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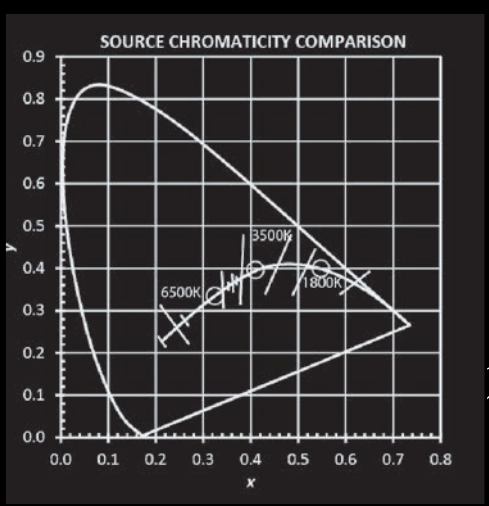

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THE MAGAZINE OF THE ILLUMINATING ENGINEERING SOCIETY

JUNE 2026 • VOLUME 56 • NO. 6 • MUSEUMS AND EXHIBITS

FIRST UP

PLUS

On the Cover
Custom IP-rated fixtures with spoon-reflector optics uplight ancient sculptures without glare. Photo: Grand Egyptian Museum

ALUZ

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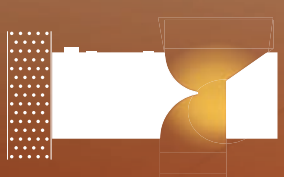
Happy 120th Anniversary IES



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BABA

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From concept to installation, without compromise.

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EDITOR'S NOTE

Today Is Your Birthday...

Between my friends and family—including two kids and seven nieces and nephews—it seems there's hardly a month that goes by without a birthday celebration. When the kids were younger, we would occasionally encounter the confounding party phenomenon in which non-birthday children received gifts along with the child of honor. I always felt this was a form of parental or grandparental poppycock, cloaked under the guise of "fairness" and ensuring that all kids were "happy." No wonder Toys "R" Us kids didn't want to grow up—they never learned how to celebrate others and check their egos at the door.

But as we know with most curmudgeons like me, there are always exceptions to the rules. This year marks a significant set of birthdays: the U.S.'s 250th and the IES's 120th. When the IES was born on January 10, 1906, in New York City, its most prominent founders included Louis B. Marks, Louis Bell, Herbert Ives, Norman Macbeth, and Clayton Sharp. However, the IES's influence and longevity are the result of contributions far exceeding the work of these five men. This celebration warrants more than 120 candles on its cake; it is a testament to decades of staff and volunteer efforts that have engaged hundreds of thousands of lighting professionals, students, and contributors worldwide through education, publications, standards development, and section activities. This is truly a birthday for the masses who have carried forward the IES mission "to improve the lighted environment by bringing together those with lighting knowledge and by translating that knowledge into actions that benefit the public."

Photo: IES

On February 10, 1916, Thomas Edison accepted an IES Honorary Membership from John Lieb, with Mrs. Edison in attendance.

David DiLaura's excellent history of the IES (*https://ies.org/about/history/*) reminds us of where the Society began, but what follows is something different: a look at how that foundation has been interpreted and extended in more recent decades. To mark the occasion, this issue of *LD+A* features an article authored by seven IES past presidents who reflect on the organization's highlights from the past few decades. I extend my thanks to Frank Agraz, Antonio Garza, Pamela Horner, Chip Israel, Alan Lewis, Mark Roush, and Dan Salinas for their contributions, with special thanks to Frank for helping bring the piece together.

This milestone belongs not just to the IES, but to everyone who has carried its work forward. Happy birthday to all!

Craig Causer

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THE MAGAZINE OF THE ILLUMINATING ENGINEERING SOCIETY

LD+A
LIGHTING DESIGN and APPLICATION

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landscapeforms

Inspired by Motion. Grounded in Place.

Typology ring lights at Clear Creek Welcome Center echo racing's rhythm across the landscape, sculptural by day and vibrant by night, guiding movement, signaling arrival, and celebrating Indiana's motorsports heritage.

Clear Creek Welcome Center | West Terre Haute, IN

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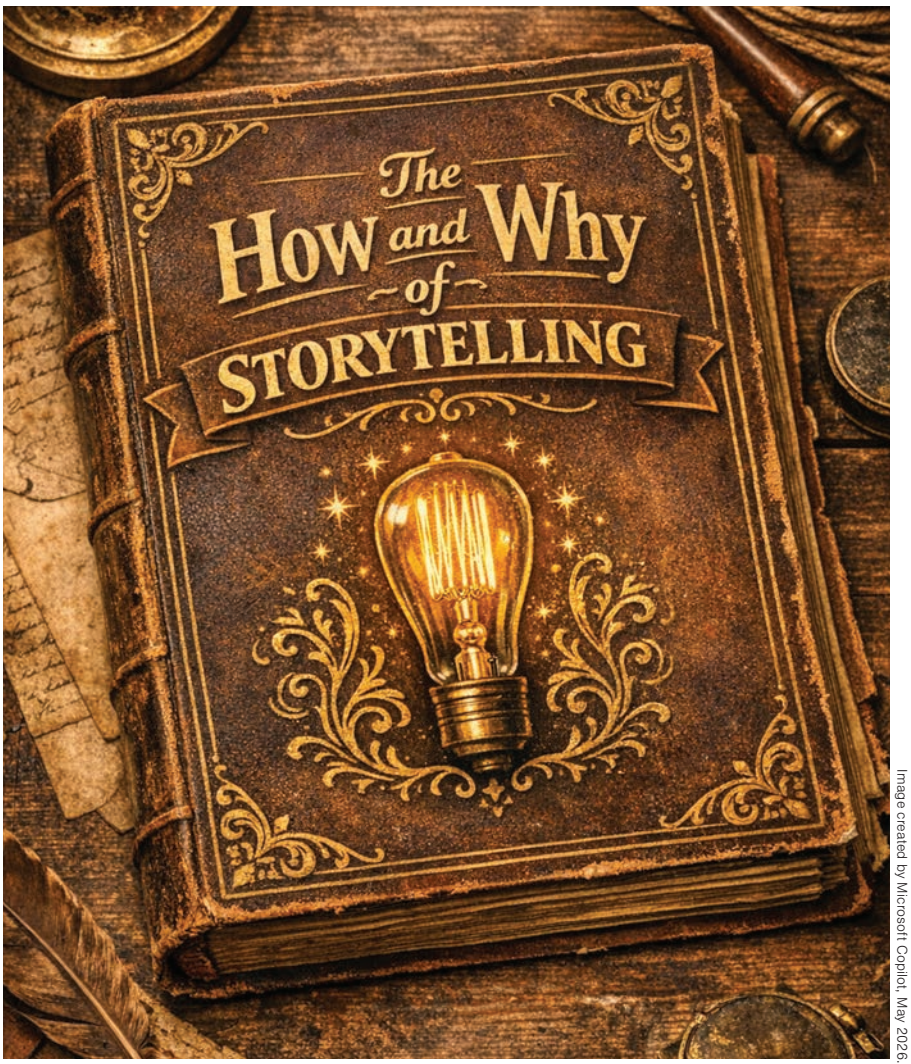

Image created by Microsoft Copilot, May 2026.

Why + How = Wow

I enjoyed the *LD+A*, May 2026 "Editor's Note." It is true that technology drives our industry but the stories as to "why" and "how" we use these technologies, in story form, is often lost to the economics and pace of the construction process these days. To keep people grounded to the "why" and "how," it is essential that lighting designers "tell" their stories, as they are what touches the emotions of architects and clients and, ultimately, are the reasons why lighting designers have jobs and are valued.

Additionally, it would be desirable for undergraduate and graduate programs to teach the importance of these skill sets for formulating the stories of the "why" and "how." We mentor employees as they join our firm to develop these skills to help improve and understand the value of communicating their visions for design; this way they can "sell" their design story and have clients become emotionally connected, as this gets clients on board to help support and defend it through the bid, procurement, and installation processes, and then designs can be executed, realized, and appreciated.

Keep up the interesting and philosophical commentary—I thoroughly enjoy it!

Ira Rothman, LC, Member IES
Senior Associate, Borealis Lighting Studio

USAI Lighting celebrates 120 years of IES leadership in lighting innovation.

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INSIGHTS

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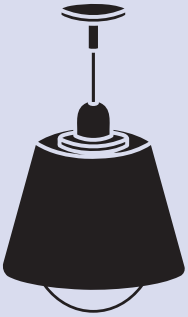
Photos: Moment Factory

Let Me Read Your Aura

Moment Factory's AURA series of site-specific, multimedia indoor experiences have expanded to a total of four marquee locations in the last year: Notre-Dame Basilica in Montreal, Canada; Dôme des Invalides in Paris; Grace Cathedral in San Francisco, CA (pictured left), and Saint-Roach Church in Québec City, Canada (pictured right). First launched at the Notre-Dame Basilica in 2017 to renew public engagement, the series utilizes pixel-by-pixel projection mapping to accentuate historical architectural details after dark and pairs shifting visuals with orchestral scores; the San Francisco and Québec sites serve as the most recent additions to the series' permanent collection. To meet rigorous conservation standards, Moment Factory teams meet with on-site preservationists, and the resulting reversible modular technology is integrated to near invisibility. The colorful reimaginings have emerged as drivers of regional tourism and earned international acclaim via the THEA Award for Outstanding Achievement, PRIX NUMIX awards, and a win at the Communication Arts Interactive Competition.

MERGERS & MORE:

- **Tridonic UK** was named Manufacturer of the Year at the 2026 *Insider* Made in the North East Awards, a regional recognition; the win allows the company to be considered for the Made in the UK Awards, which will be announced in November.
- **Vode**, a manufacturer of sustainable architectural lighting solutions, celebrates its 20th anniversary.
- **WAC Group** has appointed Greg Barrett, a lighting industry veteran with two decades of experience, as the director of Commercial Lighting Systems.



7.3%

The projected CAGR of the global market for lighting fixtures and luminaires between 2024 and 2030.

Source: Research and Markets

CU Boulder Accepting Apps for Graduate-Level Certificate

The University of Colorado Boulder (CU Boulder) is accepting applications for the Architectural Lighting Certificate program for the 2026 to 2027 academic year until August 15, 2026. Designed for professionals seeking to advance their expertise in architectural lighting, the graduate-level, nine-credit program comprises two online courses that will take place from September through May and an immersive capstone in July on campus.

Apeiro Lighting Designer and CU Boulder Architectural Lighting Certificate-holder Tatiana Baughman said the program "filled in key gaps in both the technical and creative aspects of lighting and gave me confidence in this field."

To apply or learn more about the program, visit *https://www.colorado.edu/rmla/architectural-lighting-certificate*.

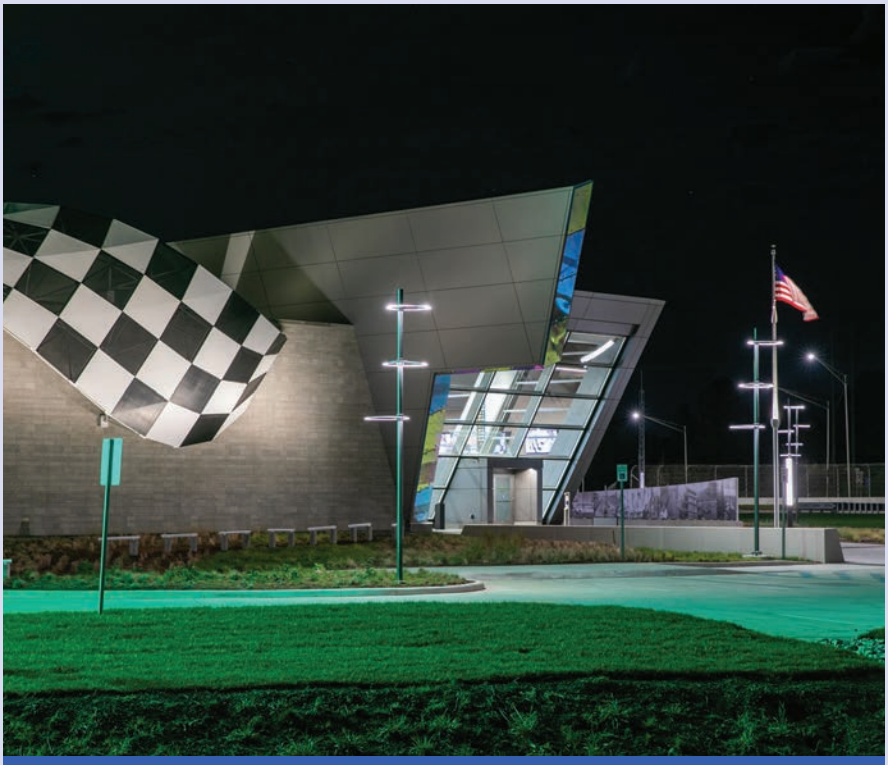


Photo: Matt Scott Media

Typology ring lights by Landscape Forms are a standout element of the design strategy at the new Clear Creek Welcome Center, a reimaging of the highway rest stop, located along I-70 in West Terre Haute, IN, celebrating the state's connection to motorsports. The circular-geometry fixtures were selected by designers from ESL Spectrum for their capacity to emit light in 360 deg from multiple luminaires, evoking the sense of motion around a track and allowing for uniform, wide-spread coverage while using fewer poles.

EVENTS

JUN 25

The IES San Francisco Section's Light! Design Expo returns to Pier 27 on San Francisco's Embarcadero. This annual event showcases the latest in architectural lighting products and attracts a wide range of exhibitors and design professionals.
https://lightdesignexpo.com

AUG 13–15

IES26: The Lighting Conference, the preeminent conference for all things lighting, will be held at the Denver Grand Hyatt in Colorado. The event will include peer-reviewed, poster, and technical presentations; workshops; and speaker sessions.
www.ies.org

SEPT 15–16

ArchLIGHT Summit, an event dedicated to delivering interactive experiences for lighting designers, specifiers, interior designers, and architects, will be held at the Dallas Market Center and showcase new products as well as host educational sessions.
www.archlightsummit.com

Seen by Staff

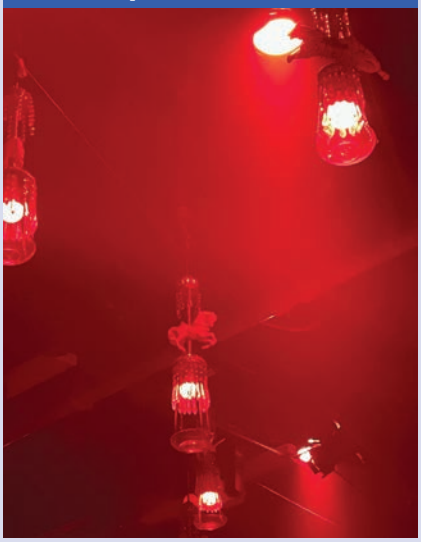


Photo: Michele Zimmerman

Vintage-inspired decorative ceiling fixtures at a cabaret theater in Brooklyn, NY, feature miniature carousel animals.

INSIDE HQ

From 1906 to Tomorrow

This year brings a remarkable milestone: the IES's 120th anniversary. Since its founding in 1906, the IES has been the authoritative voice for lighting knowledge, standards, and professional excellence. From gaslight to LEDs, from simple illumination to human-centric design, we've evolved alongside the lighting industry while remaining steadfast in our commitment to advancing the art and science of lighting. As we celebrate 120 years of impact, we're also looking forward—launching new initiatives, welcoming fresh talent, and preparing for what promises to be an exceptional year ahead.

Conference Season Ahead

Registration is now open for both IES26: The Lighting Conference and the Street and Area Lighting Conference (SALC), and I couldn't be more excited about what we have planned.

IES26 will take place from August 13 to 15 in Denver, bringing together lighting professionals for education, networking, and the celebration of excellence in our field. The keynote, "Our National Parks: Preserving for Future Generations," will explore the critical intersection of lighting, conservation, and visitor experience in these treasured landscapes. The broader conference program will tackle some of today's most pressing topics including AI applications in lighting, human health and circadian considerations, and sustainability in design and specification. The experience also includes the Illumination Awards gala, where we'll honor the year's most outstanding lighting achievements across multiple categories.

SALC returns November 8 to 11 in Phoenix, and we're anticipating over 1,000 attendees from across the globe. This conference consistently delivers cutting-edge technical content and unparalleled networking opportunities for professionals focused on exterior and roadway lighting applications. Of note: the SALC golf tournament is back this year for the first time since 2019.

Both conferences represent significant investments in member education and community building. I hope to see many of you in Denver and Phoenix.

Growing Our Team

I'm pleased to welcome Owen Lewis as our new coordinator of Sales and Marketing. Owen joins us at a time of organizational growth, supporting both the IES and AES in our marketing and sales efforts. His responsibilities will span graphic design, social-media management, exhibitor and sponsor relations, and general event support. This addition strengthens our capacity to deliver professional, compelling communications and ensures our conferences and programs receive the marketing attention they deserve.

Lights, Camera, Action!

Lighting, and the IES specifically, will be featured in upcoming episodes of *America ByDESIGN*. While we don't yet have air dates, we expect these episodes to appear in 2026. The show will spotlight extraordinary projects that IES Members have worked on, showcasing the artistry, technical expertise, and impact of exceptional lighting design.

When we evaluated whether this was the right fit for us, what stood out most is that it represents a tremendous opportunity to elevate the lighting profession in the public consciousness. Too often, great lighting goes unnoticed precisely because it does its job so well—creating atmosphere, enhancing safety, supporting human activities—without calling attention to itself. *America ByDESIGN* will pull back the curtain and help audiences understand the thought, skill, and intention behind the illuminated environments they experience daily. Stay tuned to the IES social-media channels for more details.

Technology Improvements

We've launched a new MyIES portal designed to improve the user experience and put more information at your fingertips. The updated system more clearly differentiates between IES Individual and Sustaining Memberships for those who hold both, provides easier access to member discounts, and will eventually house all receipts for purchases made through the IES including memberships, event registrations, publications, and more.

These improvements reflect our commitment to making your interaction with the Society as seamless as possible. Your time is valuable, and technology should work for you, not create endless frustration.

Supporting Our Sections

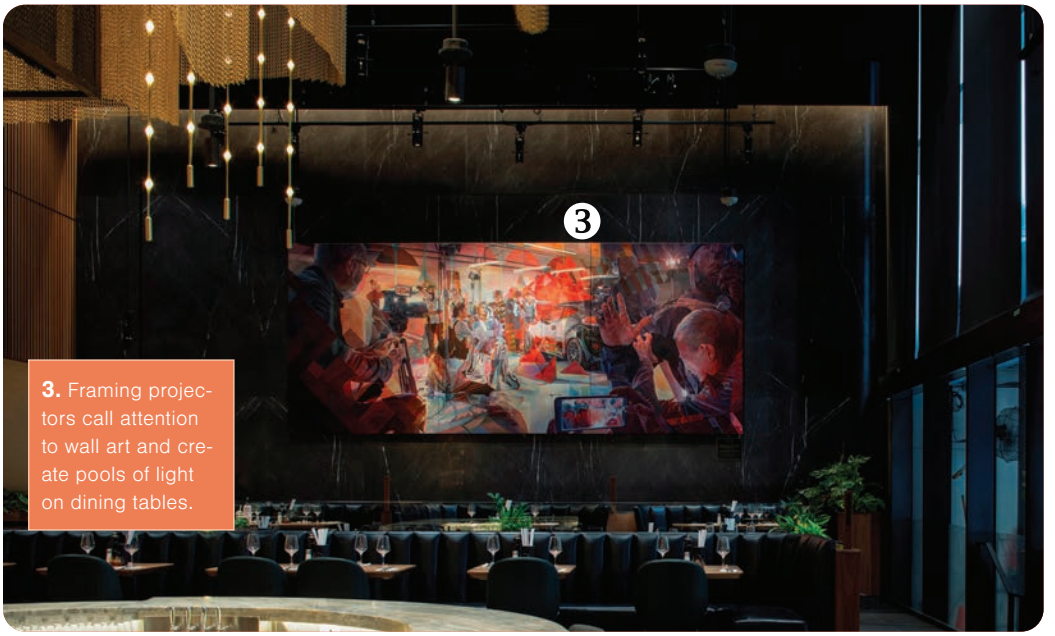
We're expanding our communications with a new newsletter specifically for section leaders. This communication tool facilitates sharing of best practices among sections, strengthens communication between regional directors, district chairs, and their section leaders, and encourages sections to experiment with new programming and engagement strategies.

Our sections are the lifeblood of the IES's grassroots presence. The volunteer leaders who organize local meetings, coordinate professional development, and build community in cities and regions deserve every bit of support we can provide. This newsletter is one small way we're working to ensure section leaders feel connected, resourced, and inspired.

Colleen Harper
IES CEO and Executive Director
charper@ies.org

1. Lights grazing artisan-made chain-metal drapes gradually turn on as service shifts and increase the feature's opacity, creating the feel of smaller, more intimate spaces.

2. Regressed light sources set to 3500K are strategically placed throughout the open kitchen, directing illumination onto work surfaces; warmer 2700K illumination envelops dining areas.



3. Framing projectors call attention to wall art and create pools of light on dining tables.

Photos: Ruby Photo Studio; rubyphotostudio.com

How THEY DID IT

"JOEY, KING STREET"

A modern, upscale restaurant in Toronto challenged designers from **ThinkL Studio** to create a lighting system that would provide a sophisticated ambience while transitioning seamlessly from lunch service to dinner. The solution: a layered scheme with more than 100 individually controllable zones to balance ambient, decorative, and task lighting.

Paul Pompeo

"Rushing into a new role at a new company without assuring if the culture is a fit—even if the compensation is alluring—may be a decision you regret later."

MANY OF US CAN APPLY THE SAYING, "Hindsight is 20/20" to some point—or sometimes multiple points—in our lives. Part of Pompeo Group's process as we profile candidates is to discuss a candidate's reason(s) for leaving their current and/or previous companies. The purpose of this column is to take someone else's hindsight and hopefully turn it into your foresight. For anyone examining a career change and/or weighing more than one opportunity, here's a chance to learn from others' mistakes: Listed below are eight common career moves that may seem smart but oftentimes backfire.

1. **Jumping jobs too quickly for small salary increases.** This is probably the most common of all the mistakes and something that can give many employers pause. While initially feeling like a win, with each step bringing slight increases in compensation, this eventually leads to a resume that is like a train with many brief stops. It often leaves employers wondering why the candidate hasn't put a stake in the ground to show they can build something and advance within a company. This scenario is akin to a single person who flits from relationship to relationship for the promise of something slightly better, eternally seeking greater satisfaction but rarely reaching their goal.
2. **Chasing titles without scope or resources.** Sometimes a candidate has a "next" position in mind in their career trajectory—whether it's a vice president of sales or chief technology officer moving on to become the president of a company or a regional sales manager accepting an offer as a national sales manager or vice president of sales with a new company. The title seems appealing, but does your new employer offer the resources necessary for you to be successful for such a career step? Look carefully... the details matter.
3. **Accepting a counteroffer from your current employer and turning down an offer you already accepted.** I have written about counteroffers many times over the years—google "career suicide" to see more. The bottom line is that there is usually a reason you want to leave a company, and reneging on your decision to do so is not only bad career karma, but after staying, people are often soon reminded of the things that prompted them to want to make a change in the first place.
4. **The promise of an agency partnership.** It's been said that the most prevalent "lie" told in lighting is, "You can become a partner/principal." For some reason, this scenario seems much more prevalent with rep agencies than it does with design firms, but countless high-potential employees have been persuaded to stay at their agency with a promise of some sort of ownership/equity. This is similar to the optical illusion of water shimmering on a desert highway—a goal that forever keeps distancing itself as one seemingly approaches it.
5. **Ignoring your executive recruiter's professional advice.** This may sound like a shameless plug, but two things can be true at once. A seasoned search professional (especially if they specialize in a specific niche) can be your career's best friend. If the recruiter is someone whom you trust, then

Image generated by Microsoft CoPilot, April 2026.

doing the opposite of their counsel is like ignoring what your doctor, CPA, or attorney advises. You might find you would have been better served by listening to the expert.

6. **Prioritizing remote flexibility over visibility (depending on role).** Talk about the third rail! Whether a position should be fully in-office, remote, or hybrid is a polarizing topic these days, and candidates and companies don't always see eye-to-eye on this issue. The more senior the role within a lighting manufacturer, design firm, or distributor, the more likely the company is to prefer a candidate who is willing to take an in-office position or, if hybrid, an in-office leaning model. So, as a candidate, sometimes an opportunity may be dependent on how much you really want it and if this is a hill you really want to die on.
7. **Ignoring cultural fit for compensation.** This is important. Over the years, I have realized that a big part of a successful search isn't just finding a candidate who can perform the required tasks of a role, it's finding the right candidate whose chemistry lines up well with the hiring manager and identifying a candidate who is a good fit for a company's culture. Rushing into a new role at a new company without assuring if the culture is a fit—even if the compensation is alluring—may be a decision you regret later.
8. **Staying too long in a comfortable role.** It happens frequently, when lighting professionals turn down listening to opportunities because they are "comfortable." Now, more than ever, just being comfortable is not the safest place to be. The adage that "growth comes to you outside of your comfort zone" is often true for lighting professionals. Staying in your comfort zone often results in your company making decisions for you. One of our least favorite calls to take is from candidates who declined to listen to an opportunity because they were comfortable and are now out of work. Usually that position that they passed on is no longer available, and they find themselves outside of their comfort zone, but in the worst sense of the term.

Paul Pompeo is president of Pompeo Group (*www.pompeo.com*), an executive recruitment consultancy in lighting, electrical, and controls.

CROSSING BEAMS | When the Lighting Community Comes Together

Katia Kolovea

“Alongside these broader conversations, there is another layer that becomes increasingly visible when the industry comes together: the presence of the younger generation.”

WHEN THOUSANDS OF PEOPLE from the same industry gather in one place, there is a moment when something shifts. This shift is not on stage or on stands but in between: in spontaneous conversations, questions that are repeated across different rooms and informal meetups, and the quiet recognition that, despite working in different countries, cultures, and contexts, we are often facing the same challenges.

Light + Building in Frankfurt, Germany, back in March was one of those moments. Not because of its scale, but because of what it revealed when the lighting community came together on a global scale.

But being in the same place does not automatically mean that we are truly connecting. And there are many ways to define what “connection” means.

When an industry gathers at this scale, it is easy to assume that exchange is happening naturally—that ideas are being shared, perspectives are challenged, and we are collectively moving forward. In many ways, this is true. There is energy, curiosity, and a willingness to engage, share, and connect.

Yet, there is also a sense of repetition. The same questions surfacing in different conversations, similar challenges being described from different perspectives, and familiar intentions expressed, without always translating words into action or knowing exactly what to do next. It makes one pause and wonder: Are we really exchanging or are we simply coexisting in the same space while sharing the same stories from our own point of view?

In Frankfurt, this became particularly visible. One of the most valuable aspects of these types of gatherings is the opportunity to reconnect across contexts—to meet people from different parts of the world, check in with colleagues you have encountered in other settings, and recognize patterns that extend beyond local realities. Conversations that begin in one place continue in another, often revealing that the challenges we face are not isolated, but shared.

Across various discussions, certain topics kept returning. AI was one of them—not as a resolved direction but as

Photo: Katia Kolovea

Light + Building brings together a global industry, but its value extends beyond what is presented on stage.

an open question. On one hand, there is a clear interest in how these tools can support our work, making processes more efficient and allowing for more time to focus on creative thinking. On the other hand, there is an underlying concern: What happens to the role of the lighting designer as these tools become more capable? Where does authorship sit? How do we define value in a context where output can be generated in seconds?

Another reflection that surfaced repeatedly focused on innovation. Many attend Light + Building expecting to discover what is next. While there are continuous improvements, refinements, and optimizations, there is also a growing sense that the industry is not necessarily moving through radical shifts but through incremental evolution.

This suggests a subtle shift in expectation. Perhaps the value of these events is not only in discovering something new but also in strengthening relationships: meeting the people behind the products, building trust, exchanging perspectives, and finding alignment. Because in the end, what moves projects forward is not only innovation, but collaboration.

Creating Experiences

What also stood out in Frankfurt was the effort from some brands to rethink how they engage with their audience. Rather than focusing only on displaying products, there were attempts to create experiences, inviting people to interact, experiment, test, and play. Installations were on display that encouraged visitors to directly engage with light and explore lenses, colors, and applications.

This shift, although not consistent across the show floor, felt significant. It reflects a broader question that extends beyond exhibitions: How do we communicate lighting to different audiences?

In a previous column, I reflected on the challenge of language within our industry and the difficulty of translating lighting value across disciplines. What became clear in Frankfurt is that communication is not only verbal, but also experiential.

When people are invited to engage with light physically—when they are provided with the opportunity to test, compare, and observe its effects in real time—the conversation changes. It becomes more immediate, intuitive, and accessible beyond the professional language on which we often rely.

This was particularly evident in installations that focused on application rather than abstraction, such as environments that allowed visitors to experience lighting within familiar contexts, such as working, living, or learning spaces, rather than as isolated products. It created a clearer connection between design intention and everyday use.

This kind of approach begins to bridge a gap. If we want lighting to be understood beyond our own discipline, we need to move beyond explaining it and start demonstrating it in ways in which others can relate.

Visualizing "Community"

What becomes clear in these moments is that the value of coming together is not only in what is presented but also in what is collectively processed. Across assorted formats, from talks and panels to more informal gatherings, there is a shared effort to create space for dialogue. Not only to showcase work, but to question it. To reflect on where the industry is going, what it is prioritizing, and what still feels unresolved. This

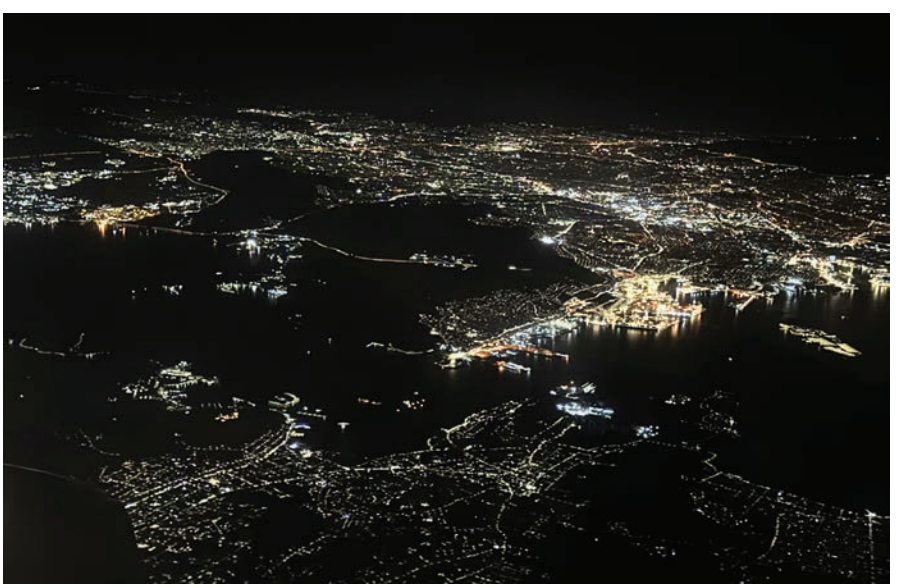


Photo: Katia Kolovea

Arriving in Frankfurt, Germany, for Light + Building: A shared destination, shaped by different journeys.

Photo: Katia Kolovea

"Living Light" allowed attendees to experience lighting in context, where its value becomes more immediate, intuitive, and accessible.

Photo: Women in Lighting

The Women in Lighting community creates space for dialogue, visibility, and shared understanding across cultures and perspectives.

becomes particularly visible through the growing presence of global initiatives and community-led platforms, as well as mentorship programs, awards, and curated events that bring together diverse voices and perspectives.

This is where the role of community becomes visible—not as a concept but as a structure that supports exchange, learning, and visibility. It's a space where different voices can be heard, experiences can be shared across cultures and generations, and the profession can begin to understand itself more clearly. Perhaps most importantly, it serves as a space where people feel less isolated in the challenges they face. This kind of structure does not happen by default; it is built intentionally.

Alongside these broader conversations, there is another layer that becomes increasingly visible when the industry comes together: the presence of the younger generation. In Frankfurt, this was noticeable in attendance as well as the questions being asked. There is a strong desire to understand, contribute to, and find a place within a profession that is still evolving. At the same time, there is also a sense of uncertainty. In many of the conversations I had, early-career designers were not only interested in technical knowledge but also in understanding how to navigate the profession itself: how to position their work, communicate their ideas, collaborate across disciplines, and feel that they are part of something that is open, supportive, and accessible.

This is where mentorship becomes critical, serving as a structured part of how the industry grows. It's a way to transfer not only knowledge but also confidence, perspective, and access. Because for many entering the field, the challenge is not just learning how to design but understanding how to exist within the profession.

While mentorship has traditionally been embedded within companies or more closed professional structures, often shaped by proximity, hierarchy, or access, there is a growing shift toward more open, cross-industry forms of support that aim to expand visibility and opportunity beyond immediate networks. This shift is still evolving, but its impact is already beginning to reshape how the next generation connects to the profession.

When we come together as an industry, we often focus on what is visible: installations, products, and presentations. The real value lies in the conversations that continue beyond the event, connections that evolve into collaboration, and shared understanding that begins to take shape over time. The future of lighting will not be defined only by innovation but by how well we learn to work together, openly exchange, and intentionally support one another across disciplines. Maybe the most important question is: How willing are we to create a profession that is not only advanced in what it produces but inclusive in how it grows?

Coming together is not the outcome, it is the starting point. What we choose to do with that proximity is what will define what comes next.

Katia Kolovea is a lighting designer and communications strategist working internationally through ARCHIFOS. Her work includes leading and contributing to global lighting initiatives such as the Silhouette Awards, The Lighting Police, Women in Lighting, and the Virtual Lighting Design Community.

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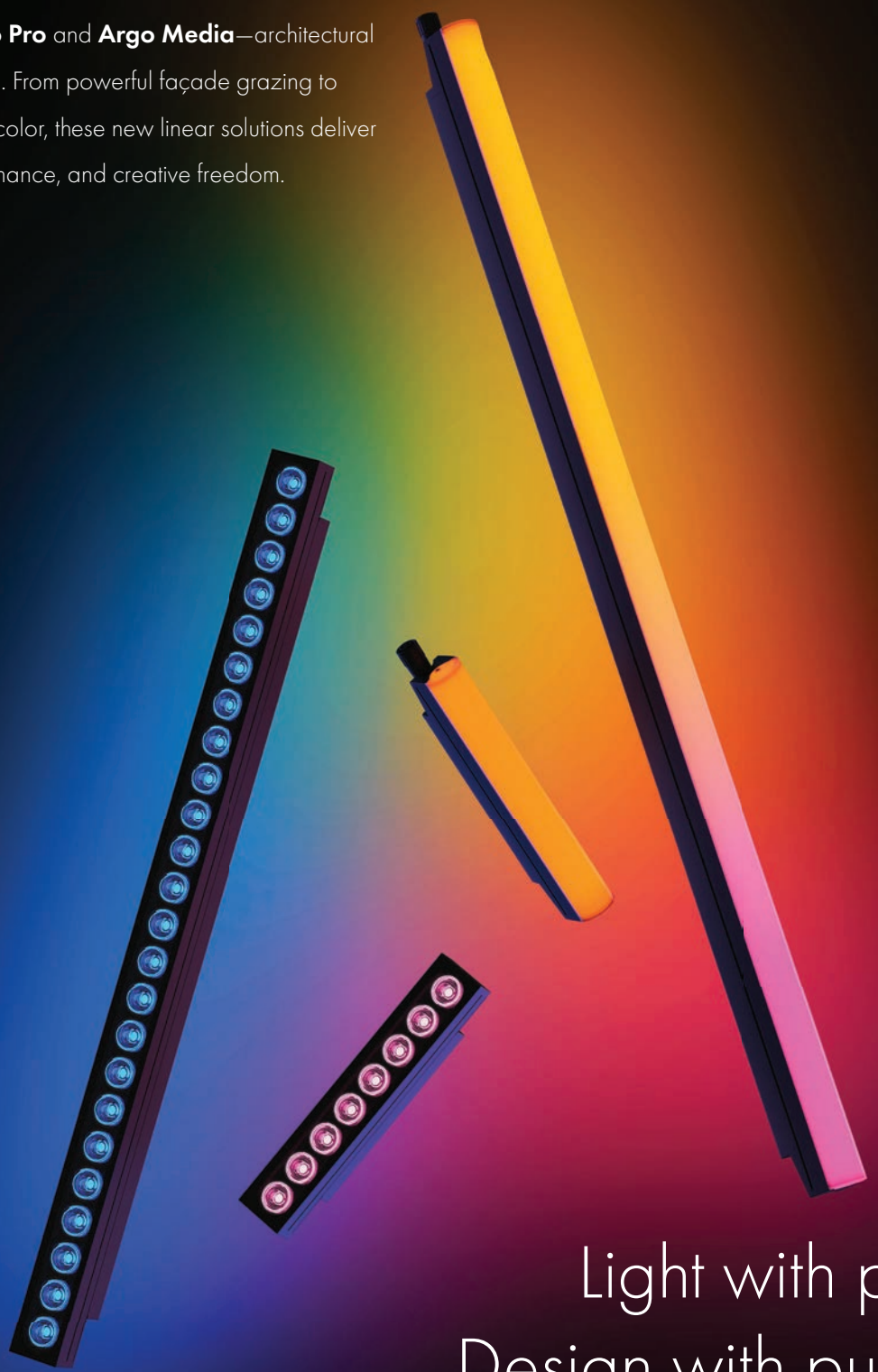

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MARATHON

Naomi Miller, Mary Beth Gotti, and Rachael Stoner

"I'M MAD AS HELL, and I'm not going to take this anymore!" —Howard Beale, *Network*, 1976.

"There are a plethora of issues and ideas that came out of these sessions at the conference, some of which were so exciting that you could hear the session leaders squealing at seeing the idea sheets handed in."

At IES25: The Lighting Conference in Anaheim, CA, last August, more than 300 specifiers, reps, lighting and controls manufacturers, electrical distributors, showrooms, and industry organization folks gathered to brainstorm over their greatest frustrations in the lighting biz today. The questions were plenty: Why must lighting be so hard? Why is it that everyone from building owners down to residential customers (wandering hopelessly around big-box stores) are stymied about lighting? Why is it so difficult to figure out the color, color rendering, and beam angle of light bulbs on the store shelves? Why are the box colors of 5000K lamps yellow and the box colors of 2700K bulbs blue? Why can't I figure out how to dim one set of 2-ft by 2-ft lights in the corridors of a care center when the entire lighting system is allegedly "easily" controlled with a phone app? Why can't a facility manager quickly locate a replacement part for a failing luminaire and have the local electrician install it?

Instead of spending the entire conference session grousing about these and other pet peeves, we decided to start with a bit of perspective sharing from different industry folks. Tables of participants then chose one or two lighting frustrations and articulated what the solution might look like.

The session was led by former IES President Randy Reid, who kept things moving and organized. Five speakers provided industry insights from their own specialty perspectives. Mary Beth Gotti donned her ALA and NLB hats and shared how lighting showrooms and direct-to-consumer lighting products are facing marketing and education challenges. Carol Jones explained what realistic approaches are being studied for replacement components and future proofing of control systems. Alex Baker provided a perspective through a NEMA lens. Naomi Miller discussed challenges that specifiers have when dealing with substitutions, ensuring product compatibility, and sustainability

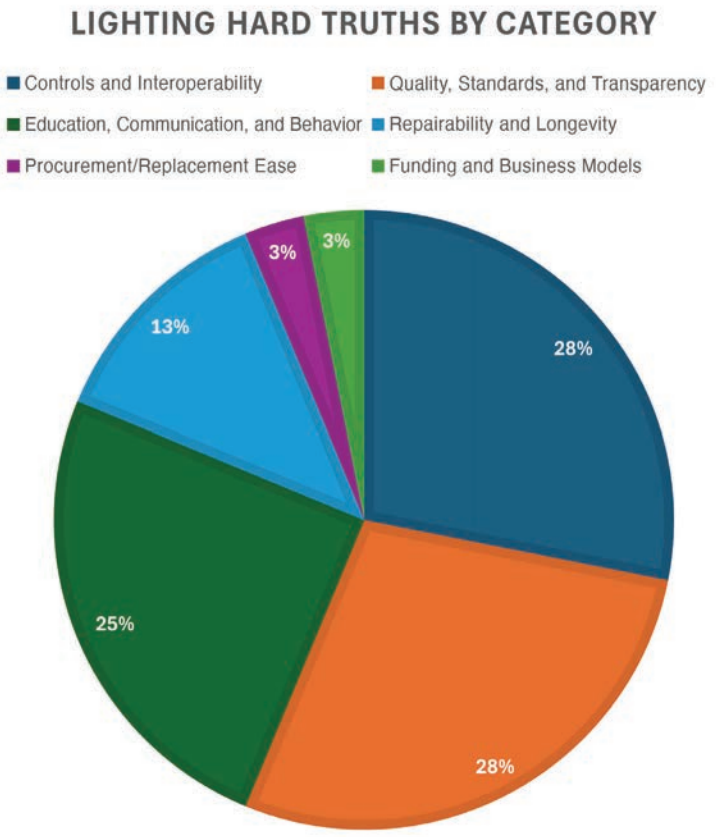
Photo: Rachael Stoner

Holding the IES25 session in the main ballroom extended conversations through lunch and allowed participants to share ideas with the manufacturers exhibiting at the conference.

concerns. Brienne Willcock provided a perspective through the IES lens, featuring known challenges with adoption of the standards and recommended practices. Behind-the-scenes help and organization was orchestrated by Cy Eaton and Rachael Stoner.

There are many different gripes one could have about the lighting industry, and we all came together in Anaheim to brainstorm how to fix things. Participants were shuffled to different tables upon entry with hopes of meeting new people and hearing fresh perspectives instead of maintaining echo chambers with like-minded friends. Ultimately, what steps needed to be taken to achieve those solutions were shared.

- One commonly cited problem is replacement parts. An LED driver fails. (Let's assume the facility manager somehow knows the driver has failed and not the LED board or wiring or the control signal.) A solution would be a QR code on the driver that could be captured and would take the electrician to the website for the part, explaining how to order the correct replacement driver with wiring instructions.
- What if parts for a whole-building control system are no longer available because the company is out of business or the product line has been discontinued? Must the facility manager yank out all the wiring for the complete system and replace it from scratch? It's more tempting to install dumb wall switches and grumble about mandatory energy codes. Yet, what if an AI interface could be installed and fed some product numbers for the obsolete system and automatically translate signals from a different manufacturer's control panel to send the signals needed for the existing equipment to interpret correctly? Perhaps that saves all the rewiring cost and hassle.
- How do we get end users to understand the psychological effects of light? There is a lot of misinformation out there, in part because any social media influencer can make a statement without citing credible sources. Education is often done at conferences and webinars for professionals, yet there isn't much chatter from professionals to laypersons because that takes time, effort, and scarce funding. Wouldn't it be great if there were more education efforts for those outside of the lighting industry via shortform content?
- When a lighting professional specifies a lighting product or controls system, and the contractor/owner suggests a value engineering substitution, how does the specifier quickly evaluate the myriad implications of that change? Wouldn't it be great to have identical data templates for each product so one could quickly compare features and characteristics?



The collected data revealed some of the hard truths the lighting industry faces.

Hard Truths

Are these bright ideas an easy button to fix the hard truths? No. We need conversation and industry buy-in to solve these problems. Specifiers are already pinched on design fees and are not thrilled about the often-unpaid efforts of evaluating substitutions. Lighting showrooms may feel like they are getting stuck teaching consumers how to understand the technical world of lumens and TM-30, when they are competing with online retailers that do not teach, own/rent no real estate, and sell at temptingly low prices. In addition, the implementation of industry-wide standards may threaten a manufacturer's proprietary IP, ingenuity, and industry edge.

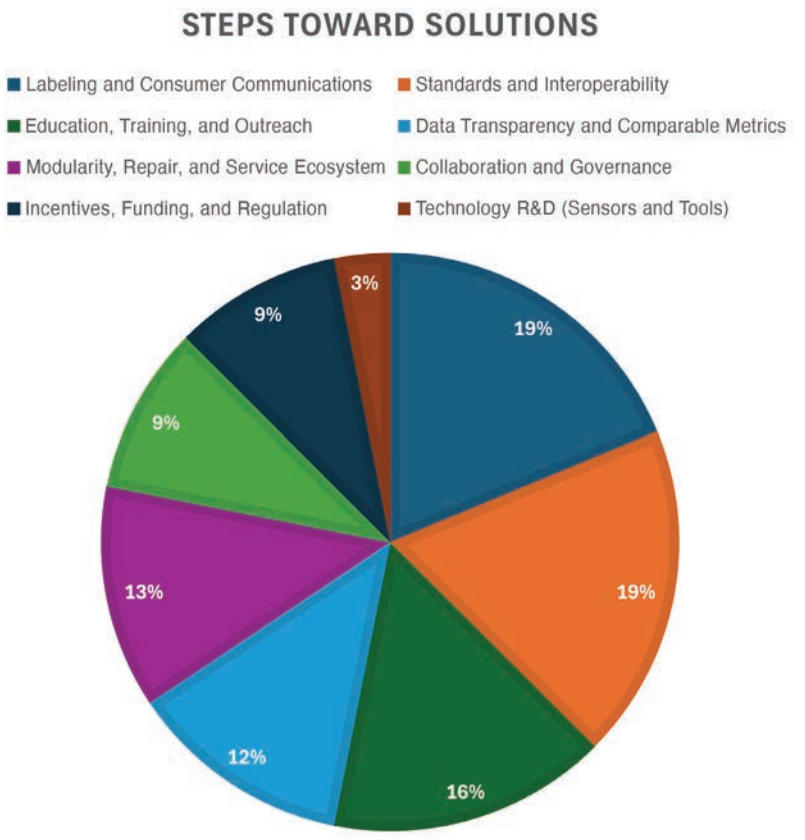
But those same bright ideas could also help manufacturers with common parts, sockets, and protocols. Manufacturers

could concentrate on their special sauce without having to invent unique burgers. Holistic solutions, like those brainstormed at IES25, require input from lighting folks from varying perspectives to ensure success that echoes throughout the industry.

We collected worksheets at the end of the session, then reviewed and tabulated the data. Grouping some alike topics resulted in a total of six categories of "hard truths," and when the "bright ideas" were grouped, it resulted in eight categories. It's encouraging to see varied ideas to progress toward solutions.

There are a plethora of issues and ideas that came out of these sessions at the conference, some of which were so exciting that you could hear the session leaders squealing at seeing the idea sheets handed in. Where do we go from here? How do we organize more brainstorming sessions on Right to Repair, Better Communication to Consumers, Teaching Light and Health to Homeowners, How to Avoid Tossing Expensive Lighting into the Landfill after Five Years, and dozens more? Is regulation or standardization helpful or a hindrance? What carrots and sticks can we implement, and how are the IES, IALD, ALA, NEMA, DLC, DLF, NAILD, and so many other consensus and compliance bodies going to smooth these transitions? Let's figure this out together.

We will be at it again during IES26: The Lighting Conference in Denver this August, expanding the conversation with new and invigorating prompts. We hope you will attend, be inspired, share your bright ideas, and sign on to help make it easier and more sustainable to be in this exciting lighting community. Registration for the event is open—visit *https://ies.org/events/ies26/* to sign up. We look forward to concocting more bright ideas.



Participants offered bright ideas and proposed steps to solve various challenges.

All brilliant ideas were once regarded as crazy. This slide from the presentation encouraged outside-the-box thinking.

Naomi Miller, Fellow IES, Fellow IALD, 2024 IES Medal recipient, is newly retired from a career in lighting and still trying to fix some of the flicker, glare, and application struggles in her beloved community.

Mary Beth Gotti, Member IES, is the chair of the National Lighting Bureau, serves on the Board of the Nuckolls Fund for Lighting Education, and is the Technical Consultant for the American Lighting Association.

Rachael Stoner, Member IES, Design Member IALD, leads EXP's Chicago lighting studio and has been involved in lighting design for 14 years.

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CONSERVING OUR NIGHT SKIES AND SENSITIVE WILDLIFE

Featuring:
Phil Schmalz, LC, Senior Direct Sales Representative
Andrew Feldman, Regional Sales Manager, Cyclone Lighting

What is Turtle-Friendly Lighting?

Phil: Turtle-friendly lighting is defined by specific parameters set by the Florida Fish and Wildlife Conservation Commission (FWC), which specify the use of true amber-emitting diodes and limited wavelength amber LED lighting. Phosphor-coated amber is typically not permitted due to differences in lumen output and sustainability. These strict guidelines ensure that the lighting does not interfere with the natural behaviors of turtles, particularly during nesting and hatching periods.

Andrew: The concept originated from research by the FWC. It has since expanded to be more broadly termed as wildlife-friendly lighting, as it affects not only turtles but also migratory birds and other species. Research indicates that artificial lighting impacts various wildlife, leading to the need for specific lighting solutions. This shift reflects a growing awareness of the broader ecological impacts of artificial lighting.

How Does True Amber LED Lighting Work?

Phil: True amber LED lighting operates at a specific wavelength (around 550 nanometers) that does not attract turtles or mislead hatchlings away from the ocean. High levels of shielding are also critical to minimizing reflection and attraction, ensuring wildlife is guided by natural cues like moonlight rather than artificial sources.

Andrew: True amber LEDs are preferred over phosphor-coated LEDs because phosphor coatings can degrade over time. True amber LEDs provide a narrow wavelength range that is less visible to wildlife, making them more effective for wildlife-friendly applications. This stability and reliability make true amber LEDs a sustainable choice for long-term wildlife protection.

How Do Amber and Full Cut-Off Illumination Preserve the Night Sky?

Phil: Amber light, particularly true amber LED lighting, operates at a wavelength that minimizes skyglow, which is the brightening of the night sky caused by artificial lighting. This type of lighting reduces the amount of blue light emitted, which is a major contributor to light pollution. Full cutoff fixtures are designed to direct light downward, preventing it from spilling into the sky and surrounding areas. As a result, the combination helps preserve the natural darkness and clarity of our night sky.

Andrew: The use of amber light and full cutoff fixtures is crucial for maintaining dark skies, especially in areas near observatories and natural parks. Amber light reduces the impact on nocturnal wildlife and minimizes the disruption of natural behaviors. Full cutoff fixtures ensure that light is used efficiently and only where it is needed, reducing unnecessary light pollution. This approach not only benefits wildlife but also enhances the quality of life for humans by preserving the beauty and clarity of the night sky.

What Solutions does Acuity Offer for Amber Lighting?

Phil: Holophane® and American Electric Lighting® offer several products with true amber options, including the Autobahn, Wallpack, and decorative fixtures like the Taft or Washington. On a project basis, we are able to accommodate custom requests for other products to emit true amber. These products are designed to meet the stringent requirements of wildlife-sensitive areas while also delivering good lighting performance.

Andrew: When it comes to the Cyclone brand, much of the portfolio is customizable to the needs of our customers and their applications. One of the ways we do this is with our Orion LED engine, which can be adapted to true amber for various fixtures. This flexibility allows us to meet specific project needs and provide wildlife-friendly lighting solutions.

By the Power of Ra

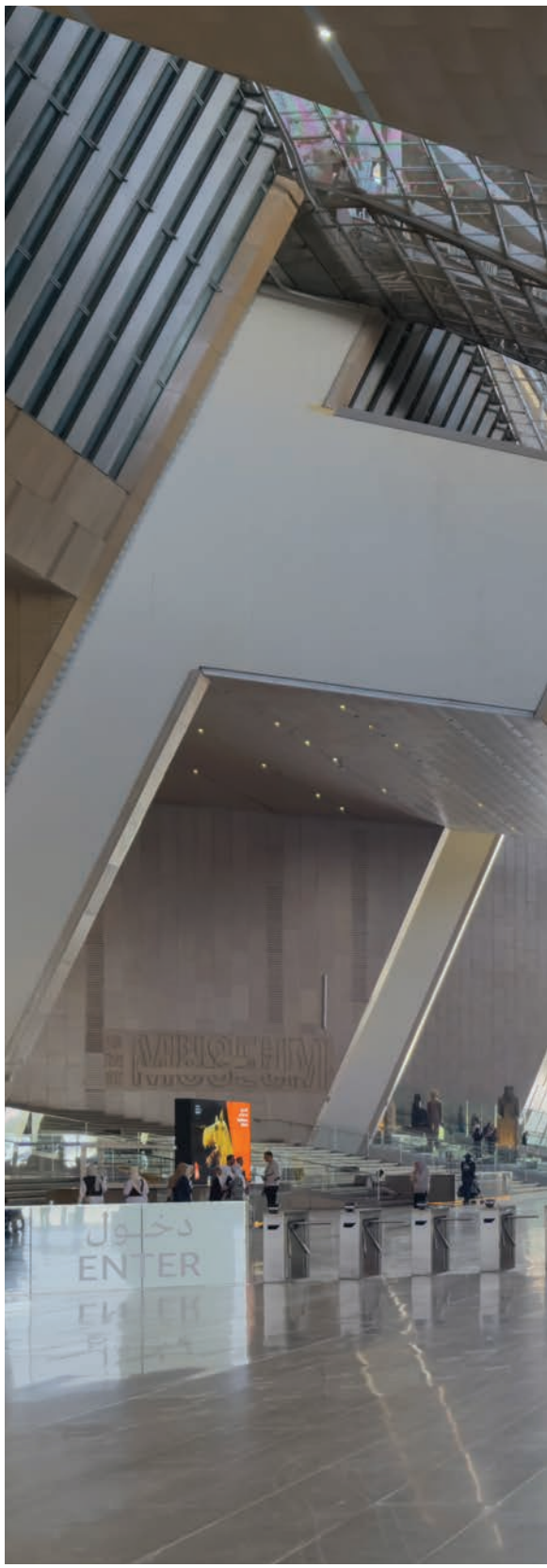
Natural light guides the Grand Egyptian Museum

The Grand Egyptian Museum (GEM) emerged from one of the largest architectural design competitions in history. Launched in 2002, the competition drew over 1,500 entries from over 80 countries, with the Irish firm Heneghan Peng Architects ultimately selected for its design shaped by natural light and sensitivity to the Giza plateau. Located approximately 1.2 miles from the Pyramids of Giza, the museum, which opened in 2025, aligns precisely with both the pyramids and the Sun's path, creating a connection to the landscape and Egyptian culture that unfolds as visitors move through the space, guided by daylight and framed views.

Lighting designer Robert Müller, then with the firm Bartenbach Lichtlabor (now Bartenbach), where he was employed from 1986 to 2023, was involved from the outset and collaborated with Heneghan Peng on various aspects of the project from the building's initial geometry to the final lighting concept for the exhibition in the Tutankhamun Galleries. According to Müller, the design centers on a departure from the traditional black-box museum; as so many of the exhibits are stone objects that have stood in sunlight for millennia, natural light is utilized in a way that is rarely possible with more delicate historical artifacts.

Müller worked with Senior Consultant Christoph Gapp, Project Manager Mahmoud Abdel Raouf, and Project Engineer Christoph Garber to acclimate visitors to the interior conditions in stages. For long stays, views of the pyramids and the Cairo Light Court refreshes visitors, while daylight, perceived temperature, and scaling ensures that visitors are not tired out due to the sheer size and reduced amount of light in classic museums, Müller explained.

Most luminaires were custom made by German company Durlum. The requirement for all basic lighting, Müller said, was to integrate them into architecture in such a way that no design lights or objects



Daylight filters through folds in the roof in the atrium, home to the colossal 36-ft-high statue of Ramesses II.

Photo: Iwan Baan

Photo: Grand Egyptian Museum

Sculptures along the multi-level Grand Staircase are lit from their plinths, offering a chronological journey through the artifacts on display.

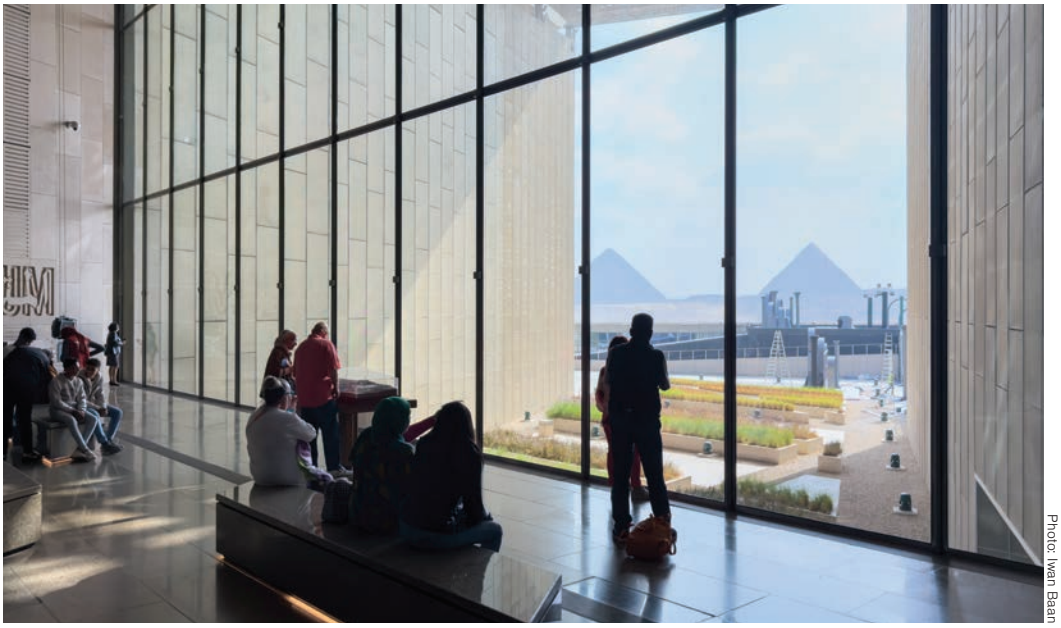


Photo: Iwan Baan

Views of the pyramids and the Cairo Light Court offer visitors respite.

interfere with the artifacts and architecture. To that end, the Durlum systems deliver visually quiet lighting that supports and extends the daylight concept.

Material Gains

While the original design envisioned a fully translucent alabaster façade, the realized exterior is a largely opaque mix of concrete, glass, and locally sourced limestone. Pole-mounted ArcPod 48Q floodlights and Mosaico XL gobo projectors, selected during a later project phase following Bartenbach's original design, illuminate the building, revealing its faceted geometry. The variations in materials and careful light placement allow select surfaces to catch and reflect light, creating jewel-like moments that stand out against darker planes and the desert backdrop, guiding visitors toward warmly lit entryways.

The soaring atrium, home to the colossal 36-ft-high statue of Ramesses II, provides

Photo: Iwan Baan

Durable, stone artifacts are on view in large, daylight-filled galleries.

a transitional space where daylight filters through folds in the roof that scatter and diffuse sunlight. This design allows the eye to slowly adapt to the interior while also giving homage to Egypt's historic gardens with shading, a motif that extends toward an opening at the end of the conically-tapered atrium hall where visitors gaze out at the museum's gardens and courtyards to the west. At sunset, Müller explained, soft amber light "enters the atrium...providing a direct link to the historic funerary cultures and the orientation of the Valley of the Kings."

From this arrival space, guest circulation flows directly into the main hall, where the six-story Grand Staircase leads visitors on a "journey through time" as they ascend past massive stone sculptures arranged in reverse chronological order. These sculptures are lit from their plinths using custom IP-rated luminaires with spoon reflector optics designed to precisely uplight the artifacts without glare. This approach also serves to counteract the scale of the staircase and set the artifacts in a "particularly theatrical stage," guiding visitors upward as they are drawn in by the museum pieces.

While the atrium's dappled light is dynamic, the lighting of the Grand Staircase is gently lit with daylight via the ceiling. To achieve this, the "clerestory" was introduced, an architectural ceiling design that makes use of both morning and evening sun, absorbing and optimally diffusing light from any direction through a horizontal ceiling diffuser. Vertical slats create shading, making differences in daylight negligible.

At the gallery level, a large glass façade provides a viewing point over the herb gardens and pyramid café to the pyramids. An anti-glare screen is set apart from the façade so that visitors can sit and enjoy the view while the galleries remain undisturbed.

The gallery design satisfies conservation needs by using large, daylight-filled spaces for durable stone artifacts while smaller, controlled areas accommodate more sensitive objects like papyrus and textiles. This scaling allows for consistent daylight levels for major exhibits while focused lighting is used only where needed, improving both preservation conditions and energy efficiency.

Within gallery spaces, Durlum low-beam LED spotlights are integrated within metal ceiling panels where they are precisely aimed to illuminate artifacts without glare. In addition, Bartenbach's patented spoon reflector techniques, integrated within the Tutankhamun Galleries' showcase luminaires by Durlum in coordination with the showcase manufacturer, shape and distribute light precisely onto artifacts "as evenly as possible despite their sometimes enormous size, and without glare for visitors walking around the showcases," Müller said.

Inside the Tutankhamun Galleries, a continuous "sky band" made of golden mesh runs across the ceiling, softly illuminated with highly controlled, low-level dynamic LED lighting. This effect is achieved using linear LED profiles with integrated narrow-beam spotlights concealed within tubular housings and fitted with anti-glare filters and grids. This creates a subtle, star-like effect that transforms the ceiling into a symbolic night sky. The design allows the gallery to be experienced from multiple directions, with the glowing band guiding visitors through the space regardless of which entryway is used. Müller noted, "The glow effect is so subtle and elegantly like the Milky Way above the desert and leads to the main object of the mask of Tutankhamun."

Day-to-Dim

As visitors move throughout the museum in the day, lighting transitions from the intense daylight of the forecourt to peak levels of 3,000 to 5,000 lux in the atrium,

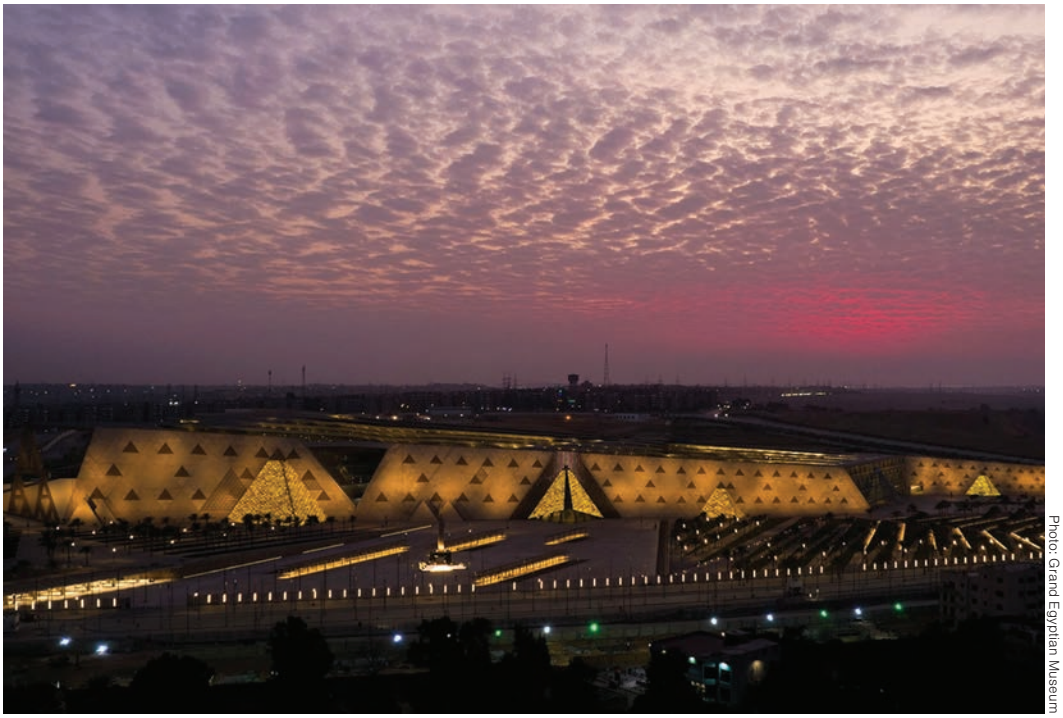


Photo: Grand Egyptian Museum

Variations in materials and careful light placement allow select surfaces of the museum's exterior to catch and reflect light.

300 to 700 lux at the Grand Staircase, 150 to 300 lux at the exhibition galleries, and finally, to as low as 0 to 50 lux at the Tutankhamun Galleries. This sequence reinforces movement through the building while protecting sensitive artifacts.

A carefully calibrated, custom artificial lighting system by Durlum recreates the effect at night. In the atrium, ambient levels of 150 to 200 lux are achieved through concealed architectural lighting using the OMEGA-GEM series. Integrated façade-mounted LED spotlights from the PUNTEO-Y series provide focal accents of up to 500 lux at the statue of Ramesses II and the entrance to the Grand Staircase. Vertical illumination is delivered by Durlum's OMEGA-SHELLY line, consisting of flush LED wallwashers with anti-glare shielding and elliptical distribution that provide 100 to 150 lux while reinforcing circulation paths.

In the galleries, ceiling-integrated LED downlights provide a base illumination of 150 lux with targeted accents of up to 300 lux. These custom luminaires utilize reflectors and lenses to guarantee maximum efficiency and precise glare control. Within the Tutankhamun Galleries, artifact lighting is DALI-controlled with an access point at each vitrine for external adjustment. Additionally, Durlum's control software allows each luminaire to be individually set, ensuring that the sensitive artifacts remain limited to a maximum of 50 lux while still being clearly illuminated and conserved.

Throughout the museum, this fixture-level control is integrated into a broader system operated by Signify Dynalite. This control system manages over 30,000 lighting fixtures across approximately 10,000 Dynalite devices, including sensors, user interfaces, and DALI-2 controllers that allow curators to fine-tune light levels as needed.

What's Old Is New

In 2024, the project received the 2024 EDGE Advanced certification from the International Finance Corporation. GEM was the first Green Building-certified museum in Africa and the Middle East. The museum uses 60% less energy consumption than similar projects, a feat Müller said is largely is out of alignment due to the concepts of architects and Bartenbach from the very beginning to use daylight as an essential resource.

At GEM, the lighting strategy is embedded within its architecture, circulation, and exhibition design. Through the careful integration of daylight and concealed artificial lighting, the building supports conservation and energy efficiency while connecting visitors to the history, landscape, and cultural significance of Egypt. S

THE DESIGNERS

Robert Müller is currently the director of the Innsbruck office of Kardorff Engineers Lighting Design GmbH. He served as the lighting project manager for Bartenbach during the GEM project.

Christoph Gapp is a senior consultant at Bartenbach.

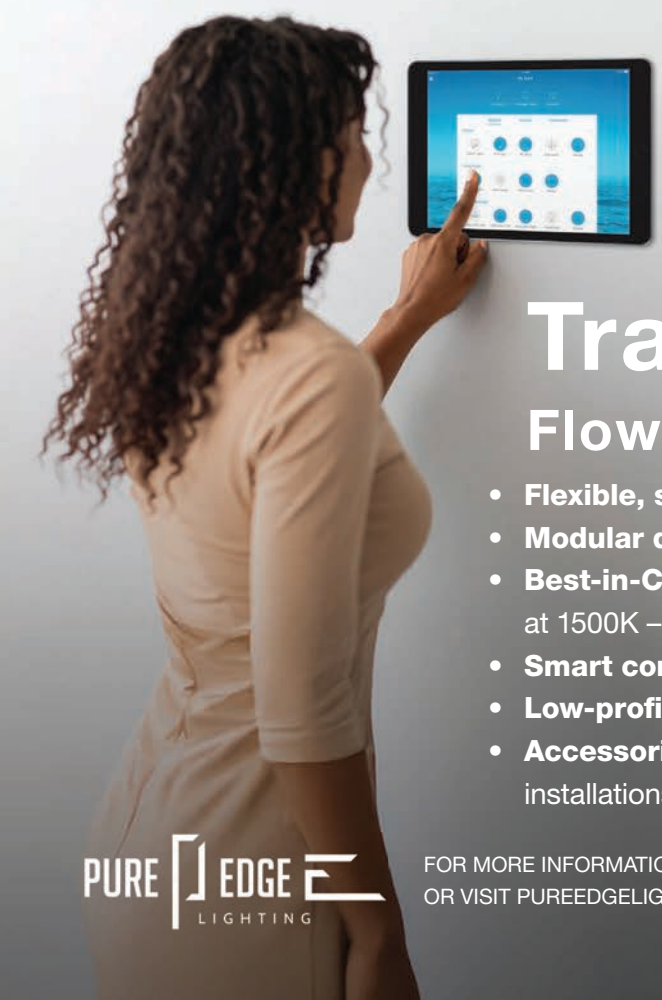
Mahmoud Abdel Raouf, a project manager on the GEM project, is currently a consultant and senior project leader at Bartenbach.

Christoph Garber, a project engineer on the GEM project, is currently a project leader at Bartenbach.

The museum's lighting design originated with Bartenbach and was largely executed using luminaires by Durlum. Additional designers and manufacturers were introduced over the project's lengthy development.

THE AUTHOR

Katianne Williams, co-author of the STEM guide *Count Girls In*, enjoys writing about innovative projects and inspirational people.



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The Future Is Waiting

A Chinese science-fiction museum showcases a lighting strategy inspired by the stars

For anyone who has ever dreamed of wandering the deck of a starship or wondered what lies beyond Earth's atmosphere, the Chengdu Science Fiction Museum in China makes a compelling case for the suspension of disbelief. Equal parts architecture and storytelling, the museum celebrates speculative worlds through a building that feels transported from another time—or another universe.

With illumination that evokes drifting stellar clouds and cosmic motion, the project blurs the boundary between the ancient and the futuristic, celebrating

scores of sci-fi realms while transporting guests through unforgettable journeys. For example, a special immersive exhibition, "Interstellar Pathfinder Program on Mars" is set to open in the museum's near future and will allow guests to build fictional base constructions and survival solutions while learning about The Red Planet and seeing panoramic views of space.

Constructed on a tight schedule with a planned opening to coincide with hosting the 81st World Science Fiction Convention in October 2023—an event colloquially known as "Worldcon" and famous for hosting prominent speculative literary awards such as the Hugos—lighting design firm Brandston Partnership, Inc. began its planning only one year prior in 2022. Because of the project's quick pace, "all the architectural lighting fixtures are from Chinese manufacturers, who offer high-quality products and services," explained Brandston Partnership Managing Director Thomas Lee. "Especially for projects with such a tight schedule, the ability to respond quickly is very important."

The Nebula Eye

The scope of the firm's work included the museum's architectural lighting design, interior lighting design, and landscape lighting consultancy. Designers from Zaha Hadid Architects set their sights on the ever-mysterious galaxy, home to beings unknown, for structural inspiration, while the lighting team from Brandston Partnership looked to the ancient Sanxingdui culture of China for inspiration. The blending of the two worlds provides the project with its own creative lore, not unlike the stories celebrated within the institution's walls.

Lee explained, "The concept of [a] 'stellar cloud' originated from the design concept of the architect. We [introduced]

Photo: Li Zhou

Illuminated glass handrails provide wayfinding and emphasize architecture.

An aerial view of the museum shows the building's cloud-like form and dots of light dancing around the eye of the project

the ancient and mysterious Sanxingdui culture of China to science-fiction enthusiasts all over the world through the architecture and lighting. The lighting design concept is derived from the [idea of] 'science-fiction star-cloud-light' of the diffusing celestial bodies in the universe. The 'ancient Shu eye' on the roof skylight is the core lighting element, serving as the commander of the lighting scene."

While the structure itself serves as a seemingly floating "Nebula," a skylight "eye" serves as the project's most important illuminated component and visual focus. In the dark of night, illuminated dots around the skylight jump, rotate, accelerate, and gather on the undulating, concave surface of the roof, which in turn is illuminated by 2-deg-beam-angle floodlight poles by SHYLON Optoelectronic Technology and located 280 meters (~918 ft) away.

"By using the composition of points, lines, and surfaces, we make the sci-fi starry sky theme of the building more intuitive," said Brandston Partnership Director Sony Wang. "The lighting creates the effect of a constantly changing, brilliant galaxy, and expresses the surging of energy, thereby triggering the activation and coordinated operation of the lighting systems within the museum, of the façades, and in the landscape square." For example, while the dancing dots and far-off pole lights work their magic, flexible linear wall washers reinforce the nebula roof's outline, giving the structure a more defined and sculptural, 3-D nighttime appearance.

Additionally, the team implemented adjustable, 178-millimeter-diameter underground uplights by Deco Lighting on the platforms of the building's atrium to illuminate the museum's reflective, aluminum eaves. The effect of the light on the metallic plates reinforces the floating appearance of the nebula "cloud." Illuminated glass handrails, fixed with integrated low-voltage, silicone-cased light strips, around the perimeter of the structure's second floor not only outline the project's unique shape but also provide functional wayfinding for visitors. The entire visual spectacle is topped off with abstract "science-fiction-theme projections" emanating from multiple

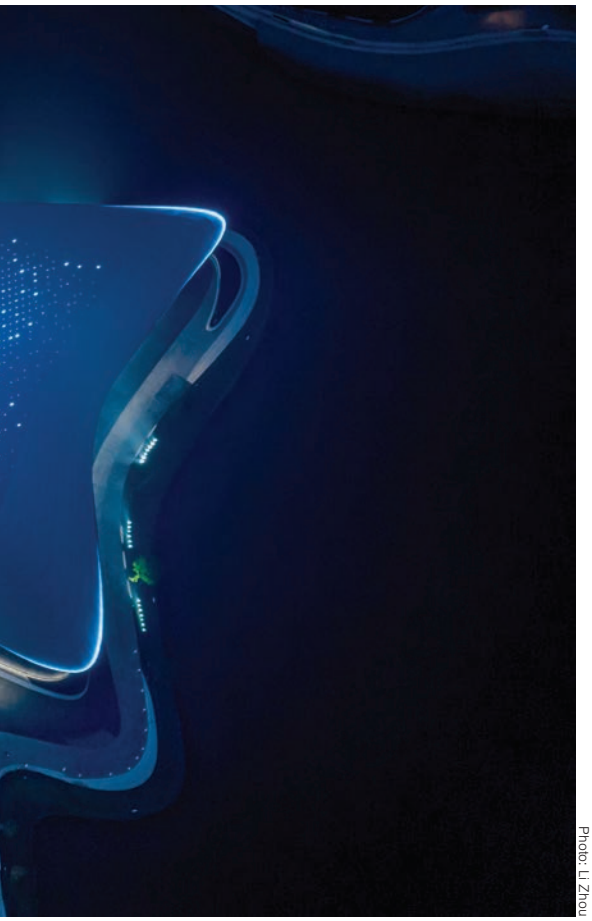

Photo: Li Zhou

in-ground projectors across various areas of the museum. The projections appear each night for 20 minutes beginning at 8 p.m. while the building gradually changes color temperature, shifting from 5000K to represent the museum's otherworldly elements to a warmer 3000K to represent the ancient Shu civilization.

When asked about his favorite part of the project, Lee noted the seamless integration of the illumination within the architecture. "This is not only reflected in the design concept, but also in the details of the lamp installation." In the end, the distinctive design strategy of Chengdu Science Fiction Museum functions like any beloved sci-fi narrative: it makes the unfamiliar tangible and builds a world so real, fans can enjoy immersion without worrying about the cogs and gears spinning behind the plot, the lightsabers, or the starships. Through choreographed illumination, the project shifts from a static object into an evolving experience. Within the glowing nebula and beneath the ancient eye, visitors are invited to look outward and forward toward endless possibilities.

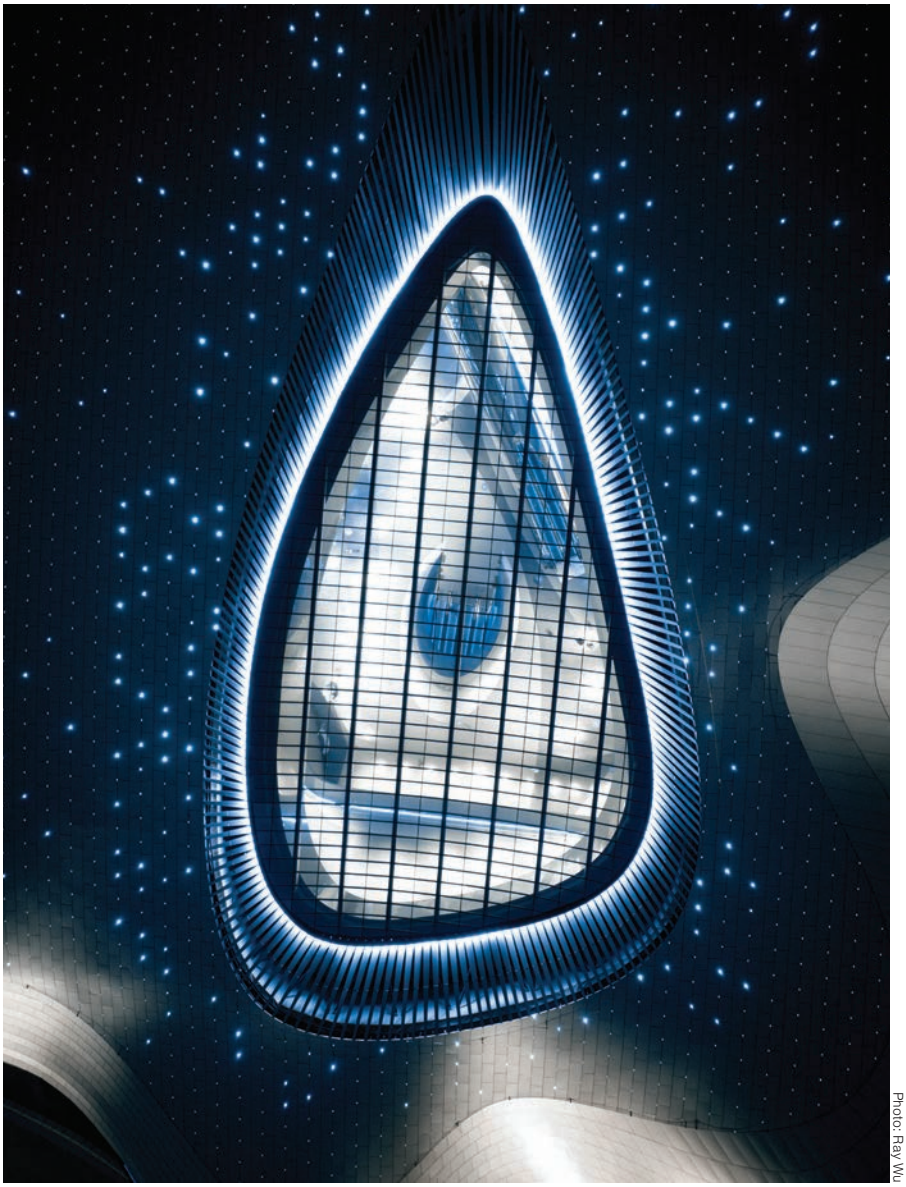

Photo: Ray Wu

The skylight serves as the centerpiece of the overarching design strategy.

THE DESIGNERS

Thomas Lee is managing director of Brandston Partnership, Inc.

Sony Wang is director of Brandston Partnership, Inc.

Meng Chen is design director of Brandston Partnership, Inc.

Qiangning Jiang is senior associate with Brandston Partnership, Inc.

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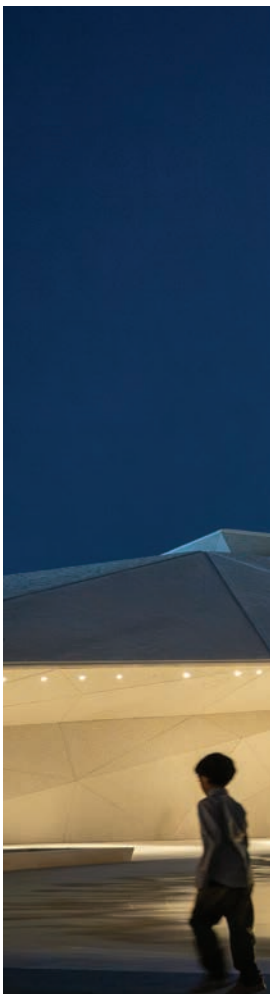

Photos: Nigel Young/Foster + Partners

Like Sands Through the Hourglass

Strengthening narrative and cultural memory at Zayed National Museum

By night, the Zayed National Museum does not announce itself so much as emerge. Against the darkened sky of Abu Dhabi's Saadiyat Island, five vast, falcon-like wings glow softly, their steel ribs traced in light like constellations suspended above the desert. Here, the building feels less constructed than discovered. The illumination is not decoration; it is narrative, guiding visitors toward a story that spans 300,000 years and honors the legacy of Sheikh Zayed bin Sultan Al Nahyan, the founding father and first president of the United Arab Emirates (UAE).

"You know, it all overlaps—the different ways of creating something," said the project's lighting designer, Claude Engle, reflecting on his background in theater,

Left: A solitary tree becomes a living canvas as dynamic, color-shifting illumination responds to spoken poetry, shaping an emotional, immersive space.

Right: The illuminated wings rise behind the public plaza and garden area.

creative writing, and lighting design. That intersection of disciplines is fully realized at the 88,870-sq-meter (~95,658-sq-ft) museum at the heart of the Saadiyat Cultural District.

Approached at night, the museum's signature wings are traced in light by Filix Zero G and Eter LED fixtures, revealing intricate structural supports and the pod-like galleries suspended beneath. An homage to Sheikh Zayed's passion for falconry, the wings carry a kinetic presence, setting a tone of reverence as visitors move toward the story unfolding inside.

The project began with architecture and design firm Foster + Partners' participation in 2007, with construction unfolding in two phases: an initial period from 2008 to 2012, followed by a restart in 2018 and completion in 2025. During the early phase, Engle developed lighting concepts that, at the time, relied on technologies not yet fully realized—ideas that only came into their own when work resumed years later.

The museum is nestled within a natural mound, which Foster + Partners clad in faceted panels that catch and reflect moonlight, evoking the surrounding topography. Inside, visitors are welcomed into the Al Liwan atrium, a performance space, before moving through six galleries—four of which are suspended beneath the falcon-like wings. The collection spans more than 1,500 artifacts, tracing Abu Dhabi's and the UAE's history over 300,000 years. Highlights include a reconstructed Bronze Age Magan boat crafted from native timber and reeds, an Abu Dhabi pearl, and a Ming Dynasty pomegranate dish.

A defining element of the project is the interplay between LEDs and natural light. Engle noted, "It was crucial to stay out of the way. You know, that's where the architecture probably does the best lighting of all. The best light fixture there is the architecture."

The museum's illumination relies primarily on fixtures from Designed Architectural Lighting (DAL), with additional contributions from international manufacturers such as Linea Light, ERCO, and Zumtobel. Cooper Lighting Solutions handled the museum's DALI-based lighting control system, ensuring precision and adaptability throughout the space.

Light evokes the desert's golden hour, mixing warm and cool tones that draw focus to the integrated showcases.

Specify, Innovate, Illuminate

At the heart of creativity is invention and expression, and Engle's background helped shape lighting that is both innovative and beautiful. Recalling his theater work, he said, "Sometimes you go for an effect and then find a concept that comes from that. I can remember working with dancers and saying, 'Oh, that move must've felt good to do.' Sometimes you create things that feel good to do."

Central to this approach are the pod-mounted LEDs reminiscent of stars: 48-millimeter track-mounted DAL L-JL2/S fixtures. Viewed from below the pods, the spaced LEDs evoke a desert night sky, subtly reflecting the surrounding environment and white concrete formed from local crushed marble.

"We created a performance spec with lights that we drew but [that] weren't even close to existing back in 2012," Engle added. "We were sketching 2-in. and 3-in. LED downlights and asking manufacturers, 'Do you think this light will exist in seven years?' They said yes. People were calculating how many lumens it would be."

Beyond the fixtures themselves, Engle and his team were creating new installation methods. "Some of it, I had never seen before—open-wall 2-in. washers, for example," he noted. "We essentially designed a whole new family of fixtures... Once you're not depending on existing fixture cuts, you can work much more efficiently."

An Oasis of Light

When discussing the lighting's personality, Engle noted that the mood is one of reverence, as the project is also a memorial to Sheikh Zayed. A sense of respect is apparent at each step of the visitor journey—from the Filix-illuminated falcon-like wings to the soft gallery wall washing of ERCO Lightscan LEDs. Yet it is the interplay of these fixtures with natural light that defines the experience.

"The idea was that anything not receiving sunlight would be lit from below," Engle explained. "Everywhere else that does see daylight—when the daylight fades, lights come on, continuing that directionality."

Beneath the gallery pods, daylight filters down from the wings while recessed fixtures add subtle sparks to the effect. On the wings' dual role as sculpture and light controller, Engle said, "Those wings...are a poetic expression of a falcon's wing, but they are a mechanism—a machine that's controlling natural light. It casts shadows throughout the interior, but it's also stopping light." Glazing within the wings further reflects illumination onto the galleries below.

The Filix Zero G and Eter LEDs are also capable of displaying colors tailored to holidays and events, such as blue and

green for the Islamic New Year, or red, white, and green for Flag Day. The colors blend and shift roughly every 15 minutes, creating a living, luminous display.

"Pod" galleries, constructed from glass-reinforced concrete have gaps that allow light to filter through and contribute to the lighting experience. Norman Foster, senior executive partner at Foster + Partners, noted the unique galleries "are suspended under four of the building's five wings. They appear to float within the space and vary in size to support the range of artifacts on display. The experience is incredibly uplifting—daylight bounces off the pods and the walls of the lobby."

The illumination of the Zayed National Museum marries mood, innovation, and sustainability, shaping visitors' journey through the UAE's history and the legacy of Sheikh Zayed bin Sultan Al Nahyan. Inventive fixtures and mounting methods accentuate the sculptural flow of the exterior wings while subtly illuminating the galleries' ancient artifacts. Like a story told over time, the museum unfolds space by space, with it's dramatic design offering reverent and immersive illumination. S

THE DESIGNER

Claude Engle is a lighting designer at the firm Claude R. Engle, Lighting Consultant.

THE AUTHOR

Mark Reif holds a B.S. degree in Industrial Design from Virginia Tech and completed the Postgraduate Program in User Experience Design at the University of Texas at Austin. He is a writer, designer, and poet whose work explores travel, the outdoors, and design.

Top: Luminous paths reveal Sheikh Zayed's story.

Bottom Left: A continuous ribbon of light defines transitional nodes, offering quiet moments of pause and guiding visitors fluidly between spaces.

Bottom Right: Light and image converge: panoramic desert visuals are framed by softly illuminated architecture to convey place, memory, and movement.

By Frank Agraz, Antonio Garza, Pamela Horner, Chip Israel, Alan Lewis, Mark Roush, and Daniel G. Salinas

120 Candles, Minimal Flicker

Seven IES past presidents reflect on a century-plus of lighting leadership

While the U.S. is set to toast its semi-quincentennial birthday next month, the IES is blowing out its own set of candles—120 of them, to be exact. For an organization that arrived on the scene before the Ford Model T, the FBI, the Erector Set, and even the beloved Reese's Peanut Butter Cups, that's a lot of history to illuminate. Too much, in fact, for a single magazine article. Instead, to honor this anniversary, *LD+A* turns to the guiding voices of the Society in recent decades: seven IES past presidents who have gathered their insights on how the organization has shaped the lighting community as well as how its legacy continues to evolve.

An Education Authority

By Chip Israel

Since its inception, the IES has been dedicated to the development of intellectual information and then the dissemination of those findings. That is the definition of education. From gas to electric lighting, only the technology changes faster than our applications.

For over a century, the IES has educated its membership directly and the design community indirectly. Initially, our members worked in a traditional office where written publications were how information was shared. Companies recognized the value of IES Membership, which provides access to this information. Intellectually, conferences are where thought leaders were brought together to both share and challenge ideas. Presentations, white-paper reviews, and technical committee meetings were all ways that information was shared. Fast forward to today—post COVID-19—and staff members are now working remotely, everyone is challenged by time constraints, and many new designers feel that they can learn everything in a video. Information and education are expectations, and now it must be instantaneous.

The logo may have changed since 1906, but education has remained a core focus of the IES.

Over the span of my career, lighting technology and our working methods have transformed at a staggering pace. In the 1980s, when I entered the profession, lighting designers depended on just a handful of core documents: the *IES Lighting Handbook*, RP-6 for sports facilities, RP-8 for roadway and parking applications, and RP-1 for offices.

But technological progress soon revealed new challenges. Dark walls, for example, led Society committees to conduct research, create new glare metrics, and share those insights widely. Other concerns—like flicker and emerging dimming protocols—also demanded guidance.

The arrival of LEDs accelerated everything. Early LED products, often housed in basic white boxes with plastic lenses, reintroduced the same glare problems we thought we had solved. Performance expectations, lamp output, and LED CRI all became urgent discussion points. In response, the IES moved quickly to develop foundational documents such as LM-79, LM-80, TM-21, and later TM-30, delivering much-needed education in remarkably short timeframes.

LEDs seem to have stabilized, but there is a continual need for more technical information. How do we use all these tools, like circadian, tunable white, and warm dims? Many articles and seminars discuss the well-being and positive benefits of improved lighting, and as a leader in education, the IES has hosted numerous symposiums on this and other topics.

Visibility is the key to education. Members, the design community, and the public all need access to this wealth of information and experience. The IES offers choices. Along with its in-person offerings, the IES provides a wealth of information digitally, and many sections offer remote access to monthly meetings. At the same time, the IES also presents technical and topical webinars, all of which are accessible whether attendees reside in a large city or remote town.

As lighting education continues shifting toward e-learning, the IES Portal provides instant access to essential resources and opportunities to earn CEU credits. This is the most powerful tool available to designers, manufacturers, and end users. A few clicks on a keyboard can return thousands of technical documents, webinars, townhalls, and industry news.

As time passes, lighting topics and needs change, as does the way we deliver information. But one thing has not wavered: that education has always been—and will continue to be—the foundation of the IES.

Chip Israel, Fellow IES, Fellow IALD, CLD, LEED-AP, LC, is the founder of Lighting Design Alliance, a Salas O'Brien Company, and an IES Louis B. Marks Award recipient. He served as IES president from 2012 to 2013.

Photo: Frank Agraz

IES Lighting Handbook collection, 1947 to 2011, and *Lectures on Illuminating Engineering*, 1911, vol. 1 and 2.

Publications Excellence

By Frank Agraz

On January 10, 1906, at the Hotel Astor in New York City, a meeting was convened "to complete the formation of a society devoted to the Science and Art of Illumination." Its mission was to improve the lighted environment by bringing together those with lighting knowledge and by translating that knowledge into actions that benefit the public. Since its inception, the IES has authored many significant publications in pursuit of fulfilling its charter.

The Society began publishing immediately. Volume 1, number 1 of *Transactions of the Illuminating Engineering Society* appeared in February 1906. During the 11 months of its first publication year, the Society printed more than 400 pages of technical presentations and discussions dealing with all aspects of lighting.

In 1910, the Course of Lectures on Illuminating Engineering was given at Johns Hopkins University under the joint auspices of the university and the IES. The IES Council's statement explained, "The Illuminating Engineering Society recognizing the fact that there is an increasing demand for trained illuminating engineers, and that the present facilities available for the specialized instruction required are inadequate, determined, through an act of the Council of the Society, to encourage the establishment of a course of lectures on the subject of illuminating engineering." The lectures were attended by 240 men from various parts of the U.S., many of them representatives of technical schools, gas and electric central stations, and manufacturing companies.

In 1947, the first *IES Lighting Handbook* was published. Until then, recent publications included a monthly *Illuminating Journal*, current practice documents, lighting data sheets, study aids, and various reports. The *IES Lighting Handbook*'s preface stated, "For one person to collect and digest the findings of the past half-century of progress would require a lifetime of research. Nevertheless, an understanding of the basic technical information and of time-tested application techniques is recognized as the best foundation for further advancement...In simple terms and highly condensed style, the *IES Lighting Handbook* places conveniently within reach of all its readers the accumulated knowledge of the past 41 years of lighting progress, evaluated and interpreted with respect to today's needs

by a highly qualified group of over 100 contributing specialists, engineers, architects, physicists, decorators, artists, and ophthalmologists who have worked for more than two years under the direction of a special committee of the Society and a full-time editorial staff to provide the most complete coverage of the field possible within the limits of a conveniently-sized volume."

In the span of 64 years, the IES published 10 hardcover *Handbook*s. The 2011 10th edition reference and application manual weighed in at 10 pounds and spanned 1,328 pages. Although the authors effectively framed the contents around the latest Recommended Practice and other standards documents, lighting technology advancements were evolving faster than its volunteer committees could publish formal updates. With the advent of white LEDs becoming commercially viable and the lighting community demanding more timely guidance, the IES found a way to improve information access and reduce time between document updates.

In 2020, the IES launched the Lighting Library, a newly formulated online five-collection series of IES standards that updates, expands, and replaces the 2011 *Lighting Handbook* and all previous versions. Content within the library has been vetted by an ANSI-approved IES consensus process. IES committees are now affirming and updating lighting standards with greater frequency. Subscribers have access to all versions of a standard and receive automatic notifications of updates and revisions.

LD+A, the official magazine of the IES, is written for professionals involved in the art, science, study, manufacture, teaching, and implementation of lighting. First published in July 1971, *LD+A* continues to inspire IES Members through its quality writing and award-winning articles. When the IES periodically polls its members on the value of membership, "receiving a monthly copy of *LD+A*" always hovers at the top of the list.

LEUKOS: The Journal of the Illuminating Engineering Society is an online, quarterly resource published by Taylor and Francis on behalf of the IES. *LEUKOS* is an international venue for technical developments, scientific discoveries, and experimental results of current interest or lasting importance in the applied use of light. Topics of interest include visual and non-visual responses to optical radiation; all aspects of the technologies employed in the generation, control, measurement, and computation of light and color; the lighting design of interior and exterior environments; and cross-cutting topics that include daylighting, energy management, economics, and sustainability.

Frank Agraz, LC, CLMC, is ESCO solutions manager at Facility Solutions Group. He served as IES president from 2022 to 2023.

ANSI/IES LP-30-26 (left) and the 2001 edition of RP-7-01 (right) are evidence of the IES's long tradition of developing ANSI-accredited lighting standards.

Setting Standards

By Alan Lewis

The IES is accredited by ANSI as a standards development organization for the fields of lighting and illuminating engineering. The IES currently is responsible for 128 standards ranging from airports to the visual environment (sorry, there is no "Y" or "Z"). The accrediting process includes a rigorous periodic audit by ANSI to ensure that its rules and guidelines are followed so that standards represent the views and expertise of a balanced array of stakeholders, including the public.

Technical Committees

The standards development process begins when a need is identified, usually from the members of an existing Technical Committee (TC) and often due to newly published research or changes in technology. In the Society's infancy, there were relatively few standards, and those tended to focus on the need for commercial compatibility and a uniform terminology. But as lighting became more complex and technology expanded into areas that previously didn't exist (e.g., solid-state electronics), the need for a greater range of industry-wide guidance became critical to address the rapidly expanding demands for information on best practices and procedures. Over the years, the composition of TCs has become increasingly specialized while also endeavoring to maintain the requirement for balanced membership. IES staff is challenged to equip the TCs with a mix

of highly specialized experts and those with a broader, if less in-depth, knowledge of narrow technical subtilties.

The IES TCs, staffed entirely by volunteer members, remain at the heart of the standards process. They write the standards, vote on their adoption, and, almost immediately, move on to the next revision. They are the unsung heroes of the standards process who innovate, debate, and evolve the knowledge base in this rapidly changing group of professions.

Advisory Panels

At one time, the IES Board of Directors needed to approve nearly every publication emanating from the Society. The Board has evolved to focus more on policy and the Society's future. It has formed three advisory panels to serve as a link between the standards-writing committees and the broader policy objectives of the Board. These advisory panels meet regularly to examine the productivity of the TCs and facilitate the translation of Board policies to Society action. The panels include both Board Members and others with a comprehensive understanding of the role of the TCs in the mission of the Society. They inform the staff of needs for changes, interventions, and successes of the TCs. There are three advisory panels that coordinate the TCs: the Science Advisory Panel, Practice Advisory Panel, and Applications Advisory Panel.

The Standards Committee

The Standards Committee was formed in recent years to provide a clearinghouse to ensure that the processes for approval of IES standards met the requirements as an ANSI standard. It comprises experienced IES Members who review the processes of every IES TC to ensure that they meet ANSI guidelines. These processes include approvals of TC Project Initiation Forms, committee votes, resolution of negative votes, and public comments. Only after all discrepancies are resolved are documents approved as standards.

Alan Lewis, O.D., Ph.D., Fellow IES, retired as president of the New England College of Optometry in 2016 and continues working as a physiological optics consultant. He served as IES president from 2005 to 2006.

Partnering with NCQLP

By Daniel G. Salinas

The IES and National Council on Qualifications for Lighting Professions (NCQLP) have always been linked by a common need for the lighting industry to find a way to expand the knowledge of one through the vehicle of certification provided by the other. Even before the NCQLP held its first test in November 1997, the IES was being pressed by its members to develop a means for evaluating a practitioner's level of knowledge. In 1994, it was the Technical Knowledge Exam, and it showed just how many of us were looking for something that separated those who cared about the lighted environment and wanted a mechanism that legitimized that effort. Unfortunately, it was not going to be that path: It could not be something just for the design community but needed to include the lighting industry at large. The IES, IALD, GSA, and several others became sponsors of this effort, and the initial group of Lighting Certified (LC) professionals started their first three-year cycle in January 1998. I was among those first LCs and am proud to still hold that certification some 28 years later.

The initial group of LC professionals began their first three-year cycle in January 1998.

At first, the NCQLP included an Education Committee but had to sunset it due to a conflict with the organization's charter restricting it from educating to the test. This allowed the IES to put together education materials to support those preparing for the test, but the bigger problem was the lack of intermediate-to-advanced education needed to support the continuing education requirements to meet the 36 LEUs per three-year cycle—classes that could not be repeated during that cycle; we were in trouble. As chair of the Recertification Committee (now Certification

Renewal) my committee was bombarded by LCs that needed approved LEUs, so IES Sections jumped in to build those classes into their monthly offerings with requirements for those classes established by the NCQLP Certification Renewal Committee. It was the top issue discussed at IES District and Regional events, as well as LightFair and the IES Annual Conference, where sections could recruit speakers to come to a section or group of sections for a speakers tour. It is where ideas such as the Advanced Education Fly-in were birthed as well as section-to-section education partnering. The IES began putting out educational material related to various Recommended Practices and research that would provide CEU-level subject matter for increased education. The industry stepped in and began putting together CEU-based learning at factory training facilities, and local IES Section events requested review and approval of the material by the NCQLP. This was an important step in our industry because it forced us into something we had needed desperately for a long time: the education of our membership and our industry so it could move away from the years of "rules of thumb" and "best guessing."

IES Members became part of the NCQLP Testing Committee, meeting twice a year to develop the base material and topics that the separate testing organization could use in the development of the NCQLP exam: material that was based on Recommended Practice, research by universities, and IES partnerships on standards with allied organizations like ASHRAE and AIA. The IES eventually created LC Study Groups to prepare applicants for the test.

We were finally serious about continuing education with a certification that sets its holder apart from the rest of the industry. A day after the 2005 IES Annual Conference in Phoenix, the IES held an Education Summit that brought together a cross-section of educators, section/Society leaders, and others to discuss the need to move forward in education and building a library of options for our members. Then, in 2008, the IES Board of Directors created the Board Knowledge Committee to assess the needs of the industry and what assets we had or didn't have to meet that need. It accelerated the changes regarding what we needed, when it needed to be available, how it should be delivered, and where we should go with it; over the next years, that work built the foundation to what we now stand upon. In a positive way, the NCQLP LC and its requirement for continuing education was the strong part of this concern.

Today, the amount of CEU-based education is incredible, with online courses, section- and industry-based education, IES and IALD conferences, and the upcoming 2027 debut of Light + Intelligent Building North America. This opportunity in learning is for all, not just the lighting design community. It is where manufacturing learns about the needs of the lighting industry to move forward in support of sustainability, light equity, resiliency, and environmental concerns. It is where the architect and interior designer learn why light and shadow are not in opposition but work symbiotically to excite the visual cortex and provide the definition their designs were meant to present. The NCQLP and its now-stronger partnership with the IES provides an opportunity for both organizations to move ever further together.

Daniel G. Salinas, LC, is the president at Salinas Lighting Consult. He served as IES president from 2013 to 2014.

Conference Connections

By Pamela Horner

Since 1907, the IES has continually hosted annual conferences "for the presentation and discussion of technical, research, design, and application papers and reports of interest to the Society." While this year's annual conference is known as IES26: The Lighting Conference, the annual event was originally called the IES Annual Technical Conference, but the name was changed to IES Annual Conference in 1983,

Photo: IES

The 2016 SALC Welcome Reception at Madame Tussauds Hollywood.

ostensibly to broaden appeal. These conferences have been held every year in various locations across the U.S. and Canada, with one exception. Understandably, in 1945, no Annual Conference was held due to World War II. There was also an anomaly in 1917, during World War I, when our history shows the typical in-person Annual Conference being replaced with a "Correspondence Convention." If this type of convention occurred today, it would have happened via Zoom, but in 1917 the only viable methods of communication were mail, telegraph, telephone, radio, and signal flags. That pretty much left the IES with traditional mail services.

One of the reasons exact dates and places of the first 75 years of the IES Annual Conferences are known is that George J. Taylor, IES president from 1958 to 1959, meticulously documented and updated this information, tallied and typed up attendance records, and passed the information along to committees and past presidents. His records reveal some fascinating statistics for Annual Conferences from 1907 to 1981:

- New York State hosted 11 conferences; Pennsylvania: 7; Canada, Illinois, and Massachusetts: 6 each; and Ohio: 5.
- The first conference, held from July 30 to 31, 1907, included 200 attendees. The next year, that number doubled.
- The 1929 conference in Philadelphia (September 24 to 27) attracted 745 attendees, which was surprising because the 1929 stock market crash occurred a month later, ushering in The Great Depression.
- IES conference attendance remained fairly consistent, reaching a new high at the 1946 conference with 807 recorded attendees.
- From the 1940s through the mid-1960s, conference attendance ranged from 550 to 840, but those numbers likely included non-members who registered for the extra programs. It is clear from various audio tapes on file that IES Members regularly brought family members to the Annual Conference, rather like a summer vacation opportunity, where spouses and children often became lifetime friends.
- In 1969, Taylor's records began showing attendance numbers in a fascinating way, separating "delegates" from "technical sessions only" and "ladies." Today, we would call "delegates" those who registered for the full conference. And "ladies" would be anyone who registered for spouse or family programs. Times certainly change, as does language.
- The late 1960s was a boon for IES Annual Conference attendance, averaging nearly 1,000 attendees per year.
- By 1981, the last entry in Taylor's log, the conference in Toronto, shows 834 attendees, including 451 delegates, 142 ladies, 43 non-members, 198 dailies, and 36 teenagers.

Centennial Conference

In 2002, an Annual Conference task force was appointed, in part because the IES Centennial Year was fast approaching. The IES Board of Directors performed expert advanced planning, which, for some years thereafter, changed the typical summer timing of the Annual Conference. The Board agreed that a special Centennial Conference should be held in New York City in January. So, from January 8 to 10, 2006, the 100-year celebration began, with speakers being "true to the other theme of the Centennial conference–imagining the future."

Specialized Conferences and Symposia

Prior to the unique Centennial Conference, specialized IES conferences had already begun to make an appearance, with perhaps the most recognizable being the IES Street and Area Lighting Conference (SALC). SALC began in 1998, expanding its focus in 2000 to include seminars, networking, and training. This successful conference continues today, with each one hosting hundreds of interested participants.

Photo: IES

Shaun Fillion serving up a *Hot Ones*-inspired spicy wings challenge to IES Executive Director Colleen Harper at the rebranded IES24: The Lighting Conference in New York City.

In the years following the Centennial Conference, themed conferences were added, acknowledging it would likely take a few years to return to the historic timing of previous Annual Conferences. One such themed event was held in St. Louis in November 2007, featuring the topic of "Quality Lighting in a Green World."

In 2012, an innovative type of event was added to the IES conference mix—the Research Symposium. The first, "LIGHT + Seniors," attracted a large audience to hear from and interact with well-known research experts on the relationship between light and aging. Two years later, "LIGHT + Human Behavior" was enthusiastically received by attendees, and thus began multiple research-focused symposia that continue today.

Whether it be through annual conferences or specialized conferences and symposia, the IES has a long, successful, and sustained history of bringing people and ideas together, in person, to celebrate light and lighting.

Pamela Horner, MS Lighting, is retired from OSRAM SYLVANIA as director of Government and Industry Relations and Standards. She is a recipient of the IES Louis B. Marks Award and served as IES president from 2001 to 2002.

Photos: IES

The (left) 1995 edition of LightFair in Chicago drew 12,000 attendees, while (right) the event's final bow in Las Vegas in 2025 gathered IES presidents from years past.

From LightFair to Light + Intelligent Building North America

By Mark Roush

Many of us have enjoyed one of the industry's largest North American trade shows and conferences—LightFair. Prior to COVID-19, this annual event grew nearly every year since its inception in the early 1980s in New York City, when it was known as Lighting World.

LightFair began as a product expo from the locally involved New York City lighting community. Lighting World started very modestly and grew quickly, eventually crowding the New York Hilton Hotel beyond capacity. In 1990, LightFair was created (while Lighting World held local shows in Chicago and Los Angeles) and the year ended with one combined event that was ultimately owned by the IES, IALD, and AMC (the event manager and producer).

When LightFair exceeded hotel capacity, it began its large convention center occupancy, moving back and forth over the next couple decades from New York City to San Francisco, adding Chicago, with a few of the annual events in Philadelphia and San Diego. After outgrowing both California venues, Las Vegas became the biennial "west coast" home. In the 2010s, there were only seven or eight convention centers that could house the event.

By 2019, LightFair enjoyed roughly 650 exhibitors, 30,000 attendees, and 12,000 educational seats for over 70 individual seminars. It was the success of LightFair that largely funded both the IES and IALD until COVID-19 changed the world. LightFair continued into 2025 as an odd-numbered year event managed by a new partner—Messe Frankfurt—until the November 2025 announcement that LightFair would cease, with a new event, Light + Intelligent Building North America, launching in 2027 under the continued guidance of the IES, IALD, and Messe Frankfurt. The IES noted, "LightFair helped shape the North American lighting conversation. Building on that legacy—and the lessons of recent cycles—Light + Intelligent Building North America brings the best of LightFair's core assets into a new, purpose-built platform focused on systems integration, secure controls, commissioning, analytics, and real-world performance."

LightFair, and now Light + Intelligent Building North America, offer real value to those of us in the lighting industry. These events provide a product introduction forum as well as unmatched educational opportunities for attendees at all professional levels, from beginner to expert. They are unifying events—teeming with a sense of community that enables in-person interaction among all industry stakeholders and forges lifelong personal and professional connections with peers and colleagues. LightFair and Light + Intelligent Building North America are and will continue to be, for and by us.

Mark Roush, Fellow IES, LC, is principal at Experience Light, LLC. He served as IES president from 2015 to 2016.

The IES DEIR Committee was formed in 2020 to promote the diversity that is central to the IES's mission.

Increasing Diversity and Inclusivity

By Antonio Garza

The milestone of the IES's 120th anniversary offers an opportunity to reflect not only on technical leadership but also on how the Society itself has evolved. Over more than a century, the IES has grown from a professionally concentrated organization into a diverse, globally connected community that mirrors the expanding scope and influence of the lighting profession.

At its foundation in 1906, the IES emerged when participation in technical societies was limited by social, educational, and professional barriers. Early membership and leadership reflected those realities. The Society's founders and early leaders established the scientific rigor and culture that remain central to the IES mission today. As the profession matured, however, it became clear that sustaining relevance would require broadening participation and welcoming new perspectives.

That evolution is now evident across the Society. Diversity—across gender, generation, race, geography, and professional background—has become a defining strength of the IES.

One of the most visible changes has been the evolution of gender representation. Where membership was once overwhelmingly made up of white males, a significant and growing percentage of today's members are non-male, including women and individuals of diverse gender identities and/or racial backgrounds. This change reflects broader transformations within engineering, design, and research, and it has enriched the Society's culture, leadership, and technical range. The presence of more women and non-male professionals with diverse ethnicities across committees, conference stages, and governance roles signals a Society that is both modern and inclusive.

Equally important has been the IES's ability to engage younger professionals. Through initiatives such as Emerging Professional (EP) programs, the Society actively involves individuals in the early stage of their career in lighting. Mentorship, leadership development, and opportunities for meaningful volunteer involvement help integrate EPs into the life of the organization. This intentional focus on generational variety has helped the IES remain dynamic, innovative, and forward-looking as new technologies and design priorities reshape the field.

Diversity has also strengthened the quality and relevance of the Society's technical work. Broader participation brings a wider range of experiences and viewpoints into standards development, recommended practices, and educational programming. As lighting increasingly intersects with health, sustainability, information management, and human experience, this breadth has helped the IES produce guidance that is both technically rigorous and globally applicable.

The Society's global growth underscores this transformation. Once primarily North American in scope, the IES today includes members in more than 100 countries, with Board of Directors representation from multiple nations. This international presence reflects the reality that lighting challenges and solutions are shaped by regional nuances, culture, regulation, and economics. The IES now serves as a global forum for collaboration, knowledge exchange, and shared professional values.

In 2020, the IES formalized its commitment to a more inclusive professional community with the creation of the Diversity, Equity, Inclusion, and Respect (DEIR) Committee. Established to embed these principles into governance, volunteer engagement, and Society programs, the committee signaled that diversity is central to the IES mission. Since its formation, the DEIR Committee has helped guide leadership and support practices that ensure the Society reflects the full breadth of the lighting profession and its membership.

As the Society reaches its 120th year, its story is one of both continuity and transformation. The IES has remained steadfast in its commitment to technical excellence while continually expanding who belongs, who leads, and who shapes its future. By embracing diversity in all its forms the IES has ensured that its light shines brighter than ever, guiding the profession confidently into the future.

Antonio Garza, LC, is the president of Iluminacion Total. He served as IES president from 2020 to 2021.

RESEARCH

More than a View: The Biological Potential of Windows

Won Hee Ko, Biplav Pokhrel, Clotilde Pierson, and Jae Yong Suk

WE TEND TO JUDGE A WINDOW VIEW BY its visual appeal, which may reveal lush greenery, expansive vistas, or a striking urban skyline. However, what we see may matter just as much biologically as it does aesthetically. For lighting practitioners and architects, a window is more than a visual amenity; it functions as a dynamic, multichannel luminaire. While the lighting industry has long recognized that daylighting supports occupant well-being, new research suggests that the composition of a window view is directly related to the "non-visual"—or biological—potential of that light. A recent study analyzed 476 daylight and window-view conditions across two U.S. university campuses, capturing distinct environmental contexts from the east and west coasts.

The connection between the indoor environment and human well-being is increasingly under the spotlight. With many people spending more than 90% of their lives indoors, a trend further intensified by the COVID-19 pandemic, the "view out" has shifted from a luxury to a fundamental design requirement (**Figure 1**). Although recent research has begun to quantify what makes a "high-quality" view—highlighting elements like greenery, water, sky, viewing distance, window size, and clarity—we still tend to evaluate windows through a narrow lens: either as a psychological amenity or as a source of glare and heat gain.[1]

However, a window view is, at its core, a function of daylight.[2] As light reflects off the outdoor landscape and transmits through glazing, it carries more than just aesthetic information; it delivers the biological drivers of human health. As shown in **Figure 2**, five primary components influence indoor daylight conditions: the sun, sky, externally reflected components, glazing, and internal surfaces. Among these, the sky and externally reflected components define what we commonly understand as the window view, or more specifically, the view content. Lisa Heschong, Fellow IES, has discussed the effect of glazing itself acting as a spectral filter, raising important questions about what biological information is lost before light even enters the room.[3] While glazing specification remains a critical factor, the composition of what is visible through the window—the view itself—represents an equally important and largely overlooked opportunity to optimize the biological quality of indoor light.

Designing for health requires an understanding of the two distinct ways light affects humans (Figure 2): 1) the visual pathway, which supports the need for spatial detail, color perception, and general task visibility and 2) the non-visual pathway that regulates physiological and behavioral processes, including circadian rhythm synchronization to the natural day-night cycle, melatonin suppression, and alertness.[4] When both pathways are effectively addressed, the benefits can be substantial: improved psychological state, better cognitive function, and enhanced physical health. Yet, an interesting gap remains in our industry's knowledge. We have spent years studying the psychological impact of a beautiful view and the physiological impact of vertical illuminance, but we rarely study them together.

Does a "good view" inherently translate to "good light" for the circadian system? To explore this, researchers from the New Jersey Institute of Technology (NJIT); the University of California, Davis (UC Davis); and Oregon State University partnered to analyze extensive unique daylight and view conditions. As shown in **Figure 3**, the two campuses where data were collected offered a study in contrasts for the research team.

- NJIT (urban): A dense, metropolitan setting characterized by mid-rise structures and a palette of brick and modern cladding.
- UC Davis (suburban): An open, lush landscape defined by low-rise buildings, abundant vegetation, and heavy use of external shading systems.

By comparing these two distinct architectural environments, the study aimed to determine if shared parameters, such as sky area within the window view and reflected light from outdoor elements, reveal a consistent link between what we see and its biological effects on the body. The goal is to move beyond providing a "pretty picture" through the glass and instead leverage the window as a delivery system for biological health.

Methodology

To evaluate the relationship between window-view composition and non-visual potential, the research team documented 476 unique daylight and view conditions. The primary data set consists of vertical spectral irradiance and photopic illuminance measurements paired with High Dynamic Range (HDR) fisheye imagery, as shown in **Figure 4**. We utilized an LI-180 spectrometer to capture spectral irradiance across the 380- to 780-nm range. Visual view content was documented using a Canon R5 camera fitted with an RF Dual Fisheye lens. Field work was conducted across 120 indoor spaces, divided equally between the two participating institutions, to capture a broad spectrum of architectural and environmental variables. The sampled rooms featured diverse window configurations, sizes, orientations, and glazing materials, encompassing various view elements such as buildings and trees and with the ratio of sky area within the window view to window area ranging from 0% to over 50%. We intentionally excluded sky-only views, as these are typically associated with high-level clerestory windows rather than standard occupant-level apertures.

To maintain consistency in daylighting conditions, all measurements were timed within a four-hour window centered on solar noon, specifically two hours before and after. Data collection was restricted to clear or mostly clear days to maximize the non-visual potential of the daylight while electric lighting was off. Measurements took place between June and early August 2024, leveraging high solar altitude angles to minimize the presence

of the solar disc within the field of view. Window orientations were also managed to prevent direct sunlight from skewing measurements; for instance, west-facing apertures were documented exclusively before solar noon. Within each space, we established three distinct measurement points to account for the attenuation of light as it moves deeper into the room. Measurements were taken at 1 meter (~3.3 ft) from the window, representing the nearest point, as well as 1 meter from the back wall and at the room's midpoint. In compact rooms where the total depth was less than 5 meters (~16.4 ft), the midpoint measurement was omitted to avoid redundant data. This spatial sampling strategy, illustrated in Figure 4, allowed for a comprehensive analysis of how distance affects non-visual light potential.

The study utilized two primary metrics to quantify the non-visual potential of window views beyond photopic illuminance in lux. The first, Circadian Stimulus (CS), predicts the effectiveness of light in suppressing melatonin. A CS value of 0.3 or higher during the morning and daytime is considered a working threshold for adequate circadian stimulation.[5] The second, Melanopic Equivalent Daylight Illuminance (mel-EDI), expresses the circadian effectiveness of a light source relative to standard daylight (D65). During the day, a minimum of 250 mel-EDI lux at eye level (measured vertically at 1.2 meters [~3.9 ft] above the floor) is recommended.[6]

We also looked at the sky area within window views and its relationship to the non-visual potential of the daylight and views. The sky area, defined by the amount of visible sky within a window, was estimated based on the visual inspection of each image using five categories: no, minimal, less than 25%, 25% to 50%, more than 50%. The term "minimal coverage" refers to window views with very limited and scattered sky visibility, typically obstructed by external objects such as trees.

Finding a Balance

Figure 5 describes the photopic vertical illuminance as a function of sky area within window views. We observed a general positive relationship—greater sky area within the window view tends to yield higher illuminance—in both campuses.

Figure 1. A window view at a home workstation.

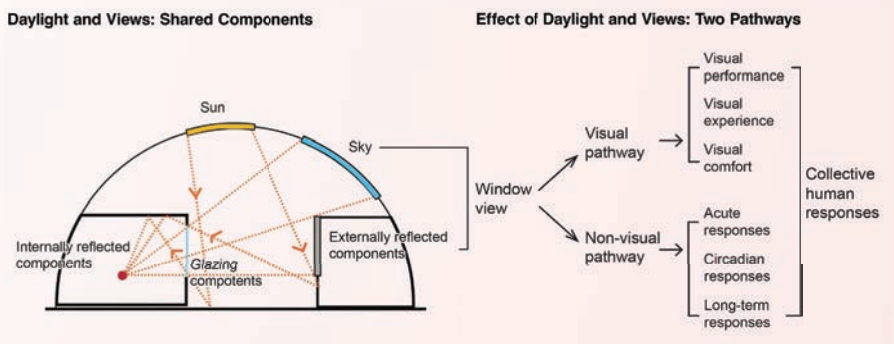

Figure 2. Shared components of daylight and views and their effects on human responses through two primary pathways.

However, several exceptions emerge.

In some cases, high photopic illuminance was recorded despite little or no visible sky. These instances were primarily attributed to highly reflective adjacent building surfaces, which amplify daylight levels even in the absence of direct sky visibility. When examining the non-visual potential of daylight, using CS and mel-EDI, as a function of the photopic vertical illuminance (**Figure 6**), we found a consistent trend in which increased sky area within the window view is associated with higher non-visual light potential under the same vertical illuminance—a pattern consistent with the naturally blue-shifted spectrum of skylight, to which the circadian system is most sensitive. This suggests that illuminance alone does not fully capture the biological effectiveness of daylight—views with greater sky areas tend to carry higher circadian potential

Figure 3. Two distinctive campus environments: (left) NJIT on the east coast and (right) UC Davis on the west coast.

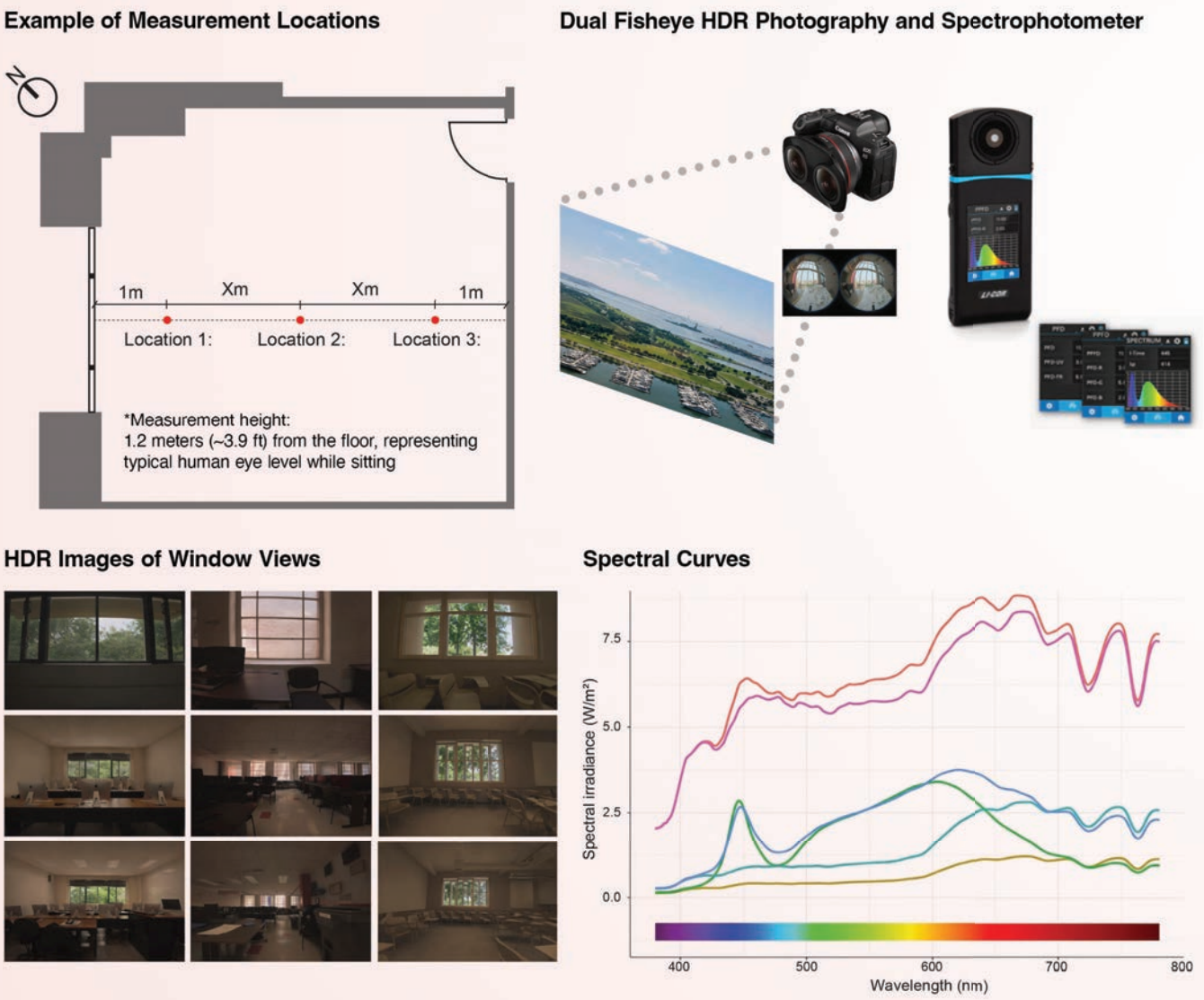

Figure 4. An example of measurement locations described on a floor plan, with corresponding HDR images captured using a dual-fisheye lens (converted into a rectangular format for presentation purposes) and spectral curves collected using a spectrophotometer.

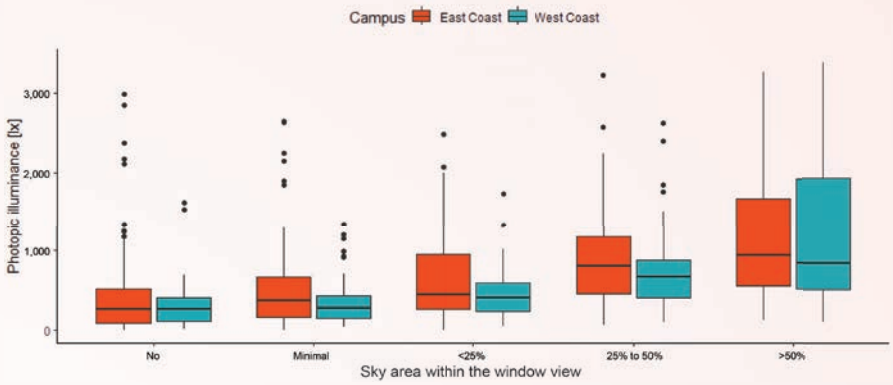

Figure 5. Data distribution of two institutions: sky area within the window view and corresponding vertical illuminance.

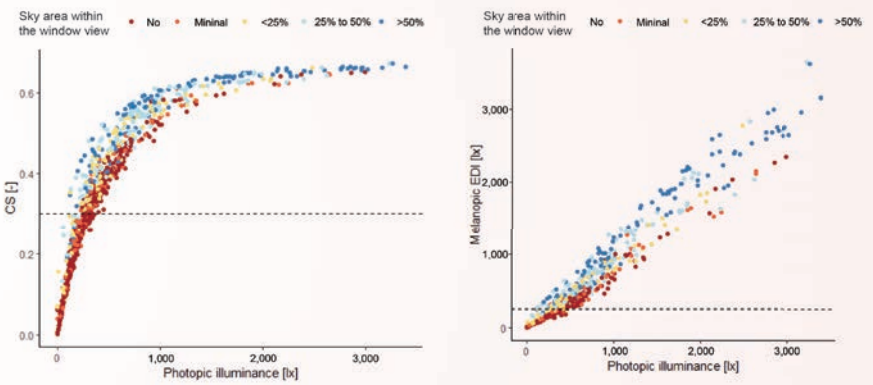

Figure 6. The effect of sky area within the window view on the non-visual potential of daylight (CS and mel-EDI) across varying photopic vertical illuminance. Dashed lines indicate the minimum recommended values (CS: 0.3, mel-EDI: 250) for both metrics that promote non-visual responses to light during daytime exposure.

even at equivalent light levels. Outliers further illustrate this point: some cases exhibit high vertical illuminance despite no sky area within the view, again due to reflections from nearby highly reflective surfaces—bright but spectrally mismatched to the needs of the circadian system.

The findings highlight the importance of considering both sky area within the window view and the spectral reflectance of external objects in façade and daylighting design. Increasing sky visibility, even within a small portion of the upper visual field, emerges as a critical strategy for enhancing non-visual benefits, yet it is often underrepresented in current view quality metrics. At the same time, although views dominated by greenery are often perceived as high quality, a balance between foliage and sky is essential to support circadian-effective light exposure. In addition, the results further suggest that achieving recommended thresholds for non-visual responses, as indicated by CS and mel-EDI, is often challenging with daylight alone, especially when sky exposure is limited. While daylight through windows should serve as the primary source for non-visual effects, electric lighting may need to supplement these effects when window views are constrained, or sky conditions are not optimal.

Stay Tuned

The results presented here represent an initial phase of analysis. Future work will expand the dataset and incorporate additional variables relevant to view quality, such as viewing distance, composition, and spatial layering, along with more advanced statistical methods. In parallel, the research team will conduct human-subject experiments using virtual reality headsets to simulate the HDR window views captured with dual-fisheye lenses, enabling controlled evaluation of perceptual and physiological responses.

THE AUTHORS

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Jae Yong Suk is the director of the California Lighting Technology Center and an associate professor in the Department of Design at the University of California, Davis.

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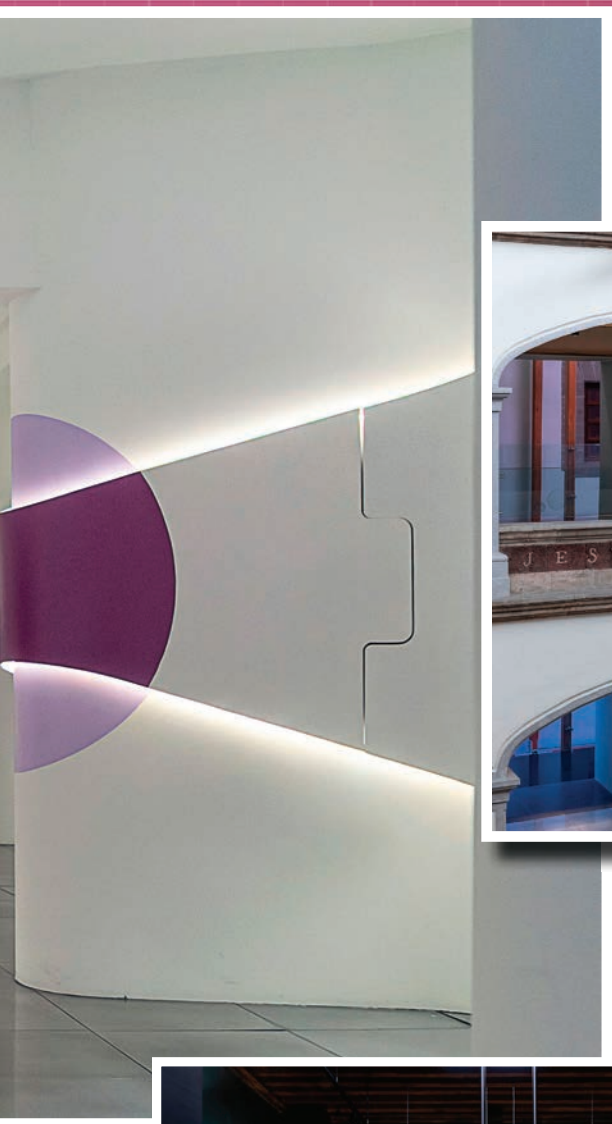
6 T.M. Brown et al. “Recommendations for Daytime, Evening, and Nighttime Indoor Light Exposure to Best Support Physiology, Sleep, and Wakefulness in Healthy Adults.” *PLOS Biology*, vol. 20, no. 3, 2022.

PROJECT IN PICTURES Experiential Museography

formalighting and Zinser Studio SA | Photos: Jaime Navarro Estudio

At the **Museo Interactivo de Economia** (Interactive Museum of Economics [MIDE]) in Mexico City, guests are guided through immersive museography with demonstrations that make economic ideas and systems, such as saving, consumption, recycling, and entrepreneurship, manageable. Focused not on tangible artifacts but on concepts, data, and behaviors, the institution relies on illumination to communicate with visitors and lead them through educational journeys while highlighting the surrounding 18th-century architecture. The project features design by lighting manufacturer **formalighting** in collaboration with **Jorge Zinser** of Zinser Studio SA. Zinser said, "At MIDE, lighting was designed to guide, to clarify, and to create atmosphere—reinforcing the way economic concepts are perceived and understood." formalighting CEO Michael Monsonego added, "By carefully balancing technology, heritage, and human experience, this project shows how light can help complex ideas feel accessible, engaging, and inspiring."

The project's wireless control system provides the flexibility for individually adjusted fixtures to add subtle contrast/emphasis to storytelling elements such as graphics, images, texts, and objects.



At the entrance of the museum, illumination accentuates archways and other key architectural features, drawing visitors' attention to the bygone courtyard they are walking through.

To minimize glare and reflections on screens and interactive displays, the team integrated light into bespoke furniture, resulting in welcoming and comfortable interior galleries.

Past Is Prologue: Highlights from IESNYC's 25th Student Lighting Competition

Marking a milestone year, the 25th annual IESNYC Student Lighting Competition returned this spring with a theme that was both reflective and forward-looking: "Everything Old Is New Again." Presented during LEDucation 2026, the long-running program once again offered a platform for emerging designers to explore how light can transform familiar materials, rituals, and objects into new experiential narratives.

This year's competition drew more than 180 students and over 160 submitted projects from design, architecture, engineering, and art programs across New York City and the surrounding region. The work emphasized three-dimensional studies—inviting viewers to engage with lighting not just as illumination, but as a catalyst for physical and conceptual change.

"Over the past 25 years, the Student Lighting Competition has grown into something much bigger than an exhibition—it's a community," said Shaun Fillion, co-chair of the competition. "I've seen students walk in with their first project and go on to build meaningful careers in lighting, often returning to support the next generation. Even as the format evolved—from theaters to virtual platforms and now LEDucation—the core has remained the same: creating a space for connection, creativity, and shared inspiration."

Taking the Grand Prize was *Metamorphosis* by Eli Lucas of Pratt Institute, a poetic meditation on transformation that begins with one of the oldest sources of light: the candle. Lucas's project used wax as both material and metaphor, allowing heat and time to reshape a rigid form into something entirely new. As the wax melts and distorts, the object evolves before the viewer's eyes, with its original structure being destroyed and reconstituted through light-driven change.

Second Place honors went to *Worn* by Phoebe Zimski, also of Pratt Institute, a project rooted in the quiet ritual of hang-drying clothes. Evoking sunlight and outdoor air, warm light interacts with suspended "garments" to create layered shadows that shift with movement. Cast from rigid, translucent materials, the clothing becomes a ghostly echo of domestic care practices that have largely faded in an era of automation.

In Third Place, *Slow Light* by Athos Argue, Pratt Institute, reframes illumination as an intentional act rather than a convenience. Designed as a lamp that requires effort and ritual to activate, the project draws parallels between historical lighting practices and contemporary "slow" movements that value process as much as product.

Several additional projects received Honorable Mentions, recognizing the depth and diversity of this year's submissions. Honorees included *Hundredweight* by Alyssa Kend, Troy McIver, Daniel Pachman, and Robert Hill-Guarino (New York School of Interior Design); *Urban Escape* by Aajanayae Hawes Herndon; *The Void Garden* by Mitchell Ho; *Lazarus* by William Rothman; and *Miasin* by Kyle Yastangacal—all from Pratt Institute.

The top three designs are featured below. Congratulations to all the participants!

Grand Prize–*Metamorphosis*–Eli Lucas, Pratt Institute

Second Place–*Worn*–Phoebe Zimski, Pratt Institute

Third Place–*Slow Light*–Athos Argue, Pratt Institute

Photos: Dany Bristol Photo

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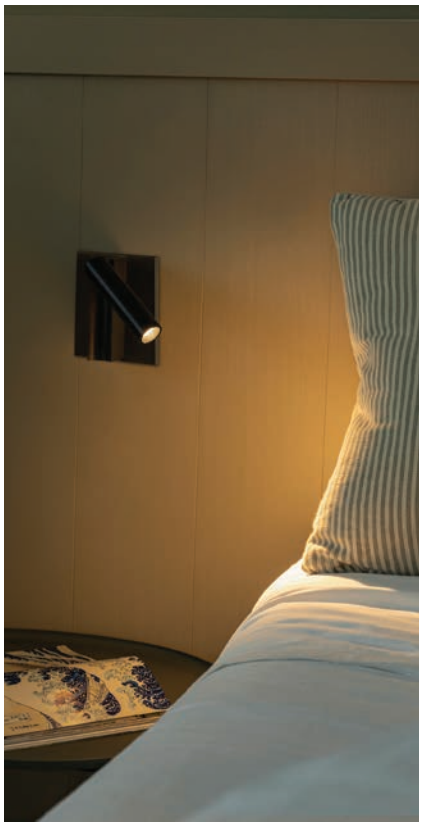
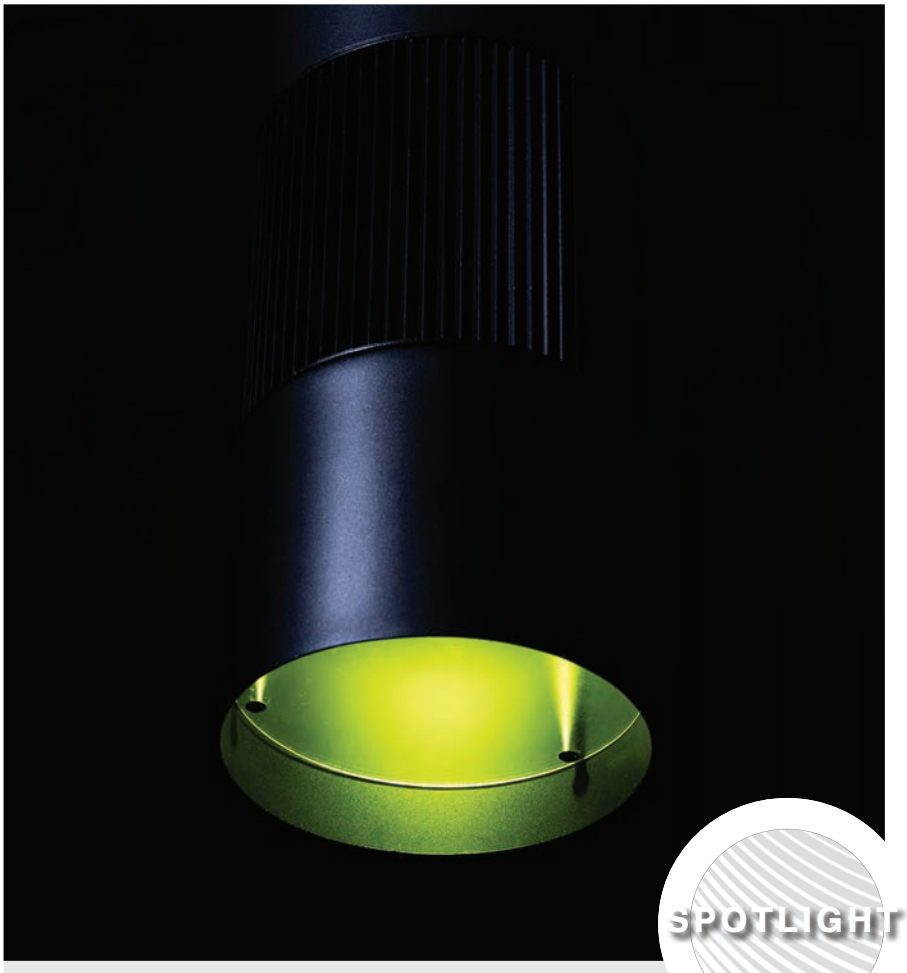


FARO BARCELONA
presents the Cronos lamp for residential applications. The bedside, wall-mounted sconce offers a clean geometric aesthetic, dimmable illumination, and an adjustable beam, allowing end users to direct light to where it is most needed.
https://faro.es

INTER-LUX
announces SKIN, with an elongated hexagonal shape for creating a curved, straight, or undulating light series on modern architecture. The modular outdoor luminaire is IP67 rated and offers multiple beam spreads including frosted and asymmetric options.
www.inter-lux.com

CERNO
debuts Stillo 16 by Nick Sheridan, a decorative pendant made in the brand's vertically integrated workshop. Comprising leather suspension and spun metal as well as wood and metal detailing, the dimmable, glare-free pendants provide indirect illumination and are available in five finishes: Blanc, Deux, Cava (pictured), Claire, and Noir.
https://cernogroup.com

FLOS
reissues Seki-Han by Tobia Scarpa. Originally designed in 1963, the tubular floor lamp comprised two wooden blades, a vertical light source, and ends made of chromed metal fillings; the reimagined version includes a raw black-iron base as well as an advanced fastening system that allows the wooden blades to move and rotate around the light source. Flos also unveiled a suspended version of this luminaire.
https://flos.com



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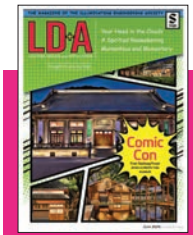

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Last Look

Redefining a Landmark

A historic industrial chimney in Oirschot in the Netherlands has a new nighttime presence. Using a Pharos Architectural Control system, design firm LRS Solutions created a strategy that provides the smokestack with subtle static-white and colorful illumination, enhancing its vertical architecture without overwhelming the surrounding environment. The “set-and-forget” control scheme utilizes time-based scheduling to allow the landmark to adapt to various times of night as well as seasonal changes.

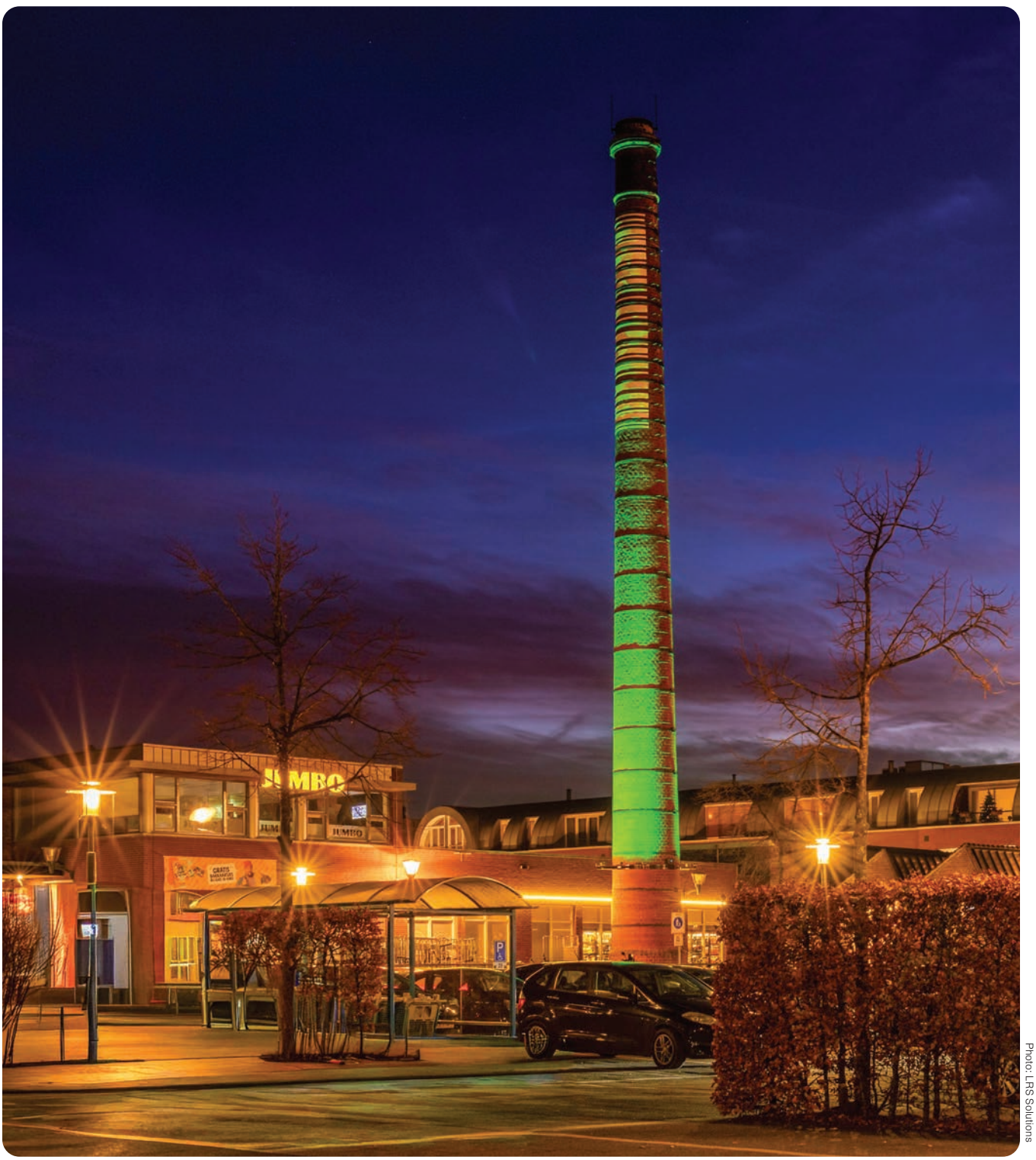

Photo: LRS Solutions

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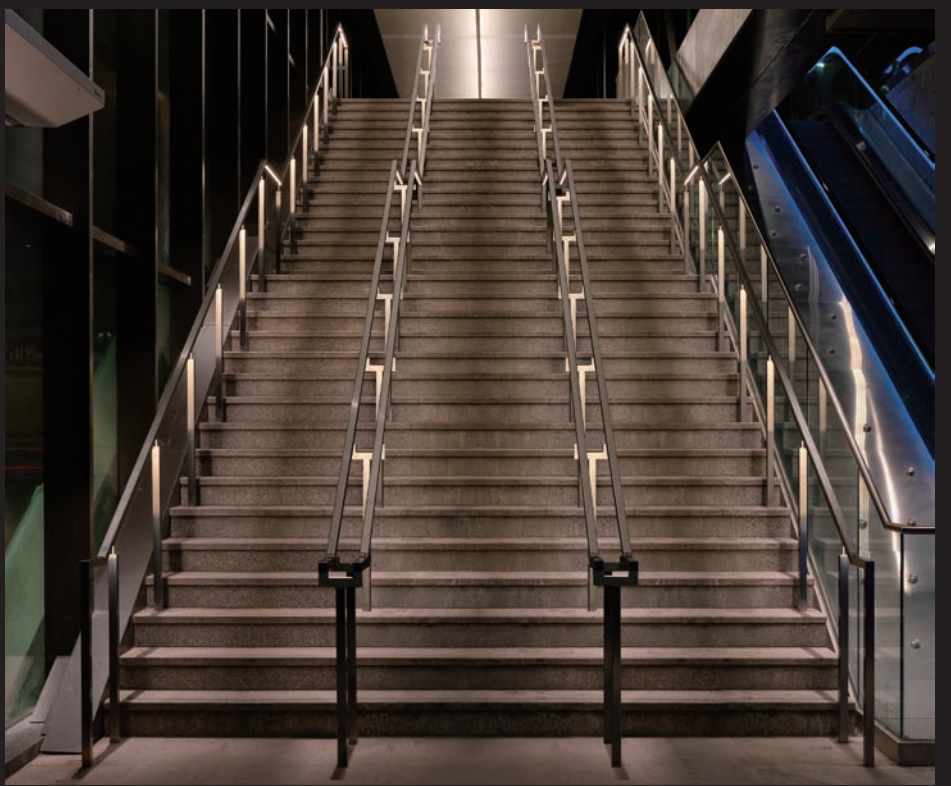

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