INDIA'S FOREMOST MAGAZINE ON THE LIGHTING INDUSTRY

Lighting India

₹ 125

Vol. 14 No.6

November - December 2019

LIGHTING 2020

What's in store for the lighting sector in India?

We devote all our energy

LED Driver and modules

TALEXengine compact

TALEXengine linear / area

Electronic components

Electronic ballasts
for fluorescent lamps

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for fluorescent lamps

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Batteries

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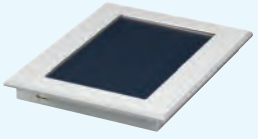
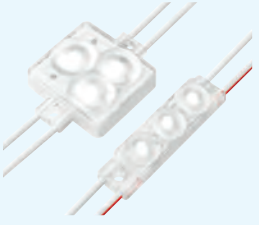


Touchpanels

Signage



TALEXXchain

TALEXXdriver

TALEXXcontrol

PUBLISHER'S LETTER

LED made its debut about a decade ago in the lighting industry and transformed the sector with superior energy efficiency and better light quality. Since then, the demand for LEDs is ever increasing! The global LED lighting market, valued at USD 45.57 billion in 2018, is projected to grow at a CAGR of 11.8 per cent between 2019 and 2025, reports Grand View Research. According to TechSci Research, the LED lighting market in India that stood at $ 918.70 million in 2016, is expected to grow at a CAGR of 24.66 per cent, in value terms, during 2016-2022, and to reach USD 3,758.74 million by 2022. Increasing awareness regarding lower power consumption of LED lighting products and the government's push to accelerate LED adoption are likely to propel the growth.

LED has emerged as the dominant artificial light source and has outpaced all the conventional light sources like incandescent bulb, CFL, fluorescent lamps, high pressure sodium lamp and metal halide lamp. Also, LEDs find applications in nearly all fields of lighting including residential, commercial, offices, retail, hospitality, industries, roads and even sports lighting. Moreover, with intelligence incorporated, today LED-based lighting systems are being used for more than illumination. It is envisaged that connected lighting will be the key enabler for tomorrow's smart cities.

Today lighting is playing an essential role in the architectural space more than ever before. Architectural lighting has become an important aspect of architectural design and there are several trending considerations in its application, including the use of light and space. Keeping pace with global trends, the architectural lighting market in India is witnessing a robust growth thanks to increase in disposable income as well as rapidly growing urbanisation. Though the use of LEDs in architectural applications was tentative until a few years ago, today it has become a preferred choice!

Also, it is a proven fact that good lighting can create more productive working environments. Therefore, apart from talking about the trends that will transform the lighting domain in 2020, this time we explicitly discussed on workplace lighting.

Hope you'll enjoy reading this issue as always. Do send in your comments to me at miyer@charypublications.in

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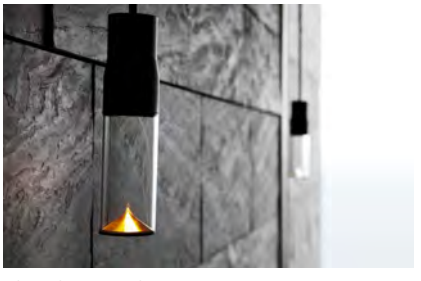
Regulars



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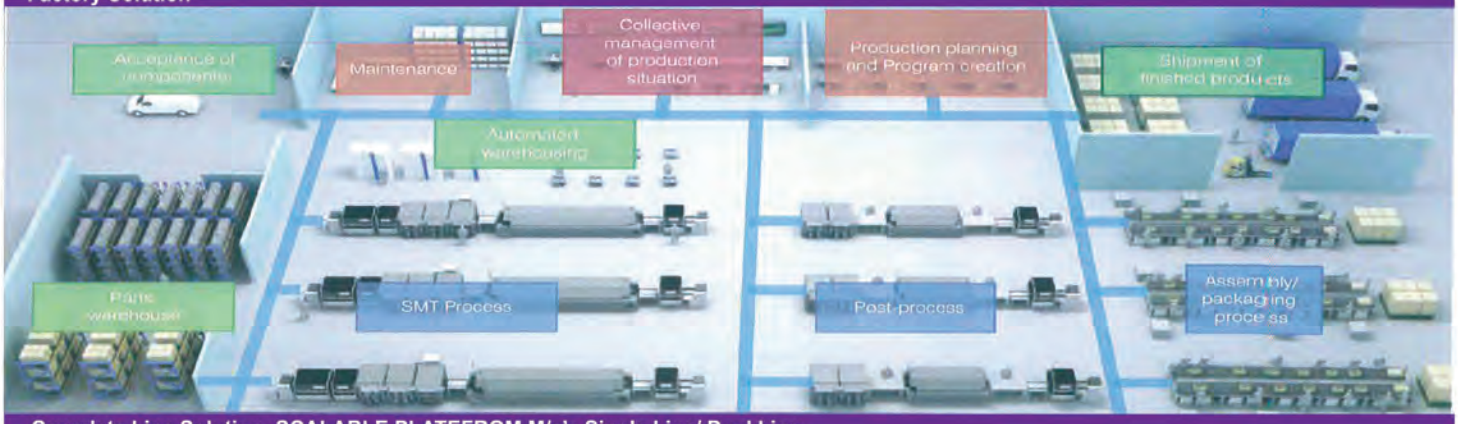

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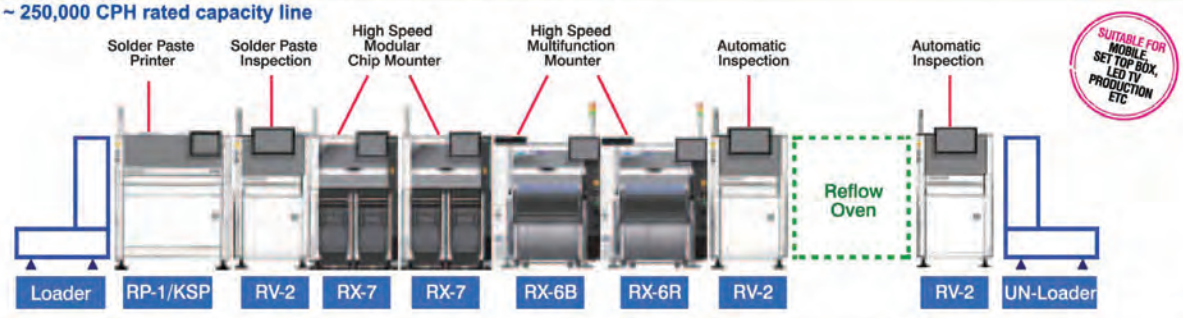

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Aurora launches emergency lighting range

Aurora Lighting has launched an all new comprehensive range of emergency lighting as part of its ever-growing commercial lighting range. For the first time, when looking for products that are required for different project applications, everything can be purchased from Aurora, including emergency lighting.

Emergency lighting is usually required to operate fully automatically and give illumination of a sufficiently high level to enable all occupants to evacuate the premises safely. Most new buildings have emergency lighting installed during construction; the design and type of equipment being specified by the architect in accordance with current Building Regulations and any local authority requirements.

Regulations state that emergency lighting is required in all commercial buildings, for example, hotels, clubs, hospitals, schools, offices and shops, but also in the common areas of shared dwellings such as an apartment block.

Aurora's new range includes an Emergency Bulkhead, Twin Spot, Wall Mounted Slim Exit Box, Blade, Exit Sign and Surface Mounted Downlight. The range includes a choice of both maintained and non-maintained solutions plus manual test and self-test options, designed for use in a wide range of applications.

All of Aurora's emergency products are mains powered, resulting in a faster and cheaper installation, and one where standard wiring material may be used. It also means low maintenance costs due to only periodic test and general cleaning required and low hardware equipment costs (no requirement for extended wiring, special ventilation etc).

Aurora's new Emergency range has been added to its increasing commercial range, which includes panels, commercial downlights, linears, high bays, spotlights and floodlights. ■

Signify illuminates iconic Howrah Bridge in Kolkata

Signify, formerly known as Philips Lighting, announced the illumination of the Howrah Bridge in Kolkata using its Color Kinetics lighting system. The iconic 76-year-old bridge, an engineering marvel linking the two cities of Howrah and Kolkata, has been illuminated using 650 dynamic coloured LED light points that highlight the structure's impressive design.

The recently installed lighting system is energy efficient and also features an option of programmable light shows that can be synced with music, adding more gleam and glow to the bridge making it even more attractive for tourists and locals alike in the evening hours.

"We at Signify are committed to transforming monuments in an eco-friendly manner by enhancing their beauty with our energy efficient lighting solutions. Our LED lights will enhance the aesthetic appeal of the iconic Howrah bridge, which is also one of the key attractions of the City of Joy," said Sumit Padmakar Joshi, Vice Chairman and Managing Director, Signify Innovations India.

The Howrah Bridge, also known as Rabindra Setu named after the great Bengali poet Rabindranath Tagore, was commissioned in 1943 and is built over the Hooghly River in West Bengal. It is currently the sixth-longest bridge of its type in the world and is a defining landmark of the City of Joy. It is also thought to be the world's busiest cantilever bridge and handles about 100,000 vehicles and more than 150,000 pedestrians every day. ■

UK based Harvard centres LED driver manufacturing in India

Following its acquisition of the Harvard brand and IP earlier this year, Harvard Power Systems is now using the resources of its Gallant Lighting group company to centre manufacture of the popular Harvard LED drivers and LED light-engines in India.

Whilst the Harvard Power Systems sales, warehouse and engineering base is in Leeds UK, the company has just completed the full transition of all manufacturing and production to the group's specialist electronic manufacturing facilities in India.

Artur Tobolski at Harvard Power Systems has been responsible for managing the production engineering for this Harvard equipment and processes for more than 15 years.

Gallant Lighting's complete group of factories and test facilities allows the continuation and growth of the respected Harvard, high quality LED drivers and light-engines whilst the Harvard UK design and engineering team will support innovative new product development. This key group of UK personnel offer the benefit of historical knowledge and skillset to support an exciting product portfolio, including latest state-of-the-art and high specification designs.

Technical Manager for Harvard, Trever Parrett added, "Live manufacturing and product test data for all items in production is seamlessly available on our local servers allowing us to monitor and control the design, safety and performance characteristics of each manufacturing batch. This is particularly important for us in maintaining our design authority and ensuring consistency and compliance with all relevant specifications."

Harvard LED driver and LED light-engine manufacturing and production underway at the group's facilities in Kochi. ■

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Silvair to provide wireless technology for OSRAM's new lighting control system

Silvair, a leading provider of qualified Bluetooth mesh solutions for lighting control, announced a technology partnership with OSRAM, a leading global lighting and high-tech company. As part of the cooperation, Silvair will provide a robust wireless control technology for HubSense a new lighting control system from OSRAM.

HubSense is designed to enable easy and time-efficient retrofitting of existing lighting installations into flexible wireless control systems based on the globally interoperable Bluetooth mesh standard. With a drastically simplified commissioning process and multiple predefined lighting scenarios, it is an intuitive solution for implementing advanced control strategies without lighting control engineering expertise. The system also allows quick and effortless modification of settings and lighting arrangement without bearing the costs of recommissioning.

With Silvair as its Technology Partner, OSRAM gains access to the company's wireless know-how and unmatched Bluetooth mesh expertise. Silvair's ingredient branding program was established to highlight the supreme quality of the wireless technology underlying its partners' products. As a major contributor to the Bluetooth SIG's Mesh Working Group, Silvair plays a key role in the development of the Bluetooth mesh standard. The company aims to deliver wireless control solutions that surpass wired installations in terms of not only flexibility and cost-efficiency, but also reliability and scalability.

"Bluetooth mesh introduces multiple innovative concepts to solve the typical challenges of wireless lighting control. Already present in all personal computing devices, it also seems perfectly positioned to deliver value-added services directly to end users," comments Hannes Wagner, Product Manager at OSRAM. ■

Cree, ABB announce Silicon Carbide Partnership

Cree and ABB's Power Grids business have announced a partnership to expand the rollout of silicon carbide in the rapidly-growing high-power semiconductor market.

The agreement incorporates the use of Cree's Wolfspeed silicon carbide-based semiconductors into ABB's comprehensive product portfolio, enabling Cree to broaden its customer base while accelerating ABB's entry into the fast-expanding EV sector.

Cree's products will be included as part of ABB's power semiconductor product portfolio, across power grids, train and traction, industrial and e-mobility sectors. Specifically, Cree's industry-leading silicon carbide devices will be assembled into ABB power modules.

"Cree is committed to leading the global semiconductor market's transition to more energy efficient, higher performing silicon carbide-based solutions. ABB has a longstanding heritage as the world market leader in industrial power electrification solutions, so expanding our work with them will help increase the adoption of transformative and eco-friendly alternatives in the power and automotive sectors," said Cree CEO Gregg Lowe. "Together, this partnership delivers Wolfspeed silicon carbide into new markets, such as power grids and high-speed trains for the continued advancement of the power, traction, industrial and EV markets."

Compared to a silicon-based semiconductor, a silicon carbide semiconductor delivers a significant reduction in switching losses and permits far higher switching frequencies. This advanced technology enables future utilization of silicon carbide modules in traction inverters for trains, HVDC for power transmission and distribution, solar and wind inverters, energy storage, and transformers. For the EV market, this means longer driving distances and faster charging times using the same size battery. ■

Orient Electric launches air circulating luxury chandeliers

Orient Electric Limited, part of the diversified US$ 2.4 billion CK Birla Group, has launched its new Eleganza series of air circulating luxury chandeliers with three mood lighting modes.

Orient Eleganza range includes three alluring, distinctly featured air circulating luxury chandeliers.

Atul Jain, Executive Vice President, Orient Electric said, "With rising aspirations and affluence driving consumer spending in India, there is an ever-increasing demand for world-class luxury products and services that offer unique experiences. Interestingly, the craving for luxury lifestyle is no longer confined to Tier-1 cities only but is equally prevalent in Tier-2 and Tier-3 cities. We want to leverage on the fast-growing premium end of products to further strengthen the brand's premium positioning."

Orient Eleganza combines the comfort of an air circulator with the elegance of a chandelier in one single fixture. The collection comprises three air circulating chandeliers namely Eleganza-01, 02 and 03, in different sizes, styles and colours to suit different décor settings. ■

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Siemens to acquire 99% of C&S Electric from its promoters

In a step to meet the increasing demand for electrification across industry, infrastructure and buildings in India, Siemens has signed an agreement to acquire New Delhi-based C&S Electric Limited.

Under the agreement, Siemens Ltd. will acquire approximately 99 per cent of the equity share capital of C&S Electric Limited for around Rs. 2,100 crore (approximately EUR 267 million). Closing of the acquisition is subject to regulatory approvals.

The scope of the acquisition comprises the Indian operations of C&S Electric's low-voltage switchgear components and panels, low and medium voltage power busbars as well as protection and metering devices businesses. Other businesses of the company such as medium voltage switchgear and package sub-station, lighting, diesel generating sets, EPC and the Etacom busbars business will be retained by the owners.

Commenting on the acquisition, Sunil Mathur, Managing Director and Chief Executive Officer, Siemens Ltd., said: "The addition of C&S Electric's products, sales network, manufacturing units and a highly competent employee base will complement and strengthen the range of Siemens' offering. This will bolster our portfolio not only in India, but also for export to competitive international markets in line with our growth strategy."

C&S Electric was founded in 1966. It has more than 5,000 employees across three main manufacturing locations – Haridwar, Noida and Guwahati – including a research and development center in India. ■

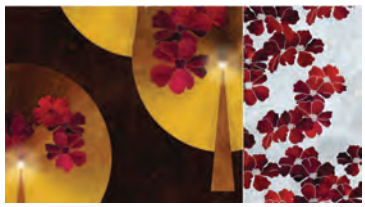
Zumtobel develops special lighting solution for Guggenheim Museum Bilbao

There are no less than three Guggenheim museums around the world, placed in in New York, Venice and Bilbao. The museum was designed by architect Frank O. Gehry in the deconstructivist style, a modern, avant-garde style of architecture characterised by slanting walls, intersecting building elements and sloping or rising ceilings. The impressive 9,000 sq.m. exhibition space holds works of art in the form of paintings, sculptures, installations and video art – predominantly masterpieces of the 20th Century.

Following the refurbishment of the lighting system, the exhibition spaces have been given a new lease of life, thanks to an LED lighting solution from Zumtobel, who replaced the previous lighting system and achieved new levels of efficiency and light quality. To meet the museum's technical and financial requirements, Zumtobel developed a custom-made product that can be used as a wallwasher, spotlight, very narrow spotlight and projector.

The most important lighting task in the museum is the perfect highlighting of the essence or shape of an exhibit. The excellent performance of Zumtobel's wallwasher spotlight in particular impressed the Guggenheim Museum Bilbao: in the exhibition areas, with ceilings up to 12 metres high, the luminaire offers the perfect mix of finely accented and large-scale lighting, together with uniform light distribution throughout combined with outstanding colour rendering (Ra > 96). Additional spotlights illuminate the artworks sensitively and precisely. UV- and IR-free light protects the exhibits, three colour temperatures, 3000 K, 3500 K and 4000 K, showcase the artworks perfectly. In addition, a special filter can be used to create diffuse light and oval light distribution. ■

Spacio brings Nina collection of LED wallpaper from Meystyle



Bringing in a revolutionary idea for interior styling Meystyle, the London based brand on LED Wallpapers housed at Spacio showcases a stunning range of bespoke illuminated LED wallpapers.

Their Nina Collection draws inspiration from the old and new, creating a new line inspired by embroidery designs created by their late Grandmother – Nina. LED's provide ambient lighting and an aesthetic quality but also provides a spatial marker at night when all other lights are off. Matching designs can be printed onto a wide variety of flame-retardant fabrics for upholstery and cushions.

The digital designs are printed onto wallpaper with a choice of a non-woven or paper substrate. The use of Swarovski crystals accentuates the impact of the LED's as the two work in harmony to create a dramatic impact. Each wallpaper is hand-made to create tailored patterns to compliment other fixtures in the room. This press release is about showcasing the brands beautiful collection Nina.

Meystyle is a London–based design company specialising in designer LED wallpaper, an exclusive technology pioneered in 2004. Meystyle wallpapers are individually handmade which enables tailor made patterns to be created as per unique environments. ■

Electrifying ELECRAMA 2020 Beats Slowdown

The five-day long engagements opened new frontiers for global electrical and electronic markets; generated business queries worth $4.6 billion

Over 3 lakh footfalls was recorded at ELECRAMA 2020 in the five days, from 18th – 22nd January, as the biggest showcase of electrical and electronics manufacturers beat economic slowdown to record a whopping $4.6 billion worth business queries through Reverse Buyer-Seller Meet (RBSM) and Domestic Buyer Seller Meet (DBSM).

The 14th edition of ELECRAMA had around 1,370 exhibitors showcasing their products and services at the flagship initiative of Indian Electrical and Electronics Manufacturers' Association (IEEMA).

Two MoUs were also signed, the first between IEEMA and Kyrgyzstan to promote bilateral trade and economic cooperation. The second MoU was signed with Rupeeboss under SME Clinique initiative.

"There has been an overwhelming support from the global partners to ELECRAMA 2020 not only restoring its faith on the Indian growth story but also giving a strong impetus to the local industry for being the leading powerhouse of the segment for the next decade," said Anil Saboo, Chairman, ELECRAMA 2020.

"As expected, we have generated around 400 per cent growth in the numbers and this is a very positive sign for small to big players in the industry. Basically, this means there's more business for everyone across verticals of the electrical and electronic industry," said RK Chugh, President, IEEMA.

Amidst multiple initiatives aiming to strengthen discourse and engagement around key verticals, the conference saw a bustling 5th Reverse Buyer-Sellers Meet under ChangeXChange 2020 program, wherein people participated from 70 countries round the globe. While the participants profile improved exceptionally in comparison to the previous editions, the international participants hailed the organizers for creating an impressive platform for a global exchange.

The RBSMs held concurrently saw participation from 650 buyers from 70 countries including Southeast Asia, the Middle East, Latin America, CIS countries and SAARC nations. ■

Aravind Yarlagadda joins Eaton as executive VP

Aravind Yarlagadda

Power management company recently Eaton announced that Aravind Yarlagadda has been named executive vice president and chief digital officer. In this role, he will be based in Beachwood, Ohio, and will report to Craig Arnold, Eaton chairman and chief executive officer.

Yarlagadda joins Eaton from Itron, Inc., a leader in delivering IoT solutions for the utilities and cities industry segments, where he was most recently senior vice president and general manager of the Outcomes Business. Prior to this, he served in a number of senior leadership roles at Schneider Electric, Invensys and Tyco, leading product management, marketing, solution development, business development, digitalisation and services.

"Aravind is a unique and talented leader skilled in delivering enterprise solutions and leading digitalisation initiatives for the industrial and energy infrastructure segments," said Arnold. "His knowledge and experience leading software businesses will be instrumental as we continue our transformation into an intelligent power management company."

Yarlagadda holds a bachelor's degree in engineering, electronics and instrumentation from Birla Institute of Technology and Science, Pilani, India, and a master's degree in computer science from Texas A&M University, College Station, Texas. ■

Orient Electric appoints Salil Kapoor to lead its Home Appliances business

Salil Kapoor

Orient Electric Limited, part of USD 2.4 billion diversified CK Birla Group, has appointed Salil Kapoor as Business Head, Home Appliances business. Salil will be based at the company's Head Office located in New Delhi.

An industry veteran with more than two and half decades in consumer durables and Media distribution, Salil has held leadership positions at leading brands like LG Electronics, Samsung, Microsoft, Dish TV and Voltas. His previous assignment was with Voltas Limited where he was working as COO for the UPBG division and was leading Air Conditioners and other Appliances business.

Rakesh Khanna, MD & CEO, Orient Electric Limited said, "It gives me immense pleasure to welcome Salil to the Orient Electric family to lead our Home Appliances business. He brings with him extensive experience and deep understanding of consumer durables industry which will help us to propel growth in our Home Appliances business."

At Orient Electric, Salil's focus will be on strengthening the product portfolio, increasing marketing effectiveness, improving service levels and ramping up the distribution network in the country in the next one year.

Salil will also be responsible for the expansion of other partner brands in small appliances which currently include De'Longhi, Braun and Kenwood in India. Orient Electric entered a strategic partnership with the De'Longhi Group in 2018 to market its products in India.

Orient Electric offers a wide range of home appliances including air coolers, water heaters and small kitchen and home appliances. It is one of the fastest growing brands in air cooler and water heater categories in the country and a dominant leader in major states in Northern part of India. ■

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Sales of light towers soar as market exhibits 1.6x growth, finds Fact.MR

Light towers are primarily used for projects on construction sites that involve high operational risk especially in the night. Traditionally, light towers have not yet hit the benchmark in terms of technological advancements, however, electric models, paralleling capabilities and LED technology are gaining popularity and taking lighting capabilities to the next level.

The rapid growth of construction activities in developed and developing nations, as well as increasing energy demand and growth in the mining sector will boost the demand for light towers around the globe. New report reveals that light tower market will experience a 1.6-time growth to hit a valuation of US$ 2.3 billion by 2029.

The report finds that the diesel fuel accounted for over half of the market revenue in 2018 owing to high reliability, easy availability, ease of fuel storage, higher running time and easy maintenance. It said, "The year 2018 ended with an infrastructural investment gap of about US$ 400 billion, wherein the worldwide infrastructure investment demand was close US$ 3 trillion and actual investment was US$ 2.6 trillion. The investment gap is anticipated to take considerable shape and improve economic activity over the coming years, which will create a surplus opportunity for infrastructural equipment suppliers."

Light tower market is expected to create a value opportunity of around US$ 830 Mn during the forecast period, adding 1.6 times more value in 2029 as compared to 2019.

According to the Fact.MR report, "The Asia Pacific Region is expected to rise with the fastest CAGR over the long-term forecast period of 2019-2029 as the region is home to the world's fastest growing economies like China and India. Also, construction and mining activity in the region is at its peak, attracting new investments in the region."

Major players in the market including Wacker Neuson SE, Terex Corporation, Atlas Copco AB, Allightsykes Pty Ltd, Generac Holdings Inc., Doosan Infracore Co., Ltd, Multiquip Inc., The Will-Burt Company, Allmand Brothers Inc., Wanco, Inc., Westquip Diesel Sales LTD, Inmesol Gensets, S.L. among others who are focusing on innovative product launches and acquisitions for strengthening their hold in the global light towers market. For instance,

- Allightsykes Pty Ltd launched SLT-900, a solar lighting tower in November 2018, which offers an array of standout benefits including zero noise and zero emissions.
- Wacker Neuson and MHE-Demag entered into an agreement to pursue growth opportunities in Southeast Asia in March 2018, while Wacker Neuson also entered into a partnership with Everdigm and expanded its International presence in the Far East
- In March 2019, Generac acquired Neurio Technology Inc. Neurio Technology Inc. provides hardware and software solutions to equip users with intelligence to manage and control electrical loads, solar systems and batteries to optimize energy consumption and increase savings.
- Atlas Copco introduced a renewed version of the exclusive ultra-quiet LED light tower called HiLight B5+ light tower in the year 2018. With noise levels as low as 55 dB, this product is meant to be used for deployment in urban and residential areas. ■

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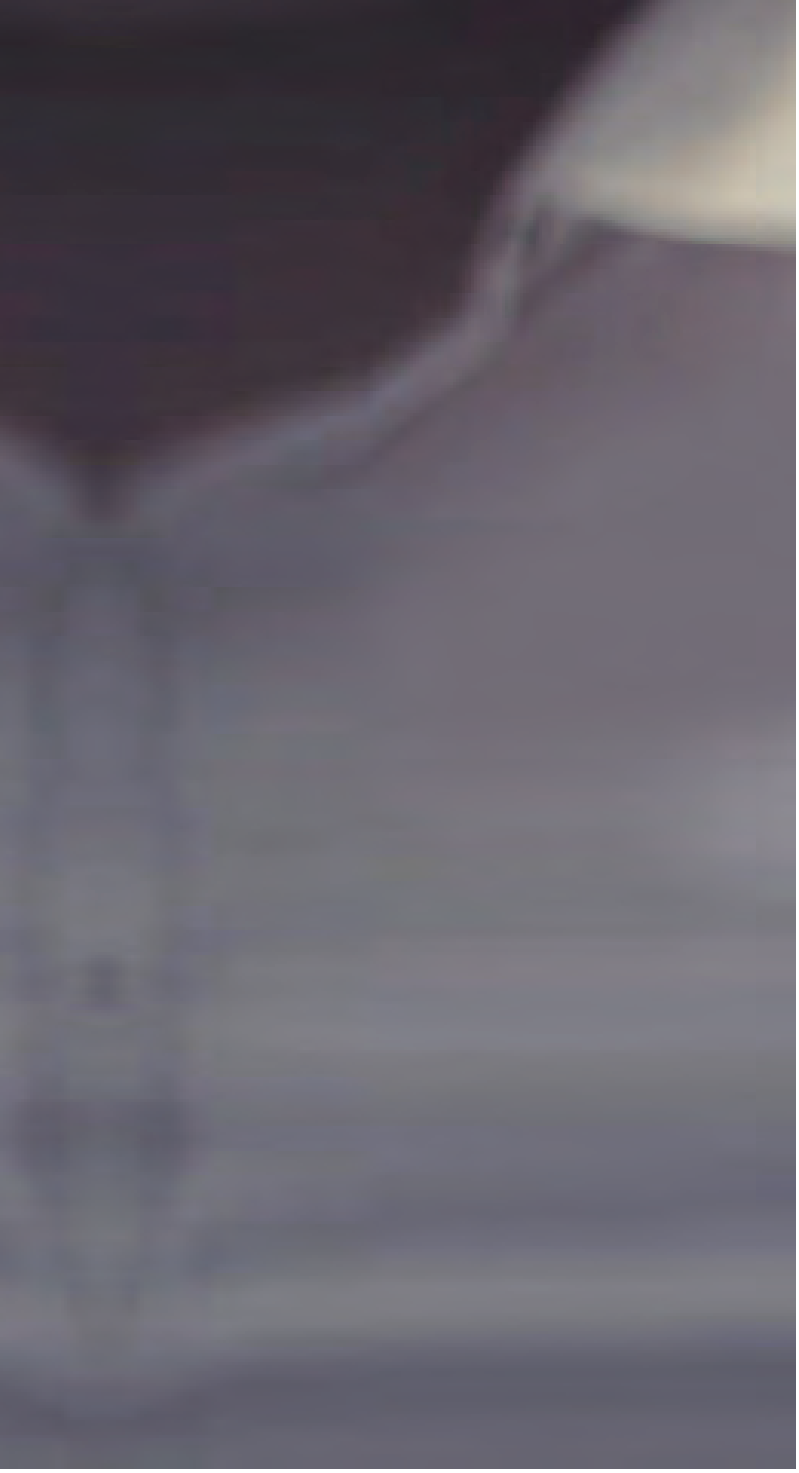
Lighting 2020

What's in-store for the lighting sector in India?

With a keen eye on market trends, innovation and technology, industry representatives speak on cash flow issues prevalent within the lighting and the LED sector in India.

- Ranjana Konatt,
Editor – Brand Positioning



Government policy and regulation has a big part to play in a competitive market. India is a price-sensitive market, and if you have to export a particular product, it must be manufactured as per requirements.

MICHAEL DEHN,
General Manager - Sales and Marketing, Messe Frankfurt

The year 2020 is promising for the lighting sector in India. Industry representatives believe that the lighting sector has evolved, and today, smart lighting technology is the future of the industry. System integration paired with automation and networked building-systems are helping businesses evolve.

With an uptake for energy-efficient products, the LED and the lighting industry is bound to grow as it rides on initiatives that encourage the use of LED lighting systems. With the many shifts within the industry, Praveen Madaan, India Country Head and South East Asia, Sales and Marketing Advisor, Juki, said that the need of the hour is to innovate. He said: "Growth is sustained through innovation and as far as Juki is concerned, we are not facing any issues with regard to functioning within the market." Sighting a challenge, Madaan mentioned that there is an issue with cash flow. "Cash flow is tight and customers are very often unable to get bank loans easily," he asserted.

Hoping that the overall scenario will change by next year, Madaan also said that the role of automation and technology cannot be denied. "Technology and automation are key within the scope of LED. We see a lot of new products coming up which use Chip-On-Board (COB). Components such as this improve the manufacturing cycle time and also the overall life of the product," he said. Dehn added and said that the LED market is almost synonymous with the lighting market. He said: "The LED market has come a long way and has changed over the past five-years; it has grown from being a market where manufacturing was not competitive to being a competitive market." The uptake for LED solutions has made it competitive and then again, this poses as an opportunity for Indian manufacturers to step-up. "On a government

policy level, the sustainable drive continues to influence the market. From the macro-economic perspective, we see a trend wherein there exists a trade war between the US and China," he added. Over time, he said, the demand from international buyers looking into India as a manufacturing country will gradually increase.

The government is helping us and are supporting us. I hope the government supports us by reducing tax, this will help the industry boost itself while enabling us to compete with other markets.

SANJAY CHOUDHARY,
CEO, Crescent Opto

Sanjay Choudhary, CEO, Crescent Opto, also provided insight into the LED market. He said: "Approximately 90 per cent of the lighting industry belongs to the LED sector. I won't hesitate to say that the market size is huge. There are various factors within the industry that is leading to a higher value." He pointed to factors such as the urgency for energy-efficient solutions, the availability of government distributed bulbs at a lower cost, and the awareness to the consumers. The factors have a crucial role in helping the industry grow.

Concerning government policy, he said: "The government is helping us and are supporting us. I hope the government supports us by reducing tax, this will help the industry boost itself while enabling us to compete with the Chinese on the same front."

Denh too added and said: "Government policy and regulation has a big part to play in a competitive market. India is a price-sensitive market, and if you have to export a particular product, it must be manufactured as per requirements." Over the years, he added, the Indian market has been getting involved in smart lighting, IoT. "I think there is still a chance for these systems to be included in every household, and these generally plug and play products."

While giving insight into what Crescent was doing over the years, Choudhary said: "We have developed our product categories and our manufacturing base in a huge way. We manufacture components. We have focused on pricing our products reasonably just to prove that we are tough competition." Besides, he said, the company has also launched an automation division where lighting automation technology is being developed. Also, we see shifts that are causing waves within the industry. In an attempt to create waves of positive change within the LED and the lighting sector, Messe Frankfurt India, the organisers of LED Expo and Light India have merged the Delhi editions of the two biggest lighting trade shows, titled "Light + LED Expo India 2020". The move is aimed at enhancing business and the organisers hope that it will boost networking and industry connect.

Speaking about the merger, Michael Dehn, General Manager - Sales and Marketing, Messe Frankfurt, said: "At Messe Frankfurt, we are already represented in India for the past 20-years. The shows have grown strong over time and each represents an area from the industry." The thought behind the move was to provide a 360-degree view of the lighting market, and now this has become a reality for the year 2020. "An industry showcase under one roof will uplift the lighting industry in India and since we provide a platform for international visitors, the show tends to create a greater impact," Dehn added. ■

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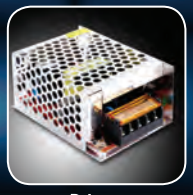
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messe frankfurt

LIGHTING TRENDS to watch out for in 2020

Sumit Padmakar Joshi,
Vice Chairman and Managing Director, Signify Innovations India (previously known as Philips Lighting India) looks into the industry's crystal ball.

In 2020, lighting will expand beyond just illumination thanks to the emergence of several new technologies that will pave the way for a connected world. With the entry of LEDs, lighting has transformed from analog to digital and can be remotely controlled and monitored. This opens a world of possibilities with multiple applications across offices, homes, cities and public lighting, enabling both energy efficiency and higher productivity. Here are some lighting technology trends that will create the largest opportunities in the market by making way into homes and various other sectors in in 2020.

1. **Li-Fi (Light Fidelity):** Li-Fi is a wireless technology that uses light waves instead of radio waves to transmit data. Satisfying all the requirements of this digital day and age, Li-Fi is a perfect fit for financial institutions, government and public offices that demand highly secure and fast internet connection. It is also a great option for providing internet connectivity in public transport to enhance the travel experience for passengers. It is a much safer option

compared to other wireless technologies as it doesn't cause any interference with sensitive equipment and there is no compromise on speed or privacy.

2. **Human-centric Lighting:** With adults spending a major part of their day indoors, lighting can have a significant impact on their wellbeing. By tuning light to support our circadian rhythms and emotional needs, we can promote human comfort, wellbeing and performance. This can have multiple applications such as industrial light levels tuned to reduce fatigue and errors and the health impacts of shift work. Health and aged-care facilities where lighting simulates daylight rhythms to help patients and residents sleep better, recover faster and feel happier. Offices where workers can personalise light settings to suit their own vision, helping to create a more inclusive and comfortable workplace.
3. **Horticulture Lighting:** The farming method of the future is here. Now farmers can optimise their growth systems with LED lighting for sustainable crop cultivation, all year round. Tailor-made light recipes result in faster growth, bigger harvests, and higher quality plants. Finely-tuned light recipes supply the spectrum and intensity the crop needs without adding extra heat, giving farmers more control over the greenhouse climate, making year-round production possible.
4. **Aquaculture Lighting:** Light is a powerful tool for enhancing fish production and welfare. Adjustable LED technology can create specific lighting conditions to optimise aquatic environments as fish develop. This unique application of lighting offers new possibilities to increase revenues and reduce production costs for fish farms, supporting the development of sustainable aquaculture.
5. **LED lighting comfortable for eyes:** LEDs made their debut about 10 years ago in the lighting industry and transformed the sector with their superior energy efficiency and better light quality. As time passed, LEDs also evolved to become more comfortable for human eyes. The latest LED lamps diffuse and reflect light which in turn reduces glare and ensures no visible flicker. The result is a uniform light output that is comfortable on the eye. This is an important development, considering that we all spend most of our day under artificial lighting.
6. **Non-traditional shaped LED bulbs:** This year we also witnessed the emergence of non-traditional shaped LED bulbs, tube lights and downlighters that offer ease-of-installation and prevent wall damage. Some of these modern lighting solutions such as T-bulbs, downlighters allow customers to quickly replace their lighting fixtures without the need for elaborate installation or electrician support. ■

Author
SUMIT PADMAKAR JOSHI
Vice Chairman and Managing Director,
Signify Innovations India Ltd

LIGHT CAN CHANGE AN ENTIRE SPACE

A boutique luxury studio, Klove specialises in custom lighting solutions. Designer duo from Klove, Prateek Jain and Gautam Seth, speak to *Subhajit Roy* and tell us what's their lighting designing philosophy and also what does it take to successfully lighting a space.

Design at Klove begins with a fantasy, and meets reality through considerations of ergonomics and functionality.

Gautam Seth,
Founder and
Creative Director,
Klove Studio

Please don't follow a trend. Embrace a trend that matches your aesthetic – if you follow this then I think your shopping will be more fruitful and enjoyable.

Prateek Jain,
Founder and Creative Director,
Klove Studio

Tropical Wall Installation

Q What brought you into the lighting designing?

A Prateek Jain: We both were working with our family businesses and always knew we wanted to be a part of something that was our own but also creative. We started off experimenting with handblown glass and that eventually led us to push those boundaries and introduce the concept of light.

Klove studio was established in the year 2005. In our early years, our designs were marked by very simple forms, to which we are curiously returning. The year 2008, literally lit up the market when Klove became known for its blown glass chandeliers, which later

Fern Chandelier

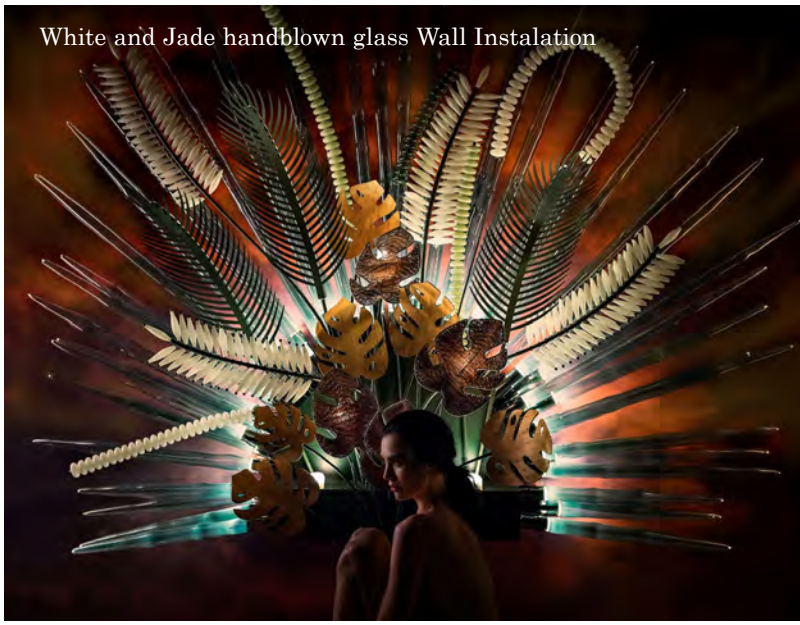
Linear Light

evolved into larger installations and highly customised products. Through this journey, the partnership with Indian craftsmen – to whom we gracefully credit half our success—has been at the heart of Klove. It is in the spirit of preserving talent and reinventing India that we plan our next steps.

Gautam Seth: We began our career because we wanted to experiment with different material our first exhibition as glass designers took place in 2005 where we played with the concept of transparent, translucent and opaque. Over the last 10 years we've grown from strength to strength. We also have a store in Mumbai now and what has always excited us is the surreal dimension of transparency, translucence and opaque and that is why we did the 10th year anniversary exhibition as well.

Goa House Chandelier (Custom)

Klove_39 (Custom)



White and Jade handblown glass Wall Instalation

Q What is it that fascinates you about light?

A Gautam Seth: Light can change an entire space. Depending on where it is placed, how it is displayed, how many lights are used, the different types of light bulbs, I mean there are so many different factors when it comes to lighting. The art of light is the art of spatial design. The decision on what light you choose to decorate your spaces is what decides the mood and vibe of the space.

A new experience makes us tick – we've always learnt and been motivated by things that are in our experience.

Prateek Jain: We are in the business of designing new and cutting-edge lighting products, but more than that we keep evolving products that are already well designed. A classic example of this was when we wove several of our

own design concepts into one for our wedding Mandapam. I love that process of looking at products with a renewed perspective so that they adapt to changing times and taste. Seeing an older design take a new form is the most thrilling experience for us as lighting designers.

Q What's your lighting designing philosophy?

A Prateek Jain: The studio's experience and expertise span a wide breadth of focus in decorative lighting installations. Klove explores the relation with function and form as embodied in spatial design and from there moves into the realm of emotion as personified in our human form.

We, as beings of light.

At Klove studio we embellish and balance the visual experience with deft imagination. There is a commitment to use our years of learnings and sound technical knowledge as a spring board to provoke, question and go deeper into our chosen medium of artistic expression.

Gautam Seth: The vision of Klove is to transform real spaces into surreal dimensions; as a luxury boutique studio, Klove specialises in decorative lighting installations. Design at Klove begins with a fantasy, and meets reality through considerations of ergonomics and functionality. The aim is to harness each of these design elements and create lighting products that transcend the stereotype to become pieces of contemporary art.

Q What does it take to successfully lighting a space?

A Prateek Jain: You need to identify the intention, in the sense what kind of space is it? Is it a nightclub, a restaurant, an office, an art gallery etc. Once you know what the space is supposed to be everything slowly falls into line.

First rule. For selecting a light is one should know its purpose. Is it for decoration or is it functional? Very rarely do I see a good design that can purpose both. Second tip is please don't follow a trend. Embrace a trend that matches your aesthetic – if you follow this then I think your shopping will be more fruitful and enjoyable.

Gautam Seth: A boutique luxury studio, Klove specialises in custom lighting solutions. Our core lies in creating light sculptures and installations while the product line deals in

Goa House Chandelier

unique decorative lights, chandeliers, pendant lamps, floor lamps, ceiling lights, table lamps and accessories. Our signature flows from neo-classical to contemporary design and we launch annual collections inspired by our travels around India and the rest of the world.

Q What are the challenges you faced at the beginning of your journey in the field of lighting?

A Gautam Seth: Like with any other business the same challenges popped up for us. Establishing ourselves as a serious competitor in the lighting and design community, building up our clientele, how to communicate our brand philosophy. We also had no experience in the lighting industry, so we had to learn through our experiences on the way, we basically had to start from nothing and educate ourselves on the journey.

Q What was your most challenging experience in a project you've worked on, and why?

A Prateek Jain: Again, it was difficult in the beginning as we had no experience with lighting, so everything was experimental, we didn't know what would work and what would not work. Learning how lights affect different spaces in different ways, it was trial and error. Over time with years of experience projects become easier. ■

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A CHARY PUBLICATION

SLOW DESIGN

(Source: www.cupastone.es)

A NEW STANDARD FOR CONNECTED LIGHTING?

Slow design emerged as a new paradigm for sustainable design, where design balances socio-cultural and individual needs with environmental wellbeing.

Exponential growth in multiple technologies including Bluetooth mesh, real-time data, Internet of Things (IoT), Light Fidelity (Li-Fi), etc. are forcing rapid transformation in the way lighting is being designed. This article however, orientates lighting design towards a unique form of creative activism – that promotes a culture of largo without adhering to the time constraints of economic or technological growth, while delivering pluralistic values of wellbeing and sustainability for design – called 'Slow Design.' Slow does not dispute the fact that actual fastness or speed can be good or useful. Rather than opposing helpful speed, slow stands against unnecessary acceleration and aggressive rapidity in action, against our habitual thought of what time is and how it should be utilised. The article explores how the principles of slow design can be applied in this fast-paced world of IoT and Connected Lighting, so as to find fresh qualities in lighting design research, ideation, processes and outcomes.

Slow Design – The Definition

Slow design can be defined as a design process that is deeply conscious of the lifespan, materials and processes used in the creation of its end product, resulting in ecological soundness and consumer enjoyment. Slow, as a philosophy, stands against the possible degradation of life by fast consumerism and constant want. Fast, in opposition to slow, does not necessarily mean physical speed but more the hurrying along of natural pace. Designs created through the slow process are made with actual need and wellbeing in mind, using renewable or recycled materials and energy, and with their futures thoroughly mapped – be it biodegradability or recycling, following zero-waste or cradle-to-cradle philosophies.

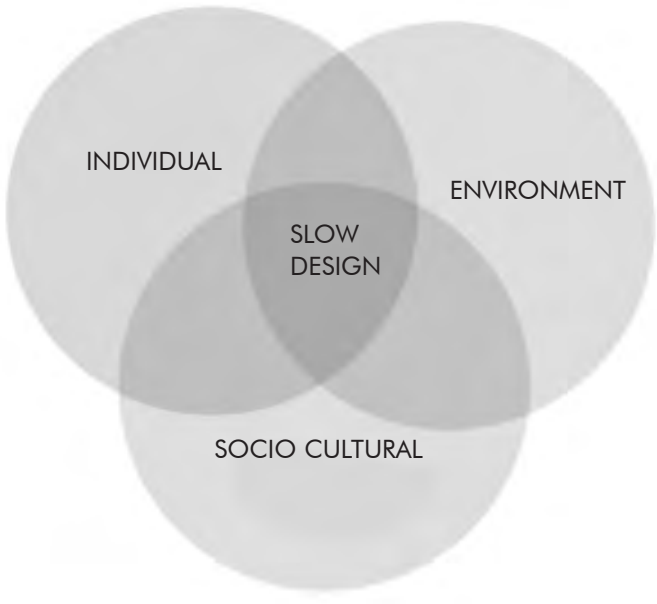
Slow Design – The Origins

Sustainable design has always been considered the 'trinity' of economy, ecology and equity. However, design often has been more reactive to the needs of economy, commerce and the marketplace. Literature indicates that none of the economies – 'industrial,' 'consumer' or 'knowledge' – are equally or equitably distributed; thereby creating a need for a new sustainable design paradigm to not only 'save the planet' but to 'save designers' and the professional reputation of design. The 'industrial economy' commenced some 200 years ago creating means of mass production; the 'consumer economy' emerged 75 years ago producing things for mass markets; the 'knowledge economy' emerged in mid-1970s; the 'human economy' emerged at the cusp of 2000 harnessing Internet technology to break the monopoly of communication held by governments and commerce; and finally, the future is of 'intelligence economy' that will merge real and virtual worlds by blurring the boundaries between natural and artificial intelligence.

Slow design emerged as a new paradigm for sustainable design, where design balances socio-cultural and individual needs with environmental wellbeing. Although design being a creative process, most of the energy of designers has been applied to oiling the wheels of various economic models consequently leading to the progressive commodification of time, as time is the basis for economy. Slow design on the other hand does not conform to shortening time spans allocated to life cycles of products in marketplace; it doesn't celebrate smallest, biggest, and fastest; however, it does celebrate balancing anthropocentric needs with planetary needs, and the de-commodification of time. 'Slow' because time constraints of economic growth and expediency are removed, and design goes beyond fabrication of things for the marketplace, consequently avoiding competition in an increasingly accelerated game of technological progress, brand positioning and commercial globalisation.

Slow Thinking in Lighting Design

As the lighting industry is morphing into an IoT concept, based on seamless digital interconnectivity across all facets of human life, acceleration and innovation is key to survival. Smart city concepts are further leading lighting into the IoT where connected lighting enables digital technologies critical to the expansion of city services. All these paradigm shifts in lighting have seriously challenged traditional ways of designing with light. In such a time of change, embracing these agents of change and developing a new standard for lighting design seems to be a way forward. This new standard requires universally agreed upon metrics, measurement methods, limits and criteria that would set strong baselines for energy efficiency, functional performance and address key parameters of connected lighting.



Slow thinking will allow lighting professionals to focus on the decisions, research or processes that are the most vital for developing such a standard. Slow design is where lighting professionals can experience real freedom, when connected lighting improves our lives while simultaneously improving our societies and cultures, when connected lighting contributes to restoring the health of our environment. Six principles of slow design have been posited to more intimately understand one's own identity as a designer, reflect upon one's own design processes, evaluate tangible outcomes, and imagine new scenarios. These principles are used to carefully and continuously explore the core concepts of connected lighting.

Slow Principles for Connected Lighting

Slow principles can create appropriateness, as they allow for time throughout the design process for thinking about the intended design outcomes and how best to reach those goals while keeping the integrity of the design intact. These principles were put forward as a set of criteria against which designers can interrogate and appraise their ideas, processes, motives, and outcomes; in effect creating a 'shifting brief' and a mutable outcome as the design process unfolds. Each of these principles is reviewed in detail to understand how interrogation and appraisal can begin at the initial phase of

implementing connected lighting concepts. Lighting professionals can return to these principles several times during the design process, and apply them again to evaluate the final design outcome and better understand its potential future impacts.

Slow Principle 1 – Enlarge

Slow design enlarges the real and potential expressions of environments beyond their perceived functionalities, physical attributes and lifespans. Connected lighting environments can go beyond mere functional or physical attributes such as energy benefits, and consider temporal attributes and the form of interactions that take place with users over time. Temporal attributes can include an expansion into user interactions that permeate into daily life. For example, lighting in supermarkets can be used as an infrastructure to create a higher level of interaction with customers and enable a better shopping experience, boosting sales in the process. IoT sensor networks deployed inside each individual luminaire can provide customers with real-time push messages, location-based offers, help in finding a particular product and the option to request missing products while they shop via a smartphone app. Therefore, such IoT-integrated interactive lighting systems will form the core of user-based interactions. This in turn will lead to an intimate and symbiotically interdependent relationship with the lighting system.

Slow Principle 2 – Divulge

Slow design divulges the often forgotten or missed experiences in everyday life, including materials and processes that can be easily overlooked in the creation or existence of designs. Augmented Reality (AR) is a technology that brings components of the digital world into the real world through immersive sensations. Introducing AR-enriched connected lighting systems into physical architecture and immaterial space can divulge the under-observed phenomena of the built environment. For example, these systems can be deployed in a university campus to create a more engaging, adaptive and immersive environment for students and faculty. Students can be guided to different learning environments, which they normally would not be interested to enter. The idea is to create a learning environment that slows the student down, allowing time and emotional space for reflection and transformation. Therefore, the lighting experience will unfold at an extremely slow pace with visually rich cues revealing unexpected aesthetic pleasures embedded in seemingly banal spaces. This in turn will stimulate social interaction by raising awareness of the surroundings and its diverse ecosystems.

Slow Principle 3 – Engage

Slow design engages in open-source and collaborative processes, relying on sharing, cooperation and transparency of information so that designs may continue to evolve into the future. Cross-disciplinary collaborations and interdependency between IoT and lighting systems can make geospatial indoor navigation services such as way-finding and asset-tracking more affordable with their combined power and geographic density. For example, in healthcare facilities, connected circadian lighting with real-time location system (RLTS) technologies inside patient rooms or nurses' corridors can be used for resource tracking or patient monitoring. Clinical staff can monitor locations of patients with disabilities such as Alzheimer's or dementia. If a patient needs to walk three laps around the unit or sleep a certain number of hours, lighting can be used to connect to other devices in the building to track assets and data points. Additionally, geo-fences can alert the security staff when patients cross any virtual barriers within the building. Therefore, information sharing will leverage and exist through the connected lighting network. This in turn will ensure that despite the power of modern technology, one does not lose sight of the fact that people and place matter.

Slow Principle 4 – Contemplate

Slow design environments and experiences induce contemplative consumption. As lighting control interfaces facilitate lighting consumption, they can slowly reveal user patterns thus rendering them increasingly precious to the user over time. For example, personalised lighting control interfaces in an office environment can show visible traces of their relationship with the users who use them over time. The varying states of adornment on each interface can directly reflect the relationship with its user, so that the users' favourites have the greatest wealth of decoration while others may remain quite plain. Over time, the user begins to contemplate the interface's life, imagining the impressions it may have absorbed. The user sees the interface not as an inanimate object, but as a living, breathing thing with its own life and its own story to tell. To unravel its secrets, one must interact with the interface, examining its every intimate detail. Therefore, the lighting control interface moves beyond being a mere functional object to being a site of discovery, infused with layers of meaning that challenge and delight those who use it. This in turn will embed new layers of experience into lighting environments, enriching their meaning well beyond mere function and convenience.

Slow Principle 5 – Participate

Slow design is a participatory design process, where users actively exchange and embrace ideas so as to foster social accountability and enhanced communities. Smart cities can gather even more momentum with connected lighting as city dwellers can be invited to connect with the histories and patterns of lighting through empirical observation, sensory awareness and intuitive imagining. For example, city dwellers can be encouraged to annotate local area maps with their thoughts, memories, sensations, fantasies, drawings, and design gestures so as to capture local knowledge and public imaginings about the evolving nighttime identity of the neighbourhood or surrounding area. Participation can therefore generate awareness

about the unseen or forgotten aspects of those urban areas. This in turn will remind smart city dwellers of their own part in and responsibility towards the life of their localities, and be encouraged into ongoing creative investigations.

Slow Principle 6 – Evolve

Slow designs are behavioural change agents promoting richer experiences that evolve from the dynamic maturation of environments and systems over time. Connected lighting systems can be designed as co-sharing tools for reorganising neighbourhoods, instigating our relationship with our neighbours and our connection to the natural environment. For example, an IoT-based lighting system provides a perfect framework to evolve from "cold data" to "hot data". Cold data is information that systems communicate about their current state of operation which is stored to allow for trend analysis over time such as, "a light switch is on with a current draw of 0 watt." Hot data, however adds the element of immediate action, where instead of reading and deciding a course of action, analytics provide the necessary course of action such as "send engineer to look at light switch without any current draw." Therefore, the same in-building information will be mixed with external data streams to evolve into specific actionable data targeted at different stakeholders far outside the building management. This in turn will lay the foundation for new habitats to take shape in which community stewardship of projects determines their evolution over time.

Connected lighting with slow features – its financial viability

Incorporation of connected lighting with slow features requires a larger calculated vision and value that looks far beyond the old return on investment (ROI) energy story. While sceptics may argue against the financial viability of these slow features, there is a good possibility that economic interests will soon gather around these features. The simple reason being people, societies and cultures in the future will actually purchase products, services and environments that provide deep satisfaction of human needs while scoring positively on environmental and sociocultural balance sheets. And lighting being that one ubiquitous element in all built environments can certainly provide the required framework for implementing such deeply satisfying and positive features. ■

(This article is based on a paper presented at the 8th Professional Lighting Design Convention 2019 in Rotterdam, The Netherlands)

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Dr. Amardeep M. Dugar,
IALD, MIES, MSLL, Founder &
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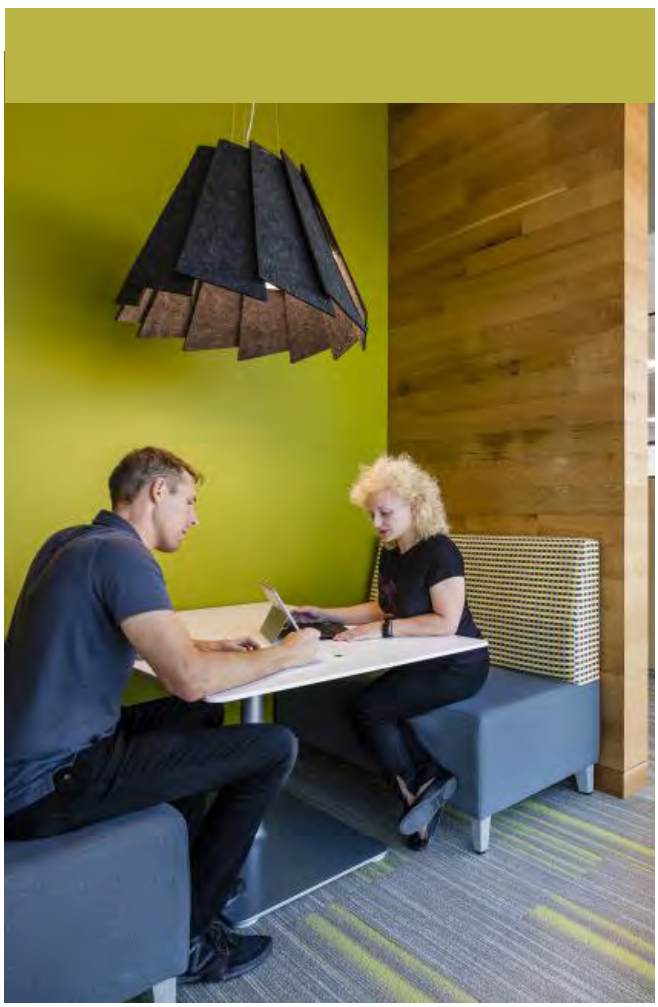
(Source: www.remodelista.com)

NETSCOUT ADOPTS EMPLOYEE-CENTRIC SSL IN NEW TEXAS OFFICE

Eureka Lighting has supplied a solid-state lighting (SSL) project at a new Netscout headquarters building in Allen, Texas, with lighting and interior design handled by Corgan.

Netscout, a digital and smart data company, moved into new offices in Allen, Texas, with a look and feel that reflects its connected culture. The three-story 145,000 square foot space presents Netscout's re-energised brand and an employee-centric design. Connectivity is the watchword here, with a focus on spaces that encourage teamwork, consultation, and brainstorming to drive the company's innovation. Statement lighting fixtures from Eureka Lighting characterise these areas.

Eureka's award-winning Sail luminaire was selected for the break rooms on each floor. An elegant fixture constructed of ultra-thin folded metal with a white powder-coated finish, it is suspended in groups of three over counter-style conference tables. Sail's



Client	: NETSCOUT
Location	: Allen, Texas, USA
Designer/ Specifier	: Corgan
Eureka Agent	: ALA
Completed	: 2018
Photographer	: Kurt Griesbach / Corgan

ultra-thin state-of-the-art OLED module enables innovative design that invokes a sense of weightlessness. Its light source creates a natural and glare-free illumination for employees working or chatting at the counter top below.

"Sail is a very artistic and structural fixture," said Jill Ibison, interior design project manager and vice president at Corgan. "It is a beautiful accent to the exposed ceilings and techy features that highlight the break rooms."

A common area referred to as the "front porches" features several Mute fixtures, also from Eureka Lighting. Mute is a sound-absorbing pendant with a soft LED downlight surrounded by 12 felt-like acoustic panels. The charcoal panels are made from recycled PET bottles and are recyclable.

Mute features a reflector and frosted acrylic lens that offers superior light uniformity and output down to the meeting tables and casual seating below.

The front porches are adjacent to open-office employee workstations, so the acoustics were a concern.

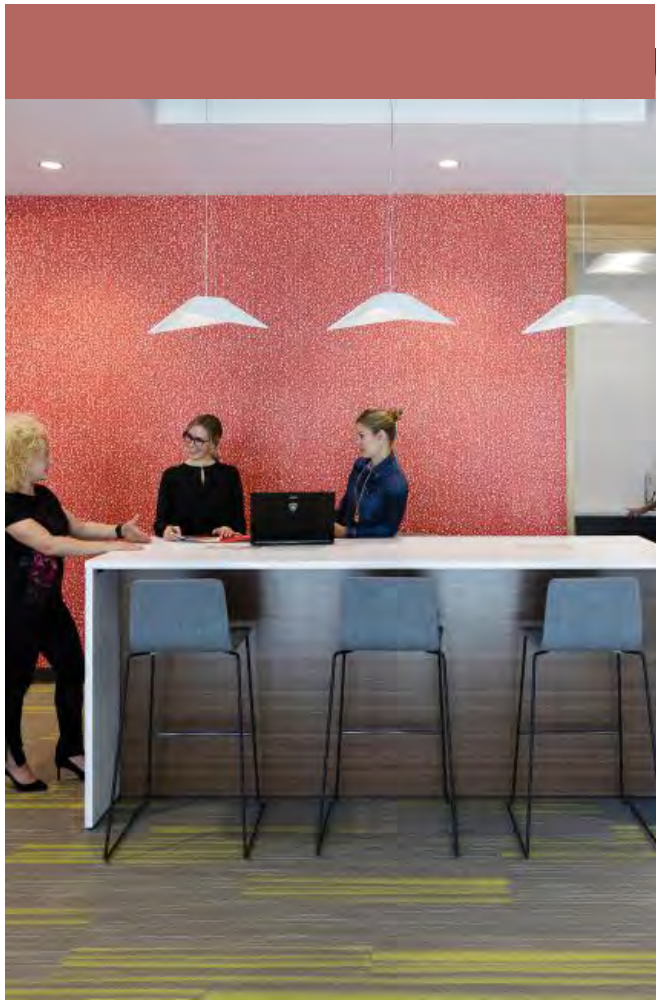
Mute is ideal for reducing reverberated noise and controlling the echo of background sounds amplified by exposed ceilings, large windows and the sheer expanse of the space. The luminaire's shape is carefully designed to expose as much absorption surface as possible. It also has the ability to trap sound between the reflective ceiling and the sound absorbing material of the fixture itself. The overall effect is improved acoustics and enhanced workplace wellbeing.

"Mute is a great large-scale fixture that provides additional acoustic value to the space," Ibison said.

Exposed ceilings make a statement in Netscout's hallways, and 288 Voxel pendant fixtures illuminate the airy corridors on each floor. The fixture's clean, minimalist shape incorporates design features that ensure incredible LED performance in the small high output projector. An integrated heat sink facilitates effective thermal management, and a ventilated housing top ensures the heat sink works at full power to optimise LED lifetime.

"Voxel was a perfect pairing to the industrial space," said Ibison. "It's a petite fixture that does not distract from the architecture around it. And it has good lumen delivery with low wattage."

Lighting efficiency was vital for the project. Corgan is committed to sustainable design, so using LED and OLED luminaires from Eureka Lighting enabled lighting goals to be achieved. Luminaire choices will help save energy, reduce glare, and make the office more comfortable for Netscout employees. ■



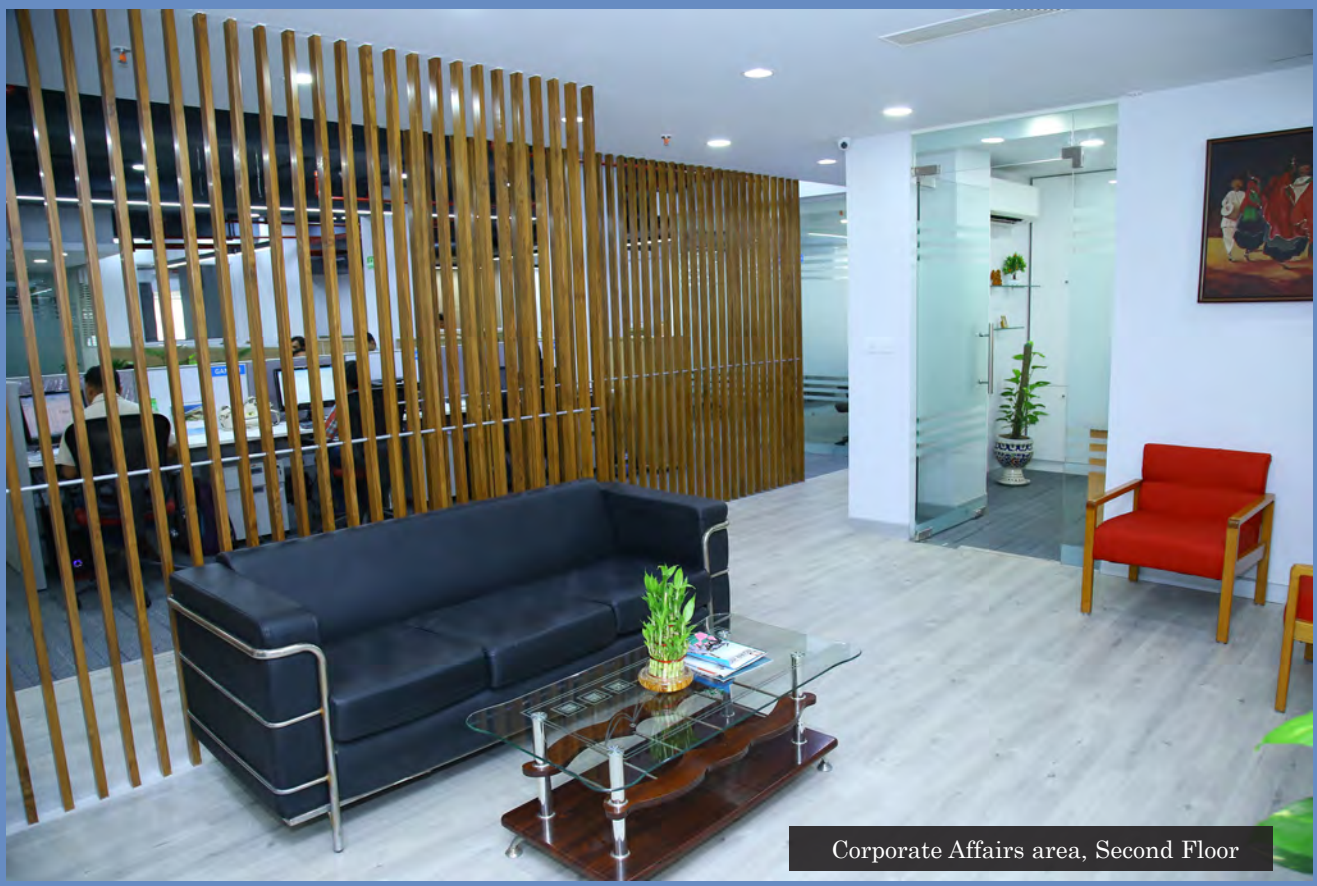
Lighting a modern office takes sincere efforts more than a few randomly positioned LEDs.

LIGHTING the Modern Office

The office of this case study LEA Associates South Asia Pvt Ltd (LASA) was established in 1993, and operates in India, Africa, Asia, and the Middle East. Over two decades, LEA India has experienced significant growth in terms of staffing as well as their project footprint. ISO certified, LEA India has grown to become a preferred consultant throughout Africa and Asia and an important stakeholder in infrastructure development throughout the world.

The Indian head office of LASA, located in Mohan Cooperative Industrial Area, Mathura Road in New Delhi comprises of four floors with approximately 24,000 sq. ft. of total office space including materials testing lab located in the basement. The office

Exterior of LEA Associates South Asia office in New Delhi



Corporate Affairs area, Second Floor

Human Resources (HR), Meeting room and Waiting Lounge area

Urban planning and transportation planning area, ground floor

interior is redesigned completely for a comfortable sitting of around 250 users (including visiting professionals/consultants).

While designing the interiors during recent renovation, the office demands more from the workplaces than ever before. So, as an architect-cum-interior designer the author adopted "human-centric approach" while conceptualising and designing the lighting plan.

The human-centric approach for office lighting in LASA

Advanced technology, innovative designs and an endless array of choices are reshaping the world of work. Working as a team for lighting design with CEO and Managing Directors of LASA, we wanted to decide the choice for employees to stand or sit, work quietly or next to colleagues, search for the sunlight or work aided by high performance task lighting. Most importantly through lighting we also wanted the employees to spend time in spaces that enhance the productivity and workplace culture, as well as their personal health and wellbeing.

It is known that better quality lighting, delivered in the right way, influences occupants: visually, biologically and emotionally. Human-

Description/ Type	Wattage	Colour of Luminaire	Colour Temperature (K)
Linear Lights			
Surface Mounted	40W	n/a	6500
Surface Mounted	40W	n/a	6500
Pendant Type	34W	n/a	6500
Spot Lights			
Recessed	10W	White	6500
Surface Mounted	8W	Black	6500
Down Lights			
Recessed	13W	White	6500
Surface Mounted	26W	Black	6500
Pendant Lights	26W	White/Black	6500
Track Lights	13W	White/Black	6500
(Source: Author)			

centric lighting brings together a deep understanding of user needs, applications and scientific insights. The benefits are clear.

Benefits for building and office space users

Well-lit spaces can enhance employees' health, mood and performance, reduce absenteeism and help company to retain staff, all of which contribute to a positive company culture.

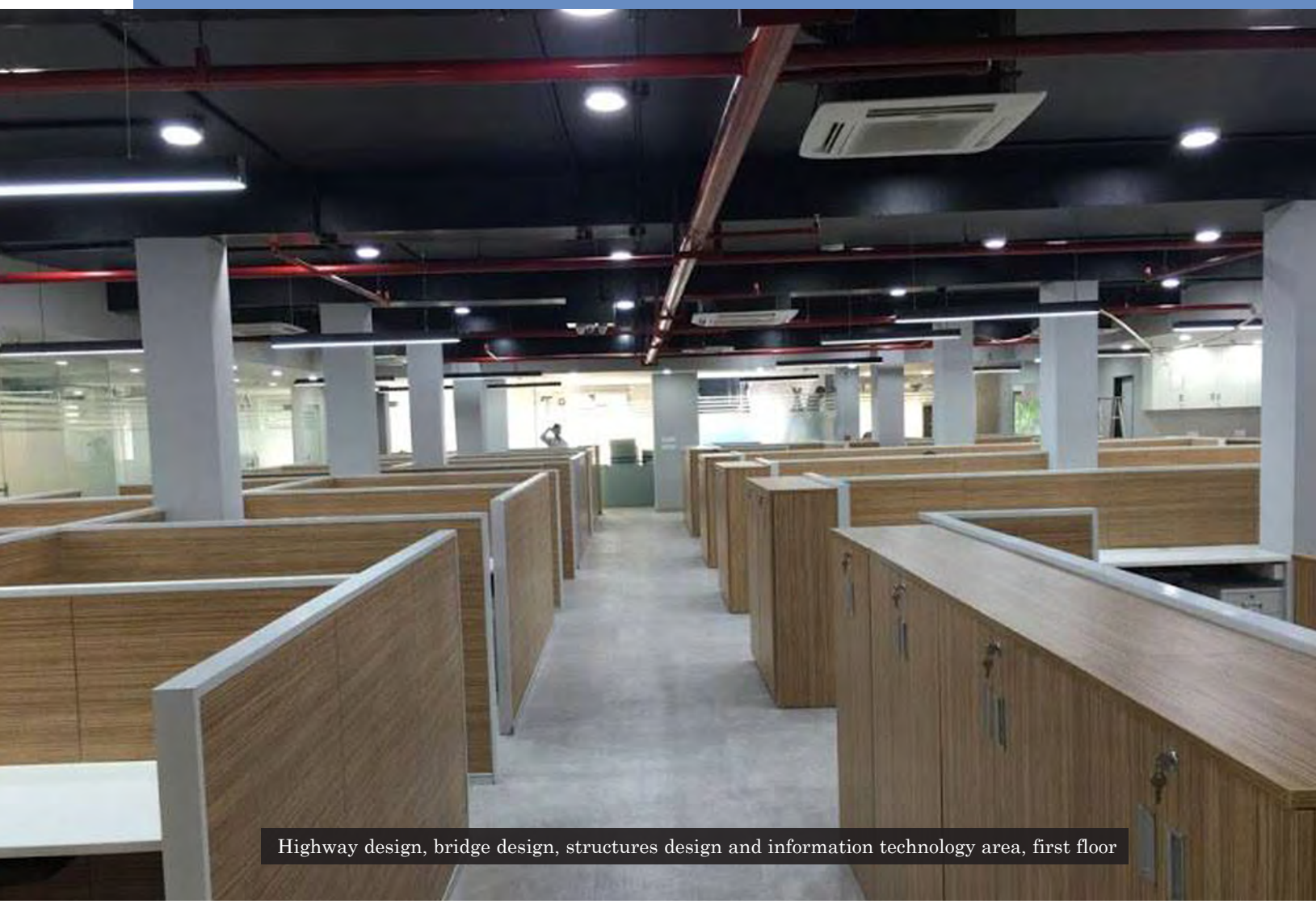
Benefits for building owner and company

Carefully designed and selected lighting can give landlords a competitive edge by offering better customer/tenant experience in efficient spaces that require less maintenance.

Key elements considered for lighting design

Below given are the key elements considered while lighting design process:

- To retain the culture and identity of the space.



Highway design, bridge design, structures design and information technology area, first floor

LASA board room, second floor

Waiting area near CEO and Managing Director Rooms

International and domestic business development area

- Positively contributed to the mood and well-being of the occupants.
- Enhances the mood for the task at hand.
- Balance and quality of the light required.
- Colour appearance and balance.
- Control of glare and brightness.

Lighting a modern office takes sincere efforts more than a few randomly positioned LEDs. The designer considered a host of factors: from efficiency to ambience, and from colour rendering to lighting's influence on day-to-day rhythms as he understands that good lighting influences occupants visually, biologically and emotionally.

VBE Index

During old time, the quality of lighting only considered the illuminance (lux) within a working office space/area and its immediate surroundings. However, a raft of research from researchers confirms that ambient lighting "the lighting of walls and the ceiling" influences us both biologically and emotionally. The level of ambient light is very important for our alertness and therefore our ability to perform tasks efficiently over time.

The VBE Index is the foundation of the approach to lighting design, as it assesses the subjective

lighting experience. Each element, from how the lighting enhances vision to how it affects biology and emotional awareness; is weighted differently depending on the type of room, space and the activity. The higher the VBE score, the better the lighting.

The VBE index is well considered while designing the light and its levels for all the work stations, cabins, meeting rooms, casual areas, waiting lounges and board room. It has been tried during the process to achieve the maximum VBE score and to successfully bring out the better lighting.

Human Centric Lighting

When office workers or employees spend 90 per cent of their work days indoors, lighting is more than functional. The best lighting is human-centric, enhancing wellbeing while helping building owners or companies to create healthy workplaces.

Generally human beings set their body clocks to the sun. Artificial light may have changed the way we work, but it has not changed the human biology. Our physical, mental and behavioural changes that follow a 24-hour cycle, are regulated by the levels of light in our surroundings.

Exposure of more than 1,000 lux is necessary for human health, but most people in offices get less than 500 lux. In comparison, those who work outdoors can be exposed to more than 1,000 lux. Human-centric lighting adapts to follow the patterns of normal daylight to address these daily deficiencies. This helps the body's hormone balance to adjust naturally throughout the day so that one can feel alert when required and sleepy and relaxed at the right time.

While there are many variables that influence how individuals respond to light experiments show that people say human-centric lighting makes them feel better; more alert, more productive and happier. White light with 6500 K colour temperature is considered as the key factor of human-centric lighting in the office of LASA.

White Light (6500 k Colour Temperature)

Tracking the natural rhythm of daylight, white lighting changes from cool to warm to help keep our internal clocks in synchronisation with the natural day/night cycle, to prepare our body clocks for the setting sun. When we correctly integrate white light, we maintain balance, stabilise moods and promote relaxation.

In office environments, this can improve levels of awareness and productivity, and contribute to workers health and wellbeing, which is perfectly done in the office premises of LASA. Below given is the lighting fixtures details considered in the lighting design for this office.

Think of a cool, intense light when you want to turn on yourself or a warm dimmed light for reading, tasks, discussions and conversations which require concentration. Using a suspended direct or indirect downlight with combination of linear lights, provides the ambient and task light requirements, with the colour temperature and intensity.

Project	: Office Space refurbishment of LEA Associates South Asia Pvt. Ltd., New Delhi
Total Floor Area	: 24,000 sq. ft. (G+2 with Basement)
Key Features	: Work stations, Cabins, Lounges, Meeting Rooms, Board Room, Casual areas
Project Architect & Lighting Designer	: Architect Ashish Batra
Completion Date	: August 2017
Picture reference	: Author

Buildings can improve our comfort, boost our productivity and performance and enhance our health and wellness. As a designer for good lighting; the factors considered and successfully achieved in this refurbishment project are:

- Horizontal Illuminance and uniformity
- Colour quality
- Light walls and ceiling colour in combination with recessed downlights
- Increased spacing between luminaires
- Control of light output, colour temperature and dimming
- Limitation of glare through increasing the luminous aperture of luminaire
- Combination, balance and integration of direct and indirect illumination.

Lighting is an integral component when planning offices, and levels of economy and comfort are some of the most important factors both for the company and its employees. Selection of the right light makes sure of optimal visual conditions, creates an efficient and motivating work atmosphere and also serves as an attractive element of design.

After successful renovation of the LASA office interiors in the year 2017; the user experience till date regarding lighting and Experienced Value (VBE) is more than satisfactory. Employees as well as visitors enjoys being part of the office with enhanced mood for the task at hand.

As a conclusion "the solution of fortunate and wealthy office lighting for any modern office is to intensify the work environment for all the users; 'Visually, Biologically and Emotionally'. Human-centric lighting in office complex brings together a great understanding of user applications, needs and scientific perception." ■

Author
Ashish Batra,
Architect-cum-Urban Planner

SMART CITY POLE

The concept of smart cities came into being as a consequential development to Internet of Things (IoT), digital connectivity, global warming and the compelling necessities for energy saving. More than 50 per cent of the world's population lives in cities. A city environment, with a closely knit street light network, become a natural choice for a smart city concept, hosting sensor networks and wireless communications for traffic control, smart parking, noise and air quality monitoring, incident detection, and more. Smart city lights are not standalone system. They have to be integrated with other systems under what is known as IoT. Hence the chosen smart city light poles should be able to accommodate a full range of lighting controls compatible to remote control and integral with suitable sensors for the respective application.

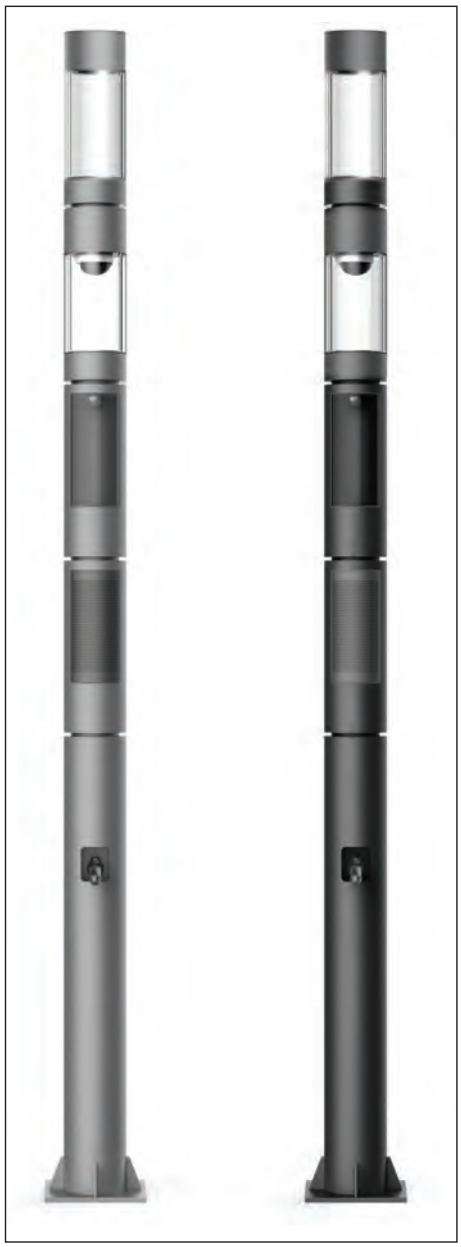
In fact, the smart city pole is going to be a service platform for various services for network redundancy, application areas such as mobile connectivity (WLAN), traffic control, security camera (CCTV), information transfer, public announcement with loud speakers, smart parking, environmental monitoring and even the electric charger for electric cars etc.

K-Lite announced the launch of smart city poles (intelligent poles) with its modular solution, to cater to the above needs in the upcoming smart cities.

Salient Features of Smart City Pole

One main pole with one to five modules, smart column is a multitude of combinations. With flexible modules, the smart column is very handy and flexible for add-on. Choose your combination, add the module, connect them together and the smart column is ready to meet your requirement. ■

For more information, contact: info@klite.in
Website : www.klite.in



CCTV Loudspeaker	360 Degree Light	Spot Light	EV Charger	WLAN
With integration of Smart City System (SCS) referred to as "Smartification", light can be managed individually or in group with software To be specified by Vendor	45W LED	20W LED	To be specified by Vendor	To be specified by Vendor
	OSRAM	Lumileds Luxeon		
	360°	45°		Environmental Monitoring with Biosensor
	Ø166 mm	Ø166 mm		
	2700-6500K	3000-5700K		
	Aluminium housing, PC diffuser, Purity aluminium reflector with aluminium heat sink	Aluminium housing, PC diffuser		

Sharmila Kumbhat,
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5 YEARS	60	6000.00	4000.00	6000.00	4000.00	12000.00	6000.00
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1 YEAR	6	750.00	750.00	750.00	750.00	1500.00	1125.00
2 YEARS	12	1500.00	1350.00	1500.00	1350.00	3000.00	2025.00
3 YEARS	18	2250.00	2000.00	2250.00	2000.00	4500.00	3000.00
5 YEARS	30	3750.00	3000.00	3750.00	3000.00	7500.00	4500.00
MEDICAL EQUIPMENT & AUTOMATION							
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2 YEARS	12	1500.00	1350.00	1500.00	1350.00	3000.00	2025.00
3 YEARS	18	2250.00	2000.00	2250.00	2000.00	4500.00	3000.00
5 YEARS	30	3750.00	3000.00	3750.00	3000.00	7500.00	4500.00
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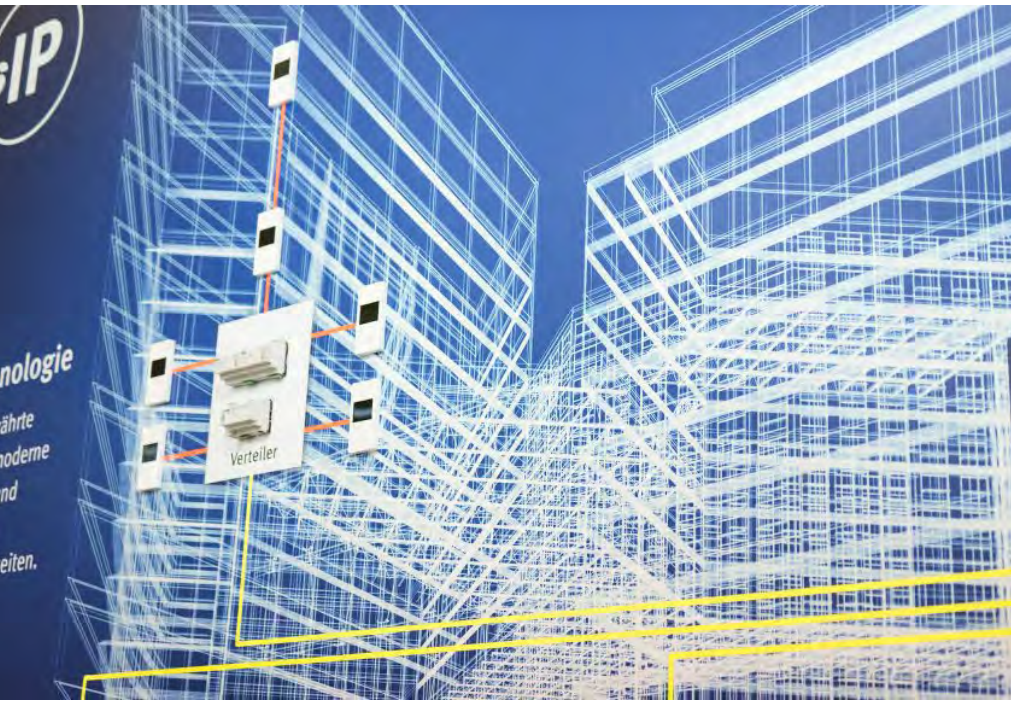
INTELLIGENT, CONNECTED AND SECURE:

smart buildings open up new possibilities

Light + Building, the world's leading trade fair for lighting and connected building services technology, will showcase futuristic connected safety and security solutions that are apt for tomorrow's smart cities.



(Source: Messe Frankfurt / Kirschner Kutt)

Increasing urbanisation and the necessity of conserving resources demand intelligent, connected building services in 'smart buildings'. Once the digital control systems are intelligently interlinked, they can make buildings more economic and more secure, as well as reducing their energy needs. Solutions for this will be on show at the world's leading trade fair in its field, Light + Building, in Frankfurt, Germany from 8 to 13 March.

Top theme: 'Connected Safety and Security'

Connected safety and security will be occupying an important place amongst the top themes of Light + Building 2020. As a result, there will be exhibitors from a wide range of building-services-related trades, such as emergency lighting in Hall 8 and building automation in Halls 9, 11 and 12.

In addition, 'Intersec Building', the international platform for connected security technology, will cover relevant ranges of products and services in Hall 9.1. As well as the presentations of leading exhibitors, it will include the dedicated specialist conference, 'Intersec Forum'. In the forum, some 80 experts will, over the six days of the conference, share their experiences and outline the challenges they have faced.

In particular, the connection of safety and security systems with each other and with other building services installations offers lots of possibilities. Even today, for example, alarm systems can already be maintained at a distance. These systems are frequently linked with personalised access control. If they are, additionally, linked to fire alarm systems, then, in the event of the fire alarm going off, it is possible to establish immediately whether all employees have left the danger zone or are still in there.

Other imaginable scenarios are still things of the future: building users with mobile devices or other connected 'wearables' receive a personal warning in dangerous situations and their smartphone, which is linked to the building automation system. The mobile device then displays a safe escape route out of the building, via an indoor navigation system. An adaptive escape route guidance system evaluates information from the connected mobile devices and avoids dangerous bottlenecks in the escape routes thanks to an intelligent regulation or alteration of the dynamic escape-route signage.

Greater security and efficiency

When systems are linked effectively with one another, modern building services engineering pays for itself in economic terms, too. The combined use of sensors, security systems and building services opens up opportunities for additional functionality. So, for example, the movement sensors of the burglar-alarm system and the temperature sensors of the fire-alarm can, together, provide valuable data, which can then be used to regulate the ventilation in a building.

A precondition for the seamless and efficient functioning of models like this is interdisciplinary digital planning and prioritisation that spans all the installation trades, together with universal standards for everyone involved in the design and operation of the systems. At the same time, high levels of IT and cyber security and good data protection are indispensable, if the security systems are to be protected from unwanted consequences in the network and malicious cyber-attacks from outside. ■

Kolkata gets new Lighting Experience Centre

Marici Experience Centre aims to augment the retail experience for lighting through innovative, energy efficient schemes and illumination systems.

Marici Experience Centre, Kolkata is conceptualised as a holistic, all-one-needs experience centre for lighting design and solutions while involving the end-users, lighting consultants, designers and architects by Salient. Spread across 5,000 square feet and built over three-levels, the primary design intent was to bring together all stakeholders to elevate the collaborative journey and, in the process, improve the lighting experience through innovative energy efficient schemes and solutions.

The design brief given to Salient with intimate client engagement, envisioned a space where lighting can be experienced unaltered and uninterrupted. The centre also aimed to host hospitality events for product launches and knowledge sharing sessions amongst the patrons and professionals etc. The spatial planning necessitated the functionality of an office area during daytime with up to five employees including a floor manager and accommodation facilities for overnight stay were needed, to account for late working hours. A part of the building is home to the property owner where he, a retired government official, resides with his spouse. Due to such a setup and the ground floor providing a garage access to the building complex, the owner had to provide a shared access via the parking area with no permanent

installations to be devised towards the entrance.

Inspired from the South-East Asian trade partners, the centre has been conceptualised on the theme of 'Marici' – a deva or deity from the Buddhist culture, associated with light and the Sun. Translating it as a notion of experiencing the intangible through the tangible, the interiors celebrate the divinity of light through the various arrangements of light fixtures and fittings. The quality and characteristics of light are perceived through its effects and are contained in a wide spectrum of intensities. The design, therefore evolved as an experience gallery which is integrated through the transitional spaces across the three levels. The space is seamlessly articulated into 12 distinct zones or sections, displaying products and their luminosity through the experiential spatial layout which is interspersed with the modules of actual functional spaces, such as workspaces, lounges, dining areas, etc.—all amidst a mix of formal and informal settings.

Circumventing the garage access, with a common elevator in place, the ground floor is dedicated to the experience of the outdoor lighting section. The first-floor plate has been designated to showcase the architectural lighting, in particular and has been subtly segregated into five zones based on the functionality of spaces and space-appropriate lighting installations — a themed collection, lounge area, jewellery section and conference room in the front. To connect the track lighting section at the rear with the front, a two-part gallery has been created; one half is designed in a white background and the other in black, using architectural lighting, which is evocative of the Chinese philosophy of yin-yang. Ascending the stairs, the railing can be seen accentuated by the lights below it. The themed collection is embellished with floor light stands, wall brackets and suspension luminaires. The lounge houses a lounge chair, a two-seater sofa, a console and a luminaire table, decorated with a clear

glass designer chandelier and inclined floor mirror. The flooring is highlighted by the fractal pattern — a single comprehensive design, inspired from the representative geometry of all the seven chakras common in both Hindu and Buddhist philosophies.

The track lighting section reverberates with the Buddhist energies, featuring paintings of the Buddha in a set of six frames. The adjacent AAC brick wall with a bare finish has been chiselled with the design of the seven chakras, each one highlighted using the track luminaires. These chakras are emblematic of the Marici's journey across space and time on her chariot, achieving an elevated state of consciousness. Every section has its own distinct zest, underlining multiple facets of life merged under a single idea of illumination or light. Clambering to the second and last floor-plate, the space reveals seven sections showcasing different types of decorative lighting and fans. The stairway opens up to the dining section spruced up with a carved-wooden dining table and chairs. Geometric motifs concentric to the furniture layout have been used for the flooring. The ceiling is adorned with boat-crystal chandeliers and designer fans, which complete the interior probity along with the aspired essence of the layout. The next section ahead is conceptualised as a reading room, comprising of table lamp luminaires on a display table along the rear wall. By the entrance, a lounge sofa with a foot stool invites the visitors, and a floor lamp stand creates a representative setup, facilitating visualisation of the installation.

The adjacent section displays various designs of pedestal luminaires along the wall length. The backdrop for these two rooms has AAC brick walls articulated with chiselled murals composed of fractals. Moving towards the front sections, the first is the pendant and underwater lighting section in a fountain pool, with a similar carved-wooden desk for the floor manager at one corner up front. The extreme front section, designed to represent the bedroom setup, has been partitioned horizontally with passages through either side. Against this wooden partition, a TV unit has been fixed. The bedroom ceiling sports a geometric installation of recessed lighting. Above the bed, a pendant luminaire hangs to exemplify the different combinations of installation of the lighting fixtures. Apart from the landing areas of the staircase which have black granite stone as wall cladding, all other walls have been painted with smooth finishes. The colour palette is monochromatic—neutral grey, Buddhist in spirit— it integrates the entire space in its shades, textures and forms.

The total volume of the experience centre, across the different levels, exhibit various lighting options with their efficient functional utility. The design distinctively brings out that the nature; intensity and strategy for lighting have a significant impact upon the perception, vibe and essence of a space. The complete experience of the building complex establishes the translation of knowledge into wisdom, by materialising the visualisation of various aspects of light, coherent in Buddhist philosophy. ■

Event Calendar

Venue: Frankfurt, Germany
Date: 8 - 13 March 2020
Website: www.light-building.messefrankfurt.com

Light + Building 2020

Venue: Hong Kong Convention and Exhibition Centre
Date: 6 - 9 April 2020
Website: www.event.hktdc.com

HKTDC Lighting Fair (Spring Edition)

Venue: Bombay Exhibition Center, Mumbai
Date: 7 - 9 May 2020
Website: www.ledexpo-mumbai.com

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NEW: Infineon's ICL5102 LED driver IC

High performance PFC and resonant controller for LCC / LLC

In today's fast growing lighting market universal solutions with high efficiency levels, smaller form factors, reduced cost and benchmark reliability is what customers ask for. Infineon responds with its new highly integrated combo controller IC with universal input of 90 - 305 V allowing for global designs.

The ICL5102 integrates a half-bridge controller with a PFC stage in a single DSO-16 package and impresses with a THD factor of <3.5% and a high power factor of >0.95. The resonant topology driver achieves a high efficiency up to 94% which results in more lumen output and less thermal load. Furthermore, it features an advanced burst mode for lowest standby power. Thanks to the high integration, there is less need for additional expensive components in PFC and LLC stage, bringing the overall BOM cost down. Several integrated protection features and auto restart complement the offering.

Summing up, Infineon's new ICL5102 LED driver IC enables high-performance, cost-effective designs, while keeping spending on LEDs and heat sink low at the same time.
Target applications: LED driver for professional commercial lighting, and smart lighting, street lighting for smart cities, horticulture lighting, offline AC-DC power supply, LCD TV, adapter and battery charger.

Key features

- Universal input 90 - 305 V
- Highest efficiency up to 94% by resonant topology
- THD <3.5%, PF >0.95
- Burst mode, low standby
- Low BOM cost
  - Combo controller IC
  - 500 V MOSFETs at LLC stage
  - Low cost resistors to set working points

Key benefits

- Enabling global designs
- Use from 40 – 300 W
- Best-in-dass PFC and THD at full and light load
- High efficiency: more lumen output and less thermal load
- No components required to match the PFC and LLC stage
- Integrated protection and auto restart

www.infineon.com/icl5102

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