

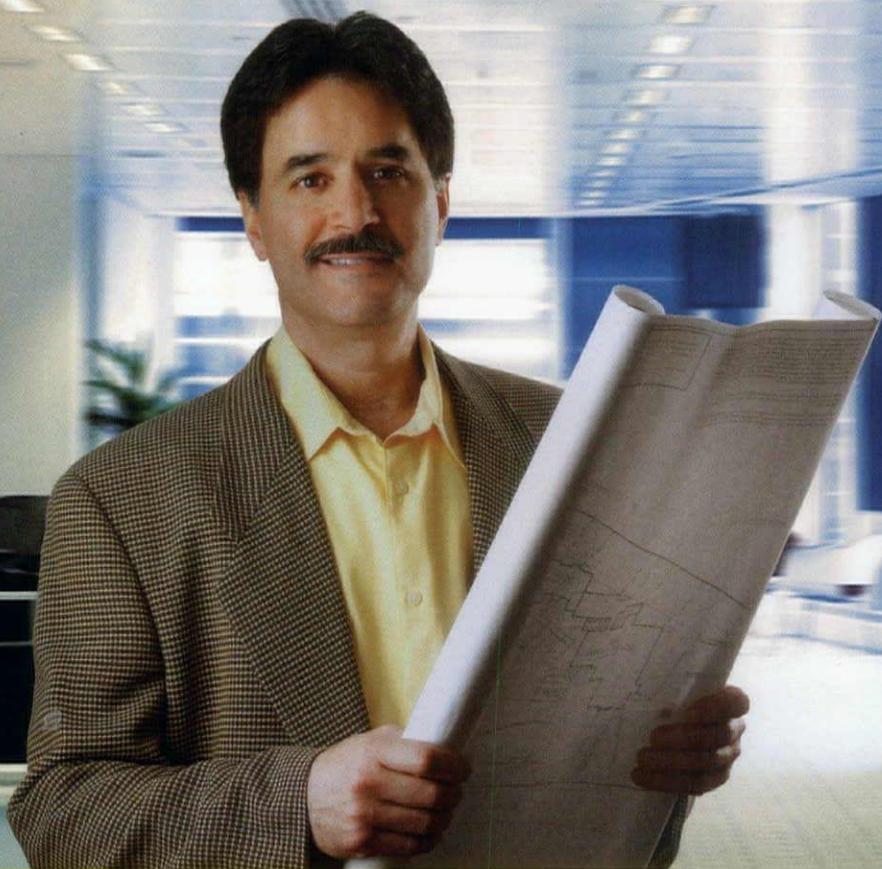
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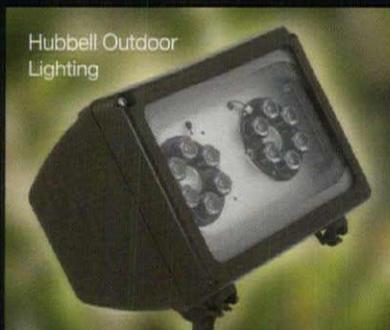
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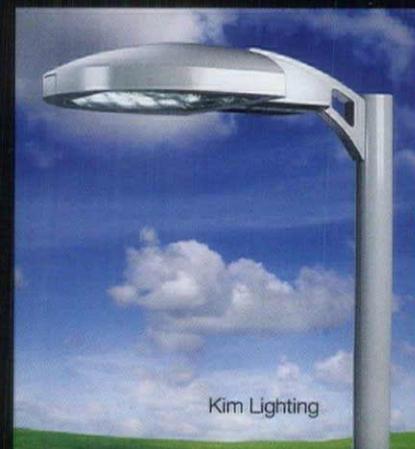
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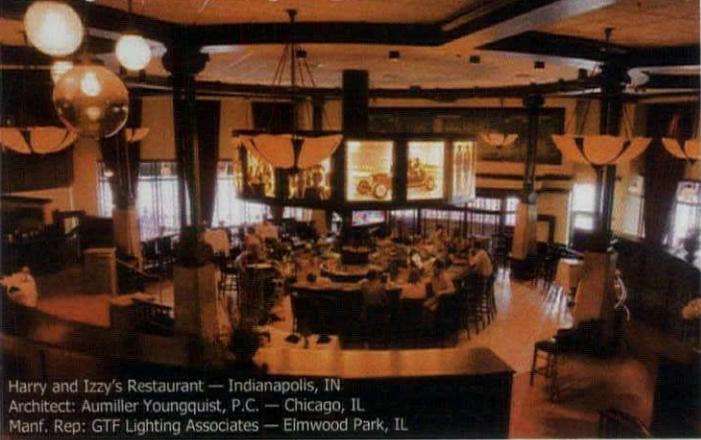
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**Cover:** Monsoon Accessorize's headquarters in London.

RICHARD LEENEY

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

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# A Different Measure?

**No matter the time** or circumstance, certain issues have remained at the heart of lighting discussions: energy output, lighting quality, and how to achieve a balance between the two. While each of these topics is a lengthy debate unto itself, it is important to consider the trio collectively. Find a solution to one, and you find a solution to all three.

How much energy do we expend when it comes to lighting usage? Energy codes have grappled with this dilemma for decades. As responsible standards are sought and maintained for our workplaces, homes, and streets, current conservation-minded codes have reduced light levels to the most difficult of thresholds verging on the point of darkness. Lighting designers' projects are now at the point of jeopardy, as there soon will be no way to comfortably reconcile the demands of creativity with those of minimal energy usage.

I reached a decisive moment in my thinking on energy output earlier this summer during the judging of the A|L Light & Architecture Design Awards. How ARCHITECTURAL LIGHTING should discuss and present this issue has been on my mind ever since (and on the minds of several readers as well, given the letters I received questioning some of the award selections).

In fact, while appearances may seem to the contrary, there was a vigorous debate among the jurors about to what degree a project's energy code compliance should be factored into its award evaluation and how that should be done. No jury in my six-year tenure at A|L has given the topic such careful consideration. How could the jury reward a project for its artistic achievements if it failed to meet its jurisdiction's energy requirements? The group was deadlocked and so in the middle of the jury proceedings, I called the architects and lighting designers of the projects for which the jury requested further clarification. The additional information aided some projects, but not others, as the jury made its final selection.

What criteria should projects published on the pages of A|L be held to? Should we talk only about work that is code compliant? That really doesn't address the issue. All it means is that a project has met the numbers set by a regulating body (typically not versed in the nuances of lighting), but it doesn't say anything about the design, the quality of light, or the resulting atmosphere. Ultimately, to be built and pass inspection in the real world, a project must be code compliant *and* incorporate a design sensibility. We do a disservice to lighting if we, the lighting press, were to only discuss projects based

on a narrow selection criteria of energy compliant versus non-energy compliant work.

So then is there some other metric the lighting community needs to be using to determine energy adherence other than just watts per square foot, which has been the default based on existing code standards and evaluation systems? Is there something that could more accurately represent the nuances of connected load versus live load?

As lighting regulations have become more stringent, this question increasingly has stumped the lighting community. In the past year there has been some discussion in the lighting press on the subject of light quantity versus quality of light. Some individuals have argued that there should be a specific way to measure what represents "good" lighting, but that sounds like we'd be entering some murky waters. Labeling lighting "good" or "bad" is purely a subjective call. What is comfortable and appeals to one person can be wildly unpleasant to another. To start regulating lighting in this way would be to dictate aesthetics—very dangerous territory, in my opinion.

Rather, what we need is a series of guides that would contribute to an overall project evaluation of energy compliance, one based on several factors such as frequency of use, operational cost over time, visual comfort, occupant productivity, and a project's specific design parameters. This would allow for a much more thorough evaluation and understanding of light, and in turn establish a database of real-time occupancy usage and behavior patterns.

However, it's not likely that there will be a solution that is cut and dry, or that will please everyone. Lighting practitioners and manufacturers are grappling with this issue on a daily basis as they deal with the new realities of energy supply and demand, and the associated costs. The evolution of lighting tools and technologies—for example, the introduction of LED sources along with more sophisticated lighting controls—may offer some answers about how to restructure the system. But one thing is for sure: current metrics for evaluating the balance between lighting efficiency and lighting quality are missing the mark.

**ELIZABETH DONOFF**  
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**LIGHTING'S WORKHORSES**

In response to the Technology article, "Lighting's Workhorses," in the July/August 2009 issue:

A great overview of lamps and ballasts. Two comments:

1. I think the efficacy of compact fluorescent lamps is underrated. The basic 26W at 1800 lumens translates to 69 lumens per watt. A 32W lamp at 2400 lumens equals 75 lumens per watt, not the 56 shown on the chart.

2. The plasma high-intensity discharge lamp referenced in the article is made by Luxim, a San Francisco Bay Area company. This technology may be worth a closer look. I've seen it firsthand and it's got specs that are worth paying attention to: 120 lumens per watt, 95 CRI, dimmable to 20 percent, and it can be digitally addressed. I also saw demonstrated rapid start-up and restrike, unlike any other metal halide source.

**RANDY BORDEN**

**BORDEN LIGHTING, SAN LEANDRO, CALIF.**

**Jim Benya replies:**

1. I stand by my numbers. "Mean lumens per watt" includes ballast factor and using ballast input watts.

2. I've reviewed the plasma lamp and it turns out that Luxim is not including the losses from its radio frequency generator. Ceramic metal halide 400W class with electronic ballast is still as good as it gets.

**CORRECTION**

**July/August 2009 issue:**

In the article "Painting With Light," the photo credit for the images on the second page should have identified Charles G. Young, Interactive Design Architects, and the photo credit for the image on the third page should have identified Andrew Campbell Photography. All images in the article are courtesy The Art Institute of Chicago.

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# Lutron Opens New York Experience Center



**In an effort** to reach out to all sectors of the design community and make their product line more accessible, lighting control manufacturer Lutron has opened a showroom on the ground floor of the Decoration & Design (D&D) Building in midtown Manhattan. The 1,800-square-foot facility showcases Lutron's residential and commercial product lines through a series of full-scale room vignettes—a bedroom, kitchen, and family room—so architects, lighting designers, and interior design-

ers can experience lighting control applications firsthand with their clients. A separate work area enables designers to meet with personnel from the experience center to review different lighting control system options, energy savings potential, and color, finish, and fabric offerings.

Lutron worked with lighting designer Stephen Bernstein of New York-based Cline Bettridge Bernstein Lighting Design to create a realistic lighting environment for its products. The experience center is a permanent home where Lutron can interface with its New York-area clients and host design industry gatherings and continuing education seminars.

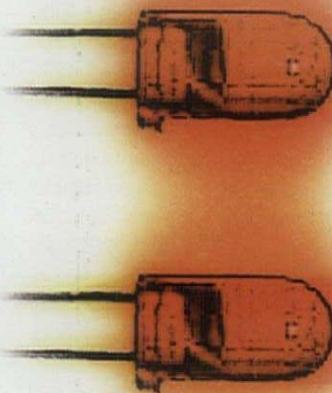
The D&D Building location is Lutron's fourth experience showroom/center. The other centers are located in Irvine, Calif.; Plantation, Fla.; and Lutron's headquarters in Coopersburg, Pa. The New York experience center team can be reached at [nyshowroom@lutron.com](mailto:nyshowroom@lutron.com). **ELIZABETH DONOFF**

Although solid-state lighting has made significant headway in the lighting industry and fixture marketplace, there is still a sufficient amount of technical performance data that is unknown and untested when it comes to this new technology. An article in the August 2009 issue of *IEEE Spectrum*, a publication from the Institute of Electrical and Electronics Engineers, calls attention to a problem specific to LEDs known as "droop."

## LEDs Tackle the Technical Issue of Droop

Droop is a phenomenon experienced by blue (nitrate) LEDs—the LEDs that are used to produce white light. As the diode's power level reaches an output sufficient for general lighting applications, the efficiency of the LED declines significantly. To maintain this amount of light output, you have to continue to feed the LED more and more power. In effect, this cancels out any potential energy savings this much-touted nonfilament light source might provide, and highlights the fact that LEDs perform best at low power. This puts a very different spin on the information that lighting manufacturers have been promoting as they race to announce and outdo one another with higher lumen-per-watt totals.

No one knows for sure why LEDs experience this technical anomaly, and scientists and engineers are hard at work to solve the puzzle. Some researchers attribute it to the electron structure of the diode, but there is no general consensus. One thing is for sure: now that this technical truth has been revealed it adds yet another hurdle for solid-state lighting to overcome as it tries to prove itself as a lighting technology with long-term potential. **ED**



# A Sampling of Lightfair 2009 Seminars

**By all accounts**, the 20th annual Lightfair was a huge success. According to the organizers, the event set record-breaking attendance with more than 23,000 industry participants. Like many trade shows with an educational conference component, it can be difficult to find enough time to visit manufacturer exhibits and attend seminars. Lightfair 2009 was no exception, with 75 sessions offered across multiple content tracks—the Lightfair Daylighting Institute, the Lightfair Institute, workshops, master courses, and seminars. **MURRYE BERNARD**

## Healthcare Lighting That Saves Lives: Selecting and Specifying Luminaires for Environmentally Critical Applications

**Speaker: George Ryder**

This seminar focused on lighting design in surgical suites and isolation areas. Ryder noted that bacterial infections are the fourth leading cause of death in the U.S. and result in \$5 billion in healthcare costs per year. Designers often list features such as closed-cell gaskets, antimicrobial finishes, and ballast suppressors when specifying luminaires, but the importance of these is not always understood when fixtures are purchased by contractors and they often are omitted to reduce costs. A way to remedy this is for designers to write performance-based specifications rather than those based on features alone.

Ryder also discussed best practices for MRI suites, noting that incandescent fixtures are a poor choice for these rooms as they need to be replaced frequently. LED fixtures are not without their own problems, and can create noise when dimmed—potentially interfering with MRI equipment. There is no standard at present to address this issue, but Ryder believes one will be established within the next year.

## Lighting Measurements, Metrics, and Myths

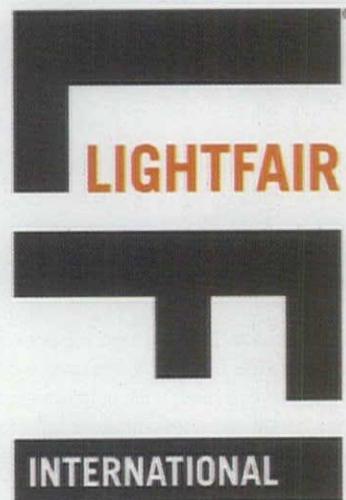
**Speakers: Jay Catral and Randy Klimek**

Over the past 30-plus years, there have been numerous standards and measurement devices developed to measure light and its color performance characteristics. Speakers Jay Catral and Randy Klimek gave an overview of how the human eye perceives color. They touched on the International Commission on Illumination's (CIE) luminosity function, which may be used to convert radiant energy into luminous (visible) energy. They also discussed the central color-matching function in the CIE's 1931 XYZ color space, the trichromatic theory of color vision, and the CIE's development in 1976 of the theory of Uniform Color Space. Next, the pros and cons of color rendering index (CRI) versus correlated color temperature (CCT) were reviewed, as well

as different types of light measuring devices including the tristimulus colorimeter and the spectroradiometer. Catral and Klimek recommend that lighting designers know what light source is being used; are familiar with requirements (national, international, etc.); and know the differences between measuring instruments.

## 20 Years of Light and Lighting: A Look at the Recent Past with Lessons for the Future, Speaker: David DiLaura

The past 20 years have brought great advances to the lighting industry, including the development of new sources, luminaires, and controls; new technologies, including software; the cre-



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ation of national and international organizations focused on lighting; and the influence of many individual lighting practitioners. Despite this, DiLaura feels that the "last two decades have been dangerously passive," as codes now regulate the lighting industry beyond the control of designers. DiLaura believes that lighting technology will continue to alter architecture as we work toward more sustainable solutions.

## Lighting and Film

**Speaker: Martin Valentine**

*Blade Runner* led to Martin Valentine's decision to become a lighting designer. Since then, he has taken inspiration from a variety of films. For this seminar, he discussed the lighting techniques employed in films as diverse as *Blade Runner*, *Citizen Kane*, *Alphaville*, and *2001: A Space Odyssey*. Interestingly, the films discussed were made before computer animation when special effects had to be painstakingly made by hand. As Valentine remarked, "If a director can control

you for two hours of [watching] a film, imagine what you can do with lighting for a building."

## Color and Human Response

**Speaker: Josef Ritter**

A former set and lighting designer for theater, Josef Ritter knows a thing or two about color. His presentation discussed the meaning of specific colors—orange, yellow, purple, pink, and blue—and how color can alter perception, define culture, and form identities. Color can have a great influence on mood and emotions, and designers should be familiar with its meanings and the reactions associated so they can choose the most appropriate for each project.

## The Skinny on Retail Lighting Design

**Speakers: Archit Jain and Chip Israel**

"Make 'em shop 'til they drop" is the primary goal of retail lighting design, according to Chip Israel. Lighting moves people through a space; therefore, a design should aim to attract the customer, initiate the purchase, complete the sale, and reinforce the company's image. Israel emphasized that design strategies should adapt to the type of store and its merchandise, and they should accommodate rapid changes in merchandise displays. Maintenance issues also are important: A store's staff should be able to easily change and operate the fixtures. Good retail lighting doesn't have to use a lot of energy or be expensive; the goal is to create contrast.

## Outlaw Incandescent Lamps?

**Speakers: Howard Brandston, Alex Baker, Donald Peifer; Moderator: Gary Dulanski**

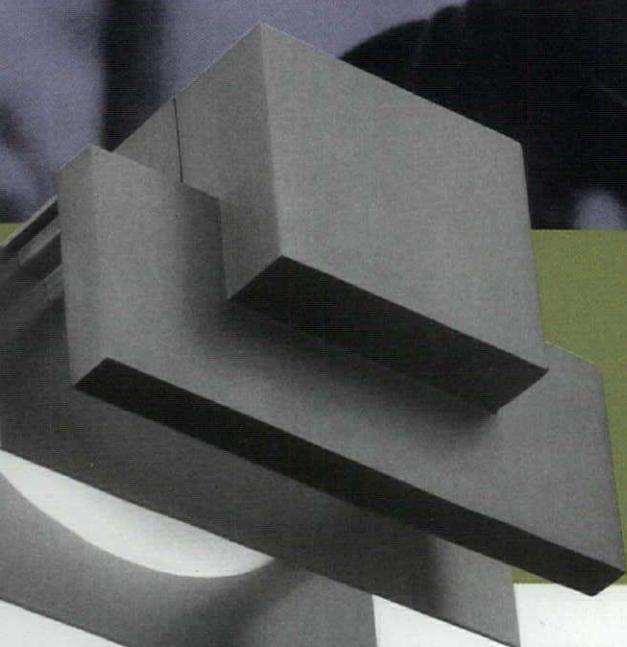
Four out of five light bulbs purchased in the U.S. are incandescent, and they are appreciated for their "unique sparkle and warmth," according to Alex Baker. However, the Energy Independence and Security Act of 2007 requires roughly 25 percent greater efficiency for light bulbs, phased in from 2012 to 2014, effectively banning most incandescent bulbs. While compact fluorescents (CFL) are touted as the logical replacement, all of the panelists agreed they leave a lot to be desired.

Brandston said there currently is no lighting source to replace incandescent. Comparing the lumens per watt between CFLs and incandescents is not sufficient. CFLs work well for lighting office corridors, but not for more intimate spaces or displays, such as makeup counters.

Baker believes that incandescents provide consumer energy savings over CFLs. Incandescents can be outfitted with inexpensive controls to provide longer lamp life, but dimming CFLs is complicated and costs the consumer more to operate. Should incandescents be outlawed? Not until there is a better option.

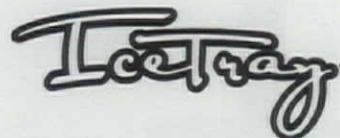


Frankie  
— Designer  
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# COLOR AND STYLE

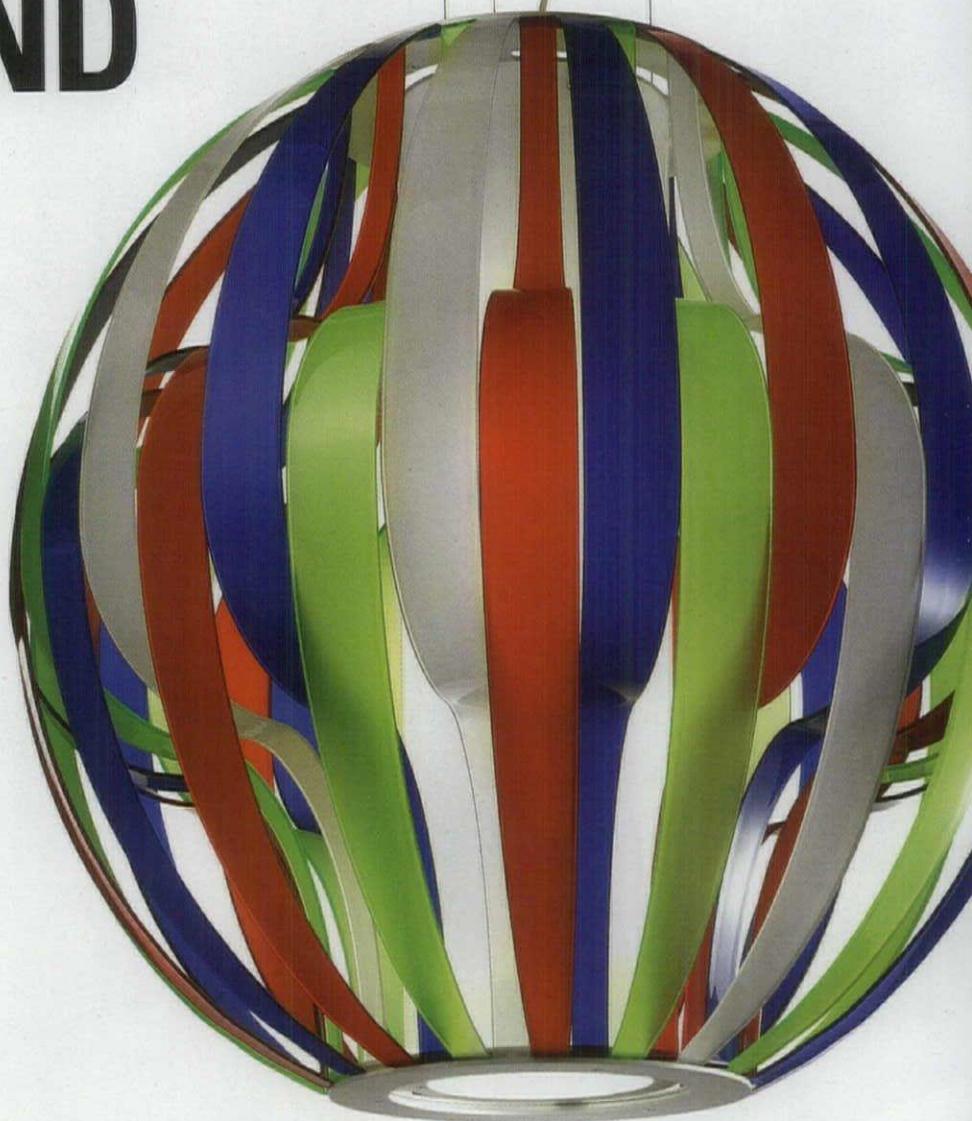


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**GADDANI BEACH  
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This family of floor lamps is inspired by Gadani Beach in Pakistan, which is known for its shipbreaking yard. Each luminaire is formed into a different structural shape—Mast, Spar, and Prow—hewn from 3/4-inch steel plates and rough cut by hand with an acetylene torch. The fixture is supported on a 12-inch-square base and stands 62 inches tall. Sharp edges are eliminated in a three-step smoothing process and finished with a clear lacquer. Coordinating barrel shades are available for each fixture. • [campbellironworks.com](http://campbellironworks.com)

• CIRCLE 125



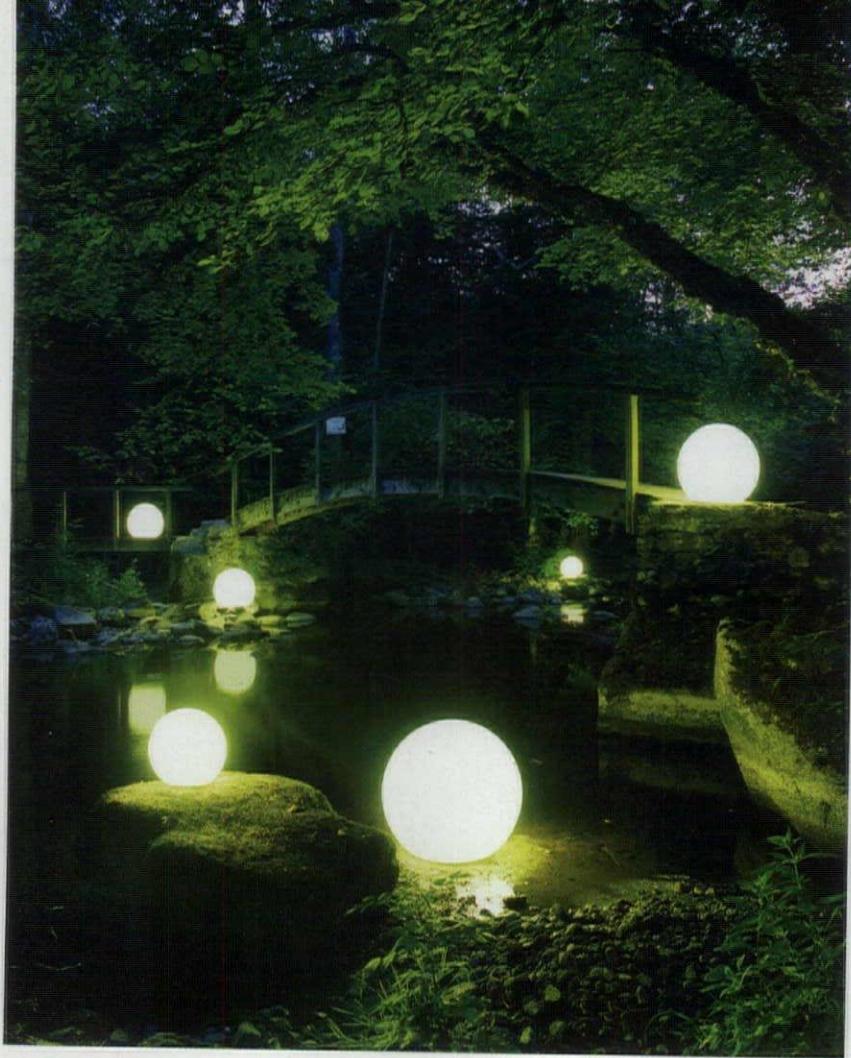
**STUDIO ITALIA DESIGN UFO**

The UFO chandelier, designed by Brian Rasmussen, provides diffused lighting for residential and hospitality settings. This suspended luminaire features a cylindrical glass housing that holds four G11 80W twin-tube lamps and is surrounded by an outer frame of 36 diffusers. These diffuser strips are available in either a metal (gold, silver, and white) or acrylic (red, white, green, and blue) finish. Measuring almost 30 inches in diameter and 27 inches tall, the luminaire can be customized depending on the selection of diffuser colors. • [sid-usa.com](http://sid-usa.com) • CIRCLE 126

**E:CUE LIGHT-DRIVE ELITE**

Light-Drive Elite is E:cue's first stand-alone DMX controller and user interface for dynamic RGB LED lighting that does not require separate software programming. Four modes control light intensity, color, speed, and memory, allowing designers and programmers to set up color-changing effects via the unit's touch-sensitive backlit LED keypad and touch wheel. Light-Drive Elite connects to LED RGB light fixtures via RJ45 output. • [ecue.de](http://ecue.de) • CIRCLE 127





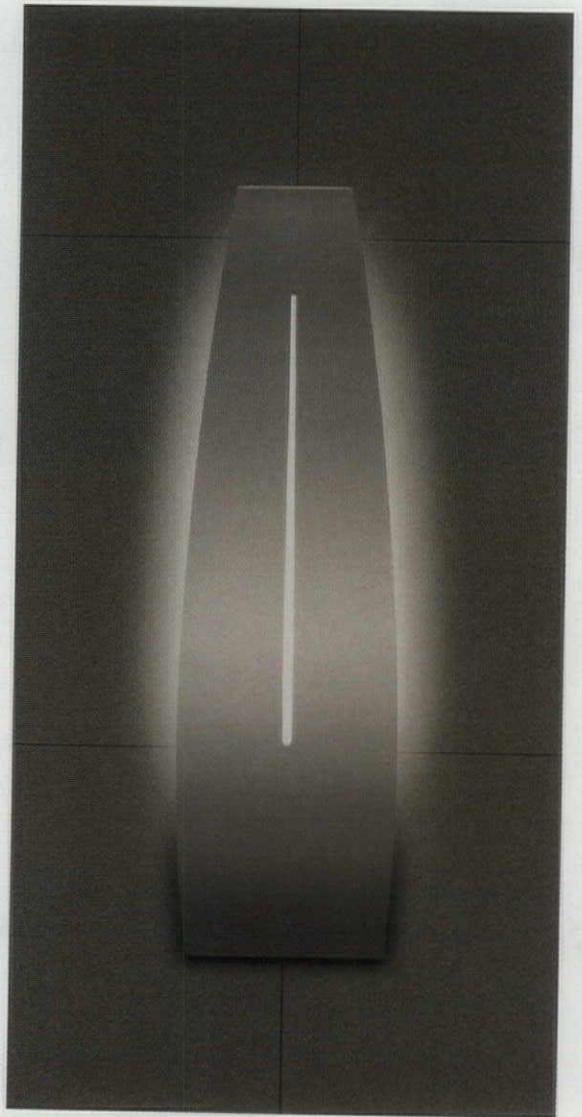
#### MOONLIGHT GLOBE LIGHTS

Designed for both indoor and outdoor use, these shatterproof fixtures are available in two shapes (full globe and half globe) and three sizes (14-, 22-, and 30-inch diameters). Each model comes with a 10-foot reinforced power and suspension cable, although custom lengths are available. There are 24 interchangeable color inserts available for the standard white fixture, and the stone color option is available in three choices: granite, sandstone, and terra cotta. • [moonlight-inc.com](http://moonlight-inc.com) • CIRCLE 128



#### KARTELL CINDY TABLE LAMP

Created by Ferruccio Laviani for Kartell's 60th anniversary, the Cindy table lamp uses form and color to evoke the "mod" spirit of the early 1970s. Approximately 16½ inches tall, the design features a conical lampshade that sits atop a rounded teardrop base. The fixture's distinguishing feature is its finish—a mass-dyed technoplastic technopolymer—available in a range of chrome-like hues including platinum, bronze, mint green, tangerine, ultramarine, flamingo, gun metal, and violet. • [kartell.it](http://kartell.it) • CIRCLE 129

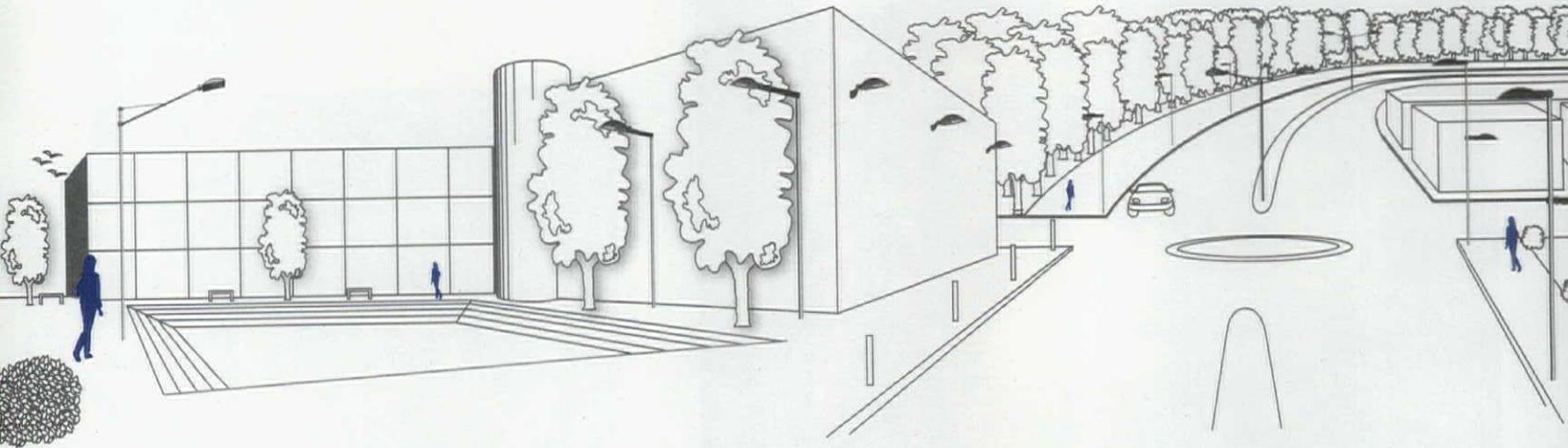


#### IVALO LIGHTING L'ALE LED SCONCE

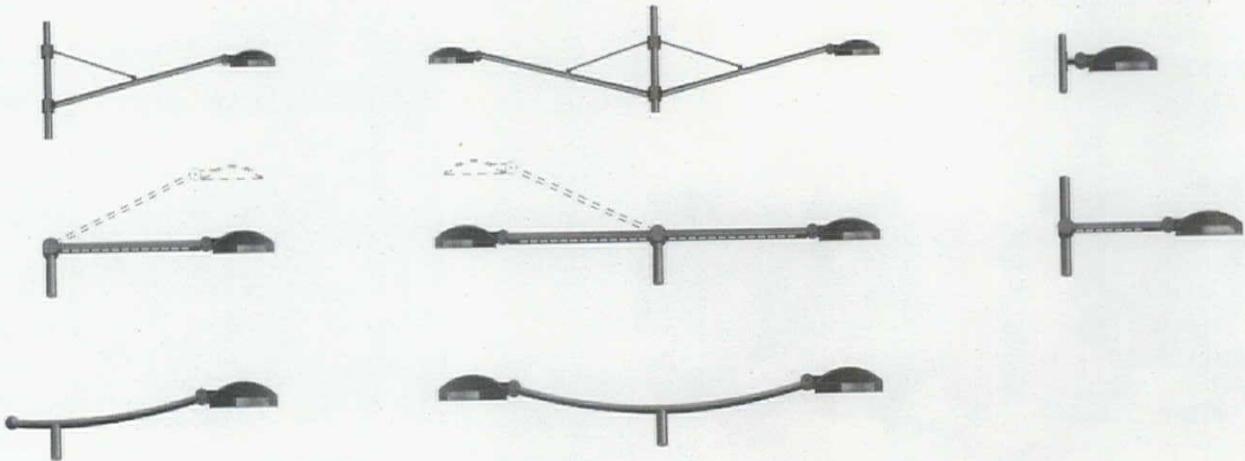
This sconce is an addition to the company's existing L'ale family of luminaires, designed by William Pedersen, design principal for Kohn Pedersen Fox. Integrating a string of 5W LEDs and measuring 27 inches tall, this cast-aluminum fixture's width varies from 4¼ inches at its narrowest to 8 inches at its widest. The ADA-compliant luminaire is available in three matte finishes (titanium, slate, or graphite) as well as custom colors, all with an automotive-grade paint. The sconce can be used as a single fixture or configured in groups. • [ivaloighting.com](http://ivaloighting.com) • CIRCLE 130

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# Berkshire Beauty

A LIGHT-SENSITIVE DESIGN CELEBRATES THE CONSERVATION AND DISPLAY OF FINE ART



Contrary to conventional photophobic wisdom about the storage, display, and exhibition of fine art, glass-walled laboratories at Tadao Ando's Stone Hill Center at the Sterling and Francine Clark Art Institute in Williamstown, Mass., allow conservators to work in undiluted northern light.

**Nestled in the Berkshires** sits an understated jewel—the Stone Hill Center at the Sterling and Francine Clark Art Institute, a public art museum and research center established in 1955 by Singer sewing machine heir Robert Sterling Clark and his wife Francine. The Stone Hill Center “speaks” softly but leaves a lasting impression. So it is no surprise that the project, which opened in June 2008, did so without great fanfare in the design press.

Stone Hill is the first phase of a master plan for the Clark, meant to enhance visitor experience of its collection of 17th–19th century American and European art. The 32,000-square-foot center incorporates a meeting space and two small galleries that supplement the Clark’s main exhibition spaces in the original museum. But the center’s principal purpose is to house the Williamstown Art Conservation Center (WACC). Founded in 1977, the WACC is the largest regional conservation facility in the United States and serves more than 55 New England art institutions and private clients. Over the years, its reputation has spread widely.

In many ways, the Stone Hill Center can be considered the second phase of the Clark’s master plan. The initial project was to be an exhibition, conference, and visitor center located across a parking lot from the two buildings that house the existing Clark galleries. A nondescript two-story building currently occupies that site, which was the WACC’s home before it moved to Stone Hill. The WACC had to relocate to make way for the planned conference center, and it became clear to the museum administration that they needed to reorder their expansion plans. Plus, the WACC had outgrown its facility, so the new arrangement suited them just fine.

The design of Stone Hill is rooted in a long tradition of art and nature convening as one. Awareness of the natural landscape and a masterful use of natural light are hallmarks of the work of its designer, 1995 Pritzker Prize-winning architect Tadao Ando. The architect opened his practice, Tadao Ando Architects & Associates, in 1969, and has built mostly inside his native Japan. When the Clark selected him for the Stone Hill project in 2001, he recently had completed his first major



Like many of Ando's exurban works in Japan, the Stone Hill Center forges a sensitive relationship to nature. The simple wood, glass, and concrete structure, with its canted freestanding garden wall, carefully frames views of the pastoral setting, designed by landscape architects Reed Hilderbrand Associates of Watertown, Mass.

works in the United States—the Modern Art Museum of Fort Worth in Texas and the Pulitzer Foundation for the Arts in St. Louis.

There are parallels between the three projects, including Ando's characteristically deft crafting of space and the use of concrete—his signature material, which he elevates to the stature of refined stonework. But Stone Hill utilizes the architect's design vocabulary to the greatest degree. Here, he takes advantage of the rural setting and celebrates it, creating a powerful yet sensitive architectural response to the site. The two-story Stone Hill Center is formed around a single design gesture, with the rectangular building's principal glazed façade oriented directly north. This one move allows the building to define itself and its connection to its surroundings and to light.

It is this connection to light that has earned the building's conservation labs recognition as one of the premier facilities worldwide, alongside the Getty Center in Los Angeles. No longer relegated to windowless, electrically lit subterranean rooms, the WACC celebrates the conservator and the conservation process, revealing it in spectacle-like fashion to the public.

Upon first consideration, natural light might seem like the wrong way to approach a lighting solution for an art conservation facility. Light levels in galleries are generally low, especially if delicate artwork is on display, to prevent exposure to damaging UV rays. But the issue of lighting for a conservation lab is about creating a series of short

exposure times that allow conservators to operate in light conditions comparable to those of the original artists; with galleries, the issue is to minimize an artwork's cumulative long-term exposure to light.

The WACC operates four principal labs: one for painting, one for paper, one for objects, and one for furniture. With the exception of the photo lab, an X-ray room, and storage, there isn't a single space in the WACC that does not somehow come into contact with natural light. In fact, this was the conservators' main request—that they have a light-filled space, particularly in the painting lab, which occupies the north side of the building. Here, New York-based Fisher Marantz Stone (FMS), the lighting design firm responsible for the project, was tasked with providing two kinds of light: the natural light through the north façade, by which art is created, and a supplemental electric lighting system outfitted with halogen sources to mimic gallery conditions.

FMS also participated in the specifying of the window-wall glazing, a non-tinted low-E glass. Floor-to-ceiling windows deliver a cool ambient light into the space, creating a comfortable and pleasant working environment. The windows also are equipped with two sets of blinds—a diffusing shade and a blackout shade—that can modulate the amount of light in the labs depending on conservators' needs. But as WACC director Thomas Branchick notes, the blinds are used only on rare occasions—as are the linear halogen ceiling luminaires outfitted with elliptical reflectors. When extremely detailed work has to be performed, the conservators rely on patient exam lights that can be positioned near the artwork.

Even the paper lab, where one might expect natural light to interfere

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## CRITIQUE



Ando crafted a series of simple exhibition galleries with periodic views of the outdoors and flexible, recessed tracklighting in a tic-tac-toe pattern.

with conservation processes, benefits from its eastern-facing exposure. As Branchick explains, the new lab allows conservators to perform year-round sun bleaching, a less invasive process for removing discoloration on certain paper artworks than chemical bleaching. Sunlight, coupled with white diffusing shades if needed, allows for greater control and a

more gradual manipulation of the bleaching process.

This minimal approach to lighting carries through the building. In the galleries, the goal was to create flexibility for a wide variety of exhibits and art objects. As a result, the recessed tracklighting is laid out in a tic-tac-toe grid. At the building's entry, a single carefully placed spotlight is positioned to illuminate a group of Noguchi sculptures in the courtyard, and dark-sky-compliant fixtures in the parking lot provide illumination for the rest of the site.

As lighting designer Paul Marantz notes, the ultimate challenge was to figure out just how much light they could put into the building without risking any disruption to the rural setting or "the bucolic nature of Willamstown." Unlike so many buildings that are designed to have a nighttime appearance, the Stone Hill Center is not meant to change the character of the area; it is meant to disappear at night. One of the project's real draws for the public is the outdoor terrace that frames views of the Green Mountains and Taconic Range and overlooks the conservation labs—allowing visitors a firsthand look at the conservators at work.

The Stone Hill Center is articulated gracefully and sits unobtrusively in its natural setting thanks to the work of landscape architects Reed Hilderbrand Associates. Locating the new building away from the existing Clark facilities is meant to take advantage of the Clark's 140 acres and expand the network of walking trails, creating a relationship between the museum and the landscape.

Selected by museum officials for his ability to work with light and root a building in its surroundings, Ando has created a series of luminous spaces—both interior and exterior—where light and airflow defy time and place. As Marantz notes, "Stone Hill's design is simple but meticulous." A prelude to the rest of the Clark's Ando-designed

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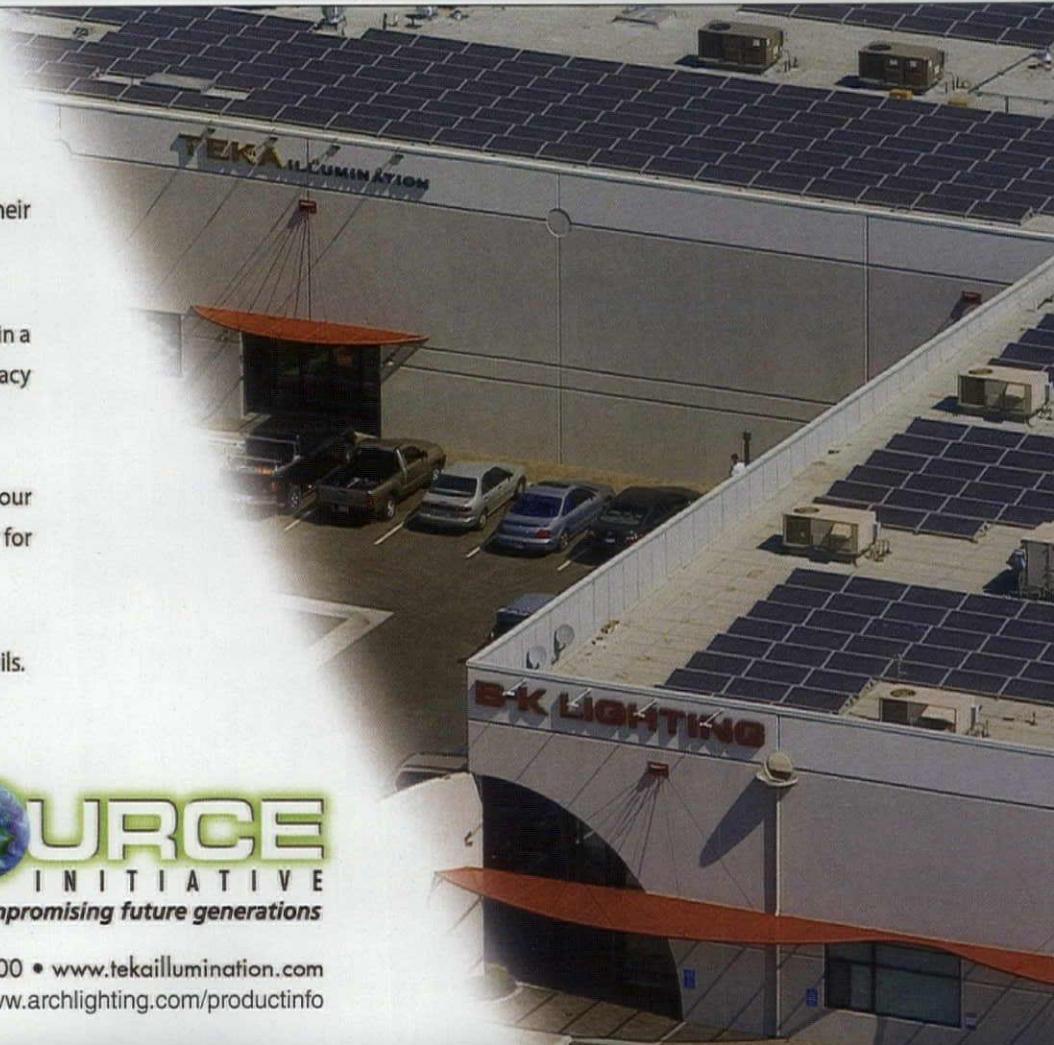
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## CRITIQUE



While the Stone Hill Center's entrance façade (top) appears almost bunkerlike, extensive terraces (center) offer sweeping views of the surrounding mountainous landscape and conservators at work inside the building (bottom).

expansion that will be completed over the next several years, it also will include renovations to the Clark's existing buildings by Selldorf Architects, updates to the existing gallery lighting by the Renfro Design Group, and integrated curtain wall and daylighting strategies by Arup. Gensler will serve as architect of record as it did on the Stone Hill Center. Stone Hill gives the visitor just enough of a hint of what is to come and leaves them curious to see how the rest of this architectural treasure will look when it is completed. **ELIZABETH DONOFF**

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# The Economy Now

## FLUCTUATING NUMBERS ARE SENDING MIXED SIGNALS

It's been more than a year since the global economy began its free fall. Ignited by the housing and mortgage crisis in the United States, the recession came to a head during summer 2008. Although the pulse of the nation's economy appears to have stabilized during second quarter of 2009, the prolonged downturn has left consumers and investors scarred. Economists, wary of making recovery predictions too soon, are playing it safe lest the market suffer another significant decline. This suggests that the next six months to a year, and maybe even longer, will be characterized by regular fluctuations in the major economic indexes.

The lighting design community certainly has seen its share of financial disruptions over the past year. (Although lighting design hasn't been hit as hard as architecture, which has experienced mass reductions in its workforce and the canceling and delaying of many projects.) Still, architects and lighting designers alike are cautiously optimistic about the future, but remain reluctant to acknowledge that they think things might have reached the bottoming-out point. Since March 2009, lighting design firms have seen an increase in requests for proposals and, in general, are remaining busy. For some firms, workloads are disproportionately active given the overall economic climate, a

result of no one wanting to turn work away. But all design firms are conveying that their greatest concern lies with their ability to collect project fees.

On the manufacturing front, there has been no decline in the release of new lighting products. Instead, there is a greater number of LED-related products than ever before. Lighting designers have grave concerns about insufficient specification data and reliable testing standards for all of these new LED products, and one wonders how many more new products the market can bear.

Manufacturers also are being bolstered by the immense interest in energy-efficient products and in retrofitting under performing spaces. As a result, lighting companies have focused their attention on making sure product offerings include the latest in energy-efficient lamps and ballasts, fixtures with dimming capabilities, and a full suite of lighting control options.

While we are not out of the woods yet, the lighting industry continues to prove resilient. Careful planning, coupled with short-term incremental growth, seems to be the prudent course. This will aid designers and manufacturers in their decision-making process as they position themselves for the economy's return to full speed ahead in the months to come. **ELIZABETH DONOFF**

## UNEMPLOYMENT RATE

AUGUST 2009: JOBS LOST **216,000**; U.S. UNEMPLOYMENT RATE **9.7%**

SOURCE: U.S. DEPARTMENT OF LABOR

## HOUSING STARTS

ALTHOUGH HOUSING STARTS FOR BOTH SINGLE- AND MULTIFAMILY DWELLING UNITS INCREASED IN JUNE BY **3.6%**, JULY NUMBERS HAVE EXPERIENCED A SLIGHT DECREASE, DOWN **1%** TO **581,000**.

SOURCE: U.S. CENSUS BUREAU

## NONRESIDENTIAL CONSTRUCTION ACTIVITY

NONRESIDENTIAL CONSTRUCTION SPENDING IS EXPECTED TO DECREASE BY **16%** IN **2009** AND AN ADDITIONAL ALMOST **12%** IN **2010**. THE RETAIL, HOTEL, AND OFFICE SECTORS ALSO ARE PREDICTING DECLINES IN **2009**—**28%**, **25.8%**, AND **21.5%**, RESPECTIVELY.

SOURCE: AMERICAN INSTITUTE OF ARCHITECTS (AIA) SEMI-ANNUAL CONSENSUS CONSTRUCTION FORECAST, JULY 2009

## ARCHITECTURE BILLINGS AND CONSTRUCTION SPENDING

ALTHOUGH A SCORE BELOW **50** INDICATES A DECLINE IN THE DEMAND FOR SERVICES, THE AIA'S ARCHITECTURE BILLINGS INDEX IS ON AN UPSWING, RISING **5.4** POINTS IN JULY TO **43.1**.

SOURCE: AIA

## LIGHTING EQUIPMENT DEMAND

NEMA'S LIGHTING SYSTEMS INDEX DECLINED **4.3%** DURING THE SECOND QUARTER OF **2009** TO **72-73** POINTS.

SOURCE: NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION (NEMA)

## INDUSTRIAL CONTROLS DEMAND

NEMA'S PRIMARY INDUSTRIAL CONTROLS INDEX FELL **6.5%**, REPRESENTING A DECLINE IN INDUSTRIAL CONTROLS EQUIPMENT SHIPMENTS. HOWEVER, THIS IS A MUCH SLOWER RATE OF DECLINE THAN THE FIRST-QUARTER DROP OF **23%**.

SOURCE: NEMA

## ELECTROINDUSTRY BUSINESS CONFIDENCE

NEMA'S ELECTROINDUSTRY BUSINESS CONFIDENCE INDEX FOR NORTH AMERICAN CONDITIONS ROSE NEARLY **12** POINTS IN AUGUST, TO **53.3**, WHICH INDICATES THAT THE BUSINESS ENVIRONMENT FOR ELECTRICAL EQUIPMENT MANUFACTURERS IS IMPROVING.

SOURCE: NEMA

## COMPACT FLUORESCENT (CFL) VS. INCANDESCENT LAMP DEMAND

NEMA'S INCANDESCENT LAMPS INDEX RECORDED A SCORE OF **59.4** FOR THE SECOND QUARTER OF **2009**. THE CFL INDEX INCREASED BY **3.8%**. PURCHASE OF EXPENSIVE CFLS AND THEIR GAIN IN RESIDENTIAL-USE LAMP SALES TO **26.6%** COULD INDICATE RESUMPTION OF CONSUMER SPENDING.

SOURCE: NEMA



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**Project** Firehouse Engine 44, San Francisco **Design Team** Teutonic Construction, San Francisco (developer); Garavaglia Architecture, San Francisco (architect of record); Josephine Fisher Interior Design, San Francisco (interior designer); Luminae Souter Associates, San Francisco (lighting designer) **Photographer** Reflex Imaging, San Francisco **Project Size** 6,700 square feet **Project Cost** \$2.5 million **Lighting Cost** \$150,000 **Manufacturers** Architectural Area Lighting, CV Lighting, Delray, GE, Leucos, Lightolier, Lumascape, Sistemalux, RSA, Translite



A dramatic stair and elevator in the center of this four-story San Francisco residence connect the home's public and private spaces. Carefully articulated lighting—50W AR111 halogen fixtures on the elevator shaft, low-voltage xenon striplights in the bookcases, and 35W MR16 tracklighting—provides warmth and atmosphere, as seen in the library and gallery areas.

**Constructed in 1909**, Chemical Engine House 44 in San Francisco's Noe Valley was a watchful guardian of this once-blue-collar neighborhood in the years after the great 1906 earthquake and fire. But when lighting designer Michael Souter, principal of San Francisco-based Luminae Souter Associates, first visited the structure in 2007, in what has now become a desirable location for urban professionals with families, the building's former glory was faded. Still, despite undergoing a massive renovation that entailed extensive demolition, the firehouse's history was palpable. The building was in the process of being gutted and where Souter stood had once been the stable for the horses and buggies that would race to any alarm.

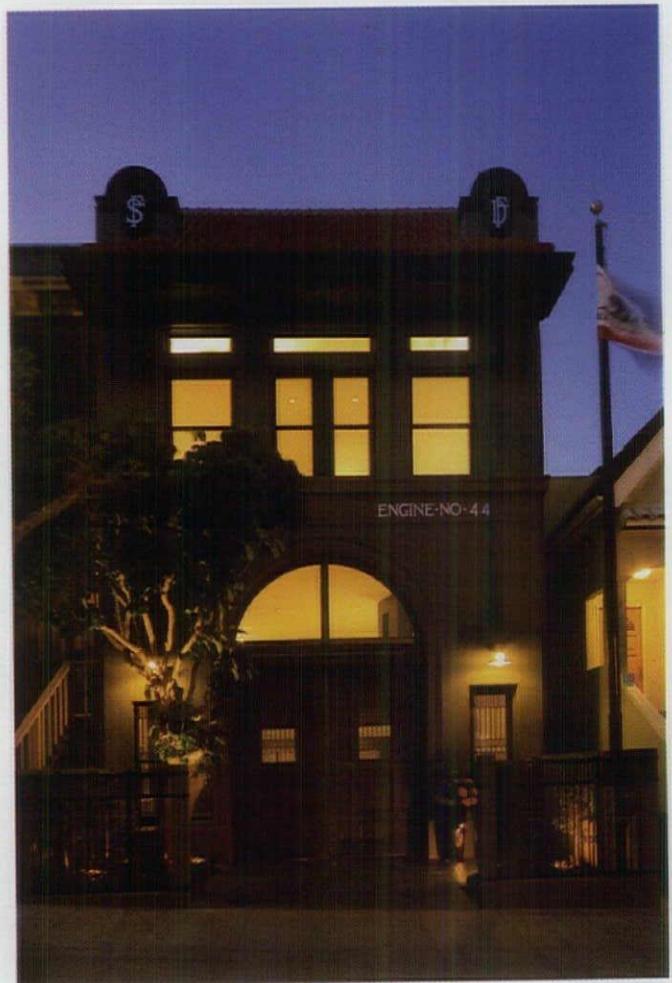
Although the building stopped functioning as a firehouse in 1959, when it was first converted to an artist's home and studio, its steel spiral staircase, brass pole, and copper and zinc doors are still intact. In 2007, Teutonic Construction, interior designer Josephine Fisher, and architect of record Garavaglia Architecture undertook the current transformation. They saw the opportunity to develop the old firehouse into a striking four-story 6,700-square-foot residence, currently on the market for a cool \$5 million. Dark and cavernous, it didn't feel like a home. "We walked inside and thought it was pretty dreary," Souter recalls. "But the developer thought we could convert it into a high-tech living space." Souter's solution? Natural light.

The building's footprint is a long rectangle with a new elevator and dramatic staircase in the center of the layout. Souter suggested large rooftop skylights and the design team agreed. Now, sunlight streams all the way down to the first floor, bouncing and reflecting off the glass landings and brushed aluminum surfaces of the new stair.

Each story of the residence serves a different purpose: entry and family room on the ground floor; kitchen, dining, and living spaces on the second; bedrooms on the third; and a luxurious master suite on the top floor. At the center of each level is the circulation atrium. Souter wanted to create a lighting scheme with dramatic flair. Emphasizing the stair, he mounted adjustable 50W AR111 halogen lamps on the gray elevator shaft. The multiple-lamp fixtures are aimed theatrically to highlight the verticality of the space.

While the atrium certainly is the firehouse's focal point, many of the individual rooms and architectural configurations required creative detailing. For example, there was no way to discreetly illuminate the freestanding spiral staircase leading to the observation tower, where the fire hoses once were hung to dry. Instead, Souter vertically mounted 28W T5 fluorescent strips to the adjacent wall. Dimmable and outfitted with a perforated metal shield, the fixtures are glare-free but maintain an arty-edginess to complement the stair, one of the building's industrial artifacts. Where a glass bridge on the fourth floor connects the master bedroom to its bathroom, Souter installed a low-voltage track system with 35W MR16 lamps to provide general lighting, with a cable system under the footpath. At night, 20W MR16 lamps shine through the translucent surface.

The designer's hand is seen in every room: indirect backlighting, with low-voltage xenon strip fixtures, illuminates bookcases in the library; a 50-50 balance between energy-efficient fluorescents and halogens on separate controls to meet Title 24 requirements in the kitchen; and floor-recessed MR16 uplights in the entryway. "We tried to make the design as minimalist as possible—to light the different areas and artwork without cluttering up the atrium," Souter explains. "Still, there are so many parts of the composition: different surfaces and textures, uplights, downlights, recessed fixtures, track, and natural light." It is a complicated scheme, but each piece is integrated. And most importantly, Souter brightened the residence (day and night) but kept it energy efficient, preparing the old firehouse for another chapter in its rich history. **MIMI ZEIGER**



The fourth floor glass bridge connects the master bedroom suite to its bathroom (top). By day, the space is filled with natural light from the skylights. At night, a low-voltage track system provides general illumination and 20W MR16 lamps under the bridge highlight its translucent surface. The residence's historic façade is seen above.

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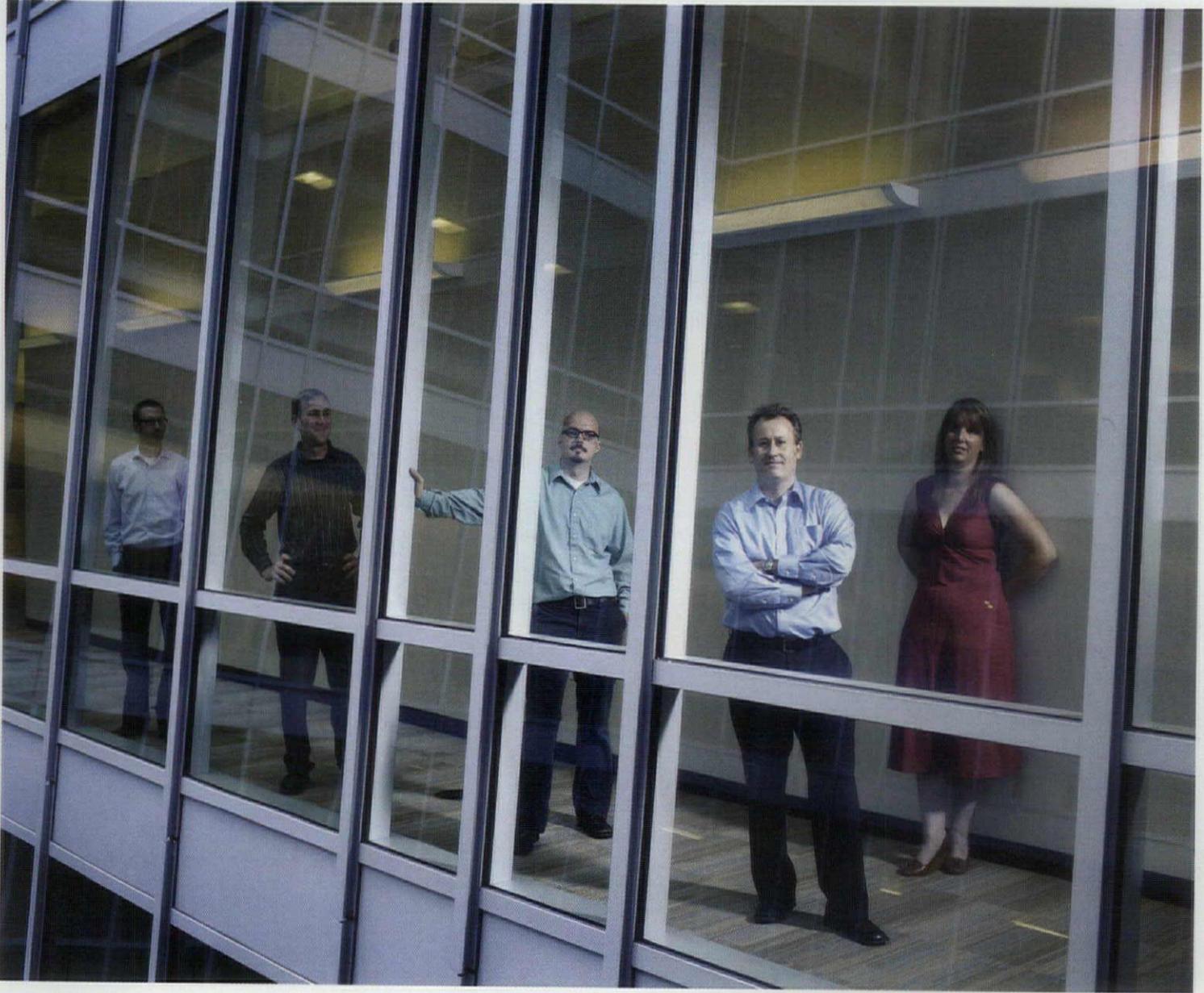
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# Unsung Heroes

FIRST-RATE LIGHTING DESIGN HAS LONG BEEN PRACTICED BY ENGINEERING FIRMS; PEOPLE JUST DON'T REALIZE IT



The five-person lighting design group at global engineering firm WSP Flack+Kurtz is based out of the firm's San Francisco office and is directed by Jonathan Plumpton (second from right), vice president of WSP Flack+Kurtz. From left, team members include: Jay Wratten, Erik Crowell, Erik Campbell, Plumpton, and Heather Mabley.

**When it comes to the practice** of lighting there historically have been two approaches: lighting design and electrical engineering. But what does this mean, exactly? For some practitioners it has represented a distinction between different areas of a project usually called out as "front of house" versus "back of house" spaces, the implication being that front of house spaces carry a different level of importance than those behind the scenes. In turn, this has implied that these spaces require a different level of design consideration and that those focusing on the rote mechanics of laying out a lighting diagram might not

necessarily be up to the task of applying a creative exploration of light in the process.

Nothing could be further from the truth. Adherence to this seemingly arbitrary definition only compartmentalizes practitioners in a way that does not acknowledge the modern complexities of architecture, engineering, and lighting design. Nor does it acknowledge that some of the most progressive lighting design practices have existed and flourished at engineering firms. Look, for example, at offices such as Arup, Cosentini Associates, Jaros Baum & Bolles (JB&B), and

JOHN LEE/AURORA SELECT

Flack+Kurtz: all have successful lighting design groups, even though the firm name might not be synonymous at first with lighting.

Each of these offices has worked against the odds to be recognized, each functioning as independent entities that generate their own revenue within much larger organizations. In each case, these design groups have found a way to balance their workload for in-house projects while also trying to market their lighting design services to outside architects and engineering firms. The greatest challenge for these designers is not necessarily the work but how they are perceived by their in-house engineering colleagues as well as fellow lighting designers and architects. "Clients and architects are usually surprised when you can talk in creative circles," says Michael Mehl, director of lighting design at New York-based JB&B. "They [clients] have already slated and categorized you because you are coming from the MEP [mechanical/electrical/plumbing] firm."

#### ADVANTAGES OF WORKING IN AN ENGINEERING ENVIRONMENT

Lighting design in an engineering context defies conventional practice setups and offers a dynamic way to redefine the ever-changing demands on the lighting design process. There are a number of pros and cons to practicing lighting design this way. All the designers spoken to for this article agree that the positives far outweigh the negatives, and the benefits have afforded them a wide variety of opportunities—particularly the chance to understand all angles of a project. In turn, their ability to understand the highly technical requirements of a project and merge those with the design allows them greater control on projects and enables them, as practitioners, to realize an even more complete design package.

**"Under an MEP umbrella, we [as lighting designers] are involved much earlier on in the project," Plumpton says. "We have the ability to strategize at a broader level, everything from environmental issues to the building envelope."**

"There is a synergy working within an MEP firm," says Jonathan Plumpton, who has been leading the lighting design group at Flack + Kurtz for the past five years. Delineating the scope of work between design and engineering has been key to the group's success as it carves out its niche within the Flack + Kurtz office structure as well as acting as its own independent consultancy. For Plumpton, sorting out the definition of scope of work is about "what would require lighting expertise," meaning there is something about the space that requires a different kind of approach and thought process about how the lighting will be incorporated.

Another advantage of operating within an MEP firm is the ability to work across disciplines and have multiple resources available to the project team. These resources can include staffing flexibility when projects have to gear up to produce construction documents or having access to the latest in computer software technologies such as building information modeling (BIM), which a smaller design firm might not have the financial resources to incorporate into its practice.

It also promotes better communication at every level from informal in-house discussions to regularly scheduled meetings with the proj-

ect team and clients. When questions arise, members of the lighting design group easily can check with their electrical engineering colleagues and vice versa. This leads to a more efficient process of coordinating project documents and drawings without having to wait for regularly scheduled meetings. In the end, the client, designer, and project all win, as design solutions have the potential to be more fully developed and integrated into the overall design scheme. "Under an MEP umbrella, we are involved much earlier on in the project," Plumpton says. "We have the ability to strategize at a broader level, everything from environmental issues to the building envelope."

And just as the electrical engineers can learn from their colleagues who are focused on design, the designers also gain the advantage of being more directly engaged with the technical components and complexities of a project, not merely in terms of the lighting but also with how the lighting interacts with the other building systems such as heating and cooling. This proximity to engineering colleagues is particularly a plus when it comes to designing complex control systems and building skin systems. The fact that a lighting designer can participate in discussions about thermal comfort and glazing specifications only leads to a richer base solution approach to architecture and lighting.

#### COMPLEXITIES OF WORKING IN AN ENGINEERING ENVIRONMENT

Perhaps the most complicated aspect of practicing design in an engineering office is the difference in office cultures, and that can sometimes put things at odds as two potentially very diverse working styles—the creative and the calculative—need to cohabitate. Design offices, no matter the size, usually tend to have a more elaborate pre-design process used to establish a range of possible project ideas. "We still rely on pencil and paper to start the design process," Plumpton says. "Engineers, on the other hand, are more streamlined in their process." At Flack + Kurtz, spreading out and pinning things up takes a physical form, which has led to some furniture rearranging and setting up a dedicated area for the design group to meet for in-house project reviews and discussions.

Despite the differences between designers and engineers, there is an advantage to having them see the differences in each others' working methodologies. Ultimately this can lead to a greater understanding of the work done by each discipline and fosters a mutual level of respect among colleagues. It also helps the design group maintain a more integrated presence in a larger firm rather than being cordoned off into a corner or on a separate floor.

But the challenge of maintaining a presence within a larger firm is not limited to in-house scenarios. Lighting design groups also must maintain a level of recognition and respect from clients, outside peers such as architects, and fellow lighting designers practicing in more traditional design firm setups.

Fighting the misconceptions about what type of work and the quality of that work produced from a design group within an MEP firm is an ongoing struggle. Plumpton notes that although he has been practicing lighting design for some time, he still hears the typical surprised comments: "I didn't know Flack + Kurtz had a lighting design group," or "Yeah, but it isn't really lighting design."

A group whose focus is on design also needs to have a richer marketing approach. "We have to convey our work differently than our engineering colleagues," Plumpton says. Often how a firm receives a project commission is all about business relationships. Who do you know? Who do you want to work with? For all of the design groups it

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**“Since I first started practicing, I’ve always done my own calculations,” Mehl says. “It cuts down on project bureaucracy.”**

certainly has helped to receive industry awards and have their work published in lighting industry publications. Not only does this provide a reference point for clients but it also helps create a sense of legitimacy within the larger engineering firm structure and with architects and lighting colleagues. Generally, the vast majority of clients appreciate this approach, and there is something to be said for working with one firm and its various divisions to deliver a fully integrated and effective project solution.

**REACHING OUT TO STUDENTS**

An often overlooked benefit of being a design group in an MEP firm is the benefit it has in recruiting new designers. “It’s easy to reach out to lighting programs like Penn State and Nebraska,” Plumpton says. “These architecture/engineering programs are already aware of an office like Flack + Kurtz.”

**LIGHTING IN UNEXPECTED PLACES**

A firm that people might be surprised to learn has a robust lighting group, and has for more than 40 years, is JB&B. As is the case with many engineering offices, in the early days of lighting there was usually one “go-to” lighting guy in an office. At JB&B, that person was Bill Richardson, who worked with early lighting greats such as Jules Hor-

ton and Richard Kelly. Over time, as people like Richardson were being asked more lighting-related questions on a regular basis and lighting design was becoming a more clearly defined part of projects, it made sense for lighting to emerge as its own consultancy within a firm.

At firms like JB&B and Cosentini Associates, the lighting group has been able to flourish thanks in large part to the dedicated efforts of a few individuals. At JB&B, Mehl inherited that role from Richardson and has worked at the firm for more than 20 years. At Cosentini, Stephen Margulies directed the lighting group for 25 years, enabling a great level of consistency in terms of how lighting was incorporated into all aspects of the firm’s projects.

And the same is true at Arup. Engineer and design expert Bob Venning in Arup’s London office was the firm’s “lighting guy” for more than 40 years. In the mid-1990s there was a move to formalize the lighting group, which has since led to the present configuration of lighting teams in the London, New York, San Francisco, Amsterdam, and Melbourne offices. While each group is semi-autonomous, responsible for soliciting its own work, there is extensive dialogue between the offices and often two offices will work together to see a project through to completion.

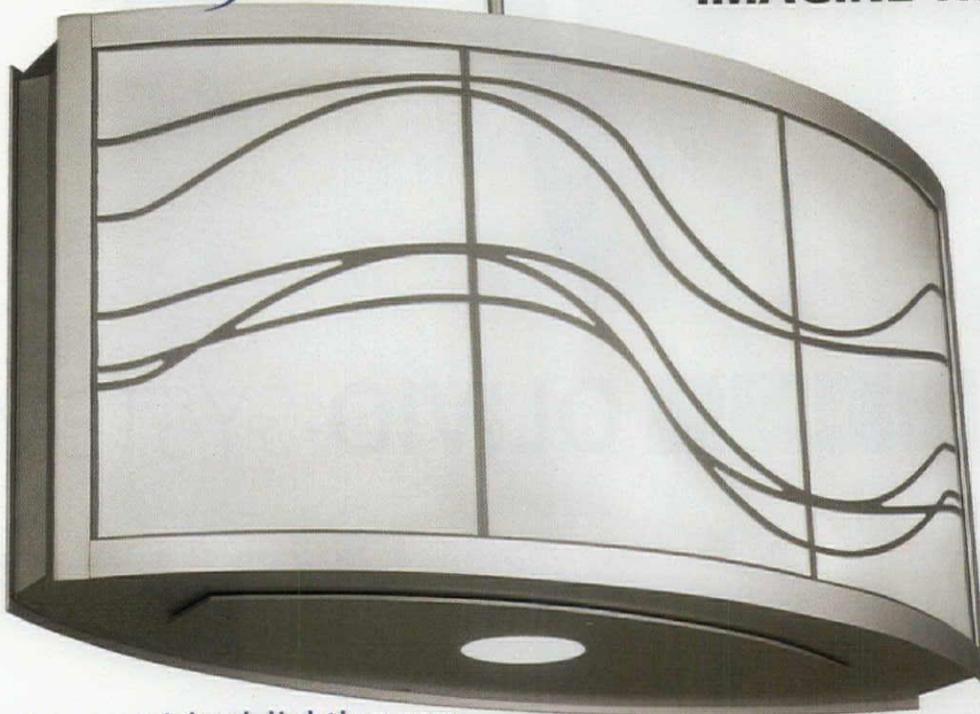
This comes in handy with the global nature of practice and when dealing with the complexity of codes, and is another area in which a design group in an engineering firm can shine. As the scope of services continues to expand, there has been some debate as to who is supposed to perform the egress calculations—the lighting designer or the electrical engineer? There are now more criteria to incorporate into a project, such as energy codes and LEED considerations. The fact that a designer at an engineering firm can navigate both the design

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## PRACTICE

and the technical issues is a plus. "Since I first started practicing, I've always done my own calculations," Mehl says. "It cuts down on project bureaucracy."

### AN INTEGRATED APPROACH

Being around engineers enables designers to have a familiarity with all aspects of a project. Even if an issue is outside their scope of work, they are familiar enough with the project that they can step in and answer questions at project meetings. "It makes the design process so much easier," Mehl says. "Especially when you are designing something like a control system. You know how the lighting is impacting the daylighting controls and the shading controls and so on." It also leads to a shared sense of project responsibility. "It gets rid of the 'someone else will take care of it' mentality," Mehl says.

Still, Mehl admits that the stigma of an engineering firm being able to perform lighting design work can get in the way. It's hard to erase the perception in the minds of clients and outside colleagues that an MEP firm can do more than just technical lighting. Margulies echoes the point. "There has always been a misconception that you can't get a good design out of an engineering firm," he says. "You have to work hard to change their minds."

Going forward, Mehl believes there will be an even greater need for designers who are technically savvy and can handle the myriad codes and regulations. "Energy code review, and lighting and energy analysis is a major component of a lighting designer's work these days," Margulies says. The need to know how to do this work

is leading to, as Mehl observes, the extension of the design and technical services package that design groups in engineering offices can offer including energy certification and evaluation.

### DEVELOPING STANDARDS

At Cosentini, Margulies had the opportunity to develop the lighting group over the course of 25 years. When he started, right out of school in the early 1980s, the lighting group was there to support the needs of the engineering firm. Both a blessing and a curse, being so accessible to colleagues to answer questions was part of why Margulies was instrumental in developing standards for lighting equipment, control, and energy codes that could be used firm wide. The creation of standards allowed him to "distance himself from the day-to-day engineering tasks." As a result, he could devote more of his time to building the lighting consultancy as its own separate entity and pursuing design projects. "There was a really clearly defined scope of work," he says. "The development of the standards was welcomed by the engineers who need an order to do their work."

### ACCESS TO ARCHITECTS AND CLIENTS

Another benefit of working for a large firm is the access it can afford a young designer to work with some of the world's leading architects. Margulies was able to work with many greats including Kevin Roche. That exposure to a cadre of architects and to a scale and caliber of projects allowed him to build his skill set and win the respect of these architects. Margulies, wanting at this point in his career to be his own boss, has since left Cosentini to open his own practice—One Lux Studio in New York—but he is fully aware of the foundation his Cosentini experience gave him. "I never would have gotten this experience if I hadn't worked in an engineering office," Margulies says.

Brett Malak, who stepped into Margulies' position, makes a similar observation. "You gain a tremendous amount of knowledge," she says. "And along with the amount of responsibility, it expands your skill set as a designer. You have to factor everything at once."

### PRACTICE FOR THE FUTURE?

"Pursuing work outside the MEP umbrella can be challenging at times," Plumpton says. "You have to find the best fit for the design group and the larger office." This multilayered approach to design should not be misunderstood as "one-stop shopping," which for Brian Stacy, who leads Arup's lighting group at the firm's New York office, implies some sort of a commodity service, which design is not. "The immediacy of these integrated approaches offers a different kind of analysis and project development," Stacy says. "The level of interaction between colleagues demands great attention to detail." And should problems arise on a project, the ability to communicate across disciplines "avoids the situation of finger pointing," Plumpton notes.

The complexities of architecture, engineering, and lighting design services continue to expand as practice must meet the rigors of client expectations, economy, and codes. Practicing lighting design in an engineering context offers a solution to address the expanding scope of a lighting designer's work and should not be dismissed as incapable of meeting the challenges of design. Lighting design as practiced by engineering firms such as Arup, Cosentini Associates, JB&B, and Flack + Kurtz shows that the divide often assumed to exist between design and engineering is not that great after all. **ELIZABETH DONOFF**

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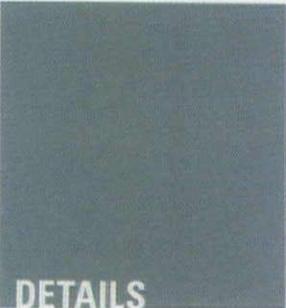
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## DETAILS

**Project** Murale, Ottawa  
**Client/Owner** Shoppers Drug Mart, Toronto  
**Architect** burdifilek, Toronto  
**Lighting Designer** Lightbrigade  
Architectural Lighting Design, Toronto  
**Photographer** Ben Rahn/A-Frame, Toronto  
**Project Size** 7,140 square feet  
**Watts per Square Foot** 2.5 (meets  
ASHRAE 90.1-2007 for high-end display  
lighting allowance)

# Redefining Beauty

## AN ARTFUL LIGHTING SCHEME DEFTLY ILLUMINATES PEOPLE, PRODUCTS, AND ARCHITECTURE ALIKE AT A NEW CANADIAN COSMETICS STORE

No longer the exclusive preserve of Hollywood celebrities and supermodels, specially formulated skin creams and Botox injections have now moved into the hands—and foreheads—of ordinary people. As a result, the manufacturers of these skin-care products and cosmetics, as well as the retailers that sell them, are in a race to differentiate themselves in the competitive battle for the consumer's attention. Murale, a chic new skin-care retail venue in Ottawa, is no exception, as it promises to raise the bar and redefine the way in which beauty products are marketed and sold to the general public.

Designed by high-profile, Toronto-based interior design firm burdifilek, the Ottawa prototype is the first in a series of skin-care emporiums set to roll out across Canada in the next two years. A new retail concept developed by Canadian pharmacy chain Shoppers Drug Mart, Murale is Canada's answer to the growing popularity of specialized beauty stores. The sleek retail environment not only offers products from more than 200 cosmetic, fragrance, and skin-care lines, it also stocks dermatological skin-care products and provides personalized beauty services. Central to Murale's spa-inspired design is a sophisticated, finely honed, and multilayered illumination scheme by Toronto-based Lightbrigade. The design focuses light directly at the product displays, while quietly drawing customers into the ultraclean

setting and enabling them to see themselves in their best light.

Located in a 7,140-square-foot corner retail space on a primary circulation path in Ottawa's Place d'Orléans shopping mall, the new skin-care shop is a pristine, gallery-like environment. Wares are presented in elegantly illuminated sculptural displays that catch the attention of passersby and invite them in to explore the space in a subtle but effective fashion. "Murale goes far beyond the proverbial drugstore," says burdifilek principal and designer Diego Burdi. "It offers a global collection of products, so the idea was to create a spa-like space with a clean backdrop that would allow each group of products to have its own identity and stand out. The lighting was part and parcel to the design of the entire space."

Not only does the lighting effectively accent the diverse selection of merchandise, as though the products are precious works of art showcased in the store's fluid-formed displays, it also interacts with the store's architectural elements, which are artworks in and of themselves. One of those elements is a ribbon-like series of translucent panels in the rear of the store—a contemporary interpretation of a cornice—that is animated by an ever-changing display of shimmering LED light. Designed to attract shoppers and to entice them into Murale, the panels help define what is known as the "derma" area, where



Murale's sleek white material palette and hint of thoughtfully placed color, such as the fins of purple glass at the fragrance displays, give the new skin-care retail prototype an ethereal feel (above). Mindful of efficiency issues and ease of maintenance, just three light sources are used throughout the store: T5s in the horizontal and vertical cove-lighting; MR16s in the ceiling pinhole trim fixtures; and LEDs in the casework shelving units and special display features.

#### DOWNLIGHT RSA, COOPER LIGHTING

This 5-inch-round recessed adjustable pinhole trim fixture is compatible with either a 12V MR16 lamp 71W max or a metal halide MR16 20W or 39W lamp. The lamp holder features 45-degree tilt hot-aiming adjustability, along with a self-locking rack-and-pinion mechanism. The MR16 version includes a clear protective glass lens and accepts up to three optical accessories. For Murale, a 20W lamp with an infrared coating was used to reduce the lighting load and comply with ASHRAE 90.1-2007. • [cooperlighting.com](http://cooperlighting.com) • CIRCLE 131

#### COVELIGHT FORESIGHT LIGHTING

This T5 kit features a low-profile (15/8 inches tall by 25/32 inch wide) aluminum body, is compatible with six wattages—6W, 8W, 14W, 21W, 28W, and 35W—and comes standard with a 4100K lamp (other lamp temperatures can be specified), a removable lens, a 6-foot-long cord with plug, a fixture inter-connector, and mounting clips. Four-foot-lengths are used throughout Murale, supplemented by 2- and 3-foot lengths where needed to fill cove areas. • [foresightlighting.com](http://foresightlighting.com) • CIRCLE 132



dermatological products are sold and specialized beauty services are offered. "The goal, here, was to imitate the quality of a cascade of water," says lighting designer and Lightbrigade senior associate Jesse Blonstein, who collaborated closely with Burdi and A/V consultant Forge Media + Design from Toronto. LED points in a cool color temperature—5000K—are mounted behind the sandblasted acrylic panels and programmed to turn on and off in a preset sequence to produce the subtle effect of rippling water.

Another sculptural feature is an undulating dividing wall, also in the derma area, that is energized with light to captivate customers. Adding mystery and shimmer to the space, this wall is made up of a series of molded fins made with clear glass and edge-lit with LEDs. "The glass adds a little bling to offset the mostly matte surfaces," Burdi says.

#### LED FEATURE AND DISPLAY LIGHTING

LEDs embedded in ribbon-like translucent sandblasted acrylic panels behind the display shelves in the derma area turn on and off in a pre-programmed sequence to produce an animated and sparkling effect reminiscent of running water (above). LEDs also are used as task illumination to highlight merchandise in the curved shelving units whose radii were too tight to accommodate even the shortest linear fluorescent run.



#### LED FEATURE LIGHTING

Molded clear glass fins form a sculptural dividing wall between the main sales area and the derma area in the rear of the store, and are edge lit by LEDs mounted in a small metal channel at the back of each fin.

Elsewhere, light seamlessly merges with architectural forms and plays off materials to perform the more perfunctory yet essential roles of generating shadow- and glare-free ambient and task illumination. In any retail setting color rendition also is important, but it is essential in an environment where cosmetics are applied and sold. Blonstein worked closely with Burdi to choose sources and integrate fixtures that would most effectively show off the merchandise while at the same time flatter the features of the customers—and the architecture.

The elegant lighting composition blends soft layers of ambient light, created primarily by 3500K T5 fluorescent lamps that are mounted in ceiling coves around the perimeter walls and above the Y-shaped vendor displays scattered throughout the store. "The design of these displays allows for a departure from the rigid aisles and linear paths that you usually associate with cosmetic sections of most drugstores," Blonstein says. "The sweeping curves divide the space into pockets of products instead."

To reinforce the design and supplement the ambient illumination, a series of adjustable pinhole downlights fitted with 20W halogen MR16 infrared narrow flood lamps are mounted 18 inches on center in the ceiling in lines that follow the circulation paths around the display areas. The miniature-scale luminaires also provide bright notes of sparkle to the uniformly lit merchandise. Blonstein opted for a 25-degree beam spread to enable the light to bounce off the mildly glossy terrazzo floor and blend easily with the other ambient light for a soft overall glow.



The ceiling downlights also supplement task illumination provided by T5 fluorescents built into the display units' shelves and inserted into vertical channels that flank full-length mirrors positioned throughout the store. Covered with acrylic lenses, these high color-rendering fluorescents provide glare- and shadow-free illumination for customers applying cosmetics. LEDs also were used as task illumination to highlight merchandise in the curved shelving units whose radii were too tight to accommodate even the shortest linear fluorescent run. The trick for Lightbrigade was getting all of the sources to render architectural surfaces, skin-care packaging, and human faces at a consistent 3500K. "It can really be a challenge to get LEDs to match the color temperature of other sources, or even to match other LEDs," Blonstein says. "They might read as the same temperature on a light meter, but to the eye they may appear more pink or more green because of the balance of phosphors. Some manufacturers have become more selective in comparing LEDs individually and binning them with others whose color appearance is consistent."

Since ease of maintenance, energy efficiency, and reasonable cost were the top concerns of the client, the lighting sources were limited to just three types: standard output T5s, 20W MR16s, and LEDs. The use of these sources, along with the white, reflective surfaces, enabled the lighting load—2.5W per square foot—to meet the ASHRAE 90.1-2007 allowance for high-end display lighting. It also makes the lighting scheme as easy on the client's pocket-book as it is on the customer's complexion—and eyes. Not a bad price for beauty. **JEAN NAYAR**

A fragrance display is set off from the rest of the store's white palette by floating panes of purple-tinted glass arranged in a Y-shape. Shelf displays in the vendor niches along the walls bathe the products in high color-rendering T5 fluorescent light. Fixtures were specified in 2-, 3-, and 4-foot lengths to accommodate the varying shelf sizes. T5s also are mounted in channels on either side of the floor-length mirrors located at the end of some displays.

## DETAILS

**Project** The Yellow Building, Monsoon Accessorize Headquarters, London  
**Client** Monsoon Accessorize, London  
**Architect** Allford Hall Monaghan Morris Architects, London  
**Lighting Designer** NDYLIGHT, London  
**Landscape Architect** MUF, London  
**Structural Engineers** Adams Kara Taylor, London  
**Contractor** Laing O'Rourke, Kent, England  
**Project Size** 120,000 square feet  
**Project Cost** 32 million pounds  
**Lighting Installation Cost** 1 million pounds  
**Watts Per Square Foot** 1.225  
**Photographer** Richard Leeney, London

# Busy Bees

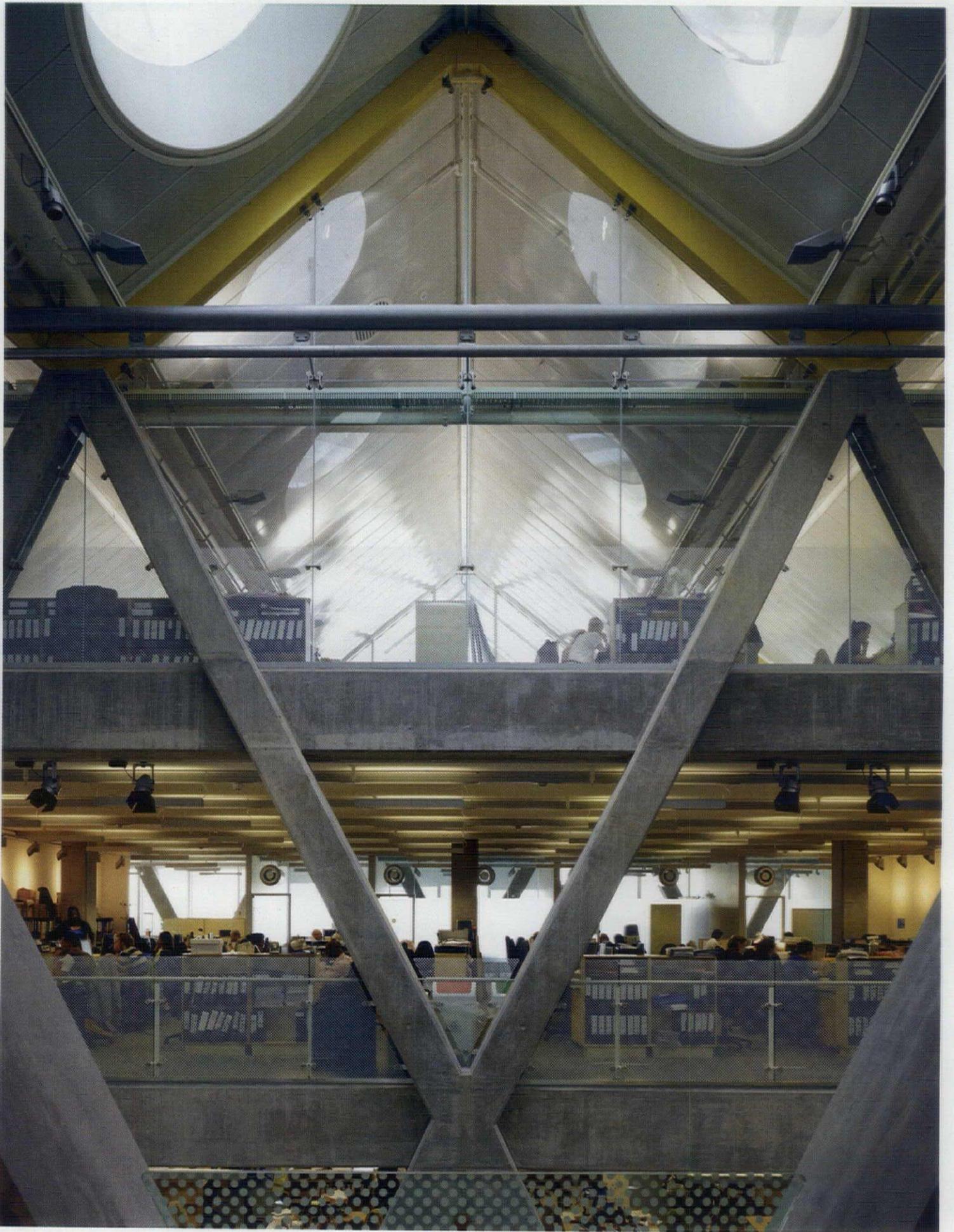
## AN ENERGY-EFFICIENT LIGHTING DESIGN ENCOURAGES COMMUNICATION AND PRODUCTIVITY IN A MODERN WORKPLACE

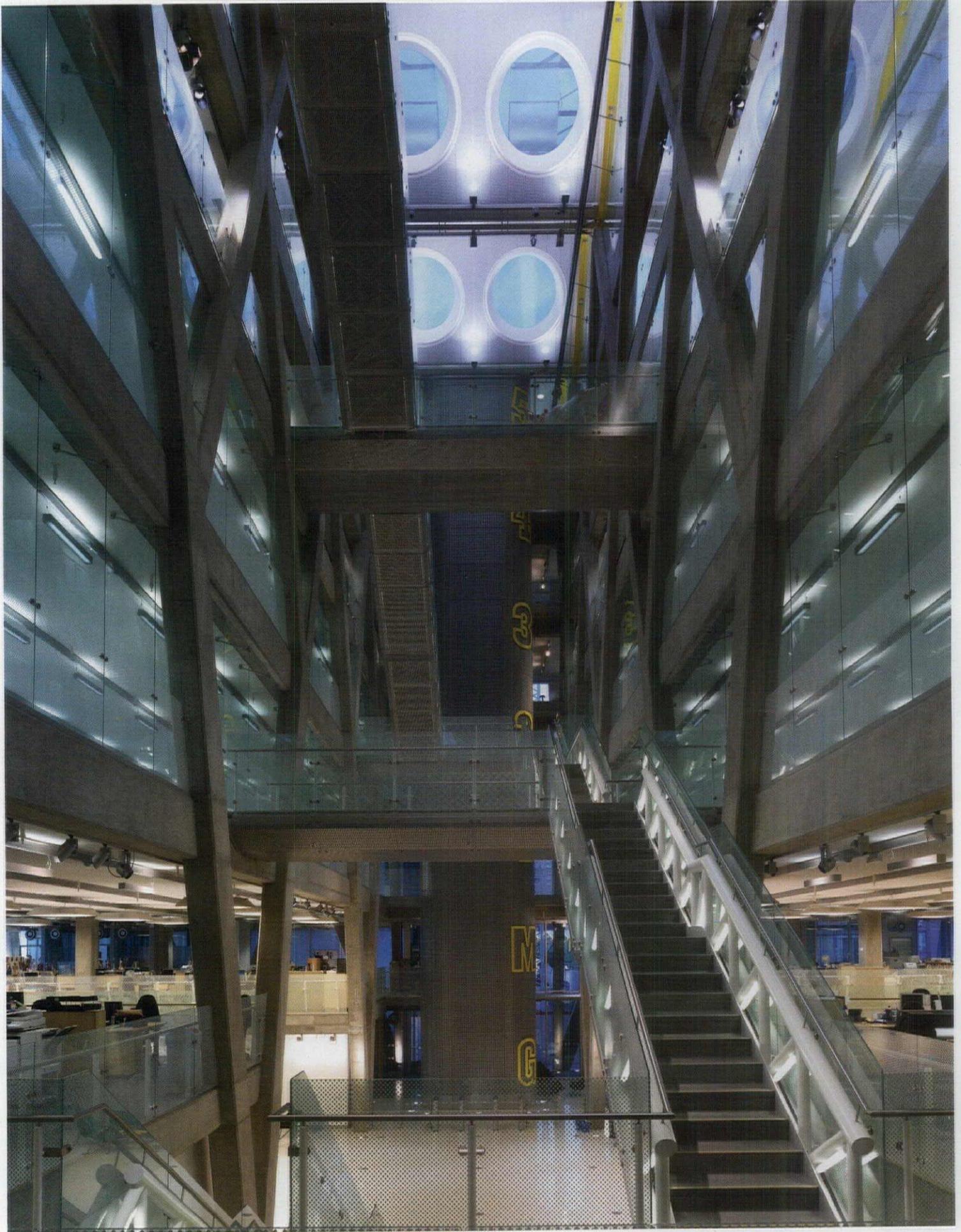
**Made famous by the film** starring Julia Roberts and Hugh Grant, Notting Hill, an area in West London is affluent, fashionable, and known for its Portobello Road Market. However, until recently, just a hillside away, Notting Dale sat derelict, cut off from the city and dotted with warehouses and council estates. But now the area has begun its transformation into a vibrant urban quarter: It's home to Notting Dale Village, a mixed-use development whose more than 500,000 square feet will include office, studio, and residential buildings, a boutique hotel, and a new road to connect the site with the city.

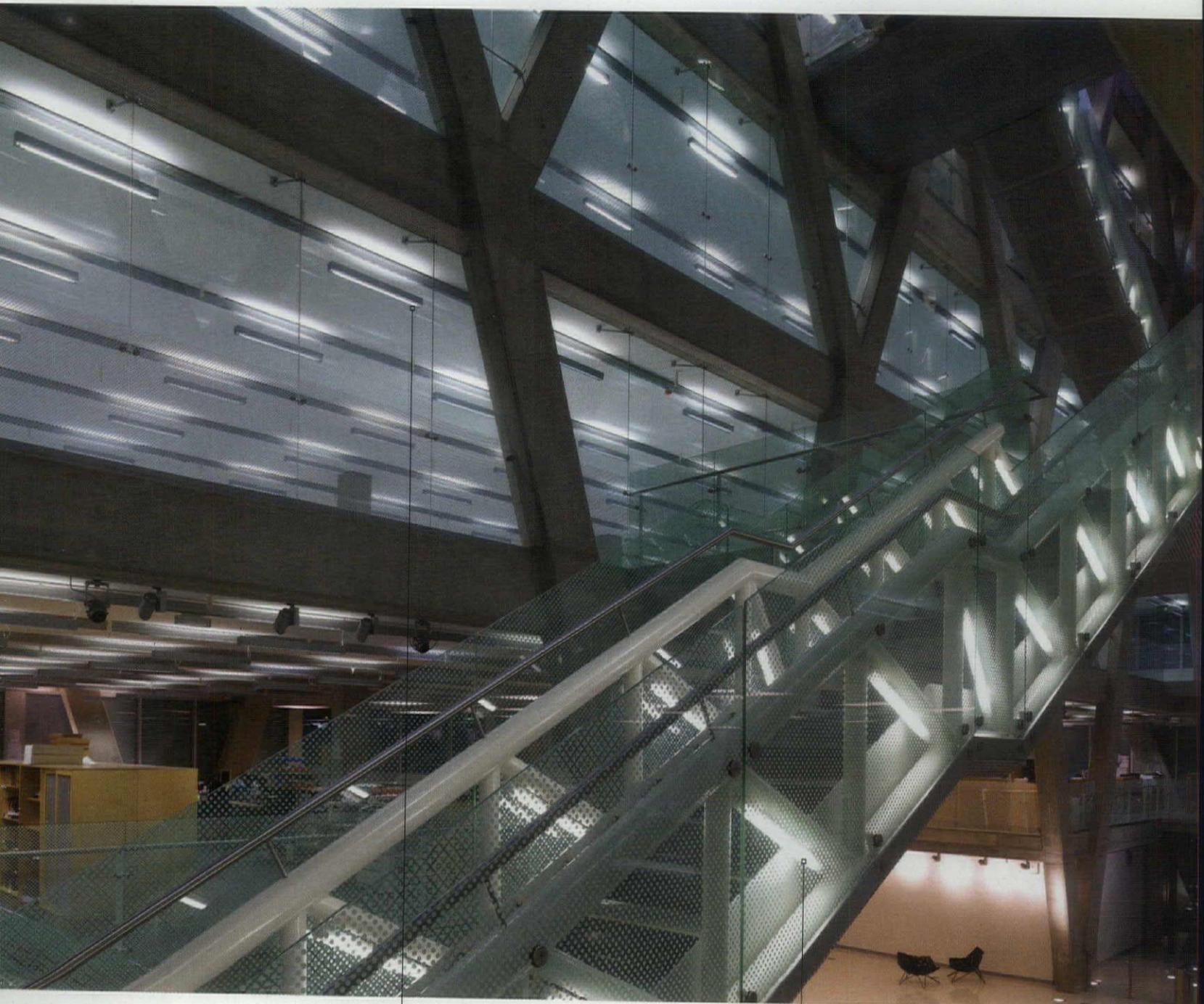
The development's first project, completed in 2008, is the Yellow Building, the anchor of Notting Dale Village that serves as a symbol of the area's promising revitalization. Designed by London-based Allford Hall Monaghan Morris Architects, it houses the global headquarters of Monsoon Accessorize, a European clothing brand whose founder and owner bought the entire Notting Dale Village site complete with planning permission to develop in future phases.

Measuring 120,000 square feet, standing seven stories tall, and containing office space, a modern art collection, an employee-only café, and a public restaurant, the Yellow Building—named for its vivid daffodil-hued cladding—is a distinctive concrete diagrid structure with an exposed warehouse-like aesthetic that exemplifies the architects' notion of a "white-collar factory." As Maida Hot, design director at NDYLIGHT, the London-based lighting firm that devised the Yellow Building's lighting strategy, says, "It's an expressive building in terms of its appearance. Everything is on show, but at the same time is very much controlled with most elements being integrated into the design"—a factor that greatly informed the lighting scheme.

Having to design for such an immense space, Hot and her team began in the building's common areas. In the atrium and double-height ground floor, home to Monsoon's extensive art collection and where the company holds fashion shows, a gallery lighting approach is used for its flexibility. Track-mounted







The atrium runs the full height of the seven-story building and is capped off by rooftop portholes, which deliver natural light deep into the building's interior (left). Integrated linear fluorescent lighting in the stairs and a busway system for office lighting complement the natural light and lend to the building's airy atmosphere (above).

#### TRACKLIGHTING ERCO

This surface-mounted bus bar system, a 230V suspended three-circuit lighting track, is connected to local DALI phase dimmer modules. The system is designed to incorporate occupancy sensors, fire detectors, and a range of fixtures that are installed throughout the open space office floors. • [erco.com](http://erco.com) • CIRCLE 133

#### STAIR LIGHTING ENCAPSULITE

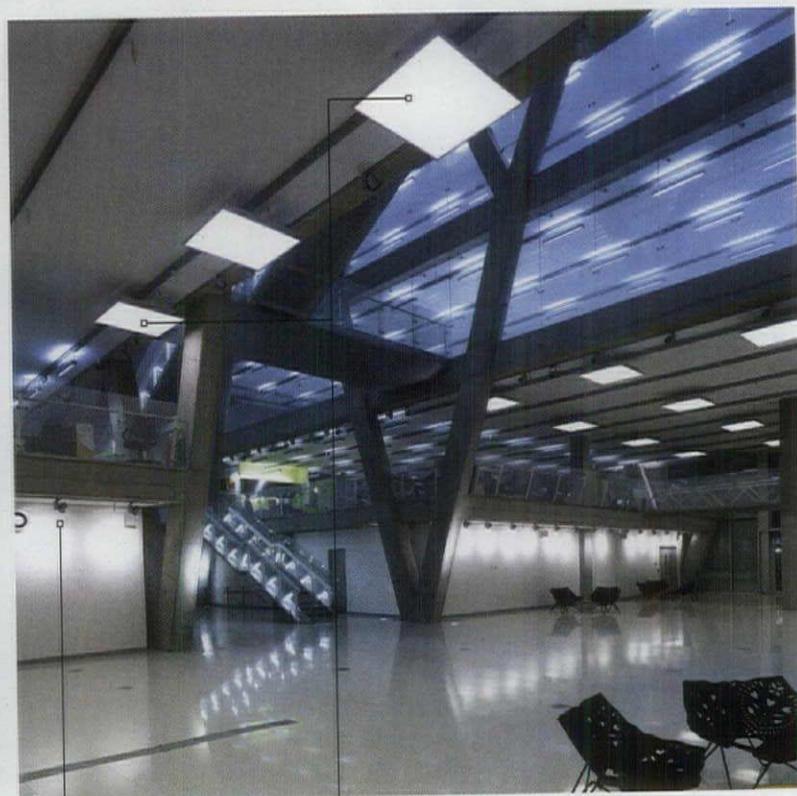
For the atrium stairs, lighting is integrated into the balustrades using a multitube linear fluorescent fixture outfitted with 3000K 14W T5 lamps that are encased in clear protective sleeves. • [encapsulite.com](http://encapsulite.com) • CIRCLE 134

metal halide spotlights are aimed at walls, and locations are earmarked for art, exhibits, catwalks, and future lighting. The track allows any part of the space to be illuminated. In addition to grids of suspended oversized square dimmable T5 fluorescent downlights, spotlights aimed from the upper floors provide uniform ambient lighting. On the atrium's roof, circular cold cathode luminaires—similar fixtures are found in the reception area—supplement the general illumination.

From the atrium, a dramatic open staircase runs the height of the building, leading the eye rhythmically up to the lofty roof. Each stairway's steel balustrade

is illuminated with integrated 14W T5 linear fluorescent fixtures, transforming the stairways into a dynamic artery. Alternatively, the elevator lobbies are subtly lit with borrowed light from 35W metal halide G12-lamped track fixtures from the floor below that shine through glazed floor tiles underfoot. Light also reflects off these tiles into the vestibules, creating a transparency that reinforces the building's airy appeal.

On the office floors, the layout is a combination of open plan spaces, shared offices, showrooms, and workshops. Situated to maximize connection between the staff, these areas are located on massive 20,000-square-foot unobstructed



#### UPLIGHT I-GUZZINI

The Linealuce family of inground recessed floor luminaires can be used for direct lighting and wallwashing, is available with either LED or fluorescent lamping options, is dimmable, and has an integral control gear. At Monsoon the fixture is used to highlight the entrance lobby's canted wall and employs a 2700K 35W T5 linear fluorescent lamp. • [iguzzini.com](http://iguzzini.com) • CIRCLE 135

#### TRACKLIGHTING ERCO

The signature feature of the Optec Series of track-mounted spotlights is that it separates the light head from the control gear housing. Different configurations of lamp wattages, lenses, and reflectors are used throughout Monsoon. 70W metal halides with a 20-degree reflector are used for the gallery tracklighting and uplighting in the atrium. • [erco.com](http://erco.com) • CIRCLE 136

#### DOWNLIGHT MODULAR

The Diablo suspended square downlight uses 10 39W T5 linear fluorescent lamps to deliver uniform lighting across its 46-inch-square surface. The luminaire includes an electronic dimmable control gear, an opal diffuser with an aluminium frame, a DALI broadcaster for dimming five electronic ballasts, and is supplied with a complete suspension kit. • [supermodular.com](http://supermodular.com) • CIRCLE 137

floor plates that span both sides of the atrium. Generously sized landings also link adjacent floors and act as informal art galleries and meeting and break-out spaces. Not only do these areas promote visibility between the various departments and encourage collaboration, the floor plan also typifies the industrial aesthetic of the warehouse office with its high ceilings, white interiors, and exposed concrete frame.

In keeping with the minimalist environment and to provide maximum flexibility, Hot chose a surface-mounted bus bar system—modified to accept

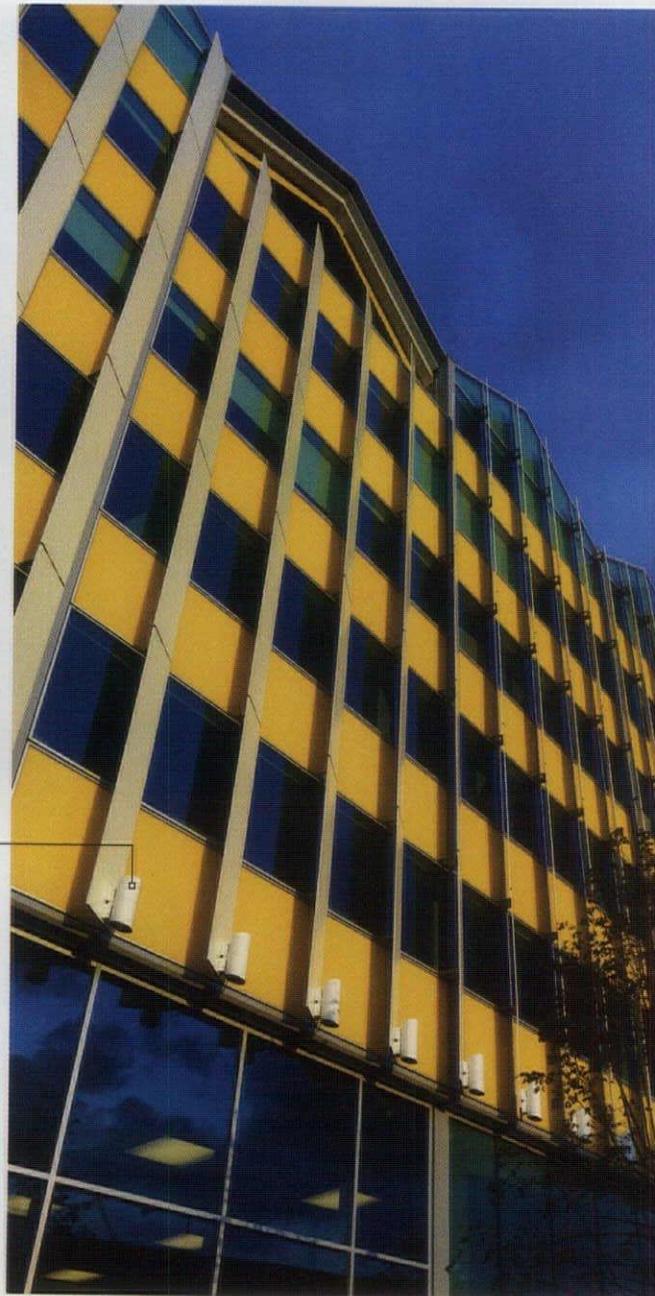
occupancy sensors, fire detectors, and a range of fixtures—which is laid out equidistantly across the ceilings on all office floors. "We wanted to achieve a workspace of the future for the design company," Hot explains. "Something that reflects their image, but at the same time has the elements of corporate flexibility and all the provisions of the modern workspace." Accommodating these needs, the bus bar system is equipped with direct/indirect linear fluorescent fixtures that provide general illumination. Additional track-mounted wallwashers on the perimeter walls create vertical brightness.



Sconces positioned at the base of the exterior vertical louvers on the building's façade (right) highlight the architectural detail and also provide pathway illumination (above). A custom LED chandelier accents the entry canopy (facing page top left). The artistic ceiling treatment continues into the lobby reception area (facing page bottom left). A combination of metal halide tracklights and oversized square fluorescent downlights illuminate the ground floor space where the company displays its extensive art collection and holds fashion shows (facing page bottom right). The elevator lobbies (facing page top right) use borrowed light from metal halide track fixtures from the floor below.

#### WALL SCONCE DAL

The Colonnade outdoor wall-mounted luminaire features an integrated downlight and uplight component with asymmetric beam distributions using narrow angle reflectors and elongated lenses. Lamping requires 35W (downlight) and 70W (uplight) metal halides for this fixture that measures 12 inches in diameter and 24-inches-tall, and features an integral control gear. Standard finish is metallic silver, but custom finishes also can be specified. • [www.dal-uk.com](http://www.dal-uk.com) • CIRCLE 138



On the top floor, which houses Monsoon's design studio, the lighting design echoes that of the floors below. The same direct/indirect T5 linear fluorescents on bus bars provide general illumination, but uplights are used to highlight the seesaw roof, whose triangular peaks crown the building and impart an even more pronounced warehouse feel to this space. In addition, the curtain wall's full-height glazing allows an abundance of natural light into the studios, a boon to designers whose work benefits from its good color rendering.

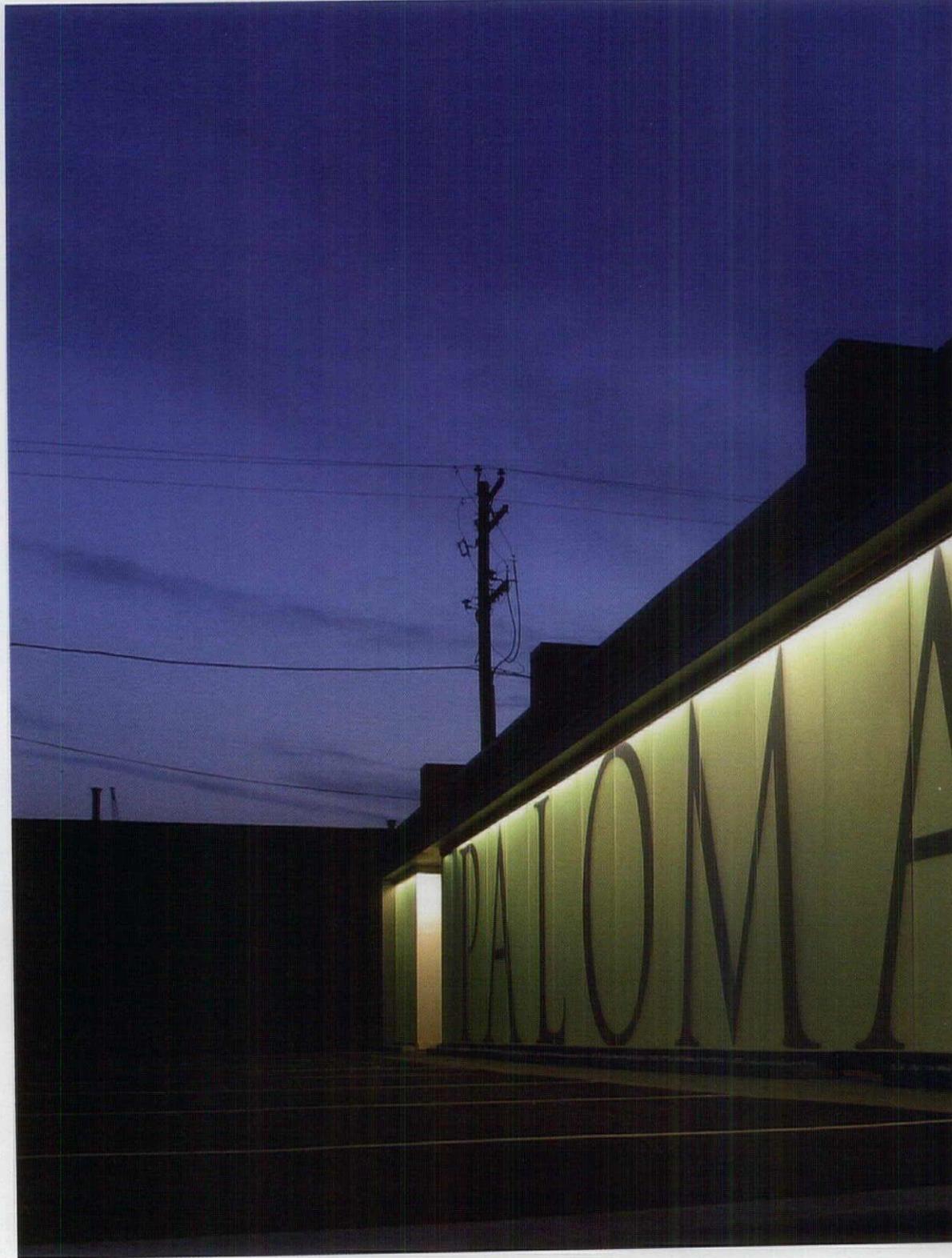
Overall, the lighting design is much like the building itself—open and highly efficient. Thanks to natural light from the roof's portholes over the atrium, daylight penetrates deep into each floor level. Mindful of energy issues, Hot designed the office lighting to approximately 300 lux, the lower end of U.K.-recommended illuminance levels. To conserve electricity, energy-efficient sources were employed throughout, passive infrared occupancy sensors are contained in the bus bar system on every floor, and daylight sensors monitor the atrium, stairs, and walkways. As Hot notes, "The client was keen to create an energy-efficient building, but we also wanted to push the design." The result is a scheme that expends only 1.225 watts per square foot.

Other environmentally friendly strategies include the displacement ventilation system (cool air enters at the base of the building and displaces hot air as it rises and exits through the atrium), the use of the building's exposed con-

crete structure's thermal mass to stabilize internal temperatures, solar shading, a rainwater harvesting system, and an intelligent lighting control system, which is set to a program that varies depending on day, time, and occupancy levels. "The system is flexible enough to be reprogrammed in sections to meet the client's requirements," Hot says.

This level of efficiency also extends outside, where vertical louvers, together with a striped façade of low-E and yellow spandrel glass, reduce solar gain. Here, lighting is kept to a minimum. Ground-mounted uplights highlight the building's structure, while the louvers are gently illuminated with luminaires that have both an uplight and a downlight component that also provide building perimeter circulation lighting. Because the landscape architects were eager to create a porch-like entrance that felt like a home, NDYLIGHT developed a chandelier made up of a cluster of white LED globes suspended at different heights. And to ensure that no energy is wasted, an astronomical time clock turns the lights on only at dusk.

"It was quite a challenge to create a lighting plan that met all of Monsoon's requirements," Hot explains. "The lighting design really had a big impact on what the building looks like." And the completed building is a dramatic new headquarters that promises to bring urban renewal to Notting Hill's once overlooked neighbor. **SALLIE MOFFAT**



## DETAILS

**Project** Palomar Welcome Center,  
Milwaukee

**Client** Gatehouse Capital, Dallas

**Architect and Lighting Designer**  
Johnsen Schmalig Architects,  
Milwaukee

**Gallery Lighting Consultant**  
Lang Lighting Design, Dallas

**Project Size** 17,000 square feet

**Project Cost** \$1.4 million (includes  
landscape improvements)

**Watts Per Square Foot** 0.8

**Photographer** John J. Macaulay,  
Milwaukee; Images courtesy  
Johnsen Schmalig Architects

# Sign of the Times

**AN INVENTIVE REDEVELOPMENT PROJECT SITS POISED  
MILWAUKEE'S PARK EAST NEIGHBORHOOD BUT FALLS**



## TO BREATHE NEW LIFE INTO VICTIM TO THE ECONOMY

**Formerly occupied** by an underused freeway spur, the Park East area of Milwaukee, a vacant urban desert, is being transformed by a large-scale redevelopment that includes a series of mixed-use projects connecting the downtown to adjacent neighborhoods. In December 2007, Gatehouse Capital, a national real estate investment and development firm located in Dallas, hired Milwaukee-based Johnsen Schmalig Architects (JSA) to transform an abandoned one-story warehouse on the edge of the Park East redevelopment corridor into a welcome center that would introduce the public to the investor and design team's vision for the area. JSA was charged with designing an interactive hub that would attract and connect investors, business owners, and future residents, and the architects had to accomplish this on an extremely limited budget, working with tight deadlines and the constraints of the existing warehouse structure.

The Palomar Welcome Center, which opened in May 2008, includes a public lounge, offices, a gallery, and a model condominium for the Hotel Palomar and Residences, a 22-story luxury tower to be operated by the Kimpton Hotel chain. JSA worked on the project's architecture and lighting, taking a minimalist approach to creating a corporate identity that is neutral and elegant without forcing a prescribed aesthetic. "The goal was to create an architecturally significant addition to the city that would be unexpected and leave room for imagination," says JSA principal Sebastian Schmalig. As soon as they began their design, it became apparent to Schmalig and his team that they needed to address the windowless façade of the building. Their solution was to have it become the design's focal point, a gesture to welcome visitors to the center, given the rather foreboding and bare landscape that surrounds the building. "Incorporating signage and lighting into the façade was something that the client was immediately interested in," Schmalig explains. "We quickly began thinking of the façade as a billboard that could communicate a sense of excitement." The façade design also conveniently serves as a clever cost-saving solution, combining marketing and architectural budgets.

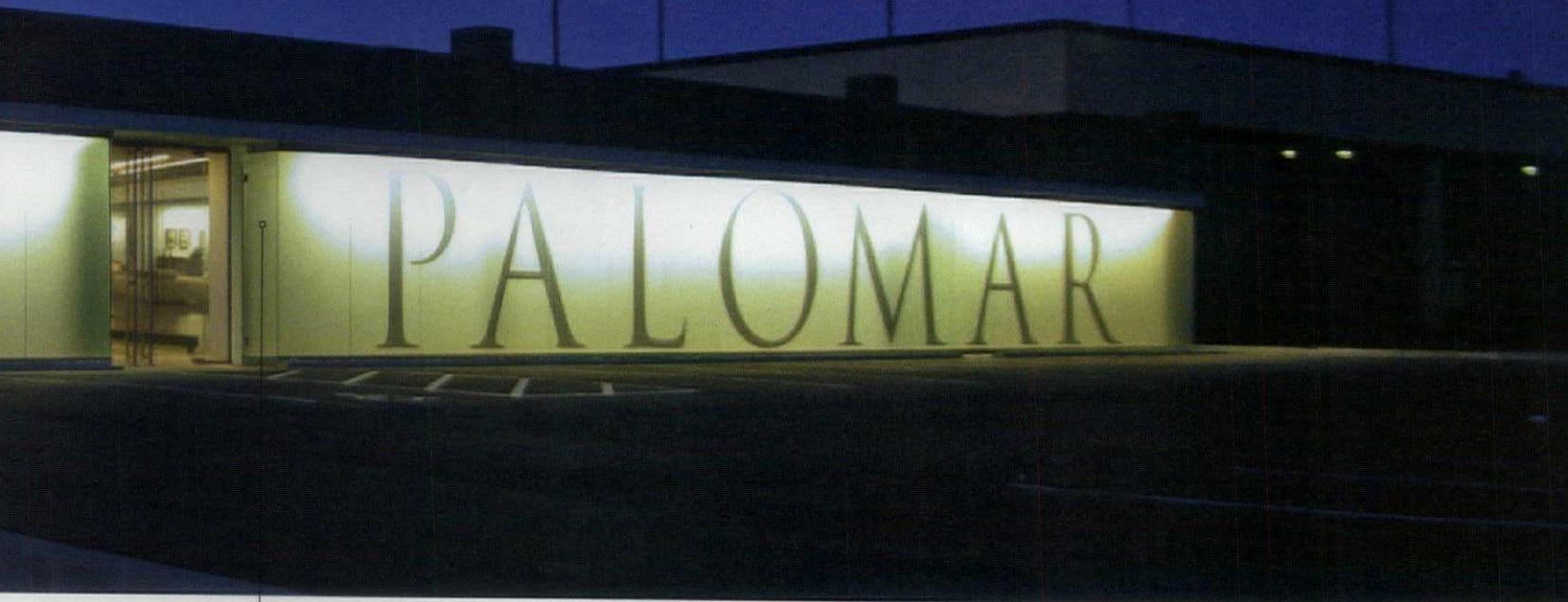
To create the glowing billboard effect, the windowless brick wall on the south façade is wrapped with a long translucent glass scrim that is backlit with two rows of T8 linear fluorescent striplights. By strategically incorporating simple off-the-shelf products into the façade's design, JSA produced an inexpensive yet memorable first impression. Applied supergraphics spell out the name of the project and are silhouetted against the illuminated scrim as light from the façade emanates out into the surrounding neighborhood. The building demands attention in a bold yet sophisticated fashion. Additionally, the façade design acts as a thermal buffer throughout the year by reducing solar impact on the building envelope and serving as a secondary protective layer during the cold winter months.



A victim of planning strategies from the late 1940s to the early 1970s, Milwaukee's Park East neighborhood (facing page bottom) has suffered a fate typical of many U.S. cities post-World War II: It saw the expansion of the nation's highways slice through urban blocks and demolish buildings, leaving the areas in and around this new infrastructure unusable. Over time, urban planning strategies have changed and there has been a move to reclaim these abandoned neighborhoods. In 2007, Gatehouse Capital saw the potential for a large-scale redevelopment in Park East and hired Johnsen Schmalig Architects to renovate a one-story warehouse (bottom left) as a new Welcome Center. A bold lighting treatment of the façade (above) set out to act as the design catalyst to launch the area's rebirth.



The interior spaces of the Welcome Center were designed with flexibility in mind. To conceal the raw appearance of the warehouse, JSA introduced three ceiling bands that wrap in and around the various areas to create spatial definition. Depending on the programmatic needs of each space—reception area, lounge, and conference room—appropriate luminaire types are recessed into each of the bands. Visitors first encounter a wooden ceiling ribbon that runs the length of the entry and then turns down to create a backdrop for the information desk. Continuous recessed lensed linear fluorescent fixtures stretch the entire horizontal and vertical length of this band and create "a line that literally draws people into the space," Schmalig says. In a second ceiling band, this one made of gypsum, recessed halogen downlights help define an open lounge space adjacent to the entry vestibule. A fireplace anchors the seating area that is used for informal gatherings, adding another layer of warmth and illumination. The third ceiling band delineates a conference



**BACKLIGHT METALUX, COOPER LIGHTING**

To illuminate the Welcome Center's façade scrim, the architects used this linear fluorescent T8 strip. Since the project installation, Cooper Lighting has introduced the next evolution of this multipurpose striplight. The new SSF Series has a flip-up socket design, which, according to Cooper, reduces installation time. The luminaire is available in either one-, two-, or three-lamp options; 2-, 3-, or 4-foot lengths; and coordinates with several types of T8 electronic instant-start or rapid-start ballasts. The fixture housing is fabricated from channel-die, cold-rolled steel with a baked white enamel finish. UL and CUL listed, the fixture is rated for damp locations. • [cooperlighting.com](http://cooperlighting.com) • CIRCLE 145



JOHN J. MACAULAY, COURTESY JOHNSEN SCHMALING ARCHITECTS

room that can be closed off from the rest of the space with large sliding glass panels. When meetings are not taking place, the panels can be opened to extend the space of the adjacent gallery, which relies on low-voltage halogen tracklights to illuminate temporary exhibits. Offices are located along the east wall where windows provide daylight, a feature that is unavailable in the rest of the warehouse.

Despite the hope that this redevelopment project would be a jump-start for growth and building in the Park East neighborhood, the reality is that it has become another victim of the devastated real estate market. Open for only 10 months, the doors of the Palomar Welcome Center closed in February 2009 when plans for the Park East redevelopment were suspended. The building now sits unused as it awaits the fate of the market. Although its closing may be an unavoidable sign of the times, the Palomar Welcome Center is an inventive and enthusiastic reminder of the power of design as a catalyst for urban reinvention. **MEGAN CASEY**

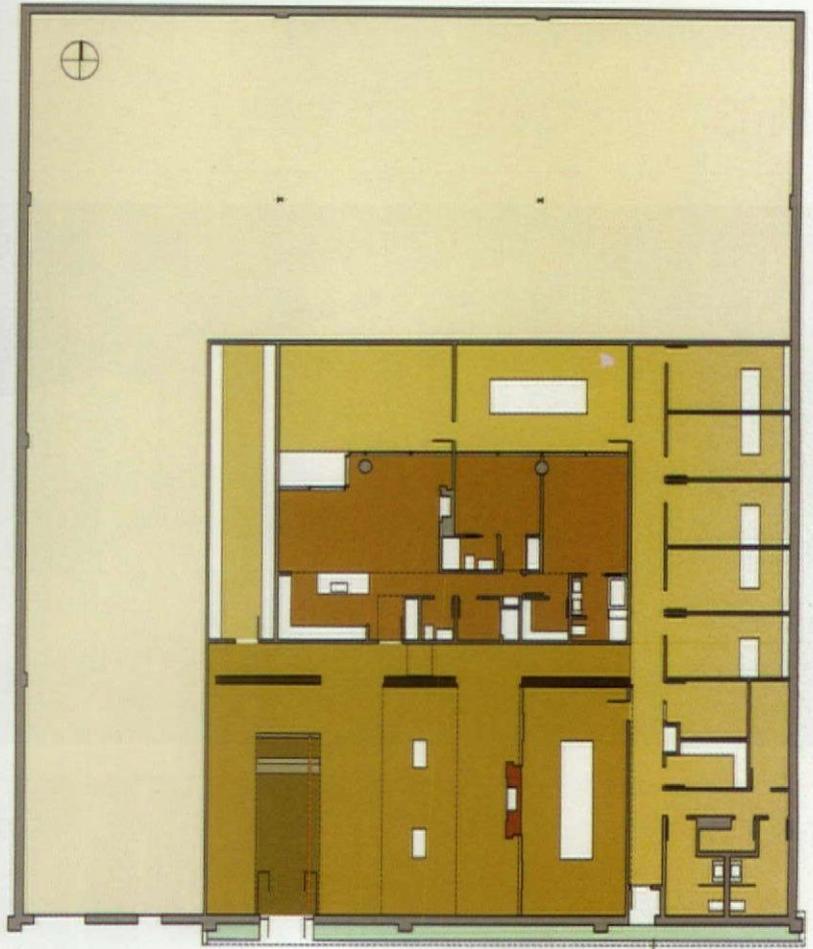


#### DOWNLIGHT PORTFOLIO, COOPER LIGHTING

This low-brightness downlight was selected for the Welcome Center's recessed gallery lighting. It has a 6-inch aperture and can be used with 26W, 32W, or 42W triple-tube 4-pin lamps. A molded trim ring surrounds the fixture, ensuring a 45-degree angle cutoff that eliminates light spill at the ceiling plane. For use with single electronic ballasts, adjustable socket locks maintain optimal lamp focusing. Multiple reflector types—medium beam, wide beam, and open wallwash—are all interchangeable within the same luminaire housing. • [cooperlighting.com](http://cooperlighting.com) • CIRCLE 146

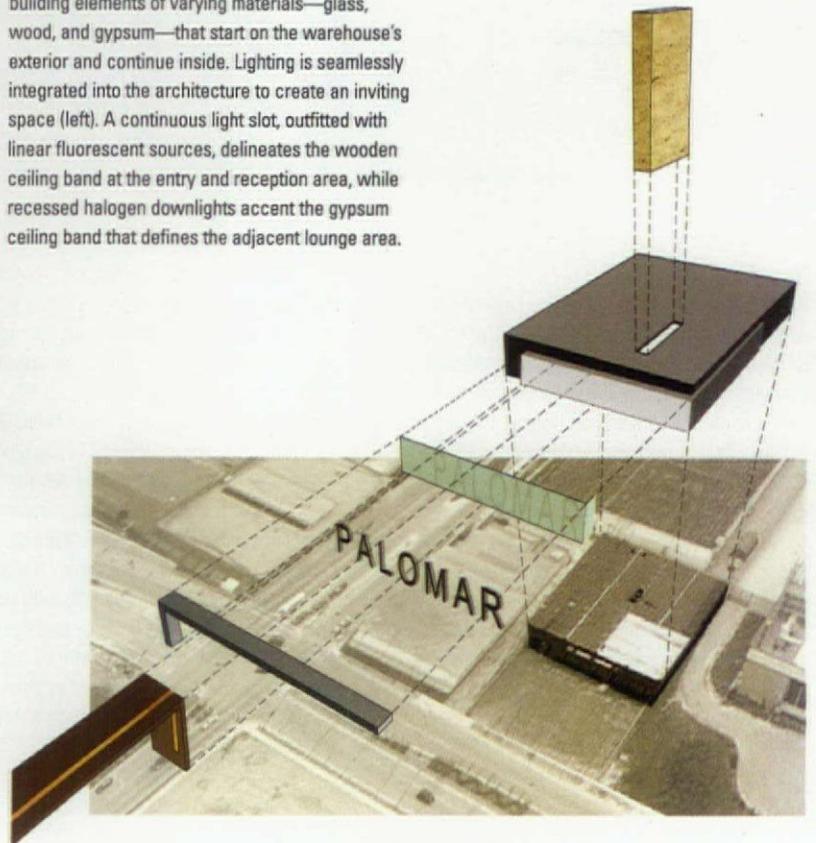
#### LIGHT SLOT PINNACLE

The Edge family of narrow linear lighting systems is available in either ceiling-recessed, suspended, or surface-mounted options. The recessed E4A model, which has a 4-inch aperture, a snap-in acrylic lens, and two T8 lamps, is used as the Welcome Center's linear slot lighting feature at the entry canopy and desk. Additional lamp options include T5 and T5HO with a parabolic louver or MR16s. Finished in a matte white powder-coat, the Edge 4A can be installed in acoustical grid or inaccessible ceilings with either flange or flangeless details. • [pinnacle-ltg.com](http://pinnacle-ltg.com) • CIRCLE 147



FLOOR PLAN

As shown by the architect's axonometric diagram (below) and floor plan (above), the architecture and lighting strategies revolve around a series of layered building elements of varying materials—glass, wood, and gypsum—that start on the warehouse's exterior and continue inside. Lighting is seamlessly integrated into the architecture to create an inviting space (left). A continuous light slot, outfitted with linear fluorescent sources, delineates the wooden ceiling band at the entry and reception area, while recessed halogen downlights accent the gypsum ceiling band that defines the adjacent lounge area.

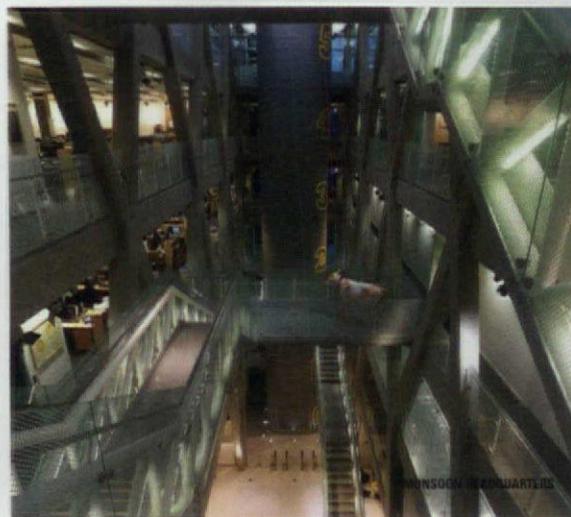


**TRACKLIGHT W.A.C. LIGHTING**

W.A.C.'s Series 160 is used with the company's L track system. The luminaire has a bi-pin ceramic socket for an MR16 lamp up to 50W, a clear lens, includes an integral electronic transformer, and can be rotated up to 350 degrees for horizontal aiming and 90 degrees for vertical aiming. Available in either a black or white powder-coat finish, the fixture measures 4<sup>1</sup>/<sub>16</sub>-inches from the track, providing a low-profile bracket design that keeps the luminaire close to the ceiling. For Palomar, this system was used for tracklighting in the gallery. • [wacighting.com](http://wacighting.com) • CIRCLE 148

JOHN J. MACAULAY, COURTESY JOHNSON SCHMALING ARCHITECTS (ABOVE); COURTESY JOHNSON SCHMALING ARCHITECTS (FLOOR PLAN AND AXONOMETRIC)

# SPECS



## Murale

**RSA, Cooper Lighting:** Adjustable pinhole ceiling downlights throughout the store with 20W MR16 lamps, an infrared coating, and a 25-degree beam spread  
**Foresight Lighting:** T5 3500K fluorescent striplights at ceiling coves and vertical wall displays in vendor niches  
**Note:** LEDs in curved display shelves and the animated cornice feature in the derma area, and the glass-fin dividing wall, were supplied by the millwork fabricator—Unique Store Fixtures—and built into casework and feature elements. The LEDs in these instances use a cooler 5000K color temperature. This was coordinated with the lighting designer, Toronto-based Lightbrigade, to provide a balance with the illumination throughout the rest of the store, which achieves a uniform 3500K.

## Yellow Building, Monsoon Headquarters

**ACDC:** High-output 4200K cold-cathode lighting built into ground-floor entrance canopy openings

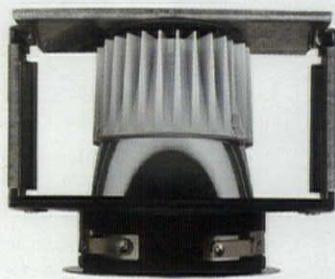
**Bega:** External recessed metal halide downlights in entrance canopy  
**DAL:** 70W/35W metal halide spotlight with uplight and downlight component fixed to base of vertical louvers on building façade  
**ERCO:** Lightcast 35W metal halide G12 downlights in atrium; Optec 35W metal halide G12 track-mounted spotlights for corridors and elevator lobbies, and spotlight wallwasher for office perimeter walls; Optec 70W metal halide G12 track-mounted spotlights for gallery lighting and atrium uplighting; Stella 70W metal halide G12 track-mounted spotlight with sculpture lens for atrium stairway and bridge landings; Stella 150W G12 track-mounted spotlight with sculpture lens for atrium floor lighting; 230V suspended three-circuit lighting track connected to local DALI phase dimmer module in open-plan office areas  
**EncapSulite:** 14W 3000K T5 linear fluorescent luminaire integrated into atrium stairway balustrade

**iGuzzini:** In-ground recessed 35W T5 linear fluorescent uplights at building entrance lobby  
**Mike Stohne Lighting:** Custom-designed LED chandelier at building entrance canopy  
**Modular:** Suspended 39W T5 fluorescent square downlights in ground-floor gallery area

## Palomar Welcome Center

**Metalux, Cooper Lighting:** Façade scrim and super-graphic signage backlit with two rows of 48-inch-long T8 linear fluorescent striplights  
**Portfolio, Cooper Lighting:** Low-brightness 6-inch-aperture recessed downlights in gallery area  
**Pinnacle:** Linear slot-lighting feature with T8 lamps at entry canopy and reception desk  
**WAC Lighting:** Low-voltage halogen tracklighting in gallery area

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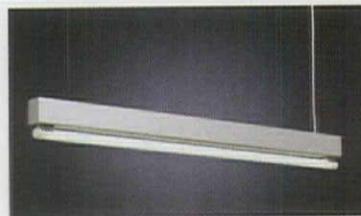
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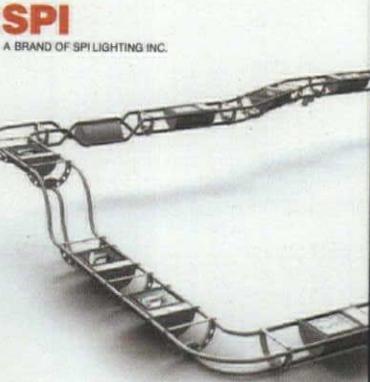
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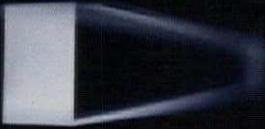


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# Suzan Tillotson

**A PRACTICE BUILT ON BUSINESS SENSIBILITY LEADS TO DESIGN INTEGRITY**

**Quiet but tenacious,** Suzan Tillotson has carved out a lighting design career spanning more than 20 years. Having worked for several prominent lighting designers, including Howard Brandston and Jerry Kugler, Tillotson realized her dream to lead her own firm when she established Tillotson Design Associates in 2004. With an impressive portfolio that includes such seminal projects as the Seattle Public Library and the New Museum for Contemporary Art in lower Manhattan, Tillotson is mindful of the challenges facing lighting today. It is her early work experience—for engineering firm Levy-Kramer Associates—in a 1980s job market plagued by recession that has provided Tillotson with her most important resource, which she still relies on today: her ability to mix business practicality with design integrity. **ELIZABETH DONOFF**

**What sparked your interest in lighting?**

My professor at LSU—Andrea Daugherty—and her lighting class. When you render light, you have to think about light, dark, shadow, form, and space. Every project always has some element of lighting.

**What's the most important aspect of implementing a design?**

Priorities change from job to job, but it's always about how to create a beautiful and quality environment within the criteria you are given.

**How did your first job impact the way you practice lighting?**

Raoul Levy was an amazing man. He taught me that first and foremost we serve our clients. You must respect them and your colleagues. In a consulting business, you are only as good as your people.

**What is the greatest challenge facing practice today?**

Quantitative standards are being set by people who do not really understand how lighting is done; they don't understand the tools.

**You are teaching a lighting class at Princeton's School of Architecture. How do you convey light to students?**

We talk about it conceptually. I don't know how you can design architecture without thinking about how light interacts with materials.

**Does this approach transfer to your practice?**

Absolutely. Roles are clearly defined but everybody's involved, pinning things up, sitting back, looking at it. Communication is so important.

**Why did you want to establish your own office?**

I wanted to create an environment where people would want to come to work. A place of respect where we could recognize the beauty of ideas while still paying attention to the bottom line.

KATJA HEINEMANN/AURORA SELECT