2008 PRODUCT GUIDE
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Cover: A selection of products from Philips, Luceplan, and Journee Lighting (clockwise from left).

This page: An Artemide product on display at Light+Building in Frankfurt, Germany. PHOTO BY JOCHEN GUNTHER COURTESY OF MESSE FRANKFURT GMBH; Prisms Architectural Lighting’s line of stainless-steel LED walkover luminaires called Steel; the Westfield Centre in San Francisco; Delta Light’s Inlet task luminaire.
COMMENT INDUSTRY

To Be or Not To Be?

...a Lighting Trade Show

IF LIGHTING HAD TENNIS GRAND SLAM equivalents, then with my first visit to Light+Building this April, I would say I had been to the Wimbledon of lighting events. I have made the trade show circuit enough times now (Lightfair, EuroLuce, AIA Convention, ICFF, Greenbuild, etc...) to know that when it comes to lighting, Light+Building is the grand daddy of them all. But why? Is this an instance where size really does matter? In part, but more to the point it is about how light, light fixtures, and lighting-related products are presented that signals the most significant difference, and the reason why anyone who has attended Light+Building as well as Lightfair cannot help but compare the two, even though such a comparison is unfair.

It goes without saying that Light+Building is huge. Ten halls, each with two floors, sometime three, with more than 2 million square feet—it is truly overwhelming. It took me a full day just to get my bearings and figure out how the halls were organized so I could navigate the quickest route from appointment to appointment. Lightfair, square footage-wise, would probably fit on one floor of one hall in Frankfurt. OK, I know I said it was unfair to compare, but here's what Lightfair (and all U.S. trade shows for that matter) can learn from Light+Building: present light and lighting spatially, not just as a commodity.

Hall 3 (and to some extent Hall 2) in Frankfurt, which houses the majority of the major European architectural lighting companies, serves as the standard-bearer for presentation. The stands are architectural structures unto themselves, pavilion-like and fully equipped with meeting and social gathering areas that have the respective company's offerings subtly integrated into the surroundings. Some of the best in my opinion (in no particular order) were Viabizzuno, Targetti Poulsen, Erco, Artemide, Luceplan, and Flos. There is no 10-foot by 10-foot booth mentality here, rather full-fledged architectural spaces articulated with light.

Of course a multitude of lighting products are on display, but the way in which they are presented does not make the attendees feel as if they are looking at a bunch of stand-alone objects crammed into a space. Rather, they are looking at the luminaire in an environment where one can begin to understand the fixture’s full functionality. Trade shows in the U.S. do not seem to have caught on to this presentation format as of yet, but they would be well served to give it some consideration. This sophisticated form of display makes Light+Building a more compelling experience, and it is the reason why the number of U.S. designers visiting Frankfurt continues to steadily increase. I stopped counting on the second day of my trip the number of U.S. lighting designers and representatives from U.S. lighting manufacturers that I kept bumping into.

The other compelling distinction that sets Light+Building apart is the way in which appointments are conducted and conversations about lighting and products occur. No matter the stand size, when you arrive for your meeting, you are offered a seat and a beverage, sometimes even a snack. It sets a tone. This form of hospitality generally is not part of the U.S. trade show protocol, but it would be a welcome change. Once the meeting begins, you know eventually you will be given a tour of the stand and shown the latest product offerings, but there is a concentrated effort to first have a substantial conversation about lighting industry issues, and to hear firsthand what is on the manufacturer’s minds. Despite the nonstop pace, these conversational interludes reinforce the manufacturer’s understanding of its audience—designers—and provide a rather civilized respite in what is otherwise an extremely hectic schedule.

So why do I make such an elaborate discussion of Light+Building in an editorial that is appearing at Lightfair? Because there is too much at stake in the industry not to demand the best showcase for lighting technologies and product offerings. The time and cost associated with exhibiting at a trade show, particularly the main venues, is a substantial commitment often requiring up to a full year of planning or more.

One of the very first Industry Exchange questions Architectural Lighting asked in April/May 2004 was “Should Lightfair be held every year?” Now, after having made the trip to Frankfurt, I wonder if the U.S. lighting community would not be better served by having a major trade show that occurred every other year that would encourage everyone to attend and exhibit onsite, not in offsite hospitality suites, offset by smaller regional shows in the alternate years? It is a question that must be asked so long as there is always the looming model of Light+Building.

ELIZABETH DONOFF
EDITOR

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LIGHT+BUILDING 2008 IMPRESSES

OVERWHELMING IN SHEER SIZE AND MAGNITUDE, A TRIP TO LIGHT+BUILDING DOES NOT DISAPPOINT. THE INTERNATIONAL LIGHTING TRADE FAIR HELD EVERY OTHER YEAR IN FRANKFURT, GERMANY, OFFERS SOMETHING FOR EVERYONE, ALTHOUGH THE PRINCIPAL FOCUS IS PRODUCTS—AND LOTS OF THEM. A FULL RANGE OF COMMERCIAL AND DECORATIVE LUMINAIRE OFFERINGS WERE DISPLAYED ACROSS 10 HALLS, EACH WITH AT LEAST TWO FLOORS AND SOME WITH A THIRD. THIS YEAR'S SHOW DREW MORE THAN 165,000 VISITORS AND 2,173 EXHIBITORS AND FILLED MORE THAN 2 MILLION SQUARE FEET. INTERNATIONAL ATTENDANCE ALSO WAS UP, AND MESSE FRANKFURT, THE FAIR'S ORGANIZER, REPORTED A 40 PERCENT INCREASE IN VISITORS ATTENDING FROM OUTSIDE GERMANY.

For the architectural lighting designer, the main areas of interest were Hall 1, which housed decorative luminaires; Forum 1, which was solely devoted to Philips Lighting; Halls 2 and 3, which showcased the premier European lighting companies, such as Erco and Zumtobel; Hall 4, which focused on components and solid-state lighting; and Hall 5, which played host to outdoor luminaires.

In addition to the numerous manufacturer press conferences announcing new product offerings and company directives, the fair also featured the Lights of the Future competition, which recognizes technically and aesthetically innovative luminaires that incorporate energy-efficient lighting. From a pool of 187 submissions, 32 products were cited as outstanding and displayed in a special exhibit in Hall 4.2.

For attendees looking to take a break from products and product-related discussions, the Professional Lighting Design Association (PLDA) held its 8th International Lighting Conference, Light Focus 2008. The three-day program of 18 seminar presentations served as the lighting section for the Building Performance Congress, which was held concurrently with Light+Building. PLDA also served as host for “A Celebration of Light,” one of the many evening events held during the course of the six-day fair. The old Bockenheimer train depot with an extraordinary wooden truss system served as a party venue and backdrop for a presentation entitled “The World of Film.”

But the main evening program was the signature lighting festival known as Luminale. Each night during the course of the fair, building façades and interior and exterior spaces throughout Frankfurt and the surrounding Rhine-Main area were illuminated by lighting designers, architects, and lighting artists. More than 220 lighting events drew 100,000 visitors.

One noticeable difference between Light+Building and trade shows in the United States is the way in which sustainability and energy efficiency are addressed. These days, one cannot visit a U.S. trade show without being fully aware of a manufacturer’s “green” message. At Light+Building, the sustainable discussion occurred more subtly. Philips Lighting was one of the few manufacturers that promoted its sustainable message throughout its hall. German lighting manufacturer Trilux was another company advocating a message, but the banners located throughout the fair with provoking statements such as “Who says that you have to teach people to use energy more wisely?” and “Are you an environmental sinner when you turn on the light?” left this editor confused as to which side of the sustainable discussion Trilux was promoting.

Light+Building is an extraordinary showcase for all things related to lighting. It is an expensive endeavor given the current dollar/euro exchange rates, but a must-visit venue at least once in a lighting designer’s career.

ELIZABETH DONOFF
Evocative Luminance
THE 2008 IESNY STUDENT LIGHTING COMPETITION

The first, second, and third place winners in the 2008 IESNY Student Lighting Competition: Barrel Organ of Light (left) by Chung-Jung Liao, a second-year MFA candidate in the lighting program at Parsons the New School for Design; For the Child Inside Us All (center) by Paul Stein, an architecture student at Pratt Institute in Brooklyn; and Reverie (right) by New York University interactive telecommunications student Minsoo Lee.

The Illuminating Engineering Society of New York's (IESNY) 8th Annual NYC Student Lighting Competition invited students of interior design, engineering, architecture, lighting, and art to participate in and explore how light can be used to activate an emotion or rekindle a memory, hence the title of this year's competition, "Evocative Luminance." More than 25 entries from six New York area schools and universities—New York University, Pratt Institute, Parsons the New School for Design, the Fashion Institute of Technology, the Cooper Union for the Advancement of the Arts, and the School of Visual Arts—were displayed from May 17-19, 2008, at Helen Mills, an event space on West 26th Street in Manhattan's Chelsea arts district.

First place went to Chung-Jung Liao, a second-year MFA candidate in the lighting program at Parsons the New School for Design. His project, titled Barrel Organ of Light, employed a briefcase as the structural housing and allowed users to arrange black perforated paper sheets as they liked within the case by turning an attached handle. The effect created was one of twinkling stars moving across a dark surface. Liao was awarded a cash prize of $3,000 and an all-expense paid trip to the 2008 Professional Lighting Designers Association (PLDA) workshop in Alingsas, Sweden. Liao was also the first place winner in the 2007 IESNY student competition.

Paul Stein took second prize for his entry For the Child Inside Us All. Using Lego building blocks, Stein created a Lego man holding block pieces in its left hand and an illuminated Lego-made lightbulb in its right hand. The bachelor of architecture student at Pratt Institute in Brooklyn illuminated his piece with a 30W compact fluorescent lamp encased in translucent Lego pieces. Stein received a $1,500 cash prize for his entry, which focused on the creative ideas of children and sought to remind viewers that you are never too old to think like a child.

New York University interactive telecommunications student Minsoo Lee received third place for his project Reverie. Composed of laminated layers of corrugated plastic and illuminated by five compact fluorescent sources, Lee built only one section of what could be a much larger construction. This was indicated by an accompanying sketch illustrating how his lighting sculpture could be replicated and placed together like a puzzle. A $1,000 cash prize was awarded to Lee for his efforts.

Three honorable mentions also were awarded for specific components of a project. The recipients included Nick Foley, an undergraduate industrial design candidate from Pratt Institute, for the fabrication of his project a flower-like floor lamp that arches into a spray of illuminated orbs that dim in varying intensities with the push of a button; Paul Chepolis, an MFA candidate at Parsons, for his project's concept, which explored the subtleties of light using projection, reflection, movement and color; and Bomun Chang, an M.A. candidate at the Fashion Institute of Technology, for the presentation of his project titled Heavenly Flower.

The jury for this year's student competition included New York City-based lighting designers Renee Cooley, principal of Cooley Monato Studio; Enrique Peiniger, principal of Office for Visual Interaction; Donna Summer, senior associate at Susan Brady Lighting Design Studio; Matthew Tirschwell, founder and principal of Tirschwell & Co.; and Dennis McKee, director of special projects and corporate affairs at Bartco Lighting. Awards were presented on Thursday, April 17, 2008, after a brief presentation by keynote speaker Herve Descottes, co-founder of lighting design firm L'Observatoire International located in New York City. Descottes spoke on the topic of the competition—how light can spark an emotion or a memory. He discussed his own inspirations and emotional responses to his projects such as the High Line (the conversion of the fallow elevated railway along Manhattan's west side into public open spaces). "Lighting is very personal as we have our own way of organizing it," Descottes said. Also during the evening, Peiniger presented past projects completed by PLDA lighting workshops in Alingsas, Sweden. For more information about the IESNY student competition, go to www.iesny.org.
LightCongress Explores Earth Day Themes

This year's LightCongress—a media-oriented lighting program held in New York City—was timed to coincide with Earth Day on April 22, 2008, and explored the theme "Today is Tomorrow." The symposium, organized under the guidance of J. Jeffrey Johnston, president of public relations firm The Greystone Project, packed a keynote talk, two panel sessions, and exhibitor displays into a single afternoon.

The presentations began with a talk delivered by Mark Rea, director of the Lighting Research Center in Troy, New York. Speaking to Earth Day's environmental themes, Rea offered a re-examination of sustainable lighting by posing the question: What is the true cost of lighting? "Sustainability is a framework to add social value," Rea stated. "If we think in these terms, this is where there is real possibility for lighting to make an impact." Rea pointed out that the lighting industry has "become a slave to the idea that lighting efficiency is based on lumens per watt." He stressed that the lighting community would be better served thinking in terms of "lighting benefit per watt." This would allow lighting to be thought of in terms of luminous functions such as sparkle, cognitive dissonance, visual interest, excitement, and economic development.

The first panel, titled "Tomorrow is Today" and moderated by New York City ConEdison lighting specialist Peter Jacobson, attempted to synthesize a discussion of methods and incentive programs working toward reducing lighting's environmental impact. The second panel, titled "The Human Ecology" and moderated by Neall Diggert, vice president of commercial market development at Vista, California-based Solatube International, sought to examine the role of daylight in redefining our environments.

Following the ambitious program, which could address the subject only in broad strokes, discussion was continued at an evening reception, which hosted approximately a dozen manufacturer tabletop displays, including principal sponsors Osram Sylvania, Acuity Brands Lighting, and CeeLite. For more information about the program visit www.lightcongress.com.

Response to March 2008 Daylighting Issue

Thank you for your thoughtful review and reminder of Bill Lam's book Sunlighting as Formgiver for Architecture. I was working for Bill in the early 80s as he was writing it—indeed some of my sketches are included.

Bill is really an architect at heart; he received a degree from MIT, but got diverted into the field of lighting—to the benefit of countless projects around the world. His approach is that lighting design is integral to the design of the building. Bill is an advocate of team design wherein all the "stakeholders" (actual decision makers) take part in a charrette. This includes not only architects, but structural, HVAC, user group(s) and lighting designers. He often pointed to the design of the Washington Metro stations as the epitome of team design; all major conceptual elements were worked out in a single work session.

I have carried his words and ideas with me as I have practiced architecture and lighting design through the years. I hope your readers will take advantage of the opportunity to learn from his wisdom.

David M. Laffitte, AIA
Senior Architect, Commercial Program
RS&H
Jacksonville, FL
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ENTHUSIASM FOR SUSTAINABILITY CONTINUES TO GROW IN THE LIGHTING INDUSTRY. ENERGY-EFFICIENT FIXTURES ARE NOW STANDARD PRACTICE, SO MANUFACTURERS ARE LOOKING TO OTHER ENVIRONMENTALLY CONSCIOUS INITIATIVES AS A WAY TO STAND OUT FROM THE CROWD. THE ISSUE IS NO LONGER JUST HOW MANY WATTS ARE SAVED WHEN A PRODUCT IS POWERED UP; SPECIFIERS ARE DEMANDING THAT MANUFACTURERS MINIMIZE THE AMOUNT OF ENERGY CONSUMED OVER THE ENTIRE LIFE OF A PRODUCT.

The popularity of the U.S. Green Building Council's Leadership in Energy and Environmental Design (LEED) program is pushing these issues even further. Architects and lighting designers are increasingly concerned not just with the aesthetics and performance of fixtures, but also with manufacturers' business practices and attitudes toward environmental responsibility. And manufacturers are quickly learning that to be considered for a specification, they need to put sustainability at the top of their priority list.

RECYCLING LAMPS/BALLASTS
Increased emphasis on energy-efficient lighting has generated concern regarding disposal. While lamp manufacturers have worked over the past 20 years to reduce the amount of mercury in their products, the small amounts that are still contained in fluorescent and high-intensity discharge (HID) sources can pose health risks if not handled properly. The current lamp recycling system in the United States requires customers to contract directly with independent, third-party recycling companies. According to the National Electrical Manufacturers Association (NEMA), this system provides the most efficient and cost-effective approach because it promotes competition among third-party companies. NEMA maintains a website—www.lamprecycle.org—with a comprehensive list of recyclers and other information.

The U.S. Environmental Protection Agency's (EPA) 1995 Universal Waste Rule (UWR) requires businesses handling and consuming fluorescent and HID lamps to recycle them at the end of life. To address this issue in the commercial lighting market, Osram Sylvania created Sylvania Lighting Services (SLS) to help building and facility managers ensure they are meeting all federal and state requirements for lamp disposal. SLS technicians make an average of 30,000 customer visits per month to perform lighting retrofits, group relamps, service calls, and inspections. After a facility is serviced or a project is completed, the technicians ship all spent lamps and ballasts (regardless of brand) to a third-party recycler for processing.

The Universal Waste Rule does not regulate the disposal of mercury-containing products by individual households, but the EPA does encourage residents to take on the responsibility for proper recycling or disposal. GE Consumer and Industrial's website directs customers to www.lamprecycle.org for an up-to-date list of companies that recycle lamps by state.

Other lamp manufacturers have gone one step further to encourage consumers to keep their spent lamps out of landfills. Osram Sylvania has teamed up with Lombard, Illinois-based Veolia Environmental Services (VES) North America, the continent's largest lamp and ballast recycler, to provide environmentally responsible recycling alternatives for mercury-containing products. For residential customers, the RECYCLEPAK Consumer CFL Recycling Kit gives consumers the ability to purchase a prepaid, prelabeled recycling kit online, which can be shipped back to the manufacturer via the U.S. Postal Service, and assure proper disposal of the lamps. Philips Lighting and Earth Protection Services Inc. have developed a similar program, the EPSI-PAK, available at www.earthpro.com/philips.

SUSTAINABLE BUSINESS PRACTICES
A sustainable consciousness is not just affecting products and goods. Lighting manufacturers have also found a variety of ways to be more sustainable in their daily business practices. Adopting green manufacturing methods is not just good for the environment—it is good marketing. Below are some of the recent trends in sustainable manufacturing strategies employed by a handful of lighting manufacturers across the globe.

- Using Recycled and Recyclable Materials in Luminaire Production
- Adopting Green Manufacturing Methods
- Minimizing Energy Consumption Over the Life of a Product
- Recycling Lamps and Ballasts
- Implementing Sustainable Business Practices

www.archlighting.com
Mon practice for many lighting manufacturers. British Columbia-based Ledalite, a Philips Group brand, uses steel with at least 70 percent recycled content in its fixtures. German lighting company Bega and its California-based affiliate, BegaUS, use aluminum with 90 percent recycled content with a few exceptions where virgin material is necessary for the product's intended use. And Milwaukee-based Visa Lighting recycles all scrap metal, plastic, and electronic components in its facility.

- **Manufacturing Facilities:** Ledalite incorporated wastewater-treatment technology into its manufacturing facility in Langley, British Columbia, to remove harmful pollutants and chemicals from rinse water; all of the plant's power comes from a clean hydroelectric source. And the air filtration system at Visa Lighting's plant in Gendale, Wisconsin, incorporates an extractor so that fumes do not exhaust outside.
- **Finishing Processes:** Using powder-coat paint eliminates the waste associated with liquid paints. Ledalite achieves 95 percent reclaimation on overspray in its powder-coat paint facilities. Bega reclaim 50 percent of waste powder and mixes it with virgin powder for use on nonvisible component parts.
- **Recycled Paper:** Ledalite prints its catalogs on paper made with process chlorine-free, 100 percent post consumer-waste fiber. It is also increasingly popular for lighting design and architectural firms to go paperless, refusing to accept printed literature into their offices and encouraging manufacturers to instead improve the quality of their websites.

**CRADLE-TO-CRADLE**

Cradle-to-Cradle (C2C) Certification is one of the first green certification programs for building products. It verifies that everything that goes into a product has an identifiable pathway for reuse in another biological or technical process—instead of becoming a wasted resource. C2C is the brainchild of architect William McDonough and chemist Michael Braungart, partners in the Charlottesville, Virginia-based firm McDonough Braungart Design Chemistry (MBDC).

Hanson, Massachusetts-based Litecontrol is the only lighting manufacturer to have obtained C2C Certification for any of its products (its entire product line has been certified). So far, reactions from specifiers have been all positive, according to Robert Davis, director of product management: "Many architects are aware of C2C because of large companies that have certified products (Herman Miller, Steelcase, etc.), and they seem pleased that a lighting company has pursued the certification."

**CARBON FOOTPRINTS**

Concern about global warming has found its way into the lighting industry, with manufacturers trying to neutralize their carbon footprints. (A carbon footprint is the calculated amount of carbon dioxide and other greenhouse gases that are put into the atmosphere as a result of business practices.) Individuals and organizations can use a carbon footprint analysis to conceptualize their impact on the environment and consequently their contribution to global warming. The analysis is based upon a series of determinants about emissions from fuel use in facilities, purchased electricity, employee commuting, business travel, and materials transportation. The biggest percentage of the carbon footprint for most lighting manufacturers belongs to inbound and outbound freight.

In November 2007, La Mirage, California-based Architectural Area Lighting (AAL) announced that it had become the first carbon-neutral commercial lighting manufacturer, with a zero carbon footprint. Manufacturers and individuals interested in becoming carbon neutral can purchase carbon offsets, which are certificates representing the reduction of one metric ton of carbon dioxide emissions. The concept is fairly simple: Calculate your carbon footprint, and purchase one carbon offset for every ton of carbon emission. Carbon-offset vendors, such as San Francisco-based TerraPass—www.terrapass.com—used by AAL, provide verifiable proof that they have made an offset purchase from carbon-dioxide reducing projects, such as clean energy-producing wind farms.

An added benefit to being carbon neutral is that it can help designers looking to achieve an "Innovation in Design" credit (ID 1-1.4) for projects applying for LEED certification. AAL vice president and general manager George Preston explains: "In this age of sustainability, as our audiences strive for certification under the LEED Green Building Rating System, we felt it was our responsibility to take the necessary measures to eliminate our carbon footprint, which will in turn assist them in gaining a LEED "Innovation in Design" point."

In a system where every point counts, designers will likely begin to seek and specify products with this as a prerequisite.

**THE FUTURE IS GREEN**

Sustainability means meeting the needs of the present without compromising the ability of future generations to meet their own needs. It is a way of life that is quickly, and thankfully, becoming standard for all of the building industries. As designers and their clients become more aware of the importance of sustainable business practices and start to demand them, manufacturers will continue to respond with products and manufacturing methods that push the envelope and strive to give back to the environment, rather than just taking from it.

Megan Casey

Megan Casey received her MFA in Lighting Design from Parsons the New School for Design. She works in the New York City office of Horst Lees Brogden Lighting Design.
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THE STEADY STREAM OF NEW LUMINAIRES AND LIGHTING-RELATED PRODUCTS NEVER CEASES TO AMAZE, AND THIS year's product offerings are no exception. In receipt of more than 250 submissions for this annual product showcase, Architectural Lighting's editors sought fixtures that highlight technical innovation combined with aesthetic sophistication. The result is 162 products in 12 categories that we believe represent the best of the best, and that will continue to expand the tools available to the designer.

Some interesting trends became apparent this year as we reviewed the latest products entering the marketplace. Luminaires for industrial applications, absent the past five years from this submission process, appear to be back on manufacturers' radar screens. By contrast, the category of fiber optics, which has maintained a small but steady representation the past five years, did not make a showing this time around. What does this mean for this lighting technology? Is it being replaced by other sources such as light-emitting diodes (LEDs)?

With sustainability and green design uniquely embedded in today's practice of lighting and architecture, an underlying theme found in all the fixture categories is that of energy efficiency. It is no longer an option. Today's luminaries must deliver performance and efficiency simultaneously, in increasingly smaller packages, as consideration is given not just to light output but the "footprint" of the entire fixture.

A word about LEDs. Numerous fixtures were submitted in this category. However, as has been our editorial thinking since LEDs first appeared in the architectural lighting marketplace, we made a conscious decision to place these luminaires in the categories that speak to the fixture's task, not its source. A source can be changed, but a luminaire's intended function cannot.

There are sure to be new product introductions at Lightfair and the other multitude of spring conferences and trade shows. Let this issue of Architectural Lighting serve as your starting point to the newest in luminaire offerings and your reference guide to all things lighting product-related. A IL

www.archlighting.com
BALDINGER | CORTINA | BALDINGER.COM

Ideal for contemporary or transitional interiors, the Cortina trio of pendants (shown), ceiling fixtures, and sconces provides softly diffused ambient/accent lighting through frosted resin lenses. Each luminaire features rich, handcrafted materials and can take incandescent or compact fluorescent lamps. Metal finishes are offered in polished or satin chrome, polished or satin nickel, and matte black powdercoat paint. CIRCLE 100

VISA LIGHTING | OLYMPIA | VISALIGHTING.COM

Available in pendant (shown), ceiling, and wall versions, Olympia features luminous bowls that combine performance optics with LED illumination. Made up of a matte-white acrylic diffuser and heavy-gauge spun metal trim, the fixture contains an uplight, which can be lamped with fluorescent, incandescent, or pulse start HID sources, and an array of LEDs, which uniformly illuminate the bowl. Dual switching and dimming options are offered to maximize daylight harvesting, and specialty finishes are available. CIRCLE 101

AMERICAN FLUORESCENT | LOW-VOLTAGE LED PENDANTS | AMERICANFLUORESCENT.COM

This family of dimmable LED monopoint pendants includes six different luminaire styles: Bella, Essex, Kenwood, Laveer (shown), Geo, and Estate. Each comes in a variety of colored, hand-blown glass with canopy finish options of satin nickel and oil-rubbed bronze. Suspended from sleek low-voltage coaxial cable, all fixtures are illuminated by five 1W LEDs in cool white (4100K) or warm white (2700K). CIRCLE 102

BOYD LIGHTING | TWILIGHT SERIES | BOYDLIGHTINGINC.COM

The Twilight Series, offering pendant and ceiling luminaires, is made from 1/8-inch-thick water jet-cut solid brass and features geometric shapes with an organic feel. The 18-inch-square pendant (shown) has a top diffuser made of white perforated metal and side and bottom diffusers of satin white acrylic. It can take incandescent or fluorescent lamps and is offered in finishes including antiqued Boyd brass, blackened Boyd brass, satin brass, and satin nickel. CIRCLE 103
MOUETTE, designed by Willmotte & Associates.

MOUETTE, designed by Willmotte & Associates.

cable suspended luminaire for diffused fluorescent lighting • textured opal white wing shaped diffuser constructed of a single piece of polypropylene produced by using rotoform molding technology • diffuser support in white powder coated steel

www.artemide.us
Part of the company's "Light is a Queen" collection, GRA pays homage to a ring-shaped orbital motorway that encircles Rome. Available in two styles—GRA 50 (shown), which is elliptical in shape, and GRA 90, which is spherical—the luminaires are composed of sleek metal rings, each individually hand welded to the next. Offered in nickel plated, gold leaf, and silver leaf finishes, each fixture takes one 100W R111 lamp.

HM 3333 and HM 3334 are constructed of a metal frame covered by a stretched, cotton knit shade in beige. HM 3333 (right) is set in a fixed curved position and measures 78 3/4 inches tall, while HM 3334 (left) is vertically oriented and stands 74 3/4 inches tall. Each takes one T10 halogen lamp and has a dimmer.

The Grazer XB series comprises various lengths of linear high-power K2 Luxeon® LED fixtures. Designed to illuminate any kind of surface with a variety of beam angles, these high-brightness fixtures are able to graze or sweep walls with light across substantial distances.

The Wall Washer XB is a stylish, high-power LED fixture that generates high-brightness monochromatic color or color-changing light for a rich washing effect. This series is rated for both indoor and outdoor use and is constructed of extruded aluminum with an anodized finish.
Available for monopoint and rail installations, the Sonya pendant measures 5 3/4 inches wide by just over 6 1/2 inches tall and takes one low-voltage 12V halogen bi-pin lamp up to 50W. The brown glass shade contains a Pyrex glass shield and comes in amber, brown, red, and white with intense color twists. It is offered with bronze or satin nickel finishes. CIRCLE 106

Including a wide range of single and double sconces, two pendants, and a table lamp, the City Series comes in all different shapes and sizes, but maintains a sense of cohesion with its cream linen shades and clean detailing. Finishes include architectural bronze, brushed nickel, and satin brass. Custom finishes and lamping also are available. CIRCLE 107

The Galileo series of indoor/outdoor architectural wall sconces is now available with Gravura custom engraving to create distinctive accent lighting. Available in round, triangular, and rectangular shapes, the line offers a variety of standard styles and sizes from 11 inches to 48 inches tall and a choice of lamping that includes compact fluorescent, HID, induction, and LED. CIRCLE 108

Our innovation helped Tadao Ando successfully complete his vision of floating 17,600 bottles in a stainless steel frame suspended from the ceiling. The Bottle Wall was illuminated with cool and warm white LEDs and ultimately weighed over 20,000 pounds.
A modular LED sconce family, Silvus, was created by a team of designers at Skidmore, Owings & Merrill who were inspired by the optical effects of water and light in the forest. The luminaires can be installed as a single unit, in a group, or in a field of patterns, indoors or outdoors, and contain clusters of interior points of light, a diaphanous lens, and interior carved and curved surfaces. LEDs were chosen to increase flexibility, as light can be static, pulsing, flowing, or color changing.

With the ability to be mounted as either a pendant or a sconce, Signalite merges custom signage capabilities with luminaire design. Its body, which measures 14 inches in diameter, contains an acrylic lens that diffuses the color of five 1W LEDs through a lasercut logo or graphic. Manufactured from 100 percent-recycled aluminum or 90 percent-recycled bronze, finish options include oil-rubbed bronze and specifiable powdercoat colors.

Available with interchangeable incandescent or LED lighting, the eco-friendly Bubble Chandelier is constructed with partially recycled glass, a sustainable bamboo panel, and aluminum and brass both free from plating and anodizing. Each handmade luminaire features a hand-finished semi-glossy diffuser ring, varies in diameter, height, and proportion, and can be custom ordered.
Delivered lumens comparable to 26W and 32W CFL makes planning easy.
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A wall-mounted luminaire also offered in a table version. Tango AP is constructed of a chrome frame and a hand-blown glass diffuser in milk white or white with black lines (shown). It takes two 60W T4 lamps and measures just over 11 3/4 inches tall by almost 9 1/2 inches at its widest point.

For a festive look, Carnival Quick Connect glass pendants (G720 series) can be used on the company's low-voltage monorail, line-voltage Flexrail, low- and line-voltage tracks, and as mono and multipoints. Each pendant, which measures 5 1/8 inches wide and 10 3/4 inches tall, houses a Xenon bi-pin 50W lamp and is offered in green and red with bronze, chrome, or platinum hardware.

Ultra-Thin, lightweight, bright to the eyes and cool to the touch. Articulux™ Light-Sheets™ are a GREEN technology that adds new dimensions and form to the art of lighting.
Made up of 1,638 glass blades (in three sizes) made from double-laminated, 1/8-inch-thick translucent ruby red art glass, Manifesto is mounted on polished chrome custom arm brackets. Measuring 7 feet in diameter, its spherical body contains 18 20W halogen bi-pin lamps with concealed dimmable electronic transformers. CIRCLE 116

With its modern design, the Cantata line makes a dramatic statement. Seeded topaz glass and a forged bronze finish complement each fixture in the collection, including bath and vanity luminaires, close-to-ceiling, inverted pendant (shown), mini-pendant, and 3-, 5-, 9-, and 20-light chandelier options. CIRCLE 117

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**Mini Mulberry**

With its sleek, round, fabric shade and a glass diffuser, the Mini Mulberry provides glare-free illumination from two low-voltage halogen bi-pin lamps. Measuring 13 inches in diameter and 6 inches tall, the luminaire is available in black, chocolate brown, desert clay, red (shown), and white, with antique bronze, chrome, or satin nickel finishes.

**Orfeo Collection**

A colorful, eye-catching line of modern glass pendants in an array of shapes and sizes, the Orfeo Collection provides combination ambient direct and diffused accent illumination. Made from hand-blown and hand-colored glass, the shades are suspended on polished metal rods with coordinating domed canopies. Each luminaire takes one low-voltage xenon bi-pin 50W lamp and comes in satin nickel and chrome finishes.

**Phantom**

A recessed accent luminaire constructed of extruded aluminum, Phantom features aluminum beams that provide decorative light striations. It may be wall or ceiling mounted, and its frosted front glass lens may be covered with theatrical gel for a punch of color. Measuring 3 3/16 inches wide, the fixture takes one 20W T3 lamp.

**Aurea**

Concealed between two truncated cone shades—one of painted aluminum and the other of white methacrylate that acts as a diffuser—the 40W T9 lamp of the Aurea luminaire generates soft illumination. The pendant is available in white, black (shown), and gold, and measures 21 inches by just under 14 1/4 inches.

**Sera**

A low-scale contemporary table fixture with columns wrapped in natural woven Abaca plant fiber (offered in three colors), Sera provides a functional, subtly diffused warm ambient or accent light via a translucent shade, which is available in white linen, white semi-gloss paper, or black semi-gloss paper. The luminaire takes one 150W three-way incandescent lamp and is offered in numerous finishes.
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CORELITE | CLASS R SERIES | COOPERLIGHTING.COM
Discarding the traditional “box” design, the Class R Series features an ultra-shallow profile that can be easily recessed into a condensed plenum. Available in two housings—the Class R1 with a 1 3/4-inch depth (shown) and the Class R2 with a 2 7/8-inch depth—the line is offered in three sizes: 1 foot by 4 feet, 2 feet square, and 2 feet by 4 feet. It can take one, two, or three T5 lamps and comes with four shielding options. CIRCLE 123

ZUMTOBEL LIGHTING | LIGHT FIELDS | ZUMTOBEL.US
Two additions have been made to the Light Fields product line—a 1x1 recessed fixture and a 2x2 surface-mounted fixture—providing ease of specification and more flexibility. Each luminaire is equipped with a micro-pyramidal optic that offers excellent glare control and a shallow housing of clear anodized aluminum creates a clean, minimalist look. Available for lay-in, slot-grid, or concealed ceilings, the line (depending on fixture) accepts T5, T5HO, and compact fluorescent lamps. CIRCLE 124

LAM LIGHTING | SOLANA | LAMLIGHTING.COM
This energy-efficient, high-performance, disc-shaped pendant features a choice of rotatable upright/downlight combinations in a contemporary, industrial-derived design. A single, rigid stem is finished to match the fixture housing and is available in a selection of lengths. Aircraft cable mounts also are offered. Illumination is provided by compact or biaxial fluorescents and a variety of lens options are available. CIRCLE 126

LITHONIA LIGHTING | ESS AND ES8R | LITHONIA.COM
With energy savings, environmental sustainability, enhanced spaciousness, and economics in mind, the ESS (shown) and ES8 Relight fixtures fuse high-performance T8 technology with an efficient distribution of light. Made from recyclable steel, the fixtures use just two lamps, which, according to the company, provides up to 67 percent energy savings in comparison with four-lamp T12 fixtures. The ESB Relight fixtures eliminate the hassle of full-fixture replacement and are installed using existing fixture housings. CIRCLE 125

ENERGIE | NOLIMIT | ENERGIELIGHTING.COM
A unique lighting system that allows users to vary light direction with a simple twist of the wrist, NoLimit is slender and simple. Offering a wide range of illumination possibilities, the system is connected by a multifunction cube that joins the 4-foot lighting elements and allows them to rotate. Each lighting element contains an ultra-slim ballast and a T5 or T5HO lamp shielded by a satin diffuser. ADA-compliant wall-mount configurations also are available. CIRCLE 127
WHITE plus COLOR

Solid State Lighting

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Designed with classrooms in mind, Radi-X combines a traditional steel fixture body with a new baffle material called LiteCycle resin, which consists of 50-percent-recycled (and 100-percent-recyclable) content. It provides direct/indirect illumination from two or three lamps, has an integrated daylight harvesting system, and is Cradle-to-Cradle Silver Certified. CIRCLE 128

The Stile series includes three unique and dramatic designs: Beam (shown), Bow, and Brace. Ideal for contemporary spaces, each luminaire is offered with integral and remote emergency lighting options and can be accented with various shielding styles. Using T5 and T5HO lamping technology with an LED option in the Beam and Bow styles. Stile provides energy-efficient illumination for a variety of applications. CIRCLE 129

A versatile series of suspended and wall-mounted luminaires, Extrudo is offered in sizes up to 7 1/2 feet in length and contains gimbal rings that can be pulled down, rotated, and tilted for precise aiming. Single, double, and triple configurations of light rings with PAR lamps embedded in laser-cut thick tempered clear glass can be combined with a 24W or 29W linear fluorescent center. CIRCLE 130

The Bruno collection features low-profile shapes, clean lines, and subtle light elements in a range of options—such as side and bottom perforations and downlights—for a variety of appearances and light distribution choices. Constructed of cold-rolled steel, the modular fixtures measure 8 inches wide and 2 inches deep and come in lengths of 4 and 8 feet. They can take T5, T5HO, or T8 lamps and come standard in white polyester powder paint. CIRCLE 131

A family of configurable segments—including arcs, circles, and ellipses—to create unique shapes, Infinity Art is constructed of extruded-aluminum side panels with architectural reveal and a fabricated housing bottom. Containing an optically enhanced LED source, available in amber, blue, green, neutral white, and red, the fixture also has an adjustable accent light available in LED and halogen sources with a 25-degree beam spread. CIRCLE 132
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SIRIUS LIGHTING | DIRECT/INDIRECT RAIL | SIRIUSLIGHTING.COM
This direct/indirect fixture uses T5 technology and a special light optic reflector to provide for a wider spacing between fittings, higher efficiency, and optimal light distribution. Four mirrored reflectors create a wide distribution of light from two 54W T5 or T5HO lamps, which are concealed inside the fixture’s extruded-aluminum housing. CIRCLE 135

ENERGIE | WAVE | ENERGIELIGHTING.COM
Providing indirect, direct, and indirect/direct illumination on demand with just the flip of a switch, Wave is a surface-mounted luminaire that responds to every need for comfortable and appropriate light levels. The advanced system uses T5 or T5HO lamps shielded by a light opal polycarbonate screen and dimming and daylight harvesting capabilities are offered. CIRCLE 133

ZUMTOBEL LIGHTING | SLOTLIGHT PRO | ZUMTOBEL.US
Maintaining the aesthetic appeal of the original, the next generation Slotlight Pro Recessed can be installed in existing ceilings. With its straight-edged profile, the fixture offers configuration flexibility while creating a uniform, seamless line of sight. Available in 2½- and 4-inch apertures in both flangeless and flanged models, the line takes both T6 and T5HO lamps and is offered with a frosted lens or with a micro-pyramidal optic. CIRCLE 134

VISA LIGHTING | INFINITY PERFORMANCE | VISALIGHTING.COM
Similar to Infinity Art, Infinity Performance is made up of modular segments that can be configured to create a customized luminaire. It features a high-performance reflector system and a clear prismatic lens for ease of maintenance and preservation of optical integrity. In addition to a luminous glow from cut-out patterns, the fixture has an adjustable halogen accentlight and a fluorescent uplight. CIRCLE 136

LITE360 | SPL SERIES | LITE360.COM
The complete line of Slim Performance Linear (SPL) sealed T5 fluorescent fixtures also is equipped with core module technology and four material/finish durability levels. It includes an internal reflector available in three cut-offs for fixed positioning at 45-degree intervals about the lamp for 24 unique optical combinations per lamp chamber. Additionally, single lamp top-mount, single lamp side-mount, and dual lamp side-mount options provide added flexibility. CIRCLE 137
products DOWNLIGHTS

IRIS LIGHTING SYSTEMS | 4-INCH SQUARE LUMINAIRES | COOPERLIGHTING.COM
A complete line of 4-inch square-aperture recessed luminaires, these downlights feature a two-stage optical system for smooth distribution with excellent light control. Their modular housing platform allows for multiple lamps and trims that can be combined to yield various light distributions, all of which can be conveniently reconfigured from below. CIRCLE 141

PATHWAY LIGHTING PRODUCTS | MINIFLEX | PATHWAYLIGHTING.COM
MiniFlex incorporates multiple fixtures in a single recessed housing and can accommodate up to three low-profile, individually adjustable lighting heads for a variety of aiming positions with a maximum of 62 degrees of tilt. The fixtures use ceramic metal halide lamps and can be serviced from below the ceiling. CIRCLE 142

LIGHTOLIER | LYTECASTER PERFORMANCE IC | LIGHTOLIER.COM
The Lytecaster Performance IC frame-in kit incorporates compact fluorescent lamps up to 42W, are available in aperture sizes of 3¾, 5, and 6¾ inches, and come with optics optimized to a specific trim and lamp combination. Pre-positioned fasteners and integral T-bar tabs enable quick installation. CIRCLE 143

PHILIPS SOLID-STATE LIGHTING SOLUTIONS (FORMERLY COLOR KINETICS) | EW DOWNLIGHT SM POWERCORE | PHILIPS.COM OR COLORKINETICS.COM
At just over 7½ inches square, the eW Downlight SM Powercore is a low-profile, surface-mounted downlight for basic white illumination. Available with symmetrical beam angles of either 30 or 65 degrees, it contains nine high-brightness LEDs, offered in color temperatures of 2700K and 4000K and comes in white, black, or brushed aluminum. Custom colors also are available. CIRCLE 144

PURE LIGHTING | AURORA RGB | PURELIGHTING.COM
Containing both 10W RGB LED internal dome uplighting and 37W MR16 halogen white-light downlighting, the Aurora RGB is available in round or square models with an approximate 3¼-inch aperture. The adjustable fixture seamlessly blends into drywall or plaster ceilings thanks to a trimless edge and concealed adjustment gearing, and is equipped with a 0- to 45-degree vertical adjustment and a 362-degree horizontal rotation. CIRCLE 145
METALUX | SURFACE MOUNT ACCORD | COOPERLIGHTING.COM
Providing comfortable illumination while eliminating surface shadows, the Surface Mount Accord improves on aesthetics and energy savings. Suitable for a variety of applications, the fixture is made from heavy-gauge cold-rolled steel painted with a matte-white polyester powder enamel finish. It accepts two T5 lamps, is available in two sizes, and contains frosted acrylic profile lenses for a soft light distribution. CIRCLE 138

LITE360 | HPL SERIES | LITE360.COM
Featuring core module technology, the High Performance Linear (HPL) Series consists of a modular, two-part construction, with separate module and housing. The sealed module contains the lamp, optics, and ballast, and knuckle-mount, surface-mount, recessed wall (shown), and in-grade housings provide mounting flexibility. Additional features include hot-adjust, field-adjustable optics and the choice of four material/finish durability levels. CIRCLE 139

LITHONIA LIGHTING | RT5 RELIGHT | LITHONIA.COM
Part of Lithonia Lighting’s new Relight solution for existing buildings, RT5 Relight offers the same quality, performance, and energy savings that are associated with RT5 volumetric lighting, without replacing the entire lighting system. The fixtures provide comfortable, uniform illumination without harsh shadows and are available with step-dim and full-range control options for added efficiency and flexibility. CIRCLE 140

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**JESCO LED LIGHTING SOLUTIONS | LED INDOOR RECESSED ADJUSTABLE DOWNLIGHTS | JESCOLED.COM**

Designed for aimable, high-performance accent lighting, the LEDs use only 1 to 3W of power, and are housed in a compact, cylindrical, mini-fixture head that is easy to handle, install, and maintain. The LEDs provide 45 to 135 lumens of output in multiple beam spreads and are offered in color temperatures of 3000K, 4000K, and 5000K. **CIRCLE 146**

**GALLIUM LIGHTING | GS6-CXRE | GALLIUMLIGHTING.COM**

Developed specifically for high-performance white LEDs (the fixture uses the Cree XLamp XR-E LED), the GS6-CXRE incorporates 1/2-inch spacing between LEDs and a heavy-duty heat dissipation system to maximize efficiency and LED life. A 45-degree shielding angle maximizes visual comfort. **CIRCLE 147**

**INTENSE LIGHTING | INFUZ | INTENSELIGHTING.COM**

Designed to create lighting effects without sacrificing performance, the Infuz series features a range of materials and colors. It is available in 4-, 6-, and 8-inch apertures with flush and suspended lens options, and contains high-performance Alzak reflectors and a compact fluorescent lamp source. **CIRCLE 148**

**NO. EIGHT LIGHTING | SEAMLESS AND INSET DOWNLIGHTS | 8LIGHTING.COM**

These downlights with a magnetic trim assembly feature three models—flush square, inset square, and flush round (shown). Available with 1-1/4-inch or 2-1/4-inch apertures that accommodate low-voltage incandescent or fluorescent lamp modules, each has a gear-driven optical adjustment system with a 45-degree tilt, 360-degree rotation, and a toolless lock-down system. **CIRCLE 149**

**ARDEE LIGHTING | HOVER CF SERIES | ARDEELIGHTING.COM**

Constructed from industrial-grade thermoplastic, heavy-gauge galvanized steel, and high-grade aluminum, the Hover CF Series provides high-performance compact fluorescent downlighting. Characterized by modular, floating reflectors and decorative elements in low-profile designs, the units—6- or 9-inch apertures—are offered with a choice of trim and lighting control options and feature an advanced optical system, tool-free maintenance, and a 360-degree rotation. **CIRCLE 150**
Prescolite has been at the forefront of LED evolution in the lighting industry since it began. This is only the beginning.

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Insight Lighting offers high performance architectural lighting in classical lamp and LED products for a myriad of lighting venues. An array of instruments including SmartWall (illuminated digital led wall systems), Illusions (linear luminous lighting), Masque (exterior facade lighting), Euro (exterior vertical luminous columns) and Vas (decorative high performance indirect lighting) are representative of our innovative products.

For additional product information, please contact your local Insight representative or visit our website at www.insightlighting.com.
products WALLWASHERS

**LITECONTROL | V3 | LITECONTROL.COM**

Now available with a 3form ecoresin fascia, the V3 luminaire can be completely customized to color, pattern, texture, and interlayer material preferences. Measuring 4 inches tall, the die-formed steel fixture is offered in nominal lengths of 3, 4, 6, and 8 feet and takes one T8, T5, or T5HO lamp. The fascia can be locked into one of three positions: asymmetric indirect, asymmetric indirect/direct, or asymmetric semi-direct. CIRCLE 152

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**LIGHTOLIER | COLORWASH | LIGHTOLIER.COM**

Available in recessed, track, and surface-mount configurations, the ColorWash family of wallwashers creates high-quality white light in addition to generating bold, dynamic color-changing capabilities. Each fixture incorporates TrueTone RGBA technology that continuously monitors and adjusts to ensure consistent color output with no shift over time, and proprietary MicroBlend internal mixing optics eliminate RGB color separation. CIRCLE 151

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**FOCAL POINT | MINI-GRAZER | FOCALPOINTLIGHTS.COM**

Using a nautilus-shaped optic, the linear fluorescent Mini-Grazer produces a very narrow beam distribution that evenly highlights textured walls from ceiling to floor. The 6-inch-aperture fixture takes a T5 lamp, providing considerable energy savings compared to metal halide or incandescent sources, and can be specified with a 30- or 60-degree cut-off housing and numerous shielding options (including baffle and lens). CIRCLE 153

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**LUCEPLAN | LANE | LUCEPLAN.COM**

A neutrally shaped object that offers elegant, cozy, and practical wall lighting, Lane is a family of linear fixtures that produces soft, diffused light. Designed in various lengths according to light source—halogen and T5 lamps are offered—the luminaires provide indirect light upward and downward on the wall and create a light/dark contrast. It also is available with an integrated acoustic diffusion system or with two LED spots for direct reading light. CIRCLE 154
ELP | CW SERIES | ELP_LIGHTING.COM
The Color Wash CW Series uses 54W red, green, and blue T5HO lamps—each individually controlled on its own dimming ballast to allow a smooth, even color range from pure white through a multitude of hues—to illuminate surfaces in an asymmetric wash of color. Constructed of 22-gauge steel, the luminaire is available in recessed or surface-mount versions. CIRCLE 155

PURE LIGHTING | STRATUS | PURELIGHTING.COM
Designed for textured surfaces, this LED linear wall grazier provides uniform illumination to walls or other vertical surfaces by producing an evenly distributed 8-degree-by-160-degree beam that extends to the floor. Recessed or surface mounted, the system is ideal for plaster-in or concealed cove applications and is available in warm white, cool white, and daylight color temperatures. CIRCLE 156

MARTIN | MAC 2000 WASH XB | MARTIN.COM
An extra-bright wallwash fixture with a 1,500W lamp, the MAC 2000 Wash XB provides an output of more than 60,000 lumens depending on the lens option and is 40 percent brighter than the original MAC 2000. It contains a new electronic ballast that offers hot-lamp restrike and the advantage of flicker-free light, as well as two 4-position (plus open) interchangeable color wheels. A flexible lens system and an upgrade kit also are offered. CIRCLE 157

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**TEMPO INDUSTRIES | SENTINEL | TEMPOINDUSTRIES.COM**

Sentinel wall-mounted cinema aisle and step lighting with binary LED optics is a modular lighting system with a low mounting height of 12 inches or less above steps and floors, which minimizes glare and conceals the source. Designed and angled to maximize light output, the fixtures' LED patterns and colors can be customized to location to coordinate with an interior design palette. CIRCLE 158

**LUCEPLAN | BERENICE LED | LUCEPLAN.COM**

A technological update of the 1985 Berenice luminaire, famous for its slight figure and the extreme mobility of its arms, the Berenice LED uses a high-efficiency 10W white LED to provide high-quality light with low power consumption. The aesthetics of the fixture remain unaltered—the base still measuring just under 6 inches in diameter and finishes of alu and black. CIRCLE 159

**HUMANSCALE | DIFFRIENT WORK LIGHT II | HUMANSCALE.COM**

A follow-up to the Diffrient Work Light, the Work Light II contains 90 percent recycled and recyclable content and utilizes a standard screw-in socket to accommodate the latest swirl-style compact fluorescent bulbs. Flexible in its range of motion, it boasts a counterbalance mechanism for one-touch positioning and an asymmetric reflector shade for glare-free lighting. Eight desk- and wall-mount options are offered with a single or double arm. CIRCLE 160
DELTA LIGHT | INLET | DELTALIGHT.COM
This sleek steplight comes in three widths, the smallest being a mere 1 1/4 inches. With both interior and exterior versions available, this compact fixture offers a solution for energy-conscious applications by containing a 1W LED, which is offered in warm white, cool white, and cobalt blue. CIRCLE 161

ALKCO | GEO | ALKCO.COM
Designed primarily for bedside use in a range of medical environments, the Geo collection is made up of a trio of swing-arm compact fluorescent wall sconces that allow for functional, decorative illumination. Luminaires can be specified in conical, drum-shaped, or dome solid-acrylic shades, which provide soft, diffused light, and each contains a fully articulated hinge for easy positioning and a rocker switch for intuitive light control. CIRCLE 162

VISTA LIGHTING | LED NIGHTLIGHT | VISTALIGHTING.COM
Ideal for healthcare applications, this nightlight provides a compact recessed LED unit with light-directing integral louvers that may be specified for either vertical or horizontal interior installations. Consuming just 5W of power whether white, red/amber, or blue LEDs are selected, each fixture is treated with AglON slow-release antimicrobial, which inhibits bacterial colonization on painted surfaces. CIRCLE 163

EDGE LIGHTING | NIGHT OWL | EDGELIGHTING.COM
Ideal for late-night reading, the Night Owl uses a warm-white, 1W LED to provide energy-efficient tasklighting in two styles: pinup and canopy (shown). Its 19-inch gooseneck arm permits positioning in any direction, while a convenient high/low switch allows for flexible lighting options. Available in satin nickel or bronze finishes, each luminaire features a 50,000-hour lamp life. CIRCLE 164

DESIGNERS AND MANUFACTURERS OF ARCHITECTURAL LIGHTING SINCE 1974

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Contact: commercial@brasslight.com
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Circle no. 34 or http://architect.hotims.com
CON-TECH LIGHTING | SYMPHONY LED BULLET | CON-TECHLIGHTING.COM

Featuring an adjustable lens for beam distributions from 17 to 45 degrees, the 3W Bullet fixture for the Symphony low-voltage track system has a low profile, making it ideal for cove lighting, accenting, highlighting, and enhancing display cases. LED color temperatures are offered in cool white (6650K) and warm white (3000K). CIRCLE 165

JOURNEE LIGHTING | PENTAS LUMINAIRE | JOURNEELIGHTING.COM

Drawing only 16W and producing a beam of light equivalent to 40W of incandescent light, the Pentas Luminaire provides energy-efficient track lighting. Featuring a lamp and socket design, the fixture gives end-users the ability to upgrade the LED engine as technology advances. It is offered with a range of color temperature options, various beam angles, and an onboard 3-position wattage adjust switch. CIRCLE 168

CON-TECH LIGHTING | OPTICA ADJUSTABLE | CON-TECHLIGHTING.COM

The Optica Adjustable 22W ceramic metal halide fixture features a cool-to-the-touch adjustment knob that can change beam distribution from spot to narrow flood-to-flood. It provides lockable, precision aiming with 360-degrees-plus horizontal and 180-degrees vertical rotation. The 22W fixture was made for the Philips 22W B7S lamp. CIRCLE 166

ERCO | EMANON | ERCO.COM

Designed by Yves Behar to create scenographic effects for day-to-day operation, Emanon is equipped to accommodate highly differentiated lighting equipment. The 10 3/4-inch-wide luminaire includes interchangeable Spherolit reflectors—available with four spotlight beam angles and wallwashers—and features a cylindrical metal carrier with controlled ventilation where thermally stressed components are installed. CIRCLE 169
A line of minimally styled fixtures, the GR Series is made from die-cast aluminum with recessed transformers that disappear into the track for a clean, architectural appearance. Both the GR16, which takes MR16 lamps up to 50W, and the GR36 (shown), which takes both PAR36 and AR111 lamps up to 75W, are lockable for horizontal and vertical aiming and are offered in a wide range of standard finishes, including black, white, silver, and graphite. CIRCLE 170

Developed specifically for the architectural market, Vamp Spotlights feature smooth cylindrical forms and black silicone accents. Each head contains accessory holders to accommodate up to two filter mediums, including hexagon louvers and dichroic lenses, and features aiming indicators—a 350-degree vertical rotation, and a 90-degree horizontal rotation. They are offered in black, white, platinum, and black/platinum finishes with 10 lamping options. CIRCLE 171

These are just a few of the words that best describe the World Series PSP242TRMV from Robertson and the exceptional performance it delivers. With superior patented All Star Protection and a full 5 year warranty at 90°C, this ballast efficiently and safely operates the widest range of compact quad, triple and long twin tube lamps. If safety and efficiency are paramount for your next project specify the PSP242TRMV by Robertson. Circle no. 63 or http://archlighting.com/productinfo
Sentry Electric | SCP Central Park | SentryLighting.com

Built with a high-strength cast aluminum structure and a polycarbonate globe, the fixture, the winning result of a Central Park Conservancy design competition, utilizes a range of sources including HID, compact fluorescent, and induction. Measuring 18 inches in diameter, several decorative bases are available for coordination with ornamental posts. CIRCLE 190

Allscape | SL-23 Trio | Alllighting.com

Three aimable optical systems contained in a single in-ground luminaire, the fixture uses either LED, HID, or linear fluorescent lamps for evenly distributed spot, flood, or accent lighting. It can be installed in both landscape and poured concrete applications and contains parabolic reflectors that can rotate up to 360 degrees and tilt up to 15 degrees for precise aiming. CIRCLE 191

Beacon Products | Treviso LED | BeaconProducts.com

The Treviso LED line recreates classic, late 1800s outdoor area and site luminaires, poles, and bases with LED light source options. The collection features large, ribbed domes with top-mounted finials and three decorative supports. Each luminaire uses just 18W of power and can be specified in cast aluminum or steel. CIRCLE 192

Delta Light | Industrial | Deltalight.com

Industrial is an exterior-rated LED fixture that contains a 1W LED in each lamp head. Available as a dual-axis, adjustable, single-head, remotely fed fixture, a four-head aluminum integral wall sconce, or a four-head aluminum bollard, the line comes with LEDs in cool-white or warm-white color temperatures. CIRCLE 193

Dreamscape Lighting | Illume | Dreamscapelighting.com

A classic pillar silhouette housing an energy-saving LED source, Illume measures 3½ inches in diameter and is offered in lengths of 12, 24, and 36 inches for base mount and 12, 24, 36, 48, and 96 inches for direct burial. Each fixture is dimmable in cool and warm-white light, as well as color, and each fixture uses only 2.8W per foot. CIRCLE 194
Excellence is timeless, so is beautiful design and smart technology. SELUX is celebrating 25 years of manufacturing in the U.S.A. as a design leader and innovator in the development of architectural lighting systems.
HESSAMERICA | SIERRA | HESSAMERICA.COM
A series of LED-powered light columns in four heights (8, 10, 13, and 21 feet) with a companion bollard, the Sierra collection provides softly diffused colored illumination for accent, brand identification, or zonal definition. Both the column (shown) and bollard designs embody contemporary aesthetics, are made of extruded aluminum tubing, and come with LEDs in a choice of RGB, white, blue, green, red, or royal blue. The columns also are available in building- and wall-mounted versions. CIRCLE 115

PRISMA ARCHITECTURAL LIGHTING | STEEL | PRISMALIGHTING.COM
A line of stainless-steel LED walkover luminaires. Steel is offered in square and round profiles in single or double configurations. It is IP67 rated for temporary submersion in water and installs flush or with a decorative and functional Visa trim, which directs light outward in single or double patterns. CIRCLE 196

MARTIN | EXTERIOR 200 LED | MARTIN.COM
The Exterior 200 LED is a long-life programmable luminaire that offers full RGB plus amber and white color mixing. Weatherproofed for the illumination of outdoor architecture, it features a comprehensive color range from 44 high-power LEDs and a choice of optional spread angles. The lenses also are available as accessories, allowing the luminaire to be reconfigured on site if necessary. CIRCLE 197

ARCHITECTURAL AREA LIGHTING | MINI ESCONCE | AAL.NET
A contemporary-styled, exterior-grade wall sconce, the mini eSconce was developed to covert an unwelcome but necessary object on a building's surface into an integral design element. Now available with LEDs in white, blue, green, red, and amber, the fixture consumes only 5W of power and is offered in numerous colors with optional fascia panels and colored lenses. CIRCLE 195

HUNZA LIGHTING USA | TWIN POLE LITE | HUNZALIGHTINGUSA.COM
One in a family of Eco Series fixtures, the Twin Pole Lite metal halide MR16 20W is a durable, high-efficiency outdoor luminaire that offers the latest low-energy lamp technology. A pole-mounted version of the company's Spike Spot Adjustable Metal Halide, it is easily inserted into the ground and has fully adjustable heads allowing 360-degree rotation and 0- to 90-degree elevation adjustment. CIRCLE 198

www.archlighting.com
The Extrudo from PRISMA Architectural Lighting allows the creation of elegant and dramatic lighting effects.

Combining fully tiltable and rotatable CDM-R111 ceramic metal halide or AR111 halogen sources together with linear T5 fluorescent lamping to offer maximum design flexibility.

Suspended or adjustable wall-mounted versions are available to help create the most unique design solutions.

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Circle no. 70 or http://archlighting.com/productinfo
A durable, cast-aluminum fixture creatively styled with a binnacle and decorative cage, Model CHT can be wall or pole mounted up to 20 feet. Measuring 33 inches wide by 28 inches tall, the fixture contains a spun aluminum reflector with high-gloss enamel for maximum reflectivity and a polycarbonate globe encases a prismatic glass refractor for maximum light control. Type III and V light patterns are available, as are multiple color options. CIRCLE 200

Part of a sconce family that also can be used indoors, Greene II is a compact, linear luminaire that mounts directly to the wall, or on a bracket arm for a more dramatic presence. Three sizes are available—ranging from 21 to 31 inches in height—each able to take compact fluorescent lamps or LEDs. An emergency option is offered and a variety of panels, which can be customized, also are available. CIRCLE 203

This full-cutoff, zero-percent-uplight luminaire family is designed to meet dark sky requirements. Constructed with a horizontal, segmented reflector (Type III or V) and a tempered horizontal lens, the fixture has a twist-lock cap for tool-free access to the ballast and a hinged hood for easy relamping. Each model can use either HID or fluorescent lamps and is available with post, multi-arm, and wall-mount configurations. CIRCLE 201

Made from corrosion-resistant cast aluminum, this classically styled lantern is a full-cutoff fixture designed for wall and pole mounting (up to 20 feet). Featuring a rounded dome with detailed rims and curved supports, it houses a segmented aluminum reflector for symmetric or asymmetric light distribution and is offered in two sizes: 28 inches tall and 37 inches tall. The fixture uses HID lamps from 50W to 250W. CIRCLE 202

Providing a diverse blend of shapes, optical systems, and light sources including HID, LED, digital induction, and fluorescent, the ARIA family of IDA-approved luminaires is made up of arm mount, post top, bollard, and wall sconce fixtures. Available in both low-profile horizontal lamp and dome-top vertical lamp models, each luminaire has a die-cast aluminum housing with toolless access for easier maintenance. CIRCLE 204
The complete Elevations family offers multiple housing sizes, light sources, lumen packages and distributions to satisfy a diversity of needs.
products OUTDOOR

ANTIQUE STREET LAMPS | OSLO | ANTIQUESTREETLAMPS.COM
Creating a unique presence with its inverted conical form framed with four supporting ribs, the style of the Oslo luminaire is mirrored in its complementary multi-pipe post. The full-cutoff fixture contains rotatable optics available in Types II through Types V distributions and is finished using premium TGIC polyester powder. CIRCLE 205

BEGA/US | POLE TOP LUMINAIRES | BEGA-US.COM
Ideal for illuminating roadways and parking areas, these single or double pole top luminaires (Model 9050 shown) have an asymmetrical wide-spread light distribution, come in two sizes, and in a variety of light outputs. Offered in five standard colors as well as custom colors, each fixture's tilt angle can be adjusted from 0 to 15 degrees for a forward throw light distribution. CIRCLE 206

KIM LIGHTING | GEM PERFORMANCE BOLLARD LINE | KIMLIGHTING.COM
Now using long-life, efficient white light LED systems, the GEM Performance Bollard line can produce high levels of illuminance with an attractive lens presence. The LEDs are offered in 30W, 45W, and 60W modules for three distinct distributions and the lens refractor spreads light laterally for a smooth and even beam pattern. CIRCLE 208

MCGRAW-EDISON | TALON | COOPERLIGHTING.COM
With a choice of 14 high-efficiency, field-rotatable optical systems including the Spill Light Eliminator for areas mandating strict light trespass control, Talon offers myriad optical options including vertical or horizontal lamp positioning. Its die-cast aluminum housing is available in black, bronze, grey, white, dark platinum, and graphite metallic as well as in custom colors. CIRCLE 207

SPI LIGHTING | ECHO VELOCITY | SPILIGHTING.COM
Echo Velocity is an exterior asymmetric luminaire with three distinct light distribution options: forward throw, plane wash, and vertical graze. Offered in both single- and dual-lamp versions for T5 and T5HO lamps, the fixture's clean geometry, low profile, and numerous color choices allow it to blend in to a space. CIRCLE 209

www.archlighting.com
Proper insulation for high voltage must be considered.

World’s First AC-driven Semiconductor Lighting Source

• Eliminate the cost of AC/DC converters
• Eliminate energy conversion lost
• Environment friendly
• Miniaturization
• Long lifetime
• Easy of conventional lighting fixture replacement design

The World's First
AC-driven Semiconductor Lighting Source

Circle no. 30 or http://archlighting.com/productinfo
The Design DLM-10 Series of ADA-compliant, low-profile decorative surface-mounted fixtures provide a contemporary appearance with a keyed, vandal-resistant outer locking ring. Available in round or square profiles with a choice of non-glare, translucent open face lens, bar, or eyelid options, the luminaires use compact fluorescent or halogen lamps. CIRCLE 210

LUMEC | CAPELLA | LUMEC.COM
A family of urban lighting fixtures that offers new shapes inspired by movement, the Capella series features a stylish curved design in two sizes with durable, die-cast aluminum components, tool-free access, a Smartseal optical system, and a removable ballast tray. Flat or sag lens optical systems are available and a variety of HID lamps can be used. CIRCLE 211

When a hole in your ceiling is a good thing.

Our “Hole in the Ceiling” fixtures are plaster/fiberglass castings. Once installed, they appear to be a custom built drywall “light niche.” They illuminate your space without calling attention to themselves.

Call us for more information at 626.579.0943 or visit our website today at www.elplighting.com

Circle no. 57 or http://archlighting.com/productinfo
The Greenridge collection is a line of residential LED lanterns made up of a post lantern, a hanging lantern, and a wall lantern (shown), which is available in two sizes. Environmentally responsible and energy efficient, the luminaires feature etched water-seeded glass, warm white light (3000K), and an antique bronze finish. CIRCLE 212

Part of the Omero Outdoor Family, the Omero Post Top was specifically designed for pedestrian-scale applications. Available in up to 175W metal halide, 70W compact fluorescent, and 100W induction lamping packages, the luminaire allows top access for ease of wiring and maintenance and has interchangeable and 105-degree rotatable reflectors to enhance versatility. CIRCLE 213

BEGA/US | RECESSED WALL LUMINAIRES | BEGA-US.COM
Recessed floodlights with adjustable light distribution and metal halide lamps, these recessed wall luminaires (Model 2198 shown) can be installed in enclosed or hollow structures. Reflector angles may be tilted and rotated, and can be locked in place to avoid repeated adjustment after relamping. In addition, the fixtures can accommodate color effect filters and are available in numerous colors. CIRCLE 214

Recessed floodlights with adjustable light distribution and metal halide lamps, these recessed wall luminaires (Model 2198 shown) can be installed in enclosed or hollow structures. Reflector angles may be tilted and rotated, and can be locked in place to avoid repeated adjustment after relamping. In addition, the fixtures can accommodate color effect filters and are available in numerous colors. CIRCLE 214

W2 Architectural Lighting offers a broad range of specification grade lighting solutions for the commercial, hospitality and retail markets. The W2 product portfolio includes "Architectural Elements" glass pendants, "Norfolk" decorative luminaires, "Precision Track", "Flexrail2" and "Cove" lighting.

Circle no. 45 or http://archlighting.com/productinfo
Sure-Lites ELC Series | CooperLighting.com

The Edge-Lit Combo (ELC) Series is a recessed fixture that is the first Sure-Lites architectural-grade emergency fixture that combines both an exit sign (LEDs) and emergency lights (MR11 lamps). A snap-in acrylic lens is provided, and standard features include self-diagnostics, laser testing, and remote battery capacity. CIRCLE 172

Chloride | Rhyno | Chloridesys.com

Designed for harsh environments, the Rhyno series has a 120/277 dual-voltage input with surge protection and Intelli-Charge for self-diagnostics. Available in 6V, 12V, and 24V, from 25W to 100W, the fixture's housing is constructed of impact-resistant Lexan and contains two fully adjustable lamp heads that are internally mounted on the bottom for optimum path or egress lighting. It is supplied with a wall-mount bracket, but can be column, pole, or I-beam mounted. Its battery provides a minimum of 90 minutes of emergency power. CIRCLE 173

Prescolite | EM Integral | Prescolite.com

Designed to work with Prescolite's Architektur family of specification-grade downlights, the EM Integral option—which combines the indicator light and test button into one component inside the reflector—removes the red button from the ceiling, minimizing distractions for occupants. The test switch is pre-wired and can be tested using a dowel rod after installation. CIRCLE 174

Chloride | Tuff-Act | Chloridesys.com

Wet/damp location listed and rated from -40 degrees Fahrenheit to 113 degrees Fahrenheit, the Energy Star-rated, vandal-resistant Tuff-Act is available in AC only and self-powered models. It comes standard with Intelli-Charge self-testing diagnostics electronics and provides 120 minutes of emergency battery power. Illuminated by high-brightness LEDs, its die-cast aluminum housing is offered with single or double faces in white, black, and gray with matching or brushed aluminum stencil faces. CIRCLE 176
BRUNO®  now available

sleek  simple  playful  understated  pure

peerless-lighting.com
**INDUSTRIAL**

**PARAGON LIGHTING | SANITUBE | PARAGONLIGHTING.COM**
An energy-saving interior/exterior linear fluorescent fixture for use in wet or sanitary applications, Sanitube has a low-glare cylindrical shape that emits direct downward light. Units can be suspended or wall mounted, are available in 4- and 8-foot lengths, can accommodate T8 or T5 lamps, and shed water, dirt, and debris to minimize the accumulation of bacteria. CIRCLE 215

**GUTH LIGHTING | SUPER ILLUMINATOR 2 | GUTH.COM**
For high- and low-bay applications, the Super Illuminator 2 compact fluorescent energy-reduction luminaire provides higher lumen output at lower watts, step dimming, and longer component life at 40 degrees Celsius operation. Rust- and corrosion-resistant, the fixture is offered with 253/4-inch-diameter outer reflectors in a choice of clear prismatic, high-impact, or Soft-Glo translucent acrylic. CIRCLE 216

**LSI INDUSTRIES | RETAILMAX SERIES | LSI-INDUSTRIES.COM**
A suitable ambient lighting solution for spaces with medium-to-high ceiling heights, this high-performance, energy-efficient fluorescent luminaire is available with T5, T5H0, or T8 lamps, up to four lamps wide, in 4- and 8-foot lengths for individual or continuous row mounting. An optional specular aluminum reflector is offered for a narrow distribution pattern. CIRCLE 217

**MORLITE | ARMORLITE AR3, AR6 SERIES | MORLITELIGHTING.COM**
A line of architectural, vandal-resistant surface luminaires for high-abuse interior/exterior environments, the ArMorlite AR3, AR6 Series features fixtures in 13- and 16-inch diameters. Made of die-cast, marine-grade aluminum with a circular trim ring that absorbs shock, increases side-impact resistance, and eliminates holds or pry points, the fixture takes compact fluorescent and HID lamps and comes with a choice of decorative front accent accessories. CIRCLE 219

**TCP | GREEN Hi-BAY | TCPI.COM**
The Green HiBay linear fluorescent lighting system, an energy-efficient replacement for traditional metal halide high-bay systems, has recommended mounting heights from 15 to 40 feet for a variety of applications including commercial and manufacturing facilities. Featuring a 95 percent lower maintenance, improved color rendering, extended lamp life, multi-level switching, instant on, dimming, and improved uniformity, the fixtures take T5 or T8 lamps and contain components painted with a glossy, high-reflectance white. CIRCLE 218
The Truth About LED Lighting

LEDs are not a panacea, but they offer your creativity an opportunity to run free.

Gemini One Five Luminaires:
- Helps you select the proper LED for the application
- Designs fixtures that adequately remove heat
- Properly powers LEDs to ensure optimum performance and long life

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Circle no. 50 or http://archlighting.com/productinfo
PHILIPS | HALOGENA ENERGY ADVANTAGE | PHILIPS.COM

Delivering crisp, white, high-quality halogen light, Halogena Energy Advantage lamps provide 30 percent to 38 percent energy savings over traditional incandescent technology. Designed around traditional lamp shapes to maximize compatibility with current incandescent lamp and fixture styles, the line is available in a variety of shapes and wattages, is fully dimmable and mercury-free, and has a rated average life of 3,000 hours. CIRCLE 220

LEVITON | OSSMD LINE | LEVITON.COM

Combining bi-level switching with infrared and ultrasonic technology for accurate occupancy detection, the OSSMD line of dual relay multi-technology Decora-style wall switch occupancy sensors is compatible with incandescent, fluorescent, and low-voltage lighting. It also provides automatic switching of two separate lighting loads from a single unit. CIRCLE 221

OSRAM SYLVANIA | MC250/T9/U/G22/830 PB | SYLVANIA.COM

The Metalarc Powerball MC250/T9/U/G22/830 PB is a high-wattage lamp containing a high-performance ceramic arc tube that delivers a CRI of 86, is rated at 24,500 initial lumens, and provides consistent lamp-to-lamp color temperature (3000K) and better color stability over life. It has a reduced envelope size and is suitable for reflector spotlighting systems and high ceiling applications. CIRCLE 223

VOSSLOH-SCHWABE | PGJ5 (LEFT) AND GU6.5 (RIGHT) LAMPHOLDERS | VOSSLOH-SCHWABE.COM

Ideal for compact lampholder designs, the PGJ5 is suitable for the new CDM-TM discharge lamp from Philips. The GU6.5 lampholder was designed to provide compact and far more efficient discharge lamps as a substitute for halogen applications. It was developed for use with both the Osram Sylvania Powerball HCI-TF and GE CMH Supermini lamps. Interchangeable versions of PGJ5 and GU6.5 lampholders are available. CIRCLE 222

LUTRON | GREEN GLANCE | LUTRON.COM

Ideal for educational purposes or to display the economic and environmental benefits of an energy-efficient building, Green Glance is software for Lutron's Quantum solution that displays the lighting energy savings of a building. It not only shows the average lighting energy saved over a user-selected period and displays real-time lighting power saved, but also compares savings of different time periods and shows maximum potential savings. CIRCLE 224

Office Building 1 Suite 101

Lighting Energy Saved Over Last 7 Days

<table>
<thead>
<tr>
<th>Maximum Savings</th>
<th>Total Savings Relation to Full OFF</th>
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<tr>
<td>Saved 7 Days</td>
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<td>Saved 63 Days</td>
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Tech Lighting presents LED MonoRail, a hand-bendable, LED architectural lighting system. Head and pendant options utilize two proprietary 5.8 Watt LED modules that truly replicate the performance of a 35 Watt halogen MR16 and bi-pin lamp. The system incorporates the benefits of modern LED technology without compromise. It is an innovation that takes the potential of LED systems to a functional level and is targeted for the discerning customer who demands both performance and sensibility. Visit us at Lightfair 2008 - Tech Lighting Booth #937.

Circle no. 51 or http://archlighting.com/productinfo
A whole-building light management solution that manages Lutron's EcoSystem fluorescent lighting control system and Sivoia QED shading system. Quantum gives facility managers total control of their property's lighting. It features IntelliDemand loadshed to instantly reduce lighting power, an easy-to-use graphical floor plan display with pan/zoom control, Q-Admin Software for central operation, and can be integrated with AV systems. CIRCLE 225

The next generation of low-mercury fluorescent lamp technology, the Alto II T8 contains only 1.7 milligrams of mercury, a 50 percent reduction from previous levels. Now incorporated into a variety of 32W T8 lamps, Alto II technology also offers long life, energy efficiency, and a lumen maintenance of 95 percent. CIRCLE 229

This fixture-mounted daylight dimming photosensor is a low-voltage controller that works with standard electronic dimming ballasts to control electric lighting in response to daylight. The photosensor uses a photopic curve to accurately measure light as it is perceived by the human eye and an optional remote control permits a temporary override of the automatic lighting level. CIRCLE 227

The Pascal Automation Controller enhances Square D's lighting control system by providing expansive scheduling capabilities and facilitating the operation of third-party products from input devices such as keypads and touch screens. It is easily installed and products such as a movie projector, screen, security, or HVAC system can be connected via two RS232 ports. CIRCLE 228
It all started with Edison
And one hundred and twelve years later, NoUVIR got it right!

On October 12, 1879 Thomas Edison invented the electric heater!

94% heat! How's that for efficient?

IR only causes damage. (and wastes energy).

The problem is that... that 94% heat doesn't help you see.

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- 10-year warranty

A 100-watt light bulb in a toy oven will bake a cake in 12 minutes. How soon will it cook what you own?

This little rainbow is the only part of the Spectral Power Distribution of a halogen lamp that you can actually see.

On a 3-mm fiber, in one Pinspot, from sixty feet away! (Try that with an LED.)

All of the energy in NoUVIR's SPD is visible light! Perfect color! Perfect balance! And no waste! (No UV, no IR. Just visible light that exactly matches the visible component of sunlight.)

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products

LAMPS | BALLASTS | CONTROLS

OSRAM SYLVANIA | ALUPAR64 | SYLVANIA.COM
Used for stage and show lighting, the lamps in the aluPAR 64 1000W series are up to 50 percent lighter in weight than conventional theatrical PAR 64 lamps thanks in part to an aluminum (instead of glass) reflector. Available with different luminous intensities, voltages, and beam angles—very narrow spot, narrow spot, and medium flood—the lamps provide a smooth and uniform illumination and are one of the company's many Ecologic products. CIRCLE 232

ADVANCE | AMBISTAR | ADVANCETRANSFORMER.COM
Exclusively for the residential and hospitality sectors, this line of electronic ballasts works with a wide variety of fluorescent lighting options. For compact fluorescent lamps, the ballasts support 13W, 18W, 26W, 32W, and 42W models, and are offered in a range of fixed and dimmable options. Depending on the model, they are equipped with color-coded poke-in connectors, dimming ability, auto restart capability, and end-of-lamp-life protection. CIRCLE 230

GE CONSUMER INDUSTRIAL | SHOWBIZ CSR575/SS/DE/75 | GECONSUMERANDINDUSTRIAL.COM
A new offering in the SHOWBIZ CSR short-arc metal halide lamp line, the SHOWBIZ CSR575/SS/DE/75 is a double-ended lamp that provides a 70-plus CRI with high efficiency, as well as hot-restart capability and a daylight color temperature of 7500K. Its compact fixture design measures just over 3 1/2 inches long. CIRCLE 233

BULBRITE | LED PAR38 | BULBRITE.COM
The latest addition to the company's LED line, the LED PAR38 is ideal for retrofitting fixtures that utilize a halogen PAR38 lamp. The LED lamp uses only 20W of power and provides an output of more than 900 lumens. It has an average life of 25,000 hours and is offered in a warm white color. CIRCLE 231

ADVANCE | EVISION | ADVANCETRANSFORMER.COM
Featuring dedicated circuitry for self heating thermal protectors for 70W and 100W metal halide downlight applications, the eVission electronic HID ballast is also equipped with an independent and smart-sensing thermal protector power source and an auto shut-off mechanism. It has a compact and lightweight housing and uses IntelliVolt multiple-voltage technology to enhance accuracy while providing consistent illumination. CIRCLE 234
OSRAM SYLVANIA | POWERSHED
HIGH EFFICIENCY DEMAND RESPONSE
BALLAST | SYLVANIA.COM

This demand response ballast combines state-of-the-art high-efficiency three-lamp operation with low-cost emergency demand response power reduction. It has a universal voltage of 120 to 277V and, with the company's Super Saver 28WT8 lamps, can save up to 14W by immediately shedding 30 percent of its load. CIRCLE 236

UNIVERSAL LIGHTING TECHNOLOGIES | DCL | UNIVERSALBALLAST.COM

Putting the user in command of lighting energy costs, DCL (demand control lighting) allows for local control with energy management systems and external control via the Internet with networked managed systems, as well as integration with utility demand response programs. It can reduce power levels as needed by as much as 50 percent and can be used with other lighting controls from daylight harvesting to occupancy sensors. For a cost-effective solution, DCL can be coupled with DEMANDflex ballasts, which incorporate wireless control technology. CIRCLE 235

PRESCOLITE | ARCHITRAK CURRENT LIMITED
DEVICE | PRESCOLITE.COM

The Current Limited Device limits power consumption to comply with energy codes. Available in maximum wattages of 120W, 300W, 600W, and 900W, it acts as a circuit breaker and trips power off should a track be lamped beyond maximum lighting load. Made up of a steel backplate and an injection-molded plastic canopy, tamper-resistant screws prevent altering or damaging of the original lighting design. CIRCLE 237

BARTCO LIGHTING | RE-LTS | BARTC0LIGHTING.COM

The second generation of Re-LTS solid-state lamp and driver components replaces linear fluorescent T5 lamps with an efficient LED alternative. Measuring 5/8 inches in diameter, the lamps have a light output of 80 lumens per watt, rotate 180 degrees for aiming, and contain LEDs available in warm white, cool white, and daylight color temperatures. Its lower-profile electronic driver offers a universal 120-277V input. Proprietary adaptors allow installation in T8 or T12 luminaires. CIRCLE 238
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Photo courtesy Liberty Science Center
Lighting Design by Available Light

DichroX lenses are hybrid color lenses invented and manufactured by Special FX*. High transmission performance, excellent batch to batch color accuracy, color and heat stable. Theatrical and architectural versions to withstand differing conditions. A cost effective high performance product.

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- CMH T6 39W G12 Base
- CMH T4.5 20/39W G12 Base
THOMAS RESEARCH PRODUCTS | STEPDOWN AUTO TRANSFORMERS | THOMASRESEARCHPRODUCTS.COM

Designed for commercial lighting applications, Stepdown Auto Transformers are typically used in conjunction with 277V T8 or T5 electronic fluorescent or HID ballasts. They provide instantly lower voltage when input voltages are higher than needed. It is insulation rated to 105 degrees Celsius. CIRCLE 240

OSRAM SYLVANIA | MICRO-MINI TWIST | SYLVANIA.COM

A new addition to the DULUX EL line of compact fluorescent lamps and part of the Ecologic line, the Micro-Mini Twist has an ultra-small 1/4-inch tube diameter and a compact integral ballast. Available in 13W, 20W, and 23W models, the lamps have a color temperature of 3000K and boast instant-on capabilities. CIRCLE 239

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Circle no. 22 or http://archlighting.com/productinfo
LUTRON STANZA | LUTRON.COM

The Stanza hotel guestroom light control system is a fully customizable suite of dimmers, switches, lamp socket dimmers/switches, and keypads for the convenient control of lights and draperies. Individually controlled and programmed with lighting combinations, the line features large, easy-to-operate components designed to support ADA and universal design considerations. A wide variety of colors are available as well as matching outlets, receptacles, and jacks. CIRCLE 241

OSRAM SYLVANIA | ECOLOGICS | SYLVANIA.COM

Including 25 different Sylvania Octron T8 lamps, the Ecologic 3 family features longer lamp life (36,000 hours at 12 hours per start), higher lumens per watt, and RoHS compliance for hazardous materials, all adding up to lower environmental impact and lower energy costs. A premium subset of the Sylvania Ecologic family, the lamps have also passed the Federal Toxic Characteristic Leaching Procedure test for hazardous waste determination. CIRCLE 242

SQUARE D | COMMERCIAL GRADE OCCUPANCY SENSORS | SQUAREDDUCTIONCONTROL.COM

These commercial-grade wall-switch occupancy sensors are available in single- and dual-circuit models that use passive infrared and light-level sensor technologies to automatically shut off lights in spaces where sufficient daylight is present and electric lighting is not required. Both models are offered in five colors, including white, ivory gray light almond, and black, and employ a color-matching lens for an integrated appearance. CIRCLE 243

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Circle no. 40 or http://archlighting.com/productinfo

Lightfair booth 727
Nine modular toroidal transformer cassettes ranging in size from 2 1/2 inches to 5 inches wide and designed to power low-voltage lighting for pool/spa, landscape, and indoor applications. Q-Set uses a 50 amp, large-capacity terminal block with an extra-long, 1-inch strip to allow for two-set screws per terminal. Q-Vault, a housing designed to contain the Q-Set cassettes, installs in-ground and enables cassettes to be interchanged for wattage requirements. CIRCLE 244

For temperature issues associated with high-bay installations, the new auto-reset thermal protection feature in Ultrasave’s T5HO ballasts disconnects power in the event of overheating and restarts automatically on cool down. The ballasts run 5 degrees cooler than previous models and are available in input voltages from 120 to 277V. CIRCLE 245

A new addition to the infiNET family of wireless control solutions, the iLux CLS-C6RF can control six lighting zones and six groups of shades. Ideal for new and retrofit applications, up to 16 scenes for lighting and shades may be pre-programmed for simple, intuitive pushbutton selection on a control panel with three-position rocker buttons for each zone. Corresponding LED bar graphs also offer easy visualization of lighting levels in each zone. CIRCLE 246

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Project:
 Fields Shopping Center, Denmark
 Architect: CF Møller A/S

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Circle no. 73 or http://archlighting.com/productinfo
This LED 16W PAR38 lamp has an aluminum housing that contains 12 2W high-power white LEDs behind clear glass. The 16W lamp provides up to 1,200 lumens, lasts (according to the manufacturer) 80,000 hours, and has a 78 percent energy-efficiency rating. Its warm, natural looking white and cool light can be dimmed.

A high bay, energy-saving LED fixture, Constellation HB was designed to replace high-intensity fluorescent and 175W HID fixtures in high-ceiling applications. Made with an extruded aluminum housing containing a polycarbonate lens, the fixture measures 2 feet wide and 4 feet long and is offered with LED color temperatures from 2500K to 7000K. It can be mounted with chain, aircraft cable, or wire and has a light output of 24,000 lumens.

Available in four sizes—9 LEDs per 6 inches, 12 LEDs per foot, 18 LEDs per foot, and 33 LEDs per foot—the Self Driven Light Bars are offered in color temperatures of 2700K and 5000K and are fully dimmable. The foot-long bars clip together to eliminate any deadspots, creating a continuous wash of light, and contain their own drivers, so there are no lengthy power calculations to make.

Providing an uninterrupted run of even, cool LED illumination in lengths from 3 inches to 12 feet per feed, the dimmable LED Light Strip measures only 1/2-inch wide and can be installed using mounting clips or double-stick tape. A variety of color temperatures and colors are offered, and a wet location enclosure is available for outdoor applications.
PHILIPS SOLID-STATE LIGHTING SOLUTIONS (FORMERLY COLOR KINETICS)
EW PROFILE POWERCORE | PHILIPS.COM OR COLORKINETICS.COM
This low-profile, linear LED fixture illuminates brightly and evenly without glare or excessive heat. Powered by line voltage, it consumes just 6W of energy per foot and can support a run of up to 50 feet on a single circuit. At 7/8 inches thick and 1 1/2 inches wide, the fixture is available in 11-, 21-, and 41-inch lengths and in color temperatures of 2700K and 4000K. CIRCLE 89

OSRAM OPTO SEMICONDUCTOR | TRANSPARENT WHITE OLED TILE | OSRAM-OS.COM
In laboratory tests, the Transparent White OLED Tile (prototype) has achieved a luminous efficiency of more than 20 lumens per watt at a brightness of 1000 cd/m^2. Transparent whether turned on or off, the large-scale tile is adjustable; the relative strengths of the beams in its two hemispheres can be adjusted within wide range. CIRCLE 86

CRS ELECTRONICS | LED MR16 | CRSELECTRONICS.COM
This LED MR16 lamp reduces energy use by 87 percent, according to the company. It features a superior brightness of 300 lumens (in cool white), is available in cool white or warm white, has a CRI of 92 plus, and is dimmable. Environmentally friendly, it contains no mercury and is recyclable. CIRCLE 87

LIGHTWILD | PROJECT LINEAR | LIGHTWILD.COM
The Project Linear product family is suitable for undercabinet lighting, backlighting, and cove lighting. It is offered in flexible lengths from 6 inches to 8 feet (in 6-inch increments) for color-controllable fixtures, and from 1 foot to 8 feet (in 2-inch increments) for white and single-color fixtures. Three different lens options are available, as are several LED colors including warm white (3000K), cool white (7300K), red, green, blue, and amber. CIRCLE 90

ILEDCO | ARTICULUX | ILEDCO.COM
Ultra-thin and lightweight, Articulux light panels bring new dimensions and form to the art of lighting. Adding texture and a splash of color to lighting designs, the brightly illuminated panels are cool to the touch and are available in red, green, amber, blue, RGB, and RGBA. Scalable sizes also are offered. CIRCLE 88

LEDTRONICS | R30 LED REFLECTOR | LEDTRONICS.COM
A direct replacement for incandescent lamps, the latest generation of R30 LED reflector spotlight bulbs combines LED technology, standard 25mm Edison bases, and light optimizing designs. Available in light-emitting angles of 15, 20, 30, 40, and 95 degrees and in 120V, they use only 4.5W of power and are offered in three white-light temperatures as well as red, yellow, aqua green, and blue. CIRCLE 91

www.archlighting.com
ARCHITECTURAL LIGHTING 81
An addition to the company's line of drop-in replacement MR16-styled LED bulbs, the high-powered 3W LED MR16 bulb (MR16-3W) is engineered to handle variations in voltages, thus eliminating potential burnout and the need to stock a variety of lamps. It has a bi-pin base and contains three LEDs, offered in cool white (6500K) and warm white (3000K) color temperatures. Both are available in 61-degree beam angles. CIRCLE 94

Designed for cove and wall slot applications, Raye is available in two profiles: 3 inches high by just over 3 1/2 inches wide and 2 inches high by 6 inches wide. Able to be horizontally and vertically mounted, the LED fixture offers two luminous intensities of 3000K and 5000K in both standard and high light-outputs. The luminaires may be placed end-to-end for a uniform distribution of light. CIRCLE 92

Ledra 32 is a surface-mount wall or ceiling luminaire that contains three 3W LEDs. High powered and finished in polished aluminum, it is offered with white, warm white, blue, green, red, and amber LED color options and can be installed in both indoor and outdoor locations. CIRCLE 96

A fully integrated commercial downlight module, the HE2DLM1100 consists of 18 high-brightness 3500K LEDs with a nominal input power of 27W. Designed to fit 6-inch cans, the module features optimized thermal and optical functions, has an efficacy of 40 lumens per watt, a CRI value of 83, and provides a 35-degree beam angle. It also comes with a dimming option. CIRCLE 93
LAMINA | TITAN TURBO TRUCOLOR | LAMINALIGHTING.COM

The Titan Turbo TruColor LED light engine contains a cluster of seven warm white LEDs with a color temperature of 3000K. Measuring just 1 1/4 inches wide and 1 1/4 inches tall, its typical CRI is 85, its typical lumen output is 1,290, and its typical use of power is 24W. CIRCLE 96

OSRAM SYLVANIA | HF2DISPLAYSTICK AND HF2DISPLAYSTICKXB SX-SERIES | SYLVANIA.COM

Designed for white light linear display lighting applications, these LED sticks are available in two configurations: in 6- and 12-inch lengths (6 and 10 LEDs) with a beam angle of 110 degrees (the HF2 model), while the SX-Series has a 90-degree beam angle, and can support controls features including dimming and addressability. Both deliver high performance and high brightness. CIRCLE 97

NEXXUS LIGHTING | SAVI SHO WHITE | NEXXUSLIGHTING.COM

The Savi SHO White is an architectural, high-output, white-light LED floodlight that operates off line voltage and does not require a power supply. Measuring 13 inches wide and 4 1/2 inches tall, the fixture is constructed of cast-aluminum alloy, has beam angles of 10, 30, and 45 degrees, comes in white, black, and silver, and is offered with 5600K LEDs. CIRCLE 98

LEDWAVES | LED CUTTABLE RGB LIGHT BAR | LEDWAVES.COM

Providing 1 to 2 feet of color-adjustable light, the LED Cuttable RGB Light Bar is ideal for practical purposes as well as more creative applications. Featuring low heat generation and power consumption, it is also versatile, able to be trimmed every three LEDs. A remote RGB controller is sold separately. CIRCLE 99
The Framing Projector Luminaire brings artwork and wall decor to life by delivering performance-based direct accent lighting. Creating a square or rectangular area of light to frame objects, the fixture can be adjusted to match any width and length. Using different lenses, the fixture controls the size, angle, and sharpness of the edge of the light beam, which is produced from a 39W HID ES16 lamp. **CIRCLE 81**

**LAMPS PLUS | CASA MODERNA | LAMPSPLUS.COM**

A compact and contemporary ceiling fan, Casa Moderna features a brushed nickel motor pod and three sapele-wood-finish blades with a span of 48 inches and a 14-degree pitch. The light kit contains three adjustable heads that each take one 50W halogen lamp, while a mesh cap is included for non-light-kit use. The fan also comes with a convenient hand-held remote control. **CIRCLE 177**

**HUVCO DAYLIGHTING SOLUTIONS | PARANS FIBER OPTIC SKYLIGHT | HUVCO.COM**

To bring natural light deep into an interior space, the Parans Fiber Optic Skylight uses an exterior daylight collecting panel with 64 Fresnel lenses (controlled by an internal computer) that rotate to track the sun automatically. Four 6mm flexible fiber optic cables then transport the light up to 60 feet, entering a space via five different styles of luminaires: two for natural light only and three that combine natural and electric light. **CIRCLE 178**

**IPHOTOMEASURE | IPHOTOMEASURE.COM**

An innovative software that can create measurements within any photo taken with a digital camera, iPhotoMEASURE Version 3.0 has 3-D capabilities and requires just a digital camera and a computer. Eliminating the need for assistance or a tape measure, this latest version also offers the ability to measure multiple planes and fields as well as planes at an angle. **CIRCLE 250**
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Energy Savings

Three Lighting Retrofits Provide Substantial Paybacks.

To comply with the requirements of California's Title 24 energy code, which requires automatic lighting controls to help reduce lighting energy, a facility upgrade at San Francisco's Westfield shopping center (above right) uses a web-enabled control system to model the lighting zones based on need at any given time of day and utilizes as much daylight as can be harvested from the three-story dome (above left) and skylights scattered throughout the center.

As the cost of energy rises more and more, businesses and corporations are becoming increasingly aware of the amount of energy that is spent on lighting annually. New technology cannot only help reduce the amount of electricity we consume, thereby minimizing operating costs, but it also could improve the spaces we occupy, creating more pleasant work and living environments.

The following three case studies examine the conservation of lighting energy: the Westfield Centre, Mervins Department Stores, and Ford Motor Co.'s Windsor Locks High Velocity Center. Each test case incorporated new technology to reduce the total electrical load of their respective buildings, resulting in surprising savings and lighting upgrades less expensive than one would anticipate.

Westfield Centre. San Francisco: Web-Enabled Lighting Control

The Westfield Centre in San Francisco, which opened in 2006, is a shopping center with nine floors of shops, restaurants, entertainment, and offices. The center includes the old Emporium building built in 1898 with a restored Beaux-Arts façade and a new structure that houses both Bloomingdale's department store and a nine-screen Century Theatre. Between these two merchants is a restored three-story, 500,000-pound dome that was rebuilt after the 1906 earthquake.

Driven by the requirements of California's Title 24 energy code, which requires automatic lighting controls to help reduce lighting energy, and a desire to attract customers while highlighting the historic architecture, a lighting control system from Schneider Electric was selected—the Square D Powerlink 3000-level web-enabled system. This control system works by modeling the lighting zones based on need at any given time of day and utilizing as much daylight as can be harvested from the dome and skylights scattered throughout the shopping center.

Significant preparation went into creating a lighting scheme for the shopping center that would balance the modern and historical attributes of the architecture while meeting the requirements of Title 24. The San Francisco office of Horton Lees Brogden Lighting Design (HLB), under the guidance of senior principal Angela McDonald, developed a color-coded matrix that was tailored for each of the 37 zones necessary to provide both general lighting and architectural scenes. The operation of each lighting zone included an assessment of the total amount of light and the appropriate duration. HLB provided the engineers and building owners with recommendations for each lighting scheme throughout the Westfield Centre, taking into consideration three main time periods: opening to sunset, sunset until retail closing, and from retail closing to cinema closing.

Meeting the requirements of the 2001 version of Title 24, under which the project was completed, was a difficult task. With greater emphasis on maintaining power density below specified limits—such as retail spaces fewer than 2.2 watts per square foot and nonpublic areas, such as storage spaces, at fewer than .7 watts per square foot—it was a challenge for the engineers to keep the lighting loads below defined limits. The California code also mandates a two-hour maximum override for the system followed by an automatic shutoff. In the center, this override is used as a special cleaning scene customized to each floor. With the push of a button, the maintenance crew can clean floors at its convenience and after two hours, the Powerlink system takes over.

The control system components include 60 Square D Powerlink lighting panelboards located throughout the building. Twenty of the panelboards are “masters” with the remaining 40 considered “slaves.” Only two of the master panelboards contain scheduling and zone information, as these two “publish” all the information onto the system network where the slave panelboards can pull individual assignments. To configure the Square D Powerlink system, the Westfield Centre hired Eugene Gutkin, owner of Integrated Building Solutions, who provided commissioning on the complex system over several months as well as developed a graphical interface through a web browser that the shopping center's operations personnel can use to alter the lighting zones. Accessed through a computer in the administration offices, the lighting can be...
changed with the click of a mouse.

With this control system, the shopping center would like to achieve a minimum of 15 percent reduction in electricity in the first year of operation. It is estimated that the web-enabled aspect of the system will provide almost 10 percent in energy savings as compared with non-web-enabled systems.

RETAIL GETS A FLUORESCENT UPGRADE

Mervyns is a family fashions and home goods neighborhood department store headquartered in the San Francisco Bay Area. With 189 stores in 10 states in the south and southwest and each store averaging 80,000 square feet, Mervyns is working to reduce electricity consumption, achieve pollution prevention, and minimize the environmental footprint of each facility.

The ultimate objective of this lighting retrofit was twofold: to enhance the shopping experience for Mervyns' customers by improving both the quality and quantity of the in-store lighting, while also reducing the total electrical load, thus minimizing operating costs and improving financial performance. Teaming up with Sylvania Lighting Services (SLS), a division of Osram Sylvania that develops energy management programs for lighting systems, Mervyns hoped to achieve the aforementioned goals in 164 of its store locations.

To begin, the SLS team reviewed the existing lighting system and made recommendations for a new system that would meet the company's objectives. High-performance, long-life Sylvania FC32/XPS Octron lamps and Sylvania Quicktronic High Efficiency QHE electronic ballasts were chosen and installed by SLS.

This standardized the lamp types throughout all of Mervyns' facilities. The previous light output and distribution was maintained by cleaning the existing fixtures to restore their reflectivity as well as installing new reflectors and luminaries. Additional energy savings resulted from delamping the existing four-lamp fixtures from four to two and installing new lighting control sensors provided by WattStopper.

To calculate the company's monetary gains through the system upgrade, multiple factors played a role. First was energy savings, along with maintenance costs, utility rebates, and tax reimbursements. Mervyns' initial investment into the lighting upgrade was $11.5 million. With a projected system savings of $6 million per year, the company is expecting a payback within two years. The projected energy savings alone equals $4.3 million per year, the equivalent of more than 28,995,471 kWh saved annually in electricity consumption. With the new system, the lamp and ballast adjustments will save an average of $1.7 million in maintenance costs each year. The utility rebates and the Energy Policy Act of 2005 tax benefit will save an additional estimated $3.1 million. Add all of these considerations together and Mervyns' initial investment in the lighting system pays for itself in less than one year.

FORD MOTOR CO.'S HIGH VELOCITY CENTER

Ford Motor Co. was in the market to improve the efficiency of the overhead lighting system in its High Velocity Center (HVC), a 227,000-square-foot facility in Windsor Locks, Connecticut. Ford solicited energy services company New England Energy Management (NEEM) to assess how the lighting system could be improved to capitalize on energy savings. NEEM proposed replacing 650 high-intensity discharge (HID) lighting fixtures consisting of 400W and 1000W metal halide and pulse-start metal halide lamps with energy-efficient linear fluorescent lighting from GE Consumer & Industrial. Motion sensor control was proposed to reduce light output and energy usage by 50 percent at times of inactivity in the warehouse aisles.

To assist in the design of the new system, NEEM partnered with Henderson, North Carolina-based Optimum Lighting to develop a fixture utilizing GE's latest program-start fluorescent lamps and ballasts. Each fixture was outfitted with six F32T8/XL/HL linear fluorescent lamps and UltraStart electronic ballasts from GE. The ballast was a key component, as it needed to have the high efficiency, energy savings, and performance benefits of an instant-start ballast, but also had to protect the lamp life since the fixtures could be switched to low or off five or more times each day by the occupancy sensors.

NEEM designed Ford's new fluorescent system and submitted it to Connecticut Light & Power's (CL&P) rebate program. A 75 percent incentive was awarded to Ford by CL&P based on the high benefit-to-cost ratio the new system would achieve over time. The HID to fluorescent retrofit exceeded the project's expectations, achieving a total payback in just seven months utilizing CL&P's incentive rebate. It is estimated that the Windsor Locks lighting systems' overhaul will top $78,000 per year.

The Windsor Locks HVC results are impressive, and subsequently Ford commissioned NEEM to retrofit 17 additional centers utilizing the same energy-saving system using the GE lamp and ballast combination in conjunction with occupancy sensors. NEEM will replace almost 12,000 HID fixtures with 96,000 linear fluorescent lamps and UltraStart electronic ballasts throughout the 17 facilities. The total energy savings are expected to exceed more than 20 million kWh each year.

LIGHTING SYSTEMS PAYBACK

In each of these case studies, a total lighting system was either retrofitted or installed. The cooperation of all components—lamps, ballasts, fixtures, control system, and motion sensors—is required to run the system most effectively. The impressive savings these companies achieved through lighting upgrades paid back the initial investments in less than a year and, in some cases, only a few months.

Few corporations are aware of the rebates and incentives available for such retrofits, in addition to the energy savings. As the cost of electricity and energy continues to climb, the hope is that more companies will recognize lighting upgrades as a way to reduce their environmental footprint.

Jennifer Bickford received her MFA in lighting design from Parsons the New School for Design. She works in the New York City office of Tillett Lighting Design.
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Building Information Modeling

SOFTWARE ENABLES COMMUNICATION ACROSS THE DISCIPLINES INVOLVED IN THE DESIGN AND CONSTRUCTION OF BUILDING APPLICATIONS.

A screenshot shows Autodesk's Revit MEP, the company's BIM solution for mechanical, electrical, and plumbing engineering, and its interoperability with the Virtual Environment daylight analysis program by Integrated Environmental Solutions. The Revit platform, according to Autodesk, provides complete, discipline-specific building design and documentation systems supporting all phases of design, construction documentation, and even fabrication.

BUILDING INFORMATION MODELING (BIM) SOFTWARE BRIDGES COMMUNICATION GAPS BETWEEN ARCHITECTS, ENGINEERS, designers, construction professionals, and owners in the design of building applications. The largely PC-based software allows involved parties to work within a shared virtual model of a building in which all the information is stored and assists in design decision-making, cost estimating, performance prediction, construction planning and document production, and facility managing and operation. Within the BIM model, each element of a project—such as the walls, ceiling, floor, HVAC equipment, electrical panels, windows, and light fixtures—has valuable associated data, which can be shared among the design and construction disciplines along with how the element is to act within the space. This is particularly helpful in calling attention to potential spatial conflicts, which can be checked at all stages of the building process, resulting in better coordination and fewer errors. When a change is made using BIM, it needs to be made only once as the software automatically adjusts to acknowledge the change throughout the affected areas and simultaneously alerts the project team members working on those newly conflicting parts of the building.

But while the use of BIM, which has been around for approximately 10 years, continues to grow, not all architects, engineers, manufacturers, or construction professionals are eager to jump on board. Although BIM software platforms, such as Autodesk's Revit Architecture and Graphisoft's ArchiCAD, are gaining popularity in the industry, computer-aided design (CAD) tools primarily have been used to create electronic drawings of buildings using abstract graphical representations. While those 2-D representations mean something when read by humans, the same is not true when it comes to computers. With CAD, each drawing is created separately. For example, a 50-story building would have individual CAD files for each plan, section, elevation, and associated details. BIM creates a 3-D model from which a member of the design team can extract specific parts. If a certain trawlounge fixture was specified on each floor of that 50-story building, BIM would make that change for each floor and automatically adjust everything else on the project to accommodate that modification.

A change or update using conventional CAD support could be overlooked because of the different documents required for cross-referencing.

Because BIM seemingly iron out kinks in the building design process, firms and companies in the industry are getting their feet wet now in regard to the software, while others hesitate to make the switch until more of their questions (regarding the future of BIM and the interoperability of software packages currently on the market) are answered. Another deciding factor is cost. BIM software usually is sold per license, commonly referred to as "seats." The cost of BIM platforms varies because firms tend to buy seats in a package deal, and the number of seats purchased depends on the size of the company or firm. "For us, it was a question of did we want to wait and come to [BIM] late or come to it and understand it early," explains Stephen Wright, principal at Norfolk, Virginia-based architectural firm Hanbury Evans Wright Vlattas and Co. (HEWV), where he has helped lead the firm's BIM efforts for approximately the past two and a half years. "We wanted to jump in early because we saw the benefits to it, being able to virtually model a building and its components prior to construction rather than wait and see things not working."

IMPLEMENTING BIM

Wright says with BIM comes a complete mind-set change in how to put together drawings and while those accustomed to CAD might seem hesitant about BIM at first, he thinks overall it is a change for the better. At HEWV, employees who are used to CAD are having the biggest problem switching to BIM, but others are picking it up quickly. BIM "lets you be an architect again, lets you think and draw as if you were doing it by hand," Wright notes. HEWV introduced BIM on a project-by-project basis, so existing projects were finished using the software they were started on. The company spent a lot of time and money on training, which is essential, Wright says. While the first project using BIM was tough, the process has improved. "We're seeing good results both in our coordination of documents and in the time to produce documents," Wright explains. Despite the enormous training and infrastructure costs involved, Wright says the firm feels BIM has been more than worth the expense.

But BIM no longer exists just in the realm of architecture firms. In 1996, the engineering department at Milwaukee-based Visa Lighting converted its catalog from 2-D CAD to 3-D Solid Works, which provided 3-D content that could be used with BIM software. While switching to BIM is not a simple venture, Wayne Oldenburg, owner of Visa Lighting, strongly supported the use of the software and provided outside resources to create the files rather than using the company's existing engineering team, which Jimalee Dakin, vice president of sales and marketing, says would have slowed product development. When Visa decided to go ahead with the initiative, it did not own or use any BIM software. Once the software was installed and the files converted, Visa then trained its staff members on the program.

While the 3-D modeling software has a lot going for it, Dakin says BIM currently has two cons. One is that the software industry providing BIM programs is fragment-
ed, which means there is no file standard. There are a handful of companies that provide BIM software, but the files that work with one BIM program are not compatible with others. Consequently, it is important for firms and companies to invest time in selecting the software that works best for their needs. Wright says HEW spent almost a year looking at various BIM platforms, hosting in-house presentations of software programs to get employee feedback and visiting firms that already were using the software to get a better idea of how it would work for HEW.

The second drawback, according to Dakin, is the different levels of technological acuity across the design and construction industries. Some firms and companies will not invest in BIM until they are sure of a return of investment, while those using one software program might find that their next job requires proficiency in another software package. Dakin points out that when everyone is on the same software, things are great, but when that is not the case, there is a huge learning curve involved, along with upfront costs. "As with many competing industries, BIM software manufacturers would actually benefit from making their files easily shared," Dakin says. This is something CAD software has had to address when making .dwg files readable across platforms.

**BIM IN THE FUTURE**

With technological advances occurring as quickly as they do, it is likely that BIM eventually will replace CAD and become the norm for design-build applications. But for now, BIM is still considered slightly uncharted territory, with those currently investing in it taking a risk. Dakin says the early adapter to BIM struggles because of this and also because there is no clear content standard. "BIM is the direction of the industry, and integration of the software is either now or later," she explains. "Eventually, everyone will need to invest in the future of the industry. We have to accept that this is an effort that will require continuous improvement to ensure the best quality of information to BIM users." Several manufacturers have spoken to Visa about the process of switching to BIM, and Dakin says she thinks they soon enough will be following suit. A little more than a year into it, the BIM conversion has proved successful for Visa and has allowed the company to provide 3-D data to other programs as well, such as lighting design software AGi32 and Google SketchUp, software that can create, modify, and share 3-D models.

When exploring the switch from CAD to BIM-based software, it is important to be aware of all aspects, involved including the time, cost, and labor necessary to convert files to be BIM compatible. Dakin advises those interested in BIM to take a class to familiarize themselves with the software. Additionally, adjusting to a new way of thinking and approaching projects will be necessary, and proper program training will ensure that everyone is up to speed. Wright says the most important part of the process is to explain to the staff why BIM is being implemented, in addition to investing in training. "It may be a painful check to write, but it will pay dividends down the road," he explains. "Find champions for [BIM] in the office and allow them to mentor. And don't be surprised if they're not mentoring from the top down but from the bottom up. The opportunity for mentoring in all directions has been such a positive thing for our firm." The software packages available will continue to evolve and improve as more industry professionals explore the benefits of BIM, and those already implementing BIM platforms should do their part to aid other firms and companies interested in introducing BIM into their work environment. JENNIFER LASH
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The first impression Light+Building leaves you with is the feeling of being overwhelmed. With 10 halls or buildings, some on two or three levels, and each covering acres of land, just grasping the idea of seeing it all is difficult. The most important lighting products are spread among hundreds of stands ranging from the large and spectacular to the smaller 10-foot by 10-foot booths most designers are accustomed to seeing at trade shows. Large or small, you need to be prepared to look carefully lest an important innovation goes unnoticed.

It helps to have been to Frankfurt before as one attempts to organize any kind of plan of attack for navigating through the show to ensure seeing the best and most important stands. Hall 1, which features decorative lighting, is an amazing world of beautiful things such as Murano glass, crystal chandeliers, and acrylic shapes—a place without a troffer or downlight in sight. Halls 2 and 3 hold Europe’s biggest and most influential architectural lighting companies, and Hall 4 has great variety and, as it turns out, a number of important booths deserving close inspection. The other six halls hold lighting and technologies, controls, electrical equipment, outdoor lighting, and a number of other related products. In two days I never made it past Hall 4. It takes a minimum of three full days to do the show justice.

COLOR. COLOR. EVERYWHERE, COLOR.

Colored and color-changing light-emitting diodes (LEDs) remain the dominant trend. Every booth showed some variation, from color projectors and color-changing strips to table lamps, pendant lights, and pole lights equipped to display a changing spectrum while providing a separate white light source for general lighting uses. There also were a few color-changing fluorescent lighting systems, which produce potentially useful levels of light.

It used to be that only a couple of companies produced color-changing surfaces such as walls and tiles. That has changed as LED surfaces seem widely popular. In addition to innovative LED companies, at least three large companies, best known for mainstream lighting, now offer walls and floors that change color and pattern, including the ability to produce video-driven patterns.

One of the nicer product innovations were wallbox controllers for color variation control and programming. Too many current systems require DMX programming and at best have clunky controllers. Aesthetically designed and functionally working like an iPod, color-changing controllers put a measure of fun and user accessibility into colored lighting, which is a welcome improvement.

WHITE LEDS BECOME USEFUL

The most important trend was LED lighting finally moving into general lighting. Three approaches stand out:

- A white light "engine" for use in downlights, tracklights, and other directional lighting equipment.
- A white light fixture in which the engine is the housing. Both round and linear forms were evident.
- Edge-lighted micro-prism lenses, using a waveguide principle to evenly spread the light and to preserve a thin overall profile.

The fundamental difference between LEDs and other light sources is that they are hemispherical heat emitters, and so comparing LED efficacy to compact fluorescent lamps is not fair to the LED. The "engine" seems to be shaping up into lumen packages—a 600-lumen package (12W) and an 1100-lumen package (24W).
were shown. Considering that an ordinary lamp would still have to be fitted with a reflector, it appears that in watts per footcandle the LEDs actually may be equal or superior to compact fluorescent lamps. Even the biggest LED skeptic would have to agree that, cost notwithstanding, the white LED seems able to hold its own.

There were quite a few outdoor LED luminaires of all descriptions. LED pole lights are finally worth considering, although to achieve their amazing performance, LED pole luminaires currently are using 5500K lamps. The brightness of individual LEDs remains a problem, solved in one case by a luminaire employing color-changing LEDs that illuminate the body of the luminaire around the white light LEDs. (Although I never got that far, I would bet there were a half a million low-level changing LEDs that illuminate the body of the luminaire around the white light LEDs.)

Back to the T5 World

I am not sure there were any T8 lamp luminaires, but for principal commercial lighting, T5-based lighting systems were plentiful. To be honest, after a while, handsome rectangular, picture frame suspended luminaires became commonplace, and the challenge was to find pleasant new expressions. Fortunately, there are many great designs, from beautiful linear products to playful, even whimsical luminaires. One of my favorites was a T5 lighted box with what appeared to be a bed sheet (wrinkled, at that) for a diffuser. Among a number of luminaires designed for technical performance, another favorite product of mine was a linear structure having an asymmetric downlight as well as symmetric downlight and uplight components. The best of all was a T5 acrylic luminaire shaped like a wing that, by using microprism lenses, did not produce glare despite the lamp being wrapped in acrylic.

Visitors at the Philips Lighting stand review the company's edgelit-LED-waveguide microprism luminaire called the DayWave (far left). Zumtobel's modular LED tile called Cielos can create walls and floors that change color and pattern, including the ability to produce video-driven patterns (left).

Surprisingly, there were a number of linear T5 expressions from decorative as well as the more technical companies. Low-level asymmetric luminaires—recessed corner luminaires and surface corner luminaires—were seen in several stands. Also suited to LED technology, these luminaires change our thinking about the role of lights in shaping and decorating a room.

Inevitably, there also are LED/T5 meritages. Like a fine blended wine, the two can work well together. One of the best is a smoothly detailed, almost sculptural fascia with LED reading lights, easily the most attractive hospital bedlight yet. Another uses LEDs as a night light, altering the T5 color by day. A common theme from several companies was the use of colored LEDs to change the body color of an otherwise conventional luminaire.

Efficient and Decorative

One reason to attend Light+Building is to enjoy the superb art and industrial design of luminaires for which European lighting is known. This year, the design direction is definitely a late modern revival. In many stands, I felt like I had been beamed back to 1965. Cultural differences added some flavor, with companies from Spain, Italy, France, and other countries taking the motif into their own unique and sometimes refreshing interpretations.

While there are still a surprisingly large number of incandescent and halogen luminaires, there are now a world of great designs based around compact fluorescent lamps and other sources. Dominating the design motif is an evolved modernism, with simple shapes and materials, now wrapped around compact fluorescent lamps. Recurring themes include:

Big Shades

Cylindrical-round and box-rectangular shades are a strong trend. Many are translucent, with fabric, acrylic, beaded, or resin-sided with a wide range of color options. Luminaires include floor lamps, table lamps, arc lamps, and pendants. Overscale floor lamps and pendants are definitely in.

Appealing Sconces

Thank goodness, the sconce craze is gone. The number of choices seemed smaller than previous years, but the design quality remains high. There are several using the T5 Circline lamp; others employ conventional compact lamps.

Patterns

Several companies now show the conventional "bowl" fixture, as well as sconces and lanterns, with patterns. Different from landscape lighting, these are a delightful surprise for residential and hospitality projects.

Fabulous Acrylic

The ability to introduce artful glowing shapes is a clear trend with many companies exhibiting illuminated acrylic forms. Shapes ranging from organic to downright fun were spotted in both indoor and outdoor versions. Many supported the modernist ethic through strong geometry, but my favorites are the most playful. While most of these appeared to be intended as white light sources, quite a few were spotted with color-changing bodies, sometimes with white light accents.

Hall 3: World Class Architectural Lighting

This is where to see the full breadth of the best and most innovative architectural lighting, including downlights, track, and other integrated and recessed lighting. There is an awe-inspiring level of engineering and precision, supported by excellence in industrial design. Most of the products use ceramic metal halide, compact fluorescent, and LED sources. A few halogen fixtures remain available, too, although the market is no longer dominated by them.
The strongest impression is that "track is back," including new track systems as well as dozens of new luminaires for existing systems. The most apparent differences between U.S. and European philosophies involve lamping and shielding. I was told in no uncertain terms that separate lamps and reflectors (e.g., T6 metal halide) are superior to sealed beam lamps, such as MR16 PAR lamps. On the other hand, I still feel there is something to be said for American practices of shielding and lensing not nearly as evident on these systems. I hear a debate coming.

An innovation not yet on the U.S. scene is the Digital Addressable Lighting Interface (DALI) track. By placing the DALI signal as well as power in the track, individual fixture control is possible, including unit incandescent dimmers, dimming ballasts for HID and fluorescent lamps, and dimming LED drivers. This could reinvent museum lighting and perhaps serve as an occupancy-sensitive display lighting system where you approach a merchandise display and it becomes brighter. Imagine if we could dim most retail display lighting in this manner.

Among outdoor luminaires, I noted a significant trend toward dark sky friendly lighting. In addition to LED pole lights, there are more HID products in the marketplace, but for every source, very few products were overly glaring or wasteful. It is about time!

Several U.S. lighting companies exhibited at Light+Building for the first time. I was pleased to see San Antonio-based Lucifer Lighting Company showing their innovative accent lights and other new products. Their micro-gear driven hot-aiming recessed luminaires for compact MR16 halogen and HID lamps were unmatched even by the big European companies. These days, Americans are not always well received, and it was good to see them and a few other U.S. companies holding their own.
Architectural Lighting Magazine announces the FIFTH ANNUAL A|L LIGHT & ARCHITECTURE DESIGN AWARDS honoring outstanding and innovative projects in the field of architectural lighting design. The A|L DESIGN AWARDS recognize and reward excellent lighting design within the specific criteria relevant to each category (Residential, Interior, Exterior and Whole Building). To acknowledge issues of notable importance in today's practice of lighting design, and design techniques particular to lighting, Architectural Lighting also presents a series of awards that recognize Best Use of Color, Best Incorporation of Daylight, and Best Lighting Design on a Budget. Winning projects are published in the July/August 2008 issue of Architectural Lighting and featured on www.archilighting.com.

ENTRY DEADLINE: MAY 22, 2008 POSTMARKED
Late Entry: June 6, 2008
Questions? Elizabeth Donoff, Editor, edonoff@hanleywood.com
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The new Midipoll bollards use LED or metal halide sources for the illumination of open areas and pathways, and serve as space-dividing and structuring elements at the same time. Their absolutely glare-free light distribution meets the hight ERCO standards of efficient visual comfort. Midipoll received the “Design Plus” award, presented by Messe Frankfurt in April 2008.
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Professional Sustainability

What can be done to address the shortage of lighting design professionals in the workplace? How will the lighting design profession innovate and sustain itself for the future? Replies and proposed exchange question topics can be submitted to edonoff@hanleywood.com.

FRED OBERKIRCHER | DIRECTOR, CENTER FOR LIGHTING EDUCATION | TEXAS CHRISTIAN UNIVERSITY

What a wonderful problem to have! Across the spectrum of lighting design firms, the comment seems to be the same; we have more work than we can handle and the quality of the projects is the best it’s been in a long time. Clearly, the lighting design profession has gained acceptance in the marketplace and the value of utilizing the services of a lighting designer has been recognized by clients.

There seem to be two ideas that have not been fully explored and might be effective from the cost/benefit point of view. The first is that historically, lighting initiatives have been limited by the term “architectural.” Grants, scholarships, and educational outreach have been addressed to programs based in “architectural lighting.” A bit strange considering the number of “legendary” lighting designers that have received their education within a theatrical setting. Jill Mulholland of the IALD Education Trust recently attended a national conference of the U.S. Institute for Theatre Technology and confirmed that the organization has more than 400 educators and 100 student members. These represent significantly larger numbers than the trust’s current educator list and, more importantly, represents a student population that well understands the aesthetic qualities of light. What they currently lack is an understanding of architectural lighting sources.

The second relates to a comment by Mark Lien, director of the Lighting Solutions Center for Hubbell Lighting in Greenville, South Carolina. In an article on commercial lighting education, Mark noted that manufacturer-based educational programs provide lighting education for more than 20,000 people annually. With manufacturer-based education’s ability to provide intensive short-duration education, would an educational marriage with manufacturing-based educational space become a viable cost/benefit alternative toward securing the future of the lighting design profession? And wouldn’t it be wonderful if a dialogue, begun here, started that ball rolling?

DEREK PORTER | PROFESSOR AND DIRECTOR, MFA LIGHTING PROGRAM | PARSONS THE NEW SCHOOL FOR DESIGN

Multiple factors contribute to our current struggle with the shortage of lighting design professionals. This includes the most significant reality, which is the specialty practice of architectural lighting design is not readily recognized as an independent autonomous profession that can be formally studied with a resulting practice. The practice of architectural lighting design is not readily recognized as an independent autonomous profession that can be formally studied with a resulting practice. The comment seems to be the same; we have more work than we can handle and the quality of the projects is the best it’s been in a long time. Clearly, the lighting design profession has gained acceptance in the marketplace and the value of utilizing the services of a lighting designer has been recognized by clients.

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INGRID MCMASTERS | SENIOR LIGHTING DESIGNER | KJWW ENGINEERING CONSULTANTS

The lighting design community needs to launch an awareness campaign. Students in high school and college generally do not know that lighting design is a profession independent of architecture, interior design, and engineering. I find that when speaking with students about lighting design, there seems to be a lot of interest but little understanding of what a lighting designer does, earns, and foremost how to go about getting a lighting education. It seems as though many people fall into the field through incidental contact with another lighting designer. Furthermore, many adults in lighting-related careers seem to be searching for educational outlets and do not have a means of getting continuing education while maintaining their current careers.

AL REALE | LIGHTING DESIGNER | THE STUDIO GROUP

It seems to me that innovation and sustainability, although important components, cannot be the primary factors in the future of lighting design. An important element has been seriously overlooked in regard to the stimulus for creativity in our working environment and everyday life—or maybe just plainly ignored. Whatever happened to “ambience,” “atmosphere,” “physical interpretation,” “participation,” “experience,” or just plain “soulfulness” of the 3-dimensional space?

We don’t need more lighting professionals, we need more competent ones. This also can be said about other professions as well. Creating more lighting professionals begins with education. The educational story is really very simple. Impact a child’s brain to ask questions about visual spaces and the developing years will leave an indelible mark in someone’s experience. And there you have the key word: “experience.”

THOMAS KOWALCZUK | LIGHTING DESIGNER | WYNN DESIGN AND DEVELOPMENT

Because saving energy is becoming such a big part of our lives, I believe more people are going to get involved in lighting and help fill the workplace shortage because of the “green” movement. With more stringent energy codes, the elimination of incandescent lamps, and using more CFL and LED products, it will require a lot of creativity to create spectacular lighting designs with the available palette. The green movement will help the lighting profession and make us even more valuable to the design process.

PATRICK H. GRZYBEK | SENIOR ASSOCIATE | PERKINS+WILL

Increase professional recognition and appreciation. The talents, innovation, and information the lighting design professional brings to the architectural and design workplace needs to be better respected and appreciated as an integral team member in the overall design process of a building and its environment. Create more accredited programs for lighting design with an emphasis on professional design and aesthetic development. Become the indispensable product, aesthetic and energy conservation knowledge and creativity resource within the architectural and design community.

ANTHONY J. DENAMI | LIGHTING DESIGNER | NASH LIPSET BURCH

Without the mentoring process, young persons exploring the possibilities of their professional career, choose another path. Less and less people enter into the lighting design arena, so the gap continues to widen. To make strides toward increasing the field of lighting design professionals, candidates need to be encouraged to enter into this field. Perhaps seasoned lighting design professionals could visit students early while attending high school, or at colleges promoting this profession. Lighting designers should be among the top tier in compensation as well. Sometimes the lure of pure money, with expectations of a highly compensated career, might persuade someone to become a lighting designer. The rewards must out weigh the frustrations.

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