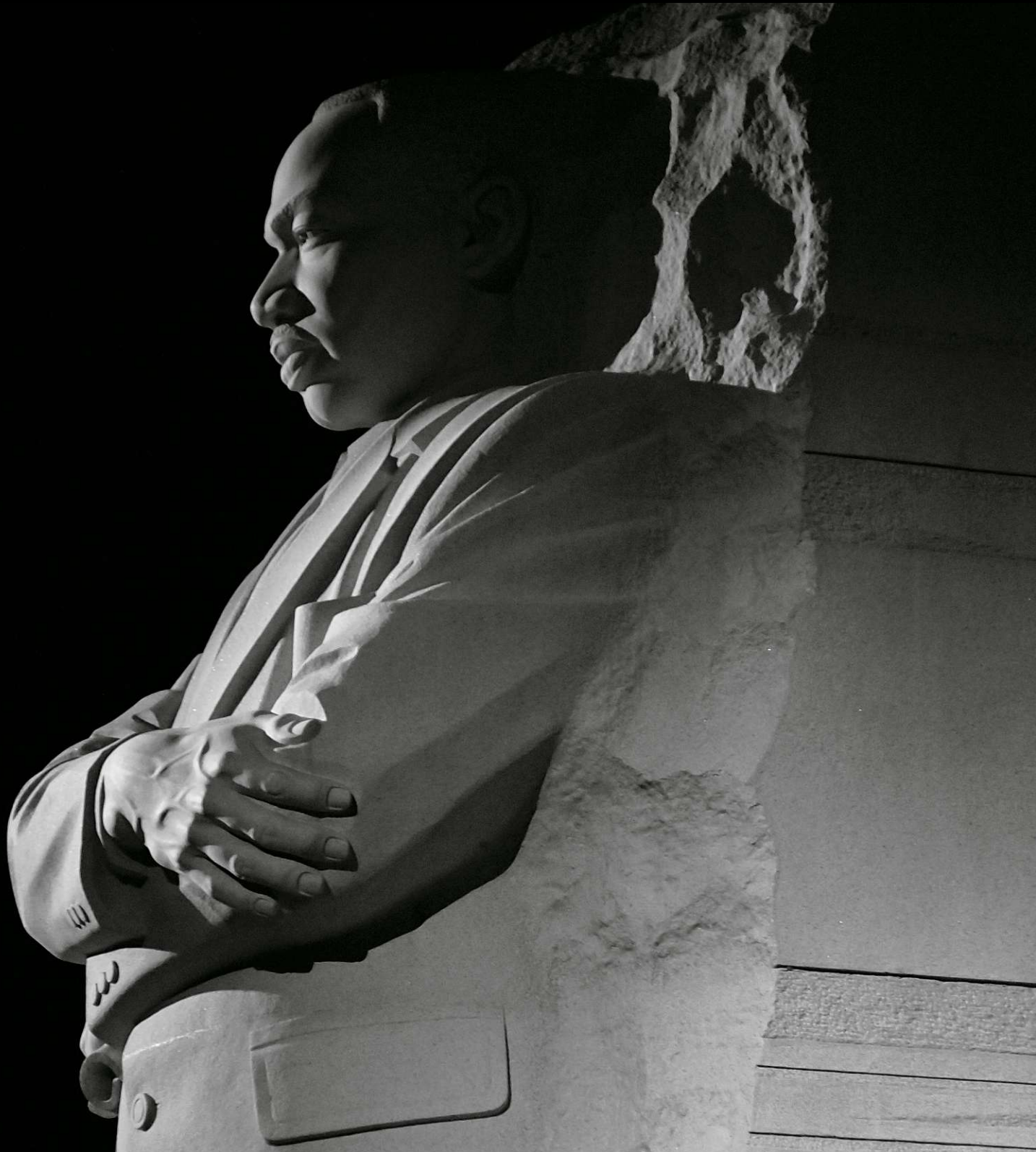


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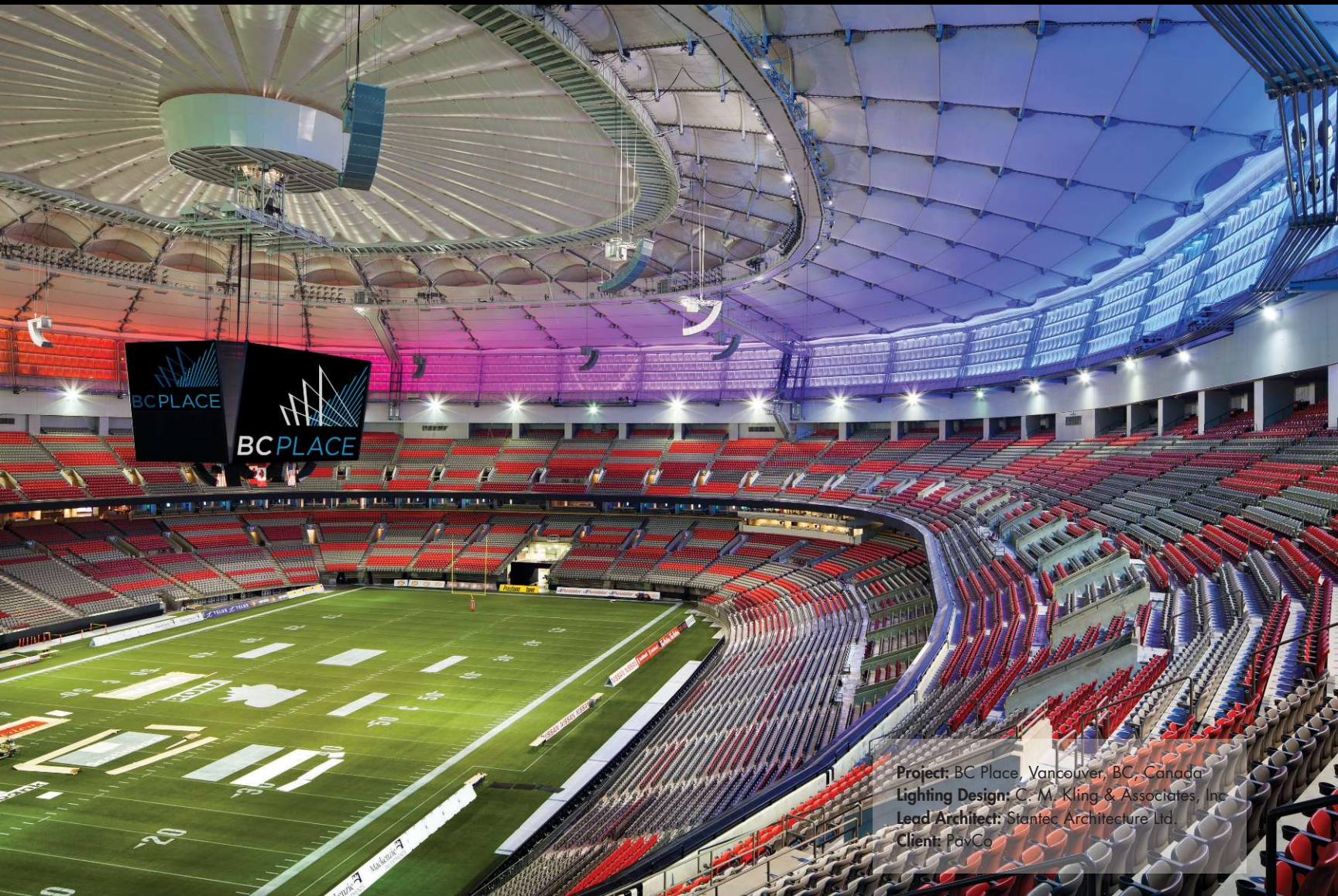
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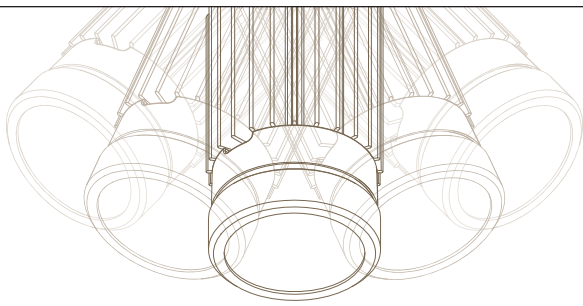
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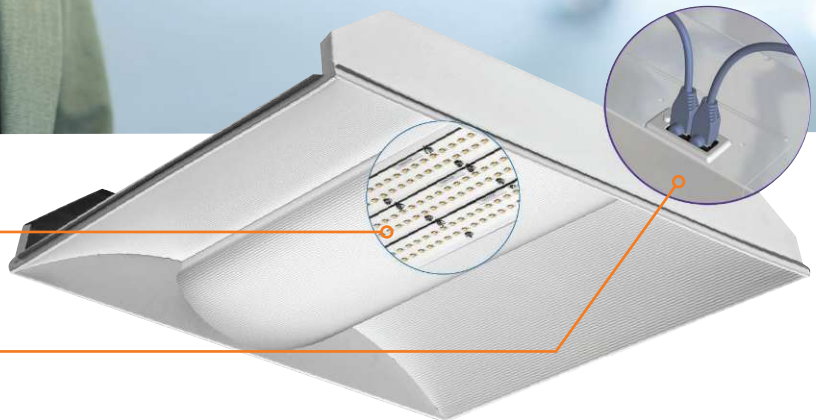
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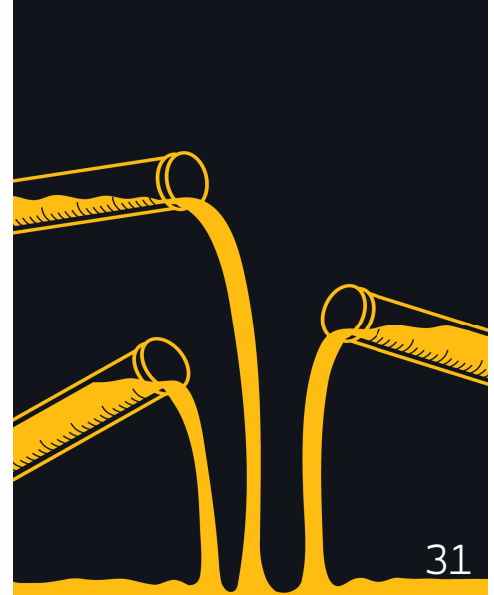
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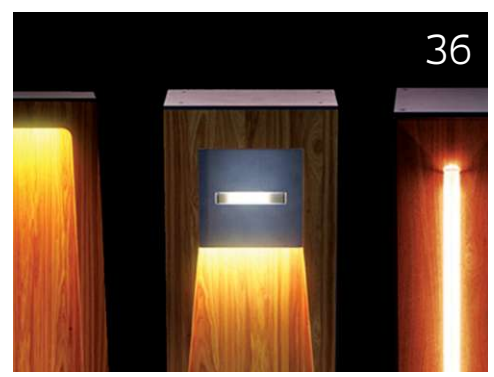
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Hoachlander Davis Photography (left); Teng Yau Hoong (top right)



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“What is the lighting community’s—designers’ and manufacturers’—responsibility in helping not just to shape the lit environment, but to help inform those who make the day-to-day decisions: city managers, building owners, and planners?”

A QUESTION OF “LIGHT” RESPONSIBILITY

Highland Park, Mich., New Orleans, La., and Ft. Lauderdale, Fla. Not three cities you might expect to see grouped together, and yet they all share one thing in common: They are grappling with outdoor-lighting issues.

The case of Highland Park, a suburb of Detroit, might be the most extreme. As reported in a Dec. 29, 2011, article in *The New York Times*, due to budgetary constraints and the resulting need to save money, two-thirds of the city’s streetlights were not just turned off, but removed completely. In a city that once had 1,600 streetlights, there are now only 500.

This dilemma—a municipality’s struggle to balance its budget while maintaining its basic city infrastructure—is not a new one. Other cities and towns across the U.S. have been facing this problem in the last few years, as I discussed in my Sept/Oct 2010 Comment “Lights Out.” Our darkening streets illustrate the magnitude of our ongoing fiscal crisis.

One has to wonder: Are city and town managers aware of the recent crop of streetlighting options and control technologies (available at different price points) that make greater energy efficiency, and thereby cost savings, achievable? How is it that some cities go dark, while others are promoting their switch to new LED streetlighting? Is there no alternative to the extreme measure of removing streetlights?

New Orleans is no stranger to grappling with serious urban issues, especially in its efforts to regroup and rebuild after Hurricane Katrina. One of the centerpieces of the city’s downtown, the Superdome, is part of the renewal efforts and it received a lighting makeover in October. A ring of 26,000 LED lights now projects a carousel of colors on the dome’s façade, along with massive logos for Mercedes-Benz (the company who bought the Superdome’s naming rights). This new lighting is part of a larger \$85 million renovation to the arena, and it is getting mixed reviews. The combination of the color-changing lights along with the overt sponsorship has many in the local press questioning its merits. It makes you ask the question: Just because you can light something, should you?

Then there is Fort Lauderdale, where a streetlighting replacement is under way along the city’s beachfront route, A1A. This type of project is not uncommon, but what is new is that it complements the existing signage that calls attention to sea-turtle nesting season (March through October), making locals and visitors aware of electric light’s sensitive adjacency to natural breeding grounds. Man’s proximity to nature and interference with it, is a reminder of the consequences that our footprint has. Is such attention to the environmental effects of outdoor lighting something that all cities should be thinking about to a certain degree?

Each scenario highlights the care with which we must address the lighting of our outdoor environments. And all three represent, perhaps, the main issues that outdoor lighting challenges us to think about: the value of civic amenities such as streetlighting, the overuse of lighting for public displays, and the proximity with which lighting must coexist with natural habitats.

Ultimately, we must ask ourselves: What is the lighting community’s—designers’ and manufacturers’—responsibility in helping not just to shape the lit environment, but to help inform those who make the day-to-day decisions: city managers, building owners, and planners? How can we work toward creating a quality illuminated world even when a lighting designer might not be part of the discussion, as is so often the case?

To be sure, there is a great tradition of urban-lighting master plans, where light is used as a catalyst for renewal and growth. The challenge, as I see it for this year, is how to make the importance of quality outdoor lighting understood by all, not as an expendable choice, but as an absolute necessity.

Elizabeth Donoff
Editor





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GREEN LIGHT NEW YORK

A nonprofit organization works to create an independent lighting-resource center with the city's PlaNYC in mind.

text by Elizabeth Donoff

22

Lighting accounts for more than 22% of all building energy use.

10.2

Commercial buildings account for the single largest use of lighting: 10.2%.

27

Lighting accounts for 27% of all New York City electricity use.

60

By 2018, lighting will be able to achieve 60% of all New York City's electric energy-efficiency potential.

Source: Green Light New York

Although there are more than 100,000 architecture, lighting design, and real estate professionals in the New York City area who design, specify, supply, purchase, and install some form of lighting, there is no independent lighting-resource center that can meet the needs of this diverse professional population. Couple that with New York City's ambitious PlaNYC 2030, which seeks to significantly reduce the city's environmental footprint by 30 percent in 2030, and there will be an even greater need for a lighting center to help the city implement more sustainable, energy-efficient strategies.

Now, thanks to the hard work of leading design and real estate professionals in the city, such a center and organization is one step closer to reality. Green Light New York, an independent nonprofit, has been formed "to promote quality, energy efficient lighting in New York City by creating a center for training, design assistance, and educational resources; a venue for mock-ups and display; and a forum for progressive discourse."

Day-to-day activities are under the direction of project director Richard Yancey, who has been organizing educational programs and events over the past year, while also overseeing the process of finding space for the center's permanent home. Yancey works closely with an

esteemed group of design and city leaders who serve on both the Board of Directors and the Technical Advisory Group.

"Putting huge goals in place requires a new code and new techniques," Yancey says. "Lighting is the vehicle to start it [the process]." That is certainly the case given the city's recent implementation of several local laws that require architects, lighting designers, and building owners to be even more acutely aware of lighting issues than before. Local Law 84 requires that all renovations comply with the New York City Energy Code, while Local Law 88 requires that all lighting systems be upgraded to meet the energy code and that submeters be installed in all 10,000-square-foot or larger commercial tenant spaces by 2025. This affects approximately 22,000 buildings and 1.25 billion square feet of commercial real estate in the city—45 percent of New York City's total floor space.

With this in mind, it is no wonder that lighting will play a vital role in helping the city to achieve its goal. With lighting-resource centers in San Francisco and Seattle as references, Yancey sees this new center as New York's "living room for efficiency discussions." Funding is being secured to purchase a space, and Yancey hopes these details will be finalized shortly so that the space can open this year. •

• **PlaNYC 2030, on.nyc.gov/A3KQ7q**

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NATIONAL MALL GETS A LIGHTING FACELIFT

An LED solution provides quality and energy-efficient lighting for America's front yard.

text by Elizabeth Donoff



One of the most actively used public outdoor spaces, the National Mall in Washington, D.C., is visited by more than 30 million people each year. But all of that traffic takes a toll on this popular national park, which spans from the base of the U.S. Capitol to the Lincoln Memorial, and to the Jefferson Memorial along the Tidal Basin. To combat years of neglect and inadequate funding, the Trust for the National Mall (nationalmall.org), the official nonprofit partner of the National Park Service, is working with the Park Service on the National Mall Plan, a comprehensive agenda for restoring the area and making physical improvements to the site. The plan carries with it a \$400 million price tag.

A major initiative to help turn these planned improvements into a reality is the National Mall Design Competition. The three-stage competition will select design teams by the end of 2012 for sites earmarked in the National Mall Plan: Union Square, Washington Monument Grounds at Sylvan Theater, and Constitution Gardens.

Although the competition is under way, it

doesn't mean that there aren't active steps already being taken to restore and upgrade certain elements. One of the first projects, completed in December, is a lighting retrofit of the 174 historic bronze street lamps designed by Frederick Law Olmsted that line the Mall from 3rd Street NW to 14th Street NW.

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"This energy-efficient lighting transformation of our country's National Mall will create a brilliant display of light while also providing a welcoming environment to visitors in the years to come."

— Rick Leaman, president and CEO of Osram Sylvania



A Washington That Could Have Been • "Unbuilt Washington," on view through May 28 at the National Building Museum in Washington, D.C., assembles an impressive collection of drawings, models, and photographs documenting proposed architectural and urban design projects for the nation's capital including alternative schemes for the Washington Monument, the National Mall, the Lincoln Memorial, and the Kennedy Center. Although the projects in the exhibited collection were never realized, as proposals they nonetheless still exerted a certain amount of influence on the buildings, monuments, and streetscapes that were to come to fruition. For more details about the exhibit go to nbm.org. To read *The Washington Post's* exhibit review go to wapo.st/A2opOF.

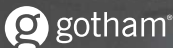
top: Courtesy Osram Sylvania;
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REMBRANDT'S NIGHT WATCH COMES INTO VIEW

A new LED system replicates daylight and illuminates the artwork to make it closer to its original appearance.

text by Elizabeth Donoff

Frans van Houten, CEO of Philips (left), and Wim Pijbes, general director of the Rijksmuseum in Amsterdam (right), at the unveiling ceremony for the relighting of the *Night Watch*.

How do you light a masterpiece? That has been the Rijksmuseum's dilemma ever since the Amsterdam museum opened in 1885 and has housed the signature painting of its collection, Rembrandt's *Night Watch*.

The painting, originally completed in 1642 during what has come to be known as the Dutch Golden Age, depicts Captain Frans Banning Cocq and Lieutenant Willem van Ruytenburch moving their company out. Artistically, the painting is known for its large scale (the canvas measures 11 feet, 10 inches tall by 14 feet, 4 inches wide), its dynamic use of light and shadow (chiaroscuro), and its fluid sense of motion in what typically would have been a static military portrait.

But the pundits' critique of the poor lighting conditions that were used to showcase this masterwork never let up, and in 1901, the Dutch government appointed an advisory committee of art historians and painters to make recommendations to address the lighting. They decided that the painting should be moved to the museum's new extension and lit by indirect sunlight.

Still, the museum's critics remained

unsatisfied. In 1926, the *Night Watch* was returned to its previous gallery location and hung on a side wall for close to 60 years, lit with incandescent light. Then, in 1984, the painting was moved back to its original location at the far end of the Gallery of Honor where it remained until 2003. At this point, it was moved, yet again, to the Philips Wing, as the museum embarked on a massive renovation. During all of this time, the lighting (most recently using halogen spotlights) never sufficiently rendered the painting's complex palette of pigments, especially browns and greens, in the rich splendor they deserved.

Since 2003, Philips has served as the museum's partner in its move toward energy efficiency, which includes the development of solid-state lighting strategies. The highlight of this collaboration occurred in October when an all-LED lighting solution was unveiled for the *Night Watch*. Now, for the first time, museum visitors can experience the nuanced detail of the scene and the complexity behind Rembrandt's brush strokes. And museum officials know that both conservation and energy efficiency are being met. •

"The Holy Grail"—of lighting. • Video Link: bit.ly/w9YBec

Watch Philips Lighting's chief design officer Rogier van der Heide, during his presentation at TEDxAmsterdam 2011, discuss how innovations in LED technology were applied to the development of a new luminaire for theatrical applications, capable of projecting a mask. This luminaire has been used to re-light Rembrandt's *Night Watch* at the Rijksmuseum in Amsterdam, and the fixture highlights the complex brown and green pigments that the master painter is known for.

Courtesy Philips

Lynk



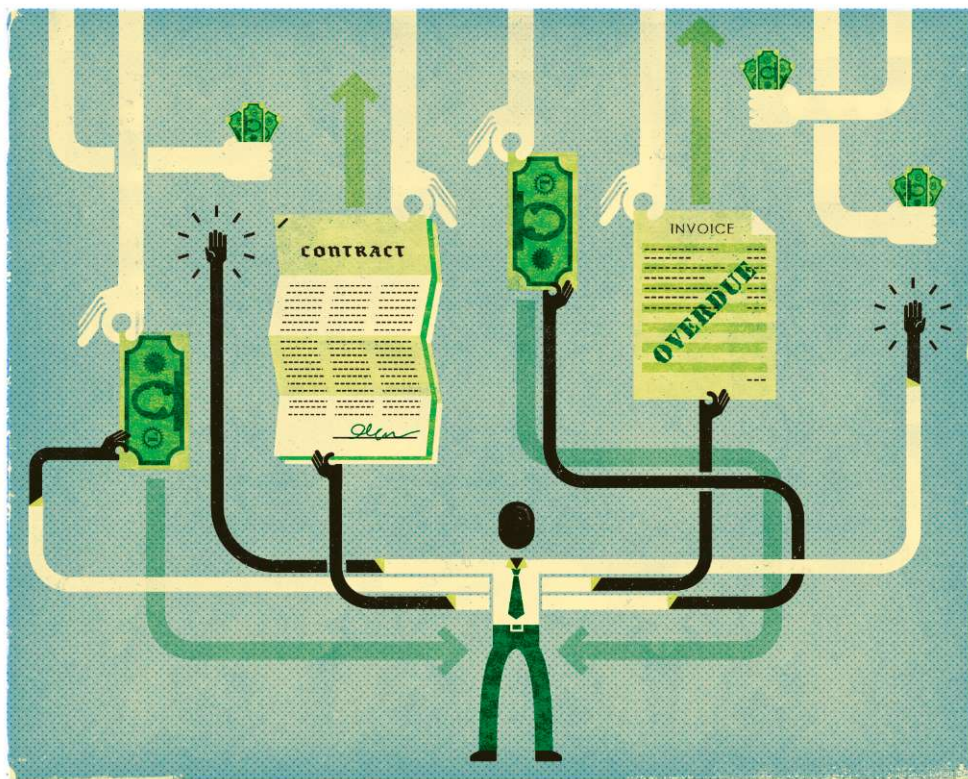
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PROFESSIONAL PRACTICE

ACCOUNTS RECEIVABLE

Getting paid in today's economy.

text by Peter J. Lamont
illustration by Headcase

Peter J. Lamont is a business and commercial litigation attorney nationally recognized in a wide variety of highly specialized areas within the kitchen, bath, lighting, construction, and design industries. He routinely represents various national and international companies within the design sector, and has achieved the highest rating in both legal ability and ethical standards as awarded by AVVO (avvo.com).

One of the most important aspects of a designer's business is his or her ability to obtain, and retain, clients. It's key to developing and growing a successful design practice.

While these are worthy endeavors that designers should be committed to, there is another component that is equally as critical, perhaps even more so: collecting fees. You might be the most well-liked and most-talented designer around, with a bevy of clients, but if you are not getting paid, you are not successful.

And the ability to collect the fees for one's work has never been more critical in today's economy. If you only have 15 jobs in a given year but recover 100 percent payment for your work, you are more profitable and successful than the designer who lands 25 jobs in that same year but only recovers 60 percent of his or her receivables.

Understanding Today's Client

In order to understand how best to collect on your work, you first must understand today's client. I group clients into two categories. The first is the contractor or architect client, otherwise referred to as a commercial client, who contracts directly with a professional lighting-design practitioner, typically for large projects. The second is the individual homeowner who contracts with an independent lighting designer.

A client in the first category is typically a sophisticated business owner or entity. For example, a developer looking to retain the services of a professional lighting-design firm

for a recently purchased multi-unit building will typically retain a general contractor who then contracts with an architect. The architect is responsible, in most cases, for hiring and working with the lighting-design professional or firm. Architects are usually contractually bound to the general contractor or developer. Often, working directly with an architect can be a painless process in that most of the structural floor plans are prepared in advance. The lighting designer then develops a lighting scheme based on the architectural renderings. Additionally, architects and general contractors have a general idea in mind as to what they would like to see. This may make the design professionals' job easier, since they are dealing with clients who have a good idea of what they want.

As for the second category, an independent lighting designer can be retained directly by a homeowner for a smaller residential project. This client is not generally as prepared as a commercial one. His or her idea of lighting design come from magazines, television shows, and home-design centers. This retail consumer is on a tighter budget than a commercial client and is less willing to part with money, and thus often changes his or her mind and can be extremely critical of the designer's choices.

There is another factor that affects a designer's relationship with a residential client: consumer-protection laws and the client's awareness of his or her legal rights. To attorneys, this characteristic is the most important distinction between commercial and retail clients. Due in large part to the thousands of pro-consumer websites, the residential client knows that many designers will back down and waive fees if they start complaining about the designer's work or threaten a lawsuit. So it becomes critical for the independent designer to know how to get paid.

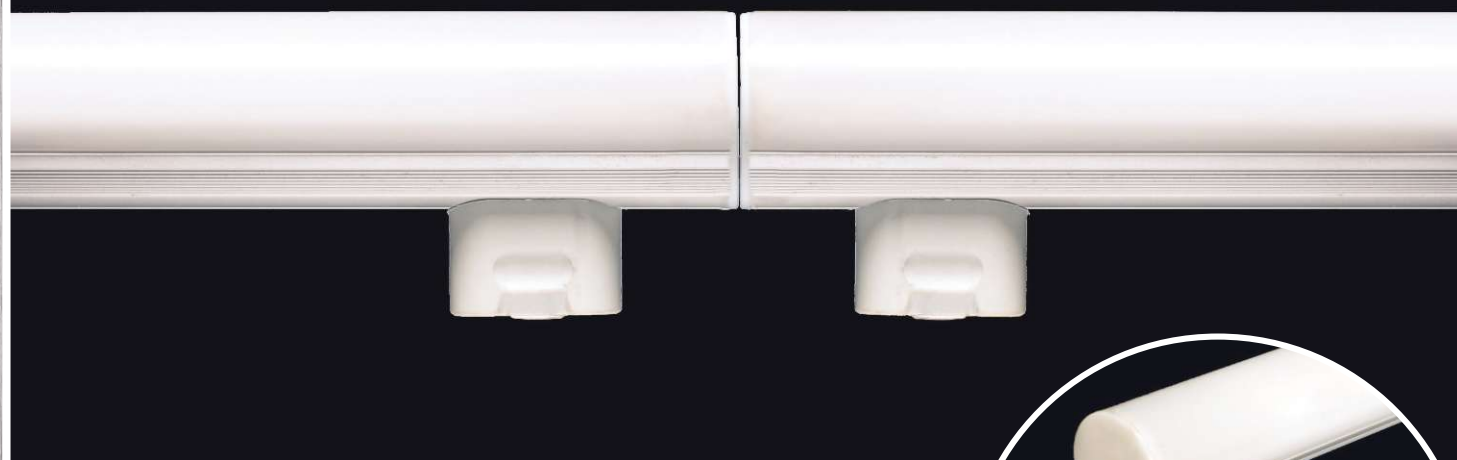
Most states have consumer-protection statutes that allow for the recovery of two to three times the actual amount of damages, plus the payment of attorney fees by the defendant should the plaintiff prevail. The fact that attorney's fees are the responsibility of

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Any good project starts with a properly constructed contract. This is the designer's lifeblood, and it will provide the legal basis to file a lawsuit or lien should that become necessary.

the defendant is one of the main reasons why attorneys are willing to accept these cases at no charge, and the recovery amounts are strong incentive for a defendant to settle the claim.

Protecting Your Fee

There are a number of ways that designers can protect their hard-earned fees, including diligent billing practices, precise record keeping, decisive action, and proper use of liens and lawsuits.

Any good project starts with a properly constructed contract. This is the designer's lifeblood, and it will provide the legal basis to file a lawsuit or lien should that become necessary. Conversely, a poorly worded contract can negate a designer's legal rights and provide a savvy client with a way around paying.

First, we must address the specific issues that are involved in commercial contracts. Architects or general contractors generally have preexisting form contracts which they require the lighting-design professional to sign. Lighting design firms often fail to negotiate the terms of the architect's contract, due in part to the fact that most of these firms are small companies who do not have a lawyer on staff or on retainer to review such contracts. While the design firm will negotiate some of the requirements concerning the design, the firm rarely addresses paragraphs that affect its rights to collect a fee should the project stall or the general contractor suffer a severe financial loss.

Some of the most important provisions in a commercial contract are conditional-payment clauses. These clauses are often known as "paid-when-paid" or "pay-if-paid" clauses. Most commercial subcontracts now include conditional-payment clauses that attempt to protect the general contractor or architect from having to pay the lighting-design subcontractor if the owner fails to pay. An example: "All progress payments of the subcontract sum shall be made within 10 days after payment is received by the general contractor from the owner."

It is important to be aware of this trend because roughly half of state courts have held that conditional-payment clauses are enforceable. Thus, it's important to identify conditional-payment clauses and negotiate them with the architect. Not to do so could

be earth shattering to a small firm, since the subcontractor bears the full risk of collection in the event of nonpayment by the owner. This is particularly problematic for a lighting designer, as this firm does not have a direct relationship with the owner and is thus barred from bringing suit—on the theory of failure to have privity of contract (flow of contractual relationship) and thus no standing to sue.

Conditional-payment clauses are difficult to interpret even by a sophisticated attorney, and are the subject of numerous declaratory judgment actions brought before a court seeking a determination as to their rights under the contract. You need to be aware of the severe impact of these clauses, and, depending upon the size of the contract, may wish to retain the services of an attorney.

One example of this clause gone bad is the recent foreclosure action involving New York developer Yair Levy and the Park Columbus Condominium Project located at 101 West 87th Street. Levy, a multimillion-dollar developer, retained the services of a general contractor and architect to develop and build-out the 95-unit condominium building. The architect subcontracted with various design professionals, including a small but prominent New York lighting-design firm whose contract contained a pay-if-paid clause. The firm then performed approximately \$300,000 worth of work for the project. While it was awaiting payment, Levy, who is alleged to have misappropriated funds for the building, filed for Chapter 11 bankruptcy, and because Levy's list of creditors was so extensive, the lighting-design firm received no money for its work. In this example, the firm might have had a better chance of receiving progress payments had they hired an attorney to review the contract.

In situations where a commercial client does not provide its contract to the lighting-design professional, lighting firms are free to use their own contracts. Too many designers use stock contracts from self-help legal websites, or borrow language from a fellow designer's contract. Others rely on the American Institute of Architects' (AIA) contract documents for their standard contracts. Some do not even use a formal contract, but instead rely upon purchase orders, proposals, or letters of intent.

Many designers have ineffective contracts in part out of fear of having to pay a lawyer's hourly rates to draft a proper one. But there are many experienced attorneys who are willing to work for a flat rate or reduced fee that would be in line with the budget of a solo practitioner or small firm. Find a lawyer who will work within your budget, and work with him or her to craft a document that will provide you with legal recourse should a client refuse to pay. It is much more cost effective to pay a lawyer to do this up-front than it is to pay a lawyer to try to recover fees.

As for the language in the contract, it needs to be easy for your client to understand. Archaic legalese can make contracts too ambiguous and confusing, and courts will hesitate to enforce them. Additionally, it is important that your contract explain that you retain ownership of your designs until you are paid in full.

As noted, many designers rely on AIA form contracts as their standard agreements. AIA contracts are certainly better than much of what you can find online. But in an effort to ensure that the clauses are enforceable in every jurisdiction, AIA contracts can be too fair to both sides. Also, many design firms attempt to include additional terms into the standard agreement and end up creating ambiguity between other form provisions within the document. When a contract contains ambiguous provisions, courts typically give the benefit to the individual or entity signing the contract.

AIA contracts are typically considered fair contracts, but there are many instances where a "fair" contract does not adequately protect the rights of the lighting designer. Designers also should be aware of that if they are presented an AIA contract, they have the right to negotiate the terms to be more favorable.

Finally, you need to understand that contracts are living documents and should change from year to year and sometimes from month to month. Review your contract annually and keep track of issues throughout the year that arose from the contract such as indemnification, payment issues, and liability. Then, revise to incorporate protections against these issues.

Billing, Record Keeping, and Decisive Action

You should establish and maintain a functional and efficient system for billing and invoicing clients as well as an organized system of record keeping and reminders. First, set up a billing regimen and stick to it. Establish a payment schedule and clearly establish when payments are due and what forms of payment are acceptable. Work these details into your contract. It is standard for designers to request an up-front retainer. Retainers can be based on a percentage of the total contract sum or can

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Gone are the days of handshakes and gentleman's agreements. You need to have a signed contract before you begin any work. ... Shortcuts on paperwork will lead to shortchanging yourself on fees.

be a flat-rate fee that is deducted from the final sum. Some small design firms request a \$5,000 retainer to cover initial costs and time and then establish a payment schedule.

After receiving the retainer, some designers bill their clients hourly. If this is your practice, keep detailed time sheets that show the time spent and a description of activities. This is important should you need to sue the client later. Send your bills on the same day each month and keep track of due dates.

Second, establish a system to help you track client's payment due dates. Once a payment is 30 days past due, send out a friendly reminder. Then allow five to seven days before sending a second reminder. Your second letter should demand payment within three business days. If, after the three days, you have received no response and no payment, send a final letter

advising that you can no longer continue to work on the project until the outstanding invoice is paid in full. Also explain that if payment is not received immediately you will have no choice but to pursue any and all legal remedies. Then be ready to follow through.

All of this will ensure that no receivable is more than 40 days past due at the time that legal action is taken. Timing here is critical. Once a bill or invoice is more than 90 days past due, the likelihood that you will collect it is only about 25 percent. By sticking to an established method of billing and taking decisive action, you can increase collection by 90 percent.

If you are a designer who bills in percentages, such as half the time of signing the contract and half upon substantial completion, you need to rely more heavily on your contract to define such terms as "substantial completion." You also

need to be ready to take action after an initial warning or two if your payment terms are not strictly adhered to.

Gone are the days of handshakes and gentleman's agreements. You need to have a signed contract before you begin any work. All change orders or requests for additional work also should be documented in writing, and make sure that such requests are signed off on by the client. Shortcuts on paperwork will lead to shortchanging yourself on fees.

Make the Law Work for You

If you have followed all of this advice and a client still refuses to pay, make use of your legal options, the two most common and effective being liens and lawsuits.

A lien is a person's interest in another person's property because of a debt. There are many types, but they all have the same purpose: To guarantee that the property owner repays a debt owed to the lien holder. Lien laws can be complex and may vary from state to state. In some states, you are required to file your lien within 90 days from the last day of work on the project, then serve both the debtor and property owner, if different, and then file the service proofs with the court clerk. Failure to comply with any step may result in the lien's rejection.

After filing and serving a lien, most states require you file a lawsuit to foreclose on in within one to two years. Failure to do so will result in a bar against recovery. A lien in and of itself is never enough to guarantee payment.

Another way to procure the money is to file a lawsuit for breach of contract, unjust enrichment, or another applicable cause of action. Depending on the amount of money at issue, lawsuits may be resolved quickly or may drag on for years. The key to winning a lawsuit is to have all of the necessary documentary evidence to support your claims.

Designers choose to enter the profession because they want to design and create. No one wants to spend the majority of their billable hours with excessive paperwork, tracking down clients who have not paid for services—which is why it is so important to set up fee requirements and expectations at the start of a relationship. Clients are less likely to take advantage of you when you have a clear and concise system of billing and contractual support.

Hire an attorney to help you set up your contracts. This will save you a great deal of money in the long run. And when you have done all you can and the client still refuses to pay, act quickly and hire an attorney to help you file a lien or commence a lawsuit. Unfortunately, our current economic climate does not allow you to give delinquent clients the benefit of the doubt. •



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REPORT

INTO THE LIGHT

As the lighting industry brushes itself off after a difficult recession, designers and manufacturers look to capitalize on opportunities in the next few years.

text by Jeffrey Lee
illustration by Mykola Duzyj

It's deep into the normally quiet month of December—only a few days before the holiday—but lighting designer Jim Baney is at work on several lighting-design proposals for the coming year. His partner Bob Shook is, too. “The last three or four months have been very strong,” says Baney, a partner at lighting-design firm Schuler Shook’s Chicago office. “Our workload has picked up. We’re more optimistic going into the new year, based on the proposals we’re writing, the ones we have outstanding, and the ones that have come in.”

Like Baney, the lighting community is experiencing an emotion that had become rare during the recessionary gloom of the past several years: optimism. With owners and developers cautiously restarting stalled projects and launching cost-saving energy retrofits, both lighting designers and lighting manufacturers are predicting more opportunities for the industry in the year ahead.

“We did start seeing, at least six months ago, a much greater increase in the number of RFPs for projects,” says Stephen Lees, senior principal for Horton Lees Brogden Lighting Design, a 50-person firm with offices in New

York, Boston, Los Angeles, and San Francisco. Some of that business is coming from owners who are restarting design for projects that have been on the boards for several years, he says. But while work is increasing, he is quick to point out that it is erratic. “It feels like we need to hire 10 staff one day, and then the next day you wonder if you can keep everyone busy,” he says.

“It feels like we need to hire 10 staff one day, and then the next day you wonder if you can keep everyone busy.”

—Stephen Lees, senior principal, Horton Lees Brogden Lighting Design

While recent business has been strong, projecting work time lines further than three months out is mostly guesswork, Lees says. Both designers and manufacturers are tracking the American Institute of Architects’ Architecture Billings Index (ABI) for clues on whether or not the construction industry is truly emerging from the slump. While the

ABI has been volatile over the past year, falling to a low of 45.1 in July (scores above 50 indicate an increase in billings), and rising to a high of 52 in November, recording its strongest monthly gain since the end of 2010, and remaining the same in December. In its semiannual Consensus Construction Forecast, a survey of the nation’s leading construction forecasters, the AIA projects a 2.1 percent rise in spending in 2012 for nonresidential construction projects, and a 6.4 percent increase in 2013. Rebounding corporate profits, increased capital spending, record-low borrowing costs, and pent-up demand for commercial and retail projects will factor into the growth, according to the forecast. The hotel (10.2 percent growth), industrial (6.0 percent), retail (5.0 percent), and office-building (4.3 percent) segments should lead the way in 2012. Institutional segments (-0.1 percent) likely won’t see growth overall until 2013, although the religious (5.1 percent) and health (4.5 percent) sectors could be bright spots.

While the November and December ABI results were encouraging, AIA chief economist Kermit Baker, Hon. AIA, urged a bit of caution

in his report on the November ABI, noting the results were “reminiscent of a year ago, when firms reported a strong fourth quarter of 2010 only to see business conditions deteriorate once the economy began to soften toward the end of the first quarter.” Nevertheless, 42 percent of architecture firms expect revenues to increase by at least 5 percent from 2011 levels, while only 27 percent expect revenues to decline, according to the report. Overall, firms are forecasting revenue gains averaging just below 2 percent for the year. Larger firms (with annual revenues in excess of \$5 million) expect to do a bit better than average in 2012, anticipating revenue growth of 3.2 percent on average, compared to 1.6 percent growth for firms with revenues of less than \$1 million.

Growth Opportunities

Revenues in 2012 should build on the strong second half of 2011, predicts Michael Gehring, partner and CEO of Kaplan Gehring McCarroll Architectural Lighting, a 15-person firm in El Segundo, Calif. Many of the opportunities he sees are driven by private-sector work, particularly multifamily housing, renovations and expansions of hotels and retail malls, and companies consolidating or redesigning office space. “Our gross revenues in 2011 are about the same as in 2010,” he says. “But it really accelerated at the end of 2011. If that continues, and we think it will, then it’ll look better in 2012.”

All of the designers we spoke to note that a growing issue is holding the line on fees when clients demand more services. “Our workload is becoming more comprehensive,” says Nelson Jenkins, principal of Lumen Architecture, a five-person lighting firm in New York City. “The requirements we’re being asked to do, such as energy calculations, are increasing.” At the same time, he says, the fee structure is very competitive and still hasn’t caught up to pre-recession rates.

That’s a challenge, particularly when clients expect work using expensive technologies such as Revit or 3D walkthroughs, Lees notes. “It takes time and more capital expense to work in Revit, but no one wants to pay any extra for it,” he says.

In addition to looking for new work in the traditional places—servicing existing clients and attending industry events, trade shows, and awards programs—Baney says that his firm is also looking for other revenue streams. His firm has explored finding new work in low-resolution imaging and media façades as well as in product design, working with an architect or manufacturer on a custom fixture. The firm is also looking for ways to work on a project without getting involved at the full-scale, full-service level. “Maybe [for] some projects, we’ll just do a few hours, only get involved through design development,” he says. “The project is better than with no input at all. We’re open to working that way, bringing a little bit of a lighter touch.”

Lees, too, says that his firm is flexible about work arrangements—the firm is open to bridging documents or taking on just the first or second half of a project—but with certain limits. “We will not pick up a project in CA [construction administration] or the middle of CDs [construction drawings],” he says. “If we

Regional ABI Scores

54.2
South

53.1
Midwest

52.6
Northeast

45.1
West

According to the American Institute of Architects’ December Architecture Billings Index, firms in the South have reported the strongest growth in the past two months, with an index of 54.2 (scores above 50 indicate an increase in billings). The Midwest (53.1) and Northeast (52.6) linger on the brink of recovery, while the West remains lower at 45.1.

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Moderator: Nelson Jenkins, from Lumen Architecture.

Panel Members:

- Sean Hennessy from Hennessy Design
- Renee Cooley from Cooley Monato Studio
- Ruth Møllergaard, FIIDA from GRID/3 International

LED's: The Move to a Digital World - Chad Stalker from Philips Lumileds will help attendees gain an understanding and clear impression of how to consider and evaluate illumination grade LEDs.

LED Control: Turn Off the Dark - an informative panel discussion aimed at helping demystify the often complex issues surrounding "how to control and dim LEDs."

Moderator: Craig Fox from Electronic Theatre Control

Panel Members:

- Gabe Gulliams from Buro Happold
- Sleiman Zogheib from Redwood Systems
- Andrew Lawler from Lutron
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“LED is getting so complex [that] most architects and interior designers can’t unravel it. So architects and interior designers who have never used a lighting designer before are using them for the first time.”

—Michael Gehring, partner and CEO, Kaplan Gehring McCarroll Architectural Lighting

are involved just in the schematic or DD [design development], then we include a hold-harmless clause,” to protect the firm from future changes to its work.

Manufacturer Outlook

With economic indexes such as the Architecture Billings Index in flux, manufacturers aren’t envisioning rapid growth in new-construction starts in the coming year. “My general take is that nonresidential construction is far from healthy,” says Brian Golden, president and CEO of Litecontrol in Hanson, Mass. “There are opportunities out there, but everyone’s fighting for every order.”

Nevertheless, Golden and other manufacturers are rosy about their business outlook for one primary reason. “The retrofit market is coming in and offsetting the disappointing starts,” he says. A combination of energy costs, rebates and incentives from utilities, and regulatory changes are spurring many owners to replace less-efficient fixtures, especially T12 fluorescent lamps, which are being phased out by law (bit.ly/wqokqH, AL Supplement: Infrastructure, Winter 2009) with more-efficient fluorescent or LED fixtures, he says.

Linear fluorescent lamp shipments increased during the third quarter of 2011 compared to the previous quarter, according to NEMA, the association of electrical equipment manufacturers. T8 lamp shipments grew the most with a 6.1 percent gain (20.8 percent year-over-year), while shipments of T5 lamps posted an increase of 5.7 percent from the previous quarter and 18.8 percent year-over-year. The index for T12 lamps slipped nearly 10 percent compared to a year ago. The association’s incandescent lamps shipment index for the third quarter decreased 1.2 percent from the second quarter, but was up 21.5 percent compared to the

same period last year. Compact fluorescent lamps (CFL) shipments registered a slight gain of 0.9 percent over the second quarter, but the index declined year-over-year, sinking 15.4 percent.

LEDs Go Big

The retrofit-and-replacement market is driving substantial growth for LED lamps, says Steve Briggs, vice president of marketing and global product management at GE Lumination in Cleveland. “The biggest trend is the incredible efficiency growth of LED,” he says. “When you look at where LEDs have really penetrated, it’s where ROIs really hit the strike zone. The cost and performance have come down to hit that range.”

The LED market is growing 30 percent to 40 percent in the aggregate, Briggs says, and some sectors, such as outdoor, are growing even faster. “For commercial outdoor, you can see payback ranging from three to four years,” he says. “For roadways, it’s below eight years. Those are the magic tipping points.”

In a May 2011 report on advanced (high-efficiency) lighting in the United States, research firm Freedonia Group confirmed the trend of growth for high-efficiency lighting in general and LED lamps in particular, citing a decrease in the cost of high-efficiency lighting and a desire among businesses, institutions, and government entities to lower energy expenses and reduce the labor costs of replacing light fixtures. The firm predicts that U.S. demand for LEDs will grow the fastest of any advanced lighting product through 2015, rising nearly 15 percent per year to \$6.1 billion. The study, which examined the U.S. market for high-efficiency lighting products, including most fluorescent lamps, LEDs, halogen lamps, and advanced high-intensity discharge (HID) lamps (but excluding less-efficient fluorescent

lamps such as T12s), predicted that overall U.S. demand for advanced, high-efficiency lighting would grow 9.3 percent per year through 2015 to more than \$11 billion.

Investment in LED technology is cutting costs at a rate of 30 percent per year, making it a broadly affordable technology, states a July 2011 market report, “Lighting the way: Perspectives on the global lighting market,” from research firm McKinsey & Co. The report predicts that LED’s market share is likely to accelerate over the next decade—rising to almost 60 percent of the overall lighting market by 2020—with revenue growth of 30 percent per year. This suggests that global revenues from LED lighting will amount to nearly €65 billion (\$82.7 billion) by 2020 (bit.ly/A4g8UY, from AL LED, Fall 2011).

Energy Expertise

For designers, tightening energy codes and the growing interest in finding energy savings, combined with the growing complexity of lighting technology, could create an increased demand for their specialized expertise. “Every time the code gets more complicated, that’s good news for lighting designers,” Gehring says. “LED is getting so complex [that] most architects and interior designers can’t unravel it. So architects and interior designers who have never used a lighting designer before are using them for the first time.”

With architects and owners receiving an onslaught of information about LED and other energy-efficient technology—only some of it reliable—lighting designers have an opportunity to play the role of educator, says Baney, whose firm offers lunch-and-learn sessions about topics such as LED lighting to its clients. “We felt like we needed to educate them so they understand where those technologies might be appropriate and inappropriate,” he says. “You can’t just say, ‘I want to be green and use only LEDs.’”

While Baney says that lighting designers aren’t often called in for energy retrofits and renovations, the booming market in those projects represents a growing opportunity for designers. Energy retrofitters are often focused only on the payback and footcandles of light, he says, not on the lighting quality. Lending their expertise to help clients retrofit to lighting that is both high-quality and energy-saving is another chance for lighting designers to grow their business in the years ahead. •

54.2

NEMA’s Electroindustry Business Confidence Index (EBCI) for current North American conditions in January, rising from December’s reading of 52. It was the fourth straight month in which the index exceeded the 50-point mark. Scores above 50 indicate that the majority of respondents reported an improved business environment.

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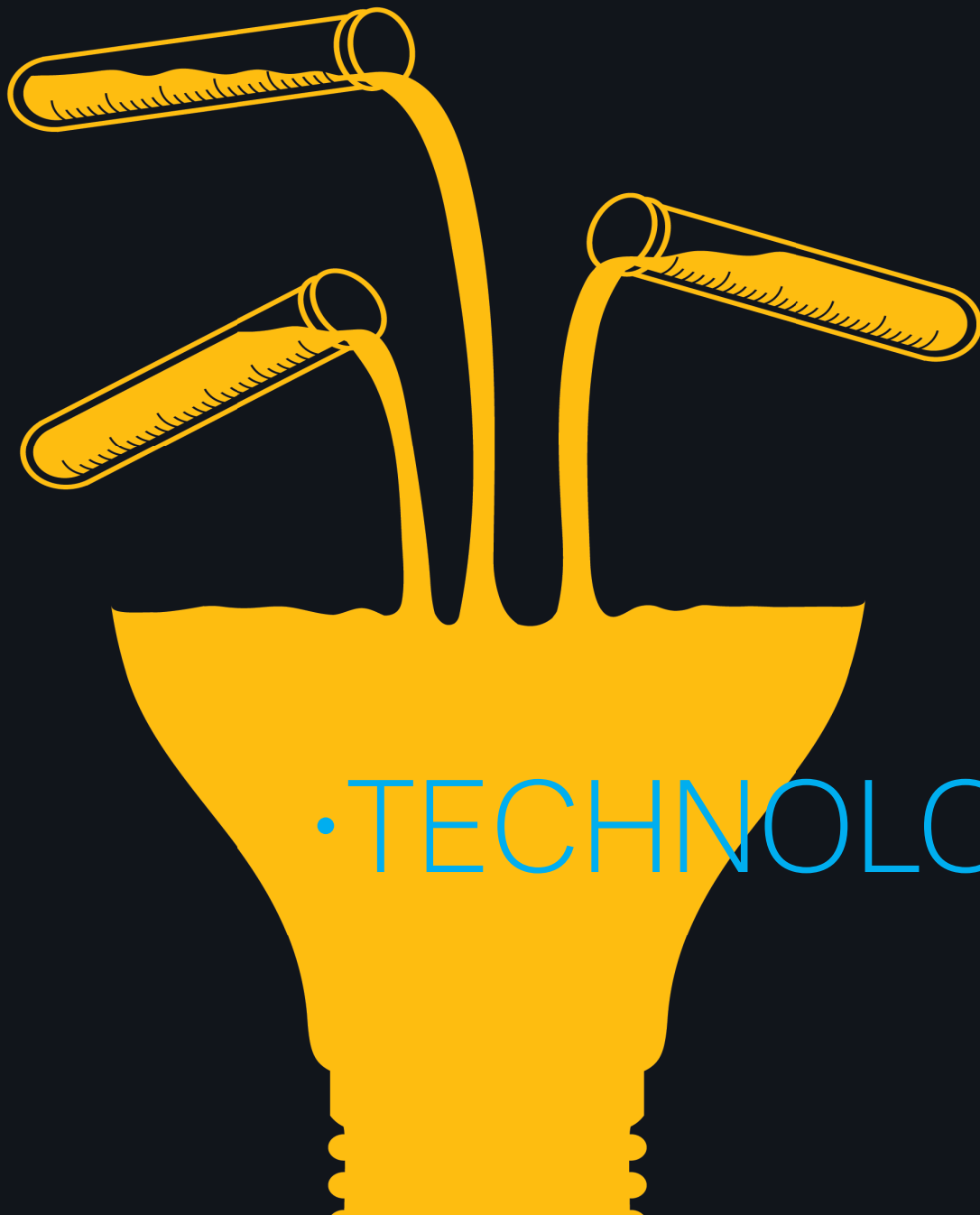
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AFTER CRI

New metrics challenge CRI as the industry's primary tool for evaluating color rendering.

text by Craig DiLouie

illustration by Tang Yau Hoong

Lighting designers commonly rely on two metrics to evaluate, compare, and predict the color performance of white light sources in applications where color is important: correlated color temperature (CCT) and color-rendering index (CRI). While CCT describes the color appearance of light—whether it is visually warm, neutral, or cool—a light source's CRI rating describes how well it renders colors “naturally”—compared to a reference ideal light source.

Originally developed more than 40 years ago to address fluorescent lamp technology, CRI has proved a durable, if somewhat limited, metric for evaluating color-rendering ability. The advent of solid-state lighting (SSL),

however, has highlighted the shortcomings of CRI, and created demand for a new way to measure color rendering that not only addresses conventional sources, but accurately depicts SSL product performance.

Color-Rendering Index

The CRI value for a given light source is derived from how closely it renders a set of eight standard color samples compared to a reference source with the same CCT. Higher CRI generally indicates better color rendering.

The reference source is a blackbody radiator for light sources with a CCT up to 5000K and a mathematical model of daylight for light sources with a CCT over 5000K, both assumed to have

Originally developed more than 40 years ago to address fluorescent lamp technology, CRI has proved a durable, if somewhat limited, metric for evaluating color-rendering ability. The advent of solid-state lighting (SSL), however, has highlighted the shortcomings of CRI, and created a demand for a new way to measure color rendering that not only addresses conventional sources, but accurately depicts SSL product performance.

a CRI rating of 100, the scale maximum. The greater the deviation of the tested source from the applicable reference source, the lower the CRI value for the given test color. The resulting CRI value for the light source is the average of the CRI numbers for the eight test colors.

CRI uses only eight medium-saturated test samples. As an average of these eight colors, it provides little certainty that other colors will be rendered as well as suggested by the overall rating. There are an additional six test colors representing saturated colors (R9 to R12, and most notably R9, which represents a saturated red commonly found in prints, fabrics, food, flowers, etc.) as well as foliage and a Caucasian flesh tone; these colors are optional for special purposes but are generally not included in the calculation of the CRI rating. The metric loses its accuracy at very warm and cool color temperatures indicating imbalanced spectral power distribution. For example, while a 2800K incandescent lamp is typically rated with a CRI close to 100, it may not render blues and greens as well because its color output is relatively deficient at these wavelengths.

"The phenomenon of color rendering is complex and there are several aspects in color quality of light sources," says Yoshi Ohno, a group leader at Lighting and Color Group for the Sensor Science Division of the National Institute of Standards and Technology (NIST). "CRI measures accuracy of color with respect to the reference source (fidelity). There are other aspects of color quality—visual preferences, color-discrimination ability, and visual clarity—

which are also important for daily life. It is well known that color fidelity cannot serve as a sole indicator of color quality of illumination sources." Nonetheless, CRI's shortcomings were accepted by the lighting industry for decades until SSL products became widely available for general lighting.

CRI and SSL

Solid-state sources produce white light from blue- or ultraviolet-emitting LEDs with a phosphor coating or a combination of red, green, and blue (RGB) or more colors, producing a spectral emission that is distinct from conventional technologies. These different spectra often do not work well with CRI, accentuating its limitations.

"In some cases, the CRI score does not agree well with what we see," Ohno says. "In particular, some RGB combinations get low CRI scores although they visually look pretty good. There are other cases where CRI scores are good although the source visually looks very poor."

"Recent developments in SSL have simply brought attention to the fact that high CRI does not accurately predict preference of natural objects—such as skin, fruits, vegetables, wood—or hue discrimination—seeing the difference between subtle shades of purple and maroon," says Mark S. Rea, professor and director of the Lighting Research Center (LRC), a division of Rensselaer Polytechnic Institute. "Specifically, several studies have been published now showing that some SSL sources with low

CRI can provide better color rendering than traditional sources with high CRI."

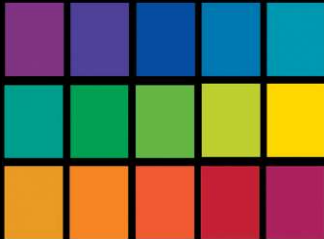
Ohno points to neodymium incandescent lamps as an example of a technology that is in a similar boat as SSL. These lamps filter out yellow emissions to enhance color contrast, an effect that can be easily achieved by energy-efficient SSL sources. But CRI penalizes such lamps (77 CRI). As a result, SSL product development in this direction is discouraged, indicating that continuing emphasis on high CRI is influencing the direction of SSL technology, sometimes resulting in lost opportunities to benefit from good products that produce high efficiency and good color rendering but low CRI.

To address these concerns, researchers have been working on alternatives to the CRI. I will discuss two of these: the Color Quality Scale, championed by NIST, and Gamut Area Index, championed by the LRC.

Color Quality Scale (CQS)

Instead of eight pastels (low-to-medium saturation), the CQS is based on a set of 15 colors with high chroma (high saturation) and spanning the entire hue circle in approximate even spacing. Rather than produce an average of eight pastel colors, as does CRI, in which an overall high score can be achieved despite one or two saturated colors appearing very poorly, CQS is calculated to ensure that significant color shifts for any single test color are reflected strongly in the final score. Lamps that enhance color contrast using RGB peaks or narrowband phosphors generate a higher CQS score, as CQS does not penalize increase in chroma (with some limits). CRI, on the other hand, penalizes shifts in chroma in all directions. The result is a simple zero-to-100 scale, with no negative values as is possible with CRI, and no values over 100, which is possible with other approaches. Finally, a CQS score also reflects well the poor color rendering of the sources whose color is too yellowish or greenish (chromaticity is way above blackbody locus), which CRI fails to address.

"We developed the Color Quality Scale so that its score agrees well with visual perceived color rendering and to fix the problems of CRI for SSL sources," Ohno says. "CQS works in a



To address the shortcomings of the Color-Rendering Index (CRI), which has become amplified by the use of some solid-state lighting products, The National Institute of Standards and Technology has developed a metric called the Color Quality Scale (CQS), intended to replace CRI. CQS is based on 15 high chroma (highly saturated) color samples (left). To learn more about CQS go to: nist.gov/pml/div685/grp05/vision_color.cfm.

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CQS offers the advantage of a single value that has a good possibility of becoming an International Commission on Illumination, and thus possibly an Illuminating Engineering Society, standard. And due to its DOE backing, it may become widely used. GAI offers the advantage of simplicity, adapting existing data to create a supplementary metric to CRI, which has served the industry for decades, for color-critical applications.

very similar way as CRI, but when object colors are slightly enhanced—possible by RGB, RGBA, or other narrowband combinations—the score is not penalized. CQS is also designed so that the score will be lowered if one of the colors is rendered very poorly even though the average of all other colors is very good, which tends to happen with red. Red is critical for skin tone, and if red is poor, the whole color rendering will look bad even though all other colors appear good.”

NIST has proposed CQS as a new standard to the International Commission on Illumination (CIE), which currently maintains CRI as a standard and had formed a technical committee in 2006 to develop a new standard. The committee is currently focusing on two proposals, including CQS, but has not yet reached a decision. In 2010, CQS also was endorsed by the Department of Energy.

An additional advantage of CQS, Ohno says is that a single number score is produced, which simplifies application while making it friendly for use by general consumers and for labeling purposes. He points out that, while CQS solves the problems of CRI with SSL, it maintains consistency with most traditional sources.

“We understand that there is a strong resistance to change or drop CRI as it has been used for so many years, and it is also in some regulations,” Ohno says. “In CQS, we made only necessary changes from CRI to solve the problems for SSL sources, so the scores do not change much for most traditional lamps. The

problem will be minimal when CRI is replaced by CQS.”

Gamut Area Index (GAI)

Mark Rea and LRC research scientist Jean Paul Freyssinier have two major recommendations to address the limitations of CRI. First, keep CRI, which is already established, but supplement it with a second scale, GAI, for color-critical applications such as retail installations. Second, limit the color-temperature designations to the four most commonly used in practice—3000K, 3500K, 4000/4100K, and 5000K—with tighter tolerances for deviation to maximize consistency among different products. These ideas were published in 2010 by the Alliance for Solid-State Illumination Systems and Technologies (ASSIST), an organization established by the LRC.

GAI offers an adjunct to CRI, not a replacement, providing a separate dimension to characterizing the color-rendering ability of a light source. It specifically represents the relative separation of object colors illuminated by a light source; the greater the GAI, the greater the apparent saturation or vividness of colors under the source. Light sources providing illumination high in both CRI and GAI, Rea says, are demonstrably better liked by viewers than light sources high in CRI alone or GAI alone. Rea notes, however, that while high CRI and GAI indicate hue saturation, which is good for color rendering, very high GAI can indicate color distortion. Unlike CRI, higher GAI does not always mean better.

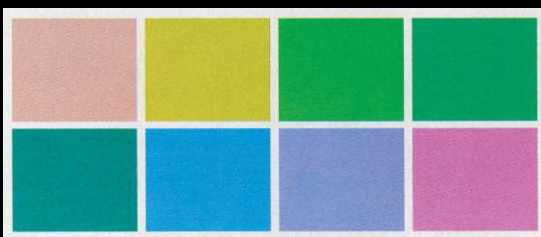
“The two-metric CRI-plus-GAI system is more predictive of preference than any one-metric system,” Freyssinier says. “It uses the same radiometric data needed to calculate CRI, so no new measurements are needed. It embraces the well-established CRI without change. The two-metric, CRI-plus-GAI measurement system has been validated in several human factors studies. It is technology neutral; examples from every light source family already meet the two-metric criteria we proposed (CRI over 80; 80 under GAI under 100). And it can be used as a guide to develop new light sources and reduce uncertainty as to how well liked they will be for applications where color rendering is important, such as neonatal intensive-care units.”

Change Is Happening

Regardless of which method is eventually adopted by the lighting industry, CRI does not address the needs of SSL sources, influencing the direction of the continuing development of SSL technology and neglecting some potentially good products and opportunities. Change appears to be needed, although all standards take time. CQS offers the advantage of a single value that has a good possibility of becoming an International Commission on Illumination, and thus possibly an Illuminating Engineering Society, standard. And due to its DOE backing, it may become widely used. GAI offers the advantage of simplicity, adapting existing data to create a supplementary metric to CRI, which has served the industry for decades, for color-critical applications.

In the meantime, designers should take note when evaluating SSL products that those with good CRI may not render color as well as needed, while products with low CRI may render colors very well. The real test is to see for yourself. There is no substitute for developing firsthand knowledge of various products, and seeing the effect of a given light source in a mock-up prior to commitment. •

Craig DiLouie, principal of Zing Communications, has been a journalist, educator, and marketing consultant in the lighting industry for more than 20 years.



The Color-Rendering Index (CRI) for a given lamp is based on the average of how well the source renders the correct pastel color samples (left) compared to an ideal reference source. To address the limitations of CRI, the Lighting Research Center has proposed a supplemental scale—Gamut Area Index—for color-critical applications such as retail installations. To learn more about GAI, go to lrd.rpi.edu/assist.

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A selection of luminaires for exterior applications.

text by Wanda Lau



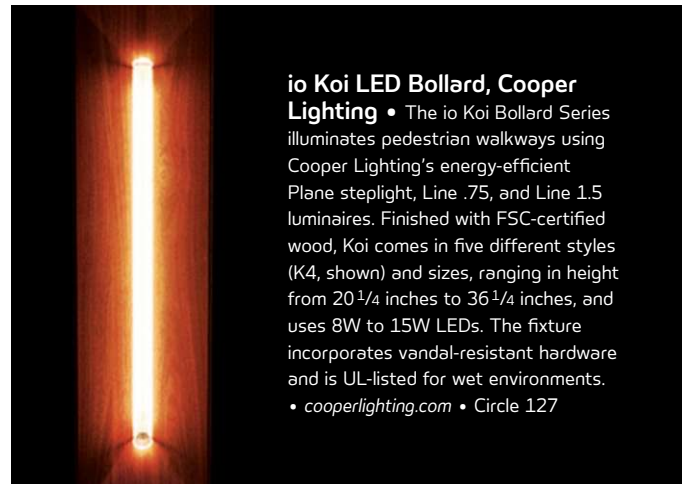
Exterior 100 IP68, Martin Professional

• Compact and water-resistant, the Exterior 100 can withstand extreme outdoor and underwater environments. DMX-controllable, and with an RGBW color-mixing system, the LED luminaire can produce vibrant and pastel shades as well as cold (6500K), neutral (4000K), and warm-white (2700K) light for narrow-to-medium flood and spotlighting applications. Four premixed LEDs and an internal color-calibration system provide consistent colors. The Exterior 100 measures 6.5 inches long by 5 inches wide by 6.5 inches tall. A companion to the Exterior 100, the Exterior 50 is available with a single premixed LED, for applications when no color separation is required. The Exterior 50 measures 5.1 inches long by 3.5 inches wide by 4.6 inches high. • martin.com • Circle 125



Grasshopper, Erco

• The Grasshopper family of luminaires—projectors, floodlights, and wallwashers—is made for use in both indoor and outdoor applications. For outdoor lighting scenes, the compact Grasshopper projector can handle accent and floodlighting and has several mounting options along with lockable, rigid hinges for accurate adjustment. The tiltable and rotatable projector can distribute light in narrow-spot, spot, flood, wide-flood, oval-flood, and wallwash configurations. With a powdercoated IP65 cast-aluminum body, the Grasshopper projector can use either low-voltage 50W halogen lamps, 20W to 39W high-pressure discharge lamps, or 9W to 20W LEDs—white or with DALI-controlled varychrome technology. • erco.com • Circle 126



io Koi LED Bollard, Cooper Lighting

• The io Koi Bollard Series illuminates pedestrian walkways using Cooper Lighting's energy-efficient Plane steplight, Line .75, and Line 1.5 luminaires. Finished with FSC-certified wood, Koi comes in five different styles (K4, shown) and sizes, ranging in height from 20¹/₄ inches to 36¹/₄ inches, and uses 8W to 15W LEDs. The fixture incorporates vandal-resistant hardware and is UL-listed for wet environments. • cooperlighting.com • Circle 127

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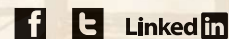
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THE FUTURE OF LIGHTING

To celebrate ARCHITECTURAL LIGHTING's 25th anniversary, the magazine held an event at Jack Studios in New York City on Dec. 8. More than 400 guests representing all facets of the lighting community from design to manufacturing gathered to acknowledge the magazine's 25-year milestone and to celebrate light itself. The evening's festivities were organized around three sets of Pecha Kucha-style presentations (12 in total) and 14 manufacturer-sponsored lighting installations. (Ceelite and Illuminex were bar sponsors.) The Pecha Kucha presenters and all the sponsors were asked to envision what the future of lighting might hold and how innovation in lighting design and emerging technologies contribute to the way in which we think about illumination and architectural space.

The sponsors' installations, which you can see on the following pages, highlighted a diversity of thinking when it comes to light's potential. In each of these presentations, the sponsors wore their designer's hat as they offered their take on the future of lighting—in the form of creative placemaking, the transformation of lighting technology itself, and more. There was no shortage of engaging ideas and guests were treated to displays as intriguing as they were artistic.

The event was a dynamic evening filled with great conversation, ideas, and visuals. Light's creative and technical potential was on full display, with all of its limitless possibilities, as AL and the lighting community envisioned the next 25 years and beyond. • ELIZABETH DONOFF

photos by Noah Kalina

PHILIPS

Imagine a radiant textile panel that allows for customizable light, fabric, and visual-display options. The new Luminous Textile with Kvadrat Soft Cells is a novel ambient-lighting system composed of LED modules with multicolor LEDs fixed on acoustic foam and coupled with aesthetic textile panels from Kvadrat Soft Cells. Designers choose from a number of fabrics and styles as well as visual displays—either static or dynamic—allowing for a variety of experiences to exist within one system. Just two cords, one for the power source and one for the Internet connection, run the system. Users can manage their interior environment from a computer or a smartphone using a website from Philips. The luminous textile is meant to enhance interior spaces in offices, shops, and hotels, and it is particularly suited to modern interiors. • ELIZABETH EVITTS DICKINSON

Details

Title: Philips Luminous Textile with Kvadrat Soft Cells **Team members:** Scott Thurm and Maggie Giusto (Philips) **Materials/luminaires:** Textile panels from Kvadrat. Power consumption is a maximum of 61W/m² (5.6W per square foot) for whole-panel, full-white color pattern. The consumed power depends on the color patterns shown. Typical use is between 10 percent and 50 percent of this value during eight hours per day.

PHILIPS COLOR KINETICS

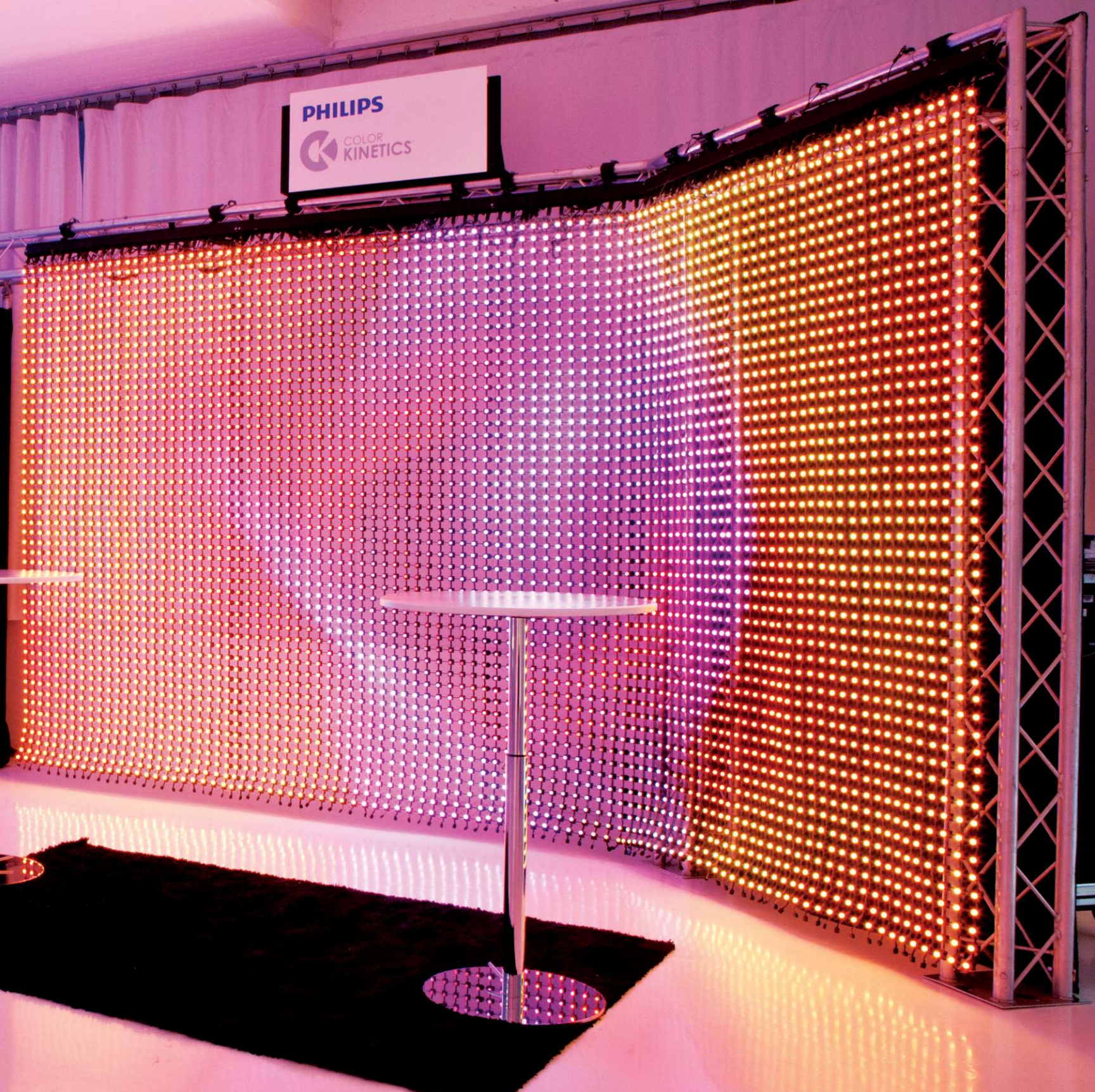
Philips also displayed its Color Kinetics and RGB Lights Flexi-flex, a flexible, thin, and translucent modular LED panel system. It incorporates the company's iColor Flex MX to form an LED display with full-motion video, graphics, messaging, and lighting capabilities in large format for both indoor and outdoor applications. The flexible panels can be draped, wrapped, hung and adapted to create an LED grid covering a large area. "It's outdoor rated, it's flexible, it can be as large or as small as you want it to be and each individual node is customizable so it allows you to control the environment," says Ken Romaine, sales manager at Philips. "In the future, lighting doesn't have to be point source and your control of it can be infinite." • E.E.D.

Details

Title: Philips Color Kinetics and RGB Lights Flexi-flex **Team members:** Ken Romaine, Monte Spencer, and Jeremy Day (Philips Color Kinetics); Brett Gardner (RGB Lites); and Tom Ladd (Pharos Controls) **Materials/luminaires:** Four panels of RGB Lights Flexi-flex, measuring 8 feet tall by 16 feet wide, with iColor Flex MD nodes on 50mm centers for a total of approximately 4,800 nodes. The display draws 3000W (max.) and receives video from a Green Hippo HippoCrittter media server through the Philips Color Kinetics Video System Manager Pro. The display is controlled by a Pharos Controls TPC DMX controller.



PHILIPS
COLOR
KINETICS



ACDC & INTER-LUX

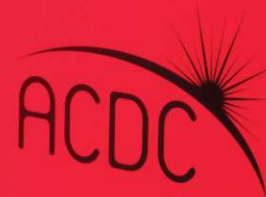
When it comes to lighting some of the tallest buildings in the world, UK-based ACDC knows a thing or two. Its LED lighting graces everything from the Marina Bay Sands in Singapore and the W Hotel in Doha, Qatar, to the Bitexco Tower in Vietnam and KPMG in London. Jeff Bramhall, general manager for Inter-lux, says that the success of ACDC lies in large part with its ability to be forward thinking by constantly evolving LED technology through rigorous research and development. "They [ACDC] are not sitting back with what they have. They are developing new technologies and giving designers what they want for their projects," he says.

Take, for instance, the Blade, an incredibly powerful wall-grazing linear LED fitting that uses micro-optic technology capable of evenly distributing a wash of light up to 33 feet. The lamp, which is being introduced this year, can incorporate a micro-louver system for reducing glare and camouflaging the LEDs from view for high-impact interior, exterior, and submersible installations. The design also allows for end-to-end fitting for continuous light without creating shadow gaps, as well as consistent light levels, according to ACDC's Louise Frankland. And with 50,000 hours of lamp life in the LED, "you wouldn't think to put anything but LEDs of this power on skyscrapers because it's such low maintenance," she says.

"LED [technology] has been crawling along, but in the last two years, it's taken a leap," Bramhall says. "ACDC is at the forefront of that." • E.E.D.

Details

Title: ACDC & Inter-lux **Team members:** Louise Frankland, sales director, ACDC; Jeff Bramhall, general manager, Inter-lux, ACDC partner and U.S. distributor; and Michael Watkins, vice president, marketing, Inter-lux, ACDC partner and U.S. distributor **Materials/luminaires:** Azeta, Evolution, Pro Evo with Demon, Plaza, Blade, Ultra, Iglu, and Galaxy



WHITEGOODS (INTER-LUX)

With the speed at which technology is changing the world, perhaps the only certainty for the future is uncertainty. Knowing how, exactly, the lighting of tomorrow will manifest itself is difficult to prognosticate, so Douglas James of London-based lighting company Whitegoods (represented in the United States by Inter-lux) has created an adaptable lighting system made of modular components. "We future-proof our products by creating insert modules that allow for any fixture," James explains.

Whitegoods Universal LED Module (ULM) permits the user to specify a preferred LED emitter from a range of manufacturers, including Xicato, Bridgelux, Philips, and Osram. The emitters are integrated so that they may be replaced without having to replace the entire luminaire, and the LED works with any of Whitegoods' downlight product offerings, including the wallwash, gimbal, and adjustable options.

The adaptable design of the ULM empowers specifiers to create architectural environments with lighting tools that are easy to install, maintain, and change—no matter what the future holds. "So many designers are building flexible spaces with multiple uses and with this system, you can be flexible," James says. • E.E.D.

Details

Title: Whitegoods: Future Lighting - Future Proofing presented by Inter-lux **Team members:**

Guglielmo Strata and Douglas James (Whitegoods), Jeff Bramhall (Inter-lux) **Materials/luminaires:**

Data projector, 100mm linear lighting system with polycarbonate diffuser and 4000K T5 lamps, and various downlight housings and insert modules

whitegoods



ACDC



LIGHTING SERVICES INC



"Everyone is a control freak," says Ken Kane, executive vice president of Lighting Services Inc. "You control when you hear music. You control when you watch movies, TV, or the news. The world is changing to be what you want it to be. So what if you could control your emotions with light?"

Lighting Services Inc looked at the digital age's trend of instant gratification and transformed that into a vision of a fixture that could deliver the same degree of control in the form of mood-inducing light. The company's installation featured an artistic rendition of this possible future luminaire, which it dubbed "iMood-Light." In it, a series of 9W, 2700K LED fixtures equipped with spot modules were mounted to rigid stems of various lengths, producing an 8-foot-by-8-foot wave formation. The LEDs projected onto a blank canvas floating above the installation. Visitors could change the color and intensity of the light through a theatrical control system installed on an iPad2, selecting such moods and emotions as romantic, calm, and moonlit. "With a simple touch to your smartphone or tablet, you can transform your lighting environment to be what you want it to be," Kane says. "Will it be an efficient office, a funky lounge, or a bewitching night? Only you can decide." • AARON SEWARD

Details

Title: iMood-Light **Team members:** Daniel Gelman, Ken Kane, Kerri Galgano (Lighting Services Inc); Ted Mather and Zack Brown (Available Light); and Gary Palumbo (Palumbo Associates) **Materials/luminaires:** 64 CX16 Series with Xicato 9W, 2700K spot modules, 8-foot-by-8-foot pedestal, Rosco gels for different colors, iPad2 and iPad application, DMX24DIM, and CueServer

LUMENPULSE

Lumenpulse's installation—Lumensquare—was a contemporary twist on a miniature disco cave: a sleek, black, walk-in closet-sized box with textured walls and an angled mirrored ceiling from which a prismatic array of changing colored light was emitted. "For the future of lighting, we decided to explore the relationship between emotion and light," says Jason Broadhurst, Lumenpulse's director of marketing. "Wherever you are, lighting has an impact on how you experience a space. We tried to represent that artistically with the Lumensquare."

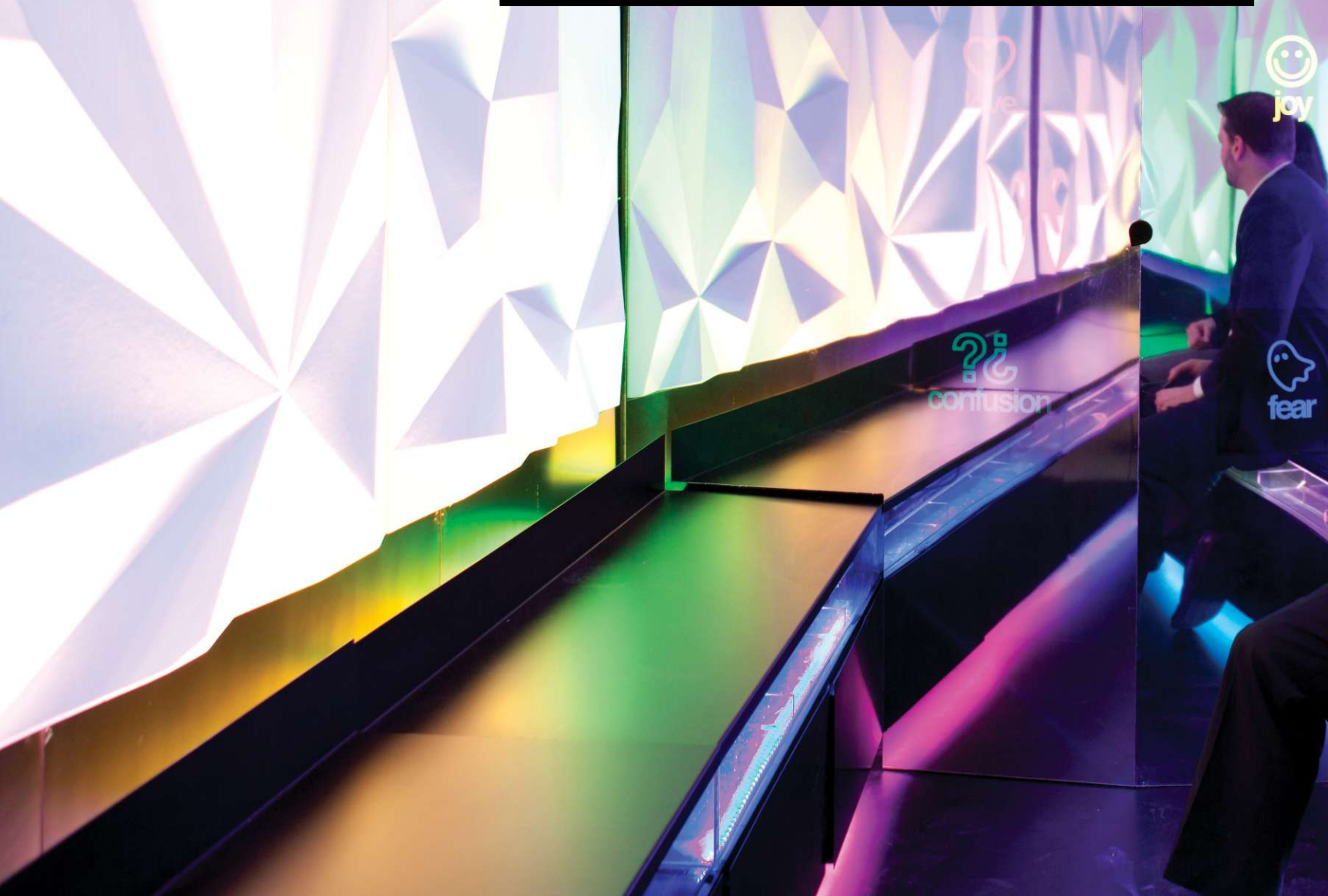
Upon entering Lumensquare, visitors were immersed in a colored-light extravaganza that could be calibrated to represent four different emotions: joy, love, fear, and confusion. A control dial at the far wall of the "cave" allowed the curious to choose the emotion that they wanted to experience. Once selected, the interior of the square filled with a light show that sought to invoke the chosen emotion. Light projected from the base of each sidewall, grazing the thermoformed plastic walls and bouncing off the mirrored ceiling. For joy, orange tones smoothly transitioned to yellows and whites, providing the atmosphere of a fresh, tranquil summer's day. Love triggered a pulsating red heartbeat. Fear produced a startling strobe effect. And confusion filled the cave with a fast-paced kaleidoscopic color-changing show.

"You can use light to create a new experience within an old environment," Broadhurst says. "I'm hopeful that in the future we will be able to give people more options to create spaces that are inspiring and beneficial." • A.S.

Details

Title: Lumensquare **Team members:** Acme Scenery Studio, Beloeil, Quebec, and Michael Grosse, Lumenpulse

Materials: Textured walls are thermoformed plastic panels painted white; ceiling and back walls are mirrors; plywood structure, painted matte black **Luminaires:** Lumenfacade RGB 120V, 3-foot, 10 feet by 60 feet, black finish; Lumencove RGB 120V, 3-foot, clear lens, white finish; and Lumensub RGB 24V DC, 4-foot



bartco
VISIONS BROUGHT TO LIGHT™

STUDIO by bartco™ is a forward looking and provocative new product line that dynamically reconsiders the role of the fluorescent strip within interior environments.

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BARTCO

Recognizing that many consider the commonplace fluorescent light strip to be just that—commonplace, generic, and unremarkable—Bartco Lighting challenged assumptions with its exhibit-as-art installation of designer linear T5 fluorescents. The company's Zag, Fill, and Freeform—all part of the Studio by Bartco line still in conceptual development except for Zag, which is in production—are slim, minimal versions of their bulky siblings. Connected together, the 12-inch- to 48-inch-long lamps were assembled as a sculptural light installation that stretched across Bartco's display, angled around corners, and created the illusion of going through walls. "We took the familiarity of the product and used it in a way that engages with architecture," says Dennis E.C. McKee, vice president of special projects and corporate affairs. The Studio line has been exhibited at Lightfair the last two years, but this was the first time the installation concept wasn't limited to the confines of the typical dimensions of a trade-show booth. "For Bartco, taking what we know about today's lighting—where it's located, what it sounds like, how it affects us—is all part of making our way toward the future, and finding the proverbial light at the end of the tunnel." • LINDSEY M. ROBERTS

Details

Title: Studio by Bartco: Step Into the Light **Team members:** Dennis McKee and Kristian Johnson **Materials/luminaires:** Cold-rolled steel, powdercoated, fluorescent components (i.e., ballasts, lamp holders, lamps) with 3000K 8W, 14W, 21W, 28W, and 35W linear T5 fluorescents



RAB LIGHTING

Light you can see and interact with, but energy you generally can't. So Ross Barna, CEO of New Jersey-based RAB Lighting, set out to make the invisible visible for those at the 25th anniversary event. Barna commissioned two ice blocks in which the company's 52W LED LPack and 250W metal-halide wallpack (minus plug-in cords) could be frozen. On site, the blocks—400 pounds each, and about 2 feet by 3 feet—were suspended by booms with buckets below to catch the dripping water. The race was on to see which block would melt faster. "The more energy that a luminaire converts into light instead of heat, the more efficient the luminaire," he says. Barna predicted that the ice housing the metal halide lamp would melt faster than the one with the LED source. His hypothesis proved true: Even though the luminaires have the same equivalent in light output, the metal halide wallpack caused steady dripping from the block. The installation was a main attraction among partygoers, who stopped to touch the watery, glowing light cubes. "We think the future is LEDs," Barna says. "We just have to show it." • L.M.R.

Details

Title: Visible Efficiency **Materials/luminaires:** Two 400-pound blocks of ice, one embedded with a RAB WPLED52 luminaire (52W, 5000K, 67 CRI) and one embedded with a RAB WP3H250QT luminaire (250W metal halide, 4000K, 65 CRI)



USAI

ARCHITECTURAL LIGHTING asked all of the event sponsors who were exhibiting what the future of lighting would hold, but USAI was the only one to answer with a brand-new luminaire. Bonnie Littman-Gatof, president of USAI, and Ann L. Schiffers, vice president of USAI's specification sales, designed the LED One Light to challenge what they say has come to be accepted as the standard in energy efficiency: the 2-foot-by-4-foot fluorescent, recessed lighting fixture. "We believe the future is all about minimalization," Littman-Gatof says. As more and more technology such as HVAC and audiovisual equipment is being squeezed into ceiling spaces, the duo believes that lighting needs to respond and become smaller, or risk being reduced to the absolute basics. Their One Light helps architects fit more into the building envelope and offers designers more flexibility. "The problem has been accepted for so long—the 2-by-4 size—and nobody has challenged it. Everything architecturally lines up with it," Schiffers says. In USAI's display, One Light was installed in the middle of the ceiling, taking up only a fraction of the space. The display and brochures were also square, echoing the shape of USAI's small solution to the big, rectangular, fluorescent problem. Commands inspired by Mel Bochner, the conceptual artist famous for his text portraits, lined the installation's walls: "Take it back!"; "Take back your space!"; "Take back your comfort!"; and more. The One Light, which clocks in at 90 CRI, isn't on the market yet. Based on the positive response from event attendees that night, however, Littman-Gatof speculates that it could be available for specification in the near future. • L.M.R.

Details

Title: Take It Back! **Luminaire:** One-Light, a 75W LED downlight with a 4½-inch aperture, color temperature of 2700K, and CRI of 90+



ACUITY BRANDS

To **describ** the future of lighting, Acuity Brands didn't have to look any further than its latest line of luminaires. "We have been working with organic LEDs," explains Rick Leeds, the company's manager of specifications marketing. "It's a light source you can view directly without burning out your retina. This fact challenges the old ways of doing lighting design and opens up new realms of opportunity as far as how lighting will interact with architecture."

Two of the company's newer products—Kindred and Revel—were on display as part of Acuity's installation, both of which incorporate OLED technology to create lightweight luminaires that merge sculpture and light. Kindred features 45 3500K OLED panels in a curving, brushed stainless steel 66W fixture that can be used as a chandelier. Revel features five 3500K OLED panels arranged in a cruciform pattern, creating a 7.3W fixture that can be mounted on walls, ceilings, or wherever one wishes.

These two fixtures show only a few examples of how OLED panels can be used in luminaire design. The square panels can be combined in any number or pattern needed to fill a space with light. The potentialities of the technology point to a more flexible future for lighting where the lines between light sources and architectural surfaces will become blurred. • A.S.

Details

Title: Expanding the Boundaries of Light **Team members:** Jeannine Fisher, Tricia Foster, and Unchu Kim **Luminaires:** Kindred and Revel



SELUX

Selux saw the “future of lighting” challenge as a way of engaging with the next generation of lighting designers, and enlisted a trio of students in the lighting-design program at the University of Applied Sciences and Arts in Hildesheim, Germany, to design its installation. The three wunderkinds turned out an installation that was more artwork than trade-show kiosk. “We took a playful approach,” says Johannes Roloff, one of the students. “We wanted to incorporate some sort of human touch that would create a light reaction and spatial change.”

The installation featured a collection of automotive air bags suspended from a framework supported on a single steel post that was wrapped loosely with thick electrical wires. It resembled a jerry-rigged beach umbrella or a mechanical tree. Visitors were invited to walk beneath the hanging airbags, and reach up to touch them. Once touched, a sensor triggered a switch that activated a lamp and a fan within the bag. The field of air bags then illuminated as well as inflated, causing the installation to expand as though it were alive and breathing.

The air bags were outfitted with a variety of different lamp types, each casting its own unique character of light, challenging the lighting professionals in the room to guess whether or not they were seeing fluorescent, metal halide, LED, or some other type of light source. Once illuminated and inflated for a minute or so, a timing chipboard then turned the airbag off, causing it to deflate, and leaving it dormant until the next person to walk by would touch and reactivate it. • A.S.

Details

Title: Vivid Light **Team members:** Julia Berner, Alexander Dronka, Johannes Roloff **Materials/luminaires:** Aluminum support pole with white customized air bags, each containing a different light source (i.e., incandescent, CFL, LED), a silent fan, and a motion sensor



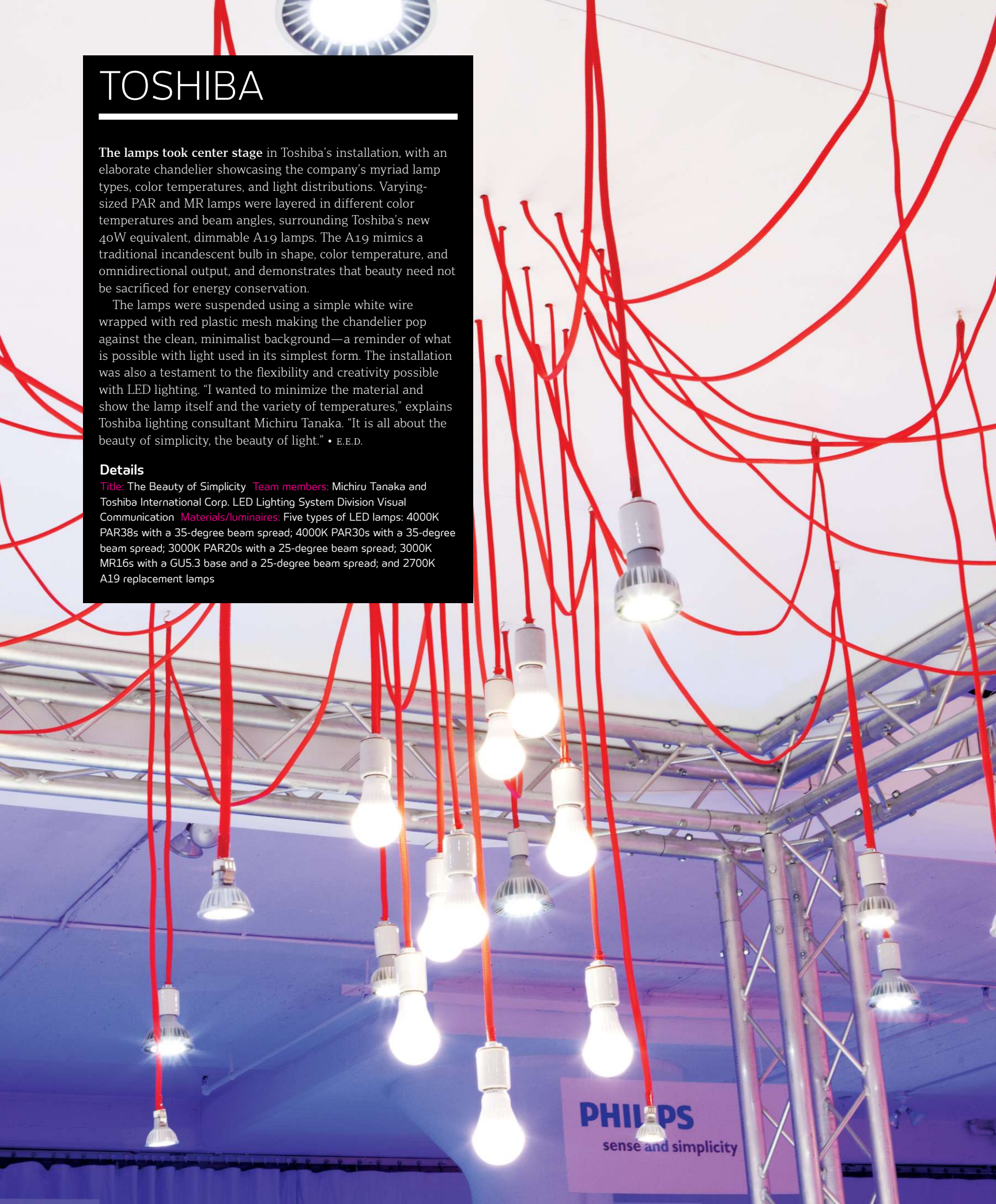
TOSHIBA

The lamps took center stage in Toshiba's installation, with an elaborate chandelier showcasing the company's myriad lamp types, color temperatures, and light distributions. Varying-sized PAR and MR lamps were layered in different color temperatures and beam angles, surrounding Toshiba's new 40W equivalent, dimmable A19 lamps. The A19 mimics a traditional incandescent bulb in shape, color temperature, and omnidirectional output, and demonstrates that beauty need not be sacrificed for energy conservation.

The lamps were suspended using a simple white wire wrapped with red plastic mesh making the chandelier pop against the clean, minimalist background—a reminder of what is possible with light used in its simplest form. The installation was also a testament to the flexibility and creativity possible with LED lighting. "I wanted to minimize the material and show the lamp itself and the variety of temperatures," explains Toshiba lighting consultant Michiru Tanaka. "It is all about the beauty of simplicity, the beauty of light." • E.E.D.

Details

Title: The Beauty of Simplicity **Team members:** Michiru Tanaka and Toshiba International Corp. LED Lighting System Division Visual Communication **Materials/luminaires:** Five types of LED lamps: 4000K PAR38s with a 35-degree beam spread; 4000K PAR30s with a 35-degree beam spread; 3000K PAR20s with a 25-degree beam spread; 3000K MR16s with a GU5.3 base and a 25-degree beam spread; and 2700K A19 replacement lamps



amerlux

AMERLUX

"The future is LED," says Bill Plageman, Amerlux's vice president of marketing and product management, voicing the refrain heard from almost all the event's exhibiting sponsors. Fittingly, in its display, Amerlux showed its latest line of LED luminaires, everything from track accent fixtures to LED downlights, including the new Hornet LED, a 120V or 277V replacement for MR16s. The company, known for its product lines' affinity with retail applications, played on that type of setting and displayed its LED products like diamonds in a jewelry store, recessed in cases and propped up on stands, with two mannequins clothed in red dresses, wearing necklaces. The theme showed off the new LED fixtures' abilities to spotlight goods, and was a nod to the retail market's interest in the new lamps. "Retail is going to jump all over LED technology," Plageman says. "Once the retail market takes it, understands it—then it won't use the MR16 anymore." Of all the retail applications, Plageman notes, supermarkets were some of the first adopters of energy-efficient sources because the profit margin is so narrow. Grocery businesses need all the money-saving advantages they can get and lighting is a good place to start. For Amerlux, the future of lighting is LEDs, but the future won't start in the office, or even the home, it will begin in Whole Foods, Starbucks, and Costco. • L.M.R.

Details

Title: Amerlux **Luminaires:** Hornet, a 50W 3000K MR16 fixture, and the Evoke G2 family of downlight and wallwashers in 2.9-inch and 4 3/4-inch apertures



EVOKE
MULTI-FUNCTION
2.9-inch and 4 3/4-inch apertures



HORNET
50W 3000K MR16 fixture



HORNET-LV
50W 3000K MR16 fixture

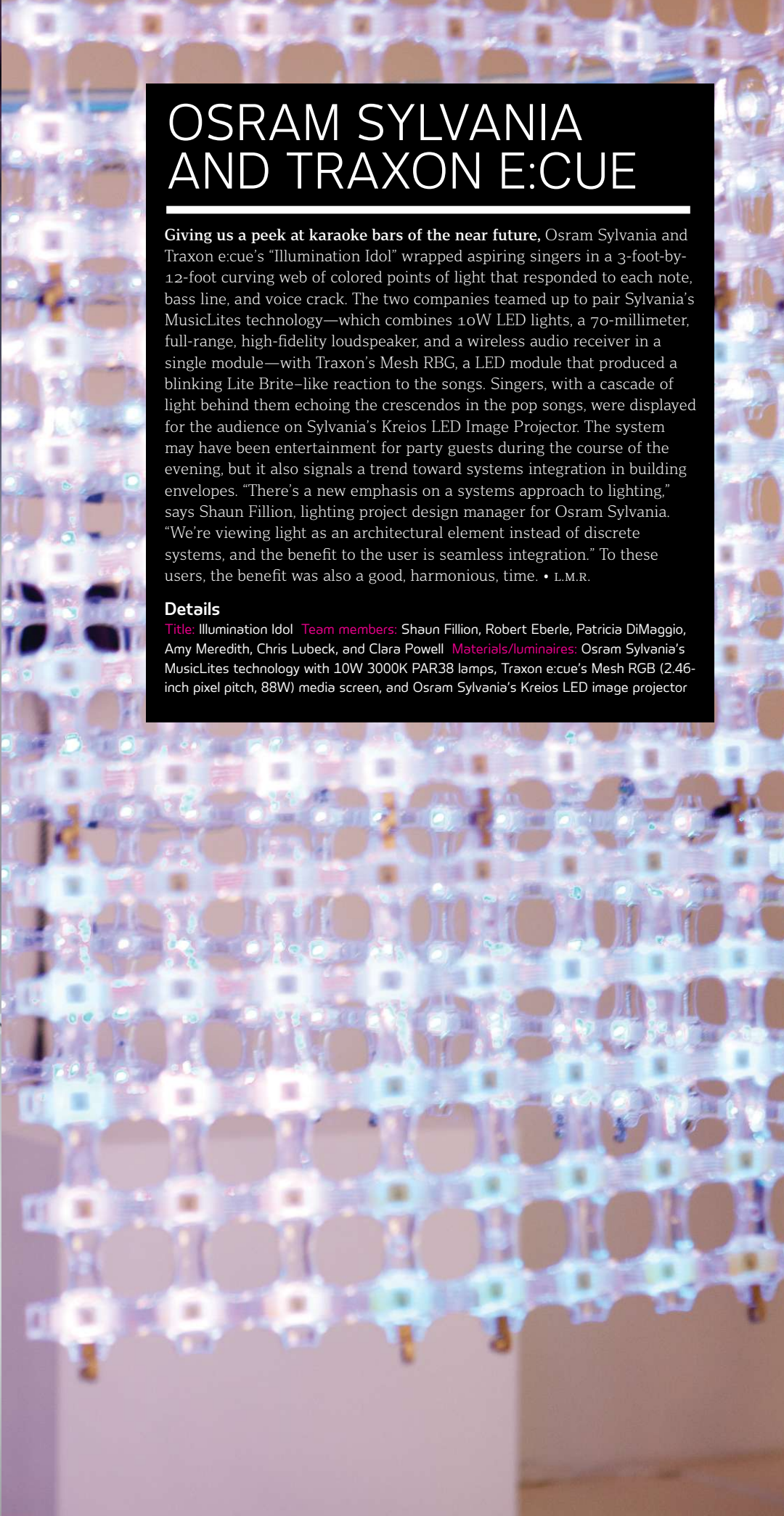


OSRAM SYLVANIA AND TRAXON E:CUE

Giving us a peek at karaoke bars of the near future, Osram Sylvania and Traxon e:cue's "Illumination Idol" wrapped aspiring singers in a 3-foot-by-12-foot curving web of colored points of light that responded to each note, bass line, and voice crack. The two companies teamed up to pair Sylvania's MusicLites technology—which combines 10W LED lights, a 70-millimeter, full-range, high-fidelity loudspeaker, and a wireless audio receiver in a single module—with Traxon's Mesh RGB, a LED module that produced a blinking Lite Brite-like reaction to the songs. Singers, with a cascade of light behind them echoing the crescendos in the pop songs, were displayed for the audience on Sylvania's Kreios LED Image Projector. The system may have been entertainment for party guests during the course of the evening, but it also signals a trend toward systems integration in building envelopes. "There's a new emphasis on a systems approach to lighting," says Shaun Fillion, lighting project design manager for Osram Sylvania. "We're viewing light as an architectural element instead of discrete systems, and the benefit to the user is seamless integration." To these users, the benefit was also a good, harmonious, time. • L.M.R.

Details

Title: Illumination Idol **Team members:** Shaun Fillion, Robert Eberle, Patricia DiMaggio, Amy Meredith, Chris Lubeck, and Clara Powell **Materials/Luminaires:** Osram Sylvania's MusicLites technology with 10W 3000K PAR38 lamps, Traxon e:cue's Mesh RGB (2.46-inch pixel pitch, 88W) media screen, and Osram Sylvania's Kreios LED image projector



LUMINIS— THE FUTURE OF LIGHTING

Predicting the future of lighting is a daunting task and no single would-be prophet could be expected to have the right answer. So when ARCHITECTURAL LIGHTING asked Luminis Lighting to weigh in on the matter, the company invited lighting professionals across North America to offer their thoughts. Several individuals answered the call—some were designers, others representatives of manufacturers—and their collected visions were assembled on a blog (the-future-of-lighting.blogspot.com) and presented at Luminis's display. Visitors to the celebration had the opportunity to read the assembled forecasts and to add their own. "We wanted to get people thinking about the future of lighting," explains Luminis's president Nicholas Cohen. "By presenting the ideas of those who answered our call, we hope to open the discussion to other lighting professionals."

Some of the prophecies included: the rise of the LED as the world's only lamp type; building materials as light sources; paint that would emit light in an unlimited variety of colors, intensities, and patterns; and yet-to-be-discovered sources that will be more in tune with human biological processes, use next to no energy, and make everyone look their best. • A.S.

Details

Title: Luminis—The Future of Lighting **Team members:** Luminis
Materials/luminaires: Aramis | LED and Maya LED



LUMINIS





DELTA LIGHT

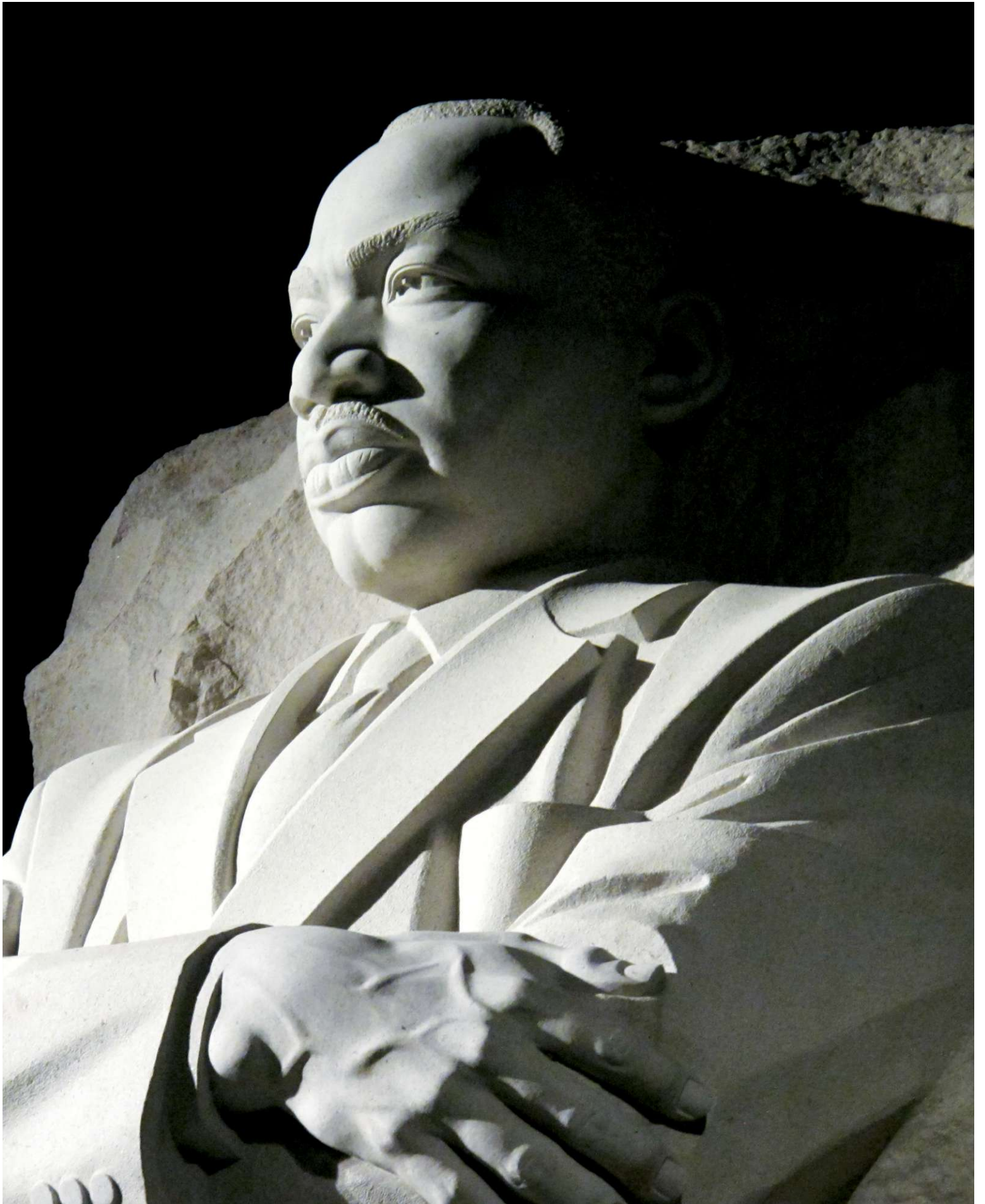
Gone are the days of cold interior LED lighting that feels like a sad substitute for incandescent. According to Delta Light USA, the future is all about a marriage of form, function, and beauty. "Before, LED interior lighting was either strong in design or in technology. Now we are able to do both," says Laurence Combrouze of Delta Light USA.

Standing in front of a display outfitted to feel like a warm residential interior, Combrouze showcased the company's Minigrid In Reo LED. This is a new generation of dimmable, recessed spots with the equivalent of a 35W to 50W halogen lamp, yet they consume less than 10W while delivering a powerful, warm light strong enough to brighten an entire room. The countersunk conical shape creates a seamless transition between the LED light and the ceiling, while a front ring generates a halo around the LED reflector, creating "an exceptional result," Combrouze says.

"We did this display to show that we [Delta Light USA] are not afraid to put LEDs in residential [settings]. Put this light into a condo and you make it feel like a home," she says. • E.E.D.

Details

Title: Delta Light USA **Team members:** Laurence Combrouze (Delta Light USA); Jean Laurent Raphel (Space Lighting); Mike Rodriguez (Regency); Roche Bobois **Materials/luminaires:** Minigrid In Reo LED, an 8W, 3000K dimmable recessed spotlight with a 33-degree beam reflector and an adjustable head zero to 350 degrees; and NYX, an 8W 3000K LED pendant



CIVIL LIGHTS

The lighting design for the Martin Luther King Jr. National Memorial commemorates Dr. King's life and illuminates an important moment in American history.

text by Elizabeth Donoff





Years in the making, a permanent place now exists in our nation's capital for the legacy of Dr. Martin Luther King Jr. and the civil rights movement. Located on the northwest edge of the Tidal Basin, part of the National Mall, the memorial site sits directly on the axis between the Jefferson Memorial and the Lincoln Memorial. This tribute to Dr. King, which opened in Fall 2011, is larger than the man himself, celebrating and commemorating the ideas and ideals that he stood for—freedom and justice—goals that are still being fought for today.

The Memorial Foundation was established to oversee this initiative, and in 1999, it launched an international competition to find a design architect, selecting San Francisco-based Roma Design Group. However, the initial design concept had no lighting, which was problematic because the memorial would be open to the public during both daylight and non-daylight hours. So in February 2007, architect and construction manager McKissack & McKissack approached lighting designer David Mintz. Although they were aware that Mintz had retired the year before and had closed his office, they knew his experience and expertise, from his lighting of the Lincoln and Jefferson Memorials, would serve the project well.

When Mintz closed his practice, the remaining projects that required see-through were turned over to lighting designer Randy Burkett. Because of the success of this arrangement, Mintz suggested that Burkett collaborate with him on the MLK project. The two developed a straightforward design that is exact yet not fussy, and creates an intimate setting for contemplating Dr. King's memory.

The design process involved an elaborate set of reviews with, among others, the Memorial Foundation, the National Park Service, the Commission of Fine Arts, and the Capitol Board. Mintz and Burkett presented a number of options to the parties involved before the final

lighting design scheme was decided on. Lighting such an important site, knowing that it would carry so much meaning for so many people, was an added pressure. "You have to detach yourself and ask, 'How do I solve what I perceive as being the technical and aesthetic challenges?'" Burkett says. "We wanted the lighting to help reinforce the experience of entering this memorial and to use light to help establish the mood and the atmosphere."

The memorial site is organized into four areas: the forecourt, the Mountain of Despair, the Stone of Hope, and the Inscription Wall. Although one can approach the site from many directions, there is a sort of "front-door" entry from West Basin Drive SW.

As you enter from the street, the court narrows in front of you. During the day, you are surrounded by a flat wash of gray- and cream-colored stone palettes. At night, however, the entire site and the progression through the space is made that much more dramatic by the presence of light.

Linear white-light LED fixtures line the underside of a concealed cove in the retaining wall along the forecourt walkway. The minimal amount of illumination provides just enough light on the path surface to signal that one is about to enter a special place. The forecourt leads visitors to the obliquely lit "Mountain of Despair," a masonry portal which serves as the principal threshold to the main feature of the site—the "Stone of Hope." As you walk through the darker passageway and continue your progression past this massive block of granite and toward the Tidal Basin, you turn back to discover the figure of Dr. King emerging from the solid mass of stone—and you also sense the greater amount of available light. From this spot, one understands that the "Stone of Hope" has emerged from the "Mountain of Despair."

To light the three-dimensional form of Dr. King—as he looks out over the Tidal Basin to the Jefferson Memorial, as if he were on a

Lighting such an important site, knowing that it would carry so much meaning for so many people, was an added pressure. "You have to detach yourself and ask, 'How do I solve what I perceive as being the technical and aesthetic challenges?'" Randy Burkett says. "We wanted the lighting to help reinforce the experience of entering this memorial and to use light to help establish the mood and the atmosphere."



The Jefferson Memorial Designed and constructed from 1939 to 1943, the Jefferson Memorial, on the south edge of the Tidal Basin, officially opened to the public in 1943. The original design contained no provisions for exterior lighting and it was not until the late '60s and early '70s that an exterior lighting design was implemented under the guidance of lighting designer Sylvan R. Shemitz. Shemitz's solution, completed in 1973, called for combining colored key and fill light to enhance the memorial at night using a combination of high-wattage incandescent and high-pressure sodium lamps. Fast-forward to 2001—the 200th anniversary of Jefferson's inauguration—and the 1970s sources, while appropriate at the time, no longer met energy and maintenance requirements. Lighting designer David Mintz was asked to relight the memorial, and did so using a combination of metal halide, ceramic metal halide, and induction-lamp technologies that allowed for close to 80 percent energy savings. In the last few years, the lighting has been upgraded again incorporating LED technology for additional cost savings.

Courtesy Osram Sylvania

stage—the lighting designers chose 150W T6 ceramic metal halide precision spotlights. The fixtures are mounted on two 45-foot-tall poles, one on each side of the sculpture, and include custom glare-shields, spread lenses, and neutral density filters to optimize the beam distribution and light intensity. The decision to use a spotlight strategy came about after a number of mock-ups were tested both off- and on-site. In order to achieve the kind of facial expressions and definition of shadows that they wanted, the lighting designers knew that they had to set the light at a higher mounting height than the statue itself. Hence the poles, which are nestled into the cherry tree groves along the site. And while they are not completely invisible, they do not draw attention to themselves.

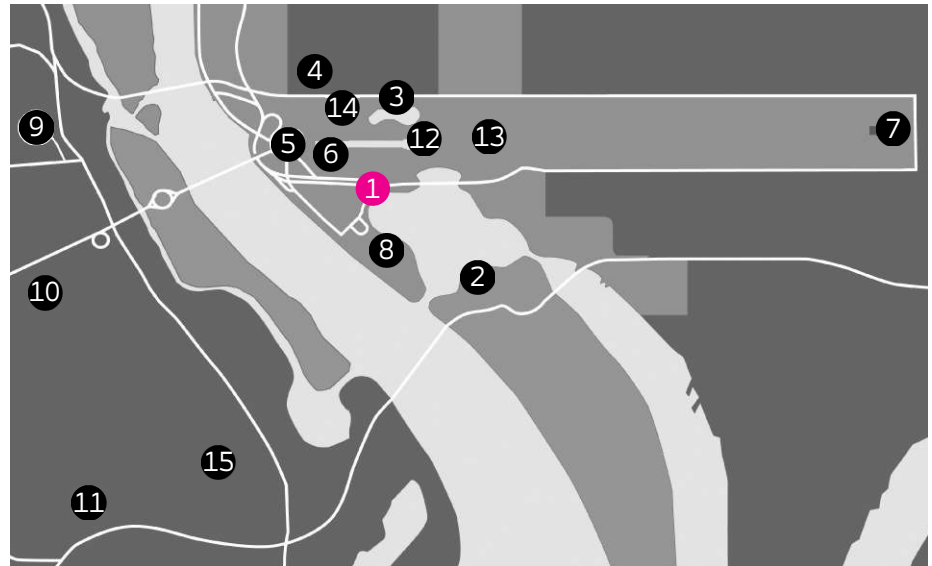
After viewing the statue of Dr. King, visitors then see the larger context of the memorial in the two long-curving Inscription Walls, which converge toward the “Mountain of Despair” and serve as the backdrop to the site. To the east side of Dr. King’s statue, the angled Inscription Wall runs 235 feet; to the west side, it runs 190 feet. The height of the wall varies from just over 4 feet tall at some points to almost 12 feet tall at others.

Embedded in the walls are 14 hand-carved inscriptions of quotations from Dr. King’s speeches from 1955 to 1968 on the subjects of justice, democracy, hope, and love. Here, it was important to provide a wash of light on the stone surface, with enough illumination so that the quotations could be read, given the dimensionality of the chiseled cuts of the letters. Burkett and Mintz decided on a T5HO asymmetric luminaire concealed in an in-ground trough along the base of the wall. The lighting designers worked closely with the manufacturer, The Lighting Quotient, as they did with all of the selected manufacturers, to refine the fixture details for an absolutely perfect fit and best illumination appearance.

Given the unique setting of the Martin Luther King Jr. National Memorial, the lighting designers were aware of how this project related to the city as a whole and the network of public spaces, monument, and memorials at the National Mall. “It’s about the perspective view and getting the most from the contextual surroundings,” David Mintz says. “The lighting leads you through the site and gives you a sense of place while still making you feel secure.”

Whereas the Jefferson and Lincoln Memorials are all about lighting a statue within a structure, the Martin Luther King Jr. National Memorial had a different goal. “It’s not a memorial about the man per se,” Mintz says, “even though that is what it is called, but it’s really about the ideas. The lighting is careful not to be too overpowering.” •

WASHINGTON, D.C.



1. Martin Luther King Jr. National Memorial
2. Jefferson Memorial
3. The 52 Signers of the Declaration of Independence Memorial
4. Albert Einstein Memorial
5. Lincoln Memorial
6. Korean War Memorial
7. U.S. Capitol
8. Franklin Delano Roosevelt Memorial
9. Iwo Jima Memorial
10. Arlington National Cemetery
11. Pentagon
12. World War II Memorial
13. Washington Monument
14. Vietnam Veterans Memorial
15. Air Force Memorial

Details

Project: Martin Luther King Jr. National Memorial, Washington, D.C.

Client: The Martin Luther King Jr. Memorial Project Foundation, Washington, D.C.

Owner: The National Park Service, Washington, D.C.

Architect of Record and Construction Manager: McKissack & McKissack, Washington, D.C.

Lighting Designers: David Mintz in association with Randy Burkett Lighting Design, St. Louis, Mo.

General Contractors: Turner Construction Co., Arlington, Va.; Tompkins Builders, Washington, D.C.; and Gilford Corp., Beltsville, Md.

Civil Engineers: Delon Hampton & Associates, Washington, D.C.

Landscape Architect: Oehme, van Sweden & Associates, Washington, D.C.

Structural Engineer: Thornton Tomasetti, Washington, D.C.

M/E/P Engineer: TM/R Engineering, Arlington, Va.

Project Cost: \$120 million

Lighting Cost: Not available

Project Size: 4-acre site

Manufacturers/Applications:


Bega (150W T6 ceramic metal halide precision spotlights fitted with custom glare shields, spread lenses, and neutral density filters to optimize beam distribution and intensity to light Dr. King’s statue)

Elliptipar, The Lighting Quotient (3500K T5HO asymmetric fluorescent luminaires modified with internal cross-baffles and factory-installed through-wiring, located in a concealed trough at the base of the Inscription Wall)

Philips Color Kinetics (LED fixtures along entry plaza)

Winona Lighting (70W PAR ceramic metal halide fixtures in planting areas to highlight trees)

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SPECIAL ONLINE FEATURE

THE FUTURE OF LIGHTING

Go to archlighting.com/pechakucha.aspx to view the Pecha Kucha-style presentations from the lighting industry's best minds, given during the magazine's 25th Anniversary Celebration Event held Dec. 8, 2011, in New York.

PRESENTATIONS

Lighting 2036
Lee Waldron

**Future of Lighting—
The Next 25 Years**
Lisette Ditters

All Light is Natural
Brian Stacy

**Thoughts on the Future
of Light**
Johannes Rudolff

Living in the Dark
Janet Lennox Moyer

**From Mona Lisa to Mocha
Lattes: LEDs Hit Primetime**
Michiru Tanaka

**Mitigating the
'Excess' Sky**
Rohit Manudhane

Emotional Lighting
Jeannine M. Fisher

**The Future of Light
Is Time**

Leni Schwendinger

Future of Lighting
Douglas James

Light in Tandem
Brian Smith

Vivid Light
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Randy Burkett

interview by Elizabeth Donoff
photograph by Stefan Hester

“In all aspects of what we do as professionals, there’s a teaching component—with clients, with colleagues, with students. You have to open your eyes to everything you perceive.”

One of lighting’s most respected practitioners and spokesmen (he served as IALD president from 1996–1997, and is currently chair of the IALD Metrics of Quality Committee), Randy Burkett has earned the admiration of his colleagues and clients by letting his work speak for itself. His firm’s St. Louis location hasn’t been an obstacle to establishing and growing a practice that has a global portfolio—from the U.S. to Mexico and China. An early interest in photography provided an awareness about light. While studying at Penn State University, this awareness grew into an understanding that aesthetics didn’t have to be sacrificed at the expense of technical pursuits. Instead, aesthetics and technical execution could come together in architectural engineering. Still, Burkett is a designer at heart. He understands light’s ability to have an emotional impact, which is at the core of creating environments that champion light.

How do you start the design process?

Whether it’s a highly technical or a highly aesthetic project, it’s best to get to know as much as you can about the project outside of the lighting.

Is every project somewhat unique or are there certain universals when it comes to lighting?

I think there are universals in our understanding of how light is perceived in space, but, as you move into a project, very quickly there are unique elements.

What current lighting trends are you seeing?

There are technology-driven trends, such as LEDs, and also there are trends in how we deliver our projects, i.e., AutoCAD. But perhaps the greatest trend is the public’s increased awareness and acknowledgement of lighting as a viable difference maker in social environments and interactions.

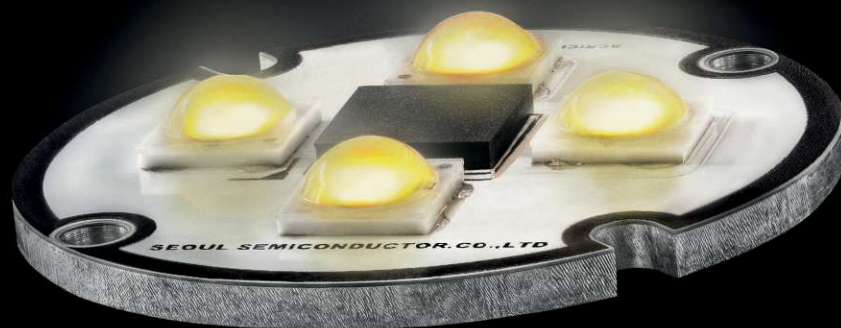
What is the best lighting lesson that you have learned from working with clients?

There’s great satisfaction working with clients time and again and developing that relationship, gaining their confidence and having them understand the value of lighting.

Pros and cons of working in the Midwest?

It can cut both ways. There are times it means a client won’t know who you are because you aren’t in a major city like New York or Los Angeles. On the other hand, once you do establish a practice and start working worldwide, local clients might get the misimpression that you wouldn’t be interested in working locally. •

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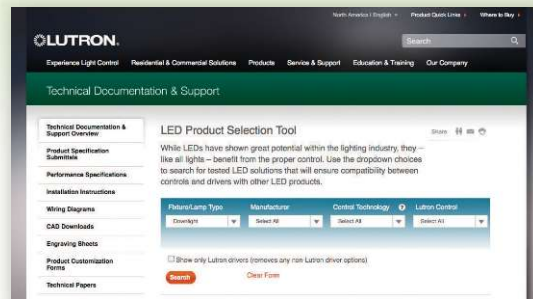
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