THE MAGAZINE OF THE ILLUMINATING ENGINEERING SOCIETY

LD+A

LIGHTING DESIGN and APPLICATION

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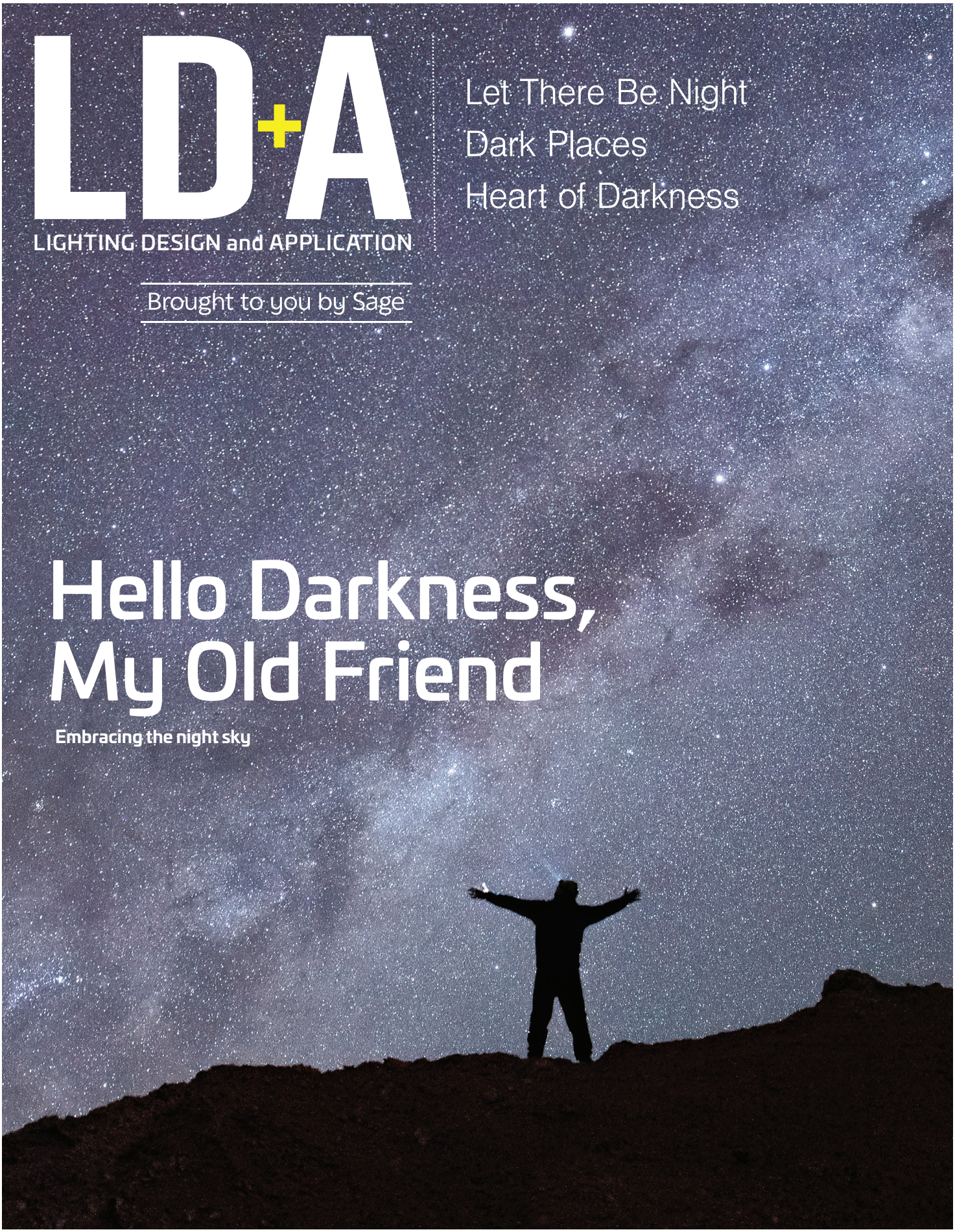
Let There Be Night

Dark Places

Heart of Darkness

Hello Darkness, My Old Friend

Embracing the night sky



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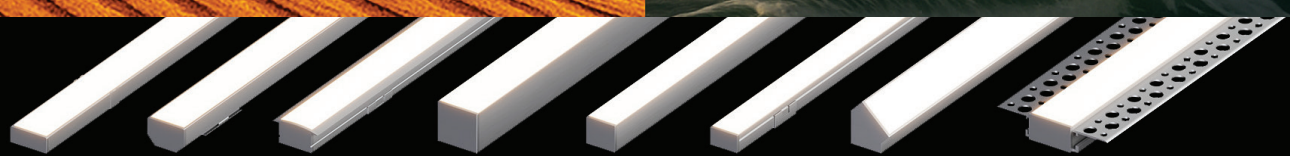

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OCTOBER 2025 • VOLUME 55 • NO. 10

FIRST UP

PLUS

Photo: Koerbel Photography

FEATURES

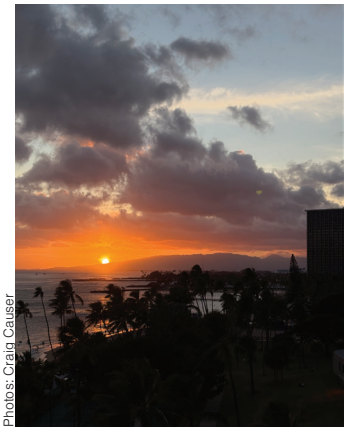
On The Cover
A starry sky in Chile's Atacama Desert. Photo: Stephanie Vermillion

EDITOR'S NOTE

Spies Among Us

It seems appropriate that the process of putting together this special "Embracing Darkness" theme issue of *LD+A* coincided with my family's trip to Hawaii. After all, ancient Polynesians relied on the clarity of the stars in the night sky to navigate the Pacific Ocean.

While visiting O'ahu, the brightness and bustle of Waikiki and Honolulu is greatly tempered by what I consider to be much of the island's heart—the North Shore. With a coastline stretching from Ka'ena Point in the west to Kahuku in the east—and including some of the best beaches and surf breaks on the planet—both natives and locals are distinctly aware of the importance of the land and sea in daily life. Moving through Waialua and Hale'iwa, stickers and t-shirts abound with the slogan "Keep the Country Country," a rallying cry from the Defend O'ahu Coalition to protect communities from the effects of large-scale development. While O'ahu has its share of light-pollution battles ahead, native Hawaiians continue to stress the interconnection of their culture, environment, and spirituality.



Photos: Craig Causer

Even busy Waikiki basks in the setting of natural light.

Keeping the country, country.

The movement to increase light pollution education and protect the night skies has been ongoing for decades and continues to grow. While *LD+A* often publishes unique project-related articles, this month, we hand over the reins to authors who are directly involved with and/or affected by dark-sky preservation. We hope these stories of ecology, conservation, human health, and some potential solutions resonate with both lighting manufacturers and designers.

The Hawaiian phrase "O na hōkū no na kiu o ka lani" ("The stars are the spies of heaven") paints a picture of a world where the stars serve as constant observers of the activities taking place on Earth. Wouldn't it be nice, regardless of where we're currently residing, if we could pause, look up at the night sky, and have the ability to observe what the heavens truly have to offer? It's a challenge worth embracing.

Craig Causer
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LD+A
LIGHTING DESIGN and APPLICATION
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Leora Radetsky
is the senior lighting scientist and LUNA program director at the DesignLights Consortium. **p.20**

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Stephanie Vermillion
is a travel journalist who covers astrotourism and outdoor adventure for *National Geographic*, *Outside Magazine*, *Travel & Leisure*, and *Vogue*. Her first book, *National Geographic's 100 Nights of a Lifetime: The World's Ultimate Adventures After Dark*, was published in December 2024. **p.24**

James Brigagliano
is the Lighting Program manager at DarkSky International. Active in the lighting community for 20 years, he brings a unique blend of technical knowledge, real-world experience, and a passion for dark-sky preservation. **p.28**

Chiara Carucci
is the founder and principal lighting designer at Noctua. Since 2018, she has pushed the boundaries of traditional lighting design to incorporate innovative solutions for architectural and ecological conservation. **p.32**

Mary Coolidge
is the BirdSafe Campaign coordinator for Bird Alliance of Oregon. She is dedicated to improving efforts to make urban environments more hospitable to wildlife and helping to connect people to nature. **p.40**

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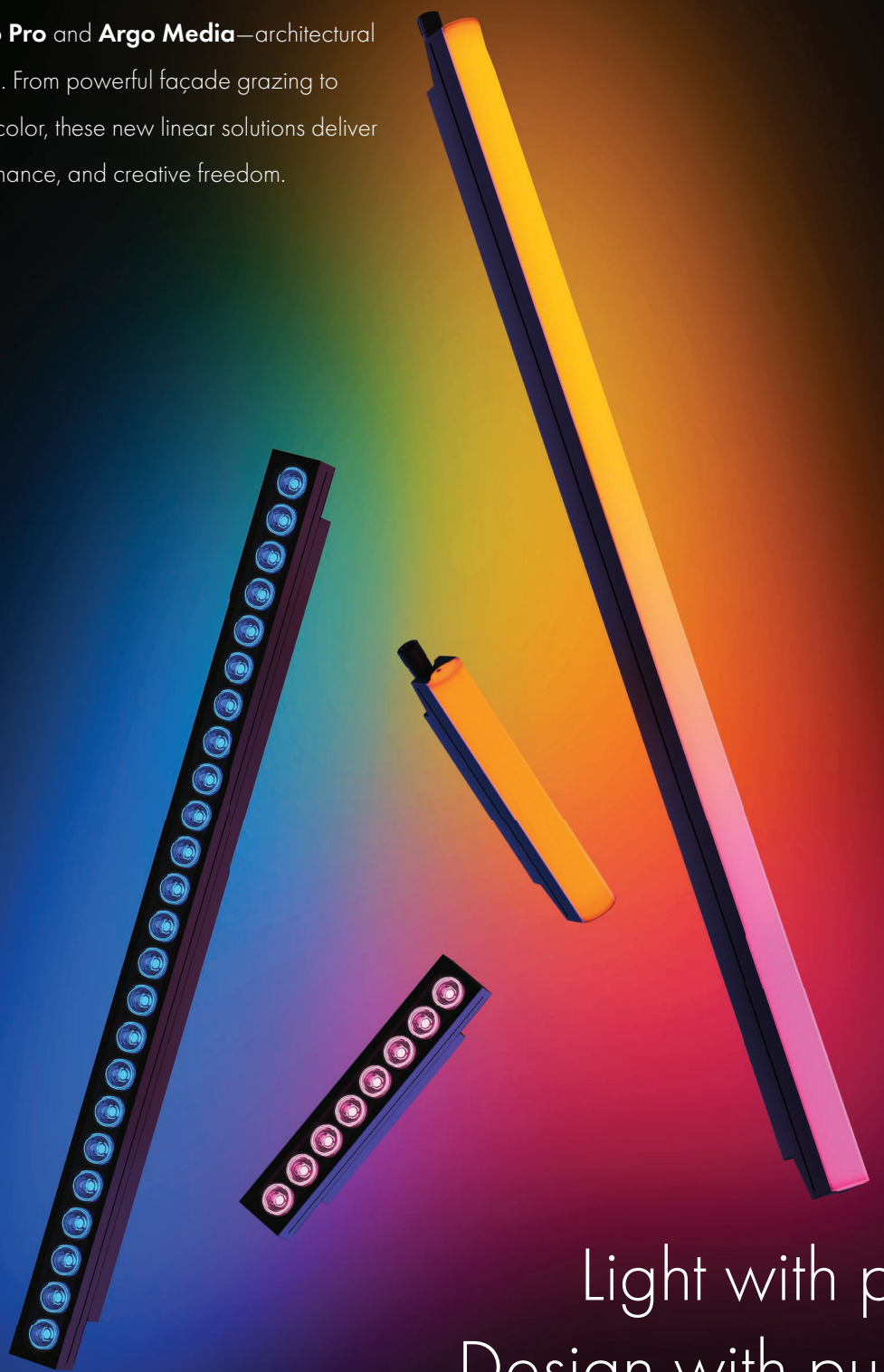

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MARATHON

PRESIDENT'S PERSPECTIVE

Wilson Dau

It is hard to believe it's been a year since *LD+A*'s Editor I Michele Zimmerman asked me to write my first "President's Perspective," which was published in January 2025. It's true that time flies when you're having fun.

I would like to start my final column by thanking all the people who contribute daily to the betterment of the IES. I wish I could mention each individually, but there is not enough space in the magazine for that: IES Staff, Board of Directors, Advisory panels, Task Forces, District and Section leaders, Technical and Non-Technical Committees, and all our Members, thank you.

It has been my honor to preside over the Society this year. The IES continues to evolve and improve, our standards are used around the world, our educational content is unparallelled, and our events continue to be the must-attend events in our industry.

If you have read my columns so far, you might have noticed a common theme: as much as we are a technical society and a standards development organization, at the end of the day, we are way more than that. Our Society is about people: the researchers and experts who share their knowledge with us; the educators that help foster the next generation of lighting professionals; the manufacturers that keep delivering better products to the marketplace; the agents that inform the specification community of new developments; the architects, designers, and engineers who specify products; the distributors who ensure the right products get to site; the contractors who install them; and the commissioning agents that make sure everything works as intended. We are diverse, yet we are very much connected.

> We are diverse, yet we are very much connected

With all this in mind, we need to grow our membership. Every member should help the Society grow. From a numbers perspective, a $240/year membership provides over $2,100 in value—it should be a no-brainer to join. However, there is much more offered than just that value, there are also the intangibles mentioned above: having a network of people to rely on for knowledge and connections is not something that can be quantified. The last few years have been hard for attrition, not just for us but for every society and organization. As a result, we have improved and streamlined our systems and processes to make it easier to sign up or renew memberships.

At a recent global lighting summit, which included participation from organizations across the world, a common challenge brought up by multiple participants was that people outside our industry don't even know the IES exists. We need to change that, and it starts by growing our footprint. Thus, I ask you to engage a non-member or past member who could benefit from membership and help them sign up. If you're unsure how, please ask. Your section leaders have all the information, and you can

(*continued on p. 48*)

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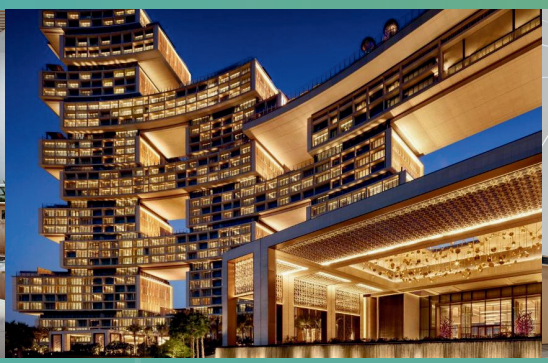


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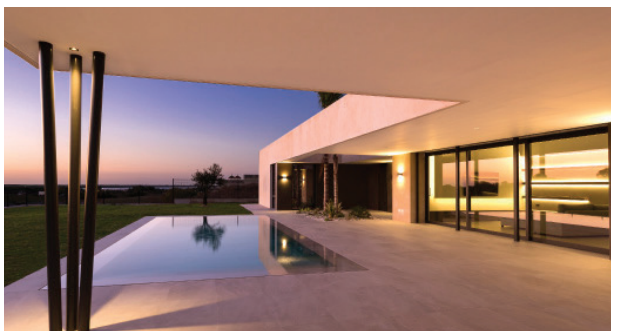

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INSIGHTS

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Like an Apparition in the Dark

A transparent building adds a sense of profundity to an open field in China

Similar to images conjured in ghost stories of yore, Zhanbei Mirage in northern China stands out amidst the shadows of a grassy plane, serving as a beacon of light drawing observers' eyes and minds to its center. The 6,566-sq-ft concrete structure is wrapped in a steel framework and glows with illumination designed by Beijing-based firm Puri Lighting Design; the team achieved the unique visual through integrating 36-W and 48-W fixtures with 10-deg and 30-deg beams, respectively, into the steel framework and pointing them in various directions. Pure-white 4000K light accentuates the structure's transparency and captures the serenity of the natural surroundings.

TALQ Tender Template Now Available in Multiple Languages

The TALQ Consortium has expanded its resources for the TALQ Tender Template, a document to help cities, utilities, consultants, and project planners streamline the tendering process and build on insights gained from global best practices. Expanded resources include the addition of multiple languages as well as providing editable templates. The updated version of the digital template is now available for free download in Chinese, Dutch, English, French, Italian, Romanian, and Spanish; more translations are being developed. Templates can also be downloaded as a Word document for tender text and an Excel file for technical specifications. To learn more, visit *www.talq-consortium.org*.

Photos: Craig Causer

Seen by Staff:
Luminaires at Disney's Aulani in Ko Olina combine native Hawaiian forms with function throughout the resort and spa.

THEY SAID IT:

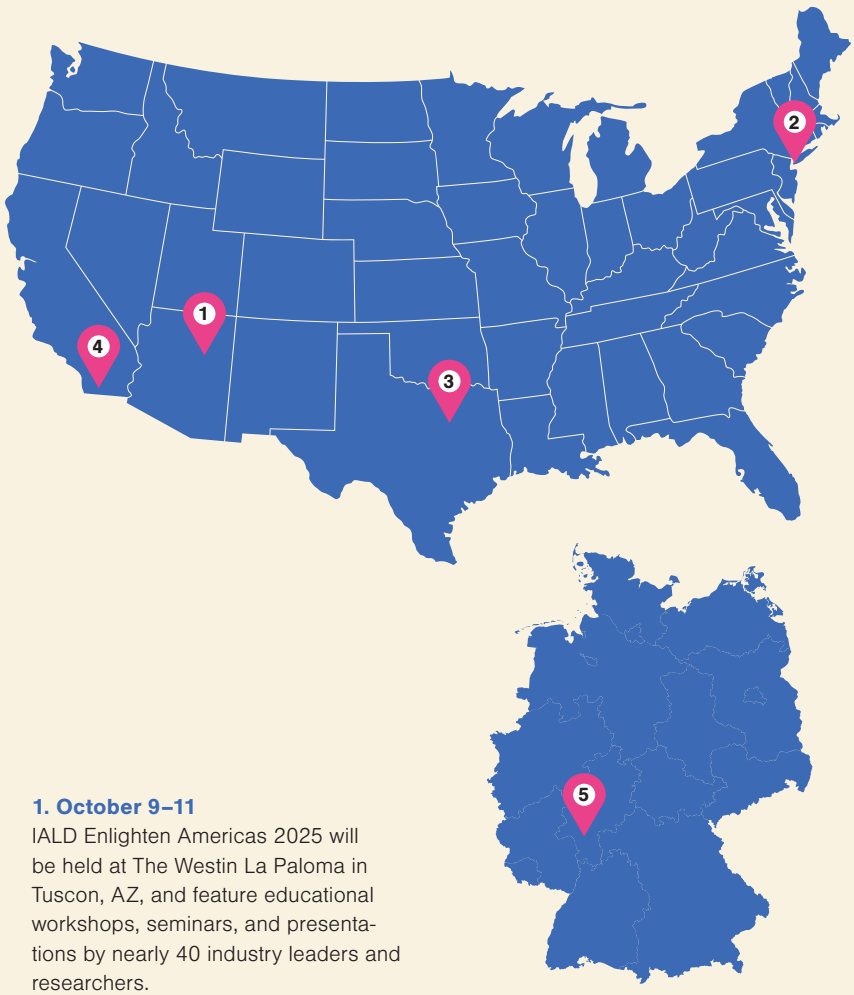
"The night is a treasure trove for adventure,"

James Brigagliano, "Let There Be Night," p.28

MERGERS & MORE

- Manufacturer of theatrical fixtures **Altman Lighting** has rebranded; the change includes the renaming of fixture families to enhance the cohesion of the brand's catalog.
- **Dialight** has opened a new manufacturing facility in Penang, Malaysia, improving the company's global growth and supporting its commitment to investment in the Asia-Pacific region.
- **DMF Lighting** has launched an enhanced website with an improved Dealer Portal offering a personalized dashboard for project management, quoting and tracking tools, and fixture-type associations.
- **Hudson Valley Lighting Group**, a manufacturer of architectural and decorative fixtures, has acquired **Sonneman**, a manufacturer of modern and minimalist fixtures.
- Canada-based lighting design firm **Larose Guyon** marked its 10th anniversary.
- China-based **San'an Optoelectronics** and Malasia-based **Inari Amerton Berhard**, chip-making companies, will jointly acquire **Lumileds Holding B.V.** and **Lumileds International** in the first quarter of 2026.
- **Women in Lighting** will host a series of talks and a networking session on March 8, 2026 (International Women's Day) at the Light + Building conference in Frankfurt, Germany.

EVENTS



1. October 9–11

IALD Enlighten Americas 2025 will be held at The Westin La Paloma in Tuscon, AZ, and feature educational workshops, seminars, and presentations by nearly 40 industry leaders and researchers.
www.iald.org

2. October 14–15

NYControlled, a trade show and educational event by the IESNYC and DLFNY dedicated to lighting controls, will be held at the Metropolitan Pavilion in New York City. The event includes a hands-on workshop, presentations, sponsored sessions, and a full-day exhibition.
https://nycontrolled.com

3. January 10–13, 2026

Lightovation, North America's largest residential lighting show, will take place at the Dallas Market Center. Attendees can explore the latest trends in indoor and outdoor, decorative and architectural, smart systems, and more in home lighting.
www.dallasmarketcenter.com

4. February 5–6, 2026

Illuminate 2026, the Association of Outdoor Lighting Professionals' annual conference and expo, will be held at the Westin Carlsbad Resort & Spa in California. The event will include hands-on education sessions, new products and technologies, and the AOLP Lighting Awards.
https://aolponline.org

5. March 8–13, 2026

Light + Building will be held in Frankfurt, Germany. The 2026 show's tagline is "Be Electrified—Electrifying Places. Illuminating Spaces."
https://light-building.messefrankfurt.com

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P.S. Form 3526 Facsimile

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Graeme Doswell Date: 09/09/2024
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Q+A

SHARON STAMMERS

Sharon Stammers of **Light Collective**, a Mexico- and UK-based lighting consultancy, talks about Going Dark, a three-day workshop co-founded by Light Collective and architecture firm Traverso Vighy.

How did the idea for Going Dark come about?

The idea was initiated by the Italian architects at Traverso Vighy whose work always takes into account the rhythms of natural light and the view of the natural world. They invited Light Collective to participate in helping them organize, as we had previously been involved in other participatory dark-sky events. The goal was to create a living lab—a hands-on and experiential workshop in a location known for its stargazing opportunities.

What is unique about the workshop?

The workshop is unique in many ways. It is open to all: designers from both architectural and theatrical backgrounds participate together with manufacturers to discuss the best approaches to illuminating the heritage buildings onsite [in Tuscany, Italy] to enable protection of the night sky and minimize light pollution. The participants stay in the village [Monteriggioni] monastery together and work, eat, and socialize in the workshop location, which makes for a special community feel. The results of the workshop are also shared with the local municipality with the goal of making actual improvements to the local lighting in the future.

> “There is real value in people leaving their desks and being hands-on in a unique environment

How was the location selected?

The location drove the idea of the workshop—you could say that the location selected us! Monteriggioni is a small village in the middle of the countryside along the pilgrimage route of Via Francigena. There is minimal light pollution in the area, and we have control of the lighting in the village, so we are able to turn all the existing luminaires off in order to experiment and see the night sky; in 2024 the Milky Way was visible. Both the local municipality and the Observatory in Sienna, Italy, are partners to the workshop and are very supportive and involved.

What are some of the lighting techniques attendees can expect to try onsite?

We had a large range of luminaires from our sponsors including small fittings for details and larger fittings that could be mounted on poles [for attendees to use]. Each sponsor was allocated a site that worked with their product offer. Participants were grouped together with one sponsor and a site, and each were very

Photos: Matteo De Bernardini - Wide Space Studios

1. Attendees have the opportunity to test out products from workshop sponsors in real-world settings.

2. Each group is tasked with a different nighttime challenge.

3. A night walk with red torches is one of the adventures participants can expect to experience.

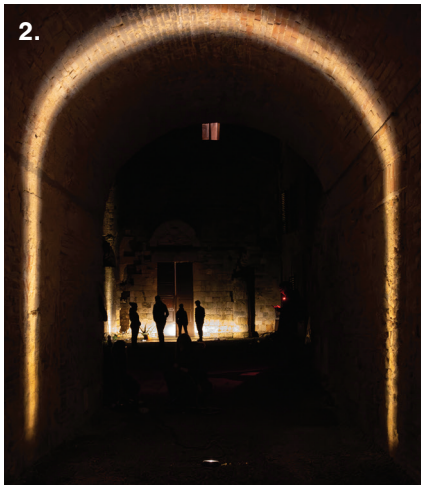
different. For example, one group had a piazza with challenges that varied from the group considering a church façade. Participants experienced a range of talks, demonstrations, and practical experimentation before presenting their own conceptual ideas and approaches to the whole group. These activities are interspersed with a museum visit to understand the local history, a night walk with red torches, night photography instruction, as well as astronomical education.

Have any unexpected discoveries come from past workshops?

When we started, we thought that mainly students and young designers would be interested, but we were surprised that mainly experienced professionals signed up to attend. This made us realize that there is real value in people leaving their desks and being hands-on in a unique environment. Understanding just how much light is needed in a dark environment to illuminate buildings and spaces is always a shock. Also, learning how easy it is to create light spill from the positioning of luminaires surprises many people.

Where do the founders of the workshop hope to take Going Dark in the coming years?

Alongside the continuation of running the workshop, we hope that the approaches participants have documented will be implemented in the future to create a best-practice example of how to light a heritage village (in other locations) that enables a clear view of the night sky. We are in discussion with the local municipality of Monteriggioni to create some improvements to the existing lighting, and we are hopeful that changes will be made. Last year, we also included the local community in the neighboring town to participate in a switch off of all their lighting. We hope to expand on their future involvement and dark-sky education, too.


2.


3.

ASK AN EP

ASHLEY CHAN

This designer with **HLB Lighting** discusses why daylighting is something she is passionate about.

Why light?

Growing up in the Philippines, I was always surrounded by abundant natural light. The Sun plays a significant role in daily life there, and it made me curious about how light shapes the look of a space and how people interact with it. I started thinking about how light could be used to enhance energy efficiency and improve environments, especially where natural light isn't abundant. This curiosity led me to lighting design where I saw an opportunity to blend function with beauty and use light to create meaningful, sustainable spaces.

What is your favorite project?

I am particularly drawn to bridge projects because they serve as both transitional spaces and artistic forms. Bridges connect people, places, and communities, and the way they are lit can transform not just their function but their emotional impact; bridge illumination connects people on a deeper level, influencing how they feel as they pass through the space.

The best part of your job?

One of the best aspects of my job is being part of a dynamic and open community. At HLB, I've had the opportunity to learn from some incredible mentors who push me to refine my craft. The lighting design industry is constantly evolving to meet tomorrow's demands. Whether it's sustainability or the growing role of AI in lighting design, the field is at a crossroads of current, urgent issues. Working in a community where ideas are shared freely and collaboration is integral to the process has been invaluable.

"Working in a community where ideas are shared freely and collaboration is integral to the process has been invaluable

The biggest obstacle you have encountered?

After completing my MFA degree in Lighting Design at Parsons, I was unsure of what to expect when I started working in New York City. The technical demands of lighting design seemed daunting at first, but I quickly realized that embracing challenges was the way forward. The lighting community has been supportive and open, creating an environment where every challenge is a learning opportunity.

What is an important consideration for the future of the lighting industry?

With the growing challenges of climate change, the lighting industry has an important role to play in reducing energy consumption. Additionally, we must remain focused on human-centered design, how lighting can influence mental health, well-being, and productivity. There's a lot of exciting potential in using AI to enhance precision and efficiency systems.

Do you have a dream job/project?

My dream project would be something that combines the technical challenges of lighting as well as a strong focus on sustainability, especially daylighting. Daylighting is something I'm particularly passionate about, especially in areas where natural light is limited or where we can optimize its use. It would be incredible to design a space that enhances the human experience, while also promoting sustainability and contributing to a more harmonious relationship with the environment.

The Emerging Professional column explores issues affecting younger lighting professionals and those new to the industry.

Call for

NOMINATIONS

LD+A and the IES to Award Student and Emerging Professional Memberships

The IES seeks to improve the lighted environment by bringing together those with lighting knowledge and by translating that knowledge into actions that benefit the public. To foster growth in the next generation of lighting designers, *LD+A* and the IES have partnered to offer students and EPs the opportunity to win a one-year IES Membership. Throughout 2026, one person will be selected each month to receive an award, with a total of six Student and six EP Memberships distributed. Winners will be notified and announced in future *LD+A* e-newsletters.

Applications are currently welcome and will be accepted on a rolling basis through September 30, 2026. Interested students and EPs must be nominated to be considered for this award. To apply, please submit the following to *LD+A* Editor-in-Chief Craig Causer at craig.causer@sagepub.com:

- A description of the type of membership for which you are applying (Student or EP) and why you are interested in becoming an IES Member.
- A 500-word letter of nomination describing why you are a suitable candidate for this award. Nominators may include supervisors, colleagues, mentors, professors, or advisors.
- Contact information including name, address, and mailing address.

To confirm eligibility for IES Membership, if selected, students will be required to submit an official school transcript while EPs must provide their resume and/or a letter from a current IES Member.

IES Student and EP Memberships offer a wealth of benefits including meaningful networking opportunities with colleagues and industry leaders, educational opportunities, and leadership development. Apply now to become a part of the IES, the recognized technical and educational authority on illumination.

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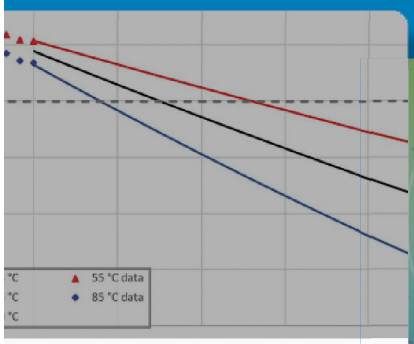
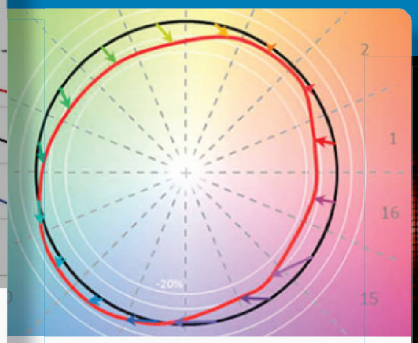


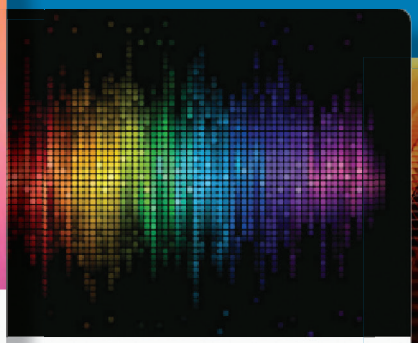
TM-21 Calculator

The official IES TM-21 calculator projects luminous flux maintenance based on the 2021 American National Standard, approved and maintained by the IES Testing Procedures Committee.



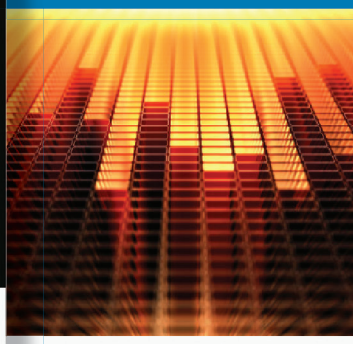
TM-30 Spectral Calculator

The official IES TM-30 calculator provides values and creates vector graphics based on the 2021 American National Standard, approved and maintained by the IES Color Committee.



The Illuminance Selector

The IES Illuminance Selector is a search tool developed to provide fast access to critical lighting criteria from over 25 tables published in ANSI/IES Recommended Practice Standards.



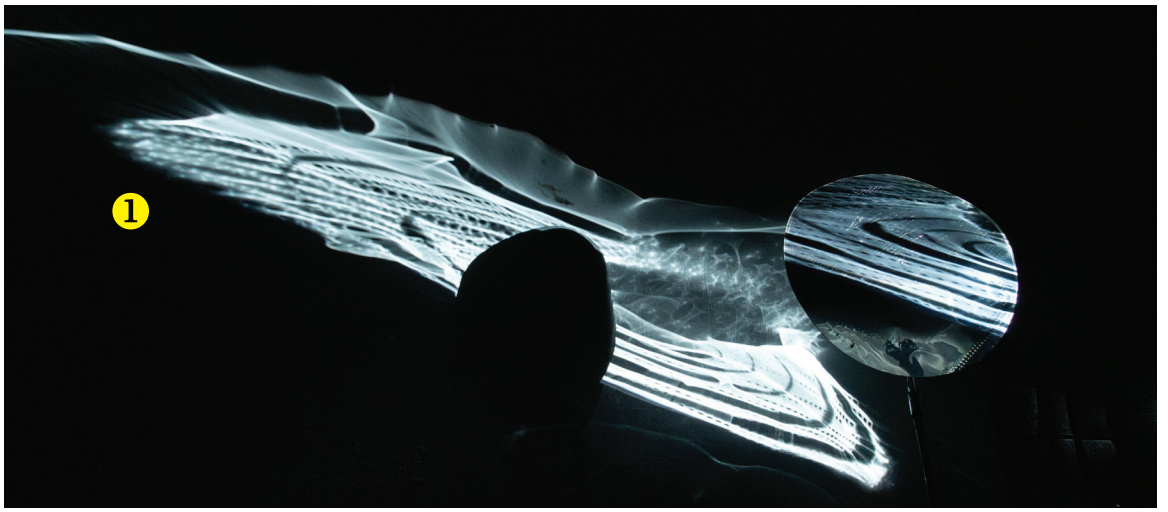
IES Reference Retriever ‡

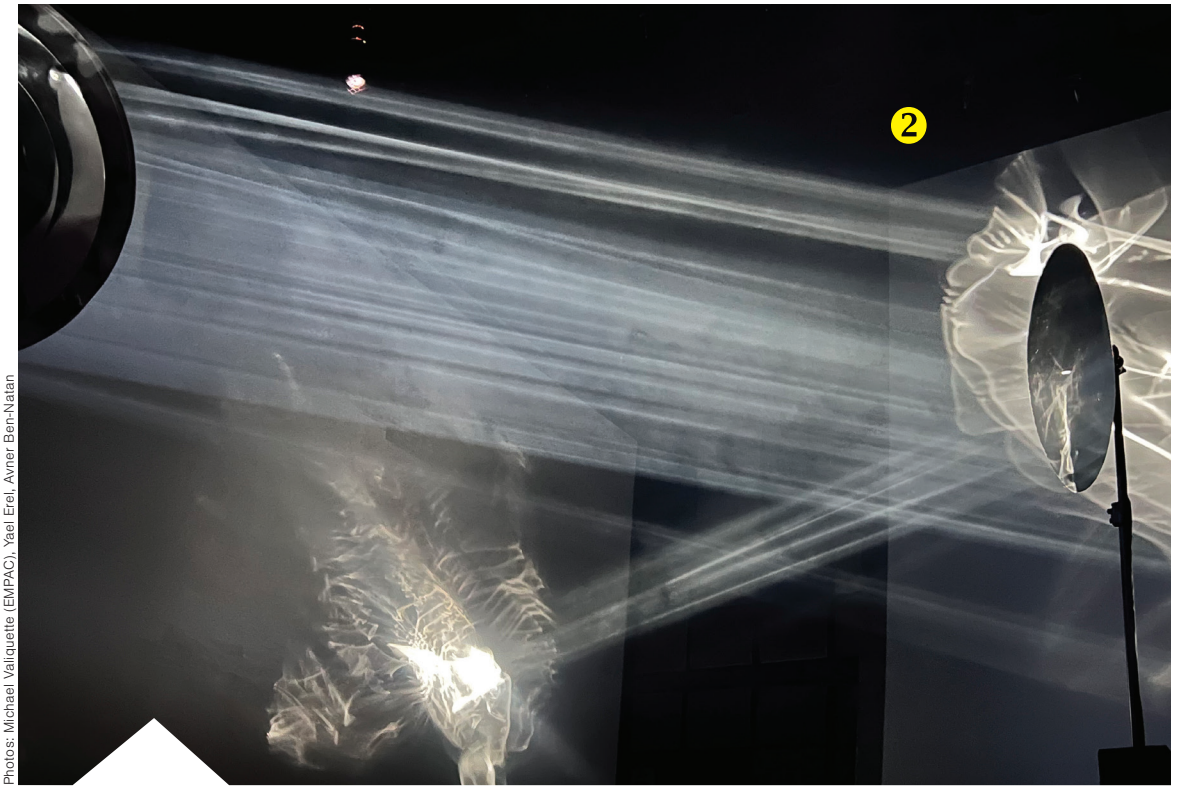
The IES Reference Retriever is a catalogue of all documents, articles, publications and studies that are referenced throughout IES standards, searchable by title, topic, keyword, author or date.

‡ Available for IES Members only.

Illuminating Engineering Society

Access the IES Standards Toolbox at **ies.org/tools**





Photos: Michael Valiquette (EMPAC), Yael Erel, Avner Ben-Natan

❶ Light projections shine onto disks that reflect light drawings, creating a seemingly out-of-this-world experience for visitors.

❷ A singular light source casts multiple reflections throughout the space.

❸ A graphic of the theater layout reveals the placement of two projectors, six screens, and six reflectors.

HOW THEY DID IT

IES ILLUMINATION AWARD OF MERIT

"Reverberating Light"

Design by **Lightexture** in a light and sound installation inside a black-box theater in Troy, New York, incorporates projections, light drawings reflected on augmented stainless-steel disks, and intermittent mist.

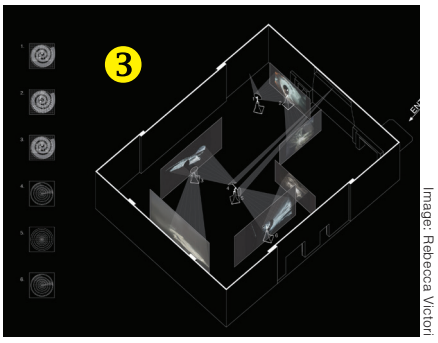


Image: Rebecca Victori

SIGHTLINES

Leora Radetsky and Scott Lind

Rethinking LED Retrofits: S/P ratios, sky glow, and smarter specifications

LEDs, long heralded for their energy efficiency, now comprise well over half the global commercial lighting market. Yet, their environmental impacts, especially from outdoor LEDs with bluish-white spectra, are increasingly scrutinized. Mounting evidence reveals unintended ecological consequences: diminished star visibility, disrupted circadian rhythms in wildlife, and altered nocturnal behaviors across taxa. To mitigate these impacts and to comply with voluntary and regulatory criteria, the lighting industry has developed lower CCT LED products as a promising solution.

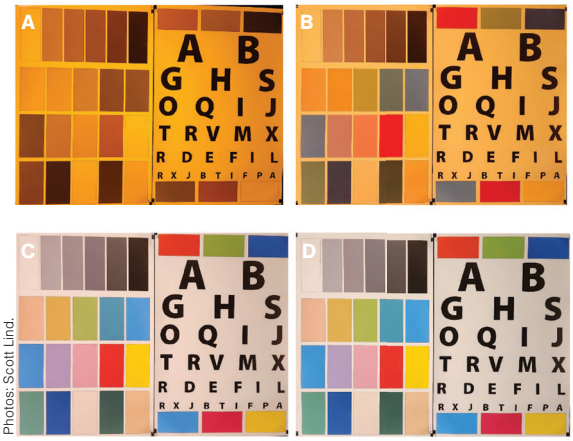
Nothing is absolute, however, and recent light pollution research has shown that relying on CCT values alone isn't the best way to reduce sky glow. A study by Hung et al. with the National Park Service (NPS)[1] found that 3000K zero-uplight luminaires increased sky glow significantly compared to legacy high-pressure sodium (HPS) luminaires. In 2023, a paper by Esposito and Radetsky[2] found that the Scotopic-to-Photopic (S/P) ratio was the strongest predictor of a luminaire's likely spectral impact on relative sky glow.

This insight became a catalyst for our collaboration. As a lighting scientist (Leora Radetsky) and a master electrician and dark-sky advocate (Scott Lind), we've pooled expertise to address how technical specification, installation, and ecological awareness can converge in effective outdoor lighting strategies. At LightFair 2025, we co-presented a session, The Hidden Cost of Light: Specifying controllable low CCT and amber outdoor lighting to combat light pollution, and shared specification language, case studies, and DesignLights Consortium (DLC) resources to help lighting practitioners implement lighting that respects both human and environmental needs.

Outdoor Illumination Discourse

As further study and real-world experiences continue to inform best practices related to outdoor illumination, we offer our thoughts on some pertinent issues.

> Manufacturers who prioritize developing low-output luminaires and extend their low-CCT choices might be able to stand out in a crowded marketplace



Photos: Scott Lind.

Color chart illuminated by a) HPS, b) 1800K LED, c) 2200K LED, and d) 2700K LED luminaires. Individual color panels were visually distinct and identifiable under all LED spectra.

Lind: After reading the NPS study, I contacted Leora at the DLC to learn more about research she had done with Tony Esposito of Lighting Research Solutions. That connection led me to reassess my entire approach to exterior lighting. I became particularly interested in the DLC's LUNA program and the rigorous performance validation it provides for night-sky-friendly products. Understanding that S/P ratio offers a better proxy for sky glow than CCT was a turning point.

One year later, I've overseen retrofits in multiple communities, replacing HPS and 5000K wall- and pole-mounted luminaires with selectable low-CCT luminaires set to 1800K. These installations span a range of public building types and incorporate onboard dimmers to align output levels with ANSI/IES RP-43-22 recommendations. Limiting the controls to photosensors—without motion sensors or scheduled dimming—has nonetheless reduced the predicted energy use and sky glow by roughly 80%.

Radetsky: Lighting practitioners familiar with the DLC usually associate it with rebates tied to increasing product efficacies. While energy efficiency is of critical importance to our mission and our efficiency program members, it's also balanced with comprehensive

lighting quality, dimming, and controllability requirements. This is especially true for outdoor lighting, where early generation, high-CCT LED installations often exacerbated sky glow due to their spectral power distributions. Light pollution is an increasing problem globally, affecting humans and other organisms across all habitats. As first- and second-generation LED installations are nearing the end of their product life, we can make better decisions with LED-to-LED replacements.

Lind: My motivation stems from a desire to protect wildlife from the disruptive negative impacts of anthropogenic light at night. That's why I've volunteered to relight buildings at cost, often with pro bono labor. The luminaires I specify are lumen- and CCT-selectable (1800–2700K), reducing risk if end-users initially dislike the goldish hue. So far, providing an option to increase CCT has proven unnecessary. Client feedback has been universally positive, even among those initially uninterested in sky-glow reduction. These clients were thrilled with the energy savings enabled by this lighting. It became clear to me that, just as customers accepted high CCTs by default during the initial LED transition, they may be equally amenable to low CCTs when they're presented as standard. No one has yet asked to raise the luminaire settings above 1800K, and actively asking my customers about the low CCT has only elicited positive feedback.

Radetsky: This shift is also reflected in product availability. In 2024, DLC-Listed outdoor luminaires with CCTs of 3000K or lower accounted for 37% of our Qualified Products List, surpassing the 28% share held by products with CCTs of 5000K or higher.

Our forthcoming SSL V6.0 and LUNA V2.0 technical requirements for product qualification introduce specifications for low CCT (1800K and 2000K) and

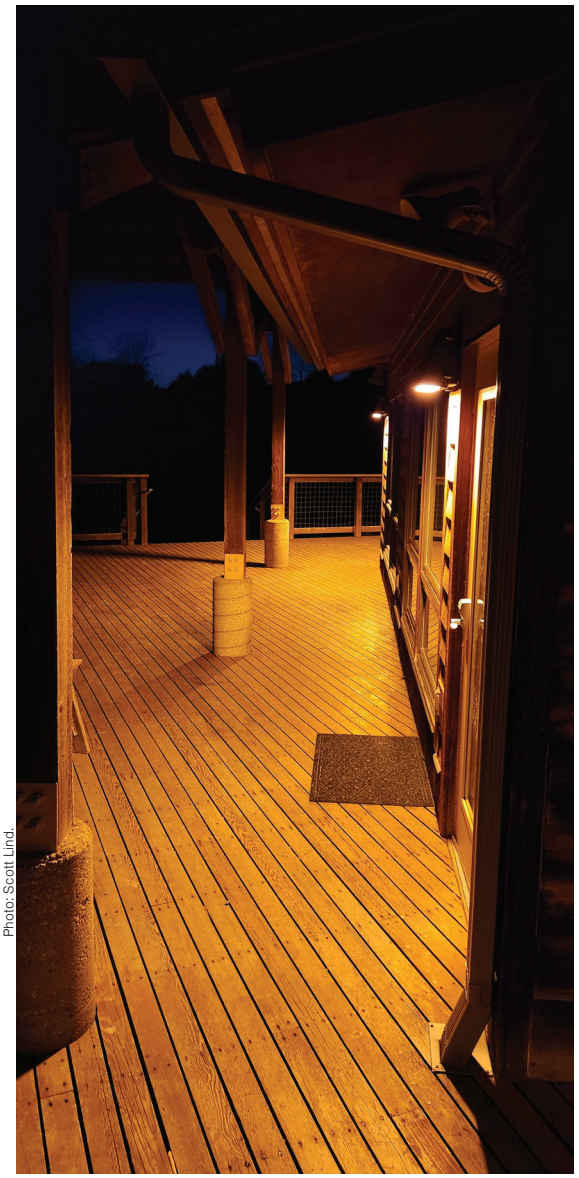


Photo: Scott Lind.

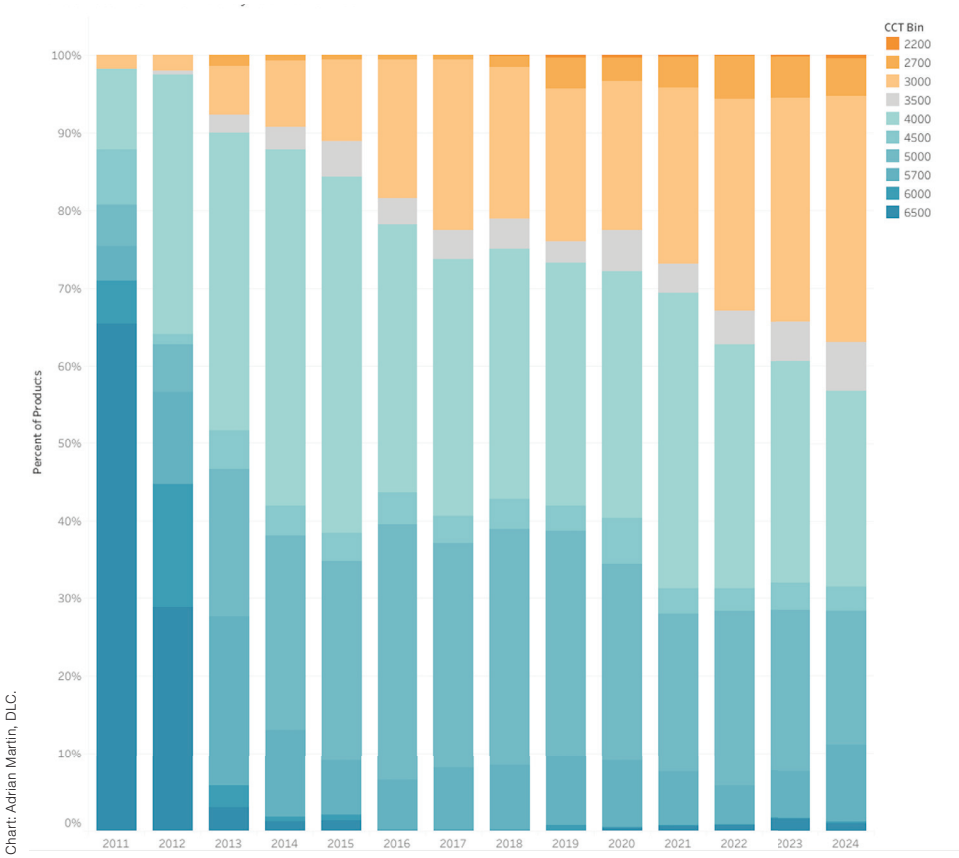
A cedar deck and structure at Kickapoo Valley Reserve Visitor Center in La Farge, WI, illuminated with nominal 1800K, U-0 wall packs dimmed to approximately 300 lumens.

amber LED products, balancing luminaire efficacy, lighting quality, and light pollution mitigation requirements. Direct emission (de-amber, i.e., narrowband amber) and phosphor-converted amber (pc-amber) LEDs are less efficacious than phosphor-converted white LEDs, with median luminaire efficacies of 30 and 70 lm/W, respectively. Tradeoffs with color rendition and lumen maintenance are also typical but, we believe, justified in ecologically sensitive areas. Meanwhile, LED chip manufacturers are developing innovative 1800K to 2000K phosphor-converted LED products that significantly reduce short-wavelength emissions. While some of these chips are quite efficacious (with reported luminaire efficacies of 130 lm/W), there are tradeoffs in lighting quality. To support product diversity, we've proposed significant efficacy allowances for DLC listing of low-CCT products.

Comprehensive performance requirements for low-CCT and amber LED lighting equipment also enable informed decision making, especially in areas with sensitive ecological needs. For the past three years, the DLC has supported light-pollution mitigation efforts in Oahu, HI. Seabird fledglings nesting on nearby islands and islets are attracted to and disoriented by coastal lighting, resulting in fallout, injury, and mortality. Sea turtles are also nesting more frequently on Oahu beaches and both hatchlings and adults are attracted inland toward electric lighting instead of toward the surf. A lack of understanding concerning ecological needs has sometimes resulted in inadequate retrofits that often focus on spectrum alone without considering distribution changes. Concurrently, a lack of lighting knowledge among ecological stakeholders has sometimes resulted in poorly informed retrofits that often focus on using direct-emission amber LED luminaires unnecessarily, without regard to distribution requirements or understanding how much energy these products use. LUNA V2.0 seeks to help markets like these by incorporating a broader range of metrics, including those required by the Hawaii and Maui County codes. We are also creating new turtle lighting product categories, to enable stakeholders to make informed, multifactorial choices.

Lind: Convincing others isn't always easy. Many electricians favor 4000K or 5000K products, dismissing 3000K products out of hand. However, in-person mock-ups of the 1800K and 2200K luminaires often changed their minds. One contractor is replacing an outdoor 4000K wall-mounted luminaire at his own facility after participating in an 1800K retrofit project. The luminaires I have been installing also have a 2200K setpoint, which yields good color rendition at reasonably high efficacies (about 124 lm/W). Moreover, the modeled relative sky glow from the specified vendor is about 75% higher at 4000K versus 2200K and nearly 200% higher at 4000K compared to an 1800K luminaire. For me, 2200K is an optimal CCT for outdoor parking lot and roadway lighting, and I am eager to share these impacts with others so they can make informed choices. Some of my electrical engineering and lighting design colleagues are beginning to consider using 2200K for area lighting and building-mounted secondary exits and 2700K for main building entrances.

Additionally, too often, LED retrofits don't give serious consideration to how much light is needed for specific applications, resulting in light levels that exceed IES recommendations.



A tableau stacked-column chart illustrating relative changes in DLC-Listed outdoor luminaires by year and nominal CCT. DLC-Listed outdoor luminaires with low CCTs (≤ 3000K) have become increasingly common, while those with higher CCTs (≥ 5000K) have declined in prevalence.

Lumen inflation is also a concern, where newer models often offer equivalent wattage instead of lumen output. This trend contributes to overlighting instead of reduced energy use. Lastly, while 1800K LED luminaires may not be as efficacious as higher CCT luminaires, the additional energy used by the luminaire is small when the light output is tuned for the application and when you consider the positive environmental impact. Even 1800K luminaires can save a lot of energy and money when applied with due diligence. And advanced controls strategies will further reduce energy use and light pollution.

Radetsky: Manufacturers who prioritize developing low-output luminaires and extend their low-CCT choices might be able to stand out in a crowded marketplace. Field adjustability in both light output and spectrum (CCT) can help right-size installations and support energy conservation goals. Clear information about controls and sensors also enables further energy savings and can help mitigate overlighting.

Finally, SPDX data and comprehensive reporting provide invaluable insights into the tradeoffs between spectrum, efficacy, and light-pollution mitigation. This is especially important for amber LEDs and low-CCT products, where design decisions often hinge on site-specific ecological or community requirements.

Room for Improvement

In closing, while the community preferences and regulatory landscape around outdoor lighting continues to evolve, so too does the opportunity to improve both performance and environmental stewardship. From luminaire specification to field application, aligning performance with the needs of local wildlife and environments is no longer an ideal, it's an essential best practice.

For more information about these topics, Scott and I reprised our LightFair presentation in a September webinar, which is available to view on the DLC website (*https://designlights.org/news-events/on-demand-past-events/*).

Leora Radetsky is the senior lighting scientist and LUNA program director at the DesignLights Consortium.

Scott Lind is a master electrician and consulting electrical engineer with Mead & Hunt, where he focuses on designing sustainable and reliable electrical systems for commercial, industrial, and public facilities.

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Photos: Stephanie Vermillion

DARK PLACES

As astrotourism trends, responsible lighting is essential

By Stephanie Vermillion

As an astrophotographer, I've circled the globe in search of dark skies, from hunting the Northern Lights on sheep farms in Greenland to admiring the Milky Way above Chile's otherworldly Atacama Desert. Yet, it took schlepping 2,000 vertiginous feet into the Grand Canyon for me to discover my favorite stargazing accommodation to date: Phantom Ranch.

This century-old collection of cabins and dormitories is the only lodging on the Grand Canyon floor, and the remote property, owned by park concessionaire Xanterra, goes above and beyond to protect its inky nightscapes. While many hotels in and around stargazing hubs use strong exterior lighting to help guests feel safe, Phantom Ranch keeps its outside illumination minimal—and red.

It can take our eyes up to 30 minutes to adjust to the dark after exposure to bright white light, but red tones preserve our night vision.[1] Instead of hiking away from the property to admire the Andromeda Galaxy or watch for the Pleiades star cluster sans LED glare, I could admire the cosmos right from my cabin's porch. Swapping a warm hue, such as red, for white lights may not seem revolutionary. It's one of the Five Principles for Responsible Outdoor Lighting[2] set by the IES and global light pollution authority, DarkSky International. But it's critical, now more than ever.

Skyrocketing interest in nocturnal wonders, from stargazing to nighttime eco-tours, has introduced unwanted light in some of the world's darkest places. New programs and innovative measures are integral to protecting nighttime's darkness and

Auroras take center stage in Narsarsuaq, Greenland.

the myriad species—including humans—that rely on it.

Inside the Astrotourism Boom

The idea of jet-setting for dark skies has gained major steam over the past decade, particularly following the buzzed-about total solar eclipse over North America in 2017 and then again in April 2024. According to Vicky Derksen, author and founder of Arizona-based astrotourism outfitter Night Sky Tourist, many found their way into sky-watching during the COVID-19 pandemic.

"I talked to people who used stargazing and moongazing to help them cope with the stress of the pandemic," said Derksen. "Some went to their backyards every night, turned off all the lights, and just watched the stars move across the sky. Others turned to astrophotography and took pictures of the moon as a way to ground themselves through the difficult days."

The night sky's healing powers are no anomaly. In recent years, many have looked to the heavens for renewed perspective and wellness, with meditative stargazing retreats—nicknamed "starbathing"—as well as full- and new-moon yoga growing in popularity. The Office of Astronomy for Development even uses celestial observations to help vulnerable groups, such as refugees, cope with stress.[3]

Astrotourism's allure is also tied to the night sky's novelty. Rampant light pollution, created by everything from city skyscrapers to suburban streetlights, now hides the Milky Way from some 80% of Americans. Research suggests light pollution is also growing as much as 10% every year.[4]

"So many people tell me it's the first time they've ever looked through a telescope," noted Derksen, who leads stargazing experiences for travelers from around the world. "Some wipe tears from their eyes after seeing the craters on the moon."

Astronomical awe isn't just inspiring; it's good for business. Research suggests that, within the next decade, astrotourists could spend $5.8 billion in stargazing hotspot the Colorado Plateau alone.[5]

Avoiding Unwanted Light

It's not surprising, then, that lodging in and near dark-sky areas has skyrocketed alongside the astrotourism movement. Sky-watching roofs in the Southwest U.S., alfresco star beds in safari escapes

throughout Africa, in-room telescopes—these are among the many ways hoteliers are alluring dark-sky travelers.

Yet, as I've experienced throughout numerous stargazing pursuits, proper dark-sky lighting is arguably the greatest and perhaps most overlooked astrotourism amenity of all. But that's changing.

In 2023, DarkSky introduced a new initiative that compliments its lauded Dark Sky Places program, which uses rigorous testing to certify destinations that minimize light pollution, from national parks to urban areas. The nonprofit has recognized more than 200 locations to date. This new lodging program, which it piloted with wilderness glamping brand Under Canvas, now builds upon this work.

Left: The Grand Canyon's Phantom Ranch offers an optimal stargazing environment.

Right: Nocturism reveals creatures like whip scorpions, which were on display during a night safari in Tanzania.

"The livelihood of these kinds of businesses depends on their pristine skies," explained Dark-Sky Lighting Program Manager James Brigagliano. The nonprofit and Under Canvas partnered together on criteria for DarkSky Lodging, and Under Canvas Lake Powell – Grand Staircase in Utah became the first DarkSky-approved accommodation in 2023.

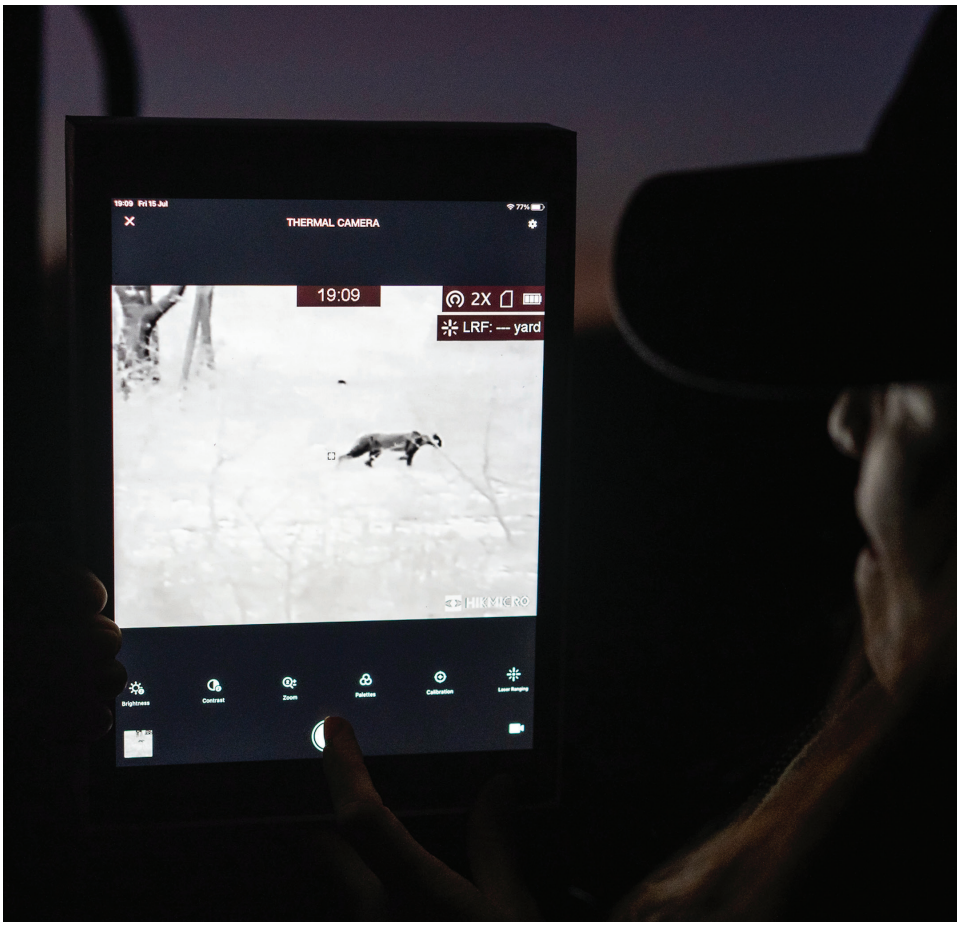
Since then, interest in the program has soared. Brigagliano said there should be at least five, if not 10, new DarkSky-approved lodgings by late 2025, with even more to come in 2026. "There's an economic benefit of being linked to astrotourism," said Brigagliano. "A clear night sky is becoming a less-abundant resource; these lodgings, especially those in remote locations, recognize the value."

Now Trending: "Noctourism"

This growing focus on responsible lighting is particularly important as another off-shoot of the astrotourism movement gains steam—noctourism—which *Booking.com* named the top travel trend for 2025.

Nocturnal tourism incorporates stargazing, but it also expands upon it, with trips to see all sorts of after-dark marvels, from synchronous fireflies and full-moon hiking to dusk safaris. In my dark-sky pursuits, I've dabbled into noctourism; with the combination of space sights and ecological awe, it's become my favorite type of travel to date.

The experience is also multisensory. While darkness makes it tougher to see, your other senses become sharper, and few places made this clearer for me



Thermal monocular technology is often available during night safaris.

than Ecuador's sliver of the Amazon Rainforest. Here, the animal kingdom comes to life at night, and accommodations like Sacha Lodge offer twilight immersions to help guests see the jungle at its liveliest. I joined a local biologist guide for night hikes to listen for frogs, owls, and howler monkeys, as well as canoeing beneath the bustling canopy among glowworms and caimans. Of course, the stars were part of the fun—we saw planets and star clusters beneath open patches in the treetops—but the awe was just as much about the wonders of life here on Earth.

Another experience that startled my senses and, like Phantom Ranch, left me inspired about the future of noctourism: a night safari in Tanzania. Many wildlife getaways now offer nighttime outings to see the ecosystem at its most active but guides often use bright-white spotlights that temporarily blind the animals, making them vulnerable to nearby predators.

But this is also changing. Several outfitters, such as Chiawa Safaris' award-winning collection of Safari Camps, now rely solely on red lights for their nocturnal safari tours—and some are innovating well beyond that. At Usangu Expedition Camp, a conservation-focused safari stop in less-trodden southern Tanzania, guides use thermal cameras to let guests watch the forest's goings-on without disrupting nocturnal behaviors. This led to nearly an hour of watching a leopard stalking prey beneath the stars during my June 2022 visit.

Whether it's safe wildlife viewing in Tanzania or stargazing beneath responsible outdoor lighting on the Grand Canyon floor, nocturnal tourism can inspire travelers to take what they've learned and protect the natural night back at home—an important move as the world brightens from light pollution each year.

"Getting people to have these experiences will change the way they think about lighting and the way they think about the night sky," said Brigagliano. "A lot of people are scared of the dark, but once you've had a really moving experience, you can gain some comfort. It might change your perspective." ◎

THE AUTHOR | Stephanie Vermillion is a travel journalist who covers astrotourism and outdoor adventure for *National Geographic*, *Outside Magazine*, *Travel & Leisure*, and *Vogue*. Her first book, *National Geographic's 100 Nights of a Lifetime: The World's Ultimate Adventures After Dark*, was published in December 2024.

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A luminaire illuminates a pathway in a community with dark-sky lighting requirements. DarkSky Approved Luminaires provide quality options that meet these standards.

Photo: Clearsky Astrofoto

LET THERE BE NIGHT

The outdoor lighting revolution is underway

I've always been drawn into the dark. Even before working at DarkSky International, I often found myself getting up before sunrise for morning runs or out climbing with friends beneath a full moon. I'm always on a quest for new experiences; the night is a treasure trove for adventure, with something new to discover every time I venture out.

By James Brigagliano

In a world flooded with light, a growing movement is embracing the value of darkness. Thanks to advancements in lighting technology, design, and application, outdoor lighting no longer must come at the expense of dark nights, and the DarkSky Approved Luminaires program is helping guide the way.

DarkSky International, previously known as the International Dark-Sky Association, is leading a new generation of programs that not only seek to preserve the night but also aim to transform how we think about—and use—outdoor lighting. Today, more than 80% of the world's population—and over 90% of those in Europe and the U.S.—live beneath light-polluted skies. For most, a night filled with stars is no longer part of our lived experience. The consequences of this loss reach far beyond stargazing, disrupting critical wildlife ecosystems, obstructing astronomical observations, impacting human well-being, and diminishing a shared cultural heritage.

Life on Earth has evolved beneath the natural cycle of light and dark for at least 3.7 billion years. By contrast, electrically generated artificial light has existed for only the past 150 years, with widespread light pollution emerging in just the last 75 years. And the problem is accelerating. Recent studies show that light pollution is growing globally at an alarming rate of 9.6% per year—doubling roughly every eight years.

Over the past 30 years since its founding, DarkSky International has helped raise global awareness of light pollution as a critical environmental threat, building a growing network of advocates, chapters, and communities working to protect the night. Now more than ever, people are aware of the impacts of light pollution, and they are seeking solutions.

The Quality Lighting Revolution

For a long time, dark-sky advocacy largely focused on raising awareness about light pollution. That's been incredibly valuable in helping people understand the problem, but it hasn't always provided a clear understanding of the solution—quality lighting.

In 2020, DarkSky International, in partnership with the IES, took a major step toward solution-based advocacy by developing Five Principles for Responsible Outdoor Lighting at Night. These actionable guidelines have been widely embraced by both the lighting and dark-sky communities and now shape DarkSky's communications, educational materials, and programs, providing

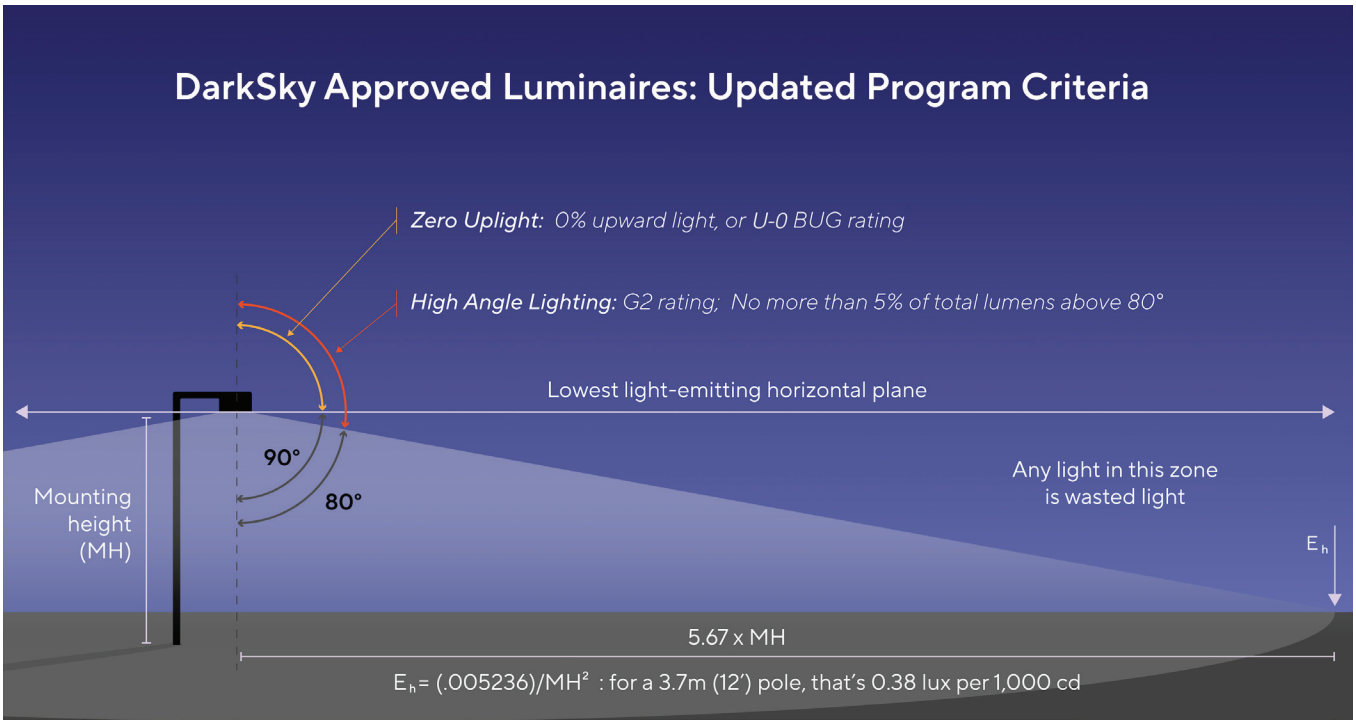


Image: DarkSky International

An illustration demonstrating key criteria of the updated DarkSky Approved Luminaires program.

a proven, science-based foundation for reducing light pollution.

More recently, DarkSky has seen significant growth in its DarkSky Approved programs, designed to bridge the gap between rising demand for quality, dark-sky-friendly lighting and real-world, market-ready solutions. The most relevant to the lighting design and manufacturing industry is the DarkSky Approved Luminaires program. Launched in 2002 as the Fixture Seal of Approval, this third-party certification has long promoted lighting aligned with DarkSky International's mission. In response to the rise of LED technology, expanding scientific research, and growing global demand, the program recently underwent major updates to meet today's challenges.

The revised program is now fully aligned with the Five Principles and features four categories with distinct specifications: Residential, Commercial, Wildlife-Tuned, and Pedestrian Comfort, reflecting the diverse needs of outdoor lighting. While the updates include several key changes, there are two that are true game changers: limiting the amount of light allowed above 80 deg from nadir as well as the introduction of the new Pedestrian Comfort category.

The 80-Deg Shielding Requirement

Early versions of DarkSky's guidelines specified that the cutoff angle of a luminaire must be 90 deg to minimize uplight. In the updated program, most categories have added restrictions to the amount of light allowed above 80 deg. Why the change? Light emitted from a luminaire at an angle greater than 80 deg is barely measurable by the time it hits the intended pathway or street and is, therefore, not useful. While the 90-deg limit prevented most uplight, the 80-deg threshold eliminates nearly all of it, with only a small allowance of 2 to 5%, depending on the category.

Restricting high-angle light emissions helps to reduce glare, sky glow, and light trespass. High-angle light between 80 and 100 deg from nadir has the highest potential for scattering in the atmosphere.

The Residential category is the only one that retains the 90-deg threshold. Residential luminaires have stricter specifications in other ways. They're limited to 1,000 lumens, compared to higher lumen packages for a commercial luminaire. Plus, residential luminaires are often installed under awnings or with timers or motion sensors, which we highly recommend, so the 90-deg cutoff is still appropriate.

While some lighting experts and advocates would like to see even stricter requirements, there is a balance to strike. We want dark-sky-friendly lighting to be accessible. So, while some criteria could be more strict, we are balancing optical control requirements with what is available in today's market.

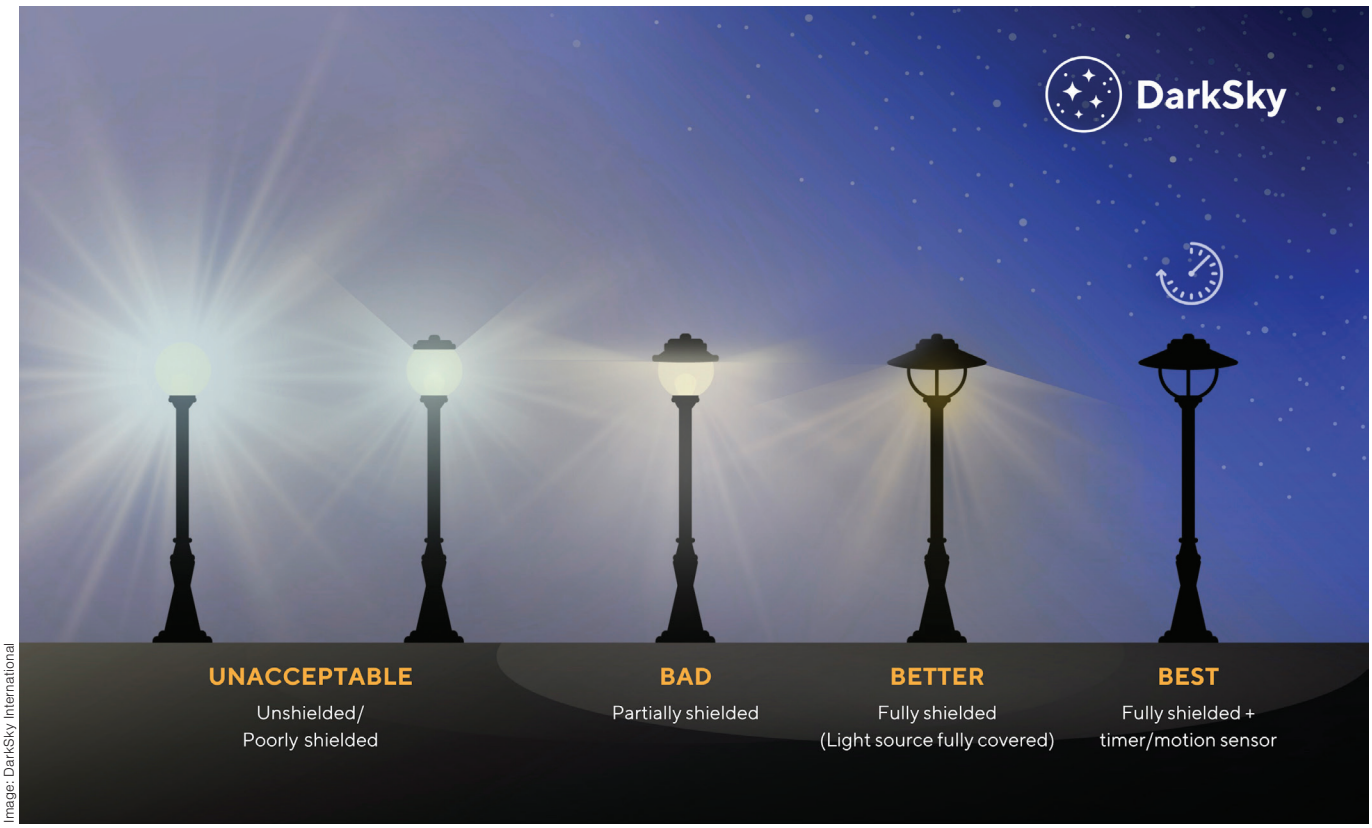


Image: DarkSky International

Photo: Torben Eskerod

Top: The Five Principles of Responsible Outdoor Lighting at Night in practice, illustrating the impacts of poor versus quality lighting.

Left: Low-level luminaires keep the light source out of view for better adaptation.

The Addition of a Pedestrian Comfort Category

The Pedestrian Comfort category was developed in response to the unique challenges lighting designers face when illuminating outdoor public spaces, such as parks, pathways, and plazas. It can be extremely difficult to know how comfortable an outdoor luminaire will be before it is installed on site. While arranging a product mock-up is ideal, it is not always possible. Luminaires that meet DarkSky Approved Pedestrian Comfort criteria give designers added confidence, without the risk of an unexpected "glare bomb." The requirements for this category address major contributors to uncomfortable lighting, including total lumens, percentage of lumens in high-angle zones, and maximum vertical candela angle.

This new category provides lighting designers with solutions focused on enhanced optical control, better targeting, and reduced glare, helping to improve application efficiency and real-world results. By eliminating the direct view of the light source, designers reduce the scene's dynamic range, helping human eyes adapt to the dark and improving overall visibility.

These luminaires are designed with people in mind. They help create nighttime environments that are more comfortable, safer, and more appropriate for pedestrian spaces. Designers can select these luminaires with confidence, knowing they will enhance the area while also improving the human experience and protecting the night.

Meeting the Growing Demand for Quality Lighting

The DarkSky Approved Luminaires program is designed to meet the rising demand for lighting that protects dark skies and the nighttime environment. This demand is fueled by DarkSky's

Photo: Koerbel Photography

Pedestrian comfort luminaires illuminate surfaces without exposing the light source.

growing network of supporters and programs. The International Dark Sky Places program now spans parks, preserves, and communities worldwide, requiring dark-sky-friendly lighting and raising awareness of better lighting practices. DarkSky Codes and Statutes are helping cities adopt night-friendly policies—and as adoption grows, demand continues to rise.

Momentum is also building beyond DarkSky's core programs. In Europe, efforts to protect declining pollinator populations are bringing new attention to lighting's ecological impacts. In New Zealand, there's a growing movement to become the first Dark Sky Nation, placing night-sky protection at the heart of their cultural identity. Globally, astrotourism and noctourism are surging, with *Forbes* and *National Geographic* naming them among today's top travel trends.

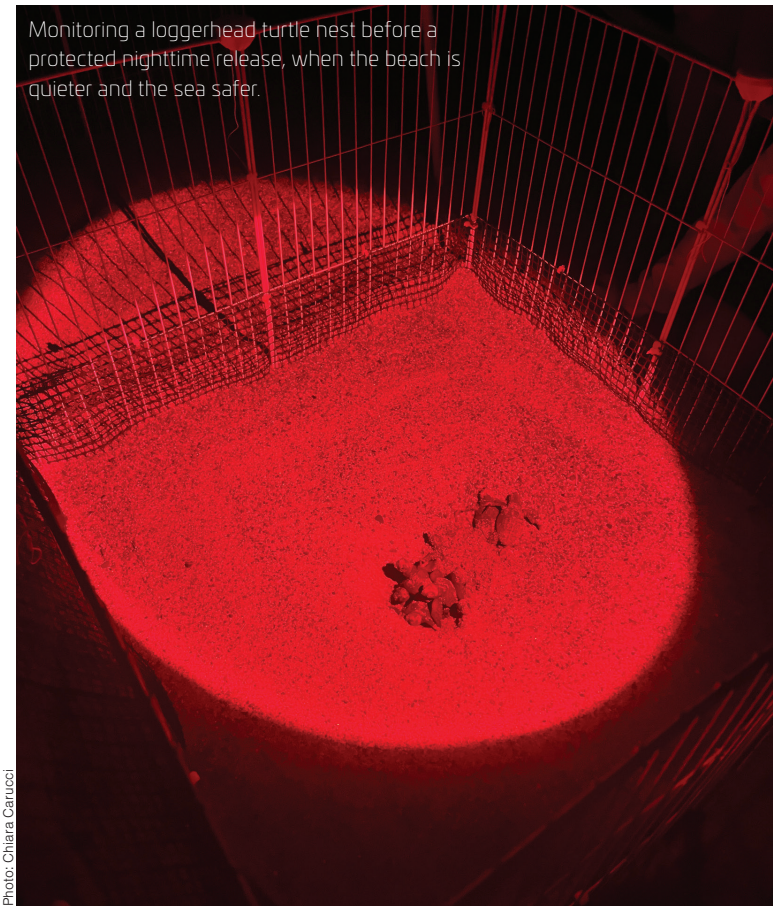
More communities and people are tuning into the quality lighting conversation. This is an exciting moment—not just for DarkSky and the lighting community, but for the public as well. This program isn't just for designers. It's for everyday consumers, too. Certified products can be found on the DarkSky website—and increasingly in retail stores, marked with the DarkSky Approved logo.

With more people recognizing the impacts of light pollution, the DarkSky Approved Luminaires program is an important tool. We believe this program will shift how we think about—and use—outdoor lighting.

DarkSky envisions a future where quality lighting is the norm, and where stars once again shine over communities worldwide. The organization invites manufacturers, designers, and consumers alike to explore the program, apply for certification, or browse the growing gallery of DarkSky Approved Luminaires. ◎

For more information about DarkSky and the DarkSky Approved Luminaires program, visit www.darksky.org.

THE AUTHOR | James Brigagliano LC, LEED Green Assoc., is the Lighting Program manager at DarkSky International. Active in the lighting community for 20 years, he brings a unique blend of technical knowledge, real-world experience, and a passion for dark-sky preservation.



Monitoring a loggerhead turtle nest before a protected nighttime release, when the beach is quieter and the sea safer.

Photo: Chiara Carucci

THE LAY OF THE LAND

Creating harmony as stewards for diverse ecosystems

By Chiara Carucci

The lighting industry is undoubtedly aware of the importance of dark skies and the regulations designed to mitigate light pollution. However, beyond these well-known challenges, lies a much deeper task—to understand and respect the environment as a complex ecosystem.

As lighting professionals, our designs affect not only human experience but the intricate web of life that thrives under the natural rhythms of day and night in every setting. This work is so far-reaching that it covers dense urban centers to rural farmlands, as well as coastal stretches to inland areas. As a result, the work of lighting professionals must evolve from a narrow focus on individual species or compliance checks to a broader, ecosystem-sensitive perspective.

The first step is to understand how artificial lighting impacts natural surroundings. Artificial light at night (ALAN) is a pervasive environmental stressor. Ecological light pollution disrupts natural light regimes, interfering with the circadian rhythms of animals, plants, and even entire communities. Scientific research has revealed that exposure to ALAN can disrupt mating, foraging, migration, and other critical behaviors. For instance, even low levels of artificial illumination, akin to natural moonlight, can alter the behavior of nocturnal animals and disturb the finely tuned cycles that have evolved over millennia.

Consider the case of migratory birds, whose navigation systems rely on natural light cues. When exposed to artificial lighting, these birds may become disoriented, leading to fatal collisions with illuminated structures. Similarly, loggerhead turtle hatchlings depend on the natural light horizon to find their way to the sea; disorientation caused by coastal lighting can tragically lead to mass fatalities.

The influence of ALAN extends beyond fauna. Plants respond to photoperiods that govern flowering and seeding. When these natural signals are disrupted, the consequences can ripple through entire ecosystems, affecting pollination and the overall balance of species interactions.

In urban areas, sky glow can extend well beyond city limits, impacting green spaces and wildlife even tens of kilometers from urban centers. Urban parks and green corridors, which serve as vital refuges for migratory or light-sensitive species, are at risk when exposed to excessive or misdirected light. In rural settings, linear lighting—for example, streetlights along country roads—can create barriers that hinder the natural movement of smaller animals, impeding their transition between resting and foraging areas.

When considering protected sites, the stakes are even higher. Lighting should be limited to essential safety needs to minimize ecological harm. This is particularly important to understand in aquatic environments, where artificial light behaves uniquely. Light reflecting off water surfaces can spread over vast distances, influencing marine life and organisms with high sensitivity to low light levels.

One prominent example is the LIFE21 Turtlenest pilot project in Italy, which is a conservation effort aimed at mitigating the impact of ALAN on loggerhead turtles. By upgrading to warm-white LEDs and optimizing light distribution, the design supports not only turtle nesting but also dune ecosystems, showcasing a comprehensive ecological approach. Collaborations with marine biologists, local authorities, and community involvement were also key to fostering a balance between human activities and the natural rhythms of coastal ecosystems.

Ultimately, whether it's urban, rural, protected, or aquatic, the ecological impacts of ALAN remind us that light is a potent modifier of natural behavior and ecosystem dynamics.

Looking Beyond Single-Species Solutions

Another important consideration when designing lighting for dark environments is that traditional lighting projects—and choices of products that are often labeled as "friendly" for wildlife—often focus on mitigating harm for one particular species. Yet, whether in a city's green space or a remote forest, ecosystems function as networks of interdependent species and environments.

An urban park might host a variety of species ranging from nocturnal pollinators and birds to small mammals, all relying on a delicate balance of light and dark. Designing lighting that considers only a single species can lead to unintended consequences for others. For example, using specialized spectra, such as red lighting for bats, can create unintentional ecological traps for species that are unable to detect it, potentially increasing their vulnerability to predation.[1] Instead, we need to assess how light influences an entire ecosystem, from microbial communities to top predators.

In a recent project in Sweden, discussions with a city architect, a zoologist, and an ornithologist highlighted a situation where beaver activity was affecting tree health and, by extension, bird nesting sites. This interdisciplinary dialogue led to a lighting strategy that not only minimized disturbance to the affected species but also supported the natural behavior patterns of the entire ecosystem.

In Italy, the Collepardo Caves project demonstrates how lighting design can balance cultural and natural heritage with visitor's needs by reducing lighting operation times, controlling light direction, and maintaining dark aerial corridors for bats. Collaboration with local managers and scientists ensured the ecological integrity of the site.

A true ecosystemic approach involves understanding the local context, recognizing that each site possesses its own unique tapestry of relationships and interdependencies. It means collaborating with ecologists, biologists, conservation architects, and local stakeholders to map out the intricate dynamics at play.

Practical Considerations for Lighting Professionals

For those in the lighting industry, integrating a transdisciplinary approach into our design process may seem challenging, yet it offers immense rewards. For example, Hamngatan and MDU Plaza in Sweden is an urban lighting project that minimized skyglow and spillover onto nearby water surfaces to protect migratory birds and wildlife, while enhancing social connectivity. This project exemplifies the importance of knowledge-sharing and collaborative dialogue throughout the planning process as essential tools for achieving effective design and long-term sustainability.

Photo: Erik Hagström

Hamngatan and MDU Plaza in Sweden: lighting design shaped by ecosystem awareness, with special care for migratory birds.

As with any change, there are practical considerations.

- Embrace interdisciplinary collaboration: Partner with ecologists, biologists, and local conservation groups to develop lighting solutions that address the full spectrum of environmental interactions.
- Conduct comprehensive ecosystem studies: Understand species behavior, local biodiversity, and seasonal cycles as a backbone of an effective, informed design.
- Implement adaptive management: Take a

Photo: Jansin and Hammarling

Collepardo Caves: the fault line is softly lit only at the end of the tour, preserving dark aerial corridors for bats.

flexible approach to the lighting design. Use research and on-site monitoring to iteratively refine lighting strategies as ecological conditions evolve.

- Optimize optics and controls: Combine technologies for precise spatial and temporal adjustments to minimize ecological impacts.
- Embrace constraints: Budget, technical feasibility, and environmental conditions are frameworks within which innovative, sustainable solutions can be developed.

A Call to Embrace Conservation

The future of outdoor lighting lies in our ability to see beyond immediate technical challenges and recognize our role as stewards of diverse ecosystems. Informed lighting design is not merely a technical exercise. By incorporating ecological considerations at every stage of a project, from initial assessment to post-installation monitoring, we can create environments that are comfortable, functional, and environmentally responsible.

Through the work of environmentally conscious organizations, lighting designers will always have inspirational individuals and collectives to which they can turn. The trailblazers in this field help create unbiased and accurate guidance, consultancy, and project management based on extensive research and expertise that can benefit and shape the entire lighting industry.

We have the expertise, the innovative capacity, and the responsibility to design solutions that honor the complexity of the ecosystems we impact. Whether designing for a metropolitan street, a rural pathway, or a coastal shoreline, let our lighting designs contribute to long-term sustainability and the potential harmonization between us and the environment, of which we are an integral part. ◎

THE AUTHOR | Chiara Carucci is the founder and principal lighting designer at Noctua. Since 2018, she has pushed the boundaries of traditional lighting design to incorporate innovative solutions for architectural and ecological conservation.

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LD+A

LIGHTING DESIGN and APPLICATION

Share Your Voice

The flagship publication of the Illuminating Engineering Society, *LD+A* is an award-winning magazine for professionals involved in the art, science, study, manufacture, teaching and implementation of lighting. In an effort to continue to provide diverse voices in *LD+A*, we are looking for **industry professionals** who are interested in telling their stories, including work on unique lighting projects, their experiences in the profession, and opinions on current hot topics in the world of illumination.

EVERY ISSUE of *LD+A* includes feature articles on design projects, technical articles on the science of illumination, new product developments, industry trends, news of the Illuminating Engineering Society, and vital information about the illuminating profession.

EACH MONTHLY issue features a unique theme such as sustainable design, retail lighting, roadway lighting, industrial lighting, hospitality lighting, or office and commercial lighting.

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If you are interested in publishing an article in *LD+A*, please reach out to Editor-in-Chief Craig Causer at **craig.causer@sagepub.com** to discuss further.

Illuminating ENGINEERING SOCIETY

Images: iStockphoto/Grandfailure and iStockphoto/incomible

HEART OF DARKNESS

Can one man help the U.S.'s most densely populated state "see the night?"

By Craig Causer

Back in 2002, Verizon's "Test Man" character shot to popularity with a series of commercials, where he evaluated the cell phone coverage in various locations by coining the catchphrase, "Can you hear me now?" Decades later, another bespectacled man from Verizon is working on tackling what local communities can see—namely the night sky.

For nearly 42 years, James Webster has been working with the telecommunications giant to support in-house equipment employed at Verizon's test centers, but it was his hobby as a photographer that led him to what he calls his "triad of interests": the Astronomical Society of the Toms River Area (ASTRA), DarkSky New Jersey, and citizen science hub SciStarter.

"I decided to get into photography for something else to do; I was doing Milky Way photography and storm photography, and that led me to ASTRA and getting involved with astronomy," Webster recalled. "The biggest problem for Milky Way photography and astronomy is light pollution. So, I started looking things up on the Internet, and it led me to DarkSky International. I eventually joined as an advocate and now I'm a delegate. There's also a program called Globe at Night, which can be found on SciStarter. There was a bunch of other dark-sky programs, astronomy programs, nature programs in there, and light pollution, of course. I found it a good fit between the astronomy, DarkSky, and SciStarter, and that's where I am today."

As the U.S.'s most-densely populated state, New Jersey is not known as a paradise for stargazers. While not on the level of urban centers such as Newark, Elizabeth, and Jersey City—all which rate at or close to the top of the nine-level Bortle scale, which measures the night sky's brightness of a particular location—Webster's Toms River area rates around a 7, with the sky showing significant signs of light pollution. The local beach communities aren't faring much better; with the continued waterfront development and beaming boardwalk attractions, you're more likely to hear a cover of Coldplay's 2014 hit song emanating from a nearby bar than see an actual sky full of stars.

As a volunteer, Webster views educating the public as an essential component of the dark-sky movement. That education comes in many forms and is tailored to varying audiences.

"I like getting in front of the crowds to talk about these subjects," he said. "I started giving presentations [with ASTRA] on a variety of subjects, and now I do it for the public, either for the park system, libraries, or even various government and environmental groups. I will also focus on light pollution if I'm doing something astronomy related or environmental, which brings us into SciStarter topics, where I'll talk about the impact of light pollution on our own health as well as the health of animals that live side-by-side with us—such as its impact on our pollinators. And that's a big impact—that we don't protect our pollinators. We could stand to lose a third of our food production."

Seniors, Teens, and Government Seats

To connect with various ages and populations, Webster participates in a diverse number of events throughout the year, including ASTRA Star Parties—where the club's members share views through their telescopes along with their knowledge of the universe—as well as nature festivals and school fairs. These events often draw

a diverse crowd, and Webster has found that the younger generations tend to have a better grasp on the current dark-sky and environmental concerns than their parents and grandparents.

"A typical example would be my own father; when I'm talking about light pollution, he's like, 'Yeah, yeah,' that's his response," Webster said. "Here in my homeowners association, some get it, but most don't. They want more lights, and I can understand their concerns for it because visual perspectives change as you get older. But they don't realize that if they try driving at night, the brighter lights on the cars blind them. And for us, it takes significantly longer to get our night vision back, which is a big thing with Star Parties—if a white light goes on, you ruin your night vision. For a younger person, they can get that night vision back within about 10 minutes, but it could take almost a half-hour for it to come back [for seniors]. Previous generations never really gave it a concern; they didn't realize the damage that was going on."

While educating the public is a perpetual process, Webster cites his biggest challenge as getting government officials involved with dark-sky preservation. DarkSky New Jersey members help by guiding local and state officials in the right direction by providing educational material and resources featuring effective luminaires, and some towns and boroughs are beginning to take action. Clinton, Hopewell Borough, Teaneck, the Great Swamp National Wildlife Refuge area, and Princeton have all expressed an interest in Webster's work, and the historic town of Cape May is now looking to decrease light pollution while maintaining its Victorian-era aesthetics.

Webster cited a model developed by local environmental group Save Barnegat Bay, which he views as a potential motivational tool for towns. The group protects the Barnegat Bay watershed, and it utilizes a grading system for the different towns around the area. As more towns participate in DarkSky efforts, Webster would like to develop a grading system to prompt towns to take notice of their performance and shoot for "A-level" results.

"There are—and I would say it's not just the New York/New Jersey area, even in Pennsylvania as well—a lot of educational and engineering challenges," admitted Webster. "The best example of a city picking up the challenge would be Pittsburgh. The entire city now has an ordinance that's going into place to recover the night. Another success story would be Coudersport, Pennsylvania, and some of the other outlying towns to Cherry Springs

Photos: James Webster

Top: Webster provides a wealth of information on his "triad of interests": ASTRA, DarkSky, and SciStarter.

Bottom: The Cattus Island Nature Festival in Toms River, NJ, is just one of the local parks where Webster has found an audience.

State Park, which became one of the very first certified DarkSky locations. That would not have happened without those towns participating and getting involved. They're good examples for us here of what can be done. It's just that we must have people willing to do it."

Parks and Recreation

New Jersey State Parks include more than 452,000 acres of land comprising parks, forests, historic sites, and other recreation areas that attract nearly 17 million visitors per year. Island Beach State Park, a narrow, 10-mile-long barrier island resting between the Atlantic Ocean and Barnegat Bay in Ocean County, is a popular site for both summertime beachgoers and year-round fishing, as well as a local photography site for Webster. Island Beach State Park recently changed its lighting for all vehicle air refill stations

Photo: James Webster

Photo: James Webster

Top: Among the views Webster has captured are those at Tupper Lake, NY.

Left: Participants set up telescopes during a recent Star Party event at Jakes Branch County Park.

and Webster reports that the park's Environmental Center is interested in doing more. Light pollution exhibits at both the Great Swamp National Wildlife Refuge in northern New Jersey and Jakes Branch County Park in Beachwood have received a positive reception from the public, with Jakes Branch currently considering a move to fully shielded luminaires that will also aid in ASTRA's astronomy events at the site.

With each small step forward, there is another challenge seemingly right around the corner. "A site for improvement would be by the Barnegat Bay Lighthouse," admitted Webster. "You can get really good Milky Way photography with the lighthouse behind you, but during the tourist season, the lights start getting really bright and wash things out. Good locations to view the Milky Way include Tupper Lake in New York. The Adirondack Sky Center is looking to work with DarkSky to get their town certified now, and I've done Milky Way photography there. [Other] examples would be Sanibel and Captiva islands down in Florida, which are dark-sky protected because of the turtle nesting down there. They have an ordinance where there's no extraneous lights after night. At 9 p.m., everything has to be a red or amber light."

A Passion for Protection

In the end, there's only so much time in a day for someone who works full time and dedicates a significant amount of his leisure time as a volunteer for three organizations. But Webster is undeterred and has his eyes on a prize.

"Best case scenario for me right now would be Island Beach State Park and Jakes Branch County Park both becoming urban DarkSky-certified locations," Webster said. "You know, we'll still have the problem with some light pollution, but those two hubs will be practicing light pollution protection, and then eventually the outlying areas will see this and start getting more interest and involvement. A good model for that right now is Hopewell Borough because they're going for certification, and the train of thought is if they do it, we hope the outer areas will start doing it as well. Then, slowly, we can start getting some of the dark skies back." ◎

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At the Illuminating Engineering Society, everything we do is meant to advocate, engage, and educate the public about the impact of light on human life. Join us on our journey as we share how our beliefs guide us in our mission to *improve life through quality of light.*

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Public art on The Fair-Haired Dumbbell building in Portland, OR, with uplighting that casts light unnecessarily into the sky.

Photo: Mary Coolidge

LOSS OF NIGHT

Ecology, human health, and culture

By Mary Coolidge

For 4.5 billion years, there was no electric light on Earth. Biological systems on this planet evolved under regular cycles of naturally dark nights and bright days. Virtually all biological processes are governed by those cycles—a relationship known as circadian rhythm. But by the late 1800s, the first electric streetlights were installed in Paris and London, and over the course of the last 140 years, we have lit up the night on a truly global scale. Gone are our naturally dark nights in many places on the planet.

The use of light at night only continues to increase today. Light pollution has grown and expanded with the expansion of cities, electrification across more of the planet, availability of increasingly inexpensive sources of light, and now, the ubiquity of LEDs that produce blue-rich white light. While light trespass was once primarily the bane of astronomers, the issue has become a much broader cultural and ecological one as light pollution increases at nearly 10% per year.[1]

The contemplation of the night sky is both ancient and modern. Our human ancestors experienced nights under impossibly star-studded skies, a reality that influenced farmers, storytellers, astronomers, nautical explorers, poets, and painters. What happens to us culturally when our urge to look up at night is met not with a sky full of stars but a cloak of light pollution? "The New World Atlas of Artificial Night Sky Brightness"[2] reveals that more than 99% of people in the U.S. live under light-polluted skies, and 80% of us reside in places from which we can't see the Milky Way. The more we become habituated to degraded night skies, the less connected we are to the starry wonder

that has influenced humanity for millennia. Many of us don't even know what we're missing.

Light at night is, of course, incredibly useful. As a predominantly diurnal and visually-reliant species, humans need light at night to facilitate after-dark activity. This includes lighting the way for pedestrians, cyclists, and drivers, increasing our sense of safety, supporting economic activity, improving wayfinding, and even introducing beauty into the built environment. But there is also a cost to light at night. Light can act as a pollutant in the nighttime environment, with serious affects not just on our culture but also on our health, as well as a range of impacts—from subtle to catastrophic—on the biology and ecology of at least 200 different species of animals, including amphibians, birds, fish, invertebrates, mammals, and reptiles.

Unintended Consequences

Part of the problem is that most people, including lighting designers and engineers, aren't aware of the unintended consequences of artificial light in the nighttime environment, and so our lighting is too often poorly aimed, poorly shielded, too bright, and turned on when we aren't using it. This happens in the name of perceived safety or commerce, guided by the old axiom that if some is good, more must be better, rather than by nuance and mindfulness about responsible design approaches. What's more, the shift to more energy-efficient LEDs was expected to reduce light pollution on the planet; instead, the rebound effect—the tendency to use more of something when it is less expensive—is resulting in excessively bright and unnecessary lighting. It may be cheaper, but at what cost?

Another issue driving increases in light pollution has been the use of higher CCT lighting with shorter wavelength light that scatters more readily in the atmosphere than longer wavelength light. Fuller-spectrum LED lighting, especially blue-rich white light with a spike in the spectral output around 450 nm (the peak wavelength sensitivity of most vertebrates) poses a significant threat to biodiversity and ecosystem conservation. When we introduce artificial light at night, particularly lighting that mimics daylight or emits a lot of short wavelength blue light, the complex choreography of ecosystem dynamics is jeopardized. Hundreds of peer-reviewed, published papers have demonstrated deleterious impacts of light at night on every taxa—including humans and plants. Light at night has been shown to reduce melatonin secretion, interrupt sleep, confuse celestial navigation, cause misorientation in nocturnal movements, result in attraction and repulsion behaviors, create habitat fragmentation, reduce fledgling success, increase stress hormones, reduce disease immunity, interfere with predator/prey relationships, extend activity of diurnal species into nighttime hours, and skew timing of breeding, nesting, migration, foraging, bud burst, and leaf drop.

Research published by the National Institutes of Health has drawn correlations between exposure to light at night and adverse health outcomes, including breast cancer, prostate cancer, and non-Hodgkin lymphoma. The Centers for Disease Control and Prevention considers night work a probable carcinogen, citing research by the International Agency for Research on Cancer concluding that there is "high confidence" that persistent night shift work that results in circadian disruption can cause human cancer. The American Medical Association has also published guidance recommending that municipalities convert their street lighting to 3000K or below lamps that minimize blue-light emissions.

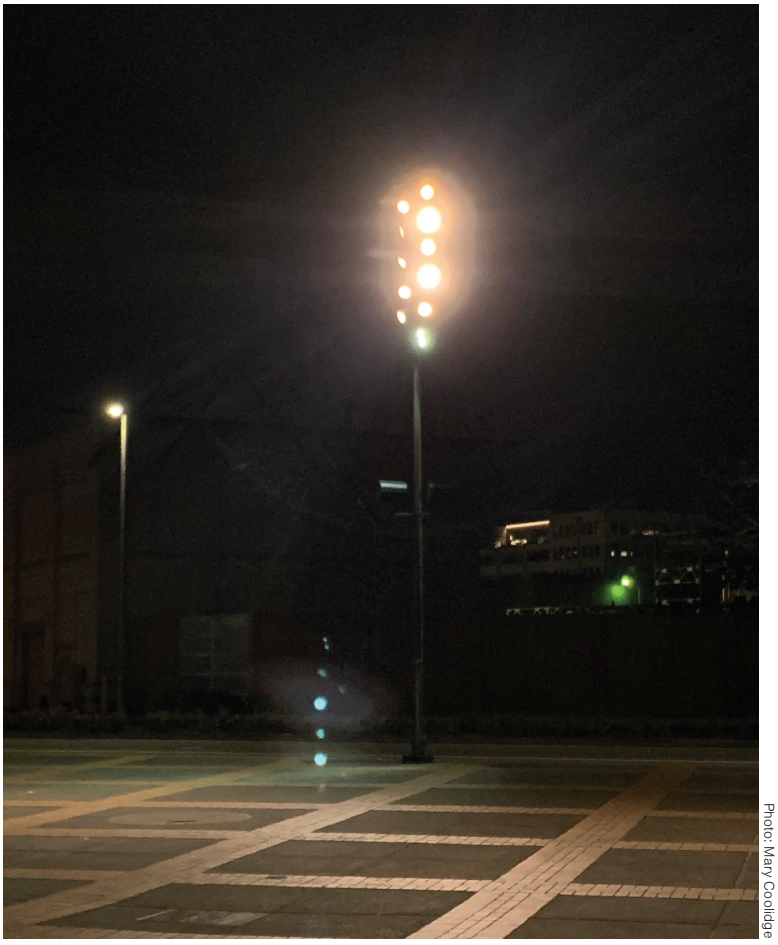

Photo: Mary Coolidge

The Oregon Museum of Science and Industry spire creates significant glare in an area along the Willamette River that might otherwise be appealing for an after-dark walk.

Photos: Ali Berman/Bird Alliance of Oregon

Humans themselves are subject to the unintended consequences of all this light.

Migratory Bird Navigation

One example of ecological light pollution is the impact of light at night on migratory birds. Many people are surprised to learn that most birds migrate at night and use star maps as an important component of their navigation system. But these migrants are increasingly encountering sky glow from cities along their migratory routes, which drowns out the stars they are using to navigate, draws them into our cities where they can die colliding with lit structures, or circle endlessly in lit areas until they collapse from exhaustion. On any given night in the spring and fall, millions of birds are aloft across our North American skies. This migration is largely unseen, unless you happen to be one of the elite few aeroecologists who watch bird movements on radar maps, having learned to decipher the unique signatures of birds that differentiate them from precipitation, bats, and bugs.

Researchers on Cornell University's BirdCast team and in Colorado State University's AeroEco Lab are doing just that. They use the hundreds of doppler radar stations around the country to track bird migration, and build models using conditions like precipitation, wind, and temperature to help them predict large movements, then broadcast Lights Out Red Alerts on nights when they anticipate movements of large numbers of birds in our airspace. These Red Alerts help building owners and residents reduce their unnecessary overnight lighting at key times: at least on big movement nights or—even better—during the entire month-long peaks of spring and fall bird migration. This collective action helps reduce the risk of mass attraction and collision events like those that have been seen in Charlotte, NC; Chicago; Galveston, TX; and New York City, in recent years and which have been documented since the late 1800s at lighthouses, the Statue of Liberty Torch, and airport ceilometers (lights used to measure cloud height).

There are active Lights Out programs in dozens of cities across the country. The public can subscribe to *https://birdcast.info/migration-tools/local-migration-alerts/* to receive e-mail red alerts. As an even better practice, adopting the habit of reducing unnecessary overnight lighting all year long helps mitigate the many other ecosystem level impacts that occur throughout the seasons... and your neighbors might just love you for it.

Photo: Mary Coolidge

Top: A nighttime view of a building in Portland, OR, with the lights on (left) and off (right).

Right: Top-lit billboards help reduce unnecessary light trespass into the sky.

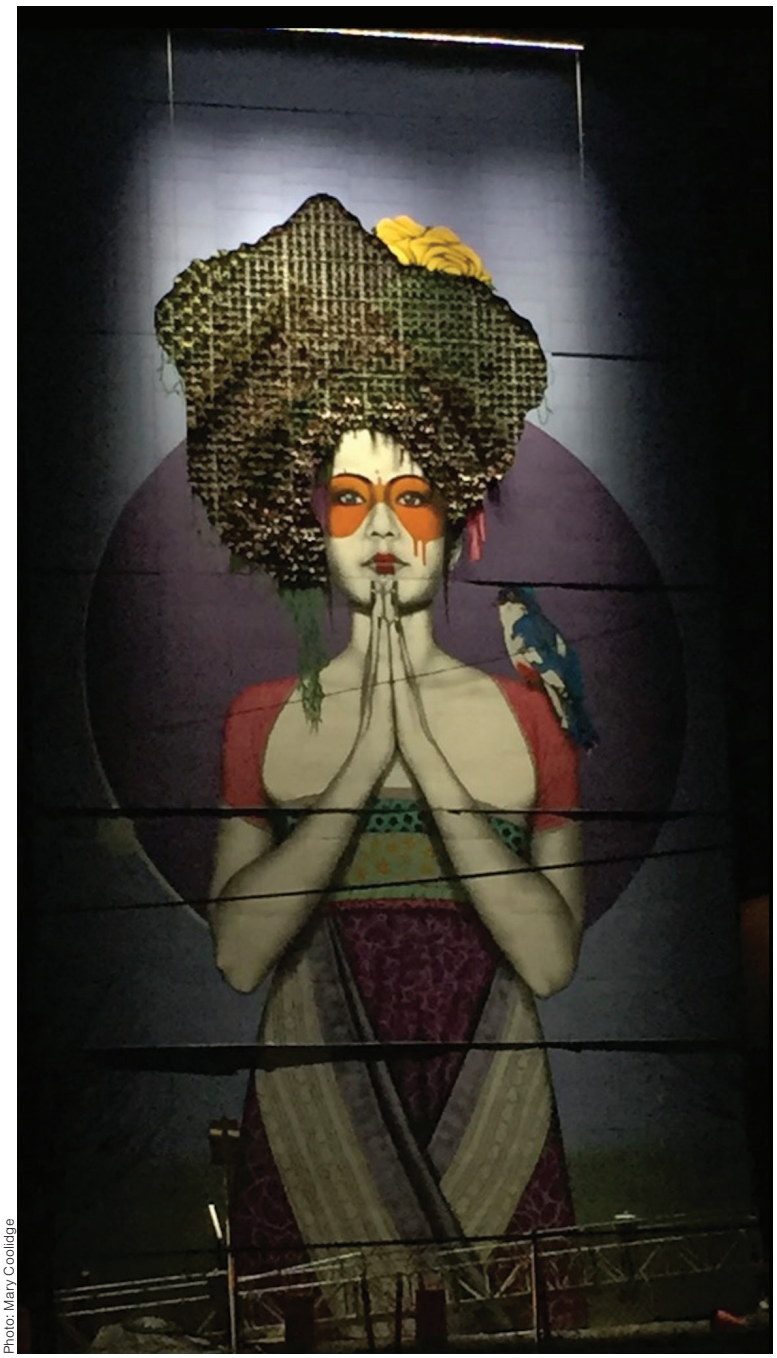

Photo: Mary Coolidge

Mother Earth painting in Portland with top-down lighting, which highlights the art and illuminates the sidewalk below without casting light up into the sky.

Evolving Research

The field of research on the impact of LEDs on the biology and ecology of species has exploded in recent years, and there are veritable volumes of information on the topic at our fingertips. That said, there is yet to be a concise and comprehensive synthesis of this information to help inform lighting decisions by designers, biologists, planners, and land managers. Travis Longcore at the University of Southern California has researched and written extensively on ecological light pollution and has produced guidance on lamp color spectrum impacts.[3]

While there is no single CCT that works best for mitigating impacts on all biological systems or taxa, the best advice on color spectrum is to select narrowband amber lighting wherever possible—2200K to 2700K or below. But color temperature is only one of several practices that should be used to mitigate the unintended impacts of light at night. The IES and DarkSky International have developed a list of fundamental best practices known as the Five Principles of Responsible Outdoor Lighting:

- Minimize any unnecessary lighting.
- Target lighting with full shields and aim it down.
- Limit the total brightness—use only as much light as is needed.
- Use adaptive controls like timers, motion sensors, and dimmers.
- Choose warm color temperatures (3000K max) to limit blue-light output.

Minimizing Unintended Impacts

As more lighting designers, engineers, and end users become aware of the unintended consequences of overlighting our nights, and embrace the need for more thoughtful lighting practices, we move closer to a safer, more vibrant, and more ecologically-balanced future. Lighting can be beautiful, warm, layered, visually interesting, aid in wayfinding, and help create a sense of place, all while following best practices and reducing light pollution. We have access to all the tools we need: new, highly tunable LED lighting technology; increasing information on good, multi-objective lighting practices; sensible outdoor lighting standards in a growing number of jurisdictions; and the Five Principles of Responsible Outdoor Lighting. Together, these offer the potential to realize all the benefits of light at night while simultaneously minimizing the unintended impacts of artificial light in the nighttime environment. ◎

THE AUTHOR | Mary Coolidge is the BirdSafe Campaign coordinator for Bird Alliance of Oregon. She is dedicated to improving efforts to make urban environments more hospitable to wildlife and helping to connect people to nature.

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PROJECT IN PICTURES

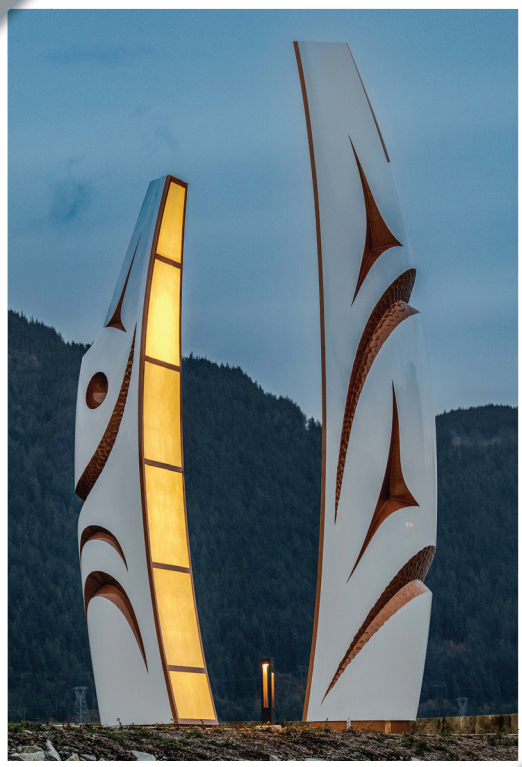
Who Says You Have to Leave the Park After Sunset?

Sometimes designing lighting isn't only about providing illumination, but how to celebrate the darkness that surrounds it. The recreation project at **Squamish Oceanfront Park** in The Great White North's British Columbia was such a case. With the 700-meter (~2,297-ft)-tall granite monolith Stawamus Chief Mountain along one side, the park contains a multitude of natural wonders including freshwater lakes, black bears, waterfalls, and lush evergreens—and connects a vibrant community through activities like birding, camping, canoeing, and more. Thus, when **PBX Engineering Ltd.** was brought onto the scene to help with the decorative exterior lighting of a new Presentation Centre, illumination along oceanfront walkways, and the lighting of a nearby art piece, it was imperative that the team deliver a sustainable scheme that kept visual comfort and the natural landscape at its forefront.

As a result, the IES Illumination Award of Merit-earning project completed in spring 2024 meets Canadian electrical code and uses DarkSky-approved fixtures from the year in which the project began (2021) and was guided by LEED Neighborhood Development principals from the same period. Additionally, a LightLEEDer control system with smart controls and photoelectric cells that automatically turns the park's lighting system on/off at dusk/dawn, mitigates lighting on rainy days, and reduces light pollution and glare throughout the grounds.

Warm illumination around signage as well as sconces with uplighting and downlighting around the building's perimeter demarcate the structure's entrance and provide a welcoming ambience.

Photos: Gerald Wolfe/www.geraldwolfephotography.ca



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The Presentation Centre, a **locally sourced timber construction comprising reclaimed yellow cedar, accoya wood, and a galvanized steel canopy** by Stephanie Laroye Architect, Inc., serves as a space for the community and guests to gather long past daylight hours.

The 40-ft Welcome Gate sculpture in Sp'ákw'us Feather Park by Indigenous artist James Henry features LED lighting and pays homage to the Sḵwx̱wú7mesh people; "Squamish" is an English adaptation and translates loosely to "Mother of the Wind" and "People of the Sacred Water." The sculpture required the team to work extensively with the artist, structural engineer, and fabricator to create specialized davit poles to withstand winds coming off the nearby Howe Sound.

Short bollards by BEGA line the walkway from the Land's End monument and provide 5 lux with a 5:1 uniformity, while tall columns with zero uplight illuminate walking paths from the Centre to the Oceanfront Park beach.

Making Magic at IES25

IES25: The Lighting Conference gathered more than 500 attendees at the Anaheim Marriott, a mere mile away from the "Most Magical Place on Earth"—Disneyland. The three-day event kicked off on Thursday, August 21 with Emerging Professionals Day, the Leadership Forum, hands-on workshops, the IES Industry Progress Report, and an exhibits reception. Day two featured the opening keynote "Imagineering Light," by Walt Disney Imagineers Randy Fox, Lesli Bjork, and Jason Badger, followed by well-attended sessions spanning design and technology, as well as a Research Track, and the IES Illumination Awards ceremony and gala. The conference wrapped up on Saturday with additional sessions and a Lighting is Too Hard roundtable event, which attracted a significant number of attendees who were tasked with addressing some of the industry's most-pressing challenges.

Next year, the IES is gearing up to reach Rocky Mountain heights as it announced Denver, CO, as the location of IES26: The Lighting Conference. The event will be held August 13–15 at the Grand Hyatt Denver.

Photo: Glen Keune

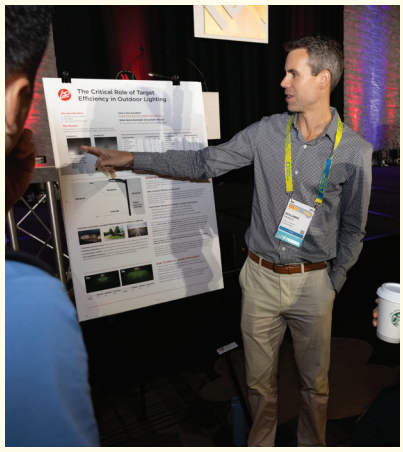

Photo: Glen Keune


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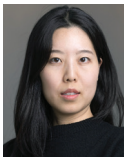
Photo: Craig Causer

2025 IESNYC Thesis Award Recipients Announced

The IESNYC revealed the recipients of the 2025 IESNYC Thesis Awards. This recognition celebrates outstanding academic work in lighting design and research, highlighting the creativity and dedication that drive innovation in the field. This year, the IESNYC recognized Hyesoo Chun, Veronica Gonzalez, and Kai-Di Peng for their work and creative vision. Each recipient received a $2,500 award as well as recognition from the IESNYC community.



Hyesoo Chun, Master of Fine Arts degree in Lighting Design at Parsons School of Design (The New School), received the award for her work, "More isn't always enough: challenging the perception of safety on NYC subway platforms." Her thesis questions the MTA's assumption that brighter stations automatically feel safer, arguing instead for lighting quality. Through site analysis and perception-based surveys, she explored how balanced distribution, reduced glare, and thoughtful contrast can more effectively improve the perception of safety in public transit spaces, advocating for a qualitative, luminance-informed approach to lighting design.

Veronica Gonzalez, Master's of Professional Studies degree in Lighting Design at the New York School of Interior Design, was recognized for her work, "Playful Layers: Children's Home." Her thesis reimagines a home tailored for children aged 8 to 12, whose average height and perspective call for a fresh approach. By layering light at varying heights and incorporating vibrant colors and luminaires of different scales and finishes, Veronica's design creates a multi-sensory environment that blends functionality with playful exploration. Her work encourages children to interact with the space, fostering warmth, comfort, and imagination.

Kai-Di Peng, Master of Science degree in Architectural Sciences (Lighting) at Rensselaer Polytechnic Institute, was recognized for her work, "Development of a 3-D-Printed Optic for an LED Accent Light Used in Museum Applications." Her thesis rethinks the optical design of the traditional framing projector, which typically uses four mechanical "fins" to crop light to the shape of a painting—inevitably wasting any light blocked from exiting the fixture. Instead, she developed a custom optical element that redirects light precisely onto the target area. Using LightTools to raytrace and design a lens tailored to a specific COB LED module, she created and hand-finished a 3-D-printed prototype, along with a printed lens holder to mount it for testing. Through iterative adjustments to the lens geometry and careful measurements of luminous flux transmittance and beam shape, her work demonstrated how additive manufacturing and optical design can reduce waste and optimize museum accent lighting.

Available Light's Ted Mather Retires

Ted Mather, LC, CLD, managing principal of Available Light's New York Studio, will retire in October following an 18-year run at the company. Mather's 38-year lighting design career helped transform the architainment industry with notable projects including The International Spy Museum, Naismith Memorial Basketball Hall of Fame, and both the Prow Sculpture and Under The Stars installation at the Time Warner Center in New York City. Among his theatrical projects are working as associate designer on more than 20 Broadway productions including *Miss Saigon*, *Beauty and the Beast*, *Les Misérables*, *Oklahoma!*, *Swan Lake*, and *Equus*.

Mather began his training at the University of Illinois and earned his Master of Fine Arts degree in stage design from New York University. Prior to joining Available Light, he was the principal and president of Ted Mather Lighting Design. He is a professional Member of the IES, IALD, United Scenic Artists, and the Designers Lighting Forum. He has taught and guest lectured at NYU, Drew University, and the Broadway Master Class Series.

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The following companies have elected to support the Society as Sustaining Members, which allows the IES to fund programs that benefit all segments of membership and pursue new endeavors, including education projects, lighting research, and recommended practices.*

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naturalLED
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*Bronze Sustaining Members are listed at *www.ies.org*.

THE IES WELCOMES THESE NEW SUSTAINING AND UNIVERSITY MEMBERS

- Universidad Autónoma de Guadalajara

Whether you are a manufacturer, utility company, distributor, sales agency, engineering firm, architectural firm, or any other professional or technical business that engages with lighting, each organization can pick and choose levels of benefits and discounts for their company employees directly—and in certain cases, non-employees' partners, as well—furthering the reach to a larger group of professionals. The complete new Sustaining Membership structure (including the tax deduction levels) is listed at: **www.ies.org/membership/ies-sustaining-membership**.

Education institutions that have dedicated lighting programs as well as those higher learning institutions that focus on "lighting" in their curriculums qualify for the University Membership. For more information on program benefits go to: **www.ies.org/membership/ies-university-membership**.

(*continued from p. 8*)

also feel free to reach out to me at president@ies.org, I'm happy to help.

Post-Conference Thoughts

I just got home from IES25—what a fantastic conference in every aspect. We had over 500 attendees, every session I attended offered a wealth of information, and the speakers did a fantastic job. The networking events were great—there was definitely a vibe.

I spent a bit of time speaking with the tabletop exhibitors and all were excited about the traffic and the format. The 2025 IES Illumination Awards were truly inspiring, and the afterparty was amazing. I can't wait for IES26 in Denver.

Before I go, I'd like to be the first to welcome Jared Smith to the role of president of our Society as of January 2026. I have had the privilege of working alongside Jared for 2.5 years, and I can say with confidence that the IES is in good hands.

Finally, as I was checking out IES25-related social media posts, I came across a post from Sogodok Yahya, a first-time EP attendee who co-presented during the paper sessions. Yahya wrote, "I left the conference feeling at home in this community, and while it is sad to say goodbye, I am excited for what lies ahead." This reminded me of that first article I wrote for the January issue when I closed with: "So, when you see someone new at one of our events, introduce yourself, ask about their interests, and help them find 'their people.'"

I think we did just that. Thank you!

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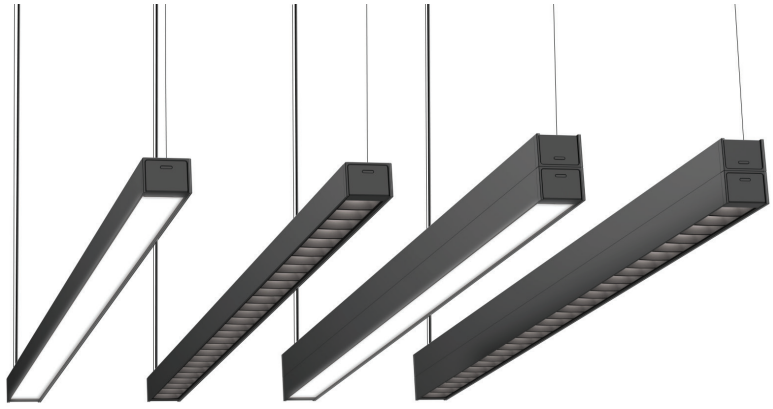
PRODUCTS



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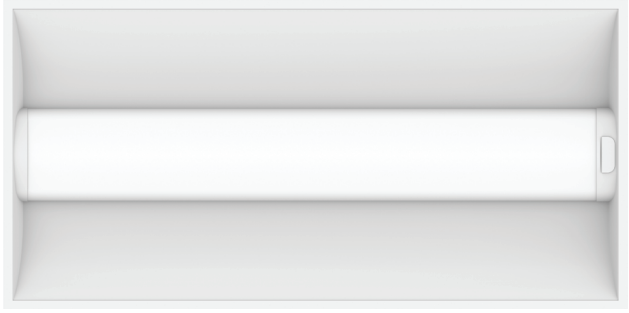

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4.

1. Luxxbox unveils Linea Naked, a minimalist, linear fixture that expands the brand beyond the acoustic lighting market. Designed with open offices, low-ceiling spaces, and large-scale interior applications in mind, fixtures offer dimmable direct and indirect light and can be suspended, surface mounted, or installed in long parallel runs. Linea Naked is height adjustable and offered with black or white woven power-cord options, white canopies, and in black or silver finishes. *www.luxxbox.com*

2. EarthTronics announces high-performance, energy-efficient Troffer Center Basket LED fixtures for commercial and educational applications. DLC Premium-certified, fixtures designed for 1-ft by 4-ft, 2-ft by 2-ft, and 2-ft by 4-ft grid ceilings offer three selectable wattage options, a 180-deg beam angle, a range of color temperatures as well as a solid-state driver for a long life. Additionally, EarthConnect control allows the fixtures to provide daylight harvesting, flexible zoning, and automated scheduling for individual fixtures. *www.earthtronics.com*

3. Dialight introduces the Battery Backup ProSite LED Floodlight to the ProSite Flood portfolio. Suitable in hazardous and non-hazardous locations, such as egress pathways and building or site perimeters, floodlights equipped with the 10-W NiMH battery deliver up to 1,700 lumens in the event of a power outage for up to 180 minutes in Emergency Mode. Fixtures feature a self-test function and are available in a range of mounting options, color temperatures, and beam distributions. *www.dialight.com*

4. Coronet LED introduces the NuDrop Sconce to the Drop series. Available in a gold finish and a fluted rubber tube, the wall-mounted and cylindrical fixtures feature four beam-spread options and are offered in a range of color temperatures from 2700K to 4000K. *https://coronetled.com*

5.

6.

5. ETC expands the Navis architectural line with the Navis 50 fixture. With a 2-in. aperture, 600-lumen output, and ETC's "fade-to-warm" technology, which allows the fixture to appear as if it is an incandescent light as it dims, the luminaires are ideal for hotels and restaurants. Navis 50 is a proprietary lighting solution engineered to work with the brand's F-Drive RX system; a single driver can support up to 240 fixtures and provide centralized control and simplified installation.
www.etcconnect.com

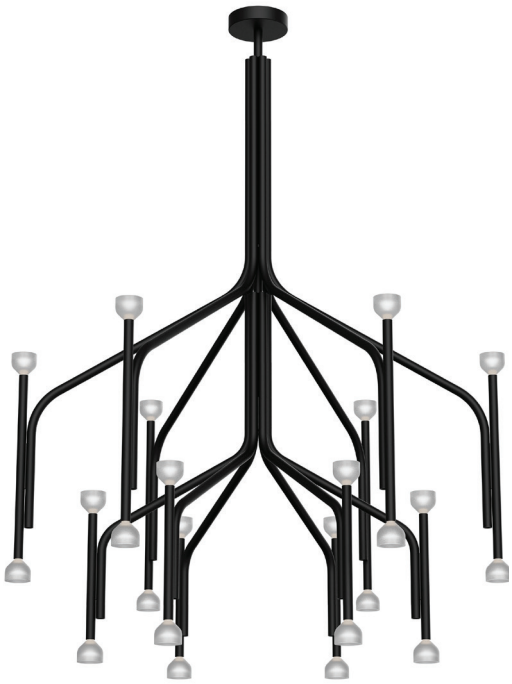
6. Miniforms debuts Rificolona, a recycled lamp designed by Tuscany-based studio e-ggs. Comprising recycled polyethylene from industrial and household waste, the translucent and lightweight ceiling luminaire is adjustable via two support cables and can hang at any angle. Luminaires are offered as ceiling, floor, and desk fixtures in three sizes.
www.miniforms.com

SPOTLIGHT American Lighting

American Lighting unveils TINSL, a full catalog of nostalgia-inspired decorative architectural lighting, string light, stringers, and bulbs with accessories for holiday or year-round celebration. Designed for professionals who "design, build, and illuminate," the catalog includes a guide to aid in the evaluation, estimation, and execution of lighting scenes in addition to products such as the commercial 5-millimeter coaxial light string (pictured top) and the commercial standard LED C7 light string (pictured bottom).
https://americanlighting.com

PRODUCTS

7. Eureka announces Tulip, a collection of decorative chandeliers, pendants, and surface-mount fixtures with three acrylic diffuser options: Bud, a frosted diffuser for broad illumination (pictured); Bulb, a recessed lens; and Blossom, a frosted diffuser with a soft, elegant glow. Comprising metal tubes, the flower-inspired chandelier is available in 18-, 34-, and 48-in. diameters, with an option for the smallest and largest offerings to be combined to form a two-tier signature chandelier (pictured).
www.eurekalighting.com



7.

8. Certolux, a Leviton brand, announces ShieldCare, a ligature-resistant inset door frame for lighting fixtures in behavioral health environments. With a rugged design to ensure long-term reliability, fixtures allow for room-side access without disturbing sealant for simplified maintenance, and include a one-piece, precision die-formed and welded sloping doorframe that tightly seals to help reduce the risk of self-harm for patients.
www.leviton.com

8.

9. USAI Lighting introduces a new color temperature for the LittleOnes, LittleTwos, and BeveLED Mini Complete fixtures. Now with 2400K CCT, luminaires can provide an extra-warm glow in hospitality and residential environments where comfort and ambience are a priority.
www.usailighting.com

Photo: Caviar Kaspia at The Mark

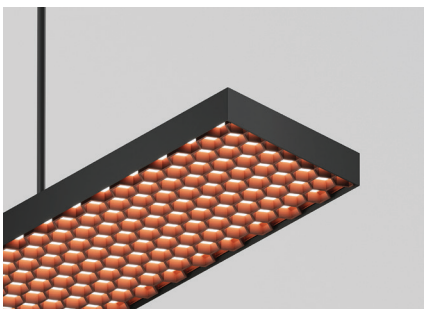
9.

10.

10. Tivoli Lighting unveils illumiwall 2.0 Static White light sheets for uniform backlighting of semi-translucent surfaces. For easy installation, the 12-in. by 24-in. dimmable light sheet features a peel-and-stick backing; sheets can be cut into 1-in. by 1-in. squares for precise onsite fitting. Each sheet delivers up to 1,925 lumens while consuming 20 watts and includes integrated terminal ports for power accessibility from all sides.
https://tivolilighting.com

11.

11. AMP Lighting announces the Modern Area Light. A 16-lb rugged site-lighting solution, the Modern Area Light features a selectable lumens switch and a color temperature switch offering a range of outputs from 6,000 to 13,000 lumens as well as a range of color temperatures from 3000K to 5000K, respectively. IP66-rated and made of die-cast aluminum, fixtures are DarkSky compliant, UL certified, and DLC Premium Listed, and have a corrosion-resistant, marine-grade polyester powder-coat finish.
www.amplighting.com



12.

12. Vode introduces a rose-gold version of the Nexa Honeycomb Louver, specifically available for Nexa Suspended. Designed for low-glare lighting, the rose-gold option adds new aesthetic possibilities for designers; Nexa Suspended can be grouped together to form constellations or be suspended as single fixtures in commercial and hospitality spaces.
www.vode.com

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CLASSIFIEDS

Sunlight passes through slabs of 4-millimeter onyx encased in glass in the double-height entryway of an adaptive reuse project in Singapore. Architecture by MonoLab Studio combines the themes of welcoming transparency with security and privacy in an office-building-turned-vault for high-end commodities. The team digitally mapped the onyx veining to extend the pattern over a large space.

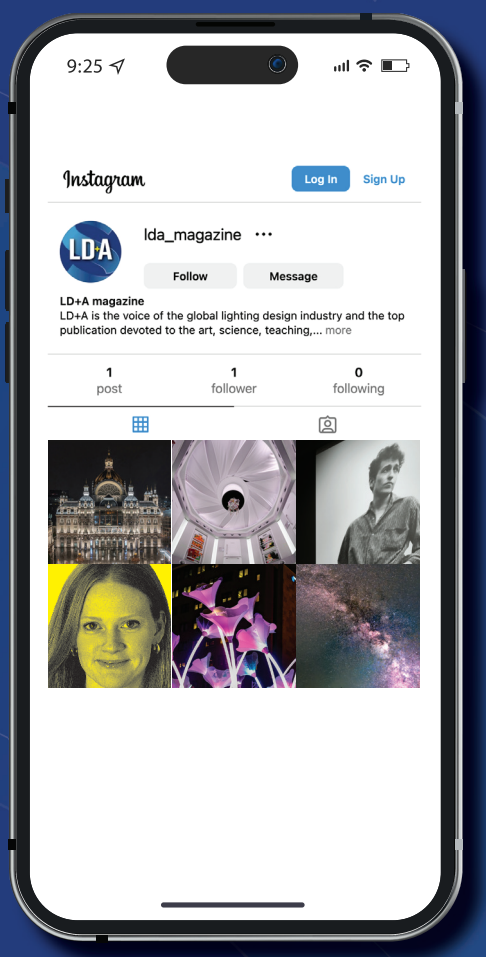
Photo: Finbarr Fallon

LAST LOOK

The Vault

Introducing LD+A on Instagram!

Follow @lda_magazine for the latest updates, behind-the-scenes content, and insights into the world of lighting design and application. Whether you're a **professional in the industry** or simply passionate about innovative lighting solutions, our Instagram account is the perfect place to stay inspired and informed.



What to Expect:

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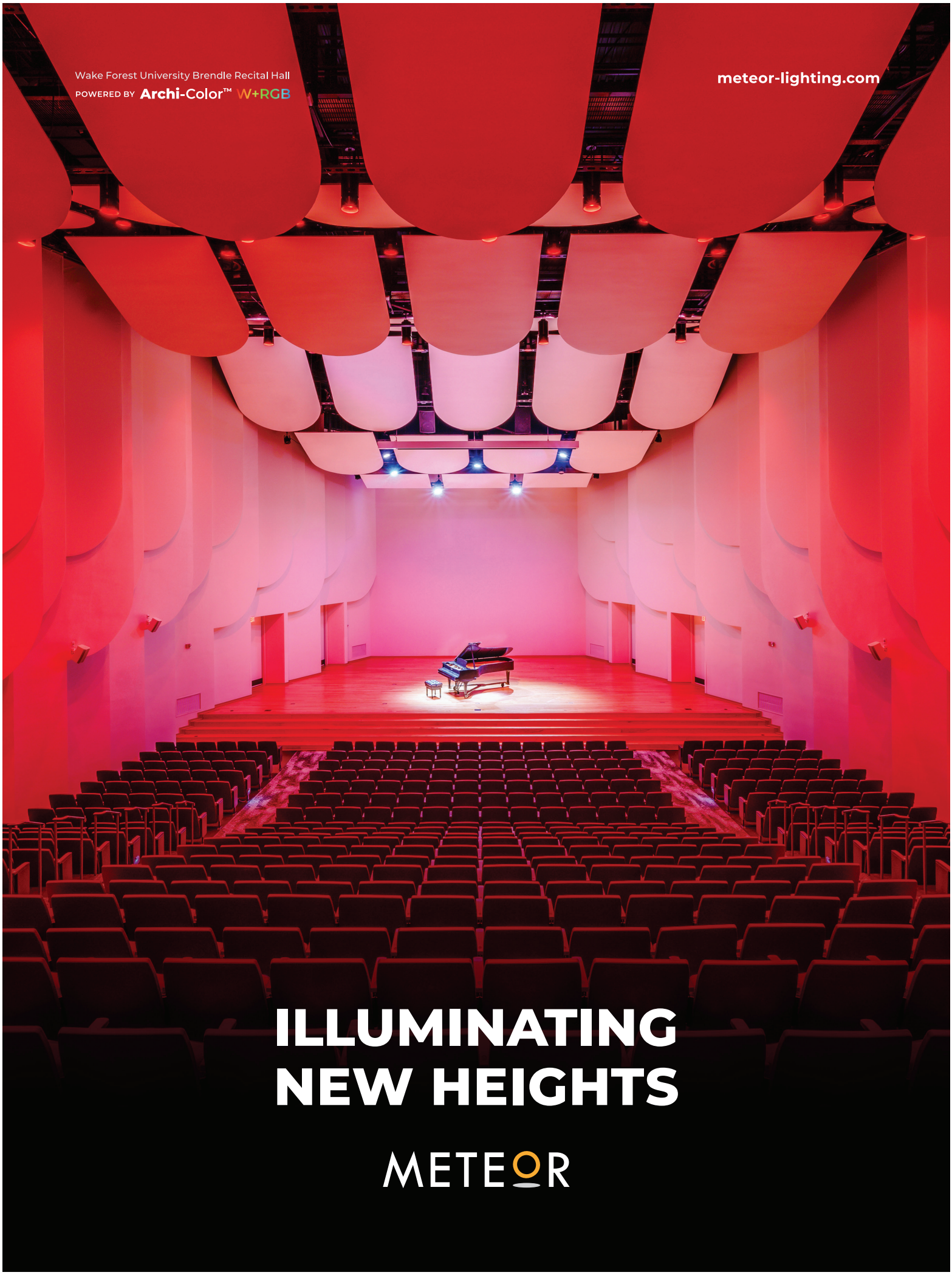
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