

ARCHITECTURAL

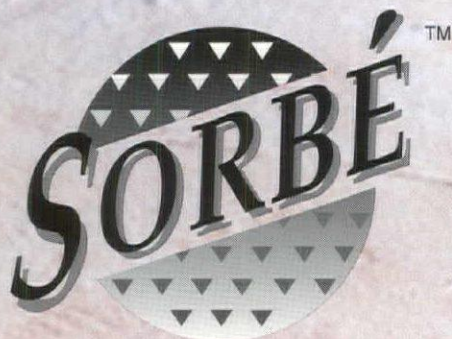
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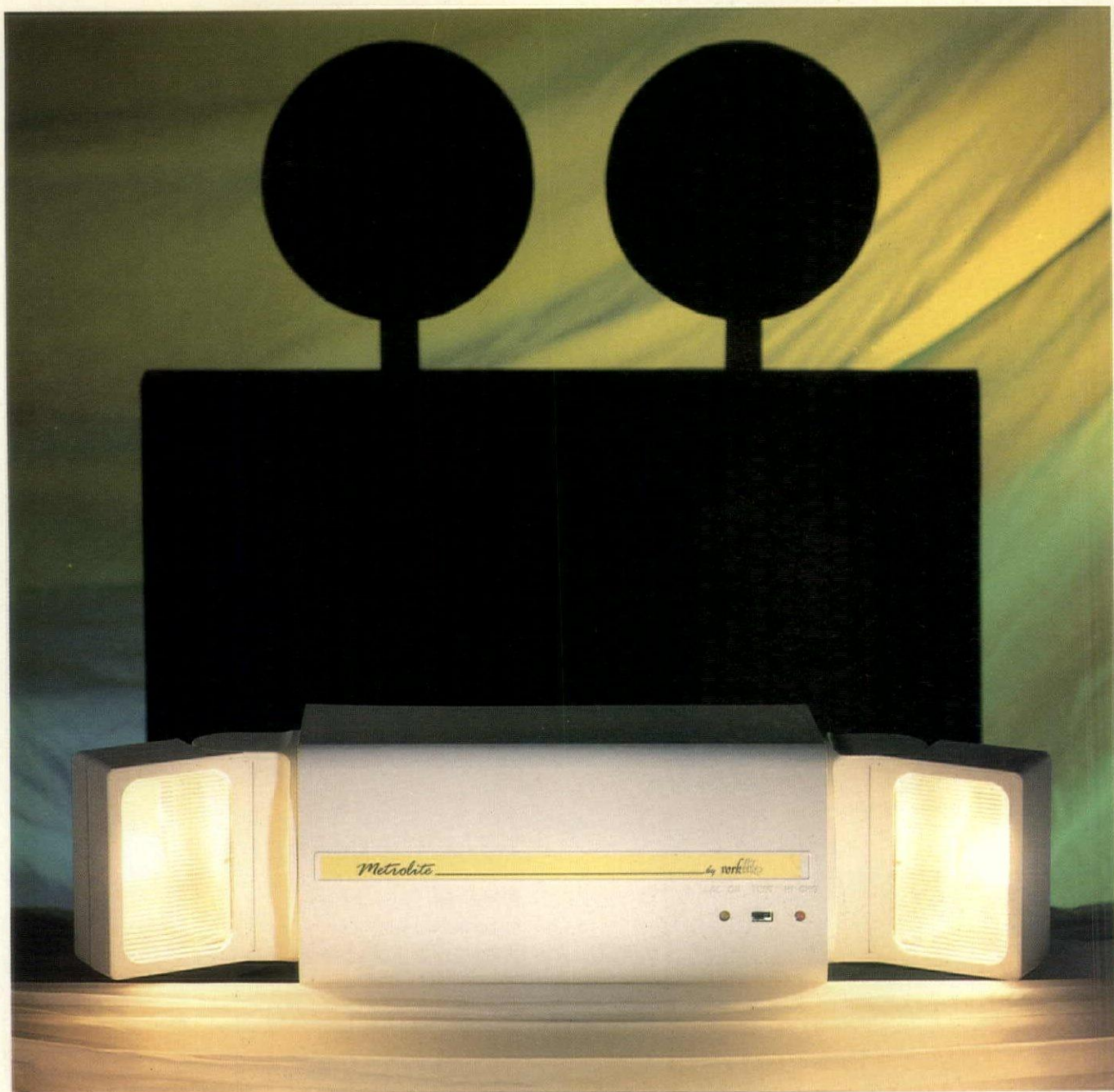
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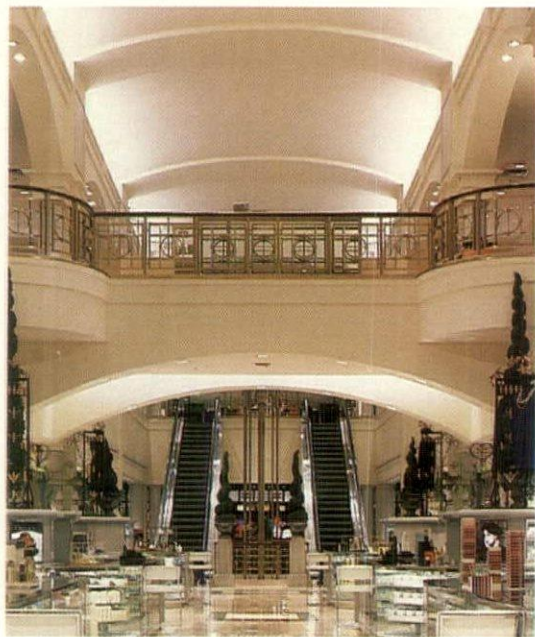
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ARCHITECTURAL
LIGHTING

SEPTEMBER 1991

VOLUME 5, NUMBER 9



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Cover Photo by Don Dubroff



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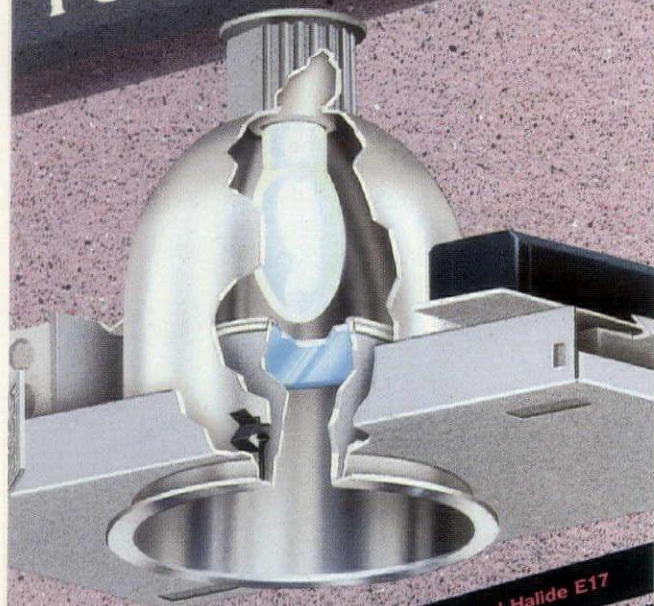
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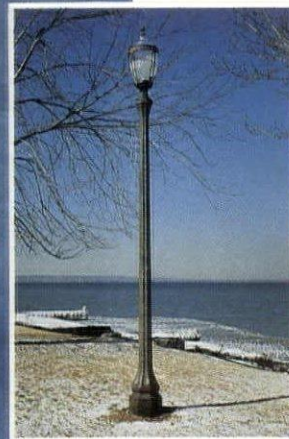
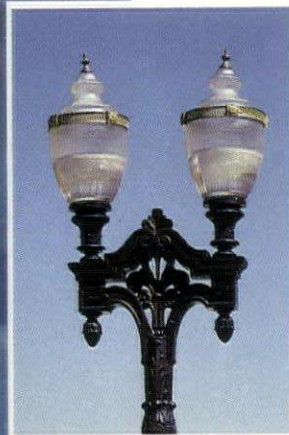
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PROGRESS REPORT

In today's fast track world, standing still spells doom—change is the name of the game. Positive changes are the best kind, and it pleases me to be able to make the following announcements:

Architectural Lighting has joined The Commercial Design Network, a family of design publications which includes *Contract Design* and *Facilities Design & Management* magazines. *Architectural Lighting* is pleased to welcome into its fold the readers of *Contract Design*, who will be receiving the magazine as part of their regular subscription. Serious concerns about energy usage, and

the rapid development of technological advances in the lighting field have increased the need among designers and architects for in-depth, detailed information and we are grateful for this opportunity to be able to spread the word on lighting to a broader audience of design professionals. As you read through our pages and become familiar with us, know that your suggestions and input are encouraged, so that we may keep changing to serve you better.

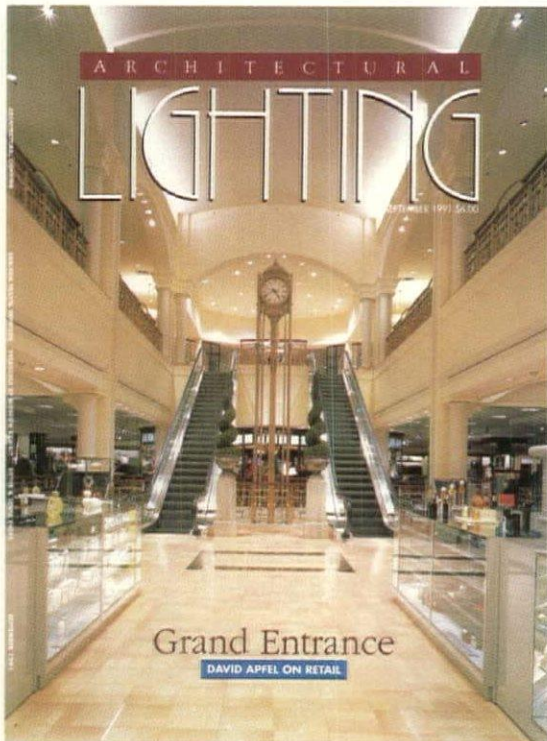
As part of the Network, all of our readers and advertisers will benefit from the professionalism and industry-wise experience of the Network management team headed by Carrie Enfield, Publishing Director, whose 15 years of publishing and design industry experience well-equips her to oversee all Network operations.

Architectural Lighting has also been named the "official publication" of LightFair International, the lighting industry's premiere show and conference, to be held May 5-7, 1992 at the Jacob Javits Center in New York City. The advantage for you, our readers, is that *Architectural Lighting* will contain exclusive, comprehensive and the most up-to-date coverage of this industry's most important event. And because 1992 LightFair will focus on the internationalization of the industry, the products, issues and design trends reported will provide you with the

keys you need to understand how to do business in the world of lighting.

Architectural Lighting has been restructured to be published on a quarterly basis beginning with this issue. To strengthen our editorial impact on your business lives, we will be incorporating new columns and features into each issue. This month, the Energywatch column begins and will regularly bring you detailed information on how to cope with the energy crisis.

Our mission is to continue making your business lives easier and more profitable by communicating to you the most meaningful developments and insights into lighting design that we can. We appreciate the support that has been given to us in return from both our readers and advertisers over the years, and we look forward to the continuation of this valuable partnership in the future.



WANDA JANKOWSKI
EDITOR-IN-CHIEF

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Capri Lighting presents the European Collection—a striking combination of elegant European design and solid Capri engineering. Offered in four distinctive, beautifully finished families, these precision diecast



trims bring new excitement and sparkle to recessed low voltage lighting. For your free brochure, contact:

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 **CAPRI** LIGHTING

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 **THOMAS**
LIGHTING, INC.

SIGNATURE LIGHTING AT SAN DIEGO'S EMBASSY SUITES

Efficient Lighting Systems, Inc. has designed and installed extensive signature lighting for the 337-room Embassy Suites Hotel on Pacific Highway in San Diego. The lighting was specifically engineered to provide a higher profile of the building and to highlight the signage and exterior architectural features of the property.

The hotel, which was built in 1988, needed a particular style of lighting to permit greater exterior visibility, according to Gary S. Losey, president, Efficient Lighting Systems, Inc. This had to be achieved without allowing light into the suites while at the same time adhering to the city's strict signage laws. Losey said that specially-designed fixtures installed at strategic locations around the building accomplished this. "Their plan allowed for our hotel to be grazed in light on all four corners while eliminating the possibility for light pollution into the suites—a very difficult thing to accomplish," Richard Tanner, chief engineer for the hotel, said.

IEEE STANDARDS ON CD-ROM SAVES TIME

The Institute of Electrical and Electronics Engineers, Inc. (IEEE), the world's leading developer of standards in electrotechnology, and Information Handling Services (IHS) announced the availability of a new service: IEEE Standards on CD-ROM.

It is the goal of the IEEE to make standards available worldwide in as many formats as practical so that users can select those that make sense for their business applications, said Marco Migliaro, chairman of the IEEE Standards Board.

This service integrates the full text of IEEE Standards, including illustrations, diagrams, graphics, charts, and figures with state-of-the-art CD-ROM technology and high-speed search and retrieval software. It allows PC users with



CD-ROM capability to locate IEEE Standards documents within seconds, searching by single and combination keywords, organization names and document numbers, saving hours of research.

The service, which will be updated every 60 days, includes standardization documents in the areas of computer and electronics, instruments/technology, communication, applications, and power. Included with the service is the IHS Worldwide Standards Index, a comprehensive CD-ROM index of U.S. and international standards.

For more information, contact IEEE Standards, 445 Hoes Lane, Piscataway, NJ 08855, (908)562-3823; or Information Handling Services, 15 Inverness Way East, Englewood, CO 80150, (800)241-7827 or (303)790-0600, ext. 59.

LASERS CAST A SPELL ON NYC

Lasercast, a show with constellations of flowing beams moving to music above the Manhattan skyline, commenced at sunset on the first official day of summer. Laser performances will continue every night throughout the season, every half-hour from sunset until 11 p.m. The lights and sounds of this New York attraction can be seen and heard only from the top of the World Trade Center's outdoor Observation Deck.

The view from the top of the World Trade Center provides an overwhelmingly full sense of the city and the sky, and the lasers make the entire skyline and the heavens perform, according to Dick Sandhaus, creator and producer of Lasercast. The show uses two powerful Argon lasers and an original soundtrack to cast its spell on the audience. One laser mounted on a helipad above the deck on one of the two buildings projects beams northward above midtown Manhattan, moving in patterns from the Hudson to the East Rivers. A second laser, positioned atop the other, arrays beams and sheets of light southward, forming an ever-changing "laser dome" just above the audience on the Outdoor Deck.

Both lasers are computer controlled and synchronized to an original soundtrack composed specifically for the Lasercast performances. During the show's "drum solo" a pair of 10-mile long "laser beam drumsticks" rolls across the sky to keep the beat and splash the cymbals on the tops of the Empire State, Chrysler, and Citicorp buildings, as well as others.

Sandhaus and his company, Science Faction Corporation, have spent many nights on the rooftops of New York landmarks in recent years, projecting lasers from atop the Pan Am Building, Trump Tower, Citicorp Center, and others to celebrate the First New York International Festival of the Arts, Fourth of July, and New Year's Eve.



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NEW POSITIONS & PROMOTIONS

Alexander Inzhevatin has joined The Phillips Janson Group, an architectural firm specializing in the planning and design of corporate interiors, as a senior project manager. Mr. Inzhevatin has over 20 years experience in the design, administration, and construction of both architectural and interior design projects. Among the many projects to his credit are Gorky Community Housing, State Sports School, and ZIM Headquarters, all in the Soviet Union.

Glenn R. Wing, also at The Phillips Janson Group, has accepted a new position of director of operations. Previously an associate of the firm, he now has the responsibility of ensuring that office issues relating to staffing and project management continue to be addressed in an efficient and appropriate manner. Reporting directly to the principal in charge of production, Mr. Wing will maintain projects staffing and technical office standard, track all project schedules, and aid the associates and project managers in assuring quality and cost control.

Matthew Xenakis has accepted The Phillips Janson Group's newly created position of manager of design resources for the firm, and will ensure that the firm's architectural designers are supported with consistent, specialized knowledge about architectural finishes and furniture, fixtures, and equipment. Under his guidance, the design resources staff will address firmwide projects and maintain the firm's comprehensive, state-of-the-art resource library.

Mark Houser has been promoted to assistant vice president of The Alter Group, the Wilmette, IL-based corporate real estate developer and design/builder. In his new position, Houser coordinates build-to-suit activities on the firm's portfolio properties in Mount Prospect, Carol Stream, Addison, and the North Side and West Side of Chicago. Houser joined The Alter Group in 1988 as Real Estate Director, and in 1990 he took on added responsibilities as Business Development Director for Alter Design Builders, the firm's design and construction affiliate. During 1990, he arranged for the construction or leasing of nearly 353,000-square-foot for 10 corporate clients.

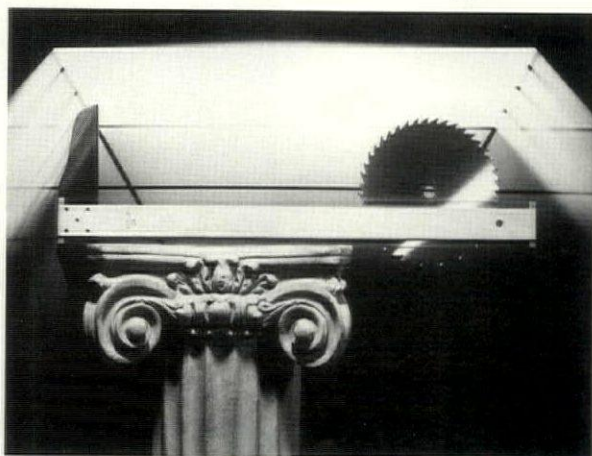
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Taking The Offense To Control Energy Costs

This EnergyWatch column is a new feature in *Architectural Lighting*. Because energy is the most important influence on lighting in the 1990s, we will dedicate space in each issue of the magazine to bring you information on legal code, technical and technique developments in energy saving to help you design and specify more efficient lighting systems. If there are any aspects of the energy situation you would like to see covered, we'll all ears—please let us know. Thank you.—WJ

BY GARY MARKOWITZ

As a major user of electrical energy, Raytheon Missile Systems Division (MSD), Bedford, MA, initiated energy conservation programs beginning in the early 1970s to offset the financial impact of rapidly rising energy costs. Raytheon's early experimentation with the more popular methods of lighting energy conservation led to a series of discoveries which pointed to problems directly related to effective energy management. Briefly put, Raytheon faced undesirable trade-offs, including inconsistencies in illumination levels, sacrifices in aesthetics, and numerous employee complaints.

With the passage of time and easing of the energy crises of both the 1970s and early 1980s, there was a trend toward improving the general lighting within the facilities. Some related energy-conservation changes were incorporated in the lighting systems (all fluorescent lamps and the majority of the ballasts were changed to energy-saving types), but the electrical energy consumption was still a high 40 percent to 45 percent of the total consumption of electricity within the facility. In terms of overall efficiency, the lighting system unit power density exceeded 3.0 watts per square foot.

TEST PROGRAM CRITERIA

Important steps taken by Raytheon MSD/Bedford since 1985 have led to significant improvements in lighting system efficiency. Aside from the installation of an overall energy-management system (microprocessors), Raytheon's Energy Management Office made a conscious decision to go beyond the typical lamp/ballast changeouts, and embark upon an experimental program of installing innovative solid-state lighting intensity controls. Prior to making equipment selections, strict performance criteria were established which required:

1. Selection of a control system which could be applied to the existing fixtures, with appropriate lamp/ballast combinations to maximize efficiency.
2. Compatibility of the additional equipment with the existing energy management system.
3. Choice of equipment which could be installed with minimal disturbance to employees and to the normal course of business.
4. No adverse impact upon building aesthetics or employee productivity.

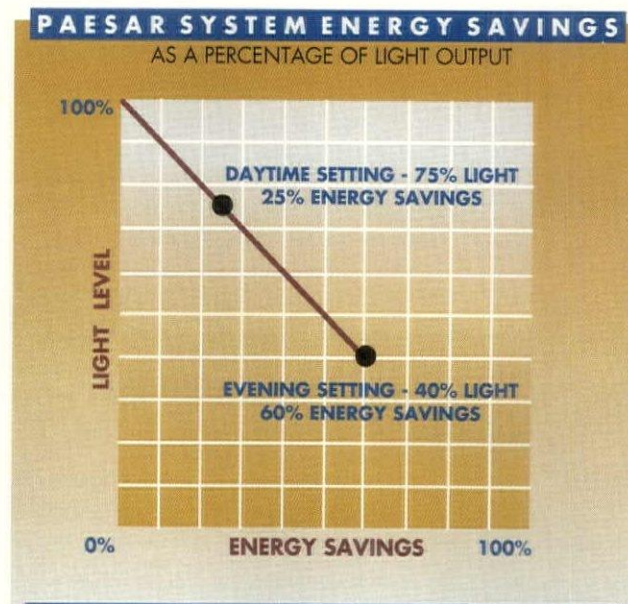
Based upon the established criteria, a test installation of the

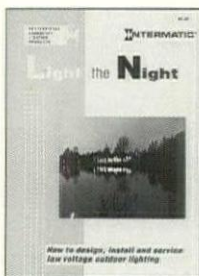
Lutron Paesar-Two Level Schedule (TLS) fluorescent lighting control hardware was performed on two of the existing lighting panels controlling approximately 50,000 square feet of floor space within the general office area. Lutron's Paesar-TLS product was chosen because of its advanced design and its guarantee to maintain the warranties of both the lamp and ballast manufacturers. By combining an alteration of the sine wave (actually cutting out a piece of the sine wave) with the capacitive properties of the magnetic energy-saving ballast, the Paesar unit could reduce energy consumption and light levels in a linear relationship, ranging from 100 percent down to 40 percent (Figure 1).

Raytheon planned ultimately to incorporate the two-level lighting schedule in the existing energy management system within the building, assuming satisfactory test results. For this test area, therefore, a digital seven-day programmable time clock was installed to simulate the effect of a fully automated lighting system.

TEST AREA

Initially, all non-lighting loads were removed from the panels to insure proper installation and operation. Then, the two 277-volt test lighting panels were balanced and final full load (amprobe) measurements were taken. The actual light levels within the affected areas were also measured by light meters so that this new equipment could be fully evaluated. The initial readings averaged 95 footcandles, which well exceeds the usual range of 65 to 70 footcandles for the type of office work being performed in the area, according to standards published by the Illuminating Engineering Society. The quality of the illumination system was also questionable, as there were primarily four-lamp fluorescent flat-lensed troffer fixtures scattered throughout the area.

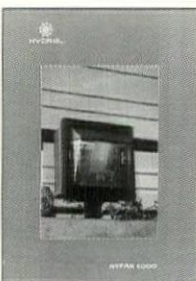




LANDSCAPE LIGHTING

The "Light the Night" 20-page, two-color guide is divided into six sections that deal with the basics of low-voltage lighting, residential landscape lighting techniques, products available in Intermatic's Professional Landscape Lighting line, types of equipment required, step-by-step installation instructions, hints on

troubleshooting problems and useful tips for keeping the fixtures in top condition. The booklet carries a list price of \$4.95. For a limited time, Intermatic is offering the booklet for \$1.75 to cover postage and handling. Intermatic Professional Landscape Lighting Products Division, Spring Grove, IL. **Circle 90**



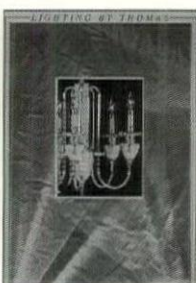
CUT-OFF LUMINAIRES

The Hypak line of high-performance, cut-off luminaires, suited for a variety of area lighting applications, is described in two, 10-page brochures — one for Hypak 3000, the other for Hypak 4000. Hypak 3000 provides eight different light distributions for lamps to 100-watts recessed, 150 watts surface. It complements the adjustable cut-off Hypak 4000, which provides for lamps to 250-watts high-intensity discharge. Hydrel, Sylmar, CA. **Circle 91**



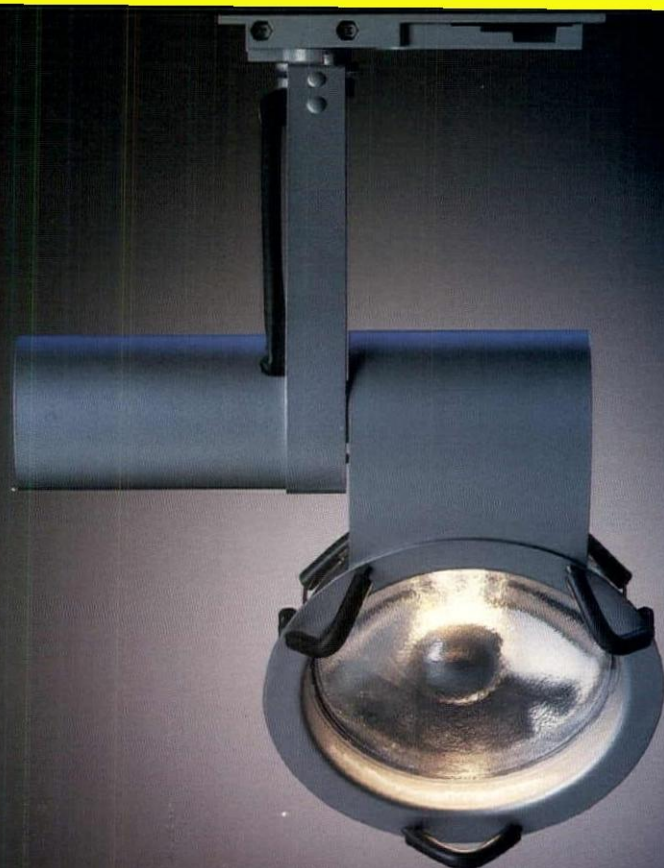
AREA LIGHTING

New literature details Crestwood luminaires, suitable for area lighting and parking lot applications. Crestwood luminaires are offered in two canopy styles—Standard and Mansard. The units come in single, twin, or quad heads on matching poles, and in any of 160 colors, with bronze, black, white or grey standard. Holophane Company Inc.. **Circle 93**



RESIDENTIAL LUMINAIRES

A 240-page catalog incorporates two Thomas Industries Inc. brands—the distinctive, high-quality Majestic line and the affordable, stylish Starlight line—as well as the Nightshadows high-quality landscape line. Over 300 new products have added to the lines. The Residential Lighting Division of Thomas Industries Inc., Louisville, KY. **Circle 94**



SPACEBIRD TOO

This new Spacebird with more powerful thrust has all the elegance and élan of its smaller sister. Identified as the SB36, it's now operational.

For SB36 Series information kit, write on your letterhead to:
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Industrial Park, Route 9W
Stony Point, NY 10980



DIREKTA™ SERIES

With the approval of the facilities manager, a pilot program was initiated. The total connected load of the two lighting panels prior to the installation was calculated at 77.74 kilowatts. A corresponding annual electrical consumption of 320,000 kilowatt hours was derived through modeling the daily occupancy profile of the facility. The Paesar units were wired so that power was fed through the units to each of the lighting power panels (supplying power to the loads). This was made possible by the capacity rating of the Paesar units: each was sized to handle 80 amps of fluorescent load on the 277-volt, three-phase system. Installation was completed using two in-house electricians.

The test installation was quite successful, exceeding all expectations. By setting the first level (daytime/work hours) to 75 percent light and the second level (unoccupied/maintenance hours) to 40 percent light, load reduction to 58.3 kilowatts and 31.1 kilowatts, respectively, was achieved. Annual net savings at the time of the installation amounted to 113,498 kilowatt hours, or \$6,810. The installation cost was \$11,350, including equipment and labor, resulting in a payback schedule of one year, eight months.

FULL-SCALE INSTALLATION

The success of the test installation led to the application of the Lutron Paesar system on a larger scale. Approximately one year later, the remainder of the facility—over 350,000 square feet—was retrofitted in the same manner.

This phase of the project involved the application of the Lutron Paesar-TLS to 20 lighting power panels. The goal was to control 1,145 kilowatts of fluorescent lighting load (four-lamp, prismatic lensed troffer fixtures), and to couple this equipment to the existing energy management system. The initial cost of the project, utilizing in-house electricians, was \$130,760. The annual energy saved amounted to 2,109,086 kilowatt hours (which included 1,605,863 kilowatt hours lighting energy and 503,223 kilowatt hours air-conditioning), yielding total annual dollar savings of \$168,726. On an after-tax cash basis, the simple payback for this retrofit installation would have been 15 months. However, considering the investment tax credit then in effect, plus financial incentives offered by the utility company, the actual payback period shrank to eight months.

ADDED-VALUE BENEFITS

The electric utility for this location sponsors a demand-side management (DSM) program that offers financial incentives to customers who install energy conservation equipment and take other measures of this type to conserve energy. The Boston Edison Company Custom Lighting Rebate Program provided \$69,636 in rebates, creating an even brighter financial picture.

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The additional capabilities of this system have facilitated its application to utility company load-shedding incentive programs, whereby customers are paid for reducing on-line electrical demand. By dimming the lighting system in prescribed areas, Raytheon MSD/Bedford is paid by the utility company for each kilowatt which is shed, at a rate of \$10 per kilowatt per month. Lutron's Paesar system has the capability of shedding 100 to 150 kilowatts when activated for this purpose, yielding net additional savings of \$1,000 to \$1,500 per month. Raytheon has participated in this incentive program at times when a regional power shortage was publicly declared.

CONCLUSIONS

The two stages of this project were documented in a written presentation and successfully submitted in an application for an Appropriate Technology Award in Energy Conservation through the State of Massachusetts Energy Office. Granted to Raytheon MSD/Bedford in 1987, the award illustrates the importance of the technology utilized in the Paesar system

for the future of lighting energy management and conservation. The application of this product to the existing lighting systems caused few interruptions to normal work activities. As recently as 1990, the system's capabilities facilitated the design of lighting system renovations to exceed the stringent Massachusetts Energy Code power density levels by 21 percent (1.26 watts per square foot at Raytheon MSD/Bedford versus code requirement of 1.6 watts per square foot). While alternate technologies exist, the rationale for taking this direction in lighting energy management was quite simple. The Lutron technology enabled Raytheon to maximize energy savings and provide system flexibility, with minimal impact on operations. The resultant energy-cost savings have culminated in a win-win situation for both the building owner/operator and for those who work in the facility.

The author is energy administrator/plant engineering for Raytheon Company, Missile Systems Laboratories, Bedford, MA.



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SPORTING A BRIGHT LOOK



BY CHRISTINA LAMB ASSOCIATE EDITOR

CHALLENGE The 63,000-square-foot West County YMCA stands parallel to the slope of its Chesterfield, MO, site with its entrance on the uphill side of the axis, and the natatorium tucked into the hill. The structure's volume is articulated by the stepping forms of the lobby and pool spaces, allowing plenty of natural light to enter them.

DESIGN/TECHNICAL CONSIDERATIONS "The lobby is the first major room that you enter," says project designer John Guenther, Mackey Associates, "and it's a bit wider and taller than most YMCA lobbies." In terms of lighting the space, the design team thought it was imperative to eliminate any visible light sources from the ceiling plane, keeping with the idea of natural light and connecting the interior to the outdoors. In the pool area, while this consideration remained, it was also important that the fixtures stand up to the chlorine atmosphere, and that they be positioned for easy maintenance.

METHOD There are one-and-a-half stories of clerestory-lit space in the lobby, and a large area of glass that overlooks the pool. Beyond that, in the natatorium, there are also nine square windows. "Upon entry," says Guenther, "one can immediately notice the abundance of daylight that fills the spaces." To supplement the natural light, 40-watt fluorescent lamps in recessed, lensed troffers provide general illumination for the lobby area. "To highlight the lobby walls and uplight the ceiling so that it gently glows, we indirectly lit the lobby with 4-foot, 40-watt fluorescent staggered strip cove lights, which are placed around the perimeter of the clerestory," says Guenther. The lobby's sense of openness is maintained by using direct and indirect fluorescent lighting above and below the architectural banding to define the space.

"Again, in the pool area we were concerned with introducing natural light," says Guenther. "The nine square windows in this space are almost like pictures on the wall with everchang-



ing scenes, depending on the season. It's a way to connect to the outside, while allowing light to enter the space." Where the roof steps down, there are translucent fiberglass skylights, which bring a diffuse light to the pool area, so there's not a lot of glare on the water. Also at night when the lights are on inside, they glow, presenting an attractive appearance to the surrounding community. "We used a couple of different light sources in the natatorium," says Guenther. Indirect, pendant-mounted, 250-watt HPS and 400-watt metal halide luminaires, specially treated to prevent corrosion, warm the pool space and complement the clerestories. The fixtures run parallel to the length of the eight-lane, 25 meter pool and are placed just away from the water over the deck. "They kick out light to the center of the space so that light is bounced off the painted concrete structure that spans the pool," says Guenther. "Another nice effect is that when you're doing the backstroke and look up, you don't have the glare of light staring back down at you, but rather a gentle overall glow of the ceiling."

CONCLUSION "We wanted to bring some of that outdoor feeling inside the YMCA since it's located in the countryside," says Guenther. The project, completed in November 1989, achieves this effect by combining daylighting and indirect lighting to create a warm and bright atmosphere.

DETAILS

PROJECT: WEST COUNTY YMCA

CLIENT/OWNER: YMCA OF GREATER ST. LOUIS

ARCHITECT: MACKAY ASSOCIATES

LIGHTING DESIGNERS: MACKAY ASSOCIATES

ENGINEER: CMLAV ENGINEERS

GENERAL CONTRACTORS: BSI CONSTRUCTORS, INC.

PHOTOGRAPHER: SAM FENTRESS

MANUFACTURERS: GLASS & GLAZING: KAWANEER: aluminum; PPG: glass; TRANSLUCENT PANELS: KALWALL CORPORATION; LIGHTING: WILLIAMS: staggered strips; STERNER: pendant mounted dual lamps

**THOUGH THE GOAL
FOR BOTH IS TO
SELL, SELL, SELL,
DAVID APFEL, IALD, OF
HTI / SPACE DESIGN
INTERNATIONAL**

Points of Light

Museum Of Modern Art Design Store

The lighting for the new Museum of Modern Art (MoMA) Design Store in New York had to contribute to the shop's refined, understated environment, which was carefully designed to feel like an extension of the museum. The lighting had to showcase individual items and merchandise displays with the same care devoted to a work of art in the museum. At the same time, there needed to be enough ambient lighting to support a high level of retail activity in the store.

Accordingly, a lighting system has been designed with many flexible accent lighting sources capable of molding a variety of changing merchandise displays with excellent color rendering qualities. The bounce and stray light from all of these accent fixtures would provide sufficient ambient light for the store. The design also evolved from the philosophy that when the lighting equipment needed to be exposed to perform a specific function, it should look like it belonged in MoMA.

For the open ceiling, pendant-mounted tracks have been painted black, with two luminaire types and three lamps types. The 250-watt PAR 38 floods were selected for wall hangings, 250-watt, PAR 38 spots for accenting floor fixtures, and 120-watt, 6-volt PAR 64 narrow spots for special accenting. The PAR 38 units were used because of the wide vari-

**APPROACHES THE
LIGHTING DESIGN FOR
A DEPARTMENT STORE
AND A SMALL DESIGN
SHOP IN TWO
DIFFERENT WAYS**



MAMA MIA MOMA: Objects for sale at the MoMA Design Store are displayed and highlighted with the same care devoted to works of art in the museum. Accenting comes from exposed track-mounted units.



SHELF LIFE: (Opposite page) In the MoMA Design Store, low-voltage incandescent strips are placed under all shelves for general illumination of merchandise.

Recessed, adjustable accent lights (this page) with 250-watt, PAR 28 spots are positioned to accent showcases, floor fixtures and floating platforms.



ety of wattages and beamspreads available.

For the finished ceiling, recessed, adjustable accent lights with 250-watt, PAR 38 spots were placed in harmony with the ceiling geometry and positioned to accent showcases, floor fixtures and floating platforms.

For the perimeters, low-voltage incandescent strips were placed under all shelves. Exposed track-mounted accent lights with 50-watt, 12-volt AR 70 flood lamps were attached to wall units for accenting. The luminaires were selected for their stylish design and the lamps for their smooth field.

For the floating showcases, semi-recessed accent lights, containing 50-watt, 12-volt MR-16 narrow flood lamps, were used to light the glass objects on display. The luminaires were finished in a contrasting color to call attention to their fine design.

For the floor-mounted showcases, vertical chrome pipes, supporting a slab of glass, bend to a horizontal plane and conceal a low-voltage incandescent strip.

For the store windows, tracks, painted black with a simple gimbal ring luminaire containing 75-watt PAR 30 spot lamps, are mounted to the back side of the mullions supporting the windows.

DETAILS

PROJECT: MUSEUM OF MODERN ART DESIGN STORE

LOCATION: NEW YORK, NY

DESIGN TEAM: EDWARD HAMBRECHT, principal-in-charge; MARTIN ANDERSON, designer; ROSE MARIE TEDESCO, decorator; GEORGE HUME, project manager; and DAVID APFEL, lighting director, HTI/SPACE DESIGN INTERNATIONAL

PHOTOGRAPHER: PETER PAIGE

LIGHTING MANUFACTURERS: LSI: pendant-mounted track fixtures; OMEGA: recessed accent units; NORBERT BELFER: low-voltage incandescent strips; EDISON PRICE: track-mounted accent units; OSRAM: flood lamps; REGGIANI: semi-recessed accent units; LUCIFER LIGHTING: low-voltage incandescent strip; and LIGHTOLIER: tracks with gimbal ring luminaires

Marshall Field's

The most distinguishing feature of the new Marshall Field's department store in Columbus, OH is the grand hall, an expansive and panoramic well that occupies 8,000 square feet on two levels in the middle of the store. The challenge was to provide this dramatic space with sufficient light for the merchandise on the sales floor 35 feet below the vaulted

ceiling in a way that wouldn't detract from the grand, turn-of-the-century decor.

The solution was to make the lighting as unobtrusive, elegant and maintainable as possible. To illuminate the sales floor adequately, a combination of ambient and accent lighting was used.

It was decided that all of the finishes needed to be light and reflective. Architectural coves have been created to conceal most of the ambient lighting equipment. Additional ambient light is provided by recessed incandescent downlights mounted along the edge of the main floor ceiling, and recessed compact fluorescent downlights mounted at the edge of the upper level ceiling.

Accent light is provided by recessed, adjustable fixtures mounted to the edge of the main floor ceiling, and lamped with 90-watt PAR 38 spots. Additional recessed adjustable units are mounted in the arches along the upper level ceiling and pivoted in to the grand hall. They are lamped with 250-watt PAR 38 spots to light showcases and vitrines on the main floor. Recessed adjustable accent lights are also mounted in the ceiling of the grand hall and accessible from a bridge spanning the space. They are lamped with 250-watt PAR 38 spots and pivoted out onto the grand hall floor.

Additional sources of accent lighting were placed in the main floor showcases, which contain concealed fluorescents. Also, the large, four-dial clock, which serves as the focal point of the store, is backlit for dramatic impact. And decorative chandeliers provide additional ambient light in a gallery surrounding the grand hall on the top floor.

Except for an architectural lighting cove along the ceiling of the grand hall, all lighting equipment is accessible from a ladder located on the floor directly below. It was determined that providing a catwalk or maintenance platform would cost more than staging the space with platforms and relamping the cove for the next 20 years. The cove was lamped with a triple row of staggered 20,000-hour, high-color rendering

3,000 Kelvin fluorescent lamps so that any single lamp or ballast failure would not result in an obvious dead spot.

High wattage, PAR 64 lamps and narrow beam low-voltage lamps were rejected as being too difficult for the in-house staff to maintain. Multiple 250-watt PAR 38 spots were used where more powerful lamps could not be. Actual skylights able to emit daylight into the space were eliminated early in the design process for budgetary reasons.

DETAILS

PROJECT: MARSHALL FIELD'S

LOCATION: COLUMBUS, OH

DESIGN TEAM: EDWARD HAMBRECHT, principal-in-charge; MARTIN ANDERSON, designer; MARIAN D'ORIA, project director; LESLIE LARM HARALSON, decorator; DAVID APFEL, lighting director; JAYNE PETERSON, planner; and MIKE GNECCO, project manager, HTI/SPACE DESIGN INTERNATIONAL

PHOTOGRAPHER: DON DUBROFF

LIGHTING MANUFACTURERS: LIGHTOLIER: fluorescent and incandescent fixtures; INDY LIGHTING: incandescent and compact fluorescent fixtures; THE AMERICAN GLASS LIGHT CO.: pendant lamps; OMEGA: accent units

COVES OF COMFORT: In Marshall Field's grand hall (below), architectural coves conceal ambient lighting equipment so the turn-of-the-century style decor can be enjoyed without distraction. Using a variety of sources—fluorescent fixtures (top right) and recessed, adjustable downlights (below right)—providing they fit the application, can increase the energy efficiency of any project.



SIDE LIGHTS Trends In Retail Design

SIDE LIGHTS

David Apfel, IALD, Director of Lighting, HTI/Space Design International in New York, believes there is a basic philosophy common to all store design.

"Clients are building the store to sell merchandise and make money, and so the merchandise needs to be lighted and presented in a way that works to sell—in a very functional, straightforward kind of way," Apfel says. "But I don't think that the dictates of function are such that it prevents a lot of creativity and fun in lighting design."

According to Apfel, one of the most exciting developments in lighting for retail spaces is the proliferation of good color rendering, and small sized fluorescent lamps.

"Once you put compact fluorescent lamps into fixtures, you have the ability suddenly to light a space with the economy of fluorescent, and the small-scale residential look of incandescent using small round aperture fixtures. Whereas in the past, every time fluorescent was used, you were introducing a large-scale fixture. No matter how good the light was, the look of the fixture said, 'We're

commercial, industrial, we're not residential, intimate, low key'," Apfel says. "And the added benefit is that with the new fluorescents, you get better energy efficiency and more lumens per watt than you did back in the old days when all you had to work with was warm white, cool white and a few exotic colored lamps."

Regarding popular techniques, Apfel feels that "the biggest trend over the last 10 years is the use of architectural lighting coves. It's an old technique used 20 to 30 years ago that's become very popular again.

"The coves define circulation very well—they tell the customer where to go and define spaces," Apfel says. "And a lighting cove is, in essence, a great big, custom-made lighting fixture that the designer can make go where he wants it to go—whether it's to be a sweeping curve, or a sharp right turn."

Maintenance has always been a part of lighting system design that is hard to enforce, and Apfel feels it is still a concern today.

"Clients are concerned about maintenance from the point of view of fixture accessibility—can they physically change the lamps. No department store

chain that I know of really does a wonderful job in terms of changing or refocusing PAR lamps, or relamping fluorescent lamps with the right color lamps, and especially keeping fixtures clean," Apfel says. "Sometimes we are called on to prepare maintenance manuals for the clients to show them how to maintain the system, and usually everything is fine for a couple of months, until the person who is responsible for maintenance at the store changes jobs. Usually there is no mechanism to keep it going. I'm hopeful that the clients I'm working with now who have indicated a desire to do better will, in fact, do better."





3001
A. Kozlovskiy, 1752
Book cover, workshop of Vasily
Ivanov, Moscow, 1752
The book cover is made of
black leather and is decorated
with gold-tooled patterns.
The central part of the cover
is decorated with a large
medallion depicting a scene
from the Bible. The book
is bound in a traditional
Russian style.

Treasures Of

23
The Fedorov's Virgin
Saint Elizabeth's Uterus (c. 1731)
Materials: Gold,
Silver, enamel, pearls, diamonds,
Wood, ivory
Saint Elizabeth's Uterus, Moscow
The uterus is a highly ornate golden vessel, decorated with
enamel and precious stones. It is a relic of the Virgin Mary,
believed to be the place where she carried the Christ child.
The uterus is made of gold and is decorated with enamel and
precious stones. It is a highly ornate vessel, and is believed
to be a relic of the Virgin Mary. The uterus is made of gold
and is decorated with enamel and precious stones. It is a
highly ornate vessel, and is believed to be a relic of the
Virgin Mary.

CENTURIES OLD:
Thirteen hundred
lineal feet of
single-circuit track
was placed
strategically to
provide
illumination for
five centuries of
Russian artifacts.

Design
The exhibit was designed to provide a comprehensive overview of Russian art and culture, featuring a variety of artifacts and objects of interest. The design was created by the exhibit design firm of [unreadable] and [unreadable].

MOSCOW

**ILLUMINATION GROWS IN INTENSITY AS
EXHIBIT VIEWERS PASS THROUGH HISTORY VIA
SACRED AND SECULAR RUSSIAN ART OBJECTS**

BY CATHERINE SCHETTING SALFINO MANAGING EDITOR

From before the days of Catherine the Great to its present under Mikhail Gorbachev, the development of the Soviet Union is rich in historical details. Artwork that exemplifies the changes the country has been through were chosen for the Goodwill Arts Festival's flagship exhibit, which was on display in Seattle from June 1-September 30, 1990.

The eight-gallery display, titled Treasures of Moscow, covered five centuries of Moscow culture and history as illustrated through art. Each gallery displayed artwork from different time periods. To further enhance the distinction, the design firm TRA, Seattle, was brought in to create individualized lighting, color, and architectural features.

The burnt red and grayish-blue colors that set off the opening exhibit were chosen to exemplify the late 15th century when Russia was almost a church state.

Here, religious objects illustrating the importance of the Russian Orthodox church are illuminated with low-level lighting. A single-circuit light was primarily used by TRA in the display and exhibit areas. The tracks were strategically located to provide maximum display illumination using various fixtures. In the first three rooms, 5.5-volt, very narrow spots were employed to accent small objects at long distances. Where necessary, some of these fixtures, which housed PAR 36 lamps, were equipped with spread and grill lenses for additional beam control.

These initial galleries moved from displaying the important role the church played to the integration of church and state. The lamps in the ensuing rooms highlighted the secular and sacred art pieces, along with an array of weapons. As the periods changed, so did the lighting, progres-



ART & ARCHITECTURE: Columns and arches were used as architectural embellishments to be consistent with the time period of the room.

HONING IN: The 75-watt, T 4 tungsten-halogen fixtures were used where precise beam control was needed.



WIDE OPEN SPACES: The 150-watt tungsten-halogen fixtures were used to floodlight long and large displays.



AGE OF ENLIGHTENMENT: Light levels were increased in intensity and the colors of the exhibit area surfaces were lightened progressively through each new century, ending with the highest light levels and pastel surfaces to signify the openness of Glasnost.

sively increasing in its intensity. The colors coating the galleries' walls also lightened with each new century, ending with pastels to signify the openness of Glasnost.

From the third room on, the influence of Western culture, specifically Italy and France, was reflected in the art pieces. TRA introduced additional lighting with 150-watt tungsten-halogen lamps. The fixtures were used to floodlight long and large displays that required a bright and powerful sweep of illumination.

A third fixture was implemented to offer more precise beam control where needed. These units housed 75-watt, T4 tungsten halogen lamps. The 12-volt beams were adjustable from 6-18 degrees. Some of the fixtures were provided with spread lenses and a beam elongator, which offered a wider light distribution in highlighting certain figurines and other large objects.

The exhibit moved smoothly through each time period, ending in the 20th century, where there was a marked resurgence in style. All exhibit lighting was initially designed by TRA's lighting designer, John Haskell, in close collaboration with Seattle Art Museum lighting director, Michael McCafferty.

Prior to exhibit opening, final beam orientation was made in the field to present a dynamic and impressive display lighting system.

DETAILS

PROJECT: THE TREASURES OF MOSCOW EXHIBIT

LOCATION: SEATTLE

CLIENT: S.O.C. GOODWILL GAMES,

SEATTLE ART MUSEUM, SMITHSONIAN INSTITUTE

LIGHTING DESIGNER/ELECTRICAL ENGINEER:

TRA, JOHN HASKELL; consultant: MICHAEL MCCAFFERTY,

Seattle Art Museum lighting director

ARCHITECT: GARY HARRIS, TRA

PRINCIPAL-IN-CHARGE: GERALD WILLIAMS,

KELLY BRANDON; PROJECT DIRECTOR:

MICHAEL MAHER, AIA, TRA

MECHANICAL ENGINEERING: R. MARSON, TRA

PHOTOGRAPHERS: ROBERT PISANO; TRA, DICKTER

LIGHTING MANUFACTURERS: LIGHTOLIER: Lytespan light track, Dramalux fixtures, PAR36 lamps, Prevue II fixtures, 150-watt halogen lamps, Super Beamer fixtures; OSRAM 75-watt halogen lamps.

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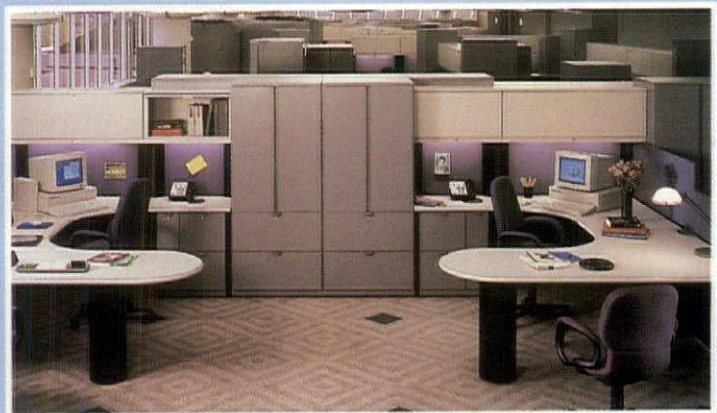
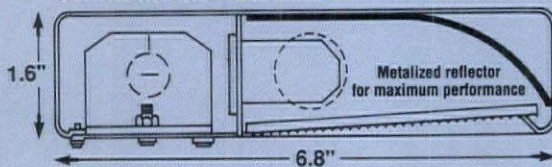
Specifications:

Ballasts - Enclosed 120 volt/ 277 volt

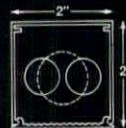
Lens - Acrylic high-impact U.V. stabilized

Lamp Data - Octron[®] T-8 or Compact Fluorescent

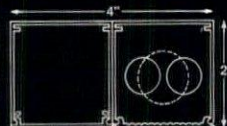
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We can fit any foot," is the motto of Boyce & Lewis Shoes, a shoe store chain with four stores in the Washington Metropolitan area that has been in operation for over 50 years. As a reflection of this motto, the stores were laid out in open stock style, so customers can see the shoeboxes from the selling floor. The rationale behind this was that when a customer sees the large quantity of boxes, they believe that the store will undoubtedly have the shoes that fit their size.

The most recent addition to the chain is located in the heart of Washington's downtown business district, a high rent area. The clients wanted a more upscale image on a moderate budget. We con-



vinced them that lighting was the key, and consequently, 25 percent of the total budget was spent on lighting.

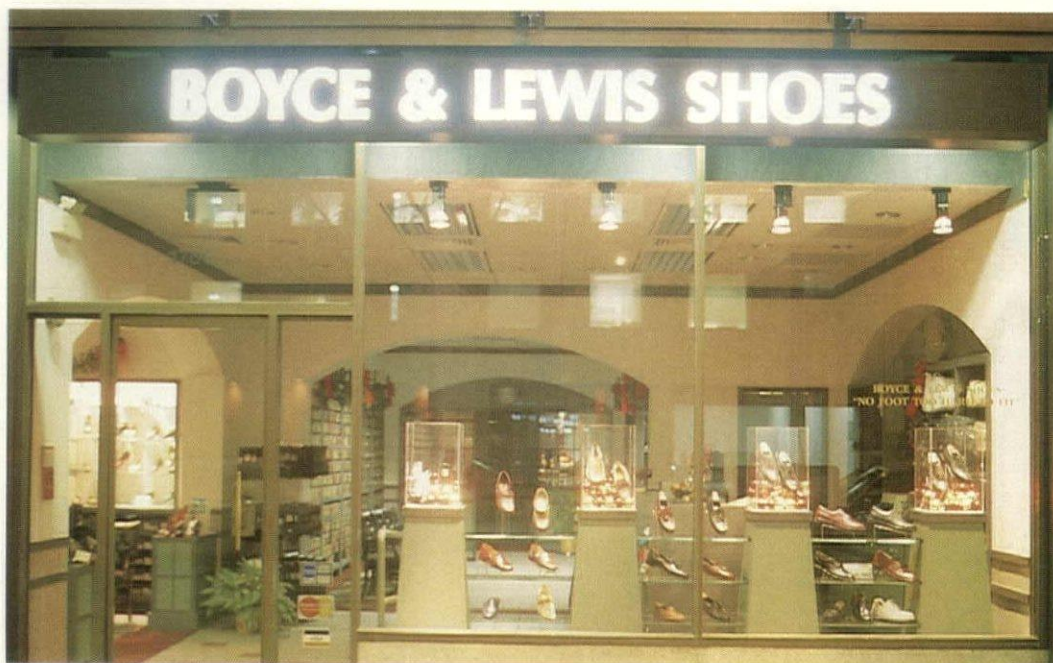
Our clients sub-leased the storefront space from a bank which had recently remodeled the space. Due to budgetary concerns (construction and operating costs) the new 2 foot x 4 foot acoustic tile ceiling and fluorescent fixtures have been left in place to provide ambient light. The fluorescent lamps have been rewired so two of the four lamps per fixture are on one switch, and the remaining two are on another—an inexpensive dimming solution on sunny days.

The decorative fixtures chosen for the store became the elements around which the design evolved. The store's philosophy was modified so

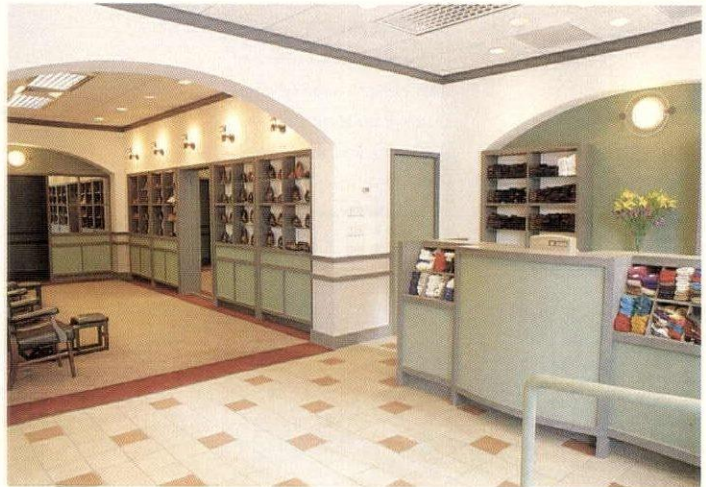
Shoe Shining

DECORATIVE LIGHTING FIXTURES ARE THE KEYS TO THE DESIGN THAT FITS THE STORE THAT FITS THE SHOES TO ANY FOOT

BY DHIRU THADANI, AIA



(Opposite page) The four-square motif is repeated in various materials and objects throughout the store. At night, eight fixtures above display cases remain illuminated. (This page) Though decorative fixtures are the main lighting design elements, the specific highlighting of merchandise is accomplished with unobtrusive wall washers and low-voltage track units.



For budgetary reasons, the existing 2 foot by 4 foot ceiling recessed fluorescent fixtures have been kept. In the men's section (below & right) decorative incandescent fixtures are used above display units and on the end wall. Recessed wall washers add extra punch to selected merchandise.



the layout of the space could be changed and upgraded—the client agreed to store the bulk of the stock in a separate storeroom, and display only a small portion of the inventory.

A storage module was created composed of a four-square element resting on a horizontal bar, that in turn rests on a double square. This module is repeated in different versions and depths to accommodate various functions: storage only, display only, cabinets, drawers, mirrors, and combinations of those.

Thirteen incandescent fixtures are used as decorative elements, and centered above display and

storage shelf units. Ten of those fixtures are used in the men's section—five on each opposing wall—and three in the women's section.

Three incandescent wall-mounted fixtures, centered in gypsum board arches, act as decorative icons at each end of the store. The light green, etched surface of the fixture influenced the choice of the interior's color palette.

For the display visible from the street front, eight museum boxes were designed in which to feature selected shoes. The plexiglass displays are illuminated by eight ceiling-mounted, low-voltage fixtures. The form of the museum box and base were determined by an 8 degree cone of light from the MR 16 lamps.

Track fixtures fitted with low-voltage MR 16s are installed out of sight in a ceiling recess to illuminate merchandise in the women's section. Recessed wall washers with spread lenses and a 250-watt PAR 38 lamps have been added to illuminate the exposed storage and display shelving units.

The circuiting combined four sets of fixtures to three master controls. The location of the controls is such that one can see all lamps/fixtures while using the dimmers. One circuit with an electronic timer override controls eight low-voltage fixtures that are centered over the display cases, visible from the storefront and the only lights left on after store hours.

*The author is partner,
with Peter Hetzel
in the Thadani Hetzel Partnership.*

DETAILS

PROJECT: BOYCE & LEWIS SHOES

LOCATION: WASHINGTON, D.C.

LIGHTING DESIGNER AND ARCHITECT:

DHIRU THADANI, AIA, PETER HETZEL,
and ALAN MARKO,

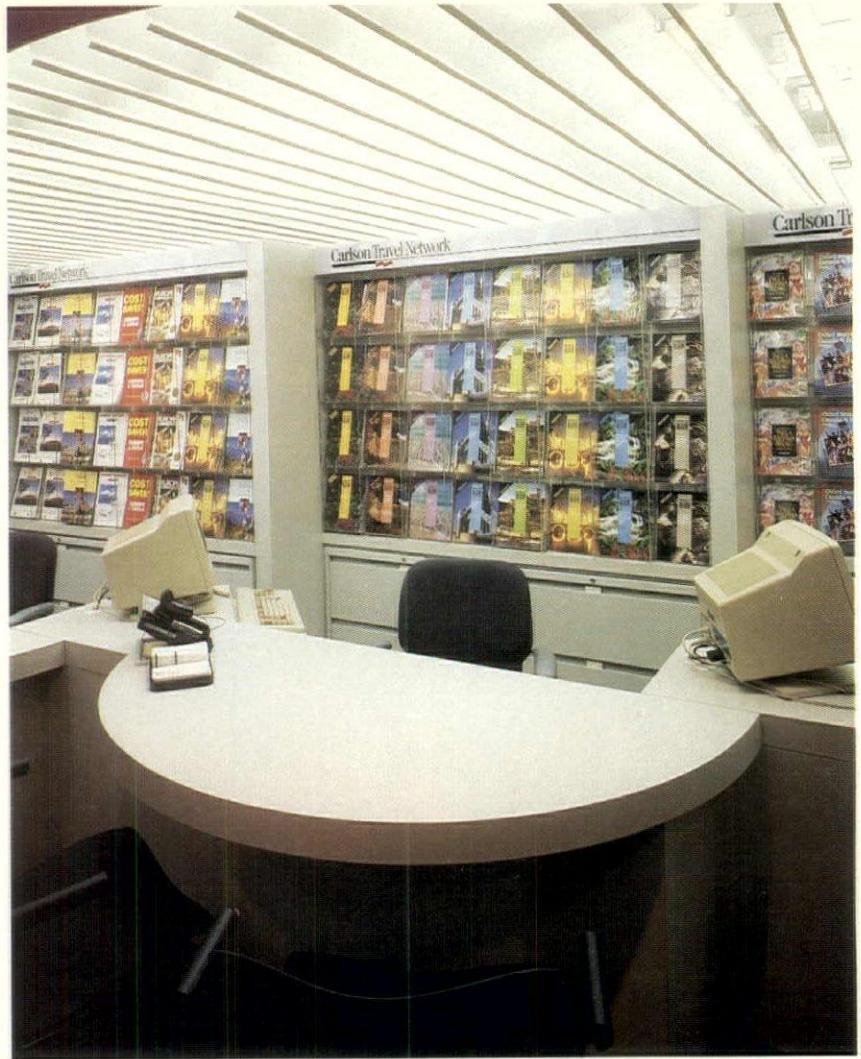
THADANI HETZEL PARTNERSHIP

PHOTOGRAPHER: GORDON BEALL

LIGHTING MANUFACTURERS: ARTEMIDE:

Sintesi, Cyclos, and Pilade fixtures; LIGHTOLIER:
wall washers and Crescendo dimmers





The Sophisticated Traveler's Boutique

**THE CARLSON TRAVEL
NETWORK UNVEILS ITS
NATIONAL PROTOTYPE**

BY CATHERINE SCHEITTING SALFINO MANAGING EDITOR

Carlson Travel Network



Most prospective vacationers have a general idea of where they'd like to go for some R&R. "The Islands," "Europe," "California." They know they want someplace fun and interesting, maybe even a little exotic. But for the trip details, they often head to the travel agent.

Now, in a move to capture a greater segment of the market, Carlson Travel Network has created a prototype facility that positions the national agency in the "para-retail" industry.

"Retail/service is a new sector of the design market that is broadening for us," says project designer Sanford Stein, principle of SteinDesign, Minneapolis. "In the major regional malls, there's a lot of retail fallout right now. So service entities like this and others are filling in the gaps of what used to be solely retail. Carlson is going to be part of this phenomenon that's occurring in retail throughout the country."

The facility is a prototype for a national rollout that is being planned by the national travel agency's retail division. Carlson management wanted to create a retail store that would go into better locations, like regional and strip malls. Two underlying concerns were that the new facility be smaller and more efficient, and that it reflect a

retail look, like the agency is selling travel.

"The facility needed a high degree of organization for the brochures so that when customers come in, they can go through them almost like they would when buying a shirt at the GAP," Stein says. "The agent station—the connected desk and reference area immediately behind the agent—needed a very efficient design that would allow the agents to do their work without having to get up and wander all over to put materials together."

The design also allows agents to maintain good contact both with their customers and those entering the front door. Stein says that, through the desks' stepped effect and different lighting levels, he was aiming to create two distinct spaces in the facility. Since the agents' station is a more productive work area, the ambient light is at a much higher lumen level than the overall public browsing area. Also, Stein says, a higher lumen level was needed to display the brochures and illuminate the computers for the agents.

The lighting in the agent areas called for 40-watt, color balanced strip fluorescents mounted to an upper false ceiling. The metal baffles are hung at a 90-degree opposition to the lamps. The computer is then rotated at 45 degrees to that so that the

OVER THE WAVES: Workstations (left) are lit with 13-watt strip fluorescents shielded by metal baffles that are angled to prevent glare on CRTs. The store's signage (right) is backlit with 50-watt, tungsten halogen wall washers.



combination of the positioning of the computer and the baffles at the right angles to the 3,000K fluorescents eliminates any reflection or glare on the CRT screen.

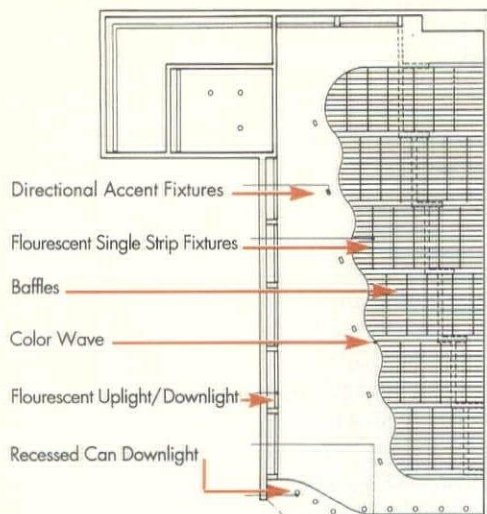
The curve of the desks relates to the squiggle on the storefront logo, which resembles a wave.

"We started thinking about how not only is a wave a friendly, softer shape in a highly efficient space, but it's a natural tie-in to travel," Stein says. "When we created the ceiling wave as a way to halt the baffles, we also mirrored the effect in the carpet below."

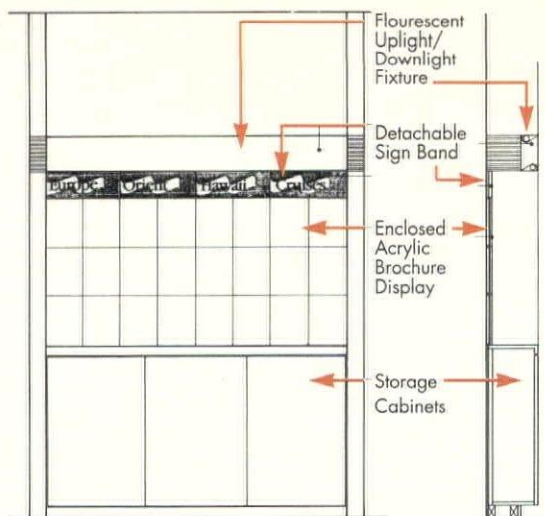
The wave is a shaped plywood form covered with a printed vinyl material. Its vibrant hues, which range from warm to cool, not only draw customers into the facility, but reflect the colors of the brochures. A slight gap between the ceiling and wave form lends a halo effect to the space. Recessed 150-watt R 40 flood lamps mounted at 90-degree angles highlight the color wave.

"The wave serves to draw people in and, at the same time, remind them of the Caribbean Ocean

REFLECTED CEILING PLAN



ELEVATION & SECTION



VIBRANT VINYL: The ceiling waves are made from shaped plywood covered with vibrant-colored vinyl. The waves, highlighted with recessed R 40 flood lamps mounted at 90 degree angles, appear to float due to the gap between them and the ceiling.

and Hawaiian sunsets," Stein says.

The brochures across from the agent desks are illuminated from above with custom-made, 40-watt fluorescent strip fixtures. The illumination projects onto the wall from the bracket-mounted fixture, which provides up and down lighting.

"Everything is color balanced to 3,000-degrees Kelvin so that the incandescents and fluorescents are similar in color, and the color rendering index is high," Stein says. "A good color rendering index was very important in making the space read well because it had to look fun and exciting—all the things related to a fabulous vacation."

The store's signage is backlit with 50-watt tungsten halogen wall-washers. These pendant fixtures are mounted at a 45-degree angle to the sign. The storefront is illuminated with 75-watt PAR 30 floods.

Stein says the project's energy efficiency is important since that would be a factor in rolling this design out nationally. The off-white surfaces aid in this, Stein says, providing reflectance so that the interior looks active to passersby.

"The first week it opened, we were here doing a punch list," Stein relates, "and a fellow walked in and sort of blurted out, 'I don't really know why I'm in here, but I guess I'll just look around. 'We knew we were catching people's eyes.'"

DETAILS

PROJECT: CARLSON TRAVEL NETWORK PROTOTYPE

LOCATION: PLAZA VII SHOPS—

RADISSON HOTEL, MINNEAPOLIS

CLIENT: CARLSON TRAVEL NETWORK—

RETAIL DIVISION

LIGHTING CONSULTANT: CHARLES LEAVITT III

INTERIOR/LIGHTING DESIGN: STEINDESIGN

PHOTOGRAPHER: GEORGE HEINRICH

PHOTOGRAPHERS, MINNEAPOLIS

LIGHTING MANUFACTURERS: LIGHTOLIER: recessed wall washer, recessed downlight, halogen wall-washer, PAR 30 floods; KLP: PL 13s, fluorescent strip; ECLIPSE LIGHTING: fluorescent wall-washer, type E wall display lighting; HUNTER DOUGLAS: ceiling baffles

GUIDELINES FOR LIGHTING RESIDENCES

BY RON HARWOOD AND KRIS BUELOW

SCENE 1 After a long day at work with a hundred distractions, 50 problems, 25 solutions and a migraine headache, our subject turns onto the freeway and heads home. One button rolls down his window, another selects some classical music and a third displays the outside temperature as he tools along guided by an on-board computer. Just as he hits the driveway, another button opens the garage door and turns on an entry light. One more closes the garage door behind him.

SCENE 2 Feeling better, our subject loosens his tie and flips a switch for the kitchen light. Blinded by the glare of the fluorescent center light, he feels his temples pulse again. Off goes the kitchen switch and on goes the dining room light. Bang! Another splash of brightness from the chandelier sends him fumbling for the dimmer.

And so goes the rest of the night. After the kids are in bed, he lounges on the couch bathed in the illumination of his television set, and slips into a peaceful sleep. What's wrong with this picture?

INTERMISSION The problem is that we are willing to pay thousands of dollars for transient and trendy creature comforts each year—stereos, car options, and designer clothes. Yet, few of us consider the lighting in our homes equally as important, although most of us only enjoy our homes in an artificially illuminated state. In fact, even the glitzy magazine photographs that we swoon over have been artificially illuminated by a lighting designer or an architectural photographer.

In reality, artistically illuminated homes sell faster, feel better, and provide superior work space—all these having longer-

lasting effects than most forms of sensory entertainment. The following are some general guidelines for developing a charismatic residential interior through lighting.

THE FOYER The first step through the door into the foyer should present guests with a feeling of arrival, and serve as a transition point before going on to the rest of the house. Since the foyer acts mainly as a passageway, use soft lighting to establish an alluring atmosphere.

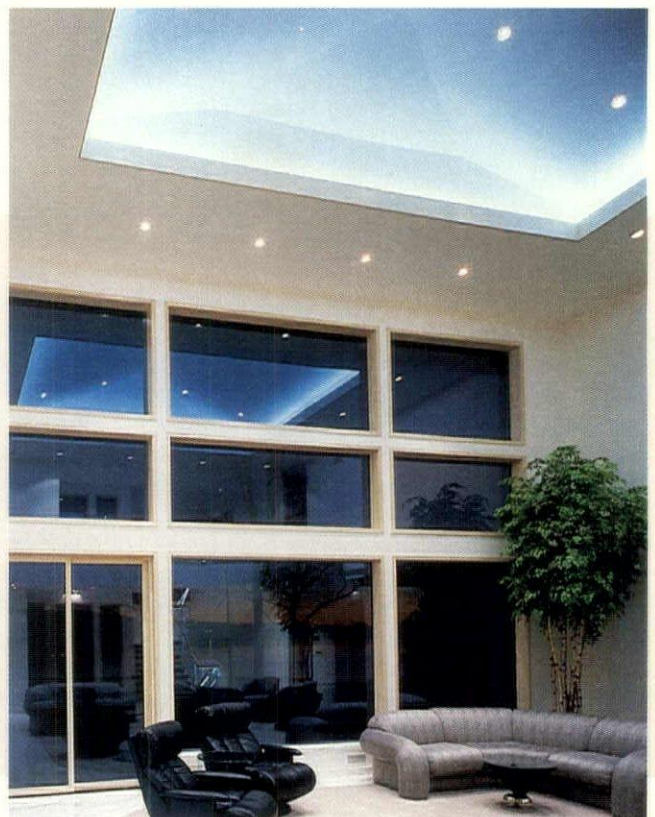
The nature of the foyer can create a gallery setting for artwork and an excellent opportunity to showcase each piece with dramatic lighting. By focusing most of the foyer's lighting on artifacts, a sense of energy and elegance can be instilled in the space. However, be careful to avoid overlighting the foyer and distracting from the more interesting rooms beyond. We generally illuminate the foyer to approximately the luminance level of a functional room, as it requires only a soft glow around the ceiling. If you're looking for a more dramatic look, you may try an extremely cool white light to radiate a sky atmosphere across the ceiling.

Pleasant lighting requires fixtures to shine away from the line of vision. This often poses a problem when dealing with sloped or vaulted ceilings. The incline of the ceiling makes standard recessed lighting inappropriate because the fixtures would shine into guests' eyes. To avoid this, use adjustable recessed lights and

LIVING ROOMS

(Right) The lighting designer left special allowances to mount neon in coves 24 inches above the floor. The special color compensation creates an exterior feel shown here against the setting sun in the lake scene beyond the living room.

(Opposite page) Pinspots highlighting seating areas and artifacts brings a design to life by emphasizing texture and warmth.



aim them perpendicular to the floor. Another possible solution entails building ceiling niches parallel to the floor, allowing the adjustable lights to be aimed back onto the wall.

Lighting across the ceiling is very important to the overall feeling of the space. Our peripheral vision naturally perceives the ceiling when we look forward. Taking this into account, the lighting should be focused upward rather than down onto the floor. Soft light from wall sconces, torchieres and floor-mounted fixtures will accomplish this, and create a pleasant glow. For a less visible light source, coves along the ceiling or coffers housing either neon or linear light sources will also produce this effect.

COVE LIGHTING Cove lighting can be accomplished without making major changes to the architecture and results in an elegant, well-lit space. By layering molding along the ceiling, enough space can be created in which to install indirect fluorescent or neon lighting. However, when using a fluorescent source, be cautious when abutting lamp ends. The void between the tubes will appear as shadow stripes along the wall.

If you choose neon, the alternative to fluorescent, it is important to know its drawbacks as well. Neon lighting changes color where the tubing doubles back or terminates. To avoid a visible color change, the ends should be painted black from the point of the color shift to the tube's end. To minimize

the shift in both color and intensity, the tubes should be crossed over and offset at the black points rather than doubled back. This installation method eliminates dead spots and creates a smooth transition and an unbroken light line. One installation hint: before the contractor leaves, turn on and check all cove lighting for consistency and proper alignment.

LIVING ROOM AND GREAT ROOM Although cove lighting is an excellent indirect light source, an area like the living room or great room requires additional lighting sources. Spaces of 600 square feet or more will often contain several seating areas, each with their own function. These separate rooms within a room require a lighting system that allows for multiple settings to accommodate activities in each section.

The key to developing a charismatic and practical lighting system is to design the layout and function of each area. For example, a section intended for guest entertainment would have a higher lighting level than one designated for watching television. After designing each area, the appropriate number of channels and scenes can be programmed into a scene control panel which allows for instant setting changes.

When selecting lighting fixtures for a great room, consider the seating area surfaces, the design intent, and the surrounding architecture. Vaulted and sloped ceilings, furniture texture and





EATING AREAS

(Top) Direct and indirect lighting above and below the cabinets makes them appear to float.

(Above) Eclectic interiors are enhanced with lighting that brings out the textures of fine materials and artwork. For example, a halogen unit focused over the wall hung art emphasizes texture and color.

color, and the overall design style should all direct fixture selection and lamp color. Once the fixtures are installed, the atmosphere can be varied further by dimming individual lamps to create a more playful ambience.

DINING ROOM While the living room requires more intense illumination, the dining room usually calls for subdued lighting, suitable for entertaining. Since it is usually a protected room used for special occasions, many people display special fine china collections, antique silverware or precious artwork. Proper lighting will accentuate the collection, and provide enough incidental illumination for a cozy atmosphere. Even in residential settings, displays can be highlighted with museum quality lighting through case lighting, focused downlights and framed lighting. Each method draws the eye to the display and enhances the textures and colors of the collection pieces.

If the main attraction in your dining room is the light fixture itself, such as an intricate chandelier, install accent lights to emphasize its beauty. Recessed downlights surrounding the fixture will highlight cut glass or ornamental features, and function as an ambient light source. Dimming the chandelier's lamps and using the surrounding downlights as the main light source will also ensure that the chandelier is pleasant to view, and not a source of glare.

THE KITCHEN Unlike the dining room, the kitchen is often not used for entertainment, and presents a different kind of problem. Its space is almost entirely functional and requires a lighting design that illuminates all work surfaces. Traditionally, kitchen fixtures were centered in the ceiling and were intended to illuminate the entire area from the top down. Since most people require little light on top of their heads while cooking, mounting fluorescent fixtures under the cabinets provides better surface lighting, and conceals the fixtures at the same time.

Indirect lighting along the ceiling, adjustable halogen or wall wash fixtures will provide ample uplighting and allow the eye to focus on decorative elements rather than the ceiling.

HALLWAYS The hallways present another space in which light can be used to direct the eye toward decorative elements. Sparking viewer interest in a strictly transitional space, like a hallway, introduces a problem easily solved with good lighting design. Interesting photographs or artwork lit with well-focused adjustable lights will intrigue visitors, but in the absence of art, selected decorative trims or sparing use of wall sconces will institute some drama.

BATHS Baths and powder rooms present perfect settings for dramatic lighting. In the 1960s and 1970s, the popular style revolved around a combination of heavy interior design and decorative fixtures. Slowly, recessed downlights began to 'clean up' the walls and allow the interior design to carry the

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drama. This created a new set of problems, such as shadows reflected on faces in mirrors, and scallops on the walls.

The recent introduction of smaller halogen sources has increased design freedom in two ways. First, it is substantially easier to direct light from MR 16, MR 11 and PAR 36 low-voltage lamps, making aiming more precise and effective. Second, because some manufacturers make housings and trims in the 4-inch aperture range, the ceiling hole is better proportioned to smaller rooms. Now, when you walk into a bath or powder room, you can see the entire room as one cohesive unit because the ceilings are not variegated with large holes.

Perhaps even more importantly, smaller downlights make it more feasible to combine light sources. Pendants and wall sconces seem to work well even when integrated with the task-oriented recessed lights. Thus, a new palette is available for lighting designers to create fun and drama in smaller rooms and spaces.

Powder rooms are less functional by design than full baths or master baths, so only two functions really need to be addressed. Dramatic lighting and a functional make-up or mirror light are the most important design issues. Since they are also generally smaller than baths, powder rooms can function nicely with just a couple of downlights, but using these creatively can be exciting. To do this, light the basin with one or two downlights, then pick a wall or artifact to light. The room's focal point then shifts away from the basin and vanity, which opens up the area and creates the illusion that room is larger than it really is. If it's possible to light two pieces of art on different walls, consider lighting the basin with one downlight,

and adding sconces to provide sidelight for complexion lighting.

For those who believe mirrors look better without sidewall lighting, it is sometimes possible to pull the mirror forward from the wall and illuminate the sides from behind the glass. This is particularly effective when the walls are painted a neutral or cream color because the light from behind the mirror will be softly diffused and appear as a warm color. Although lighting from behind a mirror can be tricky and expensive, the effect of backlighting is usually worth the trouble. Mounted bayonet-style, 24-volt lamps are perhaps the easiest fixtures to use and dim.

Keep in mind that if the countertop is specular, it is not a good idea to light the bottom side of the mirror because it will reflect the image of the lamp and sockets. Compact fluorescent and T-8 fluorescent lamps are clumsier, although brighter, alternatives for backlighting. Recessing these elements into the wall can make them easier to conceal and a little more aesthetically appealing.

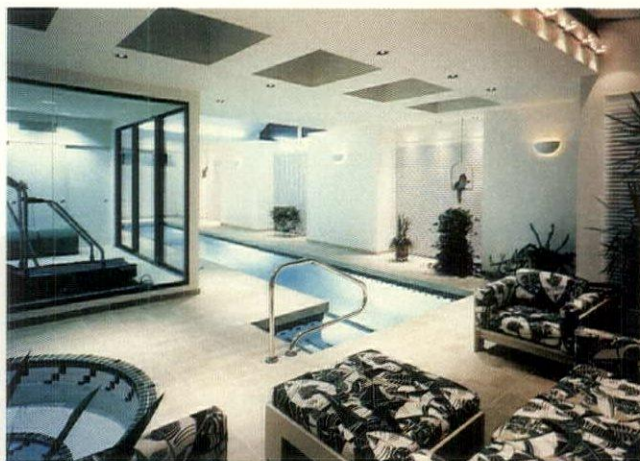
The floating vanity has long been a feature of good lighting design for powder rooms and baths. In some cases, this effect happens so automatically that often incorrect or incomplete installation details are provided. As bathroom tiles and marble become more specular and less patterned, one must be careful

BED, BATH & EXERCISE

(Top right) Indirect fluorescent lighting creates a soft warm glow in the background, while adjustable halogen lighting illuminates seating surfaces and walkways. The exercise room stays cool because of adjustable compact fluorescent downlights that also eliminate the harsh infrared feel common in exercise areas.

(Below right) A touch of lighting on the louvers helps add charisma to a space even in an out-of-the-way room like a second bedroom.

(Opposite page) Using only adjustable halogen lighting from the ceiling could create harsh shadows, but the addition of halogen pendants eliminates shadows and creates a soft glow flattering to complexions. Here, a lite pipe provides additional sidelighting and fill light well suited for cosmetic grooming tasks. The lite pipe is mounted flush with the mirrored walls and illuminated from the lower level with 50-watt PAR 16 halogen lamps.



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to avoid lamp merging and lamp glare. It is best simply to create a shelf on which the dimmable fluorescent lamp can rest. The finished cabinet front will hide the reflections from view. Using a dimmable source allows this arrangement to be used effectively also as a night-light.

Main and master bedroom baths are usually larger and so offer added opportunities for incorporating interesting lighting. The first step is to arrange arbitrary ceiling utilities such as heat lamps and bath fans in a functional but inconspicuous manner. To accomplish this, try relocating fans in alcoves, niches or even vertically in slightly hidden walls. Heat lamps can be exchanged for toekick heaters if supplemental heat is the real requirement. Once unnecessary ceiling clutter is eliminated, consider uplighting the ceiling with coves or sconces to enlarge the space and soften shadows from downlights.

One also needs to consider lighting for hairstyling and other cosmetic activities, which are daily tasks in the master bath. In this instance, a little retail store lighting design experience pays off. Adding a pair of lights (usually PAR 20-50 watt, or MR 16 EXZ-50 watt lamps) in 4-inch aperture fixtures will define highlights in hairstyles and colors. Place these on either side of the sink basins and two feet in front of them (3 feet, 6 inches from the mirror) much like display lights in a retail store.

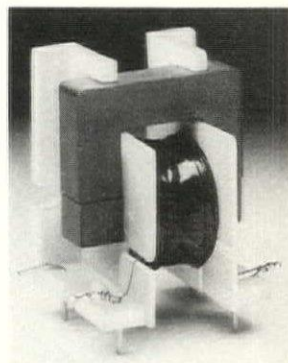
To develop the bathroom's look and feel, use plants and artwork on bare walls and in empty spaces. Decorative pendants coupled with focused light on these decorated walls and individ-

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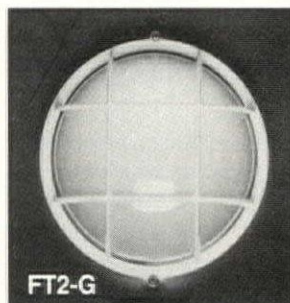


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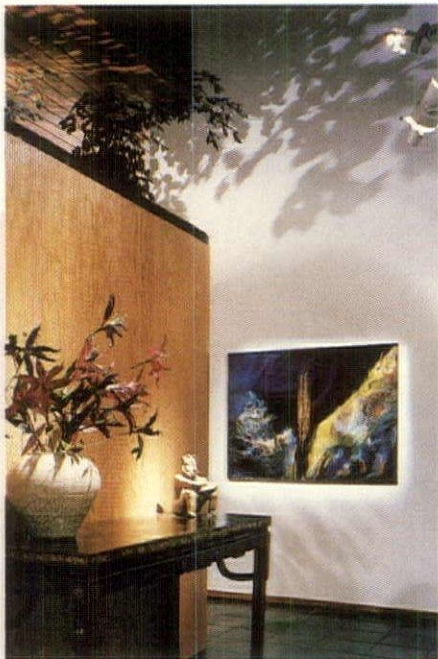


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FINISHING TOUCHES

(Top) To accent the artwork, the acrylic painting is framed with a 250-watt quartz projector, while a 20-watt halogen pin spot accents the piece of pre-Columbian art. Indirect light shining through the tree leaves casts an abstract pattern onto the ceiling for the finishing touch.

(Above) Neon embedded in the custom hardwood handrail illuminates the glass panels, emphasizes the tread without reflections in the marble, and reinforces the sense of the stairway's vertical motion.

ual plants or artifacts can heighten the room's drama. For an interesting variation from the norm, install inverted coves of indirect light or concealed track lighting in a slot within a soffit, rather than downlights in perimeter soffits. For maximum drama, use PAR 36, 25-volt pinspots on plants or floral arrangements.

Cosmetic lighting is the most difficult task to light creatively. Using pendant lights here with halogen sources enclosed in frosted glass can provide a unique look, and accomplish the side and under chin lighting needed for accurate make-up and shaving tasks. On smaller vanity areas, try flush mounting various decorative acrylics to achieve the same result.

To finish the design, install appropriate dimming units. Wallbox-mounted dimmers should be accurately placed, and functional for both line and low-voltage lamp sources. For those who start in motion before sunrise and return after dark, dimming is both practical and essential.

CLOSETS One of the first areas guests see is the front hall coat closet. Because of this, it should be lit with as much care as other parts of the house. If you have a Victorian home, try a fine chandelier in the closet to add class and a little mirth to the guests' first sense of arrival. If you have a contemporary home, recessed 1-foot by 1-foot parabolic luminaires, or even low-voltage track lights will continue the look of the house and solve the lighting problem.

Walk-in pantries are viewed by the homeowner almost as often as their bedroom closets. Surface-mounted, two 60-watt warparound acrylic, low-profile fluorescent fixtures above the header of the door entry will provide excellent fill light.

The master bedroom closet is often overlooked as a showplace. However, when a home is shown to visitors, it is never bypassed and, moreover, should not be. But aside from acting as a showpiece, the art of selecting coordinated fashions depends on accurate closet lighting. Use halogen wall washers, either mounted on track or used as monopoints, to pop the fabric colors and textures. If lighting is also required for a full length mirror in the closet, place a pair of A-lamp downlights in front of it to attain the aura of a showroom.

CONCLUSION Project managers overseeing the construction of malls, medical centers, state-of-the-art offices, and car showrooms have an all-consuming job, but ask any one of them about their most grueling and ultimately rewarding construction program and most will say their homes. Our personalities are reflected most by our home environment and quality lighting, well thought-out controls, and an architecturally integrated lighting instrument plan can make coming home a continuously exciting and rewarding experience.

Ron Harwood and Kris Buelow are the president and director of communication, respectively, of Illuminating Concepts, Farmington Hills, MI.

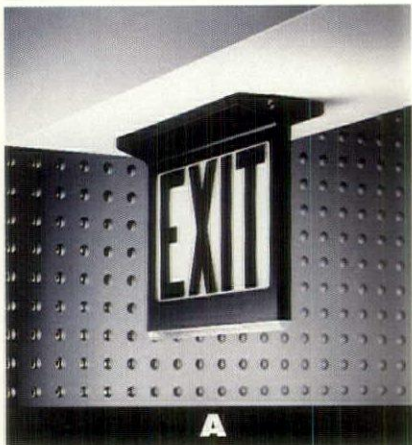
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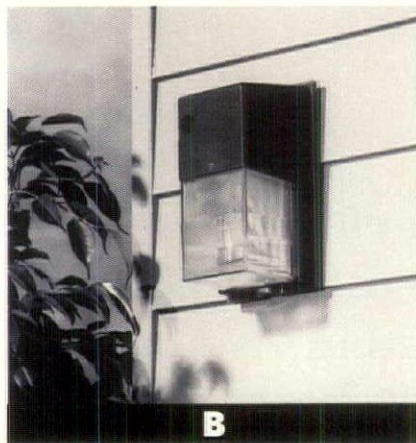


A. Energy-Efficient Exit

The Egresser uses 5 watts per hour per unit as compared to the 40 watts per hour per unit used by incandescent exit signs. The Egresser subminiature lamps have a projected life of over 70,000 hours (8 years) and offer four times the average amount of brightness in the emergency mode. The sign is 5/8 inches wide, allowing batteries, transformers, and electronics to be concealed in the ceiling or wall. Sure-Lites, Elk Grove Village, IL. **Circle 50**

B. More Choices

There are now more lamp choices and a highpower factor ballast for the TwiLighter TLW Series Wallprism.

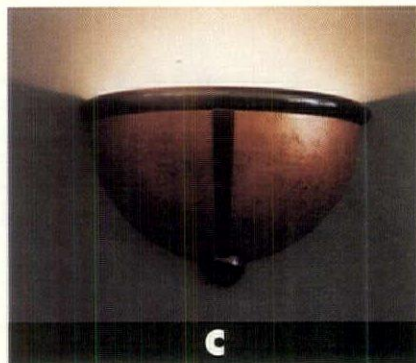


The compact fixtures with photo-control option are ideal for security lighting. Typical applications include entranceways, over garage doors, and along the sides of buildings. The additional lamp choices for the TLW are a 70-watt HPS, a 50-watt metal halide, and a 28-watt compact fluorescent lamp. Previously, the fixture could only accommodate 35-

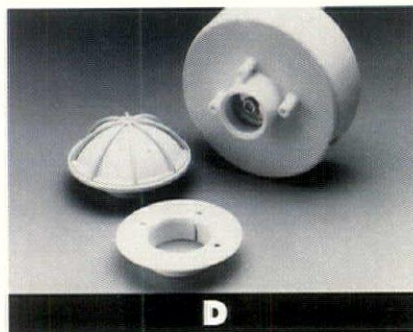
or 50-watt HPS lamps. To accommodate a wider variety of applications, the TLW includes a high-power factor ballast with 120-volt input. Stonco Lighting, a Genlyte Co., Union, NJ. **Circle 59**

C. Decorative Wall Bracket

The Arizona bracket, shown in faux copper patina



and polished black brass, measures 15-inches wide x 9 inches high, and is



5 inches in diameter. Arizona uses one 60-watt A 19 lamp. Morrison, Novato, CA. **Circle 63**

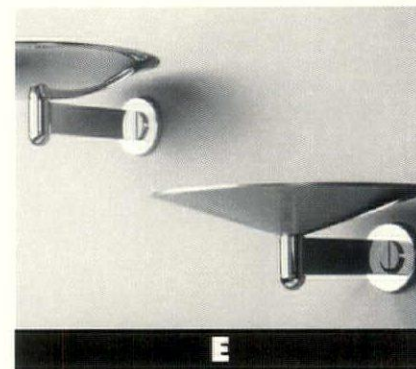
D. Large Area Sensor

The line of H-Moss motion switching system occupancy sensors has been expanded with the introduction of H-Moss 1200 large area sensor, which has an effective coverage of up to 2,200 square feet for most indoor applications. The sensor has a 360-degree field of view up to 46-foot diameter coverage, and is operated by a

control unit, which can control up to four H-Moss 1200 sensors. Hubbell Inc., Wiring Device Division, Bridgeport, CT. **Circle 52**

E. Wall Bracket Fixtures

Two wall bracket fixtures, designed by Richard Brayton, are constructed without exposed fasteners for aesthetic appearance on the wall. The fixtures are available with two interchangeable



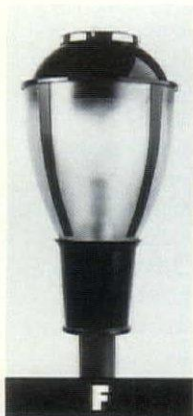
able, upright 16-inch flood reflector shade styles. Both styles can be used

with the F2601 wall bracket designed for a 250-watt quartz halogen lamp, or with the F2602 bracket, which uses a 100-watt halogen lamp. Casella Lighting, San Francisco. **Circle 53**

F. Post Top Lantern

The Gettysburg lantern is a vandal-resistant, colonial-type post top lantern with a high quality injection molded polycarbonate lens in a Type V distribution. Able to accommodate up to 150-watt HPS or 175-watt metal halide, the fixture features a rugged cast aluminum base that houses the ballast assembly. It measures 16 inches in diameter

x 27.5 inches high. MagniFlood, West Babylon, NY. **Circle 54**



F

G. Recessed Mount Exit Signs

The Betalux self-luminous recessed mount exit signs are designed for low-level installation. The fixture can be mounted anywhere

without the need for wiring or outlets. The sign is totally sealed and explosion proof, and has a 20-year lamp life. SRB Technologies, Inc., Winston-Salem, NC.

Circle 55

H. Photoelectric Control

Nitelighter Series FA wire-on photoelectric controls are specifically designed for use in utility, commercial/industrial, or residential lighting fixtures such as floodlights, patio lamps, and decora-

tive luminaires. A .75-square-inch surface passivated cadmium sulfide

photocell ensures stable turn-on and turn-off characteristics and higher

surge-withstand capability over the lifetime of the control. Fisher Pierce,

Division of Pacific Scientific, Weymouth, MA.

Circle 56



G



H



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LUCIFER LIGHT STRIPS**

The Lucifer™ Series 2000 Low Voltage Light Strip with Snap-on Rotatable Halogen Socket. Features: U.L. Class I Rated at 20 Amps; Flexible to 16' Lengths; 3, 5, 10 Watt Incandescent Festoon Lamp Options; 10, 12 Watt Quartz Halogen Lamp Options. To 480 Watts at 24 volts. Lucifer Lets You Master the Light.

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Circle No. 17 on product card.

I. Colored Bulb Sleeves

Color Lytes are a colored silicone

sleeve that slides over any 11-watt or lower wedge base bulb and gives

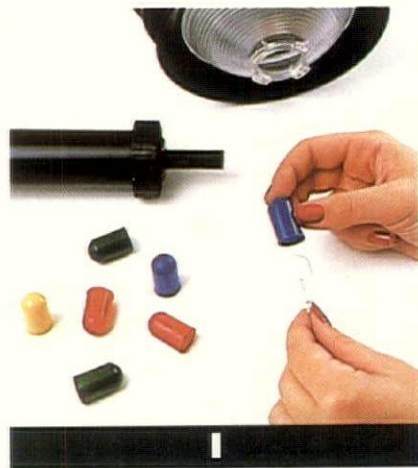
color to standard accent lighting. Users can add splashes of color to

driveways, sidewalks, landscapes, and other locations where low voltage

lighting is used. The sleeves are available in amber, blue, green, and red. Intermatic Inc. Spring Grove, IL. **Circle 60**

foot x 4-foot sizes are available as well as .75-foot x 4-foot, 1.25-foot x 2-foot, and 1.25 x 4-foot sizes. The fixture accepts a wide range of lamp types including T8 Octron and twin tube biaxial sources. Lumax Industries, Inc.,

J. Surface-Mount Luminaire
The SL Series Stratolume surface-mount luminaire for



commercial, institutional, and residential applications features a smoothly contoured white diffuser and a thin-line black finish housing. Standard 1-foot x 4-foot, 2-foot x 2-foot, and 2-

Altoona, PA. **Circle 58**

K. Self-Diagnostic System
HiQ Smarttest, a new self-diagnostic system that monitors life safety equipment and



J

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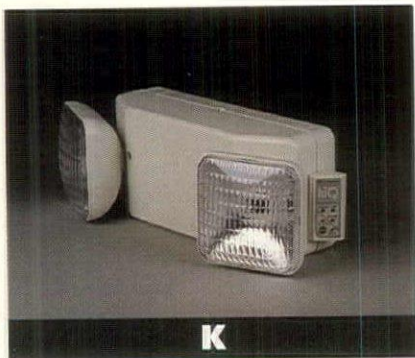
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Caribbean Worldwide Inc.	305-638-0169		NL Corporation	216-662-9069	Art Klein
Con-Tech	708-945-0096	Al Grossman	Norbert Belfer Lighting	908-493-2941	Elaine Belfer
CSL Lighting, Inc.	805-257-1554	Richard Stellar	Poulsen	305-625-1213	
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King Luminaire	216-576-9073		3M Construction Mkt Dept	612-736-0611	Kay Syverson
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identifies equipment problems before an emergency situation develops, is available with Quantum Series exit signs or

Quantum 6-volt emergency lighting units. If the system detects a problem in the lamps, battery, or charging system, the corre-

sponding LED indicator on the panel will flash and an audible (silenceable) alarm will sound. The system automatically performs a one-second system check every minute, a five minute test every 30 days, a 30-minute routine every six months, and can detect more than one failure at a time. Lithonia Lighting, Conyers, GA.

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