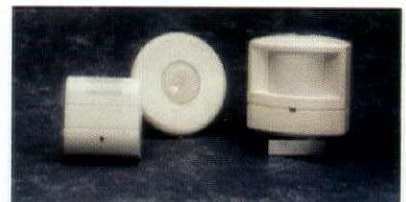
The Designer Preset System (DPSII) was designed to provide buildings with dimming and control from a master system. DPSII features four scene preset capabilities using push-button memory controls (two additional buttons allow "off" and "full bright"). Low-voltage controls are used to create lighting scenes as well as control other equipment such as automated window curtains, projection screens and ceiling fans. **Circle No. 62**

MAGNETEK

MagneTek's Lighting Products Group has updated its full-color catalog highlighting the company's line of ballasts for HID lamps. The catalog includes reference sections, such as a lamp-to-ballast quick reference and a numerical ballast reference; a guide to core-and-coil ballasts, special application ballasts, capacitors and starters; technical information (such as circuit types and wiring diagrams); a detailed warranty explanation; and a glossary of terms. **Circle No. 63**

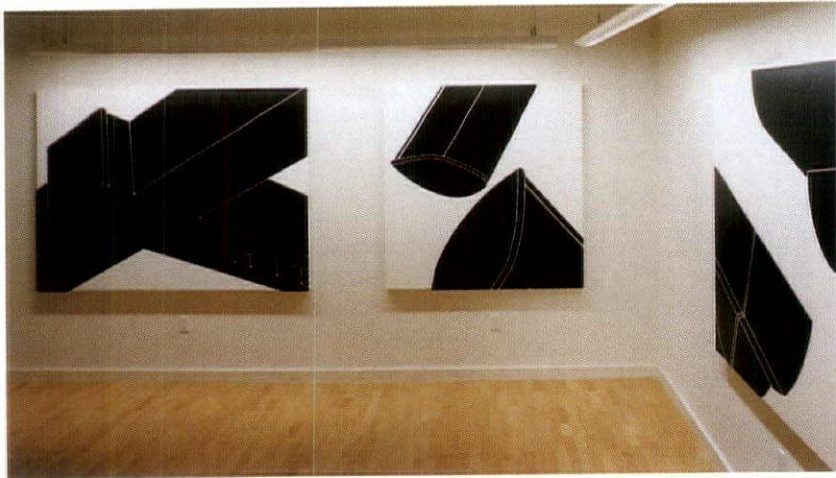
THE WATT STOPPER, INC.

The Watt Stopper's passive infrared (PIR) occupancy sensor utilizes fewer discrete components with its mixed signal ASIC technology. This circuitry was designed to minimize component failure by incorporating all of the sensor's essential analog and digital circuitry into a single enclosure. It also provides maximum immunity to radio frequency interference and electromagnetic interference which results in fewer false triggers. **Circle No. 64**



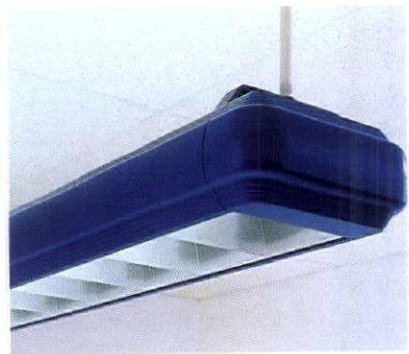
LITETRONICS INTERNATIONAL

The Energy-Lite Plus line of T8 lamps are available in the 900 series (92 CRI); 800 series (85 CRI); 700 series (73 CRI); and 600 series (62 CRI). The lamps come in 2 ft. (F17), 3 ft. (F25) and 4 ft. (F32) lengths. Wattages include 17/25/32W with color temperatures of 3000/3500/4100/5000K. **Circle No. 65**



LINEAR WALL WASH

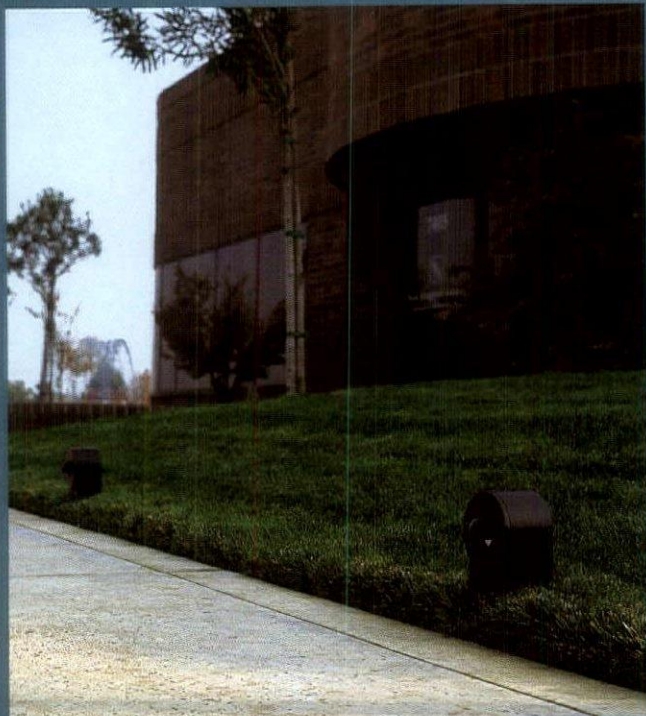
Peerless Lighting Corporation's new linear Softshine Wall Wash fixture was designed for application flexibility and aesthetics while providing even, low-glare illumination. Mounted 26 in. from the face of the fixture to a 9 ft. wall, the fixture can deliver brightness ratios as even as 4:1, according to Peerless. The company's LightCue optics create a narrow line of horizontal brightness along the leading edge of the reflector system; this low-brightness band's purpose is to effect an uplifting architectural detail. Reflectors are available with a specular, satin or soft white finish. The 6 in. x 3 in. extruded aluminum fixture, typically 2 ft. in length but which can be cut or extended to spec, houses a single T8 lamp and electronic ballast. A variety of colors allow the fixture to blend in with a range of environments. Pendant- or surface-mounted. UV filtration available. UL-listed. **Circle No. 66**



LIBRARY/RETAIL LIGHTING

The LSLA Series has been developed by Columbia to light tough library and retail shelf-stacking applications. The fixtures are designed to distribute light uniformly and narrowly directly down the face of library and retail shelves of varying heights. Available with single or dual T8 compact fluorescent lamps; can be surface-mounted or suspended from the ceiling; and can include a perforated panel for 15 percent uplight. UL- and CSA-listed for through wiring. **Circle No. 67**

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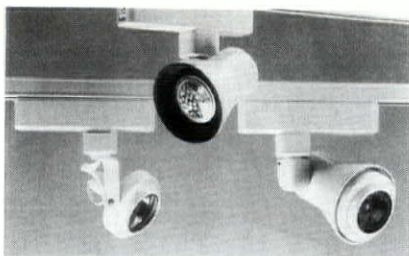
Fiber-Optic Lighting



Super Vision International introduces fiber-optic lighting—UL-listed remote light sources, optical grade plastic fiber optics, and a variety of lens fixtures for down lighting, landscape lighting and accent lighting to offer advantages not found with conventional lighting. Downlight fixtures (see photo) offer no heat at the lens with adjustable lenses. Minimal space is needed for the lens, and the jacketed fiber-optic cable is flexible for easy installation. Fixed or adjustable lenses are available for underwater pool, spa or fountain and accent lighting.

SUPER VISION

Circle No. 22

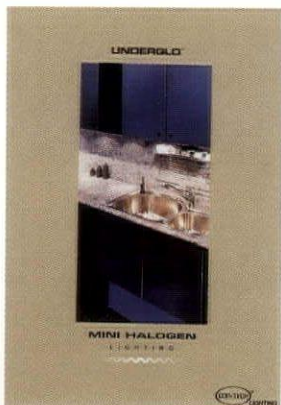


TRACK LIGHTING

Thomas Lighting has expanded its Capri low-voltage track lighting line with higher wattages and new low-voltage lamps: 75W MR16 lamps and 50W AR70 (Osram Sylvania) and MR16 TAL (turn and lock) (GE) lamps. Greater design flexibility from the Capri line is the result of a broader choice of beam spreads that can be used at higher mounting heights or for brighter, more precise light patterns. **Circle No. 68**

DOWNLIGHTS

Halo Lighting has added the Shallow Ceiling fixture to its Air-Tite and Insulated Ceiling (IC) Recessed Downlights family. It is intended for use in plenums with 2 in. x 6 in. joists and designed to prevent air flow problems while maintaining performance. The unit is also designed to reduce sound transmission between rooms. Available in various trim styles and finishes; has a 6-1/2 in. aperture; accepts a range of R and PAR lamps. IP-, CSA- and UL-listed for damp locations, feed-through and direct contact with insulation. **Circle No. 69**



UNDERCABINET FIXTURES

Con-Tech Lighting's new 4-page brochure details the company's Underglo line of highly compact halogen undercabinet lighting for office work stations, kitchens and furniture cabinetry. Both linear undercabinet fixtures and round mini downlights are featured. Complete specifications and ordering information are included. **Circle No. 70**

JANUARY/FEBRUARY 1997



TABLE LAMPS

The Pao collection of fixtures designed by Italian architect Matteo Thun, introduced by **FLOS USA** in 1993, has now been expanded with a new black aluminum finish. This complements the existing Pao collection of table and floor lamps with a cherry wood finish. **Circle No. 71**

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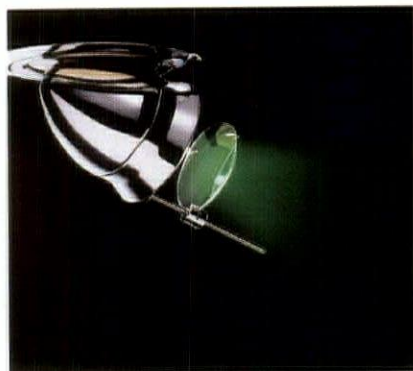
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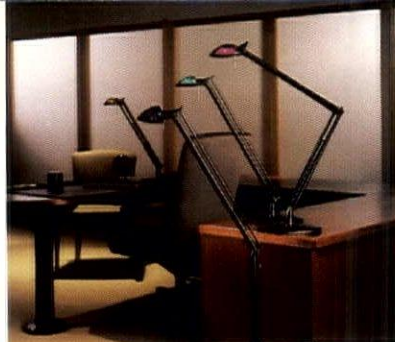
OUTDOOR LIGHTING

The Yacht Star from **B-K Lighting** is designed to offer a wide, long throw of illumination from optics using MR11 lamps and a 3 in. diameter face-plate. This allows the fixture to be mounted at no more than 12 in. above grade with maximum cut-off and glare control. Due to core drill mounting and marine duty construction, it can be installed in adverse environments. **Circle No. 72**



DIRECTIONAL DOWNLIGHT

Tivoli Lighting, teaming with Italian manufacturer Targetti, offers the Mondial Series of recessed downlights that function as standard downlights but also allow a directional pointer to pull down and lock in place to aim a beam of light. The orbital pointer (see photo), with a 4- or 8-in. aperture, is adjustable vertically to 65 degrees and can rotate 359 degrees. The Series houses a range of 35-150W halogen lamps ranging from 12-277V with remote transformers. Available in non-reflective white, black or aluminum gray; and in chrome and polished brass plate. Numerous accessories and options available. UL- and CUL/CSA-listed. **Circle No. 73**



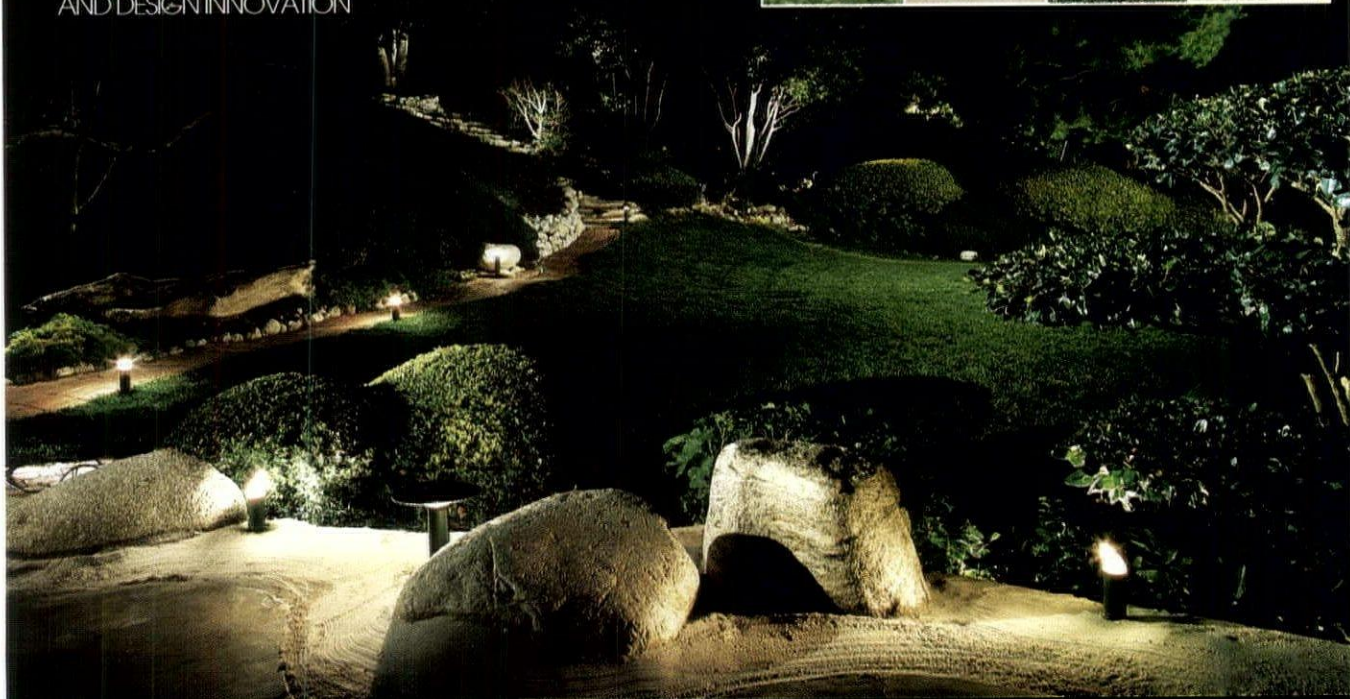
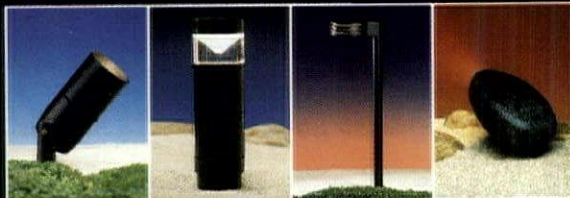
TASK LIGHTING

Luxo Corporation's Halogen 3 family of task light fixtures offers the user a fully articulating, counter-balanced concealed-spring arm. The arm, available in two lengths, allows precise vertical and forward placement of the light; further adjustment is allowed via each fixture's fully rotatable lighthouse. Available with a choice of two shade designs—a new rounded-edge version of Luxo's "stepped" shade or a new semi-elliptical shade. Both are translucent and available in a range of colors (stepped: amber, black, blue, green; semi-elliptical: same, plus purple). Houses a 35W halogen lamp controlled by a switch that allows OFF, 50 percent light output and 100 percent light output. Mounting options include oval table base, floor base and edge clamp. UL- and CUL-listed. **Circle No. 74**



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IS THE "GOURMET" LIGHTING REP A DINOSAUR?

BY WARREN G. MELTZER

The same kind of consolidation that has virtually wiped out interesting independent neighborhood bakeries, butcher shops, hardware stores etc. is killing the independent "gourmet" representative in the lighting industry.

Each year, we see gourmet reps, who represent and thoroughly know the products of a few high-quality manufacturers, lose more business to conglomerate-driven packages where one rep supplies virtually every fixture on the schedule. This new "mega-rep" has replaced the distributor as the one who puts the entire lighting project quotation together. But it hurts the industry, the specifier *and* the customer because compromises are made on approvals for the sake of the package. Products often land on the job because they bear some physical resemblance to what was specified, but offer little performance similarity.

Instead of a lighting rep handling 8-10 lines and extolling their features and benefits, many now have more than 50 lines and much of their effort goes into "maneuvering" the package. It was often the gourmet rep who routinely updated the specifier on industry developments. While many mega-reps have qualified people calling on specifiers, it is impossible for them to do justice to 50 lines. They may deliver enough volume to each of their specialty manufacturers to keep them from looking elsewhere, but they spend too little time presenting innovative products to specifiers. The volume comes from what fits into the package. The price of the special area fixture is often dictated by whatever money is left in the package, rather than the product's value to the overall project.

The history of the lighting industry clearly shows that innovative products often come from small independent manufacturers. These are companies that have relied on the gourmet rep to champion their cause. Many of these companies have been acquired by conglomerates who, with the notable exception of a few, terminated existing reps and added their line to the mega-rep's package—leaving fewer independent lines available for the remaining gourmet reps. The acquired company often loses its entrepreneurial culture, which retards new product development.

While many seem to agree that the above scenario is not good for the industry, few seem to feel that the trend is reversible. I believe that there are many mega-rep principals earning less personal (and far less psychological) income than they did before the "package" era. They are prime candidates to again become gourmet reps, and I think many would if they thought the specification community would support them.

To save and revitalize the ranks of the gourmet reps, specifiers must offer support. They must understand that the rep is paid by the manufacturer only for orders shipped, not for getting listed on specifications that in many cases are meaningless. Specifiers who feel they must put three names on each fixture type listed in a spec are, unfortunately, being somewhat unrealistic. Innovation does not occur in triplicate. Whether a specific fixture is affordable for a given area can and should be determined by the specifier working with the rep during design. Meaningful savings come from honest competition of the primary fixtures, not from accepting non-equals on the specialty types.

A reversal of the decline in smaller independent lighting reps who establish healthy relationships with specifiers would be good for all concerned. Independent manufacturers should reexamine what they want and expect from a rep. Reps must be willing to provide specifiers with the level of service that warrants their support. Specifiers must recognize this service and support it by specifying what they determine is best for the application ... and then sticking to it.

Warren Meltzer is vice president, general manager for LAM Lighting Systems of Santa Ana, CA, a subsidiary of the JJI Lighting Group, Inc. His perspective is based on 43 years of lighting industry experience. Mr. Meltzer is retiring in March.

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