

## Honorable Mentions

### COMPANY

China State Construction Engineering  
(Hong Kong) Limited

### PROJECT

Hong Kong Palace Museum Work Contract for  
Main Contract Work

### LOCATION

West Kowloon Cultural District, Museum Drive,  
Kowloon

### TYPE

New Building

### SCHEDULED TIME OF COMPLETION

November 2021

# Hong Kong Palace Museum on Cloud



中國建築工程(香港)有限公司  
CHINA STATE CONSTRUCTION ENGINEERING (HONG KONG) LIMITED

## About China State Construction Engineering (Hong Kong) Limited

China State Construction Engineering (Hong Kong) Limited ("the Company" or "China State Hong Kong") started its construction business in Hong Kong in 1979. The Company engages in building construction and civil engineering works. China State Hong Kong plays an active role in the construction industry by means of its sound quality management, and has professional expertise capable of undertaking high quality and technically advanced projects. It has undertaken over 800 construction projects in Hong Kong and Macau over the past 40 years and has acquired substantial experience and capabilities in doing so. Projects undertaken range from building works, namely, public housing, private residential, office / commercial, industrial, hospital institutions, educational and cultural facilities, hotels, public institutions; to civil engineering works, namely, site formation, highways, bridges, reclamation and tunnel projects; as well as piling, mechanical and electrical engineering works.

### BIM PARTNERS

West Kowloon Cultural District  
Authority

Rocco Design Architects Associates  
Limited

Ove Arup & Partners Hong Kong Limited

China State Construction Science and  
Technology Limited

Transcendence Company Limited

### AUTODESK PRODUCTS USED

Autodesk® Architecture, Engineering &  
Construction Collection

Autodesk® AutoCAD®

Autodesk® BIM 360® Docs

Autodesk® Dynamo

Autodesk Forge®

Autodesk® Navisworks® Manage

Autodesk® Revit®

## Project Description

Hong Kong Palace Museum, being the pioneer of high technology histrionic museum in Hong Kong. The museum situated in the heart of the western center in Hong Kong, surrounded by a panoramic view of Hong Kong most famous Victoria Harbor. And the museum will have 7,800 square metres of gallery space, introducing aspects of the fascinating history and culture of the Palace Museum, with exceptional works from its collection, such as painting, calligraphy, the decorative arts, and rare books.

## Project Challenges

This museum have a complex inverted pyramid superstructure with unique irregular shape elements, specially the 4000+ exterior aluminium panel and 7000+ feature ceiling panel, it brings numerous challenges to the construction team. It is necessary to coordinate and collaborate with the engineers and sub-contractors earlier to establish the true constructability with construction procedures. COVID-19 forces the construction industry to face the challenge of labour shortages, supply chain issues and financing pressures, our company is decided to accelerate the digitization of construction site operation, logistic and overall construction management.

## Solutions for challenges

To build the complex museum building during the COVID-19 pandemic, China State Hong Kong has been fully use the BIM to enhance the safety, quality, and productivity on the construction site. BIM level 2 was adopted and implemented as the Single Source of Truth (SSOT) throughout the entire lifecycle of this project. Especially during construction, BIM acted as a collaborative platform for all parties involved, helped to share real-time design and construction information, fostered effective communications, reduced human error, accelerated construction speed, improved craftsmanship and overall quality of work, and in turn it effectively promotes Integrated Project Delivery System.

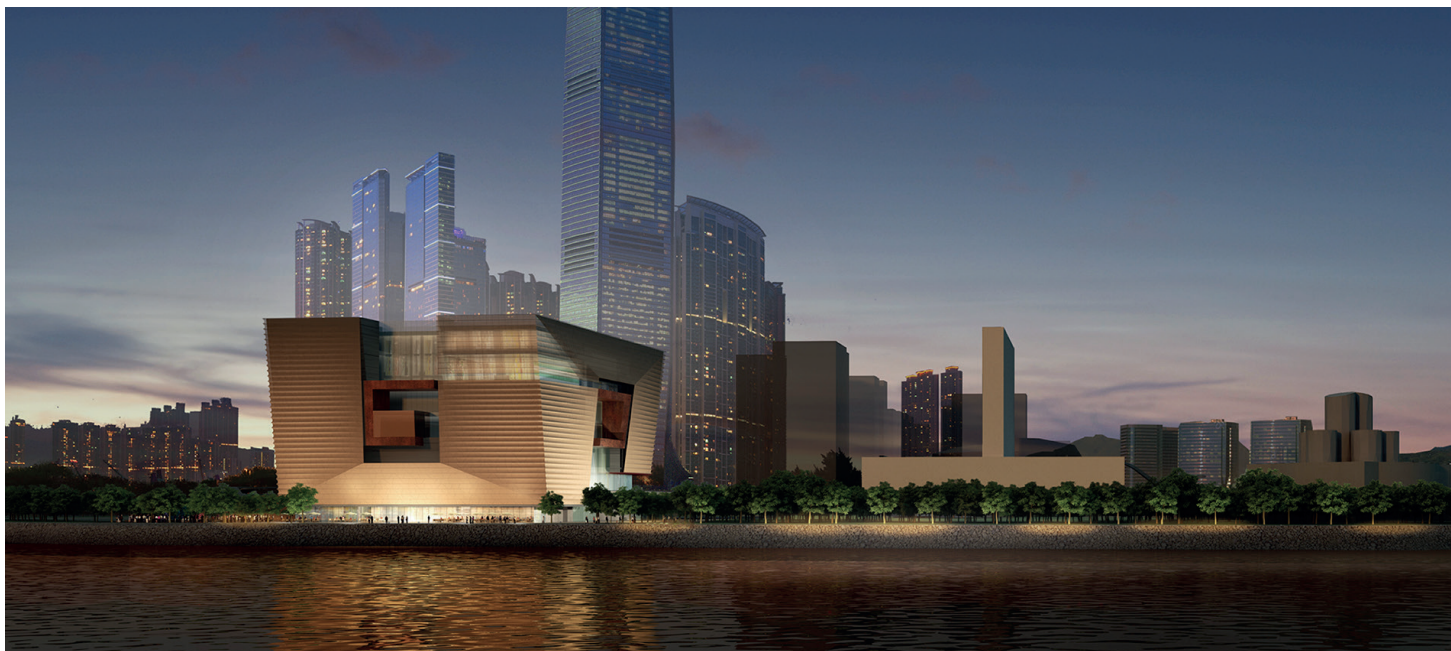
## How does BIM benefit the project?

To work collaboratively from a single source of truth on Common Data Environment, BIM creates confidence and helps to build trust among the project participants to capture a complete record of the project with a unique data ownership model that eliminates barriers to collaboration, increasing adoption and data sharing across the entire project team. This trust results in greater adoption, which yields more project data and insights. It also creates an unalterable audit trail, helping to reduce disputes and drive faster resolution.

## Better with BIM

It is the policy of China State Hong Kong Corporation Technology to become a fully 3D collaborative BIM environment by 2021. All project and asset information, documentation and data are digitized and be used in the whole building lifecycle. The key to provide this environment is the Common Data Environment (CDE), a cloud space for collecting, managing and sharing information with different teams working on a project. This is also a minimum requirement of a construction project to achieve BIM Level 2, and even BIM Level 3 standard.

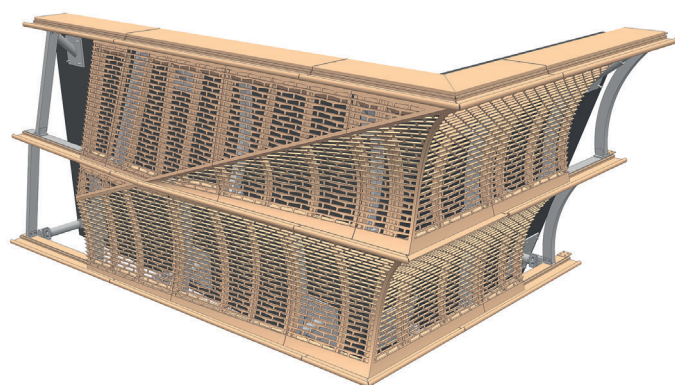




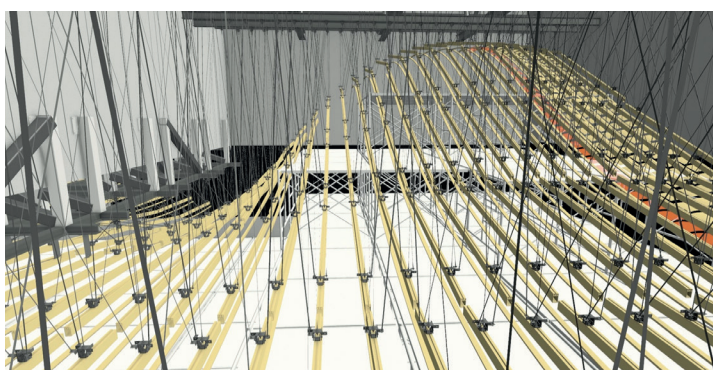
Rendering Image for Night View of Hong Kong Palace Museum  
Image Courtesy of China State Construction Engineering (Hong Kong) Limited



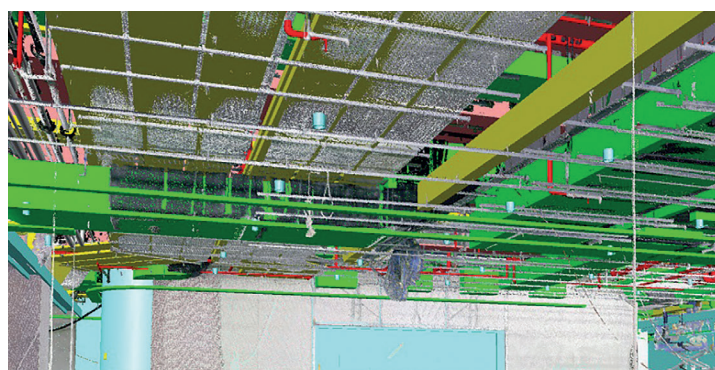
Rendering Image for Front View of Hong Kong Palace Museum  
Image Courtesy of China State Construction Engineering (Hong Kong) Limited



Digital Fabrication Model for External Perforated Aluminium Panel  
Image Courtesy of China State Construction Engineering (Hong Kong) Limited



Construction Method Simulation for feature Ceiling  
Image Courtesy of China State Construction Engineering (Hong Kong) Limited



As-built Verification using 3D Laser Scanner  
Image Courtesy of China State Construction Engineering (Hong Kong) Limited



BIM based VR, AR & MR Application for Safety Training & Supervision of Construction  
Image Courtesy of China State Construction Engineering (Hong Kong) Limited



Smart Construction Platform for Hong Kong Palace Museum  
Image Courtesy of China State Construction Engineering (Hong Kong) Limited