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Lighting India

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Vol. 11 No. 4 July-August 2016

Illuminating The Longest Cable-Stayed Bridge In Africa

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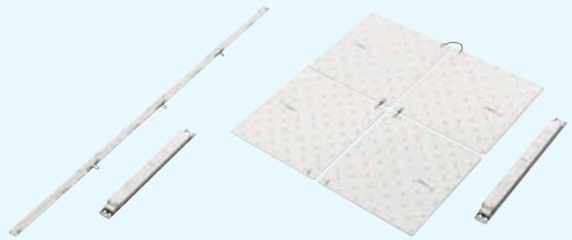
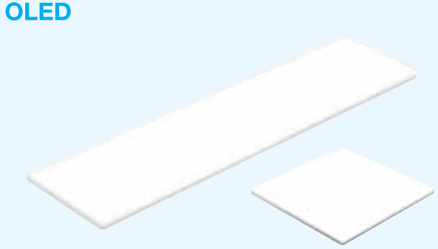


TALEXengine linear / area

OLED



OLED modules

Emergency lighting units

Single battery emergency systems

Batteries

Electronic components

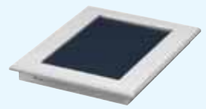
Electronic ballasts for fluorescent lamps

Digitally dimmable ballasts for fluorescent lamps

Electronic ballasts for high-intensity discharge lamps

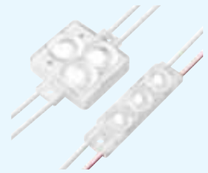
Controls

Sensors



Touchpanels

Signage



TALEXchain

TALEXdriver

TALEXcontrol

PUBLISHER'S LETTER

Mahadevan Iyer
Editor-in-Chief

Global population was 1 billion in 1800, which has grown to 7 billion in 2012. It is expected to be 8.4 billion by mid-2030, and 9.6 billion by mid-2050. Fast growth in global population is leading to the speedy spread of human inhabitation. Thus, huge construction of new roads is in chart, which obviously need to be well lit. Owing to this fact, we can easily anticipate the growing demand for street lighting. Also, simultaneous growth in technology and need for energy efficiency will direct the demand towards smart street lighting. A recent report from Reportbuyer, a well known provider of research reports, states that at present 304 millions of street lights are functioning all over the world. The figure will touch 352 millions by 2025. The Reportbuyer's report also predicts that LED and smart street lighting will cumulatively represent a $63.5bn market opportunity.

In an attempt to describe the present situation, the report estimates that the public outdoor lighting market is currently undergoing a period of change where legacy streetlights are being replaced with new and more efficient LED, or solid-state lighting technology. Taking this new technology a step further, these LED streetlights are also being networked together – with communications to become 'smart' streetlights.

Focusing on the economic aspect of this drive, the Reportbuyer's report states that "LEDs offer longer lifetimes, lower energy consumption and reduced maintenance costs when compared with legacy streetlight technologies. In most developed countries, LEDs are already an economically beneficial alternative to existing streetlights over the lifetime of the light when energy savings are considered, despite their higher upfront cost. But within a few years, LED streetlights are expected to reach cost parity with legacy technologies, making their benefits to costs immediately positive. At this point, they will make economic sense as replacements in almost all countries. Furthermore, with many emerging market countries rapidly urbanising and in need of improved urban infrastructure, this creates an enormous market opportunity. From 2015 to 2025, countries are expected to invest $53.7 billion in LED street lighting."

Thus, the community dealing in smart street lighting products and components is striding towards a great time ahead.

Do send in your comments at miyer@charypublications.in

Mahadevan

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– **Sietze Jongman**
National Manager – Lighting
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Short Story Of Safety Norms For LEDs

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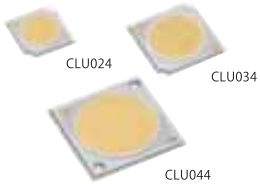

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EDITORIAL

An Alert Community Is Acting In Silence

Lighting as a subject has much wider scope than just covering aspects of (so called) illumination and decoration. To be more specific, each and every luminous body creates visibility around that. However, mere visibility was a demand of the past, today's technologically advanced world looks more intensively into the appropriate application of the light. All of us from the community are aware that today lighting has been a major medium for communication – its application can be seen in signaling, advertising, indicating, directing and so on.

In today's situation, coupled with the age-old challenges, emerging ones because of development of the modern technologies are multiplying challenges to the lighting community. Common people are either often unaware of these facts or although they experience these many times – they are so used to it – they never think beyond to look for a solution. However, it is praiseworthy that the ever-active lighting community is continuously active to address such challenges.

Just to cite an example, recently Rensselaer Polytechnic Institute and Pennsylvania State University have jointly taken up a project to systematically improve the visual information from 'warning beacons' used by Front Line Service Workers (FLSWs). Notably, according to the (US) National Occupational Research Agenda (NORA), FLSWs' group constitutes 13% of the U.S. workforce but is involved in 36% of workplace fatalities, with vehicle incidents the most common cause of fatalities.

As per information available from The Lighting Research Center at Rensselaer, to address crashes involving FLSWs, several integrated, multidisciplinary studies are being conducted in the US, which will lead to performance specifications for new-generation warning beacons using the latest sensors and light source technologies. Such activities highlight how alert and active is our lighting community, which has been working silently to address the emerging global challenges.

P. K. Chatterjee

Please e-mail me your views at pkchatterjee@charypublications.in

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Editor: P K Chatterjee

Surya wins award for its catalog

Surya has received a 2016 American Inhouse Design Award for its Spring 2016 Catalog. This is the second consecutive year the Surya catalog has earned a design award. Last year, the brand received an American Graphic Design Award for its spring 2015 catalog.

Surya Spring 2016 Catalog...

Sponsored by Graphic Design USA, a leading information source for graphic design professionals, the American Inhouse Design Awards program was established to showcase exceptional work by in-house design teams and to recognise them for creativity, the unique challenges they face and their contributions to their businesses. This year, more than 6,000 entries in 25 categories were considered, with only the top 15% receiving an award.

"Our bi-annual catalog is a significant undertaking, and our creative team always puts a great amount of initiative and planning into designing and producing a catalog that is visually engaging, informative and easy to navigate. With every catalog, we look for ways to make the shopping experience easier for our designer and retailer customers, and our team always rises to the challenge. We are excited to be recognised by Graphic Design USA with this important award," said Satya Tiwari, President, Surya.

The 820-page catalog showcases Surya's diverse offering of coordinating home accessories through artfully styled photography – including multiple room scenes and style shots – along with close-up images that highlight texture, construction and colour. Four curated trend vignettes spotlight the most popular trends in fashion and home decor while demonstrating how easy it is to combine Surya accessories to build inspired spaces for a variety of lifestyles and budgets. ■

Indian LED market to witness growth of more than 30% until 2020

According to a recently published report by TechSci Research, a research based global management consulting firm, "India LED Lighting Market Forecast and Opportunities, 2020," India's LED lighting market is projected to register a growth of over 32% during 2015-20.

India's LED lighting market is currently at a nascent stage. Though the LED market is already growing at a robust pace over the last 2-3 years, the country offers huge growth potential, especially over the next 5 to 10 years. Increasing adoption of LED lighting is being witnessed across commercial and residential sectors, government projects, upcoming smart building projects, etc.

Key factors that are expected to boost the market include declining LED prices coupled with favourable government initiatives to provide LED lights at subsidised cost and LED installation projects for streetlights. In addition, growing awareness among consumers on account of awareness programmes by manufacturers and regulatory bodies is expected to play a vital role in shaping the country's LED market over the next five years.

"With manufacturing cost witnessing a decline every year and various government initiatives backing LED adoption, the LED lighting market in the country is anticipated to grow robustly through 2020. Moreover, rising consumer awareness about cost-effectiveness and eco-friendliness of LED lights would continue to drive volume sales from the residential as well as commercial sectors," said Karan Chechi, Research Director with TechSci Research. ■

Access Fixtures introduces New KOTA LED luminaire lineup

The KOTA LED luminaire...

Access Fixtures, which is well known for commercial, industrial, and sports LED lighting, has launched its new KOTA LED high bay and sports lighter luminaire lineup starting with the release of the 100W LED High Bay Light featuring Flip Chip Opto COB LEDs.

Employing a patented design that weighs less than six pounds, the new 100W high bay luminaire uses a Flip Chip Opto COB that produces 11,056 lumens at only 96.7 watts for 114.4 lumen-per-watt efficiency.

Protected by an extremely efficient, waterproof/sealed, optical domed tempered glass lens with high transparency, the high bay luminaire emits record-high total light flux and efficiency, achieving over 10,700 luminaire lumens.

Steven Rothschild, CEO of Access Fixtures, said, "Our objective is to develop leading and cost-effective LED luminaires such as the KOTA line of LED high bay luminaires and sports lighters."

"The first of the KOTA lineup is a 100-watt high bay that has exceptional performance in every way and is a tremendous value with a factory-direct price of under $150.00," he further added. ■

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Bronx-Whitestone Bridge to wear a necklace of environmentally friendly lights

On the eve of Earth Day this year, MTA Bridges and Tunnels completed installation of new environmentally friendly LED lights at the Bronx-Whitestone Bridge, the last of the agency's four suspended spans to upgrade its 'necklace' light fixtures that are part of the bridges' architectural features.

A view of the Whitestone Bridge...

Bridges and Tunnels began its lighting project in 2004, when it initiated a year-long pilot to test energy-efficient lighting at facilities in an MTA-wide effort to reduce energy use and costs. In 2009, the Verrazano-Narrows Bridge became the first Bridges & Tunnels span to convert to the Light-Emitting Diode (LED) lights from the original mercury-vapour bulbs. At the Bbridge, workers replaced 182 main cable necklace lights with the same number of LED necklace lights.

The new fixtures will use approximately 30 watts of power compared to the original 100-watt metal halide fixtures, and are expected to yield about 38,812 kilowatt hour savings annually.

"The necklace lights of the Bronx-Whitestone Bridge can be seen for miles around, and they are a scenic feature for the people who live nearby. It is important to them, and to us, that we maintain this decades-old tradition but do it efficiently. This LED technology will help us save money, conserve power, decrease the amount of time our crews need to be out on the cables replacing bulbs, and still light up the East River," said Chris Saladino, the span's facility engineer. ■

Soraa's LED lamps illuminate recognised cinematic clothing

Soraa, which is popular for its GaN on GaN LED technology, has its LED lamps illuminate some of the most recognised cinematic clothing on display at the Heritage Museums and Gardens in Sandwich, Massachusetts.

Visitors to Heritage Museums and Gardens' CUT! Costume and the Cinema exhibit have the rare opportunity to see more than 40 original movie costumes, props and memorabilia up close.

A view of the Heritage Museums and Gardens in Sandwich, Massachusetts...

The museum staff partnered with lighting designer Nancy Goldstein from Light Positive to install approximately 100 MR16 lamps. Soraa's GaN on GaN LED with Violet-Emission 3-Phosphor (VP_3) LED technology renders the widest range of colours in the objects that is seen, without Ultraviolet (UV) or Infrared Radiation (IR) that can fade or harm the artefacts.

The company's SNAP System allowed for distinct beam spreads to give the Museum the flexibility needed to properly illuminate the exhibits, and will allow them to change the lighting scheme for future exhibits without changing all the lamps. ■

WE-EF launches the VLR100 series

WE-EF has a wide range of luminaires for architectural lighting requirements, besides its comprehensive range of luminaires for lighting streets, footpaths and public spaces. Currently, VLR100- a new linear wallwasher series joins the WE-EF product range.

The VLR100 series is appropriate for either indoor or outdoor applications and feature wattages ranging from 7.5 W to 37.5 W. Five standard lengths are available, from 328 mm to 1,528 mm. Based on individual project requirements, customised lengths can be produced in 100 mm increments on request.

Enabling the light direction to be flexibly adapted to individual project installation characteristics the luminaires can be tilted up to 180 degrees. An additional feature is a variable suspension technique that allows post-installation, fine-tuning adjustments to be made on-site to guarantee precision light distribution.

The VLR100 series is obtainable in a wide range of symmetric beam distributions: [LB] wide; [LM] medium; [LE] narrow; and [LEE] very narrow. The luminaire's LED driver comes equipped with a DALI interface. The shorter 328 mm version is fitted with a separate driver while longer versions have an integrated driver. Nevertheless, a separate driver is available for any version on request. The modular design of the luminaires allows for existing luminaires to be replaced with linear lenses. ■

Amerlux completes its retrofit project for downtown City of Los Angeles

Amerlux recently supplied its Avista LED light engines as part of a major retrofit project in the downtown Los Angeles area. Since the late 1920s, GE lamps were used to provide light for the streets of downtown LA during its modern revitalisation. The Bureau of Street Lighting reported that more than half of its streetlights have already been retrofitted to LED, including 600 fixtures with Amerlux Avista light engines.


Avista used in LA...

This retrofit project saves the taxpayers of Los Angeles almost 80% in energy costs – and provides better colour rendering for enhanced visibility, safety and security throughout the community.

Before the retrofit project, the City of Los Angeles illuminated its streets with 250-watt High Pressure Sodium at a 25-foot mounting height with a 100-foot spacing. During this project, Amerlux placed 600 60-watt Avista LED luminaires in downtown Los Angeles, from 2nd Street to 9th Street on the following roads: Main Street; Spring Street; Hope Street; Olive Street; Figueroa Street; and Olympic Boulevard.

"Our Avista is the perfect LED light engine for exterior lighting applications throughout downtown LA and other cities across the nation. This revolutionary LED engine helps customers convert outdoor fixtures to LED with significant cost savings that will meet critical lighting and power budgets and energy code compliance," explained Amerlux CEO/ President Chuck Campagna.

The Avista LED Light Engine, featuring over voltage and short circuit protection with a 10kV surge protector, was used to replace older, less efficient HP Sodium lamps in post top mounted fixtures in area and pedestrian settings. The height adjustable light engine is field adjusted to optimal performance and operates on automatic AC incoming voltage sensing 120-277 volt systems. ■

Hoffman-Madison Waterfront revitalises Francis Case Memorial Bridge

The night of August 18th, 2016 marked a new milestone at The Wharf, as Hoffman-Madison Waterfront's commitment to revitalise the Southwest waterfront came to life. The new lighting design of the Francis Case Memorial Bridge (Case Bridge) was inaugurated by Washington DC's Mayor Muriel Bowser. The inaugural lighting gradually unveiled the final design, offering a new perspective on the bridge and the city.


The Francis Case Memorial Bridge...

The main objectives of the design-build project were to create a visual experience that supported the renewed activity of the area while blending into Washington D.C.'s nightscape. The final design created a vibrant visual experience for nighttime visitors and residents and further expected to boost The Wharf's nighttime activity, setting a precedent in DC's illumination.

The initial concept was presented to Hoffman-Madison Waterfront in Spring 2014 and was approved by the Department of Transportation and the Commission of Fine Arts in April 2015. ■

Smart street lighting market to witness fast growth in Europe and APEJ

With its recently published study, "Smart Street Lighting Market: Trends & Forecasts: 2016–2022," Market Research Engine (MRE), a global market research and consulting organisation, predicts that Smart Street Lighting market will witness a huge two-fold growth in Europe and Asia-Pacific excluding Japan (APEJ) in the near future.


Smart Street Lighting market will see a significant growth...

Image Courtesy: Market Research Engine

As per the study, Smart Street Lighting market will see a significant growth in the coming years due to the growing number of global smart cities, increase in government investments and growing awareness regarding energy efficient lighting solutions.

The RF technology and Wi-Fi network technologies will continue to be preferred technologies in the Smart Street Lighting market.

It states, "Smart Cities and Smart Homes will drive the Smart Street Lighting market and also ensure the penetration of cloud based Smart Street lighting in the near future. Due to huge ROI estimations, more and more smart street lighting projects are handled by PPP model."

The report also predicts, "Wifi enabled LED lighting street light poles will dominate the Smart Street Lighting market by 2022, especially in the developed economies." ■

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Hubbell Outdoor Lighting launches two new products

Hubbell Outdoor Lighting, well known for its lighting innovation, has launched two new LED products.

At 7,500 to 14,500 lumens, the Litepak LNC4 is the largest and highest output wallpack in the popular Litepak series. It features four different lumen packages and multiple distributions and CCT for maximum light level and mounting height flexibility. It is designed for new construction and retrofit and is capable of replacing up to 400W HID luminaires.

Hubbell's Litepak LNC4...

The LNC4 is ideal for perimeter illumination at schools, factories, hospitals, warehouses and retail locations. Typical mounting height is up to 25 feet with 75 to 125 feet of fixture spacing without the frosted acrylic diffuser and 60 to 100 feet spacing with the frosted acrylic diffuser installed.

Hubbell's Colt Flood...

The sleek, compact LED Colt is an energy-efficient small area floodlighting solution featuring three distributions in one product. The performance of the Colt makes it ideal for floodlighting, accent, landscape, facade, or small area illumination. ■

Universal Display Corporation acquires BASF's OLED IP assets

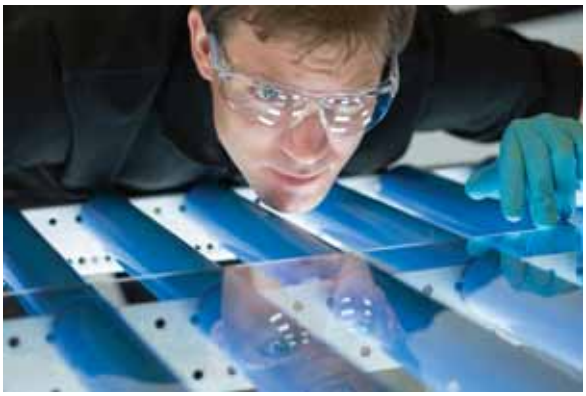
Steven V Abramson

Universal Display Corporation enabling energy-efficient displays and lighting with its UniversalPHOLED technology and materials has acquired the OLED Intellectual Property (IP) assets of BASF SE through its wholly-owned subsidiary UDC Ireland Limited. Representing 15 years of research and development, the assets include over 500 issued and pending patents around the world, in 86 patent families. Largely consisting of phosphorescent materials and technologies, BASF's OLED portfolio has an average lifetime of 10 years. The purchase price for the acquisition is approximately Euro 87 million.

"We are pleased to enhance our extensive key patents in phosphorescent materials with BASF's complementary OLED IP portfolio. One of our key objectives is to develop and deliver an all-phosphorescent emissive stack. We believe that this acquisition will help further these research efforts, principally in the development of commercial blue emissive systems. As a leading player in the OLED ecosystem with 20+ years of know-how and experience in emissive materials and technologies, we believe that we are best positioned to incorporate and leverage BASF's IP assets into our existing broad and robust portfolio of 3,600+ issued and pending patents worldwide. We expect this acquisition to strengthen our commercial development pipeline of new and next-generation OLED systems and bring additional value to our customers and shareholders," said Steven V. Abramson, President and Chief Executive Officer of Universal Display. ■

Merck KGaA invests in Liquid Crystal Window Technology

Merck KGaA, Darmstadt, Germany, a well known science and technology company, will be establishing a production unit for liquid crystal window modules. The volume of the investment is around Euro 15 million. The manufacture of the switchable glass modules is scheduled to begin at at the end of 2017. The investment in liquid crystal window technology is an important step as part of the company's LC 2021 strategic initiative. With this, the company is pursuing the goal of leveraging its market and technology leadership in liquid crystals beyond their use in displays.



Switchable Liquid Crystal Windows (LCWs)...

In June 2014, Merck KGaA, Darmstadt, Germany, acquired Peer+, a Dutch specialist for liquid crystal window technology, with which it had been collaborating closely since 2011.

Switchable Liquid Crystal Windows (LCW) can currently achieve two effects: They darken the glass to provide sun protection or they make the glass opaque to provide privacy. They are primarily used in architecture; automotive applications are being developed. To achieve faster market penetration of the new technology, Merck KGaA, Darmstadt, Germany, has now additionally set up an independent business field for liquid crystal window technology. Like the liquid crystals business, it is part of the Display Materials business unit within Performance Materials. "We see this as a major opportunity to shape the market for liquid crystals in windows. Yet it does not mean that we will be competing with glass and window manufacturers. The LCW modules that we will be manufacturing are in a sense precursor products. Our customers can process them to make smart windows and glass façades," states Walter Galinat, Member of the Executive Board of Merck KGaA, Darmstadt, Germany, and CEO of Performance Materials. ■

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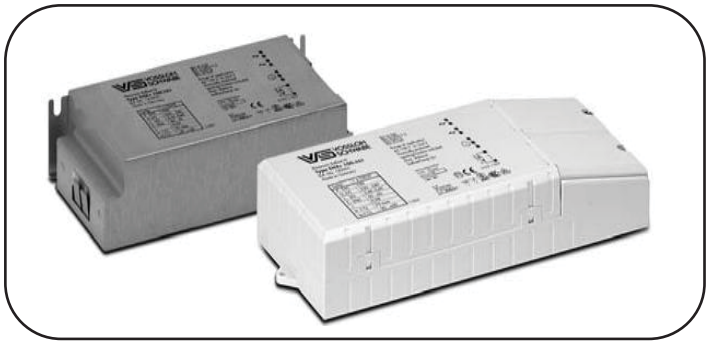
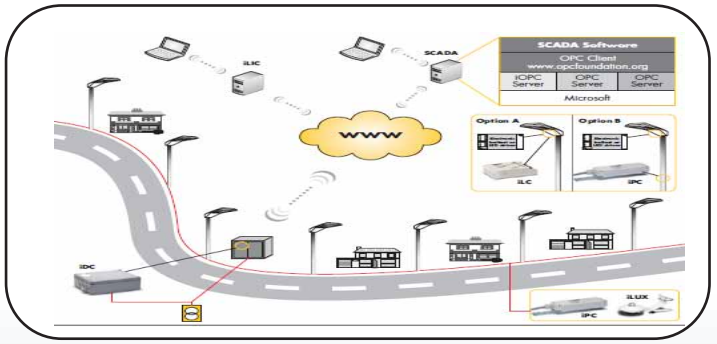


COBs & DOBs

Smart Cities Solutions



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Ted des Enfants takes over as Amerlux's VP of Commercial Lighting

Ted des Enfants

He has helped lead the global transformation to energy efficient LED (Light Emitting Diode) based lighting solutions...

Amerlux has appointed Ted des Enfants as Vice President of Commercial Lighting Sales. In his new position, he oversees the commercial sales team including the firm's network of sales agencies across North America while upgrading support for agents, specifiers and customers to exceed the latest in service requirements, and create new programmes that are user-friendly, scalable and will satisfy their lighting needs.

"We are very pleased that Ted is running our commercial lighting sales team, which generates a significant amount of revenue for our company. He brings a wide range of lighting expertise, including nearly 10 years with Amerlux. Ted is leveraging our product development, client services and industry leadership to deliver innovative tailor-made lighting solutions for challenging commercial lighting projects," says Amerlux CEO/President Chuck Campagna.

Ted works closely with lighting designers, architects and end-users across multiple channels and attends all major industry events including Lightfair, LEDucation and many IALD, DLC, IES and AIA events. To grow the company's industry footprint, he is driving product innovations, lighting solutions and program initiatives to provide key specifiers with award winning lighting designs and techs. He has helped lead the global transformation to energy efficient LED based lighting solutions. ■

Nadir Javed joins Helvar as Lead Software Architect at an exciting time

Nadir Javed

He is a forward-thinking software and communications engineer, with broad experience...

Helvar has appointed Nadir Javed to the newly-created position of Lead Software Architect located at Helvar's Headquarters, Espoo, Finland. Nadir joins Helvar following roles at Tuxera and Nokia Research Centre, and gaining his Master's Degree from Tampere University of Technology, Finland. This new appointment comes at an exciting time for Helvar. This summer, it launched its new offices in Espoo, Finland.

Nadir is a forward-thinking software and communications engineer, with broad experience in product architecture, quality management and software development. His job is to drive Helvar-wide software design and work closely with Helvar's R&D teams in UK and Finland. As part of Helvar's continued investment in research of new technologies, he will be focusing on the Internet of Things (IoT).

"I'm delighted to join Helvar at such an exciting time. The lighting industry is in a state of transition, and a significant part of that future is in the opportunities around IoT, mobile applications and open interfaces. The IoT can enable truly smart lighting systems and will be an essential component of Helvar's future service business. It will allow us to bring added value to our customers and partners alongside our own developments in wireless lighting control solutions and cloud services," says Nadir.

Nadir has brought with him expertise across a wide range of technology platforms that will be crucial in developing new products to take advantage of IoT and cloud technologies. ■

Lumilow appoints Sandra Pearson as Internal Sales Administrator

Sandra Pearson

She has an intense understanding of the industry, and her experiences cover all parts of the industry's specification hierarchy...

Halifax based Lumilow Lighting introduces Sandra Pearson as Internal Sales Administrator. She has over 30 years of experience in the lighting industry.

Sandra has spent most of her career with Sylvania Lighting and later with Taison Lighting. Her experiences cover all parts of the industry's specification hierarchy, from end users to consultants, electrical contractors to wholesalers. She will be heading up Internal Sales function at Lumilow.

Andy Chell, Managing Director of Lumilow Lighting, said, "Sandra's presence will drive higher efficiency, greater customer service and most importantly it brings another level of expertise to the Lumilow team. We trade on specialist, bespoke knowledge and personal excellence and this is precisely where Sandra can add real value to our customer service offering."

He further adds by saying that as the company specialises in commercial industrial lighting, her intense understanding of the industry will play an important role.

As per a Limilow communique, long-term carbon reduction strategy is critical for any business – be it large or small. Lighting, which often accounts for 40% of a building's energy costs, is a good place to start. ■

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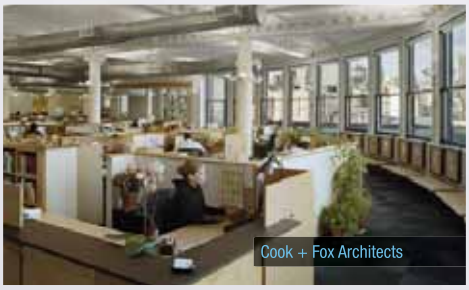
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SYLVANIA Lighting Innovations Win 18 Awards For Excellence, Efficiency

According to an announcement from the North American lighting giant OSRAM SYLVANIA, eight SYLVANIA lighting innovations were recognised by Design Journal and two SYLVANIA products received Architectural SSL Product Innovation Awards (PIA), resulting in eighteen awards for the company.

In addition, SYLVANIA SubstiTUBE Value LED T8 Tube is a member of an elite group of 76 products showcased in the June 2016 issue of BUILDINGS and online at www.BUILDINGS.com. Finalists were evaluated by the BUILDINGS editorial staff for the money-saving qualities they offer to building owners and facility managers in areas such as energy efficiency, water savings, and maintenance.

"Our customers count on the SYLVANIA brand for high-quality lighting, and these awards demonstrate we are delivering. These industry accolades recognise SYLVANIA LED products across our broad portfolio, including smart connected lighting, and are a result of the hard work of our global teams to advance light," said Phil Rioux, VP and CEO, Global LED Lamps Business at OSRAM SYLVANIA. ■

Revolution Lighting To Receive Marcum Tech Top 40 Award

According to the information avaiable from The Connecticut Technology Council (CTC) and Marcum LLP, Revolution Lighting has made the Marcum Tech Top 40 (TT40) list of fastest growing technology companies in Connecticut. Revolution Lighting will be honoured alongside 39 other TT40 companies at an awards ceremony to be held on September 22 at the Oakdale Theatre in Wallingford.

The Marcum Tech Top 40, now in its 9th year, recognises technology leaders in six industry sectors, including Advanced Manufacturing, Energy/Environmental, Life Sciences, New Media/Internet/Telecom, IT Services, and Software. Revolution Lighting has been named a Tech Top 40 winner in the Advanced Manufacturing category. The company is a recipient of this award due to strong revenue growth of at least $3 million in annual revenue as well as growth in each of the preceding four years.

"We are pleased to be named among the Marcum Tech Top 40 for the third consecutive year, and would like to thank the Connecticut Technology Council and Marcum LLP for recognising our success with this award. Revolution Lighting has achieved significant growth due to our continued success as a leader in the design, manufacture, marketing and sale of our high efficiency LED lighting solutions throughout markets including commercial, industrial, education, healthcare and multi-family housing," said Robert LaPenta, Chairman, Chief Executive Officer, and President, Revolution Lighting Technologies.

"The technology industry in Connecticut is a shining example of ingenuity, innovation and achievement. It is a privilege to partner with the Connecticut Technology Council to present the annual Marcum Tech Top 40 Awards and to provide a showcase for these companies to help pave the way for their continued future success," said Michael K. Brooder, CPA, Partner-in-Charge of Marcum's Hartford, Connecticut, office. ■

Tillotson Design Received IALD's Radiance Award For Excellence

This year, in the 33rd International Lighting Design Awards (IALD), 17 projects from eight countries were on display – including religious spaces, memorials, façades, and even a gas station.

Taken together, the winners represented some of the most innovative and inspiring works found anywhere in the world of architectural lighting design.

The highest point score winner across all categories, in addition to receiving an Award of Excellence for their project, receives the IALD Radiance Award for Excellence in Lighting Design.

As per the practice followed, the winners of the glorious Radiance Award are not informed in advance of their Radiance Award-winning status prior to the evening – only that they should be present at the evening's award ceremony.

Accepting the Radiance Award for Excellence in Lighting Design was part of the project team from Tillotson Design Associates for the Lincoln Square Synagogue in New York, NY USA.

Of the 17 projects recognised, 1 entry earned a Special Citation, 13 earned Awards of Merit and 3 earned Awards of Excellence. The IALD Awards program is the longest-running program recognising excellence in architectural lighting design. ■

Photo © David Sundberg, Esto Photographics

Lincoln Square Synagogue, New York, Usa, Lighting Design By Tillotson Design, Associates...

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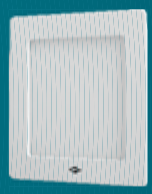

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Saving Money With LED Lights

Colorado Leaf finds up to 60% less power use than they had expected based on comparisons with other kinds of lighting...

The horticultural spectrum control systems offered by LumiGrow, Inc., gives growers in the increasingly competitive legal marijuana industry a cost-saving, growth-enhancing, leg up on the competition.

LumiGrow has effective horticultural LED product lines for the granular control over the growing process that cannabis producers need. Growers also network their lights using the company's patented SmartPAR spectrum control system.

"We're not what people might think of when they picture traditional marijuana growers. From the beginning, we've planned this operation from a pragmatic business perspective. We're doing everything we can to optimise our operation, and LumiGrow is a big part of that. We've tried products from three other manufacturers and LumiGrow makes the best LED grow lights we've seen," said Keith Sprau, Co-owner of Colorado Leaf.

Sprau has confidence that using LED lights is going to save energy and money because they have field tested LumiGrow Pro 650 lights in the company's 20 x 20 feet research and development grow space. They saw up to 60% less power use than they had expected based on comparisons with other kinds of lighting. Probably of more importance to Colorado Leaf's customers, the product they've grown is indistinguishable from the best found elsewhere.

Image Courtesy: LumiGrow

Brett Sprau of Colorado Leaf sees improved cannabis growth with LumiGrow LED grow lights...

"We've been putting the spectrum control capabilities of the LumiGrow Pro 650 fixtures to good use. We adjust the spectrum as needed – mostly letting the plants thrive under blue light, and turning red off – and we've seen no internodal stretching while growing fat bushes," added Sprau.

Colorado Leaf is saving money on more than just its monthly electric bill. As is the case with many utilities encouraging the use of energy saving devices, the company's electricity provider, San Isabel Electric Association (SIEA), rebated $20,000 of the initial cost of the first order of LED lights. Sprau says they are hopeful SIEA might rebate even more on the second order as their contacts at the utility have expressed serious interest in the energy conservation possibilities offered by using LEDs. ■

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On The Road To Consumer Products

At 'Optatec,' the International Trade Fair from 7 to 9th June, 2016 in Frankfurt am Main, the researchers from Aachen have demonstrated how they are ensuring that the precision glass moulding process for the mass production of infrared optics is industrially viable...

Infrared (IR) optics is currently used predominantly in relatively high-end technical equipment and facilities: night vision systems allow drivers to see people and animals even in low light conditions at night. Thermal imagers help building owners and surveyors to detect leaks and cold bridges in buildings. One of the aims of the Fraunhofer Institute for Production Technology IPT is now to open up new markets for infrared optics, particularly in the consumer sector.

Until now, infrared optics have been manufactured in grinding and polishing operations or in machining operations involving the use of monocrystalline diamond – and are therefore comparatively expensive. Precision glass moulding, in which a preform of chalcogenide glass is shaped in a glass mould press under the influence of heat, can reduce the high costs since the optical components are formed to specification in one single process step. The initial outlay for the manufacture of the pressing tools is swiftly recouped in high-volume production and reduces the unit cost of the parts to a level that is acceptable for consumer goods.

Companies use moulded infrared optics in their products in order to gain a foothold in new markets: these permit thermal imagers to be integrated within standard smartphones in order to permit users to visualise energy losses in their own homes, for example. It is conceivable that cost-effective infrared technology could be used as part of smart buildings to control air conditioning and light without the need for conventional motion detectors or to measure the length of a supermarket queue. More economical laser systems and imaging optics with wide spectral ranges are also opening up new opportunities in the industrial environment.

The Fraunhofer IPT surveys and develops the complete process chain of moulding infrared optics from chalcogenide glasses – starting with the question as to how the aluminium alloy moulds can be machined using single point diamond turning. Within the German Federal Ministry of Education and Research (BMBF)-funded V.I.P. research project MIRO - "Mass production of InfraRed Optics via precision glass molding", the engineers in Aachen are developing and validating wear protective coatings, which significantly prolong the moulds' lifetime. A simulation model, developed specially for moulding chalcogenide glasses, permits replicative processes to be designed with enormous precision. Even before the very first pressing trial, all of the process parameters can be determined, thereby reducing both the outlay otherwise required for process development and the amount of rejects generated. ■

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Revealing Spaces *With* Layers Of Light

In a restaurant context, the surface of the table should be more brightly lit than the surroundings, though guests should still be able to make one another out clearly. Good colour rendering is essential for ensuring that the freshness and delicacy of food is immediately apparent...

There are four layers of light typically used in hospitality lighting namely, General (also called ambient) lighting, Task lighting, Accent lighting and Decorative lighting. Combining and balancing these lighting types, give visual interest to the space and create a more attractive, exciting and inviting environment.

Lighting for areas where people eat is 'Primarily mood lighting'. But it also needs to ensure that guests can find their way around and conduct conversations at the table while facing in any direction.

The kind of artificial lighting required for a restaurant depends primarily on the style of the establishment. The range of conceivable lighting moods is endless – from glaring brightness to intimate candlelight.

The important thing is that the atmosphere should suit the architectural surroundings, ensuring that food is clearly presented and looks attractive, and that visual conditions at the table are right for conversation. The level of brightness selected determines the degree of intimacy for diners. And all these priorities need to be addressed by lighting compatibility with the catering concept of the house.

This is a good point to look at light colour. The light colour of a lamp is the colour appearance of its light, expressed as a colour temperature in degrees Kelvin (K). It is one of the crucial factors defining the visual ambience of a room. Light colours are divided into three groups: Warm white (below 3300 K), Neutral white (3300 K – 5300 K) and Daylight white (over 5300 K). To ensure that the impression a room makes is not impaired, care must be taken – not only on initial installation but also when lamps are replaced – to use the light colour stipulated in the lighting design.

Restaurant lighting should be low key for all service areas except buffets; the emphasis should be on the arrangement of tables. At the same time, it should be assumed that the 'Observer Principle' applies, i.e., if people prefer all active areas to be cast in a brighter light than them.

In a restaurant context, this means the surface of the table should be more brightly lit than the surroundings, though guests should still be able to make one another out clearly.

The lighting designer also needs to pay attention to the colour rendering properties of the lamps used in the luminaires. This is because good colour rendering is essential for ensuring that the freshness and delicacy of food is immediately apparent. Colour rendering is standardised like light colour.

It is expressed as a colour rendering index Ra, based on the rendering of test colours commonly found in the environment. Ra = 100 is the best possible value; the lower the index, the poorer is the colour rendering properties. In restaurants and kitchens, a minimum of Ra 80 is required and Ra 90 is better.

The design of bistro and bar lighting should be based on precise analysis of the groups, the establishment wishes to attract. Depending on the intended design statement, any of the whole range of lamps and luminaire types available could be an option. Where the intention is to appeal mainly to a younger market, a wide variety of visual effects will be needed to attract large numbers of customers.

For the more conservative guest, the traditional hotel bar dispenses with special effects and offers a relaxing atmosphere. The guests themselves, whether seated or standing, are bathed in only minimal light and great care is taken to avoid glare. Behind the bar, lighting needs to permit visual appraisal of drinks and food by staff. Punctual light sources lend a dramatic sparkle to gleaming objects.

Today, with people traveling way more than they used to, the demand for theme based restaurants has increased multi folds. With people exactly knowing their expectation from a space, it is important to connect the target audience with the minutest detail being taken care of. One such space, 'Highland Single Malt Whiskey' was done by SPK Valo last October. Highland's is an up market single malt whiskey place, which exclusively offers only the single malt.

The posh single malt bar demanded a lighting scheme that would perfectly compliment the Irish feel of dark wood and leather interiors, keeping the ambience intimate, reflecting high-end exclusivity. My (being Principal Designer of SPK Valo) intention was to provide pools of light that were functionally required and accentuate focal points in the space that commanded attention.

The islands of seating are illuminated using 10 degree halogens that offer precise detailing of the pristine cutlery and glasses, while giving enough light to read the menu. The bar is accentuated in horizontal bands as the shelves are lined with concealed LED strips that make the bottles glow from within.

Further, strip lighting hidden in the cove of the counter gently reveals its contours. While the ceiling houses a small number of recessed downlights to augment the ambient illumination, considerately placed decorative suspensions made of deer antlers and 40W halogens add to the old world charm of the space. Careful mixes of LED and halogen fittings are used to determine a warm and intimate atmosphere, highlighting artwork and display cases. ■

Kunal Shah
Lighting Designer
SPK VALO, Hyderabad


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Energy Efficient Industrial Lighting

Appropriate quantities of light are essential, but “Lighting Quality” issues are just as important in providing a comfortable and safe working atmosphere. When the lighting meets both quantity and quality needs, it adds measurably to worker performance and productivity...

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Industrial buildings, like all workplaces, require well-planned lighting systems to support various activities. Industrial lighting is where the necessity of light meets the challenges of environment, dirt and practicality. Mounting and ceiling heights vary from close-in task lighting to out-of-the-way locations 20mtr or more, above the floor. Moreover, lighting costs are critical, and there is an expectation of efficiency in every way. While hardly glamorous, industrial lighting is a demanding design problem. One has to answer various issues related to lighting quality, Lighting quantity, Lighting Efficiency, Luminary arrangement and Lighting controls. The article is an attempt to highlight these critical factors while designing Energy Efficient Lighting for an Industrial application.

Lighting quality

Appropriate quantities of light are essential, but“Lighting Quality” issues are just as important in providing a comfortable and safe working atmosphere. When the lighting meets both quantity and quality needs, it adds measurably to worker performance and productivity. Various industrial operations have various LUX requirements. These are specified in the related IS standard. However, using conventional HID lighting, maintaining the lighting level according to these IS standard is extremely costly. (Sometimes it is costlier than the lighting cost itself). It is more prominently observed at many industrial segments where roof height is more than 8 metres. Some of the important quality issues for Industrial Lighting are tabulated in the next page.

Quality lighting contributes to the comfort productivity of the personnel working in manufacturing / warehouse facility. It also contributes to their safety especially around moving machinery. Glare control, balanced brightness, no flicker, minimum shadows, long life and sustained lighting levels must be taken into account to ensure safety and security in the work place. Outdated HID lamps are poor at colour rendering. A high CRI (more than 75) will allow people to see colours accurately and work in a comfortable environment. Abilty to see the objects is based on several conditions including the age of the worker @ 40 year old person needs double the lux than a 20 year old person. The size of the task and the speed of the task also change the lighting requirements dramatically.

Lamp efficiency

Lamp efficiency is measured in Lumen per watt (Lm/w). Various technologies offer different levels of Lm/w. Every designer tries to use maximum efficient lamps. (e.g. LED, T5 etc.). In this effort to make the design optimised by Lm/w, other important parameters are often compromised. Lighting

Some of the important quality issues for Industrial Lighting are tabulated below...

QUALITY ISSUES FOR INDUSTRIAL LIGHTING

	Material Processing	Component Production	Assembly	Computer Viewing	Storage, Inactive	Storage, Active	Shipping/ Receiving
Fixture location related to workers	●	●	●	●	●	●	●
Light on walls and ceilings	○	●	●	○	○	○	○
Control of direct and reflected glare	◐	●	●	●	◐	◐	◐
Light patterns, uniformity vs. shadows	◐	◐	●	◐	○	○	◐
Control of source flicker and strobe effect	○	◐	NA	NA	NA	NA	NA
Daylight integration and control	◐	◐	◐	◐	○	◐	◐
Modeling of objects and faces	◐	●	○	○	○	○	◐
Color rendering and color temperature	○	○	○	◐	●	●	○
Appearance of space and fixtures	○	○	○	○	○	○	○

● Very Important ◐ Important ○ Somewhat Important NA - Not Applicable

* Adapted from the Lighting Design Guide. IESNA Lighting Handbook, 9th Edition

efficiency is not the only point of importance.

Using HID lamps is a current standard practice for industrial lighting. Although the efficiency is improved by various other technologies, taking a closer look, it shows that they have faster lumen decay, which means faster re-lamping in order to up keep the lighting levels.

One has to select the lighting source depending on the operating conditions in the workshop. They are very sensitive to ambient temperature, which affects the lamp life very badly. Lighting quality with respect to colour shift, drop in CRI, flickering etc are also affected by the ambient temperature. In case of heat processes the ambient temperature is much higher and it is still higher at the roof area, where the lamps are actually mounted. Similarly, the dust deposition on the luminaries, heat sink and other parts of the lamps reduces the efficiency. Overhead crane operators often have to look upwards. If a very high glare lamp is mounted, it would make the operator blind and can result in a serious accident. There are other important factors that would change as per the industry type and operations being done there. Hence Lumen / watt is not the only criteria for selection of the lighting technology for Industrial application.

Lighting arrangement

Lamp arrangement is equally important as it would decide the uniformity of the light on the workshop. Due to various overhead structures like, air vents & pipes, Cranes, cable trays, utility lines, there are many obstructions to the light. While in design stage these structures are often not available or ignored. (as lighting is the last item on priority !!) Hence lamp locations are not synchronized with such structures resulting in un-uniform lighting. Selection of lamp model based only on electrical or efficiency related information also leads to the dark and light patches on the workshop. Lamp – photometry is very important as it decide the number of lamps, location of lamps and wattage per lamp.

Lighting controls

Right amount of light when and where required is important.

When an area is not in use, reduced light levels would save a lot of energy.

Existing workshop: 400 W /lamp, Lux level = 90-120 Lux...

New workshop: 200 W /lamp, Lux level = 200-250 lux...

Existing Lighting 250 Watt / lamp, Lux Level = 90-100 lux...

Induction Lamps 150 Watt / lamp, Lux Level = 180-200 Lux...

With modern techniques there are several ways of doing it. Occupancy sensor, automatic or equipment driven internal timers, diming controls etc. Simple technique such as forming proper well thought control groups according to the work station (instead of ease of wiring!) is important. A user friendly lighting control can be done by dividing the workplace according to usage area (High usage, low usage etc.) and forming these control groups to align the on/off switches accordingly. Occupancy sensors are very effective in warehouses, storage areas and other less used areas.

Induction lighting technology, explained on the next paragraphs, provide very well satisfactory answers to all the points mentioned above. It is best suitable for industrial lighting applications due to its unique features such as long life, extremely low lumen decay and a stable performance under varied environmental conditions. Coupled with excellent electrical properties (Lowest THD, High Power factor, no noise generation) Induction lighting is the ideal solution of Indian industrial conditions.

Now see, some case studies from variety of industries where these issues are resolved using Induction Lighting.

1. ***Castings plant***

   Existing Lighting Conditions (Before the changeover to IL) : Use of 250 W and 400 W HPMV lamps, Lighting levels 60 to 90 much below the standard requirement. Frequent failures of lamps due to heat treatment process.

   Challenges – Maintenance of lamps at 12 mtr + + height, Lux level of 100 - 150 to be achieved with minimum electricity cost and investment.

   Solution – 240 pcs Induction lamps of 150 W & 200 W used to replace 300 pcs of 250 W & 400 W HPSV / MHL lamps. Scheme designed to give Lumen considering type of work in each section.

   Results – Freedom from lamp replacements for last 4 years, desired Lumen achieved with 30% energy bill saving, paradigm shift for foundry ambience.

   Comments by user – "I have never seen a foundry with such good lighting in last 25 years of experience"

2. ***Small parts manufacturing plant***

   Challenges – Improve visibility in shop to enable inspection of dark coloured pressed parts, lot of localised task lighting giving uncomfortable vision due to high contrast spots.

   Solution – 25 Induction lights of 150W replaced 25 Metal halide lamps of 250W.

   Results – Average illumination levels doubled (100~150 changed to 200~400), localised task lighting eliminated, eye comfort for operators, easy for inspection.

   Comments by users – "Now we can work without eye strain and output quality as well as volume improved."

3. ***Forging plant***

   Challenges - overcome variation in lumen across shop caused by varied life point of exiting lamps. Achieve across shop 250Lumen lux, reduce glare.

   Solution – 100Induction lights of 200W replaced 100 Metal Halide lamps of 400W.

   Results – Uniform lighting of 250 Lumen with no fringes, Lighting load reduced from 40 to 20 KwH, Saving of 4.3 L /A, Freedom from Glare and maintenance

   Comments by users – "Very comfortable lighting, we can see micrometer reading more clearly and there is no glare from machined job making inspection very easy." ■

Satish P Nanadikar
Deputy General Manager
Mahindra CIE Automotive Ltd
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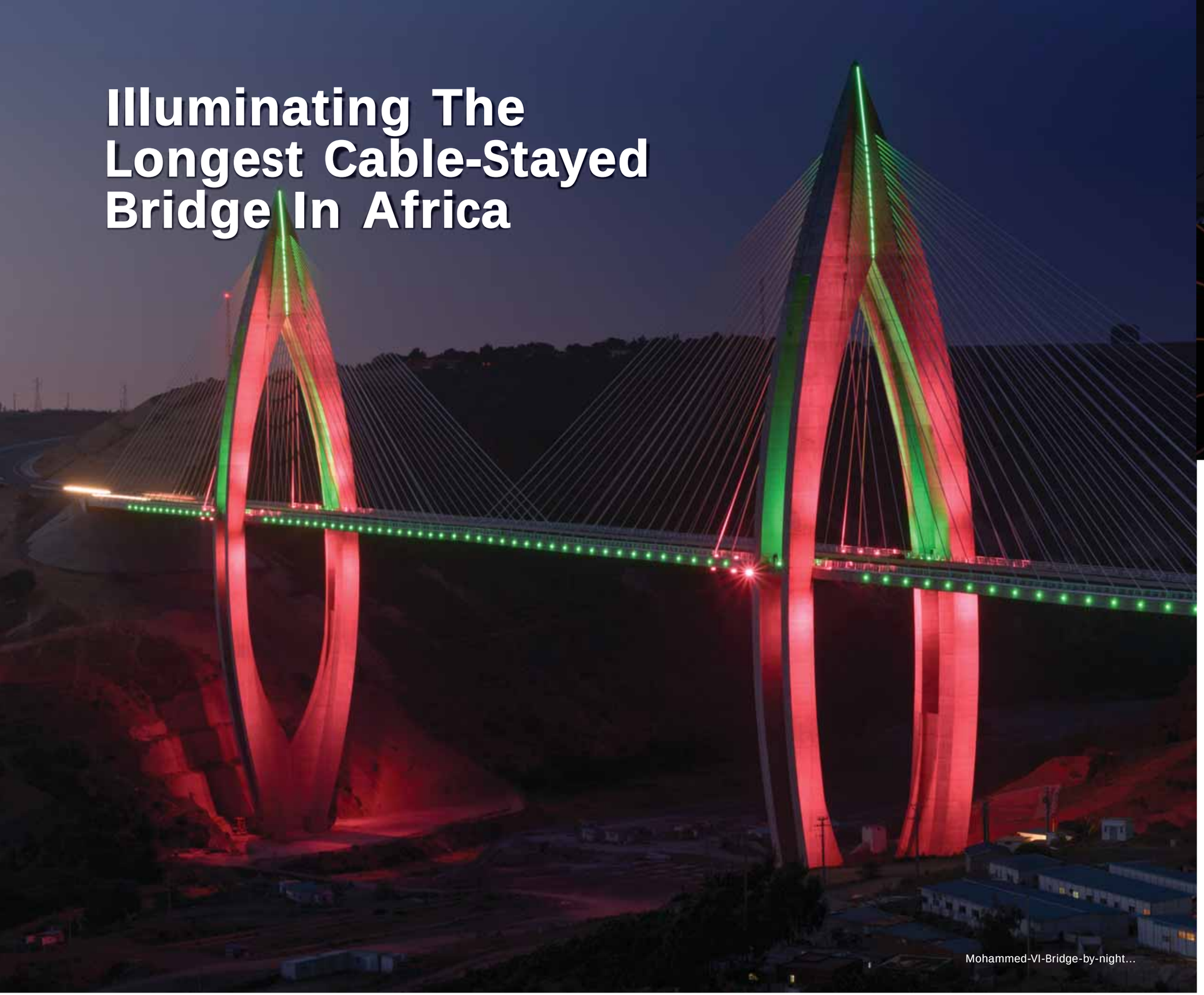
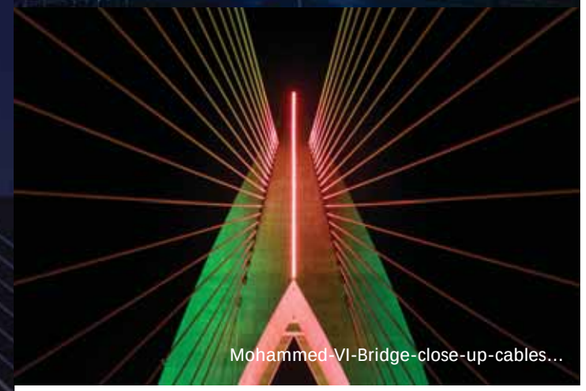


Mohammed-VI-Bridge-by-night...

Mohammed-VI-Bridge-blue...



Mohammed-VI-Bridge-close-up-cables...

The dynamic Philips LED lighting system illuminates the cables and pillars that run high above the Mohammed VI Bridge and can create spectacular light shows...

The Mohammed VI Bridge, that honours the King of Morocco, illuminates the desert outside the country's capital city.

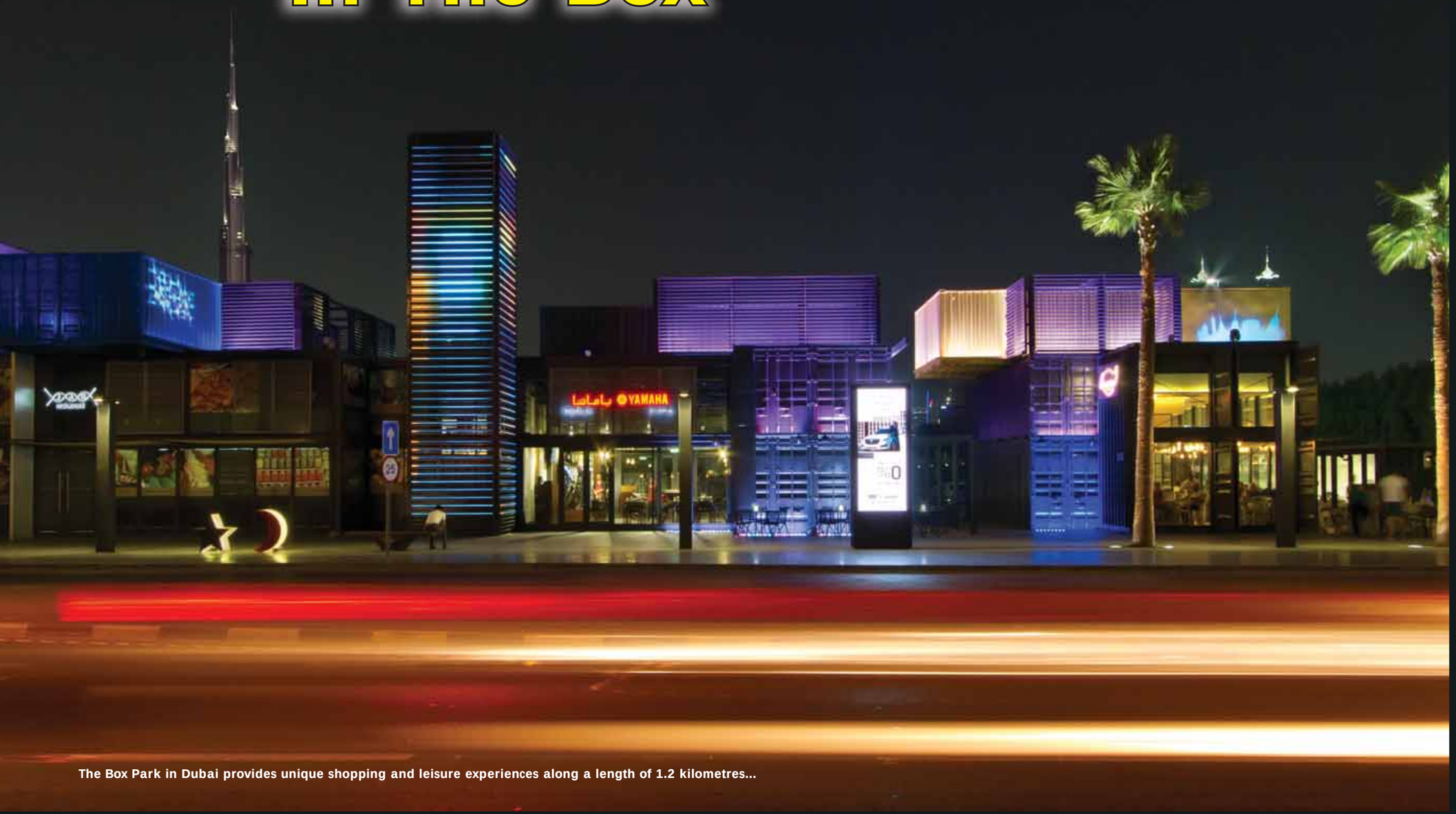
The recently finished bridge, which is the longest cable-stayed bridge in Africa, has been spectacularly illuminated using dynamic LED lighting by Philips Lighting (Euronext Amsterdam ticker: LIGHT).

The newly inaugurated road bridge is an engineering marvel. It is 950 metres long and 6 lanes wide and supported by two 200 meter-tall towers at with 160 cables.

The iconic new landmark, which connects the capital Rabat to the city of Salé, is a symbol of Morocco's modernisation. The Mohammed VI Bridge's unique architectural design is complemented by Philips Color Kinetics technology that provides architectural lighting effects and gives the flexibility to change up to 16 million colours.

The dynamic Philips LED lighting system illuminates the cables and pillars that run high above the bridge and can create spectacular light shows. The LED lighting system is anticipated to be up to 75% more energy efficient than conventional lighting systems. ■

Shopping In The Box



The Box Park in Dubai provides unique shopping and leisure experiences along a length of 1.2 kilometres...

Dynamic lighting from Osram Lighting Solutions transforms the building facades of the shopping boulevard into multicoloured screens...

The Box Park is a modern, urban lifestyle complex in Dubai. With a length of 1.2 kilometres, it offers special shopping and entertainment possibilities and also accommodates unusual restaurant concepts from around the world.

Dynamic lighting from Osram Lighting Solutions transforms the building facades of the shopping boulevard into multicoloured screens for playing a variety of light atmospheres.

The shopping mall with its interplay of modern architecture and the look of storage boxes and shipping containers is a highly diverse alternative to the standard mega-malls normally found in Dubai. The architects and designers divided the site into ten theme-related zones to create a really special shopping and leisure experience for visitors.

These zones reflect world-famous locations such as New York's Times

TRANSFORMATION

The dynamic Osram solution enables light to simulate the atmospheres of various cities. The e:cue light system controls all dynamic elements via one central system...

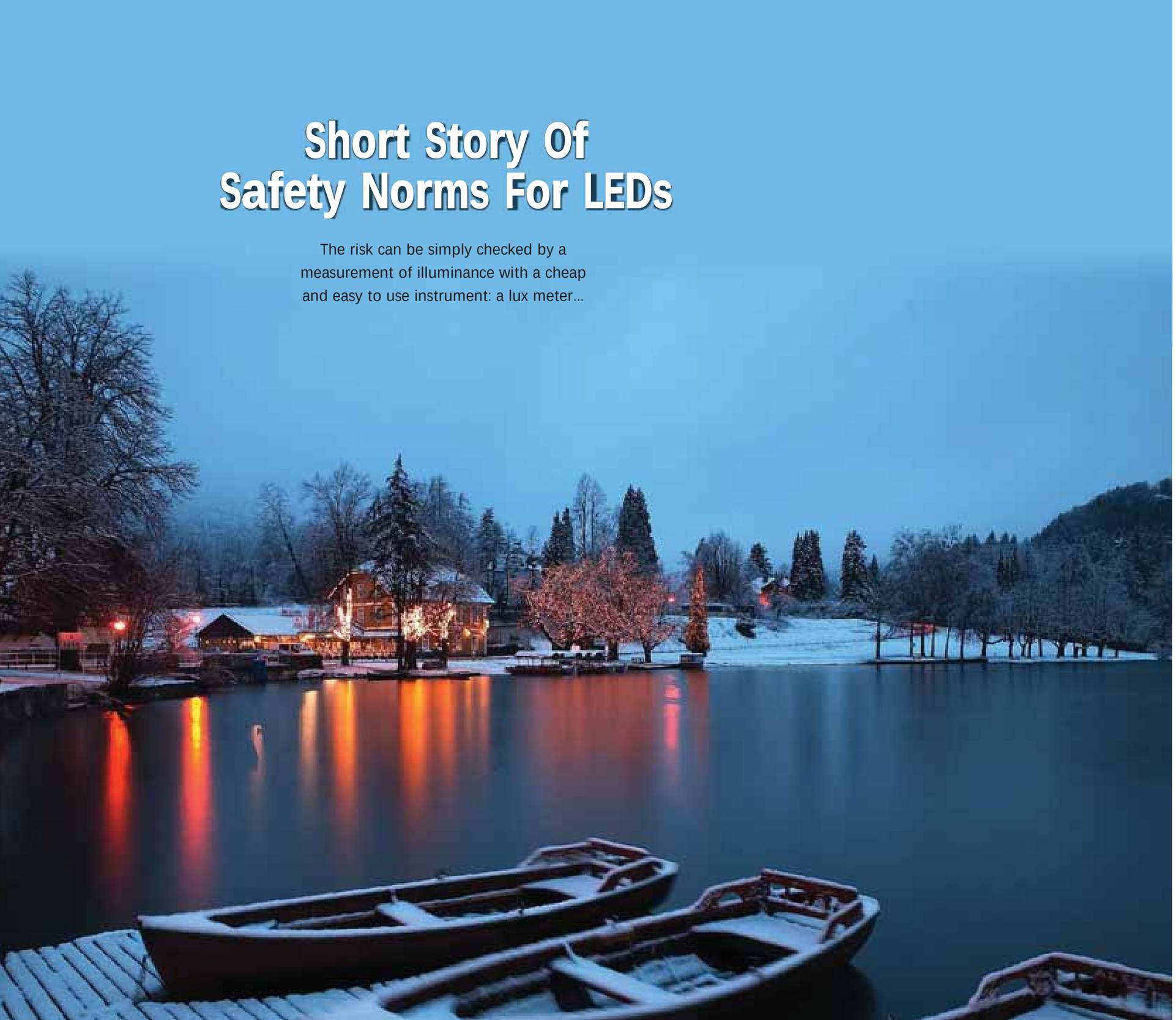
The facades of the Box Park are transformed into adaptable screens thanks to dynamic colour chases and functions such as video projection...

Square and Broadway, London's Harrods and Paris' Moulin Rouge, and dynamic lighting solutions from Osram create precisely the right impressions and moods for the zones with different colours, videos and photo images. Pink and orange tones as well as hearts and windmills dominate for example in the Moulin Rouge area.

The lighting is made possible thanks to Traxon LED luminaires such as media tubes and Nano Liner Allegro AC XB as well as the e:cue light control system. The largest technical challenge in the project was developing a system able to control all dynamic elements contributing to displaying the diverse themes. Osram enabled control of the dynamic luminaires, gobo projectors and ground-recessed luminaires independent of the specific producer. ■

Short Story Of Safety Norms For LEDs

The risk can be simply checked by a measurement of illuminance with a cheap and easy to use instrument: a lux meter...



What came first: the chicken or the egg? In the technical files the answer is quite simple: first comes the product, then the standard. Since 1993, when Nichia did introduce in the market the Blue LED (based on GaN), the photo biological safety was taken into account and International Electrotechnical Commission IEC decided to include LED in the category of LASER product and related norm (IEC 60825). Such a decision was based on the use of Infra Red LED in the fiber communication system due to their very narrow band.

Few years later – 1996 – the American Association (IESNA) did publish the norm ANSI / IESNA RP27.1 "Photobiological safety for lamps and lamp systems – general requirements" announcing some norms for sources other than LASER.

In 2002, the International Commission on Illumination adopt the main part of the ANSI / IESNA RP27.1 as a base for a new norm S009/E-2002: "Photobiological safety of lamps and lamp systems;" four years later the fast improvement and diffusion of LEDs in other fields led the IEC to draft the 60825, a very severe Norm for "general purpose" LED. From now on, LEDs are no longer considered as a LASER equivalent source.

Along 2006 IEC did adopt the guidelines specified in S009/E-2002 joint with IEC 62471:2006 "Photobiological safety of lamps and lamp systems;" two years later the European edition of EN 62471 has been published. It gives guidance for evaluating the photobiological safety of lamps and lamp systems including luminaires. It specifies the exposure limits, reference measurement technique and classification scheme for the evaluation and control of photobiological hazards from all electrically powered incoherent broadband sources of optical radiation, including LEDs but excluding lasers, in the wavelength range from 200 nm through 3000 nm. In particular, some limit values are specified based on six risk categories for human skin and eyes up to 8 hours of exposition, considered as a standard working time.

Photobiological safety of lamps: EN 62471

The light radiation can cause damage to the skin and eyes. Not only does the LED light but any light source can cause damage. European legislation obliges the manufacturer to perform laboratory tests and writing on the lamp the risk category (if present). More, the emission limits shall not be exceeded. Test to run, risk classes and emission limits are defined in EN 62471. The tests and emission limits are not easy to understand – because they require specific technical

Four classes of risk are considered, based on exposure time, before exceeding the limits (EL)...

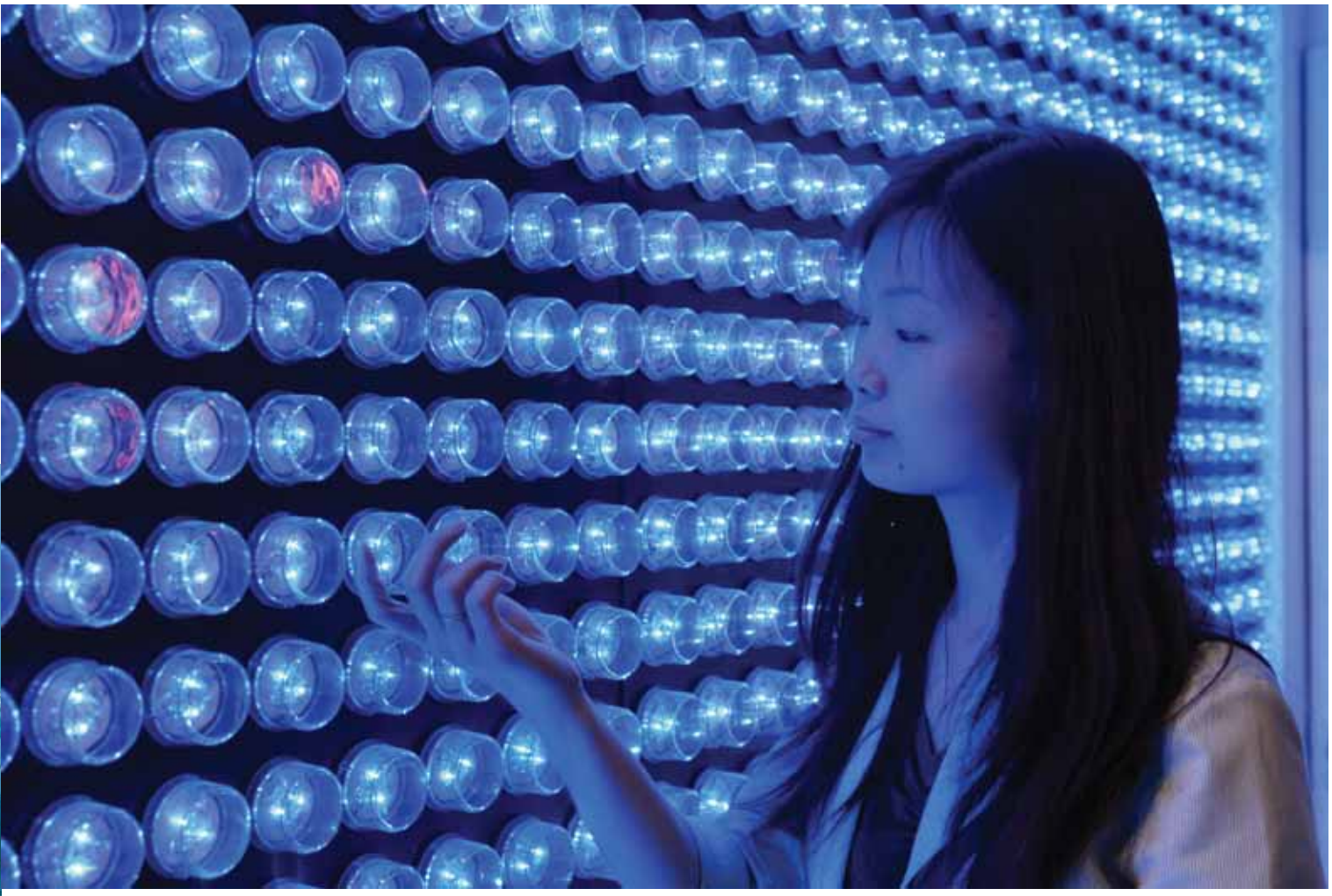
Risk Group	Type of risk
Exempt	No photobiological hazard
GR 1 (Low Risk)	No photobiological hazard under normal behavioral limitations
GR 2 (Moderate Risk)	Does not pose a hazard due to aversion response to bright light or thermal discomfort
GR 3 (High Risk)	Hazardous even for momentary exposure

knowledge and just experts and equipped laboratories can analyse the hazard of the lamps. What we can do is to understand the hazard of the various classes and if there are "risk free" lamps.

The potential damage of the light varies with the radiation wavelength and with the quantity received.

The quantity is given by the power for the exposure time. An intense radiation requires less time to cause damage of a lesser intensity.

We clarify the concept with an example: you can get sunburned if exposed one hour on July 21 at noon – while it will be required over 8 hours in a day in of March.



The EN 62471 defines the absolute limits of exposure to the surface of the skin and the cornea

t = exposure time

Type of Risk	Wavelegth [nm]	Exposure time t [sec]	Exposure limit [W/m²]
UV actinic skin and eye	200 – 400	< 30000 (8 hrs aprx)	30 / t
UV-A eye	315 – 400	< 1000 (16 min aprx) >1000	10000 / t 10
Blu Light small source	300 – 700	< 100 > 100	100 / t 1
IR eye	730 – 3000	< 1000 > 1000	18000 / $t^{0.75}$ 100
Thermal skin effect	380 – 3000	< 10	20000 / $t^{0.75}$

And for the retina surface:

α = view angle

Type of Risk	Wavelegth [nm]	Exposure time t [sec]	Exposure limit [W/m²]
Blu Light	300 – 700	< 30000	30 / t
Thermal retinic effect	380 – 1400	< 0.25 0.25 – 10	50000 / α*t0.25 50000 / α*t0.25
Thermal retinic (weak visual stimulus)	780 – 1400	> 10	6000 / α

EN 62471 defines the following class of risk:

Risk Group	Exempt	1 (Low risk)	2 (Mid risk)	3 (High risk)
UV actinic Risk	Absent within 8 hrs of exposure	Absent within 2,8 hrs of exposure	Absent within 16 min. of exposure	Any risk higher than Group 2 does belong to Group 3
UV-A Risk	Absent within 16 min. of exposure	Absent within 5 min. of exposure	Absent within 100 sec. of exposure	
Blue Light retinal risk	Absent within 2,8 hrs of exposure	Absent within 100 sec. of exposure	Absent within 0,25 sec. of exposure	
IR Retinal Risk	Absent within 10 sec. of exposure	Absent within 10 sec. of exposure	Absent within 0,25 sec. of exposure	
IR cornea risk	Absent within 16 min. of exposure	Absent within 100 sec. of exposure	Absent within 10 sec. of exposure	

The radiance and irradiance measurements are carried out at the distance at which it produces an illuminance of 500 lux and to not less than 200 mm in the case of general lighting devices and 200 mm for all others.

EN 62471 defines the following the exposure limits for the different groups...

Risk	Exempt Group	Risk 1 Group	Risk 2 Group
UV actinic skin and eye [W/m²]	0,001	0,003	0,03
UV-A eye [W/m²]	10	33	100
Blu Light small source [W/m²]	1	1	400
IR eye [W/m²]	100	570	3200

Lamps belonging to Group 3 cannot be used for general lighting.

According to the typical spectral emission just few lamps can be dangerous:

Type of lamp	Hazard due to IR	Hazard due to Blue light
Halogen for special applications	YES	YES
MH discharge	NO	YES
LED	NO	YES

In these cases, the lamps must bear on the packaging the risk group.

With regard to the blue light, whereas the values stated above, it is possible to define a value of the illumination (at the level of the eyes) in function of the colour temperature (CCT) of the lamp, under which the exposure is equal to or less than the group 1:

CCT	Illuminance [LUX]
< 2350	4000
2350 < CCT < 2850	1850
2850 < CCT < 3250	1450
3250 < CCT < 3750	1100
3750 < CCT < 4500	850
4500 < CCT < 5750	650
5750 < CCT < 8000	500

In the chart above a higher colour temperature (CCT) is related to a higher power in the blue wavelength. In other words, the risk can be simply checked by a measurement of illuminance with a cheap and easy to use instrument: a lux meter. ■

Fausto Martin
Electric Engineer, Italy
Visitor Professor at Madrid University (Spain)

Colin Kavanagh To Head Philips' Entertainment Lighting Business

He has extensive commercial and technical experience pertinent to his new role...

Philips Lighting has appointed Colin Kavanagh to head the company's entertainment lighting business. He will take on this new role as Head of Entertainment lighting with immediate effect.

Before, joining Philips, he worked in California as Senior Vice-President of Operations at Topcon Positioning Systems. He has held a series of senior positions – predominantly in Silicon Valley, California – where he oversaw innovation in product development, operations, procurement and supply chain.

He joined Philips in 2013 as SVP of Procurement Engineering, where he managed a multi-billion annual spend and a global team of 300 procurement engineers.

He has extensive commercial and technical experience pertinent to his new role. He has a strong background in Design for Excellence (DfX), Concurrent Product Development (CPD), lean manufacturing and Voice of the Customer (VoC) in fast time to market industries.

Kavanagh is a dual US and Irish citizen. He held a series of senior positions. He holds an Executive MBA from The University of Colorado and a BS Mechanical Eng. from The University of Limerick.

He said, "I am developing a sector-specific strategy that will greatly enhance how the Entertainment team works and take the business to the next level." ■

"Hafele has always been recognised for its range of Furniture LED Lights..."

The world of building and living is full of opportunities to make things better. With its 35,000 products 'The complete **Häfele**' has been the preferred industry reference tool since 1971. In an e-interview with **Lighting India, Vikrant Pathare, National Manager for Lighting, Häfele India Pvt. Ltd.**, is explaining the merits of **LED-based indoor lighting** to **PK Chatterjee**. Excerpts...

Q What are the positive effects of a good indoor lighting scheme?

A The first and foremost role for lighting is to enhance visibility, but with advancing trends and scientific improvements things have changed now.

Besides providing utilitarian uses like visibility, lights now provide an aesthetic appeal and emotional quotient to interior spaces. Good lighting not only helps in seeing things properly in a given space but also enhances the overall style and décor of interiors. In this fast paced life, lighting solutions have aligned themselves to moods and emotions, giving a sense of relaxation and solace to the mind.

With the advent of new technologies and sensing systems, LED systems have become intelligent enough to throw light in an interior space only when desired thereby restricting the unwanted wastage of power.

Q What is your observation on the latest global trends as far as the indoor lighting is concerned?

A Some global trends for indoor lighting are as under:

1. More lights get smarter, laying the foundation for more Internet controlled lights
   The LED migration is stimulating a huge increase in the installation of intelligent lighting controls such as occupancy sensors, photo sensors and wireless networks that can be interlinked.
2. Viable energy-efficient options to fluorescent tubes to emerge
   One lighting format notably slow to migrate to LED technology has been fluorescent tube lighting, mainly due to cost factors. But the replacement market across stores, offices, warehouses and so on will get more attention this year.
3. Organisations test lighting to improve morale, health and productivity
   The idea is to create an indoor environment that could echo natural lighting conditions found outdoors, even mimicking the effect of a cloud obscuring the sun on an otherwise bright day.

Q What are the advantages of LED lighting? How is the acceptance of these in India?

A Advantages of LEDs:

- Long lasting: LED lights have an extremely long service life of up to 25 years or more than 40,000 to 50,000 hours.
- Insensitive: LEDs have an extremely small and robust design. This makes handling easier during furniture construction and transport.
- Low heat generation: Because of their extremely low power consumption, LED lights hardly generate any heat. This means that LED lighting systems are particularly suitable for displays.
- Energy-saving: LED lights use an impressive 90% less power than conventional light bulbs. This means that they can be used to implement modern lighting scenarios in furniture, and still be inline with the energy saving trend.
- Powerful: Modern LED lights are bright and have a saturated light colour.
  They achieve full brightness as soon as they are switched on. LED furniture lighting therefore has a lasting effect at the push of a button.
- Rich in variants: LED lights are available in different colours and can also be designed as colour changing lights. This allows the colour temperature to be coordinated with furniture contents such as exhibits in the best possible way.

Acceptance of LEDs:

This is a gradual changing process; people take a defensive step when it comes to high initial costs, especially when it comes to replacement of bulbs. However, this is significantly changing since the last couple of years and most of the educated customer segments are now going only for LEDs.

As per the latest data there has been a decline in growth of halogen and CFL lamps and as per the predictions for 2020, LED will dominate 60% of the industry.

Q How is Hafele India's contribution in this area? What kind of innovation have you done to promote the use of LEDs for indoor decoration?

A Hafele has always been recognised for its range of Furniture LED lights. We were in fact the pioneers of furniture lighting in India.

With a firm foot set in this segment of lighting, Hafele has spent the last one year completing its LED assortment with the inclusion of a number of attractive ambient lighting solutions – these include ceiling lights, panel lights, track lights and many others.

Our new generation of LOOX lighting systems focuses on the 'easiness' of installing LEDs in your homes. Breaking the myths of the tedious and never-ending process of fixing LEDs in a home environment, this range presents itself with mere plug-and-play technology that facilitates easy and tool-free installation of LEDs.

> With the advent of new technologies and sensing systems, LED systems have become intelligent enough to throw light in an interior space only when desired, thereby restricting the unwanted wastage of power...

Our LED drivers are colour coded as per their Voltage levels (where yellow stands for 12 V systems, green for 24 V systems, blue for 350 mA systems and brown for 700 mA systems) making the integration of LEDs smoother.

All the lighting fixtures from our new generation of LOOX lights are engineered keeping modularity as a clear focus.

This allows for possibilities to replace existing switches with dimmer options without having to re-lay the cable.

Q What is your advice to the prospective buyers of lighting solutions?

A Like any other facet of home designing, lighting too should be considered at the very start of an indoor creation or renovation project.

This gives room to create a feasible environment for cabling and other aspects that are closely related to light installation.

After design, functionality and aesthetics, lighting adds the fourth dimension to any indoor space. ■

Shenzhen Lead Opto-Technology Launches LED High Bay Light

The company assures, "Don't worry about the weather – whether it's raining or not, it has a good quality and a long life span"...

LEAD Opto-technology has launched a new model of LED high bay light. The new light has the following advantages:

- New model, patent design: It has been designed by the company itself, thus its design is unique in the market.
- High lumens: High lumens, can reach 115-135lm/w, higher than normal COB /SMD led flood light.
- Nice aluminium material: Using class I aluminium, good heat sink, low work temperature.
- High quality with best price: Good heat sink. 3/5 years warranty, CE, ROHS, SAA, UL certification.
- Waterproof IP65: Don't worry about the weather – whether it's raining or not, it has good quality and long life span. ■

For further information:
Shenzhen Lead Opto-Technology Co., Ltd.
Email:sales25@lead-lighting.com

New Growth Opportunities In Urban Farming

Lumileds LUXEON 3535L and LUXEON C Color Line LEDs can significantly stimulate plant growth...

According to the Food and Agriculture Organization of the United Nations (FAO), urban farming is becoming increasingly popular throughout the world, with an estimated 800M of the world's 7.4B people (@ 11%) practising it. Current annual growth rate projections for urban farming exceed 25%. The continent of Europe is the present leader in this field. It is expected that the Asia Pacific region, which is undergoing the faster rate in the world of rural to urban development, will ultimately be the global leader within the time span of the next generation.

Infineon and Lumileds have joined hands for energy efficient lighting solutions targeting improved yields for sustainable crop cultivation. Infineon offers LED driver ICs with thermal protection for driving multiple strings of LEDs, high-voltage CoolMOS MOSFETS and low-voltage OptiMOS MOSFETS, plus XMC1000 series MCUs for LED lighting.

Image Courtesy: Lumileds

LUXEON 3535L Color Line...

Thanks to their comprehensive colour range and precise control, Lumileds LUXEON 3535L and LUXEON C Color Line LEDs can significantly stimulate plant growth while drastically reducing energy consumption with targeted wavelengths from 450 up to 730 nanometers. ■

Highlighting The Original Architecture

The St. Jean granary was built in the middle ages in Angers, France. A new lighting concept has been recently installed to display its interior in all its glory...

The St. Jean granary, built in the middle ages in Angers, France, does not attract as many visitors as the castles of the Loire nearby. Nevertheless, this impressive half-timbered building is greatly appreciated as part of the town's cultural heritage, and is well worth a visit. A new lighting concept has been recently installed to display the interior in all its glory. Different lighting scenarios are available depending on the particular use of this historic building.

The new lighting for this prestigious community hall blends discreetly in the original architecture with its beams, slate walls and round arches. Whether the hall is being used for a reception hosted by the mayor, a dance evening or a presentation, this historic setting can now provide the perfect framework,

thanks to the LED solution and lighting control system from Tridonic. Three pre-programmed lighting scenarios for the 300-plus LED light points can be easily selected on the colour touchscreen. Separate control of the lighting mood is also possible in the three naves created by the arches and pillars.

Lighting control wins over the city authorities

The companies involved in the project recommended a modern lighting solution to the city authorities and the Angers Construction Office responsible for its cultural heritage, as this would offer the flexibility to bring out the medieval charm of the former granary. The SLE LED modules from Tridonic selected for the spotlights and downlights offer impressively high efficiency, homogeneous light and a life of 50,000 hours. These modern light sources go perfectly with the historic look of the chandeliers. They are controlled via LED Driver LCAI ECO with extensive dimming and protection functions, supported by DALI and DSI protocols. DALI control modules are also used.

Thierry Bechtel, responsible for technical support at Tridonic France, describes the challenges presented by the project: “Flexible use of the building was an important basis for the programming. With the touchscreen of our DALI x/e touchPANEL 02 control system, I was able to offer the customer the ability to control each zone separately – simply by touching the screen.” Bechtel was also on hand during the commissioning phase for the system.

“The customer was able to see precisely how the interior would look during each of the scenarios, such as a ‘reception’ or ‘dance evening’. The atmosphere in the building can be changed to suit any event,” he added.

Participants in the project:

- EPSILON+ PAYS DE LOIRE
- SDEL ENERGIS
- BET NEAU
- Angers municipal authorities
- Angers Construction Office ■

International Lighting Fair Beckons You

A view from the last (2015) exhibition...

The HKTDC Hong Kong International Lighting Fair (Autumn Edition) will see its 18th edition from 27-30 October 2016 at the Hong Kong Convention and Exhibition Centre (HKCEC). Simultaneously, there will be HKTDC Hong Kong International Outdoor and Tech Light Expo (1st edition) in 2016, at AsiaWorld-Expo (AWE)...

The HKTDC Hong Kong International Lighting Fair (Autumn Edition) will see its 18th edition from 27-30 October 2016 at the Hong Kong Convention and Exhibition Centre (HKCEC). Showcasing cutting-edge lighting products, solutions and services, this spectacular occasion will be the ideal business platform for industry leaders and buyers alike. Last year, the fair featured 2,555 exhibitors from 35 countries and regions, with particular traction in emerging markets.

This time visitors there will be able to generate more power for their businesses with the newest styles and the latest technology at the region's leading trade fair for lighting

products. With more than 2,550 quality exhibitors from all over the world expected at HKTDC Hong Kong International Lighting Fair (Autumn Edition) 2016, 27-30 Oct, buyers will have more choice.

More than 38,000 buyers from 138 countries and regions visited the 2015 fair. The fair's downtown location, Hong Kong Convention and Exhibition Centre (HKCEC) in Wan Chai, places buyers in the heart of Hong Kong's bustling commercial and entertainment district.

Illuminating the Possibilities

With so much on offer, buyers will appreciate the thematic zones, which optimise sourcing.

LED & Green Lighting Zone: This highlights one of the fastest-growing and most dynamic areas of the lighting industry. The energy-efficient choices range from the purely functional to the highly fashionable.

Hall of Aurora: This has all the allure of market-leading lights from branded collections, offering the classically beautiful as well as the sharply stylish. The vibe is upmarket here.

Commercial Lighting Zone: This offers lighting for all kinds of workspaces, from factories to offices large and small, and for optimum display in retail situations.

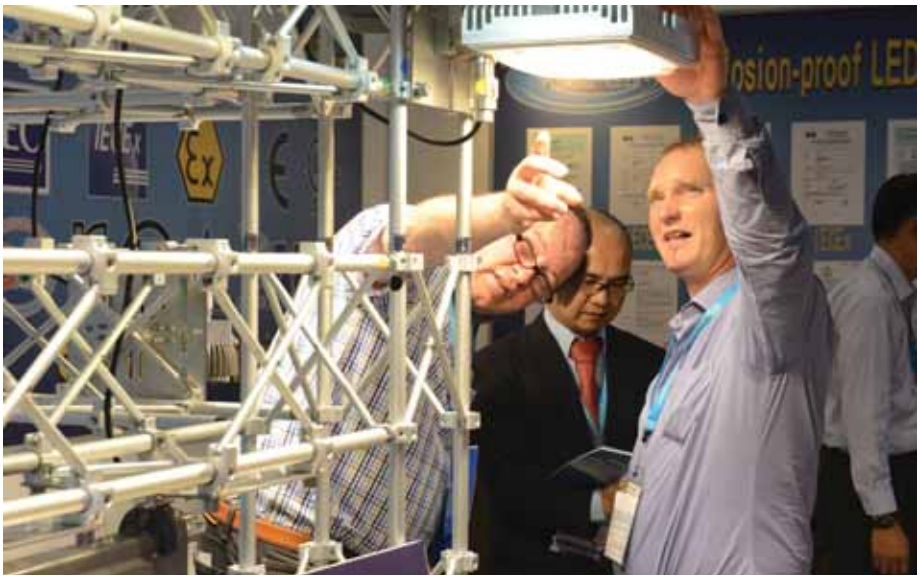
Smart Lighting & Solutions Zone: This shines a light on the latest developments in this exciting field. Buyers can see the latest products and complete solutions offered by expert suppliers.

Household Lighting: This is a rich source of all kinds of lighting for residential purposes, such as wall lights, pendants and much more, following the latest trends.

Avenue of Inspiration: This truly inspires as it is dedicated to lighting design that is creative and original.

Value-added Activities at the Fair

The fair's seminar programme is designed to benefit participants by updating knowledge in different areas such as style trends, market developments and new technology. And with such a large international gathering, the fair is ideal for networking at the various social functions.



Visitors in the 2015 exhibition are inspecting a luminaire...

More Value in Concurrent Events

2016 sees the first edition of HKTDC Hong Kong International Outdoor and Tech Light Expo, destined to be a world-leading source of outdoor lighting in particular. Exhibits cover Outdoor Lighting, Lighting Accessories, Parts and Components, Professional and Industrial Lighting, and Advertising Lighting. The two fairs - Autumn Lighting Fair 2016 and Outdoor and Tech Light Expo 2016 - create the world's leading marketplace for lighting products.

Outdoor and Tech Light Expo is head at AWE, alongside HKTDC Hong Kong International Building and Hardware Fair 2016, and Eco Expo Asia 2016, both scheduled for 26-29 Oct. Fairs at both venues (HKCEC and AWE) are served by a complimentary shuttle bus service.

The Leading Specialist Source of Outdoor and Tech Lighting

Lighting for outdoor spaces and very specific industrial or commercial situations requires its own trading platform.

Glimpse from section of the 2015 trade fair...

A visitor is trying to gather more information from a stall owner in the last fair...

HKTDC established this by hosting a well-received event, the World of Outdoor Lighting & Lighting Accessories in 2015, and has now refined and expanded the concept to present the first edition of HKTDC Hong Kong International Outdoor and Tech Light Expo in 2016.

The Outdoor and Tech Light Expo's venue, AsiaWorld-Expo (AWE), is home to the concurrent HKTDC Hong Kong International Building and Hardware Fair 2016 so buyers, such as town planners, developers, architects, landscape artists, specialist retailers and hardware chains, can find complementary products under one roof.

The Autumn Lighting Fair and the Outdoor and Tech Light Expo together form the world's leading lighting marketplace.

Themed for Buyer Convenience

The Outdoor and Tech Light Expo covers a wide range of lighting products and accessories for commercial/ industrial use, categorised for efficient sourcing.

Outdoor Lighting: This encompasses lighting for public spaces such as lamp poles, street lights and tunnel lights, as well as commercial lighting such as underwater lamps, garden and lawn lights.

Buyers can find underground lights, floodlights, bulkhead lights, halogen lamps and track lights as well as flashlights and lanterns.

Lighting Accessories, Parts and Components: This covers products such as ballast, drivers, fluorescent light fixtures, lamp holders, bases and lamp shades, dimmers, reflectors, switches and transformers.

Professional and Industrial Lighting: This houses exhibitors of situation-specific lighting, for example, for warehouses, workshops, laboratories, or even for event venues, studios and theatres.

Advertising Lighting: This includes any lighting related to marketing, promotion and advertising such as signage and billboard lights.

Visitors are in the process of decision making in the 2015 fair...

Join In for Maximum Value

Seminars and forums offer buyers updated information on the latest standards and regulations and the newest breakthroughs in lighting technology.

Networking events, too, give buyers more value by creating the opportunity to meet industry peers in a social situation.

Supporting Services and Facilities

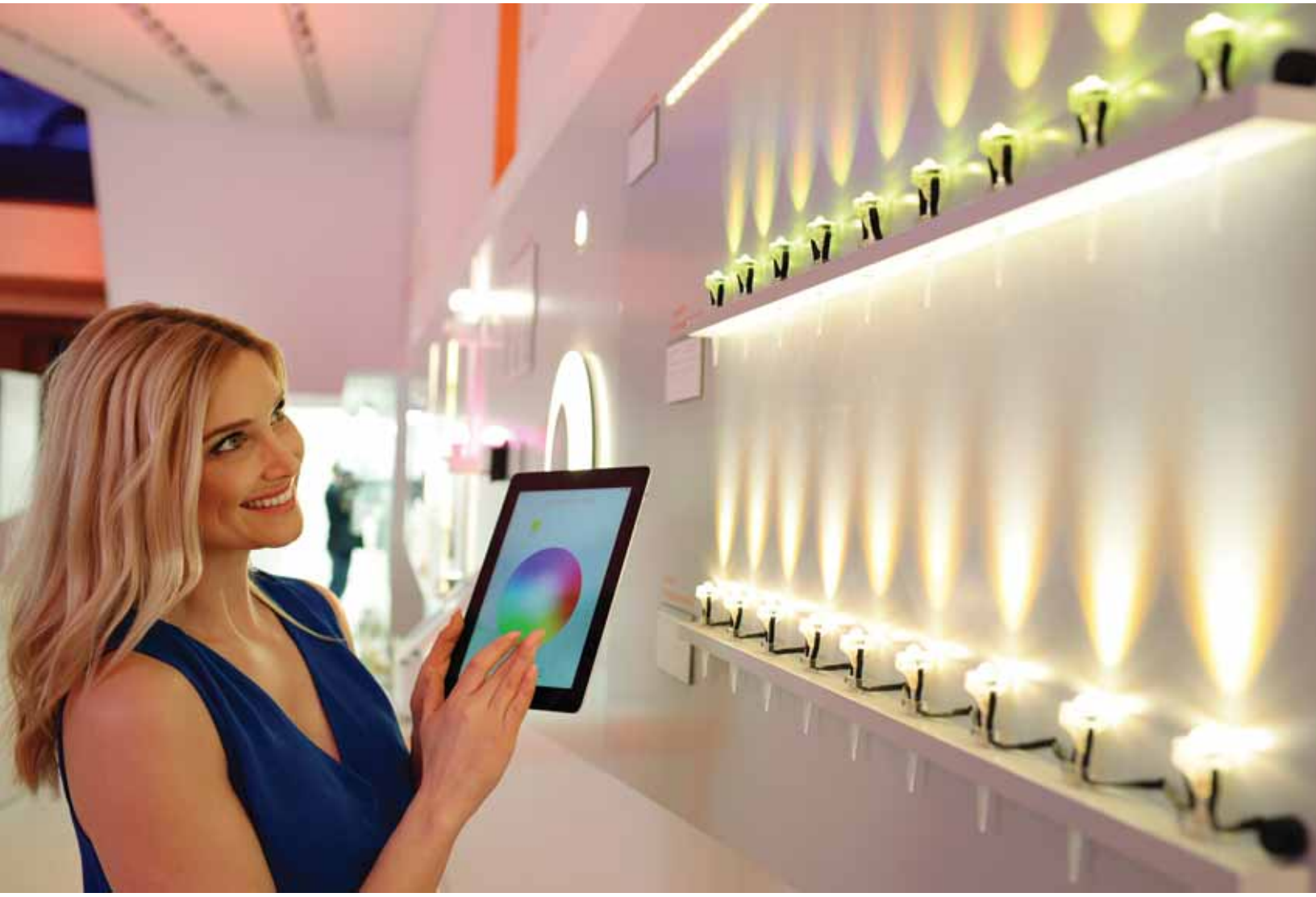
Buyers have access to a broad array to services to make sourcing as convenient as possible.

For example: VIP Lounge is an area in which VIP buyers may enjoy complimentary snacks and beverages, Internet access, newspapers and magazines, with private rooms available for meetings.

Courtesy shuttle bus services carry fair participants between AWE and HKCEC, as well as serving major hotels and shopping centres in Kowloon and Hong Kong.

First-time overseas buyers are entitled to exclusive travel incentive. Pre-registration is required. Visitors need to contact HKTDC at Tel: (852) 2240 4235, Fax: (852) 2169 9651, or e-mail hklighting.visitor@hktdc.org for details. ■

Light India, EBTI
To Commence From October 5, 2016



ELCOMA and Messe Frankfurt India to bring over 250 companies to showcase smart solutions for smart cities in New Delhi...

Light India, India's renowned fair for the international lighting industry, and Electrical Building Technology India (EBTI) will concurrently open their doors from 5 – 7 October 2016 in New Delhi. The first edition of the two unified events is reportedly over 90% booked and is expected to bring over 250 companies to New Delhi to showcase solutions for smart cities. Targeting the most important visitor groups and policy makers, the co-located fairs will take place at Pragati Maidan in the nation's capital.

Technology vendors are explaining their latest lighting products to the prospective buyers in the last year's show...

The organisers, Messe Frankfurt Trade Fairs India Pvt Ltd and ELCOMA (Electric Lamp and Component Manufacturers' Association of India), are now collaborating to bring forward technical innovations, knowledge sharing, as well as market developments through strategically planned fringe programmes. This includes a lighting conference on 6th October and a series of workshops with international associations over the three days of the fair. A Council of Architects Conference is also being planned by the organisers during the show.

A gala networking night with the lighting industry's who's who will also make way for new ideas, innovations and networking among sector players.

India's fast-developing public infrastructure together with plans for highway expansions, smart cities and smart homes is expected to drive adoption of intelligent, energy-efficient and connected technologies in the lighting, solar and building technology space. The 'smart' street lighting market in India anticipates a stellar growth of USD 1,868.9 million(125.43 billion) by 2022 at a compound annual growth rate (CAGR) of 42.2% as adoption of LED and solar powered systems continue to rise. Projected to achieve a CAGR of more than 22%, the infiltration of cloud-based smart street-lighting and building technologies will also rise in the near future. Increased building automation will lead to more energy efficiency, security and safety in buildings.

Industry's topmost brands covering these innovations will all be present at this important business event making it a go-to destination for city developers, urban planners and architects. This includes technology-leading brands like Anchor, Surya, Crompton, Bajaj Electricals, Havells, Orient Electric, MLS, Opple Lighting, Century LED, Delta Electronics among others.

In addition, there will be building technology experts such as KNX India, Legrand, Crestron, Hensel, Ray Logic, ProliteAutoglow as well as foreign contingents from China, Japan, Hong Kong and Taiwan at the three-day fair. They will show a unique combination of innovative, energy and cost-saving technologies to the Indian market.

For more information about the fairs,
please visit: www.ebt-india.in ; www.light-india.in ■

Osram enriches its portfolio for workshop inspection and other utilities

With its Slimline 280, Bonnet 1400, Pocket 280, Penlight 150 and Penlight 150 UV-A Osram has added five high-power LED work lights to its LEDinspect Professional series to help with vehicle maintenance and repair.

Commenting on the new LEDinspect PRO series, Petra Maya Wilhelm, Product and Portfolio Manager at Osram, said, "We have further developed the LEDinspect range to create the new LEDinspect PRO products, providing professional users with durable and flexible LED lighting solutions that are ideally designed to meet the requirements of vehicle inspection and maintenance work." ■

Website: www.osram.com

Cree rolls out CPY LED canopy luminaire

Cree, Inc. offers CPY 13,000 lumen LED canopy luminaire. It delivers efficiency of up to 136 Lumens Per Watt. This offers easy installation and lower total cost of ownership for better light experiences. The 13,000 lumen CPY luminaire boosts efficacy by 20%, lowering operating costs while enhancing roadside visibility and appeal at service stations, convenience stores and drive-through restaurants or banking locations.

"Gas stations, travel centers and quick-service restaurants are under constant pressure to increase traffic and lower operating costs while providing safe and visually appealing lighting. The Cree CPY 13,000 lumen LED canopy luminaire delivers superior illumination that provides a comfortable, visually appealing environment for a better overall customer experience – while significantly trimming operating costs," said David Elien, Cree Senior Vice President, Lighting. ■

Website: www.cree.com

Power Integrations launches LED driver integrated cicuit family

Power Integrations, a company offering solutions in high-efficiency, high-reliability LED driver ICs, has rolled out its LYTSwitch-7 single-stage, non-isolated, TRIAC-dimmable, buck topology LED driver IC family. Capable of delivering up to 22 watts without a heatsink in a very small SO-8 footprint, these high-efficiency devices are suitable for bulbs, tubes and fixtures.

LYTSwitch-7 designs do not require bleeders; employing simple, passive damping for TRIAC management and an off-the-shelf, single-winding inductor, reducing component count to just 20, as compared to approximately 35 parts for typical dimmable LED driver boards. They deliver a phase-cut (TRIAC) dimming solution with a wide dimming range and monotonic dimming response. ■

Website: www.power.com

CWW presents contemporary LED wall wash

CWW is an attractive high performance wall wash with a narrow aperture and a clean, finished appearance. This provides uniformity of 5:1 on vertical surfaces from ceiling to floor.

Features:

• Narrow 3" aperture creates clean finished appearance

• Proprietary optical design provides excellent vertical uniformity while maintaining visual comfort

- Multiple optical distributions for varying wall wash applications
- 60,000 hour LEDs at L80 (up to 150,000 hours projected life) for reduced maintenance
- Four LED colour choices and standard 80 CRI
- Optional 90 CRI for color sensitive applications
- Six lumen packages with outputs up to 1300 Lm/ft
- Best in class efficacy with up to 116 LPW
- Multiple driver options to satisfy different applications
- LED modules and electrical accessible from below
- QR code traceability
- Integral battery pack optional on most models
- Five year warranty (Terms and Conditions apply) ■

Website: www.columbialighting.com

Thorn Lighting presents MenloSoft SR luminaire

Thorn's new MenloSoft SR luminaire now enables lighting schemes for display screen areas to be designed with good ceiling and wall illuminance ratio recommendations, using just one fitting type.

MenloSoft SR is a semi-recessed modular fluorescent with a suspended optic (only 82mm below the ceiling), designed to deliver an efficient light output (>60%) with excellent glare control.

Light is directed onto the walls and ceiling, thus lifting the office appearance. The slim 'butterfly' shaped optic is offered with either a central louvre or diffuser, flanked by micro-perforated wings. As such it is ideally suited for the lighting of most office spaces.

The luminaire is supplied with 14 or 24W T16 lamps operated from either fixed output or digital dimming high frequency control gear. Standard 3 hour or SelfTest emergency options are also available. ■

Website: www.thornlighting.co.uk

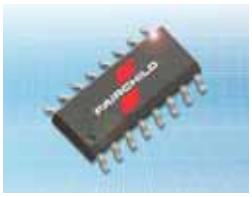
Axo Light brings in new lights

World premiere for Axo Light, which has just presented its new lamp collections for spring/summer 2016: U-Light and new models for Melting Pot. Both original and iconic, U-Light stands out for its frame, which is made of two slim curved aluminium lines: one line forms an upside-down U and the other a ring underneath it, where the light source is housed. The lamp is therefore extremely light-weight and, despite this fact, it is designed to lend installations a strong scenic impact: two-dimensional elements give the three-dimensional impression of a dome, as if the two simple lines concealed within themselves an invisible volume which is indeed a presence in space.

New models are in store for the Melting Pot collection designed by Sandro Santantonio and launched in 2015: two suspensions with a single lampshade and two floor lamps, all available in various versions. In the first models of the collection (suspensions and wall lamps), the shape of the lampshade was created by the incorporation of several elements, and it was rendered more original by the combination of different patterns, which are now available with a gold interior (wall lamps and suspensions) and silver interior (suspensions). ■

Website: www.ergo-online.it

Fairchild offers integrated circuit LED lighting solutions



Fairchild has introduced the new FL77944, the first solution in its LED Direct AC Drive family of solid-state LED lighting solutions, which manufacturers can use to easily scale power and create smart and scalable LED-based lighting products that can be smaller, have higher performance and a longer system lifetime compared to products using the Switch Mode Power Supply approach. The advantages of the new FL7794 include:

- Comprehensive dimming capabilities
- Scaling for higher power applications
- Elimination of electrolytic caps
- Reduced board space
- Improved reliability and longevity. ■

Website: www.fairchildsemi.com

Bek Lighting rolls out flood lights

Guangzhou Bek Lighting Technology Co.,Ltd is specialized in the manufacture of indoor &outdoor LED lighting. The company has its own research, development, manufacturing, selling & after sales service & sales team. After non-stop in-depth study and amendment on LED products, they design and undertake many large-scale lighting constructions.

The company has recently launched a range of Flood Lights. The products have the following characteristics:

1. Die-casting aluminium shell, the lamp body bottom cooling hole reailses the air circulation, mproves the radiating efficiency.
2. Unique reflector cup bump, reflecting efficiency is more than 95%, both beautiful and practical.
3. LED light source area is large, light uniformity, no spot, super bright, no stroboscopic highcolour rendering index, green environmental. ■

Website: www.beklighting.com

OSRAM SYLVANIA brings in highest lumen PAR lamps

OSRAM SYLVANIA has showcased SYLVANIA ULTRA LED HO PAR38 and PAR30LN Lamps, which offer the highest lumen packages and one of the best lumens per watt for PAR lamps in the industry. Offering outstanding colour uniformity and beam quality, these lamps have comparable lumen output and Centre Beam Candlepower (CBCP) to traditional metal halide lamps but use about half of the energy.

"We are focused on leading the market, and our SYLVANIA ULTRA LED HO PAR Lamps with their noteworthy lumen packages and efficacies are another proof point of our expertise. The lumens and center beam candlepower of our powerhouse PAR lamps combined with UL classification allow for the direct replacement of metal halide lamps for less energy," said Vikrant Mahajan, Product Marketing Manager, OSRAM SYLVANIA.

SYLVANIA ULTRA LED HO PAR Lamps are UL Wet Rated, available in Universal input voltage, and have a long 25,000 hour life (L70). The 30W PAR38 lamp delivers 3000 lumens with an efficacy of up to 100 lumens per watt, replacing a 70W metal halide lamp. The 25W PAR30LN lamp delivers 2200 lumens with an efficacy of up to 88 lumens per watt, replacing a 39W metal halide lamp. ■

Website: www.sylvania.com

AGC Lighting offers HiCover LED flood light

AGC Lighting's LED flood light is designed for indoor and outdoor applications, including Billboard lighting, Sport lighting, and Parking Lots. It is an energy-saving replacement for traditional flood light.

This has been built to beat the common COB flood lights and traditional HID flood lights.

The High Cover LED Flood Light is modularized. Each 30W model can be easily expanded to 60W or 120W.
Its classic colour combination Red+Black makes it fashionable in the sky.

Unlike the common COB type flood lights, with only one beam angle of 120 dgree, the High Cover LED Flood Light has multi beam angles. This is suitable for all all kinds of applications with different heights and spacings.

All its screws are made of 304 stainless steel. With a rotatable bracket, + 45 degree angle can be set up for different applications. It brings convenience to lighting installation – reducing workload and saving time.■

Website: www.agcled.com

NanoLumens rolls out integrated intelligent display platform

NanoLumens has rolled out NanoLumens AWARE, a cloud based digital display platform that combines real-time diagnostics, media playback, and a variety of internal and third party-developed apps into one integrated system that is accessible through a single portal from anywhere in the world.

According to NanoLumens Vice President of Corporate Development Nate Remmes, AWARE addresses the growing industry need for a simpler solution that eliminates hardware within a complex eco-system – while allowing third party developers to create the next generation apps that will make displays more engaging, useful, and accountable.

In his words, "NanoLumens is doing for digital signage what Apple did for the smartphone. AWARE marks the debut of the industry's first complete eco-system that instantly makes displays a more compelling investment by addressing some of the major challenges we have faced as an industry – accountability, reliability, and simplicity." ■

Website: www.nanolumens.com

Q-scan simplifies LIF, High Resolution Spectroscopy applications

QUANTEL Q-SCAN Tunable Dye Laser is a high-resolution scanning, nanosecond dye laser, specifically designed to address diverse spectroscopy applications ranging from Laser Induced Fluorescence (LIF) to Coherent, anti-Stokes Raman Spectroscopy (CARS).

For many spectroscopy applications, especially gas studies, wide wavelength tunability and high resolution is required to precisely excite specific species. For example, combustion analyses focus on the study of OH, CH, CO and NO species, which can be excited by specific wavelengths such as 226, 248, 281 or 390 nm. The ability to simply and easily switch between wavelengths is critical. Quantel has designed a number of features into the Q-scan enabling fast, accurate measurements, allowing users to spend time on their experiments rather than on their laser.

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Website: www.lambdaphoto.co.uk

K-Lite Introduces

Redefined LED Landscape

K-Lite's proven performance in the landscape segment is because of its ability to stylishly convey the identity of a space...

The essence of lighting is one of the most important things in our lives. At K-Lite, they are passionate about creating a distinctive atmosphere that improves the quality of life in the cities and towns by exploring the many potential facets of lighting that supports the wellbeing and safety of all.

Founded in 1977 in India, K-Lite has grown to be the leading manufacturer of outdoor luminaires and decorative poles.

K-Lite's proven performance in the landscape segment is because of its ability to stylishly convey the identity of a space with a blend of efficiency and modularity to maximise the visual comfort that is best suited to each specific space.

Their Landscape Range includes:

Linear Wall Washer, Up-Down Lighters, LED Strips/Neon flex, Promenade Lighting, Bollards, Under Water Lighting, Post top luminaires, Bulk Heads, Path finders, Polar lighting and newly added series of Facade Lighting.

At K-LITE, saving energy is achieved not only by reducing the number of fittings, but also through correct planning and better quality products.

Light has a communicative and social value in its ability to optimise urban spaces, giving the possibility of reclaiming the culture of a place, encourage aggregation, stimulating business and tourism, making events and architecture spectacular and increasing the feeling of safety.

■

Website: www.klite.in

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