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DEAR READERS,

Just like that, another year has gone by and we're nearing the end of 2015. This year, the lighting industry has seen a major increase in demand for LED-based lighting products and "smart-lighting" systems, with countless organizations, businesses and government bodies opting for all sorts of efficient and energy saving lighting solutions. The LED market has grown so huge and although there are many benefits to jumping on the bandwagon to switch to longer-lasting, energy-saving and human-centric customizable products, it doesn't come without challenges. With the costs of LED lighting going down due to the competitive and fast-moving market, lighting designers and specifiers have to ensure that the quality of products is not compromised.

Speaking of lighting designers - many architects and owners in the hospitality and tourism sectors understand the need for quality lighting for their buildings, and the value of engaging professional lighting designers for lighting designs that are unique to the architectural design of the building or space. Personally, when I visit restaurants or hotels which are lit up creatively yet effectively, more often than not I'd be taking photographs which I would then post on social media platforms like Facebook and Instagram. The extensive use of social media in today's culture has become such an influential platform and can possibly aid in effective marketing efforts, so why not?

A number of such hospitality and tourism projects grace this issue of *Lighting Today*, with the architectural lighting design of Royal Caribbean's Anthem of the Seas taking the cake as the cover story. We provide you with an in-depth look into how a cruise ship is illuminated using state-of-the-art lighting design concepts and products to produce an enjoyable and conducive environment for all guests on board.

This issue also has a couple of interesting projects in our Special Features section. It sure seems like lighting has become immensely popular in spicing up art scenes across the globe, with many more artists getting recognition for their creative works involving the use of light. Even students pursuing their studies in the architectural field have been developing their skills to further increase the potential of lighting technology. I believe that with the experience of professionals melded with fresh ideas of young minds, the possibilities can truly be endless and that the concept of creative lighting will continue to flourish in the years to come.

Should you have any interesting projects or products to share with our readers, feel free to contact us at ***lighting@tradelinkmedia.com.sg*** for editorial feature opportunities.

With that, I leave you to enjoy this issue of *Lighting Today*. I hope 2015 has been a year well spent and that 2016 will be one filled with new rewards and experiences.

Jo-Ann Elicia Teo
Editor

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On the Cover: Anthem of the Seas
Photo Credits: Project International Ltd / Royal Caribbean International
Cover Design by Siti Nur Aishah

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LIGHTING TODAY IS PUBLISHED BY:

TRADE LINK MEDIA PTE LTD
101 Lorong 23, Geylang #06-04
Prosper House Singapore 388399

For interest in advertising and advertorials, please attention your query via:
fax: +65 6842 2581 / +65 6745 9517 or
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Printed by KHL Printing Co Pte Ltd
MCI (P) 038/05/2015
ISSN 2345-7147 (Print) and ISSN 2345-7155 (E-periodical)

This publication is published four times a year and is available at no charge to subscribers in the professional lighting industry who meet the publication's terms of circulations control. For subscribers who do not qualify for free subscription, copies will be made available subject to acceptance by the publisher, for a subscription fee which varies with the requester's country of residence in the following rate for annual subscription.

ANNUAL SUBSCRIPTION BY AIRMAIL
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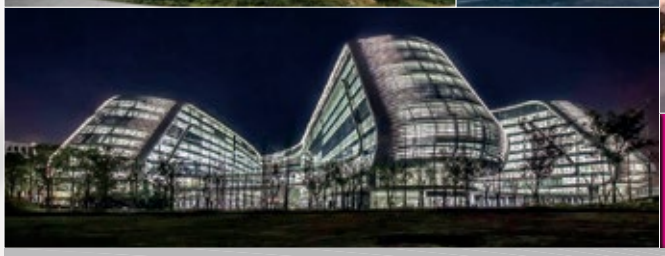
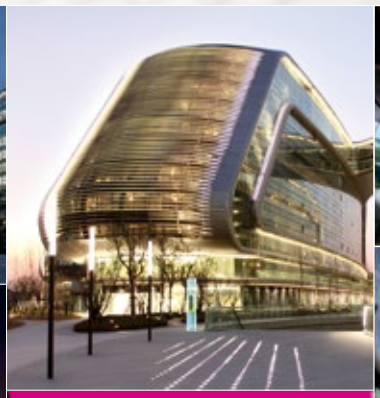

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HUMAN-CENTRIC LIGHTING

… the new buzz word in lighting design…

Freshly back from visiting the Guangzhou Light Fair in June, it struck me how quickly manufacturers are catching on to the new buzz. Not only is the quality of the lighting stands rapidly improving, with some certainly rivalling stands one is used to see at major light fairs such Light + Building in Frankfurt or the annual Light Fair in the US, several also caught on by putting the "human centric" catch phrase prominently on their stand. Whether they know what they are talking about is another question, but there was no doubt that it has already found its way to the rapid fire Chinese and other Asian marketing brigades! With reportedly more than 6000 LED manufacturers in China alone, any sales tool seems to be game, including the latest "human-centric" lighting design approach.

So, what is this human centric lighting that is rapidly becoming the number one sales pitch applied in the lighting world today? Obviously it puts the human being in the centre of lighting, but contrary to what many may think, this is not just well designed lighting for people to feel good by; it is lighting designed to improve human well-being by taking into consideration the biological aspects of lighting on the human body. Over the last couple of years, many researchers have dug into how light influences our sleep and wake patterns, our attention span, our moods and our health in general. The main push forward was the discovery in 2001 of the third photoreceptor in the human eye. We were all familiar with the rods and cones that aid our visual performance in regards to colours, shapes and brightness, but the third receptor was found to have a direct link to our human circadian rhythms.

Now that we can create and tune light to the shades we want, we have the ability to (re)create light as we know from nature, the colour spectrum to which our body used to be tuned to (before the age of artificial lighting) and researchers now are finding out more and more.

We now find applications in not only intercontinental airliners where different lighting moods are created to help people relax and cope with jetlag, have their meals, sleep and rest but also in schools and offices where the natural day light patterns are recreated from sunrise to sunset.

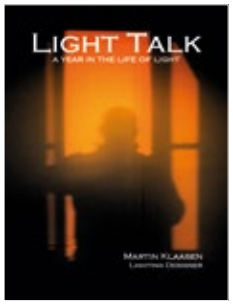
The ability to control, tune and zone the light to intensities and shades of personal taste and preferences allows individualisation of the lighting effects. Add in the mix the mobile apps that can nowadays be downloaded for complete personal control and one can see how "human centric" lighting is being developed, even "milked" by some if I may say so.

The most sincere approach to human centric lighting in my opinion is where manufacturers (and researchers) are developing lighting systems and program options that truly aid the human well-being. A lot of the human centric product developments are truly exciting and though perhaps pricey at times, they offer great prospects for the lighting industry. It is great to know that our lighting designs, if thoughtfully applied, not only provide good lighting for visual performance but also contribute to a much better human body performance, both physically as well as emotionally. Unfortunately, the commercialisation and cowboy approach to sales is never far away.

It is probably the tragedy for many applications in the market that benefit from frequent innovative injections… there are always people that are ready to take advantage of trends, manufacturers and government initiatives to make money by taking shortcuts by building on the public sentiment that it is the right thing to do. In the process these people however, by undercutting quality and prices, create poor customer experience and disappointment in the new product. We have seen that over and over again over the years… it happened with compact fluorescent, it happened with fibre optics and it is now happening with LEDs.

Sustainability is out… human centric lighting is in. The cowboys have changed their horses but keep shooting and galloping away.

Follow Martin's daily blog about lighting, Light Talk, at:
http://lighttalk.via-verlag.com



Martin's Book, '***Light Talk, A Year in the Life of Light***'
(ISBN: 978-981-07-0120-8),
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A soft copy of the book is now available for download from Martin's blog site.

NANOCO FORMS NEW LIGHTING DIVISION TO ANSWER GROWING DEMAND FOR CADMIUM-FREE QUANTUM DOT INNOVATIONS

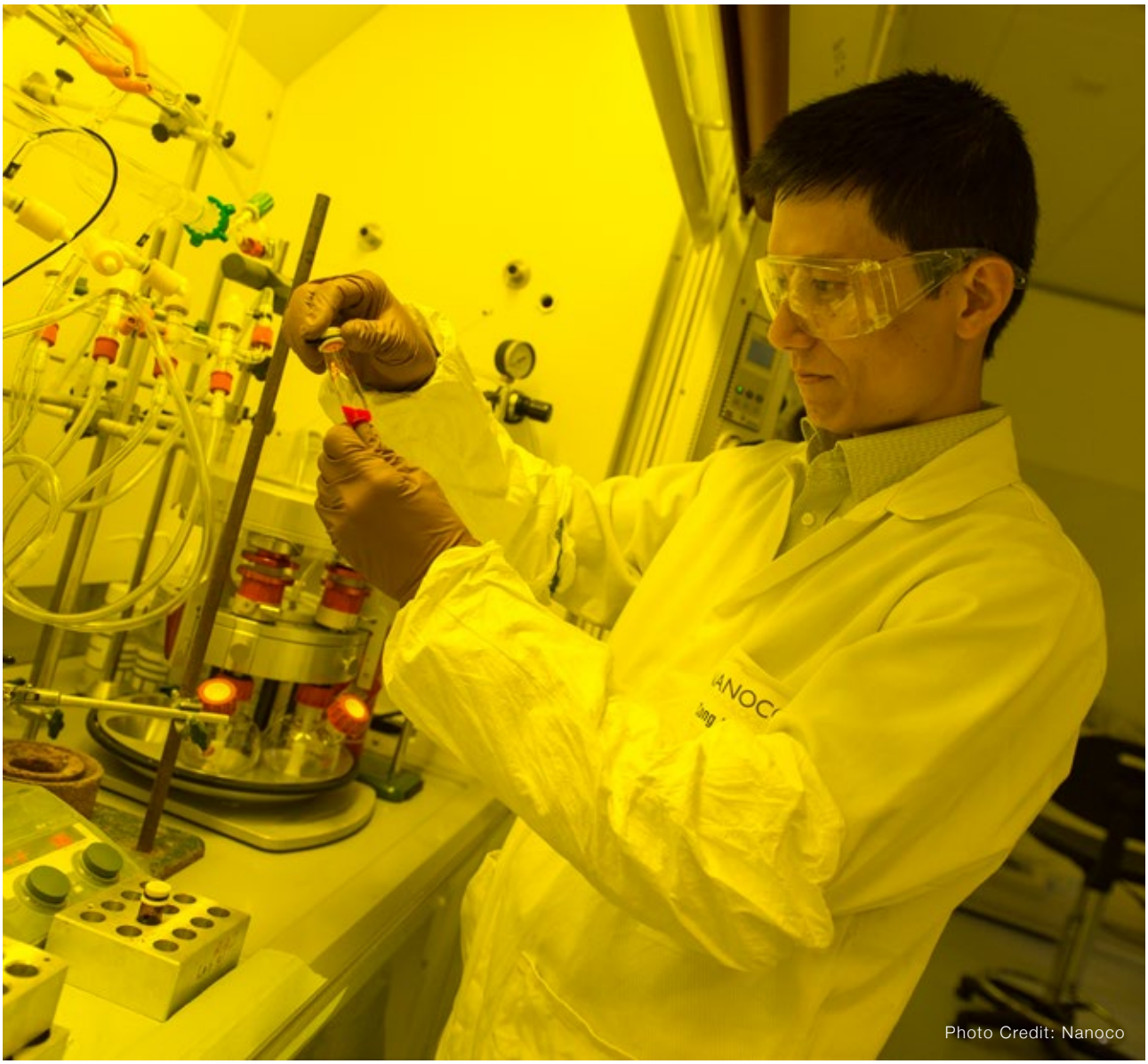
Company Also Introduces Deep-Red CFQD® Quantum Dot Film for Plant Growth Applications

To capitalize on the growing interest in cadmium-free quantum dot (CFQD) technology within the lighting industry, Nanoco Group plc (LSE:NANO) has announced the formation of a new division dedicated to furthering CFQD® Quantum Dot technology in the lighting industry. The new division is part of the company's business expansion strategy to accelerate commercialization and further development in its four key target markets – electronic display, LED lighting, biological imaging and solar power. Nanoco's Torsten Schanze will lead the division as its General Manager.

"We are focused on advancing the commercialization of our technology in key markets and the formation of a distinct business division for the lighting industry allows us to do just that. It positions the company to both drive new innovation and deliver - with our customers - novel lighting products," said Michael Edelman, CEO, Nanoco. "This is an important step in the company's evolution, one that demonstrates the role of CFQD® Quantum Dots as a true platform technology and furthers our ambition to be a leading global materials science business."

The applications for CFQD® Quantum Dot technology are numerous in the lighting industry and include:

- **Retail and Specialty:** Nanoco's CFQD® Quantum Dot technology is designed to provide outstanding color performance without sacrificing efficiency. Applications where color quality is an absolute must include high-end retail store lighting where consumers can determine precise colors of clothing and high-value goods, surgical lights that enable accurate diagnosis and fluid operations, supermarkets to showcase the freshness and quality of meat and produce, and in professional photography and video solutions where maintaining true-to-life color representations maximizes user experience and value.
- **Agricultural Applications:** LEDs provide many benefits to the grow-light and horticultural lighting industry because, unlike traditional lighting fixtures, they can be customized to encourage chlorophyll absorption and promote healthy growing, consume far less energy, and cast less heat making it easier to control growing environments. Quantum dots expand upon these benefits and allow for additional, precise tuning to further enhance chlorophyll absorption peaks and ensure healthier, higher-yielding plants.
- **Architectural Applications (Home and Office):** Quantum dots open up additional potential for LED lighting – LED's currently lack the quality of light while targeting the same warmth and color performance of an incandescent bulb –



quantum dot's have the capacity to appeal to a new set of buyers who want the efficiency, quality and economy of the LED, as well as the "effect" of natural light. To date, the use of quantum dots in lighting was hindered by the fact that the technology contained cadmium, a highly-regulated and toxic heavy metal. Nanoco's technology, made without cadmium or any heavy metal, offers a sustainable solution.

Nanoco has already made significant strides bringing CFQD® Quantum Dots to market. In March, the company announced a partnership with Marl International, a pioneer of the LED lighting industry. Together, the two companies have introduced the world's first CFQD® Quantum Dot technology lighting product, a high-efficiency LED light with outstanding colour performance that meets a new set of technical and commercial demands without compromising product safety.

In tandem with the new division, Nanoco also introduced Deep-Red CFQD® Quantum Dot Film, a new product designed for use in plant growth applications. The film can be easily incorporated into various LED lighting formats to assist in the propagation and vegetative stage of plant growth, as well as for supplemental lighting in green houses to stimulate greater chlorophyll absorption – important for crops such as basil and lettuce – by working with nature to increase yields and quality. The first production units of the Deep-Red CFQD® Quantum Dot Film will be available by September 2015 and volume production will start within Q4 2015. To arrange a meeting for product demonstration or discuss product and sample requirements, please e-mail **Info@nanocolighting.com**.

ABOUT NANOCO

Nanoco (LSE: NANO) is a world leader in the development and production of cadmium-free quantum dots and other nano-materials for use in multiple applications including lighting, LCD displays, solar cells and bio-imaging. In the display market, it has an exclusive manufacturing and marketing licensing agreement with The Dow Chemical Company.

Nanoco was founded in 2001 and is headquartered in Manchester, UK. It has production facilities in Runcorn, UK, and a US subsidiary, Nanoco US Inc, based in Concord, MA. Nanoco also has business development offices in Japan, Korea and Taiwan. Its technology is protected worldwide by a large and growing patent estate. For further information, please visit **www.nanocogroup.com**.

THREE DESIGNERS EARN PRESTIGIOUS CLD CERTIFICATION

Michael Sparrow, Senior Design Engineer - Lighting, Lend Lease, Sydney, Australia, Avraham Mor, Partner, Lightswitch Architectural, Chicago, IL USA, and Shoshanna Segal, Principal Luminous Flux, LLC, Forest Hills, NY USA have earned the Certified Lighting Designer (CLD), the international, evidence-based certification in architectural lighting design. Sparrow, Mor and Segal are the first lighting designers in the world to earn the new international certification, which demonstrates that they have proven track records of excellence and have successfully validated their skills to a rigorous assessment process that defines high standards of professional practice.

The certification process, governed by the Certified Lighting Design Commission, is designed to assess ability to operate as a lead architectural lighting designer in a professional and proficient manner by considering a person's imaginative, technical, and professional responsibility skills.

"We congratulate Avraham, Michael and Shoshanna on earning the CLD. This global benchmark of performance demonstrates their proficiency in developing, guiding, and completing lighting design projects," said David Becker, Chair of the Certified Lighting Design Commission.

Michael Sparrow, CLD, MIES, RLP, IALD
Senior Design Engineer - Lighting, Lend Lease
Sydney, AUSTRALIA

Michael Sparrow, CLD, MIES, RLP, IALD, is a Senior Design Engineer (Lighting) from Sydney, Australia. Michael started work as an electrical engineer working global projects, then switched to building services, focusing mainly on lighting. After a few years of freelance work he concentrated on lighting, as it was more rewarding for him as a designer. Michael works for Lend Lease as their lead lighting designer and has worked on all the major projects in the company's portfolio both in Australia and Asia, focusing mainly on commercial and retail. Lately he has been working on leisure, public realm and façade projects plus the odd art piece. Michael believes having passion, vision and technical know-how are essential prerequisites for a good lighting designer.

Avraham Mor, CLD, IALD, MIES, LEED BD+C
Partner, Lightswitch Architectural
Chicago, IL USA

Avraham Mor, CLD, IALD, MIES, LEED AP BD+C, is a partner and lead lighting designer for the Chicago office of Lightswitch Architectural, a global lighting design firm. Avraham collaborates with architects, engineers and other design professionals to create fiscally and environmentally responsible lighting for commercial, educational, hospitality, museum, residential, and retail projects. Eco-conscious and on the forefront of the green movement, Avraham has been recognized by the U. S. Department of Energy, for whom he serves as a committee member and judge for The Next Generation Luminaires competition, and has spoken at several conferences on the future of solid-state lighting (SSL). Avraham has served on various boards and is currently the professional affiliate director on the AIA Chicago Board of Directors.

Shoshanna Segal, CLD, IALD, LEED AP BD+C
Principal, Luminous Flux, LLC
Forest Hills, NY USA

Shoshanna Segal, CLD, IALD, MIES, LC, LEED AP BD+C, is the founder and principal of Luminous Flux LLC, a lighting design studio based in New York City. Ms. Segal views lighting design as the opportunity to stand at the intersection of technology, social interaction, and commerce; while balancing the needs of efficiency, aesthetics, and performance. Her concerns about the human and environmental damage that has been caused by the built environment have led her to pursue additional training in environmental activism, and she is a member of the 2012/2013 Class of GreenFaith Fellows. Through this interfaith network, she teaches and leads discussions with faith-based communities about issues of conservation and environmental justice. Shoshanna has served on the faculty of the Fashion Institute of Technology and the New York School of Interior Design. She has lectured on lighting and control throughout the East Coast.

Top to bottom:
Michael Sparrow
Avaham Mor
Shoshanna Segal

For more information on the CLD certification, please visit **www.cld.global**.

COOLEDGE ADDS INDUSTRY LEADER AND VETERAN BILL SIMS TO ITS BOARD OF DIRECTORS

Cooledge Lighting, a leading innovator of adaptable, flat and flexible LED lighting solutions for luminous surfaces, has announced that William J. Sims has joined the company's board of directors. Bill Sims is widely respected in the lighting industry for his leadership and vision while at Color Kinetics, the company that is credited with pioneering the growth and adoption of LED technology for illumination.

"The lighting industry is in the midst of an exciting evolution from general and accent illumination to now fully utilizing the small size and versatile nature of LED technology to create broader solutions," said Sims. "Cooledge is leading in this area with lighting applications that can illuminate and enhance entire surfaces like ceilings, walls or floors, converting them to light sources. The team has already demonstrated innovation and vision and I look forward to providing insight and guidance as the company begins to grow."

Mr. Sims is a proven leader with more than thirty years of experience growing both emerging and established companies, and the successful commercialization of breakthrough technologies within numerous consumer and B-to-B industries.

He currently serves as President of Value Creation Specialists, LLC (VCS), a management excellence firm that provides strategic guidance and implementation to technology companies seeking superior operations and value enhancement at any business stage. Before that, he served as President, CEO and Board Member of Joule, the pioneer of liquid fuels from recycled CO2.

Within the lighting industry, Sims is best known for his work at Color Kinetics where he was President, CEO, and a Board Member. While at the company largely credited for triggering the lighting industry's historic shift to SSL technology, he led its IPO, secondary offering, and eventual sale to Philips Lighting. His career prior to Color Kinetics included executive roles in the consumer electronics and software industries.

Mr. Sims has served on the boards of Lumenpulse, the Consumer Electronics Association (CEA) and National Electrical Manufacturers Association (NEMA), and serves on the Advisory Board for imageSurge.

Bill Sims joins an accomplished Board that includes Clint Bybee of ARCH Ventures, Kirk Washington of Yaletown Venture Partners, Geoff Catherwood of BDC Ventures, Jim Miller of Luminous Devices, Thomas "Tracy" Bilbrough of IPS Corporation, and C. Wade Sheen, CEO of Cooledge Lighting.

IKEA LIGHTS THE WAY IN LED

IKEA announces transition to 100 per cent LED bulb range by September 2015 and becomes first major global retailer to offer a fully LED lighting range.
Home furnishing retailer IKEA today announced it will become the first major global retailer to offer a 100 per cent LED lighting range when the brand's LED roll-out completes in September 2015.

IKEA LED offers a range of benefits compared to previous incandescent varieties:

- Use 85% less energy
- Last up to twenty times longer
- Have a 25,000 hour lifetime per bulb
- Free from Mercury
- Come in a range of sizes allowing for new design solutions

Steve Howard, Chief Sustainability Office, IKEA Group says: "We're dedicated to helping our customers live a more sustainable life at home with simple solutions, which is why we're so proud of our fully LED lighting range. By switching to LED our customers will use up to 85 per cent less energy which will not only reduce their carbon footprint but also help them combat rising energy prices.

"Cutting down on energy consumption shouldn't mean cutting down on style, which is why we've embraced LED technology and worked hard to make products that are beautiful, sustainable and affordable, so our customers can love LED as much as we do."

By adopting LED solutions within the home, a British household using an average of 10 bulbs across the home will be able to combat rising energy prices by saving up to £300 off their annual bill*.

What's more, over the 25,000 hour lifetime of an IKEA 13W LED an owner stands to save £247 per bulb**.

IKEA and its suppliers have been working to improve the performance of LED technology to ensure it offers a sustainable, affordable, high quality and design conscious solution for customers switching from incandescent lighting.

The bulbs also come in a variety of shapes and sizes which allow for new design solutions that wouldn't have been possible with incandescent bulbs, allowing for lighting to be placed within furniture or for more intricate interior design with embedded lighting.

CREE ANNOUNCES THE SIGNING OF A GLOBAL LED CHIP PATENT CROSS-LICENSE AGREEMENT WITH EPISTAR

Cree, Inc. (Nasdaq: CREE) and Epistar Corporation have signed a worldwide patent cross-license agreement for light emitting diode (LED) chips to further advance the growth of the LED lighting and LED bulb markets. Cree and Epistar both hold broad and substantial LED chip patent portfolios that are important for making blue LEDs, the foundation of white LEDs found in most lighting products manufactured worldwide. Under the terms of the agreement, each party receives a license to the other's nitride LED chip patents and is granted certain rights to non-nitride LED chip patents. Over the term of the agreement, Cree will receive a licensing fee and royalty payments from Epistar.

"Cree's pioneering technology and resulting broad patent portfolio has significantly advanced performance in LED and LED Lighting products. Cree is pleased to enter into this LED chip license agreement with Epistar, a leading chip innovator and manufacturer of LEDs used by packagers and lighting companies," said Chuck Swoboda, Cree Chairman and CEO. "This agreement underscores both companies' commitment to accelerating the adoption of LED lighting while respecting the value and importance of international intellectual property laws."

"The patent license agreement we have achieved will help us to accelerate the R&D activities for creating new innovation. In addition, it is a clear indication of the strength of our LED chip patent portfolio and our desire to further the growth of the LED lighting market," stated BJ Lee, Chairman of Epistar. "By entering into this cross-license agreement with Cree, Epistar is able to provide LED chips that ultimately benefit our customers across the world."

Other terms of the license agreement were not disclosed. No technology transfer between the parties was included in the agreement.

CHILEAN ASTRONOMICAL SITE BECOMES WORLD'S FIRST INTERNATIONAL DARK SKY SANCTUARY

A sanctuary is a place that invites deep contemplation in a safe and stable environment. Few places in the world provide a better opportunity to enjoy and contemplate the starry heavens than Andean mountains of northern Chile. But even in this astronomy mecca lights can intrude to ruin the view, and thoughtful protection is needed as the nearby towns and cities grow in size.

At the International Astronomical Union meeting, the International Dark-Sky Association announced that the site of the Association of Universities for Research in Astronomy (AURA) Observatory in the Elqui Valley of northern Chile has been recognized and designated as the first International Dark Sky Sanctuary in the world. The site will be known as the "Gabriela Mistral Dark Sky Sanctuary" after the famed Chilean poet.

"The Gabriela Mistral Dark Sky Sanctuary will serve as an example of how collaboration among governmental and non-governmental stakeholders can preserve one of the most special places on the planet", IDA Executive Director J. Scott Feierabend said.

The new IDA designation category reflects the need for special protections for the world's darkest places where nighttime conditions are exceptionally threatened. In certain cases, the public may be excluded from these sites in order to further important conservation priorities.

"Dark Sky Sanctuaries are the rarest and most fragile dark places left on the planet," IDA Dark Sky Places Program Manager John Barentine explained. "The Sanctuaries designation fills a need for the recognition and protection of examples of how the world appeared before the introduction of electric lighting."

The announcement is the first instance in which a professional observatory has received IDA recognition for its dark-skies stewardship and provides a model for many other ground-based astronomical research facilities, where the protection of dark skies is critical to their research mission and to protecting decades or even a century old investment in research. AURA has worked closely with the Chilean government, which has passed a number of outdoor lighting regulations designed to save energy and preserve the night skies in Northern Chile.

Former AURA Observatory Director Dr. Malcolm Smith pointed out the benefits the facility brings to Chile. "The Observatory night skies are a resource that belongs to all Chileans as an important part of their heritage," Smith said.

Ambassador Gabriel Rodriguez of the Chilean Ministry of Foreign Affairs added "The Chilean government has prioritized the protection of the dark skies of northern Chile through both regulation and education, but more importantly through its recognition that Chile's night skies

are a natural resource to be preserved and passed on from generation to generation."

The sanctuary site contains more than 35,000 hectares (90,000 acres) of mountainous terrain, and hosts four major research facilities: the Cerro Tololo Inter-American Observatory (CTIO, the southern branch of the U.S. National Optical Astronomy Observatory); the Gemini-South 8-m telescope; the 4-m Southern Astrophysical Research (SOAR) telescope; and the Large Synoptic Survey Telescope (LSST), which is currently under construction. The AURA Observatory also hosts many smaller astronomical, atmospheric and geological research projects on the site.

Over the past 50 years, the U.S. and international partners have invested over a billion U.S. dollars in astronomical telescopes and advanced instruments on the AURA Observatory site, facilities that are planned to be operational for at least another five decades.

Securing the integrity of natural night at one of the most famous astronomical research sites in the world requires educating nearby communities and adopting good outdoor lighting practices. AURA Observatory in Chile has committed to a long-term program preserving these dark skies through a lightning management plan coupled with extensive education and public outreach efforts. The Chilean institution responsible for the protection of the quality of the night skies, the Oficina de Protección de Calidad de los Cielos (OPCC), is also involved.

The Dark Sky Sanctuary designation is only a beginning for the region. "If our collective efforts around the Elqui Valley are successful, we will have further protections for the incredible resource of Chile's dark skies" said Dr. R. Chris Smith, director of the AURA Observatories in Chile. "Not only will this area attract further world-class professional observatories, it is becoming a world destination for eco-tourism with its incredible array of tourist-oriented observatories and night sky viewing sites."

About the IDA Dark Sky Places Program
IDA established the International Dark Sky Places conservation program in 2001 to recognize excellent stewardship of the night sky. Designations are based on stringent outdoor lighting standards and innovative community outreach. Since the program began, 10 Communities, 26 Parks, nine Reserves and one Sanctuary have received International Dark Sky designations. For more information about the International Dark Sky Places Program, visit darksky.org/night-sky-conservation/dark-sky-places.

About IDA
The International Dark Sky Association, a 501(c)(3) nonprofit organization based in Tucson, Arizona, advocates for the protection of the nighttime environment and dark night skies by educating policymakers and the public about night sky conservation and promoting environmentally responsible outdoor lighting. More information about IDA and its mission may be found at darksky.org.

About AURA
The Association of Universities for Research in Astronomy (AURA) is a consortium of universities and other non-profit institutions that operates world-class astronomical facilities. As a leader in the astronomical community, AURA advances innovative astronomical research. In addition, AURA is deeply committed to public and education outreach to students and the community at large in a manner that broadens participation throughout the astronomical scientific workforce. More information about AURA and its programs can be found at www.aura-astronomy.org, and information about AURA Observatory in Chile may be found at **www.aura-o.aura-astronomy.org**.

MOUNT RUSHMORE INTRODUCES UNIQUE LIGHTING SYSTEM

The more than two million visitors who travel to Mount Rushmore National Memorial each year will now enjoy an enhanced night time viewing experience, thanks to an innovative new lighting system with an LED light source that was recently installed at the memorial. The new system, custom designed and manufactured by Musco, will result in substantially less light pollution, while dramatically improving the lighting at the national memorial and saving energy.

The project, which began in January of 2013, brought together two iconic players—the National Park Service's Mount Rushmore, one of the most recognizable memorials and parks in the world; and Musco, a global innovator in lighting solutions for monuments, major sports arenas and stadiums, and large area facilities.

"The pinpoint nature of LED technology allows the development of precise optics for optimizing light distribution for unique applications like Mount Rushmore," said Joe Crookham, President, Musco Lighting. "We are proud to have participated in enhancing night time visibility of this historic and iconic site while exceeding the sustainability goals of the National Parks."

Lighting Mount Rushmore presented a number of challenges to the Musco team throughout the project. The system needed to be engineered to project light over 1,100 feet, while directing the light to illuminate the monument, and not the mountain below. The new system accomplished this though several key features that improve efficiency and light control, including:

- Advanced optic controls that highlight the aesthetics of the monument, while ensuring light is not spilled into the night sky and natural wildlife area
- A custom control system that allows park rangers to precisely highlight each of the four presidents depicted in the mountainside carving, creating an even more inspiring presentation
- Reducing energy consumption by 90% when compared to the previous lights

"Musco's sustainable lighting design will reduce night sky pollution, promote energy efficiency and result in an overall cost reduction. Visitors will experience new opportunities to enjoy the night sky; focused lighting will enhance habitat for nocturnal wildlife; and enrich potential for new interpretive programming," stated Mount Rushmore Superintendent Cheryl Schreier.

Karen Trevino, Chief of the Natural Sounds and Night Skies Division of the National Park Service, attended the final lighting trials, observing "Sustainable outdoor lighting is important for national parks because it combines technology, design, and practice in a way that allows parks to increase energy efficiency. The Mount Rushmore lighting project by Musco illustrates the many additional benefits that result from good lighting practices including: improved night time visibility and safety, better protection of nocturnal wildlife, and opportunities for local economic development through astronomy based tourism. For me, however, the capstone of this partnership is that the lessons we learned working with the Musco team can extend far beyond Mount Rushmore to benefit parks throughout the entire United States."

"We are thrilled with Musco's outstanding donation. The good lighting practices that have been initiated will result in energy efficiency, elimination of lighting spillover, enhanced visitor experience, and protection of cultural resources. We invite everyone to come to Mount Rushmore this holiday season and enjoy Musco Lighting's gift of light at the Shrine of Democracy," said Superintendent Schreier.

With the new lights in place, Mount Rushmore National Memorial has now joined other famed landmarks that also feature customized lighting systems by Musco, including the Washington Monument, the Statue of Liberty, the White House, and the East Span of the San Francisco Bay Bridge.

For more information on Mount Rushmore and upcoming park events, please visit **http://www.nps.gov/moru**.

QUANTUM MATERIALS ANNOUNCES QDX(TM) CLASS QUANTUM DOTS WITH HIGH HEAT, OXIDATION AND MOISTURE RESISTANCE

Quantum Materials Corp today released their QDX™ class of rugged Cadmium-free quantum dots with the highest heat, oxidation and moisture resistance available industry-wide. QDX™ Quantum Dots do not degrade under the high heats used in application to film, silicon and polymer and allow for creative LCD display and LED lighting engineering as well as lowering protective barrier film costs.

Leading North American quantum dot manufacturer Quantum Materials Corp has launched their new QDX™ class of high-stability Cadmium-free quantum dots at the Society for Information Display (SID) Display Week 2015 International Symposium in San Jose, CA. QDX™ Quantum Dot production is underway on Quantum Materials' patented continuous-flow production system and assessment quantities have already shipped to the Company's largest potential customers.

"Our QDX Quantum Dots represent a game-changing development in advancing next generation display and lighting applications," said QDX™

Quantum Dots from Quantum Materials Corp.

Quantum Materials Corp CEO Stephen Squires. "Their stability under high heat allows for more effective high temperature dispersion onto LCD display thin-film. In Solid-State Lighting, QDX Quantum Dots used in QD-LEDs will give better performance and effective life in high-heat and moisture-laden environments without degradation. We are excited to see QDX Quantum Dots unleash the engineering and design teams of our customers to facilitate advances in display and lighting applications never before possible."

QDX™ Quantum Dots have been tested to withstand heat resistance to 150 degrees centigrade for four hours with no oxidation performance degradation in an open air environment. Quantum Materials believes that QDX™ attributes and availability in commercial quantities will lead to large-scale mass-production of QD-LCD displays in the near future.

For Quantum Dot Liquid Crystal Display (QDLCD) manufacturing, QDX™ Quantum Dots reduce the need for expensive barrier films currently needed to prevent quantum dot degradation from moisture and oxygen. Custom characteristics can also be incorporated into QDX™, including large Stokes shift to reduce re-absorption loss for increased luminescence and better color purity.

QDX™ Quantum Dots are ideal for LED lighting development because they are more stable than organic phosphors and their high heat resistance enables better LED manufacturing capability, high illumination performance, long lifetime and resistance to power spike damage. Solid-state lighting made with QDX™ LED's will require less heat sinks or baffles and bring new and simpler design form factors to the lighting.

A new report from n-tech Research (formerly Nanomarkets) entitled 'Market Opportunities for Quantum Dots: 2015 to 2022' estimates the market for quantum dots (QDs) will grow from +$400 million in 2015 to $5.5 billion in 2020 and $12 billion in 2022.

Quantum Materials was cited in Sri Peruvemba's recent article for The Society for Information Display (SID) on 'Top 10 trends in display technology' and Quantum Materials executives at SID's Display Week 2015 launching QDX™ this week include CEO Stephen Squires, Chief Science Officer Dr. Ghassan Jabbour, Senior Director of Business Development for Asia/Pacific Toshi Ando, and Art Lamstein, Director of Marketing.

LIGHTING DESIGNER BRIAN BELLUOMINI ELECTED PRESIDENT OF THE ILLUMINATING ENGINEERING SOCIETY NEW YORK CITY SECTION

Brian Belluomini

Tim Milton (left), 2013-2015 IESNYC President, handing over the presidential gavel to the incoming 2015-2016 president, Brian Belluomini (right)

Effective July 1, 2015, lighting designer Brian Belluomini, IES, principal and co-founder of Shimstone Design Studio becomes president of the Illuminating Engineering Society New York City Section (IESNYC). For the past two years, Belluomini served as IESNYC's vice president and chaired the Section's Programs Committee.

Caleb McKenzie, LC, IES, IALDA, senior associate at US Lighting Consultants is the Section's new vice president; Kacie Stigliano, LC, IES, outside sales representative, Specification Lighting Sales is the Section's new secretary; and Brad Telias, IES, specification sales, Enterprise Lighting Sales, who begins his third consecutive term as Section treasurer, comprise the 2015 – 2016 executive committee.

Belluomini succeeds Tim Milton, LC, IES, LEED AP, and vice president northeast, USAI lighting who served as Section president for the past two years.

In addition, the IESNYC announces the 2015 – 2016 Board of Managers - Mike Barr (Lutron Electronics), Phil Cialdella (Light Abilities), Shaun Fillion (RAB Lighting), Monica Fuerderer (WSP Group), Lucia Granieri (WESCO Distribution), Erin Gussert (Kugler Ning Lighting Design), Peter Jacobsen (Con Edison of New York), Jordan Podwal (RAB Lighting), Dan Rogers (ICF International Design), Randy Sabedra (RS Lighting Design), and David Scheffer (Osram Sylvania-Traxon).

VIPER NETWORKS COMPLETES LED LIGHTING PILOT PROJECT IN MECCA, SAUDI ARABIA

Viper Networks, Inc., is pleased to announce that the Company (in partnership with Apollo Metro Solutions, Inc.) has recently finished a pilot project for LED Street Lights and parking lot and public park lights in Mecca, Saudi Arabia.

After recently gaining LED lighting product certification approval in municipalities throughout the Eastern Provinces of Saudi Arabia, the Company continues their pilot program successes in Western Saudi Arabia with the latest one recently completed in Mecca for a housing development contractor. Initial order estimates are at $400,000.00 U.S. Dollars, with projected cumulative orders totaling approximately $8 million next year.

Mecca is a major city in Saudi Arabia with a population of approximately 2 million people, although visitors more than triple during the pilgrimage period annually. The city is located 43 miles inland from Jeddah. Mecca is revered by Muslims worldwide, and the Grand Mosque is one of the few places in the world where Muslims of all denominations gather.

Currently the Grand Mosque is going through a $60 billion expansion that will almost double the area for pilgrims to pray. Another megaproject is Jabal Omar, a hill on the mosque's west side, where construction of about 40 towers is under way, mostly for luxury hotels providing some 11,000 rooms.

As previously announced the pilot project with 11 Universities and Colleges within the greater Jeddah area, Viper Networks and Apollo Metro

are gearing up to provide LED lighting for college campuses, student housing, parking lots and street lights. The initial order should be around $500,000 for the first project with total orders expected to be approximately $10,000,000 next year.

The Company also received and delivered an order for their Intelligent LED Roadway Lighting for a Pilot project in Lebanon from the Ministry of Interior and Municipalities of the Lebanese Republic. The expected projections from the Company are in the $18 million range for the first phase.

Additionally, the Company completed the latest pilot project with Sri Lanka's Ministry of Highways and Roads, and is waiting for the new government to finalize the budget since the Company's product(s) have been approved for installations. Initial orders should be for small projects in the range of $500,000 and later increase to several million U.S. dollars.

For more information on Wireless Street Light Control and other Smart Streetlights technology, visit the Company's products and services at **www.ViperNetworks.com** or **www.ApolloMetro.com**.

PLUS OPTO ANNOUNCES LAUNCH OF LG CHEM OLED LIGHTING RANGE

Plus Opto Ltd, The Optoelectronics Specialist, has signed the first agreement to distribute the OLED Lighting product range from market leader LG Chem in, the UK.

The range includes the world's largest commercially-available panel at 320x320mm and – an industry first – a flexible OLED panel on plastic substrate with a bend radius of 75mm.

Panels are available in 3000K and 4000K colour temperatures. A CRI of 90, efficacy of 90lm/W and lifetime - previously a concern for potential OLED users - up to 40000 hours, makes LG Chem OLED panels the ideal solution for a wide range of applications.

All items are in mass production and samples are available from stock. Also in stock at Plus Opto are DIY kits, comprising one or two 100mm panels complete with cable and connector, touch switch, power supply and a manual, allowing the user to create smart, flexible designs in minutes.

Photo Credit: LG Chem

Plus Opto's Marketing Manager Martyn Skipper commented: "For over 20 years Plus Opto has been at the forefront of optical electronics development. OLED lighting is now an affordable, accessible technology and Plus Opto is delighted again to take the lead. This is an exciting time in the fast-moving world of solid-state lighting and LG Chem has proved with its investment in R&D and largescale production that it is prepared to hold on to market leadership".

LG Chem's Marek Ramski added: "LG Chem's wide range of OLED light panels will provide the lighting designers and architects various opportunities to be unique. With OLED light panels, there is infinite possibility in design because they are ultra-thin and light, even flexible. OLEDs are very special in that you need to feel the light in order to truly appreciate them. Having a prestigious distributor as Plus Opto as a partner in the UK is a great opportunity for us."

Unlike LED, OLED lighting provides surface illumination, with high CRI, creating a pleasant light source, with no so-called "blue hazard" or UV and no need for heatsinking. Because the light is diffused across the surface, there is no need for additional diffusers or optics, reducing cost, and size of luminaire.

SØREN STORM TO HEAD UP ASIA AND PACIFIC SALES FOR GLP

Søren Storm and Udo Künzler

German Light Products (GLP) has announced the appointment of lighting industry veteran, Søren Storm, as the company's new Sales Director for Asia Pacific, based in Singapore. Søren, who has worked in the industry for the last 18 years, both for Martin Professional and Robe Lighting s. r. o., will take responsibility for sales across the entire region.

"I am looking forward very much to being a part of GLP's extremely professional team," stated Søren. "GLP has a very good reputation in the pro market due to its high quality products and service, so I am really excited by the opportunity of helping them to gain an even bigger presence in the region."

GLP managing director, Udo Künzler, added, "We are very pleased to welcome Søren to GLP. At a time when our product range is expanding so quickly, this gives us a far greater, and much needed level of support within the Asia and Pacific regions."

Søren can be contacted on **S.Storm@glp.de**.

L&E LIGHTING APPLICATION CENTRE OPENS IN YANGON, MYANMAR

Lighting & Equipment Public Company Limited (L&E), as a leader in the lighting industry in Thailand, realizes the importance of lighting design and would like to share more than 20 years of our knowledge and experience. Our market has been expanded to many neighbouring countries and Myanmar is considered one of the prior channels in this period. Therefore, L&E has established the new Lighting Application Center in Yangon in May 2015. It is located within the area of Yangon International Hotel at the corner of Ahlone Road and Pyay Road in Dagon Township. The center enables architects, students and other interested people to learn the basics of lighting design and understand how to apply lighting products effectively and efficiently.

The building of this center, designed by Archiplus Studio from Bangkok, is modern and innovative. Especially at night, the dynamic façade lighting attracts passers-by. The interior concept is inspired by museums, where sequences of routes and display are concerned. Many showcases present various different lighting applications and lighting product categories, and there is an audio visual area, a meeting room and a back office provided for L&E staff as the main cooperation center to all visitors and project customers in Myanmar.

The visitors have the opportunity to experience the following:

- Light source evolution: from the first artificial light source in history, incandescent, to the latest technology, LED
- Lighting for various conditions: wall accent lights, cove lights, lights & textures
- Basics of light planning: lighting directions, lighting beams, set-back & spacing
- Light colour: playing and understanding the RGB colour mixing
- Showcases: simulating the real lighting atmospheres for various applications such as supermarket lighting, retail lighting, façade lighting, etc.
- Product display: showing the variety of lighting fixtures for both indoor and outdoor applications

L&E Lighting Application center is the lighting knowledge hub and inquiry support for any lighting projects. L&E expects and hopes that this center in Yangon will provide an opportunity to enhance lighting design industry in Myanmar, spreading the knowledge, and persuading people to realize and get into lighting design.

STUDY BY THE NATIONAL UNIVERSITY OF SINGAPORE SHOWS POTENTIAL OF BLUE LEDS AS NOVEL CHEMICAL-FREE FOOD PRESERVATION TECHNOLOGY

Blue LEDs can kill off pathogens most effectively in cold temperatures and acidic conditions

A team of scientists from the National University of Singapore (NUS) has found that blue light emitting diodes (LEDs) have strong antibacterial effect on major foodborne pathogens, and are most effective when in cold temperatures (between 4°C and 15°C) and mildly acidic conditions of around pH 4.5.

This opens up novel possibilities of using blue LEDs as a chemical-free food preservation method. Acidic foods such as fresh-cut fruits and ready-to-eat meat can be preserved under blue LEDs in combination with chilling temperatures

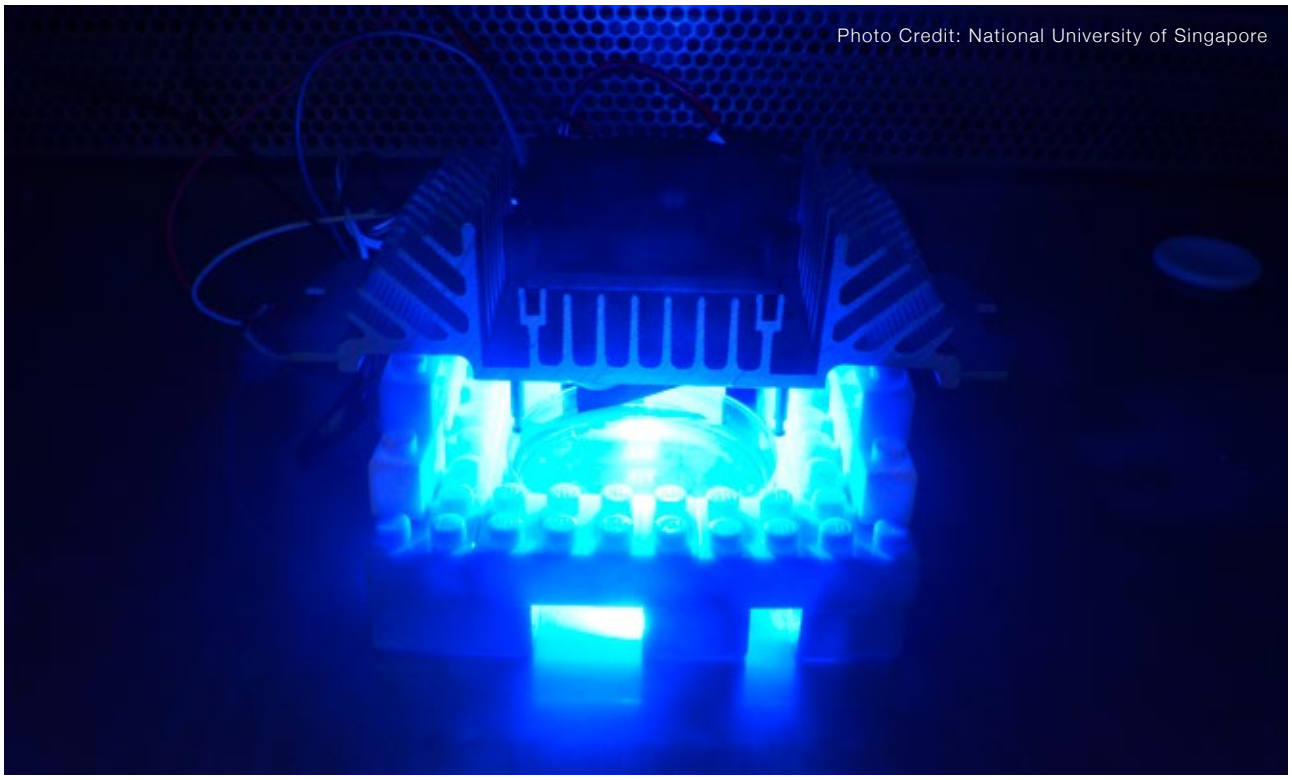


Photo Credit: National University of Singapore

without requiring further chemical treatments that are commonly needed for food preservation.

These findings were recently published in the Food Microbiology journal in June 2015.

Enhancing blue LEDs' ability to deactivate bacteria

While LEDs are most commonly known as an energy-saving light source, they have also been known to have an antibacterial effect. Bacterial cells contain light sensitive compounds that adsorb light in the visible region of the electromagnetic spectrum (400-430 nm), which is mainly blue LED light. Exposure to illumination from blue LED light can hence start off a process within the cells that ultimately causes the cells to die.

Existing studies on the antibacterial effect of LED illumination mostly evaluated its efficacy by adding photosensitisers to the food samples, or by using very close distance of less than 2 cm between the bacterial suspension and LED light source. These conditions would not be viable for application on food preservation.

The NUS team, led by Assistant Professor Yuk Hyun-Gyun, from the Food Science and Technology Programme at the NUS Faculty of Science, is the first so far to show that factors such as temperature and pH levels, which are typically related to food products, can affect the antibacterial effect of LEDs.

In this study, the team placed three major foodborne pathogens – Listeria monocytogenes, Escherichia coli O157:H7 and Salmonella Typhimurium – under blue LED illumination, and varied the pH conditions from acidic to alkaline. The team found that higher bacterial inactivation was achieved at acidic and alkaline pH conditions than when neutral. In particular, acidic conditions were more detrimental than alkaline conditions for L. monocytogenes. For E. coli O157:H7 and S. Typhimurium, alkaline conditions were most detrimental although acidic conditions were also sufficiently effective in deactivating them.

A previous study in 2013 by the same team had also looked at the effect of temperature on blue LED's ability to deactivate bacterial cells and found the antibacterial effect to be most enhanced in chilling temperatures.

Asst Prof Yuk said, "Taken together, our two studies point to a potential for preserving acidic foods in combination with chilling temperatures without chemical treatments. This could meet the increasing demand for natural or minimally-processed foods without relying on chemicals such as acidulants and artificial preservatives to preserve food products."

The team's findings can potentially be applied to food chillers or cold supply chain to preserve fresh-cut fruits, ready-to-eat seafood such as sushi and smoked salmon, as well as chilled meat products. This technology can also be useful for retail settings, spanning hawker centres, food courts to supermarkets, as well as for food suppliers.

"The next step for us is to apply this LED technology to real food samples such as fresh-cut fruits, as well as ready-to-eat or raw sea foods and meats products, to investigate whether LED illumination can effectively kill pathogenic bacteria without deterioration of food products," said Asst Prof Yuk.

Collaborating with the Agri-Food & Veterinary Authority

"Since November 2012, we have also been collaborating with the Agri-Food & Veterinary Authority (AVA) to apply this LED technology to fresh-cut vegetables to determine whether LED will help preserve or improve the nutritional quality of vegetables during storage," said Asst Prof Yuk.

As part of this three-year study, AVA has been studying the effects of LED on some key quality parameters of vegetables (e.g. vitamin C, chlorophyll and beta-carotene) to investigate if the quality of the vegetables under this LED treatment will be maintained. The results will be available once the study is complete.

"AVA hopes that the research will affirm the potential of LED as a food preservation technique that can help reduce food loss in Singapore's fresh produce industry," said Miss Khoo Gek Hoon, Director, Post-Harvest Technology Department, AVA.

VISUAL ASIA EXPO 2015

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VISUAL DESIGN IMAGING LIGHTING EFFECTS TECHNOLOGY MATERIALS EQUIPMENT APPLICATIONS PRODUCTION SERVICES

show preview

LED+Light Asia 2015

29th September – 1st October 2015
Marina Bay Sands
Singapore

LED+Light Asia 2015 to illuminate the way for the lighting industry in Singapore and the region!

LED+Light Asia 2015, the 2nd International LED + Lighting Technology show will once again illuminate the Marina Bay Sands from 29 September – 1 October 2015.

As the only trade show entirely dedicated to the LED and OLED industries in Singapore, it will feature the latest LED and lighting technologies from industry professionals. In light of this, the exhibition hopes to pave the way for the development of new business opportunities across the globe to key customers. In this presentation, LED+Light Asia will once again take on a conference-driven approach in conjunction with second run of the Singapore Architectural Lighting + Design Conference 2015.

With Singapore's strategic geographical location, it is very much poised to be the ideal platform for the lighting business in the Southeast Asian region. As such, the exhibition will be the one-stop networking hub for exhibitors and buyers to interact and conduct business dealings, with the growth of the industry in mind.

In the global lighting marketplace, the demand for LEDs used in automotives will hit US $2.5 billion by 2018. It is also expected to grow in terms of revenue at a compounded growth rate of 9%. As such, advancements in high-efficiency LED technology are boosting the demand of LED lighting in the automotive market.

The usage of LEDs are also in demand for their usage in GPSs, dashboards and other panels in a vehicle and collectively, has a market value forecasted to grow from US$71 million to US$130 million by 2018.

Closer to home, many large LED lighting manufacturers have begun penetrating and tapping the highly potential emerging markets of Southeast Asia. The burgeoning growth of the lighting market is also further propelled by many Southeast Asian countries implementing policies to phase out incandescent bulbs. As such, LED lighting is becoming increasingly competitive in the general lighting market, boosted by cost reduction and performance improvements.

To further augment the presence of LED+Light Asia 2015 and its offerings, the exhibition will also be co-located with five other established exhibitions as part of the Architecture & Building Services 2015: ArchXpo 2015, International Facility Management Expo 2015, Safety & Security Asia 2015, Fire & Disaster Asia 2015 and Work Safe Asia 2015.

Collectively, the exhibitions are projected to reach 10,000 square metres of gross exhibition space, with 250 exhibitors from 20 countries and 9,000 trade professionals and visitors from 40 countries. This marks a projected 30% increase in exhibitors and an approximate 10% increment in visitors.

As such, LED+Light 2015 will be part of the preferred sourcing platform in Singapore and the region covering the spectrum of the building industry. This would create a comprehensive avenue incorporating architecture, facility management, LED and lighting solutions, security, fire and disaster management as well as workplace safety under one roof.

LED+Light Asia 2015 will also aim to have the largest gathering of architects, builders, contractors, developers, engineers, facility managers and government agencies come through its doors during its 3-day run.

"Last year, we co-located LED+Light Asia with ArchXpo and iFAME. This year, we are even more excited to have Safety & Security Asia, Fire & Disaster Asia and Work Safe Asia in the mix. I believe that this cohesion of the sectors of the architectural and building industry will enable professionals to have deeper insights on the other sectors and would in turn empower them with knowledge to better themselves in their respective fields," said Edward Liu, PBM, Group Managing Director of Conference & Exhibition Management Services Pte Ltd, the Organiser of LED+Light Asia 2015.

LED+Light Asia 2015 is supported by the Singapore Electrical Trade Association and the Singapore Manufacturing Association. Supporting all the exhibitions are also the **11 STAS Member Associations**: Air-Conditioning and Refrigeration Association of Singapore; Micro Builders Association, Singapore; Security Systems Association of Singapore; Singapore Building Materials Suppliers Association; Singapore Electrical Contractors and Licensed Electrical Workers Association; Singapore Electrical Trade Association; Singapore Furniture Industries Council; Singapore Glass Association; Singapore Plumbing Society; Singapore Sanitary Ware Importers & Exporters Association; and The Singapore Lift & Escalator Contractors & Manufacturers Association.

Together, the repertoire of exhibitions will be geared towards providing an integrated marketing platform for Southeast Asia's architectural and building industries where trade professionals can source for the highest quality cutting-edge technologies, innovative products and related services, as well as network with like-minded professionals, key players and delegates during networking events and conferences.

For more information, visit **www.ledlightasia.com**.

show preview

Light Middle East

6th – 8th October 2015
Dubai International Convention and Exhibition Centre
Dubai, United Arab Emirates

Photo Credits: Light Middle East

Dubai, UAE: Economic diversification and the continued trend toward 'green' infrastructure investments across the Gulf Cooperation Council (GCC) is putting the region's lighting systems market on a double-digit growth path, with analysts Frost & Sullivan estimating the market will be worth US$3.5 billion by 2020.

Currently pegged at around US$2.5 billion, the GCC's lighting systems market is projected to grow at a compound annual growth rate (CAGR) of 11-12 per cent in the next 5 years, powered by high demand in the UAE, Saudi Arabia and Qatar.

Lighting consumption across the region is also being shaped by the increasing preference among governments for smart and green infrastructure solutions, which is driving demand for the latest in Light Emitting Diodes (LED) and solar lighting technologies.

The big shift toward LED comes as lighting accounts for 25 per cent of total energy consumption in the Middle East, a higher electrical usage than anywhere else in the world according to Frost & Sullivan, while in the GCC around five mega tonnes of carbon dioxide emissions can be saved annually by switching to LED.

The sustainable outlook sets the scene for another bright year at Light Middle East 2015, the region's dedicated trade show for lighting design and technology, taking place from 6-8 October at the Dubai International Convention and Exhibition Centre.

More than 350 exhibitors from 27 countries representing over 430 brands, will be vying for the attention of thousands of regional trade buyers, from architects, distributors and engineers, to government representatives and lighting designers.

"Growing investments into regional large-scale civil and commercial infrastructure projects are driving demand for contemporary and sustainable lighting solutions," said Ahmed Pauwels, CEO of Messe Frankfurt Middle East, organiser of Light Middle East.

"Countries are now diversifying into manufacturing and services sectors and more and more investments are focused on infrastructure sectors like public transport, roadways, and sea ports to improve connectivity and regional trade and commerce.

"LED and solar lighting technology will gather pace at the expense of fluorescent and conventional lighting solutions. The good news is, LED technology will once again be at the forefront of the latest solutions from the world's leading lighting manufacturers and suppliers at this year's edition of Light Middle East," added Pauwels.

Swiss manufacturer Regent Lighting is among the headline companies specialising in LED technology at Light Middle East 2015. The family-owned business with 600 employees will showcase its 100 per cent Swiss-made LED luminaires, designed for a range of applications, from offices, schools, hotels, retail outlets and supermarkets.

Alessandro Sachs, International Commercial Director and Member of the Executive Board at Regent Lighting, said: "In recent times, Middle East countries are looking more and more towards energy efficient and environmentally friendly products compatible with Green Building and LEED-certified buildings.

"These environmental aspects have been in place in Switzerland for many years, and as a Swiss company, Regent Lighting is able to contribute to this important aspect of project work in the Middle East."

Returning exhibitor ERCO from Germany is another among many companies at Light Middle East that have a strong LED component in their portfolio. The architectural lighting manufacturer switched 100 per cent to LED in 2015, a move which they say came naturally, given the shift in preference for energy-efficient technology globally.

Murray Cameron, Regional Manager Middle East at ERCO explained: "The desire for more green technology coupled with a requirement for more consultative design in lighting within projects gives rise to more clients looking for high quality and energy efficient luminaires that provide a noticeable difference to their projects.

"The strong growth of the LED lighting market in the Middle East and Africa, combined with our own strategic vision, sees us targeting a doubling of revenue by 2020."

Other major exhibitors taking part at Light Middle East 2015 with LED at the core of their product portfolios include Platinum Sponsor Cinmar, and Gold Sponsors Martin by Harman, Speclight, Huda Lighting and GLS.

Now in its 10th edition, Light Middle East 2015 will have a host of special features, including the fast-growing Future Zone, a special section dedicated to innovative products and technologies and trend-setting lighting solutions previously unseen in the region.

Other popular returning features include the Light Middle East Conference on 7-8 October, highlighting key issues impacting the regional lighting industry, while the prestigious Light Middle East Awards will celebrate the region's most outstanding lighting projects and designers.

For more information, please visit **www.lightme.net**.

show preview

PEA presents
EcoLightTech Asia 2015

19th – 21st November 2015
Queen Sirikit National Convention Centre
Bangkok, Thailand

PEA presents EcoLightTech Asia announces another grand comeback with comprehensive energy-saving innovations for the industrial sector, after 54% growth last year

The Provincial Electricity Authority or PEA, in collaboration with Thailand Convention and Exhibition Bureau or TCEB and N.C.C. Exhibition Organizer Co., Ltd. or NEO, hosted PEA presents EcoLightTech Asia 2015, international trade show for green technologies and innovations in lighting, after the phenomenal success in the previous year, particularly, in terms of trade negotiation that rose by 54 percent, generating a turnover of up to 200 million baht. This concept of the event this year is "energy-saving innovation for the industrial sector," which is expected to be another opportunity for member countries to get ready for the approaching AEC, and the international year of light.

Mr. Teerawut Watarakitpaisarn Assistant Governor (Planning and System Development), The Provincial Electricity Authority revealed that PEA is a government agency whose primary mission is to supply and distribute electricity to 74 provinces or 99.4 percent of the entire country. Over the past years, PEA has adopted technology in developing the distribution systems and services to achieve greater efficiency and modernization. The latest development of the power system called the "PEA Smart Grid" or "PEA Intelligent

Electricity Network" utilizes information technology systems to assist in managing, controlling, and distributing the electricity supply. We also expand our support system to embrace alternative clean energy sources, the use of electric cars, and the electricity use management through smart meters.

Other than the electricity system, PEA has put great emphasis on energy efficiency coupled with the promotion of energy efficiency in all sectors, while encouraging researches for standardization in electrical equipment and energy-efficient buildings.

As the host of the "PEA presents EcoLightTech Asia 2015," PEA has considered this an opportunity to reinforce our position and commitment to developing industrial enterprises. Because industry plays a significant role in driving economic growth and is the foundation of social development and environmental sustainability, as well as to the development stage of the lighting industry, innovative power saving plans for entrepreneurs are of great importance in order to make business operators stay competitive and ready for challenges that the ASEAN Economic Community is going to bring.

Ms. Jaruwan Suwannasat, Exhibitions and Events Department Director of Thailand Convention and Exhibition Bureau said that this year, TCEB launched the ASEAN Rising Trade Show campaign or ART, underlining the theme, 'Think Big, Go Beyond', with the aim to strengthen the country's position as the leading exhibition platform for ASEAN. In addition, TCEB commits to facilitate the improvement of Thailand's international exhibitions to be a key national economic driver.

In 2015, TCEB strives to drive the Thai exhibition industry forward, with the aim to strengthen Thailand's leadership position as exhibition platform of the ASEAN region, through three key strategies -- upgrading the Thai exhibition industry, providing financial support for international marketing activities; and expanding ASEAN Mice Collaboration network to capture new markets beyond the AEC.

In upgrading the Thai exhibition industry to compete in the regional arena, TCEB initiated the ASEAN Rising Trade Show (ART) with the aim to support the industry in sustaining a 3-year strategic plan in raising the profile of the country as the key exhibition platform of the AEC. PEA Presents EcolightTech Asia 2015 is the one of shortlisted international exhibitions under ASEAN Industry Trade Shows campaign.

With the new 2015 initiatives to bolster the Thai exhibition industry, TCEB expects to attract over 190,400 international exhibitions in Thailand, generating revenue of Bt 17,000 million. More broadly, for the overall MICE industry, TCEB targets international MICE travellers to Thailand in 2015 will reach 1,036,300, earning to the Thai economy over Bt 106,780 million.

Mr. Suhbpong Smithtun, Project Director of N.C.C. Exhibition Organizer said that PEA presents EcoLightTech

Asia 2015 is the 3rd edition of the international tradeshow for green technologies and innovations in lighting. The last edition achieved the record breaking of visitors both domestic and international with more than 5,000 visitors. Also received the great feedback from our fellow exhibitors such as Netherland, Japan, China, South Korea, United Emirates, France and Thailand so we were able to complete our floor, spreading over 3,000 sq.m. These successful stories resulted in the turnover of up to 200 million baht. "EcoLightTech Asia" has strengthened its place among the group of the ASEAN's 3 international trade shows for lighting industry and the only ASEAN hub of lighting technologies and innovation for entrepreneurs.

In 2015, PEA presents EcoLightTech Asia 2015 will be held under the theme of 'energy-saving innovations and technologies for entrepreneurs. The concept arises from the needs of industrial entrepreneurs who want to save energy during different parts of their operations, which will lower production costs. The major energy cost comes from the energy used in lighting, air conditioning, refrigerating, and in electrical appliances. Therefore, to be in line with international guidelines declared by UN to designate the year 2015 to be the International Year of Light and Light-Based Technologies, we would like to help urge the international community to recognize the importance of lighting technologies for the current and future livelihood, and the conservation of environment and the Earth.

Therefore, the "PEA presents EcoLightTech Asia 2015" will be held in conjunction with "C-Tech 2015," premier cooling technology tradeshow and "SolarTech 2015," Solar powered technology tradeshow." These joint exhibitions will provide a platform for leading operators around the world to present their products, services and consultant regarding the energy-saving innovation for the industrial sector. It will also encompass top innovations and technologies in energy conservation that meet entrepreneurs' needs to prepare for the integration under the name of ASEAN Economic Community.

"PEA presents EcoLightTech Asia 2015" will be held together with "C-Tech 2015" and "SolarTech 2015" during 19-21 November 2015 at 10.00-18.00 at the Queen Sirikit National Convention Center, Bangkok Thailand.

PEA presents EcoLightTech Asia 2015 International Press Tour

The Thailand Convention and Exhibition Bureau (TCEB) and N. C. C. EXHIBITION ORGANIZER CO., LTD (NEO) together with the Provincial Electricity Authority (PEA) of Thailand organizes EcoLightTech Asia, an international trade show for green technologies and innovations in lighting. In its third year, EcoLightTech Asia 2015 will be held on 19-21 November 2015 at Queen Sirikit National Convention Centre in Bangkok, Thailand. PEA presents EcoLightTech Asia 2015 invited international members of the press to Bangkok for an insight on the lighting industry in Thailand. The global lighting market has steadily been on the rise and it is no different here in Southeast Asia. In Thailand, market trends for LED components and products show that there is a huge potential for growth.

Besides local media channels, international press representatives from China, Malaysia, Singapore, South Korea and Taiwan were invited for a tour of two factories that promote and advocate good lighting products and will be participating in EcoLightTech Asia 2015 this November.

TP HALO

TP Halo is a joint venture started by a Thai LED manufacturer and a Taiwanese LED technology company and the company claims to be the first LED package manufacturer in Thailand, manufacturing LED chips for indoor and outdoor uses in the OEM and ODM markets. Having invested more than 200 million Thai baht in

the Thai market since 2006, they have an existing range of LED chips that include 2835, 3528, 5050, 1206, 0805 and 0603 LEDs and they are focused on both the domestic and ASEAN market regions. TP Halo makes use of their technology for a wide range of applications such as tube lights, streetlights and even functional products like an LED light that repels mosquitoes.

Eve Lighting

EVE Lighting was founded in 2008 and is a privately owned company, which boasts having the largest lighting portfolio in Thailand, with more plans to kick off LED street lights, LED panel lights, LED tubes, LED A60 and LED DOB soltuions. Moving forward from being a luminaire distributor to a manufacturer, their LED products meet the international quality, safety and environmental standards and they started exporting globally to seven countries in 2015. Currently, they are exploring the DOB (Driver-on-Board) technology which will enable products to reduce cost price and to make the installation process easier. With the emergence of the ASEAN Harmonized Electrical & Electronic Equipment Regulatory Regime (AHEEERR), a manufacturing standard that is regulated across the ASEAN countries, there is much room for opportunities in this region.

For more information about PEA presents EcoLightTech Asia 2015, please visit **www.ecolight-tech.com** or call +662 203 4261-62.

Moses Chang, Marketing Manger &
Howard Huang, Managing Director of TP LED Lighting

Mr Komkrit Mekiyanon, Board Management of EVE Lighting Co., Ltd.

show review

Guangzhou International Lighting Exhibition

9th –12th June 2015
China Import and Export Fair Complex
Guangzhou, China

Photo Credits: Guangzhou International Lighting Exhibition

Guangzhou International Lighting Exhibition 2015 ends on a bright note

Close industry cooperation delivers inspirational programmes for 20th anniversary

Fair remains true to mission: promote global dialogue and explore the future of lighting

Appropriately themed "Envision the future of lights" after its mission, the 20th edition of the Guangzhou International Lighting Exhibition had participants sharing inspirational ideas and innovative technologies. Dialogue of this nature is essential in shaping the future of the lighting industry. Held from 9 – 12 June 2015, the fair spanned across 21 halls and occupied 225,000 sqm. The show closed with a 4.7% increase in visitor figures from the previous year, totalling 135,990 professional visitors (2014:129,885) from 131 countries and regions including over 5500 domestic and overseas delegates. These numbers were duly matched by a record-breaking 2,698 exhibitors (2014: 2,621) representing 27 countries and regions.

Commenting on the success of this year, Ms Lucia Wong, Deputy General Manager of Messe Frankfurt (Shanghai) Co Ltd, noted: "The exhibition floor was buzzing throughout the four-day event. I am impressed with

the depth, breadth and diversity of the content of the fair. The exhibition booths were brightly illuminated by products as well as application staging in places such as fashion shops, homes, factories, offices, schools and museums. It was evident that the quality of lights and a human-centric design approach were being stressed. I would like to express my heartfelt thanks to the worldwide lighting community for their support in staging such an extensive mix of lighting applications at our 2015 fair. This reinforces our commitment to playing a leading role in the lighting industry by creating a global platform for lighting technologies."

Among the innovative products present at the 2015 edition were:

- Chip-scale packaging (CSP) technology significantly scales down the size of LED packages, enabling more flexible and compact designs of LED modules or fixtures. CSP also lowers manufacturing and operational costs of LED lighting systems.
- UV/IR LED-related applications cover LED chips, die packages and other products. Displays included UV packages with different wavelengths that can disinfect, printer dryers, money verifiers, and nail curing and tanning machines. Also exhibited were outdoor UV/IR radiation-free, lead-free and mercury-free LED modules that are highly reliable and durable, and ideal for outdoor lighting applications.
- Chip-on-board (COB) products focused on light quality and colour rendering.
- Cloud-based smart lighting for the smart home was the centre of many discussions. On display were unique control systems with user interfaces, such as a panel that utilised motion and gesture controls.

Visitors were impressed by the number of exquisite brands present, as well as by the diversity of products and technologies on display. The wide range of lighting applications and solutions on offer gave attendees an opportunity to source the right products and technologies for all areas of their businesses. Fifth time visitor, Mr Daniel Bazz, Director at Ecoguard of Uruguay, stated: "My aim was to find LED products and fluorescent lamps. This trip has been very successful because I have already purchased more than 100 kinds of products and have arranged some factory visits to explore more business opportunities with suppliers."

Close industry cooperation delivers inspirational programmes for 20th anniversary

This year marked an important milestone for the Guangzhou International Lighting Exhibition – its 20th anniversary. Together with the continuously evolving lighting community, the fair witnessed the vast transformation of the industry, from conventional lighting to solid state, energy efficient and intelligent lighting over the past two decades. To celebrate this special occasion with the industry, the organiser launched a series of interactive programmmes that engage lighting experts, allowing them to inspire and be inspired by innovative ideas regarding the future of lighting.

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

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

<u>"Talk-series" programmes</u>
These programmes, including "Design Talk", "CEO Talk" and "Light Talk", attracted more than 1,500 attendees such as designers, CEOs, and industry associations. These industry players shared their visions and ideas for the future of lighting from different perspectives. Topics discussed were "Smart Lighting", "Human-centric Lighting", "Quality of Lights" and "Sustainability".

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

"Hosted buyer networking" programme
This programme was designed to give exhibitors and visitors a chance to maximise networking and carry in-depth business discussions. Over 150 exhibitors and visitors were successfully matched according to their business interests. Mr Miguel Perez Fernandez, visitor and Manager at Mode on Tecno SL of Spain, expressed: "My goal was to source LED modules and electrical components. I was able to network with over 200 exhibitors. Regarding the business matching services at the show, they have helped connect me with suppliers I originally missed. Overall, the show was great and I will most definitely be back again next year."

The future of lighting also sees increasing demand for intelligent products which provide more comfortable living standards and satisfy energy-efficient goals. It is no surprise that this is one of the major driving forces behind China's economy.

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

Sharing the same sentiment regarding the visitor quality was Mr Sebastian Steuer, Managing Director at Alanod GmbH and Co KG of Germany. He commented: "The fair is one of the largest and most reputable lighting shows in the world. We are not focused on visitor quantity but rather visitor quality and it was excellent this year."

Fair remains true to mission: promote global dialogue and explore the future of lighting

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

Designers:
Mr Chou Lien, Partner,
Bardston Partnership Inc
"In the future, we should stress the non-visual biological effects of lights. Healthy lights will become one of the main themes of lighting design. On the other hand, macro scale urban lighting will no longer be widely adopted with growing lighting knowledge. Self-controls to customise comfort levels according to users' preferences will become the advanced target of micro-design."

Mr Charles G Stone II, President,
FIALD, IESNA, LC, LEED AP BD+C
"I envision a future filled with light. We will work, learn, play and heal in spaces that are filled with beautiful, appropriate and sustainable lighting. Lighting for tasks, for decoration and for our lives will be perfectly conceived and integrated."

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

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

Mr Zhongwei Yu, Product Director, Macroblock Inc
"The popularity of smart phones and the unlimited capacity of the Internet to develop will facilitate trends in which all home-electrical devices can synchronise in one place."

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

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

In addition to the aforementioned fairs, Messe Frankfurt also offers a series of light and building technology events worldwide, including Shanghai Intelligent Building Technology, Shanghai Smart Home Technology and Shanghai International Lighting Fair in China, BIEL Light + Building in Argentina, Light Middle East in the United Arab Emirates, Interlight Moscow powered by Light + Building in Russia, Light India, as well as LED Expo New Delhi and LED Expo Mumbai in India.

The next edition of Guangzhou International Lighting Exhibition is scheduled to take place from 9 – 12 June 2016 at the China Import and Export Fair Complex in Guangzhou.

To find out more information about the show, please visit **www.light.messefrankfurt.com.cn** or email **light@china.messefrankfurt.com**.

For additional information on Light + Building events worldwide, please visit **www.light-building.com/worldwide**.

GILE 2015

PRODUCT SPOTLIGHT

RGB LED Bulb

By Adata
www.adatalighting.com

With ADATA's free downloadable app, users can configure ADATA's AURA RGB bulb to display over 16 million different colors and link groups of up to 64 different bulbs via Bluetooth 4.0 Mesh technology. The AURA RGB bulb gives home and small business owners millions of selectable colors while being able to adjust warmth and brightness over a distance of nearly 2000 meters! Easily use a smartphone or tablet to control AURA LED RGB bulbs without needing to buy an expensive bridge or router (as with other RGB bulb providers). The same app can also wirelessly control RGB strips, panels, and downlights.

PLCC 2835 HE & 5630B HE Series

By Edison Opto Corporation
www.edison-opto.com

PLCC 2835 HE Series features ultra high luminous efficacy (181 lm/W @4000K) and compact package size which increase the flexibility in lamp design and expand the range of applications. With the outperforming efficiency, PLCC 2835 HE Series is optimized to be used in high-end LED market such as boutique and luxury apparel store.

In addition, for 5630 package product, Edison Opto introduces the advanced PLCC 5630B HE Series which has higher efficiency (188 lm/W @4000K) and greater brightness (it reaches 34 lm @65mA, 4000K) than the previous products, providing customers with a better and brighter lighting environment. The slim size of PLCC 5630B HE series makes it flexible to be used in a variety of applications such as commercial lighting, residential lighting and hospitality lighting.

GILE 2015

PRODUCT SPOTLIGHT

LIFUD AC100-277V Linear Aluminum Casing 15W-65W LED Drivers

By Shenzhen Ledfriend Optoelectronics Co., Ltd.
www.lifud.com

LIFUD recently launched its linear aluminum casing LED drivers LF-GMxxxxYx series into the market, with a typical version, low flicker version, and resistor, PWM and 1-10V three-in-one dimmable versions. The low-profile casing feature enables the LED drivers to be very suitable for linear luminaire applications including tri-proof lights, grid lights, tube lights.

The output power ranges from 15W-65W and there are three different lengths of aluminum casings for different output power LED drivers. The lifetime is 25,000 hours when ambient temperatures are under 50 degree Celsius and the lifetime doubles when the ambient temperature can be dropped by 10 degree Celsius.

Lastly, products from the LF-GMxxxxYx series are compatible for application in both class 1 LED luminaires and class 2 LED luminaires. This low profile (30x21mm) LF-GMxxxxYx series' AC input voltage is AC100-277V, and the TUV, CE, CB, RCM, UL and FCC certifications enable its wide application for the global market.

GY550GGXXX/AC LED High-Mast Luminaire

By Shanxi Guangyu LED Lighting Co.,Ltd.
www.gyledlighting.com

The new high mast luminaire is designed to offer the most energy efficient and reliable lighting by modern materials, components and technical innovation. This LED solution can be used in all fixture replacement situations and is designed to retrofit almost any high mast fixture using custom fabricated plates for easy plug and play installation. The markets served include parking lots, roadways, truck and bus terminals, rail-yards, ship docks, airports, prisons and other industrial and commercial applications.

High Power: 250w to 450w
Input Voltage: AC 90 to 305v(50/60Hz)
Luminous Flux: 23,000lm to 41,000lm with LEDs of CITIZEN brand
Correlated Color Temperature: 4000k, 5000K
Color Rendering Index: Ra>80/ Ra>65
Ingress Protection: IP66 for indoor and outdoor use
Weight: 21.00kgs
Mounting height: 30meters
Performance Test: Complying with LM-80 and LM79 test conducted by UL Lab (US)
Warranty Period: 5 Years

GILE 2015

PRODUCT SPOTLIGHT

LE2835-SCR AC LED Module

By HONGLITRONIC
www.honglitronic.com

LE2835-SCR is a new direct AC LED module, which is 30% to 100% dimmable. With a linear drive + HV/LEDS solution, simplified on-board power supply, compact design and flexible lamp structure, it is easy to assemble and there is no worry about power driver placement.

- Power: 12W, VF(V): 220VAC
- Ra≥80, Size: Φ70*6.5mm
- Efficacy: 90 lm/w(3000k), 105 lm/w(5700k)
- Applications: Bulb, Downlight

StarLiteLED Low Bay Luminaire

By Matsushima Lighting (HK) Co., Ltd
www.whylux.com

StarLiteLED Low Bay is famous for their differentiated outlook designs, unique heat dissipation methodology and its excellence in lighting efficiency. With NICHIA LED and optional Meanwell driver, this high stability LED Luminaire is engineered to be the ideal fixture for your environment. This series can be applied in industrial and logistic facilities, warehouses, supermarkets, workshops, bus stations, bus terminals and so on. StarLiteLED Low Bay series has a number of product specifications, working wattage from 80-150W respectively and can perfectly replace MH or HPI/HID/HPS lighting fixtures. This series has two distinctive lens reflection angles (40˚ and 100˚) and hence the produce can have the highest form of lighting efficiency at different heights.

GILE 2015

PRODUCT SPOTLIGHT

IR EMC3535

By Shenzhen Refond Optoelectronics Co.,Ltd
www.refond.com

The IR EMC3535 has an outstanding product performance with higher light intensity and better light intensity maintenance, as well as a lower thermal resistance. The Refond team gets excellent quality control ability form near 15 years of experience in LED packaging. They are the first to launch the EMC(RE35) molding series, ceramic (RC35) molding series and small angle RW16 series infrared LEDs.

Available are half intensity angles of ±60°, ±45°, ±30°, ±15° for a wide range of applications such as security monitoring, intelligent home furnishing, infrared projectors, auto sensing, iris recognition, gesture recognition, medical equipment, equipment safety systems (such as CCB cameras, infrared cameras, monitoring systems and machine vision systems).

StrongLED ODL – 10 Beam Angle LED Projection Floodlight

By Grand Canyon LED Lighting Systems (Suzhou) Co.,Ltd.
www.strongled.com

This is the latest range of high performance high power LED projector floodlights for architectural, accent and media light projection applications, which can achieve at least 35 lux over a 4m2 area at a distance of 100m. Brightness level of 256 and 1024 contrast level control are for smooth and consistent brightness and color changes. Made with a precision die cast aluminum body with high thermal dissipation and hardened clear glass diffuser, the floodlight has a rotatable mounting base with 900 tilt adjustment for easy installation and flexible light projection settings. It also has a direct constant current or DC 24V (built-in constant current driver), DMX pixel level control and is IP66 rated.

Media Architecture LED Display Wall - The Big Picture

By China Academy of Fine Art (CAFA) / Media Architecture Institute (MAI)

Media Wall Design: China Academy of Fine Art (CAFA) School of Architecture
Media Wall Manufacturer: StrongLED – Grand Canyon LED Lighting System (Suzhou) Co.Ltd.
Article Acknowledgement:
Adaptation in English from the article written by
Prof. Chang Zhigang, Vice Dean of School of Architecture, CAFA,
Mr Jun Ye, CAFA School of Architecture,
James Chang, StrongLED Chairman (July 2015)

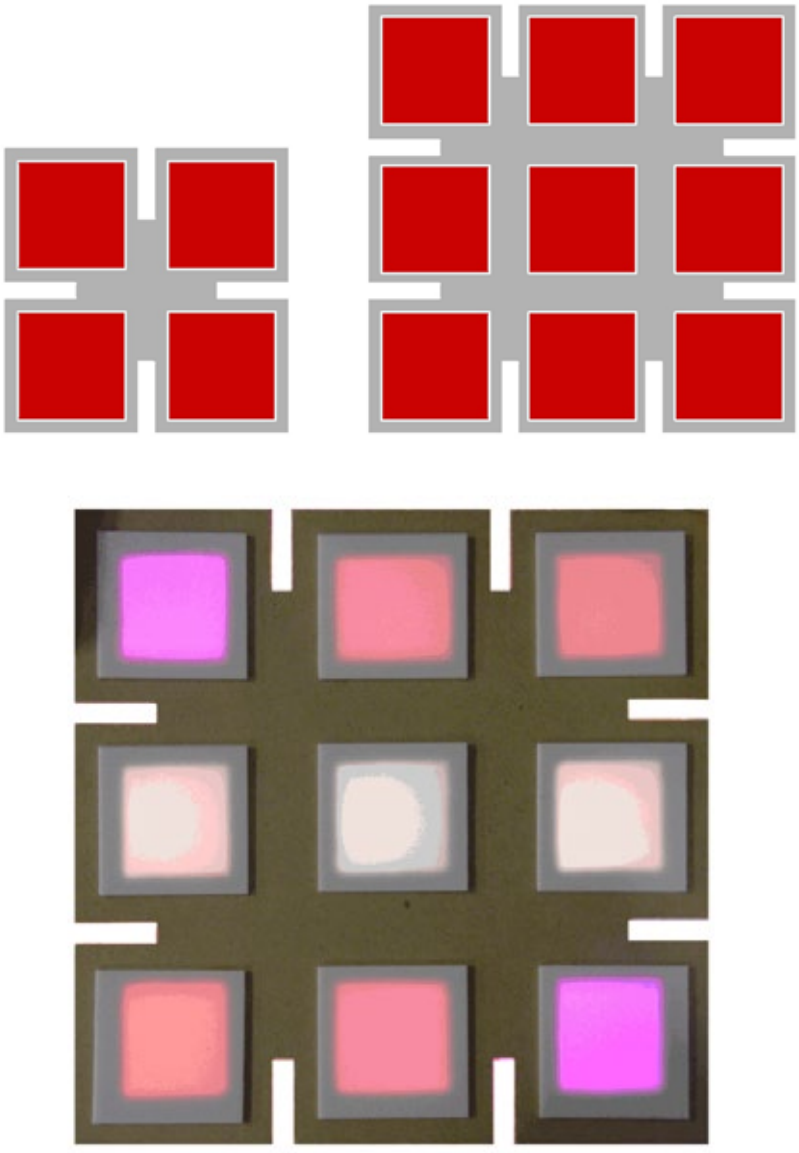
Media architecture LED video display at CAFA/MAI Media Architecture Summit & Exhibition, Beijing (April 2015)

Mr. James Chang, Chairman of
STRONGLED LIGHTING SYSTEM GROUP

Media Architecture has only emerged to the world less than 20 years ago, but it is developing very rapidly in recent years, especially in China, where it has become a powerful force that is leading to the transformation of urban landscape as well as the changes in people's minds. The development of Media Architecture is causing changes in the industry chain as well as changes in the decision making process of building design, thus fostering the birth of new industries. Bringing up entirely genuine challenges and opportunities, Media Architecture is an important trend in 21st century architecture and urban development.

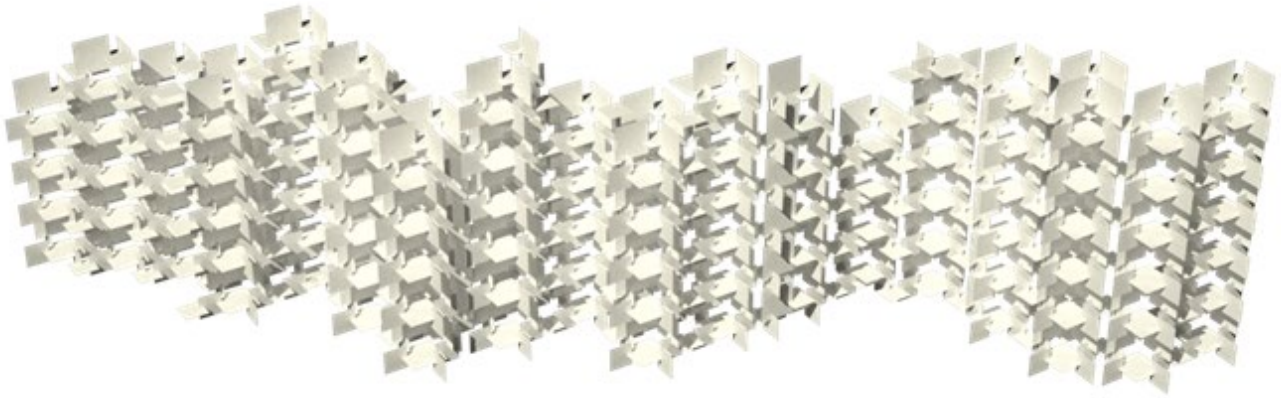
Media Architecture grows at the intersection of physical and digital space; it is also the combination of art and technology, a fusion of architecture, communication, public art, urban science, sociology, economics, as well as LED technology, internet technology, interactive technology, intelligent control, computer science and other fields and disciplines. Because of this multi-disciplinary requirement, media architecture brings up entirely genuine challenges and opportunities.

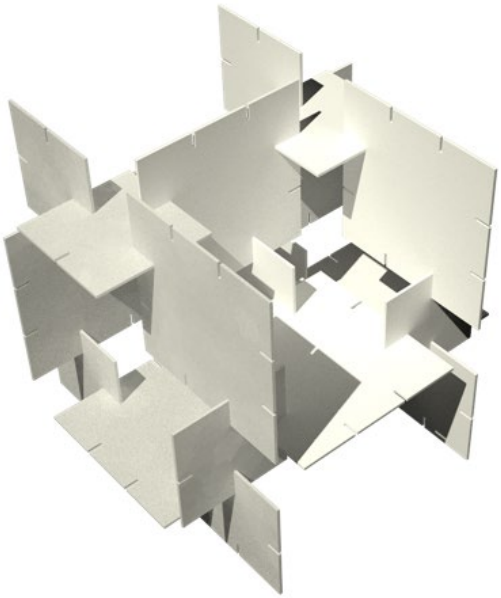
This media architecture video display was exhibited at the first international Grand Summit in the field of Media Architecture in Mainland China. It was jointly organized by the China Central Academy of Fine Arts (CAFA), Media Architecture Institute (MAI) and the China Solid State Lighting Alliance (CSA). The development of the Media Architecture LED video display by students at CAFA School of Architecture illustrates how these challenges are met.



Pixel unit and cell

Cell element and the combined structure



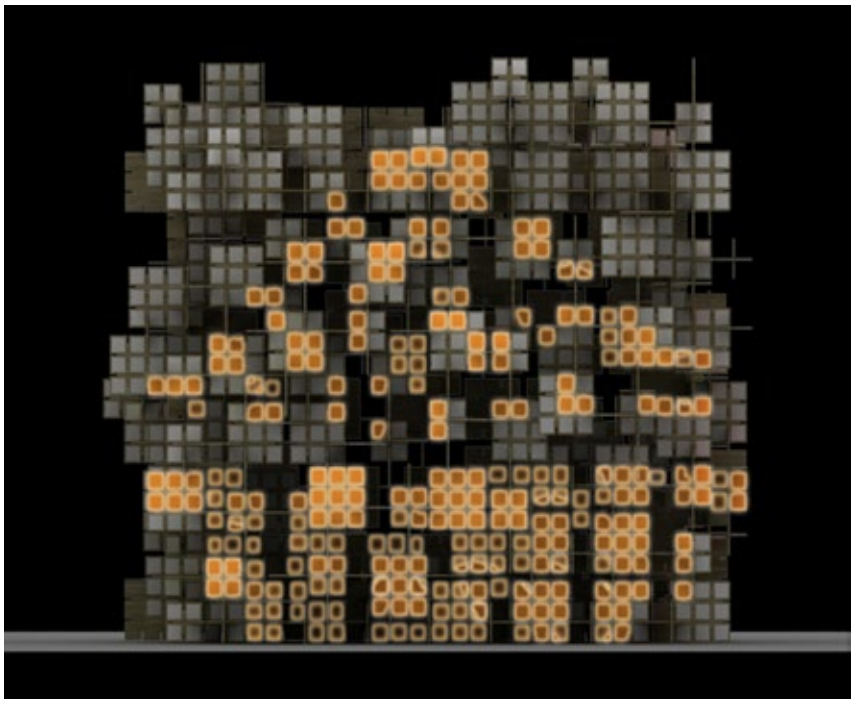


At CAFA/MAI work camp for School of Architecture graduate students, CAFA lecturers and visiting professors from MAI guided them through four development stages.

In the first stage, students need to design their own individual pixel unit. This design can be used in any form – it could be done by computer modelling, hand-built or graphic drawing with three-dimensional sculpturing. Its material can be acrylic, cardboard, concrete, yarn or recycled waste or it can be a single material or composite. It can be a solid and can also be hollow, as long as it can express the intent without restrictions. The only requirement is that the unit cell is limited to 20 cm x 20 cm x 20 cm cubic space. Whatever form the pixel element is during the design process, combination arrangement and the light source placement needs to be considered. After the end of this stage, teachers will identify which five "pixels" can enter the second stage of the design.

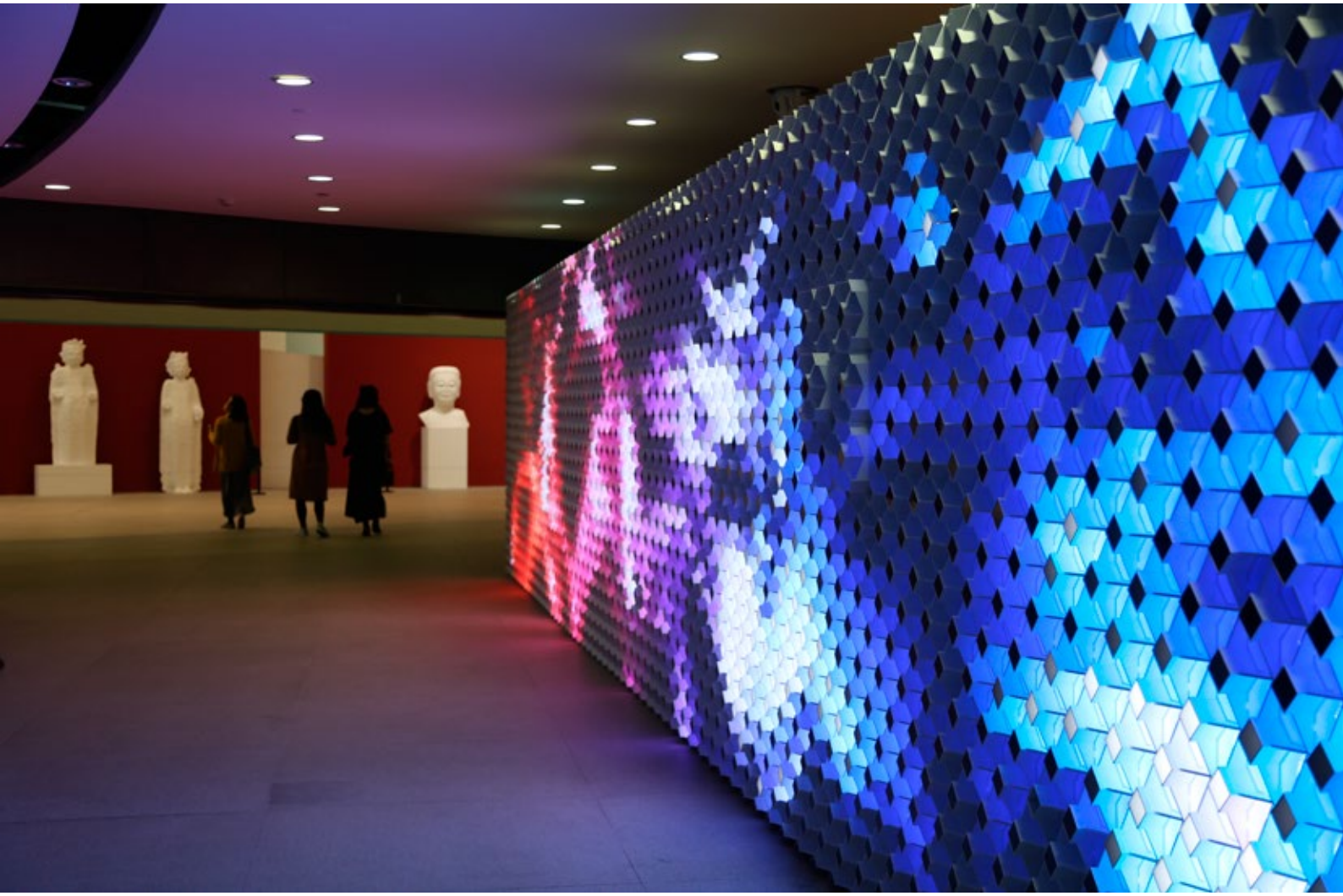
During the second phase, 40 graduate students were divided into five groups in which each small group evaluated the materials, technology, structure, production conditions limit and make adjustments to improve and finalize the “pixel".

Scaled modeling



In the third stage, each person was an individual unit, based on their own group established "pixel" combination to form the wall structure schema, wall shape layout and made the corresponding model. At this stage, they needed to consider the resolution size, consider the site context, and so on.

The fourth stage required the groups to show what media content is on the "wall" and devise a way to express the concept by hand or computer modelling. Before this stage, they had completed the design of the hardware that relates to the architecture.



The next task was to make use of sensors and relevant knowledge and theory to design the media content and interactive mechanism.

At this stage, the considerations should be:
1. What types of digital content (such as artistic vs informational) would be most effective? What type of digital information for the display wall?

2. The density of the pixels (resolution) and how this affects the type of displayed content

3. Where the display is to be installed and the need to consider the “before” and “after” on the environmental limits. For example, when people pass the display screen, from how far can they see it clearly? As well as sensor reaction mechanism design.

4. Depending on the above content, how can people interact with the screen at the same time? How many people can interact at the same time? How will the interaction mechanism contention be resolved?
After solving all these problems, finally outstanding works will be selected and the making of the full scale display begins.

This course overturned the graduate students’ curriculum pattern and the usual design mode with the students’ incremental step-by-step design, feelings and participation in the project with good ideas in the process of embryonic development and how to break through inertial thinking under the teachers’ guidance. Architecture is no longer a "container", but is also the carrier of information. The designer of the media facade carries the interaction of people and information dissemination function by choosing the information content, interaction and transmission.This also means that the designer will play an increasingly important social role.

Media Display Design Analysis:
1. Pixel design: Adopting a “telescope” modular structure; the display wall forms a visually complex structural change effect. It is scalable in standard format or forming geometrical complex shape displays to fit façade requirement.

2. The overall design of the media wall uses the latest dual-screen design, structural design by pixel units, forming two different light effects – a nested structure of monochromatic color rectangles and hexagons, with the effect of the combination of two screens.

3. The structure has a mixed light design using light-mixing plates for a mixed high and low light interface. Between each adjacent pixel element, slant spacers with different viewing angles form complex light slices; resulting in unusual special light effects.

4. The LED light source driving system was crucial; using the international standard DMX512 control system that can produce 16 million (256 × 256 × 256) colors.

5. Use of industry standard Video Interface (DVI) that allows connection of the most advanced media server system with real-time animated graphics effects editor, interactive control and mobile APP interactive control.

Golden Waters

Arizona, USA

Media: **Leds, Diffusive And Reflective Material, Custom Lighting Sequence, Electrical Hardware**
Dimensions: **40 ft x 135 ft x 18 ft**
Location: **Soleri Bridge, Canal Waterfront Project Scottsdale, AZ**
Credits: **Courtesy of the Scottsdale Public Art and Grimanesa Amorós**
Sponsors: **Scottsdale Public Art and Scottsdale Cultural Council**

Golden Waters, a termporary light installation by artist Grimanesa Amorós that extended from the famous Soleri Bridge, was on view from June to 30 September 2015. Scottsdale Public art, a leader of defining art in the public realm, was the sponsor of the installation.

Inspired by and reflecting the natural elegance of the Arizona canal, a nearly fifty mile long body of water that runs through Scottsdale, Golden Waters was mounted on a secure structure attached to the bridge, designed by artist, architect and philosopher Paolo Soleri. The hovering light sculpture extended parallel to the canal channel eighty feet west of the bridge. Golden Waters' LED tubing system appeared to rise from the canal waters below, celebrating the union of light and water.

The vertical and horizontal lines of the installation served as a metaphor for the dynamic balance between urban and natural forces that can be experienced simultaneously. Golden Waters hoped to engage viewers by emphasizing a unique perspective on nature and landscape.

“The ancient Hohokam Indians, located in northern Arizona, as early as 300 AD, were one of the first cultures to rely on irrigation canals. The communities environmental engineering improved access to river water and helped improve the lives of the inhabitants.

Evolving from these ideas and Inspired by the natural Arizona’s canals, GOLDEN WATERS, is a large-scale temporary light-based installation. This project is mounted on the secure structures of The Soleri Bridge, located just southwest of the intersection of Scottsdale and Camelback Roads.

I was also interested of how our bodies react and are defined towards a relationship to any given environmental condition. As a result, one can feel the presence of the water and nature just by standing next to it. The piece will seemingly rise from the canal waters, as they are one with the existent canal.

The vertical and horizontal lines on the structure aim to express a metaphor that the dynamic balance between urban and natural forces can be experienced simultaneously. The viewers will be drawn to the work and will see the emphasis the piece has on its perspective of nature and landscape.”

- Grimanesa Amorós

Lighting Design for Hotels

By *Sudrak Prichanond*

Lighting Design and Solutions:
Lighting & Equipment Public Company Limited (L&E)

Reference Projects:
Hilton Nay Pyi Taw, Myanmar
Umbra Bagan Resort, Myanmar
Novotel Yangon, Myanmar

Lighting has a strong effect on people and spaces. It has the ability to define space and create various atmospheres which influence people's moods. In hotel projects, lighting design is important as they help to create images of the hotel – how luxurious, modern or artistic, or help to reveal the aesthetics and conceal any defects of construction. Lighting can also create user experiences and can lead people from one place to another from the guidance of circulation routes. Public lobbies should be designed with brighter or more accentuating details than private guest rooms, where brightness needs to be controlled properly to create calm and relaxing moods.

Umbra Bagan Resort

Hilton Nay Pyi Taw

As a five-star hotel, the Hilton Nay Pyi Taw is seriously concerned about the brightness and glare control. Rather than the ordinary direct lighting, they prefer optimal brightness and comfortable indirect light such that the light source is invisible. Hilton's requirements also include the quality of luminaire with special optics and accessories to achieve the most comfort.

Hilton Nay Pyi Taw

Umbra Bagan Resort is a boutique hotel in a historical site. The combination of coloured and warm white light is brought into the atmosphere to create more charming and interesting moods. Warm white light is used for highlighting the main architectural elements such as the hotel building and pagoda, where coloured light is used for the surrounding elements like the swimming pool and trees. Light colours are controlled such that they can be smoothly and slowly changed from time to time so the occupants would not obviously notice these changes. Lighting designers have selected several light colours which are relevant to the colours of nature, e.g. colours of the sky at different periods of time from dusk to dawn, to make lighting scenes which are harmonious with the surroundings.

Umbra Bagan Resort

The appearance of luminaire is another important concern. Lighting in ballroom and junior ballrooms at Novotel Yangon are designed by merging the lighting layout with air-con grill striped patterns on their ceiling. As a result, downlights with customized trim size were requested in order to have the perfect width as air-con grills. Moreover, the colour of luminaires should follow the concept design to blend or contrast with the architecture. Therefore, hotel lighting designers usually request for customized luminaires from the manufacturers.

Another inevitable design concern for hotel projects would be the energy-saving issue. In this day, LED light sources are the most popular choice and may soon become the standard for most lighting needs due to its great advantages. It produces a high lumen output with very low power consumption, together with a long lifespan and continually decreasing prices. LED is going to play an important role in hotel designing instead of conventional lamps. Compared to conventional lamps, LEDs are developed to have the compatible lighting effects and are dimmable. Lamp colours are also varied and include warm white (2700-3000K), cool white (4000K), day light (5000-6500K) and even tunable white (2700-6500K), RGB and RGBW, many of which can be controlled. With these reasons, 80% of lighting fixtures in the hotel projects as mentioned are LED products.

Dimming control systems are another energy-saving tools and are flexible enough to use in hotels. Leading edge, trailing edge or signal dimmer controllers are chosen to be compatible to each light source. Both the Hilton Nay Pyi Taw and Novotel Yangon provide dimming control systems for their significant rooms, e.g., banquet halls, conference rooms and executive suites, and several lighting scenes have been designed for various applications.

Hotels are places where guests' expectations and perceptions are about the services, facilities, atmosphere and aesthetics. On the other hand, hotel operators want to get the optimal operating and maintenance costs – and lighting design helps to meet the satisfaction levels of both guests and operators, where design and functionality is concerned.

Novotel Yangon

Novotel Yangon

About L&E

L&E is a lighting equipment manufacturer and lighting solution provider based in Bangkok, Thailand. We have been a specialist in lighting and involved in many prominent projects in Thailand and Asian countries for more than 20 years.

In May 2015, L&E recently opened the new Lighting Application Center in Yangon, Myanmar. There are showcases which simulate the real lighting atmospheres for various applications such as supermarket lighting, shop lighting, etc. The center enables architects, students and other interested persons to learn and understand how to apply lighting products effectively and efficiently, and also realize the importance of lighting design as a part of architectural design.

For more information, please visit ***www.lighting.co.th***.

HSBC Monumental Sculptures

Lighting Design: **Mindseye**
Photo Credits: **Based Upon**

Mindseye were delighted to be chosen to provide the lighting design for the recently unveiled monumental sculptures commissioned by HSBC to mark its 150th anniversary.

The cast-bronze sculptures each represent a single grain of rice and stand proud at the head offices of the bank in its home markets of Hong Kong and London.

HSBC engaged the Cass Sculpture Foundation to help with the commemorative installation. The foundation is a UK charity which commissions large artworks and Cass asked a number of artists from the UK and China to provide design proposals and HSBC selected a Grain of Rice, proposed by Based Upon, who have been creating art and design for private customers since 2005.

In turn, Based Upon wanted to work with a lighting designer who would take a unique approach to this; someone who would think outside of the box. They were seeking an innovative solution, specific to the piece and not just looking to "floodlight" the sculptures. Mindseye were the lighting designers of choice as their designers were very much in tune with the sculptures and they clearly understood the sensitivity of the scheme and how to enhance the sheer scale of the sculptures.


Reebok
withdrawals

The exterior skin of each sculpture consists of 150 engraved images creating a narrative tapestry of HSBC's 150 year history. The interior of each sculpture is hollow, with polished bronze lining which catches and reflects the light.

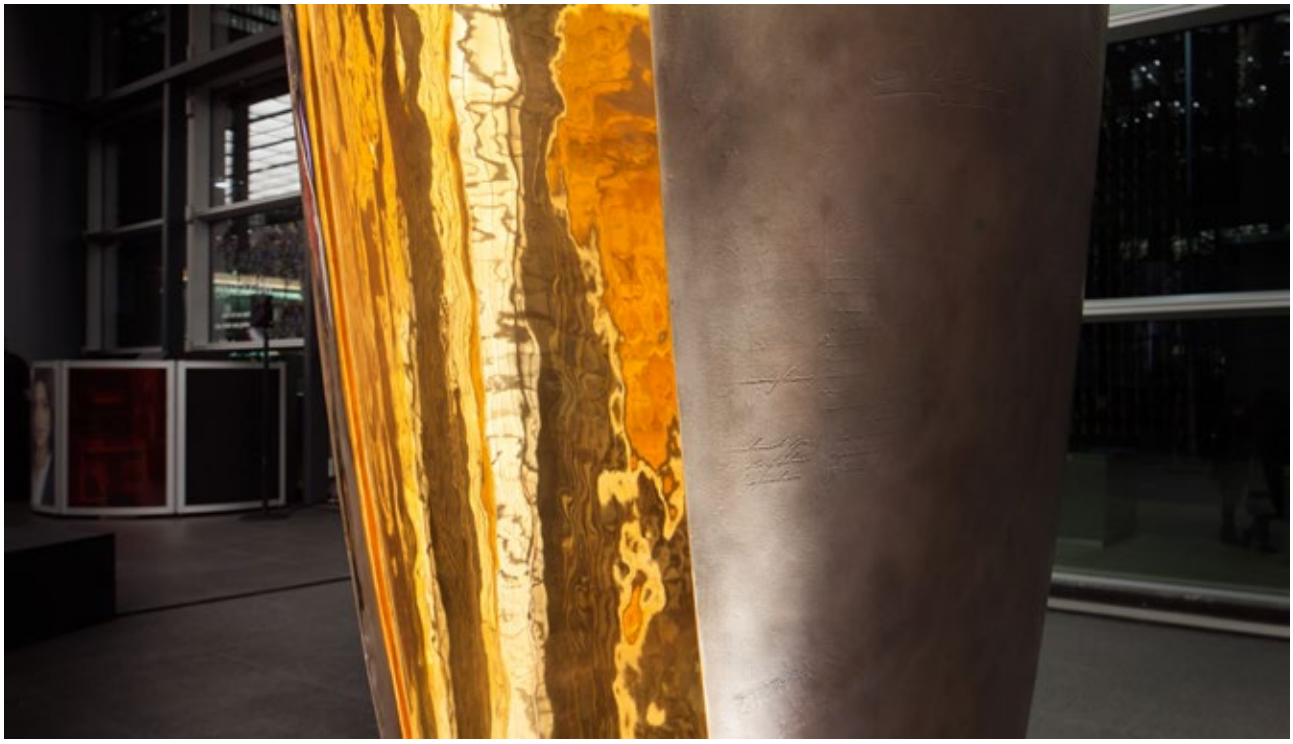
The main challenges for lighting these vast sculptures was the restraints of where the actual lighting could be placed in very defined areas in both Hong Kong and London. As a result, bespoke fixtures were created, providing the ideal lighting, yet keeping the glare and fixture visibility to a minimum.

Each sculpture had to be considered independently and lit in very differing ways, based upon its location. In London the sculpture is smaller and positioned in the interior lobby of HSBC HQ in Canary Wharf and in Hong Kong the sculpture is much bigger and is situated outside the HSBC building.

At Canary Wharf, the existing floor and the ceiling restricted the usage to small luminaries only. The existing lit ceiling panels provide a constant diffused general light level. As Mindseye were unable to work with strong light/dark contrast as in Hong Kong, they took another approach and worked with light colour contrast.

Instead of a strong top light, Mindseye chose to illuminate the front and the back from above, on the diagonal. The strong LED stage luminaries have been recessed between the lit ceiling tiles to minimise their visual impact. The back is lit in a cold bluish white, whilst the front is lit in a warm amber colour.

The positioning of the front light has been carefully selected with the aim to utilise the inside of the sculpture as a mirror, to create a play of light reflections on the floor. Framers make sure that there is no light spill. This approach leaves the two edges of the sculpture in relative darkness. Two up-lights accentuate the area of the sculpture where the matte dark surface changes into a reflective surface.



In Hong Kong, the main light for the 11 metre high sculpture comes from above. Four high output narrow beam LED projectors illuminate the exterior skin of the sculpture casting a strong shadow on the floor, therefore visually grounding the sculpture with the floor. The main light appears to come from nowhere as it is placed 40 meters above the ground attached to the external structure of the HSBC building. It emphasizes not only the upper part of the external bronze skin, but also the inner top edges of the sculpture. This top light draws the eye towards the upper part of the sculpture making one aware of its enormously vast height.

Two recessed floor up-lights pick up the “wings” of the edge of the sculpture, complementing the main light from above.

A bespoke recessed floor up-light sitting 6 meters away from the sculpture, shoots light onto the interior polished bronze area of the sculpture picking up the inner hood of the sculpture, creating a smooth golden glow.

The contrast of materials; a dark antique bronze exterior and a highly polished mirror effect interior and the sheer scale of the sculptures commanded a huge degree of understanding and sensitivity to the scheme, allowing the sculptures to make their own unique statements

The final lighting design, using unobtrusive light and invisible light sources, created a harmonious scheme that enabled Mindseye to do what it does best; putting the subject matter centre-stage whilst the light remains discreetly in the background.

Luminary Promenade

“Luminary Forest”
ROHM Illumination 2014

Kyoto, Japan

By ROHM Co., Ltd.
www.rohm.com

ROHM Co., Ltd. has been decorating luminaires around their headquarters in the winter seasons as a contribution to society since 1995. Last year, for the 16th time, we had about 600 thousand lightbulbs attached to 68 trees around the streets of the headquarters from November 28th to December 25th. Our concept was a “luminary forest” and it was one of the largest scales of luminaire design in Kyoto.

A 10-meter-high bayberry near to the headquarters became a new symbol of our luminary. Also, there was a colorful luminary-performance called “Luminary Kaleidoscope” which was a collaboration and synchronization of LEDs with huge square LED vision and LED balls all over the grass. Furthermore, we held “Touch the Lights”, which was a participatory-style event during the weekends and holidays. When you run a fingertip along the installed touch-display panel, trees and cakes on the big screen would be decorated along with it. Visitors were excited with this showcase and many enjoyed photo taking with the display in the background.


Luminary Kaleidoscope

Features of ROHM ILLUMINATION 2014

Luminary Kaleidoscope: A colour-illuminated show with music
"Luminary Kaleidoscope" was collaboration of light performances with huge (13.5 x 9 meter) LED vision and small LED balls on the grass. These LED lights were colorfully synchronized with famous Christmas music. The light performance changed the mood of the area depending on the colour, which represented a kaleidoscope and was fascinating to visitors of all age groups.

"Touch the Lights": Let's manipulate light through magic!
Besides the "Luminary Kaleidoscope", a participatory display took place only on the weekends and holidays. When someone runs a fingertip along the installed display, trees or cakes on the square LED vision would be decorated along with the rout of fingertip. It was an interactive exhibit for visitor's own experience of luminary.

"Bayberry": Two symbolic trees
A 10-meter-high Bayberry welcomed visitors at entrance, which is located in front of Gojyo-Street. The bayberry was actually an important symbol and the rounded bayberries were decorated and lighted by white-based LED which had a fantastical image of colour. In "flower language" bayberries mean to "love a person with all my heart". As it is, the trees warmly lit up the place and also the hearts of visitors.

"Luminary Promenade": Surrounded by Magnificent Lights
Passing through the bayberries, twenty decorated metasequoias along the Sai-street were lit up clearly. The visitors were especially fascinated by the various expressions of light with autumnal and fallen leaves during the event.

Touch the Lights

Features of ROHM ILLUMINATION

Environmentally friendly
ROHM has been trying to push beautiful urban development in Kyoto by the concept of green project around the headquarters. They also have been trying not only improving their sales, but also contribute to society in terms of environmental and regional contributions.

Also, there are two things that ROHM made environment-friendly efforts for our luminaries.

Green Electricity
Green electricity is electrical power generated by natural energies such as solar light, wind power, water energy, and biomass. The event made use of biomass energy generated from the ENESERVE Corporation.

Carbon offset (KYO-VER)
ROHM is always environmentally conscious and conducts carbon offset for needed electric-supply of their luminaires. The same amount of carbon emission saving by medium-sized enterprise's energy efficiency measures in Kyoto and eco-activity by local communities were used to offset the carbon emission.

Small music concert by ROHM symphonic band
In 2006, employees who like playing musical instruments formed the ROHM symphonic band. Their main activities are to hold concerts events and play the instruments at internal and community events. The ROHM symphonic band became a member of Kyoto general wind-instrument confederation and helps to widen their appeal and expand their activities with the slogan "Music makes people smile".

Bayberry

They held a concert in front of the headquarters on the first and second days of the event, playing songs like "Let It Go". Visitors of all ages came and enjoyed the band's musical performance.

ROHM also has been supporting musical art as well as illumination events for CSR activities. This coming ROHM Illumination 2015, music-themed luminaires will be up for show during the same season as last year.

The Via

Anthem of the Seas

Client: *Royal Caribbean International*
Lighting Designers: *Project International Ltd*
Contractors: *Meyer Werft GmbH, Merima oy*
Architects: *RCI New build & Design, RTKL Miami, WBA, ICA, Gensler Rockwell Design NY, 5 Plus Design.*
Project Manager: *Robert Flack - RCI*
Superintendent Light & Sound: *Christopher Vlassopulos - RCI*
System Engineer: *Funa- Wartsilla GmbH*
Lighting Manufacturer(s): *ERCO, Hella Marine, Helvar Electrosonic, Bega, Lightpartner GmbH, Martin Dk, Elation US, Osram Traxon.*
Photo Credits: *Project International Ltd / Royal Caribbean International*

Sunshine Bar

Team members from Project International Ltd have had the benefit of working on Royal Caribbean International's (RCI) previous ships from where the technical references and quality standards for Anthem of the Seas were developed with the added brief to exploit the use of the latest lighting and LED technology to achieve energy improvements and dynamic lighting.

The design process of Anthem of the Seas involved many different architectural and interior design practices for the many varied public areas on board the ship which due to its size and complexity represents a logistical as well as a technical challenge in the development of the overall lighting design.

The role of the lighting designers is to work with each architectural discipline and ensure that lighting throughout the

Royal Esplanade

Pulse Spiral

ship resembles balance and continuity, as many public areas interconnect. It is important to have good understanding of the hotel operations of the vessel when developing the lighting design such as knowing the venue use - whether for revenue, entertainment or F&B, allows you to create the right ambience and control needed for each relative function.

The scale of the vessel and the large open areas such as the Royal Esplanade which extends laterally through three fire zones and an 8-metre double height present challenges in illumination.

For the large expanse of coffered ceiling, we use indirect LED lighting such as Color-kinetics RGB power-core modules each of which are individually addressable via DMX to create variable and colour changing effects to the ceiling. The lateral beams contain Erco and Hella marine focusable 20w CRI 80 gimbal recessed spotlights for functional lighting to the deck below.

Café Two70

The use of LED technology for Anthem of the Seas was based on two considerations - energy consumption / reduction and lower maintenance needed compared to halogen lighting. Several thousand meters of linear LED is used in ceiling light coves to enhance the ceiling architecture and height, and seamless light effect is achieved using Osram Linear-light flex LF06A 3000k which are dimmable when controlled by DMX power supplies. The general down lights used are Hella's Marine S100 8-11w range of fixtures, CRI80>90 2700k – 3000k and 4000k for retail use.

The Stateroom – Cabin lighting are all LEDs, which reduce the energy use per cabin to less than 70w for the lighting.

The light fixtures used are predominantly 'marine quality' fixtures from leading makers for the cruise industry and RCI were keen to have the support of major brands for lamp sources and replacements, due to the significant volume and investment needed. For such a high-profile project, it is mandatory to use only the latest products for performance and product longevity.

Bionic Bar

Chops Grille


SKY

Externally, the ship's lighting is all LED with overboard floodlights to the Hul, Blue Linear IP67 lines to the stern and RGB color changers to the pool decks and activity areas using products from Bega, Lightpartner, Martin Dk, Elation US, Funa GmbH, Traxon.

Fuel Teen Disco

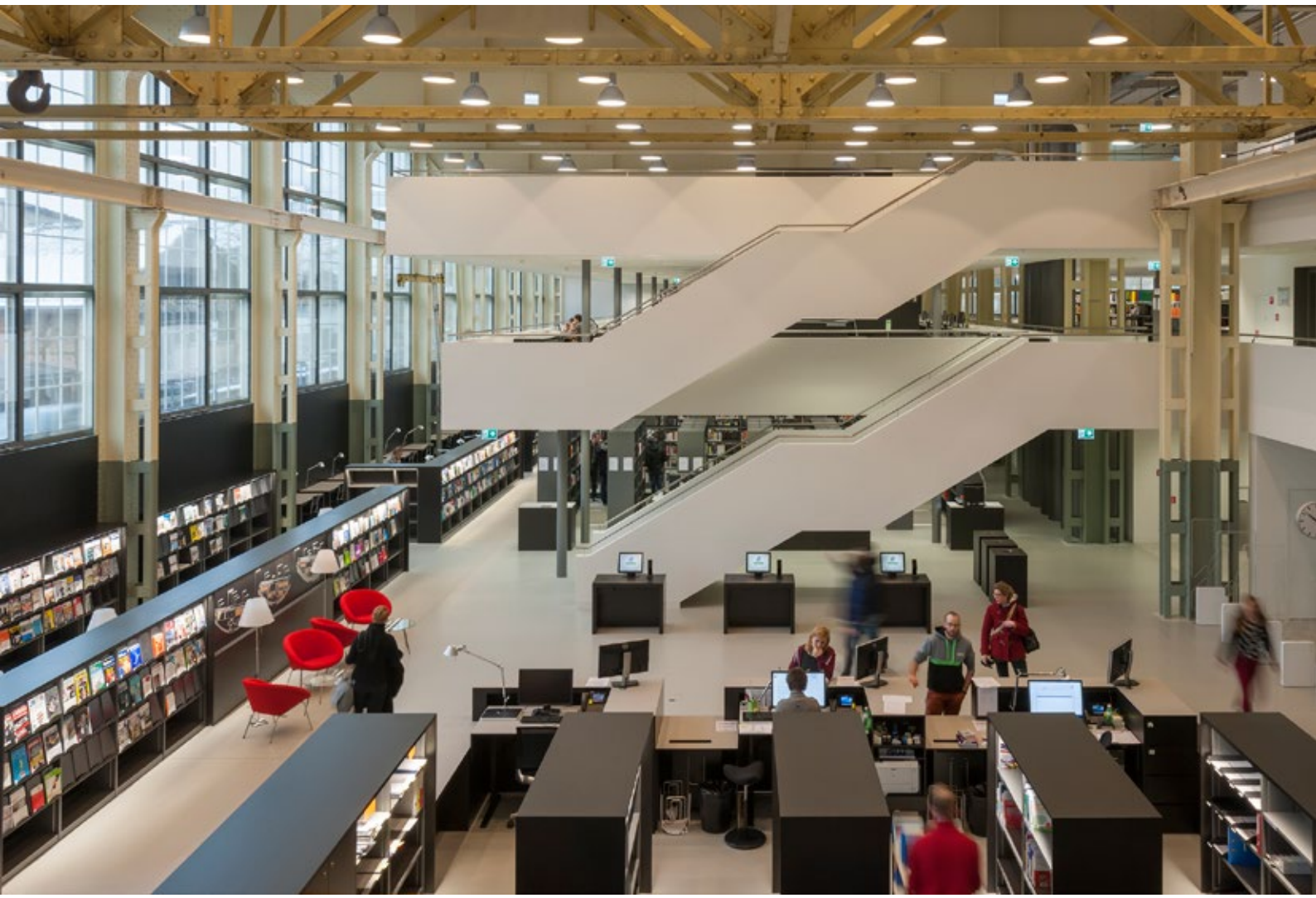
All of the architectural lighting is controlled from a sophisticated Lighting System by Helvar Electrosonic and incorporates function to interface with entertainment venues such as the Theatre, Two 70 Dynamic lounge, Royal Esplanade, Seaplex and Solarium where DMX architectural lighting can be used via mergers with the show lighting control to allow devices to be programmed for use separately for special effects and shows. Daylight sensors help to control the ambient conditions for the lighting use and constantly monitor the natural daylight levels to maintain illumination at desired levels. In the evening, the lighting system is scheduled to automatically set low ambient scenes for the public areas including restaurants and bars to maximize passenger comfort.

The Sunshine class of Cruise ships represents the pinnacle in ship lighting design and technology and achieves one of the lowest lighting energy footprint in the Industry to date.

Zurich University of Applied Sciences (ZHAW)

Switzerland

Owners: Real Estate Asset Management Switzerland of Credit Suisse AG
Original Architect: Lebrecht Völki, Winterthur, 1930/31v
Architects For The Conversion To A Library: P&B Partner Architekten AG, Winterthur, *www.piotrowski-bovet.ch*
Lighting Design: lichtgestaltende ingenieure vogtpartner, Winterthur, *www.vogtpartner.eu*
Design Of The Special Luminaire: Fluora Leuchten AG. Herisau, *www.fluora.ch*
Tridonic Products Used:
TALEXXmodule SLE 23 GEN3
TALEXXmodule FLE 30 GEN1
TALEXXdriver LCAI Eco 100W
TALEXXdriver LCI Top 35W
Photo Credits: ©Hochbauamt Kanton Zürich, Mark Röthlisberger



Students and staff at the Zurich University of Applied Sciences (ZHAW) are now using a new library at the Sulzer site in Winterthur. The former Sulzer Hall 87 has been turned into a modern media centre. Special luminaires equipped with LEDs provide excellent lighting conditions over large areas of the library.

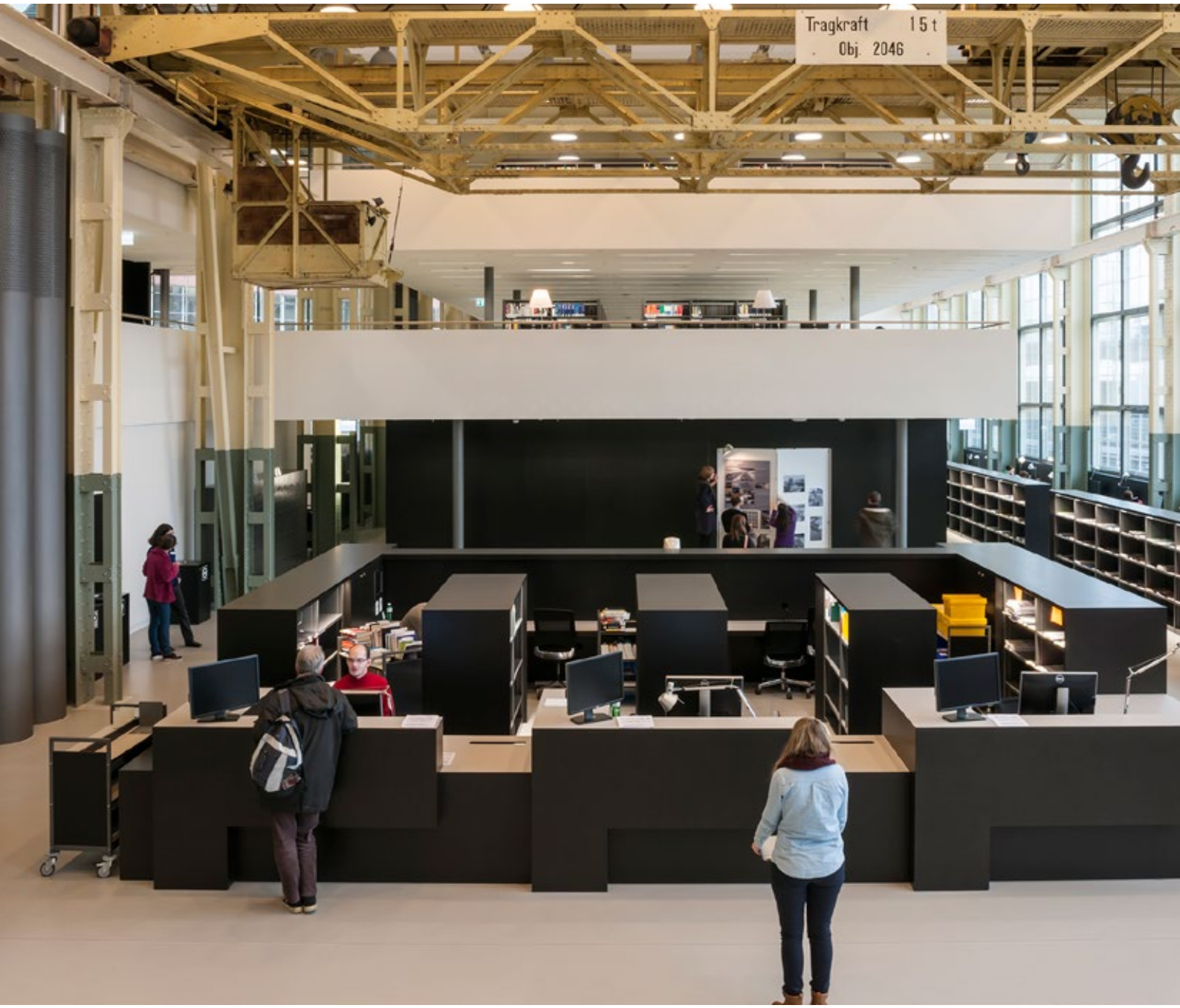
Post-Industrial Perspectives

The Sulzer site is a former industrial park operated by Sulzer and the Swiss Locomotive and Machine Factory in the centre of Winterthur. Since 1990 a new district featuring a wide range of residential buildings, offices, leisure facilities and educational establishments has been developed here. The latest project involved bringing together five libraries of ZHAW in the former Sulzer Hall 87.

In November 2012, following a period in which it was used as a musical and concert venue, the building was converted into a modern library based on plans drawn up by P&B Partner Architekten AG, Winterthur. The result is the largest university library in the German-speaking world with a floor space of over 6,000 square metres. The library houses more than 120,000 media items, a computerised self-service borrow and return system, around 700 workstations, training rooms and a cafeteria.

A Storehouse Of Knowledge In An Industrial Monument

In renovating the industrial building the architects had to take into account the clearly defined requirements of working within listed building regulations. The factory hall was designed between 1930 and 1931 by the Lebrecht Völki



architects of Winterthur. The three-storey workshop building was constructed as a steel skeleton with reinforced concrete floor slabs. The facade – a curtain wall construction – consists of fibre-reinforced cement cladding and large glazing panels. The defining architectural elements were retained during the conversion. Mezzanine floors, detached from the facade, were installed only in certain areas in the 11 metre high hall. The original riveted steel upright and crossbeam structure is omnipresent, and even the old crane tracks span the rooms as before.

Luminaire Design For Special Requirements

In view of the cavernous nature of the building the lighting designers were faced with the challenge of finding a luminaire that was in keeping with the old industrial architecture and would also produce sufficient illuminance at desk level from a great height. A special luminaire produced by Fluora Leuchten AG meets both these requirements. Together with components from Tridonic, it offers high-tech lighting technology for the old industrial setting. The design started with rough sketches by the architects and lighting designers. A prototype based on these concepts was then produced and after slight modifications the decision was taken to manufacture 400 of these pendant luminaires. The classically shaped body of the luminaire, which comprises a cylindrical top section and a parabolic shade, houses LED modules and LED Drivers from Tridonic.

The Right Lighting For All Room Heights

The original plan was to service the very different room heights, from 3 metres in the training rooms to 11 metres in the hall at ground level, with luminaires of different sizes, but the Tridonic LED portfolio offered

all the necessary combinations of LED modules and LED Drivers to equip a single luminaire type with the appropriate technology to suit the different requirements.

TALEXXmodule FLE LED modules are used in areas in which the luminaires are mounted at great heights. They have been designed specifically for illuminating large halls. For areas with moderate ceiling heights the lighting designers opted for the TALEXXmodule SLE GEN3 modules which Tridonic offers mainly for use in spotlights and downlights. Both LED module types operate in an output range that calls for active cooling. This is provided by a fan located at the top of the luminaire housing. Tridonic conducted a series of measurements to support the correct design of the active thermal management system and gave the customer approval for the combination of fan, LED modules and LED Drivers. The LED modules are supplied with power via TALEXXdriver LCAI 100W and TALEXXdriver LCI 35W.

According to Martin Vorburger, who was involved in the entire development process for the library luminaires at Fluora Leuchten AG, "Tridonic's extensive range of LED modules and matching LED Drivers has enabled the very different lighting tasks in this project to be covered by a uniform luminaire design. The technical support that Tridonic offered us in integrating the components was an important factor in the efficiency and durability of the luminaires." ■

The Structural Engineering Office of the Zurich canton was responsible for overseeing the structural aspects of the entire project and for equipping the rooms with furniture, IT, audio-visual and other equipment on behalf of the tenant.

Gieves & Hawkes' Flagship Store

London, England

Lighting Solutions: **Soraa**
Interior Design: **Teresa Hastings Design**
Lighting Design: **Lightplan**
Photo Credits: **Stewart Capper**

Soraa, the world leader in GaN on GaN™ LED technology, has announced that 245 of its LED lamps have been installed in Gieves & Hawkes's elegant Savile Row flagship store in London. Founded in 1771, Gieves & Hawkes has always incorporated luxury with function. The well-respected tailor is known for outfitting the United Kingdom's armed services and the British Royal Family as well as designing stylish yet classic suits for men. The retailer's approach to lighting design was no different—while the lamps needed to be energy efficient and functional, they also needed to be luxurious and refined. Gieves & Hawkes wanted to reduce energy costs associated with lighting, improve efficiency and highlight their bespoke craftsmanship. Soraa's simply perfect lighting solutions were the best products to meet Gieves & Hawkes's needs.

Gieves & Hawkes is located at No. 1 Savile Row, a building the Royal Geographical Society—whose explorers were often dressed by the royal tailor—had occupied since 1870. While the building is as stately as the retailer, it did not hold up as well over time, so Gieves & Hawkes chose to completely renovate the building's interior. As part of the renovation, the company decided to redesign the lighting scheme from scratch with new LED lamps.

"With its ultimate Savile Row address, refurbishing and modernising the historical 18th-century Gieves & Hawkes flagship store was challenging. I wanted to respect the original architecture of the building, whilst at the same time creating a contemporary space that acted as a foil to both the elegant creations of creative director Jason Basmajian as well as the history of

the brand, which has spanned over a century," said Teresa Hastings, the interior designer selected for the project. "I designed the store to flow through allocated spaces, which each required individual moods as the bespoke rooms run from formal to casual wear to the archive collection and then through to military and evening wear. With the help of lighting designers, Lightplan, we have created a unique space with a lighting system that is completely controllable, and Soraa lamps are a huge part of this achievement. The colour rendering gives an accurate light whether it is set at a low level setting for evening events or a daylight setting for normal retail hours. The change in moods running throughout the store was a massive factor in the overall scheme, which is why Soraa lamps were ideally suited for this project."

Because this was a relight and not a retrofit, Gieves & Hawkes and Teresa Hastings Design worked with Lightplan to create the best lighting environment possible. Lightplan's designers assessed the space and lighting needs, ultimately choosing Soraa because of the products' colour qualities and versatility provided by beam adjustment. Specifically, Lightplan's scheme involved variations of Soraa's VIVID MR16 LED lamp.

The store's lighting not only spotlights the beautiful merchandise, but it also showcases the impressive architectural aspects of the building. Gieves & Hawkes was keen to respect the history and context of the original building without sacrificing a brilliant, contemporary lighting design.

"Soraa's lamps were the perfect fit for Gieves & Hawkes's unique shop because of their function, versatility and quality. The colour quality, in particular, is such that every shade of a garment is visible in its truest form, which is really remarkable from a merchandising perspective. The lamps also create a dramatic environment by highlighting the stone flooring and timber surfaces of the showroom with minimal glare," said Baris Gursen, Senior Lighting Designer at Lightplan, "And if the store wants to host an event, the mood of the space can be significantly altered by using the lamps' dimming feature."

Soraa's unique GaN on GaN technology allows its LEDs to operate at currents that are more than five times higher than LEDs built on other materials. This means a lot of light comes from a very small source resulting in a narrow beam of light from one source. This elegant LED design provides crisp object definition with a single shadow and bright, uniform colours and whites—perfect for making clothes look their best.

Sophisticated retailers have known about the benefits of high-quality lighting for some time, and are aware that quality lighting enhances both the perceived value of merchandise and the retail environments in which it is sold. Specifically, directional display lighting is an essential part of retailing, and a wide range of products benefit from accurate and complete colour and white rendering. Soraa's lamps do just that.

The company's Violet-Emission 3-Phosphor (VP_3) LED technology allows for perfect rendering of colours and whiteness. Utilizing every colour in the rainbow, especially deep red emission, Soraa's VP_3 VIVID COLOR renders warm tones beautifully and accurately, and achieves a colour-rendering index (CRI) of 95 and deep red (R9) rendering of 95. And unlike blue-based white LEDs without any violet/ultra-violet emission, the company's VP_3 NATURAL WHITE is achieved by engineering the violet emission to properly excite fluorescing brightening agents including natural objects like human eyes and teeth, as well as manufactured white materials such as clothing, paper and cosmetics. In fact, studies have shown that light quality directly correlates with customer satisfaction and increased sales.

For more information on Soraa's LED lamps, please visit **www.soraa.com**. ■


BESPOKE

Art Institute of Chicago

Chicago, USA

Client: Art Institute of Chicago
Lighting Designers: Lightswitch Architectural
Photo Credits: George Lambros © Lambros Photography

The AIC is going LED. After Lightswitch Architectural designed the lighting for the museum's first all-LED gallery in late 2014, it partnered with AIC again to design the lighting for its forthcoming, redesigned medieval gallery. During the design process, Lightswitch Architectural and the museum found a groundbreaking, new LED solution to light the gallery. The digital, colour-tunable LED lamp will also be used to retrofit other gallery and exhibit spaces in the future.

To identify a lighting solution that would exceed the museum's rigorous quality standards, Lightswitch Architectural conducted a series of mock-ups using a variety of LED replacement lamps to illuminate pieces from the collection and other artwork.

After an initial mock-up of religious paintings and medieval armor proved successful, a side-by-side mock-up that allowed the museum staff to compare its existing sources with its preferred LED option from the first trial was arranged. Lightswitch Architectural illuminated two paintings in Claude Monet's Haystacks series with a combination of 10- and 25-deg PAR38 LED lamps from Ketra, Inc., while the others remained lit by incandescent PAR38 and MR16s. To ensure the ideal colour temperature and rendering were achieved—a must for fine art installations—Lightswitch Architectural colour tuned the wirelessly controlled Ketra sources to match the incandescents and then compared the CRI, illuminance levels and spectral power distribution of the sources.

Twenty AIC staff, including art curators, exhibit design staff, facilities staff, and the museum's CEO and COO, analyzed the results and selected the LED option as the best solution for this gallery and other potential projects.

"We recognize the importance that quality lighting plays in maintaining the AIC's reputation as one of the world's foremost art museums. As a result, we treat the museum's collections as if they were our own and undertook a careful, measured approach to lighting them. Through detailed research and in-depth testing, we found a colour-tunable, high-CRI LED source that will not only reduce AIC's energy use and maintenance, but will also enable it showcase its art in the best possible light." -Avraham Mor, partner of Lightswitch Architectural. ■


MR. AND MRS. DA

Pinacoteca Ambrosiana

Milan, Italy

Lighting Design: **Lumen Center Italia**
Photo Credits: **Barbara Bonomelli & Simona Monfrinotti**

A (Before)

B (After)

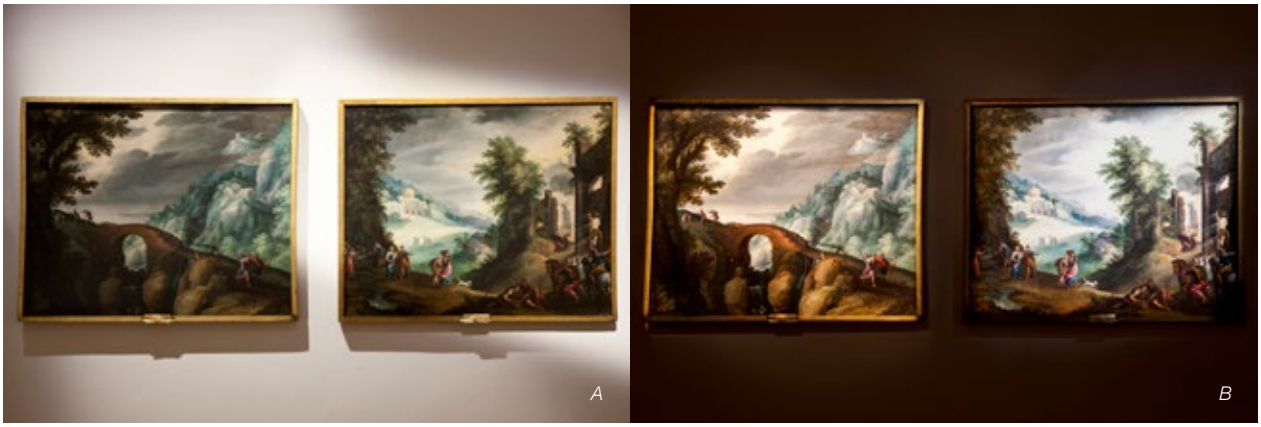
Since July 11, visitors of *Veneranda Pinacoteca Ambrosiana* in Milan will admire the works of art under the same light with which the artists saw them.

This important cooperation with the artistic world represents the proof of Lumen Center Italia's commitment in spreading a clean human friendly light culture and of its ability of ongoing innovation, creating perfect solutions in order to improve with light sources life quality and to accompany in the most comfortable way the different moments of everyday routine, from relaxation to work, from cultural fruition to convivial moments and food.

The first phase of the project, designed by the architect and lighting designer Alessandro Colombini and developed by Lumen Center Italia, gives back the original magnificence to the works of art of halls 2 and 7 and to the drawings of Codice Atlantico by Leonardo da Vinci, allowing to admire the details clearness and perceiving the real colours' brilliance. This intervention, of larger-scale effort, foresees the illuminating engineering requalification of the entire Museum, according to a new aesthetic human friendly lighting standard.

The current system is replaced by 105 Led luum® sources (on a total amount of 185 set for the final project), in other words light sources of the highest quality and latest generation, developed in collaboration with the main characters of the world production of the sector, realized and offered by Lumen Center Italia.

Luum® allows a fruition of very high impact and maximum precision: it represents a new human friendly LED light, that, beyond the energy saving, reproduces the light with the most similar spectrum to the natural light, a conscious light of its influence on the metabolism and on the human psychophysical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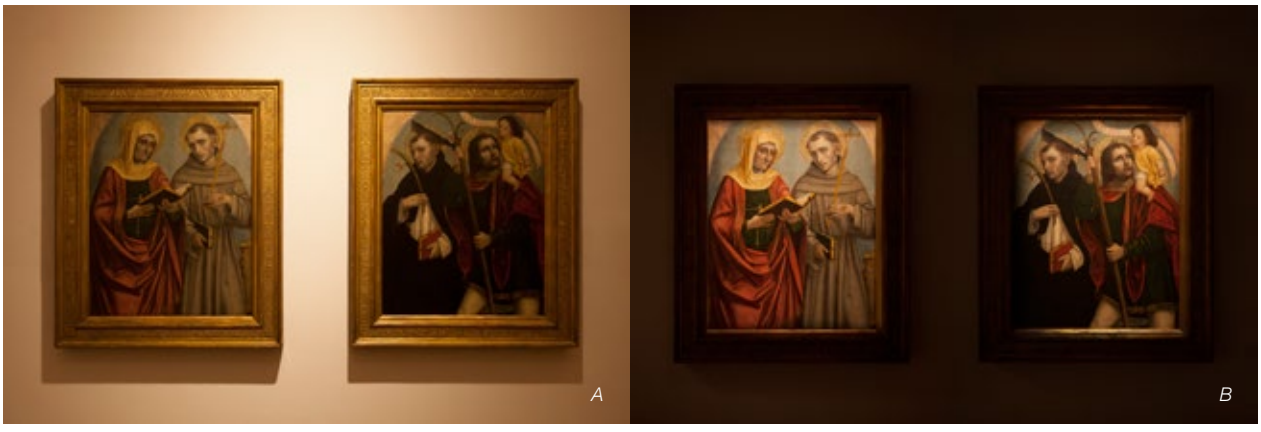
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wellness. The avant-garde LED luum® sources of Lumen Center Italia are included in custom made illuminating bodies ad hoc projected for the Museum and built using the last findings of the components: diversify and adjustable optics, possibility of rotating on two axes to 360°, focus and dimming.

The hall n° 2 houses works of art by artists of fifteenth and sixteenth century, including some important Lombard painters, and the famous painting by Sandro Botticelli "Madonna del padiglione", while in the hall n° 7 there is a set of works particularly interesting and rare: Flemish paintings realised by Brueghel and Brill, collected by Cardinal Federico Borromeo - founder of the Ambrosiana - which depict religious themes set in large landscapes, tales of Christ story and natural elements, all rendered with bright colours and a refined research of the detail.

A team of experts, led by the architect Alessandro Colombini, has made a thorough research of the pigmentation of the paintings, in order to adjust the fine tuning of the spectrum of the LED luminaries to be designed with the goal of lighting as best they can the colours of each work, to enhance its specific characteristics.

A specific colour temperature - a shade of white light every time sought in different ways - was conceived frame by frame and was carried out through a mixture of the different LED colours so that each work stands out at most every component: the colours, the forms, the construction plans. Through the dimming of every spotlight, that is the possibility to measure the amount of light provided, it has been sought the luminous size best suitable to the different paintings. The different shades of LED have conduced to stand out in the best way the cool tones and warm tones of the paintings, without which the overall image could result in being penalized by a single nuance of light. Striking examples are the Flemish paintings of the Hall 7, made by artists of the calibre of the Nordic Brill and Brueghel that, in depicting subjects set in vast landscapes typically Italian and from Lazio, have given to their composition, tones that create a light that is revealed cold actually: the washed-out shades of gray, clear green and cerulean clear blue are highlighted by a colour temperature that is particularly high in terms of Kelvin degrees; browns and warmer tones, less present, however, are properly highlighted by a second component of lowest shade. The shaping spotlights focus each beam of light on the exact size of the paintings, so as to make them come across as particularly effective than the bottom of the wall, kept in the shade. The general light is obtained instead by indirect light adjustable towards the roofing vault halls, coming from the armoured-bars in the various halls equipped with fluorescent lightings.

The same LED luum® sources were used to illuminate the new display cases - even those made specifically by Lumen Center Italia - which preserve the preciousness of the pages of Codice Atlantico, the largest and most impressive corpus of writings and drawings of Leonardo da Vinci, preserved since 1637 in the Biblioteca Ambrosiana and now exhibited in the Federiciana hall.

The entire project, in addition to enhancing the collection of works of art, was conceived with a view of energy saving, of reducing costs concerning maintenance and replacement of light fixtures. ■

Victoria Place Shopping Centre

Victoria Station, London

Client: **Network Rail**
Architect: **Haskoll**
Project Manager: **Sweett**
Lighting Designer: **Hoare Lea Lighting**
Main Contractor: **Spence**

Lighting Manufacturers:
- **ACDC – downlights**
- **Optelma – feature lighting: Conico luminaires**
- **Osram – LED modules**
- **XAL – Tubo Pendants**

Photography: **Redshift**

Working with Haskoll Architects, Hoare Lea Lighting developed the lighting solution for Victoria Place Shopping Centre, the newly refurbished retail and food and beverage destination in Victoria Train Station, London. The centre now hosts a number of popular retailers including, Holland & Barrett, David Clulow and Next and a selection of restaurants, casual eateries, coffee shops and convenience food stores.

The brief presented to Haskoll was to refurbish the shopping centre and food court with the aim of re-launching Victoria Place as a retail and food and beverage location that would attract a greater proportion of the flow of visitors to the station (around 120m each year) and from surrounding areas.

Hoare Lea Lighting worked with Haskoll to create a bright environment with a vibrant lighting design for the 9000m2, two-storey space.


COSTA
pharmacy
beauty
Commute
& collect

Ambient lighting is provided by linear recessed and surface mounted luminaires and LED downlights, which create a comfortable visual environment, assisting wayfinding and navigation. An impression of natural light is generated through the large Barrisol ceiling, backlit by an array of Osram LED modules. This creates the illusion of daylight, which encourages visitors to linger, especially in the restaurant areas on the second floor balcony.

Feature elements include Optelma's 'Conico' cone-shaped luminaire. This bespoke pendant adds drama, while providing general illumination to the floor of the mall. It incorporates a subtle colour-change element, which discreetly adds interest to the scene.

Pardip Kaur, Architect, Haskoll said 'Haskoll's concept for the lighting scheme was designed to create a dramatic and uplifting interior that would transform the previously dark and uninviting space. The various lighting solutions work together to create a vibrant environment for both retailers and end-users. The lighting design has successfully reinvigorated the mall and foodcourt areas whilst adding value to the development and refocusing it as a retail destination.' ■

Grand Hyatt Incheon Hotel

Incheon, South Korea

Client: **Korean Airlines**
Contractor: **Daelim**
Architect: **Gensler**
Structural Engineer: **Thornton Tomasetti**
Lighting Consultant: **CD+M Lighting Design Group**
Photo Credits: **Derryck Menere Photography**

The Grand Hyatt Incheon Hotel is located adjacent to the Incheon International Airport in South Korea and serves as a premier venue for international conferences and business meetings. KAL Hotel Network's objective for this project is to double the size of their existing Grand Hyatt in Incheon to meet the city's growing demands as a major business and leisure hub of North East Asia. The project consists of a 785,000-square-foot expansion to the existing 523-room hotel, and Gensler was the Design Architect and the Interior Designer, providing complete consulting services for the project from conceptual design through completion. The lighting was designed by Marc Rosenberg of CD+M Lighting Design Group in Mission Hills, California.

Situated directly between the Incheon Airport to the north and the ocean to the south, site location was a primary driver for the design concept of the Grand Hyatt Hotel. The overall form of the hotel is meant to be an abstraction of the dynamic aspects of wind and water as it relates to the motion of wind over an airplane wing and the motion of waves in the ocean. While capturing the essence of fluid motion in form, the reciprocal massing of the hotel also serves to reinforce the symbol of Korean Air which is based on the concept of Yin and Yang that is incorporated in the national flag. The lighting is designed to enhance this concept and to create a floating effect of the architectural elements.

The interior design goals embody the KAL brand concept of "Morning Calm," ultimately creating a place that is welcoming after an international flight but also an expression of the KAL brand concept of the "beauty of empty space." The large interior spaces are enhanced by glowing light from behind the edges of the architectural elements. This glow enhances the curving forms, highlighting their shape and outline. The light fixtures were selected to ensure that the lighting would be evenly distributed and were also intense enough to span the double high volumes of the public spaces.

The architectural parti of Air and Water translated into Sky and Sea to embody the island that is best known for Incheon Airport but also is one of an archipelago of islands that were once primarily fishing villages and wetlands. Reinforcing the connection to the sea also re-establishes its historical context to enrich the guest experience beyond the average airport hotel. With this in mind, lighting was selected that mimics natural lighting in color.

The podium and public spaces represent the sea while the tower and its guestrooms represent the sky. The double height stone-clad core and ballroom are metaphors for the island. Carving out the double height lobby space reinforces the overall form of the building and provide a dramatic backdrop for guest arrival. Light helps highlight the arching stone walls and creates a diffuse layer between the inner stone wall and the outer, more rough hewn stone wall. The light was designed to graze these surfaces, highlighting the texture of the stone materials.

The concept of fluid movement through the lobby is expressed by the organic forms while the material palette was intentionally limited to create a sense of calm and tranquility and to achieve a clear articulation of discrete forms. Each fluid shape has edge lighting so that they appear to float within the space and to create the feeling of movement.

It was important to the client that the front desk and reception were not directly visible from the entry. This resulted in program elements such as the Front Desk and Bar being embedded in the core as intimate spaces that contrast to the vast space of the lobby. The front desk and bar are clad in marble to contrast with the hammered finish of the lobby core like pearls contrasting with the rough shell of the abalone. The concept of the "hidden pearl" echoes the art of "najeonchilgi" or inlaid mother of pearl in traditions of Korean arts and crafts. The lighting at the front desk is bright and welcoming and appears to flow from behind the ceiling and walls. The lighting in the bar is more moody and dramatic to enhance the design. By day the bar feels lighter and fresh and at night, can be dimmed to create a romantic environment.

The concept of inhabiting "the pearl" was extended to the ballroom interior. Rather than a singular form, the space was conceived as a series of laminations reflecting the micro architecture of the pearl formed by multiple layers of nacre. The lighting in this area is more dramatic and was selected to enhance the architectural treatment of the forms and finishes. The feature wall adjacent to the escalator has deep recesses with lights within. This creates a focal piece that captures your attention.

The decorative light fixture that floats within the spiral staircase is one of the few visible decorative fixtures. Its droplets of light entice the guest to descend or ascend the stairs to discover what's beyond, creating a feeling of discovery and excitement.

The guestroom design draws from the sky component of the architectural concept and from the experience of air travel. The pattern of the shower glass, which is the focal point of the room, is inspired by crane feathers. The white crane is the official bird of the City of Incheon, and one of the 10 symbols of longevity in Korean culture. The Korean landscape, as seen from the air, is inspiration for the geometries and textiles found within the guestroom. The wood ribbon wall wrapping the bathroom and sleeping area is reminiscent of the efficient configuration of first class sleeper seats found on major airlines. The headboard wall peels away to expose the wood ribbon and forms a light cove, which sets the ambient mood of the room. This light along with the light spilling from the bathroom through the glass wall creates a wonderfully calm and serene environment that wraps the guest in comfort. Spot lighting at the bar and tea area perfectly accents these elements as the key room amenities. Decorative light fixtures in the room are modern and cylindrical and cast a glow on all of the elements of the room. The effect is peaceful and inviting.

Overall, the lighting design of the hotel is intended to enhance the architectural and interior design and to envelop the guest in a calm, inviting environment and that creates drama.

The interior and lighting design intent was implemented by local craftsman with much communication back and forth with the design team via email. Although the long distance posed a challenge during construction, particularly with the substitution of local materials, we are quite thrilled with the outcome that the Owner, Contractor and local craftsmen were able to achieve in the final product. ■

SILO 468

Helsinki, Finland

Lead Design:
Lighting Design Collective
Tapio Rosenius, Oscar Martin, Rodolfo Lozano, Victor Soria,
Gorka Cortazar, Reinaldo Alcala, Rodrigo Arcaya
(www.ldcol.com)
Client: City of Helsinki Planning Department, TASKE, Helsinki Energy
Project Manager: HKR Executive
Executive Architect: Pöyry Finland Oy
Electrical Engineers: Olof Granlund Oy
Contractor: VRJ Etelä-Suomi Oy

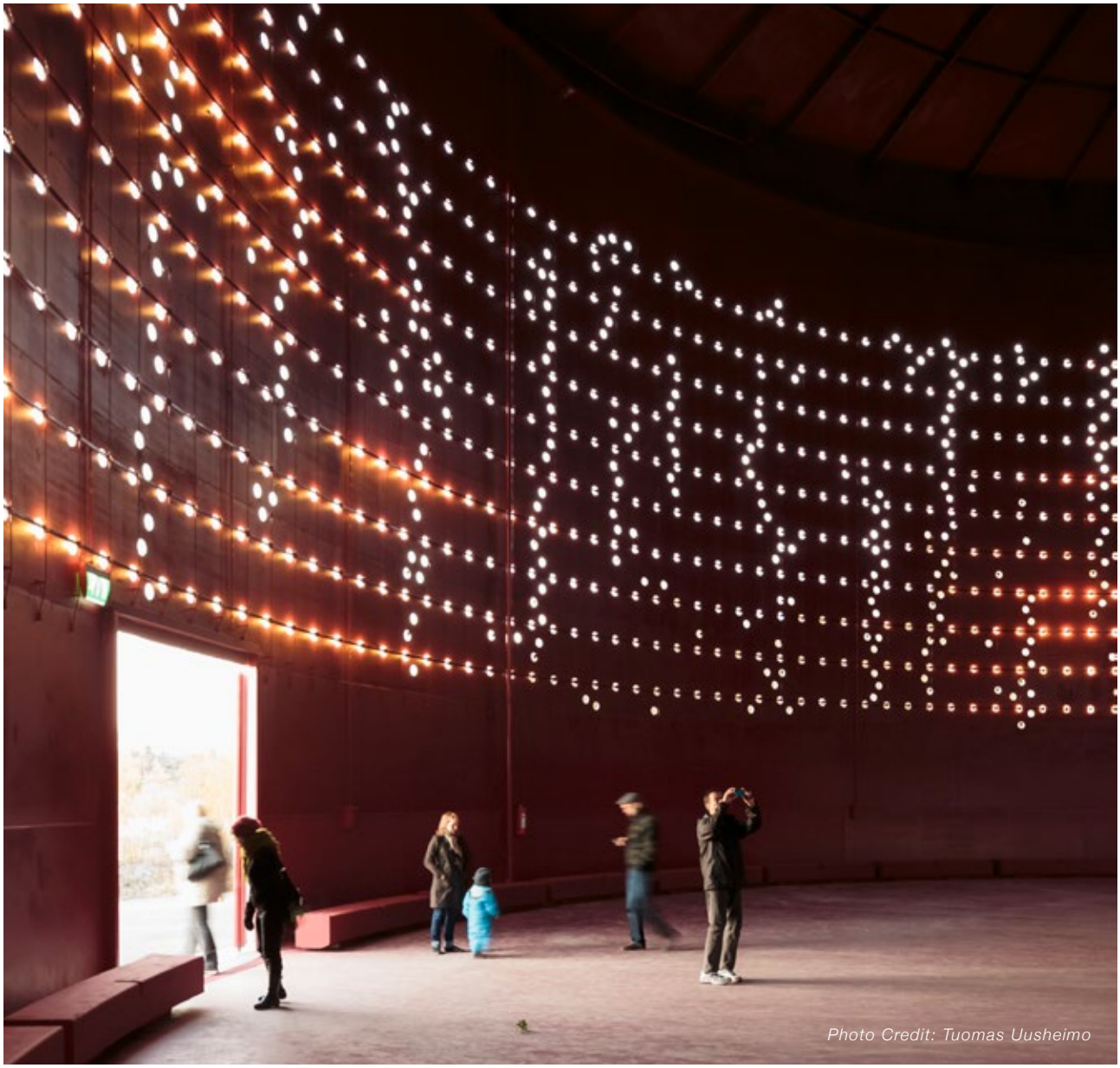


Photo Credit: Tuomas Uusheimo

Disused oil silo has been converted into mesmerizing light art piece and a public space with the aid of swarm intelligence and interactive lighting.

The project is a conversion of oil silo into light art piece and a public space designed by Madrid based Lighting Design Collective (LDC).

It sits by the sea facing central Helsinki, Finland. Prevailing winds well known to residents are strongly present. The natural light, wind and the movement of light on the water formed the principles for the lighting concept. Walls are perforated with 2012 holes referring to the Helsinki World Design Capital 2012 year.

The lighting signifies the start of a major urban redevelopment for the City of Helsinki. It functions to draw focus to unknown district and creates a landmark and a marketing device for the City. Maybe most importantly through the use of natural and artificial light it created a unique civic space for the citizens to use. Furthermore, it set a precedent for a new district for 11000 people to become the "district of light". During the first years the silo is mainly viewed from distance when the area starts to get build. 1280 LED domes in 2700K white are fitted inside the silo behind the cut-outs and visible from several kilometers away.

LDC developed a bespoke software using swarm intelligence and nature simulating algorithms that refresh responding to parameters such as

wind speed, direction, temperature, clear night and snow. System dials out every 5 minutes for new data. The patterns are fluid, natural in feel and never repeat. They are slow but speed up in relation to the wind speeds creating constantly changing mural of light. At midnight the exterior turns deep red for 1 hour. The colour refers to the former use of the silo as a container of energy. At 02:30 when the last ferry goes past to Suomenlinna lights go off.

Photo Credit: Hannu Iso-Oja

Photo Credit: Tuomas Uusheimo

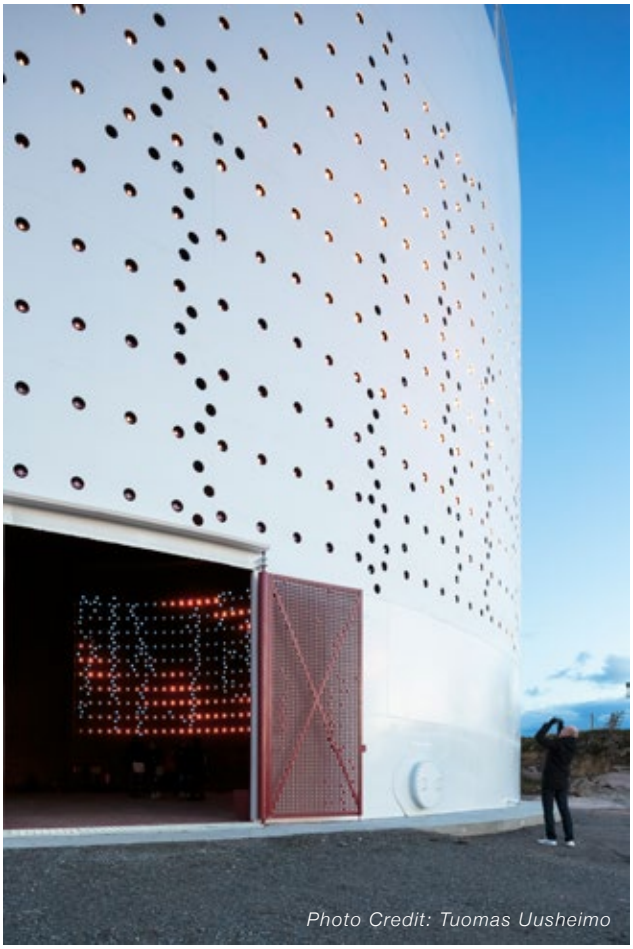


Photo Credit: Tuomas Uusheimo

The interior gains importance as the area gets populated. Inside is painted deep red. Daylight seeps through the pattern derived from original rust patterns on the walls. North facing wall has no perforations. 450 steel mirrors moved by winds are fitted behind the holes. With sunlight the silo appears to glimmer and sparkle like surface of water. The warm white LED grid reflects light indirectly via the red walls into the space. The moving patterns read as halos racing across the walls. The Silo is a civic space for the citizens of Helsinki. Floor was added and rigging infrastructure, power, water and emergency & cleaning lighting. Light intervention has created a new space for people.

During normal use the installation uses about 2kw of power, which is approximately 2W per square meter. The software creates a particle system that combines motion behaviors from birds, insects, and fishes to create organic and non repetitive animations for the lighting system, in a 128 x 10 LED grid. These animations are being generated using current data from the local weather, specially wind speed and direction, to create a vast and unpredictable array of light movements that give the viewer a visual representation of the weather sensations in the city. The control application was developed in OpenFrameworks, an open source c++ toolkit for creative coding, an runs in an e:cue Lighting Control Engine mx server. ■

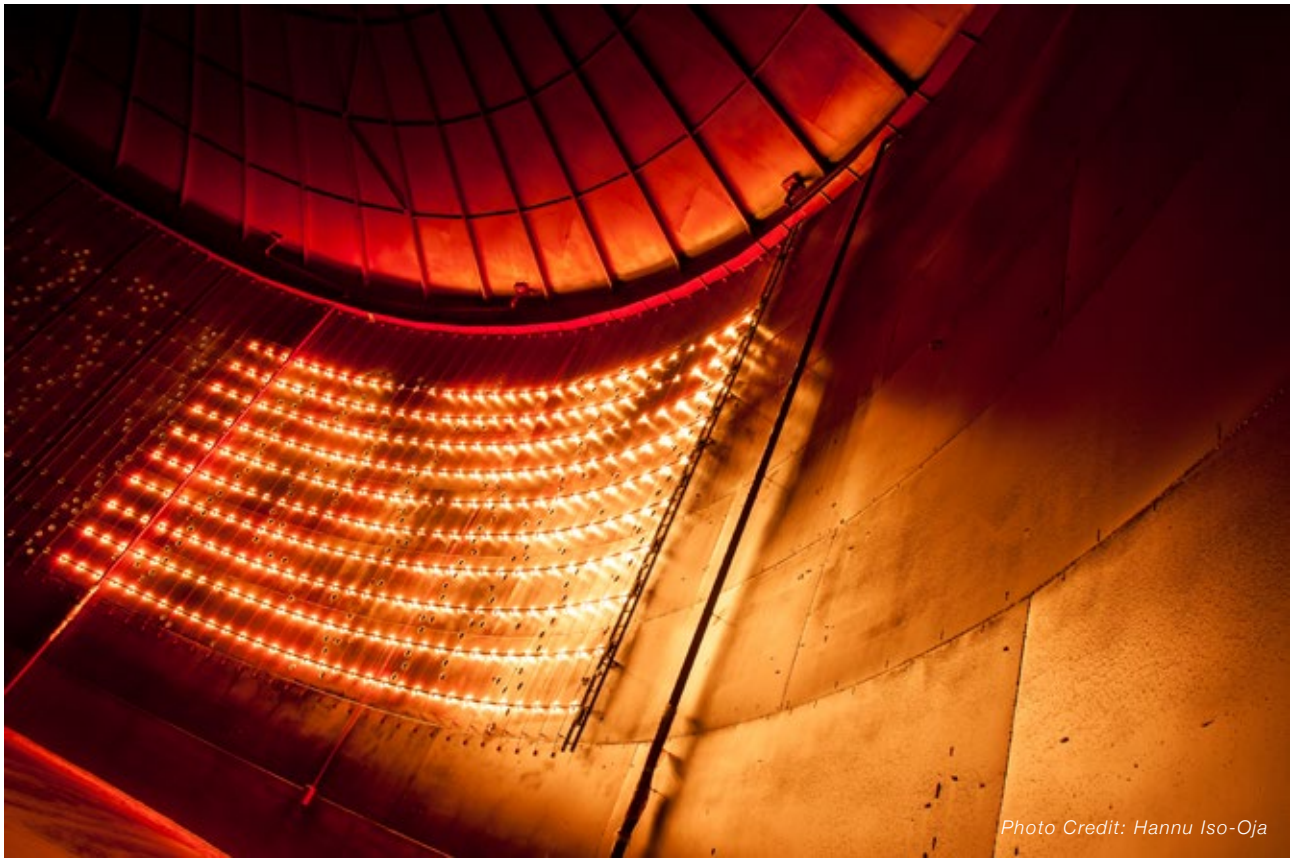


Photo Credit: Hannu Iso-Oja

Welland Main Street Bridge

Welland, Ontario, Canada

Lighting Designer: **Marcel Dion Lighting Design (MDLD)**
Lighting Manufacturer: **Philips Lighting Canada / Color Kinetics**
Commissioning: **LEDgendary Lighting**
Written By: **Jennifer Wieskopf**

Photo Credit: Thies Bogner MPA

Photo Credit: Thies Bogner MPA

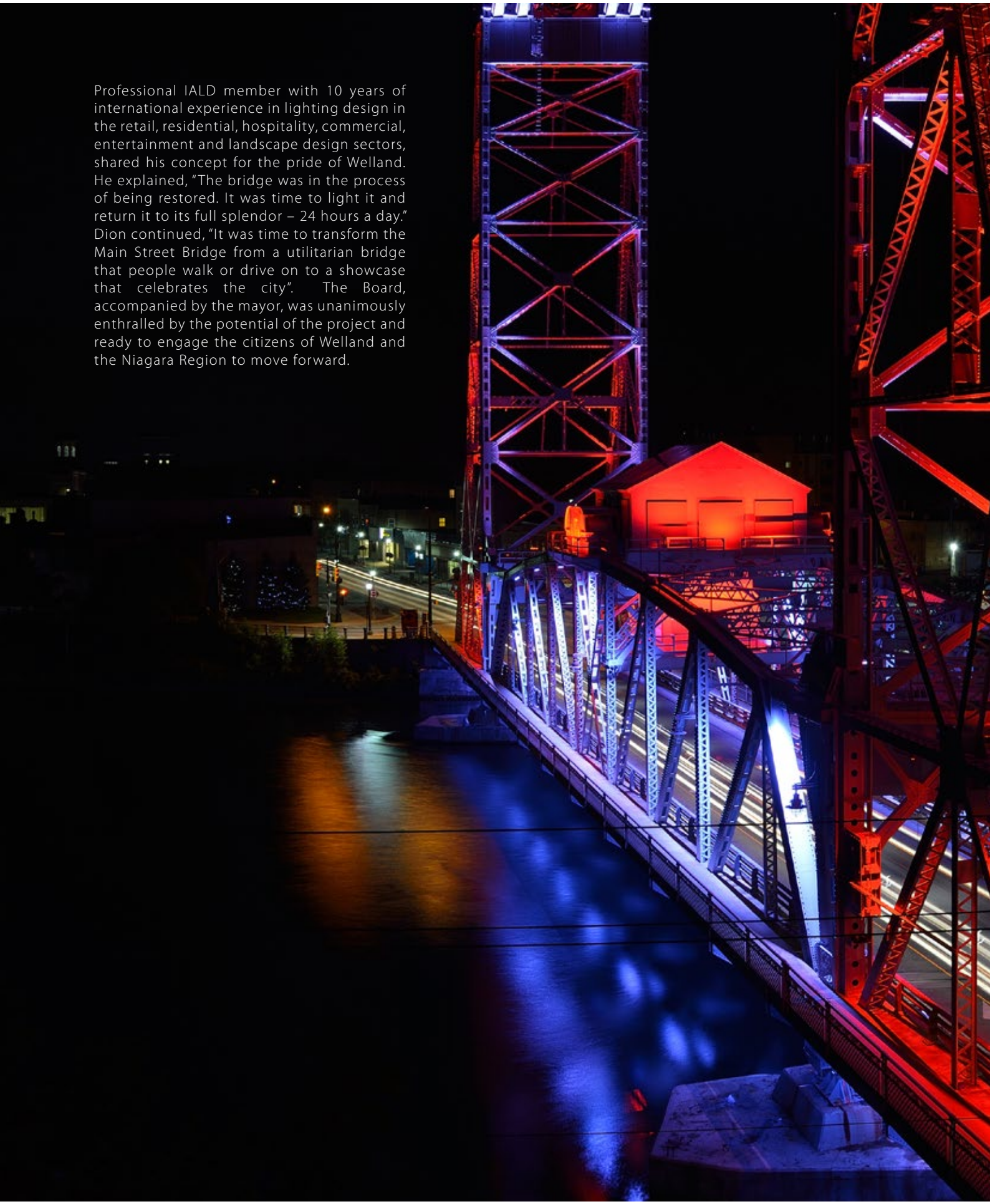
In the quaint town of Welland, Ontario (Canada), the Main Street Bridge is celebrated and illuminated eighty-five years after its inception. Spanning 70.6 meters long and 9.1 meters wide, 'Bridge 13' is the thread that unites the East and the West hemispheres of this city of 50,000. Formerly a central trade route in Canada's Niagara Region, this steel vertical lift bridge has lain dormant since 1972, yet emerged as a symbol of the town. Today, the Main Street Bridge is a heritage attraction that serves as a recreational waterway and vibrant thoroughfare for vehicles and pedestrians.

Lighting the Hometown Bridge

Lighting his hometown's most recognizable landmark had long been a dream for architectural lighting designer and Welland native Marcel Dion, founder of Marcel Dion Lighting Design (MDLD). This fantasy became a reality in 2013 when he attended Toronto's Construct Canada conference and met architect Giorgio Giovinazzo from Welland. Conversation quickly turned to the town's beloved icon, which was in the midst of a refurbishment project. Discussion swirled around the idea of lighting the bridge, and how highlighting this local gem would impact the city.

Three months later, after ongoing discussions and the birth of a vision for illuminating Bridge 13, Welland's heritage board and local Business Improvement Area invited MDLD to present its proposal. Dion, an award-winning lighting designer and

Professional IALD member with 10 years of international experience in lighting design in the retail, residential, hospitality, commercial, entertainment and landscape design sectors, shared his concept for the pride of Welland. He explained, "The bridge was in the process of being restored. It was time to light it and return it to its full splendor – 24 hours a day." Dion continued, "It was time to transform the Main Street Bridge from a utilitarian bridge that people walk or drive on to a showcase that celebrates the city". The Board, accompanied by the mayor, was unanimously enthralled by the potential of the project and ready to engage the citizens of Welland and the Niagara Region to move forward.



From Fantasy to Reality

Officially embarking on the project in April 2014, the design emerged through a study of the bridge's structure and cultural context. Dion clarified that the project was not about simply adding lights. "The structure – the beauty of the bridge – was already in place. We set out to create a nighttime identity that is reminiscent of the five key components of the bridge in its prime." While the intricacy of the bridge is evident up close, the lighting accentuates the iconic silhouette from a distance.

Photo Credit: Thies Bogner MPA

Photo Credit: Lesther Corrales

Employing the latest technology to revive Bridge 13's grandeur of yesteryear, the two towers have been uplit and illuminated using Philips Color Kinetics Color Reach Compact Powercore with various optics to elongate the big mass and highlight the detailed interior. The operating cables, which were removed from the towers during the decommissioning in the early 70s, have been re-introduced and mimicked with Color Reach Compact Powercore narrow beam distribution. A fusion of up and down lighting highlight the machine room – formerly the focal point of the action on the bridge. Color Graze MX Powercore narrow beams illuminate the bridge span by downlighting and grazing in between the web structure; this is reminiscent of the segment that used to rise between the two towers. eW Burst Powercore Architectural downlights function as roadway lighting, strategically downlit to illuminate the street. Finally, large structural beams beneath the bridge are illuminated via Color Graze MX Powercore flood distribution to create reflections on the water and metaphorically 'lift' the bridge to reclaim its former glory.

Photo Credit: Rebecca Ho-Dion

With the concept clearly established, minimizing the town's expenditures while capturing the heart of the city was another key objective in bringing the project to fruition. MDLD accomplished this by developing a design that required as few luminaires as possible, with easy access for installation and maintenance. Distance from areas ripe for potential vandalism was also taken into consideration. This approach won approval from both the City and the Region, and was lauded for the fact that costs were well below early estimates. This exemplifies the use of the latest technology while respecting budget constraints and achieving remarkable results.

MDLD worked with Philips Lighting Canada, whose service was essential in assisting with samples, installation instructions, and expedited production services to meet tight deadlines. LEDgendary Lighting was also engaged to carry out the programming and commissioning.

The Grand Reveal

The public unveiling of the new lighting for Welland's Main Street Bridge took place on July 1st 2015, coinciding with Canada Day, Canada's national holiday. Joined by various city, regional and Welland Hydro officials who contributed to the project, a crowd started to form hours before the official ceremony was set to begin. "I was honored by the number of people that identified with the project," Dion proclaimed.

An introductory lighting display set the evening alight, starting with slowly flashing lights to illustrate the colours and effects, through to rapidly producing other colour schemes that flexed the luminaires' muscles. The event showcased the five core elements of the bridge independently, before culminating with the illumination of the 'Canadian Flag', comprised of the red towers, white bridge and red machine room, all united to represent Canada's Maple Leaf. According to Dion, "It was an amazing night of celebration, collaboration, and pride in our community."

On a typical day the bridge will shine white from dusk until midnight – but not any white, "A slightly warmer white that reflects the heritage nature of the bridge and projects warmth," described Dion. After midnight, only the pedestrian downlighting on the bridge span will remain to reduce uplighting the night sky and meet sustainability objectives. Similar to the flexibility of the historic lift bridge, the illumination of the Main Street Bridge has been programmed to commemorate local events and initiatives with diverse effects and colour schemes.

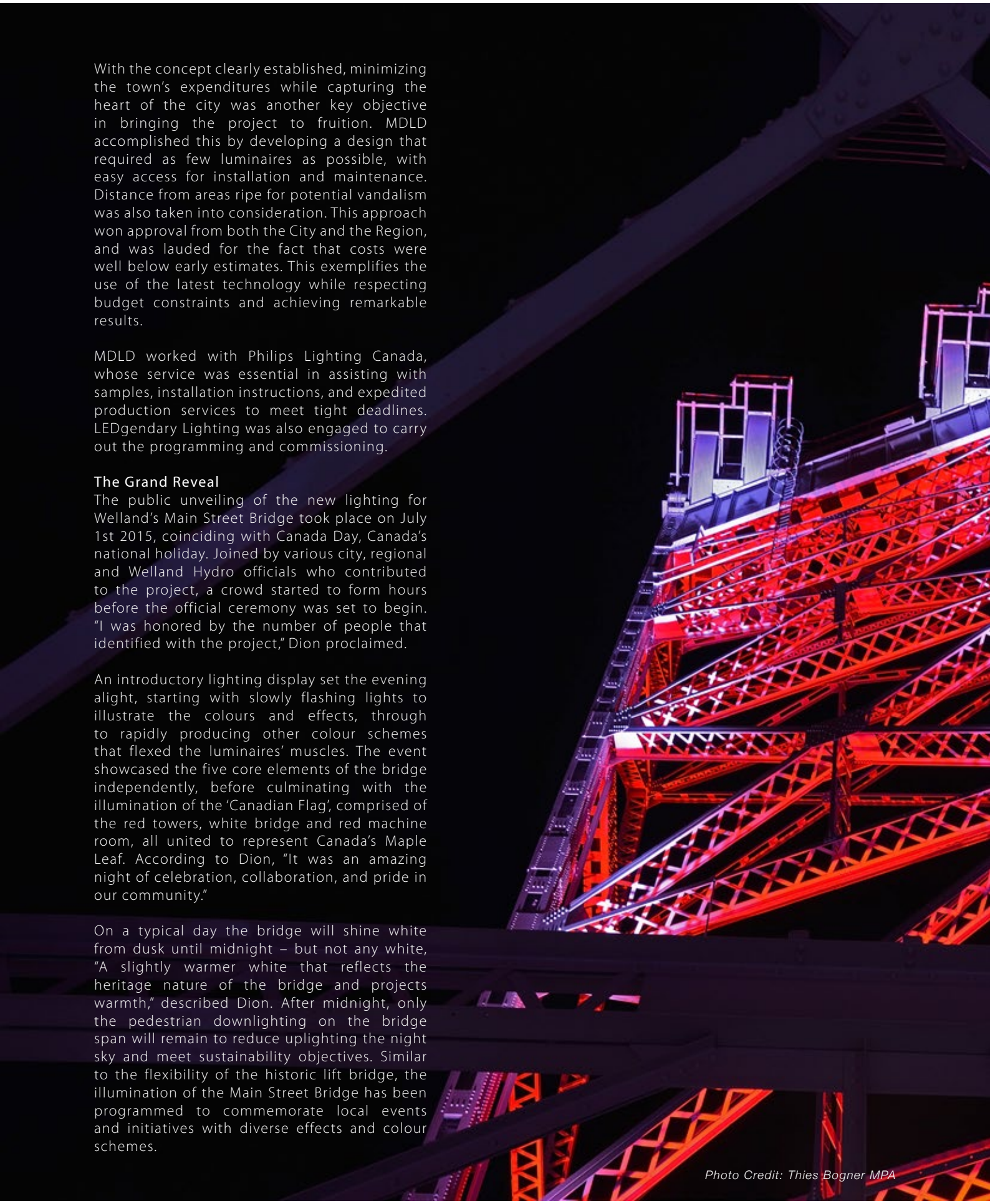


Photo Credit: Thies Bogner MPA

Fuelled by his passion for lighting and his dream to light Welland's local landmark, which is visible from the backyard of his childhood home, Dion donated his time to make this project a reality. From initial concept through to implementation, "I couldn't charge for this; I have wanted to light my bridge for a very long time," Dion confirmed. "I am proud to be able to use my skills to give back to the community where I grew up." That community could not be any prouder, and is awaiting the next light show with anticipation! ■

About the Designer

Marcel Dion, DID, IALD, IES, LC, LEED AP

Marcel Dion, Founder and Principal Lighting Designer at Marcel Dion Lighting Design (MDLD), is an award winning lighting designer with extensive experience and a passion for global design and technology.

A graduate of Algonquin College's Interior Design program, he possesses the unique ability to collaborate with the design team, interpret architectural intent, and craft creative solutions through the fusion of technological nuance and design sensibility. Marcel is a Professional IALD member (International Associates Lighting Designers), Lighting Certified (LC) and LEED Accredited Professional fully engaged in the lighting community. He currently serves as a Board Manager for the Illumination Engineering Society Toronto Section.

Since establishing Marcel Dion Lighting Design in 2010, Marcel has received numerous accolades including IES Awards of Merit and Section Awards for the Brookfield Place Heritage Façade, Brookfield Place Allen Lambert Galleria / Sam Pollock Square, and 'Grace Kelly: From Movie Star to Princess' exhibition.

Prior to launching MDLD, Marcel worked as a Lighting Designer and Project Manager at New York City's Fisher Marantz Stone. Be it retail, residential, hospitality, commercial, entertainment or landscape design, Marcel's 15 years of international design experience translate into strategic lighting solutions that punctuate clients' vision for the built environment.

Photo Credit: Thies Bogner MPA

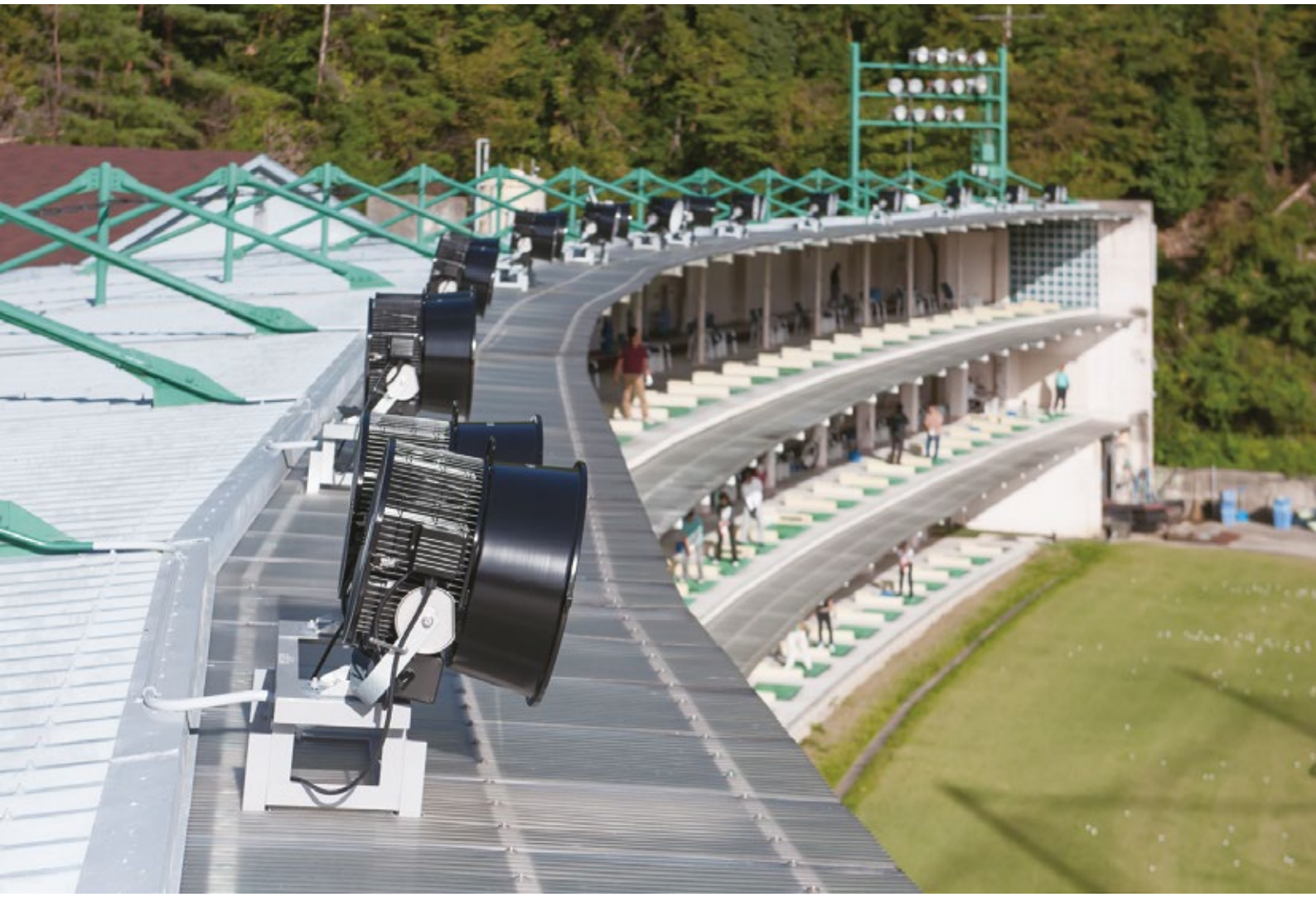
Lighting Improvements for

Shozan Golf Club

Kyoto City, Kyoto Prefecture, Japan

Photo Credits: **Iwasaki Electric Co Ltd Japan**

The high-output LED floodlights (LEDioc FLOOD DUELL 1000W) have made large-scale power savings a reality, lighting the 350-yard fairway and ensuring vertical plane lighting of 100lx at the 250-yard mark and 200lx at the 100-yard mark.



The high-output LED floodlights (LEDioc FLOOD DUELL 1000W) installed on the roof.

A daytime view of the area round the entrance.

Night golfers can now clearly see where balls land following a change in the lighting layout made possible by the latest high-output LED floodlights

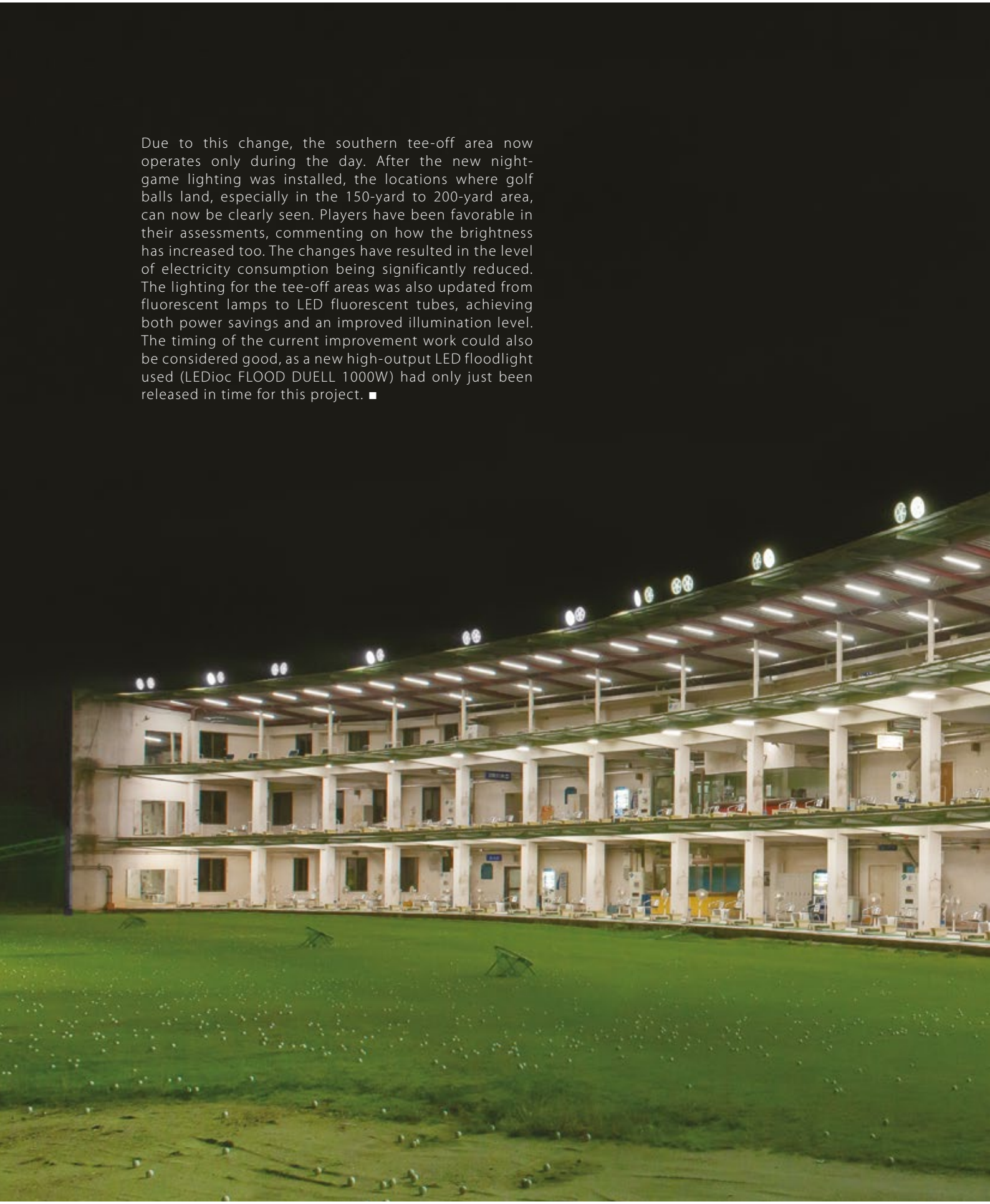
Shozan Golf Club is a large golf range located in Kyoto's Kita Ward, with a 350-yard fairway on both sides (north tee-off area/south tee off area) and a total of 180 tee-off boxes. It is surrounded by a lush green nature reserve and has long been known as a golf practice ground where players can enjoy great scenery as the seasons pass by. Since its opening in 1968, Shozan Golf Club has always kept up with the necessary repairs / improvements to its facilities, with the most recent being upgrade work on the aging night-game lighting equipment. For this upgrade, high output LED floodlights were selected.

Looking out over the spacious 350-yard fairway from the north tee-off area where visitors can enjoy practicing golf in a comfortable lighting environment at night.

With the previous equipment, there were inconsistencies due to the floodlighting positions located at the flanks of the fairway, which made it difficult to see where a golf ball had landed due to the peripheral glare. The lighting environment has been significantly improved with a changed lighting design based on the installation of 28 LED floodlights (LEDioc FLOOD DUELL) on the roof of the north tee-off area. The floodlight positions at both flanks have been removed and the approach is to have lighting from the north tee-off area facing only one direction.

Looking at the north tee-off area from the 100-yard mark. The high-output LED floodlights (LEDioc FLOOD DUELL 1000W) installed on the roof have a good balance of both wide and narrow light distribution and light the fairway in symmetrical light.

Due to this change, the southern tee-off area now operates only during the day. After the new night-game lighting was installed, the locations where golf balls land, especially in the 150-yard to 200-yard area, can now be clearly seen. Players have been favorable in their assessments, commenting on how the brightness has increased too. The changes have resulted in the level of electricity consumption being significantly reduced. The lighting for the tee-off areas was also updated from fluorescent lamps to LED fluorescent tubes, achieving both power savings and an improved illumination level. The timing of the current improvement work could also be considered good, as a new high-output LED floodlight used (LEDioc FLOOD DUELL 1000W) had only just been released in time for this project. ■



The lighting for the fairway uses high-output LED floodlights (LEDioc FLOOD DUELL 1000W), while the lighting for the tee-off boxes is provided by LED fluorescent tubes, creating a comfortable visual environment with power-saving LED lights.

Carnegie Hall,
A Symphony of Light

New York, USA

Lighting Design: **Kugler Ning Lighting Design**
Architect / Interior Designer: **Iu+Bibliowicz Architects, LLP**
Construction Management: **Tishman Interiors Corporation**

Photo Credit: Jeff Goldberg, Esto

“Carnegie Hall is a City, State and National Historic Landmark, deserving pride of place within the night-scape of New York. As the sun sets, the lighting comes on gradually, creating a seamless transition from twilight to nighttime, a visual nocturne appropriate to this worldwide symbol of artistic excellence. The design and execution has received a standing ovation, with bravos to the performance stars Kugler Ning Lighting Design, Iu+Bibliowicz Architects and Tishman Construction Corporation.”

- Richard Malenka, Carnegie Hall

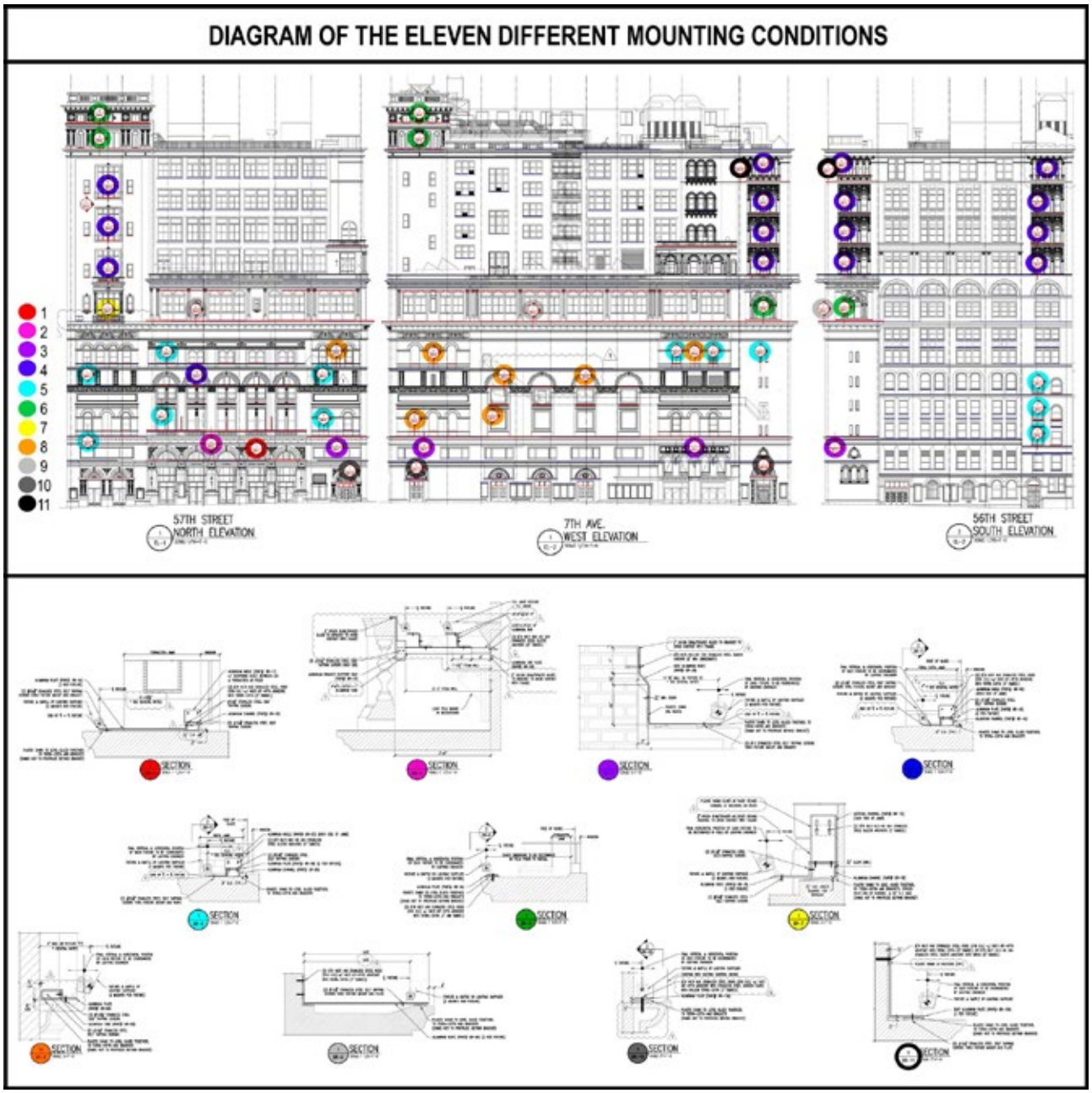
In preparation for its 125th Anniversary Season, Carnegie Hall partnered with the City of New York to illuminate the landmark façade, and engaged Kugler Ning to design the architectural lighting.

The Carnegie Hall façade lighting project began in 2008 to showcase an extensive interior masterplan renovation. A historic, iconic building, never fully illuminated before, posed many challenges.

There were careful rendering and elevation studies done to identify key features that, when illuminated, visually joined the three idiosyncratic facades.

ORIGINAL CONCEPT SKETCHES, 2008

Photo Credit: Jeff Goldberg, Esto



The façade lighting design and infrastructure were completed in 2011, three years ahead of final fixture installation in 2014. Three years can yield several generations of LED so a future-proof infrastructure needed to be designed. Dimming controls were included in our design to harmonize with the advancing LED technology.

For a National Historic Landmark, vigilant study and documentation was required to ensure all penetrations and mounting supports occurred at reparable locations. As an existing building that evolved programmatically over the last 125 years, areas where penetrations

Photo Credit: Jeff Goldberg, Esto

were allowed were not always easily accessible and locations desirable for mounting fixtures were often not structurally sound.

Carnegie Hall's good neighbour policy required that all optics and shielding not only accommodate Landmark requirements but avoid light spill and trespass to nearby buildings.

Extensive on-site mockups were conducted to review LED distribution, output, attachment methods and sightlines. Over 130 linear feet of LED were temporarily installed in 13 locations on two facades. Proprietary 2700K white LEDs were selected to accentuate and blend the three primary materials – iron spot brick, terracotta and painted metal. All tests were completed between midnight and 6AM to reduce the amount of public buzz surrounding the project.

Once the final lighting was installed, preset dimming controls balanced the façade. As the sun sets, the lighting comes on gradually to its preset level. ■

Photo Credit: Jeff Goldberg, Esto

Turtle-Friendly Lighting Solutions for

Port Canaveral's Newest Large-Ship Terminal

Florida, USA

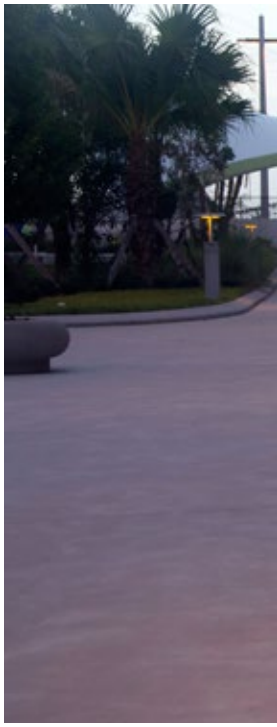
Architecture: **TLC Engineering**
Lighting Solutions: **LUMINIS**
Photo Credits: **LUMINIS**

The Cruise's popularity as a vacation option is ever-increasing. The trend has led to bigger and better ships, regularly reaching mammoth proportions to ferry eager tourists to paradise and back.

Bigger ships mean bigger ports, like Florida's two-story, 187,500 square foot Canaveral Cruise Terminal 1. Opened to the public in December of 2014, the terminal on the south side of the harbor is able to process ships of 6,000 passengers or more, while offering retail, dining and entertainment establishments.

In addition to challenges like passenger ease-of-use, heightened security requirements, and tight budget and schedule considerations, constructing Terminal 1 required a high-performing, efficient and eco-friendly lighting management system to keep the facility well-lit for passengers and ships while overcoming obstacles like coastal weather and the impact on marine life.


RON JON
SURF SHOP



Project architects contracted engineering firm, TLC Engineering for Architecture to design, among other things, the electrical systems of Terminal 1, which had to be multi-functional to meet the demands of ships in port as well as adhere to strict wildlife regulations.

Particularly, the firm was instructed to follow the Canaveral Port Authority's Light Management Plan, developed in conjunction with the United States Fish and Wildlife Service to reduce the Port's direct impact and cumulative glow on sea-turtle hatchlings. Disorientation from artificial lighting contributes to thousands of hatchling deaths every year in Florida, and so lighting had to be designed with this in mind while still being aesthetically pleasing and energy efficient.

TLC Engineering turned to Luminis to help them meet these challenges. They selected the company's newest award-winning exterior luminaire, the MayaLED to light their outdoor pavilion. Featuring an artfully-blended combination of sleek aesthetics, optical performance and energy efficiency, MayaLED fixtures provide superior lighting control and uniformity as well as stable light output ideally suited for park, urban and commercial developments for over 80,000 hours.

"We had two main challenges when lighting Terminal 1," said Chris Van Meter, electrical designer at TLC Engineering. "We needed powerful lighting for ships in port, but we also needed custom turtle-sensitive lighting that met Fish and Wildlife requirements. Luminis gave us exactly what we needed; not only do the luminaires look great, we were able to customize them to our exact requirements."

TLC Engineering installed 152 MayaLED MA14SH quad-mount poles in the terminal's outdoor pavilion, as well as 14 Maya bollards to maintain a safe, well-lit area. Custom amber LED bulbs within 152 full-cutoff fixture heads provide uniform, low-level lighting to minimize the lateral light spread and uplighting that contributes to turtle hatchling survival.

Additionally, engineers were able to connect Luminis' MayaLED luminaires directly to the Port's site-wide lighting system, making them independently controlled from the building's main system in order to match lighting levels with specific activities and security needs.

Public reaction to Port Canaveral Terminal 1 has been overwhelmingly positive as the world's biggest cruise ships continue to dock in the new location.

"We are extremely happy with the Luminis MayaLED lighting fixtures," said Van Meter. "We've also received many compliments from the Port Authority, especially in relation to meeting Fish and Wildlife requirements. Overall, I'd say the lighting in Terminal 1 is a huge success." ■

tLight S3 and S3x LED Desk Lights

By TLight Ltd.
www.tlight.cc

Image credit: TLight Ltd.

TLight Ltd. has launched the tLight S3 and S3x LED desk lights with powerful true-color light output and charging dock for recharging all iPhone and iPods with a lightning connector. With the additional USB port, the tLights can also recharge other tablets and most smartphones.

The new tLights feature the very latest LED technology with a CRI (Colour Rendering Index) of 90, which is close to the perfect light – sunlight with a CRI of 100. This means great color authenticity and a stable and bright light provides a great reading experience without getting tired eyes. Both tLights feature dimmers to perfectly adjust light output (20-100%) to a maximum of 600 lumens (7W) for the S3x and 700 (10W) lumens for the S3.

The high-end tLight S3 additionally features a remote control, Bluetooth 4.0 and 2 integrated 5W speakers powered by Apple's V2.0C authentication co-processor chip and a high-quality ST processor for a crystal clear sound experience. iPhones or iPods can directly play music when plugged into the Lightning dock or via Bluetooth. Other devices such as the iPad, MacBook or other notebooks and tablets can also connect via Bluetooth to the tLight to play music. The S3 also has integrated Audio In/Out ports to connect the S3 to other Audio systems.

The tLights' design and high-grade aluminum finish perfectly matches the high quality and design of Apple's iPhone and iPod. The powerful true-color light output, smartphone and tablet charging function and crisp sound output (S3) makes the tLight the ideal companion on any desk at home, in offices or in hotels.

LED Modules and Drivers for Office Applications

By Vossloh-Schwabe
www.vossloh-schwabe.com

Vossloh-Schwabe's exciting lineup of Linear LED Solutions is ideal for office applications. Covering a range of SMD modules, SMD Kits, optics and many more.

Image credit: shutterstock.com

LED Line SMD L14/28/56 W2

– STANDARD AND HIGH BRIGHTNESS
- Long service lifetime: 60,000 h (L80/B10)
- Highly efficient: up to 165 lm/W at t_P = 50 °C
- 3 lengths available: 140/280/560 mm
- 2 different power classes (up to 2300 lm / 280 mm)
- Zhaga-compliant hole distances

Typical Applications
Built-in luminaires/general illumination
- Office lighting
- Retail, corridor and shelf lighting
- T5/T8 replacement as built-in module
- Furniture lighting
- Backlighting for advertising

LED LINE SMD KIT WU-M-480/-481 and WU-M-501/-502

– STANDARD AND HIGH BRIGHTNESS
- Long service lifetime: 60,000 h (L80/B10)
- Highly efficient: up to 174 lm/W at t_P = 50 °C
- 2 different power classes (up to 2900 lm / 280 mm)
- 2 lengths available: 280/560 mm
- Flexible light distribution by different optics from VS
- Zhaga-compliant hole distances

Typical Applications
Built-in luminaires/general illumination
- Office lighting
- Retail, corridor and shelf lighting
- T5/T8 replacement as built-in module
- Furniture lighting
- Backlighting for advertising

LUGA Line RX 2015

LED Modules COB for Linear Lighting

- Long service lifetime: 50,000 h (L90/B10)
- COB technology (Chip-On-Board) – homogenous light field (no individual light points visible), perfect for use with reflectors
- Highly efficient: up to 148 lm/W at t_P = 65 °C
- Special colours (3000 K / 4000 K) with brilliant white effect (Pearl White)

Typical Applications

Built-in luminaires/general illumination

- Office lighting
- Retail lighting, corridor and shelf lighting
- T5/T8 replacement as built-in module
- Furniture lighting

Linear LED Drivers

Matching linear LED drivers are available in different output classes and current outputs. Further advantages of the driver series:

- Low ripple value
- DALI dimmable / 1-10V dimmable / Push dimmable
- Current selectable
- Integrated soft-start function
- Low inrush current
- High efficiency + High power factor
- Long service life of up to 100,000 hours

Do visit us at the Hong Kong International Lighting Fair (Autumn Edition) 2015, Hall of Aurora Booth no: 1B-C10. We look forward to showcasing our range of LED modules together with an exciting line up of indoor and outdoor solutions.

Image credits: Vossloh-Schwabe

High Bay Lighting Solutions

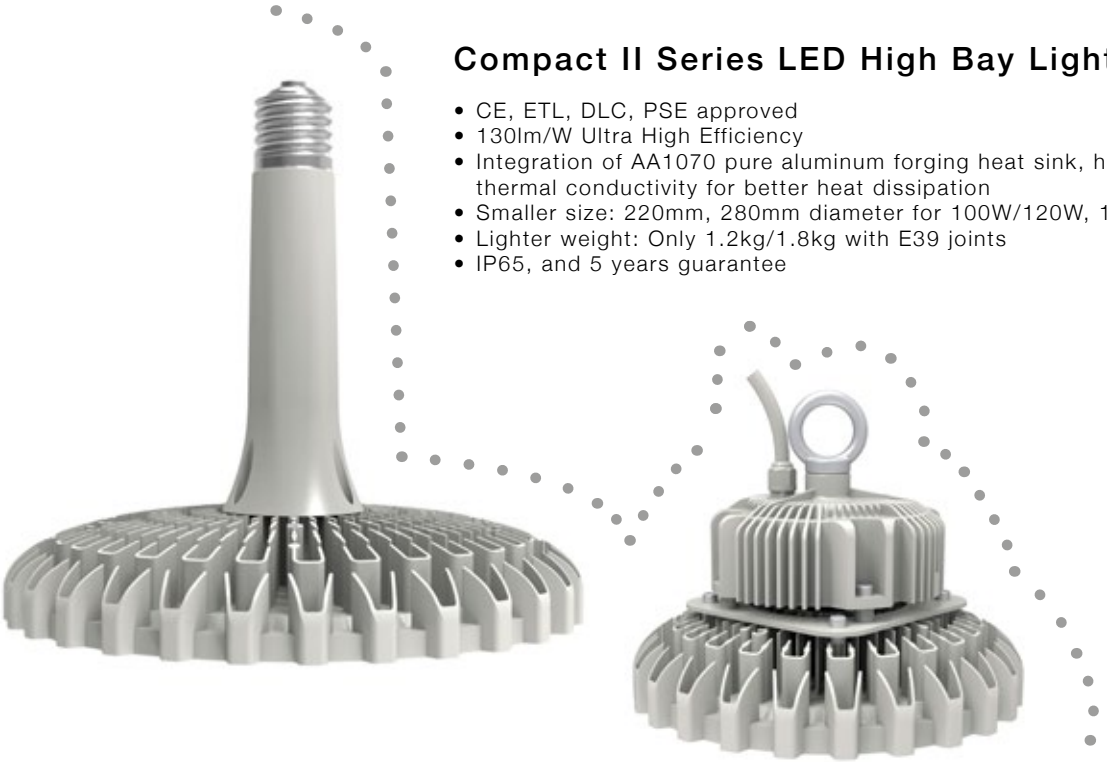
By YAHAM Optoelectronics Co., Ltd
www.yahamlighting.com

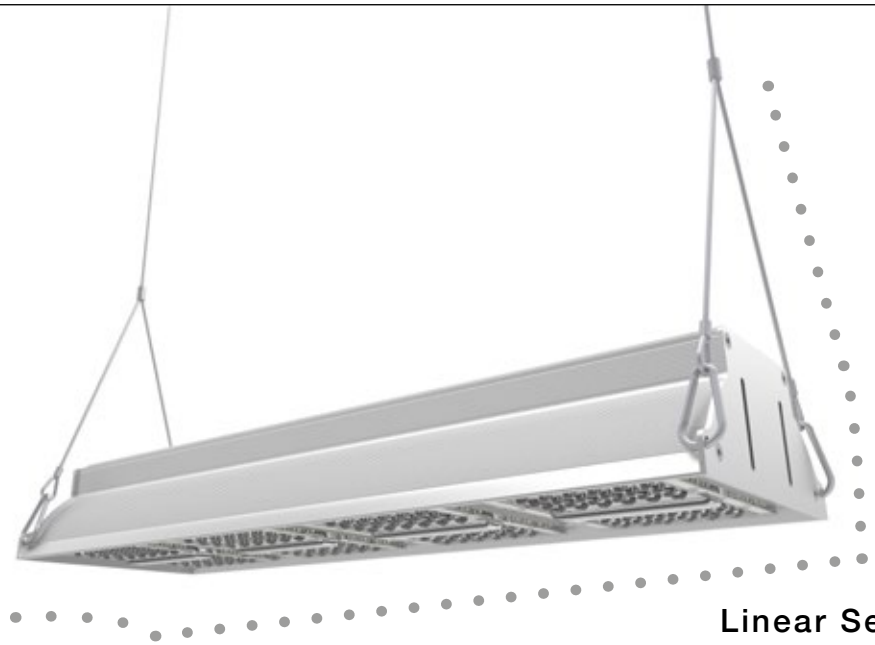
Compact I Series LED High Bay Light

- CE, ETL, DLC approved
- 125 lm/W Ultra High Light Efficiency
- Patented Sunflower Heat Sink for Better Thermal Dissipation
- 100W, 120W, 150W, 180W, 200W provided
- IP65, and 5 years guarantee

Compact II Series LED High Bay Light

- CE, ETL, DLC, PSE approved
- 130lm/W Ultra High Efficiency
- Integration of AA1070 pure aluminum forging heat sink, higher thermal conductivity for better heat dissipation
- Smaller size: 220mm, 280mm diameter for 100W/120W, 150W/180W
- Lighter weight: Only 1.2kg/1.8kg with E39 joints
- IP65, and 5 years guarantee





Linear Series LED High Bay Light

- CE, ETL, DLC approved
- 125 lm/W High Light Efficiency
- Accurate Optical Design 40°*80° Beam Angle
- Specially for warehouse aisle lighting
- 90W, 120W, 150W, 180W, 210W, 240W provided
- IP65, and 5 years guarantee

To meet market needs and lead the lighting tendency, every high bay light is developed to achieve higher efficacy and better quality. YAHAM always pursues elegant appearances for a good aesthetic feel and offers various installation methods to suit different applications. The newly launched high bay lights are warmly welcomed by clients due to their lighter weight, smaller size, easy maintenance, as well as the ability of better thermal management.

The Compact Series is widely used in factories, workshops, supermarkets, stadiums, exhibition halls, toll stations, etc. The picture below shows a Toll Station project in Saudi Arabia using YAHAM 150W LED High Bay Light (480pcs), which wins great praise from the users.

The Linear Series adopts the professional 40*80 degree lens providing narrow and long light distribution to avoid lumen loss, which is very suitable for high racks, warehouses, logistic centers, workshops, supermarkets etc.

MONO LED Lamp

By AZ e-lite Pte Ltd

www.azelite.com

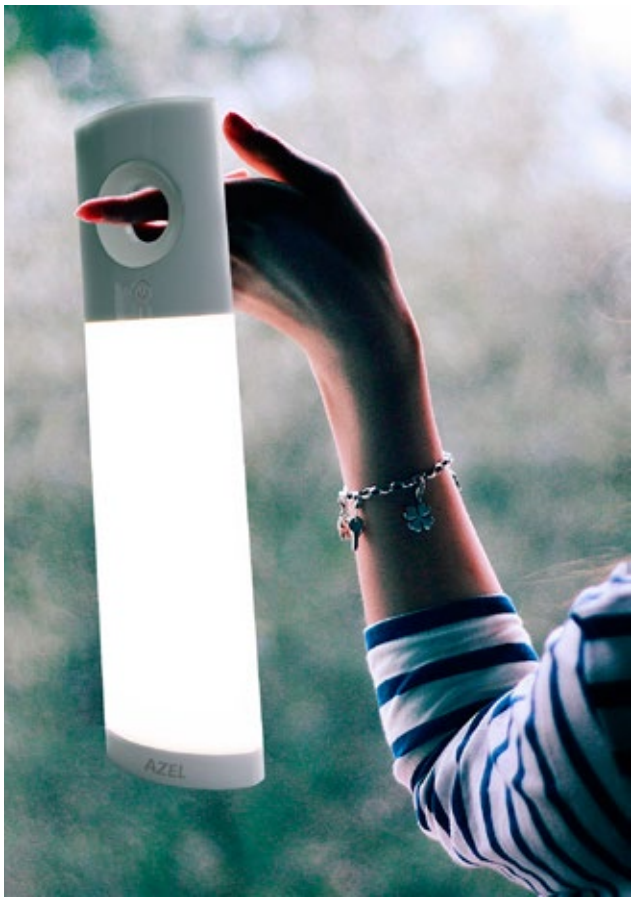
AZ e-lite Pte Ltd, a wholly-owned subsidiary of Aztech Group Ltd specialising in the design and development of quality LED lighting, announces the launch of AZEL MONO LED Lamp.

Portability and Functionality

The stylish MONO Lamp can be used as decorative lighting for the living room, mood lighting for the bedroom or table lighting for romantic alfresco dining. Removable from its base, the lamp can also function as a portable handheld light which you can place anywhere you want for added mobility.

No Messy Cables with Wireless Charging

The MONO lamp base functions as a charging pad for wireless charging of mobile devices based on the “Qi” wireless standard. By creating a magnetic field to induce voltage, “Qi” enables users to wirelessly charge their mobile devices without a cable. The Qi wireless standard is backed by the Wireless Power Consortium, a global industry body with more than 200 members. Qi-compatible handsets include Samsung Galaxy S6 and Google Nexus 7 handsets.



One-touch Switch
You can easily control the brightness of the MONO Lamp using the one-touch switch, which allows you to on, off and dim the lights. Made of lightweight, high-quality material and long-lasting LED bulbs, it promises life span of up to 25,000 hours.

Sleek, Aesthetic Design
The MONO Lamp is designed to impress with sleek, stylish look and choice of five vibrant colours that fit seamlessly with your living space:

Black – classic, elegant design which adds sophistication to your interior decoration
Blue – instill tranquility and coolness with this refreshing MONO lamp
Red – inject passion and excitement with this gorgeous and outstanding colour
White – clean, simple design that suits every living space
Yellow – create a fun, warm and vibrant atmosphere with this cheerful colour

Specifications
Model: MONO DBL200
Input Voltage: 5VDC/1.5A
Power Consumption: 8W
Lumens: 200lm
Colour Temperature: Warm white (3000K)
Dimension: Base: Ø170 mm
96 mm(L) x 50 mm(W) x 368 mm(H)
Weight: 680g (excluding adapter)
Battery Life: Handheld light (no mains power)
100% Brightness: 2 hours
25% Brightness: 10 hours
Lifespan: 25,000 hours

LED Luminaires for Industrial Applications

By Zalux

www.zalux.com

ALHAMA LED-MP

The ALHAMA LED-MP is a dust and damp-proof LED luminaire with modern aesthetics and ease of installation for general applications, and can be mounted on ceilings or walls in damp or corrosive environments. It is housed in injected polycarbonate with a UV filter in grey (RAL 7035) integrating two gear tray holders to allow suspension to carry out its connection to the mains and is designed for optimum light distribution. A polyurethane gasket is also present to obtain an IP66 rating and is fitted with fixing springs in stainless steel for fixing onto ceilings or suspending within the triangles.

MEGA LED-M

The MEGA LED-M is a weatherproof high-bay luminaire equipped with an LED module for mid- to high-ceiling applications. It is housed in compressed glass fiber reinforced polyester with a transparent diffuser in acrylic (PMMA) with UV protection stabilized for maximizing efficiency and minimizing distortion. Polyurethane gasket guarantees an IP66 rating and the gear tray is manufactured in a white lacquered steel plate. Stainless steel clips and fixing springs allows for convenient fixture to ceilings or by suspension.

ACQUEX LED-M

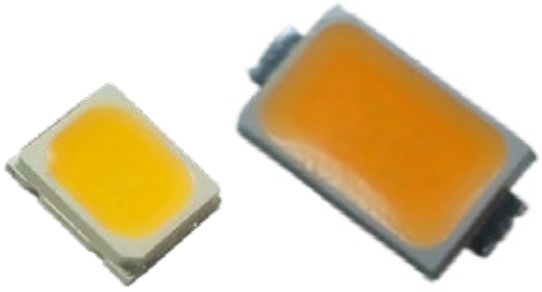
The ACQUEX LED-M is an explosion protected IP66 luminaire equipped with state of the art LED technology. It is housed in compressed glass fiber reinforced polyester in yellow (RAL 1003) with a transparent polycarbonate diffuser. The gear tray is of white lacquered steel plate and also has a polyurethane gasket and stainless steel clips.

If you have any enquiries or require more information, please contact **nperido@BAGelectronics.com.ph**.

LED T900 H CURVE TRACKLIGHT

By Brightgreen
www.brightgreen.com

Available in a low-sheen white or matte black finish, the Brightgreen LED T900 H Curve tracklight offers gallery-grade lighting in a stylishly simple fitting. With a 355-degree body rotation and a 90-degree angle adjustment, the T900 H Curve features a constant friction hinge for seamlessly smooth adjustments. Projecting 802 lumens of brilliant Tru-Colour brightness, the 3000K T900 H Curve tracklight is a perfect solution for illuminating various interior spaces.



2835 HE / 5630B HE SERIES PLCC HIGH EFFICIENCY LEDS

By Edison Opto Corporation
www.edison-opto.com

The PLCC 2835 HE Series features ultra high luminous efficacy (185lm/W @4000K) and a compact package size, which increases the flexibility in lamp design and expands the range of applications. With the outperforming efficiency, the PLCC 2835 HE Series is optimized to be used in high-end LED market such as in boutique and luxury apparel stores.

In addition, for the 5630 package product, Edison Opto introduces the advanced PLCC 5630B HE Series which has higher efficiency (188 lm/W @4000K) and greater brightness (it reaches 34 lm @65mA, 4000K) than the previous products, providing customers with a better and brighter lighting environment. The slim size of the PLCC 5630B HE series makes it flexible to be used in a variety of applications such as commercial lighting, residential lighting and hospitality lighting.

Edison PLCC 2835 HE and 5630B HE Series have passed the LM-80 verification, providing quality and a lifetime guarantee which help LED luminaires enter the market quickly. Edison Opto continues developing high quality products toward 200lm/W and expects to provide customers with more energy efficient and high efficiency lighting solutions.

PIXIS LED SPOTLIGHT

By Eklipse Architectural Lighting
www.eklipselighting.com

PIXIS is a versatile, easy-to-install LED spotlight which is a gem of innovation and ingenuity. It can be installed on stem or a pogo pin, thus ensuring safe handling. Thanks to its unique magnetic integration, PIXIS can be plugged or unplugged with one simple movement. By the same token, it adapts to all kinds of setting and allows for an atmosphere tailored to your needs.

PIXIS is made of three high power LEDs in an aluminum spot with an integrated heat sink. Sturdy and very small, it has a magnetically assembled head which makes it possible to handle optics according to one's own way and means. The stem can spin freely, each articulated arm allows for a full 360° degree rotation, and the head can tilt up to a 80°. PIXIS can even fit into 5/8 inch panels.

Elegant and discreet, PIXIS is specially designed to create precise, accent lighting in small environments and is ideal to dramatize them. It is especially recommended for retail use, as its main purpose is to catch one's eye and draw attraction to window displays.

EYE LEDIOC HB

By Iwasaki Electric Co., Ltd. Japan
www.eye.co.jp

The LEDioc HB is an ideal alternative to replace traditional HID high bay lighting, providing maximum energy savings as well as achieving the desired application environments equivalent to HID high bay luminaires.

- Available in 110W, 135W, 210W and 255W design
- Delivers light output replacing 250W to 700W traditional metal halide high-bay
- Highly efficient and high-power with COB-type LED Package : up to 135lm/W
- 6.5 kg lightweight design utilizing magnesium alloy body
- Dimming compatible: PWM 25~100% (210W model)
- Instant on/off
- Long life: 60,000 hours (L80)
- Choice of 4000K or 5000K

95MM SMD-9 DOWNLIGHT

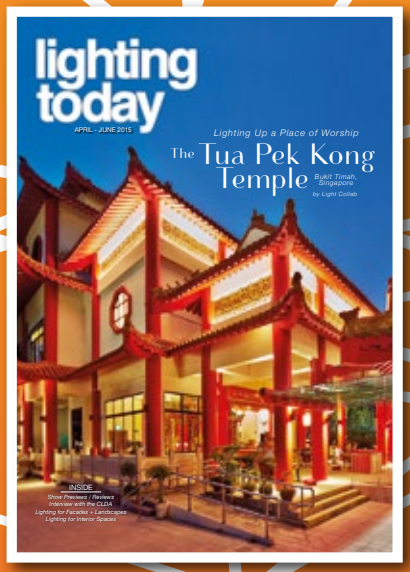
By Seeshine Lighting Technologies Limited
www.seeshinelighting.com

The 95mm SMD-9 by Seeshine Lighting is an IP65 LED downlight, which uses Everlight's SMDLED chip. This environmentally friendly and mercury-free luminaire has CE, RoHS and SAA certificates and has a 4-year warranty. It also supports Triac Dimming and is suitable for indoor wall and ceiling mounting and can be used with an ambience temperature range of -20°C to 45°C.

FIALE II DOWNLIGHT

By Spectrum LED
www.wojnarowscy.com.pl

FIALE II downlight is an ideal substitute for 35W halogen light luminaires. With an aesthetic design made of brushed aluminium, it looks great in any application – in false ceilings, in kitchens, bathrooms or living rooms. Thanks to the lower glare of invisible LEDs, there is a more relaxed atmosphere and work environment. At the same time, there is the option to adjust the glance angle to illuminate places in which the customer is most interested.



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KOI LAMP

By Nahoor

www.nahoor.com

The Koi lamp is characterized by the golden tones of a precious essence to wrap the bright points that indicate the walking direction. The Italian lighting designer William Pianta has created two models of Koi lamp: floor and wall. The versions are composed by teak solid wood and polycarbonate. The Koi lamp can be used outdoors (protection IP65) or indoors. Also, thanks to the two teak solid wood blocks, it can be used as a coffee table or as a seat. Each Nahoor product is "100% made in Italy" certificated and has its own certificate of authenticity, which guarantees origin and quality.

HELIX LED INDOOR/ OUTDOOR WALL SCONCE

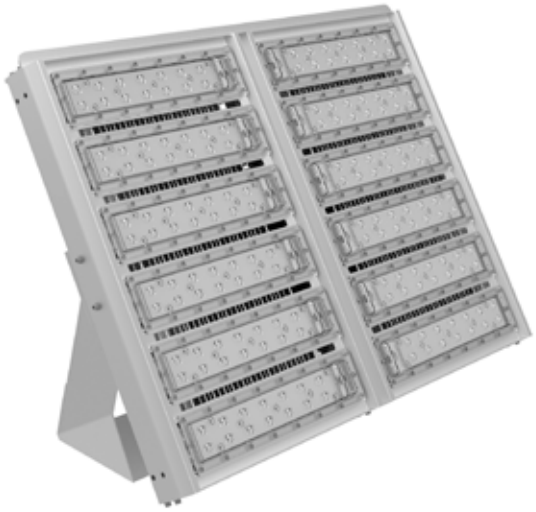
By Modern Forms

www.modernforms.com

Sleek and commanding, the Modern Forms Helix features dramatic curves and contours that define this graceful design. This LED luminaire delivers interest-generating illumination with up and down lights.

IP65 rated for wet locations, Helix is hand formed of heavy gauge aluminum. This 8-watt luminaire operates without the use of a transformer or driver and can be dimmed with an electronic low voltage (ELV) dimmer. Utilizing proprietary LED technology, Helix is available in a 3000K colour temperature with a CRI of 85 and has a 50,000 hour rated life.

Available in two sizes; 17" tall, 6" wide and 4.5" depth, and 24 1/8" tall, 8.5" wide and 6 3/8" depth, as well as two architectural finishes; Graphite and Bronze, Helix fixtures can accommodate a wide range of interior and exterior applications.



YAHAM LUMIWAY SERIES LED HIGH MAST LIGHT

By YAHAM Optoelectronics Co., Ltd

www.yahamlighting.com

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- High Brightness of up to 110lm/W
- 30° professional optical design suitable for distant spot lighting
- Mature modular design possessing high reliability
- IP65 Rating applicable to outdoor environments
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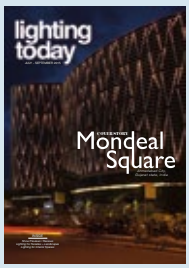

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November

WORLD ARCHITECTURE FESTIVAL, November 4 – 6
Suntec Convention & Exhibition Centre,
Singapore
Email: info@worldarchitecturefestival.com
www.worldarchitecturefestival.com

INTERLIGHT MOSCOW POWERED BY LIGHT + BUILDING, November 10 – 13
IEC Expocentre,
Moscow, Russia
Email: interlight@russia.messefrankfurt.com
www.interlight-moscow.ru

MEGABUILD SURABAYA, November 12 – 15
Grand City Surabaya,
Indonesia
Tel: +62 2556 5006
Email: hilda.satyadi@reedpanorama.com
www.megabuildsurabaya.co.id

ECOLIGHTECH ASIA 2015, November 19 – 21
Plenary Halls, The Queen Sirikit National Convention Centre,
Bangkok, Thailand
Email: ecolight@qsncc.com
www.ecolight-tech.com

December

LED EXPO, December 3 – 5
Pragati Maidan,
New Delhi, India
www.led-expo-newdelhi.in.messefrankfurt.com

January

LIGHTING JAPAN 2016, January 13 – 15
Tokyo Big Sight,
Tokyo, Japan
Tel: +81 3 3349 8519
Fax: +81 3 3349 8530
Email: light@reedexpo.co.jp / visitor-eng.light@reedexpo.co.jp
www.lightingjapan.jp

February

STOCKHOLM FURNITURE & LIGHT FAIR, February 9 – 13
Stockholmsmässan,
Stockholm, Sweden
Tel: +46 8 749 41 00
Fax: +46 8 99 20 44
Email: info@stockholmsmassan.se
www.stockholmfurniturelightfair.se

March

STRATEGIES IN LIGHT, March 1 – 3
Santa Clara Convention Centre,
Santa Clara, CA, USA
www.strategiesinlight.com

MAISON&OBJET ASIA, March 8 – 11
Marina Bay Sands Expo and Convention Centre,
Singapore
Tel: +65 6336 7786
Maison-objet-asia@badgeonline.net
www.maison-objet.com/en/asia

INTERNATIONAL FURNITURE FAIR SINGAPORE, March 10 – 13
Singapore EXPO,
Singapore
Tel: +65 6569 6988
Fax: +65 6569 9939
Email: enquiry@iffs.com.sg
www.iffs.com.sg

WORLDBEX 2016, March 16 – 20
World Trade Centre Metro,
Manila, Philippines
Tel: (632) 656 9239
Fax: (632) 477 1899
Email: info.worldbex@gmail.com
www.worldbex.com

MEGABUILD INDONESIA, March 17 – 20
Jakarta Convention Centre,
Jakarta, Indonesia
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www.megabuild.co.id

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