Art Unveiled
LIGHT AS REVEALER

PRECISE ILLUMINATION SETS OFF SCULPTURES BY ARTIST GLORIA KISCH IN NEW YORK’S ART ET INDUSTRIE GALLERY
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CONTEMPORARY.

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RECESSED LIGHTING DOESN'T HAVE TO BE BORING.
Introducing Jewel-Light™ – an exciting new concept in recessed lighting: miniaturized, low-voltage halogen downlights and wall washes. Jewel-Lights are available in round or square configurations with 1/2" polished glass, stepped glass and die-cast grooved trims.

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JEWEL LIGHT™

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An attractive collection of miniature halogen bipin and MR16 spotlights completes Targetti's innovative low voltage track lighting systems. Minitondo and Structurella are ideal solutions for display lighting in stores, art galleries, exhibitions, restaurants ... even contemporary homes. Both systems are UL-listed and available in the United States for immediate delivery.

For further information, catalogs and the name of your local Targetti Sales Representative, please contact us at TARGETTI INC. - 625 Broadway - New York, N.Y. 10012 - Telephone (212) 982-8390 - Telefax (212) 982-8548

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ARCHITECTURAL LIGHTING (ISSN 0894-0436) is published monthly by Grollo Publications, a member of United Newspapers Group, 1515 Broadway, New York, NY 10036. Phone (212) 869-1300. Copyright 1990 Grollo Publications. All rights reserved.
Nightscaping has the lighting solutions you need whether your design is traditional or contemporary. Over 400 variations of fixtures, finishes, and lamps provide the right lighting tool to meet any design need, backed by the industry leader for over 30 years.

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

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Hanover Lantern offers one of the most comprehensive lines of decorative outdoor lighting fixtures in the industry. Constructed from heavy duty cast aluminum, with nonferrous fasteners and assembled by quality oriented craftsmen, to provide years of dependable service and lasting beauty. Hanover Lantern® A DIVISION OF HOFFMAN PRODUCTS, INC. 470 HIGH ST. HANOVER, PA. 17331 717-632-6464

IALD Awards At Chicago LightFair

The International Association of Lighting Designers (IALD) will present its annual lighting design awards in a gala celebration at the Art Institute of Chicago during Chicago LightFair '91. The move will further solidify the IALD awards' prominence by placing it in conjunction with the only industry-sponsored lighting exposition and conference. The special evening event will be co-sponsored by the IALD and Architectural Lighting magazine.

LightFair is scheduled for March 5-7, 1991 at the Chicago Merchandise Mart's Expcocenter. The IALD awards presentation is set for 7:30 pm on March 6 in the Art Institute's Chicago Stock Exchange Trading Room designed by famed architect Louis Sullivan.

The evening will begin with a cocktail reception followed by a banquet, awards presentation and a spectacular laser light show.

The IALD Awards are given in recognition of lighting design that displays high aesthetic achievement backed by technical expertise, and which exemplifies a synthesis of the architectural and lighting design process. Excellence is judged in terms of appropriateness, creativity and originality of the design solution to the project criteria and architecture.

Tickets for the 1991 IALD awards ceremony are $85/person and may be purchased through registration for Chicago LightFair. In addition, corporate tables will be available. For more information, please contact Lynne Weller, communications manager, 240 Peachtree St. NW, Suite 2200, Atlanta, GA. 30303, or call (404) 220-2115 or FAX (404) 220-2136.

Lumen Awards Call For Entries

The Lumen Awards Program is a lighting design award sponsored by the New York Section Illuminating Engineering Society (NYIES). The program is open to all NYC architects, designers, and engineers or projects within the Metro NY area. Submissions are due by January 1, 1991. For further information contact: Dee Murray with Lighting Dynamics at 212-268-9222.

Singular Event For Multiples

CSL Lighting Mfg., Inc. announces the unveiling of Multiples 948™ by designer Sergio Orozco, with an opening gala set for January 1991 at CSL's new showroom at the Dallas International Market Center, suite 3002.

Based on designer Sergio Orozco's credo of unifying art, design, and architecture, the Multiples 948™ collection of luminaires emphasizes interchangeability, with the possibility of creating 948 different looks from a family of basic fixtures, finishes, and shades.

Rambusch Sconce

Donated To Moving Image Museum

New York, N.Y.—The Rambusch Company recently made a gift to the American Museum of the Moving Image, Astoria, NY, of a lighting sconce (right) custom-designed and fabricated in 1928 for the Stanley Theatre. The Stanley was one of the many Warner Brothers theatres for which Rambusch created the decorative interiors, including custom fixtures.

The wall sconce is fabricated of wrought iron, and silverplated hand hammered copper. This graceful uplight was designed by Leif Neondross of the Rambusch staff. The lower half of the cone-shaped unit features iron "pleated" in folds like a fan. The top of the "fan" is pierced by tiny holes forming squares through which light shines with a sparkling effect. This is in dramatic contrast to the even flood of light reaching upward from the scallop shape of the upper part of the sconce. All the light emanates from a single bulb.

In addition to the Stanley lighting fixture itself, Rambusch has donated the original full-sized working drawing. Examining the drawing and the object a viewer can experience the progression from concept to finished object.
Beghelli, the Italian leader in emergency lighting products, has now created a totally new kind of lamp: PRATICA BELLA, Practical and Beautiful. Practical because it is easy to install and maintain. Beautiful because it is a creation of Italian design, which adds a pleasant and elegant look to emergency lighting.

A very special style that is capable of integration and provides the finishing touch to your important projects. PRATICA BELLA, available in black, white, and burgundy colors, is part of a complete line of lighting/emergency lighting products manufactured by Beghelli. These products, along with a commitment to quality/assistance and service, are now available in the United States.

So, when you are thinking of an emergency lamp to complete your project, think of Beghelli, think of PRATICA BELLA.

in the darkness, a light.
Introducing the MASTER line™ Collection from Philips Lighting.
A stroke of Halogenius.

The innovative Masterline Collection of high-performance halogen lamps raises accent and display lighting to a new standard of excellence.

Philips Lighting developed the Masterline Collection to answer the growing need for premium quality halogen lamps that offer energy savings, increased light output, and greater efficiencies from existing lighting fixtures.

Masterline lamps can deliver added value to everyone who uses accent lighting to make merchandise more attractive, displays more dramatic, restaurants more appealing – and bottom lines more profitable.

Masterline Square MR-16 lamps, for example, use substantially less energy than comparable MR-16 lamps, with the same lighting results. Their unique design retrofits into most existing fixtures. New Masterline Round MR-16 lamps offer as much as 33% more light output than standard MR-16 lamps – enhancing the visual impact on merchandise without increasing energy consumption. And the dichroic reflector design of Masterline MR-16 lamps protects merchandise from costly heat damage and fading.

Philips breakthrough in halogen lighting extends to PAR lamp applications as well, with the new Masterline Collection PAR 38, 30 and 20 halogen lamps designed to replace standard PAR and reflector lamps by providing energy savings and brighter, crisper accent lighting.

Masterline PAR 20 and PAR 30 lamps deliver more light out of recessed fixtures, thanks to their exclusive long neck design which allows retrofit into existing fixtures without the need for adapters.

Put a stroke of Halogenius into your accent lighting, with the new Masterline Collection of lamps from Philips Lighting. You’ll discover one more reason why lighting professionals turn to Philips for innovations in high quality lighting. To get all the details on this new family of high performance halogen accent lamps, phone the Philips Lighting team at 1-800-631-1259. You’ll learn why the Masterline Collection sheds new meaning on the word accent.
Wings of Light. Zumtobel.

Spheros™... Harmony of indirect and direct light. Providing optimum performance without intrusion on interior design. A wide array of options in light distribution, louvers and accessories affords flexibility in the final composition.

To understand the Lighting Research Institute's (LRI) impact on the architectural and design community, its most active research projects are summarized here. Most of the projects are available in printed form. Now, let's look at the future...
MagneTek means energy-saving ballasts.

Are fluorescent lights all that your clients are burning?

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

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

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

- 28% with low cost Universal™ CBM certified energy-efficient electromagnetic ballasts.
- 35% with our Universal Plus™ hybrid ballasts which combine electromagnetic and electronic technology.
- 42% using proven Triad™ electronic ballasts. With over a
decade of reliable performance, we have millions more electronic ballasts in the field than all other brands combined. Magnelék ballasts offer optional performance features like high/low light level switching and parallel circuitry for single-lamp replacement convenience. We back them with a full 3-year warranty covering ballast and replacement labor.

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

For immediate service, call 1-800-BALLAST.
Imagine this Spacebird airborne and soaring, elegantly floating in orbit, it's brilliant light beam emulating the sun. When docked to LSI track, it’s identified as our SB16.

For a SB16 series information kit, write on your letterhead to:
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Industrial Park, Route 9W,
Stony Point, N.Y. 10980

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TREATMENT OF MALIGNANT MELANOMA

Human health issues are now becoming a part of the working environment. The means by which the working environment is controlled can be beneficial or it can carry risks. For some years, the LRI has considered the extent to which some light sources may contribute to the human health issue. In particular, because it had been erroneously suggested that fluorescent light might contribute to the development of malignant melanoma, the LRI produced a carefully designed methodology to process data for analysis. Arrangements were made with the Australian Bureau of Standards to measure the output of fluorescent lamps, and the actual epidemiology study is being conducted by Dr. R. McClellan at Queensland Medical Institute in Brisbane. The study correlates the human life-pattern under fluorescent lighting and the possible risk of acquired melanoma. Related studies in this area were conducted concurrently.

ATTRIBUTES OF LIGHT

Many studies suggest that a new frontier is being developed in the alleviation of disease. For example, as the skin ages, it has a reduced capacity for producing vitamin D, and recent studies may determine the amount of exposure needed to maintain good health in the aged and immobile.

Can light be used in the treatment of congestive heart failure? An ongoing study suggests that positive therapeutic advantages can be gained by manipulating the biological clock. There are several explanations for this phenomenon, and defining these conditions is an important challenge for future research.

HUMAN OCULAR SYSTEM

Studies are also underway to consider the potential health hazard to the human ocular tissues from exposure to ultraviolet radiation. Findings may be useful in establishing standards for safe exposure to short-wavelength radiant energy.

It seems that there may be some beneficial aspects to ultraviolet in the development of mammals. One exploration looked at the visual systems of younger humans to determine if environmental ultraviolet can be detected. Given that UV-A reaches the retina of younger humans, it is important to determine if this "photic signal" is detected by the retina, and is processed by the developing visual system in the brain.

HUMAN RESPONSE TO LIGHT

The LRI has recently undertaken a study of "human circadian rhythms." It asks the questions:

- What is the state of knowledge in this area?
- Where should further work be encouraged?

Topics from jet lag to seasonally affected depression, to errors or accidents that may be caused by irregularities in the human body-clock are being examined. Anti-depressant and Circadian Phase-Shifting Effects of Light explores the theory that bright light is an effective treatment for seasonal (winter) depression. There is, however, no clear consensus on when the light should be administered. So far it has been shown that the symptoms of depression can be controlled when individuals are subjected to more or less light. Researchers now want to pin-down the amount of light needed, when the light should be administered, and how much light is needed to control the mood states of human beings.

(Continued on page 16)
daylighting
In lighting applications, daylighting plays a major role in an energy conscious world. A State-of-the-Art Review\textsuperscript{23} by the institute concerns itself with energy, peak loads during critical periods and the impact on the environment. So that utility companies can take advantage of daylight and electric lighting integration, a vast amount of research in daylighting design and technology was accumulated. Research material, however, is not readily available in a usable form. Having gathered that information, the study can now focus on using techniques from design information for practical purposes. EPRI, LRI, and NIST are currently developing research related to the integration of electric lighting, daylight, and lighting controls.

A system for rating transmittance performance of fenestration systems\textsuperscript{24} defines a fenestration performance design tool for builders, designers, architects, and utility auditors. The first phase defined the design tool concept and the experimental and analytical methodologies needed to achieve the project goal. Five fenestration indices were analyzed which, when combined, provide an overall numerical indication of merit. The indices are related to the effects of fenestration on building energy performance, i.e., fuel, electric use, peak electric demand, and thermal and visual comfort.

roadway lighting
Urban planning has become a major problem in the United States. Architects and roadway designers are concerned with the systematic renovation, the relighting, and the building of new roadways. All of which must take into account society's attitude toward the restoration of the environment while increasing standards of visual performance in both daylight and nighttime hours.\textsuperscript{25,26} The institute is now involved in several active projects that deal directly with these problems.\textsuperscript{27}

A study of realistic roadway tasks\textsuperscript{28} measures the various visibility tasks under a number of different lighting systems. It determines if a correlation exists between the visibility level of those realistic tasks and the surrogate measures of small target visibility.

A methodology to assess the influence of lighting characteristics on accidents\textsuperscript{29} develops and verifies a means by which lighting can be shown as a benefit in reducing traffic accidents. The final results will show a way by which roadway lighting, applied over a wide range of highway locations, can be realistically expected to reduce accidents.

A study on the relationship between visibility and driver performance\textsuperscript{30} obtains improved correlation between photometric visibility and dynamic driver performance measurements. Using 7-inch targets of different reflectance under different light distributions, drivers are rated according to their reaction to test objects. Drivers were observed in their response to identification and orientation to the object, with and without headlights in the automobile.

organizations affiliated with the lighting research institute

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This series is designed to fit the mood of your environment, offering seven shapes and a host of dramatic finishes and textures. For a complete brochure, call (614) 565-6074 or your local Abolite Representative.

When it's time to choose sides, choose from Abolite Lighting.

THE RLM SERIES

CITYSIDE SEASIDE OUTSIDE INSIDE
LIGHTING RESEARCH (CONTINUED FROM PAGE 16)

EDUCATION

THE FUTURE IS EDUCATION

One of the primary foundations of the LRI is that all of the design disciplines involve lighting, whether it be theatrical, merchandising, interior and architectural design, or scientific and industrial. In this spirit, the students that come to the IES Workshop for Teachers of Lighting may represent many educational institutions, as well as other disciplines, all interconnected, to learn to integrate the principles of lighting design into the teaching curriculum.

Since its inception in 1984, the LRI has played a part as sponsor and contributor to the workshop. The ten-day curriculum consists of concentrated lectures and studio time where teachers learn by doing. Participants work in teams of two, one technical student, another in creative design or architecture. Results are presented to a jury of instructors and students. Field trips to study real lighting designs augment the instruction. Attendance for each session is comprised of about 20 student/teachers, and their respective fields of study may be in theater, architecture, engineering, and interior design.

INTERNATIONAL OUTLOOK

The LRI is a broad public agency that has become international in scope representing public and private companies, educational institutions, and various agencies committed to human productivity and health. Its research goals are also broad in scope, touching lighting health, photobiology, systems applications, education, and public information. Over the next five years, the LRI has committed itself to such areas as:

- Development of controls for energy efficient design
- Education and training
- Health and the environment
- Lighting and human performance

This report has only touched the surface of the institute’s commitments, but the LRI welcomes your participation and inquiries into the future. Publications giving complete details of research programs can be obtained by writing directly to the Lighting Research Institute at 345 East 47th Street, New York, NY 10017.

REFERENCES

Note: those items in bold face are research projects in which the LRI is actively engaged. A research report on these projects will be available when they are finalized. All completed projects and reports are available from LRI or as indicated in the listing.

1. Post Occupancy Evaluation of Lighting Designs, B6. IMP AIAF: 1, research provided by G. Gillette (American Institute of Architects Foundation) and R. Marans (University of Michigan). A final report is available in four volumes from Oakridge National Laboratory, P.O. Box X, Oakridge, TN 37831.

2. Evaluating Office Lighting Environments: Reference Lighting Power Density Data Base, 87. DR NEMA: 1, research provided by G. Gillette (LRI Research Associate and National Institute of Standards and Technology), technical support by B. Collins and A. Rubin (National Institute of Standards and Technology); W. Fisher (LRI Consultant); and H. L. L. Ledbitter (University of Illinois, Lighting). Transfer to LRI of DOE Data Base on Lighting Design, 88: SP URF C: 5, research provided by G. Gillette (LRI Research Associate and National Institute of Standards and Technology). The report has only touched the surface of the institute’s commitments, but the LRI welcomes your participation and inquiries into the future. Publications giving complete details of research programs can be obtained by writing directly to the Lighting Research Institute at 345 East 47th Street, New York, NY 10017.

3. Transfer to LRI of POE Data Base on Lighting Design, 88: SP URF C: 5, research provided by G. Gillette (LRI Research Associate and National Institute of Standards and Technology). The report has only touched the surface of the institute’s commitments, but the LRI welcomes your participation and inquiries into the future. Publications giving complete details of research programs can be obtained by writing directly to the Lighting Research Institute at 345 East 47th Street, New York, NY 10017.

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5. Lighting and Human Performance—A Review, 88. DR NEMA: 1, research conducted by P. Boyce; S. Lerman; B. Collins; A. Lewis; and M. Reo (LRI Consultants). A final report is available through the National Lighting Bureau, Washington, D.C.

6. The Effects of the Luminous and Sonic Environment on Visual Fatigue, Task Performance, and Mood State, 84: SP URF C: 2, research conducted by S. Kan (University of Manitoba). The report has only touched the surface of the institute’s commitments, but the LRI welcomes your participation and inquiries into the future. Publications giving complete details of research programs can be obtained by writing directly to the Lighting Research Institute at 345 East 47th Street, New York, NY 10017.

7. Effects of Ambient Light Level on Human Alertness and Performance, 88: SP URF C: 4, research conducted by S. Campbell (Institute for Circadian Physiology). The report has only touched the surface of the institute’s commitments, but the LRI welcomes your participation and inquiries into the future. Publications giving complete details of research programs can be obtained by writing directly to the Lighting Research Institute at 345 East 47th Street, New York, NY 10017.

8. Fluorescent Light and the Risk of Malignant Melanoma, 85: DR NEMA: 2, research conducted by E. W. Bickford, National Institute of Standards and Technology). The report has only touched the surface of the institute’s commitments, but the LRI welcomes your participation and inquiries into the future. Publications giving complete details of research programs can be obtained by writing directly to the Lighting Research Institute at 345 East 47th Street, New York, NY 10017.

9. Influence of Ambient Light on the Production of Skin Tumors in Mice Through Induced Solar Ultraviolet Radiation, 84: DR NEMA: 1, research conducted by D. Forbes and J. Urbock (Temple University). The report has only touched the surface of the institute’s commitments, but the LRI welcomes your participation and inquiries into the future. Publications giving complete details of research programs can be obtained by writing directly to the Lighting Research Institute at 345 East 47th Street, New York, NY 10017.

10. Effects of Electric Lighting and Solar Irradiation on Human Vitamin D Nutrition, 88: DR NEMA: 2, research conducted by G. Gillette (LRI Research Associate and National Institute of Standards and Technology). The report has only touched the surface of the institute’s commitments, but the LRI welcomes your participation and inquiries into the future. Publications giving complete details of research programs can be obtained by writing directly to the Lighting Research Institute at 345 East 47th Street, New York, NY 10017.

11. Light for Treatment of Congestive Heart Failure, 87. DR NEMA: 3, research conducted by M. Holick (Boston University, School of Medicine). The report has only touched the surface of the institute’s commitments, but the LRI welcomes your participation and inquiries into the future. Publications giving complete details of research programs can be obtained by writing directly to the Lighting Research Institute at 345 East 47th Street, New York, NY 10017.

12. Effects of Near Ultraviolet and Blue Light on the Retina, 86: DR NEMA: 1, research conducted by G. Gillette (LRI Research Associate and National Institute of Standards and Technology). The report has only touched the surface of the institute’s commitments, but the LRI welcomes your participation and inquiries into the future. Publications giving complete details of research programs can be obtained by writing directly to the Lighting Research Institute at 345 East 47th Street, New York, NY 10017.

13. Effect of Near Ultraviolet Radiation on the Visual Physiology of Developing Humans, 88: SP URF C: 6, research conducted by G. Brainard (Thomas Jefferson Medical College). The report has only touched the surface of the institute’s commitments, but the LRI welcomes your participation and inquiries into the future. Publications giving complete details of research programs can be obtained by writing directly to the Lighting Research Institute at 345 East 47th Street, New York, NY 10017.

14. Effect of Near UV on the Neuroendocrine and Peripheral Reproductive System, 87. DR NEMA: 2, research conducted by G. Brainard (Thomas Jefferson Medical College). The report has only touched the surface of the institute’s commitments, but the LRI welcomes your participation and inquiries into the future. Publications giving complete details of research programs can be obtained by writing directly to the Lighting Research Institute at 345 East 47th Street, New York, NY 10017.

15. Human Circadian Rhythms—A Review, 88: DR NEMA: 2, research conducted by E. W. Bickford (LRI Consultant). The report has only touched the surface of the institute’s commitments, but the LRI welcomes your participation and inquiries into the future. Publications giving complete details of research programs can be obtained by writing directly to the Lighting Research Institute at 345 East 47th Street, New York, NY 10017.

(Continued on Page 44)
Kichler's newest addition to our Popular Passport Series. These fixtures and wall brackets have a decidedly Swiss design with clean contemporary lines and stepped satin-etched glass. Available in sparkling polished brass or dramatic matte black. When looking for the right light for your next project, look to Kichler.

Swiss Passport

KICHLER

Please call, fax or mail this coupon. I'm interested in being on your mailing list and receiving my FREE copy of your full color catalog.

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At the Baseball Hall of Fame, one name outshines all others in saves.

With the OSRAM HQI-DE lamp, the new, modern addition to the National Baseball Hall of Fame in Cooperstown N.Y. has made a grand slam home run in energy cost savings.

This recently completed 25,000 square-foot addition not only celebrates the Hall of Fame's 50th anniversary, it also offers a modern showcase for today's game.

And to give it a more youthful, upbeat environment, the designers specified the OSRAM HQI-DE lamp.

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

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

**A winning combination.**

The OSRAM HQI-DE lamp is available in compact and versatile 70 and 150 watt sizes, and in two color temperatures. Today, you really can't afford to stay in the dark about the brightest choice. The OSRAM HQI-DE lamp and the new POWERTRONIC electronic ballast.

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INTO THE PRESENT

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PORTABLE LEARNING CENTER: The Sylvania Lightmobile (above, below) is equipped with educational displays, auditorium seating, and for audiovisual presentations.

Lightmobile Hits The Road

To further expand its full range of local market distributor education and training programs, GTE's Sylvania Lighting Division introduced the Sylvania Lightmobile, a self-contained 18-wheel training center and sales promotional tool.

The Sylvania Lightmobile offers distributors a new degree of "in the field" education and training flexibility. The entire setup is housed in (and transported by) a Class 8 tractor-trailer rig.

"Our approach is to provide training where it's needed and to keep it hands-on," said Frederick B. Howard, vice president of marketing for GTE's Sylvania Lighting. "That's why the introduction of the Lightmobile represents such an opportunity for our distributors and their customers. We can now conduct training programs virtually anywhere."

The Lightmobile's integrated audio-visual equipment and functional presentation theater—for small groups of up to 10 people—allow its use in a wide range of local sales promotions and special events. "The Lightmobile can be used to create and/or augment regional distributor activities as well as consumer activities such as state fairs and expositions," Howard said.

For further information, contact GTE Electrical Products, 100 Endicott Street, Danvers, MA 01923.

ASID Relocates To D.C.

The ASID has formally announced plans to relocate its national headquarters to Washington, D.C., in January 1991. The new headquarters will be housed in a three-story Georgian style building on Capitol Hill.

The ASID National Board's decision to relocate was the result of a three-year study conducted by an ASID task force.

"The decision to move to the 'association capital of America' affords ASID the opportunity to purchase its own space, acquiring equity at a cost significantly less than its current New York City lease agreement," said Robert John Dean, FASID, ASID national president. And, with leadership identifying legislative initiatives as a major priority, the close proximity to Capitol Hill offers a major advantage. These factors coupled with the current favorable real estate market formed the task force's recommendations.

Headquarters' operations at 1430 Broadway, New York, will continue through January 11, 1991. Following the week of January 14-18, in which limited membership services will be available as the new office is set up, ASID is scheduled to resume normal operations. ASID's new address as of January 11 will be 608 Massachusetts Avenue N.E., Washington, D.C., 20002; telephone (202) 546-3480/fax 202-546-3240.
Presenting Capri's new compact fluorescent catalog, featuring over 300 energy-saving fixtures, using an extensive variety of today's compact fluorescent lamps. Learn how these fixture and lamp combinations can provide excellent color rendition and greatly extended lamp life. For your complimentary copy of this catalog, simply fax your request to Capri Lighting toll free:

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Covering All The Angles

IN THE SPOTLIGHT: Exhibit pieces at the Art Et Industrie gallery are each given special lighting treatment through the careful angling of the narrow spot, spot, and flood fixtures. As each exhibit changes, so too does the lighting.
Meticulous fixture placement shows art in its best light

BY CATHERINE SCHETTING SALFINO
MANAGING EDITOR

At the Art Et Industrie gallery in Soho, the art nucleus of New York City, each piece of work is given ultimate exposure and a proper presentation with the help of a stark architectural backdrop and the careful angling of light beams. "The idea is to have an entirely neutral surrounding that can disappear when the objects are being viewed," says Rick Kaufmann, gallery director and the designer of the space and its lighting. "At the same time, the system can work to deflect the viewer's attention and draw them to the next piece of art or another area."

The gallery's open wall system allows light to pour from one area to another, creating shadows and hinting at spaces beyond. The walls are lacquered with 11 different colors of paint, a point that is almost imperceptible, but which adds richness and depth to the lofty space.

"The lighting here is so critical, it's going beyond words," says Kaufmann. "Our pieces are made of glass, steels, bronzes—industrial-strength materials, hence our name. And these materials are reflective, reflective, or they can absorb light. So, the aiming of the fixtures is everything."

Since the exhibits change every month, flexibility was a major concern when Kaufmann created his lighting scheme. However, rather than choose an extensive grid system with a multitude of lighting options, Kaufmann took the minimalist approach when it came to the number of lamps—he installed only three types of track fixtures—but the sources have maximum aiming capabilities.

Working with art means staying within a range to light the objects properly, Kaufmann says, that range being from how dramatic the piece will be presented to how open the space will look.

"It's very critical," he says. "You want shadows, yes. But not too many or you could end up with an Orwellian nightmare. Excessive shadows could be too much for a gallery, especially ours because we deal in very kinetic pieces."

Because of their materials and designs, the pieces demand crisp light fixtures set at exceptional angles. Metals are textured—grooved, ridged, swirled, dented. Glass is incredibly clear, tinted, patterned, sandblasted.

To get the right light, Kaufmann uses inconspicuous halogen lamps in narrow spot, spot, and flood fixtures.

"I use the 50-watt narrow spot with the O-ring because it offers a 16-foot long throw of light, which can cover a lot, with no leakage."

A 90-watt halogen lamp housed in a track fixture with a square face is used for its minimalist-quality illumination, tight focus adjustability, and good beamspread, Kaufmann says. The third fixture has no lens, allowing Kaufmann to install whatever lamp type and wattage is called for.

"When you view an object in a gallery, you don't look at it from one side," Kaufmann says. "That's why we light each piece from many angles—to try to get a mid-ground for many points of view."

During the day, immense windows offer ambient natural light that blends with that of the fixtures. And at night, when viewed from the outside, the interior appears very mysterious. "The light is unobtrusive yet it helps make each piece a focal point," Kaufmann says. "In so many places—boutiques, dress shops—the lighting is an exercise in overkill. I've also seen some great systems with sophisticated fixtures of every kind imaginable and grids that raise and lower. But for what I'm doing here, this installation is perfect."

DETAILS

PROJECT: ART ET INDUSTRIE GALLERY
LOCATION: SOHO, NEW YORK
OWNER/DIRECTOR: RICK KAUFMANN
LIGHTING/INTERIOR DESIGNER: RICK KAUFMANN
COVER PHOTOGRAPH: JOSEPH COSCIA JR
PHOTOGRAPHER: RICK KAUFMANN & JOSEPH COSCIA JR
LIGHTING MANUFACTURERS: LIGHTOLIER: SuperLxamer, standard slip ring fixture, open sconce swing arm fixture, GENERAL ELECTRIC: 100-watt halogen lamp; SYLVANIA: 50-watt PAR 30 narrow spot
**Kinetic Connection**

Colorful neon cove lighting gives health club a sense of movement and space

BY CHARLES LINN, AIA  
EXECUTIVE EDITOR

A health club industry rule of thumb is that prospective members decide whether to buy memberships within 90 seconds of stepping inside the door for the first time. That means that a facility in the highly competitive Southern California market has to make a healthy impression in a hurry if it is going to grab the potential member.

"Our client wanted this club to have a resort-like feel, it was to be a place where one could seriously work out, but also see people and be seen," says architect Roger Charles, Genesis Associates, who designed the Sports Connection Spectrum along with partner Greg Shubin. "It had to be a bit more stylish than a hotel, but certainly not glitzy.

"Often lighting is a big deal only to the designer, but in this case, lighting was a big deal to the client, too. The client said, 'I don't just want lighting design—I want lighting that is design. I don't want you to specify the neatest pendants or wall sconces you can find. I want my club to be lighting. I want my customer to walk in and be blown away by how well-lighted the place is. And I want a lot of skylights.'"

It would certainly be difficult not to notice the lighting when walking into the Sports Connection Spectrum. Immediately inside the front door the reception desk is situated beneath one of several large skylights placed throughout the facility. The skylight sits atop a coffer formed by several tiers of cove-concealed pink neon.

Just below, a large planter appears to float above pools of blue neon that are really supported by a pair of columns capped with miniature downlight-encrusted capitals. At night the skylight is uplit by sconces, and fixtures concealed in the planter.

Additional evening lighting in the lobby areas comes from 90-watt halogen PAR 38 downlights recessed into the ceiling as well as some of the softs formed by the skylight coffers.

Architect Shubin repeated the tiered ceiling treatment of other coves in the sculptured ceiling, which runs above the major circulation paths. The lighting here helps create visual excitement, but it is not used only as mere decoration. The use of daylight also works well with the overall lighting control system used in the building. Photocontrols are used to turn off fluorescent lamps in the building when they are not needed. As required by California's Title 24 energy codes, all of the rooms equipped with fluorescent lighting have bi-level switching, allowing half of the fluorescent lamps to be turned off when not needed. This can be accomplished on a room-by-room basis from the main desk.

"It's a great feeling to walk into a lobby like that," says Charles. "But in the restaurant we wanted to make it a little more comfortable. We brought the tiered ceilings closer to the floor, and changed the neon from pink to aqua."

Incandescent lighting is also used extensively to balance the light from the concealed aqua and blue neon accents, and to keep the neon from becoming too dominant. A low partition wall that separates the restaurant from the lobby is punctuated by incandescent torchieres, and its colorful salad bar is accented by a row of adjustable low-voltage downlights recessed into the soffit above.

Recessed 90-watt halogen PAR 38s provide additional ambient light. The restaurant and deli are separated by a portion of glass and stainless steel backlit with blue neon.

"A bar in the restaurant does serve liquor, but our client was concerned that some club patrons might feel conspicuous having a cocktail there, considering that this is a health club after all. He wanted us to visually separate this bar from the deli, but without building an opaque wall. So we built a wall of glass laboratory tubing, stacked between a pair of stainless steel rods, all backlit with blue neon," says Charles. "It's not strictly transparent, but it does still leave the room feeling open."

"I think our client emphasized lighting color and quality up front on this project, because making people look and feel fit is what the business is all about," says lighting designer Greg Smith. "There is an unpleasant feeling of artificiality that people get from exercising in cool white fluorescent light. That's why daylight is our first choice as a light source, and why there are so many skylights located throughout the facility. When we can't have daylight, we've used warm, high-color-rendering fluorescent or where possible, halogen sources."

The use of daylight also works well with the overall lighting control system used in the building. Photocontrols are used to turn off incandescent lights in the building when they are not needed. As required by California's Title 24 energy codes, all of the rooms equipped with fluorescent lighting have bi-level switching, allowing half of the fluorescent lamps to be turned off when not needed. This can be accomplished on a room-by-room basis from the main desk.

**DETAILS**

**PROJECT:** SPORTS CONNECTION SPECTRUM  
**LOCATION:** MANHATTAN BEACH, EL SEGUNDO, CALIFORNIA  
**CLIENT:** SPORTS CONNECTION  
**ARCHITECT, INTERIOR, AND NEON DESIGNERS:** ROGER CHARLES, GREG SHUBIN, GENESIS ASSOCIATES (During the design of this project, Charles and Shubin were with Miller/Truax and Associates.)  
**LIGHTING DESIGN:** GREG SMITH, GDS DESIGN GROUP (During the design of this project, Smith was with RWR Associates, who was the electrical engineer.)  
**PHOTOGRAPHER:** DAVID GLOMB  
**LIGHTING MANUFACTURERS:** CAPRI: downlights, recessed adjustable low-voltage downlights; COLUMBIA: parabolic fluorescent troffers, high bay metal halide fixtures; C.W. COLE: decorative torcheres; GTE SYLVANIA: lamps; LIGHTOLIER: sconces; LUTRON: dimming control system; SYLVAN DESIGNS: miniature low-voltage downlights.
RESTAURANT/DELI: The ceiling structure has been lowered to provide this area with a comfortable feel. Custom-made torchieres are built into the low partition separating this space from the lobby. Above as a detail photo and drawing of the lab glass partition wall.

LOCKER ROOMS (below): At the mirrors, recessed PAR 38 halogen downlights are balanced by warm, indirect fluorescents to give the users a flattering appearance.
"A mixture of sources adds warmth to the space and requires little maintenance. The metal halide lamps last approximately 20,000 hours, and the sodium lamps last even longer."—Jerry Kugler
Sparkling Water

Metal halide fixtures blend form and function at Hamilton College's pool house

BY CHRISTINA LAMB
ASSISTANT EDITOR

Sparkling Water

Nostalgic. Charming. Traditional. Hamilton College. Nestled in the hills of central New York, this small, private liberal arts school boasts a campus of native stone architecture mellowed by time. Equally impressive is the history of this prestigious Clinton, NY, college. It is one of the oldest learning institutions in the country, and one that claims its founding under the will of Alexander Hamilton.

New. Modern. State-of-the-art. Enter the William M. Bristol Jr. natatorium, and the result is a college steeped in tradition with elements of contemporary design.

Officially opened December 3, 1988, the pool, named for a class of '17 trustee emeritus, was introduced to the campus in a dedication ceremony featuring the diving skills of Olympic medalist Michele Mitchell. Replacing the original obsolete and deteriorated facility—a 25-meter, four-lane pool—the updated aquatic environment meets the needs of today's Hamilton population of about 1,650 students.

The natatorium, built on the site of the old pool house, joins the school's other athletic facilities—including a gymnasium, hockey rink, and field house—in a single complex. The swimming facility crosses the angle formed by the rink and the gym. Swimmers share the existing locker rooms.

Spectators approach the natatorium from the gym lobby and enter a small foyer. Ahead, a corridor that blends its interior tones of wormwood and bright yellow with stark white columns features glinting waves of decorative glass block.

"In keeping with the cool effect produced by the columns and glass wall, pendant-mounted fluorescent stack lights with aisle shields are clamped to the structural steel beams," says Jerry Kugler, lighting consultant for the project. These linear suspended fixtures illuminate the hallway while backlighting the glass block.

Spanning the side of the corridor, the glass wall undulates toward a skylit rotunda that serves as both a display area for award plaques and an entrance lobby for the pool's spectator seating. On a wall opposite the glass block, award certificates and on entrance lobby for the pool's spectator seating. On a wall opposite the glass block, award certificates are accented by a 16-foot section of track-mounted, 120-watt PAR 38 wall washers.

Branching from the middle of the main hallway, another corridor, also walled with glass, leads to the locker rooms and then to the pool area. At the junction of both corridors, the hallway overlooks a skylit lounge area. Here, trophies are displayed on the wall, again accented by incandescent track lights.

When entering the swimming area, one is easily impressed by the size of the pool, considering the one it replaced. It's a 126-foot × 60-foot, eight lane NCAA regulation pool with a moveable bulkhead for competition. More than that, one can't help but notice the building's artificial and natural light—how it fills and defines the space and plays upon the water.

Over the pool, 40 pairs of 400-watt double-headed metal halide fixtures illuminate the swimming area. The four rows of pendant fixtures have glass refractors so that not only do the lamps provide downlight for the swimmers, but also uplight the rich colors and varying angles and heights of the wood ceiling. The metal halide luminaires are uniformly placed 23 feet above the pool surface, although the fixtures' stem lengths differ due to the varied ceiling levels.

Illuminating the decks at each end of the pool are seven HPS lamps, housed in pendant mounted fixtures. These lamps shine on the platforms so that when swimmers are out of the water, they have a healthy and toned complexion, rather than the cold, sickly look the cool metal halide sources would render.

"Using a mixture of sources adds visual warmth to the space and helps to keep a low maintenance cycle," Kugler says. "The metal halide lamps have an approximate 20,000-hour life expectancy, and the sodium lamps last even longer." A switching scheme changes the light levels for recreational and competitive swimming.

Custom designed, vapor-tight wall sconces are mounted along the length of the pool above the spectator seats, providing additional and ornamental light to the space. These fixtures use 150-watt incandescent A lamps.

Four large window walls grace the length of the pool above the spectator seats, providing additional and ornamental light to the space. These fixtures use 150-watt incandescent A lamps.

Four large window walls grace the length of the pool house, with grids of clear glass and glass block. Skylit dormers top the panels of glass and small clear windows are at deck level.

"It was important to keep in mind where the light was going to spill onto the glass block, because we wanted to make the windows glow outside the building," Kugler says.

The effect created with the sheer walls delights those both inside and out, day and night. Natural light streaming and glinting through the patterned windows lends the interior sparkle and warmth, and the filtered sunlight creates shimmering images on the water. When evening falls, the exterior effect is spectacular. The warm and inviting lighting that adds to the pool's aesthetics make the whole building radiate from within.

DETAILS

PROJECT: WILLIAM M. BRISTOL JR. NATATORIUM
LOCATION: HAMILTON COLLEGE, CLINTON, NY
OWNER: HAMILTON COLLEGE
ARCHITECT: PERRY DEAN ROGERS & PARTNERS; CHARLES F. ROGERS III, principal in charge
LIGHTING DESIGNER: JERRY KUGLER, JERRY KUGLER ASSOCIATES
ENGINEERS: BE + A CONSULTING ENGINEERS, INC.
PHOTOGRAPHERS: RICHARD MANDELKORN, AND VICKERS & BEECHLER
LIGHTING MANUFACTURERS: HOLOPANE, Pendant lighting in pool area; LITE- CONTROL CORP; Linear suspended lighting; EDISON PRICE, INC.; track lighting; PITTSBURGH CORNING CORP; glass block
The Big Picture

U.S. & foreign manufacturers
give the lowdown on the latest in lighting

BY CATHERINE SCHETTINO SALFINO
MANAGING EDITOR

Global strategies. Global practices. Coming up with them. Putting them into play. The world, as "they" say, is getting smaller and smaller, what with the amount of technology that is at the fingertips of all business people. But knowing a foreign market, knowing what it needs, or creating a need it hasn't even dreamed of yet goes far beyond phones and faxes. And, depending on who you talk to, staying competitive in a market takes either a whole lot of research and development, or creativity with a good dose of luck.

The lighting industry is no different. And it's no stranger to the international scene. For years, companies based in the U.S. have been striking ventures with leading or niche lighting manufacturers overseas.

Likewise, foreign firms have seen opportunity for expansion here in the States. As we charge fully into the '90s, some of lighting's players give their thoughts, opinions, and predictions on what the future of the industry holds. Statements by foreign companies that have entered the U.S. market come from: FLOS INC.'s Vice President Fausto Abbattinalli; REGGIANI's President Barry White; TARGETTI's Executive Vice President in charge of U.S. operations Claudio Talesi; and BEGHELLI INC.'s Vice President/Corporate Partner Dania Maccabelli La Spada. American firms with interests abroad offered statements by: GTE INTERNATIONAL INC.'s Vice President and General Manager of the International Lighting Division William S. Merchant; GENERAL ELECTRIC's Corporate Communications Director John Betchkol; and VOLTARC TECHNOLOGIES INC.'s International Marketing Services Manager Jonathan Vick.

WHAT DIFFERENCES ARE THERE BETWEEN THE U.S. AND EUROPEAN MARKETS?

BEGHELLI/LASPADA: The American market is more price conscious than the European counterpart. The European market is oriented more toward energy efficiency, technological achievement, and quality. Of course, price isn't the only thing Americans take into consideration. It's just considered more here than in Europe. But also, in Europe, we don't have the natural energy resources that are in the U.S. So that's why energy efficient lamps are so important there. Americans only recently began taking this into consideration.

TARGETTI/TALESI: The main difference is in style and design. Things that are very popular in the Italian market have not been introduced here yet because of the big difference in taste in America. Lighting here is what it was literally five or more years ago in Europe.

A small niche market is probably out there...one that's interested in high price, high quality, and high style design products. But the big part of the market is not really ready for that. The American consumer is accustomed to paying a very cheap price for lighting products. The problem is that Italian companies, which do invest in design, have to bear a very high cost for research, testing, and testing new designs. Those costs are reflected in the selling price. So Italian companies, which are the leaders in introducing new designs, offer more expensive products than American companies.

And, since there really is no patent protection in America, once a design proves to be a winner, other manufacturers take inspiration, if not copy it, without having to suffer the development costs. It's one of those things you just have to deal with, because once you have established your image and are recognized as a design leader, then it's your duty to stay ahead of everybody all the time. But it is a very tough exercise.

REGGIANI/WHITE: The Europeans have a different design viewpoint in mind when dealing with lighting than the U.S. manufacturers, the major difference being in scale.

I think when looking at the use of what is termed the "minimalistic school," the Europeans have been very clever in designing fixtures that appropriately fit the lamps they surround. For example, they take an MR 11 or MR 16 lamp and design a small fixture for it. It's a simple lesson. But they also haven't impeded the function by the small size of the fixture. Plus they've been able to develop an identity for the fixture, something that someone looking at it says, "This is a European fixture." This is different than what the U.S. thinking has been. I've seen significant U.S. manufacturers adapt existing products to handle the smaller lamps. Now functionally they're fine, but from an aesthetic viewpoint, it's confusing. Some of the U.S. manufacturers are responding by making smaller fixtures, and rethinking what they've seen of the European design and refining.

FLOS/ABBATINALLI: The biggest difference between the U.S. and European markets is that Americans, for the most part, don't seem to understand the value of what they're buying. Americans would rather pay money for a plastic fixture that looks like a perfect piece of glass, than pay the same amount for a handblown or hard-to-cast piece of glass that has an imperfect edge. An imperfection seems to suggest to them that it's not precious enough, or it's not worth the money.

TARGETTI/TALESI: We've been in the U.S. for just a year so it's too soon to make any.
INTERNATIONAL FLAVOR

High style, high tech products are offered by Flos, Reggiani, and Beghelli—companies that have entered the U.S. market from abroad. Tastes between the two markets will merge, though, as companies like GTE enter into foreign ventures.

REGGIANI/WHITE: We haven’t made any changes because we’re of the opinion that good design is a universal language, that it’s appreciated regardless of where it is geographically located. The philosophy of Reggiani is to produce a product that incorporates good design, economy of production, and is universally available throughout the world. The fixture personality remains unchanged, however, the technical aspects of the fixture are tailored to the country in which it’s being used.

FLOS/ABBATINALI: We have changed products because I know that we should listen more to the tastes of the American end-user. But I’d like to know what the end-user thinks. We always have the designer in between us and the end-user. You see, there are three categories of people who use the lamps:

—Wealthy people who don’t know anything about lighting, and don’t have the time to think of what they want, so they get a designer to buy the fixtures.
—People who are educated about quality lighting products because perhaps they’ve run across them in Europe or they take a special interest in lighting. They know that if a lamp is priced at $500, that’s what it’s worth.
—The end-users that know nothing about lighting and won’t pay for a quality product. If they want light they’ll go to Pergament or Sears to get a lamp for $99. The last group makes up the majority of people. But I think they would love to have quality lighting if they only knew it was out there. They have to be educated and made aware of it.

WILL INTERNATIONAL TASTES IN PRODUCTS DRAW CLOSER OR BECOME MORE DIVERSE IN THE FUTURE?

BEGHELLI/LA SPA DA: In Europe, yes. Some of the smaller companies there will be absorbed into large corporations, while others will have to find their position in each market. In the United States, it is already like this with the big corporations having a strong hold in the industry. Plus, America is coming up with very beautiful designs in lighting. I don’t think that they will always look to Europe, because they have some excellent designers here. I think that will continue. But we hope there will be enough space here for us to take care of niche markets.

TARGETTI/TALESI: Certainly a market that is more homogeneous allows huge conglomerates to take advantage. Still, I believe that the flexibility that the market will require and is already requiring in Italy—where a particular style does not last longer than two years—will give the possibilities to small companies like Targetti to be active and winning.

The international scene is a big question mark because we certainly are heading toward a recession, or at least a market slowdown. Commercial activities will slow, and so far lighting it will slow also. So, the scene is not very optimistic, but it is during this time that companies can prove their ability. For us we see this possibility as a good factor. We can use this period to research and come out with new styles.

FLOS/ABBATINALI: I see a direction where there will be more mergers of small companies into big corporations. It’s happening in Europe now. There’s an incredible amount of activity there of acquiring and merging companies either by European, Japanese, or, especially, American firms.

To be small and to be independent, you must be different with design and the use of new technologies. It’s the only way to stay in business.

(Continued on page 32)
WHAT EFFECT HAS YOUR VENTURE WITH A FOREIGN COMPANY HAD ON THE U.S. FIRM? AND VICE VERSA?

GE/BETCHKAL: On January 17, 1990, GE acquired a 50 percent plus one share majority interest of Tungsram in Hungary. This acquisition gives GE a stronger position in the European and general world lighting market. Tungsram is a full-line lamp company. The acquisition makes Tungsram stronger in their market because we’re bringing them advanced technology and manufacturing expertise. We can work together to improve or strengthen the information systems technology and manufacturing processes at Tungsram. And, of course, GE brings capital investment dollars.

GTE/MERCHANT: GTE and Oy Airam Ab of Finland have a 50/50 joint venture, where GTE has a management contract and right to buy up the other 50 percent when it wants to do so. Airam is a local Finnish producer of incandescent and fluorescent lamps. GTE entered the deal to participate in the Finnish market and to enjoy a market share in Finland we wouldn’t get in any other way. Airam will benefit by maintaining a market share in that area, which they didn’t believe they could continue to do as an independent manufacturer. So, they joined GTE Sylvania to maintain that enterprise.

VOLTARC/VICK: Our company has reached an agreement with Brokelmann, Jaeger and Busse GMBH & Co. of Germany to market its products in North and South America. BJB is a leading manufacturer of fluorescent and incandescent lampholders, switches, and connectors, and has been in the business for over 120 years. So they bring to us, as a full-spectrum lighting component manufacturer, products that are outstanding in engineering. They are built to exacting specifications. It’s also beneficial to us in that we have added certain products to our line, without having had to go through the research and development phase.

We offer them market knowledge which, until now, they have not had. We offer them multiple levels of distribution, we sell to the distributors, and we reach a number of fractional markets that, if they only had an agent here, would never have time to fully exploit.

WILL THE FOCUS OF U.S. COMPANIES BROADEN TO INCLUDE GLOBAL MARKETING IN THE '90S?

GE/BETCHKAL: We’ve been in the global lighting market for many years. But what has happened is we’ve been exporting products from the U.S. to countries around the world. Now, the difference is we have a manufacturer based in Europe. This gives us the ability to better serve the European market, thereby increasing our share.

GTE/MERCHANT: Very definitely. We have defined the lighting business as a global one for sometime, talking strictly light sources. So, all of those manufacturers that are in this global business have to recognize that it’s a global market. That means certain things. If you’re going to participate globally, you have to be of a pretty significant size with representation everywhere.
"The U.S. doesn’t have anything to prevent it from being a major force."—Jonathan Vick, Voltarc Technologies Inc.

VOLTARC/VICK: U.S. companies will have to broaden their focus. With the European market becoming a single entity—it will be within the next 10 years, no doubt—it represents a considerable market. The market won’t be as fractional as it is now. So the market itself will expand, and marketing into that part of the world will become much easier for us to approach. We are more than interested in taking advantage of this.

HOW WILL GLOBAL MARKETING CHANGE THE INDUSTRY OR ITS PRODUCTS?

GE/BETCHKAL: More than ever before, lighting is a global business. So, even though there are certain parameters to include in lamp manufacturing, like voltage and wattage variations, products have to have a universal adaptability or acceptance. Energy efficiency is a big global consideration right now, so I think we’ll see even more movement in the halogen and compact fluorescent sources.

GTE/MERCHANT: As new products are developed, they will be developed with a reference to being used in a global sense, rather than a single country or region. In other words, the products used in the U.S. and Europe will be the same. As far as big lamp companies like GTE are concerned, I would expect that global marketing would allow us to continue to grow, because we can focus on a global base, instead of a regional one.

VOLTARC/VICK: I think that as we see a standardization of products, we will see a standardization of electrical codes throughout Europe and, eventually, the world. But it would be an evolution, not an overnight deal. Broad standardization is attractive from a manufacturing standpoint. And it’s also advantageous to the consumer, because when you can produce a huge quantity and sell to such a large market, you are then able to provide competitive prices.

(Continued on page 44)

CHARTING THE INTERNATIONAL COURSE

"The light sources used throughout the world closely reflect the cost of energy in various countries," says Richard Shaver, vice president of research and development at Edison Price Lighting, New York. "For example, 72 percent of the lamps used in Japan are fluorescent because energy costs a great deal more there than in the U.S. or West Germany."

Some definite increases will be seen in the U.S.'s usage of compact fluorescent and halogen, Shaver says, because of the importance being given to energy efficient fixtures.

Lower usage of incandescent sources in Europe could also be due to different voltage standards, Shaver says. Europe's is 240 volts, America's is 120. "It's difficult to control PAR lamps and achieve the same effects with the higher voltage," he says.

However, the world is trending in the same direction, that being higher numbers in compact fluorescents, halogen, and the better color discharge lamps that are entering the market, Shaver says.

"Energy conservation codes will eventually force the U.S. to change over. I also think that because we import more and more of our lighting from Europe, those halogen numbers will go up here. And with a lot of American lighting designers working in Japan right now, I think we'll see a halogen and compact fluorescent influence there."

PERCENTAGE SHARE OF EACH LAMP TYPE IN TOTAL MARKET

<table>
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<th>Lamp Type</th>
<th>World</th>
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Chart based on 1989 figures provided by Erco Leuchten GmbH

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APPLETON LAMPLIGHTER WALL SCONCE

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WALL SCONCE
Al 480 WS, an 18-inch diameter aluminum and acrylic fixture, is available in Duranamel finish or polished metals. The outside ring and twin horizontal bars are aluminum with a center acrylic dome. Illumination is provided by two PL 13 lamps. Appleton Lamplighter, Appleton, WI. Circle 60

REFLECTOR LUMINAIRE
The 3-ring reflector luminaire is made of aluminum for post, pendant, and bracket mountings. Its three acrylic rings have luminous edges, and come in a variety of accent colors. The luminaire can accommodate a variety of HID lamps, and is suitable for both interior and exterior applications. Architectural Area Lighting, Inc., La Mirada, CA. Circle 61

SUSPENSION LAMP
Nessie, designed by De Pas D'Urbino Lomazzi, and manufactured by Stilnovo, is a suspension lamp made from lacquered metal. The fixture provides both direct and indirect lighting and is available in black or grey. Hampstead Lighting and Accessories, Inc., Irvine, CA. Circle 62

NEON FAN
Prizzm has five clear acrylic blades set in frames of chrome, with its polished motor enclosed in a clear acrylic body surrounded by tubes of neon. The ceiling fan can be equipped with any of the company's many lighting kits and will soon be available in six colors of neon. Davimport, Fort Worth, TX. Circle 63

ROBERT LONG SLICE

RAYNER DESIGN BANKER'S LAMP

SLICE TABLE LAMP
This fixture has an overall height of 25.25 inches with a shade 4 inches in diameter at the top and 3 inches at the base. The table lamp uses an incandescent bulb to 100 watts and is available in polished chrome and polished brass as well as other finishes upon request. Robert Long Lighting, Healdsburg, CA. Circle 64

BANKER'S LAMP
This halogen table lamp's three-sided pyramid base supports an aluminum rod upon which is mounted a counter-balanced cone-shaped aluminum and lexan bulb housing. The rod is able to swing 360 degrees around the vertical axis of the base. The lamp is off when the rod is horizontal, and turns on when above or below the horizontal position. The bulb housing rotates around the rod's horizontal axis and projects light either up or down. The fixture uses a 12-volt, 20-watt MR 16 halogen bulb. Rayner Design, Seneca Falls, NY. Circle 65

CEILING/WALL LUMINAIRE
Ateno 3 has a conical glass diffuser, a 12.6-inch flat metallic ring of stamped steel, and an 18.5-inch diameter flat circular glass diffuser in sandblasted white, rose, blue, or green glass. The conical lamp support is available in glass white enamel. The fixture uses either incandescent or fluorescent light sources. Atelier International Lighting, Long Island City, NY. Circle 66
**GLASS FIXTURE**

Gloriosa, designed by Ettore Sottsass, features Venetian glass elements in straw-yellow and green. The spherical diffuser is opaque pink gloss. The fixture uses an incandescent lamp, and also has golden metal accessories. Hampstead Lighting and Accessories, Inc., Irvine, CA. Circle 67

**HALOGEN FIXTURE**

Lorry, designed by Michael DiBlosi, has an overall height of 9 feet, a 3.5-inch diameter, and a 15-foot adjustable cord. The fixture uses a 55-watt halogen capsule bulb, and is available in satin aluminum with a perforated shade and a clear, blue, or green acrylic ring. George Kovacs Lighting, Inc., Glendale, NY. Circle 68

**TABLE LAMPS**

Ona Sr. serves as both an ambient and task light source. It incorporates a touchtronic mechanism that is activated by touching the conical tip of the cable switch for three levels of light. The 25.25-inch tall fixture uses a 12-volt, 50-watt halogen lamp and is available with a glass, silk-screened polycarbonate, or metal shade. Koch + Lowy, Long Island City, NY. Circle 69

**SHADES**

The G88-2 series shades are available on a variety of pendant mounted fixtures such as brass chain, brass rods, or steel cable. Painted or special finishes are also available, including chrome, antique brass, antique copper, and a verde finish. D'Lights, Glendale, CA. Circle 70

**PENDANT LAMP**

Linda, a metal pendant lamp, designed by Andrée Putman, features a triangulated form and provides uniform uplight in 48-inch or 96-inch lengths. The light from the shorter fixture is provided by two 150-watt quartz halogen lamps, and the 96-inch length uses four of these lamps. The fixture is available in finishes such as satin aluminum, satin brass, polished chrome, and polished nickel. Baldinger Architectural Lighting, Inc., Astoria, NY. Circle 71

**TIFFANY-STYLED LAMP**

The Nostalgic Classics Collection features brass bound, curved glass accented with a color-coordinated stained glass beaded fringe. The handcrafted fixture stands 19 inches tall and is available with a 21-inch French-bronzed base. Meyda Tiffany, Utica, NY. Circle 72

**OFFICE TASK LIGHT**

The BT-209, from the 209 Designer Series, features a built-in parabolic louver that directs light on the work area and reduces glare and reflections from the VDT. The fixture's arms provide horizontal or vertical movement, and the head swivels 180 degrees on three axes. The BT-209 is available in matte black, brown, slate grey, and beige, and uses two 9-watt PL-type lamps that provide a 4,100K color temperature and an 82 CRI. Waldmann Lighting Co., Wheeling, IL. Circle 73
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Pendant
3'8" diameter x 17" deep. Perforated chrome spinning, Polished bronze, tempered glass, 100 quantity, T-3 1/4 lamp, 4.9 watt and one 250 watt PAR 38 lamp.

Wall Sconce
1'9" diameter x 30" tall x 1" projection. Perforated chrome spinning, Polished bronze, tempered glass, 45 quantity, T-3 1/4 lamp, 4.9 watt and two quantity 100 watt PAR 38 lamp.

Lighting Designer:
Lighting Design Collaborative . Philadelphia, PA
Pace Hospital
Thomas Jefferson University . Philadelphia, PA

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FLUORESCENT FLOODLIGHT
This floodlight uses an energy efficient 13-watt, 4,100K cool white compact fluorescent lamp. The fixture has an extruded aluminum housing with a die-cast aluminum swivel, a high impact acrylic lens, and a highly polished specular aluminum reflector. The luminaire is available in a durable baked black enamel finish. Focus Lighting, Santa Fe Springs, CA. Circle 80

MINI BOLLARD
The Tahoe family of fixtures includes mini bollards with heights of 6 to 10 inches. The crystal-like dome is crafted of solid UV stabilized acrylic rod, and the body is zinc chromate converted-thermoplastic polyester coated. The fixture uses a low-voltage halogen lamp and is sealed at the base with a ring for a watertight fit. Lumiere Design & Manufacturing, Inc., Westlake Village, CA. Circle 82
WEATHER-RESISTANT
The OD Series two-lamp, fluorescent fixture is designed for illuminating sites, building facades, parking garages, and service stations. The fixture features heavy-duty cast aluminum ends, flexible aiming, gasketed construction for all-weather operation, and a housing interior finished with high reflectance white enamel. Available for high or very high output lamps and remote ballasts, the fixture is offered in 4-, 6-, and 8-inch sizes. Lumox Industries, Inc., Altoona, PA. Circle 83

RETROREFLECTIVE MARKERS
High intensity retroreflective markers for runway and taxiway provide safety features and require little maintenance. The markers feature a pop-out coupling with the retroreflective portion of the marker tethered to the coupling. The markers are available in blue, yellow, silver, and red, and in sizes from 14 to 30 inches. They have an anti-corrosion treated steel stake for low maintenance and a long life. Hughey & Phillips, Simi Valley, CA. Circle 84

ADDITIONAL PHOTOMETRICS
The Edison III luminaire, part of the Lighting Legends family, has added new photometrics and shielding. The post-top mounted fixture utilizes HID lamps from 35 - 175 watts to provide medium non-cutoff Type V (symmetrical) or Type III (asymmetrical) light distribution. A house side shield and an uplight shield offer additional control of light output. The luminaire has a glare-free acorn globe of white or clear polycarbonate which is UV stabilized for color clarity and is impact resistant to -40 degrees Fahrenheit. GE Lighting Systems, Hendersonville, NC. Circle 85

BOLLARD ACCENT LIGHTS
Malibu fixtures are cylindrical in shape and feature a faceted lens cylinder that softly diffuses light. Internal reflectors provide even distribution. Available in two heights, 19 inches and 26 inches, the fixture requires a 12-volt current, and features a high-impact polycarbonate construction. Intermatic Inc., Spring Grove, IL. Circle 86

THATCHED HAT FIXTURE
Terralight model 6304 is a standard 120-volt system with a medium base socket, and it uses a standard A lamp with a maximum of 60 watts. A low-voltage conversion kit is available. The luminaire measures 11 inches in diameter, 9.5 inches in height, and is made of heavy-duty cast aluminum. Hanover Lantern, Hanover, PA. Circle 87

IN-GRADE LIGHTS
The 9000 series in-grade lights feature a sealed modular design that optimizes the use of HID lamps. A locking assembly and single fastener retains the lamp and power modules, which are interconnected with water-tight connectors allowing the removal of modules for replacement or service. The 9000 is available to 75 watts incandescent and the 9100 to 100 watts HID, 250 watts incandescent. Hydrel, Simi Valley, CA. Circle 88

LOADING DOCK LIGHTS
These fixtures use 50-watt HPS lamps, are dual voltage (115/230 VAC), and have a rated life of 24,000 hours. They feature knuckle joint construction at the elbow to allow for horizontal and vertical positioning. Also offered is a replacement kit to convert incandescent dock lights to HPS. Tork, Mount Vernon, NY. Circle 89
MINI HALOGEN LIGHTS

Orbiter track lights with the Tech 16/38 line, are designed for miniaturized halogen light sources. Track light heads are available for line voltage 55- and 75-watt Designer 16, and 50-watt PAR 20 lamps. The Orbiter design is offered in 2-inch and 18-inch stem lengths and is available in black, white, and black or white with chrome or polished brass. All miniaturized halogen fixtures are available in single- and three-circuit track models. Swivelier, Nanuet, NY. Circle 90

DECORATIVE LAMPHOLDERS

A selection of line voltage track and pendant mounted lampholders range from classic, petal-shaped and cylindrical clear or etched optic glass shades to metal and green-cased shades. Pendant-hung shades, including an industrial-type pendant mounted fixture, is offered in white enamel or prime coat, which may be painted to coordinate with any color scheme. The lampholders accept lamps ranging from 40 to 100 watts. Capri Lighting, Los Angeles. Circle 91

DOWNLIGHT AND SPOTLIGHT

Downspot is a series of fully adjustable lighting fixtures available in four sizes and designed to utilize a wide selection of light sources. Downspots can be adjusted from 0-60 degrees vertically, and 0-365 degrees horizontally. The design, a combination of downlight and spotlight, is available in white, graphite, 24K gold-plated, chrome, satin chrome, and polished brass. Reggiani USA, New Windsor, NY. Circle 92

THREE-DIMENSIONAL SYSTEM

Systeme Zip is a three-dimensional 12-volt lighting system that utilizes 20-, 50-, or 65-watt MR 16 lamps. The interchangeable joiners and tubes that can be arranged in any configuration. Times Square Lighting, Stony Point, NY. Circle 93

CURVED TRUSS

Transform 8, two foot lengths are available in both 45-degree and 90-degree radii, and a 4-foot section is available with a 45-degree arc. Also, there are 6-, and 8-foot lengths with a 30-degree radius. Interlock, Maple Grove, MN. Circle 94

WALL-WASH TRACK FIXTURE

Model CTL1504, features a die-cast full cut-off louver that provides broad, even distribution. The fixture uses a single-ended T4 frosted tungsten-halogen flood lamp, 150-watts maximum. Available in black or white, the track comes in 2-, 4-, 6-, 8-, and 12-foot lengths. Con-Tech Lighting, Deerfield, IL. Circle 95

MINIATURE SPACE FRAME

The Structurella System consists of miniature extruded aluminum, three-dimensional frames that function as insulated electrical conductors as well as supports for miniature halogen and dichroic spotlights. The maximum run from each electrical feed is approximately 20 feet in each direction. The system can be suspension or wall mounted. Targetti Inc., New York. Circle 96
WALL BRACKET
The Monroe series is a contemporary grouping of armed chandeliers and wall brackets. The chandeliers are available in 28-inch and 42-inch diameters, and the wall brackets in 1-, 2-, and 3-arm styles. The 2-arm style (shown) is finished with polished brass and white nextel paint, and the shade is made of metal. The fixture is 15.5 inches high, 20.5 inches wide, has a 10.5-inch projection, and uses 120-volt incandescent lamps. Winona Lighting, Winona, MN. Circle 100

SCONCES & BRACKETS
Figaro, part of the Metropolis series of six wall sconces and brackets, combines polished brass and bronze with polished stainless steel accents. It measures 10 inches in width with a 5.5-inch projection and uses a 120-volt quartz halogen lamp. Winona Lighting, Winona, MN. Circle 101

VALANCE OR SCONCE
This fixture projects a neon glow while providing clear illumination of fluorescent light, and can be used as a valance to highlight product displays or as a sconce to add diffused light. The system is available in 2-, 3-, or 4-foot lengths and can be installed directly to walls or slatwall. Can-Am Merchandising Systems, Buffalo, NY. Circle 102

RECESSED WALLWASH FIXTURES
The Washlux family of recessed, lensed wallwash fixtures provides five wallwashers with the same aperture size. The fixtures use color balanced, long-life compact fluorescent lamps featuring illumination levels from different lamp combinations: two 13-watt, one 18-watt, one 26-watt, two 18-watt, and two 26-watt lamps are all in 120- and 277-volt models. The fixture is 6.75 inches deep and is available in clear, champagne gold, and black Alzak finishes with either overlap or flush-trim detail. Edison Price Lighting, New York. Circle 103

SURFACE-MOUNTED FIXTURE
Corolux uses two 13-watt color balanced compact fluorescent lamps, has a contoured Alzak reflector and a beamsplitting acrylic lens. Corolux has a 2-inch deep housing and is available with 120-volt high power factor ballasts. Edison Price Lighting, New York. Circle 104

GLARE-CONTROL LUMINAIRES
An expanded Optimax family of glare-control fluorescent luminaires includes 2-foot x 2-foot models that can be used with either 31-watt T8 U-lamps or 40-watt compact fluorescent lamps. This model also features an added degree of design flexibility with its symmetric, modular shape. Lithonia Lighting, Conyers, GA. Circle 105

**TECHNOLOGY BREAKTHROUGH: Improve Light Intensity and Debuzz, too**
Due to a newly developed core material, Amecon's new debuzzing chokes increase light intensity by 50% and reduce temperature by 25% over present technology. And they essentially eliminate noise in your lighting systems. Designed for OEM and retrofit applications, the new chokes are packaged for quick and easy installation into standard fixtures, wall boxes and compact areas. They're built with high temperature, fire retardant UL recognized materials. They're rated at 30 and 75 watts from 5 to 24 volts. Two models include (1) The high performance 2 11/16" square by 11/16" deep model with centerhole or vertical/horizontal mounting and (2) the standard performance 1 5/8" diameter by 7/8" deep squarish model with centerhole mounting. Ask about our custom designs, too. Call, FAX or write for new technical Bulletin/Selection & Design Guide ALC-0979.

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DIRECT/INDIRECT LIGHTING FOR LOW CEILINGS

Neolux® can be used very effectively mounted on ceilings as low as 8’6” overall. It is ideal for office, classrooms and open space areas. The light distribution is wide spread and the ceiling luminance ratio meets the IES recommended levels. Neolux® is ideal for use in offices utilizing VDT’s.

Neolux® has an efficiency rating of 83% and is available for 1, 2 or 3 lamps, T8 or T12. Ballasts are located in the fixture and fixtures are completely wired ready for installation.

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Circle No. 17 on product card.
ACCESSORIES

HALOGEN LAMPHOLDERS
The "H" series halogen lampholders provide positive electrical connection to halogen lamps and are constructed of ceramic, silver-plated brass contacts, brass mounting inserts, and high-temperature wire. The holders mount low wattage halogen lamps in the G-4 and MR 11 configurations, and high wattage halogen lamps designated as G-6.35, GZ-6.35, GX-5.3, GT-9.5 and MR 16. Gilway Technical Lamp, Woburn, MA. Circle 110

IMPROVED PAR 38
The 90-watt PAR 38 Copsylite lamp is now rated at 2,500 hours average rated life, a 25 percent increase over its previous rating of 2,000 hours. The 90-watt lamp replaces a 150-watt PAR 38 incandescent, saving 40 percent on energy consumption. GTE Electrical Products, Danvers, MA. Circle 111

SELF-LUMINOUS SIGNS
The Betolux-E self-luminous institutional exit signs feature flush fitting, an angled frame and tamper-resistant mounting screws that make the fixture virtually vandal-proof. The Betolux-E requires no electricity, no batteries, no bulbs, and has a 20-year life expectancy. SRB Technologies, Inc., Winston-Salem, NC. Circle 112

LIGHTING CONTROLLER
Symmetry is a computer-based, digitally operated dimming control system for convention centers, hotels, and similar facilities. The computer can operate the lighting in 16 rooms on as many as 256 control channels. Each room has 12 presets and a full function time clock with a 365-day calendar. A variety of designer-quality and custom wall mount stations are available, as well as a hand-held portable controller. Macro Electronics Corp., Austin, TX. Circle 113

LOW-WATTAGE LAMPS
Supersaver Designer Curvalume 34-watt lamps are available in three colors—3,000K, 3,500K and 4,000K—and have an initial lumen rating of 2,800, and an average rated life of 18,000 hours. GTE Electrical Products, Danvers, MA. Circle 115

INCANDESCENT DIMMERS
Specification grade preset slide incandescent dimmer lighting controls allow lighting to be switched on to a predetermined level without changing the light intensity. A sliding actuator controls the wattage level, and a switch button turns the power on and off. The preset incandescent controls are rated at 600 and 1,000 watts, 120-volt AC. Hubbell Inc., Wiring Device Division, Bridgeport, CT. Circle 116

LEADLESS BALLAST
The XL series of leadless ballasts has all internal connections conveying at an external plug. A wiring harness is inserted to complete the connection. The Val-Miser XL can support fixture assembly automation, cut storage requirements, and simplify ballast replacement. Valmont Electric, Danville, IL. Circle 117
INTERIOR FIXTURES
A full-color, 24-page catalog features the capabilities of the company's fixtures in interior environments. Fifty photographs show applications in office settings, public spaces, recreational and educational interiors, merchandising areas, and manufacturing and storage facilities. Also included is a section addressing the impact of lighting on renovation and restoration projects and an examination of the advantages of indirect versus direct lighting. SPI Lighting, Mequon, WI. Circle 50

UNDERCABINET LIGHTING
A 24-page, four-color catalog features an expanded line of undercabinet lighting fixtures and design options. The catalog includes models with features such as adjustable light levels, lensing and louvers for brightness and glare control, accent lighting modes, and lensless designs for indirect overcabinet lighting. Featured is the Little Inch 1-inch thin miniatures fluorescent with a new high performance ballast that instantly starts lamps without flicker. Alka, Franklin Park, IL. Circle 51

TRACK LIGHTING
The Trac-Master 84-page catalog is fully illustrated and features the Snap and Cast 16 series with special application products like the Coil Cord Clamp-Ons, Theatre Lite, and Trac Tube. Juno Lighting, Inc., Des Plaines, IL. Circle 52

TASK LIGHTING SYSTEMS
Principles of Task Lighting is a complete line of symmetric and asymmetric task lighting, document holders and VDU arms, illuminated magnifiers, and a full complement of mounting options, including a rail mount system. Luxo Lamp Corp., Port Chester, NY. Circle 53

SALES OPPORTUNITIES
This brochure describes sales-building opportunities created by changes and/or additions to the National Electrical Code since its 1987 revision. The brochure addresses new requirements in the use of electrical wiring devices and interprets each section suggesting current products that can be used to comply with the regulations. Leviton Manufacturing Co., Inc., Little Neck, NY. Circle 54

VAPORTIGHT FIXTURES
A fully-illustrated four-color brochure features a line of vaportight fixtures with HPS or compact fluorescent lamps. A diagram highlights features and benefits of the design including a die-cast aluminum housing with a wheelabrated finish to withstand harsh plant conditions and a guard to protect the lamp and reflector against breakage. Also included is a porcelain socket pulse-rated for 4 KV and a prismatic glass reflector for symmetrical light distribution. Stanco, A Genlyte Co., Union, NJ. Circle 55

FLUORESCENT FLOODLIGHTS
Kelsey-Kone Lighting’s fluorescent floodlights have durable, weatherproof PVC housings and come in single- and multiple-lamp versions for several compact fluorescent sources. A brochure lists features and accessories. Kelsey-Kane Lighting Manufacturing Co., Fort Lauderdale, FL. Circle 56

BAFLUX™
An extremely shallow recessed or surface mounted fixture designed to take advantage of color balanced compact fluorescent lamps. The parabolic louvers minimize glare by maximizing lamp shielding. For any situation where incandescent was once appropriate. High power factor ballast: 120 or 277 volt. The energy efficient Baflux is one of our readily available Standards. Write or call Dept. A for further information and the name of your local rep.

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Circle No. 19 on product cord.
LIGHTING RESEARCH (CONTINUED FROM PAGE 17)

16. Antidepressant and Circadian Phase-Shiftin Effects of Light, B8: DR NEMA: 4, research conducted by A. Lewy (Oregon Health Sciences University).
17. Studies on the Effects of Light on Biological Systems, B4: DR NEMA: 2, research conducted by R. Hoffman (Colgate University).
19. Treatment of Winter Depression and Endogenous Depression Using Chronobiologically-Active Light, B5: SP LREF: 1, research conducted by A. Lewy (Oregon Health Sciences University).
21. Lighting Patterns in Visual Display Terminals, 50: SP LREF/In/Canada/Penn State/LREF: 1, research conducted by P. Sondeis, C. Bernecker and R. Mistrick (Lighting Research Institute).
24. Rating Transmittance Performance of Fenestration Systems, 85: IMP EPRI/NYSERDA: 1, research conducted by S. Selkowitz (Lawrence Berkeley Laboratory) and R. McCluney (Florida Solar Research Center).
25. Tunnel Lighting Research, B8: SP LREF: 3, research conducted by W. Adrian (University of Waterloo).
28. Visibility Measurement of Realistic Roadway Tasks, B8: SP LREF: 2, research conducted by M. Keck (UI Consultant) and M. Lipinski (Memphis State University).
29. Development of a Methodology to Assess the Influence of Lighting Characteristics on Accidents, 90: SP UNCC/LREF: 3, research conducted by E. King (University of North Carolina at Charlotte).
30. The Relationship Between Visibility and Driver Performance, 90: UI SP LREF: 2, research conducted by M. Janoff (MJU Research).
31. 1990 Summer Workshop for Teachers of Lighting, 90, ED LREF: 1, coordinated by J. Murdoch (University of New Hampshire) and J.E. Kaufman (IESNA staff representative).

INTERNATIONAL NEWS (CONTINUED FROM PAGE 32)

WHAT PREDICTIONS DO YOU HAVE FOR PRODUCTS IN THE '90s?

GE/BETCHKAL: I think we'll see an increasing usage of fluorescent in the future. Additionally, consumers are appreciative of the efficiency value of the energy-saving incandescent lamps that are on the market now.

GTE/MERCHANT: From a light source standpoint, new product developments that will occur over the next 10 years will be in the HID areas—metal halide and high-pressure sodium lamps. We'll also see significant development in tungsten halogen, in both specialty display and general lighting types. Thirdly, there will be major developments in compact fluorescent sources. I think we'll see all kinds of fluorescent discharge sources in different, smaller packages.

VOLTARCYICK: I think some of the newer trends that we have going on in the U.S., like the MR 16s, the extra long PLs, the short PLs, are going to become more and more common. I think the high output, low voltage is becoming more attractive, and for indoor application, the range of what you can do is virtually limitless.

There's no reason the trade has to go one way. The U.S. doesn't have anything to prevent it from being a major force. We certainly have the production capability, the inventiveness, and we sure have enough salesmen. We're looking to get the best we can out of Europe, and I don't see any reason why we can't put our best foot forward.

MARKETPLACE

Classified Directory:
First line (boldface italics)
all caps or upper and lower case $92.50/career opportunity $57.50/career opportunity
Each Additional (regular type) upper and lower case
Career Opportunities:
$25/line per issue (3 line minimum)
Mini-display Ad (3 1/8" wide x 1" deep)
$160
Suggestions Wanted: $60 for 4 lines per issue.

AREA LIGHTING (EXTERIOR)

PRISMALUME FIXTURES

A brochure for Prismalume 31 lighting fixtures describes its features. The luminaires can be used for industrial lighting applications, increasing the vertical illumination on machines, labels, dial, and assembly work stations. The fixtures can be used in all types of high mounting areas due to the corrosion resistant materials used in their construction, and may be used with 150-, 200-, 250-, and 400-watt HPS or 175-, 250-, and 400-watt metal halide or mercury vapor lamps.

Holphange Co., Inc., Newark, OH. Circle 46

LEAD-ACID BATTERIES

An eight-page brochure details the features and specifications of the Dynasty line of sealed lead-acid batteries larger than 25 ampere hours. The line covers 17 models up to 180 ampere hours, including gel-fired-electrolyte and AGM technology. Technical and installation information are also included. Johnson Controls, Inc., Special Battery Division, Milwaukee, W1.

Circle 57

VARIABLE VOLTAGE CONTROLS

The PS/500 series of variable voltage lighting controls is featured in a brochure. Energy savings of 20 to 30 percent can be achieved for either HID or fluorescent sources wherever lower lighting levels can be tolerated. Voltage is varied by means of an autotransformer system. The brochure describes five control strategies and how they can be applied to facilities such as parking garages, warehouses, factories, retail stores, and large open offices. Peschel Energy, Inc., Solisbury, CT. Circle 58.

LAMPS

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Manufacturer of MR11, MR16, T2 Quartz, Minilux and DC Recessed Halogen Lamps.

GTE SYSTEMS LIGHTING, Syracuse Lighting Center, Denver, CO 80216-377-771-8981 877-777-1898

LIGHTING POLES (WOODEN)

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CAREER OPPORTUNITIES

SENIOR ELECTRICAL ENGINEER, ELECTRICAL ENGINEER
Engineering firm seeks registered Electrical Engineer with a minimum of five years experience in consulting services with emphasis on design of power, lighting, and signal systems for commercial and institutional buildings. Design experience in roadway lighting a plus. Opportunities exist in San Diego, California; Phoenix and Tucson, Arizona; and Alexandria, Virginia. Send resume to Robert Alcala, RE., JHK & Associates, 110 South Church Avenue, Suite 470, Tucson, Arizona, 85701. EOE