ARCHITECTURAL

OCTOBER NOVEMBER 1992 \$6.00

Chop Suey Louie

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Miniature spotlights using MR-11 type, 20W quartz halogen lamps can now be clipped onto glass shelving and illuminated by wafer thin copper conductive tape - no wires, no track, no fuss! E.T.L. listed. Patent pending.

LIGHT STRIPS

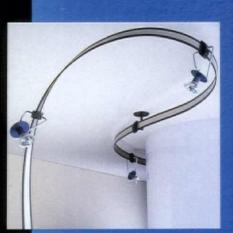
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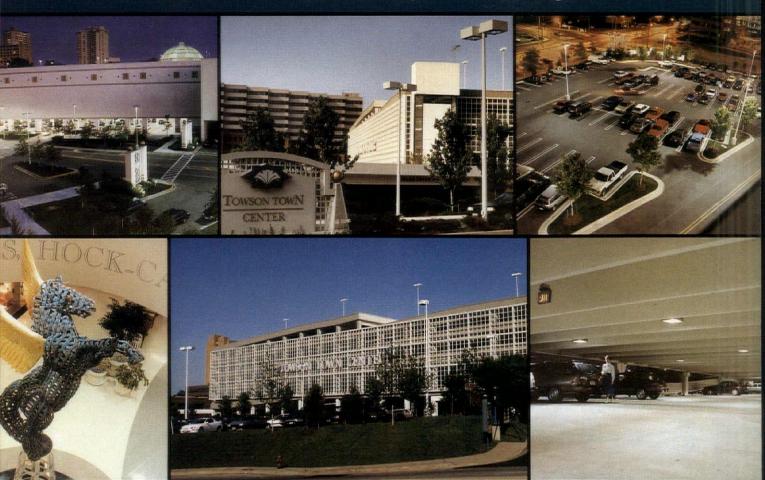
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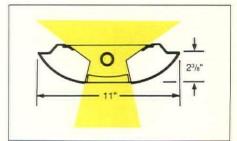
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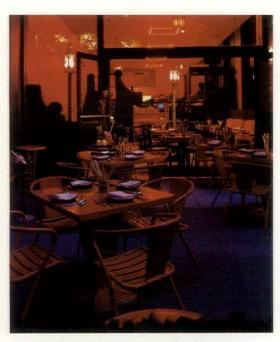
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VOLUME 6, NUMBER 4



1 8 CHOP SUEY LOUIE
Cover Photo by Elliott Kaufman



36 SONORAN DESERT RETREAT

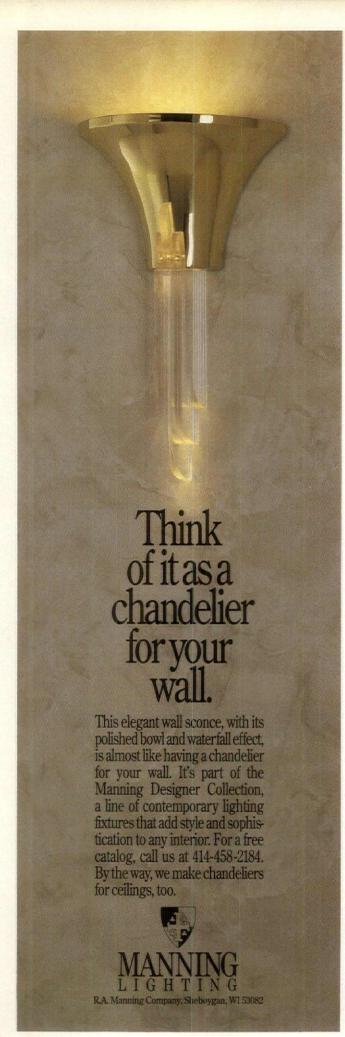
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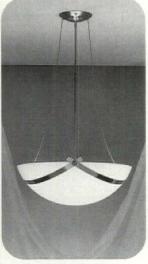
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OSRAM ACQUIRES SYLVANIA

Osram, a Siemens Company, today reached an agreement with GTE Corporation, Stamford, CT, for the acquisition of GTE's North American lighting business. Sylvania manufactures products in 29 plants and employs more than 13,000 people in the U.S. and Canada with revenues of approximately \$1.3 billion. The company manufactures and markets lamps for consumer, commercial, industrial and automotive customers.

The acquisition will strengthen the Munich, Germany-based Osram GmbH's competitive ability in the sale of lamps around the world. Total sales of Osram will increase by 70 percent to approximately \$3.1 billion and employment will reach 29,000 worldwide.

Osram has been active in North America for a number of years, concentrating principally on industrial/commercial, theatrical, and specialty and automotive lighting products. In addition to the Sylvania business, Osram will acquire ownership of GTE's chemical and metallurgical operations, electronic components and materials operations and glass products operations.

LUTRON OPENS JAPAN SALES OFFICE

Lutron Electronics, Co., Inc., manufacturer of lighting controls products worldwide, has opened its first Japanese sales office in Tokyo. "Electrical equipment specifiers and lighting designers around the world are performing an increasing amount of work in Japan," says Joel S. Spira, chairman and founder of Lutron. "Through our new Tokyo office, we will be able to support their projects on a local basis as well as expand our own international presence."

Robert Yoshida has been named director of the Lutron Asuka Corporation. Mr. Yoshida was previously director of marketing with the Matsushita Electronic Components Corporation.

Lutron also has selected Yamagiwa Corporation, the country's largest independent distributor of lighting products, as its first distributor in Japan. Yamagiwa operates 26 lighting product distribution centers throughout Japan.

Lutron is the first U.S. lighting control manufacturer to earn International Standardization Organization (ISO) 9001 registration. In addition to modifying its products for the Japanese market, Lutron has received factory registration and T-mark listing for its products from Japan's Ministry of International Trade and Industry.

GENLYTE ACQUIRES FORECAST ASSETS

The Genlyte Group Inc. has acquired the assets of Forecast Lighting Company, a manufacturer of decorative showroom lighting. The acquisition represents an important addition to Genlyte's growing market position in the decorative showroom segment.

The Forecast product line will be marketed under the Forecast brand name. Larry Powers, executive vice president of Genlyte, will be assuming responsibility for managing the

operations of Forecast and driving Forecast's sales, marketing and product development efforts. Ray Renta, the original founder of Forecast, will be affiliated with the business again in the area of new product development.

USHIO ACQUIRES CHRISTIE ELECTRIC

Ushio America, Inc., the world's largest manufacturer of specialty lamps, announced the recent acquisition of Christie Electric Incorporated, located in Los Angeles, CA. The company manufactures and distributes motion picture equipment and xenon lamps. According to Tom Ciurczak, vice president of marketing at Ushio, "This move consolidates the Ushio product line in the United States."

KELLY GRANT CALL FOR ENTRIES

The New York Chapter of the Illuminating Engineering Society of North America is calling for entries for the 1993 Richard Kelly Grant, an education grant offered to recognize and encourage creative thought and activity in the use of light. Cash grants from \$500 to \$1,500 will be awarded.

Eligibility is restricted to persons 35 years of age or younger, working or studying in the U.S., Canada, or Mexico. The deadline for submissions is January 31, 1993.

Proposed, current or completed projects which represent innovative work in the conceptual or applied use of light may be submitted. The jury will consider works involving: architectural space, art and sculpture, computers, education, graphics, health care, lighting fixture design, models, research and analysis, and theater. The submission format is a one-page outline describing the thesis of the project. It may be accompanied by 35mm slides, photographs, videotape (VHS format, 10 minute maximum length), and/or drawings. All art should be numbered and keyed to copy. The one-page outline should discuss the thought process behind the work, the work's importance and the way light is used to better understand a problem. Applicants should indicate how the grant would be used to further one's education research in lighting.

Submissions should be sent to the Richard Kelly Grant, c/o IES, 345 East 47 Street, New York, NY 10017. Include a self-addressed, stamped envelope for the return of your submission. For information, contact Holly Bernard at IES, 212-705-7915.

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Little Known Fact: Toshiba was the first company to manufacture an electronic ballast back in 1978. Today, Toshiba is one of the top five manufacturers of lighting products in the world — and one of the few manufacturers recognized by Japan's Ministry of International Trade & Industry with a "Good Design Award" for its MR16 Lamp.

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SAVE THE ALBATROSS!— SHAPING THE FUTURE OF DEPARTMENT STORES

BY RONALD HARWOOD

can't think of a more fascinating seminar to attend than one chaired by a senior designer from one of the retail industry's leading design firms. Here, we are likely to see examples of future plans to create even more giant and elaborate shopping and entertainment centers than Mall of America, many coupling hotels like Copley and some integrating office, retail and hotel like 900 North Michigan. The shattering aspect of some of these

seminars is the prediction of doom for the department store, the anchor tenant of today, by the same designers that created them just a few years past.

Proclaiming department stores the albatross of the 21st century is truly a frightening thought. What will happen to the newly designed temples of retail in another 20 years, and what then is the future of a thousand or more regional centers that have been designed around the traditional four anchor concept? Are we all living near the future "ghost town centers" of the future?

Our industry's response to the albatross syndrome needs to tap the same creativity that once made the department store concept the ultimate shopping experience. Imagine for a minute that your department store were in a mall arcade housed within a 300-yearold limestone and marble downtown setting like Brussels or Paris. Your only option would be to work with what you had! We can take a lesson from our European counterparts who have worked within the same edifices for centuries to provide a newer and more exciting experience for their patrons.

Some design firms are finding success, even in these hard times, in mak-

ing the traditional department store into a fun place to be. In fact, the department store may ultimately be the compromise that shoppers have been asking for. That is, a better and more entertaining one-stop place to shop that does not loom in front of them like a giant stadium. But why is this diatribe contained within a lighting column? Simple.

Those store planners who have been successful in resuscitating regional department stores have relied more and more on creative lighting elements to distinguish each shopping area and create destination points for shoppers. Coupled with innovative department planning, graphics and merchandise mix, lighting is turning out to be the newly discovered key to keeping the customer satisfied. Even merchants who once considered energy management the sole criterion for a good lighting design have now seen evidence of real increases (by department) in sales due, in part, to improved lighting techniques.

The oil embargo of the early 1970s was part of what started the downward spiral of the large department store. It's strange but true that when the light bulbs were unscrewed, the cash register went on vacation. It is not accidental that retailers, like the Limited, and department stores, like Nordstroms, that expanded after the energy crisis had more success than their counter-

parts that had just turned the lights out.

Those of you looking for a place to start a relighting program can be staggered by the task at hand. First, it is important-no, essential-to take energy management into consideration. Many retailers, enamored with the early success of their relighting programs, created real bonfires of their vanities by adding far more energy consumption than prudent management would dictate. There is a definite point of diminishing returns created by an increase in HVAC requirements, too much incandescent ambient light, and an overuse of multiple points of focused light.

If a retailer already has a good energy efficient ambient system (that includes, for example, fluorescent electronic ballasts and T-8 high colorrendering lamps), focused light merely needs to be added cautiously. Too little accent light always seems to look like an experiment. Therefore, an entire department should be accented.

This is accomplished by first identifying the "story" to be told. Imagine pointing out the various feature elements (either architectural, graphic, or product display) to be accented, and

then add them up. Keep the total amount of accented elements to within 20 to 30 percent of the total department. Highlight those elements between three and five times brighter than their surroundings, i.e. given 40 footcandles of surrounding ambient light, the featured display needs to be at least 120 footcandles.

The understanding of human motivation in a retail setting and the skills to mix energy efficient lighting elements to provide the most charismatic setting for shoppers is an emerging specialty that could save the shopping center albatross.

The author is president of Illuminating Concepts, Farmington Hills, MI, and a member of the Architectural Lighting Editorial Advisory Board.

NIKE ATHLETIC CENTER

CHALLENGE The Nike Athletic Center, located at Nike's world headquarters in Beaverton, OR, is used to spotlight and promote Nike's premier athletic shoes and sports clothing. The goal was to design a lighting system that would enhance Nike's image as a top quality manufacturer, while providing uniform illumination in the structure with minimal glare.

METHOD Though the facility contains basketball courts, indoor racquetball and squash courts, state-of-the-art exercise equipment and aerobics facilities, the gymnasium is the center's focal point. The lighting system installed in the 80,000-square foot gymnasium, designed by Issam Elsahili, electrical engineer for Interface Engineering, Milwaukee, OR, is built around metal halide fixtures, equipped with 400-watt lamps and prismatic glass reflectors, installed 28 feet above the floor. To insure that all the fixtures are mounted at the same height, they have been suspended on stems below the domed metal ceiling. Some of the stems are as long as six feet, reaching down from the ceiling's peak height of 34 feet. Spacing for the 25 installed fixtures is 20 feet on center.

The fixtures' ability to provide uplight, as well as downlight, eliminates the "dark cavern" effect that can occur in this type of high-ceilinged application. "There are very colorful banners hung from the ceiling above the fixtures," Elsahili says. "With the 20 percent uplight provided by the units, we

found we could effectively illuminate the banners without installing supplemental lighting." The uplight also illuminates the white trusses located above the fixtures. At the same time, comfortable lighting on the floor is furnished with floor levels of 70 footcandles average maintained.

With the long-life metal halide lamps, and smooth glass reflectors that resist dirt and dust build-up, maintenance is expected to be minimal. When the lamps are changed, approximately every two years, the fixture will be wiped clean with a cloth.

CONCLUSION The facility has proved so successful, it is often used by Nike as a backdrop for product advertisements and presentations. Although the Athletic Center was constructed for Nike employees, it is used also by guests from around the world. Recently, for example, the Phoenix Suns professional basketball team trained in the facility when playing a game nearby.

DETAILS

PROJECT: NIKE ATHLETIC CENTER LOCATION: BEAVERTON, OR

LIGHTING DESIGNER: ISSAM ELSAHILI, INTERFACE ENGINEERING,

MILWAUKEE, OR

LIGHTING MANUFACTURER: HOLOPHANE: Prismalume metal halide fixtures

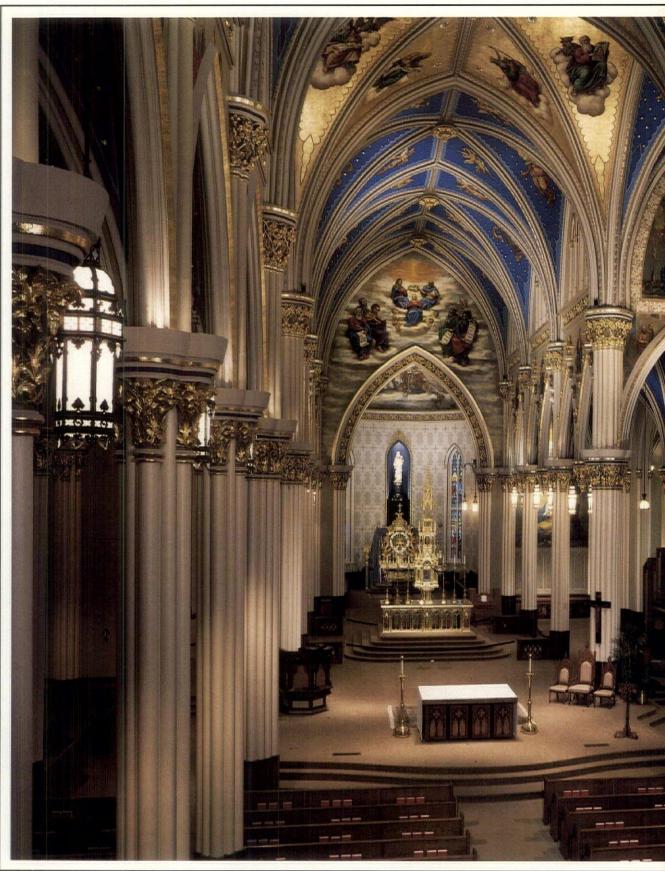


OREGON ORIGINAL: The Nike Athletic Center in Beaverton, OR, is used for products presentations and by guests from around the world. The lighting had to enhance the sports shoes and clothing manufacturer's image.



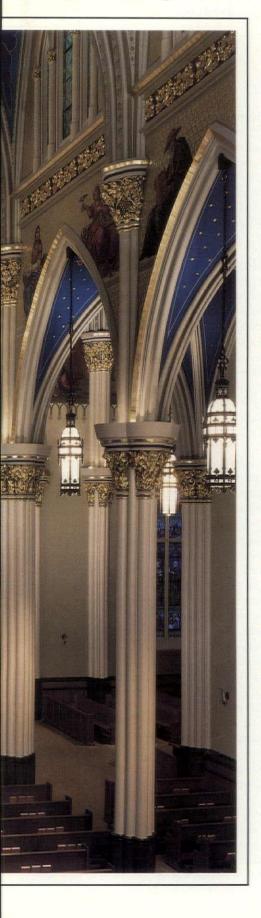
GYMNASIUM: Metal halide luminaires equipped with prismatic glass reflectors are suspended from the domed ceiling to provide 70 footcandles average maintained on the gym floor.

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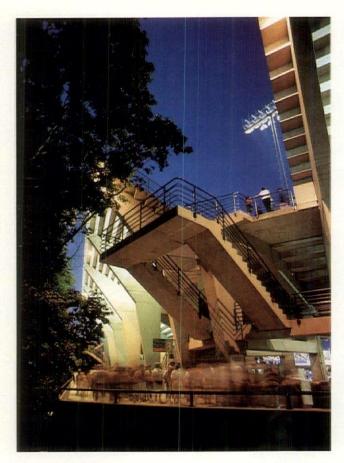
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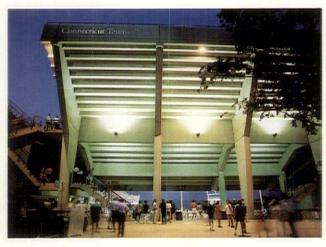


GE Lighting

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CONNECTICUT TENNIS CENTER'S WINNING MATCH





UPLIGHTING OUTDOORS: (Both above) The mammoth architectural structure of the exterior entrance at the \$18 million Connecticut Tennis Center in New Haven is enhanced by the uplight from compact floodlight fixtures.

CHALLENGE The \$18 million Connecticut Tennis Center in New Haven is one of 21 locations on the worldwide Association of Tennis Professionals (ATP) tour and home to the Volvo International Tennis Tournament, the principal event at the stadium. The lighting design had to accommodate television coverage, provide glare-free illumination for players and spectators, avoid stray beams that would offend neighboring residents, and satisfy the state of Connecticut, which financed the complex with bonds.

DESIGN/TECHNICAL CONSIDERATIONS The 15,000 seat center ranks third in the world in size, behind Paris' Roland Garros Stadium, and Flushing Meadows stadium in New York, home of the U.S. Open. Lighting consultant Donald K. Segee of Van Zelm Heywood and Shadford, Inc. had to address the challenges of lighting a center court complex. "With a tennis ball moving at speeds of 100 to 125 miles per hour, the placement of the luminaires was critical to ensuring the absence of glare for the players," Segee says. "In addition, the comfort of the spectators had to be considered, and unobstructed glare-free lines of vision to the court had to be provided."

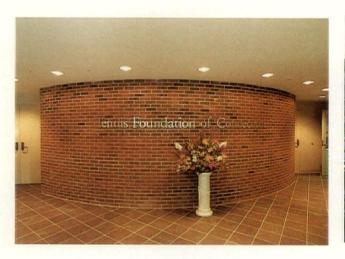
METHOD Four poles have been installed directly attached to the stadium structure, each with 20, narrow beam, 1500-watt metal halide fixtures mounted at a height of 100 feet above the playing surface. The lighting consultant, structural engineers and pole manufacturers worked together to confirm the exact location and size of the poles, which are built to withstand winds up to approximately 120 miles per hour.

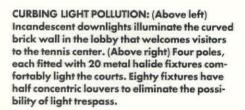
Proper aiming of the fixtures was crucial to insuring optimal television coverage. High vertical footcandles from the 100-foot mounting height and good uniformity of the illumination levels over the entire surface of the court are critical to successful television lighting. The system designed provides 190 vertical footcandles in one direction and 170 vertical footcandles in the opposite direction, with uniformity ratios of 1.5 to 1. Since television cameras are aimed below perpendicular, the vertical levels have been designed at a 15 degree tilt to the television viewing angle. Rotating the plane back is standard practice for television lighting.

Concern for light pollution led to consideration and testing of varied prevention methods, including louvers, visors, and glare guard lamps. The decision was made to use 80 fixtures with half concentric louvers, and fitted with 1500-watt metal halide high-output lamps. With the louver installed in the bottom of the reflector system, light pollution has been eliminated from adjacent neighborhoods. The upper half of the reflector remains unaffected, to give players and spectators enough light to view the game at all angles, while curbing beams of light from straying into the neighbors' backyards.

The metal halide luminaires have about a 15-minute restrike time. To serve as back-up, in case of a power outage or

other electrical failure, four 1500-watt emergency quartz fixtures also have been mounted along with the HIDs. There are a total of 24 lights mounted to the cage (three rows of eight lights) with the four 1500-watt emergency quartz fixtures on the bottom row. This design provides general egress lighting for the spectator portion of the stadium in the event of power failure at night.







The interior lighting of the complex is varied. For example, in the players' lounge, a residential lighting scheme with incandescent downlights and supplemental table lamps creates a relaxing environment. Incandescent directional downlights provide a focal point as well as task lighting in the press rooms, while recessed fluorescent lighting is used in the locker rooms and administrative offices.

The building is uniquely positioned on a flood plain with a middle entrance to spectator facilities, including the entrance to VIP boxes. A strategy of uplighting has been applied to the exterior in which the main concourse is illuminated by compact floodlight fixtures shining on the white concrete. This also casts bright, indirect light effectively onto other parts of the concourse. The lighting enhances the architecture, and makes the top of the structure look like it's floating.

CONCLUSION The construction of the Connecticut Tennis Center was completed in eight months, in time to accommodate the first Volvo Tournament to be held there. The center garnered kudos not only from the press and players, but from the neighbors, who didn't see the lights!

DETAILS

PROJECT: CONNECTICUT TENNIS CENTER

LOCATION: NEW HAVEN, CT

OWNER: CONNECTICUT TENNIS CENTER

LIGHTING DESIGNER: DONALD K. SEGEE, VAN ZELM HEYWOOD

AND SHADFORD, INC.

ARCHITECTS: RICHARD KLIBSCHON and JOSEPH WEISS, EDWARD

LARRABEE BARNES/JOHN M.Y. LEE & PARTNERS **ENGINEER:** CHARLES FRANKS, HUBBELL LIGHTING

ELECTRICAL SUBCONTRACTOR: ED MAURO JR., ED-MOR ELECTRIC

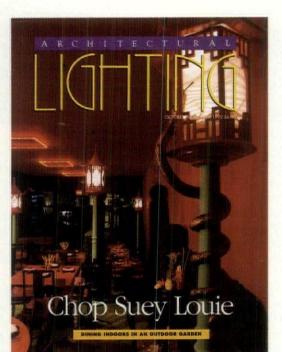
CONTRACTOR: FUSCO CORPORATION

LIGHTING MANUFACTURERS: HUBBELL LIGHTING: 1500-watt metal halide Sportsliters in center court, and Miniliter compact floodlights on building exterior, VENTURE: metal halide lamps

FULFILLING INDIVIDUAL NEEDS

n an election year, it is particularly evident that every special interest group wants its agenda to be acted upon by those in or coming into power. Everything really does come down to meeting the needs of individuals; in the business world, through service and products.

Decades ago, the pendulum swung from the extensive use of decorative fixtures--that's all that was available at the time--to architecturally recessed fixtures that provided the



light while concealing its source. Today the pendulum is swinging towards a middle ground. Lighting is once again being appreciated not only for its effects from unseen origins, but as a decorative "seen" element as well.

And this phenomenon has a 1990s, even-more-individualistic, twist--custom fixture design has gained in popularity over the last five years. We present in this issue a New York Chinese restaurant that takes inspiration from San Francisco's Chinatown. This influence is expressed in custom designed, pole-mounted lanterns that house a kinetic light source behind crinkled fiberglass shielding. One of our "Technique" columns details the thought process involved in preparing custom fixture designs, and in working with a manufacturer.

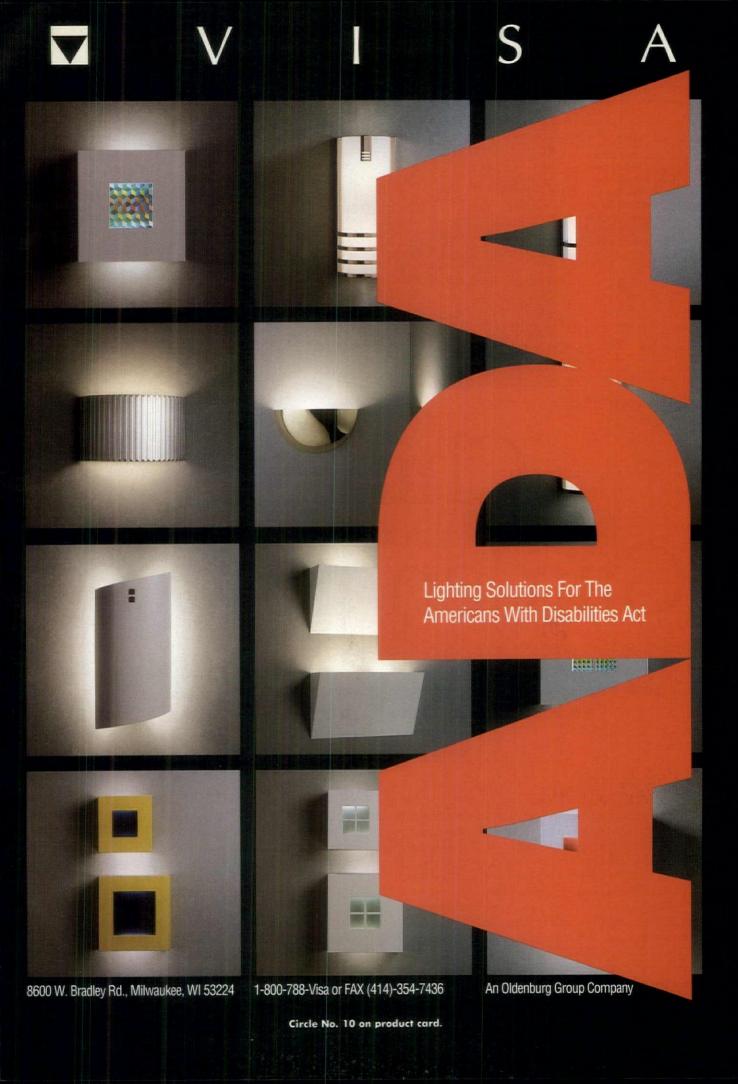
Custom designs aren't the only way to fulfill individual needs, however. So we've included projects which use standard lamps and fixtures to meet specific client requirements. The Gensler office in Santa Monica has a very energy efficient--1.29 watts per square foot--lighting design that uses only three lamp types, and does not compromise lighting

quality or aesthetics. And in a Sonoran desert residence, standard fixtures are used to illuminate unusual architectural spaces in unique ways using a variety of techniques--from back and side lighting, to bounce and fill light.

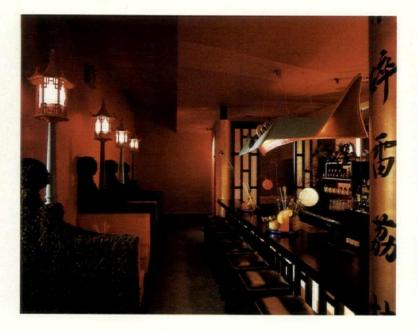
As we wrap up another year of ARCHITECTURAL LIGHTING, we'd like to thank you once again for your support during these recessionary times. Please note that though business has been tough in many parts of the country, aggressive business strategy hasn't come to a standstill. Check out the items on acquisitions and foreign sales office openings in our "Updates" column, Life and business go on, despite the economy. Whatever your business situation, we at ARCHITECTURAL LIGHTING hope the coming year brings more clients, projects, products and sales with it for you!

WANDA JANKOWSKI

EDITOR-IN-CHIEF



CONCEALING LIGHT:
(Right) The bar front
is backlit with fluorescent lamps. The
vertical translucent
panels are backlit
with ceiling recessed
MR16s luminaires.



MOVING LIGHT:
(Opposite page)
The light source is
enclosed in a metal
globe pierced with
holes that revolves
to create kinetic patterns on shielding.

Chinese Garden Indoors

Whimsical pole-mounted lanterns inspired by those in San Francisco's Chinatown are part of the playful dining atmosphere at New York's Chop Suey Louie

BY WANDA JANKOWSKI, EDITOR-IN-CHIEF

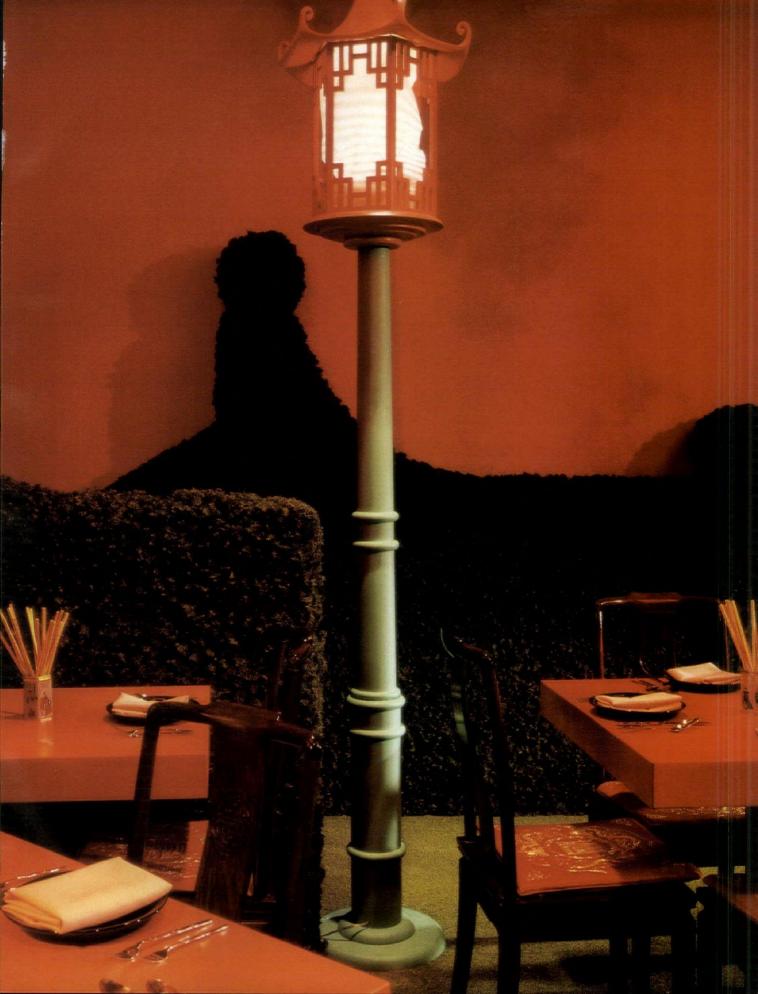
hat better place from which to draw inspiration for a Chinese restaurant than San Francisco's Chinatown? Interior designer Sam Lopata added a bit of whimsy and playfulness to what he saw in reality, and came up with an interior design for Chop Suey Louie Lichi Lounge in New York that recreates a fantasy outdoor garden indoors.

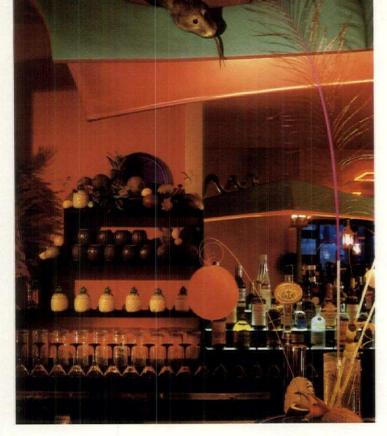
The glass-enclosed space previously had been a restaurant. "The ceiling had already been dropped, so we didn't have to do major renovation in that part of the space," says lighting designer Ken Billington, Ken Billington, Inc. The restaurant is located in midtown Manhattan, and is intended to attract a lunch crowd from the surrounding office build-

ings, as well as dinner and take-out customers.

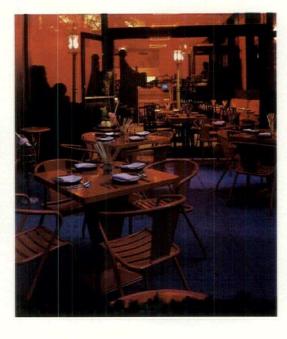
The most striking features of the interior are the red and green snake-wrapped lanterns, and the artificial trimmed hedges. The lantern's pagoda top is made of fiberglass, the geometric patterned "cage" is painted wood, and the poles are turned wood painted green. The white shielding in the cage is crinkled fiberglass.

"We wanted movement in the light from the lantern, so we found a fixture which is like a self-contained mirror ball with a 150-watt quartz light source in it, and a revolving metal top on it pierced with holes. The fiberglass shielding material has been crinkled up to create varied little planes, so when the cir-





DINING OUT: (Right)
No exterior lighting
has been installed
because the outdoor plaza was
already illuminated. Neon is used to
attract attention of
potential customers
passing by.



under the fiberglass "hat" suspended over the bar on which the snake is perched. Bottles are positioned on glass shelves underlit with fluorescent.

cles of light pass by it, interesting shapes are created," says Billington.

The restaurant is enclosed with two wall of glass. "Instead of installing blinds or curtains, we decided to create it as an outside space inside," says Lopata. As for the red walls, "That's the first color that comes to mind when you think Chinese."

The neon squares serve several purposes. "They accentuate the red walls," says Lopata. Billington notes that since it is located in a busy midtown environment, "In that neighborhood, you have to do something to get people in from off the street. Neon draws attention." If you look closely, you'll notice that the neon squares border the air-conditioning vents. "If you can't hide them," says Billington, "you might as well make them look good."

To the right and left of the neon squares are a row of R40, 300-watt downlights. "They are there mainly because it's a daytime restaurant, as well as a nighttime one, and with a lot of glass, it needs to be very bright during the day to compete with the sunlight. At night, the white light from the downlights contrasts with and relieves some of the red, so it doesn't overwhelm," says Billington.

The bar front is backlit with fluorescent lamps. Underneath the suspended "hat" fixture are two linear incandescent lamps. Several MR 16 fixtures are recessed in the ceiling to backlight the translucent panels on either side of the bar. The glass bar shelves have been underlit with fluorescent lamps as well. Several MR 16 downlights are also placed over the take-out counter.

The outside seating are French-imported red tables and chairs. There is no exterior lighting because it is located on an already lit plaza.

DETAILS

LOCATION: NEW YORK, NY

INTERIOR DESIGNER: SAM LOPATA, SAM LOPATA &

ASSOCIATES

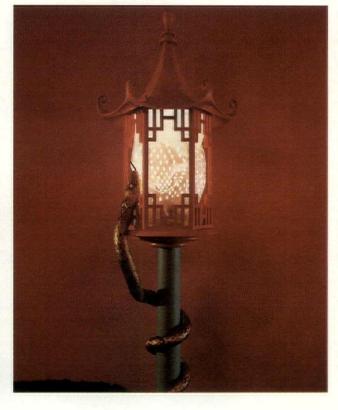
LIGHTING DESIGNER: KEN BILLINGTON, JOHN MCKERNON and JASON KANTROWITZ, KEN BILLINGTON LIGHTING DESIGN

LIGHTING FIXTURE FABRICATOR: CRAIG CORONA, president, SIRMOS

PHOTOGRAPHER: ELLIOTT KAUFMAN

LIGHTING MANUFACTURERS: SIRMOS: chandelier and lanterns; HALO: downlights; LIGHTOLIER: downlights; CJ LIGHTING: fluorescents; VISUAL EFFECTS, INC.: moving light effect; and LUTRON; wall dimmers

WHIMSY & LIGHT: (Right) The geometric patterned "cage" is made of painted wood. The white shielding is crinkled fiberglass.





TURNING WHIMSY INTO REALITY

Sirmos, manufacturer of lighting, furniture and sculpture, has a reputation for searching out and creating the exotic and uncommon. In addition to a standard product line, it has custom capabilities due to the skills and artistry of over 65 master craftsmen dedicated to turning the visions of designers and architects into reality.

Though plaster, cement and synthetic stone can be used in fixtures, casting is done primarily in a reinforced fiber/resin that complies with stingent fire codes. The resin material retains a brilliant white finish that takes solid color paint, as well as faux finishes of rare woods, metals, stone, and gilding. There is also available a translucent, glass-like resin material for chandeliers and wall fixtures that can be hand-finished to resemble marble, onvx, alabaster and other stones.

Sirmos was founded in 1972 when Louis Bromante bought a small New York company originally begun in 1930 by sculptor and architect Edward Krumpie. Today, the business is still in the family—the CEO is Pam Bromante (Louis' sister) and the president is her son, Craig Corona.

After Sam Lopata had formulated his initial design concept for the pole-mounted fixtures at Chop Suey Louie, Sirmos was brought in to fabricate them. At this point, the feasibility of the concept was discussed. "That's when the client finds out if there are limitations as to what can be accomplished," says Corona. "We'll sit down together and see what we have to do so the fixture can be constructed properly. We load in all the safety factors, the lighting equipment and details. Fortunately, Sam Lopata has a good working knowledge of construction and materials.

"Sometimes you have to carve out a prototype," says Corona. The Chop Suey Louie fiberglass bar fixture was originally planned to be 10 feet long, but after a model of half the unit was produced and discussed, two feet were added on, "and we changed some of the shapes and some of the edges," says Corona. "Sam Lopata let us get through about 90 percent of what we know best, and then he came in and we collaborated on finishing touches and refinements."

Though the fixture's pagoda-like cap is made of fiberglass, the geometrically patterned "cage" has been stencil cut out of one-half inch solid wood. "In a shop like mine, if we were running hundreds of pieces, we would always carve and cast. But when you do 10 cages, it's easy to create them out of wood by hand," says Corona. "The large columns are turnings. But if I had been making 50, I would have made a mold of one of the columns and repeated it."

Floating The Core

THE ILLUSION OF LIGHT SEEPING OUT FROM THE BUILDING CORE IS THE CONCEPT BEHIND THE LIGHTING FOR GENSLER & ASSOCIATES ARCHITECTS IN SANTA MONICA

BY WANDA JANKOWSKI

EDITOR-IN-CHIEF



hen Gensler & Associates Architects wanted to open their new 40,000 square foot offices in Santa Monica, CA, lighting designer Joe Kaplan was called in to consult on the lighting concept and implement it, based on criteria established by Edward C. Friedrichs, Gensler's managing principal. Using off-the-shelf equipment in an elegant way, a lighting system has been designed which provides high-quality, non-glare illumination on VDT screens in design and drafting areas, consistent illumination to highlight changing art collections, and an image that reflects the creativity and efficiency of the firm's designs for their clients.

and we wanted the look of floor to ceiling light. So we created a false wall in front of the existing one and lit it to simulate the equivalent of shoji screens. The custom louvers allow light control at all hours of what that back wall looks like," Kaplan explains.

The panels are made of frosted acrylic, and the natural daylight from the windows is bolsterd by continuous 4-foot T12 fluorescent lamps positioned at the top and bottom of the panels to provide the sense of even illumination. The simple, clean-lined louvers have been designed by Gensler Associates for this application. The hinged panels swing open for easy relamping.

BRUSHING UP: (Opposite page) Fluorescent lamps concealed behind the brushed stainless front panels at the reception desk begin the "light emitting" theme that runs throughout the office.

DAYLIGHT ILLUSION: (Right) The effect of a window wall is created with acrylic panels and custom designed blinds backlit with daylight from small windows and continuous runs of fluorescent lamps at the top and bottom of the panels.



Light becomes a distinguished presence beginning in the reception area, where fluorescent lamps placed behind the brushed aluminum panels of the reception desk make them glow. Light is also emitted in the space between a horizontal yellow panel and the ceiling from which it is slightly dropped. "We were trying to make it appear as though there is a very intense source of light deep within the building that is looking for cracks from which to escape," says Kaplan.

Though the reception area is near a wall with windows, custom designed screens and louvers have been installed to create the impression of larger floor-to-ceiling windows. "The windows to the outside are considerably smaller than the wall,

The continuous band of light that defines the core wall begins also near the office entrance. The uniform intensity of the light is due, Kaplan says, to careful fixture placement. "The fluorescent lamps are not overlapped, but positioned properly. The key is to make sure the proper distance is achieved between the fixture and the nearest visible surface, so that the light beams converge before they strike the nearest visible surface. That makes the light appear continuous," says Kaplan. "Many believe that staggered strips will eliminate socket shadows, but if you place them too close to the wall, you still see them."

The light band around the core serves several functions. First, it expresses a creative visual,



CONTINUING BAND: (Left) The fluorescent band of light wraps around the core wall of the building, whizzing by conference rooms as well.

design concept. "The continuous band of light gives the core great strength as an architectural element. The rest of the space appears to float away from the lit core," says Kaplan. The band breaks only for columns which periodically jut out into the corridors, reinforcing the impression that the light comes from and goes through the heart of the building.

On a practical level, the band is used to illuminate a changing display of art along the core wall. "This client is very committed to art, and quarterly

brings in a different art show that they display on the core wall," Kaplan explains. "It helps to enhance the art appreciation of the staff. They also have a reception to mark an art show's opening, and invite friends, clients and associates." While artworks are displayed mainly near the front of the office, the core wall in the back is used by the staff for displaying drawings of projects in progress, and photos of built pro-

The colors of the office furnishings are conservative earthy tones, so as not to distract from the impact of the artwork on the off-white walls. High-color rendering lamps are used not only in the continuous bands along the core wall, but in the parabolic troffers as well.

The office plan groups the design staff into five studios. Each studio specializes in a different type of project—for example, one handles interiors, another the design of large buildings. The lighting remains consistent throughout the space, and is composed of 2-foot by 2-foot parabolic troffers fitted with biaxial lamps.

"Since CADD equipment is used, glare on the

CONTROLLING GLARE: (Right) Two foot by 2-foot parabolic troffers design studios.

provide glare-free illumination on computer screens used by staff in the five



computer screens had to be avoided. Consequently, glare-free fixtures have been placed to accommodate the computer locations," says Kaplan.

The client also asked for a "lighting alcove." Here, fluorescent tubes of three different light values are installed in the coffered ceiling above a deep parabolic grill. Though the lamp types are interspersed, any one lamp type occurs at the 5- to 6-foot intervals typical in an open office. They are controlled by a single switch and are independentlly switchable. "If the designers want to do color comparisons under various sources of light, they can take their palette of materials into this space," says Kaplan. The alcove is supplemented by two spaces and a light box in the resource center that allow options in incandescent and fluorescent lighting to be demonstrated.

Another criterion of this project was that a minimum number of lamp types be used for ease of maintenance. And indeed only three lamp types are used—the biaxial lamps in the parabolic 2 foot by 2 foot troffers, the quad tube in downlights and wallwashers, and the 4-foot, T 12 lamps in the continuous band surrounding the core wall. Throughout the spaces, triphosphor fluorescent lamps have been installed for high color rendering.

And only standard fixtures have been specified as well. "The goal was to use what was readily available intelligently," says Kaplan. Slightly upgraded lighting, which includes downlights and wallwashers fitted with compact fluorescents, is provided in the enclosed vice presidents' offices.

The extensive use of fluorescent lighting and careful fixture placement has led to an energy level of approximately 1.29 watts per square foot, which is under the strict Title 24 energy limitation of 1.5 watts per square foot. "The client wanted these offices to be a model of energy efficiency, because it is important for them to set a good example to encourage their clients to do so."

The project was designed in April 1991, construction began in July and the offices were occupied in November.

DETAILS

LOCATION: SANTA MONICA, CA

ARCHITECT: EDWARD C. FRIEDRICHS, project principal; RICHARD A. LOGAN, design director; BARBARA A. DUNN, senior designer; ROBIN DEGENNARO GRANT, project designer; LISA A. CIANCI, project manager, GARY Z. GOLDEN, project architect, GENSLER & ASOCIATES ARCHITECTS

LIGHTING DESIGNER: JOE KAPLAN, JOE KAPLAN

ARCHITECTURAL LIGHTING

PHOTOGRAPHER: ELLIOTT KAUFMAN

LIGHTING MANUFACTURERS: LITHONIA LIGHTINGquad-tube downlights and wallwashers, biaxial 2 foot by 2 foot parabolic luminaires, fluorescent strips and T5 undercabinet lights, NEORAY-troffers with T12s, LIGHTOLIERtube lighting with T12s, LITHONIA LIGHTING and INDY

COLOR & QUALITY: (Below) Triphosphor fluorescents have been used for good quality rendition. The continuous light bands stop at structural columns that protrude into the corridors.



Sallie Mae's Regional HQ

INDIRECT LIGHTING IN BARREL-VAULTED CEILINGS
PROVIDES GLARE-FREE, COMFORTABLE ILLUMINATION
AT THE VDT WORKSTATIONS





HUMAN COMFORT:
(Above left) The architect
has designed the Student
Loan Marketing Association (Sallie Mae) to be a
comfortable, humane
work place that includes
an abundance of daylight, and soft glare-free
illumination.

he Student Loan Marketing Association (Sallie Mae) is the major financial intermediary for education finance and the nation's largest single source of funds for education loans. Sallie Mae ranks among the 20 largest financial service companies, according to Fortune, and among the 100 largest U.S. corporations, according to Forbes, based on assets. The company has recently completed its new 65,000 square foot Regional Headquarters in Wilkes Barre, PA.

The client's goal was to have a building designed that would create a collegiate environment, and provide a comfortable, humane work place for its employees. Eugene J. Mackey, III, FAIA, Mackey Mitchell Associates, St. Louis, MO, is the architect for the structure who designed the lighting system in conjunction with Mitchell Kohn, Mitchell Kohn Lighting, Highland Park, IL. One of the main concerns was to provide glare-free lighting because of the large number of computer

AVOIDING GLARE: (Above right) The workstations are glare-free due to continuous rose of pendant-mounted indirect fixtures that complement the daylighting of the space as well.

THE BEACON:
(Opposite page) The circular lobby is a daylight-filled chamber by day, and a beacon at night, softly glowing with uplight from sconces.



ARCHED RIBS:
(Right) The
wall with
northeast orientation is
equipped with
a brise soleil
cantilevered to
control the
direct sunlight
into the space.



terminals used in the space. "There was also design concern because it was a very large volume space, with a high ceiling and a great deal of glass," Kohn says. "We wanted to give the space a very open appearance and take advantage of the architecture, and at the same time, be sensitive to the quality of light as well as the quantity."

The openness of the structure comes into play as soon as the entrance lobby. The circular reception lobby serves as a light chamber by day due to the extensive use of glass, and a glowing beacon by night. Seven decorative incandescent sconces encircle the lobby, and provide uplight that complements the neutral, warm hues and presents an inviting atmosphere for clients and staff.

The main stair features direct/indirect pendant fixtures that utilize energy-saving fluorescent lamps to illuminate the ceiling coffers and blend

softly with the natural ambient light from the entry lobby.

One of the greatest challenges was the organization of the interior space. At the top of the stairs, visitors have a view of the work space. A 92-foot by 150-foot room functions as the loan servicing area. The virtually column-free space has a 24-foot ceiling height with a series of indirectly lit barrel vaults that span 92 feet.

Illumination is produced by suspended indirect fixtures that reflect light from the vaults to

the work surfaces of the over 400 VDT workstations below. The streamlined lighting system complements the building's structural elements, and provides 45 footcandles of glare-free illumination for the users.

The optical system of the fixture has been carefully selected to keep ceiling brightness to a minimum while providing even distribution both across the ceiling and at the work plane. The fixture housing provides both comfortable lateral and longitudinal viewing.

Color-corrected triphosphor SP35 energysaving lamps have been specified for their spectral distribution and efficiency. Energy-saving ballasts and a building energy management/lighting control system add to the lamps' energy effectiveness.

All the lighting in the processing room is indi-

BARRELLING HIGH:
(Right) The barrel
vaults reach 24 feet
above the floor and
are visually made to
float over the workstations with uniform
indirect lighting.



rect. Natural light enters the room from three primary sources:

- 1. Glazing from the floor to a height of 8 feet has a northeastern orientation with direct sunlight prevented from entering the building through implementation of a brise soleil cantilevered above the head of the glass.
- 2. Light is filtered through fiberglass skylights on the east and west workroom walls. Skylights are hidden from direct view through a series of arched ribs and by virtue of their height above the finished floor.
- 3. Natural light penetrates the workroom through windows in the attached work/huddle room windows and sequential full lit/sidelites in doors leading to these rooms.

The challenge to design a flexible work environment that is visually pleasing to the employees has been fulfilled.

DETAILS

PROJECT: STUDENT LOAN MARKETING ASSOCIATION

LOCATION: WILKES BARRE, PA

OWNER: BARRY MORROW, OWNER'S REPRESENTATIVE ARCHITECT: EUGENE J. MACKEY, III, FAIA, MACKEY

MITCHELL ASSOCIATES

LIGHTING DESIGNERS: EUGENE J. MACKEY, III, FAIA, MACKEY MITCHELL ASSOCIATES, and MITCHELL KOHN, MITCHELL KOHN LIGHTING DESIGN

ELECTRICAL ENGINEERS: THOMPSON DESIGN (formerly EDM)

PHOTOGRAPHER: CHRISTOPHER BARONE

LIGHTING MANUFACTURERS: HUBBELL LIGHTING-1 by 4s and 2 by 2s & HID wallpack; LITECONTROL-1 by 4, and covelight; SIMKAR-striplights; H.E. WILLIAMS-wall-mounted fluorescent; MIROFLECTOR—fluorescent downlight; ST. LOUIS ANTIQUE LIGHTING CO.—sconce and pendant; ELLIPTIPAR uplight; LEVITON-porcelain base; BETALUX-exit light; KALWALL—fiberglass skylights



TRANSITIONS: (Left) The stairwells are energy efficiently illuminated with fluorescent direct/indirect pendant luminaires.

Sonoran Desert Retreat

THE MULTI-FACETED LIGHTING SYSTEM AND UNUSUAL ARCHITECTURE CREATE A RESIDENCE THAT PROJECTS THE PRIMITIVE ROOTS OF DESERT CAVE-DWELLERS INTO A 20TH CENTURY ENVIRONMENT

BY WANDA JANKOWSKI EDITOR-IN-CHIEF





he Southwest environment and American Indian themes embodied in the architecture of this new home presented Ronald Harwood, president of Illuminating Concepts in Farmington Hills, MI, with opportunties for unique lighting design.

"The clients gave me a free hand in designing the lighting system so that it would blend with their lifestyle, their art and artifacts, and the architecture they had created around them. They did not want light for light's sake, but light for the sake of the environment."

LIVING ROOM

The living room is distinguished by variedsized niches that are intended to be an abstract representation of the primitive cliff dwellers' abodes that dotted the mountains of the Southwestern desert. "Everything is very angular, with a lot of recesses and great height," says Harwood.

The niches have purposefully been illuminated in a range of techniques-front, side, fill and backlighting—using a variety of equipment. Some are front-lit with remote transformer MR 11 display lights. Others have had recessed MR 16 adjustable fixtures installed in the topside of the niches. Several tall niches have elongated vertical slots in the sides inset with 3.75-watt halogen, bayonet-based 12-volt tubelights. Some niches have been left dark for contrast.

"I gave the clients the opportunity to back, front or side light artworks. And all of that was done so that they could be creative in the placement of their artifacts, because they move and change them from time to time," says Harwood.

General illumination in the living room comes from AR 111 spotlights placed 30 feet from the floor. The museum quality lighting creates light and darkened areas, and a restful, relaxing atmosphere.

The streaks of light in the living room atrium from the AR 111 very narrow spots have a metaphoric meaning. "What I wanted to accomplish is to create a feeling of light coming over the mountains. The striping and striating of light across the architecture, even after dark, makes it feel as though the sun hasn't set," Harwood explains.

KITCHEN & DINETTE AREA

The blue, black and white kitchen contains several layers of light that allow the architectural lines of the space to predominate. The angled cove is

SURROUNDED BY ART: (Above) Niches in the living room are lighted in varied ways to give clients the option of side, front or back lighting their artifacts.

CAVE DEWELLERS: (Opposite page) The niches are symbolic of the primitive cave dwellers homes that had been etched out of the desert mountains long ago.





STREAKS OF SUN-SET: (Above left) Like rays of sunlight over the mountains, **AR 111 fixtures** cast striations of light in the living room atrium.

SEE THROUGHS: (Above right) The glass lenses of the pendants reflect desert colors used in fabrics and furnishings throughout the house.

uplit with 3.75-watt halogen strip lights. The small, 3-inch aperture, MR 11 downlights have been chosen for their unobtrusiveness. They are positioned close to the cabinets to illuminate the cabinet doors, interior shelving and countertop work surfaces below.

Surface-mounted, directable accent lights centered above the island are both decorative and functional. They furnish glare-free task illumination, and the adjustability of the fixtures allows the clients to reposition them to highlight floral centerpieces displayed on the butcher block when entertaining guests.

The Italian, frosted glass pendants in the dinette area reflect Sonoran Desert colors also used in the clients' dinnerware and furnishings throughout the house.

There is a see-through opening in one wall of the dinette that looks into the entertainment area of the living room. "The see-through implies space beyond," says Harwood, and the architecture is designed to create this feeling throughout the entire home. "No matter where you are in the house, you always feel that there's a room after another room after another room, so that nothing is totally closed off," explains Harwood.

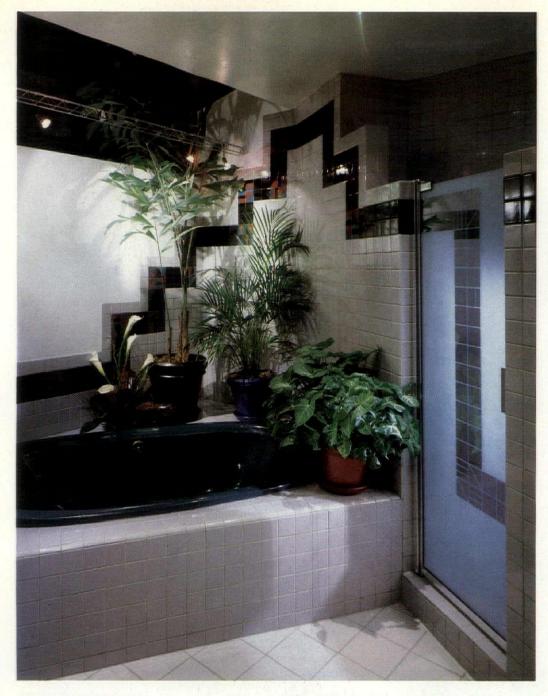
GUEST BATH

A partition separates the vanity and sink area from the tub and shower area. The striking feature of the space is an electrified 12-volt truss which seems to float in the space above the partition. Attached to the truss are MR 16 lamps that cast light across foliage and decorative ceramic tiles.

> "From a practical point of view," says Harwood, "the truss enabled the 16 feet over the sinks, the partition and the tub area to be spanned gracefully. There is also lighting in the shower that switches on with the other bath lighting system, and provides a kind of fill light for the room. We avoided having to install a lot of recessed downlights in the ceilings throughtout the house by using fill and bounce light." During the day, sunlight illuminates the bath through the curved skylight that bounds the space from above.







ATRIUM & TRUSS: (Left) A delicate truss holds MR 16s used to illuminate the tub area and the lavatories on the other side of the partition. Above the truss is a curved skylight.

EXTERIOR LANDSCAPE

The backyard provided Harwood with a wonderful palette of desert landscape material with which to work. The rationale for the exterior lighting design was to blend the interior and exterior into one element visually, divided only by the planters and extensive window glass.

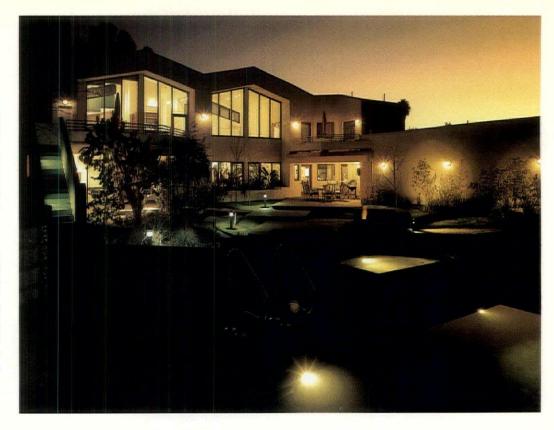
A series of hooded sconces equipped with glare-reducing louvers and etched glass lenses define the canopied patio area and perimeter walls.

The 50-watt metal halide bollards are 30 inches high and provide a siteline pathway from the house and the entertainment area, to the rear yard and the pool. "The bollards are strategically placed to interact with low level desert flora," says Harwood. The bollards have been custom painted the same rose color as the exterior of the house. The cactus tree is backlit from the under-canopy lighting and front lit with a concealed ground fixture.

"Most people tend to place the lighting between the pool and their home. But actually wherever the lighting stops at night is where the yard visually appears to stop. So when you are having a party, people will tend to bunch together near the lights around the house instead of circulating around the pool," says Harwood. "To make a yard appear as large as it really is, the lighting should be placed at the perimeter or farthest boundary of the yard. Then additional layers of light can be included inward."

So Harwood has illuminated the back wall of the yard to give it its full depth visually. The wall also captures the kinetic interplay of moving water and light. "Knowing that there was going to be a wall back behind the pool," Harwood explains, "the goal was to create an infinitely moving lightENJOYING THE LANDSCAPE: (Right) The 30-inch high bollards illuminate lowlying foliage and a pathway between the house and the pool area.

ONE SIDED: (Below)
Pool fixtures have been installed on one side of the pool closest to the house. The fixtures mounted on the wall cast light down to illuminate the pathway around the pool.



ing design on it. This has also been made possible by installing eight fixtures on the side of the pool opposite the wall. The rippling effect of wind on the water creates a moving stipple on the back wall." The fixtures in the retaining wall are intended to illuminate the pathway around the pool and only cast light downward.

"Typically, pool lights are installed along opposite sides of a pool. Here they are placed on one side of the pool closest to the house, so when the clients are in the house viewing the pool, they are not looking into any light source. All they see is the reflected light bouncing off the far side of the pool wall," says Harwood.

"We prefer to use 100-watt recessed niche fixtures instead of the more often used 250-, 300- and 500-watt versions. They are easier on the eye to look at and produce less glare for swimmers in the pool," says Harwood. A 100-watt fixture also illuminates the small spa.

The glass block shower adjacent to the pool is lit with concealed compact fluorescent wet-location lights aimed at the white wall behind the glass block. Red-gelled MR 16 uplights cast desert sunset colors on plants and vertical deck surfaces.

"I didn't ever want the clients to have a feeling of total darkness—I wanted them to feel like it was always sunset outside," says Harwood.

The controls for outdoor lighting are accessible from the living room. "When the clients are entertaining or just relaxing and want to bring the outside inside, they can choose one of the four preset scenes that turns on all the outdoor lighting," says Harwood. That scene enables the glass windows to become nonreflective and transparent, and provides the house occupants with an unimpeded view of the outdoor landscape.

Through the use of scene controls and halogen sources, the residence is illuminated at under 2.0 watts per square foot.



LOCATION: SONORAN DESERT, AZ

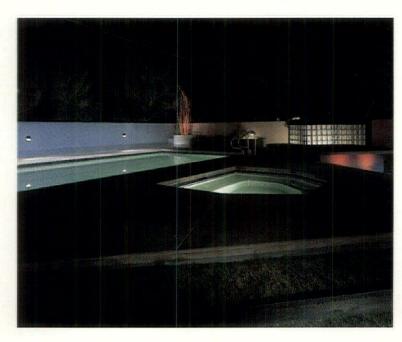
ARCHITECTS: MARK KOLB: conceptual; GERRY STEFENO:

structural

LIGHTING DESIGNER: RONALD HARWOOD,
ILLUMINATING CONCEPTS, FARMINGTON HILLS, MI

PHOTOGRAPHER: DON WINSTON

LIGHTING MANUFACTURERS: NORBERT BELFER,
REGGIANI, TARGETTI, OSRAM, LEUCOS, DEVINE, GARDCO



GUIDELINES FOR SPECIFYING CUSTOM FIXTURES

BY ROBERT T. ALLEN

The design process, whether it's applied to a building, a piece of furniture or a light fixture, is the same. A design professional or team is charged with the opportunity to create a unique product for an end user or owner who has a mission, structured by a set of goals. Though each person involved in the process has an agenda, the major problems in the process often arise when the goals are poorly communicated, sometimes resulting in each party pulling in a different direction. By trying to more clearly articulate the design intent to the right people, a more effective team can be formed. Following are factors to be considered in the evolution of a custom-designed fixture.

INTENT & CONTEXTUAL ISSUES

- Determine the luminaire's context—should it recede into the architectural context, or have aesthetic significance
- Establish viewing distances to weigh fit and finish criteria We only see through light, and our eyes are first drawn to the source of greatest contrast in our field of vision. A custom fixture is a prime target for our eyes and our attention. Fist, one should consider the ultimate intent of the fixture being designed. Is it to function with specific photometric require-

ments which no standard product can meet? Is it a decorative element bringing interest to a corridor wall? Is it a feature fixture which becomes the central element of an atrium or lobby space? Thinking of the fixture's purpose in the overall scheme of the building will help you weigh decision points that come along during the development process.

Consider the context in which your fixture will be set, and take a hard look at the overall volume of the space. Visualize where the fixture(s) will be located. Determine how close the fixture will actually be to the end users. A lot of attention is paid to refining details which will never be seen in reality. If a chandelier will hang 30 feet in the air, consider if anyone will really notice whether or not the intersecting extrusions have flush ground joints versus 1/32-inch seams. This type of micro-management can add a lot of time and money to a fixture that might be spent elsewhere on better materials, a finer finish, or a custom fixture in another location.

FINISHES & MATERIALS

- · Review other building product quality and finish levels
- · Determine end-user interface, from seldom to constant
- Ask manufacturers to clarify what their terminology means
 When looking at the fixture in more detail, you now start to



WEST BEND GENERAL CLINIC: The consistent styling of the fixtures from the circular atrium to the perimeter corridors is provided by variations on the theme of extruded aluminum arm stocks supporting luminous acrylic diffusers that each house a 175-watt metal halide lamp. Photo courtesy of Visa Lighting.



MILWAUKEE CENTER, JOHNSON CONTROLS PROME-NADE: Two types of custom fixtures have been designed to enhance the space. Spun aluminum pendants, each fitted with a 400-watt metal halide lamp, wash the vault and trusses, while providing ambient light for the lobby below. The sconces articulate the truss support connections. Photo courtesy of Visa Lighting. formulate ideas on its finish. Do I want it to be painted and tie in with the interior colorways? Do I want metal finishes to relate to other architectural products, such as specified hardware? Are the walls painted, fabric wallcovered or marble? Draw clues to help to scale up or down expectations for the fixture.

Some manufacturers use verbiage such as "polished brass," which generally is plated brass only hundredths of an inch thick over a base metal of steel. While plating is adequate for some applications, its corrosion resistance, finish clarity and coloration cannot compare with true extruded or cast solid brass which is then physically polished.

The key is to communicate as best as you can what you desire, and when talking with manufacturers, ask them what they mean by "polished brass." Ask what your options are for achieving a certain look, and when in doubt, ask for a sample of the real thing so you can make an informed decision.

LAMPING & PERFORMANCE

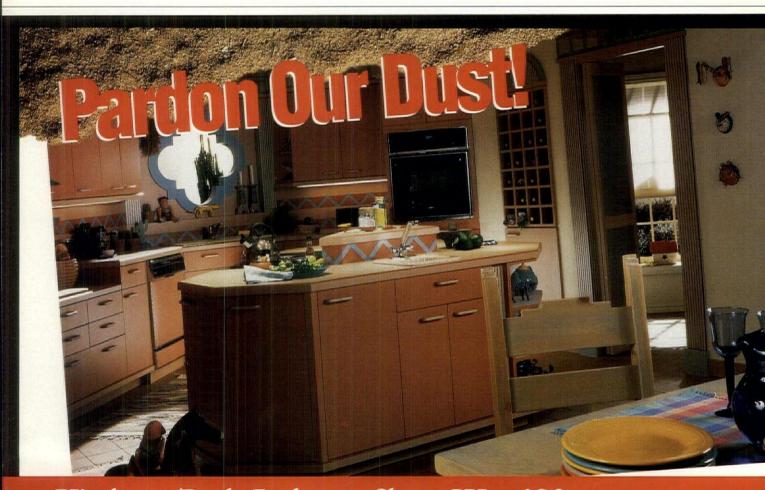
- · Define the ambient, accent and task illumination criteria
- Weigh "value added" decision points against each other, i.e. energy efficiency versus dimming and control issues
- · Discuss color rendering issues and how vital they are

· Discuss lifetime serviceability and maintenance issues

When turning your attention inward on the lamping issues of a fixture, consider what part the fixture plays in lighting the space. Is it the sole source of light for the lobby floor below, or is its purpose to enliven a vaulted ceiling? The fixture might need to perform multiple functions by providing efficient general ambient lighting for daytime events, and perhaps delicate accent lighting for the room's evening itinerary.

Each major lamp group, whether fluorescent, incandescent or high-intensity discharge, has within them a myriad of options. Exciting smaller high output lamps, new phosphor coating developments and electronic transformer technologies have made it difficult for many people to decide what they really need. Discuss with your design team your intentions regarding what the light should do, not the fixture.

Follow the light to the surfaces it will illuminate and ask if it is an aesthetic wash or functional wash of light. Discuss energy efficiency requirements, lamp color temperature and color rendering issues, dimming and control issues, maintenance and performance issues. The person or persons responsible for illuminating the architecture should help drive the lamp decision-making process. (continued on next page)



Remember there is someone who eventually will have to change the lamps in these fixtures. Make sure in your planning you can get to the fixtures without calling in the local high-wire act. This is especially a problem with incandescent or tungstenhalogen sources in buildings which functionally operate for long hours. I've seen beautiful fixtures hanging in the dark after the lamps have burned out because no one at the facility could get at them safely to relamp.

BUDGETS & COST REALITIES

- Define the ultimate intent of each specific luminaire
- After conceptual client approval, discuss design/manufacturing alternatives with a manufacturer to weigh the value of key design criteria
- Changes cost everyone time and money, so prior to submitting drawings for bids is the time to explore options

When a client asks you to propose some architectural fees for a building project, you probably respond with: what kind of building? how big is it? do you prefer metal panel curtain walls or cut-stone buildings?

When a fixture designer asks a manufacturer about their custom work pricing, we need to respond with a series of questions. What does it look like? How many would you like? How big is it? What is it made out of? When do you need it? What type of lamping do you anticipate using? Allow yourself the time to first think about what you are trying to achieve with the fixture, and then allow the time to communicate those thoughts as specifically as possible to people who can help.

In product development circles, it is widely accepted that about 80 percent of the manufacturing costs are determined in the first 5-10 percent of the development time spent on design. Explore your design options early and test your assumptions with a reputable manufacturer who can give you the estimated costs so you can weigh them against the benefits. What can be frustrating for manufacturers is the seemingly endless stream of changes that occur late in the process, often when the contractor is trying to obtain a release on those fixtures. Changes cost money for everyone involved and resolving design issues early on can help create a more equitable bidding process and better value for the owner.

QUALIFYING & SPECIFYING MANUFACTURERS

- Confer with your local lighting representatives
- · Assess the quality of the manufacturer's standard product line

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- · Find out the manufacturer's history of service and reliability
- Look to companies with in-house support staff and manufacturing capabilities versus subcontracting out the work

There is a relatively lost cost of entry for eager entrepreneurs to get into the luminaire manufacturing business, and go after some large projects. To avoid the potential pitfalls in dealing with these types of shops, look to your local lighting representatives for guidance.

Look to companies who have a solid reputation for quality and have survived the test of time. Look at companies that actively modify their current products to meet your needs and that offer alternative solutions when discussing custom options.

Ask them questions and get them answered. When something is stated that it can't be done, just ask for an explanation if it isn't offered. The manufacturer should have a good reason and should be able to explain it in simple terms. As a designer, you need to be able to entertain other ideas and be willing to compromise in certain areas. There is always room to flex and still retain the critical features and concepts originally intended.

Real manufacturers have multiple capabilities in machining, fabrication, spinning, casting technology, finishing and assembly. Quality manufacturers will also have in-house testing laboratories to ensure product safety requirements are met. In-house labs can help speed the development process and give alternative solutions to the designer based on real-time data, avoiding the "We think it will be okay" responses.

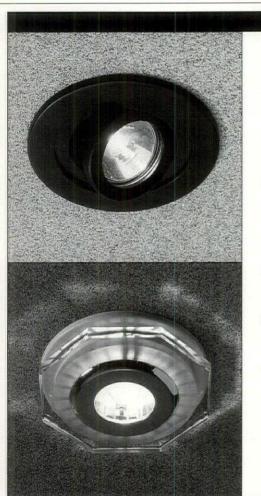
The often-fragmented group made up of owners, architects, electrical engineers, lighting designers, manufacturers, contractors, distributors, manufacturers' representatives and various other special interest groups needs a champion.

I believe the champion must be the person charged with the lighting design. For it's at the genesis of design that the most powerful concepts either get crushed or pursued.

The best manufacturers and their local representatives will help create a conduit for direct communication between the factory personnel, and the fixture designer.

Let's close the gaps between those designing, manufacturing and installing custom fixtures, for we are all commissioned to make the visions sketched out on a napkin become realities.

The author is the director of specifications and development for Visa Lighting Corporation, Milwaukee, WI.



INTRODUCING

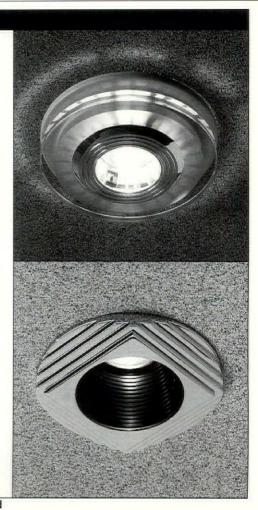
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EMERGENCY LIGHTING— A CRITICAL ELEMENT IN BUILDING SAFETY

BY F. JAMES RATTO

rchitects and engineers know that the installation of emergency lighting equipment is required in all commercial, industrial and institutional facilities by the National Electric Code (NEC), National Life Safety Code of the National Fire Protection Agency (NFPA) and other federal, state and local codes. Emergency lighting equipment provides sufficient illumination during a power outage, fire or other emergency to allow building occupants to exit safely and orderly. Because it is part of every life safety equipment program, emergency lighting equipment should be accorded the same attention as smoke detectors, sprinkler systems, fire hoses and other life safety products.

The NEC and NFPA require that emergency lighting equipment provide illumination for a minimum of 90 minutes, although some cities have more stringent requirements. The City of Chicago codes, for example, require that emergency lighting operate for up to two hours.

Beyond choosing emergency lighting equipment that complies with applicable national and local codes, architects and engineers should familiarize themselves with the various types of products available, their applications, advantages and disadvantages. The proper choice of emergency lighting is critical in the event of a power failure. Specifiers should consider these factors:

- Are there adverse elements in the facility that could affect certain lighting systems?
- What problems exist with available lighting equipment?
- What type of equipment should be utilized: unit equipment, central inverter systems, high-frequency inverters, remote fixtures, self-monitoring/self-testing products, etc.? How can the choice of products blend with or complement existing decor?
- What types of emergency lighting products comply with pertinent fire, safety and electrical codes?
- How much maintenance will be required? Are maintenance personnel available to properly and regularly inspect and service emergency lighting equipment?
- Should "smart" emergency lighting products be considered?
- Can the choice of equipment help to reduce building maintenance costs?

The two main categories of products are unit equipment and central ac inverter systems. Unit equipment refers to individual, battery-operated units that power lighting heads and exit signs. They are the most common type of emergency lighting and exit signs, and are also versatile and can often be used with retrofit applications.

Choices range from small compact, economical and decorative units, which may be ideal for offices and conference rooms, to large industrial and explosion-proof units that are specifically designed for adverse or hazardous locations where

fumes, fibers or other materials may be present. Another choice which often appeals to architects is the high-frequency inverter which utilizes existing fluorescent lighting and does not impact on building design.

Emergency ac inverter systems transform dc power from a central battery bank to ac for use in existing lighting fixtures and other equipment. These systems, installed in larger facilities and in new construction, provide a reliable source of power that is centralized, accessible and dependable, with relatively low maintenance required. Inverters generally respond with full KVA rating capacity within one second of utility or branch circuit power failure, and are available for incandescent and fluorescent lamp sources. Faster transfer systems are also available specifically for high-intensity discharge (HID) lighting loads, which transfer emergency lighting power immediately to maintain full brilliance of HID lamps.

The ac inverter systems offer several important benefits: transfer to emergency operation is fast, a wide range of KVA ratings and load switching arrangements are possible, and sinusoidal waveform is provided.

Another category of products includes exit signs. A variety of exit signs are available including units with ac lamps, typically wired to an inverter or generator; units with ac and dc lamps powered from a remote battery source; and self-contained units with integral battery packs. Designs include general purpose models, sturdy cast aluminum units and signs for industrial applications. Exit signs are available with various size lettering and arrows to comply with local code requirements.

Exit signs are available with a wide variety of lamp sources, including energy-efficient models with incandescent, fluorescent, LED and electroluminescent lamps.

There are certain guidelines for the placement of emergency and exit lighting. Codes require unswitched or dedicated circuits for emergency lighting. That's why emergency lighting equipment is typically wired to night light circuits so that if utility power fails, emergency lighting units will provide illumination from the normally 'on' lighting circuit. Night light circuits are not necessarily part of the emergency lighting system, but should be designed to satisfy prevailing codes for egress lighting.

When specifying emergency lighting for stairwells, alternating a "normal" source with an "emergency" source at each landing is recommended.

It is important to note, however, that the proper specification and installation of emergency lighting equipment is just the first step. Emergency lighting products may initially meet code requirements relating to 90-minute battery discharge time. But just how reliable are these products? Will they still meet codes a year after installation? Proper maintenance in accordance with NEC requirements and other codes, as well as the recommendations of manufacturers, will determine if equipment will work. (continued on next page)

Typically, the maintenance of battery-operated products includes periodic exercising (running through a discharge/charge cycle) to maintain proper capacity.

Batteries use a chemical action called electrolysis, which is the decomposition of a chemical compound by an electric current. In lead acid batteries, for example, which are often used in emergency lighting equipment, a charge of direct current is applied to metallic lead plates immersed in a solution of dilute sulfuric acid.

Sealed batteries that do not require the regular addition of electrolyte have become the most common battery in emergency lighting products. Of the different types of sealed batteries, recombination batteries—immobilized or absorbed electrolyte—are becoming more commonly used. They offer the advantages of longer shelf life, no water loss, minimal external gassing and low temperature tolerance.

Because the regular and proper maintenance of emergency lighting equipment and their batteries can be costly and inconvenient, many building owenrs have not maintained their equipment. As a result, they may have inoperative emergency lighting equipment—but they won't know until they actually have an emergency and need emergency lighting.

That's why many architects and specifiers insist on the newer "smart" or self-monitoring emergency lighting products that help to reduce maintenance costs, while assuring a higher degree of reliability.

Smart emergency lighting products offer automatic selfmonitoring, self-testing and battery exercising capabilities. A display panel can indicate certain malfunctions of the battery, charger, transfer circuit and lamps. Maintenance personnel need only check displays to determine whether or not units are working properly.

Self-diagnostics offer important advantages to building owners: they ensure automatic testing and diagnosis of service requirements, thereby increasing product reliability and building safety. They offer not only maximum reliability, but also significant long-term savings.

Advanced technologies have been carried a step further. Some manufacturers have taken the cue from codes and developed smarter emergency lighting units that provide users with

information never before possible. This includes printed status reports on their equipment and maintenance records to help them comply with NEC and other fire and safety code requirements.

Smarter emergency lighting units now available are far technologically superior to earlier units. New portable emergency lighting monitor/controllers, or status reporting systems, have the capability to initiate and report on the self-diagnostic routine indicating the condition of the battery, charger, load, transfer and electrolyte, as well as initiate and report discharge tests. Both of these functions apply to individual units as well as groups of units (reported individually). Such devices are designed to interface with emergency lighting units and communicate to a central location.

This new status reporting system signals a new direction for the emergency lighting industry. Indeed, the added measure of life safety afforded by smarter emergency lighting allows architects and engineers a greater degree of confidence in the products with which they are dealing. Building owners can now have that added degree of reliability which, after all, is the bottom line in the life safety business.

F. James Ratto is product planner for Dual-Lite in Newtown, CT.



Circle No. 12 on product service card



1. Metal Halide Downlight

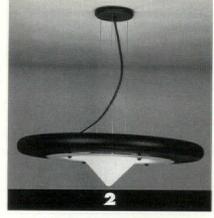
The series
EY4060A/4061A
of low wattage
metal halide, open
fixture, recessed 7inch reflector
downlights and
complementary
wallwashers are
available for use in
low to medium ceiling height installa-

tions. The fixtures, for use with 70- and 100-watt metal halide lamps, feature a heavy duty, die-formed mounting pan with preinstalled mounting brackets for vertical adjustment. The open fixture lamps have a protective shield over the arc tube. This elimi-

nates the need for a shatter guard and allows for higher light levels with less glare. Omega Lighting, Div. Thomas Industries Commercial and Industrial Lighting Group, Los Angeles, CA.

2. Four-Wire Mounted Pendant

The pendant fixtures in the Options series are suspended from four stainless steel wires to convey the impression that the fixture is



floating. The 2-inch high, 29-inch diameter pendant is well-suited for low-ceiling applications. It is lamped with twintube fluorescent lamps, ranging from 27 to 50 watts that provide wide indirect light distribution in conjunction with a newly designed reflector

system. Standard pendants can be accessorized with an acrylic bottom shield available in a variety of shapes and colors. Stem mounting is also offered. SPI Lighting, Mequon, WI.

shallow as 5-15/16 inches deep. It is the slimmest specification grade 150-watt incandescent on the market. Darklite is one of a family of fixtures designed for A lamps of 60 through 300 watts, with apertures of four inches to seven inches in diameter. Each fixture includes a common housing and one of five reflectors. Edison Price Lighting, New York, NY.

Circle 52

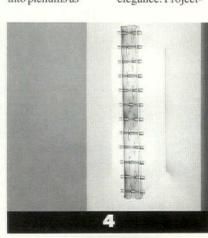


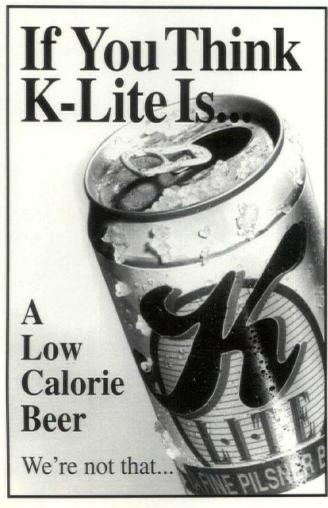
3. Low-Profile Downlight/Wall washer

The Darklite A21/6S recessed downlight/wallwasher has been redesigned to fit into plenums as

4. Wall Bracket

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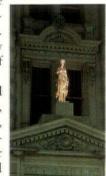
problems.

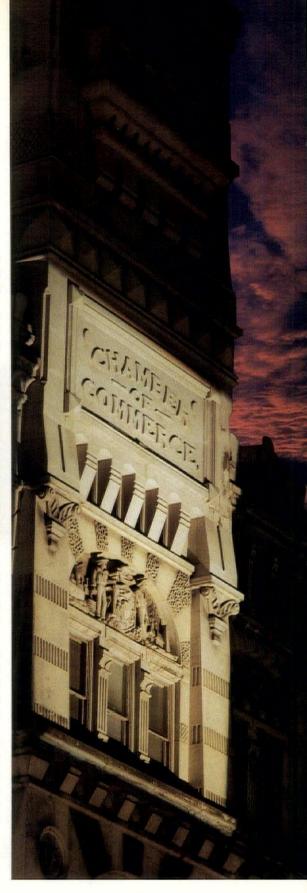
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ing only four inches, the Niagara wall bracket meets ADA requirements and may be used at any height in commercial installations, as well as residential environments. Lamping is with two T 10, 60-watt maximum incandescents, or one PL 18, 18-watt fluorescent. Boyd Lighting Company, San Francisco, CA. Circle 53

5. Low-Voltage Hanging Fixture

The Cambria 212 is a low-voltage hanging fixture intended for downlighting and general area illumination. It has a bayonet dc base socket and it will accept the MR 11 lamp (35-watt maximum) for controlled beam patterns, or the incan-

descent lamp for warm, even illumination. It comes with a hanging ring. The unit is lensed and O-ring sealed for a water tight fit, and is offered in black, bronze, and verde finishes.



7. Push Button Switches The 9000 series of

door lighting prod-

ucts is available.

The lampholders.

designed for out-

door border, tier,

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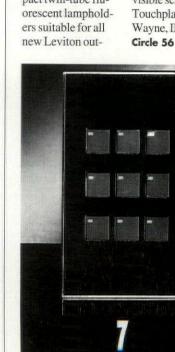
and accent lighting applications, are

momentary push button switches is offered in a Flushplate package. The switches are circuit board mounted. Up to nine switches may be mounted in a standard one-gang wallbox. The switches include LED indicators in either red or green. The covers are mounted via magnets, so there are no visible screws. Touchplate, Ft. Wayne, IN.

Lumiere Design & Manufacturing, Inc., Westlake Village, CA. Circle 54

6. Landscape Lampholders

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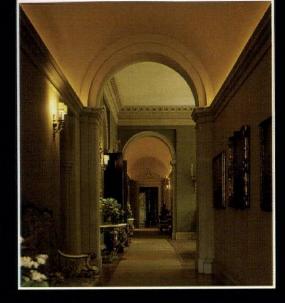
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Below: 85H/2.4





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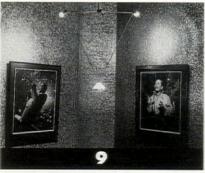
8. Outdoor Controls

The LuMaster Central Lighting Control System enables homeowners to

monitor outside lighting from one or more locations, to turn individual lights on or off, or all lights on or off at the touch of a single button. The system is designed to work with timeclocks and security systems for increased safety. Lutron Electronics Co., Inc., Coopersburg, PA. Circle 57

9. Halogen Pendant

The Trip pendants are the primary light source in Cava 555, San Francisco's new champagne bar. The dual aluminum conductor rods form the trian-





gular shape. The four-inch dichroic shade and aluminum cap ring allow use of honeycomb filters and lenses. The adjustable MR 11 lamps allow for highlighting and focusing on the surrounding artwork. SF 12V Inc., San Francisco, CA.

10. Halogen Wall Sconce

Metropole is a series of luminaires using exposed joinery as a decorative articulation. Both the wall sconce and torchiere models provide direct uplight, diffused downlight, and can be operated by touch-sensitive dimming. The sconce is 10 inches high, 20 inches wide, and 8 1/2

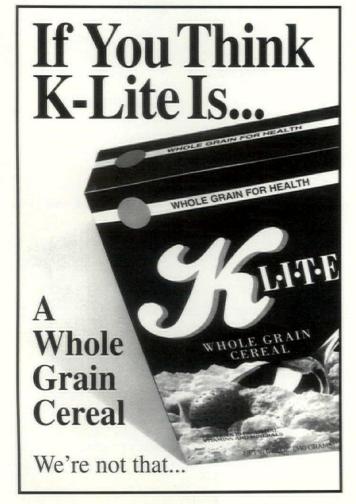
inches deep. The unit uses one 100-watt, 120-volt tungsten halogen lamp with coiled cord and plug for wall outlet switching. The Schaffer Studio, Los Angeles, CA.

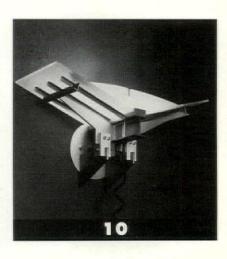
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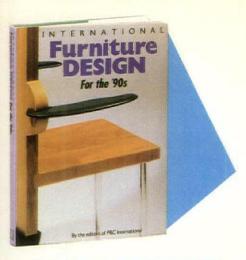
11. Polycarbonate Exit Signs

The NEMA 4X Exit Sign Series is designed to withstand conditions in wet, dusty and corrosive environments. The polycarbonate units come equipped with two 5-watt compact fluorescent lamps rated at 10,000 hour lamp life. The self-contained power pack provides 85 percent of normal illumination during a power outage. Dual-Lite, Newtown, CT.

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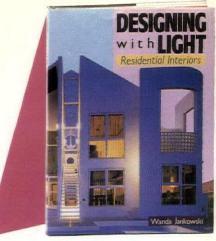
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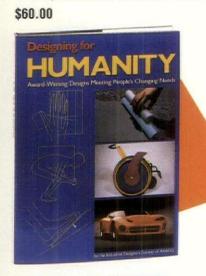


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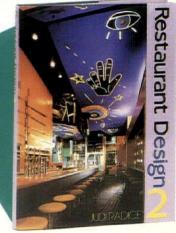
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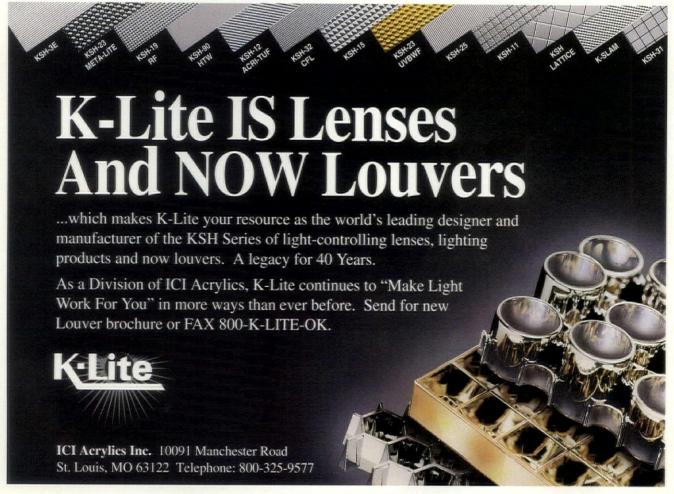
Philadelphia Hosts "Light Touches"

More than 3,000 professionals are expected to attend Philadelphia Lights '92—"Light Touches," the regional lighting industry show of the Electrical Association of Philadelphia. The show will be held on Tuesday, December 1 and Wednesday, December 2, from 3:00 to 8:00 p.m. at the Adam's Mark Hotel on City Line Avenue. For over a decade, the show has introduced facility managers, owners, architects, engineers, interior designers, builders, contractors and others to advances in technology and design.

The over one hundred exhibits at "Light Touches" will include fluorescent, decorative, low-voltage, emergency and other lighting manufacturers. The association, in conjunction with the Illuminating Engineering Society of North America has scheduled several seminars to be conducted by industry experts. Tuesday, December 1 seminars include: "Green Lights Program," "Utility Rebates," and "Do's/Don'ts of Energy Efficient Lighting." Wednesday, December 2 seminars are: "Budgeting a Lighting Project Design," "Certification for Lighting Specialists & Legal Implications," and "Lighting of Public Spaces."

Daily admission is \$5.00 for exhibit areas only. For a fee of \$25.00 per day, attendees can have access to the exhibit areas and the three seminars. Students with proper I.D. pay \$5.00 per day for entrance to exhibits and that day's seminars. Those interested in attending can preregister by calling The Electric Association of Philadelphia at 215-668-1700.

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