

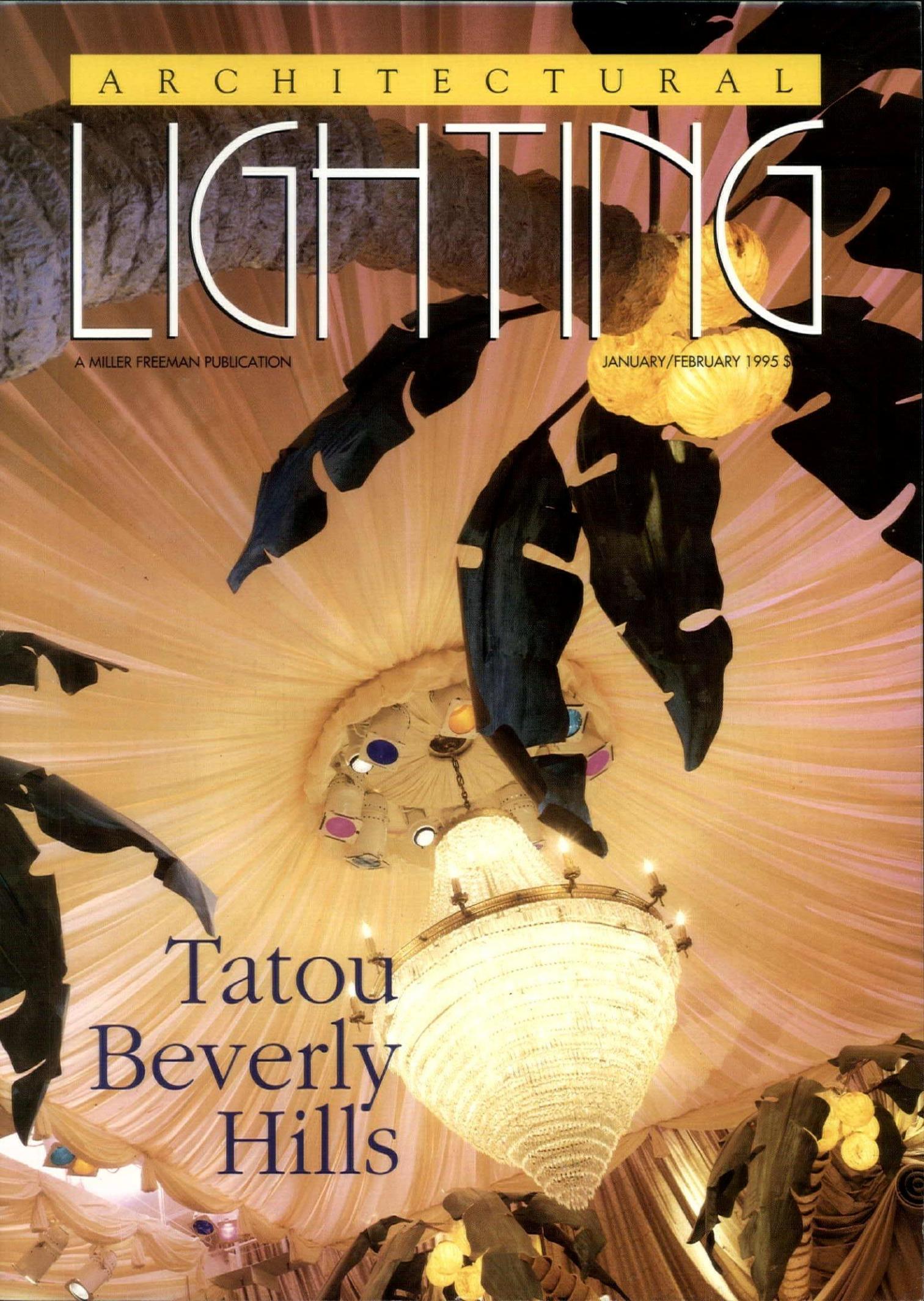
A R C H I T E C T U R A L

LIGHTING

A MILLER FREEMAN PUBLICATION

JANUARY/FEBRUARY 1995 \$

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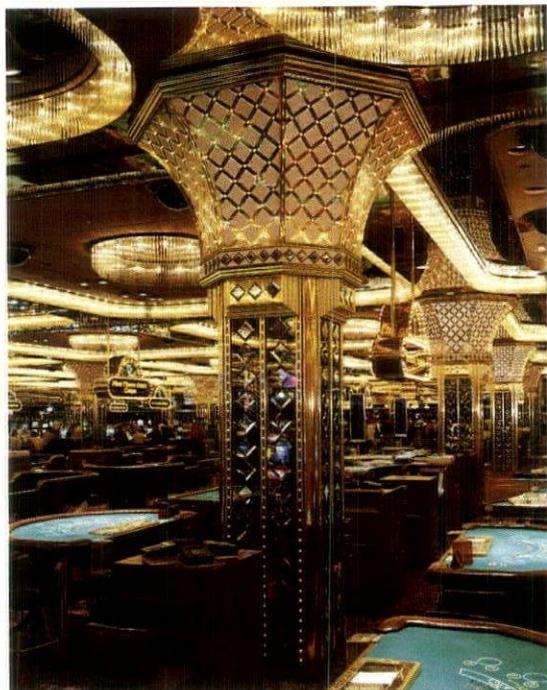
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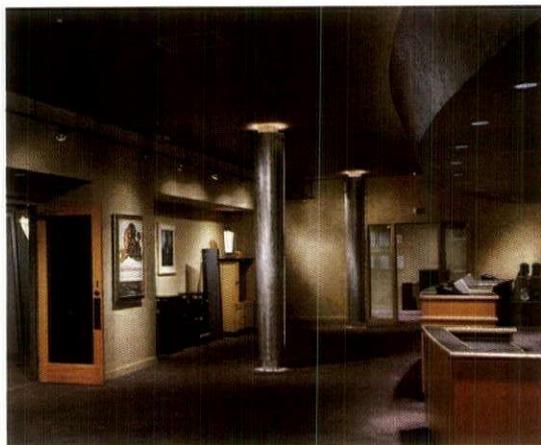
ARCHITECTURAL
LIGHTING

JANUARY/FEBRUARY 1995

VOL.9, NUMBER 1



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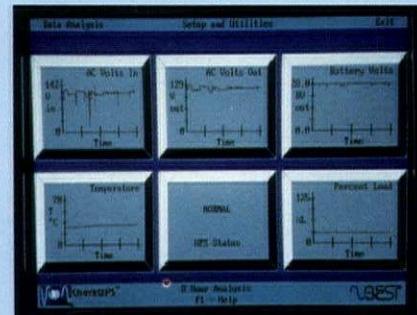
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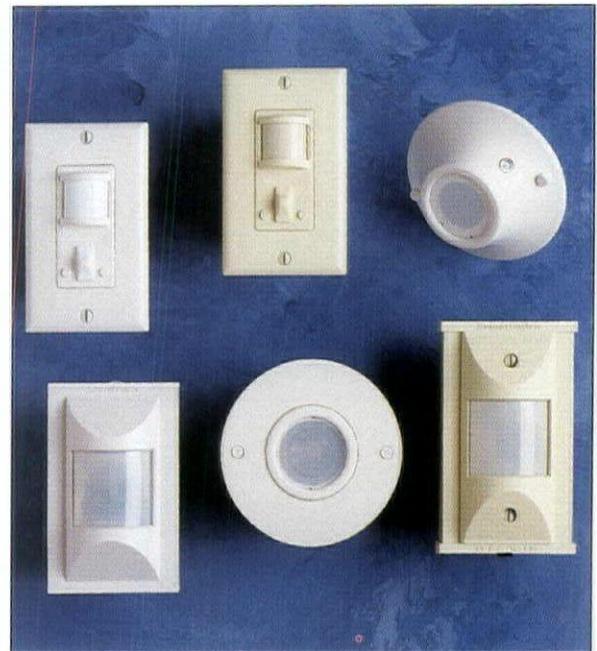
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And the Story Continues...

NEW DATES FOR LIGHTFAIR

New dates and a location change have been announced for LightFair International 1995, which is now scheduled for June 7-9, 1995 at McCormick Place in Chicago. "The show was rescheduled due to unanticipated construction delays at Navy Pier in Chicago," states Susan McCart, vice president of AMC Trade Shows. LightFair International is in its sixth year and has progressed into the industry's leading trade show and conference, drawing 13,000 attendees and featuring more than 700 exhibits.

Highlights of LightFair International include the New Product Showcase sponsored by *Architectural Lighting*, two continuous Product Demonstration Pavilions, three specialized pavilions on the Exhibit Hall Floor for Theater & Entertainment Lighting, International, and Decorative Fixtures. Energy issues will be addressed by the Keynote Speaker, Christine A. Ervin, assistant secretary for Energy Efficiency and Renewable Energy. Ms. Ervin formulates and directs programs designed to develop and promote the adoption of cost-effective renewable and efficient energy technologies in conjunction with the states and with partners in the transportation, building, industrial and utility sectors.

The conference program is divided into specific tracks:

Track 1: Specialty Lighting

The Theory and Application of Fiber Optics, Light Pipes and Other Mediums. Speakers: Chris Pekar, Kenneth Yarnell

Neon and Color Cathode...Functional, Sculptural and Kinetic Art. Speaker: Brad Jirka

Lasers...Special and Decorative Effects. Speaker: Ed Auswacks

Do-It-Yourself Photography. Speaker: James Benya

Track 2: Theater & Entertainment

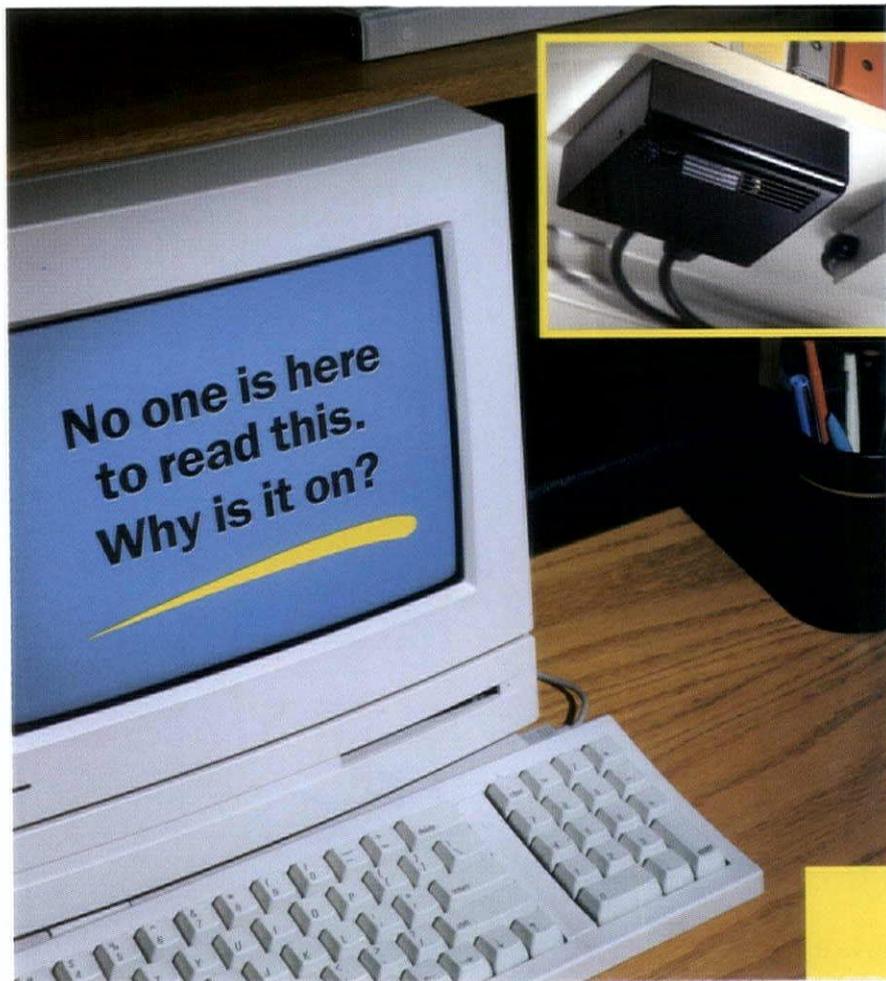
How Did They Do That?...Entertainment Lighting Design. Speaker: Rogier van der Heide

All the World's a Stage: Providing Performance Lighting for TV & Theater in Non-Performance Spaces. Speakers: Sonny Sonnenfeld, Ken Billington, Robert Davis

Lighting Las Vegas Style. Speakers: Bradley A. Bouch, Donna M. Silva

Track 3: Equipment Technology

Automated Lighting Control Systems...Overcoming the Fear. Moderator: Dorene Maniccia. Panelists: Eric Lind, Marty Salzberg, Dave Peterson



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Home Sweet Home: A Look at Total Controls for the Residential Environment. Speaker: Paul Morgan

In Search of a More Perfect Union: The Mating of Lamps and Ballasts. Speakers: Robert G. Davis, Yunfen Ji

Tools of the Trade...Computers in Lighting Design. Speaker: Charles Troxell

Electronic Ballasting for HID. Moderator: Tom Lemmons. Panelists: Denny Beasley, Gary Wigglesworth

Track 4: Design

From Idea to Finished Product...The Custom Fixture Design Process. Moderator: Daniel Baldinger

Color Properties of Light Sources. Speaker: Denison W. Schweppe, Jr.

Massaging the Architecture...The Necessary Interaction. Speaker: Randy Burkett

Integration of Natural and Electric Light Sources. Speaker: Nancy Clanton

Color: The Psychological Effect on People. Speaker: Craig Roeder

Track 5: Energy, Politics, & Economics

Lighting Design with Maintenance in Mind. Moderator: Charles Ryerson. Panelists: David Apfel, Craig Bernecker

Light Across the Borders: How Does NAFTA Effect the Lighting Industry? Panelists: Ernesto Mendoza, Martyn Timmings

Understanding the Utility Company's Role in the Lighting Industry: A Town Hall Meeting. Moderator: James Benya. Utility Representatives: Commonwealth Edison, Consolidated Edison, Southern California Edison, CInergy. Panelists: Steve Margulies, Ann Reo, Lindsay Audin, Charles Eley

It's the Law: An Energy Legislation Update. Moderator: Carol Jones. Panelists: Karl Johnson, Fred Nicholson, Larry Bean, Aimee McKane

Solar & Electric Light Technologies. Speaker: Kurt Levens

Track 6: Spaces

New Convention Facilities & Renovations. Speaker: Charles G. Stone II

The Good, Bad & Ugly...Architectural Lighting for Teleconference Spaces. Speaker: Christopher Hugh Ripman

Landscape/Streetscape/Exterior Lighting Applications. Speaker: Gary Steffy

Bringing a Landmark to Life with Light. Speakers: Joseph Zaharawicz, Janet Turner

CEU Course (0.6 Core Level)

Office Lighting Design. Speakers: Mitchell Kohn, Connie Whitley

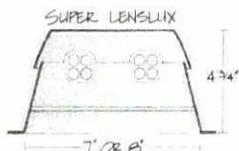
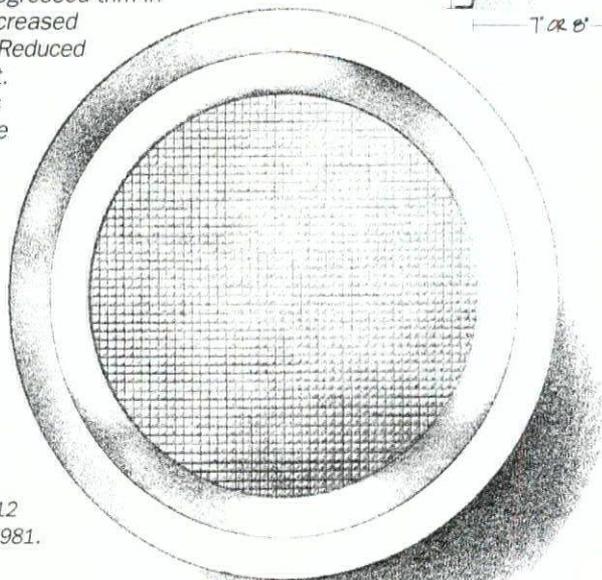
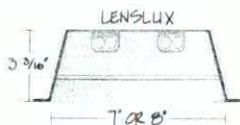
Other events include the IALD Awards Dinner, cosponsored by *Architectural Lighting*, the Nuckoll's Fund Luncheon announcing the 1995 recipient of a \$10,000 grant, and the LiteControl Fun Run benefiting the Nuckoll's Fund for Lighting Education.

LightFair International is sponsored by the Illuminating Engineering Society of North America (IESNA) and the International Association of Lighting Designers (IALD). The show is produced and managed by AMC Trade Shows, a division of the Portman Companies.

For exhibitor information, please contact Show Director Libby Snyder at 404-220-2215. For conference program information, contact conference and marketing manager Renee Gable at 404-220-2217. To preregister for LightFair International, call 1-800-856-0327. For details on discounted hotel, airfare, and car rental call 1-800-Fair-995.

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L.A. DLF '95 PROGRAMS

The Designers Lighting Forum (DLF) of Los Angeles, CA, announces the following programs:

March 6: By the Light of the Moon—architectural landscape lighting

April 3: How Healthy Is Your Lighting?—the healing environment

May 8: Mr. Smith, Your Room Is Ready—hotel lighting

June 5: Will It Look This Good When I Get It Home?—retail lighting

All meetings, except the June 5th event, which may be off site, are held at the Pacific Design Center, Center Blue Conference Center, 8687 Melrose Avenue. Refreshments and product displays at 6:00 p.m.; presentation at 7:00 p.m. Admission is \$5.00 for members; \$10.00, nonmembers. For information, call 310-476-9200.

IALD LIGHTING AWARDS

The 12th annual International Association of Lighting Designers (IALD) Awards Program cosponsored by IALD and *Architectural Lighting* is open to all regardless of IALD membership. Projects submitted must be a permanent architectural lighting design solution for which construction was completed after June 1, 1992. Entries are due by March 1, 1995.

Awards committee chairman, Steven Hefferan, Steven Hefferan Lighting Design, will monitor a jury of seven professionals who will assess aesthetic and technical excellence of the entries, and judge how successfully they use lighting to complement an architectural concept. This year's winners will be honored at an awards dinner in Chicago on June 8, 1995 during LightFair International, the conference and exposition cosponsored by the IALD. Winning projects will be published in *Architectural Lighting*.

An entry form is included in this issue of *Architectural Lighting* (pages 13-14); forms are also available from the IALD headquarters at 18 East 16 Street, Suite 208, New York, NY 10003-3193, tel. 212-206-1281, Fax: 212-206-1327.

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- Three specialized Lighting Pavilions – Theater & Entertainment, International, and Decorative
- The innovative and very popular New Product Showcase
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Title _____

Company _____

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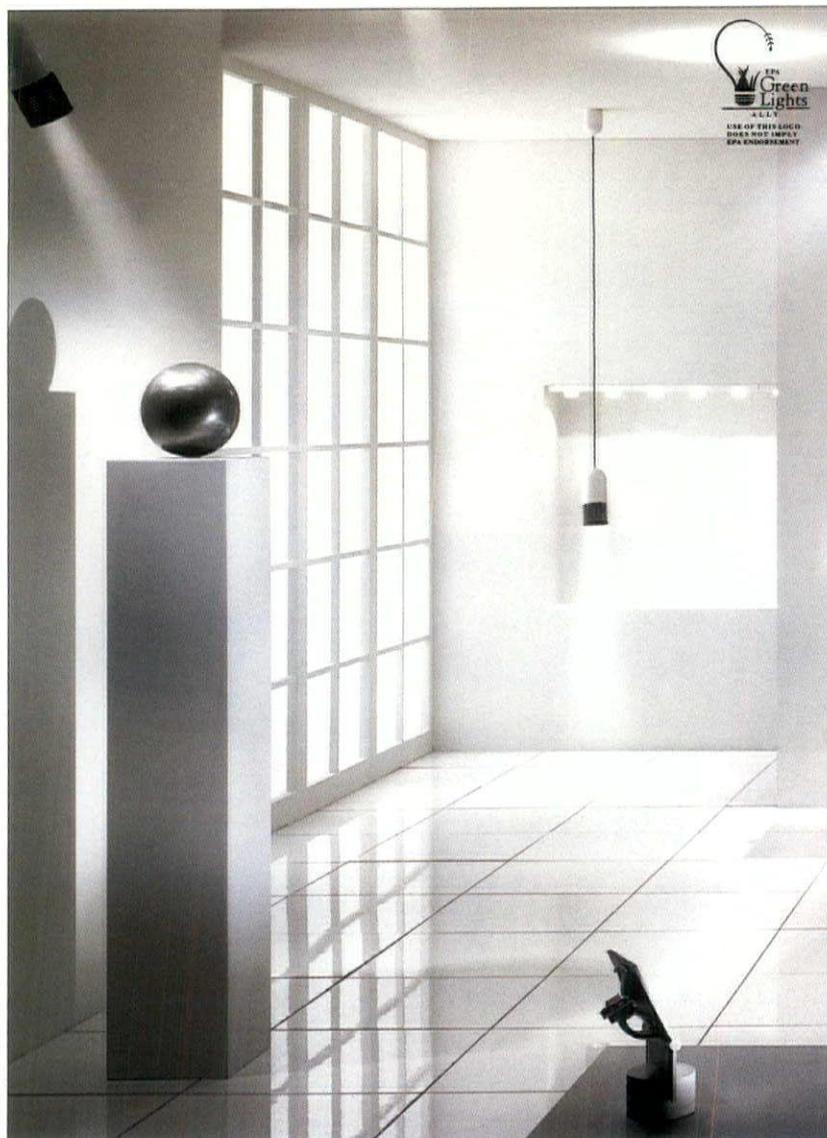
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INTERNATIONAL LIGHTING AWARDS
INTERNATIONAL LIGHTING AWARDS

1995 IALD international lighting awards

IALD

International Association of
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Registration Form

Please include this form with your entry.
You may copy this form for additional entries.

Entry fee: \$25.00 per entry

Project name _____

Location _____

Type of project _____

Date of completion _____ This project designed under
special energy constraints.

Contact at project _____

Lighting designer _____

Firm _____

Address _____

City _____ State _____ Zip code _____ Phone _____

Architect (if applicable) _____

Firm _____

Address _____

City _____ State _____ Zip code _____ Phone _____

Interior designer _____

Firm _____

Address _____

City _____ State _____ Zip code _____ Phone _____

Engineer _____

Firm _____

Address _____

City _____ State _____ Zip code _____ Phone _____

Owner _____

Address _____

City _____ State _____ Zip code _____ Phone _____

Your name and affiliation with project _____

Phone _____ Fax _____

Program Description

The Lighting Awards program was established in 1983 to increase awareness of quality lighting design by recognizing lighting installations which display high aesthetic achievement backed by technical expertise, and exemplify a synthesis of the architectural and lighting design process. As a collection of work, the awarded projects illustrate the diversity of techniques used to create outstanding lighting design.

Eligibility

Anyone may submit a project. The project must be a permanent architectural lighting design solution, interior or exterior, for which construction was completed since 1 June 1992. Lighting products, lighting equipment and lighting design for theatrical performances are not eligible.

Judging

Projects will be judged individually based on aesthetic achievement and technical merit in accordance with the designer's concepts and goals. This is not a competition; there is no minimum or maximum number of awards granted.

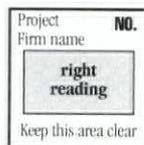
Awards

There are two types of awards, Awards of Excellence and Citations. Award winning projects will be recognized at the IALD Awards Dinner and Presentation on June 8, 1995 in conjunction with LIGHTFAIR International in Chicago. Winning projects will be published in leading architectural and design publications and included in the IALD slide library.

Submission Requirements

All submissions must be in an 8 1/2" x 11" format.
Please include all of the following:

Slides: A maximum of ten (10) 35mm slides of the project. Originals or high quality duplicates are required. The quality of the photography is important in the judging process. Professional photography is advisable. If plans and drawings are required to describe the lighting solution, we recommend photographing essential information and including them as slides. All slides should be marked with project and firm name. With slides positioned right-reading, number each slide in the upper right corner.



Photographs, drawings and/or magazine articles will not be considered.

Written Statement: A one page summary of 800 words or less written on blank paper, no letterhead. Include a description of the architectural and lighting design concept, design criteria, special energy constraints and the design solution. The summary should incorporate the visual presentation and must be keyed to each slide.

A self-addressed stamped envelope: For the return mailing of your submission. Foreign submissions should include a self-addressed Express Mail form. If you do not wish your submission to be returned, please indicate so in writing and include with submission.

Completed registration form.

Entry Fee: Payment is by check or money order only. Checks must be payable in United States currency and drawn on a U.S. bank. Make payable to, IALD. A single check may be written for multiple entries. Please do not send cash.

Address entries to:

IALD Awards Program

International Association of Lighting Designers

18 East 16 Street, Suite 208

New York, NY 10003-3193 USA

Tel. 212/ 206 1281 Fax. 212/ 206 1327

Deadline

Submission must be received no later than **Wednesday, 1 March 1995.**

The IALD Lighting Awards Program is co-sponsored by Architectural Lighting magazine.

Call For Entries courtesy of Architectural Lighting magazine.

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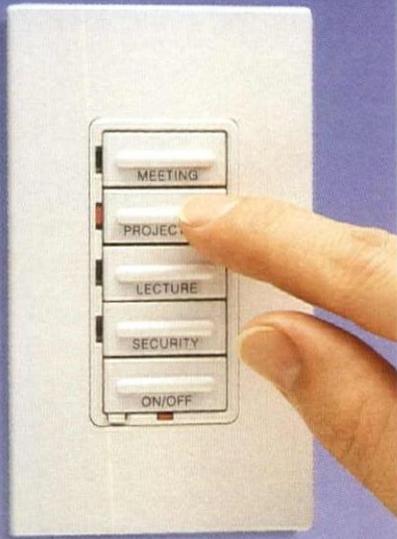
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time!**



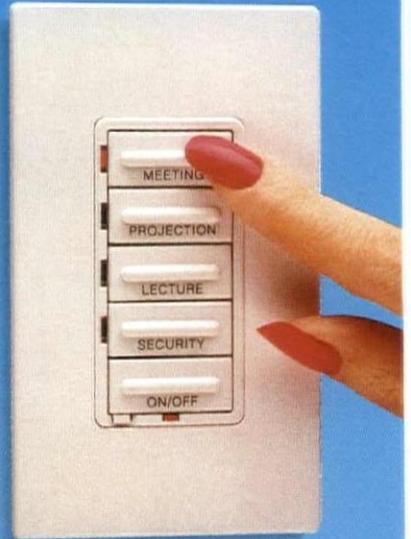
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BE A BELL

The mother of Alexander Graham Bell, credited inventor of our now indispensable sound machine—the telephone, was deaf. His father was a linguist who also taught speech to the deaf. So from an early age, Bell was interested in sound and how it was produced.

German physicist Hermann von Helmholtz had been experimenting with sound. His thesis, “On the Sensations of Tone,” according to authors Ellen Stern and Emily Gwathmey in *Once Upon A Telephone—An Illustrated Social History*, proved that vowel sounds could be produced by a combination of electrical tuning forks and resonators, as well as by the human mouth. Bell couldn’t really read German, but in the attempt, “incorrectly understood Helmholtz to conclude not just that vowels could be reproduced electromagnetically, but that they could be transmitted from here to there over a wire.

“It was a very valuable blunder,” Bell later admitted. “It gave me confidence. If I had been able to read German, I might never have begun experiments in electricity.”

There were other contenders in the race to develop a method for transmitting sound via wires. “The telephone was physically near—but philosophically far,” writes Jon Brooks in *Telephone: The First Hundred Years*. “...Hearing voices when there was no one there was looked upon as a manifestation of either mystical communion or insanity. Perhaps reacting to this climate, most physicists and electricians took it as an axiom that electricity could not carry the human voice. To have the freedom of mind to take the last step, there was needed a man whose thought was centered not on electricity, but on the human voice, and the man was Alexander Graham Bell.”

It is tempting to feel overwhelmed by the plethora of technological developments that exist today, as if individual input and thought is somehow dwarfed and unimportant because sophisticated developments in light sources, fixtures and accessories seem to be generated by corporate, anonymous entities. It is tempting to envy the simplicity that seemed to have been a part of any field’s early days—whether it be telephonic communication or lighting.

However, it is still a truth today, as it was in Bell’s day, that advancement happens one thought at a time, conceived and expressed by one person at a time. It happens sometimes by accident; other times by design. And resistance to a new concept will demand perseverance to be overcome.

But invariably, most advancements, either in equipment or technique, whether in sound or light, still come in response to problems that need to be solved. This fledgling year can evolve into one filled with deeper professional satisfaction and achievement if you seek that “freedom of mind” that Bell had—a fresh approach to an old problem, or a following of natural curiosity and interests leading to new challenges.

AL’S BELLS

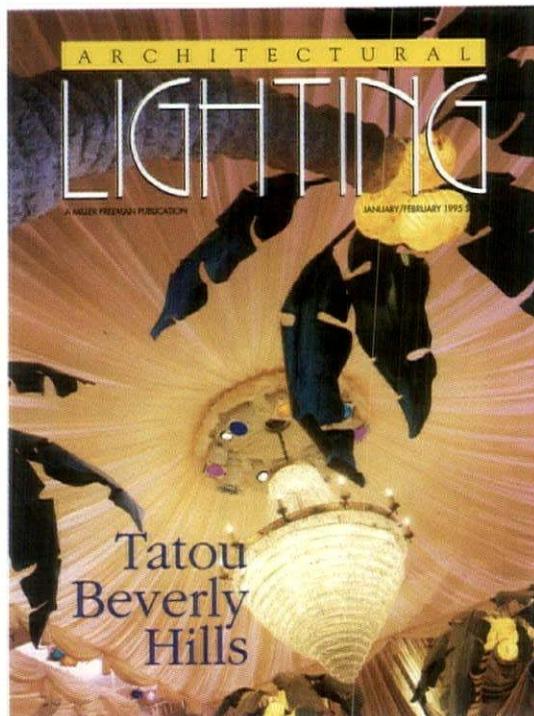
We have some potential new Bells of our own here at *Architectural Lighting*. Our sales efforts have been expanded further with the addition of Jon and Patricia Heng, Los Angeles-based independent representatives, who will supplement West Coast coverage maintained by Seattle-based Pamela Thompson. The Hengs also operate an office in Mexico City, which will allow them to explore prospects for us south of the border.

In addition, Joseph Proscia has joined the sales staff in our New York City office as an Account Executive. Joe is a young and energetic newcomer to the industry and his fresh perspective is welcomed.

Happy New Year! Be a Bell!

WANDA JANKOWSKI

EDITOR-IN-CHIEF



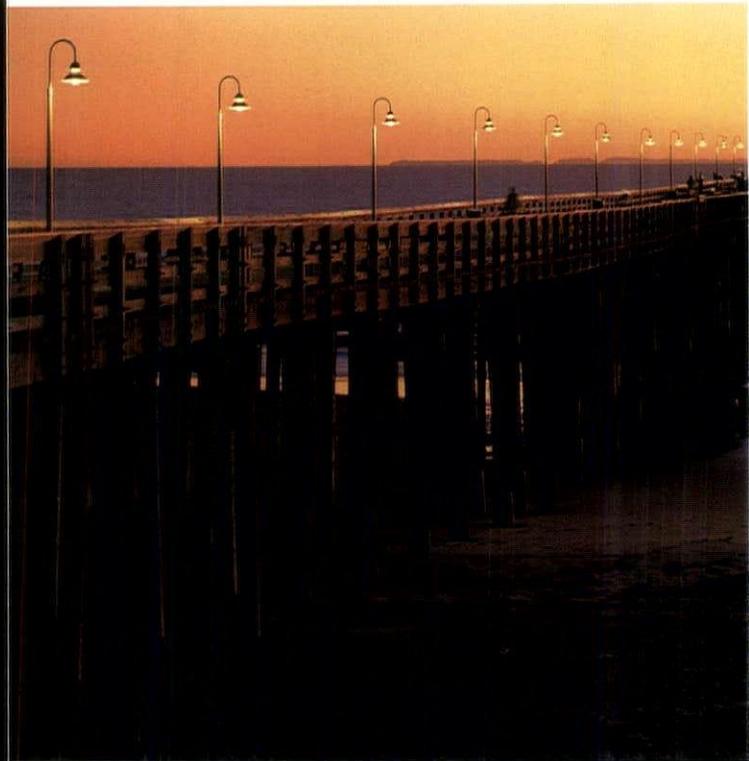
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Stepping Into The Limelight

BEVERLY HILLS' TATOU GIVES NEW MEANING TO PAINTING THE TOWN RED—OR YELLOW OR BLUE—WITH COLORFUL LIGHTING THAT SETS A STRONG SOCIAL SCENE

BY NICOLE BURNS, ASSISTANT EDITOR

Imagine dining next to towering palm trees with billowing pink clouds overhead while you're nestled in dark maroon cushions surrounded by warm, soothing light. If you can picture that, you can imagine eating at Tatou in Beverly Hills.

Opened in 1992, this restaurant, bar and nightclub has become a lush celebrity stop-off and an essential element for an exotic night on the town. Tatou, located on Beverly Drive, was inspired by the original Coconut Grove, a 1930s plush "see and be seen" night spot—a place where everyone went and basked in tropical ambiance. And what an influence it was: the social scene sizzles and business booms for Tatous in New York, Aspen and Beverly Hills.

Compared to the old Coconut Grove days, the times have changed—along with technology—leaving Tatou at an all-new level of lavish decor and elaborate lighting. This is due to the ingenious work of principals Jay Haverson and David Rockwell, formerly of Haverson/Rockwell and currently with Haverson Architecture and the Rockwell Group. Their goal was to design an environment in which people could "suspend belief" and experience the sensation of being transported to another place in time. And lighting is one of the key modes of transportation to get there. "I think lighting allows you to feel like you stepped into a different era," explains Rockwell.

One of the design challenges had been to come up with a way to accommodate each of Tatou's three dining personalities—a lunch spot, a dinner place and a supper club. Washed in beiges, whites and golds, the color scheme of the main dining area is held at subtle values allowing the light an open space to play. An MR16 light strip backlights the ceiling behind tented fabric to evenly illuminate the entire area in three colors. Track lighting with color filters above antique chandeliers light the fabric.

The perimeter of the room is punctuated by ten custom-cast, patinae copper palm trees with

The exterior facade is back lit with yellow and red neon for a nostalgic 1940s look (below).

Modeled after the legendary Coconut Grove, Tatou revives the 1930's social scene (opposite).





Custom designed wall sconces accent the intricate woodwork with a graceful flair (top).

In order for the ceiling to keep its height, only a shallow space could be used for light fixtures. An MR16 light strip back lights the ceiling, and illuminates the space in three different colors (bottom).

fiber-optically lit trunks and bunches of glowing coconuts. The coconuts, by Karen Atta, are made of fiber glass with colored A lamps. Fiberoptic lighting allows the line of trees to wash the space in colors—from red to amber to deep blue—accenting any mood. The tropical theme was completed by adding miniature custom-designed palm tree lamps. “Walking into Tatou allows you to enter a whole different world,” says Haverson.

“It’s like the theater,” notes Rockwell. “You can change the color of the room to indicate the change of use. You can dim everything so that the coconuts and the palm trees really stand out. The beige- and cream-colored walls seem to disappear and you’re in this space defined by light.”

Existing fixtures in the recessed downlights in both the corridors and bar areas were relamped.

Rockwell and Haverson agreed their favorite aspect of the project was the lighting of the exterior facade. The metal letters spelling “Tatou” above the main entrance are backlit by yellow neon with a strip of red neon behind that. “The sign really sets the tone for the interior,” says Haverson.

Even with this elaborate lighting, Tatou beat the often stringent energy codes of California. Much of the theatrical lighting uses low-voltage sources.

DETAILS

PROJECT: TATOU

LOCATION: BEVERLY HILLS, CA

CLIENTS: MARK FLEISCHMAN, ALAN FLEISCHMAN and TATOU

ARCHITECTS: DAVID ROCKWELL (currently with Rockwell Group), JAY HAVERSON (currently with Haverson Architecture) and SHERRON MARSHALL: WADE JOHNSON—associate-in-charge; MARK PICCOTTO, JAMES AHN, ALICE YIU—project team

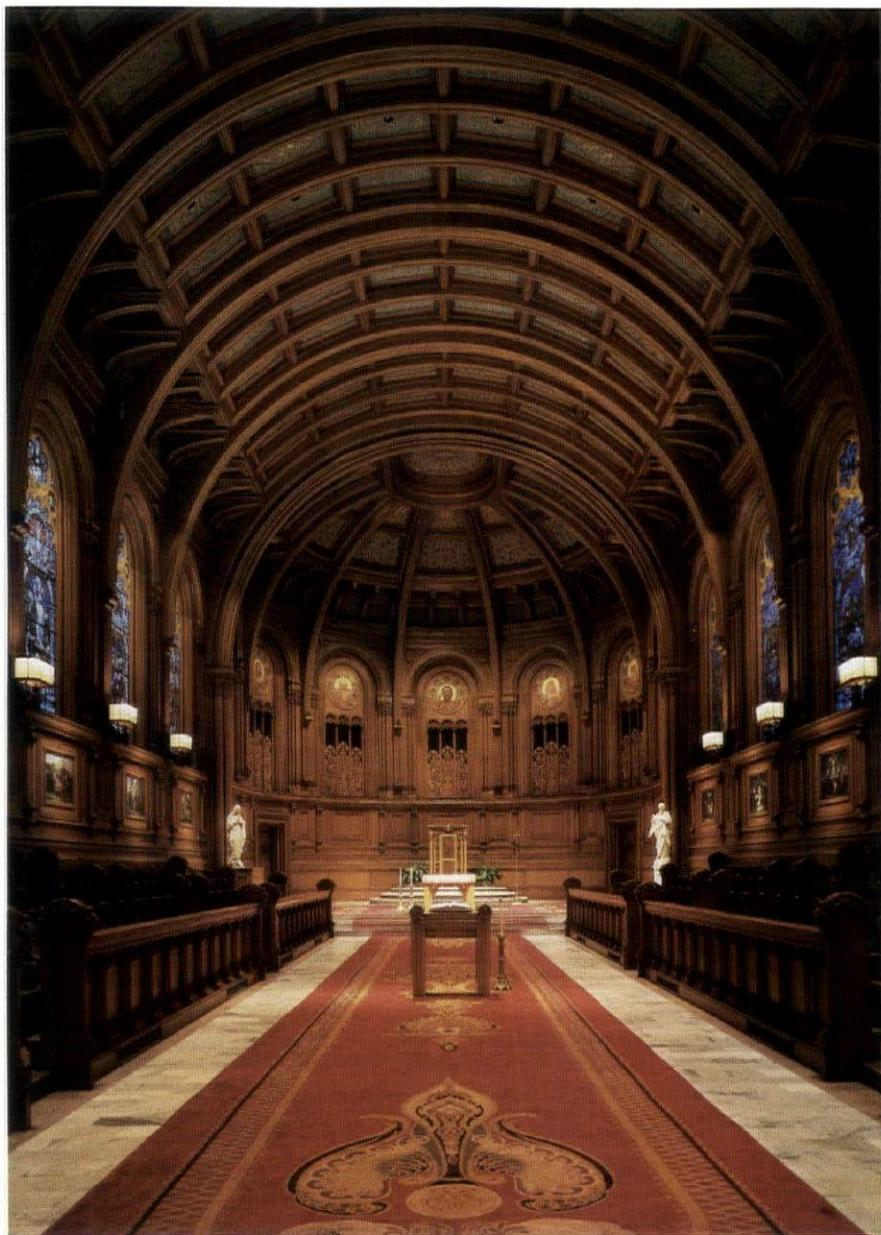
CONTRACTOR: TURNER SMITH CO

LIGHTING/AUDIO: MARKUS AUDIO & LIGHTING SYSTEMS

PHOTOGRAPHER: PAUL WARCHOL

LIGHTING MANUFACTURERS: LITELAB, ALTMAN, DIVERSITRONICS and LIGHTOLIER





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Required
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Will Inspire
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GE Lighting

Columbia's Dining & Dancing

THE UNIVERSITY'S ALUMNI AUDITORIUM AND BARD HALL CAFETERIA ARE GIVEN UP-TO-DATE LOOKS WITH A DASH OF DECO BY LIGHTING DESIGNER ANN KALE

BY WANDA JANKOWSKI, EDITOR-IN-CHIEF

ALUMNI AUDITORIUM: (Below) Ceiling layers are defined by concealed fluorescent uplights. Compact fluorescent downlights provide illumination for taking notes, and viewing visuals.



Before its renovation, the Alumni Auditorium at Columbia University in New York City was illuminated with a series of 300-watt, PAR 56 downlights in a scattered "Swiss-cheese" pattern. The oval beam-spreads of the fixtures required exact orientation which, if not maintained, would produce large shadow areas on portions of the seating area. Some downlights were placed within two feet of the walls and produced distracting irregular patterns.

New York-based lighting designer Ann Kale rose to the challenge of relighting the multi-purpose public space. The renovated auditorium incorporates angled, multi-layered ceiling steps defined with bands of concealed fluorescent uplights. Though there was no space available to overlap the lamps, socket shadows are avoided due to the existence of square portholes for theatrical fixtures.

The auditorium is used part of the time for lecture series. This is the main auditorium on campus, which includes a medical center. Consequently, the lighting had to be adequate for intensive note taking and reading, as well as viewing slides, blackboards and other visual materials.

Recessed adjustable accent downlights installed in the stepped ceiling contain 250-watt PAR 38 floods chosen for their excellent color rendering and long life (approximately 6,000 hours). Dimming the lamps lengthens the life to a span about equal to that of fluorescents. Downlights are accessed from above the ceiling for easy maintenance.

Columbia University's theatrical group, the Bard Hall Players, has a long tradition of quality productions, and so a complete stage lighting system has been installed. Kale notes that before the auditorium was revamped, the theater group used to perform

COFFERED CAFETERIA:
(Right) Custom acrylic and aluminum pendants complement the coffers discovered in the original ceiling after the existing ceiling tiles had been peeled away. The pendants are lamped with eight compact fluorescents each. Incandescent monopoints accent the artwork.
(Below right) The cafeteria's lounge area is highlighted with aluminum sconces. Compact fluorescent downlights provide general illumination.



on tabletops in the old dining hall, and so they are most appreciative now of their first "real stage."

Not shown in the photograph, but later installed, are custom designed, perforated aluminum linear fixtures in the low ceiling that runs around the perimeter of the back of the auditorium with matching sconces adorning the walls.

Before the renovation, the ceiling in Bard Hall cafeteria was formed by 1-foot by 1-foot glued-on tiles, which included 4-foot by 4-foot surface-mounted fluorescent fixtures and large chandeliers.

Since the style of the building that houses the cafeteria is Art Deco, the client requested the room be redesigned to reflect it. When it came time to strip away the existing luminaires and ceiling, Kale discovered that behind the tiles, octagonal coffers from the original ceiling existed within 18 inches of where the new custom designed pendant luminaires were to be suspended. The new design was modified to enable the pendants to be suspended from the center of the coffers. The deep coffers have been painted to match the aluminum trim of the pendants.

Each circular pendant has an opaque acrylic diffuser and is fitted with eight PL 13 compact fluorescents. The pendants are circuited to allow either four or all eight lamps to be lit.

Two types of lighting are used in the lounge area. Semi-circular aluminum sconces lamped with compact fluorescents have been wall-mounted on the structural columns and provide uplight. The recessed downlights are also fitted with compact fluorescents. The only incandescent light sources are used in the monopoint fixtures positioned to accent wall-hung artwork.



DETAILS

PROJECT: COLUMBIA'S ALUMNI AUDITORIUM & BARD HALL CAFETERIA, NEW YORK, NY

ARCHITECT: BELMONT FREEMAN ARCHITECTS

LTG. DESIGNER: ANN KALE ASSOCIATES, INC.

ELECTRICAL ENGINEER: MIKE JACOB, ATKINSON KOVEN & FEINBERG

PHOTOGRAPHERS: CHRISTOPHER WESNOSFKE (p. 22) and EDUARD HEUBER (p. 23)

LIGHTING MANUFACTURERS: LIGHTOLIER, EDISON PRICE, BOYD, WINONA, MICHAEL'S LIGHTING, LIGHTING SERVICES INC., CJ LIGHTING

Sights & Sounds

DRAMATIC LIGHTING SCHEMES CREATE MAGIC AND AMUSEMENT IN A HOME ENTERTAINMENT SHOWROOM

BY CHRISTINA TRAUTHWEIN, MANAGING EDITOR

For the Definitive Audio showroom in Bellevue, WA, state-of-the-art audio and video equipment and high-tech lighting systems give new meaning to the idea of lights, cameras and action!

The 5,800-square-foot showroom, designed by Adams•Mohler Architects, is located within an existing suburban strip mall—the interior had been gutted and the showroom space constructed. This led to the challenge of designing an exciting atmosphere for home entertainment equipment—complete with dramatic lighting effects.

The showroom's floor plan reflects the varied services Definitive Audio provides, functioning both as a retail

PILLARS OF LIGHT: Aluminum covers clad existing 6-foot-high wood posts to create a sleek and shimmering effect. Concealed lighting emanates from the sides, tops and bottoms of the columns, resulting in a stunning display of light. This central space serves as a sales and reception area.





sales and service facility, and as a professional office for a custom design and installation group. Spaces include public demonstration rooms for the audio and visual home entertainment equipment, offices, an administrative area and a warehouse. A dramatic central space, which provides access to all rooms, serves as the sales and reception area.

The project involved numerous demanding technical requirements including acoustical separation, electronics and lighting controls, which had to be accommodated within a construction budget of \$40 per square foot. "Definitive Audio is one of the premier, high-performance home entertainment retailers and installers in the country," notes Rick Mohler, architect and lighting designer. "Since they're dealing at the high end, the performance and demonstration spaces, and how they operate are particularly critical to them."

Obviously, the variety of spaces and functions requires the creation of various moods—especially in the demonstration areas where drama is essential. In terms of the theaters, for example, the intention had been to create the kind of thrill you would experience in a commercial theater. To accomplish this, wall sconces, designed by Brent Markee for Manifesto's Resolute Line, with 40-watt incandescent lamps provide subtle lighting. Further-

KEEPING THE THEME: The soffit in the central sales area is finished with aluminum and paint to coordinate with the covers on the columns nearby. The soffit conceals a linear lighting strip, which uses 5-watt incandescent festoon lamps, creating a very dramatic lighting scheme.

more, there are four or five preset settings for every room—in terms of the theaters and audio spaces—so the lighting configurations can be changed very quickly to establish different moods.

“All of the public spaces are one side, and on the other, are back-of-the-house spaces, such as the warehouse and offices,” explains Mohler. “The center sales area was the space that was left over after all of the demonstration spaces had been organized.” Existing and required components within the central area, including a sales counter, soffit and structural columns are treated as featured elements.

LIGHTING COLUMN

Adams•Mohler Architects decided to take advantage of the columns, which happened to land right in the center of the space. The columns, which are 6-foot by 6-foot wood posts, are transformed into a fascinating display through the use of hand-etched aluminum column covers and concealed lighting. Within each post are eight 40-watt T-12 “incandescent-fluorescent” sources in standard linear fluorescent surface-mounted fixtures that run from the bottom of the column to the top. The custom-fabricated covers, which clad the columns, are positioned slightly away from the posts on the floor, the ceiling and along 1 1/2-inch joints allowing light from continuous fixtures to emanate from the top, bottom and seams of the columns. Rather than have the column cover be dark, defining the posts as silhouettes with light coming out around them, the surfaces of the columns are highlighted by adjustable 50-watt MR 16 lamps in low-voltage slot aperture fixtures recessed in the ceiling.

A sweeping, curvaceous soffit with concealed lighting is located above a rounded sales counter. The soffit is treated with a decorative finish of aluminum and paint to match the column covers. The soffit is held away from the ceiling and houses concealed valance lighting provided by a continuous linear lighting strip with 5-watt incandescent festoon lamps.

The continuous curve of light provided by the soffit forms a counterpoint to the rhythm of light established by the columns. Over the desk, there are 75-watt PAR 30 lamps in recessed downlight fixtures. These and 75-watt PAR 30 lamps in recessed

ACCESSORY PLAN: Display and accessory areas, which line the walls of the central room, are illuminated by low-voltage MR 16 track lights. PAR lamps in recessed downlight fixtures light the work surfaces (below). Specially designed wall sconces provide soft incandescent lighting in the demonstration rooms (bottom).



adjustable accent fixtures are also used in the theaters and demo rooms.

"Both the soffit and the columns are used as light fixtures themselves, creating a very dramatic impression when customers enter the showroom, and suggesting the idea of the temporary suspension of disbelief, which the client strives to achieve with the systems they design and sell," says Mohler. "Their business is selling and installing equipment that will create experiences that are as live and real as possible, and the intention is to create the sense that the columns and the soffit appear to float within this center space." Behind the sales area/counter there's an accessory display space with low-voltage MR 16 track lights.

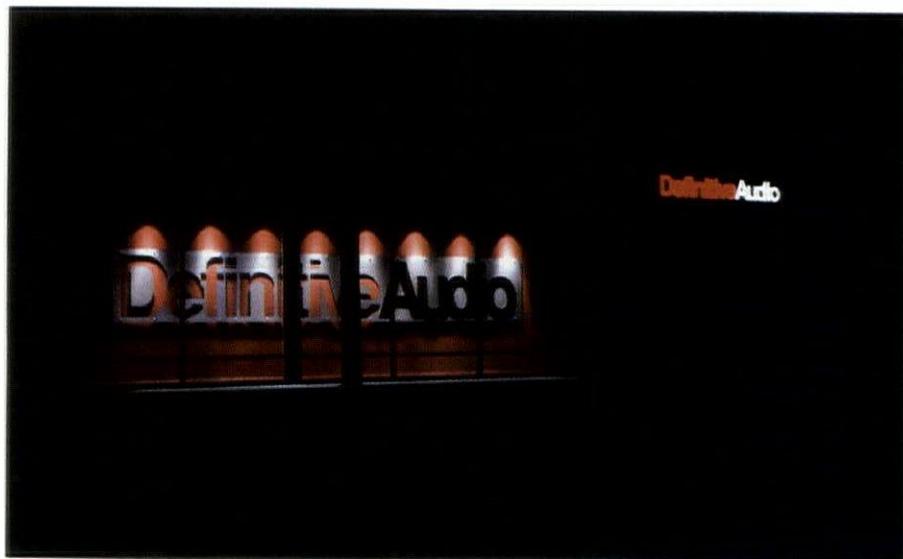
The columns establish a sense of movement throughout the center of the 75- to 80-foot deep space, balanced by the continuous curve of the soffit and an even wash of light on the displays on the opposite side of the room. The display

area in the center space is illuminated with pendant-mounted track fixtures, which use 75-watt PAR 30 lamps.

"We wanted to develop an interesting background," notes Mohler. "The various materials and elements, such as the decorative aluminum finish on the walls of the center space and a clear fir veneer on the sales counter and store doors provide a neutral backdrop to the columns and soffit helping to articulate and add visual appeal to the space."

The entire store is controlled by a 16-module low-voltage lighting control system, which according to Mohler, is very sophisticated. "Basically someone can come in and hit one button and the entire store is up and running at any number of preset arrangements," explains Mohler. "Not only does each room have different mode settings, the facility as a whole has preset settings as well."

A 4-foot by 28-foot etched aluminum sign in the storefront is illuminated by 75-watt PAR 30 track lights, providing visibility for the store and inviting customers to enter.



COME ON IN: The Definitive Audio showroom welcomes customers with an etched aluminum sign in front of the store. The enticing entry sign is illuminated by 75-watt PAR lamps in track fixtures. This, combined with the brilliance of a red backdrop, makes the audio/video showroom abundantly visible to clients.

DETAILS

PROJECTS: DEFINITIVE AUDIO SHOWROOM

LOCATION: BELLEVUE, WA

OWNER: MARK ORMISTON, president, DEFINITIVE AUDIO, INC.

ARCHITECT/LIGHTING DESIGNER: RICK MOHLER, RIK ADAMS, ADAMS•MOHLER ARCHITECTS

ACOUSTICAL CONSULTANT: INTRASPEC 7

STRUCTURAL CONSULTANT: RATTI, SWENSON, PERBIX

GENERAL CONTRACTOR: KREKOW/JENNINGS INC.

ELECTRICAL CONTRACTOR: TALIS, INC.

SPECIAL WALL FINISHES: ECLECTIC SURFACES

PHOTOGRAPHER: STEVE KEATING PHOTOGRAPHY (interior);

RICK MOHLER (exterior)

LIGHTING MANUFACTURERS: LIGHTOLIER, HALO, SEAGULL,

RESOLUTE/MANIFESTO, and VANTAGE VISION



Diamond Jim's Premium Place

NORWOOD OLIVER TRANSFORMS A FORMER DELICATESSEN INTO A LOUNGE FOR PREMIUM PLAYERS AT ATLANTIC CITY'S TROPWORLD

BY WANDA JANKOWSKI, EDITOR-IN-CHIEF

Champagne isn't the only thing bubbling at TropWorld's Premium Lounge in Atlantic City, NJ. This 3,050-square-foot resting and waiting area for premium players is distinguished by plexiglass walls that encase illuminated, softly bubbling water along with a multitude of other special touches created by Norwood Oliver Design Associates, Inc.

The owner wanted the space, which used to be a delicatessen, to be a private, relaxing environment. This prompted Oliver to divide the area into four quads, so guests can pop up and view the built-in television in one section, while others converse, or enjoy reading or dining in other areas.

The quads are defined by 22 water-filled panels formed by two plexiglass sheets that hold the clear, constantly bubbling water between them. The machinery that creates the bubbles is located below ground, so only the soft "white noise" of the moving water is heard, and not the harsh hum of running motors. Each panel is 2 feet wide and 9 feet high, including a three-foot millwork base. The water walls are flanked by circular plexiglass columns also filled with bubbling water. Each of the 22, 8-inch diameter columns is 9 feet high, including a 12-inch high millwork base.

The water is highlighted with light cast from fluorescent lamps installed above the water-filled

TINY BUBBLES: (this & opposite page)
Water panels in the Premium Players Lounge are highlighted by fluorescents. Table lamps lend a residential quality to this relaxing environment.



panels and concealed by the millwork trim. Hinged panels allow for maintenance access. Each water-filled circular column has a wet location, 5 1/8-inch-diameter, compact fluorescent upright installed in its base. Holidays and special occasions can be celebrated festively with light by adding colored filters.

The illuminated panels and moving water features create movement, "and with the movement, you never feel alone, like you are in a huge cavern," says Oliver. The water panels divide the large space, while maintaining a feeling of openness.

Rich materials are used throughout the lounge. The ceiling is composed of 17-inch square clear mirrors with chrome roasts. The flooring is made of striking black granite square tiles.

The lounge areas are filled with custom-designed furniture that combines traditional wood framework with boldly colored, contemporary upholstery. Opaque-shaded table lamps placed on end tables lend a residential quality to the space.

Several eating formats are offered, from formal table dining to casual seating areas, counters and bar service. In the eating and bar area at the rear, a comfortable ambience is provided by simple downlights over the tables.

CONCOURSE CARNIVAL

Norwood Oliver was also involved in the renovation of other areas in the casino hotel, including the Concourse and main gaming room. Here he had to give the spaces a facelift, blending existing elements with new features.

"When we became involved with this project, the existing Concourse area in TropWorld had all white balconies with stainless steel railings and a white ceiling. It looked exactly like a shopping mall. It was so totally anti-casino, and not at all what people really enjoy and want an Atlantic City casino to be," says Oliver.

The existing Concourse columns have been transformed by Oliver into giant torchieres. Each of the six column capitals is formed from pink-toned plexiglass. Concealed behind the plexiglass



COLOR OPTIONS: (above) Color filters can be fitted on lighting fixtures that illuminate water columns and panels to create changing and festive atmospheres for special occasions and holiday celebrations.

CONCOURSE COLUMNS: (opposite page, top) Existing columns have been transformed into giant, light-spewing torchieres. (Opposite, bottom) Simple downlights cast soft pools over lounge dining tables.

is a mirrored ball, 12 inches in diameter, that is spotlighted as it revolves, casting explosions of light over the light blue-painted ceiling.

The remainder of the columns are covered with rippled Lexan panels backed with a peach-colored film to create a warm and flattering glow. Positioned behind the panels are hundreds of B-lights, which chase to create a dazzling kinetic effect.

"When they chase up and down through the Lexan, it's prismatic and this breakup of light results in a sparkle of light thrown out in all directions," says Oliver. "And coming out of the tops of the columns is this spew of light, like it's exploding. The phenomenon complements the large ferris wheel that is also in this space, under a dome in the concourse, and makes for a very playful environment.

"And it was not done at tremendous cost," says Oliver. "We used existing elements. It wasn't changed structurally—the columns were existing."

CASINO REVITALIZED

In the casino areas, the existing columns had been covered with grey mirror panels accented with brass corners.

Oliver boosted the glamour of the capitals by applying to a brass background squares of lacquered masonite, pinkish beige in color. "Within each brass cross section there is a tiny 12-watt B-light, 1/2-inch long and 1/4-inch in diameter," says Oliver. Small squares of beveled mirror have been applied as well to the column shafts to make them look more festive. Tube lights, approximately 1/4-inch in length and 1/8-inch in diameter have been installed in strips up and down the sides of the columns. The column shaft and capital lights are computer programmed to display 15 different sequential patterns.

The circular and rectangular crystal groupings in the ceiling were existing and have been retained.



"Before we renovated, this looked like a very corporate space because the plain mirrored columns and the crystal chandeliers were all that existed," says Oliver. "It looked very stiff." But TropWorld can welcome its guests with the updated glamour and dash of fantasy that they expect.

DETAILS

PROJECT: TROPWORLD

LOCATION: ATLANTIC CITY, NJ

PROJECT MANAGEMENT & PURCHASING: CHARLES TOTORO, director of projects & construction, TROPWORLD CASINO AND ENTERTAINMENT RESORT PROJECTS

INTERIOR DESIGN & PLANNING, AND LIGHTING

DESIGN: NORWOOD OLIVER DESIGN ASSOCIATES, INC., NEW JERSEY OFFICE

GENERAL CONTRACTOR: ROBERT RANDO, MASSETT BUILDING COMPANY

ELECTRICAL ENGINEER: JIM WAMSLEY, project engineer, PENNONI ASSOCIATES

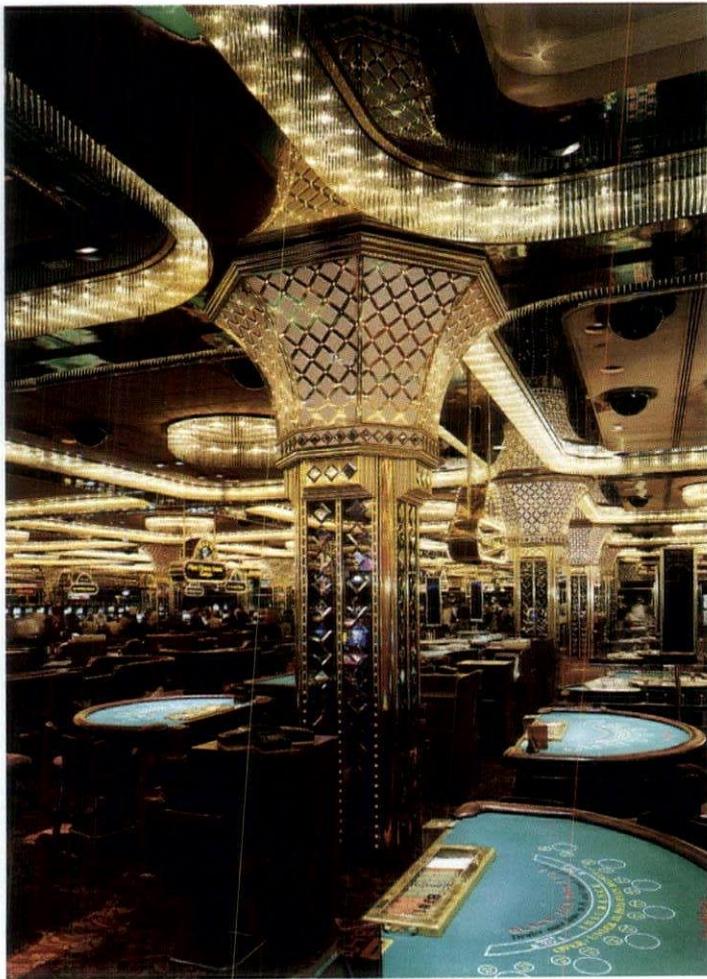
MILLWORK CONTRACTOR: BILL MERCER, SHOWTIME EXHIBIT BUILDERS, INC.

WATERWALLS & COLUMNS: JOE FIERO, FIERO ENTERPRISES INC.

PHOTOGRAPHER: PETER PAIGE

LIGHTING MANUFACTURERS: FINE ART LAMPS—table lamps; PHILIPS LIGHTING—light sources; HALO—downlights & wet location fixtures; C.J. LIGHTING CO., INC.—fluorescent fixtures above water panels; QUOIZEL—bathroom sconces

MAIN GAMING ROOM: (below) Lights and mirrors have been added to existing columns to extend the glamour of the game room.



SIDE LIGHTS RETAIL AS ENTERTAINMENT

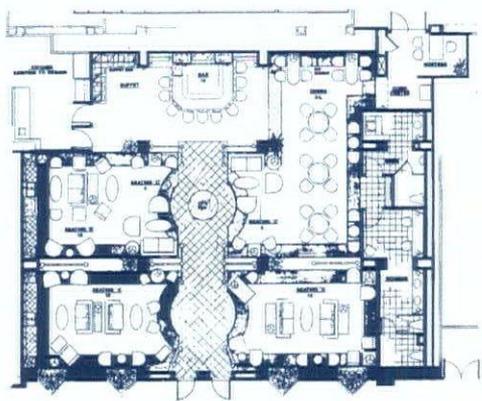
Though several retail projects designed by Norwood Oliver Design Associates have been featured in *Architectural Lighting* over the past few years, the firm designs a broad range of installation types, rather than specializing in one or two, because, says Oliver, "solutions to problems in one area, whether techniques or materials, can come from experiences in another area."

"Casinos, for example, are like entertainment-themed retail spaces. Ambience becomes paramount in both," Oliver explains.

"A retailer might be asked: 'Why do people shop you?' The response is, 'Quality of product and service.' The same is true in casinos as it is in retailing."

Both casinos and entertainment-themed retailing are becoming more kinetic and interactive experiences, according to Oliver. Casinos used to feature mostly table games, but more and more they are including interactive electronic games. In retailing, interactive environments are being used to sell merchandise as well. For example, computers can record what the customer looks like and put clothes offered for sale on his or her body specifications so the customer can see what the merchandise will look like on them without having to try it on.

Environments are becoming all important, Oliver explains, because of the duplication of services and merchandise. The environment is perceived as what differentiates one casino from another, one themed retail experience from another. "The casino is ahead in terms of being expert at aiming to please a client, and there is a lot to be learned from them by retailers," says Oliver. The challenge for designers in both retail and casinos is to understand the difference between merely designing glitz, and tailoring the environment to suit the expectations of the clients.



Premium Players' Lounge Floor Plan

COMFORTS OF HOME, FROM LEFT TO RIGHT: The design of each room in the Lappin showroom is taken from those found in a real house; the floor plan is designed accordingly. A crystal chandelier in a storefront window attracts passersby.

SPOTLIGHT

LAPPIN LIGHTING DESIGN SHOWROOM

BY NICOLE BURNS, ASSISTANT EDITOR

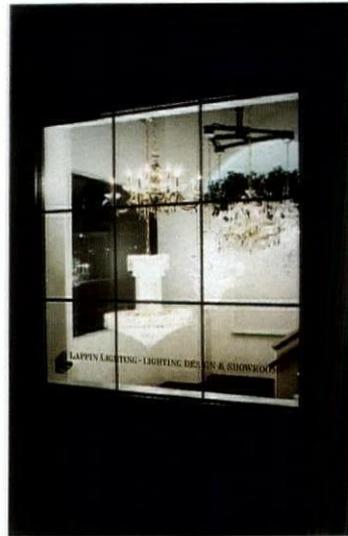
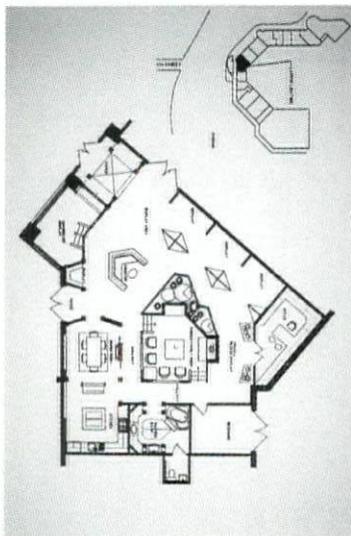
CHALLENGE The goal of this project had been to turn a 2,650-square-foot room at a typical strip mall into a comfortable, functional environment—a showroom where Lappin Lighting representatives could prepare lighting layouts and demonstrate options to residential customers.

DESIGN/TECHNICAL CONSIDERATIONS

According to Gene Eggert, AIA, principal and founder of Architectural Designs, one of the major obstacles with residential clients is specifying lighting for them without their visiting a lighting store. Even when clients venture into lighting stores they see thousands of fixtures hanging

Using acoustic ceiling tiles, fixtures can be removed and replaced in order to present a range of demonstrations. With this flexibility in each of the areas—including the kitchen, foyer, family room, home office, dining room, master bath and outdoor area—there are at least 20 lighting scenarios available including mood lighting, and outdoor lighting in the courtyard.

Upon arrival, customers are interviewed to ascertain their specific needs before testing potential lighting solutions. Lappin has an extensive product line, yet all of the rooms hold not only their own products but also fixtures from different manufacturers. This intentional diversity alleviates the pressure on clients to stay with one line of products. Instead, customers are encouraged to choose products that offer the best lighting for their lifestyles.



four feet from the ceiling, making it difficult to focus on any one particular fixture and its specific effects. Lappin had envisioned a new, more effective store, and Architectural Designs expanded that vision by creating a showroom that resembles a typical home, complete with rooms where lighting is especially crucial (kitchen, bathroom, living and family rooms). By designing the showroom this way, Lappin Lighting could showcase and sell light fixtures and techniques that best complement the clients' needs.

METHOD The basic architecture of the showroom is permanent with a flexible lighting system incorporated into it. Learning from the limitations of typical showrooms, the number of fixtures hanging in each room was limited to a set spacing distance.

CONCLUSION The architectural design of the space was intended to complement it, not overshadow it, says Eggert. According to Lappin, this store is more profitable than their other traditional stores, attracting more high-end clients.

DETAILS

PROJECT: LAPPIN LIGHTING, INC. DESIGN SHOWROOM

LOCATION: WOODLAKE MALL, KOHLER, WI

ARCHITECT: ARCHITECTURAL DESIGNS

CARPENTER: MIKE KOENIG CONSTRUCTION

CONSTRUCTION: ELLIPTICON—MILLWORK

FURNISHINGS: BETTY JOHNSON INTERIORS (furniture); ANN SACKS TILE & STONE (tile); PAST BASKET (kitchen cabinets); PRIVATE GARDENER (plants)

PHOTOGRAPHER: PURCELL IMAGING LTD.

WHO SAYS VANDAL RESISTANT LIGHTING CAN'T STAND ON ITS' OWN TWO FEET....



design: richard klapper

bol 1/Quay

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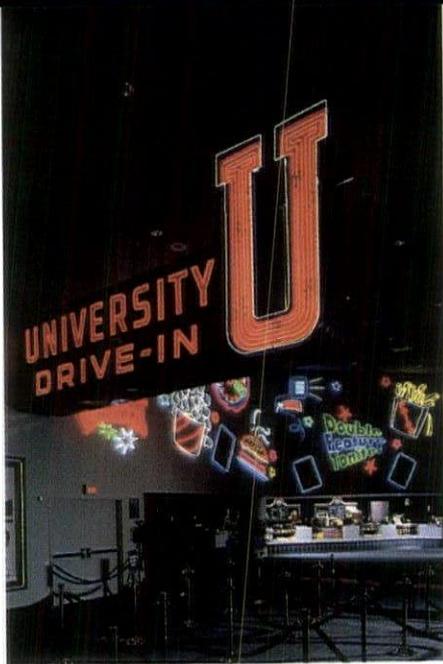
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Circle No. 2 on product service card

The original University Drive-In sign, weathered from years of outdoor use, is restored with neon to become a piece of Americana (right).

Icons of moviegoers' experiences, from 007 to the cheeseburger to popcorn, as well as accent tubing, create a lively, entertaining atmosphere (below).



SPOTLIGHT

NEON GOES NATIONAL

BY NICOLE BURNS, ASSISTANT EDITOR

CHALLENGE When most moviegoers enter a theater, they grab their tickets, dash to the concession stand and then to the screening room, collapsing in their seats seconds before the movie starts. And surely, the only thing they notice is the time. Well, National Amusements Inc. wanted to change that. The theater chain looked to re-create the thrill of a night out at the movies by establishing a bright and exciting atmosphere that would visually stimulate viewers while they are still in the lobby.

DESIGN/TECHNICAL CONSIDERATIONS

Movie houses were among the first businesses to embrace neon as a design element when neon tubes arrived in the United States in 1923. Its festive colors and shapes are still used today in 12 of National Amusements' theaters worldwide, and more are on the way. The standard design—sometimes ranging up to 90 feet, depending on space—varies a little from theater to theater, but the message remains the same: motion pictures, and the whole experience should be thrilling. Shapes of the tail fin from *Jaws*, the profile of Alfred Hitchcock, King Kong, snack food and soda pop, are all universal images of Hollywood and films.

METHOD Designed by their own in-house creative team, Edgar Knudson, senior vice president of advertising, and William Mitchell, creative director, combined efforts to produce the display. Existing theaters were renovated to include a significant amount of neon lighting in the available space, while new theaters were built with the neon displays in mind.

The renovated theaters date back to the 1960s, including their decor. Ineffective recessed and indirect lighting were disassembled, and gray paint now replaces vinyl and mirrored walls to better complement the neon glow. The concession stand, customer service booth, game room, pillars and counters are also accentuated with neon. And classic film posters, often six times as large as a standard poster, are neon-rimmed and backlit.

CONCLUSION Light Design, a small, Chelsea, MA-based neon lighting manufacturer, has helped create a new look for National Amusements, Inc., turning quite a few heads. Now moviegoers can enjoy an exciting and stimulating scene before they even get to the screen.

DETAILS

PROJECT: NATIONAL AMUSEMENTS INC.'S THEATER CHAIN

ARCHITECT: FOX AND FOWLES

LIGHTING CONSULTANT: JAMES COOPER & ASSOC.

LIGHTING MANUFACTURERS: LIGHT DESIGN—neon; LIGHTOLIER—downlights

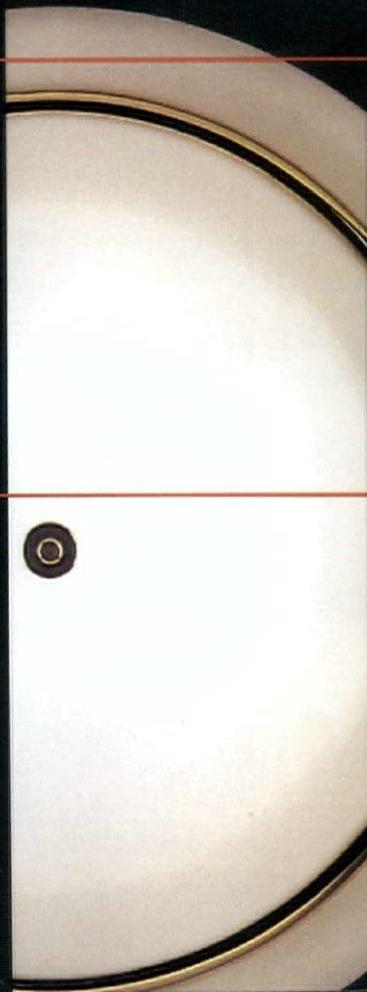


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A PLAN FOR ALL SEASONS

BY NICOLE BURNS, ASSISTANT EDITOR

CHALLENGE The goal in designing St. Laurence Parish's new all-purpose building was to create a structure flexible enough to accommodate a variety of activities—from 300-member parties and spaghetti dinners to small bible study classes—while maintaining a reverent environment. And, at the owner's request, there had to be glass, opening the building to the wide expanse of the surrounding landscape and inviting people to enter.

DESIGN/TECHNICAL CONSIDERATIONS The first task was to make the building acoustically pleasing in order to effectively deflect and absorb sound equally at any point in the building without cross echoes; hence the angular shape. Next came the lighting. The idea was to design a lighting system flexible enough to create an intimate feeling for a small parish meeting, a bright space for choir rehearsal, and even something a bit more theatrical for a Sunday school play. "The lighting system had to give users of the space a tremendous variety and range of options so that they can

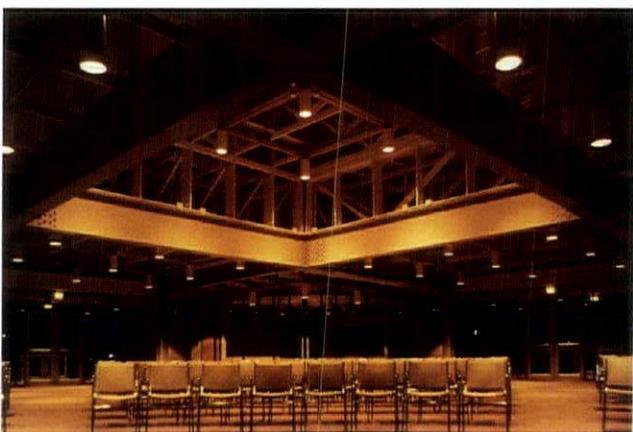
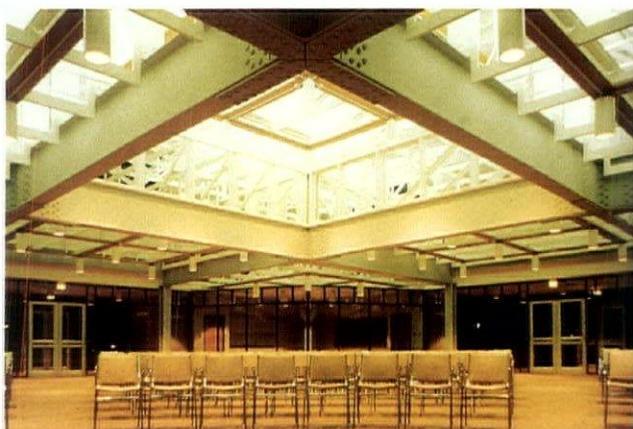
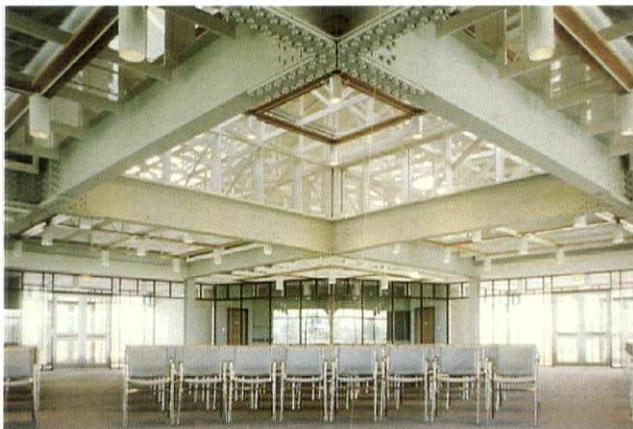
create different feelings for whatever functions are taking place," said R. Gregory Turner, AIA.

METHOD The two types of lighting used in each of the nine 24-square-foot bays are incandescent downlights, which are attached to the oak soffit boards and pointed down, and indirect fluorescent fixtures, which are connected to the top side of truss bottom chords and pointed up.

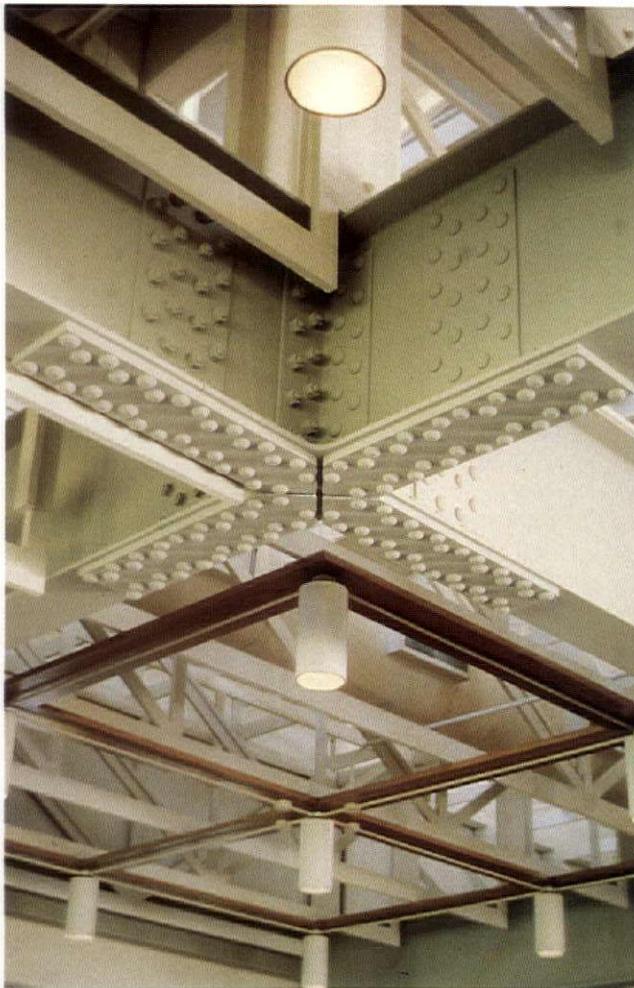
The incandescent fixtures hang at different heights from the ceiling, and the wattages vary in each bay so as to create an even illumination across the entire floor when all the lights are completely on. In the center bay, which is the highest one, luminaires that use 400-watt lamps are suspended 16 feet from the ground; fixtures at 12 feet use 200-watt lamps; and those at 10 feet house 150-watt lamps.

To maintain a sense of volume in the space, and for proper placement, the suspended luminaires remain exposed, as are the conduit and all the components of the electrical system. As a result, an intricate pattern is created, which complements the architectural elements.

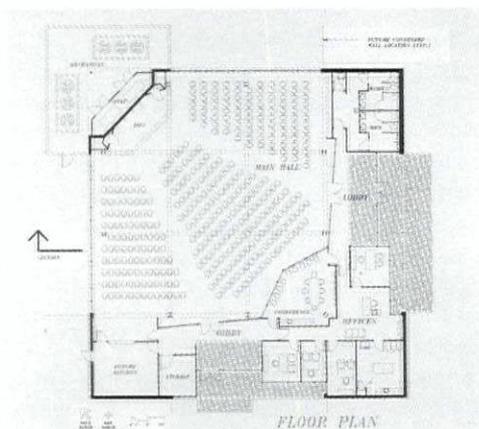
About a foot above the indirect fluorescents, white 8-foot-



DAWN TO DUSK: Three different lighting variations (opposite) at different times of the day demonstrate diversity. The incandescent downlights in each area of the building (opposite and right, top) can be individually dimmed, brightened or spotlighted to suit all situations. An open ceiling creates a bright and lofty atmosphere.



OPEN WIDE: The all-purpose room at St. Laurence Parish is designed to encourage people to join the activities (right, center). The floor plan (right, bottom) shows the angular shape of the building, designed with flexible lighting plans and good acoustics for many events.



long fluorescent fixtures are positioned in a rectangular shape to provide even illumination. The indirect fluorescent lighting points up at the underside of the roof panels which give a sense of tremendous height and expansive space.

Each bay system can be individually dimmed to accommodate any situation. For performances, the stage can be illuminated and the spectator area can be darkened; for large groups, the lighting can be controlled to a finite level with the incandescent downlights; for a wedding, the incandescents can be dimmed, while the indirect fluorescent lighting creates intimacy.

CONCLUSION After 18 months of designing and construction, the St. Laurence Parish all-purpose building effectively accommodates all church-related activities. The extensive use of glass and natural light not only creates a warm atmosphere inside, but allows lighting to serve as a nighttime beacon to passersby, highlighting the events inside.

This project received the IES International Illumination Design Award (Southwestern Region, San Jacinto Section) and the AIA Interior Design Award (Houston Chapter).

DETAILS

- PROJECT:** ST. LAURENCE PARISH ALL-PURPOSE BUILDING
- LOCATION:** SUGAR LAND, TX
- ARCHITECT:** R. GREGORY TURNER, AIA, R.G. TURNER ARCHITECTS
- STRUCTURAL:** HAYNES WHALEY ASSOCIATES, INC.
- MEP:** CCRD PARTNERS
- ACOUSTICAL:** CSTI
- CONTRACTOR:** BROOKSTONE CORPORATION
- LIGHTING MANUFACTURER:** LITHONIA
- PHOTOGRAPHER:** JORGE JOSSERME

BE CAREFUL WHERE YOU THROW THAT LAMP!

BY GARY MARKOWITZ, MIES

About five years ago, the U.S. Environmental Protection Agency (EPA) embarked upon the Green Lights Program to promote the use of efficient lighting sources. In instances where corporations chose not to participate in the EPA's efficiency program, the U.S. Department of Energy's (DOE) legislation essentially requires energy efficiency by obsoleting many inefficient lighting sources. The Energy Policy Act of 1992 complements the EPA program in attempting to ensure a bountiful future: energy resources for future generations, and air quality improvements through reductions in power plant emissions to the atmosphere. Although both the EPA and DOE programs deserve all the fanfare that they currently enjoy, there is a downside of considerable consequence that must be addressed.

THE EFFICIENCY CONFLICT

Efficient lighting sources in both the high-intensity discharge (HID)—including metal halide and high-pressure sodium—and fluorescent families contain the chemical that most assuredly brought about the demise of the hatter's sanity. The chemical element mercury.

Mercury is found in all fluorescent and HID lamp sources. According to the EPA's "Lighting Waste Disposal—Lighting Upgrade Manual" from the Green Lights Program (July 1994), the small quantities of mercury found in these lamps can "be potentially harmful to the environment and human health." Mercury is a chemical that is regulated under the Resource Conservation and Recovery Act (RCRA—EPA).

Energy-efficient federal programs promote the conversion to these high efficacy lighting sources. To ensure that the industry continues their conversion to premium efficiency illumination products, the issues surrounding the proper handling of spent lamps must be resolved through a definitive position paper by the governmental agencies involved in the promotion of energy efficiency.

Under the current set of federal regulations, mercury-containing lamps may be a hazardous waste. The lamps also contain lead, further compounding the disposal problem. End-users can no longer just throw lamps into the trash container and have them carted off to the local landfill without a potential liability from the common leaching of the lamps' toxic sub-components. The RCRA requires that the generators of waste that contain known toxic carcinogens perform a test on representative samples of the spent lamp waste to be deposited into the landfill.

Generators of the spent lamp waste are responsible for determining the non-toxicity of their lamp wastes. The Toxicity Characteristic Leaching Procedure (TCLP) is designed to protect the aquifers that are adjacent to the landfills. If the mer-

cury concentration exceeds 0.2 milligrams per liter of waste, then the lamp is considered a hazardous waste, and should be managed in that manner. The results of the tests are positive more often than not; so don't waste your money on the test.

If the waste generator of used lamps chooses not to perform the required testing, it is the advice of the EPA to dispose of the lamps as hazardous waste. If you should decide to perform the test for each type of lamp to be disposed, the cost is approximately \$140 per lamp-type and lamp brand. To learn more about the testing procedures and your responsibilities regarding storage, transportation and the disposal of mercury-containing lamps, call the RCRA hotline at 800-424-9346; in the District of Columbia, call 703-412-9810.

Sure, some exemptions may be available to small generators (fewer than 300-350 four-foot T12 lamps, or 400-450 four-foot T-8 lamps per month). Generators that dispose of their lamps in these quantities may be allowed to continue to do so under one of the EPA's proposals. But the EPA encourages all individuals to dispose of their hazardous lamps in a responsible manner.

Generators of a pound or more of mercury to a disposal site within a 24-hour period (roughly 11,000 four-foot T12 lamps), must notify the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)—National Response Center at 800-424-8802.

DISPOSAL: CONSEQUENCES & COSTS

Even after you've determined that you were exempted from performing the RCRA-TCLP testing, and you were able to keep your waste-stream down below the limitations of the potential exemption-clause, you may still be held liable for the generation of toxic waste:

Several years after the landfill has begun to leach mercury and lead into the aquifer, the affected city/town performs an investigation on the suspect landfill. The town brings in the EPA to aid in the investigation, and the EPA concludes that the landfill will be considered a Superfund-type of site. CERCLA, all generators providing manifested shipments to the landfill, and any other evidence that is unearthed (a lamp container with the shipping address still attached) connecting the waste to any landfill contributors, can be named as, and held liable in subsequent Superfund cleanup costs.

The costs to dispose of a lamp can be quite expensive as you can see. But there are also the hidden costs...Mercury is a bio-accumulative element and continues to be a problem within all stages of the food chain. In fact, 32 states have issued health warnings with regard to the elevated mercury levels found within their freshwater fisheries.

The disposal of over 535 million fluorescent lamps annually spawns an annual release of over 34 tons of mercury into America's landfills. Although this represents less than 0.5 per-

cent of the total mercury released to the environment by man-made sources, it is still an area where we can effectively and economically control our introduction of carcinogens to the environment.

Some states have recognized the need to write legislation on this issue, and have taken the lead in assuring that the mercury from lamps is handled appropriately. The table included here is from the EPA's Green Lights Program "Lighting Waste Disposal—Lighting Upgrade Manual."

The components of most mercury-containing lamps can be broken down to yield useful by-products. The mercury can be recovered from the phosphor component through distillation. Mercury is then reused for thermostats or electrical switching components. The lamp endcaps can be sent to an aluminum recycler for re-manufacturing. The glass portion of the lamp can be re-manu-

factured into non-food goods such as glass fiber, or fill in cement or asphalt. All residues should be tested to insure low levels of cadmium and selenium (carcinogens).

The recycling of lamps reduces their burden on the landfills by almost 90 percent with the reduction in waste volume. Recycling costs are not too far out of line with those associated with disposal:

The cost to dispose of a four-foot T12 lamp is approximately 25-50 cents excluding the costs of transportation, packaging and profile fees. Disposal also carries the unseen potential costs of clean-up (if the landfill leaches mercury). The cost to

LAMP DISPOSAL REGULATIONS	
STATE	COMMENTS
CA	Over 24 lamps per 24 hour period must be disposed of as hazardous waste.
FL	After July 1, 1994, lamps may not be burned in any municipal incinerator. Generators > 10 lamps/month must arrange disposal in permitted lined landfills (unless prohibited by Department rule after July 1, 1994).
IL	Lamps exhibiting the toxicity characteristic are subject to hazardous waste management. EPA has enforcement authority in IL.
IN	Subject to RCRA through TCLP testing and may be regulated as hazardous waste under 329 IAC 3.1.
KS	Determined on a case-by-case basis.
LA	Considered hazardous waste.
MA	Can be shipped to recycler without manifest.
ME	Lamps failing TCLP are handled as hazardous waste, including hazardous waste transporter requirements.
MI	Recommend that lamps are considered hazardous waste and are recycled.
MN	Mercury-containing lamps must be stored according to Minnesota Pollution Control Agency (MPCA) guidelines and shipped to an existing recycling facility in accordance with MPCA requirements.
PA	Landfill only when certification shows that waste has passed the TCLP.
RI	Treat as hazardous waste. Log system is used for transporters and generators.
SC	Some landfills ban disposal.
TX	Must be disposed or recycled at a permitted hazardous waste facility.
WI	Hazardous waste lamps and bulbs (including lamps with high lead concentrations) may not be placed in a solid waste landfill. Lamps and bulbs that are recycled are subject to hazardous waste management requirements.

recycle a four-foot T12 lamp is about 40 cents. There are no further costs to the customer when using a permitted/licensed recycler.

Qualified recyclers are permitted on state and federal levels. Although the current capacity for recycling of fluorescent lamps is about 120 percent of the total waste-stream, the consumer demand for this environmentally responsible method of lamp disposal will surely result in higher capacity, higher efficiency and lower cost recycling plants.

It's your choice whether to dispose of lamps in the common waste-stream, dispose of lamps as a hazardous waste, or recycle the lamps. The environmentally conscientious action is quite evident to this author: RECYCLE! But, if you should do otherwise, be sure of one fact: Think twice before you throw away that lamp...it could cost you a lot more than you think!

REFERENCES

U.S. Environmental Protection Agency, "Lighting Waste Disposal," in Lighting Upgrade Manual—USEPA Green Lighting Program, July 1994.

"Proper Disposal of Lamps & Ballasts is a Key Service of the Lighting Service Company," R.M. Quintal of Global Recycling Technologies, Inc., in NALMCO's Lighting Management and Maintenance, September 1994.

Gary Markowitz, MIES, is a member of the Editorial Advisory Board of Architectural Lighting.

SPECIFYING EMERGENCY EXIT SIGNS FOR SAFETY, EFFICIENCY & SAVINGS

The power demand of a typical exit sign ranges from 24 to 40 watts, depending upon the kind of lamp used. That energy usage may not seem like much—until it is multiplied by the 24-hour-a-day and 365-day-a-year required operating time. The result is a consumption of 210 to 350 kilowatt-hours per year for each exit sign. Consider the thousands of exit signs existing in high-rise office buildings across the country, and the selection and maintenance of exit signage becomes a significant issue in terms of energy usage, cost savings and employee safety.

There are five basic lamps and light sources used in exit signs on the market today, each varying in rated life and energy usage:

Incandescent Lamps. Typically, incandescent exit signs use two 12-watt lamps and have a rated lamp life of six months. Miniature incandescent light panels of 15 watts each are also available with lamp life of up to 20 years.

Fluorescent lamps. Bi-pin (two 6- or 8-watt lamps) or compact fluorescent lamp (two 5- or 7-watt lamps) versions that

duced. The luminance depends on the voltage and its frequency; the color of light, on the phosphor used. These lamps can result in reduced energy consumption and will last up to about eight years.

Radioluminescent tubes. These tubes produce light from a phosphor irradiated by beta particles emitted by tritium gas. The color of light is determined by the phosphor used. Manufacturers of radioluminescent tubes must be licensed by the U.S. Nuclear Regulatory Commission.

LEDs. LED exit signs are available that use both digital design and back-lit LED panels. Some products consume less than 7 watts per face and will operate for up to 20 years under normal conditions.

Light sources must be compatible a range of AC/DC power supplies and lighting equipment, including unit equipment and inverters, central DC and inverter systems, standby generators and floor proximity path marking.

EXIT SIGN TYPE COMPARISONS

LAMP SOURCE	COST	ENERGY USAGE (watts)	LAMP LIFE (years)	COMMENTS
INCANDESCENT	100	14-40	.6	HIGH ENERGY USE; SHORT LAMP LIFE
FLUORESCENT	200	18-30 (including ballasts)	1.2	MODERATE ENERGY USE; MODERATE LAMP LIFE
LIGHT PANEL	200	15	20	LOW ENERGY USE; LONG LAMP LIFE; UNEVEN ILLUMINATION
ELECTROLUMINESCENT	300	.5 (per face)	8	LOW ENERGY USE; MODERATE TO LONG LAMP LIFE; LOW ILLUMINATION LEVEL; HIGH LAMP REPLACEMENT COST
TRITIUM	800+	0	10	NO AC INPUT REQUIRED; SIMPLE TO INSTALL; RADIOACTIVE MATERIALS USED; LOW ILLUMINATION
LED	300	7 (per face)	20	LOW ENERGY USE; LONG LAMP LIFE

Table courtesy of Dual-Lite

offer rated lamp life of about 18 months can save energy, but ballast wattages must also be taken into consideration. The required ballasts draw power and also can be a significant source of heat. Power factors will vary resulting in wide variation in energy demand.

Electroluminescent light sources. Electroluminescent panels are composed of a thin layer of phosphor-impregnated material placed between two layers of conducting material, one of which is clear. When voltage is applied to the phosphors, light is pro-

RETROFITTING EXIT SIGNS

The time and complexity involved in installing exit signs varies with the product. Some incandescent signs can be altered to take fluorescent lamps using a retrofit kit. Replacement kits using LEDs have also been introduced, but the installation process is more complex.

The benefits of using retrofit kits can include energy savings, possible utility rebates, longer lamp life and lower operational costs. However, caution must be administered by build-

ing owners, engineers and installers in evaluating the benefits versus the expense of meeting local and state codes, for safety as well as electrical usage. There are many conditions of acceptability which could negate any advantage to using them. Evaluation before selection should include an investigation of the specific application, ballast wattages, power consumption, illumination characteristics and maintenance expenses.

EXIT SIGN FORMATS

- Exit sign units come in four types of formats:
- *Edge-lit.* A transparent plate with letters etched into or attached to its surface is illuminated from within the housing. Incandescent and fluorescent versions of this type are popular.
 - *Matrix.* Points of light, commonly LEDs, form the word "exit" in an opaque background.
 - *Panel.* In an open-faced or panel unit, both the letters and background are made luminous, typically by an incandescent or fluorescent source.
 - *Stencil.* Any light source can be used to achieve the stencil format, in which the letters are luminous against an opaque background.

The National Fire Protection Agency (NFPA) also has set requirements for letter height and width, the amount of separation space between letters, and the individual stroke width in order to make the sign readily visible in an emergency.

Exit signs are required by the NFPA's National Electric Code to operate both with and without utility supplied power. Alternative power supplies allowed include:

- a generator that supplies power at the same voltage and frequency as the utility
- a central, rechargeable battery unit, with or without an inverter, that converts direct current into alternating current
- an individual rechargeable battery that is attached to each exit sign.

CONSTRUCTION & COLORS

Housings can be constructed of a variety of materials, including plastic, fiber glass, aluminum and steel, which is pressed, cast or extruded. These materials differ in weight, fire resistance and impact or tamper resistance. The materials also may limit the types of retrofit kits used to make an existing sign more energy efficient. For example, some kits cannot be used in a plastic unit because of possible thermal damage.

Single-faced units are designed to be visible from one direction. Two-faced units are made to be read from opposite directions (both sides). Exit signs may be recessed into a wall, surface-mounted on a wall in a flat or perpendicular position, surface-mounted on a ceiling, or suspended on a pendant.

A range of color combinations is available and includes red or green letters on a white, black or aluminum background, or white letters on a red or green background. In addition, the

background finish helps determine the visibility of the sign. With stencil and matrix signs, for example, the luminance contrast varies with the level of ambient lighting. Check local codes for possible color limitations.

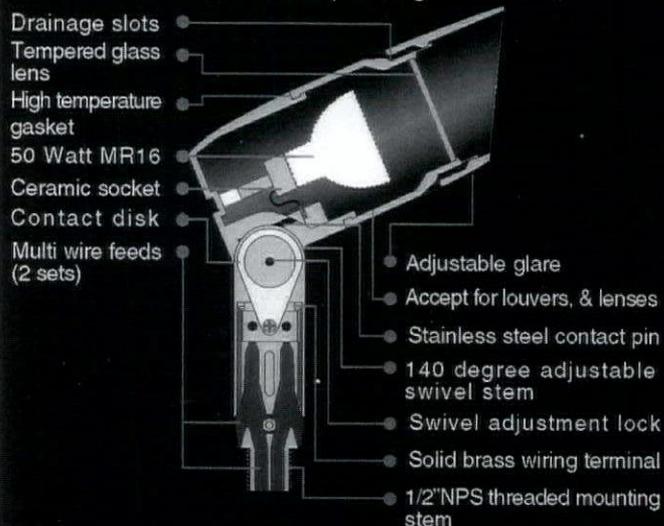
It is recommended that the same color combination be used throughout a building to help occupants easily identify the signs. To avoid confusion, it is also suggested that this same color combination be avoided to identify anything other than exits.

Exit signs need to be inspected at the intervals specified by the local jurisdiction. UL-listed signs that operate from a battery when the utility supplied power fails must be equipped with an accessible test switch and a power supply status display.

The Lighting Research Center at Rensselaer Polytechnic Institute in Troy, NY has a Specifier Report entitled "Exit Signs," which details energy-efficient, internally illuminated exit signs and retrofit kits as part of the National Lighting Product Information Program. The publication provides general information, as well as manufacturer-supplied information. For ordering information, fax 518-276-2999.

FOR PROFESSIONAL USE ONLY

CAMBRIA CAT #253 Patent pending



**A CORROSION PROOF COMPOSITE HALOGEN
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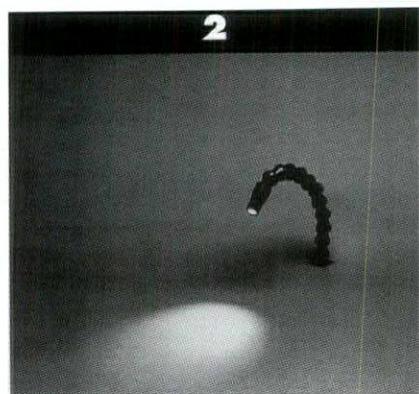
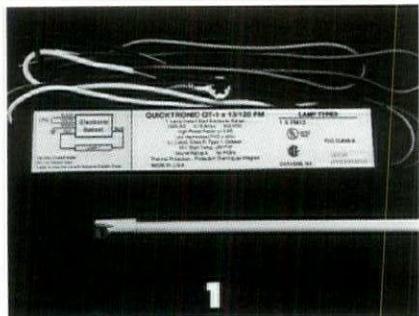
31360 VIA COLINAS #101, WESTLAKE VILLAGE, CA 91362 TEL (818) 991-2211

1. SUBMINIATURE FLUORESCENT

Osram Sylvania Inc. has introduced a sub-miniature fluorescent lamp-ballast system that consists of four lamps in lengths of 8, 12, 16 and 20 inches, which correspond to wattages of 6, 8, 10 and 13, and light outputs of 310, 500, 680 and 860 lumens, respectively. All have a diameter of 7 millimeters and are intended for use in general and specialty lighting applications including modular office furniture. The 3000-degree Kelvin lamps have a triphosphor coating, which provides a CRI of 80. Osram Sylvania Inc., Danvers, MA. **Circle 40**

2. FLEXIBLE FIBEROPTIC SPOTLIGHT

FiberTwist incorporates Fiberstars' FiberSpots fiberoptic tubing, which con-



sists of hair-thin fiberoptic strands inside an opaque outer tubing. One end of the fiberoptic tubing is attached to the illuminator; the other end emits light through the fixture. FiberTwist can be rotated in a 360-degree angle. It can be used in commercial and residential landscape applications, and museum, marine and task lighting. Fiberstars, Inc., Fremont, CA. **Circle 41**

3. EUROPEAN GLASS PENDANT

The Streamers Pendant from Boyd Lighting is made with subtly etched, white European glass, leaded crystal drops and hand-slumped glass ribbons offered in six colors.

Multiple height options and incandescent lamping are standard. Doyle Crosby designed this luminaire to create visual excitement in restaurants, hotel and theater lobbies, reception areas, and residential interiors. Boyd Lighting Company, San Francisco, CA. **Circle 42**

4. DIFFUSED INCANDESCENT FIXTURES

The Arpasia Series includes ceiling, wall



table/bedside table, table and floor models. Shown is the Arpasia Table Luminator 30/40, which provides direct and diffused incandescent light. The diffuser is made from etched white, hand-blown glass, and the base is natural anodized aluminum with a mahogany wood ring detail. The unit measures 5 3/4 inches wide by 16 1/2 inches

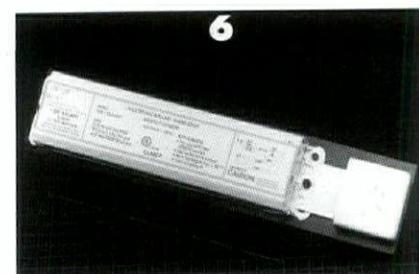
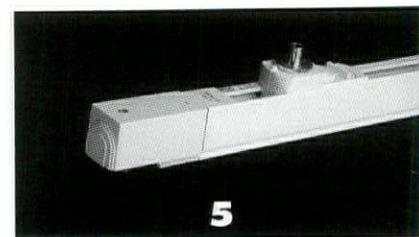
high. A bedside table version is also offered at 4 3/4 inches wide and 11 1/4 inches high. Artemide, Inc., Farmingdale, NY. **Circle 43**

5. MULTI-CIRCUIT TRACK

The Nokia Aluminium track head adapter allows the connection of fixtures from almost any vendor to the track. The multi-circuit track can serve in a three-circuit, or two-circuit/two-neutral configuration, making it appropriate for applications requiring a specification grade track with the ability to handle higher power loads, yet having wider control options. It is well-suited for either line or low voltage. Kaltek, Inc. (representing Nokia Aluminium in North America), Atlanta, GA. **Circle 44**

6. DIMMABLE FLUORESCENT BALLAST

The three-lamp Dimwatt electronic ballast series will dim T8, T12 and most compact



fluorescent lamps. The Stocker & Yale Dimwatt ballasts also provide continuous full-range dimming from 100 to 20 percent light output. The ballasts are suited for use in hotels, hospitals, restaurants, schools, conferences and similar facilities. Stocker & Yale, Inc., Beverly, MA. **Circle 45**

7. QUAD LAMP & REFLECTOR

The new generation OmniFlood uses the same 13-watt quad lamp, but amplifies light output by nearly 50 percent. A redesigned reflector picks up and redirects the light, generating a center-beam light intensity unequalled in the industry. The new reflector is designed with parabolic curves to match the distinct patterns emanating from the quad fluorescent. OmniFlood is also one of the smallest floodlights available. The adapter is completely redesigned into a ring

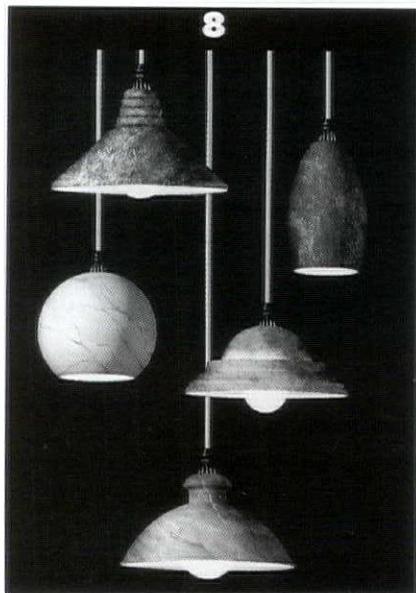
shape, allowing the lamp base to nest inside the adapter. A base locking device is available as an option for use with utility programs. ProLight, Holland, MI. **Circle 46**

8. DECORATIVE PENDANT COLLECTION

The Radiance Collection of pendants from Justice Design Group are crafted in Ceramlight, a safe, kiln-fired ceramic composite developed by the company. The bisque finish fixture is ready for custom painting in any color. Finish it yourself or have Justice custom paint it at a non-custom price. The units are also available with specialty finishes, including Faux Patina and Faux Marble, hand-applied by Justice Design's skilled artists. Justice Design Group, Culver City, CA. **Circle 47**



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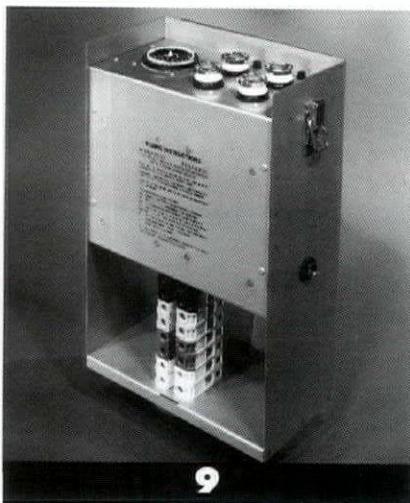
9. OUTDOOR POWER CENTERS

Nightscaping announces its SS-Series Power Centers for outdoor lighting applications. Each center consists of a 100-, 150-, 250-, 500- or 1000-watt Nightscaping, 12-volt outdoor lighting transformer mounted inside a sturdy Raintite stainless steel case, optionally supplemented by a built-in time

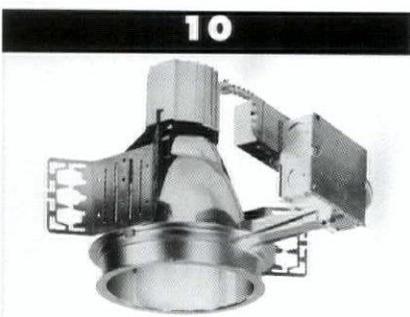
switch and/or photocell, or Smart Controller receptacle. (Smart Controller is Nightscaping's solid-state, multi-function lighting controller.) Power Center includes easy-to-set top-mounted controls. Nightscaping by Loran Inc., Redlands, CA. **Circle 48**

10. FOUR-PIN COMPACT FLUORESCENT DOWNLIGHT

Halo Lighting offers housings for a four-pin compact fluorescent PLT lamp. The Halo



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C700 downlight and C701 downlight wall wash feature vertical positioning of the compact fluorescent lamp. Because the PLT's maximum length is shorter than its Quad tube or Twin tube counterpart, the lamp is not as deeply recessed into the fixture, and optical efficiency is improved. Both unit types use an electronic ballast as standard and are 7 3/8 inch aperture, low-brightness fixtures. A low iridescent Alzak reflector has 45-degree visual cutoff, and a single position socket cap maintains lamp position. Halo Lighting, Division of Cooper Lighting, Elk Grove Village, IL. **Circle 49**

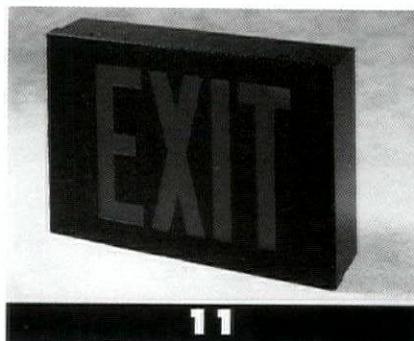
11. LED DIFFUSED EXIT SIGN

The 700 Series Steel Diffused LED Exit Sign has bright, uniform illumination with no visi-

ble LEDs. It is energy efficient, maintenance free, and backed by a 25-year warranty. The 700 Series is offered with emergency lights and a full line of options. Exitronix, Barron Manufacturing Co., Gurnee, IL. **Circle 50**

12. VANDAL-PROOF STEP LIGHTS

Roberts Step-Lite Systems' V-Series cast-in-place lighting is virtually vandal-proof and can be used in any application where the extrusion can be cast into the step material, such as concrete, terrazzo and Bomanite. For indoor or outdoor applications, the V-Series is custom made to exact dimensions and there is a choice of five, 10 or 25 footcandles of continuous, uninterrupted light from a concealed source in lengths up to 20 feet in a



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single fixture. The system operates on either a 12- or 24-volt energy efficient power supply. Roberts Step-Lite Systems, Oklahoma City, OK. **Circle 51**

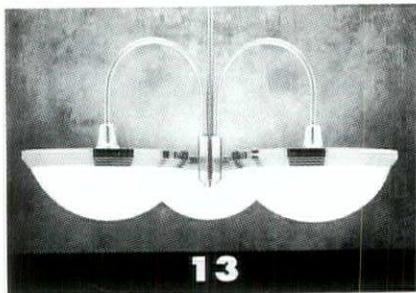
13. COMPACT FLUORESCENT DECORATIVE LUMINAIRES

Lam Lighting Systems has adapted multiple configurations of high-output, low-wattage, compact fluorescent light sources to the Imperial Series, its line of nonlinear, ceiling-suspended pendant and cluster fixtures and wall sconces. The compact fluorescent light sources are offered as a specifiable option in any Imperial fixture, in place of high-intensity discharge metal halide sources. The Imperial Series can be ordered with either three or four biaxial compact flu-

orescents (depending on model size) arranged in either a triangular or square pattern inside the perimeter of the unit's translucent white acrylic or patterned alabaster-look diffuser. A choice of one, two or three additional biaxial compact fluorescents may be specified deeper inside the globe, to illuminate the globe, and cast diffused light downward, for a combined direct/indirect effect. Lam Lighting Systems, Santa Ana, CA. **Circle 52**

14. HALOGEN TRACK LINE

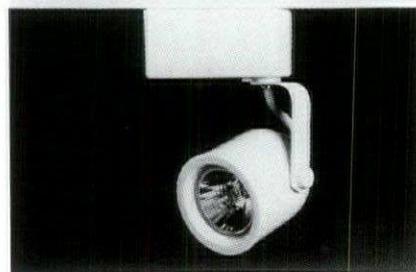
The W.A.C. Lighting line of low-voltage track heads is designed to accommodate MR 11, MR 16 and PAR 36 lamps. Shown is the HT 808 style. The track head is available for use with a 12-volt/20, 50- or 75-watt, MR 16 halogen lamp. The unit includes the trans-



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former, and is offered with a black or white finish. It is 3 1/4 inches long, 2 3/4 inches in diameter and has a maximum extension of 6 1/2 inches. The units are offered for two- and three-wire tracks, in residential and commercial applications. W.A.C. Lighting Company, College Point, NY. **Circle 53**

15. COMPACT FLUORESCENT TRACK

Lyteflood track system includes three adjustable designs: Lyteflood Scoop 13 uses two 13-watt quad tube lamps contained in a low-scale scoop shaped housing; the Lyteflood L (shown) is a thin-profile tubular shaped fixture that mounts close to the track; and the Lyteflood 39, a high-intensity

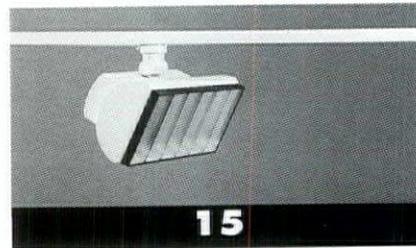
track mounted floodlight for large wall areas. Lightolier, Secaucus, NJ. **Circle 54**

16. OUTDOOR PENDANT-MOUNT

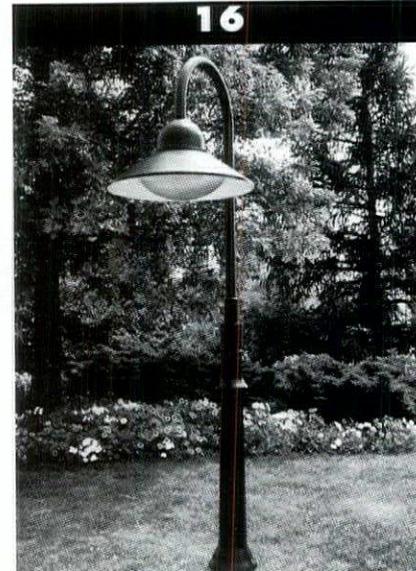
Quality Lighting's Design ASP features a one-piece die-cast aluminum housing and stainless steel external hardware for corrosion resistance. The fixture's polycarbonate lens is gasketed to the housing. The reflector system produces an even Type II lighting distribution, and is for use with PLC lamps to 28 watts, high-pressure sodium lamps to 150 watts, and metal halide lamps to 175 watts. Optional mounting includes one, two, or three pendant arms for post-top mounting or a bracket for single fixture wall mounting. Quality Lighting, Franklin Park, IL. **Circle 55**

17. FLOOR & TABLE LAMP

Tuxedo, designed by Piotr Sierakowski, is inspired by the elements of fire and ice. The



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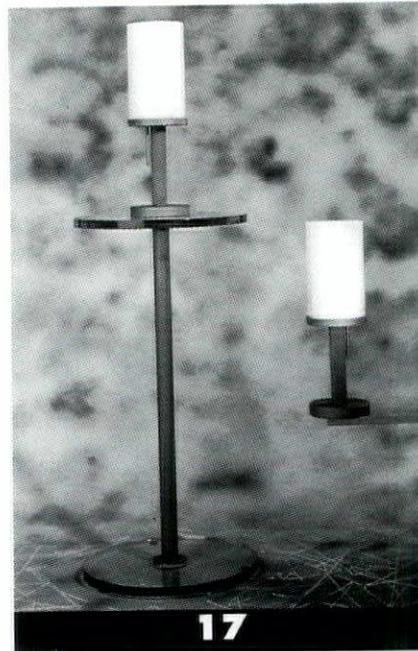
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fire is the light source diffused via triplex opal glass. The ice is stainless steel and the clear glass table on the cocktail version. The floor lamp is 40 inches high with 4-inch diameter diffuser, and a glass table and base 13 inches in diameter. The table lamp version is 14 inches high with 4 1/4-inch diameter base and 4-inch diameter diffuser. Both

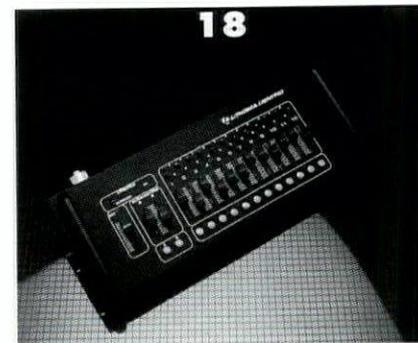
use one 100-watt A lamp. Louis Baldinger & Sons Inc., Astoria, NY. **Circle 57**

18. STAGE LIGHTING & CONTROLS

Lithonia Lighting introduces stage lighting and controls designed to meet budget con-



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straints and performance requirements of smaller applications such as school cafeterias, churches and presentation centers. The components include an ellipsoidal spotlight with lensing options; a fresnel spotlight with short-throw, soft-edged beam; a PAR 64 hood spotlight for higher light levels; and a portable borderlight with alternating color circuits for a smooth wash on stage or scenery. Controls include a 12-channel, single-scene portable control console suite for desktop operation or rack mounting; a NEMA 1 wall-mounting dimmer cabinet with 12 2,000 watt dimmers; and a variety of plug strips and plug boxes to connect the components. Lithonia Lighting, Conyers, GA. **Circle 56**

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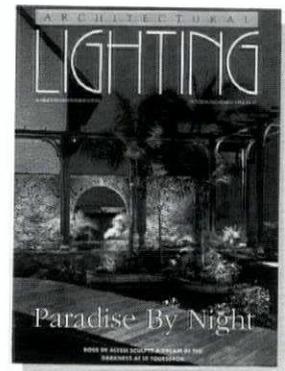
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