

ARCHITECTURAL

# LIGHTING

FEBRUARY 1991 \$6.00

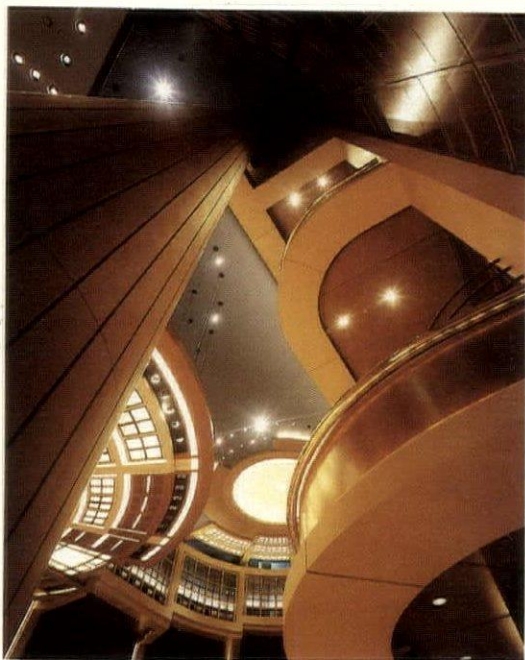
Pei  
Palace

MEYERSON CENTER

**DESIGN FOCUS:  
PUBLIC SPACES,  
LIGHTFAIR PREVIEW**

ARCHITECTURAL  
LIGHTING

FEBRUARY 1991  
VOLUME 5, NUMBER 2



COVER PHOTO BY R. GREG HURSLEY

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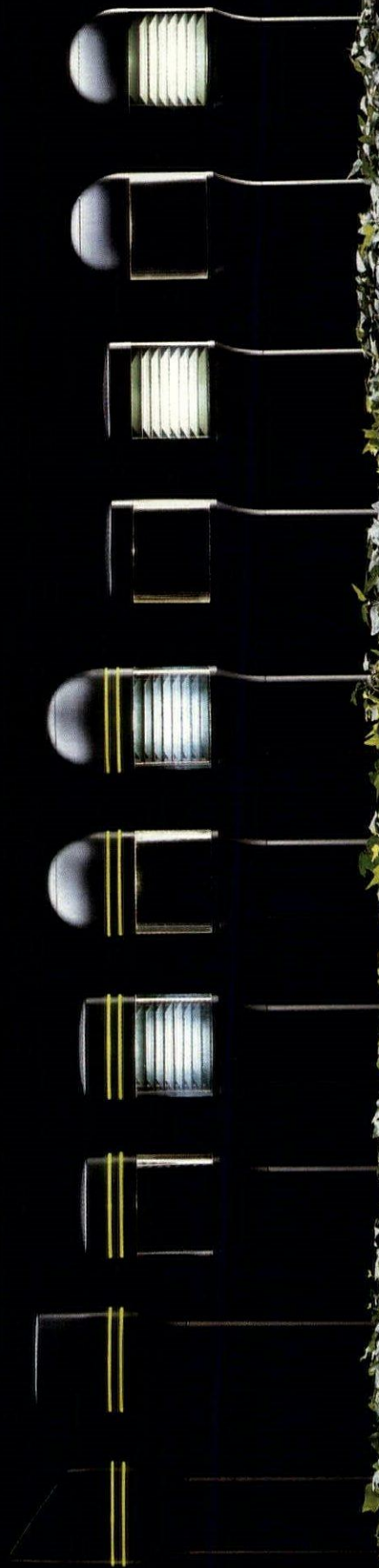
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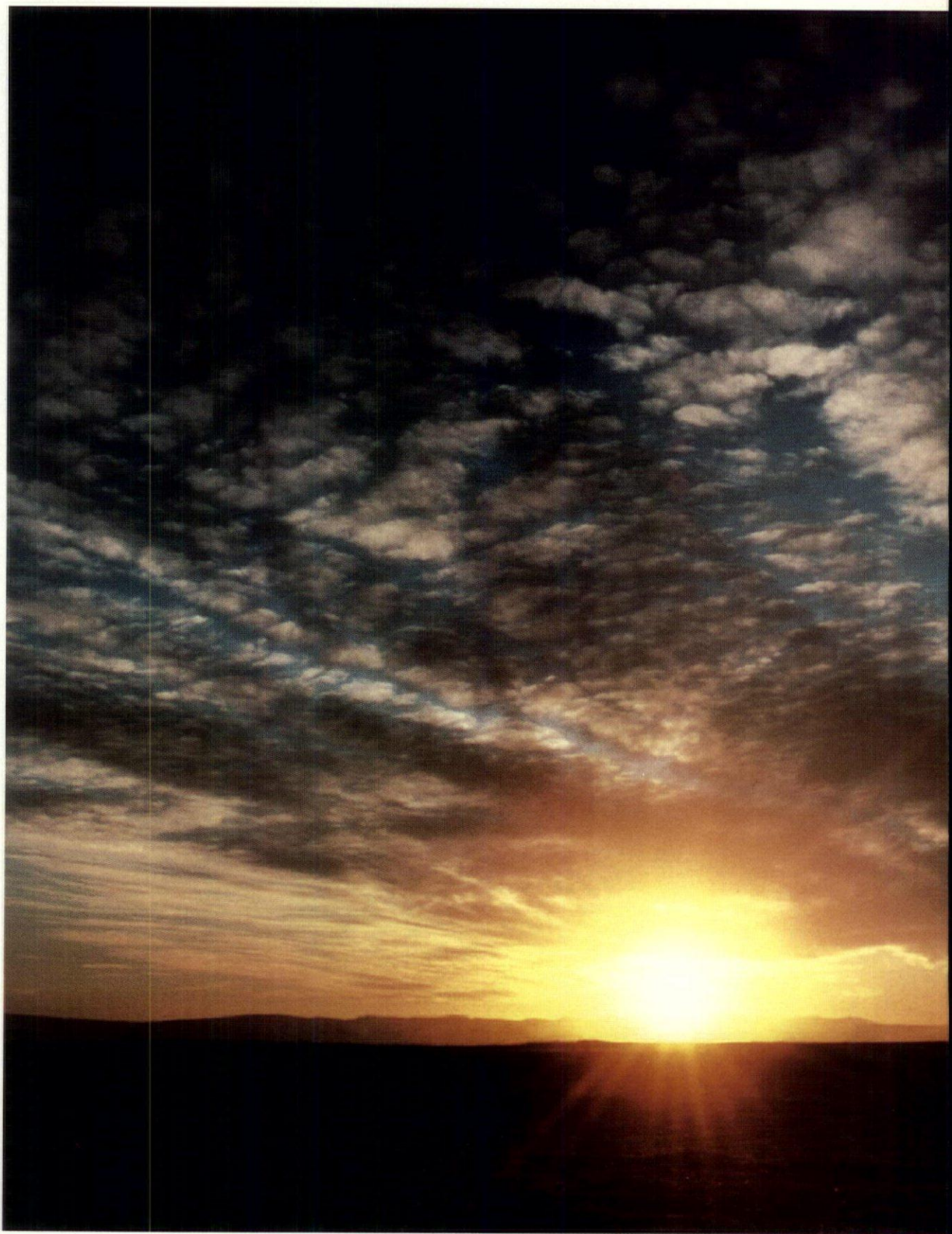
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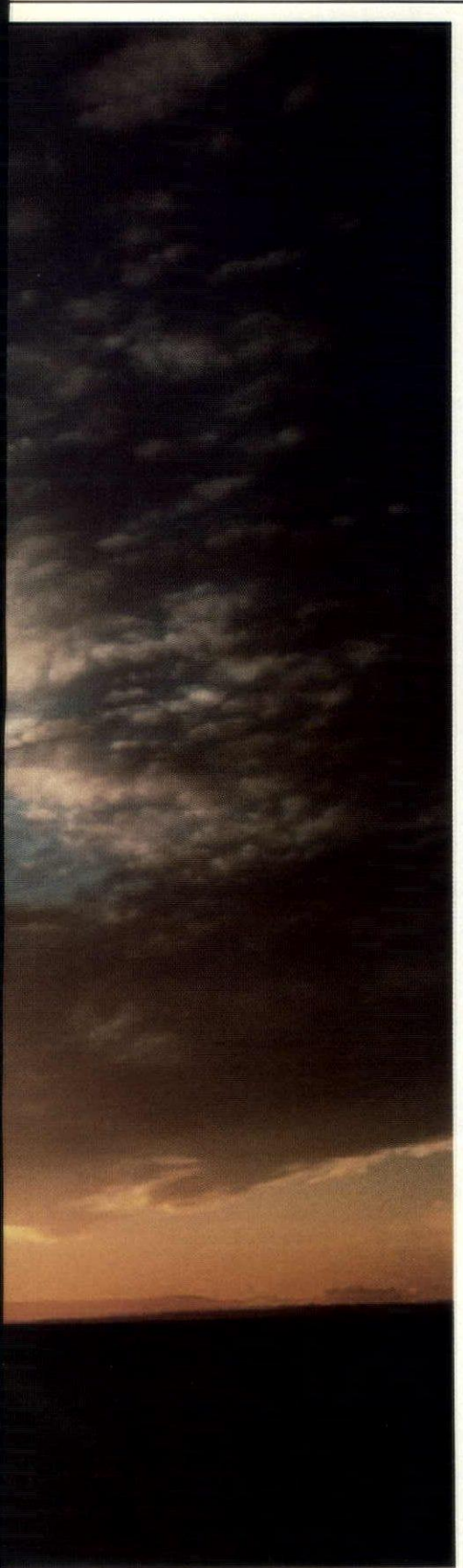
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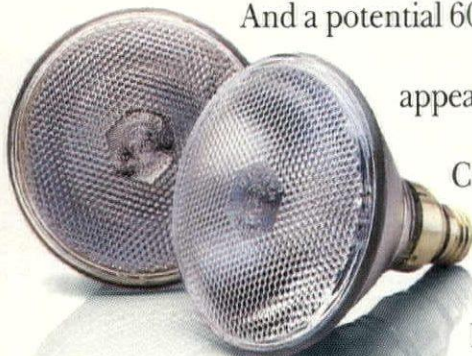
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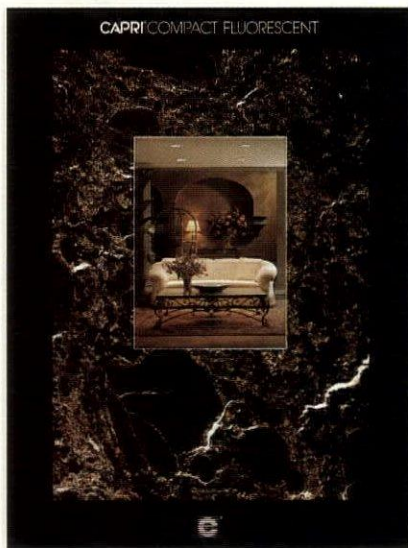
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## Good Marketing Key To Good Business?

### TO THE EDITOR:

I have hesitated writing this letter in response to your October 1990 editorial, "The Business Bust—Up Close and Personal," because it is difficult to respond to the points raised without seeming to

disparage the business practices of a fellow lighting designer. However, there are two overriding factors which forced my decision.

1. Concerned calls from business associates around the country who

wrongly assumed Lighting Professionals, Inc. might be the anonymous firm in your editorial, which referred to a female-owned concern in New Jersey.

2. Because our own results in the past year have been so clearly different from your interviewee's, your readership should have an alternate perspective concerning the lighting design marketplace in New Jersey.

Like your anonymous designer, we at Lighting Professionals, Inc. actively solicit new business with techniques similar to those listed in the editorial. However, our success rate for interviews has been approximately five times as great in the same geographic area. Our lighting design revenues have doubled in the past year due to a large increase in residential, commercial and institutional projects.

There are continuing indications of the area's strong interest in illumination science and lighting design. The topic for last autumn's opening meeting of The Architect's League of Northern New Jersey was "Developments in New Light Sources." Over 80 architects were in attendance. The IESNA New Jersey Section has grown to be the nation's largest in the last year.

Certainly the construction market is soft and commercial leasing is off, but this is like the famous "half-empty/half-full glass." A soft market requires the exploitation of previously untapped sources for new business.

In summation, we at Lighting Professionals, Inc. see a far stronger market for the lighting design community. We hope your anonymous designer does not give up. Good marketing can make a difference.

Stephen E. Lohm  
Lighting Professionals, Inc.  
Montvale, NJ

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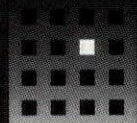
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## WILL LIGHTING'S BENEFITS OUTWEIGH ITS COSTS?

**W**hen the energy crisis hit in the 1970s, lighting organizations were criticized for not doing more to promote themselves and their members. After all, good lighting designs that were energy efficient required a greater degree of expertise to be created and carried through than energy wasteful ones. So information on lighting and experts in the field were supposed to be more in demand than ever, right?

Well, some young lighting designers who were hopeful that a big lighting explosion would happen—complete with increased public awareness of the value and benefits of lighting—were disappointed and disillusioned. There was no big explosion.

Well, here in the 1990s an energy crisis has come again. Two things are different this time. First, awareness of the value of lighting as a design tool has grown gradually among architects, designers, related professionals, and others in the past decade.

Witness the results of a survey of civic leaders in Pittsburgh regarding what effects the lighting of 12 bridges would have on the city (see page 16 for full details). Leaders believe the bridge lighting “would improve the overall image of Pittsburgh, contribute to the attractiveness of downtown, bring positive national attention to the area, and provide a positive symbol for Pittsburgh.” Additional benefits include “increased tourism, increased private development of riverfront properties, and enhanced pedestrian safety on the bridges.”

The second difference between today's energy crisis and the 1970s crisis is one of magnitude. Although awareness of the benefits of good lighting has increased, so has the gravity of the energy situation.

The irony is that at the same time city promoters like those in Pittsburgh are pushing for public funds to support undertaking new lighting projects for the benefit of the city and its citizens, legislators on the state and federal levels are fighting to pass regulations that in some cases control what components and fixtures are specified in an attempt to cut down on energy usage.

Will awareness of the benefits of good lighting—like increased tourism and public safety—be strong enough incentives for public funds to be allocated to projects like the lighting of the 12 bridges?

Will the lines be blurred between saving energy by using it wisely, and saving energy by not using it?

Keep an eye on Pittsburgh.

**WANDA JANKOWSKI**  
EDITOR-IN-CHIEF

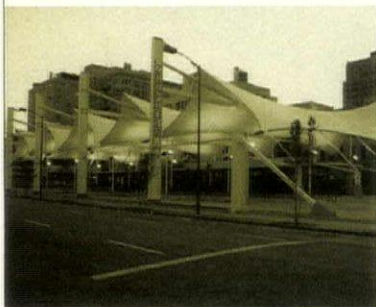
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For complete information and entry forms, call (504) 529-3161. Deadline for entries is April 30.

Call today with your nomination. It will be this year's only opportunity to receive the credit you deserve for lighting up the night!

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LANDMARK SQUARE  
LINCOLN HEIGHTS, OH  
43228

ANNUAL ENERGY ANALYSIS  
USING STANDARD FLUORESCENTS

WATTS/PER MONTH	
1.	86500
2.	82800
3.	81700
4.	79600
5.	77750
6.	72700
7.	70700
8.	73300
9.	70500
10.	90850
11.	91600
12.	82000

960,000

TOTAL WATTS/PER YEAR  
960,000  
÷ 12

AVERAGE MONTHLY WATT  
USAGE  
80,000

GENERAL OFFICES	3530
MANAGERS OFFICES	2354
CONFERENCE RMS. 1-9	2760
	1784
	3330
CAFETERIA	3192
HALLWAY OFFICES	1410
RECEPTION	2748
	3638
	2330
	989
	+ 1935

REST ROOMS  
SQUARE FEET PER FLOOR = 30,000

NUMBER OF FLOORS  
TOTAL SQUARE FOOTAGE = 450,000

OPERATING HRS/YEAR  
4680

TOTAL NUMBER OF FIXTURES  
5,000  
x 4

TOTAL NUMBER OF LAMPS  
20,000

(\$/KWH)  
TOTAL WATTS CONSUMED  
960,000

TOTAL LIGHTING  
ENERGY COSTS - **\$449,280**

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ANNUAL ENERGY ANALYSIS  
USING PHILIPS TL 80 SERIES

WATTS/PER MONTH

- 1. 49 550
- 2. 47 450
- 3. 46 800
- 4. 45 600
- 5. 44 550
- 6. 41 650
- 7. 40 500
- 8. 42 000
- 9. 40 350
- 10. 52 050
- 11. 52 500
- 12. 47 000

550,000

TOTAL WATTS/PER YEAR

550,000  
÷ 12

AVERAGE MONTHLY WATT  
USAGE

45,833

GENERAL OFFICES  
MANAGERS OFFICES  
CONFERENCE RMS. 1-9

CAFETERIA  
HALLWAY OFFICES  
RECEPTION

REST ROOMS

SQUARE FEET PER FLOOR

NUMBER OF FLOORS  
TOTAL SQUARE FOOTAGE

OPERATING HRS/YEAR

TOTAL NUMBER OF FIXTURES

TOTAL NUMBER OF LAMPS

(\$/KWH)  
TOTAL WATTS CONSUMED  
TOTAL WATTS SAVED

TOTAL LIGHTING  
ENERGY COSTS -

3530  
2354  
2760  
1784  
3330  
3192  
1410  
2748  
3638  
2330  
989  
+ 1935

30,000  
x 15  
= 450,000

4680

5,000  
x 4  
20,000

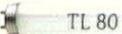
\$ 0.10  
550,000  
410,000

**\$ 257,400**

Using Philips TL 80 Series.

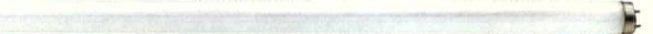
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# PHILIPS

## SURVEY SAYS ENERGY, CONSUMER EDUCATION CRITICAL ISSUES

**D**espite recently heightened concerns over U.S. energy costs and fuel availability, 26 percent of electrical contractors indicate that their customers "seldom" request energy saving lamps, while another 27 percent indicate a request for them only "some of the time," according to the results of an energy survey conducted by GTE's Sylvania Lighting Division-U.S.

Another key finding of the survey was that electrical contractors believe that the government has taken the lead in installation of energy saving lighting, relative to private sector buildings.

The national survey of non-residential electrical contractors pointed to essential philosophical differences between contractors and their customers, who are primarily non-residential builders and developers.

According to 42 percent of survey respondents, the leading obstacle to selection of energy saving lamps is their higher initial purchase price.

"Energy saving products, which may cost slightly more to purchase, actually save money on electric bills over the long term," explained Frederick B. Howard, vice president of marketing for GTE's Sylvania Lighting Division. "Since lighting accounts for about 25 percent of all electric energy usage, and energy-saving lamps can use up to 40 percent less electricity, the savings can be substantial."

On the brighter side, virtually every electrical contractor

surveyed is convinced that energy saving lighting helps control energy usage. Further, a majority (58 percent) of respondents indicate that more customers are asking them about energy saving lighting. The key to converting more of them is education, respondents say. A mere 6 percent of those surveyed indicate that their customers are "very well informed" about energy saving lamps. Only 36 percent were either "very well informed" or "somewhat informed."

### AN INDUSTRY IN FLUX

The lighting industry has undergone tremendous change over the last five years, survey respondents indicate. Virtually all agree (96 percent) that more energy saving lighting is now available for common applications. In addition, 83 percent of all respondents recommend energy saving lighting more often than before, while 74 percent find that energy savings is more often a leading consideration in new construction lighting decisions.

In addition to new construction impact, energy saving lighting is now more often a primary consideration in system retrofits, according to 65 percent of survey respondents.

According to survey respondents, municipal governments have taken the lead in installation of energy saving lighting. Government facilities and schools were most cited as the types of buildings for which energy saving lamps are frequently selected (72 percent and 70 percent, respectively).

### ISSUES FACING THE LIGHTING INDUSTRY

	Serious In The Year 1990	Serious In The Year 2000	Percent Change	Most Serious In The Year 2000
Base: Total Sample	(102)%	(102)%		(102)%
Attracting and keeping qualified employees	70	78	+ 8%	26
Cost of lighting products	52	60	+ 8%	10
Energy conservation	49	80	(+ 31)%	46
Educating customers about lighting options	34	61	(+ 27)%	10
Availability of environmentally sound lighting products	20	55	(+ 35)%	6

( ) Significantly higher than counterparts in sample at least at the 95% level of confidence.

In contrast, lower percentages of survey respondents indicate that private sector buildings "frequently" choose energy saving lamps: office buildings (61 percent); health care facilities (54 percent); manufacturing plants (50 percent); stores (47 percent); hotels (39 percent); and warehouses (34 percent).

### ENERGY CRITICAL ISSUE IN YEAR 2000

Given Persian Gulf uncertainties, it is not surprising that fully 46 percent of respondents indicate that "energy conservation" will be the "most serious" issue facing the lighting industry in the year 2000. And, while about half (49 percent) say that energy conservation is a serious issue today, far more (80 percent) anticipate that energy conservation will be a pressing issue in the year 2000.

Leading factors driving this perception were anticipated fuel availability problems (38 percent) and a resultant higher cost of fuel/energy (38 percent).

The second "most serious" issue projected for the year 2000 is attracting and keeping qualified employees, according to 26 percent of survey respondents. Seven in 10 regard this as a "serious" issue today and, even more, 78 percent, believe it will remain so in the year 2000. Clearly, electrical contractors are aware of shifting demographics that will have an impact on the pool of available workers over the next 10 years.

In addition to heightened concerns over the workforce and energy conservation in the year 2000, respondents also indicated that the cost and availability of environmentally sound lighting products could prove increasingly worrisome over the years.

More than half (52 percent) of all respondents describe the cost of lighting products as a serious issue now while 60 percent expect it will be as much of a concern in 10 years. Only a small minority of electrical contractors (20 percent) consider the availability of environmentally sound products to be of serious concern at present but 10 years from now, significantly more expect that this will be in the limelight as a serious issue (55 percent).

### 21ST CENTURY LIGHTING PRODUCTS

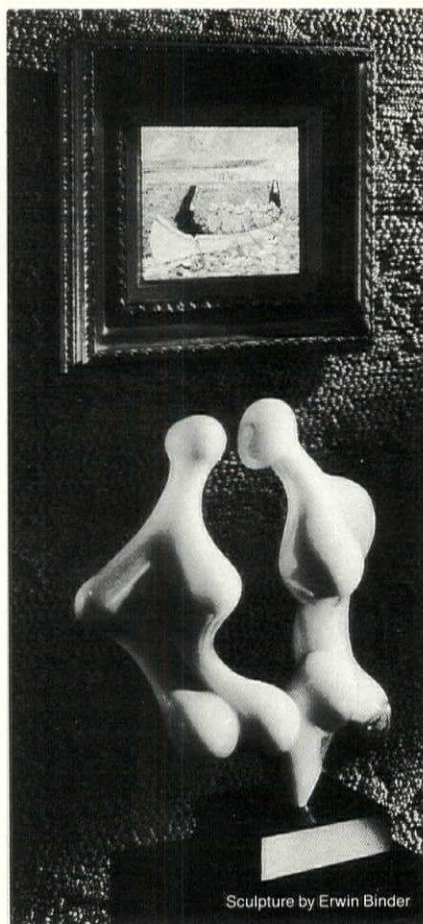
While 34 percent of those surveyed believe that customer education is a "serious" issue today, nearly twice as many (61 percent) believe this will be so at the start of the 21st century. The need for this education may directly relate to the influx of new products, systems, and technologies.

In the opinion of those electrical contractors surveyed, at least four types of lighting products are "very likely" to be in widespread commercial use by the year 2000—and all are energy efficient options. These include: metal halide lamps (54 percent); compact fluorescent lamps (53 percent); halogen lamps (50 percent); and occupant sensitive systems (49 percent).

Interestingly, only 34 percent of electrical contractors forecast that solar-operated lighting will be in general use by the year 2000. Fewer still anticipate that infrared technology (23 percent), T8 lamps (21 percent), or light pipes (13 percent) are "very likely" to achieve popularity in non-residential construction by the year 2000.

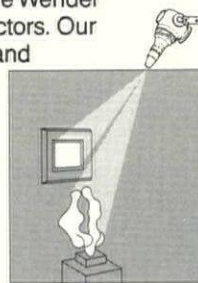
The survey was conducted among a national sample of 102 electrical contractors who specialize in non-residential construction. It was administered by The Wagner Group, a national, New York City-based independent research firm.

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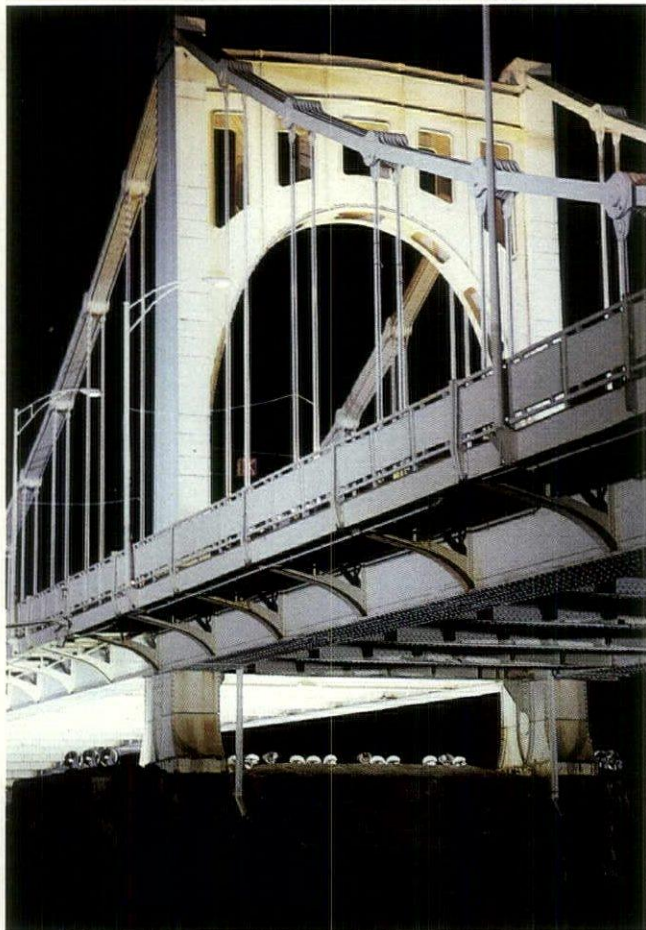
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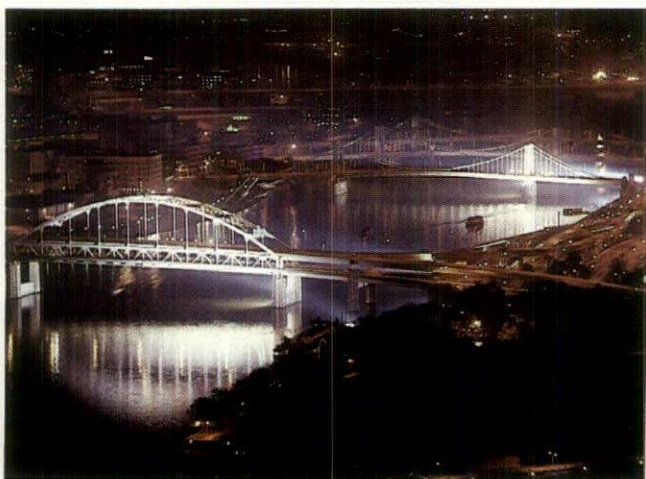
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## AREA LEADERS BACK PITTSBURGH LIGHTING



**SEEING WAS BELIEVING:** Perhaps Pittsburgh civic leaders understand bridge lighting benefits because they had the opportunity to view the test lighting of two bridges (photos above and below). (See "A Glimpse of Brilliant Bridgework," pages 14-15, January 1990 issue.)



**A**rchitectural lighting on Pittsburgh's downtown bridges is a viable and beneficial project, according to a survey of Pittsburgh civic leaders commissioned by the Greater Pittsburgh Office of Promotion and the Urban Re-development Authority of Pittsburgh.

The survey, which was prepared and analyzed by the University of Pittsburgh's Center for Social and Urban Research, reports that 74 percent of the respondents believe that seven or more downtown bridges should be permanently lighted. The leaders also believe that the benefits from bridge lighting outweigh the project's installation and maintenance costs, particularly if the number of lighted bridges is reduced from the original projection of 11 to seven or eight.

Survey results also indicate that each bridge should receive a lighting design appropriate to that bridge's architecture. There should not be one single design that is used on all of the bridges. A single technique or a combination of techniques could be used depending on what best emphasizes the individual bridge's architecture.

"We are very encouraged about the feasibility of the bridge lighting project based upon the overwhelming support among area leaders that this survey has revealed," says Mary C. Poppenberg, president of the Greater Pittsburgh Office of Promotion, the non-profit organization that has coordinated all bridge lighting activities.

Surveyed leaders cite that bridge lighting would improve the overall image of Pittsburgh, contribute to the attractiveness of downtown, bring positive national attention to the area, and provide a positive symbol for the city.

Additional benefits uncovered in the survey include increased tourism, increased private development of riverfront properties, and enhanced pedestrian safety on the bridges. Area leaders are unsure if bridge lighting would improve downtown retail sales and vehicular traffic safety on the bridges.

However, they do not believe that bridge lighting would bring negative attention to the city for wasting money and energy.

The survey also revealed that fund-raising for the project will be difficult due to other funding priorities in both the public and private sectors. Leaders, however, feel that installation and operating costs would best be sought from the public sector.

"This survey is the final chapter in the first phase of the bridge lighting project," says Poppenberg. "We wanted to be sure we had the support of area leaders before proceeding to the next stage, which is selecting the lighting designer. Also, we want to move quickly on the project because two of the key bridges we would like to light—the West End Bridge and the Smithfield Street Bridge—are, or soon will be, under renovation. Installing lights during renovation will be much more cost-effective and cause no unnecessary disruption of bridge traffic."

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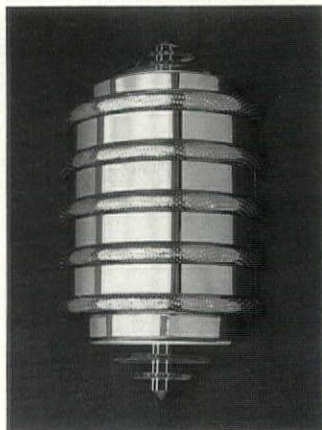
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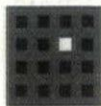
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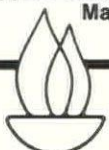
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## 1990 HALO AWARDS PRESENTED TO FOURTEEN DESIGNERS

**F**irst place awards were presented to eight lighting designers at the Fourteenth Annual Halo/Metalux National Lighting Competition for demonstrating originality, creativity, and technical ability using Halo Lighting Power-Trac lighting, incandescent downlighting, and Metalux fluorescent lighting.

The competition, supported by the American Society of Interior Designers (ASID), was established by Halo Lighting in 1977 to increase the understanding and knowledge of lighting among ASID members, and to emphasize the function of lighting as a primary design element.

The 1990 first place winners are:

**THOMAS J. SKRADSKI**, ASID, and **JAMES R. BENYA** of Luminae Souter Lighting Design, San Francisco, for their design at the Bank of the West, San Jose, CA.

**DONALD L. MAXCY** of Design Associates, Monterey, CA, for his lighting design of a contemporary home.

**ANTHONY GRANT** of Tony Grant and Associates, Las Vegas, for the lighting design of the centralized colonnade of a beauty salon/manicure boutique in Las Vegas.

**SUSAN OKAMOTO** of Susan Okamoto, Inc., Seattle, for her design of a private residence located on Manhattan's Upper East Side.

**THOMAS HAUSER** of Designs, Ltd. in New York, for his lighting design of a 2,000-square-foot commercial office furniture systems showroom.

**JAMES CHIEU NING NG** of the Academy of Art College, San Francisco, for his lighting plan of a Gap clothing store.

**EVAN CINDRICH** of Brigham Young University, for his lighting design of an exclusive men's clothing and furnishings store.

**SHARON WENZ** of American River Jr. College, Auburn, CA, for her restaurant lighting design.

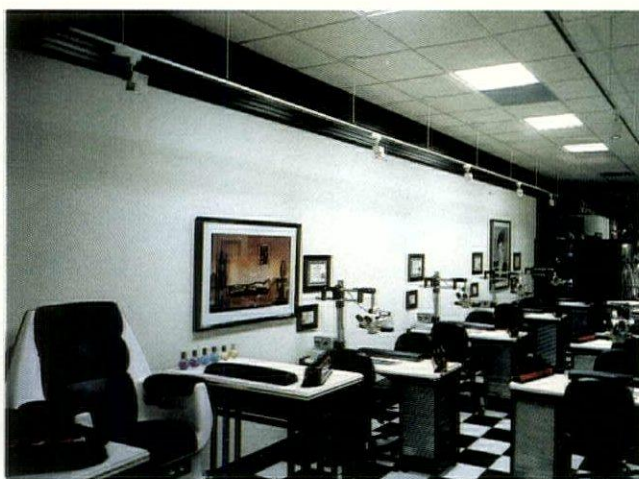
In addition to the first place winners, three professional designers and three design students received honorable mentions for their work. They are:

**MICHAEL SOUTER** and **STEPHANIE CISSNA** of Luminae Souter Lighting Design, San Francisco; **RON FIELDS**, Ron Fields Designs, Los Angeles; **E. SPES MEKUS**, Mekus Johnson, Inc., Chicago; **THOMAS ZIMMERMAN**, Fresno State University, Fresno, CA; **ROB LUNDQUIST**, Utah State University; and **TRINA DUNBAR**, Design Institute of San Diego.

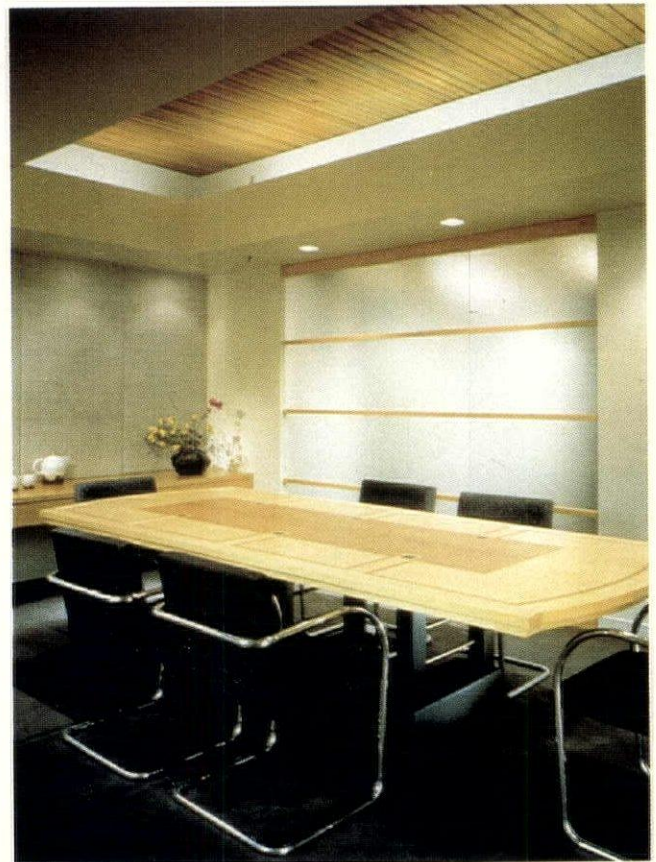
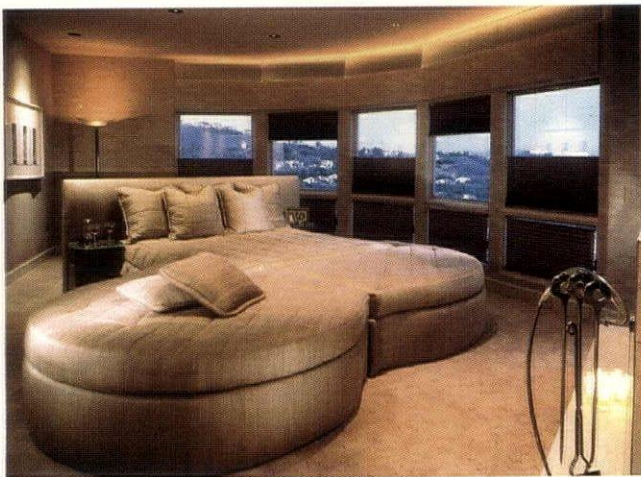
Judges for the competition were: Ausby E. Lee, FASID; Larry Deutsch, ASID; Margaret McCurry, AIA, ASID; and Julie D. Taylor, managing editor, *The Designer*. The competition advisor is Joan Blutter, FASID.



**T**homas J. Skradski, ASID, and James Benya of Luminae Souter Lighting Design, San Francisco, were the winners in the Professional Incandescent Downlighting category for their lighting design at the Bank of the West, San Jose. The photo above shows the use of Halo recessed downlighting illuminating the main floor of the bank.



**A**nthony Grant, ASID, Tony Grant and Associates, Las Vegas, illuminated this beauty salon/manicure boutique using 8-inch incandescent wall sconces and Metalux fluorescent strip lights. The fluorescent lighting was installed in a hidden channel designed in the soffit of the colonnade. The photo above depicts how the lighting combination indirectly illuminates the salon's pitched ceiling.



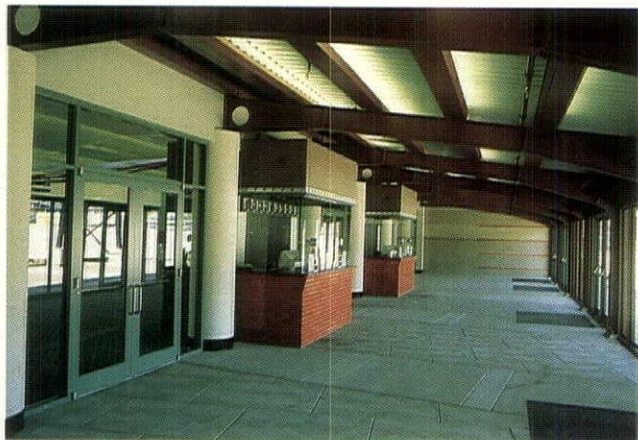
**T**he living room (top), in this home designed by Donald L. Maxcy, ASID, Design Associates, Monterey, California, used Halo Downlighting to complement existing Halo H-7 recessed incandescent lighting already present in the home. His addition of low-voltage recessed lighting created an elegant overall effect. Maxcy was the winner of the Incandescent Downlighting, Residential category. (Above, left) Ron Fields, ASID, Ron Fields Designs, Los Angeles. Category: Professional, Incandescent Downlighting, Residential. (Right) E. Spes Mekus, ASID, Mekus Johnson, Inc. Chicago. Category: Professional, Incandescent Downlighting, Contract.

## CINEMA UNDER THE OVERPASS

BY WANDA JANKOWSKI  
EDITOR-IN-CHIEF



**UNION STATION 10 CINEMA** is nestled under Highway 40 in St. Louis (above). Recessed incandescents graze piers (bottom). Double-thick concrete walls and 8 inches of concrete on the roof block highway noise inside.



**CHALLENGE** Though the site running beneath a portion of Highway 40 had been unused, its value was enhanced when the St. Louis Station retail complex opened adjacent to it in 1985. The challenge for Mackey Associates, P.C., was to design a building housing a 10-screen cinema under the highway.

**DESIGN/TECHNICAL CONSIDERATIONS** Restrictions included easements reserved by the Missouri Highway Department so that the overpass structure would remain available for inspection and maintenance. Also, the large, concrete bridge piers of the highway overpass had to remain in place. Four penetrate the lobby of the building.

**METHOD** Lighting has been designed to enhance the cinema's exterior image by night. The brick facade is washed by fluorescent fixtures mounted along the top of the building. The lobby illumination, seen through an extensive glass wall above the entrance, creates an attention-getting band of light. Red-accented bollards lamped with 150-watt A 21 incandescents illuminate the landscaped areas in front of the cinema. Low-voltage strip lighting has been recessed in the sidewalk bordering the landscaped areas.

The building pays homage to the area's past use as a railway site by incorporating a modern day version of Union Station's steel butterfly shaped shed in the entrance canopy. The canopy is enlivened by clear incandescent lamps installed along its perimeter at 6 inches on center. Indirect, warm-white fluorescent fixtures uplight the creased plaster ceiling in the entry foyer. In the 3,000-square-foot lobby, rather than attempt to conceal the circular piers, each is dramatically lit by eight, 150-watt PAR 38 lamps evenly spaced around the perimeter and concealed within the ceiling. General illumination is provided by incandescent A 21 downlights.

**CONCLUSION** Union Station 10 Cinema is now part of the Power House Place office and entertainment complex. The \$6 million, 42,000-square-foot tenplex seats 2,300 moviegoers.

### DETAILS

**PROJECT:** UNION STATION 10 CINEMA

**LOCATION:** ST. LOUIS

**CLIENT:** GARRETT A. BALKE, INC.

**ARCHITECT AND LIGHTING DESIGNER:** MACKEY ASSOCIATES, P.C.

**ELECTRICAL, INTERIOR:** BUTLER ELECTRICAL CONTRACTING CO., INC.

**ELECTRICAL, EXTERIOR:** ENVIRONMENTAL ELECTRIC, INC.

**GENERAL CONTRACTOR:** KORTE CONSTRUCTION CO., INC.

**PHOTOGRAPHER:** SAM FENTRESS

**LIGHTING MANUFACTURERS:** HALO: general downlights in the lobby; H.E. WILLIAMS: indirect fluorescent fixtures in the foyer; SENTINEL LIGHTING: clear incandescent lamps on the canopy perimeter; BEGA: exterior bollards; ROBERTS STEP-LITE SYSTEMS: walkway lights

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D.  IBD H.  Non-member

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B.  1986 F.  Chicago '90  
C.  1987 G.  LA '90  
D.  1988 G.  Never attended L.W.

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## SPECS—TO HOLD OR NOT TO HOLD?

BY GERRY ZEKOWSKI

*The author is president of Gerry Zekowski Lighting Consultants Inc., Skokie, IL.*

**P**rofits and professionalism are put at risk as a result of the real life battles that occur regarding specifications. Isn't it amazing that this subject of major importance, which must be dealt with on every lighting design project, bar none, has never been exposed in the handbooks of our profession?

I don't believe there will ever be a resolution to this problem anymore than I believe that there could ever be total agreement on who bakes the best apple pie. However, what we can and should do is expose various opinions and thought processes for dealing with this very practical and unavoidable matter.

Specifications and their interpretations were recently addressed in *Architectural Lighting's* Letters column: August 1990, pages 8 and 12; September 1990, pages 8 and 10. I have yet another viewpoint, since I have had experience on both sides of the table, as a manufacturer and a specifier.

Frankly, to write a specification and not hold it is to not have written a spec in the first place. On the other hand, to write a spec that is too tight (often called a "locked" spec) eliminates competitive pricing, and closes one off from the opportunity to learn about alternatives.

My preference is the tight spec, which I believe is the best because fixtures are not generic. I know some specifiers feel that if the fixtures are generally similar in appearance, as listed in a catalog sheet, they can be accepted as equal. Specifiers may give fixtures the "five question test:" do they have the same lamp, height, width, aperture, and top left-hand corner coefficient of utilization (CU).

**"I give warning to those that may try to 'con' me with offerings of 'equals.' I evaluate not just fixture quality, but the manufacturers' and reps' reliability and ethics as well."**

Perhaps specifiers will ask a few more questions to create a simple pass/fail test to determine an equal, but that is far from complete. That is a very common procedure, but not professional since there are many more specific details to determine performance and equality.

### DON'T DEPEND ON LITERATURE ALONE

Fixtures cannot be evaluated from literature alone, not even photometrics. I am hired to represent the owner's interest in selecting the best lighting system, and the best value for a specific project. I did not say the most expensive fixtures, but I did say the best value for the project. In so doing I must be experienced in many areas beyond the general configuration of a fixture.

A specifier can't rely on literature for fixture installations. For example, recessed incandescent A lamp fixtures are often available with adjustable sockets so one can field adjust wattages and lamp sizes from an A 19 to an A 21. Some manufacturers offer an adjustment mechanism that clicks into marked slots. The adjustment can be accomplished both from the inside and outside the fixture. Some manufacturers allow adjustment only from the outside, which could be a disaster for certain job conditions. Even worse are the manufacturers that instruct you to slide the lamp to a certain position that is not marked. You must determine that position by measuring the distance from the plane of the ceiling to the bottom of the lamp. Try that sometime. To me that is not an acceptable technique.

The point I am making here is that the manufacturer will state in its literature that it offers an adjustable socket, but it does not tell you how it is accomplished, so the method can be useless. If adjustments are difficult and not apparent to a contractor, a fixture will not be installed correctly. For example, there are fixtures that are produced from inferior tooling resulting in razor sharp corners; I guarantee the contractor won't install those fixtures properly. And there are fixtures with cones so flimsy, that their own retaining clips dent the cone.

Methods of fixture installation must be analyzed. The vast majority of times I visit a project during installation, I find the fixtures being installed improperly. It is the specifier's job to see that the design is installed properly and that the fixtures are even capable of installation. Believe it or not, there are some fixtures that cannot be installed. I recently inspected an adjustable incandescent fixture that required a person to put his or her hand fully into the fixture to loosen screws to the rotating mechanism. Unfortunately, one could not fit a hand into the fixture when the lamp was installed.

So there are a number of items that must be evaluated by more than literature alone. These include: operation of hinges and latches, tooling marks on reflectors, ease of relamping, durability of hardware (ex: exterior fixtures with steel screws), light leaks, paint coverage, bright defects on



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**“It is incumbent upon all specifiers to thoroughly  
educate themselves regarding fixture quality  
so we can assist manufacturers in their competitive  
effort to survive.”**

aluminized plastic louvers, deep cell louvers with open tops and uneven curves, transformers that overheat and perform overvoltage (as with many MR 16 fixtures), flashes of glare that do not show on photometrics but do show in the installed fixtures, anodizing quality, lamp streaks, and composition of plastic lenses.

Even packaging can be a problem. I know of several manufacturers that cannot get their fixtures to the job without damage. You might wonder why a specifier should be concerned about packaging, but I can tell you from all too many years of experience, that if a fixture comes in damaged, it will either slow up a job, or a contractor will attempt to install it and hide the damage.

#### **KNOW MATERIAL DIFFERENCES**

Knowing the differences among materials is essential for determining accurate specs. Specifiers must evaluate the various alloys, thickness of metals, prefinish treatments, paint types and quality, polishes and shapes of reflectors, ad infinitum. Also in the province of the well-prepared specifier are plastics: acrylic, styrene, polycarbonate, teflon, nylon, composites, and the techniques for forming them. The list is endless and getting longer every day.

As a lighting consultant, I regard the creation of a lighting fixture specification as much more than the application of footcandles and energy. It is also the determination of materials, installation, costs, delivery, and much more. The reader at this time may want to ask, how can I know every detail of every material, as I certainly cannot be a metallurgist and chemist? Plus, do I really require a physical inspection of every fixture I specify?

I study every aspect of materials that I can. Believe me, I have spent many hours speaking to suppliers of paints, plastics, anodizing, steels, etc. I will never know everything; nevertheless, I have a basic knowledge and sensitivity to all materials. I do not physically inspect every fixture I specify, but I do get my hands on most of them. Specifiers must be honest and admit that often they depend on the reputation of manufacturers, and have confidence in their ethics and reliability. Unfortunately, I do see that kind of reliability sometimes called into question when companies change a product but the brand name stays the same.

#### **ARE PACKAGES BETTER?**

Complete packages of fixtures are being offered today by the big conglomerates. I find no benefit to the client by staying with one package, that is, buying all fixtures from one conglomerate or one rep agency. No conglomerate provides equal quality, value, or selection for all types of fixtures. A better option is to use distributors, which put together packages of fixtures that competent specifiers selected based

on value for the client.

As I said above, specs should be held rigidly but flexibly. The door must be left slightly ajar. I say slightly ajar because I do not want to be burdened by unethical requests for unequal substitutions. The door must be open because I do not know of all the possible equals from every manufacturer regarding quality and price. A holier-than-thou attitude by any specifier benefits neither the client nor the specifier. However, I give warning to those that may try to “con” me with offerings of “equals.” I evaluate not just fixture quality, but the manufacturers’ and representatives’ reliability and ethics as well.

I thoroughly confess that there is an endless amount of information I need to know. I learn a great deal from discussions with reps and manufacturers. Therefore, I would like to make this suggestion to manufacturers: if you want to sell specifiers, then teach us about your products. Give us better trained reps, exposure to samples, and informative literature. Help us specify your product. I get mighty tired of calling factories because they neglect to include the full dimensions and details of their luminaires. Pretty pictures are nice, but specifiers want facts, not fluff.

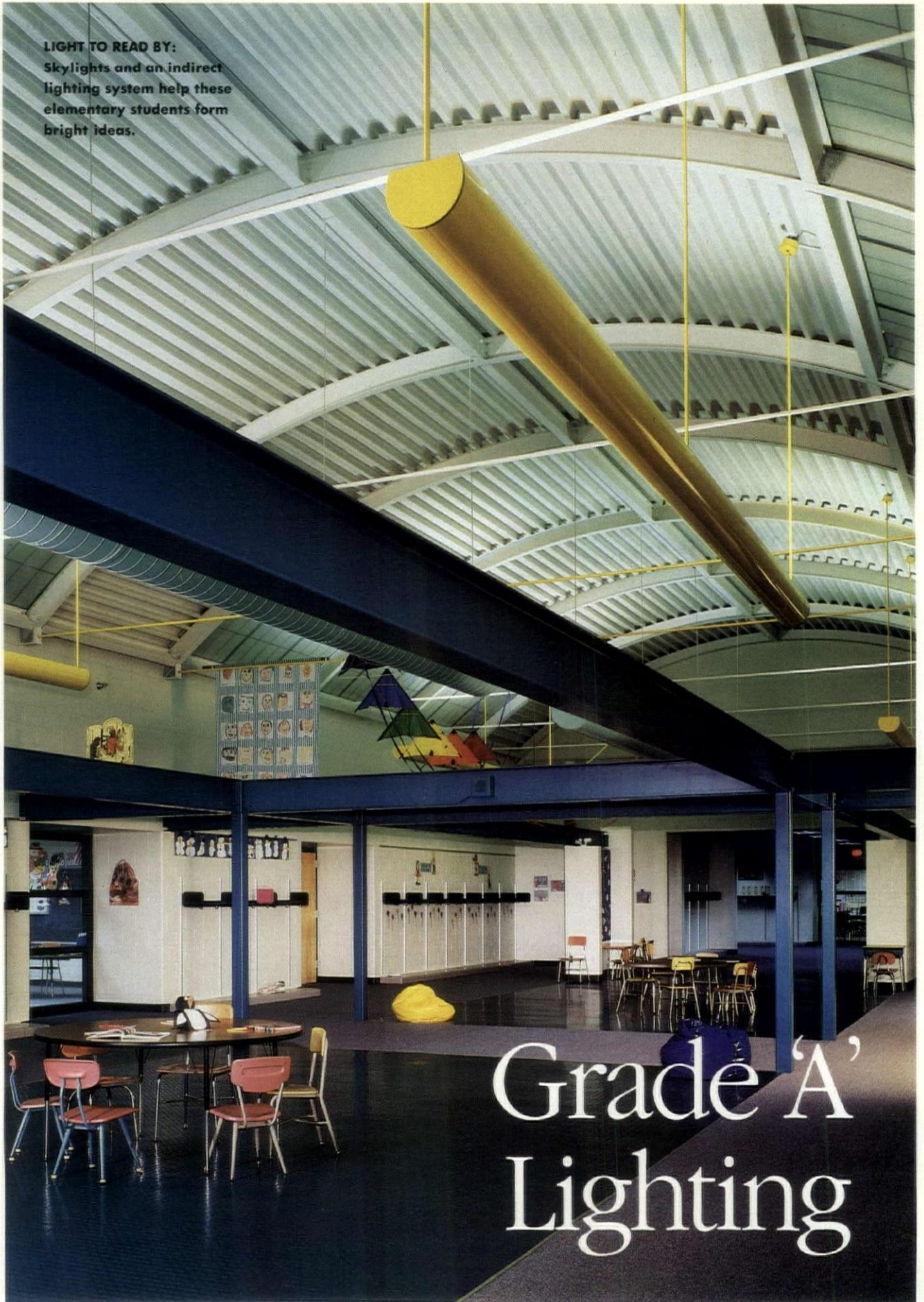
I do not waste time trying to figure out some catalogs. I use those manufacturers that provide full, honest information in a way that is quick and easy to read. I do not care about beautiful pictures. I want information. I receive brochures every day that have attractive full-color glossy photos, but whose copy and fixture cross-sections are so small that they cannot be read with the naked eye.

#### **“QUALITY” EDUCATION**

People are always complaining about the lack of quality in all products. It is our nature to try to get the best price and that puts the quality, ethical, and innovative manufacturer at risk. I believe that it is incumbent upon all specifiers to thoroughly educate themselves regarding fixture quality so that we can assist manufacturers in their competitive effort to survive. We have to learn the difference, as quality is an endangered species. If we specifiers fail in manifesting our knowledge, it is we and our public who will suffer when quality and innovation disappear. (Hint, to the good guy manufacturer that may be reading this article: good salespeople are good educators. Salesmanship is more than asking for the order, it is deserving it.)

To sum up, I feel the answer to this issue of holding specs is in the very definition of the word: specification means specific. Specs should be written with a thorough knowledge of the requirements of the project. The fixtures and lamps should be defined precisely with drawings to make exact the intent of the designers. Everyone desires clear unambiguous instructions and that is what good specs are all about. ■

**LIGHT TO READ BY:**  
Skylights and an indirect  
lighting system help these  
elementary students form  
bright ideas.



# Grade 'A' Lighting





**LINEAR PERSPECTIVES:** Extrusions, used for indirect lighting, are either wall or pendant mounted, strengthening important architectural elements.



## The versatile design at this Minnesota school provides an atmosphere conducive to learning

**BY CHRISTINA LAMB**  
ASSISTANT EDITOR

**E**ducating and inspiring young minds goes far beyond the three Rs. We've all heard, and probably agree, that the child's learning environment plays a role just as important. Well, the Cannon Falls Elementary School, opened in time for the 1989 school year, provides that inviting and creative atmosphere for kindergarten through sixth grade students. The integration of its lighting system with extensive daylighting and vividly colored architectural elements lends a festive air to the hallways and commons areas.

The 112,000-square-foot school, part of a 70-acre campus that contains the district's junior and senior high schools, has two classroom wings that flank a central area consisting of administrative offices, a gymnasium, cafeteria, media center, television production studio, art and music rooms, and a commons area. Each classroom wing is composed of three classroom groupings, and each group serves one grade level. The commons area was designed for use by both the school and local residents, with space for small meetings and theatrical productions. So, it was important to develop a diverse lighting system to accommodate the student population and faculty, as well as the community activities to be held at the school.

Teachers and administrators worked closely with the architects and engineers to link the design with the learning environment. While there were varied requirements to meet, it was extremely necessary to provide an intimate and child-scaled environment at the

PHOTOS BY PHILIP PROWSE

**FLOODING THE MEDIA:** Indirect forward throw floodlights in the media center provide a peaceful and glare-free atmosphere for independent study (below). Colorful elements in the cafeteria add to the light and airy feel of the space (bottom).

same time.

"Basically, the intent was to combine architectural and structural forms with daylighting using vaulted ceilings in the classroom wings and blending the lighting system into that motif," says lighting designer Mark Benjamin, whose design won an Edwin F. Guth Memorial Award of Merit from the Illuminating Engineering Society of North America.

Linear extrusions, with semicircular cross sections that correspond to the structural shapes, are used for indirect lighting throughout the school. They house high-intensity discharge luminaires, and are either wall-mounted or pendant suspended to reinforce important architectural elements.

Dual source light "pods" are installed within the extrusions. Each pod holds a 400-watt metal

halide and a 250-watt high-pressure sodium (HPS) lamp.

"The high-pressure sodium warms the space up a little and the metal halide gives more of a daylight feel," Benjamin says.

The linear extrusions were fabricated to the proper length for the space, and are fitted with a continuous power track to allow the pods to be added, subtracted, or moved within the extrusion. This provides the total flexibility, which is required for the diversity of functions offered at the facility.

"If they should at one time decide to hold class out in one of the many commons areas, they can simply come back and add one or two pods if they need additional light in a particular area," Benjamin says. "Or, let's say they decide to put on a media presentation. They can simply pull the pods out and eliminate the light source from that particular part of the fixture or extrusion. So, it provides versatility."

The team decided to use the skylights, made of translucent panels, as reflectors for the indirect lighting system. In mini commons areas, which can be used as teaching or presentation spaces, the result is a warm friendly ambience.

"We used the same approach in the classroom wings, commons space, administrative area, and entry arcade," Benjamin says, "trying to tie everything together. Only instead of suspending the fixtures from cables in this application, we mounted them on the walls."

Forward throw reflectors and the same dual source pods indirectly light the vaulted ceilings.



#### **MULTI-MEDIA CENTER**

At the center of the school is the instructional media center, and at the heart of the center is a comfortably carpeted story circle, which is also used for independent study. Here, a steel column rises to support the school's satellite television antenna—which is capable of picking up three different bands of satellite transmissions.

"As the column rises up," Benjamin says, "the ceiling becomes the same diameter as the cushioned circle. Above that is a raised windowed turret for daylighting the space."

Below the turret, 150-watt HQI lamps in indirect forward throw floods, are mounted on a steel ring suspended above this circular study space. These fixtures are aimed at the ceiling to round out the media center design and provide a tranquil atmosphere for independent study. The indirect luminaires offer glare-free illumination for the multitude of visual media that is available to the students, including television broadcasts from the in-house studio.

Independently controlled lighting systems are used so that the multi-media systems that they put into the school could be effectively used. Also the outside lighting in the classroom areas was



kept to a minimum so as not to affect these presentations.

The control of the parabolic-louvered, recessed fluorescent classroom fixtures provides three different levels of illumination.

"It's designed so that the teachers can use just about any kind of aid they need from films to television to chalkboard," Benjamin says.

"This project's major consideration was that the lighting system blend with the architectural and structural design of the facility—form and shape were very important," Benjamin says. "The other thing we had to do was meet the needs of the changing curriculums of the grade schools nowadays. We wanted to install a system that would be attractive, and would lend to the comfort of the space so the students felt a little more at ease.

"We used primary colors, such as a brilliant yellow, to achieve a bright and cheery atmosphere," Benjamin says. "We've received a lot of positive feedback, and it's been a very worthwhile endeavor for us." ■

#### DETAILS

**PROJECT:** CANNON FALLS ELEMENTARY SCHOOL

**LOCATION:** CANNON FALLS, MN

**CLIENT:** INDEPENDENT SCHOOL DISTRICT #252; DR. JOHN NEFSTEAD, SUPERINTENDENT

**LIGHTING DESIGNER:** MARK BENJAMIN, SETTER, LEACH & LINDSTROM, INC.

**ARCHITECT:** SETTER, LEACH & LINDSTROM, INC.: BASIL FILONOWICH, AIA, principal in charge; JOHN LITCHY, AIA, project manager; AL PAULSON, AIA, project architect/designer

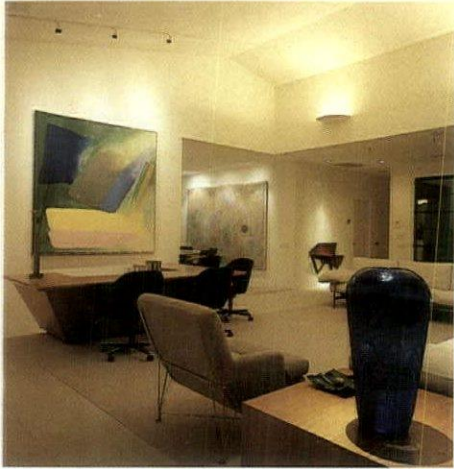
**ELECTRICIAN:** BLOOMINGTON ELECTRIC CO.

**PHOTOGRAPHER:** PHILIP PROWSE

**LIGHTING MANUFACTURERS:** LEDALITE ARCHITECTURAL PRODUCTS: linear extrusions with removable light pods; ZUMTOBEL: indirect wall sconce with 150-watt HQI

#### COMMUNITY

**SERVICE:** The facility's lighting system was designed to service both the needs of the school and any community events that are held there.

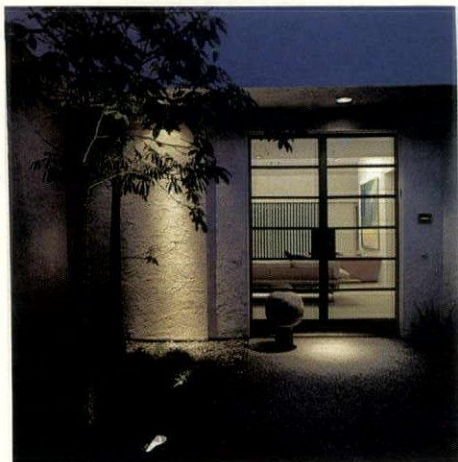


# Light for Art's Sake



**ART SHOW:** The crafts in the living room get full treatment with twin tracks housing 50-watt MR 16s, 500-watt wall sconces, and recessed pinspots. Downlights wash the exterior (opposite page—top, right), while revealing indoors.

**Palm Springs condominium residents showcase their artwork against a neutral background with an unobtrusive lighting system**



**BY MARY ELIZABETH NAEGELE**  
CONTRIBUTING EDITOR

**J**ust as the barrenness of the California desert serves as a built-in canvas to some of nature's most breathtaking beauty, the stark, white walls of a Palm Springs, CA, residence acts as a perfect environment for its owners' art pieces.

To show off their extensive collection, the clients hired Insight West to remodel their condominium's interior, stripping it to its least common denominator, and adding as much illumination as possible.

"We literally cleaned it up," says Wayne Williamson, interior designer and partner in the firm. "We lit it wherever we could to display the clean lines of the space, as well as the art."

Small glass doors were replaced by floor-to-ceiling glazed panels, and a freestanding fireplace in the entry was removed.

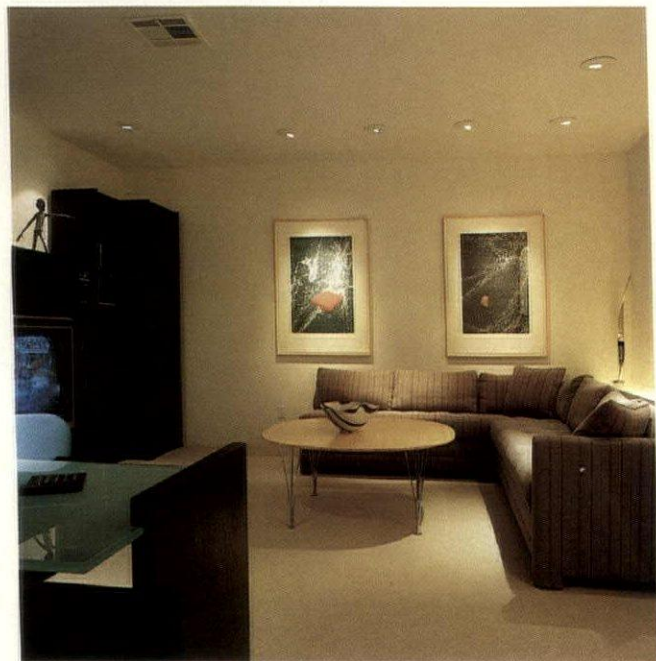
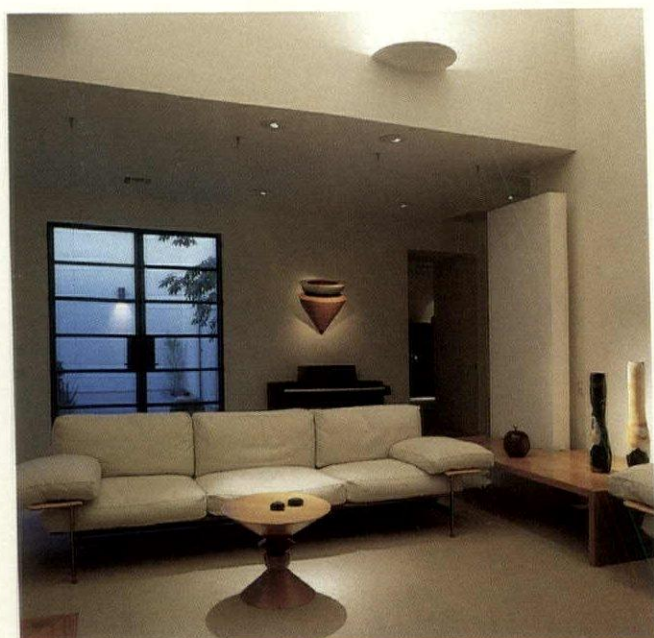
Since the residents planned to move their ever-changing art holdings between this weekend home and their main Los Angeles house, mobility and adjustability were key, the designer said. The lighting was not designed to highlight any one painting or sculpture, but to enhance all the artwork as in a museum or gallery.

The clients requested that the transformers be concealed, so Williamson and his partner, Bruce Goers, designed a freestanding L-shaped wall to replace a closet holding the electrical system. The short end of the wall opens to provide access to many of the condominium's transformers.

"We originally planned to put a neon light behind the wall to make it float more," Williamson says, "but that was cut because of the budget."

One of the few decorative pieces—an "art lamp" designed by a local light sculptor—is used in the bedroom. The rest of the home is lit from above and with wall-washers, according to Williamson. However, he included several switch legs so the owners could adjust the lighting for different moods.

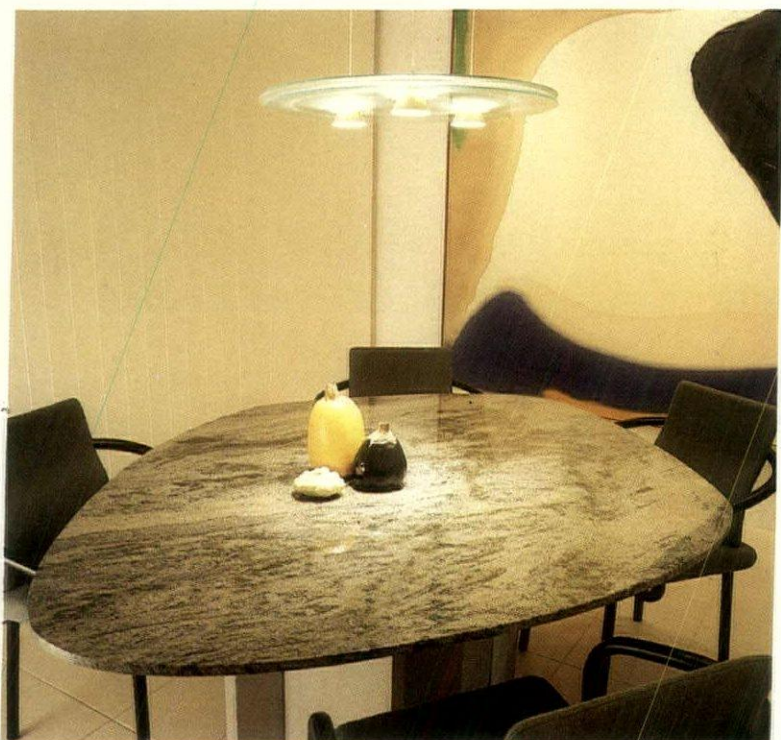
Twin tracks run across the living room ceiling, each



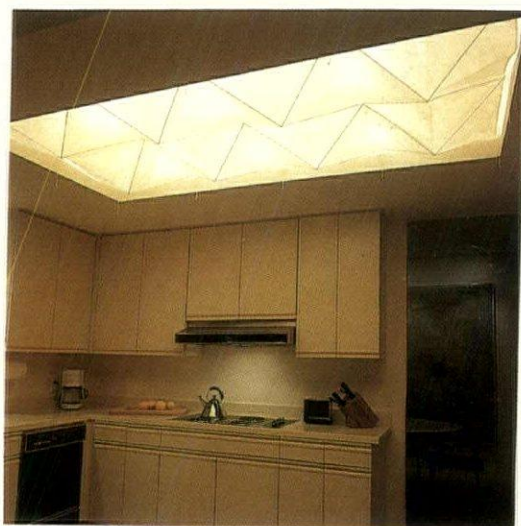
PHOTOS BY DAVID GLOMB



The lighting was designed to highlight all the artwork, as in a museum or gallery.



**DECORATIVE SPLASH:** A tinted glass luminaire brightens the morning room (above, left), while rice paper glows with the help of 75-watt lamps in the kitchen (above, right). Decorative illumination comes from a bedside lamp designed by a local light sculptor.



holding six 50-watt MR 16 halogen lamps.

"A pair of dish-like wall sconces, 500 watts apiece, send light bouncing off the pure white walls, giving a beautiful overall light," Williamson says. Downlighting is a third light source in the room.

In the kitchen, where extensive remodeling wasn't necessary (the original cabinets were left intact, for instance), a striking rice-paper fixture marks the room.

"It's one of the cheapest tricks I've ever done," Williamson says. "We took out the 4-foot x 8-foot fluorescent gridwork and replaced it with eight porcelain socket, 75-watt bulbs up inside the recess."

Hanging over the table in the morning room is a fixture made of three horizontal plates of glass, and lit by three 50-watt MR 16s.

"The windows provide a beautiful view of a golf course and the San Jacinto mountains," Williamson explains. "We used that fixture because it 'disappears.' You can see right through it."

Insight West replaced the outdoor floods with low-voltage MR 16s to provide a cleaner light for the relandscaped property, Williamson says. ■



#### DETAILS

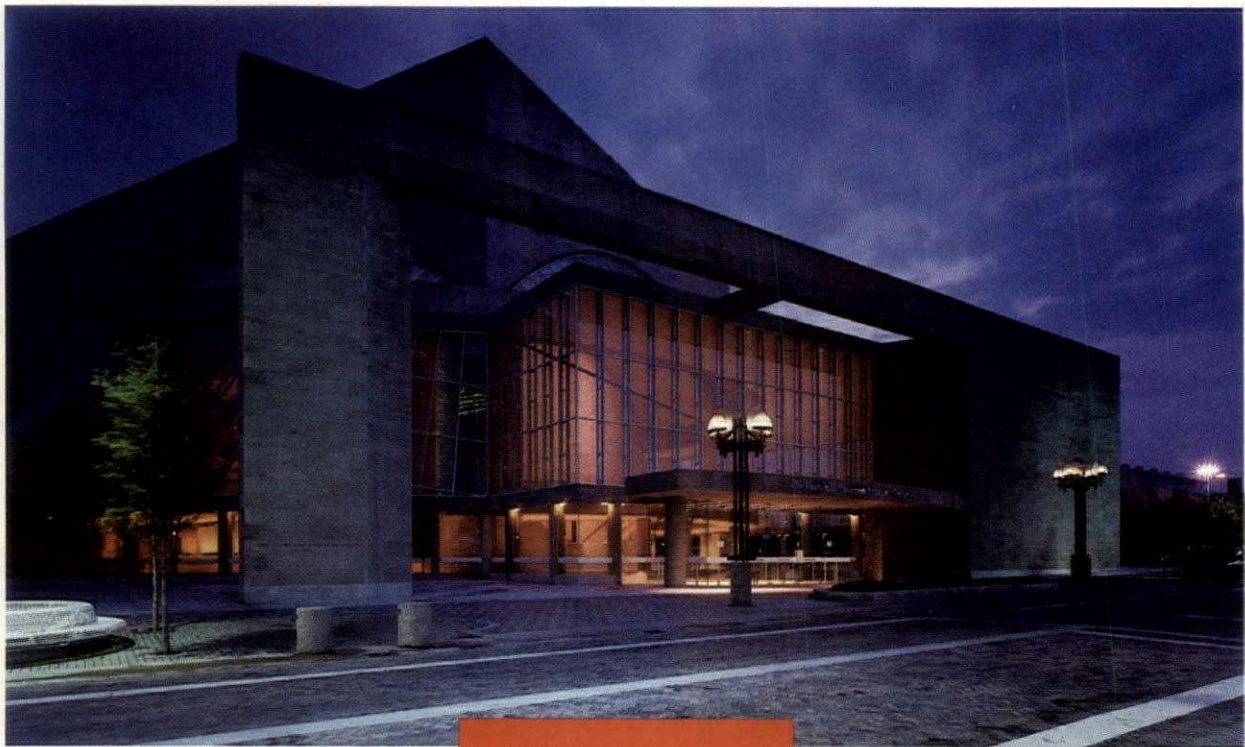
**PROJECT:** PRIVATE PALM SPRINGS, CA, RESIDENCE  
**LIGHTING/INTERIOR DESIGNER:** WAYNE WILLIAMSON, BRUCE GOERS, PARTNERS, INSIGHT WEST, PALM DESERT, CA  
**ELECTRICAL CONTRACTOR:** MCCLELLAN ELECTRIC  
**ELECTRICIAN:** TOM SCOTT  
**PHOTOGRAPHER:** DAVID GLOMB, DAVID GLOMB PHOTOGRAPHY

**LIGHTING MANUFACTURERS:** LUMA: track lights—50-watt floods for wall washing; HALO: 50-watt, MR-16 downlight fixtures; ATELIER INTERNATIONAL: glass fixture; CAPRI: downlights; ISAMU NOGUCHI: rice-paper fixture

ARCHITECTURAL

# LIGHTING

## DESIGN FOCUS REPORT



Public Spaces

## ENHANCING ARCHITECTURE

**T**he vast volumes of space that characterize public facilities are often bound and shaped by sweeping architectural planes. Featured in this report are two facilities with lighting designed to be a silent supporter, revealing the grandeur of the architecture, and promoting the comfort of the visiting public, without attracting undue attention to itself. Since public spaces must be built to last for decades, guidelines on how lighting designs can be maintained are also included.—WJ

DESIGN  
FOCUS REPORT

**MEYERSON  
SYMPHONY CENTER  
GLOWING ONYX**

**ONYX ODYSSEY:** An immense canopy hovers above the Meyerson concert hall, with lights beaming behind onyx panels (below, left and right).

**W**hen construction started for Dallas' Morton H. Meyerson Symphony Center in 1980, the city was flying high with oil riches and a bigger-is-better attitude. By the time the project was completed in September of 1989, the structure had come to stand more as a beacon of hope for a beleaguered city that is starting to recover from its economic slump.

The I.M. Pei-designed center exudes a strong, confident air. Its materials are rich—

marble, onyx, cherry wood, glass. Its form is immense, with a hall holding almost 2,100 seats. And the work of nine years comes to life with the illumination techniques of the team at Jules Fisher and Paul Marantz, Inc., New York. The lighting team consisted of Paul Marantz and Charles Stone, principals in charge, and Teal Brogden, associate.

"We wanted to be sure that our lighting would be in keeping with the spirit of the center's architecture," Brogden says. "Since the building is very sculptural, the lighting had to be applied in such a way that often it had to hide within the architecture—because the architecture is the statement."

The spacious limestone and glass outer lobby was meant to be seen as a lantern at night. The light, glossy surfaces of the stone interiors worked with the incandescent lamps to achieve this effect.

A necklace of light around the lobby's perimeter comes from 15-watt A lamps housed in decorative glass cylinders. Groups of three of these lamps are affixed to either side of the columns so that they work with the rhythm of the architecture.

"These lights offer a little zing, a little sparkle that gives definition to the very outer edge of the lobby."

A warm glow comes from the 250-watt



PAR 38 downlights recessed in the lobby's high ceilings.

Pairs of 150-watt PAR 38 lamps are mounted to the mullions of the skylights. These fixtures were kept as small as possible so that they wouldn't intrude on the swooping of the building's architecture.

A recessed arc that houses a long row of 150-watt A lamp downlights was installed in the floating lobby balcony.

"We couldn't get any pattern of light to follow the curve of the balcony because of the building's structure," Brogden says. "So we ended up creating an eccentric curve—

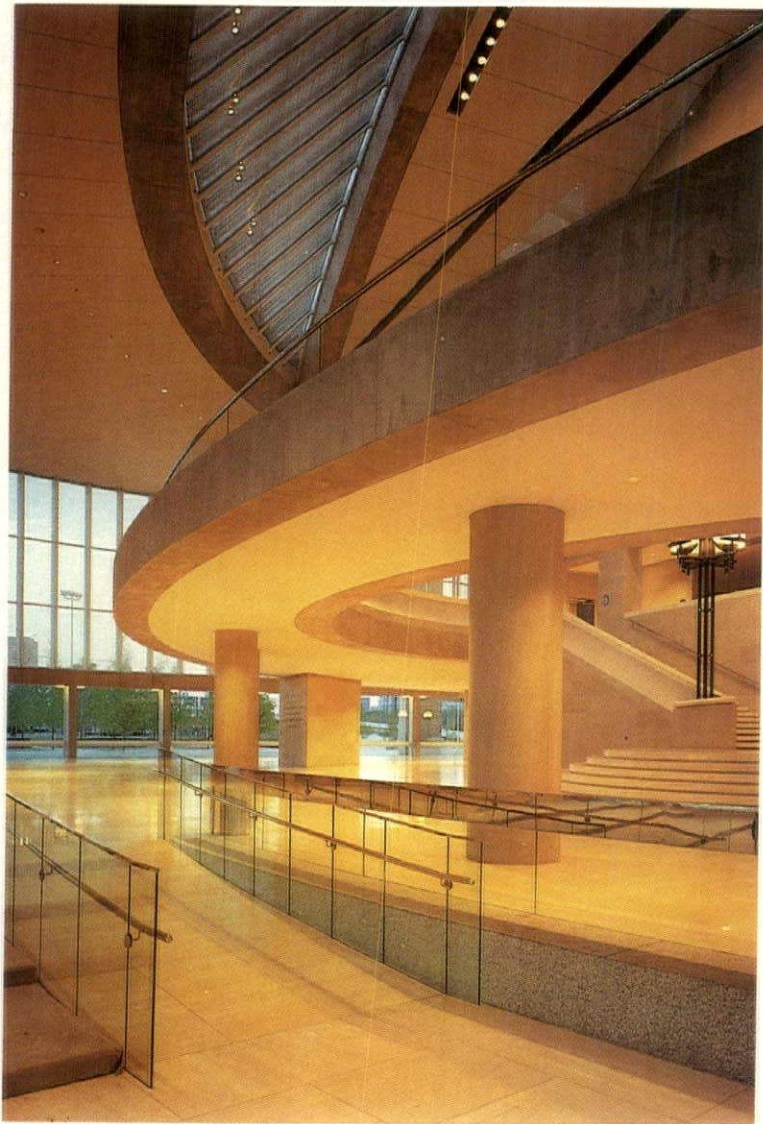
the center of that arc is not on center with the balcony's curve."

The lobby's dimming system is on a four-scene preset for different ambient light levels. Contrary to what people would believe, the lighting has to be brighter during the day than at night so that visitors don't feel like they're walking into a black hole.

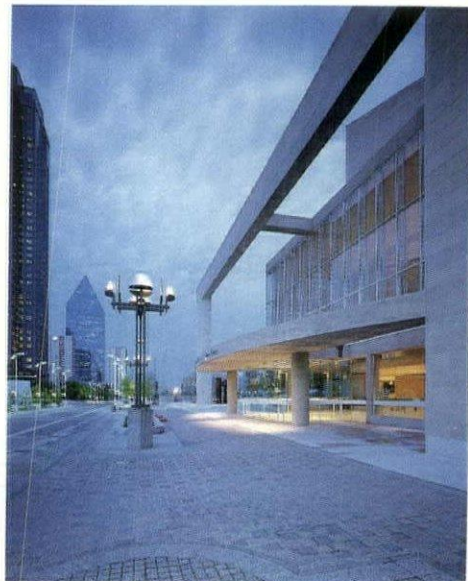
Custom crafted torchieres and sconces made of onyx were designed by Chris Rand of the Pei group and situated throughout the lobby area. The sconces are lit with 60-watt incandescents, while the torchieres take low-wattage frosted tubular incandescents.

**BEJWELED:** The many levels of the concert hall—the balcony fronts, the canopy, and the walls—are fashioned with luminous onyx panels.





**A FORMIDABLE FIGURE:**  
The Meyerson  
Symphony Center's  
limestone and glass  
outer lobby shines  
with incandescent  
illumination. Recessed  
PAR 38 downlights,  
150-watt A lamps, and  
custom-crafted onyx  
torchieres and sconces  
cast their radiance  
(left and below).



"This wonderful series of fan-shaped fixtures acts like a connecting link between the lobby—which is very clean, very elegant—and the warm, jewel-like concert hall," Brogden says. "As you step into the hall, you see the many facets of glowing onyx."

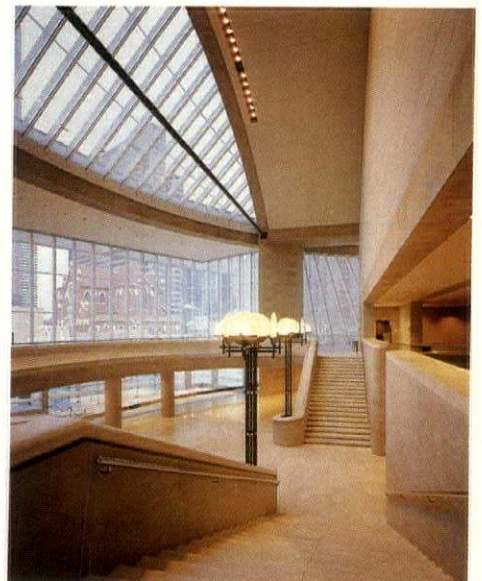
The onyx can be found on the faces of the balconies, the walls, on sconces, and on the suspended canopy. The four-piece canopy hovers prominently above the concert hall, holding lighting and acoustical equipment.

To illuminate the musicians and their music, 500-watt ellipsoidal reflectors were above-mounted in the canopy. The tungsten halogens, whose filaments produce very little buzz, are housed in custom gimbal fittings that allow 360-degree rotation and limit pan and tilt to 15 degrees. This prevents lamps from over tilting and burning the canopy. Sixteen 1,000-watt ellipsoidal reflectors light the conductor and soloists.

Since the canopy is also used for acoustics, it raises or lowers to different levels, depending on the performance being presented. Because this movement affects focus and beamspreads, three light systems for high, medium, and low settings were installed.

"They were very sensitive about the acoustical properties of the hall, so all of our equipment in the ceiling has special acoustical plugs," she says. "Artec was also concerned about lamp types and whether they had filaments that hummed."

Incandescents were chosen for the house lighting because they are dimmable and quieter than other lamp types, Brogden



says.

"We also chose PAR lamps for the high ceiling because of their very narrow beamspread, and the option of choosing a wider beamspread within that family of lamps," Brogden says. "Also, the materials in the hall are so rich that the full color spectrum of the incandescent lamps really accentuates them."

Recessed 500-watt PAR downlights were installed in the hall's ceiling. The two highest balconies are illuminated with 250-watt

recessed downlights, while the lower balcony shines with 150-watt A lamps.

A computerized theatrical dimming board controls the multi-scene preset lighting system in the hall.

The onyx on the balcony fronts is radiant with small 20-watt incandescents.

"The glowing onyx is really the heart of the concert hall," Brogden says. "Everyone wanted the hall to be very warm, and the backlit onyx really accomplished that."—*Catherine Schetting Salfino*

#### FURTHERMORE. . .

- Cost \$100 million to construct
- Seats almost 2,100
- Backlit panels in concert hall are made of onyx
- Concert hall canopy backlit with about 100 theatrical can fixtures
- New dimmer specs developed by Artec to meet stringent background noise criteria
- Three dimmers specified—lobby/corridor, canopy, house lighting
- House lighting dimmers have 1,000 microsecond rise time



#### DETAILS

**PROJECT:** MORTON H. MEYERSON SYMPHONY CENTER

**LOCATION:** DALLAS

**CLIENT:** CITY OF DALLAS

**LIGHTING DESIGNER:** JULES FISHER & PAUL MARANTZ

**INC.:** PAUL MARANTZ,

CHARLES STONE, TEAL

BROGDEN; THEATRICAL

LIGHTING: ARTEC

CONSULTANTS INC: Steven

Friedlander, Seth Orbach,

Mark DiQuinzio

**ARCHITECT:** PEI COBB FREED:

I.M. PEI, CHARLES YOUNG

**PHOTOGRAPHER:**

R. Greg Hursley

**LIGHTING**

**MANUFACTURERS:** C.W.

COLE & CO.: decorative

fixtures; RUDY ART GLASS:

decorative glass; EDISON

PRICE: custom downlights;

NORBERT BELFER: striplights;

LEE/COLORTRAN: Mini Ellipse

spots; PRESTIGE: lighting

console

DESIGN  
FOCUS REPORTKEEPING THE  
LIGHT LOOKING RIGHT

**P**roper lighting maintenance can be performed more easily if lighting specifiers provide their clients with guidelines. Following, **Alfred R. Borden**, senior designer, The Lighting Practice in Philadelphia, and **Randy Burkett**, principal, Randy Burkett Lighting Design in St. Louis, offer pointers that can help make maintenance less of a chore and keep the lighting design intact.

*How often should fixtures be relamped?*

**BORDEN:** You have to combine spot and group relamping because some lamps aren't going to reach their specified rated life. So when a single lamp burns out, you fix it as soon as it goes. But at the group relamp point you replace everything, whether it's burned out or not.

**BURKETT:** Spot relamping also is based on whether or not a burned out lamp is critical to a task. If you have, say, a PAR spot in a store window, you won't wait until the next month to replace it. Part of the relamping function is determining how important a lamp is to its function.

*How often should fixtures be cleaned?*

**BORDEN:** At every group relamping, which depends on the life of the lamp—usually somewhere around 75 percent or 80 percent of rated life. Cleaning for fluorescent systems usually takes place about every three years. And if you figure, worst case, there's about 5,000 operating hours per year, that's 15,000 hours of life and that's about 75 percent of rated life. If you have an incandescent system that has only about 2,000 hours of life, you would do your cleaning in less than a year.

**BURKETT:** The life of the equipment definitely dictates how often the luminaires are cleaned. Cleaning during the group relamping is more cost efficient and convenient. It also provides uniform brightness. But it's just the opposite with cleaning during a spot relamping. If you change one lamp and then clean that fixture, you'll get off your ladder and see how all the adjacent fixtures look

uniform—even if it's uniformly dirty—and one luminaire stands out brightly from the rest.

Also, cleaning cycles have to be based on the application. Depending on where a unit is mounted, it may get more soiled in one area than another. Outdoor fixtures may need to be cleaned every two months even though the lamp might last for two years.

*How do you clean the fixtures?*

**BORDEN:** Usually you use a non-abrasive detergent, like Windex or something like it, to clean off lenses and wipe down reflectors. You don't want to use something really strong because it will hurt the metal finishes or abrade the plastic lenses. But you do want to use something that will pick up all the dust and get off all the fingerprints.

The only things you really can't clean that way are the acrylic parabolic louvers—the ones that are metalized—because the particular property of their finishes breaks down during a wet cleaning. But fingerprints seem to imprint themselves forever on those surfaces. So the companies that make those products lease a cleaning system that is pretty specific to that kind of equipment.

**BURKETT:** Cleaning agents depend on the equipment. If you're cleaning lenses, maybe you can use just soap and water. If you're cleaning reflectors, we recommend the Major Corporation's aluminum reflector cleaner. Most manufacturers have recommended cleaning and relamping procedures for their products. But no one ever asks for them.

Maintenance is also extremely important in outdoor units because you're facing other problems—bugs, a faster accumulation of dirt, leaves. Anything that is outdoors can get in your lights. So outdoor maintenance may call for more aggressive cleaning techniques. Windex or soap and water may not get out six months of encrusted dead bugs. Here you need abrasive agents on glass. Or, on film-coated equipment, you may have to give a reflector a non-abrasive detergent soak in a dip tank.

*Who should set up the maintenance schedule—the designer, the client, the manufacturer?*

**BORDEN:** Well, definitely the clients have to set up their own schedules. But the lighting designer needs to give them a relamping list with information that includes what lamps to use and what the lamp lives are. And specifiers need to talk with the client about when the best point would be for maintenance.

But you can't really get involved in their maintenance procedures because that's their own money and time, and of course they want to do it at a point that's most convenient for them. However, as a specifier, you should give them all the maintenance information they need. Especially the list of lamps they would use to keep the job looking as it was meant to.

**BURKETT:** I think the designer should help set up a

maintenance schedule. Anything that a designer creates for a facility should have a maintenance schedule associated with it, especially if it's an unusual application. There are so many different issues involved in maintenance—lamp life, the logistics in actually getting up and cleaning a luminaire, and how it should look after the procedure is done—that I think the designer needs to guide the client through a schedule.

***Proper maintenance is a reflection of a designer's work—do enough designers take that into consideration?***

**BORDEN:** Lighting design is done by a lot of people, not just lighting designers. Some specifiers may have different priorities. I think most designers are very concerned about maintenance. They design systems that can be maintained and provide tips to keep the job looking as it should. What happens after that is always a great question because very often people have every intention of keeping up the lighting, but for whatever reasons they cut back on the maintenance.

**BURKETT:** I feel that less than 10 percent of the lighting in the country is done by "lighting designers." Most of it is designed by the project architect, the electrical engineer, the contractor, or even manufacturers' reps. And they don't always take into account the issues of maintenance. It's not necessarily one of their criteria to produce something that's easily maintained.

But I think most *designers* take maintenance into account, even though sometimes there may be a trade off on the client's part. We may say that a certain luminaire will be perfect in a particular location. The compromise is that the lamp will have to be changed six times a year by an

outside person. We let the client know about something like that ahead of time. If they are prepared, it won't likely become a maintenance problem. If they don't agree to the plan, we create a different design.

***How does maintenance figure into the initial design plans?***

**BORDEN:** When designing a system, keep maintenance in mind. How accessible is a fixture to have the lamp changed, how much trouble do you have to go to to clean it? I once visited a client's synagogue that had quite a high ceiling. The client showed me a very small chandelier that hung way up there. It was burned out and had been burned out for the longest time. It turns out that there's no lowering device on it and they have to hire a steeplejack to have the lamp changed. It's a \$1,200 bulb change so it just doesn't happen. You really have to give clients the opportunity to maintain the system. I think most designers know that, but sometimes these things happen inadvertently. And it's a real tragedy when it does.

**BURKETT:** We try to be conscious of maintenance issues during the design phase so that it is not as serious a problem as it can be after the client takes over the project. If you locate a luminaire in a nearly inaccessible position for relamping—like 80-feet up in an atrium—it gets either very expensive or cumbersome to maintain. And it's likely it won't be maintained.

We aggressively address maintenance, rather than just not bring it up. And it needs to be promoted by anybody who designs lighting. We'd rather have a client know that they'll have to buy an \$8,000 lift to reach certain lamps, than let them find out how expensive it will be to maintain six months after we leave the job.

—Catherine Schetting Salfino

## THE LIGHTING MAINTENANCE/MANAGEMENT INDUSTRY

For those lighting specifiers who want to be sure their systems will be given TLC after installation, there are maintenance firms across the country like The Barney Roth Company Inc. (also Philadelphia Lighting Maintenance). The firm is one of about 120 members of the interNational Association of Lighting Management Companies (NALMCO).

The lighting management industry, which is estimated to have annual sales exceeding \$10 billion, is an offshoot of the lighting maintenance industry, whose origin can be traced to the 1950s.

"Our business started after World War II, following the introduction of the fluorescent lamp," says company president Bernard Roth, whose company is in its 45th year. "People realized the fluorescent was a practical lamp, but they were a little intimidated by it because you couldn't just screw it in like a regular light bulb," Roth says.

Since many companies today report that lighting accounts for over 25 percent of annual energy budgets, new technologies that produce energy-efficient lighting call for consultation to decide which products and strategies best fit each company's needs.

Roth says firms like his provide knowledgeable maintenance of all types of lighting designs. And, he says, using a lighting maintenance professional is a safe way to have a system cared for.

"Lighting replacement is not a simple procedure that your average maintenance person can perform," he says. "Clients have to realize that they can't be on the cutting edge of a business if a jack of all trades comes in and butchers the lighting system."

For more information, write NALMCO at Washington Park, 14 Washington Road, Building 5, Princeton Junction, NJ 08550; call at 609-799-5501; fax at 609-799-7032.



DESIGN  
FOCUS REPORTSHERATON  
TACOMA HOTEL

## LASTING BEAUTY

## DETAILS

**PROJECT:** SHERATON TACOMA HOTEL LOBBY  
**LOCATION:** TACOMA, WA  
**LIGHTING DESIGNER:** TOM HENDERSON, GTH DESIGN CONSULTANTS  
**ARCHITECT:** TRA ARCHITECTURE ENGINEERING PLANNING INTERIORS, GEORGE C. OISTAD AIA, principal; GARY SCHAEFFER, AIA, project director/project designer  
**DEVELOPER:** CORNERSTONE COLUMBIA, PAUL SCHELL, president; VIRGINIA ANDERSON, vice president/project manager  
**INTERIOR DESIGNER:** CAROL DEAL, TRA Architecture Engineering Planning Interiors  
**ELECTRICAL ENGINEER:** JERRY FITZMAURICE, Travis Fitzmaurice & Associates, Inc.  
**PHOTOGRAPHER:** ROBERT PISANO  
**LIGHTING MANUFACTURER:** LIGHTOLIER

## FURTHERMORE...

- the 25-story hotel has meeting facilities and 328 guest rooms
- constructed as part of the downtown urban revitalization plan
- the site's slope affected the design; the lower level steps up the hill
- the south side views Mt. Rainier

**T**he warm, welcoming lobby of the Sheraton Tacoma Hotel, with its piano lounge and atrium restaurant, is considered the living room of this Washington city's downtown area, according to Tom Henderson, lighting designer for the project.

But, the hotel lobby also establishes a sense of drama with a wintergarden atmosphere, enhanced by a skylit space that rises to a height of four stories.

To supplement the occasional moments of strong, low-angled shafts of sunlight typical during the autumn and winter seasons in the Pacific Northwest, an artificial lighting system was designed to create interest without drawing attention to the fixtures. This had to be accomplished without intruding on the strength of the lobby's architecture.

"The daylighting contribution is really important," says Henderson, "because the whole thing faces east." The direct natural light that enters the space through stepped clerestories during the day, bathes the lobby with morning light. "So the whole space has kind of a natural reflected indirect glow."

As the sun moves west over the building however, the artificial lighting needs to slowly take precedence. The system had to have some of the same qualities as the natural light—strong and direct like the sun—with hard shadows as well as light reflected off of architectural textures.

"That was kind of difficult," says Henderson, "because the spans—which run from column to column—are structural concrete and there's no way of penetrating them to install downlights."

A custom designed tubular indirect fixture

provides light for the space. These extrusions span 30-foot bays and house two 800 MA high-output, warm white fluorescent lamps in a reflector.

"You have to balance indirect lighting with some kind of accenting," Henderson says, "so spaced at intervals on each side of the tube, and mounted on structural concrete elements are track sections that allow for the attachment of two or four downlight fixtures. Since the distance of these fixtures to the floor is over 30 feet in some areas of the lobby, these units are capable of being dimmed, adjusted, removed, or added to to accommodate the activities of the space below.

"They add some highlighting and shadowing and create more drama in the space because the indirect lighting is not very dramatic to the people," Henderson says. "We played off of that basic concept so the whole stepped ceiling system became almost like a total light fixture in and of itself."

On the lower levels, there's standard recessed downlighting, and at the bottom of a stairway that leads to meeting rooms, large, but carefully scaled copper wall sconces relate to other design elements of the lobby. These fixtures provide incandescent lighting.

The color of the painted reflective surfaces and the fluorescent tube coordinate with the interior design. The whole lighting system blends with the architecture, provides a long lamp life and low maintenance, and allows for flexibility in switching and accent lighting to create just the right mood for any of the hotel's functions.—Christina Lamb



## LIGHTFAIR PREVIEW

**LightFair, the International Lighting Exposition and Conference, will be held March 5-7, 1991, at the Expocenter in The Merchandise Mart/Chicago. LightFair is produced by AMC Trade Shows East and is owned and managed by IESNA and IALD. For more information, contact Lynne Weller, communications manager, LightFair, 240 Peachtree St. N.W., Suite 2200, Atlanta, GA 30303, or call (404) 220-2115.**

### SEMINARS

#### TUESDAY, MARCH 5

##### 8:30-10 A.M.

**KEYNOTE ADDRESS:** "GREEN LIGHTS: ENVIRONMENTAL PROTECTION AS A PROFIT." The program, known as "Green Lights," promotes energy efficient lighting to prevent further pollution of the environment. It was launched in order to recognize those individuals who make a voluntary, public commitment to environmental protection through the use of such equipment. The essence of this program is a pledge by major corporations to install improved energy efficient lighting in all facilities in the next three years.

**SPEAKERS:** Robert Kwartin, director, EPA Energy Efficient Lighting Program; and Jerry Lawson, chief, Energy Productivity & Pollution Prevention Branch, EPA, Washington, D.C.

##### 10:30 A.M.-12 P.M.

**"EFFECTIVE PACKAGING OF LIGHTING PRODUCTS: LEARN HOW TO GET WHAT YOU REALLY WANT."** Learn how packaging has changed the lighting industry from a designer's, electrical contractor's, manufacturer's rep's, and electrical distributor's point of view.

**PANELISTS:** Randy Burkett, IES, IALD, president and design principal, Randy Burkett Lighting Design, St. Louis; Larry Plunkett, P.E., president, Sachs Electric Co., St. Louis; Richard Dunlop, Chesapeake Lighting & Associates, Laurel, MD; and a representative from the NAED.

**MODERATOR:** Mark Roush, Lighting Center manager, Philips Lighting, Somerset, NJ.

##### 10:30 A.M.-12 P.M.

**"THE DESIGN OF ENERGY EFFICIENT BUILDING SYSTEMS THROUGH THE INTEGRATION OF LIGHTING COMPONENTS: LAMPS, BALLASTS, FIXTURES & CONTROLS."** Learn how the installation of highly efficient lighting systems and integrations of appropriate components can achieve high quality, low energy lighting solutions.

**SPEAKER:** James R. Benya, PE, IALD, senior principal and CEO, Luminae Souter Lighting Design, San Francisco.

##### 12:30-1:30 P.M.—Break-out session

**"LIGHTING AND THE NEW ENERGY CONSCIOUSNESS."** Learn how to approach applications problems involving various types of energy codes.

**SPEAKERS:** James R. Benya, PE, IALD, senior principal and CEO, Luminae Souter Lighting Design, San Francisco; Emma Price, president and CFO, Edison Price Lighting, New York, and board of New York State Lighting Manufacturers Association (NYSLMA).

##### 12:30-1:30 P.M.—Break-out session

**"EMERGENCY LIGHTING IN THE OFFICE ENVIRONMENT."** Explore the latest developments in quality emergency lighting fixtures and learn how to achieve maximum safety results in an emergency situation.

##### 2-3:30 P.M.

**"HOW TO REMAIN COMPETITIVE IN THE FACE OF NEW AND PENDING ENERGY LEGISLATION BUSINESS."** Hear an overview of the oil/energy crisis of the '70s and the design and legislative response to it. This will be compared to the crisis of the '90s, and landmark regulations will be discussed.

**SPEAKER:** Helen Diemer, IALD, MIES, associate at David Mintz, Inc., New York, and the current president of IALD.

##### 3:30-5 P.M.

**"HOW ENERGY AND THE ECONOMY ARE INFLUENCING CONSTRUCTION: PERSPECTIVES ON TODAY'S ENVIRONMENT AND FORECASTS FOR THE FUTURE."** Learn how the economy of the 1990s will affect the construction business and how economic/energy trends are affecting many aspects of the industry.

**PANELISTS:** Steven Kerch, real estate reporter, Chicago Tribune, and Robert Murray, managing economist at McGraw-Hill Information Services Co.

#### WEDNESDAY, MARCH 6

##### 10:30 A.M.-12 P.M.

**"WORLD VIEW: A COMPARISON OF APPLICATIONS IN RETAIL LIGHTING FROM HERE AND ABROAD."** Hear what international experts have to say as they look back at trends in U.S. and European retail lighting over the last

LIGHTFAIR PREVIEW  
CONTINUED ON PAGE 42

five years while looking ahead at the new light sources that are affecting their designs.

**PANELISTS:** Derek Phillips, FRIBA, FCIBSE, IALD, owner Derek Phillips Associates Lighting Consultants, United Kingdom, and Roberto Pamio, architect, Venice, Italy.

**SESSION LEADER:** David A. Mintz, IALD, MIES, principal, David A. Mintz, Inc., New York.

**10:30 A.M.-12 P.M.**

"CITY LIGHTS: A BETTER APPROACH TO OUR URBAN ENVIRONMENT/A CASE STUDY OF BATTERY PARK." Explore the role of electric light in the nighttime environments of major North American cities.

**SPEAKER:** Robert Prouse, partner, H.M. Brandston & Partners, New York.

**12:30-1:30 P.M.—Break-out session**

"TASK LIGHTING FOR AN OPEN PLAN ENVIRONMENT." Learn how to compare products and what to look for in task light.

**SPEAKER:** Mitchell B. Kohn, architectural lighting consultant, Highland Park, IL.

**3:30-5 P.M.**

"FUNDAMENTAL VALUE ADDED LIGHTING TECHNIQUES FOR RETAILERS." Learn the basic "how-tos" of retail lighting, and find out about the issues of visibility, achieving a desired effect, and using new technology in new construction and renovation projects.

**SPEAKER:** Stephan Graf, IES, IALD, owner and founder of Fantasee Lighting and Illuminart, Ypsilanti, MI.

**3:30-5 P.M.**

"PRACTICAL RESIDENTIAL LANDSCAPE LIGHTING CAN BE ALLURING." Learn key issues for more effective landscape lighting including how to select the right lamp, how to create specific effects, how to identify important issues in developing a design approach, and how to evaluate the lighting needs of a project to provide a long-term solution.

**SPEAKER:** Janet Lennox Moyer, ASID, Jan Moyer Design, Berkeley, CA.

**6-7 P.M.**

"HOW TO CREATE DRAMA IN LIGHT: LIGHT SCULPTURES FOR PUBLIC SPACES & VISUAL EFFECTS." Learn how lighting techniques can be applied to bring life to "Town Square America," and find out about lighting for meeting places, plazas, piazzas, fountains, and monuments.

**SPEAKER:** John David Money, Chicago artist and sculptor.

**6-7 P.M.**

"HOW TO LIGHT A RETAIL STORE TO SELL MERCHANDISE AND MEET BUDGET." Hear about what can make or break a job including budget, maintenance, specs, bidding and pricing, and construction.

**PANELISTS:** Dan Evans, ISP, vice president of visual merchandising, Hartmarx Specialty Stores, Inc., Chicago; Don Bona, ISP, Schafer Associates, Oakbrook Terrace, IL; and David Kintz, project manager, Metrick Electric, Lincolnwood, IL.

**MODERATOR:** Connie Whiteley, IALD, IES, lighting consultant, Lighting by Design, Chicago.

**THURSDAY, MARCH 7**

**8:30-10 A.M.**

"FUNDAMENTALS OF INTERIOR LIGHTING DESIGN." A demonstration of how to combine lamps, luminaires, and location to reinforce the architecture, enhance the finished interiors, and address the needs of the end-users.

**SPEAKER:** Connie Jensen, IALD, IES, founder, Lighting Professionals, Inc., Montvale, NJ.

**8:30-10 A.M.**

"AMERICA'S FUTURE IN LIGHTING IS EUROPE'S TODAY." Hear the latest in European office lighting standards and the product technology that has been developed to meet those standards.

**PANELISTS:** Dr. Richard Schnependahl, Federal Republic of Germany, and Wolfgang Eggar, marketing director, Zumtobel.

**10:30 A.M.-12 P.M.**

"OFFICE LIGHTING: FUNDAMENTALLY SPEAKING." Hear about the systems and trends in sources and fixtures for both new and retrofit installations and

take a look at how energy legislation is impacting design and user performance.

**SPEAKER:** Sandra M. Stashik, PE, IALD, IES, principal-in-charge of the Philadelphia office of Grenald Associates.

*Sponsored by Facilities Design & Management*

**10:30 A.M.-12 P.M.**

"PRACTICAL APPLICATIONS OF COLORS: REAL AND IMAGINARY." Learn the important factors that relate the color properties of light sources to the colors of objects seen in the surrounding environment.

**SPEAKER:** Dr. Robert E. Levin, IES, senior scientist, Sylvania Lighting's general engineering research and development group, Boston.

**12:30-1:30 P.M.—Break-out session**

"NEW METHODS TO SAVE ENERGY WITH INNOVATIVE LIGHT SOURCES." Hear about the opportunities afforded by new light sources including lamp life and efficacy, lumen depreciation, ballast factors, operating temperature considerations, and fixture selections and application.

**MODERATOR:** Ken Reinhard, national brand manager, Cooper Lighting, a division of Cooper Industries.

**12:30-1:30 P.M.**

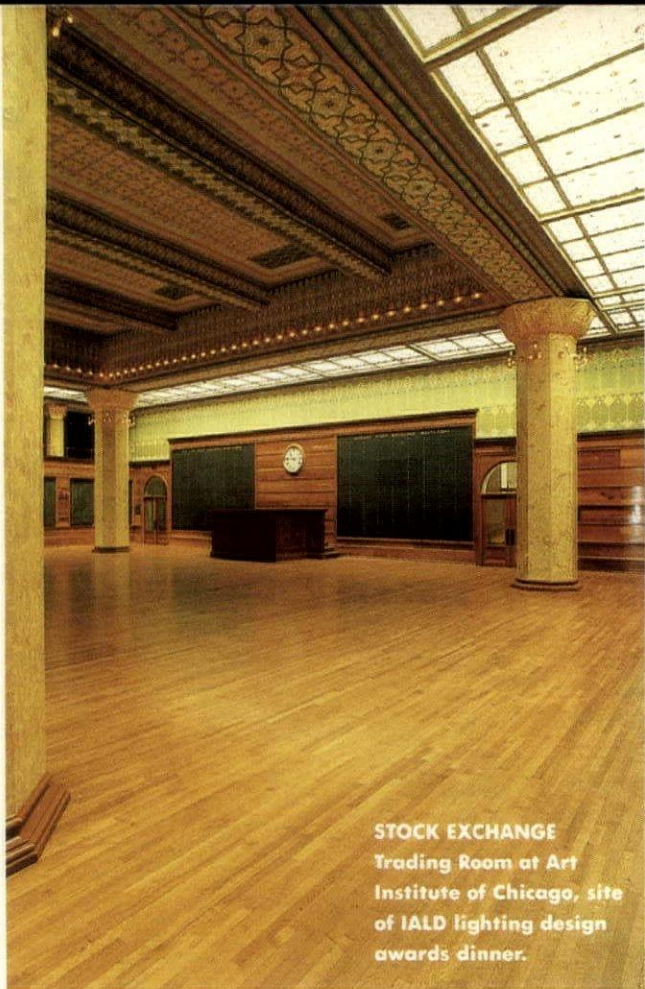
"LANDSCAPE LIGHTING: HOW TO EFFECTIVELY LIGHT OUTDOOR WATER FEATURES." Learn about the technical considerations, and the many concepts and techniques for the lighting of pools, hot tubs, waterfalls, fountains, and streams.

**SPEAKER:** Janet Lennox Moyer, ASID, Jan Moyer Design, Berkeley, CA.

**12:30-1:30 P.M.—Break-out session**

"LIGHTING ART IN A RESIDENTIAL ENVIRONMENT." Learn the "how-to" techniques of lighting art and what elements, such as ceiling height, mantles, furnishings, and color should be considered in lighting two- and three-dimensional art.

**SPEAKER:** Gerry Zekowski, principal, Gerry Zekowski Lighting Consultants, Skokie, IL.



**STOCK EXCHANGE**  
Trading Room at Art  
Institute of Chicago, site  
of IALD lighting design  
awards dinner.

## The Event Of The Year

The International Association of Lighting Designers (IALD) and *Architectural Lighting* magazine will co-sponsor a gala celebration for the presentation of the annual IALD lighting design awards. The event will be held at The Art Institute of Chicago on March 6, 1991, at 7:30 p.m. in the beautiful and ornate Stock Exchange Trading Room, designed by Louis Sullivan.

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

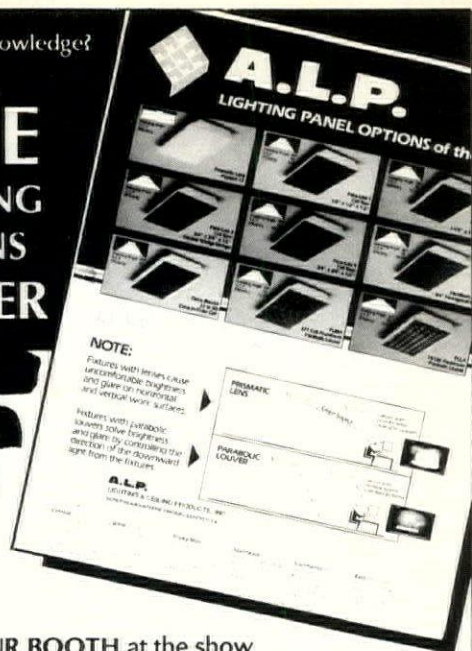
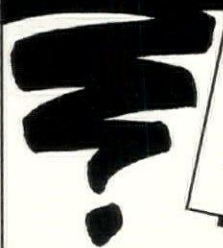
The evening will begin with a cocktail reception, followed by a banquet, awards presentation, and a spectacular laser light show by New York City-based Science Fiction Corporation.

"What we want to achieve," says Richard Sandhaus of Science Fiction, "is a program that shows examples of architectural applications and installations involving lasers that can transform building facades and architecture. We want to have fun and entertain people at the same time, so there will be a musical soundtrack accompanying the light show. . . and hopefully some humor."

Tickets for the 1991 IALD awards ceremony are \$85/person and may be purchased through registration for Lightfair, scheduled for March 5-7, 1991. In addition, corporate tables will be available. For more information, contact Lynn Weller, communications manager, 240 Peachtree St. NW., Suite 2200, Atlanta, GA 30303, or call (404) 220-2115.

What price knowledge?

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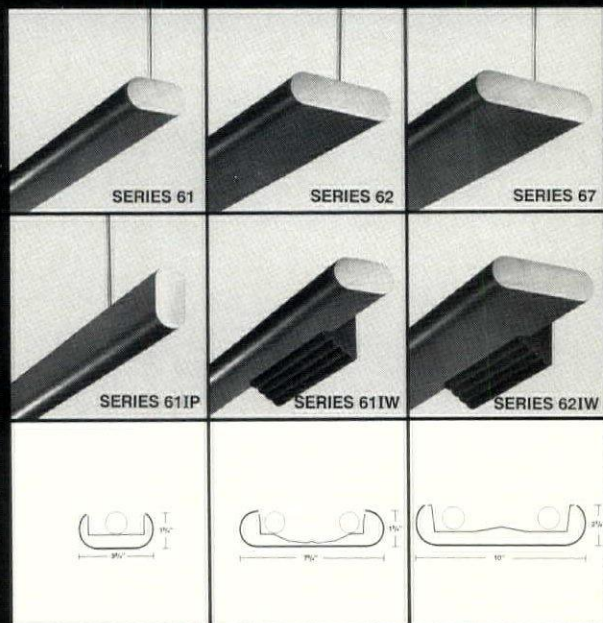
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**2-3:30 P.M.**

"HOW TO CHOOSE DIMMING SYSTEMS THAT ARE RIGHT FOR THE HOME." Learn how to choose dimming that is right for your project and your client, and hear what new options are available for residential dimming in the '90s.

**SPEAKER:** Craig A. Roeder, IALD, IES, principal, Craig A. Roeder Associates, Dallas.

**2-3:30 P.M.**

"NEW GUIDELINES FOR LIGHTING OFFICES CONTAINING VDTs: PRACTICAL INFORMATION ON SOLUTIONS THAT WORK." Learn the dos and don'ts of lighting offices that contain VDTs, and review the IESNA recommended guidelines and discuss their implications.

**SPEAKER:** Mitchell B. Kohn, IALD, MIES, architectural lighting consultant, Highland Park, IL.

## SPECIAL EVENTS

**MONDAY, MARCH 4** Presentation of the Edison Awards by GE Lighting

**TUESDAY, MARCH 5: 8:30-10 A.M.** Keynote address by Environmental Protection Agency, Admission: Free, Expocenter Exhibit Hall

**5-7 P.M.** Industry-wide Reception sponsored by the Chicago Merchandise Mart and *Architectural Record/Record Lighting*, Admission: Free, Expocenter Exhibit Hall

**WEDNESDAY, MARCH 6: 8:30-10 A.M.** Product Showcase  
Location: Expocenter Exhibit Hall

**7:30 P.M.** IALD Awards Gala co-sponsored by the IALD Awards Committee and *Architectural Lighting*, Art Institute of Chicago (see page 43).

**THURSDAY, MARCH 7** Chicago Illumination Design Awards Luncheon sponsored by the Chicago Section IESNA

## REGISTRATION HOURS

<b>Tuesday, March 5</b> 7:30 a.m.-7 p.m.	<b>Wednesday, March 6</b> 7:30 a.m.-7 p.m.	<b>Thursday, March 7</b> 7:30 a.m.-5 p.m.
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## EXHIBIT HOURS

<b>Tuesday, March 5</b> 10 a.m.-7 p.m.	<b>Wednesday, March 6</b> 10 a.m.-7 p.m.	<b>Thursday, March 7</b> 10 a.m.-5 p.m.
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## COMMITTED EXHIBITORS

(as of press time)  
(publications in bold print)

A.L.P. Lighting & Ceiling Products  
Aamsco

Abolite Lighting

Advance Transformer

Alanod

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Siltron Illumination

SPI Lighting

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Strand Electro Controls

Sun Valley Lighting

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**OUTDOOR LIGHTING FIXTURES**

The Carolina family includes the Hilton, Hatteras, and Kiawah Series of outdoor fixtures. The family offers four reflector packages featuring a vertical burn lamp for a more controlled, uniform distribution pattern. Other features include arm and pole top mounting, a removable ballast tray with a quick disconnect plug, field rotatable reflectors, and either a contoured tempered glass lens or a contoured polycarbonate lens. Finishes include granite, brick, and marble. LSI Lighting Systems, Cincinnati, OH. **Circle 50**

**COLORLED ELECTRIC LAMPS**

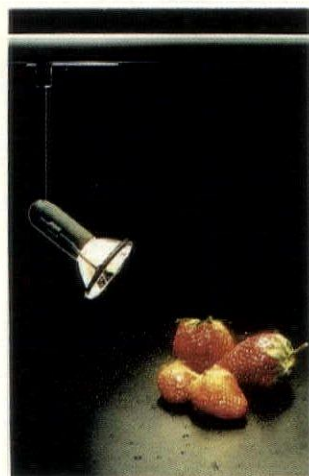
Opaque, translucent, and transparent ceramic color coatings are applied to the glass bulbs and tubes used in manufacturing incandescent and fluorescent lamps. A wide variety of decorative finishes such as crinkle coating, luster colors, pastels, and aluminized colors are offered. Entire bulbs, or just the crowns or stems, can be coated. For specialized effects, crowns can be coated one color and stems another. Colorlites, Ltd. Reston, VA. **Circle 51**



LSI CAROLINA FAMILY



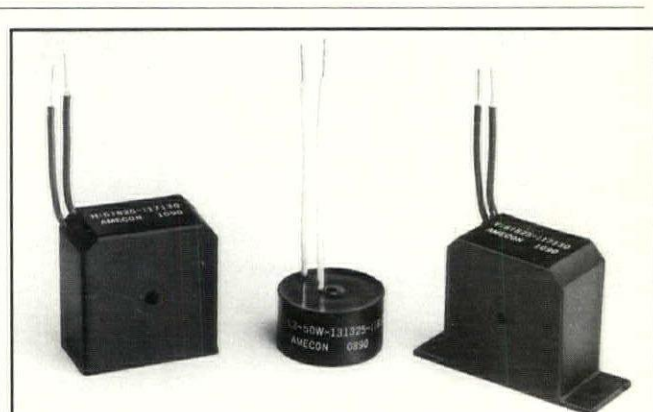
COLORLITES COLORED BULBS



TARGETTI MINITONDO

**LOW-VOLTAGE TRACK SYSTEM**

Minitondo, a 12-volt, 32-amp track system features a range of miniature 50-watt halogen bipin and MR 16 spotlights. Minitondo can be suspension or surface mounted. Targetti Inc., New York. **Circle 52**



**TECHNOLOGY BREAKTHROUGH: Improve Light Intensity and Debuzz, too**

Due to a newly developed core material, Amecan's new debuzzing chokes increase light intensity by 50% and reduce temperature by 25% over present technology. And they essentially eliminate noise in your lighting systems. Designed for OEM and retrofit applications, the new chokes are packaged for quick and easy installation into standard fixtures, wall boxes and compact areas. They're built with high temperature, high impact, fire retardant

UL recognized materials. They're rated at 50 and 75 watts from 5 to 24 volts. Two models include (1) the high performance 2-1/16" square by 1-1/16" deep model with centerhole or vertical/horizontal mounting and (2) the standard performance 1-5/8" diameter by 7/8" deep circular model with center-hole mounting. Ask about our custom designs, too. Call, FAX or write for new Technical Bulletin/Selection & Design Guide ALC-0790.



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**POSTMODERN SCONCE**

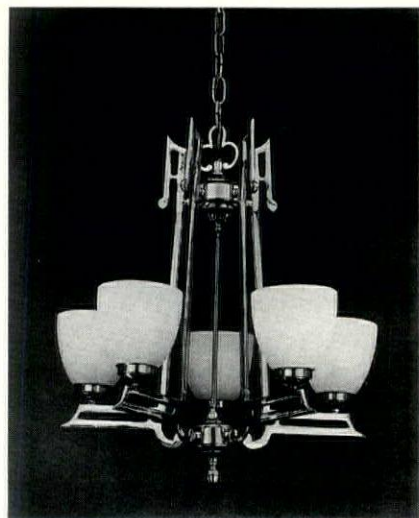
The Gran Rex sconce combines solid brass or chrome with clear glass accents and measures 6.75 inches × 14.5 inches with a 7.5-inch extension. The fixture takes a 300-watt 120-volt T3 halogen bulb. Illuminating Experiences, Highland Park, NJ. **Circle 53**



**IE GRAN REX**

**EUROPEAN CHANDELIER**

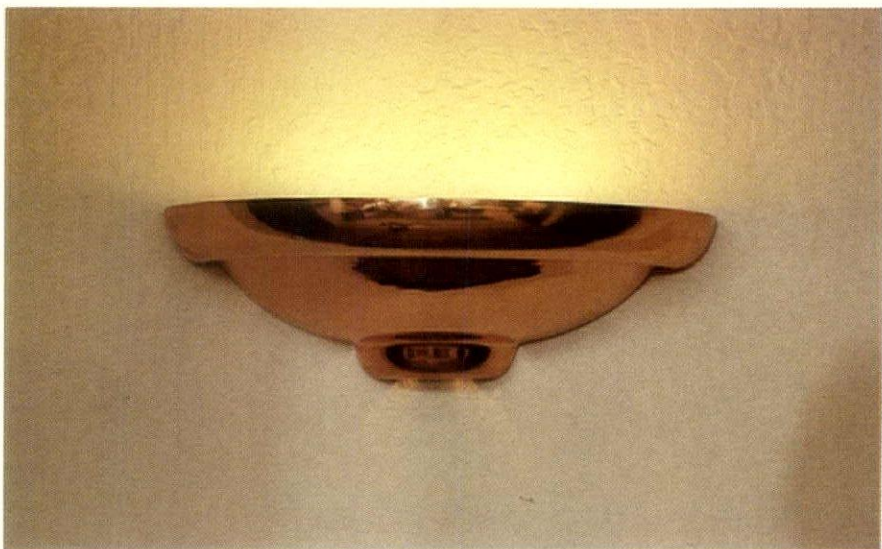
This solid brass and alabaster, five-light fixture is 24 inches tall and has a 21-inch diameter. It's available with five Edison base sockets for a total of 100 watts maximum. Murray Feiss, Bronx, NY. **Circle 54**



**FEISS CHANDELIER**

**WALL-MOUNTED FIXTURE**

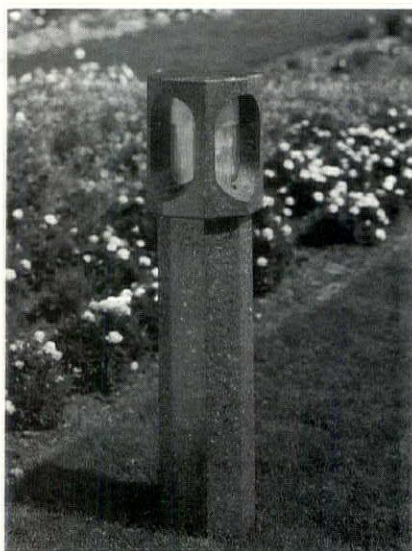
The Phoenix has a 6-inch overall height, a 20-inch diameter, and a 9.75-inch projection. It can be lamped with either incandescent or fluorescent sources, and is available in polished brass, chrome, copper, oil-rubbed bronze, or antique brass. Robert Long Lighting, Healdsburg, CA. **Circle 55**



**ROBERT LONG PHOENIX**

**ARCHITECTURAL BOLLARD**

The Monitor is made of spun concrete, requiring no maintenance. It uses H.I.D. or incandescent sources and offers an anchor base mounting or direct burial. The bollard is available in a wide variety of natural colors. King Luminaire Co., Inc., Burlington, Ontario, Canada. **Circle 56**

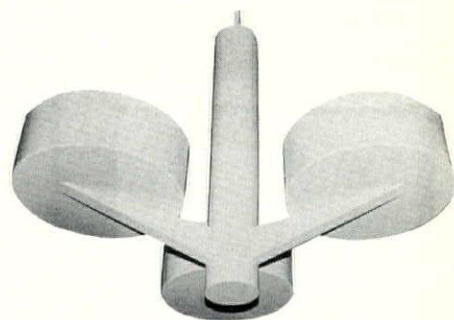


**KING MONITOR**

**INDIRECT H.I.D. UNITS**

The Indirector Series is a family of indirect high intensity discharge fixtures that are available as individual units, clusters, or chandeliers, with round or rectilinear silhouettes. Optical systems can be selected for vertical or horizontal lamp orientations, and downlight components are also available. Voigt Lighting Industries, Inc., Leonia, NJ.

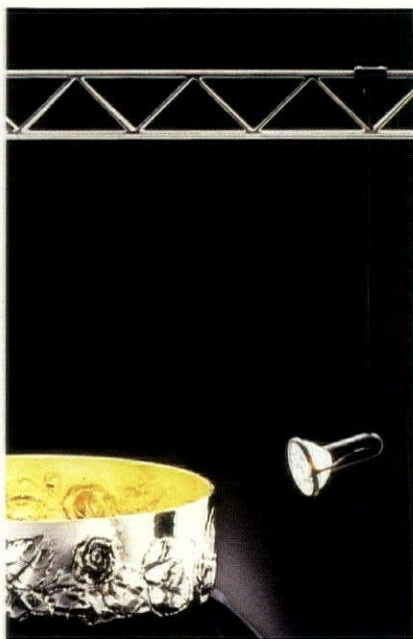
**Circle 57**



**VOIGHT INDIRECTOR**



PHILIPS MASTERLINE



TARGETTI STRUCTURELLA

#### MINIATURE SPACE FRAME

The Structurella System consists of miniature extruded aluminum, three-dimensional frames that function as insulated electrical conductors as well as supports for miniature halogen and dichroic spotlights. The maximum run from each electrical feed is approximately 20 feet in each direction. The system can be suspension or wall mounted. Targetti Inc., New York. **Circle 58**

#### HALOGEN BULBS

The Masterline collection includes square and round MR 16 low-voltage lamps and 120- and 130-volt PAR lamps. The square MR 16 is available in 20, 39, and 49 watts, and has a square-shaped reflector that creates a more focused center beam than round halogens. The round MR 16 provides up to 33 percent more light than standard MR 16s, and both generate a low amount of heat without losing light quality. Philips Lighting Co., Somerset, NJ. **Circle 59**

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**SYLVANIA LIGHTING DIVISION, US, Sylvania Lighting Center, Danvers, MA 1-800-544-4828.**

**USHIO AMERICA, 20101 S. Vermont Ave., Torrance, CA 90502.....Fax 800-776-3641 or 800-326-1960**  
Manufacturer of MR11, MR16, T3 Quartz, Minican and DC Bayonet Halogen Lamps.

### LIGHTING POLES (WOODEN)

**J.H. BAXTER & COMPANY, P. O. Box 10797, Eugene, Oregon 97440.....503-689-3020**  
Manufacturer of Timberwood Lighting Standards. A superior pressure treated Douglas fir laminate for decorative outdoor lighting support. Contact Beryl Roberts.

The Marketplace is a monthly feature of Architectural Lighting, offering readers easy access to lighting products and services for commercial, industrial, and institutional applications. Listings in this reference section are sold on an annual basis. First Line ( Bold Face) \$990/yr. Additional lines \$690/yr. Mini Display \$3600/yr., \$1990/ 6 months.

Career Opportunities, Situations Wanted and Used Equipment For Sale Ads are also sold on a monthly basis. Ads are \$28 per line with a 4 line minimum. Mini Display ads are \$160 ( 1x), \$140 (6x), \$110 ( 12x).



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Title: \_\_\_\_\_

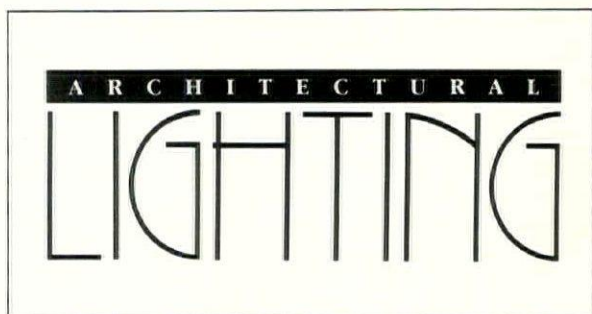
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Advertiser	Fax No.	Contact Name	Advertiser	Fax No.	Contact Name
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Amecon Inc.	714-634-0905	Frank Carlone	Lithonia Lighting	404-220-2136	Lynne Weller
Appleton Lamplighter Architectural Area Lighting	414-739-1656	Rich Fercy	Miroflector	404-922-1841	Dick Morse
CSL Lighting Inc.	714-994-0522	Dan Wilkens	Neo-Ray Lighting	516-239-8462	Gail Ullman
Capri Lighting	213-728-1319	Richard Stellar	Nightscaping/Div. of Loran, Inc.	718-456-5492	Victor Mausser
Gardco Lighting	805-257-1554	Richard Stellar	Norbert Belfer	714-794-7292	Tee Tan
GE Lighting Business Group	213-728-1319	Larry Collins	Philips Lighting	201-493-2941	Elaine Belfer
	415-357-3088	Bill Gendron	SPI Lighting	201-563-3229	Chris Domalewski
	216-266-8346	Jay Pomeroy	Wendelighting	414-242-6414	Dennis Johnson
				818-848-0674	Mark Jacksen