

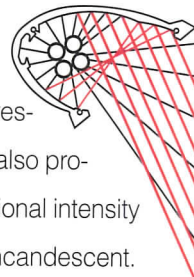




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RECORD INTERIORS 1995

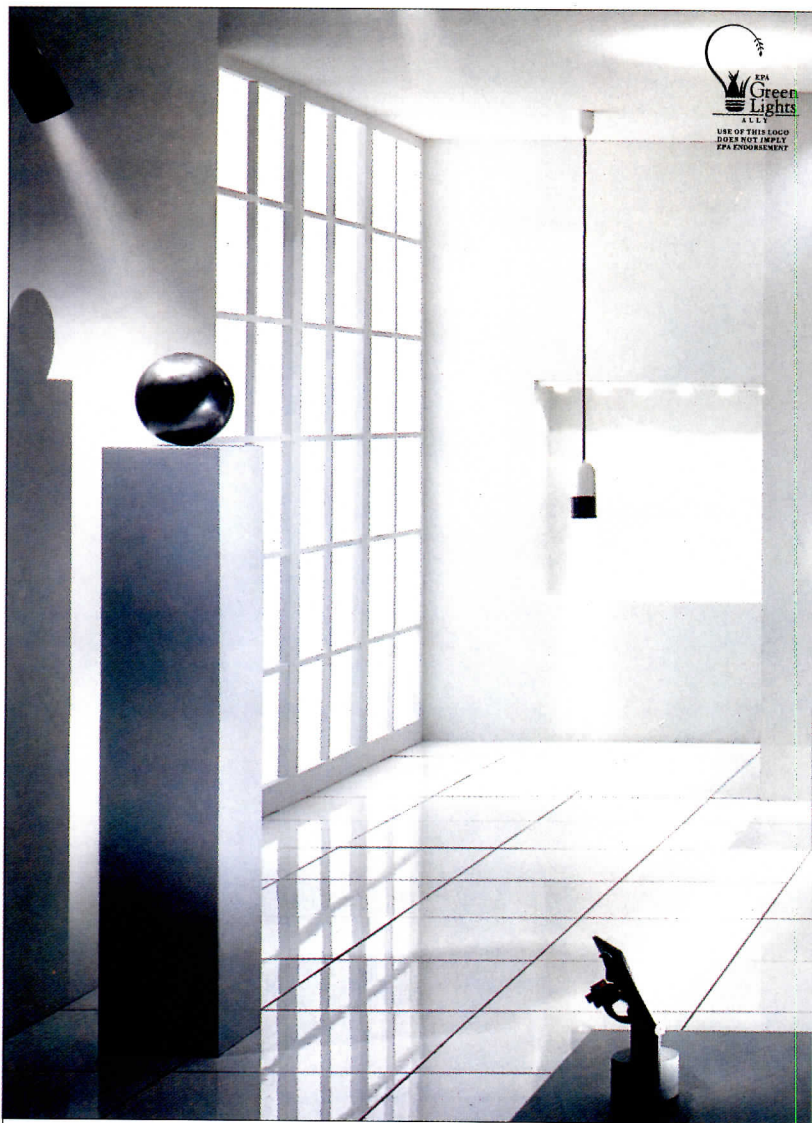
The editors of ARCHITECTURAL RECORD announce the 26th annual RECORD INTERIORS awards program. This program is open to any registered architect; work previously published in other national design magazines is disqualified. Of particular interest are projects that incorporate innovative programs, building technologies, and use of materials. There is an entry fee of \$15 per submission; please make checks payable to ARCHITECTURAL RECORD. Submissions must also include plan(s), photographs (transparencies, slides, or prints), and a brief project description bound firmly in an 8-1/2- by 11-in. folder—and be postmarked no later than April 30, 1995. Winning entries will be featured in the 1995 RECORD INTERIORS. Other submissions will either be returned or scheduled for a future issue. If you would like your entry returned, please include a self-addressed envelope with appropriate postage.

Submissions should be mailed to:

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New York City

Canopy and Lobby Renovation Bridges Outside with In



Machinst and Gray Associates Architects and Focus Lighting have used a well-lighted exterior canopy to draw people into the lobby of a New York office tower. The designers revamped an existing canopy—keeping the original structure—by adding a luminous ceiling underneath, and adding illuminated graphics along its sides. While the original cast a dark shadow on the north side of a narrow street, the new canopy seems to extend the lightness of the lobby to the outside. A glowing, double-height space in the lobby bridges inside and out.

Further in, staggered, fluorescent cove lights change from two tubes to one as the lobby narrows, and large, custom-designed sconces light up each of six ornate pilasters.

The mechanical systems and lighting are pushed into the corners to accentuate the height of the space and so that the vaulted ceiling above can reach up as far as possible. The effect is gives visitors a sense of lightness and the illusion of greater space. ■

Columbus, Ohio

Connector for the Capital

The Ohio Statehouse is currently under renovation by Schooley Caldwell Associates in Cincinnati. The firm recently added a 59,000-sq.-ft. atrium to link the Civil War-era building to the turn of the Century adjacent judicial building. In order to bridge the two styles, and underline the freestanding nature of the new atrium “connector”, skylights form a seam between each building and the atrium. Inside, spotlights hidden along the skylight highlight the columns and pilasters of the atrium. In the State House itself the 19th century lighting will be replicated. ■



© Wade Zimmerman photos

© Richard Loesch photos

Chicago

All that Glitters May be the Bank



© Jon Miller/Hedrich Blessing photo

Mitchell Kohn Architectural Lighting added some spark and sparkle to the Madison Bank—animating it with curved neon tubes, fluorescent bars and blazing spotlights. The metal ceiling highlights the movement of the light across the spaces.■

New York City

Showroom Shows Off Grazing

Dario Caima and Franco Asnaghi's Cassina showroom is marked by a lighted staircase that reflects the store's modernist aesthetic. The curving white stair connects with a wall that cuts the gallery in two. A series of overlapping scallops graze the wall surfaces.■



© Paul Warchol photo

Greenwich, Connecticut

Clearer Screens Prevail Under Indirect Light at Trading Floor and Offices



© Norman McGrath photos



A narrow trading floor (top) is now awash in soft white indirect light. Sylvan R. Shemitz and Associates' mandate was to minimize the glare on rows of computer screens and to allow for a clear view across the trading room floor. Cumbersome fixtures could not be mounted on the furniture. Instead, the designers tied everything back to the edges of the space, and hid the 40W compact fluorescent fixtures in the framework of four structural bays. Additional central pendants, also fitted with 40W compact fluorescents dissolve into the ceiling. Most reflective surfaces

are kept a neutral white, and users have 40 fc at the task. Even a more ornate "think tank" room off the main space needed to connect visually to the activity on the trading room floor. Here, to minimize glare, the designers balanced the light levels on either side of its glass separation wall. Individual offices (bottom) are also lit indirectly, using a combination of freestanding uplights, and wall sconces. 3700K 250W metal halide lamps are used in these fixtures.■

Briefs

•The NYU School of Continuing Education offers a course on lighting for health care professionals on March 2nd from 9 am to 5 pm. Call 212/998-7080 for information.

•The deadline for the International Association of Lighting Designers Awards is March 1, 1995. Winners will be honored at an awards dinner in Chicago during LightFair.

•The Pratt Institute will hold a lecture series on the history and theory of lighting this spring at the Puck Building in New York City. Lecturers include Jamie Carpernter and Claude R. Engle.

•Brooklyn's Eastern Parkway—a grand boulevard that fronts the Brooklyn Museum and other city landmarks—is a light again. The last of 627 classic New York City lamp posts are now in place after nearly a decade of work.

•The National Lighting Bureau in Washington D.C. has expanded its data base to include new case histories of successful lighting design. The bureau is an information service founded in 1976. ■

Ann Arbor, Michigan

Lighting Creates Order in University of Michigan Law School Moot Court

Quinn Evans Architects and Gary Steffy Lighting Design rehabilitated four classrooms at the University of Michigan Law School, including a Moot Courtroom. To improve the "character of the school", and to accommodate new video technology, 60-70 fc

were needed, making the space both "historic and glowy". The designers decided to layer the lighting sources: indirect lighting is cast down from the ceiling, while hanging pendants add drama. Fluorescent wall slots accent the courtroom's ornate woodwork. ■



© Fred Golden photos

San Francisco

HOK and Botta Daylight SFMOMA Galleries

Hellmuth Obata & Kassabaum Architects designed the gallery lighting for Mario Botta's gargantuan new San Francisco Museum of Modern Art. The firm filtered diffuse daylight into the galleries through vaulted skylights designed by Botta. For darker days, light fixtures—along with structural and mechanical systems, and smoke detectors—were also imbedded in these same skylights. The idea was to give the illusion of sunlight even at night. Meanwhile, a central turret—the main architectural feature of the museum—is lit by a huge circular skylight. A bridge crosses the five-story space and is made of a fine metal grid: high heels won't get caught but a soft light can still filter down to the space below. At night, uplights shine through the giant skylight from inside, giving it an eerie glow. ■



© Richard Barnes photos



Lighting a New Age with Microwave

By Lindsay Audin

You read it here first: last May, this column covered the impending introduction of microwave-based lighting systems—and now you can see them in public buildings.

In October, two were unveiled in Washington, D.C.: one at the National Air and Space Museum and the other over an outdoor promenade of the U.S. Department of Energy's (DOE) Forrestal Building. A third illuminates the exterior of Kitchener City Hall in Toronto. The Washington facilities illuminate large areas using light guides that direct output from a lamp at one or both ends of pipes 90- to 240-ft long. The Kitchener system transfers its light through optical fibers. Welcome to the lighting of the 21st century.

“One new microwave-generated lamp can create as much light as 150 4-foot fluorescent lamps. Early model MGLs have an efficacy of 76 l/W, and CRI of 85.”

Look mom, no mercury

To grasp the full potential of microwave-generated lighting (MGL), recall that high CRI discharge lamps (fluorescent and metal halide) produce light in a two-step process. First, electrons in mercury atoms are stimulated by electrodes into emitting mostly ultraviolet light, which is then converted by phosphors into visible light. In MGL, microwaves are beamed into sulfur gas, creating a plasma of free electrons and nuclei. The electrons emit visible light across the entire spectrum, providing 85 CRI, 6700K light (similar to what we see on a sunny day). No mercury, electrodes, or phosphors are involved.

Like no lamp you've ever seen

Looking a lot like a glass Tootsie-Roll Pop, the lamp is a golf-ball-sized sphere atop a stem. Spinning inside an electric field at

Lindsay Audin is lighting consultant to E-Source, a Colorado-based consulting firm, and manager of energy conservation for Columbia University.

about 300 RPM, one of these lamps produces as much light as 150 4-foot fluorescent lamps. Rotation is needed to evenly distribute light output, but advances in microwave generators may eliminate it by instead spinning the field (as occurs in an electric motor).

Out of Buck Rogers's kitchen

Magnetrons, quite like those used in home microwave ovens, create a field of 2.45 GHz (one GHz equals 1 billion cycles per second) energy in the new sulfur lamps, and, like magnetic ballasts, consume some power in the process. Early-model MGL have an overall efficacy of about 76 lumens per watt, which is about the same as magnetically ballasted T12 lamps. As microwave-generation technology improves, that number is expected to nearly double, making MGL more

efficient than the best metal halide or electronically ballasted T8 systems.

MGL was first developed almost 20 years ago as a means of generating high levels of ultraviolet light (using gases other than sulfur) for industrial processes. High-quality visible light was first produced in 1990, pioneered by Fusion Systems Corp. (now Fusion Lighting, Inc.), of Rockville, Md. The first commercial product (the 3.4 kW VBL-3400) is available from Hutchins International, Ltd. (HIL), of Mississauga, Ontario, operating under a license from Fusion. It is currently used in laboratory plant-growth chambers to simulate sunlight. Fusion plans to market its own commercial product (called the Solar 1000) next year.

While the lamp can be expected to run indefinitely (since there are no electrodes or phosphors to wear out), the replaceable magnetrons presently last about 10-15,000 hours. As a result, Hutchins International provides a two-year warranty on its system. More-durable solid-state components now under

development should last much longer.

What makes MGL so special?

MGL radiates across the entire visible spectrum, instead of creating “spikes” at several wavelengths like all other high-efficiency light sources. Together with its very high color temperature and CRI, a sunshine-like light is created.

Unlike the HID lamps it is sure to replace, MGL systems can be fully dimmed, have 10-second startup and re-strike times, and no lumen depreciation. Restrike times will decrease once solid-state microwave generators replace magnetrons.

By adjusting the gas mixture, ultraviolet and infrared emissions are nearly eliminated, providing high-quality light without harmful components. Unlike fluorescent lamps, there are no hazardous materials, such as mercury or phosphors, which in the future may require special disposal methods.

The very small size of the lamp allows its output to be more easily focused than HID lamps many times larger. As a result, higher optical efficiencies are possible with relatively small reflectors.

Such very high output from a small source also allows a single large MGL fixture to replace many large HID sources, such as the banks of metal halides often seen atop stadiums. Single MGL fixtures up to 30 kW, equivalent to 20 1500W metal-halide fixtures, are presently on the drawing boards. Major reductions in installation and maintenance costs then become possible.

Using MGL indoors

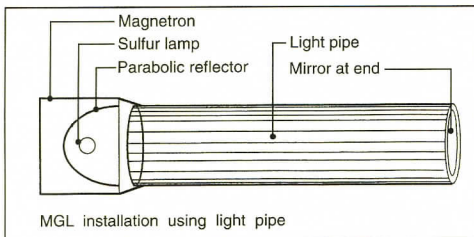
While Lawrence Berkeley Laboratory (LBL), a DOE facility, recently produced a 100W MGL, technical and economic limitations will likely limit commercial units to outputs similar to larger HID lamps—such as those over 400 watts. Even the little LBL unit produced as much light as five 4-foot fluorescent lamps, which could present a major glare source unless properly controlled.

Such bright sources are not uncommon in industrial environments, but there are better ways to spread this high-efficiency light

Microwaves bombard sulfur gas inside a spinning glass sphere to create intensely bright light that is distributed evenly over the entire visible spectrum. Efficacy is good in early models and will improve.



A microwave-generated lamp (above) looks like a glass Tootsie-Roll Pop. It will replace HID lamps like the one on the left. Controlling the intense light will be a challenge. The basic assembly now in use is shown below.



around: light guides and fiber optics provide ideal methods for distributing MGLs output. The Washington installations illuminate large spaces by directing the MGL into light-pipes, which are essentially internally mirrored conduits. Such systems have been around for nearly a decade; even residential models are now available.

The interiors of light-pipes (which can be round or square) are etched along their lengths with tiny prisms that internally reflect 97 percent of the light that strikes them. Output from a light source is conveyed by reflection until it escapes out the end, or through one side, via a diffusing medium designed to evenly distribute it in a room.

Two prototype systems in Washington release light down their entire length

through a clear diffusing section of the tube running along its bottom side. The light-pipe thus conveys light across open areas nearly inaccessible to the relamping crew. Since the lamps are located at the ends (not the middle) of the pipes, maintenance costs, interruptions, and risk are greatly reduced.

In industrial facilities, terminals, tunnels—including the Moscow subway system—and other large structures, light-pipes have already proven to be a viable way to convey light into interior spaces. In new or renovated office and commercial facilities, light-pipes distributing MGL could replace many of the individually wired lighting systems presently in use. Relamping in such spaces would be virtually eliminated, since a few high-output MGL lamps could be conveniently located outside of them, possibly in adjacent corridor ceilings.

Such techniques are presently used in “clean” rooms, sensitive medical facilities and labs where interference from discharge lamps is a problem; and across industrial vats and swimming pools, where relamping is a problem. Metal-halide lamps have typically supplied the light in such systems, but their limitations, such as long startup and re-strike times, and color stability, have limited the expanded use of light-pipes. Such problems are eliminated by MGL, so there is good reason to consider combining the two technologies when lighting upgrades are considered in the future.

The downside

MGL is still so new that potential problems with it are based on conjecture. Radio frequency interference (RFI) is sure to be on the FCC’s agenda when reviewing the light source because the magnetrons “broadcast” radio waves much like a radar station. Static produced by such generation could create problems when large MGL sources are located atop light poles, especially around radio-sensitive areas such as airports.

One of the primary selling points of MGL is also one of its main limitations: it is a highly concentrated light source with a dangerous potential for glare. Catching sight of 430,000 lumens getting pumped out of a one-inch sphere in terms of luminance is similar to

looking directly into a very large tungsten filament projection lamp: retinal damage is possible. Controlling glare and directing the light present challenges to tomorrow’s fixture designers.

Unlike other light sources that contain their electrochemical reactions in their glass bulbs, MGL fixtures energize gases by transferring energy through their bulbs from outside. While a clear cylindrical shield limits the possibility that an electrician’s hand might enter the microwave field, the potential for injury remains. Safety during maintenance (or when fixtures are damaged) becomes paramount when dealing with such high concentrations of energy.

At the present, power quality is relatively low due to the low-tech magnetrons and transformers now in use. This will likely improve as solid-state systems supplant the existing technology.

As with all other light sources, the economics of MGL relative to its competition will determine its position in the marketplace. The few operating prototypes have basically been hand-made. As is true of all new technologies, the cost of the prototypes is unrelated to what costs will be when the units are finally mass-produced.

Friends in high places

Development of this technology has been supported by some major players, including the DOE, EPA, NASA, and 3M, maker of the prismatic interiors of light-pipes. If the economics and efficiency expectations hold true, we could be looking at the first fixtures of the 21st century. ■

New Concepts In Street Lighting

By Christopher Hugh Ripman, RA

Why did the citizens of one New England town reject a proposal for new high-pressure sodium street lighting that would have eliminated their outdated incandescent and mercury-vapor equipment, and saved them substantial costs on an annual basis? This question and others will be addressed during the coming year in an unprecedented field experiment as a joint effort between the town of Lexington, Massachusetts, and its utility, Boston Edison.

During the experiment, 50 luminaires of five generic types will be installed on existing poles at existing mounting heights, fitted with eight high-color rendering sources with color rendering indexes (CRIs) of 60 or greater, including several varieties of compact fluorescents. When these fixtures have been field-tested through a complete seasonal cycle and the data has been assessed, the utility will compute experience-based streetlighting rates for the lamp-luminaire combinations judged most successful, and the town will replace its existing inventory of incandescent and mercury-vapor fixtures with the fixtures derived from the demonstration project.

One result of this conversion will be savings to the town, though they will not be as great as they would be with a wholesale conversion to conventional utility-grade high-pressure sodium (HPS). But the equation to be optimized in the Lexington demonstration project is not a single-variable equation. First-cost will be only one factor in the final decision. Others will be energy efficiency, ease of maintenance but, perhaps most important, the preservation and enhancement of a significant community asset whose value is not easily calculated: the preservation of the high quality of the nighttime street environment.

Lexington's objectives

The purpose of the lighting system is to provide a system that lights Lexington's streets well, but also recreates the existing nighttime luminous environment using energy-efficient, long-life sources to reduce cost. In addition, the system should provide

Christopher Ripman is president of Ripman Lighting Consultants in Belmont, Mass.

orientation and guidance, and convey information about intersection shape and location, and the kind of street one is traveling on: arterial, collector, or residential. The utility company's motivation for sponsoring the project is to demonstrate lighting that meets demand-side management objectives, achieving customer satisfaction and competitive sourcing for lamps and luminaires, while reducing energy consumption.

Light sources

The light sources to be tested in the Lexington project have been selected for one primary characteristic: CRI of 60 or higher. The typical utility company-grade HPS lamp has a CRI of about 20; while sunlight and incandescent both have a CRI of 100. Long lamp life is also important. High-pressure sodium and mercury-vapor lamps have are rated at 24,000 hours or more. Most high CRI sources, such as low-wattage metal halide or compact fluorescent, have relatively short lives—7,500 to 10,000 hours, only 6 1/2 to 8 1/2 months when in service for 12 hours per night. In order to place these sources on a basis with the standard utility HPS lamps that is cost-competitive, innovative fixtures will be tested in the project. These luminaires will have a second optical chamber fitted with a second lamp that will only turn on after the first lamp in the fixture has failed. This will effectively lengthen the relamp cycle of the fixture until it is competitive with HPS.

Other aspects of the testing will focus on the effects of ballast quality and starting temperature. For at least one of the improved-color HPS luminaire types, a variety of ballasts will be tested to explore the influence of different ballast designs on lamp life and life-cycle cost. Solving problems with starting compact fluorescent and the low light output during periods of cold temperature will be explored through the use of new fixture designs intended to provide a better operating environment, as well as new electronic ballasts rated to start at -20F.

A problem of perception

What makes people perceive street lighting as good or bad is not just uniformity and the number of footcandles to the pavement, but also a number of other factors. These include color rendering, using lamps of a color tem-

A streetlighting demonstration project in Lexington, Massachusetts, seeks the preservation of the high quality of the nighttime street environment.

perature that will mimic the effect of moonlight on vegetation—the night source people have known since the beginning of time sets up their expectations for what night lighting should be like. Another factor is the creation of a “symbolic candle”—the presence of a point source visible beyond the normal cutoff angle for flat-lens cobraheads or “shoebboxes.”

The project gives a high priority to maintaining a visible source, a departure from contemporary street-lighting theory. In the early days of street lighting, gas and incandescent luminaires were characterized by low output and, therefore, low brightness. People have a very positive association with fixtures like Boston's Beacon Hill gas lantern, or incandescent sources such as the “radial wave”-type, or the “admiral's hat” style. One thousand of the latter type are still in service in Lexington, and are staunchly defended by a group of citizens unwilling to trade what they perceive intuitively as an amenity for the “golden glow” of high-pressure sodium.

The evolution of street lighting

In the 1920s increasingly powerful sources combined with improved optics made wider streetlight spacing possible. At 45 lumens per watt, the mercury-vapor lamp had twice the efficacy of the incandescent lamp. That led to the development of the drop-dish-refractor cobrahead luminaire. The mercury vapor lamp uses a phosphor-coated lamp to convert ultraviolet radiation generated by the arc tube into visible light. As a result, the source brightness of low-wattage mercury lamps is relatively low.

More precise optical control was possible with the development of more modern lamps like high-pressure sodium and metal halide, which use the output of a compact arc tube, basically a point source, as opposed to that available with a much larger diffuse source, such as the overall lamp envelope, typical of mercury vapor and fluorescent. While these point sources could be better controlled through reflector and refractor designs, they were also much, much brighter—1,700,000 footlamberts for an HPS lamp compared to 22,000 for a mercury lamp. The extreme brightness of the HPS lamp led to an industry-wide shift in luminaire design
continued on page 33

The traditional incandescent street-light reflector (1) not only redirects light to the street, it also shields the source from intruding on houses on both sides of the street, and allows a view of the filament from the roadway in both directions, conveying the sense of light far beyond the actual illuminated area of the street.

The “radial wave” incandescent on a “bishop’s crook” pole is preferred (2) in the Lexington Historic District over modern equipment because the light it produces seems friendlier, and has better color rendering.

The oval drop-dish refractor of this second-generation mercury-vapor cobrahead (3) diffuses the source, while concentrating its light on the roadway.

While the color of mercury vapor resembles moonlight, glare and light intruding into houses became facts of life when America’s residential streets (4) became illuminated with this type of fixture. Aside from an increased level of light, nothing distinguishes this arterial street from the residential and collector streets that are served by it.

This third generation (5) high-pressure sodium “flat-lens cutoff” cobrahead uses reflectors rather than a refractor to control glare. The result is extreme glare from the unshielded arc tube when viewed from below, and alternating pools of light and darkness when fixtures are spaced too far apart for their low mounting heights.

A typical residential street “upgraded” with HPS drop-dish reflector heads (6) is glary, but provides relatively even illumination on the pavement as well as in adjacent bedrooms.



1



2



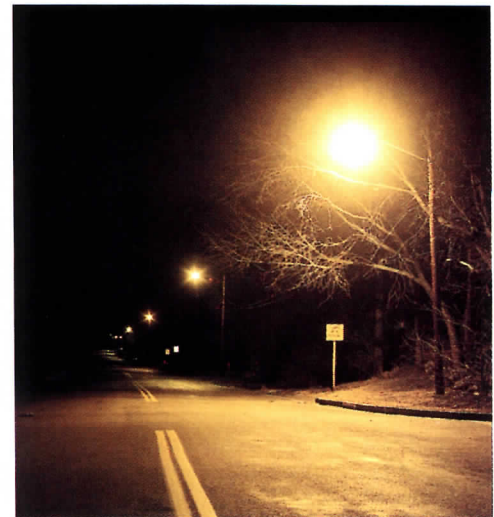
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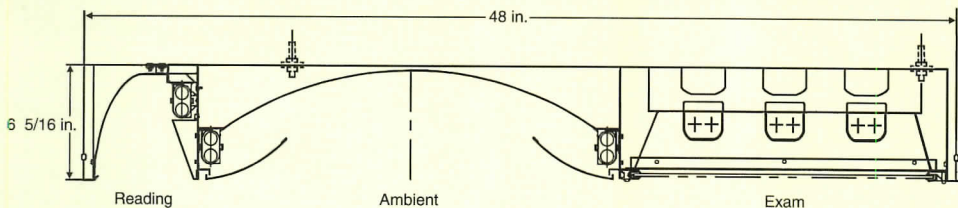


6

Lights and Devices for Special Situations



322



322. Patient-care light

A multifunction luminaire, Neo-Ray's 3PR was designed by Jim Kaloudis for the special illumination requirements of hospitals and other health-care institutions. A single fixture can provide contained, glare-free light for reading; soft, unobtrusive light for visiting or meals; and illumination as bright as 100 fc for medical examinations (left to right in the section above). It works on one circuit, and allows up to four switched controls (a night observation function can be specified). Reflectors for the open-bottom reading and ambient-light functions are finished in white enamel. The three-compartment housing, made of 20-gauge galvanized steel, fits into a standard 24- by 48-in. opening in a dropped ceiling. Completely out of the way, the 3PR

has no swing arms to bend or protrude, no shade to fray, and no dirt-catching shelves or rims. Light sources are six high-color-rendering 40W T5 lamps: one as the reading light, two in the ambient section, and three for the higher lumen-output needed for patient examination. The optional night light is a 7W CFL placed behind the exam light's prismatic diffuser. Electronic dimming can be ordered. 800/221-0946. Neo-Ray, Brooklyn, N.Y.

323. Framing projector

A new accessory, the DL-FP twists onto most of Lucifer's top-lamp MR16 downlights (50W maximum). Made with a molded-plastic housing, the projector comes with an internal glass magnification lens and an aluminum shutter; for extremely UV-sensitive appli-



323



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cations, an Optivex ultraviolet lens from Bausch & Lomb may be special-ordered. Lucifer Lighting Co., San Antonio, Texas.

324. From wall to ceiling

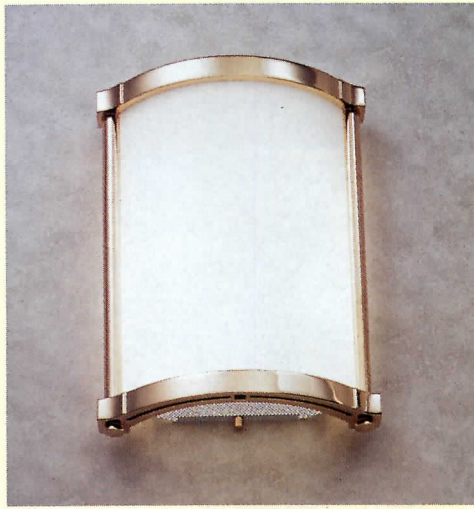
Known for Bisque sconces in fanciful shapes like shells or sunbursts, Justice now offers pendants in the same sturdy, paintable ceramic-composite material. Hanging lights take standard A lamps and stay reasonably cool to the touch. Finish options include special treatments such as faux marble. Justice Design Group, Culver City, Calif.

325. Lamps for table and wall

Part of Boyd's ongoing American Aesthetic series of luminaires, merging natural materials with technical know-how, Squiggle



325a



325b



326

(325a) could work on an office desk, in a living room, or as a bedside light. Lamp has an etched-glass shade over a standard incandescent bulb, set on a curvaceous maple column in either black or white-limed finish; base and fittings can be brass or chrome. Also from Boyd, the Medici sconce meets ADA projection standards at any height, and is suggested for commercial, hospitality, residential, and retail use (325b). Its electronic ballast is said to be noiseless as well as energy saving; light source is the newish 2D CFL lamp set behind a slumped-glass diffuser. Boyd Lighting Co., San Francisco.

326. Discrete protection

Surge-suppressor protection from voltage transients is now available in a Decora-style

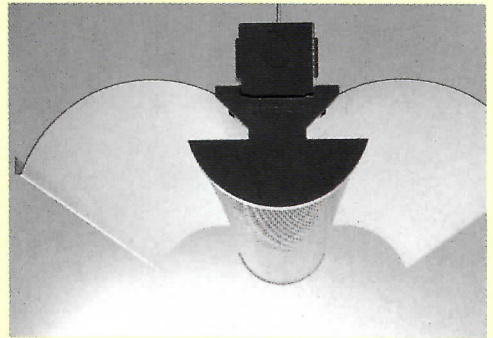


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receptacle. Offering three-level protection within a duplex receptacle is said to be an economical way to avoid data loss and electronic-equipment damage due to voltage spikes—and solve problems of missing surge strips. Device provides line-to-neutral, line-to-ground, and neutral-to-ground protection, for itself as well as for any outlets downstream on the same circuit. A visible/audible alert activates when protection is lost. Device and surround available in all Decora colors. Leviton Mfg. Co., Inc., Great Neck, N. Y.

327. Italian ambience

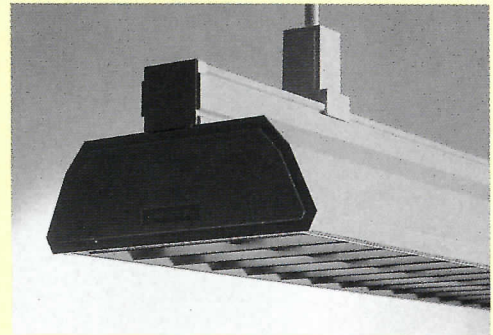
Designed by Matteo Thun for Arteluce, Pao/W is a small-scale (13 in. high by 8.6-in. deep) halogen sconce UL-listed for both residential and commercial use. Diffuser is blow-molded



328a



328b



328c

opaline glass, held away from the wall by a tapered cherry-wood stem. There are two similarly ovoid table lamps made of the same materials, as well as the original Thun design, the Pao floor lamp. Flos, Inc., Huntington Station, N.Y.

328. Ergonomic office lighting

Zumtobel's ZX system—a low-profile power-carrying track, a plug-in fixture assembly, and interchangeable reflectors (328a) and louvers (328b and c)—permits locating luminaires to fit the light-distribution requirements of a particular space within one continuous fluorescent system. Trunks carry three circuits for tri-level switching; electronic ballasts and T8 lamping are standard. Zumtobel Lighting, Inc., Garfield, N.J. ■



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Lighting for Makeovers

In this issue we are presenting three interior lighting stories that explore different issues involved in using lighting to revitalize spaces, and a fourth involving exterior relighting issues.

One involves the relighting of the 1973 Hyatt Regency Hotel in San Francisco, by S. Leonard Auerbach and Associates (the architectural half of this firm is now known as Auerbach + Glasow; the theater and media portion is Auerbach + Associates). This project draws on the firm's experience in theatrical lighting, using tight beams of incandescent light to graze planes, and bring the space alive.

A second project, the made-over Scottsdale Mall in South Bend, Indiana, features the vibrant color typical of Craig Roeder and Associates' work. A third project, the Japanese American National Museum in Los Angeles, by Lighting Integration Technology, shows how a firm tackled the problems imposed on them when adding new lighting to a landmarked Buddhist temple.

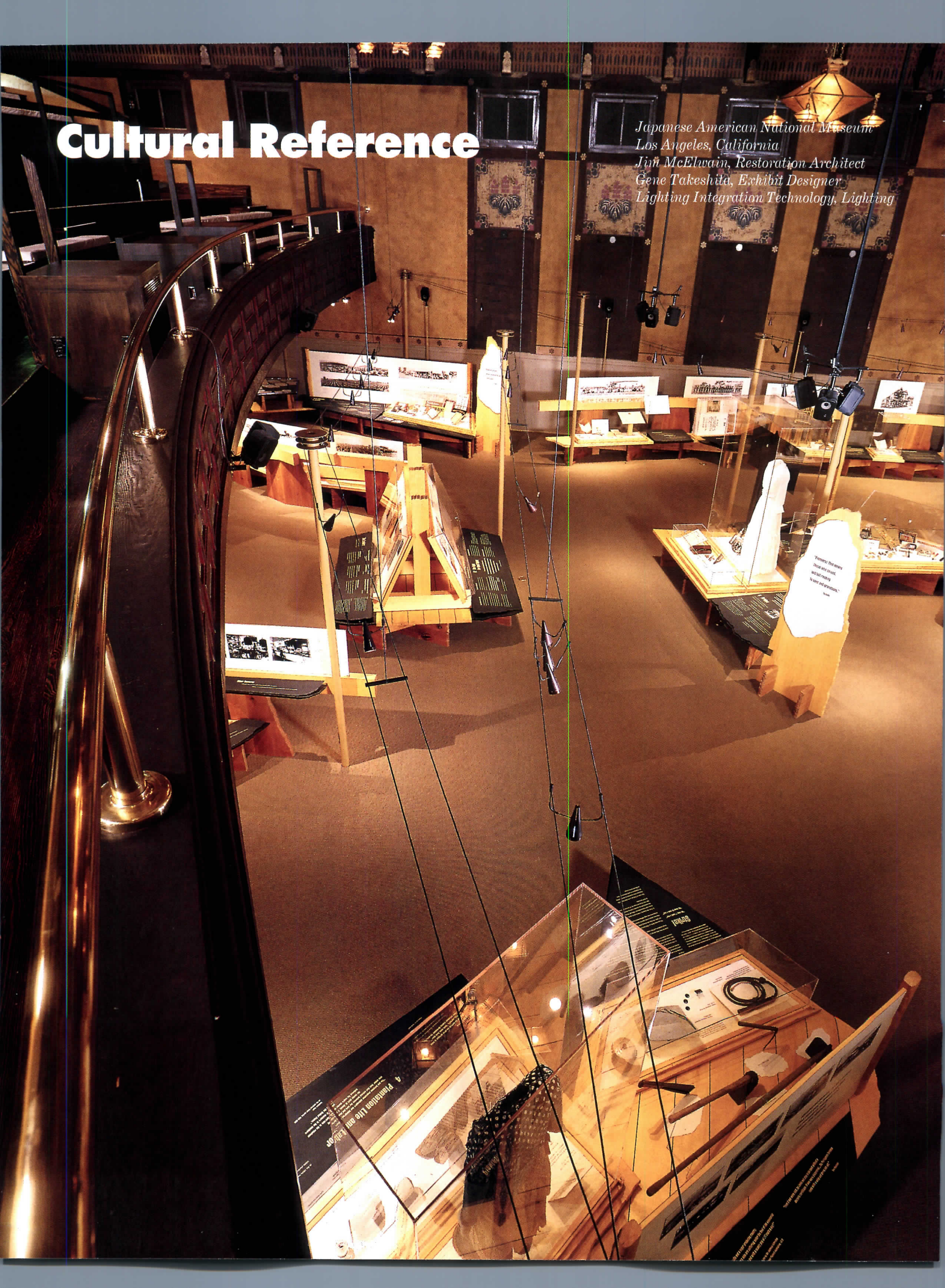
For something completely different, but still in the makeover vein, an article by Chris Ripman examines a project in Lexington, Massachusetts, that intends to find alternatives to relighting streets with HPS cobrahead fixtures, while still saving energy and maintaining the intimate nighttime quality of that city's historic streets. Energy columnist Lindsay Audin examines sulfur-gas lighting, an intense new light source that's going to give designers who renovate in the future a whole set of new challenges to think about.

Charles Linn

*Manufacturers' Sources
listed on page 32*

Cultural Reference

*Japanese American National Museum
Los Angeles, California
Jim McElwain, Restoration Architect
Gene Takeshita, Exhibit Designer
Lighting Integration Technology, Lighting*



The Japanese American National Museum is located in a landmark downtown Los Angeles building that was, fittingly, once a Buddhist temple. The museum's opening exhibit chronicles the stories of the Issei, the first generation of Japanese immigrants in the United States.

Working closely with the curators and the exhibit designer, Gene Takeshita, the lighting designers, Lighting Integration Technology (LIT) of San Francisco, illuminated the space in a way that is sensitive to the existing space as well as the museum's subject.

"The biggest challenge was working with the landmarked building," says LIT principal Susan Huey, who designed the lighting along with fellow-principal Hiram Banks. No new fixtures could be hung from the ceiling or walls. Their solution was to build up a new wooden floor, and have freestanding fixtures throughout the 4,200-square-foot space.

Accordingly, the designers created electrical poles connected by cables that suspend custom-designed cone-shaped fixtures. Each pole has a spool-like top which functions as a "cable junction" to insulate and separate the cables. This ingenious arrangement, besides adding design interest, allows for the flexibility critical to museum design—fixtures can be located anywhere along the length of the cables, and the poles can be relocated as exhibits change. The cables, says Huey, are also a cultural reference, reminiscent of the overhead wiring used to power electric trains, familiar sights to Japanese who came to the country as laborers, and many of whom worked on the railroads.

The exhibit is made up of extremely fragile artifacts. Small, cool, MR16 lamps were a natural choice for the light sources. Bausch and Lomb Optivex filters were used to shield the exhibit from ultraviolet degradation, and a dimming system was added to control the intensity of the light. The project was exempted from Title 24 because of the existing building's landmark status.

Four ceiling-mounted chandeliers were exempted from the stringent landmark status because they replaced the existing paper chandeliers. The paper has been replaced by glass, which houses compact fluorescent lamps. The distinctive chandeliers add another note of cultural continuity to this unusual project. *Nayana Currimbhoy*

Credits

*Japanese American National Museum
Los Angeles, California*

Architect: *Jim McElwain*

Exhibit Designer: *Gene Takeshita*

Lighting Designer: *Lighting Integration Technology—Susan Huey and Hiram Banks, principals*

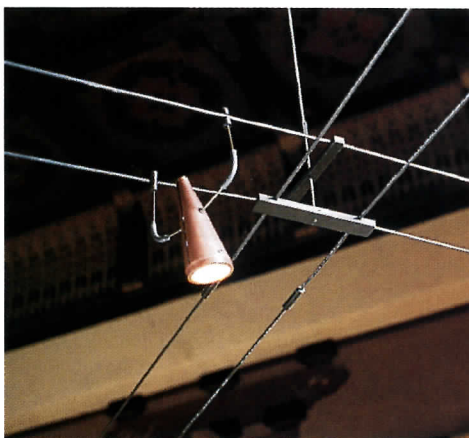
Interior Designers: *J. T. Nakaoka and Associates*

Exhibit Fabricator: *Rick Nagano*

Exhibit Preparer: *Jeff Haskin*

Sound System: *Bernie Krause*

© Coll Photography



Located in a landmark building where no new ceiling- or wall-mounted fixtures were permitted, the exhibit has been lit with the aid of cables connected to poles standing on a built-up floor. The cone-shaped fixtures use MR16 lamps with UV filters to protect the fragile artifacts.

Lighting the Volume

*Hyatt Regency Hotel
San Francisco, California
ELS/Elbasani & Logan, Architect
S. Leonard Auerbach & Associates,
Lighting Designer*



The lighting was a huge part of the budget," says lighting designer Patty Glasow of S. Leonard Auerbach & Associates, "because the client and architect were aware of the importance of the lighting of this great volume of space, and how much could be accomplished with good lighting."

The volume to which Glasow refers is the lobby court of John Portman's Hyatt Regency Hotel in San Francisco, a 17-story ziggurat shaped space, which was recently gutted and remodeled with a new restaurant, bar, and registration and concierge desks. And according to Glasow, a lot of light was needed. "The first thing the lighting design team noticed was that it was pitch black in there," says Glasow.

Using standard- and low-voltage incandescent luminaires, the designers set out to wash the walls of the lobby court with light. "The way we did that was to use the existing trellis that runs around each balcony floor to clamp a single-point hanging adjustable fixture. The PAR64 spot was the lamp of choice, the 120-watt version was really the only thing that would shoot 170 feet to light the trees, pathways, and sculpture, and this is supplemented by standard-voltage 1000-watt PAR64 spots and medium floods. We also wanted to light the vertical surfaces, and for this we took our cue from the daylighting. What it does in the space is wonderful, but it does it for a very short period of the day, or not at all if it's cloudy.

"We loved the way it raked across the foliage and the planter boxes. But instead of trying to simulate daylight directly, we took a more loose approach, not trying to calculate sun angles, but still trying to make it look like sunlight." Light from the low-voltage PAR64 narrow spots and medium floods hits the west wall (photo right and drawing on following spread) in parallel rays, striking the vines at the edge of the balconies. "We didn't have the fixture mounting locations on the west wall, so the fixtures kind of splay out in a fan pattern. To light the undersides of the balconies, Glasow used 42-watt narrow spot, and 50-watt MR16 spot uplights. These are fed by an open-conductor electric-wire system. This closely resembles the systems that were used to light the restaurant and bar.

The lighting for all of the areas was confirmed by full-scale mockups. "That was very important," says Glasow. "And when everyone said, 'yes, this is great,' that was our final buy-in." To ease maintenance chores, the designers prepared a maintenance manual with directions for focusing the fixtures, all of which are maintainable from the balconies. The fixtures are dimmed automatically by a programmable astronomical computer, with six daily presets and manual override for special events. It is notable that this was a design-build project, and that solutions to design problems were sought by collaboration between the designers, contractor, and equipment manufacturers.
Charles Linn

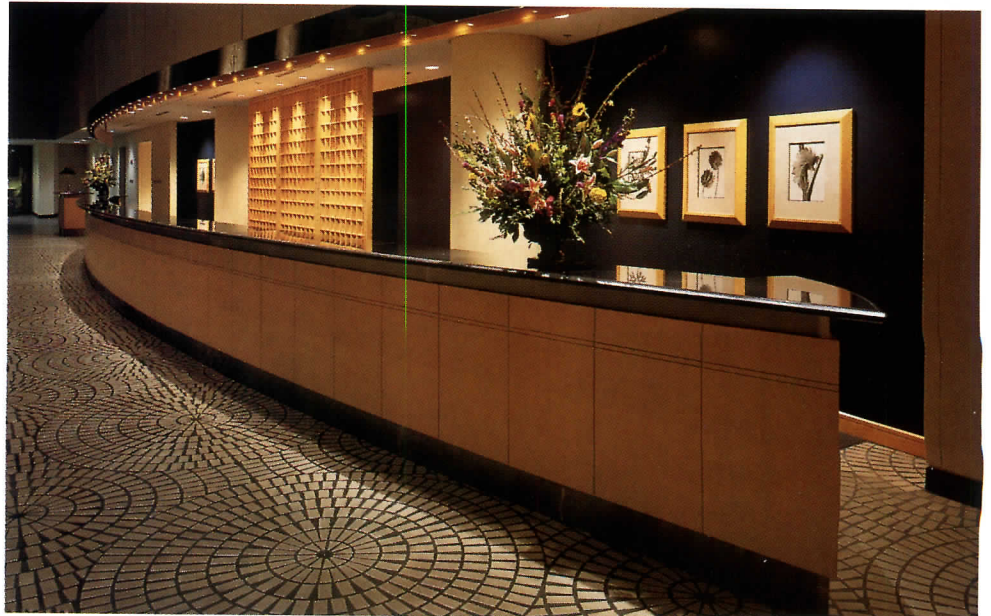


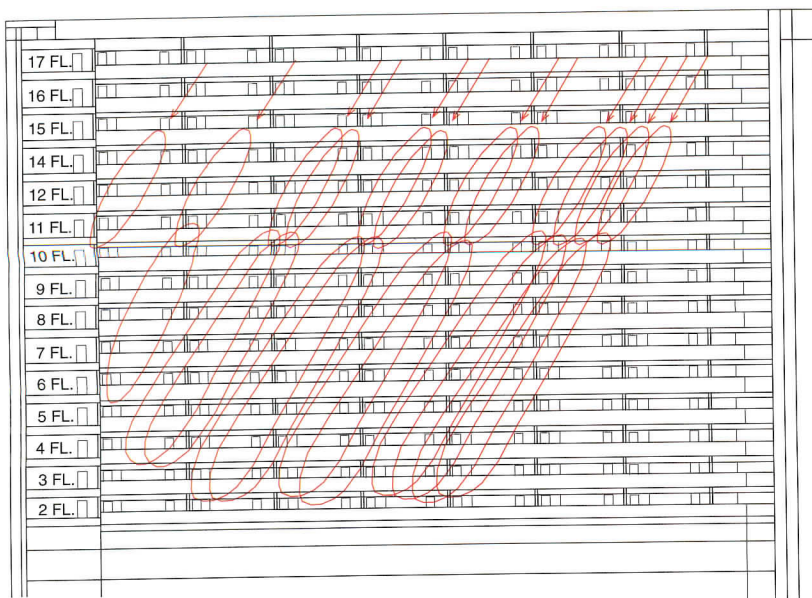
Standard- and low-voltage PAR 64 spotlights were used to illuminate the sculpture, walkways, and foliage in the Hyatt Regency's lobby court. Light grazing the south and west walls is intended to simulate the play of daylight off the vertical surfaces.



20-watt MR16 narrow-beam spots illuminate each table in the restaurant (above). They are powered by fixtures suspended from an open-conductor wire system. The lamps are dimmed using an astronomical dimming computer, with morning, afternoon, evening and night scenes. The lamps are run at full brightness in the morning to maintain the tungsten halogen cycle.

The registration desk (right) has a 60-foot long curved custom valence, fabricated of stainless steel and illuminated by MR11s. A similar detail is repeated in the restaurant and bar.





SOUTH WALL GRAZING ADJUSTMENT

The aiming diagram at left is from a page in the handbook Auerbach's office prepared for the hotel staff. It shows how the low-voltage PAR 64 lamps are to be aimed, to graze the west wall of the atrium. The intent is to simulate daylight flooding into the atrium from above.

Credits

*Hyatt Regency Hotel
San Francisco*

Owner: *David Rockefeller & Associates;
Prudential Realty Group*

Architect: *ELS/Elbasani & Logan Architects*

Interior Designer: *Hirsch/Bedner & Associates*

Lighting Designer: *S. Leonard Auerbach + Associates—Len Auerbach and Patricia Glasou, design principals; Virva Kokkonen, lighting designer*

Contractor: *Dinwiddie Construction*

Flight of Fancy

Scottsdale Mall, South Bend, Indiana.
SDLHTI Inc., Architect
Craig A. Roeder Associates
Lighting Designer



With its flying birds, banners, elevator fountain, and pools of water layered with washes of light and color, the Scottsdale Mall in South Bend, Indiana, could be construed as a village square for the 1990s—a festoon of fantasy for the entire family between shopping for shirts and vacuum cleaners. The renovation of the existing mall by the Cincinnati-based architecture firm of SDI.HTI included architectural elements such as clerestories, a vaulted roof, as well as fanciful, decorative additions such as graphic birds suspended from the ceiling by invisible nylon cables, and a “fountain” elevator that is located at the center of a pool. These, working in conjunction with the creative layering and the vibrant, changing colors of Craig Roeder’s lighting design, have helped turn the two-story mall into an exciting and stimulating space.

The Dallas-based Roeder, who firmly believes in the therapeutic powers of light and color, and sees his work as his “highest form of play,” set out to create an eye-catching place that was also energy efficient. The mall was designed around the theme of bringing the outdoors indoors. Working in complement with this idea, the lighting accentuates the tree-like verticality of the columns and elevator shaft with uplights. For each of the columns, a 175-watt, metal-halide lamp fitted with a dichroic color filter is housed in a barrel-like recess. A second clear glass panel, six inches above, serves to trap heat within the cavity and to make the floor level lamp safe for passing contact.

A pivotal design element in the space is a brightly lit elevator shaft from which water cascades into a pool. Twenty-four 10-degree quartz spots with dichroic color filters in clusters of four in the semi-circular pool surrounding the elevator work on a four-circuit cross-fader that moves from blue to magenta to turquoise to white. Topped off by a halo of rings of neon, the elevator shaft, which connects floor to ceiling or, to be more fanciful, earth to sky) works as a free-standing sculpture in the mall’s central court.

At ceiling level, hidden 3-degree PAR64 metal-halide spots create cross lighting that gives definition and depth to the graphic birds, while ceiling coves are washed in a “heavenly” light with the help of metal halide and neon fixtures fitted with dichroic color filters. Signage and banners are lit by a 3,000K 150-watt metal-halide lamps, which produce the warmth of incandescent but are more energy efficient. The mall’s quiet space, the 15 to 25 feet between storefronts and the center of the atria, is lit by 3,500K biaxial fluorescents lamps that bring 20 footcandles to the floor.

The lighting changes dramatically from day to night. In the daytime, clerestories bring sunlight into the space, and so the coves are lit with complementary white lights, which turn into purple, and powder blue, with a kiss of magenta at night. “We save energy and create a changing panorama for shoppers,” says Roeder. *Nayana Currimbhoy*

Credits

Scottsdale Mall

South Bend, Indiana

Owner: *Massachusetts Mutual Life Insurance Company*

Architect: *SDI.HTI Inc., Cincinnati, Ohio*

Lighting Designer: *Craig A. Roeder Associates—Craig A. Roeder and Robert Oakes, design team*

General Contractor: *McDevitt Street Bovis*

© Robert Ames Cook photos



In the pool surrounding the elevator shaft, 10-degree quartz spots mounted with dichroic color filters work on a four-circuit cross-fader so that the fountain and shaft change from blue to magenta to turquoise to white. Signage and banners are bathed in the warm glow of 150-watt,

3,000 kelvin metal halide while the birds, suspended from the ceiling with invisible nylon cables, are given definition and shadow with the help of hidden luminaires behind trusses and bird houses built to entice the imaginary birds.

Manufacturer Sources

For your convenience in locating fixtures and other lighting products shown in feature articles, *RECORD* has asked the architects and lighting designers to identify their sources.

Pages 24-25

Japanese American National Museum
Jim Mcelwain, Restoration Architect
Hiram Banks and Susan Huey,
Lighting Integration Technology, Inc.,
Lighting Designers
Custom fixtures: Neidhardt Design. Under-
balcony track system: Lighting Services, Inc.
Lamps (Low-voltage and CFL): General
Electric Lighting. Lighting control system:
Strand.

Pages 26-29

Hyatt Regency San Francisco
ELS/Elbasani & Logan Architects
S. Leonard Auerbach + Associates,
Lighting Designer
Atrium low- and line-voltage PAR64
adjustable spots: Lighting Services, Inc.
Recessed adjustable and fixed MR16 down-

lights: Prescolite/USI Lighting. Other down-
lights: Kurt Versen, Inc. Cable-hung
low-voltage lights: Translite. Tree-mounted
uplights, surface-mounted MR16 downlights
(in custom fixtures): B-K Lighting. MR16
pendants: Leucos Lighting. Registration
desk and bar pendants: Shaper Lighting
(custom by lighting designers). PAR lamps:
Osram/Sylvania Inc. MR16 sources: General
Electric Lighting (Constant Color). Lighting
control system: Lutron Electric Co., Inc.
(Orion).

Pages 30-31

Scottsdale Mall, South Bend, Indiana
SDI. HTI, Architect
Craig A. Roeder, Lighting Designer
Accent-lighting fixtures: LiteLab, Inc. Floor-
mounted uplights and fountain lighting:
Hydrel. Pendants: Winona Lighting (custom).
Clerestory fixtures: Hubbel Lighting. Neon:
North American Signs.

New Products



329. ADA-compliant signaling strobes

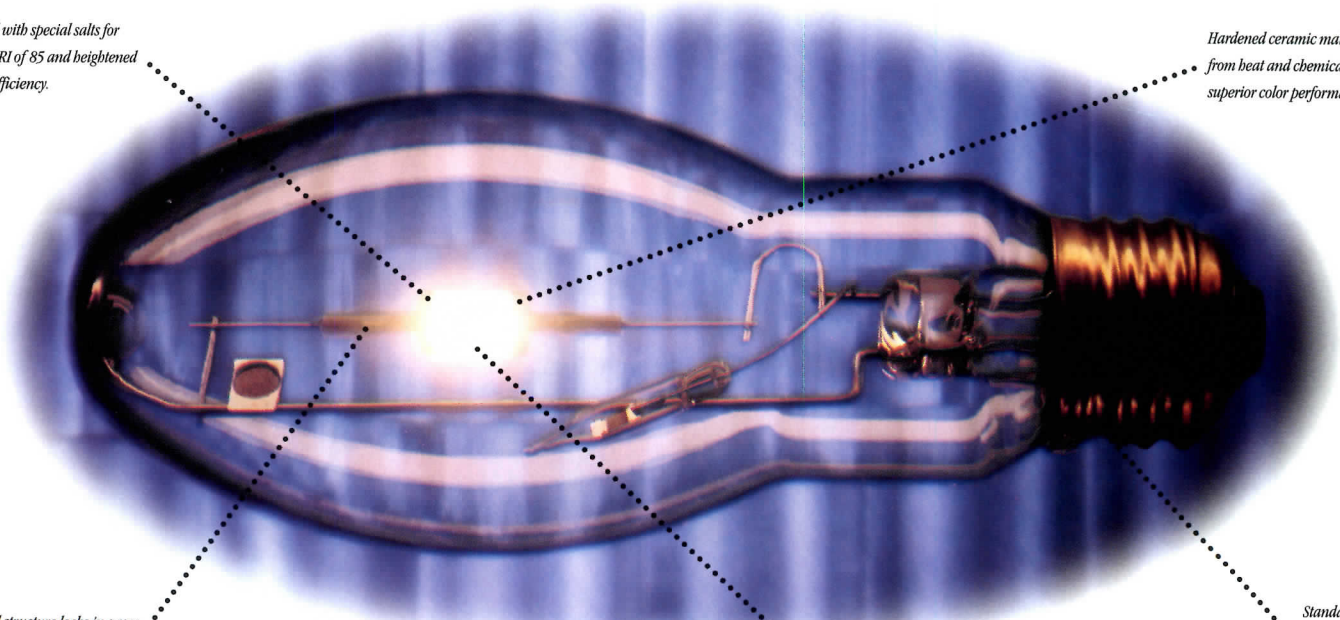
New SS12/24ADA alarms have a special lens/reflector that is said to assure the proper horizontal and vertical 180-deg polar light distribution required by recently published UL 1971 standards for public-mode fire alarms. Housings may be red or beige; light intensities range up to 110cd. Sounders also available. System Sensor, St. Charles, Ill.

Continued on page 38

INSTEAD OF TINKERING WITH CURRENT ME

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Street Lighting *continued from page 14* favoring reflector design, completely concealing the point source from the field of view at normal viewing angles. Higher output also allowed pole spacing to increase although this also meant higher poles. Research revealed that people could see a uniformly lit pavement surface better if the light source were shielded from view, minimizing direct glare. This further reinforced the trend toward reflector optics with concealed, increasingly bright sources. HPS's high efficacy outweighed objections to its rather poor color rendering, and eventually it was adopted as the de facto utility-company standard for street lighting.

During the last 10 years, utility companies have replaced a good deal of the street and highway lighting in the U.S. But the only hardware options they offered were the flat-lens-cutoff cobrahead, and the drop-dish cobrahead. For communities and lighting designers, it is a choice between two evils. Dropped-dish cobraheads create unacceptable glare; flat-lens cobraheads create bright pools of light and almost total darkness between fixtures, especially when bracket-mounted low onto wooden utility poles. The

source is completely invisible beyond the cutoff angle of the luminaire. It is no surprise that people in communities besides Lexington have vigorously opposed the change to high-pressure sodium cobraheads.

An indirect approach

During this period, research at Pennsylvania State University revealed that the perception of the light level in a space was affected by whether or not the luminaire lighting the space contained a "bright element." Subjects were asked to judge the illumination level in a room lit by a shielded fluorescent uplight, and the illumination level in the same room with a similar uplight containing a small lens that refracted a bit of light into their eyes. Though the measured light level was the same for both fixture types, subjects judged the lighting level to be higher when illuminated by the fixture with the small lens—a "bright element"—attached.

So far, no one has made the conceptual leap connecting the interior indirect-lighting research with the perception that streets illuminated with "cutoff" street luminaires are dim and gloomy, even when sprayed with lots of light. The analogy is obvious: gas and

incandescent luminaires, though not as bright, were visible from far away, and gave people a sense of the light and awareness of the source. It was seen as safe, friendly, and adequate, despite very low average and maximum light levels, and poor uniformity. HPS street-lighting installations, with their powerful sources fully shielded, fail to create as successful a nighttime environment as their low-powered, unshielded predecessors.

To test the theory, the Lexington project will test a number of cutoff luminaires that have been fitted with special refractor elements to reintroduce the effect of an apparent source. If the theory is correct, streets lit with these luminaires will be perceived as being brighter—and thus more pleasantly lit—than the unmodified cutoff fixtures. If true, it opens up the possibility that there can be energy conservation based on perception-oriented design rather than using high efficacy but poor color-rendering sources to blast pools of light onto the pavement. And it may even be possible to reduce light levels without decreasing user satisfaction. The design of a new type of street-lighting luminaire may very well be the opportunity of the 1990s for lighting manufacturers. ■

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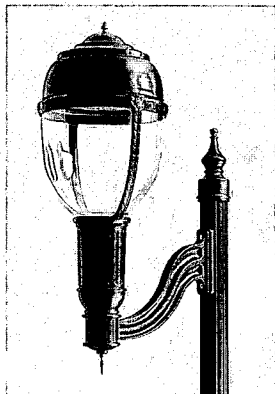
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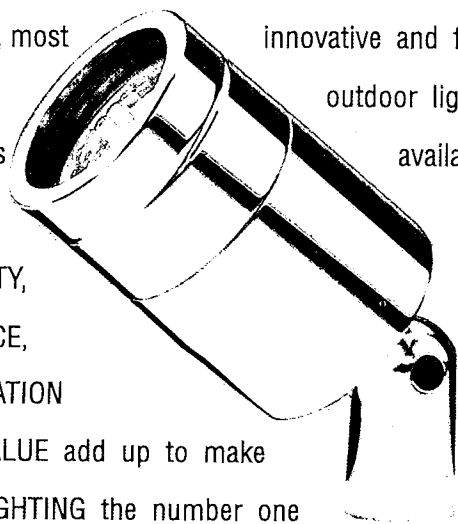
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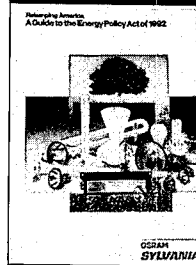


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Product Literature/Lighting



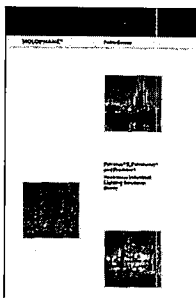
418. Energy Policy Act Guide

Explains how the energy-saving strategies adopted by Congress with 1992's EPACT affects lamp availability by prohibiting standard T12s and many incandescent reflector lamps, and describes what new performance certifications will tell the specifier. Stresses the money-saving advantages of "maximum" compliance. Osram/Sylvania, Danvers, Mass.



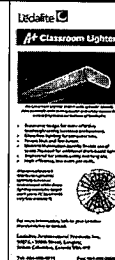
419. Landscape luminaires

A 12-page Product Showcase features new landscape-lighting fixtures made of corrosion-resistant cast bronze, such as floodlights, bollards, pathway and step lighting, accent spots, bricklights, and below-grade uplights. Displays photometric, lamping, and dimensional data. Bronzelite, San Marcos, Texas.



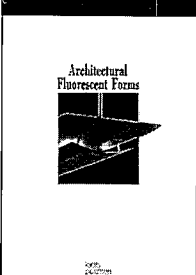
420. In-plant lighting

A 32-page booklet, "Hazardous Industrial Lighting Solutions Guide," demonstrates how Petro-Series luminaires ensure optimum light distributions, safe and reliable performance, and economical operation in Class I, Class II, and Class III locations. Holophane Lighting, Inc., Newark, Ohio. *



421. Illuminating schoolrooms

A linear-fluorescent designed for schools, the A+ Classroom Lighter distributes both direct, sharp-cutoff downlighting and indirect, ambient illumination of ceilings and walls. A Variable Optic option lets the designer tune direct-light output to suit various desk-top tasks, from sewing to computer work. Ledalite Architectural Products, Inc., Langley, B.C.



422. Computer-task lighting

Braced with rugged Danish names like Skagen and Viborg, direct- and direct/indirect linear fluorescent pendants are said to meet a range of illumination requirements demanded by VDT-intensive tasks. A colorful catalog supplies dimensions, beam spreads, and louver and finish options. Louis Poulsen, Miami.

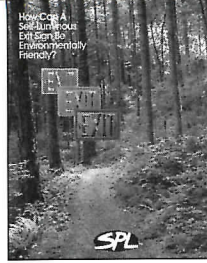
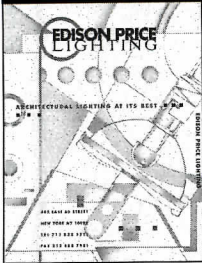


423. Complete product line

Lightolier's 1995 Comprehensive Selection Guide contains seven lighting categories, covering lines such as Lytecaster and Calculte downlighting, Lytespan track, decorative fixtures, architectural fluorescents, controls and dimming systems, and project-management software. Lightolier, Inc., Secaucus, N.J. *

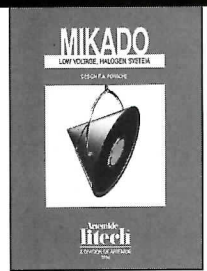
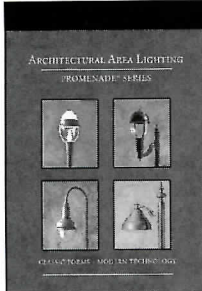
* Product Data on CAD disk

For more information, circle item numbers on Reader Service Card.



424. Museum track lighting
A designer's kit on the SightLine system includes photos of the exhibit lighting installed in galleries, homes, and stores, and lists some of the 250 museums where the lights are in use. Catalog pages give dimensional, mounting, lamping, and photometric data for all styles of track, fixtures, and connectors. Edison-Price Lighting, New York City. *

425. Self-powered exits
A color brochure explains how self-luminous exit signs can be environmentally friendly. The devices need no batteries, electricity, or bulbs, and a closed-loop recycling program captures tritium gas from spent units (after 20+ years of zero-maintenance life). Other products: emergency lighting and LED signs. Self-Powered Lighting, Elmsford, N.Y.



426. Period-style luminaires
Described as a high-performance version of the classic "acorn" post-top, Promenade fixtures use reflectors said to insure even light levels. Lenses are glass or non-yellowing acrylic; four styles available. A colorful 12-page catalog includes on-site photos and lamping, finish-option, and photometric data. Architectural Area Lighting, La Mirada, Calif.

427. High-style accents
A 16-page brochure specifically on the Mikado spotlighting system illustrates the cone-shaped fixture used in track-, wall-, and ceiling-mount applications. Drawings suggest fixture placement in various retail, office, and residential environments; complete lamping, transformer, dimensional, and accessory data included. Artemide, Inc., Farmingdale, N.Y.



428. Field-adaptable dimming
A brochure describes a digitally controlled dimming panel, part of the Grafik Eye line. Made up of integral plug-in dimmer cards (each handles any type source), the modular panel is easy to install, and permits design changes in the field without re-engineering. Panels come pre-wired with 6 to 48 circuits, from 100 to 277 volts. Lutron Electronics, Coopersburg, Pa. * Product Data on CAD disk

429. Metal-halide lamp system
Booklet on the Energy Master Plus metal halide stresses the lamp's energy-saving potential over standard universal lamps, and explains a lamp/ballast system said to operate these lamps on all common input voltages found in North America. Offered in medium and mogul base. Venture Lighting, Solon, Ohio. Continued on page 36

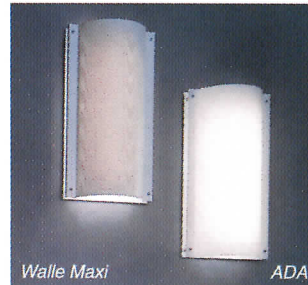
For more information, circle item numbers on Reader Service Card.

Borens

Northern Lights

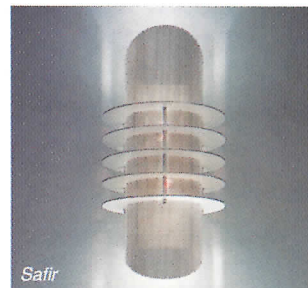


Urania



Walle Maxi

ADA



Safir



Ellen Lang

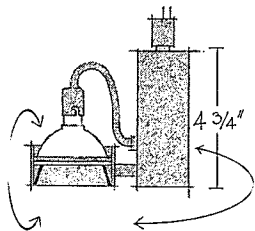
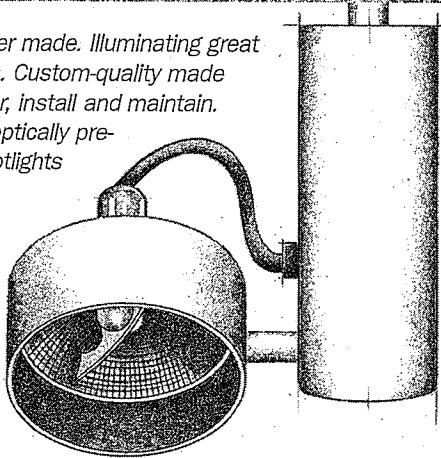
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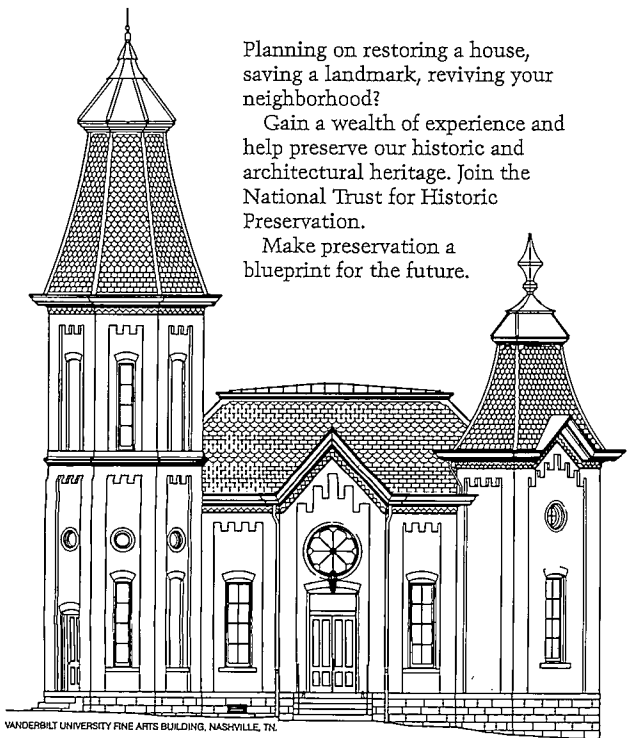
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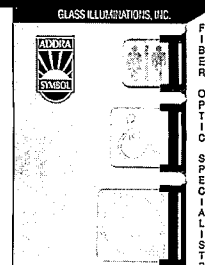
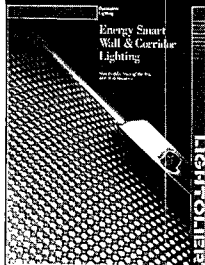
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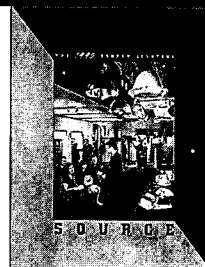
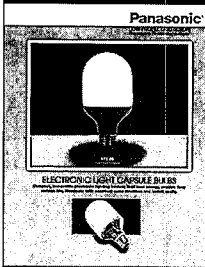


430. ADA wall fixtures

A 24-page color catalog illustrates low-profile "Energy Smart" wall and corridor luminaires. Outlines ADA requirements for maximum protrusions, fixture heights, and placement in public-access areas indoors and out, and gives photometric, electrical, and finish data for all compliant products. 800/217-7722 (E), 800/223-0726 (W). Lightolier, Inc., Secaucus, N.J.*

431. Fiber-optic signage

The Adralite system uses fiber-optic elements to illuminate etched-plate-glass signage, shelving, and artwork. Multiple units can be lit from one source, with a choice of colors, changing colors, and other special lighting effects. Glass (or Plexiglass, where required) signs offer different standard graphics and mountings. Glass Illuminations, Inc. Sun Valley, Calif.

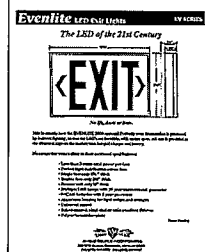
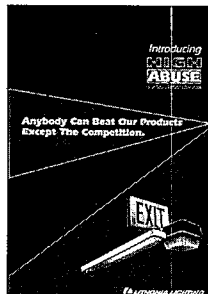


432. Electronic "light capsule"

A spec sheet describes the 20W model Low Profile (6 1/2-in.) CFL bulb, said to produce 1,100 lumens with a CRI of 84-88 in color options of 2800K and 5000K, very comparable to its 75W incandescent "competition." It also consumes 70 percent less energy, and is rated to last 10 times longer: 10,000 hours. Panasonic Lighting, Secaucus, N.J.

433. Lighting education

A folio gives scheduling and curriculum information on classes at SOURCE, Cooper Lighting's educational and training facility near Chicago. Topics include lighting fundamentals, interior lighting, exterior and roadway illumination, software design; shorter seminars cover specific light sources. 708/956-8400. Cooper Lighting, Elk Grove Village, Ill.*



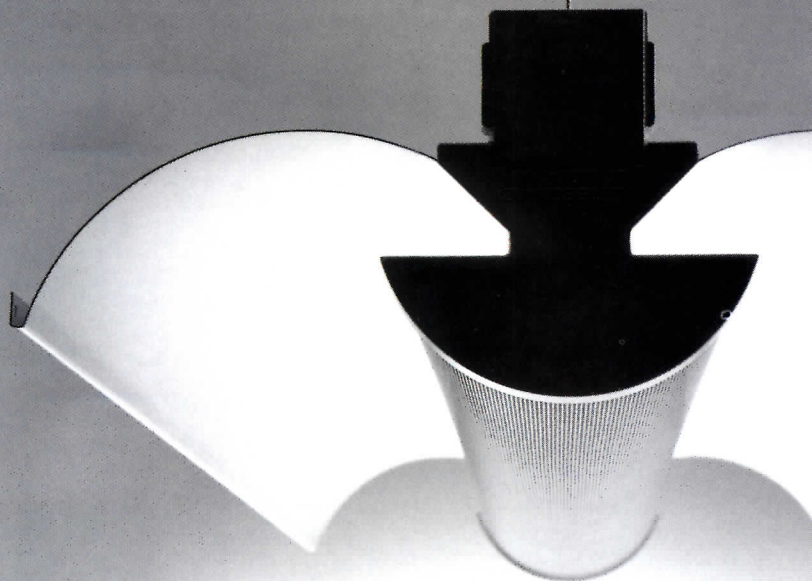
434. Extreme-condition lighting

A catalog on High Abuse lighting presents a line of steel or aluminum fixtures for high-risk areas: schools, parks and sports facilities, apartment complexes, train and bus stations, parking garages, and government buildings. Sources include incandescent, fluorescent, and HID; all lenses are UV-stabilized polycarbonate. Lithonia Lighting, Conyers, Ga.
* Product Data on CAD disk

435. LED exits


Catalog pages describe Century series exits, available in either diecast aluminum or 1 1/4-in.-thick thermoplastic housings. An indirect, 20-year-life light source is said to illuminate both single- and double-face models evenly, with no hot spots, glitter, or shadows. Evenlite, Inc., Grasonville, Md. ■

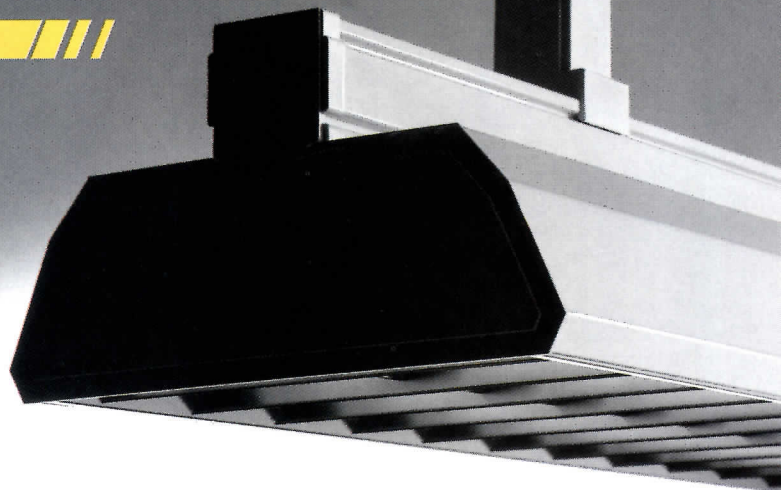
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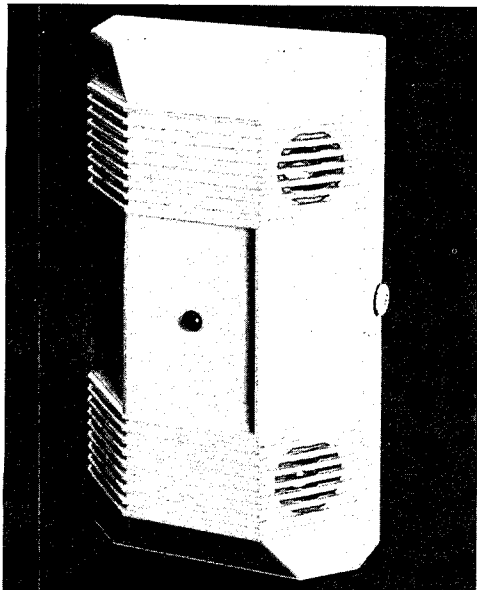
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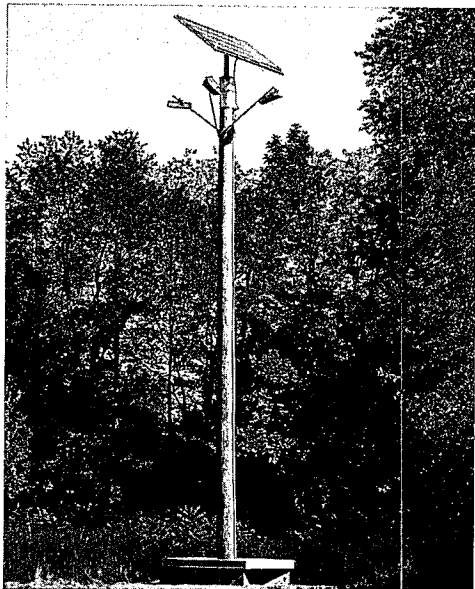
Clockwise from upper left: ZXST, ZXRC, ZXC, ZXSrw. For further information and the name of your local sales representative, Please contact us at: Zumtobel Staff Lighting, Inc. 141 Lanza Ave., Bldg. 16D, Garfield, NJ 07026. Ph 201 340-8900. Fax 201 340-9898.

New Products *continued from page 32*



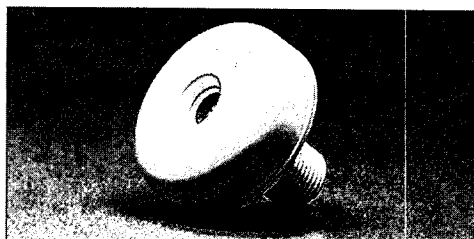
330. Dual-load automatic control.

A new motion sensor for ceilings or high walls, Tork's SC20 controls fluorescent and incandescent lighting systems as well as hvac equipment, including fans. Coverage, up to 2,000 sq ft, can be fine-tuned to a particular space. Timer adjusts from 30 seconds to 15 minutes. Tork, Mount Vernon, N.Y.



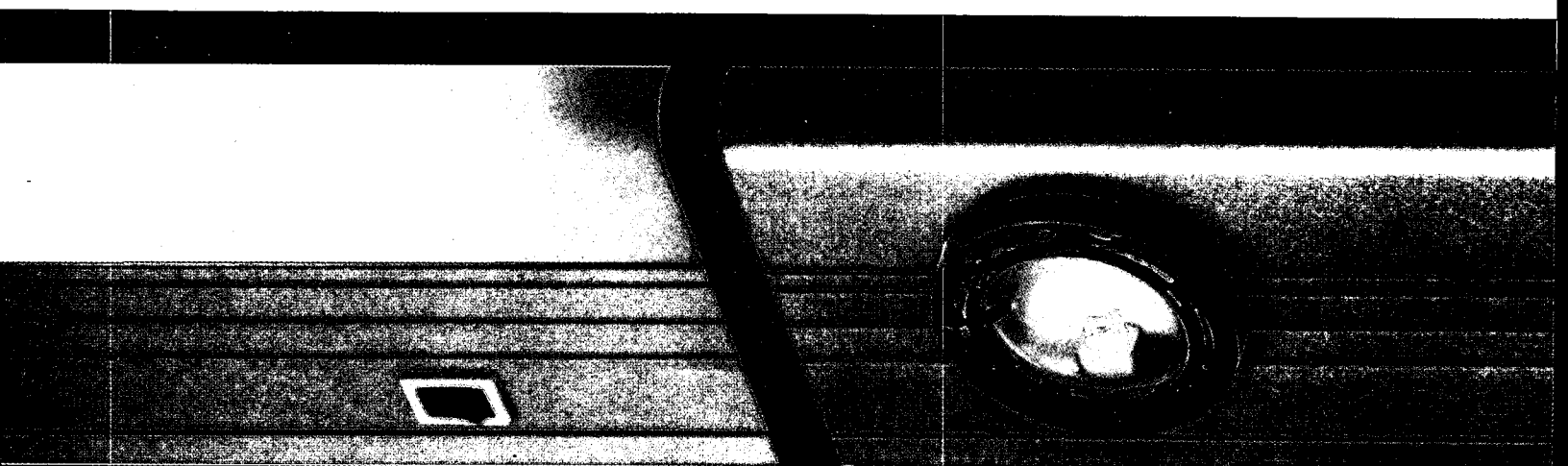
331. Solar-powered high-mast light.

Elise Geiger, a recent graduate of the Yale School of Architecture, calls the off-grid, solar-powered light assembly she designed with the Parks Department of North Branford, Conn., a "solar tree." The rugged luminaire was built to illuminate pathways leading to sports playing fields used by youth leagues well into the evening three seasons a year. Three Magna Ray 12-volt, 2900-lumen fluorescent flood lights, one aimed towards each walkway, are powered by Siemens photovoltaic panels, set at the top of—but visually separated from—the 30-ft-high wood pole. Fixed at a 45-deg angle facing south, the panels look like a giant sunflower. Deep-cycle batteries for power storage fit under the rustic circular wood seat that forms the base of the light. Sunsearch, Inc., North Branford, Conn.



332. Dimming-ballast control.

The LightSaver LS-30 interfaces directly with either Advance Mark VII or Motorola Helios 32 electronic dimming ballasts to maintain interior-light levels at a preset level, based on its measurement of ambient daylight and task illumination present. The Watt Stopper, Inc., Santa Clara, Calif.



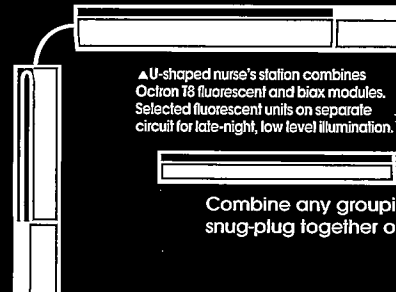
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First came the plain undercabinet light. Then the slimmed-down versions. So useful, you specified them by the row! Problem was, lamping options were limited...and linking units was a tedious and untidy hardwiring headache. Enter the LINC era. Now go ahead, plug a dimmable halogen accent module into a matching fluorescent module, then into a



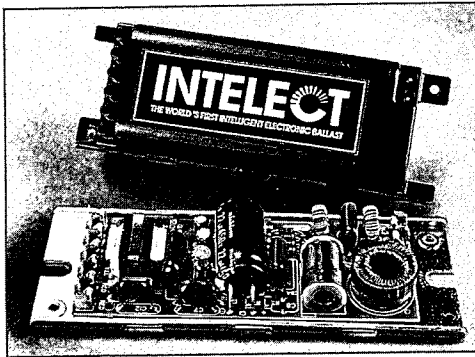
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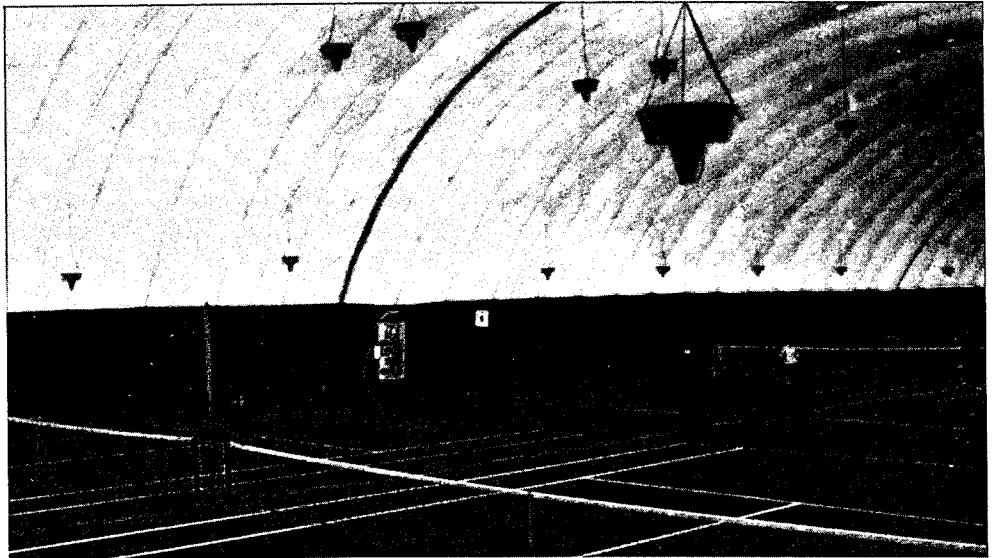
▲ U-shaped nurse's station combines Octron T8 fluorescent and bi-x modules. Selected fluorescent units on separate circuit for late-night, low level illumination.

Combine any group plug snug-plug together



333. Smaller and cheaper

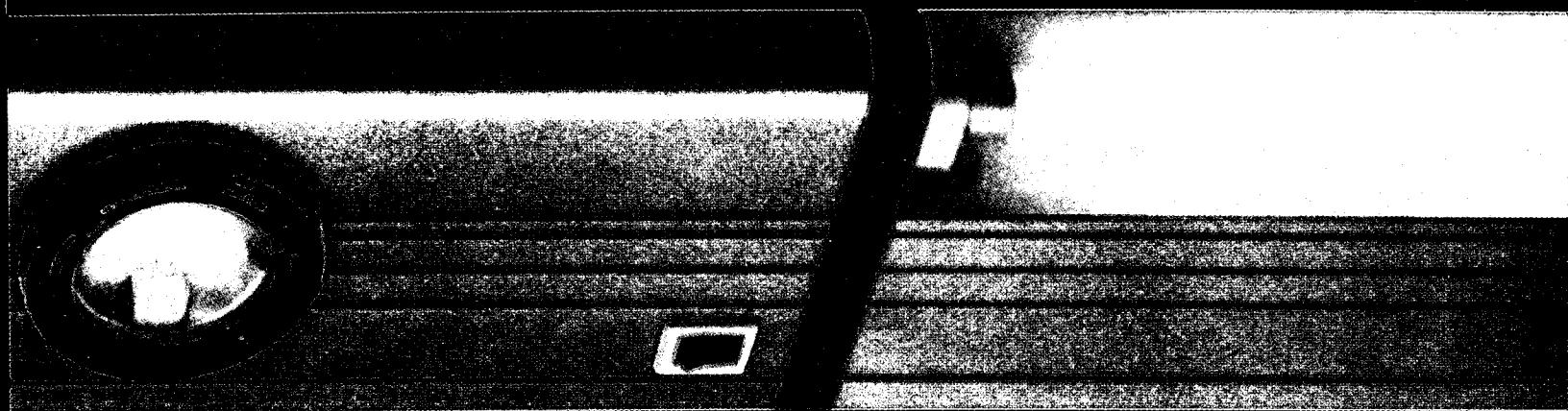
Prescolite's Intellect system dims 13W, 18W, and 26W compact-fluorescent lamps using a new circuitry design said to compensate for variations in lamp performance and to operate without flicker from 100-percent to 5-percent light output. Lamp start is described as soft and sequenced; ballast operates at a high power factor (over 90 percent) with low (less than 10 percent) total harmonic distortion. The Intellect's circuitry improvements are said to bring down both the price and the size of CFL dimming systems. Prescolite/USI, San Leandro, Calif.



334. Sports-lighting system

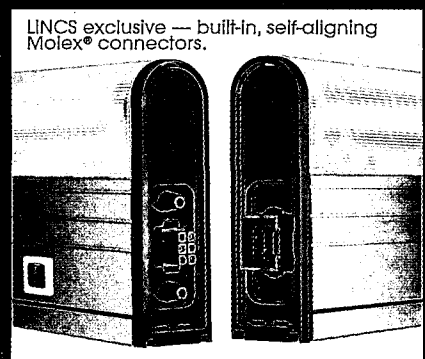
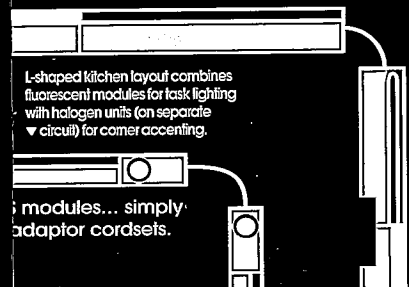
The Hanglite fixture was developed for energy-efficient lighting that met the high-visibility requirements of racquet sports, and also to be light enough, at only 12 lbs, to hang from air-supported structures without needing hazardous poles or ceiling rods. Each luminaire holds a 1000W metal-halide bulb in its most-efficient vertical burn position, and

bounces light off the reflective surfaces of fabric or fiberglass-lined buildings to provide even, no-glare illumination. Fixtures will not damage—or be damaged—by inadvertent or seasonal deflation of the air structure. A tennis bubble is shown; other applications include an indoor practice facility for the N.Y. Giants. DAF'T Electric, Mamaroneck, N.Y.
continued on page 40



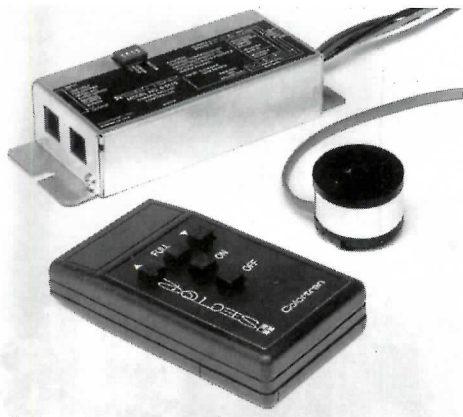
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New Products *continued from page 39*



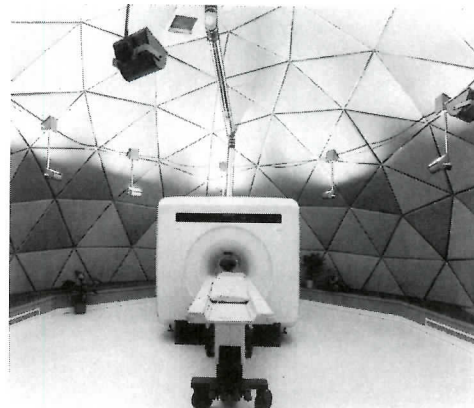
335. Local fluorescent controller

A three-component system, Sector provides remote control of individual fluorescent dimmable ballasts within large, multi-task office space applications. The system permits workers to adjust their own lighting levels using a remote controller (foreground), operable within a 30-ft range. Sector components are said to be easy to retrofit into existing building wiring. The unobtrusive infrared receiver (middle) may be mounted on T-bars, walls, louvers, or flush into ceiling tiles; ballast controller mounts in the fixture trough. Colortran, Burbank, Calif.



336. ADA-compliant sconce

Manning's DS-119A, resembling a Palladian window or a church nave, is one of 32 designs in the company's new wall-light line. For incandescent or fluorescent lamping with an open top and luminous bottom, the unit is 12-in. high and projects an ADA-compliant 4 in. Fixtures are made of aluminum or steel; acrylic lens. R.A. Manning, Sheboygan, Wis.



337. Lighting for MRI facilities

Elliptipar offers several luminaires that meet the unique illumination problems of MRI diagnostic-imaging sites. Using only incandescent sources that do not produce radio frequencies at a level high enough to interfere with the equipment itself, ceiling- and wall-wash fixtures provide indirect lighting for greater patient comfort, are non-magnetic, and operate on direct current for long lamp life. Also, a modified Ensconce fixture is available for use in custom-designed enclosures. Elliptipar, Inc., West Haven, Conn.

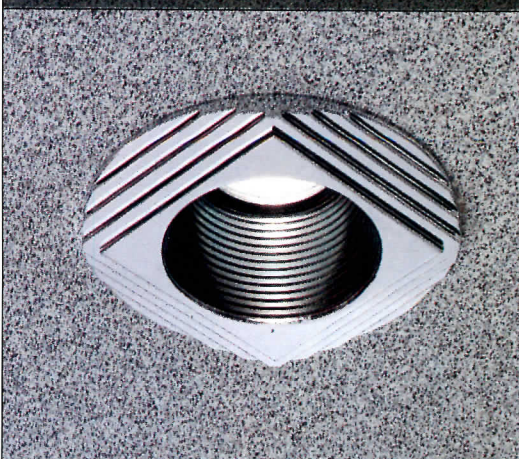
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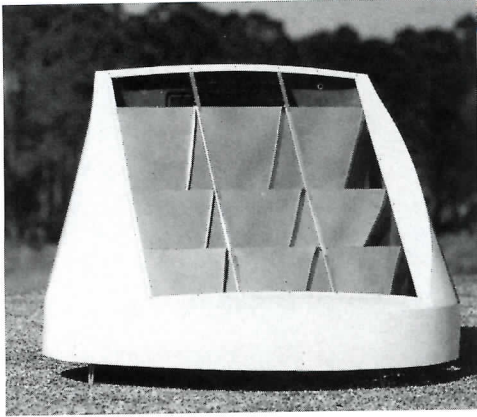
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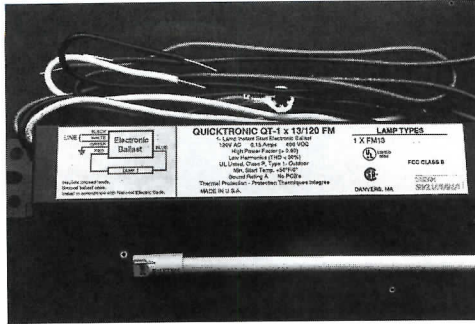
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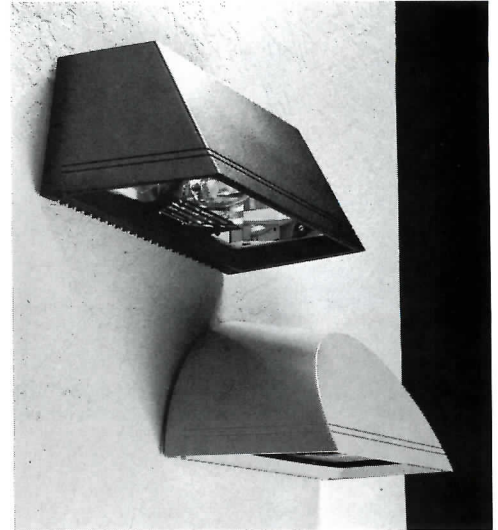
338. Sun-tracking skylights

The solar-powered SunSeeker follows the sun from sunrise to sunset, capturing and distributing sunlight to interior spaces and reducing both lighting and cooling loads. It automatically returns to face east at dark, ready for the next dawn. Made mainly of molded fiberglass, system components include a PV-powered rotating tracker (photo) which contains light-reflecting mirrors; a base plate that forms the through-roof curb; and an insulator box and light shaft, which absorbs heat while diffusing sunlight. 407/768-6238. LightScience Corp., Indialantic, Fla.



339. Subminiature fluorescent lamps

A series of pencil-sized fluorescent lamps, from 8 to 20 inches long and from 6W to 13W, can be used in new lighting fixtures and applications where small size and good lumen output are desired. These might include low-profile task lighting, backlighting of LCD displays, and showcase lighting. Lamps have a CRI of 80, and have been designed to work with matching electronic ballasts that optimize their performance. With a rated lamp life of 10,000 hours and a light output of 310-, 500-, 680-, and 860-lumens, tiny fluorescents last longer and burn as bright as T5 lamps that are twice the size. Osram Sylvania, Inc., Danvers, Mass.



340. Outdoor architectural sconces

A new mcPhilben luminaire style, the 100 Line includes these wedge shapes intended for both down- and up-lighting applications that demand strict control of glare and light trespass. Optical systems permit wide fixture spacings, and can be specified for either wide or forward-throw distributions using HID lamps up to 175W. Thomas Outdoor Lighting, San Leandro, Calif. ■

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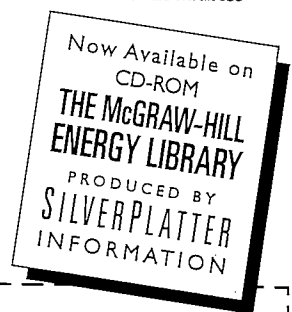
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