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Review

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LIGHT+BUILDING 2026: TRENDS, TECH & TAKEAWAYS

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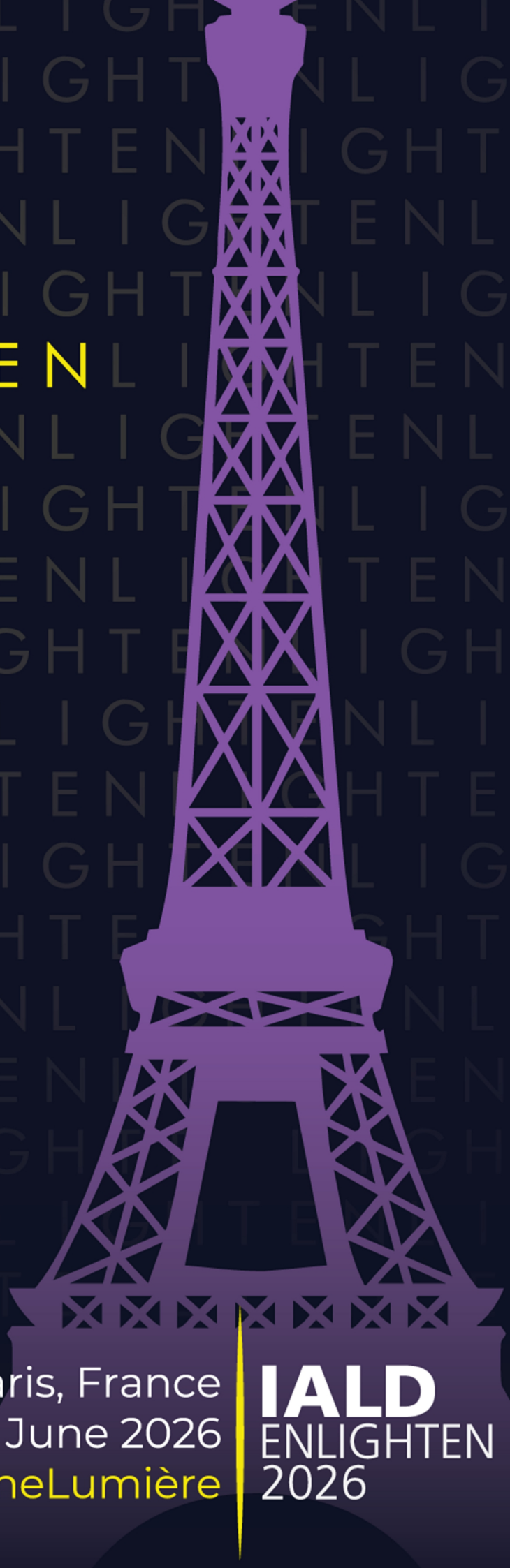

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Light + Building 2026

What defines Light + Building 2026 most clearly is a shift in perspective: lighting is no longer being positioned as a product category, but as an integral layer of digital infrastructure. Across the innovations presented, the industry appears to have moved decisively toward system thinking—where luminaires, sensors, controls, and data platforms form interconnected environments rather than isolated solutions.

One of the most striking developments is the elevation of lighting into a central node within building intelligence. Light is increasingly expected to sense, process, and communicate—capturing data on occupancy, energy use, and environmental conditions, and feeding this into wider building ecosystems. This repositioning transforms lighting from a passive service into an active, decision-enabling network.

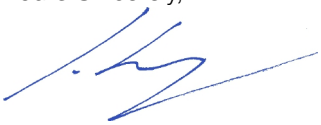
Equally significant is the maturity of adaptive lighting. The latest systems are no longer defined by pre-programmed scenarios, but by their ability to respond dynamically to context—whether human activity, spatial use, or external conditions. Flexibility, both physical and digital, is becoming a core requirement rather than a differentiator.

Sustainability, too, has evolved in scope and depth. The focus now extends well beyond energy efficiency toward full lifecycle responsibility: circular design, low-carbon materials, modularity, and transparent environmental data are becoming embedded in development strategies.

At the same time, the industry is not losing sight of light's experiential role. The most relevant innovations combine technological intelligence with visual comfort, atmosphere, and emotional resonance. This convergence of performance and perception suggests a more holistic understanding of value.

Ultimately, Light + Building 2026 signals an industry that is redefining itself—toward connectivity, adaptability, and responsibility—while placing human experience firmly at the center of innovation.

Yours Sincerely,



Siegfried Luger

Founder & CEO of Luger Research e.U.
Publisher of LED professional, Trends in Lighting, LpS Digital, and the Global Lighting Directory

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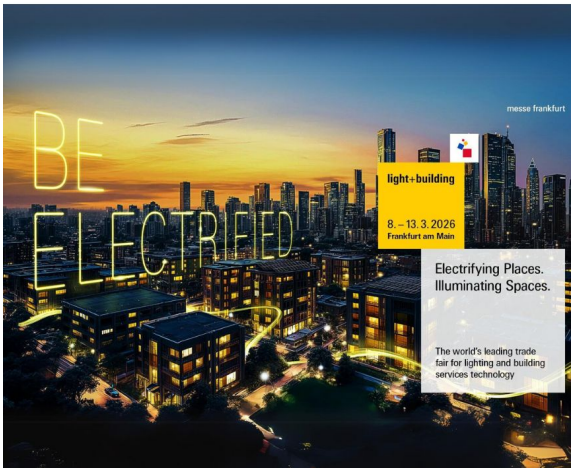

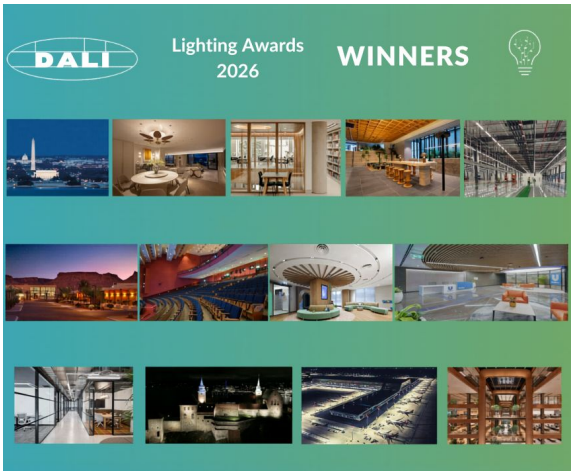

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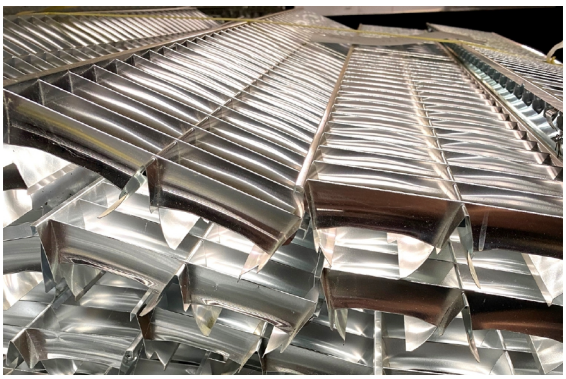
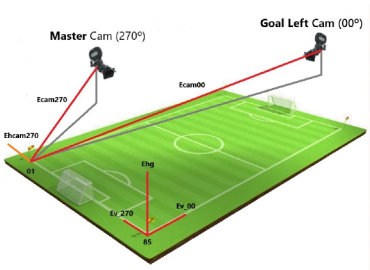
SUSTAINABILITY



LIGHTING DESIGN

SPORTS LIGHTING



ADVERTISING INDEX

Lawrence Lin

Lawrence Lin is CEO of Lighting Recipe Studio, Chair of the Board of Good Light Group Asia (GLGA), and former CEO of Ledvance GmbH.

His work focuses on bridging lighting science, measurement, design, and real-world application to advance healthier, more human-centered lighting environments across Asia and beyond.

From Light + Building 2026 to GLG Asia: A Wake-Up Call for the Industry

Light + Building 2026 once again demonstrated the creativity, technical capability, and commercial energy of the lighting industry. We saw smarter controls, broader spectral possibilities, more adaptive systems, and stronger narratives around well-being. All of this matters. Yet after walking the halls and speaking with partners across the ecosystem, one question remained: are we truly getting closer to good light, or are we still too often refining the tools while losing sight of the purpose?

For years, our industry has been highly effective at improving products. We know how to make lighting more efficient, more connected, more dynamic, and more intelligent. But in real indoor environments, many people still spend their days under lighting that may satisfy visual tasks while doing too little to support alertness, biological rhythm, sleep quality, mood, and overall well-being. The problem is no longer a lack of technology. It is a lack of alignment.

What is still missing is a stronger bridge between science, standards, design, manufacturing, controls, and field verification. Without that bridge, "healthy lighting" risks remaining a slogan, a marketing layer, or a fragmented technical discussion. What the market needs now is not more noise around the topic, but more shared language, more measurable frameworks, and more practical pathways from claim to performance. *This is why Good Light Group Asia was established.*

GLG Asia was not created simply as a regional extension. It was created because Asia now sits at the center of the global lighting equation. Asia is home to a large share of the world's lighting manufacturing, a fast-evolving design community, major research capabilities, and some of the most important implementation markets. If the future of good light is to become scalable, measurable, and commercially real, Asia cannot remain only a production base. It must also become a place where science, standards, industry, and application are brought into closer alignment.

The mission of GLG Asia is closely aligned with that of the Good Light Group: to accelerate the adoption of lighting that better supports human health and well-being. But in Asia, that mission also has a very practical dimension. We need to connect stakeholders who too often work in parallel rather than together. Scientists generate evidence. Standards bodies define methods. Manufacturers develop components. Designers shape experience. System providers create controls. Yet unless these efforts are translated into common frameworks and verified in real spaces, the result remains incomplete.

This, to me, was one of the deeper messages of Light + Building 2026. The industry is ready for the next conversation. Not only how to make lighting more advanced, but how to make it more meaningful. Not only what a product can emit, but what a lighting environment actually does for people across space, time, activity, and biological need. Not only what can be claimed in theory, but what can be measured, implemented, and improved in practice.

That is also why the recent Good Light Wake-Up Call matters. It is more than the title of a white paper. It reflects a real condition in modern society: billions of people spend most of their daytime indoors, receiving too little daylight and often experiencing lighting patterns disconnected from human physiological needs. If we are serious about human-centric lighting, healthy buildings, and better living environments, then good light must become more than an inspiring concept. It must become a shared responsibility across the value chain.

My hope is that GLG Asia can help support this transition: by connecting global and Asian stakeholders, by encouraging evidence-based dialogue, and by helping foster a more outcome-oriented lighting culture. Our industry has spent decades learning how to control light with extraordinary precision. The next step is to ensure that this precision is used in service of human life.

Light + Building remains an important mirror for the industry. It shows us what is new, what is possible, and what is gaining momentum. But perhaps its greatest value is that it reminds us to ask a more fundamental question: not only how far lighting technology has advanced, but whether we are using it to serve the original purpose of light.

That is the wake-up call. And that is why GLG Asia has begun. ■ L.L.

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Kristian Jenkins Reflecting on His First 100 Days as Casambi's New CEO

casambi.com

Casambi is entering a new phase. Over the past years, the company has grown from an innovative wireless lighting technology provider into a global software platform embedded in thousands of projects. With that growth comes a key challenge: navigating regional market differences while scaling effectively on a global level. The dual CEO model, with Kristian Jenkins joining founder Timo Pakkala, reflects this shift and the company's evolving ambition.

Observations from the First 100 Days
One thing is immediately clear: the power of the Casambi ecosystem continues to grow. Innovation flows consistently from hundreds of manufacturing partners, with new developments, such as SAL-SENSOR firmware, the Matter Bridge, and heatmapping sensors, expanding what is possible within the platform.

At the same time, a fundamental shift is becoming increasingly visible: the transition from a hardware-driven mindset to a software-led model. The lighting and construction industries have historically been built around hardware. A software platform, however, demands a different level of operational discipline. Yet the core structure of the industry remains unchanged: there is always a lighting supplier, an electrician, and an end customer. Success depends on navigating this traditional value chain while introducing a more scalable, software-centric approach.

Regional diversity adds another layer of complexity. In Europe, a strong retrofit market benefits from favorable regulatory trends. North America operates through established channel structures, with DALI and LLLC adoption still limited but steadily growing. APAC, by contrast, is highly fragmented, with each market shaped by its own culture, language, and regulatory environment. Operating globally requires understanding and adapting to each of these dynamics.

Another key observation is the ongoing supply-versus-demand challenge. While the technology is widely available, market adoption depends on partner capabilities and their ability to actively generate demand. Growth is not only about delivering solutions but also about enabling the ecosystem to bring them to life.

Industry Shifts
Insights from Light + Building 2026 reinforce several important industry trends.

Lighting is becoming increasingly software-defined, with embedded intelligence enabling systems to respond dynamically to changing environments. Wireless technology has reached a new level of maturity, with growing trust in radio-based systems at scale, driven in Europe by retrofit requirements and in China by rapid innovation in connectivity. At the same time, requirements are becoming more versatile. Lighting applications now span a wide range of use cases, from energy efficiency in schools to ambience in hospitality and immersive experiences in retail. Meeting these demands often requires combining multiple technologies into a single, cohesive solution.

Moving Forward: From Growth to Repeatable Scale
Casambi has always been defined by innovation and an entrepreneurial mindset. That foundation remains unchanged. What is evolving is the structure around it.

"We preserve innovation, but we add structure," says Kristian Jenkins. The company is transitioning from visionary growth to repeatable scale. This means introducing clear accountability, measurable performance targets, and stronger operational discipline. It also involves reinforcing alignment across regions, investing further in partner capabilities, and sharing knowledge more effectively on a global level.

Innovation is not limited to products; it extends to the business model itself. Casambi operates at the intersection of multiple stakeholders across the value chain, each representing an opportunity to both create and capture value. Improvements in partner enablement can act as exponential drivers of growth. The business is deeply interconnected, and leveraging those connections creates meaningful, scalable impact. For clients and partners, this shift brings greater predictability. Growth is no longer driven solely by opportunity, but by systems designed to deliver consistent results.

First Initiative: Three Regions, One Company
As of 1 February 2026, Casambi implemented a new organizational structure across three regions: EMEA, APAC, and North America. Each region now operates with defined leadership, clear accountability, and ownership.

"Global ambition without regional ownership creates noise. Regional ownership with global cohesion creates momentum," Jenkins explains. Markets, regulations, and customer expectations vary significantly. Attempting to manage all of this centrally would overlook critical local nuances. "If you standardize everything from headquarters, you miss the regional variance that enables success," Jenkins adds. "Strong decision-making provides a framework but allows regions to navigate their own complexity. That's where we gain the most." This balance between central structure and local flexibility is essential to building sustainable global growth.

CO-CEO Model - Double Leadership, Single Strategy
Timo Pakkala continues to lead technology vision, platform architecture, and the product roadmap, safeguarding the long-term integrity of the Casambi platform. Kristian Jenkins leads global commercial strategy, regional profit and loss accountability across EMEA, APAC, and North America, partner programs, and financial performance.

Between them sits the strategy box, the space where technology vision and commercial execution come together. Here, major initiatives are debated, priorities aligned, and decisions made. Casambi's structure reflects its reality: a software platform company operating within a global, hardware-driven lighting ecosystem, requiring both deep technical leadership and disciplined commercial execution. "Clarity is essential," Jenkins says. "When responsibilities are clearly defined and strategy is centralized, decisions are faster and alignment is stronger."

EPBD in Europe: A Structural Opportunity
Regulations like Europe's Energy Performance of Buildings Directive (EPBD) are accelerating the demand for measurable energy efficiency. Lighting control plays a key role in meeting these requirements. "EPBD reinforces a long-term shift toward lifecycle value," Jenkins explains. "Buildings are no longer evaluated solely on installation cost, but on long-term performance." Casambi's software-driven platform is designed to enhance building intelligence, optimize energy use, and allow flexible upgrades over time.

More Than Wireless: Easy, Innovative, Open
Casambi is often described only as a wireless lighting controls company. Jenkins sees it differently: "Wireless is just the transport layer," he says. "What matters is whether the architecture can meet the needs of constantly evolving and diverse spaces." Casambi's LightingOS is user interface–driven, offering wireless, wired, and hybrid solutions. Its open ecosystem allows multiple manufacturers and protocols to work seamlessly together, providing choice, flexibility, and faster innovation. By connecting hardware, software, and partners under a single

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interface, Casambi delivers intuitive, scalable, and adaptable lighting experiences. The platform differentiates itself through innovation speed, ecosystem depth, and hybrid integration, all without compromising openness.

Competition and Confidence

The lighting market is growing exponentially, driven by LED adoption, sustainability goals, and rising regulations. "We're not just talking about the traditional controls market anymore," Jenkins explains. "Casambi's addressable market includes the full on/off lighting space, which is roughly ten times larger than the DALI, 0–10 V, or phase-cut segment alone."

Growing markets naturally attract new entrants - whether from established hardware businesses or ventures aiming to capitalize on the maturity of wireless solutions. In this industry, what remains constant is the evolving nature of software, which demands a careful balance of innovation, reliability, and ever-increasing user experience requirements. This is where Casambi excels. Casambi's advantage lies in its software platform and open ecosystem. The value isn't just in technology, but in how it connects manufacturers, partners, and end users, creating a scalable, flexible model that benefits everyone in the network.

For Kristian Jenkins, success isn't just numbers on a spreadsheet, it's seeing the platform gain traction and the ecosystem thrive. Indicators of progress include increased market adoption both globally and regionally, continued growth in ecosystem partners and new products, and greater investments in channel partners to strengthen collaboration. Advancements in digital infrastructure also play a key role, supporting scalable and flexible deployments. By year-end, Kristian will measure success by the platform's broader adoption, a growing and engaged ecosystem, and tangible improvements in partner enablement and digital capabilities, demonstrating intentional, sustainable growth that benefits both partners and clients.

A Leader Shaped by Curiosity and Global Experience

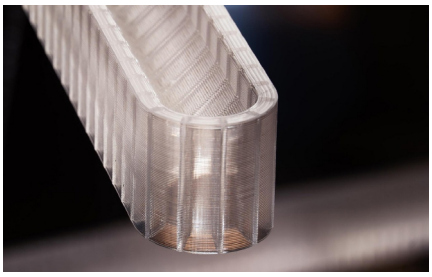
Born to a British father and Finnish mother, Jenkins has lived in the UK, Finland, Singapore, with extended stays in India, Spain and the U.S. This international upbringing exposed him to different languages and cultures, forcing him out of his comfort zone and shaping his natural curiosity. That curiosity has become a key strength as a leader, helping him understand diverse perspectives, connect dots across regions and navigate complex markets. He also holds an Executive MBA, complementing his practical leadership with formal business training.

Jenkins brings this global perspective and analytical mindset to Casambi. He approaches leadership with both curiosity and pragmatism: understanding the details, connecting the big picture, and turning insights into actionable strategy. Outside of work, he stays active through tennis and gym exercise that keep him energized and balanced. ■

Signify Earns 14 iF Design Awards

www.signify.com

Signify has received 14 iF Design Awards in 2026 for excellence in product design and user experience across its professional and consumer businesses. The awards span a wide range of innovations, from connected home lighting to systems and services designed for commercial and public spaces.



Among the winners are Signify myCreation Puzzle, a distinctive modular lighting solution that is 3D printed using 75% recycled PET material. Designed for circularity, Puzzle is an ideal fit for office environments, helping customers achieve an elevated workspace design with office-compliant performance. Consumer winners include the Hue Bridge Pro, a next generation smart home hub that unlocks the full power of smart lighting for customers.

"Great design is about experience and impact," said Ton Borsboom, Head of Design at Signify. "Our innovations are designed to solve real challenges for our customers and for society. When we put our customers at the center, we deliver exceptional experiences that support well-being, productivity, and measurable sustainability benefits."

Signify winners at the iF Design Awards 2026

Product Design

- Philips Hue Bridge Pro
- Philips Hue Play wall washer
- Philips UniPro Strip
- Philips AI BrightMate Table Lamp
- Philips AnRui Series
- Philips F7 Floor Lamp
- Signify MyCreation Puzzle
- Invue LuxeScape Bollard
- Ledalite TruVue
- Signify GreenVision Xceed Pro
- Hue Secure video doorbell and chime

Customer experience

- Dynalite Array interface series
- Interact City Flex

With more than 10,000 submissions this year, the iF Design Awards is one of the world's most prestigious design competitions. Signify's award-winning designs are listed above. ■

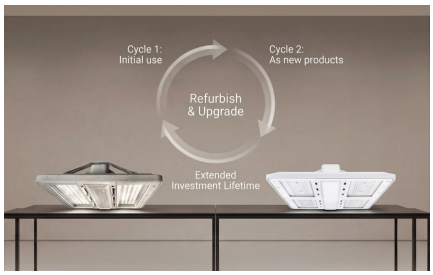
Circularity as a Service: Zumtobel Launches First Remanufacturing Service for Luminaires

www.zumtobel.com

Zumtobel is launching a standardized remanufacturing service designed to dramatically extend the use cycles of lighting systems, reduce CO2 emissions by 30 to 50 percent, and lower both material consumption as well as total cost of ownership (TCO).

Unlike refurbishment, remanufacturing results in an as-new product with the same specifications, at least equivalent performance, and a new factory warranty.

Zumtobel's remanufacturing service also includes regular maintenance of the lighting systems and an annual inspection. This marks the first time a company can offer a fail-safe, sustainable multi-use model that covers at least two use cycles. After remanufacturing, Zumtobel will reinstall the lighting system either at the original site or at a new location.



For remanufacturing, Zumtobel relies on a standardized factory process in which reused components are combined with new ones. The luminaires are dismantled, individual components are tested, cleaned, repaired or replaced, and the system is restored to an as-new condition. Key electronic components such as drivers and LED modules are upgraded. Depending on the product, software updates may also be part of the process.

Full-service turnkey package enables seamless continued use with a new factory warranty

Zumtobel's new remanufacturing service is designed as a comprehensive, worry-free package that takes the entire process burden off companies' shoulders: From professional deinstallation of used luminaires and industrial remanufacturing with extensive quality checks up to reinstallation for a second or even third use cycle. The service consolidates all organizational, technical, and logistical tasks, offering businesses a stress-free end-to-end solution from a single source. This makes the switch to circular-ready lighting systems easier than ever before.

Significant CO_2 savings compared to new products

Systematic component reuse reduces material requirements and, in turn, lowers emissions. For projects in brick-and-mortar retail, Zumtobel puts average CO2 savings at around 50% – calculated on the basis of Environmental Product Declaration (EPD) data. The data collected during a remanufacturing project also provides robust metrics for ESG (Environmental, Social & Governance) reporting and green building certifications. Circular product design is the foundation that enables remanufacturing at solution level.

"Our remanufacturing service addresses customer needs particularly in brick-and-mortar retail as well as in logistics and production. It results in lower total operating costs, reduced resource consumption and emissions, and improved performance thanks to regular technology upgrades," says Alexandru Zloteanu, Innovation Manager at Zumtobel.

The remanufacturing agreement including regular maintenance and an annual inspection of the lighting systems can now be signed when purchasing selected luminaires from the TECTON II, VIVO II, PANOS III, CRAFT II and FACTOR II series. ■

AlUla Film Residence: Where Tradition Meets Future-proof Lighting

www.tridonic.com

The AlUla Film Residence is a pioneer project that stands for a sustainable and culturally rich future for the city of AlUla in Saudi Arabia. Tridonic is working closely with Lumo FZE to provide intelligent technologies for modern and aesthetically harmonious outdoor lighting. The innovative lighting solution ensures high energy efficiency, futureproofing, and a pleasant atmosphere that reflects the unique character of this prestigious project in the ancient city of AlUla.

With the AlUla Film Residence, the Royal Commission for AlUla (RCU) aims to position the region around the city of AlUla as a leading cultural and historical center in the Middle East. This is intended to make a significant contribution to Saudi Arabia's global reputation. The area is internationally renowned for its millennia-old, particularly well-preserved cultural heritage sites. The Film AlUla agency, founded by the RCU in 2020, has the task of establishing the city as a first-class location for international, regional, and local productions. To optimally support this goal, the AlUla Film Residence has been constructed and equipped with state-of-the-art, fully furnished accommodations, light-filled offices, and recreational areas.

Red Sea International, SA was responsible for the construction. High standards and the sustainability principles of the Saudi Arabian development program Saudi Vision 2030 had to be adhered to. A key challenge was the planning and installation of an attractive outdoor lighting system. This had to not only meet aesthetic and functional requirements but also fulfill the highest standards of sustainability and resource efficiency.

Lighting solution should emphasize the heritage feel of the city

Conventional lighting methods were not considered for the implementation. They proved unsuitable due to their limited control options and high energy consumption. A solution was needed that would create a warm, pleasant atmosphere with minimal glare while emphasizing the heritage feel of the surroundings.

The manufacturer Lumo FZE acted as lighting designer for the project and played a decisive role in the planning and delivery of all outdoor and landscape lighting for the AlUla Film Residence. Those responsible at Lumo brought Tridonic on board as a competent technology partner because they were impressed by its technical expertise and qualified support. The lighting solution comprises customized L-shaped mast lights and L-shaped bollard lights from Lumo FZE. These are equipped with LCA DALI LED drivers from Tridonic and are controlled by sceneCOM evo DA2 LCS.

Intelligent control system for optimal light management

The intelligent control system from Tridonic paves the way for optimal light management: with the help of two strategically placed Tridonic Touchpanel 8P DA2, the luminaires can be dimmed perfectly on site. The smaller bollard luminaires and the larger mast luminaires were programmed independently of each other in separate lighting scenes. This creates a pleasant atmosphere and optimizes energy management throughout the site. The integration of DALI XC repeaters improved communication and significantly extended its range. This created a scalable infrastructure that perfectly meets the long-term goals of Saudi Vision 2030.

Another advantage of Tridonic sceneCOM evo: precise control of the ambience according to the time of day and operational requirements maximizes energy efficiency. Thanks to the DALI protocol, individual luminaires can be controlled independently of each other. This increases visual comfort and minimizes power consumption in different zones. As a result, energy savings of around 90 percent can be achieved compared to conventional lighting technologies.

Lighting solution promotes cultural wealth of the region

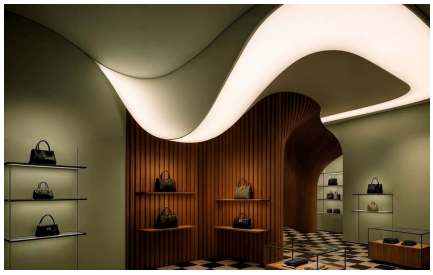
"The AlUla Film Residence project impressively demonstrates how partnership-based collaboration and sophisticated lighting solutions can promote economic diversity, cultural richness, and Saudi Arabia's sustainability goals. The result

is an aesthetically appealing, highly efficient, resource-saving, and future-proof lighting system. Its flexibility paves the way for easy adjustments, ensuring that the system can be operated efficiently even as requirements increase," explains Philipp Heindl, Vice President Global Business Development at Tridonic. ■

The Future of Light Is Adaptive: Zumtobel Showcases Four New Highlights

www.zumtobel.com

At Light + Building 2026, Zumtobel presented a portfolio that merges technological precision with an emotional impact on spaces. Each new highlight is designed for maximum adaptability, from context-aware lighting control to custom 3D printing of design elements.



LERIMA: A holistic lighting solution for modern office spaces

With LERIMA, Zumtobel introduces a scalable lighting solution that combines architectural clarity, high visual comfort, and future-ready technology for modern work and learning environments. The innovative ECLIPSE optics reduce shadowing for exceptionally uniform illumination and minimize luminance hotspots by diffusing the light source. The result is softer lighting and improved visual perception, especially in deep work scenarios.

A fully integrated Zhaga Book 20 interface makes LERIMA retrofit-friendly and ready for smart sensing and communication, enabling a future-proof lighting infrastructure that supports digital transformation and improves energy efficiency through demand-based control. The new mountingGO installation system significantly simplifies installation and maintenance, saves time, and enables flexible adaptation of lighting solutions over time. A consistent design language across all mounting types ensures cohesive solutions across many sizes and variants.

MATRIX: Adaptive lighting for the office of the future

With its MATRIX concept study, Zumtobel pushes the limits of standard presence detection in office environments. The concept study combines multiple technologies in a novel way within a single luminaire to adapt lighting to changing activities in real time. Sensors identify specific objects and activities within the workspace; artificial intelligence (AI) analyses task patterns and immediately adjusts the lighting scene to new requirements. Whether focused screen work, video calls, working on paper, or a creative break, MATRIX automatically aligns lighting parameters to the situation. More than 100 LEDs are controlled directly with pixel-level precision, while the light is aimed as needed at different directions. This context-aware control enables optimal light for each activity, supporting wellbeing and productivity while reducing energy use by delivering only as much light as necessary.

CIELUMA Move: Where dynamics meet emotion

The internationally established, world-record-winning CIELUMA light ceiling gains a new emotional dimension with the special "Move" option. Where previously static light and optional acoustic functions were the focus, CIELUMA Move now adds a new layer of spatial staging through organic motion. Dynamic visuals with flowing forms create immersive spaces that extend beyond pure illumination.

Each CIELUMA Move is a unique design, translating specific customer requirements into distinctive lighting atmospheres, including large-scale organic shapes and optional UHD prints.

PANOS III: Design variety unlocked by 3D printing

With the expanded PANOS III family, Zumtobel sets a new benchmark for customization. New decorative elements for PANOS R150 (recessed, semi-recessed, and pendant luminaires) are produced via 3D printing. This makes custom solutions more accessible and supports sustainability. The ARENA, APOLLO, and AURA designs are manufactured from high-quality, fully recyclable polycarbonate. From fine ribbed textures to translucent color accents, these 3D-printed elements extend the proven design with individual aesthetic statements.

In addition, PANOS III linear closes the gap between a classic downlight and a traditional linear luminaire. Designed by Chris Redfern, the new variant features an elongated silhouette with softly rounded corners and can be seamlessly integrated into infrastructures such as TECTON or three-circuit track systems. With high-quality reflector surfaces, PANOS III linear delivers visual comfort in line with EN 12464.

"With our Light + Building highlights, we combine technological innovation with our commitment to timeless aesthetics, outstanding functionality, and excellent quality. Lighting becomes an adaptive infrastructure that aligns with space and with people's current needs," says Raphael Petri, Vice President Brand Zumtobel. ■

WAC Group Expands Global Presence with WAC Architectural at Light + Building

wacgroup.com

At Light + Building 2026, WAC Group reinforced its international growth strategy and presented a refined portfolio approach, placing particular emphasis on its professional segment under the WAC Architectural brand. The showcase highlighted the company's ambition to strengthen its position beyond the North American market and to address the evolving demands of architectural lighting in Europe and other global regions.

With WAC Architectural, the group introduced a more clearly defined platform for specification-grade lighting solutions. The brand is designed to serve architects, lighting designers, and professional planners with a portfolio that combines high-performance optics, system flexibility, and contemporary design. This strategic positioning reflects a broader shift within the company—from a predominantly product-focused manufacturer toward a more structured, segment-driven offering.

At the core of the presentation was a range of architectural luminaires tailored for applications in commercial, hospitality, and high-end residential environments. The systems demonstrated a strong focus on visual comfort, precision optics, and clean integration into architectural spaces. Compact form factors, refined materials, and discreet installation options supported the growing demand for lighting solutions that enhance spatial perception while remaining visually unobtrusive.

In terms of technology, WAC Architectural emphasised ease of use and accessibility. Wireless control options, app-based configuration, and simplified commissioning

processes were key elements of the solutions presented. This approach aligns with a broader industry trend toward reducing system complexity while maintaining flexibility and performance. Tunable white and dim-to-warm capabilities further supported the creation of adaptable lighting environments, particularly in hospitality and residential settings.

Compared to many European exhibitors, whose focus was strongly oriented toward large-scale building automation and data-driven infrastructures, WAC Group's approach remained distinctly user- and design-centric. Rather than positioning lighting as a complex digital backbone, the company prioritised intuitive operation and seamless integration into interior design concepts. This differentiation underlines WAC's role within the global market as a provider of design-led, application-focused lighting solutions.

The exhibition also demonstrated the strength of WAC Group's multi-brand strategy, integrating various design and technology competencies under a unified umbrella. WAC Architectural plays a central role within this structure, acting as the interface between design-oriented lighting and professional project requirements.

Overall, the presentation confirmed that WAC Group is continuing to evolve its international positioning. By strengthening its architectural lighting segment and focusing on user-friendly, design-integrated solutions, the company is responding to a market that increasingly values both performance and simplicity. The introduction and expansion of WAC Architectural marked a clear step in this direction, positioning the brand as a relevant player in the global specification lighting landscape. ■

Yuji Brings Science-Based Spectral Control to the Forefront

www.yujilighting.com

At the exhibition, Yuji Lighting presented a new generation of Human-Centric Lighting (HCL) solutions, shifting the focus from simplified tunable white concepts to scientifically grounded, biologically effective lighting systems. □

The company's approach was based on advanced spectral engineering, enabling lighting to address both visual and non-visual human responses. A key innovation was the integration of validated metrics such as m-DER and m-EDI, allowing designers to quantify and control circadian effects with greater precision than conventional methods. This marked a significant step toward measurable, evidence-based lighting design. One of the standout capabilities was the exceptionally wide spectral range, spanning from 1250K to over 100,000K. This enabled dynamic adaptation of light throughout the day, from activating daylight conditions to low-impact nighttime settings that support melatonin regulation. In combination with high colour fidelity (up to CRI 98) and flicker-free performance, the system addressed both biological effectiveness and visual quality.

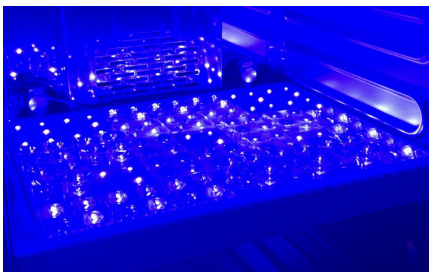
Yuji also demonstrated advanced melanopic control, allowing targeted management of circadian stimulus. This capability enabled lighting scenarios tailored to specific applications, such as healthcare and senior living, where stabilising sleep cycles and supporting wellbeing are critical. The showcased Cira Series illustrated how these technologies translate into real-world solutions. The systems combined natural spectrum reproduction, glare-controlled luminaire design, and intelligent control with automated circadian schedules. This integration highlighted a move toward fully coordinated lighting systems rather than isolated product features.

Another key differentiator was Yuji's vertically integrated manufacturing, from phosphor development to luminaire production, ensuring high spectral precision and consistency. Overall, the presentation confirmed a clear industry shift: from lighting designed purely for visibility to lighting engineered for measurable human wellbeing. ■

Dow's New Study Bridges the Knowledge Gap on Blue Light Photothermal Aging of Thermoplastic Lens Clusters in LED lighting

www.dow.com

Dow announced the results of a new study that evaluated the aging performance of commercially available lens clusters in LED lighting. The study examined blue light photothermal aging of both silicone and thermoplastic optics made of polycarbonate (PC), polymethyl methacrylate (PMMA) and high-temperature resistant PMMA (HT-PMMA).



Dow's study subjected lens clusters to photothermal stress similar to the operating conditions of optics in luminaires for high-power LED lighting. The principal finding is that most of the tested thermoplastic lens clusters discolor over time and ultimately fail catastrophically. Gradual degradation by discoloration is known to reduce light output, but the study shows that catastrophic failure may be difficult to predict and requires long test times.

Dow's new study arrives at a time when the global lighting industry is growing rapidly, fueled by increased adoption of energy-efficient LED modules. The longevity and light output efficiency of these LED modules is critical, but thermoplastic optics may present limitations in terms of performance and reliability depending on their specific configurations.

"Our study was conducted to bridge the knowledge gap on blue light photothermal aging of lens clusters commonly used by luminaire makers for applications such as street and sports lighting," said Martijn Beukema, Technical Service & Development Scientist and Application Technology Leader for Lighting at Dow. "Luminaire manufacturers are encouraged to take this data into account when choosing optical materials during the design process, and to recognize silicone optics as a reliable alternative that can enhance product longevity and minimize the risk of major failures."

All of the data from this study is available by accessing Dow's white paper, titled "Blue Light Photothermal Aging of Thermoplastic and Silicone Lens Clusters," authored by Martijn Beukema and Kevin Van Tiggelen, Senior Technical Service & Development Scientist for Lighting at Dow. Download the full paper https://engage.dow.com/Lighting_White_Paper_Si_Optics.

For information on Dow's silicone materials for injection molded optics, visit their webpage. ■

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Light + Building 2026 – Lighting Trends, Key Innovations and Technology Highlights

LED professional Editors

From Illumination to Intelligent Infrastructure

The 2026 edition of the leading international Light and Building exhibition marked a decisive turning point for the industry. More than a showcase of new products, the event revealed a profound strategic shift: lighting is no longer viewed as a standalone discipline, but as an integral component of connected, data-driven environments. Across halls and presentations, a clear narrative emerged: Light is evolving into infrastructure.

At the core of this transformation lies the convergence of lighting with digital technologies. Increasingly, lighting systems are being designed not only to illuminate spaces, but to collect, process, and communicate data. Sensors embedded within lighting networks enable real-time insights into occupancy, environmental conditions, and energy usage. This data, in turn, feeds into broader building management systems, allowing spaces to respond dynamically to human needs. The result is a new generation of environments that are adaptive, efficient, and user-centric.

This development reflects a broader shift from product-centric thinking to system-oriented strategies. Lighting is becoming part of an interconnected ecosystem that includes HVAC, security, and energy systems. Interoperability and open standards are therefore gaining strategic importance, enabling seamless integration across platforms and technologies. Rather than isolated solutions, the industry is moving toward scalable, flexible infrastructures that can evolve over time.

Another defining theme of the exhibition was the increasing role of intelligence in lighting. Advances in sensor technology, connectivity, and data processing are enabling lighting systems to move beyond automation toward contextual awareness. Spaces can now adjust lighting conditions based on activity, time of day, or even behavioral patterns. This shift toward adaptive lighting not only enhances user comfort and wellbeing, but also contributes significantly to energy efficiency and sustainability goals.

Sustainability itself has evolved from a technical requirement to a central strategic driver. While energy efficiency remains critical, the focus has expanded to encompass the entire lifecycle of lighting systems. Material selection, production processes, reparability, and recyclability are now key considerations in product development. At the same time, digital control systems enable more precise energy management, reducing consumption without compromising performance. The integration of sustainability across all stages—from design to operation—underscores the industry's commitment to long-term environmental responsibility.

Equally notable was the growing emphasis on the experiential dimension of light. Beyond functionality, lighting is increasingly used to shape perception, influence mood, and enhance spatial quality. This trend reflects a deeper understanding of light as a medium that connects technology with human experience. As a result, lighting design is becoming more interdisciplinary, bridging architecture, psychology, and digital innovation.

Finally, the exhibition highlighted the importance of flexibility in a rapidly changing environment. Buildings are expected to adapt to new uses, technologies, and user expectations over time. Lighting systems, as one of the most pervasive infrastructures in any space, play a crucial role in enabling this adaptability. Modular concepts, upgradeable components, and software-driven functionality are becoming essential elements of future-proof design.

In summary, the 2026 exhibition made one thing clear: the future of lighting lies in its ability to connect systems, data, and people. As the industry moves forward, success will increasingly depend on how well lighting solutions integrate into broader digital ecosystems while delivering measurable value in terms of efficiency, sustainability, and human experience.

SIGNIFY

Expanded Interact Platform for Intelligent Buildings and Adaptive Cities

www.signify.com

Signify introduced a series of next-generation solutions within its Interact platform, reinforcing the role of connected lighting as a central element of intelligent buildings and smart city infrastructure. The new developments focused on enabling data-driven control, improving operational efficiency, and enhancing safety across indoor and outdoor environments.

With the expansion of Interact for Intelligent Buildings, Signify further developed its connected lighting platform designed to transform buildings into responsive, data-enabled environments. The updated system provided centralized, real-time monitoring, automation, and optimization of lighting across a wide range of professional indoor applications. By integrating sensors and wireless controls, the platform enabled continuous data collection and analysis, offering building owners and facility managers deeper insights into energy use, occupancy patterns, and system performance.

This approach allowed lighting to move beyond basic illumination toward a digital infrastructure layer within buildings.

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The system supported improved operational efficiency, reduced installation and maintenance costs, and enhanced occupant comfort. At the same time, it contributed to sustainability targets through demand-based lighting control and optimized energy consumption. The platform's scalability made it suitable for both small installations and large, complex building portfolios.

In parallel, Signify introduced three new solutions targeting outdoor lighting and urban infrastructure. With Interact EasyConnect, the company presented a hybrid and cellular-based system designed to simplify the deployment of connected outdoor lighting. The solution reduced the need for complex wiring and infrastructure changes, enabling faster installation and lowering project costs. This approach was particularly relevant for municipalities seeking to accelerate the transition to smart lighting systems.

The Central Management System (CMS) represented another key development, providing operators with a unified platform to remotely monitor, control, and manage large-scale outdoor lighting networks. By offering real-time visibility into system performance, the CMS enabled more efficient maintenance planning, reduced downtime, and ensured consistent lighting quality across urban areas and road networks. The availability of detailed operational data also supported long-term optimization strategies.

A further innovation was the introduction of Traffic and Weather Adaptive Lighting Systems. These systems dynamically adjusted lighting levels based on real-time traffic conditions rather than fixed schedules. By responding to actual usage patterns, the solution improved road safety while reducing unnecessary energy consumption. This adaptive approach illustrated the growing importance of context-aware lighting in urban environments.

Across all new Interact solutions, the integration of data, connectivity, and control was a central theme. By linking indoor and outdoor lighting systems through a unified platform, Signify enabled a holistic approach to infrastructure management. This allowed cities and building operators to respond more effectively to changing conditions, improve resilience, and optimize resource use.

With more than 40,000 projects implemented worldwide, the Interact platform demonstrated its maturity as a scalable solution for professional lighting applications.

The latest additions presented at the exhibition highlighted a clear evolution toward adaptive, data-driven lighting systems that support smarter buildings, safer cities, and more sustainable environments.

ZUMTOBEL

Presented Context-Aware Systems and Customizable Design

www.zumtobel.com

Zumtobel presented a portfolio of new lighting solutions that combined technological precision with spatial and emotional impact, placing adaptability at the center of its development strategy. The showcased innovations—LERIMA, MATRIX, CIELUMA Move, and the expanded PANOS III family—demonstrated a clear shift toward lighting systems that respond dynamically to user needs, architectural context, and evolving applications.

With LERIMA, Zumtobel introduced a scalable lighting solution designed for modern work and learning environments. The system combined high visual comfort with architectural clarity and future-ready technology. Its ECLIPSE optical system reduced shadowing and minimized luminance hotspots by diffusing the light source, resulting in uniform illumination and improved visual perception, particularly in focused work scenarios. LERIMA was also equipped with a Zhaga Book 20 interface, enabling integration of sensors and communication modules. This made the system suitable for retrofit applications and adaptable to digital building infrastructures. In addition, the mountingGO installation system simplified installation and maintenance, allowing flexible reconfiguration over time while maintaining a consistent design language across all variants.

A more experimental approach was presented with the MATRIX concept study, which explored the potential of fully adaptive, task-based lighting. The system combined advanced sensor technology and artificial intelligence within a single luminaire to detect user activities and adjust lighting conditions in real time. By analyzing patterns such as screen work, meetings, or creative tasks, MATRIX dynamically adapted light intensity, distribution, and direction. More than 100 individually controllable LEDs enabled pixel-level precision, allowing light to be directed exactly where needed. This context-aware approach not only enhanced user comfort and productivity but also supported energy efficiency by delivering light only when and where required.

Zumtobel also expanded the experiential dimension of lighting with CIELUMA Move, an evolution of its established light ceiling system. While earlier versions focused on uniform illumination and acoustic functionality, the new variant introduced dynamic, organic visual effects. Moving light patterns created immersive environments that extended beyond functional lighting into spatial staging and emotional engagement. Each installation was designed as a unique solution tailored to specific project requirements, including the possibility of large-scale forms and high-resolution visual content.

The PANOS III family was further developed with a focus on customization and design flexibility. Through the use of additive manufacturing, new decorative elements were introduced for the PANOS R150 luminaires. These 3D-printed components enabled a wide range of textures and finishes, supporting individual design concepts while maintaining sustainability through the use of recyclable materials. In parallel, the new PANOS III linear variant bridged the gap between traditional downlights and linear luminaires. Its elongated form, combined with high-quality reflector technology, ensured visual comfort in accordance with established lighting standards while offering new possibilities for integration into track and modular systems.

Overall, Zumtobel's presentation reflected a clear evolution toward adaptive lighting as an integrated infrastructure. The combination of intelligent control, modular design, and customizable aesthetics highlighted the increasing importance of flexibility, user-centricity, and system integration in contemporary lighting solutions.

TRILUX

Smart Lighting Portfolio with IntuSens and Hybrid Control Solutions

www.trilux.de

TRILUX presented a comprehensive portfolio of smart lighting solutions under the guiding theme "Light. Spaces. Dialogue." Rather than focusing on traditional product displays, the company emphasized experiential environments, allowing visitors to explore the impact of lighting across five application areas: retail, industry, outdoor, office, and lighting management. This approach underlined TRILUX's positioning as

a holistic provider of integrated lighting systems.

A central highlight was the introduction of IntuSens, TRILUX's new proprietary sensor portfolio. Developed to simplify access to automated lighting, the PIR-based sensor system combined a patented operating concept with a refined design and was offered in multiple variants for different mounting scenarios. The launch marked a strategic step toward strengthening TRILUX's system approach, integrating luminaires, controls, sensors, and services into a unified solution. As CEO Hubertus Volmert summarized, IntuSens represented "a central building block" for delivering fully coordinated smart lighting systems that simplify planning, installation, and operation.

The growing importance of intelligent lighting control was reflected in the strong interest in TRILUX's lighting management solutions. In response to the challenges posed by heterogeneous building infrastructures, the company introduced a wireless extension for its DALI-based LiveLink Premium system. The new LiveLink Bluetooth® NLC Gateway enabled the integration of wired DALI networks with wireless communication into a single hybrid system. This allowed unified configuration and control via the LiveLink ONE app, significantly improving usability. Additionally, a new interface enabled seamless integration into building management systems such as KNX and BACnet, further supporting interoperability and system scalability.

Beyond control and sensor technology, TRILUX showcased a range of product innovations across key application areas. In the retail segment, the Lenty spotlight family was introduced, featuring a new lens optic that increased efficiency by approximately 20% and achieved optical efficiencies of up to 90%. The system delivered a sharply defined light distribution with minimal stray light, making it suitable for high-quality accent lighting and product presentation.

In industrial applications, TRILUX presented a new luminaire insert for the E-Line Pro system, incorporating a patented lens technology. This optical system improved luminous efficacy to over 220 lm/W while enhancing color brilliance and reducing perceived glare. The development highlighted ongoing advancements in optical engineering aimed at combining efficiency with visual comfort.

For outdoor environments, the new 98 IQ decorative mast luminaire attracted attention. It offered an optional secondary light source integrated into the luminaire head, enabling targeted vertical illumination for applications such as façade lighting in urban spaces. This approach reflected the increasing importance of combining functional and aesthetic lighting in public environments.

In office lighting, the modular Yonos system was further expanded with new optical components, connectors, and color options, providing greater flexibility for customized lighting designs. This continued development supported adaptable office concepts and evolving workplace requirements.

Overall, TRILUX's presentation demonstrated a clear shift toward integrated, intelligent lighting ecosystems. By combining sensor technology, hybrid control systems, and advanced optical solutions, the company reinforced its role as a provider of comprehensive smart lighting solutions. The exhibition confirmed that future lighting systems would be defined not only by performance, but by connectivity, adaptability, and seamless integration into building infrastructure.

XAL

Redefined Sustainable Linear Lighting with Circular Design and High Performance

www.xal.com

ENVIVA was presented as a next-generation linear lighting system that combined maximum energy efficiency with a consistent circular design approach. The luminaire reflected a clear shift toward sustainability-driven product development, addressing the full lifecycle of lighting systems—from material sourcing and production to operation and end-of-life recycling.

With a profile height of just 15 mm, ENVIVA demonstrated how minimalist design could be combined with high-performance lighting. Despite its slim form, the system provided both direct and indirect illumination, delivering uniform light distribution and high visual comfort. With glare control values of up to UGR ≤ 10 and low luminance levels, the luminaire was particularly suited for demanding workplace environments such as offices, meeting rooms, and hospitality settings.

A key performance feature was its high luminous efficacy of up to 184 lm/W, supported by optical efficiencies of up to 95%. This ensured that light was delivered precisely where needed, minimizing losses and reducing overall energy consumption. The importance of this efficiency was underscored by the fact that approximately 90% of a luminaire's CO_2 emissions occur during its use phase. By significantly lowering energy demand, ENVIVA contributed directly to reducing operational emissions, with reported energy savings of up to 58% compared to conventional solutions.

Sustainability was embedded throughout the product's design. The luminaire used extruded profiles made from low-carbon aluminum produced with renewable energy, reducing emissions by up to 75% compared to conventional aluminum. In addition, the overall material usage was reduced by approximately 45%, resulting in lower weight and improved efficiency in transport and installation. The product also achieved Cradle to Cradle Certified® Full Scope at Bronze level, reflecting compliance with stringent criteria for material health, circularity, and environmental impact.

A defining aspect of ENVIVA was its circular construction. All components were designed for easy disassembly using a tool-free click mechanism, without screws or adhesives. This allowed materials to be separated by type and returned to the production cycle, supporting a closed-loop approach. Individual components could also be replaced during the product's lifetime, extending its usability and reducing waste.

The system was further designed to support intelligent lighting concepts. An optional compact sensor module enabled presence and daylight detection, allowing lighting to be automatically adjusted based on occupancy and ambient light levels. This enhanced both energy efficiency and user comfort, aligning with modern smart building requirements.

In terms of design, ENVIVA offered a minimalist aesthetic with options for raw aluminum, black, or white finishes. The untreated aluminum surface was intentionally left visible in some variants, emphasizing material authenticity and character. Additional customization options for optics, cables, and mounting components allowed the system to be adapted to different architectural contexts.

Manufactured in Europe with full control over the value chain, ENVIVA reflected a high level of quality assurance and production transparency. Its development

demonstrated how sustainability, efficiency, and design could be integrated into a single lighting system.

Overall, ENVIVA illustrated a comprehensive approach to modern lighting, where performance, resource efficiency, and circularity were considered equally. The product highlighted the industry's transition toward solutions that minimize environmental impact while maintaining high standards of light quality and design.

REGIOLUX

Introduced the tirabo System

www.regiolux.de

Regiolux introduced tirabo, a new luminaire family designed as a versatile lighting system for both renovation projects and new constructions. The product was positioned as a comprehensive "Light Upgrade 360°" solution, combining advanced lighting technology with high planning flexibility and long-term adaptability for modern work and educational environments.

With tirabo, Regiolux addressed the increasing demand for lighting systems that go beyond energy efficiency and support sustainable building upgrades. The luminaire family was developed to enhance existing buildings while also meeting the requirements of future-oriented architectural concepts. Its design followed a clear principle: combining functional performance with architectural integration and design flexibility.

At the core of the system was the OptiLens multi-prism optic, featuring a distinctive cushion-shaped lens structure. This optical system enabled highly uniform light distribution while significantly reducing multiple shadows and LED reflections. With glare control values of up to UGR ≤ 16, tirabo was particularly suited for screen-based workplaces and visually demanding environments. In addition, a high color rendering index of CRI ≥ 90 supported accurate color perception, while system efficacies of up to 176 lm/W at 3000 K and 4000 K ensured strong energy performance.

The luminaire was designed to offer a wide range of planning options. Two light distribution types—wide beam and asymmetric—allowed targeted application from individual workstations to team areas and open-plan office concepts. A strong indirect light component ensured uniform ceiling illumination, even at low suspension heights, contributing to high visual comfort. The system could be configured as a pendant, surface-mounted, or recessed luminaire, as well as in continuous-line configurations, enabling precise adaptation to room geometries while also supporting architectural structuring of spaces.

A key focus of tirabo was its suitability for refurbishment projects. The system enabled 1:1 integration into existing 100/200 panel ceiling modules and featured adjustable suspension points with up to 16 cm flexibility to match existing mounting conditions. Its modular design further simplified installation and upgrades. Functional modules such as emergency lighting, sensor integration, and wireless control via Casambi could be seamlessly integrated or retrofitted, providing high flexibility for planners and installers while minimizing intervention in existing building structures.

Sustainability and transparency were also integral aspects of the system. Regiolux provided an Environmental Product Declaration (EPD), offering detailed information on material usage, lifecycle, and recyclability. These data could be directly integrated into BIM workflows and tendering processes, supporting sustainable planning and documentation.

Beyond standard lighting applications, tirabo also addressed health-oriented lighting concepts. Optional versions with Human Centric Lighting (HCL) and integrated UV-B technology expanded its application range, particularly in environments where lighting contributes to wellbeing and biological effectiveness.

Overall, the tirabo system demonstrated Regiolux's approach to combining performance, flexibility, and sustainability in a single lighting platform. Its introduction at Light + Building 2026 highlighted the growing importance of adaptable, upgradeable lighting systems that support both current requirements and future building strategies.

NORMAGRUP

Showcased Integrated Lighting Solutions Across Four Thematic Universes

www.normagrup.com

Normagrup reported a highly successful participation at Light + Building 2026 in Frankfurt, where the company strengthened its international positioning and presented a comprehensive portfolio of architectural, technical, and emergency lighting solutions. Over the six-day event, the Spanish manufacturer introduced its vision of lighting as a multidisciplinary tool designed to enhance safety, wellbeing, and spatial experience.

Rather than a conventional exhibition stand, Normagrup created a 240 m² immersive environment structured around the concept "Sense of Technology, Sense of Light." The space was designed as an architectural and sensory journey, positioning light as a medium capable of protecting, caring, and inspiring. Visitors were guided through four interconnected thematic areas—Safety, Health, Experience, and Emotion—each representing a distinct application field while reflecting the company's human-centric design philosophy.

The "Light for Safety" area focused on emergency lighting and signage systems, while "Light for Health" addressed solutions tailored for healthcare environments. "Light for Experience" showcased architectural and technical lighting applications, and "Light for Emotion" explored lighting as a tool for creating atmosphere and emotional engagement. The spatial design incorporated a fragmented visual axis, allowing partial views into adjacent zones and creating a dynamic and exploratory visitor experience.

At product level, Normagrup presented several new developments across indoor, outdoor, and industrial lighting. Among the highlights was GRAPHIA, a collection of five outdoor luminaires designed to form cohesive lighting landscapes. The system complied with Dark Sky requirements and featured enhanced NG-PROTECT treatment for durability in demanding environments.

In architectural indoor lighting, the company introduced MOD, a family of compact downlights available in multiple sizes and light distributions. The range combined high energy efficiency with Flicker Free technology and followed eco-design and wellbeing-oriented principles. Another notable innovation was SELF, a hybrid solution integrating lighting with acoustic conditioning. Its biophilic design, use of natural and recycled materials, and thermoformed structure aimed to improve both visual and acoustic comfort in interior spaces.

Normagrup also emphasized flexibility in lighting design through systems such as ENNEA and EKSI. ENNEA featured a configurable track with click-in luminaires, allowing lighting layouts to be easily adapted over time. EKSI integrated a universal track system with Normagrup luminaires into a

unified architectural solution. Additional product launches included EKUS, ORAMA, NENVO, SILK II, and the ISKA pendant luminaire within the ELEMENT system.

For industrial applications, the company presented TRUNKING, a modular infrastructure combining lighting, emergency systems, and control within a continuous platform, designed to simplify installation and ensure long-term adaptability.

Emergency lighting was further developed with new solutions such as ARQUE, VIA, and ZIP, which combined safety functionality with discreet architectural integration. These products focused on minimal visual impact, ease of installation, and reduced maintenance.

Overall, Normagrup's presentation highlighted a clear positioning of lighting as a human-centered discipline that integrates technology, design, and wellbeing. The strong response from international visitors confirmed the relevance of this approach and underlined the growing importance of holistic lighting concepts in the industry.

RIDI

LYV Profile System for Flexible, Connected Architecture

www.ridi.de

RIDI presented the new LYV profile system, a linear lighting solution designed to combine architectural clarity with high flexibility and integrated intelligence. The system was developed for modern office, education, and multifunctional environments, where adaptable layouts and future-ready infrastructure are increasingly required.

With LYV, RIDI focused on the growing importance of linear lighting as both a functional and architectural element. The system was designed to structure spaces, guide users, and provide high-quality illumination while maintaining a refined and minimal design language. Its modular concept enabled the creation of individual luminaires, continuous light lines, or complex geometric configurations tailored to specific room requirements.

The profile system was based on high-quality extruded aluminum and offered two design variants: LYV7 with a width of 67 mm and the slimmer LYV4 at 43 mm. Despite its reduced dimensions, the system maintained full lighting functionality, supporting a wide range of applications. A key design feature was the nearly invisible connection between profile elements, achieved through precisely engineered connectors. This allowed seamless transitions, including illuminated corners, and contributed to a consistent architectural appearance.

Flexibility was a central aspect of the system. LYV could be installed as a recessed, surface-mounted, or pendant luminaire, with options for direct or direct-indirect light distribution. The modular structure enabled configurations based on standard Zhaga dimensions or finer grid systems, allowing precise adaptation to room geometries. A dedicated planning service further supported the implementation of complex lighting layouts.

In terms of lighting technology, the system offered multiple optical options, including opal diffusers, micro prismatic optics, and multi-lens solutions. These configurations enabled glare control with values of UGR ≤ 19, making the system suitable for screen-based workplaces and environments requiring high visual comfort. In addition to standard color temperatures, Tunable White functionality from 2700 K to 6500 K was available, supporting human-centric lighting concepts. High output levels of up to 3840 lumens per meter ensured compliance with current workplace lighting standards, including those addressing increased illuminance requirements.

A significant feature of the LYV system was its integrated approach to connectivity and control. Sensors for presence and daylight could be flexibly positioned within the profile, enabling demand-based lighting control. The system supported both DALI-2 and wireless Bluetooth interfaces, allowing seamless integration into building management systems such as APCON. This enabled energy-efficient operation as well as user-friendly control through apps, touch panels, or switches.

Sustainability and serviceability were also key considerations. The system was designed for long-term use, with repairable components and durable materials supporting extended product lifecycles. Standardized components and modular construction further contributed to resource efficiency and ease of maintenance.

As Tim Leinberger, Chief Sales Officer at RIDI, summarized, the system combined "standardized lighting with flexibility," highlighting its dual focus on performance and adaptability.

Overall, the LYV profile system reflected a broader industry trend toward modular, connected lighting solutions that integrate seamlessly into architecture while supporting evolving spatial and technological requirements.

NORKA

Precision-Controlled Tubular Luminaires for Harsh Environments

www.norka.com

NORKA expanded its established ZUG LED tubular luminaire family with two new variants, ZUG LED LENS and ZUG LED DARKLIGHT, designed to combine extreme durability with advanced optical performance. The new models addressed demanding industrial and infrastructure environments where robust construction, precise light distribution, and effective glare control were critical.

Both luminaires were engineered for use in harsh conditions, including industrial production facilities, transport infrastructure, water treatment plants, and hygienically sensitive environments such as the food and beverage industry. The systems were designed to operate reliably under challenging external influences, including humidity, contamination, and mechanical stress.

A key feature of both models was their high protection rating of IP68/IP69K, making them resistant to water, dust, and high-pressure cleaning processes. The luminaires were pressure-tight up to 20 meters and suitable for both indoor and outdoor applications. Their construction was based on an impact-resistant PMMA tube with a diameter of 75 mm, combined with secure quick-release fasteners and protection against unauthorized opening. This robust design ensured long service life and operational reliability in demanding environments.

With the ZUG LED LENS variant, NORKA introduced a modular optical system that enabled precise and flexible light distribution. Integrated lens arrays within the luminaire tube allowed three different beam characteristics: narrow beam, concentrated wide beam, and extreme wide beam. These optics could be combined within a single luminaire, enabling differentiated lighting scenarios from one installation point. This capability allowed targeted illumination of specific work areas while simultaneously providing broader ambient lighting. Such flexibility made the system particularly suitable for applications such as assembly stations, maintenance areas, and

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water infrastructure facilities where controlled and efficient light distribution was required.

The ZUG LED DARKLIGHT version focused on visual ergonomics and glare reduction. By integrating a darklight louvre within the luminaire tube and combining it with precisely matched LED optics, the system achieved glare values below UGR < 19. This met the requirements of DIN EN 12464-1 for visually demanding workplaces, depending on the specific installation. The luminaire was therefore suited for environments requiring high levels of concentration and visual comfort, such as inspection workstations, laboratories, and testing facilities.

Both variants were available in multiple lengths and equipped with LEDs at 4000 K with a color rendering index above Ra 80, ensuring consistent and reliable light quality across applications. Their combination of high efficiency and targeted light control supported both energy performance and user comfort.

With the introduction of ZUG LED LENS and ZUG LED DARKLIGHT, NORKA demonstrated a continued focus on application-specific lighting solutions tailored to extreme conditions. The products highlighted the importance of combining mechanical robustness with advanced optical engineering to meet the increasing demands of industrial and technical environments.

Overall, the new luminaires reflected a clear development trend toward specialized, high-performance lighting systems that integrate durability, efficiency, and precise light guidance in a single solution.

TARGETTI

Optical Performance with Architectural Integration

www.targetti.com

The JEDI Recessed luminaire from Targetti represented a highly engineered solution for architectural lighting, combining precise optical control with discreet integration into ceilings. Designed for applications where visual comfort, flexibility, and performance were critical, the system reflected current trends toward compact, modular luminaires capable of delivering high-quality light with minimal visual impact.

At its core, JEDI Recessed was developed as a versatile downlight platform suitable for retail, hospitality, museum, and high-end architectural environments. The luminaire was characterized by its compact form factor and recessed installation, allowing it to blend seamlessly into ceiling architectures while maintaining a strong lighting performance. This approach supported the growing demand for “invisible” lighting solutions that prioritize spatial perception over visible fixtures.

A defining feature of the JEDI system was its advanced optical technology. The luminaire utilized precision-engineered optics to achieve controlled beam distributions with high efficiency and minimal glare. With a focus on visual comfort, the system ensured well-defined light beams while reducing stray light and glare effects, making it suitable for visually demanding environments. This level of optical precision allowed designers to highlight objects, surfaces, or architectural features with accuracy.

Flexibility was another key aspect of the JEDI Recessed system. The luminaire family typically offered a range of beam angles and optical configurations, enabling tailored lighting solutions for different applications. Whether used for accent lighting, general illumination, or layered lighting concepts, the system could be adapted to specific project requirements. This adaptability made it particularly valuable in dynamic environments such as retail spaces or exhibition areas, where lighting needs frequently evolve.

In addition to optical performance, JEDI Recessed was designed with a strong emphasis on light quality. High color rendering ensured accurate representation of materials and surfaces, which was especially important in retail and museum contexts. The system also supported various color temperatures, allowing designers to create specific atmospheres or align lighting with circadian and architectural requirements.

The luminaire’s construction reflected a balance between performance and integration. Its recessed design reduced visual clutter, while the compact housing allowed installation in ceilings with limited space. At the same time, thermal management and high-quality components ensured reliable operation and long service life, supporting both performance stability and maintenance efficiency.

From a system perspective, JEDI Recessed was compatible with modern control solutions, including DALI-based systems, enabling integration into smart lighting environments. This allowed for dimming, scene setting, and energy-efficient operation, aligning with broader trends toward connected and adaptive lighting systems.

Overall, the JEDI Recessed luminaire illustrated Targetti’s approach to architectural lighting: combining optical precision, design integration, and system flexibility in a compact solution. It addressed the increasing need for high-performance lighting tools that enhance spatial quality while remaining visually unobtrusive, supporting both functional and aesthetic requirements in contemporary architecture.

DALI ALLIANCE

Introduced DriveLux™ Smart Light Engines with Casambi Control

www.dali-alliance.org

The DALI Alliance demonstrated a clear direction for the future of lighting control, placing digital, interoperable, and increasingly wireless solutions at the center of building infrastructure. The introduction and strong industry response to DALI+ highlighted the ongoing transformation from traditional wired systems toward flexible, IP-based control architectures.

A key focus of the presentation was DALI+ with Thread, which combined the established strengths of the DALI ecosystem—interoperability, standardization, and precise lighting control—with the advantages of wireless mesh networking. By enabling IP-based communication, the technology allowed seamless integration into modern building networks, supporting scalable and future-proof lighting control systems.

The concept addressed the growing complexity of connected buildings, where multiple systems must interact efficiently. As buildings increasingly relied on data to monitor and optimize performance, lighting control systems were required to become more adaptable, compatible, and easy to integrate. DALI+ responded to these needs by bridging the gap between existing wired installations and emerging wireless infrastructures.

Importantly, DALI+ was positioned not as a replacement but as an extension of established DALI systems. This hybrid approach allowed for gradual upgrades, particularly in retrofit scenarios where existing installations needed to be modernized without extensive infrastructure changes. The ability to combine wired DALI networks with wireless DALI+ nodes created new op-

portunities for flexible system design and reduced installation complexity.

As Paul Drosihn, General Manager of the DALI Alliance, noted, DALI+ with Thread "bridges the gap between traditional wired and wireless lighting control technologies" while maintaining interoperability and standardization. This positioning resonated strongly with industry professionals, particularly those seeking solutions that balanced innovation with compatibility and reliability.

Discussions at the booth focused heavily on practical applications, including retrofits, hybrid installations, and integration into broader building management systems. The high level of engagement from both existing members and potential new partners reflected growing market interest in bringing DALI+ products to market. Media attention further underlined the relevance of the technology within the evolving lighting landscape.

The momentum around DALI-based systems was also evident in the DALI Lighting Awards, which were presented during the exhibition. The number of submissions increased significantly, nearly tripling compared to previous editions, demonstrating the expanding global adoption of DALI solutions. Awards across multiple categories highlighted the versatility and real-world impact of standardized lighting control in diverse applications.

Overall, the DALI Alliance's presence emphasized a clear industry shift toward interoperable, data-driven lighting control systems. The combination of IP connectivity, wireless communication, and compatibility with existing infrastructure positioned DALI+ as a key enabler of smart, energy-efficient buildings.

The exhibition confirmed that lighting control was evolving from a supporting function into a central element of building intelligence. In this context, DALI+ represented a significant step toward more flexible, scalable, and future-ready lighting ecosystems.

AMS OSRAM

Positioned Light as the Sensory Backbone of Smart Buildings

www.ams-osram.com

ams OSRAM presented a clear vision of the future of lighting: light as a central sensory system within intelligent buildings.

Moving beyond its traditional role as illumination, light was positioned as a data-generating and responsive infrastructure capable of perceiving environments, reacting to users, and enabling advanced building functionalities through photonics.

The company's presentation was built around the concept of digital photonics, highlighting a fundamental shift in the industry. Light sources were no longer viewed as passive emitters but as active data points, while sensors were evolving into decision-making elements within connected systems. This transformation enabled buildings to function as adaptive, learning environments, driven by continuous data acquisition and processing.

As Dr. Clemens Müller, Senior Director of Application Marketing, stated, photonics technologies were enabling "new ways of designing control interfaces and intelligent systems." A key example was the introduction of optical force sensing technology, which allowed precise detection of pressure levels through infrared-transparent surfaces. This enabled the replacement of traditional mechanical or capacitive buttons with seamless, touch-based or contactless interfaces. The approach opened new possibilities for compact, hygienic, and design-flexible control systems in applications ranging from building automation to automotive and consumer electronics.

Another major highlight was the Emergency Hub, an integrated system demonstrating how light and sensors could enhance safety in critical situations. At its core was the EVIYOS™ Shape technology, capable of projecting dynamic symbols directly onto surfaces to guide occupants along escape routes. These projections could be adjusted in real time, enabling flexible responses to changing conditions, such as blocked pathways. Combined with acoustic alerts and high-visibility warning signals, the system illustrated how photonics-based solutions could improve orientation, reduce reaction times, and enhance safety in buildings.

In architectural applications, the same technology enabled adaptive lighting scenarios where illumination responded to movement and context. Light could be directed dynamically to guide people, bicycles, or vehicles, or activated only where needed. Supporting this, the TMF8829 time-of-flight sensor detected presence within spaces, enabling demand-based lighting control. This approach reduced energy consumption while maintaining optimal lighting conditions.

Sustainability was addressed not only at the system level but also within the supply chain. ams OSRAM introduced a paper-based reel for LED components, which reduced the carbon footprint by approximately 80% compared to conventional solutions, while also lowering weight. This innovation highlighted the importance of addressing environmental impact throughout the entire value chain rather than focusing solely on end products.

Beyond building applications, the company emphasized the broader relevance of photonics across emerging growth markets, including automotive, robotics, augmented and virtual reality, and smart health technologies. These areas required precise sensing and interaction capabilities, positioning photonics as a key enabling technology for future innovations.

The presentation also marked the 120th anniversary of the OSRAM brand, underscoring a long history of technological transformation. Rather than focusing on legacy, the company used the milestone to demonstrate its continued role in driving innovation.

Overall, ams OSRAM's showcase highlighted a paradigm shift in lighting, where photonics technologies transformed light into an intelligent, responsive system at the core of connected environments.

BRIDGELUX

Introduced DriveLux™ Smart Light Engines with Casambi Control

www.bridgelux.com

Bridgelux presented its DriveLux™ DX3-C and DX4-C light engines as a highly integrated solution combining LED source, driver electronics, and wireless control in a compact form factor. Developed in collaboration with Casambi, the new platform reflected a broader industry shift toward simplified, system-level integration in luminaire design.

The DriveLux series was designed as an all-in-one light engine, measuring just 50 mm in diameter and 10 mm in height. It integrated advanced Chip-on-Board (COB) arrays based on multi-channel CSP LED technology, an onboard driver, and native Bluetooth connectivity via Casambi. This combination enabled both tunable white and dynamic RGBW lighting within a single compact module, reducing system

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complexity and accelerating product development for luminaire manufacturers.

The DX3-C model focused on tunable white applications, offering smooth color temperature adjustment from 1800 K to 6500 K along the Black Body Locus (BBL). It maintained tight color consistency within 2 MacAdam ellipse steps and delivered high color quality with a CRI of 90. Operating at approximately 23 W, the module achieved luminous outputs of around 2400 lm at 2700 K and 2600 lm at 4000 K. These characteristics positioned it for human-centric lighting applications in hospitality, retail, and residential environments, where precise white light control and visual comfort were critical.

The DX4-C model expanded functionality by adding full RGBW capability alongside tunable white performance. It covered the same 1800 K to 6500 K range, with color consistency within 3 MacAdam ellipse steps, and enabled a wide color gamut for dynamic and immersive lighting scenarios. Using advanced CSP technology with blue and green GaN chips and narrow-band KSF-converted red, the system achieved high spectral quality with CRI options up to 95. At approximately 22 W, it delivered up to 2350 lm at 4000 K (CRI 90), making it suitable for architectural, entertainment, and accent lighting applications requiring both flexibility and high color rendering.

A key innovation of the DriveLux platform was its seamless integration of hardware and control. By embedding Casambi Bluetooth connectivity directly into the light engine, Bridgelux eliminated the need for external control components. This enabled straightforward configuration via the Casambi app and supported wireless commissioning, grouping, and scene setting. The approach simplified luminaire design, reduced component count, and shortened time-to-market for manufacturers.

Additional features included a replaceable module design for easier installation and maintenance, high-efficacy performance across the tunable white range, and robust color consistency aligned with ANSI CIE standards. The combination of compact size, integrated intelligence, and high-quality light output reflected a clear move toward modular, smart lighting components.

With the DriveLux series, Bridgelux demonstrated a transition from discrete LED components toward fully integrated lighting subsystems. The product aligned with broader trends observed at Light + Building 2026, where integration, wireless control, and adaptability were key drivers of innovation.

OPTICAL DESIGN UNIT

Showcased New Approach to Light Evaluation

www.o3u.at

optical design unit gmbh reported a highly successful participation at Light + Building 2026 in Frankfurt, where the Tyrol-based company presented advanced lighting concepts and innovative measurement technologies to a professional, international audience. The appearance marked an important step in strengthening the company's position as a specialized partner in lighting technology, optical measurement, and quality control.

Founded only a few years ago, optical design unit has rapidly established itself as a highly focused engineering company operating at the intersection of lighting technology, medical applications, and optical systems. Its expertise spans the full development chain, from concept and optical design through prototyping to series production. This combination of scientific depth and practical implementation was clearly reflected in its presentation at the fair.

The central highlight of the exhibition was the [o3u]-cam, a novel camera-based measurement system designed to fundamentally rethink how light is evaluated. Unlike conventional measurement approaches that focus purely on technical parameters, the system enabled a direct visual correlation between measurable lighting data and perceived lighting effects. This represented a significant advancement in bridging the long-standing gap between objective photometric data and subjective human perception.

A key new feature introduced at the show was the visualisation of color temperature profiles. This allowed for detailed analysis of the homogeneity of both optical systems and LED light sources. By making variations in color temperature directly visible, the system provided lighting designers, engineers, and manufacturers with a powerful tool to better understand and optimize light quality. This capability addressed a critical need in modern lighting design, where visual comfort and consistency are increasingly important.

The measurement technology was also integrated into the [o3u] Quality Control Box, a system developed for fast and reliable quality assurance in industrial production. It enabled efficient testing of luminaires, light engines, and optical components, supporting manufacturers in maintaining consistent product performance. Beyond general lighting, the system also demonstrated strong relevance for medical applications, such as the development and validation of surgical lighting systems, highlighting the company's technological versatility.

In addition to the technical innovations, optical design unit's exhibition stand itself reflected a strong conceptual approach. Designed as an architectural installation, it combined visual impact with educational content. A large video wall illustrated the underlying methodologies and communicated the company's guiding principle: "we create. we measure. we build light." This approach reinforced the company's focus on integrating design, measurement, and engineering into a unified workflow.

Throughout the exhibition, the stand attracted continuous interest from international industry professionals. Numerous in-depth technical discussions confirmed a growing demand for new tools that not only quantify light but also make it understandable and tangible in real-world applications.

With its presentation at Light + Building 2026, optical design unit demonstrated its role as an innovation driver in lighting technology. The company's approach pointed toward a future in which measurement, perception, and design are more closely integrated, enabling more precise and human-centered lighting solutions.

LEDVANCE

AI-Driven Solutions and Full-Service Capabilities

www.ledvance.com

LEDVANCE presented a comprehensive portfolio that highlighted its transformation from a traditional lighting manufacturer into a provider of intelligent, integrated lighting systems and services. Marking its 10th anniversary, the company used an immersive 700 m² stand to demonstrate how lighting is evolving into a connected, adaptive, and service-oriented infrastructure for complex projects.

A central focus of the presentation was the integration of artificial intelligence into lighting applications. At the core of the stand, the "Innovation Wall" showcased several

AI-driven solutions designed to respond dynamically to environmental conditions and user behavior. One key development was a floodlight equipped with an integrated AI camera sensor capable of distinguishing between people, animals, and objects such as vehicles. Based on these detections, the system enabled customized responses, including dimming or triggering alarms, offering enhanced safety and efficiency in outdoor applications.

Another highlight was the AI Table Robot, a gesture-controlled lighting system combining functional and emotional interaction. In "task mode," the system automatically directed light to support work activities, while in "emotional mode," it responded to detected facial expressions with corresponding lighting, movement, and sound. This concept illustrated the potential of lighting to adapt not only to physical conditions but also to human emotions.

Further innovations included a gesture-controlled ceiling luminaire that allowed intuitive operation without the need for physical switches or cloud connectivity. Users could adjust brightness and switch between tunable white and RGB modes through simple hand movements, reflecting a broader trend toward simplified, user-centric control interfaces.

As Ulrich Weiss, Head of Product Management & Innovation & Global IT at LEDVANCE, noted, the company aimed to translate technological trends into practical solutions that deliver "real added value for end users through AI." The strong visitor engagement with the interactive installations confirmed the growing interest in intuitive and adaptive lighting systems.

In addition to AI-driven solutions, LEDVANCE introduced DIRECT EASY, a system designed to simplify the commissioning of dimmable lighting via an app. The system offered significant energy-saving potential of up to 80% and was demonstrated in a hands-on environment, emphasizing ease of installation and operation.

The breadth of LEDVANCE's portfolio was further illustrated across five application areas: office, retail, outdoor, industry and logistics, and sports. These zones demonstrated real-world lighting scenarios, from human-centric office lighting with BIOLUX downlights to urban lighting solutions and high-performance stadium floodlights. Interactive elements allowed visitors to experience lighting control systems and application-specific solutions in realistic settings.

Beyond products, LEDVANCE emphasized its role as a full-service partner for complex projects. The company showcased capabilities such as on-site 3D printing of customied components and the provision of comprehensive digital product data, including digital twins, for seamless integration into planning and design workflows.

As Managing Director Jean-Marc Vogel summarized, the company aimed to deliver "lighting solutions precisely tailored to individual project requirements."

TRIDONIC

Light as the Backbone of Connected Buildings and Cities

www.tridonic.com

Tridonic presented a forward-looking vision of lighting as a central digital infrastructure within buildings and urban environments. Moving beyond its traditional role, lighting was positioned as a data-generating, networked system capable of linking multiple building functions, enabling intelligent applications, and supporting sustainable operations.

The company emphasized a fundamental shift in the role of lighting technology. Rather than being a standalone system, lighting was increasingly becoming an active component of digital architecture. As CEO Hugo Rohner stated, lighting was evolving into "the infrastructure that other systems can use," highlighting its growing importance as a platform for data exchange and system integration.

This transformation was based on the widespread presence of lighting systems in buildings. As continuously powered networks, they provided an ideal foundation for collecting and distributing data. Tridonic demonstrated how integrated sensors and LED drivers could capture a wide range of information, including occupancy, daylight levels, air quality, temperature, and system performance. This data enabled more precise control of lighting, energy consumption, and building operations, while also improving transparency and compliance with sustainability requirements.

A key element of this approach was interoperability. Tridonic focused on open technologies such as MQTT, REST API, BACnet, DALI-2, and D4i, ensuring seamless integration with building management systems and other digital platforms. This openness allowed lighting infrastructure to be gradually expanded and connected with additional systems, including HVAC and urban management solutions. As Rohner emphasized, the goal was to "enable" rather than restrict, creating a flexible ecosystem for integrators and partners.

The integration of data and control systems enabled significant efficiency gains. Sensor-based lighting reduced energy consumption by activating light only when needed, while detailed status information from LED drivers supported predictive maintenance. Through solutions such as Lifetime Analytics, operators could monitor ageing and performance, enabling proactive maintenance strategies and extending system lifetime. In addition, real-time occupancy data supported optimized space utilization and improved operational decision-making.

Tridonic also highlighted the importance of scalable infrastructure for both indoor and outdoor applications. Its solutions enabled communication across different building types and lighting networks, from individual luminaires to city-wide systems. Platforms such as lichtMONITOR and novaLIGHT provided flexible control options, while support for DC microgrids ensured future-ready energy management in hybrid systems.

A notable innovation was ILIORA, a solar-powered outdoor lighting solution designed to operate independently of the grid. By combining a DC/DC-D4i LED driver with an MPPT controller and integrated sensors, the system enabled efficient energy management and reliable operation. The approach reduced installation costs by eliminating cabling and supported sustainable urban lighting with zero on-site emissions. In addition, the system allowed lighting points to function as sensor hubs, collecting environmental and usage data for smart city applications.

Overall, Tridonic's presentation demonstrated how lighting infrastructure could serve as a foundation for digitalization. By combining sensors, connectivity, and open interfaces, the company illustrated a shift toward data-driven, adaptive systems that enhance efficiency, support sustainability, and enable new services.

The exhibition confirmed that lighting was evolving into a strategic layer of building intelligence, providing the backbone for future smart buildings and connected urban environments.

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Light + Building 2026: Key Conclusions from the Innovation Landscape

The product innovations presented across this year's report showed that the lighting industry has moved decisively beyond the era of isolated luminaires and standalone components. The clearest conclusion from Light + Building 2026 was that lighting is now being developed as an intelligent, connected, and increasingly strategic layer within buildings and cities. Across manufacturers, technologies, and application segments, innovation was no longer defined by light output alone, but by the ability to integrate sensing, control, data, adaptability, and sustainability into a coherent system.

One of the strongest trends was the transformation of lighting into digital infrastructure. Multiple launches demonstrated that luminaires, drivers, and control platforms are increasingly expected to collect data, communicate with building systems, and support real-time decision-making. Lighting is becoming a distributed information network—monitoring occupancy, daylight, energy use, environmental conditions, and equipment status—while interfacing with HVAC, building management, and urban platforms. This shift marks a fundamental repositioning of lighting from endpoint technology to system backbone.

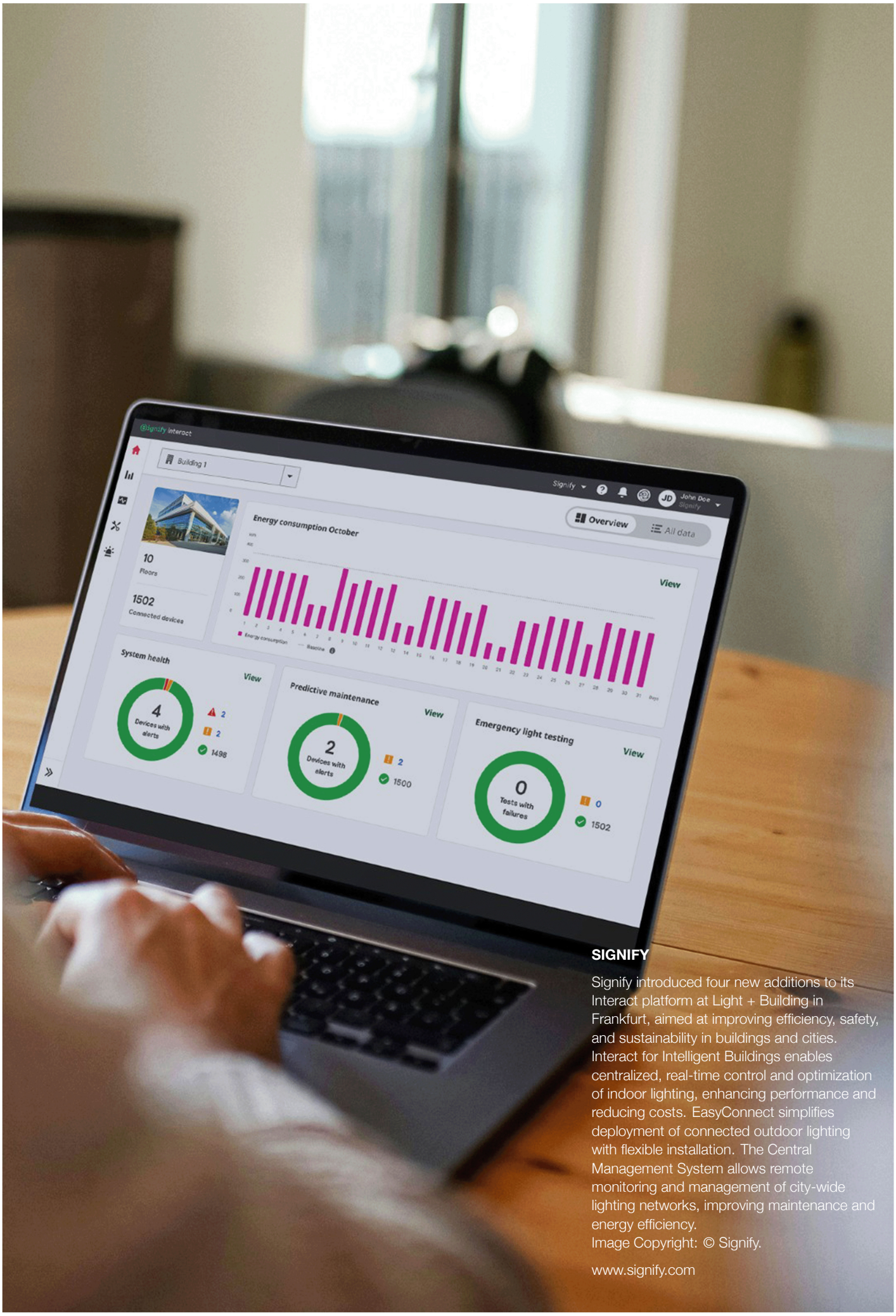
Closely linked to this was the rise of adaptive and context-aware lighting. Product developments showed a clear move toward systems that respond dynamically to user behavior, activity, traffic, weather, and spatial conditions. Whether through sensor-driven controls, AI-supported logic, hybrid wired-wireless infrastructures, or task-based light distribution, adaptability emerged as a core performance criterion. The message was clear: future lighting must not only illuminate space, but also interpret it.

Another major trend was system integration at the component level. The report revealed growing demand for compact, highly integrated subsystems that combine light source, driver, wireless control, and sensing in one module. This reduces complexity for luminaire manufacturers, simplifies commissioning, and accelerates time-to-market. At the same time, interoperability remained a key strategic requirement. Open standards, hybrid control architectures, and retrofit-capable solutions pointed to an industry that understands future growth will depend on compatibility rather than closed ecosystems.

Sustainability also evolved significantly in scope. Energy efficiency remained a central benchmark, but the innovations reviewed here showed that the conversation has expanded to the full lifecycle of lighting systems. Circular construction, low-carbon materials, repairability, environmental documentation, modular upgrades, and even supply-chain packaging became relevant innovation fields. The conclusion is that sustainability is no longer an add-on; it is increasingly embedded in design logic, material strategy, and operational intelligence.

A further trend was the convergence of technical performance and human experience. High visual comfort, precise optics, low glare, tunable spectra, acoustic integration, and emotionally responsive lighting concepts all pointed toward a more human-centered understanding of light. Even highly technical solutions increasingly addressed wellbeing, perception, and spatial quality, showing that performance and experience are no longer separate categories.

Taken together, the innovations in this report suggest that the future of lighting will be defined by six strategic priorities: connectivity, adaptability, interoperability, lifecycle sustainability, optical precision, and human-centric value. In conclusion, Light + Building 2026 did not simply showcase better products—it revealed a more mature industry, redefining light as an intelligent, responsive, and enduring infrastructure for the built environment. ■



SIGNIFY

Signify introduced four new additions to its Interact platform at Light + Building in Frankfurt, aimed at improving efficiency, safety, and sustainability in buildings and cities. Interact for Intelligent Buildings enables centralized, real-time control and optimization of indoor lighting, enhancing performance and reducing costs. EasyConnect simplifies deployment of connected outdoor lighting with flexible installation. The Central Management System allows remote monitoring and management of city-wide lighting networks, improving maintenance and energy efficiency.

Image Copyright: © Signify.

www.signify.com

ZUMTOBEL

The internationally established, world-record-winning CIELUMA light ceiling gains a new emotional dimension with the special “Move” option. Where previously static light and optional acoustic functions were the focus, CIELUMA Move now adds a new layer of spatial staging through organic motion. Dynamic visuals with flowing forms create immersive spaces that extend beyond pure illumination.

Image Copyright: © Zumtobel.

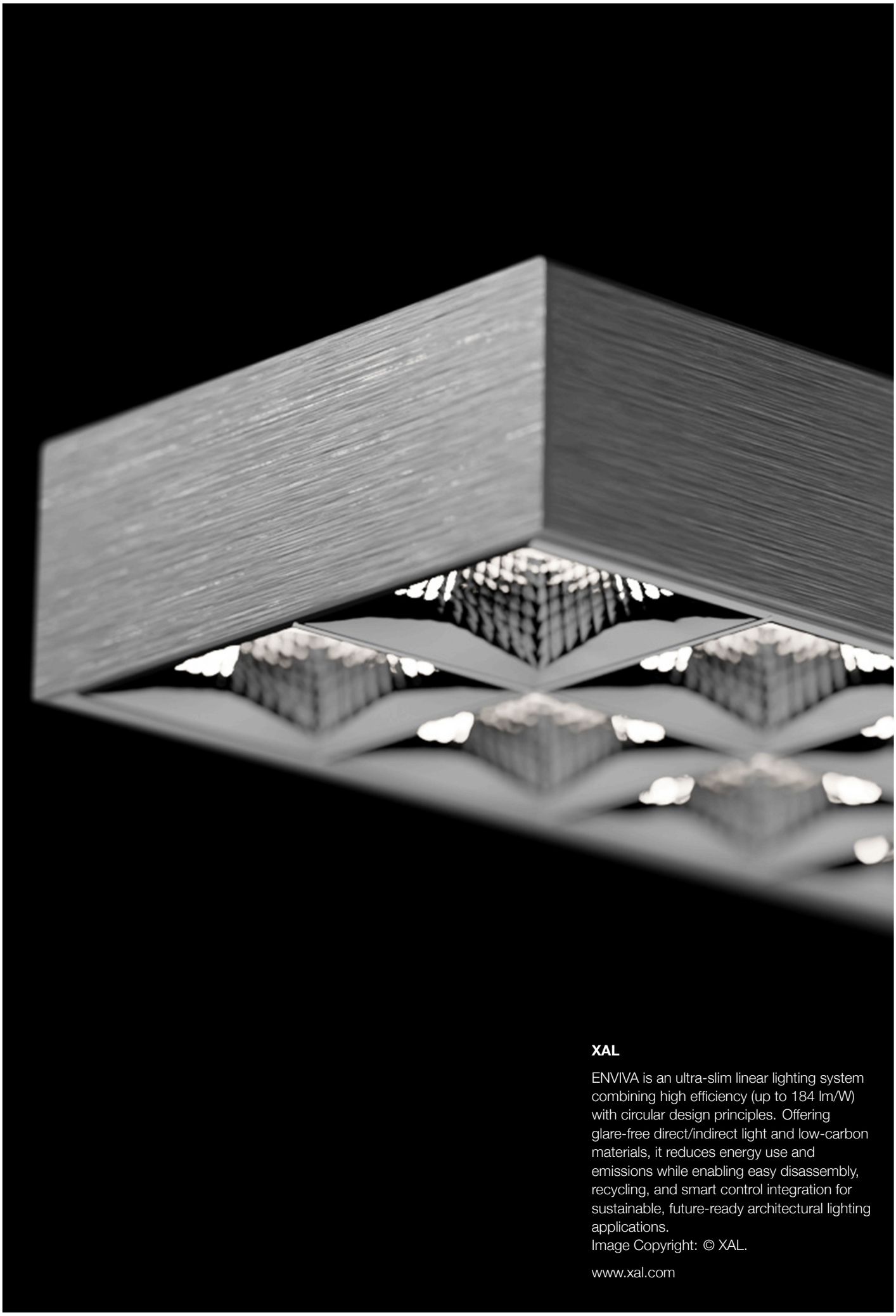
www.zumtobel.com

TRILUX

IntuSens is TRILUX's new sensor portfolio designed for smart lighting applications. Featuring PIR technology, a patented operating concept, and flexible mounting options, it enables easy implementation of automated lighting. Integrated into holistic systems, IntuSens supports energy efficiency, simplifies installation, and enhances control within modern, connected lighting environments.

Image Copyright: © Trilux.

www.trilux.com



XAL

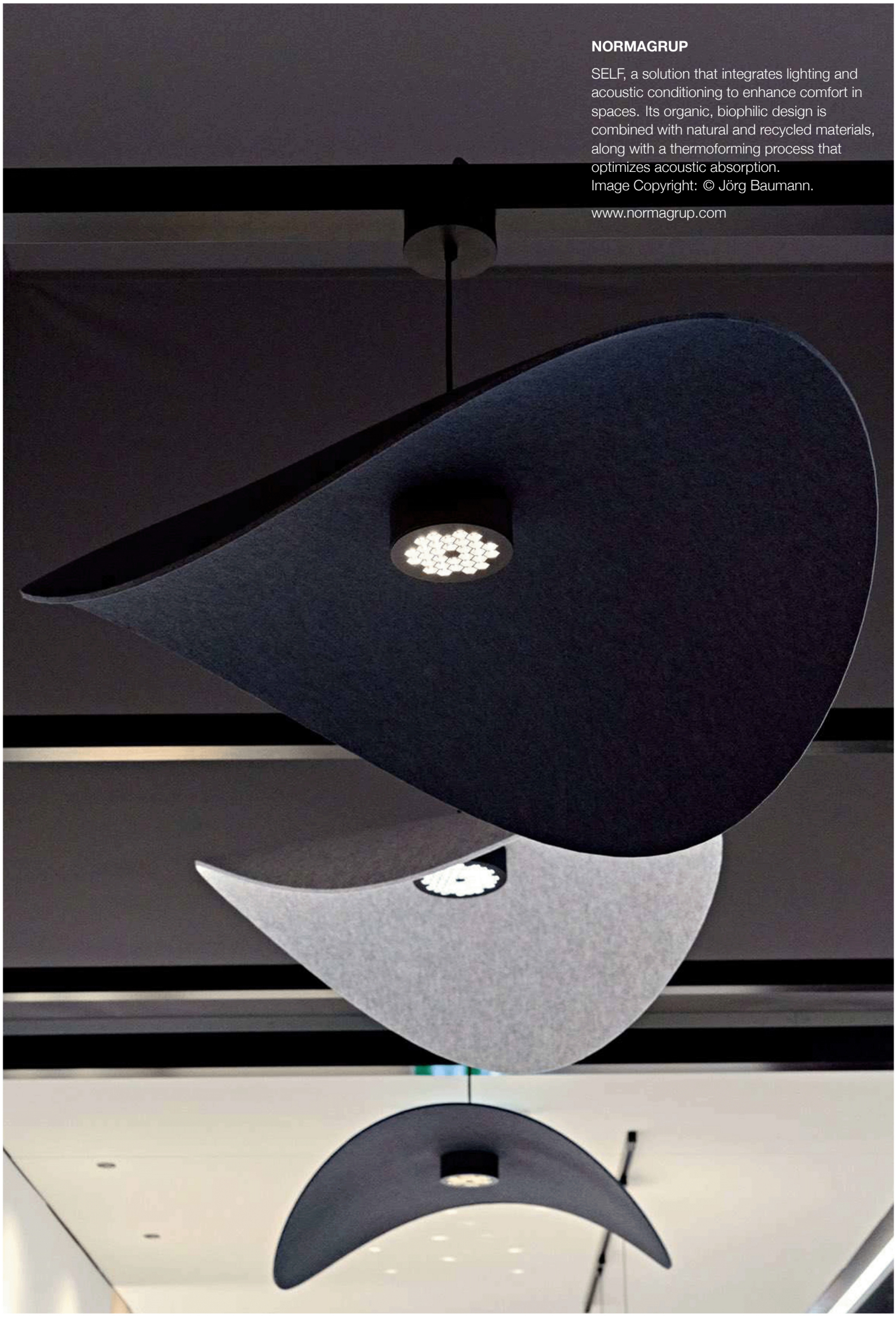
ENVIVA is an ultra-slim linear lighting system combining high efficiency (up to 184 lm/W) with circular design principles. Offering glare-free direct/indirect light and low-carbon materials, it reduces energy use and emissions while enabling easy disassembly, recycling, and smart control integration for sustainable, future-ready architectural lighting applications.
Image Copyright: © XAL.

www.xal.com

REGIOLUX

The tirabo combines a minimalist design language with the OptiLens multi-prism optic. Its cushion-shaped lens structure produces a uniform light distribution while significantly reducing multiple shadows. With glare control down to UGR ≤16, the luminaire is suitable for screen-based workstations and visually demanding applications. A color rendering index of CRI ≥90 supports accurate color differentiation, while efficacies of up to 176 lm/W at 3000 K and 4000 K ensure high energy performance.
Image Copyright: © Regiolux.

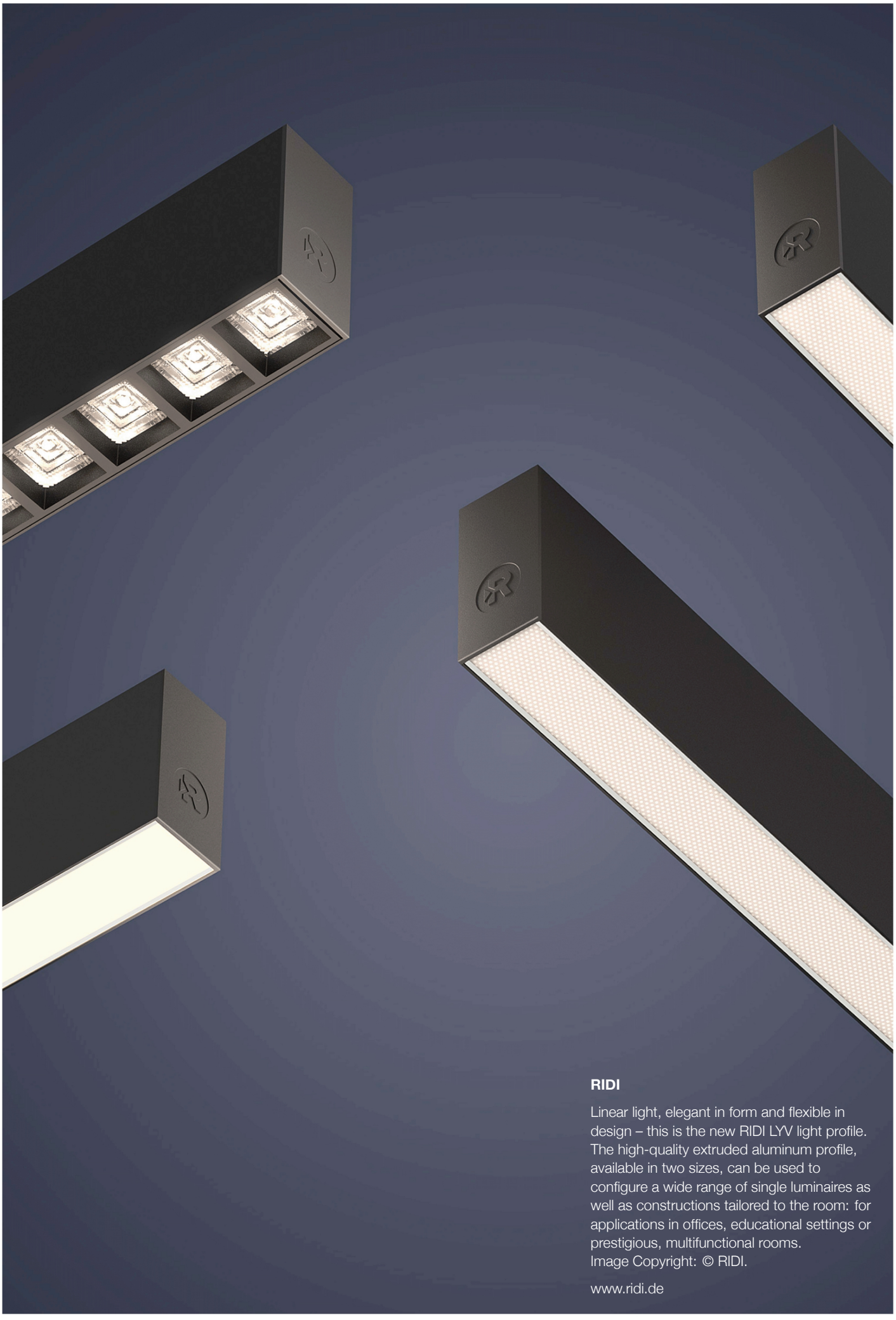
www.regiolux.de



NORMAGRUP

SELF, a solution that integrates lighting and acoustic conditioning to enhance comfort in spaces. Its organic, biophilic design is combined with natural and recycled materials, along with a thermoforming process that optimizes acoustic absorption.
Image Copyright: © Jörg Baumann.

www.normagrup.com



RIDI

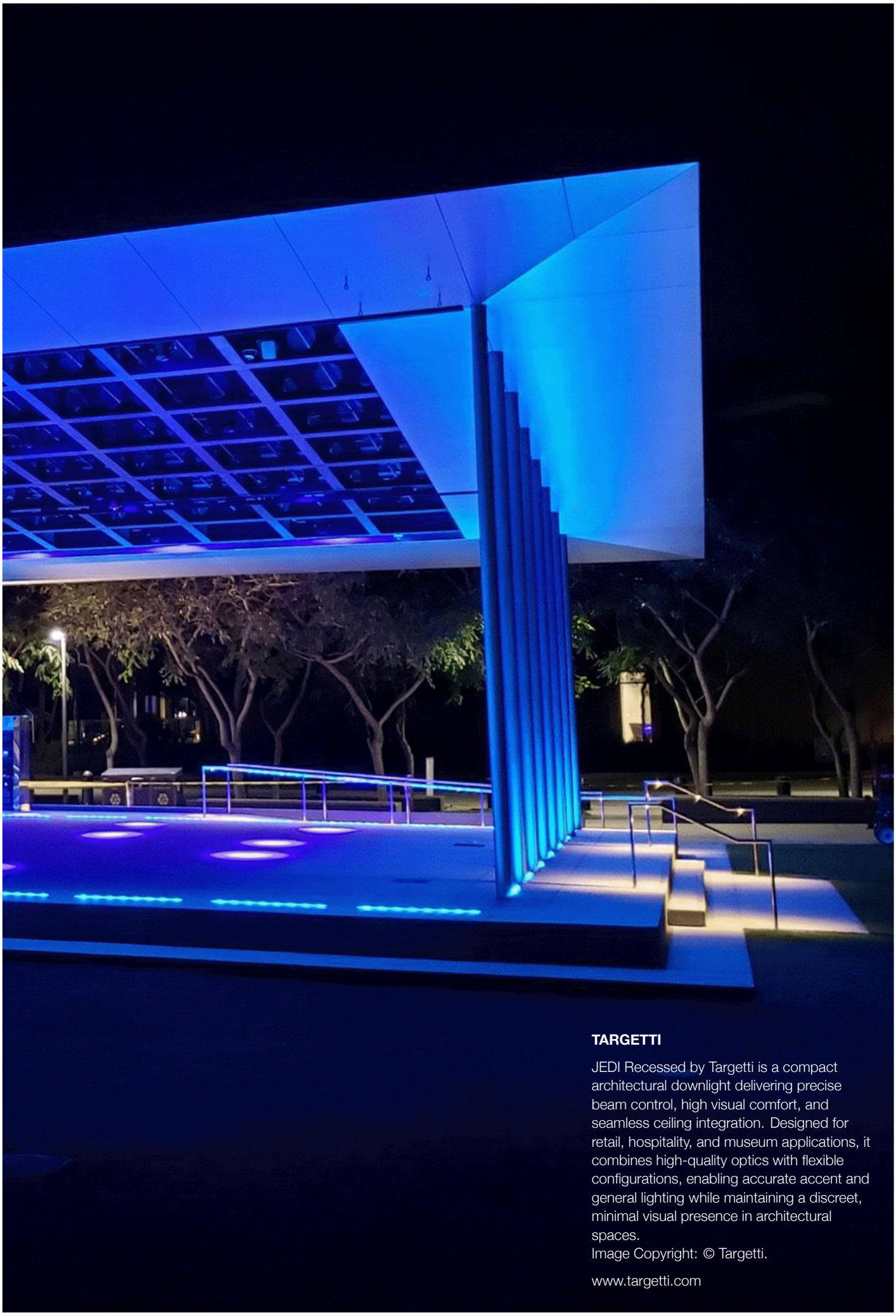
Linear light, elegant in form and flexible in design – this is the new RIDI LYV light profile. The high-quality extruded aluminum profile, available in two sizes, can be used to configure a wide range of single luminaires as well as constructions tailored to the room: for applications in offices, educational settings or prestigious, multifunctional rooms.
Image Copyright: © RIDI.

www.ridi.de

NORKA

The new ZUG LED LENS and ZUG LED DARKLIGHT tube luminaires from NORKA combine extreme durability with special optics for precise light guidance and glare control with maximum efficiency.
Image Copyright: © Norka.

www.norka.com



TARGETTI

JEDI Recessed by Targetti is a compact architectural downlight delivering precise beam control, high visual comfort, and seamless ceiling integration. Designed for retail, hospitality, and museum applications, it combines high-quality optics with flexible configurations, enabling accurate accent and general lighting while maintaining a discreet, minimal visual presence in architectural spaces.

Image Copyright: © Targetti.

www.targetti.com

ams OSRAM

EVIYOS™ Shape can project emergency and direction symbols onto the ground to indicate escape routes. These displays can be changed in real time, allowing escape routes to be adapted flexibly when certain areas are no longer passable. EVIYOS Shape can also be used to create a coordinated warning system featuring classic smoke detectors used in private homes. In addition to the projected symbols and acoustic alarms, a highly visible ceiling light — comparable to industrial warning lights — signals an emergency with a red flashing light.
Image Copyright: © ams OSRAM.

ams-osram.com

BRIDGELUX

Bridgelux has introduced the DriveLux™ DX3-C and DX4-C, compact light engines integrating COB LEDs, driver, and Casambi Bluetooth control in a 50 mm × 10 mm form factor.

Image Copyright: © Bridgelux.

www.bridgelux.com

OPTICAL DESIGN UNIT

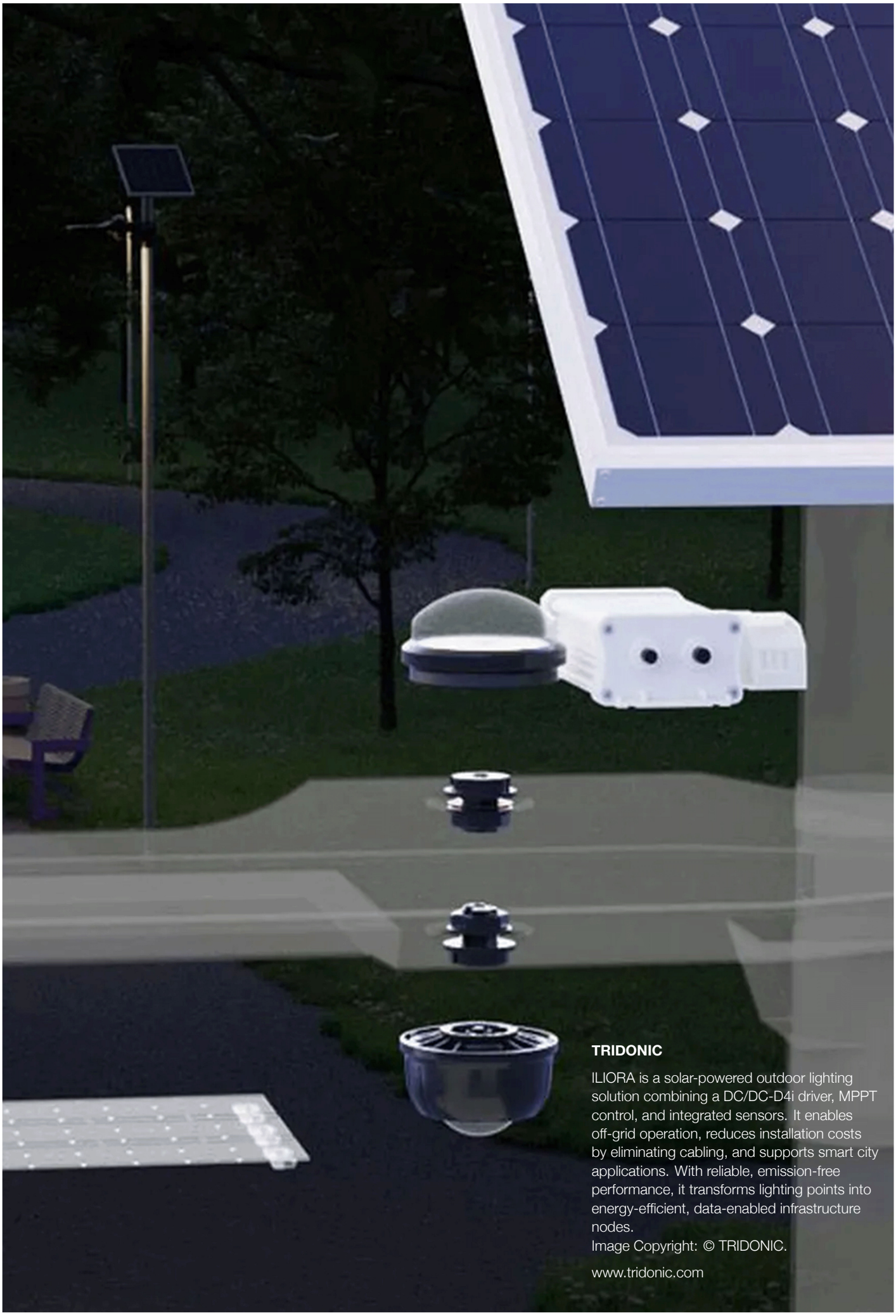
[o3u]-cam is an innovative camera-based measurement system that visualizes light quality by linking technical data with human perception. It enables detailed analysis of color temperature distribution and optical homogeneity, supporting designers and manufacturers in optimizing luminaires while bridging the gap between measurable performance and visible lighting effects.
Image Copyright: © o3u.

www.o3u.at

LEDVANCE

DIRECT EASY is an intuitive lighting control solution enabling fast commissioning of dimmable lighting via an app. Designed for simplicity and flexibility, it allows easy setup without complex infrastructure while delivering energy savings of up to 80%, making it ideal for efficient upgrades and user-friendly operation in modern lighting installations. Image Copyright: © LEDVANCE.

www.ledvance.com



TRIDONIC

ILIORA is a solar-powered outdoor lighting solution combining a DC/DC-D4i driver, MPPT control, and integrated sensors. It enables off-grid operation, reduces installation costs by eliminating cabling, and supports smart city applications. With reliable, emission-free performance, it transforms lighting points into energy-efficient, data-enabled infrastructure nodes.

Image Copyright: © TRIDONIC.

www.tridonic.com

Reflections on the LightingEurope CEO Event at Light + Building 2026

Elena Scaroni, Secretary General of LightingEurope

A few weeks after the CEO debate at Light + Building in Frankfurt, the energy and ideas exchanged during what I like to call the "Davos of the lighting industry" continue to resonate. Our LightingEurope's CEOs event brought together industry leaders and a key policymaker for a high-level exchange on the future of lighting. While these reflections are not official conclusions, I hope they capture the spirit and some of the key messages that emerged from the event.

A Resurgent Industry?

The most immediate takeaway was the enthusiasm for the event itself. "The lighting industry is back!" I heard after the event. LightingEurope, the voice of the lighting industry in Europe, seems to remain a reference point for manufacturers and stakeholders. The success of the event is, of course, also due to the success of the fair and to the collaborative efforts of ZVEI, and Messe Frankfurt GmbH.

The session opened with a keynote by Robert Nuij, Head of Unit at DG Energy at the European Commission, who shared the EU's strategies for energy efficiency in the built environment. His presentation offered clarity on the upcoming review of Ecodesign rules for lighting products and ended with a Q&A. The Commission seems particularly open on LightingEurope's proposals on the simplification of the Ecodesign regulation (SLR) and the Energy labelling regulation (ELR), but also on the Energy Performance of Buildings Directive (EPBD) and Taxonomy.

The keynote was followed by a high-level debate among lighting companies' CEOs on the Challenges and Opportunities for the Lighting Industry with Alfred Felder of Zumtobel, Mark-Oliver Schreiter of ERCO, Hubertus Volmert of Trilux, Paolo Cervini of Gewiss, and As Tempelman of Signify.

The Challenges Ahead

The CEO debate offered a rare look into the concerns of industry leaders. While the transition to LED lighting was a monumental achievement, the next frontier is even more complex: digitalizing lighting systems, integrating them with other technologies, and addressing the lack of interoperability protocols in buildings. As one CEO put it, "We have not teamed up enough so far." The most persistent challenges are not just global supply chain disruptions, but those closer to home—in our buildings and cities.

Policy and Collaboration

Despite the challenges, there are still "low-hanging fruits" to be harvested, particularly in outdoor lighting. The shift to LED in Europe is only halfway complete, and mature technologies can significantly reduce environmental impacts. However, achieving this requires more dialogue with authorities. Regulations, certifications, and targets—whether for decarbonization or promoting "Made in Europe" labels—are not panaceas, especially given the global nature of the lighting supply chain. Yet, several CEOs argued that these measures could send a clear signal to the European industry, encouraging sustainable business practices and fostering interoperability.

Opportunities Within Reach

As captured by the comments received from the audience, the industry is focused on the implementation of the Energy Performance of Buildings Directive (EPBD), which recommends improving indoor environmental quality via high-quality lighting. The European Commission's confirmation that policymakers are aligned with the industry's goals—using technology to save energy and enhance quality of life—was a welcome development. It's a call to action for even closer collaboration between industry and policymakers.

The Role of Trade Associations

In all these areas, trade associations like LightingEurope or ZVEI are indispensable. They foster team spirit within the industry and with policymakers, authorities, and other stakeholders. Their work is built on shared goals and mutual respect, even when progress is slow and effort intensive.

The event also highlighted how the optimism, agility, and imagination of business leaders can complement the pragmatism of trade associations. Together, they can tackle the new challenges that arise daily.

A Call to Action: Team Up

The overarching message from Frankfurt is clear: collaboration is not a given, but it is essential. As the industry stands at a crossroads, the imperative to "team up" has never been more urgent. Whether it's among companies, with policymakers, or across the value chain, working together will define the future of lighting in Europe and beyond. ■

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Keynote by Robert Nuij, Head of Unit at DG Energy at the European Commission

CEO debate moderated by Elena Scaroni with Paolo Cervini (Gewiss), Alfred Felder (Zumtobel), Mark-Oliver Schreiter (ERCO), As Tempelman (Signify), and Hubertus Volmert (Trilux). From left to right.

LightingEurope's team at their booth at Light + Building 2026 (from left to right): Alfredo Menghini (LE staff), Maurice Maes (President of LE, Signify), Simon Wessels (LE staff), Elena Scaroni (LE staff), Robert Nuij (European Commission), Antoine Hattemer (LE Staff), Teresa Selvaggio (LE staff), Victoria Pixner (LE Staff), Arnulf Rupp (LE Board member, Inventronics).

CEO Event Organizer: LightingEurope

LightingEurope is the European industry association representing manufacturers of lighting equipment and components. It advocates for sustainable, energy-efficient lighting and supports regulatory frameworks that enable innovation and circular economy practices. The organisation promotes quality lighting, standardization, and digital transformation across Europe's lighting value chain.

Supporting Organization: ZVEI

ZVEI e.V. represents Germany's electrical and digital industries, covering a broad spectrum from components to systems and solutions. The association drives innovation, digitalization, and sustainability while supporting international competitiveness. It plays a key role in shaping standards, policies, and technological development across the electrical engineering sector.

Light + Building 2026 Organizer: Messe Frankfurt GmbH

Messe Frankfurt GmbH is one of the world's leading trade fair organizers, hosting international exhibitions across a wide range of industries. With a global network and strong portfolio of events, it connects markets and industries, fostering innovation, business exchange, and knowledge transfer on a worldwide scale.

IALD Enlighten Europe 2026 – Brings Global Lighting Design Leaders to Paris

LED professional Editors

The International Association of Lighting Designers (IALD) announced that registration is now open for IALD Enlighten Europe 2026, the premier boutique conference for architectural lighting professionals. The event will take place from 17 to 19 June 2026, in Paris, France, bringing together the European lighting design community for three days of professional development, networking, and industry collaboration.

© IALD Enlighten Europe 2025.

Founded in 1969, the International Association of Lighting Designers (IALD) is an internationally recognized organization supporting lighting design professionals.

With members worldwide, the IALD champions the advancement of lighting design as both an art and a science, advocating for the power of light to transform environments and experiences.

"Paris, the 'City of Lights,' provides the perfect setting for our professional community to gather, learn, and take inspiration," said Christopher Knowlton, IALD Chief Executive Officer. "IALD Enlighten Europe 2026 will bring together the brightest minds in the industry for meaningful discussions that will shape the future of architectural lighting design."

Intimate by Design

IALD Enlighten Europe 2026 features dozens of top-tier educational sessions that bridge Creativity, Commerciality, and Collaboration—the three pillars of successful lighting design practice. Registration is intentionally capped below 400 attendees to facilitate meaningful connections and thought-provoking discussions among industry peers.

The conference serves the full spectrum of lighting professionals, including designers, architects, engineers, manufacturers, and suppliers. Developed by lighting designers, for lighting designers, the event benefits attendees through in-depth discussions, relationship-building, and networking opportunities rarely found at trade shows or larger industry gatherings.

Educational Excellence

Sessions at Enlighten Europe 2026 will be led by leading practitioners and thought leaders in architectural lighting design. The conference agenda challenges traditional thought, identifies emerging trends, and motivates attendees to advance the profession. Topics span the latest developments in lighting controls and systems integration, artificial intelligence and emerging technologies, health and well-being, and sustainability.

"The principles of peer-to-peer mentorship are built into these conferences," said Carla Wilkins, IALD, CLD, President of the IALD Board of Directors. "We learn at all stages from those with the most relevant guidance, regardless of hierarchical norms. Whether you're at the start of your career or an established professional, attending IALD Enlighten Europe will leave you feeling more informed, inspired, and prepared to harness the power of light."

Registration Information

For complete conference details, including venue information, agenda, speakers, and registration, visit iald.org/ee26.

More information on the IALD and its advocacy for the lighting design profession and the global community is available at iald.org. ■

IALD Enlighten Europe 2025 (Valencia, Spain). (c) IALD Enlighten Europe 2025.

DALI Lighting Awards 2026 – Highlight Interoperability and Innovation

LED professional Editors

The presentation of the DALI Lighting Awards 2026 at the Light + Building 2026 underscored the growing importance of standardized, interoperable lighting control in modern buildings and urban environments. Organized by the DALI Alliance, the international awards program recognized outstanding projects that demonstrated the practical and innovative application of DALI-based lighting systems worldwide.

This year's edition recorded a significant increase in participation, with submissions nearly tripling compared to previous years. Entries were received from across Europe, Asia, the Americas, Oceania, and Africa, reflecting the global reach and rapid adoption of DALI technologies. The awards were structured into two main categories: Application Awards, recognizing real-world implementations, and Innovation Awards, focusing on technological advancements and new applications.

A total of 13 winning projects were selected, complemented by three highly commended entries. The diversity of the awarded projects illustrated the versatility of DALI systems across a wide range of applications, from residential and commercial environments to industrial facilities and smart city infrastructure.

In the Application Awards category, the Estoril Court luxury residence in Hong Kong, delivered by Zhuhai LTECH Technology, demonstrated advanced residential lighting control. In commercial interiors, Litelab was recognized for the Hindustan Unilever workplace in Mumbai, where DALI was integrated with daylight utilization and building management systems to create an efficient and user-centric environment. BEGA received the award for the exterior lighting of Akershus Fortress in Oslo, while B.E.G. was honored for its scalable lighting solution at the Bosch Research and Development facility. In the Smart Cities and Infrastructure category, Signify was awarded for its lighting design at Ezhou Huahu Airport in China.

The Innovation Awards highlighted key technological developments shaping the future of lighting control. Crown House Technologies was recognized for its use of the D4i standard in Oxford's Stephen A. Schwarzman Centre for the Humanities, enabling data-driven building optimization. Tridonic stood out by winning two awards: one for emergency lighting integration at the American University in Cairo and another for the AlUla Film Residence, which showcased intelligent energy-saving strategies.

Further awards reflected emerging trends such as human-centric lighting, smart city integration, and advanced system interoperability. Elekon was honored for its hospital project in Istanbul, while Flashnet demonstrated large-scale smart city integration in Washington, D.C. The implementation of DALI+ at 500 Bourke Street in Melbourne by Lightmoves and Zencontrol highlighted the growing importance of wireless and IP-based control systems. Additional recognition went to Bluebottle for connected lighting at Gate 8 in Australia and to Foster + Partners and Delmatic for their integrated lighting control at Apple's headquarters in London.
Special commendations were awarded to Delta Greentech, Helvar, and Inventronics for projects demonstrating excellence in design, smart infrastructure, and sustainability.

As Paul Drosihn, General Manager of the DALI Alliance, noted, the "quality and diversity of submissions were exceptional", reflecting the continued global growth of DALI as a foundation for intelligent and interoperable lighting systems.

Overall, the DALI Lighting Awards 2026 demonstrated that lighting control has evolved into a key enabler of smart, connected, and energy-efficient environments, with standardized systems playing a central role in future-ready building and city infrastructures.

DALI Lighting Awards 2026 – Winners Overview

Application Awards

- Residential: Zhuhai LTECH Technology – Estoril Court Luxury Residence
- Commercial Interior: Litelab – Hindustan Unilever
- Commercial Exterior: BEGA – Akershus Fortress
- Industrial: B.E.G. – Bosch R&D Manufacturing Facility
- Smart Cities & Infrastructure: Signify – Ezhou Huahu Airport

Innovation Awards

- Best Use of D4i: Crown House Technologies – Stephen A. Schwarzman Centre
- Emergency Lighting Integration: Tridonic – American University in Cairo
- Human Centric Lighting: Elekon – Acibadem Kartal Hospital
- Integration into Other Systems: Flashnet – Washington D.C.
- Best Use of DALI+: Lightmoves & Zencontrol – 500 Bourke Street
- Sustainability & Energy Efficiency: Tridonic – AlUla Film Residence
- Smart & Connected Lighting: Bluebottle – Gate 8
- Innovation in Lighting: Foster + Partners / Delmatic – Apple Battersea

Highly Commended

- Delta Greentech – Dishuiyun Hall
- Helvar – Lublin Metropolitan Railway Station
- Inventronics – Baotou Aluminium Project

Lighting Awards 2026

WINNERS

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Lighting Awards
2026

WINNERS













Research Project Advances Sustainable Material Circularity

TRILUX, LED professional Editors

Lighting manufacturer TRILUX and metal processing specialist OTTO FUCHS KG have joined forces in a collaborative research initiative aimed at advancing circular economy practices within the lighting industry. Since early 2024, both partners have been working to enable high-quality recycling of aluminum louver grids from legacy luminaires, with the goal of transforming recovered material into new luminaire profiles.

Initial results are highly promising. Using a specially adapted extrusion process, the project team successfully produced a first prototype from recycled aluminum chips—demonstrating the technical feasibility of this innovative approach.

At the core of the research is the challenge of efficiently converting aluminum from reflector grids into high-quality housings for LED luminaires. The project evaluates feasibility, CO_2 reduction potential, product performance, and market viability. TRILUX prepares the aluminum for recycling, while OTTO FUCHS processes the material in its advanced production facilities.

A key advantage of the applied method is that the aluminum is not remelted during processing—significantly reducing environmental impact. By comparison, low-carbon primary aluminum typically has a global warming potential (GWP) of around 4 kg CO_2 equivalent per kilogram. In contrast, the pre-material used in this recycling approach achieves a GWP of approximately 0.1 kg CO_2 equivalent, highlighting substantial sustainability gains.

Material testing has further confirmed that the newly developed aluminum profiles meet all essential requirements for luminaire housing applications. Various surface finishing methods were evaluated, with anodizing emerging as the preferred option due to its ability to fully preserve the recyclability of the material.

"TRILUX and OTTO FUCHS are pleased to jointly realize a project focused on responsible resource management," said Sebastian Trägner, CTO at TRILUX. "The results to date demonstrate that sustainable material cycles in lighting technology are achievable—although further development steps are still required."

Dr. Sebastian Wurth, Development Engineer at OTTO FUCHS, added: "Our close collaboration with TRILUX allows us to apply our recycling expertise directly to the development of sustainable applications. We see significant potential in the material recycling of aluminum—well beyond this project."

Encouraged by the positive findings from the initial phase, both partners are committed to advancing the initiative. The next stage will focus on further optimizing the process and validating it under real-world conditions.

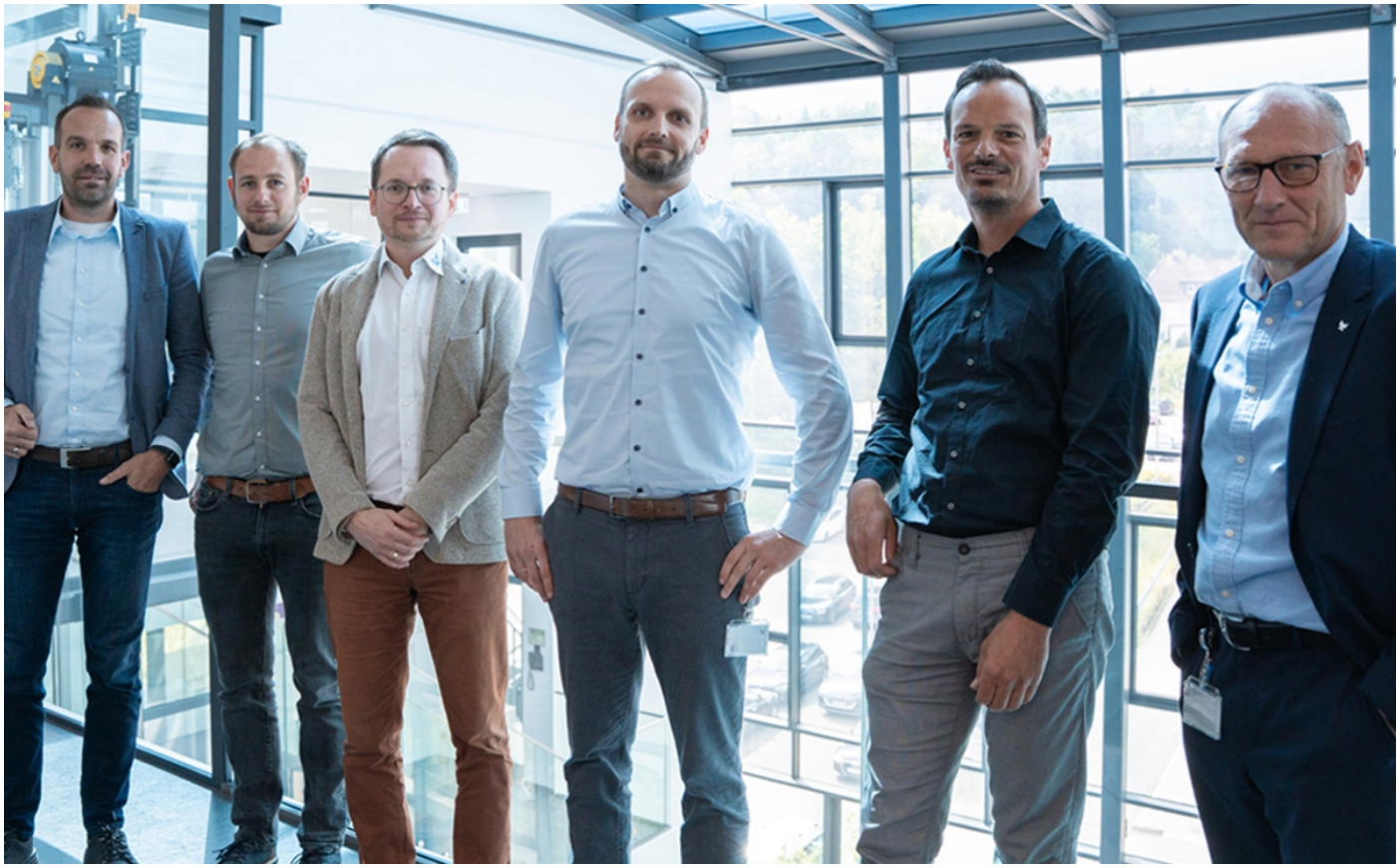
In this joint research effort, TRILUX and OTTO FUCHS are redefining how aluminum from legacy lighting systems can be reintegrated into new product cycles—demonstrating a tangible pathway toward more sustainable lighting solutions. ■

About TRILUX

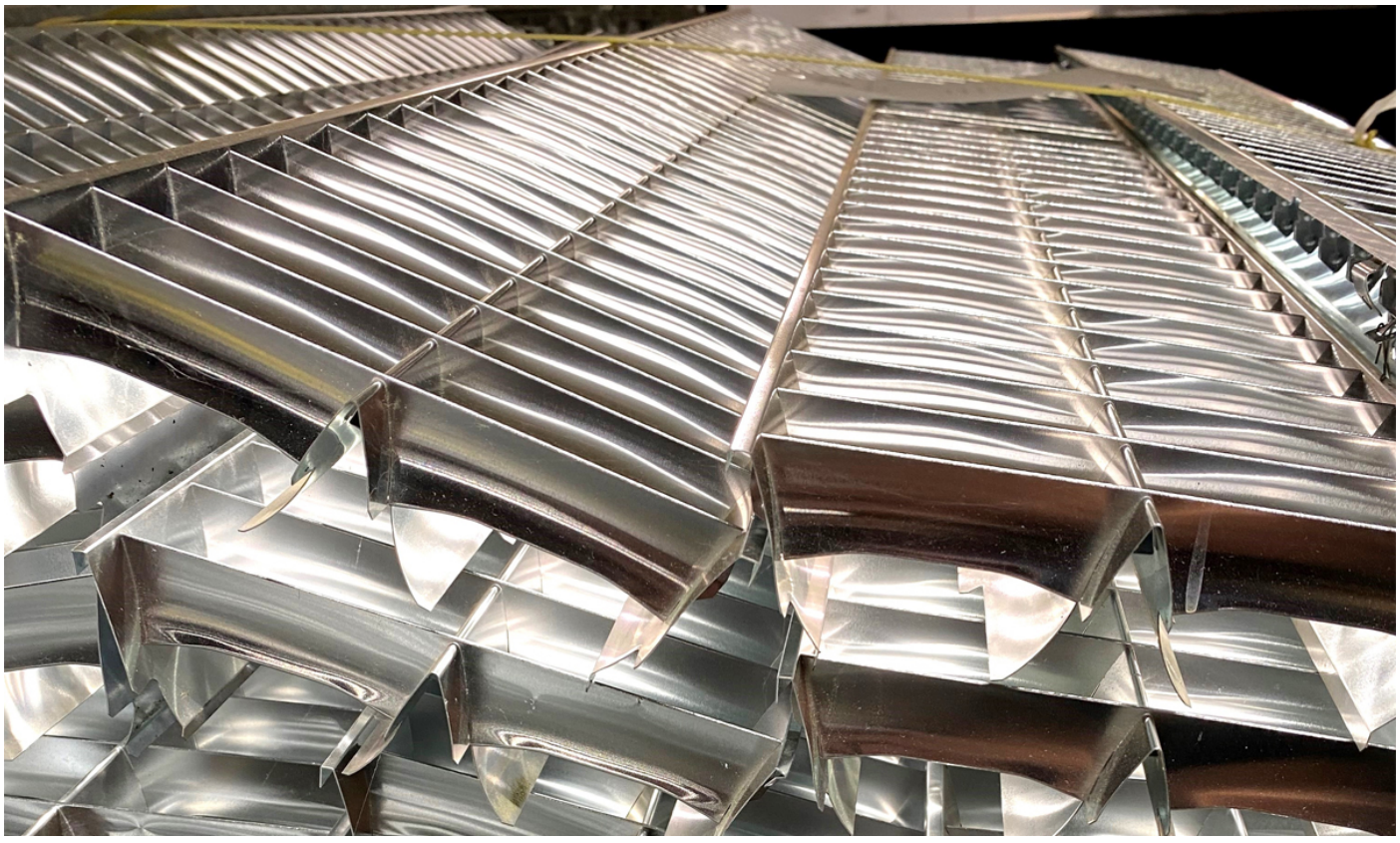
TRILUX is a leading provider of smart and sustainable lighting solutions for professional applications. With a holistic approach combining luminaires, sensors, lighting management, and services, the company delivers integrated solutions tailored to modern buildings and urban environments. TRILUX focuses on energy efficiency, user comfort, and digitalisation, supporting customers from planning through installation to operation, with a strong emphasis on innovation, quality, and long-term value.

About Otto Fuchs

Otto Fuchs is an internationally active technology company specialising in high-performance metal components and systems. With expertise in aluminium, titanium, magnesium, and steel, the company serves industries including automotive, aerospace, construction, and industrial applications. Otto Fuchs combines advanced engineering with precision manufacturing and sustainable production processes, delivering high-quality solutions that meet demanding technical requirements and support long-term industrial innovation.



TRILUX and OTTO FUCHS KG are collaborating on a research project to develop new luminaire profiles from aluminum louver grids of legacy lighting systems. Representatives from both partners recently met to review the project's progress.
(Left to right: Sebastian Trägner (CTO, TRILUX), Dr. Sebastian Wurth (Development Engineer, OTTO FUCHS), Dr. Lukas Kwiatkowski (Head of Industrial Sales, OTTO FUCHS), Patrik Bieker (Head of Product and Technology Development, OTTO FUCHS), Thomas Schreiber (TRILUX Design & Concept Team), Jörg Ihne (CTO Development & Digitalization, OTTO FUCHS).)



From old comes new: Through an innovative process, aluminum from the refector grids of legacy luminaires is transformed into new luminaire profiles.

The Theory of Emotional Design

Sergey Sizy, Lighting Designer (IALD) – LiDS Lighting Design Studio

The theory of emotional design was developed by Sergey Sizy in order to provide solutions to the challenges arising from contemporary human needs for the conscious application of the emotional impact of light. This subject is so extensive and multi-faceted that it deserves more than a single discussion. In this article, he intends to initiate such a discourse and to contribute to the study and application of principles for managing human mood and emotions through lighting.

The experiment that laid the foundation for the Theory of Emotional Design.

How It All Began

In 2012, during his courses for designers, together with two groups of forty students each, Sergey Sizy conducted an experiment that confirmed his hypothesis that our emotional perception does not depend on the semantic content of what we see, but is formed by a set of abstract characteristics of spatial composition. Moreover, color and light are the determining factors of such influence. Considering that lighting can be easily and rapidly modified, it becomes a key instrument of emotional impact that can be controlled through individual parameters of the luminous environment. This means that by creating lighting scenarios, the lighting designer plays upon the strings of our emotions. This highly responsible role of a conductor requires a scientifically grounded approach. It was precisely such a method that Sergey developed over the following years—first in theory and subsequently validated in practice through his studio projects and the works of his students.

This concept was articulated in the Manifesto of Emotional Design, published at the end of 2014. In it, Sergey described a step-by-step algorithm for the work of a lighting designer from the perspective of shaping a controlled emotional impact on users.

Analysis

Any action requires preliminary analysis. Often, we perform it without consciously reflecting on it—automatically, intuitively. Analysis provides us with the minimum set of information necessary to make the correct decision. In design, this stage precedes the development of any concept. If the analysis is conducted properly, conscientiously, and with sufficient depth, the designer is generally left with a single viable solution.

First and foremost, in design tasks we consider lighting in the context of its impact on the human being. Therefore, the first subject of analysis is the future users of the space being created. Secondly, lighting has no meaning in itself and must always be considered within the context of the surrounding material environment; thus, the objects to be illuminated and their spatial location must be analyzed. Thirdly, the needs of users change over time, and therefore temporal factors must also be taken into account.

The outcome of the analysis is the answer to the question: why are we creating this lighting? Within the framework of emotional design, it is necessary to define the desired perception of the surrounding space and the mood we intend to create for users in each specific lighting scenario.

Concept

The idea underlying emotional design follows directly from its very purpose. In order to create a space that will evoke predetermined emotions, it is necessary to identify something that already generates similar associations and produces a comparable mood in future users. It is essential to understand that we are speaking specifically about the users' perceptions—not those of the designer or the client. The client does not always represent the opinion of the majority of users, and the designer may never find themselves on the other side of their own work. Many designers often forget this simple principle, creating a space based on their own sensations, which may have nothing in common with those of future users—thus contradicting the very idea of design.

An emotional image is the missing link that makes the results of the work resonant first and foremost with future users, and only secondarily with the designer.

Selection of the Image

This stage follows the analysis and marks the beginning of concept development. Having understood what is capable of eliciting the required emotions in users, it is necessary to identify images that will serve as an appropriate trigger. Most often, such an image proves to be visual, since the overwhelming majority of information about the surrounding world is obtained through sight.

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The materiality of visual images gives them a significant advantage (for example, in comparison with music) in the development of a concept—namely, the possibility of continuous visual comparison between the luminous environment and the "original" that evokes the desired emotions.

Another question is: From which domain should this image be selected? The most successful choices tend to be natural associations, which are not only close to human nature itself but also most often evoke similar emotions in different users, since our experience of nature is innate and evolutionarily conditioned. In this case, the designer may select an image at their own discretion and be confident that it will elicit comparable sensations in any user.

If images are drawn from culture, they rely not on innate but on acquired experience, and the probability of coinciding perceptions is significantly lower—although still relatively high, because culture unites users within a shared social group. However, if the designer operates exclusively with personal associations, the likelihood of an accurate "resonance" approaches zero.

Ultimately, the image must be as simple as possible, clearly articulated, and unambiguous for all users.

Example of an emotional image.

Decomposition of the Image

In order to translate the desired mood into a project, it is essential for the lighting designer to establish a connection between the intended outcome—namely, the required emotional response of users—and the means of achieving it: the appropriate characteristics of the luminous environment. Therefore, the selection of the associative imagery is followed by its analysis and subsequent formalization.

Example of image simplification for subsequent decomposition.

The purpose of decomposition is to identify the perceptual stimuli that shape our reading of the image in a particular way rather than another. This stage describes both the general vectors of influence—such as the prevailing color palette, forms and geometry, and the relationship between dominant and background—and the specific parameters of the luminous environment present in all selected images within the associative series.

There are quite a number of such characteristics; however, the principal lighting parameters include the following: quantitative indicators (illuminance and luminance); qualitative indicators (correlated color temperature and color rendering index, or the color of radiation); the direction of luminous flux and the character of light distribution; uniformity of illumination and its localization; the duration of the lighting effect and the frequency of its dynamics, where applicable.

Most of these parameters can be directly transferred into the lighting concept of the future project; the others will undergo certain modifications or may be rejected altogether on the basis of conclusions drawn from the pre-design analysis.

When incorporating parameters into the concept, it is necessary to assign them a hierarchy of importance. For example, in one case qualitative lighting characteristics may prove to be key, while quantitative indicators recede into the background. In another concept, the amount of light and its uniformity may become the primary factors. Each project is a unique case, requiring the author's attentiveness and an individual approach.

Example of a lighting composition.

Example of the application of Emotional Design in an interior.

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Such a hierarchy is necessary in order to ensure that, during implementation, it is clear which aspects require primary attention, and which may be compromised if a choice must be made between conflicting lighting parameters.

The lighting characteristics ultimately defined in this way form lighting scenes (not to be confused with lighting scenarios) for individual visual spaces. Taking the temporal factor into account, each lighting scene—depending on the objectives established earlier—acquires two or more lighting scenarios.

Means of Concept Implementation

The selection of lighting types is another intermediate stage on the path from idea to realization. Appropriate lighting methods and techniques are determined based on the objective of creating a luminous environment with characteristics defined through the decomposition of associative imagery.

Having established what the luminous environment should be like and how it will evolve over time, it is necessary to choose the means of implementation: lighting fixtures and light sources, materials that reflect, diffuse, or refract light, as well as the lighting control system. It is important to remember that, in addition to the luminous environment, the spatial environment also participates in the realization of the concept. Therefore, at this stage it is permissible to introduce some adjustments to it—modifying objects, materials, or finishing colors—so that the result most fully corresponds to the goals and ideas of the concept. Success depends on the dialogue between the lighting designer and the professionals shaping the space: architects, landscape and interior designers, or decorators.

After selecting the lighting types and the means for their implementation, it may become evident that there are too many types of lighting equipment. This not only increases the budget, but also reduces versatility and reliability while adding complexity to the lighting installation. To avoid this, optimization is employed, based on the understanding that the same impact or effect can be achieved through different means. Accordingly, it is acceptable to use a single type of lighting or a single piece of equipment for multiple conceptual objectives—across different lighting scenes and scenarios.

Significance of the Methodology

The theory of emotional design makes it possible to construct an environmental concept that not only fulfills the required functions, but also takes into account the perceptual characteristics of its users, the emotions that resonate with them, and creates a contextually appropriate mood—one that can be readily modified through the dynamic capabilities of lighting.

Regardless of the type of lighting in question—natural or artificial, outdoor or interior, residential or office—wherever a human being is present, light is essential, and it must be selected with consideration for our visual and emotional perception, as well as the needs, characteristics, and aspirations of users. This is why the ideas and approaches of emotional design can be applied across a wide range of fields, including design, architecture, and urban planning, extending beyond the scope of interior lighting alone. ■

Sergey Sizy is a lighting designer, member of the International Association of Lighting Designers (IALD) and a member of the International Commission on Illumination (CIE). He is the founder of the LiDS Lighting Design Studio and educational platform LiDS Lighting Design, the online conference Bright Thoughts, the Lighting Design Association and LDA Conference. The studio's team has delivered several hundred projects across eight countries worldwide and has received over twenty awards in various international competitions. In 2023, Sergey Sizy was included in the global Top 40 lighting designers under 40, according to the 40 under 40 ranking.

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The team of the LiDS Lighing Design Studio.

Illuminance Measurements in Sports Lighting – Part II, Field Assessment and Robotics

Octavio L. Pérez, Ph.D, FIFA Approved Floodlights Technician,
Integrative and Sports Lighting Research Scientist & Consultant

In a previous article we reviewed the illuminance meter (luxmeter) and its limitations in sports lighting illuminance assessment. That article was more related to the technicalities and fundamentals of the instrument.

In this piece, we will review the applications of the luxmeter in the field, in sports lighting, and how the accomplishment of different measurements (horizontal, vertical, camera) has different approaches – one does not fit all.

Even if illuminance is the measurand of choice, we have to keep in mind its limitations, as eyes and cameras perceive luminance, that is more complex to measure and evaluate.

Illuminance in Sports Lighting – Horizontal (E_h) and Vertical (E_v)

We have two (2) main illuminances to assess in sports lighting, particularly for football/soccer:

- Horizontal (E_h)
- Vertical (E_v)

In the case of **vertical** measurement of illuminance (E_v), we have to distinguish between two main approaches:

- **Orthogonal Planes** related to the play area (PA): E_v_00, E_v_90, E_v_180, E_v_270
- **Camera Planes** (measurement planes normal to the cameras)

About the **heights**, following international standards, such as EN 12193 (Europe) and AS2560 (Australia), ***E*$_h$ is taken at ground level and *E*$_v$ at 1.5 m** (same as for glare calculations) with some exceptions.

The reason for these criteria makes sense. In the case of E_h, this is the illuminance that reaches the playground, the surface that the cameras are going to capture, and the ball and boots in the case of sports such as football/soccer. For E_v, it is the average height of the upper side of the body and arms of the players. Think about the differences between sports such as football/soccer and basketball.

There are **private standards that do both measurements (*E*$_h$ and *E*$_v$) at the same height**, based on reasons of **practicality**. Rather than doing one pass at ground level and another pass at 1.5 m, it is much easier, and cheaper, to do a single pass at 1 m. The practicality justification is that E_h at ground level and E_h at 1 m do not differ "significantly", assumption that is fundamentally wrong, getting real differences in the sidelines (E_hg < E_h1 m) and in the middle of the field (E_hg > E_h1 m).

As a "curiosity", even if this is a disregarded detail in sports lighting, we also have to consider that simulations **("Modelled Performance") are calculated assuming that the pitches are flat**. This can be the situation for indoor spaces, but definitely not for outdoor pitches. Depending on the weather/rain and drainage systems, outdoor pitches can have slopes that will affect the lighting, with height differences between the center and the sides of the pitch (**"crowning"**). Nevertheless, this is out of the scope of this article.

Let's go deeper on each of the illuminances (E_h and E_v) before entering into automation/robotics details.

Horizontal Illuminance at Ground Level (E_hg)

Horizontal illuminance measurement is the historical foundation of sports lighting.

The **main aim of *E*$_h$ is to assess the uniformity levels that reach the playing surface** (ground). Factors such as the **reflectance** of the ground material play a critical role, and we can end up seeing dark spots in places of maximum illumination, as the "brightness" that we perceive is not illuminance but luminance (reflected light). Nevertheless, luminance measurement has its own complexities, and Eh assessment has been in place for years, acting as an acceptable "proxy".

The measurement of horizontal illuminance (E_h) at ground level (E_hg), is one of the more hated ones by operators. The reasons are easy and understandable:

- First, it is about **ergonomics**: you need to lean forward to put the instrument on the ground. At one point nothing to worry about, but when you have to do it around 100 times, at night, in a humid environment, your back will start to resent it.
- Second, proper **leveling** of the instrument. It is very easy in indoor surfaces, such as basketball courts, and a bit tricky when you go into grass surfaces, and even more on natural grass. The orientations of the grass fibers can take the instrument out of level, and solutions such as a plates are needed to ensure proper leveling of the meter.
- Third, **distancing** from the measurement. In order to avoid **interfering** with the reading, you need to move away from the instrument.

The **effect of f_2 (cosine factor)** that we discussed in the previous article has minor impact in E_h on the sidelines (with a near perpendicular angle of attack from the fixtures) vs on the middle of the pitch where the angles can become substantial, particularly with lower heights of the fixtures structures (poles), entering the cosine law into (negative) effect.

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Vertical Illuminance – Orthogonal Planes (0º, 90º, 180º, 270º)

Orthogonal planes are relatively easy to handle, particularly on rectangular pitches. The main reference 0º is usually one of the long sidelines ('01'-'12' in the case of FIFA/UEFA). From there you get the other ones rotating clockwise ninety degrees to get 90º, 180º, and 270º. There are **three basic approaches** for this mission:

1. If you have only **one meter**, you will need to do four (three + 1) rotations (0º, 90º, 180º, 270º), this means four uncertainties related to orientation, and only one to the instrument.
2. Having **two meters** makes life easier. Starting with one meter at 0º and another one at 180º on a supporting structure, a single rotation (actually two as you have to go back to 0º) saves time and reduces orientation uncertainties, yet increases uncertainties with the meters, as we now have two in action.
3. **Four meters** to catch the illuminance in the four orthogonal planes at once is the simplest one in terms of operation as no rotation is needed. Here, the position of the four meters in the supporting head is critical, and once you have it, nothing needs to be modified. The only challenge is to level and aim properly at each point, that was also in the previous ones. The main disadvantage is the four uncertainties of the four meters, that need to be considered individually. And this also means four calibrations rather than one.

Illuminance to Cameras (E_{cam})

Ecam adds complexity to the assessment. One of the most demanding standards is the one from "LaLiga" in Spain, a private standard where E_{cam} **shall be taken against (normal to) four (4) reference cameras all over the pitch**: master, opposite master, and goals (goals measurements are taken only for half pitch) (**Figure 1**).

This means that **working with more than one (1) sensor is not an advantage anymore**, as it was the case for orthogonal E_v. Here, **on each point, we have to aim the sensor at each of the four (4) cameras**. The azimuth (absolute and relative) and elevation change, and no static sensor arrangement solves the situation.

Measurements Automation

We previously discussed the need to automate the readings from the luxmeters, and here we will discuss **how to automate the pitch assessment, the mission**.

Automatic reading from the meter is a must. Consider the **FIFA-96 points grid plan**, with 5 readings per point (E_h + 4xE_v), this means 480 readings, in the field, at night, with humidity and low temperatures – **480 opportunities for failure**.

And automation does not stop there. **The whole process can be improved and reengineered.** Let's go there.

The Grid

The first automation has to happen related to the grid plan. In football/soccer, **the most demanding measurement grid plan is the FIFA-96, with 96** points covering the four sidelines. On average, **manually measuring the pitch and marking the 96 grid takes between one hour and ninety (90) minutes**.

"If" there is **good GNSS/GPS coverage on the pitch**, marking can be fast. Walking the long sideline takes around 80 seconds, and 50 for the short ones (for an average 105 x 68 meters football/soccer pitch). Doing the math (80 x 8 + 50 = 690 seconds of walking + 10 per point for marking) takes you **down from 90 minutes to around half an hour, this means one hour less**. This requires a RTK ("Real Time Kinematics") GNSS ("Global Navigation Satellite System") with local real-time NTRIP corrections, and an experienced technician.

The **density of the grid** (number and points distribution) is also going to affect the assessment. **Figure 2** shows the same field with a **French FFF_25 grid plan**. The main **risk of this simplified grid**, used for low categories and/or training pitches, is that **engineers design against the grid for compliance**, particularly the cheap manufacturers, and the **pitch lighting ends up in a mess even if the lighting design complies with the standard**.

Figure 1: One of the most demanding standards is the one from "LaLiga" in Spain, a private standard, where ***E_{cam}*** **shall be taken against (normal to) four (4) reference cameras all over the pitch.**

Figure 2: Football/Soccer field with a **French FFF_25 grid plan**.

Note that the FFF_25 grid (maillage) plan includes ten (10) safety points, in red, to check that the lighting levels in the outer side of the sidelines have at least seventy five percent (75%) of the illuminance of the neighbor points. Here only E_h at ground level is assessed.

Grid Path/Routing

And here is the next point. Again, "if" GNSS coverage is good, we have the option to **move the measuring system with a robot and/or a drone**.

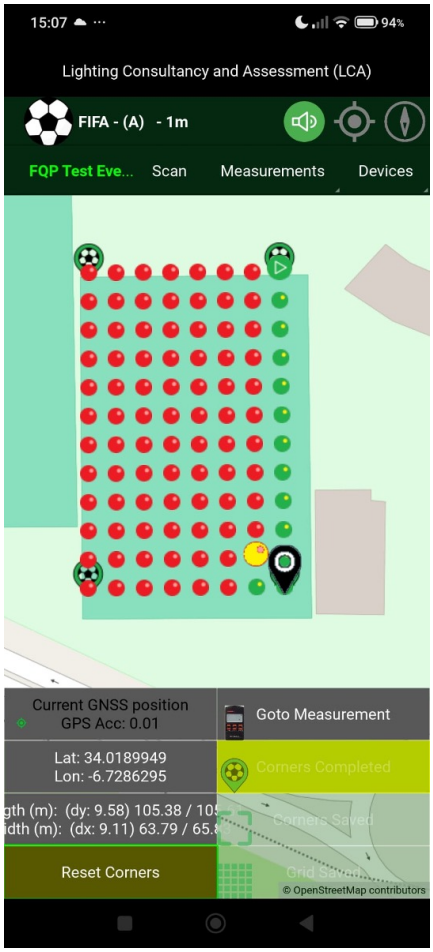

Figure 3: Grid path/routing.

E_h Automation

For E_h, the rover (terrestrial robot) is a must. A drone is not appropriate for ground level measurements of light. See the pictures of the systems that have been developed that can carry one or more E_h sensors, with and without leveling compensation. E_h is quite easy as orientation (yaw) does not affect the measurement, only the appropriate level (pitch and roll). If level is a must, as it happens on natural turf, then compensations mechanisms must be arranged, being the easiest one a motorized (servos) head. With a rover moving at around 50 cm/sec we need around fourty minutes to do the whole grid coverage including the measurement stops and leveling adjustments. By hand this takes around 45 seconds per point in the best case, going up to around 75 minutes (1h and 15 minutes), plus it is easier on your back!

Figure 4: For E_h, the rover (terrestrial robot) is a must.

E_v Automation

For **E_v automations**, with the automated system that I assembled for IGOID-UCLM for the FIFA Floodlights Test Event in Morocco on 2026-02-12 (**Figure 6**), with seven (7) light sensors, and wireless automated acquisition, timing was reduced to a **maximum of 35 seconds between points** (depending on time for leveling) and took around one hour, and I successfully passed the FIFA Floodlights test event for IGOID.

Automating the movement of a rover 1m or 1.5m above the ground becomes a bit challenging. The inertia that a sensor head develops at that height requires either low speed of the robot and/or a big platform. For this purpose, the manual movement of the sensor system is a reasonable option.

The issue comes with the **measurement of E_v at different heights**, such as the 1m (for FIFA/UEFA), the 1.5m for EN-12193. Measuring only at one height is not because of being the most appropriate, but because of simplifying the surveyor's work. In earlier times this could have been understandable but today it is questionable. Having the **drone technology** in place, we have to study if taking more than one height for E_v makes sense as the game takes place at different heights depending on the sport. The same thing happens with E_h that has been taken at only one height. **Should we take E_h at the height of E_v so that the modelling index could be evaluated at different heights?** Think about basketball where part of the game happens at shoulder heights compared to football where most of the game happens at boots height.

Figure 6: **Wireless system** for illuminance assessment in sport lighting.

E_{cam} Automation

For this particular case, E_{cam}, the author has developed a **patent pending system that automatically points the sensor (illuminance or spectral) to each of the**

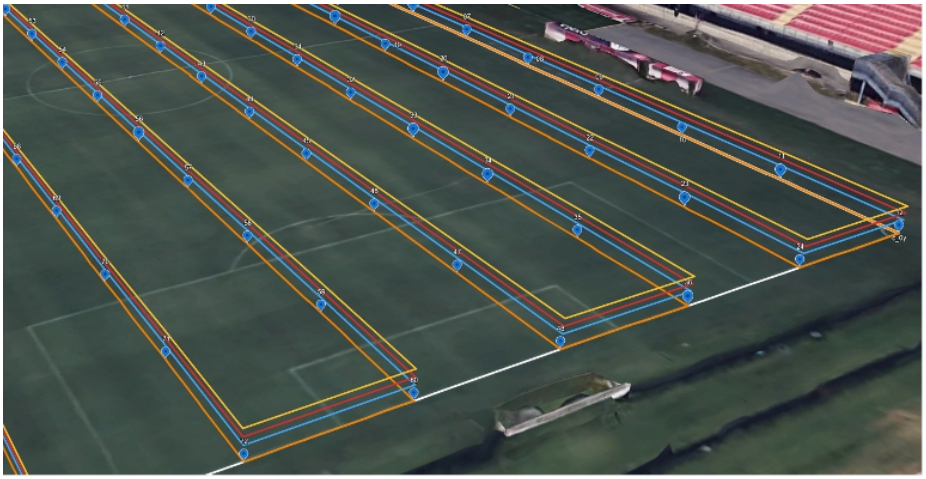

Figure 5: The figure shows the **tracks for the four heights on a FIF-96 grid plan**: White: pitch sidelines, Orange: Eh path at ground level, Blue: FIFA 1m, Red: EN-12193 for 1.5m, and Yellow: 2m grid.

four cameras. Fine adjustments can be made to perfectly target the TV camera without human intervention. The system **also reads E_h at 1.5 m in order to estimate the modelling index at each point for each camera**. In this case, E_h is not the normal to the ground, but the **perpendicular to the normal to the camera**.

Conclusion

Sports lighting is a multidisciplinary art and science that highlights the difference between **lighting design and illuminating engineering**.

A critical part that does not happen in other lighting disciplines except in disciplines such as tunnel lighting, road/street lighting and office lighting is the **thoughtful assessment of the lighting delivery**.

The main measurand is **illuminance**, with derived ones such as uniformity, gradient and modelling.

The **meter's limitations** are critical and the **automation of the reading of the instrument** is a must to minimize human errors.

Next step is the **automation of the grid 'walk'-through**. In case of E_h at ground level, this is a must that can be accomplished with a rover. In the case of **E_v and E_{cam}** this is a more complex task as inertia is generated with height. The automated reading with a full sensor system or robotized one for E_{cam} is a good alternative that saves a lot of time.

The missing one is the **drone for** E_v, a system that I have under development, with all the software already operational.

In our next article, we will review the **paradigm shift** that we are envisioning, with the development of a whole **ecosystem**, where the skilled technician does not have to be present on the ground, but monitoring the whole process remotely in real-time. Stay tuned. ■

Dr. Octavio L. Perez is a passionate professional, researcher and scholar who contributes to exploring, developing and bringing to the real world the benefits of light and lighting for human wellbeing and wellness, and ultimately, health. He works internationally as an independent consultant, focused on translational research in human centric lighting (HCL), more precisely "integrative lighting". Dr. Perez is a researcher at Mount Sinai Hospital in NYC, NY, USA. and serves in several international technical committees. He is also a WELL AP (WELL Building Standard Accredited Professional), focusing now in the challenging field of lighting assessment in sports venues. And he has started his second Doctorate focused in this field of lighting (Sports), related to new challenges for Broadcasting requirements and Audit/Survey methodologies.

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Figure 6: The horizontal and vertical illuminance measurement system **(EhEv Tripod Mount), developed by Dr. Perez, met all requirements during the FIFA Floodlights Test Event** in Rabat and was documented in the official FIFA test event report.

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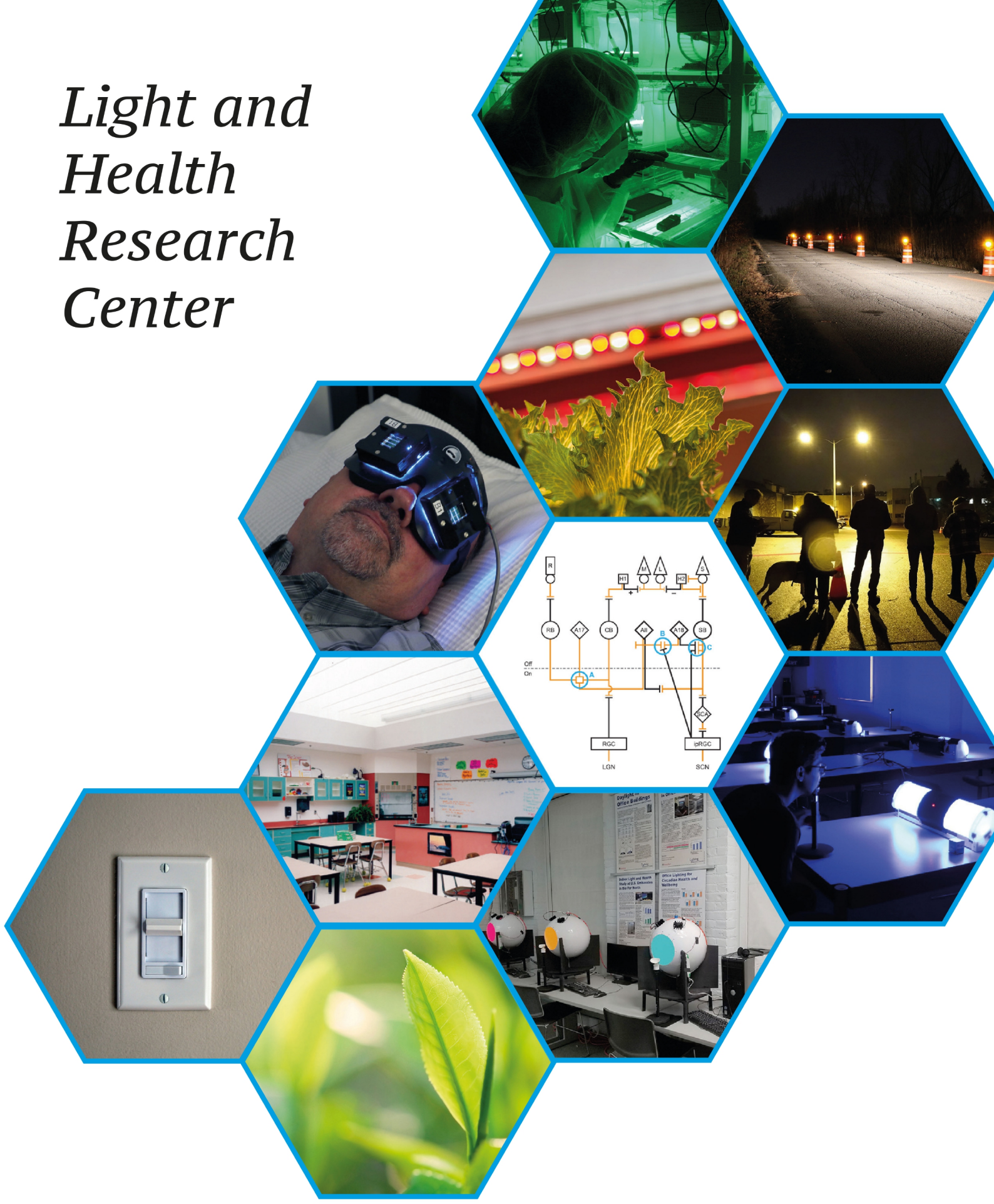

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PREVIEW*
May/June 2026 | LpR 115

Integrative Lighting

The next issue of LED professional Review (LpR), May/June 2026, will focus on the growing importance of integrative lighting approaches. This issue will explore how lighting design increasingly combines visual, biological, and digital aspects to create holistic solutions for built environments. It will highlight emerging trends, technologies, and interdisciplinary strategies shaping the future of lighting. In addition, we will present a curated selection of innovative projects and solutions that demonstrate the potential of integrative lighting in practice.

* *Subject to change without notice.*

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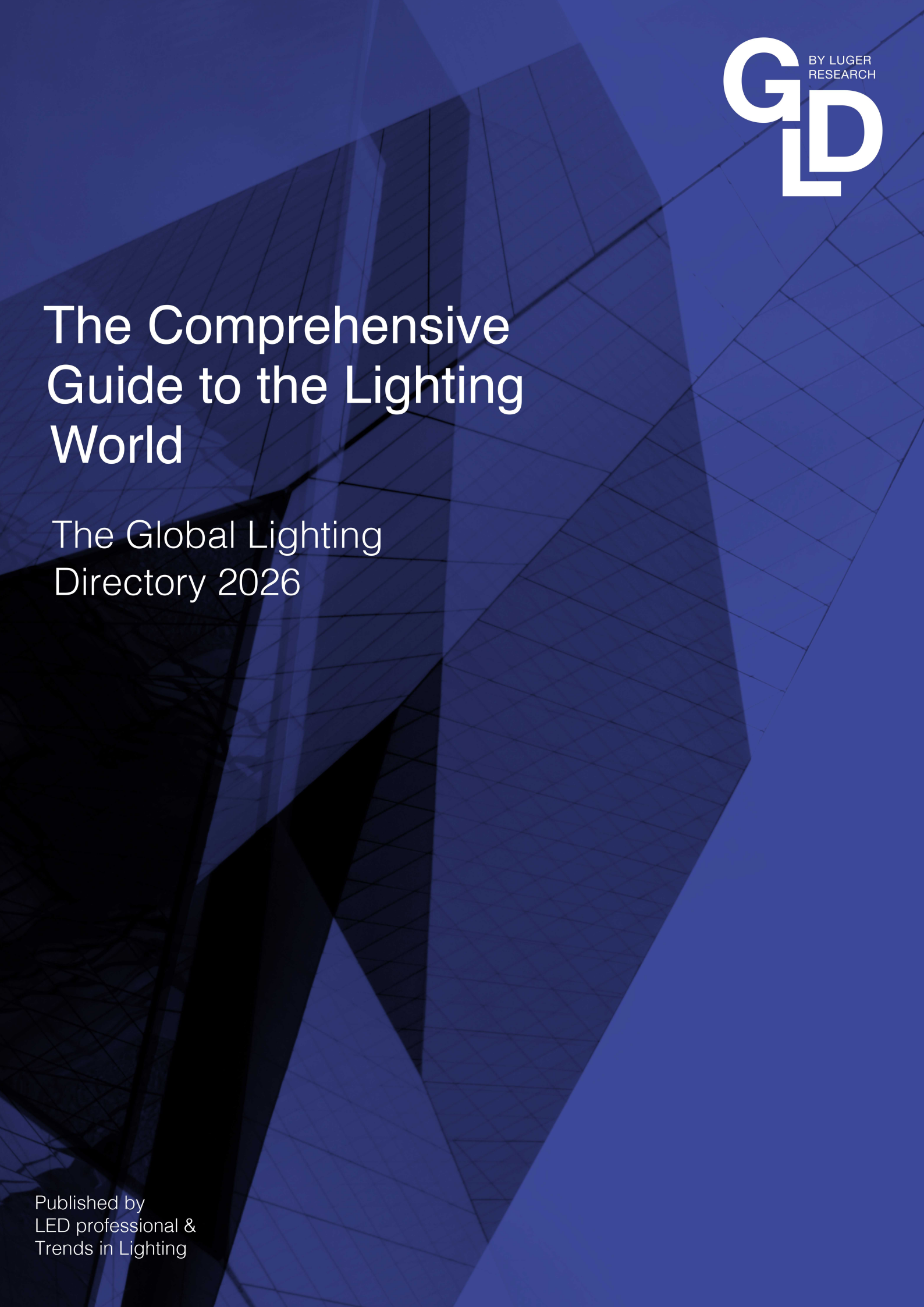

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