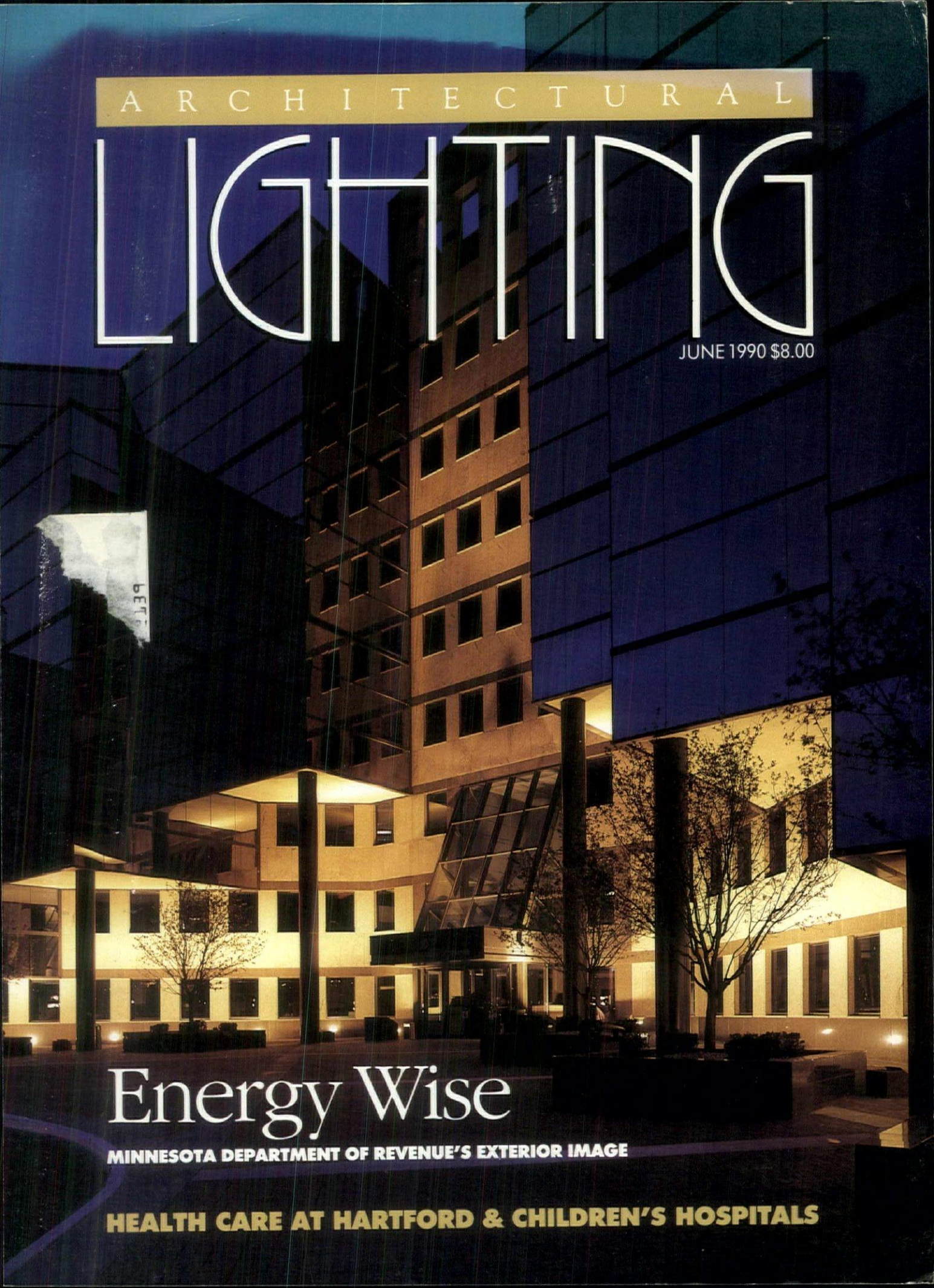


ARCHITECTURAL

LIGHTING

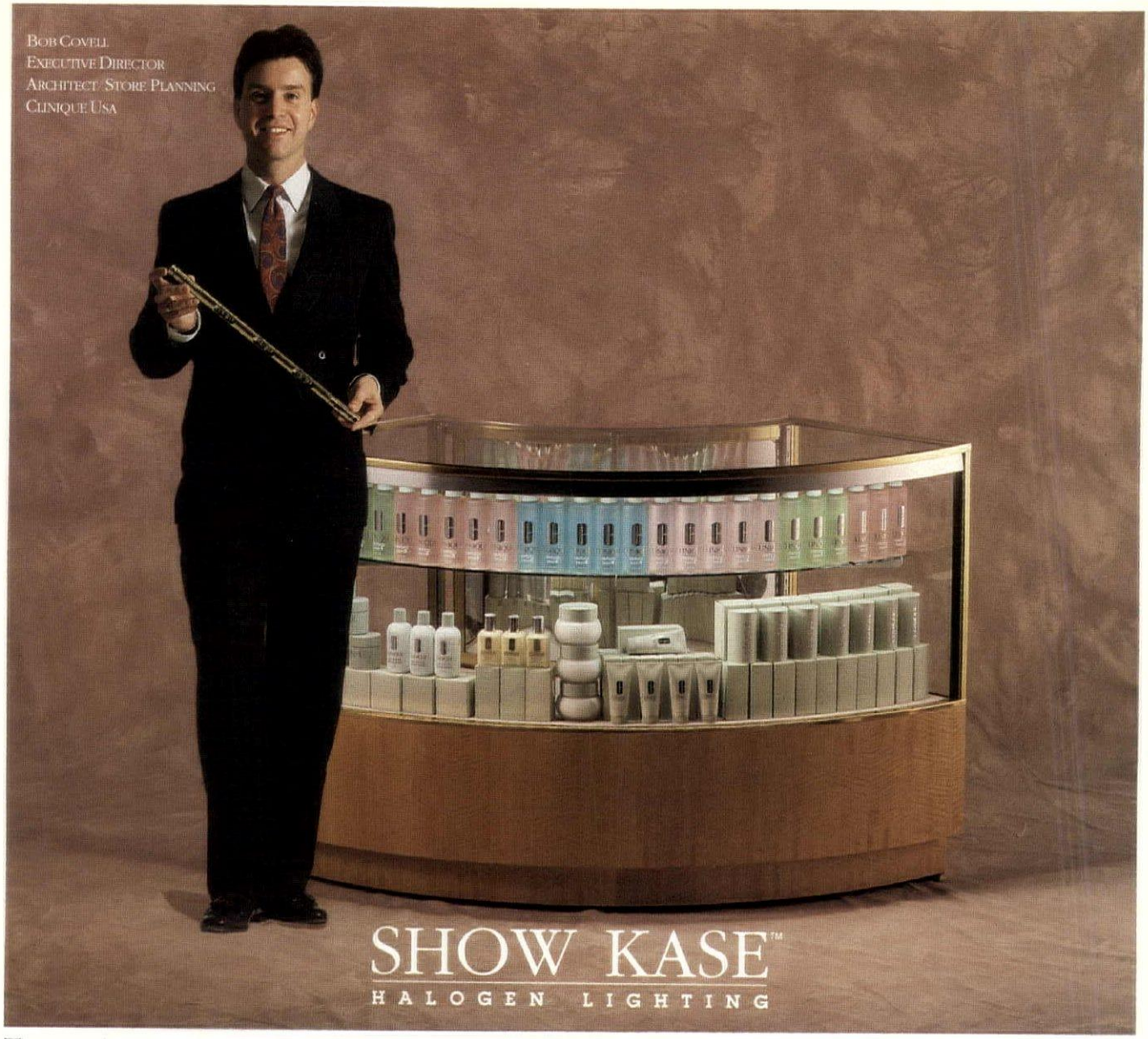
JUNE 1990 $8.00

Energy Wise

MINNESOTA DEPARTMENT OF REVENUE'S EXTERIOR IMAGE

HEALTH CARE AT HARTFORD & CHILDREN'S HOSPITALS

"This Product is Going to Revolutionize the Showcase Lighting Industry."



The future of showcase lighting is here.

Show Kase™, from CSL Lighting, is the first miniaturized, low-voltage, *halogen* lighting system designed specifically for showcase and display lighting.

The problem.

The industry has always wanted to use halogen light sources for showcase lighting. Heat was the problem, and until now unsolvable.

The solution.

CSL Lighting, a 38 year industry leader, has combined their patented Invizilite® halogen light source with a Floating Suspension System. This combination of technologies eliminates heat-related problems. Now, heat sensitive products, including cosmetics, can be safely and dramatically illuminated with color correct Show Kase™ halogen lighting.

Easy to install and maintain.

With Show Kase's™ patented snap-in, snap-out suspension system, lamp replacement can be accomplished by anyone, without tools. The Show Kase™ fixture swivels 180°, allowing the user to direct the light precisely where it's needed.

Quality construction.

Show Kase™ is constructed of precision machined 100% brass. Available finishes include polished brass, polished chrome, matte black, matte white and a complete spectrum of custom colors.

For more information about the showcase lighting of tomorrow, call Bob Levin today at: 1-800-642-2286.

CSL LIGHTING MFG. INC.

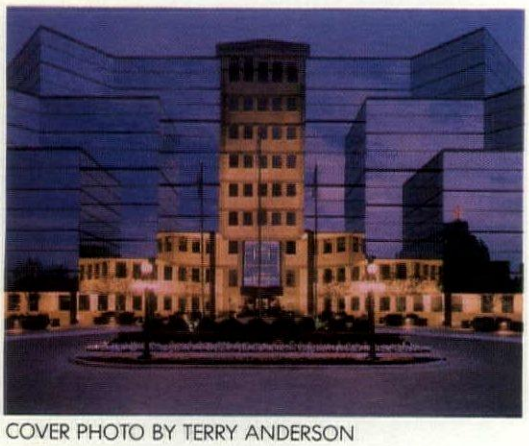
Light years ahead.

25070 Avenue Tibbetts • Valencia, CA 91355 • 805-257-4155 • FAX: 805-257-1554

Circle No. 1 on product card.

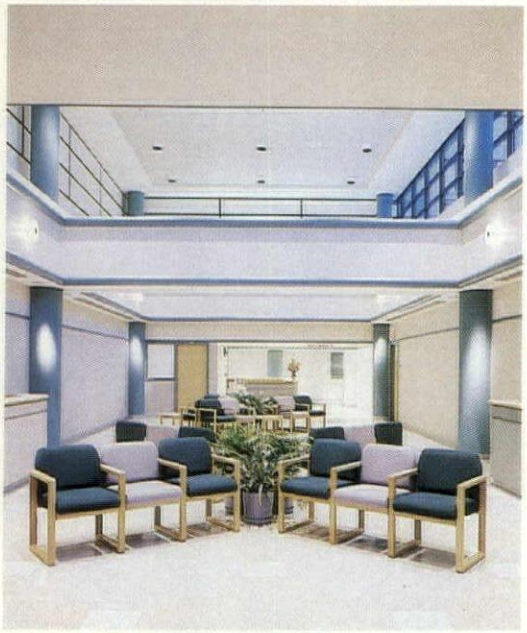
ARCHITECTURAL
LIGHTING

JUNE 1990
VOLUME 4, NUMBER 6



COVER PHOTO BY TERRY ANDERSON

40 **EXTERNAL REVENUE**



32 **SOFTENING THE BLOW**

DESIGN FEATURES

PLANNING & TECHNIQUE

COLUMNS

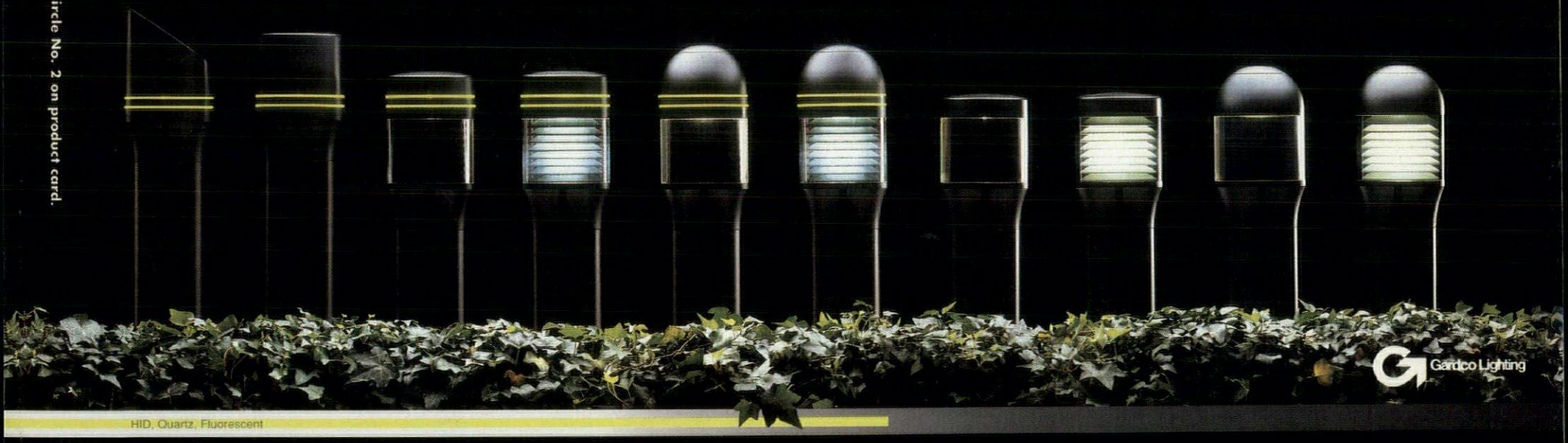
ARCHITECTURAL LIGHTING (ISSN 0894-0436) is published monthly by Gralla Publications, a member of United Newspapers Group, 1515 Broadway, New York, NY 10036. Phone (212) 869-1300. **Subscriptions:** U.S. and possessions—1 year (12 issues) $54; 2 years (24 issues) $86. Canadian—1 year $97; 2 years $167. Other foreign—1 year $125; 2 years $215. Single copy price: U.S.—$8 plus postage; outside the U.S.—$10 plus postage. **Subscription Information and Address Changes:** Write to ARCHITECTURAL LIGHTING, Circulation Dept., 1515 Broadway, New York, NY 10036. Allow 4 to 6 weeks for change of address; provide old mailing label and new address, including ZIP or postal code. **POSTMASTER:** Send address changes to ARCHITECTURAL LIGHTING, Circulation Dept., 1515 Broadway, New York, NY 10036. Second class postage paid at New York, New York and additional mailing offices.

THOMAS
INDUSTRIES INC.

In choice is opportunity. To uplight, to downlight. To unify a landscape with an integrated, technically innovative series of luminaires. An understated 4" silhouette ... and twin glow rings mark lighting's new age.

The age of Lightcolumns.

Circle No. 2 on product card.



HID, Quartz, Fluorescent

LIGHTCOLUMNS

Contemporary Elegance

Nightscaping has the lighting solutions you need whether your design is traditional or contemporary. Over 400 variations of fixtures, finishes, and lamps provide the right lighting tool to meet any design need, backed by the industry leader for over 30 years.

Nightscaping brings state-of-the-art lighting technology to outdoor lighting with over 100 ways to use the MR-16 lamp in your landscape lighting design. Create outdoor elegance from darkness by choosing the best lighting pattern while you see the effect, not the source.

Let Nightscaping Light The Way

DESIGN HELP LINE: 800-LIGHT40

First and Finest in 12-Volt Outdoor Lighting

Nightscaping®

LORAN INCORPORATED

1705 East Colton Avenue • Redlands, California 92373 • (714) 794-2121

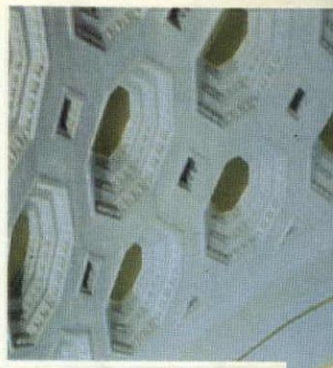
We're Also Proud Of Our Spanish Arabians

THE 12VOLT SYSTEM

SINCE 1959

Circle No. 3 on product card.

THE OSRAM HQI®-DE LAMP PUTS UNION STATION ON THE FAST TRACK TO BIG SAVINGS.



With the OSRAM HQI®-DE lamp, Washington D.C.'s Union Station now has energy cost savings that would make any President proud.

After its non-Congressionally funded, $160 million restoration and renovation, Union Station has a lot more going for it than a facelift. It has a future.

And to ensure the brightest future possible, the designers of the new Union Station specified the OSRAM HQI-DE lamp.

Better performance. With bigger savings.

The OSRAM HQI-DE metal halide lamp far outshines all other PAR incandescents and metal halides. It provides extraordinary color rendition and luminous efficacy for accent and display lighting. And when used together with the new OSRAM POWERTRONIC electronic ballast, the already energy efficient HQI-DE lamp delivers even greater performance, a 20% longer life and increased savings.

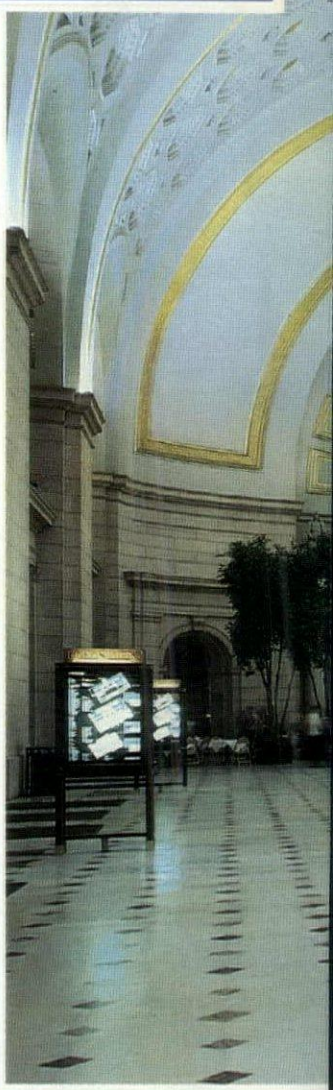
Producing more light than PAR lamps while using less wattage and emitting less heat, the new OSRAM HQI-DE lamp offers a service life that is five times that of PAR incandescents. This means big reductions on energy and maintenance—and a fast return on your investment—usually within the first year of use.

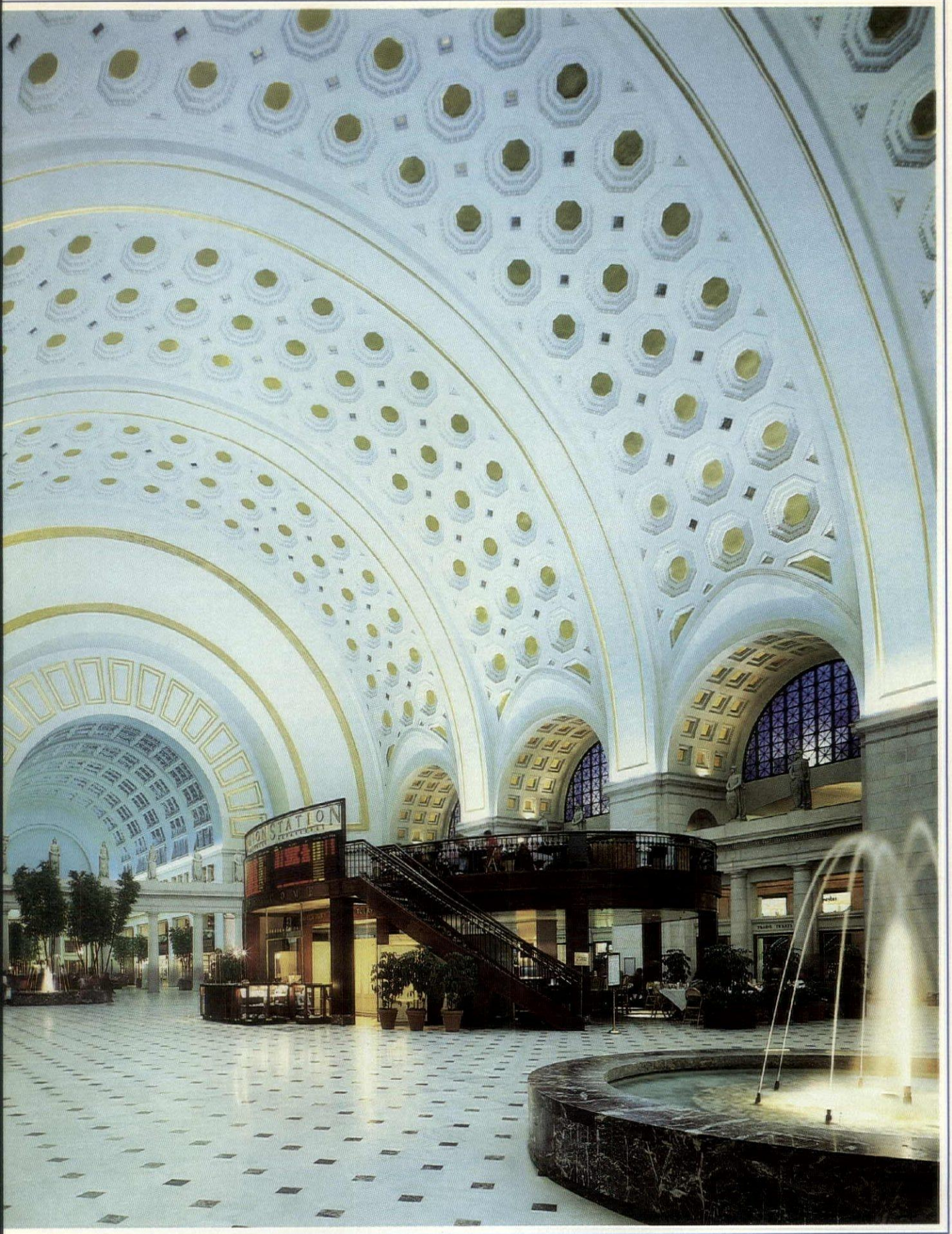
A clear favorite.

Compact and versatile, the OSRAM HQI-DE lamp is available in 70 and 150 watt sizes and in two color temperatures. So no matter who or what you're spotlighting, the OSRAM HQI-DE is the bright choice.

How long can you afford to stay in the dark about the OSRAM HQI-DE lamp and the new POWERTRONIC electronic ballast?

For more information call **1-800-338-2542.**





TECHNOLOGY BROUGHT TO LIGHT

OSRAM

Circle No. 4 on product card.

ARCHITECTURAL
LIGHTING

Publisher
Art Golden

Editor
Wanda P. Jankowski

Executive Editor
Charles Linn, AIA

Managing Editor
Catherine Schetting Salfino

Assistant Editor
Christina M. Lamb

Art Director
Ronald M. Gabriel

Production Director: **Barry Miller**
Assistant Production Director: **Susan Benvenuto**
Assistant Production Manager: **Jill Abramson**
Group Circulation Manager: **Brenda Boothby**
Classified Ad Director: **Nancy Leffler Berman**
Corporate Art Director: **Richard Zoehrer**
Marketing Services Manager: **Thomas Flannery**
Marketing Services Manager: **Ken Charney**
Market Research Manager: **Selma Book**
Market Research Assistant: **Christine Lafemina**
Central Marketing Services Director: **Gloria Marshall**
Merchandising Services Manager: **Jennie Clay**

Editorial Advisory Board
Charles C. Benton; Alfred R. Borden IV, IALD; **John R. Brass,** IALD, IES; **Carol Chaffee,** IALD, IES; **David L. DiLaura,** FIES; **M. David Egan,** PE, FASA; **Raymond Grenald,** FAIA; **David Lord,** PhD, MIES; **Mojtaba Navvab,** MIES; **Fran Kellogg Smith,** ASID, CSI

Advertising Representatives
Art Golden, Publisher
Gralla Publications 1515 Broadway New York, NY 10036
(212) 869-1300 FAX 212-302-6273 TELEX #6973314GRAL

Ileen Riskin, Midwest/Eastern Regional Manager
Gralla Publications 1515 Broadway New York, NY 10036
(212) 869-1300 FAX 212-302-6273 TELEX #6973314GRAL

Doyle Peck, West Coast Regional Manager
Gralla Publications 6355 Topanga Boulevard Suite 246
Woodland Hills, CA 91367 (818) 348-1943 FAX: (818) 346-7222

Publishing Vice President
Real Estate, Design & Construction Group: **Mark Gross**

Gralla Publications
Chairman of the Board: **Clifford D. Jakes;** President/Chief Executive Officer: **Robert N. Boucher, Jr.;** Vice President/Chief Financial Officer: **Daniel J. Mills;** Vice President/Operations: **Morton Silverman;** Vice President/Gralla Expositions: **Harvey Owen;** Vice President/Editorial Director: **Dan Shannon;** Vice President—Special Projects: **Milton Gralla;** Executive Consultant: **Lawrence Gralla;** Publishing Vice Presidents: **Jane Edelstein, Mark Gross, Stephen G. Stoneburn**

Other Gralla Publications
Bank Systems & Technology, Commercial Property News, Contract, Corporate Travel, Facilities Design & Management, Gift & Stationery Business, Impressions, Kitchen & Bath Business, Meeting News, Multi-Housing News, National Jeweler, Premium/Incentive Business, Resorts & Incentives, Sporting Goods Business, Travel Agents Marketplace, Trendings. Advisory Enterprises Division: Contact Lens Forum, Ophthalmology Management, Optometric Management.

BPA

You could pay twice as much for lighting of equal quality!

Ruud Lighting delivers a more competitive product not by engineering for lower costs but by selling top quality direct to electrical contractors and distributors. By eliminating costly overhead we pass on substantial savings of up to 50%, directly to you.

We build our outdoor lights with a single piece, seamless die cast housing that is coated with an acrylic thermoset powder finish to resist fading and abrasion. We've recessed the door frame and concealed hinge to ensure a snug fit that eliminates leaks, regardless of the mounting position.

Our products are easy to install and we also provide free application engineering assistance.

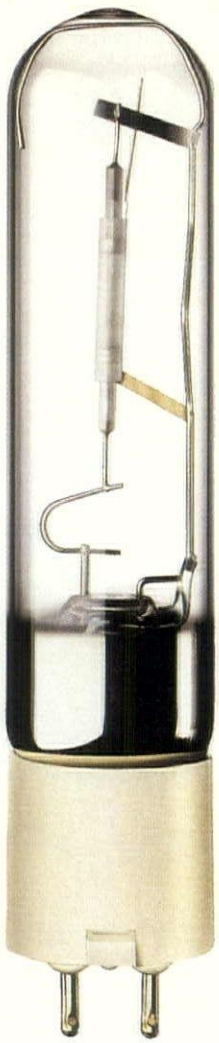
When you need to buy quality at very competitive prices, look to Ruud Lighting for outdoor, security, commercial, industrial, track and recessed lighting products.

A toll-free phone call provides you with answers, a free catalog and may just keep you from paying too much on your next job.

800-236-7000

RUUD
LIGHTING
9201 Washington Avenue
Racine, WI 53406

Circle No. 6 on product card.



Philips White SON

One small step for man.

Philips Lighting

PHILIPS

One giant leap for mannequin.

Our new display lamp is such a big breakthrough, we feel confident promising you the moon.

Philips White SON lamp is the first and only High Intensity Discharge light source of its kind. It produces a brilliant, warm, full-spectrum light that lets you see color and texture the way no other HID lamp can.

No less remarkable is its longevity. The White SON lasts an incredible 10,000 hours. And it does so with outstanding color stability.

In addition, the White SON is efficient with up to 47 lumens per watt.

All of which makes it excellent for use in retail environments, boutiques, museums, atriums and landscaping. Anywhere, in fact, where directional light with true-to-life color is essential. For a full range of display applications, the White SON is available in 35, 50 and 100 watts.

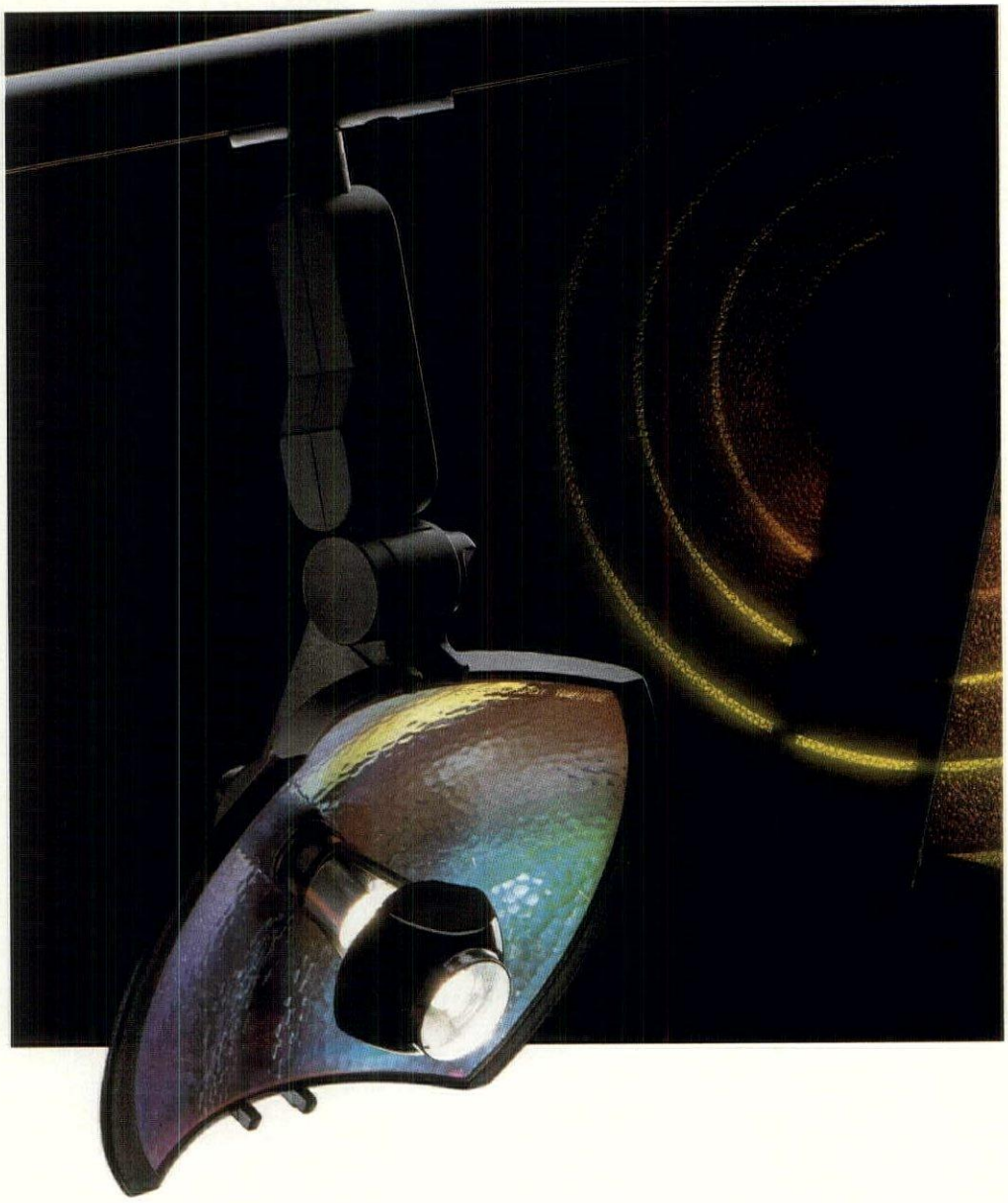
To learn more about the exciting White SON lamp take one small step to the nearest phone. Once there, call Philips Lighting Team at 1-800-631-1259.

It's time to change your bulb.™

PHILIPS

Circle No. 7 on product card.

ITALIAN DESIGN & AMERICAN TECHNOLOGY



Toh: another superb result of the combination of Italian creativity and advanced technology. Toh is a sophisticated spotlight, distinctive for its dichroic reflector in ULTEM from G.E. and its unique jack attachment designed for Targetti's state-of-the-art low voltage systems.

targetti®

innovation & design in lighting

TARGETTI INC. - 625 Broadway - New York, N.Y. 10012 - Telephone (212) 982-8390 - Telefax (212) 982-8548

Circle No. 8 on product card.

Energy Codes

Will The Lessons Be Learned?

The quiet in the meeting room was born of fear, tension, and the kind of cold, trapped-animal panic that readers of George Orwells' *1984* experience when introduced to the concept of the all-controlling Big Brother. The meeting room was the setting of an emergency session on the New York State proposed energy code called on April 11th during LightFair at the Hilton in New York. Delaine Jones, director, Bureau of Codes and Standards for the New York State Energy Office, gave an explicit warning that the government will devise standards to regulate lamps and fixtures.

"It's going to happen, whether it happens in the [New York State] energy code or in a more broad-based way," Jones says. "At the federal level there's a lot of work underway right now testing standards for lamps and fixtures.

"It's going to happen at the state level first. We've been very successful in blocking [point of sale enforcement] over the last few years, because we don't believe in it yet. We don't think we're ready for that in New York State. We don't think Massachusetts is ready for it. And that's not what we're proposing to do. We're only talking about lamps and fixtures, and watts per square foot in new construction and substantial renovations," Jones says.

Attendees at the LightFair energy code session were concerned that regulations once set will open the door for more stringent and rigid restrictions as time goes on.

The energy issue is far from resolved. Before the recent rallying by the lighting community over the New York and Massachusetts proposed code changes, only a handful of concerned professionals had been working over the past decade at the local and federal levels to develop meaningful codes. Several of them spoke to me recently, and sincerely wished that more professionals had been actively involved sooner.

Though its effects are far-reaching, the lighting industry is a small one. To have its interests and concerns acknowledged, it needs as many voices as possible shouting its message to government administrators. It is time for the burden and responsibility to be shared among all who are involved in and benefit from the lighting industry.

I urge you to contact your local lighting, design and architectural association chapters and work with them to educate consumers and related design professionals on the value of energy-efficient design; to establish contacts with national association headquarters to keep the energy code issue alive and well; and to plan effective interaction strategies with local governments before crisis situations develop.

It's up to you to make the lessons learned today the basis of progress for tomorrow. It's only by working with government officials NOW that the future development of high-quality lighting equipment and the growth of fine lighting design can be insured.

WANDA JANKOWSKI
EDITOR

ARCHITECTURAL LIGHTING CO-SPONSORS 1991 IALD AWARDS PROGRAM

Architectural Lighting is pleased to announce it will co-sponsor the 1991 International Association of Lighting Designers (IALD) Awards Program. The "Call For Entries" will be published in the July and September issues. The deadline for submission of entries occurs at the end of this year, and the awards will be presented at LightFair to be held March 1991 in Chicago. We are honored to have this opportunity to support in a concrete way the promotion of fine lighting design.—**WJ**

New York State Energy Code Follow-Up

Discovering Uncommon Ground

BY WANDA JANKOWSKI
EDITOR

An impressive panel of experts (see sidebar) gathered together for a two-hour session at LightFair on April 11, 1990 at the New York Hilton to discuss the proposed revision to the New York State Construction Energy Code.

DOES ASHRAE WORK?

The first energy code in New York State, still in effect, is based largely on federal voluntary standard, ASHRAE 90-75, with two alternatives to establish compliance: the Lumen Method, and the Unit Power Density Method.

"That code has been in effect in New York for almost eleven years, and it hasn't worked," says Delaine Jones, director, Bureau of Codes and Standards. "It hasn't saved a drop of electricity.

"The ASHRAE 90.1-1989 is not enforceable," Jones says. "Modifying it will not make it any more enforceable. The IALD counterproposal that's on the table right now is ASHRAE 90, and that is simply unacceptable.

". . .We have in ASHRAE 1989 a watts per square foot that's developed individually for each building. That's what doesn't work, because there's always a floating target. Nobody ever knows what the budget is supposed to be, because it's individual for each building," Jones says.

Hayden McKay, who has worked on the development of the ASHRAE standard, disagrees. "Right now similar types of codes are in place in Massachusetts and California, and several other states are looking at adopting the current Standard 90 by reference. The compliance is basically an owner, or an architect, or a licensed engineer certifying that the compliance has been met," McKay explains.

The proposed code regulations apply to permanently installed equipment for general lighting in new construction, but the code completely ignores all portable and furniture integrated systems.

"We thought that was a tremendous loophole," McKay says. "The furniture systems could have a large watts per square foot allowance, and then you could come in with table lamps and use even more energy."

In defense, Delaine Jones replies, "There's only so much a minimum standard can do. We can't regulate the stuff that comes into the building once the construction contract is complete."

Perhaps the most heated arguments ensued when specific proposed lamp and fixture restrictions were discussed. The state proposes, for example the following fixture requirements: Fluorescent—.6 minimum coefficient of utilization with a room cavity ratio of one; fluorescent indirect—.6; small cell louver—.5, all others—.63; and incandescent—.7 with a room cavity ratio of one.

Robert McCully presented NEMA's position, which is echoed by other lighting organizations. "Specific lighting components interact in a way that affects their individual performance. The use of the more efficient component may change the efficiency of another component in such a way that the overall system efficiency is reduced and is therefore coun-

PROPOSED CODE MEANS 41% REVENUE LOSS SAYS NYSLMA

The New York State Lighting Manufacturers Association (NYSLMA) member companies have projected a loss in revenue of 41 percent in gross annual sales in New York State if the state's proposed revisions to the New York State Energy Conservation Construction Code are enacted. With 50 percent of the member companies disclosing sales figures, New York State sales are expected to drop by $19 million from $46.1 million. The reporting companies represent sales of $85.8 million nationally. One NYSLMA member company reported it expects to go out of business due to the proposed code, and three said they would be severely weakened.

Proposed code lamp and fixture requirements could prevent much of the high-quality, custom and commercial equipment manufactured in New York from being installed in new construction. It would devastate the lighting industry in the state, and it will turn New York City into "a Moscow on the Hudson," says William Prensky, president of NYSLMA and of Harry Gitlin Lighting, Inc.

Prensky contends that the "equipment standards in the proposed code amendment are inappropriate and will not result in increased energy conservation, and they are opposed by most of the professional organizations and trade associations in the nation."

Energy Code Session Panel

WILLIAM PRENSKY—moderator; president of the New York State Lighting Manufacturers Association (NYSLMA), and of Harry Gitlin, Inc.

CAROL JONES—chairperson of the International Association of Lighting Designers (IALD) New York Energy Committee, and lighting designer with Horton•Lees Lighting Design.

DELAINE JONES—director, Bureau of Codes and Standards for New York State Energy Office, a position she's held since 1977. She was formerly a practicing architect in New York and Atlanta, and holds a Ph.D. from Rensselaer Polytechnic Institute.

FRANK LORENZ—chair of the Electrical Codes Committee and board member of the New York Association of Consulting Engineers; Steering Committee member of the New York City Electrical Code Revision Committee; board member of National Association of Consulting Engineers; secretary/treasurer of the IES New York Section; and vice president and chief electrical engineer for Edwards & Zuck.

ROBERT McCULLY—vice president/design & application of the Illuminating Engineering Society of North America (IESNA); chair of the National Lighting Bureau; former chair of the Lighting Equipment Division of the National Electrical Manufacturers Association (NEMA); and Director of Marketing Relations for Philips Lighting.

HAYDEN McKAY—board member of the IALD, past chair of the IESNA Energy Management Committee, IES Fellow, and an architect and principal of Hayden McKay Lighting Design.

terproductive. Consequently, legislation of individual component performance is not endorsed."

WILLINGNESS TO WORK

"Standards and watts per square foot are very liberal now," Frank Lorenz says. "I fully expect, and I think it's appropriate that as time goes by and experience is gained with compliance that the standards will become a bit more rigid. So methods that are established now have to be legitimate, and hold solid ground down the road."

Though both the state and the lighting community each have vested interests in establishing a meaningful code, the dichotomy revealed at this session will make working towards that goal an uphill climb.

The original cutoff date for comments on the proposed code was March 1. Due to the overwhelming response from all facets of the lighting community, the state has extended the cutoff date for comments to May 25.

The state also issued a revised proposed code in April. Though it contained several changes, none of them addressed items presented in IALD's counterproposal.

At press time, the IALD counterproposal had gained the support of the IES of New York Section, NEMA, and NYSLMA.

Con Edison is preparing a position statement on the issue, and the New York Chapter of the AIA, made aware of the issue, is investigating it.

When asked why the lighting community was supporting an ASHRAE-based counterproposal when the state's representative clearly stated it would not be considered, code activist Howard Brandston replied, "Because we believe in it." ■

The New York State Lighting Manufacturers Association (NYSLMA) was formed in April 1990, and is open to all lighting manufacturers who operate factories in New York State, as well as manufacturers whose factories are outside of New York but who have an active interest in the state's market. It is also open to sales representatives, distributors, and components manufacturers who are actively engaged in the New York market.

Objectives of the association include preserving manufacturing jobs in a state that has seen the rapid erosion of manufacturing facilities over the past decade. The association is working to support the developments in energy saving equipment and its applications along with a committee of the Illuminating Engineering Society of NY, the International Association of Lighting Designers, and the New York Association of Consulting Engineers.

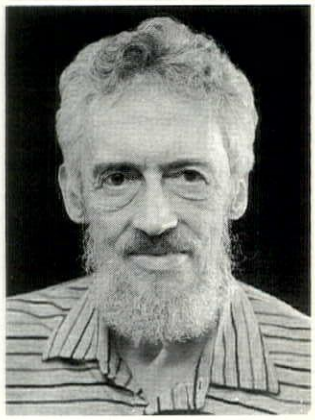
Other NYLSMA officers are vice president Mike James of Paraflex Industries; secretary Ted Pearlman of Atlite, Inc.; secretary Howard Baldinger of Louis Baldinger & Sons; and treasurer Emma Price, of Edison Price Lighting. Additional members of NYSLMA include Legion Lighting Co. Inc., Lightron of Cornwall, Linear Lighting, Microflector, NeoRay, Omega McPhilben, RLR Industries, Staff Lighting Corp., and Rambusch. Associate members include Lighting Dynamics of NY, Genlyte, Kurt Versen, The Lighting Group Inc., National Lighting Co., Inc., the IES of New York, and Zumtobel.

Companies interested in joining the NYSLMA should contact William Prensky, at (212) 243-1080.

Readers' Choice Awards Presented

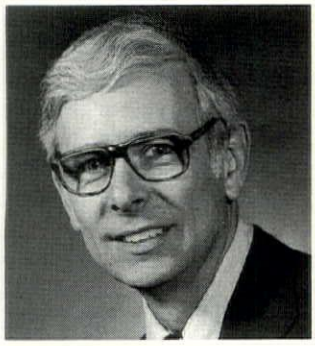
The seven winners of *Architectural Lighting*'s Readers' Choice Awards were honored April 10 in New York during LightFair. *AL* publisher Art Golden and editor Wanda Jankowski presented plaques to the recipients, who were chosen for their significant contributions to the lighting field. Some of their outstanding achievements are detailed below.

EDISON PRICE



Edison Price has been an innovator in the lighting industry since the age of 18 when he took over his family's theatrical lighting business. In 1952, he founded his own lighting company for the architectural market. His many achievements include the development of the first parabolic incandescent fixture, the first parabolic fluorescent fixture, and the first use of track lighting.

JAMES H. JENSEN, FIES



After 40 years of service, James Jensen completed his lighting tour of duty at GE with retirement in 1988. It began in 1948 when he joined the firm as a technical writer in application engineering, with his last stint as program manager/production press from 1985 to 1988.

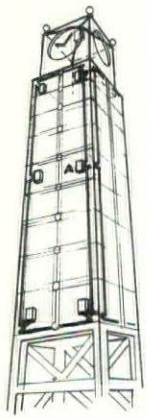
WILLIAM M.C. LAM, IALD

Bill Lam is president of William Lam Associates. Some of his best known projects are the British Columbia Government Center and the Washington D.C. subway system. He has taught for many years at the Harvard Graduate School of Design and MIT. His books include *"Perception and Lighting as Formgivers for Architecture,"* and *"Sunlighting as Formgiver for Architecture."*

CONTINUED ON PAGE 16

A TOWERING ACHIEVEMENT.

TAKE KEITH THOMPSON'S EXPRESSIVE TALENT. ADD THE INNOVATIVE LIGHTING TECHNOLOGY OF FIBERSTARS. YOU'VE GOT A BRILLIANT COMBINATION, AND THIS YEAR'S I.E.S. INTERNATIONAL WINNER FOR EXCELLENCE IN OUTDOOR LIGHTING.



Easily installed illuminators allow longer runs of fiberoptic light on this '89 Waterbury Award winner.

FIBERSTARS' NON-ELECTRIC BANDS OF FIBER-OPTIC LIGHT GAVE KEITH THE ELEGANT, LEAN LINES HE DESIGNED, WITH THE NON-GLARING SUBTLETY HE DESIRED.

POWERED BY A NEW H.I.D. PROJECTION UNIT, UL-APPROVED FIBERSTARS PRODUCES EVEN BRIGHTER LIGHT, AND LONGER LAMP LIFE. AND, LIKE KEITH, YOU CAN DESIGN WITH A BRILLIANT PALETTE; CHOOSE FROM A RANGE OF COLORS WITH THE OPTION TO CHANGE CONTINUALLY FROM ONE TO ANOTHER.

THERE'S NOTHING TO BREAK OR BURN OUT, SO YOU CAN ILLUMINATE INACCESSIBLE AREAS EASILY—AND ECONOMICALLY. (OUR NEW 301 LIGHT PROJECTION UNIT DRAWS A MERE 1.8 AMPS.) AND FIBERSTARS' PLIABLE, UNBREAKABLE MATERIALS WORK ANYWHERE—UNDERWATER, AROUND CURVES, WHEREVER YOUR IMAGINATION LEADS YOU. WHICH FOR KEITH WAS RIGHT TO THE TOP.

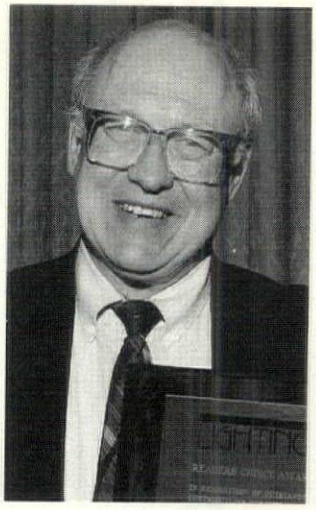
FOR MORE INFORMATION, CALL 1-800-FBR-STRS OR WRITE: 47456 FREMONT BLVD., FREMONT, CA 94538

Circle No. 15 on product card.

See us in Sweets. *©1990 Fiberstars*

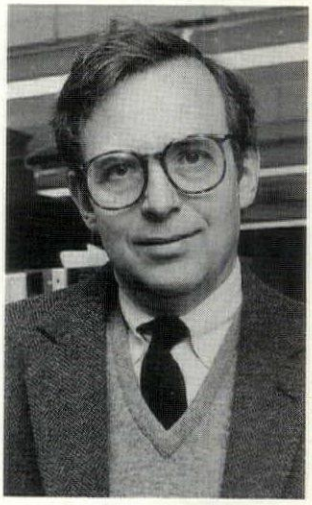
READERS' CHOICE CONTINUED FROM PAGE 14

DR. JOSEPH MURDOCH, FIES



Dr. Murdoch has been promoting the understanding of lighting during his years as professor at the University of New Hampshire, where he was department chairman from 1967-1976. He was an IPA fellow at the National Bureau of Standards and a visiting professor at the University of Edinburgh, Scotland. To further increase understanding in the lighting field, Dr. Murdoch served as editor of an engineering periodical at GE.

PAUL MARANTZ, IALD



With training in architecture, industrial design, and lighting, Paul Marantz brings a multi-disciplinary background to architectural illumination. He has received IALD lighting design citations for his work on the restoration of Carnegie Hall and for The Rainbow Room at Rockefeller Center. He also received the IALD Award for Excellence in Lighting Design for the National Gallery in Ottawa and the Royalton Hotel in New York.

LESLEY WHEEL, FIALD

Lesley Wheel is co-founder of the firm of Wheel-Garon, Inc.—now Wheel Gerstzoff Friedman Shankar Inc. She was the first, and for many years, the only woman to practice full time in architectural lighting design. Lesley was a founding member and past president of the International Association of Lighting Designers, and in 1979 was the recipient of the Designers Lighting Forum Honor Award. She is a fellow of the IALD and a former director of the Lighting Research Institute.

CONTINUED ON PAGE 18

E X P A N D I N G

H O R I Z O N S

ASID
American Society of Interior Designers

Searching for Success in the '90s?

Join ASID this summer for a National Conference that will expand your horizons to help you meet the design and business challenges of the next decade.

Select from a wide array of workshops and professional development courses (CEUs) identified as critical for the '90s interior designer. Lighting, color, historic preservation, and a host of specialty topics are included in a four-day educational package tailored to satisfy the needs of today's practitioners.

Learn the secrets of success from the leading figures of the design field at special events, award presentations, and book-signings by design authors.

Plus...the grand display of products and innovations that spell success—developed by the cutting edge of the interiors resource industry at the International Exposition of Designer Sources.

And it's all happening in the number two convention city in the nation—Atlanta—the best of the new south!

ASID NATIONAL CONFERENCE AND INTERNATIONAL EXPOSITION OF DESIGNER SOURCES

AUGUST 8–11, 1990

THE INFORUM–ATLANTA

For registration information, contact:
The American Society of Interior Designers
1430 Broadway
New York, New York 10018
212-944-9220

ASID
American Society of Interior Designers

Circle No. 25 on product card.

NUCKOLLS GRANT: (from left) Jeffrey Milham, president, Nuckolls Fund; Donald Dougald, University of Virginia; Gary Steffy, Nuckolls Fund board member; and Michael Bednar, University of Virginia.

Nuckolls Fund Grant Awarded

The University of Virginia, School of Architecture, is the 1990 recipient of a $5,000 grant from the James L. Nuckolls Fund for the Education of the Lighting Professional.

Professors Michael Bednar and Donald Dougald accepted the grant on behalf of the university at a presentation ceremony on April 10, 1990, held during the LightFair exposition and conference in New York.

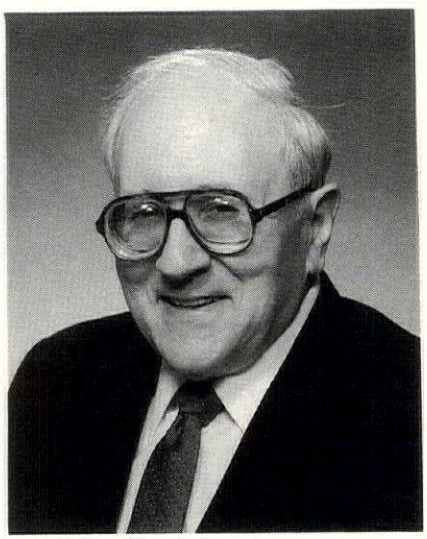
The proposal that earned the grant is for a program involving the development and documentation of lighting case studies on selected buildings. The case studies will be used as teaching tools by the faculty in architectural education programs.

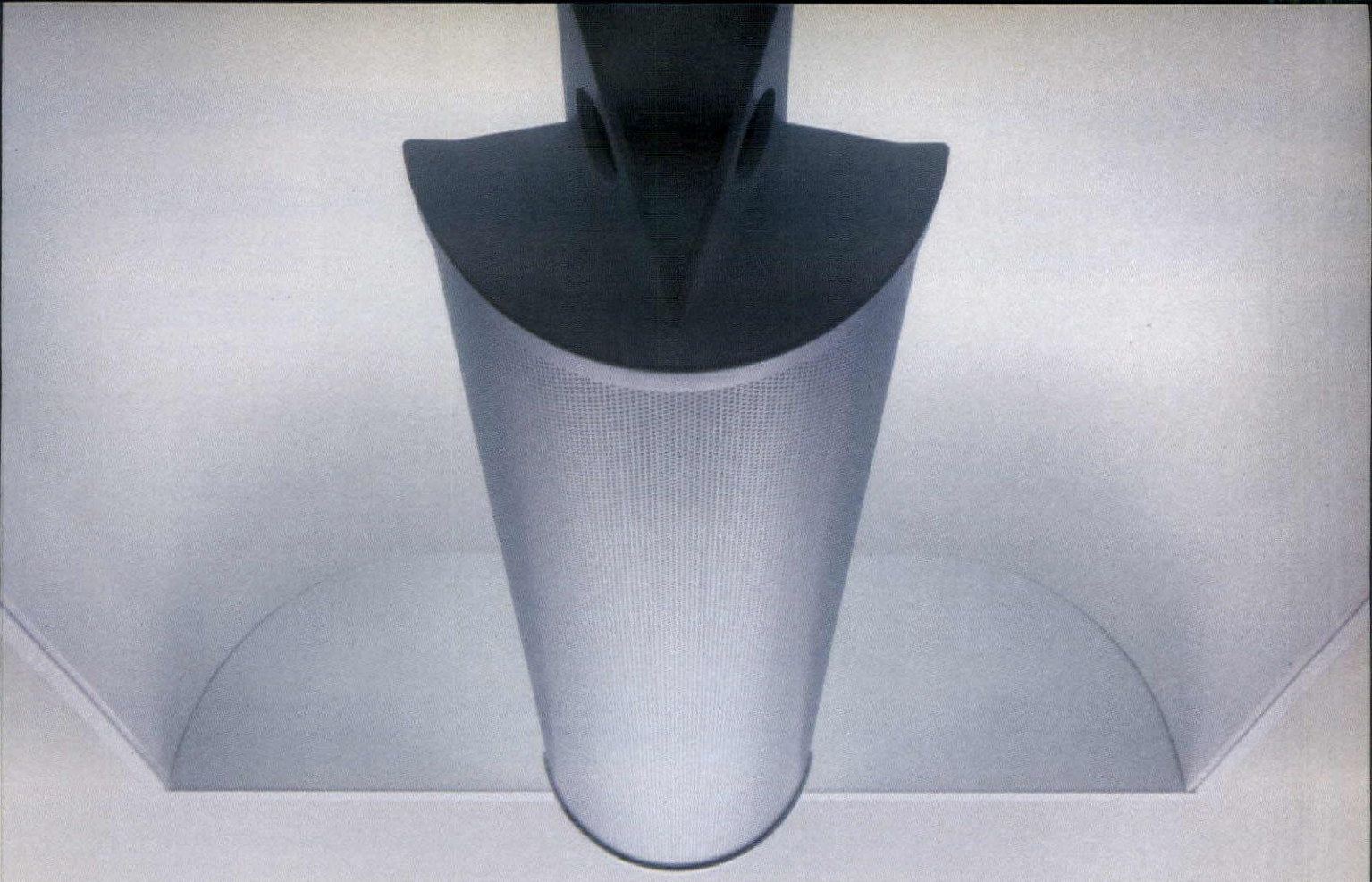
For information on the 1991 grant and the required application form, write to: James L. Nuckolls Fund for the Education of Lighting Professionals, 30 West 22 Street, 3rd Floor, New York, NY 10010-5874, or call (212) 807-7727.

READERS' CHOICE
CONTINUED FROM PAGE 16

STEPHEN S. SQUILLACE, PE, FIES

After 42 years in the architecture and engineering fields, Stephen Squillace is now principal of Shreve Weber Stellwagen Engineering, Inc. Some of his major projects include Dow Chemical Company and General Motors. His published works include "Chaos in the Ceiling" and "Lighting and the Law." Other achievements include being co-inventor of a contrast ESI meter, and development director of two software packages.





2 x 2 x Zumtobel

The "Standard" fixture that is anything but standard. Zumtobel's Recessed Comfort RC ™ Luminaire combines the sensation of indirect lighting with the performance of direct lighting.

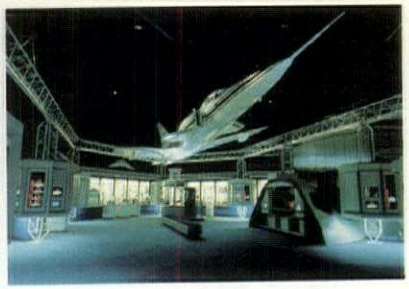
Engineered and designed to satisfy every expectation of the discriminating specifier...the result is harmonious light.

Take a close look at Zumtobel. Innovative lighting solutions. Uncompromising quality and performance. State-of-the-art manufacturing facilities. A worldwide commitment to excellence in lighting.

ZUMTOBEL

The Recessed Comfort RC ™ Luminaire Series by Zumtobel. For further information and the name of your local Zumtobel Sales Representative, please contact us at: Zumtobel Lighting, 141 Lanza Avenue, Bldg. 16D, Garfield, NJ 07026 201 340-8900. FAX 201 340-9898.

Circle No. 13 on product card.



FLAWLESS FLORENTINE: "Beyond the Limits" exhibit, designed by Frank Florentine, has won the 1989 GE Edison Award of Excellence.

Smithsonian Exhibit Wins GE Edison Award

The winner of the 1989 GE Edison Award for Excellence in lighting design is Frank A. Florentine's "Beyond the Limits: Flight Enters the Computer Age" exhibit at the Smithsonian Institution's National Air and Space Museum in Washington, D.C. The exhibit featured over 300 GE concealed MR 11 lamps.

Florentine's entry won for its superiority in the five judging categories: functional excellence, architectural compatibility, effective use of state-of-the-art lighting products and techniques, energy and cost effectiveness, and good color, form, and texture renditions. Florentine also won the award in 1986 for another Smithsonian installation.

Five other finalists in the competition received Awards of Excellence for their submissions including: Ronald Harwood, principal, Illuminating Concepts, for the Fox Theatre renovation in Detroit; David Komonosky, electrical engineer, for the lighting of Hewlett Packard in Roseville, CA; Barbara Baker, president, Off the Wall Co., for Shop Rite in Freehold, NJ; Thomas J. Skradski and James R. Benya, lighting designers, Luminae Souter Lighting Design, for Bank of the West in San Jose, CA, and for The Russ Building in San Francisco.

Special citations were awarded to: Luminae Souter Lighting Design's Ross DeAlessi, principal, and Deborah Witt and Takae Oyake, lighting designers, for Gumps 1989 Christmas Windows; and Pamela Morris, president, Exciting Lighting, for the Postrio Restaurant in San Francisco.

For information on the 1990 Edison Award Competition, contact GE Lighting, Nela Park #4162, Cleveland, OH 44112.

Lee Boyack Memorial Scholarship Awarded

The recipient of the 1990 Lee Boyack Memorial Scholarship is Brett Dale Sare, from Southwest Texas State University. The award is given annually to a graduating senior in an accredited interior design program who has presented a creative educational use for the scholarship money. Sare will receive the $2,500 award at the ASID National Conference Student Connection in Atlanta next month.

Laurie Weatherford of Arizona State University will also be honored with an expense-paid week-long training at Lutron Electronics in Coopersburg, Pa.

For more information on the Lee Boyack Memorial Scholarship, contact: Design Foundation, Two Henry Adams Street, Suite 301, San Francisco, CA 94103.

HILTON™

THE HILTON SERIES

by LSI Lighting Systems

Combine vertical burn distribution with a sleek round housing and you have the Hilton Series, one of the most innovative and attractive architectural lighting systems available. The elegant styling of this luminaire is highlighted by arm or pole top mounting and by a reveal accented with your choice of twelve designer colors. For those who seek the ideal in everything, the Hilton Series is the only choice.
Call today for complete details — **1-800-782-3202**.
In Ohio call **1-513-793-3200**.

Accent Stripes

lsi lighting systems™

LSI LIGHTING SYSTEMS
A Division of LSI Industries Inc.
P.O. BOX 42728, CINCINNATI, OHIO 45242
Circle No. 9 on product card.

Highway Light Pole Standards To Take Effect July 1, 1990

The new Federal Highway Administration (FHWA) standards come as a follow-up to requirements established in the 1985 American Association of State Highway and Transportation Officials (AASHTO) *Standard Specifications for Structural Supports for Highway Signs, Luminaire and Traffic Signals.*

The provisions essentially establish that any highway pole must:

1) break away upon minimal impact to reduce the possibility of injury, and
2) ensure that the structural support or base not protrude more than four inches above the ground after the pole breaks away.

Under the new guidelines, the maximum change in velocity upon impact is limited to no more than 15 feet per second using an 1800 pound vehicle as a standard. This is a reduction of 20 percent from the old guidelines. As previously stated, the new requirements also stipulate that after impact, there can be no more than four inches of remaining material projecting above the ground. This is to prevent further loss of control due to potential contact with the undercarriage of the vehicle. Those interested in finding out which companies are in compliance with the standard can call their State highway department.

SMOOTH SALE-ING: Ileen Riskin is the new Midwest/Eastern Sales Manager for *ARCHITECTURAL LIGHTING.*

Riskin Joins ARCHITECTURAL LIGHTING Sales Team

Ileen Riskin has joined the advertising staff of ARCHITECTURAL LIGHTING as its Midwest/Eastern Manager. She has worked in advertising for four years, beginning as an account executive at the *New York Daily News* in 1986, and most recently as a Northeast District manager at *Hotel/Motel Management* magazine.

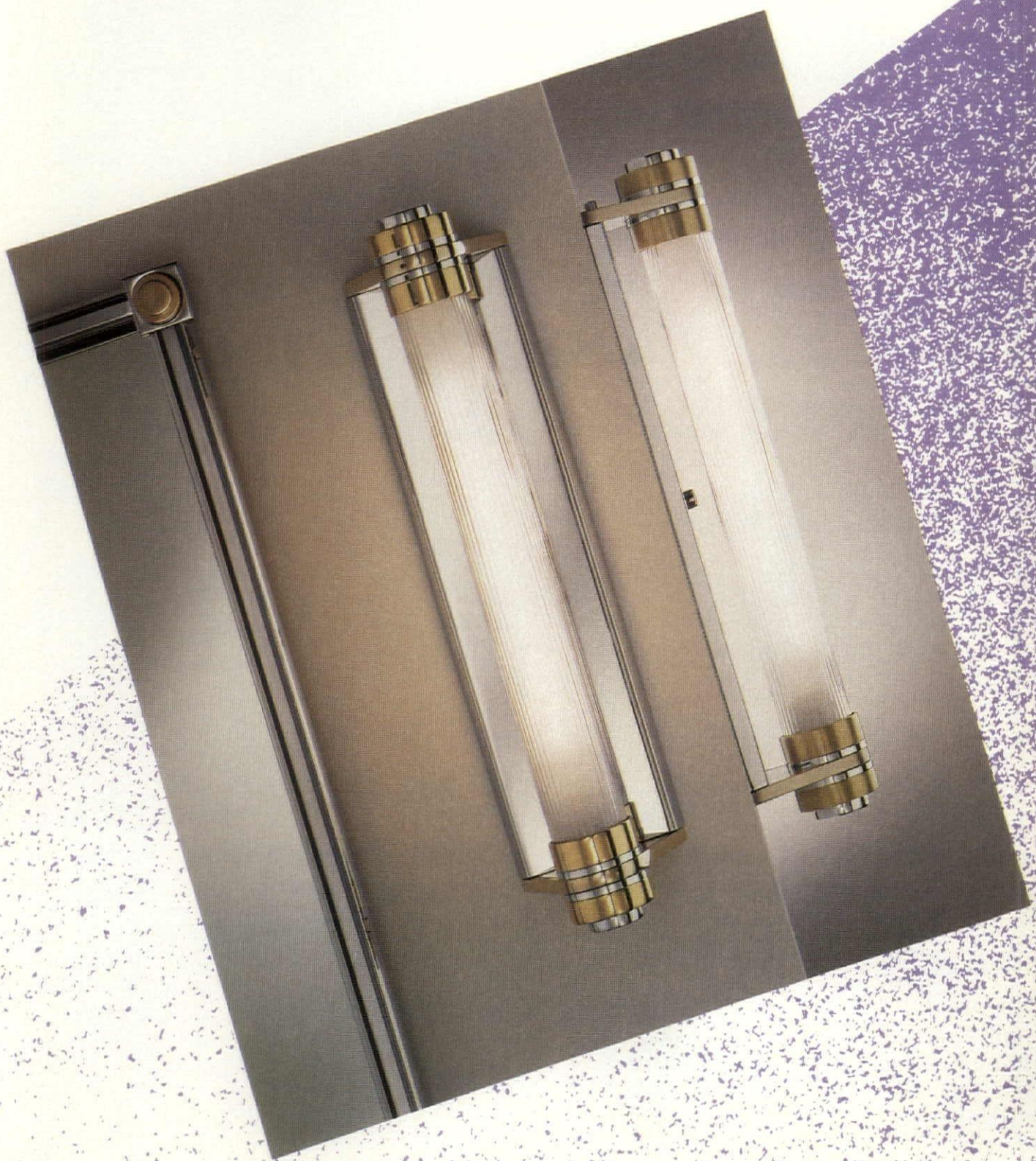
"I think it's important for all those involved in the lighting industry to have an on-target vehicle to turn to," she said in reference to *ARCHITECTURAL LIGHTING.*

B O Y D

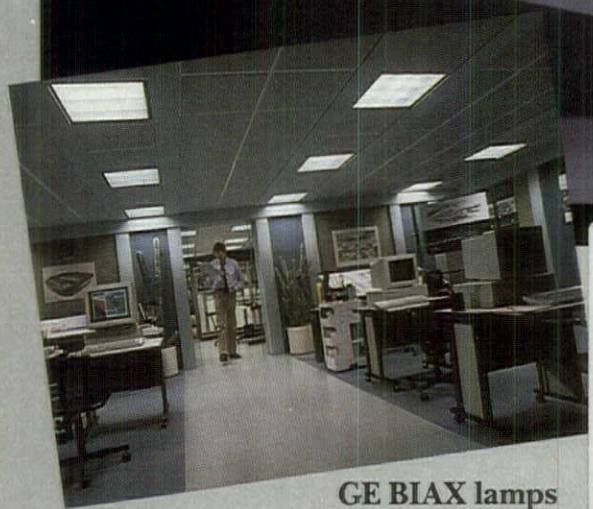
B A T O N

Rich, radiant and exquisitely elegant, the "Baton" captures the brilliance of light as it sparkles against hand-finished brass and chrome. The fluted glass cylinder, lined with a white, spun filter, diffuses incandescent or fluorescent lamp sources for direct illumination. UL Listed. Designed by Doyle Crosby.

Boyd Lighting Company
Fifty Six Twelfth Street
San Francisco, CA
94103.1293
Telephone 415.431.4300
FAX 415.431.8603



GE Is The Light That Will Reshape The Way



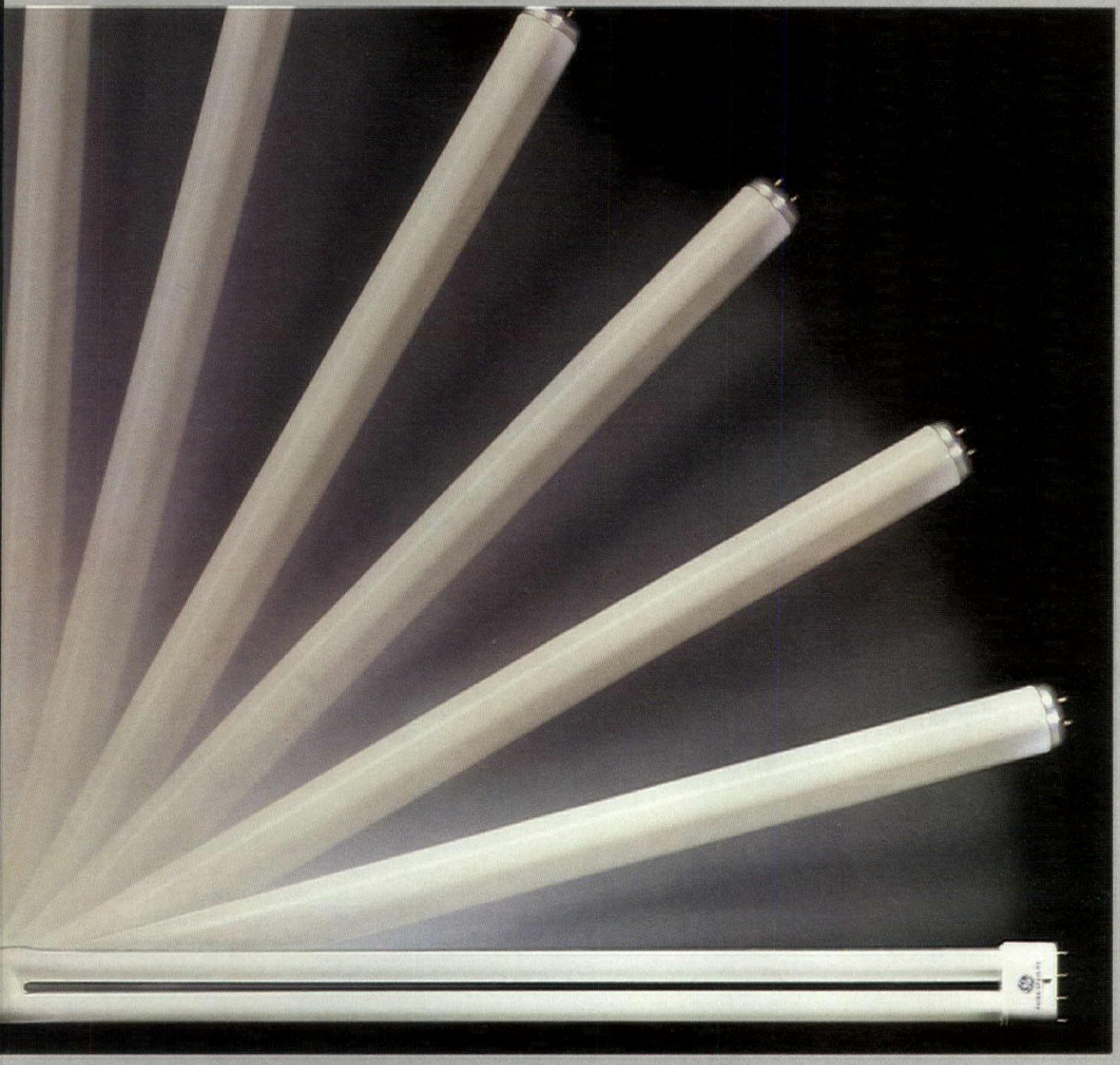
GE BIAX lamps make everybody and everything, including operating costs, look better.

It won't take you long to discover that with GE BIAX™ 40-watt lamps, the design possibilities are endless.

Because they're only 22.5 inches long, yet deliver all the light of standard four-foot fluorescents, you can design with smaller fixtures. And that means more attractive ceilings.

And because BIAX lamps make colors look richer and more vibrant than standard fluores-

YOU DESIGN LIGHTING.



cents can, the lighting you design will make the environment and the people who work in it more attractive.

Equally attractive is the amount your clients will save on operating costs. GE BIAX 40-watt lamps, you see, last up to 8,000 hours longer than conventional U-shaped tubes. And 13 times longer than incandescents.

Feast your imagination on the endless possibilities of the GE BIAX family of lamps.

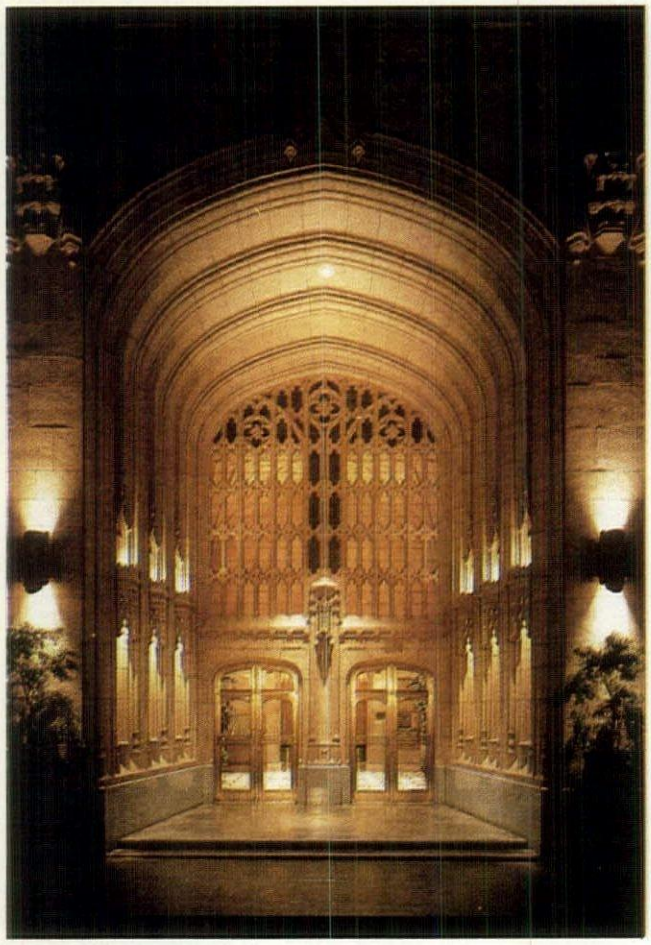
For more product or application information, call your local GE Specification Area Manager. Or call the GE Lighting Information Center at 1-800-523-5520.

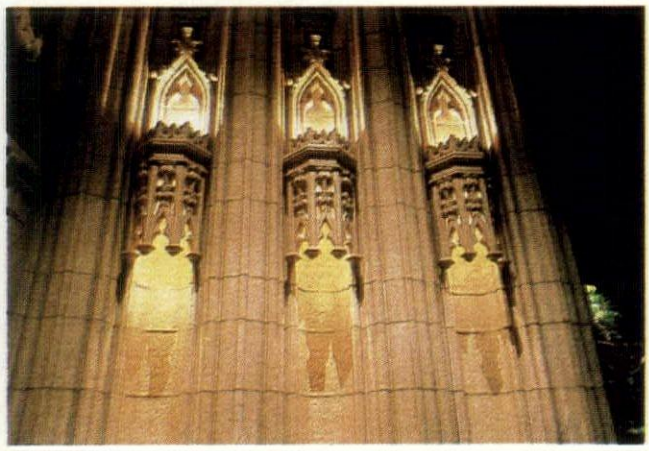
GE is Light.

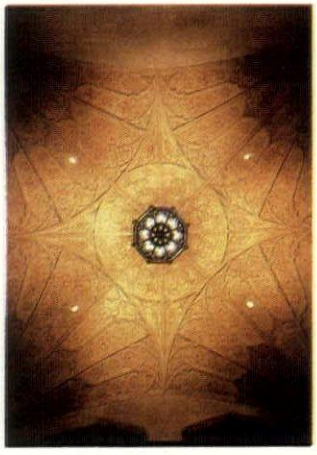
GE Lighting

Circle No. 18 on product card.

Bringing Gothic Up To Date







CLASSIC ARCHITECTURE: The highly ornamented ceiling (right) houses quartz downlights which provide light for the space below. Illuminating the entry arch are halogen lamps used as uplights behind the sconces (above); halogen lamps also illuminate the pilasters of the building facade (left).

BY CHRISTINA LAMB
ASSISTANT EDITOR

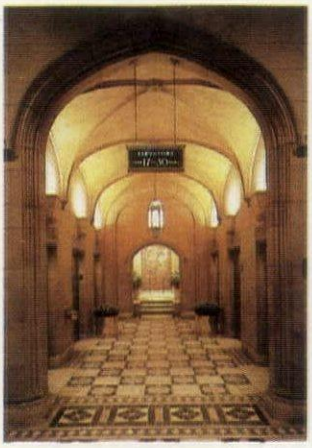
CHALLENGE The lobby and entry of the Russ Building, San Francisco, a historical landmark designed in the Gothic style, remained dark and gloomy despite various improvements that were made since the building's 1927 opening. The lighting design team of Thomas Skradski, ASID, IALD, and James Benya, IALD, IES, of Luminae Souter Lighting Design, was challenged with improving the warmth and brightness of the lobby, while not detracting from the impact of the classic architecture.

DESIGN/TECHNICAL CONSIDERATIONS Emphasis was placed on retaining and restoring the existing chandeliers as sources of general illumination. Also, repairs were required to update the existing illuminated elevator signs. The renovation required a lot of retrofitting and flexibility in order to maintain the unity of the original design.

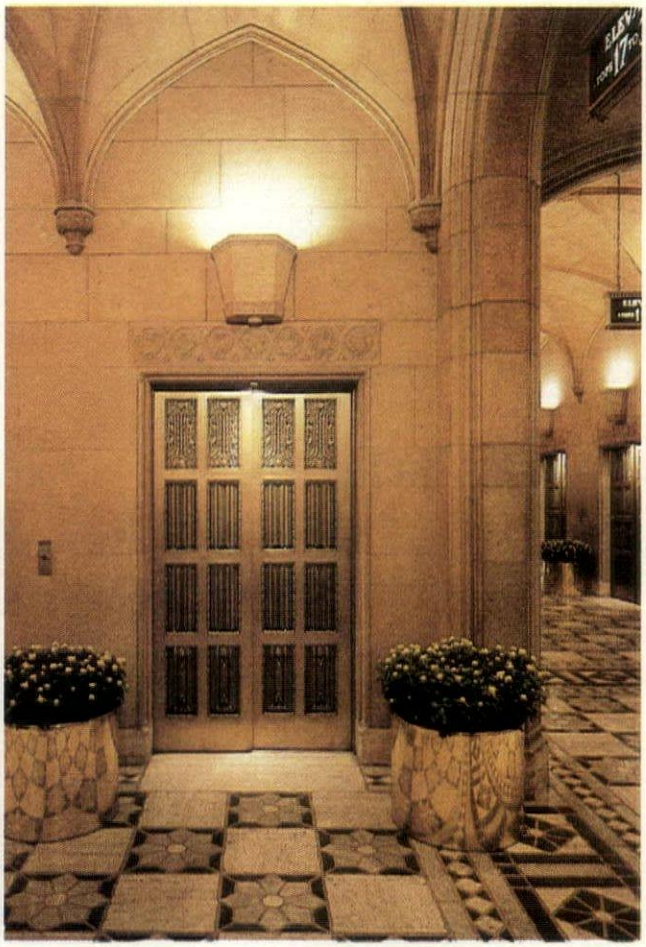
METHOD The Gothic chandeliers in each of the three main elevator lobbies were removed, cleaned, rewired, and refitted with 13-watt compact fluorescent lamps. At the end of the elevator corridor, a focal wall is covered by a period tapestry, which is highlighted with 150-watt, semi-recessed quartz wall-washers, and 90-watt halogen recessed adjustable downlights illuminate the floor, plants, and stairs. The existing sconces above the elevators were retrofitted with 350-watt quartz asymmetrical uplights, and the elevator call lights were relocated in the bottom of these fixtures, allowing 20-watt MR 16 lamps to graze the elevator doors.

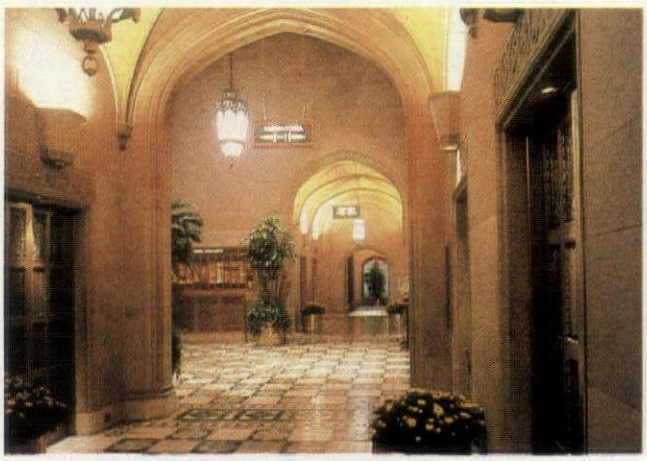
The central lobby is two stories high and has a single main chandelier, which was cleaned and retrofitted with a series of 13- and 39-watt compact fluorescent lamps. The top of the central chandelier was fitted with concealed 250-watt quartz floods as uplights for the highly ornate groined ceiling, fashioned in the Gothic tradition. To provide bright, horizontal floor illuminance, four 500-watt quartz ellipsoidal downlights were installed in the ceiling. The four new downlights, standardly used in churches, are narrow aperture, high-bay quartz fixtures.

San Francisco's Russ Building is retrofitted with a blend of halogen, quartz, and compact fluorescent sources



UPDATING HISTORY: Gothic chandeliers in the elevator lobbies (left) are retrofitted with compact fluorescent lamps, and the original sconces above the elevator doors (right, below), which now house the elevator call lights, are refitted with quartz uplights.





The Gothic ornamentation of the entry arch is illuminated by 90-watt halogen lamps, which are used as uplights behind the sconces. Cored into the bottom side of the wall sconces, 50-watt MR 16 recessed damp label fixtures are recessed and angled slightly inwards to create an asymmetric effect in each niche. One more 500-watt high-bay quartz downlight was added in the center of the entry's compound arched ceiling to brighten the floor and threshold.

Along the street side exterior walls, a series of custom-designed shrouds create sconces out of conventional 90-watt halogen PAR 38 up/down cylinders, which symmetrically illuminate the pilasters of the building facade as well as the public sidewalk leading to the entrance.

CONCLUSION Halogen lamps were selected for their warmth, consistent color, and dimming ability, and all interior luminaires are easily accessible for maintenance purposes. Very few adjustments had to be made to accommodate this new lighting system—18 2.5-inch holes and five 6-inch holes were added—so as not to alter the building's facade and lobby architecture. Despite maintaining about the same power density as before, the illumination levels were increased and the overall appearance and warmth of the building were improved greatly. The lighting designers recently received Awards of Excellence in the 1989 GE Edison Award competition, as finalists for their work on the Russ Building.

DETAILS

PROJECT: *ENTRY AND MAIN LOBBY OF THE RUSS BUILDING*
LOCATION: *SAN FRANCISCO*
LIGHTING DESIGNERS: *THOMAS J. SKRADSKI, ASID, IALD AND JAMES R. BENYA, IALD, IES—LUMINAE SOUTER LIGHTING DESIGN*
ARCHITECTURE: *GENSLER AND ASSOCIATES*
ELECTRICIAN: *LERA ELECTRIC CO.*
PHOTOGRAPHER: *DOUGLAS SALIN, DOUGLAS SALIN PHOTOGRAPHY*
MANUFACTURERS: *ELLIPTIPAR: 150-watt quartz, and 350-watt quartz lamps; LIGHTOLIER: 90-watt halogen lamp (at end of hall); C.S.L. LIGHTING: 20-watt MR 16; RAMBUSCH LIGHTING: 500-watt quartz downlight; STONCO: 250-watt quartz and 90-watt halogen lamp (top sectional of wall sconce); CAPRI LIGHTING: 50-watt narrow field MR 16; PRESCOLITE LIGHTING: 90-watt halogen lamp (wall sconce on facade); GENERAL ELECTRIC: compact fluorescent lamps*

MagneTek means energy-$aving ballasts.

Are fluorescent lights all that your clients are burning?

MagnéTek energy-efficient ballasts can help your clients reduce lighting energy costs by up to $2 per fixture per month. Payback is typically less than two years. And that's just for starters.

The average life expectancy of MagnéTek energy-efficient ballasts is double that of conventional ballasts, so ballast maintenance costs are cut in half. Cooler operation reduces air conditioning requirements. And since less energy is needed for lighting, more power is available for adding computers, copiers, production machinery and other equipment, particularly in buildings with energy consumption limits.

MagnéTek offers every type of energy-efficient ballast, all complying with the new Federal energy law. You can specify the right one for your client's capital and operating requirements. Depending on lamp type and kilowatt hour rate, they can save up to:

- 28% with low cost Universal™ CBM certified energy-efficient electromagnetic ballasts.
- 35% with our Universal Plus™ hybrid ballasts which combine electromagnetic and electronic technology.
- 42% using proven Triad™ electronic ballasts. With over a

decade of reliable performance, we have millions more electronic ballasts in the field than all other brands combined.

MagnéTek ballasts offer optional performance features like high/low light level switching and parallel circuitry for single-lamp replacement convenience. We back them with a full 3-year warranty covering ballast and replacement labor.

Don't burn your client's money. Write MagnéTek, P.O. Box 3028, Paterson, New Jersey 07509 for information.

For immediate service, call 1-800-BALLAST.

MagneTek

MagnéTek, P.O. Box 3028, Paterson, NJ 07509

Please send me complete information on:

- ☐ MagnéTek Universal electromagnetic ballasts
- ☐ MagnéTek Universal Plus hybrid ballasts
- ☐ MagnéTek Triad electronic ballasts

☐ Have your representative call

☐ Send me a FREE Energy & Cost Savings Computer slide chart

Name_____

Title_____ Phone_____

Company_____

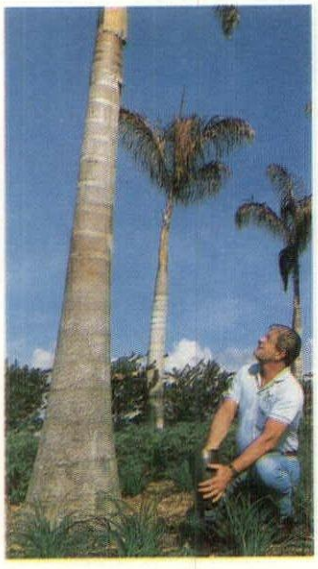
Address_____

City_____ State_____ ZIP_____

Circle No. 19 on product card.

Metal Halide Marks Entry To Corporate Park

BY CHRISTINA LAMB
ASSISTANT EDITOR



THE RIGHT ANGLE: Ground-mounted bullets housing R 38 metal halide lamps are aimed at 90-degree angles (right), along a 200-foot double row of palm trees (top), to maintain Sawgrass Park's upscale image in the evening (above).

CHALLENGE Sawgrass International Corporate Park, Sunrise, FL, a new, upscale corporate park, is located at a major crossroad. Due to the park's high visibility, it is important that attention be drawn to the property both day and night. The landscaping at the entrance sets the stage for the image of the park as a whole. In order to promote that upscale look at night, a lighting system had to be installed at the park's entranceway to illuminate the landscape features and attract passersby.

DESIGN/TECHNICAL CONSIDERATIONS Design criteria were outlined to ensure that the upscale image be maintained throughout the project, the maintenance costs and fixture relamping be kept to a minimum, and the lighting provide "evening appeal."

METHOD The 61, 30-foot-high palm trees that flank the entranceway are illuminated with a total of 82 ground-mounted bullets with 100- and 175-watt R 38 metal halide lamps. One bullet is installed at the base of each of the 47 palms that form a 200-foot-long double row at the entrance, and two bullets are installed at the base of each of the remaining 14 palms (seven on the median and seven in planters). Seven fixtures light the Royal Poinciana plants that encircle the palm trees. These fixtures are mounted at 90-degree angles, concentrating light directly at the fronds with minimal dispersion. This creates a strong contrast of shadows and light, resulting in the desired dramatic effect. Also, the lighting calls attention to the 50-foot coral stone sign that marks the entrance to the park.

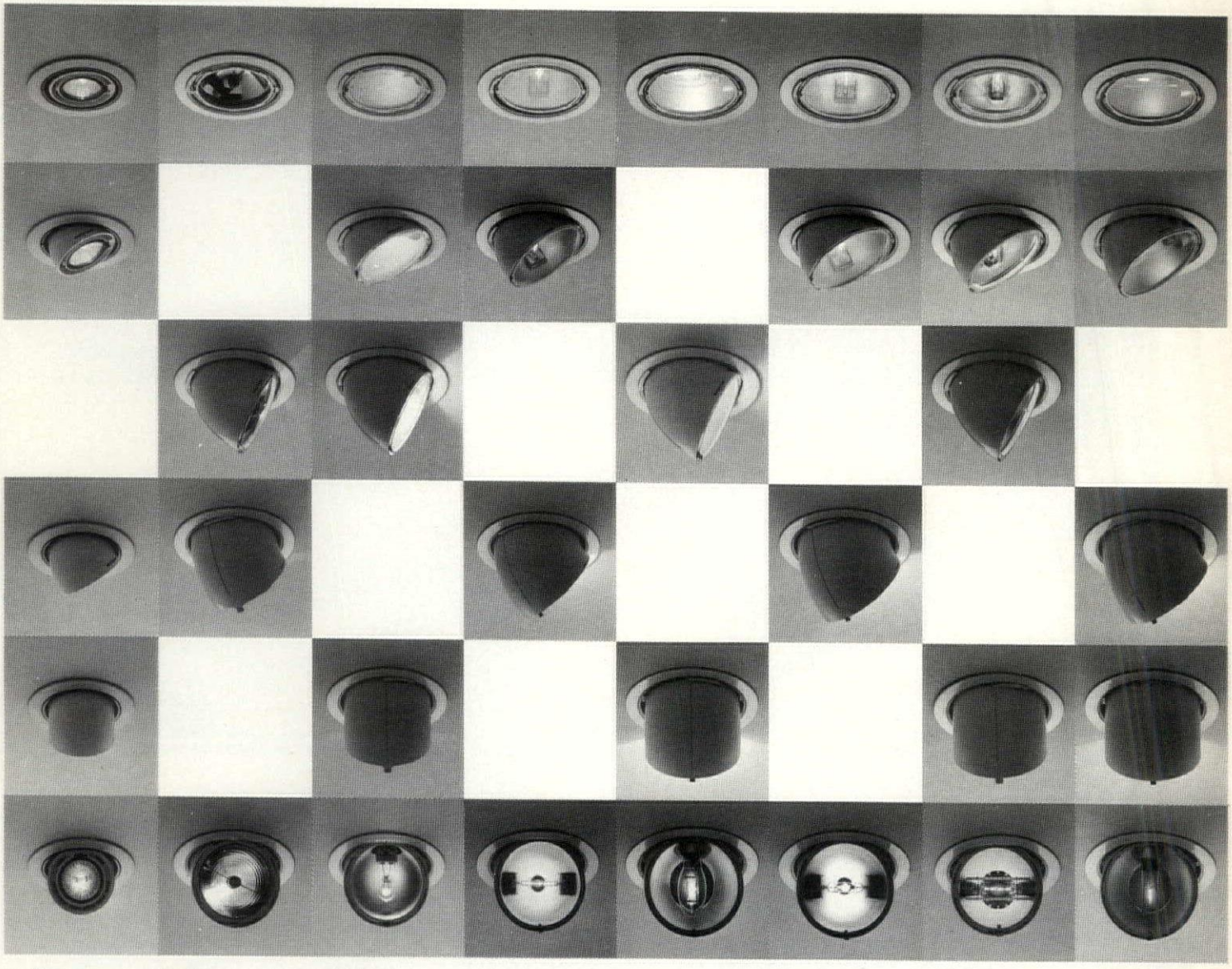
CONCLUSION The expansion of the corporate park will be completed over the next 10 to 15 years and will rank as one of South Florida's largest office/industrial/research business parks. It has 612 acres and will offer a variety of amenities such as lakes and other water features, outdoor artwork, a fitness center, cultural facilities, and a child care center.

DETAILS
PROJECT: *SAWGRASS INTERNATIONAL CORPORATE PARK*
LOCATION: *SUNRISE, FL*
DEVELOPER: *STILES CORP.; WESTINGHOUSE CREDIT CORP*
LANDSCAPE ARCHITECT: *RHETT ROY ASSOCIATES*
ELECTRICIAN: *HINES ELECTRIC*
PHOTOGRAPHER: *GARY DOTY, GARY DOTY PHOTOGRAPHY*
MANUFACTURERS: *STONCO LIGHTING: Architectural Series lampholders; VENTURE LIGHTING INTERNATIONAL, INC.: ProArc R 38 metal halide lamp with built-in reflector system*

DOWNSPOT by REGGIANI

PRODUCT DESIGN AWARD

Design Fabio Reggiani



Low Voltage MR11-MR16-35-75W

Low Voltage Superspot-50W & Par36 50W

Single Ended Tungsten Halogen 100W

Linear Double Ended Tungsten Halogen 100-300W

Metal Halide-Single Ended 100W-Sylvania

HQT-Double Ended 70-150W

Linear Tungsten Halogen 100-300W

High Pressure Sodium 70-100-150W White-Son

DOWNLIGHT+SPOTLIGHT=DOWNSPOT

ADJUSTABLE ▽ 60° VERTICAL ⊕ 356° HORIZONTAL • FOUR SIZES IN ONE UNIFIED DESIGN

POLYBLOK by REGGIANI

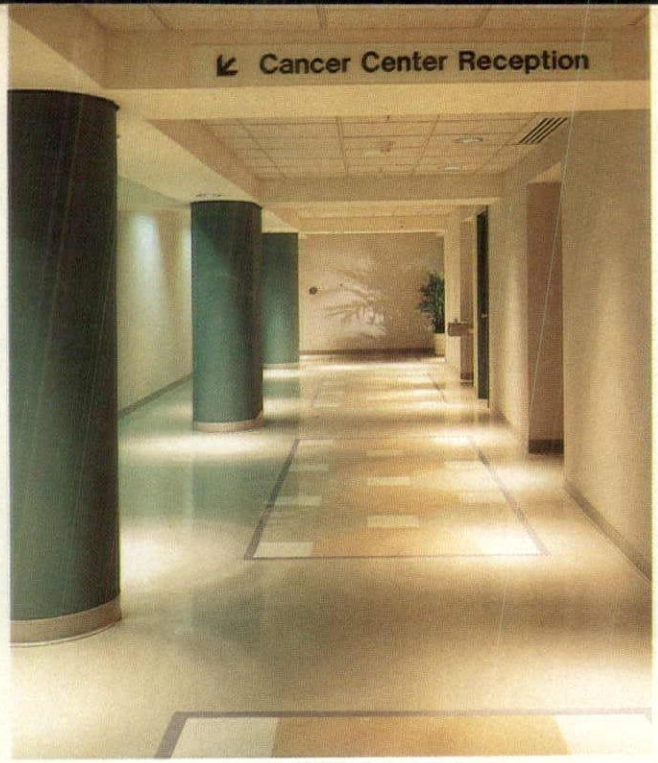
POLYBLOK - New system for ventilation and lamp/glass retention Downspots are UL listed and IBEW made. Two recessed housings accomodate entire series - 3-5/8" recess depth for MR16, Par36, and linear halogen, HQI. Metal Halide and HPS-8" recess depth.

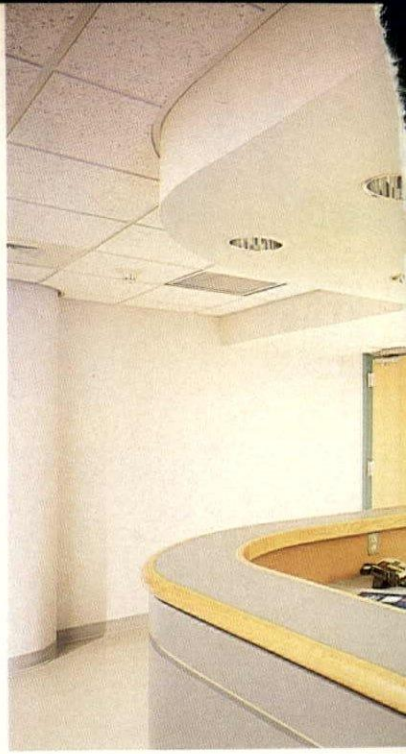
Specification catalog available covering complete "Downspot" Series.

REGGIANI USA INC ILLUMINATION

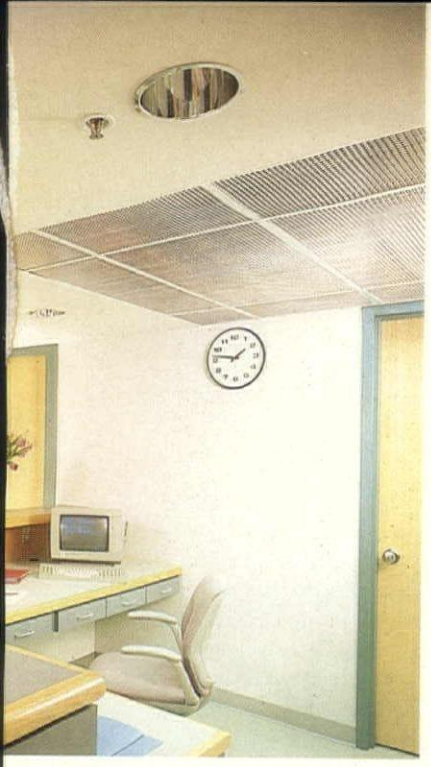
Circle No. 20 on product card.

FACTORY: 65 RIVER ROAD - NEW WINDSOR, NY 12550 - PHONE 914-565-8500 - FAX 914-562-3082
SHOW ROOM: REGGIANI LIGHT GALLERY - 800A FIFTH AVENUE, NEW YORK, NY - PHONE 212-421-0400





HALLS OF MEDICINE: The Hartford Hospital cancer unit's main waiting area features decorative sconces made of 12-inch–diameter frosted glass plates and polished chrome button centers. They're illuminated with 10-watt S11 clear incandescent lamps (below). Glowing fluorescent lamps and recessed PAR lamps warmly illuminate the corridors (left). Functional lighting above the nurse station (right) is provided by a mix of recessed downlights and a luminous fluorescent ceiling.



Softening The Blow

Sensitive lighting warms up the spaces of Hartford Hospital's cancer unit

BY CATHERINE SCHETTING SALFINO
MANAGING EDITOR

Cancer. It's a word that has the power to scare anyone. And the mention of radiation treatment invokes apprehension, confusion, and even more fear.

It is for precisely these reasons that the lighting of the Hartford Hospital's newly-renovated cancer unit was designed to cast a general softness throughout the space. The architectural firm of RTKL Associates Inc., Baltimore, purposefully created sensitive lighting that takes into account the function it will serve. Warmer illumination may not totally calm the fears of the patients, the designers say, but it won't—like cold, white light might—make the treatment procedure seem even more harsh and unfeeling. The lighting was also used to highlight the architecture of the hospital's new addition, which was started in 1986 and completed March 1990.

"The lobby is two stories high with clerestory windows that allow in natural light from the east and south sides," says Tom Graves, RTKL associate and project architect. "By combining natural light and fixtures, we flood this space with illumination, which is good because this is the main reception area. We tried to make it look a little more special than the standard hospital corridors to give it a sense of importance."

NOVEL APPROACH

Uncommon accents in the space include decorative button sconces installed on the bulkhead of the waiting area at mid-story height. Low-voltage adjustable accents with clear alzak (silver) reflectors wash the columns with light from 50-watt PAR 36 SP lamps. Recessed quartz downlights on the second-level ceiling provide general lighting with 250-watt PAR 38 SP

PHOTOS BY OTTO BAITZ

THE HUMAN ELEMENT: The radiation therapy room (above) was designed with the patient in mind—no lights are directly above the area of treatment. The lighting is a combination of fluorescent lamps (which operate at full intensity during pre-patient set up) and incandescent fixtures (which provide a warm touch).

lamps. In case of a loss of normal power, RTKL installed 4-foot, two-lamp fluorescent strip lights in the pocket of the beam. The corridors also have unusually warm light, says Bill Jack, associate principal of the mechanical/electrical studio and project engineer. A series of concealed fluorescent lamps were installed to one side of the hall to create the illusion of daylight. The luminaires use 6-inch-wide × 4-foot-long, 34-watt fluorescent lamps. The two-lamp, warm white energy saving tubes are spaced 10 feet on center.

The fluorescent lamps glow from behind oversized green columns, which are opposite recessed downlights. These straight downlights are biased to one side of the hallway because, Jack says, that particular portion of the center was in the renovation area. Due to field conditions and all the duct work supplies and piping required for a medical facility, there was only enough space within the ceiling to achieve a single row of recessed fixtures.

The recessed 150-watt PAR 38 lamps are housed in 8-inch clear alzak reflector fixtures, and spaced 6 feet on center. The same type of fixtures, installed on either side of the columns, wash the front and rear faces of the giant pillars.

The nurse station lighting incorporates a design format consisting of recessed downlights over the counter with a luminous ceiling above the general area. This series of fixtures includes 4-foot, 34-watt energy-saving lamps and ballasts, which are mounted 1 foot on center. About 1 foot below the lamps are half-inch × half-inch × half-inch silver parabolic louvers. The fluorescent ceiling is supplemented with light from compact fluorescent twin PL 9-watt downlights that are mounted horizontally in the fixtures. Jack says a horizontal lamp-mounting conceals the source more adequately in the reflector. The lamps above the station countertops are typically 2-3 feet on center, and are wired for multiple-level switching so that they can be operated at a low or high level of illumination.

"This is done," Graves says, "because, although the cancer unit holds 9 to 5 hours, other areas of the hospital operate 24-hour stations. The lighting can be adjusted to offer a more pleasant nighttime surrounding."

In an adjacent corridor near the station, there are 2-foot × 2-foot fluorescent sources, which, Jack says, is what RTKL and the Hartford Hospital have standardized for lighting the patient care corridors. Each fixture contains two 34-watt, warm white U-shaped lamps with the half-inch × half-inch × half-inch silver parabolic louvers.

"We were aiming for a low-brightness condition both in the corridors and in the areas above the nursing station. We achieved that look with this louver," Graves says.

Some of the hospital corridors that are accessed only by the hospital staff have been done

WORKING WITH HOSPITAL STAFF

SIDE LIGHTS

A NUMBER OF SENSITIVE instruments are located in the radiation therapy room of the Hartford Hospital's cancer unit. Because of the radiation, the architectural and design team of RTKL Associates Inc., Baltimore, didn't want any stray interference from the light sources to cause misreadings on any of the machines or equipment control instruments.

On a recommendation by the hospital staff, the team installed a prismatic lens in the fluorescent lighting fixtures. The piece is a radio-frequency shielded lens that, in some regard, blocks any electrical magnetic interference coming from the ballast, the team says.

in a 2-foot × 2-foot fluorescent format but with an acrylic lens, Jack says. The consideration for these spaces was for lower costs.

SOOTHING LIGHT

The linear accelerator machine stands boldly in the center of the radiation therapy room. This is where the cancer patients receive the beams of radiation treatment. Graves says the concept in this room called for variable lighting that wouldn't be too glaring if the patient is facing the ceiling.

"The lighting is a mixture of fluorescent and incandescent," he says. "The fluorescent lamps are normally operating at full intensity during the pre-patient set up of the room. Once the patient is brought into the room, but before the treatment begins, technicians need to aim lasers on the patient's body as part of the process."

During the patient set-up, the fluorescent luminaires are turned off and the light level of the incandescent sources is dimmed so that the laser projections are very visible.

"We're also trying to create a condition that will relax the patient," Jack says.

The fluorescent luminaires here are the U-shaped, 34-watt energy-saving lamps housed behind the silver parabolic louvers. The recessed downlights contain 100-watt A 19 lamps housed in 6-inch-wide recessed clear alzak reflector fixtures. These are 6 feet on center in one direction and 4 feet on center in the other. The lighting is the same for the cancer unit's simulator room, where a set up is made of the operation that actually takes place in the therapy room.

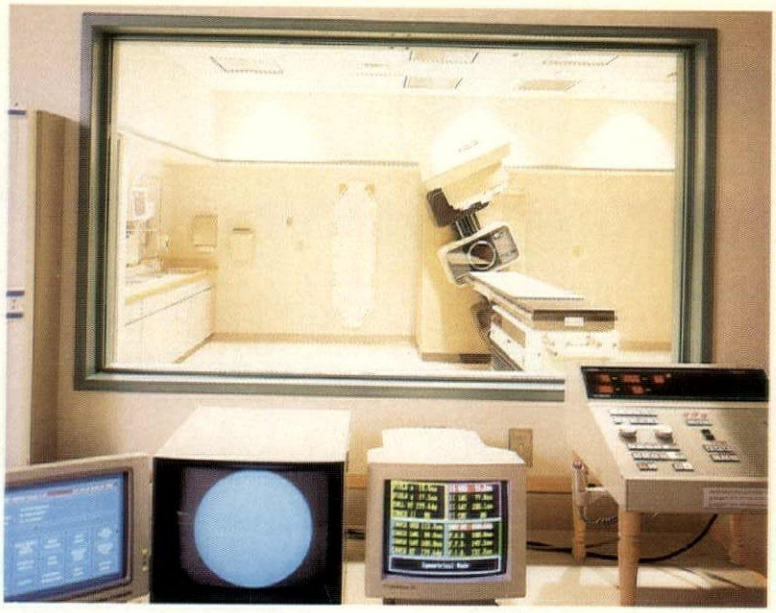
The simulator room is used for diagnosis. It contains the diagnostic x-ray machines and the laser centering equipment, but it doesn't actually produce radiation. Here, the physicians are able to locate and determine the size of cancerous tumors. This information is inputted into an elaborate computer system, and then programmed into the radiation therapy controls. When the patient is brought into the therapy room and aligned in the same manner as in the simulator room, the treatment machine emits the radiation in exactly the right point, without hitting any other areas of the patient.

Outside the therapy and simulator rooms are control booths, which contain monitors, computers, and other technical equipment. The booth for the simulator area looks right into the room. But the booth for the therapy room is located behind 3 feet of solid concrete.

"This is because of the heavy radiation that is used in there," Graves explains. "Once the patient is led into the room and set up for the procedure, everyone else must leave. They view the procedure from closed-circuit TV cameras."

The control rooms are illuminated with four 4-foot fluorescent fixtures with low-brightness parabolic louvers. The team installed white overlay above the panel to cut down on lamp image glare and conceal the lamps.

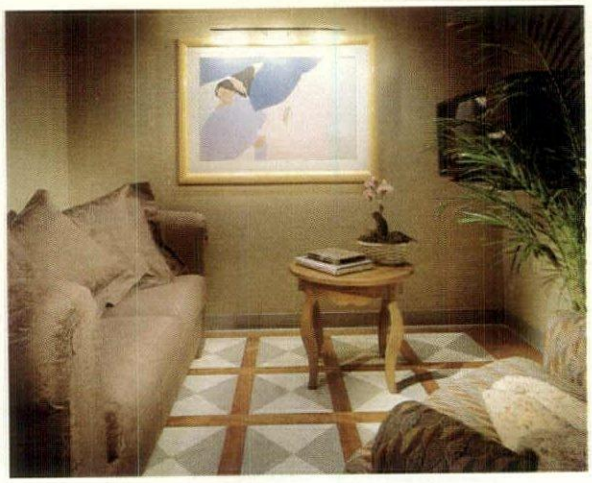
"The patient is all alone in the room. That's why it was so important to keep the lighting soft and warm," Graves says. ■



RELAXING THE PATIENT: The U-shaped, 34-watt fluorescent luminaires used in the simulator room (above) match those used in the radiation therapy space. The hospital staff can view the patient in the simulator room through a glass partition. The control booth here, and that of the therapy room, are lit with 4-foot fluorescent tubes concealed by a low-brightness parabolic louver.

DETAILS

PROJECT: *HARTFORD HOSPITAL CANCER CENTER*
LOCATION: *HARTFORD, CT*
CLIENT: *HARTFORD HOSPITAL*
LIGHTING DESIGNER/ENGINEER: *WILLIAM T. JACK, PE, RTKL ASSOCIATES INC.*
ARCHITECT: *THOMAS F. GRAVES, AIA, PRINCIPAL-IN-CHARGE; PAUL C. ZUGATES, AIA; DAVID K. NOJI, AIA*
ELECTRICAL CONTRACTOR: *ELECTRICAL MECHANICAL CONTRACTORS, INC.*
INTERIOR DESIGNER: *THOMAS F. GRAVES, RTKL ASSOCIATES INC.*
CONSTRUCTION MANAGER: *RASHID CONSTRUCTION*
PHOTOGRAPHER: *OTTO BAITZ*
LIGHTING MANUFACTURERS: *SYLVANIA: 2-foot × 2-foot fluorescent lamps; GENERAL ELECTRIC: 4-foot fluorescent tubes, incandescent lamps; LITHONIA LIGHTING: 7.5-inch diameter recessed, round clear alzak reflector, 4-foot, single lamp fluorescent striplight, 8-inch recessed quartz downlight, fluorescent troffer, 6-inch diameter recessed downlight; A.L.P. LIGHTING AND CEILING PRODUCTS: silver parabolic ceiling louver; STAFF LIGHTING: 6-inch diameter adjustable low-voltage accent light; N.L. CORPORATION: decorative button sconce; LIBBY OWENS FORD: 1-inch gray glass in lobby clerestory; ILLUMINATION CONCEPTS & ENGINEERING (I.C.E.): 2-lamp recessed fluorescent fixture*



COMFORTS OF HOME: Reception desk (right) and private waiting area (left) at the University of California at San Francisco. In the labor and delivery room (below) remote-controlled surgical lighting used for observing the delivery is visible in the ceiling at the upper right.

Labor and delivery rooms use warm incandescent and fluorescent lighting to create a soothing atmosphere

BY CHARLES LINN, AIA
EXECUTIVE EDITOR

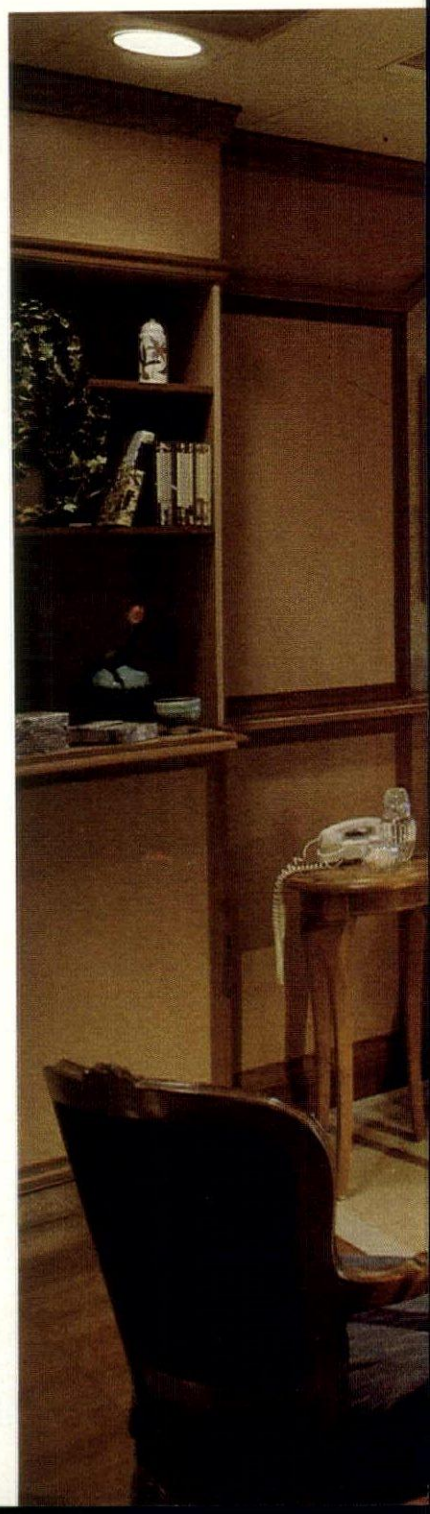
Making labor and delivery rooms homier, more human places is an understandable objective—what is experienced by women who are in the process of giving birth in these rooms is a combination of anticipation, anxiety, extreme physical and emotional stress, and ultimately, joy. Anything that can be done to the rooms where birthing takes place to make having a baby a happier and less stressful experience is certainly positive.

From the point of view of those charged with keeping the hospital operating at capacity, humanizing these facilities makes good business sense. Since many obstetricians work in several hospitals, their patients have choices about where their babies are delivered. The hospital with the most pleasing labor and delivery rooms (LDRs) has a natural advantage in attracting patients.

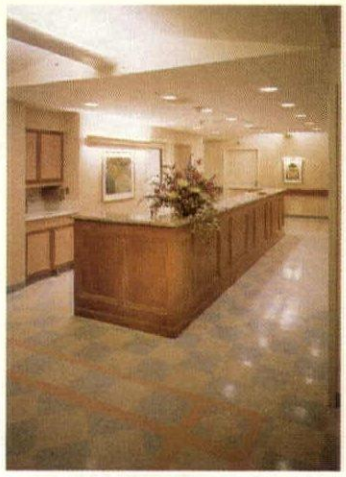
Lighting quality contributes markedly to making this important impression on patients, staff, and the public, according to interior designer Blair Spangler, and architect Robin Potampa-Ziv, AIA, both of Blair Spangler Interior and Graphic Design, San Francisco. "Out," for the most part, are the fluorescent troffers and glarey surgical lights enclosed in icy stainless steel fixtures. "In" are warm, recessed incandescent and compact fluorescent downlights.

"In each of the two commissions, located at Children's Hospital, San Francisco, and the University of California, San Francisco (UCSF), the clients asked us specifically to consider the work as a hospitality project, and retained us because of our firm's background in hotel work," says Spangler. "Health and the promotion

PHOTOS BY CHAS McGRATH AND DAVID PETERSON



A Place Like Home



SOOTHING SOFFITS: Recessed low-voltage downlights provide a source of task light in a labor and delivery room (above) at Children's Hospital in San Francisco.

of healthy feelings are what hospitals are all about. Therefore, a hospital must recall a healthy environment and encourage a healthy state of mind and being.

"Certainly, there is no reason why a hospital cannot conjure up some sort of unconscious recall—a visit to a hotel that is associated with a vacation, or suggest the friendliness of your own home," he says. "One of the major elements in making that subconscious shift is the lighting."

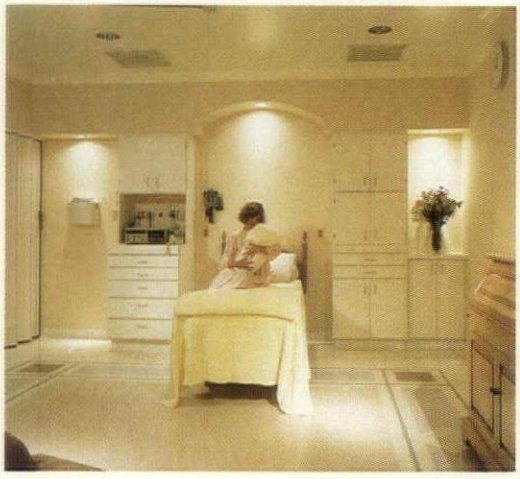
In the LDRs in both of these hospitals, much of the lighting is incandescent. This is possible despite California's stringent Title 24 energy code because, under the code, LDRs are considered hospital operating rooms and are able to use as much energy for lighting as required.

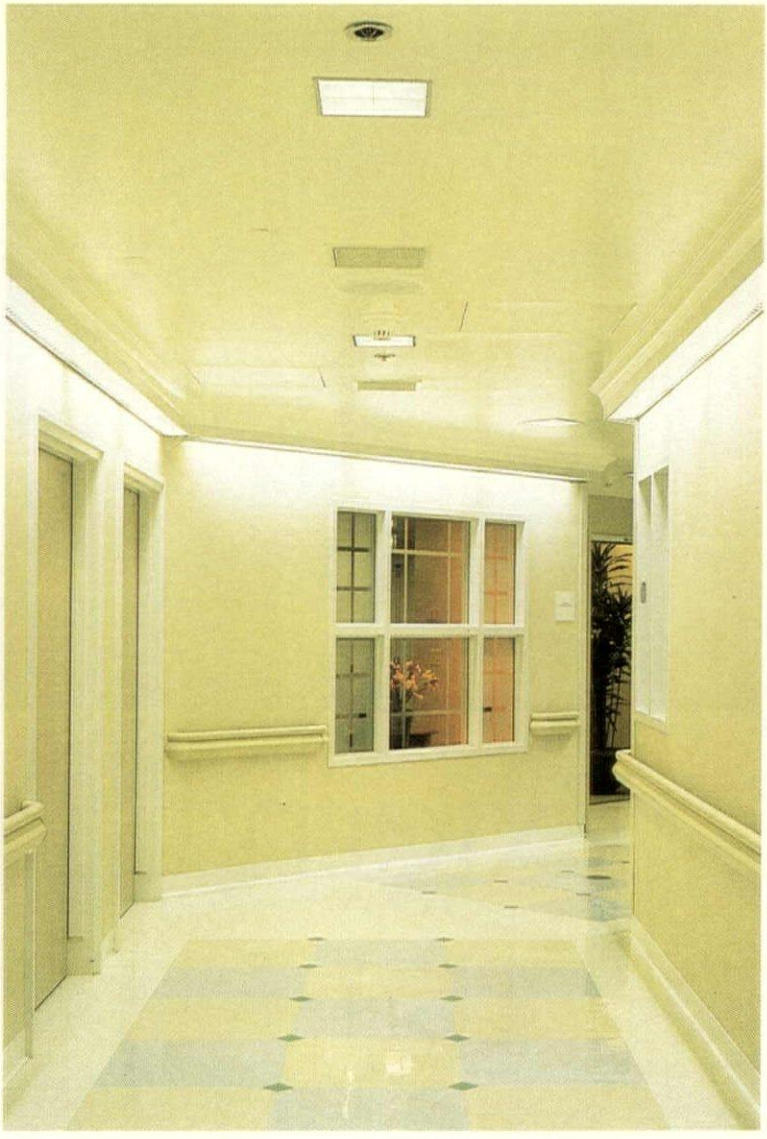
At UCSF, lighting is a combination of incandescent downlights and fluorescent troffers. The downlights are on dimmers so that the light level can be lowered dramatically when the mother-to-be is in labor. None of the downlights are located directly over the bed, so the potential for glare in patients' eyes is minimized. The fluorescents are switched on when additional lighting is required for examination purposes.

When the mother is giving birth, the attending obstetrician, nurses, and birthing partners need a restricted but intense beam of light. These LDRs are equipped with a surgical light that is recessed into the ceiling. The lighting is directed exactly where it is needed through the use of a wireless control wand. The fixture is positioned by an electric motor, and throws the light beam wherever the control wand is held, eliminating the need for a bulky light fixture stand, or ceiling-mounted light tracks. The dome-shaped light fixture is almost unnoticeable.

At Children's Hospital, a pair of low-voltage downlights are recessed into arched soffits over alcoves on each side of the bed. Dimmers allow these to provide low ambient light. A third adjustable downlight recessed into a soffit over the headboard throws light over the mother's shoulder, where it can be used for reading without being a source of glare. The rest of the room is lit by compact fluorescent downlights.

"We can't use strong peach finishes because they might cast a healthy glow when that's not the case."





A few of the LDRs at Children's Hospital are outfitted with a surgical light that is mounted on a track and pulled into position when necessary. The remaining rooms have had the remote-controlled surgical lights installed instead of the track-mounted devices.

Spangler is also adamant about how lighting quality, colors, and finishes interact in LDRs.

"Lighting and colors also affect the color of skin tones. We can't use a lot of strong color, no matter what that color might be," Spangler says. "If we use a strong color, it might shift the skin tones, and the doctor might have trouble distinguishing, for example, if the baby had jaundice, or the mother was becoming exceedingly pale.

"We obviously can't use yellow or green finishes in any quantity for that reason. We also can't use strong peach either, because it might cast a healthy glow when that's not necessarily the case. That's why you'll find rather neutral colors in these rooms," Spangler explains.

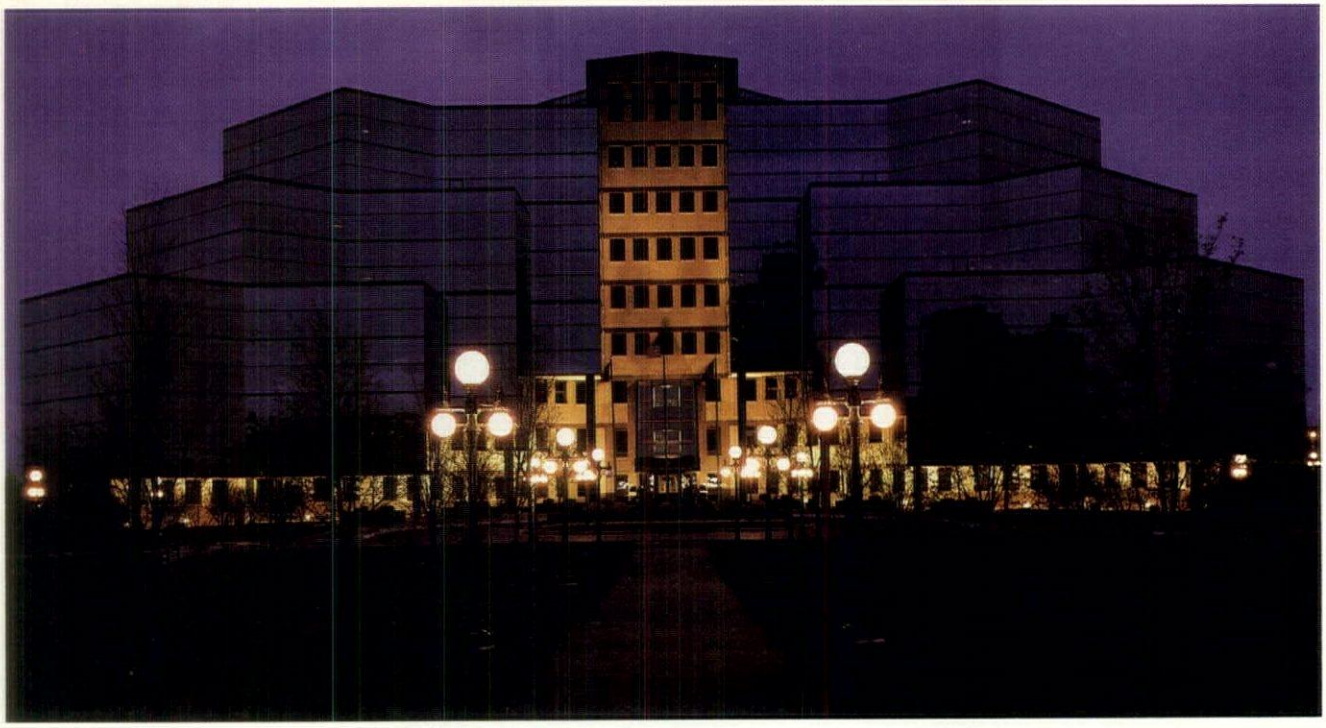
One important aspect of the shift toward incandescent lighting in patient rooms is having the support of the maintenance staff.

"They've got to be able to relamp these fixtures at any time," says architect Robin Potampa-Ziv. "Unlike a hotel operation, where you can 'buy' yourself a day or two, they've got to keep the lamps and specialty fixtures in stock. We try really hard to consider what it takes to maintain the lighting. The maintenance staff and nurses understand there is a reason for what we've done, and they support it." ■

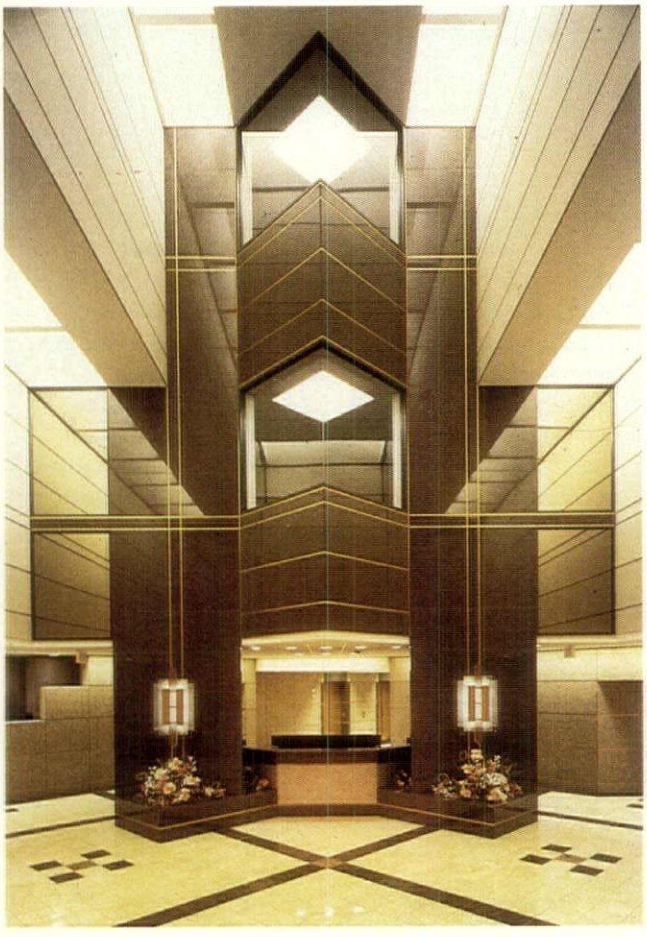
DETAILS

PROJECTS: *LABOR AND DELIVERY ROOMS*
LOCATIONS: *UNIVERSITY OF CALIFORNIA AT SAN FRANCISCO; CHILDREN'S HOSPITAL, SAN FRANCISCO*
PHOTOGRAPHERS: *UNIVERSITY OF CALIFORNIA AT SAN FRANCISCO: CHAS McGRATH; CHILDREN'S HOSPITAL: DAVID PETERSON*
LIGHTING AND INTERIOR DESIGN: *BLAIR SPANGLER INTERIOR AND GRAPHIC DESIGN*
ARCHITECTS: *STEPHEN SHORT AND ASSOCIATES*
ELECTRICAL ENGINEERS: *TOPT, WOLFE, FARROW & ASSOCIATES*
LIGHTING MANUFACTURERS: *COLUMBIA: compact fluorescent troffers; LIGHTOLIER: low-voltage downlights, compact fluorescent, fluorescent downlights, linear fluorescent wall-washers; SKYTRON: surgical lights*

COMPACT CORRIDORS: Hallways at Children's Hospital (right) are illuminated by fluorescent wall washers, which help make the corridors seem wider, and 9-inch square, louvered, compact fluorescent troffers. In an LDR (left), a low-voltage, recessed adjustable downlight throws reading light over the patient's shoulder. The squares in the ceiling are HVAC grilles.



External Revenue



The sleek new Minnesota Department of Revenue glows warmly with pink-filtered HPS lighting

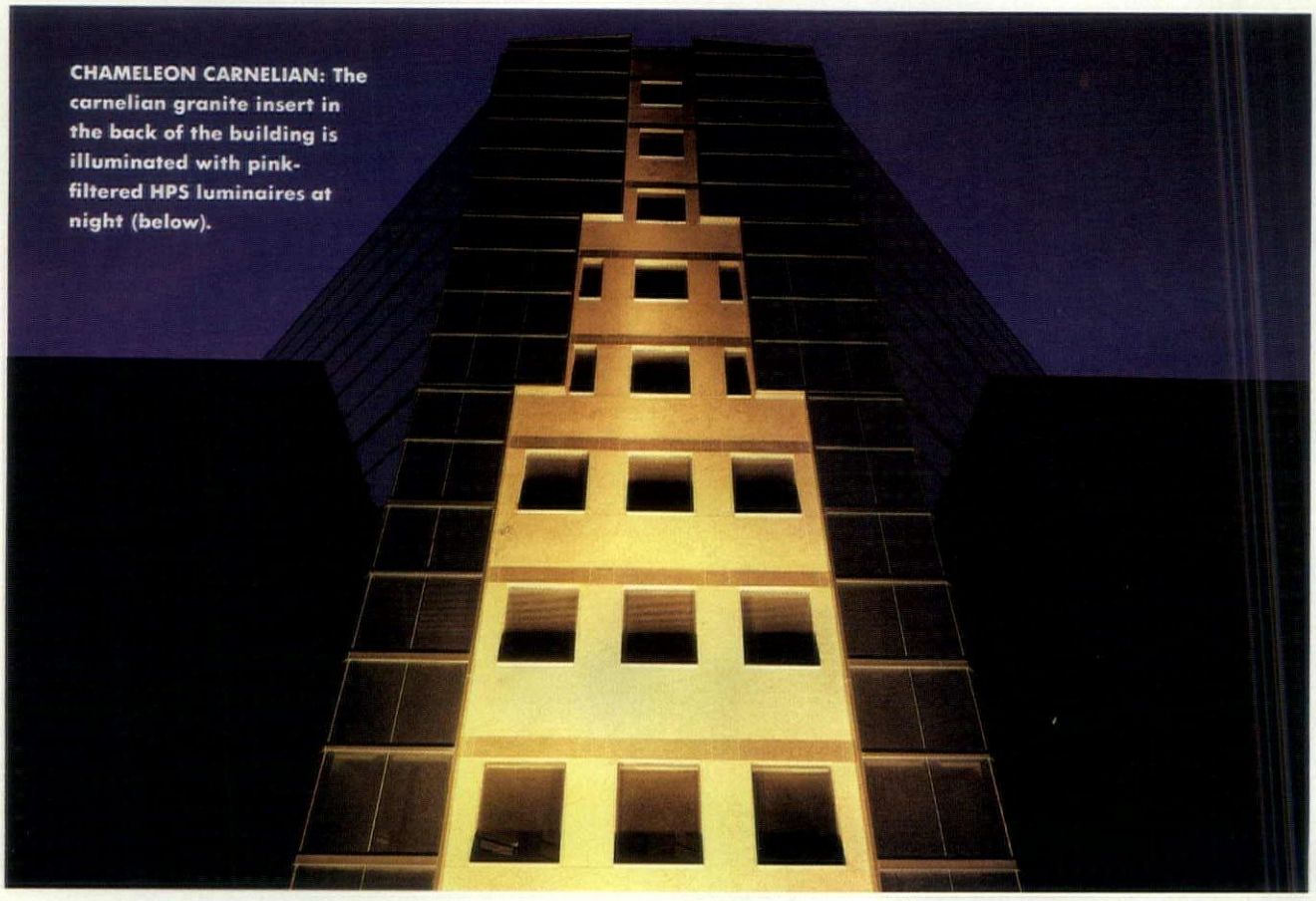
BY PATRICIA YORKS
ASID, IALD

The author is principal of Lighting By Patricia Yorks Designs, Inc., Wayzata, MN.

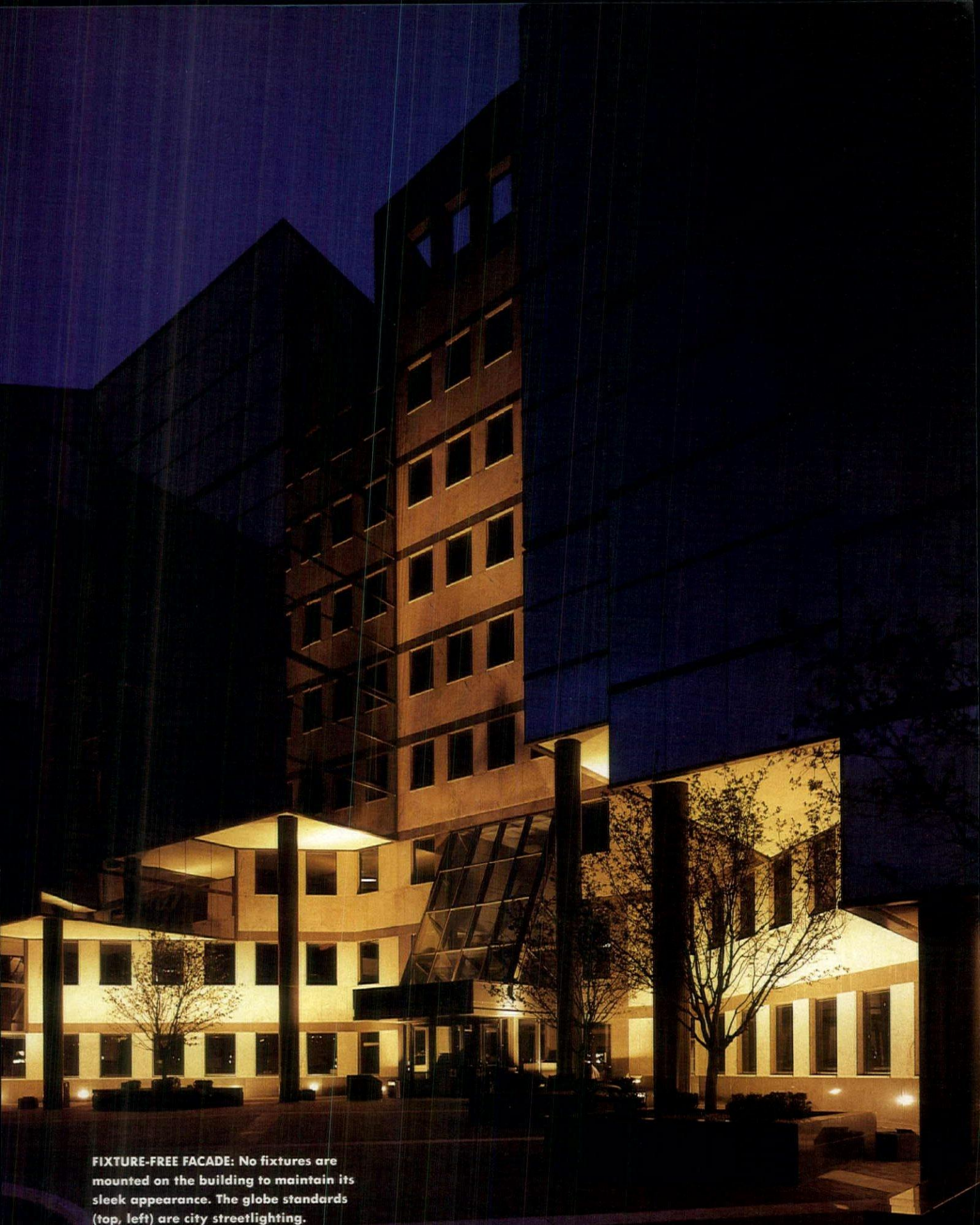
The Minnesota Department of Revenue building anchors the south side development of the Mississippi River area in downtown St. Paul. Because of its importance in the area, the building's illumination needed to incorporate a "tasteful drama" to enhance public identification.

The project scope included the lighting design for the parking lot, ring-road drive, exterior courtyard, building facade, and interior atrium. Smooth transitions had to be made between each area regarding both the lighting levels and the physical appearance of the fixtures. City lighting standards for luminaires and light levels, along with public expectations for the new government building, required careful consideration.

PHOTOS BY TERRY ANDERSON



CHAMELEON CARNELIAN: The carnelian granite insert in the back of the building is illuminated with pink-filtered HPS luminaires at night (below).



FIXTURE-FREE FACADE: No fixtures are mounted on the building to maintain its sleek appearance. The globe standards (top, left) are city streetlighting. Fluorescent coffers predominate in the three-story atrium (below, left).

The city's street lighting standard is a traditional style, turn-of-the-century globe type fixture, augmented with the power company's cobra-head floodlights. The city's required average of 0.5 footcandles has been achieved with a uniformity ratio of 3:1 with the three-globe fixtures using 50-watt high-pressure sodium (HPS) lamps without any augmentation. Five-globe fixtures have been placed at points of entry.

The city's ornate street lighting standard seemed to oppose the sleek, finely detailed building. However, the lighting concept developed for the exterior courtyard keeps the traditional fixtures away from the building and carefully integrates the visible luminaires with both the building and the landscape.

The central spine of the building steps from one to three to nine stories. An average of 10 footcandles and a uniformity ratio of 2:1 is achieved on the one-to-three story area with combinations of 250-, 400-, and 1,000-watt HPS lamps fitted with pink-colored filters. The HPS source was selected because of its intensity, efficiency, welcoming glow, and the pleasing color produced in combination with the pink filters that enhance the carnelian granite facade.

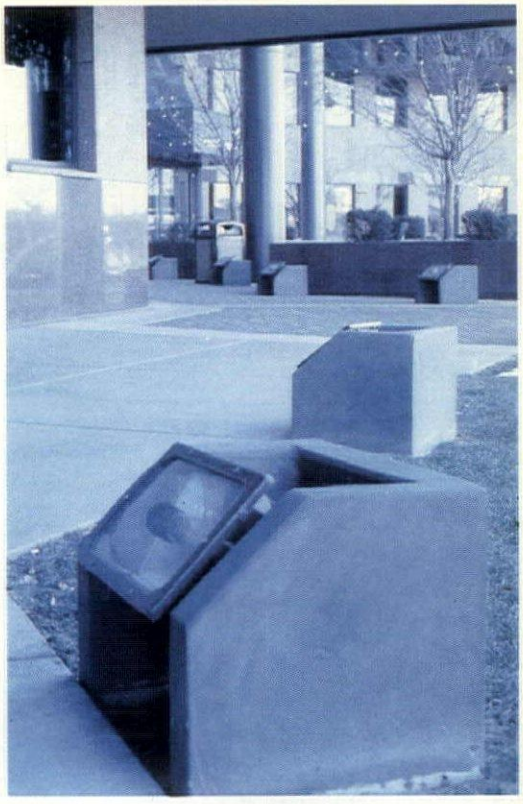
The three-story atrium, with wall reflectances of 40 percent, is illuminated by a series of linear fluorescent coffers lamped with 3K energy saving, two-lamp strips. The coffers are switched independently for flexibility in changing the light levels, which are dictated by the fluctuating daylight from the entry skylight. A recessed fluorescent slot, lamped with a two-lamp 3K energy saving strip, washes the perimeter of the room.

Energy-saving, 90-watt incandescent downlights in the lower ceiling areas provide a minimum of direct lighting to add sparkle to the floor and to round out the indirect scheme.

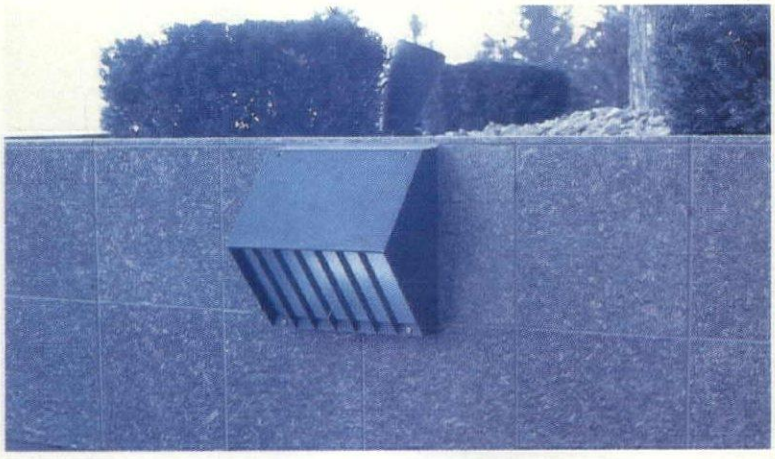
The two large, custom-designed wall sconces that flank the information desk are made with 3-foot × 4-foot etched glass, and are lamped with single 24-inch incandescent fluorescent lamps. The sconces provide a sense of arrival and add a warmth in contrast to the solemnness of the granite surface materials. ■

DETAILS

PROJECT: *MINNESOTA DEPARTMENT OF REVENUE*
LOCATION: *ST. PAUL, MN*
LIGHTING DESIGNER: *PATRICIA YORKS, ASID, IALD, LIGHTING BY PATRICIA YORKS DESIGNS, INC.*
LIGHTING MANUFACTURERS: *STERNER LIGHTING: floodlighting; BEGA: planter lights; KIM: uplighting; KURT VERSEN: downlights; SYLVANIA: sconce lamps*
PHOTOGRAPHER: *TERRY ANDERSON, GLEN SILKER PHOTOGRAPHY*



LOW PROFILE, HIGH PRESSURE: HPS luminaires are installed in freestanding granite structures (right) to light the facade and mounted on low planter walls to illuminate the walkways.



OPERATING AND MAINTENANCE COSTS

SIDE LIGHTS

ENERGY-EFFICIENT LIGHTING, ballasts, and floodlighting were specified throughout. By doing so the owner qualified for a rebate from Northern States Power totalling nearly $15,000 for the entire project. Following are costs for each project portion:
STREET LIGHTING—$40 per fixture per year
EXTERIOR COURTYARD—$20 per fixture per year
EXTERIOR FACADE LIGHTING—$1,000 total per year
ATRIUM LIGHTING—$0.90 per square foot per year
Life cycle costing was not applicable.

It's amaz engineer can

Krypton is just part of our secret for saving energy.

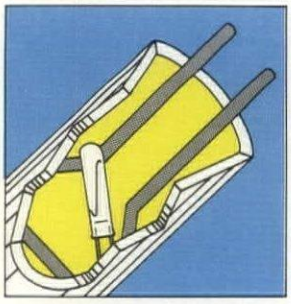
To a Sylvania engineer, a light socket isn't just a socket. It's also an energy-saving device. So it's no accident that Sylvania engineers have helped create more energy-saving lighting than anyone else in the world.

Supersaver® Plus fluorescents are one shining example. Energy savings are so substantial that even in small numbers, these remarkable lamps pay big dividends.

Figured at the national average electric rate of 8 cents per kilowatt hour, a Supersaver Plus lamp saves more than $15 over its life. (That's compared to an ordinary 40-watt fluorescent.)

The bottom line contribution is also impressive. For every 1,000 Supersaver Plus lamps you install, you'll save $15,200! That's a 174% return on your investment (at the suggested user price).

ing what a Sylvania do with a little Krypton.



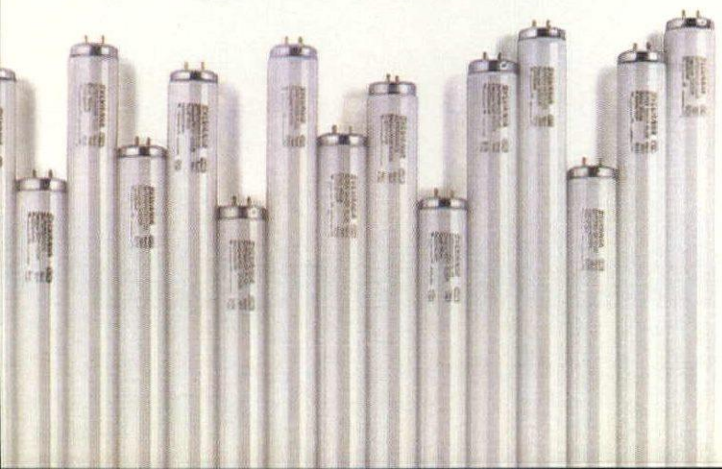
Although Supersaver Plus lamps cost more, they save more than they cost. How's that for a switch?

The key to Supersaver Plus performance is a pair of thermally activated switches that disconnect the cathodes after the lamp is lit to reduce energy consumption. Part of the credit also goes to our tri-phosphor technology that boosts light output and improves color rendering. Then there's our energy-conserving Krypton gas fill.

We even invented a way to double coat a fluorescent tube to optimally balance rare earth and conventional phosphors.

Decisions. Decisions. Decisions.

Supersaver Plus lamps do more than save energy. They deliver light output equal to higher wattage fluorescents. They also produce less heat so you can reduce air-conditioning costs. And you can choose warm white, cool white and a variety of special design colors. So you can create a range of lighting effects. And they require no special ballasts. So they can be easily installed in existing fixtures.



When Polaroid installed Supersaver Plus fluorescents, they saw instant energy savings.

The Polaroid Corporation in Norwood, Massachusetts, installed Supersaver Plus lamps in both their offices and their manufacturing areas — a total of 7,982 lamps. Simply by doing that, they reduced their energy costs by $98,577.70*, give or take a few cents.

We offer more energy-saving lamps and best of all they're made right here.

The fact is, any size business should look into Supersaver Plus fluorescents for super energy savings. And you don't have to look very far, because we've created this lighting revolution right here in America, where all Supersaver Plus lamps are made.

So find out how our obsession with lighting can pay off for you. Just give us a call at 1-800-LIGHTBULB or contact your local Independent Electrical Distributor.

* Based on electric rate of 6.5 cents per KWH.

SYLVANIA GTE

WHERE THE BEST COMES TO LIGHT.®

Circle No. 21 on product card.

What To Consider In Street Lighting

BY JANET LENNOX MOYER
ASID, IES

The author is principal of Jan Moyer Design, Berkely, CA.

The variety of evening entertainment offered in cities often encourages people to stay out after sunset. Street lighting enhances the enjoyment of the city at night by providing comfort and safety.

LEVELS VARY CITY TO CITY

Lighting needs for city streets are different than those for highways or country roads. Typically, a higher general footcandle level is required for city street lighting.

While many municipalities require two footcandles average maintained, levels may vary from city to city. Northville, MI, for example, requires a minimum of 1.0 footcandle maintained, and Tacoma, WA, requires 5.0 average footcandles maintained.

Additionally, different light levels within cities are required for varied areas from commercial/industrial to residential. For example, the city of St. Louis requires 5.0 footcandles, but the county only requires 0.5 footcandles.

Generally, the height of fixtures used for street lighting depends on the function the luminaires are to serve. There are three general height groupings.

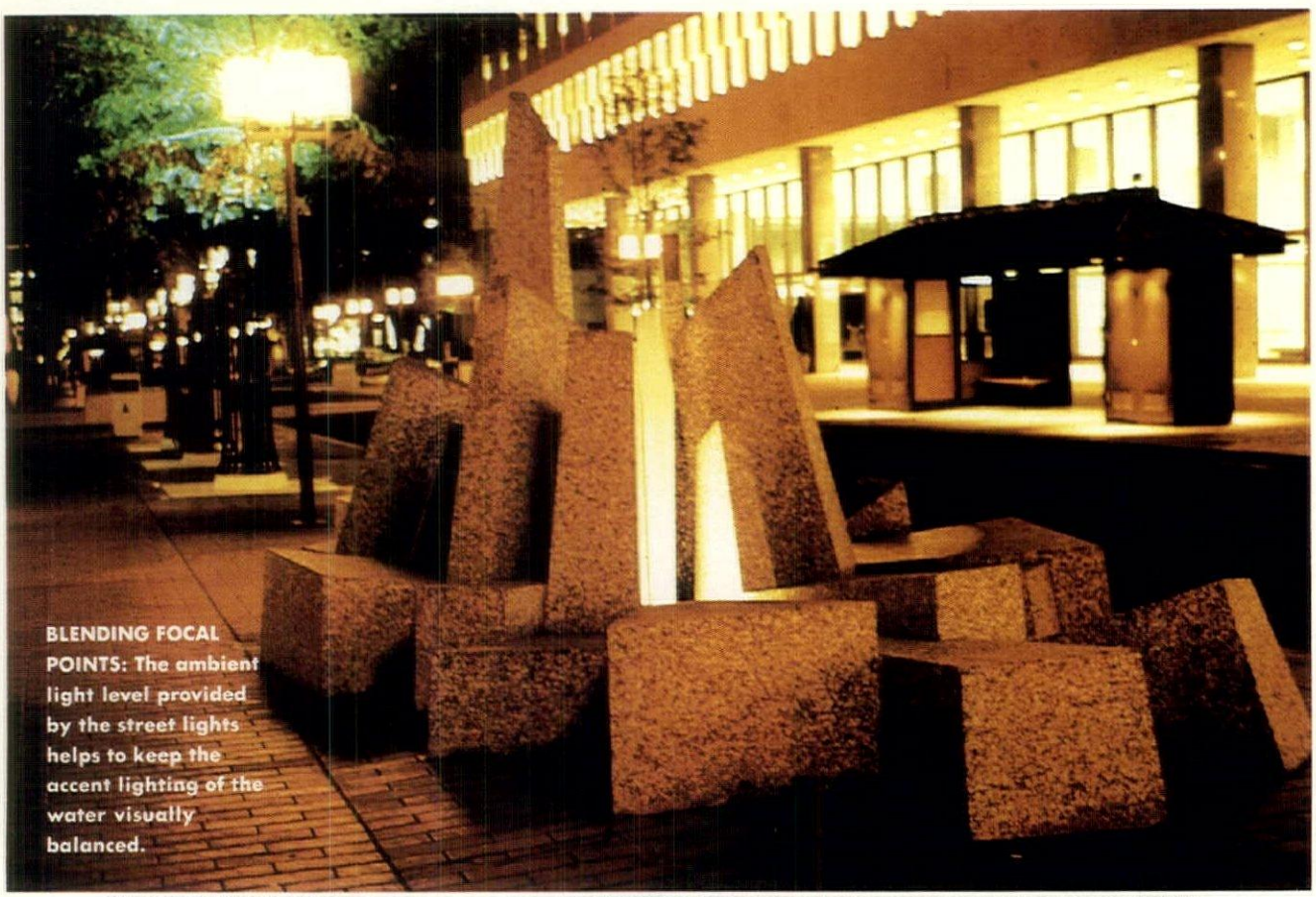
TALLEST FIXTURES ADD FILL LIGHT

The tallest fixtures provide a "layer" of fill light on the sidewalk/street, and adequate visibility for pedestrians to see and participate in a range of activities, including reading signage and locating businesses. The illumination from these fixtures creates a psychological comfort by blanketing the surroundings with light.

This first layer of light should come from a series of functional street luminaires with poles ranging in height from 20 to 30 feet, careful shielding, and a fixture profile that blends into the street scene, rather than call attention to itself. The spacing of the fixtures varies with pole height, the desired footcandle level, and the photometric distribution of candlepower from the fixture.

However, the IES guideline for meeting the "cutoff" category for street lights is not more than 25 (2.5 percent) candlepower per 1,000 lamp lumens at 90 degrees above nadir, and 100 (10 percent) at 80 degrees above nadir. Consider using a minimum spacing to mounting height ratio for locating the light fixtures in order to provide an even distribution of light along the sidewalk/street.

Minimizing brightness



BLENDING FOCAL POINTS: The ambient light level provided by the street lights helps to keep the accent lighting of the water visually balanced.

NICOLLET FOUNTAIN, MINNEAPOLIS, DESIGNED BY LAWRENCE HALPRIN & ASSOCIATES. PHOTO COURTESY OF AMPHION ENVIRONMENTAL.

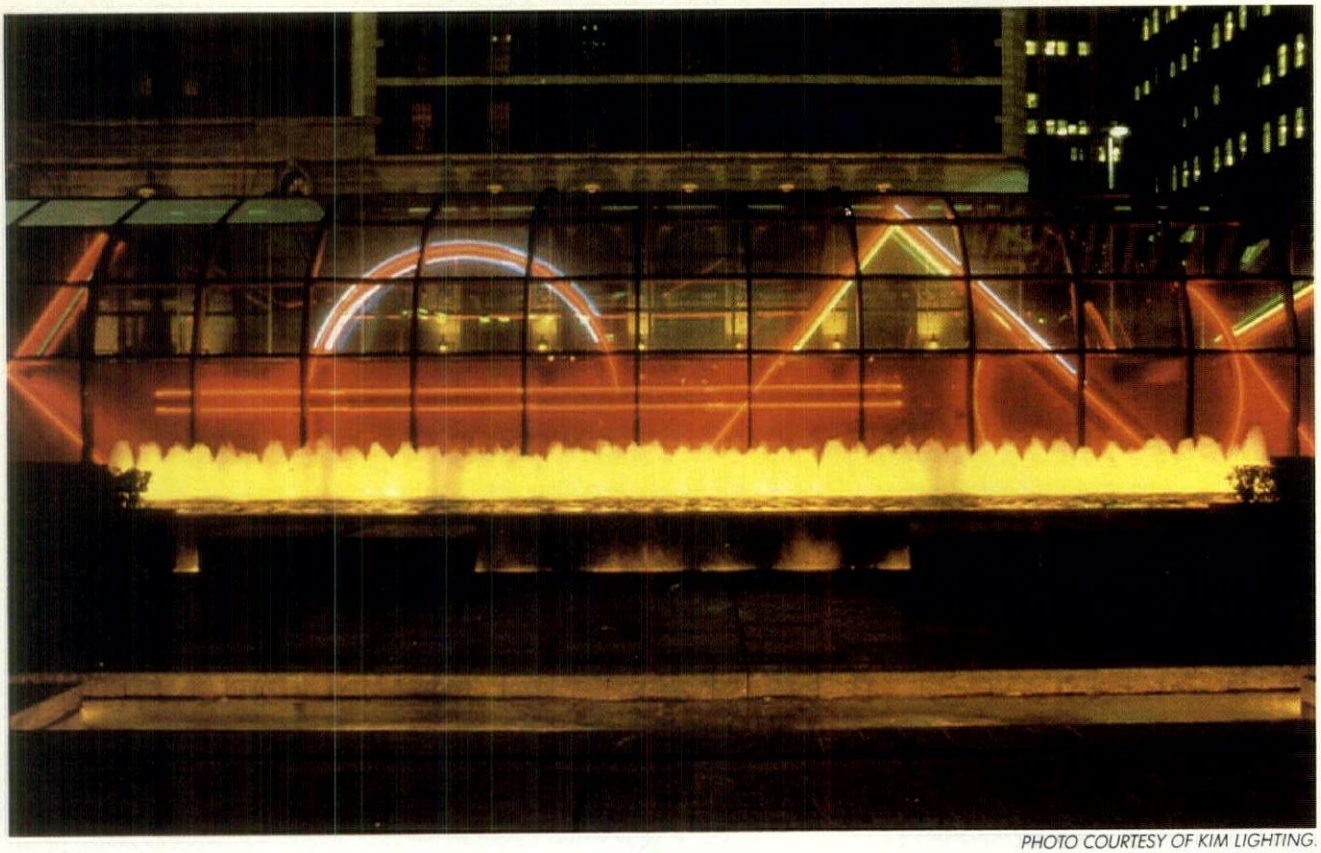


PHOTO COURTESY OF KIM LIGHTING.

contrast along a street adds to visual comfort. An achievable brightness ratio goal is 4:1. At this ratio, the lighting typically appears consistent along the street.

ADD PIZZAZZ TO THE CITYSCAPE

A second "layer" of fixtures can enhance or create part of the city's image. Fixtures in this category are closely related in scale to pedestrians. The fixture height is 8 to 15 feet, and a closer spacing of poles is required than for the taller, functional fixtures.

Closer spacing creates a visual rhythm and unifying effect along the street. The fixtures are usually decorative, with an aesthetic style that matches the image the city wants to project. The fixtures' physical appearance can provide pizzazz and a brightness contrast that calls attention to the luminaire.

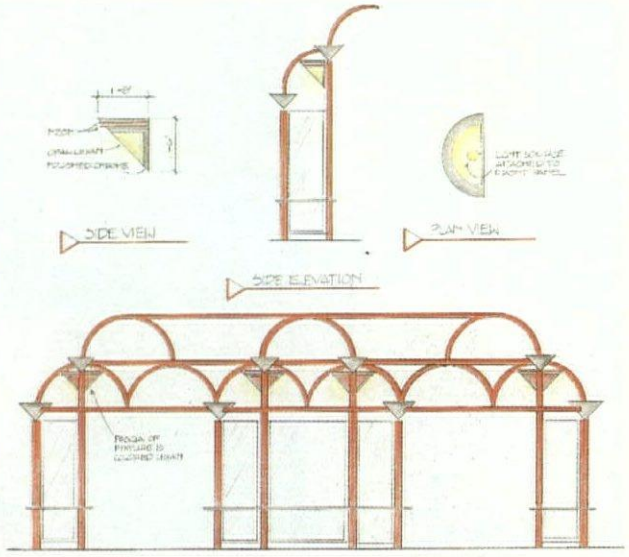
An important characteristic of these fixtures in this regard is the "glow." The glow can emanate from the lens of the fixture, or from a decorative element added to the fixture—for example, rings of neon, edge-lit acrylic, or fiber optics.

Choose fixtures for this purpose carefully. This glow must be carefully controlled in brightness level and size (of either the lens or other decorative element) to balance with the surrounding environment. Exposed lamps and glowing white globes typically can create too high a brightness to be balanced with the surrounding lighted areas. This can cause too much distraction for the viewer, rather than add interest to the scene. With a lower mounting height and closer spacing than the taller, functional fixtures, lower wattage lamps should be utilized. This is a natural opportunity to use compact high-intensity discharge (HID) sources.

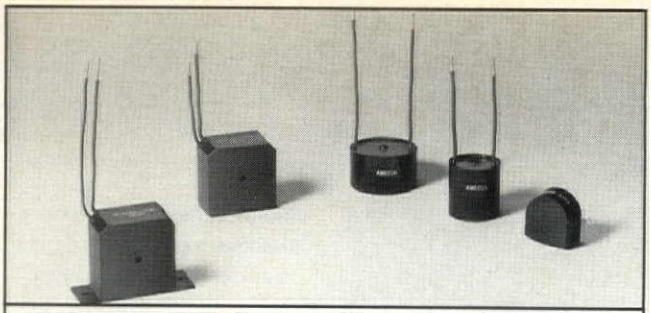
Some fixtures have louver assemblies covering the lamp. These serve two functions. They provide glare shielding by hiding the view of the lamp. At the same time, they direct the distribution of light out of the fix-

DOWNTOWN DALLAS: The surrounding street lighting was kept low (above) to let the art feature attract one's attention from the opposite end of the street.

BUS SHELTER FIXTURE CONCEPTUAL DRAWING: Views of the fixture and the front elevation of the bus shelter are shown below. The neon bands on this fixture add a decorative "glow." This detail, carried through in other fixtures throughout the project, provides visual balance.



DESIGN AND DRAWING BY LEZLIE JOHANNESSENN OF JAN MOYER DESIGN. BUS SHELTER DESIGN BY AMPHION ENVIRONMENTAL OF OAKLAND, CA FOR THE COMMERCE CONNECTIONS PROJECT, TACOMA, WA.



New Packaged Debuzzing Chokes Offer No Noise In No Time . . .

Extremely quick and easy to install for both new and retrofit applications, Amecon's new line of architectural chokes essentially eliminate noise in dimmers, lamps and fixtures. The chokes are professionally packaged to dramatically reduce installation time as they mount to standard recessed fixtures, remote areas and wall boxes. They're built with high temperature, high impact, fire retardant UL recognized materials. Attractively priced, they're rated at 50 and 75 watts at 12 volts, and 400 to 750 watts at 120 volts.

CONFIG.	DIA.	HEIGHT	WIDTH	DEPTH	MTG.
CIRCULAR	2"			1-3/16"	Centerhole
	1-5/8"			1-1/2"	Centerhole
	1-1/2"			1-1/4"	Centerhole
SQUARE		2-3/32"	2-3/32"	1-3/32"	Vert/Horiz
"ARCH"		1-3/8"	1-3/8"	3/4"	PCB/Vert

Applications are recommended for all types of architectural light dimmers: accent, decorative, display, and nearly anywhere a noise-rejection system is required. Call or write for new Technical Bulletin/ Selection & Design Guide ALC-0689.

AMECON **Quality Magnetics & Electronics**

Amecon, Inc., 1900 Chris Lane, Anaheim, CA 92805
TEL: (714) 634-2220, FAX: (714) 634-0905

Circle No. 40 on product card.

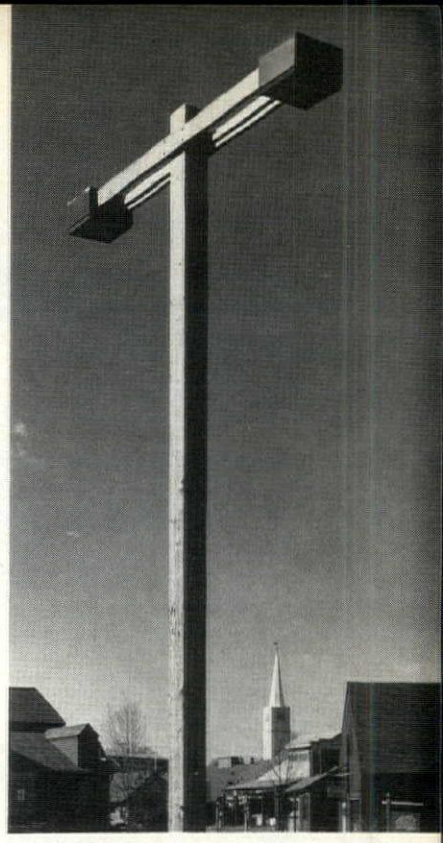
Custom Wood Lighting Standards

We take your specifications very *personally!*

We offer a wide variety of *Western Red Cedar* lighting standards *custom fabricated* to your specs. This personal service on each order has been a tradition at Ryther-Purdy for more than 50 years.

Please write for architectural information on your letterhead.

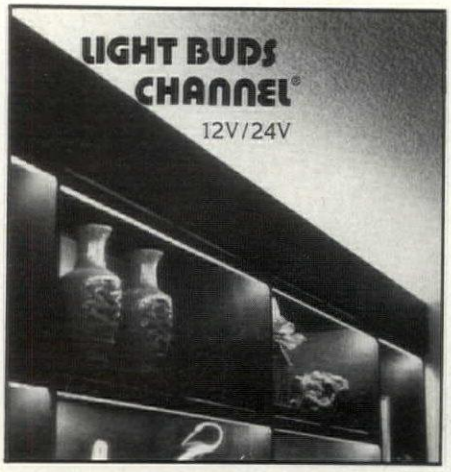
Ryther-Purdy Lumber Company, Inc.
174 Elm Street
P.O. Box 622
Old Saybrook, Conn. 06475
Phone (203) 388-4405



TYPE K/Knollwood at Olde Mistick Village, CT. Design is available with double or single arms.

Lighting Standards • Fixtures • Signs • Guide Railings
Custom Millwork • Benches • Trash Receptacles

Circle No. 26 on product card.

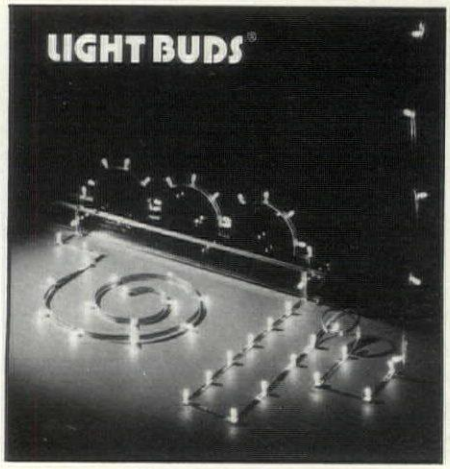


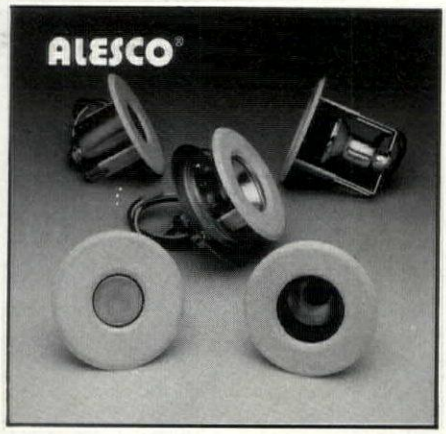
WE MAKE IT EASY . . .

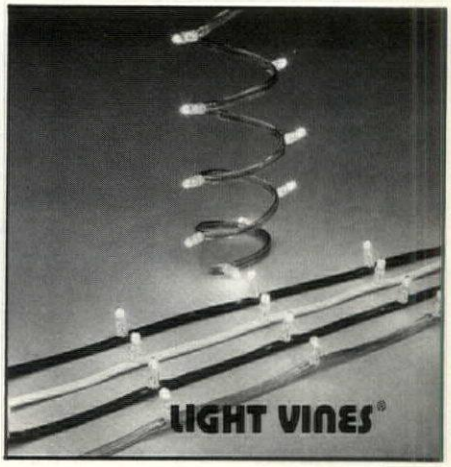
All Your Low Voltage Architectural Lighting From One Source.

- Linear Fixtures
- Bare Bulb Ribbon Systems
- Flexible Cord Lighting
- Easy to Maintain Tubular Lites
- Miniature Recessed Fixtures

We have them all . . . and Landscape too.



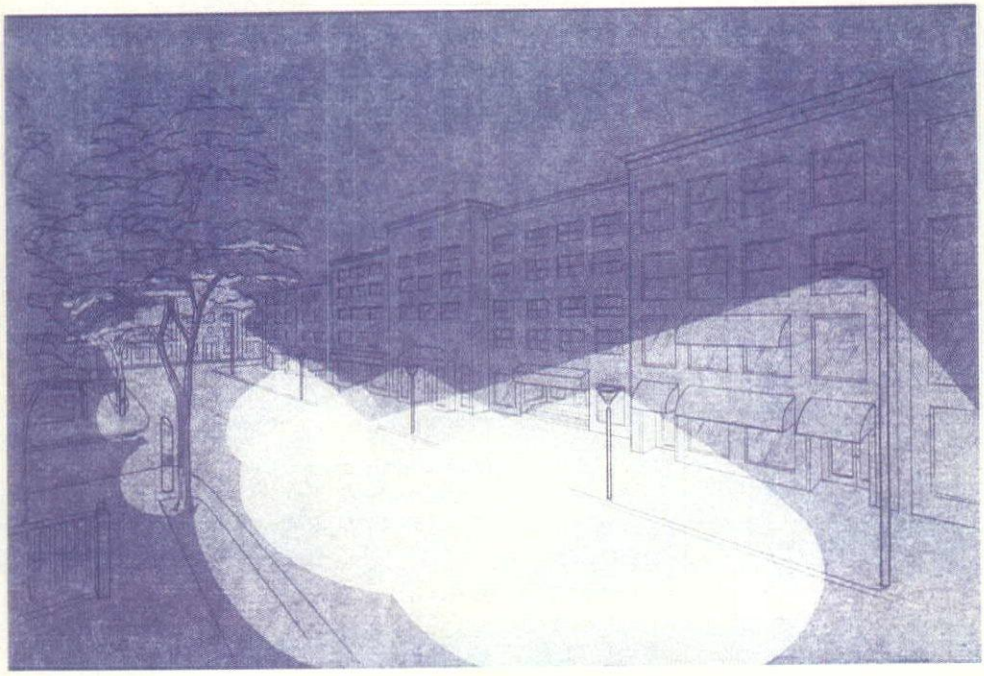




SYLVAN DESIGNS, Inc.

8921 Quartz Ave., Northridge, CA 91324
(818) 998-6868

Circle No. 27 on product card.



TISSUE OVERLAY TECHNIQUE provides a graphic, but not realistic view of a lighting scheme. In this drawing, the three layers of a street lighting approach are shown. The first layer provides ambient light from the tall innocuous street lights. The second layer provides some additional light, while making a design statement. The third layer provides visual cues about activities, as well as adding accent light. (Drawing by Lezlie Johannessenn of Jan Moyer Design. Fixtures represented in drawing: Bega, Post Top luminaire, and KIM, Archetype.)

tures. Typically, these louvers catch some of the lamp candlepower at the louver blade edges, creating glow or sparkle in a limited area.

BOLLARDS CAN BE MULTI-FUNCTIONAL

The third "layer" of street lighting comes from small scale fixtures like bollards. Often, these fixtures will incorporate signage to direct the pedestrian. For example, they may announce bus stops and have schedules incorporated into them. These small-scale fixtures provide physical as well as psychological cues to areas of interest along the street. They can also mark areas of caution, such as warning of approaching traffic from underground parking garages, or indicating separations between vehicle use and pedestrian use street areas.

Manufacturers are beginning to introduce a variety of multi-functional bollards. One side of the fixture, for example, may have a controlled downlight component, while the opposite side may have one or more accent or adjustable assemblies for highlighting plantings or buildings. Bollards may also have an uplight component in the top of the fixture to highlight street trees. This requires either careful shielding of the light source or enough height in the fixtures to block the view of the source.

Landscape architects often create interest on the street by designing a focal point or a gathering area. These focal areas need to be considered in the overall lighting plan to insure that the effects and levels used for them are integrated with the rest of the street.

There may be one focal area or several along a street. Typically, the brightness level should be highest at these focal points and then drop as one moves away from them.

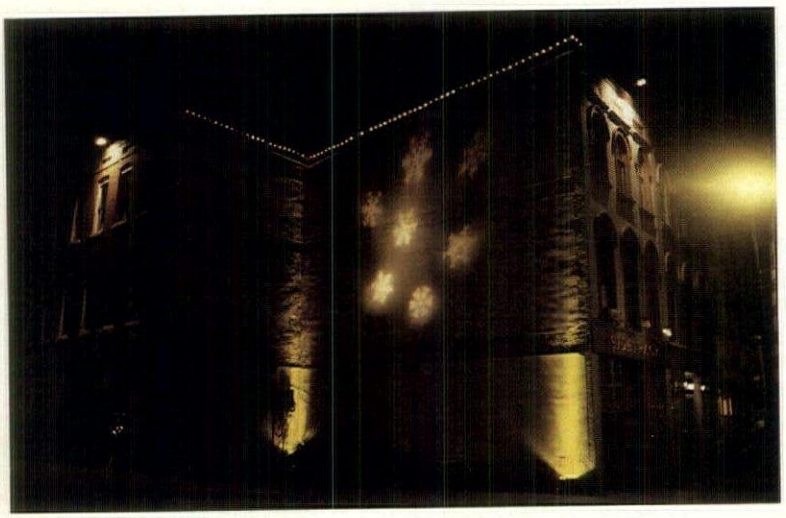
When there is more than one focal area, a decision needs to be made whether they should be lit at equally bright levels, or if one should be more dominant than the others. Also, the level of brightness moving away from the focal areas to others along the street needs to be planned so the brightness contrast remains comfortable.

Restricting the brightness contrast to a 10:1 relationship insures that the area will be highlighted, but not dangerously distracting for any traffic passing along the street.

FOSTERING CIVIC PRIDE THROUGH LIGHT

Much of a city's continued success can be attributed to community pride. Light fixtures offer the opportunity to make a design statement for the city. The selection of their physical appearance, along with the appropriate photometric capabilities and control, needs to be carefully considered by the lighting designer and the landscape architect. ■

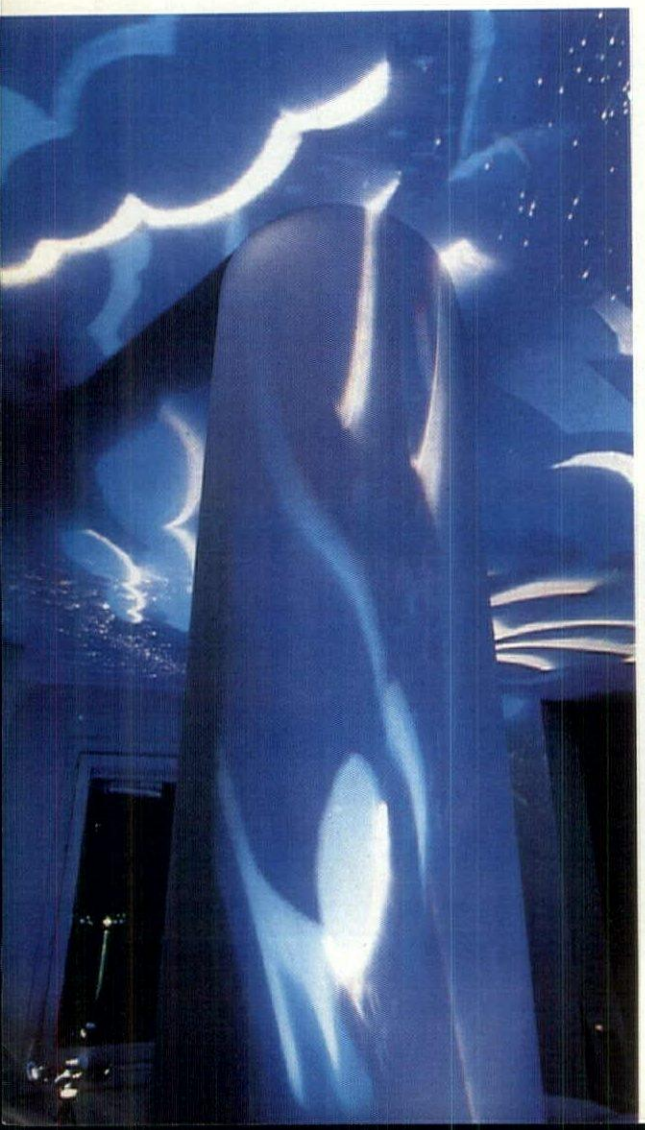
Creating Effects With Luminous Architectural Ornamentation



There are a variety of ways to add interest and character to an architectural space with graphics and artworks created by light. These range from using a single slide projector, to spinning laser beams to produce intricate patterns.

Their flexibility (projected images can be easily changed) and the fact that cost saving projections are less expensive than signage or hand paintings are two advantages of using projected images. An intangible benefit is the "magic" that the visually intriguing images make in the mind of the viewer. Following are general tips on using luminous ornamentation, and examples of how it can be applied in architectural spaces.

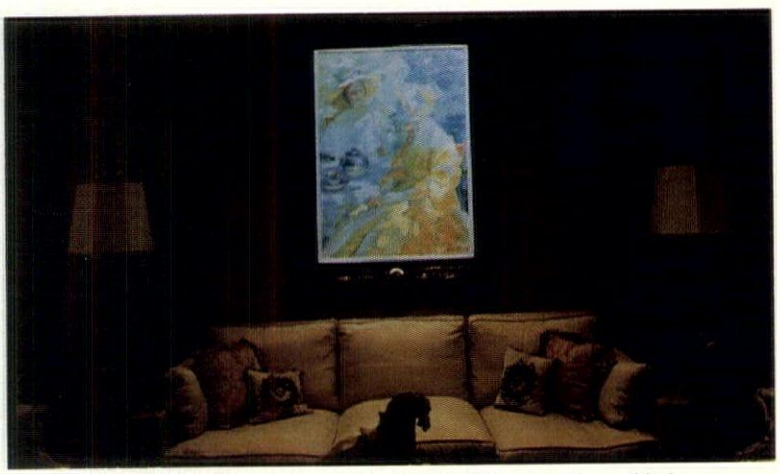
Thanks to Stefan Graf, Illuminart Lighting Composition & Specification, Ypsilanti, MI; Jerry Simon, Architectural Art & Technology, Charleston, MA; Wendelighting; and CSL Lighting for providing the information and photographs for this article.



IN OUTDOOR APPLICATIONS (above), 2K to 12,000-watt HMI sources can be used to project images on the sides of buildings. Trompe l'oeil (left) uses light as the medium in place of paint. Carefully cut templates highlight paintings (below).

TEMPLATES

Most projection units can be fitted with gobos or metal templates for creating images and patterns. Templates are made of stainless steel and are available in many standard patterns, including holiday themes. Custom templates can be made of corporate logos or scenic images. Template thickness and metal quality vary. Check with the template fabricator for available options.



Photos: (Top) Lighting designed by Stefan Graf. (Left) Luminositor and light art designed by Jerry Simon. (Above) Courtesy of Wendelighting.

"Color in projected light works totally the opposite of paint. When you mix paints, the more colors you mix in, the duller and grayer it gets. With light, the more colors you mix in, the whiter and brighter it gets."—Jerry Simon

COLOR

Some types of projection equipment can be used with the template and an incandescent or halogen source to highlight artwork or sculpture. Existing technology allows for templates to be cut so art objects are outlined precisely for a bold, dramatic effect.

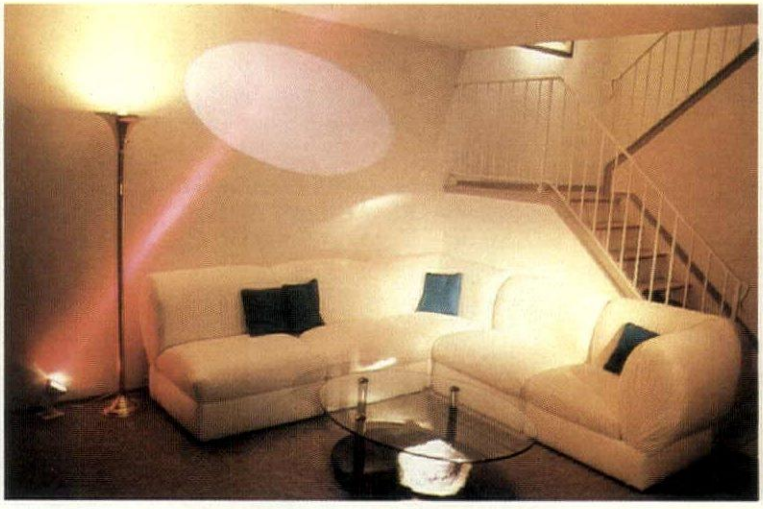
Most projection equipment that accommodates color filters holds one color filter per template. Most color filters are polyester, or longer-lasting glass.

By using several projectors, a multi-colored logo or a scene can be created. Some manufacturers feature rainbow templates with bands of varied colors in one piece. Motorized color wheels are available for producing constant color changes. With the addition of dimmers, "moving" scenes can be created.

The luminositor, designed by Jerry Simon, does not use templates, but constructions made of compounded glass held together by springs within a frame, to create artworks with light.

MAINTENANCE

The wattage of the light source, and the quality of the template determine how frequently templates have to be replaced. The more detailed the template and the higher the wattage of the light source, the more frequently the template needs changing. Template projectors range from those using 50-watt, low-voltage MR 16s to 1,000-watt ellipsoidals or Lekos.



PATTERNS OF COLORED light serve as abstract art expressions in residential application (above). Logo and area light cast by a luminositor (right). Light murals (below) in the lobby of the East Cambridge, MA Davenport Building.

Photos: (Top) Lighting designed by Stefan Graf. (Left and above) Luminositors and light art designed by Jerry Simon.

Common Sense Techniques For Sports Lighting

BY JOHN P. FRIER

The author is a senior application engineer at GE Lighting Systems, Hendersonville, NC.

Cooperation is essential to the success of any project, but it is especially critical in the design of major projects like sports stadiums and arenas, whether indoor or outdoor. An architect working on a sports lighting project should follow four rules of thumb:

- work with a lighting designer from start to finish
- let the lighting designer know of any changes
- know the sport
- be familiar with sports lighting equipment

The rules are simple and straightforward, and they work. When they are *not* followed, the results can be disastrous, with everyone trying to salvage the project before a big game.

MAKE FLOODLIGHT PLACEMENT A TEAM DECISION

To achieve a professional system, always approach a project as a team from the beginning, particularly in the placement of sports lighting fixtures. It is important that floodlights and their mountings be considered an integral part of any architectural design. Sports flood lights must be located correctly to satisfy the needs of the sport and provide comfortable viewing for players and spectators. In many cases, they must also meet the lighting requirements for color television.

The old saying about the three things to consider when buying a house applies equally to sports lighting: location, location, and location. If floodlights are put in the right places, light will come from the proper directions, and the aiming angles will be correct. Constraints on where floodlights can be mounted without creating glare vary with the type of sport and how the game is played.

To understand why placement is important, take a look at a typical sports lighting fixture, such as the type used at Chicago's Wrigley Field. Its narrow beam is designated NEMA 2, 3, or 4, which means the maximum candlepower is contained within a beamspread somewhere between 18 to 70 degrees. A NEMA 2 floodlight can concentrate up to *two million* candlepower at an aiming point. Anyone looking directly at this floodlight from the aiming point or within a surrounding cone of 10 degrees may experience "disabling glare"—meaning that a player may not be able to see to make a crucial catch, or that a spectator may miss the winning goal.

AVOID DISABLING GLARE

Good lighting design, combined with good equipment, can help avoid disabling glare. There is no way to

CLEARLY FIRST AND 10: At Atlanta's Fulton County Stadium, some of the floodlights for baseball are turned off for football because they are beyond the end zone and in the direct line of sight of a pass receiver.

OUT OF THE DARKNESS: Sports floodlights have narrow beamspreads, as do these at Chicago's Wrigley Field. The maximum candlepower is contained within a beamspread between 18 to 70 degrees.

eliminate occasional head-on viewing of floodlights, but this should be casual viewing and not required during the playing or viewing of a sport. Floodlights must therefore be located out of the direct line of sight of any play. They must be mounted high above the normal viewing angle of players and spectators. Install floodlights where players are least likely to look, which varies with the sport being played.

The higher the intensity of a beam, the narrower the beamspread. When aimed correctly, narrow-beam floodlights are less likely to cause glare than those with wider beams because their brightness occurs only in a narrow band. Reflectors can be specially buffed in order to increase the beam intensity and reduce the beamspread. Glare shields can be placed inside a floodlight reflector to minimize stray light from the lamp. Although these accessories are helpful, placement and aiming remain critical.

Reflected light can also be a problem. With high mounting heights, light strikes the playing surface at a high angle; 60 degrees is an average aiming angle. The light bounces off the surface at the same angle as the incident light. Reflected light can cause problems at swimming pools, ice rinks, and shiny basketball courts and may interfere with a television picture.

Light reflected at a low angle can cause a sheen that is unattractive and distracting to viewers. Low-angle reflection will not happen if floodlights are mounted above a line drawn horizontally from the highest row of seats to the opposite side of a pool or playing area.

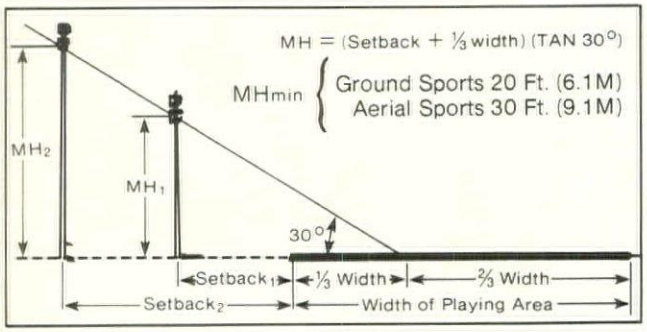
One of the most common mistakes in sports lighting is the mounting of lighting equipment in positons where it is impossible to direct the light toward the playing surface at high enough angles. When lighting is added to an outdoor structure that was previously unlighted, the first thought is to mount floodlights on the existing structure so that racks will have a minimum impact on the architecture. Generally, this means the lights will be too low or in the wrong locations, so discuss any plans with a lighting designer before deciding on the best approach to this type of project. If floodlights are mounted above the seating area but close to it, the brightness produced on the backs of the spectators will be distracting. In the warm months, the light will also attract flying insects.

Most stadiums are also not designed to take the bending movement of the pole base, so they must be reinforced before poles can be mounted on the structure. It is generally less expensive to support floodlights atop ground-mounted poles located alongside or behind the grandstand. The cost will be a reflection of the pole height, so there is a considerable savings if the grade level behind the stands is from 40 to 60 feet above the field.

Another problem arises when floodlights are mounted on the roof of a stadium or grandstand. Weight restrictions for this type of mounting require that floodlights be spread out in a few long rows over much of the roof. However, this can create a glaring system. The least glare occurs when the vertical dimension of a floodlight rack is equal to or greater than the horizontal. For this reason, some European designs use a triangular rack, with the number of floodlights per row increasing at the top of the tower.

Minimum floodlight mounting heights are 30 feet for aerial sports and 20 feet for ground sports. To determine adequate mounting heights, draw a line from a point one-third of the distance across a playing field to the lowest mounted floodlight. The line should form an angle with the horizontal plane of not less than 30 degrees. Although it is sometimes difficult to integrate high racks or poles into

GOAL-ORIENTED LIGHTING: To avoid disabling glare, mount floodlights above the field of view of players and spectators (right).



an architectural design, it is essential that the guidelines be followed to achieve the most effective lighting design.

KEEP EVERYONE INFORMED

Because of the nature of sports lighting design, it is critically important to keep the lighting designer informed of any changes. Floodlight beamspreads are selected on the basis of the illumination level required, the mounting height, and the aiming distance. A change in mounting location or height usually requires a change in beamspread and possibly in the number of floodlights. Moving pole locations back from a field without increasing the mounting height, for example, will change the uniformity of the lighting on the field and possibly cause disabling glare.

All structural and mechanical decisions should be made early in the design process and discussed with a lighting designer. For instance, there should be a clear path from the floodlights to the playing surface to minimize shadows. A roof will cast a distinct shadow line that should always fall in the seating area, not on the field or court.

A large TV replay scoreboard over the indoor basketball court or in a stadium necessitates a lighting design that keeps as much light as possible off the scoreboard. Otherwise, it will cast a huge shadow on the playing surface. An additional problem is that excessive light on the scoreboard will reduce the contrast on numbers and on the instant replay screen, making them difficult to see. Only careful lighting design and the cooperation of all designers will solve these problems.

KNOW THE SPORT

Because each sport is played differently, each has differing requirements for the placement of lighting equipment. Both the architect and the lighting designer for a project will do the best job if they are familiar with how a particular game is played. In football, for instance, the ball is generally passed up and down the field. Therefore, floodlights should not be located beyond the end zones because of the possibility of disabling glare when a player is trying to catch the ball. Floodlights should be mounted to either side of the field at a minimum of four locations. Because of the height required, poles are commonly used. Industry recommendations should serve as guidelines for mounting heights, light levels, and floodlight quantities.

Baseball requires a minimum of six floodlight locations for best results. Again, industry recommendations are helpful in the design process; they are readily available from lighting systems manufacturers or the IES. Lines of sight are critical in baseball, too. No floodlights should be placed directly out from the batter's box or in line with the pitcher's mound or the base lines.

More and more, baseball and football are being played on overlapping or adjacent fields, which complicates lighting design. All

critical lines of sight must be left open. The solution generally involves designing a split lighting system that uses as many floodlights for both sports as possible. Banks or partial banks of lights are switched on or off, depending on the sport.

Enclosed arenas are often designed to accommodate many sports. It is absolutely essential to work with a lighting expert from the beginning of such a project. Hundreds of floodlights are required for this type of facility, and their mounting locations are critical.

Both the architect and lighting designer will do the best job if they are familiar with how a particular game is played.

The final rule is to know the special lighting systems that are available for sports. Because high-wattage lamps are used for sports lighting, floodlights have large 20- or 22-inch reflectors.

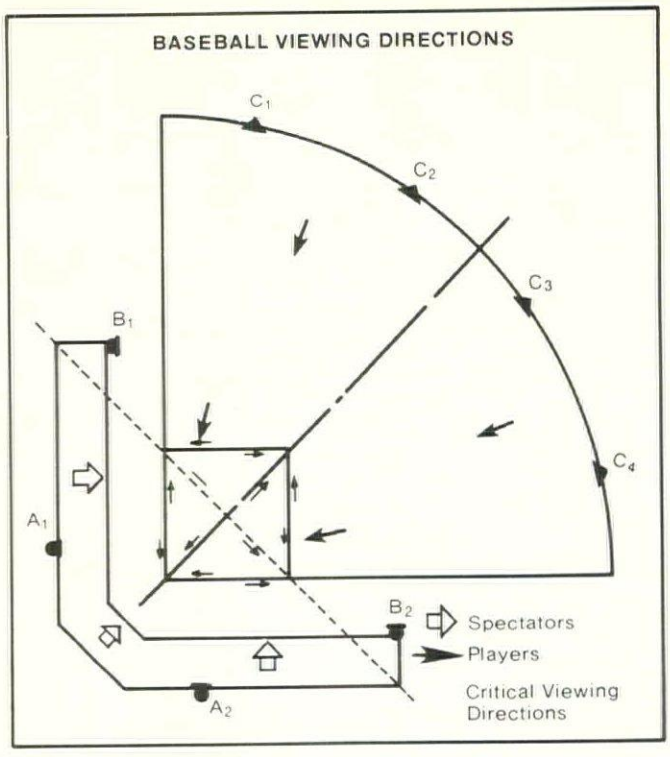
The industry standard is a 1500-watt metal halide lamp; a 1000-watt metal halide lamp is sometimes used for smaller facilities.

Metal halide lamps take a few moments to warm up initially and approximately 8 to 10 minutes to restrike when power is restored after a momentary interruption. Some new metal halide lamps have an instant-restrike capability. A few floodlights with these lamps and ballasts can provide instant-on safety lighting for a sports facility and possibly sufficient light to allow play to continue.

CONSIDER WEIGHT

Sports floodlights are heavy, weighing 45 to 55 pounds each, and they are mounted on racks that add more weight.

The weight is a major consideration in roofed or domed structures. Six hundred to 800 floodlights can



FIELD OF BEAMS: Poles should never be located directly in line with critical viewing directions. The A, B, C marks indicate pole locations.

put a strain on any support system.

There are ways to avoid subjecting a roof to so much weight, and they should be analyzed early in the design process. Racks can be made of lighter-weight materials. Floodlights can also be mounted without ballasts, and the ballasts can be placed in other locations. If this is done, the architectural design must provide a ballast location—hundreds of ballasts take up a lot of room.

Look for low-maintenance

Designing a sports lighting system is like putting together a puzzle, with the goal of achieving specified light levels with as little glare as possible.

features in any sports floodlight. The optical assembly should be sealed, but should allow easy access for relamping. Housing and hardware materials should be durable and corrosion resistant. Glass should be tempered for heat and shock resistance. There should be positive aiming that can easily be reset after the floodlight has been relamped.

If the floodlight accepts a glare shield, that is another plus. One type of shield is made of black matte-finished metal and looks like a wheel with three spokes. The center covers the lamp so it is never in view. A 3-inch black band on the outside fits at the edge of the reflector, effectively minimizing stray light. This internal glare guard is similar to those used on floodlights at the Statue of Liberty.

Floodlights for outdoor sports are commonly mounted on poles. The poles must be strong enough to support the weight and the effective projected area (EPA) of the equipment in local worst-case wind conditions.

And don't forget that poles sway; therefore, they must be far enough away from a structure that floodlight racks and the poles themselves do not hit the structure in high winds.

Designing a sports lighting system is like putting a puzzle together, with the goal of achieving specified light levels and uniformity with as little glare as possible. This goal can best be achieved by following the four rules of thumb and working as a team. ■

Conferences & Expositions

JUNE 20-22 GE Lighting Institute Conference—Consulting Engineers and Architects. GE Lighting Institute, Cleveland, OH; (800) 255-1200.

JUNE 27-29 GE Lighting Institute Conference—Lighting Educators. GE Lighting Institute, Cleveland, OH; (800) 255-1200.

JUNE 29-JULY 1 34th Annual CSI Convention and Exhibit. McCormick Place East, Chicago; (703)684-0300.

JULY 11-13 "Power Quality for the Industry Professional." BMI Headquarters, Foster City, CA; (800)876-5355.

JULY 26-27 "The PowerProfiler: Use and Application." BMI Headquarters, Foster City, CA; (800)876-5355.

JULY 29-AUGUST 2 IESNA Annual Conference. Omni Inner Harbor Hotel, Baltimore; (212)705-7269.

AUGUST 1-4 AIA 1990 Northwest & Pacific Regional Conference. Juneau, AK; (907)586-1371.

AUGUST 8-11 American Society of Interior Designers (ASID) Conference. Atlanta; (212)944-9220.

AUGUST 11-13 RHIDEC, Restaurant Hotel International Design Exposition and Conference. Los Angeles Convention Center; (212)391-9111.

SEPTEMBER 9-12 World Store. Miami; (212)391-9111.

OCTOBER 3-5 Lighting Conference for Utility Representatives. The Lighting Center, Philips Lighting Co., Somerset, NJ; (201)563-3600.

OCTOBER 18-20 Lighting World/Los Angeles. Los Angeles Convention Center; (212)391-9111.

Seminars & Workshops

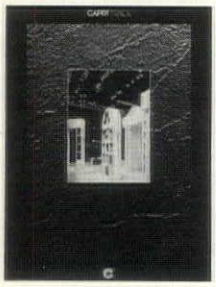
JUNE 20-22 Consulting Engineers and Architects Conference. GE Lighting Institute, Cleveland; (800)255-1200.

SEPTEMBER 10-14 Lighting Design and Applications Workshop. The Lighting Center, Philips Lighting Co., Somerset, NJ; (201)563-3600.

SEPTEMBER 17-19 Industrial Lighting seminar. The Lighting Center, Philips Lighting Co., Somerset, NJ; (201)563-3600.

OCTOBER 11-13 Designer's Saturday. New York City; (212)249-5237.

OCTOBER 15-17 Lighting Conference for Consultants. The Lighting Center, Philips Lighting Co., Somerset, NJ; (201)563-3600. ■



FLEXIBLE LIGHTING

Capri Lighting's 53-page, full-color Track catalog provides flexible lighting options such as low-voltage and line voltage fixtures, a new soft square fixture, a roundback Adjustabeam fixture, roundback and flatback cylinders, gimbals, spheres, and geoscreens. Miniaturized lighting and various accessories are also featured. It includes a photometry section with charts for low-voltage and line-voltage lamps; illustrations showing beamspread possibilities; and a matrix. Capri Lighting, Los Angeles. **CIRCLE 53**

INDUSTRIAL LIGHTING SOLUTIONS

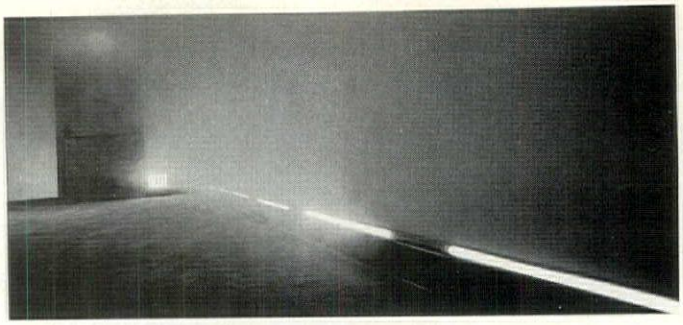
The Industrial Lighting Products Digest, from Holophane, includes product descriptions and specifications for 14 different products, ranging from prismatic glass reflector luminaires and hazardous area fixtures to emergency systems, floodlights, and high mast systems. Holophane Company, Inc., Newark, OH. **CIRCLE 54**

ENERGY-SAVING BALLASTS

Advance Transformer's bulletin introduces a new line of energy-saving, electromagnetic one- and two-lamp ballasts. The Advance Powrkut ballasts, designed for use with 4-foot F40 rapid start lamps and F40T12 standard lamps, are described in detail. Advance Transformer Co., Rosemont, IL. **CIRCLE 55**

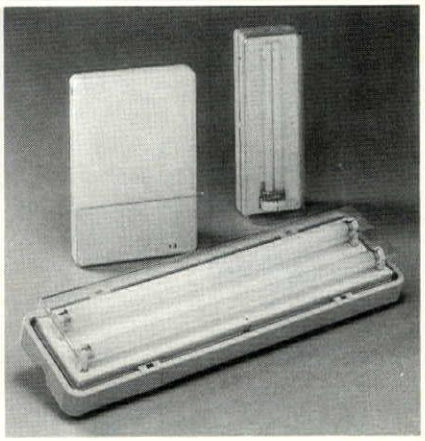
PUBLIC SPACE LIGHTING

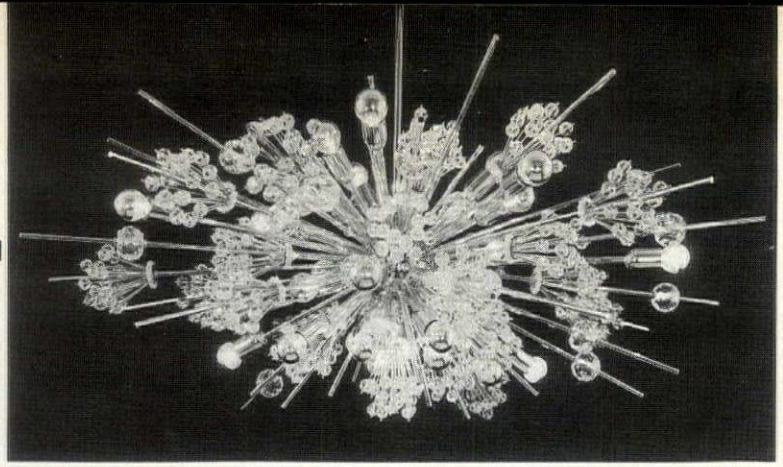
Rambusch's full-color brochure illustrates its capabilities in design, engineering, and fabrication of all types of lighting for public spaces. The brochure features many of the company's lighting products, such as the Pan-A-Lux 118 indirect luminaires, Lite-Pak, the downlight series of recessed incandescent/tungsten halogen and H.I.D. lighting, the Shovelite, and the Beamlite series. The Rambusch Company, New York. **CIRCLE 56**



LOCTITE LIFELINE emergency system provides low-level exit signs and path markings for higher visibility in smoke-filled areas. The system consists of emergency-activated electroluminescent light strips, which run along walls, and fiberglass-illuminated exit signs designed for placement 8 inches above the floor. Loctite Luminescent Systems Inc. *CIRCLE 57*

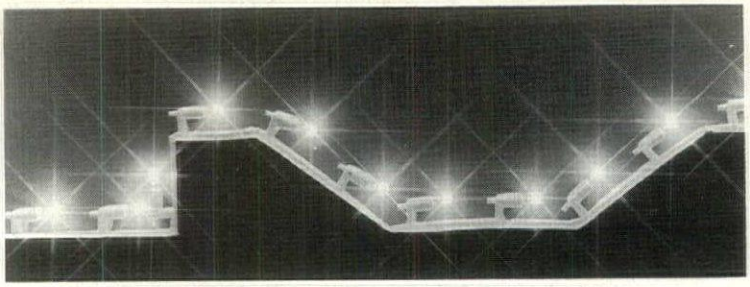
BEGHELLI'S FLUORESCENT EMERGENCY LIGHTING FIXTURES feature a mounting bracket system which provides easy installation and maintenance. Fixtures offered include PL 24-watt, 22-watt, and 8-watt, 120 volt and 277 volt lamps. Beghelli Inc., Jacksonville, FL. *CIRCLE 58*





CALGER LIGHTING'S OPERA STARBURST chandelier is constructed of Austrian lead crystal with a nickel or 24 karat gold-plated, solid brass frame. Suitable for intimate rooms and public spaces, the chandelier's sizes range from 29 inches to 72 inches wide. Calger Lighting, Inc., New York, NY.
CIRCLE 59

THE 72-320 COMPACT REMOTE CONTROL AND MANUAL WALL SWITCH, FROM MIDLAND INTERNATIONAL, controls indoor and outdoor lighting from up to 50 feet away, employs UHF radio technology on coded channels, and handles up to 400-watt incandescent bulbs. Midland International, Kansas City, MO.
CIRCLE 60

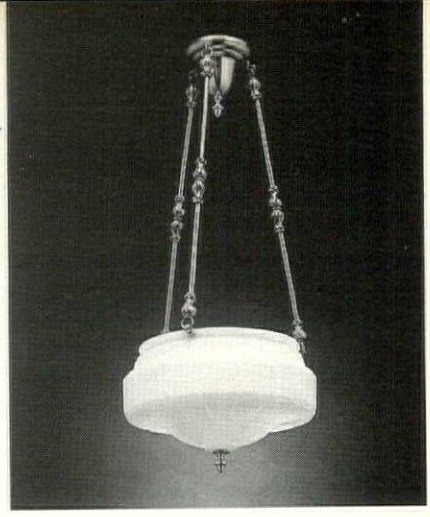


LINEAR LIGHTING'S HORIZONTAL ACCENT LITE uses a 5-watt, 12-volt quartz halogen lamp, and a 1-, 2-, or 4-watt, 24-volt incandescent lamp. It features a push button lamp ejector and compact design. The system can conform to indoor and outdoor configurations, and it is offered in spacings from 2 to 12 inches. Linear Lighting Corp., Long Island City, NY. *CIRCLE 70*

HYDREL'S 9000 SERIES INGRADE lights feature a sealed modular design, locking door assembly, and single fastener. Two fixtures in the series are currently offered: the 9000, up to 75 watts incandescent and the 9100, up to 100 watts HID and 250 watts incandescent. Hydrel, Sylmar, CA. *CIRCLE 71*

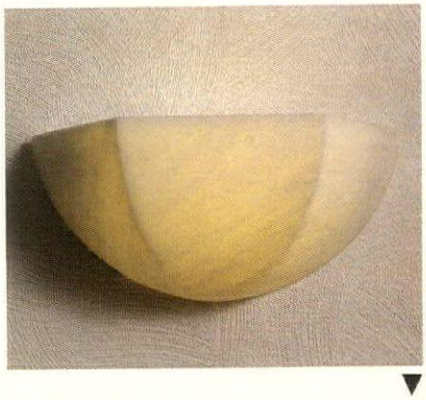
Index to Advertisers

PRODUCT ADVERTISEMENTS REVIEW

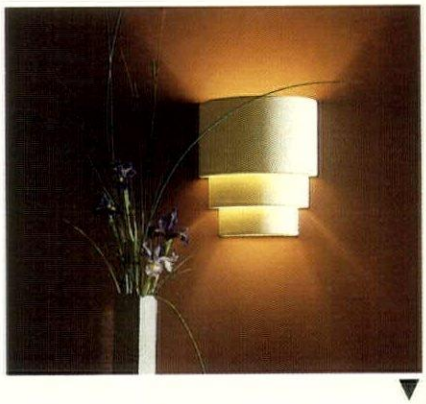


THE LADD'S ADDITION is a solid-brass bowl light fixture that provides semi-indirect lighting suitable for commercial and public installation. Various finishes include antique, brushed brass, japanned copper, polished nickel, and verde antique. It measures 14 inches in diameter, and accepts three 60-watt bulbs. Rejuvenation Lamp & Fixture Co., Portland, OR. CIRCLE 61

EXTERIOR WALL SCONCE, is 18 inches wide, 58 inches high, and has a 12-inch projection. The fixture is made of polished stainless and satin bronze. The frosted glass is backlit with two A lamps, and two 250-watt quartz lamps provide up and down light. Green Hiltscher, Shapiro of Chicago designed the fixture. Appleton Lamplighter, Appleton, WI. CIRCLE 62



THE LAMARBL' LINE OF FLUORESCENT SCONCES features high strength polymer that looks like translucent marble and alabaster but is more durable. The sconces are fashioned in a wide range of designs, and decorations and logotypes can be cut into or through the material. LaMar Lighting Co., Freeport, New York. CIRCLE 63



THE ZIGGURAT SERIES of wall sconces provide soft, indirect lighting, utilizing incandescent or compact fluorescent lamps. The porcelain fixtures are offered in 19 styles and 10 fired ceramic finishes. Custom design services are available. Saxe-Patterson, Taos, NM. CIRCLE 64

Greenlee's Composite Direct Burial—Let Your Imagination Soar

For stunning visual effects and enduring service in a landscape lighting fixture, Greenlee's Composite Direct Burial sets a commanding new standard. The CDB combines all the excellent features of our original Direct Burial Series—easy installation, broad uniform illumination, trouble-free service—with our advanced composite housing which is impervious to the abuses of changing weather, soil, and chemical fertilizers and insecticides.

Plus, the versatile CDB offers a wide variety of options for any illumination project. The CDB is perfect for illuminating trees, walls, signs, shrubs, displays, or ornamental archways. And consider the possibilities for courtyards, alcoves, statuary, and breath-taking atriums, doorways, waterfalls, or stony overhangs dripping with flowering vines. Whatever your illumination project, the Composite Direct Burial can enhance, reveal, define, or enchant. Your imagination is the only limit.

At Greenlee, we combine progressive engineering with years of experience in illumination design. The result is a line of superior landscape luminaires which our competitors can only envy—and which you can trust to meet your most exacting standards of quality and service.

Greenlee's Composite Direct Burial—the powerful new standard in landscape lighting.

GREENLEE
landscape lighting mfg.
®
A Subsidiary of LSI Industries Inc.

1220 Champion Circle • Suite 116 • Carrollton, Texas 75006
(214) 484-1133 • FAX (214) 484-0787

Circle No. 45 on product card.

CAREER OPPORTUNITIES

SALES AGENTS

A UNIQUE TRACK AND TRACK LIGHTING LINE HAS TERRITORIES OPEN FOR SALES AGENTS. UNUSUAL AND HIGHLY SALABLE LIGHTING RETROFIT PRODUCTS ARE PART OF THE OVERALL MARKET OFFERING.

CONTACT MEL ADLER, CALCO LIGHTING, INC., 7751 ALABAMA AVE., CANOGA PARK, CA 91304.

COMMERCIAL LIGHTING FIXTURE Sales Representatives needed for South Eastern US to sell 3M SILVERLUX Fluorescent lighting systems. Responsible for the sale of new and retrofit systems. High commissions, local travel. Please respond in writing with resume to Ken Adams, Mor-Lite, Inc., 10801 75th St., N., Largo, FL 34647.

SALES AGENTS NEEDED to call on Lighting Wholesalers/Showrooms for 14 year old Manufacturer of unique UL Listed Fluorescent Floodlights. All territories open EXCEPT FL, GA, AL, CA, IL & OH. Kelsey-Kane Lighting Mfg. Co., 4541 NE 11th Avenue, Ft. Lauderdale, FL 33334, 800-444-3187.

ACCENT AND DISPLAY LIGHTING (INTERIOR)

DANALITE, 16392 Gothard St., #A, Huntington Beach, CA 92647 Fax 714-848-1669 714-841-4325
Low voltage/slim profile linear lighting system/high intensity halogen lamps/extensive apps.

FIBERSTARS, Int. & Ext. Lighting, 47456 Fremont Blvd., Fremont, CA 94538 800-327-7877

MARCO LIGHTING, 6100 S. Wilmington Ave., Los Angeles, CA 90001 213-583-6551
Recessed Architectural Lighting: Compact Fluorescents—Low Voltage Capsylite—HID—Incandescents.

AMBIENT LIGHTING SYSTEMS (INTERIOR)

LITHONIA LIGHTING. We cover the lighting spectrum ..... 404-922-9000 Fax: 404-922-1841

PEERLESS LIGHTING CORP., P.O. Box 2556, Berkeley, CA 94702 Fax 415-845-2776, Phone 415-845-2760

AREA LIGHTING (EXTERIOR)

EMCO LIGHTING, 7300 50th St., P.O. Box 1640, Milan, IL 309-799-3111

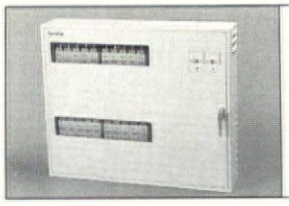
SPRING CITY ELECTRICAL MFG. CO., Spring City, PA 19475 Call 215-948-4000 or Fax 215-948-5577
Historically authentic, cast iron ornamental lighting posts, bollards and adaptations.

CONTROLS

STRAND ELECTRO CONTROLS, 2975 S. 300 W., Salt Lake City, UT 84115 801-487-6111
Manufacturing full line of lighting controls and dimmers for Restaurants, Hotels, Board Rooms, etc.

EMERGENCY LIGHTING

ELECTRO POWERPACS CORP. (see ad below) 617-876-9220



DYNARAY EMERGENCY LIGHTING
24VDC central battery systems to 1440 watts output capacity. Available with lead-antimony or nickel-cadmium batteries. Standard equipment includes 6 double-fused load circuits, voltmeter, ammeter, test switch and AC on and high charge pilot lights. Zone control outputs and DC fuse failure indicators are optional.
253 Norfolk St., Cambridge, MA 02139
FAX 617/661-4400 TEL 617/876-9220

LAMPS

GTE/SYLVANIA LIGHTING, Sylvania Lighting Center, Danvers, MA 01923 508-777-1900 617-777-1900

OSRAM CORP., 110 Bracken Road, Montgomery NY 12549 914-457-4040

USHIO AMERICA, 20101 S. Vermont Ave., Torrance, CA 90502 ... FAX 800-776-3641 or 800-326-1960
Manufacturer of MR11, MR16, T3 Quartz, Minican and DC Bayonet Halogen Lamps.

VENTURE LIGHTING INTL., 32000 Aurora Rd., Solon, OH 44139 800-437-0111
Metal Halide, High and Low Pressure Sodium, Mercury, MR-16 and MR-11 Display Lamps. Many new and unique products not available from other manufacturers.

LANDSCAPE LIGHTING

DINICO PRODUCTS, INC., 123 So. Newman St., Hackensack, NJ 07601 201-488-5700

ELECTRO-ELF, 10011 Olive St., Temple City, CA 91780 ..... 800-728-0081 Fax 818-579-1333
Energy Efficient Fluorescent lighting. Sealed Waterproof Fixtures available in many styles.

LIGHTING POLES (WOODEN)

J.H. BAXTER & COMPANY, P.O. Box 10797, Eugene, Oregon 97440 503-689-3020
Manufacturer of Timberwood Lighting Standards. A superior pressure treated Douglas Fir laminate for decorative outdoor lighting support. Contact Beryl Roberts.

RECESSED AND DECORATIVE DOWN LIGHTING

NL CORP., 14901 Broadway, Cleveland, OH 44137 ..... Fax 216-662-9069 or 216-662-2080
Recessed HID and incandescent; decorative; custom; church; 20, 30 & 60 amp track; fluorescent lighting systems. Call for more information.

SERVICES TO THE TRADE

Old and rare books. Architecture and Decorative Arts. Send for free catalog to: James L. Beattie, 105 N. Wayne Ave., Wayne, PA 19087 or call 1-800-441-6705.

USED EQUIPMENT FOR SALE

FOR SALE. Italian crafted light fixtures surplus to needs of well known Italian high fashion retailer. Monumental size, subtle style. Extruded steel shaped into interesting cove configuration. Create distinctive ceiling. 12 sections 7 ft. long; 7 sections 25 ft. long. total 264 linear ft. Simple hand tools speed reconfiguration to any length section. Cost $25K. Ask $5K. Contact Peter Descamps at 516-673-5710 or 212-410-0581.

Classified Directory:

First Line (boldface italics) all caps or upper and lower case	$82.50@
Each Additional Line (regular face) upper and lower case	57.50@
Mini-display Ads (3-1/2" wide × 1" deep)	$330.00@
Career Opportunities: $28/line per issue (3 line minimum)	
Situations Wanted: $60 for 4 lines per issue	

To place your ad in The CLASSIFIEDS, just fill out the coupon below, enclose a check for the full amount, and mail to:
Classified Ad Department, ARCHITECTURAL LIGHTING Magazine, 1515 Broadway, New York, N.Y. 10036

Please run the attached ad(s) in the next _____ (number of) issue(s) of ARCHITECTURAL LIGHTING.

I am enclosing a check for $ _____ Directory Listing Category: _____

Name & Title _____

Organization _____

Address _____

City/State/Zip _____ Phone # _____