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Cover: The interior of the Alessi Store in SoHo, New York.
Photographer Elizabeth Felicella, New York.

This page: Light box table designed by Parson's MFA lighting students, New York; a Krä light sculpture in progress; sketch by Mark Major of St. Dunstan's Chapel at St. Paul's Cathedral, London; VTR, a post-production facility designed by PSLab.

A sustainable design article

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Change and Evolution

CHANGE IS NEVER EASY, PARTICULARLY when it arrives unexpectedly. Nonetheless, that is often how change announces itself, and it was in such circumstances that Architectural Lighting magazine and its staff found themselves at the end of September. Along with our sister publication Architecture magazine, A|L was sold to Hanley Wood, a Washington, D.C.-based publishing company specializing in construction and building titles.

The past eight weeks have been trying; to say otherwise would be glossing over the reality that is the process of transition and everything that goes with it. The challenge is how we as individuals respond in these critical moments, and it is with great excitement, tempered with a healthy dose of nervousness, that I welcome the opportunity to carry Architectural Lighting magazine forward as its editor. Accepting this offer does not come without its own amount of personal sacrifice and change for me as well—it means relocating to Washington, D.C.—but I look forward to exploring a new city and meeting a new architectural and lighting design community.

The most immediate change being experienced by A|L is in the makeup of its staff, and in the months to come, new names will be added to the masthead as the magazine reassembles itself in Washington. Critically important to me during this time of transition is to reassure all of you that A|L is alive and well, and will continue on its editorial course as an independent lighting design publication published seven times a year. Integrally related components of the print publication, such as the website and the A|L Light & Architecture Design Awards, will also continue. Most importantly, the architects, lighting designers, and lighting industry professionals that A|L has come to know—and the working relationships that have been developed, which are an integral part of the magazine's success—will not change either. The good wishes and support from the lighting design community have been many of the brightest moments during this transition.

What is occurring at Architectural Lighting is a healthy evolution and refinement of the magazine, already in the planning stages prior to any purchase and sale. One thing in particular I want to stress from the outset is that A|L is in a better place with a publishing company who can and will put more resources behind the publication, and provide the foundations from which A|L can grow. Many people, including group publisher Pat Carroll, publisher Russ Ellis, and editor-in-chief Ned Cramer, along with countless others at Hanley Wood, have been working tirelessly both in front and behind the scenes in order to make this transition as smooth as possible for the magazine and for me, and for that I say thank you.

There are also some personal thank yous which I need to offer. First, to art director Casey Maher and former associate editor Sallie Moffat. Without their friendship and good humor, I would not have been able to go forward and focus on all the responsibilities associated with being editor of this publication. And a special thank you to Emilie Sommerhoff, a colleague and a friend. Architectural Lighting magazine as it exists today could not have happened without her.

Ultimately, this note has very little to do with lighting, but given everything that has transpired, it is important to pause and reflect on the events that have occurred. As Thanksgiving approaches I am reminded of the many things I have to be thankful for, including family, friends, and colleagues who support me, and work that I love. Architectural Lighting's future is bright, and I hope you will join me in the magazine's next exciting chapter.

ELIZABETH DONOFF
EDITOR
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A MAGICAL MYSTERY LIGHTING TOUR

WHAT DO ARCHITECTURE; DESIGN, THEATER, FILM, ART, HISTORY, AND SCIENCE HAVE IN
common? Light. The multi-faceted topic was the focus of discussion during a daylong symposium organized by the Museum of Arts & Design in New York City and held at Parsons the New School for Design. The museum conceived the idea and theme of the event, and then called on Ghee Pearlman, of Chee Company, a New York-based editorial and design consultancy, to act as guest director. Pearlman planned an ambitious conference agenda and assembled an impressive group of speakers. "Light can be looked at through so many lenses," she explains. "My challenge was to take it beyond a design conference." And that she did. The day's events—11 principal presentations peppered with one-on-one conversations, film clips, and discussion time—were dynamic and thought provoking.

In examining the subject of light with such diverse and broad strokes, one is made aware of the complexities of light. Juxtaposing scientific discussions, like the talk by theoretical physicist Dr. Michio Kaku, with the work of artists such as Chris Levine who use fiber optics, LEDs, and holograms to create spatial environments, or the work of media artist Ben Rubin, who explores light as a form of communication, we are reminded that the perceived gap between the unimaginable and the tangible is really not that far.

Likewise, just when we think we have discovered something new, Mother Nature reminds us she has already figured it out. Dr. David Gallo, director of special projects at the Woods Hole Oceanographic Institute provided a fascinating view of life and light from the depths of our oceans. Organisms have learned how to live two miles below the ocean's surface, relying on bioluminescence and camouflage for their survival. In our light-filled world it is hard to imagine that such a severely dark place could exist, but as art historian Dr. Louis Lippincott discussed in a review of the exhibit she curated entitled, Light! The Industrial Age, 1750-1900, it was not all that long ago, before the advent of affordable, mass-produced electricity, that people lived in a much darker world.

As explained by legendary Broadway lighting designer Jules Fisher, it is light's ability to create drama, atmosphere, and "magic" that give it its transformative properties. In conversation with David Rockwell, the two discussed light's capacity to tell a story, and the challenge for the designer to do so in such a way that light is not visible. "Good lighting in the theater should not be seen," stated Fisher. "The audience should be watching the play." And so it is a similar task for architect Brad Cloepfil as he creates a new home for the Museum of Arts & Design. Spaces throughout the museum must have a luminous quality, but still allow visitors to focus on the art. Horizontal and vertical cuts through the floor slabs and walls allow light to interact with surface, structure, and people.

For Pearlman the measure of success for a conference such as this is if people come away having learned something and asking questions. "Speed of Light" will surely serve as a launching point for many more discussions on the most mercurial of topics—light. 

ELIZABETH DONOFF
A|L LIGHT & ARCHITECTURE DESIGN AWARDS ROUNDTABLE

AN INTIMATE GATHERING OF LIGHTING DESIGNERS, ARCHITECTS, AND STUDENTS gathered on October 24, 2006, in Wollman Hall at Parsons the New School for Design to celebrate the recipients of this year's A|L Light & Architecture Design Awards and partake in a discussion about the collaborative relationship between the professional practice of lighting design and architecture. Panelists included both lighting designers and architects involved in the winning projects and included: Derek Porter, Derek Porter Studio; Stephanie Goto, Goto Design Group; Jeff Gerwing, SmithGroup; Meejin Yoon, MY Studio; David Singer, Arc Light Design; Michael Cummings, Focus Lighting; and Josh Shelton, El Dorado Architects.

The evening's activities began with an award presentation and review of this year's projects. Derek Porter, who is also Director of the MFA Lighting Design program at Parsons, with whom the event is co-organized, served as panel moderator. Porter began the discussion by asking what are the expectations when a lighting designer is hired? The participants agreed establishing a relationship of trust, and early collaboration was the key to success for any project. Additionally, it was acknowledged that lighting designers have a certain skill set, which they bring to a project. “There is a science involved,” said Josh Shelton. “Lighting designers are immediately in the space.” The technical knowledge lighting designers can offer architects is increasingly important. “The role of the lighting designer is becoming more defined as energy codes need to be addressed,” stated David Singer. Michael Cummings suggested that one of the often overlooked benefits of codes is that they push designers and manufacturers to innovate.

Stephanie Goto asked in turn how lighting designers feel about working with architects, “It is the ability to bounce ideas off one another,” added Josh Shelton. And in a similar fashion the roundtable's goal is to foster lively and insightful dialogue between architecture and lighting professionals.

AN ILLUMINATED FEAST

Alejandro Bulaevsky, Meghan Campbell, Niko Economidis, Danielle Hunt, Sila Karakaya, Kathleen Lauth, Sandra Maacaron, Kalpana Patel, and Kylie Stoneham, students in the MFA Lighting Design program at Parsons The New School for Design hosted a dinner following the roundtable discussion. They designed an impressive 20-foot-long by 2-foot-wide wooden "light box" table as the centerpiece. The table was internally illuminated with 15, 3000K, four-foot-long, T12 lamps and ballasts in a staggered configuration. The table surface was covered with a diffusing material, and topped with laser cut, black place settings. As Alejandro Bulaevsky explains, “The surface is activated by the movement of tableware allowing light to escape, creating a continuously dynamic lighting environment.”
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A CALL TO ACTION

"THE YEAR OF AWARENESS: A CALL TO ACTION" WAS THE THEME FOR ENLIGHTENED 2006, the International Association of Lighting Designers' (IALD) annual education conference. Held at the Rancho Bernardo Inn in San Diego, the sunny location made an equally strong impression on the 200-plus attendees, as did the conference agenda.

Presentations during the two-day event covered a range of pressing topics. Gregg D. Ander, chief architect of Southern California Edison, who discussed energy efficiency and load management issues, delivered the opening session. An insightful talk on the different characteristics of America's five generations—G.I.s; Silents; Baby Boomers; Gen Xers; and Millennials—by Chuck Underwood, president of the Generation Imperative, proved to be another conference highlight.

One of the more interesting, albeit confused discussions took place during the Town Hall Meeting. The question posed for this moderated debate between IALD president Graham Phoenix and recently-named IALD fellow Jim Benya was: Should the IALD change its ethics and have a more open membership? Phoenix argued that the current code of ethics and resulting membership criteria should remain intact, less there be a loss of professional integrity and client confidence. Benya countered that the current membership rules are too limiting, adversely affecting the profession's recognition by allied design professions such as architecture, as well as the general public.

At times it seemed as if two different topics were being debated, leaving this editor to wonder is there not a way to retain a professional code of ethics, and still find compatible methods for growing the IALD membership?

In keeping with the education theme, 16 students from lighting and design programs in the United States and Canada attended the conference thanks to support from the IALD Education Trust. Their schedules were kept busy with a presentation by Rogier van der Heide of Arup Lighting, portfolio review sessions, and a design charrette resulting in four landscape lighting installations called "Light Play" on view during the final evening activities.

Thought-provoking discussions and inspired surroundings characterized the event. The question is: will participants take heed of the conference theme—a call to action? Only the coming year will tell. 

DAYLIGHT AND THE CITY

DAYLIGHT AS A POTENT SHAPER OF MANHATTAN'S SKYLINE WAS THE TOPIC OF DISCUSSION presented at the Center for Architecture in New York City on November 8, 2006, by design historian Margaret Maile Petty, and lighting designer Matthew Tanteri, both members of the MFA Lighting Design program at Parsons The New School for Design. From massing to fenestration, Maile Petty and Tanteri's thesis is convincing: Daylight has directly determined the design of New York City's iconic skyscrapers.

The advent of steel frame construction and passenger elevators in the late nineteenth century allowed buildings to soar. It afforded the opportunity to be closer to daylight and views, and height became profitable. The standard rule of the era was to limit office depth to 28 feet, because the depth of daylight penetration was twice the head height of a window. The real estate community referred to this as "the economic depth of the office."

Jump to the International Style of the 1950s. Epitomized by the glass box, it brought about a new logic in skyscraper design. Modern amenities including fluorescent lighting and climate control allowed for deeper depths of premium office space—up to 50 or 60 feet—within a sealed environment, and real estate economic necessity for daylight was no longer a factor. Trends today are once again reversing, and the duo plans to extend their initial research to include current building approaches.
BUILDING ON THE SUCCESS OF LAST YEAR’S INAUGURAL program, Tucson-based UltraLights Architectural Lighting has announced the winners of this year’s competition: Cameron Miller and Brandon Schans. Students were asked to design a wall sconce or bracket for the entry of a 10-story office building in Denver. The fixtures had to be wet-listed, use either high output fluorescent or metal halide sources, and acknowledge dark sky regulations, along with budget and size constraints.

UltraLights president Jim Restin conceived the program to introduce architectural students to lighting design during their studies. A five-person jury of design, architecture, and lighting professionals, reviewed 34 entries. The competition is held in conjunction with the University of Arizona’s College of Architecture.

First-prize winner Cameron Miller’s design (top and middle) was inspired by the idea of a spiral and the repetition of elements for ease of manufacture. The glass dome is used as both a reflector to bathe the wall surface with light, and a diffuser to provide an ambient glow. Runner-up Brandon Schan’s design (above) explores the use of curved planes to diffuse light.
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LIGHTS OF PHILADELPHIA

IS IT POSSIBLE TO DEVELOP LIGHTING SOLUTIONS THAT meet code, accommodate user functions and client requirements, and realize the design vision? These were the questions shaping many of the seminars, workshops, and keynote addresses delivered during the two-day "Lights of Philadelphia 2006" conference held October 16-17. This biennial event, sponsored by the Illuminating Engineering Society of North America's (IESNA) Philadelphia Section (IES-PHL), attracted a diverse range of lighting designers, engineers, and manufacturers, from the seasoned professional to the recent design-school graduate.

To develop programming that would attract a large audience and encourage conversations on key industry concerns, the conference committee—comprised of 30 IES-PHL members—engaged nationally recognized practitioners as its conference presenters. In the first of two keynote talks, Jim Benya, of Oregon-based Benya Lighting Design, encouraged attendees to participate in the code-writing process as a way of ensuring that lighting designers versed in the subject are helping to define the regulations that govern their work. In the second keynote presentation, Paul Deeb, principal of Baltimore-based VOX, discussed the challenges of selling a lighting concept. Seminars covered a wide range of topics, including: fiber optics and electronic metal halide ballasts, ASHRAE/IESNA/ASNI 90.1 and LEED, controlled energy-saving solutions, specialty environments, and the business of design. Workshops focused on lighting schools and landscapes, using daylight, and designing sustainable environments.

In one notable seminar, former U.S. Secretary of Energy Don Millstein, the current president of lighting control developer Encelium Technologies, described the importance of using advanced lighting controls to reduce consumption and expense caused due to unprogrammed lighting levels. A 96-vendor tradeshow supplemented the opening day's activities.

Despite the conference's diversity of topics, the programs all shared one attribute: Conveying practical knowledge. In future years, as IES-PHL works to refine and expand its programming to attract an even wider audience, including architects and interior designers, "Lights of Philadelphia" could well become one of the lighting industry's more varied, engaging, and relevant events.

JOSEPH DENNIS KELLY II

CORRECTION In the article, "A Clockwork Blue," which appeared in the Sept/Oct 2006 issue, Design Plan was wrongly credited in the manufacturers/applications listing for providing LED strip fixtures at the podium screen wall. They actually supplied custom LED floodlights mounted at the fourth-floor parapet above the screen wall.
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Seeing Green: Sustainability Goes Mainstream  BY SALLIE MOFFAT

SUSTAINABLE DESIGN HAS ENTERED THE MAINSTREAM. THOUGH ENVIRONMENTAL issues, such as energy efficiency and global warming, have been concerns for over 50 years, the past decade in particular has seen increased “green” initiatives garner the general public’s attention.

PUBLIC EDUCATION
Television and movie screens offer the most widespread, public vehicle for educating the masses about environmental issues. The film, An Inconvenient Truth, for example, is about former vice president Al Gore’s campaign to bring global warming to the forefront of the international stage. In it, he not only presents evidence that global warming is happening, but helps viewers to understand that they and they alone can affect change. To date, it is the third-highest-grossing documentary in the United States. Similarly, MTV is using its popularity to reach millions of school-age individuals through a partnership with the Campus Climate Challenge, a campaign of the Energy Action Coalition, which is made up of more than 30 leading youth organizations throughout the U.S. and Canada. Together they launched “Break the Addiction Challenge,” a nationwide competition challenging students to stop global warming, starting on their own campuses. The objective: to achieve 100 percent clean energy policies at their schools.

Rising energy costs and increasing concerns about the environment are also driving consumer interest in “green” homes, which, according to the U.S. Green Building Council (USGBC), are 30 to 50 percent more energy efficient than traditional homes. In September 2006 at the Clinton Global Initiative Conference in New York, the USGBC, with support from San Diego-based developer Newland Communities, announced an online consumer education resource, the first program in its campaign to educate the public about the benefits of green design. Scheduled to launch January 1, 2007, this resource will provide consumers with information on how to make their homes more efficient. “This year alone there were 1.9 million homes being built using 20 percent of the energy in the U.S.,” notes Rick Fedrizzi, president, CEO, and founding chair of the USGBC, in a prepared statement. Indeed, by educating consumers on green building, the potential for significant reduction of energy consumption is huge.

CREDIBILITY CONFIRMED
The USGBC continues to develop its Leadership in Energy and Environmental Design (LEED) rating system with LEED for Schools, LEED Retail for New Construction, and LEED for Healthcare, which are currently in development. Having already become a reputable certification metric amongst architects, designers, and building owners, a July 2006 Sustainable Building Rating Systems Summary by the U.S. General Services Administration may establish LEED as the de-facto industry standard. In the summary, LEED was evaluated against four other systems—Building Research Establishment’s Environmental Assessment Method (BREEAM); Comprehensive Assessment System for Building Environmental Efficiency (CASBEE); GBTool; and Green Globes U.S.—and was found to be the most credible.

THE BIG PICTURE
While lighting constitutes a substantial portion of consumption where energy conservation is concerned, many design community initiatives are focusing on the big picture, making changes to the building construction envelope as a whole, therefore generating integrated efficiency on a larger scale. One such program is the 2030 Challenge by Architecture 2030. Founded by Edward Mazria, senior principal at Mazria Inc. Odems Dzurec, an architecture and planning firm in Santa Fe, New Mexico, the challenge calls for all newly constructed buildings to be carbon neutral by 2030, meaning that no fossil fuel is used. Advocated by both the American Institute of Architects (AIA) and the U.S. Conference of Mayors, who were highlighted in a September speech at New York University by Al Gore, the challenge’s purpose to eliminate fossil-fuel emissions from the construction and operation of buildings will, Gore says, help curb global warming. According to R.K. Stewart, president-elect (2007) of the AIA and chair of its Sustainability Summit Task Force, “The design, construction, and operation of buildings accounts for nearly half of all greenhouse gas emissions and accounts for three quarters of all U.S. electricity generation.”

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In addition to building construction and operation, governmental agencies are creating national plans to address the country’s energy use, such as the National Action Plan for Energy Efficiency. Published in July 2006, it is funded by the Environmental Protection Agency (EPA) and the Department of Energy’s (DOE) Energy Efficiency and Renewable Energy (EERE) Division. Developed by more than 50 leading organizations, including gas and electric utilities, state agencies, energy service providers, and environmental/energy efficiency organizations, the plan aims to create “a sustainable, aggressive national commitment to energy efficiency” through gas and electric utilities, utility regulators, and partner organizations.

FOCUSING IN ON LIGHTING

While energy codes and regulations can reap great advantages, one concern among lighting designers is that of potential design limitations. As Mark Loeffler, member of the International Association of Lighting Designers (IALD) and Associate Director of Lighting Design at Atelier Ten, explains, “New energy codes are challenging, especially for retail and hospitality projects that have traditionally depended on accent lighting and other techniques that inherently require more energy than other applications.” In order to convey this concern and to have an impact on how lighting codes are being adjusted, five members of the IALD’s Energy and Sustainability Committee are representing the organization’s interests to ASHRAE/IES Standard 90.1, the International Energy Conservation Code (IECC), and the California Energy Commission. As Loeffler says, “By ensuring that we fit our concerns into the established appeal process for the major code-writing bodies, we will have leverage with 90.1 and IECC, which are the two most influential codes for states.”

The Illuminating Engineering Society of North America (IESNA) and the Next Generation Lighting Industry Alliance (NGLIA) have joined forces with the DOE to address industry-specific issues. In July 2006 the IESNA and the DOE signed a Memorandum of Agreement to improve the efficient use of energy and minimize the impact of energy use on the environment. One of the agreement’s five goals is the support and development of metrics and standards for solid-state lighting technology, which are foundations of the DOE Energy Star criteria for solid-state lighting. NGLIA worked with the DOE to establish Energy Star criteria for white light solid-state lighting products, which will be split into two categories. Category A will cover a limited number of general illumination applications, such as task lighting, recessed downlights, and walkway lighting, while Category B includes LED systems for general illumination, and also serves the industry as a long-term efficacy and efficiency target which will exceed current Energy Star residential light fixture and compact fluorescent lighting thresholds (50 to 70 lumens per watt).

RAISING THE BAR

While architectural and engineering considerations, as well as lighting design schemes, must be taken into account for sustainable buildings, too must green products. In the luminaire market, there has been traditionally a lack of aesthetically pleasing fixtures that adequately fit the needs of sustainable lighting design. Manufacturers often tout energy efficiency, but with no regard for sustainable materials or business practices, their so-called “green” products fall short. Enter Eleek and Vode Lighting, two recently founded companies whose idea of sustainability is fundamental to their designs and their business.

For Sattie Clark, principal of Portland-based Eleek, which was founded in 2000, a sustainable business model was a natural reflection of personal interests. “We didn’t yet know that it would become such an asset in the marketplace,” she says; “but we saw that in order to make people excited about putting energy-saving lighting in their homes, you have to offer them choices that look good and feel good.” As a member of the Oregon Natural Step Network, formed to support Oregon businesses, governmental, and educational organizations in reducing their environmental impact while enhancing overall efficiency and effectiveness, Eleek is a first-rate example. The company operates on 100 percent green power; its products are made from recyclable, recycled, and salvaged materials with energy-saving lamps and electronics; 80 percent of the company’s supplies are within 50 miles of its shop; fixtures are distributed with minimal packaging; and the company car is a Volkswagen Beetle that runs on B99, a biodiesel blend made from 99 percent non-petroleum sources. LEDS are the company’s next step in sustainability, and will be incorporated into product designs.
For Sonoma, California-based Vode Lighting, launched in August 2006, its sustainable design philosophy was a core idea from day one. Inspired by McDonough and Braungart's Cradle-to-Cradle design paradigm, the company founders also looked to other like-minded companies, such as Patagonia and Interface Carpet, for inspiration. "We want Vode to be the aspiration in lighting," says chief creative officer Scott Yu. "'Good' design that is environmentally harmful is an oxymoron; equally, a 'green' product that is not attractive has only limited appeal." The company's first product is the Modular Light Rail System, which comprises a series of minimalist lighting components. Made of 97 percent recycled aluminum, the PVC-free system uses energy-efficient T5 fluorescent lamps and is designed with easily separable materials for simplified recycling. Because the components are shipped in compact cardboard tubes for on-site assembly, materials are kept to a minimum, reducing energy, cost, and waste. In addition, Vode is exploring ways to attain LEED points and Cradle-to-Cradle certification for luminaires, as well as developing an LED-based lighting system. Says Vode president Tom Warton, "The potential for LEDs is tremendous."

Both Eleek and Vode Lighting have seen an increasing interest in "green" luminaires. "For the most part, consumers are very savvy," Clark explains. "They want sustainability without sacrificing design and performance." Warton echoes that point. "Several years ago, I wouldn't have guessed the level to which designers and their clients value sustainability." For both, aesthetics are paramount, but, says Warton, "products as well as companies also have to perform."

**ACTION STATIONS**

Together, advancing architecture, design, and lighting techniques are creating dramatic new opportunities for substantial energy savings and reduction in pollution. Finding alternative ways to reduce load, increase efficiency, and develop renewable energy sources offers a chance to reverse the damage that we have done to the environment. Ensuring that the public is educated, aware of these new techniques, and ready to take responsibility for, and manage, our consumption, will only get us there faster.

Sallie Moffat is the former Associate Editor of Architectural Lighting. She is now working as a freelance writer in Brooklyn, New York.
CALL FOR SUBMISSIONS

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THINKING GLOBALLY

P. 25 P. 28 P. 32 P. 36 P. 42

Sam Fox School of Design & Visual Arts St. Paul's Cathedral Waterlemon/mila m/VTR “Lighting Churches South of the World” Krā

IS THE WORLD GETTING LARGER OR SMALLER? COMMUNICATION AND TECHNOLOGICAL ADVANCES WOULD SUGGEST THAT OUR GLOBAL REACH IS SHRINKING, AS PHYSICAL distance is being reduced in scale by the simple act of sending an e-mail. As the work of the architects and lighting designers in this issue dedicated to the theme of “Thinking Globally” proves, we share more similarities than differences, and the tenants of good design—thoughtful, considered solutions—remain the same despite cultural interpretations.

Whether it be the clean, modernist lines of Pritzker-prize-winning architect Fumihiko Maki revisiting the site of his first commission at Washington University in St. Louis, Speirs and Major Associates' delicate and respectful lighting scheme for Sir Christopher Wren's St. Paul's Cathedral in London, the artisan approach of both Beirut-based PSLab and Santiago-based Krā, Iluminación Acoustica's use of lighting to transform communities throughout Chile, or the dynamic retail lighting solutions for global brands Louis Vuitton and Alessi, design, specifically lighting, offers a universal language that can be understood by all. This sentiment is best summarized by architect and lighting designer Oriana Ponzini: “One must try to get to the essence of the place and its users before starting a lighting project, what they expect from your project, how they’ll use it, how they dream it. Learn their language, dance their songs, feel like one of them, then you’ll be able to create an appropriate lighting project for a place.”
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AN INDIVIDUAL AND INSTITUTIONAL EVOLUTION IS TAKING SHAPE ON THE CAMPUS OF
Washington University in St. Louis, and the author of that transformation—Pritzker prize-winning architect Fumihiko Maki—is once again at the helm. For the past 46 years the visual arts have occupied three separate buildings on the southwest corner of the campus—the beaux-arts style Givens Hall, home to the school of architecture, its twin Bixby Hall, home to the school of art, and the modernist-inspired Steinberg Hall, Maki’s first commission, anywhere. Maki designed the freestanding building with its signature folded-plate roof, to house the art and architecture library and art museum, while working in the Campus Planning office in 1960. A member of the School of Architecture faculty from 1956 to 1962, it seems only fitting that his architectural touch of geometric forms should once again transform these schools.

The three existing buildings, whose previous physical connection occurred only via enclosed second floor pedestrian bridges, are now joined by two new freestanding structures, and connected by a series of outdoor open spaces. Much in the way Maki’s placement of Steinberg Hall, literally in between Givens and Bixby, knitted the two together and created a physical presence, the new limestone-clad buildings—the Kemper Art Museum located across from Steinberg, and Walker Hall facing Bixby—will increase exhibition and art studio space, and provide a variety of internal and external spaces that foster communication and collaboration between the artistic disciplines. A mature expression of Maki’s interpretation of modernism, these light-filled, flexible floor-planned buildings serve as contemporary counterpoints to the existing structures, and help create an environment more indicative of the visual arts design process in the twenty-first century.

Maki is no stranger to light; it is an inherent part of his understanding of architecture. “Maki is interested in how architecture creates exterior spaces,” explains Alan Kawasaki, principal of Shah Kawasaki, the Oakland-based firm who acted as the architect of record for the project. “He is interested in the connection between things and how light can act as a juncture between space and form.” Angela McDonald, senior principal of Horton Lees Brogden (HLB) Lighting Design’s San Francisco office, the lighting design firm asked to provided technical expertise for the project concur, “Maki’s office already has a strong opinion about light. There is a high level of integration. Fixtures are not meant as decorative elements or appendages.”

One of the greatest challenges for the design team was balancing electric sources to compliment the abundance of natural light throughout the two new buildings, while respecting the architectural aesthetic. The goal was to create luminous spaces, not to see light fixtures. Color temperature played an important role in helping to achieve this, and the overall palette of fixtures, which rely mostly on T5, T5HO, and T8 linear fluorescent lamps with halogen sources for the galleries, maintains a neutral 3,000K. The use of daylighting techniques and skylights is something Maki’s office is well versed in, and in the case of the Washington University buildings they took the lead specifying the glass assemblies and level of light transmittance. “Maki is an architect who understands how to light,” says Kawasaki. And that makes all the difference in this elegant architectural assembly whose quite touch speaks volumes about its architect and the importance of collaboration. ELIZABETH DONOFF
An architectural model (above) explains the physical relationship of the existing buildings to the new—Givens Hall (1), Steinberg Hall (2), Bixby Hall (3), Kemper Hall (4), and Walker Hall (5). The signature folded-plate roof of Steinberg Hall (below left), Maki’s first commission in 1960, and home to the Art and Architecture Library until the opening of the new facility in Kemper Hall. The limestone-clad art museum provides a neutral background for Auguste Rodin’s work “The Shade” which takes center stage in the Florence Steinberg Weil Sculpture Plaza (below right).
In Maki's hands, skylights on the Mildred Lane Kemper Art Museum building take on a sculptural form (above). The Reading Room of the Kenneth and Nancy Kranzberg Art & Architecture Library is infused with natural light. Glass pendants provide scale for the double-height space, while recessed ceramic metal halide sources line the perimeter ceiling soffit adjacent to the book stacks (below).
Taken from initial design concept to project completion, the re-lighting scheme of St. Paul's Cathedral (facing page) celebrates Sir Christopher Wren's magnificent architecture through the use of a flexible, layered lighting approach and minimal intervention to the historic building fabric. Speirs and Major Associates divided the lighting scheme into three discrete systems: general, architectural, and theatrical. A series of diagrams (above) describes the hierarchy and individual components of the lighting scheme.

ST. PAUL’S CATHEDRAL SEES ITS FIRST LIGHTING REDESIGN IN THIRTY YEARS, AS NEW TECHNOLOGY CLEANS UP, REPLACES, AND MAKES ROOM FOR TRADITIONAL FORMS.

COMPLETED IN 1708 BY SIR CHRISTOPHER WREN, ONE OF GREAT BRITAIN’S MOST beloved architects, it is hard to imagine that St. Paul’s Cathedral would provide the site for one of the most interesting and innovative lighting schemes recently completed in London—a city full of cutting-edge projects by glittering star architects. And yet London-based lighting firm Speirs and Major Associates (SMA) has produced a quietly stunning and high-tech design at St. Paul’s as part of a greater restoration begun several years ago in honor of the cathedral’s 300th anniversary which will commence in 2008.

Speirs and Major Associates was approached in 2001 by the St. Paul’s Fabric and Works Committee, the group responsible for the upkeep of the cathedral, to produce a lighting scheme as part of an invited competition with several other locally-based firms. “When we were first asked to do the project, we were surprised,” says Mark Major, founding partner of SMA. “Most of the other designers had a stronger background in historical and ecclesiastical projects.” Major believes that his firm’s experience working with big budgets for large public projects was an important factor in earning the client’s trust.

Major notes that the firm knew the project would take both extensive care and planning to balance a new lighting system against a sensitive historical context and limited infrastructure. “We explained our process,” says Major. “We made it clear that we didn’t want to turn the building into a monument.” Approaching the lighting with the desire to offer an accurate and appropriate scheme, SMA looked to the cathedral’s lighting history for guidance. Illuminated only by candles for its first 130 years, the cathedral saw its first gas system in the 1830s, which was slowly built up over the next seventy years. In 1903, gas was replaced by an electric system that was later updated in 1930 and then overhauled again in 1962.

The history of lighting at St. Paul’s emphasizes the importance of technological innovation with subsequent designs. “The cathedral has always been at the vanguard of technology,” Majors describes. In the 1960s, the lighting redesign saw an early implementation of a sophisticated central control box to manage the lighting for the entire building from one location. Now, the designers have successfully married a far more advanced systems control mechanism and the latest in low-energy lamps and flexible fixtures with a desire to create a subtle mood that would highlight, rather than overwhelm, Wren’s design. SMA also had to consider the day-to-day operations of the cathedral, which, in addition to serving tourists, also requires maintenance and security lighting.

In order to reconcile the needs of the space and client, Speirs and Major began by dividing the lighting into discrete systems: general, architectural, and theatrical. General illumination includes lighting at the entry points, basic liturgical spaces, and throughout the main floor of the cathedral. This lighting system is represented by classical fixtures, which include six pre-existing chandeliers along the nave, twelve new brass chandeliers throughout the cathedral, several gasoliers from 1897 and smaller sources including candelabras and wall sconces. These fixtures are modified by additional concealed sources to give the appearance of a greater luminosity. Above each of the existing chandeliers, for example, hangs a brass-encased fiber-optic sphere housing three spotlights, which emit a low-level warm light that mimics the light typical of a chandelier, but without the glare characteristic of the electric chandeliers installed in the 1960s. Additionally, 100W spotlights hidden in the cathedral’s triforium are specifically designed to intersect with existing fixtures to create the impression that the candelabras, chandeliers, and gasoliers alone light the interior.

That the designers were so concerned with verisimilitude speaks to the degree with which this was a project of preserving historical integrity. Ironically, in order to create the “mood” of non-electric lighting, Speirs and Major designed flexible light systems—integrating and coordinating hidden spotlights—that could be easily adjusted with technologically advanced systems.
The re-lighting of St. Paul's returns the Cathedral to Wren's original intent—a bright, white-light, Baroque-styled interior. Metal halide, xenon, and tungsten sources subtly illuminate the painting and mosaics on the ceiling of the main dome and several smaller chapels (above left). Brass chandeliers take on a jewel-like quality in the nave (above right). A view to the Quire, High Altar and Baldachino beyond (facing page) show the layered lighting scheme in action.

controls. This same flexibility extends to the architectural lighting scheme, in which more lights concealed in the triforium subtly highlight the architectural features of the building. Originally, the designers were planning to use a greater amount of light to brighten the architecture, but changed their minds as they recalled the original low-level lighting conditions of the building. "We started fussier," says Majors, "but soon realized that we had to stay away from making the building look like a wedding cake."

To show some of the paintings and mosaics on the ceiling of the main dome and several smaller chapels, the designers included metal halide, xenon, and tungsten lamps in the same brackets as the hidden lights serving the floor spaces along the Triforium. These additional lamps can be easily dimmed or brightened to direct attention between the various subjects, which include a series of eight ceiling paintings showing the life of Saint Paul that were rarely seen in detail before. These sources vary in tone more than the warm lights that illuminate the ground floor, and tend to have a paler color—with a color temperature of 2800K.

For the main dome of the cathedral, the designers updated a cold-cathode system first installed in the 1960s, allowing them to use new equipment in an existing infrastructure.

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The same brackets that house the luminaires for the floor and architectural details also contain folding arms that comprise four spotlights each. These lights are for the theatrical system, as St. Paul's hosts a variety of different performances throughout the year. When needed, the arms fold out to provide extra illumination that can be controlled from the same source as the other lights. Because the designers used a systems-integration approach, an IP-based network of all of the lighting components—including many that can be controlled by radio—centralizes the controls into a computer-based platform, making lighting or dimming specific areas far easier. This allows for more precise control that not only determines the specific character of the space, but also saves a considerable amount of energy, which was important to both the clients and designers.

By choosing to evoke the cathedral's past through lighting design, Speirs and Major Associates chose a difficult path. The lighting had to remain practical in its function while romantic in its quality. Changing the nave back to its pre-electric past with its large gasoliers and chandeliers required redefining the interior space with new, dramatic hanging fixtures and all new light sources. The effect is remarkably successful and subtle. And yet, while the lighting remains secondary (and possibly tertiary) to the architecture and meaning of the building, it does not meekly recede into the background. Traditional forms and tones mask an underlying reliance on cutting-edge technology, seamlessly blending the two together while minimizing waste and maximizing clarity—suitable for its application in one of the best-known cathedrals in England.

Jaffer Kolb
**DETAILS**

**PROJECT**  Interior lighting restoration of St. Paul's Cathedral, London  
**CLIENT**  Dean and Chapter of St. Paul's Cathedral, London  
**ARCHITECT**  Sir Christopher Wren  
**CONSTRUCTION DATES**  1675-1708  
**SURVEYOR TO THE FABRIC**  Martin Stanchifte, London  
**RESTORATION ARCHITECT**  Purcell Miller Tritton, London  
**LIGHTING DESIGNER**  Speirs and Major Associates, London  
**SYSTEMS INTEGRATION CONSULTANT**  Light Perceptions, London  
**TOTAL PROJECT COST** £40 million (approximately $75 million)  
**LIGHTING COST** (including consultation fees, taxes, etc.): £1 million (approximately - $1.8 million)  
**PHOTOGRAPHER**  Tim Soar, London

**MANUFACTURERS**
- Agabekov (Crescent Lighting)  
- Absolute Action  
- Bega  
- Dernier & Hamlyn  
- Erco  
- ETC  
- Lutron  
- Meyer (Commercial Lighting)  
- Mike Stoane Lighting  
- Oldham Lighting

**APPLICATIONS**
- Cornice uplighting  
- Nave aisle candelabrum  
- Fiber optics  
- Public entrance downlights  
- Chandeliers and candelabrum (new and refurbished); gasolier refurbishment; Quire stall tasklights; geometric staircase lanterns  
- Public entrance downlights  
- Theatrical spotlights throughout  
- Architectural lighting control system  
- Triforium Dome and arch uplights; entrance apsidal arch uplights; roof uplights from Triforium level  
- Triforium level aisle spotlights and ambient downlights;  
- Dome uplights; Chapel and Baldachino spotlights  
- Cold-cathode lighting for the Dome, Baldachino, and Pulpit
ILLUMINATING CRAFT

Lebanese designers take an artisan approach to global practice.
For Beirut clothing boutique milia m (facing page), PSLab combined T5 fluorescent strips and halogen fixtures to reinforce the linearity of the space, as well as accent the textures of the merchandise. The absence of natural light at VTR (this page), a basement-level post-production facility also in Beirut, required an innovative solution. A translucent scrim wall illuminated by color-changing LED projectors changes hues according to the hour, to simulate light’s transformation throughout the day.
Hand-bent cold-cathode tubes wrap the all-white Waterlemon restaurant (top left, middle, bottom left, and below) in syncopated illuminated stripes, while directional halogen accent lights extend from slots (above) to highlight the tables.
THIS PAST JULY, DIMITRI SADDI, CREATIVE DIRECTOR OF LIGHTING DESIGN FIRM Projects and Supplies (PSLab), extolled the virtues of living and working in Beirut. ("Drawing Light," Architecture, August 2006, page 48.) "There is really a great energy here," he says, citing the cultural diversity and cosmopolitan vibe. "We bring that to our work through the hunger to succeed and to go more international." That was two days before the city, which had endured civil war for years and was finally ready to reclaim its mantle as 'Paris of the Middle East,' was targeted in air strikes, a result of the complex reality that is the politics and everyday life of the region.

PSLab, whose office and workshops are located at Beirut's port area, evacuated to the mountains, but even under dire circumstances, they continued to maintain a tenacious, if decentralized practice until their safe return to company headquarters. "We were not really affected in terms of physical damage. The ports were hardly hit. It was more psychological—a month of hell, but then things got much better," Saddi explains. Since much of the bombing was concentrated to the south, the firm's built projects in Beirut weathered the conflict with little damage.

The 40-person firm, made up of engineers, craftsmen, architects, and designers, is divided into three departments: Projects and Supplies (PSLab), which focuses on research and collaboration; OffWorks.PSLab, which addresses technical requirements; and Products.PSLab, which shepherds designs through production. With all aspects of the lighting design process—from concept to manufacture—concentrated in one place, the firm can craft a project from start to finish. "We are an artisan shop," says Saddi. "This gives us the ability to work with light—to make it with our hands."

This process is illustrated in PSLab's design for Waterlemon, a Beirut restaurant designed in collaboration with Lebanese architect George Chidiac. "Every project has its own parameters; it is about working within the architecture," Saddi notes. "It is the space that dictates how it is going to end up." The firm's concept for this project had to be inventive due to site constraints—a narrow, curving space located inside a shopping mall with no natural illumination. Saddi and his team hand-bent linear half-inch-diameter cold-cathode tubes to match the ceiling's curvature. The 2800K tri-phosphor tubes fit into 1 3/4-inch-wide and 3-inch-deep slits, wrapping the all-white space in staccato stripes, while their dimmable ballasts are concealed under banquet seating lining the walls. White directional projector fixtures outfitted with MR11 halogen lamps extend from the slits on 12V tracks, the fixture heads turned to accent the tables.

The lighting scheme grew out of PSLab's working method—designers willing to sketch and tinker with every detail. "We had done a prior art installation with cold-cathode tubes," explains Saddi. "When we designed Waterlemon, we were in the middle of using these lamps and experimenting with them. Things happen because you are working with a type of material—you push it more."

This same attitude drove the firm's concept of milia m, a cloth- ing boutique in a bohemian area of Beirut. Working with Lebanese architect Raed Abillama, the lighting designers needed to negotiate a narrow space enclosed by three glass façades, while accenting the texture and style of the merchandise. To accomplish this, PSLab combined two types of lighting—T5 fluorescent strips and halogen projector "tentacles" equipped with small and larger-sized spotlights. The fixtures create patterns of light varying in intensity to complement the fashions.

In order to draw attention away from the broad expanse of glass and onto the shirts and dresses hanging in the window, the designers recessed dimmable fluorescent fixtures in the floor to wash the fabrics with an ambient uplight. In addition, T5 lamps are integrated into a custom steel armature designed and manufactured by the architect, which doubles as a curtain track.

PSLab's sensitivity to the nuances and materiality of light is best expressed with its design for VTR, a post-production facility located in the basement of a Beirut office building. The designers teamed with Lebanese architect Assouman Tourbah to transform the facility into a luminous space. To simulate natural light in the lobby and staff lounge, PSLab installed a translucent scrim wall. The scrim's glowing effect is achieved with a series of color-changing LED projectors programmed to cycle and change hues according to the hour. "The light is dynamic. It changes tonally with the day's rhythm," says Saddi. "In the morning it is really aggressive; it wakes you up. But these guys work really late. They sit at monitors all day, so at night it dims, and they can chill out in the lounge." In the corridor, offices, and studios, color temperature becomes a design feature: 3000K cold-cathode and 4000K tri-phosphor tubes are set on dimmers and combined with halogen accent lights.

While all three projects are located in Beirut, Saddi sees PSLab's practice continuing to grow globally. With many projects in Lebanon on hold due to investors' fear of political instability and unrest, the challenge for the firm will be to stay true to its hands-on approach as it expands its reach. MIMI ZEIGER

Brooklyn-based Mimi Zeiger is former Senior Editor of Architecture magazine. An accomplished freelance writer, her work is published widely and she is author of the book, New Museums: Contemporary Museum Architecture Around the World.

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ARCHITECTURAL LIGHTING 35
Lighting Brings New Life to Chilean Churches

A LIGHTING PROGRAM REVITALIZES LOCAL COMMUNITIES THROUGHOUT CHILE.

MULTINATIONAL POWER UTILITIES TYPICALLY ARE NOT KNOWN FOR SUSTAINED investment in the revitalization of underprivileged communities. Enersis, the leading power utility for much of South America, however, is doing exactly that, with a massive illumination program called “Lighting Churches South of the World.” Established in 2000 with the help of Fundación ENDESA, Enersis’s Spanish parent company, and an allotted budget of roughly $1.5 million, “Lighting Churches South of the World” has sought to bring new life to the people of Chile by lighting the heart of their communities—the church. To date, Enersis has funded the illumination of over 30 churches in Chile, covering all expenses related to design and installation of the lighting systems, including electrical upgrades. While Enersis’s initial five-year agreement with Catholic Episcopal Conference, the governing body that regulates and maintains all aspects of the Catholic Church in Chile, will expire in December 2006, plans are in place to sign another five-year agreement.

Equally impressive as Enersis’s financial support is the energy and talent invested in this project by architect and lighting designer Oriana Ponzini, and her five-person Santiago-based firm Iluminación Acustica. As the sole lighting designer for the Chilean program, Ponzini has been personally involved with every project, evaluating the unique conditions of each site and working in close partnership with church and local officials. For Ponzini, the design process begins with the community. No doubt because of her approach, the lighting installations have been extraordinarily successful, reintroducing these ecclesiastical buildings back into the local landscape, while creating a nighttime presence, illuminating long-lost architectural details and art work, and unifying and reinvigorating local communities.

Located in the small town of Castro, in the Chiloé Archipelago in the southern portion of Chile, Iglesia Castro is a good example of the program’s success. Designated in 2000 as a World Heritage Site by UNESCO, the church, built in 1875, is
To date, over 30 churches throughout Chile have been illuminated through a program entitled, “Lighting Churches South of the World.” Primary funding comes from Enersis, the leading power utility for much of South America. The lighting scheme for each church varies based on local need. The exterior and interior of Cathedral San Bernardo (above left) was one of several projects completed in 2001. The illumination of the Cathedral of Antofagasta (above right) was completed in 2003.

Castro's oldest and represents a fusion of indigenous and European architecture and culture. Accordingly, it was essential that the lighting program respect the unique character of the church. The façade of Iglesia Castro is clad with engraved tin panels, which originally served as ballasts in ships traveling to Chile from Spain in the late nineteenth century and left in Chile's coastal communities when the ships returned. To maintain the daytime brilliance of these painted tin panels, Ponzini used high-pressure sodium lamps for the yellow and metal halide for the violet, along with wallwashers to enhance their decorative engraving.

The church interior is constructed almost entirely of local woods. To accentuate the materials and construction method, Ponzini used indirect sources wherever possible and color temperature to delineate the different spaces and moods within the church. In the main hall Ponzini animated the white wood of the vaulted ceilings using indirect reflectors with 150W 3000K metal halide lamps, while in the main nave, the warmth and rhythm of the rosy wood arches is emphasized with recessed 70W high-pressure sodium reflectors tucked into the cornice. In the side aisles, column capitals disguise asymmetric indirect reflectors with 150W 3000K metal halide lamps, outfitted with orange film to similarly soften and warm the light. Finally, focusing attention on the altar, Ponzini used four 150W 3000K metal halide directional spot reflectors to brilliantly light the clerestory and add accent light on the altar and cross. As Ponzini describes, “I tried to put value into architecture by enhancing the architecture itself.” The final result is a space suffused with glowing light that complements the extraordinary woodwork and welcomes worshipers and visitors alike. Ponzini’s lighting solution for Iglesia Castro provides the community with a place to meet at night and to gather for special events, important in this region of Chile where the year-round wet climate makes the church often the only large meeting space. Additionally, once the lighting was installed, the community’s newfound pride in their church inspired them to improve the surrounding square, adding benches and landscaping. Now used for concerts, graduations, and other celebrations, Iglesia Castro serves as a literal and symbolic beacon for the community.

Another crucial aspect of this program is the use and promotion of energy-efficient products and practices. Ponzini says her primary objective is “to improve lighting quality, and that means to be energy efficient as well.” For many of the projects, lighting control systems or multiple electrical circuits are installed to regulate energy expenditures. Lamp choice is critical as well. Ponzini primarily uses fluorescent, metal halide, or high-pressure sodium lamps, only specifying incandescent sources when necessary. While the lighting installation cost for each church is covered by Enersis, the day-to-day running of the lighting system is paid by the local community, making it essential to eliminate unmanageable maintenance expenses. In cases where a community is financially challenged, Ponzini and her team look for alternative energy solutions. For example, in Parinacota, located in the Andes, there was no money to light the small village's seventeenth-century church on a regular basis, so photovoltaic panels were installed to harness solar energy. These panels guarantee that the church will be illumi-
Formerly obscured in darkness, the Cathedral of Santiago (above) received a control system to reduce energy costs. Cool and warm color temperatures were combined to create contrast in the main nave. Iglesia Castro (below), built in 1875, represents a fusion of indigenous and European architectural styles. Inside, to accentuate the materials and construction method, indirect sources were used wherever possible, and color temperature was employed to delineate different spaces.
For the Maipú Temple (above), an enormous structure surrounded by the ruins of an earlier church and a large esplanade, the absence of nighttime illumination forced the city to close the area at sunset due to safety concerns. The new lighting scheme creates drama after dark with a golden crown for the temple, and contrasting light on the interior and exterior of the ruins. An alternative energy solution was found for the Iglesia de Parinacota (below). Photovoltaic panels were installed to harness solar energy, which guarantee that the church will be illuminated by electric light at least 3 hours per day.
Churches throughout Chile vary in material and architectural style. The lighting schemes have been extraordinarily successful, reintroducing these important community buildings back into the local landscape, while creating a nighttime presence and focal point. Iglesia de la Unión (above left) was one of several projects completed in 2001, and the Catedral de Arica (above right) was completed in 2003.

Even in the nation's most prestigious churches, energy efficiency is prioritized, as witnessed in the renovation of the lighting for the Santiago Cathedral. When Ponzini first visited the cathedral it was obscured in darkness, with no lighting in the side naves and only 1500W halogen reflectors over the altar. As a cost-saving measure, the cathedral's antique chandeliers and sconces had not been lit for decades. To bring these historic fixtures back to life, a control system was put in place to dim the lighting to ten percent of the full wattage, thereby reducing total energy costs. In the main nave, Ponzini contrasted cool against warm, washing the cove ceiling with 150W 3000K metal halide reflectors while the dimmed light from the decorative fixtures warms the body of the nave. The silver-engraved altar serves as a focus for entering visitors, with 150W 3000K metal halide reflectors, flooding the area with crisp light. For the side naves, Ponzini designed a discrete metal box to mount at the base of the ceiling arches and to fit a 36W 3000K, compact fluorescent lamp. Using the most efficient light sources and installations possible, Ponzini restored this ecclesiastical jewel to its original magnificence, allowing the people of Santiago to rediscover their cathedral.

One of the most remarkable transformations achieved through Enersis's program is that of the Maipú Temple on the western edge of Santiago. This enormous structure, surrounded by the ruins of an earlier church and a large esplanade, served as a landmark during the day but vanished at night. The absence of nighttime illumination forced the city to close the entire area at sunset because of safety concerns. Consequently, the goal for Maipú was to not simply create an illumination program for the temple, but also to address security issues through the lighting of the esplanade.

Beginning with the tower, Ponzini used different types of light to articulate the expressive massing of the façade. A golden crown for the temple was created with 250W high-pressure sodium narrow-beam reflectors placed at the base of the upper columns. Ponzini visually supports this crown by illuminating the façade with ten 150W spot reflectors set in 60-foot-high posts located near the end of the colonnade. Adding drama to the approach of Maipú at night, contrasting light is used for the interior and exterior of the ruins. Recessed reflectors with 150W high-pressure sodium lamps bathe the interior walls with a soft glowing light, while 150W 4300K metal halide lamps confine the warmth and bring the texture of the ruins into sharp detail. The lighting of the ruins, juxtaposed with that of the temple, gives a tangible sense of the rich history of the site. With its new lighting program, the entire area of Maipú’s esplanade has been returned to the public. Local clubs and civic and community groups now use this area as a space for gathering and celebrating. This is perhaps the ultimate goal of Enersis’s program. As Ponzini says, "We give value to the community by giving value to the community center—the church." From bringing light for the first time to the church of Parinacota’s underprivileged community to introducing a vibrant cultural life to the previously darkened and locked esplanade of Maipú, Enersis’s “Lighting Churches South of the World” has made a remarkable contribution to the country and people of Chile.

MARGARET MAILE PETTY
**DETAILS**

**PROJECT**  “Lighting Churches South of the World,” Chile  
**CLIENT**  Enersis, Santiago  
**LIGHTING DESIGNER**  Iluminación Acústica, Santiago  
**PHOTOGRAPHER**  Carlos Quiroga, Santiago  

---

### Iglesia de Parinacota, Andes

- **Original Construction Date**: Late 1600s  
- **Project Size**: 16,146 square feet (approximately)  
- **Project/Lighting Cost**: $30 (including solar panels)  

**Manufacturers**

- Hydrel  
- Reggiani  
- Troll

**Applications**

- Exterior luminaires  
- Interior luminaires

---

### Catedral de Santiago, Santiago

- **Original Architects**: Matías Vazquez de Acuña, Joaquin Toesca  
- **Original Construction Dates**: 1746 and 1830  
- **Project Size**: 33,982 square feet (approximately)  
- **Project/Lighting Cost**: US $82

**Manufacturers**

- Lutron  
- Reggiani  
- Troll

**Applications**

- Lighting controls  
- Exterior luminaires  
- Interior luminaires

---

### Templo Votivo de Maipú, Santiago

- **Original Architect**: Juan Martinez  
- **Original Construction Date**: 1942  
- **Project Size**: 345 square feet - esplanade; 240 feet - tower height (approximately)  
- **Project/Lighting Cost**: $42

**Manufacturers**

- Fael Luce

**Applications**

- Exterior luminaires

---

### Iglesia de Castro, Chiloé Archipelago

- **Original Architect**: Eduardo Provasoli  
- **Original Construction Date**: 1906  
- **Project Size**: 13,046 square feet (approximately)  
- **Project/Lighting Costs**: $87

**Manufacturers**

- Disano  
- Grenée  
- Gewiss  
- Troll

**Applications**

- Exterior luminaires  
- Interior luminaires
From the Flames

An indigenous people inspire the creation of contemporary light sculptures.

Kra's work is inspired by the Selkman (above), an indigenous tribe of Chile, and their use of native materials, fire, and the custom of body painting.

Kra is well on its way to establishing itself internationally with exhibits at several design shows including the Milan Furniture Fair this past April. By drawing from its Chilean heritage, the company has created a contemporary art form while respecting tradition. ELIZABETH DONOFF
Considered "light containers" rather than luminaires, each vessel is handcrafted from clay and fired in a stone oven. The first group of light containers (developed in 2005-06) is comprised of three unique shapes. Samanta (above) casts a flat pattern of light; Roxane (left) creates a spotlight effect; and Alvar (below) provides an amorphous wash of light.
From design concept to final piece, the development of each "light container" takes two years. Sketches illustrate the integration of design elements, such as the lamp source and metal stand (top and above right). Each piece is hand crafted (above). The result is that no two pieces in the series are ever 100 percent identical.

DETAILS
PROJECT Custom-designed light sculptures
COMPANY Krá, Santiago
IMAGES Courtesy of Krá
MATERIALS Clay and stainless steel
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LOUIS VUITTON STORE LIGHTING CONCEPT, WORLDWIDE

CHALLENGE  Retail projects demand a lot of their lighting schemes. No matter the size or cost of an item, the goal remains the same: highlight an object so that the customer will want to purchase it. To date, standard practice has lead clients and designers to believe that fulfilling retail programmatic requirements and cost-effective, energy-efficient designs are mutually exclusive. But as a new lighting approach, developed by Rogier van der Heide and his team at Arup Lighting proves, quality and efficient retail lighting is not an oxymoron.

ARCHITECTURAL AND LIGHTING SOLUTION  Van der Heide was first introduced to Louis Vuitton (LV) while working in Seoul, South Korea on Galleria West ("All Dressed Up," Architectural Lighting, Jan/Feb 2005, p.19), a high-end shopping mall whose signature feature is a programmable facade of laminated glass discs. The timing was right; it resulted in van der Heide's design for LV's Galleria corner, storefront location and more long-term collaboration with the company, who was looking to reduce the cost of its interior fit-outs by 30 percent.

Van der Heide's new lighting solution uses an architectural ceiling slot as its primary feature. This concealed, track-based system focuses shoppers' attention on the products, not a brightly lit ceiling. It also enables other firms working on Louis Vuitton stores worldwide to follow a systematized design approach. To facilitate layouts, Arup created a user manual which outlines 15 key interior elements (such as shelving and store window displays), and diagrammatically explains what kind of lights are needed and how to locate them.

Although the luminaires are a custom-designed collaboration between Arup and Louis Vuitton, because they are concealed, the design is straightforward—a bare reflector with a lamp house, and a ballast. And because the lighting scheme has to work around the world, from North America to Europe to Asia, several manufacturers are involved, each supplying their own geographic region. This ensures fixtures will always be in stock and comply with local codes.

Much of the lighting scheme's success goes well beyond the visible aspects of the stores and the lighting quality. For example, by switching to low-wattage (25 and 30) metal halide lamps rather than tungsten, only one round of re-lamping is required during a store's 5-year-average life cycle, in turn reducing maintenance costs by more than 80 percent. Multiply that by 300-plus stores in 44 countries worldwide, and the result is an annual cost savings of millions of dollars. The reduction in lamp heat emissions is also a significant factor, resulting in a 15 percent cost savings for each store's HVAC infrastructure. All told, the new lighting scheme lowers the cost of each store by $35,000.

By reconsidering what constitutes a light fixture and the quantity and location of equipment, Arup has create a flexible, cost-effective, and energy-efficient lighting solution that works no matter the scale or size of a store location. A seemingly simple approach, attention is paid to the lighting design's details. "The result," says van der Heide, "is a chic, understated architectural solution at a competitive price." —ELIZABETH DONOFF

ARCHITECTURAL LIGHTING  47
ALESSI STORE, NEW YORK

CHALLENGE  When designing Alessi's $1.4 million, 980-square-foot store in New York's SoHo neighborhood, architect Hani Rashid and his firm Asymptote faced not only the constraints of a cramped asymmetrical site, but the daunting task of creating an entirely new image for the Italian housewares manufacturer. "Rather than impose our corporate image we wanted to adjust our American flagship to the locality," explains Alessi executive vice president Jan Vingerhoets. "In New York you can't do the same thing you do everywhere else. We wanted something different, something quirky." As part of their strategy to create a unique aesthetic for Alessi's first U.S. outlet and integrate the brand with the spirit of the neighborhood, Vingerhoets and his team drafted a program that included basic retail functions, as well as an espresso bar—the first in any Alessi store worldwide. For Asymptote this meant finding a way to keep these two programmatic elements, each with their own hours of operation, distinct within the space, while maintaining flow and visual coherence.

ARCHITECTURAL AND LIGHTING SOLUTION  The store's Green Street location presents a typical New York City condition—a narrow entrance opening to a larger volume in the rear. The coffee bar greets shoppers as they enter the store and move through the space to the shopping area behind. To connect the two sections, the architects inserted nine successive bands of white light that run vertically up the north wall and continue horizontally across the ceiling within suspended geometrical boxes of varying shapes and sizes. "The action of these surfaces combined with the repetition of the bars of light draws the eye to the back of the space and creates a continuous reading," notes Asymptote project architect, David Lessard. Continuous is the operative word—a mirrored rear wall reinforces the surface geometries, while visually creating an infinite sense of space.

In addition to creating formal clarity between coffee bar and store, the "light boxes" can be individually dimmed to distinguish the functions of each space. Constructed from medium-density fiberboard (MDF) and stretched Barrisol fabric, the boxes conceal T5 fluorescent fixtures, three per vertical wall element and three per horizontal ceiling element. Rather than using dimmers, which would have exceeded the project's budget, lighting consultant Tillotson Design Associates set each fixture on an individual switch. "By turning two on and one off, three on, or just one on, you get varying light conditions," says Lessard. This function is generally employed in the morning to dim the rear lights, when the coffee bar is open and the store closed. Standard halogen MR16 recessed downlights, arranged in strips of five, four, and two, make up the remainder of the store's general illumination.

To highlight Alessi's products, Asymptote teamed with furniture manufacturer Vitra to design a modular shelving unit, complete with built-in accent lighting. Fabricated from bent, white-painted steel, the shelves feature constellations of two-inch-diameter fixtures, each directing the light of a single 2W white LED onto the coffee makers, vessels, and flatware. The architects chose LEDs in direct response to Alessi's stainless-steel-dominated product line, a material that, Vingerhoets says, "can blend in without the right lighting." The choice was appropriate. The 6300K color temperature of the light from the LEDs appears as dazzling white points on the stainless-steel wares, immediately catching the eye in the already well-lit room.

The success of Alessi's SoHo flagship store illustrates the benefit of having a single author behind every element of a shopping experience—Rashid designed all of the store's ephemera, from the graphics to the packaging to the paper cups—but the power of lighting distinguishes these elements within a tightly confined space, while simultaneously unifying them. AARON SEWARD
A contrast between contemporary and turn-of-the-century architectural styles, New York’s SoHo is home to Alessi’s first U.S. retail location (facing page). The ultra-modern interior transitions from an espresso bar in the front (top left) to a retail space in the rear (top right). The unifying element—bands of light, comprised of T5 fluorescent lamps concealed behind Barrisol fabric. Complementing the dynamic use of light, custom-designed bent-steel display shelves with integrated LEDs echo the architectural theme of “folds” to create a memorable shopping experience.
POINT OF SALE

**AMERLUX | CYLINDRIX RECESSED | AMERLUX.COM**

One in a family that includes track and semi-recessed fixtures, the Cylindrix recessed luminaire provides adjustable accent light with a 360-degree rotation. Its die-cast lamp housing is available in five configurations with up to four lamps. Designed around miniature, low-wattage metal halide lamps, the fixture can take a variety of reflectors and snoots. CIRCLE 125

**JESCO LIGHTING GROUP | MONORAIL | JESCOLIGHTING.COM**

This low-voltage track system is based on a single, bendable, low-profile rail. It is available in 4- and 8-foot segments, and is offered in cable-suspension, ceiling- and wall-mounted versions. As part of the Jesco Quick Adapt Lighting System, small-scale pendants and spotlight fixtures can be easily connected to the track and moved as needed. The extruded aluminum track has two finish choices: chrome and satin nickel. CIRCLE 126

**DELTALIGHT | RETRO 2 | DELTALIGHT.US**

This display luminaire offers direct illumination and can be recessed into a ceiling or a wall. Offered in grey or white, the fixture takes two 70W (maximum) PAR lamps and can be tilted up to 30 degrees. It has a diameter of just over 6 1/2 inches and requires a minimum depth of just under 8 1/2 inches for recessing. Optional accessories include a cone and color filters in red, blue, green, and yellow. CIRCLE 127

**OSRAM SYLVANIA | CAPSYLITE E-PRO | SYLVANIA.COM**

According to the manufacturer, the Capsylite e-Pro’s innovative rocket-shaped circuit board allows this lamp to produce 35 percent more lumens and last 80 percent longer than a similar 35W halogen PAR lamp. Energy efficient and lead free, the lamp has a color temperature of 2950K for a crisp, white light and is available in a variety of beam spreads and angles. CIRCLE 128

**ADVANCE | E-VISION MINI 20W ELECTRONIC HID BALLAST | ADVANCETRANSFORMER.COM**

To be used for ceramic metal halide lamps, this energy-efficient compact ballast measures just over 4 inches wide. It delivers lamp wattage regulation to optimize lamp color quality and reduce lamp-to-lamp variations, and features a 90-degree-Celsius maximum case temperature rating, as well as automatically controlling lamp power, detecting lamps' end of life, and lamp monitoring. CIRCLE 129

**HERA LIGHTING | STRIP-LED | HERALIGHTING.COM**

Ideal for display cases, this linear LED fixture comes in 1-, 2-, and 3-foot lengths and can be recessed or surface mounted. Its anodized aluminum housing with plexiglass cover measures just 1 1/8 inches wide and 1/4 inches high. Offered in both cool white (5500K) and warm white (3200K) LEDs, the luminaire emits no ultraviolet radiation and is almost free of heat. An optional corner extrusion is also available. CIRCLE 130
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“Age Wave” Demands Sea Change

BY EUNICE NOELL-WAGGONER

Light’s Impact on Health Provides New Challenges for Design

“Where are my glasses?” “Please turn up the lights!” “That glare is blinding!” Do you ever hear your parents or even yourself saying these things? Sensory loss is common to the aging process, as witnessed by the number of older people wearing hearing aids and eyeglasses. The automatic response when this happens is to seek help from the medical profession, yet there is a huge role for the design community to create a physical environment that will minimize the effect of sensory loss. With the growth of the 65+ age group expected to peak at 23 percent of the total population between 2030 and 2050, all professional groups will be called upon to meet the challenges posed by this “Age Wave.”

Vision and Aging

Everyone to a greater or lesser degree experiences normal age-related changes to the eye. In addition, the prevalence of eye diseases increases with age, compounding the problems of an already impaired visual system. Visual impairment represents one of the most significant health problems of older people because of the associated dangers affecting the rest of the body, i.e., fall-related hip fractures. Falls are the leading cause of accidental death in the senior population. About 20 percent of seniors who suffer a hip fracture die within a year of the fracture.

Discoveries in the last few years of the retinal ganglion cells, which provide input to our circadian system (keeping our sleep/wake cycle synchronized with the night/day cycle of light) and the action spectra of 446-477 nanometers as the most potent wavelength region,2 provide additional objectives for a successful lighting design project. Since this range is shifted toward the shorter wavelength, or the blue part of the spectrum (similar to the light of a blue sky), there is added incentive to increase the use of daylight within spaces used by people of all ages, and especially for the senior population.

The normal effect of age-related changes to the eye include less light reaching the retina, increased sensitivity to glare, longer adaptation time required for changes in brightness, loss of contrast sensitivity, loss of accommodation, and distortion of colors due to the yellowing of the lens. Of these six age-related changes to the eye, only one, accommodation, can be corrected by wearing glasses or corrective lenses. The other changes can best be addressed in the physical environment by providing the appropriate quantity and quality of light and increased value contrast between objects and their background, or at a change of level, i.e., the edge of a step or counter edge.

Light Quality

The prescription for quality lighting for older adults is best achieved by using layers of light combining ambient, accent, task, and glow (instead of sparkle). Some considerations to account for are:

- Ambient light must be even and consistent within a space and from one space to another, providing light on the vertical surfaces, avoiding scalloped patterns on the walls or pools of light and/or shadows on the floor. Yes, this does mean that we must end our addiction to recessed downlights.

Sources: Graph 1 and 3 - IESNA/ANSI RP-28-2001 Lighting and the Visual Environment for Senior Living, Graph 2 - Aging and Human Visual Function.
• Glare is enemy #1! Whether the source is daylight or electric light, direct and reflected glare must be controlled and diffused.
• Provide as much balanced daylight as possible within a space. Fenestrations with diffused glazing located above the field of view are preferred, since they avoid the problems created by glare and shadows.
• It is important to use high-frequency electronic ballasts to avoid flicker and hum associated with the soon to be obsolete magnetic ballasts.
• Light sources rated high on the color-rendering index best minimize the effect of the yellowing lens of the eye. Whereas some designers (and adult children of aging parents) may consider the color of an incandescent light source in the 2700K to 3000K range more residential, older people continually request whiter light sources, especially for task lighting.
• Lighting for visual tasks must include all activities of daily living—grooming, bathing, cooking, cleaning, selecting and matching clothing, laundry, reading, and paperwork, and most of all, leisure activities such as crafts and hobbies.

LIGHT QUANTITY
The quantity of light needed for both task and ambient light will vary depending upon individual needs. It is generally accepted that people 60 years of age will receive only one-third the amount of light on the retina as compared to that of people 20 to 30 years of age. Given this and the extreme importance of greater independence and safety, we must begin to design for the “optimum” light level, rather than the “minimum.” If you are designing a private residence, be certain to determine the lighting needs of all individuals living there. If the project is a long-term care facility, be aware that the average age of people living in assisted living facilities and nursing homes is 85 years of age. Residents in this age group will experience even greater reduction of light reaching the retina. The best guide for recommended light levels for long-term care facilities can be found in the IESNA/ANSI document: RP-26-2001 Lighting and the Visual Environment for Senior Living.

Indirect lighting is a great solution to providing high ambient light levels without glare. Since linear indirect luminaires are associated with commercial or institutional type building projects, the integration of lighting into architectural elements, i.e. ceiling coffers, ceiling and wall coves, and above the line of sight on top of bookcases and upper cabinets, allows for the use of long energy-efficient fluorescent lamps, while preserving the residential quality of the space. This approach requires close teamwork early on in the design process amongst the lighting designer, architect, and the other design team members.

RESIDENTIAL LIGHTING CONSIDERATIONS
Residential settings require a distinctly different approach to lighting for day and night use. Flexible lighting designs are important in the public areas of the home in order to accommodate a variety of uses, ranging from entertaining, group meetings where people may need to read, day-to-day living, and housekeeping. If the client is in the 60+ age range, many of their friends will be in that same age group. However, these individuals may not be familiar with the layout of the home. Using contrasting light and dark materials to define the floor and step(s), plus lighting to illuminate the step or level change, will help individuals maneuver safely in and through the space. Often, the lighting design in high-end residential settings is high contrast—dramatic lighting for cocktail parties, however, this ignores the routine visual activities of daily life.

Bedroom and bathroom areas need to be designed with different lighting options for both day and night use. Sleep disorders are a common problem for older people. As a result, many take naps off and on during the day, and use the bedroom for activities besides sleeping, such as resting, watching television, and reading. Ambient and task light are needed for these daytime activities. The room should be dark while sleeping. It is also common for older people to get up during the night to use the bathroom. In this semi-awake/sleep state, eyes are adapted to the dark, so illumination levels of night lighting should be low. A lighted switch near the bed will allow an individual to turn the light on and off as needed. Light sources, which are warm in color and located near the floor, are best for this situation. The goal is to provide just enough light for a person to safely find their way to and from the bathroom, without waking up completely due to exposure from bright light at night.

In all areas, long lamp life is essential. No matter who is responsible for changing the lamps, whether it is the maintenance staff or the older home owner, the replacement of a burned-out lamp may not happen quickly. Keeping seniors off ladders is also a safety issue.

DAYLIGHT EXPOSURE
Sleep and activity rhythms are the most common and easily observable circadian rhythm, although core body temperature, appetite, and hormonal secretions are also included. As mentioned, sleep disorders are a problem for older people; in fact only 20 percent report that they have no difficulty with sleep. As people age they are less mobile, and as mobility decreases so does their exposure to daylight. Seniors living in the community receive less daylight exposure than younger people, but seniors living in long-term care facilities are the most daylight deprived. Without the necessary exposure to daylight their body clocks desynchronize, resulting in a higher percentage of sleep disorders for older people living in institutional settings than age-matched people living in the community.
LIGHTING PUBLIC SPACES

Retirement provides more leisure time to engage in activities outside the home, including travel, shopping, dining and volunteering. Sixty-five percent of seniors do volunteer work. The lighting in these buildings—daycare centers, grade schools, and medical facilities—should not be the barrier to keep them from enjoying their leisure time, spending their money, or donating their services.

Recently, an unexpected advocate for appropriate lighting has come to the fore. The consequences of visual impairment, i.e. fall-related hip fractures and the associated medical costs, are now attracting the attention of the federal government. United States Surgeon General Richard Carmona, MD, MPH, FACS, lists “improving lighting” along with other recommendations to reduce the anticipated risk of fractures in the 50+ population. With the new focus by the Center for Medicare and Medicaid Services (CMS) on home or community-based senior care, rather than the traditional nursing home or assisted living facility, there is an even greater imperative to design homes appropriately to serve the “Age Wave” that will be cresting soon.

FINAL THOUGHT

To serve an older population, the design community must create lighting schemes based on perceptions other than our own. Design for the “optimum” condition rather than the “minimum,” and include health factors along with traditional lighting objectives. In particular, the standard practices of residential lighting design needs to change today to meet the requirements of the current aging population. Soon enough we will join the ranks of the 65+ and become dependent upon younger people to understand our needs. How can we expect others to address these lighting deficiencies if we do not address them ourselves and take the necessary steps, today, to remedy them?

Eunice Noell-Waggoner is President of the Center of Design for an Aging Society, a not-for-profit organization dedicated to improving the built environment to maximize abilities of older people. The Center recently developed and published “Lighting Your Way to Better Vision,” an informational booklet for the general public. She is also the founding chair and a current member of the Lighting for Aging and Partially Sighted Committee of the IESNA.

FOOTNOTES

5See footnote 2. Ibid.
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Not Fade Away: Lighting of Valuable Objects

BY JAMES R BENYA

With special thanks to George Sexton, iALD, one of the world’s leading authorities and accomplished designers in the field of museum lighting, and Rogier van der Heide, iALD, of Arup Lighting and designer of current state-of-the-art museum projects.


LIGHT IS A COMMON CAUSE OF DAMAGE TO PAINTINGS, drawings, books, artifacts, and virtually all types of historic and archival collections. It can cause paper to bleach, yellow, or darken, and it can weaken and embrittle the cellulose fibers that make up paper. It can also cause base materials and dyes used in documents, photographs, and art works to fade or change color. Paper, bindings, and media links, photographic emulsions, dyes, and pigments, and many other materials used to create words and images are particularly sensitive to light, as are fibers, furs, and textiles. Most of us recognize fading as a form of light damage, but this is only a superficial indication of deterioration that extends to the physical and chemical structure of collections. Light damage is cumulative and irreversible.

Light provides energy, which causes the chemical reactions that produce deterioration. In photochemical deterioration, or photodegradation, light energy is absorbed by molecules within an object, which can then start many possible sequences of chemical reactions. Each molecule requires a unique minimum amount of energy to begin a chemical reaction with other molecules, called its activation energy. A common reaction is oxidation. Other reactions include photodissociation, in which molecules are broken into smaller pieces by photons, and the change of molecular shape, such as the denaturing of proteins. These reactions can be even more damaging if other environmental factors contribute; for example, for every 14-degree-Fahrenheit rise in temperature, the deterioration rate of paper (and likely other organic materials) doubles. Major contributing factors include humidity, surrounding atmosphere, environmental pollutants, and the age, condition, and current state of the object entering conservation.

Most designers know that ultraviolet light (UV) is destructive. Indeed, UV is the most damaging of all forms of light, and deserves principal attention. However, it is important to remember that all light causes damage, and UV, visible light, and infrared energy all need to be addressed as part of the equation.

BASIC LIGHTING PRINCIPLES

Aside from the design issues of visibility, appearance, artistic interpretation, and the like, there are two overriding principles of lighting design to address and manage the affects of light.

1. CONTROL THE SPECTRUM OF LIGHT

Think of each of the three main types of light—visible, UV and infrared (IR)—as being sources of energy that can cause photodegradation. Only one of the three, visible light, is actually used for art display and curation. The other two—UV and IR—are not necessary for either task and can be gladly discarded. This is easier said than done, of course, and minimizing both is the key to successful design. UV gets our top attention, as it is the most destructive light energy. An easy

| TABLE A |
|---------------------|----------------------|
| LAMP | UV PERCENT | UV μW/LUMEN (MICROWATTS/LUMEN) |
|---------------------|----------------------|
| Tungsten Sources | | |
| Incandescent 2850K | 1.7-1.8 | 75-80 |
| Halogen PAR | 1.6 | 65-70 |
| Halogen HIR | 0.8 | 32 |
| MR16 dichroic with cover glass | 0.9 | 38 |
| MR16 HIR with cover glass | 0.6 | 24 |
| Halogen bi-pin | 2.1* | 108* |
| Other Sources | | |
| 3300K LED | <0.5 | <20 |
| Fluorescent T8 | 1.7-8.3 | 53-280 |
| Ceramic Metal Halide | 3-12* | 122-490 |
| Standard Metal Halide | 9-20 | 330-800 |
| Daylight through window glass | 6.7-17 | 275-720 |

SOURCE: IESNA RP-30-96, EXCEPT *, WHICH REPRESENTS NEW DATA FROM CE LIGHTING’S MUSEUM LIGHTING COURSE, NOVEMBER 2006, PRESENTED BY KATHY PRESCIANO.
way to assess the amount of UV present is to determine the percentage of UV to visible light. (See Table A.)

The higher the percentage of UV, the more filtering is required. The standard UV limit for preservation is 75 uW/lumen. As a general rule, every light source should have a UV filter, and a perfect filter removes all radiation with waves shorter than 400 nanometers. For incandescent and HID lamps, glass filters are necessary to handle the lamp's heat; for daylight and fluorescent lamps, plastic sleeves and lenses can be used. Keep in mind, though, any filter changes the color rendering (CRI) of the system, and the greater the filtering, the lower the CRI. For example, halogen light (CRI 100) through an Optivex dichroic filter will reduce the CRI to 95. And daylight, filtered through Low-E window or skylight glass, can have altered color, with CRI as low as 75-90 with some modern windows.

Don't forget IR radiation, either. There is precious little information about IR effects at this time, but practical experience suggests that the drying and baking impacts can be significant. Displays of especially sensitive materials will demand IR filtering. To minimize IR you can employ "cold mirror" lenses, "cool beam" PAR lamps, or dichroic MR16 lamps, all of which substantially reduce IR in display-lighting applications. In fact, the natural filtering effects of the IR coating on IR/HIR lamps reduces both IR and UV light, making these lamps ideal candidates for sensitive display applications.

For the most extreme applications, LED and fiber-optic lighting offer respectable, if not expensive, alternatives. In a fiber-optic system, both UV and IR must be filtered out before entering the fiber, or the port's fiber end will be damaged over time. The absorption of UV by glass or plastic fiber also helps ensure literally no UV transmission through it. With LEDs, there is no radiation above 400 nanometers from any white LED, and LEDs can not emit IR either. While LEDs are easier and less costly, glass fiber systems still offer the most perfect display light, because the heat source is also removed from the display environment.

Daylight contains an extremely high percentage of UV light and, when introduced at high light levels, typically provides the greatest risk of photodegradation in architectural applications. Technically careless daylighting designs and ill-advised placement of artwork near windows and skylights are common problems. More than one twentieth-century museum has inappropriate amounts of daylight with little or no filtration, due largely to ignorance and architectural fashion. But most curators are technically astute, and they demand that today's most exciting museum designs are technical masterpieces where UV management is tantamount.

2. RECIPROCITY

As in photography, reciprocity is the principle by which exposure time is multiplied by exposure intensity to determine total exposure. In the case of art, artifacts, and book and archival collections, the lux-hours of exposure are the metric (to obtain footcandle-hours, divide lux-hours by 10,764). In other words, an object illuminated to 50 lux for 1,000 hours receives 50,000 lux-hours of exposure.

Curators will often set specific limits for each individual piece based on a number of factors, including the current state of the object, its useful life, and the intended number of display hours per year. There are some artworks, such as metal and stone, that have no practical limits, although the specific paint or finish may cause a curator to assign a limiting value. But for most artwork and collectibles, typical values range from less than 50,000 lux-hours per year for sensitive materials to over 500,000 lux-hours per year for more durable pieces, including stable dyes, wood finishes, leather, and some plastics.

The lux-hours of allowed exposure are, of course, adjusted for the light source. The curator's reference hours are based on using tungsten lamps with basic UV filters. For example, using a tungsten PAR lamp with a basic UV filter to display a painting, a curator might set a limit of 50,000 lux-hours per year. The lamp itself is rated at 75 uW/lumen. To display this painting using a ceramic metal halide lamp rated 98 uW per lumen, you can either reduce the light level or display period by about 25 percent (75/98), or you can employ a better filter.

MODERN PRACTICE

Better, more universal standards are constantly under discussion amongst the museum curatorial and preservation communities. For example, a new metric called the "Blue Wool" test has been developed in conjunction with the International Standards Organization (ISO). This is a simple but effective test, in which particular blue wool samples, which are extremely sensitive to light, can be readily tested in the actual setting. Standardized samples and other measurement devices are commercially available. Likewise, the amount of light and UV can be predicted for any source, including daylight, through basic illuminating engineering calculations with factors addressing the percentage of UV content. Acceptably accurate designs for museum day lighting, for instance, can be created using a modern lighting program with daylighting capabilities, plus some basic math accounting for filtering through transmission and absorption.

As a basic rule, try to limit the amount of light on important pieces to about 5 footcandles. This will create minimum damage to even the most fragile artworks, even if illuminated for over 2,000 hours per year. But remember, the light contribution includes both electric and natural light, and in many ordinary settings, extremely high levels of exposure can be the result of a nearby window. Limit the amount of light through filtering rather than dimming, as dimming causes light color shift. And above all, consider controls as a very effective way of limiting exposure. Simple time-of-day switches are a great way to start, but to address the issue in detail, employ motion sensing to dim display lights when no one is present.

Very few lighting practitioners design museums, and for them these comments are hardly important. But many of us are called upon to illuminate private collections and important pieces in residences and many different corporate and institutional settings. Consideration of these important lighting criteria early on in a project's development will not only lead to its success, but it will also safeguard the very objects these spaces are meant to celebrate.
ACE.al AWARDS
ARCHITECT'S CHOICE FOR EXCELLENCE
CHOSEN BY ARCHITECTS AND LIGHTING DESIGNERS
AWARDED BY ARCHITECTURAL LIGHTING

Recognizing durability, customer service, value and design.

2006 WINNERS
It is with great pleasure that we announce the 2006 winners of the Architect’s Choice for Excellence (ACE) Awards, sponsored by ARCHITECTURAL LIGHTING. The ACE Awards recognize manufacturers who have provided superior products and services to the marketplace. ACE ballots appeared in the April/May and June issues of ARCHITECTURAL LIGHTING. The ballots were also made available to architects at the Lightfair, AIA and other industry conventions.

We salute all of the industry leaders as voted by readers, for their commitment to product excellence. Durability, customer service, value and innovative design are the hallmarks of all winning firms as they strive to meet and exceed design expectations, cost criteria, and demanding deadlines. Awards that recognize the “Most Innovative”, “Most Respected”, and “Most Specified” lighting suppliers for 2006 were also awarded.

Thanks to all those who took the time to select this fine group of winners. Your assistance and opinions are what make this program valuable to the industry as a whole. Cheers to the best in the business.

Russell S. Ellis
Publisher
2006 ACE.al Award Winners

Most Innovative
Artemide

Most Respected
Lutron Electronics

Most Specified
Lightolier

Top 30 Manufacturers
The following list highlights the top three companies followed by the remaining winners listed in alphabetical order.

Top 3 Manufacturers
1. Lightolier
2. Lutron Electronics
3. Halo

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<th>Alkco Lighting</th>
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METHODOLOGY
The official ACE.al ballot ran within the April/May and June issues of ARCHITECTURAL LIGHTING, reaching the full 25,000+ circulation with each. In addition, e-mail and fax campaigns were conducted. Ballots were also provided and collected at the AIA, Lightfair and other industry conferences. The magazine also conducted a random sampling, consulted with industry experts, and subjected the full manufacturers list to review by an in-house publishing team. Hundreds of companies are nominated based on criteria that included outstanding product durability, exceptional customer service, superior value and innovative designs. ARCHITECTURAL LIGHTING recognizes the top 30 lighting manufacturers, with special mention provided to the top three. Ballots also included an opportunity to indicate choices for the “Most Innovative”, “Most Respected” and “Most Specified” lighting manufacturers.
Industry Insight

"Good is the enemy of great," says Ron Naus, Executive Vice President. "We spend each day working to make a great product for our customers. This simple philosophy inspires us to continually improve in 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 enough."

When product design and durability are key design elements, residential and architectural installations demand B-K Lighting. That's why B-K Lighting is featured in such prominent venues as The Seattle Opera House, Four Seasons Hotels, Disney Resorts, Toronto's International Airport, and The Bellagio in Las Vegas as well as in many of the world's most exclusive residential projects.

Since 1984, B-K Lighting has been dedicated to providing the lighting industry with the highest quality, most innovative, and fairly priced outdoor lighting fixtures available. B-K Lighting strives for excellence in both design and quality, machining low-copper aluminum, brass, and stainless steel products to exacting standards, delivering quality and craftsmanship without equal.

B-K Lighting celebrates its 22nd anniversary with two key, new product introductions. First, a patent-pending ICEE Lens™ has been added to the popular Precision2™ and Tenaya2™ series of in-grade luminaries. "ICEE™ provides meaningful reduction in surface lens temperature," says Ron Naus, Executive Vice President. "With 90% efficiency and full biaxial source control, it also provides the flexibility design professionals expect from B-K Lighting," Naus continues.

This year, B-K Lighting also celebrates the first anniversary of its acquisition of Teka Illumination, a world-class manufacturer of solid copper, bronze, brass, and stainless steel products that add a powerful design statement to any project. Teka Illumination has just launched its Projector Series Path light, a product that incorporates the patented Toroidal Lens. With a Teka luminaire, using a 35-watt halogen lamp, the horizontal foot-candles will reach 16 feet—four times greater than standard lumen power—resulting in fewer fixtures to illuminate the same area.

In addition, B-K Lighting continues to add to its rapidly growing line of solid-state lighting products. "This year has witnessed the emergence of solid-state lighting as a viable option for many outdoor tasks," says Naus. B-K Lighting incorporates solid-state sources into more than 70 products, including floodlights, step and path lights, and recessed down lights.

For more information about B-K Lighting, its products and representatives visit our website at www.bklighting.com or call 559-438-5800 (7AM-5PM, PST).

Circle no. 1
FORM MEETS FUNCTION

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Circle no. 23 or www.archlighting.com/productinfo
Cooper Lighting

"Our goal is to develop innovative solutions that relate to today's needs," says Tim O'Brien, Cooper Lighting's vice president of marketing and product development. "The world of lighting is changing at an ever increasing pace. As energy costs continue their upward climb, and the Energy Policy Act has forever changed the way that buildings are designed, it's important that we continue to find better solutions to the challenges that we confront every day."

As one of the leading lighting fixture manufacturers, Cooper Lighting certainly has the expertise and resources to do just that. The company's market-specific teams in the fields of Healthcare, Automotive, Industrial, Commercial, Education, Hospitality, Retail, Utility, Residential and Energy provide a wide array of energy-efficient solutions to help meet today's challenges.

Headquartered in Peachtree City, Georgia, Cooper Lighting has a heritage of strong brand identity—Halo celebrated its 50th anniversary this year—and a reputation as a provider of high-quality, unique products. As North America's leading manufacturer of specification-grade luminaires, and the pioneer of track and recessed lighting, Cooper Lighting offers the most extensive breadth of products in the industry.

Cooper Lighting's brands include Halo, Metalux, Lumark, Sure-Lites, McGraw-Edison, Fail-Safe, Iris, Neo-ray, Corelite, Shaper, Lumière, MWS, DLS, Invue, RSA, Streetworks and Ametrix.

In addition to introducing numerous new award-winning products this past year—the company has been recognized over the last four years by the IESNA Progress Report Committee with a record-setting 72 acceptances for producing products that have advanced the art and science of lighting—Cooper Lighting boosts their dedication to lighting education. Now in its sixteenth year, The SOURCE, a 35,000 square-foot, state-of-the-art education center offering CEU credited courses and services, has contributed to the education of over 86,000 students and professionals.

For more information call 770-486-4800 or visit www.cooperlighting.com.

Photos: The Boston Convention Exposition Center, Boston, Mass. (Lighting Design: Lam Partners, Cambridge, Mass.); (top right) Halo H3 Square Trims; (bottom right) the Neo-Ray Symbio Recessed Series

Circle no. 2
Cooper Lighting has integrated the latest LED technology into its newest product introductions for egress and wayfinding applications, where LED's offer viable and efficient alternatives to existing technologies.

From Lumière's petite 5" and 7" architectural step lights to Fail-Safe's 12" Harmony Vandal Resistant Series and Invue's architectural low-level luminaires, Cooper Lighting's products offer exceptional high-quality architectural form, various fascia styles, sizes and colors, as well as the LED benefits of instant on/off capabilities, long-life and low maintenance for both indoor and outdoor applications.

Turn to Cooper Lighting to continue to bring relevant and exciting products to the marketplace.

www.cooperlighting.com
Day-Brite Lighting

Headquartered in Tupelo, MS, Day-Brite Lighting manufactures innovative high quality fluorescent, HID, and emergency lighting systems. Day-Brite takes pride in its wide range of award winning products.

The new Attune product line combines all of the components of great lighting into one family. Aesthetics, performance, visual comfort, flexibility, and ease of maintenance are each incorporated into the design. With its multiple shielding options, photometric distributions, and choice of ceiling types, the Attune is a very comprehensive and versatile family designed to meet the needs of any application.

The Fluorescent product line is not the only one in which Day-Brite continues to thrive. The Indoor HID product family has expanded the Expressions line with the release of the Expressions DH series. Available with fluorescent or HID light sources and several reflector options, the Expressions DH line has the versatility to provide just the right look for any environment. Expressions is one of the largest families of decorative HID luminaries in the market today.

Also, Day-Brite's Outdoor HID line, NiteBrites, launched an exclusive line of indoor/outdoor decorative domes this year. The Barista series is both architecturally and ruggedly designed to provide the style and function required by today's designers. In addition Day-Brite now offers an extensive Vandal Resistant product line, and its mcPhilben Emergency product line continues to grow every year.

With the grand opening of its new 5,000 square foot state-of-the-art training facility scheduled for the second quarter, 2007 promises to be another groundbreaking year for Day-Brite Lighting. Other plans include the launches of a dedicated softback for the popular Arioso family and a new Solutions condensed catalog by Fall of '07.

For more information call 662-842-7212 or www.daybritelighting.com.

Circle no. 3
Attune is designed to unify your lighting with your lifestyle. Each person and space within a building has different lighting demands, from aesthetic preferences to photometric requirements to installation details. Your lighting system must be a FAMILY of products "tuneable" enough to meet these needs while unifying an overall theme and providing comfortable, highly efficient illumination.
Delta Light brings European styling to the US market through its broad offering of contemporary luminaries designed to be seen as architectural elements rather than purely lighting fixtures. With a worldwide distribution network and short lead times, Delta Light is renowned for its high design, minimalist, contemporary fixtures that incorporate quality aluminum base products, making them one of the fastest growing in their lighting class.

New Products Combine Style With Function
Delta Light has introduced more than fifty new products that blend the company's trademark European styling with high-performance Power LED technology. Available in either surface or recessed fixtures for both interior and exterior applications, including task, accent, miniature down-light, orientation, wall sconce, in-ground, linear and landscape luminaries, Power LEDs offer many advantages over conventional LED sources. Power LEDs deliver output close to halogen sources, have an extremely long running life (50,000+ hours), deliver greater energy-efficiency (with more than 20 lumens per watt), generate no heat and are available in a smaller size which provides greater installation flexibility.

To meet the growing architectural demand for trimless luminaries, Delta Light now offers several hundred new trimless fixtures for recessed, wall, floor and ceiling applications. Trimless fixtures maintain all the efficiency gained by their trimmed cousins but become part of the architecture instead of a distracting, additional, element that detracts from the design intent.

Delta Light provides architects and lighting designers with a full range of products that add contemporary style and deliver unparalleled performance to each project they undertake—inside or out. See for yourself why Delta Light ranks as an ACE.al Award winner among your colleagues nationwide.

For more information on these and other Delta Light products or to receive a copy of the Lighting Bible 6—a 600+-page complete product catalog—visit www.deltalight.com.

Circle no. 7
Kim Lighting has been creating innovative outdoor lighting solutions since 1933. From the beginning, the company has taken a lighting design perspective toward product development. Today, this approach remains intact and is the core of the company’s focus. New products are developed to solve lighting needs and to provide efficient and attractive solutions.

Kim’s approach to design has evolved into a special “Theory of Relativity.” This defines the relationship of luminaires to the position they occupy within the architectural site. Area lighting is developed with an entirely different set of design and performance criteria than pedestrian-level luminaries, which also differ from the criteria used on wall-mounted products. This approach addresses performance requirements, physical scale, detailing, and the perspective from which products are viewed when installed in real world environments. The process also recognizes that outdoor area lighting is seen most often when it is not functional—during the day. This daylight visibility means Kim products must be aesthetically pleasing when they are not in use, and perform well when the sun goes down. This sensitivity to product design, placement, and function is a Kim hallmark. The integration of design, from site/area lighting to mounting intimately with architectural surfaces, produces a unification that displays visual logic to site occupants.

For illuminating building surfaces and site features, landscape accents and architectural floodlights offer a wide range of options to adapt to virtually any need. Each product provides a distinct function, while utilizing shared design detailing, scaled to reflect specific locations in the site environment. Every Kim product is built for the harsh outdoor environment, and supervised through a quality program that is audited to ISO-9001:2000 standards. While several others have copied Kim product appearances, they fail to capture the attention to detail, performance, quality, and spirit that comes from being the originator of ideas.

For more information call 626-968-5666 or visit www.kimlighting.com.

Photos: The Era® Collection of poles, arms, and heritage style luminaires (left), the versatile up/down Wall Commander™ luminaire with optional color ray (upper right), and the LTV71 18W LED Lightvault® (lower right).
Lightolier

Industry Insight

For over 100 years, Lightolier has provided creative lighting solutions for commercial, institutional, and residential lighting needs. Founded in the early days of electrical lighting, Lightolier pioneered significant innovations in the field, including track lighting, recessed downlighting and high-performance fluorescent. Recognized today as a leader in lighting that is both functional and attractive, Lightolier now offers the most complete line of interior architectural luminaires and lighting controls of any single manufacturer in the industry.

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Cutting-edge manufacturing, advanced technology and “new media” Web initiatives characterize Lightolier’s most recent innovations. Among them, Designing with Light redefines how architects and interior designers obtain and manage lighting fixture information and enhances control over project specifications. Designing with Light includes a personalized online project management site that allows users to select and store the most appropriate lighting fixtures for a given application while providing key information such as budget pricing, lead times, and technical specifications, as well as the ability to build and export fixture schedules.

Energy efficiency and sustainability are fundamental guiding principles for Lightolier’s research and development efforts. The company’s advancements in LEDs, fluorescent, HID luminaires and lighting controls have changed the way lighting impacts your environment—as well as your bottom line. In 2006, Lightolier launched a complete line of Task Lighting, including adjustable arm task lights, undercabinet lighting and portable ambient lighting fixtures that feature clean geometric styling and smooth, flexible adjustability. Due to energy code guidelines that significantly reduce the amount of ambient light in offices, expanded lighting options are a necessity. Integrating task lighting into a space can significantly increase comfort and productivity as well as reduce eyestrain and fatigue—all while saving money for building managers.

To learn more about Lightolier’s products, services, and what makes Lightolier one of the most specified companies in the market, visit www.lightolier.com or call 508-679-8131.

Circle no. 5
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www.kimlighting.com

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Consider how much time you spend researching fixtures, estimating projects, collecting submittal data and keeping it organized. Designingwithlight.com is a revolutionary approach to managing your lighting projects. Quickly find the right products for your application; create, store and export fixture schedules; get budgetary pricing and lead-times – all in a personalized project workspace. Start your next project at DesigningwithLight.com today.
Industry Insight

Lutron Electronics Co., Inc. is the world's leading designer and manufacturer of lighting controls, architectural lighting control systems and shading solutions for residential, commercial and institutional applications.

EcoSystem from Lutron is a revolutionary fluorescent lighting control system that integrates personal control, daylight sensing and occupancy sensing with a network of digitally addressable dimming ballasts. The easy-to-install and easy-to-use system cuts the energy usage of a building dramatically and gives users an unprecedented level of control over the lighting within a space.

From a single fixture, to an entire office, to a full campus of buildings, Lutron's EcoSystem products bring substantial energy savings. EcoSystem facilitates increased productivity and provides a green solution for complying with building codes and guidelines. With EcoSystem, fluorescent lighting control is now easy to design, easy to install and easy to maintain.

The infinitely reconfigurable EcoSystem ballasts and bus supplies remember preset programming, so units can be replaced and don't need to be readdressed.

The sensors and controls are free from interfaces and power packs, providing a convenient solution for managing the lighting needs of commercial facilities.

EcoSystem In Action

To revitalize its inefficient 25-year-old lighting system, Georgian College installed EcoSystem with virtually no disruption to daily activities. The new lighting system is flexible enough to adapt to the school's evolving needs, and is much more economical. Most importantly, it provides improved lighting for students, faculty and staff. Using the network of EcoSystem ballasts, daylight sensors, occupancy sensors and in-wall controls, the school reduced the number of lighting fixtures on campus by 30 percent. It now manages natural and electric light effectively, and is saving over 70 percent in energy costs.

For more information on Lutron's full line of lighting products call 1-866-898-3615 or visit www.ecosystemlightcontrol.com.

Circle no. 6

Photo Caption: Georgian College installed EcoSystem in seven campus buildings, which reduced the number of fixtures by 30 percent and saved the school $137,000 on electricity.
Lutron® EcoSystem™ light control solution

The only fluorescent light control solution that makes it easy to save energy, and gives users complete control of their light in a constantly changing commercial building.

"EcoSystem from Lutron was the only solution that met all the strategic lighting requirements of the Georgian College innovation project."

Jerry Mobilio, Certified Electrical Technologist, Partner
e-Lumen International Inc., Ontario, Canada

What e-Lumen says about EcoSystem:

**Maximum energy savings**
“Daylight harvesting, occupancy sensing and manual control at any time, any location.”

**Flexibility**
“We can add, remove or reuse components without major rewiring as requirements change.”

**Easy to design and install**
“Design, specification and installation are so simple.”

**Every component from one manufacturer**
“Just one point of contact so there is no need to engineer solutions from multiple vendors.”

The technology behind it:

- Every lighting fixture is a connection point for sensors and controls.
- Sensors and controls connect to fixture with low-voltage wires and a PDA-style programmer assigns them to any fixture(s).
- No interfaces, power packs, or power rewiring.
- Class 1 or Class 2 control wiring in any order.
- No need for separate controllers or equipment from multiple manufacturers.

Learn more at [www.ecosystemlightcontrol.com](http://www.ecosystemlightcontrol.com).
For immediate consultation, call 1.866.898.3615.

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**Cree**

Cree's XLamp 7090 LEDs deliver the industry's highest performance power LEDs in a rugged, reflow-solderable surface mount package optimized for design flexibility, ease of use, and thermal efficiency. Cree's new XLamp LED produces luminous flux of up to 95 lumens or 85 lumens per watt at 350mA, and up to 160 lumens at 700mA. To discover the future of LED lighting, visit www.cree.com/xlamp, or call 800.533.2583. CIRCLE 300

**Edison Price**

LED is here: 4- and 5-inch square recessed downlights and wallwashers, designed to Edison Price standards of optical precision, durability and finish. Powered by an integral 25W solid-state light engine delivering 520 lumens of 3000K white light for over 50,000 hours, with no UV and no projected heat. Visit www.epl.com, keyword LED, for spec sheets. CIRCLE 301

**Estiluz**

The Luck Collection begins a new direction for Estiluz, pioneering lighting design for the 21st century. This versatile new collection of pendants from re-nowned designer Ximo Roca make an architectural statement with a lighting component, while providing vertical illumination. The LUCK T-2443 pendant uses as an accessory element a transparent glass ball with an elegant opening in diagonal. 100W. Finishes: Nickel, chrome, and white. CIRCLE 302
**MechoShade**

MechoShade Systems has set a new industry standard for high quality and eco-friendly technology. The Mecho/5 with EcoVeil is the first complete solar shading system to receive "Cradle-to-Cradle" Silver Certification from MBDC. EcoVeil is a revolutionary eco-effective solar shade-cloth that can be reclaimed and recycled and has a 25 year non-depreciative warranty. For more information on the Mecho/5 with EcoVeil visit us at Ecobuild Federal at booth #401 or online at www.mechoshade.com. **CIRCLE 303**

**Times Square**

ES16 39W Metal Halide BriteSpot ES16
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- 120 and 277-volt available
- GX10 Twist and Lock base
- Energy efficient
- Long lamp life (6000 hrs.)
- 3000K color temperature
- Electronic ballast
- Accepts numerous mounting options and accessories
- Measures: 5.75"x7.25"x5"
- Custom colors available

**NoUVIR**

NoUVIR's fiber optic Experimental Kit includes a high-power projector, a ready-to-use bundle of 32 fibers (6-, 10- and 20-foot-long), 30 luminaires (pinspots, spots, eyeballs, and floods), and 5 tracks. Plan and clearly demonstrate any fiber optic lighting design with this specially-priced X-KIT. Demonstrate expertise. Gain clients. Show the best. **CIRCLE 304**

**Venture**

Venture Uni-Form Natural White pulse-start metal halide lamp and ballast systems produce wide, full-spectrum lighting over indoor or outdoor areas. They mimic the high color rendition of natural sunlight, enhancing any commercial, industrial or institutional space, grounds or roadway. E-mail: venture@adlt.com. Visit: www.venturelighting.com. **CIRCLE 307**

**Tech Lighting**

Two-Circuit T~trak from Tech Lighting offers the smallest profile of any line-voltage two-circuit system. Each circuit has its own dedicated neutral for two separately switchable 20 amp circuits. Available with a wide selection of architectural heads and pendants, and in both satin nickel and white finishes. Control, aesthetics, flexibility and performance all from one system. www.techlighting.com or 800.522.5315 for more. **CIRCLE 305**

**VistaWall**

Moduline Window Systems now offers both the Terra Swing and Terra Slide Series of terrace and patio doors for office and condominium use. While providing fashionable openings to high-rise and garden views, these doors also offer a high-performance security solution, energy-efficiency, and protection against high winds. **CIRCLE 308**
| Issue Date for Circulation Data Below | July/August 2006 |

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(b) Paid and/or Requested Circulation | 26,856 | 26,444 |
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(g) Total Distribution | 26,951 | 26,786 |
  (Sum of 15c and 15f) | 26,951 | 26,786 |
(h) Copies not Distributed | 354 | 419 |
(i) Total (Sum of 15g and 15h) | 26,856 | 26,777 |
(j) Percent Paid and/or Requested Circulation | 99.77% | 97.57% |

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Global Practice

CULTURAL UNDERSTANDING AND COMMUNICATION

BRIAN STACY, SENIOR LIGHTING DESIGNER | ARUP LIGHTING

Being able to get a Starbucks coffee when I get off a plane in Kuwait, and knowing that my drawings got there via FTP is only a small part of global working. The moment that we neglect to try and understand the nuances of the widely different markets around the world, we set ourselves up for failure. It seems that established markets have their specific ways to understand, while developing markets may or may not follow established methods. Like with any business, figure out how everyone involved is trying to make his or her money, and you can see a clearer path through the overall process. And make sure you know the local customs for greetings.

JEFF MILLER, DIRECTOR | PIVOTAL LIGHTING DESIGN

It's an illusion that it is "just as easy" to work far away as it is locally. Work goes beyond the production and transmittal of electronic documents. The creation of a lighting design depends on a real knowing of the client, along with a close integration of the design and construction team. We can process dots all day, but that does not lead to real understanding. While we can now share information quite readily anywhere, anytime, the digital revolution often is an obstacle to real communication between clients, consultants, and the user population. We can share information at a distance, but not much of ourselves. Without the willingness to engage on a one-on-one basis, your design is doomed, and your business could be at risk. To be successful working abroad, the lighting designer has to make a commitment to learning and listening, on every level. Talking through e-mail and FTP sites just doesn't compare with the real thing.

LIGHT AS A UNIVERSAL LANGUAGE

KEN FLOWER, LIGHTING DESIGNER | DREAMSCAPES

The key thing that true globalization offers is the potential for cross-cultural harmony. As a designer, and in particular with reference to architectural projects, I believe my role is to offer the project a different (or a series of different) perspectives based on how architectural surfaces can become lighting surfaces, and how those surfaces can emotionally enter a conversation with the occupants. In other words, my role is to offer a sort of paradigm shift whereby spatial environments gain from the input of other disciplines. The whole often becomes greater than the sum of the parts, and when it does, it provides a wonderful serendipity. It's all too easy to be insular. Likewise with different cultures. By encompassing all that global and cultural history offers, we have the opportunity to provide new and exciting environments that can cross the boundaries that so often separate us. I believe this is the way of the future.

WOLFGANG EGGER, PRESIDENT | ZUIMOTBEL LIGHTING USA

American designers have always worked on projects in other parts of the world. The process of managing these projects has gotten easier thanks to the internet, but creating a global design specification or finding suppliers who can provide the right solution halfway across the world can still be a challenge. It is important to find suppliers who can deliver a consistent global solution, or who have "feet on the ground" where you need them. We are increasingly contacted by corporate clients who need both our global design and production capability, as well as our regional knowledge.

JONATHAN SPEIRS, PRINCIPAL | SPEIRS AND MAJOR ASSOCIATES

Yes, it is easy to work around the world, and our many international clients certainly seem to be more than happy to ship myself and my colleagues halfway around the world to contribute a lighting vision to their projects. Obvously, it can be argued that the world is not getting smaller, it is getting larger, because it is easier to get to more places. However, I believe that with significant concerns growing over global warming, flying around the world will become a major issue. We have to develop more efficient methods of working at long distances—video conferencing should be much better and something that occurs as easily as turning to a colleague in your studio and chatting about an idea or a technical detail. Communication is key, whatever the project type or destination.

Depending on where projects are, the attitude to specification protection varies. In the United Kingdom we are beginning to see "specification creep," although it doesn't seem to be a major issue as yet. As for the Middle East, every specification on every project has alternates submitted by agencies to swap their products for the ones specified. We have found that the best way to try and deal with this is to ensure that every "substitution" offered has a warranty letter from the managing director of the manufacturing company guaranteeing that their product is "fit for purpose in the specified location"—heat, saline environment, light distribution, lamp life expectation in their housing, etc.—with full production of lighting calculations to demonstrate that their product performs EXACTLY the same as the product they are aiming to substitute, along with a full working sample for proper comparison with the official specified luminaire. This puts the onus on the agencies to obtain complete project architectural details, finishes, and drawings from the electrical contractor, and obtain the alternative manufacturer's underwriting of their product for that specific project.

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The versatility of library lighting from elliptipar

Elliptipar's bi-asymmetric 30-30 stack light evenly lights shelves, top to bottom, on both sides of aisles 36"-48" wide. New task ambient luminaires to light study carrels and library tables provide both downlight and uplight from a single source. Style 3502 projects an even wash of light down shelves from heights of 7' or more.

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New Citizen White LEDs deliver more light with less power!

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New CL-652S Orion LEDs offer 851m (70lm/watt)
New CL-L100 ultra-flat, 2451m LEDs (70lm/watt)

The Orion offers trend-setting brightness with unheard of efficiency. Luminous Flux: cool white is 851m (70lm/watt). Warm white model is 571m (47lm/watt). Draws 1.2 watts. Configure as 8 junctions in series for just 44mA or in parallel for 350mA. 14x14mm.

The CL-L100 packs a super luminance flux of 2451m with high efficiency. Space-saving thin package releases flat, well dispersed illumination. Power consumption is 3.5 watts. 50x7mm.

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