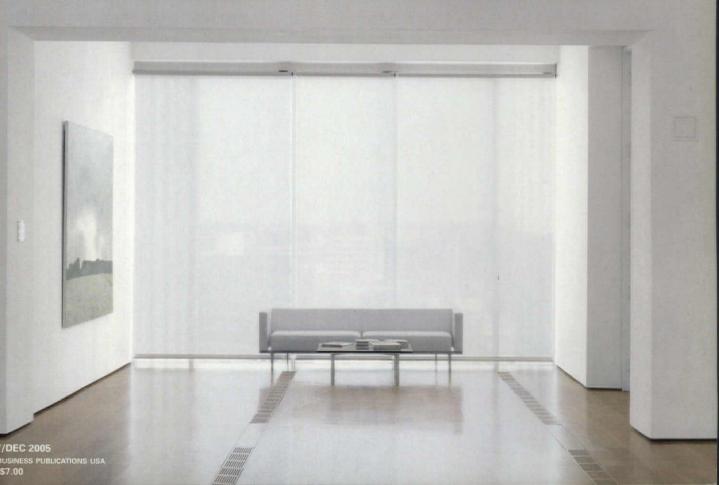
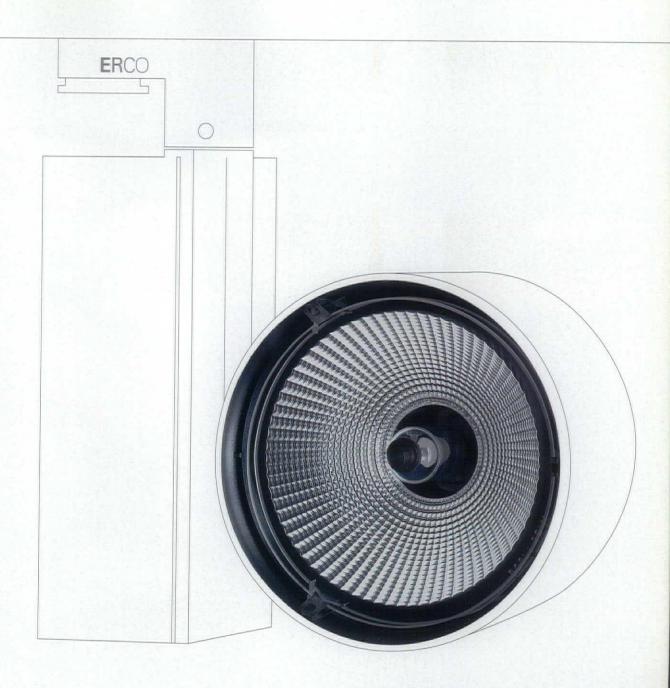


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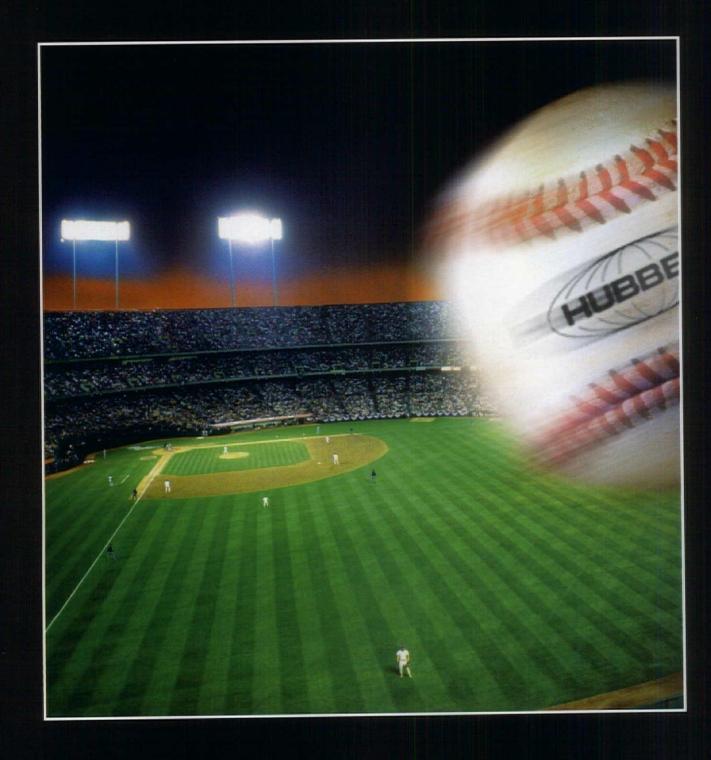
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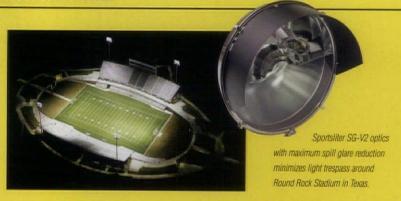


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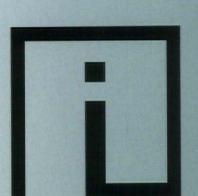
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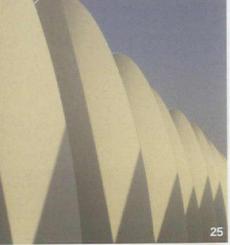




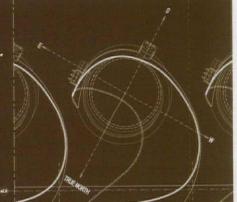














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Cover: The High Museum of Art's recent expansion features a daylighting system that is both technically sound and artistically realized. PHOTO: FLOTO+WARNER

This page: The Lick-Wilmerding High School, San Francisco; white aluminum shields of the High Museum's skylights, Atlanta; detail of Cornell University's Solar Decathlon home; drawing detail of the High Museum daylighting system.

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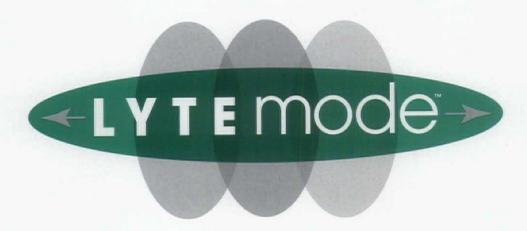




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One Special Issue

THIS ISSUE OF AL CONSIDERS sustainable design, specifically as it pertains to lighting. I am excited to report there was a lot

to say-almost every page deals with itbecause there is a lot happening. Two institutional projects demonstrate the innovative use of daylighting; the Residential Design Focus features the Solar Decathlon competition recently held in Washington; a section on products only brushes the surface of the exciting "green" offerings out there; and a trio of reports explores the sustainable design movement's impact on lighting practitioners, manufacturers, and technologies.

The breadth of industry discussion and participation (Bruce Hostetter reports the Greenbuild conference was bigger than ever, page 11) and the growing body of "green" work (as of November, 3,000 projects had applied for LEED status) is encouraging. Cynics among us will question the sincerity of the current buzz, but frankly, who cares what drives it? Marketing strategy, expensive energy, design fashion, or genuine concern for the environment; with persistent momentum, all could lead to the same commendable end-beautiful buildings and products that function better within sustainable criteria.

An equally worthy objective is the eradication of all "special" issues dedicated to the topic. This is not the yawp of a tired editor, but rather a call for the incorporation of green practices so thoroughly in the design and building process, there is nothing special about it. "Designing sustainable buildings just has to be part of what we consider good design," notes Denise Fong in senior editor Elizabeth Donoff's industry report "Designers Revisit Sustainability" on page 21. "That some people would choose to be sustainable and others wouldn't-that doesn't make any sense to me." Or to me. (I will note, however, that sustainable design and aesthetically interesting design do not consistently go hand-in-hand, and currently, A|L attempts to cover both.)

This month, a second topic, appropriate for editorializing, presented itself at the IALD Education Conference held October 21 and 22 in Alexandria, Virginia. (See "IALD Conference," page 13.) The event, which counted 31 students among its almost 200 attendees, and which made impressive efforts to incorporate the younger crowd into its program, reiterated how essential it is for practitioners and professional organizations to speak to and respect their successors. The IALD—a unique organization in its sense of community and spirit, in my experience-seems to be making such dialogue a priority, an effort that will serve it well as these students mature and contribute to the cause of well-designed lighting in general, and the IALD in specific.

The next generation, and the issue of sustainability, are not unrelated. As "Designers Revisit Sustainability" points out, it is the younger professionals that are pushing boundaries and agendas when it comes to sustainable design-even without the topic being required course content in U.S. design education. It is this community that will push the issue, with the design firms, manufacturers, and clients it encounters. It is the next generation that will turn a "special" issue into an everyday best practice.

EMILIE W. SOMMERHOFF GROUP EDITOR-IN-CHIEF

JAN/FEB 2006 EXCHANGE QUESTION:

As AIL enters its 20th anniversary year, we'd like to know what you consider landmark moments in the architectural lighting profession? Is it a specific project, a technical advancement, the design of a luminaire, the formation of a group or a professional organization? What, to you, have been the key moments in the lighting industry?

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REPORT FROM GREENBUILD

by the U.S. Green Building Council (USGBC) was held this November in Atlanta. Attended this year by nearly 12,000 people (up 3,000 from last year), Greenbuild attracts a larger audience every year. Keynote speakers included industrialist Ray Anderson, CEO of carpet manufacturer Interface; natural science writer Janine Benyus, author of Biomimicry: Innovation Inspired by Nature; environmentalist Paul Hawken, author of Natural Capitalism; and Duane Elgin, author of Promise Ahead: A Vision of Hope and Action for Humanity's Future.

Most architects and designers associate the USGBC with the various Leadership in Energy and Environmental Design (LEED) rating products. However, what many do not realize is that LEED is only one of six strategic goals of the USGBC, all of which were addressed at Greenbuild. The other five categories include: Community, Research, Education, Advocacy, and Organizational Excellence. Here are some of the issues discussed in relation to these topics.

LEED The big announcement this year was that development has begun for LEED-New Construction version 3.0. This product has been reconfigured to score projects by addressing greenhouse gas emissions as they relate to specific regions. Another significant development was the announcement of a new streamlined LEED documentation and certification process. Projects can now be filed online at either the design or construction phase.

COMMUNITY As LEED 3.0 proceeds, new partnerships in the various professional communities will be needed to provide improved peer involvement and peer review. Now that trade and professional organizations are entitled to full membership, new opportunities exist for the IALD (represented at Greenbuild by Stefan Graf and Nancy Clanton) and the IESNA to have more input into credits that deal with lighting.

RESEARCH Although the number of seminars devoted to lighting were but one, "Daylighting R&D Applied to Hospitals and Offices" offered presentation from three leaders in the field: Daylight specialist G.Z. Brown, director of the Energy Studies in

Buildings Laboratory at the University of Oregon presented on daylighting for hospitals and energy-efficient patient room design; and Stephen Selkowitz and Eleanor Lee from the Lawrence Berkeley National Laboratory discussed the results from the New York Times Building mockup.

EDUCATION The conference included five full days of workshops, learning sessions, and tours, with categories as diverse as Life-Cycle Assessment, Livable Communities, Investing in Sustainability, and the Ups and Downs of Marketing Green. Although there was really only one seminar that addressed lighting directly and relatively few of the 300-plus exhibitors

were from the lighting community (Lutron, Osram Sylvania, Philips, and Acuity Brands were some of the manufacturers that did attend), the show provided an opportunity for lighting professionals with concern for the environment to meet like-minded peers.

ADVOCACY Design practitioners come to Greenbuild to meet colleagues they can collaborate with, to understand the resources available to design and build responsibly, and to learn how to navigate the boundaries between their skills and those of others to produce truly integrated sustainable projects. These

practitioners realize they cannot do it alone and that no one single professional discipline has all the tools or answers.

ORGANIZATIONAL EXCELLENCE With the introduction of an initiative called "Dynamic Governance," those who attended the Chapter Leadership Forum experienced the future of decision- and policy-making in the USGBC. Dynamic Governance not only hopes to clear the way for better communication and support of new policies throughout the membership, it also provides new incentive for design professionals to become involved at the chapter level, in committees, and as attendees or corporate sponsors.

Whether a seasoned professional or "emerging green builder," attendees come away from Greenbuild with much more than can be packed into a carry-on bag. Greenbuild is bigger than LEED; it is about a future we can only obtain when we share between professions. Greenbuild 2006 will be held in Denver, Colorado, next November. BRUCE HOSTETTER

NYC GREEN BUILDING CHARTER

IN AN EFFORT TO REDUCE NEW YORK CITY'S ENERGY CONsumption and the production of pollutants, the city council voted in September 2005 to amend the New York City charter in relation to green building standards for certain capital projects (those paid for in whole or in part by the City). New York now follows other municipalities such as Atlanta, Austin, Boston, Boulder, Chicago, Dallas, Los Angeles, Portland, San Diego, San Francisco, San Jose, and Seattle in adopting Leadership in Energy and Environmental Design (LEED) criteria. New section 224.1 requires compliance

with green building standards and reduction in building energy costs. It features a specific addition pertaining to lighting: As of January 1, 2007, any capital project involving the installation or replacement of lighting systems in any building at an estimated construction cost of \$1 million or more shall be designed and constructed to reduce energy costs by a minimum of 10 percent, as determined by the methodology prescribed in LEED energy and atmosphere Credit 1 or the New York State energy conservation code, whichever is more stringent.

Placing an emphasis on LEED standards, the addition of the new section is the council's response to the impact of building construction on human health and the environment. As written in section 224.1, "The use of green building criteria will substantially reduce the city's electricity consumption, air pollution, and water use, as well as improve occupant health and worker productivity, and encourage market transformation, reducing our dependence on foreign oil and allow new power plants to displace power from less efficient and dirtier existing plants." AIL



IALD CONFERENCE ADDRESSES ENERGY CODES AND STUDENTS

THE TRAJECTORY OF ENERGY CODES AND MOBILIZATION of the next generation of lighting designers were dominant themes at the Fifth Annual IALD Education Conference, held October 21 to 22 in Alexandria, Virginia, The conference saw double the attendance of the 2004 event held in Vancouver—with almost 200 attendees representing eight countries. In addition to 12 sessions addressing topics in two tracks (professional development, and new technology and design), activities like the second annual Lighting Cross Talk and the Town Hall Meeting, also held for the second time, encouraged interesting and productive dialogue on a range of lighting-related topics.

The Cross Talk took the form of a twohour session in which groups of specifiers visited a manufacturer-sponsored table for 30 minutes, for a discussion moderated by the manufacturer, before changing tables. There were 12 sponsored tables.

At the Town Hall meeting, moderated by incoming IALD president Graham Phoenix, conversation focused on concerns about national energy codes—their restrictiveness and the lack of involve-



Students shared their work with professionals during the Portfolio Showcase.

ment by lighting professionals to date in developing the codes. Town Hall attendees called for "evidence-based standards" and "feasible and reasonable" sustainability codes. They also encouraged the organization to speak with "one voice" in advocating for appropriate standards. The IALD Board of Directors meeting on October 23 began to address these issues, with approval of an IALD energy policy as well as the initiation of a business plan for the organization's Energy Task Force to help it better communicate with energy-policy-making bodies around the world. (See Charles Stone and Julie

Blankenheim's Exchange response, page 96.) The association hopes to adopt the plan at its board meeting in January 2006.

This year, it was hard to miss the student presence, with 31 in attendance from the Bartlett School in London, the Hochshule Wismar in Germany, Parsons School of Design in New York City, and Pennsylvania State University. This was "a significantly higher number of students than in the past," noted Heather Ryndak, marketing manager for the IALD. The IALD Education Trust solicited students to attend and helped defray the cost. The conference actively incorporated the next generation of designers into its two-day agenda, with Penn State students even joining their professor, Dr. Martin Moeck, on a panel about facade engineering and lighting design. This year also saw the Students' Portfolio Showcase, a new opportunity for students to demonstrate their work for and solicit critiques from attending professionals. Next year's conference will be held in San Diego, which Ryndak hopes will draw students from West Coast schools. AlL

IALD LAUNCHES NEW WEBSITE

THE IALD LAUNCHED A NEW WEBSITE (IALD.ORG) DURING ITS 5TH ANNUAL IALD Education Conference held this October in Alexandria, Virginia. (See "IALD Conference," above.) The purpose of the redesign was "to provide a more efficient, effective, and streamlined website



that is easier to navigate," says Samantha LaFleur, an associate IALD member, who headed the website taskforce.

While the primary impetus for the new site was aesthetic, it was equally important to redevelop the back end, making it easier to update. The new site includes an expanded

search feature: "Find a Lighting Designer," which allows searching by metropolitan area. The enhanced website, explains LaFleur, "also presents a crisp, contemporary international look and has the capability to showcase design better than the old site."

Members of the IALD Website Taskforce—Faith Baum, Stefan Graf, and Mary Rushton-Beales—worked with the website redesign team, led by IALD marketing consultant Jan Stone and web developer Michael Jeongco. The site has been well received by members and non-members alike, according to LaFleur, and represents the IALD's mission to promote quality lighting design. **A|L**

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ULTRALIGHTS AWARDS ARCHITECTURE STUDENTS

TUCSON-BASED MANUFACTURER ULTRALIGHTS ARCHITECTURAL LIGHTING HAS CREATED a unique program to bring the disciplines of architecture and lighting design closer together—the UltraLights Design Competition. Partnering with the University of Arizona's College of Architecture and Landscape Architecture, and the School of Architecture in Tucson, the inaugural competition was open to fourth-year students. Fifteen entries were received that smartly bridged the gap between architecture and lighting design.

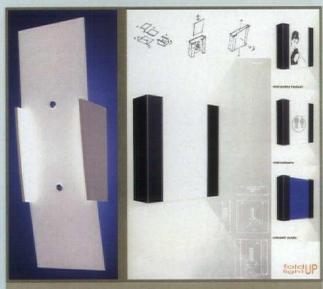
Conceived by UltraLights company president Jim Restin as a means of working with and giving back to the local community, the competition also served to introduce students to the importance of lighting, the manufacturing process, and perhaps inspire students to consider lighting as a career choice. The competition program was described during the students' visit to the UltraLights facility, where they viewed the manufacturing process firsthand.

Program requirements asked students to design an ADA-compliant wall sconce or wall bracket using a compact fluorescent lamp and electronic ballast for corridors, measuring 10-feet wide by 8-feet high, of a high-end contemporary hotel in Los Angeles. Fixtures would be located alternating side to side, 15-feet on center. Budget per fixture had to fall within a range of \$150 to \$250.

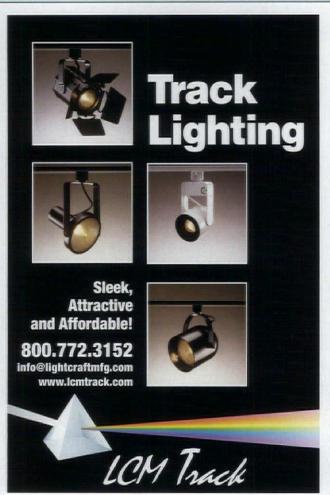
A panel of five design, architecture, and lighting professionals judged the qualifying entries and awarded two prizes. Laren Sakota's rectangular-shaped sconce received \$1,500 for first prize. Borja Gomez Martin received \$500 as runner-up.

Going forward, there are no final decisions regarding whether

or not the two winning entries will be put into production. Chris Bedwell, in business development at UltraLights, explains: "It was our intent to educate and encourage students about the possibility of lighting design, not to solicit designs to manufacturer." A|L



Judges noted Sakota's "understated, yet functional design" (left), while Martin's sconce was recognized for its versatility (right).



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boundary, scale, and magic—this "exploration of the illuminated world" investigates different relationships between light and architecture. By examining projects from both a historical and contemporary perspective, created in nature and the built environment, Spiers and Major challenge us to reconsider what is light and how we interact with this subtle and elegant medium.

This monograph presents an overview of the work of Hervé Descottes, founder of the New York design firm L'Observatoire International. His impressive body of work that spans North America, Asia, and Europe, and a decade of collaborations with some of the world's leading architects, produces a catalog that reminds the reader of the importance of the architecture and lighting collaboration. Photographs and drawings accompany discussion of each project. An interview with Descottes provides insight into his working process and approach to light. AIL



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LETTER TO THE EDITOR

IN RESPONSE TO THE SEPT/OCT 2005 EXCHANGE COLUMN "THE GREAT DESIGN AWARDS DEBATE":

The Exchange column on design awards in the Sept/Oct issue of A|L raises issues on the self-diminishing value of too many awards programs. The problem is that many of the presentations are worthy of awards as "eye candy," for several reasons.

Many first-rank lighting designers decline to submit their projects for awards not only due to the high cost and time involved, but because they feel they are not being judged by their peers. When the judging rules were established for the Lumen Awards many years ago, it was a requirement that at least one judge visit the finished project and report on how it compared to the presentation—and this was even before there were programs (i.e., Photoshop) that allowed for photographic enhancement, as described by Naomi Miller in her Exchange response.

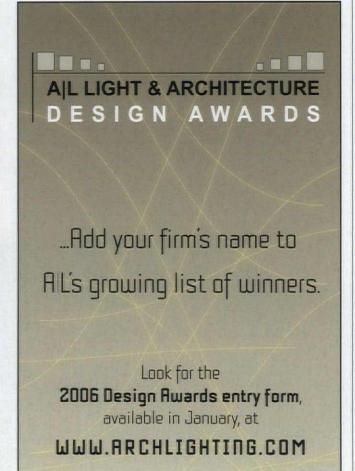
Secondly, there are now mandatory energy codes limiting energy use as Naomi points out. And even if there weren't, design professionals should not be giving lip service to saving the planet; we should be practicing restraint in the use of energy. Rarely do presenters give details on how they did more with less, how the lighting design meets the requirements for visual task performance, or in the case of retail installations, increased sales. Steve Margulies, in his design of the Charlotte, North Carolina, Bank of America trading floor (Sept/Oct 2005, page 40) demonstrates that watts per square foot are not as meaningful in energy conservation as watt-hours per square foot, and that controls are an essential component in design.

In her Exchange response, Carrie Knowlton pointed out that "receiving an award can be an excellent marketing opportunity." How true. On the other hand, she remarked that awards "also educate young and future lighting designers, as well as the public, about the value

of lighting design." Here too, the original documentation of the Lumen Award entries required discussion of technical issues, which were emphasized in the awards presentations. That's the proper way to educate.

Ours is a profession practicing the Art and Science of Illumination, yet we don't give enough credit to the goals and accomplishments of the lighting design, other than its transitory visual appearance. There must be a set of criteria established for each award, with judges of the highest reputations, so that the awards are respected by the community, or they will gradually diminish in importance and credibility.

Willard L. Warren, PE, PC, FIESNA
WILLARD L. WARREN ASSOCIATES
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Designers Revisit Sustainability

ELIZABETH DONOFF

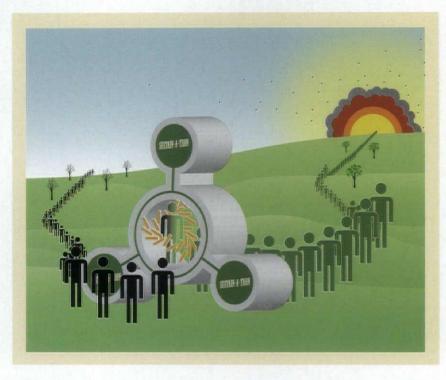
SUSTAINABILITY. IT'S THE BUZZWORD YOU HEAR IN every conversation these days, but it is neither a new issue, nor uncomplicated in its focus. From business to politics, "environmentally friendly" is part of today's discourse. One area on which it has had great impact is the design and building industries. In fact, one could argue that it is transforming the current paradigm for architectural and lighting design practice. certainly in the United States, which in the last decade has seen the creation of the U.S. Green Building Council (1993), the American Institute of Architects Resource Guide (1992), and the cradle-to-cradle design and manufacturing process (1995).

AlL spoke with architect Rafael Pelli of Pelli Clark Pelli Architects in New Haven and New York; lighting designers Denise Fong of Seattle-based Candela and New York-based Matthew Tanteri of Matthew Tanteri + Associates; and R. Todd Gabbard, assistant professor at Kansas State University, to survey their opinions on sustainability and its role in design. No matter the discipline practiced-architecture, lighting design, or interior designseveral themes emerge. One is a sense of responsibility, both personally and professionally, among those who incorporat sustainability into their own professional practice. Another is that sustainability has to be more than just something one "does" at work. The challenge is to use one's design background to find creative solutions to these pressing issues.

A NEW BREED OF DESIGNERS?

The fact that there are now, according to the U.S. Green Building Council (USGBC), 21,600 LEED-accredited professionals might suggest so; as recently as 2001, there were just 527. Another indicator is the number of projects currently seeking LEED certification. As of November 2005, the USGBC announced that "more than 390 million square feet and 3,000 projects have registered to become LEED-certified—including nearly 400 projects in just the past four weeks." These numbers are substantial, considering that the LEED process, from registration to certification, takes an average three to five years.

While most would agree that, sustainability is creating a new breed of design-



ers, it is actually not that simple. Architecture and lighting have always addressed the topic; the issue now relates more to the fact that designers today have different tools and technologies available to them, which enable new approaches to an old problem. Moreover, sustainability-conscious codes and rating systems are encouraging, and in some cases demanding a more proactive approach as well. As Rafael Pelli explains, "Good designers have always looked to incorporate relevant issues. What we call sustainable now and think about as a new idea is, in many ways, the oldest of ideas. Historically, an architect had to be very involved in thinking about the positioning of a building, the access to sun, air, and water; those were the essential criteria by which you would evaluate a structure." Denise Fong echoes the point: "Designing sustainable buildings just has to be part of what we consider good design."

As Pelli suggests, what distinguishes good design and architecture is that it involves more than aesthetics. "I think sustainability is restating some basic propositions about architecture, not only in how buildings are built and the technol-

ogy that is incorporated, but in the tools with which we design and analyze alternatives." The ability to engage in sustainable design requires a tremendous amount of knowledge, begging the question: How much does a designer need to know? Matthew Tanteri believes that this new breed of designer contains both generalists and specialists. "People find their place within these two groups based on the way they think," he says. "It's a certain type of person who wants to wrap their arms around the whole thing and stay with the big picture, whereas others like to focus on one thing and optimize that."

It is precisely this interdisciplinary approach to design, knowing who to bring to the project table, that Fong views as the essence of sustainability. "The big benefit to the sustainable design movement is that it is promoting cross-disciplinary work. Prior to this acknowledgement, it was very common for people to work in 'their' areas and communicate as little as possible to other team members, particularly when pressured on time, fee, and schedules." As Tanteri explains, "the ability to facilitate and engage all these parties in the whole building design process, peo-

ple who might not necessarily be used to working together," is critical.

Pelli too acknowledges the importance of collaboration. "The process of designing a building incorporates enormous specialized knowledge in a lot of different fields, and it has made architects much more dependent on input from specialists. As our ability to do more has increased, the ability for any one individual, or firm, to have complete command over all those fields of knowledge is decreased. Sustainable design is trying to reconnect across some of those disciplines in a more complete way."

Fong believes that her interests and experience are broad enough that she can participate as a team member beyond just the realm of lighting. "At the end of the day, we all take responsibility in terms of drawing and documentation for our disciplines. It is the part that comes before the drawings, during charrettes when the big picture is discussed, that you can create synergies. That's when we work in the broader terms of a designer. That some people would choose to be sustainable and others wouldn't-that doesn't make sense make sense to me."

SUSTAINABLE EDUCATION

When a designer's sustainable education should commence is up for discussion. Should there be more emphasis on it while in school? The short answer for Fong is yes; it should start in kindergarten, meaning a sustainable education begins before one enters design school, "It has to be something that permeates on a much deeper level than just what you do for a living, so that when you get to design school and focus on the built environment, sustainability becomes just another aspect of the design process." To that end, she argues that students would be better served in their design education if an interdisciplinary connection was made at the studio level, rather than having the odd lecture here and there.

Sustainable design is only prevalent in some design curricula. "There isn't any national criteria right now that is pushing the integration of sustainability into design education," says R. Todd Gabbard, "Yes, LEED is a national standard, but the National Architectural Accrediting Board (NAAB), the sole agency authorized to accredit U.S. professional degree programs in architecture, isn't telling schools sustainability has to be part of the curriculum."

Much the way students and young professionals have played a role in bringing computers and 3D visualization tools into the architectural workplace, Gabbard sees their influence on sustainability. "Students and young professionals have really taken hold of sustainability and educated themselves. Many people who are getting LEED accreditation are quite young."

Pelli believes that schools can do more, but they cannot be looked to as the answer. "A school only has a student for three to five years; that's a really short period of time given that this is a profession that takes decades to understand."

WHEN IT COMES RIGHT DOWN TO IT OUR WORK IS REALLY ALL ABOUT COMMUNICATION. IF YOU WANT TO CALL SUSTAINABILITY A MOVEMENT, I THINK THE MOVEMENT IS GOING TO MAKE THE WHOLE PRACTICE OF DESIGN MORE INTER-ESTING AND SATISFYING FOR THE PEOPLE WHO PARTICIPATE IN IT." -DENISE FONG

PRACTICE AND RESEARCH

One extension of the role of education is in the integration of research and professional practice. Unlike other fields where research can exist for the sake of research alone, in architecture and lighting, Gabbard points out, it has to move beyond the lab. "Research is usually applied. With the Solar Decathlon, for instance, there is research, but it's actually in the application that it's made manifest."

Fong tries to integrate research into her own practice. "Showing results and putting it in a format that can be used to further educate our clients about why we are making certain recommendations and what the benefits will be-there's not enough of it here in the United States."

Pelli sites Northern Europe, particularly Sweden, the United Kingdom, France, and Germany, as currently driving advancements in building technologies and products. And while he believes "academia can help foster research, it cannot happen in a purely academic setting." As he sees it, the real issue is that there is no centralized U.S. building research center, and as a result advances in building technologies in the United States are falling behind.

One step toward reclaiming a role in developing advanced building technologies might be to reconsider sustainable building features not as "extras" but "inte-

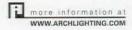
grals" to the design and construction of structures. "I've spoken with several German architects this past year," Pelli says. "What's interesting is that they don't think about a lot of the things they are doing there as green design, it's just what they are required to do." Pelli hopes that the "areen" buildings being constructed in the United States today are more indicative of an "evolving standard of practice." He states, "We are eventually going to be required to do many of the things we are doing on an experimental basis as a means of regular practice. Every firm is going to have to know how to do this or architects won't survive."

NEXT STEPS?

Thirty-five years since the establishment of Earth Day, first celebrated on April 22, 1970, there has been significant progress, but there is still much to be done.

"Sustainability is broadening the conversation about what good design is, and that's healthy," says Pelli. These designers suggest that, if sustainability is to be truly effective and successful, it has to become inherent in the processes of our everyday lives. Moreover, it should decrease cost, not increase it. "Anything that raises awareness about the whole notion of sustainability is a good thing," says Fong. "While it's not necessary to have a LEED accreditation to be a sustainable building. it is useful for some people. It's a welldefined methodology that promotes a common understanding."

Today we are at a threshold, where we must come to terms with the technology that has given us great innovations, but at a cost to our resources and climate. The industrial revolution, as Pelli sites, has enabled us to design and construct taller and larger structures that support self-sufficient and self-contained environments, thanks to artificial heating, cooling, and lighting systems. But in turn, our indoor surroundings are completely devoid of any relationship with nature. As we begin to understand the consequences of our overuse, we must decide if we will continue to accept current practices or push to find new solutions. Sustainability may still be considered a choice for some, but unless we reconsider our actions the choice will be made for us.





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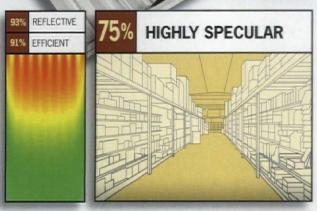
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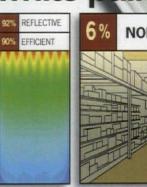
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high museum of art

THE RENZO PIANO-DESIGNED EXPANSION HAS DONE MORE THAN DOUBLE THE SIZE OF Atlanta's High Museum of Art. It has added another must-read chapter to the story of daylighting in architecture.

If a variation on a common theme exists in the museums designed by this Pritzker Prize-winning architect, it is in their formal interaction with natural light. Indeed, it is arguably the respective roof detail dedicated to managing sunlight that most distinguishes each building. For the Menil Collection in Houston, Piano's first building in the Unites States when it opened in 1986, the architect designed "leaf-like" modular components to control the sun. At the Beyeler Foundation in Basel, Switzerland, 900 brise-soleil panels orderly jutting from the roof plane manage harmful rays, while the recently completed Nasher Sculpture Garden in Dallas regulates its daylight with 500,000 diminutive aluminum shells.

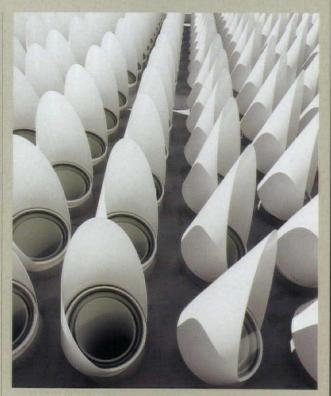
The approach at the High, which Piano designed in collaboration with Atlanta-based Lord, Aeck, Sargent Architecture, is even more self-assured. Standing on the roof of the two new buildings—joined to the original Richard Meier-designed facility and to each other via four bridges—one gets a sense of the current momentum around daylighting, not just in Piano's designs, but architecture in general. The effect is bold. One thousand "velas" (sail in Italian, the design team's nickname for the white aluminum shields), standing 7 feet tall, strut confidently toward the downtown Atlanta skyline. Their message is clear: design around daylight is coming into its own both aesthetically and technically.

The proximity of Piano's addition to Meier's space underscores this point. An elegant structure, the 1983 building did not involve a daylighting consultant, and consequently found itself under renovation 20 years later to correct an overabundance of natural light ("Measuring Daylight," Jan/Feb 2004). The new buildings, buoyed by extensive studies and modeling, suggest a matured approach to the incorporation of this resource. Computer tests (using Radiance) and a vast array of models, from cardboard and part-scale to a full-scale mockup constructed at the High's storage facility outside of Atlanta, helped insure the plan worked on all levels, with fine-tuning into the eleventh hour. "We had an interesting condition that revealed itself in the full-scale mockup," says London-based Arfon Davies of Arup Lighting, who worked with Renzo Piano Building Workshop on both the natural and electric lighting design. (Arup Lighting was also behind the rehabilitation of the Meier structure.) On the south-east side, the "transition" panels-where the façade wraps around onto the roofwere allowing direct sunlight into the galleries during the summer; a custom frit pattern was added to the skylight glass associated with these panels to correct the problem. "We know now that 365 days a year there will be no direct light," says Marjorie Harvey, director of architectural planning and design for the High.

More telling than the technical accomplishments of the daylighting system, however, are its aesthetic presence and visual

PROJECT: High Museum of Art's Wieland Pavilion and Anne Cox Chambers Wing LOCATION: Atlanta ARCHITECT: Renzo Piano Building Workshop, Genoa, Italy, in collaboration with Lord, Aeck, Sargent Architecture, Atlanta LIGHTING DESIGNER: Arup Lighting, London ENGINEER: Arup, London and New York PHOTOGRAPHER: Floto+Warner New York except where noted

A total of 1,000 skylights (top)—800 on the Wieland Pavilion and 200 on the smaller Anne Cox Chambers Wing—harvest a diffuse natural light for the third-floor galleries (bottom).







After an extensive renovation to its original building to correct an excess of natural light and sunlight penetration into the galleries, the High Museum was particularly conscious of the daylighting design for its new buildings by Renzo Piano Building Workshop (RPBW). The trouble-shooting process involved an elaborate series of mockups—from a part-scale model at RPBW's office in Italy (far left), to a full-scale mockup at a location outside of Atlanta (second from left). Though often a budgetary luxury, "full-scale mockups are invaluable to understanding the quality and distribution of natural light," says Arfon Davies, an associate with Arup Lighting. On this project, the full-scale investigation helped uncover that the geometry of the "transition panel," which wraps around onto the roof, was allowing direct light into the gallery during the summer months. (An animation, second from right, shows the panels' vulnerability.) A custom frit pattern was applied to the susceptible area of the skylight glazing (far right).

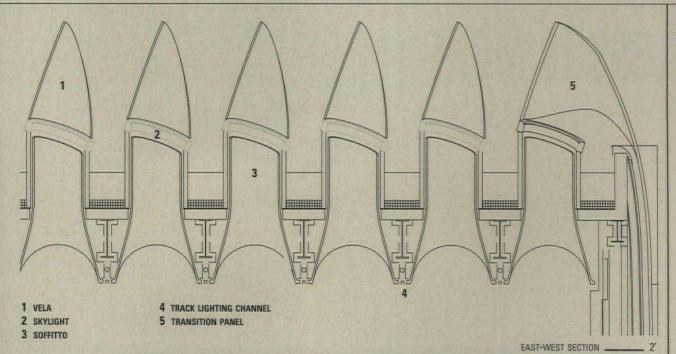




The daylighting system, which is completely passive, is comprised of three elements: The "soffitto," a tubular unit constructed of glass-fiber-reinforced gypsum, diffuses and directs light from the skylight (in fabrication, above). The skylight, cut at an angle with the lowest point facing north, features lowiron glass with a low-E coating and a laminated interlayer. The white aluminum "velas," oriented due north 26 degrees off the building's axis, are the final piece (shown in construction, below). A combination of the northern orientation and reflected sunlight, bounced into the galleries off the white surface of the vela in front, helps capture the appropriate amount of light from Atlanta's sunny climate. Inside, track lighting (an iGuzzini fixture designed by Piano) supplements the natural light. The track is on two circuits: one controlled relative to the amount of daylight, and the other independently to meet the requirements of the artwork. Generally, however, the ambient illumination is generated by the sun. "It is a certain quality of light that is not often used in American museums, and a good demonstration of how natural light can be applied," says Davies. "It will encourage discussion, I think."





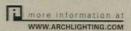




More telling than the technical accomplishments of the day-lighting system, however, are its aesthetic presence and visual incorporation into the architecture. "The natural lighting design process was a key driver in the geometry and shape of the roof," says Davies. "It is a true synergy between architecture and lighting design." Indeed, subdued in most regards, the new buildings come to life on their upper floors, where the soft north light morphs with the passage of clouds and time. The ceiling, dimpled with 1,000 skylights, provides a surface as interesting as the vertical canvases of, among others, Ellsworth Kelly and Gerhard Richter. "We certainly don't want to say that the architecture is more important than the art,"

says architect Elisabetta Trezzani, of RPBW, modestly. But it certainly deserves a place in the collection.

Indeed, if there is one criticism of the space, it is that visitors cannot visually access the roof and the sculptural form of the velas. When something as simple as a skylight becomes a striking architectural detail (both inside and out), it deserves recognition as art in its own right. **EMILIE SOMMERHOFF**



LESS IS MORE

MINIMALIST APPROACH TO LIGHT SAVES ENERGY.

SUSTAINABILITY AS A WORD, AT LEAST IN ITS ARCHITECTURAL USAGE, TENDS TO BE CONstrued in terms of the preservation of natural resources, such as a project's energy efficiency or its "low impact" on the natural environment. As important as this is, there is an often-overlooked facet to the concept that is no less essential-a project's preservation, or, more aptly, improvement of the built environment. When Lick-Wilmerding, a private San Franciscan high school with an emphasis on architecture, design, and technical arts, held an invited competition to find an architect for a much-needed campus expansion in 2000, it was Pfau Architecture's innovative planning solutions, as well as the firm's dedication to the more strictly green aspects of sustainability, that garnered it the commission.

Lick (the school's abbreviated name) had outgrown its facilities and needed a modern shop, expanded cafeteria, and additional seating for its performance hall. The difficulty was finding a place to put new built space on the already cramped campus. A stretch of lawn was available, bordered on three sides by the existing theater and classroom buildings, and the open eastern edge of that space, which abutted highway I-280. But building on either the lawn or eastern edge threatened to block an expansive view of the hills to the east that was valuable to Lick's students and the quality of life on campus. While the other four competing firms did just that, Pfau came up with the solution of digging beneath the lawn and inserting a submerged shop building that not only preserved campus views, but actually improved visual and physical connectivity on campus.

At approximately 17,000 square feet, the new building houses wood, metal, glass, and electronic shops, as well as a multi-purpose room, Mac lab, server space, and two conference rooms arranged around a central open court known as the Workyard. Stairs and an elevator connect it to the new, 6,000-square-foot cafeteria, also by Pfau, which rises above the sunken building's western extremity. The architects increased the theater capacity from 300 to 428 by expanding the seating area within the existing building footprint.

EFFICIENCY AND LIGHTING

According to Michael Webb of Revolver Design, the lighting firm on the project, "As of a few years ago, school lighting was pretty minimal-you could throw in a few fluorescent fixtures and call it a day." But given Lick's design-oriented curriculum and its progressive educational philosophy, the architects wanted to provide a more inspired lighting scheme. "We tried to give them very energy-efficient lighting as well as a sense of drama," says Webb. Part of achieving the design was making effective use of natural light. "The architects were very good at bringing daylight into the spaces, which took a lot of the burden off of the electric lighting," continues Webb.



Inventive solutions help to create architectural spaces, as well as modulate daylight and electric light, at for the progressive San Franciscan Lick-Wilmerding High School. By submerging the new shop building (facing page, bottom), the architects were able to create a landscape of contrasting surfaces, from the sodded roof that provides an outdoor gathering space for students (inset), to the glass shop's signature feature—900 square feet of phoAll exposed walls on the shop and cafeteria buildings are clad in double-glazed, low-E glass, which is both highly energy efficient and highly transparent. "The challenge," says Dwight Long, Pfau principal in charge of the project, "was how to control the natural light so that glare didn't become a problem." While this was not difficult in the shops, which predominantly admit passive light through the submerged Workyard, the east-facing cafeteria had to handle direct light all morning. To mitigate this, the architects placed a series of louvers over the curtain wall. In addition to softening direct light, the louvers also reduce heat gain on the structure and introduce a dynamic light pattern on the interior.

The approach to electric lighting, though minimal with a view toward energy efficiency, was similarly dynamic. "We applied dif-

ferent approaches to different spaces," says Webb. The shop was outfitted with industrial 8-foot fluorescent fixtures, each featuring six 32W T8 lamps. These were installed to direct light downward, though perforated metal reflectors provide some upward distribution as well.

The fixtures were also painted silver to complement the shop's industrial aesthetic. This character was continued in the cafeteria—all interior spaces of the new construction feature exposed steel structural members and mechanical systems—although the fixtures there were chosen to introduce more of a residential feel. Uplights that feature 250W metal halide improved-color lamps produce a warm glow on the cafeteria's wood-paneled ceiling. To introduce a decorative element to the space that adhered to the modernist "less-is-more" educational philosophy of Lick, pendants with 60W halogen lamps were hung over the dining area.

SURFACE AND SYMBOL

All of the shop's roofs, except for one, were sodded or paved, to maintain usable open space, as well as to provide extra insulation and cut down on temperature fluctuation within the building. The exception is the roof of the glass shop, which hosts 900 square feet of photovoltaic panels. "We set the solar panels symbolically at the center of campus to get the students to appreciate the benefits of solar energy," says Long. And indeed, the panels are more of a symbolic gesture than a complete energy solution: On a good day, they produce enough energy to power the school's computer lab—about 2 to 3 percent of the overall energy usage. But the architects gave as much weight to the gesture as they could, going so far

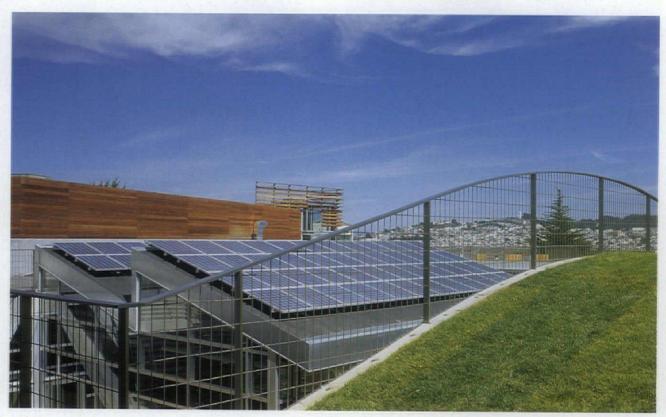
as to install a read-out display in the cafeteria that keeps students updated on how much energy the panels are generating.

The solar panels are only one part of a larger alternative energy program that Pfau Architecture is developing for Lick. At the start of

2006, the firm will begin the approval process for a series of windmills to be sited at the eastern edge of the campus, a process that the architects expect to take nine months to complete. They had also been aiming for a LEED certification for the project, but during the documents phase, the school decided not to pursue it owing to the cost of consultant work associated with the certification process. Nonetheless, Pfau Architecture has put Lick well on its way, with an efficiently and amply lit building that has done its part in sustaining the

heart of the school. AARON SEWARD





tovoltaic panels (above). The façade of the double-height cafeteria (facing page) is articulated with a series of louvers placed over the curtain wall. The louvers, constructed of ipé, a sustainable Brazilian wood, reduce heat gain on the structure and introduce a dynamic light pattern on the interior. Behind the shop building sits the theater, also clad in wood, and beyond, the hills of San Francisco.









Minimal electric sources supplement the school's interior spaces, which are illuminated primarily with daylight. The shop is outfitted with industrial fluorescent fixtures (facing page, top), and metal halide uplights and halogen pendants round out the cafeteria (top). By submerging the new shop building and creating an exterior space referred to as the Workyard, Pfau Architecture allowed daylight to permeate these work areas, which otherwise would not have benefited from this type of illumination (facing page, bottom). The next phase of the school's energy-savings master plan includes a series of windmills to be sited on the eastern edge of the campus (above).

DETAILS

PROJECT Lick-Wilmerding High School Technology
and Design Center, San Francisco
ARCHITECT Pfau Architecture, San Francisco
LIGHTING DESIGNER Revolver Design, Emeryville, California
PHOTOGRAPHER Tim Griffith, Tim Griffith Photography, San Francisco
TOTAL FLOOR AREA 35,000 square feet

MANUFACTURERS

Bega

BK

Eco Energies

Elliptipar

Lightolier

Resolute

Stonco

Williams Industrial

APPLICATIONS

Polemount parking-lot lights and

exterior recessed wall luminaires Exterior and interior downlights

Shop building solar panels

Café truss lights

Compact fluorescents, and shop track lighting

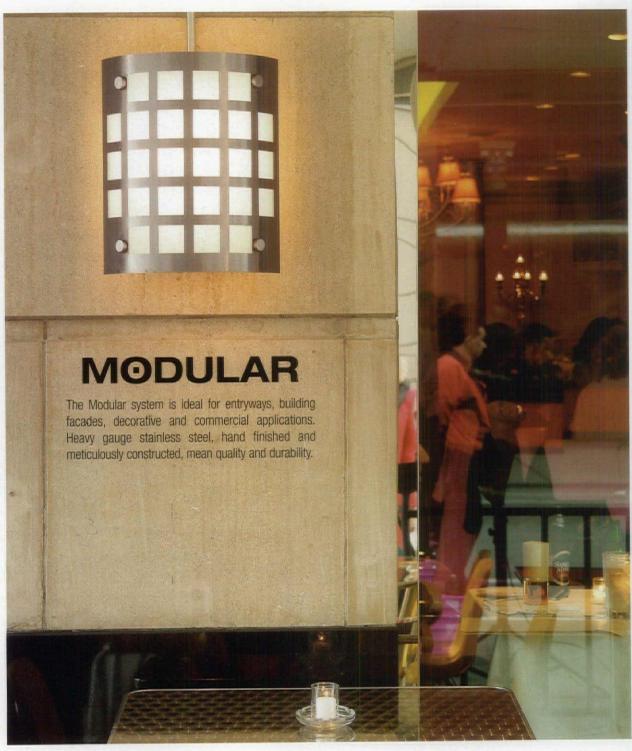
Pendant in café

Task lighting integrated into shop

equipment hoods

Interior ambient direct-indirect fluorescent lighting in shop





The Modular Wall Fixture System begins with a die cast aluminum base luminaire and finishes with any one of a variety of decorative stainless steel faces. Ideal for any decorative indoor or outdoor application.















NEW PARK WEST, CHARLOTTE, NORTH CAROLINA

CHALLENGE When architect/developer Anderson Pearson formed his one-person firm, his inaugural project was the New Park West condominiums, completed in March 2005. Sited on a corner lot, facing a busy street on one side and a quiet cul-de-sac on the other, the project presented many challenges. Among them was working with city officials and neighborhood groups to rezone the lot, from single-family to multi-family use, a process that determined much of the project's program: The units had to be family-oriented, have no less than two bedrooms each, and provide off-street parking. Pearson also hoped to create a memorable entrance to the neighborhood and make the development appear uncrowded on its half-acre lot.

ARCHITECTURAL AND LIGHTING SOLUTION The seven-unit project is comprised of two buildings connected by a one-story porte-cochere that spans the entry drive. Each three-story town-house offers a street-facing garden, a tandem garage on the first floor, living and kitchen areas on the second, and bedrooms on the third.

The rest of the neighborhood had previously been developed with condominiums; townhouses directly across the street and stacked flats fill out the rest of the cul-de-sac. "I tried to pick up on some of their elements—the cedar siding, the stain—without copying them," says Pearson. "That also introduced a visual continuity that was lacking on the street."

Perhaps the most striking visual element of New Park West is the stair tower that anchors the corner condo—the single three-bedroom unit in the project. Crowned with a glazed reading loft, the tower features a series of projecting fins that frame slotted windows. Day or night, the tower serves as a recognizable landmark, functioning as what Pearson calls a neighborhood "porch light."

Lighting plays an important role in the overall design of the exterior. Round wall sconces accent the busy street façade and provide illumination, modulating the building's massing at night, while low-voltage halogen recessed path lights mark unit entrances. This theme is continued by uplighting the porte-cochere and the trees in the entry gardens. All of the exterior lighting is placed on photocells to illuminate the site at night and provide a sense of security.

Careful detailing is not exclusive to the exterior. Pearson applied a standardized arsenal of luminaires on the interior, including recessed canlights in the ceilings and pendants over the openkitchen bar tops, which combine economy with elegant design. Concealed fluorescent striplights placed above the kitchen cabinets create a warm glow on the ceilings. The same luminaires are also looped behind the half-bath mirror, causing that reflective surface to seemingly float.

Charlotte is currently experiencing a condo boom, making it an easy field for developers. Nonetheless, New Park West stands as a testament to the use of imaginative design in speculative projects. Not only were all the units sold under contract before construction, but the dramatic lighting and unique architectural elements have made the townhouses favorites among tenants and the neighborhood as a whole. AARON SEWARD

DETAILS

PROJECT | New Park West Condominiums,
Charlotte, North Carolina

DESIGN TEAM | Anderson Pearson

Architecture, Charlotte, North Carolina
(architecture and lighting)

PHOTOGRAPHER | Carolina Photo Group,
Charlotte, North Carolina

TOTAL SQUARE FOOTAGE | 14,000

LIGHTING COST | \$1.72 per square foot

WATTS | .55 watts per square foot

MANUFACTURERS | Cooper, Intermatic, LBL
Lighting, Lumiere, Lumark, Metalux,
Progress Lighting







SOLAR DECATHLON, WASHINGTON

DETAILS

PROJECT | 2005 Solar Decathlon

COMPETITION WEBSITE

solardecathlon.org

PHOTOGRAPHER | Stefano Paltera /

Solar Decathlon (except where noted)

UNIVERSITY TEAMS

CALIFORNIA POLYTECHNIC UNIVERSITY solardecathlon.calpoly.edu

CANADIAN SOLAR: CONCORDIA UNIVER-SITY AND UNIVERSITE DE MONTREAL canadiansolar.org

CORNELL UNIVERSITY cusd.comell.edu

CROWDER COLLEGE crowder.edu/solar/2005

FLORIDA INTERNATIONAL UNIVERSITY solar fiu edu

NEW YORK INSTITUTE OF TECHNOLOGY iris nvit edu/solardecathlon

PITTSBURGH SYNERGY: CARNEGIE MEL-LON, UNIVERSITY OF PITTSBURGH, AND THE ART INSTITUTE OF PITTSBURGH pittsburghsynergy.org

RHODE ISLAND SCHOOL OF DESIGN solar risd.edu

UNIVERSIDAD POLITECNICA DE MADRID solardecathlon.upm.es

UNIVERSITY OF COLORADO solar.colorado.edu

UNIVERSITY OF MARYLAND

solarhouse umd edu UMASS DARTMOUTH umassd edu/solar

UNIVERSITY OF MICHIGAN

misohouse.org

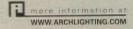
UNIVERSITY OF MISSOURI-ROLLA AND ROLLA TECHNICAL INSTITUTE solarhouse umr edu

UNIVERSIDAD DE PUERTO RICO solar uprm.edu

THE UNIVERSITY OF TEXAS AT AUSTIN utsolard org

VIRGINIA POLYTECHNIC INSTITUTE AND STATE UNIVERSITY vtsolar.arch.vt.edu

WASHINGTON STATE UNIVERSITY arch wsu.edu/solardec





CHALLENGE Sponsored by the United States Department of Energy as part of an effort to more completely integrate sustainable energy into mainstream society, the second Solar Decathlon, held October 7 to 15, 2005, pitted 18 student teams against one another in a battle on the Mall. Like its Olympic equivalent, the Decathlon included 10 "events," ranging from architectural merit to hot water generation. In the lighting competition, teams were required to handle both quantitative (measured) and qualitative (judged) criteria, which together comprised 100 points out of 1,100 available in the competition.

ARCHITECTURAL AND LIGHTING SOLUTION The Latin roots of the word "competition" mean "strive together," and the Solar Decathlon exemplifies that, with the communal goal of exploring residential building options that can help reduce national dependence on fossil fuels. Currently, residential buildings account for 21 percent of the energy consumed in the United States.

This event demonstrated the beauty of efficiency-not just in energy consumption, but also in the layout of living spaces that ranged from 650 to 800 square feet. In their designs, teams incorporated a role for the occupant, fostering a more active relationship between user and dwelling that allowed for continual optimization of light and heat conditions. Although full automation might have been technologically achievable, there was a philosophical notion that an intimate relationship with the building would lead to more ownership for residents. Emphasizing interactivity, the Cal-Poly team called its design "switch-rich"; it took first place in the quantitative lighting competition, and third place overall. Judges noted the house for its fully integrated design and "livability."

Teams that succeeded in the lighting category featured natural and electric lighting solutions that emerged organically from the architecture. Daylighting schemes tended to rely on more

established techniques of solar orientation and shielding; however, there were several attempts toward innovation. In order to allow light penetration without excessive glare and solar gain, some teams explored translucent panels as an option. The University of Colorado team, first place overall winner, as well as Virginia Tech, winner in the Architecture and Dwelling contests, explored a low-transmission Polygal/Aerogel sandwich for their clerestories.

With electric lighting, innovation came in the form of fluorescent and LED sources. "It's one thing to put fluorescent in a box and say, 'Wow, this looks just like an office," says Gary Steffy, a Michigan-based lighting designer who served as one of three lighting judges. "It's another thing to make it so you don't notice." Cal-Poly satisfied this goal through its use of uplighting, notably with a T5HO Cerra Wall fixture from Peerlite.

The Virginia Tech team also received critical acclaim from the judges, winning the qualitative lighting competition. Its "clean and integrated" design included Lithonia low-profile strip fluorescents to illuminate the roof profile, and sandwiching LEDs between translucent walls, which created a nighttime glow both inside and outside the house. Many teams, including the two mentioned above, were indebted to the generosity of manufacturers, who donated products and materials.

Although by its nature the Decathlon is experimental, the hope is that the techniques developed will have a broader reach. "I think there's mass interest," says Bill Sykes, vice president for programming at the Do It Yourself network, which served as one of the primary event sponsors. "People want to believe that solar, in the right parts of the country, can be practical and cost effective." ZACHARY R. HEINEMAN

Zachary R. Heineman is an employee of Public Architecture, a San Francisco-based nonprofit dedicated to improving the built environment.







Open to the public, the Solar Decathlon on the National Mall in Washington was visited by 25,000 people during October (facing page). One pedagogical aim of the Decathlon is to integrate the architecture and engineering disciplines, to familiarize each with the considerations of the other. "Because it was a designbuild process, architecture and engineering students worked together the whole time," says Marc Miller, a student from the Cornell team, whose house (above left) received second place overall honors. The University of Colorado's house (top) took first place overall honors. Virginia Tech's house stands illuminated on the Mall (above right). Visitors gather in front of the Cal-Poly house (right).



HOME IS WHERE THE LIGHT IS



ALEXANDER LERVIK | BRIGHTHANDLE | BRIGHTHANDLE.COM

Using colored light as a communication tool, the fiber optic track encased within Brighthandle's acrylic surface is green in the unlocked position. When locked, the surface changes to red. Battery operated or supplied electricity through wiring in the door, the handle can be programmed to coordinate with emergency functions, switching colors when an alarm has been activated to help designate building evacuation routes. CIRCLE 125

COLORADO VNET | TP1-1D TOUCHPAD | COLORADOVNET.COM

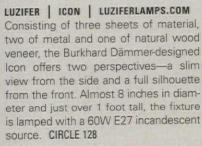
A cross between a touchscreen and a keypad, the TP1-1D is designed to interact with Colorado vNet's home automation system. Reacting to commands based on the length of time that the user presses the button, the touchpad can be programmed to switch and dim lights; control drapes and fans; or activate a preprogrammed lighting scheme. A removable acrylic faceplate allows for customization of backgrounds and buttons. CIRCLE 126





ONDINE | KRYSTAL ELS | ONDINESHOWERS.COM

A combination of water, colored light, and Swarovski crystals create the Krystal Electronic Light Shower. The 12-inchdiameter showerhead, with its crystal-lined perimeter, contains 270 no-clog precision-engineered spray channels individually illuminated by fiber optics. Colored light rotates from blue to green to yellow to white, and users can stop the rotation at the color of their choice. CIRCLE 127





ZIA-PRIVEN DESIGN | WALLPAPER COLLECTION | ZIAPRIVEN.COM

Dauphine, Malabar, and Mimosa—a trio of luminaires in the Wallpaper Collection, a series of 12 vintage-inspired pendants and table lamps—have hand-printed wallpaper drum or cylinder shades, the largest of which has a diameter of 18 inches and is 9 inches tall. Available with a polished nickel or walnut stem, the fixtures feature shades in 10 patterns. CIRCLE 129





PROGRESS LIGHTING | HOME THEATER PACKAGE | PROGRESSLIGHTING.COM

This customizable theater package comes with controls, fixtures, and trims. A variety of housing choices are available, including step lights, wall sconces, and recessed lighting that can be programmed at the touch of a button to fade in and out at the start and end of a film. Control functions are supplied by Lutron. CIRCLE 130



LBL LIGHTING | NEPTUNE 1 | LBLLIGHTING.COM

Available with single-circuit monorail, two-circuit rail, and monopoint mounting options, the Neptune 1 mini pendant consists of a 5-inch-wide blownglass sphere and satin nickel or bronze hardware. The shade houses a 35W lamp and is offered in amber, blue, opal (shown), and red. CIRCLE 131



SEASCAPE LAMPS | PAVLO | SEASCAPELAMPS.COM

The 29-inch-tall Pavlo table lamp has a solid oak base (shown with an ebony finish) and brushed aluminum hardware. The cotton-blend fabric shade, which measures 16 inches in diameter, diffuses a three-way 150W lamp. All luminaires are made to order and custom finishes are available. CIRCLE 132



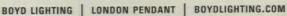
DELTA LIGHT | QUEEN TEAK | DELTALIGHT.COM

This outdoor luminaire is just under 11 inches tall and just over 7 inches square. Its polycarbonate diffuser conceals a fluorescent lamp, whose power is provided through a connection in the ground. The fixture is available in teak or metal, and several sizes. CIRCLE 133



D'AC | OLIVIA | DACLIGHTING.COM

This disc-shaped wall sconce consists of sandblasted glass, an inset convex mirror, and aluminum fittings. The 12-inch-diameter glass shade extends beyond the light source, capturing and diffusing the light. The luminaire takes two 60W halogen lamps and extends approximately 3 inches from the wall. CIRCLE 134



This pendant, inspired by London's Savoy Hotel, has a white linen shade nestled inside a black silk shade and is suspended from a hexagonal tapered stem offered in polished nickel, satin nickel (shown), antique Boyd brass, blackened brass, or gossamer gold. The London pendant is available in four sizes. CIRCLE 135



LEUCOS | FOLD | LEUCOS.COM

The curved satin glass of Fold, available in white, red, yellow, and blue, is set in a chrome or titanium frame. At just over 18 1/2 inches long and 7 1/2 inches high, the luminaire is also offered in pendant and ceiling-mounted versions, as well as with a perforated chrome front panel. CIRCLE 136



RALPH REDDIG DESIGN | HORIZONTAL SLIDER LONG | REDDIGGESIGN.COM

The plastic guides on the front of this fixture are horizontally adjustable, allowing for variety in the quality and intensity of light. The 35-inch-wide by 14-inch-high aluminum frame holds a cast acrylic diffuser lens, concealing three incandescent lamps. CIRCLE 137



MODISS | LOE | MODISS.COM

The Loe floor lamp is actually suspended from the ceiling and consists of a 14-inch-diameter fabric shade and a matte aluminum base. The adjustable shade can be used to create general illumination as well as task lighting, and is available in both white mesh, and white, brown, or yellow raffia. CIRCLE 138



ROTALIANA | EYEBALL |

Eyeball, offered in both pendant and table versions, is made of a 12 1/2-inch-diameter externally etched, hand-blown opaline glass diffuser and an injection-molded, polycarbonate diffuser support, available in translucent (shown), blue, and orange. CIRCLE 139













Gallery Collection

IG COlour and unique form bring to life the Bolero and Belzebu chandeliers from the Gallery Collection. The is taken the classical craft of Murano glassmaking and infused it with subtle contemporary profiles. Available in 3 ed, white or clear and with a complementary wall lamp. The Belzebu chandelier makes an impressive statement by grand size and bold colour. At over 50 inches in width, the black glass adds a grandeur that is only possible with a piece such as this. Eurofase, your premier source for architectural lighting.

391 www.eurofase.com

or www.archlighting.com/productinfo



OCL.COM





Adding Up

JESSICA N. JOHNSON

CALCULATIONS PROVIDE INTERPRETIVE AND CONCRETE DATA

CALCULATIONS: THE WORD ALONE HAS A REPUTATION OF BEING BOTH UNINTERESTING and intimidating. However, lighting and its related calculations are a necessary component in any successful project, though more commonly a necessity in non-residential applications.

Generally calculations can be considered in two tiers, primary calculations (what is needed for the specific project) and second-

ary (what is needed to meet industry standards such as ASHRAE 90.1 and LEED). Additionally, calculations quantify light in two different ways: illuminance, ambient light measured in footcandles and watts: and luminance, the visual character of a space.

1. THE COMPLEXITY OF THE SPACE DETER-MINES THE TYPE OF CALCULATION. There are several project variables that dictate the quantity and detail of the calculations necessary. The calculations required to light a fairly simple room differ greatly from those required in more complicated spaces. Cambridge-based Lam Partners principal Keith Yancey explains, "If it is a very basic geometry and simple task, we are usually just doing illumination calculations." Illuminance is the result of light reaching a surface directly and by interreflections from surrounding surfaces. There are two types of illumination calculations: The first type is used to determine how much light reaches a surface point directly from a luminous surface, and the second type is used to determine how much light reaches the same surface or point from a secondary source of light, which is, luminous by reflection.

However, the complexity of the space is directly proportional to the type and quantity of calculations needed. "When you are talking about public spaces or the exteriors of buildings like façade situations," Jeff Gerwing of Detroit-based SmithGroup notes, "then sometimes the numbers become a little less important in terms of illuminance levels. At some point, it becomes more about the perception of a space than what the numbers say." However, it is always imperative that there is enough ambient and task light in the space.

Finding the appropriate balance between the qualitative and quantitative analysis is often a challenge. Vikram Sami of Lord Aeck Sargent Architecture in Atlanta offers an example of how

these two methods work together. "If you have 50 footcandles on a surface, usually you would be okay," he explains. "But if you have a surface next to it that is 1,000 footcandles, 50 footcandles appears really dark because the eye adjusts physiologically to the brightest spot in the room." It cannot be assumed that the complete solution is solved once the quantitative analysis is calculat-

> ed. Sami continues, "Numbers are not the whole answer. You need to go further and analyze them experientially."

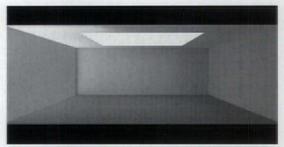
> 2. COMPUTER TECHNOLOGY AIDS THE CALCULA-TION PROCESS. For most designers. including Jim Nicolow, also with Lord Aeck Sargent, developing a project design happens intuitively initially, and "then we iteratively ask the questions: Is it working? How is it working?"

While hand calculations are fairly straightforward for spaces with simple geometry and tasks, they are rarely used today. Given the prevalence of computers, most designers work with spreadsheet programs and lighting calculation software, including: AGI-Light, Lumen Micro, Lightscape, SketchUp, and Radiance, to name but a few.

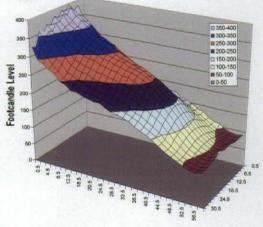
Some computer calculation programs are formulated to perform illuminance calculations in which the main outcome is the required footcandle numbers and/or the watts-persquare-foot information. This is important, especially from an energy code perspective, but there is often a need to know more about the overall visual character of the space. This is where luminance calculations come into play. Luminance describes how light makes objects and surfaces appear, and includes the determination of contrast and luminance ratios.

For luminance calculations, Gerwing finds it imperative to use 3D lighting analysis tools. "Not only can you get the technical information, but you can also get the actual image of what the space is going to look like. It becomes more about where the light is being placed and less about just a hard number."

Of course, no program is without limitations. If designers are considering spaces with backlit elements, even 3D programs aren't always sufficient. For specific issues like this, both Yancey and Gerwing stress the importance of building physical, mockups, which have particular importance when working with daylighting.



Daylight studies for the Gwinnett Environmental and Heritage Center, designed by Lord Aeck Sargent Architects displays two types of lighting calculation studies, both rendered in Lumen Micro: the luminance of the space (above) and footcandle contours-illuminance (below).



3. DO MOCKUPS, ESPECIALLY WHEN CALCULATING FOR DAYLIGHT. "Calculating artificial light is about as easy as it gets," Gerwing explains, "because you are talking about a static system. Obviously, with daylighting, you are talking about a dynamic system that is constantly changing throughout the day. It is an unending variable." Because of this, a lighting designer cannot simply rely on one calculation for the space, as its results would only reference a specific time and day. The complexity of calculations increases tremendously with daylighting projects,

although most lighting programs are sophisticated enough to derive some basic daylighting computations. Physical models, however, allow a designer to see how the daylight will interact with the room volume.

Generally, though, daylighting is not a stand-alone component of a lighting plan. Even in the most advanced daylit spaces there is a need for a supplemental electric lighting system. Yancey explains, "We are still going to design our electric lighting to a certain level when it is dark outside. Most spaces will

not be used only during the day. Even in late afternoon, when you have very little daylighting, the need for electric lighting

is present."

4. INVESTIGATE SPECIAL REQUIREMENTS FOR CODE AND STANDARD COMPLIANCE. The tension between the functional and aesthetic aspects of calculating light becomes further obvious when a project must comply with codes. Requirements for state code compliance have become more stringent in recent years. Gerwing explains how "Regulations have basically required states to lower the limits for allowable lighting power, and it is becoming a big issue in the lighting industry. It gets to the point where codes start to limit the wattage so much that you begin sacrificing aesthetics." For Gerwing, the bigger issue is always visual, solving the problem functionally in a way that retains the aesthetic intention. Sami warns of relying too heavily on the calculations that are part of the LEED daylighting credit. He explains that the LEED credit requires a daylighting factor calculation, "which honestly is not always a great solution. The daylight factor was developed for conditions in England, which are pretty cloudy. It's great if you are working in seattle, but for most places, it's not a great thing to go by. You can do the calculation for the LEED credit, but it is always worthwhile to do the simulations in one of the [more

Depending on the project, calculations can act as best practice guidelines or to reinforce code compliance. In either case, the process of lighting calculations provides a balance between aesthetic and functional considerations.

sophisticated] programs."

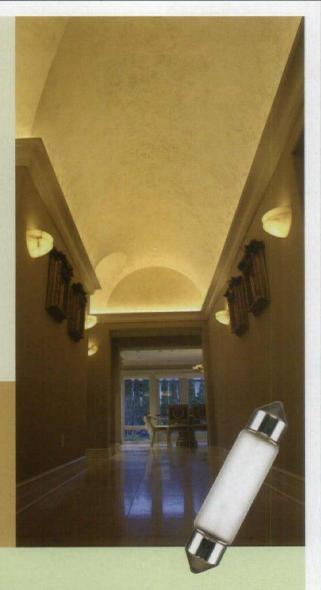
Jessica N. Johnson is an architect in Raleigh, North Carolina. She received her Master of Architecture from North Carolina State University, and is currently participating in a teaching fellowship at the school.

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Into the Limelight: Manufacturers Go Green

SALLIE MOFFAT

THE SUSTAINABILITY TRAIN IS AT THE PLATFORM AND everyone—including the lighting manufacturer—is getting on board. In the flurry to take an environmental stance, they are not only reacting to, but initiating change in, a market that is revealing a pressing need for "green" products, technologies, and business practices. But what is driving this sudden attention? And how are lighting manufacturers responding to the issue?

TAKING THE WHEEL

Several influential factors are driving lighting manufacturers' sustainable initiatives, including a combination of energy codes and regulations, new design standards, and consumer consciousness and demand.

Energy regulations, such as California's Title 24, which went into effect last October, not only ensure that energy-efficient products are being used, but encourage manufacturers to create more codecompliant goods to meet demand. Progress has been made in addressing commercial architectural lighting, and the residential lighting market is not far behind. As one of the most advanced and the few required residential energy codes, Title 24 is pushing homeowners to buy products that comply with its stringent requirements. Numerous products have already been released, with many more in development.

Regulations cited in the Leadership in Energy and Environmental Design (LEED) green building ratings system-whose requirements are based on a variety of energy codes, and stipulate compliance with IESNA 90.1-2001 as a prerequisiteare being referenced in state energy legislation, establishing LEED as a major standard. Currently, 13 states require new-construction public buildings to adhere to LEED. With energy conservation being the largest category in the increasingly influential system, efficient lighting design (as a direct and indirect contributor) has become more critical than ever. Moreover, the program's recent focus on homes (LEED-H), in the pilot test phase, and neighborhood development (LEED-ND), currently in draft, promises manufacturers another outlet for new families of efficient products.

Perhaps the most encouraging influence on manufacturers is the consumer. In a 2003 survey by the Alliance for Sustainable



Built Environments (ASBE), 70 percent of American consumers said they are more likely to buy a product if they know the manufacturer uses environmentally friendly practices—a testament to the kind of market toward which customers leaning.

NO MANUFACTURER LEFT BEHIND

Today, manufacturers' commitment increasingly extends beyond their products. Company-wide "green" initiatives and operating philosophies, partnerships with federal agencies and environmental organizations, and other genuine efforts to lessen their environmental footprint are becoming a standard part of the corporate profile.

Large lighting manufacturers have dedicated entire business models to the issue, affecting every facet of the company. *Ecologic*, Osram Sylvania's comprehensive initiative for both overall environmental commitment as well as a baseline for environmentally preferable products, was launched in 1996, explains environmental marketing manager Jennifer Dolin, "to address the environmental impact in our products, processes, and packaging." The number of products that now bear the *Ecologic* logo numbers over 800. GE has

recently followed suit with *Ecomagination*, launched in May 2005, which encompasses all aspects of the company's numerous divisions. Through it, GE Lighting plans to significantly expand existing "green" offerings. In addition to doubling research investments in greener technologies to \$1.5 billion annually by 2010, the company expects to perform upgrades to its manufacturing plants that include new energy-efficient lighting systems by 2008.

As a founding member of the U.S. Green Building Council (USGBC), the organization responsible for LEED, and part of the ASBE, Philips' sustainability policy was integral to the company's strategic thinking "far before it was popular," claims Steve Goldmacher, director of corporate communications. "We have an entire office-the Philips Corporate Sustainability Office-dedicated to just that." In 1995, Alto was introduced, establishing Philips as a pioneer in the category of low-mercury fluorescent lamps. Today, as well as EcoDesign-an initiative focusing on all phases of product design to ensure environmentally conscious procedures-Philips' manufacturing plants are audited to comply with Philips' own sustainability criteria and those of ISO 14001 environmental management system standards.

For some manufacturers, sustainability is more than an initiative; it is a founding principle. David Bergman, founder of Fire & Water, an environmentally conscious product design firm established in 1992, says, "As a practicing architect, I knew that there were limited choices in decorative eco-lighting, which designers assume means ugly color rendition and 'tree-hugger' granola aesthetics. My goal has been to make those assumptions obsolete." Bill Gray founded HereThere Designs in 2001 after noticing a growing interest for sustainable products, as well as a glaring inadequacy in the market. "Customers weren't being presented with real sustainable options. Most people talking about sustainable products are speaking in terms of twenty-five percent post-consumer recycled waste, which doesn't address the issue." To fill the void, Gray's decorative luminaire's are 100 percent non-toxic, sustainable, and recyclable.

LET THE SUN SHINE IN

It goes without saying that the guest for energy efficiency places an emphasis on the use of natural light. Not only a significant way to decrease power usage, daylighting, studies have shown, offers benefits for productivity and health. But the classic challenge: controlling the sun. Steps must be taken to minimize glare, maximize visible light transmission, and maintain thermal control. High-performance insulated windows, effective shading and window treatments, carefully placed reflective finishes, sensors, and controls can add up to a well-lighted space that requires minimal electric lighting during the day.

Arguably, the increase in the thoughtful application of natural light is breeding a new kind of "lighting" manufacturer. Companies with product lines dedicated to harvesting and managing daylight (i.e., shading systems, louvers and light shelves, sensor and controls) are increasingly targeting the lighting specifier. Lightfair, the lighting industry's primary U.S. tradeshow, even launched in 2003 a special set of seminars and an area of the show floor dedicated to daylighting.

REDUCE. REUSE. RECYCLE.

In the lighting industry, recycling and the use of recycled materials as a practice

seems to have a ways to go. According to the Association of Lighting and Mercury Recyclers (ALMR), technologies to reclaim mercury from spent lamps and recycle them in a safe and compliant way were developed in the United States starting in 1989; however, there were few service providers. From 1990 until mid-1999, the recycling rate for mercury lamps grew to about 12 percent, and has continued to increase. Helping the number along, on July 12, 2005, New York joined Minnesota, Vermont, Maine, Connecticut, Rhode Island, California, and Florida in requiring that all commercial facilities recycle mercury-containing lamps.

But there is still much room for improvement: The Environmental Protection Agency's Reduce, Reuse, Recycle initiative

STATISTICS

LAMP BREAKAGE RELEASES UP TO ONE TON OF MERCURY ANNUALLY INTO THE AIR -- NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION

ABOUT 600 MILLION FLUORESCENT LAMPS ARE DISCARDED ANNUALLY IN THE U.S. -- EPA

BY THE YEAR 2020, WORLD ENERGY CONSUMPTION IS PROJECTED TO INCREASE BY 50 PERCENT, OR AN ADDITIONAL 207 QUADRILLION BTUS. IF THE GLOBAL CONSUMPTION OF RENEWABLE ENERGY SOURCES REMAINS CONSTANT, THE WORLD'S AVAILABLE FOSSIL FUEL RESERVES WILL BE CONSUMED IN 104 YEARS, OR EARLY IN THE 22ND CENTURY -- U.S. DEPARTMENT OF ENERGY

hopes to raise the national recycling rate for mercury lamps to 80 percent by 2009. In this, the agency faces a challenge; the current national recycling rate for mercury lamps is only about 24 percent. Of the poor rate, Jennifer Dolin suggests, "people tend to throw things away because they can."

Some manufacturers are trying to make the alternatives as easy. Many company programs are tailor-made, providing the ease of convenience. Case in point: Fiberstars' Reuse Recycle Program, established at the request of their client Whole Foods, is a comprehensive program in which the company reuses 97.1 percent of the product (by weight), recycles 2.4 percent, and responsibly disposes of the remaining .5 percent. And it could not be any easier. When a client requests a

replacement lamp. Fiberstars sends out a box with a return sticker. Once the spent lamp has been received by Fiberstars, the client is sent a coupon for 10 percent off her next replacement lamp. Although the cost is 20 percent greater than the cost of procuring and assembling new materials, Ted des Enfants, vice president and general manager of Fiberstars, says, "it's another benefit that we can bring to our customers. It's helped our product sales and the customers' confidence in our technoloqv." HereThere Designs' luminaires are "Designed for Disassembly," meaning that each of the constituent components can be removed and recycled independently. Although Grav has the ability to recycle the acaba fiber used for shades in-house, "all this talk of recycling is somewhat funny, since our work is designed to last forever with proper care."

RECOGNITION BREEDS EDUCATION

Manufacturer efforts must ultimately follow consumer demand; however, "we have to educate both our clients and end users about the responsibilities and limitations that come with super-efficient lighting systems," explains Charles Stone, president of both the IALD and Fisher Marantz Stone. Inadequate consumer information about the energy, economic, and environmental benefits of efficient lighting technology, as well as the high initial cost of energy-efficient products, has limited sustainable lighting product purchasing. While consumers may demand environmentally friendly products, they have yet to learn how and where to use them.

An undereducated consumer base has proven problematic for manufacturers. Not knowing if there is a market for a new product makes it difficult to project sales. Larger companies have the resources to do extensive research and market development, but small manufacturers must wait until the market is ripe.

To solve this marketing challenge, manufacturers of all sizes are forming partnerships and alliances with federal agencies, environmental organizations, and clients to increase their chances of success. Fiberstars, for example, is working with supermarket chain Albertsons and Southern California Edison to validate the energy and heat savings expected from its EFO ICE product in refrigerated cases. Many manufacturers (including Sea Gull, Progress, MaxLite, and Lithonia) have chosen to par-

ticipate in the Energy Star program, introduced in 1992 by the EPA. As the program's icon has appeared on more items—from air conditioners to light fixtures—consumers have gained awareness. A 2004 survey by the Consortium for Energy Efficiency found that consumer awareness of the Energy Star label had increased from 56 to 64 percent, between 2003 and 2004.

Smaller companies, such as Fire & Water, often rely on the technologies of larger manufacturers. Bergman says, "Our first two product lines were not especially green because we were waiting on the technology. I had designs 'in waiting' for the dimmable compact fluorescent technology that I knew was coming out."

THE FUTURE LOOKS BRIGHT

Technological breakthroughs will continue to provide more sustainable options. While the technology is not yet fully developed, many are hopeful that LEDs will eventually render traditional light sources obsolete. The Energy Policy Act authorized the Department of Energy to invest \$50 million annually from 2007 to 2013 in LED research and development.

Design practices and standards also promise to evolve, as they have already. The creation of the Cradle-to-Cradle (C2C) certification program, for example, promotes the idea of self-renewing design. Conceived by architect William McDonough and chemist Michael Braungart, the program challenges cradle-to-grave manufacturing of products that end up in landfills at the end of their 'life.' Instead, McDonough and Braungart are making "cradle-to-cradle" products, whose materials are perpetually circulated in closed loops. Programs like this lend a way to police the industry, encouraging the serious to be certified. Mechoshade's recyclable EcoVeil product, for example, is in the process of receiving "Silver" certification in McDonough Braungart Design Chemistry nomenclature, and the company plans to expand its range of products for evaluation under C2C.

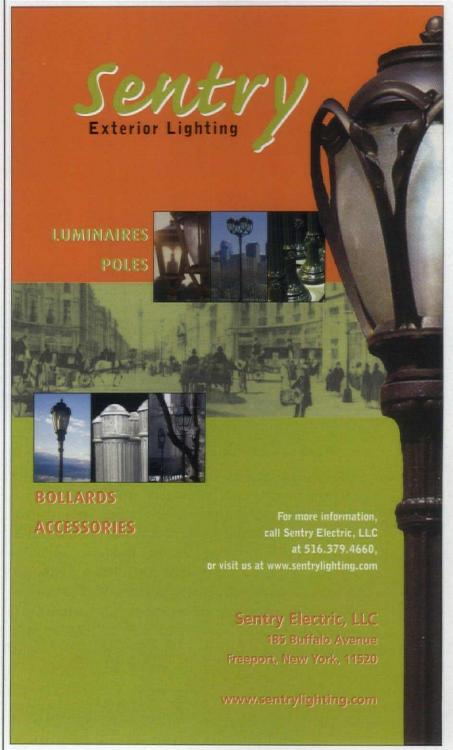
Of course, there is plenty of cynicism about the true breadth and depth of company sustainability claims—and perhaps for good reason. Greenwashing, the marketing of "green" initiatives when they really are not, is a documented problem. Blaming this ploy on a lack of regulation, organizations such as Canada-based Green Shift, who perform environmental assessments, are fighting back, analyzing products and "the com-

panies behind the products" to determine whether or not they are "Genuine Green."

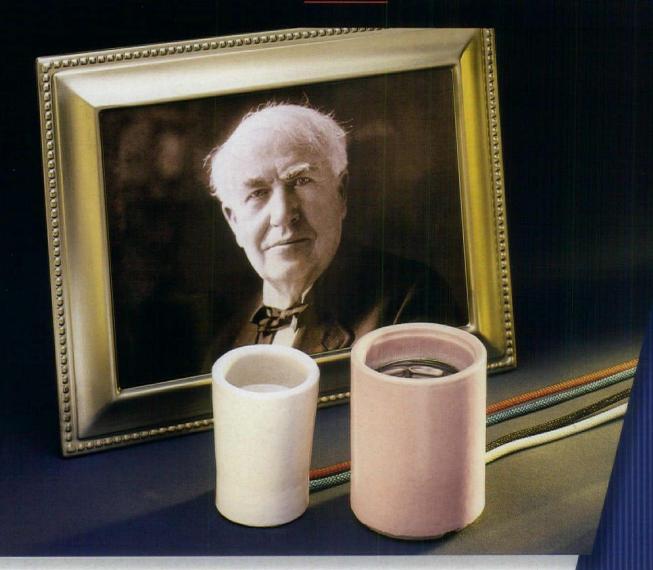
While there is no doubting the sincerity of most manufacturers' environmental concerns, they are definitely positioning themselves to take financial advantage of the growing market. This is, after all, business. Whether touting sustainable initiatives for

PR pitches, business strategies, or for the general good, does it really matter as long as the manufacturers' response is the means to a sustainable end?

more information at



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Useful Tools: Sustainable Technology Reviewed

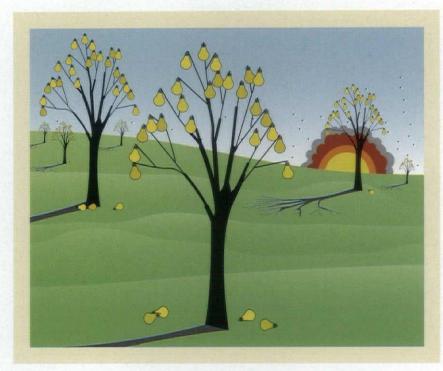
JAMES BENYA

BY NOW, MOST NORTH AMERICAN LIGHTING PROFESsionals have addressed sustainability on
one or more projects. Once limited to a
few forward-thinking buildings, the U.S.
Green Build Council's Leadership in Energy
and Environmental Design (LEED) requirements have become standard criteria for
most government facilities, and common
on academic and healthcare projects. This
is not a North American phenomenon,
either: the Chinese government has
opened its first LEED-certified building and
pledged to follow sustainable growth for
China's future, as a matter not of social
conscience so much as of pure necessity.

As with a small lighting budget, sustainable practices necessitate changes in design approach and techniques, and in the choice of products and materials. As momentum has gained around the issue, manufacturers' offerings have improved. Today, there are a number of lighting technologies and products that make it easier to meet sustainability criteria.

BEST BULBS. For most applications, skinny fluorescent tubes rule. It is almost impossible to beat the 100+ mean lumens per watt of the latest "super" T8, T5, and T5HO lamp and ballast systems. The most recent developments include amalgam T5HO lamps, which maintain rated lumen output over a wide range of temperatures. However, for a number of applications, the efficacy of skinny tubes is now challenged by ceramic metal halide, the latest of which can achieve almost 90 mean lumens per watt, with a color rendering index (CRI) of 85 or higher. And when it comes to display lighting, the efficacy of ceramic metal halide sets it apart from everything else. With lamps ranging from 20 watts on up, and in a variety of envelope styles from the tiny T4 up to a brilliant PAR64, the ceramic metal halide with an electronic ballast appears to be the energy-efficient choice of now and the near future.

The benefits of compact fluorescent lamps (CFL) have been touted for years. Compact fluorescents remain a good choice for use in downlights, wallwashers, and decorative lighting. Keep in mind that CFLs are typically about 60 mean lumens per watt, so they are not quite as good as skinny tubes or high-wattage HID lamps. But for demanding aesthetic applications



where long lamps do not work, CFLs are often the best choice.

Some of the more esoteric lamps are also worth considering. For example, the efficacy of induction lamps is like that of the compact fluorescent, somewhere between 50 and 60 mean lumens per watt. These sources are the king of long life (up to 100,000 hours), a worthwhile consideration in those hard-to-reach locations. Likewise, as practical white light LED lamps evolve, expect to use them more.

SUPER BALLASTS. In order to achieve the high efficacy of the latest sources, efficient ballasts are absolutely necessary. Take, for example, the "super" T8 lamp; using the efficient "super" ballast, rather than a generic electronic ballast, saves 2 to 3 watts per lamp with no change in light output. Electronic ballasts make an even bigger difference when used with HID lamps. Metal halide lamps last longer and have higher maintained lumens when operated on electronic ballasts, and the internal loss of power in the ballast is reduced. Savings are achieved by a combination of improved ballast efficiency and significantly improved lamp lumen maintenance. In typical 400W metal halide applications, power savings are over 100 watts per lamp.

EFFICIENT INDOOR LUMINAIRES. Using more efficient luminaires in conjunction with more efficacious sources is a dream combination for sustainable design. To meet this need, manufacturers have introduced a number of important products capitalizing on the latest lamps, aided by 95 percent or higher reflective specular or white surfaces, to achieve phenomenal overall lighting efficiency. For instance, it is now possible to achieve up to 85 maintained footcandles of general lighting at 1 watt per square foot using a lighting system that is an attractive improvement on the familiar fluorescent troffer. Likewise, imagine high-bay retail space, using the latest reflector technology that helps keep the luminaire clean: lighting levels of 50 to 60 maintained footcandles or more are possible at 1 watt per square foot with lamps that render colors spectacularly with CRIs ranging from 85 to 92.

Product improvements are not limited to just the standard vanilla options. Today, every manufacturer of lighting products is seeking to improve the energy performance of its product line, ranging from fabulous new American and European commercial luminaire systems that emphasize T5 and T5HO sources to a wide variety of standard and semi-custom decorative

DIMMING AND NEW LAMP TECHNOLOGIES GIVEN THE INCREASING EMPHASIS ON CONTROLS AS A MEANS OF ENERGY EFFICIENCY, DIMMING IS A HIGHLY DESIRABLE CAPABILITY. BUT UNFORTUNATELY, DIMMING IS NOT AS EASY OR UNIVERSAL AS WE WOULD LIKE IT TO BE. HERE IS A LOOK AT CONTEMPORARY LIGHT SOURCES AND THEIR CURRENT DIMMING ISSUES:

T8 Electronic dimming ballasts are not as efficient as non-dimming, although new efficient dimming ballasts are entering the market. Also, use only 32W lamps; the 25W, 28W and 30W energy-saving lamps are not designed for dimming.

T5H0 Some brands cannot be dimmed owing to ultra-low mercury levels, so choose products that guarantee dimming without problems or short lamp life. Note that the new amalgam lamps cannot be dimmed. (See "What's an Amalgam Lamp?" right.)

T5 It is very hard to find non-DALI dimming ballasts.

CERAMIC METAL HALIDE Metal halide lamps have warm up and restrike issues and a limited dimming range. Dimming ballasts are available for both the 39W to 150W class lamps and the 250W to 400W lamps. Electronic dimming ballasts are relatively new for metal halide lamps, so choose lamp and ballast systems carefully.

LED Most LED lighting systems can be dimmed, but due to lack of standards, do not assume compatibility with conventional electric lighting control systems.

pendants, sconces, and chandeliers using efficacious sources. New developments in track lighting, including power-limiting devices and low-wattage HID, will revolutionize retail lighting to meet this need.

the only standard that requires significant limitations to outdoor lighting: there are over 1,000 dark sky ordinances in the United States and Canada, and a new

WHAT'S AN AMALGAM LAMP?

THE LOW-PRESSURE MERCURY ARC IN FLUORES-CENT LIGHTING IS SENSITIVE TO TEMPERATURE RESULTING IN SIGNIFICANTLY REDUCED LIGHT OUTPUT WHEN THE LAMP BECOMES ESPECIALLY HOT OR COLD. FOR EXAMPLE, THE T5HO LAMP'S RATED LIGHT OUTPUT IS ONLY ACHIEVED WHEN OPERATED IN FREE AIR AT 35°C (ABOUT 95°F). WHEN OPERATED IN FREE AIR AT 20°C (ABOUT 68°F) OR 60°C (ABOUT 160°F), OUTPUT DROPS ABOUT 20 PERCENT, THE WORD "AMALGAM" MEANS A COMBINATION OF MERCURY WITH ANOTHER METAL OR METALS. IN AMALGAM LAMPS, THE USE OF OTHER METALS HELPS MAKE THE LAMP OPERATE AT OR NEAR RATED OUTPUT OVER A WIDER TEMPERATURE RANGE. THE T5HO AMALGAM LAMP MAINTAINS AT LEAST 90 PER-CENT OF RATED LIGHT OUTPUT BETWEEN 5°C AND 80°C. THE PRIMARY DRAWBACK OF AMAL-GAM LAMPS IS POOR DIMMING OPERATION.

model lighting ordinance is under development jointly by the IESNA and the International Dark-Sky Association.

The need for new lighting systems. combined with the call for replacing the majority of existing outdoor lighting, has inspired whole new families of products for everything from street lighting to sign lights. While it is easy to design contemporary dark sky-friendly luminaires, there are now traditional designs that retain the historic charm of antique lighting without throwing huge amounts of light into the night sky-or your bedroom window. Also, expect to see lighting systems that use very low-wattage ceramic metal halide lamps, LEDs, and other sources replacing high-wattage lights in rural and suburban areas. Imagine roadways outlined with LEDs or parking lots lighted at less than 0.5 footcandles with warm, incandescent-like light.

Because energy is the product of power (watts) and time, controls hold the key to energy management. Motion sensors and other current technologies are so effective, they are part of most energy codes. LEED goes beyond just saving energy, by actually awarding points on the basis of energy cost savings, forcing the use of daylighting controls and other techniques that cut lighting energy use at peak times.

Technology has evolved to make the most powerful control systems useable and cost effective. Plug-and-play wiring and communications systems are working



to eliminate costly and complex hardwired analog controls, and digital programming of powerful control functions has become, at long last, a lot easier and more intuitive. As daylighting becomes a prominent part of lighting design work, specifying shading and other lighting control systems like louvers will become standard practice for lighting designers and architects. These systems must, in turn, be closely integrated with all types of electric lighting controls from daylight dimming to motion sensing. In the future, smart designs will enable the building to shed power, either when asked by the utility or, perhaps, when the price of electricity rises above an acceptable maximum rate.

ADDRESSING THE MERCURY ISSUE. LEED-EB, a recently launched rating system for existing buildings, has taken a bold new step: in addition to rewarding energy savings, LEED-EB requires building managers to record and track the use of mercury in lighting systems. This will promote retrofitting with specific products that are both energy efficient and use ultra-low levels of mercury in most lamps. Approaching work on existing buildings, designers should generally favor T5 and T8 lighting systems for indoor lighting, and (as much as I hate to say it, given its ugly yellow hue), the use of high-pressure-sodium lighting for the exterior. Eliminate mercury vapor and traditional metal halide lamps, and minimize the use of compact fluorescent systems (which tend to have a lot more mercury per lumen than the skinny tubes). Incandescents and LEDs are mercury free, but make it difficult to meet efficiency criteria.

THE FALL OUT. As sustainable design matures and designers learn to do more with less, we can expect continuing refinement and increasingly tough requirements. The reason for change is obvious, and as more of these requirements become code, our industry and its products will evolve to meet the coming challenge. Now we must develop the design skills to match.

James Benya is a professional lighting designer and principal of Benya Lighting Design in Tigard, Oregon. He serves on the editorial advisory board of A/L.

more information at
www.ARCHLIGHTING.COM

IS THE LED READY FOR PRIME TIME?

The promise of the LED is exciting: high efficacy, long life, and no mercury. The U.S. Department of Energy is investing more in LED research than all other lighting opportunities combined. The lamp companies also have major R&D interest in LEDs, as do numerous fixture manufacturers.

Unfortunately, LED systems are a long way from broad use. Current efficacy in practical LED lighting is about the same as halogen IR—and about 100 times more expensive. Heat sinking and ambient temperature can dramatically affect lamp life, and efficacy calculations often do not include the typically inefficient power supplies of LEDs. Color temperature is critical: Scotopic issues aside, most lighting designers choose 3000K to 3500K and now expect at least 80 CRI. Although some LED devices are 3000K, most practical options are between 4500K and 6500K. Worse, most white LEDs have a CRI of less than 75. It is also fair to assume that no one will buy a lamp that costs more than a dime per lumen—which is the best white LEDs can do.

Still, LEDs are appropriate for many applications. They are superior in color-changing systems, traffic signals, and indicator lights. LED technology also lends itself to rapid evolution, and it is a safe bet that innovations will make it to market quickly.

Standards are still being developed, making it difficult to compare LEDs to regular light sources, but here are a few things to consider:

- LEDs are superior at efficiently generating specific colors of light. However, change these colors even a little through RGB blending, and the advantage is lost.
- LEDs are not inherently efficient at producing white light, especially high CRI in the critical 2700K to 3000K range. Simple RGB mixing is inefficacious and produces poor CRI, so advanced technologies are needed to make incandescent-like lamps, notably phosphor.
- Many current LED efficacy claims ignore power supply (driver) losses. Efficient drivers are supposedly available, but without standards, it is hard to tell how efficient they are.
- Part of the LED mythology is that they have no heat. That is not true. Although LEDs do
 not waste energy by generating infrared light, there is still heat that must be conducted away
 from the lamp and then radiated into the air. If not dissipated, this heat will quickly kill the LED.



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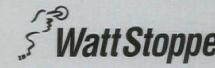
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THE LIGHT STUFF

As the call for more sustainable practices necessitates change in design approach and technique, lighting professionals will require new tools to achieve evolving eco-friendly criteria.

Advancements in technology have increased the breadth of materials and products available. Here are a few to make your next sustainable lighting scheme a little easier.



This anodized aluminum strip has a highly reflective surface for an optimal distribution of daylight. Total reflection of visible light for anodized surfaces is generally about 87 percent, but is increased to approximately 95 percent with the Miro reflection-enhancing layer. Offered in dif-

ferent grades of tensile strength, strips and custom solutions for all types of systems are available. Strips can be wholly or partially perforated, created in a variety of shapes, and custom painted. CIRCLE 140

MAXLITE | HALOMAX SPOTLIGHT REFLECTOR LAMP | MAXLITE.COM

Designed specifically to fit all track fixtures with AC screw-in Edison bases, the HaloMax lamp—an 11W compact fluorescent—is equivalent to a 40W incandescent lamp and lasts for 10,000

hours. The self-contained reflector base emits a focused light suitable for homes, offices, and showrooms. CIRCLE 141



Compliant with California's Title 24 energy code, Watt Stopper's vacancy sensors can replace any standard wall switch. They use passive infrared technology to detect occupancy, automatically turning the lights off when a room is vacant for up to 30 minutes. Lights can also be turned on and off manually. CN, one sensor in the series, has an LED nightlight incorporated into its faceplate. Faceplates are available in white, ivory, and almond. CIRCLE 142



GOOD EARTH LIGHTING | GLENCOE FLUSH MOUNT |

As with numerous products by Good Earth Lighting, the Glencoe Flush Mount is recognized by the Environmental Protection Agency as an Energy Star-compliant fixture. At 15 inches in diameter, the luminaire has a brushed nickel finish and an opal diffuser, and is lamped with a 30W circline compact fluorescent, estimated to last 10,000 hours. CIRCLE 143





LUTRON | DAYLIGHT SENSOR | LUTRON.COM

Compatible with all Lutron control systems, the fixture-mountable Daylight Sensor allows automatic dimming of electric lights when available daylight is high, and brightening of lights when daylight is low, maintaining a specific light level throughout a space. Small and unobtrusive, the sensor is both fixture-and ceiling-mountable. Special features include low-voltage wiring and calibration for daylight sensitivity. CIRCLE 144



NYSAN | GREENSCREEN ECO | NYSAN.COM

The newest addition to the GreenScreen family of PVC-free solar-control fabrics, GreenScreen Eco is made of pre-stretched polyester that allows the fabric to maintain stability over large areas. With a 3 percent open weave, the fabric is available in five colors, and can be matched to any color specification. Nysan also offers customized dual coloring, in which each side of the fabric is a different color for a greater level of heat control, glare reduction, and outward visibility. CIRCLE 145



PPG INDUSTRIES | SOLARBAN 70XL | PPG.COM

Surpassing the Department of Energy's commercial building requirements of a light-to-solargain ratio of 1.25 or higher, and out-performing comparable products on the market, Solarban 70XL's light-to-solar-gain ratio is 2.33. The low-E glass offers a combination of solar control and visible light transmittance with a transparent, color-neutral appearance. The color-neutral glass may be combined with tinted glass. CIRCLE 146



VISTAWALL | SOLAR ECLIPSE | VISTAWALL.COM

This sun-control product joins with curtain wall systems to shade a building's interior, reducing glare and solar heat gain. With a total projection of 24 to 36 inches, brackets, lou-

vers, and fascias are available in several styles and shapes, which can be mixed and matched to create custom designs. CIRCLE 148

SOLATUBE | BRIGHTEN UP SERIES | SOLATUBE.COM

These tubular skylights are available in 10- and 14-inch diameters. From an impact-resistant roof dome, with a maximum visible light transmission of 92 percent, daylight travels down a highly reflective aluminum shaft with

a silver film, providing over 99 percent total reflectance. At the end of the tubing, daylight is distributed through a die-cut acrylic diffuser. Flush diffusers with a frosted finish, or curved diffusers with a prismatic finish, are available, as well as options and accessories, including a ventilation add-on kit and a Daylight Dimmer. CIRCLE 147



CYBERLUX | AEON PRO | CYBERLUX.COM

This LED fixture for residential task and accent lighting produces over 55 lumens per watt, exceeding Energy Star and the 40-lumen-per-watt requirement for kitchen and bath lighting under California's Title 24. Customizable, the luminaire is available in sizes from 8 to 48 inches in black, white, and anodized nickel. Custom surface finishes and light colors are also offered. The LEDs are available in two color temperatures—3,000K and 5,000K—and light levels can be dimmed. CIRCLE 149



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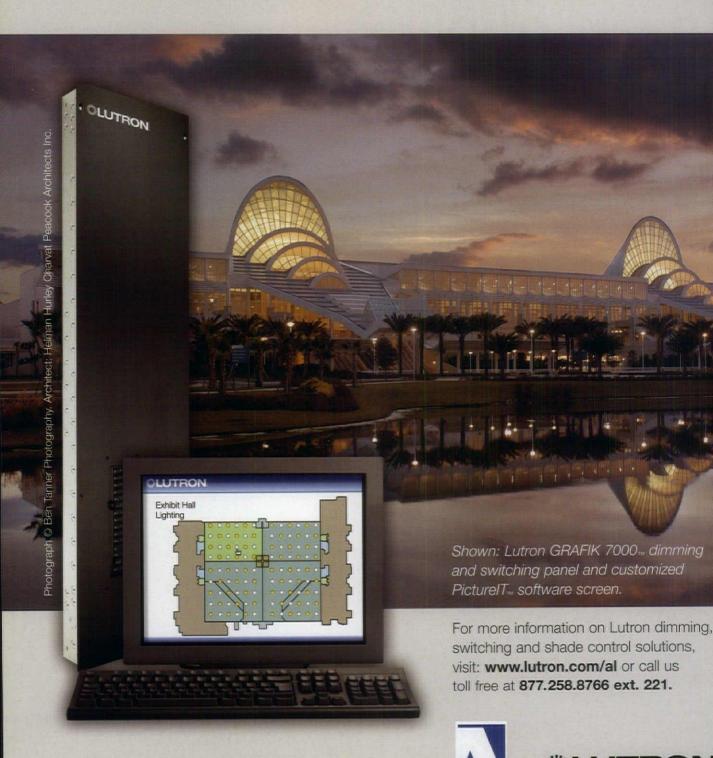
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Lutron controls your light



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It is with great pleasure that we announce the 2005 winners of Architectural Lighting Magazine's Architect's Choice for Excellence. The ACE.al Awards recognize manufacturers who have provided you and your projects with superior products and services. ACE ballots appeared in the April and May/June issues of Architectural Lighting. The ballots were also made available to architects at the Lightfair and AIA and conventions.

We salute all of the industry leaders, as voted by you, the readers of *Architectural Lighting*, for their commitment to product excellence in the areas of durability, customer service, value, and design. Innovation, customer collaboration, and superior performance are hallmarks of all winners as they strive to meet and exceed design expectation, cost criteria, and demanding deadlines. New this year, are three additional awards that recognize the Most Innovative, Most Respected, and the Most Specified lighting suppliers for 2005.

We also extend our appreciation to those who took the time to select this fine group of winners. To provide a valuable resource for you, the ACE.al Award winners will be available on our Web site—www.lightforum.com—throughout the year. Cheers, to the best in the business.

Dary Myss
Gary Gyss
Publisher



2005 ACE.al Award Winners

MOST INNOVATIVE

Lightolier

MOST RESPECTED

Lutron Electronics

MOST SPECIFIED

Lithonia Lighting

TOP 30 MANUFACTURERS

Lightolier

2. Lutron Electronics

3. Bega Lighting

Alkco Lighting

Artemide

Beta Lighting

B-K Lighting

Bruck Lighting Systems

Color Kinetics

Cooper Lighting

Elliptipar

ERCO

FLOS

Focal Point

GE Lighting Systems

Halo

Holophane

Hubbell

Hydrel

Juno Lighting

KIM Lighting

Kurt Versen

Lithonia Lighting

Louis Poulsen Lighting

Metalux

Osram Sylvania

Prescolite

Tech Lighting, LLC

Visa Lighting

Zumbotel Staff

METHODOLOGY

The ACE.al ballot and manufacturers list ran in the April and May/June issues of *Architectural Lighting*, each reaching the complete 25,000+ nationwide circulation. In addition, email and fax campaigns are conducted to ensure the broadest base of response. Ballots are provided and collected at Lightfair International, AIA Annual Convention, and other industry conferences. *Architectural Lighting* also does random sampling, consults with industry experts, and the list of nominated manufacturers is subject to review by an in-house publishing team.

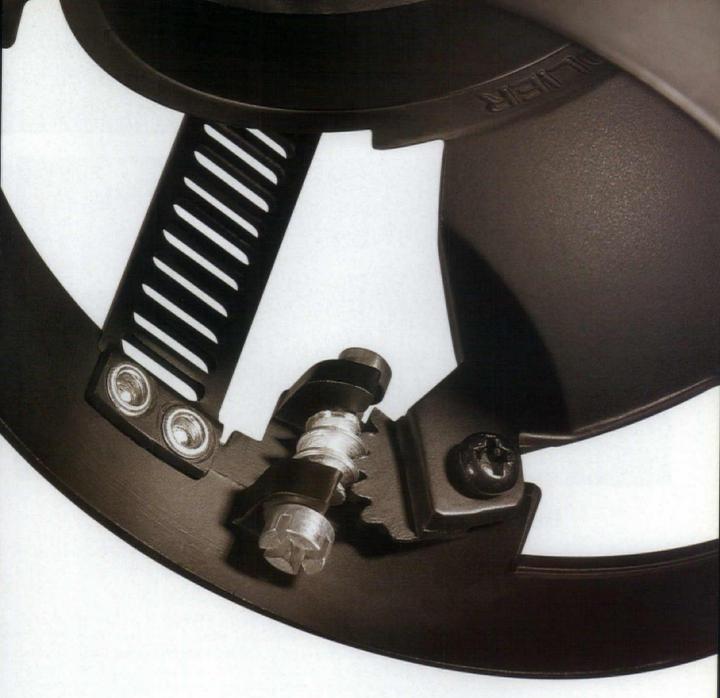


Image shown 400% of actual size

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Delivering the optical performance, mechanical precision and visual comfort you have come to expect from Evolution downlights. All from an aperture less than 3" in diameter.



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Top 30 Manufacturer







Beta Lighting

Industry Insight

"Timely and dependable ship dates are critical in today's competitive environment." says national sales manager Kevin Orth. "Part of Beta's mission is to respond quickly to our customer's needs as a partner in their building project. We pride ourselves on our timely and dependable ship dates. Our typical lead times on standard products are less than one week."

Beta Lighting is dedicated to providing high-quality, high-performance specification grade luminaires for both interior and exterior lighting applications at competitive prices, and in a timely manner. This allows Beta Lighting to deliver the best value to the specification market today.

Beta Lighting's luminaires are elegant, yet versatile, and provide excellent performance and reliability. Beta luminaire designs are contemporary and complement a wide variety of architectural design styles. The technical excellence designed into each luminaire solves a lighting challenge and sets standards for performance. Before a Beta luminaire is ever physically created, Beta Lighting design engineers utilize state-of-the-art design tools to ensure that products meet or exceed Beta's high performance standards. The design team also involves customers in the prototype design stage and incorporates their feedback into final designs. As a result, its designs offer performance, long-term durability, and serviceability. All luminaires are manufactured in an ISO9001:2000 certified facility in Sturtevant, Wisconsin, with predominantly die-cast aluminum housings and other primarily domestic components. Lamps and ballasts are sourced from high volume, high-quality manufacturers both inside and outside the United States. The optical design and the materials selected for luminaire reflectors ensure excellent performance and efficiencies.

Beta Lighting Specifier Reference Now Available

Beta Lighting has just introduced a Specifier Reference that contains the latest product information necessary to select and specify Beta Lighting products. The 432-page Specifier Reference is a full-color guide to Beta Lighting's complete line of luminaires. It also includes company information, lighting industry technical information and an index to the new product nomenclature and previous generation nomenclature.

For more information: (800) 236-6800; www.beta-lighting.com

Photos: Beta Lighting fixtures are specified for a variety of applications, such as corporate headquarters, collegiate athletic facilities, and accent lighted cityscapes.



IRFOIL INSPIRATION

A

Where does inspiration come from?

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2

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Top 30 Manufacturer







B-K Lighting

Industry Insight

"Good is the enemy of great," says Ron Naus, **Executive Vice** President at B-K Lighting and Teka Illumination. "We spend each day working to make a great product for our customers. This simple idea inspires us to continually improve every aspect of our business. We know there are many choices available and we do not want our customers to have to settle for good."

In 2005, B-K Lighting continued to enhance its position as a key industry innovator with the introduction of several new products. "At Lightfair in New York, we introduced the award-winning Mini Micro Series, an entire family of products that utilize two new lamp sources—an axial reflector halogen lamp from Sylvania and a solid state LED package with an integral driver," said Ron Naus, executive vice president for B-K Lighting. "Reducing scale to a functional, 1-inch-diameter product earned us a coveted New Product Showcase Award for the series," Naus continued.

In addition, B-K Lighting introduced ICEE, a patent-pending solution that significantly reduces the lens temperature for its in-grade products. "The industry's answer has been ineffective at addressing this issue," said Naus. "ICEE incorporates our patented ACV (Anti-Condensation) Valve system to eliminate air from the sealed chamber, which permits 90 percent lumen efficiency and full biaxial lamp control," he said. ICEE is available on B-K Lighting's Tenaya2® and Precision2® luminaires.

B-K Lighting also completed its acquisition of Teka Illumination in September. "Teka adds a new level to our capabilities," said Naus. "Most importantly, it gives the design professional new flexibility, addressing both standard and custom lighting challenges which will in turn drive our business," he concluded.

Quality, service, innovation, and value all add up to make B-K Lighting a top choice in outdoor architectural and landscape lighting.

For more information: (559) 438-5800; www.bklighting.com; www.teka-illumination.com

Photos: Ceramic metal halide Sign Stars[™] highlight B-K Lighting's exterior; (top right) a Mini Micro floodlight; (bottom right) the patent-pending ICEE system for lens temperature reduction.

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Top 30 Manufacturer







Focal Point

Industry Insight

"At Focal Point. we believe the development of outstanding new product designs is the lifeblood of our business, and we're devoting significant resources inside and outside the company to assure the success of this ongoing effort," says Christopher Thornton, president of Focal Point. "We're excited as to what lies ahead in the new year while continuing to service the needs

of our customers."

The Art of Light® is what drives us. More than a tag-line, it expresses what Focal Point wants to do—bring artistry to the North American Lighting market. And innovative product design is only part of the story. This award-winning company continually works on new ways to develop its conviction to The Art of Light®. By collaborating with outside design firms, specifiers, and architects, Focal Point generates a wide number of new product ideas for consideration. Some of its newest luminaires—Avenue, twelve, and Apollo—are a direct result of the open dialog they have with the lighting industry and how they're committed to solving today's unique requirements.

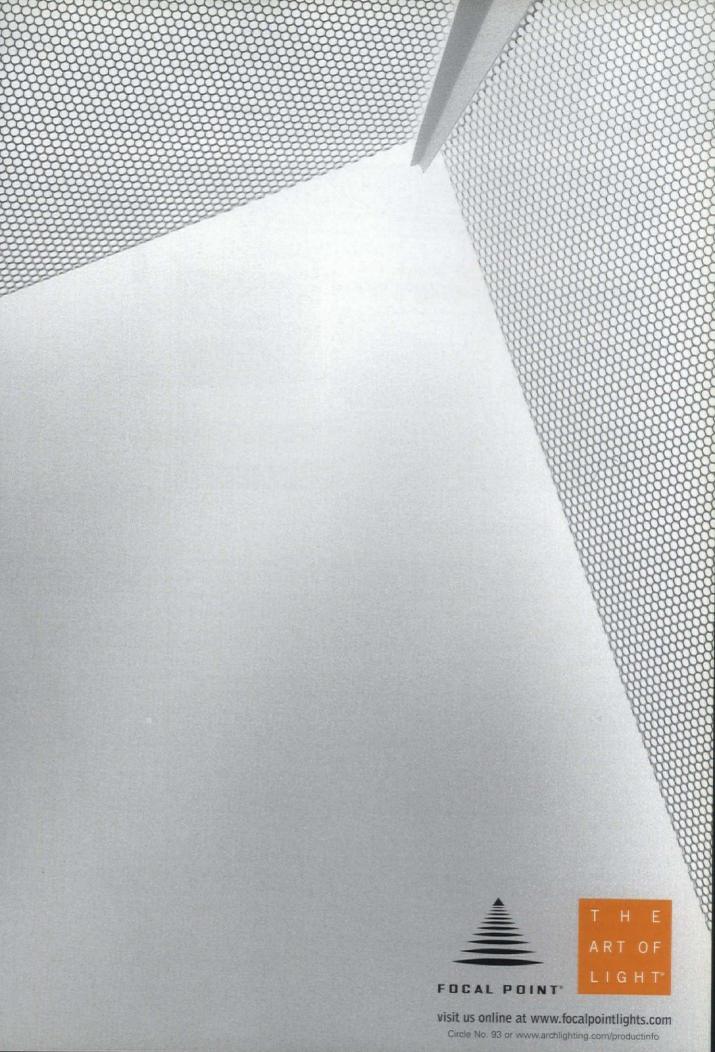
Equally vital is how Focal Point brings products to market, and how well the company services specifiers, contractors, and customers in the process. Because of the firm's significant investments in space, equipment, efficient warehousing, and distribution—and access to low-cost materials—Focal Point is able to offer some of the world's finest architectural lighting luminaires at affordable price points.

Focal Point is committed to sustainable product design and manufacturing procedures. Continually striving to improve these procedures has been a commitment that began with the founding of the company, more than 10 years ago. Its commitment to the environment is a key component to its manufacturing philosophy—to be a responsible steward of limited natural resources while employing the latest manufacturing technologies to optimize efficiencies.

2006 promises to be an exciting year for Focal Point. Its new hardback catalog, now at 400 pages, exemplifies the company's level of commitment to bringing the absolute best product to its customers. Focal Point continues to grow in new directions while maintaining its commitment to The Art of Light®. □

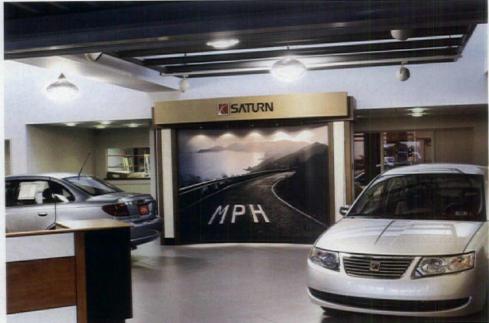
For more information: (773) 247-9494; www.focalpointlights.com

Photos: Sky Harbor Int'l Airport, Phoenix, Mark Boisclair Photography; (top right) Reception area, Chicago; (bottom right) Open office, Chicago; inset photos by Craig Dugan, Hedrich Blessing.





Top 30 Manufacturer





Holophane

Industry Insight

"For well over a century, the Holophane brand has stood for an unwavering commitment to solving clients' problems," says Zach Gibler, VP of Marketing. "But innovation and excellence doesn't happen in a vacuum; it's a collaboration of many. We thank our customers, designers, specifiers, architects, and engineers for challenging us to build the best lighting fixtures the industry has to offer."

Holophane, a visionary leader in innovative optical design and provider of lighting systems for commercial, industrial, emergency, and outdoor applications for over 107 years, has once again taken innovation and glass manufacturing design to new heights. 2005 marks the unveiling of a bevy of new Holophane product innovations, earmarked both for indoor and outdoor lighting applications.

Holophane's newest introduction, ISD SuperGlass™, or Ideal Synergetic Distribution, is a revolutionary scientific advancement in optical design, thanks to two new reflector designs. With ISD SuperGlass reflectors, the entire Spacing and Mounting Height Ratios (SMHR) are covered with only two reflectors. The new ISDs were developed by Holophane scientists to perform over an expanded range of SMHR's without adjusting the optimized light centers, resulting in 28 percent more efficiency and up to 59 percent energy savings.

Also on the indoor front, Holophane is pleased to introduce a new line of Fluorescent Highbays, the IntelliVue™ and IntelliBay™ with its new patented P.O.L.A.R.™ Technology. P.O.LA.R., or Passively Optimized Lumen output with Automated Regulation, is a revolutionary passive thermal management system that reduces fluorescent lamp temperature sensitivity over a wide range of room temperatures. Increased illumination levels make it possible for fewer fixtures to light up a given area.

Holophane also introduced two new aesthetically pleasing outdoor product lines in 2005. The Pechina™, a contemporary new entry from Holophane Designer's Group Outdoor, is designed with strong mechanical attributes, and a natural fit for roadway and large-area applications. The MetroVue™ is positioned as a transitional product targeted for boulevard and area lighting applications. Transitional, a new category from Holophane, adds elegance to urban settings where site architecture shifts from historical to modern. □

For more information: www.holophane.com

Photos: The Quad Illuminaire, Reading, PA, Saturn Dealership; (top right) Intellivue & IntelliBay Fluorescent line; (bottom right) Pechina



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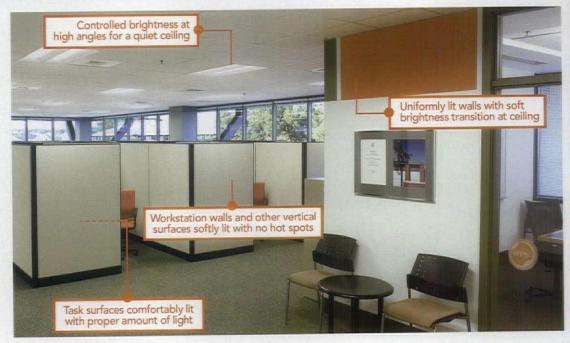
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Lithonia Lighting

Industry Insight

With all the distinct benefits of RT5. Lithonia Lighting is confident it is the next generation fluorescent lighting. "RT5 represents a breakthrough in recessed fluorescent lighting because it fills the space with volumetric light while being efficient, affordable, and unobtrusive," says Gary Trott, director of product development for Lithonia Lighting's Fluorescent Group. "It is a new and highly effective way of managing light."

Lithonia Lighting, one of North America's largest manufacturers of lighting equipment, has created a fixture that may very well be one of the industry's most significant advancements in fluorescent lighting. The new fluorescent recessed lighting fixture has been designed to replace standard parabolics with a softer, more comfortable light while using less energy.

RT5™ Volumetric Recessed Lighting uniformly illuminates the entire volume of the space, eliminating harsh shadows, dark walls, and the "cave effect" arising from the sharp cutoff of parabolics. In addition, the new lighting system uses up to 33 percent less energy than a standard parabolic fixture. According to Gary Trott, director of product development for Lithonia Lighting's Fluorescent Group, RT5 delivers high-quality lighting that fills a space with the right amount of light. Plus, the fixture's high efficiency can easily accommodate stringent energy regulations such as California's Title 24, ASHRAE 90.1, and IECC.

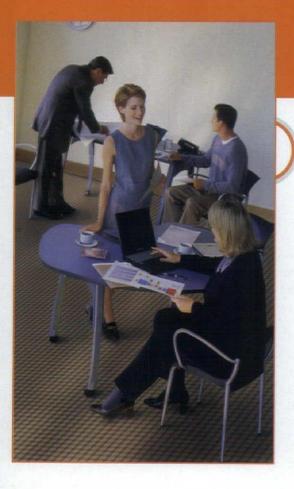
What's the secret behind the fixture's high efficiency? A unique lamp/ballast combination is key. The advanced T5 lamp provides the industry's highest efficiency than standard T5 or T8 lamps. The ballast includes end-of-life sensing and stepped switching bi-level output. This combination helps make the RT5 system the first to achieve up to 100 lumens per watt. No dark spots with RT5, either. While parabolic lighting delivers light primarily to the workplane and avoids sending light into the glare zone, RT5 Volumetric Recessed Lighting provides an even distribution of soft light, eliminating harsh overhead light or the dark spots associated with parabolics. RT5 is an ideal solution for offices, hospitals, retail stores, and other open-plan areas. The fixtures are available in 2'x4', 2'x2' and 1'x4' configurations.

For more information: (800) 858-7763; www.lithonia.com/RT5

Photo: RT5 Volumetric Recessed Lighting creates a well-luminated environment that is both soft and comfortable.

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that's both pleasing to the eyes and a pleasure to work in. Choose RT5. And get a lighting fixture that not only delivers light, it delivers visual harmony while providing up to 33% savings in energy. Contact your Lithonia sales representative or visit our website to learn more. RT5. ENHANCE YOUR ENVIRONMENT.

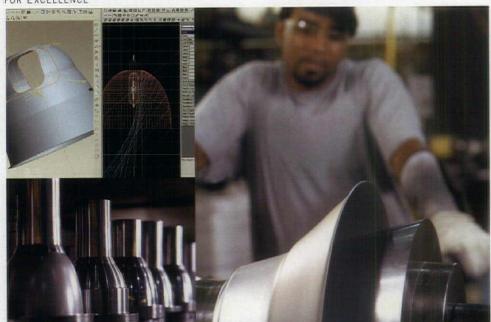


www.lithonia.com/RT5 1-800-858-7763

Circle No. 77 or www.archlighting.com/productinfo



Top 30 Manufacturer







Prescolite

Industry Insight

"Today, Prescolite is more active than ever, introducing products at an astonishing pace. We are known for our ease of doing business, as well. As a company, we believe in offering the most advanced services to our customers and forging partnerships based on personalized programs combined with experienced personnel, dependable support, and custom services."

Prescolite, an innovator and leader in recessed, surface, and track lighting, has been designing solutions for its customers throughout its 60-year history. Founders Pres Jones and Wally Runswick focused on developing cutting-edge products and providing superior customer service. The combination proved to be a winning strategy. Early successes include the design of the first downlight with a pre-wired junction box in 1944; the first indoor HID downlight in 1966; the first compact fluorescent recessed downlight in the U.S. in 1982, and the first multi-volt, multi-watt "intelligent" electronic ballast in 1992.

Now a part of Hubbell Lighting, Inc., Prescolite is committed to manufacturing excellence and exceeding customer expectations. Training programs, informative literature, and expert representatives support the company goal of being a leading industry provider of downlighting, track, and surface products.

With luminaires to satisfy even the most demanding applications, Prescolite continues to deliver new products into the marketplace. Whether a commercial contract calls for a large variety of fixtures, or a contractor needs a specific solution for a design/build or residential project, Prescolite provides many high-quality, flexible options.

With more than 800 products available to ship within 24 hours, Prescolite has created a handy Express Pocket Catalog to showcase this valuable service program. This catalog includes ordering instructions and examples, product dimensions, lamp information, application advice, and a convenient index.

Headquartered in Spartanburg, South Carolina, Prescolite markets its products through independent manufacturer's representatives in the United States, Canada, and internationally. □

For more information: www.prescolite.com; (864) 599-6059.

Photos: Prescolite's El Dorado, AR, reflector plant; Prescolite will soon reside at Hubbell Lighting Inc.'s new corporate headquarters, in Greenville, South Carolina (top right). Completion is set for late 2006.

GUIDING LIGHT.

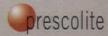
LiteForms

Walk the well-lit path to innovation with

Prescolite's LED cylinders. The new LD4 family provides a new solution to achieve illumination patterns on vertical surfaces and paths of egress. Developed based on LED technology, Prescolite specification grade LD4 cylinders are suitable for a wide variety of applications, including building exterior, column, and corridor illumination where maintenance costs are of primary concern. To learn more about Prescolite's innovative 4" LED cylinders, visit www.prescolite.com or call.888-PRS-4TEC.









Top 30 Manufacturer







Tech Lighting, LLC

Industry Insight

"Our latest T~trak™ addition was the launch of a new white powder coat finish that blends with white ceilings, and will not crack when bent by hand," offers Steve Harriott, Vice President of Sales and Marketing. "For our low-voltage systems like MonoRail, we have looked beyond the world of glass and launched a line of fixtures that turn unexpected materials into stunning lighting designs. It's a great way to consistently offer

something new."

Since 1988, Tech Lighting has been the premier choice of architects, lighting designers, interior designers, and homeowners who seek the best in architectural lighting systems. Headquartered outside of Chicago, Tech Lighting is known for combining precision design and high-quality materials to create beautiful, functional lighting. Tech Lighting systems, such as MonoRail, Kable Lite, TwinRail, and FreeJack can be found in lighting showrooms and through sales representatives across North America.

T-trak is the first hand-bendable, line-voltage track lighting system and winner of the Lightfair 2003 Design Excellence Award for most innovative new product. Designed for retail, commercial, and residential applications, T~trak offers architects and designers complete flexibility. It is one of the most complete track system solutions in the market today. T-trak highlights for 2005 include:

- . Three new line-voltage heads featuring both ceramic metal halide and incandescent lamping
- Seven new 2thousand degrees[™] pendants to stylize and enhance the T-trak aesthetic
- · New white powder coat finish that blends seamlessly with a white ceiling

For its low-voltage product offering, Tech Lighting has looked beyond glass to make a design statement with indoor lighting fixtures. MonoRail is already a recognized leader in low-voltage lighting systems, and Tech Lighting has extended its portfolio of cutting-edge products with a line of stylish fixtures that incorporates unexpected materials like silk, paper, ceramics, and concrete. "There are only so many ways to enhance metal or glass, and most of it has been done before. We want our customers to be excited about the products we provide and the ones we continue to create. The designs should leave customers feeling inspired," says Steve Harriott, vice president of sales and marketing. \square

For more information: (800) 522-5315; www.techlighting.com

Photos: The Slanted Door restaurant integrates T~trak into curves that emulate the curves of the bar; (upper right) T~trak in white presents a great retail solution; (lower right) Tech Lighting's non-glass fixtures (I to r): Summit—metal cone, Fab—Indian silk shade, Roc—concrete shade, Monty—ceramic shade, Powell Street—spun metal dome with color wash, Autumn Wind—paper shade.



~trak

Track Lighting with a Twist

he first hand-bendable line-voltage rack lighting system.

ne revolutionary design features a satin nickel nish that can be curved in the field to form ractically any shape. Complete with powerful nd versatile illumination options, including candescent and ceramic metal halide lamp onfigurations for heads and a host of decorative endant designs. Now available in a white finish.

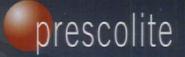
trak — it's track lighting with a twist.



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Alanod is a German-based company serving the international OEM lighting market since 1976. Recognized for quality and innovation, Alanod specializes in the production of surface-coated aluminum for lighting applications. The result of intensive research and development, Alanod produces MIRO, a coated aluminum with up to 98 percent total reflectivity. (See our ad on p. 24.)

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p 1 Dezigns 800-822-8527

p1lighting.com rling Products

973-471-2858 ynet.com

rnberg Lighting 800-621-3376 rnberglighting.con Sterner Lighting Tel: 864-599-6000 sternerlighting.com

Steven Handelman Studios Tel: 805-962-5119 stevenhandelmanstudios.com

Stingray Lighting Tel: 888-577-8464 stingraylighting.com Stonco Lighting Tel: 800-334-2212

stoncolighting.com Stone County Ironworks Tel: 800-223-4722

Tel: 800-223-4722 stoneiron.com

Tel: 888-534-0544 stonemanorlighting.com

StoneAge Lighting Creations Tel: 877-277-5177 stoneagelight.com

Stonegate Designs Tel: 269-429-8323 stonegatedesigns.com

Strong Entertainment Lighting Tel: 402-453-4444 strong-lighting.com

Studio Italia Design USA Tel: 305-463-0906 studioitaliadesign.com

Tel: 860-868-7305 studiosteel.com

Tel: 800-328-2495 stylmark.com Sun Pipe Co.

Sunled Corporation Tel: 866-SUN-LEDS

sunled.com
Sunlite Mfg.
Tel: 718-768-7000
sunshipelighting.com

Sunnex Tel: 800-445-7869

Sunpark Electronics Corp. Tel: 866-478-6775 sunpkco.com

Sunset Lighting and Fans Tel: 800-346-1380 sunsetlightingandfans.com

Super Vision Intl. Tel: 407-857-9900 svision.com

Superior Electric Tel: 800-787-3532 superiorelectric.com

Sure-Lites Lighting Tel: 770-486-4800 cooperlighting.com

Swivelier Tel: 845-353-1455 swivelier.com

Swon Design Tel: 514-761-6868 swondesign.com

Sylvan Designs Tel: 800- 350-6869 sylvandesigns.com

20th Century Lighting Tel: 310-581-1923 20thCenturyLighting.com

3Form Tel: 801-977-0400

TAC/Tour Andover Controls Tel: 866-TAC-INFO tac.com

Tahoe Lighting Tel: 888-LIT-TAHOE tahoelighting.com Tai Pan Lighting Company Tel: 800-667-1858 taipan-lighting.com

Talisman Glass Tel: 541-935-8700 talismanglass.com

Tango Lighting Tel: 888-748-2646 tangolighting.com

Targetti North America Tel: 714-957-4950 targettiusa.com

Task Lighting Corp. Tel: 800-445-6404 tasklighting.com Tazz Lighting Tel: 888-466-8299

tazzlighting.com
Tech Lighting
Tel: 800-532-5315

techlighting.com
TechBrite
Tel: 800-246-9977

Techlight Manufacturing Tel: 800-225-0727 techlightusa.com

Techni-Lite Systems Tel: 800-730-5853 techni-lite.com

Techni-Lux Tel:(407) 857-8770 techni-lux.com

Technical Consumer Products Tel: 800-324-1496 tcpi.com

Teka Illumination Tel: 805-434-3511 teka-illumination.com

Teledyne Lighting Tel: 800-784-3484 teledynelighting.com Tempo/Infiniti Lighting Tel: 800-433-6249

tempolighting.com
Tensor Corp.
Tel: 800-USALAMP

Teron Lighting Tel: 877-893-6296 teronlight.com

TerraDek Lighting Tel: 800-609-1130

Terzani USA Tel: 866-TERZANI terzani.com

The Bast Road Collection Tel: 802-394-7715 bastroad.com

The Bodine Co. Tel: 800-223-5728 bodine.com

The Brighton Collection Tel: 973-598-1580 brightoncollection.com

The Federalist Tel: 203-625-4727 thefederalistonline.com

The Light Edge Tel: 503-968-9968 thelightedge.com

The Lighting Edge Tel: 860-767-8968 lightingedge.com

Tel: 772-337-5470 paverlight.com

The Modern Fan Company Tel: 888-588-3267 modernfan.com The Original Cast Lighting Tel: 314-863-1895 Theatrical Lighting Systems Tel: 256-533-7025 tls.com

THHC Lighting Tel: 877-XELOGEN xelogen.com

Thin-Lite Corp. Tel: 805-987-5021 thinlite.com

Thomas Contract Lighting Tel: 800-365-4448 thomaslighting.com

Thomas Research Products Tel: 888-877-4456 thomasresearchproducts.com

Times Square Lighting Tel: 845-947-3034 tslight.com

TIR Systems Tel: 800-663-2036 tirsys.com

TMS Lighting Tel: 866-793-1174 tmslighting.com

Tokistar Lighting Tel: 877-340-7633 tokistar.com

Tomcat USA Tel: 432-694-7070 tomcatglobal.com Top Brass Lamps Tel: 800-359-4135

Topaz Lighting Corp. Tel: 800-666-2852 topaz-usa.com

Tork Tel: 914-664-3542 tork.com

Touch-Plate Lighting Controls Tel: 260-426-1565 touchplate.com

Toyo Trading Co. Tel: 800-669-8696 toyotradingco.com

TPR Enterprises Tel: 914-698-1141 tprlights.com

Trans-Lite Tel: 203-878-8567 trans-lite.com Translite Sonoma Tel: 888-999-4540

Traxon USA Tel: 212-736-2286

Trend Lighting Corp. Tel: 626-480-8880

Triarch Industries Tel: 800-874-2724 triarchindustries.com

Tridonic Tel: 866-874-3664 tridonicatco.com

Trinity Lighting Tel: 888-972-1177 trinitylighting.com

Trulite Louvre Corp. Tel: 866-TRULITE

Tubular Skylight Tel: 800-315-8823 tubular-skylight.com

Tungda Electrical & Lighting Tel: 852-2592 3888 tungdalighting.com

Two Hills Studio Tel: 800-239-5530 twohillsstudio.com

U.S. Energy Sciences Tel: 800-537-1629 usenergysciences.com

Udec Corp. Tel: 800-990-8332 udeccorp.com UltraGlas Tel: 800-777-2332 ultraglas.com

Ultralights Architectural Lighting Tel: 866-623-9829 ultralightslighting.com

Ultrasave Lighting Limited Tel: 866-733-9217 ultrasave.ca

Ultratec Fibre Optic Tel: 541-683-8268 ultratecfibre.com

Unilight
Tel: 800-361-0472
unilight.com
Unique Lighting Systems
Tel: 800-955-4831

uniquelighting.com
Universal Fixture Mfg. Co.
Tel: 800-228-5260
universalfixture.com

Universal Lighting Technologies Tel: 800-BALLAST

Urban Archaeology Tel: 212-431-4646 urbanarchaeology.com

Sun Valley Lighting Tel: 800-877-6537 usaltg.com US Lighting Tel: 877-USLITES uslighting.us

USA Illumination Tel: 845-565-8500

Ushio America Tel: 714-229-3173 ushio.com

Uspar Enterprises Tel: 909-591-7506 uspar.com

Uttermost Co. Tel: 800-678-5486 uttermost.com

Valmont Industries Tel: 800-825-6668 valmont.com

Valuelight.com Tel: 800-495-2677 valuelight.com

Van Teal Lighting Tel: 305-751-6767 vanteal.com Vantage Luminaires Tel: 860-564-4512

vantageltg.com Velux America Tel: 800-888-3589

Venture Lighting Intl. Tel: 800-451-2606 venturelighting.com

Verilux Tel: 800-786-6850 verilux.net

Versailles Lighting Tel: 888-564-0240 versailleslighting.com

Vertex Lighting Tel: 866-338-0123 vertexlighting.com

VGK Lighting Tel: 888-612-4181 vgklighting.com

Tel: 800-330-3231 vibialight.com

Victor Illuminating Tel: 800-982-6162 victorilluminating.net

Victorian Lighting Works Tel: 800-822-1898 vlworks.com Vintage Hardware Tel: 360-379-9030 vintagehardware.com

Virginia Metalcrafters
Tel: 800-368-1002
virginiametalcrafters.com

Visa Lighting Tel: 800-788-VISA visalighting.com

Visio Lighting Tel: 941-755-6694 visiolighting.com

Vision3 Lighting Tel: 559-834-5749 vision3lighting.com

Visionaire Lighting Tel: 310-512-6480 visionairelighting.com

Visioneering Corp. Tel: 416-245-7991 viscor.com

Vista Lighting Tel: 800-576-2135 vistalighting.com

Vista Prof. Outdoor Lighting Tel: 800-766-8478 vistapro.com

Visual Lighting Technologies Tel: 949-581-9398 visual-lighting.com



As of July 2005, we at Vossich-Schwabe, Inc and the lighting division of Aromat Corp. Joined forces to expand our product portfolio. Now, under the brand name, Vossich-Schwabe and with an uncompromising commitment to excellence we are able to offer onestop shopping for you entire highperformance lighting system component needs.

W.A.C. Lighting Co Tel: 800-526-2588 waclighting.com

Waldmann Lighting Co. Tel: 800-634-0007 waldmannlighting.com

Warner Power Tel: 603-456-3111 warnerpower.com Waterford/Wedgwood USA Tel: 800-677-7860

waterford-usa.com

Watt Stopper/Legrand
Tel: 800-879-8585
wattstopper.com

We-ef Lighting USA Tel: 412-749-1600 we-ef.com

Welch Allyn Lighting Products Tel: 315-685-4347 walamp.com Wendelighting Tel: 800-528-0101 wendelighting.com

Westinghouse Lighting
Tel: 800-999-2226

WF Harris Lighting Tel: 800-842-9345 wfharrislighting.com Wide-Lite Tel: 800-235-2314

wide-lite.com Wila Lighting Tel: 714-546-8999

FOR

2005 Lighting Category Directory

Wever&Ducré.

Wever & Ducre 2078 Carolina Place Fort Mill, SC 29708 Phone: 803 396-1439 Fax: 803 396-1451 Contact: Jack D. Smith www.wever-ducre.com email: jdsmith@usa.com

Wever & Ducre is a European company producing modern architectural lighting products, and is known throughout the world as a leader in innovative design and quality. The product range includes a large variety of interior and exterior Spotlights, Ceiling and Wall Sconces, Recessed lighting and fluorescent profile

Wild West Designs Tel: 435-654-4151 wildwestdesigns.com

Tel: 800-937-8065 wildfirefx.com

Wildwood Lamps & Accents Tel: 252-446-3266 wildwoodlamps.com

Wilshire Mfg. Co. Tel: 800-443-4695 wilshiremfg.com

Tel: 800-328-5291 winonalighting.com

Woodhead Industries Tel: 800-825-7824 roodhead com

Tel: 724-850-9616

wunderley.com

Tel: 800-624-0146 wybron.com



Xenon Corp. Tel: 978-661-9033 xenoncorp.com

Tel:+31(0) 434085100 xilver nl



Yamaqiwa USA Corp. Tel: 888-879-8611 vamagiwausa.com

Zadro Products Tel: 800-468-4348 zadro.com

Zaneen Lighting Tel: 800-388-3382 zaneen.com

Zumtobel Staff Lighting Tel: 800-932-0633 zumtobelstaff.us

BALLASTS

Limited

Universal Lighting

Technologies

EMERGENCY

A.L.P. Lighting

Carpenter Emerg.

Cooper Lighting

Dual-Lite/Emerg

Lighting Div. E-Lite Technologies

Exitronix/Div. of Barron

Invue Lighting Systems IOTA Engineering

Deco Lighting

Advance

Lighting

Eventite

Fulham Co. IEPC Corp.

LEDtronics

McGraw-Edison

Nutech Lighting Corp.

Mule Lighting

Manufacturing

Side-Lite Sunlite Mfg

Sure-Lites

The Bodine Co

Topaz Lighting Corp.

Udec Corp.
Universal Lighting

Regency Lighting

Lumark

Mfr.

Bullhtronics

Uspar Enterprise

Vossloh-Schwabe

Wondhead Industries

FLUORESCENT AC Electronics Access Lighting Advance American Acrylic Corp. Antares Enterprises Aqua Creations USA Artlight Creations B+L Technologies Barbizon Electric CE Lighting of North America CS Lighting Dabmar Lighting Denki Corp. of North Easylite Integrated Lighting EBW Ele Electro Elf EncapSulite Intl. Energetic Lighting Co. FAD Lighting/Delta Light Full Spectrum Solutions Future Wave Technologies Glucksman Lighting Products Gressman Supply Co. Halco Lighting Corp. Hatch Transformers Howard Industries IEPC Corp. Incon Lighting Inter-Global Interlectric Corporation Janmar Lighting Justice Design Group K-Tronik Ballasts Light Craft Mfg. Lighting & Electronic Lighting & Power Lightspann Illumination Lite Tech MaxLite

Nite Lites

Systems

st Lighting

Nutech Lighting Corp.

Pacific Lighting &

Philips Lighting

Manufacturing

Premium Quality

Radionic Industries

Regency Lighting

Sage Lighting

Robertson Worldwide

Schoolhouse Electric

Sexton Lighting

Specialty Lighting

Stemberg Lighting Sunlite Mfg.

Sunpark Electronics

Techni-Lite System The Designers Edge Thin-Lite Corp.

TMS Lighting Topaz Lighting Corp.

Tubular Skylight

Lighting

Udec Corp.

Side-Lite

SPI Systems

HIGH/LOW-PRESSURE SODIUM

Dabmar Lighting Deco Lighting Deltona Lighting Products EncapSulite Intl. EYE Lighting Intl. Future Wave Technologies GE Lighting Systems Halco Lighting Corp. HID Systems Holophane Howard Industries IEPC Corp. Incon Lighting Interlectric Corporation Lighting & Pow Lite Tech Northwest Lighting Systems Pacific Lighting & Electrical Philips Lighting (Canada) Premium Quality Lighting Robertson Worldwide Sexton Lighting Special Lite Products Stemberg Lighting Sunlite Mfg. The Designers Edge Thomas Research Topaz Lighting Corp Ultrasave Lighting Limited Universal Lighting Technologies Venture Lighting Intl

LOW-VOLTAGE TRANSFORMERS

B & N Industries B+L Technologies Basler Electric Company Brownsburg Electronia Cast Lighting Dabmar Lighting FX Luminaire Garden Light Glucksman Lighting Products Hampstead Lighting Hatch Transfo Innovative Lighting Light Waves Concept Lighting & Electronic Louie Lighting Miller O.E.M. Supplies National Specialty Lighting Nightscaping By Loran Philips Lighting Power Select O-Tran Robertson Worldwide RSL Landscape Sebco Industries Semper Fi Power Special Lite Products Sunlite Mfg. Targetti North America Manufacturing TerraDek Lighting Times Square Lighting Tonaz Liphting Com Unique Lighting Systems

Wila Lighting MERCURY

AH Lighting Brandon Industria Deltona Lighting EYE Lighting Intl. Future Wave Technologies GE Lighting System ovia UV HID Systems Holophane Northwest Lighting Systems Osram Sylvania Pacific Lighting & Philips Lighting Sexton Lighting Techlight The Designers Edge Topaz Lighting Corp Ultrasave Lighting Limited Universal Lighting Technologies

METAL HALIDE

AH Lighting Aromat Corp. Brandon Industries Dabmar Lighting Deco Lighting Deltona Lighting DYnamic Ballast Corp EYE Lighting Intl. Flex-A-Lite West Fulham Co. Technologies Halco Lighting Corp Hanovia UV Hatch Transformers Holophane ard Industries IEPC Corp. Incon Lighting Janmar Lighting KLS Flect Lightech Electronic Lighting & Power Metrolight Northwest Lighting Osram Sylvania Pacific Lighting & Flortrica (Canada) Pompeian Manufacturing Premium Quality Lighting Sexton Lighting Strong Lighting Sunlite Mfg. Sunpark Electr Manufacturing Thomas Rese Products Times Square Lighting Topaz Lighting Corp Ultrasave Lighting Limited Universal Lighting Technolog Venture Lighting Intl.

COMPONENTS

Vossloh-Schwabe

LED DRIVERS

Lightech Electronics

OPTICAL PARTS

A.L.P. Lighting Comp Alanod - GmbH & Co. Aluminum Coil Anodizing American Acrylic Corp American Louver Co APM Hexseal Corp. Technology Architectural Energy Corp Atoglas of Arkema Brandon Industries **Bunzl Extrusion** Carley Lamp Crownlite Mfg. Corp. CYRO Industries Dialight Corporation Diversified Lighting Ecolite Mfg. Co. Elumina Technology Inc Formed Plastics

GAMProducts Genesta

Heatron

Holophane

Gressman Supply Co.

Inon Inti-Illumination Management Solutions Laboratories Inspired Sales Inter-Global Kingbright Corp. Lamine Ceramics LEE Filters Legion Lighting Co. LexaLite Intl. Corp. LICONA Lighting Technologies Louvers Intl. Mica Lighting Company MSC Prefinish Metals Optikinetics Limited OSRAM Opto Phoebus Mfo Racine Metal-Fab Reflective Concepts
Reflexite Display Optics RLR Industries Scientific Lighting Sinclair Glass Solar Light Company Special FX Lighting Spectrum Lighting Sterling Products TechBrite Teledyne Lighting UltraGlas Ultratec Fibre Optic Vertex Lighting

Vision3 Lighting POLES/MOUNTING DEVICES AMWEI Th Anchor Lighting

Arakawa Hanging Systems Lighting Bieber Lighting Corp Bowers Mfg Brown Wood Products Catalina Lighting Cooper Lighting Cyclone Lighting Dahlha Dynamic Lighting Eclectic Contract Furniture Industries Exhibit and Display Flex-A-Lite West Gaslite America West GE Lighting Systems Systems/Reutlinge Hadco Heritage Casting & Ironworks Holophane Innovative Office Invue Lighting Systems James Thomas Engineering Joslyn Hi-Voltage Kim Lighting Lawrence Metal

Lithonia Lighting

Lumiere Lighting

LOTI Cor

Lumca

Matthews Studio Equipment McGraw-Edison Lighting Metomic Corp. Millerbernd Mfg. Co. Shade Musco Lighting Newmark Intl One Step Lighting Optikinetics Limited Passport Furniture Pendant Systems Peter Albrec Company RSL Landso Lighting Ruud Lighting Sentry Electric Shakespeare Composite Structures SNOC Special Lite Products Spring City Electrical Sternberg Lighting Sterner Lighting Techlight TMS Lighting Tomcat USA Sun Valley Lighting Valmont Industries Vertex Lighting Vintage Hardy Visio Lighting Vision3 Lighting

CONTROLS

CONTROL SYSTEMS Communications

Advanced Control Technologi Alcern McBride AMWEI Thermistor Co AMX Corporation Audio Visual Innovations Avolites America Barbizon Elec Bright Image Centralite Systems Color Kinetics Cooper Lighting Crestron Electron De Sisti Lighting Design Elements Design Specialty Digital Lighting Doug Fleenor Design Douglas Lighting Dove Lighting Systems Lighting Echelon Com Eckel Industries EG Energy Controls Electrol Engineering **Electronics Diversified** Entertainment Technology eStar Lighting FTC Architectural Flex-A-Lite West Future Wave Technologies Gaslite America West Holophane Home Automation Hubbell Building Hunt Dimming IEPC Corp. ILC - Intelligent Lighting J&J Electronics

Lehigh Electric Leprecon Leviton Mfg. Co. Lighting & Electron Lighting Control & Design Lighting Control Lightolier Lightronics LiteTouch Lodging Technolog Lumiere Lighting Lutron Electronics Marlin Controls Martin Architectura Musco Lighting Nutech Lighting Co PCI Lighting Contro RSI Landscape Lighting Sexton Lighting SPI Syster Superior Electric Tazz Lighting The Bodine Co. Theatrical Lighting Systems Tork Touch-Plate Lightin Tridonic Udec Con Vertex Lighting Watt Stopper/Legra Wide-Lite

KLS Electronics/Lar

DIMMERS/SENSO SWITCHES/TIMER

Technologies Air King/Lasko Met Air Win Intl. ALM Alpan Lighting Prod AMWEI Thermistor AMX Corporation Audio Visual Beacon Light Produ Brandon Industries Bright Image Bryant Electric C.H. Briggs Catalina Lighting Chauvet Christopher Wray Cooper Lighting Crestron Electroni Del City Digital Lighting Doug Fleenor Desi Douglas Lighting Dove Lighting Syst Easylite Integrated Lighting Echelon Corp. EG Energy Control Electrol Engineerin Elumina Technolog Entertainment ERCO Lighting eStar Lighting

sture Foundry
A-Lite West
Electric Supply
te America West
seman Lighting Products
alin Controls Corp.
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Productions
to
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climming
Corp.
Intelligent Lighting
rols right Corp lectronics/Lamp ar Design on Mfg. Co Waves Concept ing & Electronic Design ing Control ing Control & Design na Services Inc ronics o Sales nia Lighting ing Technology Corp. Lighting re Lighting n Electronics Co. n Controls ill Electrical Product raw-Edison Lighting la-Alfit eor Light & Sound Co. est Warehouse Com r O.E.M. Supplies

1 Dezigns rior Electric trical Lighting Systems nas Research Products n-Plate Lighting Controls lar Skylight Neico Mfg.

Grand Light

aged Lighting Systems gon Electrical Products dale Products Lighting Control Systems

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si-Tech sal Lite Products Co.

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DOOR MINAIRES

E/STEP dra Lighting Systems can Permalight tic Designs Colonia novative Lighting Flasher Cole & Company

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-Lite Manufacturing ht Corporation scape Lighting Mfg. Fluorescent Technologies te Integrated Lighting ghting red Lighting ighting

Lite West

Forum Gemini One Five Luminaires Idaho Wood IEPC Corp. Illuminating Experiences /Namo Invue Lighting Systems IO Lighting J&J Electronics Kenall Mfg. Kirlin Company Lightech Lighting & Electronic Design Lion Industries Lithonia Lighting Liton Lighting Living Well Los Angeles Lighting Louis Poulsen Lighting Luceplan USA Lucifer Lighting Company Lumiere Lighting umux Lighting Magic Lite Mica Lighting Company Mills Architectural Lighting National Specialty Lighting OptiLED OSRAM Opto Packaged Lighting Systems Passport Furniture Pathway Lighting Products Pegasus Associates Permlight
Phoenix Products Company Prisma North America Progress Lighting Prolume Rebelle Architectural Lighting Renoma Lighting Roberts Step-Lite Systems Scangift SOS Lighting Devices Space Lighting Starfire Lighting Step 1 Dezigns Stonco Lighting Sure-Lites Lighting Tango Lighting Targetti North America Teledyne Lighting The Brighton Collection Thomas Contract Lighting Trans-Lite

Vantage Luminaires Vintage Hardware Vision3 Lighting Visual Lighting Technologies Watt-Man LED Lighting

BATH/VANITY 20th Century Lighting AAMSCO Lighting AC Lighting Design Accent Kitchen & Bath Access Lighting AH Lighting Alexandra Lighting Systems Alico Industries Alkco Lighting
American Fluorescent Corp.
American Period Lighting

WF Harris Lighting

Winona Lighting

AmeriTec Lighting Anchor Lighting Architectural Details Arkansas Lamp Arroyo Craftsman Art Lighting Gallery Arteraft Lighting Artemide Artemus Lighting Artistic Tile Authentic Designs Colonial Avanti Lighting

Kane Shrader Kawahara Design

Kimball & Young

Lamps by Hilliard Lancaster Glass

Lantern Masters

Latigo Lights

LBL Lighting

Light Space

Kozo Lighting LaMar Lighting Company

LEDS c/o MLG Contract Legion Lighting Co.

Levy Lighting Liberty Brass Turning Co.

Lighting Sculptures LightingUniverse.com

Light-Project Intl. Lightcrafters Lighting & Electronic Design

Baccarat BACI by Remoraft Badger Lite Company Baldinger Bartco Lighting Belfer Group Besa Lighting Bis Bis Boca Flasher

Boyd Lighting Co. Brodwax Lighting Brownlee Lighting Bruck Lighting Systems Bunzl Extrusion Columbia Calger Lighting della Lighting Co. Carlson Design Casella Lighting Celestial Lighting Challenger Lighting Charles Loomis Cherry Tree Design Christopher Wray Classic Illuminatio Classic Lighting Corp. Columbia Lighting Con-Tech Lighting Conant Custom Brass Contrast Lighting ML Cooper Lighting
Corbett Lighting - Div. Troy-CSL Lighting Corelite Lighting Comice Lighting System Coronet Chandelier Originals Craftmade Intl. Craftsmen Hardware Co. Crownlite Mfg. Corp. Crystorama Lighting Custom Lighting David Landis Design Day-Brite Capri Omega Day-O-Lite Manufacturing Delux Custom Lighting Design Elements Designers Fountain Display Supply & Lighti Dreamscape Lighting Mfg. **ELA Lighting** Elk Lighting eStar Lighting Eurofase **Exciting Lighting** Fabbian USA Corp. Fire Farm Firefly Lighting
Firefly Technology Corp.
Flex-A-Lite West Flux Incorporated FSC Lighting Gemini One Five Luminaires George King Associates Ginger-Motiv H. A. Framburg & Co Haig Lighting Hallmark Lighting Hammerton Hampstead Lighting Harold's Fine Home Lighting Hera Lighting LP Herbeau Creations Hinkley Lighting Holtkütter Intl. Hubbardton Forge Hudson Valley Lighting. idaho Wood Ideal Electric Mfg. Co. ILEX Architectural Lighting Industry & Design Light Intl. Ironworks Iris Lighting Systems Lighting ITRE - LuxLuce J-Art Iron J.H. Lighting James R. Moder Jesco Lighting John Boone Justice Design Group JV Imports USA

Limelight Lion Industries Lite Source Liteco Sales Lithonia Lighting Living Well
LOTI Corporation Louis Poulsen Lighting Luceplan USA Lumax Industries Lumetta Lumigraf Luminaria Lighting Lumux Lighting Luraline Products Co. LYX Furniture & Light Magick Woods Matthews Fan Co. Maxim Lighting Intl. McLain Wiesand Merlin Lighting Metro Lighting & Crafts Meyda Tiffany Miller O.E.M. Supplies Modulightor Morrison Lighting Murray Feiss Import Myran Allan Chandelier Natural Forms Lampshades Antier Designs & Mica Lamoshades Nessen Lighting New Grand Light Nulco Lighting OSRAM Opto Semiconductors P & H Company /Fiex-A-Lite Pacific Coast Lighting Palmer Hargrave Parkdale Products Passport Furniture Permlight
Phoenix Products Company Pioneer Lighting PLC Lighting Primelite Manufacturing Progress Lighting Prudential Lighting Quoizel R. Jesse & Company R.A.M. Lighting Rejuvenation Remains Lighting Remark Lighting Products
Renaissance Lighting
Renoma Lighting Resolute Restoration Arts Rockefeller Lighting Roy Electric Antique Lighting Rubi Glass Satco Products Schoolhouse Electric Co Scott Architectural Lighting Sea Gull Lighting Products Shaper Lighting Lighting Sherle Wagner Intl. Sonia America Space Lighting Specialty Lighting Step 1 Dezigns Sterling Products Stone County Ironw

Stone Manor Lighting Stonegate Designs Studio Italia Design USA Sunpark Electronics Corp. Sunset Lighting and Fans Sylvan Designs Tai Pan Lighting Company Talisman Glass

Tango Lighting Task Lighting Corp. Tech Lighting TOP Teron Lighting
The Brighton Collection
The Federalist
The Lighting Edge
Thin-Lite Corp.

Thomas Contract Lighting Toyo Trading Co. Frans-Lite Trend Lighting Corp. Triarch Industries

Trinity Lighting Troy Adams Design Two Hills Studio Ultralights Architectural Lighting Unilight
Universal Fixture Mfg. Co. Urban Archaeology

USA Illumination Valuelight.com VGK Lighting Vibia Victor Illuminating

Vintage Hardware Visa Lighting

Vista Lighting Visual Lighting Technologies Waterford/Wedgwood USA Westinghouse Wilshire Mfg. Co. Zadro Products Zaneen Lighting

CABINET/UNDERCABINET AAMSCO Lighting

Alexandra Lighting Systems Alico Industries

Action Lighting AH Lighting
AlbEO Technologies

Alkco Lighting

Alumen 8 Ambience Lighting Systems American Fluorescent Corp. American Lighting American Power Products Architectural Products by Outwater Ardee Lighting Ardron-Mackie Limited Ark Lighting/Retro Lighting Manufacturers (RLM) Badger Lite Company Bartoo Lighting Belfer Group Birchwood Lighting Bis Bis Boca Flasher Bright Image Corporation Brodwax Lighting Brownlee Lighting Bunzl Extrusion Columbia C.H. Briggs Catalina Lighting CeeLite Celestial Lighting Color Kinetics Con-Tech Lighting Cooper Lighting Craftmade Intl. Crescent Lighting Crownlite Mfg. Corp. Crystalite Industries Creative Systems Lighting Custom Lighting CV Lighting Dainolite Day-Brite Capri Omega Delta Light Design Elements Dialight Corporation Display Supply & Lighting DMF Lighting Duray Fluorescent E-Lite Technologies Elco Lighting Elliptiper
Ergonomic Accessories Intl. Eurofase
Exhibit and Display Truss
Exitronix/Div. of Barron Mfr.
FABCO Neon & Cold
Cathode Fabricating Co.
Fail-Safe Lighting Firefly Technology Corp. Flex-A-Lite West FSC Lighting GE Lighting Systems Gemini One Five Luminaires H. E. Williams Hafele America Co. Harold's Fine Home Lighting Hera Lighting LP House of Troy Illumivision Innovative Lighting Inspired Sales IO Lighting Jesco Lighting Jolt Lighting Juno Lighting Group Kenall Mfg. Kroy Sign System LaMar Lighting Company Legion Lighting Co. Legy Lighting
Liberty Brass Turning Co.
Light Corp.
Light Corp.
Light Craft Mfg.
Light-Project Intl.
Lighting & Electronic Design Lighting Services Inc Lightolier Lightworld.com Liteco Sales Litetronics Intl. /Duro-Lite Lithonia Lighting Liton Lighting Lucifer Lighting Company Lurnax Industries Lumificient Technologies Lumigraf Lumux Lighting Magic Lite MaxLite Mepla-Alfit

Mica Lighting Company Miller O.E.M. Supplies Modular Intl. Modulightor MP Lighting National Specialty Lighting New Grand Light Nora Lighting NuArt Lighting Products Ocean State Lighting Ontil ED OSRAM Opto Semiconductors Outwater Plastics Industries P & H Company /Flex-A-Lite Pegasus Associates Permilight Phantom Lighting Systems Pioneer Lighting Progress Lighting Quoizel Radionic Hi-Tech /Radionic Industries Richelleu Hardware Ltd Roberts Step-Lite Systems RSA Lighting Satco Products Selby Furniture Hardware SloanLED Smedmarks Specialty Lighting Step 1 Dezigns Sunpark Electronics Corp. Sunset Lighting and Fans Task Lighting Corp. Tazz Lighting Techni-Lite Systems The Light Edge Thomas Contract Lighting Tokistar Lighting Troy Adams Design U.S. Weico Mfg. Uspar Enterprises Valuelight.com Visioneering Corp Visual Lighting Technologies

CABLE/RAIL Accent Kitchen & Bath Alico Industries Ambiance Lighting Systems Avanti Liahtina 8 & N Industries Bruck Lighting Systems CooLite Con-Tech Lighting Cooper Lighting Design Elements Eureka Lighting Focalor Forms+Surfaces GLC Lighting Hafele America Co. Industry & Design Light Inlite Corp. J&J Electronics Jesco Lighting Juno Lighting Group Kania Lighting Systems Lawrence Metal Products LBL Lighting Light Waves Concept Light-Project Intl. LightingUniverse.com Liton Lighting Louie Lighting Lucifer Lighting Company Lumisphere USA MP Lighting New Grand Light New West Furniture Orbit North America P & H Company /Flex-A-Lite Pegasus Associates Planlicht USA Prima Lighting Corp. Satco Products Schonbek Lighting SF Designs Space Lighting Step 1 Dezigns Swivelier Talisman Glass Tech Lighting Trans-Lite

COMMERCIAL CEILING/ DIRECT-INDIRECT

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Ardee Lighting
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Ark Lighting/Retro Lighting Manufacturers (RLM) Art Lighting Gallery Arternide Artemus Lighting Axis Lighting Badger Lite Company Bartco Lighting Basic Source Belfer Group Besa Lighting Beta Lighting B-K Lighting Boca Flasher Brodwax Lighting Bruck Lighting Systems Bunzl Extrusion Columb C.W. Cale & Company Calger Lighting
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Finelite
Firefly Technology Corp. Flos USA Focal Point Forms+Surfaces Fox Electric Supply FSC Lighting Full Spectrum Solutions G Lighting Galbraith & Paul GE Lighting Systems Geni-Strut GLC Lighting **Guth Lighting**

American Fluorescent Co. American Glass Light Co.

American Power Products

Ameriux Lighting Solutions

AmeriTec Lighting

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Hallmark Lighting

Halo Lighting

Herwig Lighting

Higuchi USA Hinson & Co Historical Arts & Casting Inc. Holophane HoteLite Hubbardton Force Hunter Douglas Contract Igon Intl. Ideal Electric Mfg. Co. IEPC Corp. ILEX Architectural Lighting Illuminating Experiences Nemo Illumivision Incon Lighting Inductionlighting.Com Industry & Design Light Indy Lighting Infinity Lighting Innovative Lighting Insight Lighting Inspired Sales Invue Lighting Systems J.H. Lighting James Thomas Engineering Juno Lighting Group Justice Design Group Kane Shrader Kania Lighting Systems Kenall Mfg. Kirlin Company KLS Electronics/Lamp Solutions Kramer Lighting Kurtzon Lighting LA Neon + Cathode LAM Lighting Systems LaMar Lighting Company Ledalite Architectural Products Legion Lighting Co Levy Lighting LexaLite Intl. Corp. Light Space Lighting & Electronic Design Lighting Services Inc. Lightolier Light-Project Inti Linear Lighting Corp. Litelah Corp Lithonia Lighting Liton Lighting Los Angeles Lighting Louis Poulsen Lighting Louvers Intl. LSI Industries /LSI Lighting Solutions Plus Lumax Industries Lumetta Lumificient Technologies Lumigraf Luminaria Lighting Luminis Con. Daz Lutrex Lumux Lighting Luraline Products Co. Luxo Corporation LYX Furniture & Light Magic Lite Manning Lighting Martin Architectural Merlin Lighting Metalux Lighting Meyda Tiffany Mica Lamp Co Michaels' Lighting Miller O.E.M. Supplies Modular Intl. Moon Shine Lamp & Shade Modular Wiring Systems Navitar Nemco Architectural Lighting Neon Design Neo-Ray Lighting Newstar Nora Lighting Norton Industries NuArt Lighting Products Nulco Lighting One Step Lighting Orgatech + Omegalux OSRAM Opto Pacific Coast Lighting Paramount Industries Peter Albrecht Company Phoenix Products Company Pioneer Lighting Planlicht USA PMC Lighting Pompeian Manufacturing Precision Architectural Lighting Prudential Lighting Rebelle Architectural Lighting Remains Lighting RENOVA Lighting Systems

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Custom Lighting

Day-O-Lite Manufacturing

Display Supply & Lighting

Elite Bohemia/BarDel Intl.

Deco Lighting
Delux Custom Lighting

Designers Lighting &

Duray Fluorescent Eclipse Lighting

Elco Lighting

Elk Lighting

Energie Intl

ERCO Lighting

Ergonomic Acc eStar Lighting

Excelite

Fabulux

Fiberstars

Fire Farm Flex-A-Lite West

Focal Point

Forum
Fox Electric Supply

G Lighting Galbraith & Paul

Gammalux Syster

Gaslite America West GE Lighting Systems

George King Associates

Hallmark Lighting

Haworth

Hampstead Lighting

LightingHalems

Gemini One Five Luminaires

FineArtLight

Eureka Lighting Evergreen Lighting

Exhibit and Display Truss FABCO Neon & Cold

Cathode Fabricating Co.

FAD Lighting/Delta Light

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Cathode Lighting Systems Los Angeles Lighting Louis Poulsen Lighting CGF Design Charles Loomis Christopher Norman Louvers Intl. Lucid Lighting Lumax Industries Classic Lighting Corp Columbia Lighting Lumetta Lumid Lumigraf Luminaria Lighting Luminis Con.Daz Lutrex Cooper Lighting Corelite Lighting

Manning Lighting Merlin Lighting Metalumen Mfg Metalux Lighting Mica Lamp Co. Michaels' Lighting Miller O.E.M. Supplies Modular Intl. Morrison Lighting Nathan Allan Glass Studio National Specialty Lighting Nemco Architectural Lighting Neo-Ray Lighting Nessen Lighting Niermann Weeks Cn Noral Lighting NuArt Lighting Products Orgatech + Omegalux Palmer Hargrave Paramount Industries Pioneer Lighting PMC Lighting Precision Architectural Lighting Prudential Lighting Rambusch Lighting Rebelle Architectural Lighting Remoraft Lighting Products Renoma Lighting Resolute Restoration Arts RSA Lighting Ruud Lighting S & S Picture Lights Schoolhouse Electric Co Scott Architectural Lighting SF Designs Shaper Lighting Lighting Shell Light SloanLED Smith-Victor Corporation Solux Design Space Lighting Spectrum Lighting SPI Lighting Starfire Lighting Stonegate Designs Studio Italia Design USA Tango Lighting Targetti North America Tech Lighting Teron Lighting The Brighton Collection The Federalist The Light Edge The Lighting Edge Traxon USA Trinity Lighting Two Hills Studio Ultratec Fibre Optic Universal Fixture Mfg. Co Urban Archaeology Uspar Enterprises Valuelight.com Vantage Luminaires VGK Lighting Vibia Victor Illuminating Visa Lighting Visioneering Corp Vista Lighting Waldmann Lighting Co Waterford/Wedgwo WF Harris Lighting nod USA Winona Lighting a USA Corp Zaneen Lighting

DECORATIVE CEILING/ PENDANTS/WALL/

SCONCES/CHANDELIERS World Class Lighting 20th Century Lighting 2nd Ave. Design 2thousand degrees 555 Design Fabrication Manage A-19 AAMSCO Lighting ABET AC Lighting Design Academy Awning Accent Kitchen & Bath Access Lighting Accessories Intl Action Lighting Adesso Adventures in Copper AH Lighting Air Win Intl. Alexander-John Alexandra Diez Alexandra Lighting Systems Alger Inti. Alkco Lighting Alluminare Lighting Amber Glow Lighting

American Fluorescent Corp American Glass Light Co. American Lighting
American Period Lighting Delray Lighting AmeriTec Lighting Anchor Lighting And Bob's Your Uncle Another Planet Lighting Design Elements Design Guild Antiqueslighting.com Anvil Design Corporation Aqua Creations USA Architects & Heroes Interiors Architectural Area Lighting Architectural Details DMF Lighting Architectural Products by Ardee Lighting Ark Lighting/Retro Lighting Manufacturers (RLM) Duray Fluoresce Eclipse Lighting Arkansas Lamp Art Lighting Gallery Arteraft Lighting Arte de Mexico ELA Lighting Elco Lighting Electric Co. Artemus Lighting Artistic Lighting & Designs Artlight Creations Electrodex Ashlor Lamps Aurora Lampworks Authentic Designs Colonial Avanti Lighting B & P Lamp Supply Elliptipar EncapSulite Intl Energie Intl. BACI by Remoraft Badger Lite Company Entourage LA **ERCO Lighting** Eureka Lighting Eurofase Baselite Corp. Beasley Metalart Eurolite Beller Group Bella Luz Designs With Light Besa Lighting Bieber Lighting Corp B-K Lighting **Exciting Lighting** Bone Simple Design Boyd Lighting Co Brass Light Gallery Fiberstars Brodwax Lighting Brownlee Lighting Fire & Water Bruck Lighting Systems Firefly Lighting Sterling & Son C.W. Cole & Company Cal Lighting Flex-A-Lite West Calger Lighting Candella Lighting Co. Carlson Design Casablanca Fan Co. Focal Point Focalor Casella Lighting Cast Horn Designs Forms+Surfaces Catalina Lighting CE Lighting of North A Ceiling Designs Century Industries FSC Lighting CGF Design G Lighting Challenger Lighting Chameleon Fine Lighting G Squared Galbraith & Paul Chandelier Parts Company Charles Loomis Cherry Tree Design Christopher Thomson GLC Lighting Global Lighting Classic Illuminations Classic Lighting Corp Glow Lighting Con-Tech Lighting Lighting Contrast Lighting ML Cooper Lighting CopperShades H.E. Williams Copperworks Lighting Corbett Lighting - Div. Troy Haia Lighting CSL Lighting Corelite Lighting Cornice Lighting Systems Coronet Chandelier Originals Halo Lighting Coyote Glass Design Christopher Poehlman Craftmade Intl. Haves Lighting Craftsmen Hardware Co Crownlite Mfg. Corp. Crystal Glass Studio HessAmerica Crystalite Industries Higuchi USA Hinkley Lighting Crystorama Lighting CS Lighting Creative Systems Lighting Currey & Company Custom Lighting Customlightstyles Holophane Holtkütter Inti. d'ac Lighting HoteLite David Landis Design

Ambience Lighting Systems

Ambience

Baccarat

Baja West

Ball & Ball

Boca Flashe

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Day-Brite Capri Omega Day-O-Lite Manufacturing Decorators Resource of Central Florida Deep Landing Workshop Delux Custom Lighting Derek Marshall Lighting Demier & Hamlyn Design Within Reach Designers Founta Designers Lighting & Accessories Display Supply & Lighting Donovan Design Co. Donovan Lighting Dreamscape Lighting Mfg Ecolite Mfg. Co. El KaBode Tile Fine Art Ceramic Tile Maker Elite Bohemia/BarDel Intl. E-Lite Technologies Elk Lighting Envel Design Corp Eurotech Lighting Evergreen Lighting Evergreen Studios Excalibur Bronze Sculpture Fabbian USA Corp FAD Lighting/Delta Light Fine Architectural Firefly Technology Corp Fleurs d'Allumage Flux Incorporated Fourteenth Colony Lighting Fox Electric Supply Friedman Brothers Decorative Arts Inc Gaslite America West Gemini One Five Luminaires George King Associates Ginger-Motiv Gladstone Industries Gotham Architectural Guth Lighting H.A. Framburg & Co Hafele America Co Hallmark Lighting Hampstead Lighting Harold's Fine Home Lighting Heritage Lanterns Herwig Lighting Hinson & Co. Historical Arts & Casting Inc Hobby Hill Lighting Hubbardton Forge Hudson Valley Lighting Hyde Park Moulding:

Idaho Wood Ideal Electric Mfg. Co. ILEX Architectural Light Illuminating Experience /Nemo Incon Lighting Inductionlighting.Com Industry & Design Light Inlite Corp. Innovative Lighting Insight Lighting Inspired Sales Intl. Ironworks Invisible Light Studio IO Lighting Iris Design Studio Iron Apple Forge talbrass by Mondobras ITRE - LuxLuce Ivalo Lighting J&J Electronics J.H. Lighting James R. Moder Janmar Lighting J-Art Iron Jefferson Art Lighting C Jensen Design Jesco Lighting John Boone John-Richard Judi's Lampsh June Lighting Group Justice Design Group Kane Shrade Kania Lighting Sys Kawahara Design Ken Lieberman Laborat Kenall Mfg. Kichler Lighting Group Kingdom Lighting King's Chandelier Co. Kirlin Company Kohler Company Kozo Lighting Kramer Lighting Kurtzon Lighting LaMar Lighting Co Lamps by Hilliard Lancaster Glass Lantern Masters Laser Magic Produ LBL Lighting LEDS c/o MLG Contract Legion Lighting Co. Leucos USA Levy Lighting Lewis Mittman Liberty Brass Turning C Light Waves Concept Lightcrafters Lighting & Electronic D Lighting Sculptures LightingUniverse.com Lightolier Light-Project Intl. Lightspann Illum Lightstreams Inc Lightworld.com Lite Makers Litecontrol Lithonia Lighting Liton Lighting Living Well Los Angeles Lighting Louie Lighting Louis Poulsen Lighting LSI Industries /LSI Ligh Solutions Plus Lt. Moses Willard Luceplan USA Lucid Lighting Lucifer Lighting Compa Lumca Lumetta Lumid Lumificient Technologi Lumigraf Luminaria Lighting Lumux Lighting Lundberg Studios Contemporary Art Glas Luraline Products Co. Luxo Corporation Luz Lampcraft LYX Furniture & Light MacPhail's Studio Magic Lite Manning Lighting Mario Contract Ligh Martin Architectural Matthews Fan Co. Maxim Lighting Intl MaxLite McFadden Trend Light McLain Wiesand McNoon Crystal Light

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CS Lighting

Cornice Lighting Systems Coronet Chandelier Originals Crownlite Mfg. Corp.

Lumux Lighting Luraline Products Co. Luxo Corporation

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Stonegate Designs Studio Italia Design USA Studio Steel Sunpark Electronics Corp. Sunset Lighting and Fans won Design Sylvan Designs Tai Pan Lighting Company Talisman Glass Tango Lighting Targetti North America Task Lighting Corp. Tech Lighting TCP Teka Illumination Tempo/Infiniti Lighting Teron Lighting The Bast Road Collection The Brighton Collection
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David Landis Design

Dazor Mfg. Corp. Decorators Resource of Central Florida Design Guild Design Within Reach Designers Fountain Display Supply & Lighting Donovan Design Co. Donovan Lighting Duray Fluorescent Eclectic Contract Furniture Industries Eclipse Lighting Electrix Elliptipar Engelite Lighting ERCO Lighting
Ergonomic Accessories Intl. Eurofase Fabbien USA Corp Fire Farm Firefly Technology Corp. Flex-A-Lite West Flos USA Forum Galbraith & Paul Gammalux Systems Global Lighting Hafele America Co. Hallmark Lighting Harold's Fine Home Lighting Haworth Hayes Lighting Hinson & Co. Holtkútter Intl. Ideal Electric Mfg. Co.
Illuminating Experiences 10 Lighting Iris Design Studio ITRE - LuxLuce J.H. Lighting Jefferson Art Lighting Co. John-Richard Jolt Lighting Kenall Mfg. LaMar Lighting Company Lamp Manufacturer Factory Outlet Ledalite Architectural Products Legion Lighting Co. Leucos USA Light Corp. Light Space Light-Project Intl. Lighting & Electronic Design Littlite Louis Poulsen Lighting Louvers Intl. Luceplan USA Lumigraf Luminaria Lighting Luxo Corporation Mario Contract Lighting Mayline Company Mepla-Alfit Metalumen Mfg. Meyda Tiffany Modulightor Murray Feiss Import Nessen Lighting Nora Lighting Nova Lighting Pacific Coast Lighting Passport Furniture Pegasus Associates R. Jesse & Company Rejuvenation Renaissance Lighting Richelieu Hardware Ltd Roy Electric Antique Lighting Royal Haeger Scangift Smedmarks Space Lighting Specialty Lighting Speriich Art Glass /Lichtmehr Stone County Ironworks Stonegate Designs Studio Italia Design USA Tai Pan Lighting Company Tango Lighting Tazz Lighting Techni-Lite Systems Tensor Corp. Toyo Trading Co

Trend Lighting Corp. Trinity Lighting

Vintage Hardware

Virginia Metalcrafters Visioneering Corp. Vista Lighting

Waldmann Lighting Co. Waterford/Wedgwood USA Wildwood Lamps & Accents

Yamagiwa USA Corp.

DOWNLIGHTS

1st Source Lighting AC Lighting Design Advanced Lighting Systems Alexandre Lighting Systems Ambiance Lighting Systems Ameriux Lighting Solutions Architectural Area Lighting Architectural Lighting Work Architectural Products by Ardee Lighting Ardron-Mackie Limited Ark Lighting/Retro Lighting Manufacturers (RLM) Arteraft Lighting Artemide AtLite Lighting Avanti Lighting BACI by Remcraft Bartco Lighting Beachside Lighting Belfer Group Brandon Industries Broan C.W. Cole & Company Candella Lighting Co. Carpenter Emerg, Lighting Cast Horn Designs Catalina Lighting Charles Loomis Chauvet Christopher Wray Classic Lighting Corp. Color Kinetics Con-Tech Lighting Contrast Lighting ML Cooper Lighting Cornice Lighting Systems Crystalite Industries Creative Systems Lighting Custom Lighting d'ac Lighting D'Lights Dainolite Day-Brite Capri Omega Deco Lighting Delray Lighting Design Elements
Dialight Corporation
Display Supply & Lighting DMF Lighting
Dreamscape Lighting Mfg.
Duray Fluorescent
Eclipse Lighting
Edison Price Lighting El KaBode Tile Fine Art Ceramic Tile Maker Elco Lighting Electro Elf Elumina Technology Inc Engineered Lighting Products **ERCO Lighting** Euroka Lighting Eurofase Eurolite FarLight Fiberstars Flex-A-Lite West Flux Incorporated Focal Point Future Light Gernini One Five Lumin Geni-Strut Gotham Architectural Lighting Gressman Supply Co. Hallmark Lighting Halo Lighting Higuchi USA Holtkûtter Intl. HoteLite

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Industry & Design Light

Iris Lighting Systems ITRE - LuxLuce J&J Electronics

Juno Lighting Group Justice Design Group

Kania Lighting Systems Kingdom Lighting Kirlin Company

Janmar Lighting Jesco Lighting

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Light Waves Concept

Alkco Lighting American Permalight AstraLite Atek Emergency Lighting AtLite Lighting B-K Lighting Badger Lite Company Beghelli USA Best Lighting Products Big Beam Emergency C.W. Cole & Company Carpenter Emerg. Lighting CeeLite Chloride Systems Concealite Cooper Lighting Crescent Lighting Crownite Mfg, Corp. Custom Lighting Day-Brite Capri Omega Deco Lighting Display Supply & Lighting DMF Lighting Dual-Lite/Emergency Lighting Div. Dura Architectural Signage E-Lite Technologies Edison Price Lighting Elco Lighting

Exitronix/Div. of Barron Mfr. Fail-Safe Lighting Firefly Technology Corp. Flex-A-Lite West Gilbert Industries **Guth Lighting** Holophane IEPC Corp. Infinity Lighting Isolite Jessup Manufacturing Co. Johnsonite Juno Lighting Group Kenall Mfg. Killark Kirlin Company LEDtronics Legion Lighting Co. Lightech Lightolie LightPanel Technologies Lightworld.com Lion Industries Lite Tech Lithonia Lighting Liton Lighting
Los Angeles Lighting Lumark Magnaray Intl. Merlin Lighting Miller O.E.M. Supplie Mule Lighting Nite Lites Nora Lighting NuArt Lighting Products OptiLED OSRAM Opto Semiconductors Paraflex Lighting Pathway Lighting Products Pauluhn Electric Manufacturing Pegasus Associates Pompeian Manufacturing Progress Lighting Ruud Lighting S.R.B. Technologies Self-Powered Lighting Siltron Emergency Systems SPI Lighting St. Louis Antique Lighting Sure-Lites Lighting Thomas Research Products Trinity Lighting Udec Corp Vista Lighting Wile Lighting

INDUSTRIAL TASK 1st Source Lighting American Fluorescent Corp. Bartco Lighting **Brodwax Lighting** C.H. Briggs Carter Products Co Cooper Lighting Crescent Lighting Crownlite Mfg. Corp. **Custom Lighting** d'ac Lighting Day-Brite Capri Omega Day-O-Lite Manufac Dazor Mfg. Corp. De Sisti Lighting EncacSulite Intl. Fail-Safe Lighting FarLight Fiberstars Flex-A-Lite West **GE Lighting Systems** H. E. Williams Higuchi USA Holophane Humanscale IEPC Corp Illumination Management Solutions Infinity Lighting Inspired Sales luno Lighting Group Legion Lighting Co. Light Craft Mfg. Los Angeles Lighting Magnaray Intl.

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Alexandra Lighting Systems

Alexandra Lighting Systems Alumen 8 American Fluorescent Corp. Architectural Area Lighting Ardron-Mackie Limited

Management

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Display Supply & Lighting DMF Lighting Duray Fluoresc Easylite Integrated Lighting Eclipse Lighting Elco Lighting Elumina Technology Inc EncapSulite Intl. Engineered Lighting Products Flex-A-Lite West Forum FSC Lighting GE Lighting Systems Geni-Strut **Guth Lighting** H.E. Williams Hasco Lighting Holophane IEPC Corp. Incon Lighting Inductionlighting.Com Industry & Design Light Infinity Lighting Invue Lighting Systems Juno Lighting Group Kenali Mfg. Killark Kirlin Company Kurtzon Lighting LaMar Lighting Company Lancaster Glass Legion Lighting Co. Levy Lighting Lighting Services Inc Lithonia Lighting Los Angeles Lighting Louis Poulsen Lighting LSI Industries /LSI Lighting Solutions Plus Lumax Industries Lumenform Industries Luraline Products Co. Magnaray Internationa McGraw-Edison Lighting Metalux Lighting Modular Wining Syste National Rig Lighting Nemco Architectural Lighting Neo-Ray Lighting Newstar North Star Lighting NuArt Lighting Products One Step Lighting Pacific Lighting & Electrical Pappi Lighting Paraflex Lighting

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Nordic Aluminium OptiLED Outwater Plastics Industries P & H Company /Flex-A-Lite Pegasus Associates hantom Lighting Systems Planlicht USA PLC Lighting Progress Lighting Radionic Hi-Tech /Radionic Industries Buud Lighting ng Products Sea Gull Light Selecon USA Sistemaluy Smedmarks Solux Design Specialty Lighting Spectrum Lighting Sunset Lighting and Fans Targetti North America Task Lighting Corp. Tazz Lighting Tech Lighting THHC Lighting Thomas Contract Lighting Times Square Lighting Translite Sonoma Troy Adams Design VGK Lighting W.A.C. Lighting Zumtobel Staff Lighting WALL WASHERS

AC Lighting Design Adventures in Copper

Alkoo Lighting

Alumen 8

Alexandra Lighting Systems

Ambiance Lighting Systems Ameriux Lighting Solutions

Ametrix Lighting Architectural Lighting Works Ardee Lighting Ardron-Mackie Limited Art Lighting Gallery Artemide AtLite Lighting BACI by Remoraft Barbizon Electric Bartco Lighting Beachside Lighting Belfer Group Birchwood Lighting **BL** Innovative Lighting **Boca Flasher** Cathode Lighting Syste Celestial Lighting Charles Loomis Color Kinetics Columbia Lighting Con-Tech Lighting Cooper Lighting Cooper Lighting Corelite Lighting Crownlite Mfg. Corp Creative Systems Lighting Custom Lighting Day-Brite Capri Omega Day-O-Lite Manufacturing Delray Lighting Dialight Corpora Display Supply & Lighting DMF Lighting Dreamscape Lighting Mfg Duray Fluore Eclipse Lighting Edison Price Lighting Electrodex Electrol Engineering **Engineered Lighting ERCO Lighting** Excelite Fabbian USA Corp FABCO Neon & Cold Cathode Fabricating Co. Finelite Flex-A-Lite West Flos USA Focal Point Fox Electric Supply Gammalux Systems Lighting Guth Lighting H.E. Williams Hallmark Lighting Halo Lighting Harold's Fine Home Lighting Holophane Icon Intl. IEPC Corp

Illuminating Experiences Illumination Management Indy Lighting Infinity Lighting Iris Lighting Systems

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Ocean State Lighting Ontil ED

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CIRCLE 160

The Brighton Collection

The Brighton Collection is a manufacturer of traditional lighting; however, the only traditional thing about our lighting is that it is made in a traditional way. Otherwise, our fixtures also embrace contemporary designs. While our strength is in creating unique designs for high-



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First Source

First Source, available as a printed desk reference as well as online, is an integrated building product information system. First Source delivers objective manufacturer's product selection and specification information to industry professionals in the formats they prefer. SPEC-



DATA and MANU-SPEC are additional products that allow users to customize, organize, and compare data and specifications to find exactly what they need. Visit www.ReedFirstSource.com, or call 770.209.4902 for more information. CIRCLE 166

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ed in Schiller Park, Illinois. For customer service, e-mail Eileen at Eileen@eclipselightinginc.com; for quotes. e-mail Jason at quotes@eclipselightinginc.com: call 847.260.0333; or fax 847.260.0344. CIRCLE 164

Jesco

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Electrix

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tor that adjusts 35 degrees. This series has a compact fixture design of 3 inches high by 5 inches wide. Electrix also offers a complete line of field curveable, linear, and ramped covelighting products for architectural applications. CIRCLE 165

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Phoster Lighting

Super bright and super slight, available in 1W, 3W, and 7W configurations (12W, 24W, and 36W coming in Q1 2006), PLE6 provides up to 90% savings on electrical costs in a 2 1/2 x 2 x 3-inch package. Available in numerous degrees of optical spreads, PLE6



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Semper-Fi

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formers in an enclosure. Outdoor transformers include above-grade stainless or DIRECT burial. CIRCLE 172

Primelite

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Tech Lighting

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include incandescent, ceramic metal halide, and fluorescent lamp configurations for heads and a host of decorative pendants. Perfect for even the most demanding retail environment. For more information, call 800.522.5315 or visit techlighting.com. CIRCLE 173

Selux

SonneLITER offers break-through technology with the first photovoltaic luminaire that can run a 35W T6 metal halide lamp from a 24V direct current supply. Received "Selection" award in IESNA 2005 product report. Please visit the "SonneLITER" section in Products/Exterior at www.selux.com/usa or call 800.735.8927 for more details. CIRCLE 171



THHC

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120V Xelogen are cooler than a halogen lamp, emit virtually no UV rays, and can be utilized in open fixtures. Please visit www.xelogen.com or call 877.Xelogen. CIRCLE 174

PRODUCT MANAGER

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- · 3-4 years product design experience in the lighting industry
- Bachelor Degree from Art or lighting design school helpful
- . Knowledge of AutoCAD or drafting is helpful
- · Proven creative ability with attention to recent market trends
- · Working knowledge of production flow
- · Proven ability to effectively manage multiple responsibilities
- · Effective managerial skills
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For immediate consideration, please e-mail your resume to: hr@waclighting.com. Please note salary history on your cover page. Given the high volume of responses, only qualified candidates will be contacted. W.A.C. Lighting is an Equal Opportunity Employer. M/F/D/V encouraged to apply.

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Getting the Green Light

How has sustainability impacted the design process? Do energy codes, LEED ratings, and materials recycling really foster

more information at www.archlighting.com

more sustainable design? Could lighting design play a greater role than other building elements in promoting sustainability?

THIS MONTH, WE ARE EXCITED TO SAY, THERE WERE TOO MANY RESPONSES TO PRINT. PLEASE VISIT ARCHLIGHTING.COM FOR ADDITIONAL INDUSTRY PERSPECTIVES.

CHARLES STONE, IALD PRESIDENT, PRINCIPAL | FISHER MARANTZ STONE; JULIE BLANKENHEIM, ASSOCIATE IALD, SENIOR DESIGNER | LDA, CHICAGO The growing emphasis in every project on sustainability efforts, energy-code compliance, LEED ratings, and materials recycling is having a significant impact on the lighting design process. The IALD Energy Task Force was created this January to determine how the organization can present a united front on these issues.

The importance of this topic was demonstrated by the spirited discussion during the October 22 Town Hall Meeting at the 5th Annual IALD Education Conference. Common refrains heard during the meeting include recommending an "evidence-based standard" to establish "feasible and reasonable" sustainability codes, and speaking with one voice to advocate "achievable" energy limits. The IALD has pledged to take a leading role in promoting best practices in energy and sustainability, and its Board of Directors approved an energy policy during an October 23 meeting. The IALD Energy Task Force is now working on a business plan—to be adopted at the January 2006 board meeting—outlining attainable, measurable, and affordable ways for the IALD to communicate with energy and sustainability policy-making bodies in the U.S. and worldwide.

This challenge calls for funding to enable professional lighting designers to conduct detailed analyses and widen their representation and guidance on the committees of other organizations that are developing codes, standards, and rating systems affecting lighting. Initial programs approved during the board meeting include power-density case studies, evidence-based design, lighting controls, and LEED advisory participation. Ultimately, the task force's work will establish a unified voice for the IALD. As a unified voice, the necessary expertise of the lighting design community will be more respected, credible, and effective.

ANICA LANDRENEAU, DEVELOPMENT MGR. | CENTER FOR CLEAN AIR POLICY

As natural lighting plays an increasingly pivotal role, not only in the energy performance of a building, but in its indoor environmental quality, lighting design is becoming more important to substantive architecture. Lighting must achieve balance and harmony with both its electrical and natural components; lighting design is increasingly a matter of where glazing will occur or if light shelves will be used. Energy codes and green building rating systems may require less energy usage, but they also invite innovative solutions to bringing light into a space in more beautiful and poetic ways. As one of the more visible components of energy-efficient design, the way light enters and moves through a building may be the best calling card for sustainability.

ANN REO, PRESIDENT | 10 LIGHTING

Lighting design should definitely play a greater role in sustainable design. One could argue that poorly conceived and executed lighting systems need more maintenance than HVAC systems. I am sure there is a plethora of building owners/managers that would agree! Sustainable lighting means nothing if it's not designed for people. Lighting professionals understand and design with this in mind. The good and bad news is the extensive array of lamps, fixtures, and controls available; it is very difficult

for architects and interior designers to understand whether one solution is more sustainable than another without knowing how to read the technical data associated with the product. With that said, I believe that a building should not be deemed "sustainable" without having an IALD member responsible for the lighting. Designing quality sustainable lighting systems not only requires a good understanding of lamp technology, light fixture construction, luminaire optical performance, and lighting control methods, it also requires a keen understanding of how to create a performance-based lighting system for people!

CHARLES CAMERON, PARTNER | LUCE GROUP

Concern for sustainability is creeping slowly into the design process, but too often it is merely window dressing. In the worst cases, making a project "green" is an excuse to neglect other facets of the design. Alternately, when aesthetics are primary, there is an assumption that the environmental impact can be disregarded. Both of these approaches are irresponsible. Environmental impact must become a fundamental concern of how we design and an equal facet with aesthetics, user needs, maintenance, and capital cost. This requires lighting designers to go beyond government regulations and LEED standards, as well as work to improve these codes. As lighting is a major component of the energy used in buildings, we are irresponsible to do otherwise.

MARTIN MOECK, ASST. PROFESSOR | PENNSYLVANIA STATE UNIVERSITY

Sustainability has impacted the design process by lowering power-density levels and shifting attention to lamps and reflectors with higher efficiency and less mercury content. Daylighting has really not changed, because engineers don't have the tools to determine annual daylight levels. Energy codes, LEED ratings, and materials recycling don't really foster more sustainable design, because only a handful of firms have experience in extensive energy modeling of combined heating, cooling, and lighting, as well as the optimization of façade shape and elements. There are cases where building energy loads have gone up after remodeling to fulfill LEED requirements (i.e., the Seattle Municipal Building). And, no, lighting design cannot play a greater role in promoting sustainable design. It is building insulation that is required. Building air leakage is another problem, and inefficient building cooling. Building shape is another issue, and architects are not trained to optimize it.

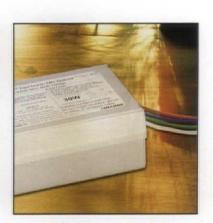
MEG SMITH, SUSTAINABLE DESIGN SPECIALIST | LIGHTOLIER

Sustainable approaches to the built environment can only be considered a positive development; however, there is a "dark side" which should be acknowledged. Energy-code compliance constraints challenge the lighting designer's ability to deliver an aesthetically pleasing environment that meets task requirements and responds to the "human factors" emphasized in sustainable guidelines. Fortunately, technological advances provide flexibility to help the design professional maximize energy savings, optimize the performance of the lighting design, and enhance the visual environment; all while meeting sustainable criteria.









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