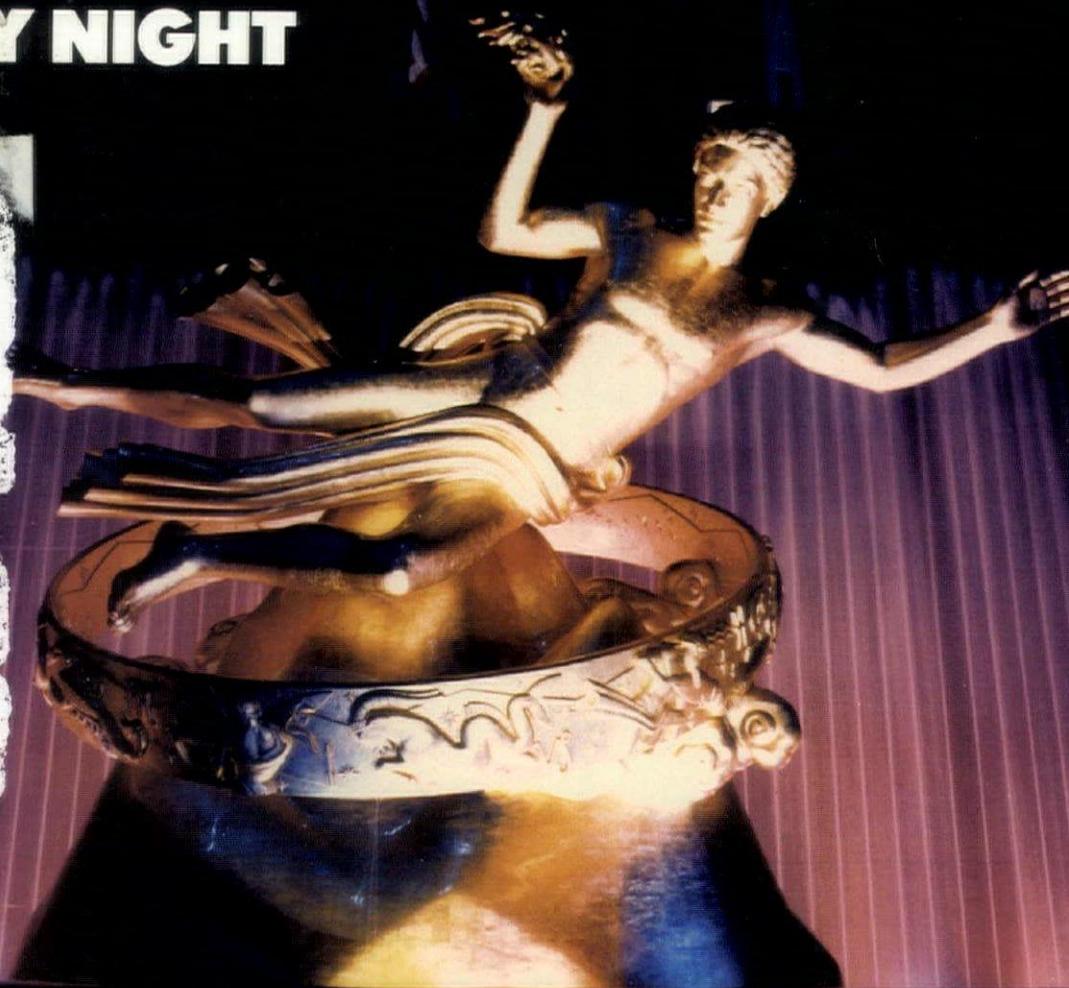


ARCHITECTURAL

LIGHTING

NOVEMBER 1989 \$8.

**OUTDOORS
BY NIGHT**



PROMETHEUS FOUNTAIN FURY

TAMPA BRIDGE BEAUTY

Williams . . . A New Light

With the acquisition of Globe Illumination, Williams now offers the ultimate in parabolic design.

Williams, your best specification-grade source for fluorescent lighting, has just added to bring you a more complete line of quality products than ever before.

Acquisition of the assets of Globe Illumination Company of Gardena, California has enabled Williams to add to its line the complete series of Ultrapar parabolic fixtures originally developed by Globe.

Ultrapar units, in popular sizes, will now be manufactured at Williams' Carthage, North Carolina plant. For more information on any of Williams' full line of high-quality, energy-efficient, specification-grade lighting products, contact:

ultrapar™

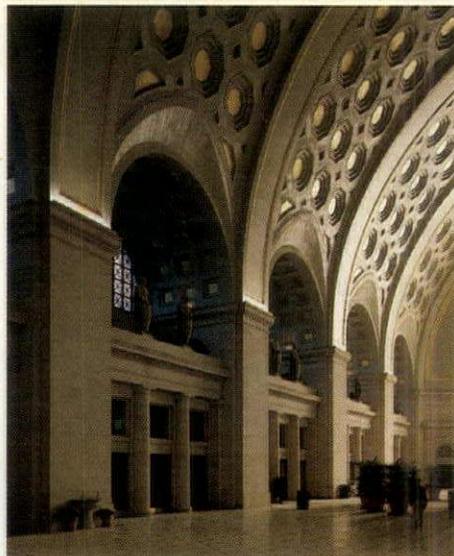
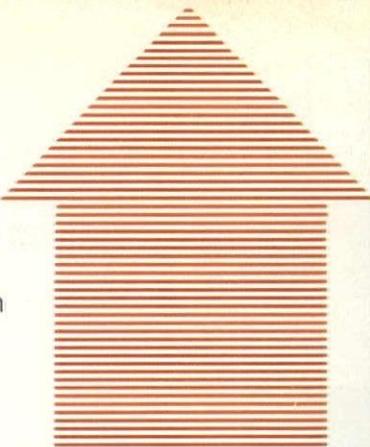


H.E. WILLIAMS, INC

Dedicated to Excellence in Lighting

PAN-A-LUX: Unequaled efficiency for important public spaces.

The PAN-A-LUX series. Indirect lighting of unusual precision and efficiency. Projecting a controlled wash of light over large surfaces... Pan-A-Lux permits use of fewer fixtures, without sacrificing photometric integrity. Pan-A-Lux fixtures utilize asymmetric reflectors of ellipsoidal, parabolic and cylindrical segments, to project optimum light from their tungsten or HQI lamp Source. Douglas Green's award-winning design is available in a wide range of finishes and models. Pan-A-Lux, the standard uplite fixture, that provides a custom lighting solution. Contact your Rambusch representative.



UNION STATION, WASH. DC PHOTO CAROL HIGHSMITH



PAL 118

PAL XL

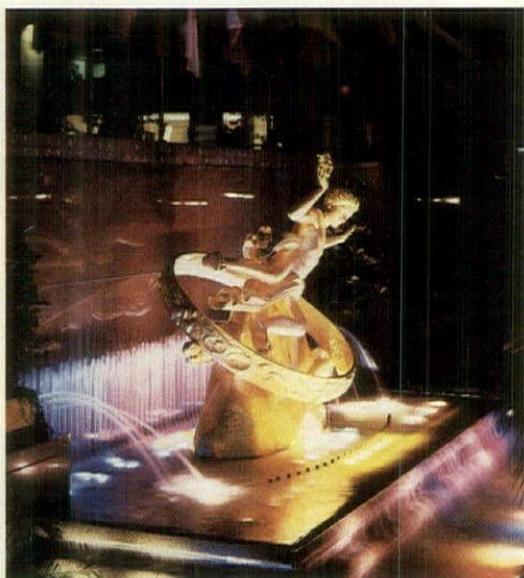
40 W.13th ST. NEW YORK NY 10011 (212) 675-0400 FAX:(212) 620-4687

Circle No. 2 on product card.

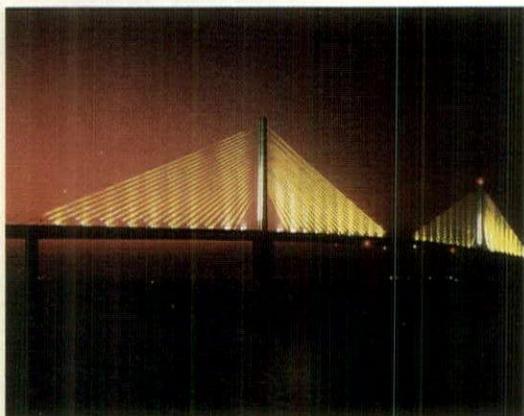
RAMBUSCH
THE STANDARD FOR PUBLIC SPACE LIGHTING SINCE 1898
LIGHTING

LIGHTING

NOVEMBER 1989
VOLUME 3, NUMBER 11



26 **WATER COLORS**



32 **NIGHTTIME SUNBURST**

DESIGN FEATURES

- 26 **WATER COLORS** Master lighting designer Abe Feder orchestrates the unique properties of water in motion with multi-colored light at the Prometheus Fountain in NYC's Rockefeller Center
- 32 **NIGHTTIME SUNBURST** Scalloped beam patterns are used by lighting consultant, Frank Corbari, to highlight fans of yellow cables on the Figg and Muller-designed Sunshine Skyway Bridge in Tampa
- 36 **LAKE EOLA'S EVENING EYEFUL** Annette Chaffon Perry of Herbert/Halback, Inc., reveals how the elixir of light has transformed this rundown Orlando park into a safe and lovely recreation area
- 40 **COMMUNITY GREEN'S GASLIGHT GLOW** Roger Doeren, lighting designer, drew inspiration for the illumination of Kansas' Westwood Hills green from previously installed 1870s gaslight luminaires

PLANNING & TECHNIQUE

- 20 **HOW TO PLAN A FOCUSING SESSION** Janet Lennox Moyer offers step-by-step guidelines for dealing with client and design team considerations, procedures, and equipment in this most exciting phase of landscape lighting

COLUMNS

- 6 **INSIGHTS** Welcome from the new Gralla Publications staff
- 8 **LETTERS** Avoiding halogen hazards
- 10 **SPOTLIGHT** HPS turns smokestack into highway beacon
- 12 **SPOTLIGHT** Florida home's uncommon garden variety
- 14 **WORLDVIEW** Industrial designer Robert Sonneman critiques Milan's EuroLuce Show
- 19 **CALENDAR**
- 44 **GRAPHICS** Sam Mills details the original can light
- 46 **NEW PRODUCTS**
- 57 **PRODUCT LITERATURE**
- 59 **CLASSIFIEDS**
- 60 **INDEX TO ADVERTISERS**

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. © Copyright 1989 Gralla Publications. All rights reserved.



GROUND EFFECTS

This tree is illuminated by three of the favorite lamp choices of landscape designers – from left to right, a 70 watt Metal Halide HOI, a 100 watt Mercury Vapor, and a 100 watt Quartz Halogen. A landscape rainbow – same tree, different effects. Hydrel recognizes the importance of lamp selection by offering a wide line of fixtures to protect and conceal the source.

Hydrel's 4500 Series Accent Lights were used in this illustration. The 4530 for the Metal Halide lamp, the 4519 for the Mercury Vapor lamp, and the 4525 for the Quartz Halogen lamp. The 4500 Series was designed for the rigors of the outdoor environment. Hydrel's forty years of experience has proven the value of providing the finest materials, testing and ongoing innovation to provide products with an extra margin of reliability.



HYDREL 12881 BRADLEY AVENUE • SYLMAR • CALIFORNIA 91342 • TEL 818/362-9465

Circle No. 3 on product card.





DINK

This little fellow is just the right size for the new Par 20 and Par 16 lamps. When fortified with all of our accessories, he becomes one macho guy.

For a 270 series information kit, write on your letterhead to:
Lighting Services Inc,
Industrial Park Rt 9W,
Stony Pt, NY 10980



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 Associate

Ronald M. Gabriel

Production Director: **Barry Miller**

Assistant Production Director: **Susan Benvenuto**

Corporate Art Director: **Richard Zoehrer**

Marketing Director: **Michael Hyman**

Marketing Services Director: **Thomas Flannery**

Merchandising Director: **Gloria Marshall**

Group Circulation Manager: **Brenda Boothby**

Classified Ad Director: **Nancy Leffler Berman**

Market Research Director: **Robert Leibson**

Market Research Manager: **Selma Book**

Editorial Advisory Board

Charles C. Benton; Alfred E. Bordon 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;

Majtaba 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

William Loeb, Midwest/Eastern Regional Manager

Gralla Publications 6160 N. Cicero Avenue Suite

122 Chicago, IL 60646 (312) 545-0700

Doyle Peck, West Coast Regional Manager

Gralla Publications 6355 Topanga Boulevard Woodland Hills, CA 91367

(818) 348-1943 (800) 950-1314

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

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

Publishing Vice Presidents: **Jane Edelstein, Mark Gross, Stephen G.**

Stoneburn

Other Gralla Publications

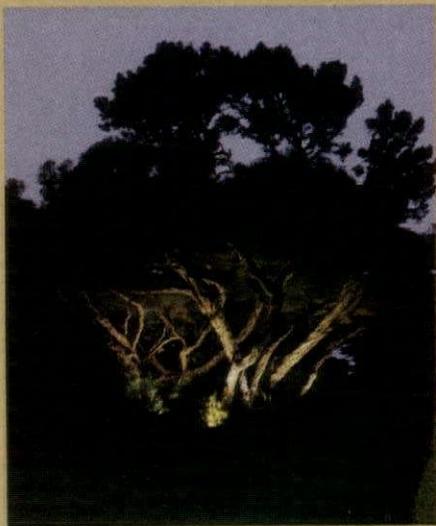
Bank Systems & Technology, Commercial Property News, Contract, Corporate Travel, Facilities Design & Management, Gift & Stationery Business, Health Care Systems, Impressions, Kitchen & Bath Business, Meeting News, Multi-Housing News, National Jeweler, Premium/Incentive Business, Resorts & Incentives,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



◀ Circle No. 4 on product card.



The Smaller. The Better.



Introducing the GM-2000 Series mini uplights from Imperial Bronzelite. Unlike any other grade-mounted uplight available, this new luminaire is compact. It's only 12" x 7^{5/8}" x 4^{1/2}" deep. The perfect fit for land-

scapes requiring a concealed light source.

At night, the GM-2000 luminaire brings landscapes to life with exciting light. The series is specifically designed to provide superior performance with new, energy-efficient, compact lamps: 20 to 75 watt low-voltage halogen, 50 to 75 watt low-voltage incandescent or 70 watt HQI metal halide. Combined with the GM-2000 series, any of these lamps can be used to create spectacular lighting effects with excellent color rendition.

Daylight reveals the contemporary square lens of the GM-2000 framed by a handsome textured top plate available in cast aluminum, cast bronze or dark bronze composite.

This new series is ruggedly constructed with full gasketing

and stainless steel fasteners for long-lasting, low-maintenance service. Its advanced single piece, composite housing readily withstands impact, moisture and the harshest of soil conditions. Plus, its light weight allows for easy installation.

Smaller size. Better performance. The new GM-2000 Series mini uplights will fit beautifully into your landscape.

**Imperial
Bronzelite**
a GENITE company

Architectural Fountains and Lighting

For a brochure on the new GM-2000 Series mini uplights, call or write:

P.O. Box 606
San Marcos, Texas 78667
(512) 392-8957

Circle No. 5 on product card.

Welcome to a New Era

Welcome to a new chapter in the history of *Architectural Lighting*. Change can be a positive influence in building a stronger tomorrow when it cultivates the achievements of the past, and combines this with the fresh thinking and enthusiasm of the present.

In this issue, and in those to come, you will find a thoughtful blending of past and present. Charles Linn, AIA, will remain on staff as executive editor. And many of the columnists and editorial advisory board members who have shaped the magazine to date will continue to help it grow in the future.

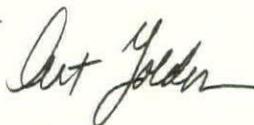
Here at Gralla Publications, *Architectural Lighting's* new staff draws upon and benefits from the collective creativity and energies of the many other professionals who work in the editorial, advertising, production, circulation, and marketing departments, and whose efforts result in the publication of 20 additional, diverse trade magazines and tabloids.

Architectural Lighting's staff is dedicated to maintaining the high quality of the photography and text that has made this magazine the leading publication in its specialty field.

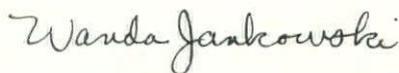
We thank the advertisers who are supporting *Architectural Lighting* as it enters this new era. And we hope readers will continue to share their fine work with us.

We value both groups as partners with us in promoting the visionary wonder that is lighting.

Thank you.



ART GOLDEN
PUBLISHER



WANDA JANKOWSKI
EDITOR



GETTING TO KNOW US

ARCHITECTURAL LIGHTING's editorial staff operates from Gralla Publications' headquarters in New York. Left to right: Art Golden, Publisher; Wanda Jankowski, Editor; Catherine Schetting Salfino, Managing Editor; Ronald Gabriel, Art Associate; Christina Lamb, Assistant Editor.

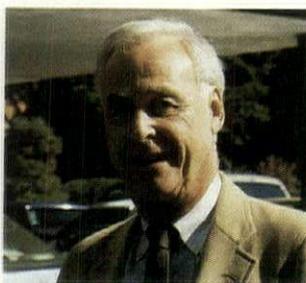


Charles Linn, AIA, Executive Editor, based in Eugene, OR.

SUPER SALES TEAM



Doyle Peck,
West Coast
Regional Manager



William Loeb,
Midwest/Eastern
Regional Manager

Lytesystem 12 A Special Magic

Introducing Lytesystem 12:

A halogen low voltage chandelier system designed to bring celestial effects to residential and commercial spaces. The core of the system—a 20W 12 volt T3 lamp—is used with lightforms made of thick pressed and etched glass or gleaming polished chrome with etched glass discs. Lightforms can be suspended from reflective ceiling pans and attached to circular or linear chassis. The 12 volt power feed is safely carried through metal rods; there are no visible wires. The total effect is magical. Lytesystem 12: The future of light, today.

Lytesystem 12 is part of Lightolier's new Lightstyles Collection. For a copy of the Lightstyles catalog, contact your Lightolier representative or Lightolier Lightstyles distributor.



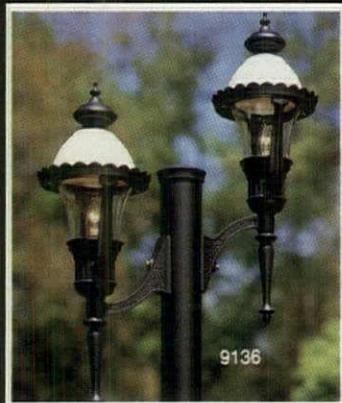
LIGHTOLIER®

A GENLYTE COMPANY
The Leader in Lighting

Hanover[®]

LANTERN

QUALITY LIGHTING FIXTURES



Hanover Lanterns catalog supplement no. 9037 features 7 **NEW** series of decorative cast aluminum lighting fixtures. Series 9300, 9400, 9500 and 9600 are featured with clear beveled glass, solid brass finials and spindles. Also included are additional landscape lighting fixtures and an in-ground mounted H.I.D. ballast housing with floodlites.

Hanover[®]
LANTERN

A DIVISION OF
HOFFMAN PRODUCTS, INC.
470 HIGH ST., HANOVER, PA. 17331
717-632-6464

Circle No. 7 on product card.

LETTERS

Avoiding halogen hazards

In May 1987, Shirley Allen, owner of The Light Shop, in Kansas City, MO, was experiencing a large number of violent premature failures from a variety of tungsten-halogen lamps. She asked me to research cautionary notices concerning the use of tungsten-halogen lamps in the following categories: ceiling fixtures/chandeliers, desk/table/task lamps, wall sconces, floor lamps/torchieres, recessed downlights, and track lighting fixtures.

My research started with the *IES Lighting Handbook: 1981 Application Volume*, which states: "Caution notices are generally provided with most lamps for stage and studio service. All tungsten-halogen lamps operate with internal pressure above that of the atmosphere; therefore, protection from lamp abrasion and avoidance of over-voltage operation is advised. The use of screening techniques is advised where appropriate to protect people and surroundings in case a lamp shatters."

My next inquiry was to the American National Standards Institute (ANSI). They publish the C78.1451.1988 Cautionary Notice for Electric Lamps—Use of Protective Shields with Tungsten-Halogen Lamps. It reads, "Scope: This standard is a cautionary notice applying to the use of protective shields with tungsten-halogen lamps described in the C78.1400 series of American National Standards for lamps and with similar lamps. Cautionary Notice: To assure maximum safety during handling and use of the lamps described in the Scope, the following notices should be observed.

(1) Tungsten-halogen lamps operate at high temperature and at internal gas pressure. Consequently, a lamp may shatter. Certain lamps may also emit some amount of ultraviolet radiation. Therefore, a suitable protective shield, screening technique, or both, shall be used with the luminaire to protect people and surroundings from both hazards.

(2) Always read and observe the information contained in the lamp manufacturer's caution notice."

My continuing research led me to the National Electrical Manufacturers Association (NEMA), the Canadian Standards Association (CSA), the International Electrotechnical Commission (IEC), and Underwriters Laboratories, Inc. (UL). The UL standard for safety for portable electric lamps, UL153, was revised with respect to tungsten-halogen lighting on November 18, 1988, with an effective date of December 21, 1990. The UL standard for safety for incandescent lighting fixtures (permanently attached), UL1571, was revised with respect to tungsten-halogen lighting on December 26, 1988, with an effective date of January 1, 1991.

These standards require a 1/8-inch-thick annealed or borosilicate glass carrier, so that no part of a ruptured bulb can leave the luminaire by a direct path, as determined by line of sight between any portion of any opening in or around the shield and any portion of the bulb. The luminaire must also

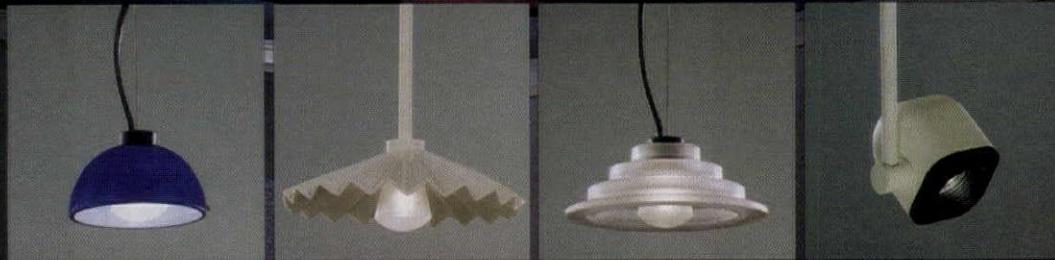
CONTINUED ON PAGE 60

LyteJacks A New Generation of Accent Lighting

Introducing LyteJacks:

An innovative low voltage system that provides a new range of lighting possibilities. LyteJacks offers miniature scale and dramatic visual impact with "trackless" points of halogen light. Compact spotlights deliver directional accent light . . . and miniature decorative pendants create intimate pools of light. Components can be combined into myriad configurations, dropped close to objects being lighted or clustered into "free-form" chandeliers. LyteJacks: The future of light, today

LyteJacks are part of Lightolier's new Lightstyles Collection. For a copy of the Lightstyles catalog, contact your Lightolier representative or Lightolier Lightstyles distributor.



LIGHTOLIER®

A GENLYTE COMPANY
The Leader in Lighting

100 Lighting Way, Secaucus, New Jersey 07096 • 201-864-3000

Circle No. 8 on product card.

Architectural Lighting November 1989 9

HPS Turns Smokestack Into Highway Beacon

TALL ORDER: Power House Place's 200-foot-high smokestack (below) is illuminated by 1,000-watt sodium lamps. The turn-of-the-century structure is part of a 60,000-square-foot office/entertainment complex (below right).

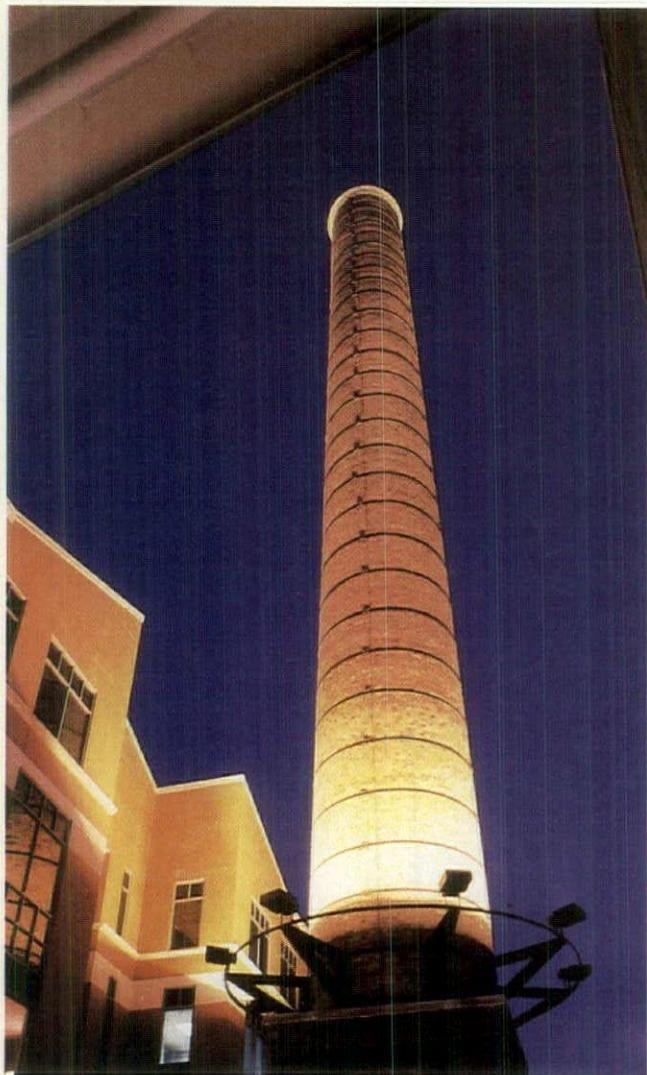
CHRISTINA LAMB
ASSISTANT EDITOR

CHALLENGE: Power House Place, a \$20 million office/entertainment complex, wanted to emphasize its brick smokestack, since this 200-foot-high structure is the only remnant from the original 1904 coal-burning power plant. Mackey Associates decided to uplight the smokestack to create a nighttime landmark, designing a lighting system that would illuminate the 165-foot-high circular flue evenly around its 35-foot-high, 18-square-foot base with enough thrust to reach the top of the stack.

DESIGN/TECHNICAL CONSIDERATIONS: Creating this new highway beacon required that certain criteria be met. Both the installation and operation of the system had to be economical, the support brackets had to complement the "Industrial Romanesque" style of the complex and the color rendition had to coordinate with the whole of the structure.

METHOD: Because they're energy efficient and have a long lamp life, high-pressure sodium lamps were chosen. With the assistance of computer modeling, it was decided that equally spacing eight of these 1,000-watt lamps and placing them 8 feet from the stack would accomplish the goal. Foot-candles gradually decrease from 170 at the base to two at the crown. Triangular steel brackets support each housing. Time frame, from design through installation, was approximately six months.

CONCLUSION: Nighttime illumination of the brick, turn-of-the-century structure adds visual appeal to the 60,000-square-foot office building complex, which includes a 10-screen theater, and will soon house Power House Night Club and Whitey Herzog's Restaurant. Total installation costs for the new landmark, which has been awarded the IES 1989 Edwin F. Guth Memorial Award of Merit, were \$25,370. Energy usage is approximately 35,200 KWH/year.



CREDITS/SOURCES:

PROJECT: THE SMOKESTACK AT THE POWER HOUSE

LOCATION: ST. LOUIS, MO

CLIENT: GARRETT A. BALKE, INC.

ARCHITECT: MACKEY ASSOCIATES, PC

LIGHTING DESIGNERS: EUGENE J. MACKEY, III, AIA, MACKEY ASSOCIATES, PC;

DESIGN PRINCIPAL: JOHN C. GUENTHER, AIA, MACKEY ASSOCIATES, PC;

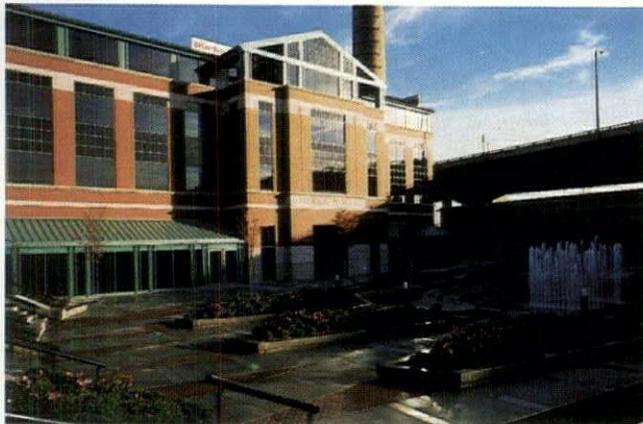
PROJECT DESIGNER: DONALD H. JACOBS, WARD, RAFFERTY & JACOBS, INC.

ELECTRICIAN: MIKE COMPTON, ENVIRONMENTAL ELECTRIC, INC.

PHOTOGRAPHER: SAM FENTRESS, SAM FENTRESS ARCHITECTURAL PHOTOGRAPHY

SUPPORT BRACKET MANUFACTURER: ERECTION MATERIALS ENGINEERING, INC.

CONTROL SYSTEM MANUFACTURER: ANDOVER CONTROLS



Lytecaster Lytegems New Expressive Downlighting

Introducing Lytegems:

New expressions of *style and function*. Each Lytegem combines an architecturally sensitive, elegantly scaled design with effective downlighting. Flexible in application, Lytegems can dress up a room or corridor, while providing general lighting. They can signify special areas with bright punches of downlight or add sparkle and glow, while providing task lighting. Lytegems are both beautiful and practical: they use *standard* Lytecaster Frame-In Kits and Reflector Trims. Lytegems: The future of light, today.

Lytegems are part of Lightolier's new Lightstyles Collection. For a copy of the Lightstyles catalog, contact your Lightolier representative or Lightolier Lightstyles distributor.



LIGHTOLIER®

A **GENLYTE** COMPANY
The Leader in Lighting

Florida Home's Uncommon Garden Variety

CATHERINE SCHEITTING SALFINO

MANAGING EDITOR

CHALLENGE: The backyard of a private lakefront residence had been transformed from a single sloping lawn with a built-in pool to a three-tiered 15,800-square-foot garden, with the pool retained. The homeowners wanted lighting on each level that could vary from being dramatic to soothing, depending on whether they were throwing a party or relaxing with family members.

DESIGN/TECHNICAL CONSIDERATIONS: In order to create unified illumination throughout the garden, consideration had to be given to the three very different levels of the garden: the lawn by the lake, the pool level, and the top tier on the first floor living level of the house. The lighting also had to stand up to Florida's heavy humidity and rains. Finally, the homeowners had a price cap within which the lighting designer had to remain.

METHOD: Several light fixtures have been chosen in order to light the garden's trees, flowers, decks, and pool area: incandescent 100-watt lamps are used in the small bollard-like path lights sprinkled on each level; placed throughout the garden are 60-watt A-19 gooseneck garden lights; up-lights with 150-watt PAR 38 lamps wash tree trunks and the canopy of smaller trees throughout the space; 300-watt mercury vapor lamps are mounted high in tall trees for a moonlighting effect; and 40-watt PL fluorescent fixtures backlight a wooden trellis on the upper deck. All of the fixtures are wired to 120-volt, 24-hour timers that enable the system to turn itself on and off at predetermined intervals. A 1500-watt-capacity dimming system also has been installed.

CONCLUSION: The project came in under budget and the Winter Park, FL, family now uses the garden space for informal evening gatherings and social entertaining.

CREDITS/SOURCES:

PROJECT: RESIDENTIAL GARDEN

LOCATION: WINTER PARK, FL

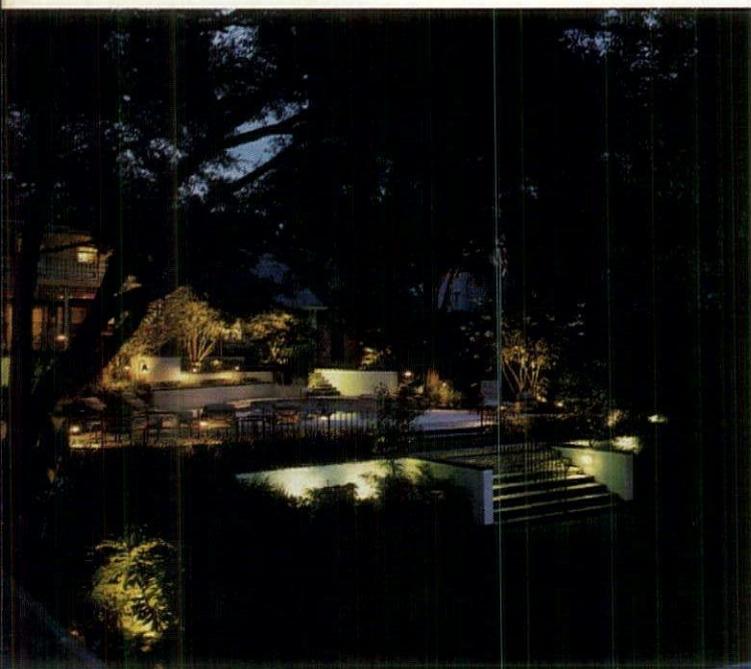
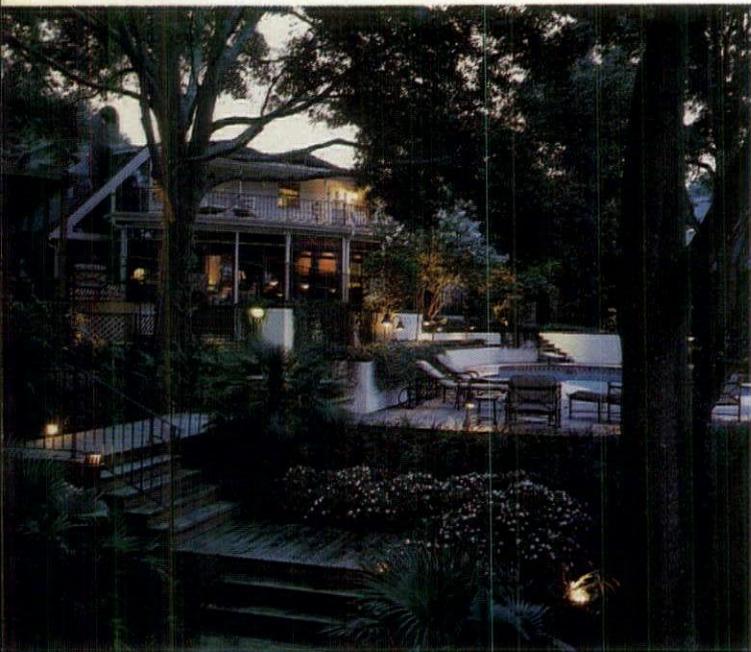
LANDSCAPE ARCHITECT: TOM WALLIS, WALLIS, BAKER & VERLANDER

LIGHTING DESIGNER: TOM WALLIS, WALLIS, BAKER & VERLANDER

PHOTOGRAPHER: RICH FRANCO

LIGHTING MANUFACTURERS: HADCO, path light, backlight, and uplight fixtures; KIM, moon lights fixtures; BEGA, garden luminaires; LUTRON, dimmers; GENERAL ELECTRIC, incandescent, PL, and PAR lamps; SYLVANIA, mercury vapor lamps

LIGHT BLOSSOMS: Like a floral bouquet, an assortment of PL, PAR, and mercury vapor fixtures illuminate three-tiered, lakefront property.

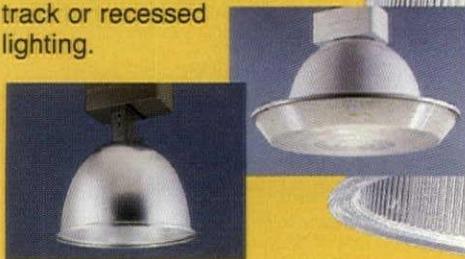


If you're still buying
industrial lighting
through a middleman

CUT IT OUT

Mail this coupon and discover the easy way to buy quality HID lighting products. Buy direct from Ruud and save up to 50% on industrial fixtures including the Prismatic High Bay, whose high performance optics and attractive design make it ideal for a wide variety of industrial, commercial and retail applications.

Send the coupon or call our toll-free number. A friendly, experienced, customer service representative will help you with all of your needs for industrial, outdoor, track or recessed lighting.



800-558-7883

Wisconsin 800-236-7500

	Name _____
	Address _____
	City _____ State _____ Zip _____
	Business _____ Phone _____
	Circle No. 10 on product card.

RUUD LIGHTING

9201 Washington Ave.
Racine, WI 53406
Fax: 414-886-1721

More Low-Voltage Halogen Headed For U.S.



Gallieo by Arturo Silva for Antonan Geli



Ingo Maurer's One from the Heart

SONNEMAN CRITIQUES EUROLUCE

September 20-25. Exhibitors indulged in fantasy and eclecticism but, in general, innovation took a back seat to styling and much of it bordered on contrivance.

There were some bright spots, however. Low-voltage halogen was without question one of the dominant themes of the lighting exhibition. Ingo Maurer, the artist and innovator in the medium, introduced a number of fixtures utilizing halogen's potential. One from the Heart, a playful "lamp for lovers" has a rubber alligator for a base, and a large, red plastic heart concealing a 50-watt halogen bulb, equipped with a touch-tronic dimmer.

Another outstanding new Maurer design is the Tujica system, which incorporates a counter-balanced element (allowing the lamp to move in a 360-degree pattern) mounted on steel shafts, and plays with ideas of precariousness. Maurer's work stands out for its whimsicality and originality.

Vistosi, the well-known Venetian glass manufacturer, introduced Onda, designed by Gigi Marcazzan. Wave-like ribbons of glass are crafted into halogen wall and table lamps that typify the softened lines of today's modern design. Donatella Costa's lamps, for the same manufacturer, are notable for their striking color.

The seemingly endless fascination with the MR 16 reflector lamp resulted in a variety of designs by several exhibitors. Gallieo,

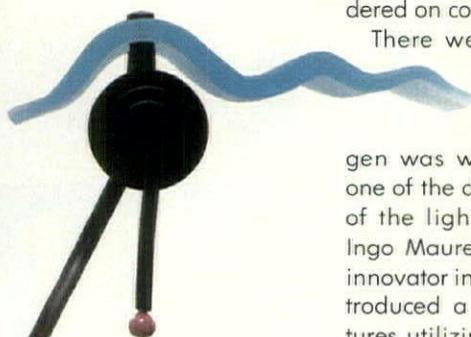
ROBERT SONNEMAN

The author, an internationally known industrial designer, is president of Robert Sonneman Design Group, Long Island City, NY.

As the devout trek to Mecca, so do the hordes of design devotees make the September pilgrimage to the furniture and lighting fair of Milan. Once the destination of the more sophisticated, the Salone del Mobile de Milano—and its EuroLuce—is now the well from which those with an interest in design seek to draw some element of inspiration or insight.

EuroLuce has become the international decorative lighting bazaar where merchants of style come to buy, sell, trade, and steal the most coveted and elusive prize of all...that of a fresh idea.

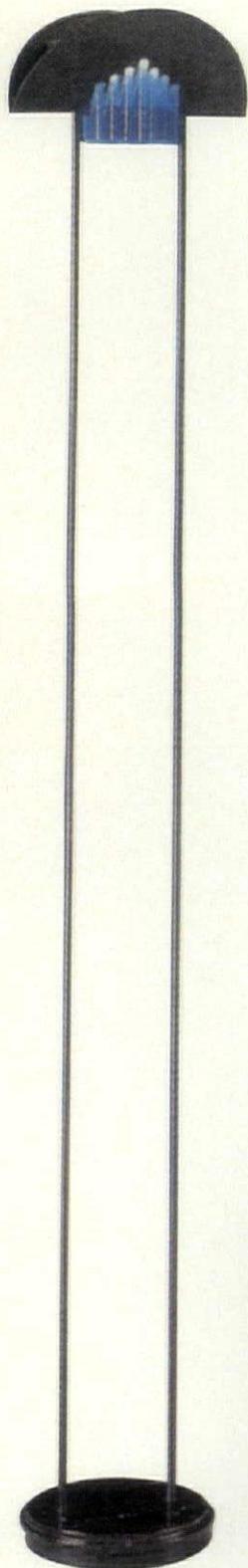
Discovering an original notion was no easy task at this year's EuroLuce, held



Onda from Vistosi

PHOTOGRAPHER:

GALLIEO, ONE FROM THE HEART, ONDA,
AND TUJICA BY DARWIN K. DAVIDSON



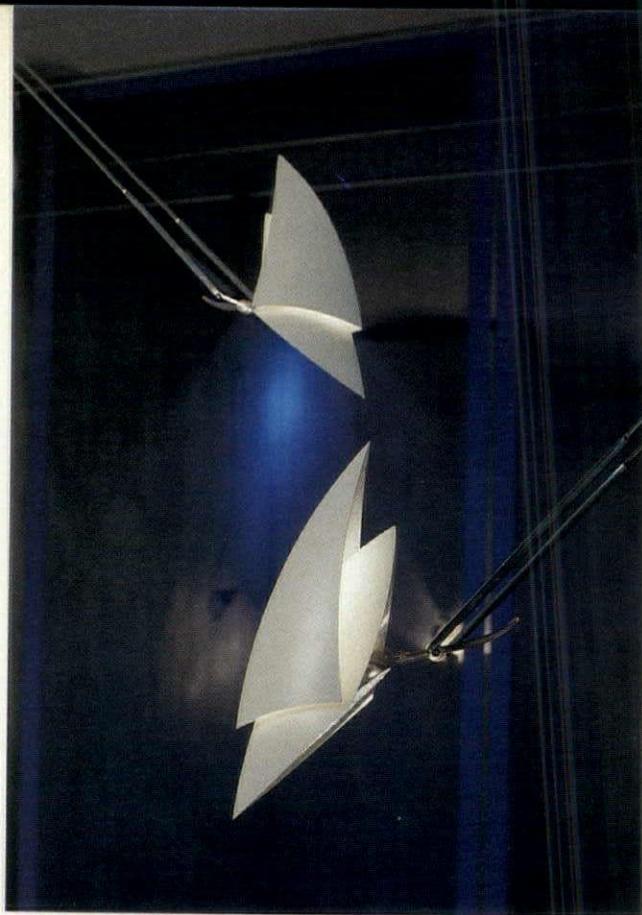
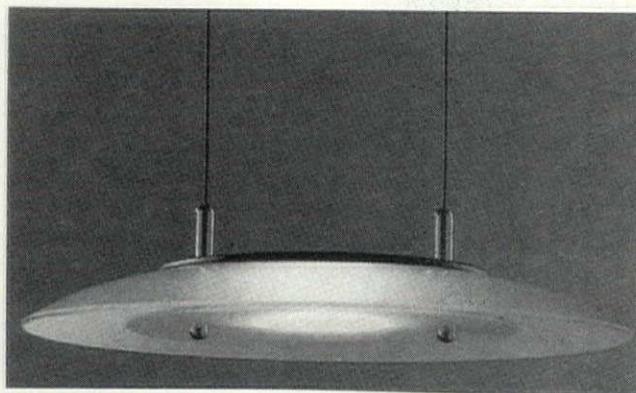
designed for Antonan Geli by Arturo Silva, has an adjustable lens and aperture. Available as a ceiling, wall, or table unit, the device provides a range of focus.

There were numerous attempts at suspensions of low-voltage MR 16s and MR 11s from stretched cables and tensioned metal rods. Elasta by Sicme was typical of the systems in proliferation.

Several manufacturers showed a variety of Italian glass lamps and fixtures. The Rondo by Tre-T Illuminazione was among the most spectacular. A matte aluminum ring supporting a white satin crystal diffuser, it was elegantly simple. Leds showed Arco Iris designed by Sergio Asti, a wall lamp that relied on a similar concept—a plane of opaque metal with a rectilinear flap indirectly lit.

Serapide was another standout with its new cable-suspended glass and perforated metal lighting fixture designed by Ernesto Gismondi and Giancarlo Fassina for Artemide.

**(Left) Black metal and colored glass from Mazzega
(Below) Rondo from Tre-T Illuminazione**



Ingo Maurer's Tujica

Mazzega showed a range of wall and floor lamps of black metal pierced with various colored glass disks, by Michele De Lucchi, Gianfranco Giannetti e Amerigo Lorini.

Tronconi showed a new wall lamp by Georgio Marianelli of black satin aluminum pierced only slightly by an illuminated glass band.

September's best offerings were dominated by the Italian manufacturers. However, the fair is truly interna-

tional and also featured exhibitions by the French, German, Dutch, and even the Taiwanese. The exhibition has been expanded by the addition of another building and the range of decorative manufacturers is impressive, if only by the sheer number in attendance.

As Euroluce has grown over the years, the pressure on manufacturers to introduce new product has become intense. To the purveyors of lighting design, the stature of the event has developed an importance equal to what the Paris couture shows represent for fashion.

Whether this massive effort will result in more innovation—or just more lighting—is yet to be seen. The 15th Euroluce in Milan is slated for September 19-24, 1990. For now, Milan is still the design capital of decorative lighting. And if designers are going to make it anywhere, they had better make it at Euroluce. ■



Light without glare, continued.

This is the new Peerless 7" x 3" Rounded fixture.

It uses the same breakthrough technology that distinguishes our Open Office Fixture, wrapped in a remarkable extrusion.

Note the slim profile, and how it distributes the maximum amount of light from the minimum amount of fixture.

Look around the picture. Try to find any glare or harsh reflections, on the VDT screen or anywhere else. See how smooth the light is on the walls and ceiling.

Then look at the sculptured end cap and the flared lens that gives the 7" x 3" Rounded its unique cross section. The lens gives a continuous line of light—a soft, crystalline glow that's never darkened by a lamp socket or a fixture butt, never brighter than the ceiling above the fixture, and only available from Peerless.

Practical office lighting never looked so good.



New optics, new form, new elegance

 PEERLESS®

PEERLESS LIGHTING, BOX 2556, BERKELEY CA 94702-0556. (415) 845-2760. FAX (415) 845-2776
 *PEERLESS™ IS A REGISTERED TRADEMARK OF PEERLESS LIGHTING CORPORATION. © 1989, PEERLESS LIGHTING CORPORATION.

Circle No. 11 on product card.



LIGHTING FOR TODAY'S LIFESTYLES: The caption for this photo, which appeared in 1905, read: "The real heroine of the first decade lived not in romantic fiction, but in the American kitchen and she, too, had her hero—it was Sears, Roebuck & Co." Lifestyles and lighting have changed dramatically since then. For details on Residential Lighting, check out the IES course, San

Francisco, offered January 10, 17 and 24, 1990. Instructor: Joanne Stinson. CEU credits available. Contact: Heide Kawahata, IES Golden Gate Section, 650 7th St., San Francisco, CA 94107, (415) 982-9832.

INDUSTRIAL LIGHTING SEMINAR,

Philips Lighting Center, Somerset, NJ, December 4-6, 1989. Covers lighting systems and issues common to industrial spaces, such as inspection and quality control. Contact: Sherry Bachman, Lighting Center Coordinator, Philips Lighting Company, 200 Franklin Square Drive, Somerset, NJ 08875-6800, (201) 563-3600.

SCIENCE AND TECHNOLOGY AT THE SERVICE OF ARCHITECTURE,

second European conference on architecture, UNESCO Centre, Paris, December 4-8, 1989. Includes sessions on daylighting. Contact: WIP, Sylvesteinstr. 2, D-8000 Munchen 70, Federal Republic of Germany, (49) 89/7201232.

HOSPITALITY DESIGN,

seminar, The Merchandise Mart, Chicago, December 7, 1989. Contact: Gloria Zylowski, executive director of communications, The Merchandise Mart,

Suite 470, Chicago, IL 60654, (312) 527-7550.

SECOND ANNUAL HOLIDAY PARTY, DLF event, December 12, 1989. **CUSTOM FIXTURES,** panel discussion, DLF event, January 9, 1990. For both events, contact, Rolph Erickson, IES Golden Gate Section, 650 7th St., San Francisco, CA 94107, (415) 626-1950.

RESIDENTIAL LIGHTING,

IES course, San Francisco, January 10, 17, and 24, 1990. Instructor: Joanne Stinson. CEU credits available. **TITLE 24,** IES workshop, San Francisco, January 13, 1990. Instructor: Brian Liebel. For both events, contact: Heide Kawahata, IES Golden Gate Section, 650 7th St., San Francisco, CA 94107, (415) 982-9832.

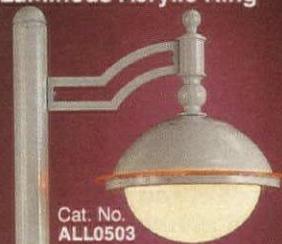
LIGHTING OUTDOORS

3-RING REFLECTOR
Luminous Acrylic Rings



Cat. No. ALL0502

HEMISPHERE DOME
Luminous Acrylic Ring



Cat. No. ALL0503

RADIUS DIFFUSER DOME
Luminous Acrylic Ring



Cat. No. ALL0504

CONCRETE BOLLARD



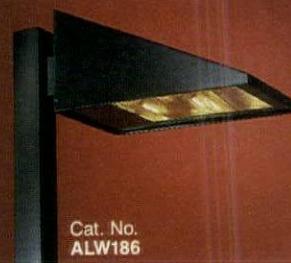
Cat. No. ALC805DW

CLASSIC LANTERN



Cat. No. ALN441

WEDGE LUMINAIRE



Cat. No. ALW186

Introducing a new selection of outdoor lighting products that offers light accents, traditional design, H.I.D. performance, and durable lighting qualities.

ARCHITECTURAL AREA LIGHTING, INC.

14249 Artesia Blvd., P.O. Box 1869
La Mirada, California 90637-1869
(714) 994-2700 Fax (714) 994-0522



How to Plan a Focusing Session

JANET LENNOX MOYER
ASID

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

Light sculpts a darkened landscape, with each layer of light adding to the scene until all parts form a complete luminous composition. This is why focusing is the most exciting part of the landscape lighting project.

Following are step-by-step details on how to plan for a focusing session:

FOCUSING IS "INTERPRETIVE ADJUSTMENT."

This phase of the landscape project involves:

- properly aiming the fixtures to create the desired lighting effects in the landscape
- balancing brightness throughout the landscape night scene, primarily with the aimable fixtures, but also with decorative fixtures, path lights, lanterns and sta-

tionary downlights

- setting the control system equipment levels to balance all layers of the landscape lighting

- documenting the final settings on controls and fixture lamping for future maintenance

Focusing, which must be done after dark, requires that all team members be prepared for the outdoor environment and the nature of the work ahead.

FOCUSING INVOLVES CREATIVE DESIGN.

Decisions made during this process determine the success of the lighting. Approach focusing in an organized manner by making all team members and the clients aware of the importance of it and informing them of the process that will occur.

ADVISE CLIENTS OF SESSION IMPACT.

Clients need to understand their role in the focusing process. Preferably, this should be done during the initial consultation or early in design develop-

ment. Although the impact will be greater on residential clients than on commercial, both types need to prepare themselves for this intrusive process, which includes, but is not limited to:

- late hours of work potentially interrupting their normal schedule of activities
- noise both from people coordinating/participating in the activities and potentially from equipment brought to the site to aid in the aiming of the lights
- the temporary mess made by equipment and snacks or meals

Any other potential impacts peculiar to a specific project need to be thought out in the early phases and discussed with the client.

ENCOURAGE WORKABLE CLIENT INVOLVEMENT.

The designer should explain that the final design is created during focusing and determine with the clients how much they want to be involved.

Some clients will not want to be involved at all, because they trust their designer's



TOOLS OF THE TRADE

ITEMS TYPICALLY used in a session:

- Thick leather gloves to avoid burned fingers
- Welder's glasses to help deal with the contrast between the brightness of the lamps and the surrounding dark night
- Permanent ink marking pens for recording lamp selections and making necessary notes
- Flashlights, spare louvers, special lenses, and thermoses for coffee

ADDITIONAL TOOLS needed for a project depend on the fixtures, but be advised to bring more than you think is needed. If a fixture requires Allen wrenches, have plenty of spares because they are easy to lose.



CALLING IN A SPECIALIST: When a mounting height is lower than 20 feet, the focusing process is quickened by setting up ladders and approximate fixture locations. For mounting heights in the 20- to 30-foot range, tree specialists may help the process go more smoothly.

abilities and may feel they don't possess a strong design sense themselves. Others feel very strongly about the final effects and want to take an active role in the decisions that are made. Not all designers want the client to participate. But if a client does have strong feelings about a project, his or her participation can eliminate the possibility of having to redo the work later due to disapproval of the final results.

The two parties can compromise by agreeing to meet during the evening to review the project's progress and ap-

prove the effects as portions of the design are completed.

BRIEF THE ELECTRICAL CONTRACTOR IN ADVANCE.

The electrical contractor needs a clear understanding of the process and the expectations of his involvement. The contractor needs to know the number of hours anticipated for this work, what specific tasks he or she will be performing, and what equipment should be made available.

Often, other specialists may be included in this briefing. For example, if a

project involves many large trees that will have lights mounted in them, tree pruners or tree specialists prove invaluable. They have all the tree climbing equipment and can mount the fixtures in the trees faster than anyone else.

Even when fixture mounting locations are easily reachable, involving the electrical contractor makes sense because the contractor knows the layout of the wiring best and can avert potential disasters. Equipment defects or wiring problems that are not detected during the installation may cause

fires and damage the lighting system. With full knowledge of the installation, the contractor can help to prevent any problems.

If the contractor places, aims, and locks the fixtures' settings, the designer is free to direct the aiming from the perspective of the potential user. This saves time and increases continuity of thought since the designer doesn't have to keep walking back and forth from fixture to viewing location.

The contractor's familiarity with the fixtures may help get the equipment locked and/or tightened in its final



MAKE UPLIFTING PLANS:
A lift truck is used to mount fixtures 30 to 50 feet up in trees. The contractors need to familiarize themselves with its operation. Before nightfall, they need to determine how they plan to angle the lift truck and mount the fixtures scheduled for focusing that night in each tree.

position more securely than someone less knowledgeable with such construction and installation.

TEAM SIZE VARIES WITH PROJECT SIZE.

Although focusing generally goes smoothest when several people are working together, perhaps the biggest advantage is the time savings. By sharing the work load among several team members, the length of time needed per evening session can be lessened.

Keep in mind that everyone involved—the client, the designers, and the contractors—will have to be back at work the next day. Minimizing the actual hours per night by using more people per night will be less physically and mentally exhausting for team members over the next few days.

A good team size varies, of course, with the size of the project—from two on a small garden, up to eight people

on a large project. Using more people than that makes it difficult for the lead designer to survey all the work occurring during the course of the night. By contrast, when the number of focusing hours per night is too limited, progress becomes slow and continuity of thought is lost from one session to the next.

DETERMINE LENGTH AND NUMBER OF SESSIONS.

A focusing session should run from a minimum of three to four hours per night to a maximum of six to eight hours, with a starting and quitting time determined for each evening. This will help everyone coordinate their week's schedule and set the pace of work for each session.

The team should determine the number of sessions anticipated to complete the focusing. Set up the schedule of evenings with input from

all team members, and enough in advance to avoid social or other conflicts. Consider how many nights per week are realistic for the well-being of the people involved, and whether the nights should be consecutive or separated by a one- or two-day break.

USE AN ASTRONOMICAL TWILIGHT CHART.

The focusing schedule is the most important aspect of the lighting system's installation. It is best to plan focusing projects from mid-September through mid-March since darkness falls earlier during this period.

To help schedule focusing, refer to a chart of astronomical twilight, which shows throughout the year when darkness falls at various locations. To use the chart it is necessary to know the latitude of the project and where it falls in its specific time zone.

For example, in the San

Francisco area, based on a latitude of about 40 degrees, darkness falls in mid-September at approximately 7:30 p.m., and progressively earlier until the beginning of December, when it comes at approximately 6 p.m. This reverses progressively through to mid-March, when darkness falls at approximately 7:30 p.m. again. In Northern California, mid-summer darkness doesn't fall until 9 p.m., which makes for long work days. For other areas of the country, the schedule may vary.

MAKE SURE THE PROJECT IS READY.

When is a project ready for focusing? Existing conditions include the following:

- All large plants should be installed. Try to delay installation of ground covers or small delicate plantings to avoid damaging them.
- All preliminary wiring should be completed and fixtures set in their approxi-

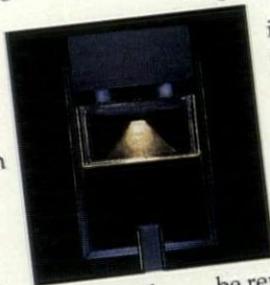
HOLOPHANE PARKLANE. SHINES WITH THE LIGHTS ON OR OFF.



Holophane® brings a great new look to outdoor lighting with the ParkLane.®

This high-powered fixture's extruded aluminum housing, with internally-welded seams, is available in either painted or anodized finish.

The seamless acrylic prismatic cone/cube helps reduce "puddles" of light at the pole base while projecting light in a wide overall pattern; one wide enough to



reduce the number of fixtures and still provide up to a 6:1 spacing-to-height ratio.

The ParkLane luminaire integrates with practically any contemporary architectural theme.

ParkLane uses either metal halide or HPS lamps and is available in 4 mounting configurations: C-bracket, tuning fork, straight arm, and flush mount. Plus, the cube can

be replaced with a flat door assembly. In addition, ParkLane is backed by an exceptional 5-year warranty.

For more information, including photometric data on floppy disk or isofootcandle templates, call or write on your letterhead to Al Warner, Holophane, 214 Oakwood Avenue, Newark, Ohio 43055. (614) 349-4116.



HOLOPHANE
LEADER IN LIGHT CONTROL

Pacing Is Everything; Don't Play "Beat the Clock"

"I can work three- to four-hour nights two nights in a row," says Moyer, "but longer hours affect my ability to work for several days afterwards. A few years ago, a team of six contractors and I worked on a project in the Lake Tahoe area. With the project a significant distance from our respective offices, we attempted to complete the focusing in one trip.

"We worked from sunset at about 8 p.m. to approximately 6 a.m., an hour or so after sunrise, when twilight started shifting to daylight. During the daylight hours, we worked on the permanent installation of the lights that were focused the night before.

"All in all, we worked 18 to 20 hours a day for five days. By the end of that period, all of us were having difficulty with simple thought processes!

"Of course, the prudent way to approach a project that requires such long hours is to sleep in late the next day or take the day off. Somehow, there is always too much work to do and I have seldom been able to allow myself that simple reward."

Beware the temptation to forget you are human. Pace yourself and your team members.

mate location, which must be determined beforehand during a walk-through with the designer and contractor.

- All lighting equipment should be tested for proper functioning.

- All additional lighting equipment and/or accessories (i.e., louvers, special lenses, snoots) required should be at the site.

- All related equipment, such as lift trucks, ladders, fastening devices, etc., should be at the site in their proper locations, tested for working order, and ready for use.

PLAN FOR ON-SITE PHYSICAL COMFORT.

It is important to ensure that everyone involved not only have the appropriate tools and equipment, but that they are dressed comfortably for the weather, and that someone has arranged for snacks and/or meals to keep energy levels up.

Of course, the scheduling of work, and proper clothing and food needs must correspond to the area of the country in which the project is located. In the course of a busy day, it is easy to forget or not be aware of how cold it can become at night. For example, during the winter months in parts of the San Francisco area, the weather can range from the mid 50s (degrees Fahrenheit) during the day, to the low 20s or below at night. Also to be considered is the fact that team members must work outdoors in that temperature from four to eight hours.

Comfort and efficiency during the session will be maximized, especially for long sessions in cold weather, if it is determined in advance whether the entire team will stop for a snack or

meal, or if food will be available throughout the night. In winter months, warm beverages help to maintain body heat.

COMMUNICATE PROCEDURE TO DESIGN TEAM MEMBERS.

Session procedure considerations include:

- how the equipment should be set up
- the order in which the lighting equipment will be worked with (for example, ground-mounted uplights first, building and tree-mounted downlights second)
- time schedule for working on each area of the project

Determine who will comprise the team and assign tasks. Here's a breakdown of some typical assignments:

- directing the aiming, generally done by the project engineer
- physically adjusting the equipment

- coordinating accessories and/or tools
- procuring food for meals and/or snacks
- documenting the final design

Inform all team members of the approach to each project area, including discussion of the focusing process and the intended design effects.

With a large project, where several teams can simultaneously focus various areas of the landscape, more than one designer should oversee the work. Some large projects do allow one designer to oversee more than one group of people. For example, a site in Napa with many large, mature oak trees utilized two teams of tree specialists, each working simultaneously in separate trees. Since the trees were within shouting distance, it was possible to coordinate the work of both

teams. But be warned, when working with more than one team at the same time, it may be difficult to maintain concentration on the design.

DOCUMENT THE FINAL DESIGN.

In order to provide the client with the proper information to maintain the system, the specific lamp installed in each fixture needs to be marked on an "as built," or "lamping," plan. Also, the designer should make notes or diagrams of the direction in which each fixture is aimed and/or what it specifically lights (i.e., a specific plant or plant grouping, a sculpture, the walkway, etc.)

The designer should make reference notes of specific aiming angles, additional fixtures, and/or accessories needed to complete the intended design effects. These notes may prove invaluable to the designer on future projects. Notes should also be made of areas or specific fixtures that may need attention in a year or two due to plant growth, and other issues pertinent to the specific job. ■

Discriminating decision makers always select Spring City ornamental lighting posts to enhance the beauty of their landscapes. They have been making this decision for over sixty years because these posts are superbly crafted, historically accurate and made of cast iron for heavy duty use. They provide endurance and elegance in thousands of cities and towns around the country.

SPRING CITY CAST IRON LIGHTING POSTS ADD GRACE AND BEAUTY TO ANY LANDSCAPE

You can select from posts with names that mirror their use in history: Washington, Franklin, Hancock, Madison, Independence or have a post designed specifically to meet your particular need. Light sources include: incandescent, mercury vapor, metal halide and high pressure sodium.

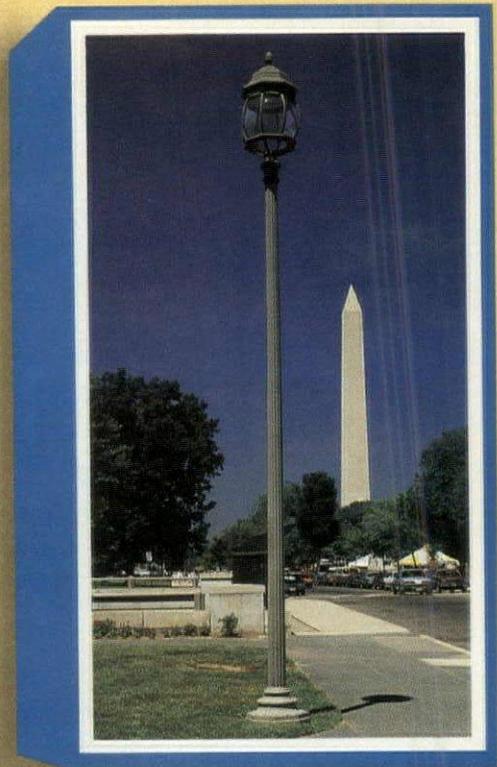
Consider these posts, too, for use as bollards and supports for street names, markers, traffic signals and ornamental clocks.

Write for our free full color brochure today which further illustrates and describes the authenticity of design, fine detail and the finishing touches of each of 25 styles.

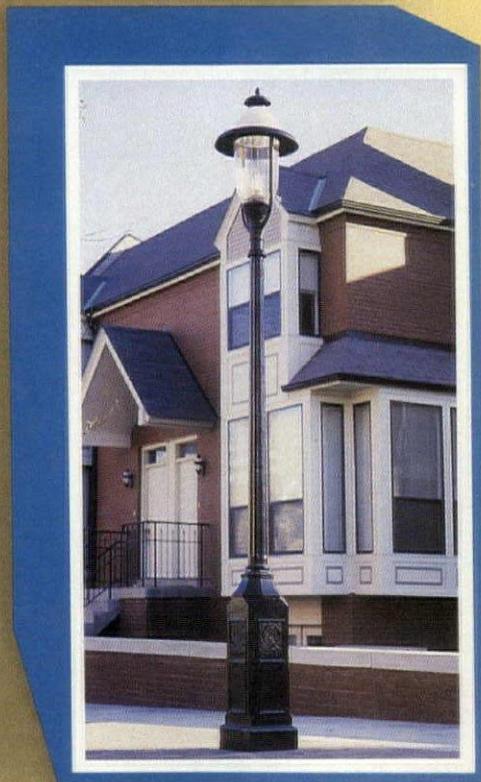
Spring City ELECTRICAL MFG. CO.

P.O. Box A, Spring City, PA 19475-0030
Phone: 215-948-4000 • FAX 215-948-5577

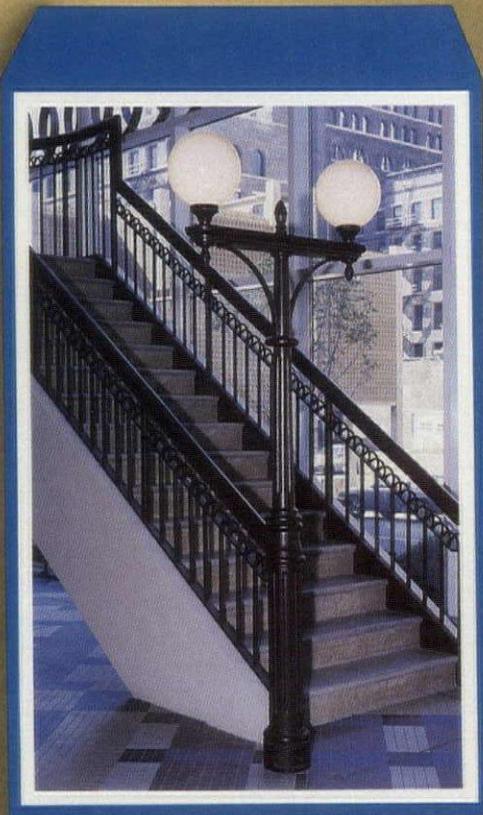
See Us In Sweet's & Lfile



MALL POST, Washington, D.C., on grounds of Smithsonian Institution with Washington Monument in background. 18' height, excluding Freer Gallery luminaire, 25" octagonal base.



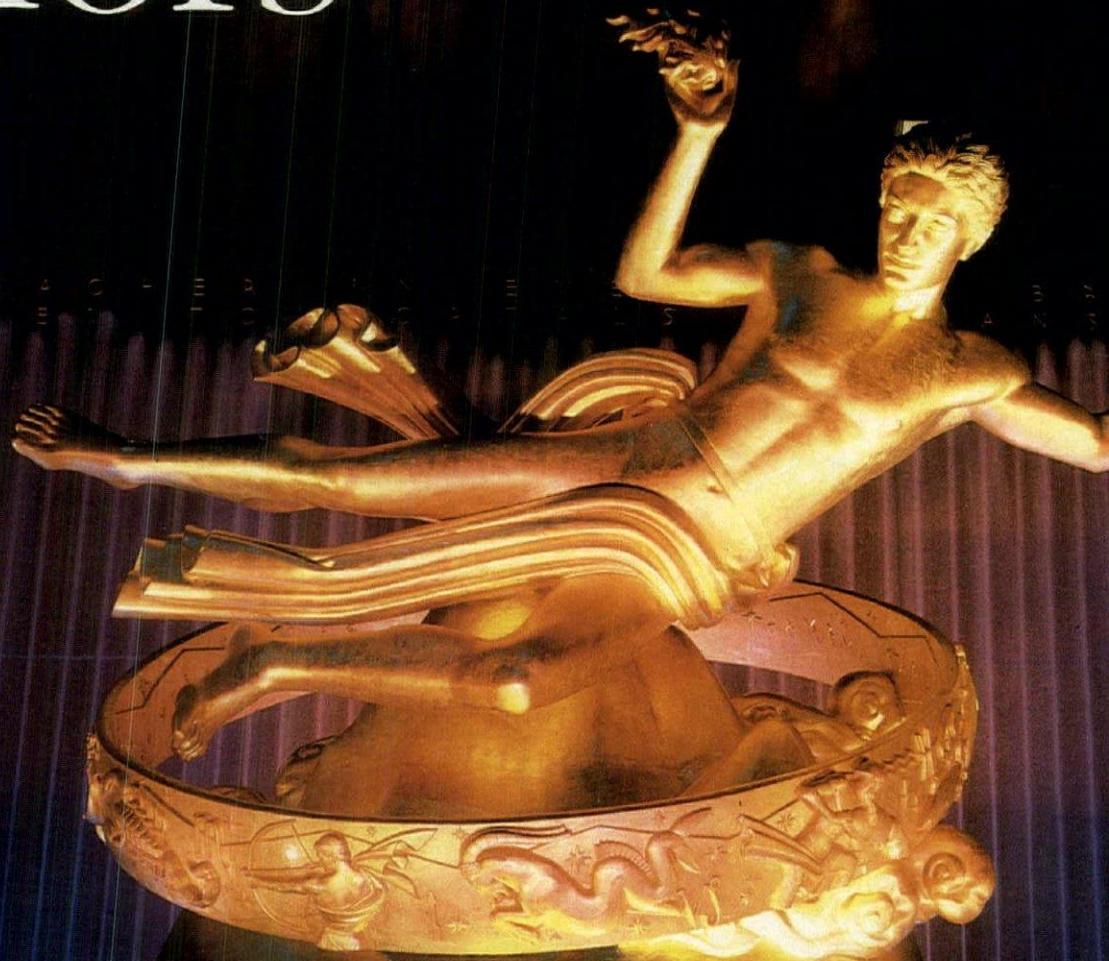
QUALITY HILL POST, Quality Hill Section, Kansas City, MO. 10' 0" high excluding luminaire, 14" square base.



GALTIER POST, Galtier Plaza, St. Paul, MN. 7' 1" high, excluding Ball Globe luminaire; 8 1/4" O.D. base. Overall height: 8' 7". Centerline to centerline of twin globes: 33". Available 46" shorter for pedestal mounting.

Circle No. 14 on product card.

Water Colors





MORNING GLORY: While Abe Feder was setting up light cues one morning at 1 a.m., he heard clicking sounds—tourists from Europe were snapping photos of Rockefeller Center's light and water visual treat.



Water in motion is orchestrated with a multi-colored light show in the Prometheus Fountain at NYC's Rockefeller Center

WANDA JANKOWSKI
EDITOR

The "umbrella of light" created in December 1985 for Rockefeller Center's GE Building (formerly RCA Tower), Promenade, Channel Gardens and Lower Plaza by Abe Feder, Lighting By Feder, delighted New York City's nighttime strollers, but left poor Prometheus—the 18-foot-high golden Greek mythical figure sculpted by Paul Manship—more than upstaged.

The landmark Prometheus Fountain needed a major upgrade and by contrast with its relighted surroundings, it was more evident than ever. The original 1958 lighting equipment could not readily be replaced, and the subtle color scheme had been changed over time by

CREDITS/SOURCES:

PROJECT: PROMETHEUS FOUNTAIN

LOCATION: NEW YORK CITY, NY

CLIENT: ROCKEFELLER CENTER MANAGEMENT CORPORATION

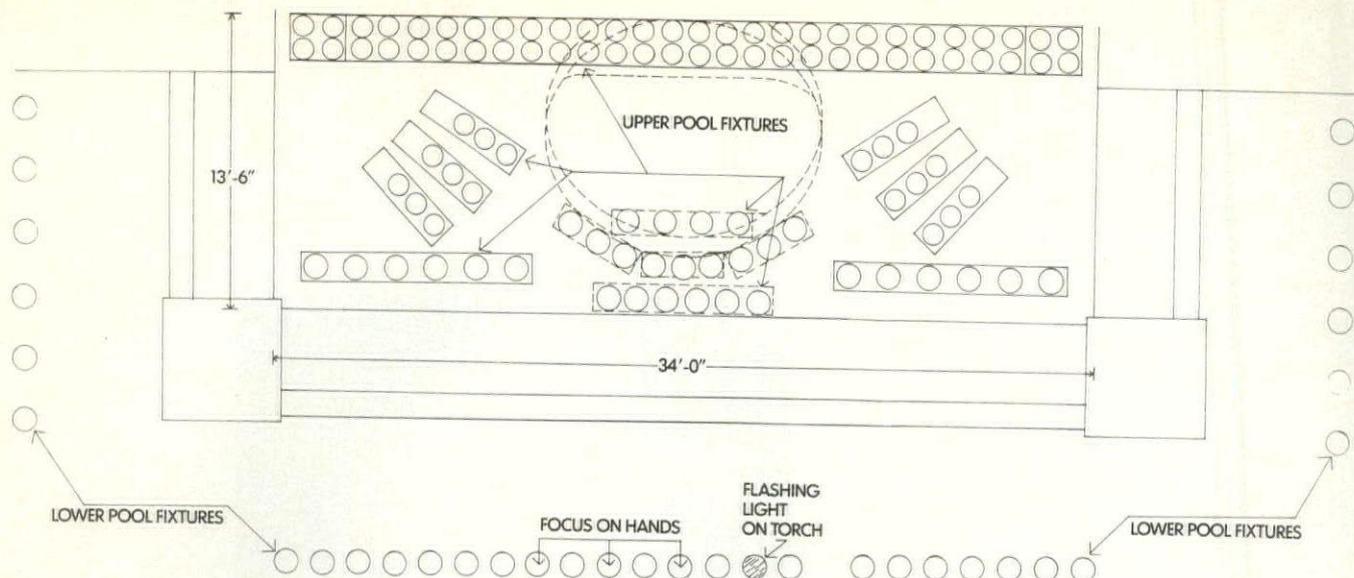
LIGHTING DESIGNER: ABE FEDER, LIGHTING BY FEDER

PROJECT TEAM: MICHAEL J. MCCAMBRIDGE, senior vice president; WILLIAM STODDARD; and DENNIS REHN, ROCKEFELLER CENTER MANAGEMENT CORPORATION

WATER CONSULTANTS: WET INDUSTRIES INC.

PHOTOGRAPHER: ELLIOTT KAUFMANN

LIGHTING MANUFACTURER: GENERAL ELECTRIC COMPANY, lamps; STERNER LIGHTING CO., retrofit fixtures; SIMES CO., housings; KLIIEGL BROS., Performer IV Digital Control Console



inaccurate replacement parts. Enter Abe Feder, in 1988, who once again has given Prometheus center stage, in a synchronized, multi-colored light and water spectacle.

"The fountain lighting equipment and controls were outdated and needed to be replaced," says Michael J. McCambridge, senior vice president, Rockefeller Management Corporation. "We were looking to

complement the lighting with water in good taste."

Feder's approach to the relighting was to allow Prometheus to dominate. "The lighting and water are backdrop and trimming for the sculpture," Feder says. "The fixtures are positioned so the colors cast seem to generate from within the statue, and avoid a flat feeling of being 'stuck on'."

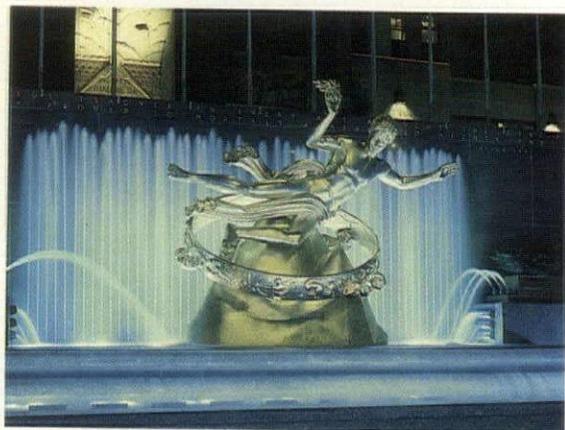
The outstanding limitation of the project was the size of the space. Front to back the fountain measures 16.75 feet. The pool is 34 feet wide. Yet Feder has managed to pack 139 fixtures into the pool and around the perimeter, integrated with a multitude of water jets.

The water configuration that had existed has been retained. This includes arched side sprays of water, and a water wall behind the gold-

en statue.

What's new? Feder designed and had added a curtain of water that rises up majestically in front of the sculpture. McCambridge adds, "New nozzles and variable speed pumps have been installed as well."

The 1,000-watt PAR 64 lamps have been housed in the fountain's existing gasketed castings,



First Lights—1958

Though the Prometheus sculpture, created by Paul Manship, had been installed in January 1934 surrounded by a pool of water with arched water sprays flowing in from either side, it was not until 1958 that it had been decided the sculpture should

be lit. This marked the first major project undertaken by Abe Feder for Rockefeller Center.

The "wall of water" was added behind the sculpture, and a 12-minute light and water show was devised. "This was long before the introduction of computers," says Feder. "Theatrical dimmers were used that controlled the sequence with timers.

"The thinking regarding lighting back then was far different from what it is today," Feder continues. "Everyone thought of outdoor lighting as subdued and colorless. The only places people were really aware of color and light were in the theater and in television." Feder departed from the norm by using colors—subtle, soft pastels—to highlight the sculpture (see photo in box).

"Standard, accepted procedure was to light from below. So we put a row of lights on the perimeter that glowed at Prometheus," Feder explains. Once again, Feder broke new ground in the selection of lamp type. This marked the first time 500-watt PAR 64 lamps had been used in this type of application.



DINERS' DELIGHT: There is always an audience for the Prometheus show. The fountain is surrounded by the umbrella-topped tables of the Summer Garden Restaurant at the American Festival Cafe. And since both are situated in the Lower Plaza, passersby on the street level have a birds-eye view as well.



CURTAIN'S UP: The newly added curtain of water rises up (sequence below) to conceal the 18-foot sculpture as prelude to the finale. The light and water sequence was operating in 1988, and fine-tuned by Feder in 1989.

which are made of bronze to resist pitting and deterioration from the water.

The fixtures have been fitted with split glass filters in a variety of colors. The splits relieve pressure and guard against breakage from the pounding of the water, and the expansion caused by heat from the lamps.

A new computerized, electronic control board has been installed to handle the approximately 140 light and water cues needed for the 26-minute sequence. "The program has been stored, via the newly installed electronic control board, on hard copy computer discs," says McCambridge, "so the next generation will have it as well."

Working With Water

WATER IS POWER: "It is not child's play," warns Feder. "There's an awesome violence in the movement of water—like the violence of Niagara Falls. Water that shoots up in a fountain beats down at increased velocity, and most designers aren't aware of its power."

The economics and maintenance, he notes, are also mind-boggling. For example, water can eat through steel over time, jets can become clogged, pumps can be finicky, and ever-growing algae has to be cleaned out every few weeks.

WATER IS COLORLESS: "Without the use of color," Feder says, "the lamps give the water a grey, muddy cast. Know the limitations and characteristics of the chosen light source, because at least 30 percent of the light transmitted is lost due to the water."

Color filters decrease transmission and brilliance even more. Feder estimates a rich blue filter can cut about 80 percent. Bright pink allows only about 60 percent transmission.

WATER IS SPECTACLE: Feder recalls the use of water as a design element reached its zenith as spectacle at special events like the World's Fair in 1939. "Nobody could afford to do it except as a spectacle. Recently, however, there has been a renaissance in the use of water in the form of fountains and waterfalls in shopping malls."

The additional wattage from the increased number of fixtures presented no problems. The initial planning of Rockefeller Center had been so far-reaching, those involved anticipated possible future needs and

provided for the eventual increase in power.

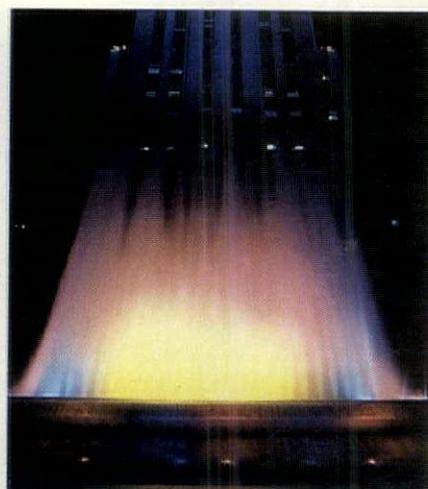
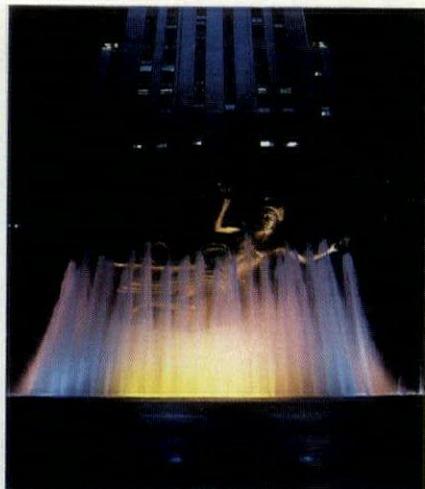
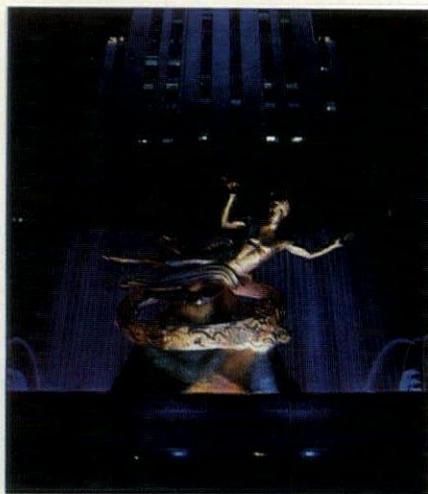
Feder approached the creation of the color sequence as he would the planning of a theatrical production. A story board was devised and moment-by-

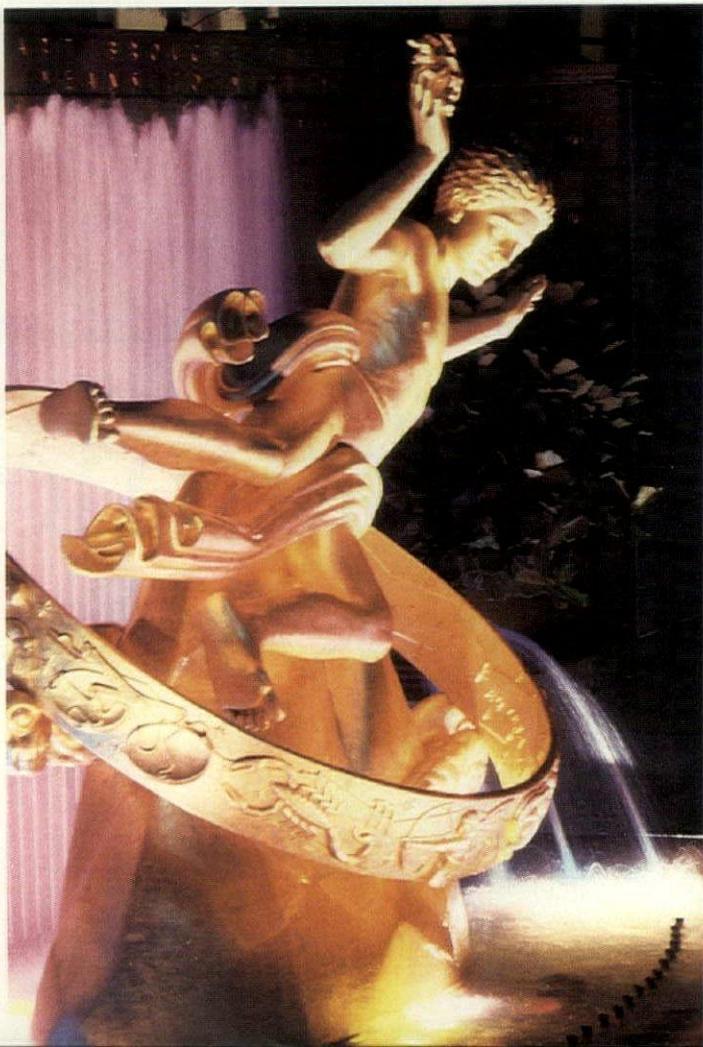
moment changes were scripted out.

The finale of the show highlights the crowning achievement of the mythical Greek figure, Prometheus—his bringing fire to man. The wall of water in front of the sculpture climbs and appears stormy grey and yellow. After changing quickly to a fiery red appearance, the water wall drops to reveal Prometheus holding the flame aloft and strikingly bathed in the same fiery glow.

The front water wall has been pitched slightly towards the sculpture, so those seated in the outdoor restaurant adjacent to the fountain aren't splashed. The droplets of water splashed on the sculpture, however, make it sparkle and glisten, and contribute added dimension.

Setting up and programming the fixtures took about three weeks. The show runs continuously and automatically from dusk until about 1 a.m. daily, Spring through Fall. ■





PROMETHEUS WHO?

"PROMETHEUS TEACHER IN EVERY ART Brought The Fire That Hath Provided To Mortals A Means To Mighty Ends—Aeschylus," reads the inscription on the red Balmoral wall behind the sculpture.

Grieved at the gods' neglect of mankind, Prometheus stole one of their most important resources—fire—and gave it to man.

Though Prometheus suffered for his derring-do—he was chained by order of Zeus to Mount Caucasus where each day a vulture consumed his liver, which in turn grew back each night—he reigned triumphant in the end. The vulture was slain and Prometheus was rescued by Hercules.

The pedestal of the sculpture symbolizes earth, the signs of the zodiac that encircle Prometheus represent the heavens, and the outstretched arm of the mythical figure holds the stolen flame high.



Scalloped beam patterns
highlight fans of
yellow cables on
Tampa Bay's
Sunshine Skyway Bridge

Nighttime

CATHERINE SCHETTING SALFINO
MANAGING EDITOR

When Florida's old Sunshine Skyway Bridge was hit by a freighter in 1980, the State Department of Transportation was able to keep one span open until a new bridge could replace it. But when designers Figg and Muller Engineers, Inc., of Tallahassee, FL, unveiled the new structure, they didn't

"IT IS STARTLINGLY beautiful, which makes it unlike any other bridge of the last generation," says *The New York Times* architecture critic Paul Goldberger of the St. Petersburg, FL, Sunshine Skyway Bridge.



Sunburst

offer a mere replacement. The new Skyway was introduced as the second-largest cable stayed bridge in the world with a lighting scheme by designer Frank Corbari that has helped make it a striking symbol of the Tampa Bay area.

"The idea was to recreate the look of the French Brotonne Bridge that Figg and Muller designed in 1976," says Corbari, president of Corbari Consulting Engineers, Pensacola, FL. "We also wanted to achieve

A Sparkling Review Of A Rare Structural Gem

The New York Times architecture critic Paul Goldberger gave the Skyway quite a favorable review:

"...THE \$220 MILLION project... may well rank as the most impressive piece of large-scale bridge design in this country in half a century."

.....

"ONCE THE TECHNOLOGY was decided, it was up to the engineers to return to the very traditional realms of proportion and scale, to take into account all the things that determine visual coherence and visual grace, and this is what they have done so well."

What To Consider When Lighting A Bridge

Outdoor lighting is manufactured to have more resilience than indoor fixtures. But bridge lighting has to stand up to a marine hazardous environment, and face harsher elements on a daily basis than practically any other outdoor application. To avoid corrosion, some points to consider when lighting a bridge include:

- High wind conditions
- Salty air
- Excessive moisture
- Extreme high/low temperature factors
- Car exhaust dust
- Need for easy maintenance

CREDITS/SOURCES:

PROJECT: SUNSHINE SKYWAY BRIDGE
LOCATION: TAMPA BAY, CROSSING FROM ST. PETERSBURG, FL, TO BRADENTON
CLIENT: FLORIDA DEPARTMENT OF TRANSPORTATION
ARCHITECT: FIGG AND MULLER ENGINEERS, INC.
LIGHTING DESIGNER: FRANK CORBARI, CORBARI CONSULTING ENGINEERS
PHOTOGRAPHER: RAY STANYARD
LIGHTING MANUFACTURER: WIDE-LITE, A GENLYTE COMPANY

the same scalloping effect with lighting that the Brotonne Bridge has."

"The Sunshine Skyway Bridge's lighting is unique because it was the first bridge in the United States with a single plane of stays placed along the centerline of the bridge," says Gene Figg, president of Figg and Muller Engineers, Inc.

A conventional suspension bridge calls for the sus-

pension of parallel sets of large cables from two high towers. Smaller cables are hung vertically from the large cables.

Corbari says he achieved the same scalloped lighting effect as the Brotonne Bridge on a tight schedule of two months. Since Skyway's cable-stayed suspension is in

the middle of the bridge, the light fixtures were incorporated into the center median of the bridge roadway at the base of the cable stays to reflect up the plane of the stays and away from traffic. No luminaires were affixed up the cable stays.

"I had to place the fixtures on 6-foot-high pipe bases spaced every 48 feet," Corbari says. "Also, lighting the cables 2,400 feet wide and

240 feet high called for a light source that could throw a very wide horizontal and very high vertical beam."

The Brotonne Bridge in France was lit with low-pressure sodium lights. However, Corbari says those lamps did not give him the wattage he needed for the structure in Florida.

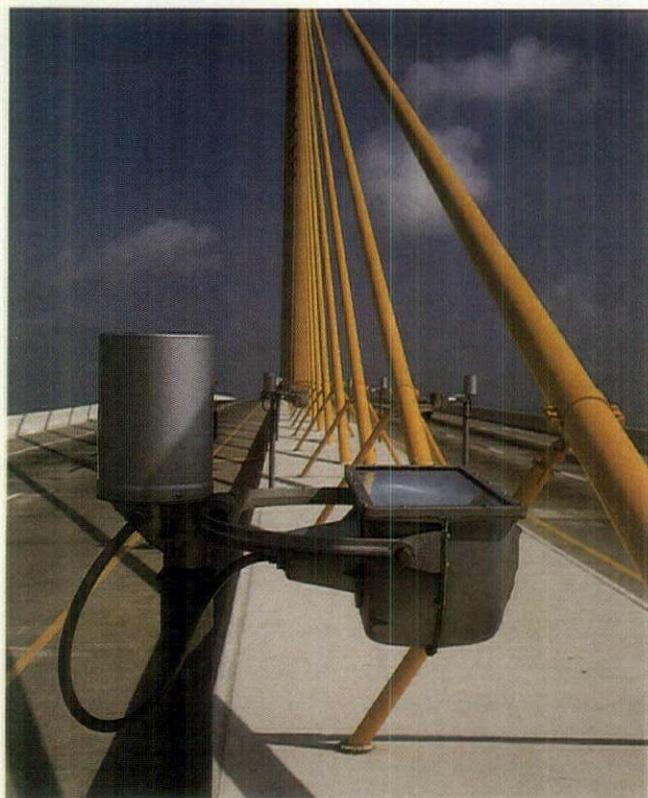
"The maximum wattage you can get out of a low-pressure sodium lamp is about 135," Corbari says. "Plus, low-pressure sodium provides poor color rendering. A red car could end up looking blue."

High-pressure sodium lamps were considered but, Corbari notes, they would not give him the beam spread he needed.

Another major consideration was using fixtures that would withstand Tampa Bay's corrosive marine environment.

Corbari's final choice was to use enclosed and gasketed metal halide floodlights made with heavy-duty, die-cast aluminum. Corbari says that since such fixtures are regularly used for lighting oil rigs, ship docks, and other harsh industrial areas, they were ideal for the Skyway project.

"These fixtures can stand up to the marine atmosphere—the salty air, moisture, car exhaust dust, even the temperature factor, which in the bay can range from lows of 20 degrees Fahrenheit to 100 degrees with heavy humidity," Corbari says. "There are also high-wind conditions of up to 130 miles per hour—but my lights can take it."



ONLY A TOTALLY enclosed gasketed fixture with special factory sealing can be aimed straight up, as on the Sunshine Skyway Bridge.



THE NEW YORK TIMES stated crossing the main span of the Sunshine Skyway Bridge (left) is almost a religious experience. An aerial view of the structure (below) shows the single row of steel cables that spreads out from the central pylons, which are connected directly to the roadway.

The metal halide fixtures also provide easy access when it comes time for replacement, Corbari says. The replacement parts can be obtained from any lighting fixture supplier.

"These are standard products," Corbari adds, "available 'on the shelf' and the fixtures can be changed with screwdrivers and pliers. The metal halides also offer better color rendition than low-pressure sodium lamps. And because of the positioning—almost straight up—there is no glare hitting the drivers' eyes, even if someone is driving a truck. They just see the yellow stays."

The cable stays had been painted yellow after the installation of the light fixtures.

"When the Department of Transportation painted the stays yellow, it completely changed the look," Corbari says. "I thought the cable stays were going to be gray, which would have made the scalloping effect less noticeable. But it looks good with the yellow, kind of like a

neon tube in a merry-go-round. I'm happy with the results. The scalloping effect is more pronounced now."

Antonio Garcia, state structures engineer for the state DOT, says the decision to paint the cable stays yellow was made during the middle of the construction phase.

"The reason we painted it yellow was for aesthetics—so it would stand out more," Garcia says. "We were also concerned that a blue paint would blend in with the sky and the water—causing visual impairment. Our office developed a series of color shots that showed, using various colors, how the bridge would look during the day and night. Yellow met with management's approval. Plus, Florida is the Sunshine State."

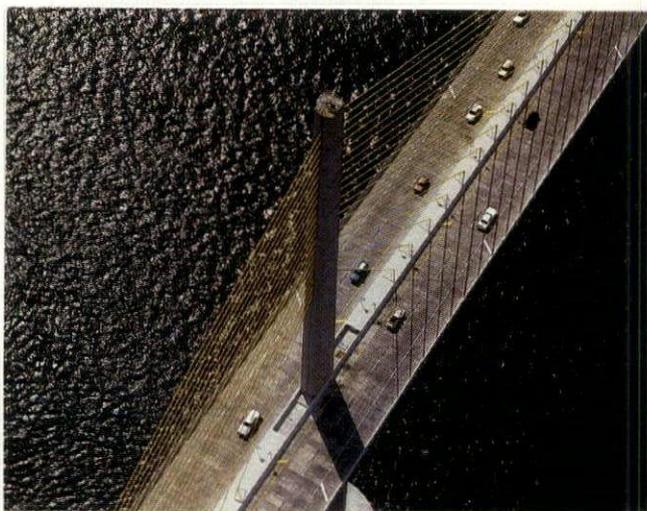
However, Garcia says that when driving on the bridge, people can see only one-quarter of the scallop or fan effect.

"You don't get the full effect when you're right on the bridge," Garcia says.

"You really only see the bottom of the bridge. And during the day, the effect is reversed—you see only the top of the bridge where the sun hits. The best vantage point is from the water."

Garcia says that the state has plans to turn the old Sunshine Skyway Bridge, which is closed to traffic but still standing, into a pier where visitors can fish, dine, and enjoy the full view of the illuminated bridge. He says that project is about five years away.

Hard as it may be to get a perfect view of the structure, the new Sunshine Skyway Bridge captured first prize in the specialty lighting category in Florida's 1989 "Night Beautiful" outdoor lighting competition, sponsored by the Florida Illuminating Engineering Society, Florida Department of Commerce, and several Florida utilities. It has also received 14 design awards, including the 1988 Presidential Design Award from the National Endowment for the Arts. ■







TOTAL CHANGE OF SCENE:
Renovations to Lake Eola, a
once-decrepit park in
Orlando, FL, have
transformed the area into a
bright, secure recreation spot
that adds to the beauty of
the shoreline.



LAKE EOLA'S

Evening Eyeful

The elixir of light has rejuvenated this
Orlando park, transforming it from an
eyesore into a safe and lovely
recreation spot

CHARLES LINN, AIA
EXECUTIVE EDITOR

Before its recent renovation, Lake Eola, a recreation area in downtown Orlando, FL, had suffered the same fate as many an urban park—the local criminal element had moved in and used the park as a base for its activities, driving away legitimate users. It was a frightening place to be during the daylight hours, and worse after dark. “The park was there for at least 50 years, but it had never really been maintained,” says landscape architect Annette

CREDITS/SOURCES:

PROJECT: LAKE EOLA PARK

LOCATION: ORLANDO, FL

CLIENT: CITY OF ORLANDO

LANDSCAPE ARCHITECT: HERBERT/HALBACK, INC.; ANNETTE CHAFFON PERRY,
principal-in-charge

ARCHITECTS (FOR RESTROOM PROJECT): ARCHITECTURAL DESIGN GROUP; GENA
ELLIS, *project architect*

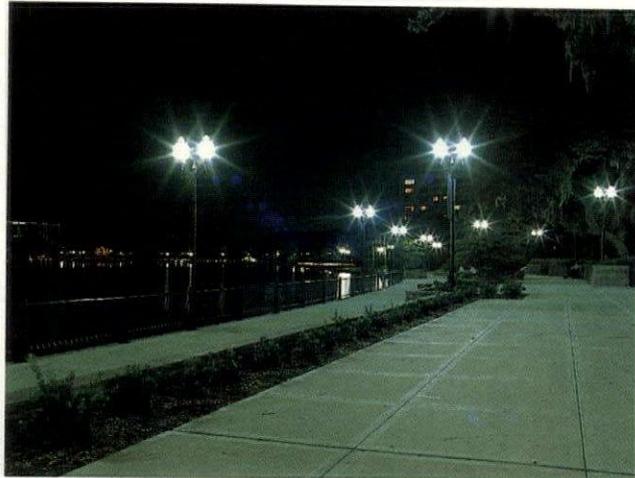
LIGHTING DESIGNER (FOR RESTROOM PROJECT): M.G. RUSSO AND ASSOCIATES

PHOTOGRAPHER: RICH FRANCO, RICH FRANCO LABS

LIGHTING MANUFACTURERS: WESTERN LIGHTING COMPANY: *period style post
luminaires; IMPERIAL BRONZELITE: uplights and lanterns; MARCO: recessed,
incandescent downlights in restrooms*

GLASS BLOCK: WECK, BY GLASHAUS

Chaffon Perry of the firm Herbert/Halback, Inc. "The sidewalks were broken, and the shrubbery was terribly overgrown. A small amount of night lighting was provided by little 'mushroom hats' on top of concrete poles, but that was it. Since most normal people didn't want to hang out there, the park became a haven for drug dealers, prostitutes, and vagrants."



a new park—a new Lake Eola. Closing the park gave us the opportunity to get rid of all the people who were literally living there, under the bushes, in the corners and in the restrooms.

"We started by building a new walk that goes all the way around the lake, making it 10 feet wide, so that several people can pass each other comfortably."

It was apparent that the renovated park's new promenade needed good lighting, so people would feel safe and secure walking around the lake at night as they would during the day. The designers chose a period-style post luminaire used elsewhere in the Orlando downtown area. All of the 15-foot high, fluted pole fix-

As part of an adopt-a-park program developed by Orlando Mayor William Frederick, Herbert/Halback donated their time to work with civic, park and recreation groups, the police department, and adjacent property owners. Together, they drew up a master plan

that called for drastic measures: the closure of the park, the temporary draining of the lake, removal of overgrown plants, new sidewalks, plazas, lighting, and restrooms.

"We've found that one of the best ways to change the public's perception of a place is to completely shut it down for awhile," Perry says. "That action gets across the notion that this is really going to be

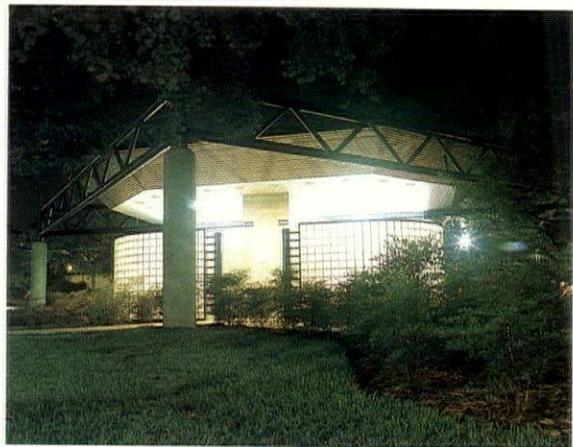
How The Glass Block Restrooms Are Made

OPEN-AIR DISCOURAGES LINGERING:

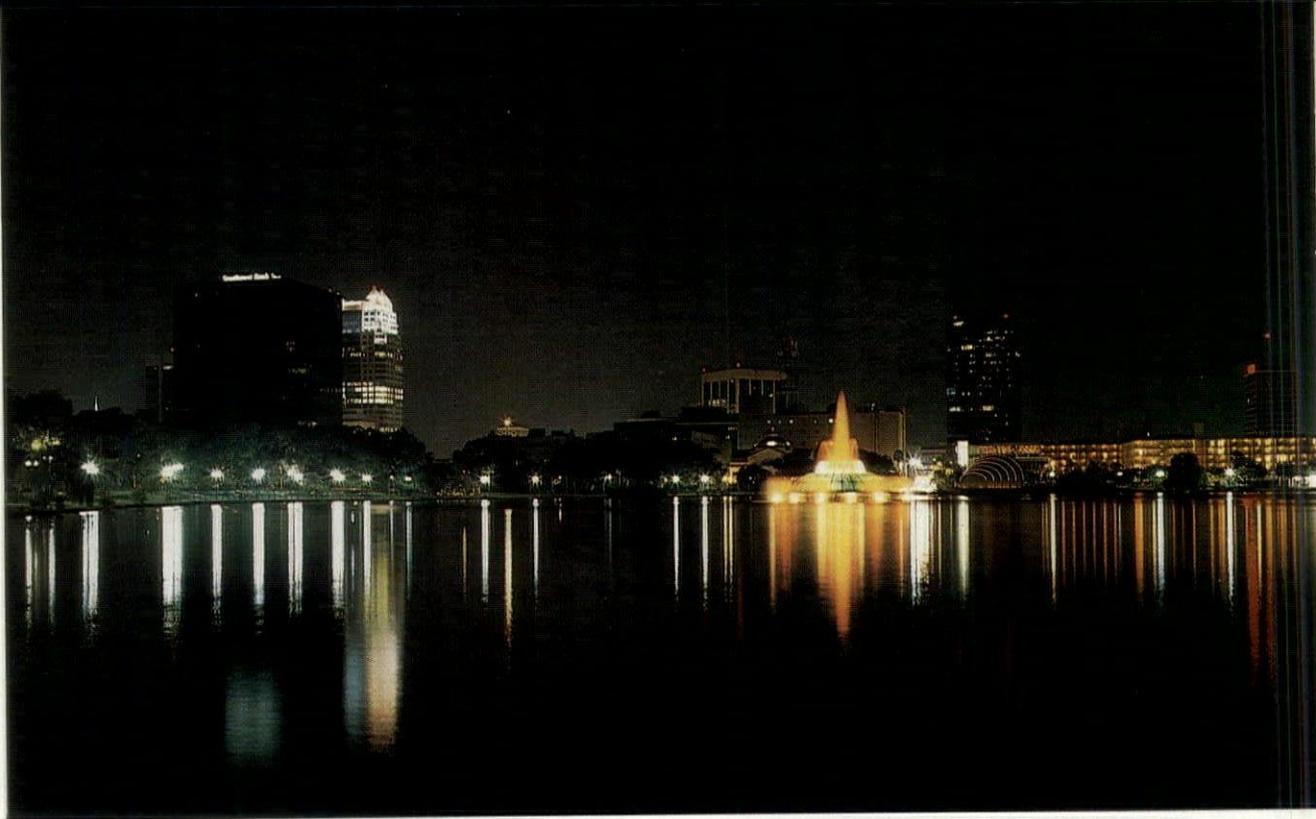
The open-air concept and use of varied-height glass block walls—some as low as 6 feet, 10 inches—is intended to set up the psychological discomfort of feeling observed to discourage lingering in the facilities. The walls are penetrated in their concrete block bases to stimulate air flow, but in such a way as to eliminate sight lines to discreet functions. There are no entry doors. Natural daylighting and the reflective ceiling reduce energy costs.

CONCRETE BLOCKS SUPPORT TRUSS:

The curved, free-standing, glass block walls with 6-inch steel channel frames, capture prevailing breezes. The remaining walls are concrete block with flush joints and a three-coat TNEMEC paint finish, selected so the building simulates the concept of a lacquered box. The large triangular truss is comprised of 4-inch and 8-inch steel pipe, supported by poured concrete columns.



ROOF USES CORRUGATED METAL: The roof is framed by steel bar joists with a single-ply roof membrane on corrugated metal deck. The ceiling is comprised of corrugated metal wall panels with a galvalume finish screwed to a suspended ceiling system. Wall exhaust fans supplement the natural ventilation.



tures have a pair of acorn-style globes, each diffusing a 150-watt metal halide lamp. The fixtures are installed 50 feet apart on alternating sides of the walk.

"When the park reopened, everyone's reaction was, 'Wow, it's almost like daylight,' but we knew that's what it would take to make people feel really secure," Perry says. "The old restrooms also had a bad image associated with them, and were poorly placed, so we decided it would be better to completely tear them down and start over."

The new restrooms use

free-standing glass block exterior walls and a suspended roof structure to provide a sense of openness, without sacrificing privacy. At night, security is promoted by a row of incandescent downlights recessed into the ceiling inside the restrooms that back-light the glass block walls. The structure is bright and semi-transparent, allowing park security officers to monitor activity in the restrooms without having to actually enter them. "If people are milling around in there, it really shows up on the outside," according to Perry.

Herbert/Halback also de-

signed several plaza areas as part of the park renovation. "These are very symmetrical and have repeated elements, like palm trees formally spaced down each side," Perry adds. "We used ground-mounted uplights beneath the palm trees, and concrete bollards to outline these areas. In addition, the Orlando Utility Company renovated new lighting and pumping equipment for a fountain in the lake that was a long-established landmark for the city, although it too had fallen into disrepair over the years."

As in any park lighting

project, the measure of success lies in whether people have returned to the park at night. "It is incredible, but you can go out there at 10 or 11 o'clock at night, and there will be hundreds of people walking around the lake," according to Perry. "An interesting finding in a recent analysis on who is coming to the park showed that most of the nighttime users don't live or work in the area; they're driving from as far as 25 miles away. Lake Eola is an evening destination point for people in surrounding communities. They really feel good about this park." ■



STROLLER'S PARADISE:

The park's new promenade (opposite page, top) has been lit brilliantly with period-style post luminaires, which can be seen from the lake (above). Park-goers can also enjoy Lake Eola from the plaza area (left), which is lined with palm trees that glow from ground-mounted uplight and concrete bollard illumination.



INSPIRED BY GASLIGHT: An operating gaslight from the 1870s set the mood for the rest of the green's lighting.

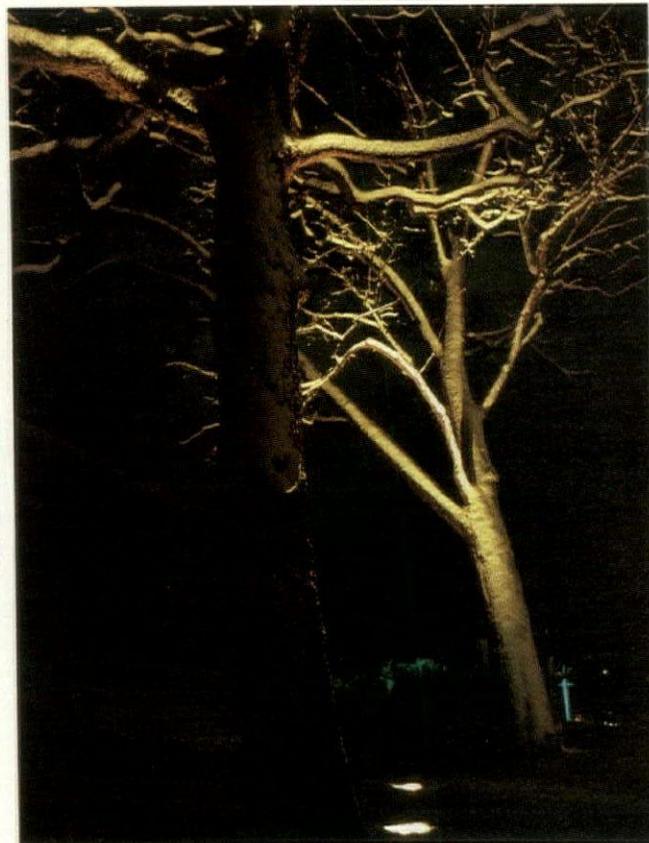
COMMUNITY GREEN'S

Gaslight Glow

Low-voltage incandescent lighting in Westwood Hills maintains gaslight-era mood and brings safety

CHARLES LINN, AIA
EXECUTIVE EDITOR

The City of Westwood Hills, KS, acquired two small plots of land unsuitable for development and turned them into a community green, providing a buffer zone between a small commercial area and a residential neighborhood, as well as a location for town meetings, weddings, and holiday celebrations. The city commissioners wanted to make the green a very comfortable place to be at night, but without over-lighting it. The yellow-orange glow of an operating



"WE WANTED TO emphasize the art form that is in nature . . ."

—Roger Doeren

CREDITS/SOURCES:

PROJECT: COMMUNITY GREEN
CLIENT: CITY OF WESTWOOD HILLS, KS
ARCHITECT: DUANE CALVIN BENTON
LIGHTING DESIGNER: ROGER DOEREN, IES
ELECTRICAL CONTRACTOR: CHRISTOPHER C. HEDGES
PHOTOGRAPHER: JIM SCZEPANSKI
MANUFACTURERS: PRESCOLITE, low-voltage uplights; KENALL, abuse resistant A-lamp fixtures; GENERAL ELECTRIC, lamps; OSRAM, lamps; SYLVANIA, lamps; RAINBIRD, lighting control system

gaslight from the 1870s, previously installed on the site, represented the mood they wanted lighting designer Roger Doeren to duplicate.

"Initially, I was contacted by the electrical contractor, who wanted my expertise to help him light the flags," Doeren says. "I met with the architect, and walked with him through the green, getting impressions of his vision of what that green could be.

"What resulted was a full-blown plan for lighting the key points on the green, so that a person could comfortably stroll through it at night, sit on the benches, walk across the wooden footbridge and so on."

It was critical that the light fixtures be placed in such a way that they would be easy to maintain. "In other words," says Doeren, "so that you could mow right over them."

That criteria made burial-type uplights a natural choice, and solved other problems as well. "Uplights remove a lot of the potential



PATRIOTIC PARs: Trees and the U.S. flag are uplit using low-voltage tungsten halogen PAR 36 lamps from dusk until dawn.

for glare, and create more of an illusion than other types of fixtures," Doeren notes. "You see the light reflecting off surfaces, but you aren't aware of where it's coming from. We wanted to play with the textures of the trees, the bark, the shapes and shadows of the branches. We wanted to emphasize the art form that is in nature, both when there is foliage on the trees, and when there isn't.

"As the project evolved, it was pretty much a matter of taking light fixtures to about 20 different locations around the green, and looking at the different perspectives created by the front lighting, backlighting, and fill lighting of the lit trees. Then we had to select the

right lamp, the right beam spread, with the proper intensity, and aim it literally to the fraction of an inch.

"We went back night after night, and walked through the park, stopping to readjust the lamps, taking a look at how each change affected the relationship of the lighting of that tree to the next tree, and then to the overall area," Doeren explains.

"Once we got what we wanted, the fixtures were put in place, and adjusted again. My wife and I did most of this work between 9 p.m. and 1 a.m. with the constant input of the architect." [For more on focusing sessions, see "How to Plan a Focusing Session" in this issue.]

Initially, the use of high-intensity discharge lighting had been discussed, but Doeren was able to persuade the city council to allow him to use 12-volt tungsten halogen sources for several reasons. "They really wanted less light than we could have provided with high-intensity discharge, and the color better matched the look of the gaslight. But the primary reason was for safety—before we initiated the project a person had been badly shocked while vandalizing a fixture."

With the exception of the fixtures used to light the underside of the footbridge, all the fixtures on the job are aimable, burial-type uplights, each with a tempered glass lens, convex louvers, a built-in step-down transformer, and PAR 36 lamps in a variety of wattages and beam spreads. The transformers are intentionally designed by the manufacturer to deliver only 11.5 volts, which greatly lengthens the life of the lamps.

The fixtures hidden beneath the footbridge are wet



FOOTBRIDGE FOOTNOTES

THE FIXTURES BENEATH the footbridge are wet-location, abuse-resistant luminaires that normally accommodate A lamps. Lighting designer Roger Doeren located an adapter, which allows heavy-duty, 12-volt automobile signal lamps to be substituted for the A lamps, and fed the fixtures from a transformer located in the same vandal-resistant housing where the meter, control system, and ground fault interrupt circuit breakers are located.

location luminaires specially adapted to house 12-volt automobile signal lamps (see Footbridge Footnote box).

The control system has two photo-initiated circuits. One circuit is used to control the flag lighting. It turns the lighting on from dusk until dawn. The second circuit turns on lighting for the green at dusk, and then turns it off at midnight during the week, and at 2 a.m. on weekends. The system has a battery back-up so it does not have to be reset after an occasional power outage.

Conductors for the lighting are run in one-inch rigid PVC conduit, two feet below grade. "This is oversized for the number of conductors it carries, but makes it possible to add additional lighting as the budget allows in the future without having to do much additional digging," Doeren adds, "The contractor took great pains to route the conduit—and even hand-trenched certain portions—so that it would not disturb the tree roots."

The 120-volt ground fault interrupt receptacles were also located throughout the green, to allow the temporary installation of lighting for holiday or other special occasions. "Again, for safety's sake, these circuits can only be activated by an authorized person who has a key to the circuit breaker box.

"The green has become a great source of pleasure for the community," concludes Doeren. "It's common to see people there after dark." ■



PARTY LIGHTS: New lighting allows the community green to be used for holiday celebrations.

'Cans' Can Do For Downlights

FIXTURE SHOPPING AT THE SUPERMARKET

AN ORDINARY tin can is utilized to create an inexpensive downlight that uses efficient PAR, R and ER reflector lamps.

SAM MILLS
AIA, IES

The author is an architect and lighting consultant with his own firm in Oklahoma City.

The term "can light" is often used to describe a round surface-mounted downlight. This candid description has its origin in the obvious similarity to an ordi-

nary tin can. In fact, when budgets are tight and a high level of durability is not required, the use of a tin can works well.

The current cost of a 46-ounce can of fruit juice is just under a dollar and a half—an attractive unit cost for downlights. A typical tin can has rows of semi-circular grooves running around the perimeter for rigidity. These grooves give the can a distinctive appearance, but do not always come in the same number and size. A little discreet checking might be necessary to ensure a consistent ring pattern.

The can should be thoroughly cleaned inside and out and painted with black or gray automotive primer. This flat finish paint on the inside of the can helps minimize reflected glare from the lamp. The outside may be painted to suit any particular design requirements.

Other electrical parts needed include a 3/4-inch round or octagonal outlet box, a box cover with a 1 7/16-inch diameter hole, and a two-piece screw-ring porcelain lampholder (often identified as a "sign" lampholder).

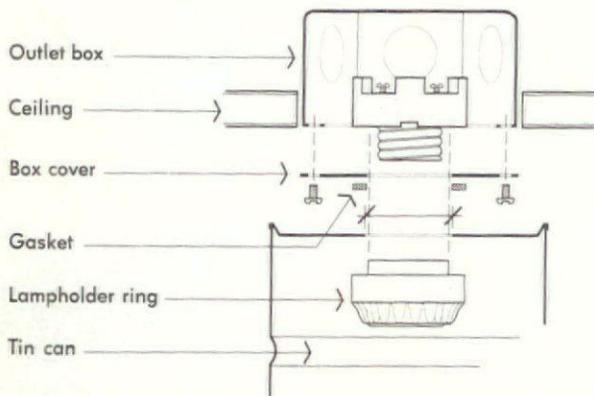
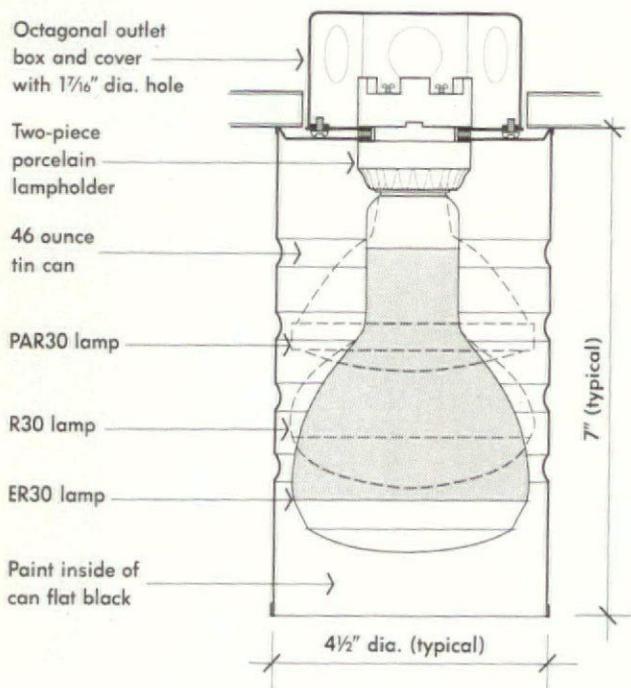
After the outlet box and lampholder are in place the can is installed by cutting a 1/2-inch diameter hole in the top of the can (a metal hole punch is recommended), unscrewing the porcelain ring and washer from the lampholder and reinstalling them inside the can after placing the hole in the can over the protruding shell of the lampholder.

Selecting the best lamp to use is similar to selecting a lamp for any downlight with no internal reflector. A reflector lamp is the obvious choice. The size of the can limits the selection to 30-, 50-, and 75-watt PAR, R, and ER lamps. The ER lamps work well in this application because they focus their light at a point two inches below the bottom of the lamp, allowing all of the light to be utilized without being trapped inside the can. PAR and R lamps, on the other hand, offer a wide choice of beam spreads from narrow spots to wide floods.

Ordinary household lamps (A-lamps) can also be used in this application furnishing soft edged, low intensity light distribution. Avoid using any lamps over 75 watts to prevent overheating.

This unique and inexpensive light fixture offers an interesting alternative to standard available luminaires. It also is well-suited for the do-it-yourself enthusiasts.

As a custom luminaire attached to a conventional lampholder, verify conformance with codes and regulations. ■



INSTALLATION OF the "can light" involves unscrewing the lampholder ring and washer, and reinstalling them inside the can. The hole in the can is located over the lampholder protruding through the hole in the metal outlet box cover.

LUMEC INC.

Set new standards...



Pluram Inc., Architect, St. Jean-sur-Richelieu

...thru innovation.

Pushing back the limits of contemporary luminaire design, the CAND1 luminaire from our Candela Series, enhances your landscapes with modern interpretation of classic themes.

On your next lighting project, come to us first. Let's innovate together.

LUMEC INC.

P.O. Box 633
Ste-Thérèse (Qc)
Canada J7E 4K3

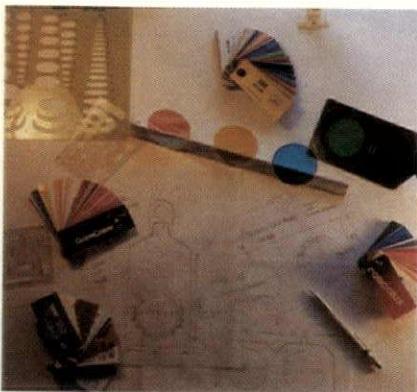
Tel.: (514) 430-7040
Fax: (514) 430-1453

 **THOMAS**
INDUSTRIES INC.

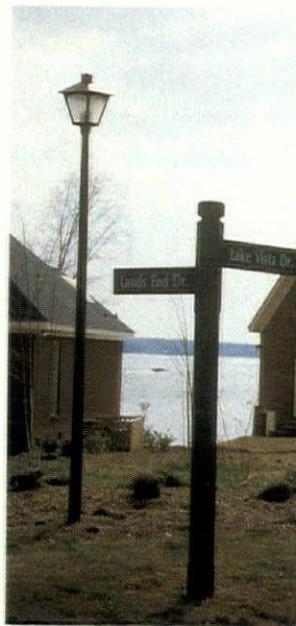
Circle No. 15 on product card.



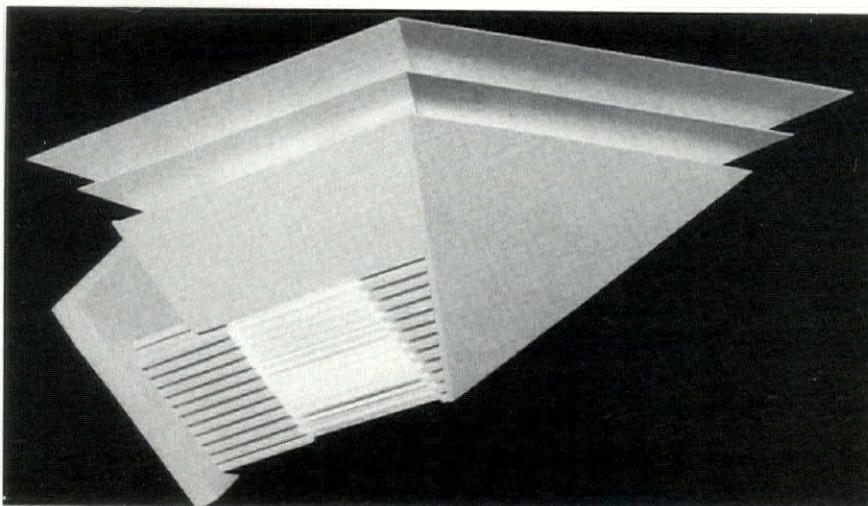
ARROYO CRAFTSMAN'S EVERGREEN FIXTURE is a solid brass, wall-mounted lantern available in two sizes. Each fixture has a verdigris patina finish, optional overlays, and is offered in four glass colors. Arroyo Craftsman Lighting, Inc., Duarte, CA. *Circle No. 44 on product card*



AUTOMATED ENTERTAINMENT'S H D DICHROICS offers 38 colors in 12 diameters and different matt sizes. The fittings provide colors designed to match any environment. Automated Entertainment, Burbank, CA. *Circle No. 45 on product card.*



SHAKESPEARE'S LINE OF FIBER-GLASS POLES for outdoor lighting can be installed in the ground, making a concrete foundation unnecessary. The poles are constructed of fiberglass and are available in mounting heights ranging from 8 to 40 feet. Offered in various finishes and colors, the poles won't crack, corrode or rust. Shakespeare Fiberglass & Electronics Division, Newberry, SC. *Circle No. 46 on product card.*



ARCHITECTURAL LIGHTING SYSTEMS, V-LUME INDIRECT/DIRECT ARM SCNCE models can use a twin tube 13-watt compact fluorescent, a 250-watt tungsten halogen, or a 150-watt standard A-lamp. Architectural Lighting Systems, Inc., Taunton, MA. *Circle No. 47 on product card.*



Bringing beauty to light.

Greenlee Landscape Lighting Mfg. produces the finest landscape lighting fixtures available. Each fixture is designed to meet the requirements of demanding professionals. Landscape architects, engineers, architects, lighting consultants and designers nationwide specify Greenlee.

Superb light control, easy installation and dependability are all a part of the growing Greenlee reputation. Fixture quality is matched by excellent customer service.

The Bullet Series fixtures are just some of the many fixtures available. This series is the perfect tool for creating the "Moonlight" effect. The dramatic proof of this claim is furnished by the photograph above. The light control capabilities and adjustability of the 201 Bullet are unequalled. Greenlee has been granted a patent on this fixture.

For detailed information, please consult the factory or your local representative.

Greenlee Landscape Lighting

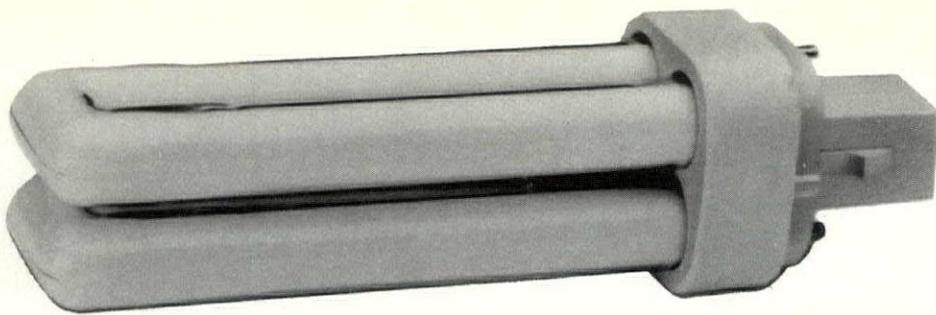
Dallas, Texas

214/484-1133



A Subsidiary of LSI Lighting Systems Inc.

Circle No. 16 on product card.



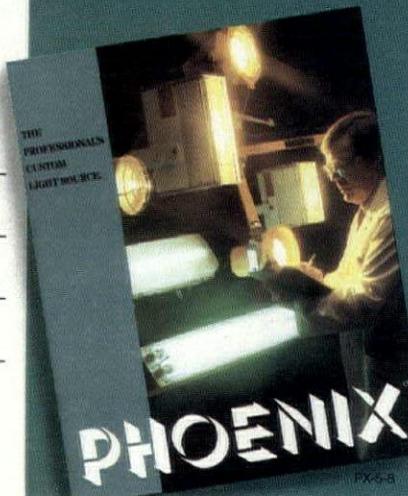
GE LIGHTING'S DOUBLE BIAx FLUORESCENT lamp has a 10,000-hour life and is available in 13, 18 and 26 watts. Ranging from 5 to 8 inches in length, the lamps are available in warm or cool temperatures and all have a color rendering index (C.R.I.) of 82. General Electric Co., Cleveland, OH. Circle No. 48 on product card.



PHOENIX BRINGS YOUR MOST CHALLENGING IDEAS TO LIGHT.

Give us your most demanding custom lighting requirements - interior or exterior - and our custom lighting engineering team will rise to the challenge. From computer-aided analysis and design to extensive quality assurance testing, Phoenix delivers effective, efficient solutions to your custom lighting problems. For more information, and your free Phoenix custom lighting brochure, fill out and mail the coupon below. Or contact PHOENIX PRODUCTS CO., INC., 6161 N. 64th St., Milwaukee, WI 53218. Phone 414-438-1200; TELEX 910-262-3389; FAX 414-438-1330.

PHOENIX



Send for your free custom lighting brochure today.

NAME _____

TITLE _____

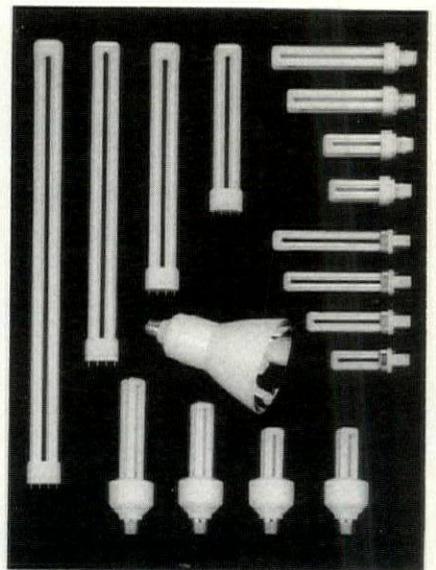
COMPANY _____

ADDRESS _____

CITY _____ STATE _____ ZIP _____

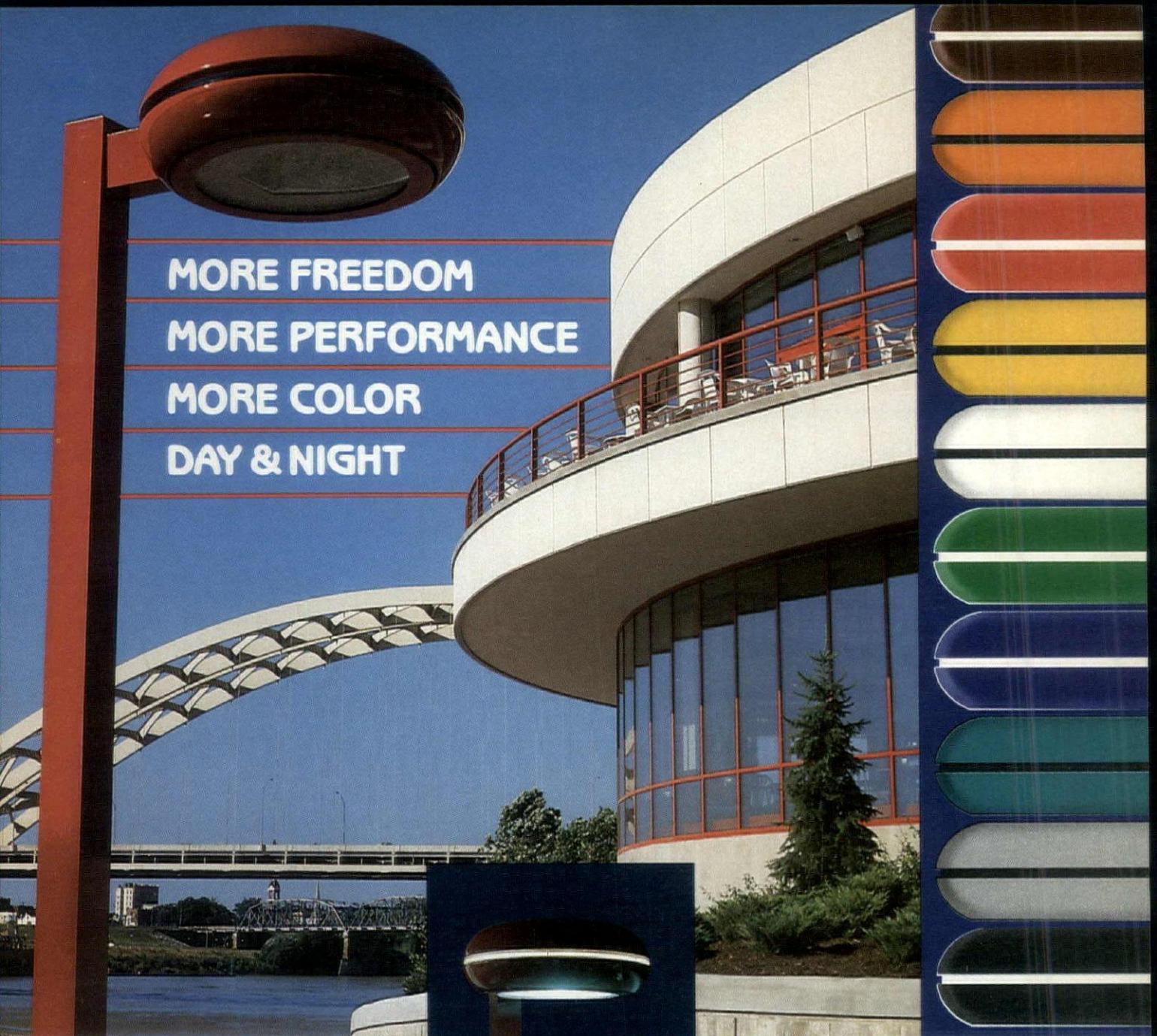
PHONE () _____

Mail to: Phoenix Products Co., Inc.
6161 N. 64th St.
Milwaukee, WI 53218



THE DULUX FAMILY OF COMPACT FLUORESCENT LAMPS FROM OSRAM CORP. uses tri-chrome phosphors to reproduce an incandescent-like light and gives the lamps color renditions ranging up to C.R.I. 86. The Dulux family includes the Dulux

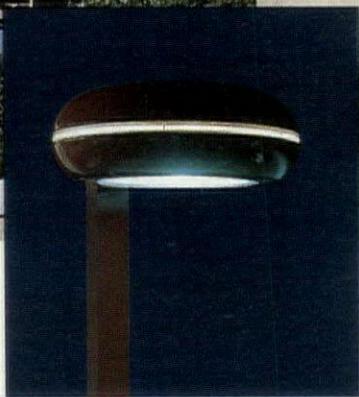
EL electronic light bulb, Dulux EL Reflector, Dulux S lamps, Double Dulux quad-tube compact fluorescent lamp and the Dulux D single-ended quad-tube lamp. Osram Corp., Montgomery, NY. Circle No. 49 on product card.



**MORE FREEDOM
MORE PERFORMANCE
MORE COLOR
DAY & NIGHT**

CATALINA. Unique styling? Yes! And for the first time, illuminated bands of vibrant color encircle color-coordinated luminaires to give you greater design flexibility both day and night.

Two opaque and six illuminated color accent bands...plus ten exciting designer colors in baked-on enamel finishes...add a totally new dimension to entrance, walkway and parking area lighting design that can compliment and accentuate the best you can build.



*Illuminated glow rings or
opaque accent bands*

Five superior optics and optional assemblies in single, double, triple or quad configurations allow you to take charge of your lighting patterns. Not just aesthetically pleasing. Not just beautifully practical...but a totally new design element with which to work.

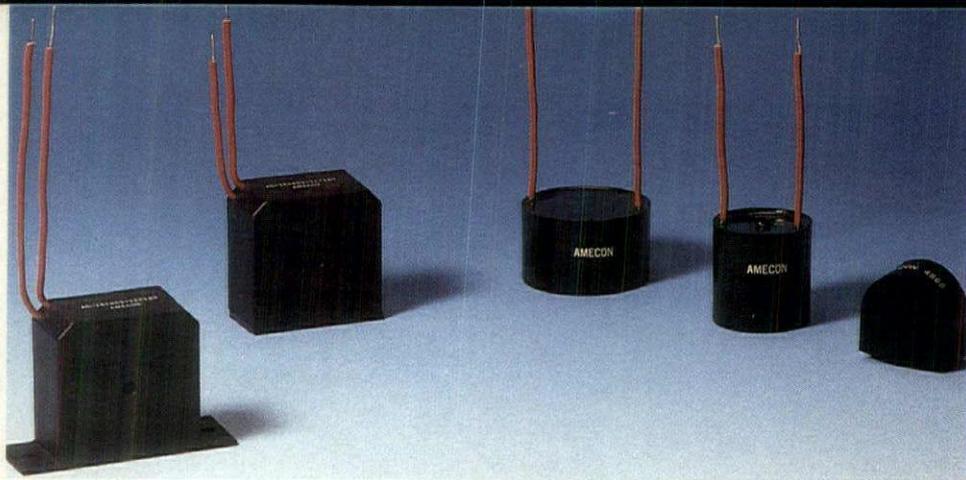
Circle reader service number today for more exciting news on this great new family of Spaulding luminaires...or call **TOLL FREE 1-800-221-5666**.



SPAULDING
LIGHTING, INC.

Circle No. 18 on product card.

1736 Dreman Avenue, Cincinnati, Ohio 45223 (513) 541-3486
13615 Excelsior Drive, Santa Fe Springs, California 90670 (213) 868-0478



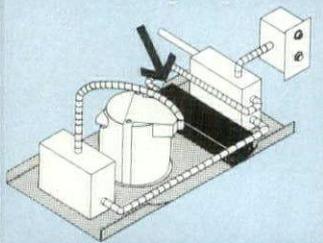
▶ **AMECON'S ARCHITECTURAL CHOKES** eliminate noise in lamps, dimmers, and fixtures. These chokes mount on standard recessed fixtures, wall boxes, and remote areas. The devices are available in circular, square, and arch configurations and are rated at 50 and 75 watts at 12 volts, and 400 to 750 watts at 120 volts. Amecon, Inc., Anaheim, CA. Circle No. 50 on product card.

Learn How Bodine Can Convert Any Fluorescent Fixture Into An Emergency Light



Many commercial/industrial/institutional buildings require emergency lighting. In these applications, specify emergency lighting that provides safety, convenience and code compliance – without detracting from attractive lighting designs.

Bodine Emergency Ballast



Bodine's unobtrusive emergency products are installed inside or adjacent to a fluorescent fixture, ensuring the visual integrity of even highly sophisticated interior designs.

The result: emergency lighting that doesn't look like emergency lighting. Problems with occupant panic, vandalism and installation of wall-mounted auxiliary lighting are eliminated.

Send for a **FREE** brochure with application, operation, installation and complete specifying information.

bodine

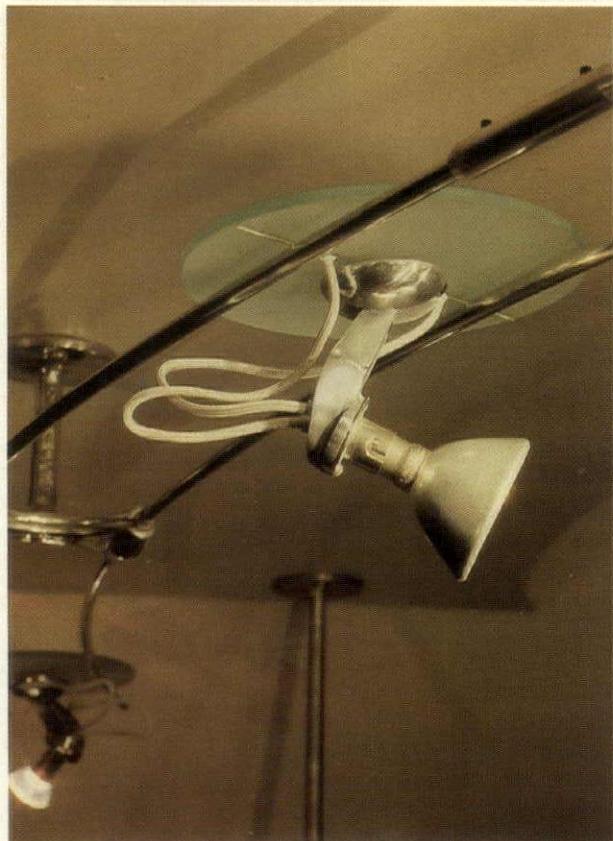
The Bodine Co. • 236 Mt. Pleasant Road • Collierville, TN 38017-2752 • (901) 853-7211



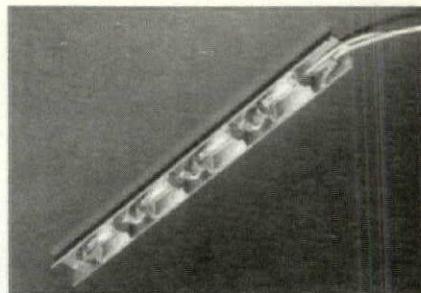
LITHONIA EMERGENCY SYSTEMS' SIGNATURE SERIES ELECTROLUMINESCENT EXIT SIGNS consume less than 1.0 watt of electricity, using a .025-inch thick panel that fits behind the faceplate. In the emer-

gency mode, the lamp becomes brighter. The signs are available in brushed aluminum, black, bronze, brass, chrome, and white finishes. Lithonia Lighting, Conyers, GA. Circle No. 51 on product card.

Circle No. 19 on product card.



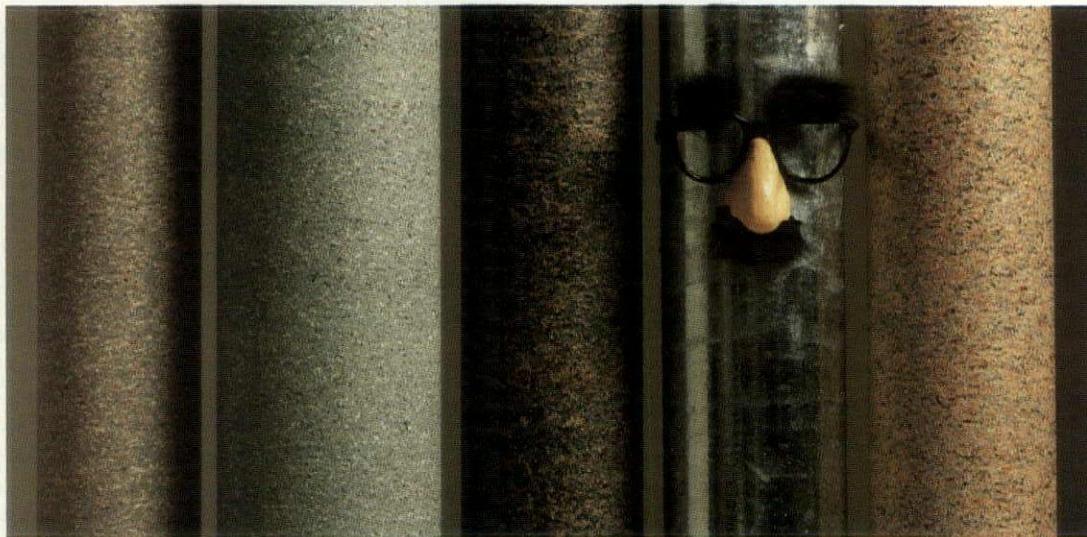
▶ **NOSTROMO, A PRODUCT OF BUTLER-RADICE, of London, marketed and distributed in the U.S. by BEACH-DOG, is a low-voltage track light system that can be pre-rolled to any radius to match curves within a room's interior. These disc lamps can take a variety of lamp types and provide a range of light sources. BEACHDOG, Malibu, CA. Circle No. 52 on product card.**



WENDELIGHTING OFFERS PHANTOM STRIPS in three models: two for glare-free cabinet lighting and a silhouette strip for lighting coves and counter-tops. The metal strips are made to specified lengths, are available in two

standard finishes, and accommodate 5- and 10-watt incandescent lamps in two voltages. Solid brass or stainless steel options are available. Wendelighting, Burbank, CA. Circle No. 53 on product card.

Only Valmont disguises its steel poles five different ways:



(Four of which you may wish to use.)

Architects and designers are having a hey-day with Valmont's new line of steel poles. Lighter weight, less costly to install – now Valmont will deliver your poles, pipe or tubing looking like granite, marble, sandstone – you name it.

For concrete proof, simply circle the reader service number below.

For immediate mailing of our full-line of light pole literature (including the unique architectural coatings pictured above), call Valmont today: 402-359-2201.



VALMONT®



REJUVENATION LAMP & FIXTURE CO. OFFERS A SOLID-BRASS Mission dome table lamp, available in a variety of finishes, which include antique, polished unlacquered or lacquered brass, brushed brass, polished copper, japanned copper or polished nickel. Lantern shades are offered in caramel white, green, or pink colored art glass. The UL listed unit is 26 inches high with a 16 inch square dome, and accepts two 60-watt lamps. Rejuvenation Lamp & Fixture Company, Portland, OR. *Circle No. 54 on product card.*

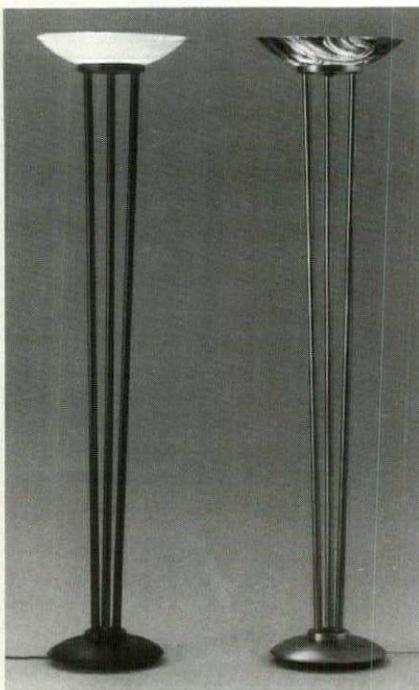


MAGNI-FLOOD'S MINI-FLOODLIGHT with a multi-voltage ballast utilizes HID light sources and measures 10 inches × 7 inches × 6 inches. The mini-flood is available in 35-watt to 150-

watt high-pressure sodium, 50-watt to 100-watt mercury vapor, and 100-watt metal halide. Magni-Flood, Inc., West Babylon, NY. *Circle No. 55 on product card.*

THE SPECTRUM TORCHIERE FROM THE RAINBOW LAMP CORP. includes a full-range dimmer and is 72 inches in height. The 18-

inch glass shade is available in iridescent or frosted ripple glass. Rainbow Lamp Corp., Glendale, CA. *Circle No. 59 on product card.*



THE 281 SERIES SEMI-RECESSED SPOTLIGHT FROM LIGHTING SERVICES is designed to accommodate 50- and 70-watt PAR 30 tungsten-halogen medium screwbase lamps and is available with glass color filters, spread lenses, and light blocking screens. The series is featured in LSI black, white, and silver aluminum finishes. Lighting Services, Inc., Stony Point, NY. *Circle No. 60 on product card.*

ELA IS OFFERING A LUMINAIRE constructed of cast aluminum. Model 2744 is post mount, and model 2741 is wall bracket. Both may be specified with HID lamps up to 150-watt metal halide. Specify a clear acrylic lens for 70-degree cutoff and photometric control, or a white lens for general lighting. A polycarbonate lens creates a vandal-resistant fixture. ELA Company, City of Industry, CA. Circle No. 56 on product card.

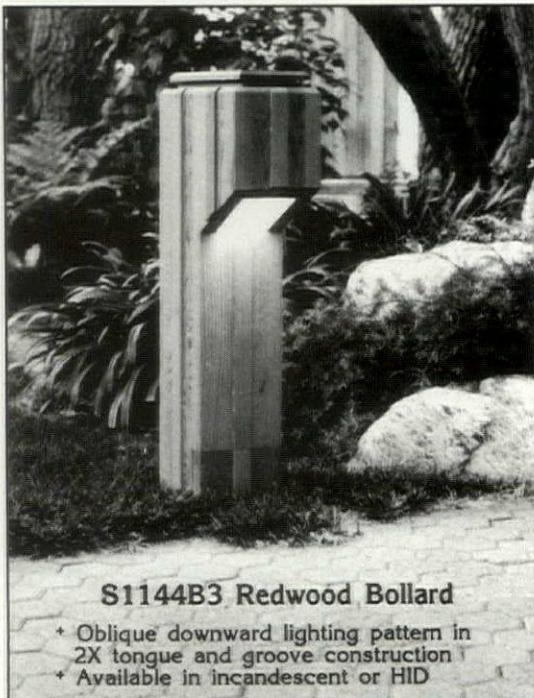


When you want the finest . . .

sun valley lighting
 7900 CLYBOURN AVENUE, SUN VALLEY, CA. 91352
 (818) 767-3031 (213) 875-1136

Circle No. 23 on product card.

Redwood: A Natural Choice



S1144B3 Redwood Bollard

- * Oblique downward lighting pattern
- * 2X tongue and groove construction
- * Available in incandescent or HID

One of many redwood landscape lighting designs in low or line voltage

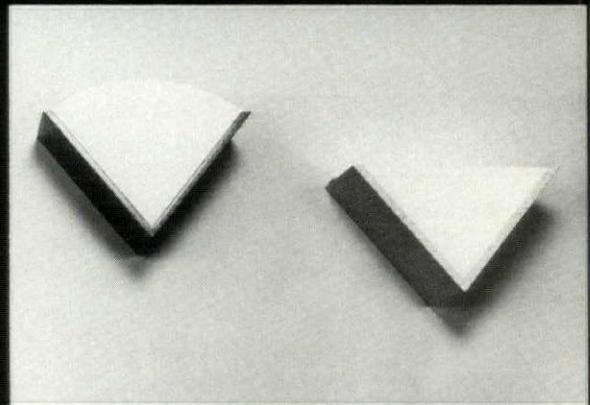
SYLVAN DESIGNS, Inc.

8921 Quartz Ave., Northridge, CA 91324
 (818) 998-6868 / FAX (818) 998-7241

Circle No. 22 on product card.

TRIBBLE

Incandescent wall sconce
 fashioned from Solid Corian®
 U.L. listed



For more information, call or write Aamsco at:
 P.O. Box 15119, Jersey City, N.J. 07305 (201) 434-0722 Fax: (201) 434-8535

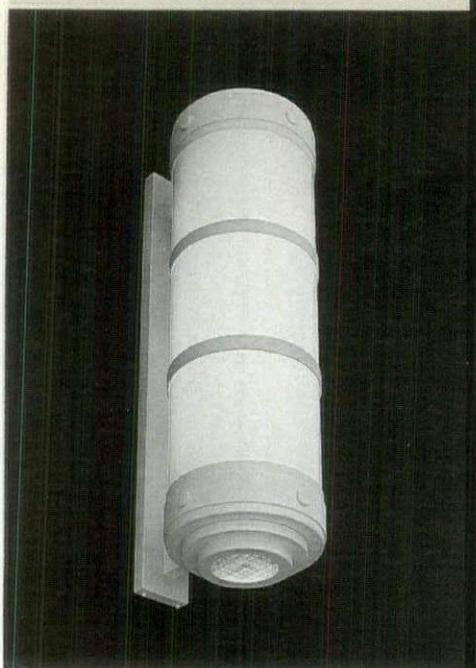
Circle No. 24 on product card.

Appleton Lamplighter.

The first choice of the design community for custom lighting, architectural metal fabrication.

GUARANTEEING:

- Integrity of design
- Quality materials and products
- American craftsmanship
- Professional staff
- Engineering
- Delivery
- North American wide representation
- Affordability



AL 465 WS • 40" X 10" X 14" • PAINTED ALUMINUM HOUSING • OPAL ACRYLIC LENS
2 F20 AND 1 PAR 38 AND 2 F20 LAMPS



PO BOX 1434 • APPLETON, WISCONSIN 54913
FAX 414-739-1656 • PHONE 414-739-9001

Circle No. 25 on product card.

Imagine...

preparing a lighting fixture schedule
in as little as 30 minutes.

CALFS (Computer Aided Lighting Fixture Schedule) is a software package that aids in preparing lighting fixture schedules.

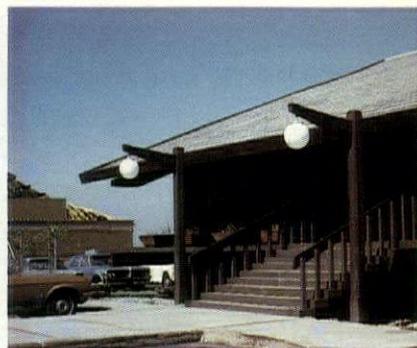
Consider these features:

- ◆ **Fast** - A typical three-name lighting fixture schedule can now be completed in less than 30 minutes.
- ◆ **Cost effective** - The program's design will reduce fixture schedule labor costs by up to 70%.
- ◆ **User friendly** - All basic operations occur on one master menu screen.
- ◆ **IBM and compatibles** - The CALFS program will operate on IBM-XT, AT, or compatible computers.
- ◆ **Build as you go** - The master catalog of lighting fixtures is built as you acquire data.
- ◆ **Master catalog** - The master catalog allows you to specify up to five similar fixtures for each entry. The CALFS program will soon be supported with databases from COOPER LIGHTING, GENLYTE LIGHTING and HUBBELL LIGHTING.



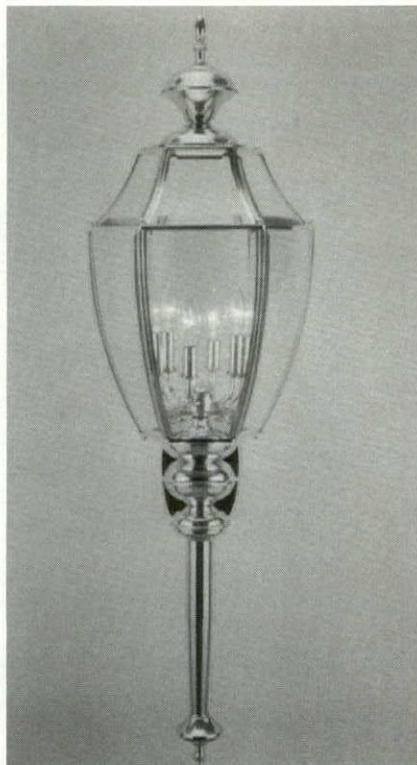
Rosser Fabrap
P.O. Box 54680
Atlanta, GA 30308-0680
1-800-843-2838

Circle No. 26 on product card.



RYTHER-PURDY'S TYPE C/ CONTEMPORARY lighting standard is adaptable to most styles of luminaires. Available in heights from 14 to

40 feet, the western Red Cedar standard is durable and versatile. Ryther-Purdy Lumber, Old Saybrook, CT. Circle No. 57 on product card.



THE "GLASS OVER GLASS" SERIES FROM AMERICAN LANTERN CO. includes a coach-style lantern measuring 42-1/2 inches in height.

The fixture features beveled, bent glass and solid brass. American Lantern Co., Newport, AR. Circle No. 58 on product card.

Bright Idea

The LIGHTHOUSE

New fixture for low level lighting. Handsome bollard design. Laminated of custom selected, kiln dried *Western Red Cedar*. Easy access to lamp and ballast compartment. Incandescent, mercury vapor or high pressure sodium.

Write on letterhead for catalog of wood lighting standards and accessories.

Ryther-Purdy Lumber Company, Inc.

174 Elm Street
P.O. Box 622
Old Saybrook, CT 06475
Phone (203) 388-4405

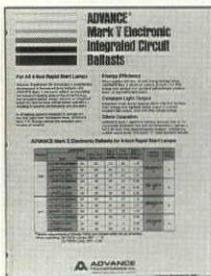


Lighting Standards
Fixtures • Signs
Guide Railings • Custom Millwork
Benches • Trash Receptacles

Design Credit:
Cairone Mackin & Kaupp, Inc.



Circle No. 27 on product card.



Electronic ballasts

Integrated-circuit electronic ballasts for fluorescent lamps are featured in Advance Transformer Co.'s bulletin. This circuit monitors input voltage and regulates ballast output, maintaining continuous light output. Advance Transformer Co., a division of North American Philips Corp., Rosemont, IL.

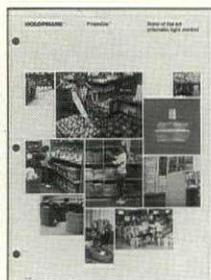
Circle No. 40 on product card



Time switch products

A 20-page color catalog features UL listed Digital Time Switch Products for lighting and control applications. These devices offer battery backup, 365-day scheduling and 25-amp contacts. EZ Controls Inc., San Dimas, CA.

Circle No. 41 on product card



Prismatic light control

Holophane's four-page brochure features information on PrismGlo, a fixture that has prismatic light control capabilities. The luminaire offers 90 percent efficiency, quiet ballasts, mounting options, and the UL listing. Holophane Co., Inc., Newark, OH.

Circle No. 42 on product card



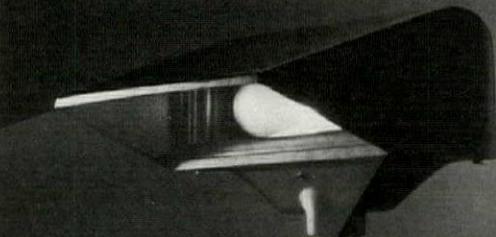
Aluminum-framed skylights

The American Architectural Manufacturers Association's (AAMA) "Structural Design Guidelines for Aluminum Framed Skylights" assists architects and engineers in developing design criteria and interpreting design assumptions. AAMA, Des Plaines, IL.

Circle No. 43 on product card

W WENDELIGHTING

WENDELIGHTING/DIVISION OF JACKSON INTERNATIONAL LTD.

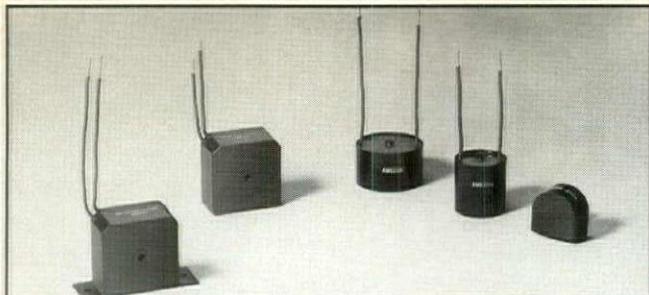


MODEL 6100
WALK REFLECTORS
Anodized heavy aluminum casting for corrosion resistance with lens. Our glare free walk and plant reflector is available in 120 volt/40 watt incandescent Underwriters Laboratory approved. Ask for 70 watt, M.H.



2445 N. NAOMI ST.,
BURBANK, CA 91504
(818) 955-8066
FAX 818 848-0674
N.Y. (212) 682-8775
NATIONAL 1-800 528-0101

Circle No. 28 on product card.



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.



Quality Magnetics & Electronics

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

Circle No. 30 on product card.

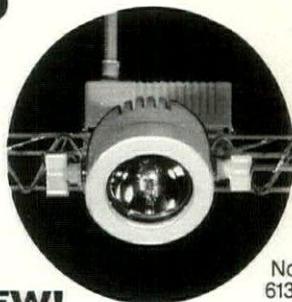


No. 6130

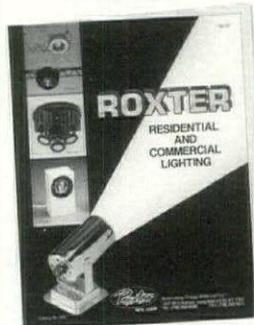
No. 6150

MINI TRUSS STANDARD OR LOW VOLTAGE LIGHTING

by



No. 6130



NEW!

Mini Truss suspended and surface mount lighting gives architectural lighting design engineers, visual merchandisers and interior designers a new innovative look for contemporary lighting fixtures. Standard voltage halogen bulb or low voltage halogen fixtures are mounted on mini truss.

Ideal for creating grid or sectional suspended dividers, for both commercial and residential use. 9 models available.

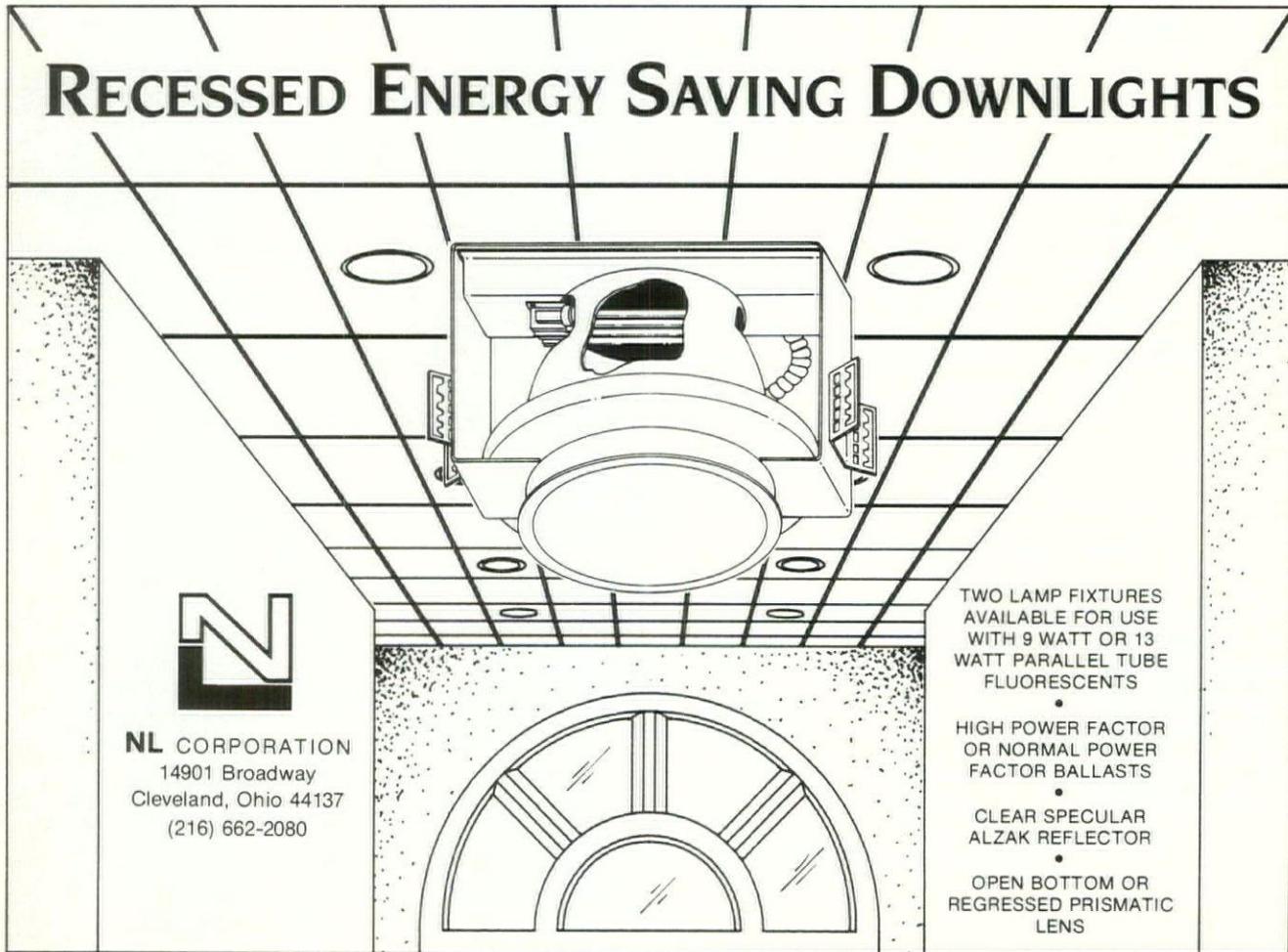
Write today for our new catalog.



Mfg. Corp. Better Living Through Better Lighting™
10-11 40th Ave., Long Island City, NY 11101
Tel. (718) 392-5060 FAX: (718) 392-9811

Circle No. 31 on product card.

RECESSED ENERGY SAVING DOWNLIGHTS



NL CORPORATION
14901 Broadway
Cleveland, Ohio 44137
(216) 662-2080

TWO LAMP FIXTURES
AVAILABLE FOR USE
WITH 9 WATT OR 13
WATT PARALLEL TUBE
FLUORESCENTS

HIGH POWER FACTOR
OR NORMAL POWER
FACTOR BALLASTS

CLEAR SPECULAR
ALZAK REFLECTOR

OPEN BOTTOM OR
REGRESSED PRISMATIC
LENS

Circle No. 29 on product card.

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 Capsyllite—HID—Incandescents.

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.

E.G. SCHLESSELMAN, INC., 2778 Banning Rd., Cincinnati, OH 45239 Fax 513-923-1654 513-923-1144
Designer & Manufacturer of Special & Standard Lighting Fixtures for the Display Industry.

ACCESSORIES AND COMPONENTS

LEXALITE INT. CORP., P.O. Box 498, Charlevoix, MI 49720 Fax 616-547-5833 or 616-547-6584
Custom and Proprietary Injection Molded Lighting Products. (For information call Cheryl Barron.)

MAXIMUM TECHNOLOGY, 80 Industrial Way, Brisbane, CA 94005 415-468-2560

AMBIENT LIGHTING SYSTEMS (INTERIOR)

DAY-BRITE/McPHILBEN/OMEGA—Complete fixture needs Fax 601-841-5501 or Call 601-842-7212

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

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

AREA LIGHTING (EXTERIOR)

BIEBER LIGHTING CORPORATION (See ad below)

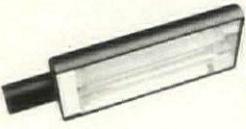


BIEBER LIGHTING CORPORATION
One of America's leading manufacturers. Offering a complete product line of commercial and residential luminaires and accessories for a wide variety of applications: automobile dealerships, shopping centers, sports facilities, industrial, landscape lighting, and extensive custom capabilities. U.L. listed, HID, and fluorescent. Call for local representative.
970 W. Manchester Blvd., Inglewood, CA 90301
FAX 800-537-2892 PH. 800-544-4871

EMCO ENVIRONMENTAL LIGHTING, 7300 50th St., P.O. Box 1640, Milan, IL 61264 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.

WESTERN LIGHTING INDUSTRIES (see ad below)



Western Lighting Industries
True Color Light Source Avanti 1800
Post-top light with either 1 or 2 39-watt BIAx or PL type lamps. Solid cut-off, and 2½ to 1 uniform light distribution, U.L. Listed.
3540 Valhalla Dr., Burbank, CA 91505
FAX 818-841-8910 818-841-7896

AVANTI 1800

BUYING SERVICES

MICHAEL MARTZ (For Architects and Designers) 201-944-4098

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.

VARA-LIGHT/DIMATRONICS/HUB ELECTRIC, Crystal Lake, IL Fax 815-455-1499 or 815-455-4400

DAYLIGHTING PRODUCTS

CONSTRUCTION SPECIALTIES INC., 55 Winans Ave., Cranford, NJ 07016 (Sight & Sunscreens) 201-272-5200

MULTIPOINT CONTROL SYSTEMS, 3101 111th St., SW #A, Everett, WA 98204 206-347-3499
Full line of adjustable photocell lighting control sensors & systems for indoor/outdoor applications.

EMERGENCY LIGHTING

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



DYNARAY EMERGENCY LIGHTING
Compact, self-powered exit, only 7½" high. Mounts over doorways under most 8' ceilings. Integral sealed ni-cad batteries and charger board. Architecturally designed, anodized extruded aluminum exit available with incandescent or fluorescent lamps.
253 Norfolk St., Cambridge, MA 02139
FAX 617/661-4400 TEL 617/876-9220

LAMPS

G E LIGHTING, Ad Response Dept., Nela Park #4151, Cleveland, OH 44112 216-266-3544

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, Minicand and DC Bayonet Halogen Lamps.

VENTURE LIGHTING INTL., 625 Golden Oak Pkwy., Cleveland, OH 44146 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 DESIGNERS AND CONSULTANTS

DESIGN LIGHTING CONSULTANTS, INC., 7166 S.W. 47TH ST., MIAMI, FL 33155 305-665-6100

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 Richard Baxter.

OEM MANUFACTURERS

EDWIN GAYNOR CO., 200 Charles St., Stratford, CT 06497 203-378-5545 or FAX 203-381-9019
For more information about fluorescent wiring devices, switches and lamp holders, call and ask for Jill Sapak.

OTHER LIGHTING SYSTEMS AND LUMINAIRES

KOR-LITE Fluorescent Emergency Lighting Systems Phone: 408-727-0314 Fax 408-492-1403

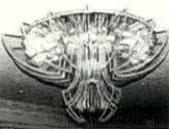
REFLECTOR MATERIALS

ALUMINUM COIL ANODIZING CORP., 501 E. Lake St., Streamwood, IL 60107 800-289-2645
Pre-anodized lighting sheet: specular, semi-specular, low iridescent, hammertone, diffuse, Everbrite.

SPACE FRAME/TRUSSING

MEROFORM/MERO Structures Inc., P.O. Box 610, Germantown, WI 53022 Fax 414-255-6932 414-255-6553
Manufacturer of MEROFORM Spaceframe, MEROTRUSS, and MERODOME Modular Systems.

USED EQUIPMENT FOR SALE



ART DECO CHANDELIERS
Pair of custom made, extremely beautiful and unusual, chandeliers, 4' h 9' w. Appraised value \$11,000 each. Sale price \$4,700 each plus removal. Contact Manager, Oklahoma City Golf and Country Club 405-848-5611.

CAREER OPPORTUNITIES

Experienced East Coast Regional Sales Manager

RAMBUSCH LIGHTING

New York-based Rambusch Lighting, specialists in state-of-the-art public space lighting of the highest caliber, is seeking a knowledgeable, experienced individual to fill important position as its East Coast Regional Sales Manager.

Responsibilities include a commitment to travel...to supervise, train and provide technical support and professional follow-through to this region's independent sales force.

Rambusch, founded 1898, manufactures a standard line of powerful, high-efficiency lighting fixtures...Downlites, Uplites and Accent...as well as custom and specialty lighting.

Salary plus incentives would be commensurate with experience and ability.

Contact: Frank X. Rambusch, President (212) 675-0400 Ext.435

Career Opportunities continued on next page

CAREER OPPORTUNITIES

HOSPITALITY SALES REPS WANTED: Established national lighting manufacturer seeks representatives for North Carolina, Michigan, and some California territories. Contact Alger Lighting, 4111 San Fernando Rd., Glendale, CA 91204, 818-241-6955.

ARCHITECTURAL LIGHTING SALES REPS WANTED

36 year young, growing and knowledgeable manufacturer of Cold Cathode Lighting Systems—UL & CSA approved—seeking architectural lighting sales agency on specification level with Architects, Designers, Engineers, Lighting Consultants must read arch. and elec. plans and specs. For the following territories: AK, AR, CA, CN, FL, ID, IA, OH, OK, KS, KY, MS, Mobile, MT, NE, NV, NJ, NM, ND, SC, TN, TX, WV, WY, Wash. DC.
Box 100, ARCHITECTURAL LIGHTING, 1515 Broadway, New York, NY 10036.

RATES

The Marketplace is a monthly feature of Architectural Lighting, offering readers easy access to lighting products and services for commercial, industrial, and institutional applications. Listings in this reference section are sold on an annual basis. First Line (Bold Face) \$990/yr. Additional lines \$690/yr. Mini Display \$3600/yr., \$1990/6 months.

Career Opportunities, Situations Wanted and Used Equipment For Sale Ads are sold on a monthly basis. Ads are \$28 per line with a 4 line minimum. Mini Display ads are \$160 (1X), \$140 (6X), \$110 (12X).

For full information and closing dates, contact Nancy Berman 800-950-1314 or 212-869-1300.

Index to Advertisers

Aamsco Manufacturing Inc. **Circle 24** 55
 Amecon, Inc. **Circle 30** 58
 Appleton Lamplighter **Circle 25** 56
 Architectural Area Lighting **Circle 12** 19
 Bodine Co. **Circle 19** 50
 GE Lighting **Circle 32** Cov.3
 Greenlee Landscape Lighting **Circle 16** 47
 Hanover Lantern **Circle 7** 8
 H.E. Williams **Circle 1** Cov.2
 Holophane Company, Inc. **Circle 13** 23
 Hydrel **Circle 3** 3
 Imperial Bronzelite **Circle 5** 5
 Lighting Services Inc. **Circle 4** 4
 Lightolier Inc. **Circle 6** 7
 Lightolier Inc. **Circle 8** 9

Lightolier Inc. **Circle 9** 11
 Lumec **Circle 15** 45
 Nightscaping/Division of Loran, Inc. **Circle 33** Cov.4
 NL Corporation **Circle 29** 58
 Peerless Lighting Corp. **Circle 11** 15
 Phoenix Products Co., Inc. **Circle 17** 48
 Rambusch Lighting **Circle 2** 1
 Rosser Fabrap **Circle 26** 56
 Roxter Mfg. Corp. **Circle 31** 58
 Ruud Lighting, Inc. **Circle 10** 13
 Ryther Purdy Lumber Co. **Circle 27** 57
 Spaulding Lighting, Inc. **Circle 18** 49
 Spring City Electrical Mfg. Co. **Circle 14** 25
 Sun Valley Lighting **Circle 23** 55
 Sylvan Designs, Inc. **Circle 22** 55
 Valmont Industries **Circle 20** 53
 Wendelighting **Circle 28** 57

Letters

CONTINUED FROM PAGE 8

be strong and rigid enough to resist the abuses to which it may be subjected without causing a risk of fire, electric shock, or injury to persons or property.

These standards also address lamp guards and shields, temperature, voltage, switches and dimmers, overturning, overlamping, abnormal operation, supporting surface, and warning labels.

The Canadian Standards Association (CSA) and the International Electrotechnical Commission (IEC) also have safety standards that require strict lamp shielding.

There are a few exceptions to these safety standards. One is the use of tungsten-halogen lamps encapsulated inside a

parabolic aluminized reflector (PAR) lamp, or an encapsulated version of a multi-mirror reflector (MR) lamp, etc.

In conclusion, as responsible lighting professionals, we need to be well informed of the potential hazards of using tungsten-halogen lamps in our lighting designs and pay attention to these warnings. The institutions that I have mentioned here have all requested that we report to them any documented cases of violent lamp failures and consequences, so that they can better represent our real-world experience to the governing bodies.

Tungsten-halogen lamps can be a pleasing light source when used safely.

ROGER D. DOEREN
Lighting designer
 Doeren Lighting
 Shawnee Mission, KS