An exciting lighting tour of Japan: Experience how Japan utilises lighting design and technology into city lighting projects

Introduction
The tour was very fruitful, and enabled us to experience the concept of “less is more” in terms of lighting design. The concern for energy conservation and efficiency from Japan’s lighting and building industry as well as the integration of lighting design with architectural projects, energy systems and the functions of buildings, were some of the key focuses of the tour. We were invited to visit seven symbolic spots showcasing unique lighting design, including:

- RE-TEM TOKYO
- TOKYO GATE BRIDGE
- KABUKI-ZA
- TOKYO STATION MARUNOUCHI TERMINAL
- TOKYO SKYTREE
- KITTE ECO LIGHTING BUILDING
- HIKARIE – HIGH STOREY SHOPPING MALL IN SHIBUYA

Additionally, we attended the “symposium of smart illumination” and the “smart illumination tour”, which gave us ideas on innovation in city design, and the future of smart illumination.

We look forward to the next event, and hope more individuals can experience the inspiring lighting designs coming from Japan.

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**Lighting project 1: RE-TEM TOKYO**

“Simple lighting installations can both light up a site and give totally different impressions to others. They don’t just change the visitors’ impression of a place, but can also change the mindset of the staff working at the site.”

- RE-TEM Tokyo is a recycling factory designed for visitation from the public. The architect placed the machineries and waste products in the facility’s open area so that people can see the recycling process through the entrance.
- The lighting designers involved in the property’s development, used vividly-coloured lighting effectively, transforming the machineries and waste into popular and artistic objects. A “shining moonlight” effect was created on the entrance canopy through the use of two floodlights with DMX color changers, housing 20 colored lights, programmed to change every 75 seconds.
- Utilising a mix of lighting features, the facility’s lighting designers were able to achieve a comfortable working environment for employees whether it was day or night. Fluorescent lights were installed in the office spaces to create comfortable and cheerful areas during the day hours. At night, coloured lights which were recessed into the facility’s windows created a rhythmic pattern across the building. This also allowed employees to enjoy coloured windows from within the building, providing a stained glass effect.

Photos are taken from “Cool Japan Programme”

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Lighting project 2: TOKO GATE BRIDGE

“It’s such a wonderful example of modern bridge design in Tokyo. The creative lighting design of the bridge added an even greater aesthetic to its functionality.”

- The truss bridge is 2,618 metres long and 87.8 metres high, connecting the Koto Ward area with reclaimed land in Tokyo Bay.
- A total of 886 LED lights are installed on the bridge under span. The light fitting’s interval gradually increases towards the end of the bridge in harmony with its gentle arch, which reduce the number of fixtures and lowers energy consumption.
- The lights illuminate the distinctive shape of the bridge, which resembles two dinosaurs squaring off against each other. The coloured LED lighting on the bridge’s sides shine and create a unique ambience each month – Pearl for February, green leaves for May, the sea for July and autumn leaves for November.
**Lighting project 3: KABUKI-ZA**

“This is a demonstration on how architectural lighting could give a new look to historical buildings through the installation of halogen and LED lighting, creating a candlelit effect.”

- The new Kabukiza theatre is the shining star of Tokyo’s Ginza district, the lighting at night turns the building into an attractive and iconic city landmark.
- The tiled roof of Kabukiza is bathed in light, which, located behind the theatre, creates the image of everlasting moonlight.
- The changes in duration and intensity of lighting, according to the season’s changes or the evening and early-morning sunlight, creates a mood of coolness in summer and warmth in winter.

Photo is taken from "Cool Japan Programme"
Lighting project 4: TOKYO STATION MARUNOUCHI TERMINAL

“The terminal utilises light to preserve its original structure, while at the same time adding artistic value to the building.”

- A classic building with a 100-year history was upgraded through stylish modern lighting, resulting in 4 different light scenes scheduled for each night.
- The lighting design highlights a “warm and friendly scenery” through the usage of LED lights to outline the shape and details of the building and provide a bright and eco-friendly atmosphere.

Photos are taken from "Cool Japan Programme"
**Lighting project 5: TOKYO SKYTREE**

“Unlike similar kind of towers in other cities, the lighting design at Tokyo Skytree is not stressed on technology nor quantity of lights that have been used, but on the optimum usage of light. To minimise the building’s power consumption, the designers applied the traditional element of light and shadow.”

- Tokyo skytree is a building with its lighting operations and architecture expressing strong historical points, the culture of the downtown area and Japanese concepts on aesthetics.
- The lighting design concept of the tower was inspired from the scenery of “Mt. Fuji”, with references to the mountain’s white snow blending into the earth.
- The two themes incorporated into the building’s aesthetics was “Iki”, the spirit of Edo (sophisticated and dynamic) and “Miyabi” one of the traditional Japanese aesthetics meaning “elegance”, “refinement’ and “courtliness”. They express the concept that “today” is connecting to “tomorrow” and beyond tomorrow expands into the “future”. The tower has also integrated the Japanese-style design with the integration of the light colour of Wa – mix of of blue and purple.
- The floodlights in the body of the tower utilise white and amber-coloured LEDs. In the entrance area, the ceiling features a traditional Japanese chamber, light up either in “Iki blue” or “Edo purple”. At the highest deck, there sits an area where visitors can enjoy lighting shows created with mirrored walls.

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Lighting project 6: KITTE ECO LIGHTING BUILDING

“By purposely allowing sufficient daylight into the building via the garden roof, the energy efficiency of the building is superiorly enhanced.”

- KITTE, a high-tech green building in Tokyo has been rebuilt from a historical post office to become a complex integrating a cultural museum, shopping mall and commercial building. It represents the culture, tradition and innovation of Tokyo, while also shaping the city’s new identity by uniting the “old” and “new”.
- The building emphasises “light conservation” and features a symbolic triangular skylight in the connecting area of the new and old building portions, adding dynamic elements of light and shadow to the building throughout the day. Solar energy is generated via the solar panels and blinds. The usage of floor-to-ceiling glass allows for maxim usage of natural light.
- The building also utilises new and advanced BIPV materials and intelligent building systems to reduce energy consumption for heating in winter and cooling in summer.

Photos are taken from "Cool Japan Programme"
Lighting project 7: HIKARIE – HIGH STOREY SHOPPING MALL IN SHIBUYA

“The use of LED lighting helps to save on electrical energy in return”

- Hikarie Shibuya is a retail and entertainment complex with cultural elements such as a theatre, exhibition space and workspace for artists, designers and other creative people.
- The building is energised by the extensive use of LED lighting and display bands, providing colourful lighting and animations that also save energy cost and at the same time present an innovative and lively image.
- The lighting design and devices used on the 11th level where the theatre is located are impressive. The LED lighting is integrated into the theatre’s roof, providing sufficient lighting and creating a grand atmosphere which suits the theatre style at the same time. Whilst, the LED light used on escalators are able to highlight the outline in style plus serve as a safety mechanism.
- Another highlighted area is the high traffic flow within the underground atrium that enters the building from the subway. The nifty lighting and circular LED bands that display animations all provide a spacious and open feeling for visitors entering the complex.
- The designer also designed a semi-circular atrium called “urban core” from Basement level 3 to the 4th floor, bringing exterior light into the space, and reducing CO2 emission significantly.

Photos are taken from "Cool Japan Programme"
Smart City Week OLED 2013

- Demonstration on smart city development under the theme “city innovation”
- The event gathered heads of city government and other senior officials from across Asia to share ideas on urban issues and the future of smart cities.
- Highlighting the growth of OLED technology in Japan’s display panel market

Symposium on Smart illumination

- Smart-city related themes such as “the future of city Planning”; “utilisation of sensors and wireless network to create new urban function for smart cities” and many more.

Smart Illumination Tour

- An event started in Yokohama after the 2011 earthquake.
- The Yokohama Festival shows how the Government is trying to engage the public and students into the project.
- Impressive for the scenic landscape of unique lighting installation were created across the city of Yokohama, showcasing the next generation of lighting installation.

Photos are taken from "Cool Japan Programme"