

AL

architectural lighting

innovation + experimentation

two artists challenge the definition of light + a traveling museum creates a spiritual retreat + new project delivery scenarios realize a transportation system + a prototype rethinks construction methodologies + euroluce and lightfair introduce exciting products + more

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Light defines space



as the masterly, correct and magnificent interplay of masses brought together in light". His skill in the use of space and volume was consummate - but he would envy the options we have today for shaping and forming light itself as a medium. With light, spaces can be defined and reinterpreted time and time again. Looking only at the walls and other surfaces,

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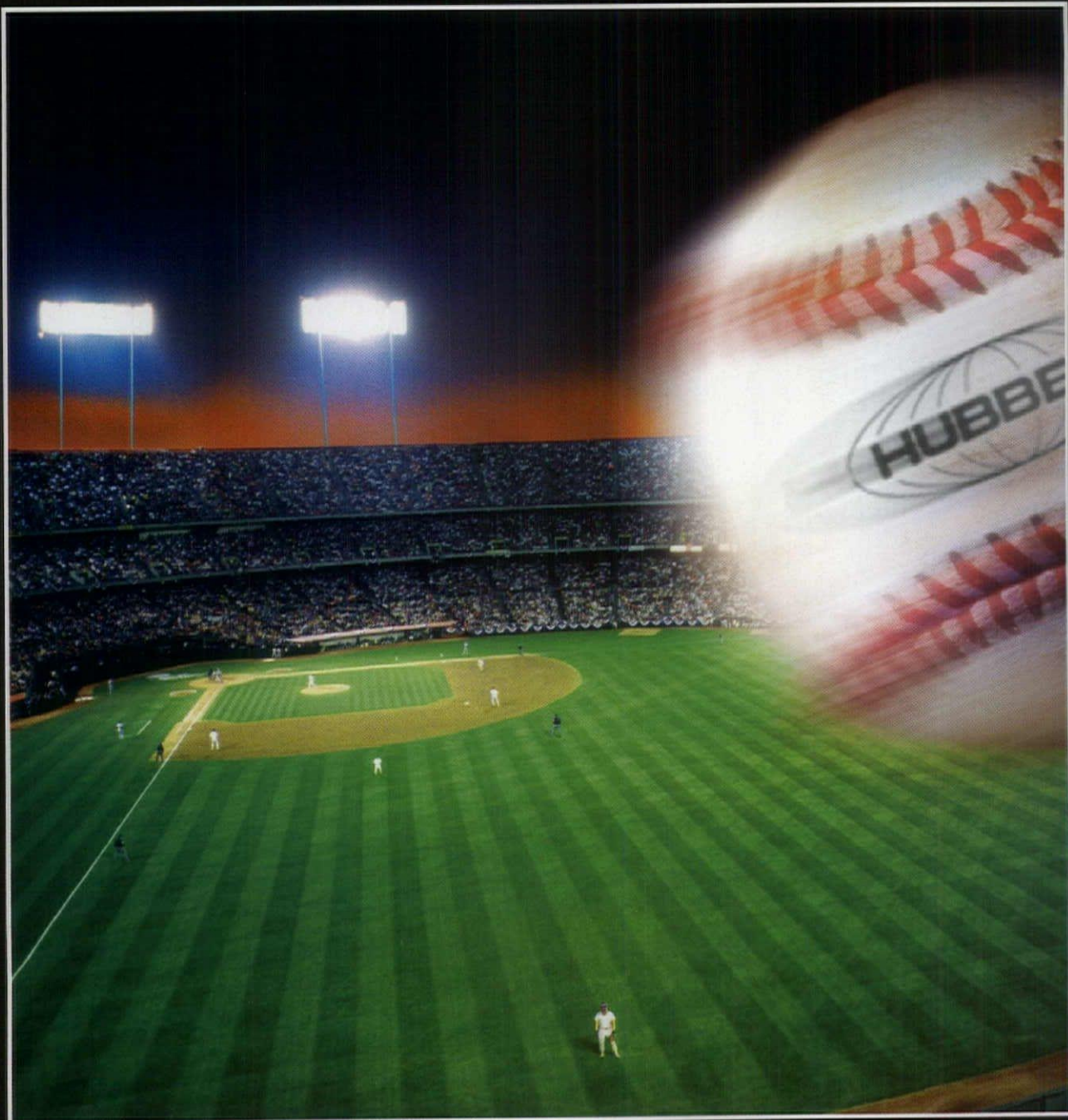
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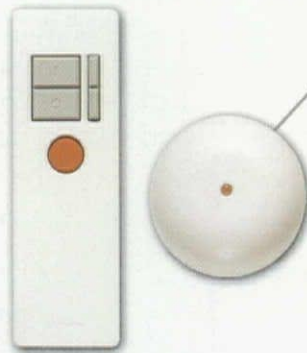
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Light is everything.

Light affects people.

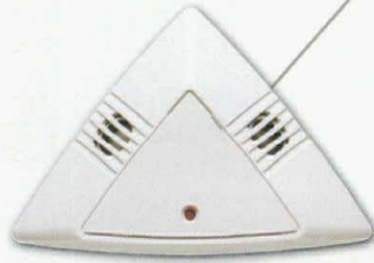
When the light is right, students learn more, employees are more productive, there are fewer health complaints and occupant comfort is increased.



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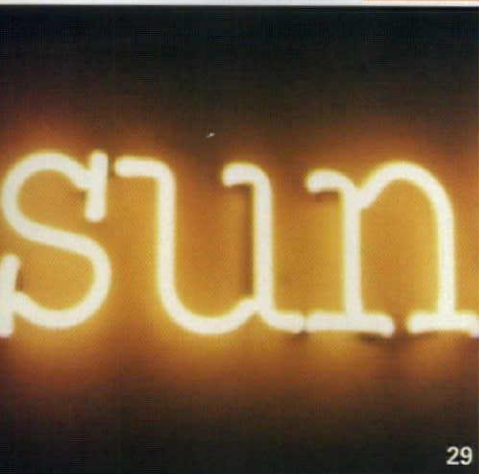
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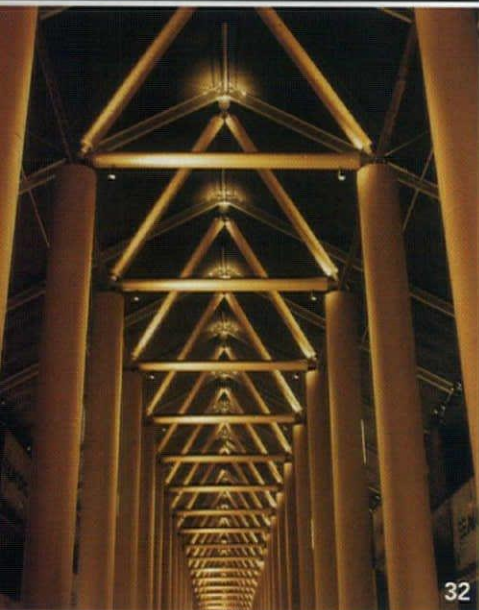
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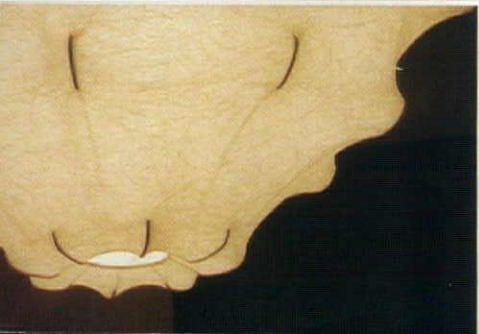
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Cover: Button, designed by Piero Lissoni for Flos, and arranged in a wall installation at Euro luce 2005, Milan. IMAGE: ELIZABETH DONOFF

This page: Lite Brite Neon Studio's "Negro Sunshine," for artist Glen Ligon, Art Basel, Miami, and Gallery Regen Projects, Los Angeles; Inside the Nomadic Museum, New York City; Xing Restaurant, New York City; Zeppelin, designed by Marcel Wanders for Flos, exhibited at Euro luce 2005, Milan.

 A sustainable design article

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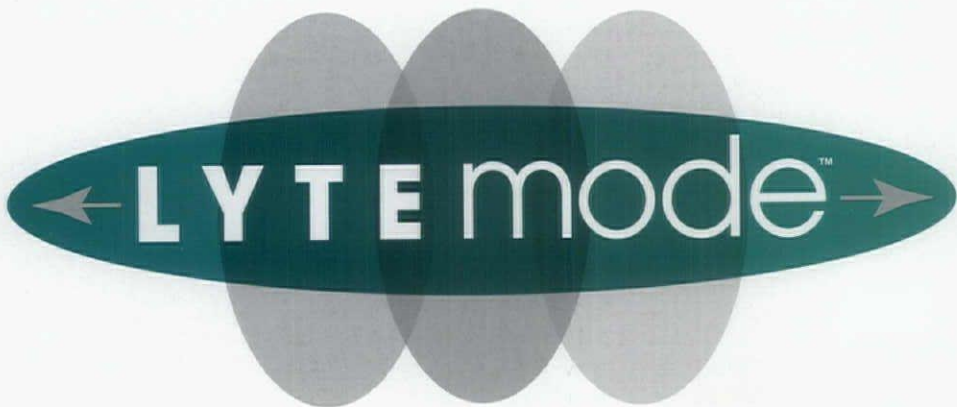
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imagination at work



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What's New

THE CONTENT IN THIS MONTH'S MAGAZINE falls under the thematic umbrella of innovation—timed, one might surmise, to follow a season of trade shows (Lightfair, Euroluce,

ICFF, Global Shop, and AIA), since these events are the traditional venue for the debut of new and original ideas.

This year, however, I heard many wonder where those ideas have gone. Designers in the know—no names, but their history with Lightfair qualifies them as authorities—were “disappointed” with the new product introductions. One manufacturer’s vice president of sales and marketing—again, no names, but the company exhibits regularly—was critical of the New Product Showcase, noting wryly that he planned to submit an LED product next year just to better his company’s chances at an award. (I am sensitive to the event, given A|L’s status as a sponsor, and I have heard this complaint before: in the last two years, it seems LED-anything automatically has an advantage.)

Certainly, once one overcomes the industry’s hyper-focus on LEDs, it is possible to see the product offerings for what they are and, in fact, there were a respectable number of noteworthy introductions. It is a phenomenon I am sure many of you are familiar with: Just when you’re certain you cannot accept another piece of literature or hear another spiel, something catches your eye. We went directly from Lightfair to Euroluce, so it was an indication of a product’s significance if it grabbed our attention after almost six days of nonstop tradeshow. Based partially on this litmus test, we have highlighted a selection of interesting new offerings from the shows on page 61.

Nevertheless, for us, just as it seems for the rest of the industry, these shows are not the first source for provocative content. Whether a function of deficient R&D dollars, handicapped inspiration, intellectual property theft, or apathy, most new introductions (with a few exceptions) do not seem that pioneering.

What we have recognized, and organized this issue around, are innovative and thought-provoking ways of approaching and realizing a design challenge. A|L is excited about people and projects, products and methods that make the user stop and appreciate the possibilities.

We value the development of new applications for old technologies: Lite Brite Neon Studio’s creative approach to that somewhat dated technology neon (page 29), and the elegant, yet practical, fixture design around the T8 for the JFK AirTrain stations by Domingo Gonzalez Associates (page 38). We loved Shigeru Ban’s temporary structure located for three months on Manhattan’s West Side. It was a testimony to sustainability, and the fact that a pow-

erful design experience can be created with the simplest of materials—pin spots, paperboard columns, river stones, and shipping containers. Elizabeth Donoff reports on a promising new building infrastructure prototype that reconfigures the stodgy, inefficient approach to current construction practices, in favor of a flexible option-based model (page 36). Of course, we could not ignore LEDs, and selected a project that exemplifies what they are good at: dramatic color displays (page 42). The concerns about collective acceptance of new technologies, no matter how innovative, is also considered in this issue. As Dr. Nadarajah Narendran points out in “Standards Are the Future” (page 23), LEDs have changed the lighting industry, but the widespread adoption of this technology hinges partially on the implementation of guidelines for measuring and reporting LED life.

Innovation is no longer strictly in the realm of science and technology. The business community and manufacturers realize the importance of design, so it is critical that designers continue to push for solutions that ignore traditional industry boundaries. Don’t be afraid. As Woody Allen said, “If you’re not failing every now and again, it’s a sign you’re not doing anything very innovative.”

On a related note, the effort to innovate is always helped by a fresh perspective. A|L’s editorial staff recently grew with the addition of associate editor Sallie Moffat. I thought A|L had good ideas before, but it is thrilling to consider what the magazine can accomplish now.

EMILIE W. SOMMERHOFF
EDITOR-IN-CHIEF

JULY/AUGUST EXCHANGE QUESTION:

Professional project photography—who pays for it, who ultimately owns it, and who can use it—is a frequently contentious issue in the design industry. Few lighting designers can afford the fees, and hence are dependent on the architecture firms for their hand-me-downs, which often means a project is not well represented from the lighting perspective. The photography budget line is generally under-funded in the trade press, despite the fact that images are a large part of their content. (This is often justified by the publicity it affords the image taker.) And yet, design photographers provide a valuable service; not to mention, their right to make a living. Is there a solution to this conundrum? Whose responsibility is it? Should manufacturers contribute dollars toward the cost?

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SHOWTIME: NEW YORK & MILAN

EXHILARATED AND EXHAUSTED MIGHT BE THE BEST way to describe the A|L editorial staff as our conference and trade show season commenced with the start of Lightfair in April. Always, our biggest challenge is finding enough time to attend seminars, visit with manufacturers, and participate in the off-site activities. This year proved no exception.

Lightfair set several new milestones: It was the largest show floor ever in the event's history—136,000 square feet. It was also one of the larger conference programs with approximately 200 hours of CEU-accredited workshops, seminars, and institutes. Filling the show floor, 18,791 attendees representing 74 countries arrived in New York along with 570 exhibiting manufacturers, 127 of whom were making their Lightfair debut.

One of this year's highlights included an inspiring and thought-provoking keynote lecture by architect William McDonough, known for his contributions to sustainable design. "Design is the first signal of human intention," McDonough stated, and to that end he challenged the audience to think about how we work with light, and what legacy design work leaves for the next generation. McDonough's purpose and focus is to create renewable systems—"cradle to cradle"—that produce prosperity, health, security, community, culture, and peace.

Another highlight was the exuberance of lighting designer Rogier van der Heide of Arup Lighting upon receiving the IALD Radiance Award, for the state-of-the-art façade at the Galleria West in Seoul, South Korea ("All Dressed Up," Jan/Feb 2005). A true collaborative effort, van der Heide took the time to thank the client, and his entire team by calling them on stage and taking their photographs, infusing a truly joyous feeling into a night already filled with the celebration of excellence, and serving as a reminder that design is not a solitary pursuit.

This year's schedule was such that the Salone Internazionale del Mobile in Milan and Euroluce, the lighting portion of the furniture fair that takes place every two years, occurred concurrently with Lightfair. With one event just barely completed, there was little time left for the faint of heart, and we arrived in Milan on Friday morning for another four days of trade show navigating.

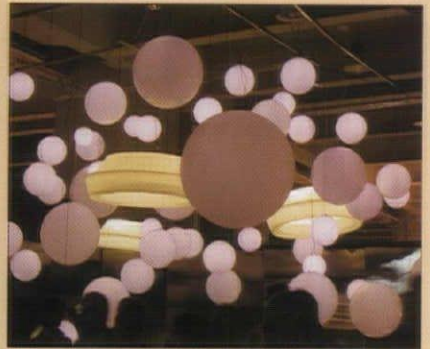
The physical size of the Salone del Mobile is astounding. There are 25 pavilions, and over 1 million square feet of exhibition space, almost 400,000 square feet just dedicated to lighting. The halls are hot, and full-court-press tactics are needed to navigate the crowds. The prominent lighting companies, such as Artemide, Luceplan, Flos, FontanaArte, and Terzani, occupy the top floor of each of the three halls. The lower floors focus more on general consumer lighting products and glass chandeliers—no surprise since Venice, home of glassmaking, is nearby.

Between visiting the halls of the fair itself, the off-site events, exhibits in showrooms, and Milanese landmarks, our itinerary was packed. The entire city of Milan becomes a design laboratory during this one week in April. Euroluce's theme this year was "Light and the City." In keeping with this, four lighting installations, entitled *Open Skies: Spotlight(s) on Milan*, illuminated building façades and parks in the Brera neighborhood northwest of the Duomo, from dusk to dawn each day.

Manufacturer events took advantage of the numerous architectural landmarks. Vistosi exhibited Angelo Mangiarotti's new interlocking glass ring in the Parco Sempione at the Branca Tower, designed by Italian architect Gio Ponti in the 1930s. Just next to the tower, the Palazzo dell'Arte was home to several architecture and design exhibits, including a display of the competition entries for a new city bench by notable designers. The benches were also on display at the center of the Galleria Vittorio Emanuele II, another of Milan's signature landmarks.

From seminal artwork—Milan is home to Leonardo's da Vinci's *The Last Supper*—to inspiring architecture—the Duomo, Galleria and a jaunt up to Como to see the work of Italian Rationalist architect Giuseppe Terragni, I'm infused with a whole new appreciation for the far reaching influence of design. The only thing I'm doing differently next time is wearing sneakers. **ELIZABETH DONOFF**

Scenes from Milan: At the Fair, the Galleria, and one of four outdoor lighting installations (top to bottom). Despite the poor exchange rate, a dollar will still get you a ride on the metro, the best way to get around Milan during fair week (right).



A WALK IN THE PARK

Robert Bruce Thompson Annual Student Light Fixture Design Competition

Urban parks can often be intimidating places after sundown, with dark corners and vegetation that obscures the surroundings. During daylight hours, grassy areas and walkways may be teeming with people, but when night falls, inadequate lighting or the absence of lighting may determine whether an after-dinner stroll or an evening run is a sensible idea.

This was the challenge posed to participants in this year's Robert Bruce Thompson Annual Student Light Fixture Design Competition: to design a fixture that would light an 8-foot-wide pathway in an urban park, close to the ocean, in a relatively mild climate where it sometimes snows. Specification issues to consider in the design included not only safety, glare, light trespass, and light pollution, but also identification of people and surroundings. Last year, projects could utilize any light source, but this year's requirements were slightly more restrictive, specifying that energy-efficient sources had to be used, such as compact fluorescent or metal halide lamps, or LEDs.

The competition is funded by the Robert Bruce Thompson Charitable Trust to encourage emerging talent and innovative ideas in lighting that are functional as well as inspiring. Both were established four years ago in honor of Thompson, a 25-year lighting industry veteran. Open to fulltime students enrolled in accredited academic programs in the United States, 55 entries were submitted and evaluated for innovation in overall design, as well as a responsible use of materials, breadth of practical application, light distribution and visual comfort, aesthetics, practicality of manufacturing, and energy efficiency.

A trophy and \$5,000 is awarded to the first-place winner. In addition to a plaque, second-place, third-place, and citation winners receive \$2,500, \$1,000, and \$500 respectively.

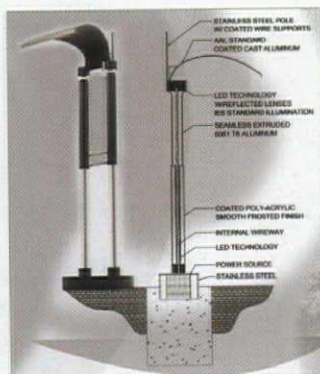
This year's judging panel included: Susan Weiler, Olin Partnership; Ann Reo, io Lighting; Pamela Horner, Osram Sylvania; Howard Brandston, Brandston Partners; and Domingo Gonzalez, Domingo Gonzalez Associates. For additional information visit, www.rbtcompetition.org. **A|L**

FIRST PLACE

NAME Kenneth Boyer
SCHOOL Cazenovia College,
Cazenovia, New York
DEGREE Interior Design
JUDGES' COMMENTS

- Best execution of an indirect lighting approach to path lighting
- The use of two pole shafts distinguished it from other entries
- Salt-spray issue researched and addressed

DESCRIPTION Constructed with aluminum, stainless steel, and frosted poly-acrylic, the fixture casts light at two levels, giving face and path illumination to provide security. Colored LEDs are embedded in the lower pole for alternate lighting schemes. All materials are suitable according to the American Architectural Manufacturers Association (AAMA) 605.2 performance specifications, and the luminaire will be listed with Electrical Testing Laboratory (ETL), and UL for outdoor and wet-location use.



SECOND PLACE

NAME Jill Sieber
SCHOOL Ringling School of Art & Design, Sarasota, Florida
DEGREE Interior Design
JUDGES' COMMENTS

- Liked the integrated windmill concept
- Applauded intent to use reclaimed wood

DESCRIPTION Made from reclaimed wood and aluminum sheets, this wind-powered luminaire has a concealed light source (an LED Light Panel 100W safety light) that is located below the propeller deck. Aiming downward at a 120-degree angle, the LED panel provides clear pathway lighting. An optional second fixture provides a mood setting that uses an LED Light Panel 40W color-adjustable lamp to cast a red/orange light onto the bench below. The fan can pivot 60 degrees to either side, and can be powered from a back-up energy source.



THIRD PLACE AND SPECIAL CITATION FOR INNOVATIVE CONCEPT

NAME Hannah Walsworth
SCHOOL Ringling School of Art & Design, Sarasota, Florida
DEGREE Interior Design
JUDGES' COMMENTS

- Sculptural, organic, simple design
- Special attention paid to materials
- Liked interaction aspect

DESCRIPTION Not only a source of light, but also a multifaceted seating element and piece of public art, this luminaire follows the basic function of a park, emphasizing community and preservation. The light source is integrated into the side of one of the seat's back supports and is tilted downward to minimize light pollution. The luminaire is coated with Envirotrol technology paints in order to reduce heat absorption and retention, and to protect and insulate the interior components from the elements, ensuring maximum functionality of the interior parts.

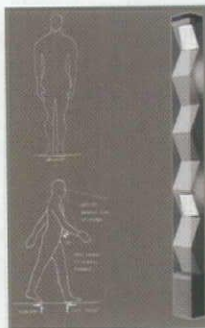


SPECIAL CITATION FOR PRESENTATION

NAME Lisa Glaspell
SCHOOL University of Texas at Arlington
DEGREE Interior Design
JUDGES' COMMENTS

- Design exhibits comprehension of human scale
- Thorough, clear presentation

DESCRIPTION Based on the design principles of rhythm and repetition, this luminaire casts light that resembles the spacing of footprints. From the outer sides of the fixture, the design of the inner form illuminates the pathway, allowing visitors to pass on either side. The downward panels that house the suggested light source—four 5W T4 compact fluorescent lamps—direct diffused light onto the pathway and faces for added security. Light is sealed off at the top of the fixture with a stainless-steel panel, and an outer laminated glass shell offers lamp protection. The transparency of the shell allows visibility of the inner construction and an unobstructed direction of light.



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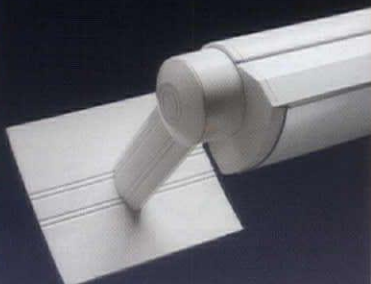
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LED LITIGATION

WITH SOLID-STATE LIGHTING DEVELOPING AT FAR GREATER SPEEDS THAN INDUSTRY experts have forecasted, and its integration continuing to take hold in the architectural arena, the exchange of lawsuits filed between solid-state lighting companies Super Vision (www.svision.com) and Color Kinetics (www.colorkinetics.com) is something to keep an eye on.

This LED battle has been brewing quite strongly the past few months, primarily on the pages of the entertainment and solid-state lighting press. A flurry of activity took place directly after the Entertainment Technology Show-LDI, in October 2004. A notable outcome was the creation of a group calling themselves the LED Alliance (www.svision.com/ledalliance), what Super Vision president and CEO Brett Kingstone refers to as "interested and concerned manufacturers."

This litigation is much larger than any one company, and speaks to critical issues faced by all manufacturers in today's global market place: intellectual property, patents, research and development, production, and even the use of lawsuits.

Best left for the patent lawyers and judicial system to sort out, a sentiment echoed by Color Kinetics co-founder and CEO George Mueller—"let the legal process run its course"—it will be interesting to see what the outcome of this litigation is and how and if it impacts the development of solid-state lighting and its use in architectural applications. **AJL**

DAVID MINTZ RETIRES

AFTER A DISTINGUISHED CAREER THAT SPANS CLOSE TO FIVE DECADES, LIGHTING designer David A. Mintz has retired. President of David A. Mintz Inc. for over 40 years, and its successor firm, the Mintz Lighting Group, Mintz is founding member and Fellow of the IALD, and Fellow Emeritus of the Illuminating Engineering Society.

With an extensive list of retail lighting credentials, Mintz has the unique distinction of having been the exclusive lighting designer for the May Department Stores Company for over 30 years, and overseeing the illumination of more than 85 million square feet of retail space. Known for such prestigious projects as the recently completed Leonard P. Zakim Bunker Hill Bridge in Boston, and the relighting of several iconic American structures, such as the Jefferson and Lincoln Memorials and the Sears Tower, Mintz is something of a lighting legend.

Two months now into his "retirement" he says, "I've been busier than ever and wonder how I had time to work." With six grandchildren and two more on the way, he hopes to spend more time with them, between golfing and traveling. While he intends to take on occasional consulting assignments, he'll also be focusing on digital photography, which he plans to pursue with "some vigor."

But before he can begin to enjoy a totally office-free life, lingering obligations and many odds and ends need to be tied up. Mintz says, "I'm finding it much more difficult to stop a business than it was to start one." **AJL**

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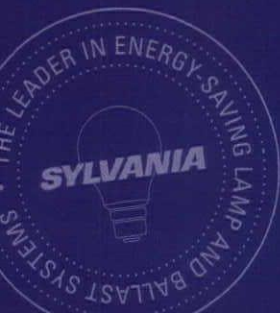
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LETTER TO THE EDITOR LIGHTFAIR COULD BE MUCH MORE!

Each year at the annual lighting reunion we call Lightfair, I stop and talk to at least 200 exhibitors, and have my badge scanned. As a specifier, I spend close to a \$1,000 to make this journey to learn about products that will benefit my clients and projects. But very few companies follow through with literature or rep contacts, and this is where the process breaks down.

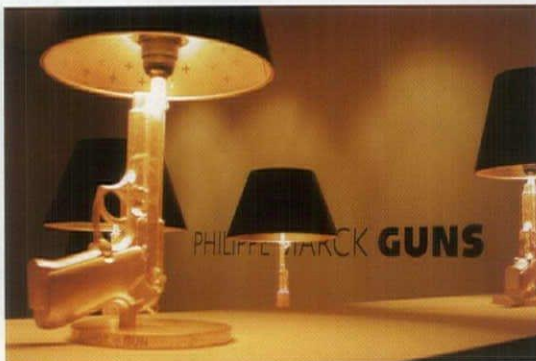
I believe the problem lies with the fact that the manufacturers sell through reps and really don't know how to talk to the specifiers. Sales and marketing is oriented toward reps selling through direct specs on projects.

Before Lightfair 2006, I will ask the question: Are there enough good seminars to draw me there? I am so frustrated with the lack of exhibitor follow-through that I would not attend just to see them. When manufacturers question the cost of a booth, they need to consider if they are ready to deal with the specifiers AND to follow through with literature and answers.

I attend five or six trade shows a year, where there seems to be a more professional attitude about sending follow up literature. I only wish my own lighting industry was as meticulous and genuine.

ROBERT DANIELS, IALD, MIES, CSI, Brilliant Lighting Design, Miami

CORRECTIONS The article "Changes to 2005 NEC Impact Metal Halide Systems," April 2005, should include outdoor fixtures when describing Article 410.73(F)(5). • "Trendy Luminaires," April 2005, mistakenly identified Selux's Ritorno fixture and Bega/US's pole-mounted luminaire as dark-sky compliant. • "Jacksonville Welcomes Super Bowl XXXIX," Jan/Feb 2005, should have credited architect David Laffitte of RS & H, and lighting designer Robert Laughlin for the design.

WHEN IS A LAMP NOT A LAMP?

Designer Philippe Starck has provoked discussion with his latest work for Italian lighting manufacturer Flos, a series of table and floor lamps whose armature is a gold-plated hand gun and automatic rifle respectively. First exhibited at EuroLuce 2005 in Milan, the collection found its way to the cover of Italian design publication *Domus* (issue 880), with comments from architects and critics like Hani Rashid and former *New York Times* architecture critic Herbert Muschamp. Murray Moss found the series "so intelligently provocative" that he exhibited the lamps in his New York City shop under the title "Domestic Violence," which opened in conjunction with ICFF in May.

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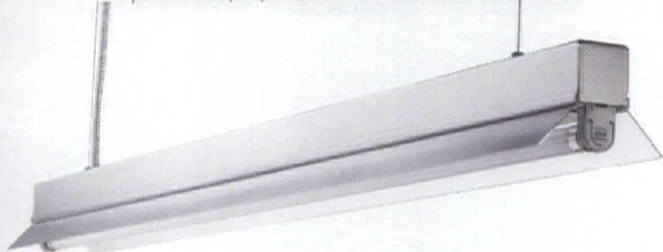
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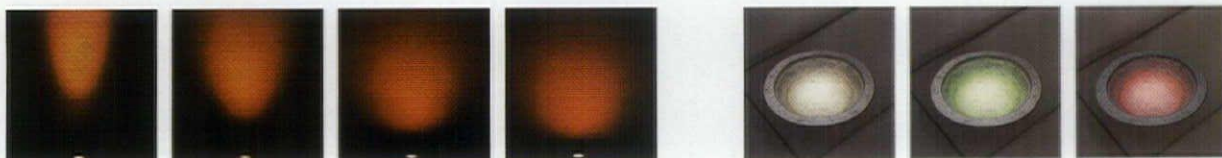
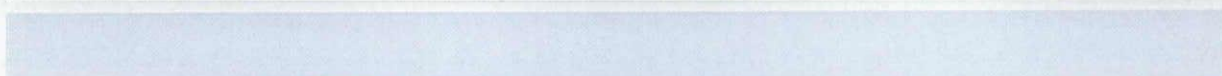
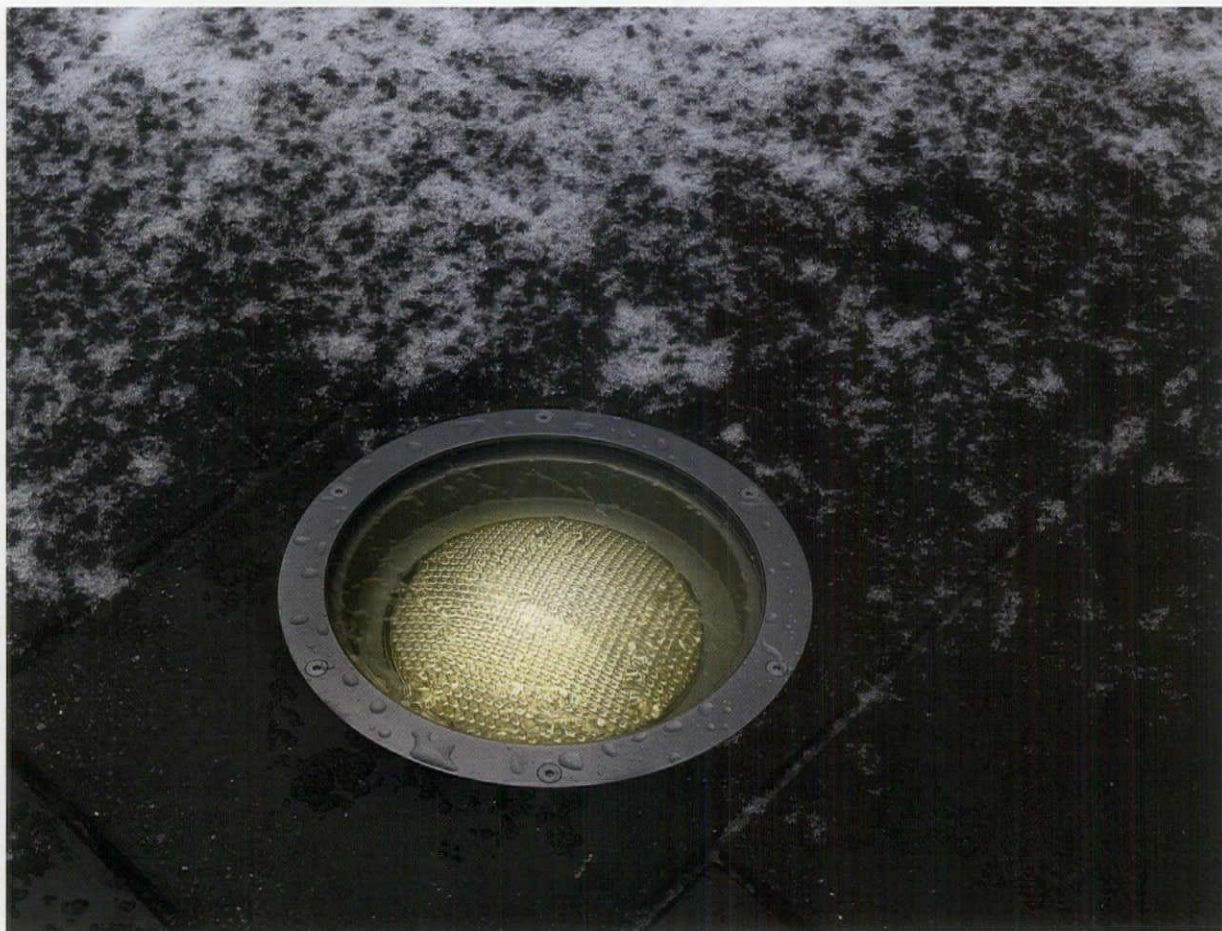
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Standards Are the Future

DR. NADARAJAH NARENDRAN, JENNIFER TAYLOR

SOLID-STATE LIGHTING: WHAT IMPACT IT WILL HAVE ON THE lighting industry is on everyone's mind. Although the dream of lighting indoor spaces with light-emitting diodes (LEDs) began almost four decades ago, the hope of achieving this dream did not come alive until the mid-1990s, when Nichia marketed commercially viable blue LEDs. Subsequently, the white LED, created by incorporating a yellow phosphor with the blue LED, marked the beginning of the solid-state lighting revolution. But while the LED industry cheers the continued success of white LEDs and exalts their position as the future of lighting, a problem looms: The absence of standards for LED lighting is creating a roadblock between unbounded technological potential and consumer acceptance. Greater light output and efficacy are key to future success, but without measures to ensure product reliability and consistency, consumers may be unwilling to make the leap.

INTEREST AND CONFUSION

The first white LED produced less than 1 lumen of luminous flux with an efficacy around 10 lumens per watt. Since then, manufacturers have gradually released high-power LEDs (now around 30 lumens per watt for white), and the industry is pushing for white LED technology over 100 lumens per watt. Laboratory demonstrations have shown values exceeding 80 lumens per watt.

The LED's transition from indicator to illuminator has given the architectural lighting world reason to notice the technology's potential, and the LED industry has quickly promoted LEDs as an energy-efficient lighting solution. However, the benefits touted have led to confusion, underscoring the need for standards. For example, long life is one of the most commonly advertised benefits of LED technology, with product literature typically claiming 100,000-hour life. Does this mean these products can be used in applications for 100,000 hours without replacement? Unfortunately, it is not clear from most of the product literature what this number actually means. The common practice in the lighting industry is to subject light sources to a specified on-off cycle (different for each technology), and determine the time at which half the number of lamps stop producing light. Alternatively, the electronics industry (producers of LED technology) defines life as mean-time-between-failure (MTBF). In certain instances, the electronics industry has used light-level depreciation criteria to define the life of LEDs. The Lighting Research Center (LRC) has monitored the life performance of LED technology since the late 1990s. Although initial white LEDs experienced rapid light output degradation at rated current and room temperature, the newer

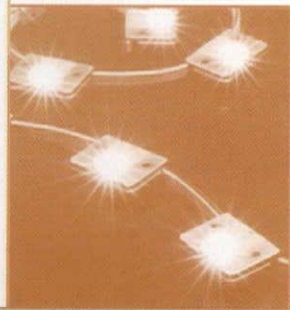
high-power versions are showing a much slower rate of degradation. Some of these devices are lasting over 50,000 hours before their light output reaches the 50 percent depreciation mark.

To benefit the user, the LED system or fixture, not just the individual LED, has to operate for a long time. An unfortunate feature of LED technology is that with increased heat at the light-emitting area (commonly known as the junction), the rate of light output degradation increases. For example, if the temperature at the junction increases by 10 degrees, some LEDs can experience double the degradation rate, cutting the life in half.

DEFINITION AND MEASUREMENT

Given the confusion that long-life claims can generate, how does the industry ensure satisfaction from the ultimate judge and jury of LED lighting, the consumer? The Alliance for Solid-State Illumination Systems and Technologies (ASSIST) has taken a first step toward standards that protect against unsubstantiated life claims by recommending guidelines for LED life and methods for measuring life. Founded in 2002 to help speed acceptance of energy-efficient LED lighting technologies, ASSIST is an industry collaborative funded by traditional lighting manufacturers, LED manufacturers, large-scale purchasers of LED systems, and government agencies. The goal for these new guidelines, called *ASSIST Recommends*, is to help manufacturers present consistent and accurate life data for their

For end users to accept LED products, manufacturers need to present consistent and accurate life data. One industry group is here to help set the standards.



PRESENTING LIFE DATA FOR LEDs

ASSIST recommends that LED component and system manufacturers report the following information in their data sheets for each specified testing condition.

LED COMPONENTS

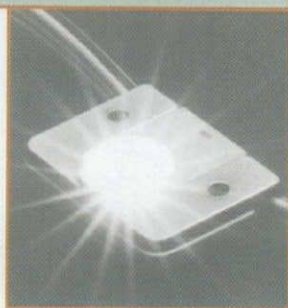
- Life (hours) at 70% and at 50% lumen maintenance with plot graph of measured and extrapolated data
- Number of samples tested
- Heat sink description
- Ambient temperature
- Thermal resistance coefficient
- Voltage and current
- Junction temperature

LED SYSTEMS

- Life (hours) at 70% and at 50% lumen maintenance with plot graph of measured and extrapolated data
- Number of samples tested

products, which will help consumers make product comparisons and life-cycle cost estimates.

Because LEDs generally do not experience catastrophic failure, it is possible for them to continue to operate but not produce enough lumens for a given task or space. Based on studies of visual perception, ASSIST selected lumen maintenance values of 70 percent for general lighting applications and 50 percent for decorative lighting. Thus, the end of life for an LED or LED system occurs when



it has lost 30 to 50 percent of its initial light output. (Within this time period, LED color shift should be within a 4-step MacAdam ellipse, a customary tolerance range where color changes are imperceptible to most.) ASSIST asks manufacturers to estimate the number of hours to 70 percent and 50 percent lumen maintenance, which consumers

can use as relamping criteria for LED fixtures.

Getting accurate life-hour estimates, however, has not been easy. Manufacturers ordinarily do not provide measured life data for their products. The absence of a standard measurement method is partially to blame. The need for long testing periods—years in some cases—has also been a hin-

drance. To aid the process, ASSIST developed an abbreviated life-test method that provides reliable estimates for product life. The group established separate methods for high-power and low-power components (individual LEDs running over and under 100 milliamperes) and systems (for example, optics or fixtures with housing).

Measuring both components and systems requires a minimum 6,000-hour life test with the product running at rated current and at certain temperatures. The first 1,000 hours is an initial seasoning period for the LEDs; the next 5,000 is for collecting light output data, which are used to measure the hours needed to reach 70 percent and 50 percent lumen maintenance. During the initial seasoning period, LEDs undergo abnormal changes and increases in light output before settling into a more predictable rate of decline. Inclusion of the first 1,000 hours of data can lead to false estimates of life, and therefore ASSIST proposes that these data be discarded. If 70 percent and 50 percent are not reached within the first 6,000 hours, manufacturers can extrapolate life values by applying a mathematical fit to the light output data collected between 1,000 and 6,000 hours.

Components measured under specific conditions, as outlined by ASSIST, will also give a realistic picture of how the rate of degradation changes at different temperatures, providing life estimates for an average, industry-accepted ambient temperature.

ASSIST's proposed definition and methods will help transition between recommending to standardizing LED life and life measurement. Obviously, creating standards can be a very long, involved process, but encouraging manufacturers to look at the issues and agree upon compliance is critical, since consumer confidence in this new, evolving technology will only increase when LED products meet their claimed life values.

The ASSIST collaborative consists of Boeing, GELcore, the LRC, New York State Energy Research and Development Authority, Nichia America, Osram Sylvania, Philips Lighting, and the Environmental Protection Agency. ASSIST Recommends is available at: www.lrc.rpi.edu/programs/solidstate/assist/recommends.asp.

Dr. Nadarajah Narendran is director of research at the LRC and an associate professor in Rensselaer Polytechnic Institute's School of Architecture. Jennifer Taylor is a senior communications specialist with the LRC.

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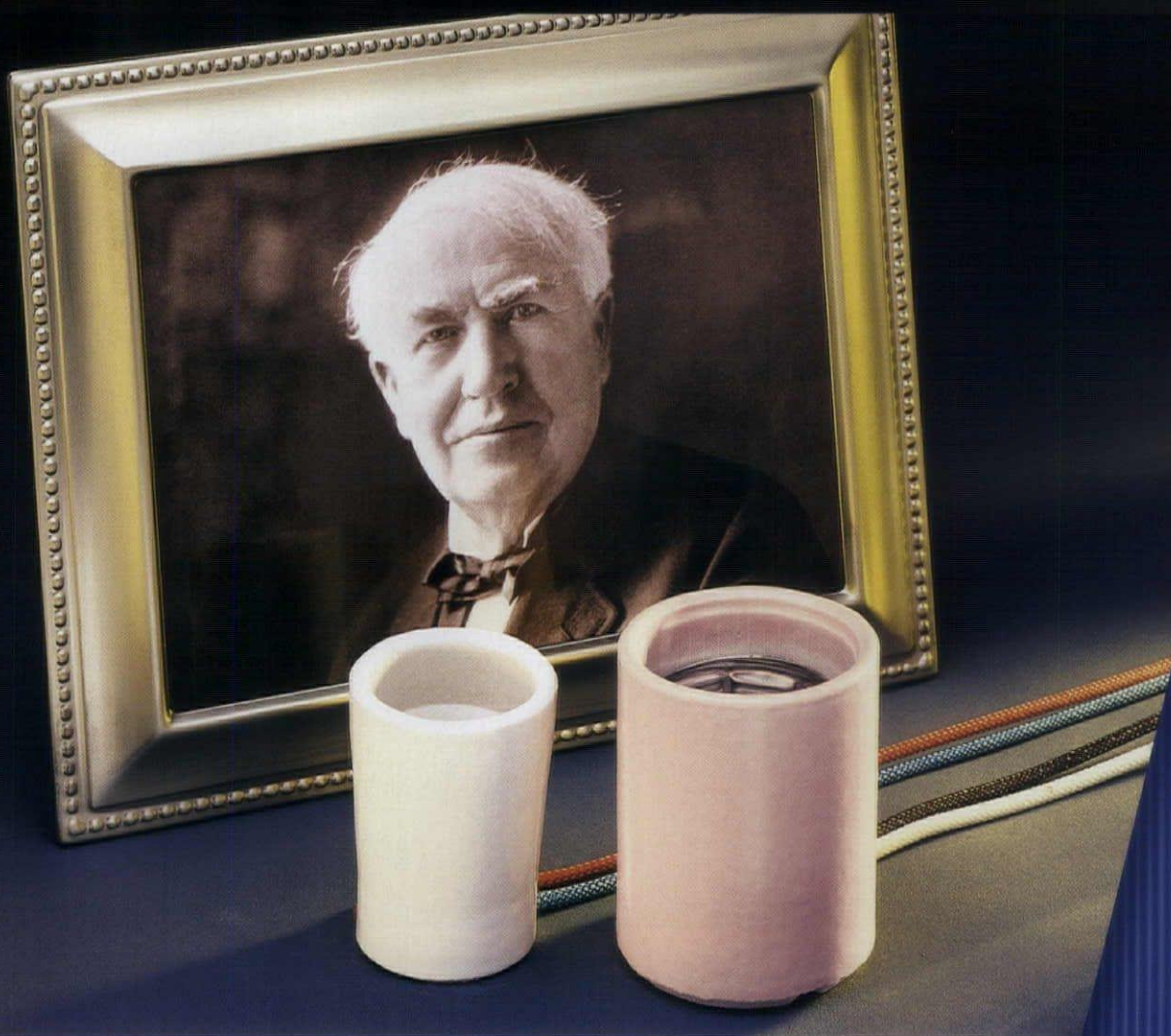








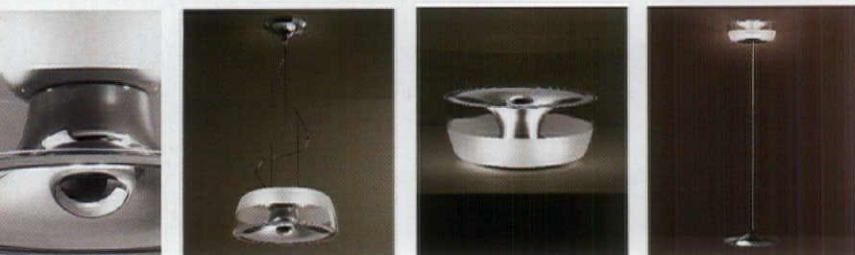
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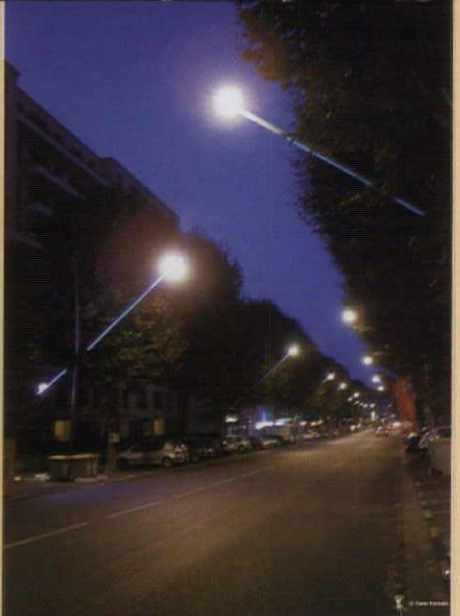


JUST OUTSIDE PARIS IS THE SUBURB OF VINCENNES. THERE, ON AN UNASSUMING MAIN STREET, IS ARTIST YANN Kersalé's studio. Recently, I had the opportunity to visit Kersalé, and speak with him about his work and approach to light as a sculptural medium.

An art student in the 1970s, and a recipient of the Paris student uprising legacy in the late 1960s, Kersalé is not interested in being confined by institutions. "If you are an artist," he says, "you must live and work that way—to live for your work and not be confined by a gallery or museum system." He is not a lighting designer, he will tell you quickly; he is an artist who creates with light. To that end, Kersalé is interested in working across disciplines. "You have to find a way to work," he explains, "to find an immediacy in the process, in a space that has no restrictions."

When I arrived, Kersalé was making fig jam from the fruit of the studio garden's tree. Although the studio's atmosphere is casual, I had the sense that this is part of his approach to work, and that the same careful intensity that Kersalé exhibits in making the jam is the same sensibility he applies to design.

With a portfolio of projects dating back to 1983, Kersalé understands light as an inverse relationship: The absence of light, the nocturnal, is equally as valid an entity as the presence of light, or the diurnal. This philosophical investigation of the "nocturnal landscape" has led to his own research about the cycle of the sun, and light's ability to shape space. Whether an installation of his own making or collaboration with architectural colleagues, it is all about experimentation. Several recent projects exemplify the scope of Kersalé's light investigations. **ELIZABETH DONOFF**

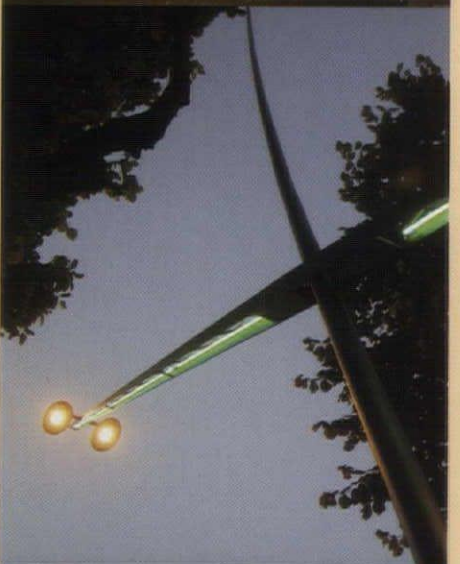


THE DEUTSCHE POST BUILDING, BONN, GERMANY (ABOVE)

Kersalé approached this Helmut Jahn-designed glass tower as a vertical landscape that allowed him to "realize a perfectly transparent façade as a multitude of luminous points." The exterior lighting scheme functions as a luminous timekeeper, programmed to illuminate when building activity has ceased. Lighting transitions from red to yellow to blue.

LES MÉTAPHORES, CHAVILLE, FRANCE (RIGHT)

Sited along the grand boulevard that leads from Paris to Versailles, Kersalé designed a series of lever-arm luminaries. A contemporary means of place making through light, a luminous vaulted canopy is created along with a nocturnal landscape that serves as a counterpoint to the promenade of shade that is created during the day.

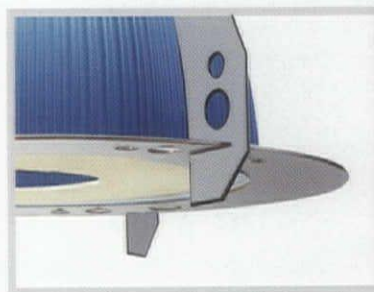


MONOPRIX, PORT DE CHATILLON, PARIS (BELOW)

Kersalé explored the confluence of movement, meaning and information on this department store façade located at the city-suburb juncture sliced by the highway that rings Paris. Vehicular traffic dominates and objects are mostly seen from afar. With that in mind, Kersalé created a vertical ticker tape of patterns generated by red LEDs—an abstracted language of pixels or what he refers to as the "reoccurring rhythms in everyday life."



IMAGES COURTESY OF YANN KERSALÉ



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LITE BRITE NEON STUDIO

profile | industry

JUST NEXT TO THE GOWANUS CANAL IN AN INDUSTRIAL VILLAGE OF BROOKLYN stands the Old American Can Factory. And tucked away inside is Lite Brite Neon Studio, the go-to shop for all things neon. It's a serene space, but teeming with mementos and materials from past projects, giving a sense of appreciation for the company's success. The atmosphere has a quiet energy, amplified by founder Matt Dilling's buzzing enthusiasm for his work.

Dilling, a Washington, D.C. native, developed his skill through workshops with neon artist Craig Kraft at the Smithsonian Institution arts program and later at the School of the Museum of Fine Arts in Boston. It was there that the beginnings of Lite Brite Neon Studio were established, pulled together with discarded equipment from M.I.T. (He still uses a mid-1970s vacuum pump and bombarding transformer found there.) In 1999, Dilling moved to Brooklyn where his partner, co-designing a fashion show for Diane von Furstenberg, recommended Dilling assist with the lighting. Dilling found it fun and interesting, and the job paved the way for many others of its kind.

At 26, Dilling has made a booming career out of his fascination with electricity. His first job with neon was doing repairs for a porn shop. But now, with Stella McCartney, Calvin Klein, Burberry, and Bergdorf Goodman knocking down his door for custom displays, Lite Brite Neon Studio's client list reads like a who's who of upscale shopping.

"Fashion," he says, "is very good for what I'm interested in because it allows me to work with neon in a context that's not necessarily ironic, but also not necessarily the specific meaning attached to neon." To Dilling neon is just "a very beautiful and excellent utilitarian form of light," but he doesn't deny the often overwhelming reactions that passers-by have to his window displays. "The cultural vocabulary is so strong that people have this giant stumbling block when they approach neon."

Artists that Dilling has worked with, like Keith Sonnier and Glen Ligon, bridge this gap, as does the company's recent foray into the consumer market. The growing product line already includes a candelabra, floor lamp, chandelier, and wall sconce. As someone who finds inspiration in the transitional nature of design, Dilling has certainly embodied the spirit of evolution in his work. The chandelier of the past, initially designed to provide multiple points of light, is now neon art and, in its entirety, a complete point of light—something that he takes great delight in.

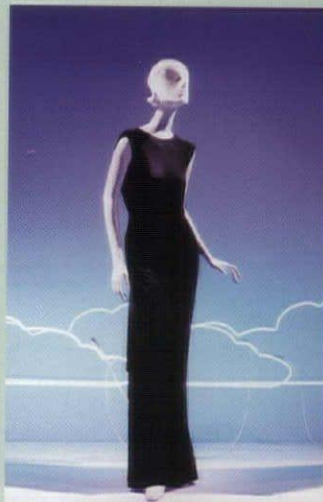
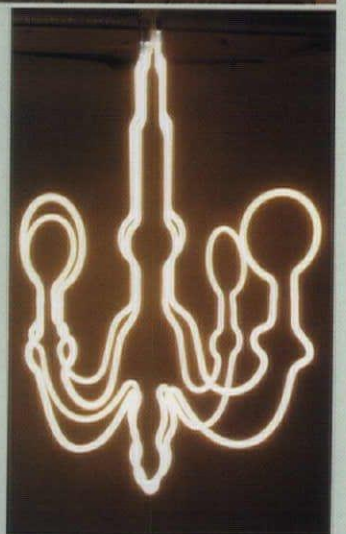
And it's not only the company's product line that transcends the conventional applications of neon. Plans are underway for an "old-school take" on DMX-controlled lighting (available this fall). Dilling plans to develop fixtures that enable the mixing of white neon in order to mimic the color temperature change in natural light throughout the day.

Although a Tecnolux chart specifies neon color by number, an almost infinite range of colors can be created by different combinations of glass tubing, phosphorous coatings, and type of gas inserted. When asked what color of neon Dilling would choose if he could pick just one, it's fitting that he should describe a color that exemplifies his own character—Number 31: Incandescent—warm and very pleasant. **SALLIE MOFFAT**



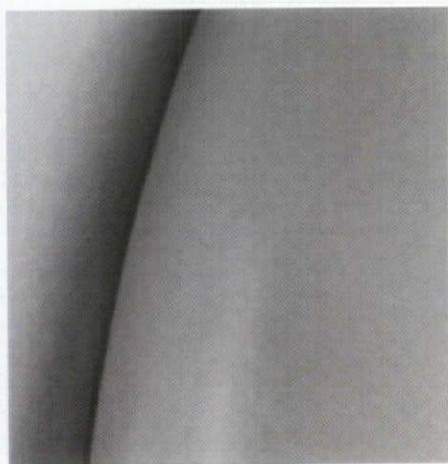
Clockwise from top: Dilling lying beside the rainbow made for Stella McCartney's boutique window in New York City's Meatpacking District; Chandelier, the first creation for Dilling's product line, available in custom sizes and colors; Flame, part of a Sony Style window display; and Clouds, created for Bergdorf Goodman's Fifth Avenue windows in New York.

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WITH NOTHING LESS THAN A SUPER BOWL AND AN OLYMPIC BID AT STAKE, discussion surrounding the proposed New York Sports and Convention Center (NYSCC) has focused more on the economic requirements to develop this prime area of Manhattan real estate than on the architectural scheme itself. For those privy to the design process, the architecture and site, which is isolated on Manhattan's far west side, are their own challenges. Design team member Hervé Descottes explains, "Our battle is at a very different level: to make the best project, and insert it into the neighborhood."

The design of the 75,000-seat retractable-roof stadium and mixed-use facility is in a holding pattern until officials reach a decision. However, a bold and inventive design concept has already been developed, the result of collaboration between New York City-based architecture firm Kohn Pederson Fox, designer Bruce Mau, lighting designer Hervé Descottes, and interior design firm Yabu Pushelberg.

Like any large-scale project with such a far-reaching impact, the NYSCC has undergone several design iterations, and included a public review process. The proposed structure will be constructed on a platform over the existing Hudson Rails site. For Mau, one of the project's challenges is how to convey information at different scales. "It's several different projects in one," he says. "How do you intersect what we are doing at an urban scale and make sure that it is producing the effect that we want at an intimate scale?" The result is a design centered on transparency and transformation, featuring a glass "veil" that drapes the entire building. This also permits an interesting space-making dynamic to occur as visitors engage with the glass veil from both sides. Architect Bill Pedersen explains, "The veil essentially encloses the building from the upper concourse to the roof, but also hangs independent of the building from the upper concourse down. As you walk around the building, you are in effect walking between the veil and the inner building."

Adding to the dynamic nature of the space is the change in the façade's level of opacity, determined by time of day and

event. "We wanted to modulate the transparency by creating different layers of light. The client didn't want a static building," says Descottes. To achieve this interactive quality, different levels of reflectivity, through the use of light and shadow, are cast on the glass-paneled veil. The location of the light sources—from behind or above—determine whether images are projected onto the glass or emitted back out to the city. The trick, as Descottes explains, is finding the balance. "It's a very large glass façade, but you don't want to reveal everything. It's similar to theater when you light a screen; you create a little bit of mystery. It's how we play with this mystery."

The proposed plan calls for a mix of several types of luminaires: fluorescent and metal halide, as well as LEDs. Descottes is adamant that the lighting be integrated into the space so that the sources are not visible. He wants people to engage with the building, focusing on the experience not the mechanics.

The glass veil addresses the multiple scales of the project, alleviating the tension that exists between the scale of the city and the pedestrian. It also provides a dynamic, interactive feature that blurs the boundaries between inside and outside, light and dark, transparent and opaque, spectator and player. Lighting helps create different levels of experience as visitors transition through the space. All will have to "wait and see," while the process continues to play out. Hopefully politics and economics will resolve themselves and design can move to the forefront. **ELIZABETH DONOFF**

LOCATION: New York City

CLIENT: The New York Jets

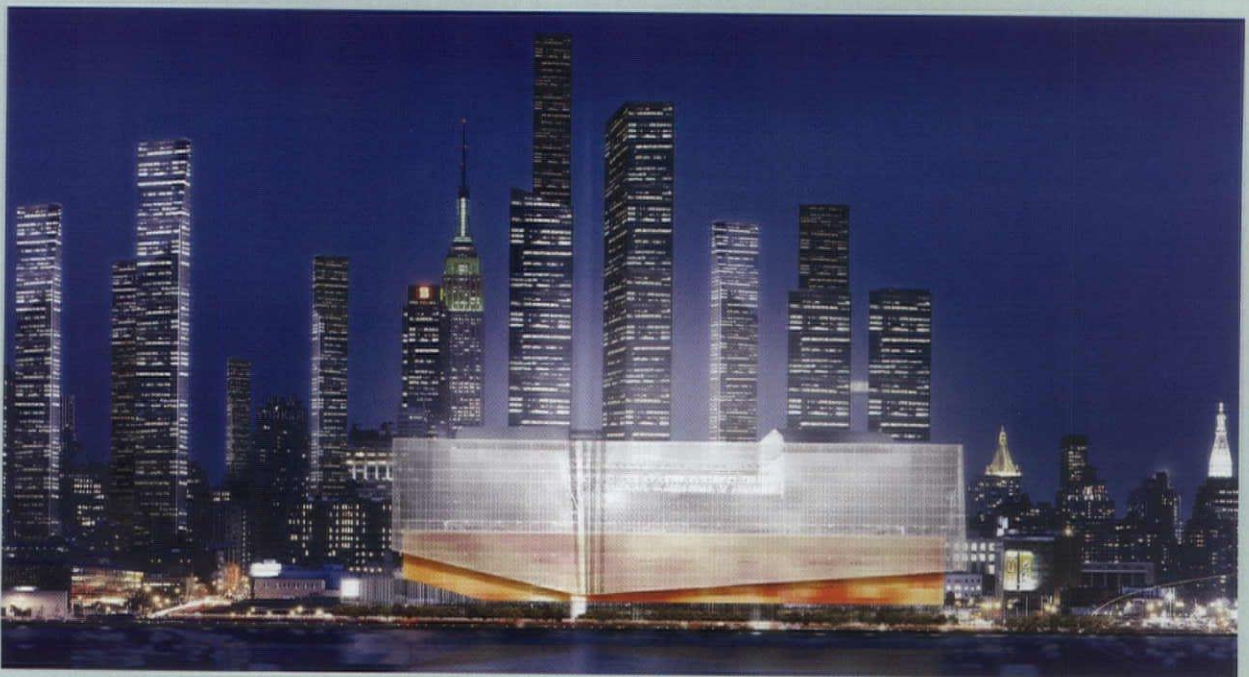
ARCHITECT: Kohn Pederson Fox, New York City

LIGHTING DESIGN: L'Observatoire International, New York City;

INTERIOR DESIGN: Yabu Pushelberg, Toronto and New York City;

COMMUNICATION & ENVIRONMENTAL GRAPHICS: Bruce Mau Design, Toronto;

RENDERING: Courtesy of L'Observatoire International





A TEMPORARY EXHIBIT FUSES ART, ARCHITECTURE AND LIGHT INTO A THEMATIC AND STRUCTURAL WHOLE

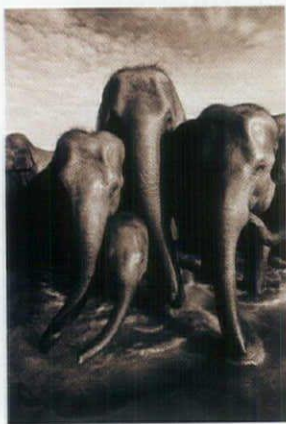
TRAVELING LIGHT

RARELY DOES AN ARCHITECTURAL EXPERIENCE SO COMPLETELY INTEGRATE ITS materials and approach with the underlying philosophies of a space as to make the visitor feel utterly suspended in time and place. Such a world exists, if only momentarily, inside the Nomadic Museum, a temporary cathedral-like structure erected for three months at Pier 54 on Manhattan's West Side to house the large-scale photographs of Gregory Colbert. Titled "Ashes and Snow," the traveling exhibition and the building that houses it present a web of referential details (structural form, building materials, background music, and lighting) that respond to each other and to the artwork, collectively creating a whole that is both technically simple and psychologically immense.

At the core of these references are Colbert's photographs, which express in the paired subjects of man and wild animal many of life's fundamental dichotomies—youth and old, strength and weakness, hunter and hunted, spiritual and earthly. The simultaneous presence of these motifs in most of his images assures the viewer of the beauty and essentialness of such coexistence. Similarly, the architecture, the exhibit, and the lighting are entwined in a way that makes it impossible to imagine the definition of one without the other.

As if in response to the universality of the exhibit's themes, the project was conceived of and realized by an international team comprised of Colbert,

who is Canadian; Japanese architect Shigeru Ban; and interior architect Ombra Bruno and lighting designer Alessandro Arena, both of Italy. The New York City offices of Dean Maltz Architect and Buro Happold were also involved. Organized by the Bianimale Foundation, a nonprofit arts and nature conservation group, the exhibit made its debut in 2002 at the Venice Arsenal; the team designed the Nomadic Museum for the show's U.S. launch in New York, from March 5 to June 6, 2005. From there, the Nomadic Museum and "Ashes and Snow" will travel to a pier in Santa Monica, California, where the exhibit will reopen in December 2005.



Designed by architect Shigeru Ban, the Nomadic Museum (top) recently graced Manhattan's Pier 54. The structure and its interior details interact thematically with Gregory Colbert's large-scale photographs of man and beast that hang within.

ARCHITECTURAL PORTABILITY

Typical of Shigeru Ban's work, the museum emphasizes the creative use of reclaimed and reclaimable materials: 148 shipping containers form the walls and 30-inch-wide recycled paperboard columns support the roof. The structure can be broken down and moved from city to city, packed in fewer than 40 containers with the remainder borrowed at each new location. The portability of the structure references another theme present in the exhibit—travel. An accompanying literary component gives a fictional account of one man's yearlong journey, experiences which are loosely referenced in the photographs and the one-hour movie that plays in a room at the far end of the exhibit. "Ashes



and Snow” is also a record of Colbert’s own travels—to India, Egypt, Ethiopia, Antarctica, and beyond—in search of his subjects.

Bruno selected materials for the interior that also make reference to the idea of renewal and sustainability. The 672-foot-long, 67-foot-wide space is divided into three sections that stretch the length of the exhibit: 12-foot-wide wood planks, originally used for the scaffolding, provide a center aisle for visitor traffic, flanked on either side by a bed of river stones. The stones are a reference both to the photographs, which often feature water, and to the process of building. They also have a pragmatic significance, creating a layer between the exhibit and the rain water that tends to gather on the pier, as well as providing a psychological barrier to dissuade visitors from touching the unframed prints. Like the wood, the stones can be left behind with each move for reuse.

POETRY AND LIGHT

Ultimately, however, the impact of the space is solidified by the lighting. “Once you have good lighting, you need very little else to have the artwork come out,” says Bruno. The lighting designed by Arena firmly unifies the photographs and the architectural expression with a surprisingly limited toolbox. “I love simplicity,” says Arena. “If I need two lights, I try to use just one.”

Each photograph is sharply lit by an ETC 26-

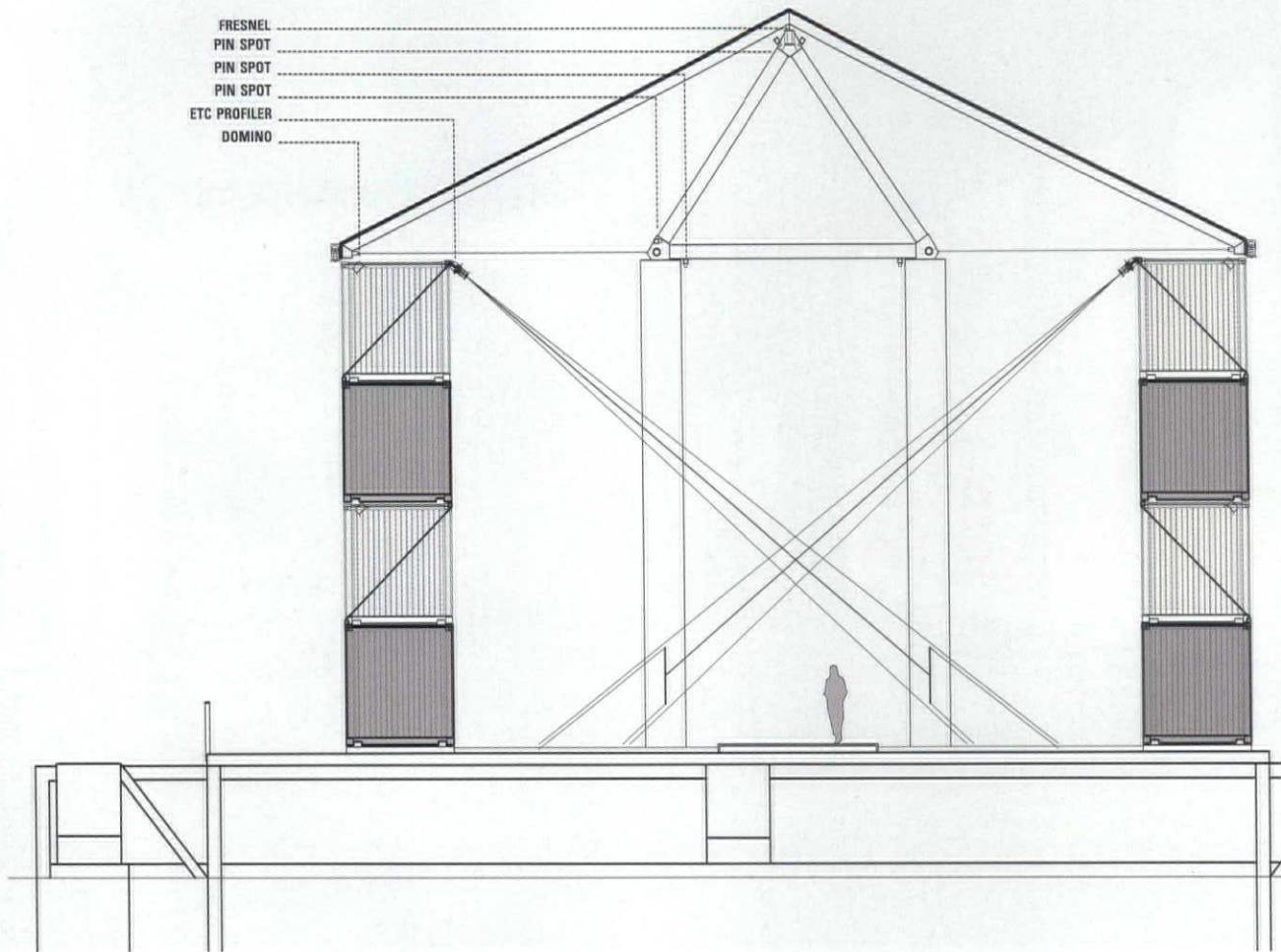
degree profiler fitted with a 750W source, which is mounted at the top of the opposite container wall. Projected across the center walkway, the beam hits the photograph, allowing a deliberate amount of spill light to highlight the texture of the stone beyond. “It creates a ‘frame’ for the image,” says Arena. Indeed, each image seems to be in motion, rising from—or falling to—the pebbled surface below. “Gregory’s photographs need a lot of depth,” says Bruno. “You have to feel that, and the shadow helps you understand the distances and scale.” Arena actually describes lighting the images as “shadow design, since Gregory’s work is already full of poetry and light.”



Though technically simple (profilers and pin spots primarily), the lighting completes the experience, turning architecture into art and art into architecture. The luminous prints emphasize the dramatic perspective of the cathedral-like interior (top).

The lighting also emphasizes the geometric rhythm of the space. Tight 4-degree pin spots with a 75W source shoot light down the columns and across each leg of the roof-supporting triangles that advance down the pier-length structure. Fresnel luminaires positioned at the pinnacle of the 56-foot-high structure illuminate the wooden walkway. At night, West Side Highway travelers catch the checkered effect on the façade created by lighting alternating containers.

Amidst this structural drama, it is easy to overlook one entrancing detail: the sun’s reflection off the water into the interior through gaps between the containers. Interestingly, this delicate shimmer of natural light across the interior roof surface and the container walls was unintentional. (The Venice



space was a black box.) However, the team quickly realized its potential. "At first I thought this was a defect," says Arena, "but when I looked at it, I started to think I'm a lucky man. The light that comes from the outside is very cool, and the light I used inside is warm, and that combination for me is great."

There is a sensitivity in Arena's design approach that transcends the typical relationship of lighting to architecture and art. Its awareness of the objects and structure that it lights is intimate. "I listened to the music all the time. I watched the film. I worked closely with the artist, even living in his house. I talked a lot with Gregory. I wanted to understand how he felt when he took the pictures." The interaction between the architectural details, Colbert's photographs, and the exhibit's themes fuses one element with the other, so that the lighting becomes as much a part of the art as it does the architecture—and Arena as much a painter as a lighting designer. "Gregory says that my light is like Caravaggio light," says Arena. "I am really honored by this compliment." **EMILIE SOMMERHOFF**

DETAILS

ARCHITECT Shigeru Ban, Tokyo

INTERIOR ARCHITECT Ombra Bruno, Milan

LIGHTING DESIGNER Alessandro Arena, Catania, Italy

STRUCTURAL ENGINEER Buro Happold, New York City office

ASSOCIATE ARCHITECT Dean Maltz Architect, New York City

PHOTOGRAPHER Elizabeth Donoff, New York City (except as noted)

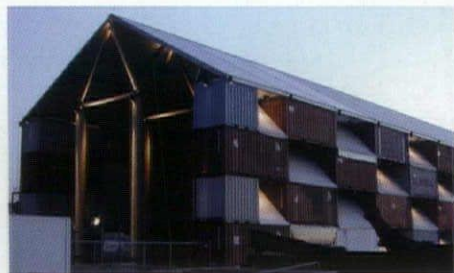
MANUFACTURERS

Alcora
Arri
ETC
General Electric
Osram Sylvania
Pallas
Philips

APPLICATIONS

Control system
Fresnel luminaires for central walkway
Profilers lighting artwork
Source used in pin spots
Source used in profilers
Exterior luminaires inside containers
Source used in fresnel luminaires

Colbert's photographs are the product of more than 30 expeditions in search of his subjects, to places including India, Burma, Sri Lanka, Namibia, the Azore Islands, and Antarctica. The Nomadic Museum's tent-like roof (below) recalls the theme of travel, as do details of the interior designed by Ombra Bruno. The stones bordering the wood walkway (formerly scaffolding), as well as the container walls, are easily left behind for reuse when the structure moves on.



CODE NAME:

PURPLE

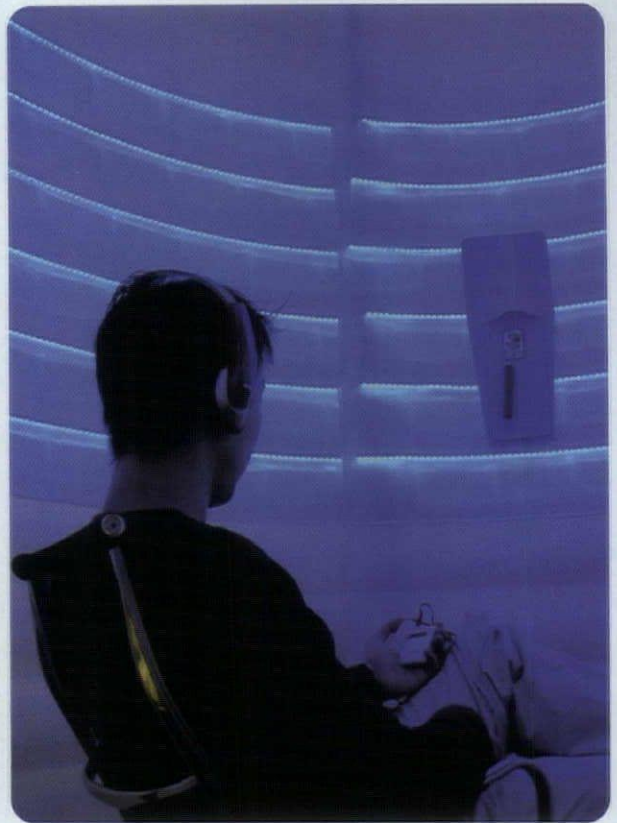
an innovative infrastructure system dares to explore new territories

INNOVATION IN ARCHITECTURE AND DESIGN TAKES MANY FORMS, AND AT THE HEART of such exploration is the frequent attempt to envision new possibilities, to dare to ask: what if we could create more efficient, sustainable, and economical systems for materials and processes? One recent example is the creation of a smart infrastructure system and associated family of space-making products for Herman Miller Creative Office, developed by Sheila Kennedy of Kennedy & Violich Architecture (KVA) in Boston, along with Danny Hillis and Bran Ferren of California-based Applied Minds (AM), a research and design consultancy. In early 2002, KVA and AM were given nine months to create a 7,000-square-foot proof-of-concept installation that incorporated architectural elements along with lighting, power, and data components. The concept design team worked closely with Herman Miller Creative Office, Osram Opto Semiconductors, and textile manufacturer Milliken & Company during this initial stage. Owing to the use of a purple marker during early design strategizing, the project was assigned the code name Purple. Today both the project and the Herman Miller company overseeing the next phase of development are referred to as Viaro. "Herman Miller has a long history of design responsiveness to social change. Viaro extends that into new market environments and into this generation's design challenges," says Kevin Han, president of Viaro.

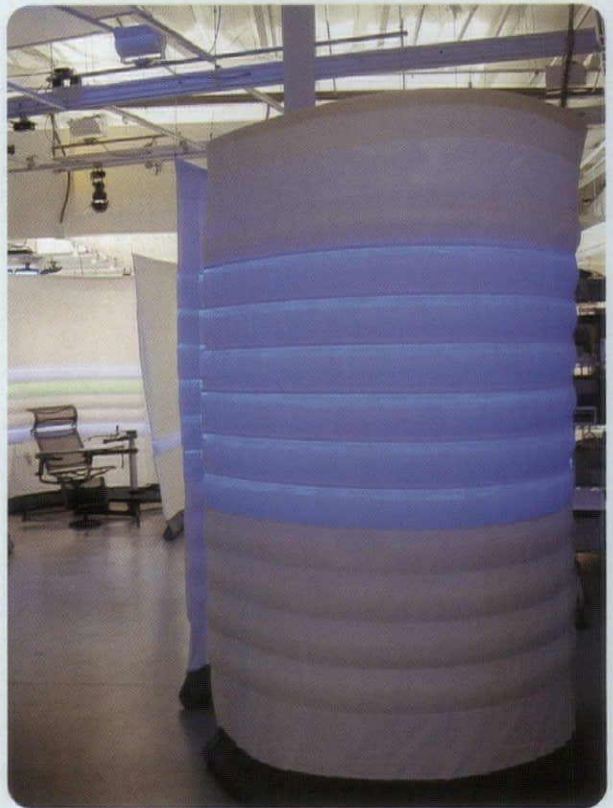
Herman Miller had several initiatives that it wanted the team to pursue. First, the infrastructure had to be a sustainable, smart building system. Second, it needed to have "radical flexibility," meaning physical flexibility. To encourage this, stagecraft assembly techniques were incorporated into the installation concept in order to minimize the need for materials and tools. And finally, it had to be digitally flexible. To this end, the team designed an open platform that integrated voice and data processing capabilities, along with electrical power, into a system of ceiling-mounted track so that any electrical device, including lighting, could be reconfigured and connected with any sensor or switch. Viaro does not treat lighting as a stand-alone or add-on element, but rather understands it as one component of a larger electrical system.

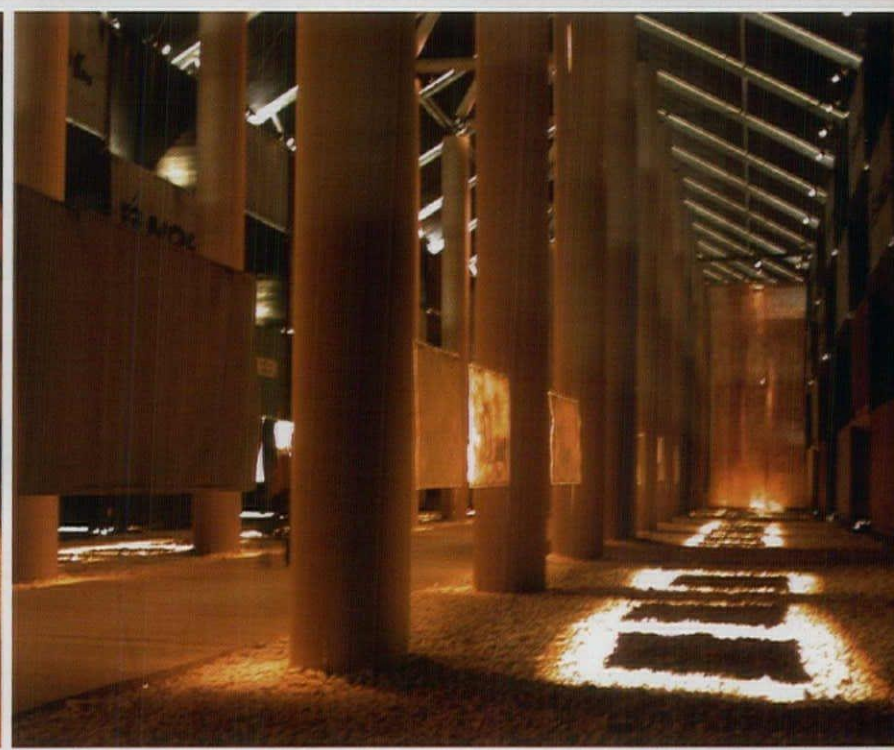
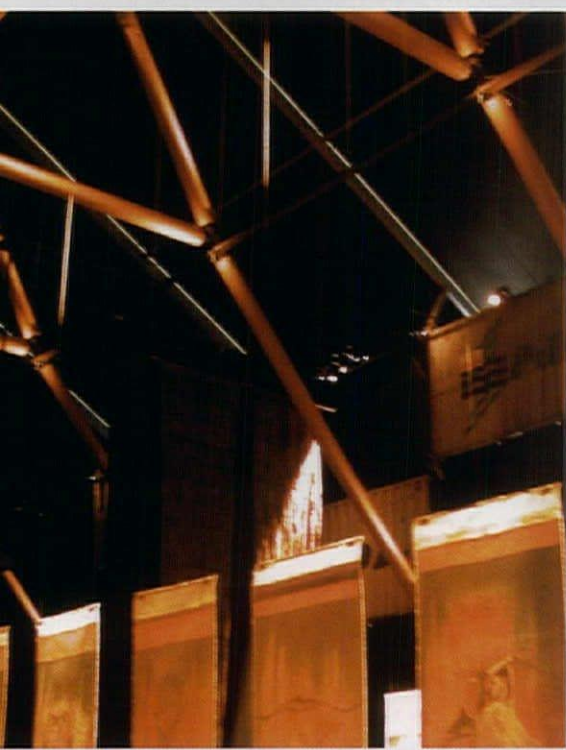
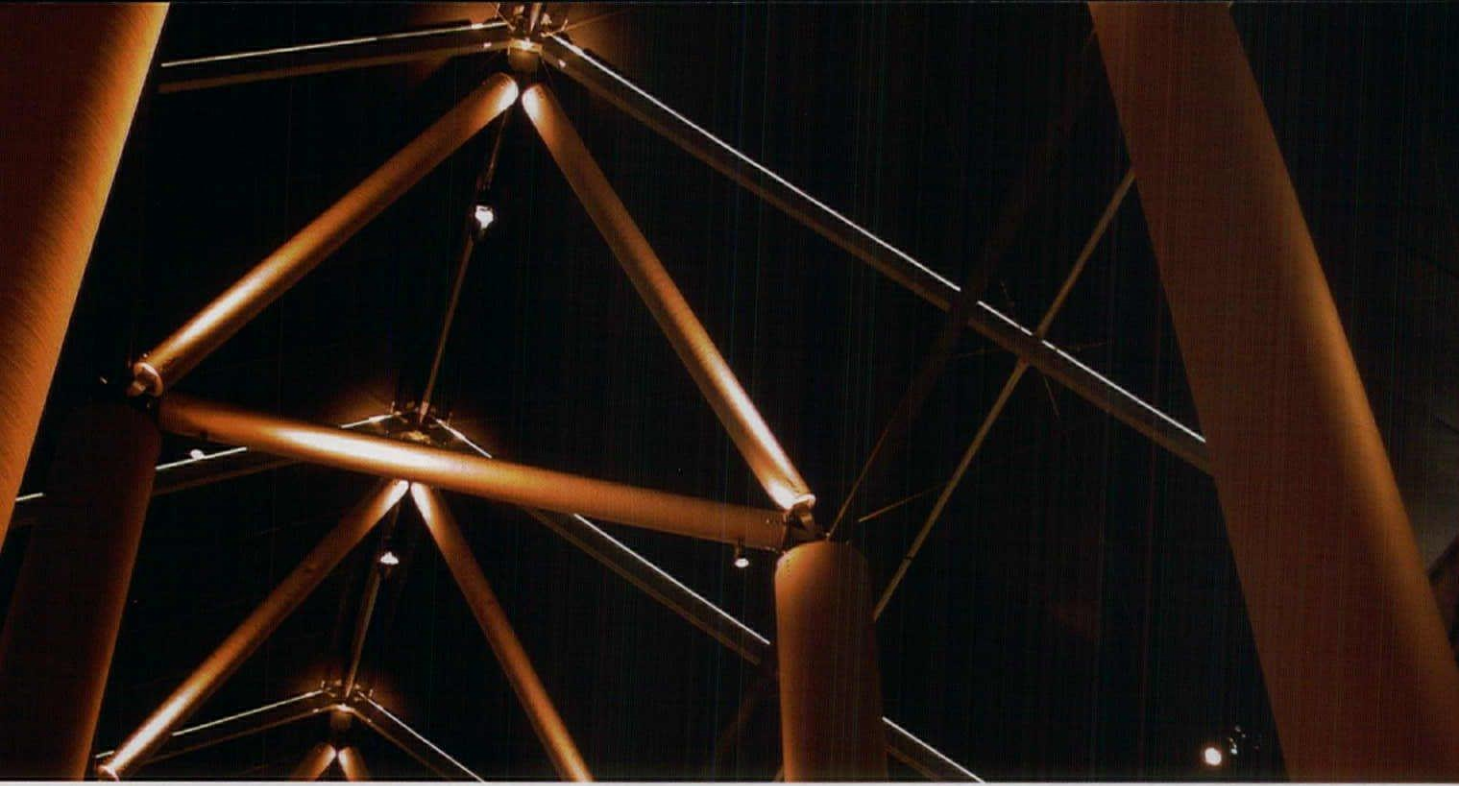
For Kennedy, Viaro represents a first step toward challenging the conventions of electrical distribution used in architecture for the last 100 years. "The concept design team wanted to avoid the kind of waste and cost that we felt was embedded in drywall construction," says Kennedy. "There are billions of tons of drywall created every year, a third of which is thrown into landfills." The problem, she continues, "is why is so much drywall being torn up and discarded? It's because the stud wall system is predicated on the idea that electrical switches and cabling are built inside the wall; we wanted to completely change that." With Viaro, spaces can be reconfigured without demolition, and essential building services, such as power distribution, reprogrammed easily, translating into significant time and cost savings to both owner and occupant.

Equally important, Viaro hints at a new



KVA's lightweight, flexible fabric wall version of the prototype is integrated with acoustical inserts, a DC power distribution system, plug-in ports for digital tools, such as cell phone, PDAs, and color-changing LED illumination (this page and facing page bottom). The prototype is part of the "Extreme Textiles" exhibit running at the Cooper-Hewitt, National Design Museum through October 2005.







When KVA was asked to design a ceiling installation for Viaro in a new-media classroom at the Harvard University Design School (above left), it worked with the Center for Design Informatics at Harvard to transform the original prototype (right top and bottom), and make it mass customizable. The idea was to have a zero-waste ceiling that could conform to any shape. The system employs a hybrid of LEDs and conventional energy-efficient fluorescent lamps, and is comprised of a structural element, a power platform, and a proprietary communications platform, which is distributed via a digital network.

space-making paradigm, challenging traditional construction methods, which rely on specific sequencing of building trades to complete a project. For Kennedy, "the stud wall system is increasingly less viable given the economic changes that are happening in the way people work, live, and communicate."

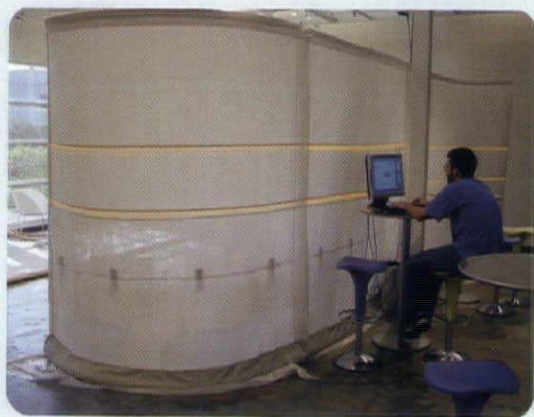
A UNIVERSAL APPROACH

The ultimate beauty of the Viaro infrastructure is that it can move across project type. Over the next year, Herman Miller plans to complete prototypes that can be tested in different application typologies. Several retail installations are underway, and Viaro's affinity for higher-education settings is exhibited in a new-media space/classroom installed at the Harvard University Design School.

Further adding to the infrastructure's inventiveness is its ability to use both solid-state lighting technologies and traditional lamp-based luminaires. Kennedy's research and integration of solid-state lighting in her firm's work is not a flash in the pan; rather, it stems from her

ongoing research into how to incorporate efficient and sustainable technologies into architecture. Seeking to accelerate the practical adoption of such technologies, Kennedy is challenging nothing less than traditional electrical and lighting systems, what she refers to as "bulb culture." Kennedy explains, "We just can't assume there will be a lot of energy around. Incorporating solid-state lighting into architecture would be a tremendously effective way to cut energy use, and save millions of dollars per year."

Innovation is not always achieved by singular pursuits. "It requires a community of architects, designers, engineers, and manufacturers that all share the same vision," says Viaro's Han. For its part, Viaro provides a ready-to-go, code-compliant, modular and programmable technology infrastructure system, and creates an intuitive and responsive environment no matter the application. It also offers a glimpse into the future of environment typologies, new construction paradigms, and the transformation of luminaires from object-based to a luminous plane of light. **ELIZABETH DONOFF**



PHOTOGRAPH THIS PAGE TOP LEFT: ANITA KAN

DETAILS

PROJECT Viaro (original prototype referred to as the Purple Infrastructure System)

CLIENT Herman Miller Creative Office, Zeeland, Michigan

CONCEPT DESIGN TEAM Kennedy & Violic Architects, Boston; and Applied Minds, Glendale, California

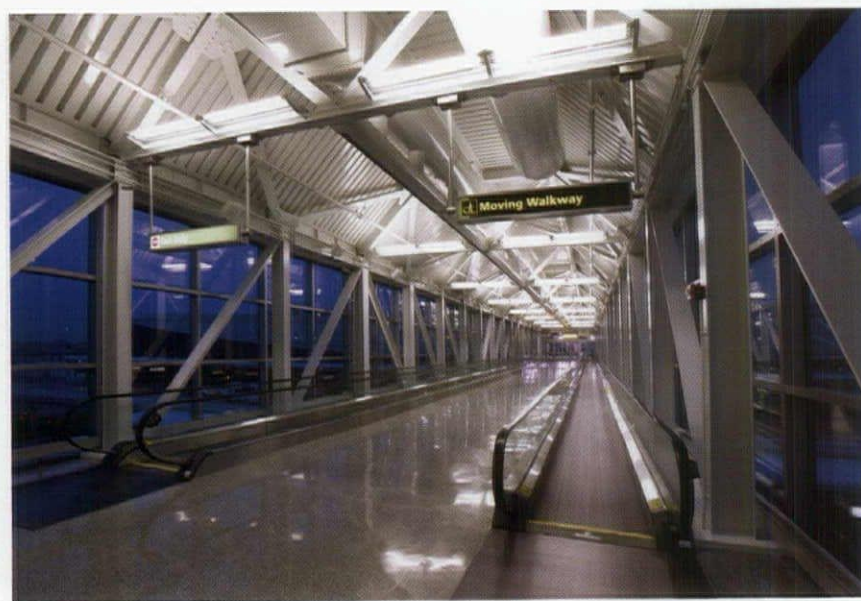
MANUFACTURERS Herman Miller, Milliken & Company, Osram Opto Semiconductors

IMAGES Courtesy of Viaro, a Herman Miller Company; Kennedy & Violic Architecture; Applied Minds; Milliken & Company; and Osram Opto Semiconductors (except where noted)

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JFK LIGHT RAIL



THERE IS A REASON PEOPLE FEAR FLYING: THE logistical nightmare that is involved in making a flight. This fact is not lost on planners that mastermind public infrastructure systems, and in several cases, a noteworthy effort has been made to salvage the traveler's experience.

The recently completed Light Rail System, or AirTrain, that connects the terminals at New York's John F. Kennedy Airport with the city's subway and commuter train network exhibits this sensitivity toward its riders. "The design has to do with comfort level first," says Robert Davidson, the former Port Authority chief architect, and program architect for the AirTrain. (Davidson is now the senior vice president for transportation aviation facility design with STV Group.) "These systems have to be designed with the clearest path of travel in mind, especially in airports where your anxiety level is high, and you're rushing to catch a plane and navigate security checkpoints."

In addition to its progressive sympathy for travelers, the AirTrain also employs an innovative project delivery system referred to as DBOM. Pronounced "dee-bomb," this acronym is not a rap cover of a Parliament tune, but rather an increasingly popular scenario for large—primarily public transportation—systems and facilities, through which a contractor or consortium finances the project, designing, building, operating, and maintaining it (hence the acronym) for a prescribed period of time. Many in the industry see this as the future standard for transportation system project delivery.

"Maintenance and operations, and streamlining the process, are always paramount on rail system projects," says Domingo Gonzalez, principal of Domingo Gonzalez Associates, the lighting design firm for the system. "But with DBOM it becomes a shared interest." Operational integrity moves to the top of the design agenda with this approach, since it is no longer solely the client's problem if the infrastructure begins to fail several years out. With the AirTrain project, the sheer volume of fixtures to maintain across the system necessitated a carefully planned lighting scheme. Gonzalez proves this with a bit of math: "We have 10 stations, each with a 240-foot-long platform with fixtures on either side, so you have almost 5,000 feet of product. And then there are the connectors, which are also about 250 to 300 feet. When all is said and done, there is about two miles of product on this project."

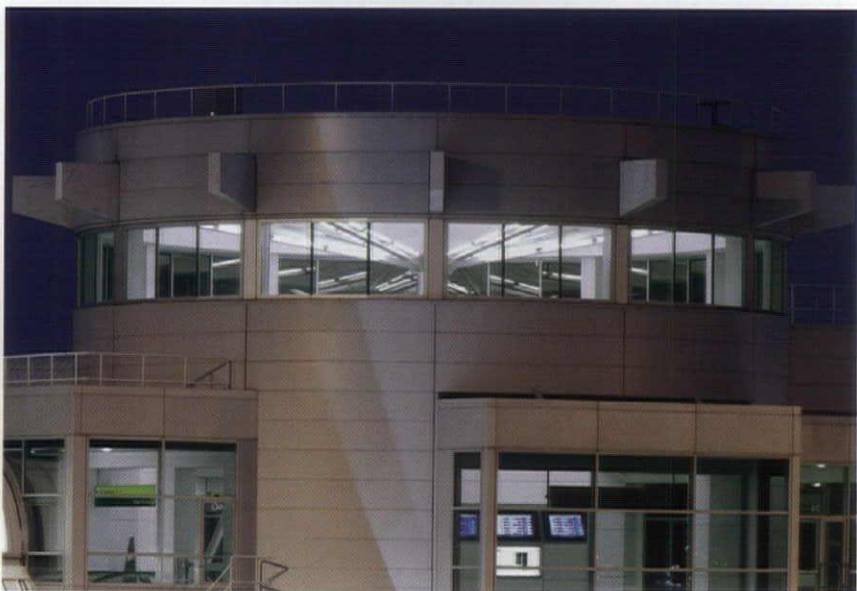
Gonzalez's approach: Keep it simple. The lighting firm custom designed a direct/indirect fixture based on a typical 4-foot 32W T8 fluorescent lamp, with

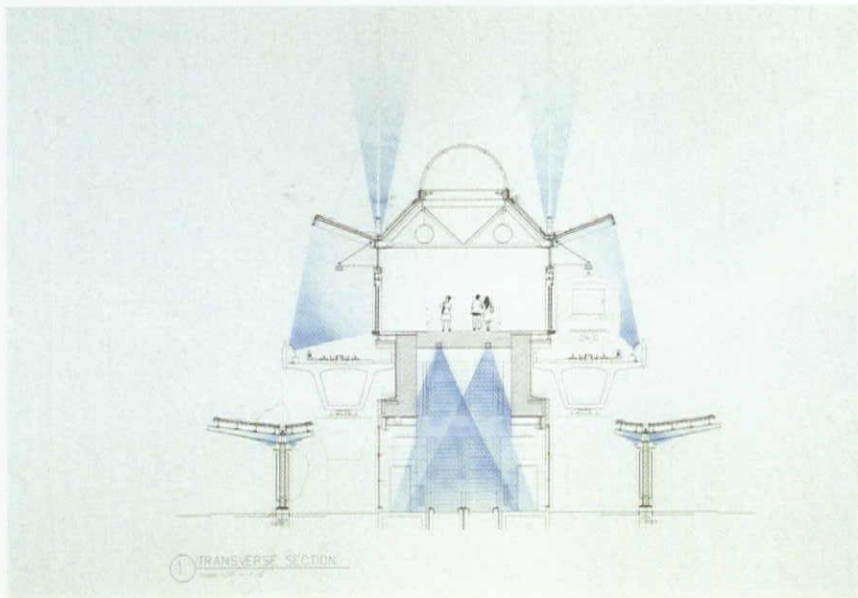
3500K and 84 CRI. This luminaire was then used in various orientations throughout the 10-station infrastructure. "The idea was to standardize on a tool that would be around in 20 or 30 years," says Gonzalez. "Plus, the Port Authority is already using this technology in its pantheon of projects, so it's familiar to the maintenance staff." Furthermore, since the AirTrain is an electric monorail system with platform-edge doors and air conditioning, it does not have the steel dust normally created by brake shoes grinding against a track. The fixture, therefore, did not require the clamp and screws that usually protect the socket from dust. The clean environment also enabled a bare-lamp design. No screws means toolless access, shaving time and money off the relamping process, while eliminating the lens around the lamp avoided the issue of a dirty covering that would need to be cleaned and replaced. "With this luminaire, when you change the lamp, you have a brand new lighting system, as opposed to a lens that has to be washed and pretty soon looks shabby," explains Gonzalez.

LIGHTING THAT NAVIGATES

Conveniently, the lighting fixtures' simple, familiar form also played into Davidson's quest to create an easily navigable environment for riders. "No matter how well you think you have designed the signage," he says, "people tend to misinterpret it because of the level of anxiety and exhaustion." He notes that many travelers who use an airport regularly are arriving or departing at night, thus the electric lighting needs to create the same comfortable environment after dark that natural light provides during the day. "People need to know where they are." Expressed as either vertically or horizontally oriented lines, the custom luminaires were easily adapted to the wayfinding vocabulary. "In the stations, the fixtures are set parallel to the path of travel. In the connectors, they are perpendicular," says Gonzalez. "This helps demarcate the difference between the two spaces." The direct/indirect system also establishes an

The lighting scheme for the JFK AirTrain stations (there are 10) in Queens, New York, explores the idea of movement. On the 240-foot platforms, custom linear fixtures are mounted parallel to the path of travel, pulling the rider visually forward as he descends the escalator (facing page, top). The same fixture is arranged in a wheel-like configuration in the rotunda (right center); and perpendicularly in the corridors. A metal halide floodlight on the track emphasizes the motion of the train as it pulls into and out of the station (right top and bottom).





Watts per square foot came in at 1.2 system-wide—"right on code," notes lighting designer Domingo Gonzalez, whose firm custom designed a linear fluorescent fixture based on standard 4-foot 32W T8 technology (left bottom). Because the electric monorail AirTrain provides a relatively clean system, the luminaires do not need a clamp and screws to protect the socket from dust, nor a lens cover for the bare bulb. Eliminating screws saves significantly in terms of maintenance, notes Gonzalez. "If each fixture has six, and there are two miles of product, that is a lot of screws we took out of the system." The renderings (left) detail the AirTrain's long-term parking station.

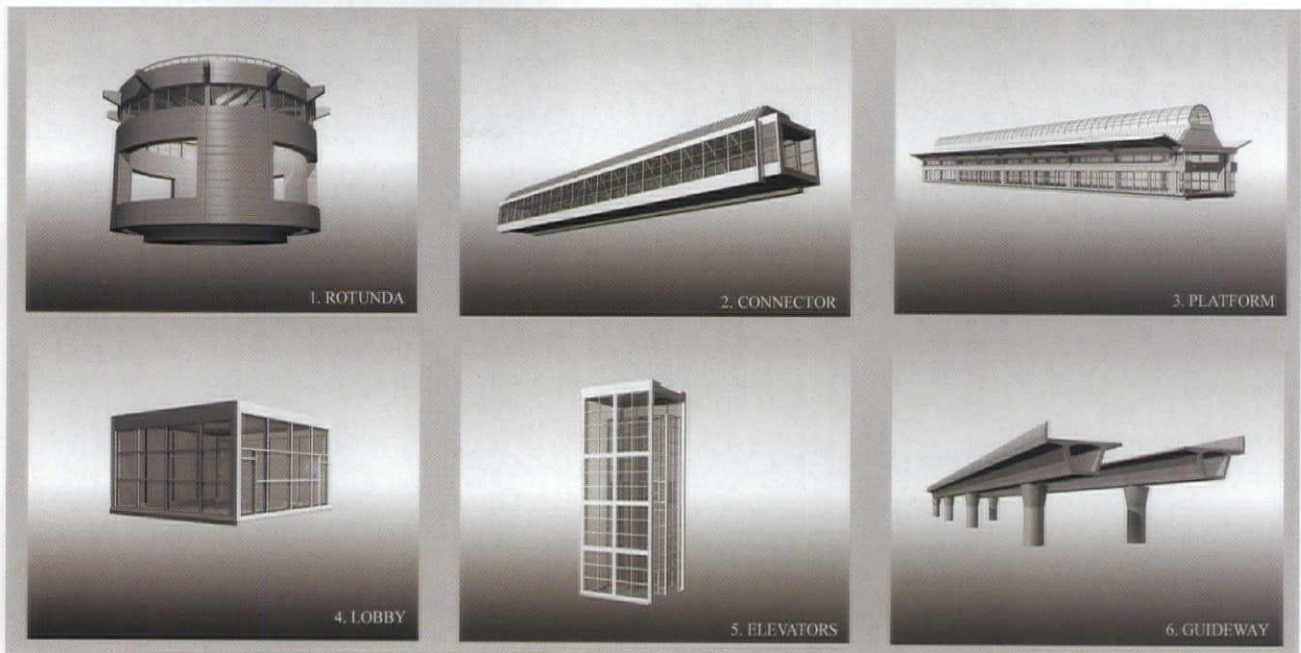
even light level that is reassuring to riders traveling after dark. At 1.2 watts per square foot system-wide, the number came in "right on code," notes Gonzalez.

Spatial identity is also established through various architectural forms (platform, at-grade lobby, connector, elevator shaft, rotunda, and so on), which are standardized across the 10 stations in what architect Jonathan Cohn, the design director on the project, refers to as a "kit of parts." Together, these common forms unify the facilities visually, clarifying options for people inside the spaces, as well as making the stations recognizable to travelers outside. Luminosity plays a critical role in this process. "Light is the identity of the system at night," says Cohn, who is with STV Group. The 240-foot extruded-polycarbonate-panel vault over each platform is turned into a translucent 12-foot-wide tube of light, easily identifiable from a parking lot or street. To further alleviate doubt, metal halide floodlights on the track catch the movement of the train as it glides into and out of the station, creating a low-tech kinetic effect. "The airport is a confusing network of garages and roads, and it is important for people to clearly identify system," explains Cohn.

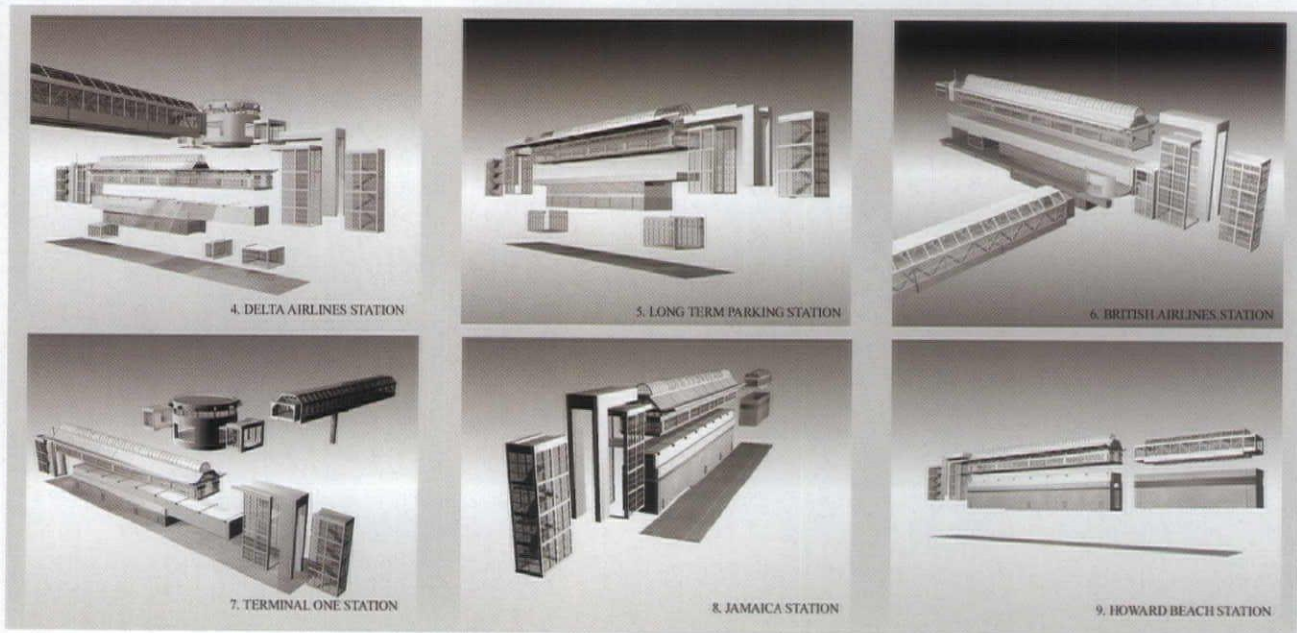
Despite the rigid programmatic requirements for the JFK AirTrain, the lighting scheme still takes a moment to symbolically recall the system's original purpose. "It's all about movement," says Gonzalez, "whether in the rotunda, where the luminaires form the spokes of a wheel, or on the platforms, where the linear arrangement carries you forward." The custom linear fixture—which incorporates metal rods to both maintain the fixture's mechanical dimension and serve as starting aids for the bare lamps—also makes a special reference: "It reminds me of the tubular luggage racks on old train cars," says Gonzalez. "What could be more appropriate?" **EMILIE SOMMERHOFF**



RENDERINGS THIS PAGE COURTESY OF DOMINGO GONZALEZ ASSOCIATES



While arranged differently depending on site requirements, the AirTrain stations are comprised of standardized architectural forms, what Jonathan Cohn, the project's design director, refers to as a "kit of parts." Nine elements (six are shown above) come together to create 10 separate stations (six are shown below). This approach helped visually unify the disparate facilities. It also helped the team accommodate changes. "The central terminal area is constantly under design and construction," says Cohn. "We started with buildings in a certain location, and by the end, virtually every one had shifted."



DETAILS

PROJECT NAME AirTrain JFK, Queens, New York

CLIENT Port Authority of New York and New Jersey (PANYNJ)

ARCHITECT PANYNJ, in collaboration with STV Group, New York City

LIGHTING DESIGN FIRM/CONSULTANT Domingo Gonzalez Associates, New York City

SIGNAGE/WAYFINDING Louis Nelson Associates, New York City

ENGINEERING PANYNJ, in collaboration with STV Group

STRUCTURAL ENGINEER Severud Associates (Jamaica AirTrain Terminal)

STRUCTURAL ENGINEERS Severud Associates, conceptual documents; Ysrael A. Seinuk, P.C., engineer of record (Howard Beach AirTrain Terminal)

MEP Lizardos Engineering, Long Island, New York (Jamaica AirTrain Terminal)


PHOTOGRAPHER John Bartelstone, New York City

MANUFACTURERS

GE
Hubbell
Icon International
Zumtobel Staff

APPLICATIONS

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Metal halide floodlights at guideway
Louvered linear fluorescent fixtures
Recessed turbo-louvered downlights

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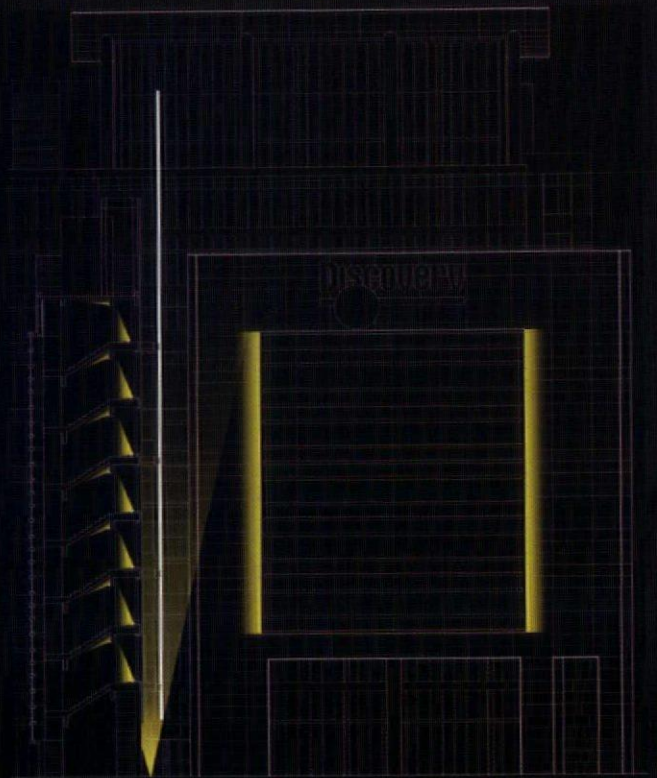
WHEN DISCOVERY COMMUNICATIONS DECIDED TO CONSTRUCT A NEW WORLD HEADQUARTERS FACILITY IN SILVER SPRINGS, MARYLAND, THE ARCHITECTS FROM THE Washington, D.C. office of the SmithGroup chose to create a structure that would serve as a vibrant reflection of their client. "Discovery is a dynamic, innovative communications leader that broadcasts all over the world," says Jeff Gerwing, a senior lighting designer at the SmithGroup's Detroit office, which oversees the firm's lighting work. According to Gerwing, who worked with colleague Rodrigo Manriquez on the project, the architects "assigned different elements of the building to serve as metaphors for the communications model, and each lighting design decision fed off that concept."

In fact, the lighting design, which relies heavily on the versatility, movement, and color capability of LED sources, gives the headquarters a vitality and dynamism that literally brings to life the broadcast communications metaphor. Three formal aspects of the 580,000-square-foot, \$60 million structure were designed to represent three key components of the media communications process. The sweeping roof forms of the facility's two wings serve as symbolic receptors of the information that Discovery employees translate into programming. The building's two wings—highly glazed nine- and six-story boxes that glow from within at night and reveal the movements of people working inside—represent the assemblage and conversion of information into programming. Lastly, a freestanding seven-story stair tower linked to one of the wings represents the transmission of information.

The tower is where the designers employed the most dynamic expression of the lighting design. Mounted at 5-foot intervals along the corridor of each floor at the corner where the window mullions join the floor of the tower, five 50W 6-inch-by-16-inch panels illuminated with LEDs cast colored light from the floor toward the blank white wall and ceiling on the opposite side of the corridor. Natural light pouring through the windows of the corridor provides ambient light during the day. But at night, "people walking through the corridors are drawn into the design like figures on a TV screen, as their moving shadows are cast on the wall," says Gerwing. "The closer they are to the light source, the larger their shadow is on the wall," the lighting designer explains. "Whether viewed from within the corridor or from outside, the small and large shadows create an interesting variation as they shimmer across the surface of the wall."

The challenge, however, was to artfully animate the building even more from the exterior. To do so, the designers connected the LED panels to a DMX system, in order to control each light source individually. "You can program the sources to all read as the same color," says Gerwing, "or emit colors that relate to specific holidays, or you can do special effects, such as programming light to move outward from a single point like waves expanding from a drop landing in a bucket of water." The designers programmed the LED panels to cycle continuously through six different scenes (each about two minutes long) that create the impression of light moving vertically up the tower. They chose a spectrum of cooler colors that relate well to the building's metal





skin and high-tech aesthetic, as well as to Discovery's blue logo.

Other LED sources in a linear configuration of 2-inch-diameter tubes (which consume 6 watts of energy per linear foot), hidden within an exterior cove, accent the juncture of the glass-box office wing as it intersects a curving metal panel façade adjacent to the tower. This accent unifies the lighting composition of the tower and building elements. And a series of ground-recessed 400W metal halides with narrow beams of about 10 degrees wash a stainless-steel mesh scrim, surrounding the tower with an extra layer of colored light. "Even though this lighting is static," says Gerwing, "your perception of it changes as you move by from the exterior, as the interplay of light gives the metal scrim sparkle."

Another highlight of the lighting scheme is a vertical 115-foot light pipe, illuminated through a mid-point feed that bounces constant white light from metal halides in both directions. "We had the pipe customized to provide uniform luminance along the majority of the overall length, while diminishing in luminance toward the top of the pipe," says Gerwing, who also notes that the light pipe, which is illuminated both day and night, represents the Discovery Company's constant global reach. Additionally, a combination of interior uplights and exterior floods, carefully balanced to provide the lighting gradients the designers desired, contain metal halides with matching color temperatures for a unified design. The variable light from the LED sources, on the other hand, represent the changing nature of Discovery's programming. "LEDs offer a very efficient way to produce color, as opposed to filtering white light," says Gerwing. "Plus, they're flexible in terms of programming. You just can't do that as easily with other sources." **JEAN NAYAR**

The Discovery Headquarter's façade is characterized by clear, strong elements, including a seven-story freestanding stair tower and a 115-foot-tall light pipe. The façade is illuminated in a spectrum of colors with color-changing LEDs (facing page). A sketch of the lighting study shows the placement of the lighting sources and range of surface illumination (above).

A LIGHTING DESIGNER REFLECTS ON THE EVOLUTION OF LED TECHNOLOGY

HAVING WORKED WITH LEDs EXTENSIVELY SINCE THEY WERE A NASCENT ARCHITECTURAL lighting technology, I have observed the progressive enhancement of LED fixtures. I group the key developments into two areas: technology and user-friendliness.

Most R&D energy has focused on LED output. The lumen output of current 1W and 3W LEDs is dramatically better than the technology of a few years ago. Higher lumen packages expand the potential applications for LEDs; however, they have forced manufacturers to increase housing sizes to account for heat dissipation. To keep pace with LED output, the capacity of power supply units has also increased. Higher capacity allows larger groupings of LED fixtures on fewer units, while minimizing points of system failure.

LEDs have also become easier to work with. Fixture addressing procedures for lighting control is one of the biggest improvements. What once could only be accomplished by setting dip switches—sometimes up to 12 on each individual fixture—can now be done by scanning a bar code. This simple feature would have been appreciated during the construction of the Northwest Airlines Passenger Tunnel (see "Terminal Bliss," Jan/Feb 2003), one of the first projects SmithGroup designed with LEDs. It contained over 8,000 LED fixtures, each requiring individual addressing! Data and power cable management systems have also minimized the cable "spaghetti" formerly present in larger installations.

Better control options have made it easier to utilize LEDs in smaller installations without the complexity of DMX control systems, allowing designs that are easier to use and adjust. **JEFF GERWING**

Jeff Gerwing is an Associate at SmithGroup, where he co-leads the lighting design practice. His experience includes stadium, casino, corporate, commercial, education, institutional, and museum projects. He has received numerous lighting design awards.

DETAILS

PROJECT Discovery Communications Headquarters, Silver Springs, Maryland

ARCHITECT SmithGroup, Washington, D.C.

LIGHTING DESIGNER SmithGroup, Detroit, Michigan

PROJECT SIZE 580,000 square feet

WATTS PER SQUARE FOOT .52

PHOTOGRAPHER Prakash Patel, Washington, D.C.

MANUFACTURERS

Bega
Color Kinetics

Erco
Hydrel

Martin
RSA
TIR Systems

Venture
Winona

APPLICATIONS

Exterior metal halide floodlights at roof forms

Inside: LED ColorBlast and iColorCove at stair; Outside: LED fresco at vertical cove

Interior in-grade halogen at atrium

Inside: in-grade metal halide at lobby;

Outside: in-grade metal halide at stair

Proscenium DMX exterior lighting control

Metal halide at lobby

115-foot light pipe

Blue metal halide lamps at stair

Indirect metal halide at atrium

Metal halide fixtures graze the metal mesh scrim that drapes the front of the stair tower, while the interior wall is back lit with color-changing LEDs (top left). Metal halide luminaires are also used on each stair landing to illuminate the underside of the landing above (bottom left).



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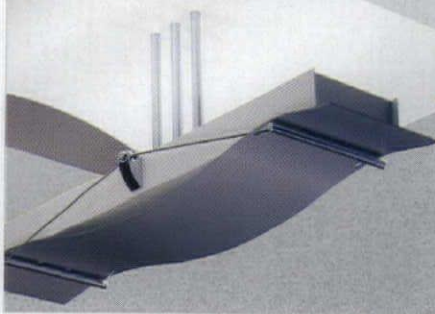
Every fixture Visa produces is covered by a full 5-year limited warranty. This is made possible by our attention to robust detailing, use of high quality materials, and the extra care we apply to finishing each product. Every luminaire is bench tested prior to shipment to insure trouble free installation. Our packaging provides maximum protection against freight damage, with minimal waste (we don't use foam peanuts). On the rare occasion we experience a problem, we fix it. We do whatever it takes to make it right for the customer.

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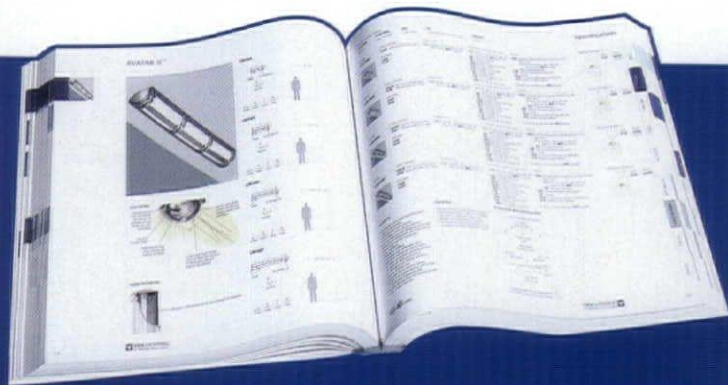
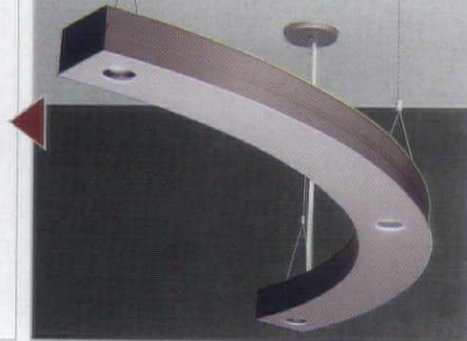
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ASHA'S, DUBAI

CHALLENGE It's not easy being the first born; expectations are high. When Asha's, a contemporary Indian restaurant named for the Bollywood singer Asha Bhosle, opened in Dubai, it was the first in a franchise that the client hoped to expand into other countries. "We wanted to bring a bit of modern India to the country Asha's would be located in," says Mary Rushton-Beales, principal of the Lighting Design House. The restaurant required a distinctively Indian aesthetic, but one that could be transported convincingly around the world.

ARCHITECTURAL AND LIGHTING SOLUTION Interior design firm Graham Taylor Designs developed an overarching theme of fire and water, which lends itself to rich colors and mood lighting—as well as to the mission of universality. In addition to being tied to Indian spirituality, "these elements apply to a broad spectrum of life and experience globally," says Yvonne Taylor with Graham Taylor Designs. "Everyone understands the power and importance of fire and water." In the waiting area, three water-filled bowls share the space with a wall of candles. Two more bowls are located on either side of the bar. Concealed below, a metal halide source with a sparkle wheel uplifts the bowls via 80 fiber-optic points. Hidden under a lip, fluorescent lamps encased in orange sleeves graze the pedestal on which the bowls sit, while narrow-beam low-voltage AR111s spotlight the floating arrangements.

Throughout Asha's, warm white and orange sources are combined and dimmed to different intensities depending on the time of day via an elaborate eight-zone control system. The result is an

ambient light that soaks the restaurant in red and yellow hues. In the banquet seating area, 3000K white and tangerine-colored cold cathode in a circular ceiling cove dim to create a soft peach during the day and a deep orange at night. Above the bar, large pendants housing white and terra-cotta candle lamps also produce flattering orange hues.

An Indian cultural aesthetic resides in the arty materials—chunky dark wood, rustic stone, filigreed metal, glass beads—and in the custom luminaires conceived of by Graham Taylor Designs, in conjunction with Rushton-Beales. In the booths, a pendant decorated with ruby-colored glass set in a censer-like metal housing casts a glow that, as suggested by the luminaire's form, seems to come from brightly burning incense. The bar pendants and floor lamps feature a custom-printed fabric with patterns influenced by organic Indian designs. The beaded curtain backdrop for the banquet seating area "frames the space with light in a delicate way," says Rushton-Beales. "It had to be evenly, but not overly, lit." The narrow ceiling slot required a small fixture, since it also hid the curtain track. A low-voltage 1-inch-diameter 20W dichroic luminaire, set 16 inches on center, downlights the curtain from its position in the ceiling slot.

The décor is suggestive but not overwhelming. "India is a panorama of life and diversity," says Taylor. "Our challenge was to distill the essence of India into a limited number of elements, and still create a commercially viable concept with universal appeal." Apparently, that has been achieved. A second Asha's opened in Kuwait, with 12 more scheduled to open in England. **EMILIE SOMMERHOFF**

DETAILS

PROJECT | Asha's Restaurant, Dubai

CLIENT | Wafi City, Dubai

INTERIOR DESIGNER | Graham Taylor Designs, Kuala Lumpur

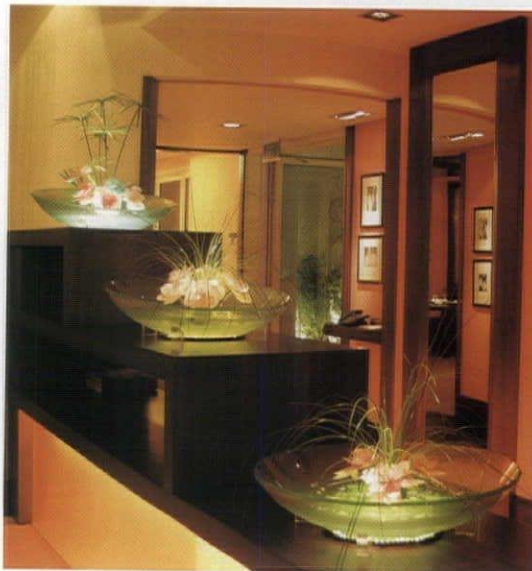
LIGHTING DESIGNER | The Lighting Design House, London

PHOTOGRAPHER | Awkward Brothers Digital Imaging, Surrey, England

MANUFACTURERS | AC/DC Lighting Systems, Encapsulite, Illuma, Lutron, Super Vision International, Targetti

more information at
WWW.ARCHLIGHTING.COM

From left: Water-filled bowls shine with fiber optics; censer-like pendants and lensed AR111s light the booths; and 20W downlights and floor lamps with custom-printed shades illuminate the beaded curtain behind the banquet area.



DINING DUO, NEW YORK CITY

DETAILS

PROJECT | Xing Restaurant,
New York City

PROJECT | Fluff Bakery,
New York City

DESIGN TEAM |

Lewis.Tsurumaki.Lewis, New
York City (architecture and
lighting)

PHOTOGRAPHER | Michael Moran,
New York City

MANUFACTURER | Osram Sylvania

CHALLENGE When Lewis.Tsurumaki.Lewis (LTL) was asked to design the interiors for two new restaurants in Manhattan's Hell's Kitchen neighborhood (Xing, a Chinese restaurant, and Fluff Bakery, which specializes in retro confections), the firm knew that it was up against a very particular set of constraints. Both locations were cramped, nineteenth-century-tenement storefronts that offered little opportunity to alter the layout dramatically. The most pressing concern, then, was to maximize openness and optimize the seating capacity. Just as important, though, was the desire to produce fresh architectural identities within the spaces that related to the theme of each specific restaurant and were attuned to the increasingly design-oriented neighborhood. "The strategy," says LTL principal, Marc Tsurumaki, "involved the insertion of new kinds of surfaces or wrappers into the preexisting volumes of space. The challenge that this provoked was how to incorporate light that isn't imposing or incongruous with the nature of those wrappers."

ARCHITECTURAL AND LIGHTING SOLUTION In plan, Xing presented a typical New York City layout. A ventilation shaft pinched the 2,000-square-foot space toward the back, creating three distinct volumes. "We needed to produce some degree of interrelation between those spaces, but at the same time, take advantage of their idiosyncrasies," says Tsurumaki. "The idea was to think of this as a series of nested boxes, each defined by a different materiality—that would vary from front to back—from harder surfaces in the front, to softer more tactile surfaces in the rear, an exclusive, jewel-box dining area. And the approach to lighting varied in each instance."

The solution for integrating these three areas came from what, for the architects, was initially the most problematic volume of the space—the narrow central area that houses the bathrooms and a wait station. "Our fear," says Tsurumaki, "was that it would become a negative dark space you wouldn't want to pass through, so the idea was to make it an illuminated joint that would connect the front and the rear." In executing this idea, LTL produced a continuous wrapped surface of 1/4-inch-by-2-inch strips of yellow, green, and blue acrylic that were layered and sandwiched together in a steel frame. Dark and dull on its own, the acrylic was then backlit with a series of 75W linear incandescent lamps on dimmers. LTL then extended the material across the dining area's ceiling, where it acts as a "lighting canopy" that terminates by wrapping into the under-lit bar top.

Even the sign, situated at elbow height across the restaurant's front window, is an illuminated block of these acrylic strips, which, by the alternation of colors, spells out Xing and acts as a drink bar rail.

The 800-square-foot Fluff Bakery is almost completely contained within a single wrapper. "We started with the idea of the built-in banquet along the two sides of the space," says Tsurumaki. "The entire volume is defined as an extension of the seat back, as if the furniture wrapped the space and produced the room itself." From there, LTL worked with a combination of 3/4-inch-by-3/4-inch strips of industrial felt and stained plywood, a color gradient going from black to grey. The combination creates a surface that transitions from darker and softer at the seat back, to lighter and harder at the ceiling.

LTL strives toward integrated architectural and lighting solutions, and Fluff Bakery was no exception. Says Tsurumaki, "We wanted to find a productive dialogue between the way the lighting was orchestrated, and the way we were thinking about the space and the surface that defines the space." After playing with slotted lighting features, similar to those used in Xing's bamboo wrapper, the architects arrived at the custom chandelier that now illuminates the space. "It was a slightly different idea," continues Tsurumaki, "which was to introduce a more organic counterpoint to the excessive linearity of the space." The chandelier is composed of three different formations of bent stainless-steel conduit, out of which ten branches were made. These branches are physically attached to a stainless-steel strip in the ceiling, and from there they migrate to various points in the space, where they terminate in 75W linear incandescent lamps. At night, from the street, the conduit nearly disappears into the lines of the wrapper and the dimmable lamps appear as floating bars of light.

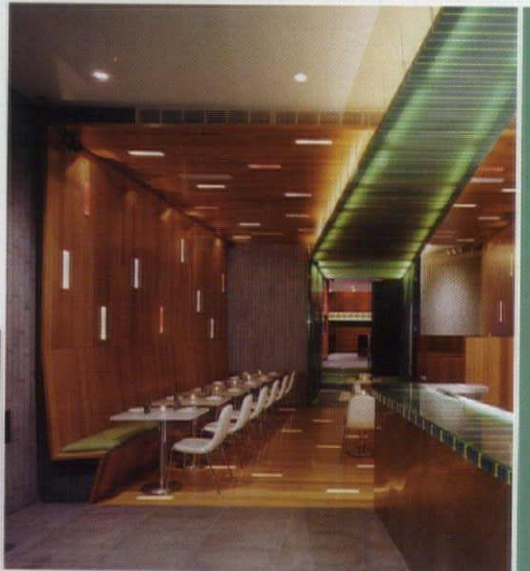
A small firm, often working with low-budget projects, LTL has had little opportunity to employ lighting consultants. Instead, the firm builds much of what it designs and works many of its lighting solutions by trial and error. At Xing the designers experimented with different methods of backlighting on-site, and at Fluff they assembled the chandelier themselves. The result for both is an unexpected blurring of lighting and architecture. "We do with lighting as with materiality and other programmatic conditions," says Tsurumaki. "We always try to find the invention and play within the project." **AARON SEWARD**

Aaron Seward is a freelance writer living in Brooklyn.

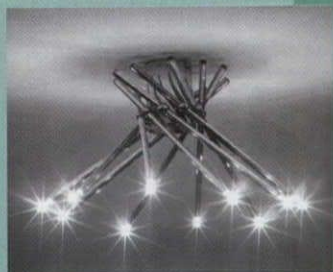


FLUFF BAKERY (above): The variation and linearity of the felt and plywood strips creates an optical condition—"almost like horizontal vertigo," says LTL principal Marc Tsurumaki—that draws attention from the street back to the focal point of the establishment: the bakery counter. Taking advantage of the bakery's high ceilings, the chandelier is varied not only in plan, but also in section.

XING (below and right): The bar area is clad in layered stone and lit by incandescent bulbs recessed into the ceiling. Directly adjacent is the front seating area, defined by a floor-to-ceiling bamboo wrapper punctuated with colored light slots incorporating 20W incandescent lamps, screw-mounted, offset from the surface, and on dimmers.



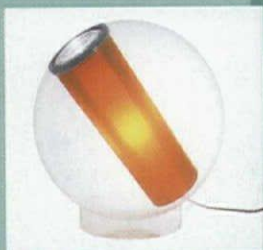
HOSPITALITY ILLUMINATED

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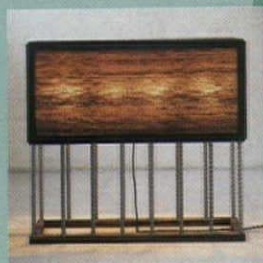
Astrislim, a family of luminaires designed by Marco Zotta, includes this ceiling-mounted version that measures 13 inches wide by 9 inches high and uses a 20W G4 lamp. Available in shiny chrome or opaque nickel finishes, the luminaire is fitted with a bulb-change indicator light, and a wall-mounted control unit. **CIRCLE 115**

**BESA LIGHTING | VANITY BATH LIGHT | BESALIGHTING.COM**

Vanity Bath Light, the latest addition to the WS Series of Bath Bars, is available in single, two-, three-, four- and five-light bar configurations. The luminaire can be installed horizontally or vertically. Handcrafted of European blown glass, the light uses a 50W G9 halogen lamp and is available in satin nickel, bronze, and chrome metal finishes. **CIRCLE 116**

**PABLO | BEL'OCCHIO | PABLODESIGNS.COM**

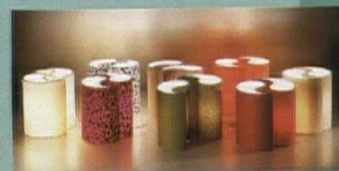
A multi-position spotlight and an ambient table lamp combined, Bel'occhio has a spherical acrylic shell that is cradled in its base allowing infinite adjustment possibilities. The clear outer shade is available with two inner cylinder shade colors, white or orange. The luminaire uses a 75W lamp, and light intensity can be controlled with a full-range dimmer. Two sizes are available: 16 inches in diameter by 17 inches high or 18 inches in diameter and 19 inches high. **CIRCLE 117**

**LUMINARA | PASHA | LUMINARA.IT**

Designed by Roberto Lazzeroni, this reinterpretation of a traditional table lamp is one of two new luminaires in the Luminara collection. It has a wooden base, a fabric shade on a wooden frame, and die-cast brass supports to create a modern lantern with a warm, textured glow. It is available as a table lamp in two sizes, and as a floor lamp. **CIRCLE 118**

**TERZANI | MAGDALENA | TERZANI.COM**

Designed by Bruno Rainaldi, the orb-like Magdalena pendant luminaire is approximately 27 1/2 inches by 20 inches and has a maximum height of just over 6 feet. Fabricated from tin, the luminaire's surface is punctuated with horizontal slots; when lit with its 300W E27 bulb, the effect is a brilliant swirling light. **CIRCLE 119**

**TRONCONI | YIN YANG | TRONCONI.COM**

With its simple drop shape and diffused light, the two sections of this cotton fabric table lamp can be used individually or combined. Lamped with an incandescent 60W E14 bulb, the luminaire has a metal support, is approximately 9 1/2 inches tall by 12 inches in diameter, and is available in eight matching or contrasting colors. The product is distributed by Terzani in the United States. **CIRCLE 120**

CUSTOMIZING LIGHT

STEPS TOWARD ORIGINAL LUMINAIRE DESIGN

JESSICA N. JOHNSON

WHEN FACED WITH A LIGHTING DESIGN PROBLEM THAT CANNOT BE SOLVED SIMPLY with a standard fixture, many designers turn to a custom luminaire solution. Following that decision through the design and manufacturing stages to the final product involves more effort, however, than selecting an off-the-shelf fixture. Several lighting professionals from both large manufacturers and small studio-based product design shops explain the steps and issues involved when including a creative and unique custom solution in a project.

WHY CHOOSE CUSTOM?

In addition to adding a one-of-a-kind detail, custom luminaires offer practical advantages. "Although there are thousands of exceptional standard fixtures, they don't always address the particular requirements of a room," says Michael McEwen, founder of McEwen Lighting Studio in Emeryville, California. "It's a good solution for odd symmetries or extremely light-challenged conditions; or in the case of a remodel, a complex pre-existing electrical and mechanical situation." In some instances, he adds, a design may require a custom fixture simply because the client wants an original.

1. UNDERSTAND THE VISION. Frequently, the call for a custom luminaire comes from the architect or interior designer, who will then involve a lighting designer or manufacturer. At this point, the final product will be but a sparkle in the design team or client's eye, and the first step for the fixture designer is to understand the practical and aesthetic intricacies of that vision.

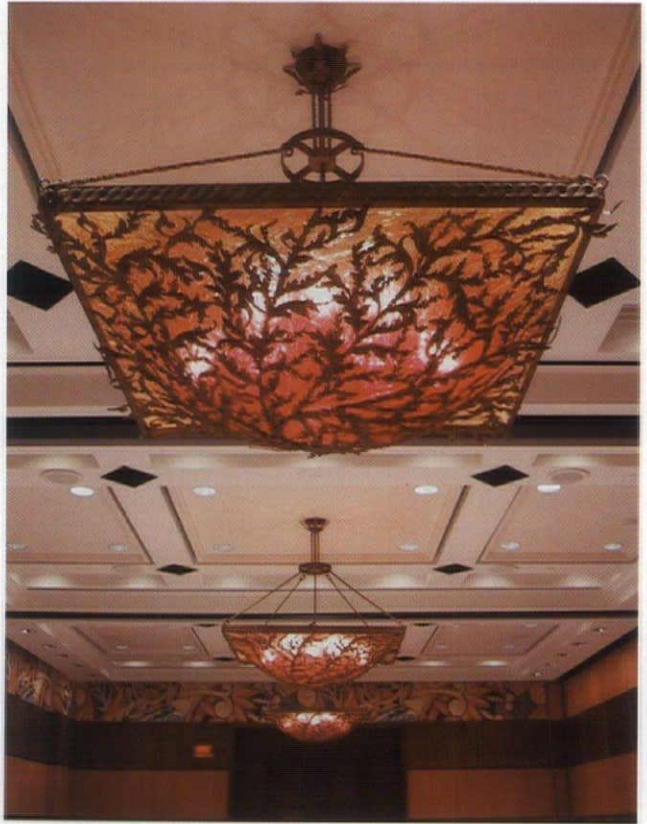
McEwen first investigates the desired effect. "I try to get a sense of the atmosphere. I think about these questions: Is the fixture for ambient or direct illumination? Is there other lighting in the space? Is the fixture a workhorse or purely cosmetic?" Often presented with nothing but a raw idea in the beginning, designer Paul Sullivan with Crenshaw Lighting in Floyd, Virginia, will "take the client's concept and massage it, sometimes adding detailing depending on how together the concept is when we get it." Dominique Alary, founder of the Montreal-based lighting manufacturer Lumid, uses a questionnaire to gather this information. "It asks what the client is looking for in terms of materials, quantity, finishes, budget, and maintenance. The more information, the better the price and the fixture."

2. ESTABLISH A BUDGET UP FRONT TO ADDRESS ECONOMY-OF-SCALE REALITIES.

Quickly establish a budget, since generally the more fixtures manufactured at once, the less they will cost. Another important rule: the more components in the design, the more expensive the fixture. Sullivan reiterates that "quantity is the deciding factor" when it comes to budget. "If the quantity is low, then off-the-shelf glassware and components may need to be incorporated to stay in budget."

To further maintain budget, value engineering may be required. Alary offers an example: "We can do an oval-shaped fixture with four or six radii. If we fabricate only four, it will look a little different, but the untrained eye will never see it." The four-radii solution saves set-up time and fees, and reduces the number of parts.

3. CHOOSE MATERIALS AND MANUFACTURING PROCESSES THAT ARE APPROPRIATE FOR THE DESIGN AND BUDGET. The fixture aesthetic and the final



Lumid's custom chandelier for the Casino du Lac-Leamy in Gatineau, Quebec (top); Brave Design's Intersect luminaire with translucent polycarbonate shade and nickel-plated steel base (above left); McEwen Lighting Studio's Core fixture, a cable-suspended ring of corrugated copper with a satin nickel finish and opal glass (above right). Brave Design and McEwen's custom fixtures later became part of a line.

lighting effect are critical, but in reality, budget often dictates what is used and how it is done. "I consider materials and manufacturing processes to be the palette that I design from, and budget considerations essentially augment or diminish that palette," says McEwen.

There are many processes from which to choose. Ron Schimmelpfenning, vice president of manufacturing, engineering and estimating at Winona Lighting, contributes the following list: spinning, laser cutting, hydro cutting, punching, machining operations, extrusions, casting, bending and rolling, shearing, and welding. Each has advantages and disadvantages so it is important to fully understand what is involved, considering both time and cost before making a final commitment.

In terms of choosing materials, consider the effect of the light and the placement of each material. Glass is a common choice, however, it is more difficult to handle than acrylic. If the fixture will be out of reach and direct line of sight, it may be more economical to substitute with acrylic. The choice of material will also depend on the structure that is supporting the piece—whether the fixture will be hung, mounted, suspended, or freestanding. Take care, for example, that there is adequate structural support for a heavy housing.

To remain in the good graces of the client, consider maintenance issues when choosing materials and components, use lamps that are available, and incorporate ways to access the lamps, component pieces, and ballasts should they need to be replaced.

4. FOSTER A COLLABORATIVE RELATIONSHIP WITH THE FABRICATOR. Designs may

require substantial revisions, so establishing a collaborative relationship is key to a successful custom luminaire. Robert White, a designer and partner in the studio-based lighting manufacturer Brave Design located in Montreal, encourages choosing a fabricator that is flexible and suggestive. "It is worth the extra cost to work with someone who can get behind the design and offer ideas about materials and process."

5. EXPLORE MOCK-UPS AND PROTOTYPES TO ENSURE QUALITY AND PERFORMANCE.

Upon finalizing the materials and processes, it helps to critique the piece with a 3D analysis model, a prototype, or a full-scale mock-up. Sullivan mentions that a fixture mock-up is consistently produced at Crenshaw, even if not required, to ensure that the fixture will perform properly. "Even with all the 3D modeling that we do, the final test is still the mock-up." McEwen often makes full-scale mock-ups "just to nail the dimensions." He believes "getting the scale of the fixture just right is crucial."

6. BE MINDFUL OF THE PROBLEMS THAT MAY ARISE WITH FABRICATION.

Build adequate time into the schedule to account for unexpected issues during manufacturing. "There are always surprises and setbacks during fabrication," says McEwen. "You have to be ready to respond creatively and quickly."

Jessica N. Johnson is a project manager in New York. She received her Master of Architecture from North Carolina State University.

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Dominique Alary, LUMID, MONTREAL

→ Gather as much information as possible up front from the client regarding all aspects of the custom luminaire. The more information, the better the fixture and the better the price.

Michael McEwen, MCEWEN LIGHTING STUDIO, EMERYVILLE, CALIFORNIA

→ Help the client make the perceptual leap from a two-dimensional sketch to a three-dimensional object by providing models, prototypes, or full-scale mock-ups.

Ron Schimmelpfenning, WINONA LIGHTING, WINONA, MINNESOTA

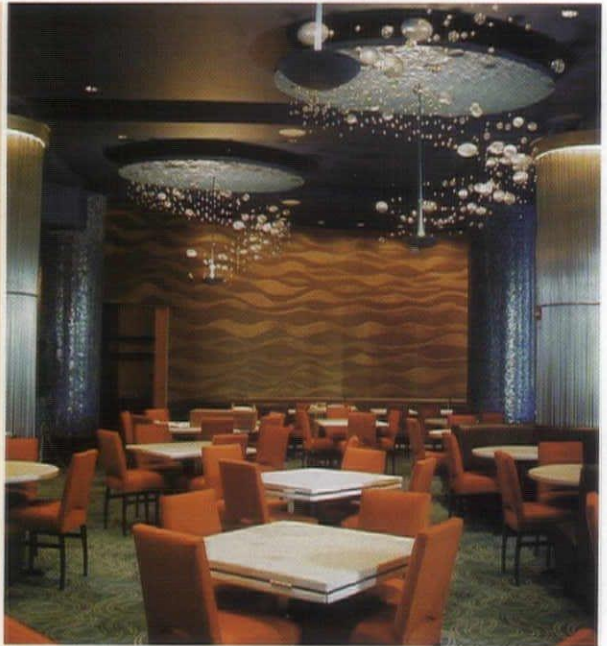
→ Avoid wasting time and energy by insuring that everyone is aware of cost limitations from the beginning. This information will also help inform decisions about materials and manufacturing processes.

Paul Sullivan, CRENSHAW LIGHTING, FLOYD, VIRGINIA

→ Involve the manufacturer early, so that time is not wasted engineering something that is not feasible. If possible, visit the manufacturer's facility to cultivate a relationship.

Robert White, BRAVE DESIGN, MONTREAL

→ Make sure the designer and the manufacturer understand the technical issues so that all codes and approvals are met.



Custom chandeliers at the Blue Zoo Restaurant in Orlando, created by Montreal-based Lumid.

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Mixing and Matching Light and Materials

GLENN SHRUM

MANY ARCHITECTS AND INTERIOR DESIGNERS BELIEVE THAT THE SELECTION OF materials and finishes is among the most important decisions made during a project. Without illumination, however, we cannot perceive the aesthetic characteristics of any material, so it stands to reason that the appropriate lighting is essential to maximize the impact of architectural finishes. Several characteristics of materials should be understood when determining the lighting approach.

CHARACTERISTICS TO CONSIDER

TEXTURE Shadows caused by variation in surface texture create contrast that allows the viewer to perceive depth in a material. The position of the light source determines the length of shadow, rendering the surface with varying degrees of definition.

SURFACE REFLECTANCE How an opaque material reflects light determines the viewer's perception of the illumination present at its surface. While a mirrored, or highly specular, surface is most able to reflect view, it will appear dark if the environment seen in reflection is not illuminated, even if light is present on the surface. Matte or diffuse materials reflect light equally in many directions, resulting in a similar light quality from many points of view.

COLOR Every object absorbs some of the light that strikes it. The pigment within a surface determines how much and which components of the visible spectrum reach the eye. Generally speaking, dark colors absorb more illumination than their lighter counterparts.

LIGHT TRANSMISSION Transparent and translucent materials allow light to pass through them. The internal composition of these materials influences the amount and quality of light transmitted.

LIGHTING METHODS

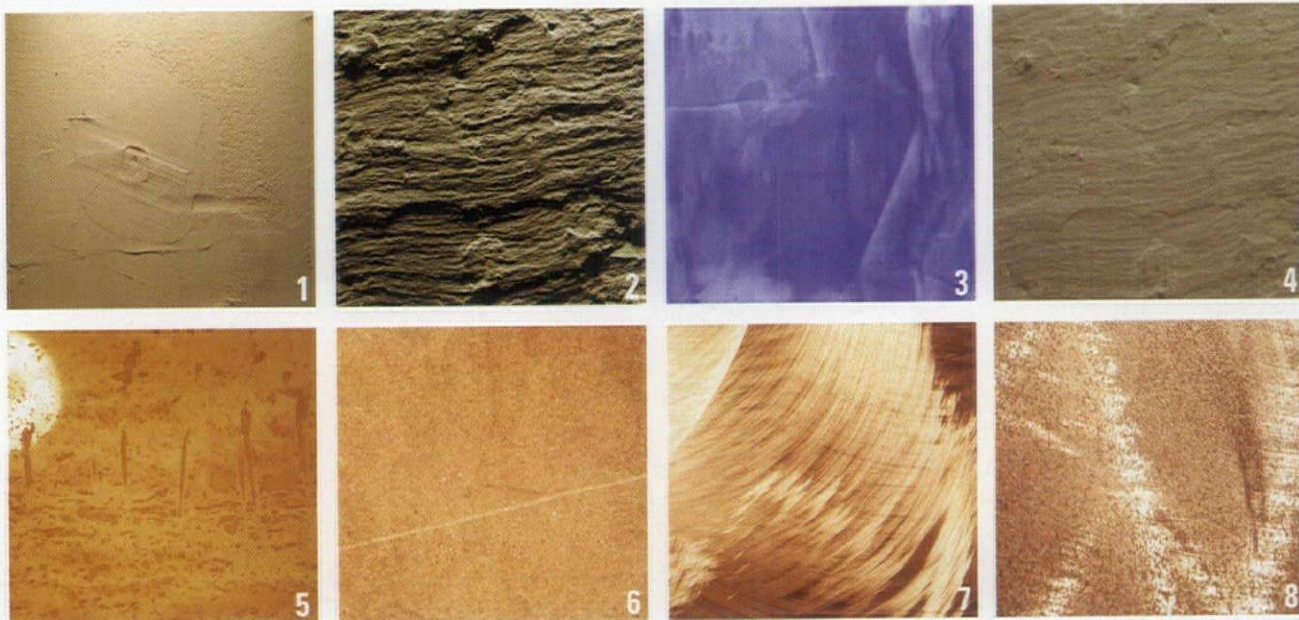
The designer must decide how to light a material based on which combination of these characteristics are present. Typical lighting methods that can be employed include **WALL GRAZING** (the illumination of a vertical surface at a very steep angle); **ACCENT LIGHTING** (lighting an object or surface from an angle that is between 30 and 45 degrees off the vertical axis of the primary view); **WALLWASHING** (the "even" illumination of a wall surface from a flat angle. For the purposes of this discussion, accent lighting and wallwashing have the same effect on a material when viewed at eye level); and **AMBIENT LIGHTING** (indirect illumination resulting from light reflecting off another surface before striking the material in question). Let us now consider how to apply these principles when illuminating typical building materials.

PLASTER

The quality of the craftsmanship is a primary concern when lighting plaster and gypsum-board surfaces. Wall grazing typical gypsum board construction will expose unattractive variations in the surface finish that would remain imperceptible under ambient or wallwashing conditions (**SEE IMAGE 1**). Occasionally, plaster is specified with an intentional variation in texture or a polished surface treatment. Skillfully applied by decorative plaster artisans, these surfaces look best when grazed with light (**SEE IMAGE 2**).

STONE

When considering options for illuminating stone materials, the lighting designer should understand the architectural intent and type of finish. If stone was selected for its natural character, locating light fixtures close to the surface will reveal the organic texture



IMAGES COURTESY OF RESPECTIVE MANUFACTURERS (LISTED ON PAGE 66)

(SEE IMAGE 3). The same material illuminated with a diffuse ambient light will appear less dramatic (SEE IMAGE 4). Whether selected for easy maintenance or its high-end associations, highly polished stone is specified in many architectural applications. Special care should be taken to avoid veiling reflections of the light source that occur when wallwashing such a surface (SEE IMAGE 5). Honed finishes offer the lighting designer an opportunity to reveal the specular components present in many stone types without the reflected glare (SEE IMAGE 6).

METAL

Metal materials with specular finishes are often used to create an interestingly illuminated surface without direct light. The same mirror-like qualities that allow this effect can result in glare if not considered carefully. The addition of micro texture on metal surfaces spreads the reflected light into multiple directions, resulting in a surface that appears bright from many points of view. Depending on the position of the light source, different areas of the orbital sanded pattern seen in IMAGE 7 catch the light. IMAGE 8 shows the same orbital material with the addition of a uniform surface treatment. By adding this texture, the entire surface appears brighter. The effect is similar to adding a satin finish to reflective surfaces.

FABRIC

The color, scale, and reflective qualities of the weave should be considered when lighting architectural fabrics. If the material is opaque, very dense, and has a matte finish, any lighting approach will have similar results. Metal fabrics offer some insight into the opportunities that exist when lighting a highly specular, open-weave fabric. As a result of their reflective qualities, the warp (vertical braided

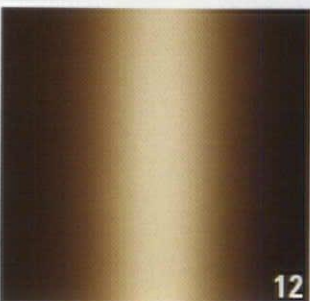
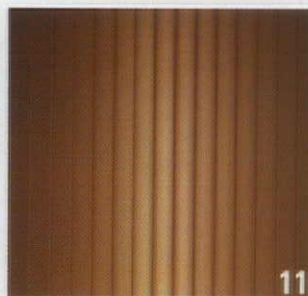
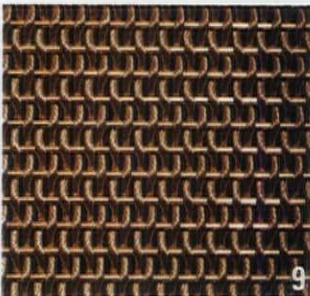
cables) and weft (horizontal bars) appear differently depending on the size and color of the light source. The halogen point source used in IMAGE 9 makes the texture appear more flat than the same material under fluorescent ambient lighting conditions shown in IMAGE 10. Depending on the architectural application, scale of the weave, and position of the viewer, principles of this scrim effect may apply when lighting fabric.

PLASTIC

When backlighting architectural plastics, the viewer's ability to discern the light source, its position, and its size should be taken into consideration. Whether the lighting design intent is to illuminate the surface uniformly or to reveal a view of the lamp image, some specific characteristics of the translucent material are of concern. The internal structure of the cellular acrylic shown in IMAGE 11 creates a pattern of shadows that reinforces the viewer's awareness of the position of a light source beyond. The more consistent gradient of light found in backlit solid core materials, like the etched acrylic panel shown in IMAGE 12, lends itself to situations for which a more uniform light distribution is preferred.

GLASS

Designers should consider the fixture's internal structure and the lamp image when lighting translucent glass; the surface qualities of glass can also impact the lighting scheme. A smooth glass surface will function like a mirror, depending on the lighting condition and the viewer's position. This type of glass appears much the same as plastics when backlit (SEE IMAGE 13). When lighting textured glass, it is possible to make the surface glow by locating the light source at the material's edge or at a grazing angle (SEE IMAGE 14).



Materials interact differently with light depending on their color, texture, and level of reflectivity and transparency. The angle of the light source will also determine the end result. But no matter the combination, the mixing of light and materials often has an intriguing, project-enhancing effect.

Projects often come in over budget, and when this happens, architectural finishes and lighting are among the first items to be reconsidered. An integrated approach to the selection of materials and lighting best serves the project design and budget goals, since without the appropriate lighting, materials cannot achieve their full aesthetic

potential. These two architectural elements should always be considered together.

Educated as an architect, Glenn Shrum worked as a lighting and exhibition designer at George Sexton Associates for four years before joining Ziger/Snead Architects

in 2001. In his current position, Shrum is responsible for the lighting design of all the firm's work and architectural and exhibition design for select projects. In 2004, he received a grant from the Nuckolls Fund for Lighting Education for his course, "Lighting Concepts and Applications," at the Maryland Institute College of Art.

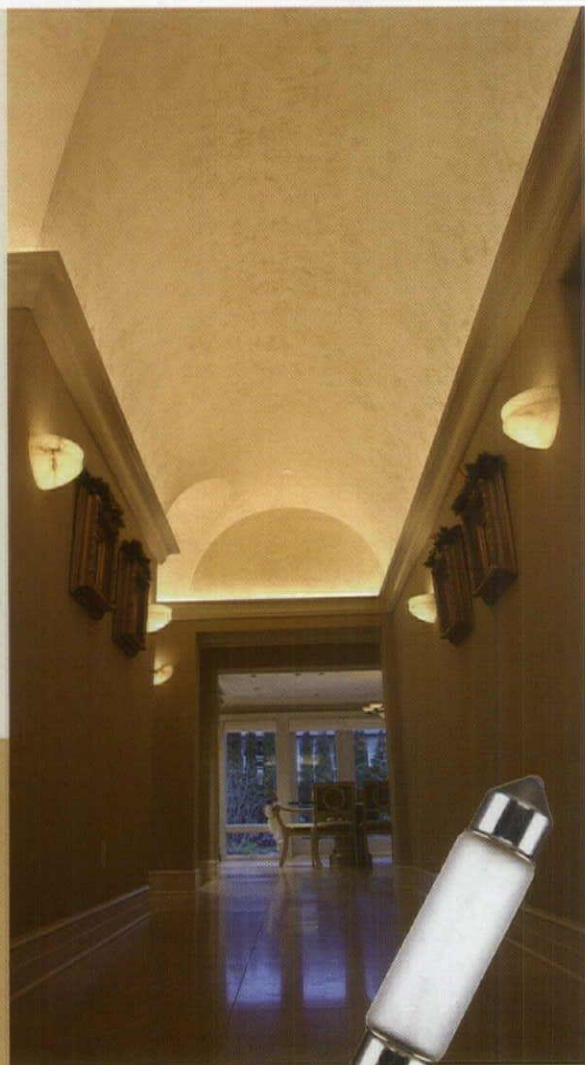
The information in this article was originally prepared for a seminar at Lightfair International 2005, co-presented by Nelson Jenkins.

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MATERIAL MAKERS

When it comes to materials, the options are seemingly endless. Following are a few manufacturers, and their websites, to help start the search.

ARMOURCOAT SURFACE FINISHES

(image 2)
www.armorcoat.com

CYRO INDUSTRIES

(image 12)
www.cyro.com

DECOUSTICS

www.decoustics.com

FORMS + SURFACES

(images 7 and 8)
www.forms-surfaces.com

GALAXY GLASS

www.galaxycustom.com

GKD METAL FABRICS

(images 9 and 10)
www.gkdmetalfabrics.com

POLYGAL PLASTICS

(image 11)
www.polygal.com

RIGIDIZED METALS

www.rigidized.com

RUDY ART GLASS

(images 13 and 14)
www.rudyglass.com

STONE SOURCE (images 3, 4, 5, and 6)

www.stonesource.com



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1. Take a few minutes to review the list of manufacturers.
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3. Of the companies you've selected, indicate your choices for Most Innovative, Most Respected, and Most Specified.
4. Fax your ballot page to 646-654-5816 no later than July 8, 2005.

VOTING CRITERIA

Select the manufacturers who have provided you and your projects with:

- Product Durability
- Exceptional Customer Service
- Superior Value
- Advanced Designs

METHODOLOGY

The ACE.al ballot and manufacturers list runs in the April and May/June issues of *Architectural Lighting*, each reaching the complete 25,000+ nationwide circulation. In addition, e-mail campaigns are conducted to ensure the broadest base of response. Ballots are provided and collected at Lightfair and other industry conferences. *Architectural Lighting* also does random sampling, consults with industry experts, and the list of nominated manufacturers is subject to review by an in-house publishing team.

Results will be announced in the November/December 2005 issue.

CAST YOUR VOTES AND LET THE INDUSTRY KNOW WHO YOU TRUST AND DEPEND ON! FAX TO: 646-654-5816

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| Acrylic | Elliptipar | Lamar | Pathway Lighting | Stingray Lighting |
| Advance | Energie | LBL | PCI | Studio Due s.r.l |
| Alanod Aluminum | Engineered Lighting Products | Ledalite | Peerless | Studio Italia Design USA |
| Alera Lighting | ERC0 Lighting USA, Inc. | LEDtronics Inc. | Pennsylvania Globe | Super Vision International |
| Alkco | ESTILUZ, INC. | Legion Lighting | Philips Lighting | Sure-lites |
| A.L.P. Lighting | Eureka | Leola | Philips Advance | Targetti North America, Inc. |
| ALS - Architectural Lighting Systems | Eurofase, Inc. | Leucos USA | Transformer | Tech Lighting LLC |
| Altman Lighting | ExceLine | Leviton | Phoenix Products Co. | Teka Illumination, Inc. |
| Ambiance Lighting Systems | Fabbian USA | LexaLite International | Planlicht | Terzani |
| American Glass Light | FAD/Delta Light USA | Light Craft Manufacturing | Prescolite Lighting | THHC Lighting |
| Amerlux | FC Lighting | Lightech | Prisma Architectural Lighting | Thomas Daybrite |
| Anafol International | Fiberstars | LightIdeas | Progress Lighting | Times Square Lighting |
| ANP Lighting | Fine Art Lamps | Lighting Analysts | Prudential Lighting | TIR Systems |
| Antron | FLOS | Lighting Services, Inc. | Q-Tran Inc. | Tivoli, LLC |
| Architectural Area Lighting | Focal Point | Lightolier | Quality Lighting | Tracom |
| Architectural Landscape Lighting | Forecast | Lightolier Controls | Renova Lighting Systems, Inc. | Translite Sonoma |
| Ardee | Foscarini | Light-Project International | Rocksapes | Traxon USA |
| Aromat Corp. | Framburg Lighting | Litecontrol | Rosco Laboratories, Inc. | Trend Lighting Co., Inc. |
| Arroyo Craftsman | Gamma 3 Luce | Litemakers | Rotaliani | Tridonic Inc. |
| Artemide | Gardco Lighting | Lithonia | RSA | Trilux Lighting Limited |
| AVR USA | GE | Lithonia Controls | Schonbek Worldwide Lighting Inc. | Troy-CSL Lighting |
| B-Light | Ginger | Liton | Schott-Fostec LLC | Unilight Ltd. |
| Baldinger | Gotham Architectural | Louis Poulsen | Schott North America | Universal Lighting Technologies |
| Bartco Lighting | Downlighting | LUCEPLAN USA, Inc. | Se'lux U.S. | Ushio America |
| Beacon Products, Inc. | Guth Lighting | Lucien Gau | Sea Gull Lighting | Valmont Industries, Inc. |
| Bega Lighting | H.E. Williams | Lucifer Lighting | Selecon | Vantage |
| Beghelli | HADCO | Lumca | Semper Fi Power Supply, Inc. | Van Teal |
| Beta-Calco | Halo | Lumec-Schreder | Sentry Electric Corporation | Varon Lighting |
| Beta Lighting | Hampstead Lighting | Lumiere | Serien | Venture Lighting |
| Birchwood Lighting | Hatch Transformers | Luminis | Serralunga | Viabizzuno |
| B-K Lighting | Hemera, Inc. | Luraline Products Co. | Shaper Lighting | Visa Lighting |
| B-Light | Hessamerica | Lutrex | Sill | Visio Lighting |
| Boca Flasher | Hex Architectural Lighting | Lutron | Sirmos | Vista Lighting |
| Boyd Lighting | High End | Luxo Corporation | Solara Lighting | Vistawall |
| Bruck Lighting Systems | Highlights | Luxo Italiana | Solatube International, Inc. | Vossloh-Schwabe, Inc. |
| C.W. Cole & Co. | Holophane | Lyric Lighting (Seagull) | Space Lighting | W.A.C. Lighting |
| Charles Loomis | Hubbell | Manning Lighting | Spark Lighting | Waldmann |
| Charleston Gas Light | Hubbell Building Automation | Mark Lighting | Special FX Lighting, Inc. | The Watt Stopper |
| Color Kinetics | HUNT Dimming | Martin Architectural | Specialty Lighting Industries | Weaver & Ducre |
| Columbia Lighting | Hunter Douglas Contract, Solar Control by Nysan | MaxLite | Spero Lighting | WE-EF Lighting USA |
| Conant Custom Brass, Inc. | Hydel | McGraw Edison | SPI Lighting | Wendelighting, Inc. |
| Con.Daz Lighting | Icon International | MechoShade Systems, Inc. | Spring City Electrical Manuf. | Wila Lighting |
| Con-Tech Lighting | IEPC Corp. | Mercury | Starfield | Winona |
| Contrast Lighting | IL America Inc. | Metalumen | Starfire Lighting | Xilver BV |
| Cooper Lighting | ILEX | Metalux | | Zaneen Lighting |
| Corelite | Illuminating Experiences | Metrolux | | Zoltan |
| Crestron | Illumination Lighting | Mills Architectural Lighting | | Zumtobel Staff |
| Cyclone Lighting, Inc. | Induction Lighting | James R. Moder Crystal Chandelier | | |
| D'ac | Industry + Design Light | Chandelier | | |
| Davis/Muller Lighting | Indy Lighting | Morlite Systems | | |
| Day-Brite Lighting | Insight Lighting | Neoray | | |
| Delray Lighting | IRIS | Nessen | | |
| Derek Marshall Lighting | Ivalo Lighting | Newmat USA | | |
| Dernier & Hamlyn | JJI Lighting Group | New Metal Crafts | | |
| Designplan Lighting, Inc. | Juno Lighting | New Star Lighting | | |
| Dialite | Kenall | Nora Lighting | | |
| Donovan Lighting | Kim Lighting | Nordic Aluminum | | |
| Dreamscape Lighting | Kingbright | North American Light | | |
| Eclipse Lighting, Inc. | Kramer Lighting | Spectrum | | |
| Edison Price | Kurt Versen | NoUVIR Research | | |
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Lightfair and Euroluca: A Tale of Two Trade Shows

WITH THIS YEAR'S MAJOR LIGHTING SHOWS RECENTLY COMPLETED, ARCHITECTS and lighting designer's alike have a tremendous range of new product offerings to consider. Two very different shows, Lightfair is more concentrated on commercial product offerings, whereas Euroluca is all about decorative lighting.

The LED craze at Lightfair a year ago seems to have taken on

a new character. Rather than using LEDs for the sake of keeping up with current trends, manufacturers are now incorporating the technology more thoughtfully, especially when it comes to white light offerings. At Euroluca what stood out was the number of task luminaires, and the prevalence of a circular design motif. Here are several interesting luminaires from A|L's travels.

TWO TASK LAMPS TO TALK ABOUT:

There were many beautiful fixtures exhibited at Euroluca, creating a dense landscape, but nevertheless a few stood out. Halley and Mix, both task luminaires, offer elegant solutions by combining cutting-edge technology with innovative forms.

→ HALLEY LIGHT LUCESCO | LUCESCO.COM

Designed by Richard Sapper of Tizio lamp fame, and manufactured by Lucesco, this LED-driven task lamp is more a piece of sculpture than it is a lamp. The brainchild of two entrepreneurs, semiconductor technologist Curtis Abbott and design aficionado David Gresham, the establishment of Lucesco in 2003 was dependent on the creation and development of this luminaire. Based on the idea that LED technology is revolutionizing lighting, and coupled with innovative design, Lucesco is in the position to expand the current possibilities of LED lighting.

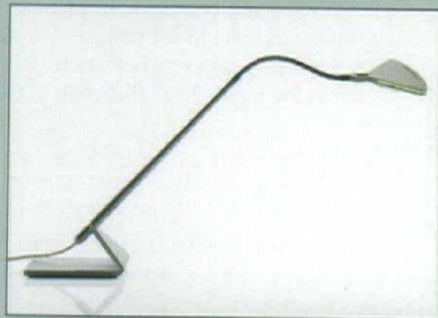
Besides the advanced technology light source, the other distinguishable feature of the luminaire is its range of motion. Like a Calder sculpture the fixture's lamp head and two arms can rotate around three axes—x, y, and z. This is achieved by a unique counterbalancing system that allows two points of 360-degree rotation at each joint. The result is a luminaire that moves to infinite, but exact, positions.

Pushing the exploration between design and technology, the lamp head not only houses 16 high power LEDs, but also acts as the heat sync, integrating a fan, heat exchanger, and pipe components. The LED array produces the equivalent light output of a 35W halogen lamp, while only using 18 watts of power. Available in two desk sizes and one floor model, the fixture is constructed from aluminum and steel, in a silver or black finish. With a dimming feature, the luminaire is appropriate for any project type including commercial interiors. In fact, the company is making a particular push in the contract market, and will be distributed exclusively by Knoll in the United States. "Task lights are being used more widely in office applications. There are real functional advantages, including the lowering of the lighting plane," says Abbott. When asked what primary points Abbott hopes to convey about this new fixture, he replies, "It's a beautiful light and a convenient task lamp, and it makes a design statement." CIRCLE 121



→ MIX LUCEPLAN | LUCEPLAN.COM

This reading lamp represents the next evolution in designers Alberto Meda and Paolo Rizzatto's experimentation with LEDs since their first foray with Starled Light in 2001. Using the latest multicolored diodes, free of bluish tones, Mix is extremely energy efficient, using only 5 watts with an average light source duration of up to 50,000 hours. All of the luminaire's technological features are housed in the slim anodized aluminum and injection-molded methacrylate head: the LEDs, the lens that modulates the light flow, the electronic circuit, the heat sink, and the rotating filters. When switched off, the head profile is illuminated with a green light so that it can be found in the dark. The aluminum stem is both rigid and flexible, supporting the head, yet allowing for fluid movement. Production for both a table and wall-mounted version—now in the final stages of design refinement—is slated to start by the end of 2005. CIRCLE 122



more information at
WWW.ARCHLIGHTING.COM



→ **RT5 LITHONIA LIGHTING | LITHONIA.COM**

Using up to 33 percent less energy than standard office lighting (an 18 cell, three-lamp T8 parabolic fixture), this Title 24, ASHRAE 90.1, and IECC-compliant volumetric recessed product features a two-piece refractor system for a uniform distribution of soft, glare-minimizing light. With its high angle control, optical design, and highly efficient lamp/ballast combination, the RT5 (lamped with a T5 that can achieve up to 100 lumens per watt) includes end-of-lamp-life sensing and a stepped switching bi-level output. Actually demonstrated in a room at the show, the product has a noticeable impact on overall light quality. The company plans to open several demo centers around the country. **CIRCLE 123**



→ **ZERO PLENUM TROFFER**

COLUMBIA LIGHTING | COLUMBIALIGHTING.COM

The shallow design of this T5/T5HO high-efficiency luminaire—it is only 1 1/2 inches deep—provides a fixture option that does not intrude into usable plenum space. Available in three sizes, with five shielding and three reflector options, the telescoping housing minimizes and simplifies installation. This fixture will make design teams around the country very happy. **CIRCLE 124**



→ **SLEEK LUCIFER | LUCIFERLIGHTING.COM**

This 2-inch-square small aperture recessed low-voltage halogen downlight, won best product in its Lightfair New Product Showcase category, Interior Luminaires: Recessed Downlights, Wallwashers and Accent Lights. Marrying technology with sophisticated design, it features a highly polished internal kick reflector with a frosted lens to eliminate scallops and hot spots. Lamp options include 50W MR16 halogen or a 39W HID metal halide. The fixture can be flushed-mounted or flanged. Standard finishes include matte white and black, or polished chrome or brass. **CIRCLE 125**



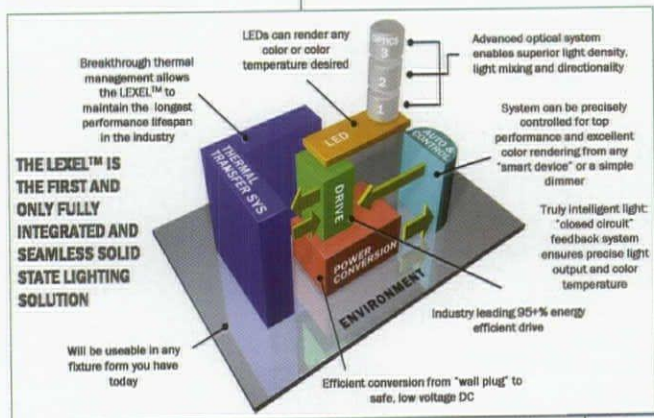
→ **OMNIO LUMASCAPE | LUMASCAPE.COM**

This compact floodlight/spotlight with a dichroic glass reflector provides high-efficiency output. Capable of temporary immersion, the die-cast and machined-aluminum construction makes it corrosion resistant and durable. The modular design in a compact solution has interchangeable optical systems and accessories. All Lumascope products offer low-temperature glass and product technology, advance glass reflectors and slip-resistant safety glass. **CIRCLE 126**

LIGHTFAIR

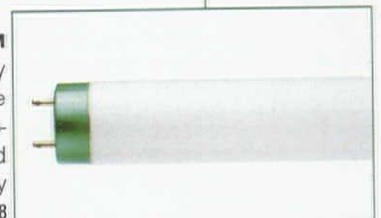
→ **LEXEL TIR SYSTEMS | TIRSYS.COM**

This exciting integrated technology enables LEDs to function in all general lighting fixtures, establishing a universal platform for solid-state lighting. The technology system offers thermal management and a highly efficient drive and optics. It also provides controllable color temperature and dimmable light output without changing sources that is consistent over the lifetime of the lighting system. A line of commercially available Lexel-based products will be available in the next 12 to 18 months. **CIRCLE 127**



→ **ALTO PHILIPS LIGHTING | PHILIPS.COM**

A winner in the New Product Showcase fluorescent lamps category, the 25W Alto Energy Advantage T8 System is the lowest-energy-consuming 4-foot T8 system currently available on the market. Developed in conjunction with Advance, the system operates on instant-start or programmed-start ballasts that provide equal to or greater than a starting voltage of 550. When used with T12 lamps and magnetic ballasts, the system reduces energy consumption by over 45 percent, and with T8 lamps and electronic ballasts, by up to 30 percent. **CIRCLE 128**





→ **TIKAL FONTANAARTE | FONTANAARTE.IT**

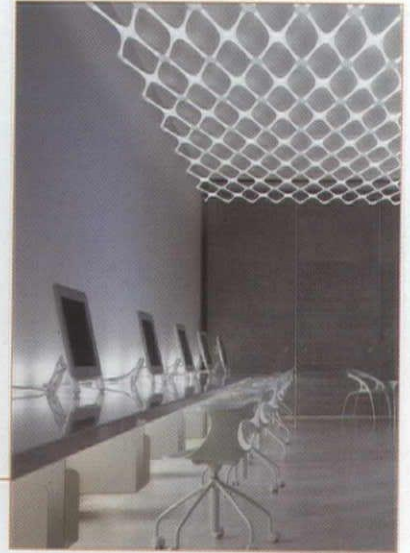
The signature feature of this whimsical table lamp is its ability to diffuse light by rotating the top portion of the structure. Fabricated from die-cast aluminum, the luminaire comes with a transparent power cord, switch, and plug. For use with one 9W EL4 fluorescent lamp, the fixture measures just under 8 inches in diameter and 7 inches tall, and is available in three painted finishes: white, blue, or gray. **CIRCLE 129**



→ **FRIZZI NEMO | ILLUMINATINGEXPERIENCES.COM**

Designer Karim Rashid's latest offering is a combination fan/luminaire. The fan body (available in three finishes) and blades (with two color options) are fabricated from polycarbonate. The three blades have a narrow V-shape cutout to allow for additional air movement and ventilation without noise or vibration. The motor is Class-F certified and is thermally ventilated. Four 25W G9 halogen lamps provide the light source, and a remote control option is also available. **CIRCLE 130**

EUROLUCE



→ **SYSTEM X YAMAGIWA | YAMAGIWA.CO.JP**

System X is one of two luminaires conceived by British industrial designer Ross Lovegrove (the other is a desk lamp called Geon) for Yamagiwa, the Japanese homeware company that began producing lighting in the 1960s. A system that is based on a single illuminated X, the module can be configured to create linear geometries of endless quantity depending on the architectural application, or circles if only two of the X's endpoints are connected. Constructed from plastic and aluminum, and measuring approximately 27 inches wide, one unit uses two 21W T4 fluorescent lamps. System X also has a dimming feature. **CIRCLE 131**



→ **GIOGALI3D VISTOSI | VISTOSI.IT**

Represented by Hampstead Lighting in the United States, Vistosi is a Venetian glass manufacturer dating back to the seventeenth century. In the mid-twentieth century, the company began working with prominent international designers using illumination as the vehicle for showcasing their glass. One such collaboration with Angelo Mangiarotti, resulted in the design of Giogali, an interlocking glass ring that creates cascading chains. Now 40 years later, Mangiarotti has further refined his original idea and designed a new ring shape that has the ability to connect on all four sides, making a true fabric weave of glass possible. Add light, and presto, a uniquely beautiful luminaire. **CIRCLE 133**

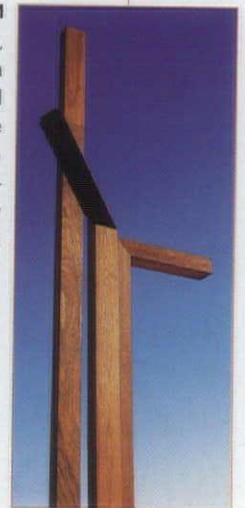


→ **BLOW STUDIO DESIGN ITALIA | SID-USA.COM**

This elegant table lamp, which also comes in a floor model, has a clever magnet feature located on the exterior of the glass-tapered housing that allows users to slide and position the lamp source within. The table luminaire measures just over 16 inches tall and 9 1/2 inches at the top. It uses one 35W GU4 lamp, and an external transformer accompanies the fixture for UL compliance in the United States. **CIRCLE 132**

→ **45 FLOS | FLOS.COM**

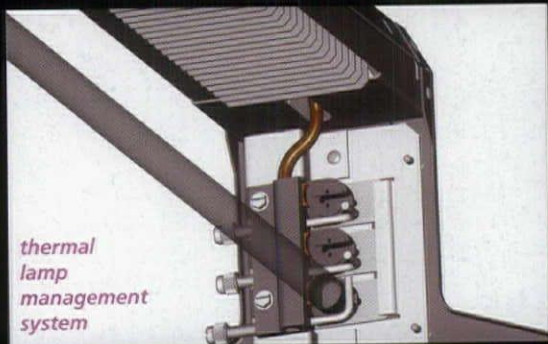
This collection of indoor/outdoor floor, wall, and ceiling luminaires offers a sophisticated simplicity and a sculptural approach to lighting. The fixture's name derives from its ability to rotate 45 degrees. A tubular assembly, and fabricated from an extruded aluminum-alloy body with rust-proof protection, the fixture is offered for use with either a 20W metal halide or 24W fluorescent lamp, in three and four height options respectively. Other options include three material finish selections (satin finish anodized aluminum, matte-black-epoxy powder coat, or teak surfacing, which is shown); two diffuser options (opal white or transparent); and a louver accessory. **CIRCLE 134**



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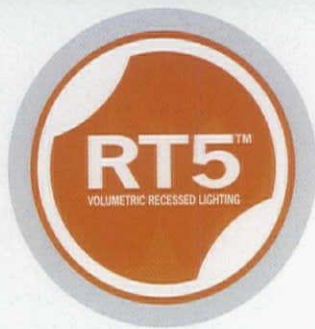
New Product Showcase

Sponsored by *Architectural Lighting* and *eLumit.com*, Lightfair's New Product Showcase highlights the best in innovative design and technologies. The manufacturers on the following pages were just some of the entrants for the showcase and competition. Their products were judged by a team of distinguished lighting professionals for honors in categories that included the Best New Product of the Year, the Technical Innovation Award, Energy Award, the Design Excellence Award, Best of Category Awards, and at their discretion, the Judges Citation Award and the Roeder Award.

Read on to learn about some of the innovative lighting products that make New Product Showcase an important part of Lightfair and the future of the industry.

THE LATEST IN LIGHTING 2005

2005 NEW PRODUCT SHOWCASE



Lithonia Lighting

Lithonia Lighting, an Acuity Brands Company, is North America's largest manufacturer of lighting equipment for commercial, industrial, outdoor, and residential applications. Lithonia is headquartered in Conyers, Georgia.



Product: RT5™ VOLUMETRIC RECESSED LIGHTING

CATEGORY: Troffers, commercial recessed and surface fixtures

RT5™ uniformly illuminates the entire volume of space, eliminating harsh shadows, dark spots, and the "cave effect" arising from the sharp cutoff of parabolic fixtures. Yet, this new lighting system uses up to 33 percent less energy than standard office lighting, an 18-cell, 3-lamp T8 parabolic fixture. RT5 is the ideal lighting solution for offices, schools, hospitals, retail, and other workspaces.

RT5™ VOLUMETRIC LIGHTING DELIVERS

With RT5, Lithonia Lighting has created a superior alternative to parabolics and a new and highly effective way of managing light. This revolutionary fixture:

CREATES VISUAL HARMONY: RT5 provides an even distribution of soft, comfortable light throughout a workspace, eliminating the glare and hot spots associated with parabolics.

IMPROVES OVERALL AESTHETICS: With the RT5, Lithonia has created an unprecedented combination of volumetric lighting and a quiet ceiling. The fixture itself is pleasing to the eye without drawing undue attention.

REDUCES ENERGY CONSUMPTION: Due to its high-quality components and optical design, RT5 is designed to exceed stringent energy regulations, such as California's Title 24, ASHRAE 90.1, and IECC.

VISIT A DEMO ROOM

The differences between parabolic lighting and RT5 Volumetric lighting are dramatic, but don't take our word for it. With demo rooms across the United States and Canada, you can see for yourself. Visit www.lithonia.com/RT5 for the demo room nearest you.



CONTACT INFORMATION

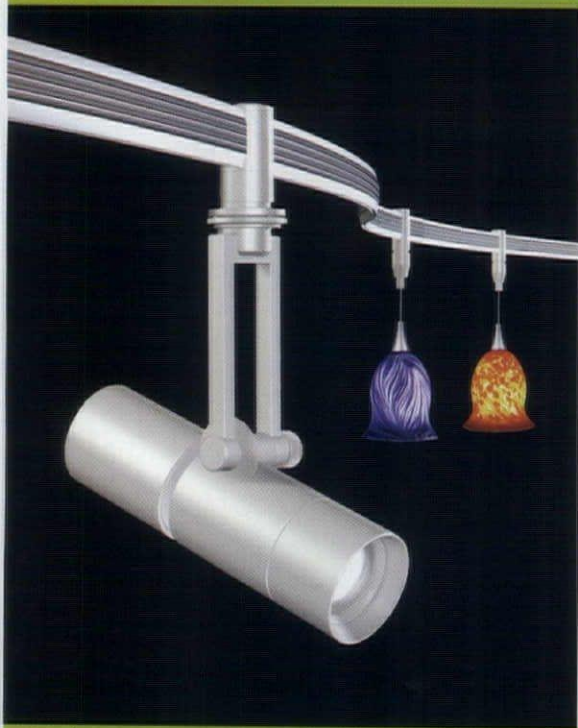
ADDRESS | One Lithonia Way, Conyers, GA 30012

WEBSITE | www.lithonia.com/RT5

PHONE | 800.858.7763

THE LATEST IN LIGHTING 2005

2005 NEW PRODUCT SHOWCASE



Cooper Lighting



The origins of Cooper Lighting date back to 1956 when the Halo Lighting Company, the pioneer in recessed and track lighting, was founded with the philosophy of manufacturing lighting fixtures that would be attractive, simple to install, and easy to service. From the modest beginnings of a one-room facility with six product lines, Cooper Lighting has grown to numerous product lines and a position of international industry leader serving worldwide commercial, industrial, institutional, residential, utility, retail markets, and complex environments.

Cooper Lighting is the leading manufacturer of track and recessed lighting and one of the largest fixture manufacturers of incandescent, fluorescent, H.I.D., exit and emergency, vandal resistant, sports, landscape, and complex environment lighting.

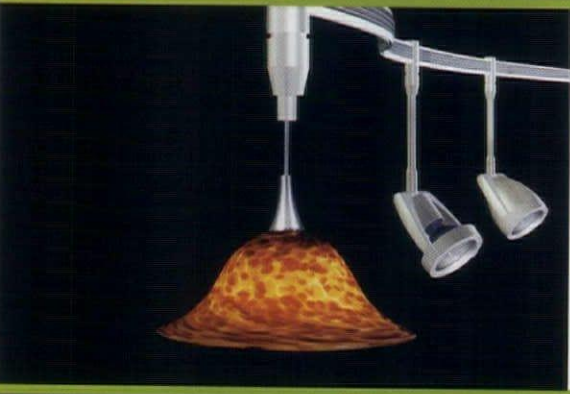
Cooper Lighting is comprised of many strong brands including Halo, Iris, Neo-ray, Corelite, Shaper, Lumière, Invue, Ametrix, RSA, Metalux, Lumark, Sure-Lites, McGraw-Edison, Fail-Safe, MWS, DLS, and Streetworks. Cooper currently has expanded to eight domestic and four international manufacturing locations with a Customer First Center that provides centralized warehousing, state-of-the-art distribution, and customer service for all lighting requirements.



Product: HALO ARCHITECTURAL FLEXIBLE TRACK SYSTEM

CATEGORY: Tracklighting, low voltage cable and rail systems

Offering true flexibility, the new Halo Architectural Flexible Track System consists of a 3-circuit (2-120 volt and 1-12 volt), hand-bendable track, along with five completely new families of creatively designed lampholders (Connetix, Concentrics, Synchro, Stasis, and Span Series), and beautiful handmade pendants (Art Glass Family Collection) in bold, brilliant colors. The lampholders encompass a variety of lamp types (incandescent, low voltage, metal halide, and T5 Fluorescent) for every track lighting scenario, and are ideal in hospitality, galleries or museums, specialty retail, or residential applications. Several of the new lampholders and pendants can even be utilized with existing Halo track systems.



CONTACT INFORMATION

ADDRESS | 1121 Highway 74 South, Peachtree City, GA 30269

WEBSITE | www.cooperlighting.com

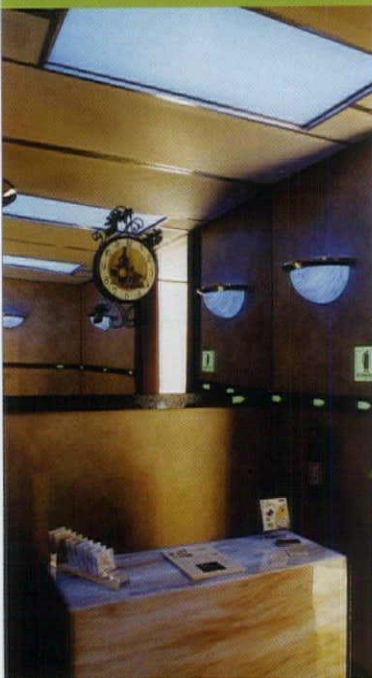
E-MAIL | talktous@cooperlighting.com

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THE LATEST IN LIGHTING 2005

2005 NEW PRODUCT SHOWCASE



Acrilex

Acrilex is a leading producer and distributor of custom-colored acrylics, custom-configured acrylic fixtures, and other products that make people say WOW! In business to provide solutions to clients, Acrilex can design it, create it, and get it to you faster than anyone else in the industry. Acrilex is one of the East Coast's largest stocking distributors for acrylic, polycarbonate, PETG, PVC, Styrene, and other types of plastics in sheet, rod, tube, and extrusions. Headquartered in Jersey City, New Jersey, Acrilex offers a complete line of acrylic products and capabilities. The company was founded in 1970, and has satellite offices in Hicksville, New York, and Horsham, Pennsylvania.

PRODUCT: ACRIGLO

CATEGORY: Exit signs, emergency

Designed to provide illumination without a back-up power source during the loss of electricity, Acriglo is charged completely by the luminosity omitted during the normal operation of a light. The glow emitted from a fixture with Acriglo lasts several hours, while providing a lighting capacity equivalent to that of moonlight. In addition, Acriglo can be charged and discharged indefinitely, without any degradation to the performance of the acrylic. The product can be used in hallways and corridors, in hotels and office buildings, and in warehouse and factory facilities.

CONTACT INFORMATION

Circle No. 84 or www.archlighting.com/productinfo

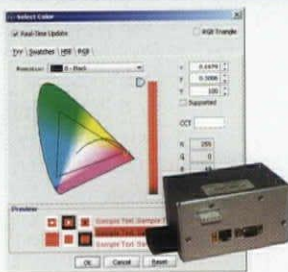
ADDRESS | 230 Culver Ave., Jersey City, NJ 07305

WEBSITE | www.acrilex.com **E-MAIL** | drustin@acrilex.com

PHONE | 800.222.4680 **FAX** | 201.333.1237

THE LATEST IN LIGHTING 2005

2005 NEW PRODUCT SHOWCASE



Dialight

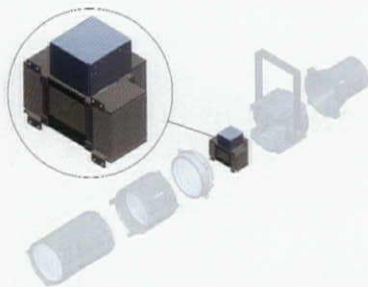
Dialight Corporation is an integrator of LED-based instruments for signaling, vehicular, indicator, and lighting. Thirty of the company's 60 years have been devoted to leveraging core competence in electronic, mechanical, thermal, and optical design and manufacturing. Dialight consumes a million LEDs daily, while placing tens of millions of Luxeon emitters in the marketplace to date.



PRODUCT: SpectraMix™ Color Control Protocol and Long-Throw Projecting Light Engine

CATEGORIES: Specialty and hardware innovations, Components

SpectraMix color control delivers specifiable CIE x-y coordinate color, repeatably, fixture to fixture and over time. The Long Throw Projecting Light Engine offers a patented spot or flood optical system featuring no color fringing from a hard-edge focus projection even from a gobo. This RGB(A) instrument provides 6,000 lumens in a 500-watt solid-state LED. The Long-Throw LED Light Engine is shown at left as part of the jointly developed Dialight Corporation/Rosco Laboratories, Inc projector spot theatrical fixture. SpectraMix' hardware, above left, is shown against GUI software. Both won in their respective categories.



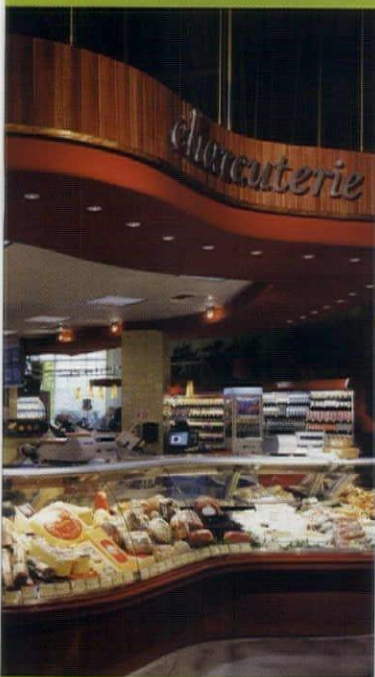
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ADDRESS | 1501 Route 34 South, Farmingdale, NJ 07727

WEBSITE | www.dialight.com **E-MAIL** | mrush@dialight.com

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THE LATEST IN LIGHTING 2005 2005 NEW PRODUCT SHOWCASE


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PRODUCT: FIBERSTARS EFO® (EFFICIENT FIBER OPTICS)

CATEGORY: Recessed downlights, wallwashers, accent lights

Fiberstars patented EFO is more energy efficient than halogen, MR16, compact fluorescents, and LEDs. It significantly reduces watts per square foot without sacrificing light levels and helps meet ASHRAE 90.1 energy regulations. At 45 delivered lumens per watt, the EFO system triples the efficiency of a halogen lamp. One EFO 70 watt lamp replaces up to eight (8) 50 watt EXN MR16 halogen lamps - an energy savings of over 80 percent. With over 97 percent of the EFO lamp reused and 2 percent recycled, Fiberstars is setting unprecedented new standards in sustainable lighting. EFO fixtures are available as downlights, adjustable accent lights, wall washers, suspended track applications, and durable dock lights.

CONTACT INFORMATION

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ADDRESS | 44259 Nobel Dr., Fremont, CA 94538

WEBSITE | www.fiberstars.com **E-MAIL** | efoinfo@fiberstars.com

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Licensure, is it necessary?

In order to practice architectural lighting design, should individuals be required to attend an accredited degree program, followed by professional work experience and a licensing exam? Would establishing an education and licensing procedure for lighting designers more in line with the training of architects, landscape

architects, and engineers contribute to a more legitimized view of lighting designers and the role of lighting in the architectural design process?

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BRUCE HOSTETTER, LIGHTING DESIGNER | REALIGHT DESIGN

Early in my lighting design education (all extension classes), a professor claimed that the real beauty of our profession was that people came to it from many disciplines. If there was a way to establish "an education and licensing procedure" that could somehow attract a group of participants with a diverse background, I'd be all for it. My hunch is that the more we program education and establish strict licensing requirements, the more this profession will become "b-o-o-oring!" The architecture model for determining competency is wrong for lighting. What we need to be more than anything else is passionately inspired by light and have a place for all the "moths" to access lighting education. I remember the consensus at a lighting educators conference in 1996 when everyone agreed that graduates need a more diverse educational background to practice lighting design well and more diverse opportunities to get that lighting education. All licensing does is lower the bar to a level where most people can clear it. We need our limited educational resources to go into programs that emphasize creativity and to remember that there are a million ways to solve a lighting problem, not just one solution that is "taught to the test."

SUSANNAH ZWEIGHAFT, DIRECTOR | AKF LIGHTING DESIGN STUDIO

I believe that being formally educated and accredited helps not only the lighting designer, but also the public in understanding what lighting design involves. The rest of the world views doctors, lawyers, engineers, and architects with the respect they have earned and deserve. Without education and accreditation, others find it hard to see lighting as deserving of respect, and more importantly, a required consultant for every project. I have a BFA in theatre lighting and have taken both the CLEP (AEE) and the LC (NCQLP) exams successfully. My hope was to lend some perceived professionalism and seriousness to my practice. However, I constantly hear grumblings from groups who don't agree with the present testing process or want to create yet a new standard. To require a formal license, as an architect and engineer require, would certainly separate out the designers who mean business. And even better, it would stop architects, engineers, and even lighting representatives from doing the work that belongs to us.

DAVID BUERER, PRODUCT MANAGER | LEVITON MANUFACTURING

Requiring licensure of lighting design professionals is analogous to requiring licensure of painters? Lighting design is art. "Sculptoré con luce"—sculpting with light—is the job of a lighting designer. Requiring licensure of an artist is a sin; forcing a lighting designer into a program like an engineer is in the same category. However, the benefactor of any art must also do their homework. There's nothing worse than commissioning a frescoed ceiling by an artist who is only an expert at the pottery wheel. As such, a common group of definitions, or rather, classifications of the types of lighting design would be helpful to all in the industry. In concert with agreed-upon definitions, steps toward certification as an "expert" in the field based on work experience, tests or exams also would be helpful.

CHARLES STONE, IALD PRESIDENT, PRINCIPAL | FISHER MARANTZ STONE

The answer begins with education—and lighting education is ascending all over the world. The university programs begun at Penn State, the University of Sydney, the Bartlett School in the UK, and the University of Colorado have been followed by ever-improving programs at Parsons and RPI in New York, AE degrees in Kansas and Nebraska, Jan Ejhed's program in Stockholm, Wismar and Hildesheim in Germany, Karou Mende's lectures in Tokyo, Ester Stiller in San Paulo...and the list goes on. Through the IALD Education Trust and the workshops run by ELDA in Europe, the education of lighting designers gets better every year.

Most people practicing independent architectural lighting design today do have an accredited degree in a related field and are certainly engaged in professional work. Our backgrounds range from a variety of creative disciplines, which seems a huge hurdle to educational standardization. A wide-ranging curriculum is best.

One of the first U.S. certification initiatives was the National Council of Qualifications for the Lighting Profession (NCQLP). Initially, there were several certification programs from "Residential Lighting" to "Energy Engineer," but the IALD wanted to develop one certification that was more directed toward lighting designers. We still envision a next level to the LC standard, more focused on Design (capital "D"). The main reason this has not happened is the cost to create and administer such an upgraded certification. For U.S.-based practitioners, I believe there is value in obtaining an LC, since it is one way to set at least a minimal standard.

At present, there is no licensing or accreditation procedure for lighting design in Europe, Australia, China, India, or North America. In the U.S. alone, each state has the right to set its own requirements and licensing procedures, and to get every state to agree on one set of criteria would take years of legislative lobbying and a lot of money. Do we really want to do this to ourselves?

I personally feel that establishing a formal lighting design credential or license at this time (necessarily administrated by an outside body) would not be in our best interest. The added costs, both to the IALD and to our individual businesses, and the increased liability we would assume will not be offset by the marginal increased credibility we may gain. We gain greater credibility in the marketplace through aggressive public relations and marketing campaigns, particularly our awards and education programs and our participation in international industry events.

PERRY KRAVEC, SENIOR ELECTRICAL DESIGNER | MICHAEL BAKER JR., INC.

I am one of over 1,200 certified lighting designers who has taken and passed the LC exam, which addresses this question very well. The qualifications are similar to the PE in that you must have a four-year engineering degree, four years of experience, and referrals from two supervisors. After passing the exam, you are required to earn 36 LEU credits within three years to be recertified, or you must retake the exam. The exam tests the broad spectrum of lighting design, but also includes industrial, code-related, and roadway questions. The NCQLP has done a good job of creating a comprehensive exam with good support before and after.

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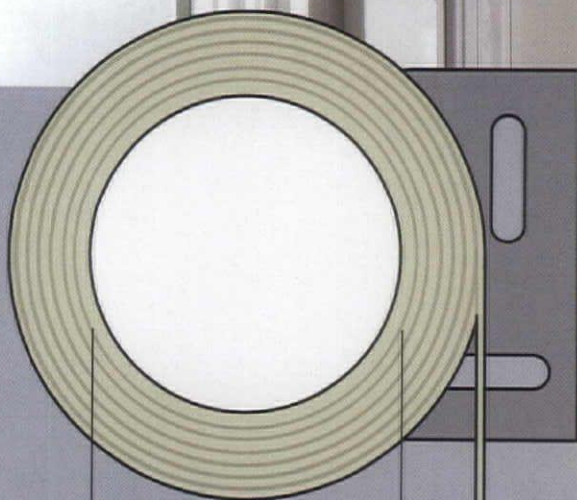
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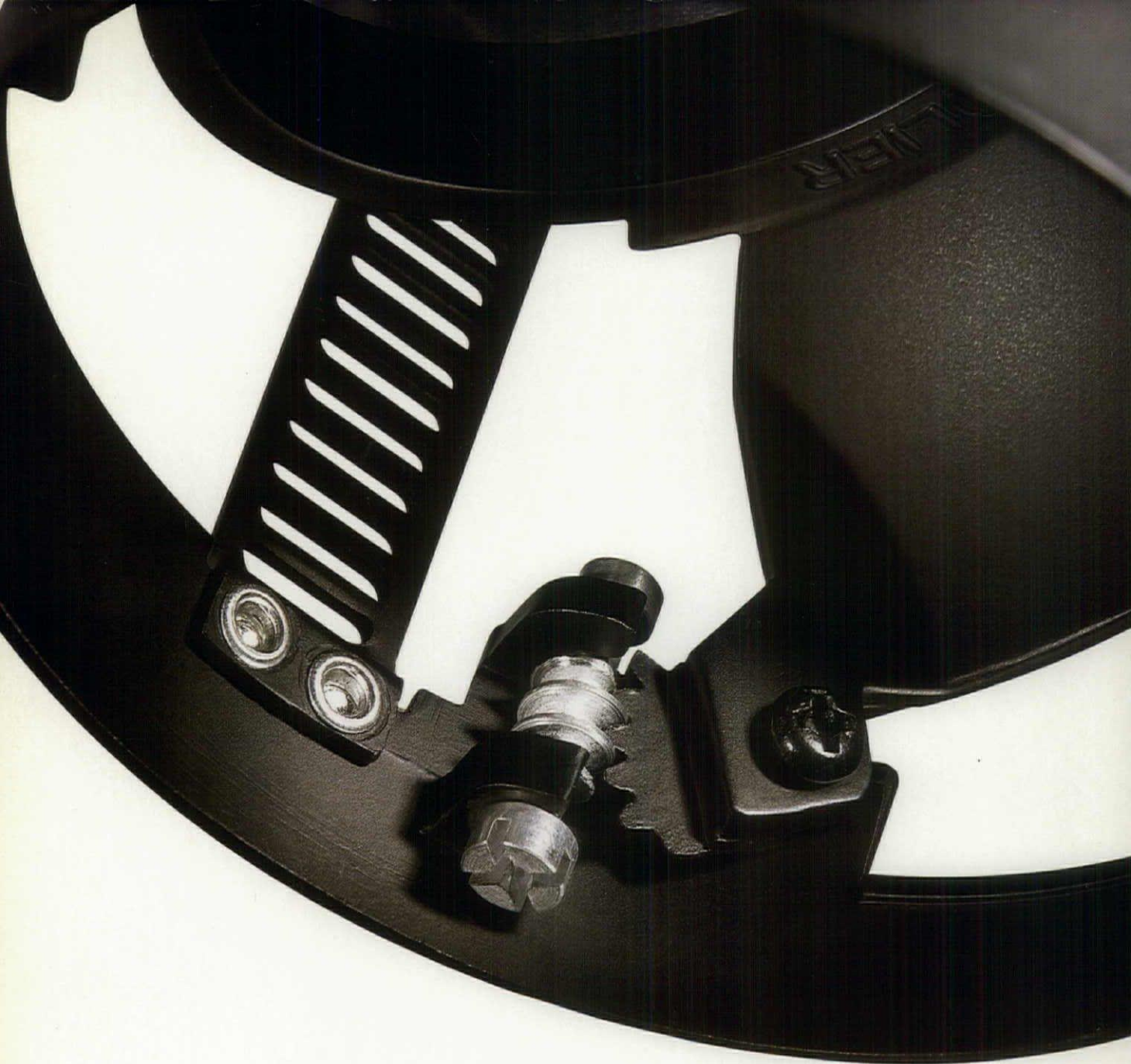


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