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What if we remove the power supply?

Introducing Lumencove Nano, a dimmable cove lighting system powered by lumendrive that, for the first time, dispenses with onboard power supplies – leading to greater efficiency, smaller size and a lifetime no longer restricted by third-party components.
In today’s 24/7 world of sound bites and information overload, clarity of communication has never been more important. And while the nature of design is often viewed as a primarily visual one, the written word is equally as important. Whether it is a business proposal, a news release, an email, or a design award entry, the ability to communicate an idea in writing is paramount in our day-to-day interactions, no matter how informal or formal they may be.

Designers often claim that they are not good writers. I don’t buy that excuse. Writing is a fundamental form of design communication, as necessary as one’s drawing and problem solving skills. And while it certainly hasn’t become any easier to carve out time to think and write given our fast-paced, deadline-driven schedules, the urgency to do so probably has never been more palpable.

One of the most helpful books on the subject is the late architect and editor at Architectural Record Stephen A. Kliment’s Writing for Design Professionals (W. W. Norton & Company). First published in 1998 with a second edition in 2006, it provides an overview of the many scenarios in which designers might find themselves having to prepare a written text. As Kliment notes in the introduction, “the fundamentals of good writing have changed little over the years.” But what has increased is “the verbal obfuscation meted out by designers, critics, academics, and writers as they seek to share their thoughts with colleagues, students, and the general public.”

It’s easy to fall into the habit of “architect-speak” — that circumventing form of language used to describe one’s work. We’ve all been its victims, hoping it will make us sound smarter when it actually confuses people and makes us seem pretentious. So that is why, now that the AL Light & Architecture Design Awards has completed its 11th year, I thought it would be helpful to offer some general observations about the preparations of design award entries.

The first piece of advice would be: Do not leave the preparation of a design award entry to the last minute. Yes, it’s an inherent part of a designer’s DNA to work right up until a deadline, but a lot is at stake with an award entry, not the very least of which is the entry fee involved. You’re doing this for the recognition from your design peers, so why rush the process?

The second piece of advice, no less important, is: Think like you are a jury member. After you have gathered all the required materials, step back and look at what you have assembled. Ask yourself the following questions. Have I provided all the information necessary to really explain the who, what, where, and why behind this project? Have I described the project brief, design challenges, and lighting solution? Do the selection and order of the images make sense, based on the underlying design concept — the progression of how you’d move through the space, for instance, or the progression from day to night? You might even ask someone in your office who is not familiar with the project to read the text and review the images. Better yet, have someone who is not a designer review your entry form.

And don’t be afraid to contact the awards program administrators if something doesn’t appear to make sense on an entry form. I, for one, benefit from feedback. There is always room for further clarification and improvement. In the case of the AL Light & Architecture Design Awards program, we have always actively sought to learn from entrants and the respective juries. This year is no different.

Finally, the third piece of advice is: Invest in professional photography. Yes, it is expensive. Yes, it is often difficult to produce. But, yes, it is also necessary, especially when it comes to lighting. Clarity of imagery can be the difference between winning an award and not.

Design work has many facets. At its core is the clarity of presentation through all of its components—both visual and written.

Elizabeth Donoff, Editor-in-Chief edonoff@hanleywood.com
RON NAUS, 1967–2014

text by Elizabeth Donoff

The lighting industry was recently shocked at the loss of Ron Naus, president of B-K Lighting and Teka Illumination. An active member of the lighting community, who was serving as the president of the IALD Education Trust, Naus died suddenly on May 31.

After graduating from Illinois State University, Naus entered the lighting industry and first worked for Big Beam Emergency Systems in Crystal Lake, Ill. That, in turn, led him to Silver State Lighting in Las Vegas where he represented several lines as a sales agent.

In 2001, Naus moved to Madera, Calif., to join B-K Lighting as its sales manager. There, his business acumen helped him to rise through the executive levels. He was named executive vice president in 2006 and president in 2012.

One of his many accomplishments included the development of B-K University, an in-house lighting education resource center held at the company’s headquarters that offers a full complement of classes about the design, manufacturing, and testing of luminaires.

But his commitment to lighting education did not stop with current practitioners. Naus was committed to the next generation, and he was in the process of establishing a self-sustaining endowment for the IALD Education Trust, a first for the organization. Going forward, it will be known as the Ron Naus Memorial Endowment.

Deeply passionate about lighting and the interaction between the various constituents in the industry, Naus recognized the important relationship between manufacturer and designer. In our March/April 2013 One-on-One interview, Naus recounted one of his first specification calls, to legendary lighting designer Lesley Wheel’s office. “It wasn’t about just showing her a product,” he said. “She wanted a manufacturer who would respond to her design and luminaire needs for the project.”

Naus cared deeply about his family and his extended family at B-K Lighting and the rest of the lighting community. He is survived by his wife and two sons, as well as his mother, sister, and brother. The company has established a benefit fund for his sons. For more, contact Dionna Smith at dionna.smith@bklighting.com.

ASID OFFICIALLY BECOMES FRIENDS WITH IES AND IALD

The American Society of Interior Designers formalizes its collaboration with the Illuminating Engineering Society and the International Association of Lighting Designers.

text by Wanda Lau

Though collaboration between the interior design and lighting design communities has occurred, the three professional organizations have many parallels and complements. Fiser says, and the ASID aims to highlight the impact of design and lighting on humans. “A lot of what we are doing can be redundant,” he says, but “we [can] bring value to members ... and do the best possible work.”

Two areas in particular that the organizations’ leaders hope will benefit are those of policy and member education. IES president Daniel Salinas says that the organizations will also “target issues that require the research and practice from members to assist those in positions of legislative authority.”

IALD CEO Marsha Turner says that the friendship agreement with the ASID, which has 28,000 members, will help bolster the voice of the IALD, whose membership recently surpassed 1,000. “It is an amplifier to the IALD voice.” She adds that the IALD and IES, which has more than 8,000 members, will continue working together—though the relationship remains informal for now.

During the question-and-answer portion of the press conference, an audience member asked whether the organization’s members will have reciprocity in accessing or purchasing the publications and guidelines of others. “We’re looking into areas for opportunities where it makes sense,” Fiser says.

Questions on the agreements may be sent to Robert Horner at rhorner@ies.org.
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Hear the stories.
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ERCO, the Light Factory.
A record-setting show, there was something for everyone in the lighting community at this year’s annual industry gathering.

text by Elizabeth Donoff

Lightfair celebrated its 25th anniversary this year. Going from June 1 to June 5 in Las Vegas, the show set multiple records, according to the event’s producers, AmericasMart (AMC). The show floor covered 239,800 net square feet, its largest area to date, and included 576 exhibitors, 107 of whom were exhibiting for the first time and 103 of whom have headquarters outside of the United States. Attendance also broke new ground with a reported 26,059 registered attendees from 74 countries.

The tempo and atmosphere of this year’s show is captured in a series of videos that our team at ARCHITECTURAL LIGHTING recorded and produced while we were attending the show. These films include an overview of the trade show as a whole (bit.ly/1qCrhIU) as well as the debut of a new series, “AL Talks with Industry Executives.” The first episodes in this series feature these individuals and companies:

• Steve Lydecker, senior vice president, applied integrated solutions, Acuity Brands Lighting (bit.ly/WK2Xre)
• Gary Trott, vice president, product strategy, Cree (bit.ly/1pf5dfO)
• Mark Eubanks, president, Eaton’s Cooper Lighting Business (bit.ly/WKzdN)
• Jaime Irick, general manager of North America Professional Solutions, GE Lighting (bit.ly/1zrz6q7)
• Bruno Biasiotta, president and CEO, Philips Lighting, Americas (bit.ly/Uqn2Bv)

For product overviews, turn to our coverage of the winners of the 2014 Lightfair Innovation Awards on page 26 and the ARCHITECTURAL LIGHTING editorial team’s product picks on page 34. Even more Lightfair coverage is available online at archlighting.com.

IN TRIBUTE TO

RON NAUS

President of B-K Lighting + TEKA Illumination 1967–2014

A trusted partner of architectural lighting, Ron’s long-time commitment to the lighting industry and creation of educational opportunities for the next generation of lighting designers, through his work as the IALD Education Trust President, will be missed.
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With the new Light Assignment Module device (LAM), every fixture attached to a Luxor ZD system can be wirelessly assigned to a group using ActivAssign™ technology.
Advances in LED color quality are presenting serious challenges to the Color Rendering Index (CRI) and Correlated Color Temperature (CCT). These two metrics, developed in an era of incandescent and fluorescent lamps, are still widely used by the lighting industry to communicate the color performance of all sources. Although their limitations have long been known, the rapid proliferation of LEDs has prompted the development of better metrics to predict their specific color rendering ability.

UNDERSTANDING CRI AND CCT
CRI is particularly unreliable and, say some lighting experts, even irrelevant when applied to LEDs. Although LEDs generally have lower CRIs than conventional sources, such as incandescents, some LEDs have been shown to reproduce color more vividly and attractively—a trait that is particularly desirable to retailers. Moreover, notes Rohit Patil, a color scientist at Xicato in San Jose, Calif., LEDs offer the unique opportunity to “create a custom spectrum of...
lights” for specific installations, which may prove more useful than an exalted CRI.

Established by the Commission Internationale de l’Eclairage (CIE) in the 1960s, CRI measures a light source’s ability to reveal the intrinsic colors of the objects it illuminates. Testing is done with eight color chips, numbered R1 to R8, and the results are compared to those of a reference source of the same CCT. Sources with a CCT below 5000K are compared against a blackbody radiator—a non-reflective object that, when heated, emits a spectrum of light solely determined by temperature. Sources with a CCT above 5000K are checked against daylight.

Differences in color rendition are evaluated on a scale of zero to 100, with 100 indicating a match (negative CRI numbers are rounded up to zero). A CRI of 80 or above is typically desired for indoor applications—not a difficult feat for incandescents, halogens, and metal halides, which typically have CRIs at or above 90. Many of today’s LEDs are competitive, a notable achievement for a source whose CRIs topped out at 60 or 70 a mere decade ago, says Paul Scheidt, product marketing manager at LED manufacturer Cree.

CCT, the other primary metric, focuses on the tint of white light exhibited by the source. Measured in degrees Kelvin, it relates the color of a white light source’s illumination to the surface temperature of a blackbody radiator. Warm sources have a yellow tint and lower CCT values. Cool sources have a bluish cast and higher CCT values. Candlelight, for example, is rated around 1850K, while daylight exceeds 5000K.

Although CRI and CCT conveniently reduce the complexity of color performance to a single value, “anytime we do that, we lose a lot of information,” Scheidt says. Sources with the same CRI or CCT value can vary widely in appearance and behavior. This is particularly problematic with solid-state lighting, where CRI has not been “very predictive” in the specification of “quality lighting,” says Mark Rea, director of the Lighting Research Center (LRC) in Troy, NY.

The mathematics of color

Both CRI and CCT are derived through rote mathematic simulation rather than through empirical measurement. CRI testing is calculated on a computing device using a source’s spectral power distribution (SPD), a diagram that depicts the radiant energy a source emits at different wavelengths of visible light—wavelengths of 380 to 780 nanometers—and the spectral reflectance of each color chip. CCT is also computed from the source’s SPD.

The math behind CRI and CCT stems from the CIE colorimetry system. Though not exclusive to lighting, it provides the foundation for all color calculations in the lighting industry today, regardless of source. The system is precise in that it measures color based on spectral characteristics rather than on appearance, which can be more subjective, contextual, and difficult to evaluate. One of the system’s earliest and most commonly used mathematical models is the CIE 1931 color space, which maps all visible color to an x, y graph based on chromaticity. Chromaticity

The Planckian, or blackbody, locus—shown by the curved lines within the filled areas—indicates the color that a blackbody radiator emits within each chromaticity diagram as it is heated up.

The CIE chromaticity diagrams map perceived color. Lightness, the third dimension of the color space, is not shown in these two-dimensional graphs. The CIE created the 1960 Uniform Chromaticity Scale (UCS) to reduce the limitations of the 1931 system; it has since been updated by the 1976 (u’, v’) UCS.
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refers to a color’s hue—its dominant wavelength—and saturation, and is expressed in the color space by a pair of coordinates derived from a source’s SPD.

Although the 1931 standard remains in use today, updates have improved its uniformity so that calculated differences between colors are more perceptually accurate. Both CRI and CCT use the CIE 1960 (u, v) color space, but it, too, is considered outdated and the mathematics lacking in rigor, says Michael Royer, a lighting engineer with the Pacific Northwest National Laboratory’s advanced lighting team.

**LIMITATIONS OF CRI**

Beyond numbers, one longstanding criticism of CRI has been the pastel appearance of the eight test colors, which “are not representative of the world,” says Julian Carey, senior director of marketing at LED phosphors manufacturer Intematix Corp. Seven additional color patches, named R9 to R15, have been introduced and include a saturated red, yellow, green, and blue, as well as two skin tones and a green representative for vegetation. However, these patches are not applied to the calculation of CRI and are only recommended for supplemental information.

Equally problematic, CRI is an average of the color shifts on the eight test colors. Consequently, an LED product with standout performance on some test colors and poor rendering on others still achieves a high rating. To better inform specifications, some LED manufacturers are publishing the individual values of R1 through R15.

CRI is often mistaken as an indicator of how pleasantly colors will be rendered. In fact, it functions as a fidelity index. Performance is rated with respect to a reference source—either a blackbody radiator or daylight—which is considered the gold standard. But this could be misleading too. “What if I can create a light source that does much better in rendering than the reference source?” Patil asks. It would likely be penalized, he says, even if “colors appear more colorful than under the reference source.”

Given the strides made in phosphor-converted white LEDs, which account for the majority of LEDs used in architectural lighting applications, it may be time for a new reference source. Whereas early LEDs relied on a yellow phosphor to absorb energy from a blue diode and produce white light (often with a bluish tinge), advancements in phosphor compositions now allow the manipulation of spectral content and therefore color rendition. Some companies have replaced the blue LED with one in the near-violet region to produce a fuller, more continuous spectrum and thus colors that are more vivid and whites that are more nuanced. A fuller spectrum, however, might come at the expense of energy efficiency, as more phosphor requires more energy to convert the blue LED into white light.

**CCT SHORTCOMINGS**

Solid-state lighting is also challenging the adequacy of CCT, but it’s not the first to do so. Like other sources, such as high-intensity discharge lamps, LEDs with the same CCT can differ vastly in chromaticity and, therefore, appearance. One may have a greenish cast, while another may seem slightly pink.

While conventional wisdom suggests that light sources that cleave close to the blackbody locus appear whiter, the LRC has found otherwise. In residential applications, most people prefer whiter light than the warm output of incandescents, says Rea, who co-wrote the 2013 paper “Class A Color Designation for Light Sources Used in General Illumination” in the *Journal of Light and Visual Environment*. When mapped in the color space, the chromaticity of perceived whiteness follows an irregular path that goes both above and below the blackbody locus.

CCT can be particularly effective in assessing phosphor-converted LEDs. Manufacturers sort LEDs into bins based on the CIE 1931 color space, Scheidt says. Bin size, which refers to the area of tolerance for chromaticity differences, is measured in units of SDCM (standard
Due to the new EISA legislation here in the U.S. and the Energy Directives abroad, the manufacture and importation of inefficient, incandescent lamps has been restricted. This applies to the Osram Linestra® or any other brand of linear incandescent architectural tubes using 2x14s sockets.

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deviation of color matching), or MacAdam ellipse steps. The latter takes its name from color scientist David MacAdam, who discovered that chromaticity shifts undetectable by the human eye fell within an ellipse on the 1931 color space.

The ANSI C78.377-2008 LED binning standard defines one bin size as a seven-step MacAdam ellipse. This, Patil says, is “huge” and may account for the criticism of early LEDs as having poor uniformity. “Manufacturers were making LED sources that fell into [one] bin, but looked really different.” When installed side by side, they can produce a rainbow effect. Improvements and innovations in manufacturing have enabled some companies to put LEDs in bins as small as one or two SDCMs. A difference of three SDCMs is noticeable by the majority of the population, Patil says. Although bin specification is typically the purview of luminaire manufacturers, designers should know the manufacturer’s tolerance for initial color consistency. A difference of three SDCMs, for example, may become even more pronounced as the number of luminaires increases. Responsible manufacturers publish this information, says Steve Landau, Xicato’s director of marketing communications; if they don’t, he says, “that’s a big red flag.”

NEW METRICS

Given CRI’s uneven history, several new metrics and classifications have been proposed that address the indexes’ limitations, particularly as solid-state lighting gains a larger market share.

The National Institute of Standards and Technology’s Color Quality Scale (CQS) offers improvements on multiple fronts. It is a fidelity metric that results in a single-number rating, but tests with a broader range of colors (15 instead of eight) that are higher in chroma and saturation than R1 to R15. Color preference is also considered, Patil says. “If a light source makes colors appear more colorful than does the reference source,” he says, “it will have a higher number.” To penalize color distortion, the CQS imposes an upper limit on saturation that, if exceeded, will lower a source’s rating.
CQS uses a color space that is more uniform and its calculations are more rigorous than those for CRI, Scheidt says. CQS also factors in extreme color temperature, which impairs a source's ability to render color, and takes a root-mean-square of the color shifts of all 15 test colors rather than an average. This ensures that poor performance on a few samples is given proper weight. CQS also rates sources on a scale of zero to 100, but negative scores are not possible, unlike in CRI.

Though CQS has not been adopted as a standard yet, it is receiving much interest. The system is being used by many in the industry, says Yoshi Ohno, NIST Fellow, Sensor Science Division, who helped develop the scale. It is also under consideration by CIE technical committee TC 1-91, which is tasked with recommending color quality metrics.

The LRC recently proposed a certification of white light called Class A color. Intended as a communication tool for non-lighting professionals, the Class A designation is given to a source only after it has fulfilled four requirements: it has a CRI that is 80 or higher; the chromaticity must fall along a line of preferred tint, established through research; the chromaticity must fall within areas of roughly four-step MacAdam ellipses; and its gamut area index (GAI) should be between 80 and 100.

GAI, which measures color saturation or vividness, is derived from a light source's SPD and the same eight test colors that determine CRI. Calculations are done on a uniform CIE color space to produce chromaticity coordinates that form a polygon. The enclosed area is the gamut area. A larger area generally means a higher index and more saturated colors. Unlike CRI, GAI is not a fidelity metric, and an index greater than 100 is possible.

For the specification community, the LRC’s Rea recommends GAI as a secondary metric to CRI. Research has shown it can influence light source preference. In tests, neodymium lamps, which have a lower CRI than incandescents but a higher GAI, tend to fare better in color rendering. For retail applications, LED products with a GAI of 130 or more can enhance merchandise’s appeal by making colors “really pop,” Intemax’s Carey says.

**ONGOING EFFORTS**

The IES Color Metrics Task Group plans to finalize work on new color metrics this fall, after which they will undergo several rounds of approval by the Color Committee, Technical Review Council, and the Board of Directors, the PNNL’s Royer says. The effort, which Royer is chairing, will incorporate aspects of CQS and have both a fidelity metric and a gamut area metric. Fifteen new test colors—different from R1 to R15—will cover a full range of hues and saturations, and the calculation methods and color spaces will be updated.

In addition to TC 1-91, the CIE has created a technical committee, TC 1-90, to develop a fidelity index to replace CRI. The CIE is also contemplating an update to its color-matching functions. Direct measurement of spectral cone sensitivities has revealed inaccuracies in the color matching functions (CMFs)—which determine a source’s chromaticity coordinates—especially in the blue region. This “has significant ramifications for the LED industry,” Xicato’s Patil says. With blue diodes as the starting point for phosphor-converted LEDs, rectifying CMF shortcomings may lead to more accurate assessments of LED color performance.

The accuracy of an index, no matter how great, should never replace an actual mock-up of a light source. The degree of color rendering and white light needed is specific to the particular application. However, metrics that keep pace with LED technology can help lighting designers to better bridge the gap between measured color and perceived color. •

**RESOURCES**

A list of introductory articles that discuss color perception and rendering as they relate to the lighting industry.


“Defining the Color Characteristics of White LEDs,” by Steven Keeping, April 23, 2013. Available at Digi-Key Corp.: bit.ly/1qArLlo.

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2014 LIGHTFAIR INNOVATION AWARDS

An independent panel of lighting professionals recognized 15 products, with four receiving top distinctions, for their innovative design and technical efficiency.

text by Hallie Busta

On June 3, the Lightfair Innovation Awards kicked off the 25th iteration of the annual trade show, held this year in Las Vegas. The program received 261 lighting-related product submissions in 14 categories, representing 135 manufacturers. The program is conducted by Lightfair, which is sponsored by the International Association of Lighting Designers and the Illuminating Engineering Society and is produced by AMC.

The entries and subsequent winners in this year’s program showcase the broad range of light sources used by designers, while recognizing the growth in and innovation of solid-state lighting required as the technology continues to gain market acceptance. Additionally, this year’s products illustrate the evolution of LED luminaires’ form factors and light output toward increased sophistication of design and efficacy.

• 2014 Lightfair Innovation Awards Jury
Deborah Frankhouser Four Point Lighting Design, Austin, Texas
Archit Jain Oculus Light Studio, Santa Monica, Calif.
Patrick Quigley Patrick B. Quigley & Associates, Torrance, Calif.
Matthew Tanteri Tanteri + Associates, Austin, Texas
Marissa Tucci Tucci Lighting Design, San Francisco

MOST INNOVATIVE PRODUCT OF THE YEAR
Open, Acuity Brands/Peerless • This suspended LED luminaire was also the winner in its category of Commercial Indoor—Linear Fluorescent, Troffers, Suspended, Surface, LED, and OLED. • Open is a direct/indirect and wallwash LED luminaire that uses constructive occlusion to reflect and diffuse light up and down an inner arch, allowing for a lens-free linear form. The jury recognized this fixture for its comfortable illumination achieved through the use of an internal indirect optic. Output ranges from 1,020 lumens at 12W to 6,200 lumens at 68W, per 4’ section, depending on the type of fixture and whether high, medium, or low output versions have been selected. Suspended, recessed, and surface-mounted options are available and come with transitional reveal, square reveal, or flat conceal end-caps. The luminaire can be specified with an integrated sensor and control for daylight dimming, occupancy detection, lumen management, and system networking. • peerlesslighting.com
With Mark Architectural Lighting Slot 2 and Slot 4 LED luminaires you can easily span the distance between design and function. This exciting new family of high performance linear lighting solutions, engineered with Mark’s precision lumen DIRECTIR optics, is the complete package. A designer’s instrument of change. It will change how you think about design. And it will change what you should expect from a lighting company. With unmatched flexibility, simple installation, seamless integrated controls, and superior color and quality, Slot LED is another example of the comprehensive Mark 360° Total System Integration. All components and technology are manufactured, warranted, and supported by Acuity Brands. See how you can create your path to the future of lighting at marklighting.com.
DESIGN EXCELLENCE AWARD
Moon, HessAmerica • This slim-profile LED bollard was also the winner in its category of Outdoor Luminaires—Sports, Step, Landscape, Pool, and Fountain. • Moon is a contemporary architectural bollard designed for pathway and general illumination whose sculptural form impressed the jury. “This luminaire is art,” juror Archit Jain said on behalf of the jury. “It is sculptural and beautiful.” The luminaire’s housing and the fixture’s bollard shaft are made of extruded aluminum. Its centerpiece feature, a circular ring with a beveled profile, is crafted from low-copper die-cast aluminum and has a white powdercoat. Three LEDs available on one or both sides of the ring’s interior edge offer two different light distributions at 3000K and 4000K each. Textured, graphite, and matte gray finishes are offered. • hessamerica.com

TECHNICAL INNOVATION AWARD
Cielux T80 LED Tracklight, DiCon Lighting • This museum-grade tracklight was also the winner in its category of Track, Display, Undercabinet, and Shelf. • Cited by the jury as compact and versatile, the Cielux T80 LED Tracklight offers continuous color tunability from 2800K to 4500K at a minimum CRI of 90. Fitted with the company’s proprietary LEDs, the 80W system offers 4,000 lumens at a standard 67-degree angle with 34- and 15-degree angles available with an optional lens. The fixture’s housing offers 330 degrees of rotation and has a black finish. Each unit weighs 2.4 lbs. • cielux.com

JUDGES CITATION AWARD
Traxon Debut, Osram • Despite being neither a winner nor a finalist in its category of Dynamic Color, Theatrical, Cove, Strips, and Tape, this combination of smart LED lighting and media received the jury’s accolades for its use of innovative technology for clothing retail applications. “We liked this daring application of technology in selling clothes,” juror Deborah Frankhouser said. The intelligent media system uses LED illumination to replicate lighting conditions measured from video taken of real-life settings, such as a bright office or a dimly lit restaurant. Integrated Traxon Cove Light AC HO RGBW fixtures offer dynamic color mixing. A touchscreen control panel allows users to alternate among scenarios, which are stored in the cloud and are subscription-based. • osram-americas.com
ONDARIA LED
Circular LED luminaire with a concave opal diffuser, available in three sizes. ONDARIA can be specified for suspended, surface mount, and recessed or semi-recessed applications.

Zumtobel. The Light.

zumtobel.us/ondaria
CATEGORY WINNERS

Joining the previously mentioned winners that were also awarded top distinctions, these 11 products were also named best-in-category.

CONVENTIONAL, RETROFIT, AND REPLACEMENT LED LAMPS

SlimStyle LED, Philips • The company’s third-generation A19 LED replacement lamp, SlimStyle emulates the look of an incandescent from the front but challenges traditional lamp form-factors with its slender side profile. The jury cited the lamp’s illumination quality and consumer-friendly price as reasons for its award. “We expect this lamp to go a long way to foster the adoption of LED in every home,” juror Eric Graettinger said. Available in 60W and 40W replacement versions (10.5W and 7W, respectively), the lamp comes in Daylight (5000K) and Soft White (2700K). Both are dimmable and have a lumen output of 800 and a CRI of 80. The lamp measures 4.2” tall by 2.6” wide and fits an E26 medium base. • philips.com

LED/OLED, CHIPS AND MODULES

Luxeon CoB with CrispWhite Technology, Philips Lumileds • This 90 CRI chip-on-board (CoB) LED offers warm saturated and crisp white light to showcase the rich but varied hues of retail merchandise. “[It] represents a new and impactful tool for retail,” juror Marissa Tucci said. For use in downlights, high- and low-bay fixtures, lamps, and spotlights, the LEDs offer lumen packages from 1,000 to more than 5,000 with efficiencies of more than 90 lumens per watt. To achieve the crisp-white effect, the LEDs feature a second blue peak in the color spectrum—from 410nm to 415nm—that activate fluorescent whitening agents in paints and fabrics. The LEDs are a part of the Luxeon CoB product family of thermally resistant, small light-emitting surfaces. • philipslumileds.com

BALLASTS, TRANSFORMERS, LED DRIVERS, SYSTEMS, AND KITS

Programmable Constant-Current Outdoor Dimmable LED Power Supplies, Osram • Osram is expanding its Optotronic line of programmable LED power supplies with a constant-current LED for outdoor applications. Offered with either 350mA to 800mA or 600mA to 1,250mA, the power supplies are IP66-rated with 6,000V surge protection and come in 50W, 100W, and 180W versions. One-click programming allows OEMs to match LED loads and optimize performance while reducing the number of power supplies stocked. Various loads and form factors available suit the product for uses in such applications as building-mounts, bollards, cobraheads, and decorative landscape lighting. • osram-americas.com

NON-LUMINOUS COMPONENTS, SPECIALTY HARDWARE, SHADES, AND SOLAR

MS-2002 Moldable White Reflector Silicone, Dow Corning • An alternative to glass and other plastic, Dow Corning’s MS-2002 Moldable White Reflector Silicone can be molded into complex shapes, micro-optical features, and multifunctional parts of various sizes. Additionally, it can be over-molded onto transparent silicones to improve the light output from LED mixing chambers. The material remains stable at temperatures exceeding 150°C, the point at which conventional materials tend to yellow and degrade, the company says. The material aims to let manufacturers deliver more intense light from smaller packages. “Its impact on future LED optical design is exciting,” juror Marissa Tucci said. • dowcorning.com

RESEARCH, PUBLICATIONS, SOFTWARE, AND MEASURING DEVICES

Recommended Practice for Daylighting Buildings, Illuminating Engineering Society (IES) • The IES’s recommended practice provides data and techniques to inform lighting designers, architects, and engineers on the opportunities and constraints for incorporating daylighting into a project. Among the topics addressed are daylight delivery methods, fenestration properties of glazing systems, shading techniques, control strategies, glare, control of electric lighting, and the coordination of factors that influence interior light levels from initial planning to occupancy. “It is a long-overdue update to a timely and critical document,” juror Patrick Quigley said. • ies.org
Congratulations to Available Light on their Commendable Achievement citation for lighting the U.S. National Library Rotunda for the Charters of Freedom, Washington, DC. Steven Rosen’s custom fixture designs using Prolume’s manufacturing capabilities, provided a creatively unique lighting solution for the project.

Prolume • 525 Fan Hill Road • Monroe CT 06468 • www.prolumeled.com
RECESSED DOWNLIGHTS (WALLWASHERS, DIRECTIONALS, MODULARS, MULTIPLES)

Aculux 3\(\frac{3}{4}\)" LED Precision Recessed Luminaires, Juno Lighting Group • Each 3\(\frac{3}{4}\)" LED luminaire offers blackbody dimming and tunable white technology to improve precision in high-end recessed applications, inciting juror Patrick Quigley to comment that the fixture “represents the future of downlights.” The “specification-grade” luminaire offers either 700 or 1,000 lumens with efficacies of up to 50 lumens per watt. Its blackbody dimming mode uses a zero-to-10V slide dimmer and provides dimming from 3000K down to 1800K to emulate halogen dimming. The tunable white mode also uses a zero-to-10V signal while letting users adjust from 4350K down to 2000K while remaining on the blackbody locus. • junolightinggroup.com

DYNAMIC COLOR, THEATRICAL, COVE, STRIPS, AND TAPE

Source Four Mini LED, Electronic Theatre Controls (ETC) • The jury called ETC’s Source Four Mini “a miniature LED version of a time-tested classic,” for its crisp optics and image projection in a housing one-third the size of the company’s original Source Four theatrical luminaire. The 12W fixture offers interchangeable lens tubes that allow for field angles of 19, 26, 36, and 50 degrees. Its 9”-long aluminum housing features a rugged die-cast aluminum construction in black, white, silver, and custom colors. For use in museum, retail, restaurant, lobby, and theater applications. Forward and reverse-phase dimming is available. Lumen output varies based on beam and field angles. • etcconnect.com

INDOOR DECORATIVE (CHANDELIERS, PENDANTS, SCONCES, AND TASKLIGHTS)

Interlace Suspension, LBL Lighting • A 29.5”-diameter aluminum ring is hand-machined to accommodate the thin stainless steel cables that give this decorative fixture its woven design. A 30W, 2,400-lumen LED module set in the ring’s interior offers 2700K, a CRI of 80 at 120V or 277V, and is dimmable. It weighs 8 lbs. and can be suspended at any angle from a trio of 12’-long, field-cuttable aircraft cables. The aluminum fixture has a satin nickel finish. • lbllighting.com

PARKING, ROADWAY, AND AREA LUMINAIRES

McGraw-Edison TopTier LED Parking Garage and Canopy Luminaire, Eaton’s Cooper Lighting Business • Incorporating the company’s WaveStream optics to obscure its LED light sources, this luminaire maximizes output using a patented coupling process. The result is a “low-profile, low-glare solution in a benign, simple aesthetic,” juror Archit Jain said. Concentrated, medium, and wide light distributions are offered in a standard 4000K correlated color temperature (CCT), with optional 3000K and 6000K CCT, all at a CRI of 70. Lumen packages deliver 3,000 to 9,000 lumens. The fixture’s die-cast aluminum housing has a spun, sloped aluminum top. It mounts to standard one-gang, two-gang, and 4”-round wet-location junction boxes. IP66 rated and UL and cUL wet-location listed. • cooperindustries.com

CONTROLS, BUILDING INTEGRATION, SITE AUTOMATION, AND DISTRIBUTION SYSTEMS

Energy Insight, Schneider Electric • A Web-based, automated alternative to spot checks and one-time verification, Schneider Electric’s Energy Insight energy management system can be used by branch circuit, space, and system controls to monitor lighting and plug loads. It combines circuit zoning, energy data analytics, and a customizable dashboard to evaluate the performance of lighting and plug-load energy conservation measures. Juror Deborah Frankhouser called the system “a likely solution for retrofitting existing tenant spaces at the time of turnover.” The system auto-populates a dashboard with current, power, energy, and voltage data on a per-circuit or per-zone basis. • schneider-electric.us

INDUSTRIAL, VANDAL, EMERGENCY, AND EXIT

Metalux SkyBar High Bay LED Series, Eaton’s Cooper Lighting Business • This high-bay luminaire offers uplifting and adjustable optical blades for use in warehouses, convention centers, atriums, big-box retailers, and other applications requiring a greater focus on aesthetics than are offered by conventional high-bay solutions. Field-adjustable two- and four-blade configurations in wide and narrow distributions are available and incorporate the company’s WaveStream LED light-distribution technology. Correlated color temperatures of 3500K, 4000K, and 5000K are available in five lumen packages of 10,000 to 29,000 lumens with an efficacy of up to 105 lumens per watt. Equipped with a zero-to-10V standard dimming driver. • cooperlighting.com/skybar
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EDITORS CHOICE: NEW AT LIGHTFAIR

The products and technology on display in Las Vegas this year showcased the full spectrum of innovation. From powerful lamps, to dynamic decorative elements, to new technology that expands fixtures’ functionality, we share our top product picks from the show.

text by Hallie Busta

Yttrium, Lumium Lighting • Three machined, luminous spokes on an adjustable ring rotate around an open interior while offering multidirectional illumination. But it’s not just about looks. Hidden in the Yttrium’s three-tiered form is a little bit of chemistry: according to the company, the third spoke, also known as the ion, allows light to be distributed evenly in all directions. Removing the spoke gives the luminaire a so-called “negative ionic charge” and results in asymmetric light distribution. The zero-to-10V dimmable LED fixture offers 2700K, 3000K, 3500K, 4000K, and 5000K with 180 degrees of rotation. • lumiumlighting.com

Color Temperature Adjusted 2.0 LED MR16, Ledzworld • Ledzworld’s Color Temperature Adjusted 2.0 LED MR16 lamp could represent the end of—or at least a major milestone in—the industry’s quest for a long-term, satisfactory LED replacement lamp for the MR16. Ledzworld’s product includes the company’s patented color-temperature-adjusting dimming technology and its Chameleon driver that adjusts to its environment and allows for the luminaire’s CRI of 98. Standard beam angles of 10, 25, 40, and 60 degrees are offered. The lamps are designed for use in applications including retail, museums, and art galleries as well as residential spaces. • ledzworld.com
**Divide Suspended LED, Eaton’s Cooper Lighting Business**

This replacement luminaire offers a modern but familiar form for clients considering a transition to LEDs. Part of the company’s Divide series, the fixture joins recessed, surface, and wall-mounted luminaires fitted with the company’s proprietary WaveStream LED technology, which improves control over light levels and optics. The luminaire offers color correlated temperatures of 3000K, 3500K, and 4000K with five lumen packages and standard zero-to-10V continuous dimming. • cooperindustries.com

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**ByteLight, ByteLight**

Call it invasive or inevitable, indoor positioning software is changing the retail experience. ByteLight’s eponymous technology smartly integrates the infrastructure of a longstanding building system—lighting—with a state-of-the-art informative and revenue-generating use. The indoor location-based software lets retailers directly engage with consumers at the point of purchase via wireless sensors in the light fixtures that push targeted information, such as coupons, to shoppers based on their identity, location in the store, and purchase history. GE Lighting has started to incorporate the software in some of its luminaires. • bytelight.com

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**INDUSTRIAL LED**

**50W LED PANEL**
**DIMMING STANDARD**
**100,000 HOUR LIFE**
**AVAILABLE UPLIGHT**

Lens cut away to reveal LED panel.

delraylighting.com
Vessel, Todd Bracher for 3M • Designer Todd Bracher worked with 3M to experiment with different materials and form factors that would distribute LED light effectively while maintaining a transparent aesthetic for its Vessel pendant and sconce. The result is a simple, elegant, and innovative package. The luminaire’s quartz-crystal cylinders wrap and diffuse 3500K and 2700K LED light. Optics with lengths of 2.4”, 6.6”, and 11.9” can be mixed and matched in installations. Black, bronze, gold, white, wine, and clear anodized finishes are offered. • solutions.3m.com

Exo Optic Technology, Spaulding Lighting • Spaulding is among a growing group of manufacturers that are adjusting the spectrum of their luminaires’ light output to respond to research findings that link light’s impact to the ecological environment and human health. The company’s Exo Optic Technology shifts the short—or blue—wavelengths of a luminaires’ LEDs to longer, less-intense lengths. The patent-pending optic offers high efficacy and color quality. At Lightfair, the company showcased the new technology on its Cimarron LED CL1S luminaire (shown). The system is offered in dynamic and static versions, the latter functioning as a high-pressure sodium and low-pressure sodium replacement with spectral and photometric outputs. • www.spauldinglighting.com

Lumenfacade Inground, Lumenpulse • Incorporating baffles as a shielding device for an integrated fixture, Lumenpulse designed its Lumenfacade Inground luminaire for wallwashing, grazing, and linear wayfinding. The luminaire offers 2700K, 3000K, 3500K, 4000K, and RGB light. Plug-and-play construction helps protect the system from damage due to water infiltration. Available in lengths of 1”, 2”, 3”, 4”, and 6”. • lumenpulse.com

Lumenpulse new BY2E LED High Bay uses a new patented powercell™ technology resulting in less weight which enhancing the heat dissipative. The unique modular designed light source isolated from the driver ensures a long life of the LED’s and the luminaries. Available in 90W and 130W, low UGR, uniform light distribution and IP65 next to the low weight and excellent heat dissipation system.

The Apollo LED luminaries are the star products of the Kingsun street light family. The Apollo family embraces innovative features and values that are akin to the European and American customer’s requirements. These include a solid and slim design, a flexible current driver range, thermal and optical integrated in one module and many choices of light distribution to cater for any road layout. Next to that tool free installation and easy maintenance the Apollo LED street light is a total solution to a variety of applications, having a range of installation interfaces and various control methods.

Kingsun new BY2E LED High Bay uses a new patented powercell™ technology resulting in less weight which enhancing the heat dissipative. The unique modular designed light source isolated from the driver ensures a long life of the LED’s and the luminaries. Available in 90W and 130W, low UGR, uniform light distribution and IP65 next to the low weight and excellent heat dissipation system.

Jupiter street light luminaries are compact and elegant with a range of 30W, 40W and 60W LED light engines, ideal for smaller roads like countryside, park and residential areas. The Jupiter LED family gives instant light and have a long lifespan, high efficiency and economic in cost.

Kingsun Inc.
V is for vivid

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Sophisticated. Reliable. Brilliant. The new Avanza has efficient high-powered LEDs combined with innovative free form reflectors producing superior performance. The Selux Cross Beam Technology (CBT) creates harmonious brightness transitions for optimal visibility and a unique appearance. Avanza is available in two sizes and provides light which expands industry standards making it a convincing overall package.

selux.us
text by Elizabeth Donoff

The winning work in the 2014 class of the AL Light & Architecture Design Awards is yet another incredible group of projects in the portfolio that has become this program’s archive. This year’s judging was equally as rigorous as past years, if not more so; out of more than 100 entries, only 10 projects were selected.

The work you see on the pages before you, and online at archlighting.com, reconfirms light’s critical role as more than just a singular design element. Light is the continuous design thread that weaves its way through the spaces in which we live, work, study, and play. Never has light been more important in making the difference to the success of our natural and built environments and the way in which we interact with them.

This year’s projects are not limited by aesthetics, technical investigation, or boundary of scale. They set a benchmark for excellence in architectural lighting design and serve as a guide for others working with light. •
BIG (BJARKE INGELS GROUP)

Bjarke Ingels Group (BIG), was commissioned to design a new gymnasium for Ingels’s alma mater, Gammel Hellerup High School, in Hellerup, Denmark. In order to preserve natural light for the buildings surrounding the school’s central open courtyard, BIG chose to excavate it and place the new gym below grade. And with the gym’s curved roof (Ingels used the formula for a ballistic arc as inspiration), the underground sports hall feels much more spacious while supporting programming above.

The gymnasium ceiling achieves its curvature with deep glulam timber beams that allow its roof to expand upward into the school’s rectangular courtyard. The roof forms an artificial mini-hill clad in untreated oak decking that serves as an outdoor gathering place. Beneath the roof, BIG deployed a staccato arrangement of linear fluorescent luminaires between the glulam beams as the primary light source for the space. The roof’s edge becomes bench seating along the courtyard perimeter above. Strategically placed gaps in the decking at the courtyard level allow indirect daylight to filter through skylights that form a clerestory at the upper edge of the multipurpose hall below.

The hall’s clerestory lighting reduces energy consumption by creating a halo of natural light around the electrically lit ceiling, and washes the concrete retaining walls of the
5,200-square-foot underground space with a soft glow. The lighting system features daylighting controls, and is partially powered by photovoltaic panels.

In the courtyard above, BIG integrated white LED fixtures into the undersides of white steel furniture to illuminate the sloping roof at night. A circular bench, with the same integrated fixtures, winds down the sloping roof, casting a circular glow under it.

The new gym and its rooftop, affectionately dubbed “the molehill,” have become successful, luminous social hubs. And BIG has earned extra credit in the form of second commission from the school.

Jury Comments
- The perfect integration of light and architecture.
- A clear, legible, and consistent design.
- The space is terrific; you don’t see the fixtures, only the light.
- The color temperature difference that indicates daylight is brilliant.
SANDRIDGE COMMONS, SANDRIDGE ENERGY HEADQUARTERS, LANDSCAPE AND TOWER LIGHTING

RENFRO DESIGN GROUP

text by Elizabeth Donoff
As part of Oklahoma City’s revitalization efforts, SandRidge Energy—a growing, independent natural gas and oil company—relocated its suburban headquarters downtown. The company’s corporate master plan encompasses several city blocks and a number of different buildings, one of which is a 30-story modernist office tower in the Brutalist architectural style, designed in 1971 by architect Pietro Belluschi. A new 4,600-square-foot canopy structure serves as the unifying element for the new campus, providing a sense of cohesiveness and a sense of place to the city’s downtown urban fabric. Lighting consultant Renfro Design Group was asked to create a lighting scheme that would bring all of these elements together.

To light the façades of the Belluschi-designed office tower, Renfro’s team positioned yoke-mounted 4000K LED exterior floodlights atop a nearby parking garage. With the aid of aiming studies and mock-ups, two fixture positions were established and three beam-spread distributions—8 degrees, 13 degrees, and 23 degrees—throw the light accordingly. This creates an even distribution for the full 393 feet of the building, and also highlights the three different window shapes of the building’s upper, middle, and lower sections. The shadowing pattern, which is a result of the windows’ deep and angular recesses, serves as the design cue for the canopy’s triangular pattern.

Besides serving as a new focal point, the 34-foot-tall canopy also provides shade relief for the outdoor plaza during the extreme heat of Oklahoma City’s summer months by using two layers of various density perforated metal. At night, the canopy structure is illuminated by 3000K integrated linear LED strips. Yoke-mounted halogen PAR38 downlights illuminate the plaza area below. Additional theatrical lighting is also in place when needed for events.

Along the sloping paths leading from sidewalk level to plaza level, 7-foot-long, 18-inch-tall custom linear 3000K LED fixtures line the planting borders and illuminate the 9-foot-wide paths. Within the planting beds, vertical lighting elements—a combination of MR16 and PAR30 narrow beam ceramic metal halide uplights—are set into pierced Cor-Ten steel pipes to light the trees and other large-scale foliage.

Existing buildings, new architecture, and lighting have joined forces to provide a civic identity for SandRidge Energy and Oklahoma City’s revitalized downtown core.

Details
Project: SandRidge Commons, SandRidge Energy Headquarters, Landscape and Tower Lighting, Oklahoma City, Okla.
Entrant: Renfro Design Group
Owner/Client: SandRidge Energy, Oklahoma City, Okla.
Architect: Rogers Partners (formerly Rogers Marvel Architects), New York
Lighting Designer: Renfro Design Group, New York
Team Members: Richard Renfro, Eileen Pierce, Lisa Wong, Fabio Tuchiya, Azusa Yabe
Photographer: Timothy Hursley
Project Size: 181,104 square feet
Project Cost: Withheld
Lighting Costs: Withheld
Watts per Square Foot: 0.19
Code Compliance: ASHRAE 2007
Manufacturers: Acuity Brands/Winona Lighting, B-K Lighting, Philips Color Kinetics, Selux

Jury Comments
• Masterful job of floodlighting; it highlights the Brutalist style of the building’s architecture.
• The patterning of light on the façade is skillfully translated to the canopy.
**MINDSEYE LIGHTING**

In keeping with the minimalist aesthetic of their teammate Pawson, Mindseye developed a scheme that uses illumination to help define the architectural volumes and bring out the subtle textures found in the material palette of wood, stone, and plaster. A visitor notices the quality of light, not the fixtures themselves. Furthermore, Mindseye employed a dynamic white-light scheme that enables most of the luminaires in the church to change from warm (2700K) to neutral (4000K) white light. It also serves as the design mechanism by which natural light and electric light are coordinated; warm-white color temperatures are prevalent during evening Mass and neutral-white is used during the day.
The main nave spans 29.5 feet wide by 108 feet long. Clerestory windows let in natural light, while a series of side arches and cove-lit domes lead the visitor’s eye to the altar and the far wall beyond it, which features a Baroque figure of Christ. The sculpture is backlit, as well as highlighted from the front by two 150W metal halide spotlights. The altar is illuminated by 10 projector luminaires placed behind the dome lip. The use of white light provides an elegant, subtle illumination throughout the church, one that creates an experiential understanding of light as it corresponds to the different services and ceremonies that take place both each day and seasonally.

Jury Comments
• Stunning.
• Shows absolute clarity of design intent.
• Perfect.
DENMARK’S MARITIME HISTORY is long enough that its Kronborg Castle in Helsingør—originally built in the 1420s as a fortified toll collection point between the Baltic and North Seas—earned a role in Shakespeare’s *Hamlet* as the play’s setting, Elsinore. And the history of the UNESCO World Heritage site itself could not be ignored when plans emerged that would place a new museum celebrating the country’s nautical traditions in a dry dock that is located less than 1,000 feet from the castle.

In response to an invited competition, Danish architecture firm Bjarke Ingels Group (BIG) proposed building a subterranean museum that used the existing dry dock footprint for its interior walls. Shaped like a rectangular doughnut in plan, the museum would preserve the dry dock as its open-space centerpiece with the added benefit of allowing natural light into the interiors. With this proposal, BIG won the competition. The museum was completed in October 2013.

The exterior electric lighting scheme calls out the architectural elements, by using white LEDs to signify land and blue LEDs to signify water. At night, white LEDs line the pedestrian bridges to the museum and serve as a visual indication of the castle beyond. These bridges serve a dual purpose, first as the rooftops of the double-height, glass-enclosed linkages that connect the
galleries across the dry dock—one of which houses a sloping auditorium—and second as bracing for the walls that were once supported by water within the dock.

Blue LEDs mark the dry dock’s once-exiting waterline, and floodlights fill the ship-shaped cavity with cool tones of blue and white. Complying with local regulations, light from within does not spill more than 30 feet, in deference to Kronborg Castle.

The exhibit lighting uses 55W LED fixtures. Projected images animate blank walls, and a buoy with internal sources casts coordinates on the floor. From exterior to interior, visitors and displays alike are washed in a cool glow.

**Jury Comments**

- The lighting respects the view of the castle.
- There’s a wonderful contrast between the color temperatures of the daylighting and electric lighting.
COMMENDABLE ACHIEVEMENT—EXTERIOR LIGHTING

HORTON LEES BROGDEN LIGHTING DESIGN

As part of a redevelopment plan for Los Angeles International Airport (LAX), the Culver City, Calif., office of Horton Lees Brogden Lighting Design (HLB) teamed with L.A.-based AECOM to enliven LAX’s Central Terminal Area. The area of focus for the first phase of this curbside enhancement project was the roadway and sidewalk areas in front of the Tom Bradley International Terminal. Recognizing the need to illuminate an upper and lower roadway system as well as the entrance into the terminal—all under an aggressive timeline—HLB and AECOM strategized to produce maximum effect with minimal materials.

The most eye-catching improvement that the team implemented is a series of sculptural light poles at the edge of the upper level that evokes the spirit of flying, befitting the theme of the building. The light poles—high-gloss, white-finished, Y-shaped elements with embedded LEDs, uplit with LED spotlights—also cut energy use by two-thirds and fulfill the roadway lighting requirements with uniform 3500K white light across both levels. Because of the tight timeline, the team chose an existing roadway-approved optic component for use in the arms of the light poles, which, rotated 180 degrees from its typical deployment, allows for an average of 2.5 footcandles on the roads, and 8 footcandles on the sidewalks.

Along the roadway and terminal canopy edges, HLB and AECOM deployed a polychromatic light ribbon that links to LAX’s gateway pylon controls and cycles through synchronized color transitions. At the terminal entrance and passenger drop-off area, added reflective coatings within the LED canopy luminaires help bounce the light to create a soft luminous environment.

While only the first phase has been completed, the remaining planned stages will subsequently extend the light ribbon around the remaining terminals, further unifying the lighting and creating a cohesive experience.

Details

Project: LAX Central Terminal Area (CTA) Curbside Enhancement, Los Angeles • Entrant: Horton Lees Brogden Lighting Design • Owner/Client: Los Angeles World Airports (LAWA) • Architect: AECOM, Los Angeles • Lighting Designer: Horton Lees Brogden Lighting Design, Culver City, Calif. • Team Members: Teal Brogden, Tina Aghassian, Clifton Manahan, Jae Yong Suk, Alexis Sclemer • Photographer: AECOM • Project Size: 15,350 square feet (roadway and light ribbon); 28,750 square feet (canopy) • Project Cost: Withheld • Lighting Costs: Withheld • Watts per Square Foot: 4.11 (light ribbon); 0.409 (other areas) • Code Compliance: California Title 24 • Manufacturers: Acuity Brands/Winona Lighting, Bega-US, Eaton’s Cooper Lighting Business, ETC, Lutron, Penwal Industries (light poles), Philips Color Kinetics

Jury Comments

• A clever, custom application of a commercially available product.
• This answers the question of how light can give focus to a project.
Flashing lights on gaming machines typically characterize the otherwise dimly lit interiors of casinos, but not so with this 66,000-square-foot addition at the Empire City Casino at Yonkers Raceway in Yonkers, N.Y. Instead, Studio V Architecture, working with Tillotson Design Associates (TDA), aimed to rethink and reinvent the casino typology—or at least the typology’s approach to lighting.

Daylight streams into the casino entry through a 45-foot-tall low-E glass façade that curves in a gentle 300-foot arc along its entrance road, providing a backdrop to the casino’s porte-cochere canopy. And it’s this 200-foot-long arched canopy, which takes its organic form from the hilltop surrounds—comprised of structural steel that supports ETFE pillows with embedded RGB LEDs on synchronized controls—that plays the part of the “Learning from Las Vegas” roadside signifier.

The 24-hour nature of gaming also meant that the lighting designers needed to develop a lighting scheme that required little to no maintenance. It also meant finding a way to illuminate the dramatic canopy so that the LED sources wouldn’t interfere with driver’s sight lines at night. The complex curvature of the system translated to individually customized profiles for each row of ETFE-illuminating stem-mounted LEDs, which sit 12 inches above the frame. At intersections in the steel canopy structure, dimmable white LED downlights are positioned to illuminate the driveway. Pole-mounted metal halide floodlights extend from the roof over the top edge of the glass façade, washing it with even white light that contrasts with the coloring of the lit ETFE membranes of the canopy. An interior LED cove highlights the façade curvature from within the casino.

The result of these lighting strategies is a structure that beckons to potential gaming enthusiasts not with a busy array of lights, but with an undulating glow from which even Las Vegas could learn.

**Jury Comments**
- There’s an incredible subtlety of transition.
- The canopy has the resplendence of a moth wing.
2014 DESIGN AWARDS

COMMENDABLE ACHIEVEMENT — INTERIOR LIGHTING

SCHINDLER ELEVATOR CORPORATION—U.S. HEADQUARTERS
IKON.5 ARCHITECTS

text by Deane Madsen
For the renovations to its Morristown, N.J., headquarters building, Schindler Elevator Corp. expressed to Ikon.5 Architects that it wanted to highlight its minimal aesthetic and precision engineering. Ikon.5 grabbed this mandate and took the Switzerland-based company’s existing 1970s office structure and gave it a full stylistic makeover and efficiency update, from new, insulated glazing to interior surface treatments and a 21,000-square-foot solar-power array.

Schindler instructed Ikon.5 that it wanted to convey the importance of its engineering heritage and mission statement of safely moving people throughout the world (via their elevators and escalators), while also rethinking its approach to sustainability by having the architects make improvements to the building’s energy consumption. Ikon.5 responded to this challenge with a new envelope for the building that reduces mechanical loads and new lighting solutions that minimize energy use without any loss of natural workplace illumination. An information kiosk in the lobby—lit with ceiling-mounted, custom LED light panels—displays real-time statistics about the building’s energy use, such as an estimated 6.7 percent reduction in electricity consumption and 39.2 percent reduction in consumption of natural gas, all of this thanks to both the low-E windows and the rooftop photovoltaic grid.

Red and white, the colors of the Swiss flag, are repeated throughout the building as solid, unadorned planes interrupted at regular intervals by recessed 28W T5 fluorescent luminaires that create an accent element when walking through the building. And drawing inspiration from contemporary static art installations that give the illusion of motion, designers from Ikon.5 created “mise-en-scène” settings that focus on abstracted single-point perspectives, with long corridors laid out like horizontal versions of the elevator shafts that house Schindler’s vertical transportation and mobility products.

Glass walls allow daylighting to penetrate deep into the building, while minimal detailing and trimless LED fixtures establish a language that speaks in frames of light. Following the same language and rhythm as the recessed fixtures, Ikon.5 deployed linear 28W T5 pendants in the open office areas to provide additional tasklighting, creating a workplace environment that emphasizes Schindler’s chief export: movement through space.

**Details**

- **Project:** Schindler Elevator Corp.—U.S. Headquarters, Morristown, N.J.  
- **Entrant:** Ikon.5 Architects  
- **Owner/Client:** Schindler Elevator Corp.  
- **Architect/Lighting Designer:** Ikon.5 Architects, Princeton, N.J.  
- **Team Members:** Joseph G. Tattoni, Ben Petrick, Michael Zereva, Renuska Papalexiou  
- **Photographer:** James D’Addio  
- **Project Size:** 161,000 square feet  
- **Project Cost:** Withheld  
- **Lighting Cost:** $1 million  
- **Watts per Square Foot:** 0.90  
- **Code Compliance:** ASHRAE 90.1-2004  
- **Manufacturers:** Gammalux, Philips Ledalite, Rosco, Traxon

**Jury Comments**

- Beautiful attention to detail.
- These lines of light re-create the appearance of looking down an elevator shaft.
**Jury Comments**

• An impressive technical feat given the scale of the space.
• Lovely quality of light.

**Details**


*Project Size:* 11,000 square feet • *Project Cost:* Withheld • *Lighting Costs:* $135,000 (hardware) • *Watts per Square Foot:* 0.19 • *Code Compliance:* Exhibition lighting was exempt • *Manufacturers:* Lumenpulse, Lutron, Prolume

**Rotunda for the Charters of Freedom**

The Declaration of Independence, Constitution, and Bill of Rights are three of the most important documents in U.S. history. Collectively known as the Charters of Freedom, they are housed in the Rotunda of the National Archives Museum in Washington, D.C. Lighting design firm Available Light was tasked with relighting the space to meet four specific requirements: to make sure there were no measurable UV emissions, to improve color rendering, to provide multi-zone dimming controls, and to develop a lighting system that would require little maintenance.

The space, in reality a half rotunda, was lit by a series of fiber optic spotlights powered by metal halide illuminators located along the upper cornice line ledge. Over time, though, the illuminators failed, and the fiber was discoloring and its intensity was diminishing.

How, then, do you light this architecturally complex space while maintaining public access during the renovation process? Rely on drawings and mock-ups. So the lighting team developed their design using scanned, unscaled drawings dating from the 1930s and the 1980s, along with trial and error through the mock-up process.

To provide a soft, even layer of indirect light across the ceiling dome, arches, and vaults, the lighting team developed a series of custom LED fixtures. Three-tiered, 2850K linear LED luminaires with a CRI of 93-plus light the main rotunda, and a single-tiered version, a linear LED strip, lights the archways and vaulted ceilings.

The lighting designers worked closely with their manufacturing partners to develop low-profile luminaires that would meet the desired spectral quality and beam control along with improved energy efficiency. (The new lighting system uses only 1,800W, rather than the previous system’s 11,000W.) The result is a lighting design that artfully celebrates the architectural envelope and the treasures of national import within.
When Stuttgart, Germany–based insurance firm WGV decided to create a company gathering spot—with access to a self-service cafeteria and a space for special events—at its headquarters, the situation provided a couple of unique challenges for lighting consultants Pfarré Lighting Design. The first problem was the site itself, three terrace levels adjacent to a protected historic building known as the Old Guardhouse. Second was a three-tiered ceiling (heights ranging from 12 feet to 13.5 feet) with skylights running in between each step in the elevation and the length of the entire 3,767-square-foot open-seating area.

The lighting designers worked closely with the architects and acousticians to provide a sensitive lighting response, one in which light quality would be the discernible element instead of the fixtures. To accomplish this, they developed a custom 10W 3000K LED-baffle ceiling system that provides a smooth, indirect, ambient lighting solution, despite the difference in ceiling heights across the room. In between the baffles, LED spotlights in square housings provide direct lighting on the tables.

Along the fascia of the center ceiling slab, panels of artwork in shades of red, magenta, and purple wash reflected color into the space. Another series of artwork in shades of blue, magenta, and purple line the lower ceiling slab fascia and add another set of hues to the mix.

Next to the cafeteria and open seating area is the Old Guardhouse. A series of garden terraces and ramped walkways connect old and new, and inground uplights illuminate the trees. The Old Guardhouse serves as a special events meeting space. Here, unlike the main seating area where luminaires are not to be seen, the octahedral form of the custom-designed dimmable fluorescent pendant luminaires in three different sizes is celebrated.

Seemingly simple, but certainly not, this skillful lighting design creates three distinctive, but connected, spaces and celebrates the very essence of light itself.
The Memorial to the Victims of Violence in Mexico City plays the dual role of a memorial and a public space. Located in the Chapultepec Forest, the most important green space in the city, it was built to bring awareness to the violence that has occurred in Mexico as a result of political and social turmoil. The project is filled with nuanced meaning, from the space itself—15,000 square meters of reclaimed forest—to the use of a white-light color palette to distinguish between man-made and natural elements.

The memorial is a series of steel walls of different heights and widths, as well as different textures (rusted and reflective), all of which combine to create a landscape that contrasts with the natural surrounds. The spatial voids in between the constructed elements and the trees are meant to recall those that have been lost. Light helps visitors navigate, and overlaying the project grid is a subtle gradation of color temperature—from warm to cool (2500K at ground level, 3000K at eye level, and 4500K and 5000K at the tree canopy)—that leads the visitor’s eye from the ground plane to the sky.

Recessed linear LED fixtures are positioned along the hardscaped walkways in a staggered pattern and create a visual guide made of light. At the center of the memorial, the ground plane changes from grass and earth to a series of

MEMORIAL TO THE VICTIMS OF VIOLENCE

text by Elizabeth Donoff
reflecting pools. The edges of the steel walls throughout are illuminated by 30W, 3000K inground uplights. To emulate the warm-white color temperature of the light fixtures that highlight the ends of each wall, text on the horizontally oriented steel walls is applied with gold-colored paint. Light poles throughout the site backlight the tree canopies.

In this space, set aside to provide a place for contemplation and reflection for the victims’ families and the community, the solemnity of the spot remains, day and night. Light—natural and electric—provides much more than practical illumination, it provides an unspoken language of healing.

**Details**

*Project:* Memorial to the Victims of Violence, Mexico City • *Entrant:* Lighteam • *Owner/Client:* Provictima, Mexico City • *Architect:* Gaeta Springall Arquitectos, Mexico City • *Lighting Designer:* Lighteam, Mexico City • *Team Members:* Gustavo Aviles, Anna Sbokuo, Juan Carlos Martinez • *Photographer:* Sandra Pereznieto • *Project Size:* 15,000 square meters (161,458 square feet) • *Project Cost:* $2,371,766 • *Lighting Costs:* $20,000 • *Watts per Square Foot:* 1.12 • *Code Compliance:* No energy code required in the project locale. • *Manufacturers:* Network, Ventor

**Jury Comments**

- A powerful use of light to convey the message of the memorial.
- A subtle play of white light and use of color temperature to delineate the different areas.
Each year, during the jury review, there are certain projects that garner a lot of discussion, but for a variety of reasons they do not go on to receive an award. This year, two projects played the roles of design-issue instigators: the Lowline (a daylighting scheme for a proposed park in a reclaimed space under the streets of Manhattan’s Lower East Side) and the New York City Streetlight (a completely redesigned luminaire and light pole for all five boroughs). This work defied categorization, thus the jury’s difficulty in selecting either for an award.

These two projects, one unbuilt (the Lowline) and one just beginning to see its implementation (the New York City Streetlight), are very specific to their city. And yet, the two projects are also universal in terms of what they represent: the critical role that design research plays, whether that research is spurred by a competition (as in the case of the New York City Streetlight) or it comes from individual investigations that lead to new funding paradigms intended to realize a proof of concept (as in the case of the Lowline). Without exploration, design risks remaining stagnant. While not winners in this program, these two projects dare to imagine something different. For that reason, their contribution to larger design discussions that encompass urbanism, architecture, and lighting deserves mention.
JURY MEMBERS

Jason Abbey, AIA, LEED AP, GRP
Senior Associate, FXFowle Architects, Washington, D.C.

Abbey directs design and planning efforts for the firm’s D.C. office. His recent work includes the renovation and expansion of the Jacob K. Javits Convention Center of New York, The New York Times Building, the commercial high-rise Eleven Times Square, the redevelopment of Lincoln Center’s North Plaza Landscape, and a green roof installation at 250 Hudson Street, all of which are in New York City. Abbey previously served on the board of directors for the Blue Water Group, a sustainable development company in the Atlanta area.

Kimberly Mercier, PE, P.Eng., LEED AP, IES
Principal, Lighting Design Innovations, Batavia, N.Y.

Mercier is a lighting designer and professional engineer in the United States and Canada. She has managed electrical departments for consulting engineering firms in Calgary, Alberta; Buffalo, N.Y.; and Rochester, N.Y. She has served as the president of the Illuminating Engineering Society (2007–2008) and as an adjunct instructor for lighting in the M.Arch. program at the University of Calgary. She currently serves as vice chair of the Interior Design Department Advisory Board at Buffalo State, State University of New York.

Claude R. Engle, III, PE, IALD, IES
Founder and Principal, Claude R. Engle, Lighting Consultant, Chevy Chase, Md.

Engle’s five-decade career includes a portfolio of international landmark projects. A graduate of Princeton University’s Engineering School, he worked in New York City in theatrical and television lighting, first at Century Lighting and then in the United States Army Signal Corps at the Army Pictorial Center. In 1968, Engle established his firm. He is a founding member of the International Association of Lighting Designers and past chairman of the Capital Section of the Illuminating Engineering Society.

Christopher Cheap, IES
Founder and Principal, Dot Dash, New York

Formerly a principal with Tillotson Design Associates, Cheap founded Dot Dash this January. His design approach includes analysis of the project’s architecture, materials, and programmatic requirements. His portfolio includes the Dee and Charles Wyly Theatre in Dallas; Milstein Hall at Cornell University in Ithaca, N.Y.; and the Red Bull Music Academy in New York City. His work has been recognized with an IALD Award of Excellence, an IES Lumen Citation, a GE Award of Excellence, and an AL Light & Architecture Outstanding Achievement Award.
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Mark your calendar now for a special evening as ARCHITECTURAL LIGHTING (AL) celebrates the winning projects of the 11th Annual AL Light & Architecture Design Awards.

Join the 2014 winning designers as we recognize and honor excellence in architectural lighting design.

Stay tuned for further details!

**Wednesday, October 29, 2014**
The Glass Houses at the Chelsea Art Center
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New feature for the evening: The inaugural launch of ARCHITECTURAL LIGHTING’s “In Conversation with...” Series.
Editor-in-Chief Elizabeth Donoff talks with renowned lighting consultant Claude R. Engle, III about his work and collaboration with an international line-up of leading architects on many of the most significant architectural projects of the past four decades.
An honors graduate of the interior design program at Virginia Commonwealth University (VCU) in Richmond, Va., Jean Sundin started her professional career working for several of the most prestigious lighting design practices—the Mintz Lighting Group, Claude R. Engle Lighting Consultant, and George Sexton Associates. In the late 1990s, she and her husband/business partner/fellow lighting designer Enrique Peiniger moved to New York City and started their own firm—Office for Visual Interaction (OVI). Over time, they have established an international portfolio of work characterized by attention to detail and in-depth design research.

Do you view lighting and architecture as distinct disciplines?
They are distinct but parallel. Both disciplines are required as part of a whole to complete the work. Lighting is the magic of architecture. It’s visible and invisible at the same time.

Was there a person that made an impression on you when you started in lighting?
Two people come to mind. First is Han Schröder. She was a professor of mine at VCU. She grew up in Utrecht, the Netherlands, in the house that her mother had commissioned from architect Gerrit Rietveld in 1924—the Schröder House. She was a demanding professor and proof that design wasn’t just a fantasy. The second person is Danielle Engle, Claude R. Engle III’s late wife. She was also proof that there was a woman in the industry doing significant work.

What fascinates you about light?
Its potential. How light can transform a space.

Is there a text that has influenced your design thinking?
The writing of graphic designer Otl Aicher. He was a great communicator of information.

Does there need to be more critical dialogue in architectural lighting design?
Absolutely. I think lighting can support a distinct body of theory and criticism, building, for example, on the work of Richard Kelly.

How has the practice of lighting design changed since you first started working?
Aside from the technology, the immediacy of communication. The problem is, the nature of design is not an instant process.

Is there a design philosophy at OVI?
We think of it like film music; it has a really important supporting role to architecture, which can make a project fabulous. And you notice it when it’s not there or badly done. It’s about quality of work.

“Perhaps the most misunderstood aspects of lighting design are all the layers behind it: design, technology, codes, manufacturing coordination, design research, testing and mock-ups, and the way the body responds to light. And that’s before you even get to the production of drawings and documents. Lighting design is a multifaceted parallel process to architecture.”
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