AL
architectural lighting

hanley wood

Building on the Past

The Neues Museum Redefines Its Future

PLUS

The Economy: One Year Later | The Color Rendering Debate

AN/FEB 2010
www.archlighting.com

Lamps don't bend.

The vision was clear — use lighting design to transform the visitor experience at the Georgia Dome, the world's largest cable-supported dome stadium, by creating a continuous arc of light that pulls visitors through the concourse.

A vision that translates into 1.37 miles of suspended linear lighting (that bends) installed in an existing space. So the engineer, lighting designer, contractor, Peerless and a few others got together to figure it out. The collaborative solution — join the linear luminaires with a series of custom connectors, each with unique geometry.

Witness the result. Multiple rows of luminaires with end to end variances of less than an inch (A+ on the math problem). Installation completed ahead of schedule. A lighting design that creates motion and flow. A project that shows how lighting design dramatically changes a space. A result that far exceeds the vision.

Most manufacturers said no, we said yes and are so glad we did.

PEERLESS®

An AcuityBrands Company

www.peerless-lighting.com/modsquad

Circle no. 34 or http://archlighting.com/productinfo

Photography: Charlie McLarty

ARCHITECT: TVS, Jegg Wierenga; ENGINEER: Conway & Owen; CONTRACTOR: Inglett & Stubbs

AL architectural lighting

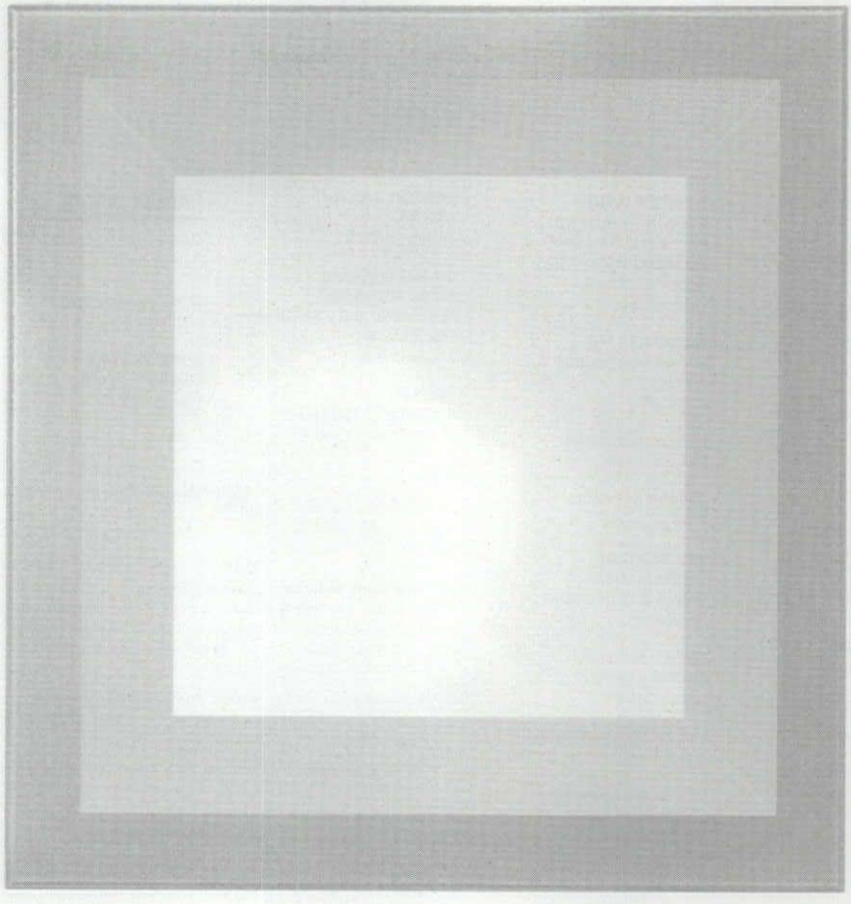
JAN/FEB 10
VOL 24, NO 1

AJL architectural lighting (Vol. 24, No. 1 USPS 000-846, ISSN 0894-0436) is published seven times per year (bimonthly, except monthly in March and June) by Hanley Wood, LLC, One Thomas Circle, N.W., Suite 600, Washington, DC 20005. Periodicals postage paid at Washington, DC, and additional mailing offices. Printed in the USA. POSTMASTER: Send changes of address to Architectural Lighting, PO Box 3494, Northbrook, IL 60065-9831.

Canada Post Publications Mail Agreement No. 40612608. Return undeliverable Canadian addresses to: Bleuchip International, PO. Box 25542, London, ON N6C 6B2.

Distributed free of charge to individuals or firms engaged in the specification of lighting products in the US. Per year, all other US subscriptions $48; Canada, $60; foreign, $96. Payable in US dollars. For subscription inquiries, address changes, and single copy sales ($10 in the US, $15 in Canada, $20 for other countries, payable in advance) write to Architectural Lighting, PO. Box 3494, Northbrook, IL 60065-9831 or call 847.291.5221 or toll-free 888.269.8410.

BPA WORLDWIDE



ecos™ square

advanced LED downlighting adds a classic shape.

- Unique design conceals LEDs from direct view for superior aesthetics and performance.
- Square housing is engineered for precision alignment, consistent appearance and easy maintenance.
- Patent-pending components allow post-installation adjustment and trim-to-trim alignment.
- Advanced mercury-free lighting system delivers environmental and cost-saving benefits.
- Both downlight and wallwash configurations available in 4- and 6-inch apertures.

WWW.GOTHAMLIGHTING.COM

gotham®

AL architectural lighting

JAN/FEB 10
VOL 24, NO 1

WWW.ARCHLIGHTING.COM

hanley wood

One Thomas Circle, N.W. Suite 600 Washington, DC 20005

FROM HANLEY WOOD, LLC, PUBLISHER OF ARCHITECT, AQUATICS INTERNATIONAL, BIG BUILDER, BUILDER, BUILDING PRODUCTS, CONCRETE & MASONRY CONSTRUCTION PRODUCTS, CONCRETE CONSTRUCTION, THE CONCRETE PRODUCER, CUSTOM HOME, ECO-STRUCTURE, THE JOURNAL OF LIGHT CONSTRUCTION, MASONRY CONSTRUCTION, METALMAG, MULTIFAMILY EXECUTIVE, POOL & SPA NEWS, PRO AV, PROSALES, PUBLIC WORKS, REMODELING, REPLACEMENT CONTRACTOR, RESIDENTIAL ARCHITECT, AND TOOLS OF THE TRADE MAGAZINES.

DISCLOSURE ARCHITECTURAL LIGHTING WILL OCCASIONALLY WRITE ABOUT COMPANIES IN WHICH ITS PARENT ORGANIZATION, HANLEY WOOD, LLC, HAS AN INVESTMENT INTEREST. WHEN IT DOES, THE MAGAZINE WILL FULLY DISCLOSE THAT RELATIONSHIP.

PRIVACY OF MAILING LIST SOMETIMES WE SHARE OUR SUBSCRIBER MAILING WITH REPUTABLE COMPANIES WE THINK YOU'LL FIND INTERESTING. HOWEVER, IF YOU DO NOT WISH TO BE INCLUDED, PLEASE CALL US AT 888.269.8410.

AcuityBrands

tersen™

Light in Relation to Architecture

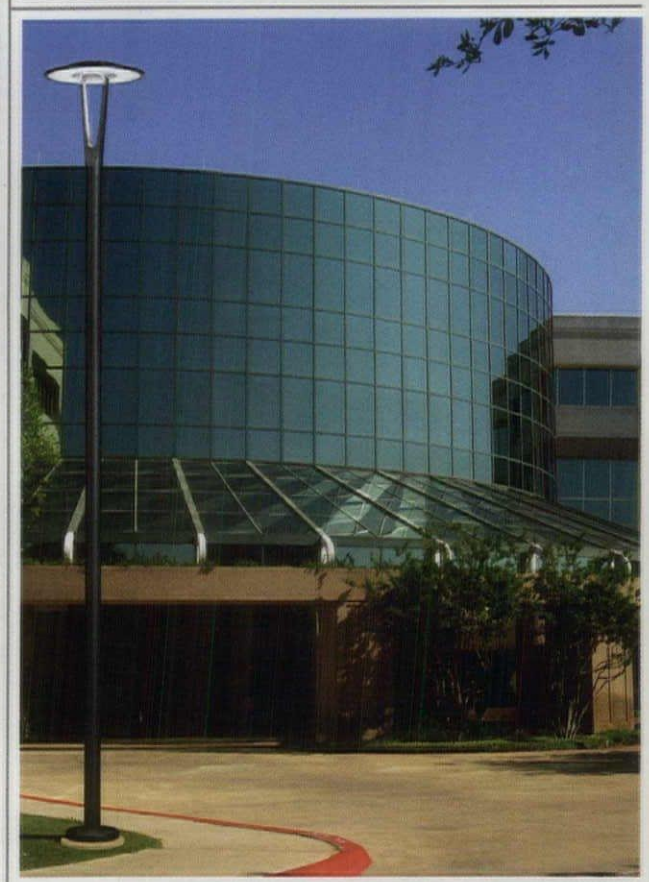
RATIO

An architecturally inspired LED luminaire designed for both form and performance.

- 10,500 initial lumens
- Field adjustable optics
- IP65
- 13% wider spacing than 150w MH

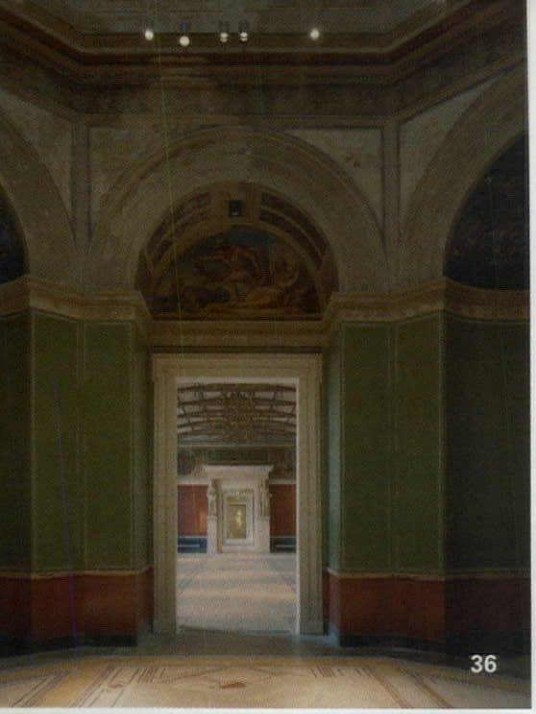
FUNCTIONAL DESIGN

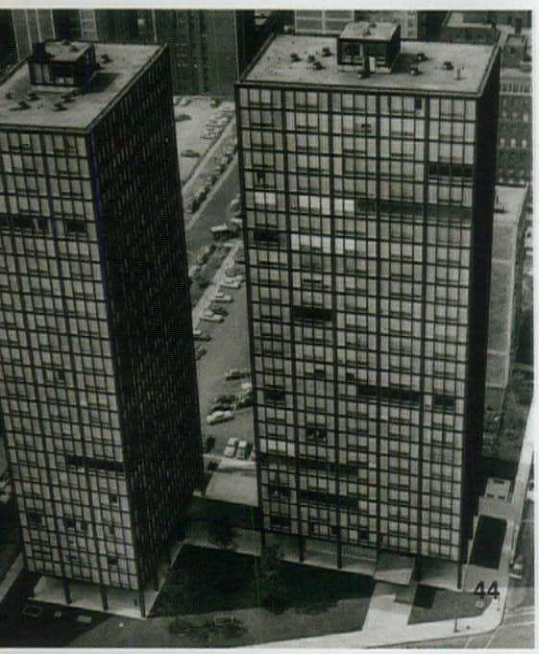
Its stylistic "finned" design serves both as a heatsink, as well as an architectural statement.



Circle no. 199 or http://archlighting.com/productinfo

INNOVATIVE | RELEVANT | MODERN TERSENLIGHTING.COM





JAN/FEB 2010

CONTENTS

FRONT

DEPARTMENTS

FEATURES

BACK

Cover: One of the sculpture galleries at the Neues Museum, Berlin.

KARDORFF INGENIEURE

THIS PAGE: LINUS LINTER FOR KARDORFF INGENIEURE; © HEDRICH BLESSING COLLECTION, CHICAGO HISTORY MUSEUM; IAN ALLEN

GE Lighting

Design rules are meant to be broken. That's the rule we live by.

GE is one of the world's largest LED system companies. Its expansive installed base and exciting products are designed to look incredible and be remarkably energy-efficient too. For example, our durable long-life Tetra® Contour LED Lighting System is cool to the touch, can be formed on-site and is up to 40% more efficient than traditional neon.

To see how our LED can wow you, visit www.gelighting.com/LED.

NGL2008 *LED Cove Lighting System**

NGL2008 *Immersion™ LED Display Case Lighting**

*VIO® – White LEDs***

Tetra® Contour – Architecture Series

Energy Smart® LED PAR Lamps

Evolve™ LED Series Area Light

*GE received a "best in class" distinction from the LED Next Generation Luminaires™ Solid State Lighting Design Competition for the Immersion™ LED Display Case Lighting and a "special recognition" for the GE LED Cove Lighting System as a market-ready luminaire.

**GE's Vio® High-Power White LED technology earned the top prize for "light sources and controls" at the Lighting Design Awards 2009.

imagination at work

Circle no. 94 or http://archlighting.com/productinfo

Looking Backward and Forward

Aughts, naughts, and oohhs. Is it any wonder no one could figure out what to call the past decade? Filled with great highs—and great lows—the 2000s are most likely to be remembered as a time of contradiction. The inevitable onslaught in the popular press of year-end "best/worst" lists, coupled with looks back at the decade, started me thinking about how this would translate to architectural lighting. Did I want to go down the murky road of creating a list of the year's best architectural lighting projects? Not really.

I'd like to think that the projects we feature throughout the year, on the pages of ARCHITECTURAL LIGHTING and in the A|L Light & Architecture Design Awards, represent the best of the best. Add into the mix the other major lighting design award programs, such as the IALD International Lighting Design Awards, the GE Edison Awards, the IES International Illumination Design Awards, Cooper Lighting's Annual Source Awards, and the Lumens, and I think you have a pretty good read on the outstanding work of any given year.

Instead, I was intrigued by the idea of thinking about the milestone moments in lighting and lighting-related issues over the past 10 years. Certain newsworthy events automatically came to mind: notably the blackout of August 2003, when 50 million people from New York to Ohio, and north to Toronto, were abruptly left without power for several days thanks to a massive power-grid failure. The event drew major attention to the U.S.'s aging energy-supply system. While some improvements have been made, overall the nation's infrastructure continues to be at risk.

The great loss of esteemed lighting figures Lesley Wheel, Jules Horton, Sy Shemitz, and Paul Trively also stood out. Their knowledge and personalities are irreplaceable, but their legacies live on through the myriad lighting designers and institutions that they influenced during their careers.

On the technology front, lamps, luminaires, and ballasts continued to become more energy efficient. And lighting controls emerged as a major driver of energy savings. But if any one innovation were to sum up lighting technology of the past decade, it would have to be the LED. A game-changer for every sector of the lighting industry, LEDs leapt out of the starting gate, full of promise. Not all of that promise has been realized—at least not yet. The real challenge with LEDs has not been the technology itself so much as whether the lamp and luminaire companies will be able to cohabitate, and possibly even merge, with the semiconductor industry, which sees lighting as its next step.

When I outlined our 2010 editorial calendar, I wasn't thinking about meditations on the past, at least not consciously. But in hindsight, as I review the feature projects on the following pages, reflecting on the past as a way of figuring out the future is exactly what our Jan/Feb 2010 issue is all about. Sometimes, as with the Neues Museum in Berlin, one has to respect the past while staying true to the present, and the result becomes something truly original. In other instances, like the restoration of 860–880 Lake Shore Drive in Chicago, the past offers valuable lessons to draw from. And in the case of the Sargent Gallery at the Boston Public Library, sometimes the themes of history are so strong one must emulate it.

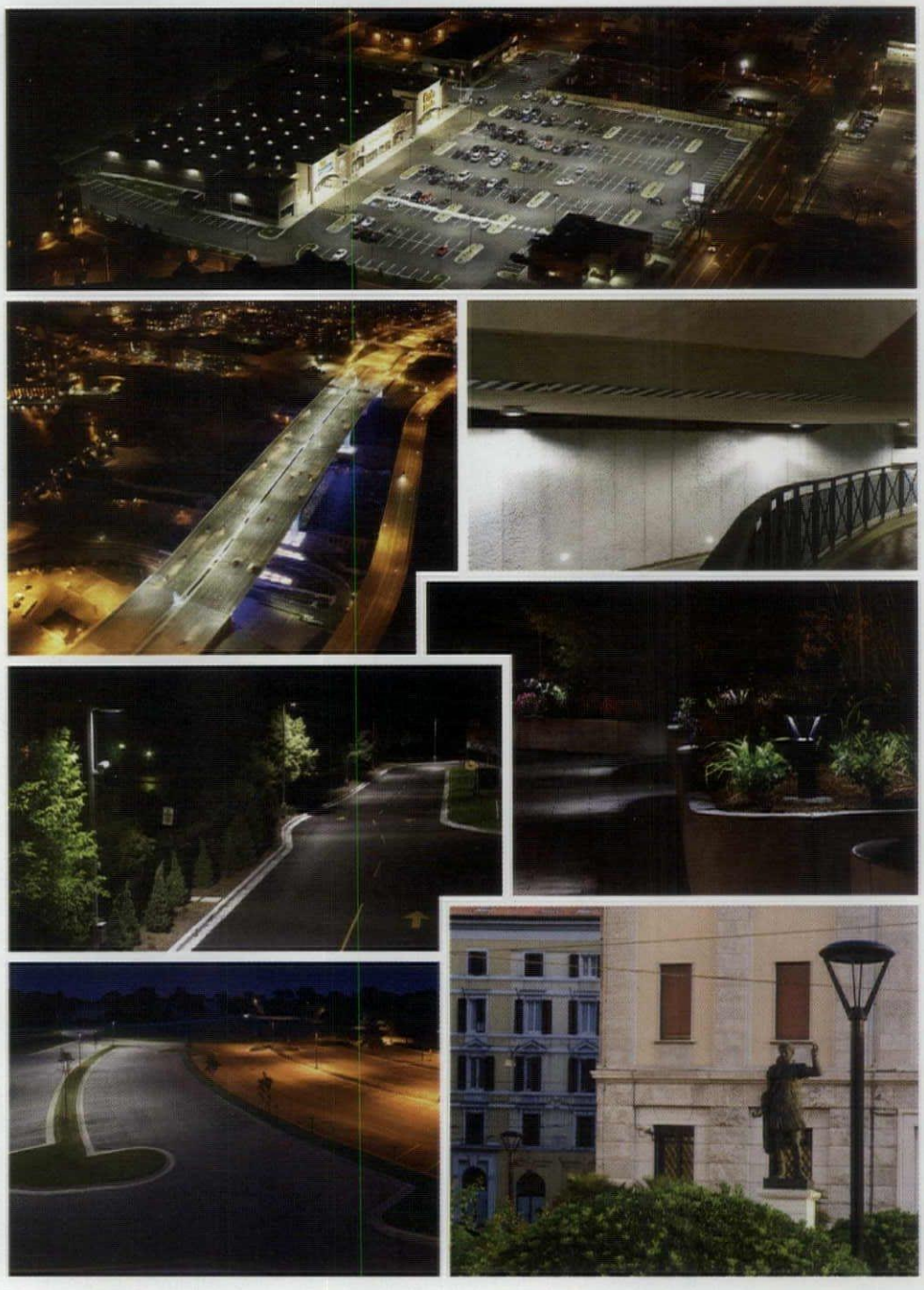
Even magazines grow and evolve. With this issue we introduce a new article type called "In Focus." It replaces two previous articles—Design Focus and Method—which had come to their logical conclusion. In Focus will allow A|L to introduce more technical discussions into our repertoire, as well as lighting details and drawings.

The past 10 years also represent many significant moments for me personally, not the least of which is my career transition from architecture to lighting. Simply put, it's been fantastic. And the most exciting aspect of my work has been getting to know you—the lighting community. With a generosity of time and spirit, you are always here for ARCHITECTURAL LIGHTING, and I hope your investment sees a return in these pages. The lighting industry faces many challenges in the year ahead (and beyond), but because of the special relationship between A|L and its readers, I'm confident that we can tackle them together. Here's to the next 10 years!

ELIZABETH DONOFF
EDITOR

PHOTO BY SPENCER LUM

ProvenPerformance



BetaLED® has thousands of in-market installations with measurable, proven performance. **THE EDGE®** and **LEDway™** provide efficiency, performance, longevity and style to any outdoor lighting application. You can have it all.

Make informed decisions on the best LED products for your next project. **For a quote, project design assistance or more information, call your local BetaLED representative or visit www.betaLED.com.**

Circle no. 69 or http://archlighting.com/productinfo

THE EDGE | LEDway STREETLIGHTS

Outside of the United States THE EDGE™ product line is available through Ruud Lighting

beta LED® A Division of RUUD LIGHTING

OLED Lighting Design Summit Sheds Light on an Emerging Technology

COURTESY OSRAM OPTO SEMICONDUCTORS

Organic light-emitting diodes (OLEDs)—a thin film lighting technology—were the subject of discussion during a two-day summit held Dec. 2 and 3, 2009, in Boston. More than 100 attendees, representing a diverse audience primarily made up of lighting manufacturers and research specialists in the electronics field, along with a few lighting designers, reviewed the state of the OLED industry. For many attendees, the symposium was a chance to learn about OLEDs' potential as an illumination source: how they can be adapted for lighting technologies and the creation of luminaires.

OLEDs remain a bit of a mystery for most in the lighting industry; they often are assumed to be a different type of light-emitting diode (LED). However, participants realized over the course of the two days that this is not the case. An OLED is a diffuse, planar source; an LED is a point source. Application requirements should determine the selection of one over the other.

The 16 sessions, some just a single speaker and others a moderated panel discussion, provided a comprehensive introduction to OLED topics. Discussions included everything from market overviews to technical presentations about the types of substrate materials, as well as potential luminaire and lighting design applications.

Barry Young, managing director of the OLED Association, opened the summit with a brief market overview. In it, he indicated that by 2015 the OLED industry might be as large as $900 million. For comparison, the LED market is expected to reach $5 billion by 2013. The OLED industry is still fairly young, and people need to understand that it is not on a parallel track with the LED industry. One of Young's goals in helping to set up this summit with U.K.-based conference organizer OLEDInsider was to assess the lighting industry's understanding of OLED technology and the market.

NOT SO FAST

While OLED technology has existed for several years, it is only in its second generation of development. Because of its thermal management issues, it is a fairly complex technology to create. In order to achieve a maximum output and even illumination distribution, panels sizes are still relatively limited in size—to only 6 square inches.

Nevertheless, OLEDs do offer the possibility of new lighting strategies. One of the more thought-provoking presentations was by architect Sheila Kennedy of Boston-based Kennedy & Violich Architecture. In her talk, "OLEDS: Design Beyond Bending," Kennedy suggested that OLEDs offer "a fundamentally different kind of lighting design," one where surfaces and objects become the focus rather than space. Kennedy also provoked with her opinion that lighting design fundamentally needs to change. It is her opinion that lighting, as it currently exists, is focused on the infrastructure needed to build and power a luminaire, not on light itself. In closing, she suggested that the times we live in belie a move to more portable devices and that we will need a variety of light sources to correspond to our daily activities. OLED technology, she says, offers a chance to do this.

WHEN WILL THE MARKET BE READY?

There were a lot of technical discussions on rigid versus flexible substrates and the assembly of the OLED components themselves, but it was clear that the technology is at a critical juncture if it wants to move beyond the laboratory and begin to market deliverable products. To date, the only luminaire employing OLED technology is the Early Future OLED Lamp by designer Ingo Maurer in collaboration with Osram Opto Semiconductors—an artistic exploration of a table lamp. For this lamp, 10 OLED panels are positioned on a glass substrate, connected via metal pins to a metal spine and base. Designer Bernard Dessecker from Ingo Maurer's studio presented the lamp, acknowledging that the creation of the piece is purely an experimental exercise since the OLED panels used in it are still prohibitively expensive.

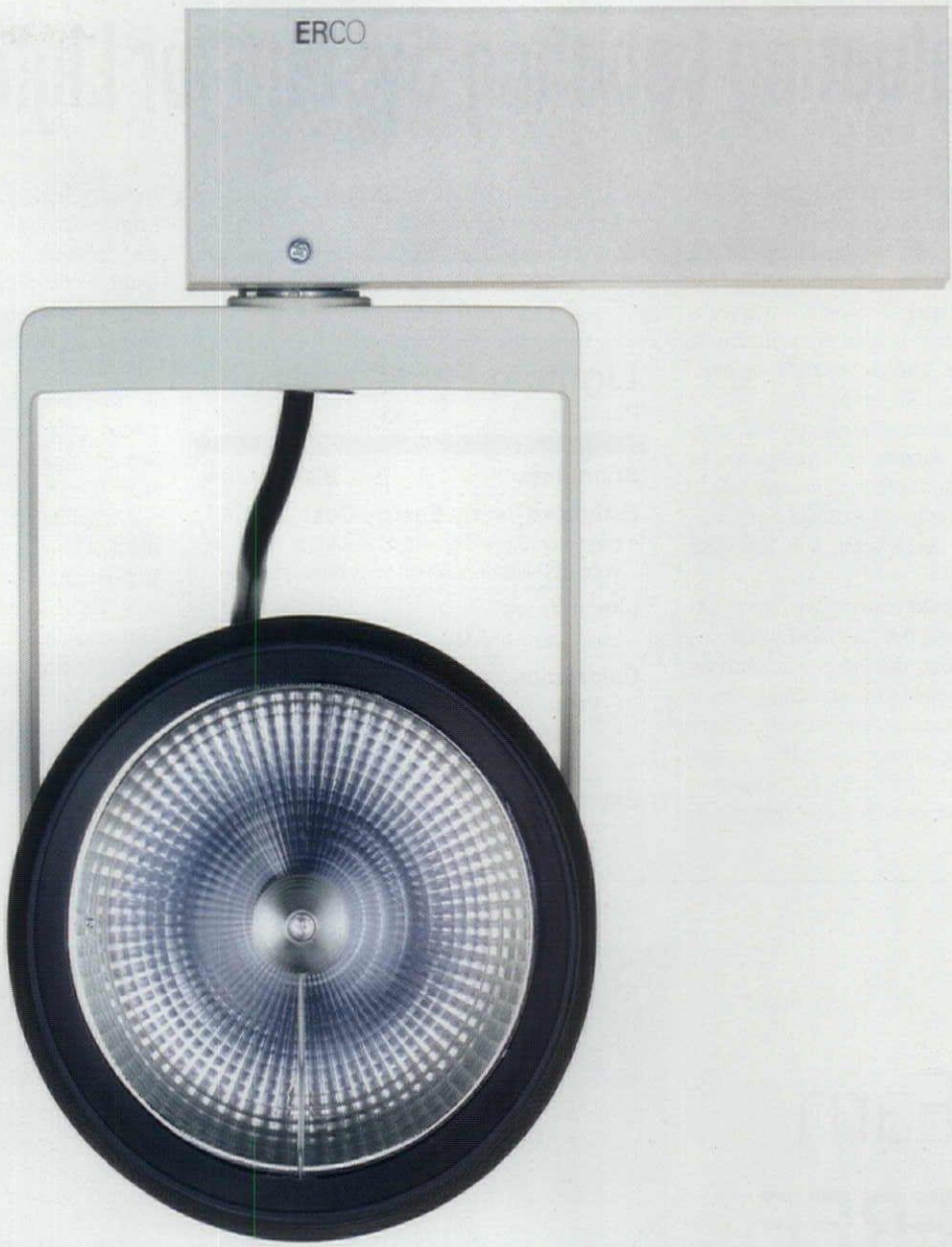
Osram Opto Semiconductors has been pushing OLED technology, and the company recently launched the Orbeos light panel in Europe. According to Osram, these panels are "market ready" for integration into lighting applications and will be available in the U.S. later this year.

Philips Lighting also has been exploring the potential of OLED technology. Kristin Knappstein, OLED unit business development manager for Philips, discussed the company's entry into the technology, Lumiblade. It currently is available in panel formations best suited for artistic explorations, the most dynamic of which is Mirrorwall, an interactive light wall of hundreds of OLED panels, which was introduced at Euroluce 2009.

There is no doubt that OLEDs offer yet another opportunity for lighting design applications. The challenge, however, will be how to make the technology available at a price point for mainstream integration. **ELIZABETH DONOFF**

For more, read editor Elizabeth Donoff's Twitter transcript at her blog on archlighting.com.

tune the light



Logotec spotlights

The premiere launch of Logotec, a new range of spotlights dedicated to providing efficient visual comfort. The clean lines of the Logotec spotlights and floodlights emphasise their essential character as particularly economical and uncomplicated lighting tools that are uncompromisingly designed in terms of lighting quality, ease-of-use and durability. Patented and highly efficient Spherolit reflectors offer light distributions from narrow spot to wide flood as well as with floodlight and wallwasher characteristics. Together with the anti-dazzle ring, the reflectors form a unit that is replaceable without tools. Lighting technology, design, price and performance: the sum of these properties makes Logotec a perfectly sustainable investment.

ERCO

FTC Evaluating Labeling System for Light Bulbs

In response to a Congressional mandate, as outlined in the Energy Independence and Security Act of 2007, the U.S. Federal Trade Commission (FTC) currently is evaluating a new labeling system for medium screw-based lamps—general service incandescent and compact fluorescent light bulbs for consumer purchase. The proposal also applies to medium screw-based LED lamps.

The reason for the labels is to provide consumers with clearer, more substantive information to aid them in selecting light bulbs. Currently, labels only require manufacturers to indicate light output (lumens), energy use (watts), and lamp life (measured in hours).

The new system would require two labels. On the front of the package, the first label would include information about the lamp's brightness (lumen output) and estimated yearly energy cost. A second label on the back also would include brightness and yearly energy cost, but it also would tell the consumer the bulb's life (in years), color temperature, and energy used (watts). In addition, this back label would have to state if the lamp contains mercury.

In 2008, feedback from focus groups, and comments supplied by members of the lighting industry and other stakeholders, indicated that brightness and yearly energy costs were consumers' greatest concerns. The FTC then conducted another comment period, which closed on Dec. 28, 2009. However, it is unclear if the lighting industry was invited to participate in this second comment period, or if they submitted any additional comments to the FTC.

Unlike the U.S. Department of Energy's LED labeling initiative launched in July 2008—the Solid-State Lighting Quality Advocates program, which is voluntary—the FTC's labeling requirements will be mandatory. According to Hampton Newsome at the Bureau of Consumer Protection, the FTC will announce its final plans for the labeling system in June 2010. **ED**

BACK

Lighting Facts
Per Bulb

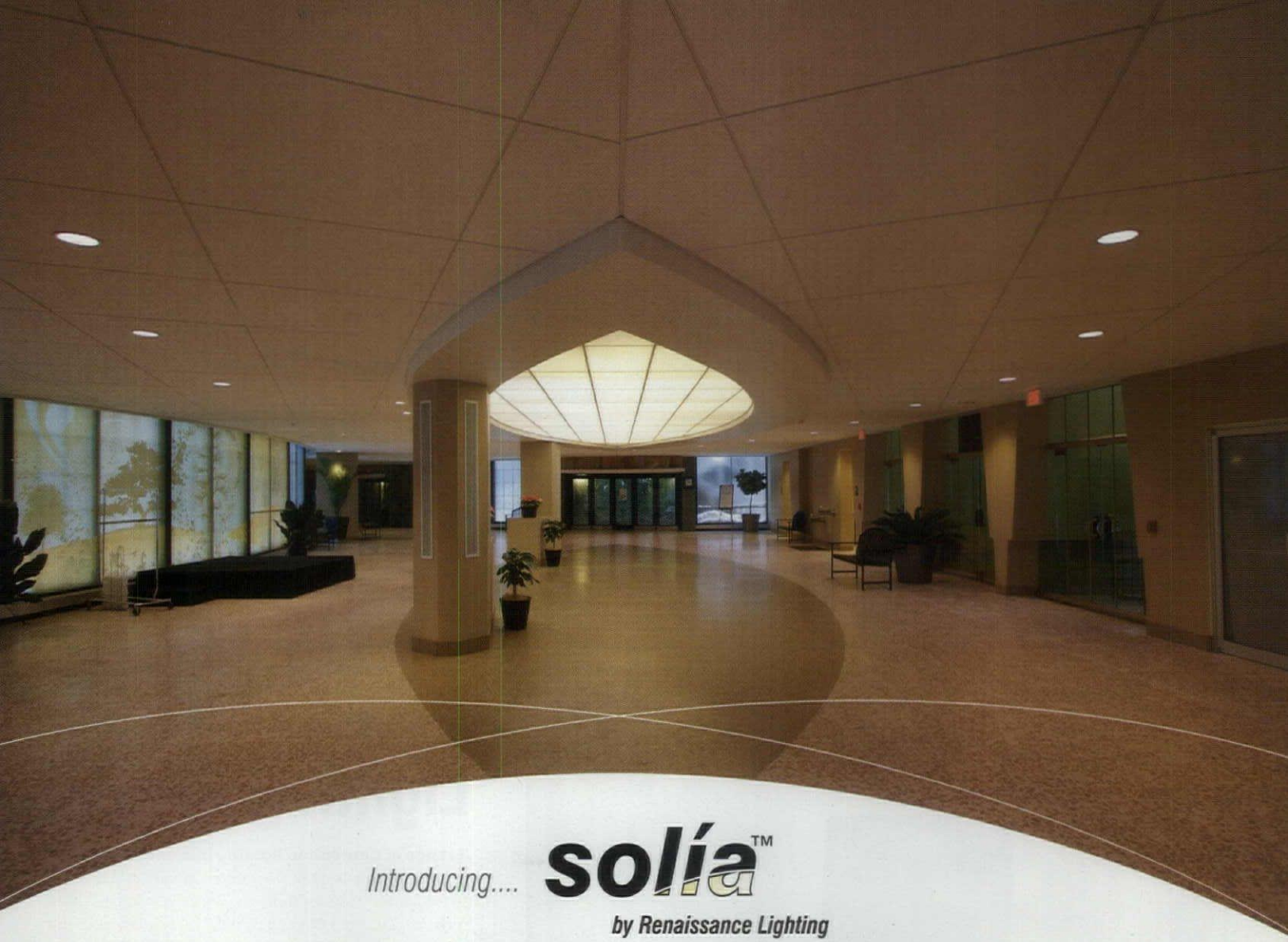
Brightness	**820 lumens**
Estimated Yearly Energy Cost	**$7.49**
Based on 3 hrs/day and 11.4 ¢/kWh. Your cost will depend on your rates and use.	
Life in Years	
Based on 3 hrs/day.	**1.4 yrs**
Color Appearance	
Warm — Cool	
2700 K	
Energy Used	**60 watts**

FRONT

Brightness
820
lumens

Estimated Energy Cost
$7.49
per year

GRAPHICS COURTESY FTC



Introducing.... **solía™**

by Renaissance Lighting

A new industry-leading brand of energy-efficient solid-state LED luminaires offering superior optical efficiencies enabled with the patented Constructive Occlusion™ optical design.

- ✓ ENERGY STAR® qualified models
- ✓ Up to 1400 lumens
- ✓ Up to 50 Lumens per Watt
- ✓ CCT Range of 2700K-4100K
- ✓ Smooth, flicker-free dimming
- ✓ IC Rated for residential installations
- ✓ Round and Square luminaires available
- ✓ End of Life Recycling Program

renaissancelighting.com

Renaissance Lighting

elegant. efficient. eco-logical.

ENERGY STAR PARTNER

Circle no. 224 or http://archlighting.com/productinfo

The Lighting Quotient Carries On Shemitz Legacy

The Lighting Quotient is the new brand identity and name for the architectural lighting manufacturer previously known as Sylvan R. Shemitz Designs. Founded in 1977 by the late Sylvan R. Shemitz, the West Haven, Conn.–based company has two industry-recognized lighting lines: Elliptipar and Tambient. Allison Schieffelin, Shemitz's daughter, has led the company for the past two years as chairwoman and CEO, and she has been instrumental in the rebranding effort as the company sets its future goals. "Innovation was at the core of Sy's spirit," Schieffelin says. "It's no different today as we work to keep the company competitive and relevant in [the current] lighting landscape."

It may have a new name, but the Lighting Quotient will continue to build on the company's reputation for quality task/ambient lighting solutions. For instance, the company is exploring new energy-efficient solutions and technologies by staying in tune with green building issues and the U.S. Green Building Council's LEED certification process.

The company's new name reflects the essence of Shemitz's desire to educate people about good lighting. "The word 'quotient' in physics also means 'answer,'" says Schieffelin. "Our goal is to provide solutions for a much broader audience, and with the incredible tools and talent Sy left us, we can continue his legacy of innovation." ED

THE LIGHTING **QUOTIENT**

Lighting 311

A range of new online lighting information resources are available to both the general public and lighting professionals in New York, via the newly formed New York City Lighting Council (NYCLC). Established in the fall and winter of 2009 by the New York City Section of the Illuminating Engineering Society, the council and its website (nyclc.info/home.html) are meant to serve as "an information source and champion for issues involving the use of lighting in and about the New York Cityscape."

The Lighting Council Coordinators and members of the IESNYC Public Outreach Committee are lighting designers Randy Sabedra of RS Lighting Design; C. Brooke Silber of Domingo Gonzalez Associates, and Michael W. Mehl of Jaros Baum & Bolles; along with Wendy Kaplan of manufacturer LightWild and Peggy Meehan of Amerlux Lighting. The purpose of the council is to establish resources that will promote lighting awareness, to advocate for good lighting practices, to engage in initiatives for lighting preservation and protection, and to support the funding of lighting for public projects.

Concurrent with the council's efforts, a new website (lighting311.org) will be launched in June 2010. It is meant to tap into New York Mayor Michael R. Bloomberg's communication initiative, NYC311 (launched in 2003), which provides the public with quick, easy access to all New York City government services and information. For the lighting professional, the Lighting 311 site will provide information on topics ranging from codes to city policies to energy and sustainability issues. For the public, the website is a place where they can ask lighting professionals about topics such as energy-efficient lamp choices and lamp recycling. For additional information, contact the council at info@NYCLC.info. ED

Create your own economic recovery.

Go to **Hubbell.com/recovery**

RECOVERY.GOV

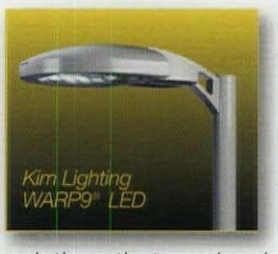
Qualify for **stimulus opportunities** with a wide selection of Hubbell products.


Columbia e•poc® Luminaire

As long as you're in the market for great lighting, why not make choices that provide superior value as well as qualify for ARRA stimulus funding?

Hubbell® Lighting offers thousands of products that meet those strict Buy American guidelines. There's the Columbia Lighting e•poc® Full Distribution Luminaire, offering high-efficiency and step-dimming options for T5 and T8. And Prescolite's LiteFrame® with W/FT² Optics – the most efficient compact fluorescent downlight in the industry. Need emergency lighting?

Try the Dual-Lite LE Series LED Edge-Lit Exit Sign. For outdoor, consider the Kim Lighting Warp9® LED Site and Street Luminaire featuring patent pending MicroEmitter™ LED technology and its endless distribution opportunities.


Kim Lighting WARP9® LED

And for athletic fields, Sportsliter® Solutions provides unsurpassed savings and performance in complete, packaged solutions that can be delivered fast.

Granted, the choice is overwhelming. Fortunately, there's a great place to start – the Hubbell sustainable solutions website, where you'll find many ways to help improve business: Featured products, our comprehensive ARRA Lighting Specification Guide, news and updates through our live Twitter feed, and product guides for related markets such as office, industrial, education and healthcare. Forget those pundit predictions. While some just wait for business to pick up, you can start your economic recovery – with cost-saving, highly-dependable lighting solutions from Hubbell.


Prescolite LiteFrame® with W/FT² Optics

GREENWISE™

Go to Hubbell.com/recovery today.

Think Hubbell First

www.hubbell.com

Circle no. 59 or http://archlighting.com/productinfo

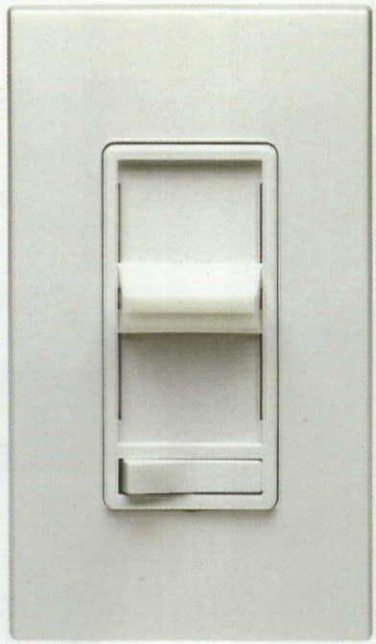
HUBBELL®

Electrical Systems • Lighting • Power Systems

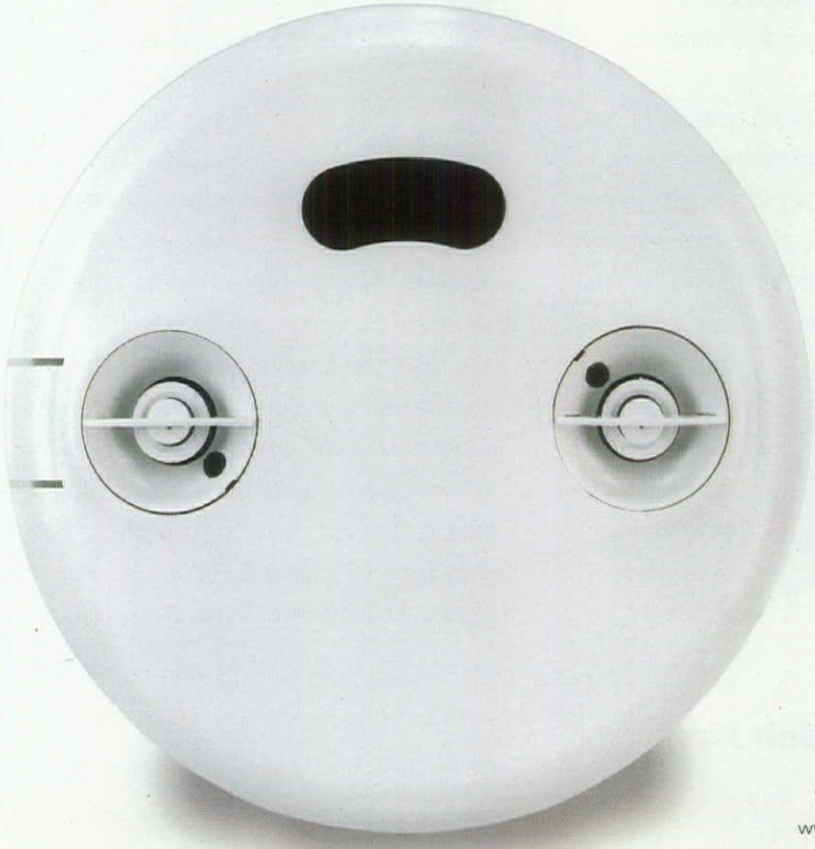
LIGHTING AT WORK

EDITED BY KIMBERLY R. GRIFFIN

BULBRITE ENERGY WISER CFLS
The Energy Wiser brand of PAR20, PAR30, and PAR38 compact fluorescent direct replacement lamps for halogen PARs each promise a 75 percent energy savings and to last up to six times longer than traditional incandescent sources. The 9W PAR20 CFL replaces a 35W halogen PAR20 and produces 350 lumens at 3000K or 310 lumens at 5000K. The 15W PAR30 CFL is Energy Star–approved and is equivalent to a 50W halogen PAR30, offering 670 lumens at 3000K or 630 lumens at 5000K. The Energy Star–approved, 23W PAR38 is comparable to a 23W incandescent PAR38, offering 1,200 lumens at 3000K or 1,050 lumens at 5000K. All three lamps last up to 8,000 hours and have a CRI of 82. *bulbrite.com* CIRCLE 125

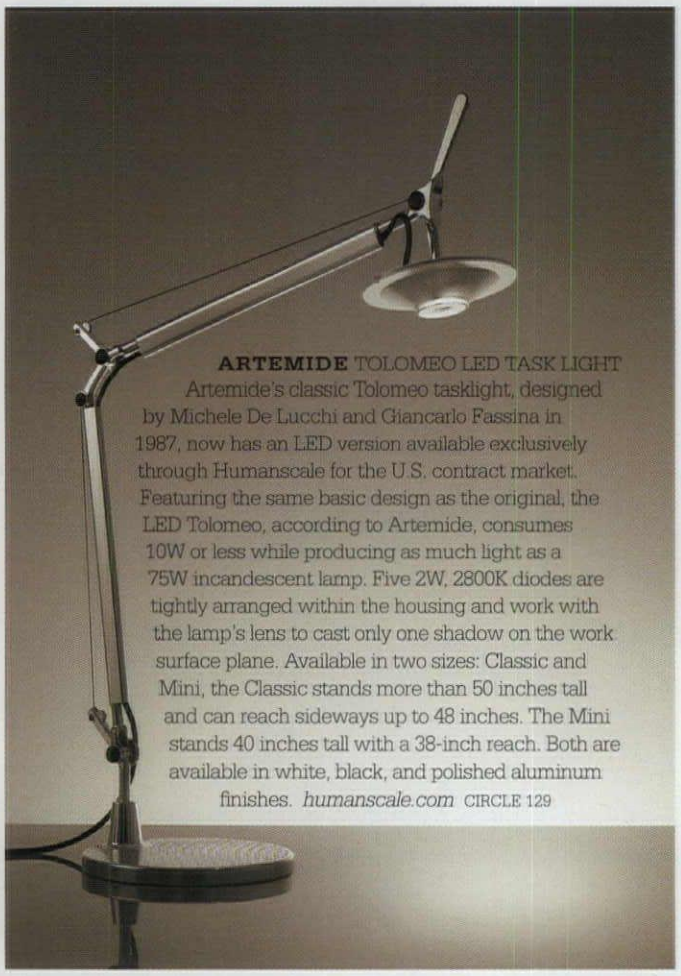


LEVITON DECORA CFL SLIDE DIMMER
The Decora CFL Slide Dimmer is compatible with a range of dimmable CFL lamps of varying styles, ratings, and dimming capabilities. The dimmer features an auto mode that detects whether the lamp is an incandescent or a dimmable CFL and determines the lamp's high- and low-end dimming capabilities, adjusting the dimming range accordingly. According to the manufacturer, the Decora CFL Slide Dimmer improves on the issues that plague standard dimmers' performances with CFLs, such as flickering, limited dimming range, and not being able to turn the lights on while the dimmer is in a dimmed position. *leviton.com* CIRCLE 126



WATTSTOPPER LMUC-100 OCCUPANCY SENSOR
WattStopper introduces the latest addition to its Digital Lighting Management (DLM) suite of lighting control products, the LMUC-100 Digital Ultrasonic Ceiling-Mount Occupancy Sensor. Using ultrasonic diffusion technology, the LMUC-100 completes a 360-degree occupancy detection of a room to determine energy-efficient control of lighting and plug loads. The sensor includes an LCD display screen, push buttons for manual parameter changes, and an infrared transceiver, which allows wireless operation using a wireless configuration tool. Each sensor can be assigned a different load via Push n' Learn customization. As with all of the company's DLM products, the LMUC-100 occupancy sensor features Plug n' Go configuration technology that automatically identifies the components installed and configures them for the most energy-efficient sequence of operation possible. DLM products plug together on a Cat-5e local network. *wattstopper.com* CIRCLE 127

NORA LIGHTING GU24 CFL HOUSINGS
The GU24 family of housings and trims from Nora Lighting accepts interchangeable, self-ballasted GU24 compact fluorescent lamps in 13W, 18W, and 26W. The series includes six downlight models with 4-, 5-, and 6-inch apertures designed for new construction or retrofit applications. Some of the available CFL lamps deliver up to 30,000 hours of service and as much as 75 percent energy savings over incandescents, according to the manufacturer. The complete GU24 package includes the housing, the self-ballasted lamp, and a selection of trims. All of Nora's new CFL housings are California Title 24–compliant; the 6-inch version is Energy Star–rated. Fixtures are approved for insulated ceilings as well as damp locations. *noralighting.com* CIRCLE 128

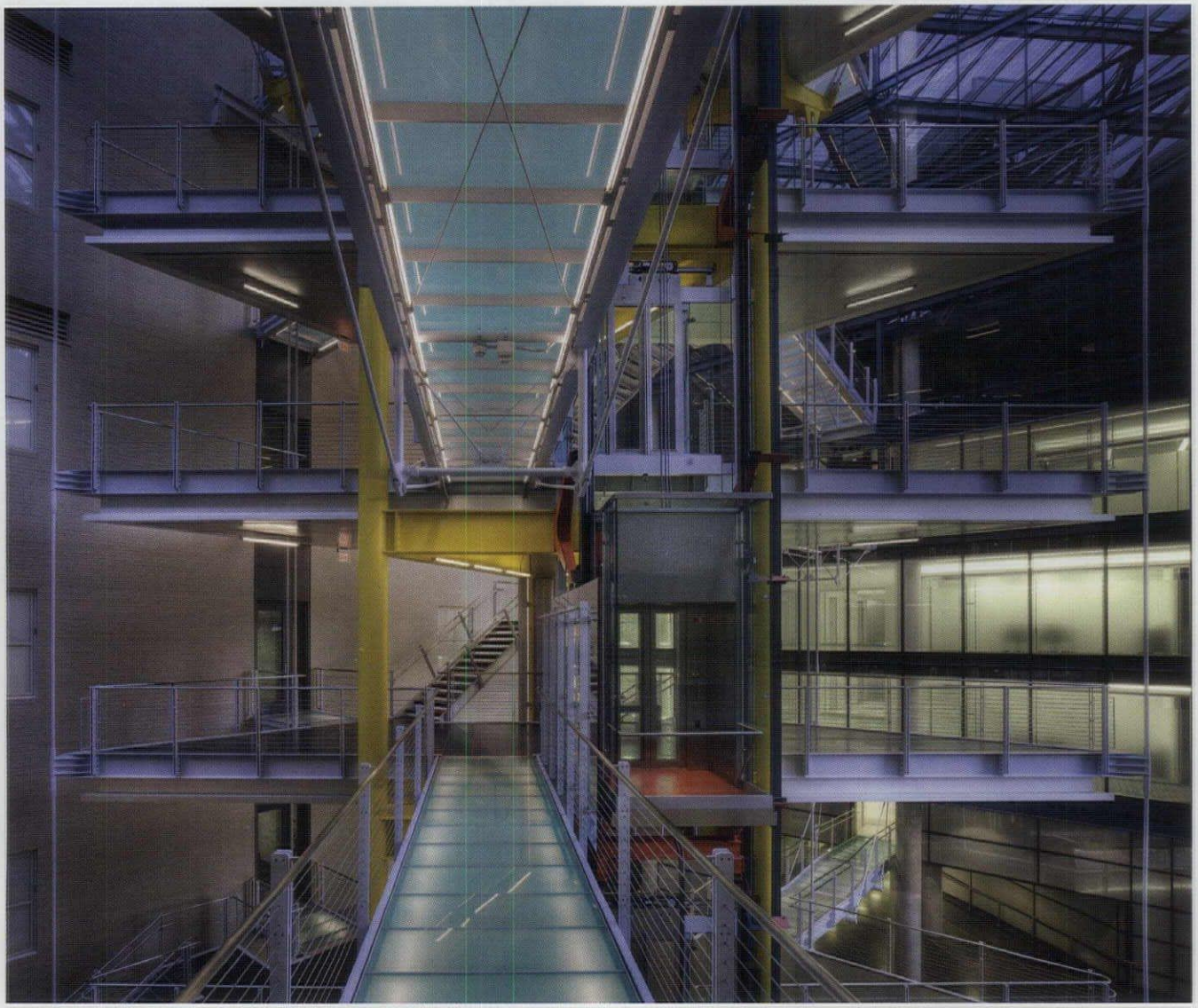


ARTEMIDE TOLOMEO LED TASK LIGHT
Artemide's classic Tolomeo tasklight, designed by Michele De Lucchi and Giancarlo Fassina in 1987, now has an LED version available exclusively through Humanscale for the U.S. contract market. Featuring the same basic design as the original, the LED Tolomeo, according to Artemide, consumes 10W or less while producing as much light as a 75W incandescent lamp. Five 2W, 2800K diodes are tightly arranged within the housing and work with the lamp's lens to cast only one shadow on the work surface plane. Available in two sizes: Classic and Mini, the Classic stands more than 50 inches tall and can reach sideways up to 48 inches. The Mini stands 40 inches tall with a 38-inch reach. Both are available in white, black, and polished aluminum finishes. *humanscale.com* CIRCLE 129

COOPER LIGHTING METALUX OPTICA HP PARABOLIC SERIES
Cooper Lighting designed its latest energy-efficient T8 parabolic luminaire for new construction applications as well as retrofits. According to the manufacturer, the two-lamp Metalux Optica HP Parabolic series can save more than 40 percent of energy costs when compared to a standard three-lamp parabolic. The series includes 2-foot-by-4-foot and 2-foot-by-2-foot luminaires, and two Optica HP Retrofit Kits for installation into 2-foot-by-4-foot or 2-foot-by-2-foot parabolic fixtures that are 2 inches to 5 inches deep. Available with 28W or 32W lamps, Optica HP combines a reflective matte white finish with glare-reducing faceted steel crossblades, for soft, even light distribution. *cooperlighting.com* CIRCLE 130

Easy Does It

SUBTLE LIGHTING LETS A RICHARD ROGERS ATRIUM SPEAK FOR ITSELF



PRAKASH PATEL

Designed by the noted U.K.-based firm Rogers Stirk Harbour + Partners in collaboration with HKS, the newly constructed 300 New Jersey Avenue in Washington, D.C., centers on a light-filled atrium with a highly articulated glass and steel structure of stairs and connecting bridges that unites three surrounding buildings.

Who knows, maybe designing lighting around an architectural project by Rogers Stirk Harbour + Partners, the international firm of British high-tech wizard Richard Rogers, would bring with it a sense of terra incognita. But when lighting designer Maureen Moran's turn came along, rather than be stymied by the proposition, she embraced it, suspending a number of things learned in the 30 years she has spent working around rather conservative clients in the Washington, D.C., area.

Rogers' first foray in the nation's capital—300 New Jersey Avenue—takes two older limestone and brick buildings and turns them into a trio. The three buildings triangulate around a new 12,000-square-foot Rogers'-designed glass atrium that soars a full seven stories, which Moran's firm, D.C.-based MCLA, was hired to light.

In this atrium, you know Rogers is your host: Its glass roof juts out severely like a blade's edge over the deep forecourt of the complex, supported by a finely machined and cabled structural "tree." Rising from the ground at the atrium's heart, it is painted yellow, with two enormous trusses reaching as limbs to undergird the roof's far edges. The tree's smaller, lower branches embrace a glass elevator shaft and support a layered network of open stair platforms and illuminated glass bridges that cross to the two adjacent buildings.

Those already familiar with Rogers' work may find this space relatively simple. Those who aren't may liken it to a structure that has been pieced together in a game of mousetrap. The project, completed in collaboration with the architecture firm HKS, is all the more remarkable because it captures a dead-on view of the U.S. Capitol and also because hardly any Washington office developers, given the District's

strict height limitations, bother to produce large, dramatic atria.

But JBG Cos., the client who developed the project for the principal building tenant, the law firm Jones Day, was smitten enough with Rogers to indulge his signature forms of expression. Moran seems to have enjoyed this expressiveness as well, though it also likely took her aback after having worked with so many buttoned-up D.C. building tenants. "Everything's so exposed," Moran says, referring to the structure as well as her lighting. "Where we get our hands slapped on some projects is where there's a socket shadow." But that wasn't a problem with Rogers' firm. "They love seeing stuff exposed."

To complement the bravado of Rogers' architectural structure, Moran did not use a lot of fussy illumination. The lighting is largely surgical in its precision, appearing only where absolutely needed. Upon entering, you note, without great distraction, a discreet path of small, circular LEDs recessed in the plaza's stone tile floor. Starting at the sidewalk and continuing into the lobby, these uplights are an introduction to Moran's legato sense of the space. By day the atrium drinks in plenty of natural light, and at night it borrows a good deal of referred wattage from the surrounding office windows.

The most intense concentration of lighting occurs around the structural tree and its limbs. Once you're inside the atrium, the most visible fixtures are linear T5 fluorescents that delineate and highlight the undersides of the glass bridges and the floating terraces. Viewed from below, they appear amply but not shockingly bright, mainly to illuminate the walking surfaces of the bridges below.

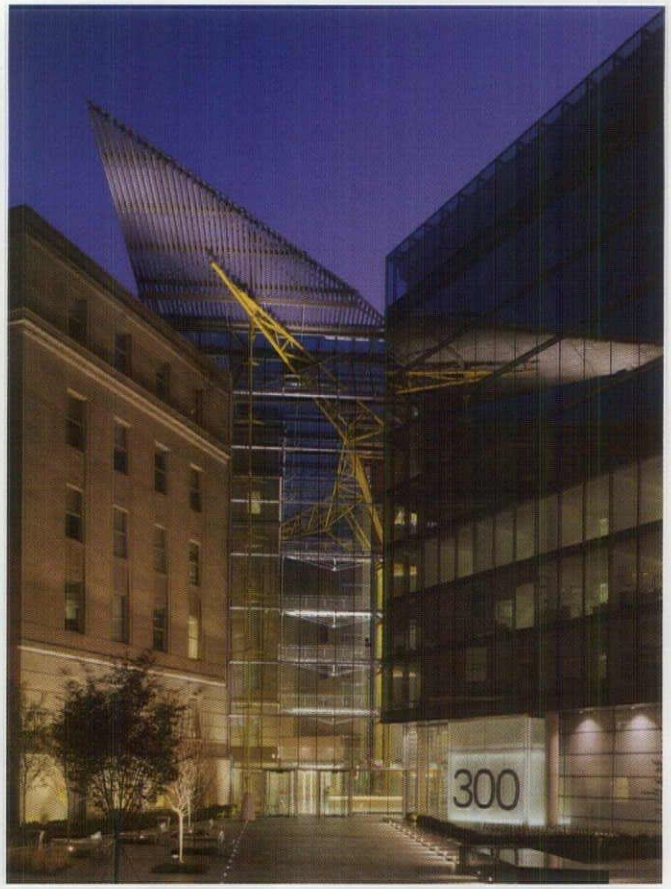
A clear sense of Moran's discretion in lighting is found in the open stair. Here, along a secondary structural column, she integrates 65 feet of vertical translucent piping that draws light from two metal halide sources, one lamp at either end. An inner film disperses the light along each column's height. The lighting is perfectly adequate and evenly spread along the rise, but unless you look hard for it, you may miss the actual source.

One minor blip in an otherwise unobtrusive installation is the alignment of the vertical piping modules at their joints as you look up the column. Ever so slightly crooked, they read as more segmented than Moran likely wanted.

It's easy to surmise the effect Moran was after by looking at the simplicity of the scheme. The atrium's south side is lit by circular metal halide fixtures set flush with the floor and trimmed in stainless steel, which train their light up onto a limestone wall that used to be the exterior of the complex's 1935 building. The projection dignifies the handsome façade and leaves a soft reflection for the surrounding open space, where the floors are a dark color.

For events and functions that might require additional lighting, Moran installed practically invisible sets of accent lights at either end of the atrium's upper ridge near the roof. These fixtures play into clusters of reflective mirrors to produce diffused ponds of light rather than riveting rays. Even where and when Moran's lighting does not announce itself prominently, her critical thinking comes through—as at the atrium's entrance, where you can see plenty of light but are not standing in it. Rather than fire up the place heavily and risk overdazzling, she keeps the lighting trained on the dynamic architecture to show it to its best advantage. **BRADFORD MCKEE**

Bradford McKee is a writer in Washington, D.C., who covers architecture and design.



PRAKASH PATEL

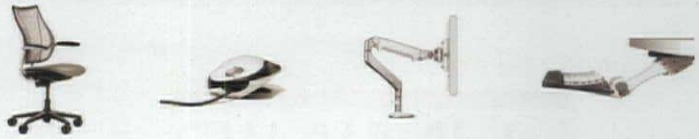
A decisive architectural gesture, the entrance to 300 New Jersey Avenue is defined by the triangular roof form that boldly juts out over the building and is supported by a structural "tree," which continues inside and is painted yellow (top). The lighting follows the architecture's economy, using T5 fluorescents to delineate the undersides of the bridges and lightpipe to highlight the verticality of the stair core (bottom).

A Design Classic. Reborn.

Artemide's iconic Tolomeo task light—a symbol of fine Italian design for more than 20 years—has been reinvented with an ultra-efficient, high-performance LED. And it's available to the U.S. contract market exclusively through Humanscale.

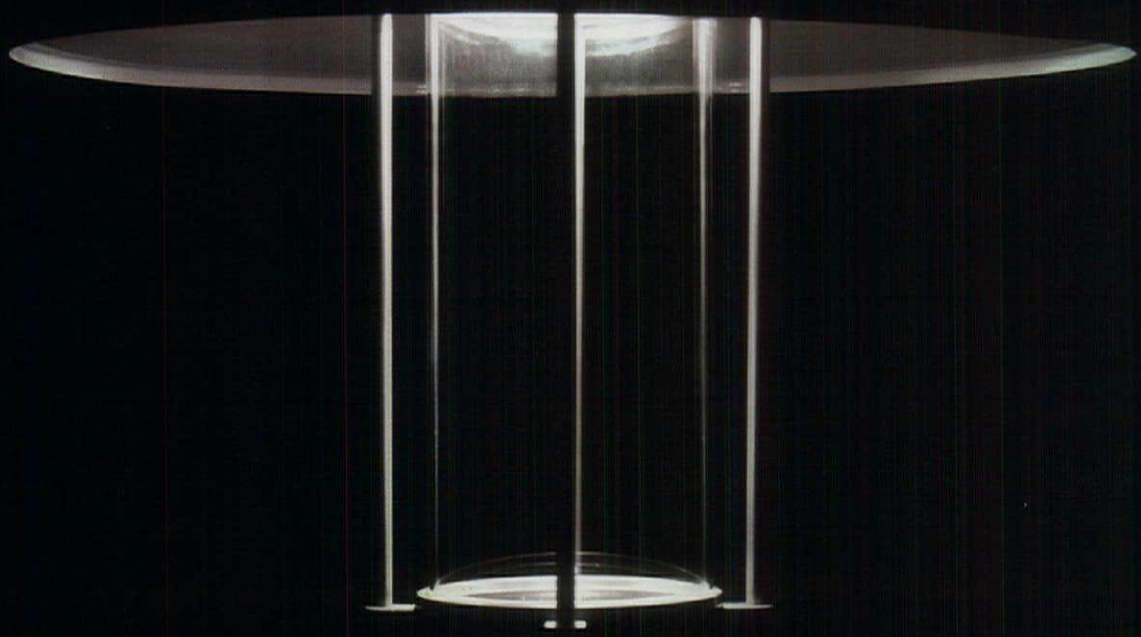
Designed for ultimate performance, simplicity and sustainability, Humanscale's market-leading products create a healthier, more comfortable place to work.

800.400.0625
www.humanscale.com



Humanscale®

Circle no. 226 or http://archlighting.com/productinfo



Beautiful. And smart.

Eclipse fixtures have it all. They're designed to look good,
with practically hands-free maintenance.
A complete site lighting solution for your LEED projects
with its full cutoff dark sky certification.

It's time to make a change for the better, to **Eclipse**.

For more information, visit **luminis.com/smart**

Circle no. 212 or http://archlighting.com/productinfo

LUMINIS

The Economy: One Year Later

WHAT'S IN STORE FOR THE LIGHTING INDUSTRY IN 2010?

MATT WOOD

The good news is that the lighting industry survived last year's financial crisis and the residential sector downturn relatively intact. The bad news is that the economy is by no means out of the clear, and the coming year, particularly for the commercial sector, might be even more turbulent.

Despite the uncertainty about the commercial sector, designers and manufacturers both will tell you that they feel as if the economy is starting to level off and rebound. Any gain is seen as greatly positive, although everyone understands that the market remains volatile and will continue to fluctuate day-to-day, month-to-month. And while the U.S. unemployment rate remains around 10 percent, with the economy losing 85,000 jobs in December 2009, the rate of job losses has slowed. The number of temporary positions has increased, in part because of seasonal employment during the holidays. However, this increase does reflect a larger issue that orders for goods and project workflow remain on an "as needed" basis and that business owners are being extremely cautious. They don't want to overextend themselves by taking employees on full time.

Many lighting firms implemented different strategies last year to remain nimble and they plan to continue these plans in 2010. One of these strategies is reducing the workweek (say, from 40 hours to 32 hours), instead of cutting staff. While the number of layoffs at lighting firms in 2009 did not compare to the magnitude of the layoffs seen at architectural firms, those lighting firms that did make staff reductions did so quietly. Overall, the economy has forced offices to re-examine their business models and to evaluate staffing needs in light of what is being seen as a new era where project loads will require more multitasking and cross-disciplinary approaches than ever before. As firm principals note, it remains a tight juggling act to hold on to the good employees they have invested in while trying to predict their firm's future staffing needs.

Despite the downturn, most firms remain busy, but the type of work has been much more varied. In addition to working on projects that are still in the pipeline, designers are taking on projects that are smaller in scope than they might have considered in the past. A good portion of time also is being spent by firm principals who are responding to a steady flow of request for proposals (RFPs).

Client, designer, and manufacturer—everyone wants to be poised ready to go when the recovery takes hold.

Following the Numbers

Designers and manufacturers continue to monitor the construction- and lighting-specific indexes such as the monthly released American Institute of Architects' (AIA) Architecture Billings Index (ABI) and the quarterly released National Electrical Manufacturers Association's (NEMA) Lighting Systems Index (LSI). Given the lag time of reported numbers in quarterly reports, the challenge, particularly from the end of 2009 into the first quarter of 2010, has been to try to get an accurate read on which way things are heading. In a Jan. 6 press release, the AIA reported that although the general U.S. economy was showing improvement, "nonresidential construction spending is expected to decrease by 1.4 percent in 2010 with a marginal increase of 1.8 percent in 2011 in inflation adjusted terms." Industrial buildings, hotels, offices, and retail projects will see the most significant percentage declines—ranging from 17 percent to 24 percent. Educational and healthcare projects are expected to fare much better—experiencing as much as a 5.6 percent loss. "When economies emerge from this prolonged recession, recovery for nonresidential construction activity typically takes longer," AIA chief economist Kermit Baker said in a prepared statement.

Some real estate analysts are predicting that the commercial office sector in major metropolises won't see a significant turnaround until 2014.

For lighting, the numbers are all over the place. For example, in the third quarter of 2009, NEMA's index for incandescent and compact fluorescent lamps declined by 7.1 percent and 18.2 percent, respectively. However, during the same quarter NEMA's LSI increased by 3.3 percent, reflecting an overall increase in shipments of lighting equipment. Likewise, the Electroindustry Business Confidence Index (EBCI) for North America fell 5.7 points in December 2009 to 48.2. But the EBCI's numbers on future North American conditions, released in the same report, did reflect a significant rebound, posting 64.3 points, its 10th consecutive reading above 50. Readings for Latin America, Europe, and the Asia/Pacific region also reflected a similar tone: decline in December conditions, but enhanced prospects for the first half of 2010.

The Commercial Sector

The EBCI's projecton for the first half of 2010 might be wishful thinking. "There is a lag factor of six to nine months," says Brian Golden, vice president, sales and marketing, for Hanson, Mass.–based Litecontrol. "Nonresidential starts will have to come back before the lighting industry can rebound significantly."

The most telling sign of economic recovery for architects and lighting designers whose firms are focused on commercial and institutional work might be the status of commercial real estate, particularly office space. "We should be keeping an eye on the commercial banking crisis," Golden says. "The status

of loans remains uncertain." A Jan. 8 article in *The New York Times* does not paint a pretty picture. According to the article, "more than 180 major buildings totaling $12.5 billion in value … are in trouble, meaning in many cases they face foreclosure or bankruptcy, or have had problems making mortgage payments. Rents for commercial office space fell faster over the past two years than in any such period in the last half century." For New York, Chicago, Boston, and Washington, D.C., the surplus of available commercial office space is astounding. And these vacancies don't just impact an owner's bottom line, they also affect a city's tax base. Some real estate analysts are predicting that the commercial office sector in major metropolises won't see a significant turnaround until 2014.

The issue of commercial loans is not limited to real estate; it also is affecting companies' ability to obtain financial backing to invest and grow their businesses. A recent case in point in the lighting industry is Luminus Devices, the Billerica, Mass.–based LED manufacturer that supplies LEDs to major electronics companies such as Samsung, LG Electronics, and Philips Lighting. At the end of December 2009 the company found itself in the unsettling position of imminent closure when its lender, Palo Alto, Calif.–based Hercules Technology Growth Capital, threatened not to renegotiate Luminus' $15.1 million loan and seized its bank accounts.

Luminus Devices filed suit against Hercules, citing improper declaration of default and seizure of accounts. By the beginning of January, the situation has been resolved, all suits have been dropped, and Luminus Devices was still in business, albeit with a reduction of 30 positions from its previous total of 130 employees. In an interview in the *Boston Globe* on Jan. 9, Keith T.S. Ward, Luminus' chief executive, indicated that the company's 2009 sales, which totaled close to $10 million, are expected to double in 2010, and that the company is focusing on all the future.

The situation with Luminus may be resolved, but the experience does illustrate the risk that companies are facing when it comes to loans and credit. Financial backing presents its own set of risks, but it is necessary, a point made by AIA chief economist Kermit Baker in a Jan. 20 press release, "The main impediment to an economic turnaround for the design and construction industry remains frozen credit markets. We continue to hear that there are numerous viable projects out there awaiting financing."

What's on the Horizon

"There is a limited upside of opportunity," says Marc Seiber, president of U.S. operations for Erco Lighting. "The types of projects we are seeing orders for at the moment are not necessarily aligned with architectural lighting installations. Rather there is a lot of focus on infrastructure." In addition to funds from the American Recovery and Reinvestment Act finally materializing for new infrastructure related projects, Energy Secretary Steven Chu announced on Jan. 15 that more than $37 million has been allocated to support high-efficiency solid-state lighting research, product development, and manufacturing. Until the rest of the market picks up, lighting designers and manufacturers surely will be paying attention to SSL developments and infrastructure opportunities.

But no matter what the numbers indicate or seem to indicate, the tenets of good business remain important when navigating the unpredictable days ahead: a commitment to meeting customer and client needs, focused leadership that understands the value of good lighting, and an awareness of environmentally friendly and energy-efficient products. "It's still all about value," says Golden. So, what's the forecast for 2010? Cautious optimism. **ELIZABETH DONOFF**

CALL FOR SUBMISSIONS

Architectural Lighting 2010 Product Guide

Architectural Lighting magazine invites you to send in new product releases for editorial consideration in our APRIL/MAY 2010 PRODUCT GUIDE. Submitted products should have been released since April/May 2009. This annual special issue showcases more than 200 products in 15 product categories, including:

- Controls
- Decorative
- Downlights
- Emergency
- Fiber Optics
- Indirect and Direct
- Industrial
- Lamps and Ballasts
- LEDs
- Outdoor and Landscape
- Software
- Specialty (i.e., Daylighting/Solar Control/Shading Devices)
- Task
- Theatrical
- Track

Deadline: Feb. 19, 2010

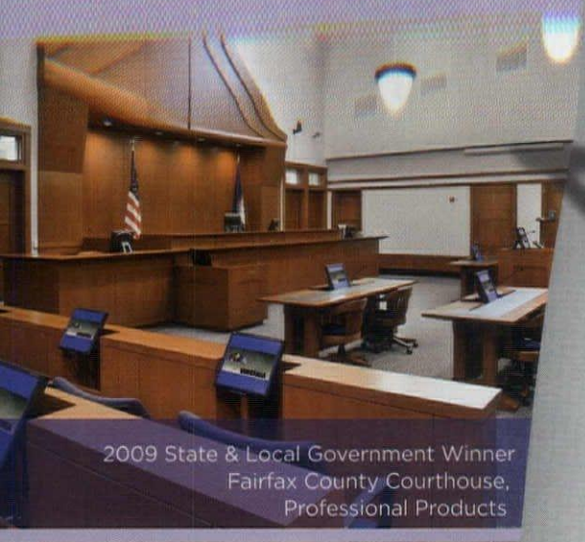
Please send materials to:
Elizabeth Donoff, Editor
Architectural Lighting
Hanley Wood
One Thomas Circle NW, Suite 600
Washington, DC 20005
edonoff@hanleywood.com

Product submissions must include the following:
- Submitter's contact information
- Product information sheet
- Disc with images in correct format
- Color printout of images

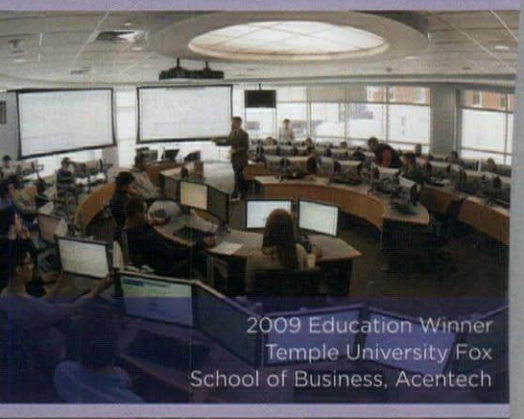
Please note: If a submission is made electronically, then please contact Elizabeth Donoff.

Material Submission Requirements: All artwork must be 300 dpi and at least 4" x 6" or the closest approximation. Appropriate file types are TIFF, EPS, or PSD, and should be formatted for a Mac. There should be no text on the images; that information should be included in the printout. Please label the digital images using the following format: "Manufacturer_Product Name."

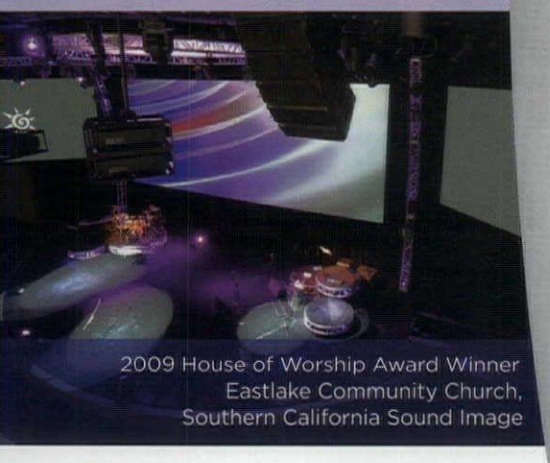
- Include the submitter's name, address, phone number, and e-mail address on the color printout. Also label the printout using the naming format above.
- Color printout of digital image(s).
- Printout of product description.
- Include a press release with information about the product(s), as well as a technical spec sheet with product details. Also include the submitter's name, address, phone number, and e-mail address on the product information page.



2009 State & Local Government Winner
Fairfax County Courthouse,
Professional Products



2009 Education Winner
Temple University Fox
School of Business, Acentech



2009 House of Worship Award Winner
Eastlake Community Church,
Southern California Sound Image

Brought to you in partnership by:

ProAV infoComm INTERNATIONAL

The 3rd Annual ProAV SPOTLIGHT AWARDS

Honoring Excellence in Professional Audiovisual Installations

Call For Entries

Entry Deadline March 1, 2010

Pro AV and **InfoComm International** invite you to earn recognition for your company and get noticed by AV pros and architects by entering the 2010 Pro AV Spotlight Awards. The awards recognize outstanding design, installation, and collaboration in commercial, corporate, education, residential, and other AV applications.

Winning projects will be recognized during InfoComm 2010 in Las Vegas, presented in Pro AV, ARCHITECT, and ARCHITECTURAL LIGHTING magazines, and featured online in a new virtual tradeshow presentation.

Judges will seek winning projects—small and large—in the following categories.

- Corporate
- Education
- Entertainment/Arts
- Government
- Health Care
- Hospitality/Restaurant/Casino
- House of Worship
- Museum
- Residential (new in 2010!)
- Retail

Details

Entry Deadline: March 1, 2010
To Register: proavawards.com
Questions: proavawards@hanleywood.com

Visit **proavawards.com** for complete entry requirements, including entry fees and judging criteria.

Enter Today! PROAVAWARDS.COM

Congratulations to the 2009 WINNERS

To see the 2009 winners online:
proavmagazine.com/Spotlights2009

Audio Video Systems
Acentech Inc.
Design and Production
IGI
Niles Creative Group
Premier Network Solutions
Professional Products
Shen Milsom & Wilke
Southern California Sound Image
United Visual
Veneklasen Associates
Visual Acuity
Wrightson, Johnson, Haddon & Williams
Xerox Audio Visual Solutions

185 Post Street

LIGHTING UNITES TWO FAÇADES FOR AN INTEGRATED APPROACH

Project 185 Post Street, San Francisco **Architect** Brand + Allen, San Francisco **Lighting Designer** Revolver Design, Berkeley, Calif. **Project Size** 26,200 square feet **Project Cost** $7.9 million

Wrapped in a curtain wall of fritted glass panels, the new façade of 185 Post Street in San Francisco responds to the time of day. By day (left), the façade appears opaque, and the window frames create a strong elevational presence. At night (right), the building takes on a completely different character, becoming a glowing beacon capped with a illuminated parapet.

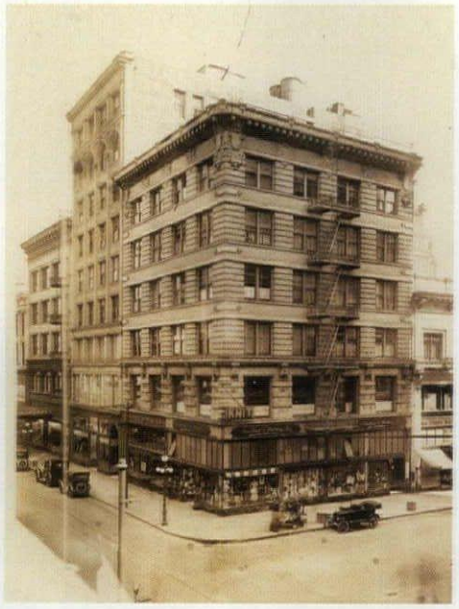
Located at the southeast corner of Post Street and Grant Avenue in San Francisco, in the Kearny-Market-Mason-Sutter Conservation District near Union Square, 185 Post Street, a six-floor office building with ground floor retail, offers a new take on restoration strategies. "We wanted to look at the history of the building," says project architect Koonshing Wong, "but offer a contrasting viewpoint and represent a building of today."

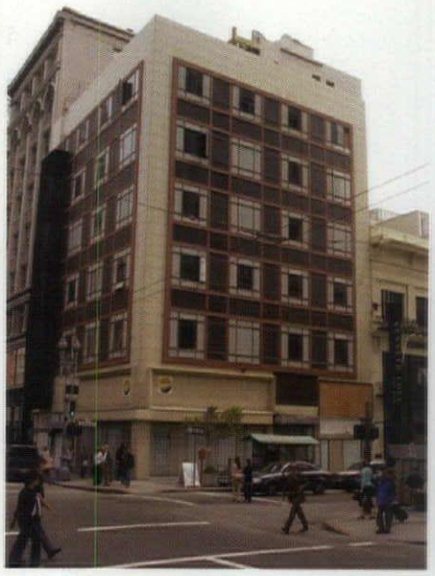
The original 1908 building, an unreinforced masonry structure, suffered many changes through the years, but the most unfortunate adjustment was a 1951 effort to re-clad it. Brand + Allen's new solution—a core and shell modernization—called for preserving the 1908 masonry façade, removing the 1950s cladding, and enveloping the building with a new glass curtain wall. The building rehabilitation also involved the installation of a new centralized mechanical system, vertical circulation, and a seismic retrofit to bring the building up to current code standards.

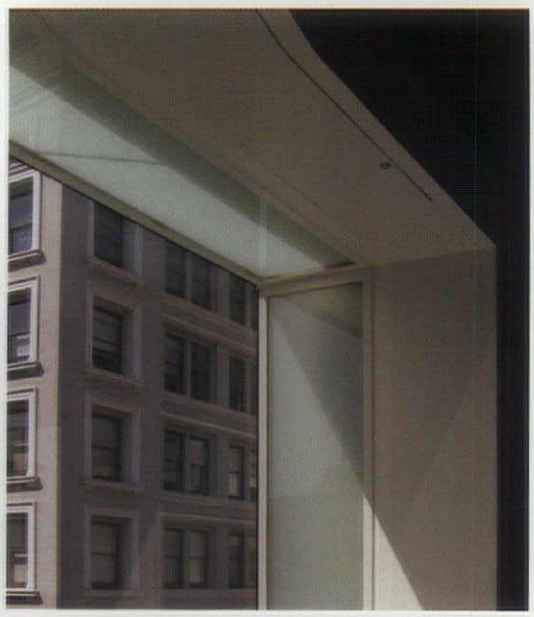
Lighting plays a central role in the building's new façade. The transparency level of the curtain wall's fritted glass panels changes with the light, and the building assumes different personalities as the new façade gradually reveals more of the historic structure underneath throughout the day. The curtain wall is set 9 inches from the original masonry, which creates a cavity for airflow, thermal movement, and a location to recess the linear fluorescent lamps that illuminate the façade and horizontal edges of the new window frames.

The idea to shroud the existing structure with a diaphanous glass scrim allows the texture and history of the existing structure to become an integral part of the new design. "There is a synchronicity between the architecture and the lighting," says Michael Webb, lighting designer at Revolver Design. "The new design exercises simplicity, while respecting the 1908 façade." With a design solution and a lighting detail that differentiates the old from the new, 185 Post Street interacts with the city—past and present. **ELIZABETH DONOFF**

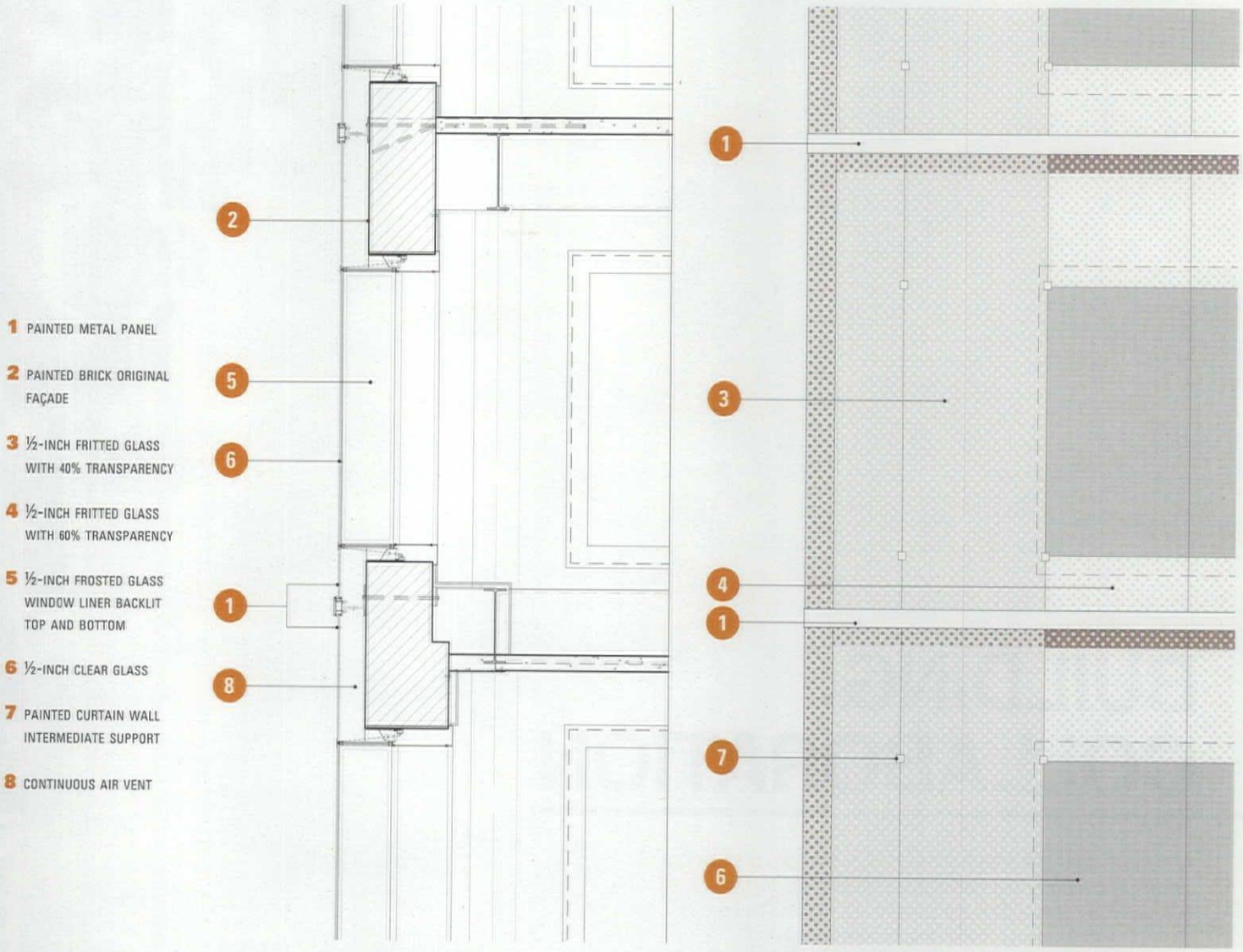
MARIKO REED







A view of 185 Post Street in 1908, with its turn-of-the-century stylings, when it was originally constructed (left). In the 1950s, the building elevation was modified with panels cladded over the original façade (center). The new façade sits 9 inches from the original 1908 structure. To accent the window openings, fluorescent lamps are recessed behind a frosted glass liner (right).



SECTION DETAIL

ELEVATION DETAIL

TOP RIGHT: MARIKO REED; DRAWINGS COURTESY OF BRAND + ALLEN

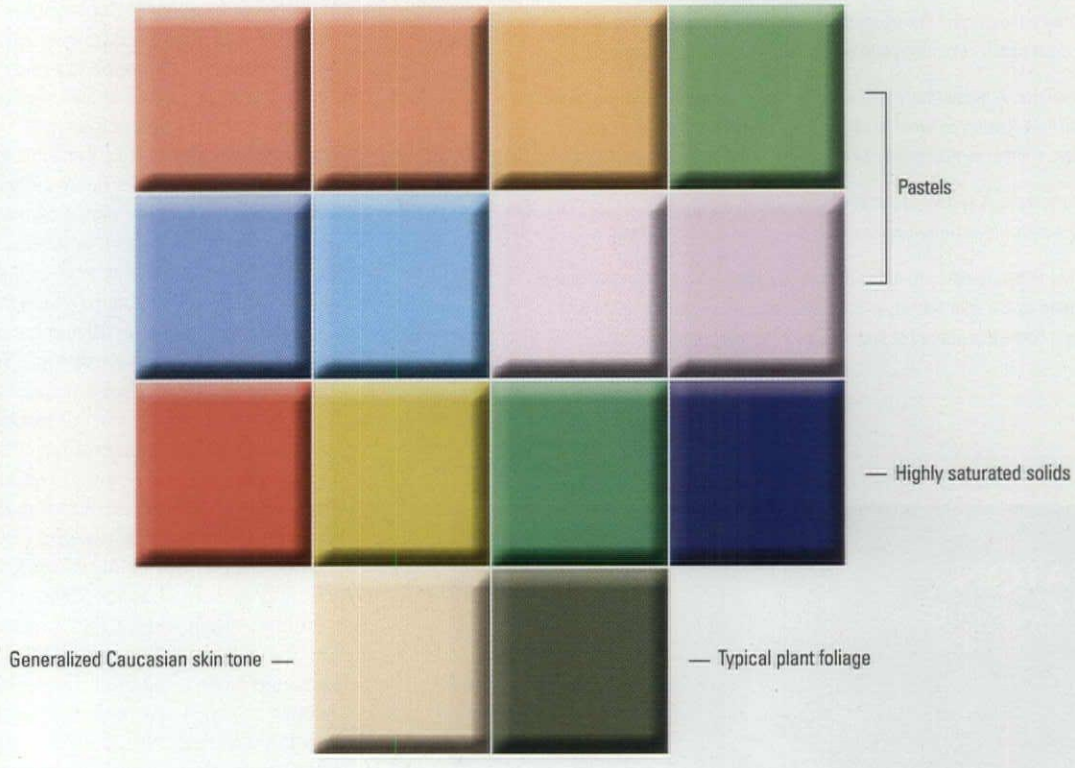
BUILDING: COLLABORATION

ARCHITECT's Web site is laying the groundwork for a premier Internet experience for practicing architects. We construct the site, you comment on the content. It's the one place online where you can meet to share work, ideas and opinions. To join in, visit **architectmagazine.com**.

The Color Rendering Debate

HOW WILL NEW LIGHT SOURCES AFFECT EXISTING COLOR METRICS?

Representative pigment color samples for determining CRI



It has long been common knowledge that no artificial light source can be properly assessed for its color performance simply by its color temperature alone. Depending on the spectral reflectance distribution (SRD) of the object or surface being illuminated, two lamps of the same color temperature may have vastly different effects on that object or surface. The challenge then is to develop a way of quantifying a lamp's ability to reproduce faithfully the colors inherent in any object.

As far back as 1931, the Commission Internationale de l'Eclairage (CIE)—an international authority on light, illumination, color, and color spaces—tried to strictly define color in scientific terms. It developed the chromaticity diagram, which became known as the universal coordinate system (UCS)—still in use today. The UCS is a means of plotting any pigment color by using the chromaticity diagram's X/Y coordinates as a function of that color's wavelength signature, something that has come to be known as spectral power distribution (SPD).

The CIE did not, however, solve the problem of color rendering. At the time, the issue was a small one. Remember, this was 1931; the lighting industry was dominated by the incandescent lamp, and color rendering had not yet been identified as an issue. The first lamp source other than incandescent, the mercury vapor lamp, was not available commercially until 1933. Fluorescent and sodium discharge lamps wouldn't follow until later that decade, and metal halide wouldn't come along until the late 1950s.

From the 1930s to the early 1960s, lamp quality improved significantly, especially in products that featured fluorescents, which, because of their lumen efficiency and reduced energy needs, became the lamp of choice for most commercial interior applications. The retail market was particularly keen to use the most energy-efficient means to light its products in an attractive manner.

Because of these new competing technologies, it became apparent to lighting designers that they needed a way to correctly quantify lamps in terms of color performance. Could every lamp be measured in a way that would be useful to designers of lighting systems? To answer that question, the color rendering index (CRI) was developed in 1964. The CIE came up with the idea of comparing each lamp to either an ideal or a natural source, depending on the color temperature of the lamp. When averaged, the shifts in the plotted points on the UCS would determine the color rendering number for that lamp.

To do this, the CIE chose 14 representative pigment color samples. The first set of eight are pastels, relatively low in chromatic saturation, evenly distributed across the range of hues, and used to calculate the general CRI number. The other six color samples are used to provide supplementary information about the color rendering properties of the light source being

GLOSSARY

Spectral power distribution: The output of a light source, characterized by its relative strength at each wavelength.

Spectral reflectance distribution: The response of an object to light, characterized by the wavelengths that it primarily reflects.

CIE chromaticity diagram: The visual spectrum bent to form a more or less triangular plane on which any color may be assigned an X/Y value. It provides a means by which color differences between sources or objects can be qualified, or by which color shifts of a single object when illuminated by different light sources can be qualified.

Correlated color temperature: The absolute temperature of a black body whose chromaticity most nearly resembles that of the light source being measured.

Black body radiator: A temperature radiator of uniform temperature whose radiant exitance (total light leaving an area) in all parts of the spectrum is the maximum obtainable from another temperature radiator at the same temperature.

Munsell color system: A system of surface-color specification based on perceptually uniform color scales of the three color variables: hue, value, and chroma.

Color rendering index: A measure of the degree of color shift that objects undergo when illuminated by the light source as compared with those same objects when illuminated by a reference source of comparable color temperature.

tested. Of those six, four are highly saturated solids, and the other two are meant to represent a generalized Caucasian skin tone and the color of typical plant foliage.

Each lamp source being tested is matched to the output of a black body radiator (the standardized reference light source that can serve as a basis for lamp rating) of the same correlated color temperature (CCT), as long as that CCT is 5000K or lower. Above 5000K, the reference source is one in a series of daylight spectral energy distributions. Once plotted, the lamp is assigned a number from one to 100 on the CRI. Halogen incandescent is the only lamp source to achieve a rating of 100 since it is essentially a black body radiator. A rating of 80 or above is generally acceptable for commercial interior applications.

But it is now being argued, particularly by the LED community, that a high CRI does not necessarily imply good rendering. This is because the lamp being tested may have an imbalanced SPD, such as fluorescents and "white" LEDs, or it could have an extreme CCT (below 1360K or above 5000K). LED manufacturers also feel that for some lamps the eight basic color samples used to determine a general CRI number are not enough to truly represent the optimal emission spectra. Some lamp sources are capable of accurately rendering the eight colors of low saturation, yet perform poorly against the four highly saturated colors. LEDs are being touted as an example of how unfair the current system can be since they tend to perform much better when the four saturated colors are included in the test.

For that reason, manufacturers of LEDs and luminaires incorporating LEDs have been calling for a way to refine how color quality is defined. Since 2006, the National Institute of Standards and Technology (NIST) has been developing a new metric, the color quality scale (CQS), that determines color performance using a method different from the CRI. When completed, the NIST will propose it as the new international standard. A different color space is used, and a new set of 15 reflective color samples, highly saturated and taken from the Munsell color system, replaces the 14 CRI samples and defines the difference between the test lamp and its reference. The NIST claims this should overcome hue and saturation shifts left out of the CRI calculation. This penalizes lamps of extreme CCTs, which frequently exhibit poor color quality. In the end, what will be familiar to users of the CRI is the CQS span, which will range from zero to 100.

Clearly, much study, discussion, and testing will need to be conducted before this new methodology is embraced by the lighting community. The criticisms leveled at the CRI system certainly are valid ones: it's old and was developed before many of the more sophisticated lamp sources came on the market. But for many in the lighting community, the CRI is still a useful tool, easy to understand and utilize. So will the CQS go too far and become a system that favors itself in its attempt to level the playing field for LED lamps? Interesting months lie ahead while we grapple with this issue. Let the debates begin! **JEFF ROBBINS**

Jeff Robbins is a commercial lighting specialist at the Lighting Design Lab in Seattle. He is lighting certified (LC), and serves as co-chairman of the NCQLP testing subcommittee. He also is the education chairman for the western district of the IES.

A|L 2010 LIGHT & ARCHITECTURE design awards

CALL FOR ENTRIES

DEADLINES:

MAY 21, 2010 (REGULAR)
JUNE 4, 2010 (LATE)

ARCHITECTURAL LIGHTING announces the **SEVENTH ANNUAL A|L LIGHT & ARCHITECTURE DESIGN AWARDS**, honoring outstanding and innovative projects in the field of architectural lighting design. Projects are reviewed and selected by a jury of lighting and architectural professionals.

CATEGORIES:

Residential, Interior, Exterior, Whole Building Projects, and, new for 2010, Exhibit Lighting.
Projects submitted in a main category can also be submitted for consideration in special citation categories: **Best Use of Color; Best Incorporation of Daylight; and Best Lighting Design on a Budget.**

FEES:

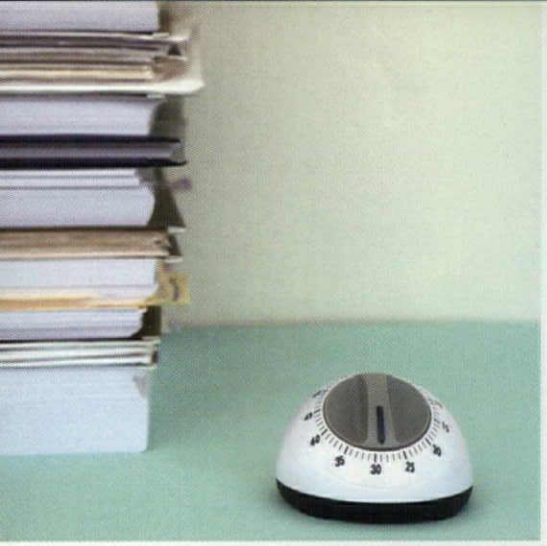
First Entry: $135
Second and all subsequent entries, including special citation entries: $95
Late Fee: $30 (per each late entry submission)

ELIGIBILITY:

Design professionals practicing worldwide may enter one or more projects in multiple categories. Submissions are encouraged from all design professionals—architects, lighting designers, illuminating engineers, interior designers, and landscape architects. Projects must have been completed after July 2008.

Winning projects will be published in the July/August 2010 issue and featured on archlighting.com.

Full details are available at archlighting.com.



Earn **FREE** AIA Credits Online—Anytime!

For a complete list of available courses and access to FREE online exams, visit architectCES.com.

ARCHITECTCES

Hanley Wood University #1 Provider of AIA-Accredited Courses

Our continuing education program provides architects FREE access to print and online courses and exams to help them meet the AIA's annual 18-credit continuing education requirements.

Courses are accessible anytime and anywhere on a centralized continuing education portal—**architectCES.com.**

Visit architectCES.com today and see how easy earning your AIA credits can be!

- FREE online courses and tests
- Immediate feedback and results
- Multimedia course format
- Start, stop and resume anytime

Questions? Contact Lisa Pierce at lpierce@architectces.com

hanley▲wood UNIVERSITY
where construction meets education & training

CONTINUING EDUCATION AIA

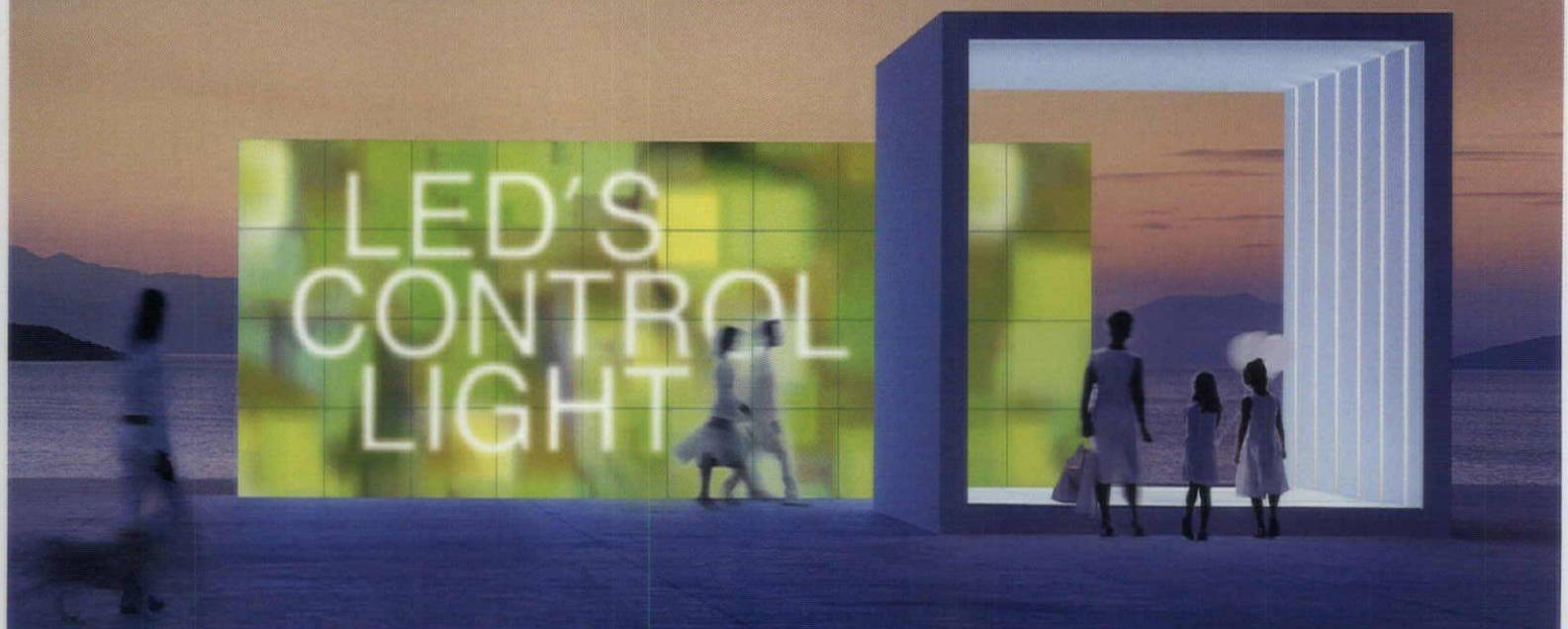
Hanley Wood University hosts courses from:

Advanced Building Products
Aquatic
CertainTeed
Delta Faucents
Eagle Windows and Doors
Eldorado Stone
Feeney Architectural Products
Fypon
greenscreen
James Hardie
JELD-WEN, Inc.
Knauf
Kolbe Windows & Doors
Lasco Bathware
Leviton
LG
LYON
Major Industries
Marble Institute of America
MFMA
Milesone AV Technologies
MonierLifetile
MTI Whirlpools
NCFI Polyurethanes
Nichiha USA, Inc.
PEERLESS
Pella
Poggenphol
PPG Industries
Propane Education and Research Council
Rheem Water Heating
S-5!
Se'Lux
Sherwin-Williams
Temple-Inland
Trespa
USG
VT Industries
Weather Shield Windows and Doors
White River Hardwoods
Woodharbor Doors & Cabinetry
WR Meadows

SLOTLIGHT LED GENIUS™ ENGINE

The classic SLOTLIGHT benefits – a sleek, sophisticated aesthetic; uniform, uninterrupted lines of light, and an array of options – with the latest in energy-efficient LED technology.

HUMANERGY BALANCE – lighting solutions for the balance among the environment, energy, and the individual.



Gemeindezentrum Oberalm, Austria

More light. Less wattage.

Superior glare control, without dark spots or LED images.

Consistent performance, output, and color temperature over time, and from luminaire to luminaire.

Complete Zumtobel system: GENIUS™ LED engine, ATM™ thermal management, and SMOOTH™ optic.

Five year system warranty.

www.zumtobel-LED.com

ZUMTOBEL

Circle no. 211 or http://archlighting.com/productinfo

DETAILS

Project The Neues Museum, Berlin
Client The Prussian Cultural Heritage Foundation, Berlin
Architect David Chipperfield Architects, London and Berlin
Restoration Architect Julian Harrap Architects, London
Lighting Designer Kardorff Ingenieure Lichtplanung, Berlin
Project Size 19,600 square meters (total); 8,550 square meters (exhibition area)
Project Cost 200 million euros
Watts Per Square Meter 20
Photographers Achim Kleuker, Kardorff Ingenieure, and Linus Lintner

Classical Revival

A MASTERFUL RESTORATION OF THE NEUES MUSEUM DEFIES CATEGORIZATION, CREATING A LUMINOUS ARCHITECTURE

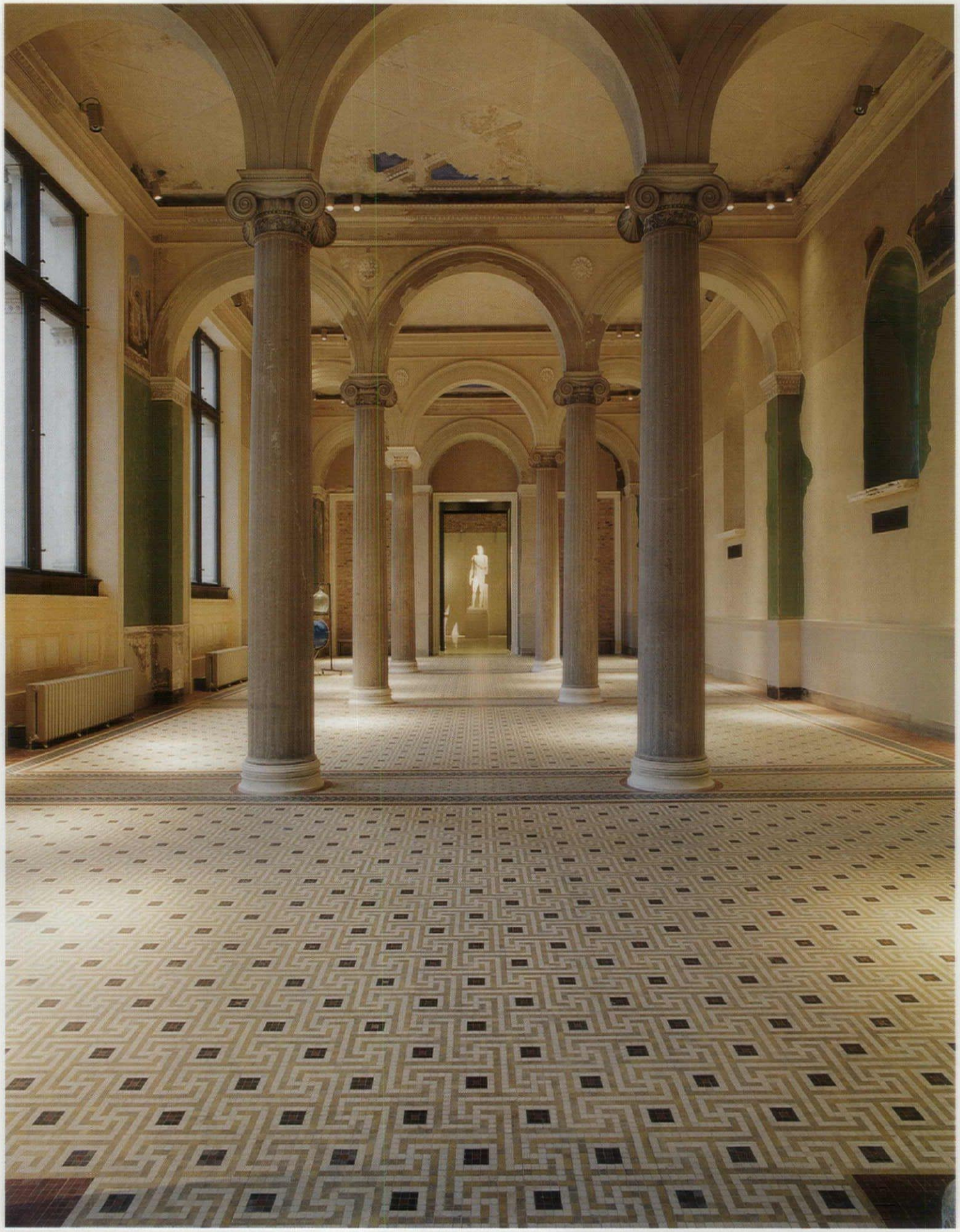
To say that Berlin is a city with a complex history is an understatement. The past is a reality that Berlin—and Germany—lives with every day, as its citizens reconcile past with the present, fighting to shed the physical and physiological scars of World War II and the Cold War. Now, two decades after reunification, Berlin is re-emerging as an artistic and cultural capital, once again taking its place on the world stage. Contributing to this renewal is the re-opening of the Neues Museum, which occurred Oct. 16, 2009.

The Neues Museum's epic story—its grand design in the mid 1800s; its near-demolition as a result of heavy Allied bombing during World War II; its abandonment and decay during the Cold War; and its recent rebirth—embodies in a most singular fashion the trajectory that city and country have taken in coming to terms with the past and moving toward the future.

The new Neues Museum, as conceived by David Chipperfield Architects in collaboration with conservation architect Julian Harrap, is a project that defies description: part restoration, part renovation, part intervention. It is a work of great complexity, achieving much through addition, and even more through restraint. What has been created is nothing short of a masterpiece.

A lack of funds prevented the East German government from restoring the building, and it was not until reunification in 1989 that the task could be seriously considered. An international competition was held in 1994. Italian architect Giorgio Grassi was chosen as the winner and Chipperfield as the runner-up. But the complex politics surrounding the project—so closely linked with the national identity—stalled the selection process, and a second competition, open to the five finalists from the first go-round, was held in 1997. This time the winning proposal was Chipperfield and Harrap's.

The project took nearly 10 years to complete. Chipperfield and Harrap,



LINUS LINTER FOR KARDORFF INGENIEURE

along with a long list of consultants, have masterfully stitched old and new together, creating something completely unique while respecting the original architecture. The project rigorously follows UNESCO's 1964 International Charter for the Conservation and Restoration of Monuments and Sites, known as the Venice Charter, which requires a structure that is stable to be maintained. Parts that are not stable need to be replaced with work that is expressed as a clear addition. Over the course of the Neues Museum's rehabilitation, the site became a working laboratory for restoration methods, and many of the techniques employed, such as the infill of crumbled masonry, are completely new.

The Neues Museum is the second of five museums built on an island in the Spree River, which runs through the center of Berlin. Called Museum Island, the complex was conceived by Frederick William IV of Prussia as a "sanctuary for art and science." The first museum on the site—the Altes Museum (1824–1830)—was designed by the great neo-classicist Karl Friedrich Schinkel. That was followed by the Neues Museum (1843–1855) designed by Friedrich August Stüler, Schinkel's student and architectural heir. Next to be constructed were Johann Heinrich Strack's Alte Nationalgalerie (1867–1876), and the Bode Museum, designed by Ernst von Ihne and completed in 1904. The last museum to be built as part of the complex was the Pergamon Museum, begun by Alfred Messel in 1910 and completed by Ludwig Hoffman in 1930. In 1999, Museum Island was designated a UNESCO World Heritage site, and the long process of rehabilitating all five museums began.

A LIGHTING DESIGN STRATEGY

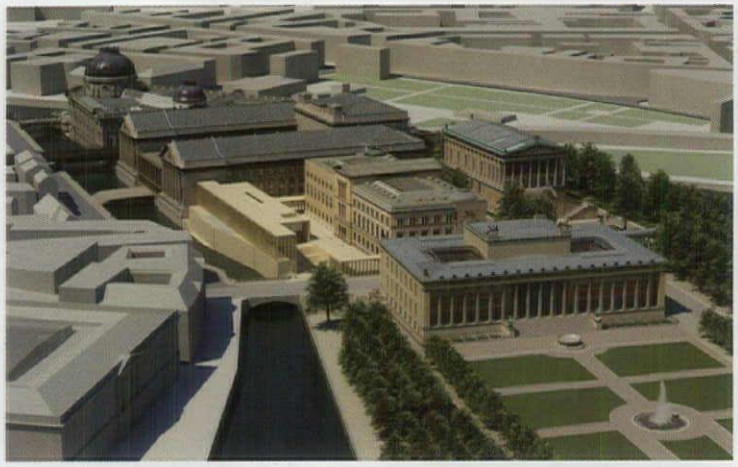
When David Chipperfield Architects received the Neues Museum commission, the office was relatively unknown outside of the United Kingdom. The project's lighting designer, Berlin-based Kardorff Ingenieure, was also just coming into their own. Despite the daunting prospect of working on such a large and historically significant project, The Neues Museum was a chance for all the team members to further establish themselves.

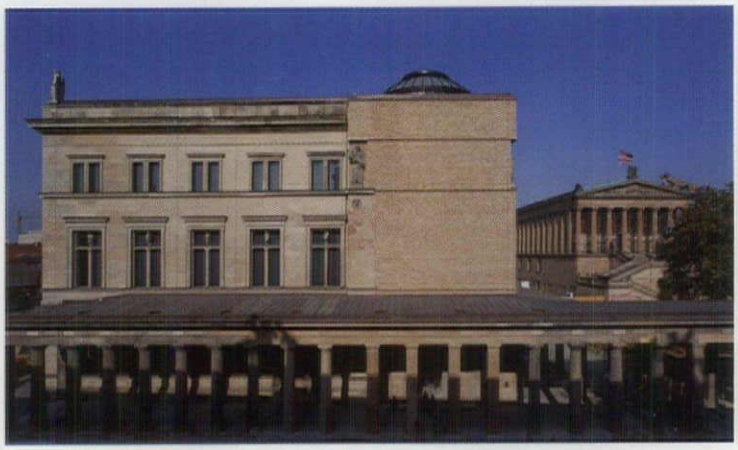
From the outset, the Kardorff design team, following Chipperfield and Harrap's lead, believed that the building's history should be visible. As lighting designers, the Kardorffs (the husband and wife team of Gabriele and Volker von Kardorff) took their cues from Stüler's design. The museum originally was open only during the day and relied heavily on natural light via large windows and courtyards with glass roofs. "When Stüler designed the Neues Museum he had no means of electric lighting," Volker von Kardorff explains.

The Kardorff team began by conducting a thorough analysis of the building and by building a 3D model and walkthrough film that would enable them, the architects, and the museum clients to "see" the effects of natural light on the building at different times of the day and year. The 3D model also would aid the designers in determining how to reconstruct the entire northwest and southeast sections of the museum, which had been devastated by wartime bombing and left completely exposed to the elements in the ensuing years.

The daylighting studies led the Kardorffs to develop a series of universal sun-shading and glare-control strategies for use in all of the museum's 50-plus galleries, while still responding to the specific needs of each space and of the artifacts on display. (The museum reunites two collections: Egyptian and Early History.) "We wanted to create a lighting scheme that would complement the daylight entering the museum as well as enhance the readability of the art work," says Gabriele von Kardorff.

One of the first spaces they considered was the 100-foot-tall Stair Hall. Once an elaborately frescoed, rectangular space with 20-foot-tall windows, the hall had been reduced to a shell. Chipperfield reconstructed the stairs out of polished and sandblasted concrete, outfitted the hall with a new ceiling, and exposed the surviving brick walls to reveal new sections of masonry infill. To complement and balance the daylight from the trio of windows at either end of the space, Kardorff Ingenieure installed electric lighting in the coffers of the oak ceiling, the only available location since the walls were meant to stay free of any kind of fittings. Only the display of several frieze reliefs is permitted. A motorized lift allows access for maintenance and relamping.



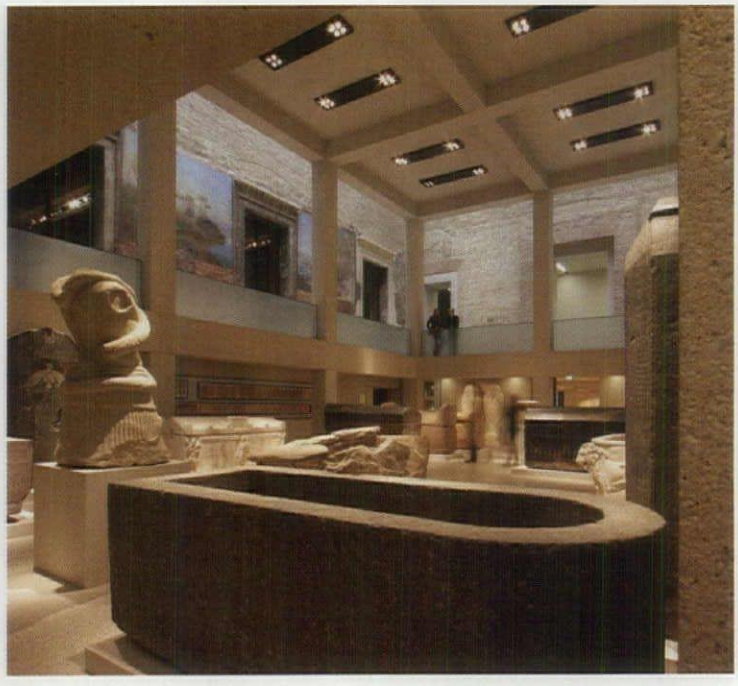


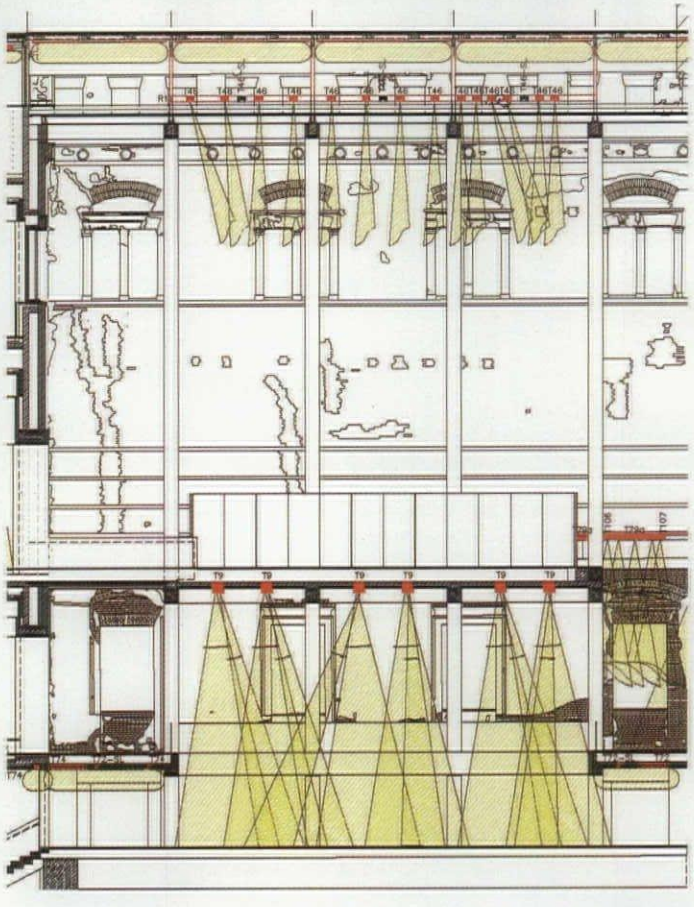
The Neues Museum is one of five museums located on an island in the Spree River, which runs through the center of Berlin (top). The building suffered heavy bomb damage during World War II and subsequently was left abandoned to the elements. This necessitated a complex restoration of the museum's entrance façade (middle) and a complete rebuilding of the structure's southwest corner (above).

Hoping to avoid light scalloping on the exposed brick walls, the Kardorffs worked through 12 light simulations to determine the right layout for the fixtures, and they designed a square luminaire with two to four 35W metal halide lamps and a bronze finish that matches Chipperfield's material palette.

The architects developed new restoration techniques for the fragments of frescoes in the original galleries. Sympathetic lighting is used in one of the domed galleries (above), where tracklighting is positioned unobtrusively between columns. In the Stair Hall (below left and right), the brick walls are left exposed to reveal sections of new masonry infill, a new polished concrete stair rises in place of the original, and electric lighting positioned in the trusses of the new oak ceiling supplements natural light from windows at either end of the space.

TOP: LINUS LINTER FOR KARDORFF INGENIEURE; BOTTOM LEFT AND RIGHT: © STAATLICHE MUSEEN ZU BERLIN, PHOTO: ACHIM KLUEKER





Custom-designed luminaires for the Stair Hall (above) are accessed by a remote lift for relamping. A double-layered skylight offers the principal illumination for the Egyptian Courtyard, which houses galleries on three levels, as seen in section (right). The courtyard's lower level (top right) houses a magnificent collection of sarcophagi.

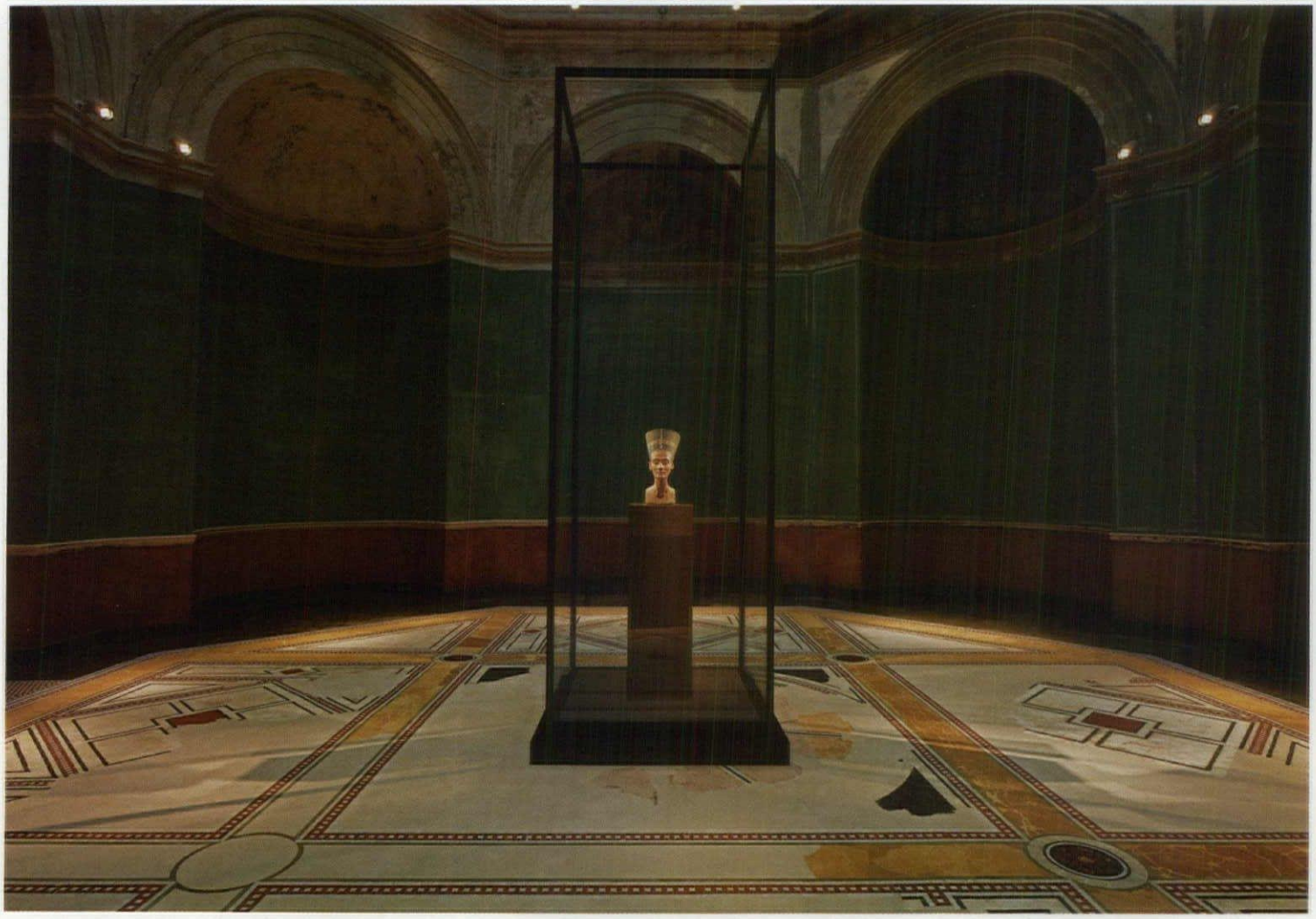
On the windows in the Stair Hall and throughout the museum, dark gray colored shades with a perforation pattern protect the interiors from glare and direct sunlight, reducing light transmittance by 4 percent. Again, elaborate studies taking two years to complete revealed the right balance of color to fabric weave density that would maintain a visual connection with the outside, but modulate the light according to conservation requirements.

SITE SPECIFIC SOLUTIONS

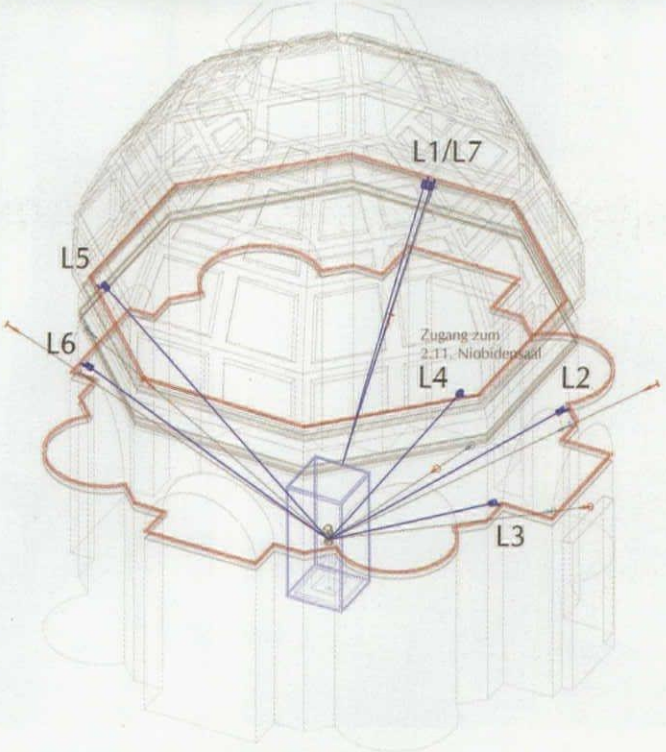
In addition to the Stair Hall, two of the museum's other grand spaces are the Greek and Egyptian courtyards. Kardorff Ingenieure's approach to both builds on the original daylighting strategies from Stüler's period and moves them into the 21st century. A clear glass roof encloses the Greek Courtyard, admitting direct sunlight into the space without any shading device. This scenario is permissible given the durability of the art on display—sculptures, statues, bas-reliefs, and a cornice frieze depicting the destruction of Pompeii. To balance the natural light but also enhance the readability of sculptural details, the Kardorffs mounted projectors using 150W metal halide lamps between the two layers of the glass roof. A shutter attached to the luminaires, explains Gabriele von Kardorff, allows important features on the bas reliefs to be highlighted without creating hard shadows and hot spots on the walls.

The lighting designers took a different approach for the Egyptian Courtyard, which houses galleries on three different levels. The Kardorffs still used a double-layer glass system, but here diffuse light illuminates the uppermost gallery, a freestanding platform whose new columns are aligned to the sun. The lighting designers conducted a series of mock-ups at the Pergamon Museum next door to test different types of glass, the spacing between the two layers of glass, and the positioning of spotlights within the glass roof assembly. Ultimately, the Kardorffs selected a diffuse glass with a light transmittance of 71 percent for the visible layer and a clear glass for the second, outer layer. Custom-designed floodlights with 150W halogen lamps

TOP LEFT: LINUS LINTER FOR KARDORFF INGENIEURE; TOP AND BOTTOM RIGHT: KARDORFF INGENIEURE



The bust of Nefertiti is one of the jewels of the Neues Museum's collection. The lighting designers could not install fixtures on the ceiling of the gallery where the bust is displayed, so they devised a track system positioned in the existing cornice line (above). Nefertiti comes to life thanks to four halogen spotlights and a spotlight aimed on the pupil of her eye (right).



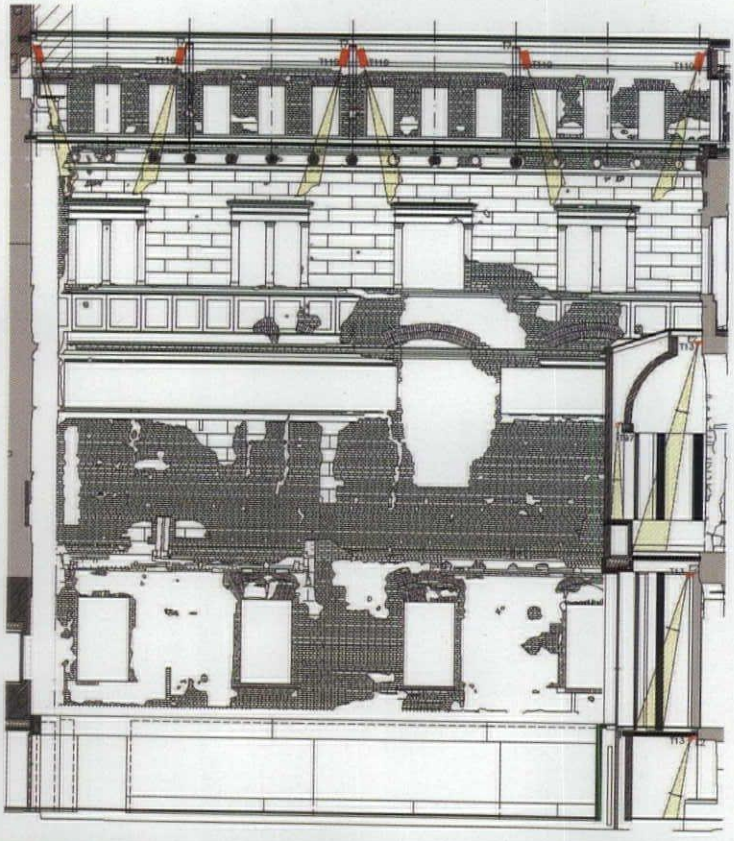
positioned 16 inches from the glass add the necessary illumination balance. The floodlights are spaced on four tracks. The fixtures on the two outer tracks are positioned at a 15-degree angle to illuminate objects from the Egyptian collection and fragments of landscape frescoes that remain on the gallery walls of the level below.

The various galleries presented different challenges and therefore afforded different solutions. For example, in the new galleries in the northwest wing, the pre-cast ceiling enabled the lighting designers to fully integrate a custom luminaire with both general and emergency egress lighting features. In the surviving original galleries with domed ceilings, which could not be touched without damaging the remnants of painted surfaces, the best solution wound up being a track system fit in between the columns. Overall the project has 3,000 luminaires and 100 special fittings. "The design of the fittings is technically driven without any decorative attitude," says Gabriele von Kardorff. "Where luminaries were applied in new ceilings, they are integrated into the structure. In many cases, the fittings comprise other technical devices such as loudspeakers."

Throughout the galleries, both the general and exhibition lighting responds to the particular conservation issues of the artwork on display. To deal with these disparate conditions in the first floor rooms, the Kardorff team

Diffuse light illuminates the upper gallery—a freestanding platform—of the Egyptian Courtyard (above). The skylight in the courtyard is composed of two layers of glass: a diffuse glass with a light transmittance of 71 percent for the visible layer and a clear glass layer beyond (facing page bottom). In a gallery off the main entrance (below left), Egyptian artifacts are displayed in cases, but the real highlight is the elaborately hieroglyphic painted ceiling. In one of the second floor galleries (below right) tracklighting positioned in the window frames provides ambient illumination.

ALL IMAGES THIS PAGE: © STAATLICHE MUSEEN ZU BERLIN, PHOTO: ACHIM KLUEKER



ALL IMAGES THIS PAGE: KARDORFF INGENIEURE

A clear glass skylight (center) allows natural light into the Greek Courtyard to illuminate the sculptures, statues, and bas-reliefs, and the cornice frieze along the walls. As evident in a section through the courtyard (top), projectors outfitted with 150W metal halide lamps enhance the readability of the frieze's details.

developed an uplight that casts light on the ceiling but not on the sensitive historic murals and other painted surfaces. Three types of light sources are used in the galleries: 35W and 50W tungsten halogen spotlights with 6- and 26-degree beam spreads; QR111 35W and 50W lamps with 4- and 8-degree beam spreads; and 50W to 65W IRC lamps with an 8- to 24-degree beam spread. For general lighting, fluorescent and metal halide sources are used.

In the few instances where exhibit lighting could not be incorporated into the architecture, curators can turn to specially designed cases with fiber optic lighting employing 150W 3000K lamps. All of the lighting choices had to be energy efficient to comply with code. The designers further were limited in what types of lamps they could use in order to maintain a comfortable temperature in the galleries—for people and the art. Overall, considering the energy used to maintain all the building systems, the lighting load could not exceed 20W per square meter.

FINISHING TOUCHES

One of the prize possessions of the Neues Museum collection is the famous bust of Nefertiti. According to Gabriele von Kardorff, it was lit very well while being displayed at the Altes Museum, during the Neues Museum renovation. To plan for the lighting in its new home, Gabriele von Kardorff documented the locations and angles of all the luminaires of the Altes Museum installation. The positions of fixtures for the Neues Museum installation had to be perfect. Once again the designers couldn't touch anything on the ceiling, so they developed a track system that rings the gallery and is located in the existing cornice line. To bring the statue to life required five different spotlights: four 50W halogen sources with a 4-degree beam spread—two on the bust's backside, one on its right side, one on the front—and one source directly on the pupil of her eye. Ms. Kardorff tested the layout on a replica until the original was set in place, only two weeks before the official museum opening.

The project was set on an incredible pace. So important was this rehabilitation, the museum opened to the public in March 2009, while still empty of art. The exhibits began arriving in April, and their installation continued until the day before the official opening in October. The Kardorff team worked around the clock in two shifts to focus the lighting as exhibits were installed. Everything had to be perfect, as there would be no chance to go back after the opening and make adjustments. Because the exhibit layout was not fixed until the moment of installation, the designers had to plan for every contingency, creating up to five different scenarios for each lighting situation. Fixture schedule and lamp documentation took on a heightened importance.

The outcome reflects a complete team effort. Amazingly, although more than 10 people from Kardorff Ingenieure worked on the lighting over the duration of the project, at any given time the team consisted of no more than three people. From the beginning, architect and lighting designer collaborated to create a sequence of harmonious and fluid spaces. "The architects wanted the visitor to be aware of the changing light conditions inside and out," says Volker von Kardorff. "The light is meant to be seen."

The Neues Museum offers a rigor of execution and a complexity of gallery spaces, from the grand to the intimate. As Chipperfield writes in the introductory text in the museum guide, "Where each decision, whether about repair, completion or addition, was grounded by the articulation of its physical quality and meaning, where all parts of the building attempt to inflect to a singular idea; an idea not of what is lost, but what is saved." The architectural lighting for the Neues Museum explores every possibility to add to the museumgoer's experience of the space, and the new architecture does not hide the building's scars. Rather it acknowledges them as artifacts, through sympathetic but bold gestures. The design process resulted in a new, unified whole that is greater than the sum of its fractured parts. **ELIZABETH DONOFF**

DETAILS

Project Restoration of 860-880 Lake Shore Drive, Chicago
Architect Krueck & Sexton Architects, Chicago
Lighting Designer Schuler Shook, Chicago
Historic Preservation Consultant Harboe Architects, Chicago
Photographer Mark Ballogg, Chicago (unless otherwise noted)

Lake Effect

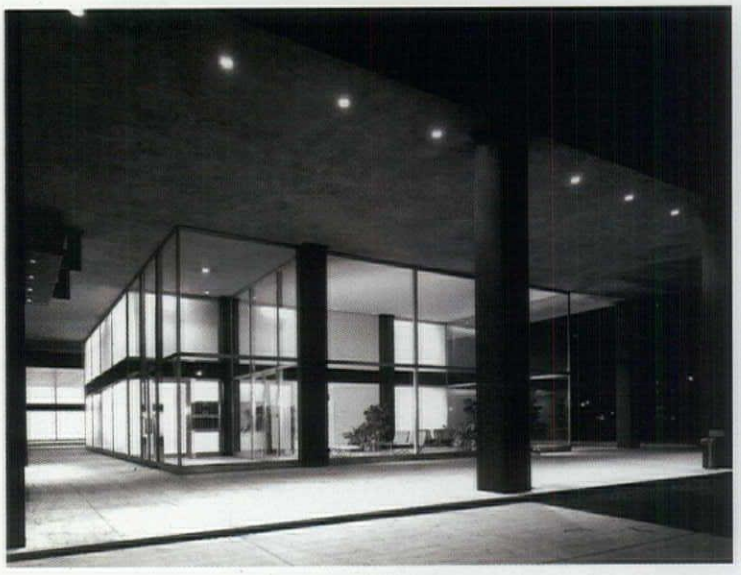
RESTORING LIGHTING DESIGNER RICHARD KELLY'S MODERNIST LEGACY

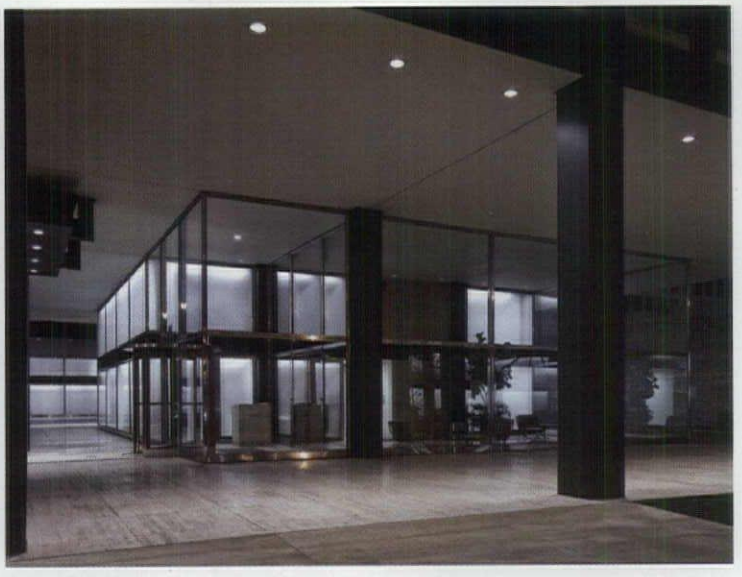
For nearly half a century, a pair of steel and glass apartment buildings at 860–880 Lake Shore Drive has towered coolly over Lake Michigan. Twin modernist masterpieces, the high-rises represent the essence of Ludwig Mies van der Rohe's vision for residential architecture—reductive boxes poised on a travertine field. During the day, their gridded simplicity offers an understated sophistication, which was inexpertly copied across the globe throughout the '50s and '60s. In photographs from that era, the two buildings take on a different character come evening. The towers fade into the skyline, and their transparent lobbies glow—stage sets for modern living.

As a Chicago registered landmark, the project has weathered changing tastes and styles, but ultimately it was weather that finally caught up with the buildings and necessitated a major restoration of their two lobbies and shared plaza in 2008. Water had undermined the lobby façades; travertine tiles were crumbling; and the downlights that ring the underside of the buildings' canopies were rusted. The residents of 860–880 Lake Shore Drive turned to a consulting team of Chicago-based architects and lighting designers to tackle the renovation: Krueck & Sexton Architects, historic preservation experts Harboe Architects, and lighting designers Schuler Shook.

Foremost in their minds was bringing back Mies' design intent. Yet research into the original building documents uncovered a less well-known mid-century figure, lighting designer Richard Kelly. Restoring the lighting meant piecing together a modernist approach to illumination. Kelly

"Less is more," discovered the design team behind the restoration of Mies van der Rohe's 860–880 Lake Shore Drive apartments in Chicago. And that included the lighting, returning to the original details of Richard Kelly's visually sophisticated lighting scheme that connects interior to exterior.





The formal composition of 860–880's pinwheel arrangement, as seen in an aerial shot from 1953 (bottom left). Kelly defined modern architectural lighting based on three principles: focal glow, ambient luminescence, and play of brilliants. With this awareness of light and how it interacts with materials, architecture is transformed and takes on a different personality at night, while contributing to the building's modern imagery, as seen in 1953 (top left). Today, despite a few modifications to the lobby of 880 (above), the iconic view remains intact and the strength of Kelly's lighting strategy clear, as layers of light define the interior and exterior lobby spaces.

graduated from the Yale School of Architecture in 1944 and went on with a select few to pioneer lighting design as a profession and to collaborate with Louis Kahn on the iconic Kimbell Art Museum, which opened in 1972. But before the Lake Shore Drive Apartments opened in 1951, Philip Johnson's Glass House, completed in 1949, was Kelly's most notable project.

"It is deceptively simple, no one really paid the lighting much attention. Kelly pushed the design further than if it was in the hands of someone less talented," says architect Rico Cedro, a former Krueck & Sexton (KS) associate principal and part of the 860–880 team along with KS associate principal Tim Tracey. "His design is allied with theatrical notions. It transforms a weightless, dematerialized architecture into a light source at night." But because lighting is easy to overlook as part of a historical design, the illumination scheme suffered from some well-intentioned changes over the years. Originally, the open downlight fixtures that ring the underside of the canopies of both buildings took 300W R40 incandescent lamps, but these had been swapped out for self-ballasted screw-in fluorescent lamps. More energy efficient, but with low-light output and no directional optics, the new lamps left the plaza and entire ground floor underlit. At some point, perhaps as a way to boost brightness, downlights were installed inside 860's lobby, leaving the towers mismatched. The team removed these errant fixtures as part of the restoration.

Replacing the canopy lights meant finding a suitable substitute—one that captured the modernist "look" and fit into the existing soffit opening, but also met weather and present-day energy and maintenance requirements. The luminaire also needed a clear glass lens and a sealed doorframe to ward off birds, who liked to roost in the old housings. The new fixture takes a 39W 3000K ceramic metal halide lamp and restores the design intent at one-eighth the energy usage of the original incandescent lamps. Using full-scale, on-site mock-ups allowed the team to test aesthetic and functional options.

Strong exterior downlights are key to Kelly's and Mies' vision. Their modernist philosophy—the visual connection inside and outside—is maintained by illuminating the plaza. Without light on the travertine pavers, the glass panes would turn from transparent to dark reflective surfaces. The directional downlights bounce light into the lobby. "The light-colored floor becomes a large diffuse light source. Since the ceiling is also light-colored, you get the inter-reflections between the floor and the plaster ceiling," explains lighting designer Jim Baney, partner at Schuler Shook. "There's a perception of light glowing all around you."

Approximating atmospherics is not without contention, especially when the residents of 860 and 880 take such pride in their historic landmark. As part of the renovation, non-original laminated glass panels were replaced with sandblasted glass, a material that the architects believed—from their renovation work of Mies' Crown Hall at the Illinois Institute of Technology—was closer to the master's specification. Kelly had designed custom asymmetric linear reflectors around T12 single-pin fluorescent lamps to backlight the glass, but building maintenance had replaced the lamps with T6s of a similar wattage and lumen output. The new glass was no match to diffuse these thinner, more intense sources that were now visible as bright strips behind the surface. Tenants complained. Since the existing reflectors designed by Kelly were in good shape and the restoration was at the end of its budget, the renovation team simply swapped the T6s back to T12s. This minimized

The lighting scheme achieves maximum effect with just two luminaires. Recessed downlights, now outfitted with 39W ceramic metal halide lamps to save energy, accent the lobby canopy, while T12 lamps in the original asymmetric linear fluorescent reflectors, designed by Kelly, backlight the glass to create a glowing effect (above). New wall-mounted steplights illuminate the garage entry ramp while, in the background, the lobbies of both buildings float like islands of light connected by the walkway plaza (left).

lamp imaging and produced a softer, more uniform distribution of light.

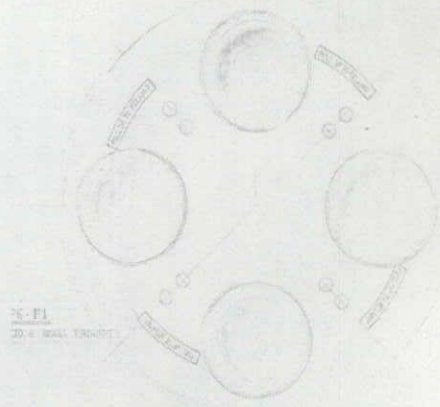
"Mies' ideas were so simple and so pure, but also rigorous. Every move reinforces itself. They have a richness to them in their simplicity, which could be a huge benefit to today's architecture," explains Tracey, whose team had to balance the building's historic character with renovation costs. The overall budget ran close to $8 million.

"Working historically involves a lot more research. We need to make sure what we do is true to the original intent," Baney says. Culling through archives and old drawings revealed that Kelly's layout has its own kind of thriftiness that mirrors Mies' well-known credo: "less is more." Kelly's lighting approach was so fully integrated into the overall original scheme, that it only took two types of strategically placed fixtures to illuminate the lobbies and surrounding plaza of 860–880 Lake Shore Drive. The buildings' elegance comes from thoughtful restraint; it's a historic lesson worth noting for the future. **MIMI ZEIGER**

Light brings to life the three-dimensional details of John Singer Sargent's impressive cycle of murals, "Triumph of Religion." It was commissioned for the Boston Public Library in 1895 when it moved to its Copley Square home—a "palace for the people"—designed by the celebrated architecture firm of McKim, Mead and White.

DETAILS

Project Renovation and relighting of the John Singer Sargent Gallery, Boston Public Library, Boston
Client The Trustees of the Public Library of the City of Boston
Architect Shepley Bulfinch Richardson and Abbott, Boston
Lighting Designer Lam Partners, Cambridge, Mass.
Photographer Ian Allen, Brooklyn, N.Y.



In A New Light

RENOVATION AND RESTORATION BRING TO LIFE JOHN SINGER SARGENT'S CENTURY-OLD MASTERPIECE

Quietly tucked away on the third floor of the Boston Public Library's main branch overlooking Copley Square in Boston's Back Bay is an artwork of great significance—a cycle of murals titled "Triumph of Religion" painted from 1895 to 1916 by American painter John Singer Sargent (1856–1925). Although perhaps best known for his society portraits, Sargent considered these murals his greatest work. Controversial in its day for its frank depiction of Judaism and Christianity and its depiction of religious subjects in a nonreligious public place, most present-day Bostonians are not aware that this masterwork is in their midst. But that is all about to change, thanks to the culmination of the restoration and relighting of the Sargent Gallery.

A 20-year process overseen by Boston-based architecture firm Shepley Bulfinch Richardson and Abbot (SBRA) along with myriad historic preservation, art, and lighting consultants, as well as lighting manufacturers specializing in restoration issues, the murals originally were commissioned when the library moved to its Copley Square location—the McKim, Mead and White–designed Italinate-style building on Boylston Street in 1895. In 2003–04, the murals underwent the final phase of an artistically significant restoration, which included the close examination of the three-dimensional relief elements. In 2005, the gallery's daylighting and electric lighting strategies were revisited.

Employing techniques innovative for his time, Sargent combined relief materials such as plaster, papier-mâché, metalwork, stencils, and patterned cutouts with jeweled glass stones and Lincrusta-Walton, a corrugated commercial wallcovering. Originally, viewing of the murals relied heavily on natural light coming through three large skylights and a few decorative sconces that were designed by Sargent for the library. "The main problem with Sargent's design was that there was simply not enough light in the space to effectively see the murals—even during the day," explains lighting designer Justin Brown, an associate at Cambridge, Mass.–based Lam Partners, who oversaw the lighting restoration strategy for the gallery.

After several previous failed attempts by the library to upgrade the lighting—politics, budget, and the difficulties of wiring the gallery with modern techniques while preserving the architectural integrity of the space were all obstacles—it was decided that a period-style custom torchière outfitted with contemporary lighting technology should be positioned in the gallery to enhance the viewing experience of the murals. Improving the lighting also would allow the library to use the gallery to its full potential by providing amplified light levels for tours and evening events such as cocktail parties and fundraisers. "It was a grand space that they couldn't really use before," Brown says. "It was important that the new lighting look like it belonged."

While Lam designed the optical portion of the torchière, the aesthetic direction came from SBRA, which created a design that is sympathetic to the context of the gallery and its turn-of-the-century style. "Conceptually, Shepley's design goal was to create a fixture that was not so much 'in' the space, as 'of' the space," explains Joseph Bille, senior associate at SBRA, who oversaw the design of the torchières. "We used the Sargent murals themselves as a guide and source of inspiration."

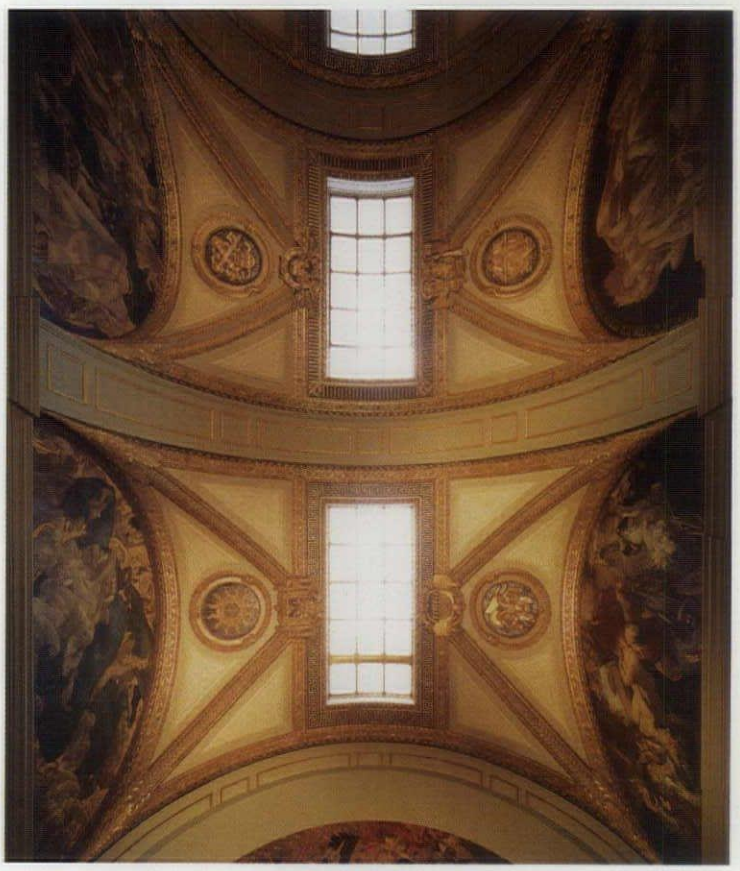
Each of the four 8-foot-tall custom torchières is constructed out of cast bronze, stone, and a large glass bowl that contains an array of four to five


THE RAVEN
IN THE
FROG POND

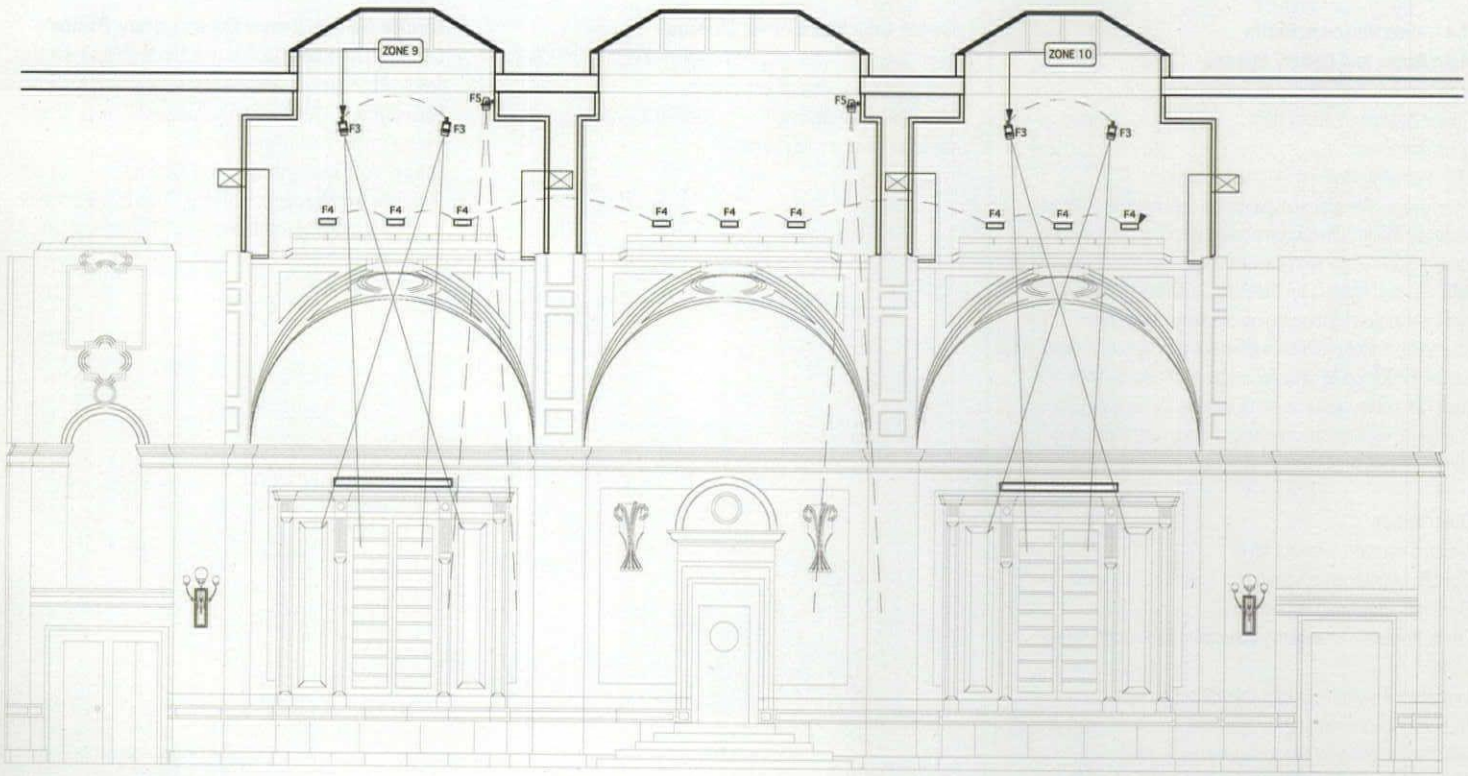
individually circuited and aimable 250W PAR38 halogen lamps (depending on the location in the gallery.) Several on-site mock-ups determined the overall height of the torchière and the size of the bowl. In addition to providing adequate lighting for viewing the artwork, the issue of conservation was a top priority for the design team. The individual fixtures within the torchières are controlled with wireless remote controls that allow tour guides to scroll through five preprogrammed lighting scenes that temporarily illuminate specific murals during the course of the guide's talk. When the tour is complete, the fixtures automatically turn off to meet conservation requirements.

"The greatest challenge," says Paul Zaferiou, principal at Lam, "was to figure out a way to cross-light the murals so there was no veiling reflection." Supplementing the new torchières is an additional layer of light provided by three different types of luminaires located in the light well above the skylights. These include 70W PAR30 metal halide fixtures with a tight spot beam to light the stairs for emergency egress, as well as 250W PAR38 halogen fixtures to illuminate the lower murals. Additionally, 70W T6 metal halide fixtures are aimed at the sidewalls of the light wells to bounce light off the surfaces and to give the illusion of more daylight.

Small in square footage but complex in scope, the project involved layering over and tying into multiple existing and poorly documented building systems. The result is a lighting strategy that successfully introduces modern technology into an architecturally significant space and provides Bostonians and visitors alike the opportunity to see the beauty of Sargent's masterpieces in a whole new light. **MEGAN CASEY**



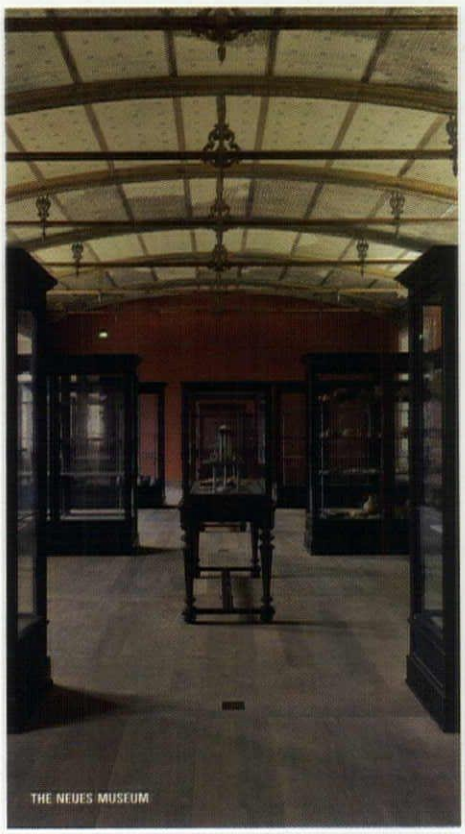
Skylights and decorative wall sconces, designed by Sargent, provide only a minimal amount of light to the gallery. To fully illuminate the murals (right), four custom torchières were designed and outfitted with concealed 250W PAR38 halogen lamps (left) along with metal halide fixtures positioned in the skylight wells, as seen in a section through the double-height space (below).

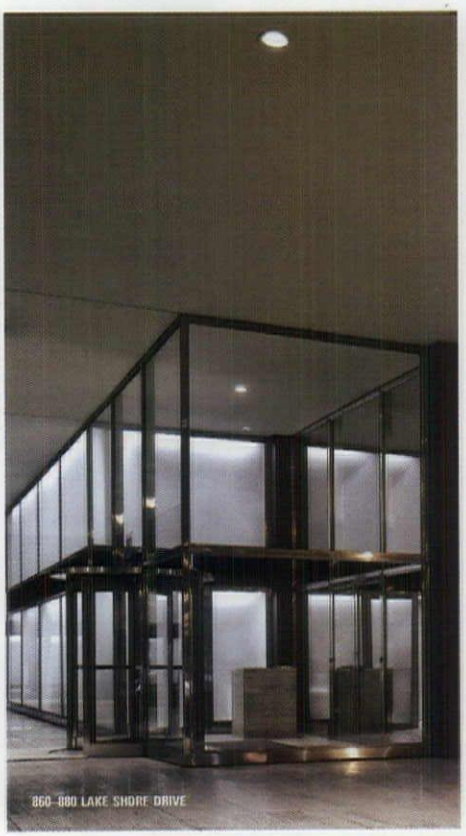


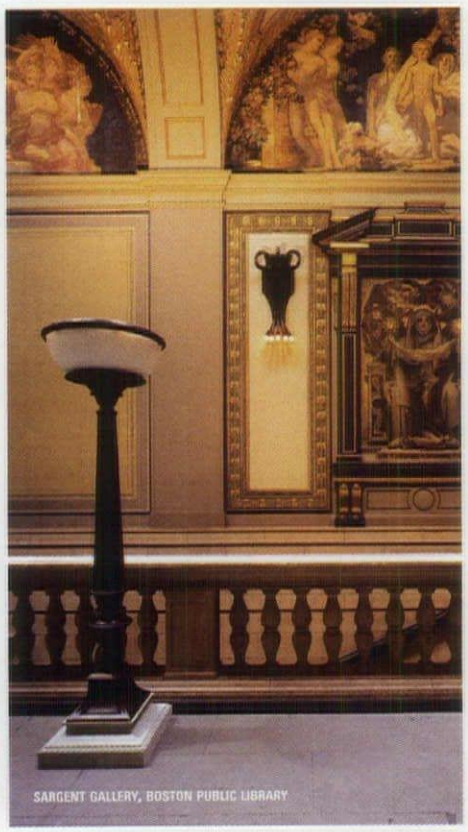
LONGITUDINAL SECTION

DRAWING COURTESY LAM PARTNERS

SPECS


THE NEUES MUSEUM


860–880 LAKE SHORE DRIVE


SARGENT GALLERY, BOSTON PUBLIC LIBRARY

The Neues Museum, Berlin
Main Areas and Gallery Spaces
Erco General and exhibition lighting throughout project including track system in historic reconstructed exhibition areas
ETC Exhibition lighting in Greek Courtyard
Interferenz General and exhibition lighting with custom designed fittings (linear component with fluorescent light) for exhibition areas with new ceilings
RSL General lighting for Stair Hall; staircase to basement level; exhibition lighting below platform of Egyptian Courtyard; motorized lifts in all areas for custom fittings
Selux Exhibition lighting for areas with new ceilings (spotlight component); security lighting for Greek Courtyard; lighting for circulation areas, restrooms, and administration area

Other Areas
Bega Stairs at basement level
Bolich Maintenance lighting for Egyptian Courtyard
Derksen Projection Hypostil
Louis Poulsen Emergency staircases and administration areas
Lumatec Emergency signs throughout project
RZB Administration area
Sill Roof lighting for North Cupola
Note: There are 3,000 luminiares in the project, 100 of which have specially designed custom fittings.

860-880 Lake Shore Drive, Chicago
Bega Recessed wall-mounted steplights with 18W 3000K lamps at parking garage entry ramp
Erco Recessed downlight with 39W 3000K ceramic metal halide lamps at canopy soffit

Sargent Gallery, Boston Public Library, Boston
Creative Light Source Four custom torchières are cast, hand-rubbed bronze, with cast glass bowl and stone bases
Edison Price PAR30 metal halide spot fixtures to light the stair from the skylight cavity
Lutron Wireless lighting control system
Pinnacle Architectural Lighting 70W T6 metal halide floodlights in the skylight cavity

LEFT: STAATLICHE MUSEEN ZU BERLIN, PHOTO: ACHIM KLEUKER; CENTER: MARK BALLOGG; RIGHT: IAN ALLEN

AD INDEX

Edwin Rambusch

REFINING DESIGN THROUGH COMMUNICATION AND CREATIVITY

As members of the fourth generation in one of the few remaining independent lighting companies, it wasn't assumed that twins Edwin and Martin Rambusch would join the family business. Their father, Viggo, asked his sons: Why do you want to work here? Their answers to that question influenced which of the company's divisions each now oversees: lighting for Edwin and crafts for Martin. Edwin's liberal arts education and his Master of Lighting from Parsons make him a skilled problem solver. Connecting with clients and attention to detail are the hallmarks of the company's working methodology, and the name Rambusch remains synonymous with experience and quality. **ELIZABETH DONOFF**

What are the challenges of working in a design-related field?
Synthesizing the experiences everyone brings. It comes down to communication. One of the few international means of communication is a drawing. A good drawing leaves nothing open for interpretation.

What represents innovation in lighting?
You have to be cognizant of what is out there; you always have to be learning and educating yourself.

Is craft in danger of disappearing?
It's in greater danger of disappearing for lack of knowledge rather than due to economic pressures. As long as there is an educated buyer or consumer, quality and craftsmanship will remain.

How do you see the economic situation impacting lighting?
We're facing the perfect storm—a triangle of energy issues, codes, and lamp technologies. How will the different entities within the industry—design, manufacturing, lamps, and sales—respond to these pressures?

Do you feel pressure to incorporate LEDs into fixtures?
Of course, but it was the same with previous technologies. My greatest fear is that metrics of quality are being lost in this drive for performance.

What makes a great lighting design?
I was lucky enough to meet the architectural critic Brendan Gill. He said, "Light is like the bagpipes. You may never have heard them in your life but when you hear them, you have an instantaneous reaction." Light should be like that—the "a-ha" moment when the space becomes alive.

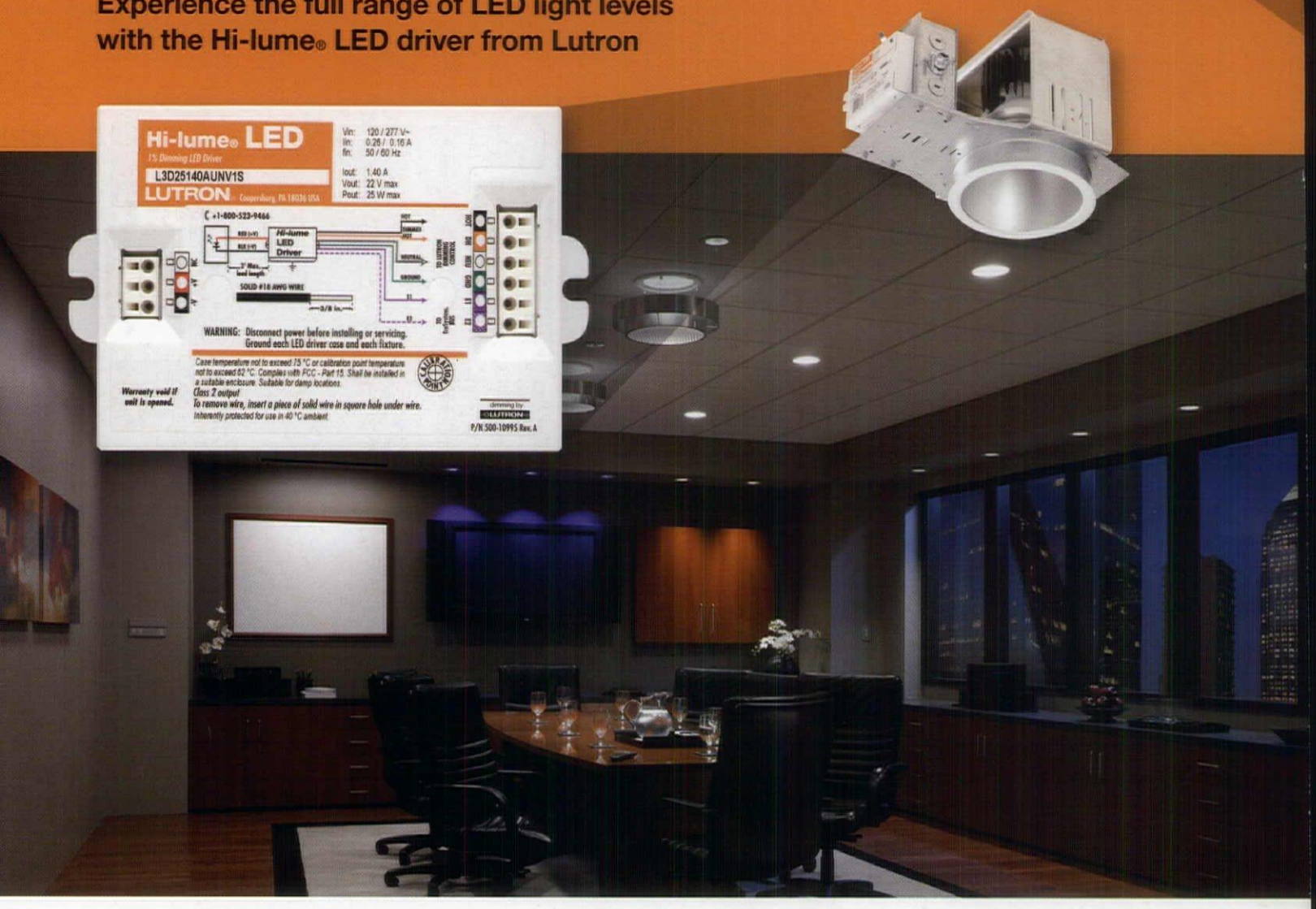
KATJA HEINEMANN


Schréder
The Right Light
ISLA
LED
The latest innovation from Schréder, ISLA features intelligent, elegant and energy efficient **LED** and **HID** lighting solutions for a wide array of applications.
The ISLA is **built** & **shipped** from our New state-of-the-art manufacturing plant in **Addison, Illinois**
Schréder
Schréder Group GI
www.schreder.us
(847) 621-5100
Circle no. 193 or http://archlighting.com/productinfo

Reliable Lutron® dimming down to 1%

NEW

Experience the full range of LED light levels with the Hi-lume® LED driver from Lutron



Superior performance
Smooth and continuous dimming to 1% of total light output enhances your space and saves energy.

Proven compatibility
The Lutron fixture qualification program ensures your fixture and our driver work together seamlessly.

Scalable intelligence
Works with Lutron EcoSystem® digital bus and 3-wire controls for a single room or an entire building.

Models available: 700mA, 1.05Amp, 1.4Amp, and 2.1Amp

For details and a list of qualified fixtures, please visit **www.lutron.com/HilumeLED**

Find the answers to all your LED control questions by calling the Lutron LED Control Center of Excellence at **1.877.DIM.LED8**

LUTRON®

save energy with Lutron™

Circle no. 37 or http://archlighting.com/productinfo