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Lighting India

Vol. 14 No. 4 July - August 2019

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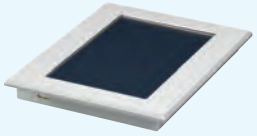

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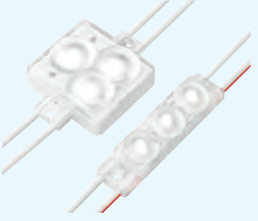

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TALEXXcontrol

PUBLISHER'S LETTER

The ongoing digital transformation is affecting our everyday lives and the Internet of Things (IoT) is being considered as the biggest disruptor in this digital era. Today, smart connected devices are reshaping how we work, communicate with each other and how we interact with our environment by leveraging the power of IoT. The field of lighting is not an exception to this evolution. Apart from illuminating a space, lighting can potentially offer greater functionality thanks to the convergence of Big Data and Artificial Intelligence etc when teamed with IoT. This time, we outline the role IoT lighting can play in a connected ecosystem. Leading experts from the industry commented on how smart lighting will transform our future homes and cities. In this context, Ingmar Klaasen of Lighting Design of Things Pty Ltd explains the active roles the lighting designers can play.

Lighting design of facade plays an important role in revealing facts of a building, monument etc. Er. Chaudhary Rajneesh K. Singh of Rail Vikas Nigam Limited observes that, importance of suitable, efficient and adequate facade lighting illumination cannot be ignored as monument with suitable facade lighting can create a lively effect on historical past.

The concept of Solar Zones is a new and innovative idea for potential utilisation of renewable energy within the institution or campus premises. A cluster of innovative solar lights and benches can be conceptualised and installed that will completely transform the campuses or universities into an energy-efficient, safer and user-friendly environment. Architect-cum-Urban Planner Ashish Batra delves deeper to find out the advantages of Solar Zones.

In addition, several other topics like facade lighting, museum lighting, stage lighting and hospital lighting are discussed here in details.

In November, India will witness the lighting industry extravaganza – LED Expo Delhi 2019, which will run between 14 and 16 November at India Exposition Mart, Greater Noida. Lighting India, being the media, promises to bring you an exclusive LED-special issue which will be the ready reckoner for this international event by featuring details of what lies ahead for visitors. We invite your participation in this mega issue.

Do send in your comments to me at miyer@charypublications.in

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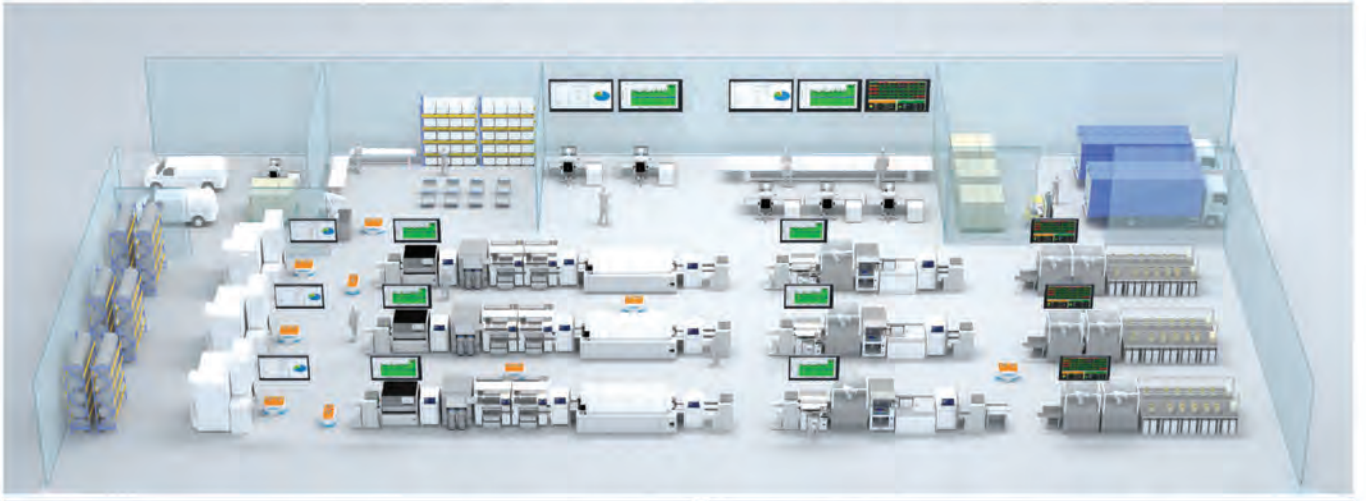

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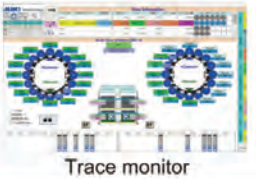

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Legrand showcases its smart automation solutions

Legrand India is all set to launch its lifestyle infotainment series - All in A Wink. The series brings out how Legrand's lighting controls and home systems highlights three important aspects i.e. convivence, security and energy conservation for their customers.

Legrand India has beautifully conveyed the capabilities of automation through a four-episode series. Each episode showcases the role of lighting control and home systems in different spaces and how the technology has played an important role in not only making the location look attractive but also supporting energy conservation during the process.

The four episodes are shot in four diverse locations: Grand Orient Hall (Panchkula), Kakinada Shopping Mall (Andhra Pradesh), Bhamashan State Data Center (Jaipur), and Individual Bungalow (Mangalore).

The series encapsulates the offerings of Legrand's Lighting controls and Automation technology and its capability to offer customised solution for every customer wish list. Legrand Home Automation offers solutions which are fit for multiple spaces/sectors like shopping malls, individual bungalows and commercial spaces etc. The brand through this series plans to reach out to its customer directly to increase brand resonance.

Sameer Saxena, Director -Marketing, Legrand India, "The Vantage Home Automation technology at Legrand enables its customers to get customised scenarios and mood in a banquet hall or at home or even in a shopping mall. The Lighting Control and Home Systems enables the users to conserve energy. With this we want to reach out to our customers and create awareness and active engagement among consultants and contractors." ■

Osram enables intelligent automotive lighting in HD quality

About two years after the announcement of the world's first hybrid LED "Eviyos," Osram is starting a new chapter in multi-pixel solutions for car headlights. With more than 25,000 individually controllable pixels, the LED has a footprint of just 40 mm^2. The individual light pixels are brought together to a pixel pitch of only 40 μm, creating a particularly space-saving component. With this, Osram not only emphasizes its innovation leadership in the automotive sector, but also clearly shows where the technological journey is headed in the coming years - multifunctional, intelligently controllable headlamps that can do more than just illuminate the road.

An essential feature of the Eviyos family is that only the pixels that are needed are illuminated for a particular situation. This means that only the necessary energy is consumed - a crucial point, especially for electric vehicles.

The second generation of Eviyos is currently still under development - but it already shows how automotive lighting will change in the coming years. They can fade out areas with unprecedented precision, while other areas shine in full light. This technology also opens the door to new fields of application beyond classic lighting. Depending on the application, customers will be able to combine several Eviyos with each other or other conventional LEDs.

At the beginning of 2020, the first generation of the world's first hybrid LED Eviyos, featuring 1,024 individually controllable pixels will be launched to the market. The market launch of the second generation of Eviyos is planned for 2023. ■

Signify announces collaboration with Livspace in India

Signify, formerly known as Philips Lighting, announced its partnership with Livspace, the leading home design and renovation platform of India and Southeast Asia. As a part of this collaboration, Signify's lighting products will be available for interior decorators and architects designing homes on the Livspace platform in India. Moreover, customers visiting the Livspace Experience centers will have access to the wide range of Philips Hue smart lighting products available at the stores across India.

Smart lighting, though still at a nascent stage, is a growing category in India owing to the entry of smart home assistants and increasing Internet penetration. Customers building new homes or renovating existing spaces are increasingly expressing interest in smart lighting options that offer both convenience and enhanced aesthetics. Hence this partnership will open up a wide range of smart lighting options for customers designing their homes through the Livspace platform.

"Livspace is a leader in the home improvement space in India and a good option for customers seeking designs for a new home or renovating their existing space. We are really excited about this partnership and believe that it will open up a wide range of smart lighting choices for these customers," said Sukanto Aich, Chief Marketing Officer for Signify in India.

"Lighting adds critical aesthetic value to home interiors, setting the ambience of the room and Signify has been the leader in this space for 127 years," said Saurabh Jain, SVP of Kitchen, Furniture and Decor business. "We are confident that this collaboration will really enhance the unparalleled home interior experience that our customers have come to expect from us. Livspace has always strived to work with partners who are market leaders and whose products and services guarantee the best experience to our customers." ■

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Samsung selects WiSilica as ecosystem partner for IoT Lighting Solutions

WiSilica, a pioneer in intelligent IoT solutions for smart environments, and Samsung Electronics' LED Business Team announced a global strategic partnership to build next-gen IoT solutions for lighting. This affiliation is aimed to create unified experiences in human-centric lighting, wireless controls, and energy efficiency.

Today, enterprises recognize the vast benefits in adopting smart lighting technology and are increasingly accelerating their lighting IoT implementation to stay on the competitive vanguard. Samsung and WiSilica being leaders in their respective fields are all set to bring in the smart IoT revolution in lighting. The imperative partnership intends to help organizations work smarter, improve energy efficiency, and leverage analytics for breakthrough results.

WiSilica pioneered the world's first location-aware IoT platform, ARIXA, combining smart lighting and real time location services. The platform seamlessly integrates hardware, middleware, cloud, and application interfaces to power a wide range of business applications. With combined efficiencies from both companies, customers can now easily convert their traditional lighting systems to a truly connected, automated, and secure ecosystem with million-devices.

"We are proud to announce this long-term partnership with the Samsung Electronics' LED Business Team. The rich multi domain experience and market leadership of Samsung combined with IoT expertise of WiSilica is a powerful combination. We believe this helps to generate industry leading products and platforms," says Suresh Singamsetty, CEO, WiSilica.

The collaboration will bring-in new dimension in the IoT landscape, helping customers succeed in their journey towards becoming "Smart" and "Intelligent". ■

Penn Elcom Launches New Double Hinged Wall Mount Rack Enclosure

The Penn Elcom design team has produced another ingenious racking solution for space challenged and awkward to access scenarios in commercial, industrial and residential environments – the R6400-RHF Double Hinged Wall Mount Rack Enclosure.

This is added to an already extensive range of essential 19-inch rack products.

This brand-new model enables the full rack to securely swing away from the wall, giving technicians and installation engineers excellent access to the rear and sides of the rack and the kit inside it.

The design simplifies the process of running cables, replacing parts or performing regular maintenance. It can dramatically reduce the time taken to access the equipment, and so this can be spent more efficiently on attending to it.

Constructed from rugged but lightweight steel to Penn's exacting industrial grade specifications, the bracket is easily reversible so the rack can be configured as left or right opening for full flexibility and space maximisation.

Heavy duty hinges allow the R6400-RHF to be loaded with up to 50kg / 110lb of equipment, and a handy slam-lock system creates smart open / close functionality. Rear access can also be secured with an inbuilt key lock.

As with all Penn Elcom racking products, the R6400-RHF offers practical and integrated cable management, with both top and bottom 1U cable knockouts as well as full length internal rack rails.

The cabinet is fitted with reversible threaded and square hole rails, plus removable side panels and front door (which are also lockable).

Three knockouts for top fans enables these to be added to assist with airflow and cooling. Penn's range of fan trays offers a ready-made selection with silent and vari-speed / controlled models available. ■

Robe Returns to The Future at PLASA 2019

Inspired by the launch of its new PLASA Innovation Award-winning ESPRITE moving light with fully replaceable LED engine and a host of other ground-breaking features and the iconic Back to The Future movie franchise … Robe presented the first in a new trilogy of expo live performance concepts at the PLASA 2019 expo in London.

The show #ReturnToTheFuture was created to highlight Robe's newest technologies in the context for which they were designed!

With an original DeLorean MMC12 as the set centrepiece, six dancers – and around 200 Robe lights - including ESPRITES, Tetras, T1s, SilverScans, MegaPointes, Spiiders, Tarrantulas and LEDBeam 150s – rigged in the roof and all around the sides of the booth, plus stunning special effects and a pool of water containing Robe IP rated iPointes - the 8-minute 428-cue (that's one every 1.12 seconds) show was performed to a special soundtrack and kept all the visual surprises flowing. It drew massive crowds to the Robe booth which was packed throughout the three days of the popular entertainment industry trade expo.

"We loved being back in London and were very proud to present the show in a city that's renowned for world-class entertainment, and to touch base with so many industry friends and contacts," stated Robe CEO Josef Valchar, adding that they generally received a great response to the new products. ■

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Jaquar Group expands its Bhiwadi plant

Jaquar Group, one of the fastest growing multi-diversified 'Complete Bathroom and Lighting Solutions' brands, announced the expansion of its manufacturing plant in Bhiwadi, Rajasthan on the eve of its 60th anniversary making it the world's largest faucet manufacturing plant in a single unit. The plant has a production capacity of manufacturing 1,25,000 faucets in a single day.

As a true market leader, Jaquar Group plans to make this plant as one of the shining success stories of government's ambitious 'Make in India' program where a company with origins in India has set up benchmark in manufacturing excellence. The Group has invested Rs 150 crore in expansion of the faucet manufacturing plant and another Rs 150 crore in setting-up a new lighting manufacturing plant. The expansion has also led to the increase in employment opportunities and expansion of workforce.

On the occasion, Rajesh Mehra, Director & Promoter, Jaquar Group said "We are proud to announce the landmark expansion of our Bhiwadi plant. From a modest start of a small manufacturing unit in Old Delhi to the largest faucet manufacturing plant in the world under one unit is a successful journey for the Group over the last six decades. This expansion reflects our commitment to India and signifies the success of the Make in India program."

Over the last six decades of excellence in manufacturing, the Group has established 6 state-of-the-art manufacturing units (5 in India and 1 in South Korea) spread over an area of 3,29,000 sq. metres. ■

Echo contemporary decorative pendant launched by Eureka

Eureka, an established player in decorative lighting solutions, announced the launch and immediate availability of its Echo decorative pendant luminaire. Echo utilises advanced OLED technology as a light source to produce a comfortable, high-quality light in a slim, low profile package. Perfect for subtle accenting of spaces such as reception desks or lounge areas, Echo is designed to increase ambient light levels in an unobtrusive way.

With its ultra-thin OLED technology and slender shade profile, Echo provides a glare-free accent light in a minimalist modern package less than 2 inches high. It emits a soft, diffused light and is suited to decorative applications where natural light is unavailable or for places where quality light is important. With its elegant profile, Echo can be hung individually for chic sophistication or in multiples.

"OLED technology challenges traditional luminaire design. It eliminates the need to consider parts that are usually essential like heat sinks and optical elements," said Francois Renaud, Director of Design at Eureka. "This allowed us to play with thinness and to focus our creativity in giving character to this basic flat round OLED panel."

Echo is available with canopy mounting or track system options, and with black or white fine-textured finishes as standard. It is offered in 3000K CCT delivering 190 lumens, and 4000K CCT delivering 156 lumens. ■

GENLED highlights global LED manufacturing and support capabilities

GENLED Brands expands capabilities throughout its global holdings with GENLED AgiLight and GENLED Acolyte. Leveraging an infrastructure that includes a footprint on six continents, spanning sixty-six countries, GENLED Brands can manufacture, supply and support millions of businesses and clients. Originally expanding from a single LED signage company to a preeminent player within the larger LED industry, which now also places a strategic focus on architectural fixtures, outdoor lighting solutions and complete customised lighting solutions.

Bolstering operations to include manufacturing facilities in Europe and Asia as well as production facilities in North America, the group of GENLED Brands companies positions themselves to provide exceptional support to both our existing clients while expanding reach to new customers who aren't as familiar with the brand.

"The availability of our Sales and Support staff in all regions allows us to keep the company's core values intact while allowing an opportunity for growth in areas that the LED industry requires is huge," says Scott Vontobel Global Sales Director, GENLED Brands. "Everyone in the company from Senior Management, Operations to Customer Service are equally excited to show off our capabilities, the energy is high and we're all looking forward to making our mark."

GENLED AgiLight and GENLED Acolyte are amongst the few leading manufacturers of LED signages and architectural lighting solutions. ■

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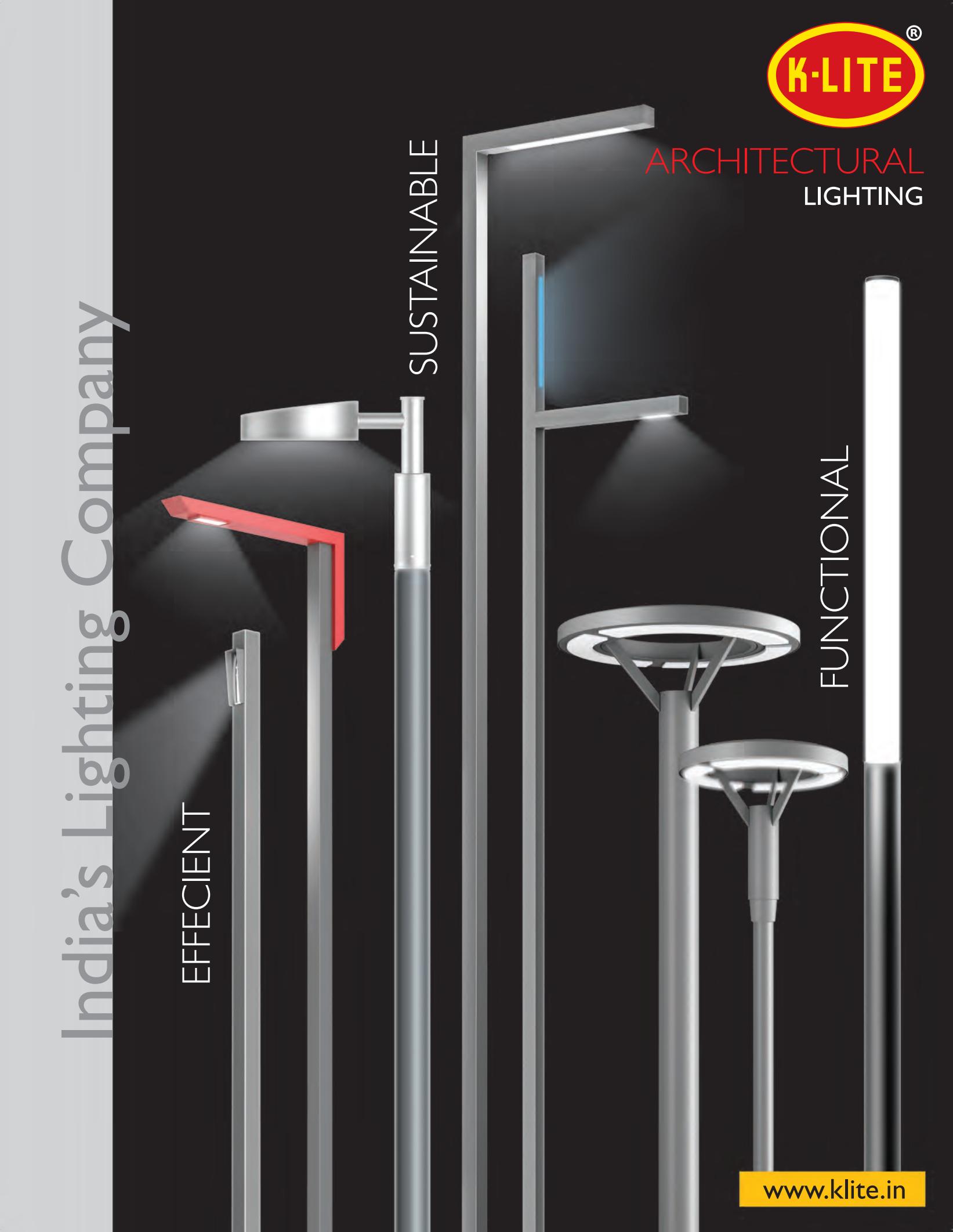

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ReNew Power appoints D Muthukumaran as CFO

D Muthukumaran

ReNew Power announced appointment of Mr. D Muthukumaran, as its new Chief Financial Officer (CFO). Mr. D Muthukumaran will oversee the company's finance & accounts, legal and corporate finance functions. He takes over the role following the retirement from the company of the current CFO, Ravi Seth, who has been with ReNew for over 5 years.

Mr. Muthukumaran brings with him a wealth of experience in the field of finance. He has driven business portfolio, M&A deals, raised funds in debt and equity and specialises in structured finance, leverage buyouts and regulatory and tax structuring.

Sumant Sinha, Chairman & Managing Director of ReNew Power said, "We are excited to have Muthukumaran on board our leadership team. He brings over 2 decades of varied experience in the field of finance and will be a great asset to ReNew Power. I am confident that he will help propel ReNew's next phase of growth. I also wish Ravi all the best, who retires after 5 exciting years at ReNew."

Before joining ReNew Power, Mr. Muthukumaran was the Chief Executive Officer (CEO) of Aditya Birla PE Advisors Private Limited. During his 17 years with the Aditya Birla Group he also held positions of Chief Strategy Officer as well as Head of Group Corporate Finance. Prior to working with the Aditya Birla group he has worked with Lazard and Deloitte

Commenting on his new role, D Muthukumaran said, "I am delighted to join ReNew, India's largest renewable energy company. I am also excited to be working in the clean energy space, which is expanding rapidly to provide a sustainable and viable solution in meeting India's growing energy needs. I am looking forward to be a part of ReNew's growth journey". ■

Hedwig Maes new CEO of Tridonic

Bob Schacherl

As of 1st September, Hedwig Maes will take over as CEO of Tridonic, the lighting technology company of the Zumtobel Group. In this function, he succeeds Guido van Tartwijk, who left the company at his own request at the end of last year. Hedwig Maes reports directly to Alfred Felder, CEO, Zumtobel Group.

With Hedwig Maes, a highly experienced Managing Director and Head of Sales is taking over this responsible position. After studying electrical engineering at Industriele Hogeschool Antwerpen-Mechelen (IHAM) and business administration at the UFSIA University in Antwerp, Maes, who was born in Belgium, gained 32 years of professional experience in the areas of electronics, industrial automation and industry systems with companies such as General Electric and ABB. Most recently, he held the position of Vice President of Global Systems & Solutions at Rockwell Automation for 10 years.

"We are very pleased to have won Hedwig Maes, a manager with international experience and extensive knowledge of strategic orientation in the product and system business, for the management of our components business," says Alfred Felder, CEO Zumtobel Group. "I am convinced that with Hedwig Maes, CFO Thomas Erath and COO Alexander Jankovsky, we now have an excellent management team to lead Tridonic into the future." ■

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GLOBAL AUTOMOTIVE LED REVENUE STILL ON THE RISE, SAYS TRENDFORCE

"The global automotive market has been showing declines since 2018 amid global trade frictions and economic recessions, but the penetration rates of LEDs in various major automotive lighting products continued to rise."

According to the newest 2019 Global Automotive LED Market Report- Passenger Car and Box Truck report by LEDinside, a division of TrendForce, the global automotive market has been showing declines since 2018 amid global trade frictions and economic recessions, but the penetration rates of LEDs in various major automotive lighting products continued to rise. Furthermore, new energy cars have a greater demand for LEDs than traditional cars do while boasting a faster growth in shipments. As per the report, this will cause the volume and revenue for automotive LED products to maintain modest growth in future years, with global automotive LED revenue forecast to arrive at US$3.17 billion in 2019 and to register a CAGR of 7 per cent during the forecast period 2018-2023.

Automotive LED revenue declining for European and American suppliers, with Asian suppliers performing brilliantly

"Looking at the automotive LED revenue rankings for major LED package suppliers worldwide, we see OSRAM Opto Semiconductors, Nichia and Lumileds still taking the top three in 2018," says TrendForce Analyst Terri Wang. "However, we may find that amid declining car markets in both China and the US, OSRAM, Lumileds and other suppliers registered flat growth or small declines in revenue from automotive LED products, 2018. Japan's vehicle market gave a rather brilliant performance in 2018, allowing Japanese LED suppliers to post continual revenue growth. Seoul Semiconductors stood out among Korean suppliers by eagerly meeting the demands of customers for high power and reliability in the automotive exterior LED lighting sector, giving steady revenue growth for automotive products."

TrendForce also observed that Everlight, CREE and other suppliers are actively establishing their place in the OE market and posted significant growth in revenue. Everlight's automotive LED products earned a revenue of around US$48 million, putting the company at eighth place globally and making it the only Taiwanese supplier among the top ten. Everlight has currently mass-produced headlight LEDs, which are poised to penetrate the market consisting of top tier European and American vehicle manufacturers. It also has plans of developing matrix LED headlights in collaboration with German manufacturer Hella, which are to be used in new car models for 2019. Everlight has also released taillight mini LED concept products, manufactured through the use of its own small-pitch display components and poised to find actual application in 2020.

Furthermore, Everlight plans to extend its business to automotive modules, and is already scheduling the construction of a module production line in its Suzhou plant. TrendForce anticipates that Everlight may grab a bigger portion of the automotive lighting market in the future.

Headlight is experiencing strong growth, with ambient light seeing larger penetration rate in the high-end market

For product development, an increasing variety of LED headlights in the market is being found, with mainstream suppliers releasing mono-chip or double-chip LEDs for use in low beam applications. As LEDs move towards smaller sizes, headlights are being designed with increasing flexibility as the range of features in demand go beyond lighting to include intelligent systems and even projectors. Revenue and penetration rates for LED headlights are expected to keep growing in the future years to come.

For automotive interiors, some suppliers are releasing LED products with RGB or better specifications for use in ambient lights within cars in an attempt to go along with the current intelligent lighting trend. This allows them to realise effects such as full colour mixing and dynamic ambience. Suppliers of ambient light LEDs mainly consist of Dominant, OSRAM, Everlight, Lite-On, Brightek etc.

Everlight, for example, released its new 0.2W 2525 LED for use in ambient lights and allows customers to decide which chip combination (eg RRYY or RGBB) is most suitable for the interior of their cars. These products boast a richer range of colours than that of RGB LEDs.

The emergence of ambient lights may also bring up revenue for LEDs used in decorative lights for car interiors. Currently, full-colour LED ambient lighting products are being introduced into high-end car models in the OE market. As product specifications continue to develop and market demand rises, these products are expected to find widespread use in mid-range cars in the future. ■

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Lighting Up A Smart City

Today lighting has become smart and responsive with sensors and controls. However, when teamed with the Internet of Things (IoT), it could potentially offer greater functionality thanks to the convergence of Big Data and Artificial Intelligence etc. **Lighting India** invited industry experts to comment on how smart lighting will transform our future homes and cities.

Why smart lighting is considered as a foundation for smart cities?

Rajesh Naik

Connected things form the basis for smart cities. These connected things need network backbone which shall be spread across the city. Streetlight poles are spread across the city and they can be an excellent option for providing the backbone network for smart city infrastructure. Each streetlight pole can support sensors in the surrounding area and carry their data to the command centre.

Smart lighting offers complete view of city-wide lighting installation from central command centre. It enables automatic switching of lights, which gives energy savings by avoiding wrong switching times. It also offers paradigm shift in maintenance from complaint based to proactive as smart lighting automatically highlights any failure in lights.

Streetlight poles themselves can have many sensors which collect valuable data like air quality levels, noise levels, traffic density in a given area, parking space availability etc. This data which can be easily collected and made available at command centre without any additional infrastructure can enable various services for city residents. Civic authorities can use this data for planning and future works. Historical data can even give insights into how to tackle urban problems of high pollution, sluggish traffic etc.

Smart poles along with smart lighting can help increasing penetration of futuristic communication technologies like 5G. Replacing some of the streetlight poles with smart poles can give readily available infrastructure for hosting telecom equipment.

Smart poles also support many additional services like Wi-Fi access points for making city friendlier for residents and especially tourists. They can also support CCTV cameras increasing number of surveillance points in the city making the city safer. Conveniently located smart poles also support charging points for EV vehicles which will facilitate ease of use for EV vehicles.

Sudeshna Mukhopadhyay

In a connected environment, the possibilities with digital smart lighting is enormous. Intelligent and smart LED outdoor light fittings and smart sensors can act as information nodes, beyond providing the necessary illumination level, visual orientation and beautification. It is possible for street and public space lights to adapt to weather conditions, traffic densities etc and change light intensity and spectral composition accordingly. Lighting performance, energy monitoring and asset management can be done effectively. Lighting of streets, public spaces, iconic building and architecture can be networked to create identity and yet save energy. Most importantly, light points in smart city can act as nodes for data collection and data streaming.

In a building, why connectivity is critical to smart lighting?

Rajesh Naik

Today, everything is getting smart and buildings can't be left behind. Smart lighting can be easily leveraged to make buildings smart. In buildings again, the lights are the devices that are necessarily present in all the areas of the building and can form a network of nodes. And unless we are referring to isolated individual work spaces or a very small office or work spaces within a building, individual smart lights won't be able to deliver what a networked lighting system can deliver. For large work spaces or buildings, unless there is central control and a connected lighting system the true benefits can't be delivered. Today smart lights for building are connected to each other and to sensors. This connectivity enables much finer control and data gathering throughout the building which is critical to leverage the intelligence.

Smart connected lights enable lighting control of the whole building

Intelligent and smart LED outdoor light fittings and smart sensors can act as information nodes, beyond providing the necessary illumination level, visual orientation and beautification.

Sudeshna Mukhopadhyay,
Chief Design Officer,
iBahn Illumination

from central and even remote locations. It allows good levels of control like human centric lighting which cannot be deployed without connected lights. Connected lights when used with correct sensors help save energy by reducing wastage of light when not needed, either due to non-occupancy of room or due to presence of natural light.

Sensors when used in tandem to connected lights give finer data collection in building for parameters like occupancy, temperature, air quality, ambient light etc. This data can be used for higher level applications. Occupancy data can be used for space management, very useful in dynamic space allocation in offices. Temperature data along with occupancy data can be used for much finer HVAC control giving savings that were never thought of before. Air quality data can be used for proper air circulation and air purification. All this can be done either with using wired or wireless systems or PoE.

Next wave of technology in office lighting space after LED is going to be Human Centric Lighting (HCL). Purpose of HCL is to replicate same light condition indoors as outdoors. This has proven to improve health, wellbeing and focus of people working under such lights. Connected lights are a basic infrastructure needed to deploy HCL.

Sudeshna Mukhopadhyay

As buildings adopt LED lighting, the true potential of digital LED lighting can be harnessed when it is connected. Light nodes can be connected to other services like security, surveillance, air-conditioning, human occupancy, daylight. Smart connected lighting can assist facility managers to monitor energy consumption, burning hours and health of light fittings and asset management. Connected intelligent lighting can be used as location tracker and even stream data.

Does smart lighting contribute to energy savings?

Sudeshna Mukhopadhyay

Yes, of course, it is the basic deliverable. With advent of digital LED lighting, system efficiencies have already improved manifolds, which led to significant energy savings as compared to conventional light sources. In a connected environment intelligent lights linked to occupancy and daylight not only help saving energy in lighting, it can save air-conditioning load when connected on the same network. However, it would be sub-optimal utilisation, if smart connected lighting is construed as a means to only energy saving. It is a means to a improve well-being in spaces, helping to enhance ambience while saving energy.

Rajesh Naik

Depending on the application and extent of smartness built into the system, smart lighting can contribute to energy savings apart from various other meaningful advantages.

In case of outdoor lighting, especially streetlighting, major energy wastage is due to switching lights ON/OFF at wrong times. That essentially means that light is ON even when sufficient natural light is still present and switched OFF much after the sun is out. Both these cases result into energy wastage and can be prevented by using connected street lighting. Connected lights will make sure they are never ON before local sunset time and never ON after local sunrise times. Moreover, these times are automatically adjusted as per time of the year, so seasonal variations in sunrise and sunset times are accounted for.

Further energy can be saved even more in street lighting applications by employing sensors like motion sensors and ambient sensor or getting linked to HVAC. For effective use of these, connected lights are necessary. Adding ambient light sensor in each light is costly and unnecessary as ambient light doesn't change much for few kilometres. Having one good quality sensor for few hundreds of connected lights can be a good strategy. Similarly, having motion sensor on each streetlight pole can be costly. But if streetlights are connected to each other then we can even have one motion sensor after few poles and it will still be able to save energy by dimming down streetlights in late night hours in absence of motion.

Consider the case of indoor lighting, there is huge scope of energy savings by dimming or switching OFF lights when there is either no occupancy around the light or there is sufficient natural light present. These could be done by standalone sensors too but implementing this using connected lights saves cost of sensors as same sensor could be used to control multiple lights.

Integration of these systems into BMS opens various other possible avenues as well.

One often ignored advantage of connected lighting is saving on maintenance on the top of savings in energy. Especially in street lighting applications, having connected street lights with proactive fault reporting can reduce per light maintenance budget significantly. ■

Depending on the application and extent of smartness built into the system, smart lighting can contribute to energy savings apart from various other meaningful advantages.

Rajesh Naik,
Lighting Business Head,
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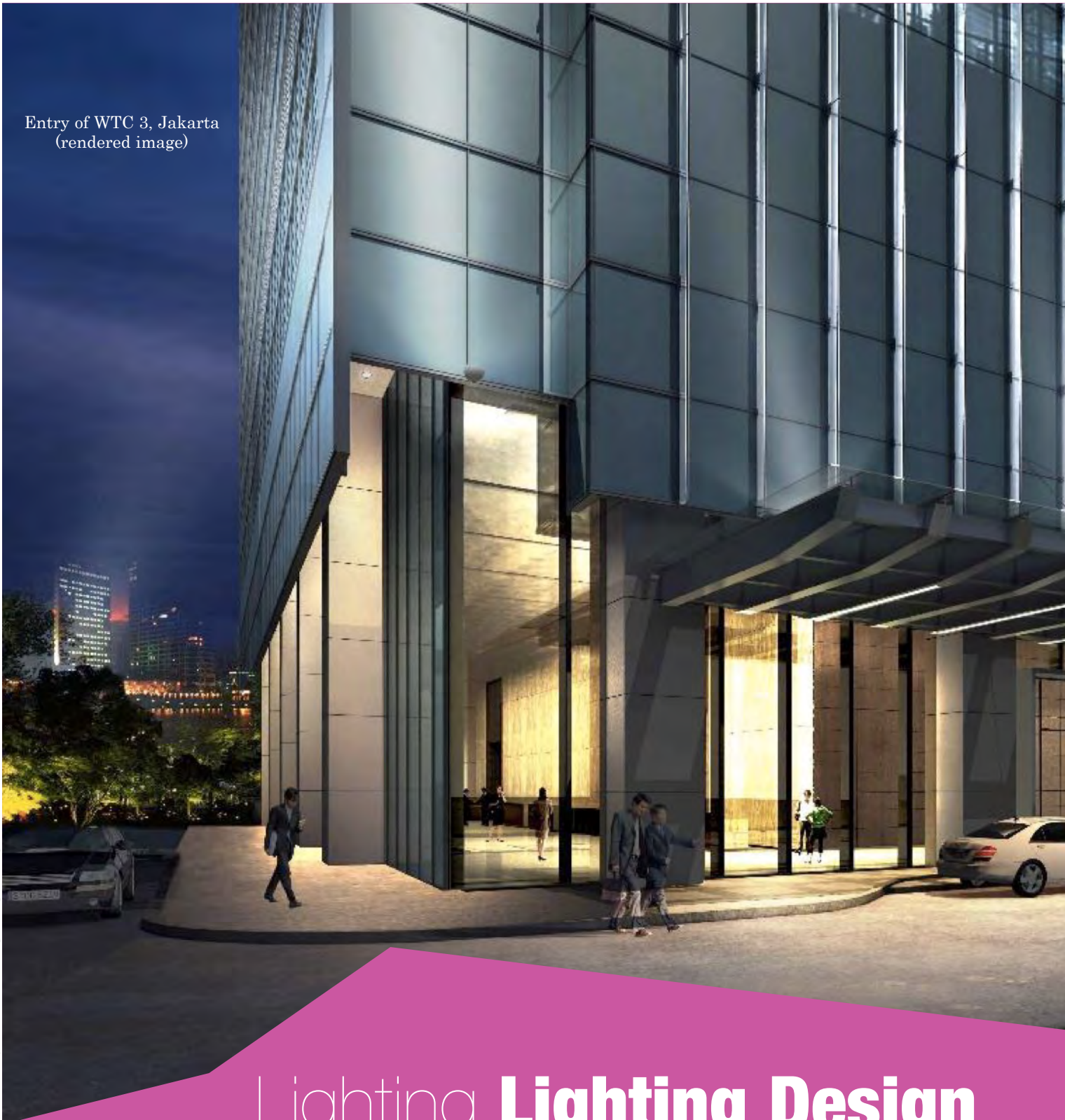
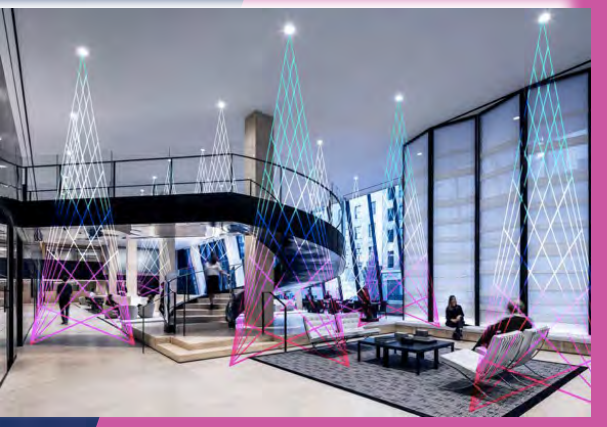


Entry of WTC 3, Jakarta
(rendered image)

Courtesy - Klaasen Lighting Design

Lighting, Lighting Design & the IoT

We need to understand what kind of influences IoT will have on the lighting and lighting design, elucidates Ingmar Klaasen of Lighting Design of Things Pty Ltd.



Rendered image of World Trade Centre 3 (Lobby) in Jakarta (project in progress)

The world of IoT, or the Internet of Things, is a vast and confusing one. We are dealing with rapid changes in technology and the increasing interconnectivity of our devices. With the emergence of smart buildings and smart technology, understanding and keeping up with the evolving infrastructure can be hard to navigate. Anyone, any business, any network, anywhere, anytime, any device. We believe this will have a big impact on the way our lighting design services will be delivered.

Big Data

We are entering the age of mass data. Therefore, understanding how this new world of data analytics will impact lighting design is vital. Many of these things are already having an influence on lighting. According to The Economist, the world's most valuable commodity is no longer oil, but data! Today the world of data is ruled by just a few large companies, who have a virtual monopoly.

Disrupters

Here are some of the disruptions that we see are having a direct impact on lighting:

- **Convergence:** Architecture, data analytics and lighting are converging into one platform. Cross-industry partnerships will be crucial for the lighting design industry to enable such expanded offerings and help integrate IoT into architectural lighting design.
- **Drive for sustainability:** Consumer demand is looking at the importance of pursuing sustainable development to create maintainable businesses and strategies, estimated as being able to unlock

trillions of dollars in new market value. Data-driven lighting and energy saving will be the key.

- **As-a-service model:** Several pilot projects have already begun incorporating the as-a-service model in lighting. One of the best examples to date is Schiphol Airport, Amsterdam where the airport has essentially a 15-year lease on the lighting installation, which is fully looked after by a consortium led by Philips (Signify).
- **Internet of Things and Artificial Intelligence:** AI and Machine Learning are a major shift in business thinking. One can imagine that integrated IoT-ready and IoT-capable light fixtures will be part of this advancement, capable of meeting the needs of the user by applying context and filtering through multiple layers of information to deliver a personal, specifically curated outcome.
- **Data platforms and security**: Data value platforms help to inform organisations about the value of their data. However, protection of data—eg. General Data

Lift lobby of WTC 3, Jakarta (rendered image)

Main lobby area of WTC 3, Jakart

Protection Regulation in the EU (GDPR) and similar—is becoming paramount. IoT-enabled lighting fixtures form part of the overall data collection and data analytics platform and hence will demand the same level of security as stipulated by the GDPR.

- **Personalisation and Customisation:** Not only can lighting be highly personalised for individuals; lighting itself can be designed for the individual, for whatever time of day and aligning with any occasion, whether it is to enable the individual to relax or to be more productive at the office, or to optimise energy consumption. Data-driven lighting will be more dynamic and automated, responding to user needs to optimise resources and space usage.
- **Blockchain**: The emergence of blockchain technology is gaining a huge amount of interest for its ability to establish trust networks, improve efficiencies and transparency, and reduce friction and costs. As a disruptor, blockchain technology can allow potentially millions of energy devices (lighting, HVAC systems, water heaters, solar PV installations, and so on) to transact with each other at the electric power distribution edge. There are already instances of this happening in lighting projects around the world.
- **Voice-based Virtual Assistants:** Google Home and Amazon Alexa are already controlling lighting in the home. It is only a matter of time before this is deployed on a commercial scale. Smart-enabled lighting of the future could have voice-commands built into the light fitting (integrated) without having to go through a wireless speaker.

What Big Data Requires

The main issue with rolling out IoT and data infrastructures is that sensors (and other devices) need to be powered; they need a housing and an identifiable location. They also need to be somehow integrated with an interconnected platform. Lighting points are already powered, available everywhere in buildings with the potential to be optimised as a digital hub. That makes lighting the ideal host: it is the only existing infrastructure present everywhere that already has what is needed for data fabrics. Hence it is not necessary to run another infrastructure parallel to that. It is already there.

The 'Kodak' Moment

Just as Kodak was too slow to recognise the camera market's rapid switch to digital technology, the lighting industry is at risk of reaching its own Kodak moment. Let's take the mobile phone as an example: in the olden days you bought a mobile phone for calling and texting. Today, calling and texting is a small part of all the functions a phone can do. The functionality of the product and its use totally shifted. The same is happening with lighting. Do we really want to be told what to do with the lighting from outside the industry?

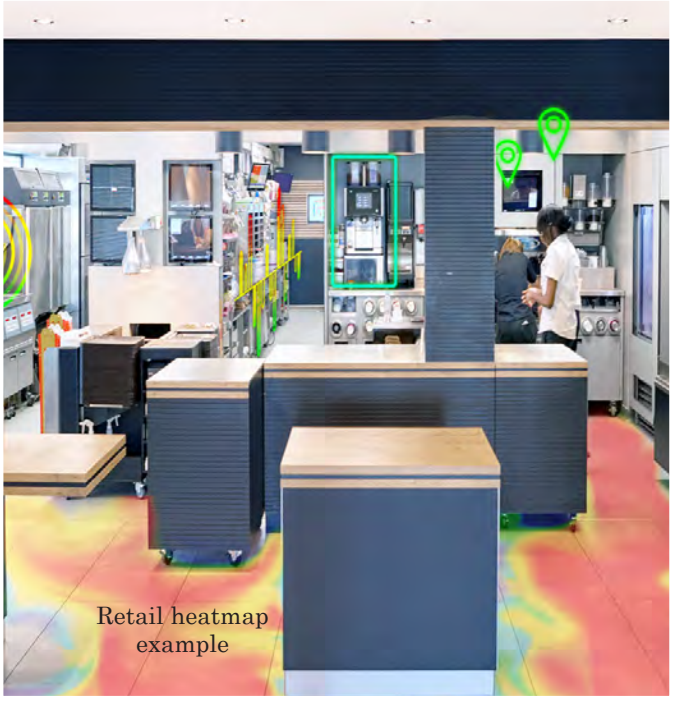
The New Generation of Lighting Designer

We believe it is critical that lighting designers remain in control. Luminaires/light sources still have the key critical task of providing proper illumination, creating mood, ambiences and adequate lighting for comfort, safety and security, while having to comply with lighting standards and building codes. Only an experienced lighting designer can fulfil that role, hence the proposed new generation of lighting designer will manage and facilitate the integration of IoT features and data infrastructures into the overall lighting design approach. We have the opportunity to

rta (rendered image)

WTC 3, Jakarta (rendered image)

Courtesy - Klaasen Lighting Design



Retail heatmap example

pioneer this. Why not marry practical and scalable smart building solutions with world-class lighting design?

This opens up a number of choices/new approaches:

- Ignore and keep on doing lighting design and let others take care of any IoT related issues
- Accommodate and adjust to the changes by allowing for integration; or
- Actively manage and take control of the process of integration.

  There is no right or wrong answer, everyone can make their own choice.

The Bigger Picture

Intelligent buildings (and cities) are all about minimising costs and maximising the human experience. Lighting is just a minor cost element in the overall picture. The real estate world found out that for every $3 you can save in energy; you can save $30 in more efficient space usage and $300 in reduced human capital…these are big savings! So, it is no longer simply about controlling lights with motion or daylight sensors.

An Active Role for Lighting Designers

Defining an active role for lighting designers in this changing world will be critical for the survival of the profession, but we believe it will bring the lighting designer back to the centre of the design and architectural integration process. However, some barriers to entry for lighting designers to be part of this could include: lack of time, lack of resources to put into researching all this, lack of knowledge of what to do, and who to partner with; something that could potentially be several years in the making. Nevertheless, it requires a brand-new attitude and expertise for lighting designers as they will need to understand the 'things' that can potentially be offered and integrated as part of any lighting design and system selection.

Partnerships

This also points to the need for partnerships because as a lighting designer if you're going to be the facilitator or integrator of all these IoT services and whatever it's linked to, you need to have partnerships. In other words, a network of knowledge partnerships cross-industry to enable this new service to benefit the lighting designer's clients. To optimise a building's potential, the more tools that you have available to make the building more useful, the better it's going to be. The aim is to eliminate much of the vendor-driven confusion that is currently out there, as the decision on data happens before the decision on lighting design.

It Starts Now

Pilot projects and case studies are already well underway around the world, highlighting how this integration is taking place. It will also demonstrate how a lighting result can be curated that not only integrates IoT and its related data analytics, but most of all how this helps drive costs down, improves the human experience in the use of spaces, and assures that the role of the lighting designer is still about creating beautiful architectural environments. ■

About Lighting Design of Things

LDoT is a professional, independent consultancy that provides a unified end-to-end platform where IoT solutions are merged within the architectural lighting design space; offering the complete package from facilitation, integration and curation of IoT functions, while maintaining the integrity of good quality lighting design.

For more information:
visit www.lightingdesignofthings.com

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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 became 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 stand-alone 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 announces the introduction of smart city poles (intelligent poles) with its modular solution, to cater to the above needs in the upcoming smart cities with the salient features.

Salient Features

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. ■

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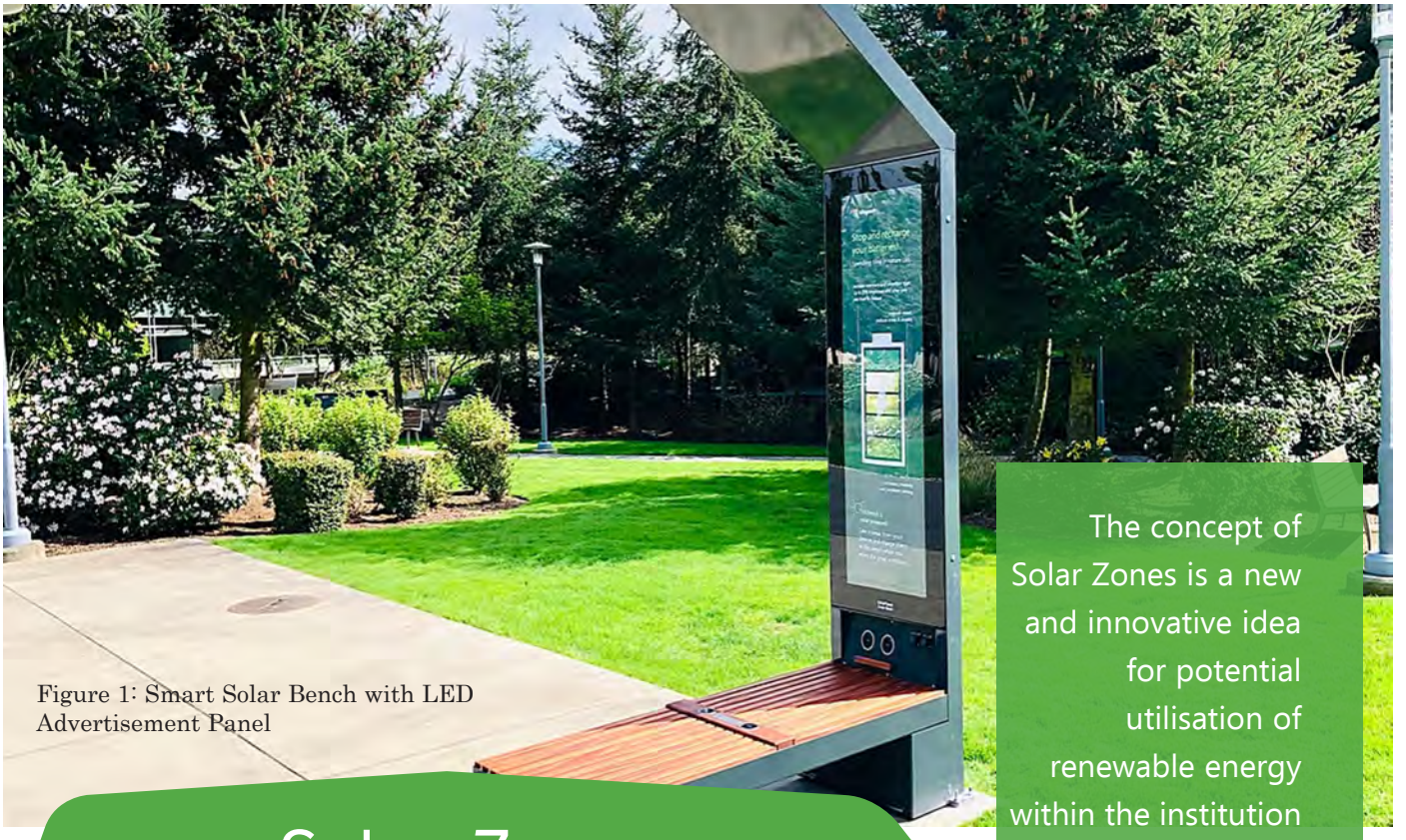

Figure 1: Smart Solar Bench with LED Advertisement Panel

Solar Zones: Dawn of Smart Campus & Universities in India

The concept of Solar Zones is a new and innovative idea for potential utilisation of renewable energy within the institution or campus premises.

Universities, colleges and schools have a long history of testing innovation and technology in India. They have always been at the front foot of testing new innovations and technologies into practice. Educational institutions in India is having a huge potential for utilising solar energy. Many schools and colleges are knowledgeable about the potential benefits of being a solar campus.

As per the latest statistics available on UGC website, there are around 789 universities, 37,204 colleges and 11,443 standalone educational institutions in India as of February 2017. The importance of academic institutions involvement into sustainability achievement is needed like never before. Due to the increasing temperature and other effects of climate change, sustainable action is required to reduce our dependence on fossil fuels.

For this, understanding of the concept and comprehensive knowledge is required about sustainability, renewable energy resources and smart concepts. The concept of Solar Zones is a new and innovative idea for potential utilisation of renewable energy within the institution or campus premises.

What is a Solar Zone?

A Solar Zone can be a campus square, road, pedestrian pathway, public park, play area, canteen or any other place on campus where a cluster of innovative solar lights and benches can be conceptualised and installed. These areas will then be transformed into a hot spot of social gathering where students, faculty and campus guests will have direct exposure to solar energy applications and its benefits (figure 2).

Solar Zones offer colleges and universities a number of benefits beyond the goal of reducing carbon emissions, and often save money in the long run. The key benefit among these is reducing the overall cost of power or energy.

Solar panel technologies have made it possible for campuses or universities to significantly decrease lighting

installation costs and eliminate the electricity bills associated with outdoor lighting. Most institutions in India are yet to become completely sustainable and solar, they are taking notable steps towards it.

Benefits of Solar Zones in Campuses

There are multiple benefits of Solar Zones in the campuses or universities including:

Savings

Solar Zone solutions are economically practical option to light up public areas, square, street, pathway, park, canteen or any other area in the campus. They are completely powered by solar energy which means the energy is free and renewable. There will be no electricity or power bills.

Educational Tool

During winters, the Solar Zone may be used as the open classrooms where professors can give lessons to students about different subjects that involve sustainability. These solar zones will be visible and statement that will encourage students to think about the innovation and solar concept further.

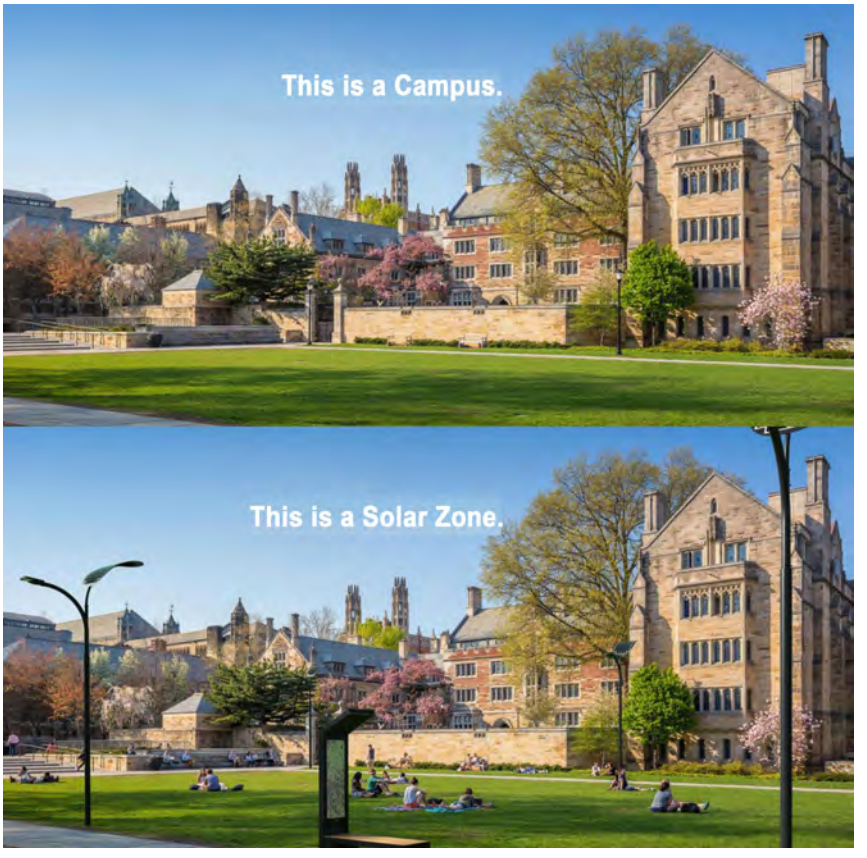

Figure 2: A Conceptual Solar Zone

Safety and Security

The campus that will have more illuminated areas and responsive urban furniture, such as smart street lights and benches, will significantly enhance the safety and security of students, faculty and campus guests. In addition to safety and security, solar lighting will expand operational hours of remote access areas that may be not currently covered by electricity access.

Students Involvement

Students can be the main drivers of the solar zones project. They can be involved in each and every phase of the project, from choice of locations to selection of colour of the units to final features because after installations they will be main beneficiary of installed equipment in the solar zones.

Figure 3: Solar Street Lights

Green Building

The Solar Zones will obtain more sustainability tracking assessment and increase rating with green building organisations. Through the Solar Zones, universities or campuses will qualify to obtain LEED credits in many areas, such as, sustainable site, light pollution reduction, on-site renewable energy etc.

Equipment in Solar Zones

The solar zones should be equipped with facilities in the way that students, faculty and campus guests will use daily, such as public lighting, Wi-Fi Hotspots, charging stations for mobile phones, laptops etc.

Only then, the Solar Zones will create social gathering areas where students will relax and enjoy fully in benefits of having innovative solar equipment at their campus. The various equipment given below can be utilised in the Solar Zones:

Smart Solar Street Lights

Solar lighting is a public demonstration of any campus commitment to a "green" orientation, allowing a campus or university to project an environmentally conscious message throughout the campus.

Other than Solar Zones, these street lights can also illuminate roads, public parks, parking areas and lots, and other specific areas in the university campuses, creating appealing and modern visual environments that will not only promote renewable energy sources, but that will also lower installation, energy and maintenance costs in long run.

Since solar street lighting does not require a connection to the electrical grid, the advantages of solar lights were immediately apparent.

Smart Solar Benches

Smart Solar Benches are new urban furniture pieces that will help campuses and universities to create better, safer, and more user-friendly environments.

Figure 4: Smart Solar Street Light with Mobile/Laptop Charging Points

Figure 5: Smart Solar Bench

Powered by solar energy, Smart Benches will provide many features like mobile or laptop charging points, Wi-Fi Hotspots, USB ports, CCTV cameras, music, radio etc.

These benches can also be equipped with smart sensors that will collect and measure many samples of valuable outdoor data such as air quality, temperature, humidity, and so on. This data is valuable and can be utilised for research work in the campuses and universities. These benches are perfect for Solar Zones and other than the zones it can be install along or near pedestrian routes, bus stops, parking, canteen etc.

Both the street lights and street benches can also be utilised for commercial advertisements for revenue generations and can be utilised for information mapping through LED screens powered by solar energy (figure 1).

Conclusion

Nowadays solar-powered lights also provide high quality light for more than five days without a single ray of sun light due to advancements in battery technology. The smart Solar Bench is an interactive bench which fulfils need of today's connected consumers. This new kind of smart bench will completely transform the campuses or universities into a safer and user-friendly environment. The combination of these solar lights with solar benches designed in appropriate way will create the solar zones.

Learning about the renewable energy quickly in growing age and being exposed to solar street lights, solar benches, solar panels, campuses will have a positive effect on students who are actually the future consumers. Having grown up with solar and seen its benefits, they are more likely to choose and utilise solar as their energy source in the long run. For campuses, it is a great opportunity to create Solar Zones to reduce energy consumption and to provide a better environment for students, faculty and others to learn, interact and utilise renewable energy applications.

In India, the Ministry of New and Renewable Energy (MNRE) has Central Financial Assistance (CFA) of 15 per cent in place for solar and solar rooftop projects under institutional category. ■

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FAÇADE LIGHTING DESIGN CONCEPTS & PARAMETERS

Lighting design of façade plays an important role in revealing facts of the buildings, monuments etc. Few parameters of façade lighting design are discussed here.

India owns a rich, glorified and diversified heritage. Visit of historical sites, such as Red Fort (at Agra, New Delhi), Taj Mahal (Agra), Fatehpur Sikri (Agra), Golkunda Forts (Hyderabad), etc. gives information about the prestigious, glorified and flourished pasts. These historical monuments are rich sources of historical information about our culture, traditions and past. These monuments are perfect examples of extreme engineering built-up during the period when heavy constructional equipment were not available.

Most of the historical monuments have been either declared as World Heritage Site by UNSECO or under maintenance by national or international agencies. In India, Archaeological Survey of India (ASI) is successfully accomplishing the maintenance and protection of historical monuments and related sites.

Recently, during a visit of Govindgarh Fort at Amritsar, Punjab, the illumination of fort was of worth appreciation. While attending the light show, it proves that the efficient and adequate façade illumination designs of these historical monuments can give rebirth to their glorified pasts.

Thus, lighting design of façade plays an important role in revealing facts of the buildings, monuments etc. In fact, monument with suitable façade lighting can create a lively effect of historical past. Hence, importance of suitable, efficient and adequate façade lighting illumination cannot be ignored.

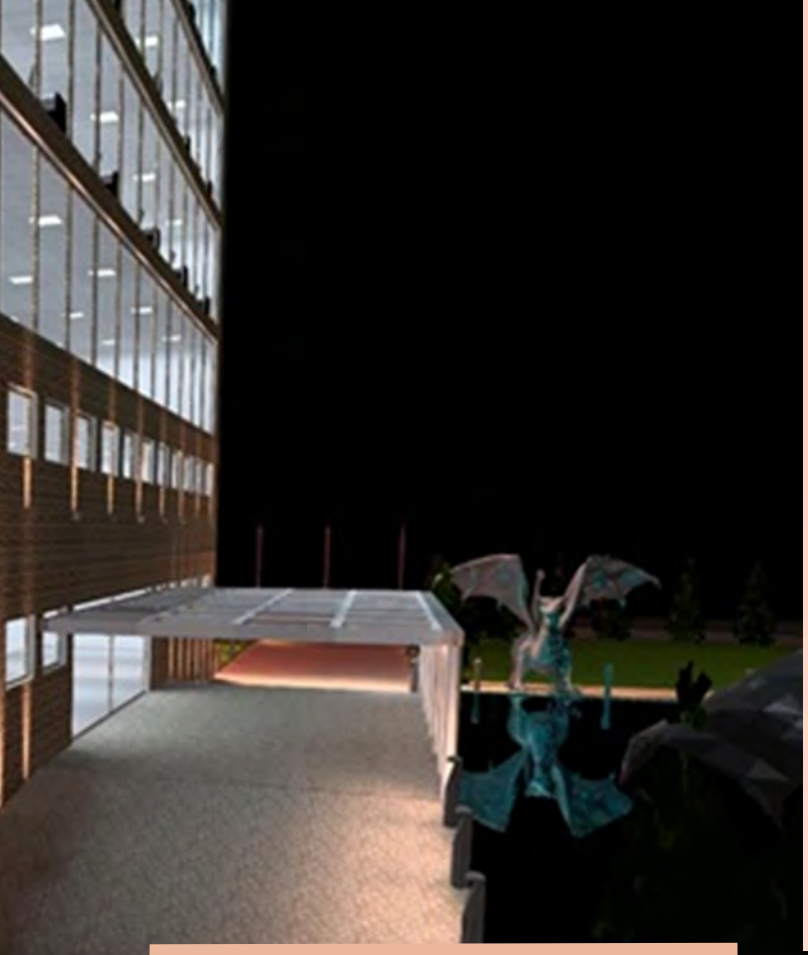
Regarding the façade illumination design, two concepts (viz. wall washing & wall grazing) required to be carefully considered during design stage. A brief discussion is provided here for ready reference of the designers:

Wall Washing

Wall washing as the words are self-explanatory, can be explained as washing of wall surface uniformly by using light i.e. uniform illumination on wall surface. This can be achieved by uniform distribution of lumen on all over the surface of the wall from top to bottom, without creating any patches of overcast lumens. With the selection of suitable fixtures, helps in accurate wall washing. This uniform illumination of the entire wall helps in hiding imperfections of artworks and also helps in elimination of shadows on the surface.

Wall washing with uniform illumination result the appearance of wall much clearer and brighter. It also helps in better enhancement of the architecture of the wall surface. Some of the lighting designers also believe that wall washing resulted into room as a whole look more lively ambience.

To achieve efficient and attractive wall washing effect, light fixtures are



required to be mounted at or above ceiling height, so that light fixtures can effectively "wash" off vertical space. Light fixtures also need to be situated at sufficient distance from the wall surface so that the light can spread out at a wider beam angle. The light should be angled at eye-level or towards the centre of the feature or artwork.

It is always recommended and practiced by designers for using multi-directional light fixtures for wall washing. Such as usage of asymmetrical type light fixtures, help in attaining wall wash. Application of asymmetrical type light fixtures provides unidirectional illumination.

Wall washing is best used on walls which are having a flat, smooth surface to restrict shadowing. With the advent of LED light fixtures, flexibility offered by the well reputed manufacturers, help in attaining a uniform, shadow-free wall washing quality.

Wall Grazing

Wall grazing is another way of façade illumination of a surface which is opposite to wall washing effect. In wall grazing effect, the illumination of surface is non-uniform in comparison to wall washing.

- Façade Illumination of a Villa and Building, completely designed by using DIALux Evo Software.
- Illumination resulting the wall grazing effect.
- Light fixtures are installed closer to the walls.
- Wall grazing is enhancing the shadows on the wall surface.

Wall grazing helps to make textures vertical surfaces more noticeable or prominent by enhancing the shadows. By providing lighting illumination over the top of textures surface, wall grazing produces very noticeable or marked shadows to give the textured surfaces of wall more aesthetic look.

Wall grazing effect can be achieved by the providing the light fixtures closer to the wall in such a way that lux level depreciates as distance from the light fixtures. The light fixtures can be placed at the ground and focusing towards the upwards direction for mysterious, attractive or fascinating effects on the surfaces.

This methodology is generally used for illumination of statues. The shadow effects on the surface can be made more or less highlighted by the installation of light fixtures either closer or away from the wall surfaces.

Generally, it is assumed that façade lighting can be attained by providing illumination (either by fixtures with warm day light colour or RGBW colour). Selection of suitable light fixtures and their locations are very much crucial and critical for façade lighting design. Further, with the advent of LED fixture, flexibility is available in selection of type and colour of fixtures.

LED fixtures are energy efficient as well as have longer life in comparison to the conventional fixtures. LED fixtures provide flexibility in control of beam angle and its spread with much higher accuracy in comparison to the conventional light fixtures. Few parameters are discussed here which may help while façade lighting design.

- **Selection of LED Manufacturer:** LED wall washers shall be selected of a regular manufacturer. The brand is the guarantee of the people of confidence. Reputed manufacturers are providing guarantee of quality and are also ensuring responsibility of after-sales services. Further, reputed manufacturers are providing fixtures with CE/UL Marking which ensure the quality and certifications of the fixtures as per standards. With the usage of fixtures from reputed manufacturer, helps in maintaining the inventory of used products. Also, it seen that performance of fixtures manufactured with poor quality deteriorates at faster pace. Therefore, in the choice of LED wall washers or other façade fixtures, designer must choose a regular manufacturer, so that the end-users have more protection for themselves with respect to quality and after-sales services.
- **Selection of appropriate LED fixture for wall washing / grazing according to the project area and distance:** The throw distance is related to the lens and power. The higher the power, the brighter the projected brightness, and the narrower the angle of the lens, the farther the projection distance is.
  Remember this point when choosing an LED wall washer. It is of worth mention that reputed manufacturers are having detailed photometric data of their products, which helps to understand the illumination level as well as beam angles. It is always best to let the manufacturer provide you with essential photometric data of their products. Further, façade illumination is outdoor type lighting design, hence the selected light fixtures shall be of appropriate IP Rating as well as IK Rating, so that the lighting fixtures can withstand the harsh and non-uniform environment. The Ingress Protection (IP) system is a globally acknowledged to indicate the degree of protection against the ingress of solid objects, dust and moisture into an enclosure. The IK rating is the degrees of protection provided by enclosures for electrical equipment against external mechanical impacts in accordance with IEC 62262:2002 and IEC 60068-2-75:1997. Generally, light fixture having rating IP66 and IK10 shall be preferred for outdoor illumination.
  Also, usage of simulation software such as DIALux EVO, AGI32, etc. can be used by the designer for actual simulation of illumination level.
- **Lighting Effect should as be decided as per actual situation/mood/ occasion:** Light change effects such as RGB or RGBW and DMX512 control, DMX512 changes more widely, depending on the actual needs. Millions of colour combinations are created by using above mentioned fixtures and accessories. Lighting effect can be changed as per the occasions and mood of festivities.
- **Installation Precautions:** At the time of installation, the number of LED wall washers is also determined according to the actual length string number. For example, if your new house ceiling design also uses this LED wall washer, because he can change a variety of effects, you need to calculate how long the length of a circle needs to be connected according to each piece, is it a single change or the overall flow effect changes and so on. The flexibility with LED Fixtures provides the optimum usage for wall washers.

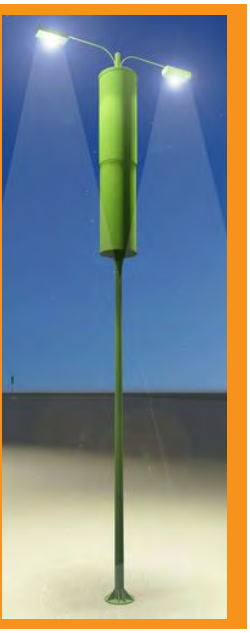
Conclusion

Façade lighting design in a word, a successful lighting engineering design can effectively increase the vitality of the city, make the citizens feel proud, and at the same time give visitors a beautiful night view of the city. A good night illumination of the landscape can not only effectively reduce the occurrence of traffic accidents, but also help maintain urban social security, and attract more customers to visit the commercial street. This plays a decisive role in establishing a commercial street and even a city image. ■

Er. Chaudhary Rajneesh K. Singh,
Deputy General Manager/Electrical,
Rail Vikas Nigam Limited, Lucknow

Smart Pole by iRAM

iRAM provides the end-to-end solution for the design, implementation and maintenance of the Smart Pole. Conventional cities use different infrastructure for mobile network, streetlights, street surveillance, environment monitoring etc. This makes it quite complex and costly to setup and maintain them.



iRAM Smart Pole is specially designed high strength pole of 9-25 metres height with a camouflage cage to conceal the various telecom, IT and IoT (Internet of Things) components and an underground chamber for various control devices, gateways and UPS etc. The camouflage cage or nacelle is made of special material that provides good RF transparency.

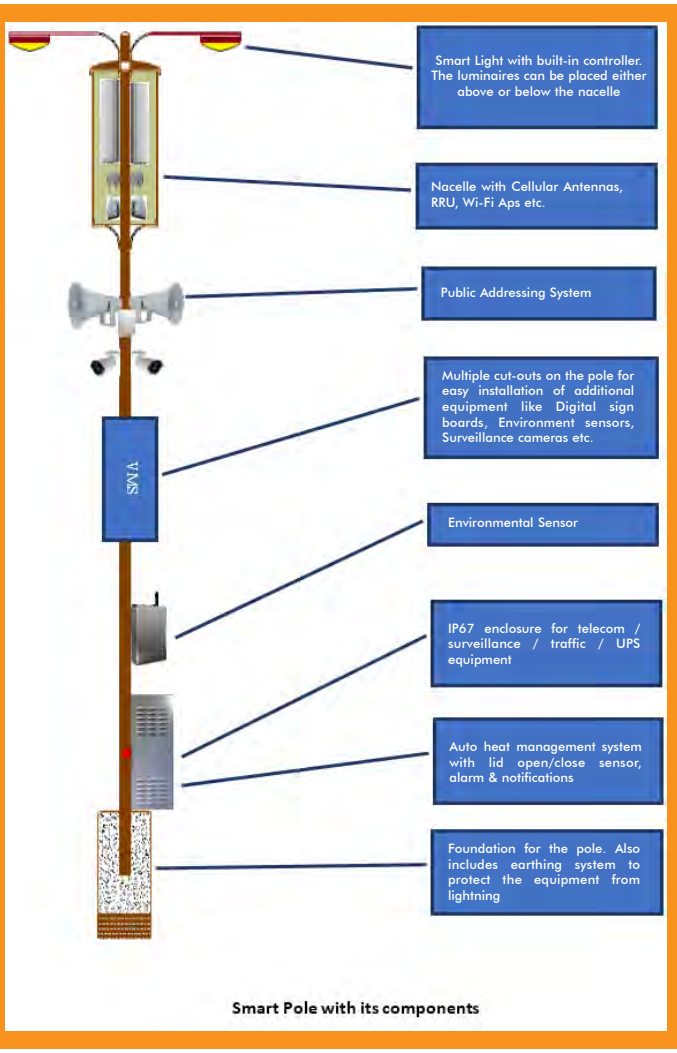
It is designed to host multiple devices like smart LED light, small cell cellular antennas, IoT and other network gateways, digital billboards, surveillance cameras, environment sensors, Wi-Fi access points, public address system, electronic call box or panic button, electronic vehicle charging points etc. Most of these devices (IoT-enabled) communicate to the command centre through the iRAM unified IoT gateway. It provides high flexibility in terms of placement of the equipment on it and in the over the ground or underground enclosure. iRAM's Smart Poles allow the above functionalities to be integrated into a unified infrastructure and thus making it easy and cheaper to setup and maintain these devices from command centre.

The top portion of the pole houses the smart LED lights. At the top, it has provision to house multiple telecom antennas, Wi-Fi access points, smart lighting controllers and associated equipment. In the mid-section, it houses the variable messaging boards, public addressing system and environmental sensors. At the bottom section, it houses the SOS panic button and electronic vehicle charging points. Depending on the area to be covered, the surveillance cameras can be housed either on the light arm or on the mid-section of the pole. The pole has multiple cut-outs to draw the wires of these components only at the place of requirement.

The pole is made of hot galvanised iron to withstand Indian weather conditions and to give minimum life of 15 years, the company claims. It is visually appealing and design to meet city aesthetic requirement. It is hollow and allows all the network and power wires to go through it so that wiring is completely concealed.

It has internal integral cooling system which is equipped to take heat load of all the equipment inside the camouflage cage and underground chamber. The temperature inside all the zones within the camouflage cage and external enclosure is reported at regular intervals to command centre.

For more details, visit: www.iramtech.com ■



Smart Pole with its components

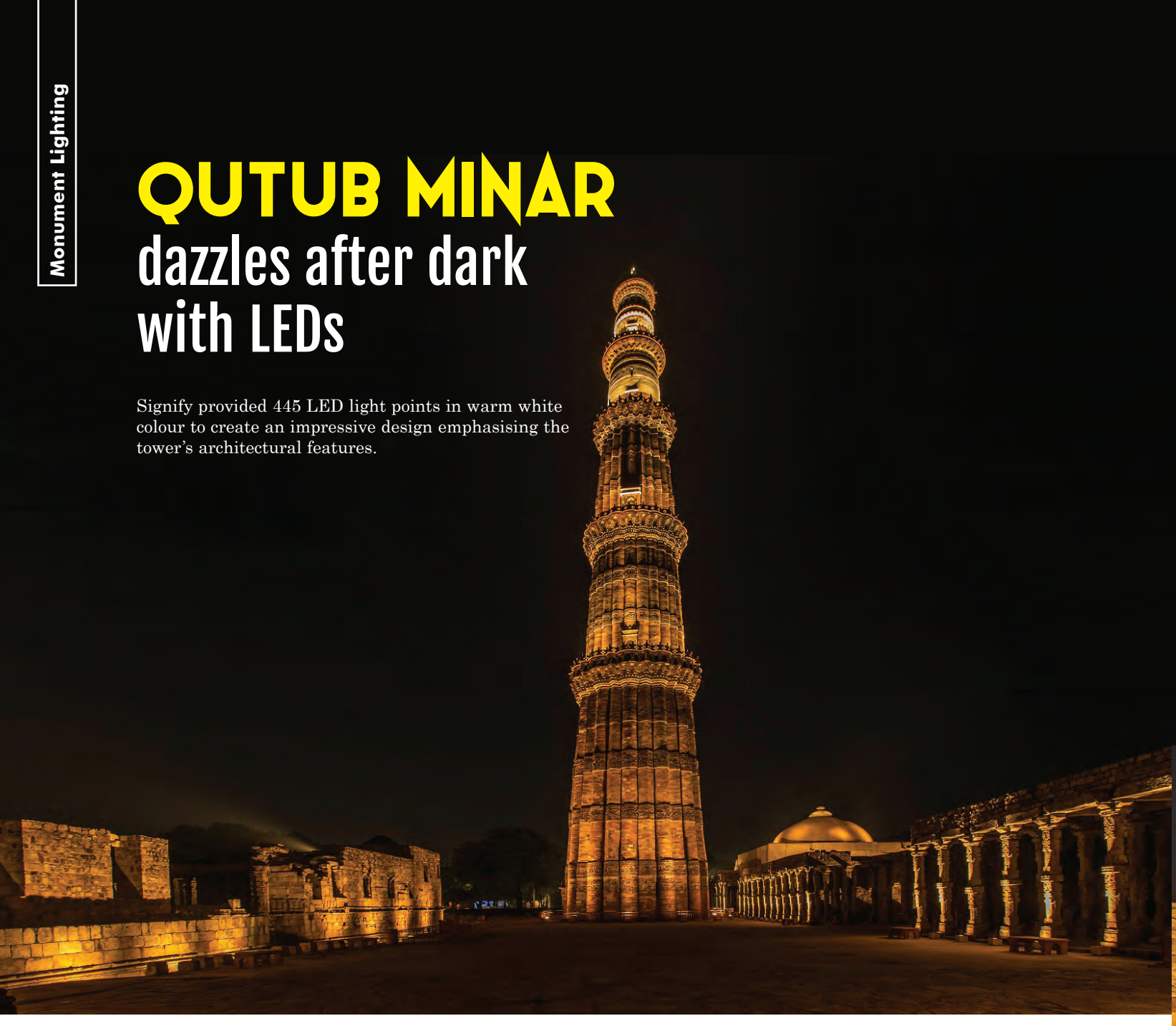
Key Benefits

iRAM's Smart Pole solution provides multiple benefits over other vendors providing similar solutions. Some of the main benefits are:

- Designed from ground up in India for Indian road and climate conditions
- Highly secure system that prevents and alerts thefts
- Multiple cut-outs on the pole so that third party equipment can be hosted on the pole
- Flexible networking option for equipment
- Automatic temperature management within the enclosure.

QUTUB MINAR dazzles after dark with LEDs

Signify provided 445 LED light points in warm white colour to create an impressive design emphasising the tower's architectural features.



The Qutub Minar is one of New Delhi's most well-known landmarks and is popular among citizens and tourists due to its commanding view over the city and its place in history. The 13th century minaret forms part of the Qutub complex, which is a UNESCO World Heritage Site. The Qutub Minar is a 73-metre tall tapering tower with five storeys, a 14.3 metres base diameter that reduces to 2.7 metres at the top of the peak. The construction of the building was started in 1192 by Qutub-ud-Din Aibak, founder of the Delhi Sultanate, and was completed by Aibak's successor and son-in-law Shamsuddin Iltutmish in 1220. Over the years, the minaret has been damaged several times due to natural calamities and rebuilt by different rulers.

Of late, Signify, formerly known as Philips Lighting, has lit this iconic structure in association with The Archaeological Survey of India (ASI) and National Buildings Construction Corporation Limited India (NBCC India). The lighting project included illumination of the iconic minaret and the historically significant monuments of the Qutub complex surrounding it.

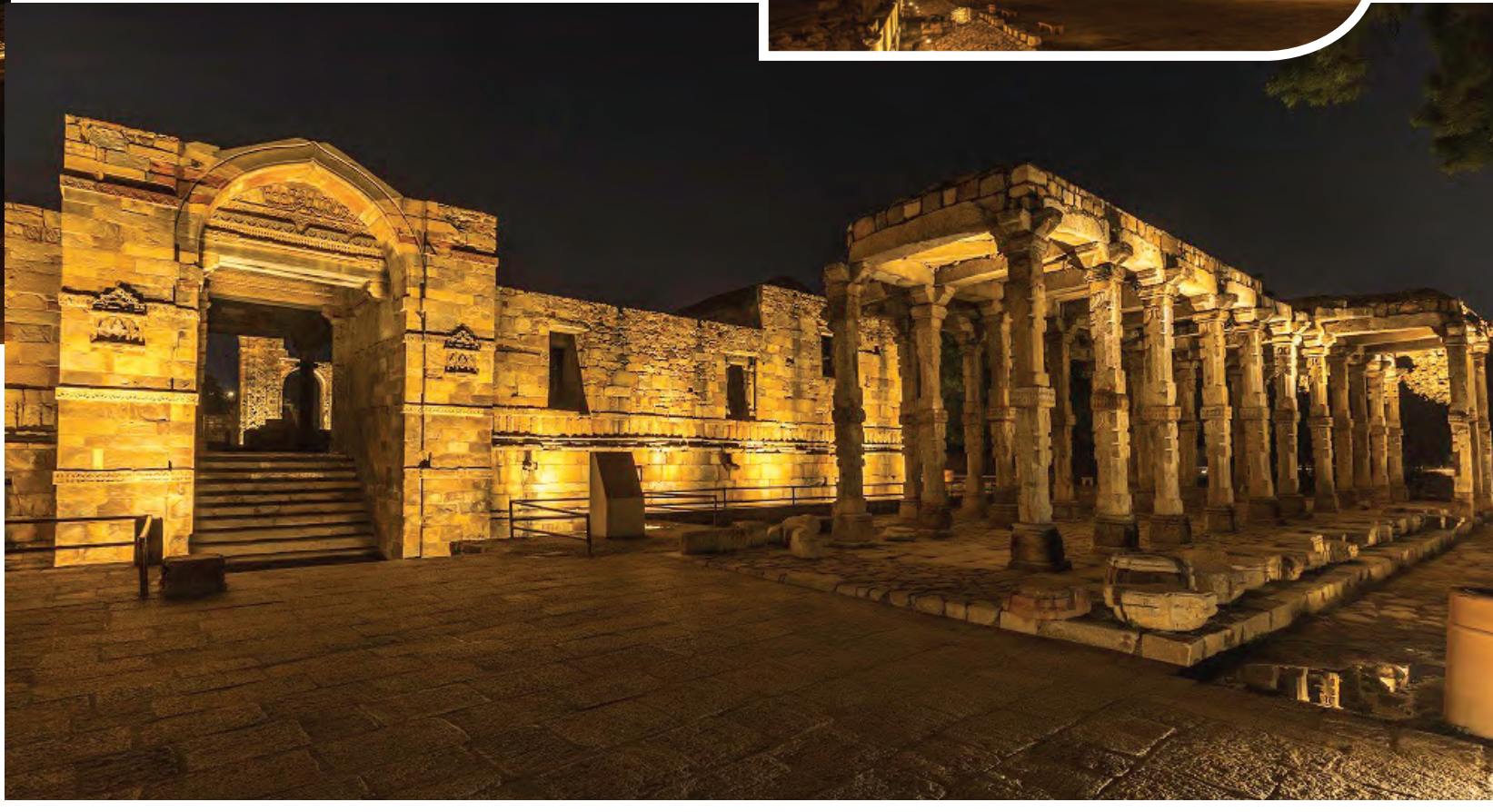
Signify provided 445 LED light points in

warm white colour to create an impressive design emphasising the tower's architectural features. The new LED lighting also enables the tower to project itself as an urban icon in the heart of New Delhi's Mehrauli area, further enhancing the image of the city and encouraging night tourism.

The newly installed LED lights are not only energy efficient, but also more cost effective over the long run due to their lower power consumption and durability, when compared to conventional lighting. While some parts of the ancient monument were already illuminated before this project, the newly installed lighting will significantly spruce up the Minar complex, enabling visitors to have a detailed view of its opulent architecture, calligraphic verses, corbels, and intricate carvings even at night, whilst increasing footfalls at the monument as well.

"The Qutub Minar has an enduring social texture reflecting the city's identity as the historic political center of the country. We are proud to bring the magic of the minaret to life at night with our Color Kinetics LED lighting that highlights its architectural features and at the same time is cost effective and energy efficient," says Sumit Padmakar Joshi, Vice Chairman and Managing Director of Signify's operations in India.

This latest project complements the illumination of other historical monuments such as Red Fort and Safdarjung Tomb that have been executed by Signify, supporting the city's efforts to encourage night tourism. ■



"SPOT-ON" FOR NORDIC LIGHT

Stages of light: a portrait of the Stockholm lighting designer Joaquim de Abreu

Light is in motion. Digital technologies are changing everyday life and viewing habits and also creating new scope for lighting. The young Swedish lighting designer Joaquim de Abreu, showcased by ERCO in its "Spot-on" series, is concerned with placing light at the centre of design and creating vivid and lively stages for lighting that stimulate and inspire in an artistic and functional way.

Dynamic scenographies

"As lighting designers, we can learn a great deal from stage designers and exhibition organisers," believes Joaquim de Abreu. With the Stockholm native, who thinks like a musician, a sculptor, or indeed a painter, light becomes a singular elementary material which has to be designed. He is not so much interested in the design of a luminaire, which for him is primarily a decorative element, but in the light itself. He describes it as a "critical tool for creating a specific atmosphere".

"Only when working with light is it possible to comprehend how it works," states de Abreu. "Trying things out and making errors is indispensable in order to develop a feeling for it." He began his career as a DJ and club organiser, later working for various interior designers and architects. He was struck by the subordinate role of lighting. "In design processes the light is usually not integrated until relatively late," says Joaquim de Abreu, for whom interior design and lighting design need to go hand in hand.

For de Abreu, who set up his "Abreu Design Studio" in Stockholm in 2016, "the right light in the right place" is his fundamental methodology in order to develop a dramaturgy, a dynamic scenography. Instead of illuminating a room completely and with high energy waste using a so-called carpet of light, he creates accentuated light zones, rich in detail and with their own ambience. According to de Abreu flexible light is constitutive today, also in creating "visual light comfort", a spatial and physical well-being.

Photography: Gavriil Papadiotis

"We create to remember"

"In the Nordic regions we have a very special relationship to brightness and darkness simply because of the prevalent lighting conditions there," says the lighting designer. The winters are long and dark. Compensating for daylight is essential for Sweden. And also, a cosy atmosphere in the evening with almost candlelight luminosity. De Abreu calls this the "campfire atmosphere" and, in the tradition of the Scandinavian era of modern design, strives for sustainability and sees the "optimisation of energy consumption" as a matter of course and inherent component of the design task.

Today he implements his modern lighting concepts in a range of applications: in new office concepts, hotels, clubs, individual projects such as a historic pharmacy and fashion label showrooms, where he also works with video mapping. "We create to remember" is the catchphrase on the Abreu Design Studio website. Lighting is, after all, always branding. Atmospheres that inspire and stimulate create recognition.

Flexible lighting

Whether an office location or a restaurant: flexibly applicable light is in demand in almost all areas. In Stockholm, along with an array of other commissions de Abreu has implemented the "Work away from Work" project for the real estate company Fabege. The highly functional LED lighting tools from ERCO precisely match his approach, says the Stockholm native. They enable him to design his contemporary arenas of light using state of the art technology and a great deal of creative freedom.

Hotels also appeal to de Abreu. "They present me with a variety of spatial situations ranging from corridors and guest rooms to restaurants and lobbies." The growing number of travellers is also changing them in their function as locations. "Hotel lobbies are increasingly being used as workspaces. They thus place new demands on visual comfort and flexibly usable light."

The artistic ingenuousness with which Joaquim de Abreu implements lighting as a medium of progressive development not only creates functionally atmospheric rooms and spaces that remain in the memory, it also creates a completely new realm of aesthetics for light.

The "Spot-on" programme continues to provide exciting lighting philosophies such as this one with a media stage. Modern approaches to lighting design and creative lighting concepts from young designers are presented at regular intervals – whether small or large projects or lighting for indoors or outdoors. ■

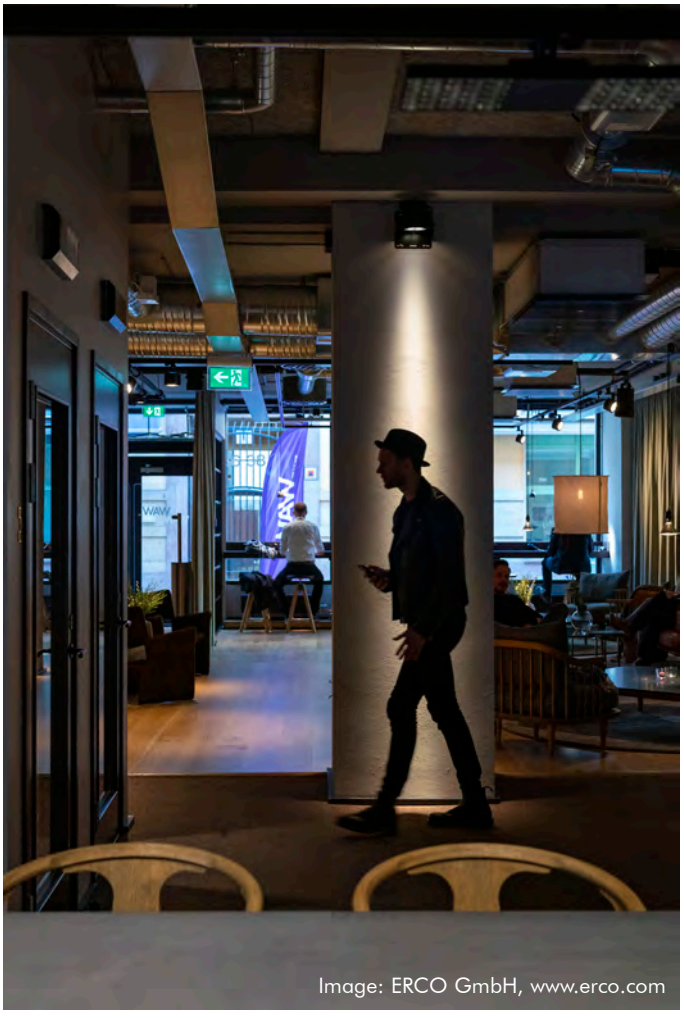


Image: ERCO GmbH, www.erco.com

NETWORKED LIGHTING PUTS BERLIN'S KEH HOSPITAL IN GOOD SHAPE

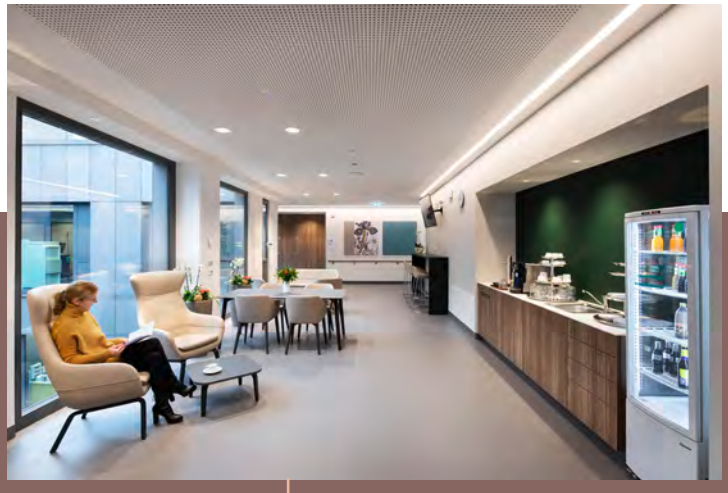
The new building of the Protestant Queen Elisabeth Herzberge Hospital in Berlin features a LITECOM infinity lighting management system from Zumtobel and therefore incorporates the perfect combination of luminaires and lighting controls. A healthy success, you could say.

A new day at Protestant Queen Elisabeth Herzberge Hospital (Evangelisches Krankenhaus Königin Elisabeth Herzberge or, for short, KEH) in Berlin. The daily ward round has just finished. Doctors are heading to their next patient consultations. They enter "Haus 100" through a corridor that connects the existing hospital with the new section. This modern construction is home to the diabetes centre, a medical care facility, the neurology and diabetes wards and various consultation rooms. Elegant light lines of SLOTLIGHT infinity in the corridor areas guide hospital staff, patients and visitors through the new building in a clear and logical manner.

The light is cleverly connected – thanks to LITECOM infinity, which centrally controls all the luminaires in the public areas. Integrated sensors help the lighting react to presence and reflect the dynamics of daylight. As a result, the lighting actively supports the natural human biorhythm and ensures maximum visual comfort, as the facility managers can use simple web applications to optimise the lighting, adjust basic settings and configure specific lighting scenarios. Take cleaning, for example. With just a push of a button, the corridors are fully illuminated. And then they can be thoroughly cleaned – quickly and effectively. Touch panels in the reception area allow intuitive individual operation, while hospital workers have the option to adjust illuminance levels and select desired lighting scenes using the Zumtobel lighting management system.

The new building at the Protestant Queen Elisabeth Herzberge Hospital (KEH) in Berlin is shining in Zumtobel light. The LITECOM infinity lighting management system enables central control in the public areas of the facility, where users can select pre-programmed lighting scenarios or configure individual settings using handy touch panels.

Elegant light lines of SLOTLIGHT infinity accompany hospital staff, patients and visitors in the corridors and walkways. The lighting reacts to presence and reflects the dynamics of daylight – thanks to integrated sensors.

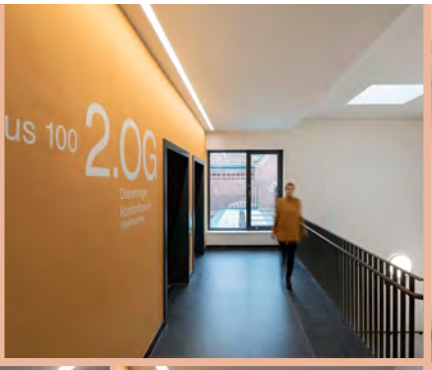


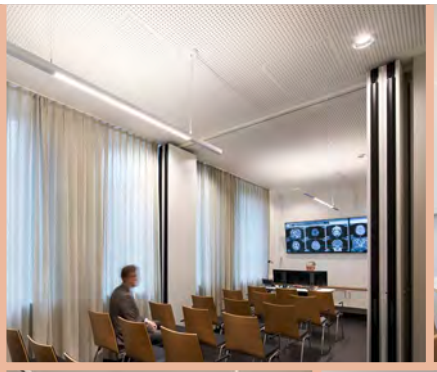
Light generates an inviting atmosphere throughout the new section of hospital – from the waiting areas to the staff training room.

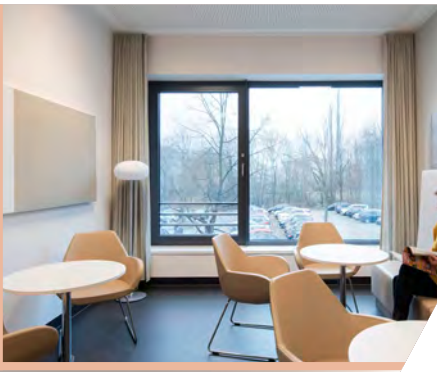
Innovative design greets patients and visitors when they register, as the SEQUENCE pendant luminaire creates a pleasant all-round ambience with the help of a gentle light distribution.

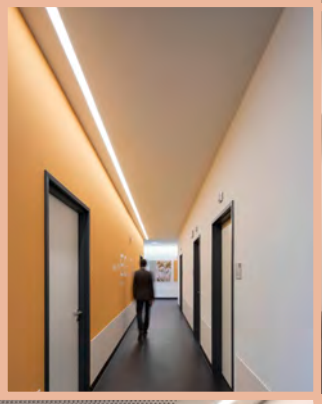
In the meantime, the first patient is waiting in the examination room, where doctors and consultants can tailor the lighting to suit the particular situation and create the ideal lighting situation for the relevant tests and checks. The professional lighting in the treatment rooms supports good vision and helps staff enjoy optimal working conditions. For every situation. And for every patient. Luminaires from the LIGHT FIELDS family combine a minimalist design with glare-free light, which meets both the specific needs of the examination and treatment areas of the hospital and the visual requirements of the people who work there.

A feeling of well-being facilitated by good lighting in the individual rooms of the hospital is particularly important for patients at the KEH. This subtle effect promotes recovery and helps ensure a pleasant stay. Indeed, the process starts from the moment people enter the hospital, where a luminaire with innovative design welcomes visitors and patients at the registration desk. This is the SEQUENCE pendant luminaire, which blends glare control and gentle light distribution to create a pleasant all-round ambience. Moving beyond the reception area, circular ONDARIA

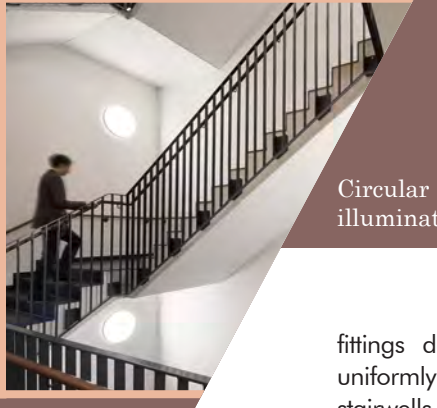








Tailored to real needs: Patients feel comfortable in the examination and treatment rooms, where staff also enjoy optimal working conditions. Luminaires from the LIGHT FIELDS family provide glare-free light that is adapted to suit specific visual requirements.



Circular ONDARIA luminaires uniformly illuminate the stairwells for added safety.

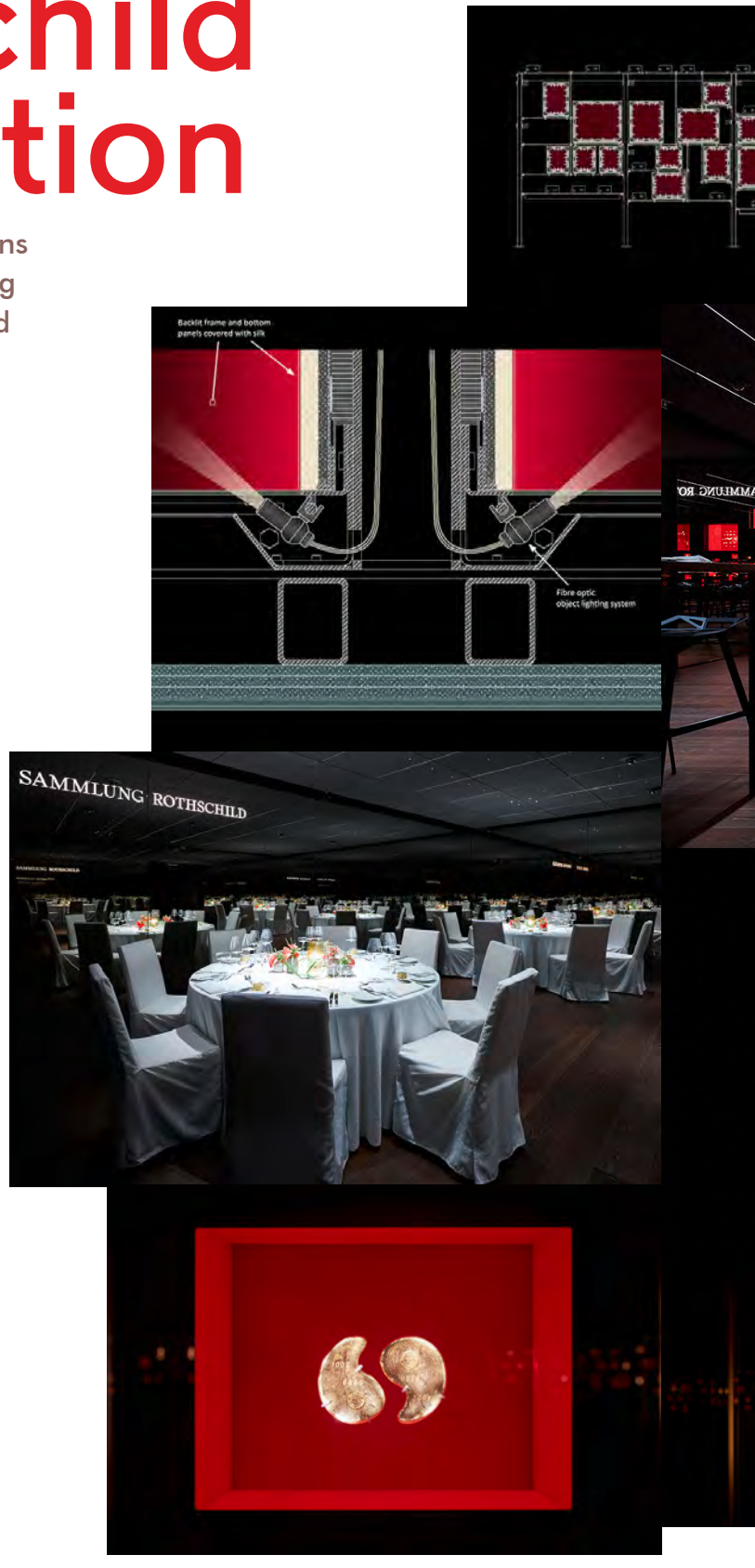
fittings deliver added safety by uniformly illuminating the various stairwells.

The new building – the so-called "Haus 100" – has been planned and realised to perfectly suit the precise needs of medical staff and patients. It is a place of work, but it is also quite clearly a place of well-being. "The KEH hospital benefits from a complete solution with cutting-edge lighting controls. Everything fits together and everything is connected," explained Claudia Siebert, the responsible sales representative at Zumtobel. "The lighting is professional, user-friendly and modern, while the installation also cuts costs in terms of operation, maintenance and energy." ■

Images: (Photo credits: Zumtobel)

The Rothschild Collection

The unique Rothschild Collection of 300 bullions from 35 countries with a total weight of 230 kg is presented in 38 vitrines which are integrated in the fourth wall.



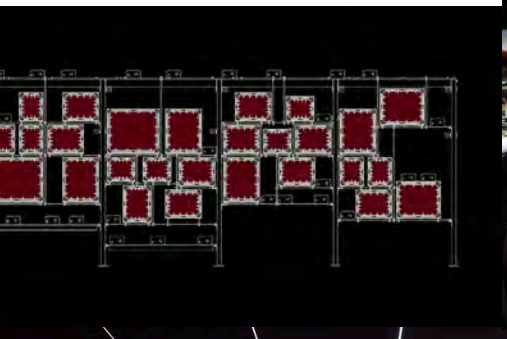
The Goldkammer is one of the most modern museums in Europe and the Rothschild Room is the final space to visit in the exhibition. The walls of the 64 sqm space are completely covered with two-way mirrors. On three sides the walls are equipped with high-resolution LED-screens, installed behind the glass layers. The unique Rothschild Collection of 300 bullions from 35 countries with a total weight of 230 kg is presented in 38 vitrines which are integrated in the fourth wall.

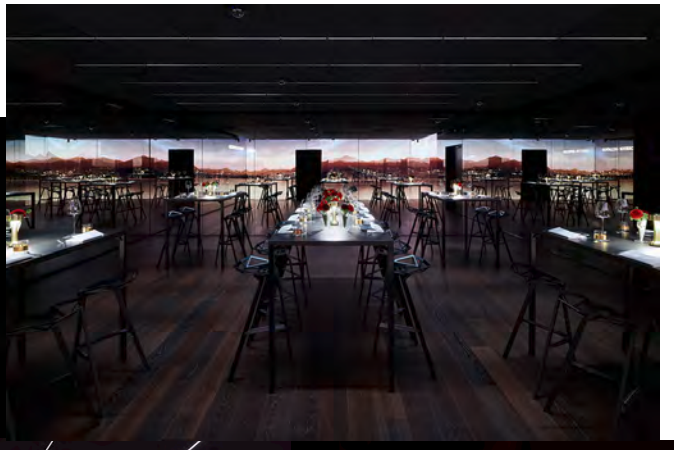
The Lighting for the Room

Due to the mirrored walls, guests can have the immersive experience of being right in the centre of the media presentation. Matt black ceiling panels and a dark floor are ideal backgrounds for the dynamic content of the LED-screens, displaying themes concerning gold, gold reserves, mining, etc. The Rothschild Room can be also rented for events such as conferences or dinners, with a maximum capacity of 40 people. In the light of the parameters described above, all lighting should come out as discreet as possible. Two minimal, glare-reduced systems for two different tasks have been selected: very slim LED-lines have been placed slightly recessed in the gaps of the ceiling. They are equipped with custom-made louvers and serve as dimmable, gentle ambient lighting elements - without interfering the visitor's attention for the collection or the media presentation. The second lighting system, a special layout of modified, recessed Mini-LED-Downlights serves for special occasions and - with predefined, dimmable punctual scenarios - for seminars and various arrangements of banquet - as well as meeting tables.

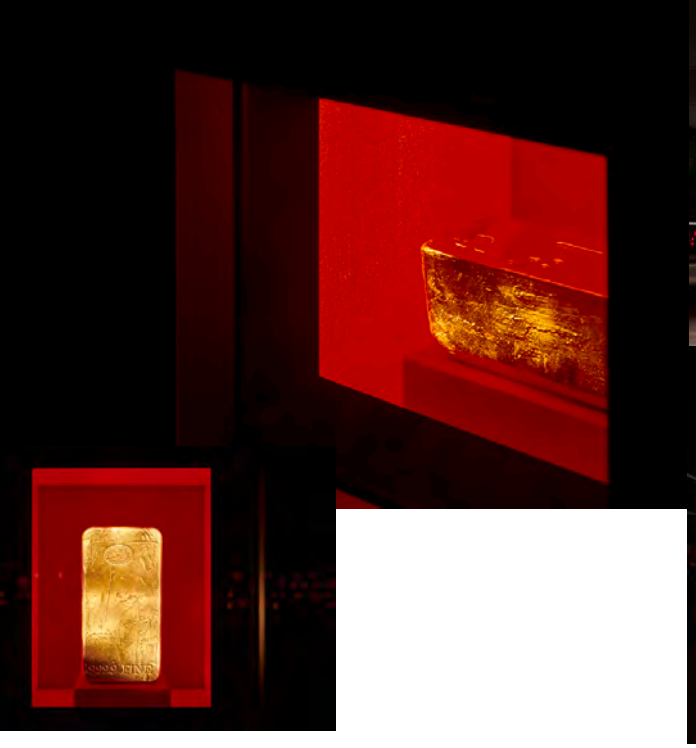
The Illumination of the Collection

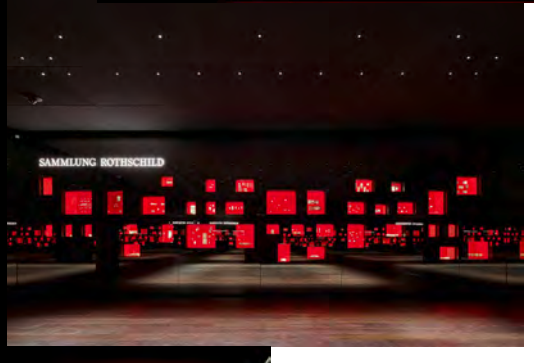
A sandwich made of 19 mm armoured glass and

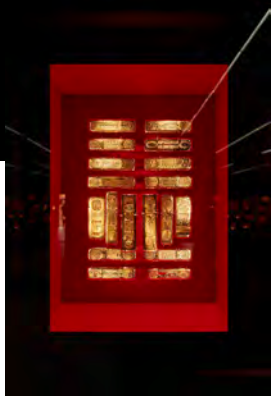





SAMMLUNG ROTHSCHILD




SAMMLUNG ROTHSCHILD



two-way mirrors have been used over the total room height, creating a great visual challenge for the lighting designers. High luminance levels have been applied to manage the thickness and absorption of the glass layers. Various tests and mock-ups had to be conducted in order to elaborate the lighting typologies. The lighting designers presented a choice of materials, colours and lighting typologies appropriate for the presentation of the collection. Concerning material and light, the following final decisions have been made:

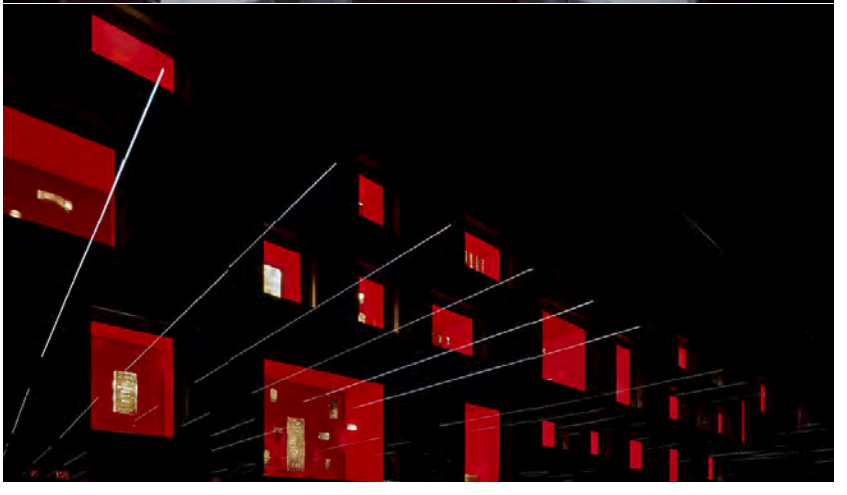
Spatial Light

"Spatial Light" is the lighting created by the backlit side walls in each vitrine. Evenly distributed light illuminates each vitrine from four sides, using flat LED-panels, covered with a layer of red silk. These panels create a magical atmosphere and soft ambient lighting in the vitrines, generating a high-level visual comfort for both the single vitrine as well as the entire collection (Silk Light). A warm-white colour temperature (3.000-K) enhances the chromaticity of both the silk and the gold. For better contrast and optimal legibility of the objects, the designers skipped the option of a backlit back panel. The outstanding quality of the "Spatial Light" is how it works with the unconscious perception level - it is nearly impossible to perceive the emitting source of the ambient lighting. Both the bottom as well as the "frame" (ceiling panel and two side panels) can be switched and dimmed separately.

Object Light

"Object Light" is the "mise-en-scène" of the gold. Installed on all four sides of the vitrine, an invisibly integrated system of Mini-LED Spots illuminates the collections' pieces with warm-white light. The spots can be precisely adjusted and are equipped with lenses for various beam angles. The system runs with a fibre-optic technique, using one generator with only one LED-light source for each vitrine. Within each vitrine 12 to 28 "heads" (with two different beam angles, 5-degree and 10-degree) have been implemented for the effective illumination of the complex arrangements of lying or floating gold objects. The integration and the detailing of the fibre optical system was the basis for the planning of the vitrines and had been tested in 1:1 mock-ups. Attaching great importance to an undisturbed and highly comfortable visual experience, it was crucial to conceal all lighting elements and eliminate any sort of glare. ■

Project
The Rothschild Collection, Goldkammer Frankfurt am Main
Lighting Design
Pfarré Lighting Design, Muenchen
Gerd Pfarré, Dominik Buhl
Client
Degussa Goldhandel GmbH, Frankfurt am Main
Location
Frankfurt am Main, Germany
Date of Completion
May 2019
Size
64 sqm
Architects
AS+P Albert Speer + Partner GmbH, Frankfurt am Main
Manufacturers
DGA, Luxam, Folio, Davide Groppi
Photography
Markus Tollhopf, Hamburg



Event Calendar

Guzhen International Lighting Fair (GILF)

Venue: Guzhen Convention and Exhibition Center, China
Date: 22 - 26 October 2019
Website: http://tradeshows.tradeindia.com/lighting-fair/

LED Expo New Delhi 2019

Venue: India Exposition Mart Ltd., Delhi-NCR
Date: 14 - 16 November 2019
Website: www.led-expo-newdelhi.in.messefrankfurt.com

@HOME World Expo – Future Living

Venue: Bombay Exhibition Center, Mumbai
Date: 14 - 16 November 2019
Website: www.athomeworldexpo.com

LED Expo Mumbai 2020

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

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HKTDC BRINGS WORLD'S 'LARGEST' LIGHTING MARKETPLACE IN OCTOBER

The 21st HKTDC Hong Kong International Lighting Fair (Autumn Edition) will be staged from 27 to 30 October 2019 at the Hong Kong Convention and Exhibition Centre. The HKTDC Hong Kong International Outdoor and Tech Light Expo will also see its 4th edition from 29 October to 1 November 2019 at the Asia World-Expo. The two lighting events expect close to 3,100 exhibitors from around the world. Last year, over 44,630 global buyers attended Lighting Fair (Autumn Edition) and over 13,600 global buyers attended the Outdoor & Tech Light Expo. The two fairs together form the world's largest lighting marketplace with enormous business opportunities, HKTDC said.

The famed Hall of Aurora at the Lighting Fair (Autumn Edition) will bring top-notch branded collections of lighting accessories and applications under one roof. The Smart Lighting & Solutions Zone will leverage the high interest in home automation to display fixtures, software and management systems. The popular LED Lighting zone will display a wide array of energy-efficient lighting for commercial uses, whereas the Residential Lighting zone will gather functional and decorative domestic lighting products.

The Outdoor & Tech Light Expo showcases lighting products by various applications to facilitate sourcing for buyers. The Exterior Lighting Solutions & Systems zone will highlight high-performance lighting systems and the latest technologies in smart lighting. The Outdoor & Public Lighting and Outdoor Advertising Lighting zones will be home to lighting solutions for public spaces and promotional uses respectively. The Technical & Professional Lighting zone will cover lighting equipment for warehouses, stadiums and studios. The Horticultural Lighting zone will showcase grow lights for agricultural use, domestic landscaping and public parks.

During both fairs, a diverse fair programme of networking receptions, buyer forums and seminars will be held for industry players to expand their professional networks and learn first-hand about market developments.

For more details, write to mumbai.consultant1@hktdc.org ■

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