

# Lighting India

₹ 125

Vol. 10 No. 4

July-August 2015

## Multifaceted Shapes

have evolved into a significant resource for designers



- Oceanside is expecting to save approximately \$600,000 annually...
- In the era of LEDs, the technology is changing every quarter...
- Sophisticated lighting solutions need to be implemented efficiently...
- Design is a service of architecture and the architect's design intent...



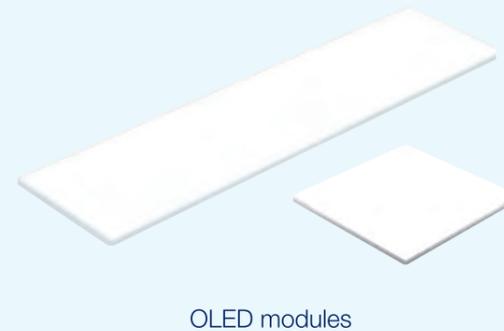
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# PUBLISHER'S LETTER



**Mahadevan Iyer**  
Editor-in-Chief

Globally, lighting has been a priority area for every conscious nation, who have realised its versatile potential. Smart lighting not only saves energy cost but also adds to the productivity of the nation as a whole – considering its application at all quarters. It has been experimentally verified that good lighting schemes improve visual performance, visual comfort, visual ambience, interpersonal relationships, biological clock, stimulation, job satisfaction and problem solving capability. The list may be stretched further.

However, the challenge is common people in most of the countries are still miles away from the true knowledge of the effects of lighting on human activities. At many places, lighting is still being considered as a cost and not as an investment. However, this paradigm has to change as soon as possible.

Also, among the nations who are taking lighting seriously, the primary target has been cost saving through energy saving. Obviously, the contribution of good lighting extends much beyond the periphery of mere cost saving.

This needs to be disseminated in the most practical and realistic way. It is nice to note that globally many lighting exhibitions are being organised. These trade fairs' organisers are working hard to build successful platforms for business discussion, technology dissemination and other business related activities.

But more organised effort is necessary in involving common people – creating interest among them – making them understand the positive aspects of good and smart lighting, which I think can be done through educational institutions. At least bits and bits of smart lighting may be included in the environmental study syllabus as this field is closely related to environment. Smart lighting saves energy means it indirectly saves deterioration of our environment. Also, as it leads to human comfort, that ensures better health and productivity.

As it is obvious that finally we have to sell the smart lighting products to every home, we have to find out means to generate more awareness among common people. If every common person in a nation realises the true value of smart lighting from economic, social, psychological and medical angles then only our efforts will be successful.

Do send in your comments at [miyer@charypublications.in](mailto:miyer@charypublications.in)

*Mahadevan*



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## cover story

**Multifaceted Shapes**  
Courtesy: Zumtobel

20



28

## articles

**Multifaceted Shapes** 20  
- Courtesy: Zumtobel

**Hospitality Lighting** 28  
- Dr. S S Verma

**Blackpool Illuminations Taken To New Heights With 'LightPool' Project** 32  
- Louise Stickland (Courtesy: The Projection Studio)

**The Lime** 34  
- Kunal Shah, Founder & Principal Lighting Designer  
SPK Valo Lighting Design Studio

**Real-Time Monitoring Of Street Lights** 37  
- Courtesy: Oceanside

**Architecture And Light In Dialogue** 38  
- Courtesy: Licht Kunst Licht AG  
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38



## Illuminating Ideas: Material Solutions for LED Lighting

The market for light-emitting diodes (LEDs) in lighting is booming. It's no surprise since it is energy efficient, environment friendly and offers a long service life. With the growing demand for unique designs and creative ideas, designers and manufacturers of LED lighting components can choose from a wide range of innovative solutions offered by Bayer MaterialScience. In addition to high light transmission, our Makrolon® polycarbonate grades display good heat resistance, excellent stability when exposed to LED luminous flux, outstanding flame-retardant properties, and a number of special features that are ideal for a wide range of LED applications.

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Triptyque Architecture  
- Courtesy: Triptyque Architecture

41

ERCO At The New Fondazione Prada, Milan  
- Courtesy: ERCO GmbH; www.erco.com

50



# Interview



# 26

**"We continue to bring products with latest technology..."**

- Rajesh Naik, Head – Lighting Business  
Crompton Greaves Ltd.

## Company Index

Acuity Brands Lighting	12
Barco	54
Cree	14
ILUMINARC	14
Juno Lighting Group	10
K-lite	53
Larson Electronics	54
leoLED	53
Luxeon	14
Ningbo Yexin	53
NTL Lemnis	12
Philips	14
RAB Lighting	10
ThinkLite	10
T-SLOT Lighting	12

02	Publisher's Note
08	Editorial
10	Newsline
18	Appointments
44	Event Report - TILF
46	Event Report - GILE
49	Technology
52	Product Launch
53	Product Review
54	Index to Advertisers
55	Lighting Facts

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Editor-in-Chief: Mahadevan Iyer

# EDITORIAL



## Know Before You Go

The human race is always extremely enthusiastic to be different from others. With the rapidly changing scenario in the field of technology, our tastes are also changing fast. We are becoming more and more demanding. What was new a few decades back, has been almost extinct today.

So, often when the modern designers reuse those things in their designs, suddenly the market becomes crazy to absorb those for some time. Unfortunately, technological evolution takes place in a systematic and logical manner but the art evolves with mere ideation or fantasy. Why am I telling so?

During my recent visits to a number of places where effective mood creation through appropriate lighting is a priority, I noticed some materials that are being used as lighting or lamp shades are too unsafe. To be more specific, in the name of creating better ambience, some such materials are being used in indoor lighting, which are too prone to catch fire. In fact, these materials are neither tested nor certified to be used as lamp shades. While buying such products, common people cannot even sense the potential risk associated with those.

Declaring a standard for the products is not enough, the regulating authorities should be vigilant to control the sale of substandard products. For the consumers, I'll say know before you go as beauty may be skin deep.

Please send me your views at [pkchatterjee@charypublications.in](mailto:pkchatterjee@charypublications.in)

**P K Chatterjee (PK)**

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## Juno Trac-Master T272L Arc L LED Series delivers good efficiency



T272L boasts up to 1,648 lumens with efficacies up to 110 lm/W...

The Juno Trac-Master T272L Arc L LED Series is the latest addition to the Juno Arc LED line of trac fixtures. Ideal for a wide variety of retail, commercial and residential applications, the new Juno T272L luminaires deliver professional-grade illumination in a stylishly thin design. With a nominal depth of just 2 ½ inches, the exceptionally slim profile of the T272L Arc LED trac fixtures provide a unique yet unobtrusive appearance to make a bold, contemporary statement.

The new fixtures maintain the exceptional energy efficiency that Juno Arc LED luminaires are known for, while boasting up to 1,648 lumens of brilliant white light from just 15 watts input and yielding class-leading efficacies of up to 110 lumens per watt. Without sacrificing performance, the Juno T272L luminaires approximate the light output and distribution of 75 watt halogen lamps while using just one-fifth the energy, and with a 50,000-hour rated service life, last about 20 times longer.

The Juno T272L joins the popular T271L and T275L Arc Series fixtures and most avant-garde family of LED trac luminaires. The entire series offers a choice of multiple colour temperatures (CCTs) with exceptionally accurate colour rendering, and chromaticity ranges within a 3-step MacAdam Ellipse provide excellent colour quality and consistency. With lumen packages ranging from 1,000 lumens to nearly 2,300 lumens, Juno Lighting Group now provides an Arc LED fixture for nearly every track lighting application at a competitive price range. ■

## ThinkLite lights up Bosse Sports



Better light means better play on Bosse Sports' indoor courts...

environmentally-friendly initiatives," said Dj. When the time came to revisit the lighting for his indoor tennis courts, he turned to ThinkLite.

"Dj was impressed with our proprietary technology that allows us to retrofit the existing T5 and T8 fluorescent fixtures with ThinkLite LED tubes," said Dinesh Wadhvani, ThinkLite CEO.

Retaining the existing fixtures is a far more sustainable option and immediately provided Bosse Sports with an approximately 60% reduction in energy consumption and the elimination of lamp and ballast maintenance for up to 15 years.

ThinkLite's driverless design yields light levels of 131 lumens per watt, making it the most energy efficient solution for all areas of the facility, including the tennis courts and indoor pool that used T5 fluorescent lamps initially.

"We have much better light quality, we are saving thousands on our electric bill every month, and we're doing something good for the environment," said Dj. "We are very pleased with the outcome and are looking to install ThinkLite's solutions in some additional areas of the facility." ■

## RAB rolls out energy saving LED-RAIL



RAIL fixtures are engineered for superior thermal management for longevity...

RAIL ideal for high ceilings (mounting heights up to 40 ft.) and large interior spaces such as warehouses, manufacturing facilities and gymnasiums.

RAIL is DesignLights Consortium (DLC) approved and eligible for lucrative utility rebates that often reduce the payback period to as little as one or two years. All models have a 100,000-hour LED lifespan, based on IES LM-80 results and TM-21 calculations, so maintenance and re-lamping requirements are dramatically reduced, adding even more savings.

RAIL high bays are available with an integrated motion/photo sensor that enables a full range of lighting controls that comply with ASHRAE 90.1 - 2013, IECC 2012 – and California's Title 24 energy codes. Sensor lens options include versions for 20 ft. or 40 ft. mounting heights. High/low settings, dimming delay, cut-off timing and ambient light detection are all fully adjustable for optimal efficiency using a simple to use handheld wireless configuration tool. Handheld remotes are sold separately. Non-sensor models are also available. ■

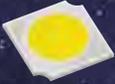
When Dj Bosse opened his spectacular Bosse Sports in 2001, he chose to think differently about what a suburban sports club could be. With unique features including a two story rockwall, indoor golf practice facility and indoor tennis courts complete with APT Tour-level surfaces, it was clear that this was no ordinary fitness club. Luxury sports and fitness facility is committed to sustainability. Enjoys vastly improved lighting and over 50% reduction in electric consumption. "We are excited about

RAIL, a new line of energy-saving, affordable and super-high output LED high bay fixtures with equivalencies up to 400-Watt metal halide has been introduced by RAB Lighting. RAIL delivers exceptional performance with an efficacy rating of 128 lumens per Watt and 60% reduction in energy versus comparable HID fixtures. This performance makes the

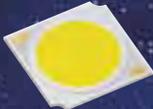
# Open a new frontier in LED lighting.



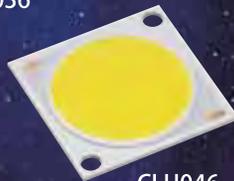
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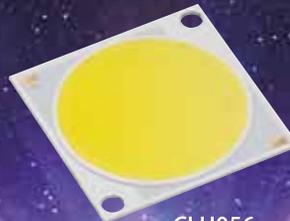
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## CITILED COB Series Standard Type & High-CRI Type

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The new version of CITILED COB series increases the performance significantly from previous version. New version creates more options to match luminaire's products design (ex. High performance, Cost effective, Small Light Emitting Surface (LES), increased allowable max. If). Emitted light density of the LED package is improved higher for suitable use of light-condensing products. The outline and LES size is the same as for previous version. Thus existing parts of 3rd parties are compatible in mechanical characteristics. All specs are at hot binning (Tj=85°C).

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## New ultra-low-cost lights from T-Slot show better performance



T-SLOT Lights in aluminium extrusions...

A powerful ultra-low-cost T-SLOT LED light series featuring diffusing optics has been introduced by Smart Vision Lights, a leading designer and manufacturer of high-brightness LED lights for industrial applications. The new series provides a cost- and energy-saving replacement for fluorescent lighting.

The T-SLOT LED light bar is compatible with most popular brands of .32", 8-mm, and 10-mm aluminium extrusions, including extrusions from 80/20, Bosch, Item and more. These new lights truly offer twice the performance at an ultra-low price.

Smart Vision Lights' redesigned low-voltage 24 V DC T-SLOT LED light bars slide into aluminium extrusions with no extra mounting of additional lighting needed. They are ideal for use in applications with limited distance or tight area challenges, as well as for illuminating robotic work cells by embedding in gating. The IP-50 rated lights are available in lengths up to 1800 mm. Smart Vision Lights products come with universal internal current-control drivers, offering constant or strobed operation, reduced wiring requirements, & easy installation. ■

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## NTL Lemnis rolls out Pharox Enzo range of LED lighting solutions



The Pharox Enzo spotlight with its innovative design...

NTL Lemnis, the LED lighting solutions company launched an innovative product that is an energy efficient replacement of conventional Halogen MR16 lamps. Branded PharoxEnzo, the spotlight is an answer to all the spot lighting needs with product accessory/form preferred by the users.

The Pharox Enzo spotlight with its innovative design comes with different choice of accessories and multiple colour temperatures. Available in 8W and 12W with a beam angle of 28 and 40 degrees, this dimmable spotlight caters to applications like retail, jewellery, shops, offices, homes and apparel stores, making it one of the versatile LED spotlight. It contains various aesthetically designed and application specific fixtures that enhance the lighting quality and aesthetic appeal of the objects on display. The Pharox Enzo range will be available across India at the MRP of 1825/- onwards.

Enzo is a COB (Chip-On-Board) LED spot light with dimmable electronic driver is suitable for dimming with various dimmers. The product has the capabilities of effective heat dissipation as its heat sink is made up of die cast aluminium, which provides passive cooling. Its high efficiency faceted aluminium reflector provides excellent visual comfort and same sparkling effect as halogens.

"In PharoxEnzo, we are proud to present yet another innovation that is not only aesthetically pleasing and energy efficient but also a real answer to all the spot lighting needs. NTL Lemnis will continue to innovate and focus on providing solutions that offer better and more robust alternatives to the existing products, so that optimal energy efficiency can be achieved," says Arun Gupta, MD, NTL Group. ■

## West Richland completes citywide smart lighting conversion

A first of its kind all-city LED lighting conversion, using smart lighting solutions from Acuity Brands, has been completed by The City of West Richland.

The city upgraded 1,097 street lights to high performance Autobahn LED luminaires from Acuity Brands, improving the quality of lighting on city streets, reducing lighting energy use by more than 60% and reducing maintenance costs over time. Also, ROAM wireless streetlight monitoring system from Acuity Brands, has been used to remotely monitor, control and measure the luminaires' performance.

"It makes good economic and business sense for the City to install new LED street lights and a wireless control system that reduces energy use by more than 60% while improving illumination, safety and addressing dark sky considerations. In addition to dramatic energy and maintenance savings, the control system will also enable us to move to a lower cost metered rate schedule that provides further cost reductions," said Brent Gerry, Mayor, City of West Richland.

"The West Richland installation is an example of how cities of all sizes can embrace networked LED lighting to create smarter, brighter, and more energy efficient infrastructure. Beyond cost and energy savings, smart lighting that incorporates LED luminaires, sensors and networked controls will continue to play an important role as cities continue to invest in more sustainable futures," said Rob Drago, Vice President, Infrastructure, Acuity Brands Lighting. ■

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## Philips vivifies National Theatre in Accra



21st century energy efficient LED technology revitalises the National Theatre of Ghana...

Philips revealed a newly illuminated National Theatre of Ghana on the occasion of Philips' sixth consecutive Cape Town to Cairo roadshow. The theatre has had a stunning makeover by Philips, using its latest connected LED technology to boost the beautification of the city of Accra, while also cutting energy consumption by up to 80%, as compared to the existing conventional lighting. The new lighting system is installed throughout the entire façade of the National Theatre, enhancing its distinctive architectural structure and contributing to the building's energy saving performance.

Philips' lighting concept is focused on highlighting the significance of this iconic building as an architectural masterpiece and as a source of national pride to Ghana, and in so doing assist with the building's energy saving performance. The connected LED lighting technology used by Philips, creates more light, while making it more focused and controlled. Philips used its Vaya LED lighting solutions and tailored them to the specific needs of the National Theatre of Ghana, which included devising effective lighting while respecting the authenticity of the building. The lighting needed to enhance the beauty of the theatre without at any time overwhelming it.

The new connected lighting system covers the 78m base platform of the National Theatre and illuminates the entire area of the central ship, as well as the columns supporting the ship. With a lifespan of up to 50,000 hours, the new Philips lighting fixtures last much longer and reduce the need for periodic replacement. Each installed luminaire has its own IP address; making it feasible to produce up to 16 million different lighting colours as well as remotely monitoring the performance of each light point. ■

## Helsinki Design Week will include Think-in-a-Tank event



LDC's Think-in-a-Tank event brings top architects to Helsinki to discuss light in architecture...

The world famous Silo 468 light art piece in Helsinki, Finland, will house a unique gathering of minds from the world of architecture, design and lighting in the heart of the Helsinki Design Week on 10th September 2015. Thinkers at world class level will join Lighting Design Collective (LDC) in challenging and debating the current role of light, natural, artificial, digital, responsive and participatory in the architecture and in built environment. The social, cultural and design role of lighting is facing major crossroads and departure points at this moment in history, from applicative history to digital futures. THINK-IN-A-TANK aims at establishing thought-leading venue where multi disciplinary professional leaders will envision what will be next.

The aim of the annual series is to further critical design thinking in context of light in architecture and to identify current and future foresight ideas essential for the advancement of theoretical and creative approaches in this field. Following the successful 2014 edition, international creative visionaries will engage in a process of exploration and exchange, performed in the experiential edge of the award-winning SILO 468 light art icon.

The participants will navigate the event according to a proprietary set of triggers, leading to explorations on light and architecture. In particular, a LDC reframing tool will offer 16 'cards' with research-based triggers that capture the essence of creative possibilities to approach future design in paradigmatic terms. This will lead participants to shape their own visions of lighting incorporating stimuli from technical, organisational and socio-cultural nature. ■

## ILUMINARC lights up a toll gantry on MDX



Busy Florida Toll Gantry Lighted with ILUMINARC...

fixtures and 12 of the company's Illumipod 42 IP LED pods.

There are two rows of the ILUMINARC fixtures on the sleekly designed gantry. One row is on the upper edge of the wing, the other on the lower. This dual level arrangement creates a sense of movement and adds to the depth of the structure.

"When you drive by the toll and see the lights, it's clearly impressive. The structure is skinned to look like the wing of an airplane. It has holes in it to allow wind and water to pass. The ILUMINARC fixtures are inside the wing so their light shines through the holes. It makes the whole structure come alive," said Drew Bongiorno, Barbizon Systems Sales Manager.

Not surprisingly, the impressive new toll gantry has generated a great deal of positive buzz among Miami-area motorists. "Many of our customers have asked me if I've seen the new toll gantry. When I tell them we did that project, they're just very impressed. It feels good to all of us on the team that we were part of something that's appreciated by so many people every day," added Bongiorno. ■

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## Luxeon series offers perfect amount of colour



The LUXEON 3535L Colour Line delivers high quality colour...

Lumileds has released the LUXEON 3535L Colour Line, giving builders of emergency vehicle lights, signs, colour tunable bulbs and architectural lamps access to high quality, single colour mid power LEDs in Red, Red-Orange, Phosphor-Converted (PC) Amber, Lime, Green and Blue. The LUXEON 3535L Colour Line demonstrates the increased flexibility of the Lumileds colour family through smaller lumen offerings.

"The tremendous success our customers have had with our high power colour emitters convinced us that multiple markets could benefit from similar colours in the mid power performance range," said David Cosenza, Product Manager for the LUXEON 3535L Colour Line. ■

## SDCCD saves big using SmartCast technology



Cree LED lighting at SDCCD...

Using Cree's high-performing LED lighting with SmartCast Technology, SDCCD upgraded its administrative offices with intelligent light while demonstrating a strong return on investment, consuming up to 75% less energy and generating over \$80K of rebates for instant savings.

As part of the upgrade to the administrative offices, SDCCD installed Cree CR Series troffers with SmartCast

Technology, delivering exceptional lighting performance and essential lighting control without the complex design, installation and set-up of traditional lighting control systems.

SmartCast Technology eliminates additional design, wires and set up time often associated with control systems to provide the simplest system available. Exterior campus lighting also received a refresh with the installation of Cree Edge area, security and high output flood lights, creating well-lit spaces that enhance safety.

According to Cree, its SmartCast Technology offers essential lighting control without complexity. It truly saves the time that any user spends to control the lighting control systems. The company offers its products internationally.

"Inefficient lighting costs us a lot of money per month on electricity and labour. While we've tripled our campus footprint, we have not tripled our manpower or budgets, so we have to be smarter. Cree's LED lighting and integrated SmartCast Technology gives us a better light experience while delivering unprecedented savings," said Mark Doubleday, Senior Planner, Energy Systems and Facilities Maintenance for SDCCD.

"This installation shows how making the switch to high-quality LED lighting can serve as one of the quickest ways for an educational facility to reduce operating expenses and create a better working and learning environment throughout the campus," said Betty Noonan, Cree's Chief Marketing Officer. ■

## Guzhen International Lighting Fair is coming back



The 16th China Guzhen International Lighting Fair (Autumn Fair) will be held from 22nd to 26th October, 2015...

The 16th China Guzhen International Lighting Fair (Autumn Fair) will be held from 22nd to 26th October, 2015 at the Guzhen Convention and Exhibition Centre in Zhongshan City, Guangdong Province.

After two years of development in the new procurement model of 'One Exhibition Hall + Five Trade Marts,' the fair will bring together more than 1,800 high-quality lighting industry exhibitors covering lighting, lamps, LED lighting and electrical products and provide buyers a 700,000-square metre one-stop, highly cost-effective sourcing platform. In 2015, Guzhen lighting fair will integrate its great useful resources of the local lighting industry to roll out a special service, the 'Business Matching

Service,' for overseas buyers and local premier suppliers. An experienced team of business matching specialists will offer this service with ad-hoc, on-the-spot meetings for overseas buyers who are sourcing for lighting products from components to end products. Moreover, organisers will charge a 100 yuan registration fee for onsite registration of buyers. Pre-registering will not only save the onsite registration fee, but will also allow visitors to enjoy VIP services provided by the organisers.

During the Guzhen Lighting Fair, the organiser will usher in the first session of the Guzhen Lighting Culture Festival. Designers from different areas will build a lighting culture event such as the 'Lyon Festival of Lights' of the east. ■

**LIGHTING INDIA has been invited to cover the Guzhen International Lighting Fair...**



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## Andy Ho will take over as CEO at Philips (Greater China)



Andy Ho

**"I am very excited to be joining Philips at such a pivotal time..."**

Royal Philips has announced the appointment of Andy Ho as CEO for Greater China, succeeding Patrick Kung, who will retire on December 31, 2015. To ensure a seamless transition, Ho has joined Philips on August 3, 2015, as Executive VP, Royal Philips, reporting to Philips CEO Frans van Houten. He joins Philips from IBM Corp., where he has held a wide range of sales, technology and senior mgt roles across Greater China, Canada and the US in a career spanning over 30 years.

"I am delighted that Andy is joining us to lead our business in Greater China, our second-largest market globally. Andy's track record in delivering business growth is impressive. In addition, Andy's knowledge of the Greater China market, coupled with his extensive network, will be essential to

further build our presence in the region," said Philips CEO Frans van Houten.

Ho held the position of General Manager, IBM, for Greater China North. He later directed IBM's global and local resources to strike technology partnerships and key alliances with government entities and major enterprises in China. He holds a Bachelor's degree in Business Administration.

"I am very excited to be joining Philips at such a pivotal time and I look forward to working with Patrick and his team as I transition into the CEO role. With its long history, strong brand presence, I believe that Philips is uniquely positioned, and I'm convinced that we will be able to build out our growth strategy to capture existing and new opportunities," said Ho. ■

## ULT appoints a new Vice President of Sales



Stu Sumner

**Stu will develop, facilitate and optimise the sales strategy...**

Universal Lighting Technologies has added lighting industry veteran Stu Sumner to its team as the new Vice President of Sales for the West Coast Region of the US. With nearly 20 years of lighting industry experience, Stu joins the Universal team with extensive sales management experience in various roles. Formerly, he served in leadership positions with LSI Industries, Philips Day-Brite, Hubbell Lighting, Cooper Lighting and Osram Sylvania.

"At Universal, one of our biggest strengths is garnering strong relationships with our distributors. Stu has a real passion and vision for the industry.

By adding someone like him to the ULT family, we will continue to build on those key relationships by leading the way in an ever-evolving field," said Joe Damiani, Executive VP, S&M for Panasonic North America's Lighting Division.

In his new role, Stu will preside over all sales aspects of the West Coast territory. He will develop, facilitate and optimise the sales strategy for Universal's LED fixtures and comprehensive lighting products.

He will provide support to agents, distributors and end users in the region, and will report to Damiani. ■

## Magneti Marelli appoints a new CEO



Pietro Gorlier

**Pietro Gorlier is currently FCA Head of Parts & Service (MOPAR)...**

Pietro Gorlier has been announced as the FCA Chief Operating Officer (Components) and as Chief Executive Officer of Magneti Marelli.

Pietro will succeed Eugenio Razelli, who elected to leave the FCA Group after several years of dedicated service.

"We extend our sincere appreciation to Eugenio for his leadership and contribution to the organisation," said Sergio Marchionne.

Pietro Gorlier is currently FCA Head of Parts & Service (MOPAR) and a Member of the FCA Group Executive Council (GEC) – and will retain these responsibilities alongside the new role.

Gorlier joined the Group in 1989 in Iveco, and held various positions in Logistics, After Sales, and Customer Care before joining the automobile business in 2006 in Network Development. He holds a Master of Economics from the University of Turin.

Contextually, Fiat Chrysler Automobiles (FCA), the seventh-largest automaker in the world, designs, engineers, manufactures – and sells passenger cars, light commercial vehicles, components and production systems worldwide. The Group's businesses include Magneti Marelli (components). ■



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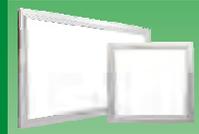
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# Multifaceted Shapes

In cooperation with Behnisch Architekten and ArtEngineering GmbH, Zumtobel created an extraordinary lighting solution for the new conference hall of the World Intellectual Property Organization (WIPO).

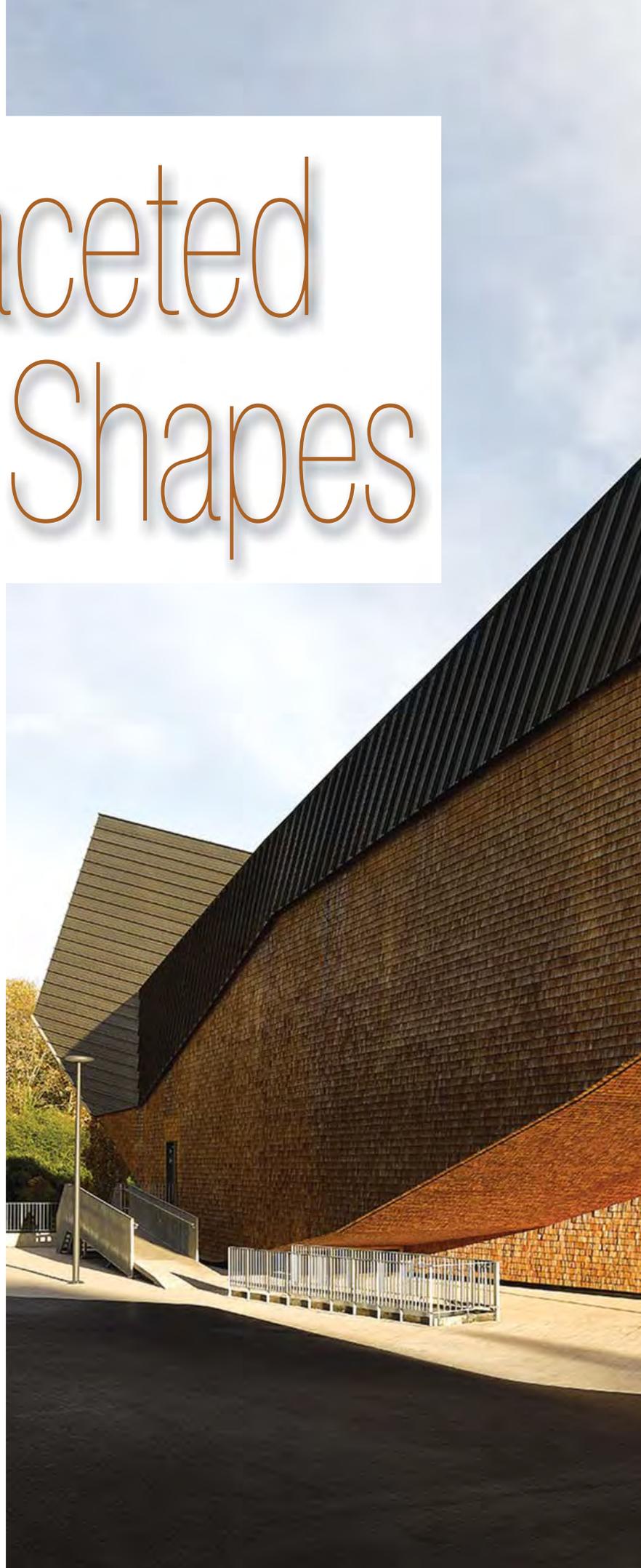
Light-weighted, 'cloud-like' appearing spherical luminaires facilitate pleasant illumination and simultaneously mask the hall's technological components...

In Geneva numerous international organisations are headquartered: the World Health Organization (WHO) and the United Nations Office as well as the World Intellectual Property Organization (WIPO), whose new conference hall has only recently been inaugurated in September 2014. Situated at the Place des Nations – between WIPO's main building and an administration building completed three years earlier, also designed by Behnisch Architekten – the new hall seats almost 900 delegates.

Due to its low thermal mass and favourable structural engineering properties, wood as a carbon-neutral building material has played a crucial role right from the start for the architects of Behnisch Architekten in the implementation of this exemplary sustainable project.

Hence, they designed the conference hall as a pre-fabricated timber construction – clad in untreated larch wood shingles and supported by just a few pillars and walls – that seems to float elegantly above a foyer landscape. This impression of lightness is further increased by up to 35 m wide protrusions and extensive glazing, the purpose of which is both daylight provision and establishing a visual link between the building and its surroundings.

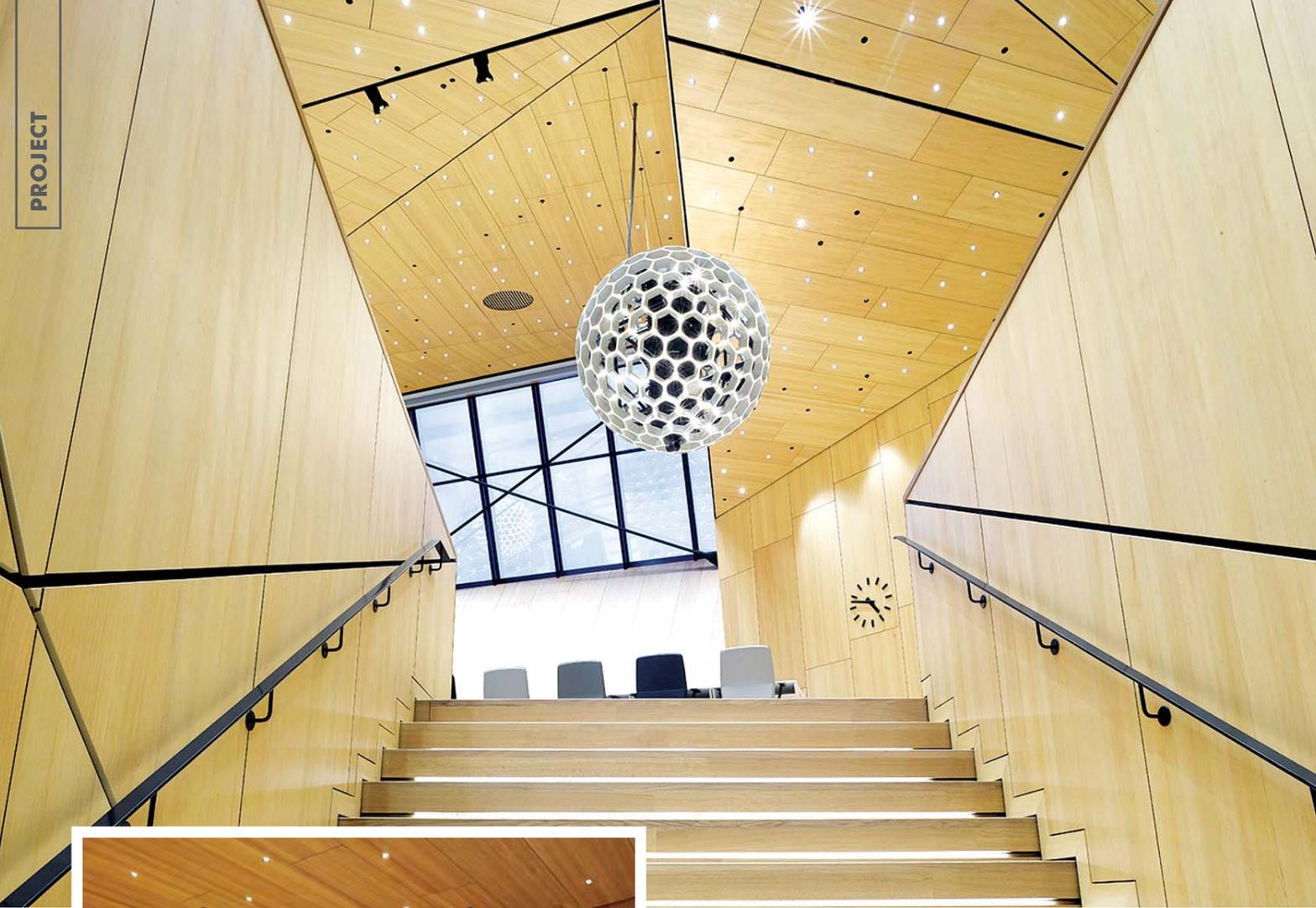
What was essential for the design of the conference hall was the architects' idea to create a clearly structured space that would surround the delegates with the pleasant warmth of wood – and at the same time direct their full attention to the speaker's desk. In order to achieve the mean illuminance level of 500 lx required on all task areas, ceiling-mounted luminaires were not an



option because they would have added unruly structures to the wooden ceiling & thus gravely disturbed the uniform room ambience.

With the aim of contrasting the relatively stern triangle geometry of the wooden ceiling with a 'soft' counterpart, Behnisch Architekten in cooperation with Zumtobel and the Stuttgart-based engineers from ArtEngineering started to design a light-weight, spherical luminaire with a 'cloud-like' appearance. This luminaire was on the one hand supposed to provide atmospherically diffuse lighting, and on the other hand to accommodate technical components such as for instance loudspeakers or cameras.

The new conference hall of the World Intellectual Property Organization (WIPO)...



Further Zumtobel lighting solutions are carefully integrated into the interior design & bestow the building a distinct appearance...

**Wood as a carbon-neutral building material has played a crucial role right from the start for the architects of Behnisch Architekten in the implementation of this exemplary sustainable project...**

For luminaires inside, a supporting structure of Al and shaped like an icosahedron with 20 triangles and a side length of ~1000 mm was used. The actual surface geometry was based on a geodesic dome. The triangular elements typical of such structures were combined in a total of 260 hexagons, with the icosahedron's 12 junctions resulting per definition in pentagons. The precise 3-dimensional shape and the uniformly 14 mm wide joint spacings of the 272 Al. sheet honeycombs with a depth of some 100 mm and an appropriate lattice-type substructure were defined using efficient 3D software.

The final design represents the aesthetically appealing ideal of an oversized pollen grain with funnel-shaped hexagonal honeycombs and LED lighting points, which uniformly illuminate all spaces. Per sphere at the intersections between the individual honeycombs are therefor 540 custom-made, dimmable Zumtobel LED lighting points with a diameter of only 67 mm installed – a solution that is expected to be extremely beneficial thanks to the expected LEDs' long service life and extended maintenance intervals. For maintenance work inside the spheres weighing at least 500 kg, suspended from the ceiling on three stainless steel cords, one of the lateral segments can be removed at any time.

# LED Landscape - Redefined



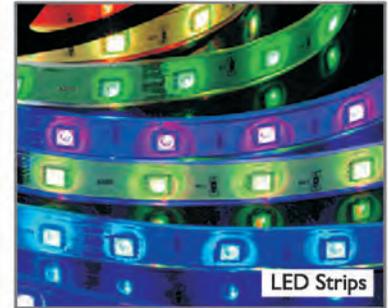
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The light-weight, 'cloud-like' appearing spherical luminaire fractures the relatively stern triangle geometry of the wooden ceiling...

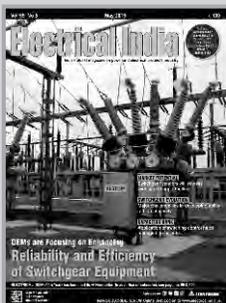
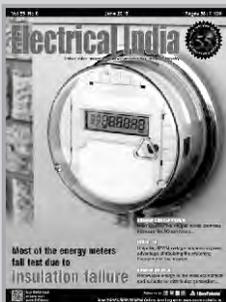
The rest of the building features aesthetic and subtle lighting solutions. Eg., numerous LINARIA LED light lines installed along the ceiling peripheries enhance the building's structure – flush mounted into the individual elements of the wooden vane ceiling – while providing light in the foyer. For this purpose, Zumtobel developed, among other things, an opalised plexiglass enclosure ensuring that no individual LED lighting points are visible. The wood, the inventive architecture and the interior design were carefully integrated with the lighting solutions to bestow the new conference hall of WIPO with a distinct appearance, which appears to be magical when entering, but in no way disturbs the delegates doing their work. ■

#### Credits

**Photo Credits:** Zumtobel  
**Building owner:** OMPI, Genf/CH  
**Architect:** Behnisch Architekten, Stuttgart/D  
**Construction project luminaire:**  
 Art Engineering, Stuttgart/D  
**Lighting design:** Lichtimpulse, Höchst/A  
**Electrical design:** Amstein + Walthert, Genf/CH  
**Electrical engineering:** Felix Badel SA, Genf/CH  
**Lighting solution:**  
 Projektleuchte Konferenzsaal, DIAMO, LINARIA



The diffuse lighting effect of the sphere is gained with the 540 Zumtobel LED lighting points each, which are positioned at the intersections between the individual honeycombs...



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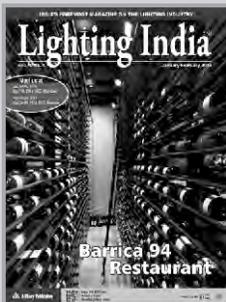
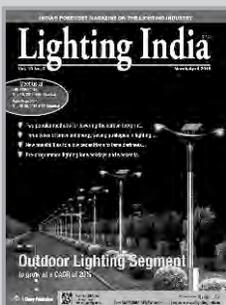
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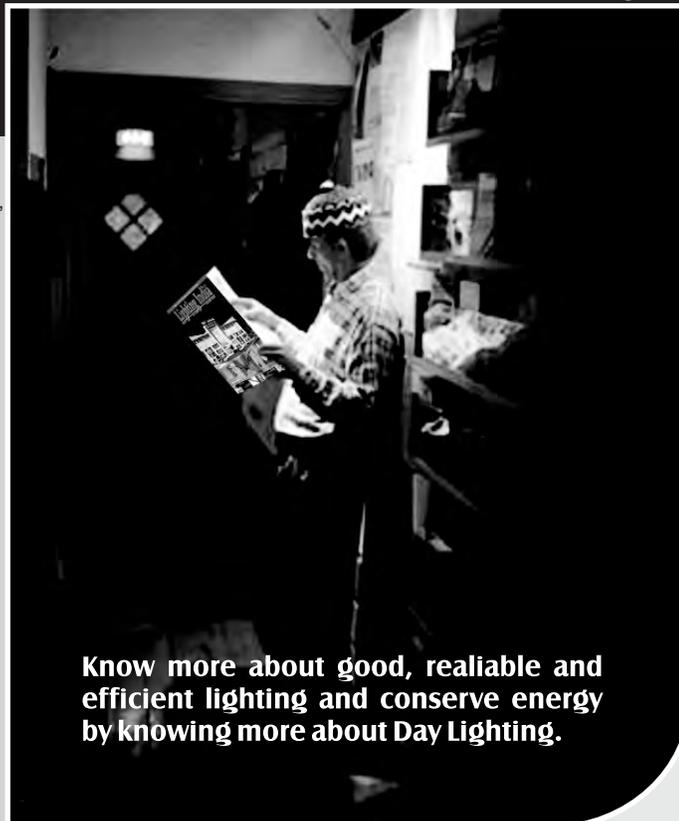


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### 2014 facts at a glance

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With expertise over application engineering, **Crompton** is able to provide the most cost effective solution to its customers. The company has rolled out an exclusive experience zone for LED across India – called ‘LED Experia Zone.’ Thus, the customer can ‘touch & feel’ the various lighting options, request for product demos, seek expert’s advice and then make the final purchase decision under one roof. The objective of this experience zone is to be closer to customers and give them a unique experience...

The lighting business of **Crompton Greaves Ltd.**, has an illustrious history of over 130 years. **Rajesh Naik, Head – Lighting Business**, of the company is talking with the team of **Lighting India** on his company’s lighting business, products & projects. Excerpts...

“We continue to bring products with latest technology...”

**Could you tell us in brief about your company and its product offerings for the current emerging market in terms of innovation and sustainability?**

Part of Crompton Consumer Business Unit, lighting business is one of the oldest product lines with many firsts to its credit like: open construction ballast, side reflectors, reflux lamps etc. With decades of experience in dealing with the end consumers – from individuals to infra projects, Crompton is leader in providing most appropriate and cost effective solutions for every application to its consumers. The product range covers

Home Lighting solutions, Industrial Lighting, Street lighting, Commercial lighting, Retail Lighting, Infrastructure Lighting etc. In Industrial Lighting, we offer customised product range to suit each type of industry, e.g., steel, cement, automobile etc. Our state-of-the-art lighting laboratory strengthens the product engineering base as compared to most of the competitors.

Crompton is amongst a very few industry players to introduce a complete range of LED products across application segments. We continue to bring products with latest technology that help consumers to

get additional energy savings and to better ROI (Return On Investment). We have recently introduced Highbay Luminaires with efficacy more than 100Lm/W, as compared to existing solutions of 85Lm/W. This ensures additional saving for customer. Our company has also introduced smart LED panel in residential segment; a perfect solution for mood lighting. With this, by changing colour temperature via remote, consumers can set the ambience to match individual moods. As part of offering the best of technology to consumers, we are working on IoT [Internet of Things] platform.

### How are the lighting systems evolving? How is the market growing particularly in LED section?

Earlier, lighting systems were mainly driven by standards, fixed wattages and similar efficacies. The system also had a lot of constraints in terms of product design due to the light source. The technology change in the lamp could happen only over a time frame of 10 to 12 years.

In LED, the technology is changing every quarter. With LED adoption in product offerings, lighting systems are completely flexible in terms of wattages that can be offered, colour temperatures, colour rendering index etc. The small form factor of LED chip gives designers free hand in designing the product to match the ambience. The LED can be adapted for various applications like street lighting, commercial lighting, residential lighting etc., by using the specialised lenses.

The market is growing very rapidly in LED segment. The growth rate estimated is above 45% YOY. This is mainly driven by rising awareness among the end consumers and the government's initiative for using energy efficient products. Industry and commercial premises have also started using LED solutions to conserve energy.

### What are the preferred lighting systems for different sectors like in residential, commercial, hospitality and industrial sector?

The common factor across applications is energy efficiency.

However, the specific requirements for each application are different. Residential application prefers aesthetics, fitment to the interior design and longer life with low maintenance.



In commercial segment, besides energy efficiency; glare control and working comfort for long working hours are the main criteria for selection.

In industry application, CRI & Colour Temperature play important roles in decoding the lighting solutions. Another important parameter to be considered is ease of maintenance and accessibility that is critical in industries running 24x7.

### How do you cope with the continuous changes in technology?

With continuous research in LED

technology, a lot of dynamic changes are occurring like rapid increase in the efficacy of the chip, change from emitter technology to COB (Chip on Board) technology, different soldering processes for different chip manufacturers, driver requirements for various wattages etc. This is a continuous process, and the manufacturer needs to adopt and absorb these changes quickly.

Through partnerships and collaborations with leading LED ecosystem partners, we are able to absorb these dynamic changes – and get ready for future technologies. This also gives us edge in terms of offering better solutions ahead of competition. The partnership also helps in setting up manufacturing facilities required for technology and cost leadership.

### Please tell us in brief about a few of your best lighting projects that you have completed?

We have completed the first Border Security Project with LED floodlights. This was decided mainly based on strict technical evaluation and actual verification at site. In addition to this, we have done lighting in Cochin Airport Road, Rajamundri 12 km stretch road with 4000 deg K LED street lights. Also, let me name another project, i.e., Sabarmati river front with indirect LED post top. ■



Figure: Advances in hospitality lighting...

(Courtesy: <http://www.truelite.us/hospitality>)

# Hospitality Lighting

Over the past several years, hospitality lighting has evolved into a significant resource for designers and architects working on large scale commercial and hospitality projects, from complete custom designs to modified standard products...

Giving and taking hospitality is an integral part of human life. Whether it is at a small scale at our own expenses or through sponsorships at a large scale, we all want that hospitality (if not very good) at least should be good – and first impression of hospitality can be drawn at point blank by the decoration of the surroundings of space where to stay – and this first impression to a large extent can be maximised for feeling good by making use of pleasing lighting decoration of the space called 'hospitality lighting.' Light decoration of living space is called a light makeover of space. Proper and suitable lighting of living space can create comfortable, relaxing, soothing, peaceful and exotic feeling in the occupants. It is increasingly being widely understood that the right light helps us work, rest and play by influencing our circadian rhythms – our body clocks. And nowhere is this more important than in hospitality settings. But for all the talk about circadian lighting in hotels, there are precious few

examples of it really happening. Presently available flexible lighting solutions (colours, controls, cost, design, efficiency etc.) open the door to countless creative possibilities in hospitality lighting sector. Lighting can energise, soothe and help people interact, making guests feel at home in a hotel environment - whether they're working, chilling out, socialising or moving around. This is why the flexible lighting solutions can personalise spaces in a flash, giving the guests an experience to remember through the power of light. This article brings some of the requirements and advances taking place in this direction.

Hotels and restaurants can benefit from efficient and ambient lighting. The hospitality business involves serving people and giving them enjoyment. From restaurants to hotels, resorts and even theme parks, facilities are designed with the intent of transporting guests from the world of the ordinary to a special time and place. Lighting design for hospitality projects is, along with retail lighting, the most



demanding. Many of the spaces are designed to be visually interesting or intriguing; others are highly themed, more like stage sets than rooms. It is generally important to create drama and sparkle to enhance the effects of the space. One of the challenges of hospitality lighting is to create adequate task light while achieving the necessary style, theme, and drama.

For some demanding tasks, such as gaming tables in a casino, where illumination levels must be high and glare control is critical for players, dealers, and video surveillance cameras. It is important to identify the visual tasks, design illumination for them, and then work on the task of lighting for an overall program of lighting design that meets the requirements of the project. Lighting designs for these projects employ layered lighting designs out of necessity; the ambient light is the apparent light source, while concealed architectural lighting often provides the task illumination. A classic hospitality lighting problem is the illumination of tabletops in restaurants.

Diners must be able to read menus and see their food, but not at the expense of atmosphere. Designers often spotlight each table, install a table lamp on the adjacent wall, or hang a pendant over the table. But because tables move, many restaurateurs prefer candles or battery-powered table lamps, neither of which work as well but provide greater versatility and maintain the atmosphere. The choice requires thoughtful discussion with the people who will eventually operate and manage the restaurant. Most hospitality facilities are designed specifically for apparent use; a hotel lobby will always be a lobby, and a restaurant will remain a restaurant.

Flexibility is needed rather in exhibition halls, ballrooms, meeting rooms, and conference centres, where rearranging seating, partitions, and lighting schemes are important. In general, hospitality facilities are not renovated without a

relatively complete replacement of lighting systems, so the long-term flexibility of lighting with respect to reconfiguration is minimal.

Today's hospitality industry prides itself on conveying a particular brand image, a sense of style, and familiarity. From conveying a feeling of warmth and hospitality in the lobby, ambiance in lift wells and room areas, functional areas demanding safety and simplicity, energy consumption and lighting versatility rank high on the list of requirements. Lighting companies have been illuminating hotels around the world for centuries – and are well aware of the changing needs, challenges and possibilities of lighting in the hotel sector. Various companies provide lighting designers and hotel owners innovative solutions that combine the latest in lighting technology (e.g. LEDs) or conventional lighting mixed with stylish design to greet clients and visitors with a welcoming look. They can easily help in getting the most outstanding, appealing and sustainable lighting solution for the business – and for the guests.

### Trends in hospitality lighting

- **Decorative lighting:** More the lighting industry forges ahead with new technologies, more will be the designers' fetishes for the old stuff. Incandescent lamps may be out of favour with governments and manufacturers, but they're massively in fashion in swanky bars, cafes and hotels – particularly 'squirrel cage' lamps with the zig-zag filaments. They're supposed to have been phased out, but in reality we can still get them, supposedly for industrial or decorative use. They look nice if we like that sort of thing, but they're eating up bags of energy. Further, these days one can get the incandescent look with greener alternatives also. Decorative incandescent may be in, but for a lot of venues, halogen is out. Big hotel chains, pub owners and cafes are replacing their GU10 and MR16 halogen lamps with LEDs as a quick and easy way to save on energy and maintenance. Today's LED lamps offer good light quality and quick paybacks, often with the reassurance of robust warranties or maintenance contracts, so it's a fairly safe decision to make.
- **Biodynamic lighting:** Biodynamic lighting is a long way from being the norm but it will get there with time. Changing colour temperature doesn't necessarily mean the light has been properly tuned to provide the right amount of blue that our body clocks look out for. London's Hotel Rafayel has some suites with dynamic lighting to alleviate jetlag and CoeLux skylight hotel simulates the sun. This trend is yet to go mainstream, although the cost barrier to such technologies is coming down.

- **Lighting controls:** Controls are the next big thing in lighting after LEDs, and the potential to create smart, connected lighting is only just being realised. Not only control lighting can slash electricity costs by turning lights off when the sun is shining or there's nobody, controls can add atmosphere to venues, and even add pizzazz to events venues with a splash of colour. Lighting controls is already booming, but to go bigger, they need to get simpler.
- **Lighting designs:** Lighting designers are desperate for light to be considered at an earlier stage and integrated into architecture and interior design. New technology makes this easier to do and the effects ever more striking. London's Ham Yard Hotel shortlisted for a Lux Award in 2014, has interspersed book-shaped lights with the books on its bookshelves.
- **Coloured lighting:** Coloured lighting has always divided opinion, especially if it actually changes colour. However, it is still getting popular with masses – and people are learning to use it in subtler and more sophisticated ways. It's not so common to light stuff in colour-changing garish hues just because we can, and venue operators are starting to use it better.
- **Role of electronics:** Now that lights are based on electronic chips, they can do all sorts of clever things. Visible light communication is a way of transmitting data in the light from LEDs. It's done by modulating light in a way the human eye can't see, but a mobile phone can. This can be used to create indoor positioning systems, tracking the location to within 10 cm. Imagine what this could mean for navigating a stadium or trade exhibition, or sending offers to customers based on what they're looking at in a shop.
- **Need of coordination:** Most hospitality designs rely heavily on following lights that play a critical role in interior design: Decorative chandeliers, Sconces, Pendants, Table lamps, Floor lamps, And other highly styled lights. Because of this, decorative lighting is commonly a part of the furniture, fixtures, and equipment budget and are specified by the interior designer, whereas architectural lighting in the same space is part of the construction budget and specified by the architect, engineer, or lighting designer. Coordination among professionals is critical in these spaces – because the actual lighting design is a combined effort. A variety of ceiling types is used in hospitality spaces, ranging from ordinary acoustic tile and gypsum wallboard to decorative and ornamental ceilings. Some spaces may not have a finished ceiling at all, as when the character of a loft or club is desired. Ceilings are critical to lighting, and it is

important that proposed lighting designs be checked against the ceiling system for compatibility.

- **Performance lighting systems:** These are often simple, employing track lighting and separate dimming channels to permit dramatic illumination of a solo performer, small group, or keynote speaker. A few spaces require more complex theatrical systems; these designs generally call for professional entertainment lighting assistance. But a professional lighting designer or an enlightened engineer, interior designer, or architect can execute many designs. Because of the huge variation in options, viable designs are myriad. But, as with offices, the best solution to a particular problem generally flows from the interior design or interior architecture, which sets the style and mood of the space. Layered lighting is the best because it builds the design on the decorative lighting selections that are of necessity to be present from the beginning. The challenge of the lighting design is to add task, focal and ambient light in a manner that completes the illumination of the space without the design appearing too busy or contrived.

### Overall approach for better results in hospitality lighting

Over the past several years, hospitality lighting has evolved into a significant resource for designers and architects working on large scale commercial and hospitality projects, from complete custom designs to modified standard products.

Some basic principles to be followed for fruitful results are as given below:

- Allow the interior designer or architect to develop the concept of hospitality lighting completely, including his or her own impressions of the proper lighting
- Take into account both guests and employees suggestions, remembering that sometimes the two groups have different needs
- Extent of ambient light addition to artificial lighting
- Balance between decorative lighting and focal lighting. ■



**Dr S S Verma**

Professor, Department of Physics  
Sant Longowal Institute of Engineering and  
Technology (A Deemed University)



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# Blackpool Illuminations Taken To New Heights With 'LightPool' Project

London based creative projection specialist, The Projection Studio, led by Ross Ashton and collaborating with Edinburgh based War Productions, has won a competitive bid to create a spectacular mapped video projection to be projected onto the facade of Blackpool's famous tower... as part of the city's 2015 Illuminations.

Projection Studio will be producing all the creative content for the LightPool project, while Alistair Young and War Productions will design the projection system and hardware set up. The two companies have previously worked together on Ross and artist Maria Ruud's AniMotion live painting / projection performances in Scotland.

LightPool will be the first semi-permanent projection mapping project in the UK – and also the first time that the large red brick building concealing the base of the 158 metre tower – built in 1894 and still one of the most iconic buildings in the UK – has been used as a projection surface.

Projection Studio won the bid - put out to tender by Blackpool City Council – against stiff competition. Ross and his team were chosen for their artistic credentials and the strength of their creative concepts that will see a radical transformation of Blackpool's Illuminations this year. They also impressed the selection panel with also their extensive experience in producing mapped projection shows onto other high profile buildings worldwide.

Ross commented, "I am delighted to win this commission. Blackpool Illuminations are one of the oldest and most original

'festivals of light', so being asked able to produce something completely new in a city renowned for pushing the boundaries of light art... is very exciting."

The work will be created in conjunction with Blackpool Illuminations, the Arts Department of Blackpool Council and arts organisation Left Coast who are also delivering a number of other installations around the town for the 2015 Illuminations.

Full details of the project are under wraps until the opening night... but Ross can reveal that eight Panasonic 17K projectors will constitute the hardware and that the results will be super bright and highly visible amidst all the other attractions.

The projectors will also be rigged, so they can be easily struck during the daylight hours... and then reinstated for the next evening's show.

Taking the illuminations to new levels of interest and presentation with the two 10 minute tower base mapped projection shows is all part of the ongoing goal of attracting 2.5 million additional visitors to the city over the illumination period which is switched on ... on 4th September. ■



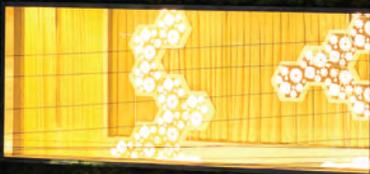
**Louise Stickland**  
Freelance journalist  
Company : Loosplat  
Web: [www.loosplat.com](http://www.loosplat.com)

Courtesy

The Projection Studio



*the lime*  
BOUTIQUE SUITES



The UNESCO has dec

# The Lime

From the introduction itself it was quite evident that lighting budget was one of the biggest challenges of the project, but there was another very big challenge - the sheer density of hotels in this area - but it was managed...

Nestled in the business central of Hyderabad, 'The Lime' is a premium boutique hotel. Designed to reflect the spirit of Hyderabad, this place is a harmonious blend of tradition & contemporary sophistication. The twist is, the premium qualities of a boutique hotel are being brought to the guest at budget hotel prices of \$40 a night.

From the introduction itself it was quite evident that lighting budget was one of the biggest challenges of the project but there was another very big challenge, the sheer density of hotels in this area, there are about 25 hotels in

the two sq kilometer radius. So, for us the challenge was to bring a very strong visual identity of this property.

The key words we at SPK Valo started working on were Youthfulness & Freshness (Hyderabad is one of the youngest metropolis in India) and so is 'NG Hospitality,' who are the developers and managers of 'The Lime.' We wanted light to bring in a quality of youthfulness and freshness in to the space. So working from the external façade to inwards, we started working on how can we make this hotel look luxurious at the same time youthful and fresh with a visual identity difficult to forget.





The interior designers for the space 'Design House' decided to keep the façade clean, which gave us a clean canvas to work on it with light.

We decided to use T2 - RGB from Aldabra to create dynamic linear pattern installation of light on the façade, and programmed the DMX in such a way that it changes the colour in a very slow pattern, hence creating a fresh identity every time you look at the property at night.

This has for sure become a head turner of the locality. The window soffits are picked using nichea external grade LED strips which are 3000K in colour temperature.

As we enter into the double height space towards the reception from the main entrance – the interior designers 'Design House' had planned to have laser cut SS fret panels arranged in a creative pattern, which connects the double height space with the reception. We decided to accentuate this detail by backlighting these fret panels with 3000K LED linear strips from Nichea. This also gives just enough ambient light into the space.

As we get towards the lift lobby, there lies a restaurant called 'Squeeze' wherein we composed an installation of 'Spillray' decorative pendants. There is also a banquet hall called 'Oval' which is lit for multifunctional usage from a birthday party to a business conference, the easy Kap fixtures with retrofit Osram lamps put on a dimmable control system are used to achieve this.

The rooms again are very colourful and young in terms of the interior design, so we decided to use the coves for the ambient light into the space and used side table lamps and study lamps for task lighting. ■



**Kunal Shah**  
Founder & Principal Lighting Designer  
SPK Valo Lighting Design Studio



GPS-enabled roadway fixtures...

# Real-Time Monitoring Of Street Lights

As part of the LightGrid controls system, Oceanside's Public Works team now has a real-time view of how each of the 7,700 street lights across the city is operating...



LightGrid in Oceanside, California...

The controls system also allows the city to activate more precise 'on/off' and street-light dimming schedules, particularly in low-traffic areas and during overnight hours, to save the city in energy-related costs. "Illuminating our city with GE's LED street lights with LightGrid gives us control like we've never had before. We're able to efficiently light roadways in a way that makes sense for how our city operates day to day, all while reducing our energy bills," said Kiel Kroger, Oceanside Public Works Division Manager.

## Intelligent city

Energy-efficient lighting is a part of a greater initiative – the Green Oceanside campaign, which was established to educate residents, businesses and visitors – and to implement programmes for energy efficiency, recycling, water conservation, energy conservation and more.

The Oceanside Public Works Department was driven to complete this lighting project because of its potential to realise large energy and maintenance savings.

Replacing legacy High Pressure Sodium (HPS) street lights is expected to reduce annual carbon dioxide emissions by 1.7 million pounds, which is equal to removing nearly 150 cars from the road or adding more than 200 acres of forest.

"The feedback from citizens and city staff has been just as important as the anticipated energy and cost savings. Citizens of Oceanside like the fixture style and the light quality produced, while the city staff is also pleased by the energy and maintenance savings and expected return on investment," added Kroger.

In addition, it helps the city promote energy efficiency and inch closer to its goal of leveraging data and operating as a more intelligent city. Additional upgrades include 900 city park light fixtures, parking lights, pier and decorative lights in the downtown area. ■

Oceanside is a coastal city located on California's South Coast. It is the third-largest city in San Diego County, California. The city had a population of 167,086 at the 2010 census. Together with Carlsbad and Vista, it forms a tri-city area. Oceanside is located just south of Marine Corps Base Camp Pendleton. (Source: Wikipedia)

As part of its commitment to reduce energy consumption, the City of Oceanside has recently installed more than 7,700 GE LED roadway fixtures equipped with a GPS-enabled controls system. Expected to drive energy and maintenance savings of approximately \$600,000 annually, the installation of GE LED fixtures with LightGrid controls continues to position the city as a leader in connected and energy-saving solutions.

## GPS-enabled roadway fixtures

As part of the LightGrid controls system, Oceanside's Public Works team now has a real-time view of how each of the 7,700 street lights across the city is operating. The solution includes a GPS chip on every fixture via the LightGrid node or photo control, allowing the city to monitor each light through a web-based interface and immediately respond to maintenance or operational needs.

**Ahrenshoop Museum of Art: Skylight ribbons scatter diffuse daylight into the spaces of the Ahrenshoop Museum of Art. For design consistency, the artificial light is emanated from the same opening. To achieve this, light profiles have been mounted to the overhead opening's perimeter skirting.**  
**(Architect: Staab Architekten; Photo: Stefan Müller)**



## *Architecture And Light In Dialogue*

One cannot help but ask this in response to such a shower of recognitions. When analysing the winning projects, it's clear that all show a remarkably close relationship between light and architecture...

With their lighting design, they always put themselves at the service of architecture and the architect's design intent, explains Prof. Andreas Schulz, Founder and Owner of Licht Kunst Licht, of his office's work methodology. This respectful and analytical approach to the architectural design and already existing built environments forms a sound foundation for aesthetic, functional and technically sophisticated lighting concepts. Expert juries of international lighting design competitions were convinced, as the realisation of these concepts have already led to nine Licht Kunst Licht projects receiving prestigious awards.

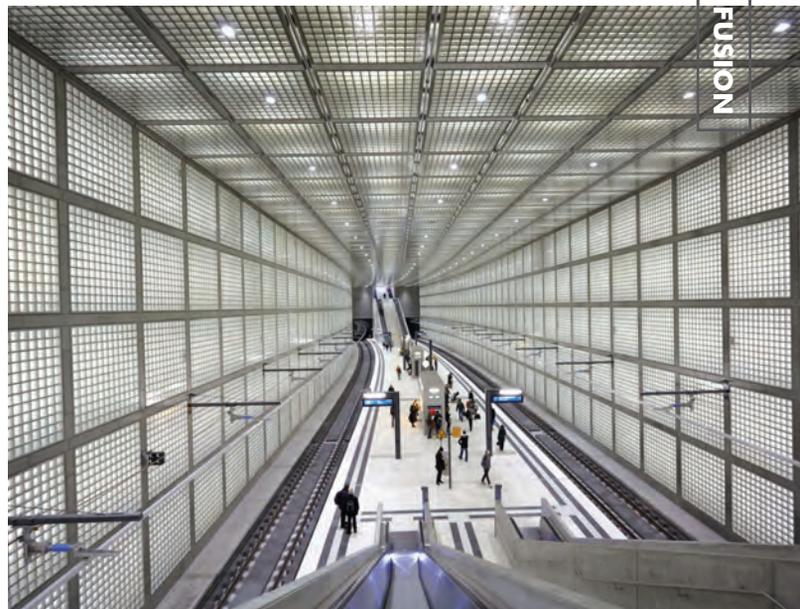
The office had the pleasure of receiving awards in three internationally renowned competitions: the IALD

International Lighting Design Awards (International Association of Lighting Designers), the GE Edison Awards (General Electric), and the AZ Awards for Design Excellence (Azure Magazine). Further recognition was received domestically at the Deutscher Lichtdesign Preis, (German Lighting Design Awards) with awards for several individual projects and the prestigious distinction of 'Lighting Design Office of the Year.'

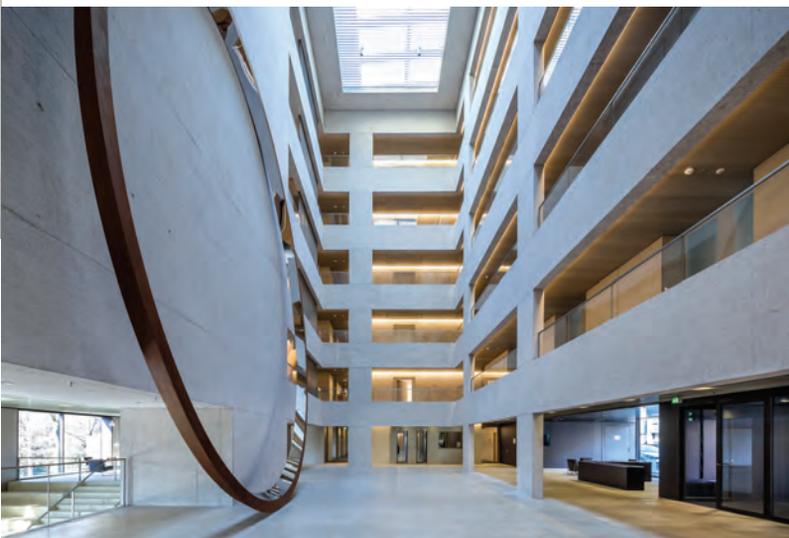
What is it that they are doing right? One cannot help but ask this in response to such a shower of recognitions. When analysing the winning projects, it's clear that all show a remarkably close relationship between light and architecture. Unnecessary, ostensive luminaires are nowhere to be found.



**Drachenfelsplateau, Königswinter:** The lighting concept for the Drachenfels restaurant consists of two main components: direct, efficiently shielded downlights for the general illumination and colour controllable RGB-LED light strips in the ceiling coffers to enhance the spatial atmosphere. (Architect: pape + pape architekten bda, Tore Pape; Photo: Lukas Roth)



**Subway Station Wilhelm-Leuschner-Platz, Leipzig:** Wilhelm-Leuschner-Platz is a subway station of the new City-Tunnel-Line in Leipzig. Walls and ceilings are made of glass blocks and have been back-lit in such a fashion as to emulate the impression of a daylight flooded underground space. (Architect: Max Dudler; Photo: Christian Günther)



**Ministry of the Interior, Baden-Württemberg, Stuttgart:** The central lighting design element for the Ministry of the Interior of Baden-Württemberg in Stuttgart is the use of luminous lines. They are consistently implemented in all building areas and trace the architectural contours. (Architect: Staab Architekten; Photo: Marcus Ebener)

Consequently, all light sources at the Drachenfels restaurant near Königswinter are concealed within perforated ceiling coffers. At the subway station Wilhelm-Leuschner-Platz in Leipzig, they have been located entirely behind glazed wall and ceiling surfaces, or – similar to the

LWL Museum in Munster – they transform into a ceiling integrated luminous frame.

In other projects, the light traces the contours and surfaces of the built environment. A good example of this approach is seen in one of the awarded projects, the Ministry of the Interior of Baden-Württemberg in Stuttgart, where framing light channels outline the courtyard galleries.

To achieve this integral design approach, it is of eminent importance that the dialogue between architect and lighting designer starts as early as possible. This is not only important for optimal integration of artificial light, but also drives a conscious discussion on the daylight strategy; Licht Kunst Licht considers electric illumination and daylight design as equally important disciplines. One result of this design approach is the Ahrenshoop Museum of Art, winner of four separate design awards. In cooperation with the architects, the small museum on the Baltic coast has been designed as a succession of spaces predominantly illuminated with daylight, coupled with a synchronised, supporting electric lighting system.

In order to ensure that successful projects emerge from such a design process, an integral planning approach alone will not suffice. An interdisciplinary architectural understanding and a combination of creativity and technical competence are essential requirements.

Licht Kunst Licht has the necessary expertise and experience to harness both the design possibilities and



**LWL-Museum for Art and Culture, Munster: The carefully structured lighting concept of the LWL-Museum for Art and Culture in Munster not only offers a flexible exhibition illumination, but also orchestrates the architecture. It is not the luminaires that are at the design focus, but the light effect.**

**(Architect: Staab Architekten; Photo: Marcus Ebener)**



**Award Ceremony of the Deutscher Lichtdesign-Preis (German Lighting Design Award) 2015: For the second time, Licht Kunst Licht had the honour of being awarded "Lighting Design Office of the Year." The jury prize is awarded to the lighting design office with the highest overall score in the competition.**

**(Photo: Christoph Meinschäfer)**

### Overview of Awards:

Deutscher Lichtdesign-Preis (German Lighting Design Awards, [www.lichtdesign-preis.de](http://www.lichtdesign-preis.de))

- 2015 Lighting Design Office of the Year
- 2015 Hospitality Award for the project Restaurant Drachenfelsplateau, Königswinter, Germany
- 2015 Transit Buildings Award for the project Subway Station Wilhelm-Leuschner-Platz Leipzig, Germany
- 2015 Jury Award - Daylight for the project Ahrenshoop Museum of Art, Ahrenshoop, Germany

### IALD International Lighting Design Awards

([www.iald.org/about/awards/award.asp?year=2015](http://www.iald.org/about/awards/award.asp?year=2015))

- 2015 Award of Merit for the project Ahrenshoop Museum of Art, Ahrenshoop, Germany

### GE Edison Awards

([www.gelighting.com/LightingWeb/na/resources/edison-awards/ge-edison-award](http://www.gelighting.com/LightingWeb/na/resources/edison-awards/ge-edison-award))

- 2015 Award of Excellence for the project LWL-Museum for Art and Culture, Munster, Germany
- 2015 Award of Merit for the project Ministry of the Interior Baden-Württemberg, Stuttgart, Germany
- 2015 Award of Merit for the project Ahrenshoop Museum of Art, Ahrenshoop, Germany

AZ Awards for Design Excellence of the Canadian architecture and design magazine Azure (<http://awards.azuremagazine.com/winners-finalists/2015-2>)

- 2015 Award of Merit and winner of People's Choice Award in the category Lighting Installations for the project LWL-Museum of Art and Culture, Munster, Germany
- 2015 Jury Award in the category Lighting Installations for the project Ahrenshoop Museum of Art, Ahrenshoop, Germany

technical requirements of new light sources, such as LED and OLED, within complex lighting control systems to utilise their full potential for the task at hand.

The interdisciplinary team at Licht Kunst Licht, consisting of 26 staff members, proficiently master the design tools required to realise attractive, comfortable, and efficient solutions. "I am incredibly proud to have the opportunity to reach for the stars with such a great team for over two decades," underlines Prof. Andreas Schulz in light of the office's award distinctions.

Simultaneously, he never loses sight of the future. "We are delighted to have the privilege of working on such exciting projects. One of them, for example, is the lighting design for the new National Museum of Qatar, designed by Jean Nouvel." ■

Courtesy

**Licht Kunst Licht AG**  
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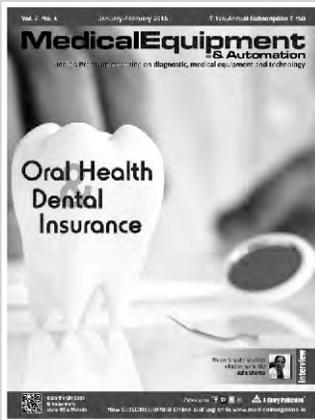


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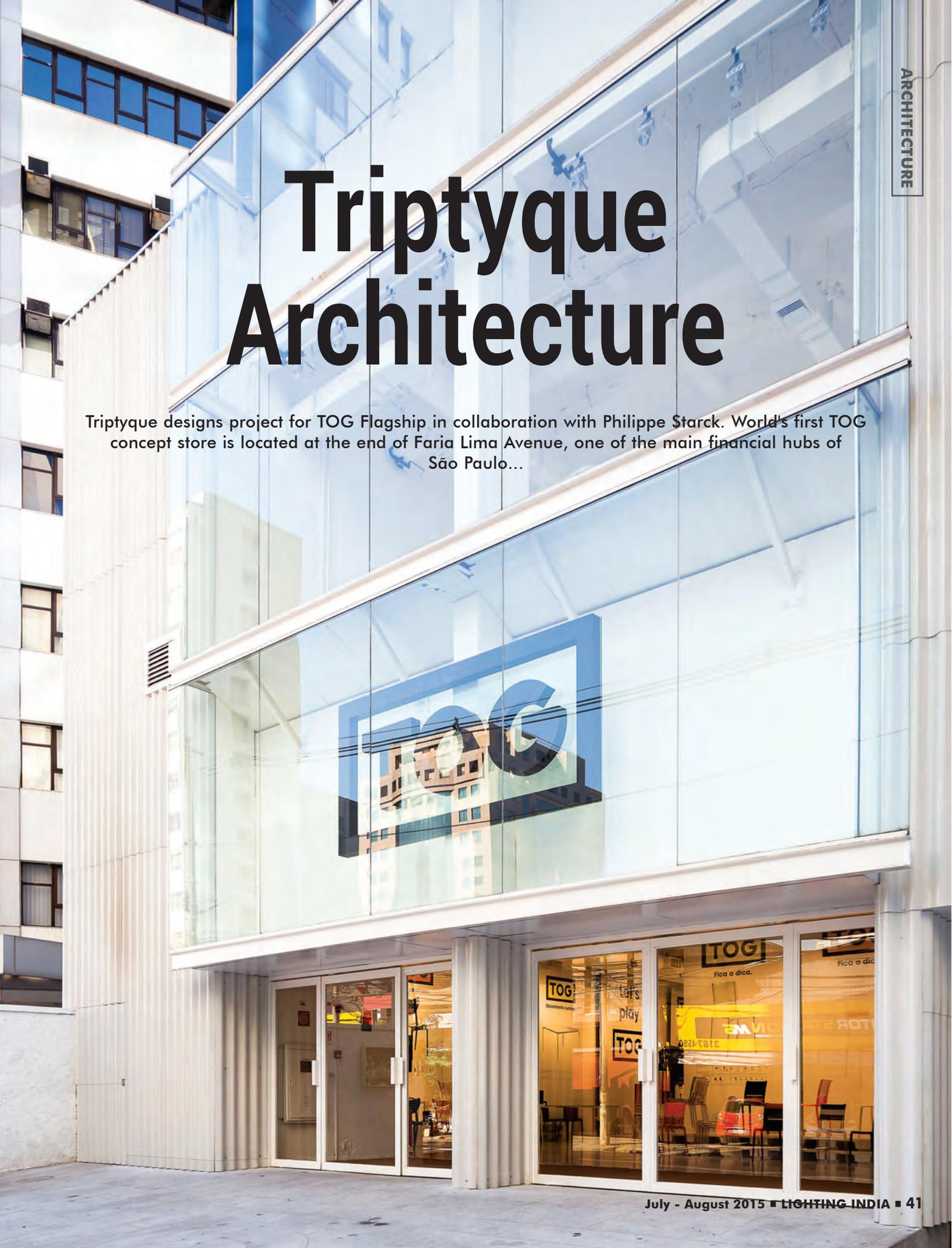
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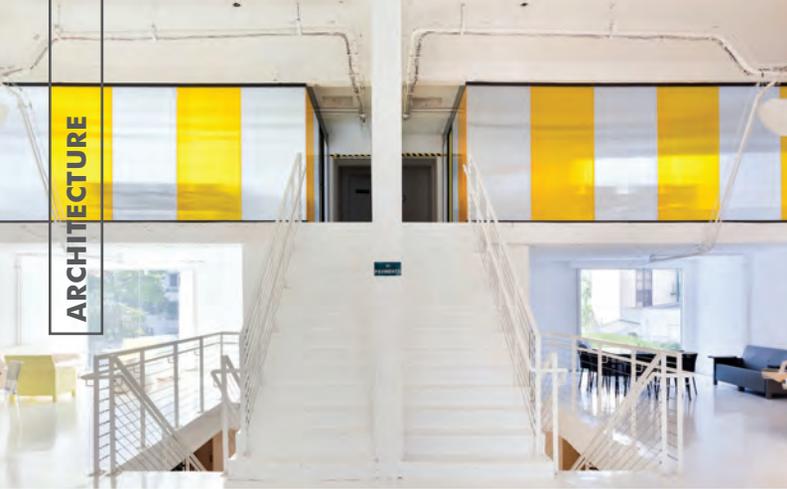
BI MONTHLY



# Triptyque Architecture

Triptyque designs project for TOG Flagship in collaboration with Philippe Starck. World's first TOG concept store is located at the end of Faria Lima Avenue, one of the main financial hubs of São Paulo...





**T**riptyque Architecture was chosen by Philippe Starck to develop, under his art direction, the architectural project of TOG's São Paulo Global Flagship Store (Rua Iguatemi, 236), the first direct monobrand retail project from TOG, with the ambition of stirring up the concept of selling design.

The Flagship was designed as a mixed use place of sociability where you can buy, eat, drink, dance, read, create, spend time; a XXIst century version of the Andy Warhol Factory.

As TOG furniture, the space is fully customisable. Conceived as a multi-purpose, living space, the Flagship Store will also function as a major conviviality and sociable hub.

To anticipate these and others potential uses, the Triptyque agency neutralised this old games club from the 80s in painting in white all the place. There is a contrast between the existing walls roughness and the totally new ground. The lights are suspended from the concrete beams visible on the ceiling.

The project was conceived to allow the organic spaces to change over time: no walls between ambiances, an electric system that pervades the entire area and the application of materials like glass foster the multiple use desired for the space.





With 2,100 square metres distributed in basement, ground, first and second floor TOG Flagship will host warehouse, showroom, offices, garden and also a new restaurant – Marakuthai for TOG - headed by Chef Renata Vanzetto. ■

Courtesy

Triptyque Architecture

# Shining Lights In The Land Of Smile

The Thailand Lighting Fair 2015 featured lighting innovations from more than 200 leading companies and brands from Thailand and other parts of Asia such as Japan, Taiwan, China and India...

Amidst the busy life of Bangkok, recently a huge group of lighting enthusiasts consisting of researchers, designers, manufacturers, vendors, journalists and other associates of the lighting industry from all over the world assembled at the Bangkok International Trade and Exhibition Centre (BITEC) to touch-feel the latest lighting devices, to discuss the current issues, ongoing trends and the latest developments in the field of lighting.

The Provincial Electricity Authority (PEA) together with Messe Frankfurt, The ExhibiZ and other supporting agencies organised the Thailand Lighting Fair 2015, which continued from 19th to 21st August. The maiden comprehensive trade fair on electric lighting in Thailand experienced a massive footfall during the three days.

Supported by the Thailand Convention and Exhibition Bureau (TCEB), the fair presented the latest lighting products and innovations from more than 200 local and international companies/brands, as well as installation art created by renowned lighting designers, light performances showing the interconnection between light and city, and seminars and workshops led by professional luminaries.



**A view of the opening ceremony of the Thailand Lighting Fair 2015 on 19th August 2015 at BITEC, Bangkok...**

During inauguration of the event, the PEA's Governor Sernsakool Klaikaew said that the fair aimed to promote the use of energy-efficient lighting technologies in all sectors of the society, by encouraging an exchange of knowledge about how to save energy, offering a complete range of relevant products and solutions, and sparking ideas about how to apply lighting innovations for specific purposes. These would help in fostering energy and environmental sustainability,

supporting economic growth – and be a part of the effort to establish Thailand as the ASEAN's hub for energy-saving lighting solutions.

## Lighting market in Thailand

Currently, Thailand's lighting market is valued at 30 billion Baht, with a continuing growth partly as a result of the growing adoption of energy-saving products, especially the LED bulbs of which users are mainly in the business, industrial and property sectors. Households have also increasingly switched to LED bulbs because of the more affordable prices. Market share for LED products (in Thailand) is expected to soar to 50% in the next few years.

## Activities in the fair

The Thailand Lighting Fair 2015 featured lighting innovations from more than 200 leading companies and brands from Thailand and other parts of Asia such as Japan, Taiwan, China and India. Exhibitors included Philips, TP HALO, LED Lighting, K Bright, LED Korea, NEX, Eve Lighting, LED Spectrum, Lamptan and Skylight. Products on display covered a wide variety of luminaries and lamps, decorative lights, LED products, accessories and components, as well as technologies for outdoor and urban lighting, residential lighting and smart lighting. Various items of information on the testing and certification of lighting systems for the industrial and commercial sectors were also provided. Additionally, there was presence of banks supporting lighting projects.

## Exhibitors found it useful

As Thailand's government is trying hard to improve its sagging economy, and is moving towards increasing its reliance on electricity imports as electricity generation in the country is expected to grow by merely 2.8% in 2015, at this point, energy efficiency is a key area that needs to be stringently focused on – and therein efficient lighting has a big role to play. Under such circumstances, organising the Thailand Lighting Fair 2015 has been truly timely – and it has emerged as a helpful platform for exploring and sourcing the lighting and related products in the country. Through a simultaneously running seminar, the event also helped in disseminating new ideas of application – and brainstorming on the methods of smart and economic lighting.

Exhibitor Narucha Amnajsuwan, Director, Light Box who is working on lighting design since 2014 said, lighting designers market is expanding in Bangkok and Jakarta. In Thailand, the demand for LED lighting is increasing. This was a good opportunity to make people understand the new technologies and their benefits.



**Indian exhibitor, S Antony, MD, Carewell Group Inc., is explaining his innovation...**

Indian exhibitor Saifu Antony, Managing Director, Carewell Group Inc., India, who came to the exhibition to display and disseminate his innovations, got good business response from the trade fair. Saifu's CFLs are highly innovative with better heat dissipation capability and 360 degree wide angle of illumination.

Joep de Vries, International Sales Director, Eve Lighting Co. Ltd., which is the second largest lighting company in Thailand, felt it was a good platform to show the innovations in lighting. Around 10 months back, his company launched an innovative product. They have put the driving unit (IC) inside the lamp itself.

Representatives from Densin Co., Ltd. displayed their innovative solar powered road light. Their lights get automatically switched on at sunset and get off in the morning. Even if there is no sunshine continuously for three days, their street lights work. The company also displayed some innovative home lights. They were quite hopeful to get good business.



**Demonstration of the advantages of Philips HUE is on...**

Philips had a big presence in the trade fair. They are going to introduce HUE (a brand name of Philips) in Thailand in next year. HUE is a wireless technology that allows control of lights (through a WiFi router) with Android phones. It can offer 16 million colour changes with the same set up.



**Akira Mahattharak from Marketing Dept. of Technology Power Co. Ltd. (TP Lighting) is in a talk with the author...**

Akira Mahattharak from Marketing Dept. of Technology Power Co. Ltd. (TP Lighting) said that the lighting industry has a good scope to grow in Thailand. His company has done a number of excellent projects all over the world. He used the fair-platform to communicate the benefits of smart lighting.



**Lighting India had a stall in the Thailand Lighting Fair 2015...**

### Summary of opinions from the visitors

The trade fair has obviously brought in several new concepts and ideas to the visitors. Also, apart from lights and common lighting fixtures, the visitors got opportunity to witness some decorative lighting fixtures that help in creating exceptional ambience. The trade fair was good enough to disseminate the concepts of personalised lighting. As Thailand is still at a developing stage as far as lighting is concerned, the fair was successful in generating concepts of lighting control through touch-feel communications. Also, it was a great place to gain knowledge on application of solar power for lighting to save cost of energy. Additionally, it has been instrumental in instilling the idea of energy saving through replacement of GLS and CFL lamps with LED lamps. ■

- P K Chatterjee (PK), Editor, Lighting India

# Envisioning The Future Of Lights

Visitors were impressed by the number of exquisite brands present, as well as by the diversity of products and technologies on display. The wide range of lighting applications and solutions on offer gave attendees an opportunity to source the right products & technologies for all areas of their businesses...

Appropriately themed 'Envision the future of lights' after its mission, the 20th edition of the Guangzhou International Lighting Exhibition had participants sharing inspirational ideas and innovative technologies. Dialogue of this nature is essential in shaping the future of the lighting industry. Held from 9 to 12th June 2015, the fair spanned across 21 halls and occupied 225,000 sqm.

The show closed with a 4.7% increase in visitor figures from the previous year, totaling 135,990 professional visitors (2014:129,885) from 131 countries and regions including over 5500 domestic and overseas delegates. These numbers were duly matched by a record-breaking 2,698 exhibitors (2014: 2,621) representing 27 countries and regions.

Commenting on the success of this year, Lucia Wong, Deputy General Manager of Messe Frankfurt (Shanghai) Co Ltd, said, "The exhibition floor was buzzing throughout the four-day event. I am impressed with the depth, breadth and diversity of the content of the fair. The exhibition booths were brightly illuminated by products as well as applications staging in places such as fashion shops, homes, factories, offices, schools and museums. It was evident that the quality of lights and a human-centric design approach were being stressed. I would like to express my heartfelt thanks to the worldwide lighting community for their support in staging such an extensive mix of lighting applications at our 2015 fair. This reinforces our commitment to playing a leading role in the lighting industry by creating a global platform for lighting techs."

## Some innovative products at the event

- Chip-Scale Packaging (CSP) technology significantly scales down the size of LED packages, enabling more flexible and compact designs of LED modules or fixtures. CSP also lowers manufacturing and operational costs of LED lighting systems.
- UV/IR LED-related applications cover LED chips, die packages and other products. Displays included UV packages with different wavelengths that can disinfect, printer dryers, money verifiers, and nail curing and tanning machines. Also exhibited were outdoor UV/IR



**A view of the grand opening of the lighting exhibition 'Envision the future of lights' ...**

radiation-free, lead-free and mercury-free LED modules that are highly reliable and durable, and ideal for outdoor lighting applications.

- Chip-On-Board (COB) products focused on light quality and colour rendering.
- Cloud-based smart lighting for the smart home was the centre of many discussions. On display were unique control systems with user interfaces, such as a panel that utilised motion and gesture controls.

Visitors were happy by the no. of exquisite brands present, and by the diversity of products and technologies on display. The wide range of lighting applications and solutions on offer gave attendees an opportunity to source the right products and technologies for all areas of their businesses. Fifth time visitor, Daniel Bazz, Director at Ecoguard of Uruguay, stated, "My aim was to find LED products and fluorescent lamps. This trip has been very successful because I have already purchased more than 100 kinds of products and have arranged some factory visits to explore more business opportunities with suppliers."

## Close industry cooperation

This year marked an important milestone for the Guangzhou International Lighting Exhibition – its 20th



**An attendee is explaining his requirement in details to an exhibitor in the trade fair...**



**One of the exhibitors is trying to show the technological excellence of his products to a visitor...**

anniversary. Together with the continuously evolving lighting community, the fair witnessed the vast transformation of the industry, from conventional lighting to solid state, energy efficient and intelligent lighting over the past two decades. To celebrate this special occasion with the industry, the organiser launched a series of interactive programmes that engage lighting experts, allowing them to inspire and be inspired by innovative ideas regarding the future of lighting.

**'Light is about imagination' programme:** Launched in January 2015, this programme gathered industry elites to share their visions and forecasts for the future of lighting. Visitors also imparted ideas on:

- Returning to simplistic lighting designs that are clean, simple and elegant
- Balancing multi-generational Tastes: the wide appeal of lighting technology among all age groups
- Wireless controls are becoming more mainstream
- Synchronising HVAC and lighting controls
- TLED, one of the key future developments of lighting.

**'Talk-series' programmes:** These programmes, including 'Design Talk', 'CEO Talk' and 'Light Talk', attracted more than 1,500 attendees such as designers, CEOs and industry associations. These industry players



**One of the visitors, being enticed by the attractive light sources, is physically examining a product...**

shared their visions and ideas for the future of lighting from different perspectives. Topics discussed were 'Smart Lighting', 'Human-centric Lighting', 'Quality of Lights' and 'Sustainability.'

Liu Xiao Dong, an attendee of 'Light Talk' and Member of the Project Team at AKE Lighting Co Ltd of China, mentioned, "I am particularly impressed with the presentation on 'Quality of Light' delivered by Martin Klassen from CLDA. He presented lighting design principles on how to use space to highlight the contrast of light and human-centric lighting to increase quality of life. The content of his presentation was very practical and allowed me to increase my knowledge on lighting design."

**'Hosted buyer networking' programme:** This programme was designed to give exhibitors and visitors a chance to maximise networking and carry in-depth business discussions. More than one hundred and fifty exhibitors and visitors were successfully matched according to their business interests. Miguel Perez Fernandez, visitor and Manager at Mode on Tecno SL of Spain, expressed, "My goal was to source LED modules and electrical components. I was able to network with over 200 exhibitors. Regarding the business matching services at the show, they have helped connect me with suppliers, I originally missed.



### Proper lighting attracts customers to buy products in retail stores...

Overall, the show was great and I will most definitely be back again next year." The future of lighting also sees increasing demand for intelligent products, which provide more comfortable living standards and satisfy energy-efficient goals. It is no surprise that this is one of the major driving forces behind China's economy.

Gordon Guo, Marketing Director at PAK Corporation Co Limited of China is supporting this notion. He has exhibited for more than 10 years to promote intelligent controls. Guo explained, "We want to emphasise that smart control lights can create lively atmospheres and industry interest is strong. The visitor flow was very good this year – and we met visitors of great diversity in business nature including dealers, designers, home decoration companies and design institutes, owners, commercial users and many others. We are very satisfied and the show means lots to us."

### Fair remains true to mission

The fair organiser understands that the exchange of information and ideas can bring new life to inspirations. With strong support from the lighting community, the organiser remained true to the show mission – and gathered industry peers during the fair to have fruitful dialogue regarding the future of lighting. Industry specialists of varied business backgrounds divulged an array of forecasts such as:

**Charles G Stone II, President, FIALD, IESNA, LC, LEED AP BD+C (Designer):** "I envision a future filled

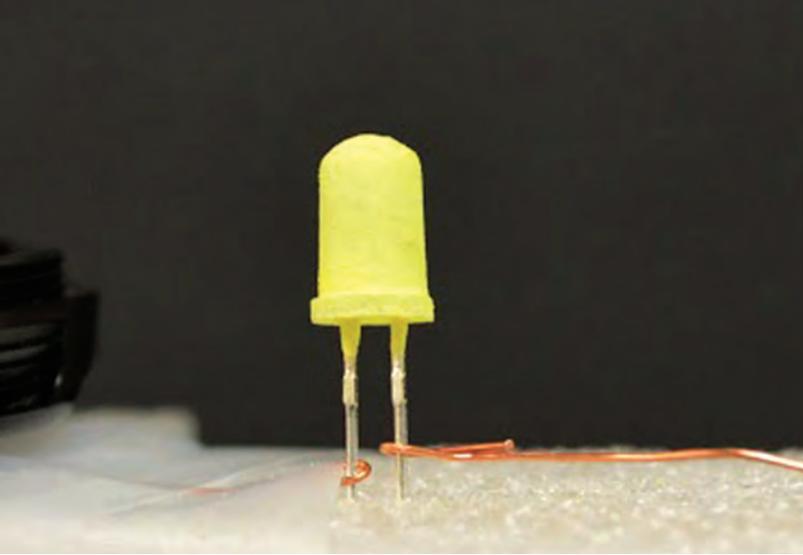
with light. We will work, learn, play and heal in spaces that are filled with beautiful, appropriate and sustainable lighting. Lighting for tasks, for decoration and for our lives will be perfectly conceived and integrated."

**Dr Dongwook Park, President, Korea Photonics Technology Institute (Association):** "Human-oriented lighting is the hub of next generation lighting applications. Thus, high CRI with highly efficient lighting technologies will top most R&D agendas."

**Edmond Wong, General Manager, Citizen Electronics Co Ltd (Corporation):** "Technological innovations with phosphor material and spectrum tuning are important for coping with upcoming trends in human-centric lighting and the quality of light."

Being impressed by the information flow and dialogue generated among show participants, Wong further stated enthusiastically, "Technological breakthroughs will continue in lighting development. The possibilities for the future of lighting are endless and there will always be elements waiting to be discovered. Going forward, perseverance, constant exploration and interaction among lighting communities will be essential for development. We will continue to stay abreast the latest developments of the lighting industry to envision the future of lighting."

Guangzhou International Lighting Exhibition, along with the concurrently-held Guangzhou Electrical Building Technology, is headed by the biennial Light + Building event, which will take place from 13 – 18 March 2016 in Frankfurt, Germany. ■



Images Courtesy: Zhichao Hu, Ph.D.

An LED coated with a yellow 'phosphor' is shown turned off (left) and then turned on (right). This 'green' LED is inexpensive and provides warm white light...

# An Evolution In LED Technology

Experiments with some materials have shown that the new technology can cut LED costs by as much as 90% from current methods that rely on rare-earth elements...

Highly efficient, Light-Emitting Diodes (LEDs) could slash the world's electricity consumption. They are already sold in stores, but more widespread adoption of the technology has been hindered by high costs due to limited availability of raw materials – and difficulties in achieving acceptable light quality. But researchers have overcome these obstacles – and have developed a less expensive, more sustainable white LED.

"If more people in the U.S. used LEDs in their homes and businesses, the country's electricity consumption could be cut in half," says Zhichao Hu, Ph.D., a member of the Rutgers University team that performed the research under the direction of Jing Li, Ph.D.

To achieve the common, soft white light that consumers expect, current LED technologies typically use a single semiconductor chip to produce light, usually blue, and then rely on a yellow-emitting 'phosphor' coating to shift the colour to white.

That's because LEDs do not emit a white light. The phosphor is made from materials, such as cerium-doped yttrium aluminium garnet, that are composed of rare-earth elements. These elements are expensive – and in limited supply, since they are primarily available only from mining operations outside the U.S. Additionally, the light output of these phosphors tends to be harsh, 'cold' colours.

Li's team is developing hybrid phosphor-based technologies that are much more sustainable, efficient and low-cost. They combine common, earth-abundant metals with organic luminescent molecules to produce phosphors that emit a controllable white light from LEDs.

By varying the metal and organic components, the researchers can systematically tune the colour of the phosphors to regions of the visible light spectrum – that are most acceptable to the human eye, Hu and Li note. The team is continuing to experiment and develop other rare-earth-free LED phosphors based on different metals & organic compounds.

Many material combinations are possible, so they use a computational approach to initially sort through the possibilities – and to predict what colour of light the various metals and organics combinations will emit. They then test the best combinations experimentally. Their approach allows a systematic fine tuning of band gaps and optical emissions that cover the entire visible range, including yellow and white colours. As a result, their LEDs can be fine-tuned to create a warmer white light, similar to cheaper but inefficient incandescent lights. Their approach shows significant promise for use in general lighting applications.

"One of challenges we had to overcome was to figure out the right conditions to synthesise the compound. Like cooking, the synthesis requires a 'recipe.' It's often not the case that one can simply mix the starting materials together and get the desired product. We optimised the reaction conditions – temperature and the addition of a solvent – and developed an easy procedure to make the compound with high yield," Hu notes.

Experiments with some materials have shown that the team's technology can cut LED costs by as much as 90% from current methods that rely on rare-earth elements. They have several granted and pending U.S. patents and are exploring manufacturing possibilities. ■



## ERCO At The New Fondazione Prada, Milan

ERCO lighting tools feature in one of the most dramatic museum projects this year: The lighting supplied by ERCO for the exhibition and outdoor areas of the new Fondazione Prada in Milan demonstrates how sophisticated lighting solutions are implemented efficiently in visionary museums...

The expansive complex, designed by Dutch star architect and Pritzker Architecture Prize winner Rem Koolhaas (OMA, Rotterdam), arose from the transformation of a distillery in the south of Milan dating back to around 1910. The exteriors and the exhibition spaces of the new Fondazione Prada are equipped with a range of ERCO LED lighting tools selected by the cultural foundation spearheaded by Miuccia Prada and Patrizio Bertelli with consistent support from ERCO, selected due to many years of experience in museum lighting. Flexible ERCO LED lighting tools offer the ideal solution for the varied and complex lighting tasks in a museum context – with the not untypical combination of uniform, glare-free ambient lighting & exact accent lighting for the prized exhibits.

### Ancient bronzes and marble sculptures in an avant-garde ambience

In the 'Podium' that forms the central museum section of the new Fondazione Prada with glass façades on three sides, Parscan spotlights, Optec contour spotlights and Pantrac lens wall washers are combined to deliver a superb combination of highly professional LED lighting tools. Parscan 12 W with Spherolit lens with spot and flood distributions complement Parscan 4W with narrow spots to illuminate and accentuate the ancient masterpieces for the opening exhibition, bringing out even the finest details of the bronzes and marble sculptures in sharp contours for a three-dimensional effect delivered with absolute photometric





precision. On the first level of the 'Podium', Pantrac LED lens wallwashers 24 W, 4000 K, illuminate the wall surfaces very uniformly in neutral white light resembling daylight – a lighting concept that produces a wide and spacious impression of the room.

### Scenic light for a compact setting dressed in a gold mantle of art

The permanent exhibition in the 'Haunted House', a renovated four-level section of the old distillery designed by architect Rem Koolhaas with gold leaf cladding, displays masterpieces from the Fondazione Prada collection. Parscan spotlights 24W used here with wide flood distribution achieve uniform ambient lighting in the exhibition spaces, whereas Parscan 12 W with spot and flood lenses allow the exhibits to come to the foreground of attention. The minimalist design of the black Parscan spotlights blends unobtrusively into the structural steel work of the existing building, thereby directing the focus entirely onto the illuminated exhibits. The flanking picture galleries, finally, feature Parscan spotlights 12W and lens wallwashers 12W for perfectly uniform illumination of the paintings on the wall, emphasising their expressive colours.

### ERCO lighting tools illuminate the new Fondazione Prada inside and out

Where ERCO LED lighting tools in the exhibition spaces are used with neutral white light, the exterior sections between the individual buildings of the complex are illuminated using warm white light.

Beamer projectors in 36W with flood and wide flood distributions set off the paved pathways, while the special outdoor floodlights of the Lightscan range provide lighting for the ground around the entrance areas.

Excellent glare control of the ERCO outdoor luminaires ensures a high level of visual comfort and makes certain that the light shines only, and precisely, where it is needed. ■

All images: © ERCO GmbH, [www.erco.com](http://www.erco.com)

#### Courtesy

**Project:** Fondazione Prada, Milan / Italy  
**Architecture:** OMA, Rotterdam / Netherlands (Rem Koolhaas, Chris van Duijn)  
**Scenography:** Ducks Sceno, Villeurbanne / France  
**Lighting design:** Lucas Goy, les éclairieurs, Lyon / France  
**Completion:** 2015  
**Products:** Beamer, Lightscan, Optec, Pantrac, Parscan  
**Photocredits:** ERCO GmbH, [www.erco.com](http://www.erco.com),  
**Photo:** Dirk Vogel

# Beckoning Outdoor



Images Courtesy: Osram

The height of summer is the height of the barbecue season – and Osram adds to the atmosphere with Lightify Garden Spots Mini RGB, an intelligent chain of lights for outdoor use. These Lightify lights are controlled via an app using a smartphone or tablet (iOS or Android), illuminating gardens, terraces and balconies in around 16 million different colours – turning every garden party into a memorable event. These all happens with extremely low energy consumption.

The Lightify Garden Spots Mini RGB are part of the Lightify lighting system, which allow users to tap into the huge potential of light. Once the system has been installed, its brightness and colour – ranging from unobtrusive to keep your neighbors happy to eye-catchingly colourful for your next barbecue – can be changed via an app using a smartphone or tablet (iOS or Android). The Garden Spots can illuminate both terraces and paths, with removable ground stakes enabling the lights to be secured in the ground; they can be attached to any smooth surface with the integrated adhesive strips.

The Garden Spots are dustproof and waterproof thanks to their IP66 protection, making them suitable for outdoor use all year round. A chain of lights consists of nine LED light sources. Extensions each with three light sources are also available. A maximum of three extensions can be added to each chain of lights, increasing the number of light sources to a maximum of 18. Thanks to opto semiconductor technology and Lightify controls, Garden Spots not only offer an almost unlimited number of colour variations, but also energy savings, resulting in reduced electricity costs. ■

## LED Bollards



Efficient and cost-effective LED bollards offer rotationally symmetrical illumination for ground surfaces. The photometric design of these luminaires is based on LED integrated with K-Lite's precision reflector module. According to the company, consistent implementation of new technological developments combined with the highest technical and structural quality have resulted in these state-of-the-art luminaires. These luminaires are characterised by their high luminous efficiency, extremely long service life and the uniformity of the degree of illuminance.

These luminaires are available in Ø100 and Ø166, three different heights to suit the installation site. Their sturdy construction makes them especially suitable for areas in which considerable robustness is required to ensure vandal proof service. They may be used for the illumination of footpaths, entrance areas, driveway, private and public areas.

### Advantages

- Extruded aluminium alloy housing through homogenization for durability and thermal management
- Stainless steel hardware used for long life and for ease of maintenance
- Silicon EPDM gasket used for IP ratings and conforming to the safety and reliability requirements of the products
- UV stabilised, non yellowing polycarbonate diffusers for better light transmission, vandal resistance and UV stabilisation
- Finished with 60 micron thick polyester based powder coating for uniform deposition and excellent finish
- CREE / OSRAM / NICHIA make LEDs, which are internationally recognised brands with higher lumen output are used for better illumination and longevity. ■

### Website:

[www.klite.in](http://www.klite.in)

## Modular LED grow light system



leoLED has launched its flagship product: the iSpectrum LED Grow Light. As per the company, this state of the art LED horticultural fixture was created to provide users with an alternative to the mass-produced and rebranded inferior products

currently available in the market. The iSpectrum Series is a 84 Watt modular LED grow light system with spectral distribution ranging from 410 to 740nm. It is equipped with 2 manually adjustable spectral channels. The iSpectrum Pro's 5 spectral channels can be individually adjusted, allowing for custom intensities and spectral distributions. The control and scheduling features are all conducted through leoLED's iOS and Android App. Besides providing the choice of tailoring the output spectrum to the specific crop for accelerated growth, the 'Sleep Mode' manipulates a photochromic response, putting plants to sleep faster, and making the dormant phase of the plants shorter. The user can then raise the lighting cycle, thus raising production and yield. This scientifically proven feature is unique to leoLED horticultural lights. ■

### Website:

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

## Ball Steep Light



Ningbo Yexin Machinery Parts Manufacturers Co. Ltd. specializes in production of LED lighting. The company is offering Ball Steep Light. Their products are sold in Europe, America and many Asian countries. Yexin maintains a group of experienced personnel for R&D and technical works. Their factory sticks to ISO9001:2008 standard. Most of their products have CE, RoHS, ETL, ERP certificates.

### Features:

- Shorter plastic part and bigger cover make more traditional appearance
- Materials used have higher thermal conductivity. PC + Alu housing
- Wider beam angle meets various lighting requirements
- They may be used in houses or commercial premises. ■

### Website:

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

# Index to Advertisers

Company Name	Page No
ALEEX.....	7
Atco Controls (India) Pvt Ltd.....	Inside Front Cover & 1
BAG Electronics (India) Pvt Ltd.....	Inside Back Cover
Bayer Material Science Private Limited.....	5
Crompton Greaves.....	56
Dollar Electrical Industries.....	17
Fiem Industries.....	19
Finolex Cables Ltd.....	9
Gunzhen.....	31
Juki India Pvt Ltd.....	55
K-Lite Industries.....	23
LED Expo 2015.....	25
Philips Lumileds Lighting Company.....	Back Cover
Setsuyo Astec.....	11
Surya Roshni.....	15
UL India Pvt Ltd.....	3
Veto Switchgears & Cables Ltd.....	13

## Magnetic base LED flood light



Larson Electronics has added a 6W LED magnetically mounted flood light with a 12 foot cord to their line of products. The MUL-LED-WP50-12C handheld light emitter produces illumination

comparable to a 50 to 75W halogen light without the high heat, fragile construction, or high energy costs of incandescent lighting. This portable work light offers a 50,000 hour service life and 120-277 volts AC compatibility, providing operators with a versatile and powerful LED lighting solution. This light is designed with six, 1W LEDs housed within a waterproof polycarbonate housing for durability. The lamp assembly is protected by a shatterproof polycarbonate lens, which is secured to the housing with a waterproof seal. A 1/2" waterproof connector provides a secure and sealed power connection point and rounds out this unit's weather resistant construction.

This magnetically mounted LED flood light is equipped with 12' of 16/3 chemical and abrasion resistant SOOW cord that is fitted with an industrial grade cord cap for easy connection to common wall outlets. Plug options include a standard 5-15 15 amp straight blade plug for 110 volt wall outlets, a standard 6-15 15 amp straight blade plug for 220-240 volt outlets, a NEMA L5-15 15 amp twist lock plug for 125 volt twist lock outlets, a NEMA L6-15 15 amp twist lock plug for 240 volt twist lock outlets, a British BS1363 13 amp fused 3-blade plug for United Kingdom outlets, or a two pin 16 amp rated Schuko plug with ground contact and socket for European outlets up to 250 volts. Larson Electronics has expanded these cord cap options to most of their products in an effort to serve every customer's power requirement. ■

### Website:

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

## Pixelation luminaire - DML-1200



The DML-1200 is a digital moving luminaire that functions as both a super bright moving light and a high quality video projector. The dual-mode DML-1200 features a large zoom range (11-40 beam angle), instant switching between video and lighting modes, CMY changer and an optional on-board media player.

The DL.3 Digital Light fixture, with its integrated Axon media server, provides users with a wealth of digital content. The system features 110/220V power mode, a Collage Generator software feature to create seamless

images from multiple DL.3 units, a highly sensitive HAD sensor camera and an infrared illumination system.

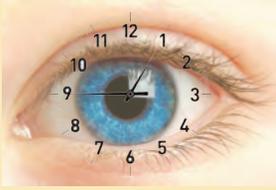
An internal optical dimming mechanism ensures smooth, accurate intensity control from 0 to 100% ensuring that that your fade to black is a true black, not video black (grey). The DML-1200 is suitable for both fixed and professional rental & staging applications. ■

### Website:

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

# Did you know...

## Light has several effects on your brain

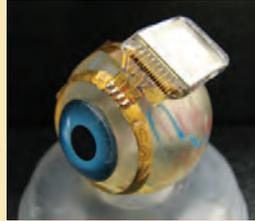


It has long been known that light exerts powerful effects on the brain. Light is not only required for vision but is also essential for a wide range of 'non-visual' functions including synchronization of our biological clock to the 24h day-

night cycle. Light also conveys a powerful stimulating signal for human alertness and cognition and has been routinely employed to improve performance, counter the negative impact of sleepiness or 'winter blues.' However, within the last decade or so, researchers have discovered a new type of light sensitive cell (photoreceptor) in the eye called melanopsin. This photoreceptor has been shown to be an essential component for relaying light information to a set of so-called non-visual centres in the brain. In the absence of this photoreceptor, animal research showed that non-visual functions are disrupted, the biological clock becomes deregulated and 'free-runs' independent from the 24 day-night cycle and the stimulatory influence of light is impaired. ■

## A hope for individuals struggling with blindness

Courtesy: [www.cmu.edu](http://www.cmu.edu)



More than 21 million Americans are diagnosed with some form of eye disease that either clouds vision or results in loss of vision in the centre of the visual field (macula) because of damage to the retina. For more than a decade, Shawn Kelly has worked to develop tools that can

restore useful vision to patients with macular degeneration, which usually affects older adults and results in loss of sight. His group has created a micro-fabricated thin film that is inserted behind the retina of the human eye. From this thin plastic film, the width of an eyelash, flexible electrodes send stimulating current signals to retinal nerves. A miniature microchip located in a titanium package generates these stimulating currents. That package is attached to the patient's eye, and receives image signals from specially designed glasses worn by a visually impaired patient. His device works very much like a camera, replacing the function of the rods and cones of the human eye. ■



## Experience the Pensile LED..

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\* Under standard electrical conditions.



## Non-Dimmable / DALI-Dimmable LED Outdoor Driver (OC series)

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- High energy efficiency and multiple control functionalities for outdoor lighting applications >90%
- Available in (150W - 750 mA), (150W - 1050 to 1400 mA), (160W - 700 mA) DALI-Dimmable



## KEY HIGHLIGHTS

- DALI Dimmable
- Surge protection 6 KV (one time 10 KV) Sym, Asym
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- LED protect gives a full system protection against over voltages

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