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# LD+A

FEBRUARY 2025 • VOLUME 55 • NO. 2

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Photo: Jeff Ravitz

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Meow Wolf in Grapevine, TX. Photo: Elliot Lopes



# EDITOR'S NOTE

## Artistic Intent

In the U.S., K-12 school budget shortfalls are consistently atop local news cycles, regardless of the political leanings of individual towns and states.

The inevitable cost-cutting discussions repeat like a skipping record—"Let's start with the arts."

Unfortunately, often treated like noise are studies by organizations, such as the Brookings Institution, which reveal that experiences in the arts positively affect school engagement, compassion for others, and the desire to continue to post-secondary education.

Since the early 2000s, there's been a significant push to promote science, technology, engineering, and math (STEM) careers earlier in the educational process. While that endeavor has garnered significant attention, it wasn't until 2007 that engineering and technology teacher Georgette Yakman began implementing her STEAM educational framework, which added the arts to STEM-focused efforts.

Since then, STEAM has gathered, well, steam. In 2023, MIT rolled out a summer course, "Making Art for Scientists," and invited scientists and engineers to explore new ways to represent and display their research. Participants used media including painting, digital art, and paper cut-outs, among others, to visualize topics

such as the correlation between brain waves and a person's state of mind as well as how planetary systems are born.

Recognizing "artistic value" has been

a staple in lighting societies for quite some time. IESNYC encourages students from New York City Art and Design schools to participate in an annual city-wide lighting design competition, and, for a decade, the DLFNY, IALD New York, and IESNYC have collaborated on a "Moonlighting" event featuring the artistic side of folks in the New York City lighting industry and friends from allied fields.

I'm likely preaching to the converted here, but it's good to be reminded that art greatly inspires creative approaches to projects and problem solving. While this issue of *LD+A* highlights "Visual and Performing Arts" projects, artistic elements exist across the lighting design spectrum. Hospitals, bridges, workspaces, churches, and stadiums, among myriad other structures, are diverse canvases waiting for designers' artistic eyes to uncover the potential for efficient, effective, and moving illumination.

**Craig Causer**  
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Recognizing 'artistic value' has been a staple in lighting societies for quite some time



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Published by  
**Sage Publications, Inc.**  
2455 Teller Road  
Thousand Oaks, CA 91320  
Phone: 800-818-7243  
Website:  
[www.journals.sagepub.com](http://www.journals.sagepub.com)

LD+A is a magazine for professionals involved in the art, science, study, manufacture, teaching, and implementation of lighting. LD+A is designed to enhance and improve the practice of lighting. 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. Statements and opinions expressed in articles and editorials in LD+A are the expressions of contributors and do not necessarily represent the policies or opinions of the Illuminating Engineering Society. Advertisements appearing in this publication are the sole responsibility of the advertiser.

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**POSTMASTER:** Send address changes to LD+A, c/o Sage Publications, 2455 Teller Road, Thousand Oaks, CA 91320. Subscribers: For continuous service please notify LD+A of address changes at least six weeks in advance. Canada Post: Publications Mail Agreement #40612608. Canada Returns to be sent to Bleuchip International, P.O. Box 25542, London, ON N6C 6B2.

This publication is indexed regularly by Engineering Index, Inc. and Applied Science & Technology Index. LD+A is available on microfilm from Proquest Information and Learning, 800-521-0600, Ann Arbor, MI



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# CONTRIBUTORS



## Rachel Fitzgerald

is a principal and the discipline lead for Lighting Design at Stantec. **p.16**



## Anne Kustner Haser

is the president of AKLD Lighting Design. **p.16**



## Andrea Wilkerson

is a senior lighting research engineer at Pacific Northwest National Laboratory. **p.16**

**Gary Meshberg**  
is chair of the Lighting Controls Association (a council of NEMA) and strategic projects sales director, Building Control Systems for Legrand North America. **p.18**



## Brienne Willcock

is director of Education and Standards for the IES. **p.22**

**Liz West**  
is an artist known for her wide-ranging works, from the intimate to the monumental. Using a variety of materials and exploring the use of light, she blurs the boundaries between sculpture, architecture, design, and painting to create works that are both playful and immersive. **p.26**



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**Jeff Ravitz**

is an Emmy Award-winning lighting designer, lecturer, and writer. His book, *Lighting for Televised Live Events*, demystifies the art and science of lighting live presentations for the camera. **p.38**



**Sinem Sarialioglu**

is a senior lighting designer at Ghafari Associates with more than a decade of experience working on industrial and architectural projects. **p.42**

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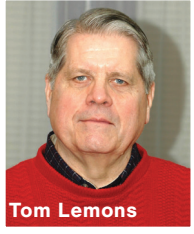
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# READERS WRITE



Tom Lemons

## A Mighty Mentor

If I did not have mentors in my life during my early career, where would I be today? Recently, my mentor, Tom Lemons,

an IES Fellow and a titan in the lighting industry, passed away after a long illness. To honor Tom's life, I would like to tell how he impacted mine.

I first met Tom back in the 1980s, when I had just left UL to start an independent laboratory assisting lighting manufacturers in gaining a product safety listing. Tom, in addition to being a consultant, had a side gig designing specialty lighting fixtures that solved difficult problems. He came out to my fledging laboratory with a lighting fixture that used an unjacketed metal halide lamp (HQI) to produce an extremely narrow, high-intensity beam used in tobacco production. While Tom was 20 years my senior, he humbled himself to seek help as the Nationally Recognized Testing Laboratory Program kept rejecting his product.

Later, Tom was designing more products using HQI lamps and asked me to co-author an article for *LD+A* about how instant-start, metal halide lamps solved difficult problems, as well as serve as a presenter with him at the IES Annual Conference. At the conference, I became aware of his strong sense of accepting new technologies when he lambasted the audience for not being accepting of new ideas. Tom was strong minded and spoke his feelings.

Tom always encouraged me to be active in IES activities and asked me

to replace him as the chair of the Luminaire and Light Control Committee during *The Lighting Handbook* update period. He led by example and was giving of his time to the IES.

Years went by and then Tom asked if I would be interested in taking over as the regional vice president for IES' Southeast Region. He explained the importance of the position and as I traveled around in the region, I learned so much about how other IES Sections operated. Tom always spoke of past IES functions and how a strong membership is one where folks all participate to make the Society better.

When Tom was trying to slow down years later, he reached out to me about taking over his side gig in designing specialty lighting fixtures. Even though my consulting gig was extremely busy, here was my turn to help Tom. The next five years were extremely interesting; I expanded my knowledge of optics and lighting and worked on many prestigious projects including lighting show caves, bridges, the rapids at Niagara Falls, and many other exciting challenges. Mentors often know what you're capable of long before you accept the challenge.

Here's my challenge to each of you: share your knowledge with those who come after us. Be bold, lead by example, and help me in honoring Tom by becoming a mentor to others.

*Jerry Plank, LC  
CEO/Founder, Wilger Testing  
Sarasota, FL*

*LD+A Reserves the right to edit letters for length and/or clarity.*

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# INSIGHTS

Waterworks • Blue Moon • Seen by Staff



Photo: Andrew Pielade

## Multimedia Molecules

*Artwork combines water and electricity*

An illuminated art installation by The Urban Conga, a multidisciplinary design studio focused on creating community engagement, is hovering over the Arizona Canal in Scottsdale, AZ. Five clusters of water “molecules,” approximately 18 ft long, 10 ft high, and 10 ft wide, encourage interactive play and show viewers what happens when they come together: in the evening hours, LEDs within the molecules respond to visitors’ voices. As guests sing, talk, whisper, yell, and more at specific interaction points close to the installation, lights change colors and/or pulsate based on one’s tone of voice, depicting that the community creates and alters its own surroundings. During the day, the 10 hydrogen-shaped atoms and five oxygen-shaped atoms that make up the molecules reflect sunlight and appear as different colors when viewed from varying angles.



Photo: Allan Tolt/Martin Professional

## A City Alight

A 15<sup>th</sup>-century UNESCO World Heritage site has been illuminated thanks to design by Speirs Major Light Architecture, controls and fixtures from Pharos Architectural Controls, and more than 3,000 linear RGBW fixtures from Martin Professional. The large-scale, after-dark illumination project, encompassing the city of At-Turaif, in Diriyah, Saudi Arabia, was commissioned by Diriyah Gate Development Company to attract domestic and international tourists and turn the space full of mud-brick buildings, ancient palace remains, and other architectural feats into a must-see destination. The project includes 60 universes of DMX, the use of multiple Pharos Designer Lighting Playback Controller X devices, as well as nearly 30 of the brand's Ethernet Data Nodes to support a wide array of individual luminaires spread across the site. The city is illuminated with a specific "apricot-gold" tone on most nights, but the system transitions to incorporate a "silvery blue" hue during the full moon to represent the importance of the lunar calendar in the Islam religion. The system additionally allows for green and white lights to reflect the country's flag for national days of celebration.

## THEY SAID IT:

"The 2024 release of the IECC is significant, as adoption is highly likely to replace legacy versions of the code in the future in various states"

Gary Meshberg "An Updated Code," p.18



# 19.2%

The projected CAGR growth of IO-Link market size, due to the trend toward smart factories, from 2024 to 2030.

Source: Research and Markets

## MERGERS AND MORE:

- Germany-based **Little Sun** has pivoted from the sale of solar-powered lamps to creating Little Sun Community Energy Hubs, solar-powered productivity spaces to provide energy for agricultural needs.
- Italian designer and manufacturer **Artemide** has opened a new showroom in Miami, FL.

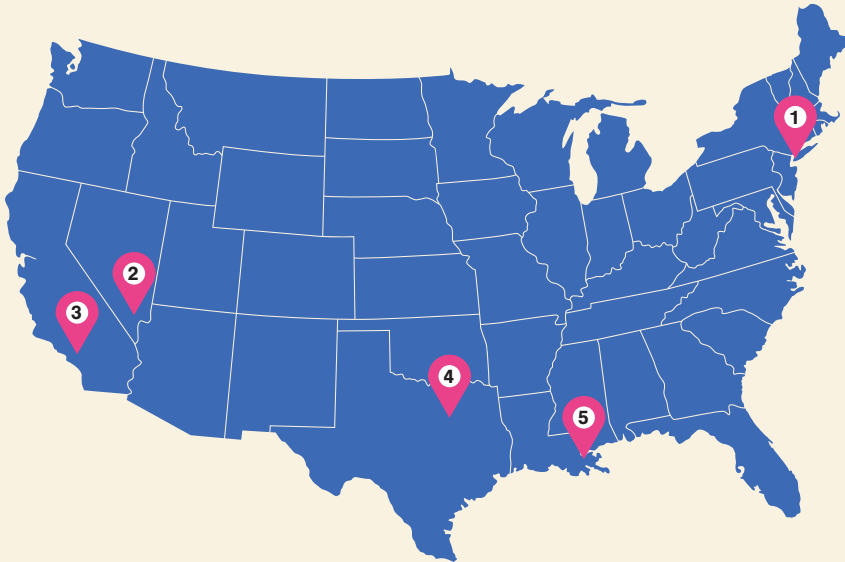


Photo: Samuel Fontanez

### Seen by LD+A Staff

The more than 200-ft-tall Louis Vuitton 2024 animated holiday light display on Fifth Avenue in New York City.

# EVENTS



### 1. March 18–19

LEducation will be held at the New York Hilton Midtown with virtual sessions being held March 13–14. A non-profit event organized by DLFNY with proceeds helping to stimulate future LED advancements through support to grants, scholarships, and lighting programs, LEducation is a marketplace for solid-state lighting innovations. Attendees such as lighting designers, architects, interior designers, and industry professionals can experience new technologies and participate in accredited seminars.

[www.leducation.org](http://www.leducation.org)

### 2. May 4–8

LightFair 2025 will be held at the Las Vegas Convention Center. Presented by Light + Building, the event is the premier, biennial architectural and commercial lighting trade show and conference as well as a preferred marketplace, networking, and education destination.

[www.lightfair.com](http://www.lightfair.com)

### 3. August 21–23

IES25: The Lighting Conference, IES' annual conference, will be held at the Anaheim Marriott in California. The event includes one day of hands-on workshops and two days of educational sessions, technical paper

presentations, and manufacturers' exhibits as well as the Illumination Awards Gala.

[www.ies.org](http://www.ies.org)

### 4. September 16–17

ArchLIGHT Summit, a commercial and architectural lighting event, will be held at the Dallas Market Center in Texas. It will showcase new products from leading commercial brands and include a full slate of accredited educational and hands-on experiential sessions facilitated by leading minds in design and lighting.

[www.archlightsummit.com](http://www.archlightsummit.com)

### 5. September 21–25

The IES Street and Area Lighting Conference will be held in New Orleans and focus on improving outdoor lighting through training classes, seminars, and networking sessions as well as an exhibit hall.

[www.ies.org](http://www.ies.org)

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**Illuminating**  
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Photo: Zoe Gries

# Q+A

GRAHAM OTTOSON

The owner of **Gourdlandia** talks about carving gourds and turning them into luminaires.

## What is Gourdlandia, and what do you hope for its future?

Gourdlandia is a small fiefdom in which gourds rule! It's an enclave of creativity, passion, and dedication to this humble cucurbit. My husband Otto and I grow gourds, and I turn them into lamps and other functional works of art. Although we are both now officially of retirement age, we hope to continue extolling the praises of our favorite vegetable to visitors from near and far for years to come.

## How did your journey lead you to carving gourds, and when did pairing light with carved gourds come into play?

As a child, I spent hours playing with my Lite-Brite in the darkness of the closet and making cellophane creations that would catch the light. Later, I dabbled in everything and frequently lit up my creations: papier-mâché and pottery lamps, stained glass, even gingerbread homes glowed from within. My making took a back seat when I became a midwife. After 25 years and more than 1,100 babies, I longed to get artwork back into my life. I met a gourd on the side of the road, and "the rest is history."

“As a child, I spent hours playing with my Lite-Brite in the darkness of the closet”

## Are there cultural/historical ties to gourd carving?

People and gourds go way back, to the beginning of the Holocene, in Africa. Early farmers growing primitive grains would have found gourds to be useful containers. Since then, they have been grown all over the world and used as vessels, utensils, musical instruments, floats for fishing nets, religious icons, and much more.<sup>1</sup> Gourdlandia has received lots of attention recently; people want to reconnect with this long history. It's been rewarding to be a part of that.

## What are the differences in how your Night-lights, Pierced Pen-dants, and Gourd Globe Lights are made? What types of illumination do you use to light them?

Gourd art starts with growing, drying, and washing. I mention this because as gourds dry in the winter, the skin becomes moldy—they look pretty nasty in the spring. First-time growers sometimes mistakenly think their gourds have rotted, and they throw them away. One can also purchase gourds already dried and cleaned. For pierced projects, I start with a gourd that has a shell that is dense

1. Rotary tools are used to poke holes into gourds.
2. Warm LED light spills out from a Gourd Globe Light.
3. Night Lights glow with 5-W bulbs.
4. Hole patterns are mapped out on gourd surfaces with oil pastels ahead of drilling.



1.



2.

Photos: Graham Ottoson

but not too thick. I use tiny drill bits (the smallest is 1/32 in.). I use LED bulbs for all luminaires, except night-lights. Night-lights use a standard 5-W clear incandescent C7 bulb, as I've yet to find a good LED bulb for these. Finding the right bulb for the globes and pendants took a bit of research. Each little drilled hole projects an image of the filament, pinhole camera style, onto nearby surfaces. Frosted bulbs don't project light onto the wall as nicely, and LEDs with wire-type filaments project a harsh linear pattern. I've found some 5-W LEDs with clear bulbs, 2700K, that work nicely.

**What can participants expect from a workshop?**

Workshop participants start with a gourd that is already stained, waxed, and fitted for hardware—all that's needed are the holes. I show examples and give a lesson on using the drills (small rotary tools with different sized bits). I don't provide templates; attendees are encouraged to come with ideas for their designs, which they can draw on the gourd with oil pastel. Glass beads can be used if desired. When groups come to make night lights, there's invariably a party in the bathroom (the only dark room in the building), as people gather to admire each other's creations.

**What was one project you are particularly proud of having completed? Why?**

Several years ago, we grew a variety [of gourd] called "100 Plus Bush-el." We allowed just two fruits to set on this vine; one grew to 124 pounds, and the other was 140 pounds. They were beautiful, symmetrical gourds, and they dried well. They were so big...too big for floor lamps. What would I do with them? Along came a woman who had recently purchased a large house in Ithaca, NY. She wanted a gourd chandelier in her front hallway. As we considered design ideas, I showed her the big gourd lamp in our cupola. It turned out that she also had a cupola, which clearly needed a gourd light. So, those two sister gourds both ended up as chandeliers in the same home. We enjoy seeing her house all aglow with gourd lamps when we're in town for an evening.

**Reference**

<sup>1</sup> Xuebo Zhao et. al, "Genomic and pangenomic analyses provide insights into the population history and genomic diversification of bottle gourd," *New Phytologist*, Mar. 19, 2024.



**Street & Area LIGHTING Conference**

September 21-24, 2025 • Hilton New Orleans Riverside Downtown

The IES Street & Area Lighting Conference (SALC) is the premier event that brings together decision-makers and their supporting teams from public and private sector utility companies, municipalities, and departments of transport to explore the latest developments, research, and trends in the street and area lighting industry and learn about the implementation of new technologies and solutions that will enable safer, greener, and more resilient lighting systems, at the Hilton New Orleans Riverside Downtown, September 21-24, 2025.

Visit [ies.org/salc](https://ies.org/salc) for more information.  
Registration open April 2025!

## IES ILLUMINATION AWARDS

# 2025 CALENDAR

### **JAN 2-24** | EARLY SUBMISSION

Deadline 11:59pm EST (Early bird submission fee: Members \$265 / Non-Members \$365)

### **JAN 25-FEB 21** | REGULAR SUBMISSION

Deadline 11:59pm EST (Regular submission fee: Members \$320 / Non-Members \$420)

### **FEB 24-MARCH 10** | SECTION IA CHAIR PROCESSING

- Section IA Chairs will review submissions for compliance of rules and guidelines
- Projects that comply with the rules of the program will move onto Merit Judging

### **MAR 24-APR 21** | ONLINE MERIT JUDGING

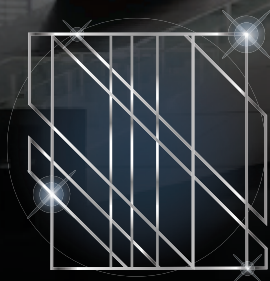
- Eligible projects receiving sufficient scores during online judging receive an Award of Merit
- Projects receiving exceptionally high scores will move to final, society level judging

### **EARLY MAY** | LIVE FINAL ROUND JUDGING

- Eligible projects passing the online phase are judged during live, society level final judging
- Final judging determines the highest level of Society awards including Special Citation, Award of Excellence, or Award of Distinction
- If projects do not score high enough at this level, they retain their Award of Merit

### **EARLY JUNE** | AWARD RECIPIENT NOTIFICATION

Local Section Judging will be conducted at the discretion of Section IA Chair timeline.



# ILLUMINATION AWARDS





Photos: Matthew Williams

- 1** Warm-dim indirect cove lights behind banquettes provide general illumination and direct attention toward murals.
- 2** Shielded, decorative sconces provide comfortable eye-level illumination and an extra sparkle to the lounge.
- 3** Vintage luminaires and warm-dim LED tape light placed in bottle displays and under the counter illuminate the bar and provide layers of task lighting for staff.

# HOW THEY DID IT IES ILLUMINATION AWARD OF MERIT

## “Simmer Down at The Quoin Hotel”

Designers from **BEAM, Ltd.** were tasked with creating an intimate atmosphere to highlight artwork and architectural details in an underground bar and lounge in downtown Wilmington, DE. To work around challenges such as a low, vaulted ceiling and the inability to mount fixtures to historic materials, the team implemented a series of concealed fixtures.





# TECHNOLOGY

Rachel Fitzgerald, Anne Kustner Haser, and Andrea Wilkerson

## LED Luminaires Are Reaching End of Life—Now What?

The earliest days of commercial LED luminaires brought many questions regarding color quality, distribution of light, lifetime, and serviceability. After initial fears were mostly allayed, promises of longevity and energy savings (with incentives!) fueled the adoption of LED technology—and early generation products largely met those promises. Yet, a decade into widespread adoption, a new question emerges: What happens when LED products reach their end of life?

Various groups are asking this question. Homeowners may be living with a failing LED fixture installed by a prior owner. Professional facilities staff can no longer ignore early LED failures that left a few areas slightly dimmer and others more colorful, as the failures are mounting. Lighting specifiers who asked the hard lifetime questions 10 years ago, including requesting TM-21 data, now face an increasing number of clients who are calling to ask what they should do as their LED systems are failing.

Given that LEDs now dominate the architectural lighting market, it can be hard to believe that the notable adoption of LED products started only 10 years ago. The latest U.S. Department of Energy (DOE) *Lighting Market Characterization* (LMC) report compares lighting inventories of installed units since 2010

(Figure 1), highlighting the considerable adoption that happened between 2010 and 2020.

Back in 2010, 50,000- to 100,000-hour lifetimes seemed like forever; however, for many applications, that span equates to roughly five to 11 years (Figure 2). A product with a lifetime of 50,000 hours installed in a residential location where it is turned on an average of a few hours a day means it will hopefully last until the owner moves out—and maybe even until the next owner moves out—while that same product would be expected to last only 5.7 years if it was on 24/7.

When accounting for adoption and expected product lifetimes, it makes sense that more people are facing the question of what to do at the end of life. During a recent lighting conference presentation, specifiers in the room were asked how many of their clients were having issues maintaining their LED luminaires, with the majority responding that



When accounting for adoption and expected product lifetimes, it makes sense that more people are facing the question of what to do at the end of life

about 40% or more of clients were experiencing issues.

The struggle to maintain LED systems cropped up as a repeated issue as Pacific Northwest National Laboratory researchers spoke with school facility managers across the U.S. in 2024. While schools may not be the target of most product development roadmaps due to their restricted budgets, as noted in the latest LMC report, the educational facilities sector was nearly 14 billion sq ft in 2020, with 78% of that floorspace fluorescent. Facility managers across the country are making decisions about what to install, with day-to-day maintenance often top of mind.

Owners and managers of offices, hospitality, and residential properties face a similar conundrum. What happens when products start failing, especially after the five-year warranty? Are managers and owners prepared to pay for all new luminaires after years of just maintaining lighting with lamp

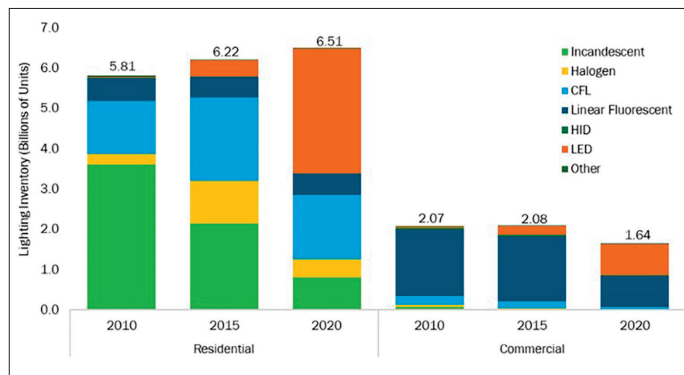


Figure 1. U.S. lighting inventory in 2010, 2015, and 2020 by sector and technology from the latest U.S. DOE *Lighting Market Characterization* (published in April 2024).

replacements? From a design perspective, helping to fix maintenance problems and address unexpected failures is not nearly as much fun as new designs, and designers are often not paid for the time spent.

Recently, a law firm was unsure what to do because the downlights in its Class A office space started to fail a few months after the warranty period ended. Some failures were catastrophic, while others were parametric, including color shift that harkened back to the days of metal halide. The law firm reached out to the original lighting designer, and after plenty of discussion with the original manufacturers and their representatives, the law firm installed a new solution. When the cost to pay a designer, buy new products, and pay an electrician are added up, the total cost to maintain the system can be twice as expensive as that if the law office just relamped their downlights and 15 times more expensive if replacing linear LED cove lighting rather than fluorescent tubes—no designer or electrician needed, no new luminaires needed.

With energy efficiency incentives fading and original manufacturers potentially acquired or gone, the reality many face is that most end-of-life issues mean a completely new fixture—this time without any incentives or promises of a two-year payback. The new mode of swapping out luminaires instead of lamps raises questions of sustainability in every sense of

the word, from sustaining design intent to throwing away whole fixtures, and even in some cases needing new ceilings and flooring.

Several products on the market address the issue of serviceability and maintainability in unique ways. Some aim to simplify driver replacement while others use magnets or plastic connectors to make it easy to swap out LED modules and other luminaire components. One manufacturer has even leveraged an old solution: developing a troffer that uses lamps with E26 bases. Yes, you read that right. Eight standard light bulbs in a 2-ft by 4-ft troffer. While it may cause a double-take, the manufacturer is likely responding to market demands.

There has been some movement in Europe driven in part by the Zhaga Consortium, which is helping to standardize the interfaces of LED luminaire components, although Zhaga has yet to gain much traction in the U.S. The question is, will a similar movement take hold domestically?

The lifetime and maintainability requirements of future specifications are likely to be determined by the application and client. There is an assumption that many offices and retail spaces change over every 10 years or less, so why bother worrying about maintenance? However, this all may shift in the coming years, reflecting some of the major disruptions occurring in both office and retail spaces.

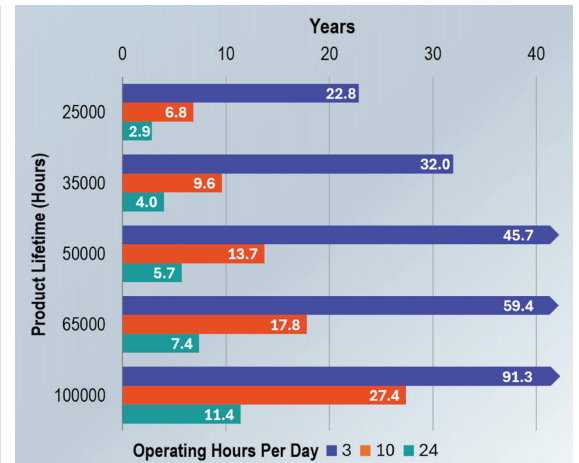


Figure 2. The years of operation for varying product lifetimes and operational hours per day.

Additionally, more owners and clients may be driven by circularity and sustainability goals, while others will just want to keep the lights on.

For many residential, small business, house of worship, corporate, municipal, and educational buildings, luminaires being maintained for 30 years or more is the norm. What sustainable solutions will help these buildings and critical institutions keep the lights on? We hope to continue this conversation, so if you have further thoughts or suggestions you want to share, please reach out at [andrea.wilkerson@pnnl.gov](mailto:andrea.wilkerson@pnnl.gov).

Rachel Fitzgerald is a principal and the discipline lead for Lighting Design at Stantec.

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# CONTROLS

Gary Meshberg

## An Updated Code Keeping an eye on the 2024 IECC

States and other jurisdictions regulate the energy-efficient design of commercial buildings with energy codes. The majority are based on the International Energy Conservation Code (IECC). This model code is updated every three years, with the latest version released in August 2024. With energy codes continuing to become increasingly stringent and most states basing theirs on the IECC, the 2024 release of the IECC is significant, as adoption is highly likely to replace legacy versions of the code in the future in various states.

The IECC limits lighting power density while adding a mandatory lighting controls layer to ensure lighting is automatically reduced when it is not needed. The 2024 version reduces lighting power allowances, expands mandatory lighting control requirements, creates an enhanced energy efficiency option for demand response, removes the luminaire-level lighting control (LLLC) compliance path, and issues clarifications.

In this column, I will break down what's new compared to the 2021 version.

- **Scope:** The IECC applies to various energy-using systems (including electric lighting) installed in new construction, additions, and alterations of buildings. The 2024 IECC removed the code exemption

for projects involving the replacement of less than 10% of interior luminaires in an alteration and added one for exterior projects adding or altering up to 400 watts.

- **Lighting Controls (C405.2):** Conceptually, the code seeks to limit energy consumption by automatically reducing or turning off lighting when it is not being used based on three inputs: occupancy, a time event, or ambient light level. In the 2024 version, the LLLC compliance path has been removed. Previously, the code offered compliance based on a discrete approach and a theoretically more direct LLLC approach. LLLC still offers a way to comply with code requirements, but it is no longer a separate formalized path.
- **Occupancy Sensing (C405.2.1):** Occupant sensors can be used to satisfy the code's automatic shutoff requirements. In the 2024 version, data-center computer



The 2024 release of the IECC is significant, as adoption is highly likely to replace legacy versions of the code in the future in various states

rooms, laundry/washing areas, and healthcare facility supply rooms and telemedicine rooms have been added to the list where sensors are specifically required.

- **Time-switch Controls (C405.2.2):** Where occupant sensors are not installed, time-switch controls must be installed and programmed to automatically turn off the lights when the space is predictably unoccupied. The control system must have certain capabilities. New to the 2024 IECC, the controls must be programmed to turn the lights off at least 12 hours per day for spaces where schedules aren't available.
- **Dimming Controls (C405.2.3):** Manual controls must be provided that allow users to control lighting and provide light reduction. The 2024 IECC eliminates bi-level switching as an option and requires continuous dimming in spaces ranging from classrooms to lobbies to offices. The dimming controls must be manual and provide continuous dimming from full output to 10% of full power or lower plus off. Manual controls must be placed where they are readily accessible and the controlled lighting visible to users or otherwise indicate the area and status of the lights.

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- **Daylight-responsive Controls (C405.2.4):** The code requires that general lighting in daylight zones be reduced in response to available daylight. The 2024 IECC reduced the wattage threshold for requiring these controls. If there is more than 75 watts of general lighting in the primary or secondary side-lit daylight zones, or if there is more than 150 watts in these zones combined, daylight-responsive control is required. What's more, the calculated exception to daylight-responsive controls in trade for lowering the lighting power allowance was removed, and an exception was added for enclosed offices spaces fewer than 250 sq ft.
- **Horticultural Lighting (C405.2.5):** Lighting for non-visual applications such as plant growth must be served by an independent time-switch control. However, note that Section C405.4 in the 2024 IECC states that the luminaires in greenhouses must be controlled by a device that turns off luminaires in response to daylight.
- **Sleeping and Dwelling Unit Controls (C405.2.10):** The 2024 IECC created a new special section for sleeping and dwelling units and consolidated all control requirements there.
- **Additional Energy Efficiency Requirements (C406):** Buildings complying with the IECC must enhance energy efficiency by acquiring credits for implementing various stretch energy efficiency options listed on a table with applicable credits. This

section has been thoroughly revised and expanded in the 2024 IECC to delineate requirements by building size. For lighting, options include energy monitoring, high-end trim lighting controls, occupant sensors installed in more applications and with a 10-minute time delay, reduced lighting power, demand-responsive lighting controls, and automated shading. Note that the credit for enhanced digital lighting controls has been removed.

- **Demand-responsive Lighting Controls (C405.2.8):** Demand-responsive lighting controls are covered as an enhanced energy-efficiency option in C406 and in Appendix C1103.1, which requires at least 75% of the interior floor area in specific building occupancy categories to have demand-responsive lighting controls. This appendix is not mandatory and is subject to adoption as an ordinance by the jurisdiction to be effective as a requirement. In either scenario, if demand-responsive lighting controls are installed, Section C405.2.8 becomes active. It requires these controls be capable of reducing the output of controlled lighting down to 80% or less of either full power or full output after receiving a demand-response signal from a certified virtual end node. If high-end trim is implemented, the trim level is considered "full power" or "full output." The lights should be continuously dimmed over a period up to 15 minutes to reach the demand response level. After the demand-response event

ends, the controlled lighting must return to normal operation.

- **Functional Testing and Documentation (C408.3):** The IECC requires project commissioning to ensure all installed building systems operate as specified. This includes functional testing for lighting controls as well as certain documentation. The 2024 IECC adds functional testing requirements for automatic receptacle controls and, if installed, high-end trim controls and demand-responsive lighting controls.

### COMMERCIAL BUILDING ENERGY

codes continue to become increasingly stringent regarding lighting and controls while evolving with technological change, and the 2024 IECC follows this trend. In the future, commercial building energy codes may focus on energy consumption, system integration, and decarbonization rather than initial design power and control capability. In the meantime, the 2024 IECC is likely to be widely adopted and used by jurisdictions.

Lighting practitioners in jurisdictions likely to implement the 2024 version of the IECC should start to become familiar with its requirements, as there are some significant changes, particularly regarding lighting and controls. For more information, consult 2024 IECC by purchasing it at [shop.iccsafe.org](http://shop.iccsafe.org).

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Gary Meshberg, LC, CLCP, LEED-AP, Member IES, is chair of the Lighting Controls Association (a council of NEMA) and strategic projects sales director, Building Control Systems for Legrand North America.



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# EDUCATION

Brienne Willcock

## Clearing the Traffic Jam Education as a path forward in the lighting industry

When we're stuck in traffic, it's easy to forget—we are the traffic. We're part of the very congestion we lament. The same holds true for the lighting industry. It's not some distant, abstract entity or a loose collection of disconnected parts. It's an ecosystem—shaped from within by our actions or inaction.

When progress stalls, the lane we choose to occupy matters. Clearing the path forward often starts with education. For individuals, companies, or the entire industry, designing an effective educational strategy requires an honest assessment of knowledge gaps, clear expectations regarding investment (time, resources, and effort), and well-defined goals that deliver measurable results.

While the desire to learn is universal, how we approach learning and what we choose to teach makes all the difference. Learning is not the same as being informed. Meaningful education takes work—it requires recognizing that the duration, facilitator expertise, and objectives of a program directly impact its outcomes.

For those providing education, the question isn't "What do I want to say?" but rather, "What do I want others to learn?" Sharing knowledge builds connections, but teaching for outcomes builds capability.

### The Importance of Active Learning

In "Active Learners Cut Through Noise and Get Promoted Fast,"<sup>1</sup> Michael Mink captures a challenge not unlike our industry's traffic jam. "It's easy for leaders to fall into an information-overload rabbit hole. Devouring data can be strangely comforting—because it makes you feel like you're on top of things. But it's also hard to crawl out if you're not an active learner...An active learner is somebody who consistently seeks out ideas and insights and then pairs them with action and execution."

Pairing execution with ideas is critical in a complex, ever-changing field like lighting. However, the challenge is layered. What individuals choose to learn may not align with team or organizational needs, and/or what people want to teach



When the intent behind learning is unclear, it leads to friction, frustration, and stalled progress

doesn't always match what others need to learn.

This multi-layer disconnect surfaced in my reflections of 2024's educational themes, successes, and challenges. Highlighting strengths as well as unmet needs and mismanaged expectations within conferences, standards, and resources (at the IES and beyond) can seem like an exercise in skepticism about the capability of our industry to be there for one another—but it isn't meant to be. It's an opportunity to discern what our responsibilities could be moving forward both topically and in educational formats. Inevitably, embedded in these discussions are assumptions—spoken or implied—about resolutions, blame, and urgency.

### Educational Themes from 2024

#### Sustainability

- embodied carbon, circularity, and lifecycle analysis
- design strategies for modularity and longevity
- information sharing and material transparency.

#### Light and Health

- physiological and behavioral impacts of light
- alertness, productivity, and circadian entrainment
- metrology for glare, flicker, and visual comfort.

#### Responsible Outdoor Lighting

- the Five Principles and





- specificity in application
- metrics: ongoing CCT and SPD debates, BUG rating discussions, and skyglow calculations
- ordinances and legislation.

### **Lighting Quality Over Time**

- lumen and color maintenance
- replaceable components and system interoperability
- warranty expectations and system longevity.

### **New Tools**

- generative AI: its potential and ethical considerations
- 3-D printing and rapid prototyping for innovation
- standardization and integration of BIM workflows.

Within these themes predictable patterns in our industry dynamics surface.

- Blame is often assigned to one segment or another for lack of information, or lack of discretion of what—and how much—is being asked.
- We resist acknowledging that balance and empirical evidence drive progress.
- We crave single metrics to simplify complexity but expect recognition for nuance in innovation, awards, and marketing.
- We struggle to align expectations around education duration, objectives, and practical outcomes.

### **Self-Awareness and Accountability**

Are we observing traffic, or are we part of it? Knowledge sharing—or its absence—reveals a paradox: we thrive when we embrace diverse perspectives

and acknowledge what we don't yet know. Yet, progress depends not only on what we learn but also on to who we choose to listen.

Noise is everywhere, but music? That requires intention, talent, and a willing listener.

Our challenge lies in fostering an environment where learning is collaborative, intentional, and actionable—one where knowledge builds bridges rather than barriers. This challenge, however, is not unique to the lighting industry. Gianpiero Petriglieri and Annie Peshkam explore this tension in “Three Ways to Lead Learning.”<sup>2</sup> Through interviews with leaders of learning at 69 firms worldwide, they found, “Companies begin to stifle learning when executives assume that there's a single right way to do it that will serve all the organization's needs. That's simply not the case. We found that there are three distinct ways to lead learning—as a custodian, a challenger, or a connector—all of which can be successful in the right context. The methods used by leaders with the three approaches don't vary much...but how and why leaders deploy them differs dramatically. And we found that too often the intent of learning was unclear in organizations, resulting in a mismatch between the learning approach and current company needs.”

Their research underscores a critical point: when the intent behind learning is unclear, it leads to friction, frustration, and stalled progress.

### **Custodians, Challengers, and Connectors**

To drive meaningful education, we need all three roles:

- Custodians preserve and share foundational knowledge, ensuring expertise and skills are retained—including in processes we follow.
- Challengers push boundaries, question assumptions, and encourage innovation—whether through critical inquiry, public reviews for standards, or shifting section meetings to new formats.
- Connectors bridge gaps, linking people, ideas, and solutions to foster collaboration and address fragmentation. They also educate our next generation of lighting practitioners.

These roles are not mutually exclusive. In a dynamic industry like ours, they must coexist to safeguard what we know, challenge how we evolve, and unify efforts across teams, generations, and disciplines.

### **The Role We Play**

Education is everyone's responsibility. Whether designing luminaires, control systems, or learning programs, the roles we occupy shape the future of our industry. Just as choosing the right lane clears traffic, choosing to lead, preserve, or connect knowledge clears pathways for progress. Moving forward requires:

- intentionality in what we learn and teach
- alignment of education with both immediate needs and



long-term goals

- accountability for knowledge-sharing across the industry.

So, ask yourself: Are you preserving foundational knowledge, challenging outdated practices, or connecting people and ideas? We are the lighting industry, and the way we move forward is up to us.

---

Brienne Willcock is director of Education and Standards for the IES.

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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](mailto:Craig.Causer@sagepub.com) to discuss further.



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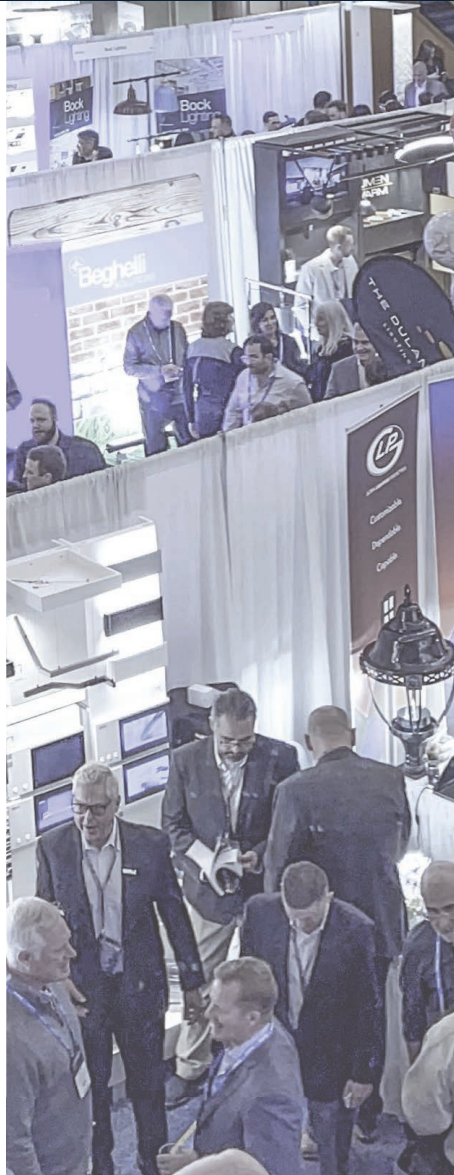
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# SIGHTLINES

Liz West

## Opening the Artist's Eye Rekindling design creativity

I learned elementary color theory before I could even read. It helped that both my parents worked as artists, and I lived in a house where art was in abundance. I realize that this is highly unusual, and that I am fortunate. My mother (who makes surface-based architectural paintings and drawings) had a light-filled studio in the house, and my father (who made figurative and dreamlike sculptures from wax, plaster, bronze, and fiberglass) worked in a studio outbuilding in the garden. My methods of play as a child were to dabble with their artist materials, whether it was clay and plaster or acetate and inks.

When I graduated from the Glasgow School of Art, I was out of money. I moved back home with my parents and secured a few jobs, working as a video editor for an advertising agency and then as a shop assistant for a large retailer as well as an events steward at my local arena. During my three years working at large events as a steward, I paid close attention to how stage lighting and sets were being installed and managed. I felt a buzz from the live element of the event, and I was hooked.

As a reminder of the indispensability of light, I recently experienced a planned, full-day power outage at my house on a dark autumnal day. Not only was it a massive inconvenience,

but it was also prohibitive to my work, as my studio is at home.

Throughout the day, I began thinking about electricity and how pivotal it has become to our day-to-day lives. I instinctively flicked switches and no light came on, so I lit cozy candles; I forgot I couldn't boil a kettle, so I had to boil a pan of water on the gas hob; I had to cancel online video meetings since Wi-Fi was unavailable, so I rang people on the landline; my laptop ran out of charge; the food in the freezer started to defrost; and there was no heat. It felt like the Middle Ages temporarily, and I would not have wanted to be alive then.

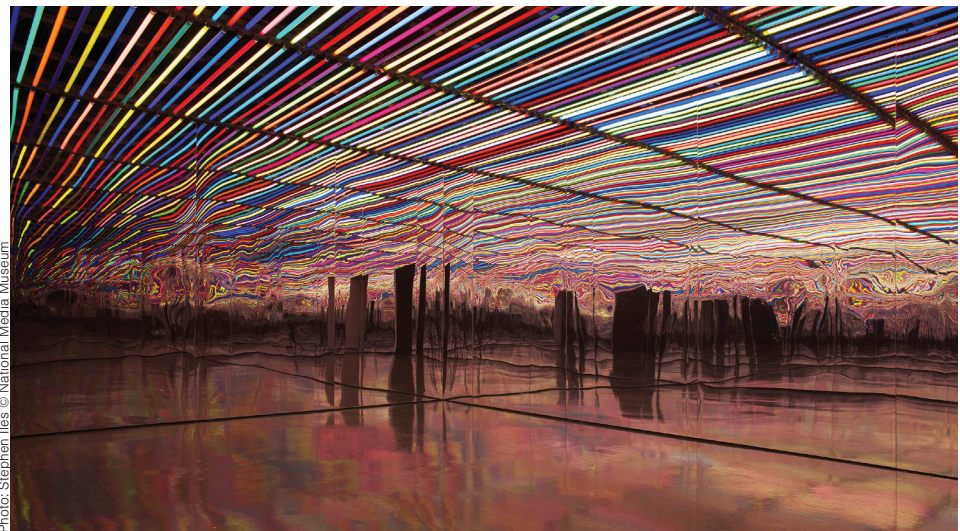
On this dull and power-less day, the swatches of color and my vibrant collages pinned to my ideas board reminded me



There must be a deep and thorough understanding of the mechanics and science behind color and light before you can use them freely and instinctively

that color only properly comes to life when there is a light source. Stating the obvious: without light we cannot see color.

Living in the Northern Hemisphere (especially in the North of England), I grit my teeth as winter approaches, when the dark nights draw in and as daylight saving hours step into play. I have Seasonal Affective Disorder, and it affects me emotionally, physically, and psychologically. I must search hard for the glimmers of hope, color, and light in and among the darkness. Autumnal color is beautiful and rusty, with earthy and warm tones. Winter is full of sparkly fairy lights and rich berry hues. But these joyous and memorable moments of color are fleeting and typically transient. Over the years, I have employed



*An Additive Mix* comprises a purpose-built room containing 250 individual-colored fluorescent tubes combined with infinity mirrors.

coping strategies at this time of year, which includes my work as an artist. Through my work, I have my very own light-box—it is my therapy.

My days working as an artist are ever changing and fluid. I sketch and draw, write proposals, design decks, photograph my work, converse with people about my projects at every stage, send invoices, perform site visits, attend openings, travel, and try to remember to breathe, eat, and relax (the latter I struggle with endlessly). As artists and designers, we are constantly juggling jobs and replacing one hat with another.

With that said, here are my top five tips for young creatives:

- Look around. Pay close attention to the world around you; see what it lacks and what materials/colors are being used. With this insight, you can then design work in the space that feels like it “belongs.”
  - Always attend site visits. This is one of the earliest bits of advice I received. If you live close by and are familiar with the space, live far away and can’t/don’t want to travel, or you believe it is unnecessary—think again! Always go (or ask for extensive videos/photos) to the space for which you are designing. You might notice something crucial that you have never seen before.
  - Be brave and bold. Don’t add colors or lighting elements just for the sake of it. More is not always more. Subtlety is elegant and often overlooked. It’s brave to pare things back.
- Be conceptual. The work should have a story and a reason for existing. People want a way into the work and an insight into the artist’s/designer’s mind. Everything must have a rationale for its place in the finished piece.
  - Be kind. It should go without saying, but treat the people you are working alongside with respect, dignity, and kindness. Listen, practice patience, and put yourself in others’ shoes. It’s a small world and news travels fast about who is good (and troublesome) to work with in every field.

In my world of vivid color and lights—two things that are synonymous with joy and optimism—there are a lot of unknowns as well as miseducation. There must be a deep and thorough understanding of the mechanics and science behind color and light before you can use them freely and instinctively. I am still learning as my tool box is expanding (e.g., new and ever-changing lighting technology), but I love color and light passionately and have a lifetime-worth of ideas for these media.

Liz West is an artist known for her wide-ranging works, from the intimate to the monumental. Using a variety of materials and exploring the use of light, she blurs the boundaries between sculpture, architecture, design, and painting to create works that are both playful and immersive.



Photo: John Sturrock

In *Fluorescence*, diagonal lines of color intersect across the structure, encouraging people to move around the space and explore how colors connect and change from different angles.



Photo: Hannah Devereux

*Our Colour Reflection* creates a conversation between the viewer and the setting by using more than 765 mirrors made of colored acrylic.



Photo: Charise Emerson

*Hundreds and Thousands* pays homage to art, geography, and the proximity to the Greenwich meridian line in London by behaving as a sundial, allowing people to view an ever-changing ribbon of color.

Pixel-mapped, faux-neon tape light breathes life into rooms like "Neon Kingdom."



# THROUGH THE PORTAL

Explorable art transports guests to other realities

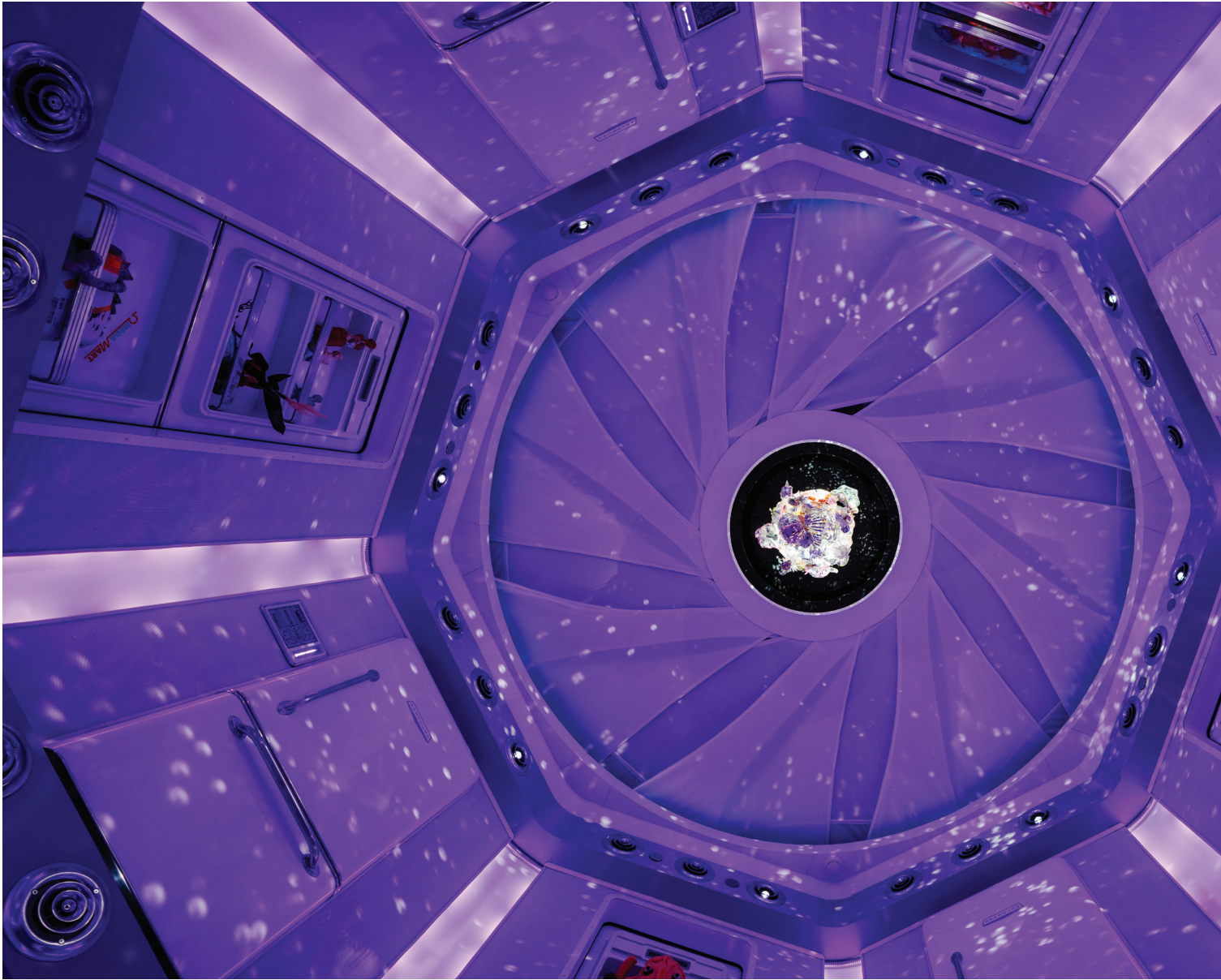
By Michele Zimmerman

Photos: Elliot Lopes - elliotl@elliottlopesphotography.com



“It’s a double-height, octagon-shaped room full of refrigerator doors—each leading to a new area or surprise. One of these doors reveals a luminous goat sculpture and triggers a dramatic lighting and audio change. The stark, white light of a fridge interior changes to bold, saturated colors while disco music plays, and a mirror ball is lowered into the room,” said Chris Werner, principal lighting designer at Chris Werner Design (CWD). This narrative anchor space called “Brrrmuda” lies within Meow Wolf in Grapevine, TX.

If it sounds like you just read about *The Twilight Zone*, it’s because you kind of did—“The Real Unreal” theme of the maximalist, explorable, and interactive art installation celebrates “portals to possibility” by hundreds of artists within what seems to be a suburban family home, complete with a moonlit yard—inside the Grapevine Mills Mall.



CWD's scope of lighting design for the 25,000-sq ft project included the "Show" lighting: guest-accessible areas that were part of the narrative. "Many of the designers and artists at Meow Wolf incorporated lighting within their individual pieces," explained Werner. "In addition to defining the lighting aesthetic and lighting color-story for the overall exhibition, we provided consultation to those artists on the subjects' product selection, control protocols, and hardware integration. We specified lighting equipment, created layouts, and designed the control system. Once on-site, we led focus and programming efforts. My team was on-site for approximately five months with the folks from [lighting integrator] Vincent Lighting Systems (VLS). We programmed alongside the creative engineers and

Theatrical illumination reveals secrets in an octagon-shaped room of refrigerator doors.

designers from Meow Wolf, creating some remarkable art. The process felt truly collaborative."

The project is Meow Wolf's fourth installation and welcomed the public to explore narrative anchors including "The Forest," "Lamp Shop Alley," and "Neon Kingdom," among others, in July 2023. The exhibit encourages guest engagement via tactical exploration as well as a digital app.

Though Werner explained many of the installations' secret responsive "Easter eggs" have been revealed by fans on websites like *Reddit*, there is still yet more to learn about the behind-the-scenes reality that goes into making an otherworldly experience. Creative challenges such as the makeup of the project itself—multiple anchors, each with a different creative director





and motif—as well as real-world logistical delays post-COVID-19 contributed to the making of the installation. The creative challenges were “among the project’s most rewarding components,” said Werner. “We worked to support the wide varieties of visions and design intents while seeking opportunities to maximize utility and bring all devices under a unified, cohesive control system.”

The control system, run by cloud-manageable Q-SYS, was designed and programmed by the Meow Wolf team and installed by ProSound to function as the top-level controller. The complex control platform supports diagnostic function, synchronizes playback, and serves as an interface for operators for the nearly 150 individually programmed rooms. Additionally, ETC’s Paradigm

**Top:** Interactive AV Easter eggs lie behind fridge doors in “Brrrmuda,” a stark-white portal with crisp illumination.

**Bottom:** Guests travel through incrementally darkening spaces to avoid eye fatigue throughout their journey.

manages exhibit-wide power, while the brand’s Mosaic Show Controllers aid in playback and interactive components; these control elements were specified, designed, and programmed by the CWD team and installed by VLS. The Mosaic Controllers’ functions are based on custom-scripted timelines, of which there are a collection for each room, and then sometimes for various states within in each room. “In some cases, that means Operation Look vs. Maintenance Look vs. Overnight Look. In other cases, that script triggers show sequences or guest-triggered looks,” said Werner. While there are hundreds of examples of ways in which the control system supports the various immersive atmospheres inside the installation, just one is that the tempo of the music track in “Neon Kingdom”—



which is a callback to an anchor in Meow Wolf’s original location in Santa Fe, NM, and doubles as an event space—is synced to dynamic visuals matched to pixel-mapped faux-neon tape.

LED pixel tape played a large role in realizing CWD’s unified lighting vision—over a mile of it was used in the exhibition. “This project has a lot of LED tape of various types,” explained Werner. “We chose Environmental Lights as our preferred tape manufacturer for most instances. For pixel control, we chose Advatek PixLite Mk3, controlled via sACN.” Additional tools the team implemented in the design strategy include 2,000 color-mixing fixtures like recessed downlights, pendant downlights,

“Lamp Shop Alley” showcases numerous illuminated pieces by artists from both the Texas area and afar.

and track heads by Times Square Lighting and theatrical fixtures from ETC, Chauvet, and Elation, as well as integrated fabric-lit pieces and concealed egress fixtures—to name a few.

#### **Art for the Soul and Lights for Well-being**

For as wacky as Meow Wolf Grapevine is, and as hard as the lights work to allow guests to forget reality and live as though they are in other realms, both the brand and the lighting design strategy take various forms of end-user well-being into careful consideration. Meow Wolf, created by a small art collective in 2008, is a Certified B Corp and Benefit Corporation as well as a Certified Autism



### Easter Eggs Aplenty

In keeping with Meow Wolf's penchant for dropping Easter eggs and hints for explorers to find on their expeditions, *LD+A* has one for our readership, too. Here's a sneak peek at Meow Wolf's newest installation completed in the last quarter of 2024. "Radio Tave" reveals the surreality behind a honkey-tonk dive bar in Houston—also featuring lighting design by CWD.



Center, providing access to exhibits to nonprofits and youth groups in underserved communities; the brand offers paid internships to college students; incorporates re-used materials including e-waste, discarded plastics, and more into artworks; and embraces differently abled visitors and staff by providing various services that allow anyone to enjoy the absurdity of the space.

From a design standpoint, not only are visitors taken from "The Delaney House" into liminal spaces like an "Optic Drift" and "Glowquarium," they are also taken from dark to bright spaces several times. It was imperative for CWD to strategize ways to avoid visitor eye fatigue and provide safety lighting that didn't distract from the detailed narrative. Thus, the transition from dark to light "occurs as gently as possible, with guests passing through a series of incrementally darkening spaces," explained Werner. Additionally, monitored light levels near egress passages aid in balanced illumination levels from the front-of-house to the exterior. Werner continued, "We used Concealite Concealed Emergency Lights where possible. In other areas, we used Emergency Lighting Transfer Switches and DMX Emergency Bypass Controllers from Electronic Theater Controls to utilize the permanent show lighting to function as egress lighting in the event of power loss or an emergency. The team

"Moonlight" on the outside façade of "The Delaney House."

at EXP was the electrical engineer, responsible for evaluating our layout."

Finally, the team kept the project as energy efficient as possible in using high-efficacy LEDs, occupancy sensors for off-hours, and daylight sensors near exteriors for consumption reduction—making "The Real Unreal" supportive of the reality we live in outside of Meow Wolf's doors. ©

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**THE DESIGNERS** | Chris Werner is principal at CWD.

Kyle Arnold is a freelance designer for CWD.

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Bryan Mravec is director of professional services, Cultural and Themed Entertainment at VLS.

Lindsay Dixon is a lighting designer at EXP.



Photo: Ryan Seacrest Foundation

# A SEA OF CHANGE

Seacrest Studios broadcast a message of hope

By Craig Causer

**A**merican Idol, Dick Clark's New Year's Rockin' Eve, Live with Kelly and Ryan, Wheel of Fortune: it seems that Ryan Seacrest has been everywhere during his more than three-decade career. But Seacrest's best work may be displayed in locations removed from the studios of Hollywood and New York City. In 2010, the Ryan Seacrest Foundation (RSF) began constructing state-of-the-art Seacrest Studios within children's hospitals, providing fun, hands-on broadcasting and entertainment activities to patients. The studio broadcasts on each hospital's closed-circuit TV network directly to



Photo: Ryan Seacrest Foundation

patients' rooms and provides targeted program choices designed to maximize patient impact. Fourteen children's hospitals currently house a Seacrest Studio, with the most recent addition at Children's Healthcare of Atlanta Arthur M. Blank Hospital, which opened in October 2024.

"RSF studios are the type of production space where effective hardware should be as minimally invasive as possible," explained Michael Zihmer, national sales manager at Brightline Lighting. "With many of the participants physically limited by wheelchairs and IVs, clutter is not an option. Studio lights that are recessed within a ceiling, yet perform

**Left:** Brightline Flex-T in-ceiling architectural lights and SeriesONE L1.2 LED studio fixtures illuminate Seacrest Studio at the Arthur M. Blank Hospital.

**Right:** Flex-T lights recessed above the green screen.

without compromise, are ideal. All low-hanging lights, cables, and light stands that could be an injury risk are eliminated, [and] lighting control is easily accessible and straightforward to operate."

With some of the older studios, variations such as the size and shape of DJ desks posed challenges for lighting, sound, operation, and the ability to interchange how the space is used. As a result, RSF worked to standardize the studios and their dimensions. Having similarly constructed locations means faster, more cost-effective implementation where projects are streamlined, allowing the focus to remain on the content and its creators.

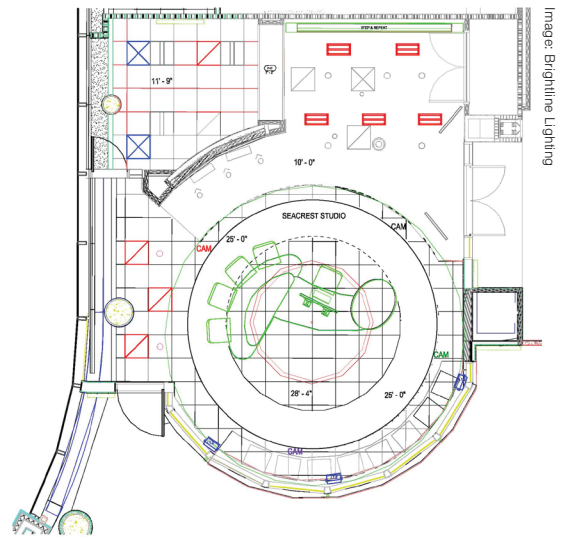


Brightline Lighting partnered with the RSF broadcast engineering team to design a standard lighting package for deployment across all Seacrest Studios. The studios utilize core broadcast-quality equipment components including Brightline SeriesONE and Flex-T lighting fixtures, JVC cameras, and JVC (vMix-based) video switchers, SAS audio consoles, and Genelec speakers. Brightline targets 40 footcandles vertically for peoples' faces, with the lighting design adjusting to the designated studio space and its sets, whether in an open, daylight-flooded atrium or a space-challenged, low-ceiling basement studio conversion. Adjustable levels and tunable-white color enable light balance during nighttime productions and daylight atmosphere changes, ensuring optimal camera imaging.

The design of the space transforms a hospital-based, office-type environment into a modern production facility. The blue "Seacrest ring," a trademark element of the studios, includes recessed Flex-T fixtures. "There is additive light, down lights, and ambient light in the DJ desk areas that provide a good base light for press interviews with the real stars of the show, the children, meeting and interviewing the celebrities that generously visit," said Zihmer. "The virtual backgrounds can transport a

**Top:** Brightline Flex-T's fixtures installed below a Genelec monitor with the Seacrest Studios logo.

**Right:** The layout of Seacrest Studios design for construction in Arthur M. Blank Hospital.



patient to Tahiti or Disney World, and the sets flex to accommodate pianos, bands, athletic demonstrations, and more."

### An Infusion of Hope

The illumination of Seacrest Studios provides a cohesive look and video product, both with the highest industry standard of +97 CRI as well as



Photo: Ryan Seacrest Foundation

variable white color to adjust for daylight and/or other ambient sources of light that may mix within the studio space. This approach provides maximum flexibility while maintaining the open, daylight-filled spaces designed to infuse the hospital experience with hope.

Most Seacrest Studios are located at or near hospital lobbies with an abundance of daylight and windows. The newly constructed three-story-tall studio in the lobby of the Arthur M. Blank Hospital in Atlanta is surrounded by a glass atrium and is visible from multiple floors.

While impressive, the Atlanta studio presented several unique hurdles, including a 50-ft-high tile ceiling. Since mounting from that height would require many more luminaires to effectively deliver 40 fc, Brightline pivoted to mounting the fixtures to

Brightline SeriesONE lights are affixed to the window mullions to provide front lights to the house and DJ desk.

the window mullions within the atrium, hiding the lights from view while driving a long-throw solution. This approach kept the camera shots and external view clear and provided efficiently lit video.

“In existing facilities, physical limitations can inform the lighting solution,” explained Zihmer. “Is there a 2-ft by 2-ft grid already in place? Is there drywall? Are sprinklers, speakers, and/or above-ceiling ductwork already populating the ideal lighting spots? These are the conditions we regularly work around. But when we work with RSF, we are working with a partner that understands the critical importance of lighting for the integrated, total product result, and prioritizes it, accordingly, protecting its position for coveted ceiling real estate.”

RSF employs DMX controls in all its new state-of-the-art studios. Glass touch-screen control panels are easily customized and simple to operate to control individual fixtures, create and control different scenes, add color, and store the results. In Atlanta, the studio includes a DMX-512 isolated splitter and STICK-DE3 controller that provides up to 500 scenes, 10 zones, and 1,024 DMX channels.

It all adds up to create a facility that not only brings smiles to ill children but also draws communities together. “Ryan Seacrest says it best when he talks about bringing joy to children and creating an environment where they can forget their medical challenges,” said Kathy Katz, co-founder of Brightline Lighting. “In addition, and vastly important as well, the studios provide internships for local college students to develop the next generation of studio professionals by providing access to broadcast-quality production opportunities. The union of students and children is particularly effective and marries two of Seacrest’s life-long passions, entertainment and service to community.”

“Undoubtedly there exists a connection between light and well-being, with many studies underscoring the relevance of the quality and color of light with engagement in art and healing,” added Zihmer. “Industrious work can provide a meditative type of focus that provides intangible health benefits as well. The strongest medicine addresses all aspects of a person’s healing, body, mind, and soul. RSF seeks to serve healing through its studios, and Brightline and its partners are grateful to participate.” ©

**THE DESIGNER** | Leslie Moynihan is a lighting designer at Brightline Lighting.

During "A Salute To Teachers," a "cross-shot" reveals parts of the venue and scenery that require lighting treatment to look good in the background.



Photos: Jeff Ravitz

# FROM STAGE TO SCREEN

Adapting live presentations for television

The objectives of lighting design for live stage performances—including theater, concerts, ballets, operas, and corporate meetings that are presented to a live audience—are not so different from the design goals for those same presentations being captured on-camera for broadcast or streaming. The adaptation of live entertainment and events for the camera, often labeled as “live to broadcast,” attempts to deliver the same elements as the stage production to television viewers: mood, drama, atmosphere, a sense of location, time, weather, special effects, and, of course, helping convey the essence of the material—the plot, music, and lyrics or informational content. The lighting may have creative and artistic touches added to enhance the mood, or it might be very straightforward, with the practical goals of visibility and/or to flatter the appearance

**By Jeff Ravitz**

of speakers and performers. These are common denominators for live and televised productions.

Both productions share many of the same techniques of execution, as well. Basic building blocks of theatrical and television lighting include careful use of angle, color, intensity, and quality of light (e.g., soft versus hard). However, the way each of these factors is used, and the reasons why, is where the two worlds begin to diverge.

Before we discuss how we might adapt, for broadcast or streaming, a presentation with lighting that was originally designed only for the eyes of a live audience, it is important to understand some basics of how the camera “sees,” and thus, what the viewer outside the theater or arena sees on their device. We also must understand one very important element that separates the live point of view from what the TV viewer sees: the close-up camera shot. It is typical that a majority of camera shots for the average TV program are close-ups, where the camera is zoomed in to see one or two faces in the frame. This influences how we make lighting decisions for a televised show, because how things look from that close is quite different from how they appear 10, 50, or 100 ft away.

The eye and the camera are two similar “receiving” mechanisms but of vastly different sensitivities. The human eye is a wondrous contraption that offers something referred to in camera terms as “dynamic range.” This concerns the span of brightness levels that can be processed simultaneously, with quality in the finest details of both the most intense highlights and the darkest shadows. A television camera, on the other hand, has a comparatively narrow dynamic range. The range of brightness-to-darkness levels cameras can process simultaneously is much more compressed.

This same phenomenon happens frequently onstage. A live show’s cuing may have one performer lit brighter than another, on purpose or not, and this may not be apparent to the naked eye. On-camera, however, the imbalance is quite noticeable. A rock concert commonly lights the lead vocalist or a soloist twice or three times as bright as other musicians. If the camera is showing two or more people in the same shot, the engineer may adjust the camera to make the singer appear properly exposed. But as that adjustment happens, the others in the shot become darker and darker.

This means that stage lighting must be balanced to remain within the camera’s dynamic range. This is not to suggest every light must be at the same



intensity, but the brightest and dimmest lights need to work within the camera's capability.

### Colors and Angles

The healthy human eye can see many colors, and the world looks natural to us regardless of the color temperature of the source light. Yes, a higher or lower color temperature does look different, but the brain adjusts, so when we see a face lit in a cooler temperature like 5600K to 6300K, we see it as natural, just as we do at 2700K to 3200K. We know the difference, but we accept it as natural if the source is in that range.

The camera can also see color, but for it to see the world in what humans consider natural tones, the camera must be set and adjusted to the color temperature of the source light. If the light is mismatched with the camera settings, things will appear exaggeratedly unnatural. For instance, if the camera is adjusted to “see” at 3200K and the source is a cooler 5600K, the picture will appear quite unnaturally blue. If the camera is set to 5600K and the source is 3200K, the result will shift relatively warm, to almost amber or orange.

This means that many colors that are a normal part of theatrical design may look quite unnatural on-camera, particularly on faces. Unless the production intends to create an effect or a shift in natural perceptions, the inclination to “improve” skin tones by adding tints of warmer or pinker colors will often look exaggerated for the viewers watching on a screen—especially when considering the close-up shot where the viewer may see a face out of context of the rest of the stage.

The angle of a light to the stage is not haphazardly or randomly chosen. Lighting designers know the effect of a light's angle to a surface or object, to sculpt it from the darkness with shape and texture, like an uplight grazing a craggy, brick wall catching

edges with highlights and shadows. Standard practice in theatrical lighting is to use steeper angles on faces, which emphasizes facial characteristics so features and expressions are easier to perceive for audience members farther from the stage.

However, the television audience is much closer to those performers, and harsh shadows that blend and soften from a distance in the theater can look quite severe and unflattering from such a close point of view. It's similar to special-effects makeup for the stage. Up close, it appears comically overdone, but from a distance, it merges to create the intended illusion.

For this reason, lighting for the camera embraces lower angles and a careful placement of fixtures to control shadows on the face and backgrounds behind the performers. We don't “eliminate” shadows. Shadows are important to give shape, dimension, and reference to an object. But to improve the close-up, television designers practice “shadow management” because eye socket and nose shadows, as well as multiple shadows from too many lights on one person, are so much more obvious and potentially distracting when a face fills the screen.

### Retaining the Essence

So, how can we apply these principles to the transformation of a stage show for viewing on a screen, where the viewer can see only what the director shows them? Bear in mind, we are discussing multi-camera shoots, where several cameras are placed around the venue to capture different angles simultaneously during a performance that does not stop for retakes or a new camera position. This complicates the television lighting designer's job because the lighting must be optimized for many different angles and points of view, all at the same time.

The lighting color temperature is mismatched with the camera's color settings.

LIGHTING: DAYLIGHT @ 5600K. CAMERA SET FOR 3200K



LIGHTING: TUNGSTEN @ 3200K. CAMERA SET FOR 5600K



Photos: Jeff Ravitz

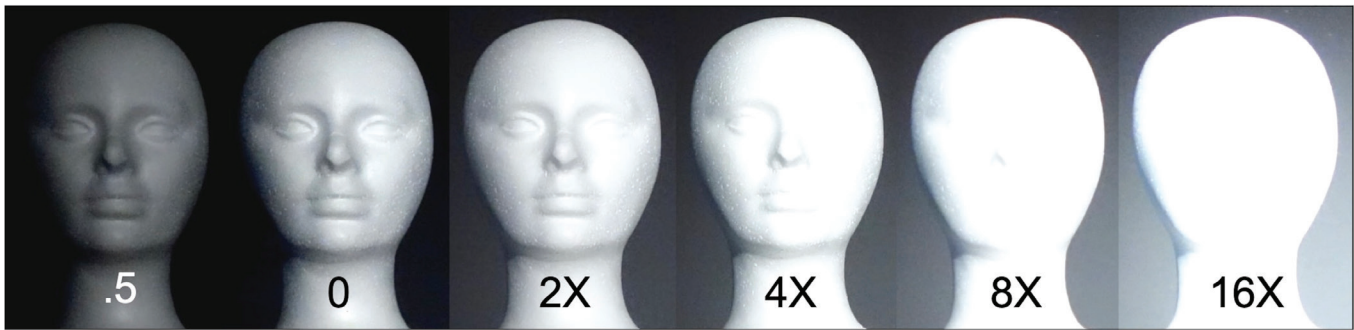


Photo: Karen Schmeitz



Photo: Jeff Ravitz

It is our intention to retain the essence of the original show, so the outside viewers get the full benefit of the production the live audience sees, plus many bonuses. The TV presentation allows viewers to see things the folks in the venue can't, like subtle facial expressions, fingers on a keyboard or guitar, or points of view from almost any seat in the house. Putting that aside, how do we proceed?

Let's start with intensity and balance. We want to retain the dynamics of the original show, with subtle adjustments that keep the brightest and dimmest elements not quite so far apart in intensity. Also, there may be hot spots and uneven areas of intensity that the naked eye might not perceive—but the camera will. Therefore, let's examine cueing with the goal of creating consistency where it belongs, and brighter and dimmer areas where they are needed—within the range of the camera. We might use an exposure meter to measure intensities, limiting desired brighter areas to be no more than double the “base” areas and shadowy areas to no less than half the base intensity. For a special moment that requires ten lights, at full, on one person, this will overexpose to the point of being unusable on-camera unless it's just a quick moment for effect. Sometimes, reducing intensity will still retain the look of the effect without blow-

**Top:** Here, “0” is neutral exposure. The camera cannot process fine details of extremely bright and very dim elements in the same shot as the eye can.

**Bottom Left:** Steep downlight creates shadows that are unflattering on-camera but may not be as obvious to the naked eye when seen from a distance.

**Bottom Right:** Concert lighting often adds light to a soloist, but cameras cannot process darker and brighter performers simultaneously.

ing out the camera. If you don't have an exposure meter, get a working camera and monitor to use during cue adjustment, making sure the settings of the camera are matched to the engineer's settings to be used for the shoot.

Also, look carefully at backgrounds, which are often treated with less deliberate light in a stage production because they get so much bounce and ambience. It is often necessary to devote some lighting resources to add more light to backgrounds and scenery. On the other hand, sometimes the backgrounds are too bright in relation to the foreground, and this will be more apparent on-camera.

For a rock concert that typically has very bright sources and uneven focuses, the variations from one player to another need to be carefully measured to avoid huge imbalances on-camera. Also, the lights that often flash out into the audience, and therefore directly into the camera lens, may need to be lowered in intensity or the camera will not be able to process the color, resulting in lights that appear “nuclear” white or totally distorted. With a little tweaking, those lights can look terrific on-camera, and will appear closer to how the audience experiences them.

Next, colors should be examined to ensure that the primary lighting of faces matches the cam-



Photo: Jeff Ravitz

era settings. (This includes a discussion with the show's video engineer, whose proper title is video controller, or the slang title, shader.) If the show is lit with incandescent sources or fixtures tuned as such, setting the camera to 3200K makes sense. Other sources may prompt different camera settings, but mixing color temperatures like follow spots, moving lights with different lamp types, or even LEDs mixed in with tungsten fixtures can create a noticeable patchwork of unintended color on-camera. Thus, it's important to evaluate these elements and establish consistency where needed. A color temperature meter assures greater accuracy.

When the live show lighting on faces is gelled or tuned with even slight tints of blue, pink, or amber, a major confab with both the TV show's and the live production's directors and producers is vitally important. Those color shifts will appear more exaggerated on-camera and, in close-up shots, may not convey the same message as they do for the stage version. Of course, there are moments when color on faces can be impactful, so choose those moments wisely. Be sure to consider creating color statements with backlight, side light, scenery color, and ambient stage washes.

The angle of the lighting may or may not be very adjustable when an entire show has been designed using the lighting positions available in a specific venue that is now being used for the TV shoot. But bear in mind a few thoughts:

- If an entire show has been designed, by choice or necessity, with extremely steep light, there may be an option to add some subtle fill light from a lower front position or even from side positions to fill in facial shadows.
- Sometimes follow spots are placed very steeply

In "An Evening With Lucia Micarelli," carefully placed shadows look clean in a close-up but don't sacrifice a dramatic look.

in a theater, perhaps on a catwalk. If possible, see if the spots can be moved back to be at a better angle. If you can't move the spots farther from the stage, use two widely-spaced spots instead of one center, steep spot.

- Examining lighting angles is where shadow management to reduce harsh eye-socket and nose shadows comes into play. When lighting positions are steep, lowering the intensity of overhead lighting, and filling in with side lighting, can improve the situation.

I previously mentioned soft versus hard light. We often see photos of film shoots using large lights on stands with enormous diffusers to create very soft light that makes people look great on-camera with almost no shadows. This is possible on a film set where the camera is a few feet away from the scene and the light can be placed next to the camera. For a live production, the camera is much farther away, and a light on a stand cannot sit on-stage in front of the performer. Also, soft lights are short-throw fixtures. Theatrical lighting is largely handled by long-throw instruments that, by their nature and physics, are hard sources that create hard shadows; this includes fresnels. And diffusion gel on a hard-edged light only softens the edge of the beam. It does not soften shadows.

Finally, there is the question of aesthetics. The camera often creates unanticipated backgrounds behind the action, like when a camera on the far end of the stage sees the wings in the distance past the performers. Those offstage areas may need some additional lighting treatment to avoid looking dark.

A great deal of this discussion is based on hard science and electronics, but there is an element of individual taste and reality involved. What works for the creative needs of one show might be wrong for another. Liberties can be taken to suit the artistic intentions of the production and/or budget, time, and logistics. Additionally, cameras differ in quality and sensitivity. The science can be stretched as can the aesthetic approach.

Until you have experienced lighting for the camera, this is all theory. So much of it is about training your eye to see in a new way. In practice (which makes perfect), the choices become infinite. ☺

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**THE AUTHOR** | Jeff Ravitz is an Emmy Award-winning lighting designer, lecturer, and writer. His book, *Lighting for Televised Live Events* demystifies the art and science of lighting live presentations for the camera.

Candlelight creates a cognitive atmosphere conducive to encoding meaningful spatial memories.



Photo: Pinterest

# ENHANCING COGNITIVE PROCESSES

The effects of natural and artificial lighting on spatial memory

**S**patial memory is the ability to understand and recall the arrangement of objects within an environment, a critical cognitive skill that facilitates navigation, object location recognition, and effective interaction with complex spatial arrangements. The efficient functioning of spatial memory enables individuals to adapt to their surroundings and perform complex tasks more effectively. Among the environmental factors enhancing spatial memory, lighting plays a pivotal role.

**By Sinem Sarialioğlu**

Optimal lighting conditions do more than support visual perception; they enhance cognitive processes, including attention and memory. Proper lighting enables individuals to process spatial arrangements more swiftly and accurately by creating a visual environment conducive to clear perception. Additionally, lighting characteristics such as intensity, color temperature, and continuity are known to influence cognitive performance significantly.

Lighting does more than just illuminate spaces; it evokes powerful emotions and memories. Take, for example:

- **Sunset Lighting:** The golden hues of sunsets often remind people of serene summer evenings, filled with cherished moments like family gatherings, quiet walks, or simply relaxing outdoors. These warm tones create an environment of comfort and nostalgia, which indirectly enhances mood and supports memory retention.
- **Candlelight:** The soft, flickering glow of candlelight often invokes romantic or reflective memories, such as intimate dinners, celebrations, or moments of contemplation. This type of light fosters relaxation and focus, creating a cognitive atmosphere conducive to encoding meaningful spatial memories.

Incorporating such emotional associations in lighting design—for example, using warm-toned artificial lights during evenings—can transform spaces into environments that not only support cognitive performance but also nurture emotional well-being. By mimicking the effects of natural sunset or candlelight, designers can create personalized settings that reinforce positive experiences and enhance spatial memory through mood enhancement.

In this context, natural and artificial lighting offer distinct advantages. Natural lighting, enriched by the full spectrum of sunlight, is long associated with positive cognitive outcomes. It supports circadian rhythms and fosters alertness, crucial for memory and attention processes. Furthermore, the shadows and contrasts created by natural light aid in spatial perception.<sup>1</sup>

Artificial lighting, evolving to counter the limitations of natural light, has grown into a sophisticated alternative capable of simulating and, in some cases, surpassing the effects of natural light. Modern technologies, such as LEDs, allow for the customization of light intensity and color temperature to suit specific cognitive needs.

### Natural Lighting and Spatial Memory

Let's take a further look at the role of natural and artificial lighting in shaping spatial memory and evaluate how these lighting systems affect cognitive processes. I will identify key factors for optimizing lighting to improve spatial memory and provide practical recommendations for their implementation.

Research has shown that natural light significantly impacts individuals' spatial memory performance. People in environments illuminated by natural light tend to perform better compared to those in artificially lit settings. This is attributed to natural light's ability to enhance shadows, contrasts, and surface textures, making spatial cues more perceptible. This, in turn, enables humans to understand environmental relationships more quickly and accurately, encoding these relationships into memory more effectively.

For instance, controlled laboratory studies have revealed that participants exposed to natural daylight excel in various spatial memory and navigation tasks. These tasks involve remembering the locations of objects in a specific environment or finding paths to reach a particular target. Natural light facilitates a more efficient grasp of environmental arrangements, resulting in fewer errors during decision-making processes.

### Dynamic Intensity and Color Temperature

Morning sunlight (cool-toned, blue-rich light), which is prevalent during early morning hours, is highly stimulating due to its higher blue wavelength content. It enhances alertness, focus, and working memory, including spatial memory tasks. Imagine stepping into a sunlit garden in the morning—objects are crisp and well-defined, making it easy to memorize the arrangement of paths, plants, and furniture.

On the other hand, golden-hour lighting (warm, low-intensity light) is the soft, warm light during sunrise or sunset that fosters a sense of calm and relaxation. While its intensity is lower, the emotional resonance of such lighting can positively affect memory consolidation by promoting a stress-free state. For example, walking along a beach at sunset can imprint vivid memories of the location and arrangement of objects (such as the path, horizon, and scattered shells) due to the emotional connection triggered by the warm hues.

Exposure to daylight is fundamental for regulating circadian rhythms, which govern biological



A sunset's warm tones foster an environment of comfort and nostalgia.

processes such as sleep-wake cycles, hormone release, and cognitive performance. Morning exposure to natural light triggers wakefulness and improves cognitive efficiency. This regulated rhythm benefits spatial memory by enhancing focus and enabling individuals to encode and recall environmental cues effectively.

Natural light also reduces stress and improves mood by increasing serotonin production, promoting a sense of well-being. Lower stress levels enhance cognitive processes such as attention and memory. In spatial memory tasks, reduced stress enables individuals to comprehend their environment better and retain the information.

### Artificial Lighting and Spatial Memory

Artificial lighting was initially introduced as a solution to compensate for the absence of natural light. However, early systems struggled to replicate the full spectrum of biological and cognitive benefits provided by natural light. Recent advancements in lighting technology have significantly addressed this limitation. Specifically, tunable-white light systems and LED technologies have demonstrated the ability to simulate the dynamic properties of natural light, yielding positive effects on cognitive processes and spatial memory.<sup>2</sup>

Modern artificial lighting systems can support circadian rhythms by mimicking the spectral composi-



tion and intensity variations of natural light throughout the day. Tunable-white light systems can adjust color temperature and light intensity to suit user needs. For example, cool white light for morning hours (4000K to 6500K) is ideal for tasks requiring alertness and focus. This type of light replicates the qualities of natural morning sunlight, enhancing cognitive functions, particularly memory and concentration. Warm white light for evening hours (2700K to 3000K) promotes relaxation and comfort. These tones resemble natural sunset light, reducing stress levels and fostering a more conducive environment for learning and memory retention.

### Insights and Recommendations

Natural lighting has been found to have a notably positive effect on individuals' spatial memory and task performance. Those exposed to direct daylight achieve significantly better results in recalling spatial information and navigating complex environments. The potential reasons for these effects include:

- Regulation of biological clocks: Daylight helps regulate circadian rhythms, contributing to the optimization of cognitive functions.
- Visual comfort and sensory stimulation: The homogeneous illumination and full-spectrum light provided by natural light reduce eye strain and enhance focus.

Tunable-white light systems can adjust color temperature and light intensity to suit various needs.

- Psychological effects: Daylight increases serotonin levels, improving mood and thereby supporting overall cognitive performance.

These findings emphasize the importance of prioritizing natural lighting in interior design. Specifically, architectural solutions such as large windows, skylights, and other features that allow direct daylight into spaces are recommended, particularly in work environments.

Artificial lighting is an inevitable necessity in settings where access to daylight is restricted. Research indicates that the design of artificial lighting significantly influences its effects.

- Designs that mimic natural light: Lighting systems featuring adjustable intensity (dimmers), a broad color spectrum, and flicker-free light sources have been shown to produce positive effects similar to natural lighting. These systems create conditions that support spatial memory and performance.
- The negative impacts of poor design include glare, flicker, as well as static and cool light—resulting in disruption of visual comfort, eye strain/attention loss, and adversely influenced biological rhythms, respectively.

These findings emphasize the importance of properly designing artificial lighting systems to replicate the positive effects of natural light. LED-based systems with adjustable color temperature and energy-efficient features are ideal for achieving this goal.

Integrating natural and artificial lighting has proven to deliver the best outcomes by leveraging the advantages of both systems.

- Artificial lighting enhanced by natural light: Artificial lighting used during limited daylight hours or in the later parts of the day complements natural lighting effectively. Systems that automatically adjust based on the direction and intensity of natural light have shown positive biological and psychological effects.<sup>3</sup>
- Spatial and functional design: Hybrid lighting approaches are tailored to the purpose of the space, offering a more effective experience. For instance, in office environments, placing workstations near windows to maximize the benefits of natural light, supplemented by artificial lighting, creates an optimal lighting setup.
- Psychosocial benefits: Hybrid systems promote greater comfort and satisfaction among users. This positively impacts cognitive performance and overall well-being.<sup>4</sup>



Photos: Sinem Sarialioglu



Then, there is the option of considering specialty lighting for specific tasks. For example, high-intensity task lighting is bright, concentrated light that is often used for detailed tasks like reading, crafting, or map navigation. Such lighting improves spatial memory by enhancing focus on the immediate workspace. Picture a study desk illuminated by a focused LED lamp that helps students remember the spatial layout of study materials and reference books.<sup>2</sup>

Sunrise (top), afternoon (center), and sunset (bottom). Natural light enhances shadows, contrasts, and surface textures, making spatial cues more perceptible.

Decorative lighting—both artistic and thematic—offers illumination with distinctive designs or colors (e.g., neon signs or string lights) that create memorable focal points within an environment. These visual anchors aid spatial recall by associating specific areas with their unique lighting. We see this option in action in cafés with whimsical string lights hanging above seating areas, which recall table arrangements and pathways more vividly due to the distinctive lighting’s visual impact.

Balanced lighting design—integrating natural and artificial systems—is crucial for creating environments that support visual comfort and cognitive performance. Designers should include prioritizing natural light, adopting adaptive artificial lighting systems, and educating stakeholders on lighting’s cognitive implications. This holistic approach will ensure optimal conditions for spatial memory and overall well-being. ©

**THE AUTHOR** | Sinem Sarialioglu is a senior lighting designer at Ghafari Associates with more than a decade of experience working on industrial and architectural projects.

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3. Jack Falcón et al., “Exposure to Artificial Light at Night and the Consequences for Flora, Fauna, and Ecosystems,” *Frontiers in Neuroscience*, Nov. 16, 2020.
4. Héctor Antonio Solano Lamphar and Miroslav Kocifaj, “Light Pollution in Ultraviolet and Visible Spectrum: Effect on Different Visual Perceptions,” *PLoS ONE*, vol. 8, no. 2, Feb. 2013.

# PROJECT IN PICTURES

## Fair Play

Stags' supporters have been jumping out of their seats in celebration at the state-of-the-art **Leo D. Mahoney Arena** at Fairfield University's Connecticut campus. The 85,000-sq ft, 3,500-seat multi-use space is the home of Fairfield Basketball and Volleyball and serves as a venue for university events and concerts. **Cline Bettridge Bernstein Lighting Design** provided a comprehensive lighting solution, including a transparent front entrance that reveals an array of illuminated spaces and activities within the facility. Inside, ceiling-mounted accent lights highlight the Stags' team graphic and ascend from the lobby to the Stag Club above. Club level, linear pendant fixtures are suspended from the 25-ft ceiling, providing a sense of scale and adding an element of excitement to the campus events. The University partnered with **Daktronics** to design, manufacture, and install 15 LED displays. The center-hung system is made up of nine displays: four main video displays, four corner wedges, and a lower ring.



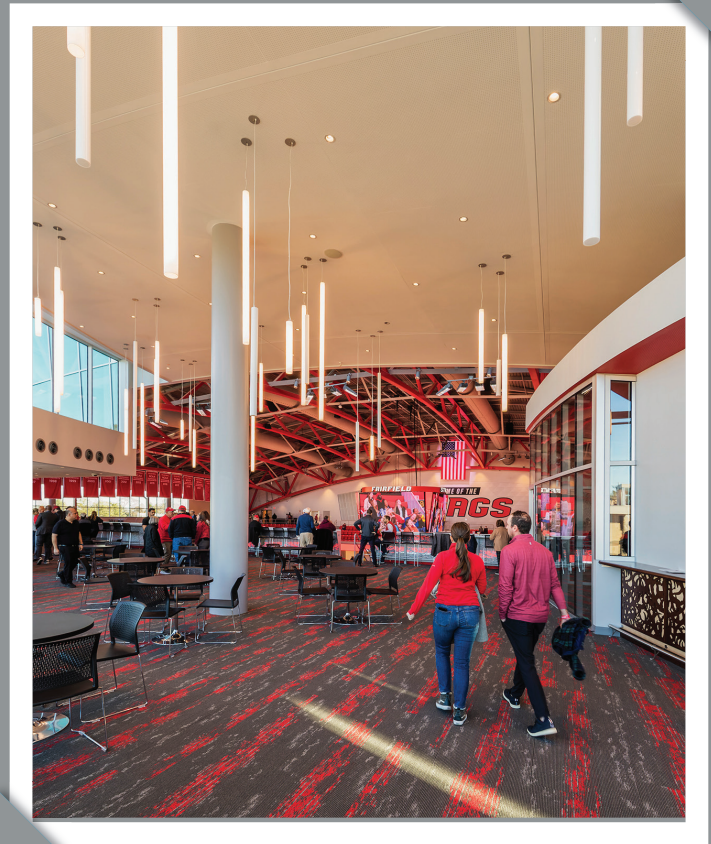
The illumination of Fairfield's logo in the ceiling is combined with **cove lighting and task lighting** for individual lockers.

Photos: Jeff Goldberg/Esio





For spectator seating, luminaires are **discreetly integrated behind structural beams and architectural elements** to eliminate glare and distraction.



Linear pendants fill the volume of the Stags Club, creating a **sense of grandeur**.



The building's transparent entrance reveals the active interior of a venue that is **energy-efficient and welcoming**.

# IES INSIDER

## New Program Category Among Two IES Illumination Awards Updates

The IES has announced two changes to the IES Illumination Awards, beginning with the 2025 program: a new program category and a community-focused question. The introduction of the Experiential Design Award will recognize projects that use the design of lighting as art or for effect. Projects submitted in this category are themed or immersive environments, whether temporary, permanent, or seasonal. This new category has been sponsored by ETC, Inc. for the 2025, 2026, and 2027 program years.

The Experiential Design Award sponsored by ETC, Inc. joins the existing four parallel program categories created to recognize outstanding lighting design:

- Illumination Award for Interior Lighting Design sponsored by Edwin F. Guth
- Illumination Award for Outdoor Lighting Design
- Control Innovation Award sponsored by LCA, a council within NEMA
- Energy and Environmental Design Award.

During the awards submission process, a new Impact Statement will be asked and included in the judging of projects. Submitters will be asked to explain, “How does this project positively enhance or impact the community it is serving?” This additional scored question replaces the discretionary points judges could award to projects.

The IES Illumination Awards program recognizes individuals for professionalism, ingenuity, and originality in lighting design based on the individual merit of each entry and is not a competition. The judging system is based on how well the lighting design meets the program criteria. Judges are selected from a broad professional spectrum representing knowledge of lighting and design excellence.

Submissions for the 2025 IES Illumination Awards are currently open, and recipients will be honored during the IES Illumination Awards Gala in August during IES25: The Lighting Conference in Anaheim, CA. For more details, please visit <https://ia.ies.org>.



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- Track your IES continuing education units in one place on the My eLearning Dashboard
- Search over 300 course offerings\* by career level, profession or topic
- Earn free CEUs on live webinars as an IES member (new webinars offered each month)
- On-demand CEUs are available for \$15 for IES members and \$40 for nonmembers

## Some of our CEU-eligible courses include:

Codes, Controls, Compliance – Elements of Successful Lighting Control Designs



2022 PNNL Webinar Series: Taming Complexity (5 CEUs)



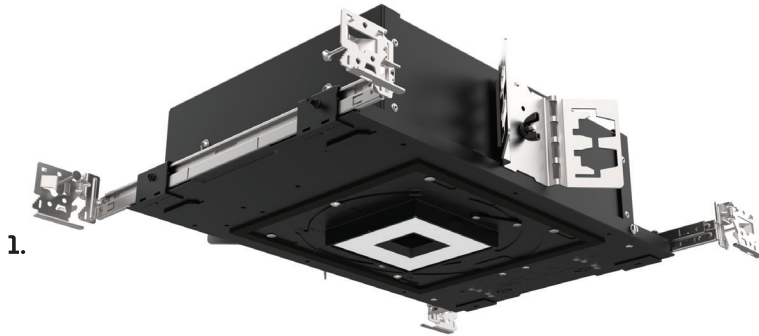
Color Outside the Lines: Unconventional Applications for Dynamic Lighting



Well-Lit for Well-Being in Hospitals: The Connection Between Quality Light and Enhanced Health Care Environments



# PRODUCTS



**1. Aculux** unveils the 5-deg Precision Spot. The 3-in. aperture fixture with a very narrow beam is designed for high-ceiling spaces where illumination from afar is necessary. Luminaires deliver 550 lumens and offer four color temperatures up to 4000K at 90 CRI, a 45-deg visual cutoff for glare control, and multiple dimming options. [www.aculuxlighting.com](http://www.aculuxlighting.com)

**2. Markilux** debuts MX-4, which combines outdoor shading with exterior RGBW wall lights. The retractable cassette shade for large areas features LED technology options to match the aesthetic of the shade including a linear luminaire in the wall attachment of the shade,

swiveling spotlights in the shade's front profile, and end-user-selectable colored lights at the awning's edges that can provide uplight, downlight, or a combination of both. [www.markilux.com](http://www.markilux.com)

**3. Buster + Punch** introduces the UL-wet-rated Caged Wet Wall Light for outdoor use, as well as in bathrooms and other damp locations. Made with metal and a glass cage, as well as the brand's tube bulb and signature screws, the slim-profile fixtures are available in brass, gun metal, and steel (pictured) finishes. [www.busterandpunch.com](http://www.busterandpunch.com)

**4. WAGO** announces an updated 750-1632 Proportional Valve Module with an improved response time as well as better precision and diagnosis. The 12-millimeter device, available with two current-controlled pulse width modulation outputs and a wide current range, offers configuration over a network, fewer wiring and commission hours, and a reduction in system components. [www.wago.com](http://www.wago.com)

**5. A-Light** introduces the Mira architectural luminaire. Designed to provide indirect illumination to desks and floors using ceilings and walls as reflectors, Mira minimizes shadows and hotspots. Luminaires, which are

5.



6.



available in 2- to 8-ft lengths as wall-, ceiling-, or million-block mount fixtures, can be directed at walls, ceilings, or a combination of both within the same run to provide more than 2,000 lumens per ft. A pendant version of Mira is additionally available.

[www.alights.com](http://www.alights.com)

**6. Optique** announces the Orbita Pendant, a minimalist, modular fixture designed to meet targeted project specifications. Using the Nano Linear light engine, luminaires provide 360-deg rotation and are available in 12-, 18-, 24-, and 36-in. segments; each pendant can link up to three segments. UL-listed and Title 24-compliant, Orbita is offered in four color temperatures ranging from 2700K to 4200K and is available in matte-black or satin-brass finishes.

[www.optique-lighting.com](http://www.optique-lighting.com)

## SPOTLIGHT LightArt



**LightArt** announces Acoustic Sequence, which can be combined with the brand's Casper Beams to form a noise-reducing, illuminated, and integrated ceiling option. Sola Felt fins available in multiple styles akin to mountain peaks, ocean waves, round pillow edges, and more shapes, connect to form grids that can span large areas. Additionally, the sustainable fins, available in 22 colors or wood-inspired textures, are offered in 5-, 7.5- and 10-in. height options as well as 4-, 6-, or 8-in. length options and can be separated in installations by 4, 6, or 8 in.

[www.lightart.com](http://www.lightart.com)

# PRODUCTS

**7.** Three products by **Lodes** are now available to order in North America through *Lumens.com*. The Oblò pendant lamp by Paola Navone; Random Stick suspension lamp by Chia-Ying Lee; and the Volum Floor lamp (pictured) by Snøhetta Studi, provide designers with distinct aesthetic choices for hospitality and residential applications.  
[www.lodes.com](http://www.lodes.com)



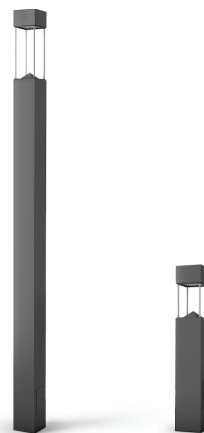
7.

**8.** **SPI Lighting** introduces Novato Square—Wall and Ceiling to the Luminous Forms family. Fully enclosed sconces, in two sizes, offer three luminous sides and a high-transmission diffuser for horizontal and vertical illumination. Fixtures include more than 25 color-band and six wood-grain-band options. Novato Square is RGBW and color-tuning ready.  
[www.spilighting.com](http://www.spilighting.com)



8.

**9.** **U.S. Architectural Lighting** expands the AXIM Series to include square lighted columns and bollards for outdoor illumination in parks, pathways, building entrances, and more applications. The square columns are available in a range of heights from 3 ft to 12 ft and deliver up to 4,750 lumens at 40 watts. Fixtures are BABA compliant and built with materials such as stainless-steel hardware and UV-stable acrylic lenses.  
[www.usaltg.com](http://www.usaltg.com)



9.



10.

**10. John Pomp**, a Philadelphia-based designer, unveils the Melt collection of pendants and chandeliers. Handblown luminaires made of sculpted glass crystal, offered in clear, olivine, opaline, smoke, and topaz colorways appear as if liquid falling through woven rope. Pendants are offered in 11-in.-wide by 9-in.-high and 14-in.-wide by 12-in.-high sizes, while chandeliers are offered with three, five, or seven “melting” glass pieces. Both types of fixtures can incorporate various metal finishes such as blackened or tarnished brass. [www.johnpomp.com](http://www.johnpomp.com)



11.

**11. Creative Systems Lighting**, part of the Hudson Valley Lighting Group family, introduces the CSL Luxe collection of high-performance decorative fixtures for indoor applications. Luxe Pivot (pictured), a 1-in. cylinder-style fixture offering 60-deg tilt and 360-deg rotation, is available in black, white, distressed bronze, and patina brass finishes. The collection also includes the Luxe Cylinder, a pendant or flush-mount downlight fixture available in two lengths and multiple finishes. [www.csllighting.com](http://www.csllighting.com)

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- ALUZ
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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](http://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](http://www.ies.org/membership/ies-university-membership).

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**T**amatanga, a restaurant serving up dishes like briyani and chickpea curry in a cozy and colorful space, has opened in the city of Leeds in West Yorkshire, England. Design firm FiFi Interiors implemented unique booth and bar-side seating, while Mistry Lighting utilized fixtures from Lucent Lighting such as InGround40 floor lights to uplight booths. TubeLED track spotlights and VISTA floodlights capture the art, patterns, textures, and tones of the eatery's ambience and greenery.

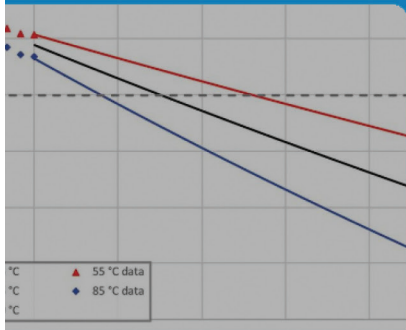
Photo: Tom Humphries

# LAST LOOK

Bold and Bright

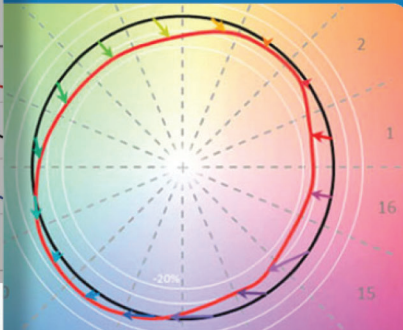
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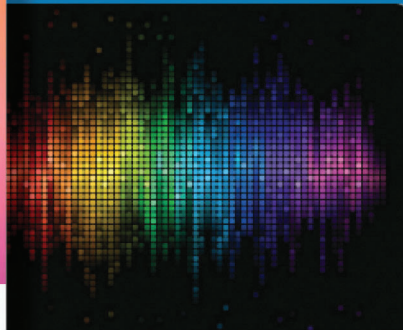
## TM-21 Calculator

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.



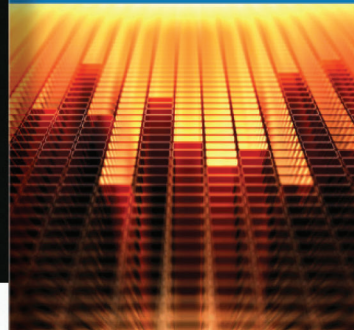
## TM-30 Spectral Calculator

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<sup>‡</sup>

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.

<sup>‡</sup> Available for IES Members only.

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