

COMPANY

Hong Kong Housing Authority

PROJECT

BIM for Construction/ Safety Planning and Risk Mitigation

LOCATION

Hong Kong

TYPE

Residential

SCHEDULED TIME OF COMPLETION

Varies

Planning for Success: BIM for Construction/ Safety Planning and Risk Mitigation



About Hong Kong Housing Authority

The Hong Kong Housing Authority (HA) is a statutory body established in 1973 under the Housing Ordinance to provide subsidised public rental housing to low-income families, and to help low to middle-income families gain access to subsidised home ownership. The Housing Department is the executive arm of the HA to help the Government achieve its policy objective on public housing.

BIM PARTNERS

CR Construction Company Limited**Hanison Construction Company Limited****Shui On Building Contractors Limited****Sunley Engineering & Construction Company Limited****Woon Lee Construction Company Limited****Yau Lee Construction Company Limited**

AUTODESK PRODUCTS USED

Autodesk® AutoCAD®**Autodesk® BIM 360®****Autodesk® Dynamo****Autodesk® Navisworks®****Autodesk® ReCap®****Autodesk® Revit®**

Project Description

The Hong Kong Housing Authority's (HKHA) mission to meet housing demand requires careful planning on all fronts. The project for the Autodesk Hong Kong BIM Awards 2022 is the exploration of the BIM application for construction/ safety planning and risk management. To ensure timely delivery of flats, our vision is to utilise BIM extensively for construction planning and risk mitigation so that problems can be solved before actual work is carried out on site.

Project Challenges

HKHA is faced with an unprecedented challenge to meet housing demand with a challenging construction programme. Adding to the complexity of this task:

- The building sites for public housing development are getting more complex; and
- Our buildings, especially those adopting Modular Integrated Construction (MiC), are highly intricate and require new approaches to construction and practices.

Solutions for Challenges

To address the above issues, HKHA used BIM to conduct extensive pre-construction studies and verification to ascertain the buildability of our designs, minimise risks and enhance construction and safety planning so that problems can be solved and risks can be mitigated before actual work is carried out on site.

How does BIM benefit the project?

Since 2020, contractors are requested to submit simulation (4D modelling) videos to illustrate the construction process, as part of the technical proposal for complex building tenders and foundation tenders, to demonstrate their construction planning and identify the potential risk.

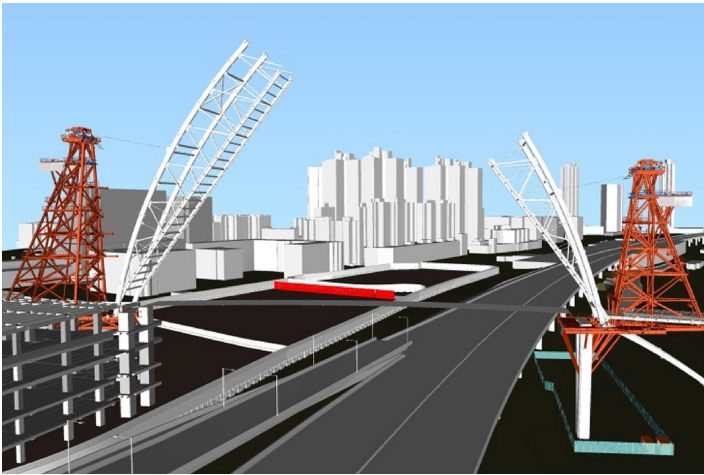
In the past, contractors submitted traditional 2D plans and bar chart schedules for their proposals, which were difficult to be visualised. Thus, we needed to spend a lot of time to judge its feasibility. With the simulation videos, the construction works and sequence can be clearly demonstrated, so that we are able to assess whether the contractor has an accurate understanding of the work involved and if their construction programme is feasible. The benefits are especially significant in complex projects with congested site.

Better with BIM

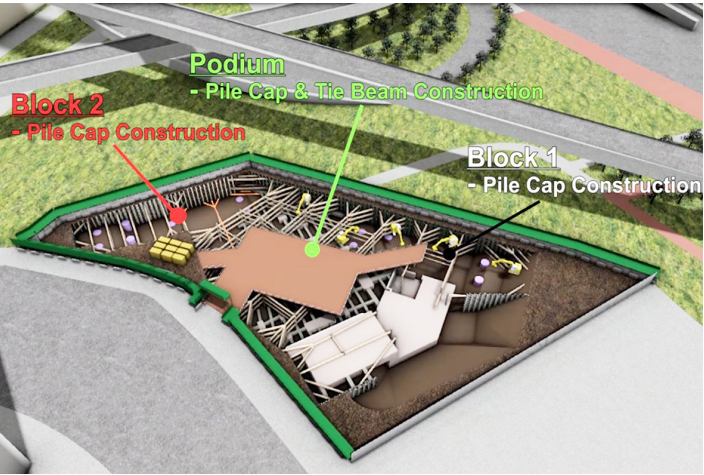
Projects in highly congested sites and complex situations were used to exemplify the successful adoption of simulation videos, with the following aspects:

1. Construction Planning
2. Safety
3. Risk Mitigation
4. Tender Assessment
5. Site Coordination
6. Demonstration of Innovative Technology

We have seen great success in applying BIM in construction planning and risk mitigation for tender assessment work. Our next target is to bring it forward to early design stage and extend it to construction and post completion stage to cover the complete project life-cycle.



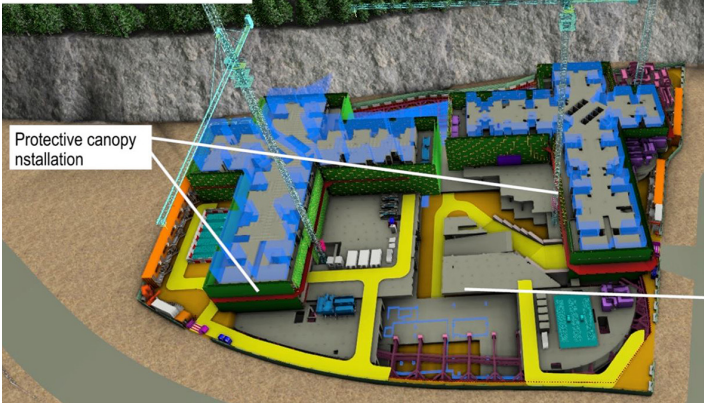
Long Span Footbridge Connecting Hoi Ying Estate and Hoi Tat Estate
Image Courtesy of Hong Kong Housing Authority



Wang Chiu Road Phase 2
Image Courtesy of Hong Kong Housing Authority

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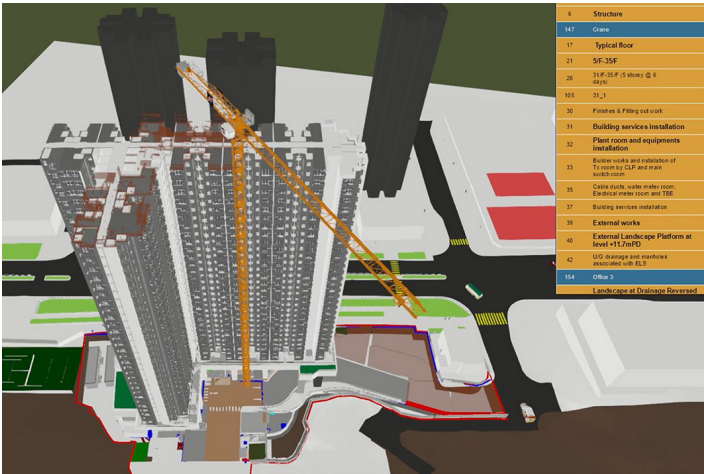
Typical floor construction in progress



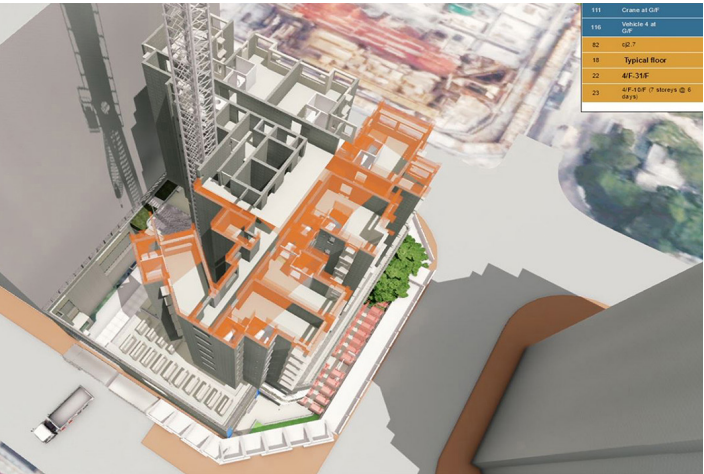
Anderson Road Quarry Site RS-1
Image Courtesy of Hong Kong Housing Authority



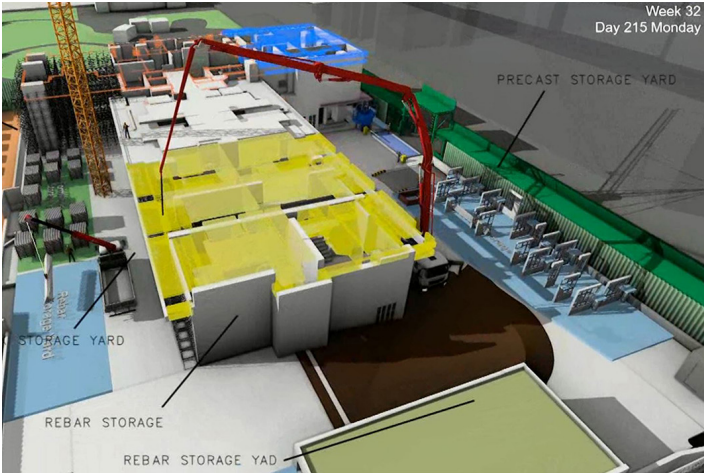
Hang Fu Street
Image Courtesy of Hong Kong Housing Authority



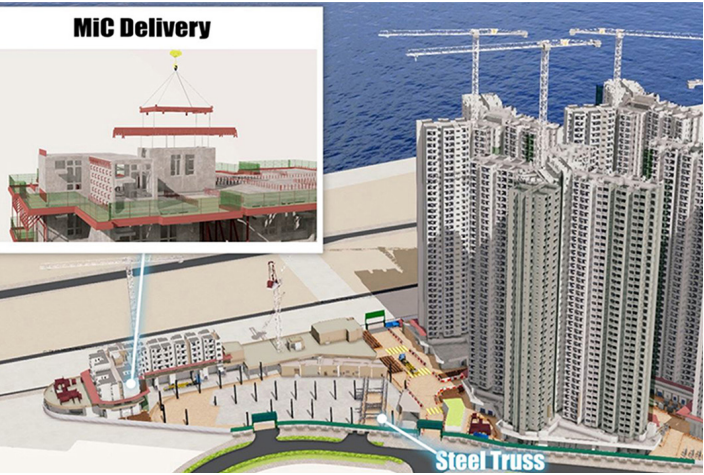
Hin Fat Lane
Image Courtesy of Hong Kong Housing Authority



Java Road
Image Courtesy of Hong Kong Housing Authority



On Muk Street
Image Courtesy of Hong Kong Housing Authority



Tung Chung Area 99
Image Courtesy of Hong Kong Housing Authority