

INDIA'S FOREMOST MAGAZINE ON THE LIGHTING INDUSTRY

Lighting India





Vol. 12 No. 6

Nov-Dec 2017

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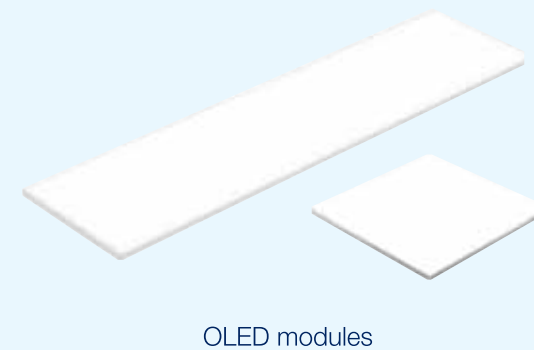
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Signage





Hello and welcome once again to *Lighting India*, the oldest and exclusive magazine on the lighting industry in India.

This festive season our issue focuses on 'Decorative Lighting'. Every year during the pre-Christmas period until New Year, globally many places are decorated festively and adorned with lavish Christmas lighting. We have tried curating the best of projects and articles for our readers on this topic.

During the festive season of Christmas 2015 until 2017, the ACTLD team came with the concept of 'suspension of time' by showing each element of an enchanting innovative clockwork mechanism, which

paved a 'golden way' for the visitors. 'Timeless elegance' light art installation illuminated the Regent Street honouring 'Time'.

On the Indian front, according to a recent report by TechSci Research, the lighting fixture market in India is expected to grow at the CAGR of 17% until 2018. Of late the highlight of the Bandra Kurla Complex (BKC) area of Mumbai is the office building 'Godrej BKC'. The case study of this issue brings one to notice about the building's lighting consultant and their work. We have introduced a new section 'Photo Feature'. This section curates amazing visuals. We have some picturesque collections from Klove Studio for the section this time.

Aurelio Volpe, Director, Market Research, CSIL Centre for Industrial Studies has an article for us on the world market for decorative lighting. He believes India accounts for almost 3% of the world consumption as in 2016 the lighting fixtures market was worth approximately US\$ 2.5 billion. Over the last five years, this share has slightly increased; it was 2.4% in 2011. David Gilbey, Associate Lighting Designer, UMAC Lighting Design, through his article explores lighting contrast and the interest created by the shadows in today's visual world. On the Interview front, we have Achal Trivedi, Head Lighting Business, Motwane Manufacturing Company Pvt. Ltd., talking to us about the business and industry.

This time we draw inspiration from a very eminent lighting designer Vibhor Sogani - who has specialised in Industrial Design from the prestigious National Institute of Design (NID), Ahmedabad, India. His studio based in the capital, was amongst the first in the country to launch its signature line of Products and Lights.

Hope you enjoy reading this issue as much as we in the editorial and design team have in bringing this to you. Until next time, happy reading and do send in your comments to me at miyer@charypublications.in

Mahadevan Iyer

Publisher & Editor-In-Chief

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Directors

Pravita Iyer
Mahadevan Iyer

Publisher & Editor-In-Chief

Mahadevan Iyer
miyer@charypublications.in

Sub-Editor

Dhanya Nagasundaram
edit@charypublications.in

Editorial Co-ordinator

Nafisa Kaisar
nafisa@charypublications.in

Advertising Department

Director - Advertisement

Pravita Iyer
pravita@charypublications.in

Advertising Manager

Nafisa Kaisar
nafisa@charypublications.in

Advertising Executive

Sonali Pugaokar
mktg@charypublications.in

Design

Nilesh Nimkar
charydesign@charypublications.in

Subscription Department

Priyanka Alugade
sub@charypublications.in

Accounts

Dattakumar Barge
accounts@charypublications.in

Digital Department

Ronak Parekh
dgmarketing@charypublications.in

Lighting India is also available online on www.lightingindia.in. For online enquiries contact at: dgmarketing@charypublications.in

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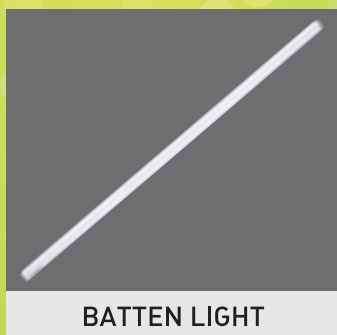
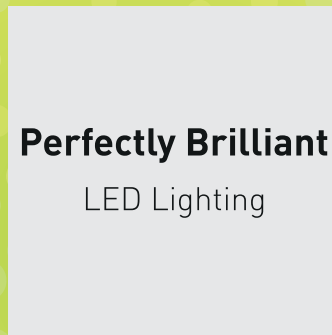
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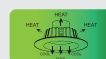
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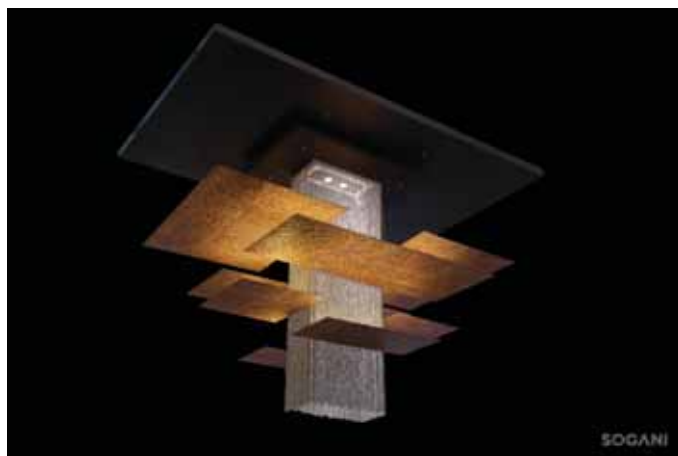
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– Achal Trivedi
Head Lighting Business
Motwane Manufacturing Company Pvt. Ltd.



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Kichler rewrites the rules for integrated LED Landscape lighting

Kichler, a well known leader in innovative lighting, introduces the 12V LED Accent with Variable Lumen Output (VLO), offering more lumen options while carrying less fixture inventory. Now, it's easier than ever for landscape contractors and installers to design, install and service landscape lighting.

The 12V LED Accent employs VLO technology. Three lumen output choices are offered from a single fixture and can be adjusted electronically with a switching magnet. The magnetic switching sensor is fully encapsulated inside the fixture and protected completely from water ingress. Unlike competitive offerings featuring a mechanical adjustment, the failure risk or long-term reliability concerns are eliminated. In addition, the platform features an integrated 6000V surge protection that guards against power irregularities that can be a hazard to LED landscape lighting.

The 12V LED Accent with VLO boasts superior technology and reliability, without compromising the design and aesthetic appearance demanded in a professional landscape product. The fixture family is complete in an Architectural Bronze, Textured Black, or Centennial Brass finish and Textured White finish for 35-degree option. The 12V LED Accent with Variable Lumen Output is backed by an industry-leading, 15-year warranty. ■



Access Fixtures introduces wildlife & turtle-friendly lighting

Access Fixtures launches new LED wildlife and turtle-friendly lighting. These energy-efficient bollard lights emit an amber-colored light between 585-595 nanometers to meet sea coastal regulations. With their classic form factor, CSA and IP65-ratings, these bollards are ideal for outdoor walkways around any properties in wet coastal environments. These turtle-friendly bollards come with 0-10v dimmable drivers, vandal-resistant screws, plus your choice of options, such as custom colours and heights, surge protection, and more.

Available from 17 to 36 watts and with high voltage available for commercial and industrial installations, these wildlife-friendly bollards feature shielded or indirect amber-colored light. To be fully compliant with coastal light regulations, all lighting must be above 560 nanometers to avoid disrupting wildlife and drawing them toward artificial lights. Turtles and other wildlife cannot see amber-colored light over 560 nanometers, meaning these bollards are safe to install near any nesting areas to avoid deterring egg-laying turtles, resident wildlife, and migratory bird patterns.

Turtle-friendly bollards offer low-maintenance, exceptionally efficient LEDs with emit up to 1,500 lumens and a rated lifetime of up to 147,000 hours (over 16 years). Additionally, these bollards are built with a corrosion-resistant extruded aluminium housing with a choice of a textured architectural bronze or black powdercoat finish. ■



Linear High Output LED Modules for best performance and energy saving efficiency

New from Fulham is a range of Linear High Output LED modules providing an efficient, easy to install solution for high lumen linear applications. Featuring the latest high-efficacy high-output LEDs the new range of Linear High Output LED modules from Fulham deliver up to 198 lumens per watt and are a cost-competitive alternative to the typical LED modules.

The LED board is mounted onto an aluminium extrusion to eliminate the need for additional heat sinks. They are available in CRI 80 and CRI 90, four power levels, three colour temperatures of 3K, 4K & 5K and easy clip-on diffusers & end caps, making them a simple, flexible solution for luminaire manufacturers or LED retrofit projects.

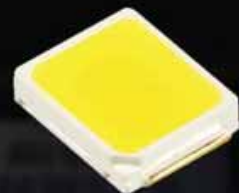
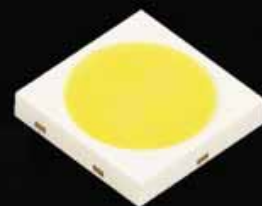
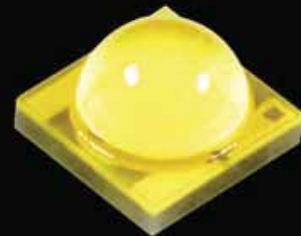
These new Linear High Output DC modules from Fulham are an energy saving alternative or replacement for T5 fluorescent high output lamps and are ideal for use in linear high bays, recessed and many other luminaire types. Push-in connectors allow these modules to be joined while maintaining equal LED spacing across the entire overall length giving complete flexibility in lighting installation lengths.

Modules are in 560mm, 1120mm and 1470mm lengths and offer a wide variety of power ratings and lumen outputs, all with a full five year warranty. All modules are optimised for use with Fulham drivers and HotSpot LED emergency systems. ■





MLS is one of the largest manufacturers & suppliers of SMD & DIP LEDs. MLS was one of the earliest LED Package manufacturers and light-source provider for various lighting products. Headquartered in Zhongshan City of China, with a capacity of over 50 billion LED Packages per month, MLS has fully-integrated, world class facilities supported by the most advanced technologies. A wide choice of LM80 certified MLS LEDs are available in Warm White, Natural White and Cool White CCTs. Manufacturers using MLS LEDs can bid for all BEE, EESL, Municipal Corporation and Government Tenders & BIS based LED projects. MLS also has a wide range of Color LEDs available in 3014, 2835 and 5050 packages.



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Penn Elcom announces India operation



L2R - Prashant Tandle (Warehouse Assistant), Rodney D'Monte (Gen. Manager), & Sachin Wagare (Senior Warehouse Assistant)

Multinational flight case hardware and 19 inch racking manufacturer Penn Elcom announces the launch of a new distribution centre in Mumbai, India.

This will be based in the Vasai area and will be headed by Rodney D'Monte. Rodney will initially be working with six staff, which will increase as the operation ramps up.

Penn Elcom, Chairman Roger Willems, stated, "Mumbai is a major commercial and cultural hub and a great strategic location with a very positive future ... and we enjoy its vibrancy and energy! That's exactly where we want to be".

Penn's Indian enterprise is also about responsible business and finding a balance. Their highly successful approach in China has included integrating and building sustainable commerce and opportunities that can economically and socially impact the immediate community.

There is the chance to enhance working practices and ideas - including administration and production - via information and experiences shared between all Penn's facilities around the world. This maintains worldwide consistency and offers skills / learnership opportunities via active training programmes and staff interchange between Penn in the USA, Canada, Mexico, the UK and Asia.

This is an initiative that benefits all the company's resources. ■

Future Farm releases LED Canada Update

Future Farm Technologies reveals that its LED Canada division has made significant progress in the past quarter.

- LED Showroom build-out is complete and fully operational allowing for cost savings from a vertically integrated warehouse and showroom.
- Demand is increasing for LED Canada's award-winning Scorpion grow light as more licensed growers complete testing.

- A licensed producer in the USA was able to secure a rebate from its public power supplier for its use of LED Canada Scorpion grow lights, paving the way for savings and large LED purchase orders.



- Peking University has been using LED Canada grow lights and has shown that they produce the highest yields versus other grow lights tested.
- LED Canada is in the final stages of providing a quote on its LEDs for the previously announced Mobile, AL farm and another farm in development in Massachusetts. Each vertical farm would require 9,000 8-foot LED lamps, which would represent a multimillion-dollar purchase order for each project. ■

Lightsource establishes India solar partnership with UK Climate Investments

Lightsource Renewable Energy and UK Climate Investments, part of the Green Investment Group within Macquarie Infrastructure and Real Assets, have entered in to a partnership platform to fund the development, acquisition and ownership of large scale solar power generation assets in India.

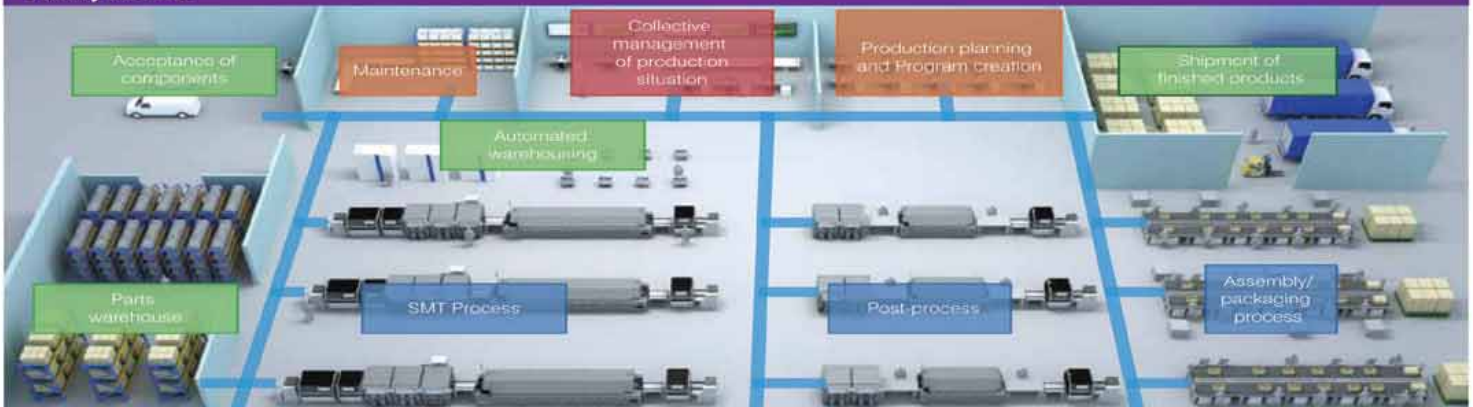
UK Climate Investments and Lightsource will jointly target the greenfield development and acquisition of operational utility scale solar assets in India with the shared ambition of seeding a platform that can create high-quality de-risked investment opportunities in one of the world's fastest growing solar markets. It will mobilise the large scale deployment of institutional capital through Lightsource.

The seed asset for the partnership will be Lightsource's 60MWp project in the Indian state of Maharashtra, which reaches financial close simultaneously with this announcement. Participating in a competitive tender process in 2016, Lightsource secured the project in a competitive 450MW tender from the Indian State, managed by Solar Energy Corporation India 'SECI'. Over 200,000 solar photovoltaic (PV) panels, will be ground mounted across 240 acres. ■



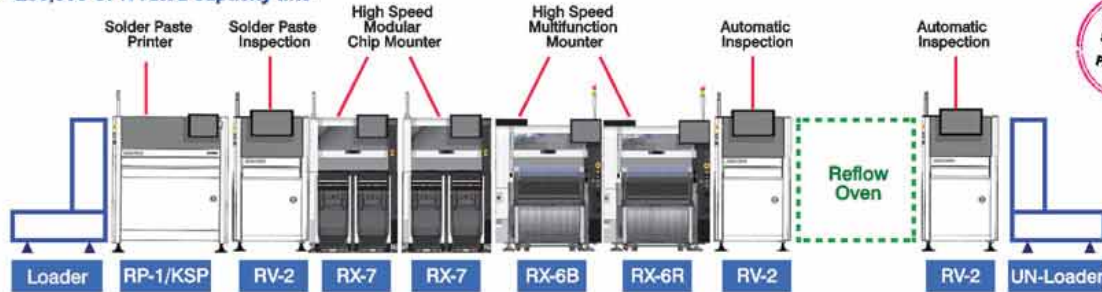
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New Thorn luminaires make cities smarter



Thorn Lighting has launched two new outdoor luminaires ready for smart cities of today and tomorrow. Alumet Stage II and Thor lanterns and bollards combine simplicity and style with wireless connectivity.

With the capacity to incorporate smart controls, Alumet Stage II and Thor can take advantage of emerging smart city applications, responding to changes in ambient light levels, temperature and occupancy, and even gathering data to help ease traffic flows, improve safety and save energy. For cities who are looking for the flexibility to upgrade their lighting in future, the luminaires can incorporate sensors and antennas at a later date, making it easy for cities to futureproof their installations.

The newly redesigned Alumet Stage II is closely aligned with other products in the Alumet family, ensuring a consistent look and feel. This stylish column features a cylindrical diffuser containing up to six light modules, with output reaching up to 6,600 lm. Its efficacy is an impressive 80 lm/W, with a colour-rendering index (CRI) of 80. ■

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SEIF and SHIF illuminate households of Kargil & Leh residents

Schneider Electric – the social Electric India InDiya Foundation backed by renowned Tendulkar and global specialist in automation, has 350 households in the region of Jammu and electrification project, Mobiya range of households of Darchik and Garkone villages in Kargil.



Venkat Garimella

India Foundation (SEIF) commitment of Schneider and Spreading Happiness (SHIF) – a partnership sports personality Sachin Schneider Electric India, a energy management and successfully illuminated Kargil district of Ladakh Kashmir. Under its rural SEIF & SHIF contributed portable solar lights to the

The foundations organised portable solar light distribution programme at primary school of Darchik village and Jamyang School in Leh district. With this, solar lighting system the residents, especially children, could benefit with improved lighting for late night studying and safety for night time transportation. The Mobiya range of portable products for lighting and mobile charging is an award-winning energy- efficient and eco-friendly LED lamp that provides up to 48 hours of lighting with one day of solar charge.

Venkat Garimella, Vice President, SEIF, said, “At Schneider, we believe that access to energy is a basic human right which should be made available to everyone. I am happy that this project would contribute meaningfully in helping remote communities gain access to safe, reliable, efficient and sustainable energy.” ■

TÜV Rheinland in a partnership agreement with Gooee

TÜV Rheinland and Gooee, a US-based enterprise scale IoT platform and ecosystem developer, have agreed upon a far-reaching, three-year collaboration at LUXLIVE in London, one of the world's largest lighting industry events. Gooee plans to engage the global testing services provider to examine its portfolio of products and services for data protection and data security requirements. The tests will be based on the criteria prescribed by TÜV Rheinland's certificates 'Protected Privacy IoT Product' and 'Protected Privacy IoT Service', which are part of TÜV Rheinland's data protection and data security portfolio.



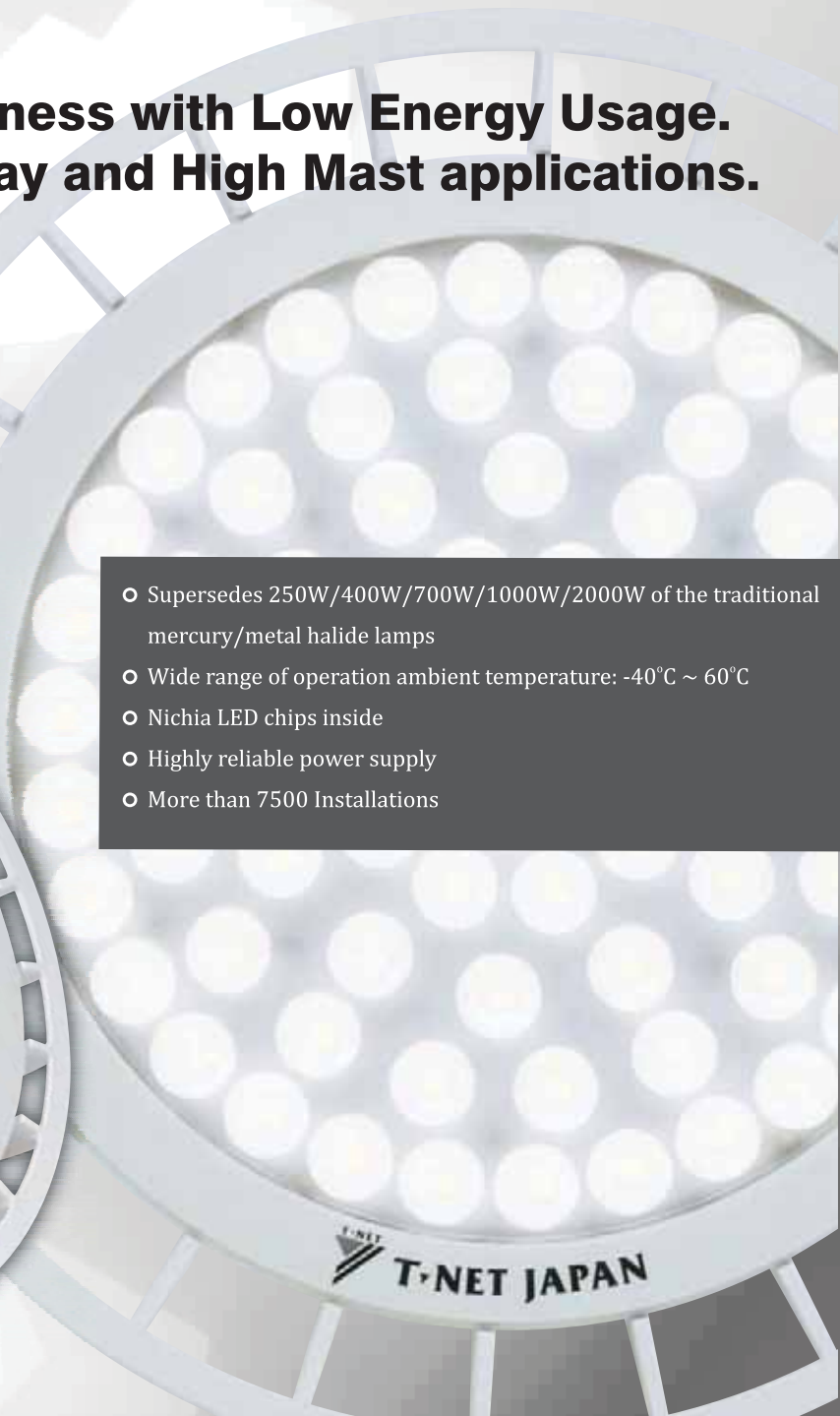
Gooee is a specialist for innovative IoT lighting solutions and works with a number of international manufacturers. “Our customers have the utmost standards of security and data protection. Gooee is proud to be the first full-stack IoT developer to work with TÜV Rheinland within the framework of its new IoT privacy certificates. The testing that will precede certification covers all material compliance aspects of the EU GDPR,” said Simon Coombes, Chief Technology Officer at Gooee.

“We are delighted to engage with Gooee with our certification program, which gives us the opportunity to make a valuable contribution to the IoT industry in terms of data protection and security,” explained Udo Scalla, Head of the IoT Privacy Global Competence Center at TÜV Rheinland. ■

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Wipro Lighting collaborates with Cisco

Wipro Lighting, one of the market leader in LED Lighting Solutions revealed that it has become a Cisco Digital Building Solutions provider for connected lighting. This collaboration brings together Wipro's industry leading Smart & Connected Lighting systems and Cisco Digital Building Solutions that link various building services through a single, converged IP network. This will enable



Anuj Dhir

Wipro Lighting to simplify convergence of its lighting solutions with building automation systems over IP without compromising lighting efficiency, maintenance, product life and security.

Wipro Lighting's Power over Ethernet (PoE) based solutions leverage the Cisco Digital Building Solutions framework to create bespoke and flexible lighting solutions for modern workspaces. These new connected lighting solutions will greatly simplify the deployment experience, lower total cost of ownership, offer pre-validated architecture and ecosystem integration among players. As next steps, the Cisco Digital Building Solutions framework will allow building managers to extend the benefits of the IoT throughout their facilities by converging multiple building networks including lighting, heating, cooling, IP video, IoT sensors and more through a highly secure and intelligent network platform.

Anuj Dhir, Vice President & Business Head, Wipro Lighting, said, "Design & Innovation is a way of life at Wipro. With the emergence of the IoT and big data, smart and connected digital lighting is the way forward as it'll bring intelligence & functionality into lighting systems. Hence, this trend will play an important role in making workspaces more productive and enhance employee wellbeing at the same time." ■

Universal Lighting Technologies garners Top 50 Product Recognition



Universal Lighting Technologies, a global leader in lighting and a member of the Panasonic Group, recently revealed its EVERLINE T5HO LED tubes was among the 50 products that received the most reader inquiries from retrofit's September-October 2016 through July-August 2017 editions. As a result, the product will be featured in the magazine's fifth annual Top 50 Products special, to be published in its January-February 2018 issue.

Earlier this year, Universal introduced the T5HO LED tubes for installers looking to provide an energy-efficient, easy-to-install direct replacement option for F54T5HO fluorescent lamps.

The T5HO tubes, which increase energy savings by more than 50 percent versus standard F54T5HO fluorescent lamps, are compatible with most Programmed Start ballasts. The tubes are easy to install and offer less maintenance than traditional fluorescent with a 50,000-plus-hour lifetime at L70. They offer a CRI of 82 and correlated colour temperatures of 4000K and 5000K. The wide 240-degree beam angle eliminates dark zones ensuring uniformity and accuracy of light output. The product is an ideal fit in the Top 50 Products issue, according to retrofit Publisher John Riester. ■

Varroc Lighting Systems brings in its latest innovation with advances

Varroc Lighting Systems has introduced Surface-LED, its latest innovation in exterior vehicle lighting systems, which brings together the appearance of OLEDs with the proven benefits of LED light sources. This cost-effective and reliable product will give OEMs more freedom to innovate in the design and functionality of exterior lighting than ever before.

Varroc Lighting Systems' patented Surface-LED technology uses thin layers of micro-optic filters and conventional LED light sources to achieve the homogeneous appearance generally associated with OLEDs. Each homogeneously lit element is only 3.5mm thick,

with a luminous intensity that can be scaled from 2,000-13,000 cd/m². Unlike current automotive-qualified OLEDs in the market, Surface-LED elements can be designed and produced in



curved and 3-D shapes, as well as with multiple colours that enable them to achieve various functions.

With this new product, Varroc Lighting Systems combines the benefits of the still-emerging OLED technology, including its ultra-thin and homogenous lighting profile, with the proven reliability, low cost and flexibility of LEDs. With the ability to incorporate 3-D designs, curvature and multiple colours, Surface-LED presents OEM designers with a new, cost-effective and high-impact avenue to create innovative lighting signatures on vehicles. ■

Nielsen study scrutinize LED products consumer safety standards in India

Levels of non-compliance regarding metrics such as manufacturer's name and address least in Mumbai...

In a Nielsen study conducted across 4 major Indian cities – New Delhi, Mumbai, Ahmedabad and Hyderabad; 76% of LED Bulb brands and 71% of LED downlighter brands across 200 electrical retail outlets were found to be non-compliant with consumer safety standards, as prescribed and mandated for lighting products by the Bureau of Indian Standards and Ministry of Electronics and Information Technology, Government of India. These spurious products pose a serious safety hazard for consumers besides causing significant loss in tax revenues for the Government of India, as they are illegally manufactured and sold.

The findings from the key markets surveyed showed that 48% of LED bulb brands had no mention of manufacturer's address and 31% brands did not have a manufacturer's name, i.e. these brands violate Indian legal metrology regulations and are manufactured illegally. Similarly, the study conducted on LED Downlighters showed that of the total sample size, 45% brands did not have a manufacturer's name and 51% brands had no mention of the manufacturer's address.

However, Mumbai fared the best among all the cities surveyed on most counts. Compared to nearly three quarters of all LED bulb brands and downlighters brands surveyed in Delhi being non-compliant with BIS standards, in Mumbai spurious brands in both these categories are limited to a range of 36 to 41% as per the survey. However, as far as other violations regarding manufacturer's name and address are concerned, Mumbai has limited the damage in spurious brands surveyed to between 2 and 5% that sits pretty in the context of the situation in other markets surveyed.

The Table 1 shows details out the city wise nature of violations and puts the data in a national context.

As per ELCOMA (Electric Lamp and Component Manufacturers' Association), the total LED Market in India is worth Rs 10,000 crores, with LED bulbs and downlighters constituting 50% of overall LED market, being widely used across homes, offices and workspaces.

Rakesh Zutshi, President of ELCOMA and Managing

Director, Halonix Technologies Private Limited, said, "The large number of non-compliant manufacturers of LED Bulbs and Downlighters threaten fair competition in the LED lighting market, especially for those companies that are compliant to all mandatory consumer safety standards. It is very unlikely that the manufacturers of these spurious LED Bulbs and Downlighters pay any GST to the government, thereby causing a huge loss to the exchequer".

Commenting on the subject, Sumit Joshi, Vice Chairman and Managing Director, Philips Lighting India, said, "As per an ELCOMA study, the Indian LED Lighting market has grown from Rs 500 crore in 2010 to Rs 10,000 crore today and constitutes over 45% of the overall Rs 22,000 crore lighting industry in India, comprising of all categories like GLS, FTL, CFL and other lamps. Given the government's push towards adoption of LEDs and their general consumer popularity, LED lighting will constitute a majority share of the total lighting market in the next few years. Given this scenario, it is important for the government to act against these spurious and non-branded products for safeguarding consumer safety and protecting their revenues against these companies."

The Indian Lighting industry unanimously recommends a need for stronger enforcement for compliance to these safety standards prescribed and mandated by the Bureau of Indian Standards and Ministry of Electronics and Information Technology, Government of India. The spurious and non-branded LED products are a serious threat to not just the organised and compliant market players but also to the government's key programs like Make in India and Demonetisation. In addition, they also impact government's tax revenue collections, which would have otherwise been contributed by the formal sector, defeat investment objectives and go against the 'ease of doing' business philosophy of the Government of the day. ■

(The Nielsen study was conducted across 200 retail electrical goods outlets across 4 major Indian cities – New Delhi, Mumbai, Ahmedabad and Hyderabad. The survey was conducted in July 2017.)

Table 1: City wise nature of violations

Parameters	% of Non-Compliant Brands									
	LED Bulbs					Downlights				
	Average	Delhi	Hyderabad	Ahmedabad	Mumbai	Average	Delhi	Hyderabad	Ahmedabad	Mumbai
BIS Mark	76%	73%	69%	53%	36%	71%	73%	65%	53%	41%
Manufacturer's Name	31%	32%	25%	38%	2%	45%	34%	56%	44%	5%
Manufacturer's Address	48%	34%	46%	56%	2%	51%	34%	70%	47%	5%

Martin Fournier joins Chauvet



Martin Fournier

Chauvet has revealed that Martin Fournier has joined the company as its European Sales Director. Fournier is an experienced lighting industry figure in Europe, having spent the last 22 years serving the professional lighting market in Europe. He comes to Chauvet from Harman International, where he most recently served as that company's Sales Director for France and Benelux Professional Solutions. Fournier began his career in 1995 with Martin Professional.

Albert Chauvet, CEO of Chauvet, said, "Martin is a very valuable addition to our team, and we

are excited to welcome him. He shares our passion for excellence and has spent 100 percent of his career focused on lighting."

For his part, Fournier welcomes the opportunity to join a rapidly growing lighting-focused company. He said, "There is a very good fit with Chauvet, as everyone here is dedicated to lighting just as I am. As a lighting person, I can readily appreciate the thought and effort that Chauvet has put into developing its products. I look forward helping grow Chauvet's business throughout Europe." ■

Fluence Bioengineering expands its Europe team



Dr. Theoharis Ouzounis



Kurt Davis

Fluence Bioengineering (Fluence) revealed the appointment of Kurt Davis to Director of Fluence Capital and Dr. Theoharis Ouzounis to Business Development, Europe for their respective leadership and expertise in solving complex financial issues and plant growth challenges in controlled environment agriculture (CEA). Both roles will serve as new gateways to speed the adoption rate of LED horticulture lighting solutions across commercial produce, cannabis and ornamental crop production worldwide.

Davis brings 30 years of professional experience developing financial instruments to help companies solve complex issues and improve financial performance. Building on experience from GE Healthcare, Synopsys, multiple startup companies, and most recently Somerset Capital, Davis will work with Fluence customers to help them secure financing options for Fluence LED lighting solutions

and other agriculture equipment needs. Davis holds a Bachelor of Science in Biomedical Engineering from Texas A&M University.

Dr. Ouzounis is a plant physiologist with a specialisation in light responses to improve plant growth and development in greenhouse and indoor grow facilities. Following his recent Postdoctoral Research Fellowship at Wageningen University in the Netherlands, Dr. Ouzounis will work with European universities, research institutions and commercial growers to drive regional photobiology research and assist growers with their horticulture lighting needs. Dr. Ouzounis holds a Ph.D. in Horticulture, Energy and Environmentally Efficient Technologies from the University of Southern Denmark in collaboration with Aarhus University, a Master of Science in Horticulture from Michigan State University and a Bachelor of Science in Agriculture from Aristotle University of Thessaloniki. ■

Mackwell appoints Rene Joppi as Commercial Director



René Joppi

Mackwell, the global leaders in lighting technology solutions reveals the appointment of René Joppi to their senior management team as Commercial Director.

René has been responsible for the Middle East Office for the past two years and has achieved considerable success over that period, leading to significant growth in the region.

In his new role, René will be picking up the responsibility for the Global Commercial Sales teams, Product Management, Research & Development and Marketing. In addition to the new appointment René will also continue to be responsible for the Middle East Region.

During the next couple of month's René will relocate from Dubai to the UK, where his new base will be. Having worked for major global lighting brands René brings both the knowledge and the skill that the role requires.

René said, "Mackwell has a long and successful history in the emergency lighting landscape and played a significant part throughout the past years in developing standards and best practices for the emergency lighting industry.

I am looking forward to the opportunity to support Mackwell globally and work even closer with the commercial and technical teams all over the world." ■

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MaxLite wins Product of the Year competition

MaxLite reveals that its HL Series Linear LED High Bay has received the Bronze Award in the lighting category of Consulting-Specifying Engineer Magazine's 2017 Product of the Year competition.

Adding to the prestige of the honour is the fact that the awards are chosen by the customer. Product finalists are selected by the editors after a thorough evaluation process and then are voted on by Consulting-Specifying Engineer's readership of 400,000-plus engineers and building industry professionals to determine the winners.

Recognised for its uniquely compact and adaptable design, the HL Series Linear High Bay delivers the lumen



output of a traditional 600-watt high bay in a form factor roughly one-fourth the size. Measuring 14" x 24", the HL Series offers leading-edge efficacy and scalability in high ceiling applications such as warehouses, distribution centres, manufacturing facilities and big box retailers. Available in outputs from 12,000 to 25,000 lumens, the LED high bay consumes 50%

less energy than fluorescent and HID fixtures, and offers exceptional lumen maintenance of 100,000 hours. The DLC Premium-listed luminaire can be configured with wide beam distributions, and emergency controls, for optimal light output and energy savings. ■

Osram gains an award for its facade lighting

Osram Lighting Solutions has been distinguished with the Global SSL Showcase Top 100 Award given annually by the International Solid State Lighting Alliance (ISA). The company won the award for its spectacular LED media facade adorning the newly constructed 'Zhuhai Grand Theatre'. After having gained the award in 2015 for its illumination of the Sistine Chapel and in 2016 with its project 'Wuhan - Two Rivers and Four Banks', Osram has now been honoured with the coveted award for the third time in succession.

The new opera house with its two giant shells at heights



of 60 and 90 metres has become the new landmark of the Southern Chinese city of Zhuhai. The building consists of a concert hall with 1,550 seats and a theatre with 500 seats and offers citizens and tourists to the city an unforgettable, dynamic experience with light from afar. Coloured, individually controllable LED Dots (Traxon Dot-XL 9 RGB) with a total of

51,000 pixels were installed behind the aluminium facade perforated on both sides and enable highly spectacular animations with video and light on the outer surfaces of the shells. Programming and playback of the images and animations is with e:cue control technology. ■

Tridonic awarded Emergency Lighting Product of the year

Tridonic is celebrating having received the award for Emergency Lighting Product of the Year for its EM ready2apply product at this year prestigious Lux Awards 2017. The product, which the company describes as 'out of the box' emergency lighting solution, was one of six shortlisted in this year's awards programme.

The independent panel of judges recognised the product's innovation, in terms of both its compact format and also its inclusion of the latest battery technology, factors which set the bench mark for future emergency lighting solutions. The product uses a LiFePO (Lithium Iron



Phosphate) battery, which underwent extensive testing to ensure it complies with all the required performance and safety standards

The company's aim was to design a compact and easy to install product that would fit into an ever-diminishing ceiling void and through a minimal cut-out. It

had to encompass sufficient power to exceed the necessary performance figures and exceed all lifetime and safety requirements. They also wanted to progress from the traditional design of using a hinged inverter or a battery in a protective sock to deliver a product that was both more aesthetic and user friendly. ■

Indian Railways to provide 100% LED Lighting on all its stations by 2018



Ministry of Railways is actively working to provide 100% LED lighting for its most of the Non-traction Energy needs like Railway Staff Colonies, Railway Stations, Railway Platforms etc. Under this 100% LED initiative, Ministry of Railways has decided to make all railway stations 100% LED lit by the end of current financial year i.e. by 31st March, 2018. It is a huge initiative to provide energy efficient lighting which will eventually greatly help in conservation of environment as well.

Till date (i.e. till November 2017) about 3500 Railway stations have already been provided with 100% LED lights & all balance stations & Railway buildings will be completed in the current fiscal year. So far about 20 Lakh LED lights at stations have been replaced across various Zonal Railways under this programme. To take ahead provision of LED lights at all stations, ESCO mode in this area is also being pursued. A policy directive in this reference has been formulated and issued by Ministry of Railways. 100% LED lighting will hence improve the energy scene on Indian Railways and will reduce consumption by about 10% of total energy being utilized for its Non-traction uses, thus leading to savings of about 240 million units of electricity which will save about ₹180 Cr. annually to Railways.

With these initiatives in combination with several others in 2016-17, 5.5% reduction was achieved in non-traction energy consumption in the year 2016-17 i.e. 4.1% reduction in energy consumption despite increase in load by 1.4% thus giving a savings of ₹100 Cr. In the current year (6 months period i.e. April- September 2017) 7% reduction in non-traction energy consumption had already been achieved giving savings of ₹62 Cr. This in-fact was a quantum jump against the earlier average of 2% and transformed Energy Saving Pattern for railways. ■

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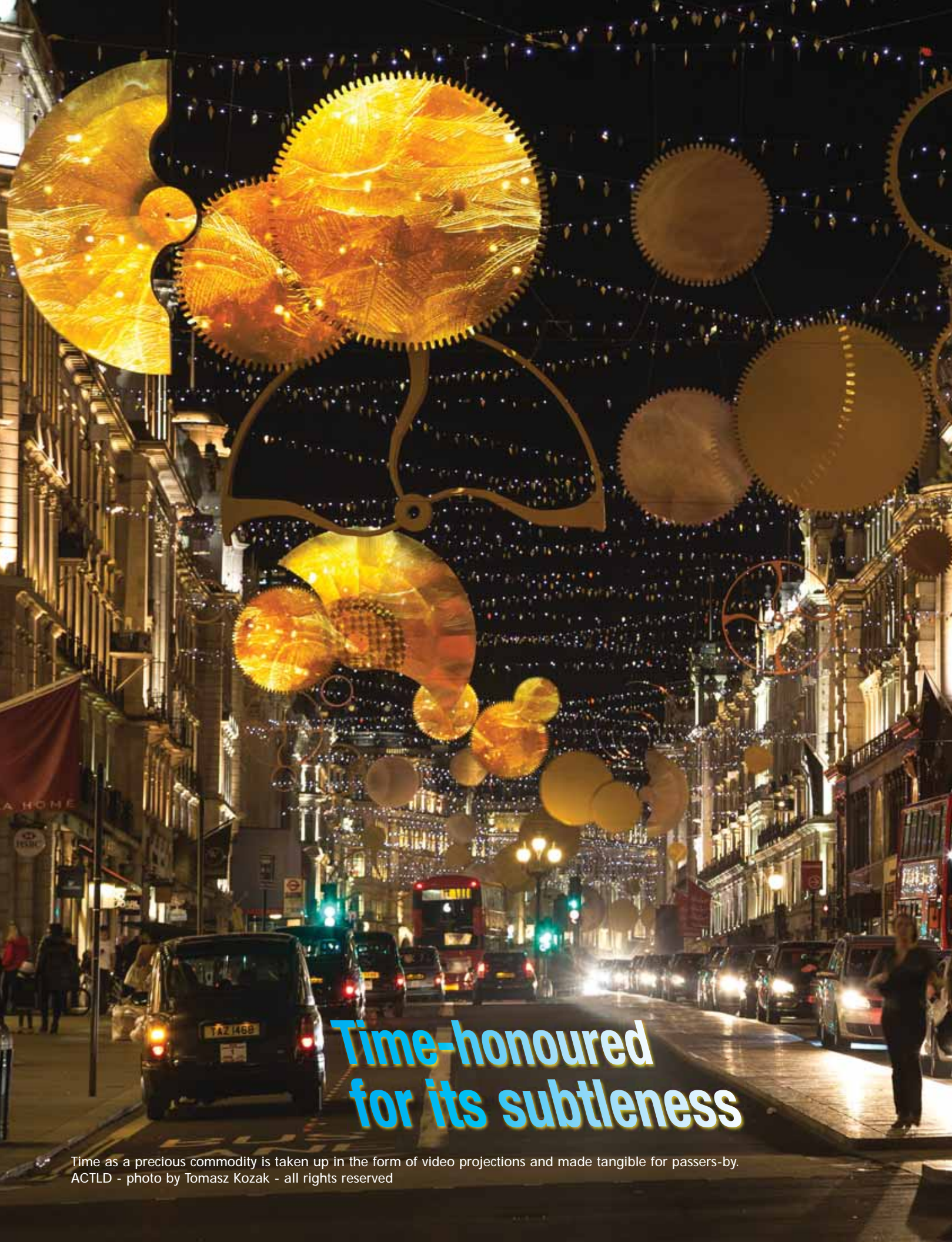
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**Time-honoured
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Time as a precious commodity is taken up in the form of video projections and made tangible for passers-by.
ACTLD - photo by Tomasz Kozak - all rights reserved



During the festive season of Christmas 2015 until 2017, 'Timeless elegance' light art installation illuminates Regent Street. The original artistic concept is a sculpture of time, nowadays genuine luxury. The ACTLD team came with the concept of 'suspension of time', by showing each element of an enchanting innovative clockwork mechanism, which pave a 'golden way' for the visitors.

Client: **The Crown Estate & Regent Street Association**

Principal Designer: **Koert Vermeulen - ACTLD**

Artistic Director: **Julie Boniche - ACTLD**

Assistant Designer: **Cristina Martinez - ACTLD**

Location: **United Kingdom, London**

Every year during the pre-Christmas period, many places in London are decorated festively and adorned with lavish Christmas lighting. In Oxford Street alone, more than half a million LEDs light up during this season. Regent Street is also bathed in atmospheric light every year. The Belgian company ACT lighting designers have been responsible for the glittering atmosphere in winter 2015/2016.

On behalf of the British Crown Estate, they designed an 800-metre-long combination of light, video projection, LED screens and art objects at a height of nine to ten metres. A specially composed piece of music was played by a philharmonic orchestra for the opening, accompanied by a programmed sequence of light, video animations and projections.



Over a period of seven weeks, they lit up the busy street every evening with projections entitled 'Timeless Elegance'. The content was realised by the Brussels designers with a touch of the avant-garde, in such a way that visitors could recognise in the sculpture the brand values of the surroundings, as well as time as a seeming luxury commodity.

Enormous, symbolic cogs and clockwork springs served as a projection surface, with illuminated garlands like lametta strung between them to connect the five large parts of the overall festive lighting. During the presentation, which was repeated hourly, viewers discovered crystalline structures, golden dust and clockwork, as well as gift boxes and Christmas wishes, which turned the shopping street into a decorated 'golden path' over the festive period.

The heart of installation is a challenging lighting scheme with a custom created combination of video projections, dynamic pixels, tinsels of light and LED screens integrated in the decoration. Every hour, visitors can watch an exclusive compilation of video projections and programmed lights that bring the sculpture to life. This ambitious dynamic installation is designed to evolve in time, reflect the brand values of Regent Street and convey its atmosphere of glamour during the festive period. ■



Lighting Fixture Market in India set to grow at 17% CAGR till 2018

Increasing infrastructure projects coupled with increasing housing projects in Tier I and Tier II cities, the future of lighting fixtures market in India looks bright.



Philips Lighting India, Bajaj Electrical Ltd, Crompton Greaves Ltd and Wipro Ltd are the market leaders in the lighting fixtures industry in India. According to a recent report 'India Lighting Fixtures Market Forecast and Opportunities, 2018' by TechSci Research, the lighting fixture market in India is expected to grow at the CAGR of 17% during 2013-2018.

TechSci Research analysts attribute this impressive growth rate to the increased number of construction projects across the country in the real estate and infrastructure sectors. The report mentions that the improving social infrastructure, automotive and IT sectors of the country are driving the lighting fixtures market in India in the right direction. The increasing government investment for rural electrification programs and expenditure on country's infrastructure is also expected to contribute to the growth of lighting fixture market.

The report also analyses the lighting fixtures market. According to the report, the market for lighting fixtures includes portable and non-portable (fixed) lighting fixtures. The lighting fixture market is further segmented into consumer, decorative and outdoor lighting fixtures.

The report also shares some important market trends. According to it, consumer lighting is the dominating segment in India, accounting for majority of the total lighting market. The penetration level of outdoor lights in India is expected to

improve in the near future. Also, the increasing demand for LED and OLED lighting is contributing to the growth of lighting fixtures market. In addition, the TechSci Research report highlights the opportunities and challenges in the lighting fixtures market in India. According to the report light fixtures are being used as decorative items in high income households, which are fuelling the niche market segment i.e. designer lighting fixtures market.

Karan Chechi, Research Director, TechSci Research, said, "The industry players are introducing high-end lighting fixtures in urban markets as a result of increasing demand for such products. However, the demand for these fixtures is limited to urban households. The lower penetration level of decorative lights in India gives ample opportunities to the manufacturers to tap this growing market."

The report has evaluated the future growth potential of India's lighting fixture market and provides statistics and information on market structure, statistics and trends. The report includes lighting fixture projections and demand forecasting. The report is intended to provide cutting-edge market intelligence and help decision makers to take sound investment evaluation. Besides, the report also identifies and analyses the emerging trends along with essential drivers, challenges and opportunities available in lighting fixture market in India. ■

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Timeless Benchmark for BKC

Headquartered in Brooklyn New York, AWA is an international architectural lighting design firm founded by Abhay Wadhwa (Design Principal & CEO). R. Sitaraman is the director of India/South Asia in the AWA Mumbai office. The studio designs and implement lighting solutions for a diverse range of projects internationally – creating solutions that evoke a sense of place instead of mere space. The lighting design has been developed by them for Godrej BKC.

This office building is located in the Bandra Kurla Complex (BKC) area of Mumbai. The lighting for this corporate building was inspired directly by the architectural intent- spatial clarity and minimalistic aesthetics. The lighting design developed by AWA augmented the architectural vision, highlighting the choice of materials in the different parts of the program, without extraneous embellishments usually connected with visible light fixtures. AWA created points of focus, visual rhythm, and clear way-finding tools for circulation.

The lighting design for this Platinum LEED building also conformed to the lighting points for sustainability. The buildings site is located on a prime corner plot in Mumbai's BKC neighborhood. AWA worked with the architect to develop the landscape lighting design around one central focus, integration. The first aspect of integration is lighting that has been installed within the lip of the sculpture plaza stairs. The team also worked with the architect to integrate lighting into

the bespoke landscape benches around the site.

As a visitor approached the building's entrance the lobby glows from within as a welcoming beacon. Before you even enter the lobby, your vision is drawn into the space by the lighting of the lobby's feature wall. The wall is lit by LED downlights located 300mm on center within a linear architectural slot above the main lobby feature wall. Then you widen your view you see a visual connection from the buildings drop off canopy to the lobby ceiling itself. AWA worked tirelessly to integrate recessed LED downlights directly into the metal fabricated drop-off canopy. The same recessed downlights are then taken into the main lobby ceiling in pairs to create a language for the lighting that can be read as people transition from the exterior to interior. Once within the lobby the perpendicular feature walls are grazed with light from above drawing your visual focus deep into the main circulation core of the building and up into the buildings office levels. ■

Picture Courtesy: Godrej Properties



The world market for decorative lighting

India has been a net exporter of lighting fixtures until 2012. Since then, export has been registering a slow growth (some 380 million USD for the year 2016) while imports registered a double-digit average annual increase, jumping to around USD 1 billion.

A snapshot of the worldwide market of lighting fixtures

In 2016, the value of the world market for lighting fixtures amounted to around USD 90 billion, according to CSIL estimation. By 2021 this value is expected to reach USD 110 billion and lighting fixtures will weight around 80% of the total lighting market. This means that, for the next five years, CSIL forecasts an average growth of around 4.2% per year worldwide. This synthetic number comes from the projection of a contraction of 5.5%, on average per year, of the conventional lighting and an annual average increase of 12.1% of LED-base luminaires.

India accounts for almost 3% of the world consumption as

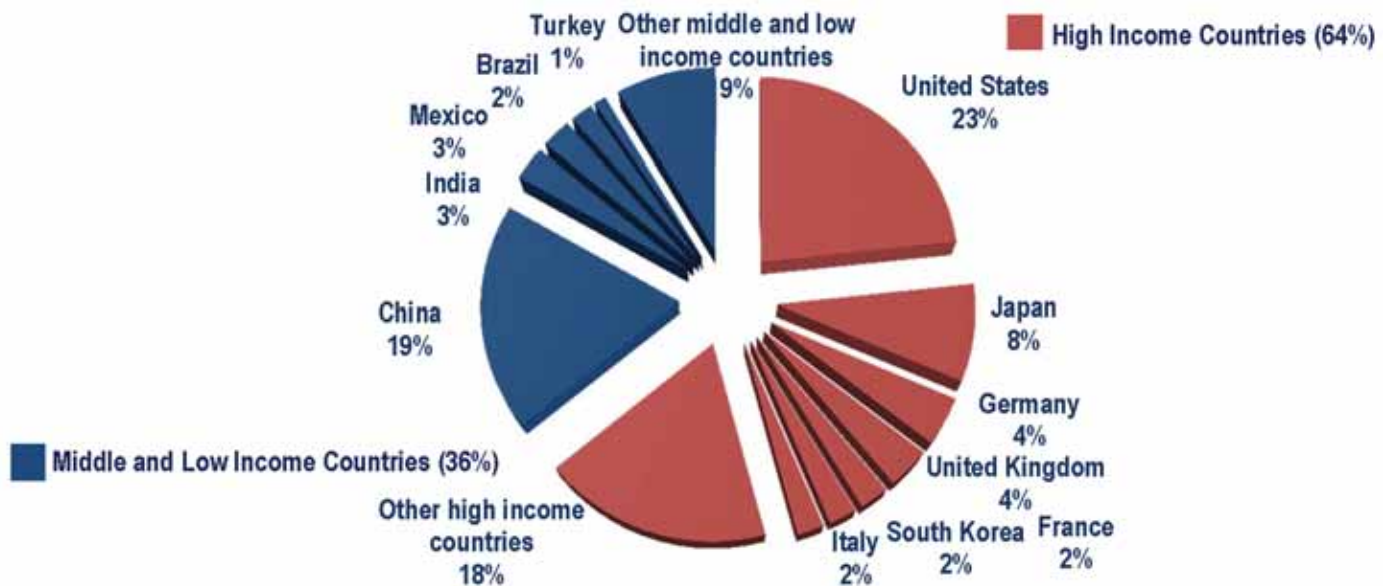
in 2016 the lighting fixtures market was worth approximately USD 2.5 billion. Over the last five years, this share has slightly increased; it was 2.4% in 2011. In fact, over this period the Indian market has grown at an average rate of 7.1% per year, almost three percentage point faster than the world market.

In 2016, CSIL estimated that the worldwide consumption of LED lighting fixtures was worth USD 41.8 billion, almost 47% of the world total consumption, registering a growth of 20% compared to the previous year. LED lighting fixtures weighted just 5%-6% on the total lighting fixtures market in 2008-2009 and their share is forecasted to grow up to 67% by 2021.

CSIL classifies as 'Decorative lighting' all the residential



World consumption of lighting fixtures, 2016.
Breakdown by high income countries and middle and low income countries. % values



Source: CSIL processing

and consumer lighting fixtures. In 2016, this category accounts for approximately 29% of the total consumption, whereas it was around 33% five years ago. Therefore, 'technical lighting', which in CSIL analysis includes lighting fixtures for commercial, industrial and outdoor applications, represents the remaining 71%.

The world trade of lighting fixtures: 40% is decorative

Lighting is a product that 'travels' a lot: out of a global market value of almost USD 90 billion, approximately USD 44 billion are internationally traded (defining international trade as the arithmetical mean between export and import in the year). The trade of lighting fixtures, which was worth only USD 30 billion in 2011, has been growing at fast rates until 2014. After a slowdown in 2015, it registered a setback in 2016 as both imports and exports contracted by respectively 2.4% and 6.2%.

Several factors combine to explain this result. Firstly, there is the slowdown of the Chinese economy, by far the leading exporters of luminaires worldwide. Second, this result is part of a larger trend that has characterised the global furniture and, more in general, manufacturing industries over the last two years. Finally, the technological innovations, which have been driven the lighting industry at outstanding rates of growth over the last decade, have now been selling at lower and lower prices, resulting in a general slowdown of the industry as a whole.

Still, the overall trend of the last five years remains strongly positive: between 2011 and 2016 exports grew by an average rate of 9.2% (in USD) per year and import by

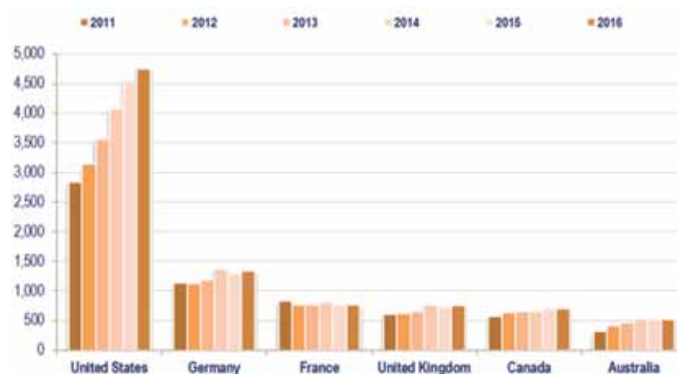
5.4%. On the other hand, while the trade of lighting fixtures (and related LED equipment) has been growing, that of conventional lamps has reduced, from approximately USD 18 billion in the year 2011 to around USD 10 billion in 2016.

In 2016, almost 39% of the world trade of lighting fixtures was made of decorative lighting. Over the last five years, this share has slightly improved, mainly driven by an increasing portion in term of exports (passing from 37% to 39%). Comparing 2009 and 2016, export of decorative lighting grew by around 134% (from USD 7 billion to USD 16 billion), while export of technical lighting jumped from US\$ 13.5 billion in 2009 to US\$ 29 billion in 2016. A similar trend is true for imports: decorative lighting registered an increase from USD 11 billion to almost USD 18 billion during the period 2009-2016, while technical lighting jumped from US\$ 12 billion in 2009 to US\$ 22 billion in 2016.

China, Germany and the United States are among the top three exporters of both decorative and technical lighting, together with Mexico (ranking second in the decorative segment) and Italy (fourth). This ranking has been approximately the same since 2010. As regards exports of decorative lighting fixtures, they are followed also this year by Poland (that gained many positions in the latest years), Hungary, Canada, Austria, and France. Roughly, the rankings of the main importers of decorative and technical lighting are quite similar. Top three importers of decorative lighting were the United States, Germany and France. In recent years, an increasing share were exhibited by Japan and India (for both rankings).

India has been a net exporter of lighting fixtures until 2012. Since then, export has been registering a slow growth

Six major exporting and importing countries of decorative lighting fixtures. Exports and imports, 2011-2016. US\$ million



Source: CSIL processing

(some 380 million USD for the year 2016) while imports registered a double-digit average annual increase, jumping to around USD 1 billion. The United States are the major customer for Indian lighting exports, while almost 90% of the Indian import of lighting fixtures is 'made in China'. Other relevant suppliers include Germany, South Korea, and Italy.

More in general, the United States are the largest importing country for China, Mexico, Canada, Taiwan, Malaysia, Vietnam, Japan, Philippines, Indonesia, and Israel. The United States absorbs almost the totality of Canadian and Mexican exports (over 90%), more than half of export coming from Taiwan, the Philippines, and Indonesia, between 20-30% from China, India and Vietnam. On the other hand, China is the leading country of origin of imports for 55 out of the 66 major countries, frequently with shares in excess of 40%-50% (59% in the United States, 71% in Japan, 61% in the United Kingdom, 49% in Germany). Today, China has a positive trade balance in excess of USD 20 billion. After the 2009 crisis, Italian trade surplus went down from USD 1.5 million (2008) to around USD 808 million in 2016.

India is also a relevant exporter of conventional lamps (15th in the world ranking, 5th in Asia), with a value of approximately USD 100 million. Nevertheless also in this case the trade balance is negative, being imports in excess of USD 150 million.

Decorative LED lighting: the leading players

At world level, the decorative LED lighting fixtures market was worth over USD 4.8 billion in 2016, accounting for 11.5% of the LED lighting business. The main players in this business are: Opplé (China), Acuity (United States), Philips Lighting, Eglo, Ikea, Trio (Europe), Panasonic and Koizumi (Japan). In 2016, the best performances were registered by Inesa Feilo (China), Generation Brands (United States), Briloner (Germany), Artemide and Flos (Italy).

It follows an overview of a selection of European companies specialised in decorative lighting and active worldwide.

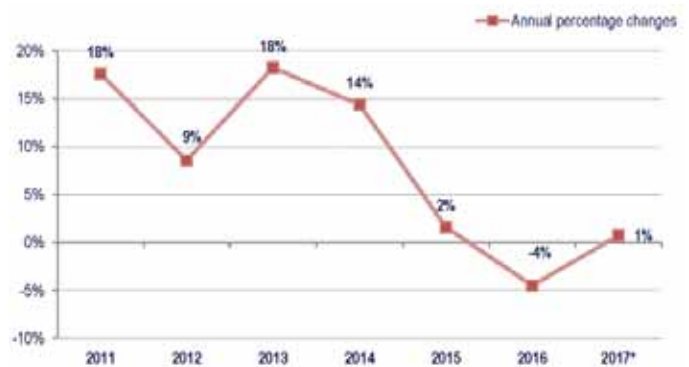
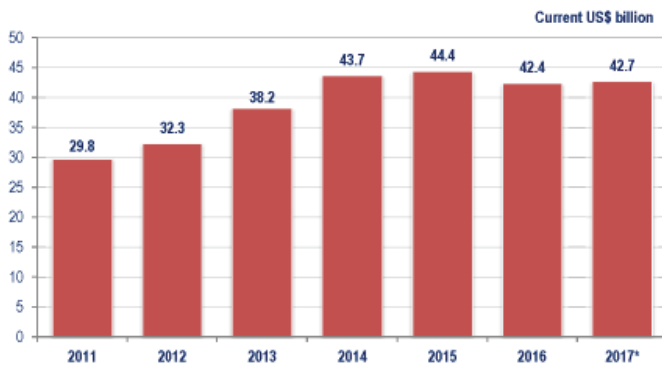
With a turnover of EUR 479 million, in 2016 Eglo

increased its revenues by 10% compared to 2015. Around 90% of the 18 million luminaires sold in 2016 were manufactured in its plants in China, Hungary and India. Ikea's 2016 sales worldwide amounted to EUR 34.2 billion, of which 69% from Europe, 18% from America, 9% from Asia and Oceania, and 4% from Russia. They included furniture and accessories for around 90%, lighting for 3%-4%, food for 5%. Its lighting turnover is entirely provided by sales of residential lighting fixtures, which in 2016 amounted to over EUR 571 million at factory prices (over EUR 1 billion at retail prices) according to CSIL estimates (up by 7% compared to 2015). During 2016, 79 million LED bulbs were sold in 340 stores in 28 countries. Positive results were recorded also by Trio, whose lighting fixtures turnover amounted to EUR 93 million in 2016 compared to EUR 85 million in 2015. The company is mainly active in the DACH region (74%) – Germany, Austria, Switzerland. Its distribution is mainly conduct through DIY and furniture chains. In 2016, 75% of its revenues came from LED luminaires. Artemide operates through 24 subsidiaries. In 2016, its turnover was around EUR 125 million. Its distribution network includes 55 branded showrooms in the main cities around the world. Among its new products, it is worth mentioning Olmo (Giulio Iacchetti, Discovery (Gismondi), Alphabet of Light (BIG), and Harry H (Carlotta de Bevilacqua) mixing OLED and LED light sources.

Decorative lighting: Products and Styles

In the decorative LED lighting segment, some 30% of the market is made of retrofit lamps. Excluding them, CSIL estimates a breakdown of 40% downlights and spotlights, 10% LED strips and 50% other decorative items (suspensions, chandeliers, table and floor lamps). Among the fastest growing products, there are the embedded lighting solutions (undercabinet luminaires, linear lighting inside shelves, bathroom embedded lighting). The path of growth for suspended luminaires is confirmed, at least in Europe. In the Nordic European countries, pendant bulbs without shades are still very popular. While wall/ceiling, undercabinet and spot

World trade of lighting fixtures, 2011-2017*. Current US\$ billion and annual % changes



Source: CSIL processing

lighting fixtures exhibit an overall positive trend, the sales of floor and table lamps are still slowing down.

Residential lighting can be broken down into traditional, modern and design lighting. According to the country and the type of product, the traditional/classic segment usually weights from 10% (in the LED segment) to 30% (India and Japan), modern is around 60%, design oriented fixtures weight around 25% in the LED segment and 15% elsewhere. As far as design is concerned, consumption is comparatively larger in Italy, Denmark and Germany.

The US production for consumer luminaires has been historically characterised by a large share of classic/traditional products, which are still the majority for the low and high end of the market (modern is more developed in the middle), and in many regional areas. In 2016, 29% was Classic oriented, while Transitional, a local term indicating those products that are slowly developing from classic to modern/contemporary; accounted for half of the consumer lighting market (about 50%). A share of 21% of the production of lighting fixtures can be considered Contemporary (according to the usual term in the States).

Distribution channels for decorative lighting

In Europe, specialist lighting stores represent approximately 22% of the decorative lighting fixtures market. They usually do not have large display areas but most of their turnover is generated by lighting fixtures. Lifestyle retailers have a share of around 40% of the segment. This category ranges from small and medium furniture and lighting fixtures retailers to furniture & furnishings chains like IKEA, in addition to department stores like BHV, El Corte Ingles, and Kika. Electrical wholesalers sell lighting fixtures for values corresponding to 30% of their revenues. Their share of the European decorative market amounts to approximately 14%. DIY stores sell low-cost lighting fixtures, generally imported and they account for 19% of the considered market. This category includes both do-it-yourself stores (some 70%) and hypermarkets (we guess 30%). In 2016, e-commerce for the decorative luminaires has increased by 20%, reaching 3% of

the total market. It has now a quite relevant share in the United Kingdom and it is well introduced in the Scandinavian markets and Germany. It is worth to mention that it is hard to provide the exact figures, as usually manufacturers sell lighting products to retailers or wholesalers that in turn practice e-commerce on their own.

In the United States, almost 50% of the decorative lighting fixtures sold in the country are distributed through furniture chains, department stores, DIY and home improvement centres. Home Depot is the main Home Improvement chain in the States, with turnover of almost USD 95 billion. The lighting segment accounts for 3.1% of its net sales (stable compared to the previous year). In 2016, e-commerce (+19.3%) reached a share of 5.9% of the overall sales. Lowes is the second largest Home Improvement chain in country, with a turnover of over USD 65 billion (up by 10% compared to 2015). In the lighting segment, Lowes sells approximately 60% private labels (Quoizel, Portfolio) and 40% branded products (GE, LG, and Sylvania). The company has 1,820 home improvement and hardware stores in the United States, around 299 in Canada and 10 in Mexico. Stores are generally open seven days per week and average approximately 113,000 square feet of retail selling space, plus approximately 32,000 square feet of outdoor garden centre selling space. Online sales accounted for 3.5% of the total.

In China, decorative luminaires are distributed more often through contract sales and wholesalers. Top players in the decorative segment include Opple (also selling in India), Yankon, Tospo (both among the top 3 Chinese exporters), Inesa Feilo (that bought the European brands of Havells), and the European Philips (in the top 10 ranking). ■



Aurelio Volpe

Director, Market Research
CSIL Centre for Industrial Studies
www.lighting.csilmilano.com



“We develop our lighting solution in-house and have a well established manufacturing unit”

Motwane Lighting is focused on providing energy conserving & ROI driven solutions in the area of Smart Lighting Solutions. The company's system provides up to 50% + energy saving by reduction in energy consumption/usage. Converting 'Cost' asset to 'Value adding' Asset. The company has forayed into various operations in this field.

Achal Trivedi, Head Lighting Business, Motwane Manufacturing Company Pvt. Ltd., talks to **Lighting India** about the business and industry.

Q How does Motwane's lighting and controls serve as the backbone of the smart city?

A The first question is what is meant by a 'smart city'? The answer is there is no universally accepted definition of a smart city. The policy makers, city planners, and the citizens will have different view of smart city. The smart city planner needs to bring the convergence of the aspirations and needs of the citizens as well as the level of development and willingness of the operating bodies to bring changes in way through various services are currently offered and consumed.

The conceptualisation of smart city, therefore, varies from city to city and country to country, depending on the level of development and willingness to change.

In the imagination of any city dweller in India, the picture of a smart city contains a wish list of infrastructure and services that describes his or her level of aspiration.

To provide for the aspirations and needs of the citizens,

urban planners ideally aim at developing the entire urban eco-system, which is represented by the four pillars of smart cities.

- Technologies build around the IoT
- Economic infrastructure
- Energy conservation by effective utilisation and convenience for sustainable operations.
- Comprehensive development-institutional, physical, social etc.

We need to leverage the benefits of the technologies available to bring our smart cities at the international level for which the automation in operation and metering of the public amenities is essential.

Motwane lighting solutions aligns with the Mission of Smart city. With cutting edge technology for enabling Cities, Industries facilities, Campuses, Street Lights, Mega Residential projects with intelligent automated lighting system which will be remotely managed, monitored,

controlled & analysed, through wireless connectivity. Also it enables reduction in maintenance Cost and Efforts with enhanced safety on streets for pleasant experience.

Q What are the basic elements of the lighting control system according to you?

A Motwane lighting solutions focuses on the following economic and operational benefits to the stake holders of the smart city.

- Energy conservation by optimising the consumption of power
- Reliable and flexibility in remote operation and control and scalability
- Smart reporting for management and accountability
- real-time status for ease of maintenance
- Asset inventory management

On technology side Motwane lighting solution is convergence of the cutting edge technologies.

- User friendly application and data base on cloud server technology providing uninterrupted web access anywhere and anytime
- Intelligent controller with the capability to connect to the web application over telecom networks
- Node controller for each street light communicates through Radio Frequency

Q Can you tell us about the concept of smart city? What are the basic capabilities and benefits?

A Urban development is a complex process in different dimensions and evaluation finally depends on the actions, their preferences and individual objectives.

A truly smart city may use the parameters and rating as a tool to benchmark with other cities, and draw lessons from better performing cities, perhaps resulting in policy transfer. The smart city development is oriented towards the smart indicators rather than rating a city, which inevitably is a snapshot in time.

In our opinion it is a developed urban area that creates sustainable economic development & high quality of life by excelling in multiple key areas of communication, mobility access to the various amenities.

Improving the way the services are offered to the citizens providing them a very new experience and making all the services interactive to suit to the needs of standards of living.

Some features and services include:

- Smart parking
- Intelligent mobility management system for transportation and traffic
- Smart grids for the utilities like water, gas and electricity
- Smart outdoor lighting of streets, parks monuments key landmarks and areas of public use and recreation
- Smart waste management
- Security and surveillance
- Digital-signage

Q Please describe Motwane's solution. What equipment is used? How do devices communicate and manage the flow of data? Who operates the system and views the data, and how?

A Smart lighting automation solution is the smart system facilitates to memorise, think, make judgment and control the lighting activities. It provides complete lighting solution to decide when to turn on/off, upon what situation and when to dim up/dim down, generate reports on the basis of various calculations and analysis.

Motwane smart lighting automation solution uses GSM/GPRS technology for the communication. The system has CCMS controller (i.e. centralised control and monitoring system), class 1 energy meter and switching components like MCB's and contactors. The system communicates through Motwanes user interface software by which we can converse with controller to monitor real time data and control the functional activities such as set the schedules, monitor lamps, analyse reports, assign groups and operate the system from remote location.

Motwane have two types of solutions,

A. feeder level automation:

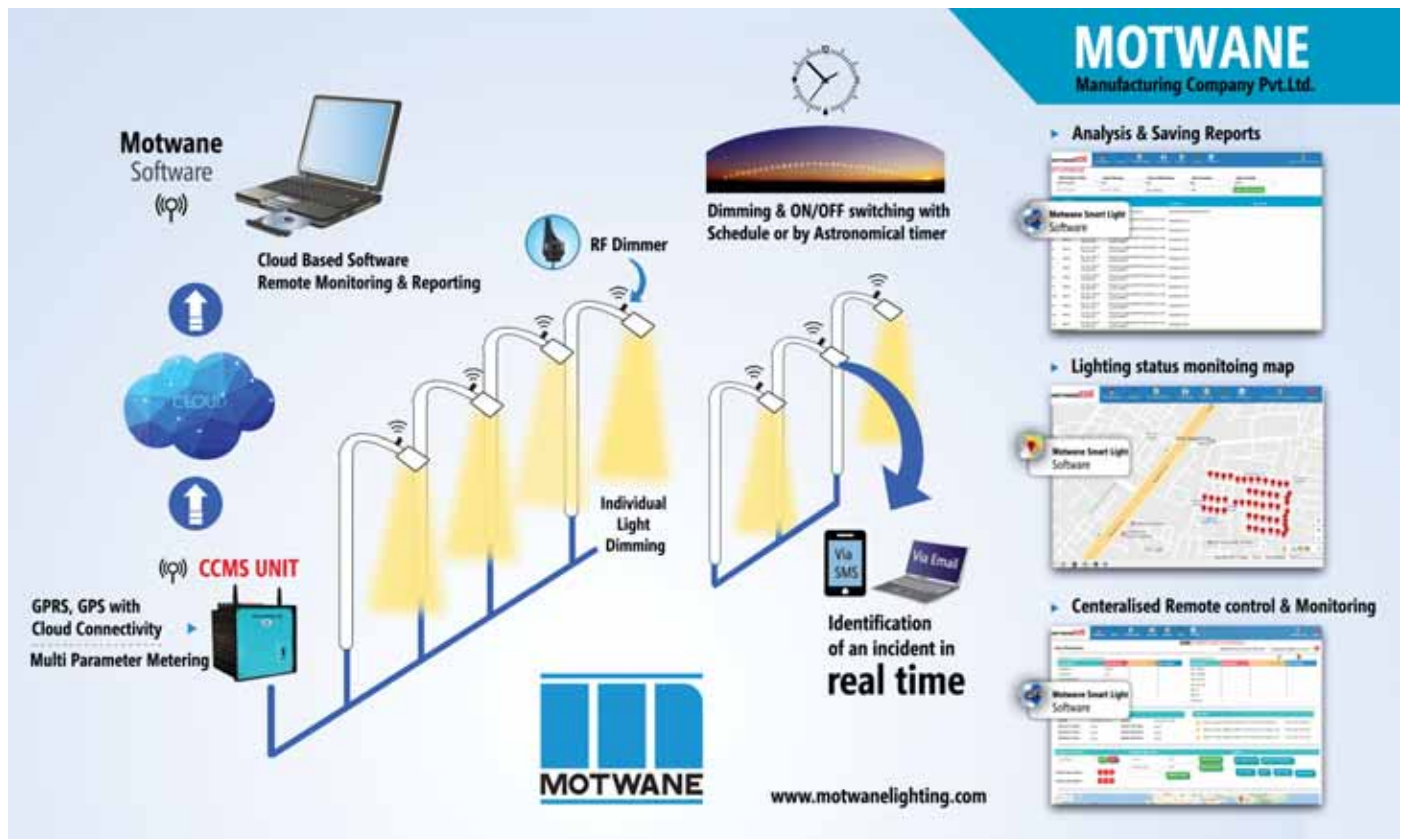
It provides feeder level phase wise switching control on schedule or on astronomical timer, energy monitoring and reporting with various alert notifications.

B. individual lamp level automation:

It is the same solution as like first, but for individual led lamp dimming control, we install Luminaire controller on each lamp, to control its dimming level as per preset schedule. The Luminaire controller can dim up or dim down the lamp luminance level in step of 10% (10 to 100 %) as per requirement.

System auto generates various reports such as energy saving, energy consumption, lamp failure, luminary glowing hours, daily on / off switching, etc. which helps management or any authority to check regular lighting health and its reliability.





It also generate alert notifications for any fault conditions such as system on/off, threshold voltage, current or power factor level crossing, power failure, door opening and GPS location change alert.

Q What's Motwane's notable example of a smart city scheme in action?

A From last one and half year Motwane started development in smart lighting automation, and today with a strong and reliable solution, Motwane has credit of providing the solution to our very reputed customers like Mahindra world city-Jaipur campus, elcita-bangalore, Jusco (Jamshedpur utilities and Services Company), Magar patta city- Pune, and Tata communication limited- Pune. We are also in process of making more proof of concepts of our solution with our customers.

Also we can proudly say that, Motwane is the first company in India which develops and supply Lora wan based lighting automation controller for individual lamp control, monitoring and reporting, and it already implemented successfully in Elcita in electronic city-Bangalore, Jusco and TCL-Pune campus.

Q What do you think will set Motwane lighting apart from its competitors in the lighting sector?

A Motwane focused on providing energy conserving & ROI driven solutions in the area of smart lighting solutions. Motwane lighting system provides incremental energy

saving by reduction in energy usage. Converting 'cost' asset to 'value adding' asset.

We seek to unleash the full potential of sensor technology and wireless communication, offering a pleasant experience that goes beyond traditional lighting. We envision the world where data is collected and managed effortlessly, for the good of cities and citizens. Everything we do is to provide innovative and intelligent solutions.

We provide the best suitable and flexible automation solution to our customer to integrate our solution with their existing system and application.

Motwane has own R&D setup in, which we develop our lighting solution in-house and having well established manufacturing unit in Nasik, Maharashtra to complete all demands of our customers.

Q What are the next steps you have planned in?

A With the successful deployment of the system in India, we plan to take the offerings at global level.

We have studied the requirements from various countries and are pitching our solution to international clients.

We are also in process of developing the network for the local site assistance and operation in installation and for operation and management of sites at international destinations.

To make our offering more universal we are also in process of making our solution ready for integration to various IoT platforms. ■

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software. Open up your world to many intelligent functions: the ICD1200 is capable of detecting various operating conditions and modifying output current to ensure that the reliability and performance of the system are optimised across the complete operating hours. ■

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Airstar European Network appoints Thierry Beynet as New CEO

Airstar, one of the leaders in lighting balloon technology, revealed the appointment of Thierry Beynet as the new CEO of Airstar European Network. This strategic hire is a major step in Airstar's plan to strengthen its presence in the European market, as part of the overall business strategy instigated by the company in 2016.

Airstar European Network (AEN), a commercial subsidiary of Airstar, represents 30% of the company's turnover in lighting balloon solutions. Thierry Beynet recently took on the role, managing and extending the nine subsidiaries which form the European network. Indeed, AEN is responsible for marketing the entire range of Airstar lighting balloons in this region.

Beynet's relationship with Airstar is a genuine success story which goes back many years. He worked his way up through the company, starting in 1998 as a technician, before taking on a commercial role. He then worked as AEN's accountant, became manager of the Rhône-Alpes agency and now CEO of the European network.

His career at Airstar was punctuated by other professional



Thierry Beynet

experiences: "These allowed me to gain valuable knowledge from other industries and companies. Today, my vision for the company is an informed one, and these experiences will be an invaluable asset to the development of Airstar European Network."

Based in Airstar's world headquarters near Grenoble (France), Thierry Beynet is convinced that his place is in the field, assisting his colleagues to promote the many lighting balloon solutions from Airstar: "My mission is first and foremost to be present within the network, to work closely with the subsidiary directors and sales force."

Thierry Beynet's vision for the brand is an ambitious one: building on the success of last year's strategic rebrand, his ambition is to take AEN to the next level: "The reputation of our brand and the quality of our lighting solutions means that we receive a lot of enquiries. My responsibility is to further grow these opportunities and convert them into business with the help of a strong sales strategy, an acute knowledge of our expertise and the markets we cater for. We can't let the markets decide our future, and my goal is to instil a conquering spirit." ■

Klove Studio is a boutique luxury studio, it specialises in custom lighting solutions. They create sculptures, installations, chandeliers, pendant lamps, floor lamps, ceiling lights, table lamps, and accessories. Lighting India has curated their collections showcased at Chhatrapati Shivaji International Airport, Mumbai.

Picture courtesy – Klove



Peacock Wall Mural is made of brass and hand blown glass.



The Temple Nartaki Mixed chandelier is the studio's play on a traditional Indian form that is often found in antique jewelry design.



Lighting Contrast

Contrasting thoughts and tips for use

There is so much more drama these days in the lighting of day to day projects, from commercial entrances and lobbies, hospitality spaces, our homes and especially in museums and galleries. This article explores lighting contrast and the interest created by the shadows in today's visual world; as it is often about what you don't light that creates the atmosphere and emotion in a space.

Coming from the UK theatre originally, the use of lighting contrast and shadow to create mood, atmosphere and emotion is in my DNA and the additional drama created within the environments with which we live our everyday lives plays very much in to my hands as a designer. In this article I will try to share some thoughts and insights from an accented or oriented lighting point of view and hopefully change the way we view lighting.

Just in our day to day living for example, we don't just shop any more we have to have the 'retail experience' with shopping malls having to do more and provide more to

provide a family shopping experience with strong competition these days from online retailers. So Malls are becoming so much more experiential with the right mix of food and beverage outlets, entertainment or activity centres and the creation of an atmosphere and emotion within the space, lighting has a huge roll to play in all of these areas within the space and can help create an excitement and connection.

It has long been evident to me that in some retail outlets we can have an idea of the pricing before we look at the price tag. In some instances it can be the quality of the goods on show, but more often it is from the quality of the display



Bluewater shopping centre, the 'retail' experience. Image: Martin Morris



British Museum. Image: Jan Grafflin

including the lighting. High quality stores tend to have more shadow, a higher ratio between the light and the surrounding contrast, which tends to give a higher level of sophistication within the store. I know from experience in the really high end retailers the level of design required to create the layers of light for an exquisite atmosphere and totally immersive experience. Lower quality stores usually have a much more one dimensional approach to the lighting, are generally light and bright with a stack them high and sell them cheap mentality.

Atmosphere and drama pervades our everyday lives and the advances in lighting technology and controls allows us to be evermore creative. Entrances to buildings whether commercial or residential are more themed, hotels are more flavoursome and the facades and exteriors of buildings can be breathtakingly dramatic or sublime in their elegance and simplicity. However, with use of colour comes responsibility, we are designers and not graffiti artists and so often simple drama can be added by the use of shadow and what we don't light.

Museums and galleries are a great medium to play with contrast and shadow and we can use such techniques to create a totally immersive experience. I personally have lit museum galleries with a 50:1 darkness to light ratio, taking the visitor from piece to piece through total darkness. To have the confidence to do this we must also understand some of the psychology of how we view light, awaken the curiosity of



Contrast & sophistication at Zara.
Image: Window Displays Vienna

the individual to explore such space, it helps also that we have exiting exhibits to satisfy the spirit of adventure.

I love that museums and galleries these days often have the special space within the space, the exhibition space for visiting artworks or exhibits. Quite often these displays are ticketed and pieces of extraordinary significance, so we raise our game in these areas as it is important in my opinion to stand apart from the day to day lighting of the museum to



Lazarides Gallery London. Image: Yvette Jones



White Cube Gallery Hong Kong. Image: Scott Terry

create a sophistication in keeping with the special exhibits.

I see lighting as an important artistic design element in museums and galleries and it is interesting to me that as art diversifies into less mainstream elements such as performance art and street art and projected art; as well as light shows as part of local or national celebrations, we find that art and architecture are merging in our new visual world. I for one would make a show of my new building with art, music and dancers and open with an excitement and inclusiveness for all.

We have many cultural avenues to explore when lighting

museums and galleries and I feel as lighting designers our sympathy must be utmost for the content. I have worked on many such projects in India and Asia and in The Middle East as well as such luminaries of The UK and Europe including The Tate Modern and The British Museum in London, are we lighting the classics or a modern art display of discarded clothes or an unmade bed. The White Cube Gallery interests me as the whole gallery becomes a blank and evenly illuminated canvas for the art to stand alone in. Interestingly, in all my travels, no client has ever asked me to design in a 'European' style, I wear an Indian hat when I am in India.

For me personally, the days of individual wall mounted picture lights are gone, excepting that with some old and classic works this is the people's method of choice. I much prefer to seamlessly integrate my lighting into the architecture so that we have the light without a direct association to the source.

As architectural lighting designers these days we have to be comfortable with so many different lighting techniques in our attempts to stay fresh and at the same time to capture the beauty. We have to be projectionists, 3D projection mappers, light sculptors, colorists, story tellers and pioneers that drive our clients to new limits.

I feel we also have an important duty as the custodians of beauty not just to end up as pop artists in a Coca Cola (or Thums Up) culture. The Rotunda Tower in Birmingham has a 360 degree exterior media screen at the summit of the



Even scallops are less distracting. Image: Trevor Morgan



The author with Mahesh & Chandan while focusing lights at Mumbai Airport T2. Image: David Gilbey

building, an expensive installation for sure, for which they accepted some sponsorship such is today's world. The client stood strong and insisted that opposed to commercial content, that 90% of the screened content was either artistic or culturally themed.

I see more clients with a vision these days and they are wise indeed as their projects and businesses stand out through their attention to detail. This is no more evident an example in India than The Jaya He Artworks at the Chhatrapati Shivaji Mumbai International Airport T2, where the client GVK have effectively put a museum and gallery inside an airport. This extraordinary far-sightedness reflects well on India in general and Mumbai in particular in the eyes of the world.

I strongly believe that the limiter to creativity is not the budget of the projects that we work on, the limiter to creativity has to be the ideas that we have, if we have a tight budget then we have to have better ideas. We have to know when to use a high cost precision light and when we can use and get away with a cheaper product with a general beam. Clients



The Tea Room at The Victoria & Albert Museum London. Image: Alan Munroe

Chai – There is always time for chai, take every opportunity to refresh, chai is great at replenishing and for me adds balance and perspective to my design. India runs on chai.

should work closely with their design teams and trust them to bring projects in on budget or to make the saving decisions if required. The magic happens when all the design elements and construction elements work together in harmony for the greater good of the project.

Tips for using oriented luminaires

Scallops

I am not a great fan of the scallops created by dissecting beams, mainly as they are often uneven and visually distracting, used well they can make for a delightful visual effect.

Adjustable brackets

I never specify adjustable brackets if a fixed bracket is sufficient. When I need to specify an adjustable mounting bracket then I ensure that they are locked off at the correct angle and marked. We have a duty to simplify installation and maintenance to avoid errors on site.

The correct light fitting

I have often seen, admittedly often through ignorance,

lighting that can only be described as a crime to art. I suppose the general rule is that if you have art that is worth thousands it is worth spending more than ten dollars on a light fitting.

Using design style to contrast

This article has discussed using shadow and darkness as a contrast to a great extent, we can also use contrasting styles of luminaires to create interest and texture in a project.

Mock up

I am astonished how many decisions are taken on luminaires from spreadsheets or with a luminaire on the table as opposed to mounted and demonstrated. Mock up at every opportunity you will learn so much from the experience, you will learn more in one hour of shining lights than in a hundred hours of computer simulations.

Kinetic lighting effects always need to be mocked up, for example with a starry sky effect there is a difference in the speed that stars twinkle millions of miles away in the night sky as opposed to when you are standing five meters away from an artificial effect.

Education: the why's and how's

Lighting specification is sometimes a choice of choosing your battles and there are some battles that you cannot lose.

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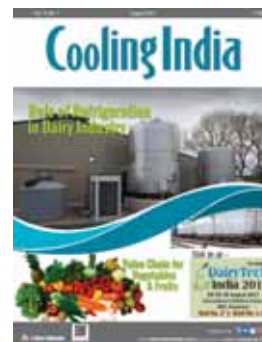
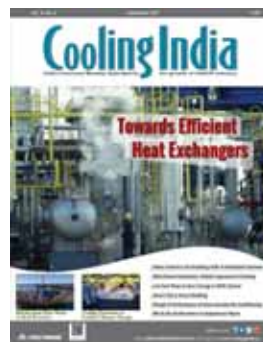
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Terracotta Warrior Exhibition at the British Museum. Image: Bob Locker



Mock up of moving water effect, take every chance you get!
Image: David Gilbey

I find the best way to do this is to educate the client and his project team, if they understand the reasoning behind the product selection they are more likely to stay with the spec. Mock ups are another way to convince the client of the power of your lighting solution.

Feel the fear and do it anyway

It is one of the worst kept secrets in lighting that I am absolutely terrified of heights, this fear has never once stopped me from climbing the ladder, going up to the top of the scaffolding or hanging over precipitous drops on the boom lift. Where there are lights to aim and focus or a better view of the space to be had I will go. There is a famous shot taken by the architect Arvind Saxena of me in a boom lift 50 feet above the floor below which is seriously out of focus, upon reviewing the images together Arvind apologized for the camera shake that had caused the blurred image, I had great delight in telling me that it was not the camera shaking it was me! ■



David Gilbey

Associate Lighting Designer
UMAYA Lighting Design

Out-of-the-Box Solutions from Häfele

This **ACETECH, Häfele** showcases its collection of 'Out-of-the-box' solutions to breath new life into your work and living spaces. Experience the possibility of realising your imaginations through our home grown solutions in kitchen fittings, door and furniture hardware, appliances, lighting solutions, bathroom fittings and surfaces. Be it optimising small spaces or recreating new interior ideas, we have an out-of-the-box concept fitting every individual need.



Blum Tip-on Blumotion

OUT-OF-THE-BOX is a product that follows a lateral or unique design process with features or functionalities that work immediately after installation.

Every product at Häfele follows an Out-of-the-box approach to manage your unique design requirements and enable them with immediate functionality.

This ACETECH, Häfele introduces a box-full of such innovations that are waiting to be opened to enable unique design concepts for your interior spaces:

1. Small Counter-Top Appliances:

Häfele's small appliances come in modern designs, attractive colours and long-lasting, sturdy materials; coupled with superior functions that will make your pre-cooking tasks feel stressless.

2. New Sliding Countertop:

Häfele is introducing its new 'out-of-the-box' range of Sliding Countertops that can double up as an addition to the current countertop or can cover built-in hobs, kitchen

sinks, retractable faucets, pop-up sockets etc. when not in use – the possibilities are endless! This concept saves valuable space and transforms the kitchen into the social hub of the house enjoyed by the owners and their guests alike.

3. Waste Management Systems:

Taking convenience to another level, Häfele also offers a very 'out-of-the-box' waste bin concept that fits into the kitchen worktop for handy disposal of vegetable skins and cutting waste.

4. Häfele Connect:

An innovative, intelligent and wireless system that connects and operates the lighting of your entire home or office. With Häfele Connect you can now create the perfect atmosphere for many moods and settings with a centrally controlled system that is linked to your smart device - as easy to operate as the swipe of a finger!

5. Aqua Trendz:

Holistic solutions for the most exquisite bathroom designs – the Aqua Trendz range of Bathroom Fittings and Accessories allows you the flexibility of recreating your bathroom interiors with one design philosophy and unmatched functionality! Aqua Xstream, the latest addition to Häfele's AquaTrendz Range of Shower Fittings offers you an incomparable source of refreshment and relaxation by offering a number of spary innovations which helps to create a sensation suitable for both the mind and the body.

6. Walk-in Wardrobes:

A range designed for the most precious corner of your bedroom – Häfele's Walk-in Wardrobe fittings allow for efficient storage, easy access and astute convenience, making the daily interactions with your wardrobe a truly enriching experience!



Dekton Surfaces



7. FritsJurgens Pivot Door Systems:

The FritsJurgens Pivot Door Systems by Häfele are like rotating walls which when closed are virtually invisible and when opened, determine space. Engineered to render the most enormous door designs, these Pivot Systems are sturdy, easy to install and can hang huge doors weighing up to 500 kgs!

8. Dekton Surfaces:

Häfele introduces for the very first time a new surface range, Dekton made up of sophisticated raw materials used in the production of glass, porcelainic and quartz surfaces. Dekton is a material with infinite applications - flooring, cladding, facades and countertops for both indoor and outdoor spaces.

9. Motion technologies for Cabinet fronts from Blum:

Smooth fronts without handles are a typical feature of modern living environments. To make it easy to open such fronts, we bring to you the motion technology Tip-on Blumotion, which combines the Tip-on mechanical opening, with the reliable blumotion technology that ensures added convenience through rounded motion and real usability!

10. Qanto Corner Solution:

Reinventing the kitchen corner with Qanto - a plug-and-play solution that allows up to three versatile storage trays to be extracted and retracted vertically by a linear drive, at the press of a button. ■

Human Centric Lighting

– LED's making it possible

A lot has been said about Human Centric Lighting the past couple of years. This lighting concept is not new, as humans have observed and utilised the effect of daylight for centuries. However, with new light sources and light management systems available we are able to provide tuneable white lighting solutions with a higher quality of light than before.

Daylight is the most important external time-giver. It wakes us up in the morning and the lack of it makes us moodier during the winter. For this reason, it is essential to strive to make artificial light as natural and efficient as daylight. It controls the hormone balance in our bodies and makes us alert or relaxed. Because our physiological response to light depends on the light's

characteristics such as colour spectrum, intensity and timing, the characteristics of the artificial light in our surroundings will be of significance if we spend a lot of time indoors.

Human Centric Lighting (HCL) solutions use variations in colour temperature, intensity and timing to achieve short-term effects on your concentration and mood, mid-term effects on your sleep patterns and long-term effects on your well-being.



Through decades of research we have discovered the connection between light and its influence on the human hormone production. We know how to tune the colour spectrum of the light to achieve a phase-advancing effect on your circadian rhythm. Still, a lot of work remains on how to tailor the light to match individual needs for intensity level and timing of the light exposure to achieve the wanted biological effects. When applied correctly, Human Centric Lighting may adjust the daily rhythm of office workers, school children and reduce fatigue and errors for industry workers and improve sleep patterns and medicine intake for elderly centre residents.

Let us today talk about Human Centric Lighting in various application areas and how it can adjust people's daily rhythms and improve their motivation, well-being, and productivity.



Human Centric Lighting solution in education

Schools are excellent for tuneable white light features. Here the light is used not only to control daily rhythms for pupils and staff, but also to improve alertness during tests and concentration tasks.

The teacher may switch on an intensive, cool white light during these activities, or a warm white, dimmed light for relaxation and group talk. The right light in the morning, with sufficient brightness and blue-enriched, can help to get you ready

for the day. Especially in education, a conscious mind is important for a good concentration during the lessons. It doesn't matter if the person is an elementary scholar or a teacher. Both can benefit from an optimised lighting environment in a direct or indirect way.

Benefits

- During the early morning hours, the right light can help to wake up with less sleepiness.
- A better light environment can improve alertness and concentration during lessons.
- Lighting systems that give higher light intensities and colour temperature at the right time can help to improve duration of sleep and quality of sleep and thus improve learning effects.
- With biologically optimised lighting systems in educational environments, natural lighting conditions can be achieved more effectively.
Simply said it is possible to imitate natural lighting inside the classroom.

Human Centric Lighting in offices

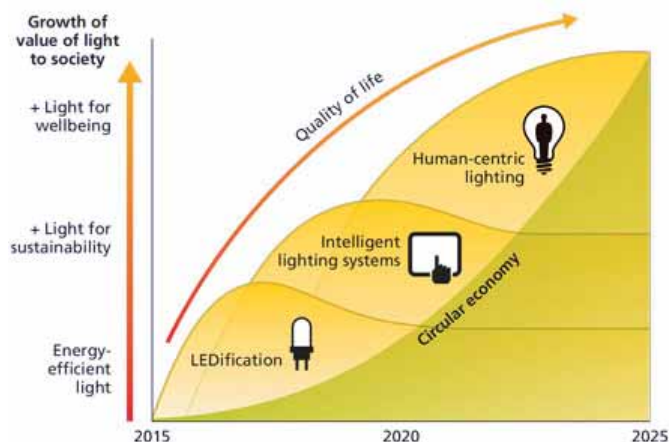
Lighting technologies continue to evolve and improve, bringing a range of benefits to commercial building specifiers and end-users. These include better energy efficiency and greater freedom and flexibility in how lighting is applied and controlled in the workspace. At the same time, there is a growing body of research and information available on the impact of lighting on human beings, with resonance on its effect upon our emotions, our wellbeing and our workplace productivity. Humans spend most of their time awake indoors. That makes office areas excellent places to implement Human Centric Lighting solutions. Such solutions can bring increased energy and motivation to employees.

Workplace lighting can, in addition to providing sufficient light to conduct work-related visual tasks, affect employees' alertness, mood, cognition, sleep-wake pattern and health.

Benefits

- Exposure to more intense light may boost employees' feelings of alertness and vitality during daytime and at night.
- Circadian effective light exposure during the daytime may have a positive effect on office workers' sleep during the subsequent night.





- The light settings can influence employees' appraisals of the lighting and the working environment.
- Individuals' preferred light settings show substantial variations. Individual lighting control will affect job satisfaction positively.

Human Centric Lighting in Health Care

Healthcare lighting is zone-specific coloured and white light for operating- and examination rooms. The light is based on the latest LED technology which combined with control systems makes it possible to create a light that optimises the working environment and increases patient safety.

Benefits

From satisfaction surveys the users mention that the light gives higher quality in the work environment on the following points:

- Less fatigue and headaches by laparoscopic, ultrasound and screen work.
- Prevents reflection of screens and monitors
- Optimises image quality
- Provides better visibility and highlight detail
- Creates greater precision
- Better performance and increased quality
- Increased safety for patients and staff

Human Centric Lighting in Hospitality & Wellness

The well-targeted use of lighting with dynamic colour variation options allows creation of a wide variety of spatial effects, evoking, for example, the impression of open-hearth fires, moonlight or a sunset. Such flexibility is a great advantage for catering and hospitality spaces, as the same room can be illuminated to suit different events and times of day. An atmosphere that fosters a feeling of well-being is also important for hotel rooms, where the correct lighting can provide a special cosy ambience which leaves a lasting impression on guests and encourages them to return.

Benefits

- Helps visitors feel comfortable
- Makes rooms look more elegant
- Atmospheres and lighting quality can be controlled

individually

- Easy to control
- Low energy consumption
- Low maintenance requirements
- Reduced heat emission

If the lighting industry wants to get a feel for how well its products are performing, it might like to go out and buy a hotel chain. If ever there was a sector where equipment is pushed to its limit, it's this one: 24/7 operation with little acceptance of failure or high maintenance demands; and a high expectation that products should work way beyond their quoted lifetimes.

Here's a handy sustainability checklist for your next hospitality project:

- Given the 24/7 environment, what elements have you introduced into the design to control and reduce energy use without compromising the design aesthetic?
- What assurances have you received that the specified luminaires will meet – and exceed – their stated design performance?
- What strategy do you have in place to retain luminaires, refitting only failed luminaire components (LED modules or drivers, for example) at the end of their active lives?

The hotel lighting trick that could cure jet lag

Lighting which works with our body clock is becoming more popular, in both guest areas and heart of house, creating a stimulating environment which increases productivity and mood and can alleviate jetlag. ***'Imagine if the lighting in your hotel room could fix your jet lag. It is not such a crazy thought but a possibility in time to come.'***

The concept is simple: as you walk into your hotel room, your key card tells the control system where you've arrived from and the lights then change to the ideal colour temperature to adjust your body to the new time zone.' INFOREL can assist you in this

We need the right light for our activities at the right place at the right time

Morning	Afternoon	Evening	Night
Cool Light – High Intensity	White Light – High Intensity	Warm Light – Low intensity	No Light

Lighting is entering a new age of innovation and it will change the way we live, work and play. It is leading to intelligent buildings, homes, and cities and it will be connecting to data and that, in turn, will bring about new possibilities for how we use it. ■



Sudip Mukherjee

Business Head
Infotel Innovation & Research Pvt. Ltd.
New Delhi



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MEGAMAN products shine at the Hong Kong International Lighting Fair (Autumn Edition) 2017



MEGAMAN Commercial Lighting

MEGAMAN, a global lighting solutions provider with more than two decades of expertise in LED technology, showcased its Smart Lighting Solution with advanced functionality and extensive range of innovative LEDs at the Hong Kong International Lighting Fair (Autumn Edition) from 27th to 30th October 2017.

MEGAMAN continued its previous success and staged as a major exhibitor with three themed sections at the Hall of Aurora, a sophisticated environment shows branded products to the best advantage in a handsome setting. They include INGENIUM ZB Smart Lighting accompanied with extensive range of LED Luminaires and Lamps, TECOH LED Components and Commercial Lighting sections to cater different industry needs.

MEGAMAN INGENIUM ZB Smart Lighting Solution allows users experience and enjoy a new level of home automation in a mesh network by utilising ZigBee technology and they can add devices as needed and

at leisure. Always getting smarter and adding new features, the INGENIUM ZB Smart Lighting Solution now works with Amazon Alexa voice commands. You can simply use the mobile device or even easier – Alexa to control all smart devices of your connected home or commercial spaces.

For those who are looking for a simple start-up system for home or a scalable system for commercial projects, the INGENIUM ZB is the perfect smart lighting solution offering wireless control via mobile phones or tablets from anywhere in the world.

MEGAMAN TECOH LED Components exclusively showcases its extensive range of high performance LED Light Engines (LLE's) and Modules which have been specified as important lighting components by major lighting fixtures makers. As a forward-thinking LED innovator, its TECOH THx LED Light Engine with ZigBee technology features a future-proof design for interchangeability with other downlights, smart lighting control and interoperability with other devices via the ZigBee gateway.

MEGAMAN Commercial Lighting showcases the ultimate commercial lighting application for companies who really wish to enhance their brand image, identity and environment. Visitors are impressed with our innovative LED luminaires and inspired by the latest trend and versatility of office lighting. Also, advanced users can control, automate and create ambience or scenes to stimulate mood, reduce energy consumption and increase comfort for staff – all through the power of smart lighting control. ■



MEGAMAN TECOH LED Components



MEGAMAN INGENIUM ZB Smart Lighting

India's LED Lighting Story

In this article we look at impact of the UJALA programme on lighting industry and consumer behaviour in India. We discuss key findings of our recent report where we surveyed manufacturers, retailers, households, and various stakeholders. This is the third post in the blog series titled 'Plugging in: Electricity consumption in Indian Homes' by Prayas (Energy Group) and Centre for Policy Research (CPR).



© ROSHCLICKS 2015

Lighting is the most basic use of electricity in a home. Lighting's share in the total residential electricity consumption is estimated to be in the range of 18% to 27%. In 2013, about a billion and a half lighting devices were sold in India; half of them being incandescent bulbs followed by CFLs (31%), tube-lights (16%) and a negligible share of LED bulbs. In 2014, the government launched a programme to promote LED bulbs in Indian households and later named it UJALA (Unnat Jyoti by Affordable LEDs for All).

This is because LED bulbs consume less electricity, last longer, and do not contain mercury. The programme, arguably the world's largest, has sold more than 27 crore LED bulbs with no subsidy from the government. How did the programme change India's lighting industry and consumer behaviour? What part of programme design worked and what can be improved? Answers to these questions can improve future programmes designed to improve energy efficiency in India. In this post, we discuss some key findings of our recent report where we surveyed manufacturers, retailers, households, and various stakeholders to understand the impacts of UJALA.

Innovative programme

Energy Efficiency Services Ltd. (EESL), a public sector company, is responsible for implementing the UJALA programme. The company bought LED bulbs in bulk from manufacturers through multiple rounds of competitive bidding. The large volumes and assured sales incentivised the manufacturers to

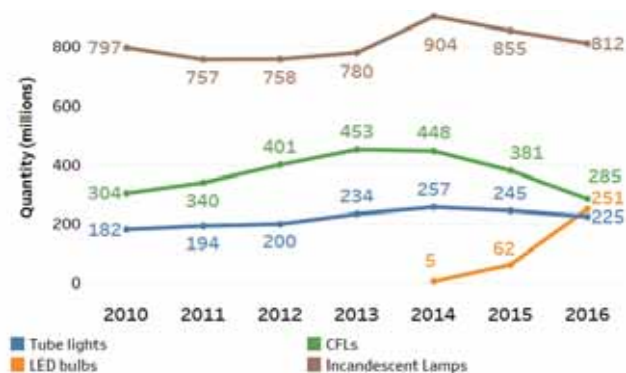


Figure 1: Sales trends of lighting devices in India
Source: ELCOMA

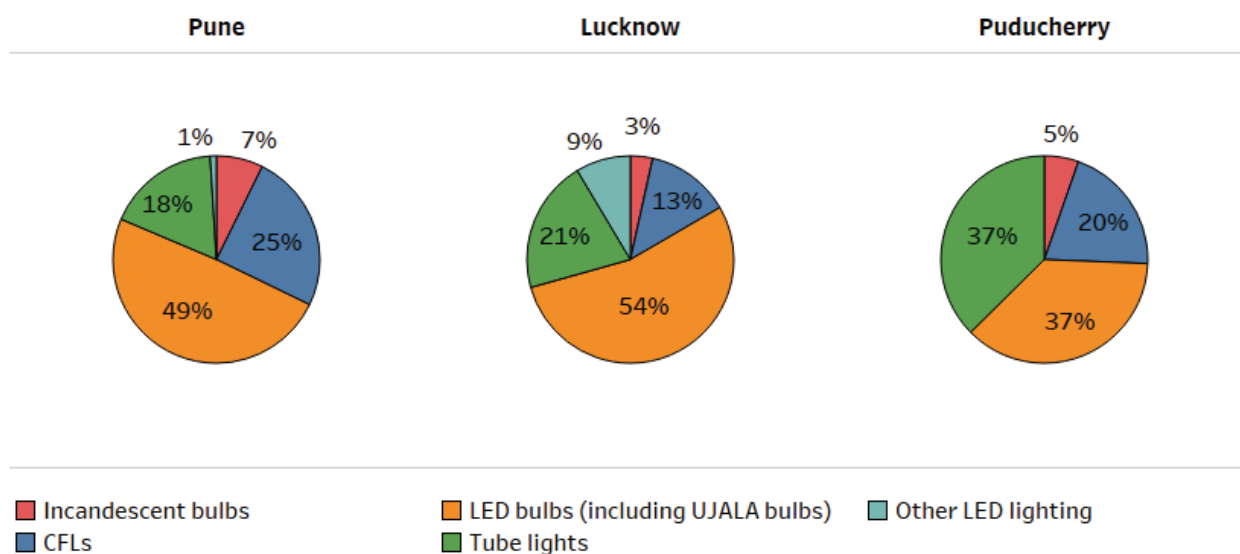


Figure 2: Share of lighting sources in the surveyed households
Source: Prayas Consumer survey (January – March 2017)

drop the bid price from Rs. 310 per LED bulb in the first round to as low as Rs. 38 in later rounds. EESL sold these bulbs to consumers through contract vendors in co-ordination with the local electricity distribution companies (discoms), bypassing the retail supply chain and further bringing down the final distribution price. As a result, the current price of LED bulbs under UJALA is Rs. 70, about half of the price of the LED bulbs available in the shops. Yet, there is no subsidy from the government or the discoms. EESL also conducted innovative marketing campaigns to create public awareness.

LED bulb sales are up and prices down

The UJALA programme transformed the LED lighting industry in India. Demand for LED bulbs has gone up 50 times in the three years since 2014, while the retail market price (for bulbs sold beyond UJALA) has dropped to a third. The fall in prices can be attributed to the economies of scale achieved due to substantial demand creation by the UJALA programme, in tandem with the global trend of reduction in prices of the LED chips. India's LED bulb manufacturing capacity has also grown substantially, with about 176 registered manufacturing units in India.

Our surveys show that LED bulbs are now a major source of lighting for the households that participated in the UJALA programme (Figure 2). Most of the households also said that they would buy a new LED bulb from the market when the installed LED bulb reached the end of its useful life.



Figure 3: Lighting options replaced by LED bulbs bought under UJALA for surveyed households
Source: Prayas Consumer survey (January – March 2017)

Incandescent bulbs are still around

The increased demand for LED bulbs seems to replace the demand for CFLs instead of incandescent bulbs. About 810 million incandescent bulbs were sold in 2016, a 5% drop over previous year's sale whereas the sales of CFLs have dropped by a third since their peak in 2013 (Figure 1). Our surveys corroborate this trend as we find that a considerably large proportion of the UJALA LED bulbs were used to replace CFLs, followed by incandescent bulbs and tube lights (Figure 3).

The more that people replace CFLs with LEDs, the lesser the saving that are actually realised. Our sample of households in Pune was distributed across different income classes. A

Table 1: Comparison between low, medium, and high income households surveyed, Pune

	% ICBs replaced	Average usage (hours)	Annual savings (kWh)/LED bulb	No. of LED bulbs bought per HH
Low	45%	5.5	56	3
Medium	18%	3.6	27	5
High	18%	3.2	22	6

Source: Prayas Consumer survey (January – March 2017)

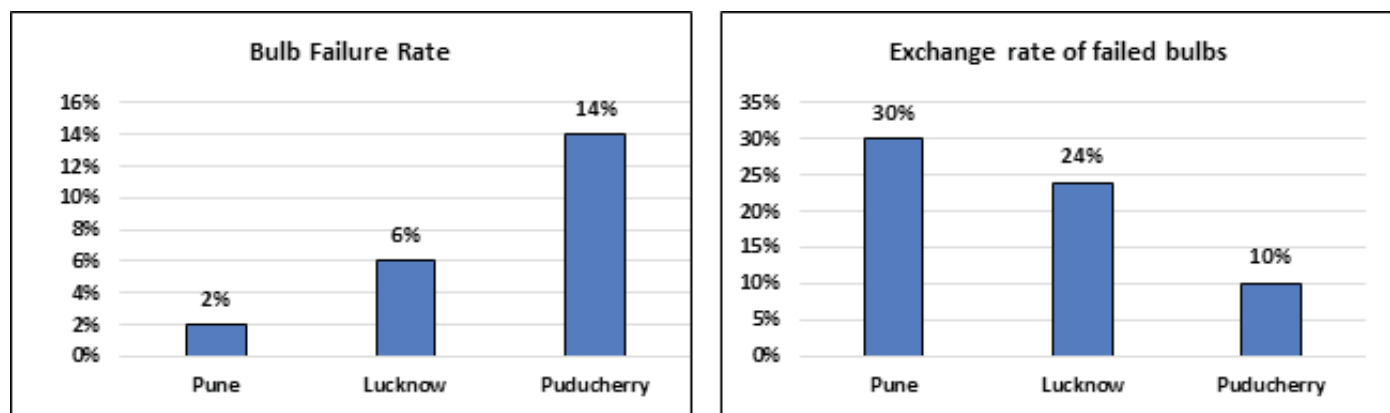


Figure 4: Failure rate and exchange rate of UJALA bulbs (for surveyed consumers)
Source: Prayas Consumer survey (January – March 2017)



typical LED bulb saved 2.5 times more in a low income household compared to a high income household. This makes a case for programme to focus more on low income households.

LED Bulb quality and warranty is important

Our surveys found that 2% of LED bulbs failed in Pune after a year of launch of the programme, while 14% of the LED bulbs failed in Puducherry three years after the launch. The bulbs sold in Pune carried a warranty of 3 years while the bulbs sold in Puducherry carried a warranty of 8 years. However, very few households got their faulty bulbs replaced. Lower expectations from a government programme and higher tolerance levels for faults in low cost LED bulbs,

ignorance about warranty, and hassles in the process were cited as reasons for not replacing the faulty bulbs under warranty.

To conclude, UJALA has created a large and sustainable market for LED bulbs in India using the no-subsidy, bulk procurement model. Demand for LED bulbs has increased manifold and the retail market price (for the LED bulbs sold beyond UJALA) has dropped by a third. It has also created a significant awareness about LED bulbs, further contributing to increasing demand. Going ahead, EESL can ensure stricter monitoring and evaluation of the programme. It can also focus on low income households and small commercial establishments who are still buying incandescent bulbs. We focus on this aspect of LED use

in low income households in the next post.

This article was published on 15/11/2017 as a part of the blog series titled 'Plugging in: Electricity Consumption in Indian Homes' by Prayas (Energy Group) and Centre for Policy Research. ■



Aditya Chuneekar

Fellow
Prayas (Energy Group)

LII 2018 arriving soon

The Lighting Expo, Light India International (LII) in Mumbai aims to create Sustainable and Practical Energy Solutions for uninterrupted availability of reliable and affordable power.



Energy conservation has been an urgent matter for quite some time now. The solution lies in the implementation of a number of energy efficient measures in various sectors, which, if implemented well, can save a considerable quantum of electricity. The Indian Society of Lighting Engineers (ISLE) is organising a lighting expo in Mumbai from January 19 to 21, 2018. The aim of the expo is to showcase innovations and developments in the lighting industry and to create business opportunities for products and services of the industry. The exhibition will serve as a platform for topics like energy conservation to be deliberated upon with ideas and contributions to pave the way for better solutions.

The visitors at the exhibition 2018 will include architects, building contractors and engineers, construction companies, corporates, the electricity board, government planning and development departments, hospitals, hospitality industry,

interior designers, IT companies, lighting and LED industry professionals, lighting consultants and lighting dealers, lighting fixture manufacturers, municipal corporations, real estate developers, retail space designers, signage industry professionals, stage lighting, suppliers of equipment material to the LED industry and more.

Interactive seminars with experts from the industry will be the highlight of the event. Saurabh Kumar, Managing Director, Energy Efficiency Services Ltd (EESL), one of the speakers at the event, will be addressing the topic of energy conservation, with emphasis on light energy. "As part of the UJALA scheme, the government is distributing LED bulbs, tube lights and energy efficient fans in every DISCOM office in the state. The 2015 launched National Streetlight Program to replace the conventional streetlights with smart and energy efficient LED streetlights, is also under way. Such critical measures and private institutional efforts, together, can bring about a much needed change for the nation in terms of conserving energy," says Kumar.

The event is expected to act as a spring board for better ideas for energy conservation as well as a great platform for the industry professionals and leaders in the lighting solutions market, to get together and lead the way to more effective solutions. "The expo will be a great platform for informative seminars on energy efficiency and conservation, by some of the best industry experts. For those who wish to gain technical knowledge on energy efficiency and renewable energy, the expo will help them connect with NGOs engaged in energy development," says Dilip Kumbhat, president, Indian Society of Lighting Engineers (ISLE).

Also exclusive Seminar for Electrical Contractors Association of Maharashtra (ECAM) on 21st Jan by Electronics Sector Skills Council of India (ESSCI).



Be Innovative & Dream Big



Vibhor Sogani, born in Jaipur, Rajasthan, specialised in **Industrial Design** from the prestigious National Institute of Design (NID), Ahmedabad, India. His studio, based in Delhi, was amongst the first in the country to launch its signature line of Products and Lights. The Lights, bordering into Light installations, are an eclectic mix of delicate handcraft and industrial production techniques. Today, he has made a strong mark in the areas of art & light-based installations. In a conversation with **Lighting India** he speaks about his journey so far.

Q What led you to lighting?

A I graduated from NID with a degree in Product Design (Industrial Design) after which, I worked in varied fields like furniture design, exhibition design, accessory design etc

In 2006, I got an opportunity to create some lights for an event which was showcasing some top international brands of lighting. The response to that was encouraging at various levels. My lighting portfolio started growing and as a designer I felt more satiated and involved. Very soon, I was playing with both, Light & Art in the form of Light Installations

Q What are your views on product and lighting designing?

Design per se has to be functional yet aesthetically stimulating.

Lights have to accentuate spaces and its use. In other words, products / lights have to be meaningful and not for the sake of it.

Q Where do you draw inspiration from each time you design a product? Can you talk about one of your lighting designs and the process of behind it?

A The world around is beautiful and full of inspiration, one has to be receptive to it. The trigger could be nature in any form, a situation or even at times a word. However, some seem appropriate given the game plan. These are the ones which I put to test through R&D and prototyping. Sometimes, typically, in commissioned assignments, a highly constraint situation (architect's brief, architecture, interior or the theme) brings in a challenge which makes the creative thoughts flow in a channelised format leading to exciting results.

One of the light installations - Orion

A clear night sky is so beautiful and delicate. We often see in the darkness of a night. We see the sharp shine of the stars and constellations in some random formations but often making our minds connect the



dots into an abstract form that we recognise. While we always see the sharp glow, we never see the source of the light which lights these stars....

Orion, crystal based installation, is inspired from the incredible interstellar formations

This light installation, made with over 7,000 crystals, also plays with the light and darkness akin to the night sky.



Q How has the lighting industry evolved?

A In the past, Lighting has been ignored and underused. Today Lighting is considered as the fourth dimension of architecture. The fact is the impact of this medium can bring about a drastic & dramatic change in the quality of architecture and its function. This realisation amongst the present generation is leading to the rise in demand of quality lights, energy efficient sources & even lighting consultants. It is a positive trend and the industry is growing

Q What are the challenges you come across while designing a product?

A Work is never a challenge. It is extremely exciting. It is what keeps me alive and kicking. The challenges are the associated issues, the paraphernalia. It is managing people, finances, and what we may call the 'realities of the world' that are challenging.

Q Your piece of advice to the upcoming lighting designers?

A It is a very exciting field, provided you understand the nuances. Be innovative and dream big. ■



“Do not just be another one, invest in design and stand out”

SERIP was founded in 1961 by **Mário J. Pires Lda** at **Portugal**. His daughter **Ilda Pires** was born in Lisbon in 1959, who is now the main designer of the company. She has been a part of the company since she turned 16. She is responsible for the creation of the organic style that defines SERIP. With more than 30 years of experience creating lighting she tends to break the rules of the conventional. She is passionate with the expression of the design as a sculpture, where she translates her influences of the different cultures of the world. Ilda Pires talks to Lighting India about the about the industry and taking forward the company's legacy.

How long has your family been in the business? Can you tell us about your process in the product category from start till date?

SERIP brand has increased in recent years, but its own history goes back to 1961, this is a family company with more than 55 years of experience who grew and evolves with the family. Initially the production was based on classic concepts, but evolving in the early 80's to conceptual designs far ahead of its own time.

The concept and style of design refer to techniques that represented the Portuguese heritage in the past and that give value and importance to the artisan community, the remaining processes evolved on a large scale, enhancing the use of increasingly modern materials that enable new ways of building enlightenment.

In latest collections, the lighting sources

followed the evolution of time, SERIP is keen to follow the market, creating lighting systems that are increasingly energy-efficient, sustainable and with less environmental impact,

nevertheless the designers never gave up the aesthetic visual and use of manual techniques, which results in handcrafted art using organic shapes, more than lighting – art pieces.



Ilda Pires

We would like to know about the company evolution? How was it when your father started versus how is it after inheritance?

My father started to produce chandeliers, using glass and brass. At this early stage, the company assumed a very classic concept. During the early 80's, SERIP created the first organic style piece (halogen cup chandelier), though the clients' acceptance was not positive by then. The specific Design revealed itself too far ahead for its own time.

In 1985, SERIP started to explore

International markets by participating in its first international trade Show in Paris at Parc des expositions de la Porte de Versailles. Until the end of 80's, Mário J. Pires Company mainly produced for internal market.

In 2002, SERIP introduced the organic concept that would prevail in the company thereafter. Three years after, in 2005, launches the 1st catalogue with organic style pieces, named 'Life Colour Motion' and by 2007 the company feels the need to start producing personalised chandeliers, by measure.

The release of the 'Mysterious' catalogue in 2008 was a huge step in history of SERIP. It helped to set apart the company from the other brands and to totally differentiate the product from what has been done in the market so far. The dramatic and theatrical presentation of the products in this catalogue, based on the romantic Portuguese scenery, had a huge acceptance from the clients. This year is also marked by the end of the production of alabaster chandeliers.

SERIP introduces the first chandeliers with LED technology in 2011 and devotes totally to special lighting projects.

Contrast and dualities are the main concepts developed in the end of 2014 'Black & White moments' catalogue. It embraces the Ying and yang, opposite or contrary forces that are complementary. The catalogue shows outstanding luxury ambiances mixed with astonishing lighting installations. In terms of scale and presentation it is something never done within the company.

Nowadays, with a strong presence in the international market, exporting more than 96 per cent of production, SERIP, reaches more than 77 countries on five continents.

Integrating the initial steps of the brand towards the path of internationalisation, SERIP is investing in mono brand Showrooms, now the brand has four monobrand showrooms around the world, Kiev, Jakarta, Singapore and Beijing.

How do you perceive the current market?

It is interesting to see that nowadays the interior design industry has adapted completely the bespoke concept and obviously the companies that produce the decoration items have to be flexible to answer that demand.

Fortunately we have been doing it for quite some years we have already developed the structure to deliver this kind of request. We are not talking only about the ten different metal finishing's or forty different glass finishing's that the client can customise in the standard product, we are actually talking about a complete world of possibilities when you present your idea to our project department. Sometimes the level of customisation is so high that it deviates completely of the standard item and becomes also the individual vision of the designer or architect. Of course that you can see this ability other companies and in the future you will see it even more, we think.

Concepts like unique, handmade and bespoke are the leading impressions in nowadays main strengths of designers and architects.

Can you talk about the future of your business into this market (current scenario)?

Our proposals for the future are to continuously delivery tailor-made pieces and grown the level of expertise. Those are the factors in which SERIP has been specialising and recognised, that stand us out as a differentiator, creating distance us from the competition. We intend to continue building a solid presence in the markets where we operate, always taking care to not massify our product.

One of the great advantages of craftsmanship is the possibility of customisation, a fact that gives the client the chance to make his project unique, custom made. For SERIP, it is very important that the customer feels that his product is exclusive, tailored-made and filled with passion.

Every produced piece is a singular and unique work of art, due to the almost entire absence of mechanic elements in the production process.

Our strategy seeks to reinforce our position as a leading lighting company with an organic concept and we pretend as we mentioned before, to reinforce the presence of the brand in the markets in which we are present, betting on the communication in a selective and focused publicity, and undoubtedly reinforce the presence in the media.

What suggestion would you like to give to the current entrepreneurs in the industry?

Our suggestion and advice is transversal to other industries. The message we convey even by our strategy and definition as a company is that players must always develop value propositions for the customer without ever losing focus on what defines them. So, bet on the differentiation of your products and the concept of the brand and do not copy ideas from other companies. Do not just be another one, invest in design and stand out. ■



LED Expo 17 New Delhi becomes a platform for International players

LED Expo opened in New Delhi with 75% increase in international participation. The exclusive summit held at LED Expo was a knowledge forum focusing on the topic 'Accelerating Growth of LED Industry in India: Challenges & Opportunities.' Over 360 companies from 10 countries to showcased cost effective and energy saving solutions at the largest ever LED Expo this year.



Inauguration Ceremony

Changing conventional lights to LED or energy efficient lights is becoming one of the most quintessential parts in the country's overall development. Due to rising awareness amongst the consumers, demand for a smart and connected lifestyle, and initiatives taken by the government, the LED industry is growing at a tremendous rate.

The progress in the industry is reflected at the 17th edition of LED Expo, as it plays host to over 360 exhibitors with 75% growth in international participation from countries like China, Denmark, Finland, Germany, Hongkong, Italy, Korea, Singapore, Taiwan, the UAE and the USA.

Innovative products have always come with a notion of being highly priced. At LED Expo the products displayed not

only concentrated on advanced technology but also on provided cost effective alternatives. LED Expo has been strongly supported by government ministries and industry associations like the Chief Minister, Government of National Capital Territory of Delhi; the Ministry of Power, Health, PWD & Industries; Ministry of Commerce and Industry (Make in India); the Ministry of Electronics and Information Technology (Digital India); Energy Efficiency Services Limited; Government of Maharashtra; Luminaire, Accessories, Components Manufacturers Association (LACMA); the Electronic Industries Association of India (ELCINA); The Energy and Resources Institute (TERI); BSES Rajdhani Power Limited; the Solar Energy Society of India (SESI) and the Indian Buildings Congress (IBC).

The highlights of the Expo are as follows:

1. Launch of solar emergency bulb with three solar panels and an emergency light backup of seven watts EcoEarth Electric that can prove a beneficial solution for India's rural areas.
2. Seen for the first time in India, highly customisable signages that showcase a million colours using addressable pixel LEDs controlled through microcontrollers by Stencil Point.
3. Launch of LED bulk head with polycarbonate reflectors that can save up to 80% of energy by Kundan Switchgears.
4. SMD PCB terminal block and 221 series splicing connector by WAGO.
5. Silan SD6835 device for 12v 2Amp LED strip light application by Millennium Semiconductors.
6. Launch of 20KV SPD with thermal cut off and additional features like low clamping voltage, IP67, epoxy potted & 440V compliance by Fulham.

The show touched many industrial needs within the LED sector, showcasing an array of solutions to the key business visitors. Another interesting highlight at the show was the launch of Future Zone. This exclusive zone introduced at LED Expo, aimed to bring next gen technology to India. A slim, flexible and cost-effective electroluminescent lighting strip system that can be used for numerous industrial and commercial areas by Light Tape was showcased at this high-tech zone.



Crowd gathered at the Registration Counter



(L2R) Praveen Madaan, Juki India Pvt.Ltd with our team

Raj Manek, Executive Director and Board Member of Messe Frankfurt Asia Holding Ltd, said, "India has been an experimental space for the this industry and as an exhibition, LED Expo 2017 will give the manufacturers and innovators a perfect platform to discuss business with the decision makers of the lighting sector. LED Expo has grown with every edition and the 17th edition of the fair has over 360 exhibitors showcasing technologically advanced solutions. I am very happy to see how LED Expo has moulded itself as one of the



Our client's stall at the Expo

most prominent and influential platforms for the light industry."

Satyendra Kumar Jain; Minister of Home, Health, Power, PWD, and industries; Government of Delhi, said, "I am happy to note that Messe Frankfurt India, a pioneer in organising shows worldwide in different sectors, is organising International LED Expo 2017. LED based lighting technology is one of the fastest growing technologies that provides reliable, efficient, effective and durable lighting solutions for various applications. LED Expo will create awareness about energy efficient lighting quality, and money saving potential of the new products. The show will provide a forum for industry stake holders to discuss, network and share business insights."



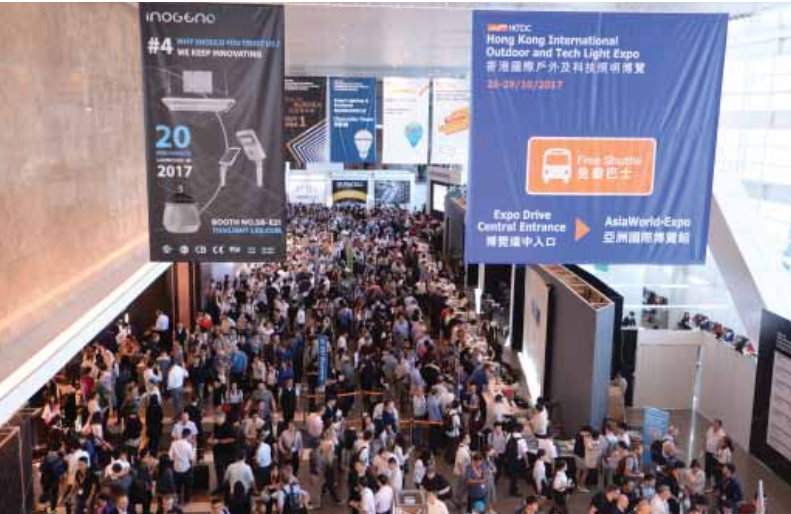
Lighting India Stall at the Expo



Various other exhibitors at the Expo

HKTDC Soars Higher Than Ever

Gathering close to 3,100 exhibitors and nearly 69,000 buyers this year, the HKTDC Hong Kong International Lighting Fair (Autumn Edition) and the HKTDC Hong Kong International Outdoor and Tech Light Expo formed the world's largest lighting marketplace.



The 19th HKTDC Hong Kong International Lighting Fair (Autumn Edition) was held from 27-30 October at the Hong Kong Convention and Exhibition Centre (HKCEC), while the Outdoor and Tech Light Expo was held at the AsiaWorld-Expo from 26-29 October.

Organised by the Hong Kong Trade Development Council (HKTDC), the 19th Hong Kong International Lighting Fair (Autumn Edition), the second Hong Kong International Outdoor and Tech Light Expo and the 12th Eco Expo Asia concluded with close to 69,000 buyers from 151 countries and regions visiting the three events. The figure is 7 % higher than last year's attendance. The number of buyers from several countries recorded double-digit growth, including India, Iran, Brazil, the United Arab Emirates, the Chinese mainland, Spain, Russia, Taiwan, Italy and France.

New LED Essentials Zone

The Autumn Lighting Fair was divided into various zones to showcase a wide range of innovative and personalised lighting products that allowed buyers to efficiently source targeted products. The Hall of Aurora featured more than 650 local and international brands this year, which included BJB, PHILIPS, LEDUS, MEGAMAN and VIRIBRIGHT.

In addition, the LED & Green Lighting zone gathers more than 1,100 exhibitors with a wide variety of energy-efficient products and latest green solutions. The new LED Essentials zone displayed a wide range of LED parts and accessories, such as lighting accessories and transformers. Meanwhile, the Smart Lighting & Solutions zone spotlighted stylish lighting designs, software, management systems and various smart lighting solutions.

At the Small Orders Zone, about 1,400 products were on display at the zone's 140+ shelves. Price and minimum-order quantity (MOQ) information were readily available for instant comparison (usually available in quantities of between five and 1,000 pieces), providing greater business opportunities for suppliers and small/ medium scaled buyers, particularly retailers.

Eyes on the first Lighting Solutions and Systems zone

The Outdoor and Tech Light Expo showcased a variety of outdoor and industrial lighting products and systems for construction sites, factories, advertising, stadiums and studios. To cater to the needs of the development of the Bay Area, as well as Belt and Road markets, the Chinese mainland town of Henglan, the Zhongshan LED Lighting Industry Association,

Seminars held during the fair





Exhibitors at their respective stalls

the Guangdong Lighting Association and the Gaoyou Lighting Association of Jiangsu had set up group pavilions, leveraging on Hong Kong's exhibition platform to expand overseas.

The Expo has launched a new Lighting Solutions and Systems zone, featuring the latest energy-saving lighting systems and solutions to meet market demand for energy-efficient and cost-cutting technologies. Other zones included Outdoor Lighting, Professional and Industrial Lighting, and Advertising Lighting.

Like every year, this year too seminars held during the fair enabled industry stalwarts to exchange market intelligence and showcase latest technology products. Emeritus Professor Warren Julian gave an excellent and interesting presentation of what light is all about. He stressed the importance of contrast in lighting system and the three essential elements of human centric lighting. Of late the importance of IES TM30-15 and now CIE 224:2017 has gained more acceptance globally as a better and more consistent methodology for evaluating colour rendition. Fred Bass, Director, Neonlite International Limited, the brand owners of MEGAMAN, highlighted the benefits associated with this new system. He said more research is underway to establish how the new system allows better understanding of human perception and preference under artificial light.

Future of Outdoor Lighting

A highlight event, the 'Future Way of Outdoor Lighting' seminar of the second Hong Kong International Outdoor and Tech Light Expo, organised by the HKTDC, was held on 26th October 2017. The seminar attracted around 200 key industry players to participate and exchange innovative ideas on cutting-edge outdoor lighting technologies.

As the Editor-in-Chief and Managing Director of Germany's leading lighting magazine Highlight, Markus Helle is familiar with the latest innovations and developments in outdoor lighting. During the presentation, he gave participants a comprehensive overview of German lighting technologies, focusing on outdoor lighting and the key future trends for public and private lighting.

He said, "There are 9.5 million street lights in Germany,



(L2R) One of the exhibitor talking to Mahadevan Iyer, Publisher & Editor-In-Chief, Lighting India at the fair

and more and more of them have been switched to LEDs, whose higher energy efficiency, greater durability and lower exchange rates save both capital and recurrent costs. Moreover, with environmental champions encouraging stakeholders to replace current public lights by LEDs, the LED market is growing rapidly."

From evolution to revolution in outdoor lighting – communicating to viewers

Simon McCartney, the laser show designer for 'A Symphony of Lights' - a popular nightly light show at Victoria Harbour in Hong Kong, delivered his presentation on the key trends in facade lighting at the seminar. He and his team have recently designed, manufactured and installed facade lighting for buildings, such as malls, casinos, hotels and residential apartments. Other than providing safety and energy-saving



Lighting Fixtures

Indian Companies at the Fair



Evolution of stadium lighting – towards enchantment of audiences and broadcasting perfection

The last presentation of the seminar was given by Senior Manager (Product Management) of Zumtobel Group Asia Pacific Tung Wong, an expert in lighting and telecommunications, who has been engaged in the outdoor and stadium lighting industry for over 16 years. He shared the evolution he had witnessed over the years with regard to stadium lighting.

According to Tung Wong, nearly 95 % of the stadiums and arenas around the world are still using conventional lighting modules, which take 20-30 minutes to run and warm up for maximum system brightness. He highlighted that a new high-tech illumination system has recently been developed, which could reach its optimum effect immediately when it is switched on, even just right before kick-offs of sports matches and celebrity shows.

"I would say we are now so near to a lighting revolution of sports and stadium lighting. A new generation of lighting system has truly emerged." Wong said, with excitement, to a captivated audience of outdoor lighting industry professionals. ■

lights, McCartney revealed that they are also working on many projects to revitalise older buildings to make them look more modern, artistic, and at the same time adding character and ambiance to an outdoor space through creative outdoor illumination. "It is important to add unique character to the lighting of buildings, as it can make a building stand out clearly and elegantly at night from the concrete forest," he added.

Acclaim Lighting introduces Universal Dimming Module

Acclaim Lighting, well known in technology, unveils the Universal protocol driver designed to allow protocols that allow for maximum fixtures.

The UDM inputs are DMX and 0-10V and IGBT digital line voltage Power, the unit can deliver an output can be achieved by utilizing the module can intake a voltage of 1000 watts at 120VAC or 2000 watts at 240VAC, while outputting 100-277VAC or 50/60 Hz via TRIAC. AC options include 90-277AC pass through while using DMX to allow power output to fixtures.

Featuring eight- and 16-bit dimming, the unit hosts one input and one output via ½-inch conduit nipples. In addition, the IP66-rated UDM operates in temperatures ranging from -31 to 122 degrees Fahrenheit and in wet locations. Its aluminium housing ensures that neither dust nor water will harm the unit. In addition, the UDM has transient voltage protection and DMX isolation. ■



innovative and advanced lighting Dimming Module (UDM), a multi-conversions between popular control control flexibility and integration with

0-10V, while its outputs are DMX, dimming. Operating with 0-10V Sink of 25ma drive current. Mode setting on-board dip switch or RDM. The

outputting 100-277VAC or 50/60 Hz via TRIAC. AC options include 90-277AC pass through while using DMX to allow power output to fixtures.

Website: www.acclaimlighting.com

Feit Electric introduces a New Line of Security Lighting

Feit Electric, a well known global energy efficient lighting, revealed decorative outdoor security lighting. Feit Electric's Security with Style features with built-in light sensors night and off during the day. LED technology, each fixture works benefits for customers while also homes secure.

Feit Electric is proud to offer a lighting fixtures that will complement business with easy-to-install units and security needs. Each of the six styles Energy Star approved with energy-saving innovations that offer value at purchase and savings over time with an average life of 50,000 hours, or 17 years of dependable lighting. The floodlights are unique given the white lens doesn't show the less than attractive LED's seen on other fixtures with clear lenses and provides an even glare free illumination.

Customers can choose from six different outdoor security lighting solutions:

- Half Moon Bronze Dusk to Dawn Security Wall Light
- Mini Stainless Steel Dusk to Dawn Security Flood Light
- Single Head Stainless Steel Dusk to Dawn Flood Light
- Dusk to Dawn 13" Outdoor Security Area Light

Website: www.feit.com



lighting manufacturer and pioneer in Security with Style, a new line of In addition to the timeless designs, lighting includes simply smart that automatically turn bulbs on at Equipped with the most advanced to ensure energy and cost saving keeping their business, families and

diverse line of decorative security the existing aesthetics of any home or various designs to meet individual features LED technology that is

the floodlights are unique given the white lens doesn't show the less than attractive LED's seen on other fixtures with clear lenses and provides an even glare free illumination.

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Inventronics New Revolutionary LED Drivers without Electrolytic Capacitors

Inventronics has revealed the with a revolutionary design Controls-Ready, programmable the intentions to provide a robust, applications requiring extremely industrial, bay, street, roadway,

The new EUD-DTL/DVL drivers development and examination of unique aspect is that it eliminates electrolytic capacitor. Electrolytic the elevated temperatures commonly found in solid state lighting fixtures. By removing the use of electrolytic capacitors in addition to introducing other novel design and manufacturing techniques, the drivers have an ultra-long lifetime.

The new series offers several models supplying 96W, 150W and 240W power ranges and operate over a 90-305Vac input voltage range. They provide a high-level of design flexibility with programmable output currents from 450-6700mA and multiple dimming options including 0-10V, PWM and 3 timer options. This helps to reduce inventory and removes the need to design-in a new LED driver for multiple configurations.

The EUD-DTL/DVL series is controls-ready and ideal for operation with a wide variety of sensory and controls since it's equipped with dim-to-off capabilities and an always-on 12V auxiliary supply sourcing up to 200mA. This allows them to power Inventronics controls modules directly, bypassing the power and voltage restraints associated with power packs and AC relays.

In addition to the new, more robust and innovative design, the series is IP67 rated (DTL version is also TYPE HL), which is great for environmentally harsh indoor and outdoor conditions such as street, area, bay and tunnel lighting. The EUD-DTL/DVL series also features over-voltage, over-temperature and short-circuit protection, plus a higher level of built-in surge protection: 6kV line-to-line and 10kV line-to-earth. These drivers implement the new external over temperature protection for LED modules, another key factor in significantly improving reliability and extending lifetime. The new series is approved to UL, FCC, ENEC, CCC, TUV, CE, KS and CB standards. ■

Website: www.inventronics-co.com



release of a new series of LED drivers backed by a 10-year warranty. These drivers were specifically designed with industry-leading driver for those long operation life. They are ideal for area and tunnel lighting.

are the result of several years of the weak links in driver design. One the main weakness in LED drivers; the capacitors are adversely impacted by

Litetronics launches LED Retrofit Flat Panel Kits

Litetronics revealed the introduction Panel Kits that expand upon the Flat Panels. The company contends offer the simplest way to update energy-saving and long-life LED flat

The Retrofit Flat Panel Kits come in Watt) and two-foot by two-foot (29 the Kits are perfect for a broad variety including healthcare, hospitality and more.



of its new family of LED Retrofit Flat Panel company's previously released LED that its LED Retrofit Flat Panel Kits standard fluorescent troffer fixtures to panel technology.

the common two-foot x four-foot (39 Watt) sizes. According to Litetronics, of professional lighting applications offices, retail, warehouses, schools,

Litetronics Retrofit Flat Panel Kits feature an ultra-thin light panel with a one-piece frame. The company points out that the compact profile measuring of just 1.44" in height, allows the fixtures to be positioned beneath the ballast and tube lighting of an existing fixture. Litetronics says it designed the kits to easily work with all standard grid ceilings and avoid the requirement of interrupting the ceiling plenum or doing any work outside of the troffer.

Installation Only Requires Diffuser or Lens Removal

Installation only requires the simple removal of the diffuser or lens. The company says that the Retrofit Flat Panel Kit delivers up to 130 lumens per watt of evenly-distributed, low-glare illumination to any setting. Also, the company says that the kit's low wattage combines with a thin lighting surface, steel backing, and aluminium-assembly frame to form a heat sink which minimises downward heat dissipation.

The kits offer a projected 100,000-hour life, and Litetronics backs them with a 10-year warranty. Also the kits feature 1-10V dimming and come in 3500K, 4000K, and 5000K versions. Incorporated safety cables firmly hold the assembly in place for improved safety and durability. ■

Website: www.litetronics.com

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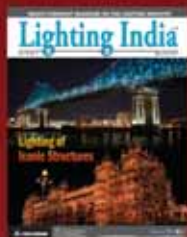
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Event Calendar

Light-Tech Expo Tokyo

Venue: Reed Exhibition Japan Co., Ltd.

Date: 17-19 January, 2018

Website: www.light-technology.jp

Light India International

Venue: Bombay Exhibition Centre, Mumbai, India

Date: 19 - 21 January, 2018

Website: www.lii.co.in

Light + Building 2018

Venue: Frankfurt Fair and Exhibition Centre, Germany

Date: 18-23 March, 2018

Website: www.light-building.messefrankfurt.com

LED Expo Mumbai 2018

Venue: Bombay Convention & Exhibition Centre, Mumbai

Date: 10-12 May, 2018

Website: www.ledexpo-mumbai.com



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(LxWxH): 360 x 30 x 21 [mm]



(LxWxH): 360 x 30 x 21 [mm]

BAG CCD (Isolated) Series 350 mA - 1400 mA - 18W - 140W 12 Products



(LxWxH): 360 x 39 x 21 [mm]



(LxWxH): 360 x 30 x 21 [mm]



(LxWxH): 280 x 39 x 21 [mm]



(LxWxH): 135 x 75 x 21 [mm]

BAG NCD (Non-Isolated) Series 400mA - 800 mA - 70W - 100W 4 Products



(LxWxH): 280 x 30 x 21 [mm]



(LxWxH): 280 x 30 x 21 [mm]

For more information

Subrata Mukhopadhyay | +91 9836691112 | s.mukhopadhyay@oem-systems.com**Sarad Gairola** | +91 9820094621 | s.gairola@oem-systems.com**Jitendra Pradhan** | +91 9742213831 | j.pradhan@oem-systems.com**Mahesh Gaikwad** | +91 9921829011 | m.gaikwad@oem-systems.com

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