

APRIL/MAY  
1996

# lighting

architectural  
lighting  
86  
TENTH ANNIVERSARY  
96

architectural

## SF MUSEUM OF ART

QUALITY METRICS  
LIGHTING VIDEOCONFERENCING SPACES  
—CDN LIGHTING GUIDE

A MILLER FREEMAN PUBLICATION  
U.S. \$6.00

# Multiple Personality



**Introducing The Entablature™**, the first outdoor luminaire that allows you to define its character within the architectural scheme. As a shy personality, The Entablature has a distinguished simplicity that can blend with its surroundings and become integral with the architecture. As an extrovert, the luminaire can be reconfigured with many different entablatures to emulate the distinctive features and accent colors that often become the unique signature of building exteriors. Whatever the choice, you can be sure that you have specified a luminaire of unprecedented quality and performance because it is Kim. The Entablature is available in two sizes, four light distributions, HID lamp modes from 70W to 400W, and a host of features such as die cast construction and no-tool maintenance. The shoebox has been redefined!



**KIM LIGHTING**

P.O. Box 1275 • 16555 East Gale Ave. City of Industry, California 91749 • 818/968-5666  
FAX: 818/369-2695 • E-Mail: KimLtg@annex.com

Circle No. 20 on product service card



## DESIGN FEATURES



CAFE PARADISO

42

34

### State of the Art

Fisher Marantz Renfro Stone develops a daylighting system to light the San Francisco Museum of Modern Art

38

### Game Plan

The lighting designers for Hasbro use both daylight and electric light to define the different areas of the facility

42

### Sweet Success

Architect William Eberhard uses unusual yet effective lighting techniques in this Ohio eatery

46

### Cutting Edges

Curved elements and a warm lighting scheme create a sense of peace in an ER

## INDUSTRY FOCUS

50

Quality Metrics

## TECHNIQUE & TECHNOLOGY

54

**Technique** Integrating Daylight & Electric Light

58

**Technique** Lighting Videoconferencing Spaces

62

**Technology** Outdoor & Landscape Lighting

66

**Technology** At the Dawn of a Nighttime Lumen



DAYLIGHT & ELECTRIC LIGHT

54

## DEPARTMENTS

8

**Editorial** Lighting: An Industry on the Move

10

**Updates** Pass & Seymour/Legrand Acquires Wattstopper

16 Energy

20 People

24 Technology

26 Calendar of Events

28 Lightfair Schedule

32

**Spotlight** Encore Performance

68

**Commercial Design Network Lighting Guide**

74

Marketplace Classifieds

75

Ad Index



HIGHLANDS INN

32

# architectural lighting

Editor-in-Chief

**CRAIG DILOUIE**  
(212) 615-2304  
e-mail: [cdilouie@mfi.com](mailto:cdilouie@mfi.com)

Executive Editor

**CHRISTINA TRAUTHWEIN**  
(212) 615-2631  
e-mail: [ctrautwein@mfi.com](mailto:ctrautwein@mfi.com)

Creative Director

**LYNDON LORENZ**  
(212) 615-2616  
e-mail: [llorenz@mfi.com](mailto:llorenz@mfi.com)

Assistant Editor

**EMILIE SOMMERHOFF**  
(212) 615-2746

## EDITORIAL ADVISORY BOARD

CRAIG BERNECKER, PH.D. Penn State University • ALFRED BORDEN, IV, IALD The Lighting Practice • RONALD HARWOOD Illuminating Concepts • JULES G. HORTON, FIALD, FIES Horton • Lees Lighting Design • DIANA MESH, IALD, IES Mesh & Juul Incorporated • GARY MARKOWITZ, MIES • MICHAEL JOHN SMITH, AIA, IES, IALD Michael John Smith Lighting Consultant • GARY STEFFY, IES, IALD Gary Steffy Lighting Design Inc • RANDALL WHITEHEAD Light Source Inc

Group Publisher **PHILLIP A. RUSSO** (212) 615-2368

Production **VINCE HABICK** (415) 905-2454  
fax (415) 905-2236

Circulation/Lists **MOIRA BOYLE** (609) 466-3752  
fax (609) 466-3791

Subscriptions **JANET PARKER** (212) 615-2681  
fax (212) 279-4460

Circulation Customer Service (800) 255-2824  
fax (847) 647-5972

Reprints **VICKI BREWSTER** (516) 365-2646  
fax (516) 681-7315

Marketing Manager **MICHELLE CARDELLO** (212) 615-2785  
fax (212) 279-3955

Classified Sales **KATHLEEN SINGH** (800) 688-7318  
**Laurie Toelle** (214) 419-7893  
fax (214) 419-7900

## ADVERTISING SALES

National Sales Director/  
International Sales **RICHARD ANCAS** (212) 615-2252  
fax (212) 279-3955

Northeast **JANE MCCABE** (212) 615-2388  
fax (212) 279-3955

Southeast **HELENE FINEBERG** (212) 615-2719  
fax (212) 279-3955

Central **JOSEPH PROSCIA** (212) 615-2727  
fax (212) 279-3955

Midwest **MARIE KOWALCHUK** (312) 205-3256  
fax (312) 545-5970

West Coast **JON HENG** (818) 799-3610  
**PATRICIA OLAIZ HENG** fax (818) 799-5853

## MILLER FREEMAN, INC.

Chairman/CEO: Marshall W. Freeman; President/COO: Thomas L. Kemp; Senior Vice President/CFO: Warren "Andy" Ambrose; Senior Vice President: David Nussbaum; Senior Vice President: Darrell Denny; Senior Vice President: Donald A. Pazour; Senior Vice President: Wini D. Ragus; Vice President/Production: Andrew A. Mickus; Vice President/Circulation: Jerry Okabe

## COMMERCIAL DESIGN NETWORK PUBLICATIONS

Architectural Lighting Contract Design Facilities Design & Management  
Catalog Request Service Product Showcase Contract Design Source Guide

Miller Freeman, Inc., division of United News & Media,

One Penn Plaza, New York, NY, 10119-1198,

Telephone (212) 714-1300 Fax (212) 279-3955

# Improve your creative vision.

Create stunning effects with Manning Lighting—like oohs and aahs. Manning offers a huge selection of pendant lighting, ceiling lighting and wall sconces, all available with energy-efficient lamps and ballasts. So many designs, so many ideas. Call 414-458-2184 for your copy of the new Manning catalog. Then read it and watch the lights go on.

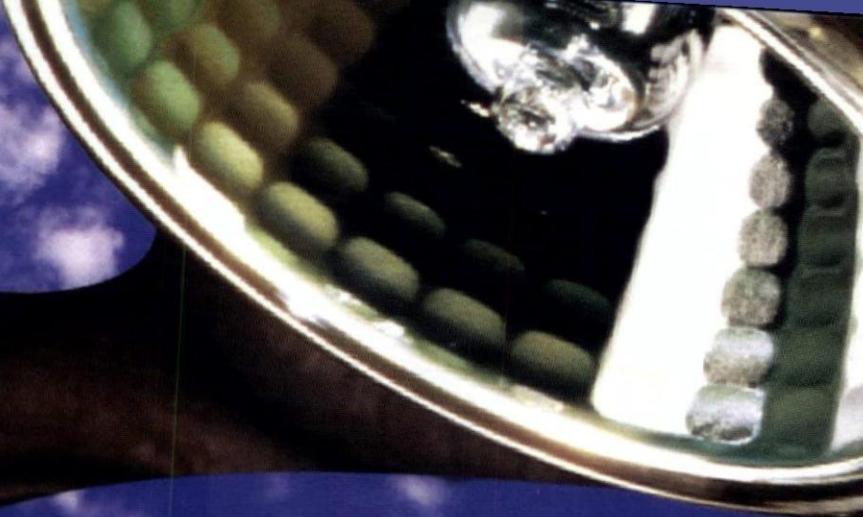


  
**MANNING  
LIGHTING**

Manning Lighting, Sheboygan, Wisconsin 53083, 414-458-2184

© 1996 Manning Lighting

Circle No. 4 on product service card



## 10,000 HOUR MR-16

Exclusively ours, Ushio introduces the "Ultra Life" series of MR-16 halogen lamps for general illumination. At 10,000 hours, "Ultra Life" lamps offer twice the lifetime of standard MR-16 lamps. Now lighting designers don't have to let the impracticality of frequent lamp change-outs compromise their creative vision.

## BECAUSE LIFE'S TOO SHORT



**USHIO**

800.218.7446

Circle No. 5 on product service card

THERE'S A NATURAL RESPONSE TO  
THE DOMINANT SOURCE OF LIGHT.





EVEN AMONG A MULTITUDE OF OPTIONS, THE MOTH, WITHOUT FAIL, FLIES TO THE DOMINANT SOURCE OF LIGHT. IN MUCH THE SAME WAY, EVERYONE FROM SPECIFIERS TO CONTRACTORS TURNS TO OUR FAMILY OF COMPANIES — COLUMBIA, PRESCOLITE AND MOLDCAST — FOR SUPERIOR LIGHTING SOLUTIONS. TOGETHER, WE STAND OUT AS THE DOMINANT SOURCE IN THE LIGHTING INDUSTRY. WE OFFER INTELLIGENT CHOICES FOR VIRTUALLY ANY APPLICATION, INDOOR, OUTDOOR OR EMERGENCY, COMMERCIAL, RESIDENTIAL OR INDUSTRIAL. WITH THE ASSURANCE OF DEPENDABILITY, QUALITY WORKMANSHIP, PROVEN PERFORMANCE, EASE OF INSTALLATION, AND THE CONVENIENCE OF WORKING WITH ONE REPUTABLE, RELIABLE SOURCE, CONTACT YOUR COLUMBIA • PRESCOLITE • MOLDCAST REPRESENTATIVE TODAY. ONCE YOU TURN TO THE DOMINANT SOURCE OF LIGHT, EVERYTHING DIMS BY COMPARISON.

[ THE DOMINANT SOURCE OF LIGHT ]

**Columbia**  
**Prescolite**  
**Moldcast**

PRESCOLITE'S EMAX.  
FROM AN INDUSTRY LEADER  
IN EMERGENCY LIGHTING



COLUMBIA'S TECHNEK.  
FROM THE INVENTOR OF  
PARABOLIC FIXTURES



MOLDCAST'S WASHINGTON  
CONTRA/CLINE. FROM A  
PIONEER IN  
OUTDOOR LIGHTING



## LIGHTING: AN INDUSTRY ON THE MOVE

Welcome to *Architectural Lighting's* Lightfair issue and the second issue celebrating our 10th anniversary. Together, we have weathered a stormy decade and emerged stronger than ever facing many new opportunities and challenges.

Some of the big changes in the past 10 years of course included the recession and construction slump of late '80s/early '90s. And yet new legislation—such as the National Energy Policy Act and the Americans With Disabilities Act—and accelerating technology have demanded increased professionalism and time from lighting designers. Owners began to realize more than ever the role quality lighting plays in productivity—ironically, this education came after years of retrofits with energy savings as the primary goal. This demand for lighting expertise will only become more important as computers proliferate, new workplace approaches such as hoteling and virtual officing emerge, and as facility managers connect workplace design strategies with business strategies. Hopefully, no more will somebody consider merely adding some decorative sconces on a wall to be “quality lighting.” And no more will quality lighting design be confused with “decoration.”

These are the times we work in.

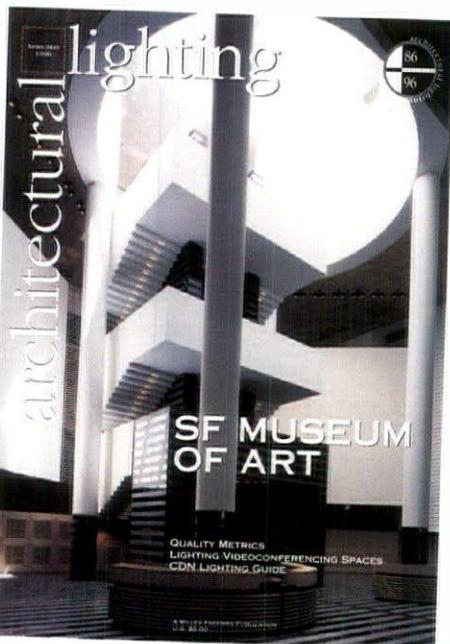
Opportunities abound. Themed environments, renovations, exterior lighting, productivity-sensitive interior office lighting, and special applications in emerging niche markets such as videoconferencing offer lucrative projects to



CRAIG DILUIE,  
EDITOR-IN-CHIEF

today's lighting professional. And the designer's tool belt could probably wrap around a school bus today with the advancement in traditional technologies plus new controls, compact fluorescents, custom fixtures, smaller fixture designs, low-voltage fixtures, energy-efficient products and fiber optics. Sounds good, but there's no free ride here—designers must meet higher expectations with greater expertise. Owners want more on tight budgets and with code and energy constraints, demanding every drop of creativity we can muster. The designer often must do a great sales job and take time to show owners more options within the budget or new products and designs that justify a larger budget. The designer must balance billable time with time spent examining new products.

Architectural lighting designers today are certainly a leaner, tougher, smarter breed. *Architectural Lighting* is proud to have been with you over the decade and we thank you for taking the time to read our magazine issue after issue, year after year.



COVER PHOTO BY  
RICHARD BARNES

Our mission is to showcase the industry's leading projects, illuminate new techniques and approaches, and be a marketplace of quality products and services. In every page, we try to offer you value. And as a special bonus in this issue, some of today's leading designers offer their perspectives on the past 10 years in the design features. So with a nod of thanks to our predecessors Charles Linn and Wanda Jankowski, the *Architectural Lighting* team—myself, Christina Trauthwein, Lyndon Lorenz (who delivered the stunning redesign of the magazine in January), and all the rest here at the Commercial Design Network—looks forward to another 10 years of offering news and information that can help you succeed and grow professionally.



# Play of Light.

A STELLAR LINE-UP FROM LUCIFER LIGHTING COMPANY—THE NEW PRODUCTS FOR 1996. BRILLIANT ILLUMINATION FOR SMALL CONFIGURATIONS. CLOCKWISE FROM UPPER LEFT: THE HELIX TRACK, SPLITTING AND SWIRLING THROUGH ANY SPACE. THE BARRACUDA, REDEFINING VERTICAL FLOOR-TO-CEILING TRACKS—PORTABLE, TOO. THE LUNA, OUR NEWEST DOWNLIGHT, FACED WITH AN OFFSET FROSTED GLASS DIFFUSER FOR MAGICAL LUMINESCENCE.

1-800-879-9797 • FAX 1-210-227-4967

©1996, Lucifer Lighting Company.

**LUCIFER**  
LIGHTING COMPANY

Circle No. 7 on product service card

## A.L. IN THE NEWS...

Architectural Lighting Editor-in-Chief Craig DiLouie recently moderated a distinguished panel of lighting designers at the University of Delaware's Hotel, Restaurant & Institutional Management program, which



addressed issues surrounding "The Challenge of Hospitality Lighting Design."

The Hospitality Roundtable Program is being broadcast for the HRIM course "Property Management" on Mind Extension University, part of the Jones Education Cable Networks.

Lighting design issues discussed during the roundtable included the role that atmosphere plays in the success of hotel and restaurant interiors and the different ways that lighting designers meet the challenge; the application of lighting design to conference and meeting room spaces; lighting design for guest security and energy conservation; and the effects of lighting design on the quality of guest experiences.

The panel included Candace Kling IALD, C. M. Kling & Assoc.; Gary Garofalo, Lighting Design Collaborative; Lee Waldron IALD, Grenald Waldron Assoc.; and Al Borden IV, IALD, The Lighting Practice. DiLouie and Paul Sestack AIA, University of Delaware were the moderators.

## PASS & SEYMOUR/LEGRAND ACQUIRES WATTSTOPPER

Pass & Seymour/Legrand, the manufacturer of wiring devices headquartered in Syracuse, NY, recently announced the acquisition of The Wattstopper, the

occupancy sensor maker based in Santa Clara, CA.

According to Legrand, a company with \$2 billion annual sales, its position in the U.S.

will be strengthened while The Wattstopper will gain access to global channels of distribution to sell its passive infrared, ultrasonic and dual-technology sensors.

The Wattstopper's management will stay on and run the company independently.

## \$100,000 RAISED FOR NEW SCHOOL

Architect Stanley Tigerman, co-founder of Archeworks, the Chicago design school devoted to socially conscious design programs, announced that \$100,000 was raised at a recent benefit to cover the school's operating costs and scholarship fund. Founded in 1994, Archeworks offers a one-year diploma in alternative architecture and design.

The main draw of the event, which was held at the school and co-chaired by Judith Neisser, Beverly Meyer and Kixie Fieldman, was an auction of 21 drawings and other gifts from renowned architects, including New York architect Philip Johnson and Chicago's Helmut Jahn and Ronald Kreuck, all three of whose drawings sold for \$5,000 each.

RIGHT TO LEFT: KLING, GAROFALO; WALDRON, DILUIE, BORDEN; SESTACK

## INTERNATIONAL CONTRACTS

AM Partners, Inc., a Honolulu-based architecture and design firm, has been awarded the contract to design the 35-story mixed use high-rise build-

ing in Guangzhou, People's Republic of China. This \$120 million project, named Keep Mount Plaza, is owned and developed by Keep Mount Holdings, Ltd. of Hong Kong.

Keep Mount Plaza will provide more than 1.1 million sq.ft. to

accommodate leasable retail, restaurant and office space, as well as parking and common areas. The building will rise dramatically above the largest subway station in Asia.

Construction is slated to begin in November of this year.

## MYTECH RECEIVES INVESTMENT

Mytech Corporation, the Houston-based manufacturer of automatic lighting, has closed a round of venture financing from Growth Capital Partners. The company is best

known for the development of an automatic light switch based on a digital signal processing sensor.

Growth Capital Partners invested in Mytech because the company met its criteria, one of which was a large potential market. The Electric Power Research Institute estimates that American companies waste \$4 billion each year by leaving office lights and equipment on when not needed. Accord-

ing to *Building Design & Construction*, only 1.2 percent of the nearly five million commercial buildings in the U.S. now have automatic lighting installed. Other criteria included aggressive growth objectives, innovative proprietary products and leadership of an "outstanding entrepreneur." In 1992, Mytech earned a spot on Inc. Magazine's list of 500 fastest-growing private companies.

What Fiberstars® lighting can do for you.

One of a Series

# The Quality of Light

*There is a lot of confusing talk about fiber optics these days. Fiberstars makes fiber optic lighting simple: we tell you how much light is delivered and the quality of the light at what cost.*

## Control

Fiberstars fiber optic lighting emits a highly controlled, directional beam of light which adds sparkle to whatever it illuminates. Place the precise quantity of light exactly where you want it. Fiberstars' patented reflector system directs more light into the high efficiency fiber tubing, so you can deliver more light to the subject. This completely integrated lighting system is engineered for easy installation and predictably pleasing results.



## Ambience

User-controlled color options allow you to enhance your environment. Set the colors for the season, occasion or just for your mood. The colors may be continuously changing or set by the flip of a

switch. No ladders, tools or hassles are involved with Fiberstars' user-friendly fiber optic systems.



## Color Preservation

Fiberstars' illuminators are engineered to produce clean light with none of the infrared and ultraviolet wavelengths that damage delicate fabrics and fade sensitive pigments. Light sources with color temperatures from 3000°K to 5600°K are available. Fiberstars' fiber optic lighting is also ideal for enclosed spaces where the heat of conventional lighting is undesirable. Use Fiberstars to preserve the color of sensitive items.



## Intensity

Fiberstars offers an array of fiber tubing sizes with fiber counts ranging from as few as three fibers to as many as 150. Select the tubing size that matches your application needs – more fiber equals more light. Fiberstars uses only the purest optical grade polymer fibers in manufacturing its fiber tubing. Fiberstars' polymer fibers have been shown to be superior to any other fiber in efficiency, color rendering and durability.



## Versatility

Fiberstars is a pioneer in fiber optic end-emitting applications with Fiberescent™ recessed downlights and FiberScape™ landscape lighting. Our patented BritePak™ side-emitting fiber optic tubing is the performance standard of the industry. BritePak is processed on proprietary equipment of our own design, yielding unsurpassed quality and consistency. Fiberstars has a state of the art solution for your lighting application.

**#1 in Fiber Optic Lighting™**

**FIBERSTARS®**  
Lighting For The 21st Century®

Tel: (800) 327-7877 (510) 490-0719 Fax: (510) 490-3247

2883 Bayview Dr., Fremont, CA 94538 USA

Fiberstars® fiber optic lighting systems are manufactured under one or more of the following patents: 4763984, 4825341, 4922385, 5016152, 5345531, 5416875 and 5479322.



As seen in the October/November 1995 issue  
of Architectural Lighting

WHEN WE LIGHT THE WAY FOR OTHERS  
WE ARE TRULY ENLIGHTENED OURSELVES.

For years, Lighting Corporation of America companies have enjoyed shining success. With this privilege of success comes an equal responsibility to lighten the loads of people who are struggling around us. So, while we light the way to excellence in our industry through outstanding products, we commend the shining examples of humanity who permeate our companies. People like Mary Wong of Prescolite. As part of the California Rescue Dog Association, she and her dog Tellus have given more than one thousand volunteer hours to rescue training and actual searches for missing persons. She hopes that someday she can return a lost child, safe and sound, to the parents' waiting arms. Lighting Corporation of America. We cast a new light on life.

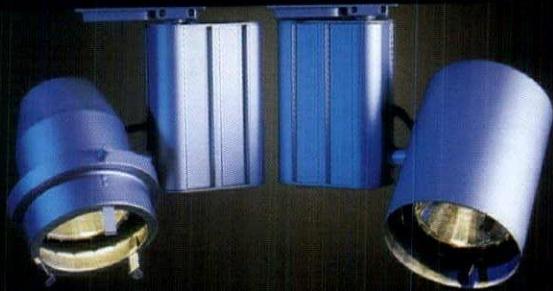


**LIGHTING  
CORPORATION  
OF AMERICA**

Columbia  
Prescolite  
Moldcast  
Progress Lighting  
Kim Lighting  
Spaulding Lighting

**WE LIGHT  
THE WAY**

2 METROPLEX DRIVE,  
SUITE 102  
BIRMINGHAM, AL 35209  
205-871-0802



## METAL HALIDE

Energy Efficient  
Long Life  
Electronic Ballast  
Color Rendering Index 81  
Color Temperature 3000K  
PAR20/PAR30/PAR38 Fixtures  
LSI Quality/Expertise/Service

### Outrageous Value

For a Metal Halide  
information kit, write on  
your letterhead to:  
Lighting Services Inc  
2 Kay Fries Drive  
Stony Point, NY 10980  
(800) 999-9574



<http://www.LightingServicesInc.com>

Circle No. 30 on product service card

## SMALL COMPANY MAKES MARK IN FIBER OPTICS

In April 1993, two engineering graduates of Virginia Tech founded Lightly Expressed, which now designs, develops and manufactures fiber-optic lighting systems for museums, commercial applications and high-end residential architecture in Salem, VA. With the assistance of the Roanoke Chamber of Commerce and the Small Business Development Center, the company recently acquired a funding grant from the Virginia Eco-

nomic Bridge Initiative. Jon West and William Leaman, founders of Lightly Expressed Ltd., have also been awarded a patent for their fiber-optic lighting system, now used in such projects as the National Christmas Tree Topper in Washington, D.C., the physics gallery at the Science Museum in Western Virginia and the Logan Museum of Anthropology in Wisconsin (see cover story, January/February 1996).

## NEW HOME FOR ESI

Energy Savings, Inc., a manufacturer of electronic ballasts that sparked an array of new small fixture designs, moved to a new facility in Schaumburg, IL in November 1995. The company's new 35,000-sq.-ft. home accommodates its automated factory, engineering and expanded customer support group.

## WALDMANN GETS ISO

Waldmann Lighting Company, the Wheeling, IL-based manufacturer of ergonomic task lighting, has achieved certification of the ISO 9001 Standard. The ISO series

of certifications assures that quality processes and procedures are in place governing product design, development, production and customer service.

## MOODY RAVITZ ACQUIRES PARADOX

Moody/Ravitz Design Partners, Inc. has acquired Paradox Lighting Design, with the new operation being renamed Moody Ravitz Hollingsworth Lighting Design, Inc. of Hollywood, CA. As implied by the new name, Paradox founder Dawn Hollingsworth will join James Moody and Jeffrey Ravitz, who combine more than 50 years of experience in the entertainment industry, as a principal. According to Moody, CEO, the acquisition positions the company to expand from entertainment into architectural and themed markets.

## CORRECTION

Rob Johnson, The Design Department was inadvertently omitted from the project credits in the January/February 1996 issue of *Architectural Lighting*

("Winner's Circle," pages 30-31). He was the interior designer for Grand Casino Coshatta. *Architectural Lighting* regrets the error.

People who don't buy a product  
should benefit from it too.



*Let's make things better.*

Michiel van Dam, Group Product Manager  
Philips Lighting, Somerset, NJ



I'm Michiel van Dam, from the Lighting division of Philips Electronics.

We've created a fluorescent tube with so little mercury, it meets the U.S. EPA test for nonhazardous waste.\* In fact, it's the first fluorescent to meet this EPA standard.

In most cases, it means more disposal options and lower disposal costs. And in every case, it means less mercury in the ecosystem.

So no matter who buys it, the whole world benefits.



**PHILIPS**

\*The U.S. Environmental Protection Agency (EPA) test, Toxic Leaching Characteristic Procedure, 1990. Consult local laws and regulations, which may vary. © 1995 Philips Electronics North America Corporation

Circle No. 11 on product service card

## NEMA CAUTIONS USE OF NEW 34W LAMPS

The Energy Efficiency Act of 1992 was established to eliminate the most popular low-cost 40W fluorescent lamps then on the market, with the nearest alternative being the 34W energy-saving lamp.

The National Electrical Manufacturers Association (NEMA), however, warns that this change may result in outages and ballast failures in residential and small-commercial applications. There are a large number of commer-

cial, residential and shoplight fixtures frequently used in small offices, workshops, kitchens, basements and garages which contain low power factor (lag) ballasts not designed for use with 34W lamps.

According to NEMA, the increased current and wattage that results causes increased tempera-

tures that may lead to lamps cycling on and off, premature ballast failure, poor starting and lamp flickering. To avoid these problems, NEMA recommends use of 40W lamps unless the ballast label specifically allows use of 34W or 35W energy-saving lamps.

For more information, call NEMA at (703) 841-3269.

**M  
A  
S  
T  
E  
R**

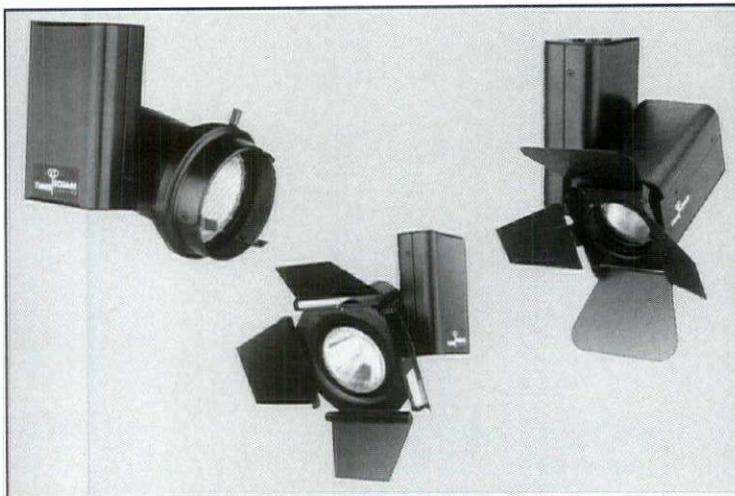
## METAL HALIDE FIXTURES

Times Square's Metal Halide Fixtures are ideal for accent lighting, displays, or highly illuminated areas such as store windows. Beam patterns can be altered by adding barndoors, hoods, louvers, and spread lenses.

A variety of mounting options are available.

Metal Halide lamps have an extremely low heat output per footcandle, are energy efficient, and have a very long lamp life.

### SAVING MONEY BY SAVING ENERGY, WITHOUT CUTTING THE QUALITY OF LIGHT



For further information please contact:



Route 9W  
Stony Point, NY 10980  
Phone: (914) 947-3034  
Fax: (914) 947-3047

**COLOR**

Circle No. 12 on product service card

## LIGHTING DESIGNERS GET THE GREEN LIGHT

Green Lights is the Environmental Protection Agency's voluntary flagship program which supports large American corporations' efforts to reduce energy consumption, increase profitability and prevent pollution through upgrading their lighting systems. While this program was introduced in 1991, the door is at its widest to the design community. According to Green Lights, designers are key to achieving the desired aesthetics and quality lighting while promoting energy efficiency. To get involved, designers can complete the Lighting Upgrade Workshop and pass the Surveyor Ally exam. Designers should note that the Memorandum of Understanding signed between the corporation and Green Lights not only entails upgrading existing lighting systems, but meeting energy-efficient lighting practices (ASHRAE/IES 90.1) in new construction. Green Lights proposes there is much more to efficient lighting than reducing costs, and much more to lighting design than creating the right visual environment.

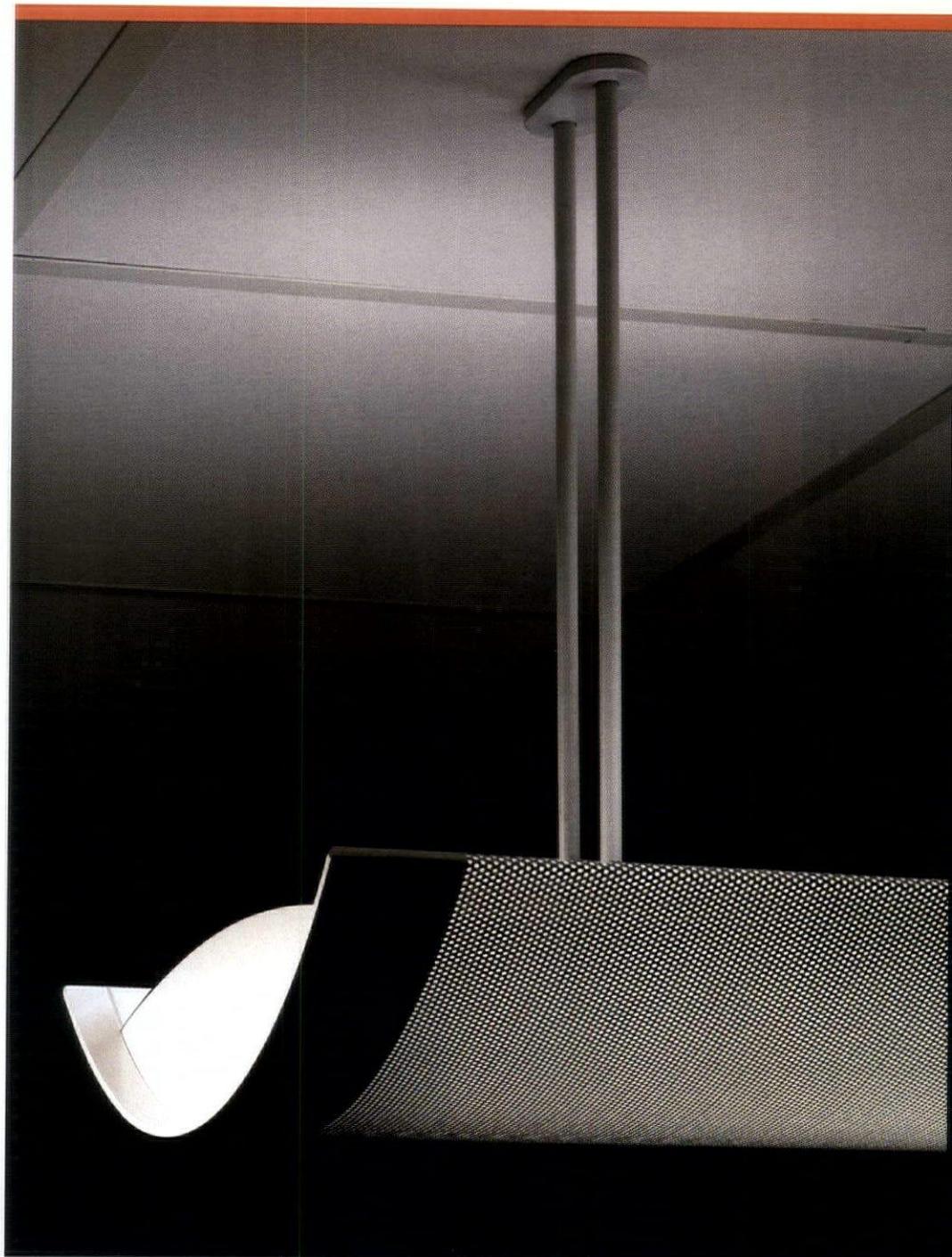
According to Green Lights, 2,045 participants have committed more than 1 billion sq. ft. to efficient lighting, saving 172 million dollars in utility costs and keeping 3.3 billion pounds of air pollution out of the environment.

Call Green Lights at (202) 775-6650 or fax (202) 775-6680.



# Nuage Series 301

*Lighting should be designed for making people visually comfortable in a work place where information and data are being processed in different ways, where the focus must be on performance, getting the job done quickly, accurately, precisely.*



**neoray**  
NATURALLY

537 Johnson Avenue, Brooklyn, NY 11237 • Tel: 718/456-7400 • Toll free: 800/221-0946 • Fax: 718-456-5492

Circle No. 27 on product service card

Let there  
be light!

## Spring Sale

\$31.00

LV 132



\$24.70

TR 130



\$39.95

FHPL 2-13



*Track compatible with most  
manufacturers*

Guaranteed lowest prices  
in the country

See us at Lightfair  
booth #1704



Track & Recessed Manufacturer

Call Now  
**1-800-900-1730**

1113 N. Main Street • Lombard, IL

**Fax: 708-889-8106**

Circle No. 14 on product service card

energy

UPDATES

## HUBBELL LIGHTING ACHIEVES NIST ACCREDITATION

Hubbell Lighting, an ISO-9002 registered supplier of commercial, industrial and residential light fixtures and related equipment headquartered in Orange, CT, announced that its photometric lab in Christiansburg, VA has been accredited by the National Voluntary Laboratory Accreditation Program's Energy-Efficient Lighting Program. The accredita-

tion extends to outdoor fluorescent fixtures, roadway fixtures, indoor fluorescent fixtures, indoor HID fixtures and floodlights using incandescent or discharge lamps.

The Energy-Efficient Lighting Program was established to improve industry credibility when making energy efficiency claims, accrediting testing labs that are competent in performing specific tests.

## EXPERIMENT ON "DESIGN INCENTIVE FEES"

Green Development Services (GDS) at Rocky Mountain Institute of Snowmass, CO is embarking on a national experiment to demonstrate "design incentive fees" that can help architects, engineers and building owners create extremely energy efficient buildings. This plan is crafted to reward design professionals for what they save, not for what they spend—thus aligning designers' interests firmly with owners' interests.

According to the GDS, architects and engineers should be paid a bonus if a building exceeds energy performance targets set in an initial agreement with the client (determined by computer energy models), and should be penalized if it falls short—sort of an energy service company's performance contract for designers of new buildings.

For more information, call (970) 927-3807.

## PHILIPS LIGHTING NAMED GREEN LIGHTS ALLY OF THE YEAR

Philips Lighting Co. has been selected the 1996 Green Lights Manufacturer Ally of the Year by the U.S. Environmental Protection Agency (EPA).

The award acknowledges Philips' ongoing environmental initiatives, which include lighting upgrades, education outreach and

promotional efforts both within the company and with customers. Philips manufactures environmentally responsible lighting, such as ALTO low-mercury technology.

In addition, several of the company's customers will receive Green Lights Awards for their environmental efforts in conjunction with Philips.

## LEVITON BROCHURE HIGHLIGHTS 1996 NEC® CHANGES

Leviton Manufacturing offers a free pamphlet that describes over 30 of the most important revisions to the 1996 National Electrical Code®. Codes cover residential, commercial and industrial applications including bathrooms, kitchens, basements, outdoor sites, equipment rooms, hotels, hospitals and more.

Leviton collaborated with recognized code expert Mike Holt in producing this pamphlet. To obtain a copy, call (800) 323-8920, or fax (800) 832-9538.

design by Renato Toso and Noti Massari



V i t t o r i a

suspension

OVAL DIFFUSER IN SATIN,  
 HAND-BLOWN MURANO GLASS  
 AVAILABLE IN FIVE SHADES

wall P2



table T1

**LEUCOS<sup>®</sup>**  
**LIGHTING**

Circle No. 15 on product service card

Bringing Artistry to Light

LEUCOS USA, Inc.  
 70 Campus Plaza II, Edison, N.J. 08837  
 Tel. (908) 225-0010 Fax (908) 225-0250

UMBRELLA

## OSRAM SYLVANIA NAMES PUCILLO PRESIDENT OF CANADIAN OPERATIONS

Osram Sylvania, the Danvers, MA-based leading lamp manufacturer, has named Anthony Pucillo, formerly Vice President for General Lighting at the company's Danvers,

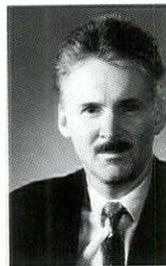
MA office, to the post of president of Osram Sylvania Ltd./Ltée., headquartered in Mississauga, Ontario. Pucillo's responsibilities for the Canadian business includes market-



ing, sales and customer support for all lighting product lines, Sylvania Lighting Services in Canada, and the manufacturing facility in Drummondville, Quebec.

## PHILIPS NAMES WILTON PRESIDENT

Philips Lighting Company, the Somerset, NJ-based leading lamp manufacturer, has named L.W. (Larry) Wilton to the post of president of the company's North American lighting operations. Wilton will oversee manufacturing, distribution, marketing and sales of more than 4,000 Philips lighting products.



Wilton succeeds Nico Bruijtel, who in April 1996 assumed general management of Philips Japan upon the retirement of H. Th. Hoksbergen.

## LITETRONICS APPOINTS SCHAECHTER VP & COO

Litetronics International, Inc., the Alsip, IL-based manufacturer and marketer of value-added specialty lighting products, based in Alsip, IL, has named Mike Schaechter executive VP and CFO.

This promotion caps nine years of executive management experience at Litetronics International. In his new role at Litetronics, Schaechter will oversee the day-to-day operations of the company's international business.

Litetronics is a subsidiary of DuroLite International Inc. and sister company to Duro-Test Lighting.

WHEN  
THE JOB IS  
FINISHED...

### Litedisc Legacy is the newest addition to Lam's

Litedisc family of job-proven, high-performance indirect lighting. Output comparable to HID with the color stability, instant-on switching, and dimming capability

of biaxial fluorescents, makes it the ideal solution to your serious lighting needs.

**Legacy is available in any color or metallic finish** in sizes of 29", 35", and 41", with suspensions and edge designs that work with contemporary and traditional interiors.

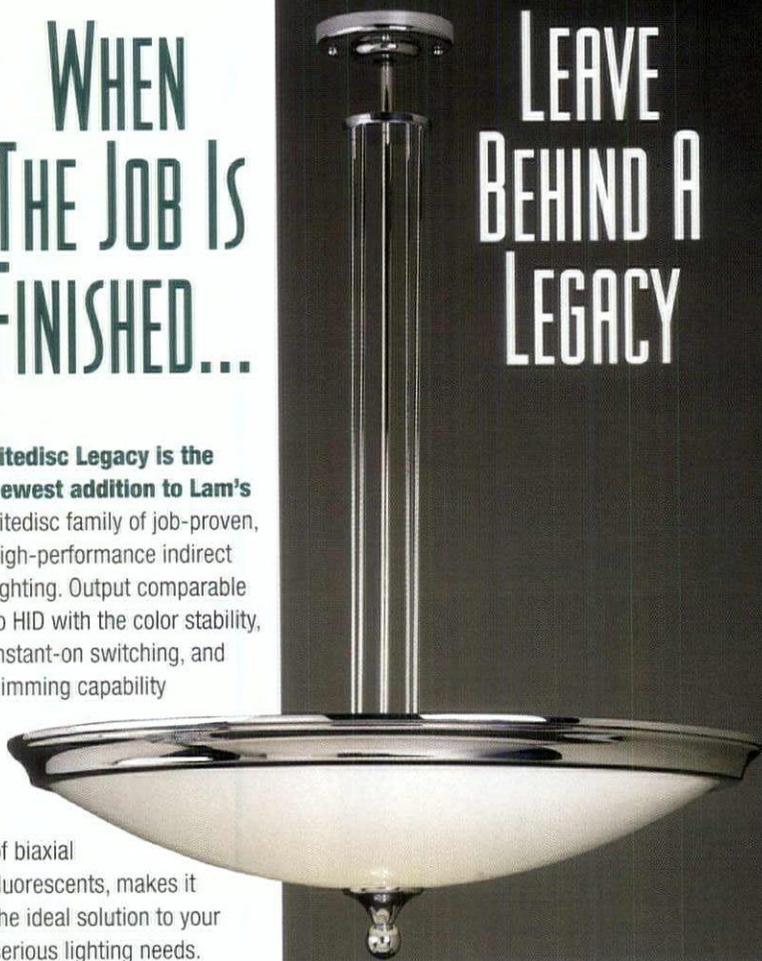
For more information about Litedisc or other LAM functional, design conscious products call:

### LAM Lighting Systems

2930 South Fairview St., Santa Ana, CA 92704  
Ph. (800) 732-5213 FAX (800) 833-3713

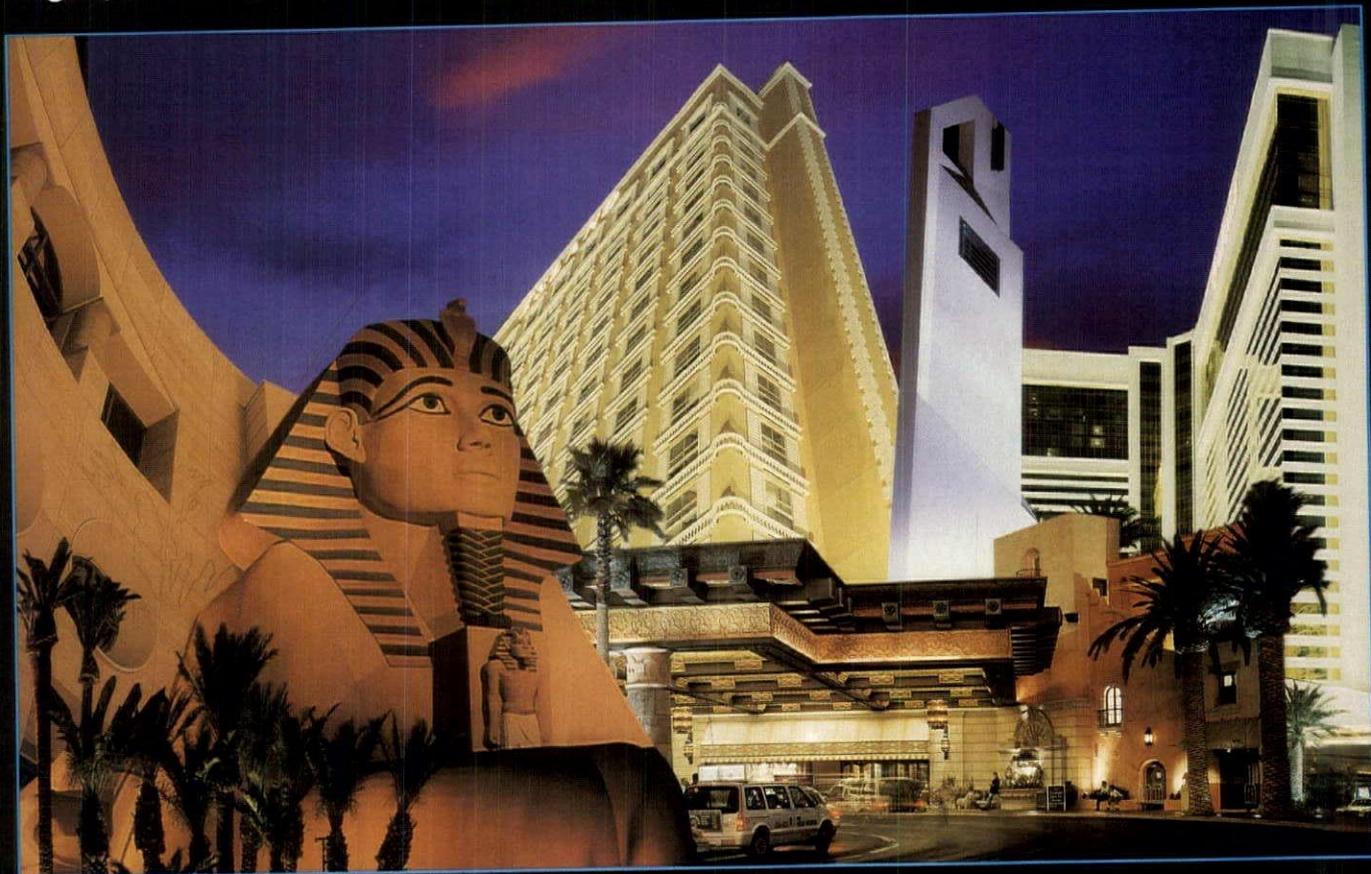
LAM is proud to be a member of the JJI Lighting Group of distinguished manufacturers.

LEAVE  
BEHIND A  
LEGACY



# FLOODS OF OPPORTUNITY

High performance Architectural Flood Lighting for a myriad of applications



## Hydrel 7100 and 7200 Series

The new Hydrel 7100 and 7200 Series provides power capabilities to 1000 watts with eight possible standard distributions for each unit. Positive sealing, internal glare control, multiple mounting options, and contemporary styling are key features supplementing the ITL documented performance.

## Hydrel/Sill 7800 Series

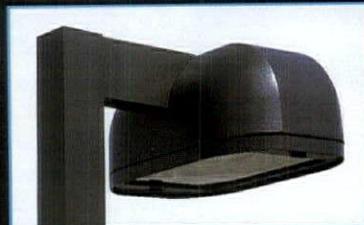
Hydrel is the exclusive licensee of Franz Sill of Germany to produce their luminaires in North America. The Series 7800 and larger 7801 flood lights offer a family of precision luminaires in a compact, high performance European design to 400 watts in popular distributions.



Yoke mounted 1000 watt 7200 Series with surface mounted ballast



7100 and 7200 Series



7200 Series pole mount



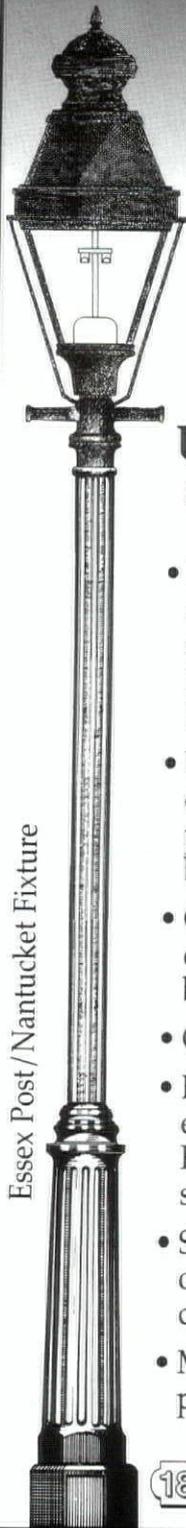
7801 and 7800 Series



**HYDREL** 12881 BRADLEY AVENUE SYLMAR CALIFORNIA 91342 TEL 818/362-9465 FAX 818/362-6548

Circle No. 42 on product service card

PENNSYLVANIA GLOBE  
REPLICA GASLIGHTS



Essex Post/Nantucket Fixture

A  
Complete  
Lighting  
Products  
Program  
for  
Colleges,  
Universities  
and Towns

- Pedestrian and vehicular safety lighting levels
- Detailed engineering plans and budgets
- Custom design and build options
- Contract sales
- Energy efficient H.I.D. sources
- Superior optical controls
- Maintenance programs

1870 SERIES

THE PENNSYLVANIA GLOBE  
GASLIGHT CO.

300 Shaw Road  
North Branford, Ct 06471  
Tel: (203) 484-7749  
FAX (203) 484-7758

Circle No. 10 on product service card

people

UPDATES

FIBERSTARS NAMES GARET  
TO BOARD POST

Fiberstars Inc., the Fremont, CA-based manufacturer of fiber-optic lighting systems, has elected B.J. Garett to fill a vacant seat on its board, bringing its number of direc-

tors up to nine. Garett, retired, was previously chairman of Hanson Lighting Group and CEO of the company's U.S.I. Lighting subsidiary from 1984 to 1993.

LIVING LEGEND HONORED

Lillian Barber was recently honored at a gala event, sponsored by *Haut Decor*, to celebrate her as South Florida's Living Legend.

Barber, who has been a much-respected member of the interior design community for more than 50 years, has played a key role in the lighting industry as well. Some of her many accomplishments include:

- Developed and coordinated first course in lighting design for interior designers entitled "Designing with Light," a five-week series of lectures, workshops and seminars.
- Developed a series of seminars in "Creative Lighting Practice for Space Planners, Designers and Architects," under the auspices of lighting design firm Gerstoff, Nuckolls and Warfel.
- Won first National Award from the Illuminating Engineering Society (IES).
- Helped develop theatrical lighting for model rooms designed by David Bell, Director of Bloomingdale's Decorating Department.
- Presented paper on "Lighting for Aging Vision" to IES Conference.



A.L. PROMOTIONS

Christina Trauthwein was recently promoted to Executive Editor, *Architectural Lighting*. Trauthwein will continue to manage the design features, working with architects and lighting designers to develop articles that show design innovation and quality. In addition,



she is responsible for the production of the magazine. Trauthwein sits on the IALD Awards Committee and is co-presenter at the Association's annual event at Lightfair.

Lyndon Lorenz has signed on with the *Architectural Lighting* team as creative director. Lorenz is also



creative director for *Facilities Design & Management*, which, since 1993, has received two consecutive Ozzie Awards for best overall design. Lorenz travels monthly to supervise *Facilities'* photo shoots and to meet with facilities managers in their working environments. He was instrumental in the redesign of *Architectural Lighting*.



# Cutting Power Costs Is Child's Play.

Full power fluorescent lighting with no power costs.

- 100% energy cost savings • Uses NO ENERGY • 25 year manufacturers warranty

**Light**  
**thief<sup>SM</sup>**

**Cougar Worldwide**  
*Lightfair International, Booth 1706*

For information, call (818) 405-0742 or Fax (818) 405-8818

© 1996 Cougar Worldwide

Selected sales territories available.

Circle No. 18 on product service card

## LIGHTING GOES AIRBORNE

The French Technology Press Office recently announced that Airstar, a French manufacturer of the first portable airborne illumination balloon, now offers Solarc, a complete range of large balloons that provide lighting over a larger

area. Solarc is a tethered helium-filled balloon fitted with metal halide lamps inside, providing 5600K HID lighting for indoor and outdoor spaces such as industrial job sites, emergency scenes, night road and construction, theme parks,



**SOLARC, A TETHERED HELIUM-FILLED BALLOON FITTED WITH METAL HALIDE LAMPS, BLANKETS THIS LARGE OUTDOOR AREA WITH LIGHT.**

sporting events, film sets, parties and other applications. Uniform illumination, evenly distributed by a diffusing cover, can blanket an area from 43,000 to 129,000 sq. ft. This cover can be marked with colors, text or a logo.

For more information, contact the French Technology Press Office by faxing them at (312) 222-1237 or contact Airstar directly at (33) 76-62-7185, fax (33) 76-25-1577.

## LIGHT HELPS CANCER PATIENTS

Earlier this year, the *New York Times* reported that throat cancer patients will soon be able to swallow on their own with the help of Photofrin, a drug/light-based treatment newly approved by the U.S. Food & Drug Administration.

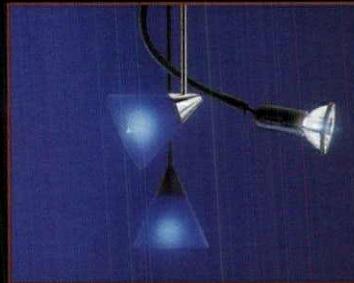
According to the American Cancer Society, 10,900 Americans died in 1995 of throat cancer, which slowly constricts victims' throats until they cannot eat or swallow saliva.

Photofrin, manufactured by QLT Phototherapeutics Inc. of Vancouver, British Columbia, is a drug that is injected into the patient. Bright light is then shown on the tumor via miniature fiber optics, activating the drug to produce free radicals that kill the tumor cells.

Although long-term studies will reveal whether or not the treatment will help the cancer patients live longer, it does improve their quality of life by allowing them to swallow.

**tivoli** + **targetti**

## CREATING A RENAISSANCE IN LIGHTING FOR THE 21ST CENTURY



SEE US AT LIGHTFAIR • BOOTH 1743 • MAY 14 - 16, 1996

The complete specialty lighting package for a wide variety of applications.  
Exterior and interior accents, light tubing, chandeliers and light bar.

**LIGHT TUBING** Linear Accent Lighting  
**LIGHT BAR** Interior/Exterior Incandescent  
**COVE LIGHTING** Fluorescent and Incandescent  
**MINI COVE LIGHTING** Indirect Lighting  
**PARALLAX** Patented Linear Lighting  
**AISLE/STEP LIGHTING** Replaceable Lamps

**MINITONDO** Low Voltage Track Lighting  
**STRUCTURA** Structural Truss System  
**EXCELSIOR** Fluorescent Skylights  
**STRUCTURELLA** Open Conductor Frame System  
**STELLARIA** Open Conductor Grid System  
**CUSTOM CHANDELIERS** Light Tubing



**TIVOLI INDUSTRIES, INC.**  
1513 E. Saint Gertrude Pl., Santa Ana, CA 92705 USA Tel. (714) 957-6101  
P.O. Box 15624, Santa Ana, CA 92735 USA Fax (714) 957-1501

Circle No. 19 on product service card

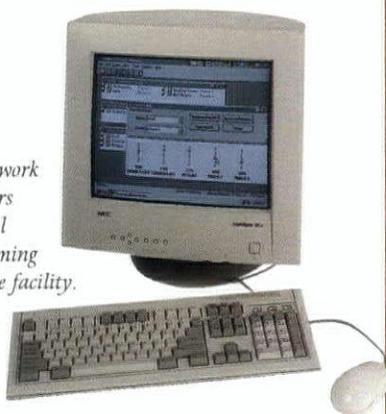
# Premiere®

**Powerful  
and Sophisticated  
Architectural Lighting  
Control System Featuring:**

- Wide range of Slider, Push-button and Combination stations with simple digital wiring for easy installation
- Display Stations with full Alpha-numeric labeling
- Simple configuration using a Windows™ based program
- All stations fully programmable with over 100 different commands
- Up to 64 stations per system with up to 128 channels of control for up to 512 dimmers
- Astronomical time clock with full year events calendar
- Multi-step Macro commands permit a wide range of custom functions
- Full Building management and Audio Visual System Interfaces
- Operates with Strand Supervisor™ and Environ™ dimmers to control a wide range of loads

```
CO01 DOWNLTS 72%
      WALLSH 35% CO02
CO03 CHANDLR 40%
      PODIUM 00% CO04
CO05 ACCENT 52%
      COVE LT 99% CO06
PAGE PLUS          PAGE MINUS
```

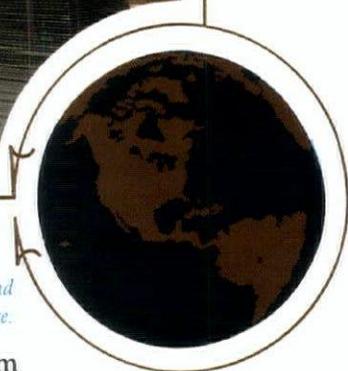
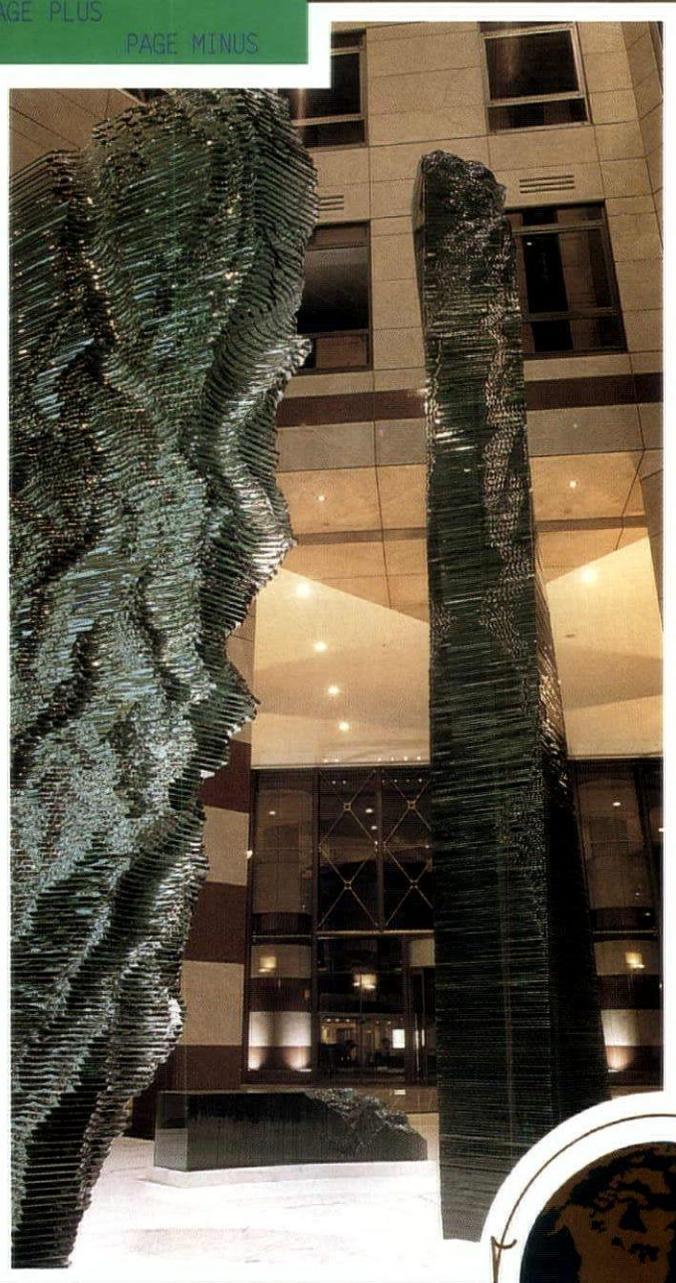
**IN CONTROL**



*Premiere Network  
Manager offers  
central control  
and programming  
for your whole facility.*

*This flexible  
Windows™  
based  
operating  
system*

*offers simple point and click operation to select  
lighting presets, combine rooms or schedule events for up to  
15 Premiere processors in facilities from 1 to 480 rooms.*



*For more information on Strand products and  
World Wide facilities see our Web page.*

<http://www.strandlight.com>

 **Strand Lighting**

SCHEDULED  
EVENTS 1996

**April 21-27** World Light Show-Hannover Fair '96; Hannover, Germany. Call (609) 987-1202.

**April 23-26** A/E/C SYSTEMS Mexico '96; Mexico City. Call (800) 451-1196.

**May 4** IESNA Technical Knowledge Exam (TKE); various locations nationwide (USA). Call (800) 525-8555.

**May 14-16** Lightfair International; Moscone Center, San Francisco. Call (404) 220-2217.

**June 10-12** NeoCon 96 World's Trade Fair; World Trade Center, Chicago. Call (312) 527-7098.

**June 17-20** Construction Technology 96—The First Annual

Conference and Exhibition for New Technologies in the Building Industry; Anaheim Convention Center, CA. Call (800) 451-1196 or (610) 458-7070.

**June 20-22** World Lighting Fair in Tokyo '96; Yokohama Pacifico Exhibition Hall. Call 011-81-3-3706-5687.

**August 5-7** IESNA Annual Conference; Renaissance Cleveland Hotel, Cleveland. Call (212) 248-5000 x117.

**August 25-31** ACEEE 1996 Summer Study on Energy Efficiency in Buildings; Asilomar Conference Center, Pacific Grove, CA. Call (510) 549-9914.

**October 19-21** ASLA Annual Meeting and Expo; Los Angeles. Call (202) 686-8343.

**November 6-9** Hong Kong

International Lighting Fair; Hong Kong Convention and Exhibition Centre. Call (852) 2827-5121.

**November 7-9** InterPlan 1996; New York Coliseum, New York City. Call (800) 950-1314.

EDUCATIONAL  
FACILITIES

## Cooper Lighting's Source Facility

•Lighting Fundamentals: September 11-13; October 16-18; November 20-22

•Energy-Efficient Lighting: April 25-26; November 7-8

•Computer Software: June 6-7; September 5-6; December 12-13

•Incandescent Seminar: August 16

•Fluorescent Seminar: August 15

•H.I.D. Seminar: August 14

•Emergency/Exit Lighting Seminar: August 13

•Utilities Lighting Seminar: May 6-7  
For more information, call (708) 956-8400.

## Osram Sylvania's Lightpoint

•Light Essentials: May 20-22; August 26-28; November 18-20

•Lighting Design and Applications: October 7-9

•The Energy Focus: September 23-25

For more information, call (508) 750-2464.

## Philips Lighting Center

•Lighting Design and Application Workshop: April 15-18; September 9-12; November 11-14

•Lighting Technology Update: June 3

•Retail Lighting: June 10-11

•Commercial Lighting Seminar: October 21-23

For more information, call (908) 563-3600.

## FREE YOUR CEILING

Declare your independence from unsightly 1x4's and 2x4's. Specify **Triples**. Three fixtures for the new triple-tube compact fluorescents. Truly powerful light sources: up to 3200 lumens and 42 watts. Plus the low brightness and wallwash options of a round downlight. **Triples**. The new look in lighting for offices and fine interiors. For information and the name of your local representative, call 212-521-6900; fax 212-888-7981.



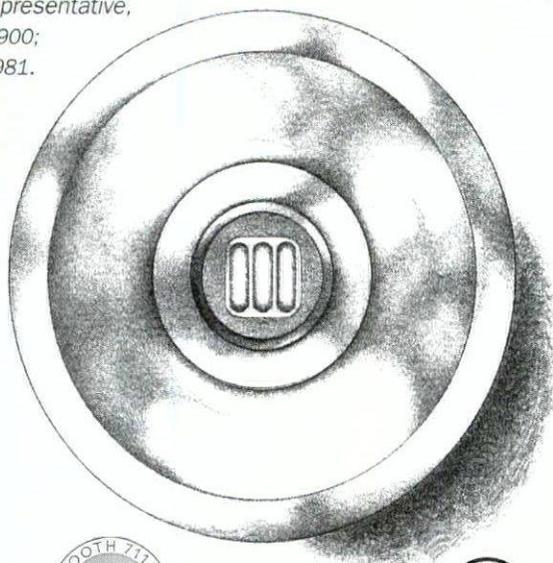
6"



7"



6"



ARCHITECTURAL LIGHTING AT ITS BEST

GE Blax T/E



Osram/Sylvania Dulux T/E



Philips PL-T



## REPRINTS

REPRINTS are a powerful marketing tool to showcase your project and/or product expertise to customers and employees...are credible, prestigious, low-cost...and offer greater recognition of your capabilities.

Call Vicki Brewster to discuss how a customer-designed reprint package can meet your specific marketing needs

**Contact:** VICKI BREWSTER  
**Address:** 62 NORTHWOODS ROAD  
MANHASSET, NY 11030  
**Phone:** (516) 365-2646  
**Fax:** (516) 681-7315

Who made America's first electric light fixture?

Booth 635, Lightfair 96

Who invented the first undercabinet light?

Booth 635, Lightfair 96

Who pioneered high-mast interchange lighting?

Booth 635, Lightfair 96

Who designed the first swing-arm lamp?

Booth 635, Lightfair 96

Who delivered 9<sup>1/2</sup> miles of fixture to one building?

Booth 635, Lightfair 96

What are they doing for you today?

Get enlightened...

JJI LIGHTING GROUP, INC. BOOTH 635, LIGHTFAIR



GUTH,  
ALKCO,  
LAM,  
D'AC,  
ALL,  
VISTA,  
MORLITE,  
QUALITY,  
HIGH-LITES...

*When  
it takes  
vision.*

Circle No. 22 on product service card

## IALD AWARDS TO BE HELD IN SAN FRANCISCO ART MUSEUM

In addition to exhibits and seminars, a special event of note is the 13th annual IALD Lighting Awards presentation dinner, cosponsored by the International Association of Lighting designers

and *Architectural Lighting*. This year's winners, among 124 entries, will be awarded on May 16 at the San Francisco Museum of Modern Art (see feature story, page 34). Tickets are U.S. \$90 and can be

purchased through Lightfair registration by calling (800) 856-0327, or faxing (214) 248-8700.

Judging for the IALD awards was held on March 8 at the Pacific Energy Center in San Francisco. Respected professionals from the architecture and lighting design communities judged the entries on their aesthetic and technical merits.

## LIGHTFAIR PROGRAM ANNOUNCED

The annual Lightfair International trade show and conference will be held May 14-16 at Moscone Center in San Francisco. Exhibit hours for the show are 10:00 am-6:00 pm May 14 and 15, and 9:00 am-3:00 pm, May 16. Following are highlights of the Conference Program and Special Events at Lightfair:

### TUESDAY, MAY 14

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

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

#### 10:45 am-12:15 pm

- "HID: Highly Imaginative Design"; speakers: Steve Brasier, Patricia Rice, AIA, IES

- "Volumetric Brightness & Other Recent Findings in Office Lighting Quality"; speakers: Hayden McKay, FIALD, FIES, AIA, Dr. Jennifer Veitch, IES

- "Let's Talk Shop: Retail Display Lighting"; speaker: Chip Israel, IALD, IES, DLF

#### 12:30-1:45 pm

- The Nuckolls Fund Luncheon Seminar

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

- "Understanding the Materials of Lighting: Aluminum and Plastics, Their Processes and Properties"; speaker: Gerry Zekowski

- "To Retrofit or Redesign? That's the Question"; speaker: Alan Suleiman

- "A Thing of Beauty: Artwork Lighting & Preservation"; Steven Hefferan, IALD

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

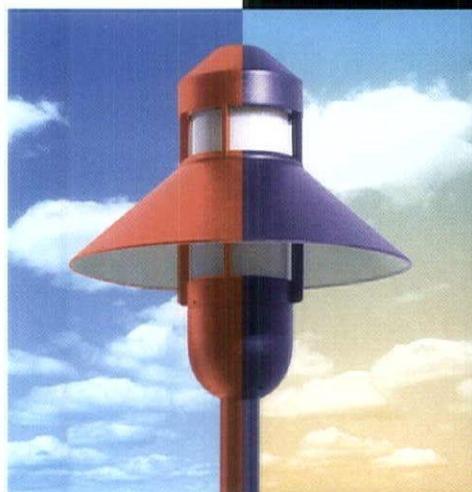
- "The Specification of Fiber Optics & Other Remote Source Lighting Systems"; speaker: Scott R. Magnum, IES, SPIE, ILDA, Kenneth E Yarnell, IALD, IES

- "Understanding Photometry"; speaker: Sam Berman

- "Enough Energy Savings Already: A post Occupancy Evaluation"; speaker: Naomi Miller, IES, IALD

- "Designers are from Venus, Contractors are from Mars"; speaker: John Levy

## ARCHITECTURAL LANDSCAPE LIGHTING ISN'T JUST BLACK & WHITE



Some landscape lighting manufacturers offer luminaires in color choices often limited to black and white. If you want colors, they want special-orders, substantial up-charges and plenty of patience.

At Architectural Landscape Lighting, we produce a complete range of integrated pedestrian-level luminaires that light the imagination as well as your designs. Custom colors are SOP at ALL, with little or no up-charge. We do them in-house, right here in the U.S., with prompt turnaround on samples to meet "Fast-track" demands.

Of course, some things at ALL are simply black and white: efficient illumination, trouble-free operation and competent technical support. All geared to helping your client relationship stay rosy.

For a copy of our new full-line product brochure, contact your independent representative or Architectural Landscape Lighting, Inc., 2930 South Fairview Street, Santa Ana, CA 92704  
Telephone: 800-854-8277  
Fax: 714-668-1107



**ARCHITECTURAL  
LANDSCAPE  
LIGHTING**

 ALL is proud to be a member of the JJI Lighting Group, Inc.

Circle No. 23 on product service card

# The KO Series<sup>®</sup> by elliptipar

**Now there's  
an elliptipar  
priced to suit  
every project.**

The KO Series . . .  
competitively priced  
asymmetric lighting  
engineered with all the  
quality and performance  
you expect from **elliptipar**.

#### **KO Quality**

- Extruded aluminum reflector will not deform
- Non corrosive construction will not rust

#### **KO Performance**

- Maximum peak candlepower for unequaled uniformity
- No light leaks

#### **KO Style**

- 8 styles of wall washers and uplights to enhance any space
- Contoured reflector in bright aluminum with black trim, or semi-gloss white; cylinder in perforated or solid metal
- Choose from halogen, fluorescent or metal halide; remote or integral ballasts

For a copy of our new  
KO Series brochure,  
send in the Reader Service  
Card, today.

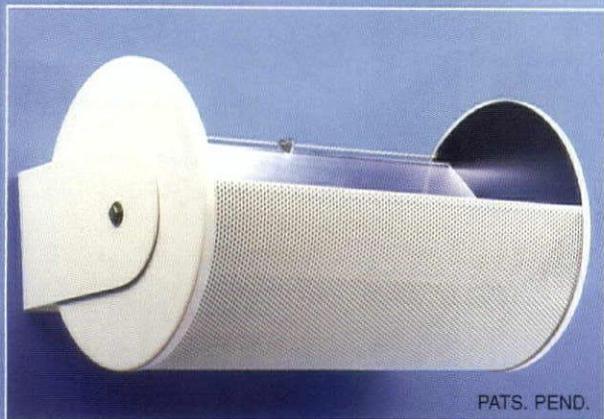


**elliptipar**

... there is no equal<sup>™</sup>

114 Orange Avenue, West Haven, CT 06516  
Phone: 203.931.4455 • Fax: 203.931.4464

**Circle No. 24 on product service card**



PATS. PEND.



### WEDNESDAY, MAY 15

#### 9:00-10:30 am

- "Integrating Lighting & Architecture"; speaker: Randy Burkett, IALD, IES
- "Energy Today: Update 1996"; speakers: JoAnne Lindsley, IALD, IES, Jim Yorgey, Peter Bleasby, Jeffrey Johnson, Douglas Mahone, Dan Schultz

- "From the Roadway to the Driveway: Exterior Site Lighting"; speaker: Sandra Stashik, FIES, IALD, PE, IFMA
- "Theatrical Lighting Techniques for Non-Theater Environments"; moderator: Jean Gorman; speakers: Theo Kondos, IALD, Bill Schwinghammer, Hervé Descottes, Steve Rosen

#### 10:45 am-12:15 pm

- "Darkness Visible: Lamps in Exterior Applications"; speakers: Mark S. Rea, IES, Naomi Miller, IES, IALD
- "Energy Up the Bottom Line: Economic Considerations for Road and Interior Lighting Systems"; speaker: Prof. Luciano Di Fraia, IES
- "Rooms with a View: Lighting

Kitchens & Baths"; speaker: Nancy McCoy, IES, DLF

- "A Candle at Night is Brighter than the Sun"; speaker: Luc Lafortune

#### 12:30-1:45 pm

- SF Designers Lighting Forum Presentation
- EPA Green Lights & Energy Star Buildings Presentation

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

- "EMI and IR Remote Control Interactions with Compact Fluorescent Lamps"; speakers: Edward E. Hammer, FIES, IEEE/IAS, Warren Anderson, IEEE/IAS, Anthony Serres, IEEE/IAS
- "Working Together: The Team Approach to Design"; speakers: Brian R. Cournoyer, AIA, Brian Liebel, David Geyman, Daniel Desmond
- "Do Your Homework: Lighting for the Home Office"; speaker: Jane Grosslight, IES, ASID, AID, NKBA

#### 3:45-4:30 pm

THURSDAY, MAY 16

#### 9:00-10:30 am

- "Answered Prayers: Lighting for Houses of Worship"; speaker: Raymond Grenald, FAIA, FIES, FIALD, EPRI

- "Team CADD—Bridging the Gap"; speaker: Michael Hooker, IES

- "There's No Place Like Home: Remodeling Lighting for the Home"; speaker: Randall Whitehead, IALD, ASID affiliate

#### 10:45 am-12:15 pm

- "Fine Dining: Restaurant Lighting on High & Low Budgets"; speaker: Bradley Bouch, IES

- "Designing Yourself"; speaker: Marily Mondejar, ASTD, ASAE, IABC

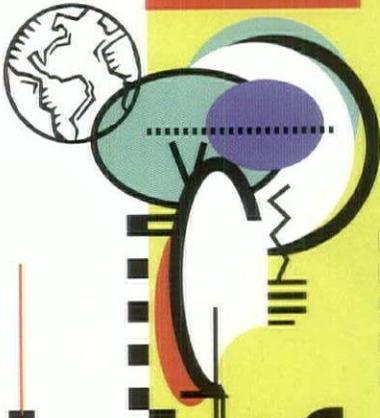
- "Energy-Efficient Home Lighting Design"; speaker: Russell P. Leslie, AIA, IES

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

- "Office Lighting for the Late '90s"; speaker: Mitchell Kohn, IALD, FIES

- "Lighting Maintenance Issues"; speaker: Stefan Graf, IALD, IES

- "On the Homefront—Residential Controls"; speaker: Glenn M. Johnson, IES, IALD



Follow the Path of ENLIGHTENMENT to  
**LIGHTFAIR INTERNATIONAL 1996**  
 San Francisco  
 May 14-16, 1996  
 Moscone Center

# Lightfair

## International

Be ENLIGHTENED  
 At LIGHTFAIR INTERNATIONAL 1996 you will experience —

- More than 750 Exhibits
- 33 Cutting Edge Seminars, plus a Pre-Show Conference with four hands-on Workshops & CEU Courses
- Three specialized Lighting Pavilions — Theater, Entertainment & Specialty Lighting; International Lighting; Decorative Lighting
- State-of-the-Art New Product Showcase
- Social & Networking Special Events and Bay Area Tours

**LIGHTFAIR INTERNATIONAL 1996**

Return this coupon by mail to the address below or fax it to 214-245-8700. You may also call toll-free, 1-800-856-0327 or (214) 245-8600. Your name will be added to the mailing list to receive complete program information in mid-February, 1996.

YES! I want to Be ENLIGHTENED. Please send me more information on LIGHTFAIR INTERNATIONAL 1996.

Name \_\_\_\_\_  
 Title \_\_\_\_\_  
 Company \_\_\_\_\_  
 Address \_\_\_\_\_  
 City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_  
 Phone (\_\_\_\_) \_\_\_\_\_ Fax (\_\_\_\_) \_\_\_\_\_  
 A \_\_\_\_\_

Return to: LIGHTFAIR INTERNATIONAL 1996, 1420 MacArthur Dr., Suite 104, Carrollton, TX, 75007

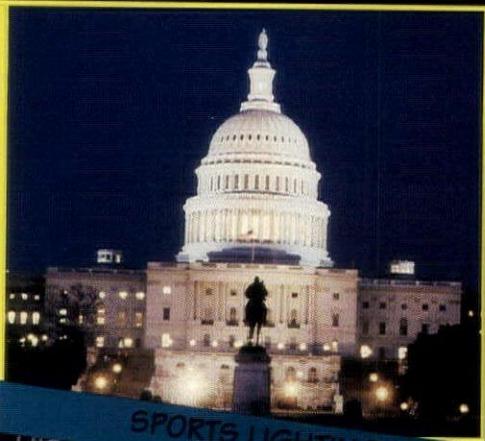
1996  
 LIGHTFAIR  
  
 INTERNATIONAL

Sponsored by The Illuminating Engineering Society of North America (IESNA) **IES**

Sponsored by The International Association of Lighting Designers (IALD)  
**IALD**

LD+A Official Show Directory

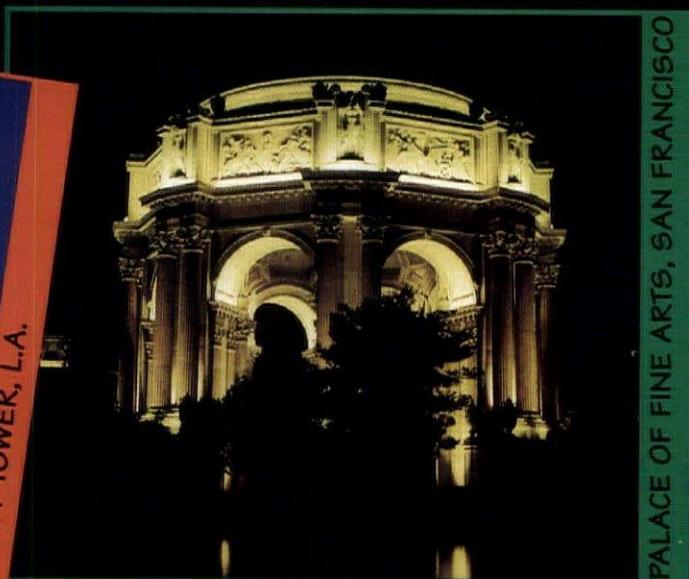
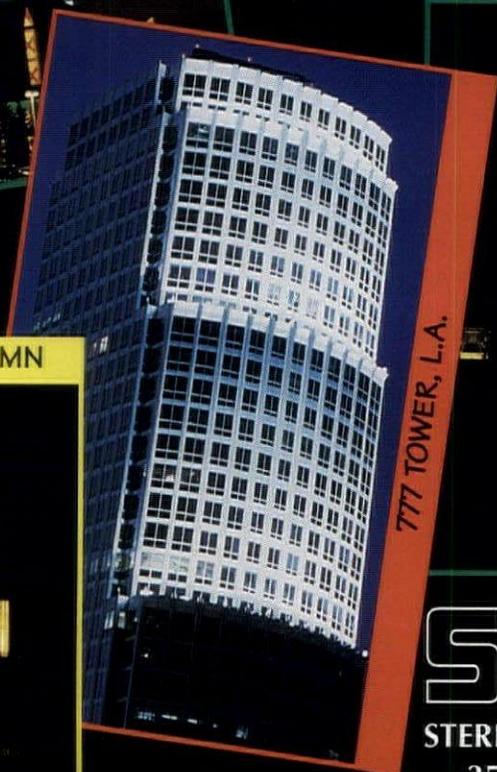
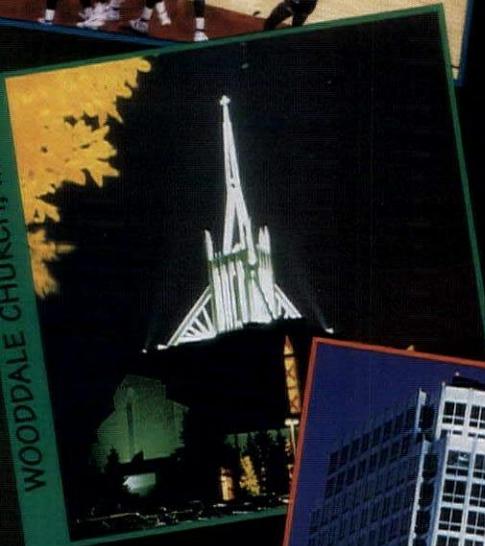
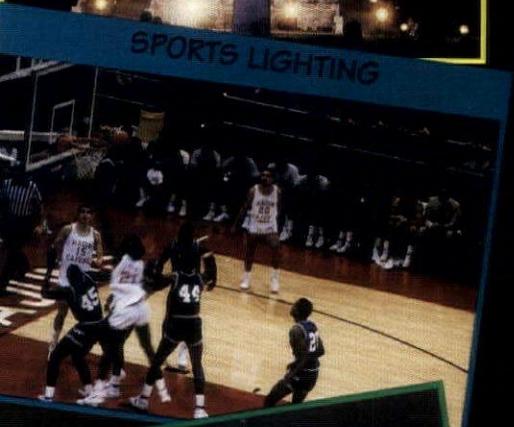
Circle No. 25 on product service card



# WHY INFRANOR

Precision Floodlighting Systems Chosen  
by The Finest Architects and Lighting  
Designers Throughout The World.

- Instrumentation-Quality Lighting
- Unsurpassable Lighting Performance, Uniformity and Flexibility
- State-of-the-Art Reflector Technology
- Innovative Engineering for Application-Specific Floodlight Development
- Lighting Excellence Others Only Dream Of Attaining



# STERNER

STERNER LIGHTING SYSTEMS INCORPORATED

351 Lewis Avenue West, Winsted, MN 55395

320/485-2141 FAX: 320/485-2899

SEE US AT LIGHTFAIR - BOOTH #609

## ENCORE PERFORMANCE

*Enhanced Aesthetics, Energy Advantage At Highlands Inn*

BY CHRISTINA TRAUTHWEIN, EXECUTIVE EDITOR

**CHALLENGE** The elegant Highlands Inn, located on Northern California's scenic coastline, has played host to both celebrities and vacationers throughout its 80-year history. But while the sophisticated Inn is steeped in tradition and rich in history—its lighting is up-to-date, relying on state-of-the-art technology for its success.

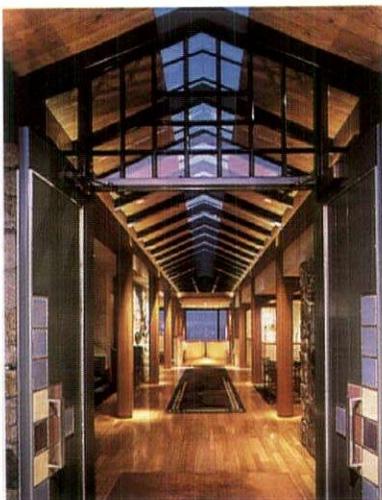
In 1984, lighting designer Michael Souter redesigned the Inn's lighting, a project that earned GE Lighting's Edison Award for excellence and quality in lighting design, in addition to architectural and interior design awards. In 1994, he was called back to address a new set of priorities: Use the latest lamps and fixtures to save energy and enhance the unique charm of the Inn.

"My objective was to improve upon the existing lighting design and its efficiency without sacrificing aesthetics," said Michael Souter, principal and president of Luminae Souter Lighting Design, a Proven Alternatives company. The San-Francisco-based firm successfully blends innovative design with energy-efficient lighting—the Highlands Inn being one such example.

### DESIGN/TECHNICAL CONSIDERATIONS

Design and energy management were both key to the success of the project. "The visual ambiance was as critical as energy savings," said Souter. "Reflection, glare control, color temperature and quality enhancement were all important considerations." The finished product had to project the image of a luxury resort.

**METHOD** By surveying and evaluating the existing lighting equipment prior to starting his design, Souter was



### DETAILS

**PROJECT**  
Highlands Inn

**LOCATION**  
Carmel-By-The-Sea, CA

**OWNER**  
Highlands Inn II  
Limited Partnership;  
David Fink, VP, Gen. Man.

**ARCHITECT**  
Shaw Associates

**LIGHTING DESIGNER**  
Michael Souter, IALD,  
ASID, Luminae Souter

**INTERIOR DESIGNER**  
Phyllis Martin-Vegue

**PHOTOGRAPHER**  
Milroy & McAleer

**LIGHTING MANUFACTURERS**  
GE Lighting, Translite, CSL

able to identify many opportunities for upgrades to the quality and efficiency of the lighting system without replacing everything. Many of the improvements were made possible just by using new technology. Souter developed a new lighting program that reallocated the available watts to maintain or reduce the 2W/sq. ft. maximum for the resort.

A complete lighting redesign in the guest rooms of the Highlands Inn enhances the new interior design. Semi-recessed adjustable fixtures with 50W PAR30 halogen lamps highlight artwork and illuminate activity areas; two semi-recessed 21W 2D 2700K compact fluorescent lamps light the entrance hall of each guest unit and provide ambient lighting. In each of the the bath areas, Souter placed a translucent light diffuser over the tile vanity with an open wood grid and used a single 32W T8 SPX30 fluorescent lamp/electronic ballast package. Two custom pendant fixtures—one on each side of the grid—with twin 20W bi-pin halogen lamps and a dimmer light the sides of the guest's face.

Existing fluorescent fixtures located in the soffits of the Inn's majestic Main Hallway were retrofitted with new electronic ballasts and 32W triphosphor lamps (T8 SPX30), which provided better color rendering than the T12 lamp/magnetic ballast package they replaced. Aging 50W MR16 lamps in adjustable spots were changed to more efficient 35W constant color lamps, which provide white light and a high CRI over the life of the lamps with minimal lumen depreciation.

**RESULTS** The new system offers improved lighting, reduced energy consumption (as much as 5 percent) and a projected \$6,000 in energy savings per year, which, coupled with a rebate from Pacific Gas & Electric, virtually paid the cost of the \$15,000 project in one year.

The client was so pleased with the redesign that Souter said he's been commissioned to develop a new "sculptural" lighting system for the Pacific's Edge restaurant in the Inn, due to appear later this year.

THE MAIN HALLWAY OF THE HIGHLANDS INN RESORT BEFORE (LEFT) AND AFTER THE REDESIGN (CENTER). THE HALLWAY IS NOW LIGHTED WITH ENERGY EFFICIENT T8 FLUORESCENTS, WHICH BRING OUT THE WARM RICH TONES OF THE INTERIOR. IN THE GUESTROOMS (RIGHT) LIGHTING WAS REDESIGNED NOT ONLY TO BE ENERGY EFFICIENT BUT TO PROVIDE BETTER ILLUMINATION AND COLOR.

# the Art

FISHER MARANTZ RENFRO STONE  
TURNS THE BLANK CANVAS OF THIS  
MODERN ART MUSEUM INTO A  
MASTERPIECE PROJECT

BY CHRISTINA TRAUTHWEIN, EXECUTIVE EDITOR

At the San Francisco Museum of Modern Art (SFMOMA), the lighting design just might be the most creative work on display. The masterful blend of daylighting and electric lighting was developed to enhance the exhibits but never upstage them. The result is a highly effective solution that subtly paints the galleries with appropriate light for viewing art.

Housed for more than 60 years within the War Memorial Veterans Building, the SFMOMA now resides in a new, more spacious \$60-million building designed by Swiss architect Mario Botta in association with the San Francisco office of Hellmuth, Obata, Kassabaum, Inc. (HOK). Fisher Marantz Renfro Stone (FMRS) designed the lighting for the main public spaces of the museum, including the atrium lobby and 50,000 sq. ft. of gallery space.

At a total of 225,000 sq. ft., San Francisco's museum is the second largest single structure devoted to modern art in the U.S. The museum is located in the city's downtown South of Market district and is surrounded by several other landmarks such as the Moscone Convention Center and the recently completed Center for the Arts at Yerba Buena Gardens.

The SFMOMA will be the site of the 13th annual IALD Awards dinner, cosponsored by *Architectural Lighting* magazine.

## COURT DRAMA

The interior of the museum is flooded with natural light. The full-height central atrium court, dramatically illuminated by a 135-ft.-high skylit turret, is a key feature of the design. FMRS designed custom uplights, integrated into the top of a pedestrian bridge crossing the atrium, to reinforce the daylight. Four of the fixtures house 400W metal halide lamps and two are fitted with 400W HPS sources.

"At nighttime, it becomes this glowing eye to the city," said Mark Piaia, project architect with HOK.

"The ceiling in the atrium and adjacent corridors is a wooden slat grid that does not lend itself to recessed light fixtures," said Scott Hershman, senior associate at FMRS. "So we developed a twin-head fixture that is suspended from a single point."

The custom fixture houses two PAR38 lamps of differing wattages (150W and 250W) and is used for both general and accent lighting. Each open gimbal-ring fixture is adjustable on all axes and fitted with a cross baffle and spread lens. "It's possible to adjust the orientation of the fixture to align with the axis of the building while pointing the lamps in any direction," said Hershman, "but once the fixture is aimed, all adjustments are permanently fixed with set screws."

Each lamp is wired to a separate circuit to permit independent light levels for downlighting and wall washing.

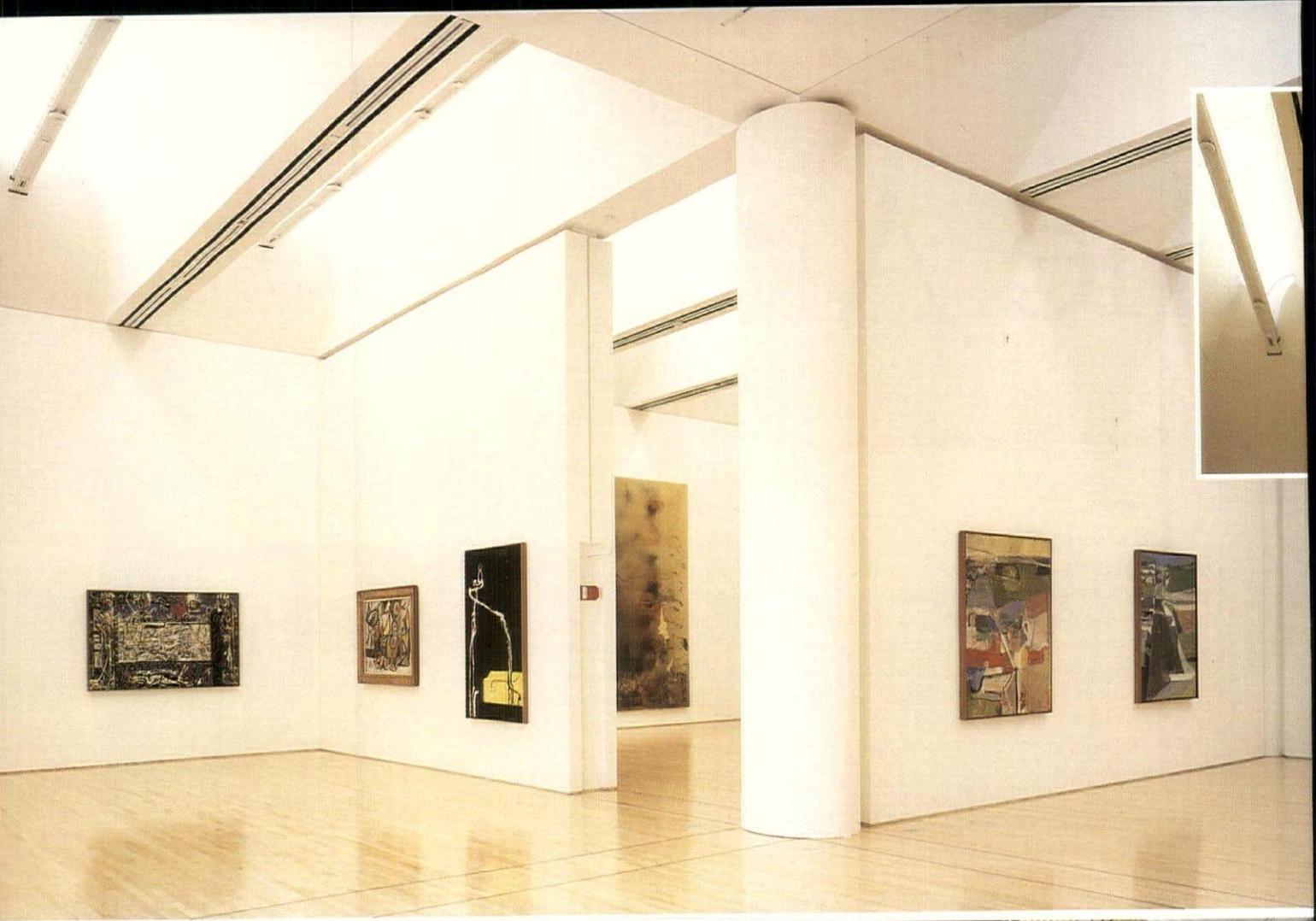
In the adjacent boardroom, which also doubles as an events space, small 20W AR-12 lamps fitted with a glass ring bottom provide downlight and add sparkle to the space. Between each of the downlights are 2-ft. sections of track.

In the center of the barrel-vaulted space, a series of more than 20 Botta-designed pendants are fitted together and aligned to function as a single fixture. The fixtures use 100W line-voltage halogen sources. The fixture is designed to swing as a unit 45 degrees to either side to satisfy earthquake codes.

Visitors are drawn from the ground floor atrium court to the four floors of galleries above



CUSTOM WALL WASHERS, INTEGRATED INTO THE UNDERSIDE OF THE STEPPED CEILING OF THE STAIRCASE, ILLUMINATE THE BANDED STONE WALL, PROVIDING SUFFICIENT ILLUMINATION FOR THE STAIRS (OPPOSITE). THE STAIRS ARE LOCATED IN THE ATRIUM LOBBY OF THE MUSEUM, AN OPEN, DAYLIGHTED SPACE (ABOVE).





DAYLIGHTING AND ELECTRIC LIGHTING ARE INTEGRATED IN THE GALLERIES (LEFT). DAYLIGHT IS INTRODUCED THROUGH TEXTURED GLASS SKYLIGHTS. BELOW THE SKYLIGHT, A LOUVER, FABRICATED FROM STANDARD STAMPED METAL, ELIMINATES DIRECT SUN. THE DAYLIGHT EXITS TO THE GALLERY THROUGH A GULL-WING DIFFUSER (INSET). IN THE BOARDROOM, A SERIES OF PENDANTS, DESIGNED BY MARIO BOTTA, ARE JOINED TOGETHER TO FORM A SINGLE FIXTURE (LEFT, BOTTOM).

via a grand staircase, which itself appears to be a massive abstract sculpture. Rectangular recessed low-voltage 35W tungsten halogen wall washers, custom-designed by FMRS, are incorporated into the stepped ceiling to illuminate the banded granite walls and light the stairs. Lenses are sandblasted glass, which provides soft illumination.

## LIGHT GALLERY

Skylit roofs and a coffered ceiling offer generous natural light to the galleries, a design that complements the clean architectural lines of the museum and enhances the artwork. Most of the galleries are lighted primarily with natural light, but electric lighting controlled by an external photocell provides supplemental lighting when daylight is insufficient.

"We wanted all the spaces to feel bright, yet still maintain light levels in accordance with conservation criteria," said Hershman.

Daylight is introduced through textured glass skylights. In developing the daylighting system, the lighting designer built a model of a typical gallery and put it in a daylight simulation booth to assess how light was distributed in the space. The designer then constructed an on-site, quarter-scale model and gathered light level data over several months, taking differing weather conditions into account.

The final result was a system of fixed exterior skylights and internal acrylic diffusers that span the galleries and provide diffuse, room-filling light. The aesthetically pleasing white gull-wing or V-shaped light diffuser fits into the top of the glass-reinforced gypsum vaulted coffers and dis-

tributes the daylight, which is reflected from the ceiling vaults to the art walls.

The vertex of the diffuser unit contains supplemental fluorescent nighttime "environmental" lighting, as well as mechanical services such as sprinklers, occupancy sensors and smoke detectors.

Continuous compact fluorescent fixtures are located within the center of the diffusers and are used to uplight the louvers with a low-level wash of lighting. The fluorescents come on about 45 minutes before dusk to provide a luminous ceiling at night and are also used to supplement daylight on cloudy days.

All of the skylights are fitted with opaque fabric covers that snap into place when elimination of daylight is required. Directly

beneath each skylight is a louver panel, fabricated inexpensively from standard stamped metal, that eliminates direct sun, allowing only north skylight to enter the skylight well.

Certain types of art cannot be displayed in daylight, such as works on paper, so there are some galleries that are not daylighted. Where non-daylit galleries are adjacent to daylight galleries, the ceiling is treated as an inverse vault and lighted by neon coves with 3500K color temperature. It has a daylight feel to provide continuity from one space to the next. ■

Q:

HOW HAS THE LIGHTING INDUSTRY/LIGHTING DESIGN CHANGED IN THE LAST 10 YEARS?

Some of the changes in the past 10 years have included:

- Widespread acceptance of triphosphor T8 and compact fluorescent lamps have allowed the designer to lock good color rendition into the design.

- Low-wattage HID technology has provided the designer with high color rendering alternatives for point source downlights.

- IC chips are making dimming systems smaller, more versatile and less expensive.

- Energy efficiency trends have forced us to rethink design solutions of the '80s and have regulated several sources out of the marketplace.

- The lighting designer is being recognized as an essential member of the design team in the European and Far East marketplace.

—Scott Hershman

## DETAILS

PROJECT San Francisco Museum of Modern Art ■ LOCATION San Francisco

■ OWNER San Francisco Museum of Modern Art ■ ARCHITECT Mario Botta in association with Hellmuth, Obata & Kassabaum ■ LIGHTING DESIGNER Fisher Marantz Renfro Stone, Inc.

■ ELECTRICAL ENGINEER Flack & Kurtz ■ PHOTOGRAPHER Richard Barnes

■ LIGHTING MANUFACTURERS Creative Light Source; C.W. Cole & Co.; Kurt Versen Co.; Lighting Services Inc.

THE LIGHTING DESIGNERS FOR HASBRO DID MORE THAN JUST TOY WITH IDEAS WHEN IT CAME TO LIGHTING THE CORPORATE HEADQUARTERS—THEY LISTENED TO THE CLIENTS, ADDRESSED HASBRO'S DIVERSE NEEDS AND CAME UP WITH THE PERFECT

# Game

BY CHRISTINA TRAUTHWEIN, EXECUTIVE EDITOR

When it comes to the design of Hasbro Inc.'s Pawtucket, RI corporate headquarters, it's not just fun and games. While the well-known manufacturer might base its sales on the world of toys, the 300,000-sq.-ft. facility definitely promotes the image of serious business.

The lighting, designed by Light & Space (phase I) and Renée Cooley Lighting Design (latter phases), is a key factor in projecting a corporate presence and supporting Hasbro's strong identity in the marketplace to visitors. Diversity is the key. With many work environments under one roof—corridors, executive offices, meeting rooms, production spaces—the lighting design had to be flexible enough to address the needs of each one separately. Some areas required warmth, others energy and vitality, while some just needed to feel relaxed.

And yes, there are some playful aspects, too. After all, this is the company that brought us favorites such as Mr. Potato Head and G.I. Joe. In fact, these childhood treasures are prominently displayed in the archive corridor—and treated with respect!

## "MAIN" OBJECTIVE

The interior, housed in a turn-of-the-century factory building, was redesigned in a series of phases to contain a two-story-high visitors' entry, feature corridors, enclosed private offices, open office areas and a presentation theater. The thrust of the design is a carefully planned "urban" layout that reinforces an active environment.

The facility is centered around "Main Street," which is bordered by various working "neighborhoods"—executive offices and meeting rooms. This central

corridor, which serves as the employee entrance and primary passageway, is immediately identifiable to employees and visitors alike. The lighting team backlit frosted glass walls, which separate the corridor from executive areas, to create the image of light-filled lanterns lining the "street."



Quartz wall washers, surface mounted on the ceiling of the conference room on the other side of Main Street, cause the oversized lanterns to glow and also serve to light inside the conference room.

"We were able to create two effects in two different areas with one lighting sys-

tem," said Renée Cooley, principal, Renée Cooley Lighting Design. "The reflected light contributes to the interior lighting and the transmitted light contributes to the corridor lighting."

Fluorescent uplights illuminate Main Street's sawtoothed, skylit ceiling, replacing the natural daylight after hours.

## FIRST PLACE

A distinctive selection of Hasbro's classic toys are showcased in glass cases in a nearby archives corridor, which serves as the main artery between the visitors' entry and the executive office/meeting areas located just off Main Street.

The items, some of Hasbro's firsts, are illuminated by track fixtures to create a dramatic effect, and to draw visitors into the space and toward the glowing display windows. PAR38s on a surface mounted track are aimed at the display case columns to highlight letters which spell out "Hasbro" (see photo left).

"In this particular area, as with other feature areas, Hasbro wanted a more dynamic environment that would create an executive impression on visitors and clients," said Emily Monato, principal, Renée Cooley Lighting Design. "The lighting had to be less uniform, more dramatic and effectively enhance the richly textured surfaces and higher quality finishes, fabrics and furnishings with excellent color rendition."

LIGHTING IN THE FEATURE AREAS AT HASBRO, SUCH AS MAIN STREET'S EXECUTIVE OFFICE RECEPTION (RIGHT) AND ARCHIVE CORRIDOR (ABOVE), IS PRIMARILY INCANDESCENT TO CREATE A MORE DRAMATIC "CORPORATE" ENVIRONMENT. THE LIGHTING ENHANCES THE RICH TEXTURES AND WARM COLORS OF THE FURNISHINGS.

© STEVE ROSENTHAL



© STEVE ROSENTHAL



WARREN JACGER

IN CONTRAST TO THE EXECUTIVE AREAS OF THE FACILITY, SUCH AS THE CONFERENCE ROOM (ABOVE LEFT), THE PRODUCTION SPACES ARE BRIGHTER AND MORE SPACIOUS. HIGH COLOR RENDERING LAMPS, WITH COLOR TEMPERATURES CLOSE TO DAYLIGHT, CREATE A VIBRANT AND DYNAMIC ENVIRONMENT IN WHICH TO WORK (ABOVE RIGHT).

## OPEN FOR BUSINESS

"In open office areas, the goal was to provide a visually clear, spacious environment that would appear as volumetric in its lighting during non-daylight hours as during daylight hours," said Cooley. "Furthermore, since the area encompasses a large volume of open space, the lighting system had to be consistent and clean in its approach and appearance."

While the Main Street areas primarily utilize incandescent sources, the open office areas employ fluorescents to address energy efficiency and the balancing of daylight. Moreover, the open areas utilize a more uniform pattern of light to enhance spaciousness and visual clarity, and to emphasize the ceiling and workplane. "Additionally, vertical illumination highlights feature walls to add rhythm and interest," said Cooley.

Much of the space is illuminated by daylight coming through north-facing skylights. Cable-suspended, direct/indirect fluorescent fixtures within the module of the bays supplement the incoming daylight during daytime hours and provide the main illumination during overcast days, evening hours and in areas without skylights.

The design team opted for 3500K fluorescent lamps to approach the brightness of the daylight. The pendants, suspended from the purlains of the ceiling

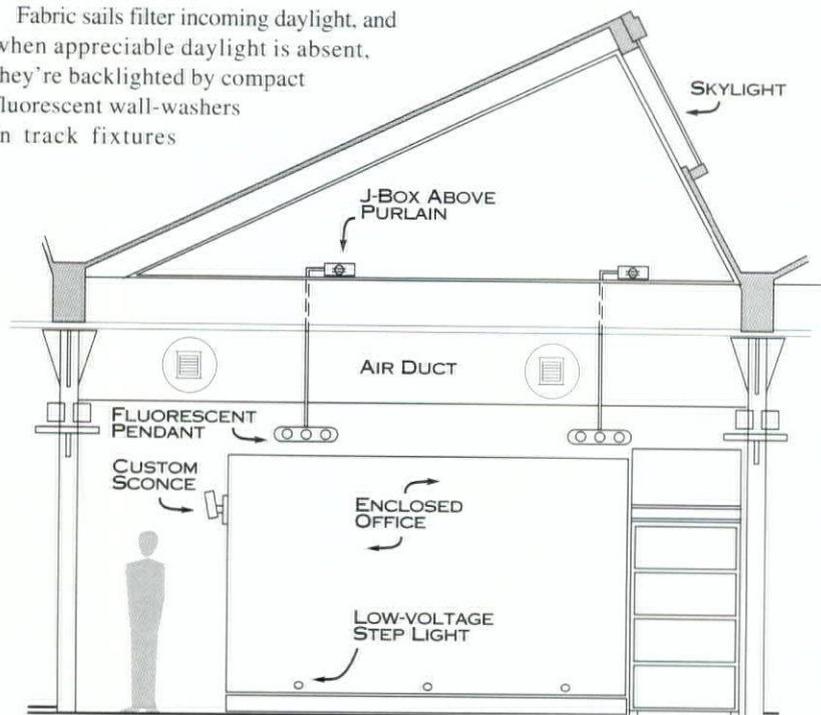
structure, are located 11 ft. on center.

"The main runs of the ductwork are coordinated with the lighting fixtures so that both of these elements fit into this open ceiling environment in the most compatible way," said Cooley. "The pendants can be switched locally as well as be controlled by a building management system, empowering employees to directly control their work environment."

Fabric sails filter incoming daylight, and when appreciable daylight is absent, they're backlit by compact fluorescent wall-washers in track fixtures

mounted on architectural columns behind the fabric. At dusk, or when the sky is overcast, the sails glow to create a shimmering effect.

Although a standard fluorescent color temperature was established at 3500K, special areas where color matching is critical are illuminated by 5000K/95 CRI lamps. These large open spaces are modulated by narrow connecting passageways and waist-high filing banks. Semi-custom aluminum incandescent pendants (referred to as tin-hats because of their shape) are suspended from a piece of unistrut, which runs parallel to the cabinets. The fixtures



© STEVE ROSENTHAL

# Plan





are spaced 3 ft. apart and are located about 18 in. off the surface to deliver localized task light to the cabinets below without interfering with the workers.

In addition, they “intersperse personality throughout the space and keep it in touch with human scale,” said Cooley. ■

INDIRECT FLUORESCENT LIGHTING BALANCES DAYLIGHT IN OPEN OFFICE AREAS (DRAWING, LEFT) AND ADDS UNIFORMITY AND VISUAL CLARITY TO THE OVERALL SPACE.

FABRIC SAILS FILTER INCOMING DAYLIGHT (ABOVE).

#### DETAILS

**PROJECT** Hasbro Headquarters ■ **LOCATION** Pawtucket, RI ■ **OWNER** Hasbro Inc. ■ **ARCHITECT** Kuwabara Payne McKenna Blumberg Architects—Shirley Blumberg, principal-in-charge; Walter Daschko, assoc.-in-charge ■ **ARCHITECT FOR ARCHIVAL MUSEUM** Peter McMillan ■ **LIGHTING CONSULTANTS** Renée Cooley Lighting Design—Renée Cooley, Emily Monato, principals; Light & Space—Peter Barna, principal; Renée Cooley, senior designer ■ **EXHIBIT DESIGNER** Joseph Wetzel Assoc. ■ **ELECTRICAL ENGINEER/ELECTRICAL CONTRACTOR** Boulos Robinson Inc. ■ **GENERAL CONTRACTOR** Dimeo Construction ■ **PHOTOGRAPHERS** Steve Rosenthal, Warren Jagger ■ **LIGHTING MANUFACTURERS** Lightolier; Elliptipar; Reggiani; Halo Lighting; Norbert Belfer; LSI; Staff Lighting; Day-O-Lite; Lightning Bug; Modular Int’l.; Michael’s Lighting

**q:** HOW HAS THE LIGHTING INDUSTRY/LIGHTING DESIGN CHANGED IN THE LAST 10 YEARS?

There seems to be a greater willingness for companies to try new consultants. The bottom line has become so tight that a difference of a few hundred dollars in a bid can mean the difference between being on-board or being left behind. Although client/consultant relationships do not seem as cemented as they’ve been in the past, this “shop-around” attitude has led us to several new clients who may not have tried us otherwise.

In addition:

- Budgets have gotten much tighter and “value-engineering” has become a common part of even small projects.
- Even rather small projects are “phased” or broken up into more manageable pieces where one phase is completed while funding for the next can be secured.
- Project schedules have become shorter, making the need for construction managers greater.

—Renée Cooley & Emily Monato

# Sweet



# Success

OLIVER DESIGN GROUP USES  
PASTRY ICONS AS FIXTURES TO  
SWEETEN THE LIGHTING DESIGN  
OF THIS URBAN CAFE

BY CHRISTINA TRAUTHWEIN, EXECUTIVE EDITOR

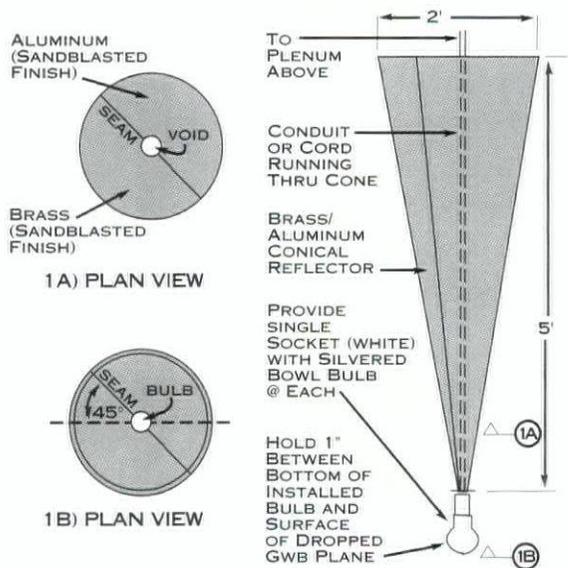
Various bakery icons, such as a custom "wafer" and pastry nozzles, are part of the lighting system in Cafe Paradiso. The design is anything but cookie-cutter, though. Rather, it's the tasteful blend of fixtures and sources that makes William Eberhard & William Mason's lighting design just the right mix of fun and function. Cafe Paradiso not only offers confections, it's a visual treat as well. Consequently, this project has won both national and regional IIDA design awards, as well as local and state AIA awards.

Cafe Paradiso, on the corner of East 12th and Chester Avenue in downtown Cleveland, was created when the building's landlord sought to utilize an unleased area of the building that had been vacated by a stock brokerage firm.

At a relatively small 3,500 sq. ft., the space was perfectly suited for an eatery, particularly since the building is located near the epicenter of Cleveland's central business district. Anxious to eliminate the "black hole" in the office/retail complex and elevate the profile of

the building, the owner decided to convert the vacant space into a lively activity-oriented gourmet cafe that conveys energy and vitality.

With 15-ft.-high ceilings, full-height glass on two sides and a mostly white and neutral-colored interior, Cafe Paradiso presents itself as somewhat of a blank canvas, or museum-like backdrop, within which animated and floating figures provide the focus of activity and cleverly express the establishment's many services and products.



CUSTOM PENDANT WITH CONICAL BRASS REFLECTOR



LIGHTING ABOVE THE CENTRAL COUNTER AT CAFE PARADISO (OPPOSITE) TAKES ON UNUSUAL FORMS: FIXTURES ARE DESIGNED TO RESEMBLE VARIOUS BAKERY UTENSILS SUCH AS COOKIE CUTTERS AND PASTRY NOZZLES. THE NOZZLES, WHICH ILLUMINATE THE DISPLAY CASES (ABOVE RIGHT), ARE CUSTOM DESIGNED (SEE ABOVE DETAIL).

PHOTOGRAPHY BY PETER RENERTS STUDIO

Q:

HOW HAS THE  
LIGHTING  
INDUSTRY/LIGHTING  
DESIGN CHANGED IN  
THE LAST 10 YEARS?

Unlike 10 years ago, there is now a tremendous range of off-the-shelf product available to the design community that affords great flexibility to achieve highly specific and unique outcomes without customizing everything. Also, the changes in lamp technologies and production has given designers the ability to design with specific regard to temperature factors to achieve color rendition accuracy previously not possible.

While indirect lighting options and product responses for work environments are still somewhat narrow, today we know a great deal more about *what* to do—and *why* and *how* to do it in an effective and cost-effective manner—than 10 years ago.

—William Eberhard, AIA

“Our goal was to incorporate articulated architectural planes and elements into the space and then ‘paint’ it with light, creating comfort and interest while reinforcing the product display,” said Eberhard, principal-in-charge, Oliver Design Group.

#### PLANE & SIMPLE

The ceiling is treated as a sculptural plane rather than a conventional singular plane for embedding recessed fixtures. Perforated metal panels—representing sifters or graters—rest within alternating bays of an existing 5 ft. x 5 ft. ceiling grid, maintaining an overhead plane without entirely concealing the sculptural qualities of the ductwork above.

“The metal bands create a human scale and also contain the eye to develop a lower, product-oriented focus while still permitting open views of the ceiling grid above,” said Eberhard.

The metal panels are illuminated by reflected light, which allows them to be read, but not emphasized at the expense of user comfort at seating areas or product displays.

#### TOOLS OF THE TRADE

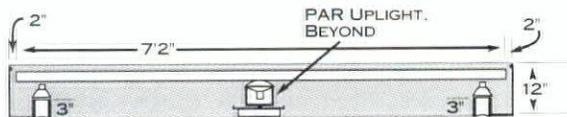
The lighting is balanced—but not uniform—in its distribution, a design philosophy that Eberhard carries into each of his projects. Designing the lighting so as to come from a variety of sources creates interest, according to Eberhard, and also “articulates the planar elements to define the edges of the space and elements within the space so that the perception of spatial volume is maximized for user comfort.”

In Cafe Paradiso, light fixtures are suspended or integrated into dropped elements, varying the levels at which the lighting response animates the space. For example, Eberhard uses symbolic representations of the utensils utilized to produce baked goods and suspends them above the central island, around which the entire space is organized.

A row of brass and aluminum conical light reflectors become pastry nozzles floating over a rectangular suspended drywall ceiling. Icing—or rather a simple porcelain lamp holder with exposed 60W A-19 lamps—“drips” from the nozzle through cookie-like cutouts in the dropped ceiling.

The metal pastry nozzle cones and lampholders are custom fabrications that utilize galvanized sheet metal with strap rings, which center the lampholders over the three circular voids that are cut through the suspended plane. The reflected lines of the cones form light stripes, which effectively point to the

ENTIRE ASSEMBLY SUSPENDED BY 4 CABLES OR RODS FROM DECK ABOVE



MR16S ON TRACK ABOVE. FIXTURE ALIGNS WITH FINISHED CYLINDRICAL PORTS

#### SECTION AT CANOPY

product display below and add sparkle to the space.

To lend more light to the food counter, a series of 150W PAR38 lamps in adjustable track fixtures are side-mounted onto the drywall wafer.

#### FOOD FOR THOUGHT

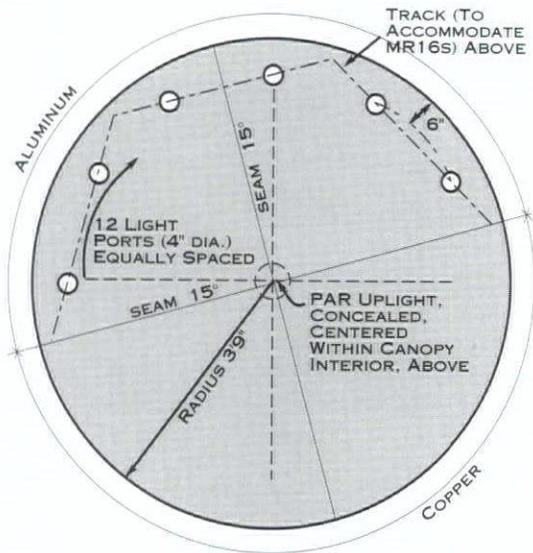
Nearby, an enormous copper/aluminum “cookie” disc, containing equally spaced, flush-mounted 75W MR16 lamps in the aluminum half, hovers above the cappuccino bar. “We decided to bisect the form, change the foil typology and drop the lamps into only one side to make the space, which tends to be very geometric and axial, more dynamic,” said Eberhard.

This fixture is suspended 5 ft. from a circular drywall disc, representing a cookie-cutter form, and soars about 7 ft. above the finished floor. In addition to providing visual interest, the “cookie” offers visual identification, reinforcing the cafe’s functions and the desired traffic flow—a racetrack-like configuration circling the island—without the need for

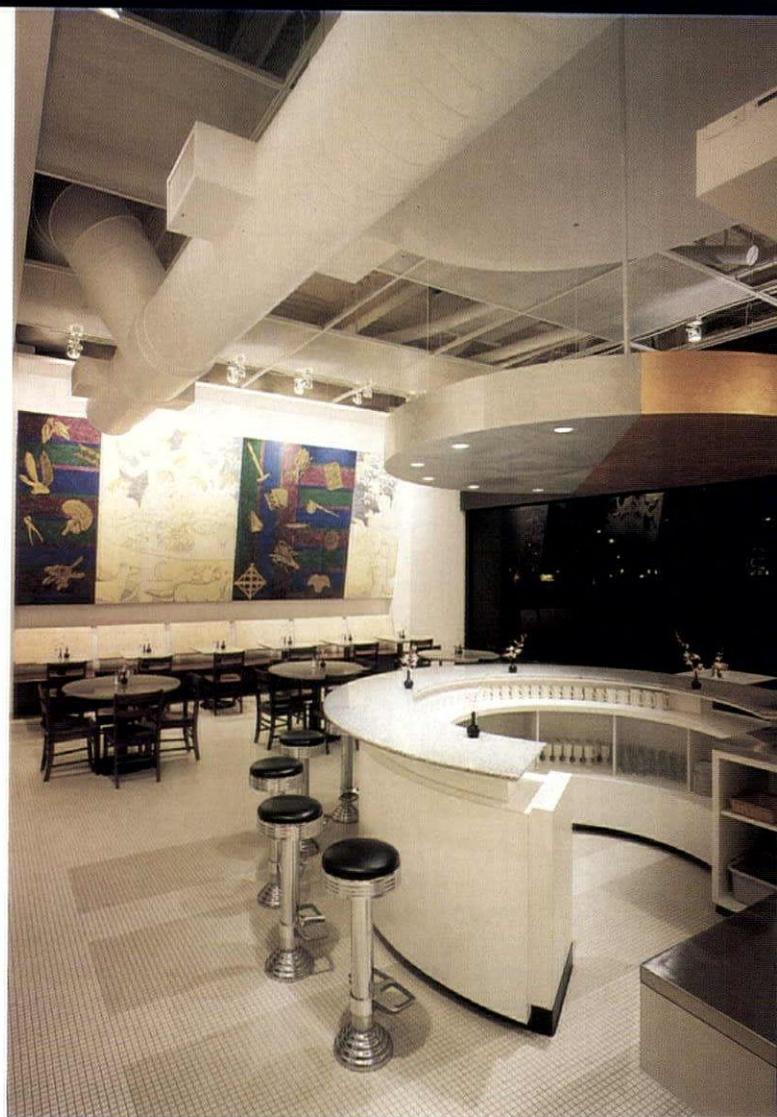
awkward or obtrusive signage.

PAR38s are located at the 12-ft. ceiling height over the seating areas and along the back wall where they illuminate a large, richly colored mural.

Incandescent strip lights, recessed in a cove along the perimeter wall, uplight



COPPER/ALUMINUM CANOPY — REF. CEILING PLAN

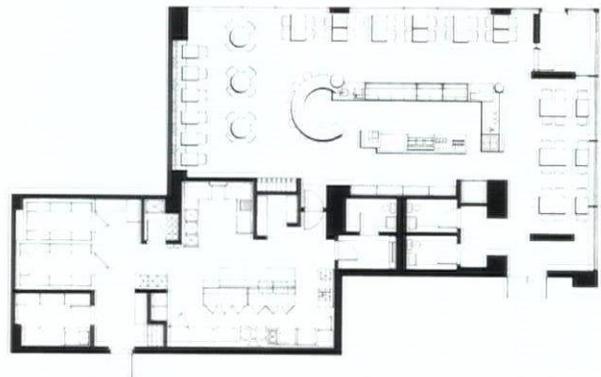


the reflecting wall panels to create a soft glow that brings the eye back to the center island above the dry goods product display.

"Incandescent sources were selected to mix with daylight to provide a warm but balanced lighting spectrum to allow for the accurate perception of food products," said Eberhard. "In addition, incandescents were a key factor in promoting user comfort—and a warm and friendly atmosphere."

Excessive glare was eliminated by using many moderate-wattage lamps to control light output instead of utilizing a few powerful lamps that would have pushed glare to undesirable levels and dumped light in unmanageable and unfriendly quantities with eroded light quality, according to Eberhard. ■

DETAILS (LEFT & CENTER): A CIRCULAR WAFER OVER THE CAPPUCCINO BAR (ABOVE) IS HALF ALUMINUM, HALF COPPER. SIX MR16S IN THE ALUMINUM SIDE DELIVER LIGHT TO THE COUNTER SURFACE. THE ISLAND IS THE FOCUS OF THE SPACE—ALL TRAFFIC REVOLVES AROUND IT (SEE FLOORPLAN BELOW).



DETAILS

PROJECT Cafe Paradiso ■ LOCATION Cleveland ■ OWNER Investment Plaza Partners Ltd. ■ ARCHITECT/LIGHTING DESIGNER Oliver Design Group—William Eberhard, design principal; William M. Mason, project designer ■ MECHANICAL/ELECTRICAL ENGINEER Bacik-Karpinski Assoc., Inc. ■ PHOTOGRAPHER Peter Renerts Studio ■ LIGHTING MANUFACTURERS Halo Lighting; Norbert Belfer; GE Lighting; Surelites; Leviton

## HARD, HIGH-TECH LINES ARE ELIMINATED, SOFT SIMPLE GEOMETRY IS ADDED TO CREATE A SOOTHING ATMOSPHERE THAT HELPS THE E.R. AT ST. MARY'S PASS THE STRESS TEST

BY CHRISTINA TRAUTHWEIN, EXECUTIVE EDITOR

Just like every other hospital, the emergency room at St. Mary's Health Center in St. Louis certainly sees its share of action. But what it doesn't see is the cluttered chaos so typical of many health care institutions. Rather, fluid architecture, warm colors and a well-planned, controlled lighting design create a tranquil environment, alleviating stress amongst staff, calming patients and promoting peace of mind for waiting families and friends.

The ER department, a two-story, 13,600-sq.-ft. addition with 18 treatment rooms, is part of Project 2000, a five-year, \$41 million master facility plan to expand and modernize the 1920s hospital. Architect Mackey Mitchell Associates teamed up with lighting designer Lam Partners Inc. to develop an ER marked by timeless, not trendy elements—a strategy that firmly enhances St. Mary's standing in the competitive health care market. The result is an ER with beautiful, simple geometry and clear spatial organization.

The architect incorporated a curve motif into the design to soften the look and take the edge off things a bit. "It's a beautifully clear composition," said Paul Zaferiou, principal, Lam Partners Inc. "In fact, the architecture is

so simple and well organized that the lighting just flowed naturally—it practically lighted itself." The design won a 1995 regional design award from the Illuminating Engineering Society of North America, honored for its "good use of color, and understated and restrained design that is never cold."

### TEAM SPIRIT

The final design was a collaborative effort. The project team gathered with hospital staff and visited other emergency rooms in the area to research the layouts and assess both positive and negative design aspects. The plan for St. Mary's became clear: The many functions of an ER necessitated that the lighting and architecture blend to create a crisp, bright and understandable sequence of spaces appropriate for a medical facility. So many other institutions fail to do this, adding to the chaotic circumstances that already exist within the walls of an emergency facility.

According to Zaferiou, lighting objectives were to:

- create quality spaces with economy
- use lighting to clarify spatial organization
- keep it simple, yet effective

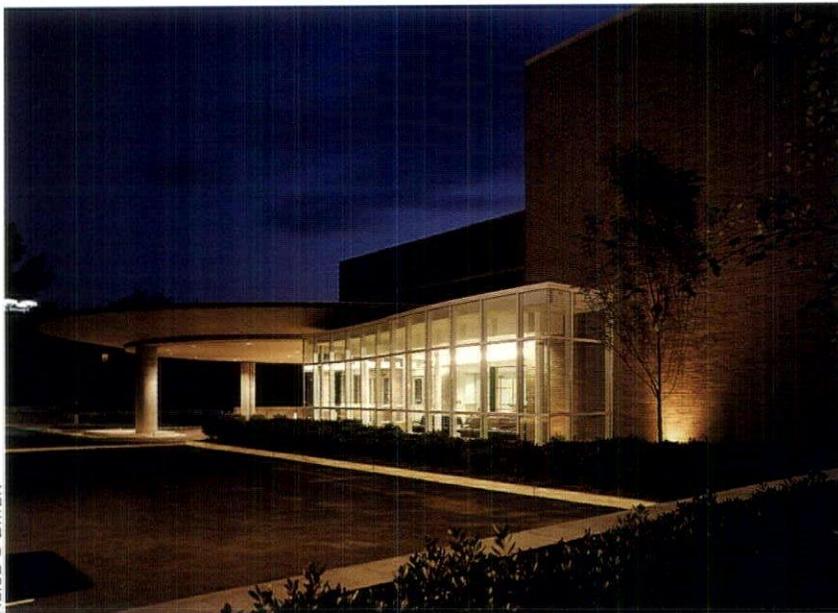


- provide maximum energy efficiency and minimum maintenance (a hospital dictum)

In addition, it was important to create a sense of warmth and visual comfort appropriate for an ER department, without having the residential feeling of a recovery wing. The ER must remain professional, yet maintain a calm, comfortable environment.

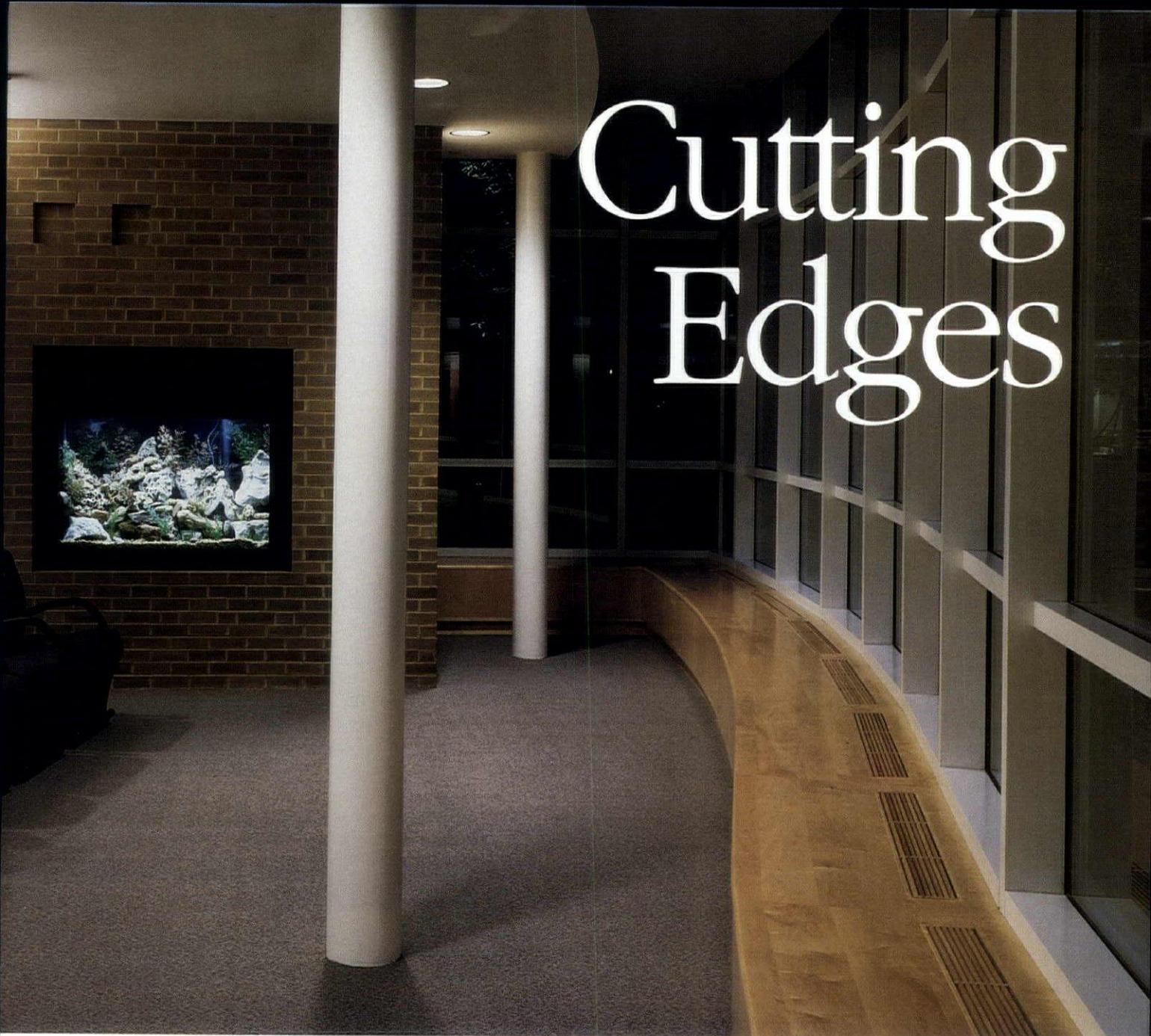
### FULL CIRCLE

A certain sense of tranquility is immediately instilled in patients upon their arrival at St. Mary's. The exterior of the ER is clearly marked by a large concrete circular entry canopy. This simple defining shape acts as an easily identifiable landmark both day and night, creating simple optical guidance and eliminating the need for the often noisy montage of con-



ALISE O'BRIEN

# Cutting Edges



fusing signs typical of many ER entries.

During evening hours, the exterior canopy provides a bright arrival point for medical emergencies. For high color rendering, Zaferiou selected incandescent downlights, side-mounted for reduced fixture height; all other facility lighting is fluorescent to reduce operational costs and maintenance.

The circular form of the entry canopy acts as the springboard for the spatial composition, and is a signature of the building, according to Eugene Mackey, FAIA, principal, Mackey Mitchell Associates. Inside, the layout and architecture maintain the feeling of comfort by echoing the entry canopy's smooth rounded edges—a form synonymous with relaxation.

THE ENTRY TO ST. MARY'S EMERGENCY ROOM IS MARKED BY A CIRCULAR ENTRY CANOPY (OPPOSITE). THE ROUND SHAPE OF THE CONCRETE STRUCTURE IS AN EASILY IDENTIFIABLE BEACON AND SETS THE TONE FOR THE INTERIOR. THE WAITING ROOM (ABOVE) ECHOES THE GENTLE CURVES, SOFTENING THE LOOK OF THE SPACE AND CREATING A SOOTHING ENVIRONMENT. AT NIGHT, THE LIGHTING ENHANCES THE WARM TONES OF THE ROOM, AND DURING THE DAY (INSET), SUNLIGHT FILLS THE SPACE.

In addition, earthy materials, such as brick and maple wood, add a sense of warmth to reduce the institutional atmosphere.

Ambient light is maximized in key areas such as the entry reception and nursing station. Both the triage desk and the registration area use reflected light and frosted glass to soften the look. Uplighting and wall washing create brightness and comfort without glare.

## CENTRAL STATION

The emergency suite is organized in a simple square. Each of the 18 patient rooms is equidistant from the centrally located circular nurses' station, providing open access and visual control. St. Mary's previous ER was linear in design, making visibility and accessibility to treatment rooms difficult.

Above the station, a round coffered ceil-



THE NURSES' STATION IS CENTRALLY LOCATED AND EQUIDISTANT FROM THE 18 TREATMENT ROOMS. A LARGE, ROUND COFFER OVER THE STATION IS UPLIGHTED TO PROVIDE A GENEROUS AMOUNT OF AMBIENT LIGHT.

ing, reminiscent of the exterior canopy, is uplighted with T8 fluorescents to deliver high-level ambient lighting. Additional downlights and built-in task lights service the work counters. A structural column intersects with the coffered ceiling, breaking the coffer into four quadrants and adding visual interest.

Moving beyond the nurses' station into the corridors, the light lowers, creating a soft transition zone, then brightens when approaching the treatment rooms. These changes in lighting intensity help staff focus on what's happening in the ER work area. Ten-ft.-wide corridors, which provide enough space for smooth circulation, are illuminated by recessed compact fluorescent downlights. Zaferiou chose cross baffle styling rather than open aperture to minimize glare—an important consideration for patients being wheeled on beds.

A square coffer encribes the entire nursing station, "floating" the edge of the ceiling away from the walls that enter the treatment rooms. A fluorescent wall slot provides glare-free illumination for circulation around the station and expresses the organization of the ER by adding brightness to the whole suite and delivering a soft wash and spill light onto the entrances to the treatment rooms. Lamps are tucked above the ceiling so that the light source is completely concealed.

In the treatment rooms, the lighting is very

utilitarian: Recessed lensed 2x4 fluorescents deliver high-level, uniform downlighting to supplement surgical lights. Each room has a window to the outdoors—a link to the outside that keeps staff in touch with nature and helps reduce stress during the marathon hours.

#### GREEN PEACE

The waiting room, which is adjacent to the entrance, is oriented toward a tree-lined courtyard. A gently curved floor-to-ceiling window fills the waiting area with a generous amount of soft, natural light. In addition, it provides views to the outdoors, permitting visitors a mental break from the anxiety they're probably experiencing. Simple cutoff parking lot fixtures in short-term parking spill light into the adjacent landscape at night, allowing clear views to the landscape 24 hours.

Light levels in the waiting area are deliberately lower than in the circulation areas. A simple fluorescent cove lights the ceiling and balances the daylight. "We consciously didn't put a cove directly in front of the window because at night we didn't want to turn the window into a mirror," said Zaferiou. Instead, the cove is located toward the center of the waiting room to avoid a bright edge at the glazing. The ceiling takes an additional step which corresponds to the window wall curve to contain the uplight and reduce the ceiling thickness at the perimeter, according to Zaferiou.

Compact fluorescent downlights (3000K) provide additional reading light and enhance the warm tones of the room. An aquarium and lighted literature niches adorn the brick wall, again creating a pleasant distraction and positive focus. ■

#### DETAILS

PROJECT St. Mary's Health Center—Emergency Room ■ LOCATION St. Louis  
 ■ OWNER St. Mary's Health Center ■ ARCHITECT/INTERIOR DESIGNER Mackey Mitchell Associates—Eugene J. Mackey, III, FAIA; John Guenther, AIA; Paul Ladensack, AIA; Tom Moore, AIA; Tchoukaleff Kelley, associate architect ■ LIGHTING DESIGNER Lam Partners Inc.—Paul Zaferiou ■ ELECTRICAL ENGINEER McGrath Inc. ■ PHOTOGRAPHER Alise O'Brien  
 ■ LIGHTING MANUFACTURERS Litecontrol; Kurt Versen; Kramer; Daybrite

**Q:** HOW HAS THE LIGHTING INDUSTRY/LIGHTING DESIGN CHANGED IN THE LAST 10 YEARS?

Architectural styles come and go—sometimes in cycles—but lighting technology over the past decade has made steady progress in its quest for improved light sources. Advances in fluorescent and metal halide technology continue to replace incandescents in more and more applications. With operating budgets for all sorts of facilities in decline, lamps with longer life, lower wattage and good consistent color are in big demand.

In particular, the replacement of incandescent A-lamps with double or triple compact fluorescents using regular and dimmable electronic ballasts has had a major impact. Also, the

development of color temperature consistency among fluorescent and metal halide lamp families has improved overall project appearance both inside and out. It seems that just when we settle on a lamp/fixture combination that works well for a specific application, an improved source or new fixture comes out that opens up new possibilities.

It's a challenge to stay current and essential to evaluate new lamps and fixtures prior to specification. Above all, these ongoing improvements keep lighting a dynamic part of the design process.

—Paul Zaferiou

## lightruss

A modular indirect lighting system available in two sizes. Designed to illuminate environments ranging from compact to large open spaces. Configure to include horizontal or vertical runs, gentle curves, multiple angles of any radius or even changes in elevation.

lightruss accommodates a palette of optical systems that simply drop into the modules.

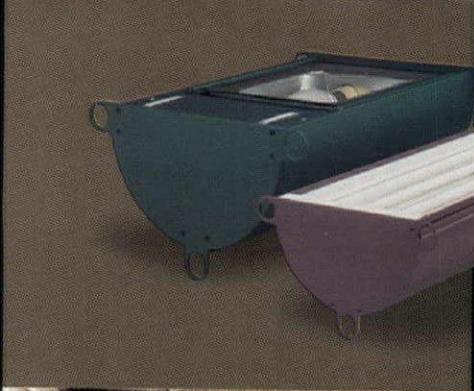
lightruss 2 features die-cast, extruded aluminum components, anodized and powder coated to withstand corrosive environments such as natatoriums.

For optimum illumination that goes the distance the choice is lightruss - from SPI.

SPI Lighting Inc.  
10400 North Enterprise Dr.  
Mequon, WI 53092

414 242 1420  
414 242 6414 FAX  
Call, write or fax for more information

**SPI**



# Quality Metrics

RESEARCHERS CONTINUE EFFORTS TO ESTABLISH THE LINK BETWEEN LIGHTING AND PRODUCTIVITY. THE RESULT MAY BE NEW "QUALITY METRICS" THAT WILL CHANGE THE WAY WE SPECIFY LIGHTING.

**Y**ou have a meeting with a client who represents a large corporation. After stating your expertise, the facility manager asks if you can also reduce energy costs in his company's 20-year-old headquarters building. You explain that you can save roughly \$35,000 per year on his electric bill. Then, after a calculated pause, you add that with a professional, high-quality lighting redesign, you will increase his profits by another \$500,000 per year by increasing productivity, it's scientifically provable ...

Just before the facility manager signs the check, you wake up smiling.

Since the 1920s, proving the link between lighting and human performance has been a dream of the lighting industry. But never until today has the pressure been so great to establish that link. Unfortunately, the dream remains elusive—it would be extremely difficult to absolutely prove causality, then make a productivity prediction accurate for any given client. But the industry as a whole is moving toward finding metrics that at least enable lighting professionals to assess a luminous environment for quality, and to calculate the results of higher productivity resulting from lighting quality—so long as we accept the assumptions.

These tools will certainly help focus the entire industry on lighting quality as an ideal for lighting projects, and help designers make the case to facility managers who need in turn to make a case to senior management.

## PRODUCTIVITY PERSPECTIVES

Productivity is a measure of human performance on the job, taking into account comfort, satisfaction, safety, speed and accuracy. Productivity as a dollar value to the client is ultimately measured in efficiency, accuracy and absenteeism. Lighting quality in retail spaces also can be related to sales. It is known that lighting can play a part in image, mood, safety and security.

What does this mean to corporations?

In a 1990 survey of large office buildings (see Figure 1), the average operating cost per sq. ft. for workers' salaries was \$130, the lion's share of the average total operating budget. A modest consistent increase of even one percent, therefore, increases profits significantly.

Unfortunately, productivity is known to fluctuate wildly between 50 and 200 percent at any given time for many reasons—factors such as relationship with the boss, problems at home, the car breaking down, bills and so on. In addition, the architecture and interior design of the space may impact visual comfort more so than lighting. But lighting plays an important supporting role, in that 80-85 percent of our impressions of the world are visual, and light is necessary to vision. It naturally follows that lighting affects the impression.

"A common example I like to point out to people who ask me about the emotional effects of lighting is the old Hitchcock movies," said Robert Levin, PhD, senior scientist for Osram Sylvania at the lamp manufacturer's worldwide Lighting Research Center in Beverly, MA. At the Center, Dr. Levin studies lighting and human factors. "In these movies, the physical space does not change, but mood is affected because of only a few changes, one of which is lighting."

The National Lighting Bureau, located in Washington, D.C., published *Lighting And Human Performance: A Review* in 1989, which concluded that "lighting affects human performance in two ways: directly and indirectly. The direct effects occur because lighting alters how well we can see, either by changing the stimuli to the visual system or by changing the operating state of the visual system. The indirect effects occur because lighting can gather attention; alter arousal, mood and behavior; and modify the body's hormone balance."

The report compiled research that includ-

ed studies demonstrating that diseased meat can pass inspection under poor lighting, that better lighting helps compensate for aging eyes, that lighting can attract and direct, and that low lighting levels can influence occurrence of seasonal affective disorder (SAD). [Copies of the report and other NLB publications are available by calling (202) 457-8437.]

#### FINDING THE VALUE

"Quality lighting is desirable, but corporations and institutions still need more education about its benefits," said Barbara Barker, product manager for the Columbia Architectural Division of C•P•M Lighting. "It's interesting that many clients still see carpeting, for example, as more important than quality lighting, paying a premium for durability, comfort and aesthetics of the carpet, while being satisfied with outdated lighting technology. Today, twice as many lensed troffers are installed as parabolic fixtures."

Barker believes that clients can be convinced to include and defend value-added quality lighting in their budgets if they understand the real costs of poor productivity related to poor-quality lighting.

"If the client accepts the basic assumption that a quality lighting design featuring value-added lighting products can result in higher productivity than poor-quality lighting, then costs can be assigned," she said. "Mistakes, slower production, lost work days—together, we can make assumptions that can be assigned costs. By asking the right questions, and assigning costs to poor-quality lighting, a quality lighting design and system can keep paying for itself and adding to the bottom line for many years to come."

#### ENTER THE PIONEERS

In the 1920s, Western Electric Company conducted productivity research at its Hawthorne Works in Chicago. The results were published by the Harvard University Press in 1939 under the title *Management And The Worker*. At the plant, light levels were gradually increased. Worker productivity increased steadily. Further experiments to validate the results, this time using test groups, began to show that something was awry. The efficiency of the control group working under a constant light level increased at the same rate as the test group whose light levels were increased. To follow up on this, the researchers slyly had an electrician replace the lamps in one space in front of the workers, but the new lamps produced the same light output as the old lamps. The "placebo" worked—the occupants said they liked the "brighter" lighting. In

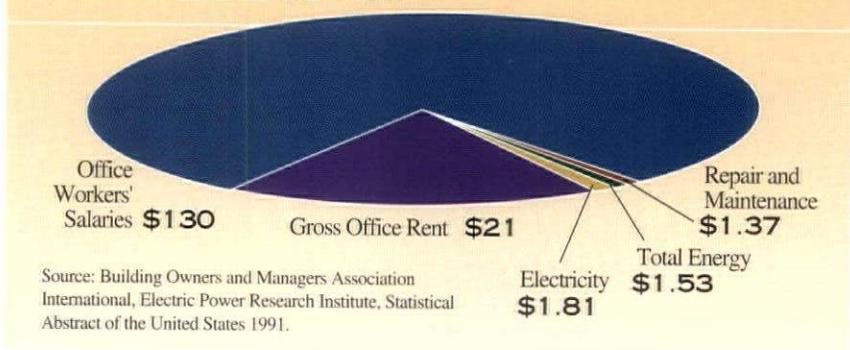
reality, the workers seemed to like being in an experiment and/or appreciated that management was concerned about working conditions. This attempt to please the experimenter, or react positively to an expressed management interest in their welfare, became known as the Hawthorne Effect—and demonstrates that test subjects must be completely naive.

For decades, the prevailing hypothesis concerning light and productivity was of the "more light, better sight" school of thought. The higher the light level at the task, the greater the visual acuity, the greater the efficiency and accuracy of the worker. The other desirable component of basic lighting design

ferent energy-efficient lighting designs for three of the offices, and a traditional design for the fourth. The participants in the study were asked to report their reactions after experiencing each environment. Short-term test participants completed brief pencil-and-paper tasks. Long-term test participants completed several tasks that included a proofreading test, number entry into a spreadsheet, text typing, reading comprehension and an eight-state mood test.

A majority of the participants found that 35 fc was too low for the desktop tasks. Most preferred lighting in the 45-55 fc range. The participants also preferred more indirect lighting

FIGURE 1. AVERAGE ANNUAL COMMERCIAL OPERATING COSTS PER SQUARE FOOT.



was to keep unwanted glare from the field of view and distribute light uniformly.

In the 1970s, former General Electric employee John Flynn began conducting his own research that studied satisfaction and comfort with the total luminous environment, focusing on subjective impressions of visual clarity, spaciousness, relaxation, privacy and overall pleasantness. Starting a lighting program at Penn State University, he studied people's impressions of different lighted spaces. He concluded that people prefer environments with light on the walls and ceiling. He also concluded that lighting can attract and direct occupants. In one 1973 study, one half of a coffee bar was lighted by wall washers. Customers chose the darker part of the room, facing the lighted walls. When the wall washers were moved to the other side of the room, customers again sat in the darker part of the room so as to face the lighted walls. A new dimension to lighting quality research began here, as Flynn explored visual comfort and preferences to the total luminous environment rather than simply the quantity of illumination on the workplane.

Several years ago, Flynn's research was supported by a PacifiCorp study at the Lighting Design Lab in Seattle. Four identical small offices were constructed. Douglas Designs was contracted to develop three dif-

ferent energy-efficient lighting designs for three of the offices, and a traditional design for the fourth. The participants in the study were asked to report their reactions after experiencing each environment. Short-term test participants completed brief pencil-and-paper tasks. Long-term test participants completed several tasks that included a proofreading test, number entry into a spreadsheet, text typing, reading comprehension and an eight-state mood test. "It's interesting to note that in the eight-state mood test, "results indicated participants [in the traditional office design mockup] to be significantly more anxious, stressed, depressed and regressed." What's also interesting is that there were few productivity variations among the four offices.

#### THE ANECDOTAL EVIDENCE

Most research in lighting and productivity, however, has been anecdotal in a case study form. The NLB for years has been dedicated to promoting productivity benefits of better lighting in its publications and to sharing case studies with the media. Similarly, the Rocky Mountain Institute, located in Snowmass, CO, published *Greening The Building And The Bottom Line: Increasing Productivity Through Energy-Efficient Design* in 1994. This was timely, as many facility managers were beginning to question whether lighting retrofits were adversely affecting productivity. A few of the case studies cited in the publication include:

An upgrade at Lockheed's engineering development and design facility resulted in \$500,000 per year in energy cost savings, plus a 15 percent increase productivity and a 15 percent drop in absenteeism.

At a new West Bend Mutual Insurance facility, an upgrade slashed energy costs by 40 percent while increasing claim-processing productivity by 16 percent.

At Wal-Mart's prototype Eco-Mart, one-half of the store employed enhanced daylight via skylights. The result? Sales were "significantly higher" in that half than the other half of the store.

(Note that the case histories do not mention potential for poor maintenance practices prior to the retrofits, which may over-emphasize the benefits of retrofiting.)

The Rocky Mountain Institute's publication is available by calling (970) 927-3851 or faxing (970) 927-3420.

#### WHERE TO FROM HERE?

"Human beings are obviously very complex," said Dr. Levin. "For this reason, it is difficult to isolate lighting as a deciding factor in performance when there

are so many other factors involved, unless the lighting problem is extreme, such as harsh glare." He said that for this reason, most research in productivity has been anecdotal (as shown above), revealed as case studies that show a link that is apparent but ultimately unprovable.

Dr. Levin added that another problem with productivity studies is that the lighting improvement may not persist, that people will adapt. Therefore, he noted, a method-analysis study must be long-term to be successful, then it must be repeated at another location to verify the results. "Lighting factors must be independent for a study to be credible. The environment and population must be controllable. Many factors should be changed, such as lighting, tasks, ergonomics, heating, cooling and ventilation. This could take years. Once the results are determined, another study must be undertaken at a different place with another population."

Dr. Levin said that research in some form will continue, noting the current high level of interest in linking lighting and productivity.

"There is a push for something to happen," he said.

What we do have to work with are the commonly accepted components of lighting quality, including light level, glare and light distribution. In recent years, to a minor extent audible noise from fluorescent electromagnetic ballasts has been attributed to irritation and headaches, allegedly curable with high-frequency electronic ballasts. Light level calculations are developed partially based on speed and accuracy. We can say that proper light levels avoid a negative impact on speed and accuracy. But comfort and satisfaction have remained elusive to predict.

New lighting research, however, may allow designers to predict visual satisfaction with a luminous environment in the future. We're not talking about the Visual Comfort Probability (VCP) rating of fixtures, which is a determination of what percentage of the population would be likely not to be irritated by glare from a regular array of fixtures in a given size room. VCP is used to assess relative "comfort" of two fixtures.

What we're talking about instead is the movement toward a quality metric, the work of two leading associations that could lead to dramatic results in professional lighting design.

## Off the Wall!

### Introducing the PMT Task Light

Don't be left in the dark when your work station design restricts the use of undershelf task lighting.

Garcy/SLP's new PMT — Panel Mount Task Light is the answer in these situations. It mounts directly to a panel, independent of an overhead shelf or storage bin.

Plus, the PMT offers a distinctive profile, and the latest in energy saving and visual performance features.

It's time to see the light. Call or fax us today.

Garcy/SLP  
209 Kirby Road  
Portland, TN 37148  
**800. 221. 7913**  
Fax 615. 325. 7269



## GARCY SLP

Division of RHC/Spacemaster Corporation

Circle No. 28 on product service card

## THE QUALITY METRIC

"We want to change the way lighting is specified," said Naomi Miller, director of the DELTA program at the Lighting Research Center in Troy, NY and chair of the Illuminating Engineering Society of North America's (IESNA) Quality of the Visual Environment Committee (QVE).

Miller was describing the joint work between the QVE and the International Association of Lighting Designers' (IALD) Metrics of Quality Committee (MOQ) that seeks to identify important factors of lighting quality and lay the groundwork for research that would quantify the quality metrics for use by designers.

"Our ultimate goal is to provide target values that will help designers and engineers specify more comfortable, pleasing luminous environments," said Miller.

The Committees' research to date has been exploratory via workshops, but the road ahead is mapped out with longer tests, more formal experimental designs and naive subjects to evaluate their impressions of various lighted spaces. What has emerged so far is that a holistic design factor coined "volumetric brightness"—which

describes the overall brightness of all room surfaces in the field of view—may be as important as desktop light levels in offices. The result may be both to add another engineering dimension to design of quality lighting as well as validate the true value of quality lighting.

"We're moving beyond the footcandle," said Miller.

She added, "Task visibility is important psychologically, even physiologically. But while people may be happy with 50-75 fc, it's even more important to provide proper reflectances, brightness and distribution to achieve true occupant satisfaction."

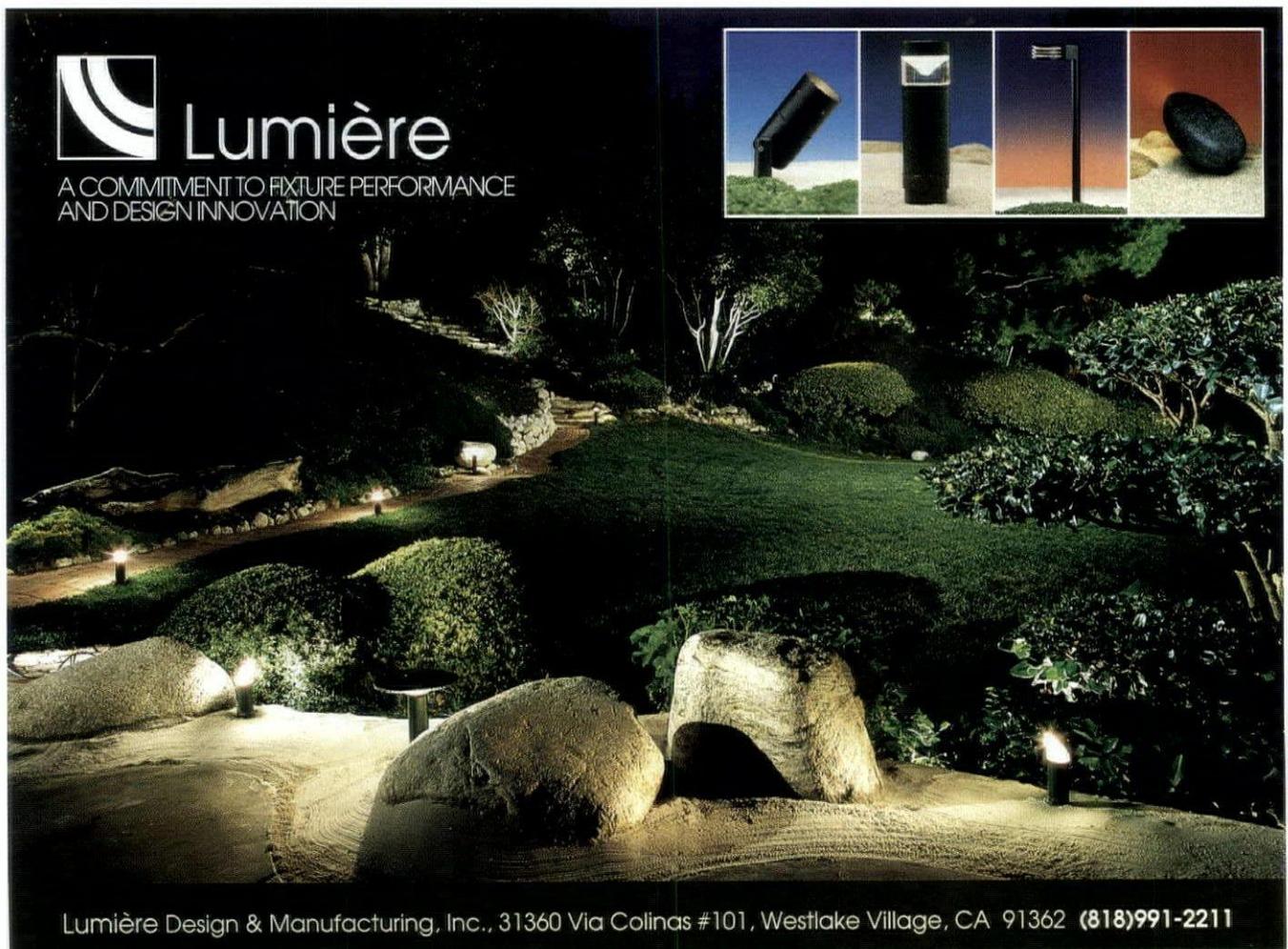
Just one example, Miller pointed out, is a room lighted with fluorescent troffers shielded with "paracube" parabolic louvers. While sufficient light levels on the desktop may be provided, some people find such environments "cave-like," she said—but added that they can be dynamic environments with a little supplemental light added to the ceiling plane and walls.

Miller, Hayden McKay and Peter Boyce, PhD presented the Committees' initial findings at the 1995 IESNA Conference in New York City. The paper was published in the *Proceedings*. To get a copy of the paper, call

the IESNA at (212) 248-5000.

## INTO THE FUTURE

While many organizations are now pointing to a connection between lighting and productivity, other industries are promoting similar connections in the areas of indoor air quality, acoustics and ergonomic office furniture and equipment. Together, these factors are sometimes interrelated in a term called total indoor environmental quality. The good news is that ongoing education from many sides—such as case studies—is helping clients of professional lighting services understand that quality lighting can play a direct role in their workplace strategies. When offering a value-added service, what can be better than an educated customer? We can hope and expect that this will mean clients will size their lighting budgets appropriately and ensure that professional lighting services are contracted. In the business world of the 1990s, the smarter companies are realizing that increasing productivity is much more important and of longer-term benefit than the most dramatic cost-cutting and downsizing. This has the potential to make the lighting professional an essential player in building design and renovation. ■



**Lumière**  
A COMMITMENT TO FIXTURE PERFORMANCE  
AND DESIGN INNOVATION

Lumière Design & Manufacturing, Inc., 31360 Via Colinas #101, Westlake Village, CA 91362 (818)991-2211

Come visit us at Lightfair-Booth #1532  
Circle No. 29 on product service card

## THE POWER OF THE SUN *Integrating Daylight And Electric Light*

BY BARBARA ERWINE, CONTRIBUTING EDITOR

As corporations and institutions increasingly want natural, environment-friendly and energy-efficient indoor environments, nothing delivers quite like the sun. A recent survey of corporate employers showed that the availability of daylight is one of the most important elements of their "ideal workplace" (*Architecture*, October 1993). Conservation, human enjoyment, the bottom line—they all point to daylight as a critical element of contemporary lighting design.

That's where the challenge begins.

True integration of daylighting and electric lighting bridges the work of the architect, lighting designer, daylighting consultant and electrical engineer. Unfortunately, many daylighting projects fail due to a compartmentalized rather than an integrated design approach. Deferred to the final stages of design, "integration" is often merely a synonym for the addition of electronic controls to turn off electric lights when daylight is abundant.

Daylight and electric light...How these two sources work together, or against each other, determines the success of the lighting design—whether it creates a cohesive luminous experience or whether the two lighting systems contradict each other and fight for attention. In this discussion, we will examine the many elements of an integrated design approach.

### DESIGNING FOR DAY AND NIGHT

Lighting orients us, directs our attention and influences our moods to make spaces feel playful, magical, spacious or some other desired effect. These experiences are created by antici-



DICK BUSHNER

pating and controlling what surfaces the electric light and daylight illuminate, how they're focused, their color characteristics and their relative intensities in the space. In addition, daylight changes with the time of day, time of year and weather conditions. Electric light, though intrinsically static, can also take on a more dynamic nature through the use of controls to create lighting moods appropriate for uses throughout the day.

Spaces with both daylight and electric light have the opportunity for two different lighting moods—a daytime one created with both forms and an evening/nighttime one with electric light alone. The lighting design can exploit the temporal nature of daylight and create dramatically different experiences from day to night. At night, electric lighting may highlight different aspects of the space, changing the accent and focus, making surfaces advance or recede in light, or transforming the space from a cheery to a cozy atmosphere. Restaurants,

THE DIFFERENCE BETWEEN DAY AND NIGHT; THE BOARD ROOM AT THE FRANK RUSSELL HEADQUARTERS CHANGES DRAMATICALLY IN COLOR QUALITY, SENSE OF ENCLOSURE AND FOCUS BETWEEN DAY-TIME AND NIGHT-TIME LIGHTING SCENES.

*Barbara Erwine is Daylighting Specialist at the Lighting Design Lab, a facility sponsored by the Bonneville Power Administration and other northwest utilities to promote the use of daylight and energy-efficient lighting in the Pacific Northwest.*

residences, spiritual spaces all have exploited these effects to change the scene with the passage of daylight.

In contrast, the use of a space may dictate a uniform ambiance over time. In an office setting, the work mood and tempo stay constant as daylight waxes and wanes. Here, the electric light can mimic the way daylight is delivered to the space, increasing in intensity grad-

To achieve a smooth transition between daylight and electric light, both sources should illuminate the same surfaces in the space. In the EPUD example, the daylight reflects off the lightshelf and lights the ceiling of the space. Mimicking this performance, indirect electric pendant fixtures also uplight the ceiling, making the transition between daylight and electric light transparent to the occupants.

#### UNDERSTANDING DAYLIGHT LEVELS

Outside the building, daylight levels can peak above 10,000 fc and interior levels in direct sun can top 4,000 fc, potentially overwhelming electric lighting. The intensity of daylight must be clearly understood and controlled to work well with electric lighting. Daylight models, computer simulations and full-scale mockups are important tools for predicting both the quantity of daylight and its distribution across the space.

EPUD OPEN  
OFFICE AREA:  
PERIMETER  
LIGHTSHELVES  
BOUNCE DAYLIGHT  
TO THE CEILING TO  
EVEN OUT LIGHT  
LEVELS ACROSS  
THE SPACE. PEN-  
DANT-MOUNTED  
INDIRECT FIX-  
TURES ALSO  
UPLIGHT THE  
CEILING, SUPPLE-  
MENTING DAY-  
LIGHT WHEN  
NEEDED.

#### MIXING THE MESSAGES

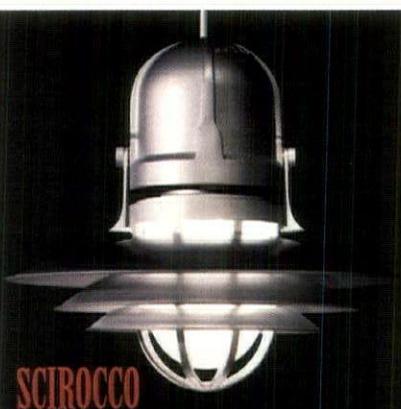
If daylight looks too much like electric lighting, some of its side benefits may be lost. In addition to ambient light, daylight brings views and important information about weather, season, time of day and cardinal direction. If a skylight is covered with a lens that mimics the appearance of a 2x4 fluorescent lensed troffer, then the daylight, perceived as electric light, loses its vitality.

Conversely, the electric lighting may too

ually as daylight recedes. Light levels and mood are maintained whether daylight is present or not. Electric light is used for task and accent purposes frequently in this scenario, but daylight and electric light share the function of ambient lighting. To do this well, the electric lighting must be designed and zoned to respond to the intensity of distribution of daylight across the space.

As an example, let's look at the Emerald People's Utility District (EPUD) building, where relative daylight levels across the space were calculated (see Figure right and next page). The office areas are daylighted by a combination of perimeter windows with lightshelves and internal clerestory glazing. The daylight contours run parallel to the window walls. The electric lighting is designed to follow these parallels. The first row of electric lighting is actually incorporated into the end of the lightshelf. Additional rows of pendants continue this parallel deeper in the space. Since the daylight intensity varies with the distance from the window wall, the rows of electric light are individually photocell-switched in response to the local light levels.





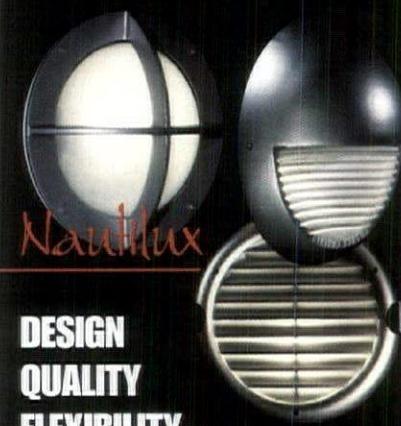
**SCIROCCO**



**BLIZZARD**



**SPECTRUM**



**Nautlux**

**DESIGN  
QUALITY  
FLEXIBILITY  
A LIGHTING STATEMENT  
OUR COMMITMENT.**

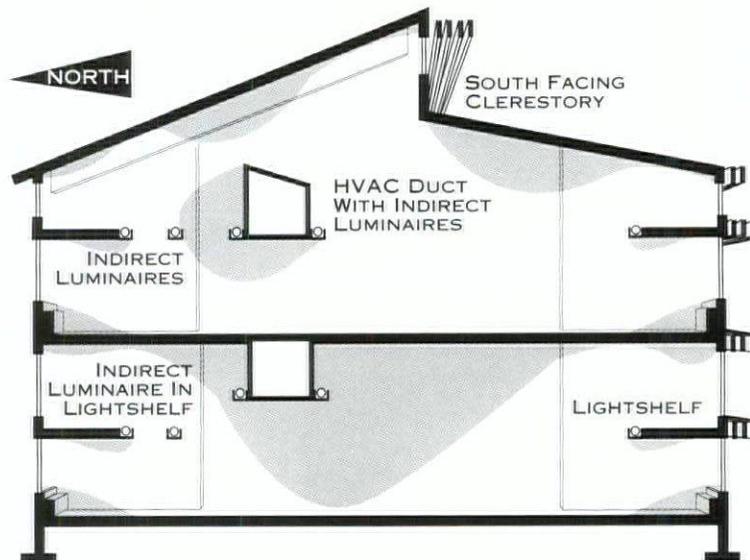
**LUMINIS L.C.**

2005 WEST CYPRESS  
CREEK ROAD #203  
FORT LAUDERDALE FL. 33309  
TEL.: (305) 771-3252  
FAX.: (305) 771-1668  
( CANADA: LUTREX L.C.I. )  
OPEN SALES TERRITORIES

Circle No. 17 on product service card

convincingly imitate daylight. A skylight with electric lights mounted inside it can simulate daylight in the middle of the night. Several lamps with varying color temperatures can even be incorporated to simulate sunrises and sunsets. These systems can give misleading environmental information about daylight levels, which can be experienced as either playful or confusing depending on how it is executed.

Many designs take a middle ground: Electric light mimics the functional, ambient portion of daylight while view windows maintain



the correct information about environmental conditions. Some designs even provide separate daylight apertures for these two different functions of ambient lighting and view. The lightshelf on the EPUD building serves this purpose. It divides the window into an upper daylighting clerestory (for ambient lighting deep in the space) and a lower view window.

**PLAYING WITH COLORS**

Although the color of an electric light source may be specified and relatively constant (ignoring gradual, predictable changes over the life of the lamp), the color of daylight is complex and dynamic. It changes at different times of the day and year, and fluctuates based on weather conditions, pollution levels and building orientation. This variable color texture contributes to the delightful vitality of daylighted spaces.

Except during the sunrise and sunset hours, daylight falls toward the cool (blue) end of the color spectrum. Sunlight is about 5000K in color temperature; an overcast sky is 6500-7500K; and a clear blue northwestern skylight peaks above 20,000K. Tinted glazings also alter the spectral transmission of daylight and affect

EPUD BUILDING  
DAYLIGHTING SECTION:  
DAYLIGHT LEVELS  
VARY ACROSS THE  
SPACE IN RELATION TO  
THE DISTANCE FROM  
THE PERIMETER  
WINDOWS AND  
CLERESTORY. THIS  
CREATES CONTOURS  
OF EQUIVALENT  
DAYLIGHT LEVELS THAT  
RUN PARALLEL TO THE  
WINDOW WALL.

its color temperature. Green tints move the transmitted daylight to a cooler temperature. Bronze moves it warmer. Gray tints have the least effect on color.

Color temperatures of electric light are generally warmer, ranging from about 2700K for incandescent light up to 7500K for daylight fluorescent. Though a particular color temperature is initially specified, it may change as the lamps age or as they are dimmed. Examples: Metal halide lamps increase in color temperature when dimmed (an effect minimized for coated lamps), while incandescent lamps decrease in color temperature.

Because of daylight's bias toward cooler color temperatures, attention is drawn to the electric lights when their color temperature is very low. This can be used to an advantage with decorative fixtures and is exaggerated with the use of brass near the lamps. When the opposite effect is desired—making the electric light blend neutrally with daylight—some designers recommend using very high color temperature lamps. But we respond differently to daylight and electric light, and

many people aren't comfortable with crisp blue interior electric lighting.

Obviously, the choice of color temperature is a personal preference. My own preference is to stick closer to the color temperature palette we traditionally design with and avoid extremes that might alter the ambiance of the space. One may choose to move the color temperature selection *slightly* higher in response to the daylight. Example: If we usually work with 3000K, move to 3500K. But it is equally important to be consistent in the color temperature of the electric lighting (inconsistencies draw attention) and utilize electric sources with a high color rendering index rating (CRI>80) to complement the inherently high color rendering capabilities of daylight.

#### INTEGRATION AND CONTROL

As the lighting scheme is translated into architectural elements and fixtures, the design should integrate, not merely layer, the components for each system. "Shared fixtures" like the EPUD lightshelves, which also incorporate the first row of electric lights,

reduce the number of components, minimize cost and ensure compatibility of systems. New products now in development are combining windows and skylights with electric lights, reflectors, light pipes and controls for integrated delivery systems. In the future, these systems can be purchased and installed as a unit.

The electric lighting will have to be controlled, and this presents aesthetic, transition and energy-saving opportunities. Daylight harvesting controls that switch or dim electric lights in response to daylight save energy and improve lighting quality by reducing overlighting during daylight hours. Monitored buildings have demonstrated lighting energy savings of over 50 percent with the use of daylighting controls. When lighting design is approached in the integrated way described above, the design holds within it the logic necessary for the application of controls. As noted for the EPUD building, since the electric lights are aligned to follow the daylight contours, they are also optimally arranged to be switched or dimmed in response to the daylight. ■

**The 19th Century.**

**The 20th Century.**

**Introducing the task light for the 21st Century.**

**The remarkable Adjustable Task Light from Waldmann.** The arm and head each swivel 180° horizontally, and the head rotates 360° making it possible for anyone to easily position light precisely where it's needed. Our universal panel bracket fits more than 60 different open-office furniture systems, or specify one of five other mounting options. Call us for a demonstration today; we'll have you looking at the 21st Century in a whole new light.

**Waldmann Lighting** **W**  
making light work.

1.800.634.0007 • FAX: 847.520.1730

## WHEN THE EYE OF THE BEHOLDER IS ELECTRONIC

### *Lighting Videoconferencing Spaces*

BY CRAIG DILOUIE, EDITOR-IN-CHIEF

Virtual reality, virtual officing—these are just two trends accelerating the high-tech world we work in. We can even have virtual meetings. Videoconferencing is growing by leaps as prices come down and user cost savings go up. And with the delicate lighting requirements posed by this application, lighting professionals with the right savvy can enjoy a virtual increase in business by tapping this emerging market.

#### MARKET SNAPSHOT

According to the International Teleconferencing Association, in 1993 the number of two-way interactive videoconferencing rooms on the continent doubled from 1992 to over 15,000. Reasons for the popularity—the specialized phone lines needed are more available, and equipment costs have dropped. But most importantly, videoconferencing saves corporations money by slashing travel and increases productivity by saving time.

To access videoconferencing's capabilities, a company can either rent a facility from a provider such as Connexus (Dallas) or VideoNet (Essex, MA), purchase a portable package, engage a network of powerful personal computers or build its own on-site facilities for \$40,000-\$100,000+. In this discussion, we will focus on videoconferencing rooms, although many of the same general lighting principles apply to all options.

#### THAT'S "LIGHTS! CAMERA ..."

Most issues involving quality lighting deal with how effective an environment is in creating the desired visual sensation. With videoconferencing, there is little room for compromise. While the human eye is able to adjust to light levels from less than a tenth of a footcandle under moonlight up to 10,000 fc under sunlight, the videocamera's electronic "eye" isn't nearly as forgiving. An inappropriate lighting design that fails to meet the delicate demands of the videoconferencing environment will create a poor image for the communicator as translated by the electronic eye, defeating both the purpose and the investment in expensive technology.

As an example, we can recall Senator Bob Dole's much-criticized response to President Clinton's State of the Union address earlier this

year, after which Dole blamed the lighting for making him look haggard. Dole told *Newsweek*, "You know lighting. Lighting can kill you" (Feb. 5, 1996).

#### LIGHTING TECHNIQUE

"Bringing communicators face to face electronically adds an important visual dimension to communication," said Chris Ripman, RA, IES, IALD, president and principal consultant of Ripman Lighting Consultants of Belmont, MA. "But the camera's eye is very dependent on the *quality* of lighting—beam control, distribution, source brightness, glare, brightness ratios, absolute light levels—for depth perception, facial rendering and an overall pleasant presentation of the conferee." Ripman identifies four major issues to consider when lighting a videoconferencing facility, in addition to the criteria of standard lighting practice, and notes that these issues should transcend lighting into interior design as well.

1. *How the space is used.* Is the communication interactive and intimate, or primarily one-way (training, for example)? What is the maximum number of conferees in a typical session? Consider other uses of the room, keeping in mind that most videoconferencing rooms also serve non-videoconferencing uses.

2. *Light levels and quality.* Our challenge is to add depth and dimension to what is translated by the camera into a two-dimensional image. Flattering vertical illumination must be provided on the faces of conferees. Background surfaces within the camera's field of view must be appropriate in detail and texture as well as appropriately lighted. According to Ripman, 5-10 fc<sub>v</sub> is usually sufficient for the camera to pick up a single face, but 50-70 fc<sub>v</sub> may be needed to create sufficient depth of field to capture all conferees in a large room. Conferee/background brightness ratios should be kept between 3:1 and 5:1. Lighting sufficient for videoconferencing requirements will usually provide adequate illumination for horizontal tasks on the table surface such as reading and writing.

Ripman notes that complete control over color balance is easily achieved with today's video technology, so the designer can use any color



FIGURE 1

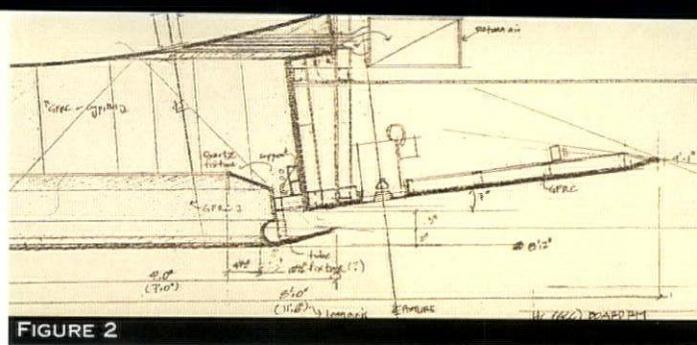


FIGURE 2

temperature desired. Experience shows that 3500K fluorescent lamps combine well with halogen to create color contrast in the transmitted image.

3. *Brightness and glare.* The most common enemy for both the human eye and the camera's eye is direct disability glare. Even relatively low-brightness sources such as fluorescent can cause a problem if they fall within the camera's field of view because they affect the automatic exposure balance of the recorded image.

4. *Lighting equipment.* Indirect fluorescent powered by high-frequency dimmable electronic ballasts are found to be well-suited for ambient lighting and wallwashing, and can be an excellent glare-free source for definition of the conferee when complemented by point sources used for key lighting. The dominant vector of lighting on the face should come from both sides of the face at an approximate 45-degree angle in both plan and a 60-degree angle in section (or greater). Parabolic fluorescent downlights can be used, especially where room layout is flexible, though Ripman has found that the inclusion of indirect lighting generally enhances the space for the occupants. Shielded fluorescent sources can be placed in the conferee's field of view, if desired, with minimal glare due to the source's relatively low surface brightness.

PAR and MR16 lamps are ideally suited for key lighting, which defines the conferee's silhouette, adding dimension, depth and separation from the background, as well as desirable sheen and highlights to the conferee's hair. Ripman prefers halogen for long life, energy efficiency and cooler color temperature. Lighting from directional sources such as these should never fall on the camera lens directly.

Multiple layers of lighting can be controlled by preset dimming systems or a series of manual controls. The preset system affords maximum user ease and permits instant access to the full range of lighting scenes that may be required during a videoconferencing session—such as AV projection, conferee presentations, videoconferences and standard meetings. Preset camera control systems (tilt, pan, zoom) are also available, and can be interfaced directly with the lighting control system.

"Videoconferencing facilities are intensive, demanding multitask environments," said Ripman. "As such, they present the lighting designer with a challenging set of problems and limitations—and a rewarding opportunity to make a

significant contribution to the quality of communication. The easier technology is to operate, the more it becomes transparent—receding into the background and leaving the user empowered to communicate effectively, supported rather than hampered by the environment."

**HARCOURT**

At the new world headquarters of Harcourt General in Chestnut Hill, MA, Ripman worked with architects Phil Seibert and Rico Cedro of The Stubbins Associates and AV consultant Ric Bayly to create an IES and ASID award-winning facility. They worked together closely to ensure that the room and lighting designs evolved toward an integrated solution.

By introducing a sculptural CFRG ceiling element—nicknamed the "Stetson Hat"—which repeats the oval shape of the custom pearwood table below and creates a central vertical axis for the room, Ripman was able to conceal almost all light sources from view while providing effective facial definition and a dramatic, flexible palette of lighting effects to suit the various uses of the room. A preset lighting control system integrated with the touchscreen system controls not only lighting, but also motorized window shades and AV projection systems (slide, video, document camera and auxiliary remote camera).

In Teleconferencing Mode, all systems in the room operate at full output (see Figure 1). Above the brim of the hat, a curved run of "ramp" high-output compact fluorescent fixtures provides ambient light for the room by reflection off the ceiling. The key to the room's success lies within the hat: Two curved runs of similar fixtures, concealed behind the floating "hatband," provide 70 fc<sub>v</sub> of glare-free indirect lighting on the faces of conferees (see Figure 2). Background brightness is achieved via dimmed lensed two-lamp 18W compact fluorescent wallwashers and downlights, concealed from normal viewing angles by the brim of the hat.

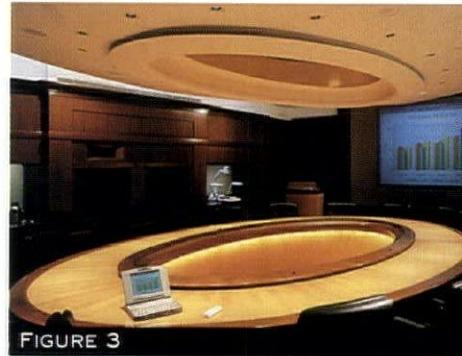


FIGURE 3



FIGURE 4

AT HARCOURT GENERAL, CHRIS RIPMAN INTRODUCED A "STETSON HAT" ABOVE THE TABLE THAT CONCEALS NEARLY ALL LIGHT SOURCES, PROVIDES GOOD FACIAL DEFINITION AND SERVES AS A FLEXIBLE PALETTE FOR VARIOUS LIGHTING EFFECTS.

In Presentation Mode (see Figure 3), general lighting is dimmed while MR16 lamps in deeply baffled fixtures in the hat brim create task lighting on the table below. PAR36 VNSP lamps are used to create focus on the perimeter and the podium. Fixtures are positioned to minimize veiling reflections on the rear projection screen behind the podium.

In Meeting Mode (see Figure 4), wall illumination is decreased and "central axis" elements (dimmed fluorescent within the hat, dimmed T6 incandescent concealed in the lip of the table, and the MR16 downlights) are brought up to create a central focus for the room.

This room, the result of an intense and interactive collaboration between architect, lighting designer and audiovisual consultant, has been well received by the owner and is in daily use, with lighting and architecture providing effective and unobtrusive support for communication of all types.

**CITICORP OFFICE**  
Citicorp, parent of Citibank, a global

financial company with operations in 97 countries, wanted to update the boardroom at its New York City headquarters to include multilocation videoconferencing in addition to non-video meetings and slide presentations. The challenge was to provide this capability while preserving a traditional boardroom appearance. There could be no visible indication of video capability, especially at the ceiling level. The project was undertaken by Swanke Hayden Connell Architects and Renée Cooley Lighting Design of New York City. (Video consultant was Peirce Phelps, Inc., Philadelphia.)

With the overall vision understood, the design goals were developed:

1. Deliver at least 60  $fc_v$  on conferee faces and 20  $fc_v$  on background surfaces during videoconferencing using a combination of halogen, standard incandescent and fluorescent light. This was the highest illumination that could be hoped for without adding ceiling fixtures directly over conference table.
2. Retrofit as many existing fixtures as possible to produce more light.
3. Update the dimming system.

4. Maintain consistent color in the 3000K-3100K range.

5. Use standard fixtures that are in stock.

Renée Cooley Lighting Design applied three layers of lighting to the room, starting with a series of dimmable incandescent downlights that put light on the conferees' faces and provided task light. The existing architectural cove was fitted with a combination of high-output and standard fluorescent lighting that would provide indirect light as ambient fill to soften shadows and erase hot spots on conferees' faces and heads. Finally, dimmable linear incandescent slot and wall-washers were specified on the room's perimeter to minimize contrast between conferee and background, add depth and provide task lighting for any observers. (See Figure 5.)

"The challenge of this project was to light an executive meeting space that could architecturally transform into a videoconferencing center, demanding a new set of lighting capabilities from the same lighting system," said Emily Monato, principal of Renée Cooley Lighting Design. "Our solutions were carefully planned and the result of teamwork."

*New*  
LIGHTING SOLUTIONS from

**ELECTRIX**

contract division

- Featuring shields and hoods for controlled light output.
- Linear Modules custom cut per spec to accommodate all energy saving PL compact fluorescent and T-8 lamps.
- HPF/NPF ballasts integrated in extruded housings.
- US made.

FAX FOR LITERATURE OF FIXTURES SHOWN PLUS ADDITIONAL FIXTURES:

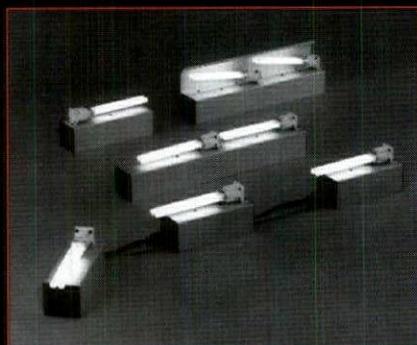
FAX: 203-624-7545

contract division

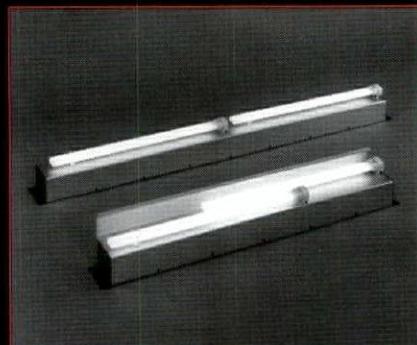
**ELECTRIX**

**LINEAR MODULAR SYSTEMS™**

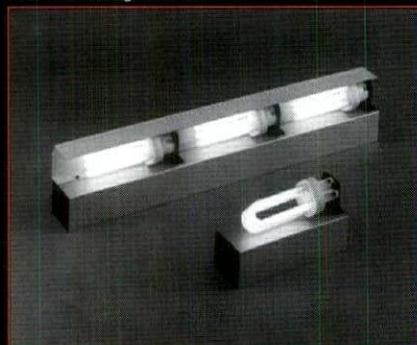
45 Spring Street New Haven, CT 06519



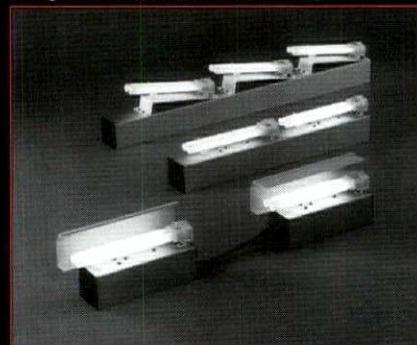
Inter-connecting Modules



Straight-Run Modules-All Modules to Spec



Shielded Modules for Controlled Light Output

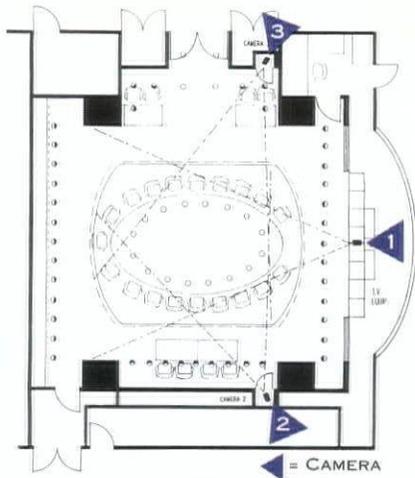


Ramps and Other Module Configurations Available

**ADJUSTABLE ANGLES  
QUICK-CONNECT**

**EASY-FLEX™**

Circle No. 32 on product service card



**FIGURE 5**

"The exact placement of fixtures was carefully coordinated with the furniture design and placement, the monitor locations and degree of tilt, and the three camera locations," she said. "All of the fixtures were assigned to one of a dozen zones on the dimming system so that the critical final light balancing could be done easily and precisely."

Monato pointed out that A-lamp downlights, with help from the high-output fluorescent cove,



**FIGURE 6**

RENÉE COOLEY LIGHTING DESIGN APPLIED THREE LAYERS OF LIGHTING TO CITICORP'S NEW YORK CITY HEADQUARTERS' BOARDROOM, SATISFYING MULTIPLE TASK ENVIRONMENTS WITH THE SAME LIGHTING SYSTEM.



**FIGURE 7**

are capable of delivering 55-65 fc, and 80-110 fc, when the room serves as a videoconferencing space (see Figure 6). Perimeter walls receive 18-28 fc, from halogen wall-washers at full output.

For non-video meetings, the halogen wall-washers are dimmed to 60 percent with the high-output fluorescent lamps in the cove extinguished and the standard fluorescent lamps in the cove lit (see Figure 7).

The perimeter lighting adjusts up and down based on video or non-video need, as shown in both Figures 6 and 7. Some perimeter light, said Monato, is essential around video monitors to help balance screen brightness with surrounding surfaces. ■

**It's no secret why we're one of America's fastest growing accent and task lighting companies.**



The secret's out. W•A•C Lighting has become a major national supplier of precision crafted track lighting and low-voltage recessed fixtures.

W•A•C fixtures are engineered for both residential and commercial applications.

W•A•C fixtures that use low voltage halogen lamps offer precise beam control. Moreover, they are energy efficient, operate cooler, and provide a whiter, truer light.



Visit us at Booth #1466 at LightFair

- LOW VOLTAGE • LINE VOLTAGE • 3-WIRE & 2-WIRE TRACK
- MINIATURE RECESSED • HOUSINGS • TRIMS • TRANSFORMERS
- BUTTON LIGHTS • SURFACE MOUNTS • UNDER CABINET

CORPORATE OFFICE: 113-25 14<sup>TH</sup> AVENUE  
COLLEGE POINT, NY 11356  
TEL: 800-526-2588 ■ FAX: 800-526-2585  
DALLAS SHOWROOM—DALLAS TRADE MART #303-7,  
2100 STEMMONS FREEWAY—DALLAS, TX 75207



Circle No. 33 on product service card

## OUTDOOR & LANDSCAPE LIGHTING

### *The Quiet Revolution*

BY GARY MARKOWITZ, CONTRIBUTING EDITOR

At night, the cityscape is a sea of lights. The montage of outdoor lighting in many ways defines the city's character at night, defines the community, defines each building, brings nature into sculpted view. After grimacing at the orange glare of municipal (low-bid) street lighting, we pause to appreciate a building meticulously sculpted with concealed sources. Some buildings are awash with light, others reveal efficiently highlighted key architectural features. In many ways, outdoor and landscape lighting plays an integral role in mankind's quest to "scorn the darkness" and beautify the world around us.

In the realm of design, exterior lighting provides an arena in which the lighting designer is set free to implement an arsenal of new-fangled technologies, expanding the old bag of tricks. The selection of industry improvements now available includes new light sources, more reliable ballasts, increased availability for multi-voltage applications, and a wider variety of ingeniously designed light fixtures. In this article, we will discuss some new developments in outdoor and landscape lighting and elements of a successful design.

#### DESIGN CONCEPTS

Surprisingly, some facilities professionals still believe that the purpose of outdoor lighting is simply for security and safety. Luckily, many conservation commissions across the country request that designs for commercial/ industrial property developments blend in harmoniously with the existing landscape. This is where lighting designers can use their technical knowledge, pure imagination and intuitive design skills to make an architectural statement with light.

Proper planning is essential. The first step is to fully understand the environment to be lighted, the architectural features, the age of the area, the general demographics. An on-site visit, perhaps with a camera, could be helpful. Back at the office, the design process is fairly straightforward. Selection of fixtures, light sources and the electronic components is fairly easy when designing street or pedestrian lighting. Lighting

*Gary Markowitz is a contributing editor to Architectural Lighting.*

properties and their adjoining landscapes is quite a different story, however, as system selection is not always a simple matter of floodlighting and a few bollards. The current state of the art combines technologies. Whether using line voltage, low voltage or the current "rage" of fiber optics, the design project can succeed only after much preparation and simulation.

In-depth preparation and planning often requires several passes at a number of scenarios before any final decisions are reached. All of the approaches may share common concerns such as cost, maintained uniformity, quality, extraneous light control (light pollution) and heightened visual/color acuity.

By varying the light source (wattage and family), the fixture type (direct, flood, spot, cut-off, landscape, wall pack, etc.), installation characteristics, and variety of product, the designer is faced with a significant task of sifting through piles of data. In many cases, the designer may utilize sophisticated computer software packages that can simulate the final results within minutes, saving countless hours. The process of scenario elimination generally features point-by-point calculations, a full analysis of life-cycle costing, construction scheduling and perhaps a fully lighted layout presented via a flying three-dimensional tour of the finished product.

#### A CLASSIC LOOK

Years ago, the use of gas lanterns dressed in swirling castings charmed the nighttime streets. Although gas lanterns has become extinct, the form of these fixtures has stood the test of time. These lantern-style fixtures have reappeared in abundance in many of America's founding cities. The classic looks in the lines of Hadco, Holophane, Wellsbach, Whatley and others



CAST-IRON  
ORNAMENTAL  
LAMP POSTS FROM  
W.J. WHATLEY  
ADD AN HISTORIC  
MOTIF TO THIS  
DENVER  
SUBURB.  
CIRCLE NO. 70

BRASS OUTDOOR  
FIXTURE FROM  
KIM LIGHTING.  
CIRCLE NO. 71



FOR WALKWAYS,  
ENTRYWAYS AND  
DRIVEWAYS, EVEN  
ILLUMINATION  
FROM BETA  
LIGHTING WITH  
UPLIGHT FROM A  
GLARE-FREE  
REFLECTOR.  
CIRCLE NO. 72



help to create a nostalgic look in the modern urban nightscape. During the daylight hours, these classically styled fixtures sport a look that fits into the city culture. During the evening hours, the mix of aesthetics and improvement in visibility at dusk transforms the darkness to urbanite safety.

#### T H E S P A C E A G E

For those desiring a slick, space-age fixture design coupled with seemingly impeccable photometric performance for general site/lot lighting, the ever-present shoe-box design has been evol-

ing. New shapes and distributions, variations on the original cobra-head design, utilize advanced optics to control beamspread, glare and spillage.

The modified cobra-head family is flanked by another group of fixtures carrying descriptors such as Contracline, Pericline and Conquest, utilizing inverted conical reflectors. All fixtures within these families are designed to improve the visibility through control of glare and enhanced uniformity.

#### L A N D S C A P E O P P O R T U N I T I E S

Landscape lighting offers homeowners the

L A N D S C A P E  
L I G H T I N G  
S H O U L D  
E N H A N C E T H E  
N A T U R A L C O L O R  
O F L I G H T E D  
O B J E C T S .  
F I X T U R E B Y  
I N T E R M A T I C .  
C I R C L E N O . 7 3

## tips for great outdoor lighting

**1** Work with manufacturers that "specialize" in the product. This will save several steps, possible embarrassment and much heartache by receiving proper technical support.

**2** Get the right technical advice. Not sales! Obtain fixture photometry on

disk, or use the manufacturer's representative for basic calculations.

**3** Perform a bench-top examination of the actual fixtures, looking for quality of workmanship, types of materials used, electrical components, optical components, the finish of the housings,

the fixture's overall aesthetic appeal and the maintainability of the components. If possible, visit actual installations to ensure the product lives up to its advertising.

**4** The light source should be selected to enhance the natural colors of the objects to be lighted without offending the observer. Landscape fixtures need to be concealed, nearly invisible during the daytime.

LEFT: VANDAL-RESISTANT LANDSCAPE LIGHTING BOLLARD FROM ARCHITECTURAL LANDSCAPE LIGHTING (ALL) FOR COMMERCIAL AND RESIDENTIAL APPLICATIONS. CIRCLE NO. 74

CENTER: FIBER-OPTIC LANDSCAPE FIXTURES FROM FIBERSTARS ARE NOT AFFECTED BY NORMAL HEAT, HUMIDITY OR WET WEATHER. CIRCLE NO. 75

means to enhance and personalize their landscapes and driveways with well-placed pools of light. The large home outlet stores sell several varieties of do-it-yourself kits, many made by cheap "bang 'em out" manufacturers. Only the authentic high-quality products designed and manufactured by companies such as Architectural Landscape Lighting, Bega, Fiberstars, Hydrel, Intermatic, Kim Lighting, Lumiere, Sterner, Stonco and others offer built-in reliability.

One design consideration in landscape lighting is whether to use line-voltage or low-voltage fixtures. The benefits of low-voltage systems are found in the low installation cost via direct-burial wiring, ease of installation, simplicity of control, high-CRI sources and the rugged construction of the fixtures. There are some minor disadvantages, however. There are not many choices outside slight variations on the toad-stool mushroom theme. Low-voltage sources are generally limited to low wattages and may require the addition of line-voltage sources for supplemental lighting. What's more, the wiring should still be run below the frost line (not necessary, but good practice). In contrast, line-voltage systems allow us to bring

line voltage to any point along the installation route, giving the convenience of an installed electrical outlet (NEMA 3R enclosure) in the middle of the garden or next to the pool. The choices are fairly broad and can satisfy most design appetites.

The most interesting developments in landscape lighting come from a relatively new application for a technology popularized during the psychedelic era. Next to the "lava-lamp," the glass fiber sculpture was one of the more fascinating toys of the era. No longer a toy, fiber-optic lighting is now a powerful tool for landscape designers. The benefits of fiber-optic lighting in landscape applications include no heat, no electricity, simplified maintenance and ease of use in wet applications.

Companies making innovative products with a support system to match are few. Companies such as Fiberstars and LSI, among others, offer outstanding value and performance. Continuing advances in light sources are making the choice of fiber optics more attractive than ever. Watch for the Philips QL lamp with a 60,000-hour rated life and the "sulfur" lamp to make appearances in the light engine area. ■



PAR56 ACCENT AND FLOOD ILLUMINATORS FROM LUMIERE ARE BUILT FOR HARSH OUTDOOR ENVIRONMENTS. CIRCLE NO. 76

**5** Fixture materials today include more aluminum than steel, and not much plastic. According to Anne Robinson of Omni-Lite in Burlington, MA, we're seeing "not much plastic due to how it reacts with cold weather ... UV-stabilized acrylics are more brittle and don't hold up as well. Polycarbonates are more stable in outdoor weather."

There is a trade-off as polycarbonate tends to yellow over time. Of course, there are certainly other (more natural) choices available for fixture housings.

**6** In area lighting, the trend is toward using more metal halide light sources than high pressure sodium sources. This is due to improved

lamp stability and efficacy.

**7** Once installed, landscape lighting should appear to emulate filtered moonlight.

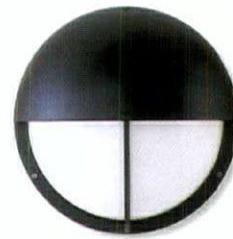
**8** Select components that simplify installation and reduce maintenance costs.

# BEGA

BEGA "Classics", often copied...  
...but never equaled.  
Seventeen years ago BEGA created  
and introduced the "guarded look"  
outdoor wall and ceiling luminaires  
which have become classic designs.  
Newly updated to accept  
new lamps and options.

(805)684-0533  
FAX (805)684-6682

**Circle No. 34 on product service card**



## AT THE DAWN OF A NIGHTTIME LUMEN

BY CRAIG DILOUIE, EDITOR-IN-CHIEF

The radiant energy emitted by a light source capable of producing a visual sensation, what we commonly call luminous flux or "light output," is measured in lumens, a unit developed in the 1920s. However, the lumen is based on sensitivity of components of the human eye under daytime light levels. Under lower nighttime light levels, the eye's sensitivity to color and detail is different, particularly in regards to peripheral vision. While researchers in the 1950s developed a separate set of values for nighttime vision, light sources continue to be specified today for parking lot, security, roadway and other nighttime applications based on the lumen.

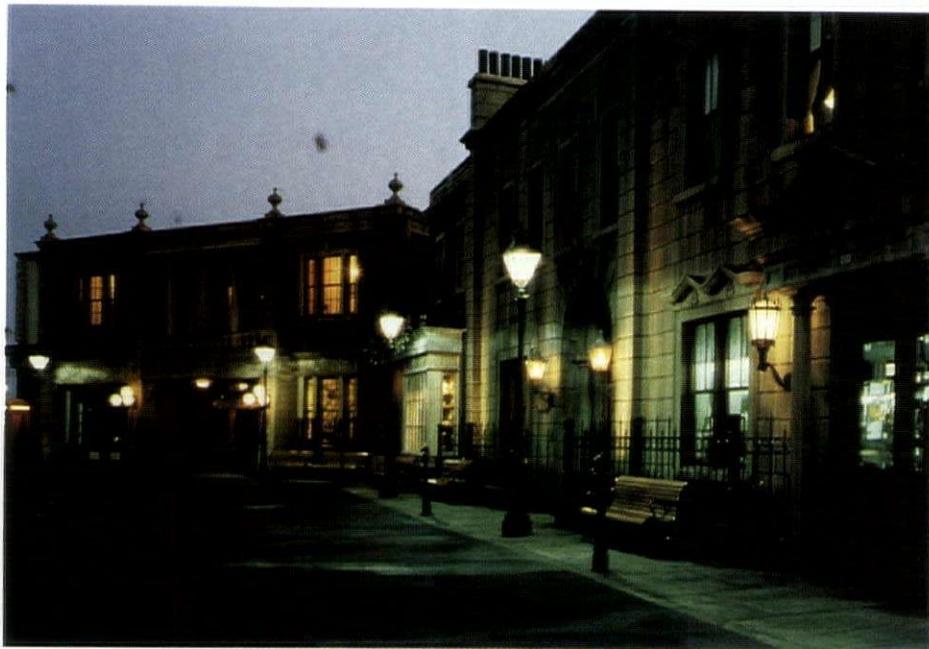
"For daytime light levels, such as standard office tasks, the lumen works well," said Mark Rea, PhD, director of the Lighting Research Center in Troy, NY. "But the eye shifts in spectral

ditional *photopic* (daytime) lumen. A mesopic lumen is a blend of scotopic (rod) vision and photopic (cone) vision—rods and cones being components of the human eye.

Should the research be accepted and published in the next edition of the IESNA's *Lighting Handbook*, Dr. Rea predicts there will be a major transformation in how outdoor lighting—particularly roadway lighting—is specified.

"Not only will we see nighttime lumens published for outdoor sources, but new efficacies will result, with bluer and whiter light sources coming out on top," said Dr. Rea. "New light sources will likely be developed, but more significantly, standard high pressure sodium light sources now considered more efficacious than metal halide will be less than half as energy-effective as bluer metal halide."

IN TORONTO, 40,000 METAL HALIDE LAMPS FROM OSRAM SYLVANIA REPLACED INCANDESCENTS THAT, ACCORDING TO TORONTO HYDRO, WILL SAVE THE CITY MORE THAN \$30 MILLION OVER THE SYSTEM'S LIFE. WITH NEW RESEARCH RESULTING IN NEW EFFICACIES, WILL METAL HALIDE BE THE NEXT "KING OF THE ROAD"?



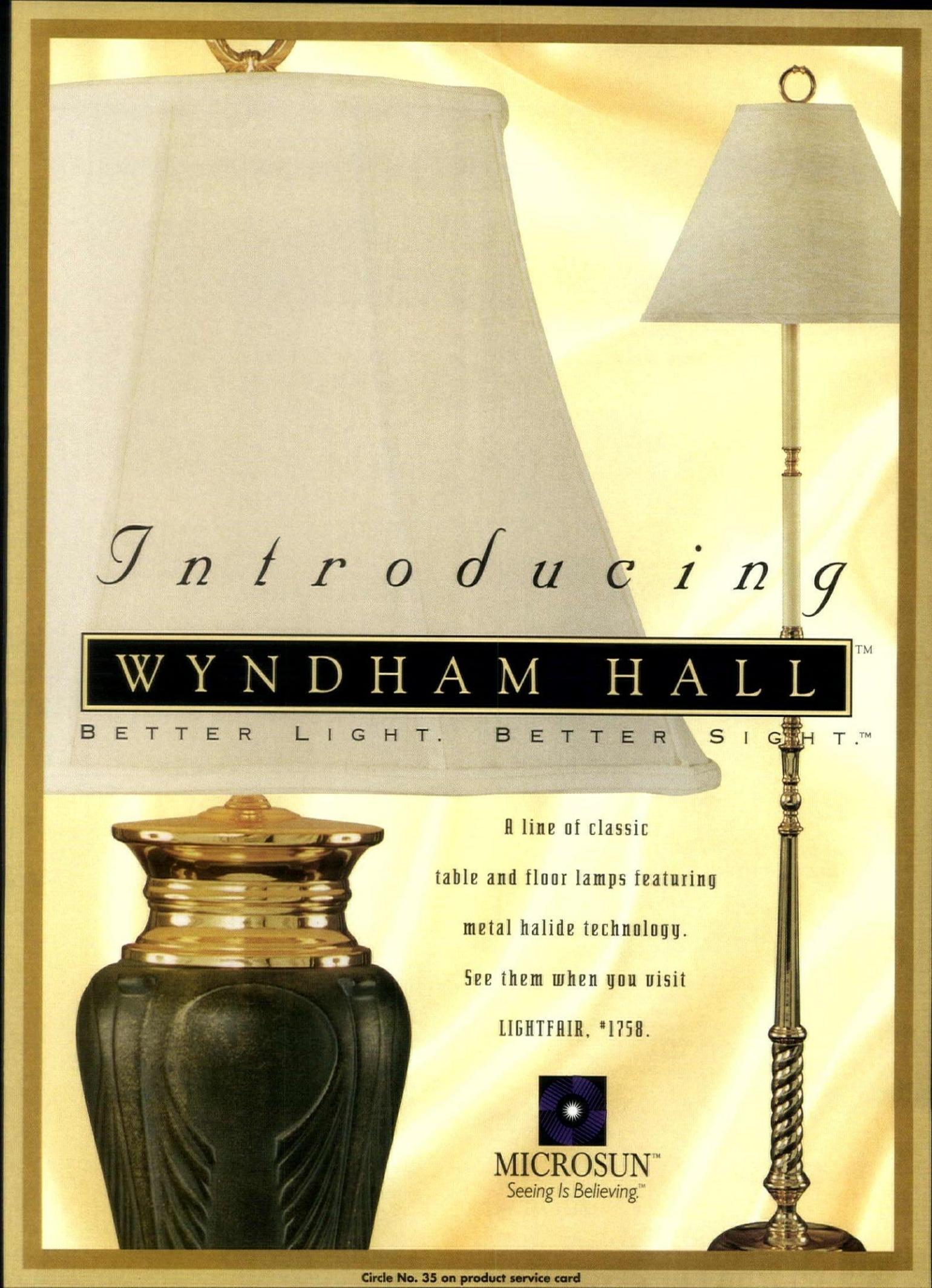
sensitivity as light levels are reduced to those typical for night vision. Under night vision, for example, the eye is much more sensitive to spectral colors at shorter wavelengths, such as blue."

According to Dr. Rea, research conducted at the Lighting Research Center will be provided to the Illuminating Engineering Society of North America (IESNA) for consideration on how to address nighttime vision with a *mesopic* (nighttime) lumen rather than the tra-

"In the future," he added, "we predict that metal halide will be king of the roadway."

The three major lamp manufacturers, said Dr. Rea, have already begun jointly sponsoring continued research in this field, with an eye on developing new products.

Dr. Rea will present findings at this year's IESNA Conference in Cleveland, but advance copies of the report are available now by calling the Lighting Research Center at (518) 276-8716. ■



*I n t r o d u c i n g*

**WYNDHAM HALL**™

B E T T E R   L I G H T .   B E T T E R   S I G H T .™



A line of classic  
table and floor lamps featuring  
metal halide technology.

See them when you visit

LIGHTFAIR, #1758.



**MICROSUN**™  
*Seeing Is Believing.™*

**T**his special presentation of state-of-the-art lighting equipment, which appears in the publications of the Commercial Design Network—*Architectural Lighting, Contract Design* and *Facilities Design & Management*—includes information on a range of products from decorative and outdoor fixtures to lamps. The names, addresses and telephone and fax numbers of manufacturers have been listed in addition to reader service card numbers.

**ARCHITECTURAL  
LANDSCAPE LIGHTING, INC.**



2930 S. Fairview St.  
Santa Ana, CA 92704  
Tel.: (800) 854-8277  
Fax: (714) 668-1107

Product Shown: LL-10 vandal-resistant low-level outdoor lighting bollards feature sturdy cast aluminum "fins," which surround the length and circumference of a one-piece lamphead. The extruded aluminum post is rewired and UL-listed for wet locations. A range of heights; fade-, dent- and scratch-resistant finishes; and light sources may be specified. ALL, a member of the JJI Lighting Group, Inc.,

manufactures a broad array of in-ground and above-ground pedestrian-level, advanced design outdoor lighting fixtures.

CIRCLE NO. 100

**BEGA**



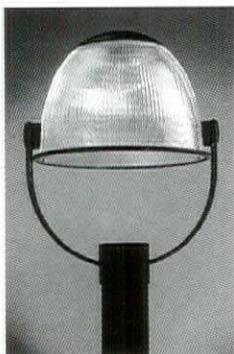
1005 Mark Ave.  
Carpinteria, CA 93013  
Tel.: (805) 684-0533  
Fax: (805) 684-6682

Product Shown: The clean, high-tech look of this new steplight series from Bega is accomplished by combining a precision-cut stainless steel faceplate with an

internal micro-louver film which develops 30-degree cut-off for brightness control. UL-listed.

CIRCLE NO. 101

**BETA LIGHTING**



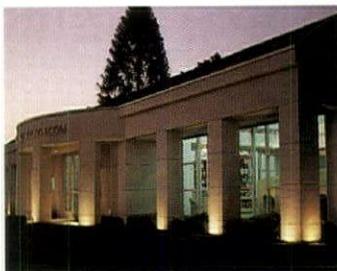
1200 92nd St.  
Sturtevant, WI 53177  
Tel.: (414) 886-2800  
Fax: (414) 886-2779

Product Shown: Beta Lighting introduces a new addition to its popular Architectural/Area family of fixtures. The new Prismatic Area Light (BAH Series) features even illumination and uplight from its highly efficient, glare-free reflector. Available in clear top or partial shroud, the new fixture accommodates 70W-250W HID lamps. The pedestrian scale Prismatic

Area Light will complement any walkway, entryway or driveway. A slide-in ballast assembly reduces fixture weight by allowing stacked components to be hidden under the pole cap. A variety of mounting styles is offered. UL-listed.

CIRCLE NO. 102

**B-K LIGHTING, INC.**



2720 N. Grove  
Industrial Drive  
Fresno, CA 93727  
Tel.: (209) 255-5300  
Fax: (209) 255-2053

Product Shown: The Adjustable Well Star can be used in the most rugged applications. The solid, cast-brass well cover and tempered-glass

lens allow the Adjustable Well Star to be used in drive-over or walk-over applications. Three concealed, recessed, stainless steel set screws for well cover attachment make the Adjustable Well Star virtually tamper-resistant. UL-listed.

CIRCLE NO. 103

**COUGAR WORLDWIDE, INC.**



P.O. Box 90610  
 Pasadena, CA 91109-0610  
 Tel.: (818) 405-0742  
 Fax: (818) 405-8818

Product Shown: New technological breakthrough in fluorescent lighting replacement products. Uses no energy whatsoever with Electric Plastic Fluorescent Light self-illumination. Up to four wireless Light Thief units capture

light from a single conventional fluorescent floodlamp, and reproject it 360 degrees with equal brightness for 100 percent savings in energy costs. 25-year manufacturer's warranty. UL-listed.

CIRCLE NO. 104

**C. W. COLE & COMPANY, INC.**



2560 N. Rosemead Blvd.  
 South El Monte, CA  
 91733-1593  
 Tel.: (818) 443-2473  
 (213) 283-6688  
 Fax: (818) 443-9253

Product Shown: The new cast aluminum 2100/3300 Series Dome mounts to the 3300

Series Steplites for HID sources and the 2120 Series for incandescent and fluorescent sources. The diffuser faces downward for maximum illumination to the walkway surface and minimum visibility to the passerby. The rugged construction, engineering excellence and quality make these fixtures ideal for specification in most public areas. ETL-listed.

CIRCLE NO. 105

**D'AC LIGHTING**



420 Railroad Way  
 Mamaroneck, NY 10543  
 Tel.: (914) 698-7799  
 Fax: (914) 698-5577

Product Shown: New Verra series handblown glass pendants. Five graceful shapes in clear, standard and custom pastels with multiple lamping options. Unique adjustment feature allows

raising and lowering without accessing canopy or optional track adjuster. Metal trim available in white, black or custom finish. UL-listed.

CIRCLE NO. 106

**ELLIPTIPAR**



114 Orange Ave.  
 West Haven, CT 06516  
 Tel.: (203) 931-4455  
 Fax: (203) 931-4464

Product Shown: Elliptipar's 4X Luminaire delivers four times more light than ordinary T8 fluorescent fixtures. Its unique asymmetric reflector and long-life compact fluorescent lamps produce the equivalent of 500W of tungsten halogen using only 100W of fluorescent to uniformly light walls and ceilings. UL-listed.

CIRCLE NO. 107

**ENGINEERED LIGHTING PRODUCTS**



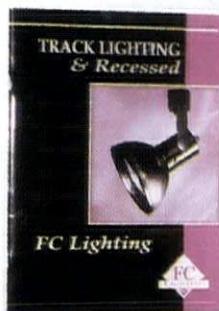
10768 Lower Azusa Rd.  
 El Monte, CA 91731  
 Tel.: (818) 579-0943  
 Fax: (818) 579-6803

Product Shown: Add drama to your space by lighting surfaces such as walls or ceilings. Engineered Lighting Products' versatile, shallow Wall Washers can also be recessed into standard walls to light the ceiling or floor. A variety of lengths accommodate most PL, quad, biax and T8 lamps. These efficient, long-life fluorescent lamps within a patented reflector system provide volumes of excellent color rendering light. UL-listed.

ing or floor. A variety of lengths accommodate most PL, quad, biax and T8 lamps. These efficient, long-life fluorescent lamps within a patented reflector system provide volumes of excellent color rendering light. UL-listed.

CIRCLE NO. 108

**FC LIGHTING**



1113 N. Main St.  
 Lombard, IL 60148  
 Tel.: (708) 889-8100  
 Fax: (708) 889-8106

Product Shown: FC Lighting manufactures a wide variety of lighting including track, recessed trims and cans. FC's track heads are adaptable to fit most major manufacturer's track. FC's compact fluorescent recessed cans are made in the USA. UL- and ETL-listed.

CIRCLE NO. 109

S P E C I A L A D V E R T I S I N G S E C T I O N

**FIBERSTARS, INC.**



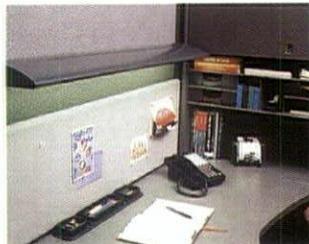
2883 Bayview Dr.  
 Fremont, CA 94538  
 Tel.: (510) 490-0719  
 (800) 327-7877  
 Fax: (510) 490-3247

Product Shown:  
 Fiberstars' UL-listed  
 FiberScape paver lighting  
 uses end-emitting fiber

optic fixtures as points of light to create designs, outline areas or indicate direction. Fiberstars' paver lighting is ideal for walkways, courtyards, patios, waterways and sidewalks. The small fixture size allows the lights to make the statement, not the fixture.

CIRCLE NO. 110

**GARCY/SLP**



209 Kirby Rd.  
 Portland, TN 37148  
 Tel.: (800) 221-7913  
 Fax: (615) 325-7269

Product Shown: The PMT-  
 Panel Mount Task Light pro-  
 vides task level illumination  
 to applications without  
 overhead storage. It attach-  
 es directly to the panel

with special mounting brackets available for most major systems. Standard features include an energy-saving T8 lamp, electronic ballast and batwing lens. UL-listed.

CIRCLE NO. 111

**GE LIGHTING**



1975 Noble Rd.  
 Nela Park  
 Cleveland, OH 44112  
 Tel.: (800) GE-LAMPS  
 Fax: (216) 266-2010

Product Shown: In com-  
 pliance with EPACT legis-  
 lation implemented last  
 fall by the federal govern-  
 ment, GE Lighting has

developed a unique, 100 percent halogen product family strategy for the PAR38 lamp category. The family includes varying wattages of GE's Standard Halogen, Halogen Plus and Halogen-IR lamps, each of which delivers a combination of crisp, white light, excellent color rendering, significant energy savings and length of life. The products also operate without diodes, allowing flicker-free performance.

CIRCLE NO. 112

**HYDREL**



12881 Bradley Ave.  
 Sylmar, CA 91342  
 Tel.: (818) 362-9465  
 Fax: (818) 362-6548

Product Shown: The new Hydrel  
 7100 and 7200 Series floodlights  
 provide power capabilities to 1000W  
 with eight possible standard distribu-  
 tions for each unit. Positive sealing,  
 internal glare control, multiple  
 mounting options and contemporary  
 styling are key features supplement-  
 ing the ITL-documented perfor-  
 mance. All 7100 and 7200 Series floodlights are UL-listed.

CIRCLE NO. 113

**KIM LIGHTING INC.**



16555 E. Gale Ave.  
 P.O. Box 1275  
 City of Industry, CA  
 91749  
 Tel.: (818) 968-5666  
 Fax: (818) 369-2695

Product Shown: Kim  
 Lighting's Entablature  
 fixture is constructed  
 of heavy die-cast alu-  
 minum and designed for strength, performance, permanence and application flexibility. The fixture will complement any rectilinear architectural design. A custom look can be achieved by adding optional entablature trims. Ten standard entablature trims and custom trims are available. Entablature is offered in two sizes: The larger ET is available in 175-400W metal halide and 150-400W HPS, the smaller in 70-175W metal halide and 70-150W HPS. UL-listed.

Product Shown: Kim Lighting's Entablature fixture is constructed of heavy die-cast aluminum and designed for strength, performance, permanence and application flexibility. The fixture will complement any rectilinear architectural design. A custom look can be achieved by adding optional entablature trims. Ten standard entablature trims and custom trims are available. Entablature is offered in two sizes: The larger ET is available in 175-400W metal halide and 150-400W HPS, the smaller in 70-175W metal halide and 70-150W HPS. UL-listed.

CIRCLE NO. 114

**LAM LIGHTING SYSTEMS**



2930 S. Fairview St.  
 Santa Ana, CA 92704  
 Tel.: (714) 549-9765  
 Fax: (714) 662-4515

Product Shown: Litedisk  
 from Lam with 90-percent  
 efficiency offers the effec-  
 tive indirect light output of  
 metal halide with color sta-  
 ble, switchable, dimmable,  
 biax fluorescent lamps.

Trim and housing finishes can be mixed and matched in brass, chrome or any painted colors. 41-, 35- and 29-in. diameter sizes fit comfortably into any interior. UL-listed.

CIRCLE NO. 115

**LEUCOS USA, INC.**



70 Campus Plaza II  
 Edison, NJ 08837  
 Tel.: (908) 225-0010  
 Fax: (908) 225-0250

Product Shown: The Vittoria T1 features a simple, clean task lamp design. Oval-shaped, layered Murano glass diffuser sits atop a polished chrome V-structure and weighted base. A 200W halogen lamp, shielded with a frosted glass tube for light diffusion and safety, provides upward, ambient task illumination. A slide dimmer on cord allows for light output control.

Transitional design for residential, corporate, bank, restaurant or hospitality settings. Companion wall, pendant and floor designs also available. Finishes include chrome base with satin white, amber, red, Nile green or cobalt blue glass.

CIRCLE NO. 116

**LEXALITE INTERNATIONAL CORPORATION**



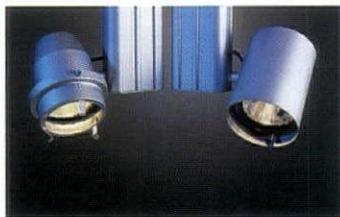
P.O. Box 498  
 Charlevoix-the-Beautiful,  
 MI 49720-0498  
 Tel.: (616) 547-1422  
 Fax: (616) 547-5833

Product Shown: New from LexaLite: 12-in. diameter tinted prismatic shades. Available in ruby, cobalt, emerald and topaz. These

polycarbonate shades are unbreakable, safer than glass and ideal for lighting in restaurants, cafés, hotels and retail settings. Larger diameter shades and sconce versions are also available.

CIRCLE NO. 117

**LIGHTING SERVICES, INC**



2 Kay Fries Dr.  
 Stony Point, NY  
 10980-1996  
 Tel.: (914) 942-2800  
 (800) 999-9574  
 Fax: (914) 942-2177

Product Shown: Lighting Services Inc, manufacturer of track, accent, display and fiber optic lighting systems, has introduced the new

Metal Halide Spotlight and Cylinder families of fixtures. These fixtures are designed to accommodate all PAR20, PAR30 and PAR38 metal halide screw base lamps including Philips MasterColor lamps which offer long life, warm 3000K color and a high CRI of 81-85. The specification quality, adjustable focus fixtures are available in LSI black, white and silver finishes and will accept a complete range of lenses and accessories.

CIRCLE NO. 118

**LUCIFER LIGHTING COMPANY**



414 Live Oak St.  
 San Antonio, TX 78202  
 Tel.: (210) 227-7329  
 (800) 879-9797  
 Fax: (210) 227-4967

Product Shown: Portable vertical track lighting which locates between floor and ceiling. Adjusts to varying heights. Can be installed in five minutes. Ideally suited for window display lighting and office/reception lighting. Select from a range of spotlights, including Cono glass shade version shown, using

quartz halogen lamps, 50W maximum. ETL-listed.

CIRCLE NO. 119

**LUMIERE DESIGN & MFG., INC.**



31360 Via Colinas, #101  
 Westlake Village, CA 91362  
 Tel.: (818) 991-2211  
 Fax: (818) 991-7005

Product Shown: The 700 Series of HID landscape lighting fixtures utilize the recently introduced Constant Color metal halide PAR lamps: PAR20 (35W) and PAR30 (35W and 70W). With mounting options for trees, flush-to-the-ground and surfaces, the 700 Series can properly illuminate buildings, flag poles, signage, sculptures and

landscapes. The Series 700 is chemically undercoated and thermoplastic-polyester-powder painted so that the chosen fixture color—architectural mineral bronze, jet black or verde green—remains unaffected by dramatic changes in weather. UL-listed.

CIRCLE NO. 120

**MANNING LIGHTING**



P.O. Box 1063  
 1810 North Ave.  
 Sheboygan, WI 53082  
 Tel.: (414) 458-2184  
 Fax: (414) 458-2491

Product Shown: Manning Lighting's new Designer Collection catalog features hundreds of pendants, wall sconces and ceiling fixtures to enhance creative vision. The DP-36 (pictured) is available in brass, chrome or painted finish and incandescent, fluorescent and HID lamping options. All Designer

Collection products are UL-listed.

CIRCLE NO. 121

the commercial design network  
**LIGHTING PRODUCT GUIDE 1996**

S P E C I A L A D V E R T I S I N G S E C T I O N

**NEO-RAY LIGHTING**



537 Johnson Ave.  
 Brooklyn, NY 11237  
 Tel.: (718) 456-7400  
 Fax: (718) 456-5492

Product Shown: Neo-Ray Lighting's Series 201IP Shell indirect luminaire features soft contours, recessed die-cast ends, cast-joiner hanger details and perforated sides. Other components include a high-performance two-lamp T8 optical system and a 10<sup>3</sup>/<sub>8</sub> in. wide x 2<sup>1</sup>/<sub>4</sub> in. high profile with integral ballast. UL-listed.

CIRCLE NO. 122

**OSRAM SYLVANIA, INC.**



100 Endicott St.  
 Danvers, MA 01923  
 Tel.: (508) 777-1900  
 Fax: (508) 750-2982

Product Shown: Osram Sylvania introduces the Soft White Dulux EL, a bright, fast-starting compact fluorescent light available in 15W, 20W and 23W. The Soft White

Dulux EL registers a 3000K color temperature, producing a bright white light similar to halogen lighting. This product also has instant start with no delay. The lamp has a life expectancy of 10,000 hours. The design of the Soft White Dulux EL features triple-U-turn tubes, making the new compact light an ideal replacement for table lamps, recessed lighting fixtures, enclosed outdoor fixtures and almost any place an incandescent bulb can be used.

CIRCLE NO. 123

**PHILIPS LIGHTING COMPANY**



200 Franklin Square Dr.  
 Somerset, NJ 08875  
 Tel.: (908) 563-3518  
 Fax: (908) 563-3525

Product Shown: Philips Lighting Company's low-mercury ALTO fluorescent lamp technology has been added to its premium T12 Ultralume Econ-o-Watt line and its

moderately priced T12 SPEC Econ-o-Watt lamps, offering the benefits of mercury source reduction and increased disposal options. The Ultralume Econ-o-Watt line features ALTO lamp technology in four F40 lamp models that provide color temperatures of 3000K, 4100K and 5000K. In addition, all three Philips F40 SPEC Econ-o-Watt lamps now contain Alto lamp technology: the SPEC30, SPEC35 and SPEC41, offering color temperatures of 3000K, 3500K and 4100K, respectively.

CIRCLE NO. 124

**PRESCOLITE**



1251 Doolittle Dr.  
 San Leandro, CA 94577  
 Tel.: (510) 577-5382  
 Fax: (510) 577-5022

Product Shown: Prescolite has announced introduction of Triple Tube Compact Fluorescent Downlights, a series of specification-grade recessed down-

lights designed specifically to use the new generation of high lumen output, highly energy-efficient triple tube compact fluorescent light sources. The result is a line of fixtures that optimize the high lumen output of these lamps without compromising glare. Full architectural dimming available with Prescolite's Intellect electronic ballast. UL- and CSA-listed.

CIRCLE NO. 125

**SPI LIGHTING, INC.**



10400 N. Enterprise Dr.  
 Mequon, WI 53092  
 Tel.: (414) 242-1420  
 Fax: (414) 242-6414

Product Shown: The Opera Series combines low-profile housing, a unique rebound reflector system and sophisticated accessories. Indirect illumination is provided by three or six high-lumen out-

put compact fluorescent lamps. A 2-D fluorescent lamp provides dome/downlight illumination. Complementary sconces, wall and ceiling mount fixtures are available for consistent design throughout the space. UL-listed.

CIRCLE NO. 126

**STERNER LIGHTING SYSTEMS INC.**



351 Lewis Ave. West  
 Winsted, MN 55395  
 Tel.: (320) 485-2141  
 Fax: (320) 485-2899

Product Shown: Sterner's new Infranor 810-R quartz precision floodlight offers an arena fixture with superior efficiency and excellent candela value. Features include unsurpassable photometric performance with a parabolic aluminum reflector system that provides high fixture uniformity.

It includes three beam spreads—narrow, medium and wide. Design features include tool-less, rear relamping for easy maintenance and undisturbed aiming angles, as well as easy-to-mount bracketry, adaptable to most catwalk railings. The 810-R measures 16 in. x 14<sup>1</sup>/<sub>2</sub> in. x 8<sup>3</sup>/<sub>4</sub> in. UL-listed.

CIRCLE NO. 127

### STRAND LIGHTING



1811 Santa Fe Ave.  
Rancho Dominguez, CA  
90221  
Tel.: (310) 637-7500  
Fax: (310) 632-5519

Product Shown: Strand Lighting introduces the Premiere Network Manager which offers central control and programming for an entire facility.

This flexible Windows-based operating system offers simple point-and-click operation to choose lighting presets, combine rooms or schedule events for up to 15 Premiere processors in facilities from one to 480 rooms.

CIRCLE NO. 128

### TIVOLI INDUSTRIES, INC.



1513 E. St. Gertrude Pl.  
Santa Ana, CA 92705  
Tel.: (714) 957-6101  
Fax: (714) 957-1501

Product Shown: The Structurella system consists of miniature extruded aluminum three-dimensional frames. Structurella's linear system discreetly

becomes part of interior spaces. Structurella is designed to be used with the full complement of Targetti Minitondo low-voltage heads. UL-listed.

CIRCLE NO. 129

### TREND LIGHTING COMPANY, INC.

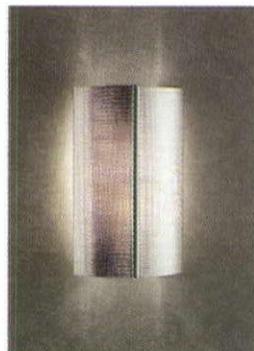


2700 Sidney St.  
St. Louis, MO 63104  
Tel.: (314) 773-1340  
Fax: (314) 773-5741

Product Shown: Trend's latest creation is a 24-in. molded acrylic diffuser with polished, satin or painted accents. Clear glass rods add elegance. Lamped incandescent, compact fluorescent or metal halide. ETL-listed.

CIRCLE NO. 130

### VISA LIGHTING



8600 W. Bradley Rd.  
Milwaukee, WI 53224  
Tel.: (414) 354-6600  
Fax: (414) 354-5093

Product Shown: Innovation, performance and quality are combined at Visa Lighting for accessibility without compromise. UL-listed Basics offers two lengths, two diffuser shapes and three trim options. Visa also offers a full line of ADA-compliant products.

CIRCLE NO. 131

### W.A.C. LIGHTING COMPANY



113-25 14th Ave.  
College Point, NY 11356  
Tel.: (718) 961-0695  
(800) 526-2588  
Fax: (718) 961-0188  
(800) 526-2585

Product Shown: W.A.C. Lighting, an accent and task lighting supplier, creates precision-crafted track lighting and low-

voltage recessed fixtures engineered for residential and commercial applications. The W.A.C. line includes button lights, surface mounts and under-cabinet fixtures, housings, trims and transformers.

CIRCLE NO. 132

### WALDMANN LIGHTING COMPANY



9 W. Century Dr.  
Wheeling, IL 60090  
Tel.: (847) 520-1060  
(800) 634-0007  
Fax: (847) 520-1730

Product Shown: Waldmann Lighting's "adjustable arm" task lights are ergonomically designed to give users individual control over their working environment. Task lights are available in single, twin vertical and twin horizontal arm styles, ideal for small or large work areas. The twin horizontal model fits well under binder bin

storage cabinets. Mounting options include a table clamp, wall bracket, table base and furniture panel brackets that fit into the slotted standards of over 60 open office furniture systems. Each task light includes a built-in parabolic louver. UL-listed.

CIRCLE NO. 133

# CLASSIFIEDS

## POSITIONS AVAILABLE

### SPECIFICATIONS SALES

The largest lighting manufacturer's rep agency in South Florida has two newly-created positions for specifications salespeople. Account responsibilities will include coverage of architects, electrical engineers, landscape architects and interior designers. Duties include sales presentations, assisting clients with design and layouts, and introduction of new lighting technology. The successful candidate will possess *either* a four-year degree in lighting design, architecture, engineering, interior design *or* equivalent industry experience. Mail or fax your resume with salary requirements to:

**Lighting Dynamics, Inc., 1715 SE 4 Avenue,  
Ft. Lauderdale, Florida 33316; Fax: 954-763-1503.**  
All replies will be held in **strict** confidence.

### DIRECTOR OF SALES & MARKETING

**elliptipar**, the industry leader in asymmetric lighting, has an immediate opening for a high energy sales and marketing professional. The successful candidate for this true growth opportunity will have a broad knowledge of the lighting industry and proven managerial skills.

Respond in confidence, with salary history, to:  
**Sylvan R. Shemitz, CEO, elliptipar, 114  
Orange Avenue, West Haven, CT 06516.**

### GENERAL MANAGER-LIGHTING REP AGENCY

The largest lighting manufacturer's rep agency in South Florida, representing some of the most respected names in the lighting industry, has a tremendous opportunity for a General Manager of inside sales and support operations. Responsibilities include daily supervision of a ten to twelve person staff involving quotations, customer service, accounting and applications engineering. The successful candidate must have excellent organizational, managerial and communication skills. Mail or fax resume with salary requirements to:

**Lighting Dynamics, Inc., 1715 SE 4 Avenue,  
Ft. Lauderdale, Florida 33316; Fax: 954-763-1503.**  
All replies will be held in **strict** confidence.

### LIGHTING DESIGNER

Large multidiscipline consulting engineering firm seeking qualified lighting designer. Applicants should have 3-5 years experience in design of lighting systems, and a related degree. Current practice includes corporate, institutional and health care facilities. Qualifications needed include design, production, client contact skills and marketing. Extraordinary opportunity for right individual. Fax resume and other pertinent information to:

**STEPHEN M. SESSLER, PARTNER • NEWCOMB & BOYD  
LIGHTING DESIGN GROUP • ATLANTA, GEORGIA  
FACSIMILE 404-352-1826**

### PROJECT DESIGNER

Premier Midwest lighting design firm has an immediate need for an experienced, motivated project designer with strong interpersonal skills to work in a creative and collaborative office environment. Lighting software experience preferable. Position requires a minimum of 3 years experience in lighting design. Excellent benefits. Send resume to: Schuler & Shook, Inc., 213 W. Institute Place, Suite 610, Chicago, IL 60610.

## REPS WANTED

### LIGHTING FIXTURE REPRESENTATIVE

Full line manufacturer of HID industrial lighting fixtures requires experienced factory representatives with at least 3-5 years experience in working with industrial end users and distributors. A knowledge of HID lighting is essential, as well as the ability to design and recommend lighting fixtures for retrofit and energy management applications.

Experienced representatives in the following regions should apply: Northern and Southern California; Chicago and Midwestern region; Dallas/Fort Worth and surrounding areas; Colorado and the states adjoining; Georgia and surrounding areas; New York and the New England states. Base salary, significant incentive programs and benefits. Career opportunity. Please fax resume to: **Spartan Lighting Manufacturer, Dallas, Texas (214-387-9711) Attn: H.R. Department.**

### ARCHITECTURAL LIGHTING REPS WANTED TROY LIGHTING

We are seeking experienced representatives to call on lighting specifiers with our line of high quality domestic decorative lighting. We manufacture a full line of decorative interior, exterior, track, and recessed lighting. We are also custom lighting specialists.

**SEVERAL TERRITORIES AVAILABLE**

**FAX: 818-330-4266 • PH: 818-336-4511**

### SALES PROS WANTED

Our client, an aggressive manufacturer of truly revolutionary, energy-efficient commercial and residential lighting products, seeks the world's best lighting sales professionals. National and international territories available. Please provide company profile, territory and case studies denoting your success. All legitimate communications will be acknowledged and held in strictest confidence.

Mail response to: **WG/C-IP • P.O. Box 90610  
Pasadena, CA 91109-0610  
Or Fax 818-405-8818 • No Calls**

## STEPLIGHTS

# Order A Steplight. And We'll Step To it.

Lightech makes more than 60 types of steplights and nightlights. And we get them out fast. So step over to your phone. And contact Lightech for the representative near you.



**LIGHTECH INC.**

Technology in Lighting

P.O. Box 9355

South Laguna, CA 92677-0355

**Tel: (714) 499-4441 Fax: (714) 499-2841**

# CLASSIFIEDS

## PRODUCTS & SERVICES

### PRECISION CAST METAL WORK

Brass, bronze, iron and aluminum finished to print. Die cast tolerances, lost wax cast detail. Very low cost tooling. Restoration, product development, and limited production specialists.

**Steve McPherson • 916-893-3670**

### Now You Can Offer A Complete Line Of Professional Indoor/Outdoor Linear Lightings

LOW VOLTAGES 12 OR 24 VOLTS

1W/2W/3W/5W/10W EACH LAMP

Send for complete catalogue to:

**DAVIREX**

FAX: 00-886-2-7962601 • PH: 00-886-2-7962001  
35, Lane 219 • Ta Hu Shan Chuang Str. NeiHu  
Taipei, Taiwan

## LIGHTING POLES (WOODEN)

### MANUFACTURER OF TIMBERWOOD LIGHTING STANDARDS

A superior pressure treated Douglas fir laminate for decorative outdoor lighting support.

CONTACT BERYL ROBERTS • 541/689-3020

J.H. Baxter & Company, P.O. Box 10797, Eugene, OR 97440

## CAREER OPPORTUNITY

### INDUSTRIAL DESIGNER

In this key role you must understand the elevator market and design cost effective products which satisfy the end user. Responsibilities include engineering via production CAD work and drafting, project management to follow jobs through to completion, design and estimating/research. Must be able to communicate effectively with shop floor personnel, vendors, subcontractors and the sales department. Need manufacturing knowledge including welding, metal forming, casting, auto cad. Prefer either mechanical engineering or architectural degree. Please respond with salary history to: **Adams Elevator, 6310 West Howard Street, Niles, IL 60714. Attn: HR. Fax 847-581-2905**

## BUSINESS OPPORTUNITY

**SONLITE LIGHTING INC.**, A Sino-American joint venture specializing in manufacture of HALOGEN PAR lamps invites prospective distributors to promote U.S. market. With imported equipment and main material from U.S. we offer high performance/quality halogen lamps. Available: Par38/Par30/Par20/Par16. Please call TEL **+86-755-3114017**; FAX **+86-755-3317317**; or stop by booth #1510 at 1996 Light Fair.

## TRACK & RECESS LIGHTING

### LIGHTOLIER

We are Lightolier's largest stocking distributor. Track, recessed, decorative, fluorescent, bulbs. Call for prices and inventory on all your lighting needs.

### LIGHTING BY GREGORY

Ph: 212/226-1276 or 800/796-1965

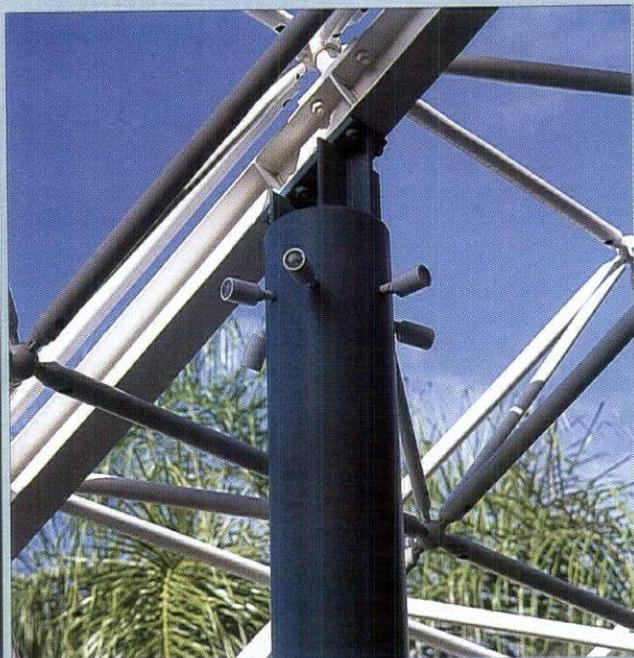
ADVERTISER READER SERVICE NO. PAGE

Aladdin Light Lift Inc. ....	38	76
Architectural Landscape Ltg. ....	23, 100	28, GUIDE
B-K Lighting Inc. ....	37, 103	76, GUIDE
Bega Lighting ....	34, 101	65, GUIDE
Beta Lighting ....	3, 102	2, GUIDE
Columbia • Prescolite • Moldcast ....	6, 41	6-7, 32A-H
.....	125	GUIDE
Cougar Worldwide, Inc. ....	18, 104	23, GUIDE
C. W. Cole & Co., Inc. ....	105	GUIDE
D'ac Lighting ....	106	GUIDE
Edison Price Lighting ....	36	26
Electrix ....	32	60
Elliptipar Inc. ....	24, 107	29, GUIDE
Engineered Lighting Products ....	108	GUIDE
FC Lighting Manufacturers Inc. ....	14, 109	18, GUIDE
Fiberstars, Inc. ....	8, 110	11, GUIDE
Garcy/SLP ....	28, 111	52, GUIDE
GE Lighting ....	112	GUIDE
Hydrel ....	42, 113	21, GUIDE
Interplan ....	13	33
JJI Lighting Group Inc. ....	22	27
Kim Lighting ....	20, 114	COV. 2, GUIDE
Lam Lighting ....	16, 115	20, GUIDE
Leucos USA, Inc. ....	15, 116	19, GUIDE
LexaLite International Corp. ....	117	GUIDE

Lightfair International 1996 .....	25	30
Lighting Corp. of America .....	9	12-13
Lighting Services Inc. ....	30, 118	14, GUIDE
Lucifer Lighting Co. ....	7, 119	9, GUIDE
Lumière Design & Mfg., Inc. ....	29, 120	53, GUIDE
Lutrex Lighting. ....	17	56
Lutron Electronics Co. Inc. ....	40	COV. 4
R.A. Manning Lighting .....	4, 121	4, GUIDE
Neo-Ray Lighting ....	27, 122	17, GUIDE
The Original Cast Lighting .....	21	76
OSRAM SYLVANIA INC. ....	39, 123	COV. 3, GUIDE
The Pennsylvania Globe Gas Ltg. Co. ....	10	22
Philips Lighting Co. ....	11, 124	15, GUIDE
SPI Lighting, Inc. ....	126	49, GUIDE
Sternier Lighting Systems Inc. ....	26, 127	31, GUIDE
Strand Lighting Inc. ....	1, 128	25, GUIDE
Times Square Lighting .....	12	16
Tivoli Industries Inc. ....	19, 129	24, GUIDE
Trend Lighting Co., Inc. ....	130	GUIDE
Ushio America, Inc. ....	5	5
Visa Lighting Corp. ....	2, 131	1, GUIDE
W.A.C. Lighting .....	33, 132	61, GUIDE
Waldmann Lighting Co. ....	31, 133	57, GUIDE
Wyndham Hall .....	35	67

Publisher is not liable for errors or omissions.

## Quality to Last a Lifetime!



**B-K LIGHTING**

.....the number one choice in low-voltage, outdoor architectural lighting.

2720 N. Grove Industrial Dr., Fresno, CA 93727 • (209) 255-5300

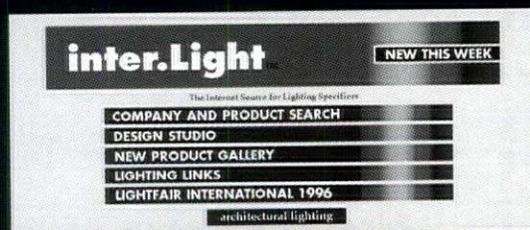
## Specs on.line.

If you specify luminaires, lamps, ballasts or controls...your product library just got a whole lot bigger.

inter.Light™, the leading World-Wide Web site devoted exclusively to lighting design and product specification, brings hundreds of lighting companies to your desktop. With searchable product databases, electronic catalogs, and a weekly updated photo gallery of new releases, inter.Light gives the specifier instant access to the latest lighting products.

<http://light-link.com>

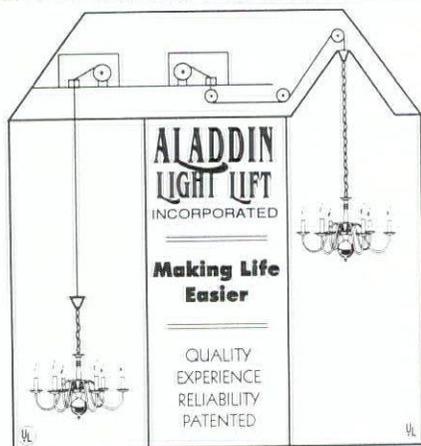
...you'll find a lot more than Internet hype



Co-sponsor  
**architectural lighting**

inter.Light, inc.  
541-344-1909

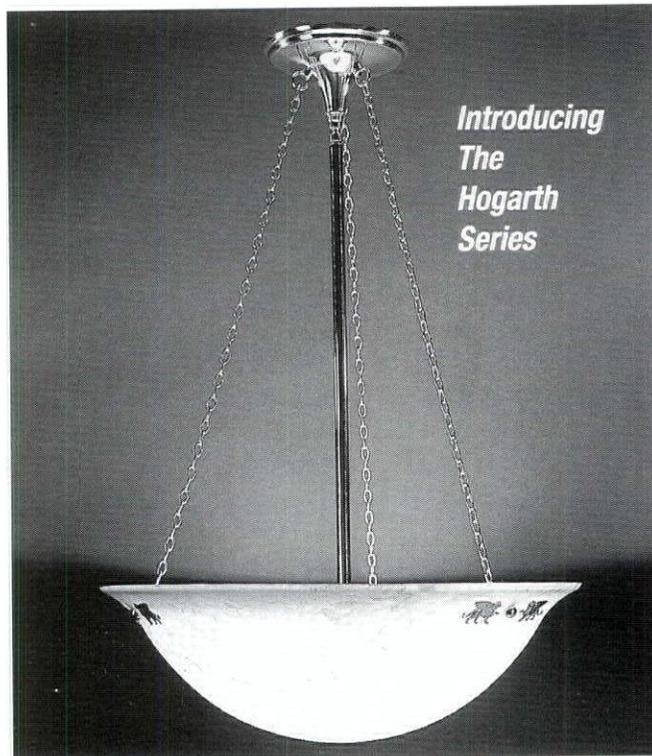
## ALL YOU NEED FOR TOTAL CHANDELIER MAINTENANCE



The ALADDIN LIGHT LIFT is an easily installed motorized lift system that raises and lowers chandeliers for easy cleaning and bulb changing . . . with just the turn of a key. Units are available in residential and commercial models to lift up to 700 pound chandeliers and up to 65 foot ceiling heights. Our remote installation possibilities allow for vaulted ceilings or mounting where no access is available above the fixture. It is the simple solution for every hard-to-reach chandelier.

*"The Original Light Lift System"*

Memphis, Tennessee (901) 385-0456



*Introducing  
The  
Hogarth  
Series*

**THE ORIGINAL CAST™ LIGHTING**



6120 DELMAR BLVD • ST. LOUIS, MO 63112  
314.863.1895 • FAX 314.863.3278