W2 ARCHITECTURAL
LIGHTING
A DIVISION OF WAC

Case Study | Guangdong Science Centre

Guangdong, China

W2 Architectural Lighting Illuminates The World's Largest Science Museum

Guangdong Science Centre

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Project Challenges:

- Create a flexible lighting fixture configuration that will maximize the impact of displayed items.
- The irregular shape of the space would require a flexible, high performance lighting system that will illuminate hard to reach areas while maintaining a low profile.
- The lighting system must accommodate a broad range of luminaires and lamping types to deploy a variety of effective lighting applications throughout the building.
- The lighting system should be easy to configure, install, operate and maintain during its usage.

The Art Design Director at Guangdong Jasmine Interior & Construction Company selected W2 Architectural Lighting to provide fixtures to reliably illuminate the inner structure and the exhibition halls of the world's largest science centre - Guangdong Science Centre. W2 Architectural Lighting solved all of the various lighting challenges by using its fixtures in a wide range of applications throughout this irregular shaped building.

Located on the western part of Xiaoguwei Island, Guangzhou, and with a floor area larger than Beijing's Tiananmen Square, the Guangdong Science Centre is the largest science facility of its kind in the world. Officially opened in September 2008, the centre offers eight exhibition areas, four science cinemas, two open laboratories and a digital "family experience" hall. Outside the main building is an 861,120 square feet man made lake for water-themed exhibitions, and an outdoor science square. The building's appearance is irregular and resembles the five petal Kapok Flower -- which is the city emblem of Guangzhou.

The many purposes of the centre include: to popularize science education; create a science atmosphere; enhance awareness of science and technology; and to guide and promote the development of science and technology throughout Guangdong province.

World-renowned architect firm Skidmore, Owings and Merrill was responsible for the architectural design of the project while Guangdong Jasmine Interior & Construction Company handled its interior design. Jasmine chose W2 Architectural Lighting as a reputable and experienced manufacturer and designer of reliable, high quality and high performance luminaires for museums and exhibition halls.

The objective was to create lighting fixtures that were synergistic, enabling the architecture and interiors to provide a dramatic and memorable experience for all of the people who visit the centre. Effective exhibitor lighting helps the general public to interact with and view the displays easily as they walk throughout the galleries. The right amount of light provides a creative, safe and meaningful environment where all of the objects can be studied and enjoyed. The lighting design integrates natural light sources through windows, with task lighting and decorative luminaires. More than 20 different types of W2 Architectural Lighting fixtures were deployed throughout the building.

WAC Lighting faced several challenges when working on this project, the biggest of which was the irregular shape of the exhibition halls due to its Kapok Flower design.

"Having worked with WAC Lighting for other projects, what we needed to do is to let them know what kinds of lighting effects we expect, then they would come back with recommendations for the suitable fixtures that address the most demanding situations. W2 Architectural Lighting fixtures have always been high quality and stable, they were a natural choice,"
Huang Xian Feng,
Art Design Director at Jasmine.

In addition, some of the objects on display were round in shape and the required lighting fixtures needed to follow a curve to light them properly.

The solution was to utilize W2's Flexrail2, a bendable line voltage, 2-circuit track system designed for the most challenging displays. Using its extensive selection of suspension and power options, Flexrail2 accommodates a wide range of ceiling heights. Its flexible track can be bent to follow the shape of any interior element and achieve the precise lighting effects.

An additional challenge was the extreme height of the exhibition hall, which measures 41 feet and the lighting fixtures needed to be installed at an 26 feet level. W2 had to use the form and space to create the best lighting results. HID spots with honeycomb lenses were installed because they can be adjusted easily for a variety of beam angles and help illuminate areas where track luminaires could not reach. The spots were configured to deliver specific amounts of light on exhibitor displays.

Another important perspective for lighting the Guangdong Science Centre is the relationship between items on display and the needs of lighting.

The irregular shapes of the display areas, combined with the tall ceilings, presented enormous challenges for performance based luminaires, The centre's pathway and display areas were not distinctively separated so the rail lighting had to illuminate the walkways with some luminaires, and highlight the displays with other fixtures from the track above.

W2's Flexrail2 track lighting offers the ability to mount and aim the luminaires in any configurations to place the right amount of light wherever it is needed. The fixtures utilize low voltage lamps with reflectors that provide precise beam control.

Lighting is the key to bringing out the best of museum exhibits. In the Guangdong Science Centre, W2 Architectural Lighting deployed a wide range of specification grade lighting fixtures for a variety of different applications. For example, in the "Flight Dream" exhibition hall, visitors can pretend to be astronauts by standing behind an astronaut outfit display for photo opportunities. For this display, the lighting designed needed to consider both the exhibitor displays and how the lighting will enhance visitors' photo-taking potential.