

INDIA'S FOREMOST MAGAZINE ON THE LIGHTING INDUSTRY

# Lighting India

₹ 125

Vol. 15 No.2

March - April 2020



## THE ROAD THAT LAY AHEAD

LED & the call for energy-efficient solutions



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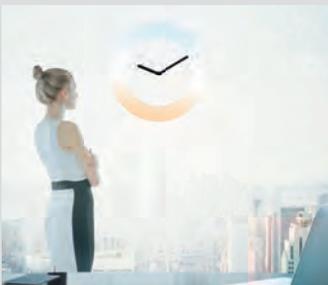


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## From the Publisher's Desk

### On a mission to flourish – LED in lighting

The lighting market like all other markets is strained owing to the on-set of the COVID-19 pandemic. However, if we take a look at the statistics, a report conducted by Reports Monitor suggests that the smart lighting market globally is estimated to grow from USD 13.4 billion in 2020, and is projected to reach USD 30.6 billion by the year 2025, at a CAGR of 18.0%.

Industry representatives seem positive about the overall situation. According to a report from TechSci (A global research-based consulting firm), the LED lighting market in India is projected to register a CAGR of over 24 per cent during 2016-2021. The Indian LED lighting market stood at USD 918.70 million in 2016 and is projected to grow at a CAGR of 24.66 per cent, in value terms, to reach USD 3.76 billion by 2022. Our Market Feature titled – 'The Report: Chasing innovation and adhering to quality in smart lighting,' will tell you more.

Also, our special feature and cover story for the month, titled – 'The road that lay ahead: LED and the call for energy-efficient solutions,' is one that investigates further into the paradigm shift in the way the 2015 Paris Agreement is being approached, and also highlights the initiatives taken by the Government of India to make affordable LED lighting solutions available to the masses.

The Lighting India Magazine is also proud to feature representatives from the industry who give expert insight on several subjects. To name a few of our guest writers this month, we have Anil Valia, Lighting Designer, Educator & Consultant; also known as a Lighting Evangelist as designated by ISHREA, who speaks on the 'The Future of LED Business - Beyond Energy Efficacy.' And to add diversity to the kind of content we provide, we also have featured Ar. Ashish Batra, General Manager (Architecture and Planning), Total Synergy Consulting Private Limited (TSCPL), who has provided insight on lighting design in hospitals.

I truly hope my dear readers that you have a wonderful read. See you soon, stay safe and stay connected!

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Single Issue: ₹ 125 / Annual Subscription: ₹ 750

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Printed, Published and owned by Mahadevan Iyer from 906, The Corporate Park, Plot 14 & 15, Sector 18, Vashi, Navi Mumbai 400703 and Printed at Print Tech., C-18, Royal Indl Estate, Naigaum Cross Road, Wadala, Mumbai - 400 031. **Editor: Mahadevan Iyer**





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# content

## INSIDE

- 22 CSIL estimates the market for lighting fixtures varies from 3% to 6%
- 25 Sticking up to the fight: To what extent will the industry innovate?
- 26 Merger will give a push to 'Making in India says MD, Panasonic Life Solutions
- 28 Assessing Lighting-Design in Hospitals

16



Struck by the ROBE

10



The Report: Chasing innovation and adhering to quality in smart lighting

20



Illuminating India's Smart Cities

14



Cover Story: The road that lay ahead: LED and the call for energy-efficient solutions

18



The Future of LED Business Beyond Energy Efficacy

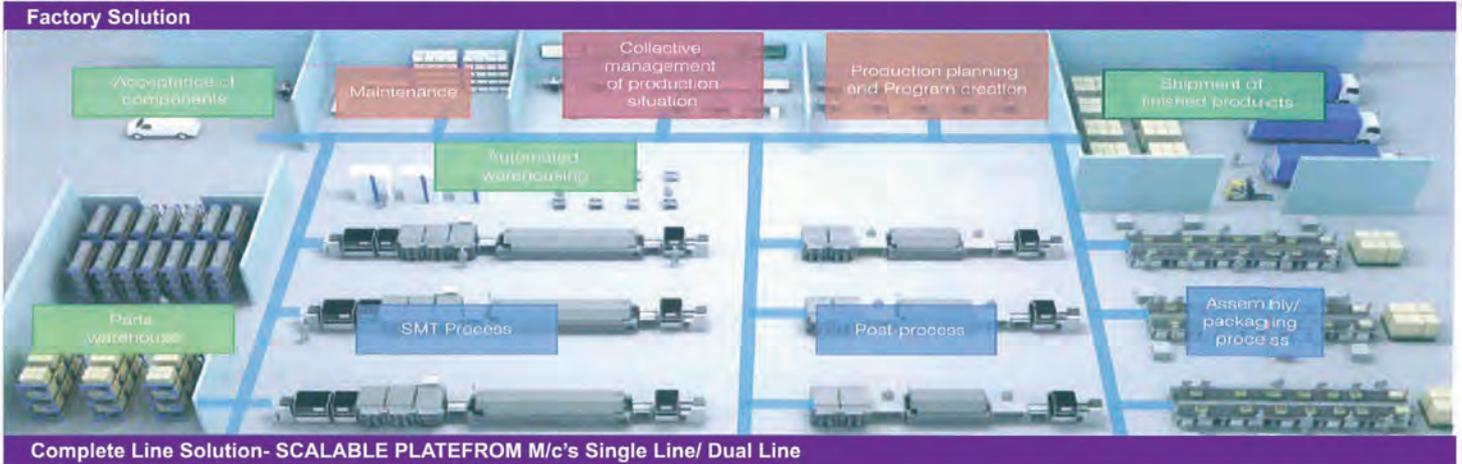
## REGULARS

|                            |    |
|----------------------------|----|
| Publisher's Letter .....   | 2  |
| News .....                 | 6  |
| Index to Advertisers ..... | 35 |
| Events .....               | 36 |

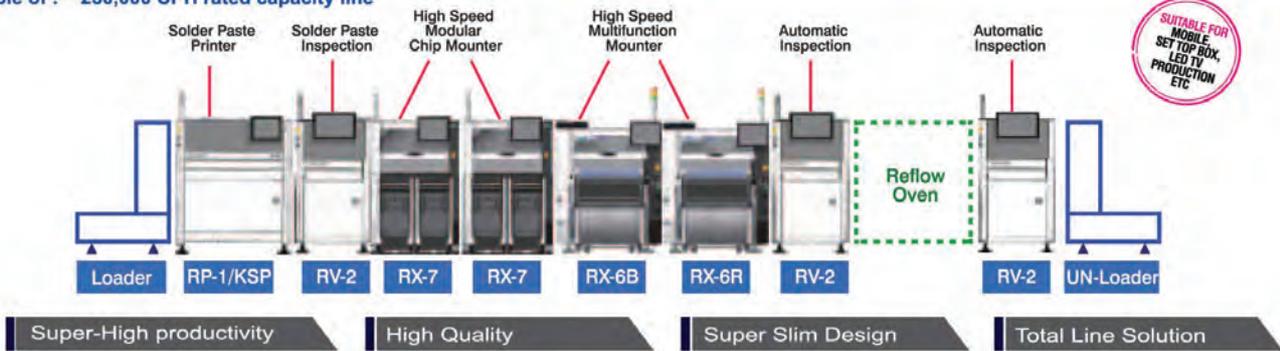
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## Ascenti Lighting launches user-friendly app

**Ascenti Lighting launched an Augmented Reality (AR) and a Virtual Reality (VR) enabled lighting application**

- By the Lighting India content team

**A**scenti Lighting launches an Augmented Reality (AR) and a Virtual Reality (VR) enabled lighting application that supposedly allows architects and designers to create and evaluate designs, the company communicated via a Press Communiqué. The app is said to help maintain social designs, especially during the COVID-19 situation. It uses its AR capabilities to help architects and designers view and modify fixtures on a real-time basis.



Photo by Aurélien Lemasson-Théobald on Unsplash

John Fox, President, Ascenti Lighting, said: "The app gives our clients the ability to overcome challenges caused by the current health crisis by practising social distancing and observing isolation guidelines, accomplishing project milestones as initially planned." Also, he said that as a technology-driven company, the goal is to make the client's job easier. ■

## Astera Factory Assists with Global Face Mask Supply

**Astera speaks of the measures taken to function during this difficult time**

- The Lighting India content team

**L**ED lighting manufacturer Astera has reported in a press release that it has energized its 10,000 square metre factory in Shenzhen, China together with its knowledgeable and adaptable workforce to assist with the delivery of essential personal protective equipment (PPE) items, including face masks. These are desperately needed worldwide as countries continue to combat the Coronavirus pandemic. Astera's CEO Norbert Ernst explains that they were about to temporarily scale back operations in the factory, whilst the entertainment lighting business was quiet due to the crisis when he was approached by a contact asking if they would be willing to assist with the production/distribution of face masks. He said: "Naturally, I jumped at the chance. It offered a path to keeping many staff employed full-time which is great, and also helps contribute positively to the ongoing global demand for face masks which are vital to help meet the unique challenges of containing Covid-19."



Additionally, he stated that having the factory working in this capacity will assist a rapid return to full LED lighting manufacture when conventional business starts to resume. ■

## Global Airport Lighting Industry

**Airport lighting market worldwide is projected to grow by US\$307.1 million, driven by a compounded growth of 6.7%.**

- By the Lighting India content team

**R**unway Lighting Systems, one of the segments analysed and sized in this study, displays the potential to grow at over 7.4%. The shifting dynamics supporting this growth makes it critical for businesses in this space to keep abreast of the changing pulse of the market. Poised to reach over USD 398.5 million by the year 2025, Runway Lighting Systems will bring in healthy gains adding significant momentum to global growth.

Representing the developed world, the United States will maintain a 5.7% growth momentum. Within Europe, which continues to remain an important element in the world economy, Germany will add over USD 10.8 million to the region's size and clout in the next 5 to 6 years. Over USD 9.2 million worth of projected demand in the region will come from Rest of Europe markets. In Japan, Runway Lighting Systems will reach a market size of USD 19 million by the close of the analysis period.

As the world's second-largest economy and the new game-changer in global markets, China exhibits the potential to grow at 10% over the next couple of years and add approximately USD 85.5 Million in terms of addressable opportunity for the picking by aspiring businesses and their astute leaders. Several macroeconomic factors and internal market forces will shape growth and development of demand patterns in emerging countries in Asia-Pacific, Latin America and the Middle East. All research viewpoints presented are based on validated engagements from influencers in the market, whose opinions supersede all other research methodologies. ■

Source: Cision PR Newswire

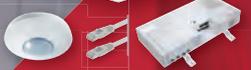
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## ILFARI launches the Eye in the Sky collection

*In May, ILFARI launched the Eye in the Sky collection – pendant lights that have cosmic retro shapes in combination with hypermodern anodized aluminium*

**- The Lighting India content team**

In May ILFARI launched the Eye in the Sky collection – pendant lights that have cosmic retro shapes in combination with hypermodern anodized aluminium, the company reported. The design is absolutely unconventional and once again sets the tone in high-end lighting design.

ILFARI is known for its uniquely designed lighting for luxurious interiors worldwide. With the Eye in the Sky they continue creating conversation pieces.

The inspiration of geometric figures, minimalism and a touch of industrial design is combined into the Eye in the Sky collection. The collection includes single pendants and a number of compositions. Also known as the strength of ILFARI, they are able to create tailor-made lighting based on the needs of the customer, mixing different sizes and colours and using any desired number of pendants. In this way interior designers or architects can create something unique for their project, giving it their own twist. ■



## Turtle-friendly coastal lighting protects local habitat and promotes sustainability

**- The Lighting India content team**

Gulf Shores are blessed with miles of pristine sand beaches on Alabama's Gulf Coast. More than five million annual visitors are drawn to the stunning beaches, which offer a year-round attraction for the resort city.

Lighting continues to be a concern in coastal communities. Artificial white light such as standard streetlights, patio lights, and flashlights can confuse the baby hatchlings that rely on moonlight and starlight to steer them toward the water. So, when the city of Gulf Shores upgraded its lighting along the streets and boardwalks adjacent to the beach, finding a turtle-friendly solution was vital.

Landscape architects on the project selected Luminis' Maya high-performance post-top luminaire with advanced optics. The exceptional thermal design of this attractive fixture allows significant advantages in energy saving and lighting efficiency, contributing to the sustainability objectives of the city. One of the most compelling features of the luminaire is its optional turtle-friendly amber LED. Project architects also selected an optional backlight shield for each of the 93 luminaires, further minimizing potential glare and light trespass on the ocean side of each fixture. ■



## Tacchi-Morris Arts Centre chooses Zero 88 FLX

*TMAC took delivery of a brand new Zero 88 FLX lighting control console, complete with two wings, which was specified by technical manager Kevin Stratton...*

**-The Lighting India content team**

The Tacchi-Morris Arts Centre (TMAC) is a lively and unique multipurpose performance space located in Taunton, Somerset, UK, and is dedicated to staging an array of shows, events and activities for the whole community embracing music, dance, drama, comedy, spoken word and other genres.



Just before the coronavirus pandemic temporarily halted the entire entertainment industry, TMAC took delivery of a brand new Zero 88 FLX lighting control console, complete with two wings, which was specified by technical manager Kevin Stratton. The new console replaces their previous generation Zero 88 consoles which have been there since the venue opened in 2000.

Kevin has worked there since 2016, and before then was a busy freelancer, touring theatre technician and production LX who has also worked as a Level 3 instructor in Production Arts at a leading Somerset further education college.

He decided on the FLX after extensive research. "A new console isn't an item purchased every year, so we wanted to ensure that it was right for us and fit for purpose and trialled / demo'd a number of options before choosing the FLX." ■

## Strikken helps deliver Covid-19 tests and lights the sky in Estonia

*Tallinn, Estonia-based technical production and rental company Strikken has been doing its bit to support the nation's fight against coronavirus by voluntarily assisting the Synlab Eesti OU laboratory in collecting and transporting Covid-19 test samples gathered from all around the country...*

### - By the Lighting India content team

Tallinn, Estonia-based technical production and rental company Strikken has been doing its bit to support the nation's fight against coronavirus by voluntarily assisting the



Synlab Eesti OU laboratory in collecting and transporting Covid-19 test samples gathered from all around the country, the company reported via a press release.

This is tied into research being conducted by the University of Tartu, including a three-month study on the prevalence of coronavirus among both symptomatic and asymptomatic people. At least 16,000 residents – based on a random statistical sample – will be interviewed and invited to be tested for coronavirus. The transportation programme to help collect the samples was initiated by Strikken's long-time partner Rally Estonia, to get the materials quickly and safely to Synlab which is the main testing laboratory in Tallinn. Speedy test results and data from the study will assist the government in an effective response and relevant public health guidance. ■

## Global lighting fixtures and luminaires market to see growth

*Amid the COVID-19 crisis and the looming economic recession, the lighting fixture and luminaires market worldwide will grow by a projected US\$25.6 Billion, during the analysis period*

### - The Lighting India content team

Amid the COVID-19 crisis and the looming economic recession, the lighting fixtures and luminaires market worldwide will grow by a projected USD 25.6 Billion. The growth is driven by a revised compounded annual growth rate (CAGR) of 3.8%. Non-Portable, one of the segments analysed and sized in this study, is forecast to grow at over 4.1% and reach a market size of USD 84 Billion by the end of the analysis period. An unusual period in history, the Coronavirus pandemic has unleashed a series of unprecedented events affecting every industry. The Non-Portable market will be reset to a new normal which going forwards in a post COVID-19 era will be continuously redefined and redesigned. Staying on top of trends and accurate analysis is paramount now more than ever to manage uncertainty, change and continuously adapt to new and evolving market conditions. ■

Source: Cision PR Newswire

## Messe Frankfurt postpones its upcoming Guangzhou Light + Building fairs

*Messe Frankfurt has announced that the two concurrent fairs in its Light + Building portfolio, Guangzhou International Lighting Exhibition (GILE) and Guangzhou Electrical Building Technology (GEBT), have been postponed due to the ongoing COVID-19 pandemic.*

### - By the Lighting India content team

Messe Frankfurt announced in a press release that the two concurrent fairs in its Light + Building portfolio, Guangzhou International Lighting Exhibition (GILE) and Guangzhou Electrical Building Technology (GEBT), have been postponed due to the ongoing COVID-19 pandemic. Both fairs were originally due to take place from 9 – 12 June and will now be held at a future date which will be announced shortly. They will remain at the China Import and Export Fair Complex in Guangzhou.

Ms Lucia Wong, Deputy General Manager of Messe Frankfurt (HK) Ltd explained: "As a result of the COVID-19 outbreak which is having an unprecedented impact across the globe, we believe it is the right and responsible decision as the fairs' organizer to postpone GILE and GEBT.

Ms Wong continued: "In these unprecedented times and as we all reallocate our time, energy and resources to navigate our immediate challenges, we ask the industry to remember that we are facing this together. Looking forwards, we are positive that the industry will emerge from this crisis more resilient, innovative and better prepared to shape the future." ■

THE REPORT

# CHASING INNOVATION

## AND ADHERING TO QUALITY IN SMART LIGHTING

WHAT ARE THE ESTIMATES BEING  
MADE FOR THE LED AND THE SMART  
LIGHTING MARKET IN INDIA AND  
GLOBALLY? CAN WE FORECAST THE  
MARKET TRAJECTORY POST THE  
COVID-19 SITUATION?

**RANJANA KONATT, EDITOR**  
— (BRAND POSITIONING), REPORTS...



Dinesh Aggarwal, Joint Managing Director,  
Panasonic Life Solutions India Pvt. Ltd

**T**he LED-market is a fast-moving one, and with the pace in technology also comes innovation. If we move on to assess - How much is the LED market worth? What are the components that form an integral part of the market? A research carried out by Grand View Research tells us that the global LED chips market is anticipated to grow significantly over the forecast period. The report said that LED chips are used in various industries and a large number of applications. For instance: They are used for illumination purposes, and the resultant bulbs are more efficient as compared to conventional incandescent bulbs. LED-chip based bulbs also help reduce electricity bills, thus saving costs in the long run. This, the report asserted will contribute to market growth as we are in an increasingly energy-conscious environment. Meghana Shetty, Co-founder, smstudio – An architectural and interior firm, while giving us an overview of the lighting and LED market in India. She said: “The Indian lighting industry is evolving rapidly due to the shift from conventional bulbs to LEDs and the move is driven by the many moves taken by the government. The evolution indicates a tectonic shift in technology from electrical to electronics and this represents a significant growth in opportunities for companies offering electronic hardware/ components, products and solutions used in LED lighting.” Adding, she said that India is the second-most populous country in the world and yet, it is only the fifth-largest electricity consumer – a situation that has led to a widening demand-supply gap. “Consequently, the market for energy-efficient products such as LED lighting is bound to grow, riding on the initiatives that encourage the use of LED lights - the focus on smart city projects, an efficient public distribution system and the ever-increasing need for a smart, connected lifestyle,” she added.

Dinesh Aggarwal, Joint Managing Director, Panasonic Life Solutions India Pvt. Ltd assessed the lighting industry from a holistic viewpoint. He said: “The total lighting market and worth stands close to INR 20 Cr. The market is evolving and moving towards complete LEDification. Currently, LED Lighting products hold 70% of the market share. With continuous force on cost due to the lack of high-standard products, every company is driving its strategies in terms of wattages, Efficacy,



and Product Design. Right now, the market is more specification driven rather a product-driven. The outdoor lighting market is driven by the development in infrastructure, smart cities and other development initiatives." At Panasonic Life Solutions, he added, we are offering a complete range of energy-efficient and smart lighting products, right from Indoor Commercial, Industrial, Outdoor, Retail, and Hospitality segment.

Shetty added and said: "According to a report from TechSci (A global research-based consulting firm), the LED lighting market in India is projected to register a CAGR of over 24 per cent during 2016-2021. The Indian LED lighting market stood at US\$ 918.70 million in 2016 and is projected to grow at a CAGR of 24.66 per cent, in value terms, to reach US\$ 3.76 billion by 2022, on account of increasing government initiatives to boost LED adoption and growing awareness regarding lower power consumption of LED lighting products. Moreover, easy availability at low prices, coupled with the distribution of LED bulbs by the Indian Government at affordable rates is augmenting demand."

Reports also suggest that other segments of LED, such as backlighting is expected to be a fast-growing application within the LED chip segment over the next few years, and this trend can mostly be attributed to the shift to LED-backlighting for television sets since they improve picture quality and brightness. Also, the reports suggest that the market for blue LED chips is also expected to grow at a fast pace as compared to the global average – mainly on account of their application in backlighting and illumination.

### **New product innovation a key growth strategy**

In comparison, red LED chips are used in automotive for rear lamps as well as for traffic signals. The other segment includes yellow, ultraviolet LED, and infrared chips. The Asia Pacific is expected to be the major contributor to revenue, and account for the largest market share during the forecast period, primarily due to a large number of industry participants in the region. New product development innovation is the key growth strategy, and major manufacturers include Cree,

Epistar Corporation, Hitachi Cable, Seoul Semiconductors, and Bright LED Electronics Corporation among others.

Another report conducted by Reports Monitor suggests that the smart lighting market is estimated to grow from USD 13.4 billion in 2020, and is projected to reach USD 30.6 billion by the year 2025, at a CAGR of 18.0%. The major factors driving the growth of the market include the advent of integrated lighting control systems, upcoming smart city projects and the integration of lighting solutions and smart devices. Also, the Power over Ethernet (PoE) wired communication technology market is expected to grow at the highest CAGR during the forecast period. The growth of the PoE protocol segment is driven by factors such as increasing penetration and decreasing cost of LEDs, growing adoption of PoE lighting solutions in commercial and healthcare applications, and rising need for cost-effective lighting solutions.

Shetty does agree that there are factors which could cause a trend and influence demand for LED applications. She said: "The key factors that are expected to boost the market include declining LED prices coupled with favourable government initiatives that provide LED lights at a subsidised cost and promote LED street lighting projects through a special energy services company (ESCO) model created by EESL. Moreover, apart from rising consumer awareness about the cost-effectiveness of LEDs, their enhanced life, energy-efficiency and eco-friendly nature will continue to drive volume sales from the industrial, residential and commercial sectors." Also, she said that retrofit installations are in demand across all kinds of applications.

### **The Impact of COVID-19 on the Market Trajectory**

A research conducted by Markets and Markets suggests that post the COVID-19 situation, the smart lighting market size is estimated to grow from USD 9.4 billion in 2020 and projected to reach USD 24.2 billion by 2025, at a CAGR of 20.9%. The projection for 2025 is estimated to be down by 21% as compared to pre-COVID-19 estimation. The research highlighted the major factors driving this growth and mentioned that the speciality lighting applications, such as horticulture and UV disinfection lighting, the need for a large number of healthcare facilities to treat an increasing number of patients, and



Meghana Shetty, Co-founder,  
smstudio – An architectural and interior firm

rising demand for sterile manufacturing areas in the pharmaceuticals industry, will influence this demand. Also, the hardware segment is affected owing to the loss in production and manufacturing units across the globe.

Some of the major global players in the smart lighting market are Signify (Philips Lighting) (Netherlands), Legrand S.A. (France), Acuity Brands, Inc. (US), General Electric Company (US), OSRAM Licht (Germany), Zumtobel Group (Austria), Hubbell Incorporated (US), Dialight PLC (UK), Ideal Industries, Inc. (Cree) and Schneider Electric (France) among others. The report indicated that Signify Holding (Netherlands) is an industry leader in the smart lighting market space. The report said that the company has a huge advantage over its competitors in the smart lighting market due to its extensive product portfolio, with lighting systems compatible with various connecting technologies ranging from DALI, KNX, and BACnet to ZigBee and EnOcean.

Overall, the smart lighting market is estimated to grow from USD 13.4 billion in 2020 and projected to reach USD 30.6 billion by 2025, at a CAGR of 18.0%. The major factors driving the growth of the market include the advent of integrated lighting control systems, upcoming smart city projects in developing economies, increasing adoption and decreasing cost of LEDs, integration of lighting solutions with smart devices, and growing awareness about energy savings among consumers and governments worldwide. ■

# THE ROAD THAT LAYS AHEAD

## LED AND THE CALL FOR ENERGY-EFFICIENT SOLUTIONS

The story analyses the paradigm shifts in the way the 2015 Paris Agreement is being approached, the reflection thereof and the seriousness taken to the challenges presented by climate change and the initiatives by the Indian Government - Unnat Jeevan: affordable LEDs and appliances for all, under the (UJALA) scheme

- By **Ranjana Konatt, Editor (Brand Positioning)**

The lighting industry in India has time and again proved to be a competitive one, and we see a shift from conventional bulbs to LEDs, also driven by the increasing initiatives by the government, rising consumer awareness about energy-efficient products and a new product portfolio.

### **The industry's paradigm of a dynamic LED sector**

Several representatives from the industry speak to Lighting India to give first-hand input on energy-efficient lighting, its sub-categories, the LED sector and more. Jaguar Lighting speaks of the various trends in the LED sector. According to Jaguar, the lighting industry is witnessing trends that are a response to the changing demands from customers. The company says that they are seeing a demand for smart & connected lighting. Its high-time we say no to conventional light switches and control lighting fixtures through smartphones, tablets and

voice commands. Another is Dynamic RGB Lighting - Add over a million colours to the spaces around you, his system uses DMX control –based dynamics RGB/RGBW lighting solutions. Also, Jaguar Lighting pointed to furniture and closet lighting, where-in indoor illumination is extended to the luxurious furniture, storage spaces and kitchens as well. Also, we have human-centric lighting where lighting plays an important role in enhancing productivity and keeping up with good health at the same time.

### **The call to energy-efficient solutions and the focus on the 'Paris Agreement'**

Prag Bhatnagar, Senior Vice President, Havells India Limited says that another major trend is the call for energy-efficient lighting systems. He says: "The market for energy-efficient products such as LED-lighting is bound to grow to ride on the initiatives that encourage the use of LED lights." The focus, he added, is on smart projects – an efficient public distribution system and the ever-increasing need for a smart and a connected lifestyle. Also, he says, policies and industries have helped us realise the massive benefits that LED-technology has to offer. "The LED market is poised to multiply 10 times in the next five years, according to Frost & Sullivan. Usage of LED concerning end-users is distributed across multiple segments of industries such as IT/ITES, BFSI, Govt, Infra, Hospitality, landscape, industries, etc. With the technology advancement and prolonged life of LED, it is being used in automobiles and for signage too as it is registering growth," Bhatnagar says.

Meghana Shetty, Co-founder, smstudio – An architectural and interior firm, speaks on the importance of energy efficiency. She says: "During the past century, rapid strides made by economies towards development and industrialization have led to an increase in the global carbon footprint. This is demonstrated by the paradigm shift in the attitude of countries party to the 2015 Paris Agreement, which reflects the seriousness of countries towards the challenges posed by climate change as well as the way the consequent damages are being discussed and addressed around the world." The renewed ambition to adopt the Paris Agreement along with the 2030 Agenda for Sustainable Development as key blueprints for the future we want is a giant leap towards our commitment to combat climate change, she adds, and the success of these agreements depends to a great extent on our adoption of clean energy.

Also, while speaking on policy and interventions, she says: "While policy interventions around clean energy take place at their own pace and time, one of the most economically feasible options available with citizens across the globe, is to adopt an energy-efficient lifestyle. It is becoming increasingly clear that energy efficiency needs to be central in energy policies around the world."

### **Policy, Regulation and Reform within the scope of a growing economy**

Keeping this inescapable truth in mind, the Government of India, along with active support from its citizens, has kick-started a revolution in energy efficiency by introducing

scalable and replicable demand-side management initiatives. The country, Shetty says, has not only established a comprehensive policy for energy efficiency – National Mission for Enhanced Energy Efficiency (NMEEE) but has also executed successful demand-side management programs for consumers and municipal corporations to achieve overall energy savings while gradually mitigating the impact of climate change.

The Government's Unnat Jeevan by Affordable LEDs and Appliances for All (UJALA) scheme is implemented by Energy Efficiency Services Limited (EESL), a super Energy Service Company (ESCO) under the Ministry of Power. UJALA, the world's largest zero-subsidy LED bulb program for domestic consumers, is an example of a successful energy efficiency program, designed to help the country achieve sustainable development by reduction of carbon footprint.

Shetty adds and says: "UJALA is purely a citizen-led initiative, with strong policy support from the government. It is an example of a self-sustaining government initiative that has not only surpassed traditional benefits, like energy savings and reduced carbon emissions but has also triggered large scale investment in the manufacturing of LED bulbs, generated employment and other macro benefits." The success of the UJALA program, she adds, has demonstrated that such initiatives can not only be executed but successfully replicated for other appliances such as fans and tube lights. UJALA's tangible benefits have resulted in healthy competition among all states governments in India to devise customized energy efficiency programs and execute them independently; emulating the scalable models demonstrated by EESL, since achieving energy efficiency is a key element in the 24x7 Power for All agreement between the Central government and the individual state governments. In 2016, the UJALA scheme further included the distribution of 20-watt LED tube lights and energy-efficient ceiling fans, which are rated 5-star by the Bureau of Energy Efficiency (BEE). By 2019, the Government aims to replace 770 million old wasteful lamps with modern, efficient and long-lasting LED bulbs. To date, more than 230 million LED bulbs have been distributed across the country, completely transforming the way Indian citizens look at bulbs, energy efficiency and environmental conservation. The distribution of 230 million LED bulbs, 800,000 energy-efficient fans and 2.3 million LED tube lights has cumulatively helped India save 32 billion kWh electricity annually, the production of which would otherwise have consumed 19 million tons of coal. This has led to an annual reduction of 25 million tons of CO<sub>2</sub>, which is equivalent to growing approximately 600 million trees for ten years. Adding to that, consumers are saving over 124 billion on their electricity bills annually, she adds. ■



**Meghana Shetty,**  
Co-founder,  
smstudio – An  
architectural and  
interior firm



# STRUCK BY THE ROBE

The article features Lighting Designer – Chris Ragan and the works during the event – Celebrating 50-years of the ‘Allman Brothers Band’

- By the Lighting India Content Team

**T**he Brothers: Celebrating 50-years of the Allman Brothers Band’ was a show staged at New York’s legendary Madison Square Garden just before the state went into lockdown in a massive effort to halt the spread of Covid-19. Lighting Designer - Chris Ragan utilized over 100 Robe fixtures paired with dynamic design for the four-hour performance. The Brothers’ were known for their dynamic fusion of blues, jazz and country with their distinctive rock music have stayed relevant long after their first period during their days of glory. To give insight into the lighting aspect, Ragan has numerous connections, the members, many of whom have been clients to the lighting rental vendor BML-Blackbird

Theatrical Services. The Robe count included 44 x Spiider LED wash beams, 20 x BMFL Spots, 26 x MegaPointes and 12 x PixelPATTs, all supplied by BML-Blackbird.

As soon as the event reached the design stage, the show was sold in a 360 format, and Chris was well-aware of what was needed in terms of sightlines. He said: "We all wanted to involve the look and style in the show," while speaking of a substantial visual challenge.

Chris sketched a "large mushroom" that would hang above the band onstage – adding a projection surface surrounded by lighting. The mushroom was originally adopted by the Allmans as a psychedelic orientated logo that had transcended the history and various line-ups of the band. To add effect, a 20ft by 30ft mushroom was created using an assortment of 12-inch truss circles. They then added four LED walls positioned at each corner of the stage to provide IMAG and to show custom show content created by Johnathan Singer, Marco Ferrero and Steve Pavlovsky. Adam Paul was the IMAG / camera / stream director.

Once all this was determined, Chris positioned his lighting fixtures. The Robe BMFL Spots were rigged on the upstage and overhead trusses; the Spiiders were also on these two trusses and downstage on the deck; the MegaPointes were on the upstage deck and overheads, and the PixelPATTs on a series of upstage truss towers at different heights. BMFLs are

Chris' 'go-to' powerful profile fixture. MegaPointes were chosen for their renowned speed and a diverse range of features which proved great for framing the stage and providing a prism effect. The Spiiders and PixelPATTs were used primarily as wash lights, together with their jazzy and dynamic pixel 'tricks' and the Spiiders doubled for "very effective" painting of the audience utilizing their flower effect.

"I love having the ability to mask pixels, it gives so many combinations and looks from one type of fixture and all of this helps keep the show fresh!" stated Chris.

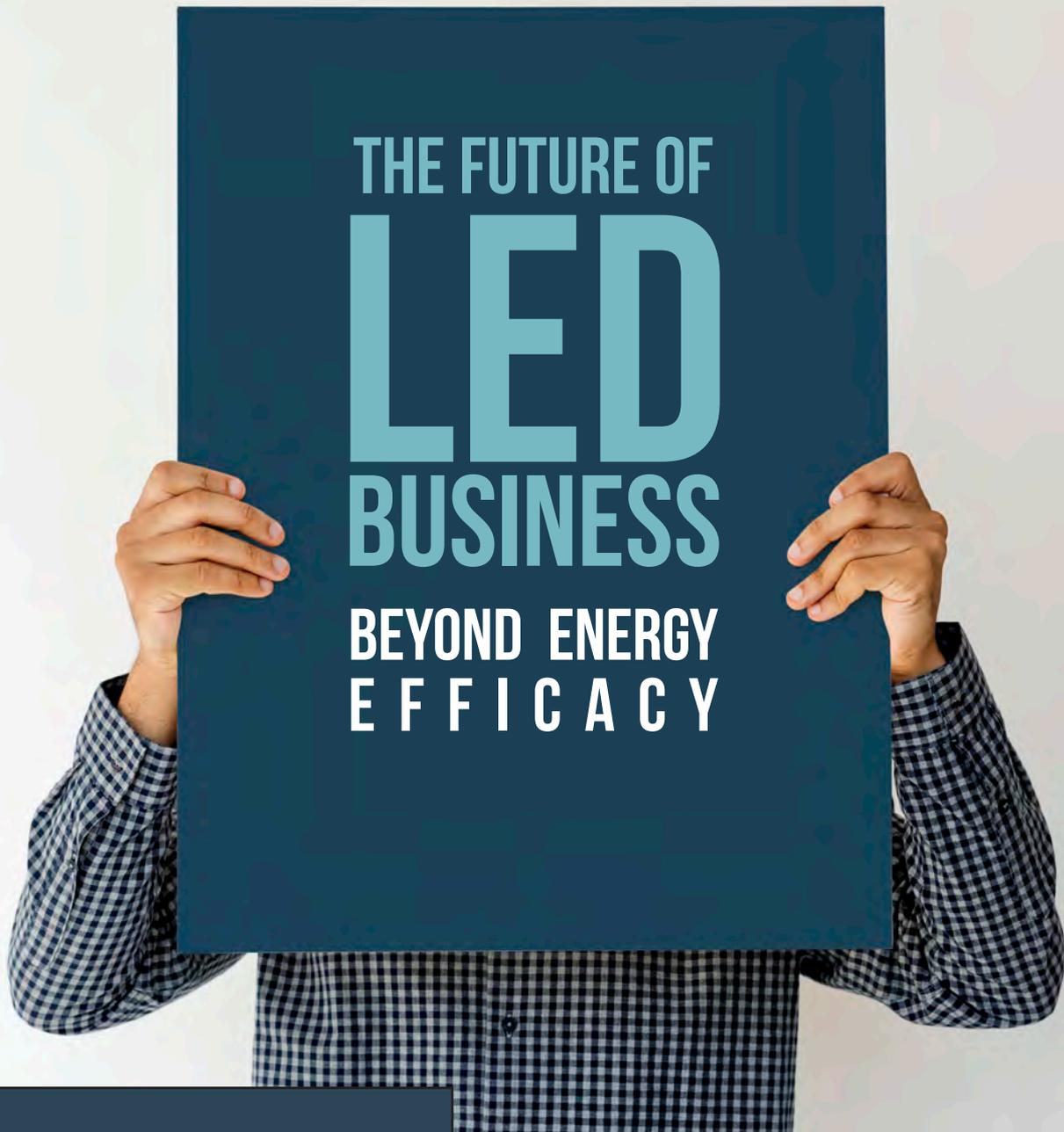
As you can imagine, four hours, with one interval – a major challenge was evolving and growing the visuality and atmosphere and ensuring that there was always something interesting and dramatic to look at. Also, the MSG rig were some profile moving lights for keys, plenty of strobes and approximately 100 lights dedicated just to audience illumination.

**Battling constraints:**

Time was a massive challenge on-site as they had only one day to load-in and get show-ready. After that, the next challenge was the length of the show. The 90-minute sets were punctuated by a 30-minute interval and this was followed by a 30-minute encore timing in at approximately four hours. Chris was inspired by many variables whilst working on this landmark show. ■

*Photos by Jake Brick*





THE FUTURE OF  
**LED**  
BUSINESS  
BEYOND ENERGY  
EFFICACY

The following article is authored by Anil Valia, Lighting Designer, Educator & Consultant, also known as a Lighting Evangelist as designated by ISHREA

- Presented to you by the Lighting India Content team

One of the advantages of working as a lighting designer and qualified Illuminating Engineer is that every day at work, I figure out a way to explore the many potential technologies that enter the market.

Today, we see the LED market exceeding boundaries, in terms of an increase in efficacy and a reduction in cost. LED-pioneer Roland Haitz, also known for the Haitz Law which states that the cost per lumen (unit of useful light emitted) falls by a factor of 10, the amount of light generated per LED package increases by a factor of 20, for a given wavelength (colour) of light. The law predicts an exponential improvement in semiconductors used in LED-technology. The increase in performance decreases in cost over time. In short, we can infer that the energy era in lighting, commenced with the oil

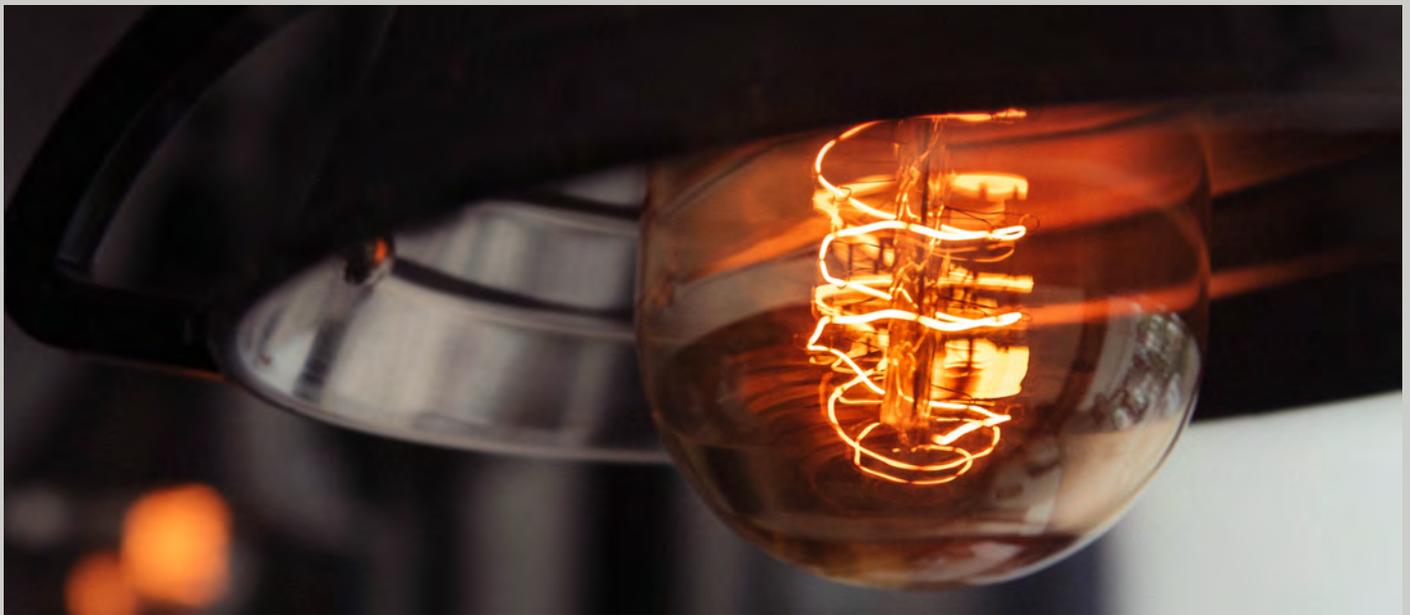
crisis in the year 1973 which is officially over with the advent of LEDs, hence achieving efficacy of 200 lm/W + calling an end to the return on investment (ROI) from luminous efficacy and lifetime advances. SSL has truly matured and is replacing traditional lamps practically in all applications, indoor or outdoor - right from residence to retail and road to sports.

I see growing possibilities in LED lighting design changing its route from performance-metric tunnel vision to space utilisation and lighting experience through the form and function of integrated lighting by occupants. LED technology has given us the ability to be artists like never before, and hence LED business will have energy efficacy for which resolving light quality challenges of the products and systems by the lighting industry in association with integrating profession will play a key role.

A watt saved is easy to communicate and build a return on investment from. However, the value of quality lighting can exceed energy savings. Looking at the 3/30/300 (utilities/real estate/employee), the rule of thumb cost to operate a square foot of commercial building space, a 50+% reduction in energy costs can be substantial, but even a modest reduction in real estate or improvement in employee output is far

exist for its measurement but much of the work to be done. Best design practices - such as individual or group tunability of lighting, automatic tuning for circadian, time of day, daylight integration, or another requirement; and user overrides - require a control system with flexibility and intelligence. This is the front end of what controls can do to support lighting quality. At the backend, things get even more interesting with different types control systems & protocol like, DMX, KNX, IoT, PoE, Wi-Fi, Li-Fi, Bluetooth (BLE ) Mesh, and so on.

Tunable White is Human Centric Lighting (HCL) – A half-truth is widely promoted by most in India. There is a need to educate on a priority basis and not only is the design & specifying community as well as users but also the lighting manufacturers, distributors, dealers and marketing or sales personnel. To date, two popular metrics are used -Melanopic Lux at eye level by WELL standard and CS method promoted by LRC - for true implementation of Human Centric Lighting (HCL). For good quality of Tunable White lighting from all luminaires in any installation, there is a need for DALI D8 Drivers and associated software. There is a strong need to promote quality lighting in India for which ISLE, IALD India



higher. The key elements of quality electric lighting in practice focus on colour quality, limiting glare, light distribution, visual comfort, flicker, and health and well-being.

Colour Quality: Putting ANSI TM30 2018 standard into practice through education, while designing & specifying the community and of course its implementation in design particularly in Retail, Offices, Hospitality, Health Care, Education and Human Centric Lighting (HCL). To limit glare in various applications, the need of the hour is the compulsion of Photometric Testing of Luminaires by OEMs and the use of BIS standard accepted UGR Method in design calculations and thereby implementing the use of glare free products in all applications.

Flicker is another quality feature of lighting design and is associated with the quality of drivers. To date, IES standards

chapter, ELCOMA, BIS, Contractor's Association and similar bodies in India can take a leading role to define LED Product quality parameters. Guideline can be taken from the Design Lights Consortium's (DLC) Qualified Products List, USA.

The DLC's Qualified Products Lists of LED products and networked lighting control systems offer a resource to the industry for sourcing products and to numerous utilities and energy-efficiency organizations for qualifying products for rebate programs in the USA. The DLC's Technical Requirements Version 5.0 incorporates a new and substantial emphasis on lighting quality for LED products attributes such as colour quality, glare, flicker and light distribution, which will increase the value of the resource and provide specifiers more information to evaluate products beyond basic performance metrics. ■

India's Smart Cities Mission will be a benchmark on how connected technologies can work together to give their occupants a comfortable, sustainable, and a healthy way of life. They will redefine many aspects of modern living

- The article is authored by S.P Garnaik, Business Unit Head (Lighting), EESL



# ILLUMINATING

## INDIA'S SMART CITIES

### Street lighting and how it fits into the smart cities' paradigm

According to a research conducted by Frost & Sullivan, the report titled - 'Strategic Opportunity Analysis of the Global Smart City Market,' talks about how a smart city is one that has adopted at least five of the eight following smart parameters. For instance: Smart energy, smart buildings, smart mobility, smart healthcare, smart infrastructure, smart technology, and smart governance.

Street lighting plays a key role in many of these aspects, and as far as smart technology and smart infrastructure are concerned, illumination is a key subject within society. It plays a critical role in the development of a nation, facilitating connectivity, trade, safety and education. A good lighting infrastructure can act a catalyst for the positive evolution of a nation, from a social, economic, and cultural standpoint. Visibility on the streets is directly linked to the safety of pedestrians, drivers, and passersby. Thus, streetlights not only aid in making roads safer while improving walkability, but it also adds appeal to public spaces. It is pivotal for lighting to

be sustainable and environment-friendly. It must align with the SDG's of a nation, especially through cost and energy efficiency. India was perhaps a frontrunner in recognizing the importance of a sustainable and energy-efficient lighting infrastructure, at the national level.

Providing robust streetlight to illuminate India's Smart Cities is not a challenge - India has already invested in high quality, future-ready smart streetlight infrastructure. The Street Light National Programme (SNLP) has installed over 11 million smart streetlights since its inception five years ago, making it the world's largest street lighting programme.

The whole process has helped mitigate 5.11 million tons of CO2 emissions; these have helped save 7419.21 MUs of energy per year. Smart lighting has been recognized as the most actionable and ready-to-implement technology for cities to transition to a low-carbon economy and peak emissions in the next decade. Once implemented across India's smart cities, these smart and energy-efficient streetlights can enable further peak demand reduction, annual energy savings and reduction in emission levels. Streetlights are connected



Image courtesy: Dominik QN (unsplash.com)

through a web-based monitoring system that enables remote operations and additional operational savings, making them 'smart infrastructure' and 'smart technology' assets. By delivering lighting in public places and on roads when needed, cities can optimize their operations and greatly save on both the financial and carbon cost of lighting. We will now delve into the 'smart' aspect of these streetlights.

### India's future-ready streetlight infrastructure

Also, we must recognize the role that the Internet of Things (IoT) plays in the development of smart cities. SLNP uses a Central Control and Monitoring System (CCMS) that uses GPS and internet technology.

The system centrally monitors and controls tens of thousands of lights, instantly switching them on at sunset, and off at sunrise. The system also sends an automatic SMS and email alert to the mobile number of the official in charge of maintenance in case of any technical defect, malfunctioning or tampering.

Through CCMS, lights can be monitored and managed from any part of the country via a computer or laptop. CCMS has ensured that urban local bodies, municipalities, and public-sector utilities have ease of maintenance of the LED streetlights installed. CCMS has mitigated the need for manual monitoring mechanism apart from resulting in significant energy savings. For example, the installation of CCMS-enabled LED 95,000 lights in the city of Destiny, Visakhapatnam saved around 40 per cent of electricity consumption. Consequently, the local DISCOM's electricity bill came down to around Rs.100 lakhs per month, as against Rs.170 lakhs a month. Further, the 95,000 lights needed only 4500 CCMS boxes for remote management, demonstrating

the ease of deployment. The CCMS brought down the cost of maintenance Rs. 100 lakhs a year, as against Rs.600 lakhs a year. The system also helped achieve indirect savings for the municipality by reducing the turn-around time for repair and maintenance. CCMS also aids in data analytics, via which DISCOMs can perform load forecasting and plan DSM activities in the state. Cities can also choose to aggregate details from the CCMS for street lighting online, giving residents a real-time understanding of their lighting infrastructure. For example, Greater Hyderabad Municipal Corporation, a DISCOM in Hyderabad city, created a website allowing anyone to view zone-wise information of the CCMS-connected LED streetlights and their status.

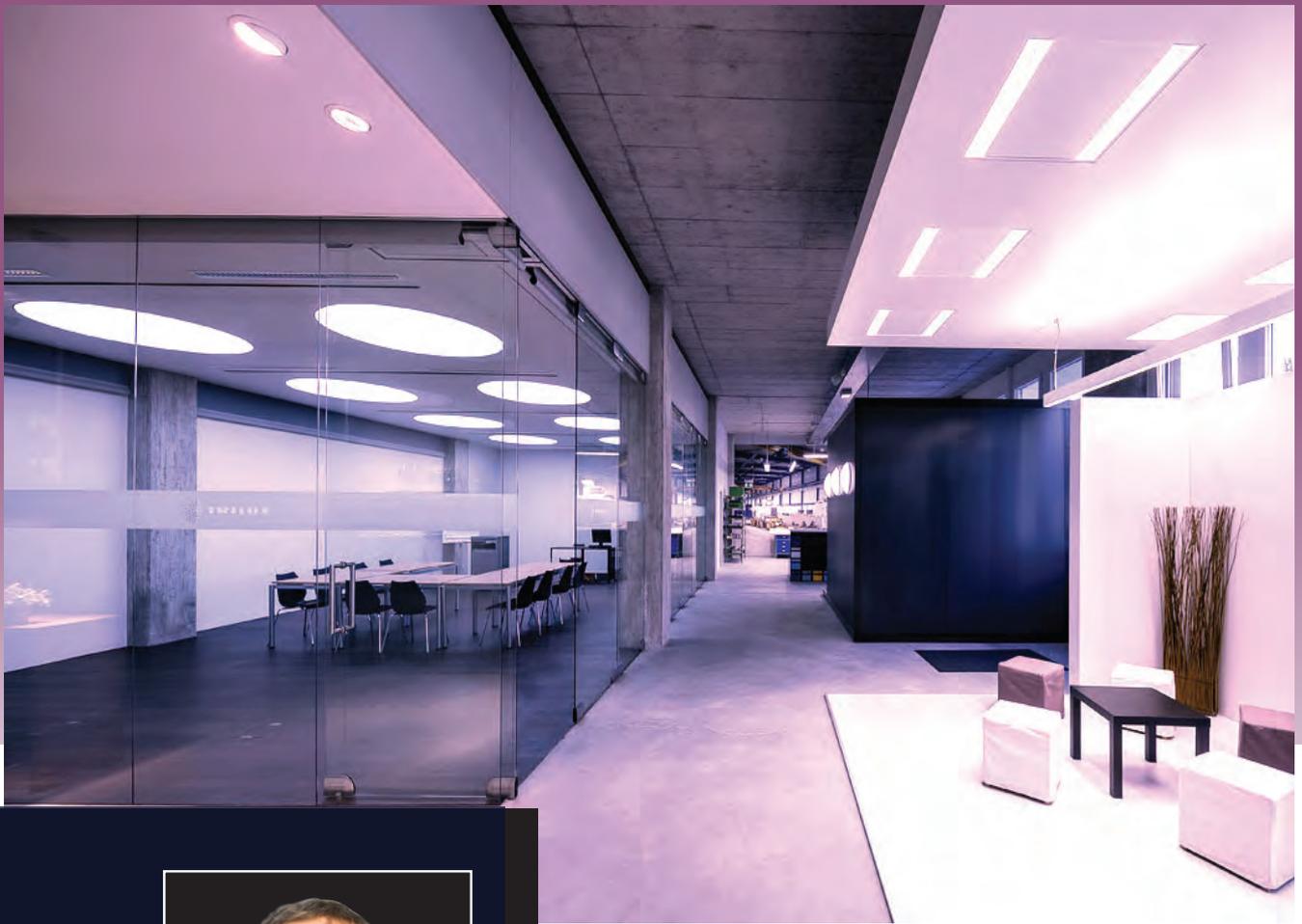
### Benefits across the value chain

The large cost savings and an array of benefits exemplify the need for adopting an IoT-led approach for India's street lighting. They also demonstrate their potential and scalability for India's Smart Cities. While smart street lighting, from a technological standpoint, integrates seamlessly into India's smart cities vision, smarter and innovative business models can be the catalyst for their faster adoption. For example, to bring in mass-scale transformation, Energy Efficiency Services Ltd. (EESL), an entity under Ministry of Power, Govt. of India, for the SLNP adopted a unique strategy of partnering with states, municipal bodies and ULBs, replacing conventional streetlights with LEDs at its own costs with no upfront investment by the municipalities, which made LED streetlight adoption even more attractive. Utilizing its unique business model, EESL recovers its capital investment over time by monetizing the savings that occur due to the reduction in energy and maintenance costs. A seven-year contract with the local bodies guarantees a minimum energy saving of typically 45-50% and provides free replacements and maintenance of lights at no additional cost to the civic partners. SLNP has also improved the quality of life of citizens in India, generating prosperity in local communities, through increased employment opportunities.

Thus, the future of illumination in India lies with smart streetlights. Lighting accounts for 19% of the total global usage and 30-50% of an average city's energy bill, so smart street lighting presents a compelling case. It also opens another pathway for climate action, as by reducing the need for energy, we lower our impact over the environment and climate change. Hence, with benefits such as automated complaint management, easy redressed, and troubleshooting, along with immense energy and monetary savings, smart street lighting is set to be at the nucleus of India's smart cities vision. ■



**S.P. Garnaik,**  
Business Unit Head (Lighting),  
EESL



“Centralizing all building controls functionality (including lighting) into a single building automation system is critical for optimizing controls for occupant comfort, satisfaction, and energy,” highlights Volpe - **Aurelio Volpe, Market Research Director, CSIL**

## CSIL ESTIMATES

THE MARKET FOR LIGHTING FIXTURES VARIES

# FROM 3% TO 6%

**F**ounded in Milan (Italy) in 1980, CSIL - Centre for Industrial Studies is an independent Research and Consulting company specialized in applied economic research, evaluation of public investment projects, business intelligence, support to develop programs and policies, market analysis and SMEs economics. Since its origin, CSIL has been established as a centre of excellence concentrating on the diagnosis and design of company and sector strategies, and the analysis of factors of competitiveness at a local and a global level.

CSIL estimates the world market for office lighting to be approximately USD 12 billion (source: LED Report, 2019 edition) of which around USD 9 billion is LED lighting. It approximately doubled size in the United States since 2011 and no doubt, after the 2020 recession, will recover. Growth of office lighting in Europe has been slower (+30% since 2011). The US market is somewhat bigger than the European one: according to CSIL estimates, the US market is worth 1.5 times the European one as for office furniture, and 1.35 as for office lighting.

The main brands of the Acuity group (market leader in the United States) addressing the office market include - Peerless (commercial offices, mainly suspended solutions), Gotham (office, churches and auditoriums); but also Lithonia (the main brand, overall), Acculite (mainly hospitality and retail), Juno (retail), Mark Architectural Lighting, Indy, and Winona (hospitality). The type of products addressing this segment are mainly downlights and linear lighting, suspended (Aculux). The top ten European players supplying lighting for office spaces are Signify, Zumtobel, Glamox-Luxo, Fagerhult (mainly with the LTS brand), Trilux, Regent, Waldmann Ledvance, Xal, Erco.

### The right kind of lighting for the right kind of office space:

Typical office luminaires, always quoting CSIL research, include:

- Recessed lighting: Mainly for open spaces. Around 50% of the business.
- Surface lighting: Either fixed on the wall than on ceilings.

The range is wide, from downlights (usually cheap, for example for bathrooms) to wall washers (ambient feelings).

- Suspended lighting: Pendants can be used for example in entrances (at different heights) and louvres are common in individual offices. Around 15%.
- Free standing lighting: For office spaces where employees work mostly sitting on desks, table lights (task lighting) can be the best solution. Not to be forgotten - floor lamps, that gives greater control over the illumination of the place. As for table lamps, the options range from high-end options offered by design brands (Artemide, Flos) to specialized products (Waldmann, Luxo) to very cheap options sold by home improvement centres. Innovative suspended panels, as well as floor lamps, offer today the possibility to switch direct/indirect lighting. Freestanding lighting is estimated to represents around 10% (if we include also in this segment the most sophisticated and high end-design products).

Most structured catalogues (Fagerhult, Zumtobel, Luxo for example) suggest that the right product according to the necessities: entrance, open office, large offices, individual offices, communication and bathrooms.

Today the share of task lighting (that is one of the ingredients for healthcare lighting) is around 12% in Europe (15% in Germany, 10% elsewhere) and 9% in the United States but the trend is necessary increasing, as new offices show less crowded desks inside open spaces and more frequent communication areas, smart working, "living-like" spaces.



Arup's Boston office is the first project to receive WELL Certification in New England

## Frequently used lighting design strategies for office spaces include:

- To bring natural light to heavily used areas
- To use diffused light (while floor-to-ceiling windows and skylights help to distribute light throughout a space evenly, diffused light eliminates glare, hot spots, and sharp shadows that negatively impact visibility and productivity);
- Install artificial lighting that mimics natural light (tunable white-light systems change color based on the environment—on an overcast day, the color temperature might be 6500K, while at sunset, the temperature may be 1800K).

All in all, every manufacturer of office lighting has in its portfolio all (or most of) these solutions. More and more, with options such as motion sensor, daylight control and regulation, and a dimming feature that controls light according to the illumination requirement. For most, lighting companies are engaged in these applications, office accounts for around one-fourth of the company turnover (the rest being typically healthcare, schools, industrial but also hospitality or retail).

## Individual offices and open spaces

Although open-plan offices have become increasingly popular, the standard cell office is still prevalent at least in Europe and in old buildings. Direct or indirect lighting is a good solution for one-person offices. The indirect component makes the room feel bigger and brighter. Among the most popular solutions are pendant luminaires above the desk. Alternatives are recessed luminaires, often in combination with a task light to cater to individual needs. With a free-standing luminaire or a task light, the office worker may control the light level and position him- or herself. Pendant luminaires should be positioned straight above the user's lap.

Open-plan offices vary a lot in their design. One common denominator is the line of desks occupied by office workers, but the desk area may also be mixed with sitting groups, small meeting or work tables, coffee corners and the likes. The more light there is on the walls and ceiling helps the wellbeing of the workers. Minimum requirements are 75 lux on the walls and 50 lux in the ceiling.

Each workstation should have a presence detector, to save energy when people are away. In a 40-hour workweek 30-40 % of the time is spent on travels, in meetings or elsewhere. Workplace-related office lighting, such as classical workplace luminaires (desk luminaires), standard luminaires, ceiling luminaires, and luminaires for desk-mounting or suspended luminaires offer the best options for an individual lighting solution at workplaces. In order to reap all of the benefits and the healing power of natural light in office spaces, you need to have a clear vision and trusted guidance. Experienced architects can help with both.

## Future trends

There are at least two technological trends to consider when talking about office lighting: Connectivity and Human Centric

Lighting (HCL). Maybe less relevant, nevertheless to be considered the so-called "Serviceability" of the products: the possibility to change just a part of the lighting fixture instead of the total one (for example only the LED modules or the driver).

We consider the "LED revolution" as something already happened from yearly sales today, but this is only partly due from installed stocks. The lighting industry is starting to respond with so-called 'human-centric' or 'circadian' lighting, dynamic lighting systems which mimic the changing colour and intensity of daylight in building interiors. Early circadian systems have already been installed in some schools, workplaces and care homes. HCL has been introduced first for office applications, schools and long-term healthcare. This type of products is manufactured by all the European leaders (Signify, Ledvance) but also mid-sized companies (Planlicht, Regiolux, and Luctra). EN 17037, the first European standard for daylight in buildings, has been published just in 2018. To obtain correct contrast conditions in the office, the light (lux level) should be strongest in the primary work area (the keyboard, or the center of the desk), weaker in the rest of the work area and weakest in the remainder of the room.

The world market of connected lighting for office, healthcare and educational spaces is projected to multiply by four in just four years. All in all, the market for lighting controls is a bit higher in the United States than in Europe, probably for a major number of estates (offices, hotels, what else) of a bigger size. The adoption of smart lighting controls is still in the early phase. Indeed, lighting controls are increasingly becoming standard in new construction of office buildings, but this accounts only for a fraction of the total number of buildings. CSIL estimates that the incidence of lighting controls and related IoT device on the lighting fixtures market vary from around 3% to 6%. Centralizing all building controls functionality (including lighting) into a single building automation system is critical for optimizing controls for occupant comfort, satisfaction, and energy.

Light plays a crucial role in the ergonomics of a workplace. Good office lighting supports visual tasks and contributes to well-being. The luminous intensity at workplaces should, therefore, be at least 500 Lux. It is early to make an accurate forecast on the effects of Coronavirus on the office lighting sector (as for everything else) but we hazard a prediction of a 10% decrease for this year, to recover the 2019 levels in 2021 and to consolidate the growth during 2022. Inside this scenario, we forecast a growth of the share of portable lighting but not dramatic: some more than a percentage point of share in both the markets, to reach an overall value of 600-650 million USD in 2022. Two drivers have to be considered, that partly counter-balance:

- More common spaces and smart working for the office work (it pushes the use of task lighting, but also decorative suspensions)
- To save energy, do not spend too much on office lighting (on the opposite side). ■

# STICKING UP TO THE FIGHT: TO WHAT EXTENT WILL THE INDUSTRY INNOVATE?



**Vishal Kaul - Vice President – Lighting, Crompton Greaves Consumer Electricals Limited** speaks to the Lighting India content team on how the industry is likely to change concerning end-user demand, and services...

## Talk to us about innovation, to what extent is the industry phased from the on-set of the COVID-19 virus?

The on-set of COVID-19 has impacted businesses and the industry, but in such a situation there are also positive impacts through which various innovations are brought to light. As observed in the past, times like these have fueled the greatest innovations and we can expect quantum shifts in the future. Working and living at home have become the new normal and human-centric lighting, is, therefore, the need of the hour. While it is a buzzword in the lighting industry, it highlights how lighting affects a person and more importantly their productivity, wellbeing and comfort in the environment. Shortly, social distancing will be a semi-permanent reality adversely affecting work life. This will lead to irreversible changes in working styles including amplified work from home as a regular practice. Thus, the role of LEDs has become even more important in homes, not only providing soft ambient lighting at night for relaxing but also sharp and bright lighting during working hours for better focus. We also see Anti-Bac LED bulbs which is one of the latest innovations aimed at creating a better home environment. Leaving no stone unturned, these bulbs with advanced EnviroSAFE technology are an essential need as it kills up to 85% germs keeping everyone healthy. Its dual benefits are interesting as it not only delivers light but also kills germs. We also see lighting options where-in the person need not touch the switches. Keeping in mind such innovations, the Internet of Things (IoT) for lighting solutions have evolved going beyond their original functions. This present time will, therefore, be essential to have IoT control in the commercial sector as it will improve employee productivity and drive operational efficiency through remote controls without mandatory physical presence.

## How would you assess the situation concerning the Chinese market, how affected was the Indian consumer?

While the world took a hit when China was on lockdown, the Indian consumer durables industry was also highly affected given that 45% of the components are imported from China. It is imperative for us, as an industry, to be more self-reliant in our electrical components. With the 'Make in India' initiative, we do have the potential to provide world-class infrastructure and facilities.

## Assess the LED market concerning technology, energy efficiency and smart systems...

Technology helps combine smart features with energy efficiency lead to smart homes and commercial establishments. This further facilitates the growth of smart cities across the nation. The trend can be seen in organizations, communities and customers themselves. The changing times have brought down the cost and this will continue to be a priority for every industry as well as at home, eventually, it will lead to the rapid adoption of energy-efficient lighting and control systems. In the commercial B2B segment, there will be a shift towards energy efficiency in offices, IT parks and the infrastructure sector – including street lights, airports etc. Innovation is, hence, the key to allowing organizations to remain relevant and consumers to lead a better quality of life. These varied set of innovations, that will be adopted to the changing lifestyle, can range from human-centric lighting to smart controls as well as 'Anti-Bacterial light sources. In today's day and age, crisis/calamities are unfortunate recurring incidents. However, to create an optimistic view, they can be used to drive innovation, efficiency and a better way of living and working. Any industry which leads the way in this will see itself coming out of the bad phase faster and better. ■

# Merger

will give a push to  
'Making in India'

says MD, Panasonic Life Solutions



**Tell us about the merger - Anchor Electricals Pvt. Ltd. now Panasonic Life Solutions India Pvt. Ltd as a wholly-owned subsidiary of the Panasonic Corporation.**

Over half a century, Anchor has managed to capture the minds of every consumer in India. The Anchor and Panasonic Brands are committed to delivering products for better safety and comfort of Indian citizens. The ideology of holistic quality management to improve product offering has been a part of Anchor's core business. From the year 1963, Anchor is 'Making in India' and providing services that deliver social, economic and environmental sustainability. Brand's experience and understanding of the Indian market is unmatched in the field of electrical products. The prominence of Anchor as India's only "Switches SuperBrand" testifies to the fact that it is still the most respected brand to be leading this business vertical; with a constantly expanding product range and a growing market share.

**Dinesh Aggarwal, Joint Managing Director, Panasonic Life Solutions India Pvt. Ltd.** speaks to the Lighting India content team on the new merger with Anchor Electricals Pvt Ltd. Excerpts...



Over the period, with a constantly expanding product range and growing market share, Anchor/ Panasonic is one of the largest domestic manufacturers of electrical construction materials. For over five decades, Anchor is a preferred solutions provider; winning flagship projects in energy management, real estate, smart cities, and intelligent industrial and residential infrastructure. Panasonic Life Solutions India aims to double its turnover in the next three years by steadily growing its existing range and growing the new categories as well.

**Tell us more about Panasonic’s LED lighting portfolio...**

Lighting not only illuminates the projects but also dramatically enhances the atmosphere of living spaces as well as allows the occupants to feel relaxed, comfortable, and at ease. In particular, LED lighting offers higher energy savings along with superior colour rendering properties, opening up a new realm of possibilities. For over 60 years, Panasonic has continued to create advanced lighting products using top-notch designs and technology, quality methods for different spaces. Today, Panasonic enjoys a proven track record as a trusted and preferred brand of choice for lighting products in Japan. Panasonic with its aesthetic range of LED lighting will continue to achieve greater energy savings while enriching the living of several spaces and urban environments across the world.

**Tell us about your project - Brigade Exotica Residence Block 1 and the indoor application concept.**

Panasonic Life Solutions with a wide product range is one of the leading domestic manufacturers of electrical construction materials. Being a preferred solutions provider in intelligent commercial and residential infrastructure, Panasonic Life Solutions recently announced the opening of a new model house near Bangalore airport, in association with the Brigade Group, one of India’s leading and socially conscious property developers, at the Brigade Orchards, Devanahalli. With a common objective in mind; both Companies will develop residential and commercial spaces with themes of Comfort, Safety & Energy saving, integrating some of Panasonic’s advanced and innovative technologies and

construction materials to create additional value. The model house has been fitted with Panasonic’s latest and high-end Japanese Technology products right from Modular kitchens, wooden flooring, interior door, switches, wiring devices, intelligent toilets, CCTV camera, Wash basin with vanity, door security solutions, Home Automation, Inverter Appliances like Split AC, Washing machine; Solar-powered HIT panels with a hybrid option, etc.

**What are the emerging trends related to customer demand in LED?**

With advancement and transformation in today’s modern home décor and interiors, people’s lifestyles and ways of living are constantly evolving. The market is moving towards automation and one-stop solutions provider, new standards introduced like LEAD and WELL certify a building and lighting is a significant part of it. The emerging trend today is smart lighting and lighting management systems which can be controlled remotely through the Motion sensor, lighting sensor, and occupancy sensor. Lighting today is a very important matter of interiors, illumination, and the environment. There has been a massive transition to LEDs that ranges from warm to cool, from an ideal working light to lighting that matches the ambience.

Looking ahead, how does Panasonic aim to position itself as a technology player in the Indian market?

Panasonic has a strong experience in developing Lighting for various specialized applications like Office lighting, Retail lighting, Stadium lighting, Architecture & Monument lighting etc. While our current focus in India is towards supplying standard but superior products (in terms of Lumen efficacy and robustness); we have started working in projects where we will be able to position our superior technology and our global experience. Panasonic will position itself as a technology player in the Indian market; especially in the projects; private and government. In the outdoors segment; we will bring in more rugged products and control systems for smart street lighting and thus play an active role in India’s smart city infrastructure creation. ■



Image credit by Sasin Tipchai from Pixabay



-By  
Ar. Ashish Batra,  
General Manager  
(Architecture and  
Planning),  
Total Synergy  
Consulting Private  
Limited (TSCPL)

# ASSESSING LIGHTING-DESIGN IN HOSPITALS

Illumination or Lighting is the intended use of light to achieve an aesthetic effect. Lighting includes the use of both natural light by capturing daylight as well as artificial light sources like lamps and various lighting fixtures. Enhanced aesthetics incorporated into fixture design, as well as the ability for the luminaire to light architectural details, are certainly important. However, lighting does play a very crucial role in hospitals and can contribute greatly to improve a patient's condition.

## Types of Artificial Lights

- In general there are three basic types of lighting that work together:
- **Ambient lighting:** Provides an area with overall illumination. Also known as general lighting, it emits a comfortable level of brightness without the glare effect.
  - **Task lighting:** This kind of lighting often helps a person perform a specific task such as reading, working and cooking.
  - **Accent lighting:** This kind of lighting adds drama to a room by creating visual

interest. As part of an interior design scheme in any area or building. Accent lighting is used to draw the eye to paintings, sculptures or unique features etc.

### Lighting in Hospitals: An Integrated Approach

The occupancy rate of hospitals is very dynamic and changes frequently. In hospitals, the lighting need for every occupant is very different from the other, and sometimes even conflicting. The visual and physical environment of hospitals impacts the psychological senses of the patient - the hospital staff, doctors and relatives. Efficiently designed lighting in the building structure satisfies the biological, visual and emotional needs of the users. It also affects the biological activity of a person, influencing body functions, concentration and creating a relaxed and soothing environment. Many twenty-four seven working areas of hospitals add importance to the lighting design and lend criticality to the lighting design of hospitals.

### Three core values applied to light in healthcare

The three core values applied to lighting in healthcare is Performance, Efficiency and Comfort normally quoted as PEC.

- **Performance:** To provide an optimal lighting solution. In hospitals, day-cares and clinics, this can lead to quicker reactions and task completion with minimal mistakes resulting in great standards of care.
- **Efficiency:** Efficiency is concerned with the energy economics, consumption and practical aspects of a lighting installation scheme; and
- **Comfort:** The ability to give people satisfaction and simulation. Lighting impact attention and mood feeling which is also



Lighting in Hospital Lobby and Corridor Area (Picture reference: pinterest.com)

Well-lit corridor with comfortable lighting (Picture reference: shutterstock.com)



concerned with atmosphere, reassurance, and in the healthcare environment, the well-being of a patient.

### Lighting design considerations in different areas of the Hospitals

**Entrance:** The key feature in the entrance area of a hospital is its functionality and aesthetics. Interesting lighting in the entrance or lobby area can make a hospital more inviting and lively. Generally, the entrance hall consists of four zones – the entrance, reception desk, the waiting area and the other areas that lead to the people in to the rest of the building. Four kinds of lighting are best suitable for entrance area in the hospitals, i.e. General Lighting, Lighting suspended above the counter, Accent lighting back wall and wall mounted lighting. Refer Image 2 for a picture showcasing lighting in the entrance area of Hospital.

**Waiting Rooms/Areas:** In waiting areas of hospitals, lighting has an important role to play in creating and welcoming friendly atmospheres. Lobbies and transition spaces must put the patients and visitors at ease instantly. Special attention is required in waiting rooms/areas to grading the luminance and reflectance of successive spaces, to create soothing, friendly and welcoming environment. Refer Image 3 for picture showing enhanced lighting in waiting area of a hospital.

The layering of light in waiting areas can create a pleasant and relaxing environment. Using a combination of overhead, recessed and indirect lights can enliven these areas. Glare-free appearance is an important factor to consider here. These small but critical areas in a healthcare setting can set the tone for the entire visitors and patients experience in hospital.

**Corridors:** For a hospital, which is often open 24 hours a day, corridors and circulation areas are the arteries of the building. They link the different areas together. Patients and visitors travelling through corridors will naturally benefit a bright illuminated corridors rather than a dark one and particular lighting can be used to optimize guidance.

In areas where patients and visitors circulate, factors of key importance are guidance, safety and re-assurance, which can be supported by using diffused homogenous lighting and avoiding dark spots. For corridors where patients are wheeled along on trolleys, it must be taken into consideration that sharp contrasts can be extremely uncomfortable when they are looking upwards. Refer image 4 for picture showing a well-lit and visually comfortable corridor of a hospital.



Lighting in the entrance area of a children's hospital  
(Picture Reference: buildings.com)

Colour selection of finished material used in corridor ceilings, walls and floors in relation to incident reflectance is critical in corridors. Elimination of glare is one of the most important design criteria for corridors. Recessed indirect or cove lightings are recommended in corridors.

**Examination Rooms:** Patient evaluation and medical procedures begin in the examination room of any hospital. Visual comfort and the visual appeal must all be addressed in the lighting design process for these areas. Refer image 5 for a picture showing an examination room in a hospital with efficient lighting.



Enhanced lighting in waiting area of a Hospital  
(Picture reference: fabricair.com)

Indirect lighting and the ability to switch the level of lighting intensity is critical in examination rooms. Consideration for a combination of recessed indirect/direct luminaries and specific task lighting is important. Skin and tissue tones are best rendered under light sources with a high color rendering index (CRI) of 80 and above.

**Patient Rooms:** Patient rooms are the areas where in-house patients spend most of their recovery time. Dynamic white light with ceiling modules that provide daylight rhythm with varying light levels and warmer or cooler colours are preferable. System flexibility must be allowed in the patient rooms to have individual control with additional switching locations for the healthcare professional. Refer to image 6 for pictures showing patient rooms in a hospital with efficient and soothing lighting. Glare and excessive brightness must be eliminated in the patient rooms.

**Operation Theatres (OT):** The visual requirement in the operation theatre is the detailed examination of tissues, organs and instruments at the site of the operation. It is always preferable that the illumination level for lighting the operating area should be between 2,000 to 10,000 lux. Each lighting fixtures should be provided with separate switching, to enable the individual requirement of light for special considerations in special cases. Refer image 7 for a picture showing detailed lighting in an operation theatre of a hospital.

Switching and dimming controls should be considered for these areas and reflective glare can be compounded if inappropriate finishes are selected for these areas. Recessed



Examination Room with efficient lighting  
(Picture reference: stocksxy.com)



Patient Room with efficient and soothing lighting  
(Picture reference: blog.mission-health.org)

fluorescent lighting fixtures can control ceiling surface glares and can also provide the recommended illuminance levels on surfaces. Importantly in OTs, the luminaires should meet the requirements or electromagnetic interference/compatibility (EMI) and radio frequency interface (RIF).

### Conclusion

Hospitals need to ensure that there are adequate lighting and illumination in the circulation area, indoor areas, and procedure rooms, in front of the facilities and the other important areas of the hospital. The hospital also needs to ensure that it uses energy-efficient measures like the use of natural light and energy-efficient bulbs like LEDs.

Although in hospitals all the lighting types and fixtures are not used together, it is considered that a proper blend of

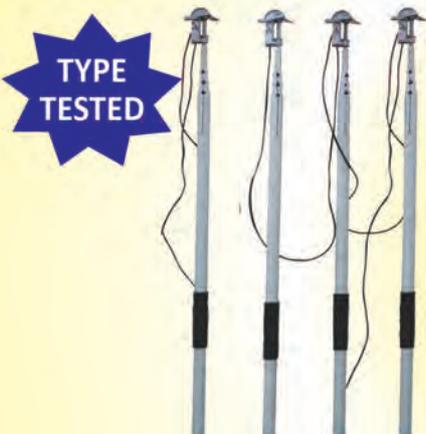
lighting types, results in an inviting, relaxed and pleasing environment. In healthcare spaces, choosing and providing the desired lighting is an important element of interior design, given that it is not just an illumination, but a factor that contributes to patients' recovery and wellbeing. ■



**By Ar. Ashish Batra**, General Manager (Architecture and Planning), Total Synergy Consulting Private Limited (TSCPL)

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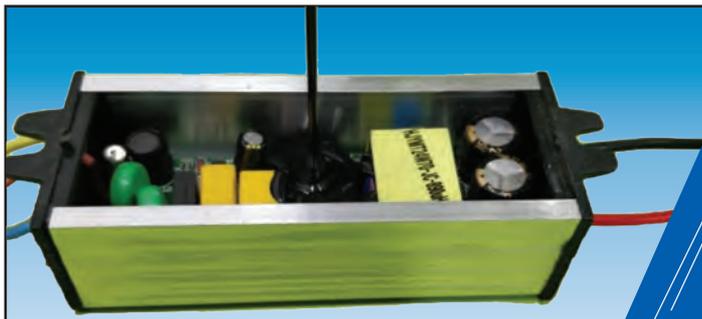
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| ESYLUX Asia Ltd . . . . .                      | 7      |
| Infineon India . . . . .                       | IBC    |
| Jay Polymers . . . . .                         | 35     |
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**Contact:** evelinelxf@apppexpo.com /  
86-21-63288899 ext.185

### LIGHTEXPO KENYA

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**Contact:** kenya@expogr.com /  
+254 20 2000621/ 706129142

### HK International Lighting Fair (Spring Edition)

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