

Honorable Mentions

COMPANY

Leighton Contractors (Asia) Limited

PROJECT

East Kowloon Cultural Centre

LOCATION

Kowloon Bay, Hong Kong

TYPE

Building

Moving Forward: Transforming construction with innovation and creativity



About Leighton Contractors (Asia) Limited

For over 45 years Leighton Asia has built a strong track record as an international contractor delivering infrastructure projects ranging from complex civil engineering projects including tunnels, rail and road networks, and renewable energy infrastructure, to building projects encompassing schools, embassies, airports, rail terminus, luxury high-rise residential towers, and large-scale leisure complexes.

Leighton Asia is a leader in digital engineering, being one of the companies in Hong Kong and Asia who has achieved the British Standards Institute Kitemark for excellent in Building Information Management to the new international ISO 19650 standards series.

We currently operate in Hong Kong, Macau, Singapore, Malaysia, Indonesia, Philippines and India.

We are a member of the CIMIC Group, an engineering-led construction, mining, services and public private partnerships leader working across the lifecycle of assets, infrastructure and resources projects.

BIM PARTNER

Hcohtief India

AUTODESK PRODUCTS USED

Autodesk® 3ds Max®

Autodesk® Assemble

Autodesk® AutoCAD®

Autodesk® BIM 360® Design

Autodesk® Dynamo

Autodesk® InfraWorks®

Autodesk® Navisworks® Freedom

Autodesk® Navisworks® Manage

Autodesk® Plangrid®

Autodesk® Revit®

Project Description

Leighton Asia's scope of works include construction of a seven-storey building, three studios with the capacity of between 120 and 250 seats, a 1,200-capacity auditorium, 550-seat theatre and under stage area, semi-basement areas for plant rooms, and other ancillary facilities. The project will also house a large rehearsal room, two connectable rehearsal rooms, a restaurant, box office, cloak room and enquiry counter.

Project Challenges

Given the complexity of the project, such as the irregular shape of the building and the high level of MEP, and the intrinsically complicated nature to visualize all construction disciplines, it is important to have a clear understanding of all construction details and potential coordination issues, especially to interpret the combined service drawings, which can be especially challenging.

Working through COVID-19 also threw up additional challenges with periods of time when members of the team would work remotely from home.

Solutions for challenges

BIM was implemented so that each project stakeholder could perfectly visualize the complex construction details. This is crucial to allow for coordination to take place.

BIM 360 allowed stakeholders to collaborate remotely in a shared environment, allowing a team of multiple modelers and coordinators, spread across different regions, to work on a shared model simultaneously and efficiently to meet project deadlines.

Other Autodesk tools were implanted, such as PlanGrid & Assemble.

PlanGrid for quick and easy access to project drawings and documentation, and Assemble for tracking the manufacture, delivery, and installation of the facades.

Reality capture was also implemented to allow virtual site visits.

How does BIM benefit the project?

BIM and Digital Engineering tools provide construction solutions to gain a better insight and knowledge of the overall construction process. Cross-platform collaborative issue management tools allowed for efficient tracking of both clash and design issues across a multi-disciplinary team, mitigating the risk and avoiding expensive re-working.

Construction cloud tools also resulted in a more efficient and smooth site coordination process with access to the latest models and drawings "on-demand" through mobile devices.

Better with BIM

Leighton Asia are going through a digital transformation and as part of that transition paper-based workflows are now becoming a thing of the past. Working in a traditional environment leaves room for error and can become costly, hence utilising the Autodesk Construction Cloud suite and digital tools such as BIM 360, PlanGrid & Assemble allow for better collaboration in real-time at each stage of the building process.

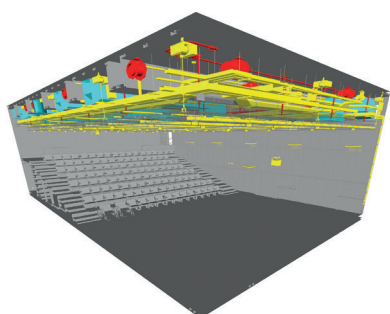
Daily reality capture allows users to track both site progress and conditions and compare against the 3D model to check if there are any discrepancies against the final design. This drives accountability, streamline coordination and keeps better record for future reference.



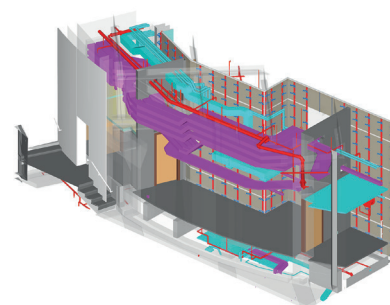
East Kowloon Cultural Centre external facade
Image Courtesy of Leighton Contractors (Asia) Limited



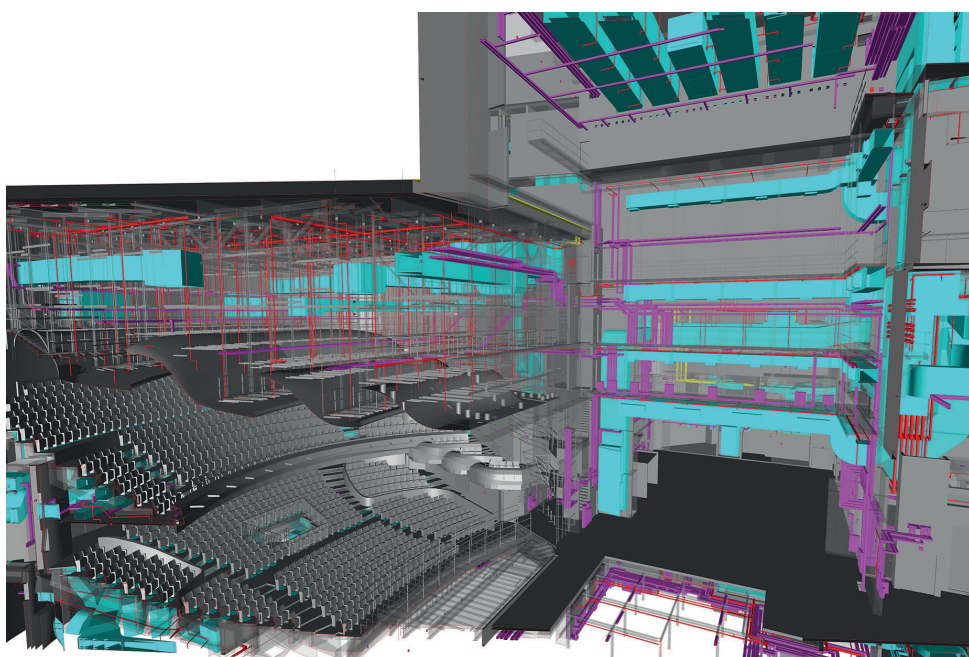
Daily project reality capture via 360 camera allowing for model comparison to existing work
Image Courtesy of Leighton Contractors (Asia) Limited



Music Lab Navisworks Model
Image Courtesy of Leighton Contractors (Asia) Limited



Example of MEP coordination
Image Courtesy of Leighton Contractors (Asia) Limited



Section through Theatre 1 Navisworks Model
Image Courtesy of Leighton Contractors (Asia) Limited