

ALL

architectural lighting



ARTISTIC PERCEPTIONS

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PLUS
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LIGHT AND THE URBAN NIGHTSCAPE

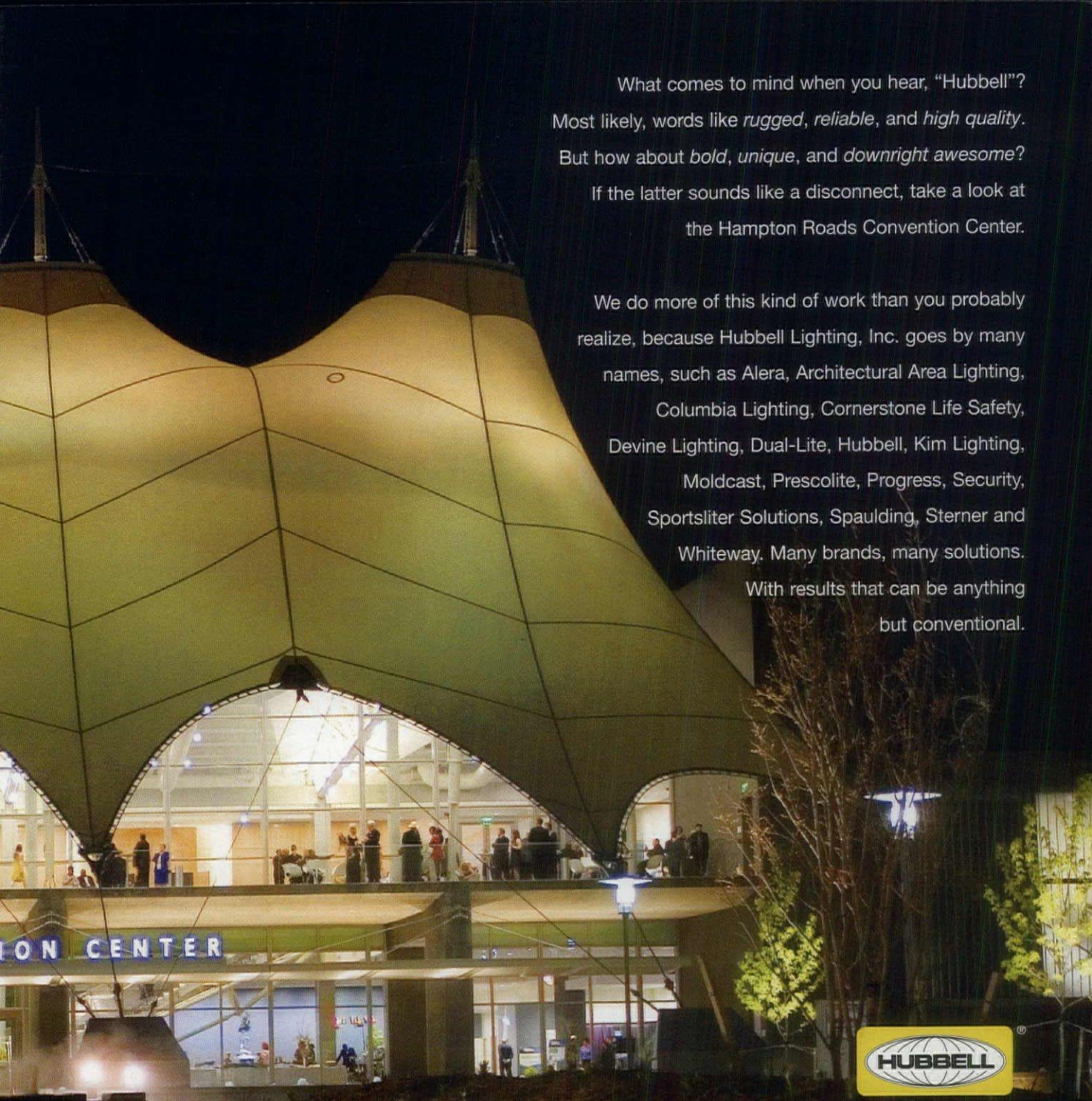
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HAMPTON ROADS CONY



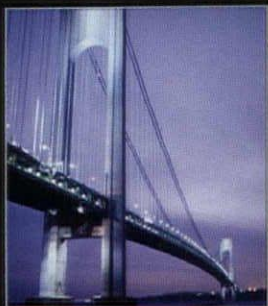
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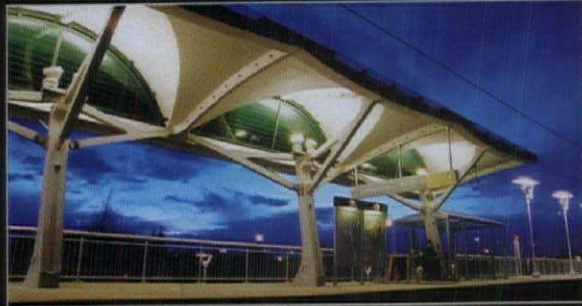


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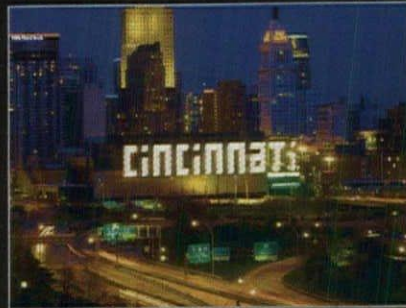
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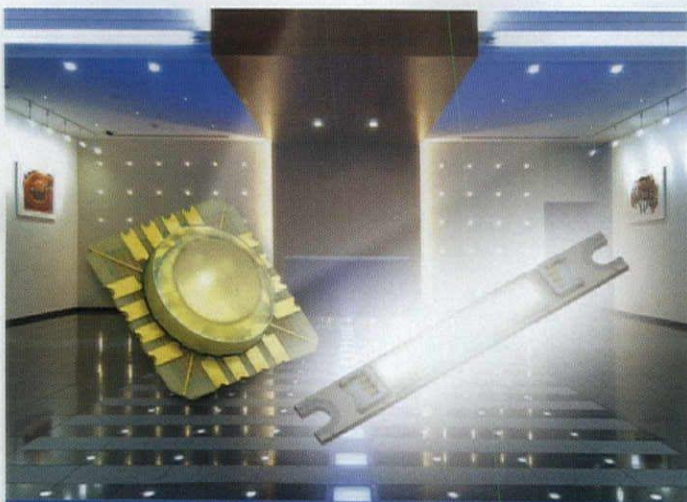
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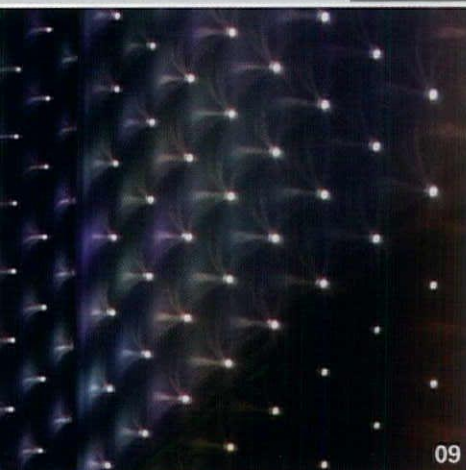
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Cover: The galleries at the new Institute of Contemporary Art (ICA), Boston.
PHOTOGRAPHER IWAN BAAN, AMSTERDAM

This page: Jason Bruges Studio's *Visual Echo* (2007) at the Center for Architecture, New York; Ben Rubin's *(in)stability* (2003); model of SANNA's new addition to IVAM, Valencia, Spain's modern art museum; Linnaea Tillet and Maya Lin's *Ecliptic/Rosa* Parks Circle (2001), Grand Rapids, Michigan.





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It Takes Two

NEW YEAR'S RESOLUTIONS. WE have all made them at

one point or another, and my guess is that most of us have started 2007 with the same list of usual suspects on our grand "to do list"—to exercise more, to eat more nutritiously, to find more balance between work, family, and personal time, and so on. But beyond these fairly typical wishes, which really don't require the start of a new calendar year in order to begin, what can we as members of the design community resolve to do in the coming year? What are the issues that need our attention?

At its October 2006 annual meeting in San Diego, California, the International Association of Lighting Designers (IALD) issued a call to action to its membership—a year of enlightenment and awareness—in which members were challenged to take a more proactive role and communicate directly with the individuals and organizations who effect change regarding the issues that impact the lighting designer's work. The 2007 theme of the Illuminating Engineering Society of North America (IESNA) is similar in tone—*Light Matters: Integrating Light into our Environments, Engage, Explore, Inspire*.

But the responsibility to help facilitate change does not rest with architects and lighting designers alone. The publications that serve these communities must also participate, even going so far as to take the lead. Certainly as editor of this publication it is something I take very seriously, and I continually ask myself: How can Architectural Lighting magazine be of service to the architecture and lighting design communities?

The first step is by providing quality, timely, and thought-provoking content with an underlying editorial integrity. It is one of A|L's many strengths and a vital one that I believe distinguishes us as a publication. Not satisfied to only look internally, in the coming year, A|L will examine a variety of topics that reach beyond lighting, such as the integration of sustainable design techniques and the development of new materials. And A|L will reach out to new communities. With the start of this issue, a set number of copies of A|L

will regularly be sent to the primary degree-granting lighting programs in the United States to be distributed and shared among students. An "experiment" I believe will prove fruitful; my hope is to eventually include international lighting programs and architecture schools.

The next step involves active communication and open dialogue—integral to A|L's mission as an independent lighting design publication. This takes several forms, most notably the magazine's Industry Exchange Question, which was developed three years ago to provide a forum for you, members of the architectural and lighting design communities, to discuss pressing industry issues. Past questions have addressed a variety of topics, including: commoditization, the frequency of tradeshow, credentialing, and the impact of sustainability on the design process. And while many readers have indicated that this content is often the first page they turn to, honestly, the steady flow of responses that the editorial staff envisioned the Exchange page would encourage has not occurred to the degree that we hoped. This is where I need your help. Dialogue can only be successful if at least two parties are involved. In a beginning effort to make the Exchange page more compelling, A|L has called upon its Editorial Advisory Board—Gregg Ander, Francesca Bettridge, Bob Davis, and Mark Loeffler—to lend their commentary. This month they share their thoughts on some of the pressing issues facing architecture and lighting design in the year ahead. As has always been the case, although perhaps not stated clearly enough, readers are actively encouraged to respond to questions, and to suggest topics you would like to see discussed.

So my challenge to you this year, the resolution I'm asking you to add to your list is: Engage with Architectural Lighting magazine. And I promise A|L will respond by serving the architectural and lighting design communities in order that they can be agents of change.

ELIZABETH DONOFF
EDITOR



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VISUAL ECHO OPENS IN NEW YORK

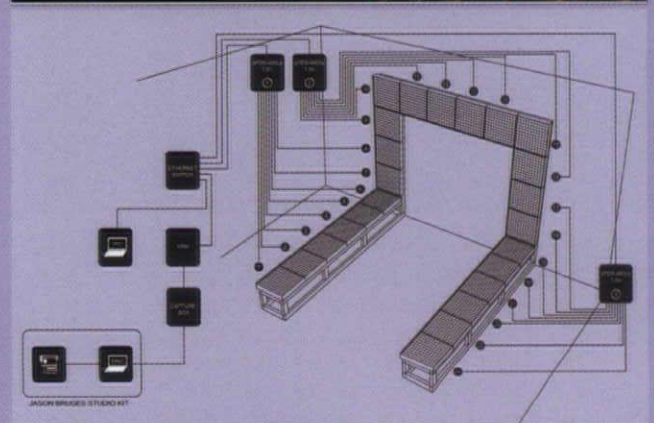
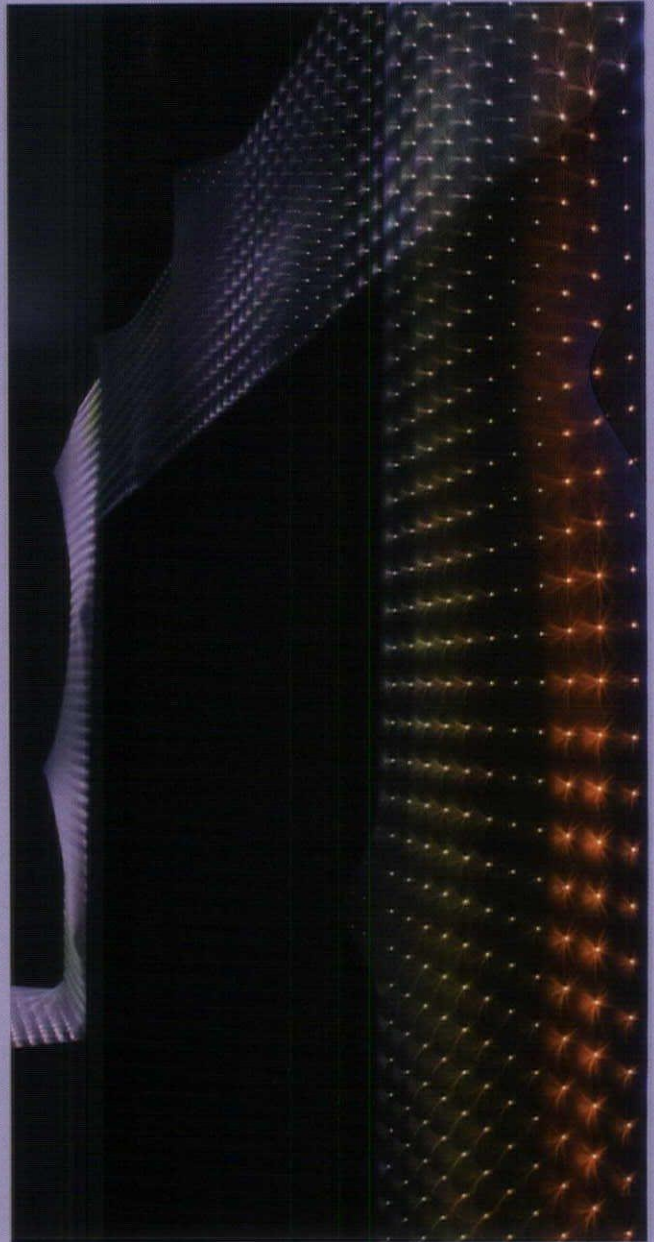
VISUAL ECHO, WHICH OPENED JANUARY 12, 2007, AT NEW YORK CITY'S CENTER FOR Architecture, is the latest installation by London-based Jason Bruges Studio, a 12-person collective, founded in 2001, devoted to exploring light as an expressive force in art and architecture. A large, LED-studded arch, with two legs that extend out into the Center's first floor Hines Gallery, the piece writhes with an ever-changing pattern of colors, dictated by the movement and garment colors of gallery-goers.

The installation is comprised of 24 Color Kinetics RGB LED tiles, with 144 diodes per tile. A voile-like material is suspended over the tiles on a very thin undulating metal frame that forms a wave pattern, offset, so that the fabric is suspended higher above the tiles on one side than the other. Using the mesh material in such a way changes the depth of the piece and how viewers understand its X, Y, and Z axes. That, according to designer Jason Bruges, alters the impact of the LED cone, creating an aura around each diode. The result is a lattice-like effect of light, where the illumination from one LED appears to extend out from its center in four directions. "The aura created around the LED is similar to a diffraction grating used on a photographic star filter," says Bruges. "The light gets spread in the orientation of the mesh."

The interactive component of the installation is created by a two-fold software system. First, a webcam located at the end of the arch's right leg records the data—people's movement and the colors of their clothing—then, a control system interprets a scan of the colors. The video system manager connected to the LED tiles converts the video feed into DMX, telling the individual LEDs which colors to display and where, creating the pattern that plays out across the piece.

This is not the first incarnation of *Visual Echo*. It was originally designed for London's Victoria & Albert Museum (V&A) in 2006. There, the installation was by necessity flat—situated in the middle of a room, there was very little opportunity to have a vertical element without creating some sort of structural support. For *Visual Echo's* installation at the Center for Architecture, alterations have been made to respond to the local gallery conditions. "The installation is different in its composition in that it responds to the gallery by meandering around and taking advantage of the vertical space," says Bruges. "It is also site specific in where we decided to place the camera; it was the configuration that encouraged the most interaction with the space."

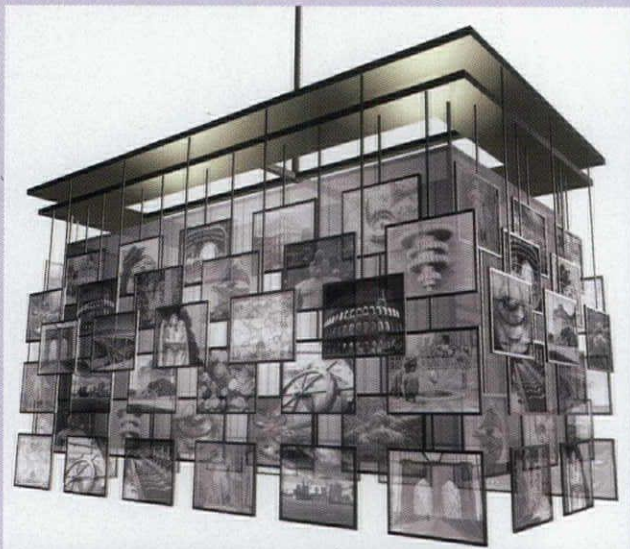
Organized by the AIA New York Chapter in partnership with the Illuminating Engineering Society, New York Section (IESNY), the International Committee AIA New York Chapter, and the Royal Society of the Arts, *Visual Echo*, "demonstrates exciting new potentials and questions how light, space, and color can interrelate in architectural space." The piece also marks a milestone for the AIA New York Chapter; it is the first time they have been able to bring a site-specific light artwork to the Center, and as Sophie Pache, director of exhibitions at the Center for Architecture explains, "It was a great opportunity to work with IESNY, one of the Center Partners." *Visual Echo* will be on display through March 10, 2007. **KATIE GERFEN**



Visual Echo engages viewers with color, movement, and light through the use of LEDs (top). A diagram of the New York installation describes the webcam location and software control connections (bottom).

PHOTO COURTESY OF THE AIA NEW YORK CHAPTER (TOP); DIAGRAM COURTESY OF JASON BRUGES STUDIO (BOTTOM)

DESIGN LIFE NOW - NATIONAL DESIGN TRIENNIAL 2006



HOW DOES DESIGN IMPACT OUR EVERYDAY LIVES AND THE WORLD AROUND US? THIS IS the central question the National Design Museum's third Triennial, on view through July 29, 2007, poses to visitors. Curators Barbara Bloemink, Ellen Lupton, Matilda McQuaid, and Brooke Hodge have assembled projects, products, and objects that represent the most significant ideas, and which have had the greatest impact on contemporary culture the past three years.

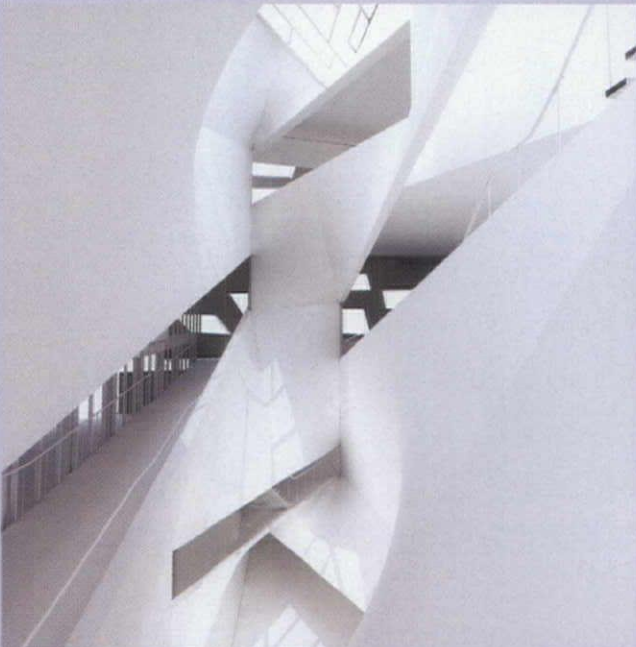
The exhibit is divided into four main categories: emulating life, community, handcrafted and do-it-yourself design, and transformation. Not surprising, light finds its place in each of these exhibit areas, reinforcing its significance as a critical design element without limits.

Of particular note to seek among the many displays is artist Alison Berger's luminaries, which explore light through the nuances and imperfections of glass; James Carpenter Design Associates exhibit-specific installation which, "explores the reciprocal relationship between the Museum's garden and interior by interpreting the idea of windows as a light and information threshold;" Howler + Yoon Architecture's *Low Rez HI FI*, a public art piece comprised of light and sound elements; Electroland's interactive light band that tracks the movement of visitors while working its way alongside the majestic stairway of the Andrew Carnegie Mansion, the Museum's longtime home; Abhinand Lath's SensiTile, a passive light-conducting matrix; and the work of lighting design firms Leni Schwendinger Light Projects, and Hervé Descottes/L'Observatoire International.

In a prepared statement, museum director Paul Warwick Thompson states, "The Triennial emphasizes the nearly infinite ways in which design plays a role in how we see, think about and experience the world around us." And that it does. With displays as diverse as designer textiles, robots, and organ transport systems, one is reminded that when design excellence is coupled with problem solving, the possibilities are endless. Functional or frivolous—design matters. **ELIZABETH DONOFF**



A sample of the work on display from the 87 designers and firms participating in the 2006 National Design Triennial "Design Life Now." Alison Berger's Glass Slide Chandelier (2005) (top); Electroland's Los Angeles installation *Interactive (11th and Flower)* (2005) (middle); interior of the Boeing 787 Dreamliner (2005) (bottom); and architect Preston Scott Cohen's *Lightfall 1, Design for the Tel Aviv Museum of Art* (2003) (right).



WALLPAPER AS LUMINAIRE?

A NEW OFFERING—LIGHT—FROM LONG ISLAND CITY, NEW YORK WALL COVERING COMPANY Wolf-Gordon (wolf-gordon.com) might just prove yes. The winning entry in the company's *Surface over Structure* design competition for architecture students at Harvard University's Graduate School of Design (GSD), *Light* was the darling of the 2006 interior shows earning a Best of NeoCon Innovation Award and an Editor's Choice Award for New Designer at the International Contemporary Furniture Fair (ICFF).

Designed by GSD students, Corinne Ulmann and Isamu Kandu, the pattern was inspired by light and shadows Ulmann observed on her living room wall and filtering through a shower curtain. Although a very large repeat—52 inches by 24 inches—the pattern captures the everyday phenomenon of light playing on a wall surface with impressive reality. "There are all these architects who come out of school who don't have a lot of practical knowledge of interior finish materials," explains Wolf-Gordon's design director Kari Pei, as the company's motivation to reach out to architecture students. "This competition introduced the idea that wall covering isn't just decorative, it can be a tool to construct and define space."

So subtle is the pattern, most people do not realize they are not actually observing real light and shadow. "We had people coming up to the booth at ICFF in this giant, windowless room, convinced that there was a window nearby," remembers Pei. "It is just so psychologically uplifting. You think you are in a space with light even if you are not...it's very powerful." **KG**



Light, the award-winning entry in Wolf-Gordon's *Surface over Structure* design competition, captures the everyday phenomenon of light playing on a wall surface with impressive reality.

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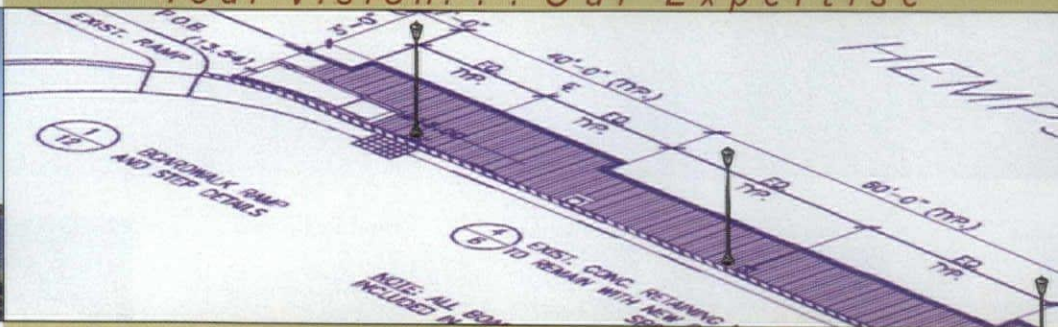


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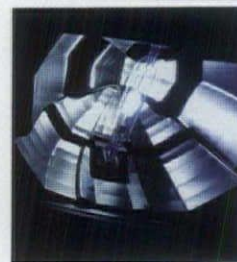
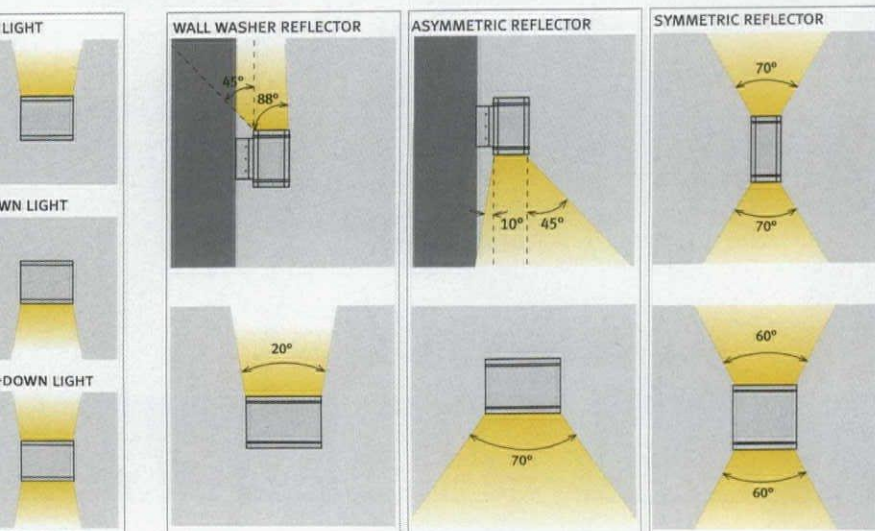
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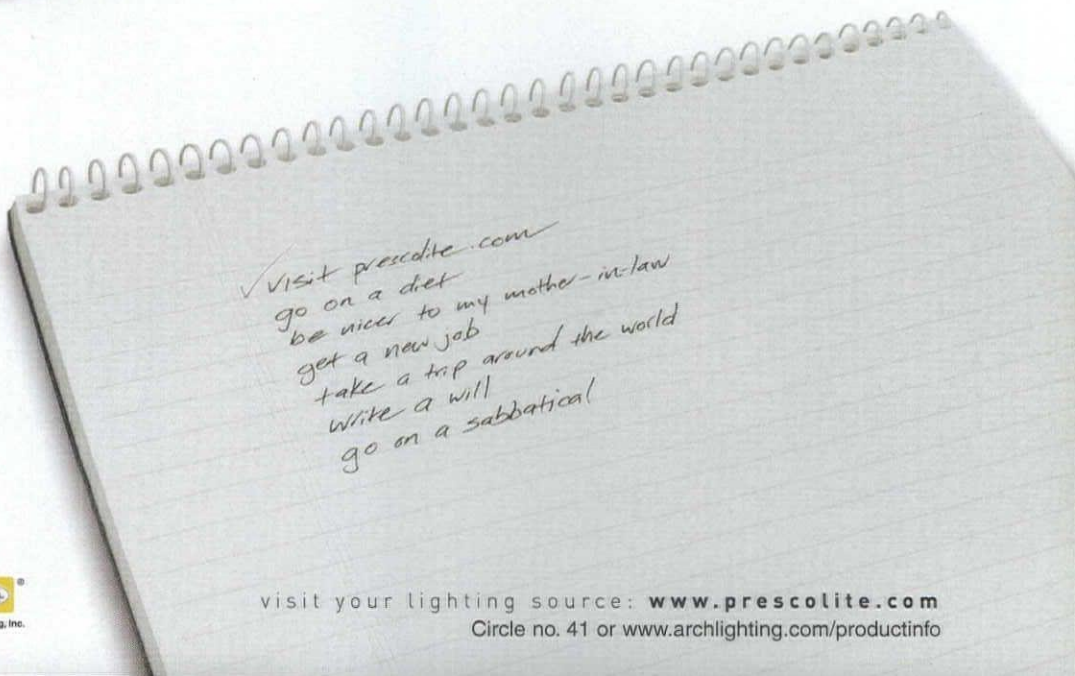
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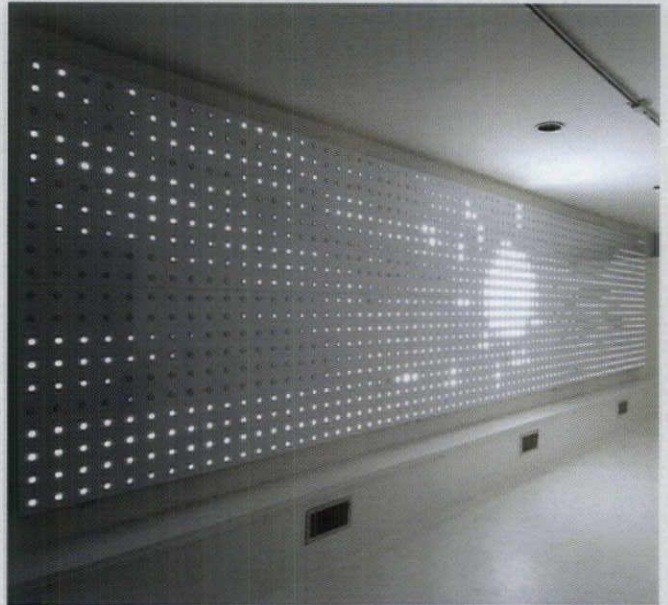


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DRAWING WITH LIGHT

COMBINING DIGITAL MEDIA AND LIGHT, ARTIST LEO VILLAREAL EXPLORES GEOMETRY and spatial perception. For his November/December 2006 solo exhibition at Conner Contemporary Art in Washington, D.C. (his third show at the gallery), the New York-based Villareal presented *Origin* and *Origin (1)*, light sculptures that use white LEDs, circuitry, and microcontrollers.

Using scientific and mathematical principles as his starting point to investigate the medium of light, viewers are presented with a mesmerizing display of illumination. *Origin*, the main piece on view, is impressive in its scale—over 6-foot-tall and 26-foot-long. *Origin (1)* is more modest—approximately 3-foot-square—and is part of an edition of three. For these works Villareal specifically combined physicist Sir Isaac Newton's Laws of Motion, and mathematician John Conway's *Game of Life* with his own devised computer code to create a series of non-repeating light patterns that subtly make reference in their intensity and speed to everything from the "Big Bang" to the video game Pac Man. "*Origin's* scale within the gallery will create a sense of immersion," Villareal explains. And that it does as gallery-visitors are immersed in the syncopation of changing light patterns. ED



The sculpture in motion can be viewed on the gallery's website at: www.connercontemporary.com/artists/leovillareal/?view=video

Origin (2006) by media artist Leo Villareal explores scientific and mathematical principles through light and digital imagery.



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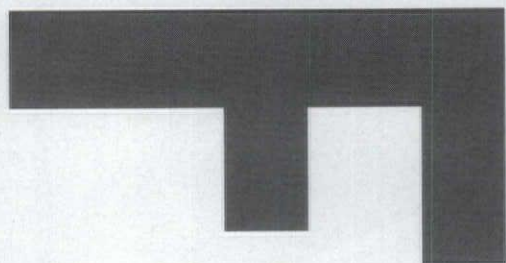
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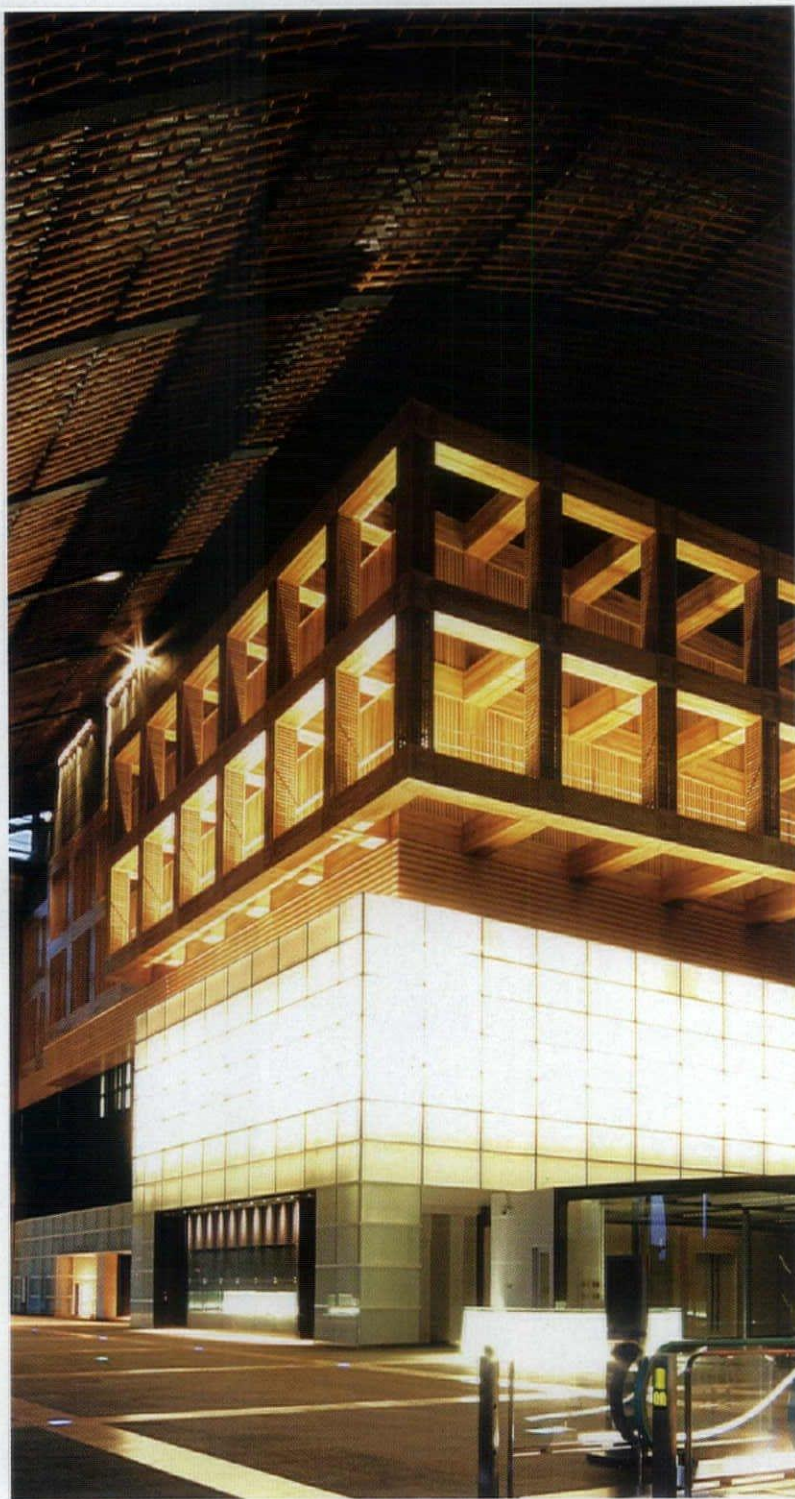
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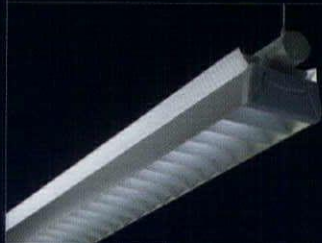
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Light and the Urban Nightscape

BY MARGARET MAILE PETTY

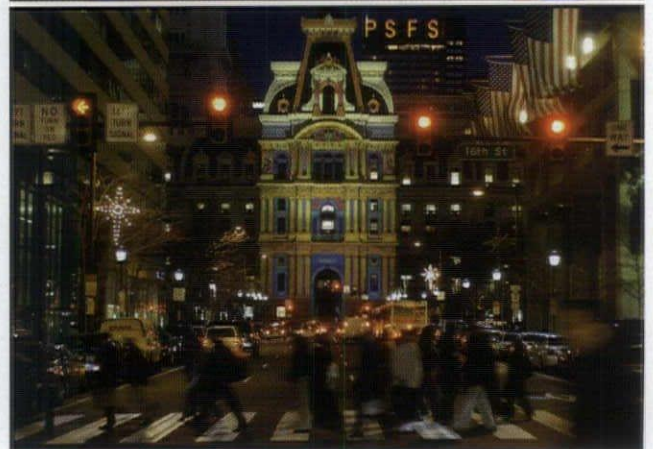
THE DESIGN OF NIGHTTIME ENVIRONMENTS THAT INSTILL FEELINGS OF BOTH SAFETY and enjoyment is of critical importance to the economic and cultural vitality of urban centers around the world. This has been broadly recognized in Europe for several decades, but has only recently been seriously addressed in North America. The following considers lighting design for the urban nightscape through the examination of two progressive urban lighting projects, organizations like the Lighting Urban Community International (LUCI), the City-People-Light program, and the role of lighting festivals and workshops in advancing urban lighting design.

IN THE FIELD

New York-based lighting designer Leni Schwendinger, responsible for numerous award-winning urban lighting projects, is no stranger to the demands of designing for public space. Central to Schwendinger's methodology is an appreciation for the historical and cultural context of each project. Often presented with sites that have fallen into disuse, Schwendinger begins with research and exploration, seeking something about the environment that engages her on an emotional level, allowing her to turn around her own perception of the place.

Approaching urban projects with an awareness of the public arena "as special and important to daily life," Schwendinger strives to add meaning and value to the environment. For example, one of the primary aims of Schwendinger's project *Dreaming in Color* (2003) for Marion McCaw Hall in Seattle, was to "connect the city fabric with the landscape and the cultural fabric of the Seattle Center." In response to both the surroundings and the new performing arts center, which is home to the Pacific Northwest Ballet, Schwendinger created a 300-foot "promenade of color" out of nine 30-foot-tall metal-mesh scrim. These scrim serve as "musical instruments," upon which various colored light compositions are projected; creating a "truly immersive program" that engages McCaw Hall patrons, Seattle Center visitors, and pedestrians alike in the theatergoing experience. *Dreaming in Color* also serves as a magnet for local inhabitants, who now use the promenade as a preferred route in and out of the Center's grounds. Schwendinger sees these kinds of lighting programs as an indication of the potential of urban lighting. Having identified what she terms "the shades of night," which correspond to the uses and needs of public space at different locals and times, Schwendinger proposes that "lighting be keyed into these changes" so that lighting responds intimately to use, people, and the environment, reflecting the true meaning and purpose of public space.

Also based in New York City, Linnaea Tillett and her firm, Tillett Lighting Design, similarly explore the connection between people, light, and the urban environment, using a "social approach to lighting design." As Tillett describes, "we don't see lighting as the determining factor in what makes a place work," but rather as one element in a complex set of factors that support a social space. Other significant elements include the local culture of walking, and the presence or absence of a destination. Tillett says, "You do not want to invite people to do something they have no interest



The diversity of the urban nightscape as illustrated by the Shanghai skyline (top) and the pedestrian-scale of Philadelphia's downtown (bottom).

in or are unable to do. Similarly, you don't want to use lighting to direct people to nowhere."

Using this methodology Tillett aims to support ordinary life and encourage social interaction through contextually integrated lighting programs. With *Ecliptic/Rosa Parks Circle* (2001) in Grand Rapids, Michigan, a project developed with architect and sculptor Maya Lin, the goal was to create a "participatory landscape" that would assist in bringing local residents and college students back to the nearly abandoned downtown. The concept of an ice skating rink illuminated from beneath the ice, reflecting the constellations corresponding with Grand Rapids, evolved from the city's original concept of commissioning a sculpture by Lin. The lifting of automobile restrictions, which allows visitors to park adjacent to the skating rink, was critical to the success of the park, as was the donation of skates by the Grand Rapids Griffins Youth Foundation, which enabled free rentals. It is the sum of these factors that resulted in the success and vibrancy of this space today. For Tillett the role of the lighting designer is not to go into public spaces and "create spectacles, but to really understand what's needed and how we can support that, in a total and sensual way."

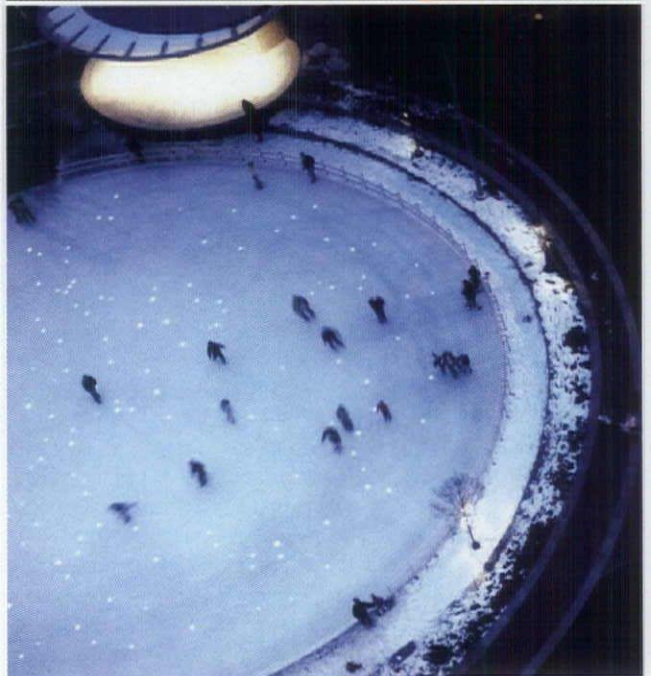
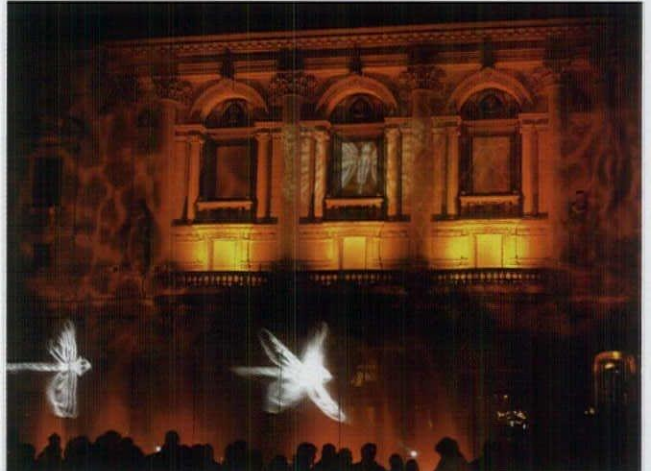
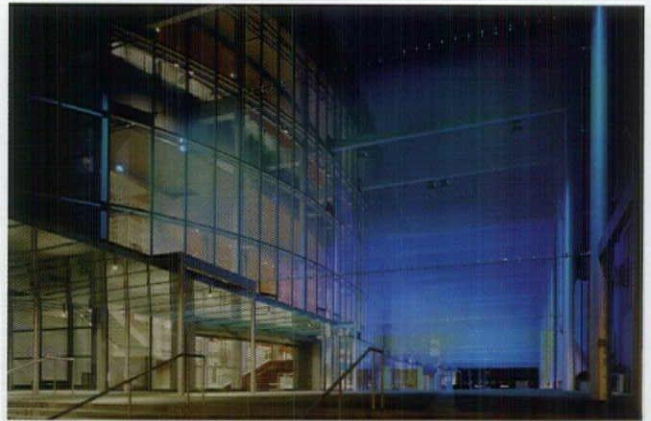
ADVOCATING FOR URBAN LIGHTING DESIGN

Today urban lighting design is supported by international organizations and manufacturers through forums and workshops that bring together lighting designers, architects, landscape designers, and municipal and government bodies, to share ideas, insights, and experiences. The Urban Community Lighting International (LUCI), arguable the premier association for urban lighting design, was formed in 2002 under the auspices of the City of Lyon, France, with the goal of creating an international network of "Cities of Light." With over 60 city members, LUCI facilitates dialogue through a series of events and forums centered around four international commissions: Urban Strategy and Lighting (Liège, France), Urban Culture and Lighting (Glasgow), Technological Prospects and Trends (Shanghai) and Environment and Lighting Economics (Pécs, Hungary). To encourage the creation of and bring attention to urban lighting in developing countries, LUCI and United Kingdom lighting company Thorn, announced the "Light Links" grant during Light + Building 2006 in Frankfurt. The program teams a high-income "partner-city" with a "project-city" in a low-income country, and together they are asked to prepare an urban lighting scheme for the project city. The winner (yet to be determined for the 2006 grant) will receive Thorn lighting equipment (5,000 Euros worth), 30 hours of design support, and membership in LUCI.

LUCI also partnered with Philips in 2003, developing the International City-People-Light Award to recognize cities that utilize lighting to add social and cultural value to their municipalities while remaining sensitive to the environment. In 2006, seventeen international cities competed for the award, with first prize given to Vienna and second prize going to Leipzig, Germany. In addition to its annual award, the City-People-Light program, which Philips initiated a decade ago with a series of multidisciplinary workshops, strives to "take into account the emotional aspect of lighting, rather than just the functional," according to Clara Powell, design solutions manager for Philips Luminaires North America. This past year Philips and LUCI hosted a new series of workshops held in Hamburg, Lyon, Philadelphia, and Shanghai. Based on their European success, the Philadelphia workshop was the first City-People-Light workshop to be held in the United States, and is a part of Philips' desire to change the company's perception in the North American market from a technology-based manufacturer to one focused on lifestyle and design. The visionary results of the recent City-People-Light workshops have been captured in sketches and the results (and pending publication) will be announced at the European Lighting Designers' Association (ELDA+) conference in Rotterdam in May 2007. Philips is also currently developing a family of primarily outdoor luminaires for the U.S. market around the idea urban regeneration, which will include their new "LED Linear"—a product characterized by its sustainability and invisibility (size). Both the City-People-Light program and Philips' new product portfolio support and encourage a more holistic approach to urban lighting design.

EXPLORING THE FUTURE OF URBAN LIGHTING

Lighting festivals also serve an important role in the advancement of urban lighting design. Perhaps the most famous of these is the "Festival of Lights" held early each December in Lyon, France, and attracts roughly four million spectators annually. The four-day festival involves the energies of the entire community and temporarily transforms nocturnal Lyon into a luminous participatory environment. Smaller in scope, but no less ambitious,




At Marion McCaw Hall in Seattle, Leni Schwendinger's *Dreaming In Color* engages theatergoers and local residents (top). Lyon's "Festivals of Lights" transforms the city into a nighttime urban performance (middle). Constellations are mimicked in ice, reinvigorating Grand Rapid, Michigan's downtown and reinventing the ice skating experience in a project by lighting designer Linnaea Tillett and architect/sculptor Maya Lin (bottom).

PHOTOS COURTESY OF LENI SCHWENDINGER LIGHT PROJECTS (TOP); LUCI (CENTER); TILLETT LIGHTING DESIGN, PHOTO BY SUCHITRA VAN (BOTTOM)

is the workshop-based festival, "Lights in Alingsås" held every October in Alingsås, Sweden. Each year internationally recognized lighting designers are asked to create temporary urban lighting installations with the help of design students, who are given a valuable "hands on" experience with full-scale outdoor projects. The design and installation process takes place over the course of a week, and the illuminated environments remain on view for a month. The festival, resulting from a partnership between the Municipality of Alingsås and ELDA+, provides an important forum for experimental illumination within the public realm, exposing local residents, international visitors, students, and designers to new approaches in urban lighting. The United States has recently begun to recognize the significance of these types of festivals and in November 2006 Acuity Brands Lighting hosted a four-day "Festival of Lights" in Conyers, Georgia modeled after the much larger event in Lyon. Acuity's festival, the fifth time such an event has been held, included lectures by leading U.S. and international lighting designers, product exhibits, and the illumination of select spaces and architecture in the historic section of Conyers. Additionally, in 2008 ELDA+ will be sponsoring a practical lighting workshop for the first time in the United States. The workshop, taking place in Gainesville, Florida, is based on the successful European ELDA+ workshop program and brings together estab-

lished lighting designers with students to develop and realize temporary lighting projects around Gainesville.

Taking inspiration from such festivals and workshops, lighting designers, urban planners, civil engineering departments, public utilities, and civic leaders can reexamine their own urban environments and ask how lighting affects the experience and perception of their cities. For lighting to become truly integrated into the fabric of the urban environment, all parties must work together and hold as a common goal the desire to create harmonious, environmentally, and contextually sensitive lighting. As Tillett describes, "We are going to have to pay more attention to what is going on all around, to how we are contributing to the total context, not to the ten degrees that is in front of us—it's not what you're staring at, but how you feel about the space." If lighting can engage public space on a human level through mindful design, then the public perception of the role of urban lighting may break through that of mere functionality or security. This is perhaps the biggest challenge facing urban lighting design in the United States. With the help of programs like City-People-Light and a greater awareness of the workshop and lighting festival resources, it is possible that we may soon see the transformation of America's urban nightscapes and the creation of vital and vibrant nocturnal environments.

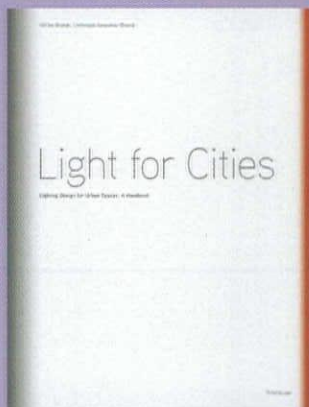
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A NIGHTTIME TALE

Light for Cities: Lighting Design for Urban Spaces—A Handbook

BIRKHAUSER: BASEL, 2006

Ulrike Brandt and Christoph Geissmar-Brandt's just-released study of urban lighting design, *Light for Cities*, begins with a not so-fictional story illustrating the experience of arriving in a new city at night. Closely describing the haphazard condition of much urban lighting, the following chapters suggest an alternative, presenting a solid methodology for a new age of culturally and physically integrated urban lighting—covering everything from concept development to luminaire selection to specific typologies of public space. **MMP**



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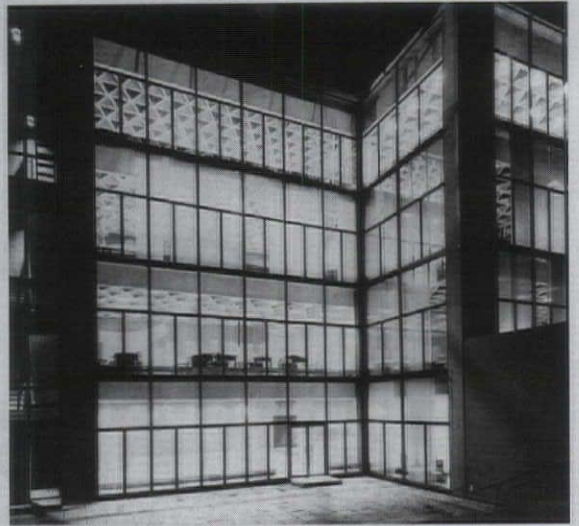
MODERN ARCHITECTURE, WITH ITS EXPOSED CONCRETE, GLASS, AND STEEL EXPANSES, DOES not age gracefully. The Yale University Art Gallery, designed by architecture great Louis Kahn, is no exception. As Yale's first modernist building, completed in 1953, and Kahn's first major commission and collaboration with pioneering lighting designer, Richard Kelly, the gallery is an important part of American architecture. Yet, despite its iconic status, the building suffered numerous architectural indignities in the years following its completion, including the insertion of permanent gallery partitions, which divided Kahn's open plan, and the enclosure of an exterior court, which blocked daylight to the lower galleries.

Fortunately, Kahn's early masterpiece did not go the way of many aging modernist buildings—demolition or heavy-handed renovation—instead the University launched a three-year, \$44 million renovation lead by New York-based Polshek Partnership Architects (PPA). According to partner-in-charge Duncan Hazard, the renovation began with the critical question: To what condition was the building being restored—the original built structure or Kahn's design intent? The renovation team was careful to strike a balance between the two, removing thoughtless alterations that obscured the geometric purity of Kahn's plan, while restoring many of the aging building components and systems in the five-floor, 180,000-square-foot structure.

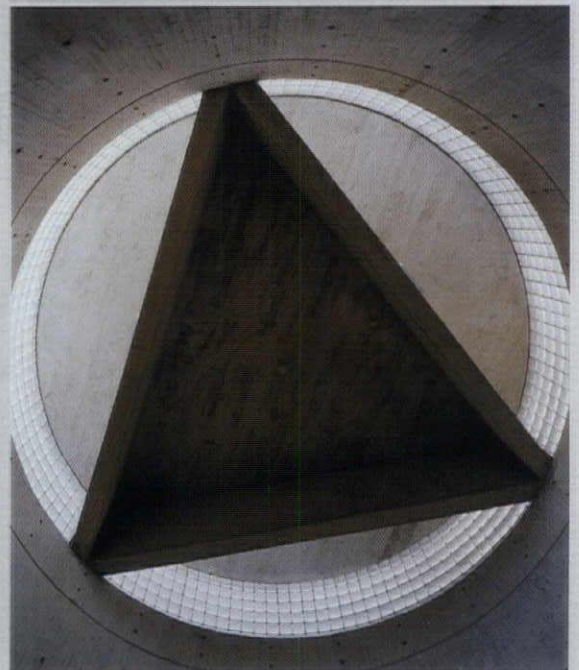
Updating Kelly's original lighting system, developed with Edison Price, was a primary challenge. Arguably the first use of track lighting in a museum context, this system matched the flexibility of Kahn's plan and accentuated the deep cavities of the tetrahedral ceiling, creating a visual syncopation of light and shadow. Lighting design firm Fisher Marantz Stone (FMS), who first consulted on the project in 1994 when the University began formulating a renovation master plan, wanted to preserve both the concept and effect of Kelly's lighting design using state-of-the-art technology and products. According to FMS senior associate principle Hank Forrest, project manager for the renovation, from the outset the designers realized they "would not be able to come up with something as easy and as clever as the original solution." The primary issue became one of access; the original electric busways were sandwiched between the poured-in-place concrete tetrahedron floor/ceiling slabs. To update the track, FMS had to thread segmented, flexible track through the ceiling in 32-inch sections. In keeping with Kelly's initial concept for the gallery lighting, new track was installed in every coffer. (The original installation had busways in every other coffer due to budgetary restraints.) The new system, a standard modified track manufactured by Lighting Services Inc, realizes Kelly's original concept providing maximum flexibility and architectural integration.

The gallery's expansive window walls, combined with the restored openness of the plan, made daylighting another critical consideration for the renovation. Through extensive daylight modeling, Steven Hefferan, brought in to design the gallery exhibition lighting, discovered that nearly half of all the daylight exposure occurred during non-gallery hours. To reduce daylight exposure without interfering with the visitor experience, blackout shades for use during non-public hours were designed, as well as view-preserving scrims with roughly 10 percent transmittance for public hours.


The renovation of the Yale University Art Gallery is remarkable in many ways, particularly in restoring the integrity and purity of Kahn's composition and revealing his masterful understanding of light in architecture. The expansive light-filled galleries provide dynamic surroundings that highlight the University's substantial collections, encouraging visitors to linger and explore. The renovated galleries also provide curators the ability to display works from the collection not previously viewed, benefiting curators, students, and visitors alike, allowing the gallery, as Hazard describes, "to be what it wants to be." **MARGARET MAILE PETTY**

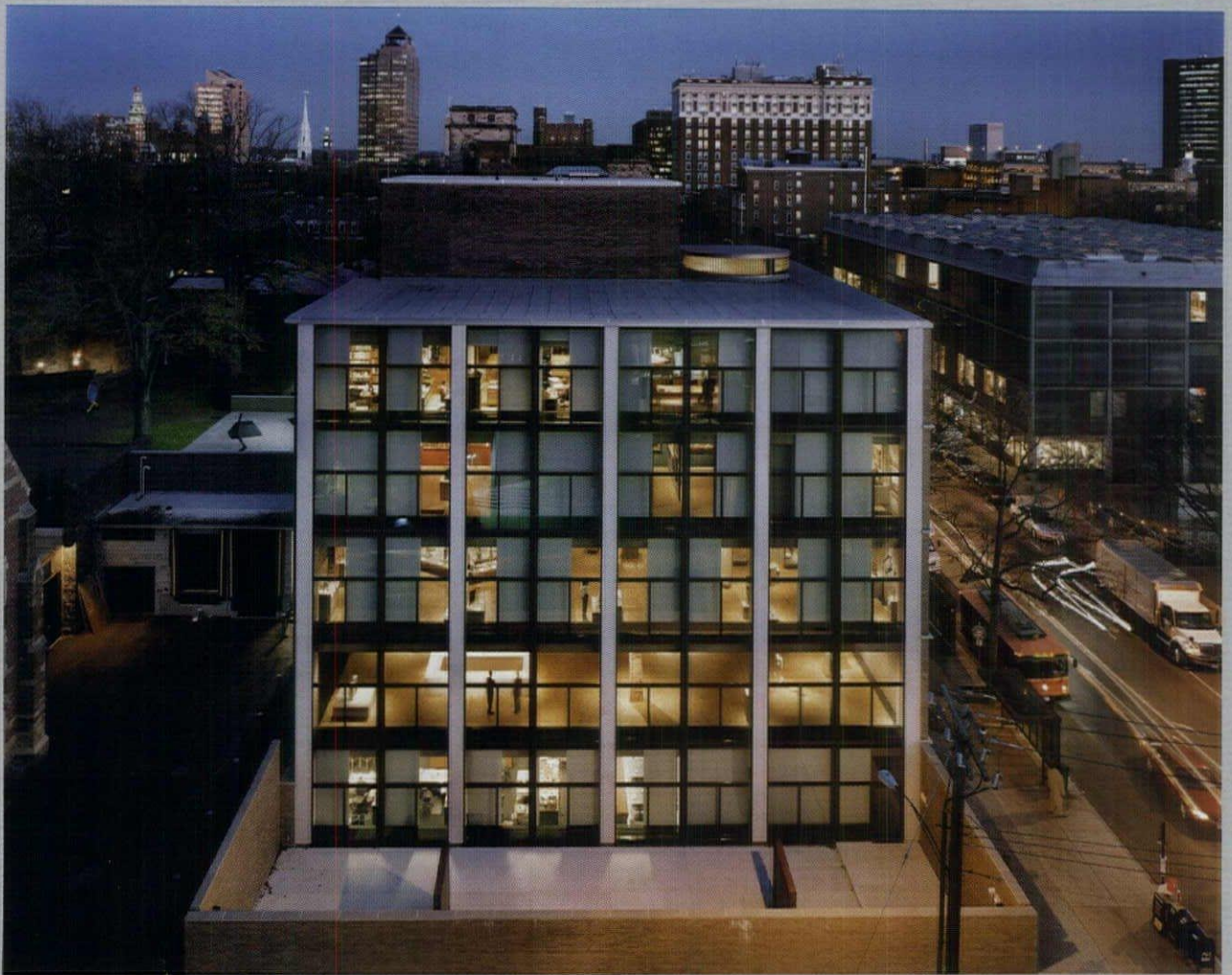


The luminous north window wall reveals the light/shadow pattern of the signature tetrahedral ceilings (above). The removal of added layers of sheetrock that squared-off the cylindrical stairwells has restored the geometric complexity of Kahn's triangle-within-a-circle composition (below)—an echo of the gallery's tetrahedral ceilings.

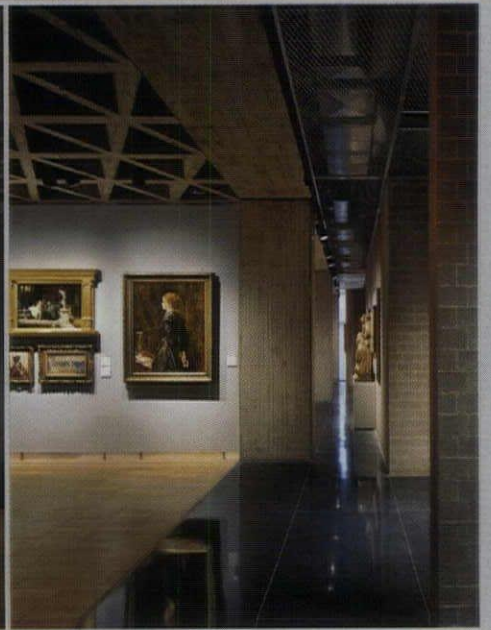
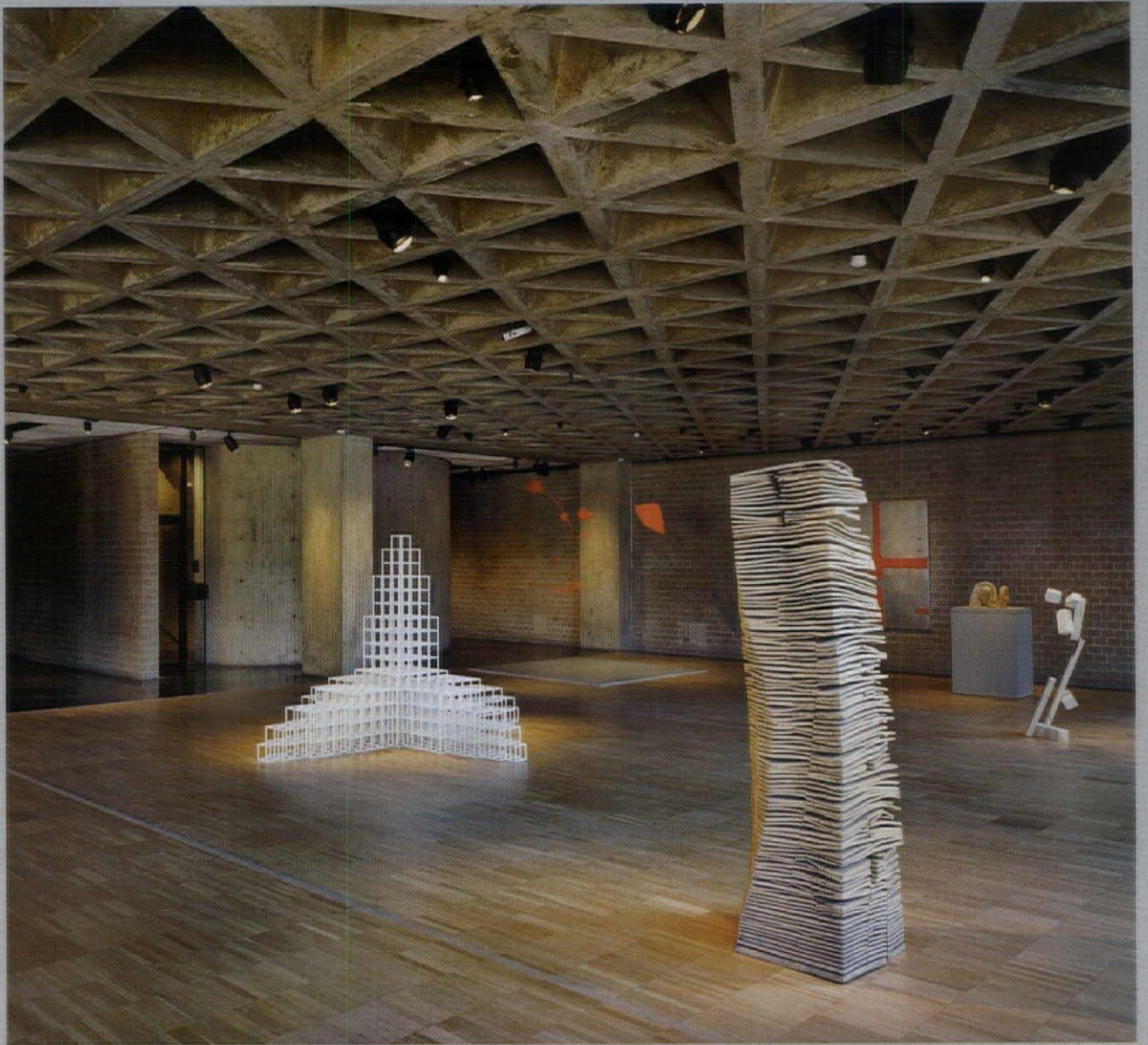


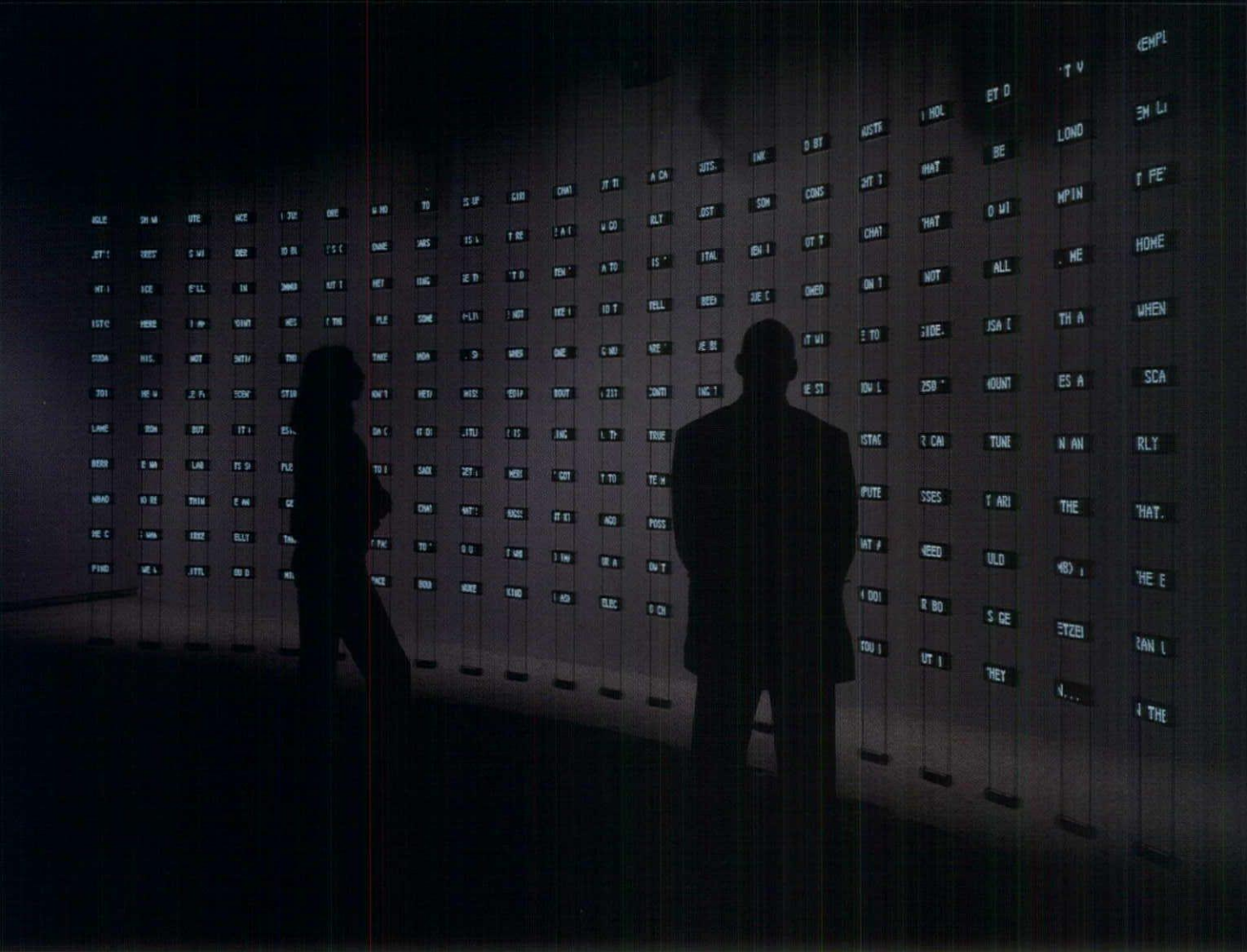
PROJECT: Yale University Art Gallery Renovation **LOCATION:** Yale University, New Haven, Connecticut **ORIGINAL BUILDING ARCHITECT:** Louis Kahn, Philadelphia **ORIGINAL BUILDING LIGHTING DESIGNER:** Richard Kelly, New York **RENOVATION ARCHITECT:** Polshek Partnership Architects, New York **RENOVATION LIGHTING DESIGNER:** Fisher Marantz Stone, New York **EXHIBITION LIGHTING DESIGNER:** Steven Hefferan Partnership Lighting Design, Boulder, Colorado **PHOTOGRAPHER:** Elizabeth Felicella, New York

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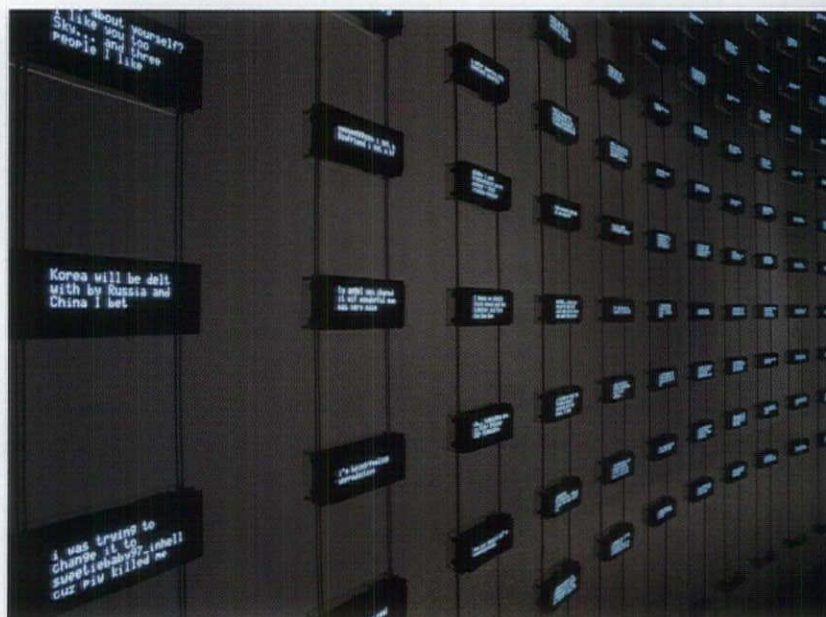
The west façade of the building with its new glass-and-steel curtain wall appears indistinguishable from the original, but provides year-round climate control (above). The reopening of the enclosed sculpture garden allows daylight and views into the lower galleries (left). The open plan of the restored galleries allows curators to display larger works from the University collection (facing page, top). Updated versions of Kahn's "pogo panels"—moveable partitions with spring-mounted feet that lock into the floor and ceiling—provide exhibition surfaces for the loft-like galleries and are arranged to create "safe zones" for light sensitive artworks (facing page, bottom left). The interplay of daylight and electric light create a dynamic environment encouraging visitors to linger and explore the University's collections (facing page, bottom right).





VISUAL COMMUNICATION

Media artist Ben Rubin explores the interaction between light, sound, and symbol.





WITH AN IMPRESSIVE BODY OF WORK SPANNING MORE THAN A DECADE, NEW YORK-BASED artist Ben Rubín challenges artistic conventions combining new media with electronic components to explore different forms of communication. Rubín's early work focused on image projections and interactive sound installations, but over the past five years, Rubín has added light, as both a material and a tool, to his already diverse repertoire that ranges from light sculptures to public art installations.

The piece, which Rubín is perhaps best known for, and the work, which allowed him the first significant use of light in his work, is *Listening Post*. Started as a research project with statistician Mark Hansen, the duo wanted to find ways they could use sound to do data exploration. Internet chat proved to be an interesting source of data that could be analyzed in terms of length and frequencies of posts, and even the words themselves. In all of Rubín's work it is important that the idea generating the piece have meaning. "We communicate through two senses—sight and sound," he says. "We realized if people could read the words at the same time as viewing the screens, it gelled into a more meaningful piece."

Rubín's recent explorations of light are a series of luminous tube artworks intended for gallery settings. These pieces incorporate light, color, and movement, as images and text are abstracted and scroll across a series of LED tubes. Because this work relies on a vertical plane (a gallery wall) as its backdrop, a spatial interaction is created between the viewer and the artwork. In order to achieve the visual effect he is looking for, Rubín pays careful attention to the diameter and placement of the LED tubes. For *Two Lanes*, he employed tubes with a thin diameter, which throw their light back onto the wall.

Sandstorm, explores the power of color as a visual communication device. Rubín had wanted to work with a highly saturated orange

Four Stories, Minneapolis Public Library (2006), ABOVE

Four Stories is one of several, permanent public artworks commissioned by the city of Minneapolis for the new, main public library building. Built into the structure of the two glass elevator cabs in Library Hall, *Four Stories* displays the titles of recently checked-out, reshelfed, or searched titles in the online catalog, in large, illuminated text as the elevators move between floors. Letters are formed with a combination of red, green, and blue LEDs. This text is visible from much of the Library Hall.

DIMENSIONS two panels, each 48 inches by 90 inches

MEDIA/TECHNOLOGY Addressable LED tube fixtures, laser range finders, and custom software

CREDITS Custom software by Small Design Firm

Listening Post (2001-2003), Mark Hansen and Ben Rubín, FACING PAGE

Listening Post is an art installation that culls text fragments in real time from thousands of unrestricted Internet chat rooms, bulletin boards, and other public forums. The texts are read (or sung) by a voice synthesizer, and simultaneously displayed across a suspended grid of more than two hundred small electronic screens. *Listening Post* cycles through a series of six movements, each a different arrangement of visual, aural, and musical elements, each with its own data processing logic. Dissociating the communication from its conventional on-screen presence, *Listening Post* is a visual and sonic response to the content, magnitude, and immediacy of virtual communication.

DIMENSIONS 21 feet by 10 feet by 3 feet

MEDIA/TECHNOLOGY Vacuum-fluorescent displays, custom software and electronics

CREDITS Engineering and fabrication by Will Pickering/Parallel Development



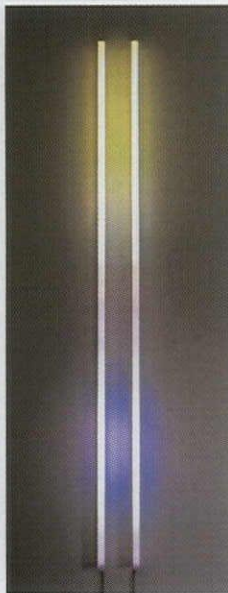
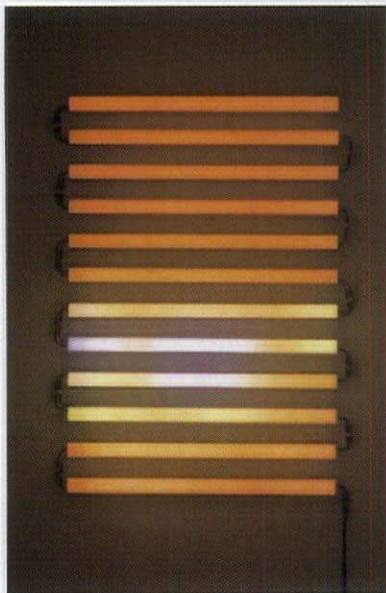
San Jose Semaphore (2006), ABOVE

San Jose Semaphore is a permanent public artwork commissioned by Adobe Systems Inc. in collaboration with the City of San Jose's Office of Cultural Affairs' Public Art Program. Located within the top floors of Adobe's Almaden Tower headquarters in San Jose, California, *San Jose Semaphore* is a multi-sensory kinetic artwork that illuminates the San Jose skyline with the transmission of message encoded in illuminated moving symbols and in sounds. The content of the *San Jose Semaphore's* message is a mystery; cracking the encryption technique and deciphering the message is posed as a challenge for the public.

DIMENSIONS four discs, each 10 feet by 10 feet

MEDIA/TECHNOLOGY 24,000 Luxeon LED emitters, custom electronics and software

CREDITS Engineering and fabrication by Will Pickering/Parallel Development



Sandstorm (2006), FAR LEFT

This piece scans four times across a wire-service photograph from March 25, 2003, about one week after the start of the U.S. invasion of Iraq. The photo caption reads: "A sandstorm hit the center of Baghdad, which was already ringed with plumes of thick smoke billowing from burning oil trenches."

DIMENSIONS 39 inches by 74 inches

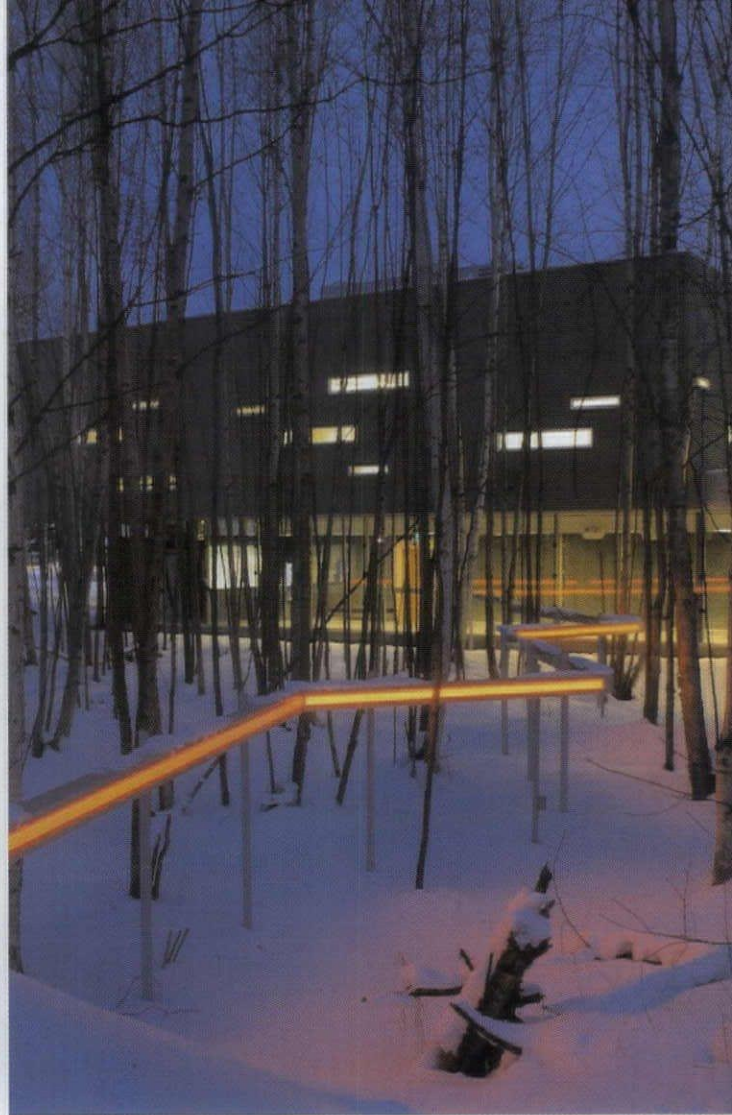
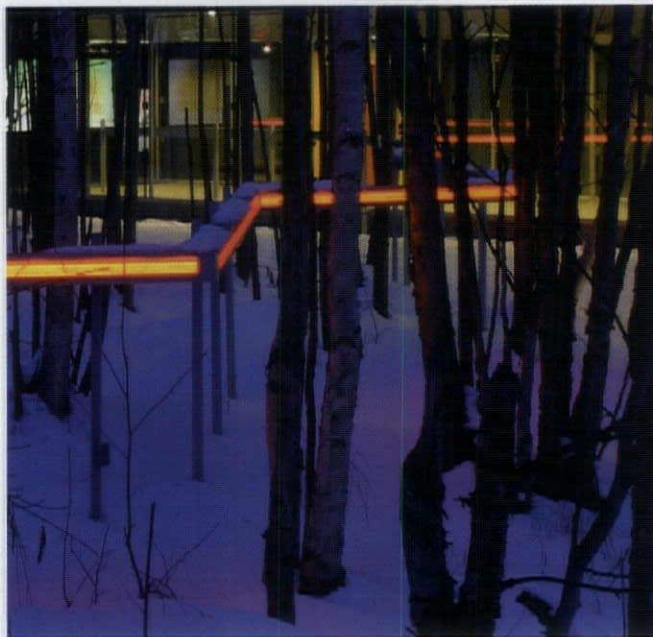
MEDIA/TECHNOLOGY LEDs, acrylic, aluminum, electronics

Two Lanes: Bowery between Grand & Hester, March 2, 2006, (2006), LEFT

This piece translates video footage of two-way street traffic into two vertical lines of LED light. The roofs of cars, trucks, busses, and taxis are visible as colored segments moving up or down the lines. The video was shot from the roof of Rubin's studio on a rainy, snowy afternoon. Traffic was light, and moving easily that day.

DIMENSIONS 84 inches by 7 inches

MEDIA/TECHNOLOGY LEDs, acrylic, aluminum, electronics



color for a while. He explains, "I was looking for some content to create that color and I found it in this image of a Baghdad sandstorm." The result is a powerful piece with emotional resonance, further reinforced when the viewer discovers the artwork's source material. "The hope is that it has an immediate visceral reaction because of the color," he says. "Yet, there is this underlying meaning to it that you can dig out—what's causing the changes in the light."

Rubin's work is about "story telling," just with contemporary tools—LEDS and software. Although referred to as a "media artist," Rubin does not place much importance on the title in terms of his work. "It's meaningless really," he says. "Artists have always used whatever tools or media are at hand. The project of communicating through visual and sound media is not so different from what it's always been, it's just that now there is electronic technology." Yet, it is precisely the introduction of electronic components that distinguishes this work from the continuum and legacy of artists like Dan Flavin who pioneered working with light. "The work of Dan Flavin has incredible impact," Rubin states. "He's using the same format of illuminated tubes in sculptural arrangements, but he didn't have the benefit of controlling what is on those tubes—they make light of one color. Electronics allow you to be more expressive with the physical forms. You can bring dynamics and behaviors to what would otherwise be a static inanimate object."


Exploring the overlapping territories of light, color, text, and sound, Rubin finds ways to recombine these elements. With the aid of electronics, the activities of everyday life are "captured," whether they exist in real time or the virtual world. The result is a body of work that expands the idea of what constitutes public and private space, and how individuals engage with their constructed worlds. **ELIZABETH DONOFF**

Story Pipeline (2002), ABOVE

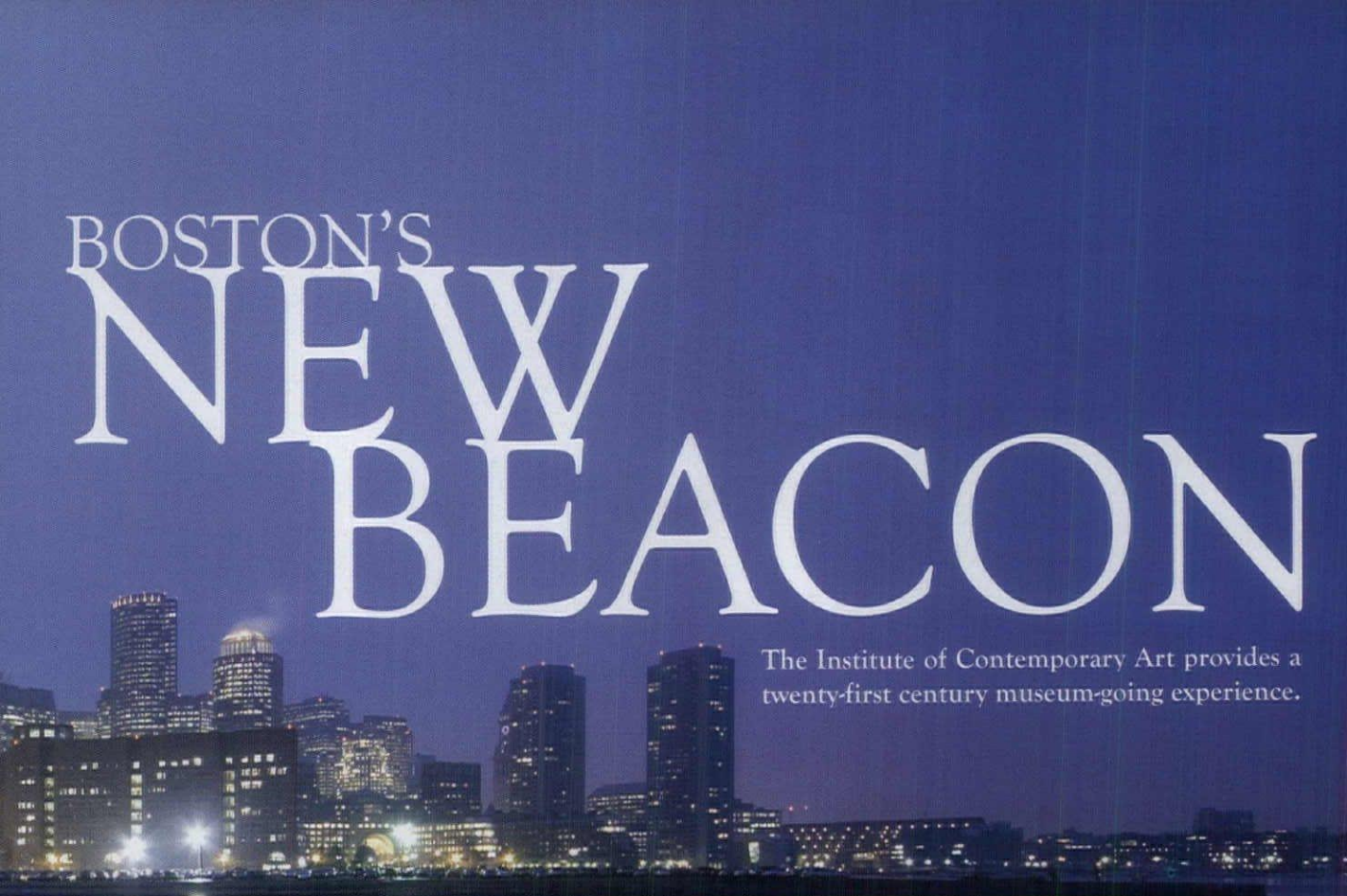
In the BPEC community center in Anchorage, Alaska, stories told by Alaskans appear on a plasma video screen and simultaneously emerge as real-time text transcriptions on a 150-foot-long LED display. The text zig-zags indoors down a glass corridor, then veers out through the plate glass, dancing between the trees until it disappears out of sight.

DIMENSIONS approximately 150-foot-long by 6-foot-tall

MEDIA/TECHNOLOGY LED text and plasma video displays, video projection, audio
CREDITS Original design by Ben Rubin/EAR Studio in collaboration with Robin Sylvestri, Cecile Bouchier, Bill Ballou, Alexis Kraft, Bruce Williams, Ron Bateman and the architects of Koonce, Pfeffer, Bettis, Anchorage, Alaska. Installation fabrication and video production by Batwin+Robin productions. LED sign by Sunrise Systems. Audiovisual installation and programming by Scharff Weisberg.

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BOSTON'S NEW BEACON

The Institute of Contemporary Art provides a twenty-first century museum-going experience.

IT IS NOT OFTEN THAT AN INSTITUTION IS ABLE TO COMPLETELY REINVENT ITSELF, BUT that is exactly what the Institute of Contemporary Art (ICA) in Boston has been able to do, and with it, set a new tone for the city's art and museum scene. In an impressive about face, due in large part to the efforts of museum director Jill Medvedow, ICA has garnered itself an architecturally-prized new home and its own permanent collection—the first time in the Museum's 70-year-history it has actually been able to amass artwork.

Chosen in 1999 to be the "cultural cornerstone" of the 20-plus acre site of Boston's Fan Pier waterfront development project, New York-based Diller Scofidio + Renfro (DS+R) were selected in 2001 as the building architects. Known for their museum installations and multi-media projects, ICA is DS+R's first built commission, and the first new museum to be built in Boston in more than 100 years.

The building is an object and a destination point, and takes full advantage of the waterfront location. Its "front" façade overlooks the harbor—a point worth stating because this is not the elevation that greets visitors. Nevertheless, if one remembers that the museum is only the first part of the Fan Pier development yet to be realized, the parking lot arrival can be overlooked given the jewel-like features that await inside.

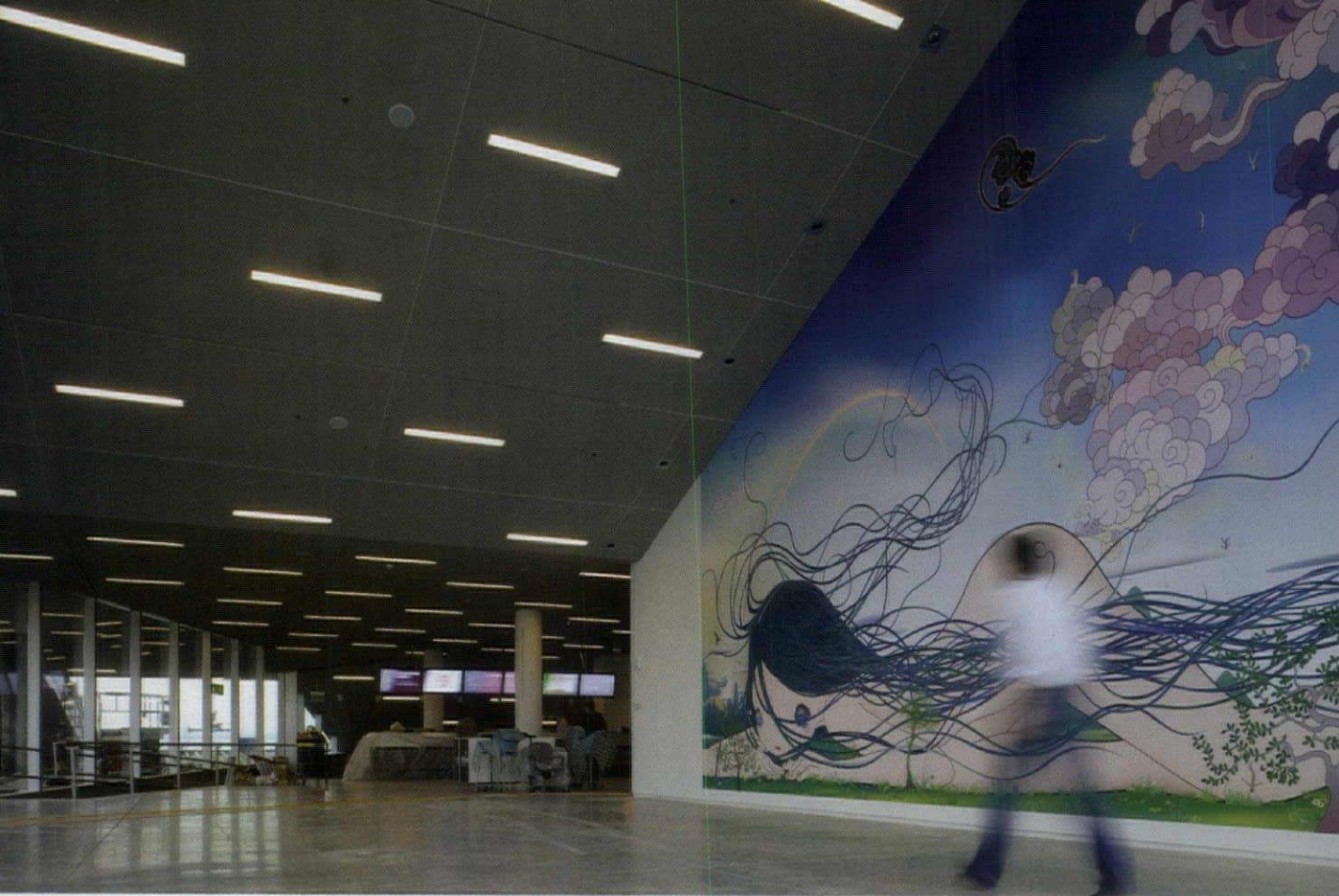
The project's main architectural gesture is a metal and wood "ribbon" that folds back on itself, organizing the sectional separation between the upper level galleries, the glass-enclosed theater, the ground floor lobby, museum shop, and café, and the museum's waterfront seating area and promenade. The extensive use, and thoughtful placement of translucent and transparent glass, blurs the edge between interior and exterior, as visitors are pro-

vided different environments in which to engage the art, the building, the view, and the city.

Overseen by New York-based Arup Lighting, the building's lighting scheme takes a systematic approach in order to address the diversity of spaces. "We focused on using a common set of economical tools," explains lighting designer Brian Stacy. "Yet, it still allowed us a highly-integrated lighting design." That integration is most acutely seen in the windowless main galleries, which receive light through an adjustable skylight system, concealed by a grid of scrim-wrapped ceiling panels. Tracklights with PAR38 lamps are integrated into the ceiling grid's structural seams and provide ambient lighting. The result is a serene and luminous space with balanced light. At night, the exterior of this gallery "box," which cantilevers 80 feet to the water's edge, glows from within.

The building's two other primary spaces—the theater and Mediatheque—offer a contrasting engagement with the site and with lighting. Whereas the Mediatheque, as its name implies, offers a contemplative space in which to think about art, while providing a momentary refuge, the theater, with its two glass walls is an active space, which invites visitors to physically engage with the building, the water, and the city via the breathtaking views. An integrated shading system within the curtain wall allows the auditorium to go from full blackout to completely translucent, allowing for a variety of functions and performance types.

ICA offers a dynamic museum-going experience, the likes of which Boston has not seen, and one that rivals other prominent collections in the United States. A destination worth traveling to, the new ICA encourages visitors to reimagine the museum's potential as a thought-provoking cultural experience. **ELIZABETH DONOFF**

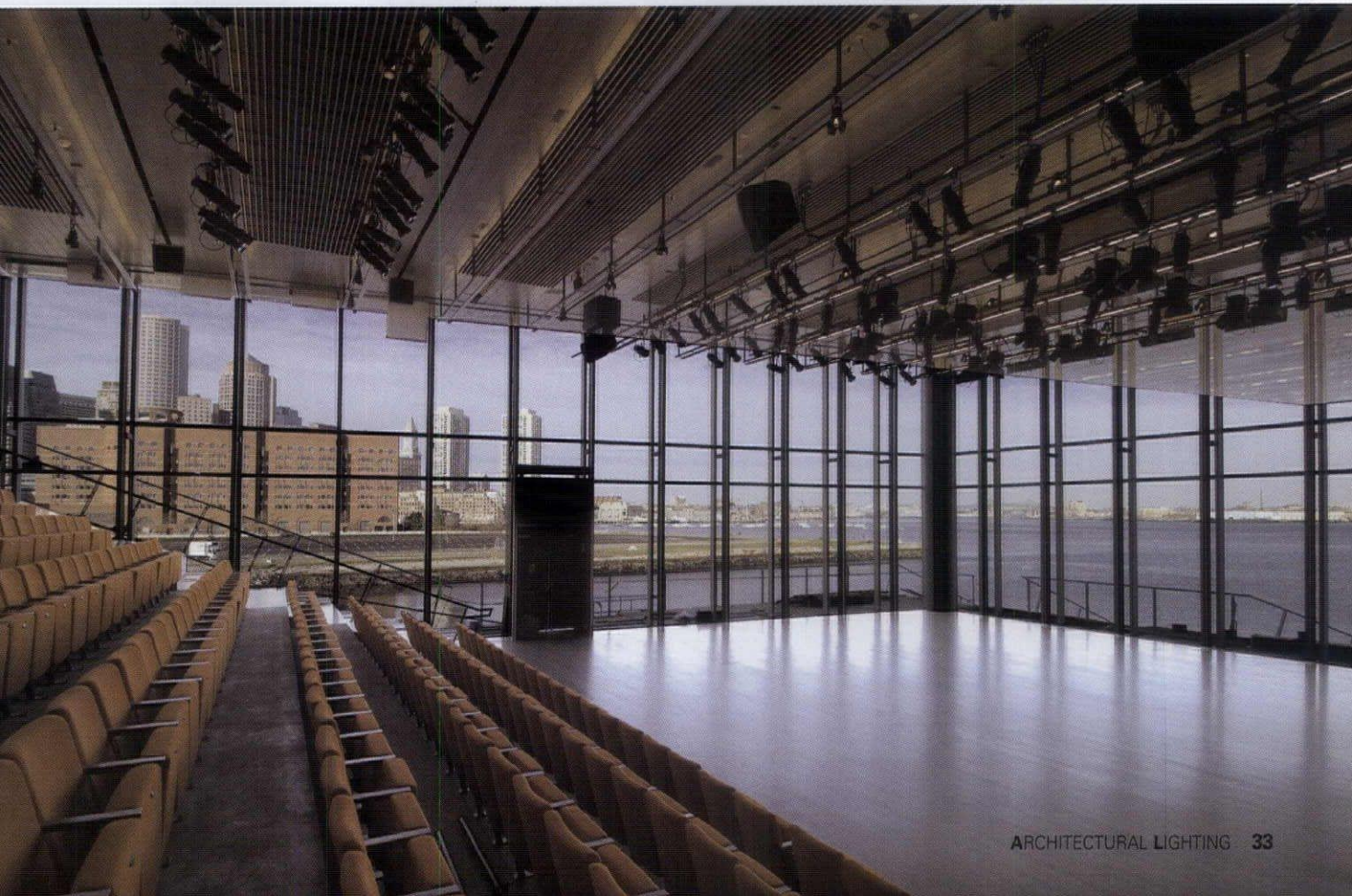


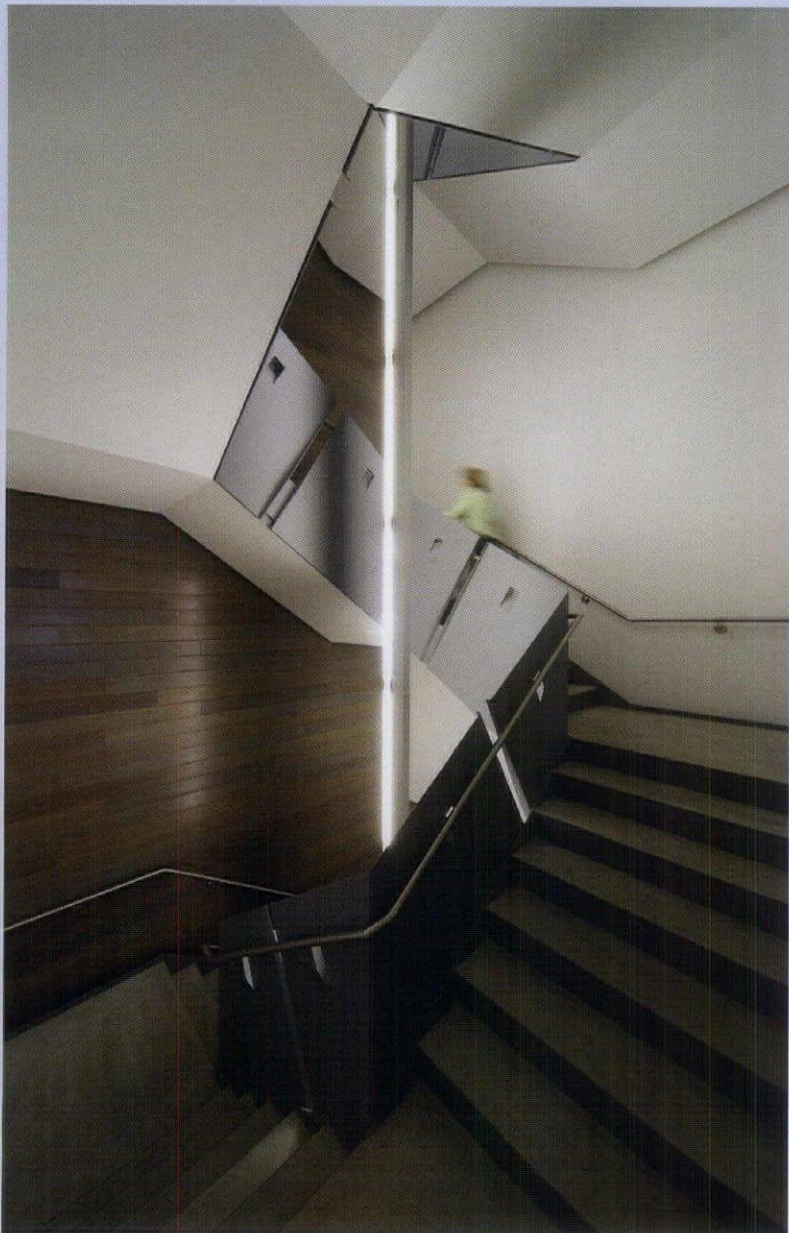
The sloped ceiling plane of the ground floor lobby, accented with T5 fluorescent strips, provides a continuous backdrop, blurring the boundary between interior and exterior (above). The column-free galleries are illuminated by way of a skylight system, concealed by a grid of ceiling scrim-wrapped panels. PAR38 lamps, which provide ambient lighting, are integrated into the grid's structural seams. The result is even and continuous light (below). Suspended from the underside of the cantilevered fourth floor, the Mediatheque, provides a strangely public, but private encounter with the harbor and the Museum's collections, via multiple



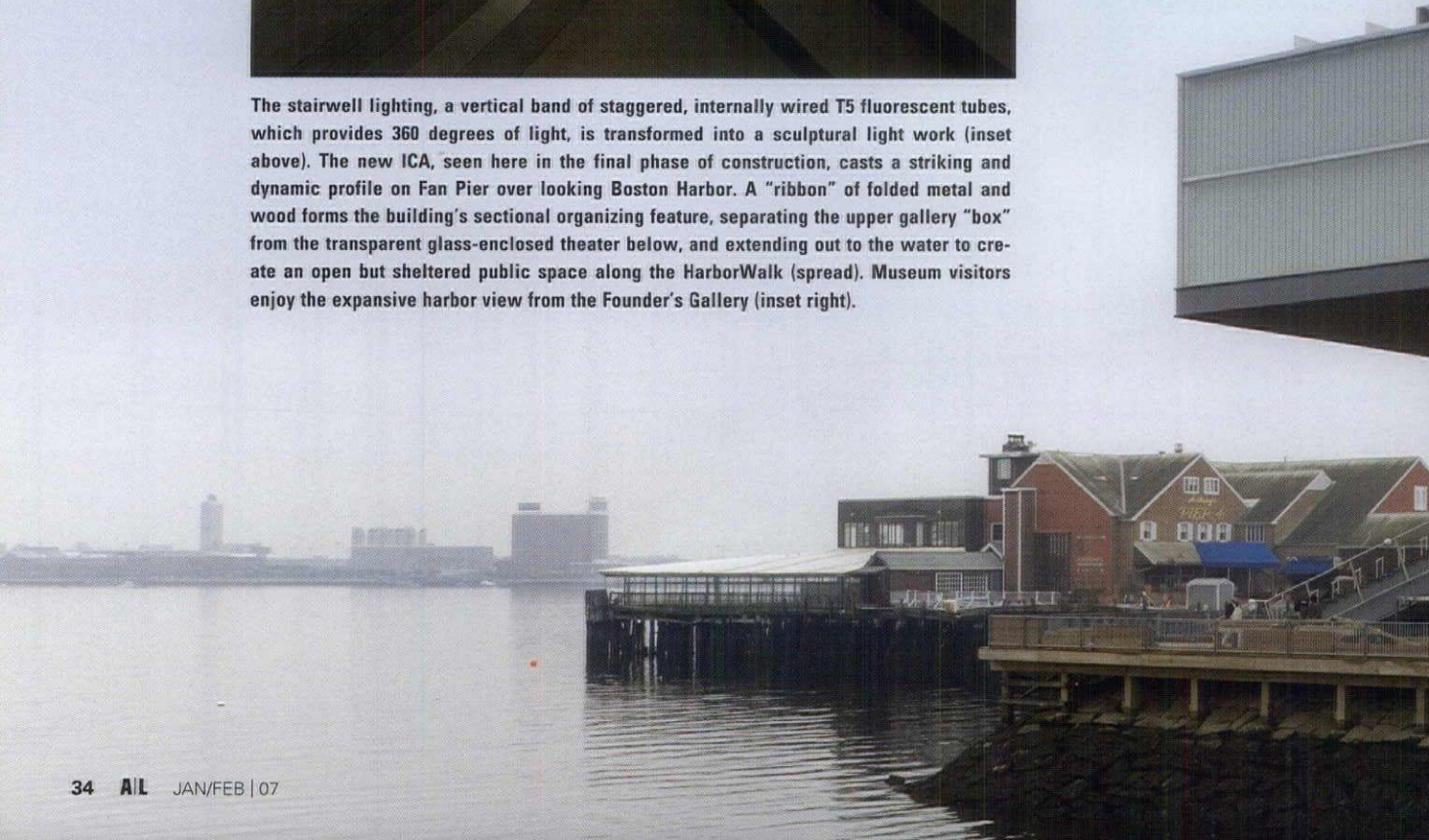


computer stations. To create a subdued light level and mysterious, almost “other-worldly” illumination, light sources were kept to a minimum. Fluorescent striplights are reserved for the kick-space of the computer station seating and stair steplights, yet provide a warm glow on the sidewalls and ceiling (above). The theater, by contrast, with its glass walls has a more active engagement with the building’s exterior spaces and the city. Architectural lighting elements are tied into the theatrical lighting system, and LED steplights provide yet another layer of light in the multi-dimensional space (below).






The stairwell lighting, a vertical band of staggered, internally wired T5 fluorescent tubes, which provides 360 degrees of light, is transformed into a sculptural light work (inset above). The new ICA, seen here in the final phase of construction, casts a striking and dynamic profile on Fan Pier over looking Boston Harbor. A "ribbon" of folded metal and wood forms the building's sectional organizing feature, separating the upper gallery "box" from the transparent glass-enclosed theater below, and extending out to the water to create an open but sheltered public space along the HarborWalk (spread). Museum visitors enjoy the expansive harbor view from the Founder's Gallery (inset right).





 more information at ARCHLIGHTING.COM

DETAILS

PROJECT Institute of Contemporary Arts, Boston
DESIGN ARCHITECT Diller Scofidio + Renfro, New York
ARCHITECT OF RECORD Perry Dean Rodgers | Partners Architects, Boston
LIGHTING DESIGNER Arup Lighting, New York
STRUCTURAL, M/E/P ENGINEERS AND CONTROLS Arup, New York
THEATER CONSULTANT Fisher Dachs Associates, New York
PROJECT SIZE 65,000 square feet
TOTAL BUILDING COST \$35 million (including site)
LIGHTING COST \$1,640,000
PHOTOGRAPHER Iwan Baan, Amsterdam

MANUFACTURERS

Bega
 Belfer
 Columbia
 Elliptipar
 Erco
 Kurt Versen
 Light Controls and Design
 Litelab
 Louis Poulsen
 Lutron
 Selux
 Sistemalux
 Sterner

APPLICATIONS

Exterior luminaires at doors
 Dressing room lighting
 Fluorescent strips throughout
 Façade (rainscreen) backlights
 Uplights in lobby
 Square downlights in theater
 Facility-wide lighting controls
 Gallery and lobby luminaires
 Theater and exterior lighting
 Room-based lighting controls
 Lobby, exterior canopy, and elevator lobby lighting
 Lobby lighting
 Cantilever uplights



Sanna

Light, Space, and Architecture: SANNA'S ARCHITECTURAL EXPLORATIONS WITH LIGHT.

With the completion of the Glass Pavilion at the Toledo Museum of Art in 2006, and additions to the New Museum of Contemporary Art in New York City and Valencia, Spain's modern art museum—IVAM—currently under construction, Tokyo-based SANNA has garnered world-wide attention. Architects Kazuyo Sejima and Ryue Nishizawa, each with distinguished careers of their own, founded the firm and started working collectively in 1995. Known for work that is "luminous and minimal in its aesthetics," Architectural Lighting editor Elizabeth Donoff spoke with senior associate Florian Idenburg, currently overseeing the firm's U.S. work, about SANNA's approach to architecture and light.

AJL: SANNA has just completed the first of a trio of museums. Each is different, yet they all have an awareness of light. How does the studio think about Architecture and its integration with light?

FLORIAN IDENBURG: Light is a very complex issue. Light is the element that makes Architecture. You need light in order to make anything visible, but it's also something you have to control, especially in museums. Obviously there are the art requirements and the issues of conservation—how you protect different types of art being displayed—but there are also the cultural aspects in the way light is being used. We've built a number of museums, and in every one the way the light is being applied is different. I think it has to do with the culture of where we are building.

AJL: What is SANNA's approach for IVAM in Valencia? How are you using light?

FI: We were asked to increase the useable space without touching the existing museum, and they wanted to stay operational during construction. When we came to Valencia the first time, it was the height of summer. The sun was incredibly bright and too hot to be outside. We were fascinated by the big, open, covered markets in Valencia, in particular the Mercado Central—the main market—with the light that comes through the large cast iron arches. This space was very inspirational for us—when the light is filtered through, between inside and outside. For the IVAM museum what we did was in essence to wrap the building in a skin that filters the light and creates somewhat of a shade, yet allows for wind, rain, and sun to go through. It's a metal skin, which is perforated, but the way the perforations are designed, based on our sun diagram studies, they are all angled so the interior of the museum, the artwork, and people are never in direct sun. That was definitely a local influence on us in our thinking of how we wanted to treat the light coming into the building.

AJL: You mentioned the cultural differences you have come across in building in different countries. What is your impression of what Light means in Spain?

FI: Light, and of course I am speculating a bit because I am not Spanish myself, has an incredible power. It can be very strong. In Valencia the contrast is very high between the bright and the dark, between the incredible narrow hot spaces of the street and the big old churches, which are very cool. Light there, culturally, is

very much about contrast. If for instance you compare that to Japan, light is much more even, continuous, and with less contrast, because it is generally more overcast. In Japan there is this idea that light is diffuse.

AJL: How do the two museum projects in the United States compare to the work in Spain?

FI: The two museums in the U.S. are almost the opposite of how we deal with light at IVAM. Toledo is a museum for glass art standing in a natural setting accessible from all sides. When the curators came to us in Japan for preliminary discussion, the subject of light came up immediately, because everyone has such a specific approach to it. We asked about the limitations for using light with glass objects. Glass is incredibly strong; you can expose it to daylight with very little negative impact, except for perhaps on some colored glass, but its nothing like drawings. We were very excited by this, it gave us the opportunity to completely rethink they way we could make a museum. It also created the possibility to have curved glass walls, which is the absolute worst condition when you think of a museum—you can't hang anything on a glass wall. The great thing about the Glass Pavilion is that the art enabled a way to make the Architecture.

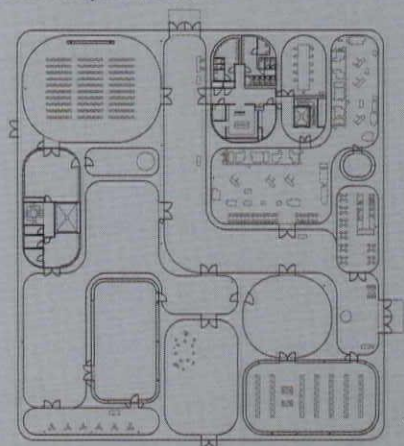
Early on in the design process we came to the conclusion that we would try to have as many glass walls as possible, and we would have as much natural light as possible. We then oriented the space in such a way that the spaces would never have direct sunlight—they are all on the north side of the building. The glass making facilities are on the south side toward the more active street, in keeping with the museum's goal to have people see this activity, but where we had a number of beautiful old trees that shaded and cut the direct sun.

AJL: Are you always looking for the site and surrounding context to help inform the project layout?

FI: You can't just depend solely on natural light, although we would love to, it's always trying to make sure you have the right balance between natural and electrical light. The New Museum of Contemporary Art in New York is definitely a case where this is an important issue. Because it is such a narrow site, we needed to stack the galleries, but how do you get natural light into a stack of volumes? We learned from our experience with the 21st Century Museum of Contemporary Art in Kanazawa, Japan—where each gallery has its own skylight—you can light contemporary art with natural light. For New York, by shifting the boxes in relation to one another, we create a skylight location and the oppor-



The Glass Pavilion in Toledo, Ohio is about “transparency, and about the physicality of the glass,” says SANNA senior associate Florian Idenburg. The plan is comprised of a series of interconnecting glass “pods” (bottom). In the galleries, ceiling downlights are setback from the glass walls and positioned to prevent endless reflections (left). The glass hot shop is visible from the street, but located on the south side of the site where an existing canopy of trees provides shade and cuts direct sun into the space (above).



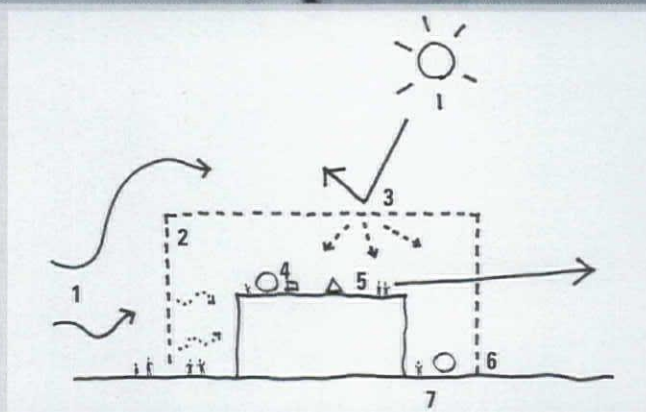


Inspired by the cast iron structure of Valencia's central market, SANNA's extension for the city's museum of modern art—IVAM—makes use of a perforated metal skin. The once outdoor entry area will be transformed into a semi-enclosed space (above). A diagram (right) explains the natural ventilation and protective sun shading the new building enclosure will provide.

tunity to create a different lighting condition. Its about trying to find the right balance between the amount of daylight that comes in on one side of the gallery, and how to balance that with electric light so that it doesn't seem like there is too much contrast in the space.

A|L: So then light is really helping to shape the architectural form of these projects?

Fi: Yes, but I think it also has to do with the fact that art can only live by the virtue of light. I think every museum understands that very well—that is why it is very high on the agenda of museum directors and curators. At this stage, I believe we (SANNA) have enough experience that we can anticipate how light will enter a project, we know what the influence of light can be on the Architecture, and we work with it as an organizational principle.



- 1 THE SKIN ACTS AS A FILTER SLOWING STRONG WINDS TO A MILD BREEZE.
- 2 THE SKIN GENTLY SEPARATES THE OUTSIDE AND INSIDE, BUT IT ALSO BRINGS THE MUSEUM CLOSER TO THE CITY.
- 3 THE SKIN PROTECTS THE PEOPLE AND ART FROM DIRECT SUNLIGHT. IT IS A FILTER CONVERTING STRONG SUNLIGHT INTO AMBIENT LIGHT.
- 4 SCULPTURE GARDEN
- 5 STANDING ON THE ROOF, ONE CAN SEE THE CITYSCAPE THROUGH THE SKIN.
- 6 THE EXISTING IVAM CAN BE SEE THROUGH THE SKIN.
- 7 THE SPACES BETWEEN THE SKIN AND THE EXISTING IVAM IS FREE PUBLIC SPACE.

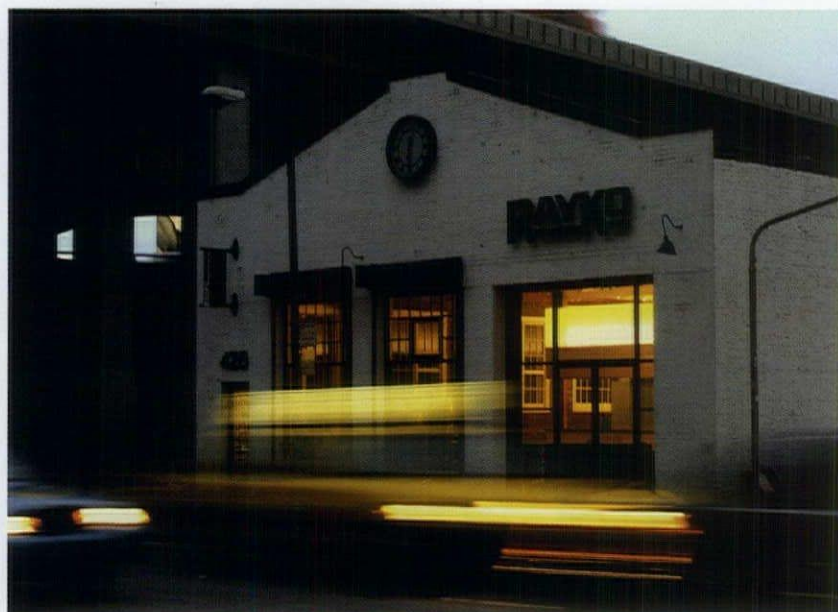


The narrow lots of New York City's grid dictated a vertical structure for the New Museum of Contemporary Art. By shifting the stacked volumes, SANNA is able to create skylight slots, and bring natural light into the entire building (left). Fluorescent fixtures in the gallery ceilings help provide balance between natural and electric light, and create a uniform light level (above).

AJL: Are there other similarities and/or differences you have encountered in working on museum projects around the world?

FI: Going back to this issue of culture, there is a European understanding of light for museum settings that is different from the U.S.; museums in the U.S. focus a lot on education, and shows are always very didactic. That means often the space is very dark, and light functions like a guide, where one light leads you to the next. European museums are often organized around a very even, neutral, continuous light-level, not a set route. It's much more about browsing and finding your own way, trying to choose your own path through the museum. What we tried to do in Toledo, for instance, was to organize the space so that there is a choice of how to move, but the way the visitor is using the space is very much like a series of chapters. There is a relationship between the organization of the museum and an exhibition—light definitely plays a role in that.

LIGHTBOX DARKBOX



ARCHITECTURAL FORM TAKES ROOT IN A PHOTOGRAPHIC PRINCIPLE.

SITUATED NEXT TO AND SLIGHTLY UNDER AN ELEVATED freeway on the border between San Francisco's South of Market neighborhood and burgeoning Yerba Buena arts district, the RayKo Photo Center is a study in darkness and light. A recognized Bay Area institution, established in 1991, the Center combines gallery space for local artist exhibitions with rentable darkrooms, studios, and digital photography facilities. The Center's new home (its third), a 12,000-square-foot warehouse, has been granted new life as a sleek contemporary arts space.

To fulfill the Center's programmatic requirements, careful attention was paid to the control and modulation of both daylight and electric light while maintaining the architectural character and details of the warehouse. San Francisco-based Schwartz and Architecture, along with Kogod Smiley Architects of New York City, collaborated during the initial design phases of the project. Principal Lauren

Kogod, RayKo owner Stuart Kogod's sister, helped to develop the interior footprint and design parti, which clusters the darkrooms in the center of the floor plan. From there, architect Neal Schwartz led the way to realize the project, enlisting the lighting expertise of San Francisco-based lighting design firm H.E. Banks + Associates.

The project's basic organizing principle centers around the idea of a "lightbox/darkbox"—a space-within-a-space—where facilities such as darkrooms and photo labs, which require little or no light, are grouped together and are ringed by areas that require more light like the gallery. The result is a sleek cube, intentionally isolated to efficiently locate mechanical and ventilation systems above each darkroom. The light/dark theme is continued in the actual detailing of the "darkbox" with what Schwartz describes as the parapet—a continuous 200-foot-long, 4-foot-tall band of PVC stretch fabric, normally used in ceiling applications. The seamless, rubberized material is backlit with a total of 46 T5HO cove lamps, which can be dimmed down to one percent. A combination of thirty-nine 54W 4-foot-long and seven 39W 3-foot-long fixtures cover the parapet length. The placement of the 3000K fluorescent fixtures enables the fabric to glow in an uninterrupted band around the "darkroom" island. When the fluorescent luminaires are turned off, the parapet band appears a continuation of the "darkbox's" sheetrock.

The "lightbox," which sits on top of the "darkbox," provides the majority of interior illumination for the facility's main public areas. The band also reflects light onto the warehouse's white-painted ceiling and underside of the roof beams, which in turn bounces light down into the open plan gallery. Another three sets of 54W 8-foot-long T5HO striplights, installed on top of the center roof beam, run the length of the space. Dimmers allow light levels to be adjusted during the day and for evening gallery openings, when more direct light is preferred. Artwork is highlighted with 50W PAR30 halogen tracklights suspended along the exposed-brick gallery walls. Although similar in color temperature—2900K—to the fluorescent fixtures, the quality of light is different, thereby adding another layer of depth to the lighting scheme.

This seemingly simple lighting solution actually took quite a bit of planning and some crafty design work by both the architects and lighting designers. Through extensive coordination, the designers configured a structural support system comprised of

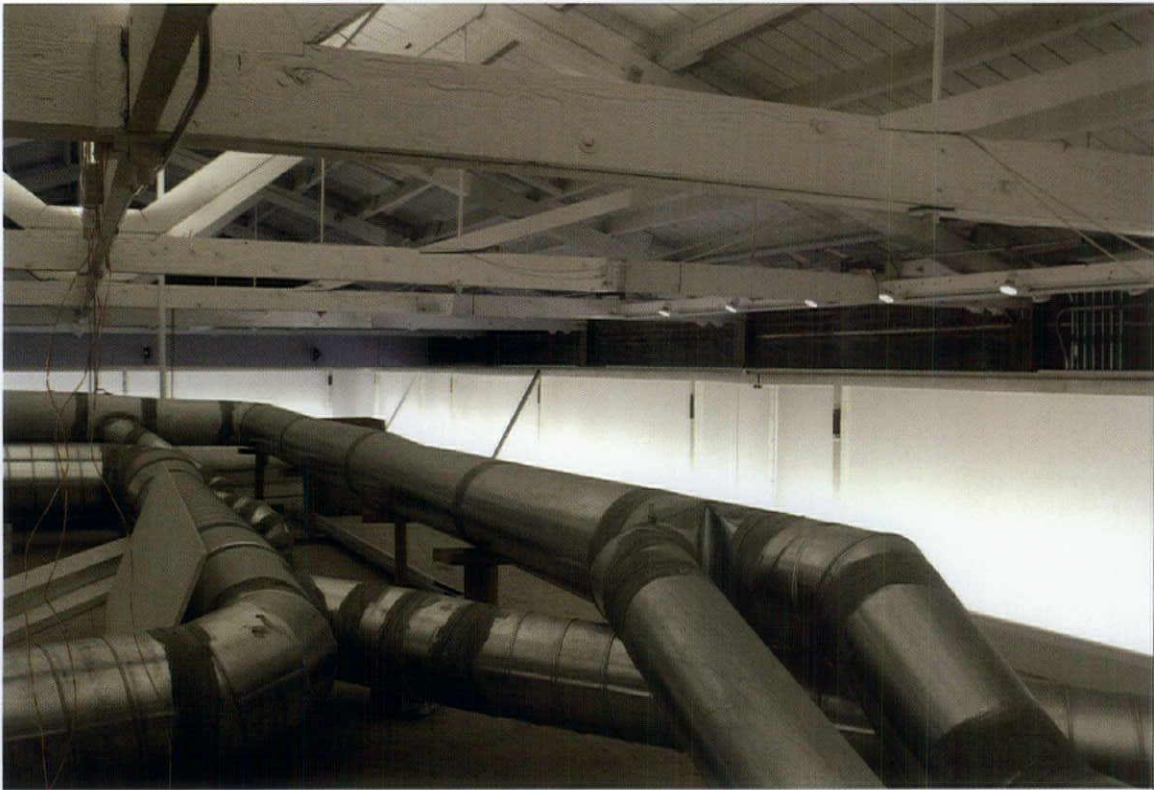


a metal frame and a series of metal braces, installed as space permitted, to support the parapet PVC stretch fabric material. The braces are attached to the top of the 4-foot-tall band and are bolted to the roof of the "darkroom" box. Senior lighting designer Jody Pritchard and the H.E. Banks team precisely calculated the location of the brace angles to prevent the casting of shadows onto the parapet sheathing, no easy feat given the extensive and complicated layout of HVAC ductwork that sits on top of the "darkbox."

In addition to its rigorous layout, the lighting design offers a clever interpretation of the role of color in lighting. By providing a neutral "white light" backdrop for the space, the artwork takes center stage. "We made a conscious decision to stick to white light," explains Pritchard, citing black and white photography, which exists on a value scale between the presence and absence of white light, as the designer's reference. "If we had introduced color," she continues, "it would have taken away from the color of the photography. It was our job to highlight the art, not compete with it."

The complete effect is one of effortless simplicity. Through a strong architectural gesture tied to programming—grouping the darkroom facilities together—and the lighting design and fixture selection to support it, the designers' objective was achieved: to maintain the architectural character of the original warehouse space, to enhance it with a freestanding "lightbox" from within, and have the art remain the primary focus. **KATIE GERFEN**

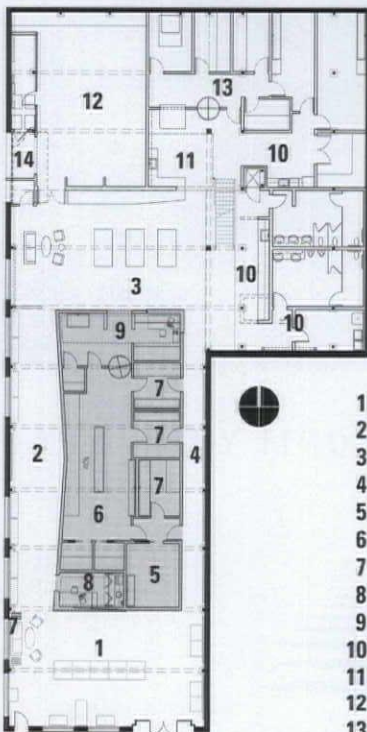
The RayKo Photo Center's new home is a 12,000-square-foot warehouse located next to an elevated freeway on the border between San Francisco's South of Market neighborhood and burgeoning Yerba Buena arts district (facing page). Much of the interior's ambient light is provided by a backlit parapet on top of the cluster of darkrooms, studios, and digital photography facilities in the center of the space. T5HO covelights behind a continuous 200-foot-long, 4-foot-tall band of PVC stretch fabric, normally used in ceiling applications, achieves the effect (above).



The elaborate maze of ductwork on top of the "darkbox" provides the required ventilation for the darkrooms and photo labs, and metal braces anchor the parapet frame to the "darkbox" roof (above). Careful spacing of both the parapet bracing structure and the fluorescent T5H0 luminaires allows the length of the "lightbox" parapet to remain uninterrupted by shadow (left).



During evening gallery openings, light levels can be adjusted by dimming the parapet "lightbox" T5HO fluorescent lamps. Halogen tracklights highlight the artwork (above).



FLOOR PLAN

- 1 RETAIL GALLERY
- 2 EXHIBITION GALLERY
- 3 LAYOUT
- 4 PRINT CHECK AREA
- 5 MURAL PHOTOGRAPHY
- 6 GROUP DARKROOM
- 7 INDIVIDUAL PHOTO LAB
- 8 GALLERY RECEPTION
- 9 PRODUCTION RECEPTION
- 10 SERVICES
- 11 PRODUCTION
- 12 PHOTO STUDIO
- 13 COLOR LABS
- 14 LOADING

DETAILS

PROJECT RayKo Photo Center, San Francisco
CLIENT Stuart Kogod, San Francisco
ARCHITECT Schwartz and Architecture, San Francisco (Phase I and II); Kogod Smiley Architects, New York (Phase II)
LIGHTING DESIGNER H.E. Banks + Associates Lighting Design, San Francisco
MECHANICAL ELECTRICAL AND PLUMBING Mechanical Design Studio, Walnut Creek, California
STRUCTURAL ENGINEER KPFF Consulting Engineers, San Francisco
PROJECT SIZE 12,000 square feet
WATTS PER SQUARE FOOT 1.2
INSTALLATION COSTS \$35,000 (approximate) equipment only
PHOTOGRAPHER Monica Nelson, San Francisco (except where noted)

MANUFACTURERS

Birchwood Lighting
 Cooper Lighting
 GE Lighting
 Illuminating Experiences
 Lutron
 Osram Sylvania

APPLICATIONS

Dimmable cove and striplights at "darkbox" parapet
 Halo halogen tracklights in gallery; Corelight fluorescent direct/indirect pendants and wall-mounted luminaries in offices
 PAR30 lamps
 General corridor lighting in "darkbox"
 Electronic, integral, dimmable ballasts
 T5HO lamps



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AUDREY LOUNGE & CAFÉ, NEW YORK

CHALLENGE At Audrey, a lounge/café located in the W New York –The Tuscany on Manhattan's east side, guests can start the day with an espresso and end it with a cocktail. Focus Lighting, who has worked with the Starwood Hotel Group on several other projects, met the challenge of this multi-functional space, creating a lighting design that seamlessly evolves from day to night with a palette of colors to set distinct moods.

ARCHITECTURAL AND LIGHTING SOLUTION The lounge/café, furnished with contemporary décor infused with the classic essence of actress Audrey Hepburn in *Breakfast at Tiffany's* (hence the name), is "all about transition and transformation," says Focus Lighting's principal Paul Gregory. During the day the majority of the space is illuminated in a bright white light. But at night, vibrant hues, including reds, ambers, and blues, create a definite transition from cheery café to sultry lounge, conjuring a sexy and moody atmosphere.

No matter the hour, Audrey radiates a soft and comfortable vibe through the use of evenly illuminated surfaces. Because hard materials such as acrylic, glass, and mirror were used, great care was taken to soften them. As Gregory explains, "These are both great and difficult materials. They make the space edgy and special, but, unlike fabric, can also make it very cold."

One way in which the lighting designers achieved a soft luminescence is through the bar-front's internally illuminated glass façade, where linear low-voltage light strips with 5W xenon lamps create an amber glow. This also helps to emphasize a chandelier silhouette etched into the glass. Recessed adjustable low-voltage 50W MR16

downlights provide direct illumination on the bar's countertop. This large surface area of even, shadow-free light "is extremely flattering and pleasant," says Gregory, "like sitting around a fire." The back wall of the bar is comprised of a three-panel mirror also sandblasted with the pattern of a chandelier. During the day, the mirror helps to provide a sense of spaciousness for the otherwise small area (capacity is around 50 people) and the chandelier pattern is highlighted in a rainbow of colors via LEDs concealed behind a cavity containing display shelves. At night, the panels slide open to reveal liquor bottles silhouetted by a sheet of backlit white acrylic.

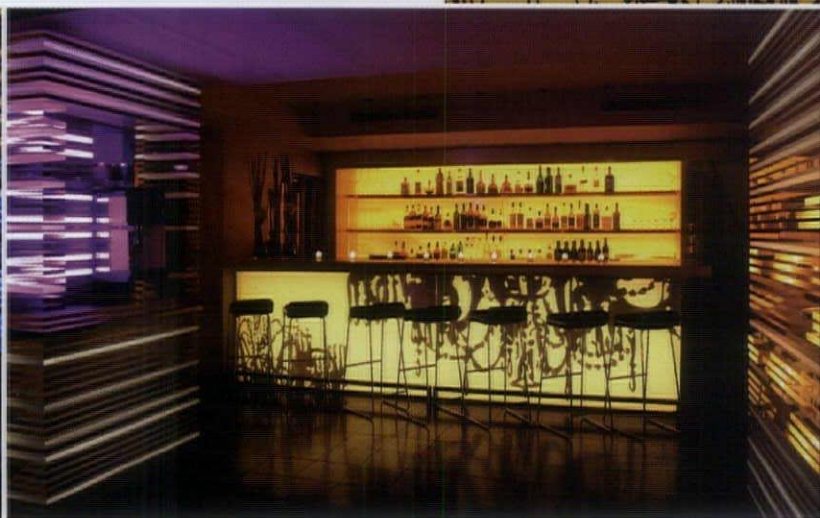
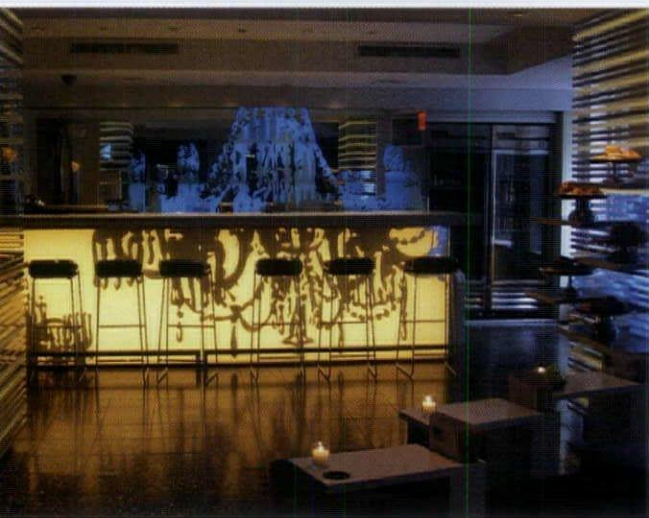
In front and to either side of the bar stand two columns made up of acrylic shelves. During the day they are internally lit with dimmable warm-white LED strips located behind the acrylic, and serve as the buffet location for the breakfast service. An amber filter corrects the blueness of the LEDs and a diffusing filter evens out the light. At night, RGB color-changing LEDs transform the columns into illuminated light boxes.

The cast of light from the bar and columns provides much of the illumination for the entire space, where only recessed adjustable low-voltage downlights have been added to highlight table surfaces. Because the hotel wanted "fool-proof harmonious color environments that would present different feelings within the space," explains Gregory, eight pre-set color schemes are programmed for the columns and bar. As the sun goes down and the candles come out, the setting warms up. Gradually, Audrey becomes infused with sunset colors. And, thus, the transformation is complete. **SALLIE MOFFAT**

By day, the chandelier pattern, sandblasted onto the bar's three-panel mirror, is illuminated by LEDs; but at night, the panels slide open to reveal a backlit cavity containing shelves of liquor bottles.

DETAILS

PROJECT | Audrey, W New York – The Tuscany, New York
DESIGN TEAM | Focus Lighting, New York (lighting designer); W Hotels, New York (interior designer)
PHOTOGRAPHY | Courtesy W Hotels
PROJECT SIZE | 1,000 square feet
WATTS | 5.4 watts per square foot
MANUFACTURERS | ACME, Boca Flasher, CSL Lighting, ETC, Doug Fleenor Design, Juno Lighting, Tokistar Lighting



DUOMO HOTEL, RIMINI, ITALY

DETAILS

PROJECT | DuoMo Hotel, Rimini, Italy
DESIGN TEAM | Ron Arad Associates, London (project architect); Pierandrei Associati, Milan (executive architect); David Atkinson Lighting Design, Surrey, England (lighting designer); Milco Fregnan, Rimini, Italy (structural engineer); Andrea Raggini, Rimini, Italy (mechanical engineer); Studio Elettoprogetti, Rimini, Italy (electrical engineer)
PHOTOGRAPHER | Alberto Ferrero, Milan
PROJECT SIZE | 8,695 square feet
WATTS | 19 watts per square foot
MANUFACTURERS | AC Lighting, Delta Light, DGA, Dynalite, Encapsulite, iGuzzini, Ilti Luce, Universal Fibre Optic, Simes, Viabizzuno

CHALLENGE Having fallen out of favor as a once popular and glamorous Italian seaside resort, Rimini, located 62 miles east of Bologna, Italy, is experiencing a resurgence of popularity. To address this newfound demand for the area and attract a younger clientele, property owner Pierpaolo Bernardi hired Ron Arad Associates to transform his 1950's building into a designer boutique destination named the DuoMo Hotel. David Atkinson Lighting Design (DALD) was charged with creating a lighting scheme that would harmonize with the multi-faceted space, without detracting from its architectural splendor.

ARCHITECTURAL AND LIGHTING SOLUTION The building's new identity begins on the outside, carved into the fabric of the existing four-story façade. Newly wrapped in a bronze skin, the exterior is illuminated by low-voltage in-ground 50W MR16 uplights on each side of the entrance and low-voltage in-ground 160W xenon strips. DALD principal David Atkinson chose to lamp the fixtures with xenon and MR16 sources for their warm color temperature, which accentuates the warmth of the reflective metal surface.

The use of bronze continues inside as well, to the bar—named noMi—located to the left of the entrance off the main hallway that leads to the reception area. Creating a synergy with the hotel's exterior, the expanse of bronze metal, which is applied to the bartop, and also forms a continuous wrap from the ceiling to the back-wall profile of a bench seat, proved quite a challenge to illuminate, especially because, as Atkinson says, "The Ron Arad team didn't want to see a single fixture in the ceiling." The solution: recessed MR16 downlights positioned around the bar's polished-stainless-steel columns. Concealed luminaires, including uplights in the entrance wall and a run of sleeved T5 fluorescents at the rear wall, enhance the ceiling. To eliminate dark voids around the amoeba-shaped bartop, Atkinson recessed a limited number of frosted circular LED fixtures into the floor. To highlight the activity within the bar serving area, he employed recessed 26W compact fluorescent uplights, 11 inches in diameter, to illuminate the staff, thereby throwing shadows across the bronze ceiling.

The hotel's pièce de résistance is Arad's signa-

ture reception desk—a stainless-steel ring that leans dramatically against a polished-stainless-steel column. Shelves embedded within the ring are fitted with various lengths of sleeved fluorescents to create an internal glow, but the reception area's main source of color comes from six, flush-mounted, color-changing LED fixtures recessed into the wall opposite, which reflect subtle hues of color off the polished surface of the ring and the white ceiling of the entire reception area.

During the day, a slatted wall behind the reception desk—formed by a series of aluminum fins, which is backlit during the evening with low-voltage fixtures with yellow dichroic filters—allows daylight to flood the reception area and provides a screened view into the office behind. As in the bar,

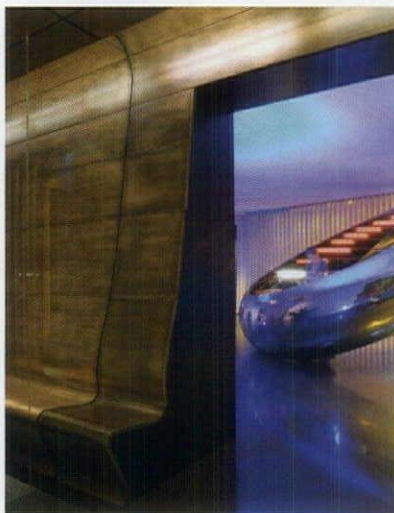
low-voltage downlights surround the polished-stainless-steel columns for added general illumination.

Because the guestrooms had to be functional, clean, and airy, a minimalist aesthetic with few visible fixtures was favored. In the sleeping area, twin T5 fluorescent wall-mounted fixtures and low-voltage frameless downlights with frosted filters are the primary sources of illumination, which Atkinson "bounced off the walls for a very diffuse soft quality of reflected light."

To reinforce the hotel's color-coding system, which delineates the different floors, and to bring the corresponding hues (lime green, magenta, purple, and red) into each room, sleeved fluorescents are concealed underneath the desk and bed to wash the floor in colored light.

Individually designed Corian bathroom pods in each guestroom form the backdrop to the sleeping area, which are visually connected via a large circular window. Frosted, frameless 50W downlights are also used in this glass-enclosed space, which functions as a wet room with a teak slatted timber floor. Fiber optics were placed in the Corian around the mirror to act as a vanity light, which, Atkinson explains, "also help to alleviate heavy shadows and accentuates the curvature and recessed aspect of the mirror."

In a hotel where so many elements demand attention, DALD, through its careful choice of luminaires and effects of light on multiple and diverse finishes, has created a lighting scheme that works harmoniously with this dynamically designed hotel. **SALLIE MOFFAT**



LIVING



The hotel's reception area, located behind the bronze back wall of the bar, contains a polished-stainless-steel reception desk (facing page). Seen from the entrance, between two large red doors, it makes an instant impact (above left). In the bar, behind the amoeba-shaped bartop, the bronze wall terminates in a bench, where a run of sleeved fluorescents provides general illumination (above right). Bathroom pods in each guestroom, fabricated from Corian, form the backdrop to the sleeping area, visually connected via a large circular window (below).



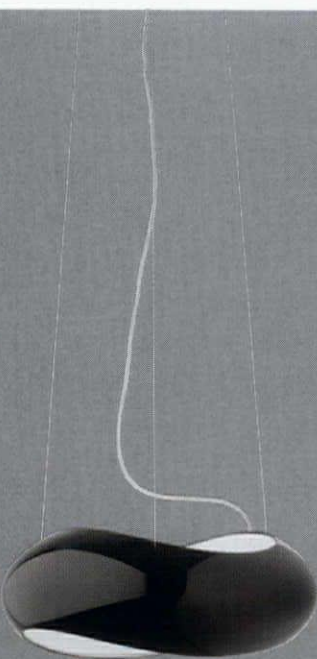
INVITING LIGHT

**ZUMTOBEL LIGHTING | TEMPURA | ZUMTOBEL.COM**

The Tempura LED spotlight system consists of a round pivoting head flange-mounted on a rectangular gearbox and uses LEXEL technology with 24 chip-on-board LEDs in 6 clusters. According to the manufacturer, the luminaire has a constant luminous flux of 1,000 lumens, delivers precisely defined light colors through intelligent control technology, and has a life in excess of 50,000 hours. It can be controlled manually or via DALI and lamp color-temperature can be varied incrementally from 2700K to 6500K. Various attachment lenses are available. CIRCLE 125

BLANKBLANK | TUBES | BLANKBLANK.NET

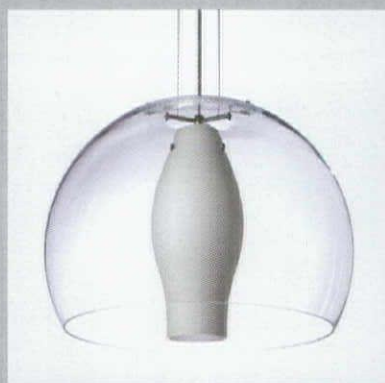
Measuring 16 1/2-inches high and 4 inches in diameter, Tubes is a line of clean, elegant, and finely detailed luminaires that provide both direct and diffused lighting. The veneer-wrapped aluminum shade is available in cherry or maple and the interior reflector is constructed of aluminum. The fixture takes a 60W lamp and custom finishes are available. CIRCLE 126

**VIBIA | INFINITY | VIBIALIGHT.COM**

With its gentle, wave-like form, the Infinity pendant creates the effect of movement, changing its appearance depending on the angle from which it is viewed. Its shade is made with a special resin called methacrylate, which provides glare-free up- and downlight, and is offered in three finishes, white, black, and red. The luminaire measures just over 6 1/2-feet high and is available in two diameters: just under 12 inches and just over 17 1/2 inches. CIRCLE 127

**CL STERLING & SON | BROCKWAY COLLECTION | CLSTERLING.COM**

The Brockway Collection includes four UL-listed and ADA-approved luminaires: round upright and hanging sconces in small and large sizes. The small has an overall height of 10 inches and a width of 8 inches, while the large is 14 inches high and 11 inches wide. Each fixture takes one 60W candelabra lamp. The glass diffuser is offered in frosted or white, and metal finishes include polished chrome, polished nickel, brushed nickel, architectural bronze, and brushed brass. CIRCLE 128

**BESA LIGHTING | MAXI CABLE GLASS PENDANTS | BESALIGHTING.COM**

For large spaces with tall ceilings such as lobbies or two-story great rooms, this line of large cable incandescent pendants includes six families—Mondo, Mondo II (shown in opal), Mini-Tower, Tower, Polo, and Tambura. Luminaires range from 15-inch teardrops to 24-inch globes to 36-inch-tall cylinders, each with a handcrafted, mouth-blown glass shade. Bronze and satin nickel hardware finishes are available. CIRCLE 130

FOSCARINI | TWIGGY | FOSCARINI.COM

Designed by Marc Sadler, the Twiggy floor lamp is characterized by a thin, elegant, and sophisticated design. It is constructed of compound material with a lacquered glass fiber base and is available in four chromatic finishes: red, white, yellow, and black. The luminaire's shade height can be adjusted due to a system of counterweights and the length of the arm can be adjusted with extensions. It takes three 100W incandescent lamps. CIRCLE 129





A|L LIGHT & ARCHITECTURE design awards 4

ENTRY DEADLINE May 24, 2007 POSTMARKED LATE ENTRY June 1, 2007 (\$25 FEE PER ENTRY)

Architectural Lighting magazine announces the Fourth Annual A|L Light & Architecture Design Awards honoring outstanding and innovative projects in the field of architectural lighting design. The A|L Design Awards recognize and reward excellent lighting within criteria relevant to individual categories. To acknowledge issues of notable importance in today's practice of lighting design, and design techniques particular to lighting, A|L will also present the A|L Virtuous Achievement Awards (ALVA), which recognize projects that achieve the Best Use of Color; the Best Incorporation of Daylight; and the Best Lighting Design on a Budget. All winning projects will be published in the July/August 2007 issue of A|L and be featured on archlighting.com.

Questions?

Contact: Elizabeth Donoff, Editor edonoff@hanleywood.com

FORMS ARE ALSO AVAILABLE FOR DOWNLOAD AT WWW.ARCHLIGHTING.COM

PLEASE COMPLETE ONE ENTRY FORM PER SUBMITTING FIRM.

1 ENTRANT		FIRM	
CONTACT NAME (PERSON SUBMITTING THE ENTRY)			
ADDRESS		CITY	
STATE	ZIP/POSTAL CODE	COUNTRY	
TELEPHONE	E-MAIL		

2 PAYMENT	
FEE \$130 (FIRST ENTRY)	
\$95 (EACH SUBSEQUENT ENTRY) X _____ =	
\$95 (EACH ALVA ENTRY) X _____ =	
LATE FEE \$25 X _____ = (FOR EACH PROJECT ENTRY POSTMARKED AFTER 05/24/2007)	
TOTAL	

MAKE CHECKS PAYABLE TO ARCHITECTURAL LIGHTING
EACH SUBMISSION MUST BE ACCOMPANIED BY A CHECK COVERING THE ENTRY FEE.
INTERNATIONAL ENTRANTS, SEND DRAFTS IN U.S. DOLLARS.

3 SIGN	
I CERTIFY THAT THE PARTIES CREDITED EXECUTED THE SUBMITTED PROJECT AND THAT IT MEETS ALL ELIGIBILITY REQUIREMENTS. I UNDERSTAND THAT ARCHITECTURAL LIGHTING MAGAZINE MAY DISQUALIFY ANY ENTRY THAT FAILS TO MEET SUBMISSION REQUIREMENTS. (SIGNER MUST BE AUTHORIZED TO REPRESENT THOSE CREDITED.)	
NAME (PRINT)	
SIGNATURE	
DATE	

A|L reserves the right to reject any entry and to terminate the competition at any time. Any disputes relating to the competition shall be resolved exclusively by A|L and the panel of judges. This contest is governed by New York laws without regard to its conflict of laws principles. All entrants and clients submit themselves to the exclusive jurisdiction of courts in the southern district of New York.

DEADLINE
May 24, 2007 POSTMARKED LATE ENTRY **June 1, 2007** (\$25 FEE PER ENTRY)

SEND ENTRIES TO
A|L LIGHT & ARCHITECTURE DESIGN AWARDS
One Thomas Circle, N.W. Suite 600 Washington, DC 20005

ELIGIBILITY

1. The competition is open to all design professionals worldwide.

2. Projects must be completed after July 2005.

SUBMISSION REQUIREMENTS

3. All entry materials must be contained in one large envelope per project, with the submitting firm and project name printed on the outside of the envelope. Include one photocopied set of all entry materials, as well as color printouts of the digital images. Entries should be mailed to: A|L Light & Architecture Design Awards, One Thomas Circle, N.W. Suite 600, Washington DC 20005. A|L is not responsible for lost, misdirected, or postage due mail.

4. Each submission must be accompanied by a signed entry form and a check covering the entry fee (see Entry Fees). The form may be photocopied. Both the form and check should be included in the project envelope.

5. A Project Details Form must also be contained in each project entry envelope. It should include (a) the project name, location and date of completion, lighting designer, architect, client/owner, photographer, and additional consultants; (b) the entry category, and if the submission should be considered for any of the ALVA Awards (see Categories); (c) project name, project size in square feet, watts per square foot, project cost, and lighting installation cost; (d) a written description (600 words max.) of the project brief, project challenges, and design solutions; (e) luminaire and lamp type including manufacturer list and application; and (f) the digital image files should be numbered and keyed to the 600-word description to clarify what is depicted. Submissions being considered for any of the ALVA Awards should include (g) the ALVA entry category; (h) project name; (i) explanation (300 words max.) of why the project excels in the particular ALVA category(ies); and (j) up to 6 additional digital images numbered and keyed to the 300-word description.

6. Images must be in digital format. Additional image submission requirements: (a) one CD per project; (b) either TIF or EPS file format; (c) 300 dpi resolution; (d) approximately 8-inches by 10-inches. For general entry categories, please include no fewer than 7 and no more than 12 images. Provide up to 6 additional images for each ALVA submission. Label the image files using the project name and numbers that correspond to the image descriptions. Use no more than 12 characters.

7. Please avoid the use of fill light when photographing the project; if its use is unavoidable, identify which shots include fill light.

8. To maintain anonymity during the judging process, no names of entrants or collaborating parties may appear on any part of the submission except on the signed entry form and on the project envelope.

CATEGORIES

9. Identify each submission on its own Entry Form and on the Project Details Form as one of the following categories. (A|L reserves the right to change the category of a submission.)

- Residential
- Interior Lighting
- Exterior Lighting
- Whole Building Projects

Projects will not be judged against each other, but rather as superior examples of a lighting solution within their category. Each category may have more than one winner or no winner at all.

10. Appropriate submissions may also be considered for the A|L Virtuous Achievement (ALVA) Awards. Projects must first be submitted in a general category in order to be submitted in an ALVA category(ies). These awards require the following additional information:

Best Use of Color

Entrants must include an explanation (no more than 300 words) clarifying the use of color in the project. "Use of Color" may be interpreted liberally; however, judges will be asked to consider the complexity of the design.

Best Incorporation of Daylight

Entrants must include an explanation (no more than 300 words) clarifying how the project integrates daylighting with electric lighting. In addition, entrants must include ASHRAE 90.1 or LEED documentation indicating that daylighting provides persistent on-peak energy savings.

Best Lighting Design on a Budget

Entrants must include an explanation (no more than 300 words) clarifying why theirs is a budget project; in addition, they must include project construction costs, lighting materials costs, and lighting and electrical subcontractor costs (preferably on a per-square-foot basis). Judges understand costs are relative to project type; however, they reserve the

right to determine whether it is truly a budget project.

JUDGING

11. An independent panel of judges will award prizes to projects at their sole discretion, based on the complexity of the project program and the lighting solutions applied. Decisions of judges are final.

12. Judging will take place in June 2007. Winning entrants will be notified in late June 2007, and their projects will appear in the July/August 2007 issue of A|L.

PUBLICATION

13. Winners of the A|L Design Awards agree to have their projects and names published in A|L, on A|L's website, and in any other media, and must provide further information and publication-worthy graphic materials as needed by A|L. Winners also agree to secure permission for publication from clients and photographers prior to entry. Photographer(s) will receive proper citation credit, but will not receive payment for images published as part of the editorial design awards coverage in both print and online.

14. Winners will be required to sign and return within a specified time a Publicity Release. Winners will also be required to sign a document stating that the entry is the original work of the winner and does not infringe on any proprietary right, including but not limited to copyright, trademark, and the rights of publicity and privacy of any party, and grants A|L the right to use the entry in print and electronic medium.

ENTRY FEES

15. Each submission must be accompanied by a check covering the entry fee (\$130 US for the first entry; \$95 US for each subsequent entry and \$95 US for each ALVA entry). Make check payable to Architectural Lighting. International entrants, send drafts in U.S. dollars. Entry fees are non-refundable and will not be returned for any reason.

DEADLINE

16. Entries must be postmarked by May 24, 2007. Late entries will be accepted until 5p.m. (EST), June 1, 2007.

RETURN OF ENTRIES

17. A|L will ONLY return entries that provide a self-addressed stamped envelope with proper postage. A|L shall not have liability for damaged or misplaced entries.

PROJECT DETAILS

ENTRY NO.

FOR JURY USE ONLY

INCLUDE ONE PROJECT DETAILS FORM FOR EACH SUBMITTED PROJECT. ADDITIONALLY, IF A PROJECT IS TO BE SUBMITTED FOR AN ALVA AWARD, INCLUDE ONE ALVA PROJECT DETAILS FORM PER ALVA CATEGORY. (PROJECTS MUST FIRST BE SUBMITTED IN A GENERAL CATEGORY IN ORDER TO BE SUBMITTED IN AN ALVA CATEGORY(IES). PROJECTS CAN BE SUBMITTED IN MORE THAN ONE GENERAL AND/OR ALVA CATEGORY.)

A

PROJECT NAME	
PROJECT LOCATION	PROJECT COMPLETION DATE

LIGHTING DESIGNER	FIRM	
TEAM MEMBERS		
ADDRESS		CITY
STATE	ZIP/POSTAL CODE	COUNTRY
TELEPHONE	E-MAIL	

ARCHITECT	FIRM	
TEAM MEMBERS		
ADDRESS		CITY
STATE	ZIP/POSTAL CODE	COUNTRY
TELEPHONE	E-MAIL	

CLIENT OWNER	FIRM	CONTACT NAME
ADDRESS		CITY
STATE	ZIP/POSTAL CODE	COUNTRY
TELEPHONE	E-MAIL	

PHOTOGRAPHER	FIRM	NAME
ADDRESS		CITY
STATE	ZIP/POSTAL CODE	COUNTRY
TELEPHONE	E-MAIL	

ADDITIONAL DESIGNERS, CONSULTANTS, AND PHOTOGRAPHERS LIST CONTACT INFO. AND BRIEFLY DESCRIBE THEIR PROJECT INVOLVEMENT

PROJECT DETAILS

ENTRY NO.

FOR JURY USE ONLY

B

GENERAL ENTRY CATEGORY

- RESIDENTIAL**
(SINGLE AND MULTI-FAMILY DWELLING)
- INTERIOR LIGHTING**
(I.E. MUSEUMS, LIBRARIES, CIVIC BUILDINGS, HOTELS, RESTAURANTS, OFFICES, ACADEMIC BUILDINGS, HEALTHCARE FACILITIES)
- EXTERIOR LIGHTING**
(I.E. FACADES, LANDSCAPE, GARDENS, PARKS, STREET AND ROADWAY LIGHTING, TRANSPORTATION, URBAN MASTER PLANS)
- WHOLE BUILDING PROJECTS**
(WHERE THE SAME DESIGNER HAS BEEN RESPONSIBLE FOR BOTH THE INTERIOR AND EXTERIOR LIGHTING.)

ALVA ENTRY CATEGORY

ALVA ELIGIBILITY REQUIRES FIRST SUBMITTING PROJECTS IN A GENERAL CATEGORY

- BEST USE OF COLOR**
- BEST INCORPORATION OF DAYLIGHT**
- BEST LIGHTING DESIGN ON A BUDGET**

C

PROJECT NAME

PROJECT SIZE IN SQUARE FEET

PROJECT COST

WATTS PER SQUARE FOOT

LIGHTING INSTALLATION COST

D

GENERAL DESCRIPTION (MAX. 600 WORDS) SHOULD INCLUDE PROJECT BRIEF, CHALLENGES, AND DESIGN SOLUTION

PROJECT DETAILS

ENTRY NO. FOR JURY USE ONLY

E

LUMINAIRE AND LAMP TYPE INCLUDE MANUFACTURER LIST AND APPLICATION

F

IMAGE DESCRIPTIONS (MIN. 7 / MAX 12)

<p>IMAGE 1</p> <hr/> <hr/> <hr/> <hr/>	<p>IMAGE 7</p> <hr/> <hr/> <hr/> <hr/>
<p>IMAGE 2</p> <hr/> <hr/> <hr/> <hr/>	<p>IMAGE 8</p> <hr/> <hr/> <hr/> <hr/>
<p>IMAGE 3</p> <hr/> <hr/> <hr/> <hr/>	<p>IMAGE 9</p> <hr/> <hr/> <hr/> <hr/>
<p>IMAGE 4</p> <hr/> <hr/> <hr/> <hr/>	<p>IMAGE 10</p> <hr/> <hr/> <hr/> <hr/>
<p>IMAGE 5</p> <hr/> <hr/> <hr/> <hr/>	<p>IMAGE 11</p> <hr/> <hr/> <hr/> <hr/>
<p>IMAGE 6</p> <hr/> <hr/> <hr/> <hr/>	<p>IMAGE 12</p> <hr/> <hr/> <hr/> <hr/>

ALVA PROJECT DETAILS

ENTRY NO.

FOR JURY USE ONLY

IF A PROJECT IS TO BE SUBMITTED FOR AN ALVA AWARD, INCLUDE ONE ALVA PROJECT DETAIL FORM PER ALVA CATEGORY.
(PROJECTS MUST FIRST BE SUBMITTED IN A GENERAL CATEGORY IN ORDER TO BE SUBMITTED IN AN ALVA CATEGORY(IES). PROJECTS CAN BE SUBMITTED IN MORE THAN ONE GENERAL AND/OR ALVA CATEGORY.)

G

ALVA ENTRY CATEGORY ALVA ELIGIBILITY REQUIRES FIRST SUBMITTING PROJECTS IN A GENERAL CATEGORY

- BEST USE OF COLOR
- BEST INCORPORATION OF DAYLIGHT
- BEST LIGHTING DESIGN ON A BUDGET

H

PROJECT NAME

I

ALVA DESCRIPTION (MAX. 300 WORDS)

J

IMAGE DESCRIPTIONS PROVIDE UP TO 6 ADDITIONAL IMAGES FOR EACH ALVA SUBMISSION

IMAGE 1

IMAGE 4

IMAGE 2

IMAGE 5

IMAGE 3

IMAGE 6

Choosing a Lighting Designer

BY ELIZABETH DONOFF

CRITERIA TO CONSIDER WHEN HIRING A LIGHTING PROFESSIONAL

WHEN DISCUSSING LIGHTING DESIGN, MUCH ATTENTION IS PAID TO HOW PROJECTS ARE realized—the aesthetic components and technical requirements that contribute to the design. But how does a client or owner go about hiring the individual or group of individuals who will conceive, develop, and execute that design? And how do they determine if a lighting designer is in fact needed for the project?

There are number of variables that come into play when deciding whether or not to hire a lighting consultant: project type and size, budget, and scope of work. On large-scale commercial projects, the lighting designer is usually hired by the architect, who is responsible for assembling the team of building specialists who will lend their professional expertise to the project, and who can coordinate the necessary information among the entire team. Some projects, perhaps due to a smaller scale or limited budget, do not have the resources to involve a lighting designer, and so the architect and/or electrical engineer oversee the lighting design.

SELECTION CRITERIA

Selecting a lighting designer is similar to the selection process involved in finding any qualified design professional. Hiring can occur via many avenues: referrals from professional colleagues, project request for proposals, even design competitions.

Items for a client and/or owner to consider in evaluating a lighting designer's qualifications are:

→ CREDENTIALS

What is the lighting designer's educational background?
Does the lighting designer have a professional degree?
How many years has the lighting designer practiced?
Has the lighting designer always worked for others, or do they have their own firm?
What type of professional work experience and project familiarity does the lighting designer have?
Does the lighting designer belong to professional organizations?
Is the lighting designer licensed (if required) or have the necessary certification(s) to practice?
Does the lighting designer have any particular area(s) of lighting expertise either in terms of project type, technique, or research investigations?

→ PROJECT FAMILIARITY

A perspective client should, when possible visit some of the lighting designer's completed work. Evaluating design work via photographs only tells part of the story, particularly when it comes to lighting. Experiencing the actual place and the quality of light is far more informative.
Speak with the people that use/inhabit the space. Do they find it a pleasant place to live/work? Or are there design, technical, or maintenance problems associated with the lighting design?

→ DESIGN APPROACH

What is the lighting designer's working methodology?
When do he/she enter the design process?
What is the scope of work the lighting designer will perform?

Ten Questions To Ask Your Prospective Lighting Designer

Lighting designer Howard Brandston offers a set of questions that go well beyond the specifics of lighting design, which in his experience and opinion offer prospective clients a way to evaluate a lighting designer.

Light and lighting play an important role in the design of any space. It is clear that the objectives and goals of any project should be the primary concern when selecting a professional to provide design and technical services for a project. Often, non-project related questions may provide some insight about the knowledge and dedication to the profession of the prospective design professional that are not project related. The following is a suggested inquiry that might provide some valuable insight about the consultant being considered. **HB**

- What do you think is the most significant contribution you have made that deals with light?
- What is your most significant contribution to the art, science, and practice of lighting?
- Have you made any significant educational contributions to your profession and the public-at-large?
- How well recognized, by those who judge this type of contribution, have your contributions been acknowledged in each of the above categories?
- Have you ever been the recipient of an educational or research grant?
- Have you ever served on a government agency or task force related to your profession?
- What socially significant work have you done that is outside the realm of your profession?
- What is the most important work you have done? What makes it important?
- What is the dollar value of your largest design project? How many projects have you done that are similar in dollar value?
- What is the diversity of project types that you have done the design for?

Will the lighting designer interact strictly with the architect or the entire design team?

Will the lighting designer be called on to provide consultation regarding energy codes and lighting specifications?

Will the project actively incorporate sustainable design features? Is the project seeking LEED certification?

What are the lighting designer's expectations of the architect and other team members?

→ **CONTRACTUAL ARRANGEMENTS**

Determine the overall work process and schedule.

Through which project phases are the lighting designer's service retained—construction documents, bidding and negotiation, construction administration, post construction?

How will the lighting designer be compensated?

Does the lighting designer carry their own professional liability insurance?

Once a lighting designer is hired, it is helpful for both the architect and lighting designer as well as all the team members to understand the lighting designer's role and scope of work in each of the design phases. The design process itself is traditionally broken down into the following categories: Programming, Schematic Design, Design Development, Construction Documents, Bidding and Negotiation, Contract Administration, and sometimes Post-Construction. The extent of a lighting designer's involvement in these phases will be determined by the project circumstances, and the contractual work arrangement as established with the architect.

ROLES AND RESPONSIBILITIES

→ **PROGRAMMING PHASE**

Ideally a lighting designer is involved in this first project phase, although it is not always the case. This is the period when initial concepts and program requirements are determined by the architect and owner to establish the project direction and goals. The architect assembles the project team to interpret and realize the architectural design. If a lighting designer is employed at this beginning stage, it is an opportunity to introduce issues that might impact the quality and quantity of lighting elements, special lighting features, applicable code and light level requirements, suggested lamp sources, and budget issues.

Projects are better served, both in terms of design results and cost effectiveness, when there is early integration of all design features. The best architectural projects have a fundamental awareness of light and lighting inherent in their design. While architects usually have a general understanding of how their design will interact with natural light, where a lighting designer can offer significant expertise is in assisting how light will impact a project's design with both daylight and electric light sources.

→ **SCHEMATIC DESIGN**

During this phase the lighting designer makes a first pass at an actual lighting design solution. It is also an opportunity to gather

additional information. This question and answer period is a way to aid the architect in clarifying and refining their design intent, while helping them to envision the lighting component of the project. This exchange and coordination helps ensure that each of the parties involved in the project understand the design goals and are working toward the same end.

As the design advances, sketches and other presentation formats can be used to show the architect how light and lighting are supporting the architectural design. Design issues to be aware of include: How does light move through the space? Are there areas that require color, texture, or highlight? More detailed discussions of fixture and lamp selection and lead-time may be introduced, and how this will coordinate with materials, budget, and maintenance issues.

COORDINATION

Coordination with all consultants is always of critical importance. From the outset, it is important to understand the responsibility and scope of work of each specialist, especially when it comes to lighting elements that potentially can fall under the purview of one or more team members, as in the case of emergency lighting, which is sometimes the responsibility of the electrical engineer.

Coordination with the mechanical engineer requires that the lighting designer provide the lighting heat load levels and required equipment dimensions so space is properly allocated, especially in areas like ceiling plenums. Lighting designers might also be required to coordinate with other specialties, like the audio-visual consultant, or landscape architect, or LEED consultant.

Although a lighting designer might be LEED certified him/herself, it does not necessarily mean that an additional consultant

will not be involved on the project. It does, however, present the lighting designer with a unique opportunity to provide a significant contribution, in terms of the lighting design's interaction with the LEED process, sustainable lighting techniques such as daylighting and control systems, and the integration of the lighting design with all of the building's systems and sustainable design features.

→ **DESIGN DEVELOPMENT**

At this stage the design team further refines the project. The lighting design moves from a basic scheme to a more detailed discussion of specific luminaire and lamp type, controls selection, and fixture and equipment placement. By the later half of Design Development, the lighting design is complete, and coordinated with the physical dimensions of the project including ceiling depth, and duct size and location. Luminaire mounting details are further developed and coordinated with the emergency lighting plan. Photometric files are gathered, and lighting calculations are performed and analyzed. This is also the time to review mockups to test equipment with spatial relationships and material selections.

Lighting design consultant drawings do not necessarily become part of the final construction document package. Therefore, it is up to the lighting designer to make sure their drawings and materials are accurately conveyed to the architect and incorporated into the appropriate drawing set.

Lighting designers bring value to a project through the experience and expertise they offer in uniting design skills with knowledge of the latest technical, code, and product information in the field of lighting.

→ CONSTRUCTION DOCUMENTS

If a lighting designer has been contracted to participate during this phase, they will prepare drawing details, lighting specifications, fixture and lamp schedules, luminaire cut sheets, and photometric data. Scope of work might also include review of the architectural drawings; to make sure the lighting information is properly indicated via fixture schedule and specifications. Coordination continues with the architectural, structural, mechanical, electrical and plumbing drawings. The lighting design is incorporated into the final set of construction documents and specifications.

→ BIDDING/NEGOTIATION

Even before a project reaches this final bidding phase, undoubtedly costs have been reviewed at milestone completion dates during schematic design and design development. This occurs so there are no major surprises, which risk setting the design and construction back by having to rework any portion of the design.

The lighting designer may assist with revising details, reviewing substitution requests, and answering bidder questions.

→ CONSTRUCTION ADMINISTRATION

For the integrity of the lighting design, it is important to have informed decision makers involved during this later phase, whether it be the lighting designer or the architect. Ideally it is the

lighting designer. This ensures that the lighting design will be carried out according to the intended design and specified equipment. If changes are required, for instance a last minute substitution, then the lighting designer will know how to make the adjustment with little impact to the overall project. Lighting design at this stage also includes fieldwork—focusing luminaires, fine tuning control systems, and trouble shooting unexpected problems.

→ POST CONSTRUCTION

Some projects also have a post construction evaluation where a lighting designer will come back to a project several months after completion to make sure the lighting system is working properly and the luminaires are focused correctly. If adjustments are required they will be made at this time.

CONCLUSION

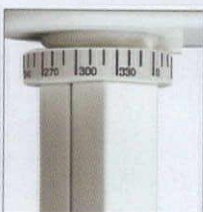
As the architectural and building/construction processes become increasingly more complex, with larger project teams and specialized areas of work, the lighting designer is more and more in demand. Architecture, lighting design, and construction are a constant process of re-adjustment. Lighting designers bring value to a project through the experience and expertise they offer in uniting design skills with knowledge of the latest technical, code, and product information in the field of lighting.



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- **Designing with Light**
- **Energy Efficiency and Sustainability**
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Dark Sky Compliant Fixtures

BY ELIZABETH DONOFF

DUE TO THE INCREASED AWARENESS OF BOTH THE GENERAL public and the design community regarding light trespass and Dark Sky issues, coupled with lighting code requirements, which prescribe the quantity and directionality of light emitted by outdoor luminaires, there has been the need for a system to aid lighting designers, architects, and manufacturers in the creation and selection of appropriate "Dark Sky compliant" light fixtures according to a standard set of protocols. Developed by the International Dark Sky Association (IDA), the Fixture Seal of Approval Program is one such available tool.

According to the IDA's Fixture Seal of Approval Program White Paper, "The Fixture Seal of Approval Program aims to address the demand for a third-party 'certification' of luminaires which do not pollute at night." Any manufacturer may submit a luminaire for review. The IDA evaluates fixtures based on the Upward Light Output Ratio (ULOR), meaning the "amount of upward flux a fixture produces." Currently, the IDA only approves fixtures deemed "full cutoff" and "fully shielded," although with the development of the first draft of the Model Lighting Ordinance (MLO), to be released in 2007, these categories will change to meet the new Luminaire Classification System (LCS) terminology—upward light, forward light, backward light, and glare zone.

SUBMISSION PROCESS

The submission process is fairly straightforward and according to the IDA website, takes approximately four weeks. Manufacturers must submit an application form along with the relevant IES photometry files, photographs of the product, and the required fees—\$20 per each photometric file submitted and a one-time \$500 registration. Once a fixture is "approved" the manufacturer may use the "IDA-Approved Dark Sky Friendly Fixture" logo on the marketing, sales, and technical brochures and even on the actual luminaire "for a period of three years from the date of approval, or until the luminaire is modified, whichever comes first."

For complete information visit:
www.darksky.org

GLOSSARY

◊ **Cutoff angle**

The angle of light distribution from a luminaire, measured upward from nadir, between the vertical axis and the first line at which the bare source (lamp) is not visible.

◊ **Cutoff classification**

The classification system of the Illuminating Engineering Society of North America (IESNA) that describes the light distribution of an outdoor luminaire. Cutoff classifications define the luminous intensity limits in two illumination zones that occur within the range of 80° to 180° above nadir.

◊ **Cutoff luminaire**

IESNA classification that describes a luminaire having a light distribution in which the candela per 1000 lamp lumens does not numerically exceed 25 (2.5%) at or above an angle of 90° above nadir, and 100 (10%) at or above a vertical angle of 80° above nadir. This applies to all lateral angles around the luminaire.

◊ **Full cutoff**

The luminous intensity (in candelas) at or above an angle of 90° above nadir is zero, and the luminous intensity (in candelas) at or above a vertical angle of 80° above nadir does not numerically exceed 10% of the luminous flux (in lumens) of the lamp or lamps in the luminaire.

◊ **Cutoff**

The luminous intensity (in candelas) at or above an angle of 90° above nadir does not numerically exceed 2.5% of the luminous flux (in lumens) of the lamp or lamps in the luminaire, and the luminous intensity (in candelas) at or above a vertical angle of 80° above nadir does not numerically exceed 10% of the luminous flux (in lumens) of the lamp or lamps in the luminaire.

◊ **Semicutoff**

The luminous intensity (in candelas) at or above an angle of 90° above nadir does not numerically exceed 5% of the luminous flux (in lumens) of the lamp or lamps in the luminaire, and the luminous intensity (in candelas) at or above a vertical angle of 80° above nadir does not numerically exceed 20% of the luminous flux (in lumens) of the lamp or lamps in the luminaire.

◊ **Noncutoff**

There is no candela limitation in the zone above maximum candela.

Glossary Source: Lighting Research Center; IDA-Approved Manufacturer List: International Dark Sky Association.

→ MANUFACTURERS WITH IDA-APPROVED FIXTURES

AC Lighting Design	Deck Lighting	Louis Poulsen	RAB Lightign
Acculite	Eclipse Lighting	Magnaray	Selux
Antique Street Lamps	Hutton Metal Craft	Minka Group	Steel Partners
Architectural Area Lighting	Infinity Lightng	Parshield	Sternberg Lighting
Bulbrite	King Luminoare	Phoenix Products	Thomas Lighting
Cordelia Lighting	Leotek Electronics Lighting by Brandford	Productive Marketing	Visionaire Lighting
		Quality Lighting	WLS Lighting Systems

→ UNEVALUATED FIXTURES

- ABS Lighting
- Advanced LED
- Allied Lighting
- American Electric Lighting
- Ameritec Lighting
- Appleton Electric
- Aztec
- BEGA/USA
- Bieber Lighting
- Borderline Lighting
- Canlyte
- Carandini
- Cole Lighting
- Cooper Lighting
- EMCO Lighting
- Evergreen Lighting
- Fail-Safe Lighting
- FC Lighting
- FX Luminaire
- Gardco Lighting
- General Electric Lighting Systems
- Guth Lighting
- HADCO Lighting
- Hanover Lantern
- HessAmerica
- Hi-Lite Manufacturing
- Holly Solar Products
- Holophane
- Hubbell Lighting
- iGuzzini
- Insight Lighting
- io Lighting
- Justice Design Group
- Kichler Lighting
- Kim Lighting
- LED Light
- LED Light Sign
- LEDtronics
- Lithonia Lighting
- LSI Greenlee Lighting
- LSI Lighting Systems
- Lumark Lighting
- Lumascape
- Lumec
- Lumec-Schreder
- Lumiere Lighting
- LuxBright
- Magniflood
- Metrolux
- Moldcast
- Moocell
- Musco Sports Lighting
- Myers Nu-Art
- Pappi Lighting
- Pennsylvania Globe & Gaslight
- Plow & Hearth
- Portfolio Lighting
- Qualite Sports Lighting
- RUUD Lighting
- Seagull Lighting
- Shaper Lighting
- Soft Lighting Systems
- Solutions Lighting
- Spaulding Lighting
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- Sterner Lighting
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- U.S. Architectural Lighting
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- Widelite
- Zone Lighting

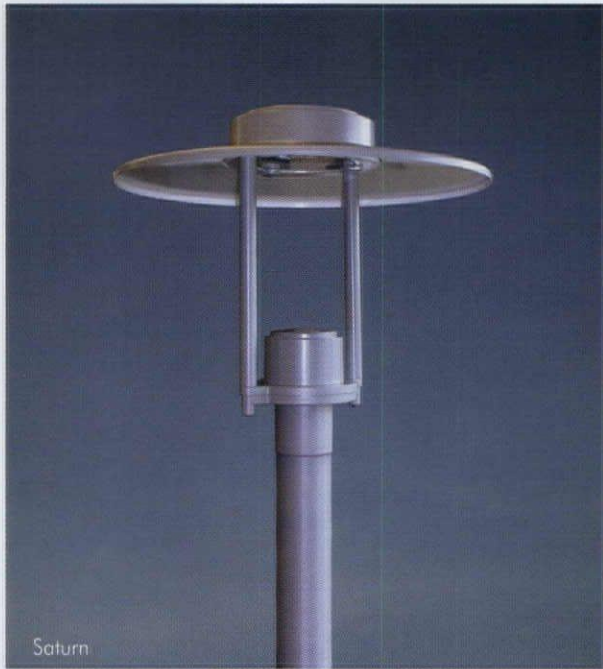
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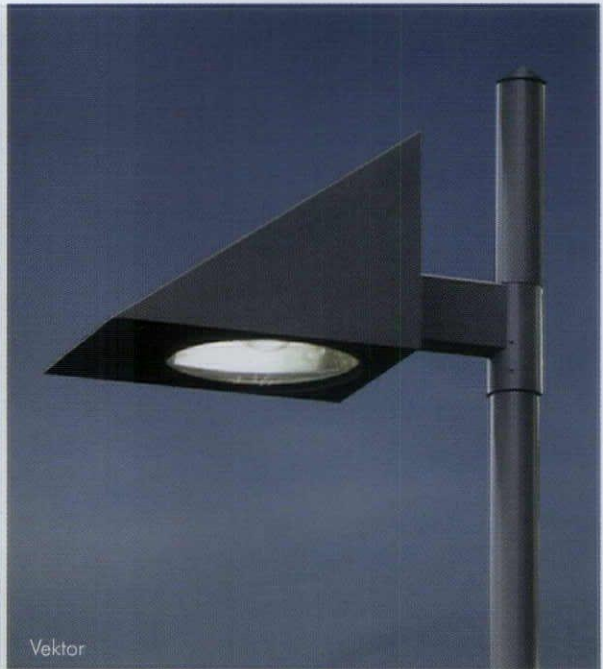
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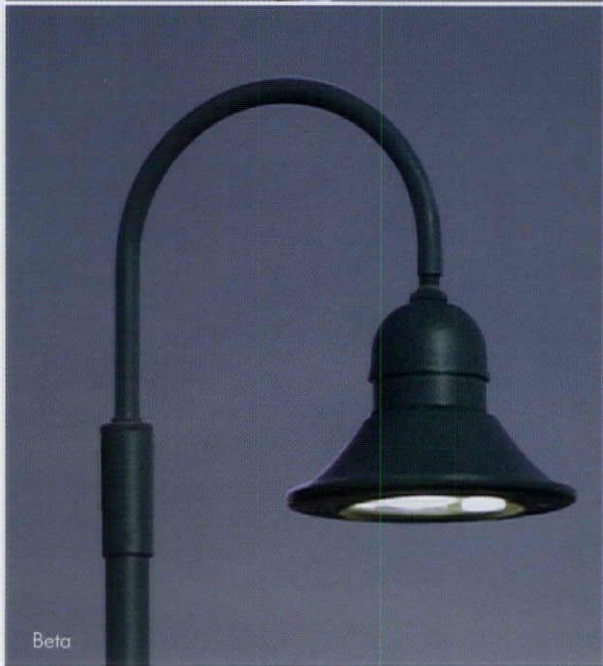
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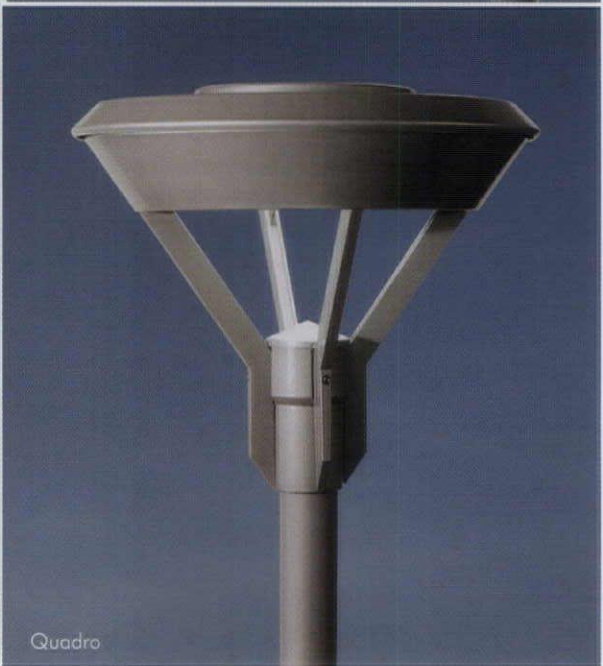
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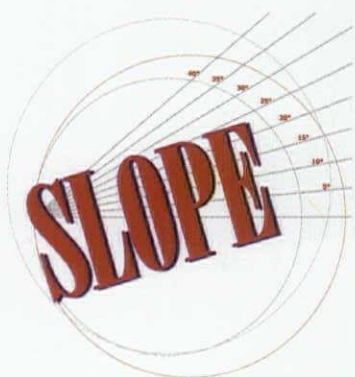
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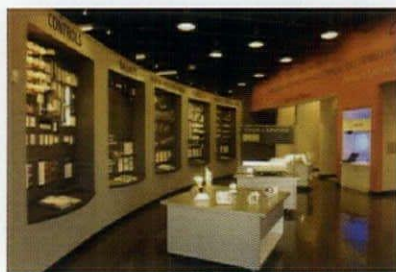
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Lighting Challenges in 2007

AJL's Industry Exchange Question was developed as a means of promoting discussion among members of the architectural and lighting design communities. Past questions have addressed a variety of topics, including: commoditization, the frequency of tradeshow, credentialing, and the impact of sustainability.

To continue the open dialogue, so integral to AJL's mission as an independent lighting design publication, AJL has called upon the members of its Editorial Advisory Board—Gregg Ander, Francesca Bettridge, Bob Davis, and Mark Loeffler—to lend their insight and expertise. This issue introduces the Board, as they share their thoughts on some of the pressing issues facing architecture and lighting in 2007. In the coming year this group of esteemed professionals will add their commentary to specific Exchange questions. As always, AJL encourages readers' responses, and topic suggestions.

The Exchange page is your forum.

 more information at ARCHLIGHTING.COM

GREGG D. ANDER, FAIA, IESNA CHIEF ARCHITECT SOUTHERN CALIFORNIA EDISON COMPANY

Mr. Ander is a member of numerous professional organizations and serves on the Board of Directors of the Sustainable Building Industry Council, the New Buildings Institute, the Collaborative for High Performance Schools, and the California Commissioning Collaborative. He has authored over 70 technical and design related articles, won awards for various energy related projects from AIA, ASHRAE, and DOE, and is the author of *Daylighting Performance and Design*. Mr. Ander has executive produced six environmentally-focused television programs for NBC, CBS, and PBS. "Greener Buildings/Bluer Skies," won a 2006 Emmy Award.

→ As global warming, carbon footprints, and demand side management grow in importance, the design community responds with enhanced designs. The coming trends in the utility industry once again provide increasing opportunity. This time it will be: Automation through Connectivity.

→ Today, utility commissions in almost every state have ordered utilities to implement or at a minimum, study the concept of dispatchable loads typically referred to as "Demand Response." While programs currently focus on controlling air conditioning, utilities are looking to lighting as the next opportunity for Demand Response.

→ Understanding how the industry intends to implement smart technologies and how the technologies interface with design solutions is essential. Designers enhance professionalism and the value delivered to customers by assuring designs offer customers functionality for today and for tomorrow.

MARK LOEFFLER, IALD, IESNA, LEED LIGHTING DESIGN DIRECTOR ATELIER TEN CONSULTING DESIGNERS

Mr. Loeffler specializes in integrated daylighting and electric lighting design for sustainable buildings. He serves on the sustainability committees of both the IALD and the IESNA. Mr. Loeffler also teaches daylighting and sustainable design at Parsons The New School for Design where he earned an MFA in lighting design in 1990.

→ Collaborative development of lighting energy codes by IALD, IESNA, ASHRAE, and manufacturers to balance environmental responsibility with visual quality.

→ Specification integrity to ensure that high-performance, environmentally responsible lighting does not get value-engineered out of the project.

FRANCESCA BETTRIDGE, IALD, IESNA, LC PRINCIPAL CLINE BETTRIDGE BERNSTEIN LIGHTING DESIGN

Throughout her career, Ms. Bettridge has collaborated with highly esteemed architects on award-winning national and international work, which encompasses a broad range of types and styles. She has been honored with multiple Lumen, IALD, and GE Awards. Ms. Bettridge is a professional member and former secretary of the International Association of Lighting Designers, and has served on the Board of Managers and the Richard Kelly Scholarship Committee of the New York Section of the Illuminating Engineering Society. A graduate of Barnard College, Ms. Bettridge studied at Parsons The New School for Design and the Open Atelier of Design, which she helped found. She has also taught at the Fashion Institute of Technology and Parsons The New School for Design.

→ Emergency Lighting: Often now, electrical engineers will flatly refused to do the emergency lighting calculations, insisting that the lighting designer must be responsible for this work. But the engineer signs the documents and is responsible for life safety issues. Is it enough for the lighting designer to provide the AGI files for the engineer's use? Who pays for all this and where do the responsibilities lie?

→ Quality Control of LED Sources: How do you know whether the manufacturers and their products are equal? Who is engineering the LED installation? There are many pitfalls when a designer is working with a custom manufacturer who is relying on other manufacturers for the components.

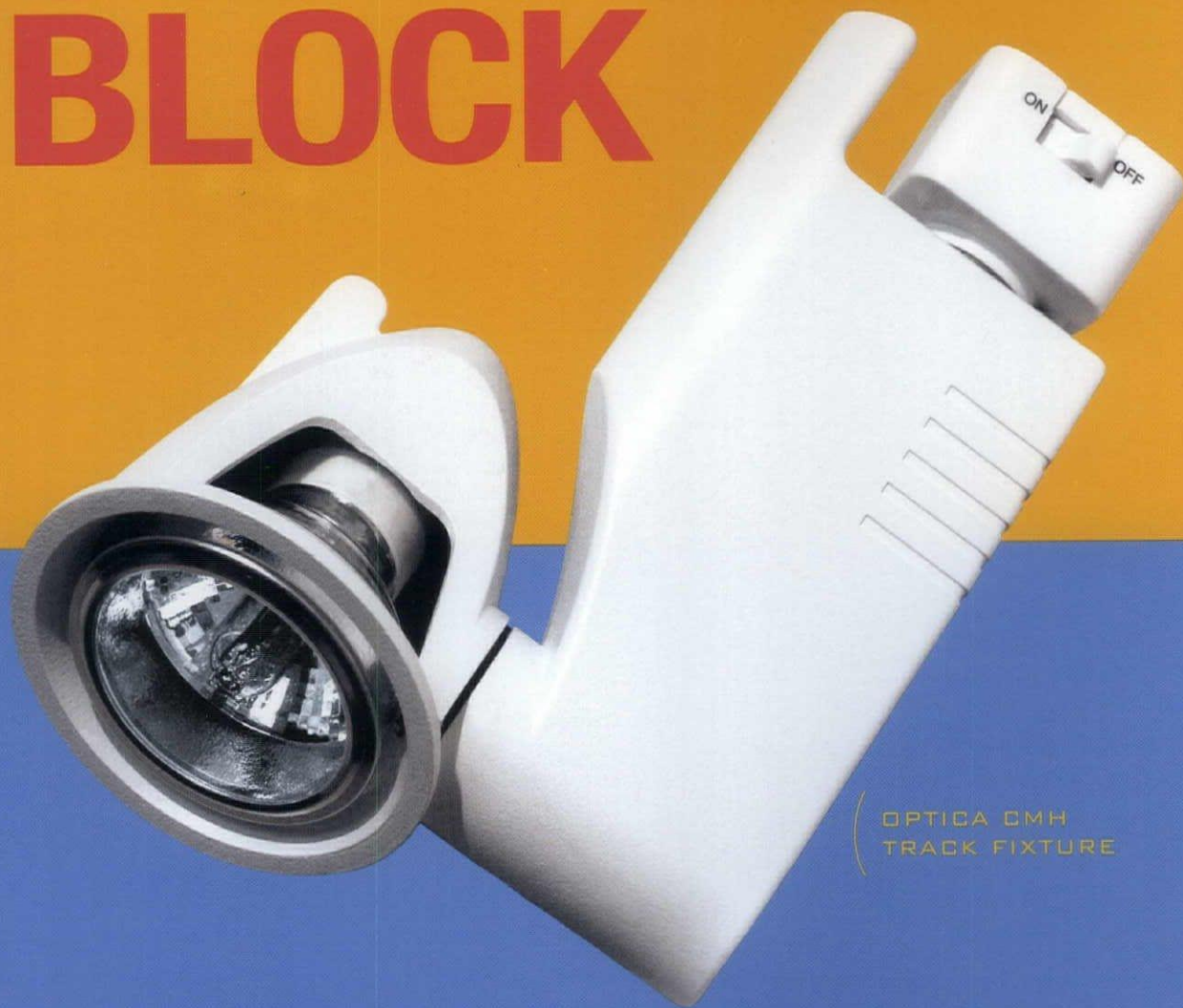
BOB DAVIS, IESNA, SENIOR INSTRUCTOR CIVIL, ENVIRONMENTAL AND ARCHITECTURAL ENGINEERING DEPARTMENT UNIVERSITY OF COLORADO AT BOULDER

Prof. Davis teaches courses in Building Systems Engineering, and conducts research focused on the human impacts of architectural lighting systems. In 2005, he was awarded the John and Mercedes Peebles Innovation in Education Award from the University of Colorado's College of Engineering and Applied Science. He holds a Ph.D. in Cognitive Psychology from the University of Colorado, and a M.S. and a Bachelor of Architectural Engineering from Pennsylvania State University.

→ Lighting and Environmental Psychology: How does lighting relate to our perception and cognition of the environments in which we live and work?

→ Sustainability and Lighting Quality: How do we ensure that sustainable design means more than just energy conservation? Are environments with reduced lighting quality really sustainable?

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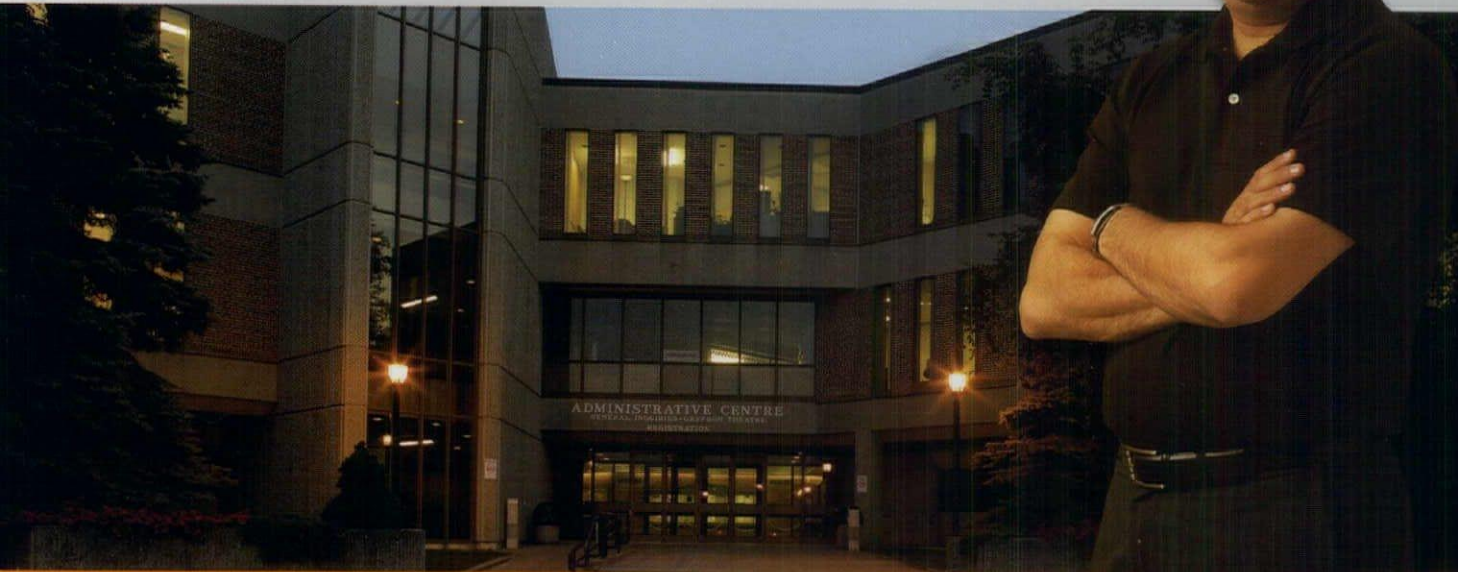
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