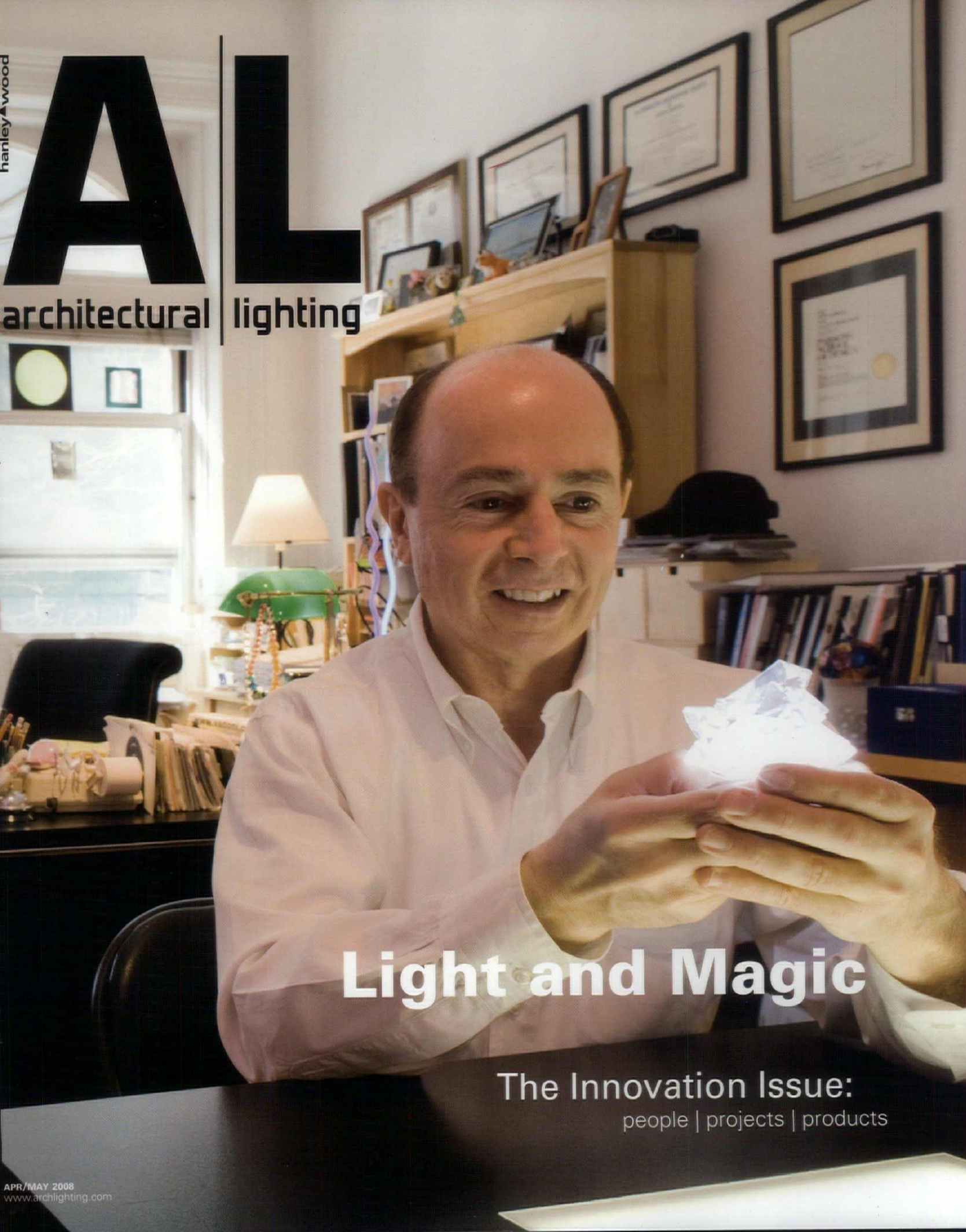


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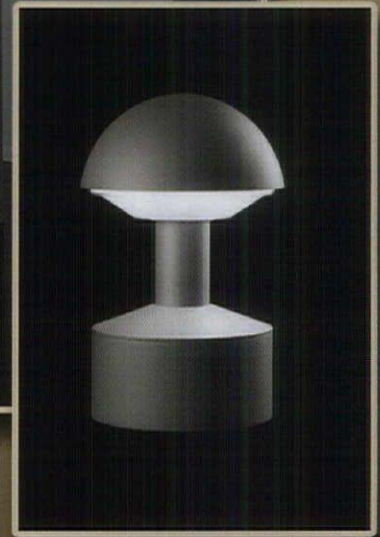
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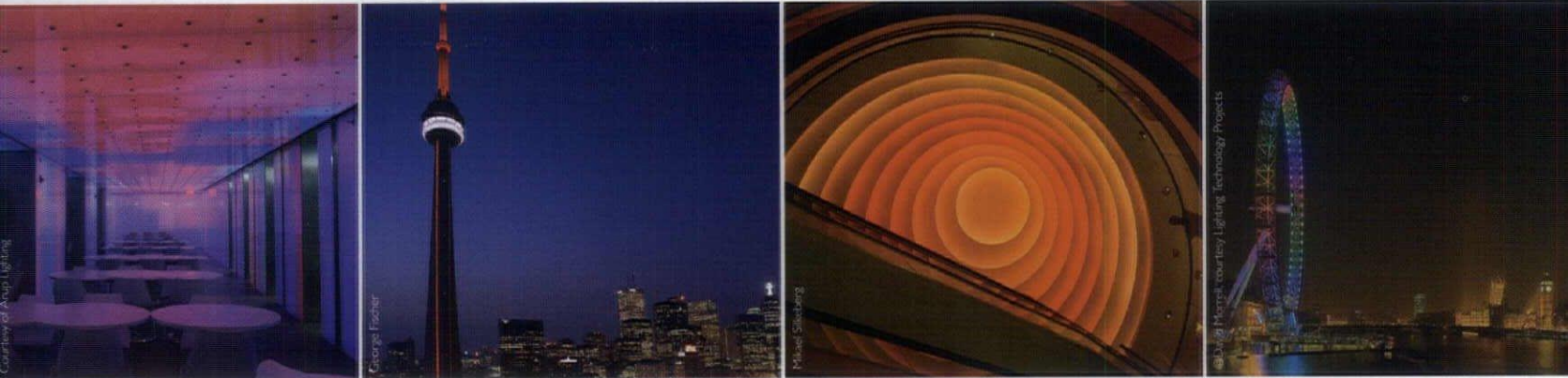
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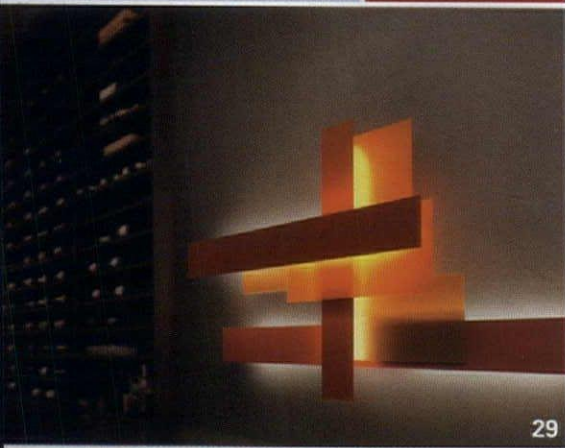
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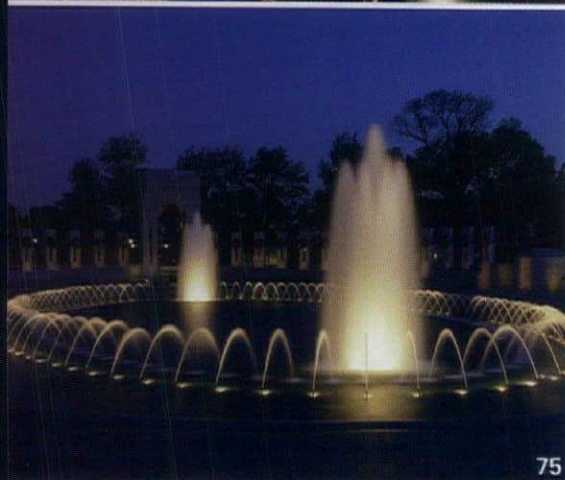




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**Cover:** Paul Gregory, principal of New York City-based Focus Lighting, works in his design studio.  
PHOTOGRAPHER MATT GREENSLADE

**This page:** Vicente García Jiménez's modular light fixture *Fields*; the subway entrance to the new Armani flagship store in Tokyo's Ginza district; the National World War II Memorial, Washington, D.C.



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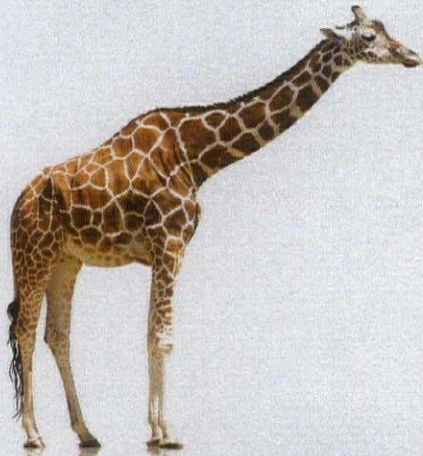


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## Professional Sustainability

**IT IS AN EXTRAORDINARY TIME TO** be in the lighting design profession. There is a

great awareness of the role lighting plays in architectural projects and the value of the lighting designer's input. There are multiple new technologies and materials at the lighting designer's disposal offering a whole new set of design tools, and sustainable issues, which certainly offer their own share of challenges, nonetheless have raised the bar in demanding quality design.

But yet, there is also uncertainty. Our economy will not make up its mind whether or not it is in a recession. The U.S. is experiencing a housing and mortgage crisis the ramifications of which we are only just beginning to fully understand. And while the residential sector of the building and construction industry takes a plunge, the still-stable commercial sector is potentially at risk.

And so the paradox, given this frightful economic forecast, is that if you speak with any lighting designer they will tell you they have never been busier. In fact some firms are so busy they are having to turn down work. But dig a little deeper and you will find that these staffing issues are indicative of a far more serious problem—the shortage of qualified lighting design professionals in the market place.

One of the causes contributing to this shortage is that there are only so many new graduates a year—about 50—from all of the U.S. lighting programs combined who enter the workforce. Factor in programs outside the U.S. and maybe that number reaches 100.

Another factor in the equation is the shortage of mid-career professionals—people with seven to 10 years experience who are ready to take on major project responsibilities. In many ways these individuals are the real anchors across all the design disciplines, as they provide that critical link between established principals and new graduates. Often, this is the group that, when an economic downturn does strike, finds it is still early enough in their careers to move to other options. The impact is that a generation of designers is removed from the cycle of continuity.

So what can be done? Where does the responsibility lie in ensuring that the lighting design profession will sustain itself—not just through the

present conditions but in the long term? Does it lie with the academy? The practitioner? The manufacturer? Ultimately the responsibility does not sit with one group; rather it is the collective responsibility of the entire lighting profession.

Here is a potential solution. Putting aside for a moment the logistical difficulties that often present themselves between different university and college administrative systems, why not create a national exchange program between architecture and lighting-design programs that would offer architectural students an intensive semester of lighting design study? Schools that might already have a larger offering of departments and programs could go so far as to require cross registration in at least one lighting class. Make that one lighting class a requirement, not an elective. Then go beyond architecture; look to industrial design and interior design programs as well.

Take it a step further and one could argue that an introduction to lighting could even occur earlier—at the grade school level. There are several programs that introduce architecture and design to elementary school children and high school students—the Learning By Design and ACE programs come to mind. Why not advocate for a lighting designer to be part of these teams? Is it too naïve to think that if more interest in lighting was generated earlier on, this could instigate the need for more educational lighting opportunities and lighting design programs at higher levels of education, which would in turn produce a larger pool of graduates and by extension practitioners? The need for a more recognized acceptance of an interdisciplinary approach rather than compartmentalizing the design disciplines might be a first step.

ELIZABETH DONOFF  
EDITOR

### JUNE 2008 EXCHANGE QUESTION

What can be done to address the shortage of lighting design professionals in the workplace? How will the lighting design profession innovate and sustain itself for the future? To be considered for print, responses are requested by April 28, 2008.

SEND RESPONSES TO [EDONOFF@HANLEYWOOD.COM](mailto:EDONOFF@HANLEYWOOD.COM)

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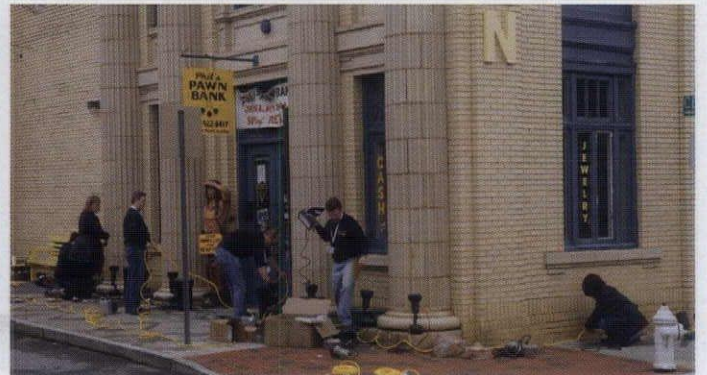
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# FESTIVAL OF LIGHTS



The architectural details of 968 N. Main Street in Olde Town Conyers, Georgia, come to life part of Acuity Brands' Festival of Lights (top). More than 90 fixtures were used to illuminate the façades and stained-glass windows of the Conyers Presbyterian Church (above, left). One of the teams installing fixtures during setup (above, right).

**OLDE TOWN CONYERS, GEORGIA, WAS TRANSFORMED FOR TWO** nights in early March as part of the annual Festival of Lights sponsored by Conyers, Georgia-based Acuity Brands Lighting in collaboration with co-sponsor Osram Sylvania. Twelve teams composed of lighting designers from across the United States, lighting manufacturer representatives, and four students from the master's lighting program at Parsons the New School for Design in New York City were charged with creating lighting schemes for 12 sites in the historic downtown area. With only two days to design, plan, and install the lighting equipment themselves, with assis-

tance from a team of local electricians, the groups had a monumental task.

A testament to the design creativity and ingenuity of the teams, the limited budgets—\$200 for miscellaneous supplies—and offering of equipment (team members had to negotiate with one another for their desired fixtures) did not deter the designers from creating successful and engaging illumination schemes. The lighting designs were as varied as the sites themselves, from building façades to landscapes to an old steam locomotive.

Modeled after the 150-year-old Fête des Lumières in Lyon, France, the Conyers

festival seeks to provide a creative experience for the designers where their lighting skills are not tested by the realities of everyday practice—clients, budgets, and energy codes. As Bill Peel, director of Acuity's Jim H. McClung Lighting Center says, "It's about design freedom and eliminating the limitations."

The result was 12 projects that infused Olde Town Conyers with vibrancy. An intense and rewarding experience for the lighting teams, it was equally so for the local residents who benefit from watching their town transformed into a luminous expression of creativity. **ELIZABETH DONOFF**

# IALD TAKES A STAND ON INCANDESCENT BAN

IN MARCH 2008, THE INTERNATIONAL ASSOCIATION OF LIGHTING DESIGNERS (IALD) RELEASED a position statement titled "Banning the Incandescent Bulb" about the energy legislation passed in December 2007 (See "Legislating Lighting," *Architectural Lighting*, Jan/Feb 2008, p. 18) that will phase out the use of general service incandescent and halogen lamps. The IALD statement lists several points that the

lighting goals; 5. ensuring that replacement light sources are cost effective; and 6. stressing that banning inefficient light sources will reduce lighting energy use, but more effective use of daylight and control technologies also will be needed.

Kathy Abernathy, chair of the IALD's Energy and Sustainability Committee, says lately IALD members have come together to create one voice in regard to energy efficiency. "We felt we needed to comment on this," Abernathy says about the energy legislation. "We need to make position statements on what is going on out there so the public knows we're here, and we're ready to play." For the past six months, she notes that the IALD has been working with the U.S. Department of Energy (DOE) on various efforts, such as its Retailer Energy Alliance program, as well as supplying feedback on how IALD members are using solid-state lighting.

The statement release was a bit delayed after the passing of the energy legislation, Abernathy admits, but it has gotten people talking about an important issue that the IALD as a whole needed to address. "It's important for the IALD to get the message out that not only are IALD lighting designers out there, but they can make energy-efficient buildings with good lighting," Abernathy says. She adds that today, design and energy efficiency go hand in hand, resulting in lighting designers having "the expertise to not only give you a great lighting design, but to make sure it's energy efficient and sustainable." **JENNIFER LASH**

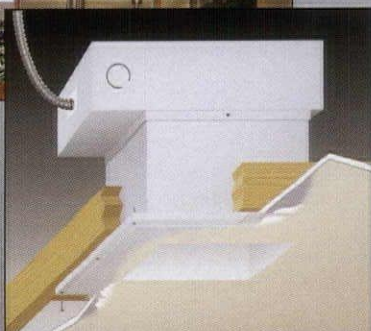
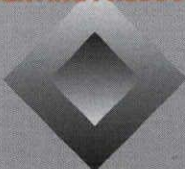
INTERNATIONAL ASSOCIATION OF LIGHTING DESIGNERS **IALD**

organization feels need to be addressed regarding the lamp phase outs. These include: 1. a grace period to allow for newer technologies to be developed that can replace incandescent in all applications; 2. realizing that some existing energy codes already effectively have banned inefficient incandescent lamps from new commercial installations; 3. not banning the lamps before the environmental impact and carbon footprint of each replacement technology is understood; 4. allowing for a continuance of incandescent technology when products cannot achieve appropriate

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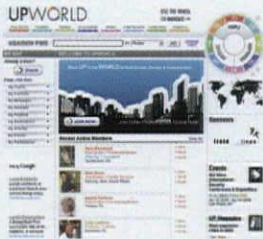
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## NETWORKING WITH OTHER INDUSTRY

professionals is becoming easier to do as new websites pop up almost every day. While social networking sites such as LinkedIn and Facebook keep people connected, UPworld is the first online community geared toward individuals involved in the architecture, construction, engineering, and real estate industries. Since its launch in April 2007, UPworld has grown in size to more than 2,000 members in more than 40 countries, which demonstrates that a website offering design and building industry professionals a web presence and the ability to network with other colleagues is in demand.

"The idea simply came from a need we saw in our own practices to tap into new

resources and new expertise to be able to grow one's business," explains Jennifer Magee, an architect by training and co-founder of UPworld along with urban designer and architect Oisin Clancy. Magee and Clancy both have their own practices based in New York City. "Initially, we tapped our own networks, people we knew and had worked with," Magee says about how she and Clancy began to recruit members for the site. "People were receptive to the new opportunities out there to meet like-minded people."

The greatest benefit of the site, which is free to join, is that it gives users a web presence, Magee says. If someone does not have their own website, they can join UPworld and create a profile, where they also can upload images from their portfolio. A group feature will be added within the

next six months that will let companies join the site, with individual employees able to place their profiles under that company umbrella. Group members also will be able to talk to each other via the website.

Focusing on a particular industry is one of the benefits of UPworld. Magee says she had no trouble meeting other architects before launching the website, but "you don't tend to get jobs from other architects if you are one yourself." Rather, work comes from those in the various industries that UPworld targets. "There's not an organization that has brought all those industries together," Magee says. "UPworld allows a diverse group of people who share common interests to pass opportunities around and meet people who they might not normally have met in traditional circles." ■

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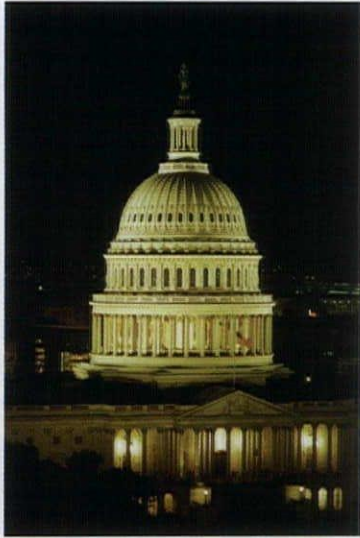
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**PHILIPS**

# U.S. CAPITOL DOME GOES GREEN



IN MARCH 2007, SPEAKER NANCY PELOSI (D-CALIF.) LAUNCHED the Green the Capitol Initiative in an effort to make Capitol Hill in Washington, D.C., more environmentally responsible and sustainable. Now, a year later, a plan is in motion as part of that program to update the exterior lighting scheme used to illuminate the Capitol Dome to improve efficiency, color, and maintenance.

"It's a real opportunity for us to address [sustainability] issues on an iconic building," says Helen Diemer, vice president of Philadelphia-based lighting design firm The Lighting Practice, which has been selected by the Office of the Chief Administrative Officer for this project. "I think our game plan is to take advantage of technologies currently on the market that will allow us to light the dome to its truest color with better efficiency and better maintenance characteristics."

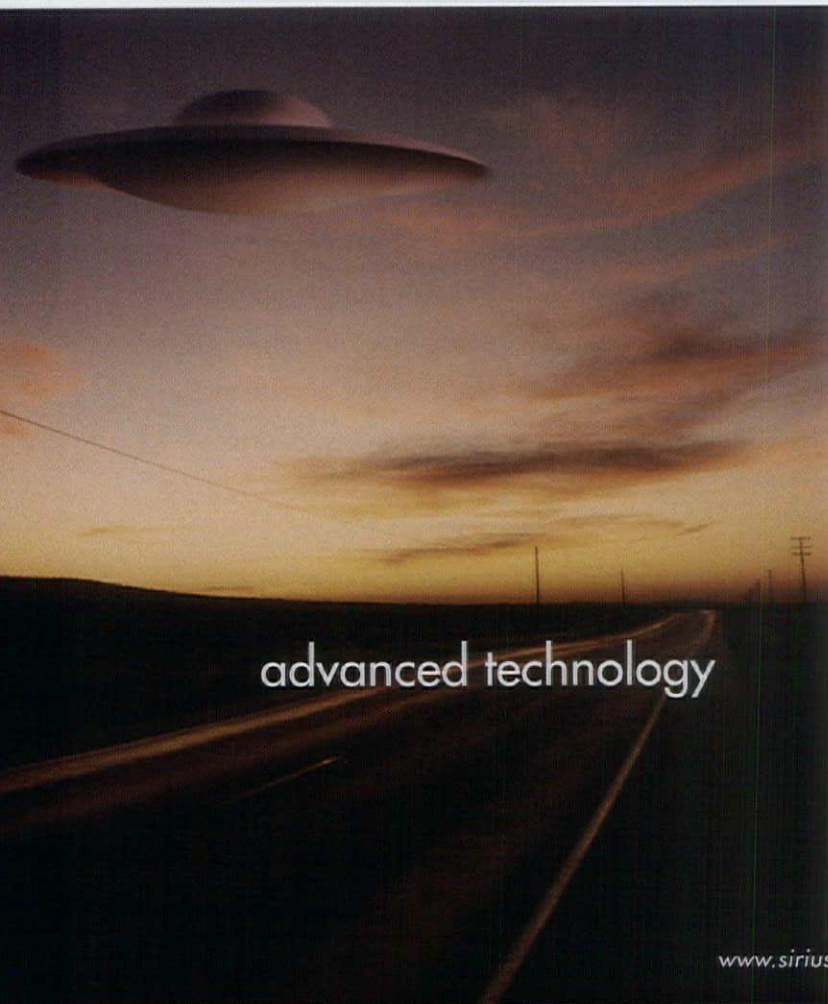
Currently, the Capitol's exterior lighting scheme consists of 38 fixtures housing 1000W metal halide lamps with a color temperature of 3900K, however, the lamps are filtered to bring the color temperature closer to 3200K. While one of the major goals of this

redesign effort is energy efficiency, it has not yet been decided what type of lamps will be used for the new lighting scheme as the design process currently is under way. Approval for the effort still has to be granted by House and Senate leadership, the Senate Rules and Administration Committee, and the House Transportation and Infrastructure Committee. If it gets the go-ahead, the project is expected to be completed in a six-month time frame.

The lighting redesign for the dome is split into three phases: lighting of the dome itself, lighting of the Statue of Freedom that sits atop the dome, and the lighting inside the dome that is illuminated when Congress is in session. While TLP is in charge of the lighting design and project management, it also is working with Philadelphia-based architectural firm VITETTA, which will handle preservation architecture and structural engineering, and the New York office of engineering firm Flack + Kurtz, which will be in charge of electrical engineering.

"I think one of the exciting aspects of the project for us is the opportunity to demonstrate to a lot of people that lighting and sustainability are linked, that lighting design can have a major impact on the sustainable question," Diemer explains. Upgrading the lighting used to illuminate the Capitol Dome is a highly visible project that TLP is hoping will bring more attention to the sustainability issue and influence other lighting design installations across the country to follow suit. JL

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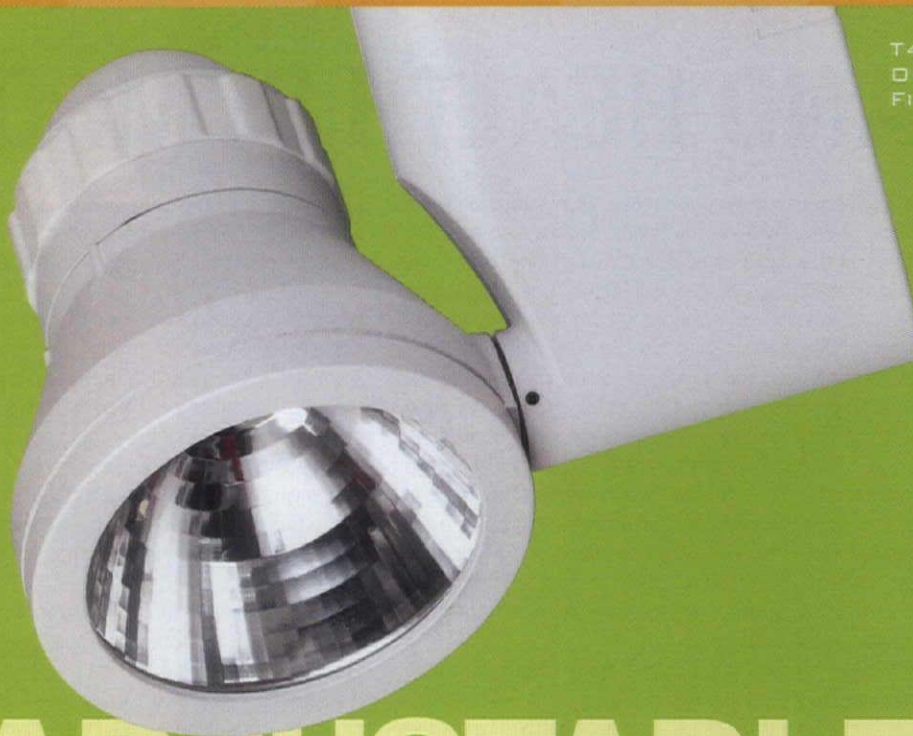
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# LIGHT AND HEALTH SYMPOSIUM

LIGHTING DESIGNERS, SCIENTISTS, RESEARCHERS, AND CALIFORNIA POLICYMAKERS GATHERED FOR two days—March 13-14, 2008—at the Pacific Energy Center in San Francisco to discuss the topic of light and health. The event was organized by Lisa Hescong, of the Fair Oaks, California-based Hescong Mahone Group, with support from the Pacific Gas and Electric Company, Southern California Edison, the California Lighting Technology Center, the California Energy Commission's Public Interest Energy Research and Daylighting Plus programs, and the Illuminating Engineering Society. Hescong stated in her opening remarks, "The topic is important and we can no longer ignore the implications of light and health related issues." As described in the conference agenda, California played host to this meeting because, "With the ever increasing goals for reducing energy use and climate change impacts in the state, the use of lighting in homes and workplaces is becoming an important focus of policy initiatives in California."

Of the symposium's many goals, one was to create an opportunity for interdisciplinary exchange regarding this increasingly important topic of light's impact on human health. Presenters included representatives from neurology, photobiology, biochemistry, ophthalmology and vision, immunology, psychology, gerontology, pediatrics, public health, energy policy, transportation

planning, building design, and lighting technology. Keynote speaker Dr. George Brainard of Thomas Jefferson University's Department of Neurology in Philadelphia, one of the leading researchers on the subject of light and health for the past 25 years, discussed the foundation research—photoreception for non-optical systems—that has moved light and health discussions from the realm of speculation to scientific findings. More than 20 speakers presented talks and participated in panel discussions examining the circadian cycle; the biological functions of sleep; circadian implications for gerontology, implications for building design, lighting practice, codes and energy policy, and utility programs; evidence-based design in hospitals; understanding human needs in buildings; as well as lighting as a public health issue.

More a means of gathering information than creating specific solutions, the symposium equipped attendees with an expanded resource base of knowledge and contacts beyond their respective disciplines. The first of many steps toward greater understanding of light's impact on health, there was consensus for the creation of more public-private partnerships to promote and fund research on this subject that is making its way to the forefront of health, design, and policy discussions. **ED**

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## THE INCANDESCENT LAMP: WHERE ARE OUR LEADERS?

### A LETTER TO THE EDITOR

Where are our leaders? Are we resigned to having the incandescent light banned? Who in the lighting design profession is going to take the initiative to halt this assault on our professional judgment? It is not going to be me.

During the "energy crisis" I went to Washington, D.C., every month, accompanied by many other professionals from the allied

building professions, to face and work with the government in its quest to create a code by which we all would have to practice. At first I objected fiercely to most of the government's notions of how to deal with lighting. In the debates that ensued, I made a contribution; it was the final version of the mathematical equation that was used to set the upper power limit for lighting. This was adopted and published in ASHRAE/IES 90.75. When the energy zealots took over the committee, and ASHRAE attempted to eliminate the IESNA from the standards writing process, I again stepped forward with mechanical engineer Larry Spielvogel and the IALD to block this usurpation of our practice. So today I ask, "Where are our leaders?"

The saga of what ensued immediately after that is too long to relate in this message. But I keep wondering, "Where are our leaders?" I see many articulate articles in publications such as *Architectural Lighting*, *LD+A*, *Mondo*, and *PLDA* extolling the need for the incandescent lamp. But who is carrying the message of those authors to our legislators? We are talking only to ourselves. We must wake up or we will be party to legislating that will prevent us from using our professional judgment in serving our clients' needs. We need to rally every group representing lighting design to confront their country's governing bodies and have them take a more reasonable stance.

An English publisher, Ernest Benn once said, "Politics is the art of looking for trouble, finding it whether it exists or not, diagnosing it incorrectly, and applying the wrong remedy." My view is that is precisely where we stand today. Who will be the leaders to get us out of this quandary? Where are our leaders?

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### CORRECTIONS

"Philadelphia," Jan/Feb 2008 should have credited Philadelphia-based lighting firm Grenald Waldron Associates as the first designers involved with the pedestrian lighting plan initiated by the Center City District that included 2,100 new pedestrian lights and the design of the streetlight. • In "Solar Strategies," March 2008, the full name of the lighting firm is Unicorp (lighting + design). • "Mastering Sidelighting, Part Two," March 2008 mislabeled figures 6 and 8. Fig. 6A, not 8A, should read "No Glass" and Fig. 6C, not 8C, should read "No Frame."

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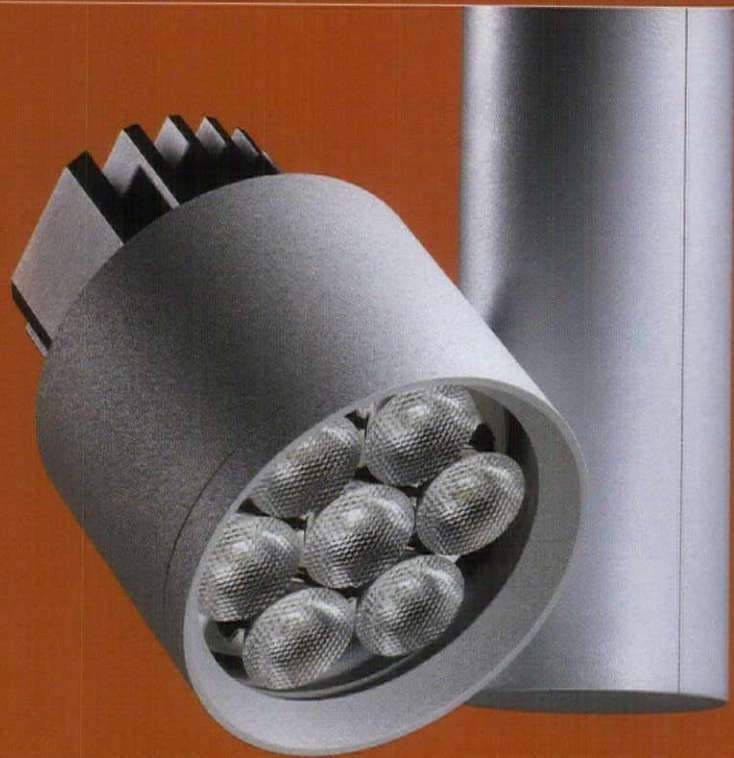
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# Vicente García Jiménez

SHAPING FORM THROUGH LIGHT



**SPANISH-BORN DESIGNER VICENTE GARCÍA JIMÉNEZ HAS STUDIED TEXTURES, COLORS, LIGHT, AND shadow throughout his life. After graduating from the University of Experimental Sciences in Castellon de la Plana, Spain, with a major in industrial design engineering, he moved to Barcelona to collaborate with furniture and lighting company Santa & Cole. Jiménez later moved to Udine, Italy, where he developed a new line of lighting fixtures for Italian manufacturer Karboxx. In 2005, he became art director for the Spanish lighting company Fambuena. Jiménez currently lives and works in Udine where he is creating lighting fixtures, furniture, and exhibition spaces.**

## CREATING EMOTION AND LIFE THROUGH ART

**MSC:** Your work reflects an interest in objects and forms that create life and emotions through lighting. What inspired or brought about this idea that light can create emotion and life, and how do you create it in your own pieces?

**VGJ:** If you think from the beginning of time, everything started with a big impact, a big light; it is all about life. Every single light creates an atmosphere. Form, lights, and shadows are channels that can make you feel emotion. Soft diffusing light, layers of light, or a simple candle can make you feel free,

relaxed, and comfortable. Of course, it also depends on the place and the people you are with and what you are doing at that moment.

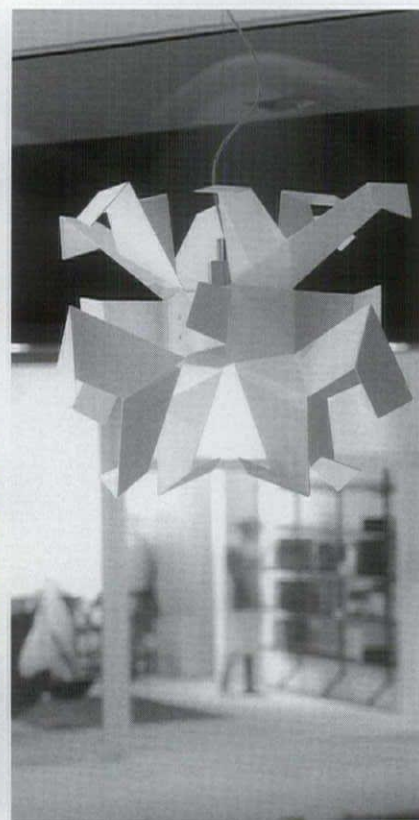
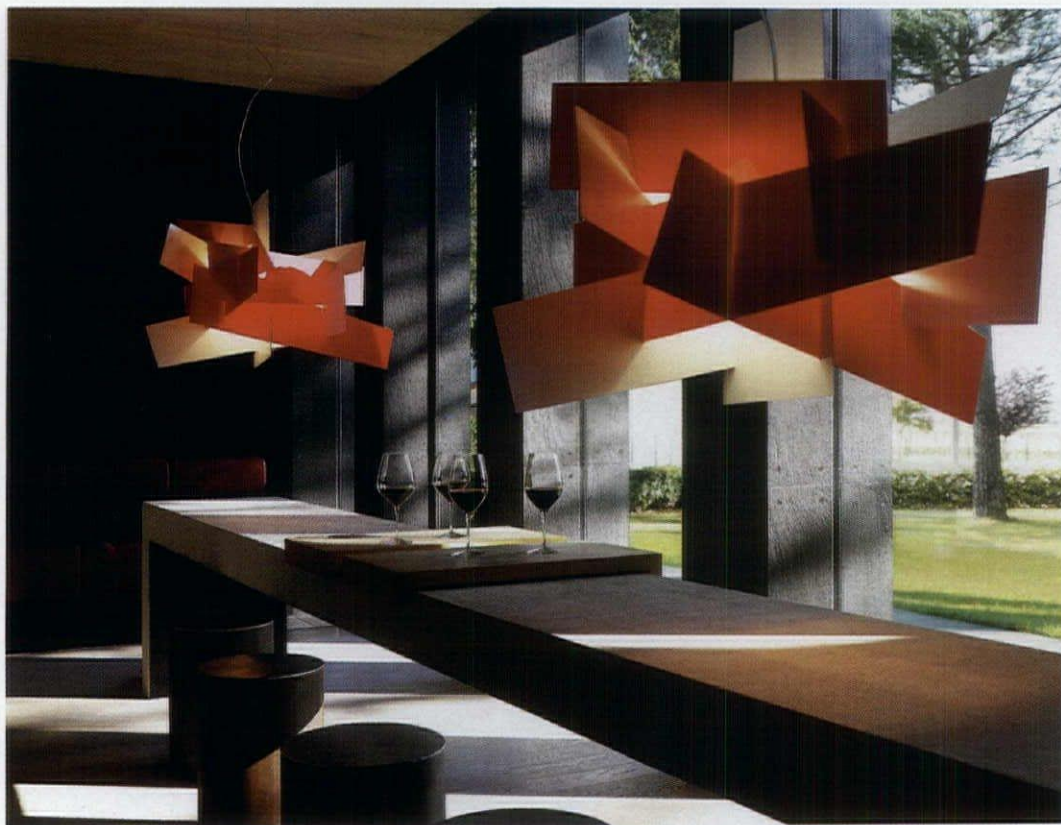
## INSPIRATION AND FORM

**MCS:** Your work is often geometric in form. What influences these forms?

**VGJ:** I begin with a concept. Then I start developing it into more detail, thinking about the union of materials and shapes. You never know where an idea will come from. Sometimes I start thinking about the packaging and shipping of a product and the design emerges from that. In the end it is about proportion. I love geometric shapes that are primitive in their simplicity or when you use them in a repetitive way. In the case of the light fixture *Fields*, it has a lot of versatility in terms of where it can be installed and how. It is one object, but when several are grouped together it becomes a field of overlapping planes of light.

**MSC:** You often work with layers of light, color, and texture within one piece. How do you successfully combine all of these elements?

**VGJ:** There are different types of light and shadows. To blend different types



Designer Vicente García Jiménez's work explores color, form, surface, shape, and light. His pendant luminaires called *Big Bang*, created for Italian lighting company Foscarini, explore planar sculptural compositions and how these forms interact with light (above, left and right).

of light in the same object is for me as if I were painting with tones of gray or dark blue. I look for a way to satisfy the function of the object, but I also want to express myself through each piece.

**ENVIRONMENT**

**MSC:** Do you envision your pieces becoming a portion of the surrounding environment, or are they best served as focal points and stand-alone objects?

**VGJ:** Some of them have a strong personality such as *Big Bang*, *Fields*, and *Bizarre*. I find it more interesting to play with simple objects like a Saarinen table or Thonet chairs and very clean spaces.

I do not like to insert too many objects into a space as it can become too chaotic. The personality of the individual object should also relate to the personality of the space it occupies, yet at the same time an object can have multiple functions.

**BACKGROUND AND FUTURE**

**MSC:** It seems that most designers who are sensitive to light have a moment, or several moments, where light has made a powerful impression on their memory; a time when light created a mood or atmosphere so strong that it left an impact on the individual and shaped that moment. Is there a defining moment for you?

**VGJ:** I remember when I was once flying from Madrid to Valencia. For a moment we were over La Mancha, the area where I spent my childhood and where my parents were born. I looked down at the landscape and saw the earth as this series of rectangular

pieces of colors. It had a huge impact on me and was the inspiration to create *Fields*; I was trying to recreate what I had seen from the plane.

Another moment was three years ago when I went into the kitchen late one night when it was extremely hot. When I opened the refrigerator the light from inside hit the wall in such a way that it created this composition of points. It was completely unexpected. I stood there just trying to understand the pattern and the experience of it.

**MSC:** Where do you hope to take your work in the future?

**VGJ:** Like every designer or artist, each day I wonder about what I am doing. Over time your personal definition of what you are doing changes. I am trying to resolve problems by bringing experiences together and making a human connection. The end result of the design is an expression of all this thought.

No matter whether I am working on a custom project or a light fixture or piece of furniture that will be mass-produced, I still want there to be a connection between me and the person using the object. **MEGHAN SMITH-CAMPBELL**

*Meghan Smith-Campbell is a graduate student in the MFA Lighting Design program at Parsons the New School for Design in New York City.*

PHOTOS COURTESY OF VICENTE GARCÍA JIMÉNEZ

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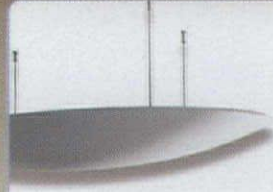
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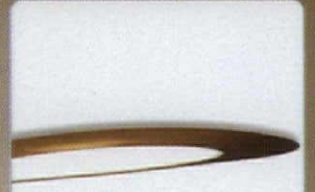
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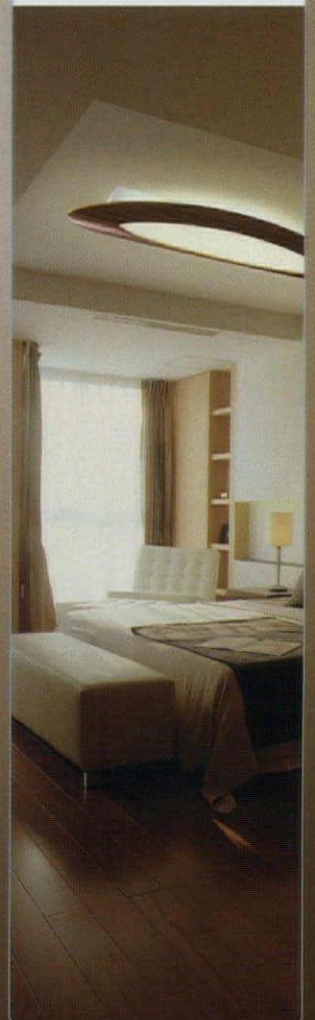
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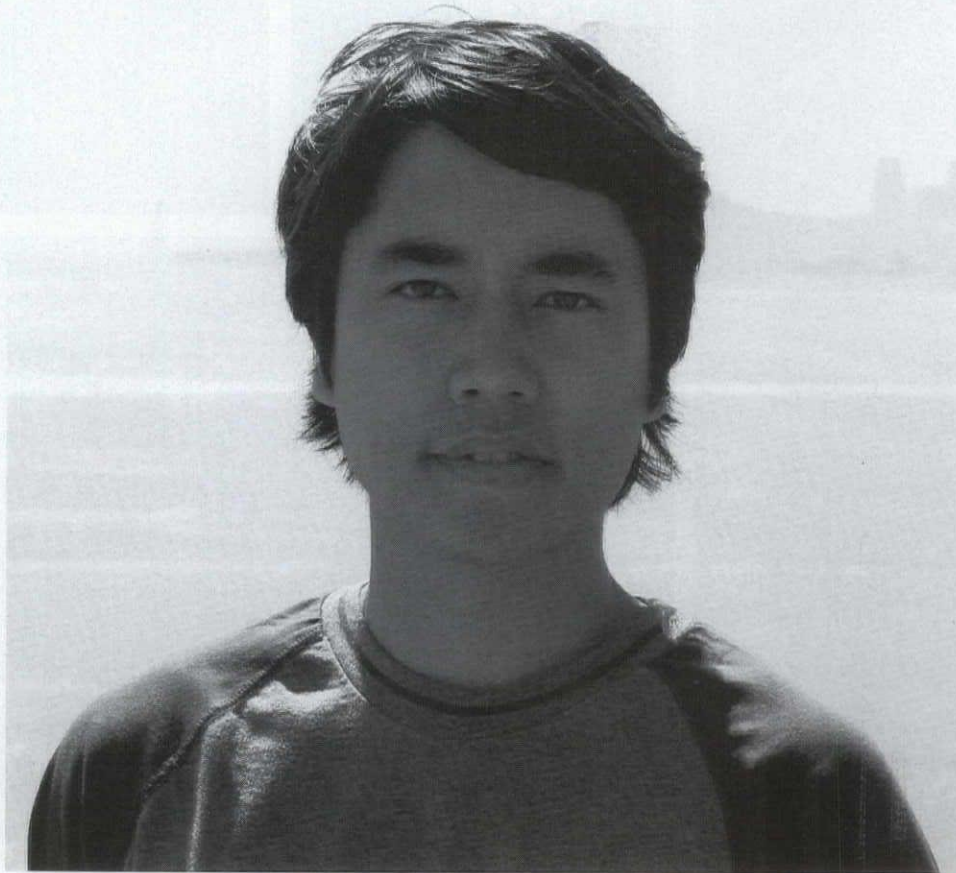
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# James Clar

MERGING LIGHT AND VISUAL COMMUNICATION



**MEDIA ARTIST JAMES CLAR CONTINUALLY CHALLENGES HIMSELF TO CREATE NEW VISUAL SYSTEMS, products, and environments that marry technology with art. Clar received his master's degree from New York University's Interactive Telecommunications Program in 2004, and then opened his own firm in New York City—James Clar & Associates. The six-person studio has developed a wide-ranging portfolio of light pieces and interactive installations. Current projects include a public art piece titled "Tunnel Vision" in collaboration with New York City-based Vito Acconci Studios, and the Habitat Hotel in Barcelona with Barcelona-based architecture firm Cloud 9 (See "Elementary Particles," *Architectural Lighting*, Apr/May 2006, p. 40-45). *Architectural Lighting* caught up by phone with Clar, who is in Dubai working on several projects this year before returning to New York.**

## INFLUENCES

**MSC:** How would you characterize your work? Is there a person, artwork, or installation that has influenced you?

**JC:** My work is about media and communication. Marshall McLuhan's ideas were fundamental in my transition from film and animation into art, light, and architectural light installations. His idea, "the medium is the message," helped me analyze visual communication and its direct relationship with light.

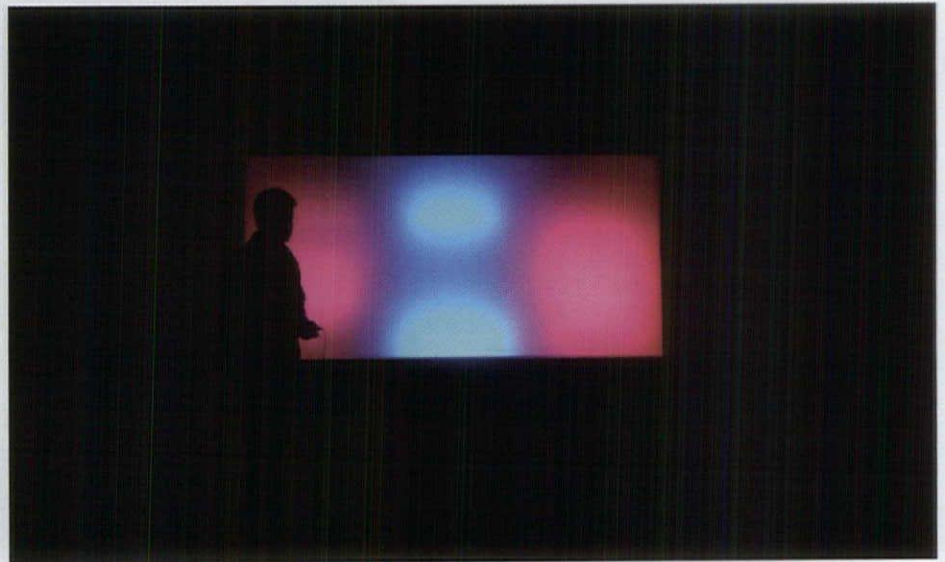
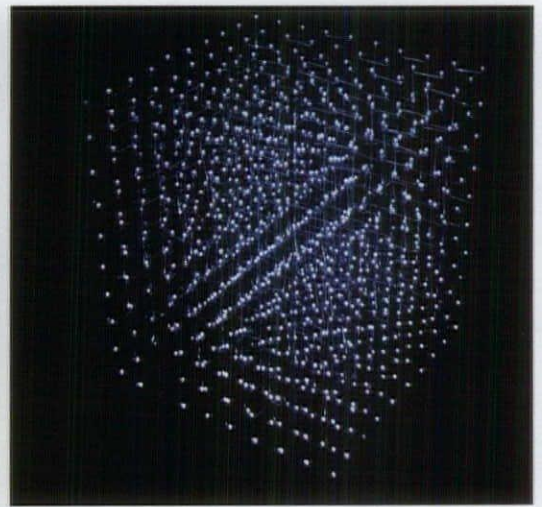
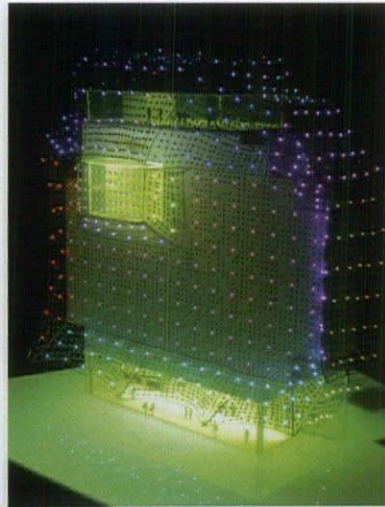
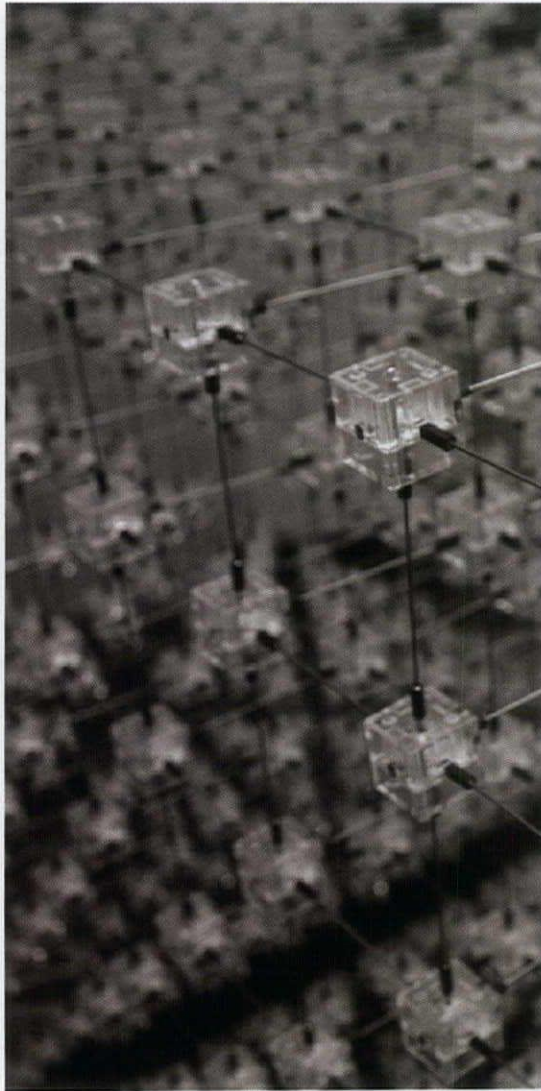
Later on, I started getting into pattern recognition and how robots use it for artificial intelligence. The idea is similar to symbolism in art or movies; that you can suggest meaning not literally, but through what the object symbolizes. This is important for architectural lighting because the viewer's perception of the space is based largely off of what they see.

**MSC:** Why is light the method you have chosen to use to convey information?

**JC:** I grew up with computers, video games, and the Internet. It has always amazed me that when you look at a computer screen there is a seemingly infinite amount of possibilities and information staring back at you. But if you break it down into its simplest form it is just light that is entering your eye. This is one of the key ideas that struck me when I started to get into media theory—as you look at light your brain is interpreting it as shapes and colors. Over time these are combined to become storylines that begin to evoke an emotional response. That's a powerful tool.

## ENVIRONMENT

**MSC:** Your work conveys a sense of spatial depth. What are the challenges in achieving this when working with new and visual media?



The work of media artist James Clar explores new forms of visual communication merging art and technology. *Boom Box* (above) is a 4-foot by 8-foot interactive light object that analyzes sound levels to create dynamic light animations. The *3D Display Cube* is a work that Clar continues to refine (left and top right). It uses a patented LED system to create three-dimensional imagery. Clar created a working scale model of the Habitat Hotel in Barcelona and its "energy mesh" (top middle)—a project by Barcelona-based architect Enric Ruiz of Cloud 9 Architecture.

**JC:** When you start adding depth, or interactivity, it means you are giving up some sort of control over what the user is seeing. In turn, it lets the individual become immersed in the piece or space and lets them take control of what they are seeing. This enables the user to be more emotionally involved in the work, which is something architects are dealing with when they create spaces and buildings. You always have to consider where the person is going to be and how they are going to see the scene you have created.

#### PROJECTS

**MSC:** You are now on your fourth iteration of your *3D Display Cube*. What is it about this project that keeps drawing you back to continue working on the piece?

**JC:** I started this project because I was interested in analyzing information. As I attempted to transform these pixel representations from two dimensions into three dimensions, it occurred to me that they were never going to look "real" on a flat screen. That's when I started to investigate a way that I could exploit basic properties of

light, mindful of how the human eye picks up and processes spatial information, and then integrate that into an art or installation piece. The 3D cube directly relates to the challenge of representing actual 3D information. That is in part why there have been so many iterations. It is also because I believe it has commercial possibilities, and I've wanted to develop it to a point where other people could use it easily and update it quickly.

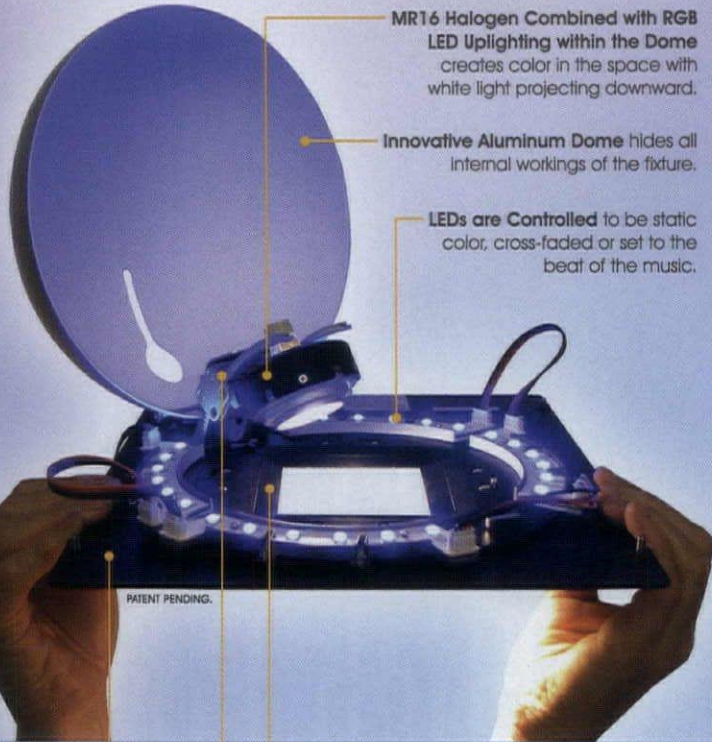
#### VISUAL COMMUNICATION AND SYSTEMS

**MSC:** Your work merges art and technology to create new visual systems and creates solutions to problems. What are the problems you see happening and how are you trying to solve them?

**JC:** There is always something missing and it is the job of a designer or artist to generate things that are new; to think outside the common structure. I am observing everything that is around me and am trying to develop a new way of looking at things. The possibilities with light are just so much more than what is being produced today. **MEGHAN SMITH-CAMPBELL**

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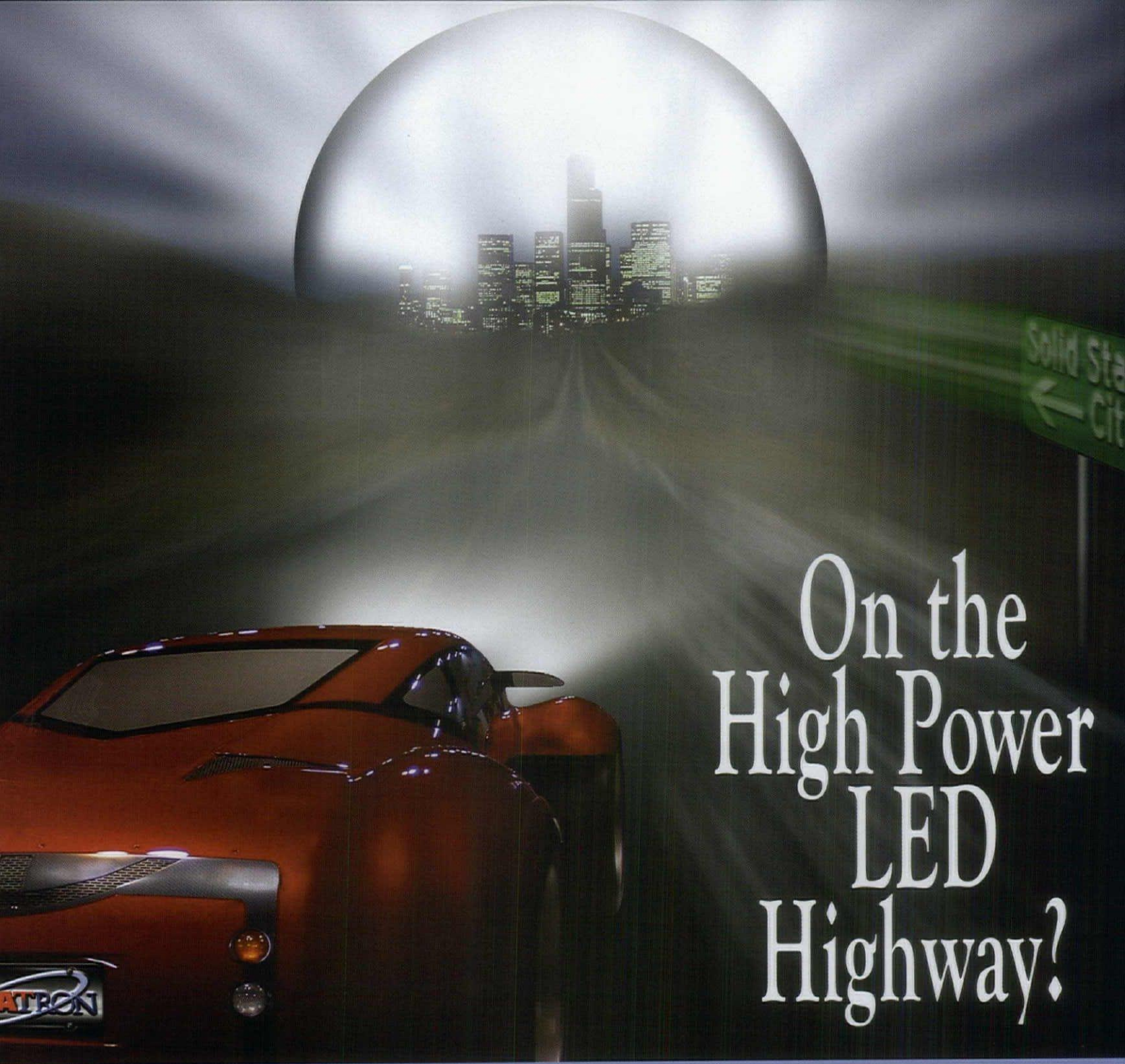


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# Women in Lighting Design

ELIZABETH DONOFF EXAMINES THE ROLE OF WOMEN PAST, PRESENT, AND FUTURE



**THE ROLE GENDER PLAYS IN THE DESIGN PROFESSION IS THE PROVERBIAL "800-POUND GORILLA"** in the room. Everyone knows it is there, but it is easier to avoid it except when it rears its head. This happened in 2007 when the American Institute of Architects (AIA) bestowed one of its highest honors—the AIA Architecture Firm Award—to Boston-based Leers Weinzapfel Associates. The award "recognizes a practice that consistently has produced distinguished architecture for at least 10 years." Leers Weinzapfel has been doing that since it started in 1982, but what it has done differently is that it is a women-owned firm. (The current firm structure includes four principals: Andrea Leers, Jane Weinzapfel, Joe Pryse, and Josiah Stevenson.) This was a point made by architect James Stewart Polshek in his recommendation letter: "It would be nice to be gender blind but our social construct is not yet reconfigured to allow that luxury. The fact is that for a woman-owned firm to succeed as spectacularly as Leers Weinzapfel has required persistence, diligence, and inventiveness." On one hand, while the award to Leers Weinzapfel signifies some progress, at the same time one cannot help but wonder why it has taken until 2007 for a woman-owned firm to receive this recognition.

## A YOUNG PROFESSION

As my own career focus has transferred from architecture to lighting, one

of the major differences that has struck me is the number of women who hold prominent positions of authority in lighting design and manufacturing. If I were asked to make a list of women practitioners in architecture, it would take a while to come up with a comprehensive list. If I were asked to make the same list for lighting designers, before I can blink I would have a list of more than 30 firm principals. What is it about the lighting profession that has helped women to succeed, while the architectural side of the equation is still unresolved?

It could be argued that in lighting, unlike architecture, women have played a greater role in shaping the profession. Lighting is a relatively young discipline; it really only emerged in the 1960s and 1970s, a time when women were becoming more liberated and fighting not just for greater opportunities, but equal ones. "It might be the simple fact that lighting is newer," offers lighting designer Melanie Taylor, head of the lighting studio at Seattle-based architecture firm NBBJ. "The [lighting] profession was not so entrenched in a male-dominated era."

Naomi Miller, principal of Naomi Miller Lighting Design in Troy, New York, concurs: "We are a young profession, and women have been there from the beginning." In 2008, of the 764 members of the International Association of Lighting Designers (IALD), taking into consideration all cate-

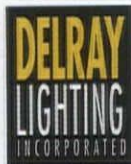
Cylindro



CFL  
5 x 18w / 26w

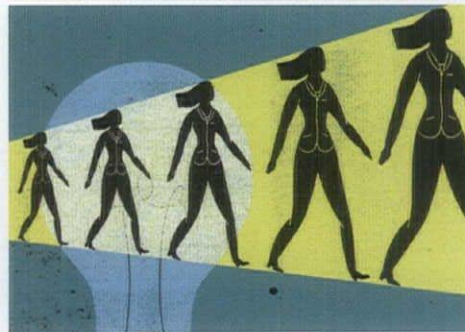


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**To be taken seriously, women have to prove themselves and their knowledge in a way that is not necessarily required of their male counterparts.**

gories—fellow, professional, associate, educator, student, and affiliate—312 are women. That's close to 41 percent of the membership. By comparison, 2005 data from the AIA shows that only 12 percent of its members were women.

#### PROVING GROUND

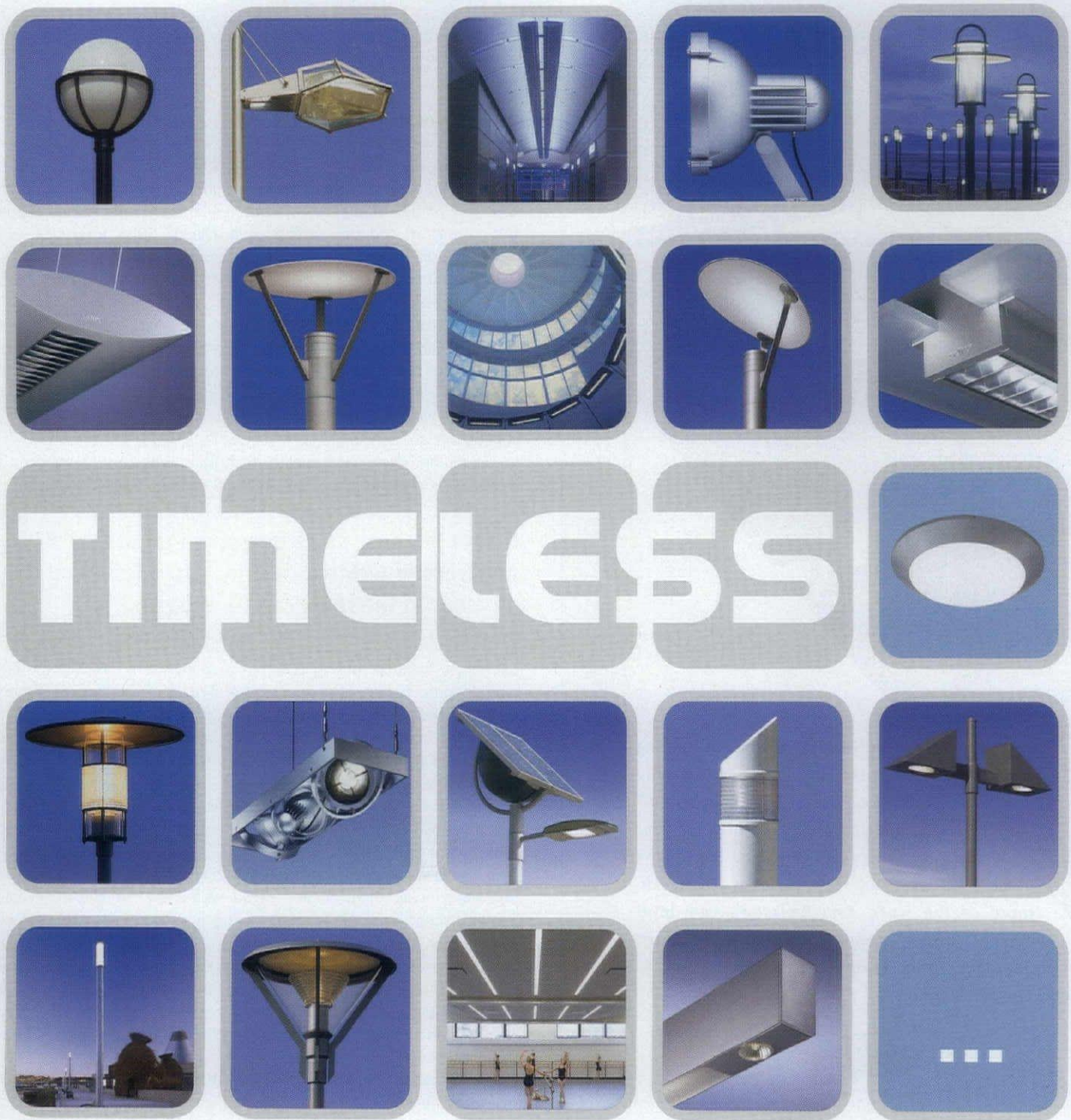
Young women today have benefitted from the victories of the women's movement. For them, all educational and work opportunities may seem possible. But this was not always the case. For instance, from the 1940s well into 1970s, women who were interested in architecture often were dissuaded from studying the subject and instead encouraged to pursue a profession perceived to be less technical, such as theater or interior design. Many contemporary lighting practitioners point out that lighting offered them the possibility of being able to specialize in a specific area. "It was a way of being able to feel that I was an expert," Taylor says. Barbara Horton, principal of Horton Lees Brogden Lighting Design in New York City, shares a similar sentiment. "I started as an interior designer, but I wanted to find a specialty. Lighting offered that opportunity."

Taylor and Horton make an interesting point, illustrating their mutual awareness that a different set of standards applies to women once they do arrive in the workplace: To be taken seriously, women have to prove themselves and their knowledge in a way that is not necessarily required of their male counterparts. Often, at a meeting or on a job site, the lighting designer or architect is the sole woman among a group of men. "There is that extra step," says Patricia Glasow, principal of San Francisco-based Auerbach Glasow French. "But once you show the construction foreman or the electrical contractor that you know what you are talking about the issue disappears. In a backwards kind of way it actually winds up to your advantage, because in the end they have even more respect for you and take you more seriously because you proved to them you knew exactly what you were talking about."

As Horton explains, walking into a project meeting to find yourself the only woman in the room, no matter how many years you have been practicing, is always "a big revelation." Additionally, because architecture, engineering, and construction are still male-dominated fields, the fact that a woman lighting designer can provide focused and detailed information gives her an amount of control in the discussion and project process that she might not have been afforded otherwise.

But it is not just that women have to know it all, they also have to show that they can do it all. "I have this theory that women are better multitaskers," says Taylor—a speculation that might not be so far off base. As wives and mothers, women juggle work and home life responsibilities. Switching gears at a moment's notice provides a unique ability to assess problems and quickly find solutions, skills well-suited to the practice of design—lighting.

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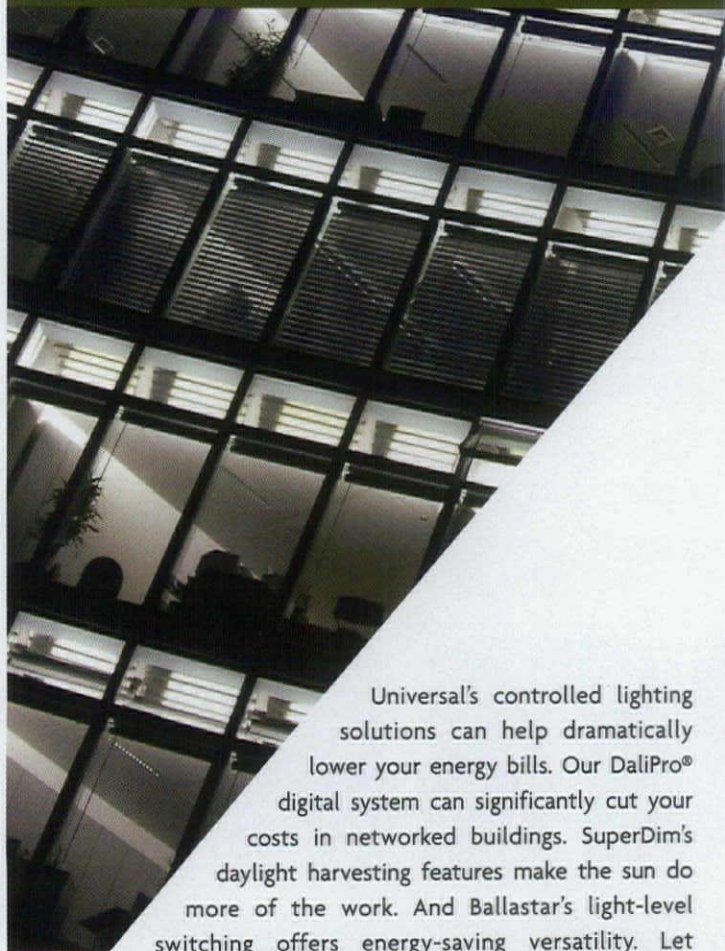
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## A PIONEER

Because the lighting profession is so young, it is easy to trace its lineage. In the context of this discussion, it should come as no surprise that one of the pioneers of lighting design, and a founding member of the IALD, was a woman—Leslie Wheel. Wheel began her career in theater, noting in a March 2001 interview with *Architectural Lighting* that “nobody wanted to do the lighting, so I would fill in and do it. I became good at it and slowly, it dawned on me that I had a career.”

Ahead of her time, Wheel sought supplemental training with classes offered by the Illuminating Engineering Society. The seminal moment for her as a designer, which she recounts in the March 2001 interview, was when she saw Richard Kelly's work on the Seagram Building in New York City. That was when she saw “the possibilities of lighting design.”

Crediting herself as a master technician who could integrate the theatricality of lighting into architectural spaces, Wheel was the first

**It should come as no surprise that one of the pioneers of lighting design, and a founding member of the IALD, was a woman.**

woman to practice lighting design. For many years she was the only woman practitioner. She opened her firm—first known as Wheel-Garon and later WSG—in 1961 and practiced for 37 years.

The recipient of numerous lighting awards, Wheel's legacy is not just limited to design. A strong advocate of lighting education, she founded the IALD Internship Program and was the director of the Nuckoll's Fund for Lighting Education and the IALD Education Trust. Her influence is felt by an entire generation of designers, who are today's firm principals.

“Leslie was such a great influence on me,” Horton recounts. “Her personality was magical; you could never say no to her. What I admired most was not just her design and technical skills, but her spirit and passion for lighting design.”

That passion for lighting design has led many women in the field to make a focused effort not to repeat the “mistakes” they encountered in their own schooling and early training. “I try to be a good mentor and not only communicate with my staff but get to know them as people,” Taylor says. “I'm trying to create an environment where people will succeed, not throw them into experiences that are over their head.”

Although Horton admits there is a certain dynamic to her firm—three of the five principals are women—nonetheless they work to create an inclusive environment for all members of the team. Particularly rewarding for Horton is to watch the generation of mid-career professional women she helped train in her office now step forward and impart their experience, knowledge, and confidence to a new generation of women entering the lighting profession.

None of this is to say that men are not thoughtful, concerned practitioners who also face the challenges of balancing work and family responsibilities. Two men are part of the eight-person lighting group at NBBJ. “I'd be concerned if we did not have that different point of view and I'd be worried if [the male members of the team] didn't have those equal opportunities,” Taylor says.

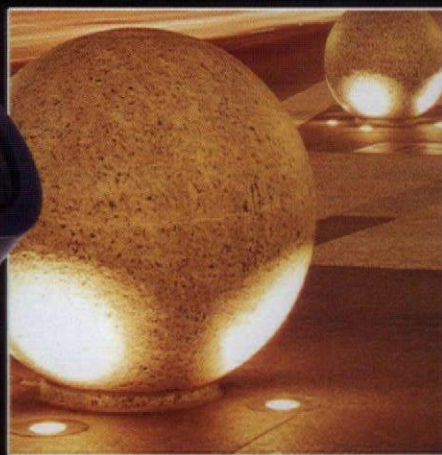
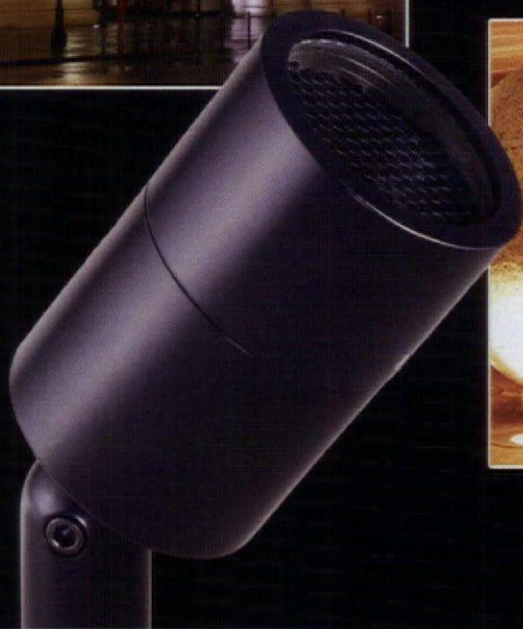
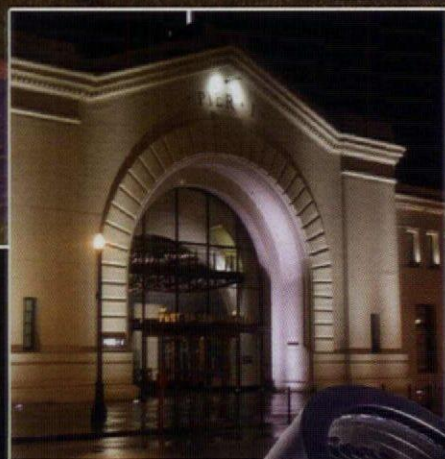
However, it remains true that men do not experience the same hurdles as women in school or the workplace. “Women have worked and fought hard for their success,” Horton states. As women in lighting forge ahead, perhaps their colleagues in architecture will reap the benefits. **ELIZABETH DONOFF**



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**EXHIBIT** | Dan Flavin: Constructed Light **LOCATION** | Pulitzer Foundation for the Arts, St. Louis **PHOTOGRAPHER** | Robert Pettus © Stephen Flavin/Artists Rights Society (ARS), New York

## Dan Flavin: Constructed Light

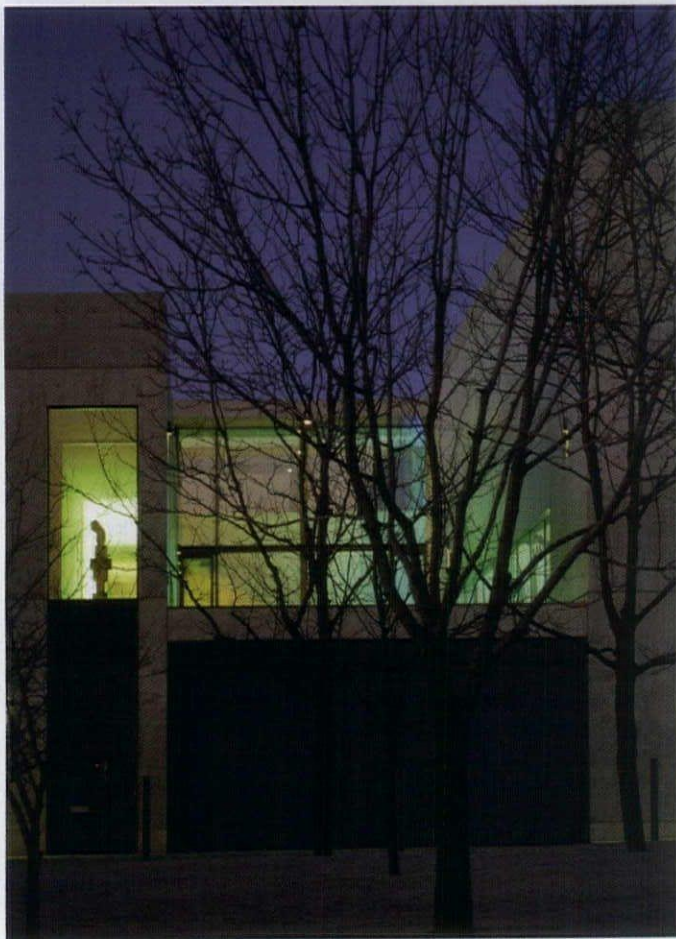
**DAN FLAVIN: CONSTRUCTED LIGHT, AN EXHIBITION AT THE PULITZER FOUNDATION FOR THE ARTS IN ST. LOUIS,** is a natural fit for the sublime structure designed by Pritzker Prize-winning architect Tadao Ando. The modestly scaled, beautifully proportioned three-level structure wraps around itself, creating a series of continuously linked interior and exterior volumes. Through the context of Flavin's work the surfaces in each of the nine exhibit areas, containing 26 installations, meld together to form a common vessel of light. The result is a volumetric and luminous expression of space that defines specific galleries while creating a new reading of Flavin's work. Witnessing such a complete display of interwoven luminosity is a rare treat for the museum visitor; a meaningful result of having the entire facility dedicated to a single exhibit.

Flavin limited his artistic palette to commercially available fluorescent products in standardized sizes, shapes, and colors, extracting banal hardware from its utilitarian context and inserting it into the world of high art. He expanded upon this very narrow medium only through compositional variation, color, scale, and multiplicity. Such choices surrounding the luminaire type, size, orientation, and placement in a given architectural context are completed by the resulting luminosity that transcends the luminaire's object-like qualities and engages the surrounding architecture. By virtue of this interaction, the "entire spatial container and all its components—wall,

floor and ceiling"—become an integral part of the work and "enfold it," Flavin said in a 1964 lecture at the Brooklyn Museum's art school. He considered the art's "situational" context to the architecture carefully, and used spaces typically recognized as inappropriate for display such as stairwells and corridors. Additionally, Flavin's work frequently assumes a posture contrary to conventions of formal presentation—in repose against a wall, traversing a corner, bisecting a room, laying on the floor—further removing it from the formalities and conventions of art display. Flavin developed a fascination for matters surrounding human perception and made careful choices regarding color, adaptation, time, and spatial sequencing to impact the viewer's perception. In May, the lamp colors will be changed, offering visitors a different experience to this long-running exhibit, which is on view through October 2008. Extended evening museum hours the first Thursday of every month will give guests the opportunity to see Flavin's work under a multitude of conditions.

From Flavin's point of view, the work is intended to be perceived, rather than simply seen; temporal experiences "free of content," focusing on the "situation of light only." These ideas, initiated in the early 1960s, consumed the rest of Flavin's artistic career until his death in 1996. The architectural quietness of the Pulitzer facility offers an ideal setting for experiencing and contemplating the subtle intentions behind Flavin's work. **DEREK PORTER**

Architecture and light become one at the Pulitzer Foundation for the Arts in St. Louis as it plays host to the work of Dan Flavin through October 2008. In the main gallery (above), Flavin's blue and green fluorescent installation—*untitled*, 1984—is juxtaposed with Ellsworth Kelly's *Blue Black*, 2000, an artwork of painted aluminum panels that is part of the Pulitzer's permanent collection.



Flavin's work engages with its surroundings, each piece positioned to specifically address the architecture while simultaneously breaking the conventions of formal art display (top). Using an artistic palette of commercially available fluorescent products in standardized sizes, shapes, and colors, Flavin's work gives new meaning to these everyday objects. One of Flavin's few curved works, *untitled*, 1964, is a series of cool white fluorescent lamps. Installed in the mezzanine, its curvilinear shape accentuates the Pulitzer's geometric form (above). At night, the fluorescent hues of Flavin's work illuminate the galleries as the building's interiors and surfaces are transformed into volumetric and luminous expressions of space (left).



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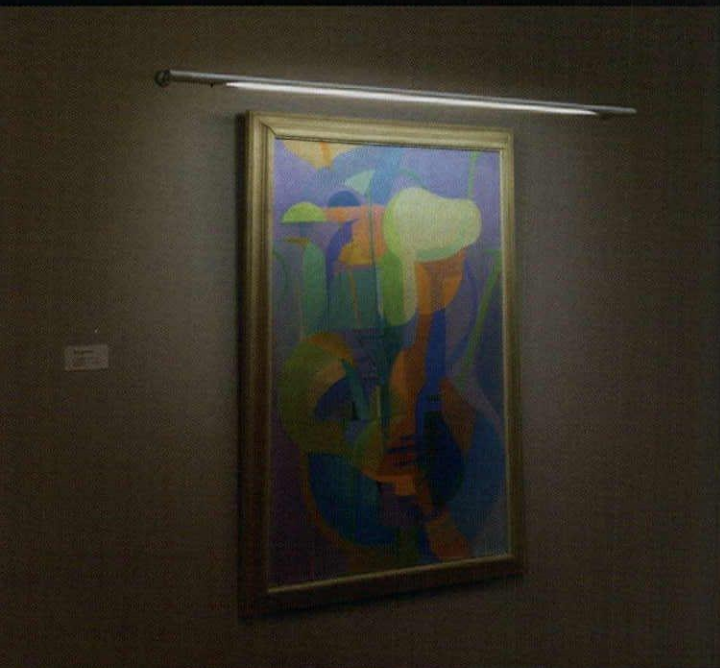
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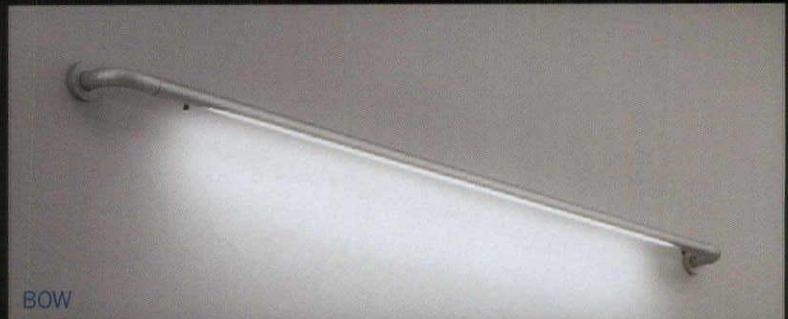
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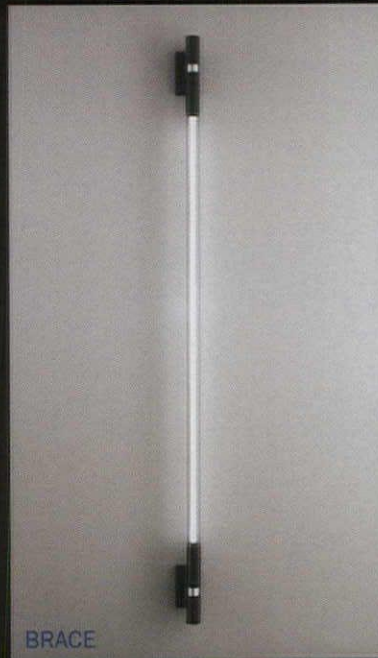
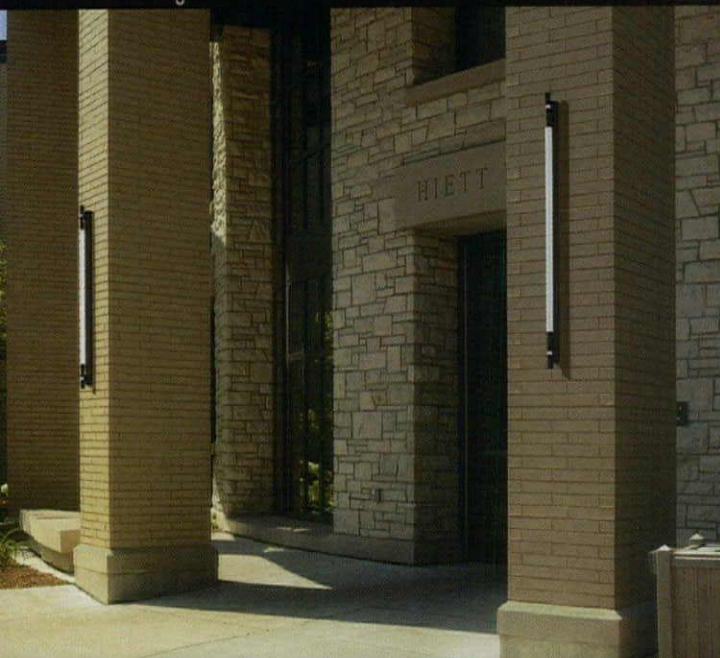
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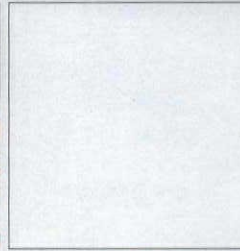
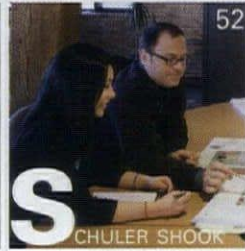
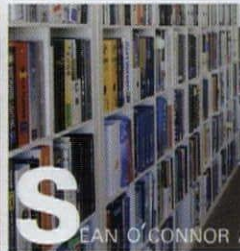
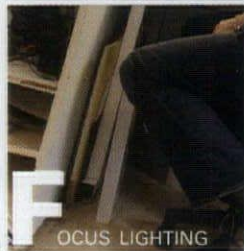
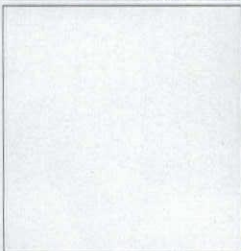
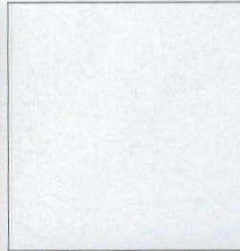


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BY JENNIFER LASH

## Designers in Their Workplace

While offices vary from company to company, something the six lighting design firms highlighted in this photo essay have in common is the desire for their design studios to foster communication and encourage collaboration. While one firm is housed in a row house painted purple on Manhattan's Upper West Side and another features exposed ceilings and open work areas with no partitions, all six of the offices profiled here seem to recognize the importance of communication when it comes to creating dynamic lighting designs. These spaces—some old, some new, some recently revamped—are all designed as open environments to bring out employees' creativity while making it easier to run ideas by colleagues and show designs and new products to clients. What follows is a peek into each of these six lighting design offices, with insight from firm principals and associates who discuss not only the inspiration behind the design of the space, but also how the space inspires them as they work to create their lighting designs.



**HOK** | St. Louis | [www.hok.com](http://www.hok.com)

As one of numerous offices worldwide, HOK has been in the same building in downtown St. Louis for 15 years. A consolidation of space about three years ago brought divisions housed on different floors of the building together all on one. Currently, the space is about 56,000 square feet and very open, with impromptu meeting spaces throughout such as a common coffee bar and banquette seating. There are no cubicles in the studio space, but rather, square areas without partitions where designers work. Partitions discourage communication and collaboration, says associate David Ziolkowski, and as a result there is not much privacy in the office. Lighting designer Kathleen Lauth explains that to her, the office serves as a case study, helping to see what works and what could work better. "It also is helpful to walk around to show lighting fixtures or techniques to others," she adds. Ziolkowski says having clients in the office is great because the space allows the designers to show them different lighting solutions. Overall, the St. Louis office "is raw, unforgiving, and totally original," Ziolkowski says. "Watching people's faces when they walk in for the first time is thoroughly entertaining." While not a traditional corporate environment, the unique open setup with no partitions and exposed ceilings encourages creativity and communication among HOK staff.

**HOK's nontraditional office space in St. Louis (above, left) features exposed ceilings and close working quarters without cubicles or partitions because those discourage communication among staff members. Impromptu meeting spaces (above, right) allow employees to collaborate on projects and are located throughout the office.**





HOK PHOTOS: STEFAN HESTER; HORTON LEES BROGDEN PHOTOS: MATT GREENSLADE



**Horton Lees Brogden Lighting Design**

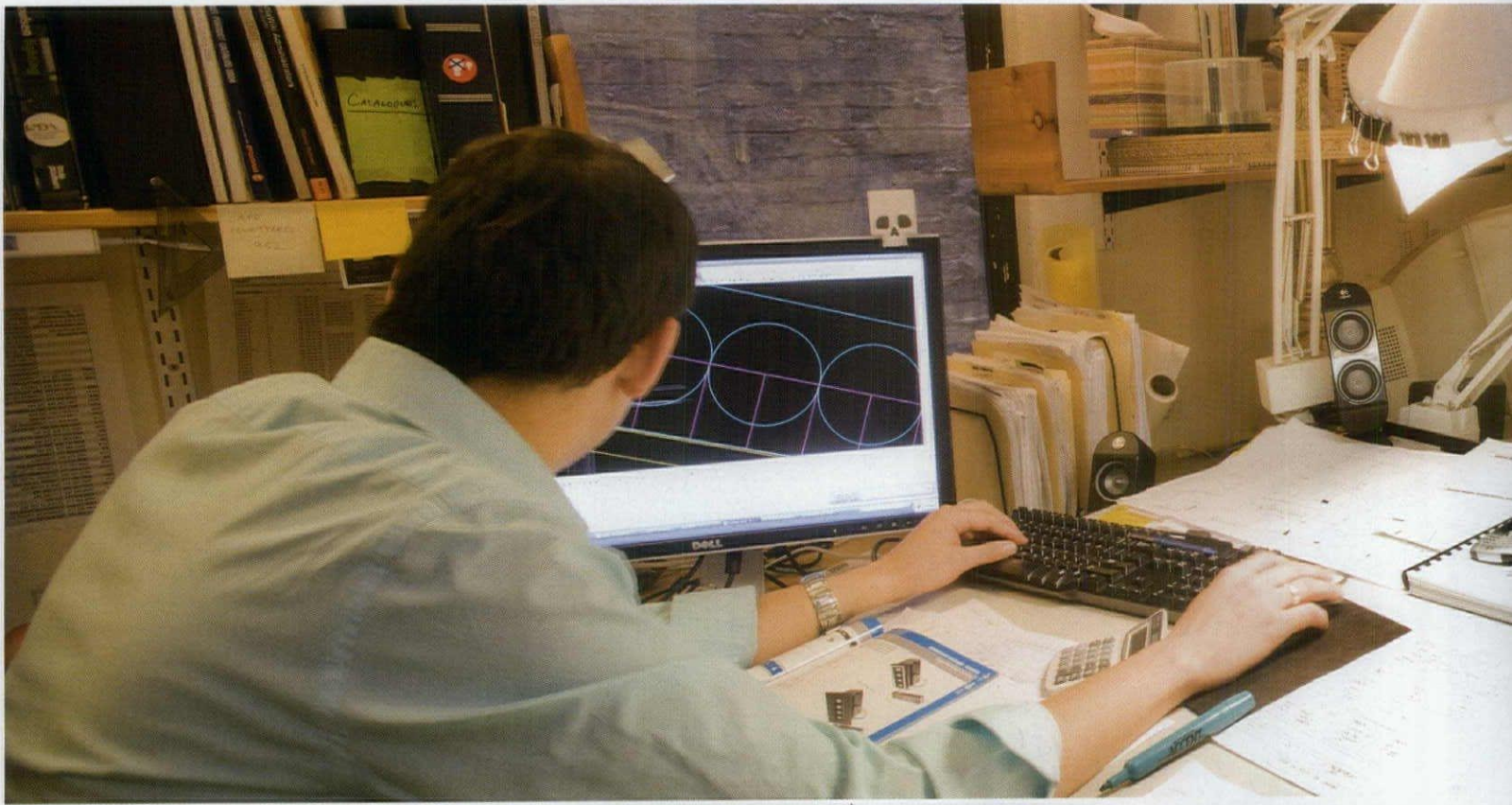
New York City

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The loft-like space with a 12-foot-high ceiling and large windows offers the employees of Horton Lees Brogden Lighting Design incredible views of New York City from its location on Union Square. "We see the city sculpted in light throughout the day," says principal Barbara Horton, adding that the 3,500-square-foot office is able to use daylight during 90 percent of the day. New York, where it all started for the firm in 1970, is one of four office locations, with the others in Boston, Los Angeles, and San Francisco. The interior design was kept simple to amplify the great views, and Horton says that there was no specific inspiration for the office. Large enclosed spaces in the center contain the library and conference room, while the rest of the area is open with low partitions. "We started with higher partitions for privacy and found it was not team building," Horton explains. Now, everyone can communicate and collaborate across the partitions including the principals, who do not have private offices. The openness throughout the space is critical for the designers to work together, and Horton says the space functions very well to encourage camaraderie and communication.

**Bold colors adorn the walls of Horton Lees Brogden Lighting Design's New York office (left), which has low partitions to foster communication. Large windows (below) allow for daylight and great views of the city.**



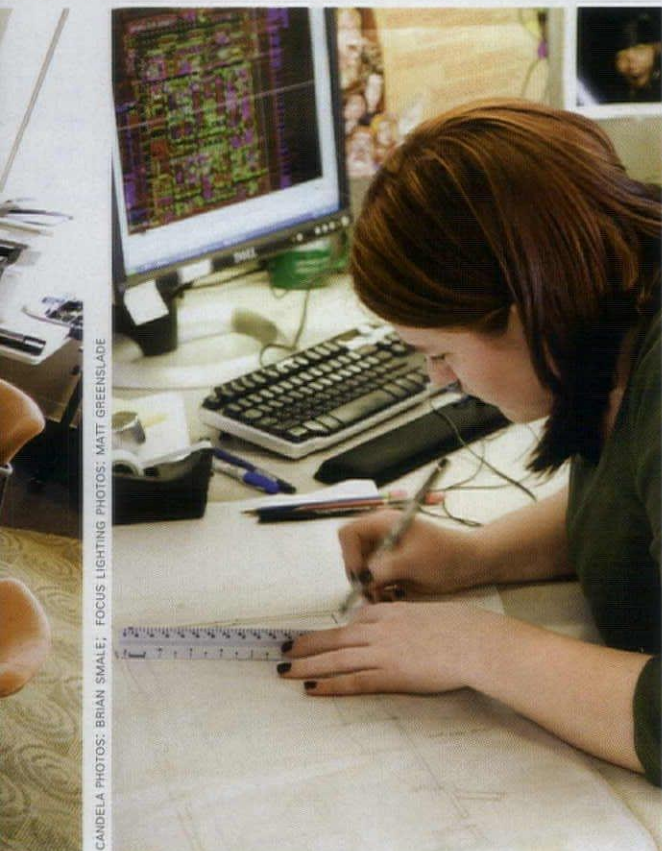


Candela, which is a division of electrical engineering and technology consulting firm Sparling, has been at its current Seattle location since its creation in 1989, but has occupied different floors of the building. It just finished a remodel in January 2008, during which the workstations were reduced in size by eliminating drafting tables. Instead, principal Denise Fong explains that more spaces were created throughout the office where people could gather casually to meet and collaborate on projects. The workstations also were moved closer to the windows so that people had better access to daylight. "Everyone seems to like the more collaborative space and amazingly, no one has complained about the smaller workstations," Fong says. The flip side of having a more open office is that having a private conversation is more difficult, however, Candela built three "phone booth" rooms, each with a different furniture configuration that also can be used for an occasional nap or nursing mothers. And for visitors from other locations or those without a permanent desk, "hotel stations" in the office can be used on a temporary basis but allow each person to be connected as if they were sitting in their home office with a phone line and computer link. In the interest of sustainability and experimentation, Fong explains, a lighting control system was used to illuminate the open office areas and help foster the daylight coming into the space.

**Candela's Seattle office was remodeled in January 2008, during which employee workstations were reduced in size while more space was created for casual collaboration on projects (right). So far, the staff likes the smaller workstations (far right) that now also have access to daylight.**

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CAIDELA PHOTOS: BRIAN SMALE; FOCUS LIGHTING PHOTOS: MATT GREENSLADE



**Focus Lighting** | New York City | [www.focuslighting.com](http://www.focuslighting.com)

The office space for Focus Lighting, a lavender row house on Manhattan's Upper West Side a few blocks from the Hudson River, is designed to be an environment of experimentation and creativity. Principal Paul Gregory says the structure of the work area "has the feeling of an ever-growing tree, with each design studio branching throughout the office and sprouting creativity in various directions." The space is based on "great people doing great work," he adds, noting that the office is filled with items that are conducive to a creative environment such as models, mock-ups, a lot of light, and images of sunsets, rainbows, and fields of flowers. A full mock-up space in the studio allows the design team to turn on and test fixtures, lamps, and new materials so clients can see exactly what will appear in their project. Gregory says previous work by Focus Lighting is showcased throughout because "we draw inspiration from our previous projects, from other great work from around the world, and from each other."

**The office environment of Focus Lighting (top), designed to be one of experimentation and creativity, has a homey feel as it is located in a row house in Manhattan. Photos, awards, mock-ups, previous projects, and other items are spread throughout the office (above) to help inspire employees as they work on lighting designs.**

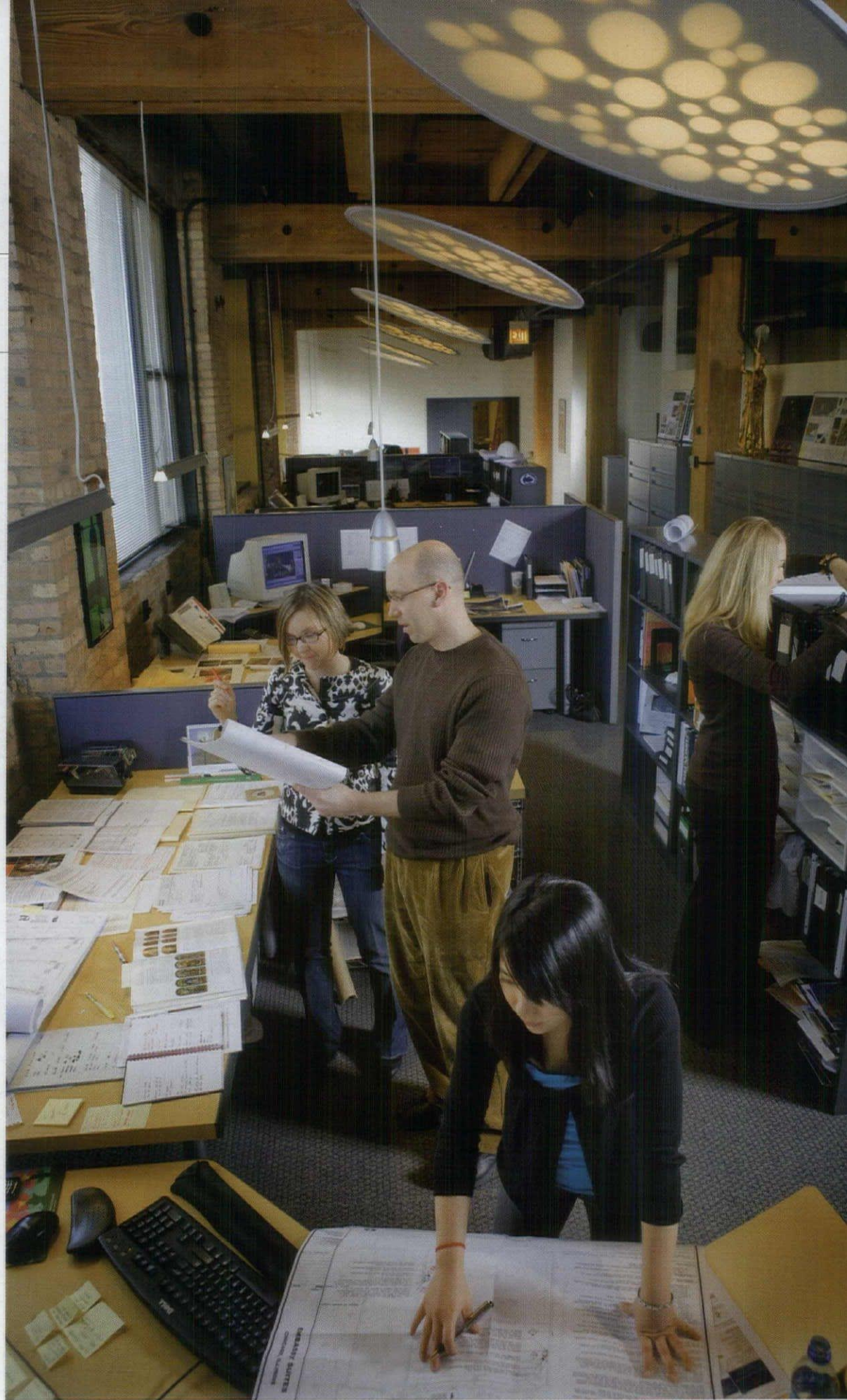
Schuler Shook has been at its current location since 2001. As the third space since the firm was founded, principal Robert Shook says something they added to the current office is more meeting areas, both informal and formal. Principal Jim Baney explains that the office is designed to foster interaction as the lighting designers work in teams of two, with each team's work area connected by a central drawing storage rack and integrated work surface. By typical open office standards, according to Shook, the designers' workstations are large, allowing space to spread out and store drawings, in addition to giving designers quick access to documents when a client calls about a project. Everyone at the firm, including the partners, has an open office because "we consider it valuable for anyone to be able to listen to his or her colleagues," Shook says. "We learn from each other." The open office space primarily is illuminated by fluorescent and ceramic metal halide sources, and its lighting design is energy efficient, using 1.1 watts per square foot.

**All employees at Schuler Shook, including the principals, have an open work area in the Chicago office (right). The openness of the office is meant to promote conversation among colleagues and allow everyone in the office to learn from each other.**

**Schuler Shook**

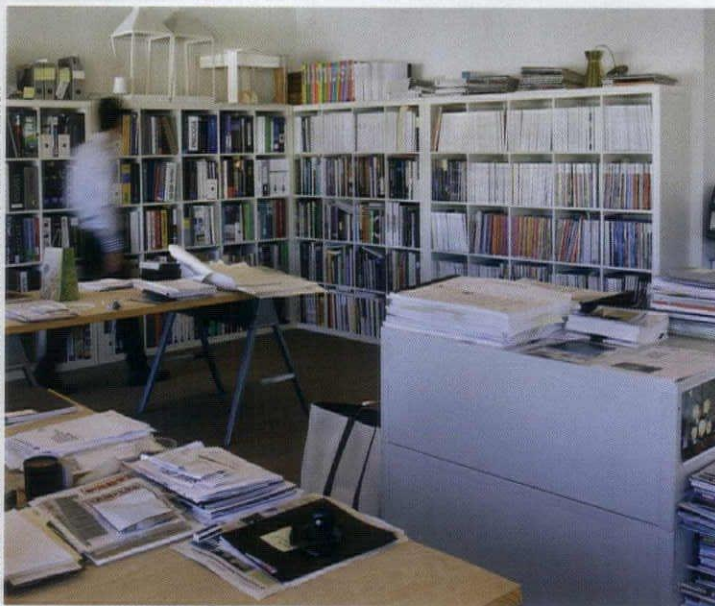
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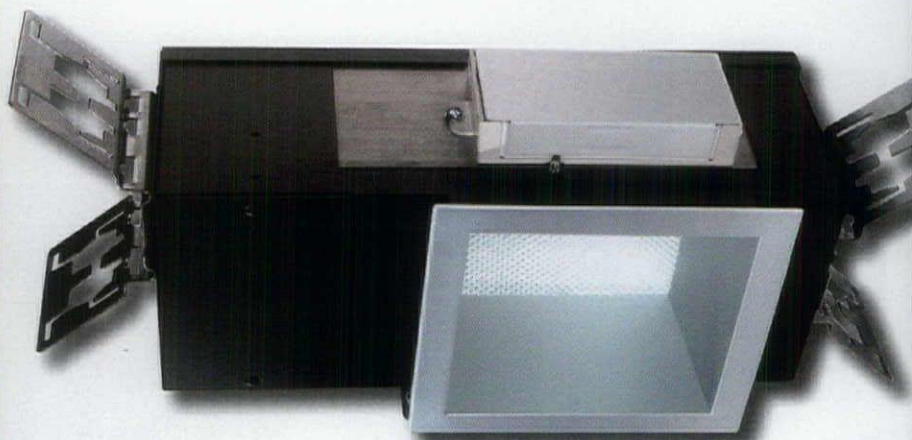
**Sean O'Connor Associates Lighting Consultants** | Los Angeles | [www.seanoconnorassociates.com](http://www.seanoconnorassociates.com)



At its fourth office in 10 years, Sean O'Connor Associates Lighting Consultants is still settling into its one-year-old digs in Los Angeles. Before the move to the West Coast, the firm was located in Philadelphia, where it still maintains an office. The L-shaped space in Los Angeles has northern and western exposures and is set up so the studio component of the office runs the length of the north wall, taking advantage of the northern sky with diffused daylight. Principal Sean O'Connor says the space offers great views of Beverly Hills and Hollywood Hills, and "even when the office is a mess, there is always the fantastic view and Los Angeles weather." A proponent of an open office because it allows for the easy exchange of ideas and keeps a quick pace in regard to work, O'Connor explains that this location does have an enclosed conference room for privacy. In choosing the space, O'Connor admits he was very particular about site selection. "I wanted to be centrally located here in Los Angeles, and I wanted the building to be somewhat architectural," he says. "The building has a nice Bauhaus vibe to it, and I love the expanses of operable windows and views." While O'Connor is inspired by art, fashion, architecture, and interiors, he says what he and his team wanted for the office was a clean, calm space with a sense of architecture and detail that allowed for open communication.

**The Los Angeles office for Sean O'Connor Associates Lighting Consultants (above) has northern and western exposures and offers superb views of the surrounding areas. Having an open office (left) results in easier communication and keeps projects moving along quickly.**

SCHULER SHOOK PHOTOS: JIM NEWBERRY;  
SEAN O'CONNOR ASSOCIATES LIGHTING CONSULTANTS PHOTOS: MICHAEL DARTER



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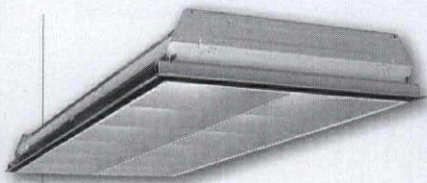
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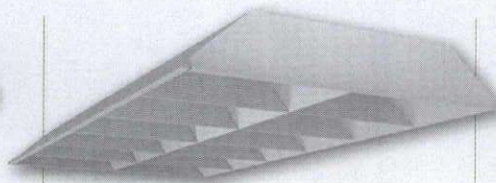
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# Art Plus Light

RENZO PIANO AND ARUP'S COLLABORATION EVOLVES THE NATURE OF THE AMERICAN MUSEUM.



Distinctive roof profiles become the signature element of each museum in the Renzo Piano/Arup collaboration. At the High Museum in Atlanta (above right), a tubular unit called a "soffitto," constructed of glass-fiber-reinforced gypsum (facing page, top left), diffuses and directs light into the galleries (above left). A shielding arm, referred to as a "vela" (facing page, bottom left) helps direct the light. A rendering for the Chicago Art Institute's new modern wing, scheduled to open in 2009 (facing page, far right), illustrates the diffuse quality of light in the galleries.

ARCHITECT RENZO PIANO HAS A WAY WITH LIGHT. IT IS WHAT HAS KEPT MUSEUM DIRECTORS and trustees beating a path to his offices in Paris and Genoa since the 1987 opening of The Menil Collection in Houston. "Every time you take a new job, the one thing that's constant is the magic of light," Piano says. "But everything else is different—the direction of sun, the energy consumed, the people you are working with." Except, that is, for the engineers and lighting designers of Arup—who have been collaborating with the Renzo Piano Building Workshop (RPBW) on an extraordinary series of museums across the United States (not to mention elsewhere in the world) for almost 30 years. These projects, which include newly completed or under construction projects in Dallas, Atlanta, New York, Los Angeles, and Chicago, redefine the use and perception of natural light in a stunning array of subtly different essays on this eternal theme.

London-based Arup Lighting Associate Director Arfon Davies has been a key member of the team for the past 10 years encom-

PHOTOS THIS PAGE COURTESY OF THE HIGH MUSEUM OF ART, PHOTOGRAPHY BY JONATHAN HILLIER





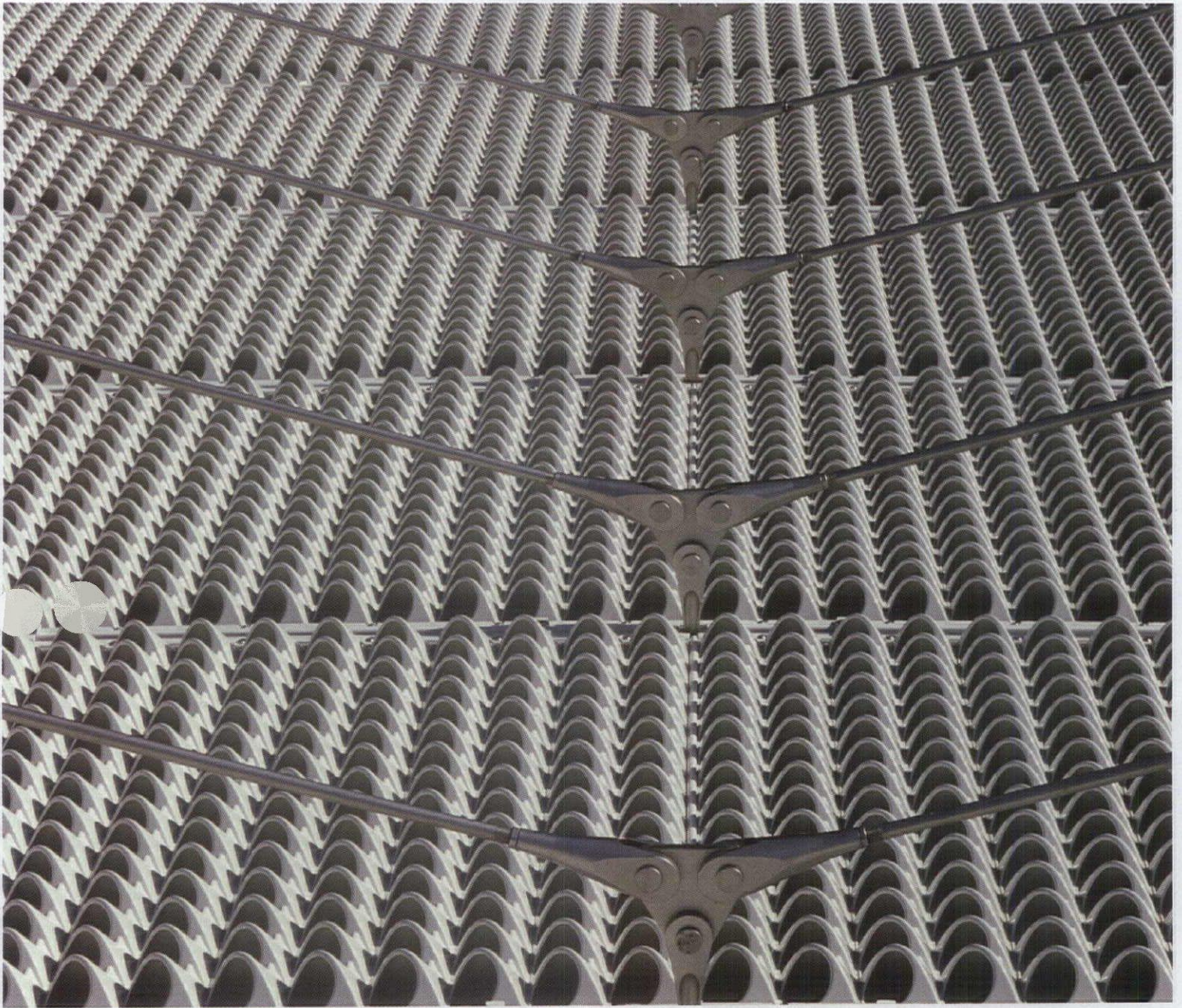
passing all of the recent American projects. He classifies museums into two schools of thought: a European approach that uses diffuse natural light to fill the room and a more dramatic American approach that stresses a lot of contrast with electric lighting focused on individual objects. "Renzo has brought this European attitude to America," Davies says.

Another distinct attitude that Piano brings to each project is that of a builder. He often cites his pedigree from a family of builders in Italy. "Architecture is about dreaming, history, memory, sociology, poetry," Piano says. "But at the end of the day, construction is the fundamental experience of architecture." Since making things, particularly things as complex as buildings, seldom is a solitary venture, Piano embraces the input of others as the foundation of a collaborative process. "However cryptic the first sketches are," says Arup's Davies, "they already indicate a direction or solution that is informed by a deep understanding of how light enters and is distributed through a space." This first stage of the design process involves many exchanges and iterations between RPBW and Arup which refine and sometimes redefine the approach. "These early stages of the design process can

be very intensive as we strive to balance the many aesthetic and functional requirements," Davies says.

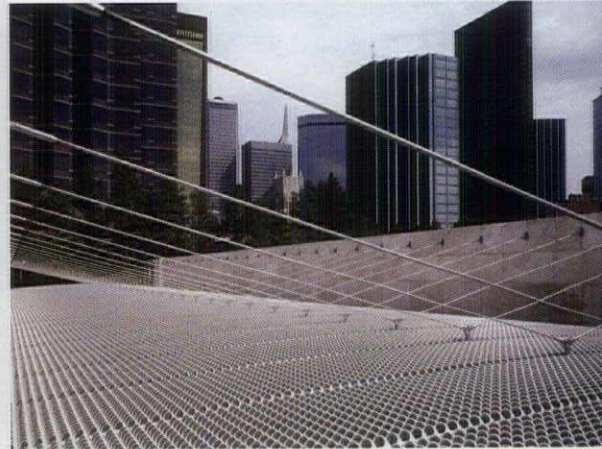
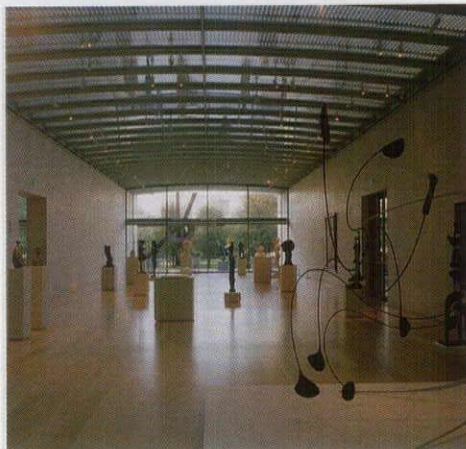
The initial design investigations are dubbed the workshop phase and include all the project consultants and clients. This establishes the basic goals and directions for each project. "It's making things that make sense," Piano says. The continuous dialogue is essential to Piano's process. "I could never invent a shape or a solution and then ask the engineer if it's possible," he says.

Each RPBW/Arup museum is a variation on a single theme: developing some reflecting, refracting, or otherwise obscuring element that shades a roof structure from direct sunlight. These features demonstrate Davies' assertion that "lighting can really form the shape of a building." Piano notes that it always begins with the basic geography of each site and the directional needs of natural lighting in museums—unfiltered northern light and varying degrees of shading for east, south, and west. While almost every American city is laid out on a grid, north is not always north. While Chicago's Art Institute is perfectly aligned with the compass ("Chicago was built on a map



PHOTOS THIS PAGE COURTESY OF THE NASHER SCULPTURE CENTER, PHOTO BY TIM HURSFLEY

Elaborate fins provide shading at the Menil Collection galleries (facing page, right) in Houston and are expressed on the building's exterior (facing page, left). The innovation at the Nasher Sculpture Center in Dallas was the development of a system of "solar bracelets" (above and far right) that redistribute the light through a curved glass roof above each gallery (right).



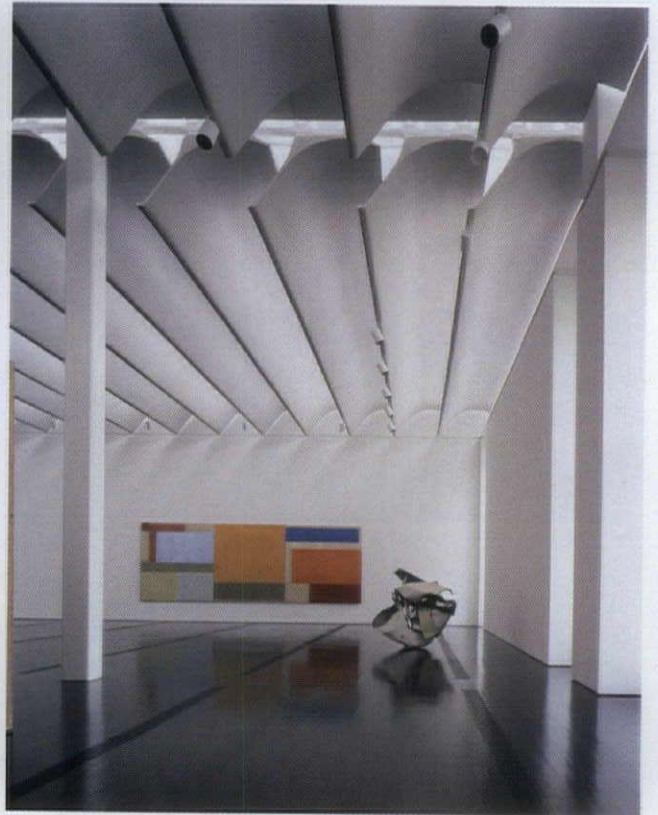
made by a military topographer," Piano notes. Houston's grid is off by a few degrees. It is even trickier in places such as Dallas and Atlanta where the projects are in locales that are not set on the orthogonal. At the High Museum in Atlanta, the roof is composed of 1,000 individual skylights that Piano likens to a field of sunflowers. "It's actually the opposite, a sunflower looks for light from the south; we're looking for the north," Piano says. The High's roof is probably the ultimate demonstration of the complex interaction between RPBW and Arup. The shape began with Piano's metaphoric flower and initially was developed through a series of small and eventually full-scale models, a particular strength of Piano's office that Davies cites as crucial to the continuous dialogue between the architects, engineers, lighting designers, and owners. "The part and full scale models allowed us to investigate the distribution and quality of light and how it was affected by changes in geometry and finishes," Davies says. "Mock-ups provide an invaluable tool to enable us to communicate and explain the design approach to our clients." Arup's detailed analysis was not just confined to illuminance levels. The circular skylights are configured in a gridded ceiling that is designed to reduce clutter. Arup's integrated approach to all its engineering services resulted in structure, electrical lighting, and even the fire sprinklers effortlessly recessed within the sculpted natural lighting system.

Piano and Arup's design for the Art Institute of Chicago's Modern Wing is scheduled to open next year. A carpet-like metal screen structure floats above the galleries' glazed roof. The elaborate fins that provide shading are close in spirit to the Menil Collection because of the similarities in north-south siting. By contrast, the Nasher Sculpture Center in Dallas has a very different quality of light driven by both its function and its orientation. Where a painting gallery at the Art Institute is limited to about 25 footcandles of acceptable light, the Nasher is a venue for sculpture and can utilize a dramatically brighter 100 footcandles of natural light. Even so, the intensely bright Texas sun needs considerable filtering to achieve this level,

and the site's deviation from the compass required a solution that shares some similarities with the High Museum. Arup's innovation here was developing the optics for a cast aluminum screen composed of many thousands of "solar bracelets" that redistribute the light through a curved glass roof above each gallery. These elements create an ideal geometry that excludes sunlight when necessary.

The next step in RPBW and Arup's evolving collaboration is an addition to Louis Kahn's iconic Kimball Art Museum in Fort Worth, Texas. The goal is to create a carbon neutral building that provides a model for sustainable building in a museum. "It's almost an impossible task to have good natural light without entrapping the heat gain of the sun inside the building," Piano says. One key difference in the design is an effort to optimize the quantity of glass on the roof, both to reduce solar gain and maximize surface area for photovoltaic cells that can provide energy for the building. Arup's engineers conducted an optimization study for the building and determined that electrical lighting is the major consumer of energy within a museum (and hence the major contributor of carbon emissions). Thus, the goal is to keep the electrical lighting off as much as possible. This requires maximizing the natural light within galleries. "It's the approach we've always taken, but now it's an even more important aspect of design since it allows you to switch off the electric lighting and make substantial carbon reductions," Davies says.

Despite winning the 1998 Pritzker Prize and the most recent AIA Gold Medal, Piano's dedication to a collaborative approach is genuine. "If you ask me who did this or that I'm not going to be able to tell you," he says. He describes his long-standing relationship with Arup's engineers as a team of good explorers who work hard to develop new ideas in every project. "The curiosity and desire to explore new ground is great," he says. Many museumgoers will agree that the results are as well. **EDWARD KEEGAN**  
*Edward Keegan is a Chicago architect who complements his independent practice by writing, broadcasting, and teaching on architectural subjects.*



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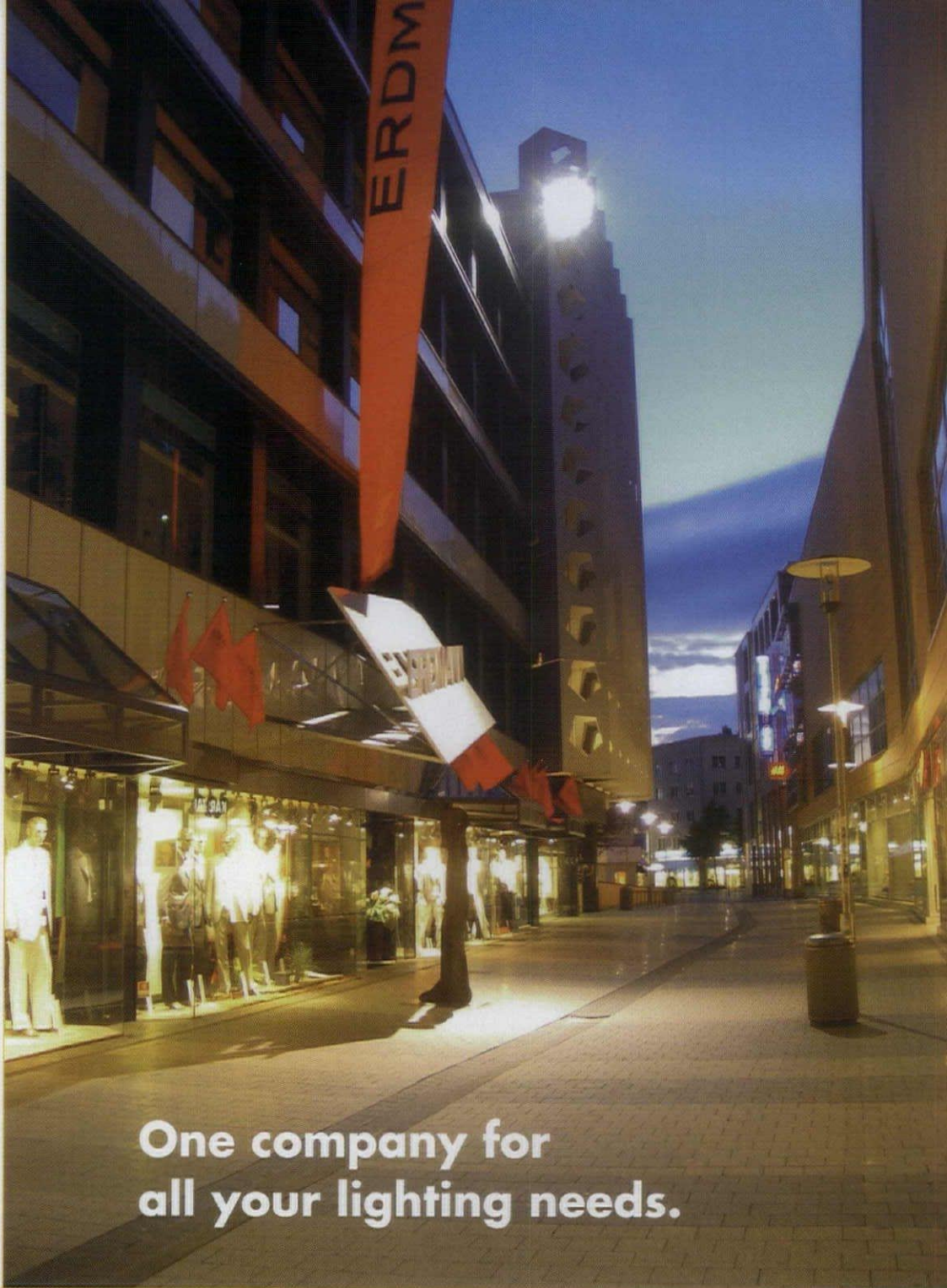
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# East Meets West

Asian and European Motifs Merge Through Light at the New Giorgio Armani Flagship Store in Tokyo's Ginza District.

MUCH IS AT STAKE IN THE FAST-PACED WORLD OF HIGH FASHION AS DESIGN HOUSES compete for brand recognition and customer loyalty. In turn, the architectural statement made by each label has become equally as important, conveying the "lifestyle" qualities associated with the brand. One locale that has come to symbolize this fusion of fashion and architecture is the shopping district of Tokyo known as Ginza. In the past decade, a number of major fashion designers have elicited the talents of notable architects to design their flagship stores including Prada, Dior, and Chanel. Armani is the latest label to build in the district, soliciting the talents of Italian architect Studio Fuksas. "Ginza is seen as a hotbed of architectural styles," says Jonathan Speirs, principal of Edinburgh and London-based Speirs and Major Associates (SAM), the firm behind the lighting design at Armani Ginza. "The architectural statement is as important as the fashion statement."

It is no small endeavor to build a flagship store in Ginza, where real estate is at a premium. When a lot became available, the Armani

**LED-illuminated bamboo stalks and leaves adorn the façade of the new 12-story Giorgio Armani flagship store in Tokyo's Ginza district.**

GIORGIO ARMANI

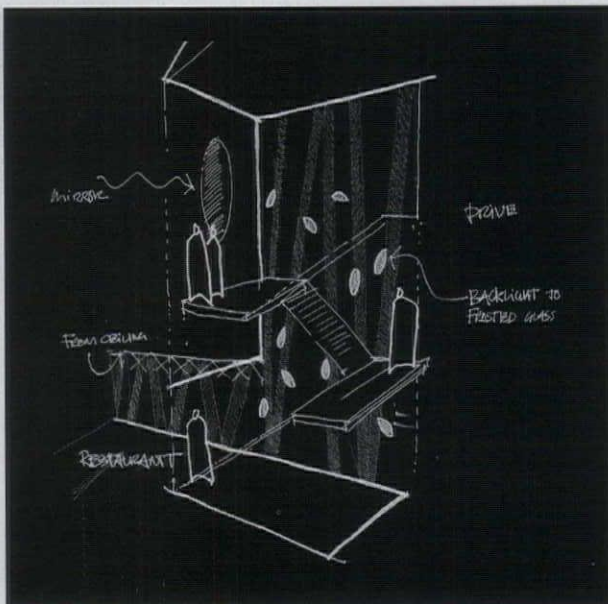
Dior

GIORGIO ARMANI









team acted immediately. From initial design concept to grand opening, the entire process was completed in close to 18 months.

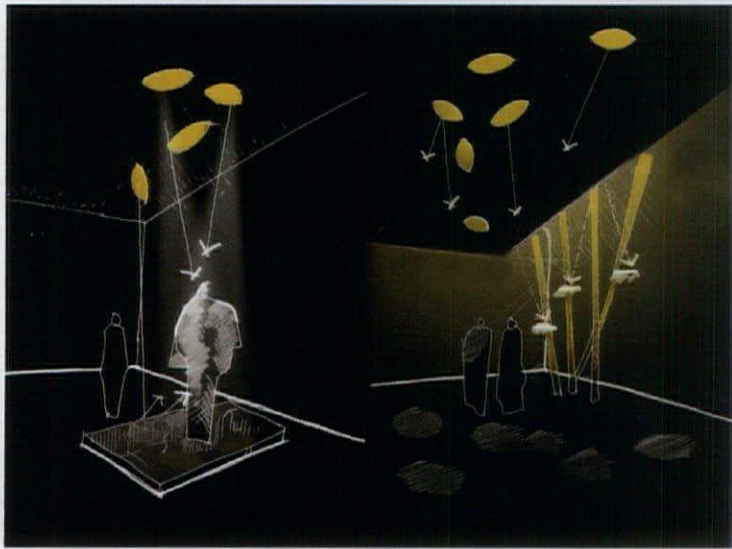
From the outset the goal for this flagship location was not only to create a new image for Armani and to reinvigorate the customer's understanding of the brand, but also to bring the diverse array of product lines—from clothes to accessories to furniture and home goods—together in one place for a complete shopping experience. The main design focus was the integration of light with the architecture, a particular challenge because, as Speirs explains, "Mr. Armani does not like to see light fixtures." The design and lighting teams approached their tasks as five separate projects: the façade, a space for the Emporio Armani label, floors for the Giorgio Armani line, a restaurant, and a private bar called Privé. It was extremely important that customers would feel comfortable in the store and actually buy merchandise, not just come to "window shop." That is why, with the exception of the double-height ground-floor space, all of the retail floors are closed off from windows and views to the outside.

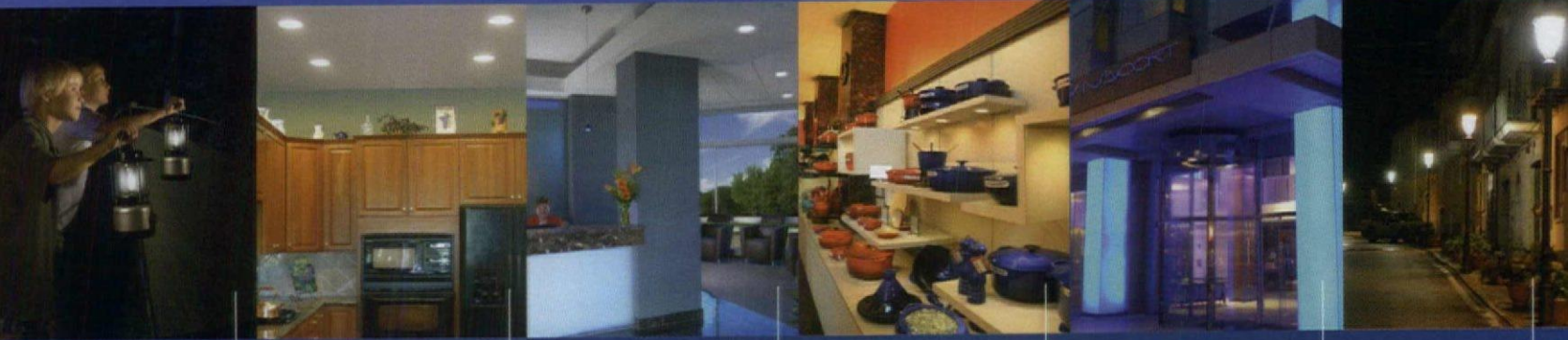
The principal design motif of the project—bamboo stalks and leaves—is the result of Armani's direct involvement. His selection of this figure reinforces the parallels between his signature understated elegance and the thoughtful refinement of Japanese aesthetics. Working with architects Massimiliano and Doriana Fuksas, the task for Speirs and his firm's associate director Keith Bradshaw was to "create an experience where light was an integral part of the visual concept."

Originally the bamboo element, to be represented as a "forest in silhouette," was intended to cover only the first four stories of the building's exterior, but Speirs and Bradshaw felt strongly that to fulfill the objectives of integrating the lighting design with the architecture, the motif must be incorporated over the entire length and width of the 12-story façade. But this proved tricky given the site's proportions; the side face of the corner lot is four times as long as the front face. "The main thing to get right was the façade," Bradshaw explains. "We needed to create a continuity of light." Because the designers could not attach fixtures to the exterior of the façade above the fourth floor, they devised a system—a sectional arrangement of glass curtain wall, lighting element, and blackout shades. The stalks are composed of fluorescent tubes and cold cathode tubes while the bamboo leaf utilizes 150 light-emitting diodes (LEDs) encased in an elliptical-like form. To get the desired halo effect around each of the leaves, a white frit pattern is painted onto the blackout shades to exaggerate the shape. A video media server drives the façade's animation, giving the bamboo the ability to change color. For instance, during cherry blossom season the stalks change from pink to gold with a slight sparkle to give the illusion that they are blowing in the wind.

The bamboo motif continues in the interior spaces as well, as the ceiling element for the first three floors, which are devoted to the Giorgio Armani line, the brand's cornerstone. Custom-shaped ceiling openings, clustered together and lined in gold leaf, have a perimeter fluorescent cove with tapered edges so the light source

**The design element from the Emporio Armani retail areas—black stainless-steel panels with laser-cut slots backlit with fluorescent lamps—is carried through to the common stair of the Tokyo subway stop that sits directly beneath the Armani store location (facing page). Gold mesh, patterned with the bamboo leaf motif, is sandwiched between glass panels that line the stairs that lead from the ninth-floor restaurant up to the 11th-floor private bar called Privé (top). An early concept sketch of the stair by Speirs and Major Associates illustrates the idea (middle). Case good merchandise in the Emporio Armani store areas is highlighted from a concealed slot system in the ceiling using CDMR111 lamps (bottom).**





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is never visible. Other displays such as clothes rails are highlighted by a concealed slot system in the ceiling that uses CDMR111 lamps. A gold mesh with the bamboo leaf motif cut into the metal at a very fine scale is sandwiched between glass panels that are positioned throughout the retail area. The ceiling fixtures are connected to a lighting control system that slowly dissolves light onto the panels to create a gentle animation. The “fading” technique coupled with the mesh material renders the panels in and out of view, creating a sophisticated space that is never really static.

By contrast, the Emporio Armani line, housed in two below-grade floors, was designed to be a more active and dynamic space and create an immersive experience. Catering to a younger clientele than the Giorgio Armani label, the distinguishing feature of the space is a wrapper of black steel panels with staggered laser-cuts each 8mm thick. The lighting element is hidden behind the panels, lined with a layer of barisol to conceal the source. An internal reflector made of white MDF pushes the light closer to the center of each panel. To position the lamps correctly, a full-size mock-up was made. “We needed to see the line of the light,” Bradshaw explains. Here, SAM used all fluorescent sources with 0 to 10' volt dimming capabilities. The lamps are grouped together to create an intensity of light, and because some of the lamps are on at 20 percent and others at 100 percent, the modulation of intensity creates a gentle animation.

Custom-built glass elevators backlit floor-to-ceiling with cold and warm white LEDs link the lower-level retail spaces with the ninth and 11th floors, which house the restaurant and private bar, respectively. Color temperature as a whole changes from cool to warm throughout the building, articulating the layers of space as shoppers move from the lower retail floors to the upper floors, where golden tones become more prominent.

“Light is implicit in the design,” Bradshaw says. “The space would not work without the lighting.” Like an abstracted Japanese paper lantern, whose beauty lies in its simplicity of a single gesture, the success of the new Armani Ginza flagship store is the lighting’s integration with the architecture and interiors to convey a series of distinct experiences that culminate in a unified whole. **ELIZABETH DONOFF**

**From concept sketch (bottom left) to end result (top left), lighting elements are used to modulate the space and showcase the clothing and accessories of the Giorgio Armani line. Speirs and Major Associates carried the bamboo leaf motif a step further by creating custom ceiling openings to house a fluorescent cove-light, while a concealed slot system in the ceiling and over the clothes rails uses CDMR111 lamps (top left). Like a fine piece of fabric that Armani would use to create a garment, gold mesh sandwiched in between glass panels form the walls of a private dining area in the restaurant (bottom right).**

#### DETAILS

**PROJECT** | Armani Ginza Tower, Tokyo

**CLIENT** | Giorgio Armani SpA, Milan

**ARCHITECT AND INTERIOR DESIGNER** | Studio Fuksas, Rome

**LIGHTING DESIGNER** | Speirs and Major Associates, Edinburgh, Scotland

**PROJECT SIZE** | 86,000 square feet

**PHOTOGRAPHER** | Nakasa & Partners Inc, Tokyo

#### MANUFACTURERS | APPLICATIONS

**COLOR KINETICS** | Custom bamboo leaf LED feature on façade

**ENDO LIGHTING** | Japanese supplier of light fixtures throughout the project

**LUCENT LIGHTING** | Downlights in the stair, restaurant, and private bar

**LUTRON** | Graphik 7000 lighting control system for Giorgio Armani retail floors

**OSRAM** | Lamps throughout the project

**PHILIPS** | AR111 lamps with spread lens at glass partitions

# DEMISI BOKS HEADQUARTERS, Mexico City

**CHALLENGE** Creating a contemporary office in Mexico City for the client, law firm Larena, Trevilla, Fernández and De La Torre Abogados, was the goal of BROISSINarchitects, however, one of the project's challenges was the given amount of space within which the designers had to work. Gerardo Broissin, the firm's founder, admits that designing the 1,667-square-foot area to comfortably fit approximately 40 people proved to be difficult, but he and his team came up with a design for the office, located on the fifth floor of an infill building, that promotes communication among employees and uses the lighting scheme to make the space appear larger than it actually is.

**PROJECT** | Demisi Boks Headquarters, Mexico City **DESIGN TEAM** | BROISSINarchitects, Mexico City (architect and lighting designer) **PHOTOGRAPHER** | Paul Czitrom, Mexico City  
**PROJECT SIZE** | 1,667 square feet **LIGHTING COST** | \$15,000 (U.S.) **WATTS PER SQUARE FOOT** | 10 **MANUFACTURER** | Osram Sylvania



Situated outside the executive offices is a secretarial module (left), allowing for open communication between colleagues. Administrative employees work in the glass-enclosed cubicles (middle) located in the center of the office space. An aisle of executive offices (right) shows how the fluorescent cove lighting illuminates both the ceiling and floor.

**SOLUTION** In addition to the size constraints of the office's square footage, the low ceiling height of 9 feet also added to the project's complexity. Because the ceilings are not as tall as Broissin would have liked, he installed indirect linear T5 fluorescent fixtures in coves around the ceiling perimeters and also along the floor "to give the sensation of light boxes floating in space," Broissin explains. To illuminate the desks throughout the office, 20W halogen lamps are recessed into cabinets above the work areas, he adds.

The eight-story office building is located in Mexico City's Bosques de las Lomas, Cuajimalpa, neighborhood. Occupying half of the fifth floor, the Demisi Boks headquarters is split between administrative and executive areas. The administrative offices are located in the center of the space, enclosed in glass and strategically positioned this way to foster open communication between employees, including the firm's

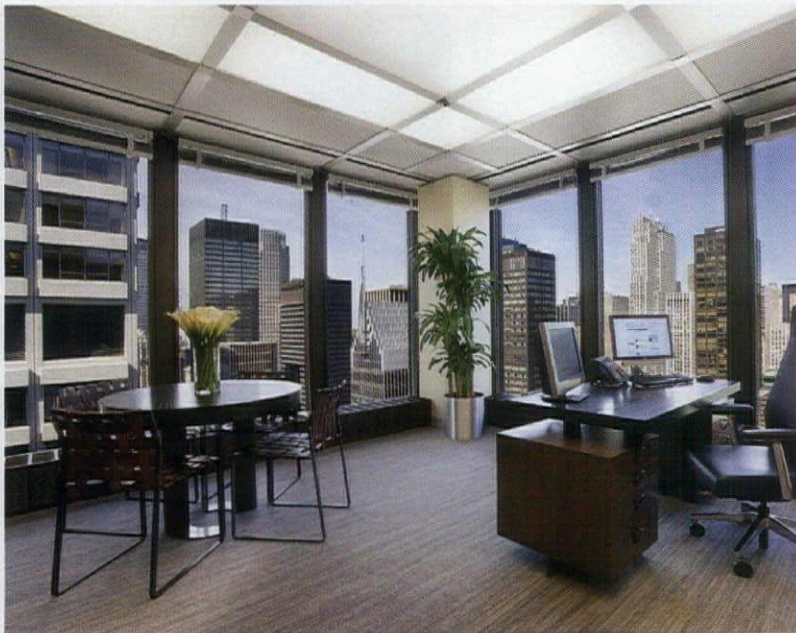
principals, who are housed in eight offices located along the perimeter of the building. This configuration allows natural light to enter the executive offices throughout the daytime hours. To create an equivalent feeling of natural light throughout the rest of the office, which does not have the same access to daylight, Broissin developed the concealed cove uplifting strategy to make the interior spaces glow.

The office environment is clean and elegant with wood and glass being the main materials used throughout, and the lighting scheme complements this material palette as it creates the effect that Broissin describes as floating illuminated boxes. Looking down the hallways, the fluorescent cove lighting highlights the executive and secretarial spaces as it emits a soft glow. The lack of natural light throughout can make the office appear dark, but the lighting design successfully combats that, bringing a sense of daylight to the interior while creating a comfortable atmosphere. **JENNIFER LASH**

## MAZAMA CAPITAL MANAGEMENT, NEW YORK CITY

**CHALLENGE** Tasked with bringing a sense of the Pacific Northwest to a historic building in midtown Manhattan, architecture and interior design firm Tobin+Parnes Design Enterprises (TPDE) created a functional, contemporary office space on the 37th floor in the landmark Seagram Building for Portland, Oregon-based Mazama Capital Management. The location places Mazama in “the heart of New York City action,” explains Carol Tobin, principal of TPDE. However, designing the space in such a building meant adhering to strict preservation guidelines, which in this case involved the incorporation of the luminous acrylic grid ceiling created by the building’s original lighting designer, the late Richard Kelly.

**PROJECT** | Mazama Capital Management, New York City **DESIGN TEAM** | Robert Mark Parnes, New York City (architect); Tobin+Parnes Design Enterprises (lighting designer)  
**PHOTOGRAPHER** | Ruggero Vanni, New York City **PROJECT SIZE** | 5,000 square feet **MANUFACTURERS** | Artemide, Bartco Lighting, Boyd Lighting, Celestial Lighting, Hemera, Linear Lighting, Specialty Lighting Industries, USA Illumination, Waterworks



The CEO’s office (above, left), located in the southwest corner of the building, receives a steady stream of afternoon light from the floor-to-ceiling windows, as does the large conference room (above, right). The reception area (facing page) features a plaster wall behind the couch illuminated by fluorescent cove lighting.

**SOLUTION** In the late 1950s when Kelly worked on the Seagram Building with architect Ludwig Mies van der Rohe, his hope was for the lighting to appear uniform to those viewing it from the street. Tobin says it is her understanding that Kelly “wanted the building to glow and look like a lantern.” And while the New York City Landmarks Preservation Commission generally tends to protect a building’s façade, Tobin explains that in this case, it has designated not only the building exterior but also the luminous ceiling that runs around the perimeter of each of the 38 floors. “You’re not allowed to touch it,” she says about the ceiling. “As a result, it dictates what happens to the rest of the space.”

Preservation issues aside, the client very much set the tone for this project, which was completed in April 2007. Mazama executives wanted the 5,000-square-foot New York office to reflect the company’s Oregon roots, resulting in the use of natural finishes and warm lighting to soften the space. “It was a challenge because we wanted to integrate and enhance the warmth of those materials by the intelligent use of the right lighting,” Tobin explains.

A sense of warmth immediately is apparent upon entering despite there being no reception desk. Rather, a living room-like environment complete with a couch, chairs, and carpet greets visitors. Ambient light is provided by a combination of lighting elements, including 14W T5 fluorescent cove lighting and 60W A-lamp pendants. Employees can see visitors through ceiling-suspended layered acrylic panels, which distinguish the lobby from the work area. An entry wall along one side of the space

is wrapped in a horizontally veined walnut veneer, illuminated with low-voltage 71W MR16 lamps to enhance the wood grain, making it stand out like a piece of art. Across the space, a paneled wall made up of 32-by-32-inch squares of plaster form a wave-like pattern that allows light and shadow to ripple across the textured surface. Ceiling-recessed 50W PAR20 accent lighting is used to cast shadows on the plaster, which “increases your sense of depth and enhances the texture,” Tobin says.

The Mazama offices face west and receive afternoon light through the floor-to-ceiling windows. No draperies or decorative elements are allowed on the windows; another preservation requirement mandates that all tenants use the same horizontal blinds. But this is not a problem for Mazama employees. “They loved the openness,” Tobin says. “I don’t think I’ve ever been up there when the blinds have been down.”

When incorporating the luminous ceiling into the lighting design, Tobin explains the idea was to have it look like “building jewelry, something that was an enhancement to the space.” A higher efficiency T8 fluorescent lamp was installed, meeting landmark requirements and building guidelines. “Walking by the building at night, it’s spectacular,” Tobin says. “You look up and see all the ceilings are exactly the same. The grid is punctuated perfectly and creates a very quiet geometry. It’s strong, but not screaming in your face.” The combination of lighting components used throughout the space to create a warm atmosphere works well with the luminous ceiling, resulting in a lighting design fitting for both the Mazama office and the landmark Seagram Building. **JENNIFER LASH**



# WORKING LIGHTS



**1. LAM LIGHTING | LITEROD | LAMLIGHTING.COM**

The Literod series includes tubular-shaped fixtures that can be suspended from the ceiling surface or mounted to the wall, providing direct, indirect, or a combination of direct and indirect diffused light. Literod uses T8, T5, or T5HO lamps, and the extruded aluminum luminaire housing is available in lengths up to 12 feet. **CIRCLE 125**

**2. AMERLUX | GRÜV | AMERLUX.COM**

Grüv is a recessed linear fluorescent slot lighting system designed to provide ambient lighting in commercial and office environments. The luminaire, available for use in gypsum board, slot, and T-grid ceilings, is offered in varying lengths and lamp configurations to meet specifier needs. A dimming option also is available. **CIRCLE 126**

**3. LUXO | MEMO | LUXOUS.COM**

Applicable for computer-intensive environments, Memo is an energy-efficient tasklight with a 13W compact fluorescent lamp. According to the manufacturer, the lamp uses 30 percent less energy than comparable ergonomic tasklights. By remaining parallel to the work surface when moved, the luminaire head prevents glare. The shade is available in black, white, and blue. **CIRCLE 127**

**4. ÉNERGIE | LUCEO | ENERGIELIGHTING.COM**

An indirect/direct lighting system with a profile of less than 1 inch, Luceo is well suited for commercial applications. Units can be suspended or combined in continuous rows, and ceiling-mounted luminaires can be used in hallways and low-ceiling spaces. The fixture, according to the manufacturer, provides an overall efficiency of 95 percent and is available with either a T5 or T5HO lamp. **CIRCLE 128**

**5. A-LIGHT | ACCOLADE 5 | ALIGHTS.COM**

Providing ambient or accent illumination in commercial or institutional environments such as offices, hospitals, and museums, accolade 5 is a fully recessed wall or ceiling luminaire that can be mounted in rows, at right angles to one another, or in patterns. Various lamp options are available, including T5, T5HO, and MR16 halogen. **CIRCLE 129**

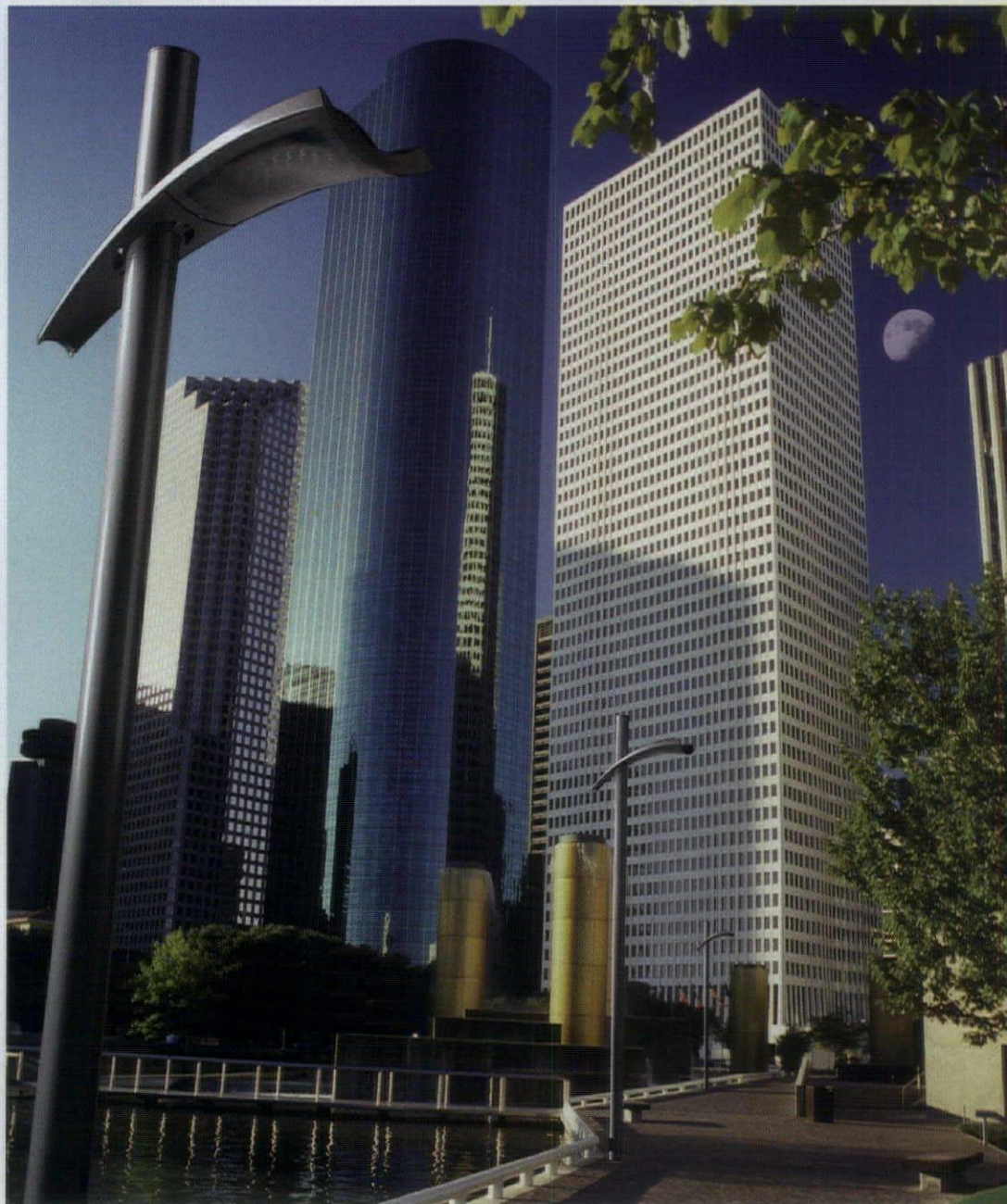
**6. COOPER LIGHTING | HALO | COOPERLIGHTING.COM**

Dimming capabilities are now available for the Halo line of compact fluorescent recessed downlights. Energy Star qualified and Title 24 compliant, the downlights can be dimmed from 15 percent to 100 percent, with 5-inch housings using 26W lamps and 6-inch housings taking either 26W or 32W lamps. **CIRCLE 130**



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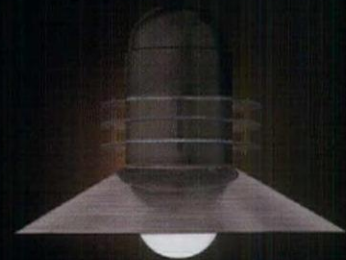
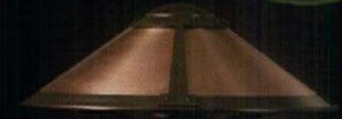
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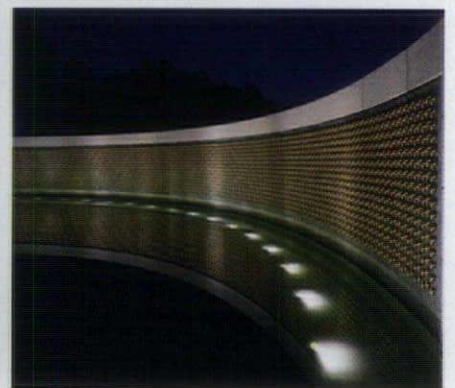
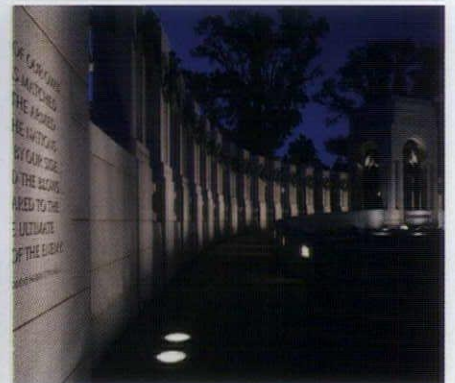
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# Illuminating History

THREE COMMEMORATIVE STRUCTURES EXPLORE OUTDOOR LIGHTING SOLUTIONS.



The National World War II Memorial (above) sits on the National Mall and features 56 granite pillars (top right), one for each state and territory from that period and the District of Columbia. The Freedom Wall (bottom right) emerges from the memorial's reflecting pool and features 4,048 gold stars, each representing 100 American lives lost during WWII.

WASHINGTON, D.C., OUR NATION'S CAPITAL, PLAYS HOST TO AN IMPRESSIVE LINEUP OF MONUMENTS and memorials that celebrate our country's history and recognize major milestones. While most people visit these landmarks during the day, the structures also are viewed at night as tourists and residents alike see them illuminated from afar, the handiwork of the lighting designers behind each project whose task it was to give each structure a presence at night.

Lighting designers face numerous challenges in designing for exterior conditions: the dreaded elements such as wind and water, wildlife (bugs in particular), along with safety and security issues. In addition, multiple voices are involved in the design and construction of monuments and memorials—including but not limited to fine arts commissions, monument committees, political appointees for the project, and the National Park Service—who can all weigh in on the design and maintenance of these built outdoor objects and spaces, further affecting the end result.

The lighting schemes for three commemorative structures in the Washington, D.C., area—the National World War II Memorial, the Washington Monument, and the U.S. Air Force Memorial—each had a specific set of challenges and requirements. The result is a trio of unique design solutions that respond to the individual sites and programs for each structure.

## NATIONAL WORLD WAR II MEMORIAL

Located on a Congressionally approved site on the National Mall—the Rainbow Pool at the east end of the Reflecting Pool between the Lincoln Memorial and the Washington Monument—the National World War II Memorial was erected in memory of the 16 million Americans who fought and served in World War II. Composed of three main features—curving rampart walls, the Rainbow Pool fountain, and a “Freedom Wall” with its own reflecting pool—the memorial spans more than 7 acres.

The lighting scheme—subdued, discreet and controlled—aimed to echo the memorial's sentiment: Darkness of global conflict and a light of freedom. “We wanted to reveal form in a different way and create simple, elegant lines,” explains Barbara Horton of New York City-based Horton Lees Brogden Lighting Design, the firm responsible for the memorial's lighting. The client, the American Battles Monument Commission, wanted the memorial to evoke a warm feeling and as a result insisted on the use of incandescent sources. To keep light levels low and provide necessary control and dimming, low-voltage PAR36 and AR111 lamps were selected to obtain the desired effects. To provide a sense of animation at night, the Rainbow Pool is illuminated with PAR56 lamps with narrow beam spreads precisely aligned to follow the individual water arcs, of

## DETAILS METHOD

The U.S. Air Force Memorial in Arlington, Virginia, consists of three stainless steel spires, each with a different arc and height. The top third of each spire has an average of 15 footcandles, a requirement of the Federal Aviation Administration (right).

which the center ones spray up to 90 feet. Colored filters often are added for special events.

The Freedom Wall emerges from a reflecting pool with 4,048 gold stars, each representing 100 American lives lost during the war. PAR38 lamps are used to enhance the golden color and create an iconic symbol of remembrance. The granite of the colonnade walls is illuminated from across the walking path with double-headed AR111 custom precision angled louvered luminaires.

Respectful of the adjacent monuments, the lighting scheme was kept simple, as "a kind, gentle solution to balance our memorial with the others," Horton says. With very low light-levels, less than 1 foot-candle on average, the overall effect is one of a soft glow as the below-grade plaza appears to emerge out of the ground.

### U.S. AIR FORCE MEMORIAL

Overlooking the Pentagon from high ground across the Potomac River sits a new structure to celebrate years of service from the Air Force. Designed by architects Pei Cobb Freed & Partners and completed in 2007, this memorial is composed of three stainless-steel spires that arc gracefully into the sky. Reminiscent of the precision "bomb burst" maneuver performed by pilots in flight, each spire has a different height and arc, providing a dynamically different view from every angle.

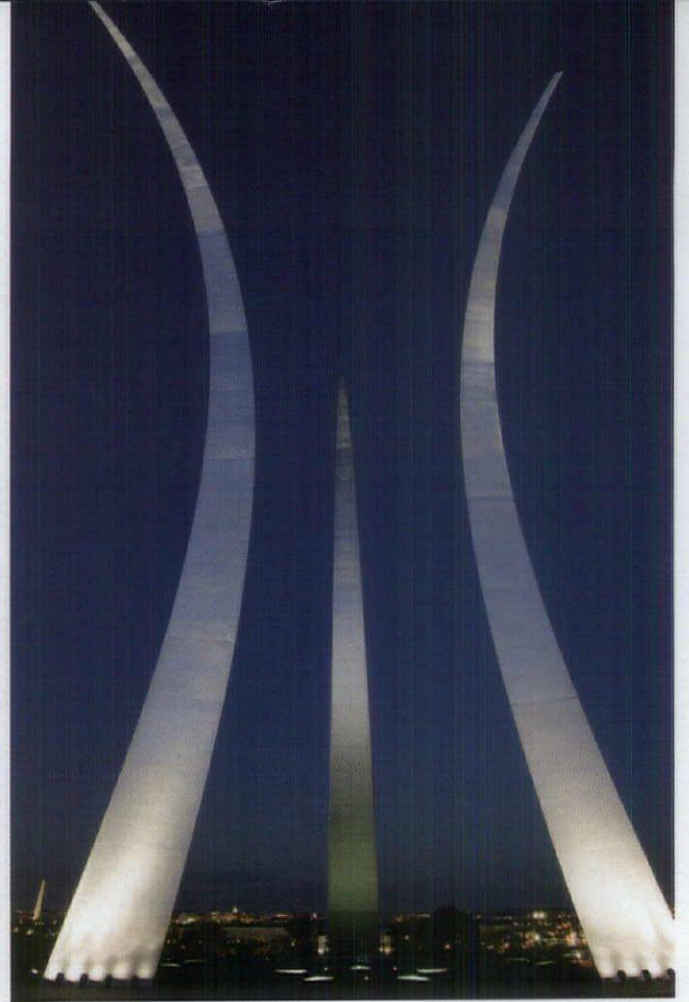
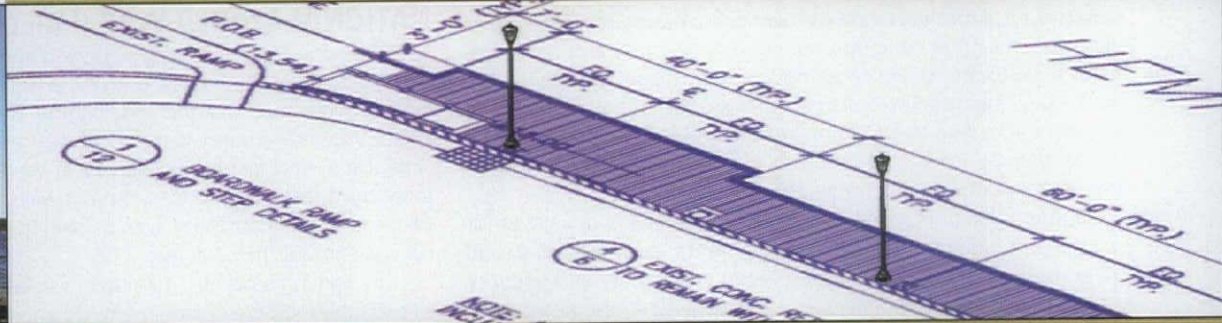


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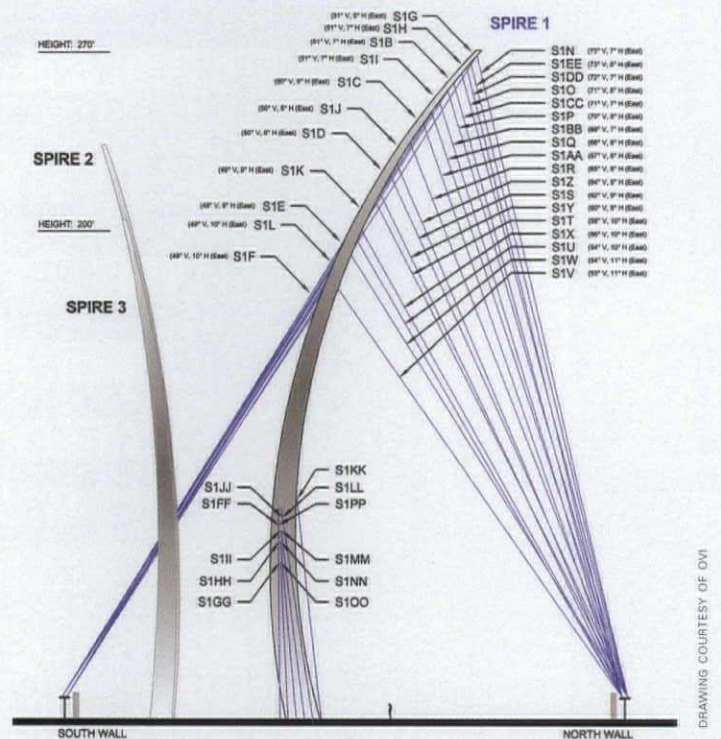
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## DETAILS METHOD

The lighting design for the U.S. Air Force Memorial is calculated precisely so that each side of the structure appears to have a different level of brightness—similar to how the sun would interact with the arcing sculpture. A diagram of the fixture positions (right) illustrates the intricacy of the process.

New York City lighting design firm Office for Visual Interaction (OVI), the lighting consultants responsible for the illumination scheme, wanted to enhance the architectural qualities of the memorial and give it the sense that the light emerged from within. As with the Washington Monument, the goal was to give the three sculpted forms shape and dimension at night, not to flatten them. To reveal the shape, each side of the structure must appear to have a different level of brightness—similar to how the sun would model the form during the day.

Three arcing, triangulated forms made of shiny stainless steel, each with a different shape in both plan and elevation, were difficult structures to illuminate. Additionally, because of the height of the piece, 270 feet at the tallest point, with the other two peaks at 231 feet and 201 feet, respectively, principals Enrique Peiniger and Jean Sundin were required to meet Federal Aviation Administration (FAA) requirements for visibility. This would have required red beacon lights at the midpoint and peak of each arc. But rather than obscure the monument's sculptural form, OVI researched how tall steeples are illuminated and developed a design in which the top third of each spire maintains an average of 15 footcandles as required by the FAA, thus eliminating the need for the red beacons.



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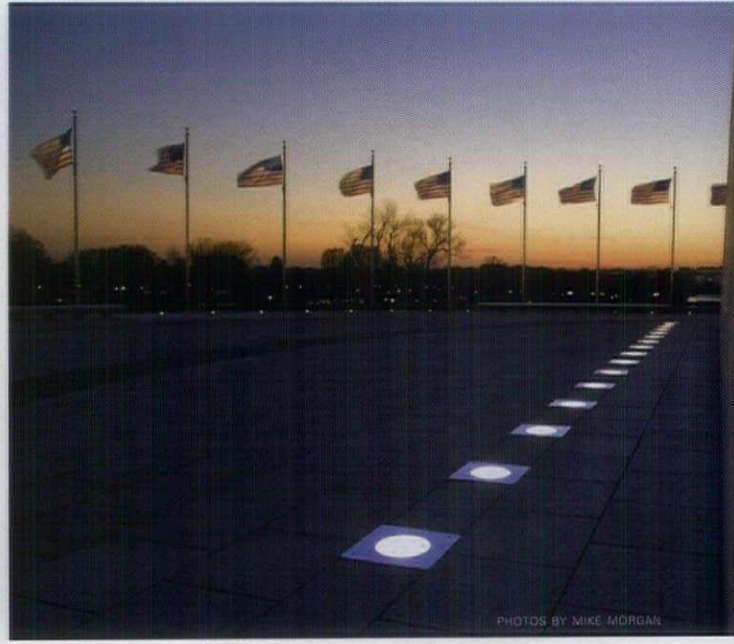
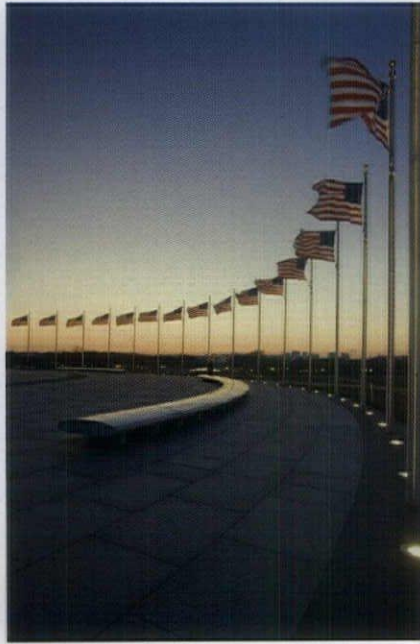
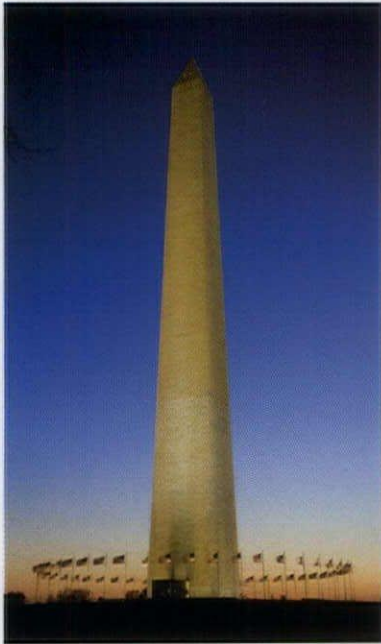
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The 555-foot-tall Washington Monument (left) was relit in 2005 as part of a security upgrade to the site following the Sept. 11, 2001, terrorist attacks. Fifty flags surround the base of the monument (middle), representing the 50 states. On each of the monument's four sides, a row of 17 in-grade 150W metal halide fixtures uplight the first 150 feet of the structure (right).

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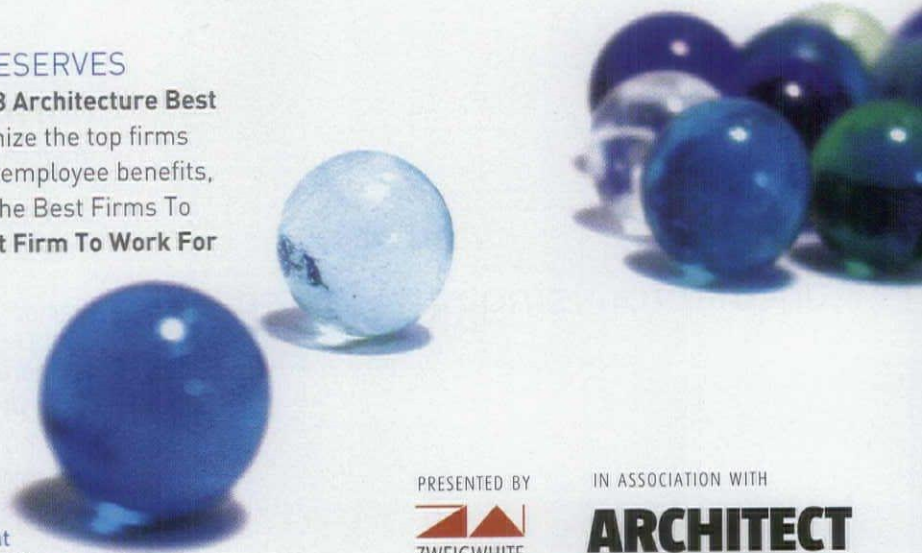
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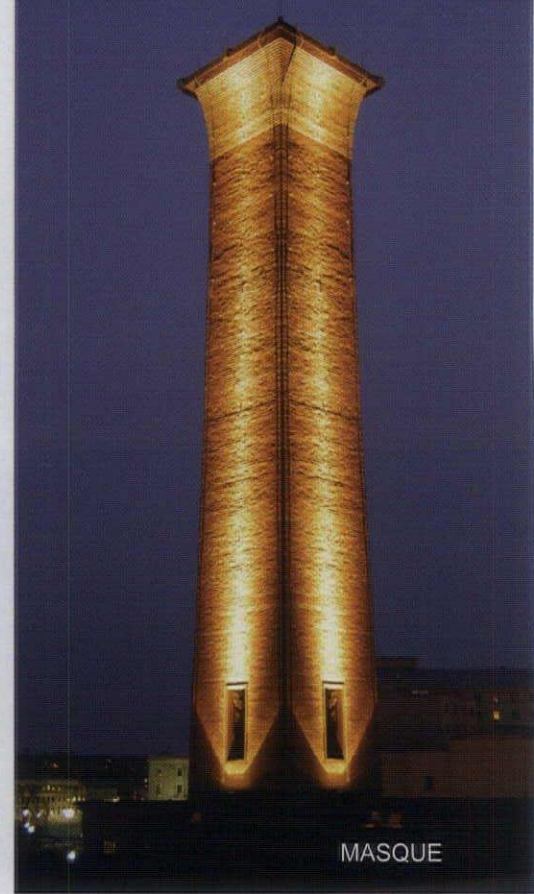




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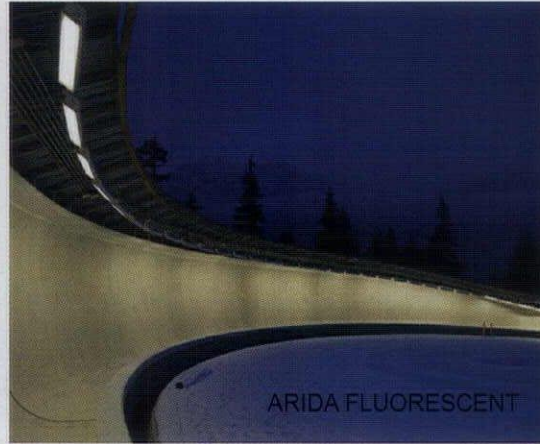
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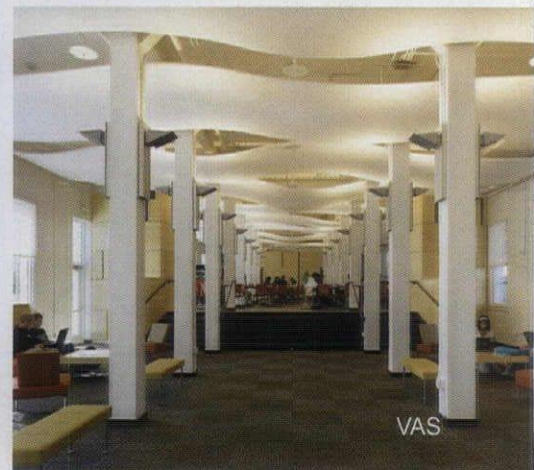
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## DETAILS METHOD

Using pole-mounted fixtures with 4000K 250W metal halide sources hidden behind granite inscription walls on either side of the memorial, OVI was able to precisely focus more than 25 fixtures with very narrow (7 degree to 9 degree) beam spreads onto the top third of each spire using a custom-designed laser aiming tool. Each fixture had to compensate for the sway of the spire, up to 18 inches in any direction. Careful planning of beam angles reduced the amount of glare off the stainless steel. Illuminating the top and bottom of each structure and allowing the light to fade in the middle, the three-dimensional shape of each spire is revealed.

### WASHINGTON MONUMENT

Because of safety concerns after the Sept. 11, 2001, terrorist attacks, the Washington Monument was relit in 2005 by New York City-based lighting design firm Fisher Marantz Stone (FMS) as part of a security upgrade to the site. Originally illuminated by General Electric with massive floodlights located in four large vaults surrounding the monument, the new design aims to increase visibility of the monument from the surrounding National Mall and integrate the lighting fixtures into the landscape.

Charles Stone, project principal, initially researched the lighting scheme for the St. Louis Arch because of project affinities and considered lighting the monument using a similar solution—an underground vault with an integrated grill and louvers that could be traversed. However, because of security reasons and the massive accumulation of bugs, it was agreed by both the designer and client that this solution was not feasible.

At 555 feet and 5 inches, the Washington Monument is the tallest structure in Washington, D.C. Designed by architect Robert Mills, construction of the monument occurred in two phases—1848-56 and 1876-84—interrupted by the Civil War and lack of funds. As a result the structure uses white marble from two different quarries; one in Massachusetts and one in Maryland.

The first variety of marble extends approximately the first 152 feet of the monument, while the second type of marble completes the obelisk. As this difference in stone texture and color is forever linked to the history of the monument, FMS chose two different methods for illuminating the structure. At the base, on each of the monument's four sides, a row of 17 in-grade 150W metal halide fixtures uplight the first 150 feet of the structure's surface. To hit the remaining 400 feet, four 20-foot "toadstools" or masts were erected at the corners of the monument site placed approximately 600 feet away, each with three 2000W, long throw metal halide floodlights that were donated to the project.

FMS sought to give the structure dimension in the darkness. After performing a lighting placement analysis, Stone knew "the adjacent faces had to be of a different brightness, to create balance with the other monuments, therefore it was decided that the Capitol and Lincoln [Memorial] faces would be brighter, and the north and south faces less bright." Additionally, by illuminating the north and south faces at a lower level than the east and west façades, the shape of the obelisk is revealed. The new lighting design eliminates the need for the vaults that originally were used, providing a clear view of the monument along the National Mall. In addition, the upgrade almost doubles the amount of light on each of the monument's four sides while cutting the energy consumption in half.

### A BALANCING ACT

All the lighting designers associated with these projects sought to enhance and reveal the structures with light. In designing for exterior environments, it is beneficial for a designer to evaluate the entire setting and create a hierarchy of importance not only within the assigned project, but also in relationship to all other visible structures. It often is this sensitivity and an awareness of surroundings that assists and shapes thoughtful lighting design. **JEN BICKFORD**

#### DETAILS

**PROJECT** | National World War II Memorial **LOCATION** | Washington, D.C.  
**DESIGN TEAM** | Friedrich St. Florian and Leo Daly, Washington, D.C. (architects); Horton Lees Brogden Lighting Design, New York City (lighting designer)  
**PHOTOGRAPHER** | Brett Drury, San Diego **PROJECT SIZE** | 7.4 acres  
**MANUFACTURERS** | Exterior Vert, Hydrel, Sterner Lighting

**PROJECT** | U.S. Air Force Memorial **LOCATION** | Arlington, Virginia  
**DESIGN TEAM** | Pei Cobb Freed & Partners, New York City (architect); Office for Visual Interaction, New York City (lighting designer) **PHOTOGRAPHER** | Thomas Mayer, Germany **PROJECT SIZE** | 3 acres **MANUFACTURERS** | Bega, Edison Price, Electrix, Erco, Kim Lighting, RSL Lighting

**PROJECT** | Washington Monument **LOCATION** | Washington, D.C.  
**DESIGN TEAM** | Olin Partnership Architects, Philadelphia (architect); Fisher Marantz Stone, New York City, (lighting designer) **PHOTOGRAPHER** | Mike Morgan, Washington, D.C. **PROJECT SIZE** | Approximately 50 acres  
**MANUFACTURER** | Musco Lighting



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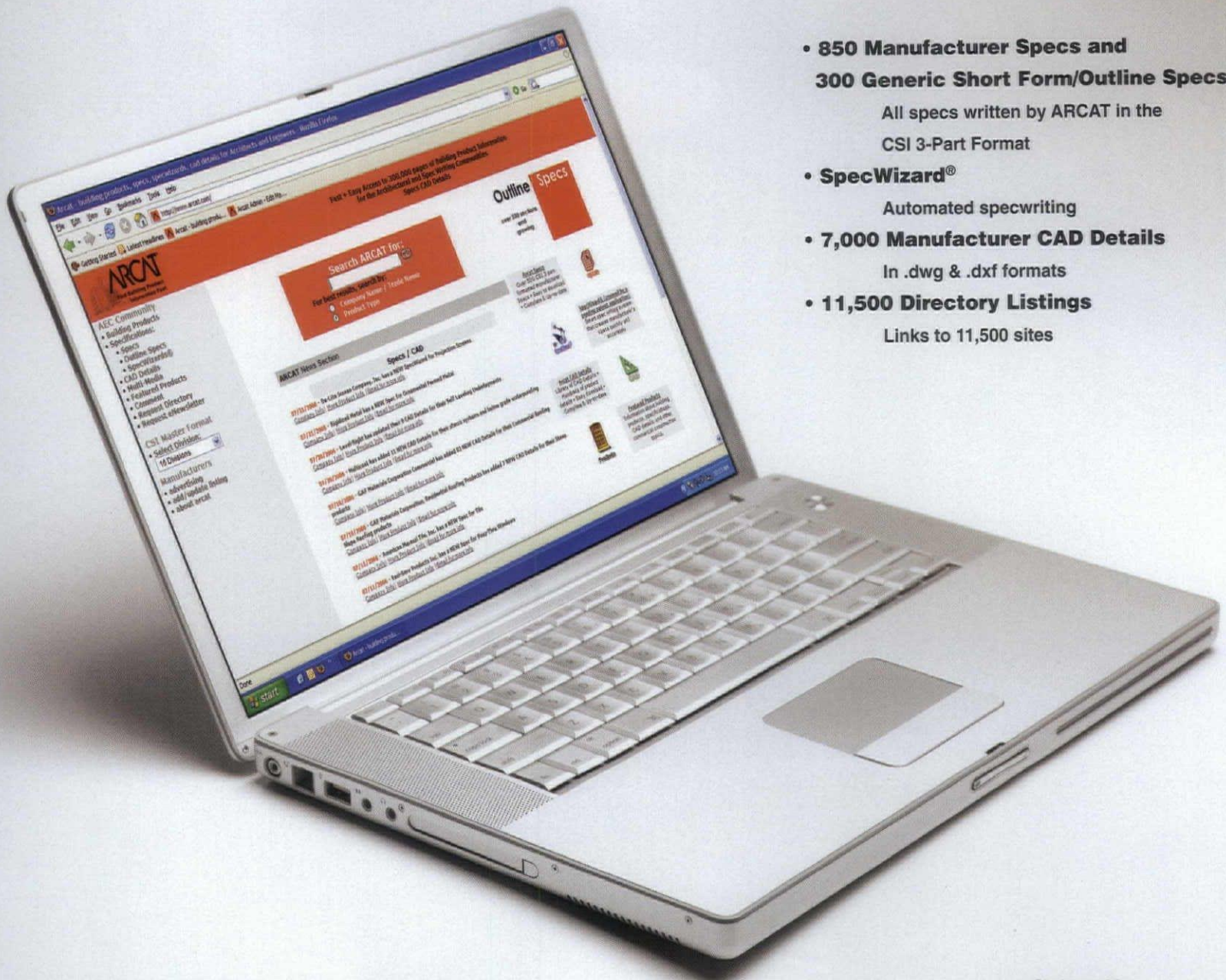
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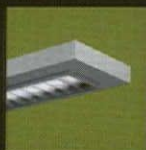


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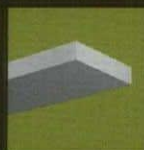
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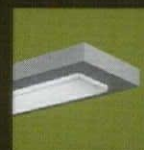
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# Designing the Lit Environment

TECHNIQUES AND TECHNOLOGIES TO PROMOTE HOLISTIC LIGHTING DESIGN



Research suggests that occupants rarely adjust blinds. An informal walkthrough of two elementary schools in Idaho with a total of 156 south-facing windows with manual louver blinds, found that only 18 of the blinds were open, representing only 10 percent of the potential daylight access. The lighting difference is quite dramatic as seen in the same classroom with blinds up and lights off (above, left) and blinds down and lights on (above, right).

THERE OFTEN IS A TENSION BETWEEN LIGHTING DESIGNERS WHO FOCUS ON DAYLIGHTING design and those who concentrate on electric lighting design. In my experience, the tension arises out of a conversation such as this:

**Daylighting Consultant:** "Daylight is important for people's health and productivity, is highly desirable, and can reduce lighting energy use. It is my goal to make sure that your electric lighting is never on. I will design the fenestration system to achieve the specified lighting criteria with daylight only."

**Electric Lighting Designer:** "It is my goal to highlight the beauty of the architecture and achieve the specified lighting criteria during all occupied hours of the year, not just those hours when the sun is out. Besides, daylighting can be glaring and I want to be sure the space is well lit even when the blinds are closed."

Too often, the daylighting consultant and the electric lighting consultant struggle to find a common language and fail to recognize that what is needed is holistic lighting design. The challenge of specialization is successful integration of that specific knowledge. Daylighting consultants and electric lighting designers, even those with a close working relationship, or those who have expertise in both areas, often find it challenging to navigate the two media.

Who needs to be involved to promote successful holistic lighting design? What techniques and technologies are available to progress its evolution? What language barriers and technological shortfalls exist to complicate the issue? These questions will be pursued in this article.

## UNDERSTANDING THE PROBLEM

The desire to include daylight and the need to reduce energy use in office buildings has led to the development of lighting control systems that attempt to integrate, or at least communicate between, the two lighting types. These systems hold tremendous potential to reduce energy use in buildings. The general premise is that if sufficient daylight is present, electric lights will respond and either dim or switch off. Unfortunately, in reality it is rare that spaces designed for inclusion of daylight produce the electric lighting energy savings purported during design stages. This is in large part due to dissatisfaction among building users who disable the lighting control systems or fail to operate their blinds in an optimal fashion, therefore reducing electric lighting energy savings. Too often, I walk into supposedly "daylit spaces" and the blinds are down. Research suggests that occupants rarely adjust blinds, and if they do, they are only positioned for short instances of glare. For example, in an informal walkthrough of two elementary schools in Idaho with a total of 156 south-facing windows

## DETAILS TECHNOLOGY

with manual louver blinds, only 18 windows had blinds that were open. That represents only 10 percent of the potential daylight access. This phenomenon obviously plays an important role in the design of the lit environment and illustrates a lack of understanding of the complexity of design and occupancy issues related to the lit environment.

Daylight sensing lighting control technology has been available for a long time but the market has been slow to adopt these technologies, in part because of a shortfall of long-term research studies that support the tech-

synthesizes climate, use, loads and systems resulting in a more comfortable and productive environment, and a building that is more energy-efficient than current best practices." The IDL believes this process will produce buildings that are more comfortable, require less energy to maintain and operate, and enhance the health and productivity of their inhabitants. The process, when employed aggressively, brings owners, users, and the entire design and construction team together for meaningful dialogue on a long list of topics, including the lit environment.



Philips has developed a lighting system it refers to as "Dynamic Lighting." According to the product website, "with Dynamic Lighting, we can bring the dynamic character of light—with its seamless changes in brightness and warmth—indoors, allowing us to enjoy the beneficial effects of natural light on the human body." The system places a differentially dimmable cool lamp and warm lamp within the same fixture, thus allowing for flexible combined color temperature and intensity as illustrated in a theoretical office space (above left, middle, and right).

nology's implementation. The rather small collection of research available primarily highlights the shortcomings of the control systems in areas of realized energy savings, installation and commissioning, and user satisfaction, and suggests that users go so far as to physically disable the systems. The most broad-sweeping multiple-site research effort in the area of integrated lighting controls, completed by Fair Oaks, California-based Heschong Mahone Group in 2005, suggests that spaces with daylight entering from the side, using a photocell-based electric lighting control system, achieve an average of only a 25 percent realized savings ratio. This is unacceptable and is part of the reason why some owners are hesitant to install integrated lighting controls. It also is a sign that there is miscommunication between daylighting designers, electric lighting designers, and the whole of the design team, as well as those living and working in these spaces.

When considering the holistic lit environment, many factors come into play including the dynamic typologies of daylight sources, electric light sources, view content outdoors, surface color and specularities both indoors and outdoors as viewed through windows, color temperature of various sources, color rendering of electric sources, blind type, control type, task type, as well as a multitude of individual user factors. How do holistic lighting designers make sense of and incorporate these factors? It is a challenge that will keep those in the lighting community employed for years to come. However, there are some recent evolutions that are beginning to progress holistic lighting design; both in design approach and technological innovations.

### INTEGRATED DESIGN PROCESS

The Integrated Design Lab (IDL) in Boise, Idaho, a function of the University of Idaho College of Art and Architecture, is part of the Pacific Northwest University Design Lab Network that worked to develop the following definition of the integrated design process with the leadership of professor G.Z. Brown at the University of Oregon. "Integrated design

Within the design team, this process provides a stage for important discussion between lighting designers with expertise in daylighting design and electric lighting design, architects, mechanical and electrical engineers, interior designers and space planners, and landscape architects. All of these disciplines need to be connected to promote holistic lighting design. The integrated design process has fostered new developments in control logics that wrap multiple building systems together that can result in additional benefits beyond the lit environment. This type of dialogue holds the potential to produce new knowledge of the interaction of building systems that also can lead to better understanding and progress of holistic lighting design. Additionally, it can provide a conduit for user input and education of lighting design intents that will result in improved system functionality.

### HIGH DYNAMIC RANGE IMAGING

Mehlika Inanici, now at the University of Washington, validated high dynamic range (HDR) imaging as a digital photography technique with the use of Photosphere software and simple digital cameras. HDR imaging captures the spatial luminance from a particular point of view and produces a luminance value for each pixel captured by a digital camera. In 2006, researchers at the Lawrence Berkeley National Laboratory introduced elements of HDR imaging into the built environment at the New York Times Headquarters building in New York City. The building installed several horizontally directed illumination sensors at the perimeter of the building looking through the glass to the outside. These sensors were calibrated with HDR photographic luminance commissioning data in an effort to develop a blind control system that responded to minimize instances of glare. This approach has proved promising, although it is not surprising to note that occupant experiences are providing additional input for consideration in adjusting blind control algorithms. As published by Sarkar and Mistrick in the Illuminating Engineering Society of North

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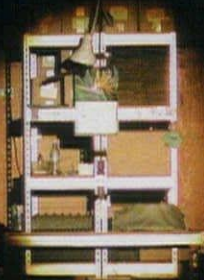
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America's journal Leukos (2006), experiments with HDR also have been conducted to control electric lighting in response to daylight available.

### COLOR TEMPERATURE

One of the challenges of integrated lighting controls is that even when there is substantial daylight in a space and the electric lighting either dims or switches off, occupants often perceive a change in color temperature. The overall change in light level may be irrelevant and virtually unnoticeable, but the occupant may still take note and possibly be disturbed by the shift in color temperature of the overall lit environment. Philips has developed what it calls "Dynamic Lighting." According to the product website, "with Dynamic Lighting, we can bring the dynamic character of light—with its seamless changes in brightness and warmth—indoors, allowing us to enjoy the beneficial effects of natural light on the human body." Essentially the system places a differentially dimmable cool lamp and warm lamp within the same fixture, thus allowing flexible combined color temperature and intensity. While some might read Philips' claim as a means of supplanting daylight, thus casting a myopic attitude toward holistic lighting, an interesting opportunity also emerges. This type of system might be used to better mesh with the variable color and intensity of daylight sources while

**"When considering the holistic lit environment, many factors come into play including the dynamic typologies of daylight sources, electric light sources, view content outdoors, surface color and specularity both indoors and outdoors as viewed through windows, color temperature of various sources, color rendering of electric sources, blind type, control type, task type, as well as individual user factors."**

still being tuned for energy savings. Could controlling color temperature through this type of electric lighting system help minimize the color shift often perceived in typical daylight sensing electric lighting control systems? If so, this may serve as an interesting area to pursue for those who want to progress the idea of holistic lighting design.

The integrated design process, integrated building control systems, HDR imaging, and manipulability of color temperature are a few areas the future of holistic lighting design may look toward to continue the evolution of designing the lit environment. These relatively new techniques and technologies provide additional layers to the field of lighting design and add to the tool belt of those interested in practicing holistic lighting design. **KEVIN VAN DEN WYMELENBERG**



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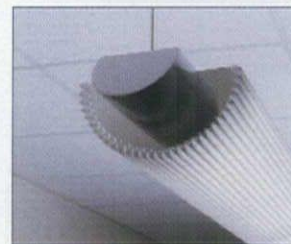
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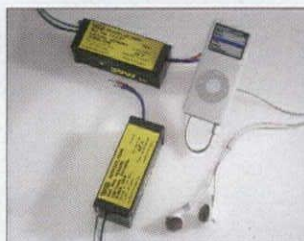
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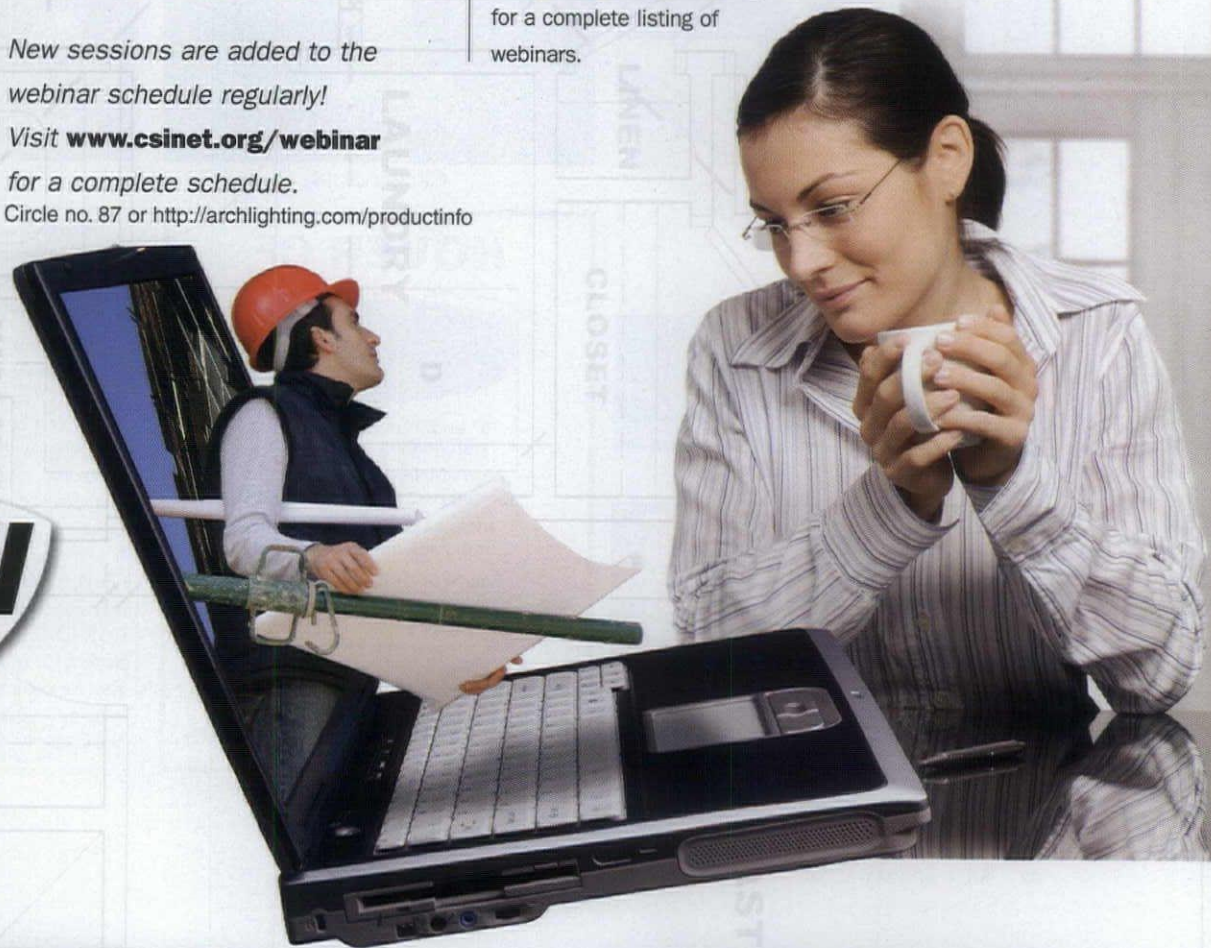
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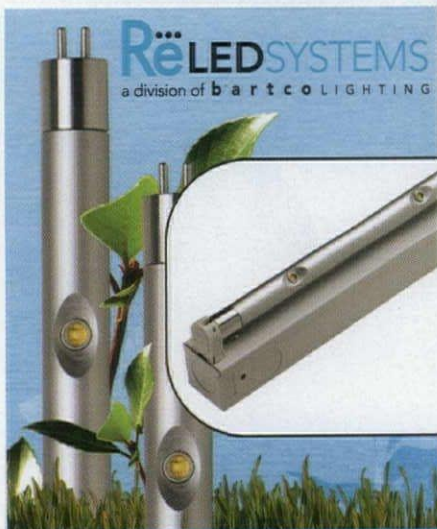


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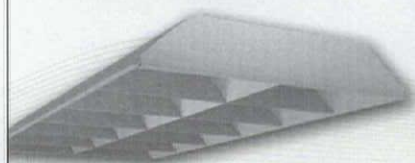
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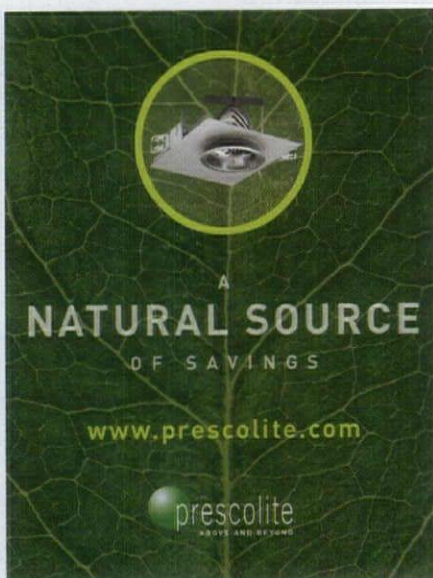


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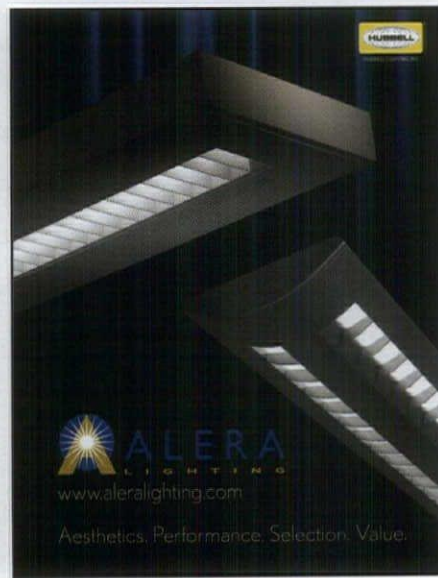


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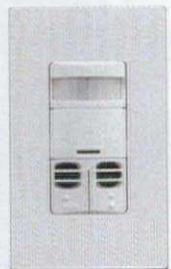
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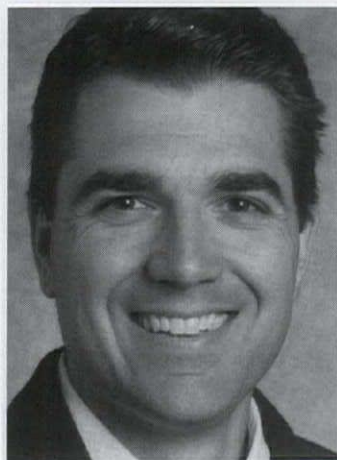
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## Where Have All the Lighting Companies Gone?

How will the upswing of mergers and acquisitions among lighting manufacturers change the industry landscape? What impact will it have on research and development of new products and technologies? And how will it impact the specification and distribution process? **Replies and proposed exchange question topics can be submitted to [edonoff@hanleywood.com](mailto:edonoff@hanleywood.com).**



**TOM KACZKOWSKI | LIGHTING GROUP DIRECTOR | HOK**

The upswing of mergers and acquisitions among lighting manufacturers should benefit the “buy-out” of lighting products on large projects where there is a big conglomerated battle for every fixture type, provided there are equivalent product offerings. Smaller projects with tighter schedules and time frames may see a decrease in factories that can shut down the assembly line for the “special fixtures.” It simply may not be practical to support this type of business.

I like to think as lighting designers we support innovation, whether in design strategies or new lighting technologies. My hope is that more dollars will be available to the truly innovative companies and individuals to dig even deeper into new technologies and products. I also hope to see more specifier-related focus groups asking the design community: What do you need? What products are designers missing? Eventually we will see companies ride the crest of the LEED wave and offer hyper-high performance lighting systems to the design community. We scrape to reduce every watt of lighting power consumption with luminaire technology, which often is cobbled together from T12s, T8s, and T5s. High-performance auto divisions may someday serve as a business model for high-performance lighting divisions within the major lighting companies.

In terms of the specification and distribution process, lighting designers will still gravitate to the companies that not only provide the best products but also provide the best service after the specifications. It is frustrating the number of potential pitfalls encountered between the lighting designer’s specification and the contractor’s installation. I hope for a better tomorrow with a “path of least resistance” often serving as my motto for 90 percent of our specifications. The other 10 percent—the oddball fixture specifications—we hope someone will still want to build even after they have been gobbled up by the “big company.” It often is that 10 percent of light fixtures that sway and lock in the entire project order.

### **SONNY SONNENFELD | PRESIDENT | CREATIVE STUDIO DESIGN**

I believe that the upswing of mergers and acquisitions will continue. I also think it will have a negative effect on research and development (R&D) and new products and technologies. A very large percentage of new products in our industry came from small companies. Parabolic louvered fluorescent fixtures came from Columbia Lighting when it was independent. Gotham Lighting developed a wide series of downlights and architecturally correct fluorescent fixtures when it was independent. Century Lighting, now Strand (part of Genlyte, part of Philips), developed new stage and television luminaires and remote controlled, preset dimmer systems while independent. Vari-Lite developed the remote control industry while independent. And the list goes on.

When an independent company is acquired, its R&D process goes through more steps from an idea to a marketable product. More people are involved in the process and funds have to be allocated. How many

times have idea people been asked, “How many will you sell?” or told “It’s not in the budget.” With large companies, numerous committees must approve a new product. With independent companies, there is a greater willingness to take a risk. In conglomerates, new products are expected to succeed, and often are not specially noted or rewarded. A failure is never forgotten and seldom forgiven.



**PAUL GREGORY | PRINCIPAL | FOCUS LIGHTING**

I think there will be little or no change. The purchase of RSA Lighting and io Lighting by Cooper Industries has not affected our working relationship or our ability to get custom equipment in the form of special samples or products. We are still able to communicate with ownership and the decision-makers inside each company. I do not think Philips’ purchase of GenLyte and Color Kinetics will have any immediate adverse effects.

I can see that the “acquired” companies will have more funds for R&D as the cost will be spread out over more companies under the “parent” umbrella. In the future, it would be silly for the large manufacturers to pull back in the areas of R&D and new product development—especially with the current and constant changes in efficiency of LED sources.

I do not think the specification method will change very much. We specify the best fixture for the specific project we are designing. I cannot see that changing, regardless of who owns the company that makes the fixture.

Concerning distribution and pricing, we are a little unusual in that we create tight budget controls early on in the projects. We create “line item budgets” that allow all parties to see unit costs of all lighting fixtures and controls. This process makes the “packaging” of multiple products into one unbreakable price, less of an option for the distributor or agent.



**RANDY BURKETT | PRINCIPAL | RANDY BURKETT LIGHTING DESIGN**

From a designer’s standpoint, mergers and acquisitions in the lighting field have a less than stellar track record. Many good independent manufacturers have been neutered as a result of friendly acquisitions, stripped of their previous innovative market perspective and made to fall in line with the others in the conglomerate’s portfolio. Bottom line became the new mantra, often at great cost to service and product quality.

There are, however, some good models out there, where insightful thinking by those in the decision-making roles led to embracing the strengths of both companies involved in the union. In these instances, service quality was maintained, while product development and innovation ramped up.

Some of the most recent moves of well-established and well-respected lighting manufacturers to acquire smaller companies, which have focused on solid-state lighting technologies, could be good news for the industry. An infusion of money into LED-related research could accelerate the development of the source as a more mainstream architectural lighting tool.



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Roberto Fiorato Designer

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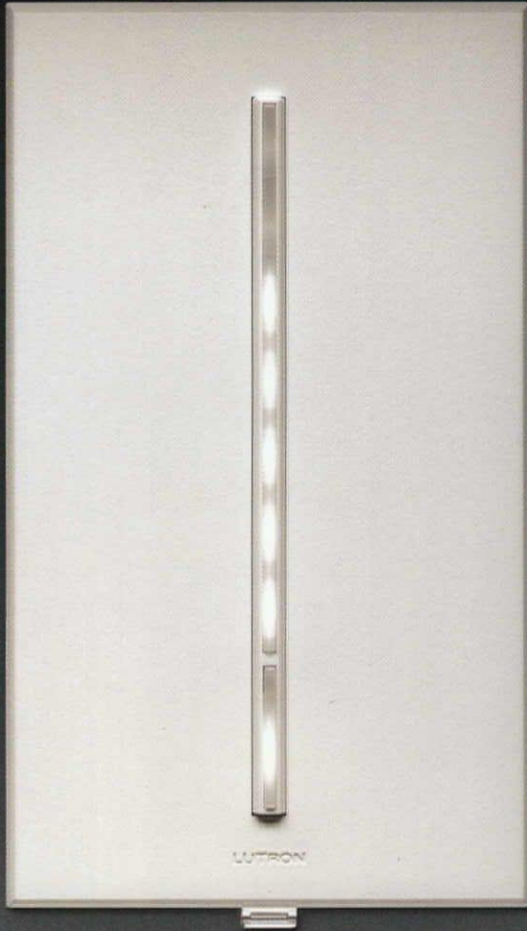
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