LD+A
Lighting Design + Application
July 2000
PUBLISHED BY THE IESNA

Healthcare Facilities

Chicago Rehab

A Clinic Glows in Brooklyn

Boston Offers Comfort & Care

Celebrating Health in Florida

IESNA ANNUAL CONFERENCE • WASHINGTON, D.C. • JULY 30–AUGUST 2, 2000

CONTENTS

LD+A
JULY 2000
VOL. 30/NO. 7

HEALTHCARE FACILITIES

FEATURES

DEPARTMENTS

ON THE COVER: The Dr. Betty Shabazz Health Center, in Brooklyn, N. Y., went through a significant remodeling in 1997, courtesy of David Prendergast. Architects. In the background, past the nurses' station desk, the sloping wall encloses the staff conference area and lunch room. Photo: Whitney Cox

PRESIDENT'S POINTS

Martyn Timmings

I am indeed fortunate to be able to step in front of the parade to lead your society into the new millennium. For the past three years, the leadership of your society has been busy developing, and implementing a new and cohesive road map to the future.

In 1998, I was able to participate in a strategic planning process designed to pave the way for IESNA to position itself to better serve its members. Issues dealing with membership, value, image, identity, structure and governance, programs and services, and — of course — fiscal resources were broken down and rebuilt.

We emerged with the basis of a new plan, a "living" plan not cast in stone. We recognized information must come forth more quickly, and we have restructured some of the committee processes to enhance the production of materials. We also recognized the electronic information super highway is key to providing members with new services. Methods are being explored to provide interactive lighting education and resource material in just a mouse click. No matter how remote you are to section activities, you will be able to learn or research lighting at your own pace and on your own timetable.

It's this last point I would like to expand on. During my travels to some of the sections and regions of the Society, I have been asked to explain what IESNA is and what its purpose is. These are good questions and to respond I have to reflect on what the IES means to me.

As someone involved in the development of educational materials, the IESNA means "access to quality lighting information." There is nothing new about this, as IESNA has been a conduit for quality information since the beginning. It is reflected in our mission statement:

To advance knowledge and disseminate information for the improvement of the lighted environment to the benefit of society.

The mission of IESNA seems straightforward enough, but behind the scene it's an awesome task. More than 70 technical design and application, research and educational committees are involved in studying and reporting on all aspects of lighting. These committees set consensus standards and produce recommended practices which affect the public and the lighting community alike.

What is extremely important about this aspect of IESNA activity is it becomes the source for good quality information. We are in the midst of the thriving information age; enter "lighting" into any web search engine and thousands of "hits" are received. Filtering through all this information takes a tremendous amount of time and effort. In addition, opinions and facts may differ due to the large volume of information available, making it difficult to confirm the reliability of the information source.

Information is constantly changing. What may have been appropriate before may not be appropriate now. As more information becomes available it becomes more difficult to sort out. How does one decide on the quality of the information at hand? This is where the IES shines.

Our information development process requires there be consensus among a committee of experts. The material is also subject to review by a technical review committee, which understands the work at hand. This takes time but is necessary in the development of quality information.

Who does this work? Volunteers, people like you and me, who have a passion for lighting and are willing and eager to participate. More than 1,000 volunteers are active in the various committees charged with developing the standards, providing educational materials and publishing design and application practices. These materials are a reliable resource.

If you would like to be part of the process, volunteer to work on one of the committees. Your contribution will be appreciated.

I've chosen to write about a successful section within the Southeastern Region. I recently visited the Georgia Section, which has 150 members, encompassing the entire state. Section meetings are held in Atlanta. The section membership accounts for just over 20 percent of the Southeastern Region's membership; the Section has rebounded from a period of inactivity.

REGIONAL VOICES

Jeff Martin
Southeastern
RVP

Section officers and the Board of Managers are a diverse group representing various professional disciplines. The section programming has included such subjects as Lighting for A/V and Teleconferencing, Lighting Software Demonstrations, and Marketing of Lighting (Design Capabilities).

My most recent Section visit was to attend the EXPO 2000, an annual product show. Over 30 manufacturers were represented at 50 tables. I had the opportunity to meet many of the attendees and the manufacturer representatives. The exhibitors provided valuable input in how to make next year's EXPO even more successful. The EXPO 2000 concluded with an end of the year banquet.

During the banquet, certificates of recognition were presented to the EXPO committee members who had volunteered their time and effort. Richard Heinisch received the Section Meritorious Award for his contributions of excellent guidance, advice, enthusiasm, and "jump starting" the Education Committee. Cheryl English was recognized for achieving Fellow status for her technical contributions to the Society. I took this opportunity to install the incoming officers and board of managers by presenting them with IESNA member pins. I enjoyed the fellowship, and the banquet was a perfect way to end a successful year. Considering success such as this one, this year is looking even better as the South Central and Southeastern Regions will merge as one.

A city and host Section had to be identified for the 2001 Regional Conference. Atlanta was a logical choice, being centrally located to all of the Sections in the new region. The Section president, Shad Funkhouser, was approached with the idea and it was put forth as a discussion item via an REC teleconference. The Georgia Section was apprehensive and needed more time to think it over. But, within 48 hours this Section responded to the challenge and volunteered to host the 2001 Regional Conference. They assembled thirteen volunteers from diverse disciplines as the Conference Committee. Everyone jumped in wholeheartedly and, as of this moment, are ahead of schedule in planning the event.

This Section has a multitude of good stories to tell which illustrate what can happen when things go well. Obviously, things go well when people volunteer to make things go well. Recognition is a form of compensation for the volunteer effort and comes in many forms. It is life-affirming that you are doing something others find value in. It is reinforcing that someone out there appreciates the effort you put forth. As a Section member or a guest, do you routinely walk up and thank your Section officers and managers for their efforts after a Section meeting? When was the last time you told your Section officers you would volunteer one or two hours per month to your Section? We all know it is much easier to say, "I don't have time." In my experience, spreading the workload is often the difference between Section success and Section inactivity.

You may find your Section is inactive or lacks the vitality it once had. Have you offered any suggestions to help make your Section better? You will probably find your input is not only welcome, but valuable. Have you offered to commit just one hour per month to help out on a phone committee or membership drive? It does make a difference and you will find your Section will be the beneficiary of your time.

The Georgia Section is reinvigorated and is on a successful roll. It has bounced back from hard times. Don't give up on your Section! It could be the next success!

LD+A

Publisher
William Hanley, CAE

Editor
Chris Palermo

Assistant Editor
Roslyn Lowe

Associate Editor
Peter Weisman

Art Director
Anthony S. Picco

Associate Art Director
Samuel Fontanez

Columnists
Ian Ashdown • Louis Erhardt
Brett Kingstone • Willard Warren

Book Review Editor
Paulette Hebert, Ph.D.

Marketing & Advertising Manager
Pamela R. Weess, CAE

Advertising Coordinator
Celeste Picco

Published by IESNA
120 Wall Street, 17th Floor
New York, NY 10005-4001
Phone: (212) 248-5000
Fax: (212) 248-5017/18
Website: http://www.iesna.org
Email: iesna@iesna.org

LD+A is a magazine for professionals involved in the art, science, study, manufacture, teaching, and implementation of lighting. *LD+A* is designed to enhance and improve the practice of lighting. Every issue of *LD+A* includes feature articles on design projects, technical articles on the science of illumination, new product developments, industry trends, news of the Illuminating Engineering Society of North America, and vital information about the illuminating profession.

Statements and opinions expressed in articles and editorials in *LD+A* are the expressions of contributors and do not necessarily represent the policies or opinions of the Illuminating Engineering Society of North America. Advertisements appearing in this publication are the sole responsibility of the advertiser.

LD+A (ISSN 0360-6325) is published monthly in the United States of America by the Illuminating Engineering Society of North America, 120 Wall Street, 17th Floor, New York, NY 10005, (212) 248-5000.

Periodicals postage paid at New York, NY 10005 and additional mailing offices. Nonmember subscriptions $39.00 per year. Additional $15.00 postage for subscriptions outside the United States. Member subscriptions $30.00 (not deductable from annual dues). Additional subscriptions $39.00. Single copies $4.00, except Lighting Equipment & Accessories Directory and Progress Report issues $10.00.

POSTMASTER: Send address changes to *LD+A*, 120 Wall Street, 17th Floor, New York, NY 10005. Subscribers: For continuous service please notify *LD+A* of address changes at least 6 weeks in advance.

This publication is indexed regularly by Engineering Index, Inc. and Applied Science & Technology Index. *LD+A* is available on microfilm from University Microfilm, Ann Arbor, MI.

ENERGY CONCERNS

Willard L. Warren, PE, LC, FIESNA

The IESNA, the IALD, and LIGHTFAIR INTERNATIONAL are to be congratulated for producing a first class lighting conference at LIGHTFAIR INTERNATIONAL 2000 in May. There were 143 new products at the Showcase Presentation. Exhibitors from here and abroad showed their products in exceptionally well-designed booths. In addition to a record 19,000 attendees, there were some of the best seminars we've ever had.

From an energy point of view, an interesting new development was the T-5 fluorescent lamp. Two of the three major lamp manufacturers in the world are based in Europe, where the T-5 lamp was developed. It arrived here when the emphasis was on the quality of the visual environment and indirect and direct/indirect luminaires were all the rage. There hasn't been this much interest in indirect lighting since the silver bowl lamp and the three ring "circus" fixture dominated classroom lighting 50 years ago.

What's so different about the T-5 fluorescent lamp, aside from its thin, 5/8-inch cross section is that its lumen output peaks at 15 to 20°F. Higher than either the T-12 or T-8 lamp.

But all luminaires, by ANSI and IESNA standards, are tested in photometric labs with an air temperature of 77°F (25°C), which is optimal for the T-12 or T-8 lamp. The T-5 lamp, however, reaches its peak lumen output at around 95°F (35°C). As a result, the T-5 lamp may never get to its maximum lumen output while being tested in a luminaire in the lab.

The published data may show more lumens coming out than going in, leading to an apparent efficiency over 100 percent. Of course energy efficiency can never exceed 100 percent but in this unusual circumstance, thermal conditions may provide more extra lumens than the luminaire loses optically. So with the T-5 lamp, we have to change some of our ground rules.

On the other hand, when the T-5 lamp is used in a pendant luminaire, the surrounding air temperature is around 77°F, and the lumen output (and the luminance data) matches that of the test, at 15-20 percent below what it would be in a luminaire with a 95°F ambient temperature. As a result, you have to know how a luminaire with T-5 lamps is being used in order to properly access the photometric data. Depending on whether you need the most illuminance you can get (and the least number of fixtures), or the lowest possible luminance (in order to meet some brightness criteria), will determine how you apply this data. Photometric reports should provide a temperature calibration curve for each luminaire.

The U.S. Energy Department has warned the electricity available for this summer's emergencies is inadequate.

Coincidentally, when utilities ran Demand Side Management (DSM) programs to shave peak demand, many Escos would remove the four T-12 lamps from a recessed lensed troffer, insert an electronic ballast, a specular reflector, insert only two T-8 lamps, and show no loss of light below the luminaire. Of course the T-8's were new, the reflector was highly efficient, and the electronic ballast gave more lumens per watt than the old magnetic. But adding to the "magic" of two T-8 lamps giving the same light as four T-12s was the fact the old lamps in the existing fixture were "cooking" well above 77°F. The *IESNA Handbook* has a graph of fluorescent lamp output vs. bulb wall temperature (which depends on the surrounding air temperature) showing a "one for one" relationship between relative lamp output and bulb wall temperature near the peak output, so a 20°F degree difference in temperature of the surrounding air, either up or down from 77°F, will cause a 20 percent drop in the lumen output of a T12 or T8 lamp. Not much magic involved here, just plain old physics.

In past columns, I have extolled the virtue of bi-level lighting to reduce load when there are no occupants in any lighted space. And we do not recommend the lights be shut off entirely by an occupancy sensor, but only reduced to a level low enough to meet minimum requirements. Using this approach in offices, corridors, and stairwells provides a diversity factor throughout a building as various unoccupied spaces are cut back to a low lighting level which reduces the overall peak demand and the total kw/hr usage of a building.

Bi-level lighting has another application. All the reports we are getting from the press and the *energy.com* website is that this summer may see a considerable number of power blackouts due to energy shortages and inadequate utility transmission lines. California's Independent System Operator (ISO) has launched a Power Watch 2000 program to encourage energy conservation. The U.S. Energy Department has warned the electricity available for this summer's emergencies is inadequate and the Energy Secretary, Bill Richardson, has been telling audiences things will get worse before they get better and people who conserve energy should be rewarded in some way.

At LIGHTFAIR INTERNATIONAL 2000, we saw some state-of-the-art products that make bi-level lighting a cinch for cutting load

painlessly. Several manufacturers exhibited hi-low electronic fluorescent ballasts and hi-low HID magnetic ballasts. Occupancy sensors were demonstrated at the show, which can be incorporated inside a lighting fixture as small as an ADA compliant corridor sconce.

Energy Secretary Bill Richardson, has been telling audiences things will get worse before they get better.

This would be an ideal energy saver for hotel corridors.

Also shown at LIGHTFAIR 2000 were energy management systems that an be programmed to reduce lighting levels throughout a facility, so when the utility declares an energy shortage alert and is demanding customers cut power usage, one push of a button in an energy management system will do the trick. And even if the utility has a blackout, forcing the client to use an emergency generator, the energy management system can be programmed to automatically drop the lighting load to the "low" level of the bi-level design.

I'm looking forward to seeing you in Washington D.C. at the IESNA Annual Conference 2000 at the end of July and getting your suggestions as to what energy related topics you would like covered in future articles. We're planning an extra-added attraction at 10 AM on Tuesday, August 1, at the conference — a panel discussion on "Packaging."

ADVENTURES IN LIGHTING

Brett Kingstone, SuperVision International

What I remember most about Moscow in winter is the cold; brutal, terrible cold air ripping like sharp daggers through your nostrils freezing the back of your throat and tongue. The skin on my face felt as if it would crack if I merely touched it and icicles emanating from my nose had already numbed what was left of the feeling in my upper lip.

Russia has changed a great deal since my previous trips when it was still known as the USSR. There are no more great restrictions on travel and business, no more floor ladies taking notes of your comings and goings in the Intourist Hotels. In fact, it has become quite the opposite; more like the no holds barred wild west. Although I am a devout capitalist, I was disappointed to see the new-found brand of Russian capitalism has brought mostly poverty and misery to the masses and riches to only a well-connected few.

Our distributor, Vladimir Karpov of Advertising Agency A, greets me at the airport with another of his famous Russian bear hugs.

It was a long terrible flight and I wanted to get some decent food and a few hours sleep. Upon arriving at the hotel — the Raddison Slavenskaya — a section of the entryway was completely sealed off with some sort of police barricade and security tape, and there was a large bloodstain in the middle of the entryway. I turned to Vladimir and asked what had happened.

> Vladimir commented to me "in former times, such an exposition would be illegal, as would be most business we do here today."

"Russian partner of hotel had disagreement with American partner of hotel," he said, somewhat matter-of-factly.

"Oh I see, but back home they use lawyers for that sort of thing," I said.

"Lawyers take too long. This way more popular in

(above and left) Cinema Center Rolan in Moscow features a multi-color waterfall and a ceiling full of stars, both illuminated by fiber optics.

Russia presently; more efficient," he said with a wry smile.

At breakfast the next day, I learned from a few British businessmen the American half-owner had refused to sell out to the Russian half-owner. The ongoing disagreement even garnered a few small articles inside the local English-version newspaper. The resolution made it to the front page.

My British friends added the American was forewarned about the possibility of foul play. He had even hired more than 15 bodyguards to surround him and accompany him during his travels throughout the city.

"Apparently one morning, while leaving the hotel," commented my British friend, "all these chaps had amazing simultaneous reflexes. They all ducked the machine gun assault and the poor American chap got riddled with bullets while all the bodyguards remained unscathed!"

As I rose from the breakfast table with my newly acquired friends, I saw Victor and Valery running toward me from the hotel lobby. More Russian bearhugs ensued, each one competing with the previous to see who could make my back or ribs crack the loudest.

Victor and Valery are Vladimir's partners, all young former officers in the Russian military who then joined the Moscow police force, only to learn of more profitable activities in business with the dawn of Peristroika under former President Gorbachev. Victor was a major in the Russian Army still participating in the reserves. Vladimir was a Captain and Valery was something between a corporal and a sergeant. I still can't figure it out. In any case, I would refer to them as the three "V's" or later — as we paraded through Red Square after a successful night emptying vodka bottles — "my wild and crazy Russians."

Vladimir, together with Victor and Valery, owned an advertising agency, which sold space on billboards they owned throughout Moscow to prominent local entertainment facilities, as well as brand name American companies. They also built signs and engaged in lighting designs and installations for nightclubs and casinos. Those businesses catered to the wealthy and well connected in Moscow and often money was no object for these establishments. Multi-colored, fiber optically lighted chandeliers, which, at $50,000, would seem both pricey and gaudy for even the most liberal and well-heeled American establishments, were purchased eagerly by these companies.

Light generated by fiber optic edge-lighting is absorbed by the sandblasted logo in the glass.

Among the establishments catering to the

Muscovite nouveau riche were the Cinema-Center Rolan in Central Moscow, which had thousands of glistening fiber optic stars beckoning guests in the neoclassical lobby, complete with high ceilings and pillars. The Rolan main dining area had a giant fiber optically lit

Fiber optic signage can continue to function even through the bitterly cold winds and temperatures at the Moscow domestic airport.

waterfall display. The slow sweeping colors in the waterfall were timed to coincide with changes in both the star ceiling and illuminated doves above.

The Hotel Metropol utilized thousands of fiber optic points of light in Christmas decorations. They intertwined fiber optic twinkling end points in the wreaths, outlining all the interior and exterior windows, moldings, ramps and railings throughout the hotel.

Another application Metropol employed was the fiber optic edgelighting of a glass panel sandblasted with the casino's logo. We utilized a fiber optic "light bar" consisting of an aluminum extrusion channel housing both the SV4 endpoint fiber optics spaced on one inch centers and the top edge of the Casino Metropol glass panel. The illumination effect resulted in the light being absorbed by the sandblasted logo in the center with colors changing in sequence.

Similarly, the Casino's Arbat and Golden Palace in Moscow illuminated all interior stairways and railings with both sideglow and endglow fiber optic cable. I am told the lighting served to be as functional as decorative. Pit bosses have claimed countless stumbles have been prevented by their less-than-sober guests being able to clearly see each stairway step and riser.

In the Golden Palace nightclub, both the dancefloor and ceilings were decorated with fiber optic star points and sideglow cables. The quarter inch diameter SV42 cables were laid in the grout lines between each row of tiles and the colors would wash across the dancefloor in waves from one side to the other.

Another favorite watering hole of young Muscovites is Dolls. The main logo in the stage backdrop was created with fiber optic lighting and Lucite bulbs illuminated with SV50 cables, which were also incorporated throughout the stage area.

For residential applications, the Russian version of Beverly Hills is the new Moscow neighborhood called Nikolino. Nikolino's giant guard gates and porte cocheres were highlighted with sideglow fiber optics. The main gazebo and park clocktower were outlined in sideglow fiber optics, the main clubhouse was trimmed out in sideglow fiber optics and — if that wasn't enough — several homeowners decided to outline their houses with sideglow fiber optics.

One of the homes in Nikolino was totally outlined with sideglow cable. The ostentatiousness was beyond even what the most eccentric among the Beverly Hills residents would have considered for Christmas decorations. What is surprising was this design was being maintained in a million dollar plus home year-round. The light sources utilized for all the above mentioned endglow and sideglow applications were the SV1500 and SV2000 150 W metal halide systems rated at 6,000 hours of lamplife and 3000 or 4000 K color temperature.

In more recent installations, our Russian customers have gravitated to the new SV3000, also known as the Eclipse light source. This light source provides a 270 W metal halide lamp rated at 2000 hours with a color temperature of 5200 K and a lumen output of more than twice the 150 W systems. This light source not only provides for a brighter cable but also a crisper and whiter light output. We have found in Russia, just as in Las Vegas, brighter is better.

The main purpose of my trip was to attend Russia's first annual advertising expo. The three "V's" company had a large and impressive stand featuring a walk-through tunnel lighted with every form of fiberoptic lighting and signage imaginable. Vladimir commented to me "in former times, such an exposition would be illegal, as would be most business we do here today." Vladimir explained in Soviet Russia, private enterprise of all forms were illegal and being a "businessman" would often land one in prison. What grew out of the revolutionary change in the Russian economy is a bastardized form of capitalism. The former communist leaders held all the capital and influence while the average peasant wound up selling his shares distributed to him by the farm collectives and companies just to get food for the next day or week. In fact, all across Moscow, I saw lines of people in despair, sometimes blocks long, holding a few possessions such as an iron, lamp or a

The fiberoptics in this application were not nearly as bright as neon, but the advantage was the elimination of glare.

pair of socks, hoping to make a transaction to ensure food on the dinner table that evening.

With the exception of very few, the transition has not been kind to most Russians. Asking them to go from state-guaranteed subsistence to self-sufficiency overnight was like trying to teach fish how to fly.

With the exception of the former leaders who used their power and influence to enrich themselves, there were a young, educated, innovative, and ambitious few,

They have been our distributors in Russia for more than five years, and each year their sales have grown by more than fifty percent.

who learned how to be entrepreneurs and unleashed their energies to make it on their own.

Vladimir, Valery, and Victor were among those few. They sought me out at a trade show in Europe several years ago and told me their plans to start their own advertising agency, which would include selling lighting and signs. Although their company was new and they had little experience, I was impressed by their energy, commitment, and enthusiasm, and granted them a distributorship with Super Vision.

They have been our distributors in Russia for more than five years, and each year their sales have grown by more than fifty percent. I shared in their pride that their hard-earned success had allowed them to buy apartments and luxuries for their parents and families. They were generous to their employees and their staff was dedicated and loyal.

So after a hard day at the tradeshow booth — so mobbed we weren't able to take either lunch or bathroom breaks — the three "Vs" decided to take me to a special traditional Russian place to further bond our friendship and relax: the Russian Steambaths.

Apparently this steam bath was part or fully owned by the Army (I still cannot figure out exactly who owns what in Russia) and Victor, through his contacts in the Army, arranged to have the entire place rented out just for us.

We jumped into cold pools of water immediately after emerging from blazing hot steam baths and then began a feast of Caspian shrimp and Russian vodka, only to return to the steam baths again to remove the toxins.

We were served water by the matrons in attendance throughout the time we were there, slightly embarrassing for me since we were all naked at the time, but pretty much a customary in Russia, so I got used to it by the end of the night.

After the evening was over, we were off to visit the fiberoptic lighting and signage creations at the city's nightclubs, bars, and casinos, which Vladimir proudly showed off to me like the curator of the Louvre showing off the Mona Lisa.

As we headed to the airport to leave for my next trip, we were able to view the three "V's" crown jewel of their fiber optic art: the fiber optic signage display at the Moscow domestic airport. Here, they utilized 5/8-inch diameter sideglow cable with 150 W synchronized metal halide lamp light sources to create giant illuminated Cyrillic letters. The fiberoptics in this application were not nearly as bright as neon, but the advantage was the elimination of glare given off by neon, which would make the letters unintelligible on foggy nights. The other advantage was the elimination of problems common in cold climates — like Moscow in winter — where neon ballasts had problems igniting.

Often during the time when the nights were longest, the neon lighting would fail to illuminate, causing significant problems not correctable by normal maintenance. The fiber optic illuminators would not have these problems and utilized lower voltage and power consumption.

As I looked back at the sign on my way up the jet ramp, I thought of my great grandfather who would mumble a few words in Russian to me and then tell me how lucky I was to live in America while bouncing me on his knee. Would he have ever believed someday I would be back in his birthplace, conducting business and looking back on the airport sign his great grandson's technology had illuminated?

The Light Chicago Tried

A new generation post top HID luminaire, combining character with high performance streetscape illumination, has become an important element in an on-going Chicago neighborhood rejuvenation program. For one mile of Wells Street in the heart of Chicago's Old Town section, area residents are enthusiastically embracing their new street and roadway lighting system that consists of a new acorn luminaire from Cooper Lighting. The design features highly engineered refractive prisms that redirect spill light downward, providing suitable visibility while minimizing the glare associated with similar installations.

The Wells Street project is just one part of a city-wide program called "Neighborhoods Alive" which Mayor Richard M. Daley initiated to funnel money toward revitalizing many communities through Chicagoland.

"I take my hat off for the previous generation of our engineers," Mohammed Rashed, an electrical engineer with the city's department of streets and sanitation, said. "Without the luxury of computer-aided programs, they were still able to provide lighting systems with near perfect design elements. The new system on Wells Street just revived their legacy."

Launching its current relighting program on Division Street, another major arterial thoroughfare that intersects with Wells Street, the city employed another fixture delivering Type V distribution. The end result of this installation, though it checked out fine on paper, turned out to be less than acceptable. The fixtures, spaced 50 ft apart, were costly to install, provided an average illumination of 6.0fc, and annoyed the area's residents because spill light crept into apartment windows and several store fronts.

As a result of this negative feedback, Deputy commissioner James Heffernan asked for more cost and performance effectiveness without compromising public safety. With this directive, August Chidichimo, senior project director with the Chicago Department of Transportation, met with Frank Karagianes, an all-street program director for the City of Chicago, and Rashed. Together, this team researched and identified a Type III refractor manfactured by Cooper Lighting that met all lighting design criteria set by IESNA standards and the City of Chicago. Next, a series of exhaustive tests were implemented including installation of a complete light fixture in front of City Hall that was closely monitored for overall performance. Because this initial trial was so promising, showing a better uniformity and no hot spots, it was decided to install these luminaires on Damen Avenue, another well traveled Chicago street, to directly test and compare fixture performance.

What the operating test revealed was the practical use of a luminaire with Type III distribution. Providing an average illumination of 4.95fc, Cooper's Westminster fixture minimized spill light beyond the curb line while providing even illumination at street level. Further, it was determined that by using this type of top-mounted luminaire with Type III distribution, designers would be able to use fewer poles per installation and thus dramatically reduce overall system cost. "The City would save between 35-50 percent on material, maintenance, and energy costs," Karagianes said. "Equally important, it provided an excellent lighting system that met or exceeded IESNA standards, and did not compromise public safety."

The test procedure clearly indicated choice, and under Karagianes' supervision, 34 poles with dual fixtures were installed on Wells Street. In addition to the operational savings, another big bonus of the system is installation of the lighting system only took about half the budget.

"From the standpoint of performance, aesthetics, and economics, the newly installed lighting system on Wells Street has met our demanding criteria," CDOT senior project director Chidichimo concluded. "The Mayor's Neighborhood Alive program is an ambitious plan that hopes to ultimately relight all of the city's arterial and residential streets."

—Peter Weisman

In Retail, Image Sells

Many retail strip centers today take on the unimaginative bare-bones appearance of a flat-roofed rectangular box and appear to be constructed of cardboard. They usually cost around $60/ft^2$ for the shell, site development, and interior finishing. However, Lyle-Cook's project architect, Bradley A. Martin, brought this project in under $55/ft^2$. He also added enough aesthetic touches to help the new structure emulate turn-of-the-century designs found in Clarksville, Tennessee's nearby downtown historic district. With sophisticated aluminum awnings, three lofty towers, an L-shaped layout, and exterior lighting, Warfield Towers appears constructed with an open checkbook. On the contrary, the architecture firm stayed well under a small budget that co-owners Eric and Conrad Edington had laid out for the 19,000 ft^2 project.

"We went through three different designs and a lot of research with the architect in our attempt to find the right mix of materials that would give the center an upscale appeal and low maintenance at an economic cost," said Eric Edington. "I think we created a retail center that surpasses the aesthetics of any other retail center in Clarksville, but not at an extravagant cost."

For example, exterior lighting, which lights the center's sidewalks as well as its towers, was the major aspect that came well under budget, mainly through lighting market research that found value-engineered products. Designs by Martin were specified by the project's electrical and lighting designer John Wiseman, of consulting engineering firm Entech Engineering, in Nashville. FC Lighting Manufacturers of Lombard, IL, provided walkway lighting with 25 luminaires. To save the project thousands in lighting fixture costs, electrical contractor Bob Scarborough, president of Accurate Electric in Clarksville, substituted Wiseman's original fixture manufacturer specification with an identical by FC Lighting.

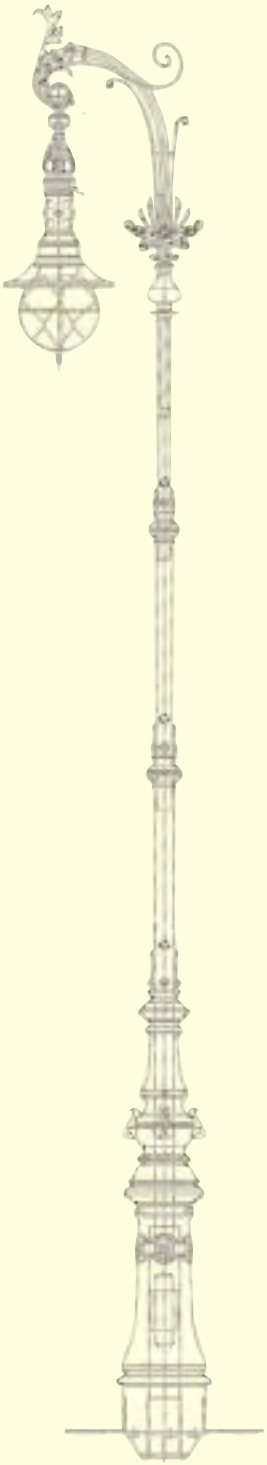
Aesthetically, Martin positioned the wall luminaires between each custom–made aluminum awning that designates each of the 10 storefronts at Warfield Towers. Mounted 11 ft high, the 45-degree throw of the fixtures evenly illuminate the sidewalk with approximately 10fc, with no glare or light spill from their single 50 W HID lamps.

The three towers for which Warfield Towers are named are lighted by a combination of high pressure sodium, downlight/uplight fixtures, to illuminate the openings inside the towers, and two quartz lights per tower, to light the exteriors.

In another example of cost cutting, the custom-made aluminum awnings cost more up front, but it is believed money will be saved in the long run by cutting down on maintenance and replacement costs for short-lived vinyl awnings.

The towers, custom awnings, lighting, and the center's façade combination of Oxford red brick, aluminum storefront window frames, and synthetic stucco combined for a look that has helped pre-lease 50 percent of the center. Before the center was finished, Edington had landed a healthcare company as an anchor in a 7,200 ft^2 space. The appearance of any retail center, without a doubt, is aimed to attract business. The success of Warfield Towers became solidified by two factors: aesthetics and cost.

—Peter Weisman



Berlin Lantern Renaissance Recreates 1890 Design

For Berlin, a city with a history of being segregated by political ideologies, one thing has been worthwhile to rebirth. Unter den Linden, Lime Boulevard, extends westward from Pariser Platz, where the Brandenburg Gate stands, to the *Lustergarten* (German for pleasure gardens). The year was 1890 when Professor Schupmann, an architect from Essen, created a street lantern with carbon arc lamps, giving the street life a never-before-seen application, enhancing nightlife.

The 1890 Schupmann-Kandelaber designs were each dismantled during the Third Reich's political reign and replaced by an installation known as Biedermeiser luminaires. The Biedermeiser lanterns were pole top mounted with the basic form of a head over, four-sided pyramid section, comparable to an old stable lantern, replacing the old Schupmann cluster along the boulevard, in preparation for the 1936 Olympic games.

The boulevard itself is characterized by a large middle reserve with an integrated walkway. Along the street, four rows of lime trees are planted two along the outside of the traffic lanes and two on the reserve. The Biedermeiser lanterns that survived World War II are still on the reserve positioned in a row with the trees. Original lamping used were incandescent lamps, but today high-pressure mercury vapor lamps are inside.

Still, by the end of the war, the Biedermeiser street lantern was destroyed to a large extent. A standard shoebox fitting took their place for the length of the Cold War's infamous segregation of Berlin. It was almost 60 years before the reunified Berlin Senate approached Semperlux Aktiengesellschaft, Lichttechnische Werke, and asked them to recreate the historical Schupmann street lantern.

The product is an accurate replica of the 1890 luminaire design. The construction of the design, undertaken by the Berlin lighting manufacturer Semperlux AG, was difficult due to scant information retained by history, the rarity of photos or documentation of any kind. With little to go on, engineers managed to come up with a design for the historical luminaire. With the aid of photogrammetrical processes, the designers established the geometric dimensions of the pole and details of the various rosettes and engravings.

The design of the new lantern is based on a cylindrical, stepped steel pole. The decorative elements are made of cast iron and aluminum. The arched pole is supported by hand forged wrought iron. Even the intricately knotted copper wire around the glass bowl, which was applied in the original lanterns to prevent broken glass from falling onto passers-by, has been incorporated into the new design.

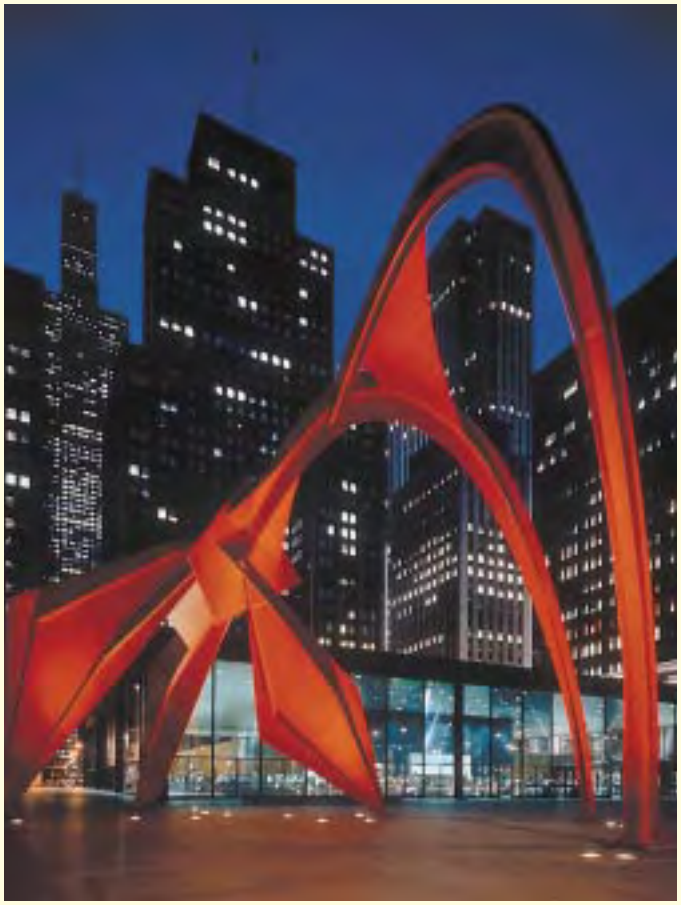
The new street luminaires not only act to fulfill critical design requirements, they also meet the regulations in DIN 5044 (Stationary Traffic Lighting). Unter den Linden's wide central reserve, which is enhanced with benches, leads pedestrian crossings to manifest at random parts of the road, not just at traffic lights. To meet the traffic requirements, an average luminance of 2 cd/m^2 was planned. The planners requested the desire to have white light — similar to the old carbon arc lamps — with good color rendering properties.

The desired white light was achieved through the application of state-of-the-art lighting technology. The street lanterns are 400 W metal halide lamps in conjunction with asymmetrical mirror optics. This guarantees the required lighting level for the four lanes of traffic in each direction, lighting over a total width of 12 m from a mounting height of 8.1 m.

Regardless of the moonlight, Unter den Linden has a timelessness in the air, now with white light shimmering in waves across the cobblestones, polished by the generations of long ago, including Professor Schupmann of Essen, his design, reborn, his footsteps, fallen.

—Peter Weisman

PHOTO: STEINKAMP BALLOGG



Lighting the Form, Forming the Light

In 1974, Alexander Calder's sculpture Flamingo was the first artwork to be commissioned through the General Service Administration's "Art in Architecture" Program. The sculpture was acquired and installed, gaining recognition for its mastery of organic form and color, passively animating the Mies Van der Rohe federal office buildings in Chicago's Federal Plaza. What had been missing ever since was illumination, that is, until 1999.

Flamingo was illuminated in a beautification plan catalyzed by the GSA, while increasing safety and security. The sculpture rests in an open space and an active pedestrian thoroughfare. The potential glare to pedestrians produced by an initial consideration of lighting from above, using surrounding buildings as possible locations, was rejected in favor of an in-ground approach reducing, and all but disintegrating, glare problems. All the lighting fixtures, PAR38 adjustables with locking mechanisms, were buried in the plaza pavement.

The lighting designers hired by the GSA were Schuler and Schook, Inc., in collaboration with architect Harry Weese Associates and electrical engineer Consentini Associates.

"We were given free reign to think of the plaza as a whole," said Robert Shook, of Schuler and Shook, Inc. "The project was a renovation of the plaza and lighting was a component of that renovation. We and the architects agreed early on we should primarily focus on the sculpture and the other component of the project, a couple of rather tall flag poles at another corner of the plaza. But the lighting was relegated to the sculpture and the decision made to do so fairly early on in the process. We had a lot of support from the architect and the local representative of the GSA that this was the proper approach to take.

"On this project, as we do on many projects, we did a lot of mock-up work to judge incident lighting angles and source color," continued Shook. "One evening, we conducted a mock-up using rented theatrical equipment. We actually placed every single fixture on the plaza using the adjustable theatrical lights. After we adjusting them for the optimum effect on the sculpture, we mapped it that way and drafted it based on the mock-up so we would be certain on the real deal."

"We also tested different lamp types at that time," said James Baney, also of Schuler and Shook, Inc. "We were not only looking to find the right positions and number of fixtures, we were testing out color-rendering characteristics. We tested halogen sources, which we eventually used and ceramic metal-halide sources that didn't do a real great job in rendering the Flamingo's red color. We settled on 250 W PAR38s in both spot and flood configurations."

The lights are turned on at dusk from a photocell and off at midnight from a timer. Based on the lighting mock-up, 17 fixture locations were chosen for the site and carefully documented for both spot and floodlight placements. The halogen lamps are used in conjunction with in-line wall box dimmers, which are permanently set to 85 percent to increase lamp life.

The lighting is intended to reinforce the lightness of the sculpture's parabolic form while not forgetting the heaviness of the counter spire and sharper angles. The lighting might attain a more fundamental representation of what the sculptor, Alexander Calder, was getting at. Of course, that is in the eye of the creator and not the beholder.

—Peter Weisman

P H O T O N S

NOTES ON LIGHTING DESIGN

Oh, Little Town of Bethlehem

South Mountain, offering numerous vistas, overlooks Bethlehem, Pa., nicknamed the "Christmas City." The church steeples are numerous, originating from a diversity of European steel workers living on the south side, wanting to hear Mass offered in their own languages. The blast furnaces line the river, elaborate steel structures now dormant, inert, a reminiscent landmark of the industry that once provided the economic life of this community. To the north side, across the river, and 40 miles away, The Blue Ridge, the boundary of the Lehigh Valley, lines the horizon.

Perched atop South Mountain is the famous Star of Bethlehem. Construction of the Star began in 1937. Completion and illumination followed in 1939. The Star was not lighted during the air raid fears of the early 1940s, as Bethlehem was an obvious target, housing one of the leading steel factories. Ever since, the Star has been a constant nightlight, towering 90-ft in the air.

The City of Bethlehem's Bureau of Electricity is responsible for maintaining the Star. It is made up of 242 25 W lamps, each with chrome reflectors built in, 121 per side, using an estimated $1,570 to light per year, approximately $130 per month.

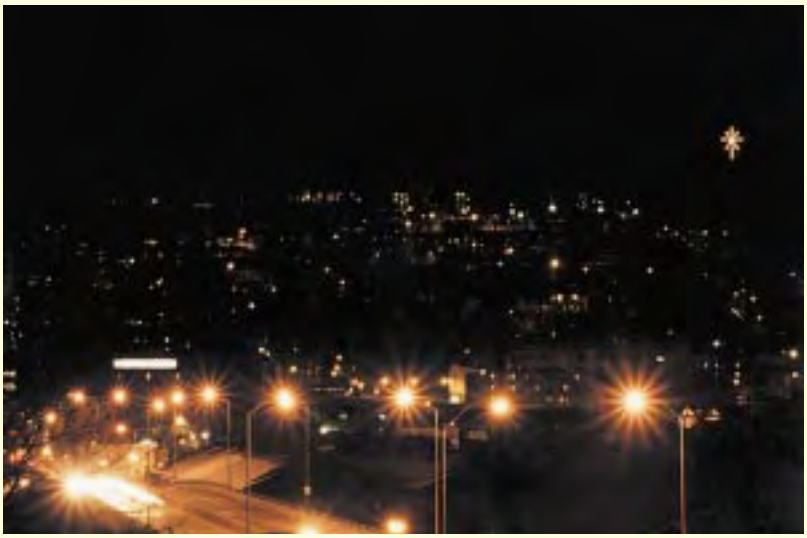
"It's on a timer so during the year it shines from dusk till about midnight," said Mike Wagner, the city electrician. "Two nights a year it shines all night long, Christmas Eve and Christmas."

The city has a traditional celebratory attitude toward outdoor lighting, doubtlessly lending itself to the Moravian founders who settled here. The first Sunday of Advent, at 5 o'clock, a Christmas Lights Turn-On event takes place with local speakers, a high school band, sing-a-longs, and the flipping of a ceremonial switch.

Sixty-four deciduous trees are lighted on Main and Broad streets every year, adding to the white light provided by Pennsylvania Power and Light's colonial style 150 W high pressure sodium street lanterns. The trees offer aesthetics and illumination to one of the downtown shopping district's busiest times. Coupled with the placement of 770 small Christmas trees on shoe box and cobra head street light poles across the river to the south side, 18 12-ft trees, four 20-24-ft trees, and three 35-40-ft trees, what are considered the "big tree locations" to the crew who places them there, Bethlehem uses 20,000 mini, 0.5 W lamps, 4,500 10 W lamps, and 45,000 7 W lamps. On the 770 small trees, 7 W stringers with 25 lamps per stringer are used, three for every two trees. On the big trees, including the 64 deciduous on Main and Broad, they use whatever it takes, according to Mike Wagner.

The results are a beautiful display of outdoor lighting, attracting tourists and locals alike. Of course, this excludes the year-long marvel of seeing the Bethlehem Star up close and the city of Bethlehem spreading out below from the vista of South Mountain, or witnessing the same Star forty miles away, from atop the neighboring Blue Ridge, a definitive landmark of Bethlehem's location on the Lehigh Valley horizon.

—Peter Weisman



PHOTOS: NATHAN BALUM

IES

ILLUMINATING ENGINEERING SOCIETY NEWS

VOLUME 30, NUMBER 7
JULY 2000

IESNA Annual Conference

The IESNA Annual Conference is set for July 30 – August 2, 2000 in Washington D.C., at the Renaissance Washington D.C. Hotel. Papers and seminars to be presented will include topics of interest to all allied lighting professionals. In addition, various awards will be presented including IESNA Society honors and the International Illumination Design Awards.

The schedule is packed with seminars, workshops, paper sessions, the IESNA Annual Meeting, tabletop exhibits, and a progress report of new products. Additional city tours are offered on an optional basis.

Full conference registration is $525 for IESNA members/$575 nonmembers. The full technical registration is $420/$460, respectively. Daily registration is $160/$180 per day.

On Monday, a special evening is planned for the Smithsonian Institution National Museum of American History. This multi-sponsored event will be an evening dessert reception for networking and exploration of the museum, especially the new lighting exhibition (See the following write up on the new exhibit). The evening closes with a tour of the night lighting of the monuments with a stop at the FDR Memorial.

The IESNA would like to acknowledge the following companies for their corporate support of services and programs for this conference: A.L.P. Lighting Components Company, Branch Electric, Chesapeake Lighting, Commercial Lighting, Cooper Lighting, Dominion Electric, Downie Turner & Buress of Maryland Inc., Earth Protection Services, ERCO Lighting USA, Federated Lighting, Fusion Lighting, GE Lighting, GHT Consulting Engineers, Holophane Corporation, Independent Testing Laboratories, Intrepid Lighting Manufacturing, The Kirlin Company, C.M. Kling & Associates, LexaLite International, Lighting Services, Lightolier, Litecontrol, Lithonia Lighting, Maryland Lighting, New Design Light, OSRAM SYLVANIA, Philips Lighting, Potomac Lighting, Robertson Worldwide, US Department of Energy, Zanger Associates.

Join us! Members of the IESNA Capital Section and the Local Host Committee look forward to welcoming you to Washington.

For a registration form visit our website at *www.iesna.org*. For any and all questions, please contact: V. Landers at 120 Wall Street 17th Floor, New York, N.Y. 10002 or call 212-248-5000 ext. 117.

IESNA Calendar of Events

July 30-Aug 2, 2000
IESNA Annual Conference
Washington, DC
Contact: Valerie Landers
(212) 248-5000, ext. 117

September 10-13, 2000
IESNA Street and Area Lighting Conference
Minneapolis, MN
Contact: Valerie Landers
(212) 248-5000, ext. 117

September 22-23, 2000
IESNA Maritime Regional Conference
Moncton, New Brunswick
Contact: Art Gillard
(506) 858-0950

October 23-26, 2000
IESNA Aviation Lighting Seminar
Sheraton Safari Hotel
Orlando, FL
Contact: Frank Kazienko
(773) 722-1900

May 29-June 1, 2001
LIGHTFAIR INTERNATIONAL
Las Vegas, NV
Contact: AMC, Inc.
(404) 220-2221/2215
www.lightfair.com

Smithsonian Institute Explores Edison's Incandescent

The Smithsonian Institute's National Museum of American History has a new gallery and a refurbished exhibition on Thomas Edison.

Edison's invention of an incandescent electric lamp provides a backdrop for the museum's newly refurbished *Edison: Lighting a Revolution II*, which explores the history, meaning and effects of this technological breakthrough. The story behind Edison's lamp is told, as is the process of invention in the late 19th century.

As an extension, *Lighting a Revolution II* brings the story of electrical lighting into a modern era. By examining the history of several latter 20th century lamp inventions, the new gallery illustrates similarities and differences between the process of invention in Edison's era and in the late 20th century. Modern energy-efficient ideas are examined in the context of how the lighting industry transformed these ideas into available energy sources.

Artifacts in the new gallery include an experimental tungsten-halogen lamp (1955), which came about after one member of the development team decided — out of pure frustration — to make "a really bad lamp;" various ex-

continued on following page

Smithsonian

continued from previous page

perimental compact fluorescent lamps (late 1970s) showing paths of invention not taken; Philips Lighting Company's compact fluorescent lamp (CFL) and QL induction lighting; and two experimental silica carbide lamps (1989), invented in the living room of a lone inventor, who was helping his son with a science fair project (the project took third place, but received a U.S. Patent).

The museum, located at 14th Street and Constitution Avenue, N.W., is open daily from 10 A.M. to 5:30 P.M. Admission is free. Call visitor information at 202-357-2700 or visit the Web site at *http://americanhistory.si.edu*

Members in the News

Advance Transformer Co. was recognized as the 2000 Energy Star Buildings Program "Ally of the Year" by the U.S. Environmental Protection Agency in a recent ceremony held in Washington, D.C. Advance was selected for the honor in the "Large Manufacturer" category based on its ongoing activities in the areas of industry support and outreach, development of exclusive marketing initiatives, successful EPA Energy Star Buildings recruitment, and comprehensive promotion of EPA ideals. On hand to accept the award were Gary Lehman, **Wendy Kaplan**, Susan Bloom, and Steve Schneider.

Paul Vincent of **Vincent Lighting Systems** and Bill Artzberger of Viewpoint Production Services, announced a new alliance between the two companies. Viewpoint, a camera and audio production and rental company, will offer camera

continued on following page

SUSTAINING MEMBERS

The following companies have elected to support the Society as Sustaining Members which allows the IESNA to fund programs that benefit all segments of the membership and pursue new endeavors, including education projects, lighting research, and recommended practices. The level of support is classified by the amount of annual dues, based on a company's annual lighting revenues:

Copper: $500 annual dues
Lighting revenues to $4 million

(Copper Sustaining Members are listed in the March issue of *LD+A*, as well as in the IESNA Annual Report. There are currently, 230 Copper Sustaining Members).

Silver: $1,000 annual dues
Lighting revenues to $10 million

Gold: $2,500 annual dues
Lighting revenues to $50 million

Platinum: $5,000 annual dues
Lighting revenues to $200 million

Emerald: $10,000 annual dues
Lighting revenues to $500 million

Diamond: $15,000 annual dues
Lighting revenues over $500 million

DIAMOND
Cooper Lighting
GE Lighting
Lithonia Lighting
OSRAM SYLVANIA Inc.
Philips Lighting Co.

EMERALD
Holophane Corporation

PLATINUM
Day-Brite/Capri/Omega
Lightolier
Lutron Electronics Co., Inc.

GOLD
A.L.P. Lighting Components Co., Inc.
Barth Electric Co., Inc.
The Bodine Company
Detroit Edison
Edison Price Lighting
Finelite Inc.
Indy Lighting, Inc.
The Kirlin Company
Kurt Versen Co.
LexaLite International Corp.
Lighting Services Inc.
Lightron of Cornwall, Inc.
LSI Industries Inc.
Martin Professional Inc.
Matsushita Electric Works Ltd.
Musco Corporation
Philips Mexicana SA de CV
Prudential Lighting Corp.
Ruud Lighting Inc.
San Diego Gas & Electric
SIMKAR
SPI Lighting Inc.
Steelcase, Inc.
Visa Lighting

SILVER
American Illuminetics Inc.
Ardron-Mackie Limited
Associated Lighting Representatives, Inc.
Bartco Lighting, Inc.
Branco Lighting and Controls
BJB Electric Corporation
Canlyte, Inc.
Cinergy PSI Energy
City of San Francisco
Bureau of Light & Power
Con Edison Co. of New York
Con–Tech Lighting
Custom Lighting Services, LLC
Custom Lights, Inc.
Day Lite Maintenance Co.
Elf Atochem North America Inc.
Energy Savings Inc.
ENMAX
Enterprise Lighting Sales Corp.
ERCO Lighting USA, Inc.
Exelon Infrastructure Services
Eye Lighting Industries
Eye Lighting International of
North America
Factory Sales Agency
Fiberstars, Inc.
Focal Point LLC
HAWA Incorporated
High End Systems Inc.
Hubbell Lighting Inc.
Kansas City Power & Light Co.
Kenall Manufacturing Co.
King Luminaire Co.
Kirby Risk Supply Company, Inc.
Ledalite Architectural Products
LEE Filters
Legion Lighting Co.
Leviton/Macro Lighting
Control Division
Lite Tech
Litecontrol Corp.
Litelab Corporation
Litetronics Int'l Inc.
Multi Electric Manufacturing Inc.
Northern Illumination Co., Inc.
Optical Research Associates
Optima Engineering PA
P + K Pole Products
Paramount Industries, Inc.
Portland General Electric
Poulsen Lighting Inc.
Power Lighting Products Inc.
Prescolite•Moldcast
Radiance, Inc.
Shakespeare
Composites + Electronics Division
Shaper Lighting
Shobha Light Designers
Southern California Edison
Stage Front Presentation Systems Inc.
Sterner Lighting Systems, Inc.
TXU Electric & Gas
United Illuminating Co.
WAC Lighting Co.
W. J. Whatley, Inc.
Wiko Ltd.
H.E.Williams Inc.
Winnepeg Hydro
Wisconsin Public Service Corp.
Zumtobel Staff Lighting Inc.

IES SUSTAINING MEMBERS

As of June 2000

Members in the News

continued from previous page

and support rental through Vincent Lighting Systems, which offers film and video lighting and grip equipment for purchase and rental. The joint venture will allow Northeastern Ohio customers a one-stop shopping experience for their film and video needs.

The Cleveland office of **Vincent Lighting Services** recently appointed Ron Sizemore as service manager. In his new role, he will be responsible for scheduling service calls, maintaining proper parts inventory, and handling customer calls for service.

OSRAM SYLVANIA has named the organization's staff and has designated Lake Zurish, Ill. as headquarters for the business. Among those appointed were Alan Barlow as director of human resources; **David Bay** (left) as corporate manager for Global Systems Coordination; and **Mike Collotti**, (right) vice-president of sales and marketing. **Francis M. Piscitelli**, vice-president of OSRAM SYLVANIA, has also announced Tim Lesch will become vice-president of sales for industrial & commercial lighting; Ken Shedin will become vice-president of sales for consumer products; and Tim Grover will become vice-president of SYLVANIA Lighting Services. OSRAM SYLVANIA is the North American operation of OSRAM GmbH of Germany, one of the world's leading lighting manufacturers.

Lutron Electronics Co. has named Michael J. Cunningham as director of marketing communications. He will coordinate and manage all of the company's marketing, promotions, advertising, and public relations initiatives. Cunningham joined Lutron in 1994 as communications manager, marketing initiatives.

Horton*Lees Lighting Design Inc. has named **Angela Lawrence** the San Francisco office project director. She has worked as an application designer with Thomas Lighting and recently with Peerless Lighting prior to joining HLLD. Other additions include Guy Smith and Christina Campobasso in the Los Angeles office.

W.A.C. Lighting has upgraded its website with e-commerce capabilities. W.A.C. Lighting's new internet program offers product catalogs on its line of track, recessed, undercabinet, and rope lighting, as well as specifications and FAQs (frequently asked questions) about the line.

Optical Research Associates has announced the release of *LightTools*, the company's illumination design and analysis software. It is designed to simplify the construction of complex reflectors, as well as facilitate the process of importing system and source models from other programs. They can be contacted at *www.optical.com* or via email: *service@opticalres.com*

Ellerbe Becket has named seven new principals to its ownership ranks. The new principals are: Blake Ellis, Joseph Ellis, Geoff Glueckstein, Adrian Hagerty, Richard Miller, Kim Way, and Stephen Wernersbach.

Peter Basso Associates, Inc. has promoted **Kevin C. Rettich** to senior vice-president and **John K. Calice** to assistant director of electrical engineering.

Cooper Lighting was recently singled out by the state of Georgia as its large industry manufacturer-of-the-year. Originally nominated by the South Georgia Technical Institute and the Americus-Sumter Chamber of Commerce, Cooper Lighting was chosen from a packed field of nominees and honored for its dramatic employment growth, technological advancement, and community involvement.

Spears/Votta & Associates, mechanical and engineering consulting firm, has appointed **Richard J. Williams** an associate of the firm. Williams has more than 25 years of experience in the electrical engineering field and has been with the firm for three years.

Dark Skies Campaign Offers Awards

The British Astronomical Association's Campaign for Dark Skies (CfDS) has introduced its "Awards of Appreciation" scheme, with a view to recognizing and publicizing the efforts of non-astronomers who have contributed positively to the protection, through efficient lighting, of the stars.

On April 28th, 2000, Awards of appreciation were presented by CfDS coordinator Bob Mizon (far left) and fellow committee member Graham Bryant (middle right), to Paul Kemp (far right) and **Patrick Baldrey**, (middle left) past president of the Institution of Lighting Engineers. The ILE produced, in 1992, its influential publication, *Guidance Notes for the Reduction of Light Pollution.*

The campaign committee firmly believes cooperation rather than confrontation with the lighting industry will accelerate progress towards an optimum night sky for all, since it is the experts who will physically provide the solution for the problem of skyglow. For more information, contact: Bob Mizon at www.mizar-astro.freeserve.co.uk/mailsend.htm or call him at +44 1202 887084

DOE and Lighting Industry to Fulfill 20-year Vision

The U.S. Department of Energy (DOE) released a report detailing the results of a two-year strategic partnership between the lighting industry and the department. Representing the work of hundreds of lighting industry professionals from more than 180 organizations, the report, *Vision 2020: The Lighting Technology Roadmap*, is set in ink to guide the government and the private sector in planning future investments and initiatives in the field of lighting technology over the next 20 years.

Vision 2020 details how lighting can efficiently meet the demands of tomorrow's commercial buildings and the needs of those who design, build, own, and occupy them. In particular, it will help guide the DOE to appropriately align its activities with industry. For more information or an online copy of *Vision 2020 — The Lighting Technology Roadmap*, visit *www.eren.doe.gov/buildings/vision2020*

Sections in the News

Einhorn Yaffee Prescott, Architecture and Engineering, recently completed first phase renovations to Harvard University's Lamont Library. In March, the project was selected by the IESNA, New England Section, to receive a Section Award for Outstanding Achievement in lighting design.

Walt Schran receives his Section Service Award in recognition of his service to the Pittsburgh Section. The award was presented to Schran at the February 15, 2000 meeting. Regional Vice-President, A.J. Mazza presented the award.

The Western New York Section Board of Managers has improved Board effectiveness, meeting attendance, and membership participation by implementing teambuilding practices in Board activities. The WNY Section Board began its teambuilding initiative in July of 1998. Their monthly Board of Managers' meeting agenda always contains time for a teambuilding activity. This time is used to learn a new concept, practice, and/or finalize teambuilding tasks from previous meetings. The WNY Board has learned about, and utilized, the teambuilding concepts including meeting roles, mission statements, team rules, brainstorming, feedback, and consensus.

The Western NY Section Board of Managers. Front Row (left to right): Kimberly Szinger (section president), Raymon Soto (section secretary), Philip Schillaci; Back Row (left to right): Norman Waff, Richard Olday, Kevin Mislin, Donald Wrobel, James Latello, Peter Hegedus (section vice-president), Kenneth Wasson (section treasurer). Not pictured: Paul Ryerse, Mark Thomas.

Allied Organizations

The **Consumer Electronics Association (CEA)** Technology and Standards Department has reorganized its standards setting committees to reflect the changing home networking industry. The R-7 Home Networking Committee, created in May 1999, now will oversee and coordinate the work of CEA's integrated home systems and home automation standard committees, previously working under specific product categories. R-7 unifies CEA's efforts to develop home networking standards that facilitate communication among the appliances, home systems, entertainment products, and information devices in a home. The charter of R-7 is to provide coordination for, and encourage cooperation among, all EIA and CEA home network standardization efforts as well as to provide a forum for other home network standards formulating bodies interested in working with EIA and CEA. The primary goal is to ensure current and future home networks can coexist within a home and share information through the use of industry standard interfaces.

Harry K. Hammond III has been selected as the first recipient of the **ASTM** Committee E12 on Appearance of Materials Richard S. Hunter Award. The Hunter Award was created in 1999 to recognize E12 members whose leadership has resulted in contributions to the committee, ASTM, and industry.

NYSERDA, The New York State Energy Research and Development Authority, is seeking proposals to develop, demonstrate, or commercialize innovative construction methods and building materials for residential, commercial, and institutional buildings. The proposed technologies must provide economic, energy, and/or environmental benefits in New York State. NYSERDA will make multiple awards of up to $200,000 per project. For more information, contact: Jane Powers at 518-862-1091, *jap@nyserda.org,* or by mail at Jane Powers, PON 5442-00, NYSERDA, 286 Washington Avenue Extension, Albany, N.Y. 12203-6399.

Underwriters Laboratories Inc. announces the publication of the fifth

edition of the *Standard for Safety for Amateur Movie Lights*, UL1230. UL1230 covers amateur movie and video lights intended to be hand held or attached to a camera. These lights may be cord connected, rated at a nominal 120 V for use with premises wiring systems in accordance with the National Electrical Code, ANSI/NFPA 70, or may be powered by low voltage built-in or separate battery supplies. UL1230 does not cover movie or video lights intended for professional or commercial use. For more information contact Global Engineering Documents, telephone: 800-854-7179; email: *global@his.com*; website: *http://global.his.com*

To determine compliance with *ASHRAE/IESNA Standard 90.1-1999, Energy Standard for Buildings Except Low-Rise Residential Buildings*, **ASHRAE** has published a user's manual as a companion document to the standard. *The User's Manual* explains the standard, provides sample calculations, reference material and guidance on using and complying with *Standard 90.1*. The 325-page document contains 84 figures, 41 tables and 121 examples. According to Charles Eley, principal of the research team, the manual also contains a complete set of compliance forms, worksheets, and checklists that can be used to document compliance with the code. The cost of the manual is $75. This can be ordered from the IESNA by contacting Albert Suen, publication sales, 212-248-5000, ext. 112, or visiting the website at *www.iesna.org*. You can also contact ASHRAE Customer Service at 1-800-5-ASHRAE (U.S. or Canada) or 404-636-8400 (worldwide); fax: 404-321-5478; email: *orders@ashrae.org*; or online: *www.ashrae.org*

Secretary of Energy Bill Richardson announced the **Department of Energy** will award $630,000 in grants to state and local partnerships to help install a million solar roofs on buildings across the nation by 2010. These grants will be awarded to 17 entities in 13 states.

"This is a gift to America on the 30th anniversary of Earth Day," said Richardson. "Consumers want affordable clean-energy options that will help them save money and at the same time, reduce greenhouse gas emissions and create new high tech, high wage American jobs. Renewables, such as solar energy, are power sources that are ready now and have great promise for the future."

Entertainment Services & Technology Association announced the start of a project to draft an American National Standard for the manufacture, assembly, and use of variable and fixed-height luminaire support devices, commonly referred to as "boom and base assemblies." This standard will not apply to towers, ground-support structures, or other devices that use winches or other lifting mechanisms, and will not apply to aluminum tripod or other similar lightweight standards, or stands with castered bases, all of which are commonly referred to as "grip stands" or "lighting trees." For more information, contact: Karl G. Ruling by phone: 212-244-1502 or email: *standards@esta.org*

The Association of Construction Inspectors (ACI) is a recently formed group providing education materials as well as professional designations for those involved in construction inspections and project management. This newly formed group consists of inspectors, architects, contractors, appraisers, home inspectors, remodelers, and other professionals with construction and/or real estate knowledge. Members can choose between two designations — Certified Construction Inspectors (CCI) or Certified Construction Project Manager (CCPM). For more information on this organization, call 320-763-7525, fax: 320-763-9290, or visit the website at *www.iami.org/aci.html*

ASHRAE, The American Society of Heating, Refrigerating, and Air-Conditioning Engineers has announced the first proposed changes to the ASHRAE/IESNA Standard 90.1-1999, *Energy Standards for Buildings except Low Rise Residential Buildings*. In preparing updates to the standard, which was approved in June 1999, the 90.1 committee is proposing 29 addenda. The comment period for the 29 addenda began June 7 and ends August 7. The best way to stay informed is to visit **ASHRAE**'s website at *www.ashrae.org*

New Members

Membership Committee Chair Jim Sultan announced that the IESNA gained 3 Sustaining Members and 154 new members (**M**), associate members, and student members in May.

SUSTAINING MEMBERS
Digitronics Inc., Seoul, Korea
Radiance, Inc., Pittsburgh, PA
Quantum Engineering Company PC, Selkirk, NY

INDIVIDUAL MEMBERS
East Central Region
Scott Collins, Light Lines, Inc., Harrisburg, PA
Michael Griesel (**M**), Gillan & Hartmann, Inc., Mont Clare, PA
Tyler B. Humphreys (**M**), TB Humphreys and Associates, Roanoke, VA
Jason A. Kashner, Tristate Electrical Supply Co., York, PA
Lester E. Lentz, Tristate Electrical Supply Inc., York, PA
Leslie Levine (**M**), Fusion Lighting Inc., Rockville, MD
Ronald G. Maurice, Precision Lighting Inc., Gaithersburg, MD
Charles N. Osher (**M**), Eclipse Technologies, Rockville, MD
Matthew S. Polk, Polk Audio, Inc., Baltimore, MD
Robert Sagula (**M**), Hubbell Lighting Inc., Allentown, PA
George Washington University
Sandra Park

Great Lakes Region
Lance Barnes, Gasser Bush Associates, Livonia, MI
Daniel R. Chirayath, Cleveland Heights, OH
Thomas Coburn (**M**), The Gleason Works, Rochester, NY
Peter Danszczak, Main Street Lighting Standards, Medina, OH
James M. Fowler (**M**), Loraine, OH
Julie Miller, Gasser Bush Associates, Livonia, MI
Chris L. Willis, International Truck & Engine, Springfield, OH

Intermountain Region
Laurence F. Kinney (**M**), E Source Inc., Boulder, CO
Jeffrey M. Lange, JML Services, Tempe, AZ
K. Ernie Pryor (**M**), The Orcutt/Winslow Partnership, Phoenix, AZ

continued on following page

New Members

continued from previous page

Brian D. Stubstad (**M**), PF Chang's China Bistro, Phoenix, AZ

Midwest Region

Bradley P. Grainger (**M**), Holophane Corporation, Pleasant Hope, MO
Robert Palmer, Aarons Automotive Products, Springfield, MO
Kansas State University
Amanda Brownlee, Brenda L. Kliesen, Justin McAdam
University of Kansas, Lawrence
Chris M. Coulter

North Central Region

Frank C. Burnham (**M**), Mead & Hunt, Inc., Madison, WI
David M. Grimm, Phoenix Products Company, Milwaukee, WI
Ken Kozminski LC, Envision: Lighting Branch, Madison, WI
Ken Lapen, Abbott Laboratories, Abbott Park, IL
Zhonghu Li (**M**), Ellerbe Becket, Minneapolis, MN
Pete N. Makowski, Advance Transformer, Rosemont, IL
Antonious Oshana (**M**), Globetrotters Engineering Corporation, Chicago, IL
Ronald Q. Pool, City of Chicago, Chicago, IL
Sophia Shadkin (**M**), Spectrum Engineering, Northbrook, IL
Scott Teague, Electronic Lighting Inc., Chicago, IL
Neal Verguerth, Orion Lighting, Ltd., Plymouth, WI
Roque Ybarra III, Robinson Engineering Ltd., South Holland, IL

Northeastern Region

David Amos (**M**), Exceline/Genlyte Thomas, Union, NJ
Kenton Baker, Advance, Haddam, CT
Martin Bender, Bender & Wirth, Inc., Concord, NH
George Biegel (**M**), Future Wave Technologies, Framingham, MA
Abbe E. Bjorklund, Sebesta Blomberg & McKew, Topsfield, MA
Steven Coppa (**M**), Comerro Coppa Architects, Totowa, NJ
Lynn DeRose (**M**), General Electric, Schenectady, NY
Claude Engle Jr., Claude Engle Lighting Consultants, New York, NY
Michael Evans, Syska & Hennessy, New York, NY
Nancy Goldstein, Nancy Goldstein Design, Marblehead, MA
Jessica Katz (**M**), JKL Designs, Kew Gardens, NY
Alfred Kelly (**M**), ASW, Fairfield, CT
Lawrence Mai (**M**), UI Company, New Haven, CT
Caroline Rinker (**M**), JDC Lighting Inc., New York, NY
Eberhard Schmidt (**M**), OSRAM Sylvania, Danvers, MA
Linda M. Segreto (**M**), Design & Light, Mehopac, NY
Valerie Sloan (**M**), SDA, White Plains, NY
Carl Tauber, Interactive Machines Inc., East Greenwich, RI
Charles A. Toye, Litton, Watertown, CT
Curtis Wilsey (**M**), Quantum Engineering Company PC, Selkirk, NY
Fashion Institute of Technology
Eini Adi, Jaana Berlingieki, Hitesh Chadha, Kyungseon Cho, Madoka Maeno, Sharon Mar-Haim, Grazyna Oktawiec, Keren Peer, Lenka Rodrigues, Sara Tsiropanas, Luna Yoshioka
New York School of Interior Design
Catherine Alvarez, Becky Button, Grace Elizabeth Colby, Wilkene Katja, Katherine Marks, Olivia Morris, Mary Beth Oliver, Pamela Pickens, Greta Siwiel, Sawa Tanaka, Karina Vera
New York University
Yoshinori, Takita
Parsons School of Design
Leonor DeLope, Socorro Flores
Rensselaer Polytechnic Institute
Jean Paul Freyssinier Nova, Milena Simeonova

Pacific Northwest Region

C.J. Brockway, Lumena Lighting Design, Seattle, WA
Minue Chung, Ross De Allessi Lighting Design, Seattle, WA
Carol Gjerstad, Eoff Electric, Portland, OR
Randa Khalil (**M**), Omicron Design Group, Vancouver, BC
Darryl Knittle (**M**), Mulvey & Banani International, Calgary, AB
Keith Lane (**M**), Sasco Electric, Seattle, WA
Bruce D. McCollum, City of West Linn, Vancouver
Mary Ann B. Olson, Bothell, WA
James H. Potts, Northern Illumination Co. Inc., Portland, OR
Gary A. Sedivy (**M**), SJO Consulting Engineers, Portland, OR
Tom Wolch (**M**), Washington County, Hillsboro, OR
Ryerson Polytechnic University
Angela Lee

South Central Region

George B. Hamilton, C.H. Fenstermaker & Associates, Inc., Lafayette, LA
Melody E. Heggins, Associated Design Group Inc., Lafayette, LA
Linda Lowery, Knoxville Utilities Board, Knoxville, TN
Warren Stojcich, AMA-Mobile, Mobile, AL

Southeastern Region

John H. Drummond (**M**), Lighting Services Inc., Greenwood, SC
Richard Glass (**M**), PGA Lighting, Concord, NC
J. Kevin Mason (**M**), Talbot & Associates, Charlotte, NC
Bill Rodgers (**M**), Duke Energy, Charlotte, NC
Jodie E. Rolls, Neely Design Associates, Atlanta, GA
Jim Smith, HagerSmith Design, Raleigh, NC
Lee Turner, Lee Turner Associates, Jacksonville, NC
William R. Westbrook III, Public Works Commission, Fayetteville, NC

South Pacific Coast Region

James D. Bailey, GTE, Thousand Oaks, CA
Baljit S. Boparai, San Francisco International Airport, San Francisco, CA
Matthew Brost, RLW Analytics Inc., Sonoma, CA
Douglas A. Doughty (**M**), Perkin Elmer Optoelectronics, Sunnyvale, CA
Brian L. Dazey, Popov Engineers Inc., Irvine, CA
David Evans (**M**), Gallegos Lighting Design, Northridge, CA
Susan Kaikaus, SWI Broadcast, San Diego, CA
Lois I. Hutchinson, Los Angeles, CA
Susan Irie, Kilohana Lighting, Lihue, HI
Richard Jaramillo (**M**), City of Los Angeles, Los Angeles, CA
Jack Melnyk (**M**), Dana Point, CA
Andy Miles, Hubbell Lighting, Anaheim, CA
William A. Moodie, Moodie, Pincu Associates Inc., Costa Mesa, CA
Todd Michael Quinlan (**M**), Architectural Area Lighting, Alhambra, CA
Dan Roth, Hydrel/Lithonia, Sylmar, CA
Robert J. Stout, Santa Ynez, CA

Southwestern Region

Eugene Blum (**M**), Ham-Meer Consulting Engineers, Inc., Austin, TX
Don Cassidy, Precision Architectural Lighting, Houston, TX
Troy G. Eckerman (**M**), Chroma Designs Inc., Spring, TX
Gilbert Ferreyra, Bos Lighting Design, Houston, TX
Carlos R. Garcia (**M**), Plateros 129, Mexico
Waymon L. Guiton (**M**), TXU Electric & Gas, Fort Worth, TX
Wes Lane (**M**), Solux Design, Austin, TX
Kelli R. McCarter, The Benham Group, Oklahoma City, OK
Alfonso P. Perez (**M**), Electricia Variedades, Mexico
Alfonso R. Perez (**M**), Electricia Variedades, Mexico
Juventino Perez, Industrias Sola Basic, S.A., Mexico
Rob W. Tegtmeier, Bos Lighting Design, Houston, TX
Greg Wanless, Techlite Applied Sciences Inc., Tulsa, OK

Foreign

Luis Arsuaga (**M**), SESCO Lighting, Puerto Rico
Steven T. Astro, PT. Karsasahabat Inkatama, Indonesia
Ivan Au (**M**), Mexgrand Limited, Hong Kong
Gennady Avetisov, Tech-Out Company, Ukraine
Paulo Candura, Ilume, Brazil
Miriam Cohen (**M**), Materiales Unielectric, Caracas
Wilhelm Egger (**M**), Engineering Lighting Design, Austria
Marc Gillet (**M**), Schreder Group Gie, Belgium
Steve Quek Chin Kok, Relex Electric Limited, Singapore
Hadi Komara (**M**), Hadi Komara & Associates, Indonesia
Bosun Lee, Lighting Design Lab, Seoul, Korea
Jang Weon Lee, Digitronics Inc., Seoul, Korea
Michael Lin, Buckingham Industrial Corporation, Taiwan
Martiens Lyon (**M**), Lyon & Partners, South Africa
Angel R. Zayes (**M**), AZ Engineering Corporation, Puerto Rico

IALD Publishes Guidelines

The International Association of Lighting Designers (IALD) announced the publication of the *Guidelines for Specification Integrity* at LIGHTFAIR International. The guidelines, developed in conjunction with the Lighting Industry Resource Council (LIRC), assist lighting design professionals in creating clear and precise specifications.

"This resource will become an indispensable tool for our members," said Randy Burkett, IALD. "It will ensure requirements are met through all stages of a project's development and provide specifiers with defensible specifications."

Outlined are seven areas of lighting professionals should address: Foundation elements for building a quality specification, actions in the project's design phase, action in the design's construction phase, actions in the project's bidding phase, actions in the project's construction phase, specification approaches, and specification language.

(top) Cove lighting and regressed illuminated niches draw patients into the main reception area. (bottom) Exam rooms are illuminated with an indirect extrusion and fluorescent channels concealed above millwork. Supplemental 2x2-ft exam light is only on during the examination. After several mock-ups, the 2x2-ft with a regressed opal lens was selected as the softest light for the patient with the best illumination for the medical staff. (opposite) Compact fluorescent downlights accentuate the contour of the reception desks. Adustable PAR 20s accent the art glass panels.

LIGHT FOR THE MIND

When it came to lighting the Dana Farber Cancer Institute, a lot of specifications could not be compromised. The comfort of the patient depended on it. ***Mary Ann Hay*** *shows the way to light for the mind.*

PHOTOS: ZBIG JEDRUS

The sponsors of a new three-floor cancer treatment center for women wanted to create a comfortable, calming and non-institutional environment for patients and their families. This large Boston cancer research/patient health center focused special attention on a new facility dedicated to the care of women suffering from cancer. Creating an environment conducive to healing, the lighting designers, Syska & Hennessy Lighting Design, worked with the design team of Shepley Bullfinch Richardson Abbott and Rothman & Partners, collaborating artfully to integrate the lighting design with the interior design. The design team also worked closely with the medical professionals and the owners to provide a facility meeting their expectations and requirements. Their active participation was an integral aspect in the development of the facility.

The design process also required extensive coordination and creativity due to restricted slab clearance of only 9-ft 1-inch. Therefore, indirect lighting was utilized throughout to provide comfortable illumination, which also psychologically elevated the ceiling plane. Indirect lighting was integrated into architectural detailing throughout the facility. The indirect lighting also assisted in relieving the congestion in the crowded ceiling plane.

The use of indirect illumination begins at the elevator lobby and main reception desk. The light beechwood surfaces and soft tones provide a comforting ambiance for patients. The cove lighting and regressed beechwood illuminated niches draw patients and visitors into the main check-in reception desk. A 26 W compact fluorescent lamp incorporated into the regressed niche provides soft focal lighting on the wood.

(top) The boutique provides patients with personalized and compassionate attention to purchase cancer treatment related accessories. (middle) Table lamps, compact fluorescent downlights and wallwashers create a subdued environment. (bottom) Wall mounted sconces provide soft indirect lighting over each infusion chair. Downlights are under separate switches for supplemental exams.

T-8 fluorescent channels are concealed above the millwork overhead cabinets to provide ambient illumination at each reception desk and nurse's station. Recessed compact fluorescent downlights accentuate the contour of the desk and provide supplemental illumination on the transaction counter. Supplemental task lighting is also provided below the overhead cabinets at the work areas.

Art glass panels are strategically utilized as partitions in select locations throughout the facility. Partial height art glass panels obscure the dedicated work station area at each nurse's station. Full height floating art glass panels partition the waiting areas from the circulation zone and reception area. Recessed adjustable PAR20 halogen accent lights provide grazing illumination and sparkle on the art glass at each location.

The design intent for the waiting areas was a subdued, relaxed environment for patients and family members. Compact fluorescent table lamps are strategically located in combination with downlights to provide a more residential quality of light. Recessed compact fluorescent wallworkers provide supplemental vertical illumination on the fabric wall covering and wood detailing.

The patient circulation areas are visually quiet with focus placed on the artwork and exam room entries. Primary artwork on the end focal wall is highlighted with semi-recessed halogen wall washers. Soft luminous wall sconces are located at each entry to patient exam/treatment rooms. The wall sconces assist in orientation for the patients while also identifying the room numbers.

Energy efficiency and maintenance is also a primary concern of this large research/health care facility. Syska & Hennessy Lighting Design has worked with the owner to develop a standard stock of lamps used throughout their facility. The list has evolved throughout their long-term relationships as technology has changed and also as the health care industry has changed. Approximately 90 percent of the lamps installed throughout this woman's health center are fluorescent. Halogen lamps were used sparingly and selectively to highlight special features such as the art glass panels and the primary artwork.

The patient exam rooms are predominantly illuminated with indirect lighting. A wall-mounted linear fixture provides indirect ambient illumination at the exam table. Fluorescent channels are concealed above millwork at the work counter for additional ambient lighting. When the patient first enters the exam room, only the indirect lighting is turned on. This provides a low brightness and a calming environment for the patient. It is crucial to minimize long term exposure to direct sources of illumination in-patient care areas. This is particularly important for patients who are lying on exam tables, treatment chaises, or stretchers.

The supplemental exam light is only turned on as required by the medical professional during the examination. Several systems for the supplemental exam light were mocked up and reviewed by the medical staff and owners. The options that were mocked up and reviewed included: recessed compact fluorescent downlights with regressed opal lenses, adjustable halogen accent lights, and a 2x2-ft with a regressed opal lens. The 2x2-ft was overwhelmingly selected by the medical staff and owners as the softest light for the patients and the best quality of illumination for the staff.

The lighting must be carefully developed and selected for infusion treatment areas. The administration of chemotherapy is a lengthy and uncomfortable experience. Therefore, the infusion suite environment should be designed to help ease the pain and provide comfort as much as possible. Patients are often accompanied by a family member or friend. The lighting design should be one of low brightness and should provide comfort. Individual control of the lighting by the patient within each treatment area is also desirable. Indirect luminous sconces provide ambient illumination at each patient station. The wall sconce is individually switched. Recessed-lensed compact fluorescent downlight provides supplemental exam illumination for the start of the injection and procedure.

An on-site boutique completes the full range services provided at this facility. This low key retail space allows patients to receive personalized and compassionate attention in the purchase of accessories, which are required during regular cancer treatments. The space was designed to evoke the image of an "upscale Madison Avenue" boutique. The combination of recessed adjustable halogen fixtures and cable suspended accent lights provide soft focal illumination on the merchandise.

The lighting design in the boutique as well as in the other areas of the center sensitively addressed the concerns of the patients and the requirements of the medical staff. The entire facility has been enthusiastically received by patients, their families, and medical professionals as a model for providing a comfortable environment and for the promotion of healing for patients who are struggling with cancer.

The designer: Mary Ann Hay, an IESNA member since 1983, is director of lighting design for IESNA Sustaining Member Syska & Hennessy. She has developed expertise in various types of projects, which include corporate, institutional, retail, education, convention centers, sports facilities, religious, and healthcare. Hay has designed the lighting for several types of healthcare facilities throughout the county. Healthcare lighting design has been a significant area of focus in the last several years due to the industry's changing needs and criteria. Syska & Hennessy's lighting design for this project received both a local and a regional IES Award.

From the receptionist's desk, the border of the children's room is topped with airport lights. 150 W PAR wide floodlights compensate for what the airport lights, the skylight and other fluorescents miss.

SOUND SPACE

Healthcare in America is not distributed equally. In providing services in lower socioeconomic communities, beauty is not high on the list of priorities. ***Peter Weisman*** *tells how one Brooklyn clinic found its form could mirror its function.*

Imagine the interior of a center for soda distribution in 1945, a machine shop manufacturing ball bearings; an ugly industrial building with a storefront entrance and an exit in the back.

"It was like a tomb," said Deborah Laurel, who works closely with the principal architect, David Prendergast, as one of the designers in his firm. "It could have been a dungeon."

The Community Healthcare Network was originally a family planning institution, now offering pediatrics, adult primary and prenatal care, mental health services, nutrition education, social services, teen pregnancy prevention, gynecological care, community outreach, alternative medicine, case management, and STD/HIV counseling, testing, and primary care. The diversity of the organization's services are ironically accentuated by the size of its spaces.

The organization is committed to enhancing the quality of life and promoting health in low-income, ethnically diverse, medically under-served neighborhoods within and around New York City. The goal, in all of the organization's centers, is to reach the families of New York with high-quality health and social services, provided in a way that is sensitive to social, linguistic, and cultural environments. The staff consists of 300+ professional, technical and support personnel, who speak 13 languages; more than 50 percent represent the communities they serve.

The organization created unity in what were splintered islands. The Community Healthcare Network is non-profit and was founded in 1981, formed by economically grouping a scattered number of community-based centers. These centers were established between the 1950s and 1970s, having been funded primarily by public

and private sources. Strength in numbers seems to have paid off for one such clinic, if not the organization as a whole. The Dr. Betty Shabazz Health Center was formed in 1957, and remodeled in 1997.

The building currently housing the Dr. Betty Shabazz Health Center is a simple structure. It always has been. With a design based on utility, it is comprised of a single level of 14-ft high windowless red brick.

In its evolution, this structure was converted into a clinic, the building almost unchanged, with the exception of initial renovations, for close to 25 years. It was brought into the Community Healthcare Network as a Brooklyn-based arm in 1981. Then, after a massive 1997 renovation, the original structure that served the community for so long was commemorated in a rededication, named after Malcolm X's widow who had recently passed away, the Dr. Betty Shabazz Health Center. The space serves the community as an outpatient facility and is now an original, comtemporarily designed space, converted from the old clinic.

David Prendergast, an architect, stepped in to rip out three layers of dropped ceiling. When he arrived on the scene, his immediate action was to restore the 14-ft vertical expanse to its original lofty height.

"We stripped all the old ceilings and restored it to the wood structure," said Prendergast. "Everything inside is brand new, except the guts."

With his wits about him, Prendergast drew up a design made to the specifications of the client, Community Healthcare Network. He split the 3600-ft^2 space in two. At the division, he built a hallway. One side

(top) The reception desk is below two different fluorescents, blending perforated steel and translucent diffusers.
(bottom) The main reception room, with a skylight overhead, opens up the constrictive qualities of a space without windows. Running down the hallway, 30-inch task lights guide, along with the same fluorescent found in front of the reception desk.

PHOTOS: WHITNEY COX

The receptionists' desk is central to the clinic's operational success. It is lighted for functionality with two fluorescent lights, one blending perforated steel and translucent diffusers; the other hanging behind the receptionist's area.

is devoted to administration, counseling, and social work; the other medical care, examination rooms and doctor's offices.

In association with mechanical and electrical engineers, EMPG Consulting, Prendergast began building walls, deciding on décor, and eventually setting lights. Working as architect and lighting designer, Prendergast cut a hole in the central reception area's roof for a 14-x18-ft skylight. For the skylight, he used CPI's Danpalon system, configured for the space, with air spaces set for climatic insulation specs.

"Our first impulse was to bring in some natural light, so that was one of our first design considerations," said Laurel. "There was no way to punch holes through the walls because the community had gone to a lot of effort to paint murals all over the brick outside the building. We were limited there by this major community project that had already been done. That's why we opted for the skylight and in a way I think it worked out pretty well. They got a lot of light and it created this courtyard, atrium space."

In order to maintain confidentiality and sanitation, the examination rooms, by law, have to be fully enclosed, without gaps between the wall and ceiling, as is found in the children's room. In order to let some natural light from the skylight into the examination rooms, internal windows were put in the walls. This provides a distribution for some of the transient, natural light. Otherwise, indirect/direct pendant fixtures compensate in the exam rooms.

Going down the corridor, one wall begins by breathing, bending in reflective corrugated metal, stopping short at the top, providing a gap in the ceiling between the children's room and the reception area. Wooden doors follow in an orderly pattern with standard 30-inch task lights to guide. Color-stained plywood panels separate these doors.

In the reception room, three different lights and the skylight bask the space in functional, comfortable light. First, there is the JDA series by National Lighting Company, Inc., found in front of the receptionists' station and further down the hallway. They are 10-ft long, set at 20 percent uplight, blending perforated steel and translucent diffusers. The other fluorescent runs behind the receptionists' area and is an Alum-o-lite, by the same company. Topping the doors on the corrugated metal walls are 150 W PAR wide floodlights. Airport lights by Crouse-Hinds provide a finishing to top the metal wall.

Although the architects lighted the space themselves, lighting and architecture always go hand in hand. As Laurel said, "Lighting is a big consideration and should always be with all architects."

The project was completed in two phases, allowing the clinic to operate throughout. It took three months to design and eight to construct, pushing costs to just under $450,000. The lack of a drop ceiling or nervous-energy fluorescents show the ingenuity of the design.

The designers: David Prendergast, principal of David W. Prendergast, Architects, graduated from Cornell University College of Architecture in 1972. His early working experience was with Norman Foster Associates in London and Skidmore, Owings & Merrill in New York. His firm has completed a multitude of private, public and institutional projects in New York City, including offices, libraries, schools, museums, theaters, and transportation structures. Major completed projects include the Sedgwick Branch Library, PS1 Contemporary Art Center, the Brooklyn Heights Branch Library and the Staten Island Children's Museum. His work has appeared in Interior Design Magazine, the New York Times and Architectural Record.

Deborah Laurel, project architect, is an architecture graduate of the University of Texas at Austin. She has been a member of the firm for 9 years and during that time has been involved in various projects including the recent renovation of PS1 Museum.

With a state-of-the-art health club, homey patient rooms, and an interior design that rivals many resorts, Celebration Health is a very different hospital. ***Barbara Cianci Horton*** *explains how she and Mark W. Harris created a soothing atmosphere for healing in Celebration, Fla.*

HEALTH HATH NO FURY

(opposite, top) The Main Reception Atrium area is lighted with an indirect cove to highlight the faceted ceiling and to provide the under layer of ambient light. (opposite, bottom) The spine of the structure is a terraced hall with fluorescent lighting in the cove and three rows of lamps for a human touch. (below) Sconces and pendants light the hallway bordering these waiting areas.

Healthcare providers have taken a second look at their business over the past few years. The image of a hospital has transformed from sterile institutions to holistic, "self-healing" environments. Celebration Health in Celebration, Fla., appropriately adopted the new attitude by healthcare providers. The facility combines an outpatient clinic, a therapy center, and a medical educational facility for the community.

The project was begun with a progressive approach to design as well. The entire team was asked to write a brief on what improvements could be made in a hospital to make the atmosphere promote a healthy, "spa-like" experience that would invite townspeople to use the facilities for therapeutic, preventative, educational, and medical purposes. Some suggestions included developing a "quieter flushing toilet" or adding an herb garden for patients and guests. While not all the ideas were implemented, the fact was the Florida hospital was serious about "humanizing" their new environment.

Lighting was a major consideration for both the hospital employees and the design team. Both natural light and electric light were sought to make the environment a friendly, inviting, and tranquil place.

Table lights and color scheme were coordinated to make the room space feel home-like.

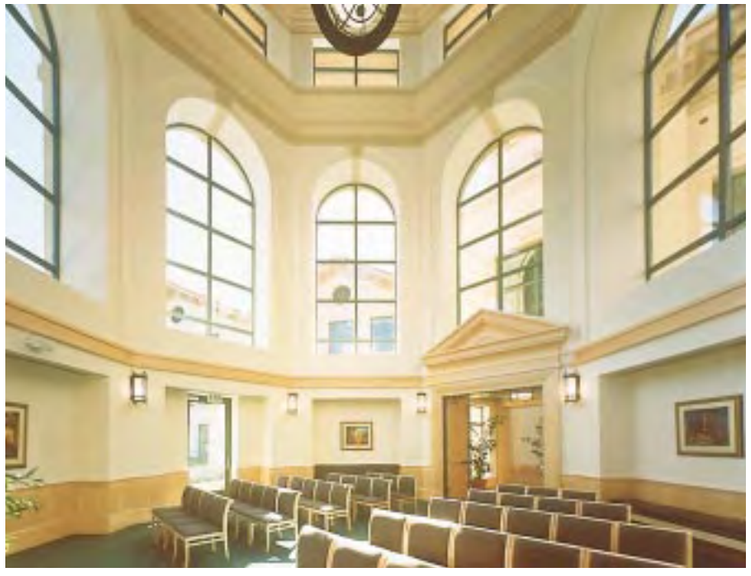
The Mediterranean style and overall design of the architecture lent itself to an abundance of natural light in each waiting area, as well as in the main reception hall. A family of fixtures was developed with the architect (Robert Stern and Paul Whalen of Robert A. M. Stern Architects) to reinforce the Mediterranean style. The larger scale fixtures were reminiscent of lanterns found in a street arcade in Portugal or Spain.

As one approaches the porte-cochere along the palm-lined entrance, a large pendant and matched sconces welcomes the visitor to the spa-like environment. The uplighted palms, the dramatically illuminated tower, and the luminous pendant all provide a beacon at night. All the exterior fixtures use high-color rendering metal halide to blend better with moonlight and to enhance the color of vegetation. The cool metal halide source provides contrast to the warm tone compact fluorescents used in the interior. The building façade is largely comprised of two-story glass with a lantern suspended at each window. The design was conceived as part of the overall night scene, once again to create a "warm glow" from within the health facility.

The Main Reception Atrium area is lighted with an indirect cove to highlight the faceted ceiling and to provide the under layer of ambient light. Table lamps and sconces are used throughout the space to provide a human scale and intimacy. Downlights with luminous glass suspended below the aperture are used along the perimeter of each balcony to light the path and to maintain an ordered pattern relating to the architectural elements. The glass-covered aperture was used to avoid the glare of a direct lamp when looking up at the high domed ceiling in the center of the main hall.

The fluorescent lighting in the cove is circuited with three rows of lamps to provide varying light levels between day and night. As the lighting was designed for the center, levels of atmosphere were created for each area without requiring dimming controls. Warm paint colors for the walls were carefully selected by the architect and coordinated with the lamp color temperature to provide the maximum feeling of calm and tranquility without appearing "sallow." Cool paint tones were selected in the ceiling cove to reflect the coolness of natural light one might find from a dome. The juxtaposition of the cool and warm successfully created the desired atmosphere.

The spine of the building connects the main reception atrium with the waiting areas. Sconces and pendants add human scale to two-story high waiting areas along the main façade of the building. The pendants were centered within each window and the sconces along the window wall to provide the warm glow at night. In single-story seating areas, table lamps, art lighting, and small glass decorative downlights are used to provide ambient light to support the "living room" atmosphere the team sought.



Primarily illuminated with natural light, the chapel is also used for night-time reflection with softer light provided by a luminous globe in a metal cage and sconces.

Some of the lighting mandates established early on in the program were to use few lamp types, maximize energy efficient sources and equipment, and coordinate the lamp color program with the back of house designs prepared by the engineers for consistent transition from one area of the hospital to another. Both pendants and sconces are large enough to use 40 W compact fluorescent lamps to create the continuous luminous glow. Incandescent PAR downlights are used in the bottom of the pendants to provide a pool of light on the path and add texture to the otherwise diffuse light from the pendants and sconces.

The patient room was an important area for the owner and design team. To create a homey atmosphere in a place where there are specific standards for exam lights, high levels of light required at times, and the typical antiseptic nature of these areas is a challenge. To provide some level of tranquility and intimacy for the patient the warm lamp colors were used (as in the main space) and table lamps were introduced. The décor and color scheme was once again coordinated to make the space feel as "home-like" as possible.

The Chapel is a place for contemplation. The octagonal form of the room is set in a two-story high space with a clerestory. Natural light streams in from the windows and the dome above creating a wonderfully spiritual environment. The center of the dome is lit with a luminous globe suspended in a metal cage, resembling latitude and longitude lines of the earth. Sconces similar to the design of the main reception atrium, but smaller in scale, are used to provide a soft intimate light at night.

The goals of the project were achieved with little pain and a lot to gain toward improving the healing environment.

The designers: Barbara Cianci Horton (pictured) and Mark W. Harris, principals at Horton-Lees Lighting Design, are the designers for Celebration Health. Their internationally recognized design firm has a staff of more than 25 designers. Horton-Lees Lighting Design specializes in architectural lighting for all project types, including interior and exterior venues. Over the past decade, the firm has assembled a talented team of design professionals and technical experts from across the country and abroad. The team's design talent, together with their well-established technical skills, form the basis for the firm's proven ability to produce outstanding, award winning design solutions to meet their clients' image, function, budget, and time schedule. Horton has been an IESNA member since 1990. Horton and partner Stephen W. Lees' designs for the Dakota Jackson Showroom in Los Angeles were featured in the May 2000 *LD+A*.

(top) The clients felt colors, art and good lighting were important for motivating people to feel good. Lighting was used to create an open feeling. (bottom) Indirect/direct pendant lighting, with cove and wallwash lighting, was used in all staff locations.

REHAB LIGHTENING UP

Patrick Grzybek *explains how he used cost-effective lighting design to help create a healing environment conducive to recuperation & rehabilitaion.*

PHOTOS: STEVE HALL, HEDRICH BLESSING

Indirect wallwashers provided silhouetting for special theme design elements.

People are living longer lives than in any other period in the history of humankind. Consequently, aging and disability will be the foremost healthcare issues of the 21st century. A combination of economic, social, and medical factors are spurring healthcare providers to acknowledge this trend and focus on patient satisfaction, achieved most notably through facility design.

The Rehabilitation Institute of Chicago (RIC), a private, not-for-profit organization providing inpatient and outpatient therapeutic services to the physically disabled, anticipated this trend. Embarking on a $37 million renovation project, the RIC chose Eva Maddox Associates, Inc. (EMA) to create a prototype that reflected its forward-thinking philosophy. Dr. Henry Betts, director and CEO of the RIC, said, “Color, art, and good lighting are extremely important in motivating people to feel good. They promote a comfortable, healing quality that cares for the soul. Our job is to give [patients] hope. That's where environmental design can be so helpful.”

The design challenge was to accommodate a new, non-traditional approach to rehabilitative care and the healing environment. The Institute-wide improvement project included developing a full prototype redesign of five inpatient floors, each of which would go through a phased renovation process. The RIC's goal for the inpatient nursing floors, each to be equipped with its own complete therapy facilities, was to provide an energetic, yet not confusing, environment in which the patients would feel physically and psychologically comfortable.

To meet these goals, EMA worked closely with medical, therapeutic and administrative staff to satisfy the details. In the course of this process, new design methodologies and therapeutic activities were introduced, which strengthened the Institute's offerings to its patients. For example, a “therapy walk” was developed, which reclaimed the wide corridor spaces typical of most hospitals, for rehabilitative activities.

In accordance with the Institute's mandate, therapy rooms were designed on each floor geared toward specific inpatient populations, such as pediatric and geriatric, and for patients who sustained cardiovascular impairment, amputation, or traumatic head injury. A unique multi-purpose dining room on each floor encourages rehabilitative recreation and provides a social visiting environment outside the patients' rooms. This innovative activity center is frequently lacking in many inpatient facilities.

The impact of these creative strategies, combined with the special needs of rehabilitation patients, resulted in a desire to have an appropriate and thoughtful lighting design that tran-

Indirect fluorescent pendants were used in the multi-purpose rooms, to expand the environment and provide cheerful accents.

Shielded, continuous fluorescent cove fixtures were used to minimize glare.

scended the challenges created by the facility's unique design.

The firm's approach to this project centered on three main objectives. The first was to design for patients who are no longer considered clinically ill, but rather were overcoming, or learning to adapt to, a life-altering disability. Due to the severity of their injuries, many patients were held "captive" in their designated space for extended periods. To overcome this challenge, a perception of spaciousness was created through techniques that visually expanded the physical environment.

The second consideration was providing comfortable lighting to accommodate the various body positions associated with therapeutic activities. For example, patients often find themselves staring up at the ceiling, whether in therapy activities or during transport between their room and therapy sessions.

The third objective was to apply problem-solving design tactics while respecting the overall design program. To make a compelling and coherent environment appropriate to the client's brand, EMA used an approach called "patterning," which integrates the essence of the client's business into the foundation of the design plan. The core of the RIC's work is the movement of the human body. Therefore, the lighting design incorporated, and blended with, round, fluid forms representative of an active body. This patterning treatment was applied throughout the Institute on ceilings, walls, and flooring.

Designing for a rehabilitation center is different than designing for most healthcare facilities. In a hospital setting, the patients are considered ill and stay until they are considered clinically well. The traditional convention of using cool white light, 4100K lamp temperatures, is appropriate in this setting. This lighting bolsters the ideas of technology, brightness, and cleanliness. However, this approach proves sterile in a therapeutic environment, where an underlying sense of comfort is crucial to the well being of the patient. Instead, EMA chose a warmer overall light source of 3000K, which promotes a "comfier" sense of home.

"Mirror, mirror on the wall," might be an expression in a fairy tale, but it also provided another motivation for warmer lamp temperatures. Poor color rendering lighting sometimes results in a ghastly, ghostly pallor. A patient at the RIC is no different. While comfort is paramount, the psychological perception of looking healthy is an important part of actually feeling better. The selection of halogen incandescent lamps to achieve a high color rendering and a residential impression addressed the importance of this psychological element.

To create an atmosphere of openness and spaciousness in a confined setting, a lighting system was developed incorporating several types of lighting. The system was used in various combinations to meet the functional requirements of the medical environment and simultaneously provide openness.

Therapy areas used indirect fluorescent pendants with perforated bottom channels to soften contrast.

Through the use of cove lighting in all corridors, the wall surfaces were brightened, which projected the perception of a roomier and more spacious environment. The use of this lighting system enhanced visual appeal and facilitated greater use of the corridors as not only transit spaces, but also as areas suitable for therapeutic activity. Another advantage of the cove lighting was it effectively limited glare potential of both reflected and direct glare. To enhance patient and caregiver areas and provide necessary levels of lighting for medication dispensing, louvered indirect/direct pendant lighting, indirect top-of-cabinet mounted lighting, and downlighting was used.

Because of the extended stays of the majority of the rehabilitation inpatients at RIC, it was important to provide as much visual interest and variety as possible. In the multipurpose room, multiple layers of lighting were used to stimulate or soothe the patients, depending on the activities or individual moods of the patient. The lighting included indirect pendants, diffused and indirect sconce lighting, and concealed silhouette lighting inside the equipment cabinets and featured architectural elements. These options provided separate controls for the medical and therapy staff.

Of particular concern at the RIC was the supplying of appropriate lighting for people who had limited mobility and who were frequently staring up at the ceiling during therapy sessions. Therefore, light fixtures within the therapy areas were chosen as either indirect luminaires with perforated bottom surfaces or were highly shielded to diffuse and soften the light reaching the patient's eyes. In regard to the corridors and circulation areas, all accent lighting and wall-washing fixtures were positioned off-center of the corridor so patients being transported on gurneys would not experience any direct glare from open aperture fixtures. Additionally, all downlight and wall-washing fixtures were equipped with cross baffles to provide cut off angle glare shielding and minimize brightness of the ceiling accent lighting.

By combining the cove lighting and down/accent lighting systems in the corridor areas, two distinct advantages were achieved. First, during night-time lighting conditions, the two complementary light layers enabled the hospital to turn off the cove lighting, so the wall surfaces were no longer lit. With only the floor illuminated by the downlighting, the patients' nighttime environment was dimmed, and therefore more restful. "Visually shrinking" the environment by decreasing the vertical surface lighting was soothing and offered a sense of safety. Plus, patients commented on enjoying the home-like environment. Since the downlighting system provided appropriate levels of illumination, there was no compromise of circulation safety or operational requirements.

The second advantage was improving color rendering. Floor and wall color are key elements to the overall design intent for the hospital. To maintain and enhance the true perception of the color palette, direct illumination was introduced to supplement indirect light sources.

While EMA's primary goal was the delivery of a lighting system to enhance the patient experience, the advantageous simplicity of the plan allowed the use of T8 fluorescent lamps in all of the linear pendant and cove fixtures; accent and down lighting used 26 W compact fluorescent lamps; and all patient vanity lighting used 50 W halogen lamps. This plan minimized the RIC's burden of stocking various lamp types and facilitated lighting system maintenance.

No one is sure when they might need rehabilitative services. Aging, accidents — these things happen to everyone. This project reflects this underlying universal humanity in a positive healing environment. In teaming with the RIC's visionary administrators, Eva Maddox Associates encouraged the healing process, designed a space to help change preconceived notions about disabilities and created an example of an appropriate healing environment.

The designer: Patrick H. Grzybek AIA, IES is senior vice president, architectural/technical design for Eva Maddox Associates, Inc. in Chicago, where he directs the technical development work for the firm and lighting design. The work of Eva Maddox Associates, Inc. includes a wide spectrum of projects with a specialty directed towards "Branded Environments" in healthcare, institutional, retail, exhibit, and corporate facilities. As lighting designer for the firm, Pat Grzybek has received numerous recognitions for his work from the IESNA, including an Edwin F. Guth Award of Merit. In addition to his design and technical assignments, Pat Grzybek is an instructor in lighting design at the Harrington Institute of Interior Design.

1999

INTERNATIONAL ILLUMINATION DESIGN AWARDS®

When it came time to light the Long Beach Aquarium of the Pacific, treading water was not an option. ***Pat Gallegos*** *explains the depths to which he dove to apply these waves of light.*

PHOTO: RONALD MOORE

PHOTO: RONALD MOORE

THE WAVE OF LIGHT

The City of Long Beach, Calif. had long sought a means to bring new life back to a tired waterfront. While the waterfront had good proximity to the city's downtown and convention center, it was poorly developed. Numerous potential developments, including discussions with the Walt Disney Company to locate an ocean-based theme park, had not produced any real results.

The city eventually developed a phased master plan. The first phase would include draining and building a new infrastructure for the Queensway Bay, clearing land for a future mixed-use entertainment district, building a parking structure for the anticipated visitors, and most importantly, developing a cornerstone attraction to draw visitors to the new waterfront. That attraction was the Long Beach Aquarium of the Pacific.

The City worked in partnership with international developer Kajima International, developing the concept and pulling together the design and construction team to create a major regional aquarium. The team consisted of the same team that had just finished developing and building the Florida Aquarium in Tampa. This was an experienced team that consisted of Turner/Kajima as the prime contractor; Esherick, Homsey, Dodge, and Davis (EHDD) of San Francisco as the design architect; and Helmuth, Obata, and Kassabaum (HOK) of Santa Monica as the production architect. The lighting designer was Gallegos Lighting Design of Northridge, California, with electrical engineering by Syska & Hennessey of Santa Monica.

Over a three year process, the lighting designers worked closely with the architects, exhibit designers, and contractors to develop a lighting design totally integrated into the organic design of the facility.

From exterior through interior spaces, the firm worked to develop a 'lux anima' — a living light — to draw the visitor into the aquarium, and once in, to immerse them in the wonders of the underwater world. The architects had developed a building, working from the inside out, that sought to give the feeling the visitor was entering a giant wave. Once inside, figuratively inside the wave, a sinuous interior would immerse the guests in the underwater experience.

The lighting designers worked with detailed models developed by the architects to examine — in particular — the dramatic possibilities of the exterior and the grand lobby space. Careful choices in fixture location and specification were

(opposite, top) Tank habitats are lighted with 70 to 1,000 W metal halide spotlights, with 5000K lamps to replicate natural lighting. (opposite, bottom) Some exhibit paths require a balance of interior lighting and sunlight. (below) The whale in the lobby is set in a series of layers and discovered views. Halogen accents and uplights work with cold cathode niche lights and fluorescent path lights to layer the space. Programming creates a soft shimmer on the waveform ceiling, suggesting a view from within a wave.

PHOTO: WOLFGANG SIMON

PHOTO: RONALD MOORE

(left) Halogen uplights accent the curved ceiling in the theater. (below) The exhibit paths feature shimmering lighting effects to evoke the ocean. (opposite page) The warm interior lighting acts as a lantern, in contrast to the cool appearence of the exterior.

combined with a building wide control system. This was utilized to animate the lighting, to set moods for the lobby and three main exhibit paths, to provide for the diversity of biological needs, to conserve energy and to allow for multiple event programming.

The first view for either guests of the Aquarium or the surrounding Queensway Bay is the dramatic waveform of the exterior. As the cornerstone of the Queensway Bay, the aquarium had to provide a sense of grandeur and a touch of mystery. Using multiple types of fixtures, as well as color media in ocean blues and blue/greens, the lighting designers sculpted the building to define the waveform. Then, using the programmability of the building control system, the lighting was animated to make elegant sweeps of light on the vertical faces of the building, timed to give the illusion of cascading waves. This was accomplished with 1,000 W PARs, dimmable fluorescents, and HID. Color media choices are appropriate to the source need, utilizing color sleeves for fluorescent sources and dichroic for larger wattage, hotter fixtures. Decorative pole lights marked the path through the plaza from the public roadways. The interior lighting acts as a lantern; its warm lights a counterpoint to the coolness of the exterior.

'Entering the wave' from the exterior to the interior brings guests into the grand lobby. The lighting continues the concept of immersion in a wave. Colored uplights are programmed to lift the high ceiling, 55-ft at its highest and even higher, and to shimmer, as if looking at the surface of the water from below the water itself. The elegant curves of the interior are lit with layers of light and color, using a combination of neon hidden in coves, step lights in stairways, and washes from the ceiling to create the effect. Lighting from above was coordinated so it would not project below the bottom of the slatted ceiling. This was done in order not to detract from the waveform.

A full-size model of a blue whale and her calf hang dramatically in the space. The models are textured with uplights and downlights to set them off in the space. At three locations in the lobby, preview tanks of the three main exhibit paths act as an introduction to the story of the Pacific Ocean and three of its important zones: the Southern California kelp forests, the cold waters of the northern Pacific, and the warm and colorful coral reefs of the southern Pacific Ocean. The tanks are lit with 5500K lighting to provide a strong and textured 'sunlight' streaming through the tanks.

Since the lobby is used almost every evening for special events, the lighting allows flexibility for multiple uses, from

PHOTO: RONALD MOORE

PHOTO: WOLFGANG SIMON

simple events to black tie dinners, with preprogrammed looks easily accessible through the building wide control system.

Building-wide control works to balance the lighting needs at different times of day. Lights in the high ceiling are laid out for accessibility from ladders or a single-man lift. Lighting is carefully located to allow both for accessibility as well as a profile that does not impact the architectural lines of the space.

Specialty areas, such as classrooms or the theater, receive a more traditional approach, which still reflects the larger space, as is seen in the halogen uplights on the curved ceiling in the theater space.

The exhibit spaces are lighted, suggesting the environment of the ocean area being showcased without detracting from the main show, the living habitats. Designers worked closely with curators to define animal and plant needs
for lighting. as well as switching of lights to simulate natural lighting cycles. While lighting is used for show in all cases, many habitats have specific demands for lighting as an essential element for the health of the inhabitants.

Combinations of simple accent lights and moving effects lighting create pools of shimmering light or cloud-like environments that guests move through, enhancing the feeling of immersion. The tank habitats are lit with 70 W to 1,000 W metal halide spotlights. 5000K lamps were utilized to replicate a feeling of white natural lighting. Lighting angles sculpt the habitat environments. Some exhibit paths require balance of interior lighting with sunlight through pools. At night, the sun is replaced by artificial moonlight with the use of metal halide spotlights mounted on exterior walls.

In the end, the space attained 2.5 W/ft^2. It has the ambience all aquariums should, offering visitors a process that leaves them filled with wonder. Given the desired aesthetic for the visitors and the needs for the organic habitats, the lighting design ended up encompassing all of the specifications, making it a success and receiving a 1999 IIDA Edwin F. Guth Memorial Interior Lighting Special Citation Award.

The designer: Patrick Gallegos, a member of the IESNA for 16 years, has been creating environments in light since 1974. Starting with a theatrical background, he moved into permanent architectural expression while working for Walt Disney Imagineering on the original design and construction of the EPCOT Center in Florida. After starting his own firm in 1983, he designed projects internationally in a wide range of venues. Recent completed and ongoing projects include the urban redevelopment of Paseo Pasadena, two floors of the Sony Metreon in San Francisco, permanent exhibits at the new COSI museum in Columbus, LEGOLAND California, LEGOLAND Germany, and Warner Bros. Movie World in Madrid.

Circle 100 on Reader Service Card.

Alkco Lighting introduces the **Recessed Track**. The system completely recesses into the ceiling so as to be invisible. Each low-profile light module holds one 50 W MR-16 halogen lamp. An internal mechanism allows 330-degree rotation of the light module eliminating "dead spots." Recessed Track fits virtually any ceiling type, including residential joist, modular lay-in, suspended and plenum construction.

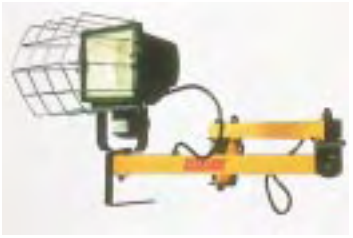
LIGHT PRODUCTS

Circle 99 on Reader Service Card.

Promolux Low UV **lamps** are now available in full range of fluorescent lamps as well as halogen and incandescent lamps. They come in standard sizes and are easy to install.

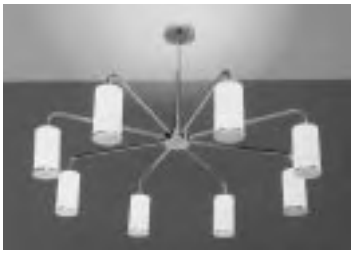
Circle 98 on Reader Service Card.

Lithonia Lighting has introduced a new line of efficient flush mounted **ceiling fixtures**. These fixtures offer Rapid Start (no-flicker) warm white-2700K compact fluorescent lamps with an 82 color rendering index. The fixtures are offered in the basic mushroom style, traditional, and octagonal styles, in one- or two-lamp configurations. These distinctive fixtures are built for a lifetime of service with hand applied and plated finishes crowned by a variety of artfully designed glass diffusers.



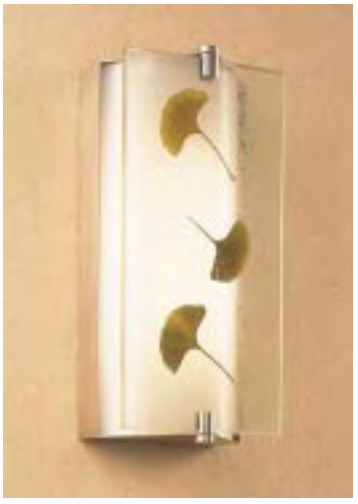
Circle 97 on Reader Service Card.

Crescent Lighting announces the expansion of its DockLytes Series to include **loading dock fixtures** with HID lamps and a motion sensor quartz halogen series. DockLyte fixtures are now available with bright, energy-efficient metal halide and quartz halogen lamps. Light output of the 100 W, metal halide fixtures is 7200 lm, with lamp life averaging 10,000 hours versus 3700 lm and 2,000 hours with the 300 W incandescent lamp series.



Circle 96 on Reader Service Card.

Nessen introduces Starfish and Spider **pendant luminaires**. The pendants provide energy-efficient, evenly distributed light for a range of commercial and high-end residential interior applications. Both designs are available with overall fixture heights of 25, 29, or 33 inches and have an overall fixture diameter of 42 inches. Available in brushed or polished brass, chrome and nickel finishes; fade- and chip-resistant baked enamel finishes, illumination is provided by 60 W T-10 Showcase incandescent lamps.



Circle 95 on Reader Service Card.

Baldinger Architectural Lighting introduces a new collection of **fixtures**. The Rockwell Group Collection are ADA compliant and can be mounted vertically or horizontally. The diffuser pivots to softly direct the light. Pictured, the Ricky Wall Sconce, RG-29451, is lighted with an 18 W fluorescent lamp, and an electronic ballast.

Circle 94 on Reader Service Card.

Edison Price Lighting has introduced a new line of **downlights**, **accent lights**, and **wall washers** for use with quartz halogen PAR-20 and PAR-30 "short-neck" lamps. These shallow, space-saving Darklites are especially suited to installations with low to medium ceiling heights. The new Darklites are available in 4-, 5- and 6-inch aperatures, exactly matching Edison Price Lighting's line of compact fluorescent, low voltage, incandescent, and HID fixtures.

Circle 93 on Reader Service Card.

.hesseamerica has a new landscape lighting bollard, Ponte. Ponte **bollards** provide indirect/direct pathway and perimeter illumination from an understated columnar fixture. The head rotates through 360 degrees. A subtle S-shaped curve along one side emits vertical illumination for low-level pathways. A 35 W PAR 30 L metal halide lamp, in two beam spreads, provides energy-efficient uplighting, and the 24 W HO.T5 fluorescent lamp provides lighting for pathways.

Circle 91 on Reader Service Card.

LEDtronics has redesigned the KeyLED, a sleek take-along **key chain light** emitting diode (LED). Crafted with polished anodized aluminum to resist corrosion, impact, and scratches, KeyLED packs a powerful bright light that operates continuously for more than 58 hours into a compact lightweight design. The 5mm LEDs are available in five colors: 6Kmcd white, 3Kmcd blue, 7Kmcd yellow, 2Kmcd red and 10Kmcd green.

Circle 93 on Reader Service Card.

Lutron Electronics Co., Inc. offers **wireless remote control** of lighting, audiovisual equipment and motorized window shades from anywhere in a room. Able to control single or multiple zones of lighting, RadioTouch consists of three basic components: a wireless tabletop transmitter that is placed anywhere in a room or mounted on a wall, podium, or other surface; a wallbox transmitter that replaces conventional wall switch; and a controller (one per lighting zone).

Circle 86 on Reader Service Card.

Day-Brite Lighting introduces the Industria 4 High Bay **Fixture**, which features an adjustable inner reflector that offers uplighting at low, medium, and high levels. Uplighting creates uniform lighting of the ceiling, walls, and floor, which is useful in general purpose industrial applications. The lamp options range in wattage for a wide variety of both metal halide and high pressure sodium lighting. The fixture is available in 16-, 17-, 19-, and 24-inch sizes with acrylic and aluminum reflectors. To maximize the use of the Industria 4, the high bay ceilings should be 15 ft or higher.

Circle 85 on Reader Service Card.

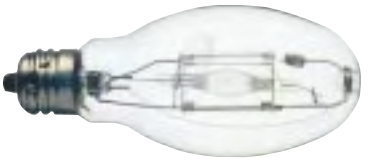
Ruud Lighting introduces the Canopy Light (CL Series) **luminaire** for coolers/freezers, warehouses, service stations, and convenience stores. Both acrylic and drop lenses and diffuse glass lenses are available for most models. The optical package is available in 12-, 16-, and 22-inch square, die cast aluminum housings featuring a white DeltaGuard finish. The finish provides resistence to UV degradation, corrosion and abrasion and has a seven year warranty. All luminaires ship complete with lamp, including Uni-Form pulse start metal halide, probe start metal halide, and high pressure sodium.

Circle 84 on Reader Service Card.

Norwell Manufacturing Company, Inc. has introduced the Verona Series, a hand blown, mottled French **glass chandelier**. Using center bowls was a European tradition in the late 19th century. Designed specifically for Norwell, these delicate Italian castings add a touch of elegance to these fixtures. Available in a one-light sconce, a three-light chandelier, a three-light bowl, and a six-light chandelier with the bowl center. Offered in the polished, pewter, and flemish finishes.

Circle 83 on Reader Service Card.

Prescolite introduces Lite Deco **recessed downlights**. Lite Deco trims are permanently mounted to the units' Alzak-coated reflectors. Standard Prescolite recessed housings with 8-inch apertures may be specified to accommodate HID, compact fluorescent and incandescent lamps for maximum versatility.

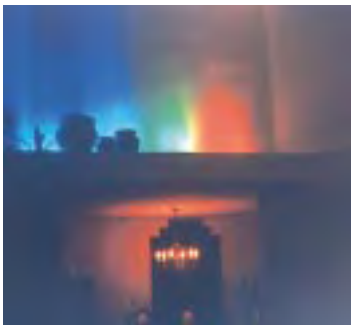


Circle 82 on Reader Service Card.

Venture Lighting offers Uni-Form Pulse metal halide **lamps** with reduced UV output using UV Shield, a feature unique to this line. The Uni-Form system is available in a full range of wattages from 50 to 400 W in open fixture designs. UV Shield virtually eliminated UV light emissions that cause fading and damage to plastics and fabrics, according to laboratory tests. Tests also revealed at 1,200 burn hours, the lenses show minimal yellowing.

Circle 81 on Reader Service Card.

The Relax Lighting System non-glaring **task light** is a desktop lamp protecting the eyes of computer users by providing them with bright, natural light while they work. The Relax Lighting lamp is non-stroboscopic, has no direct reflective glare and eliminates other potentially harmful reflections on the monitor screen. Using two 9 W fluorescent tubes, it produces 75 W of brightness.



Circle 80 on Reader Service Card.

Candlelites introduces the "Litesicle" **Light Emitting Diode** (LED) based low profile lighting system. Litesicles come in a 3/4-inch round sealed, clear acrylic tube. They are available in eight super bright colors including white, blue-green red, amber, yellow and orange. One low voltage transformer can supply over 350 inches (at one-inch on center) lamps. Litesicles are cool to touch, usually operating at less than 80 degrees.

LETTERS TO THE EDITOR

Peter Franck's article, "Luminaire Apparent," (*LD+A* May 2000) was a timely and appropriate article. As a retrofitter, I used to replace 400 W HPS and MH high bays with 8- or 12-ft custom hooded industrials with 8 or 9 second generation (24,000 hour rated, 800 series, 2950-3100 initial catalog lumens, 92 percent end of life lumen maintenance) F32T8s and 1.18 BF electronic ballasts. Now I use 4- or 8-ft fixtures with 4 or 6 F54T5HOs and 1.0 BF electronic ballasts for the same application. Although the parts cost is much higher, the lower installation labor for smaller fixtures and extra electrical savings make the T5HO fixtures a better total value.

I am glad Peter Franck focuses on maintained light output (end-of-life lumens) rather than initial or mid life lumen and wish more people would do that. But I wish the author and others would not lump all F32T8s together. There is a big difference in performance between 1st generation (20,000 hour rated, 700 series, 2800-2850 initial catalog lumens, 88-92 percent end of life lumen maintenance) lamps and second generation lamps. At LIGHTFAIR INTERNATIONAL at least one manufacturer introduced a new second generation lamp with more than 3200 initial catalog lumens. In California, the three largest electric utilities provide a higher rebate for second generation T8s, which covers the extra cost of the second generation lamps compared to first generation lamps. The rationale for this extra rebate is that lower BF ballasts or fewer lamps can be used, which saves wattage.

The author states the rated life of T5HOs is 16,000 hours. It is my understanding the rated life is 20,000 based on program start electronic ballasts. The vast majority of ballasts for these lamps are program start.

Based on my calculations, there is no lumens per watt advantage at 20,000 hours with T5s compared to second generation T8s.

Although not that important, I would like to know why the author listed 3050 initial lamp lumens for two T8 lamps and magnetic ballast and only 2900 initial lamp lumens for T8 lamps and electronic ballast.

I hope T5HO lamps come down to second generation T8 lamp price levels by the time the T5HO lamps installed this year start to burn out.

Stan Walerczyk,LC
Alamo Lighting
Concord, CA

Peter Franck responds:

Thank you for your insightful comments. You are exactly right that T8 lamps come in different packages with different performances. 700 series lamps range from 2800 to 2850 initial lumens, and the 800 series lamps (with rare earth phosphors providing higher Color Rendering Index) range from 2950-3000 initial lumens. In fact, as you have indicated, these numbers have changed over the years as manufacturing has improved. Six years ago, most manufacturers were reporting high-CRI T8 lamps at 2900 initial lumens, with 90-92 percent light level after 40 percent of rated life, and a rated life of 20,000 hours. Currently, most manufacturers report 2950 initial lumens and 95 percent lumen maintenance (only the rated life has stayed the same at 20,000 hours). The rating of 3050 lms shown in the first row of the first table is for a T12 example, not T8 (the row is mislabeled). If you use the data for better performance T8 lamps, you could then conceivably increase the second line of ***Table 1*** *in my article to provide 85 lm/W.*

I am glad Peter Franck focuses on maintained light output (end-of-life lumens) rather than initial or mid life lumen

This would make the T8 lamp appear more favorable (the T5 HO was 81 LPW), and indeed the T8 is still an important lamp option. But the output of the lamp must be combined with the efficiency of the luminaire, as well. The small size and temperature characteristics of the T5 HO lamp can work to its advantage, as can be seen

Table 1—This chart compares the light output for four various four-foot lamps. The combination of higher ballast factor and high lumen maintenance means that one T5 high-output lamp gives about the same light output as two T8 lamps, as well as similar efficacy.

	Lamp lumens	x	Ballast Factor	x	Lumen Maintenance	=	Maintained Light Output	Watts	Maintained Efficacy (Lms/W)
Two T8 lamps, magnetic ballast	3050 lms x 2		0.875		0.85		4537 lms	80 W	57 LPW
Two T8 lamps, electronic ballast	2900 lms x 2		0.875		0.92		4669 lms	58 W	81 LPW
Two T5 lamps, electronic ballasts	2900 lms x 2		1.0		0.95		5510 lms	60 W	92 LPW
One T5 high-output lamp, electronic ballast	5000 lms		1.0		0.95		4750 lms	59 W	81 LPW

*in **Table 2**, using some feasible efficiencies for the different lamp combinations.*

*You'll notice I used different rated lumens for the T5 HO lamp. While most published literature reports 5000 lm (for a 4-ft nominal lamp), this is at an ambient room temperature of 35°C but both the Lamp Testing Engineers Conference (LTEC) and the IESNA Testing Procedures Committee (TPC) have met and agreed that this lamp should be reported at 25°C (the standard for other lamps). This would mean the lumens should be reported as 4650 lm (although some earlier literature showed a rating of 4500 lm at 25°C, more recent test reports show an initial light output of 4650 lm). This doesn't mean you don't get the benefit of higher output at higher temperature (if the luminaire is designed right). But the benefit is shown as an increase in efficiency, not an increase in the rated lamp lumens. This will take some getting used to, because it means efficiencies with this new lamp can be close to or even potentially higher than 100 percent. But it has always been the case that temperature effects, both good and bad, are included in the efficiency value. Some fixture manufacturers are still reporting the rating of 5000 lm, and using an adjustment factor to reduce the efficiency reported. This still gives you the same final luminaire output, although it is not the proper approach according to the new standards being written. In the confusion of this issue, some manufacturers are reporting the higher efficiency value along with the higher rated lumens. This is incorrect, and deceives the end users into thinking they will get more light than they will ever get from the T5 HO lamp. Make sure to ask for the fine print from any photometric tests that are being used, to see if this is being done. **Table 3** shows the differences between these three methods. Beware of any photometric reports showing both a very high efficiency, as well as the high rated output of 5000 lm!*

You questioned the rated life of 16,000 hours for T5 HO lamps. Rated life is defined as the point at which half the lamps have burned out. According to the literature of several independent manufacturers (of both lamps and ballasts), the rated life of 16,000 hours is based on three hours per start (the standard testing procedure) using electronic programmed start ballasts. I have seen no documented evidence you can get 20,000 hours rated life out of the T5 HO lamp, regardless of the ballast used.

Your comments brought up some very important issues, and I hope this helps everyone better understand this new lamp.

Table 2—Efficacy of full luminaire system.

	Lamp lumens	x	Ballast Factor	x	Lumen Maintenance	x	Luminaire Efficiency	=	Maintained Light Output	Watts	Maintained Efficacy (Lms/W)
Two T12 lamps, magnetic ballast	3050 lms x 2		0.875		0.85		78.0%		3539 lms	80 W	44 LPW
Two T8 lamps, electronic ballast	2950 lms x 2		0.875		0.92		82.0%		4022 lms	58 W	69 LPW
One T5 high-output lamp, electronic ballast	4650 lms		1.0		0.95		98.0%		4329 lms	59 W	73 LPW

Table 3—Three ways of reporting the exact same luminaire.

One T5 high-output lamp, electronic ballast	Lamp lumens	x	Ballast Factor	x	Lumen Maintenance	x	Luminaire Efficiency	=	Maintained Light Output	Watts	Maintained Efficacy (Lms/W)	
Method 1	**4650 lms**		1.0		0.95		**98.0%**		4329 lms	59 W	73 LPW	Preferred
Method 2	**5000 lms**		1.0		0.95		**91.1%**		4329 lms	59 W	73 LPW	OK
Method 3	**5000 lms**		1.0		0.95		**98.0%**		4655 lms	59 W	79 LPW	Incorrect Beware!

Today I received *The Lighting Source Catalog 2000-2001*. I want to commend the Society and its eighty Committees' publications on their work. Reviewing the variety of RPs, LMs, DGs, etc., all of our members should appreciate the amount of work, review-upon-review, and approval for publication that avails this vast amount of material to anyone interested in lighting.

Look over the offered amount of publications listed with only eight of them slightly older than 10 years. Then, add the new *IESNA Lighting Handbook* to it.

Only the IESNA could put this together for the benefit of the discipline.

Sam Zussman,
Philadelphia Section

I would like to clarify the article "Torre, Torre, Torre" about my Colpatria Tower lighting project in Bogota (*LD+A* April 2000). The article would infer Space Cannon's president, Bruno Bairdi, was behind the activities undercutting my authority as project engineer. I would like to state publicly I have the utmost respect for him as an engineer and designer of the most advanced xenon equipment in the industry. I believe the improper actions that occurred had no connection to him. The person responsible is no longer employed by the company.

I would like the lighting industry to know all of the problems have been rectified.

Robert Daniels
Orlando, FL