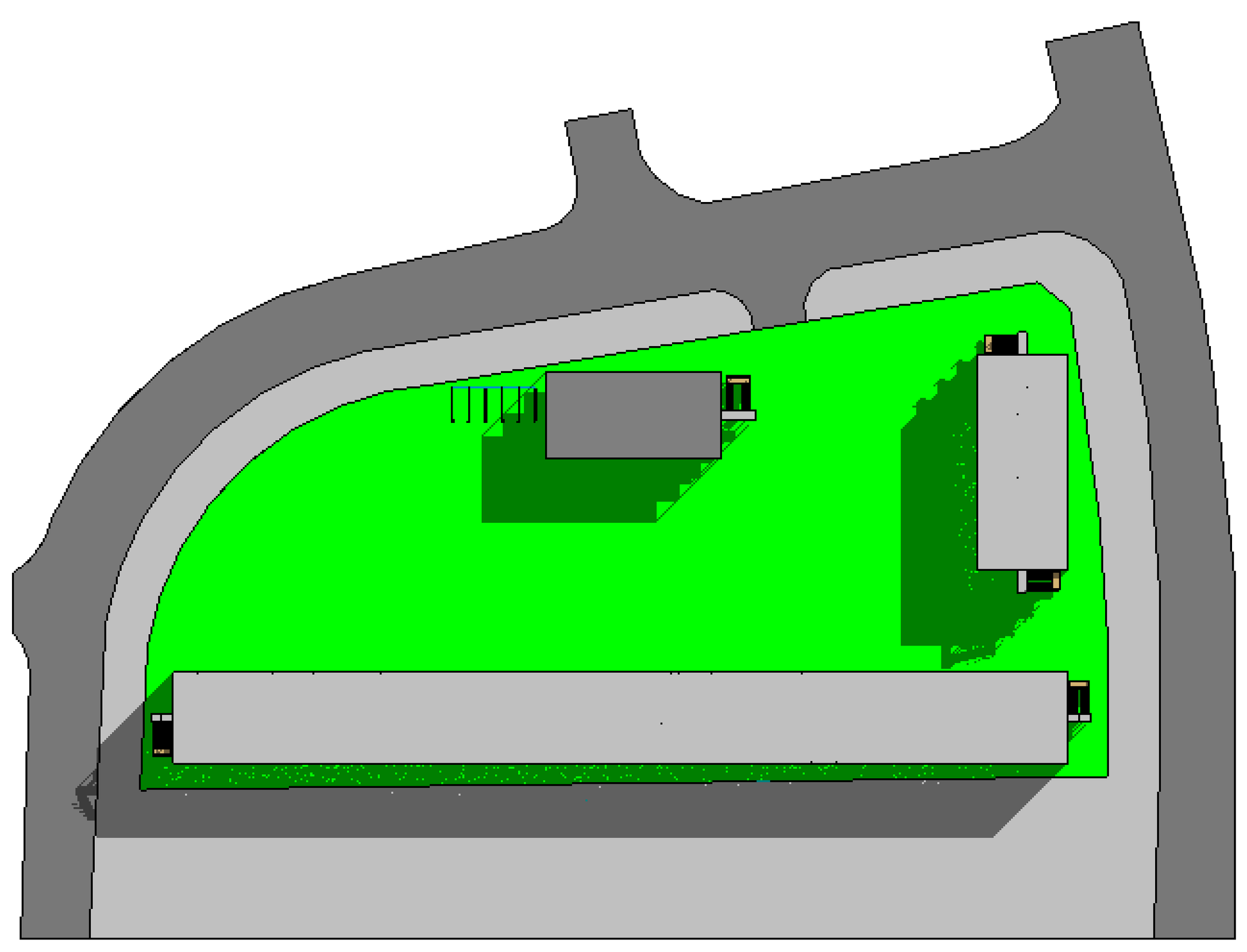
CIC BIM Competition 2022

Location Plan 1:2000



About the New Development of the social transitional housing

Design Concept:

Public space with community garden, outdoor fitness facilities and playground are to be provided. We aim at strengthening social cohesion in the community Two separate residential MIC buildings altogether accommodate 700 residents. 1 person,2-person,3-person, 4-5 people barrier free flats are to be provided.

Building Form:

There is a public housing estate nearby the site. It is not suitable to accommodate too many residents for this project. The two separate buildings are developed in low density approach. Since the area near the site lacks recreational land use, the large public space will balance the portion of the land use.

Spatial Arrangement:

According to the development plan, we will allocate 5 parking spaces, 50% of the site of public space, two units each of 120-200 metre square management office and certain amount of space to be reserved for convenience store and other social facilities.

Connectivity:

Connectivity is one of the aspect our design team emphasis on . We hope the large public space can serve as a centre of the community, so people can easily enter the site area from three directions with two big entrance and one small entrance.

BIM Uses in Design, Collaboration, Engineering, Analysis and Optimization:

The project involves complex MEP work, so with the use of BIM, clashes could be avoided in pre-installation stage. The progress of construction work could be align with the schedule.

BIM Collaboration approach:

This project adopt the ISO 19650 common data environment communication standard. BIM 360 is used for different trade and disciplines to collaborate. As a result, efficiency is enhanced.

Quality of Design:

The design of the MIC modules are simulated before manufacture. The design could be modified in order to adhere to the DFMA principle. This mitigate the risk of the project.

Sustainability:

Passive sustainability design is adopted in the project such as large number of openings on the façade, the use of light weight concrete with good heat insulation properties and reuse of waste timber for the furniture. These designs could not only make the project be eco-friendly, but also lower construction cost.

MiC/ DfMA:

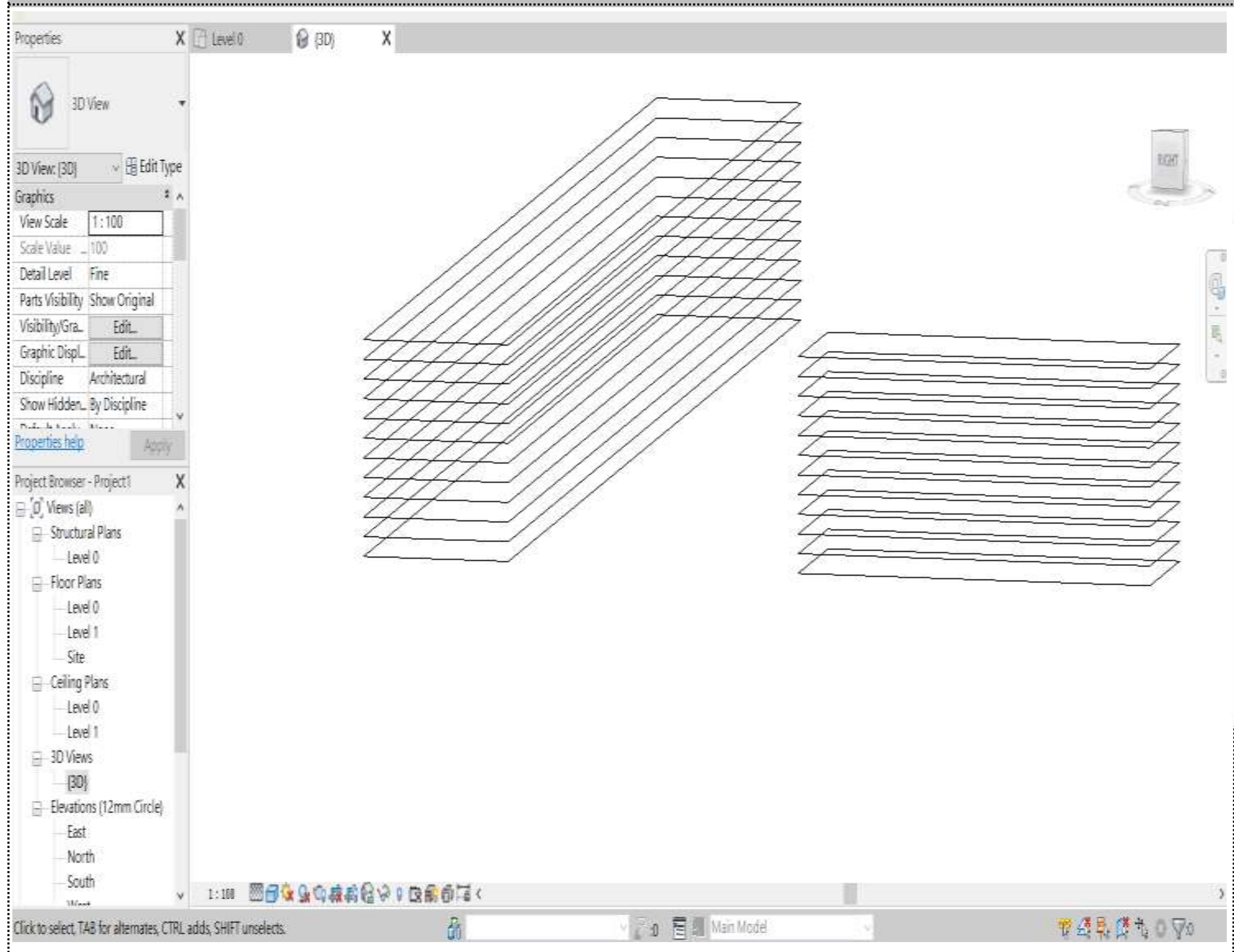
All type of flats are made up of 1200*6000 MIC modules, which share the same structure design. This increase the flexibility of the project design and manufacture. Those module could also be reuse for next future project with a little alterations and additional works.

Constructability:

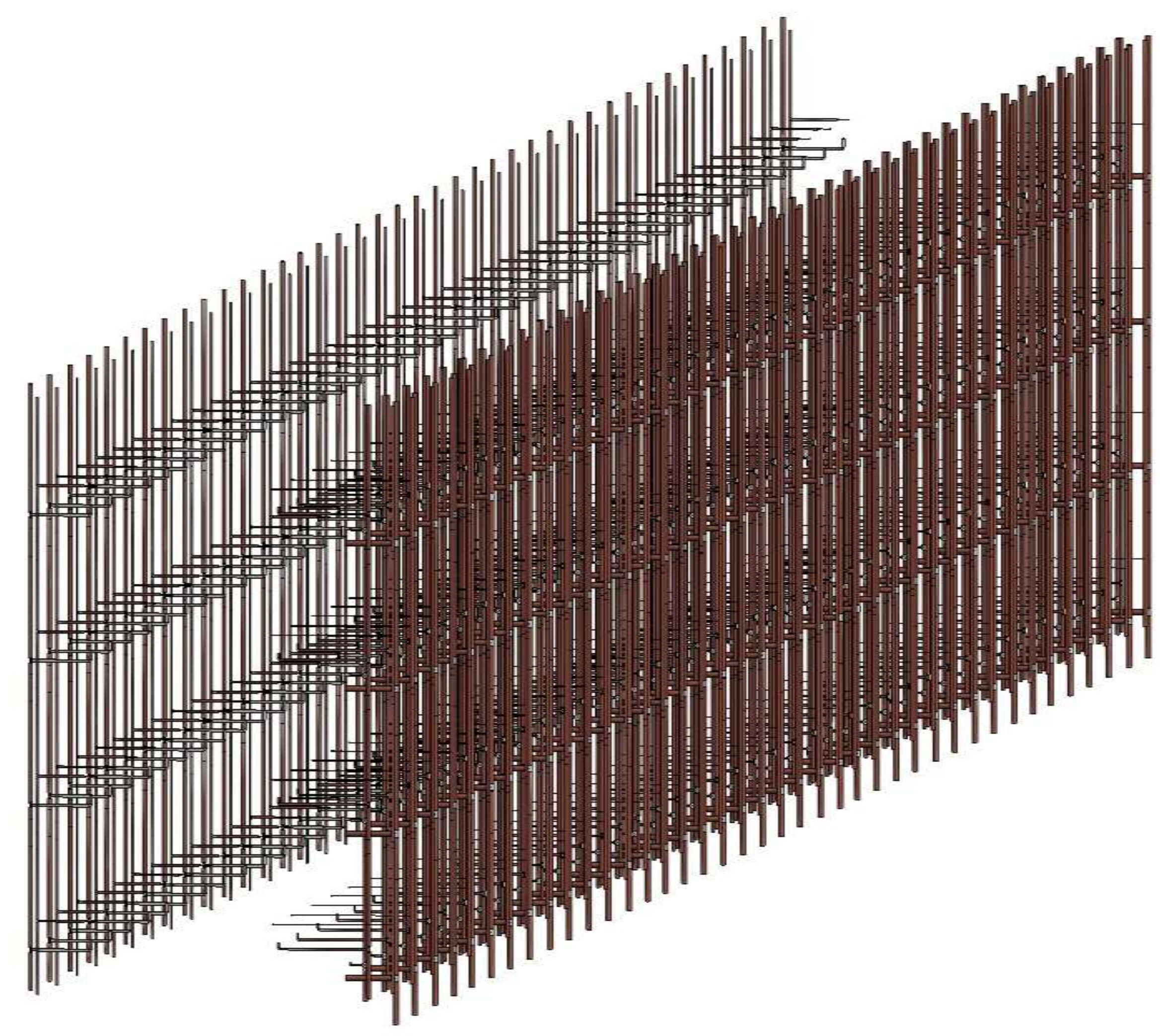
We introduce the patent MIC connection design 'candle-loc system'. With the adoption of this connection system, the structural stability and the construction progress will both be enhanced.

Summary: Digitalization is the future of the construction industry; BIM could make our projects to be more well organized and mitigate projects' risks. The implementation of new CDE standards ensure efficient communication under the use of BIM. The promotion of BIM use could boost the industrial upgrade in the future.

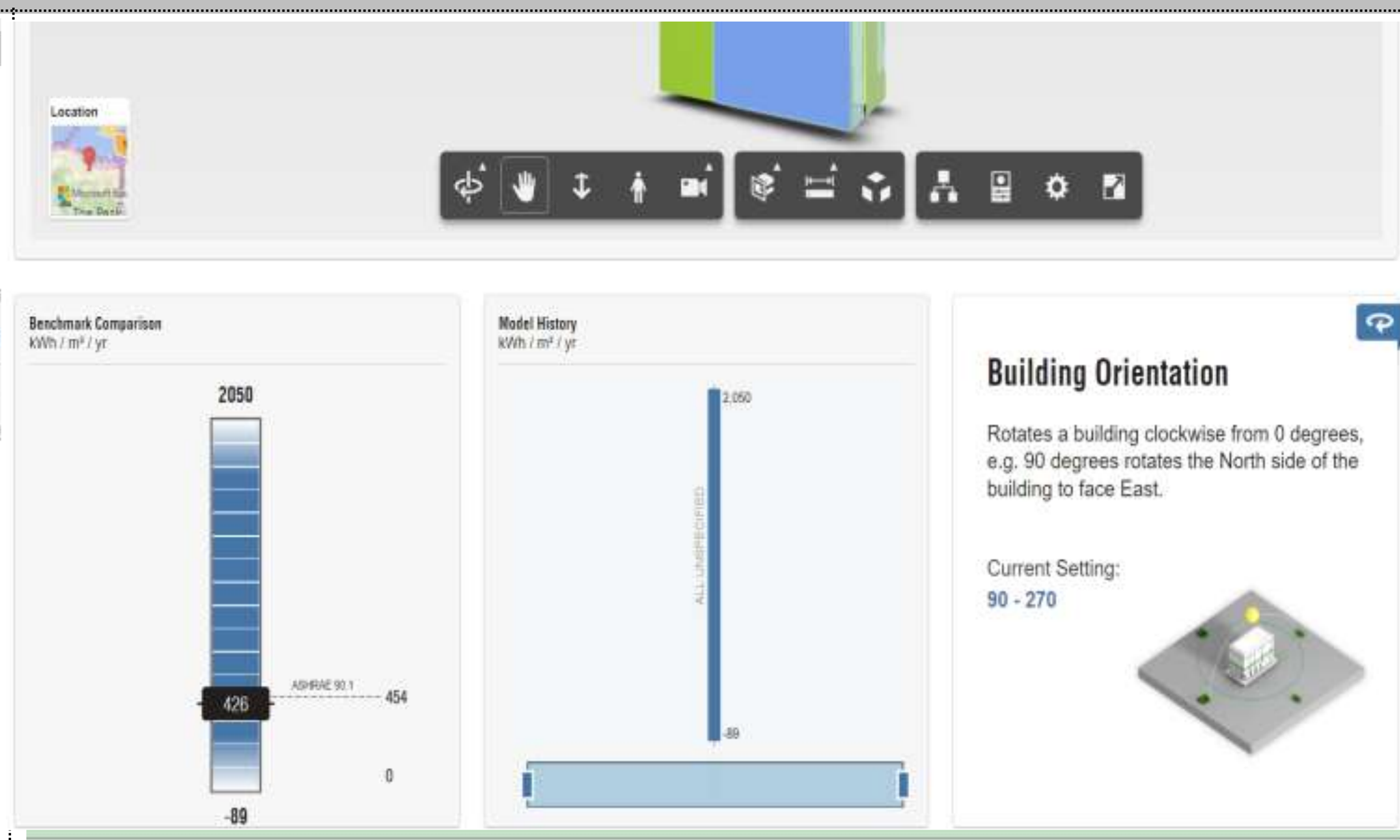
Overall Bird Eye view: **Three buildings are planned to construct in the site. Building A, B are intended for habitation, which are positioned at the side and lower part of the site. The remaining building is the management building, which is deliberately built at the upper part of the site to oversee the condition of the domestic buildings.**

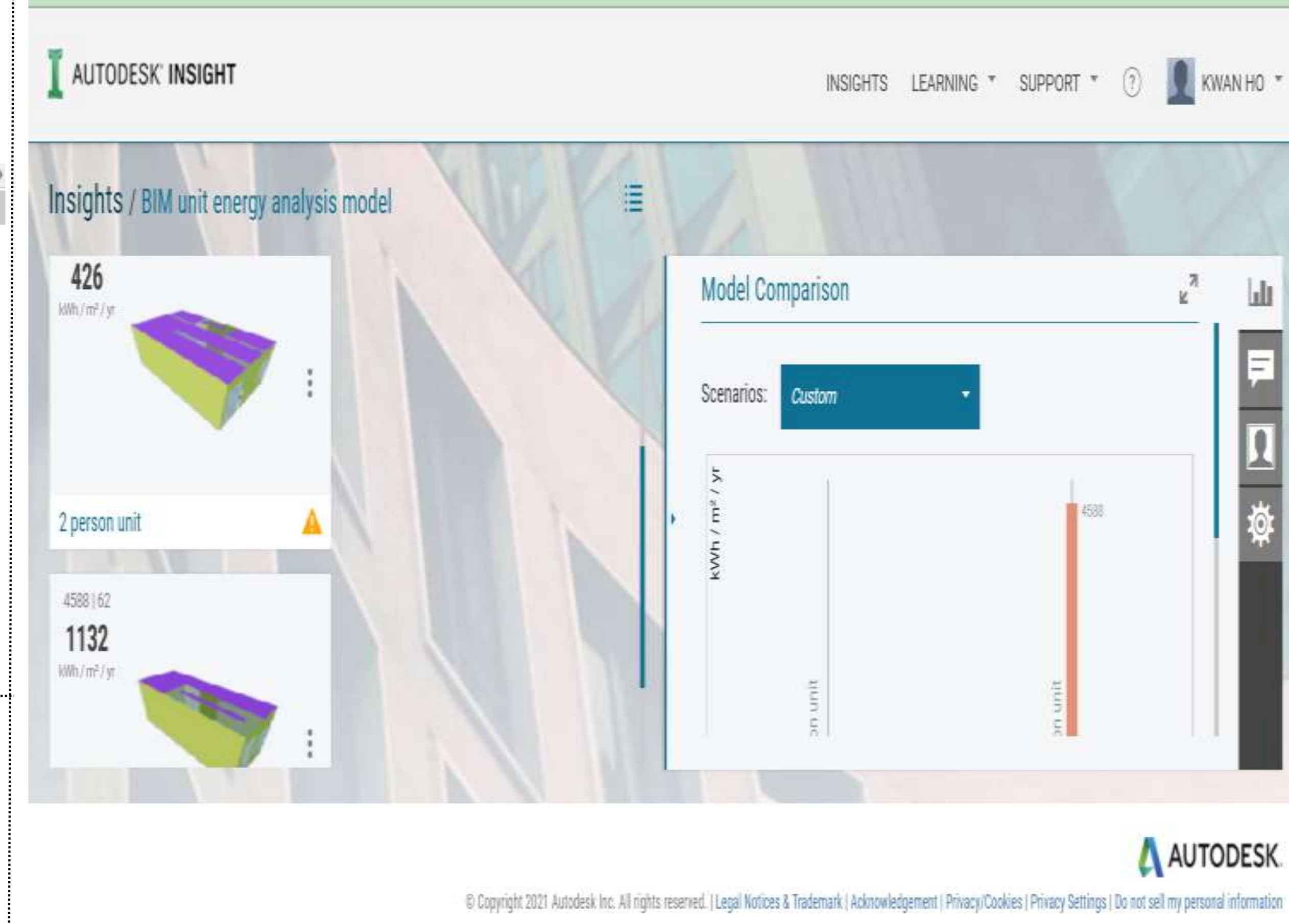


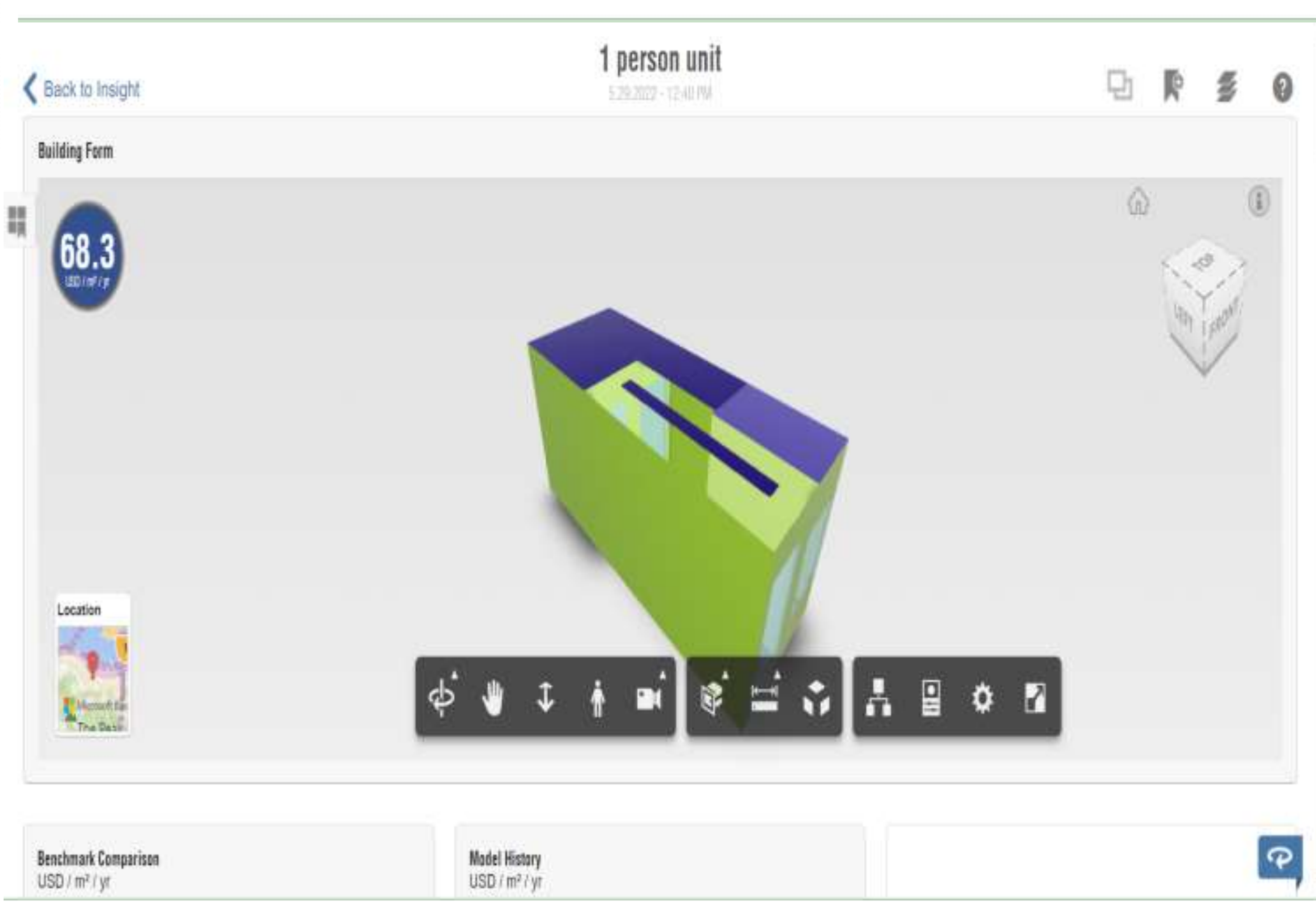
Building Form and Space: **Domestic building A and B are designed to be rectangle in shape to optimise land use. The large idle space in the centre will be utilised as open space for recreational use**



Quality: **please put in textual description to describe how BIM help improving quality of the design. Sample text Sample text Sample text Sample text Sample text Sample text Sample text Sample text Sample text Sample text Sample text Sample text Sample text Sample text.**







Sustainability: **Autodesk insight is used to analyse the energy efficiency of different units. The energy use intensity (EUI) is generated by the software to simulate the HVAC electricity consumption. Furthermore, the annual cost of electricity bill is produced by the analytical model.**

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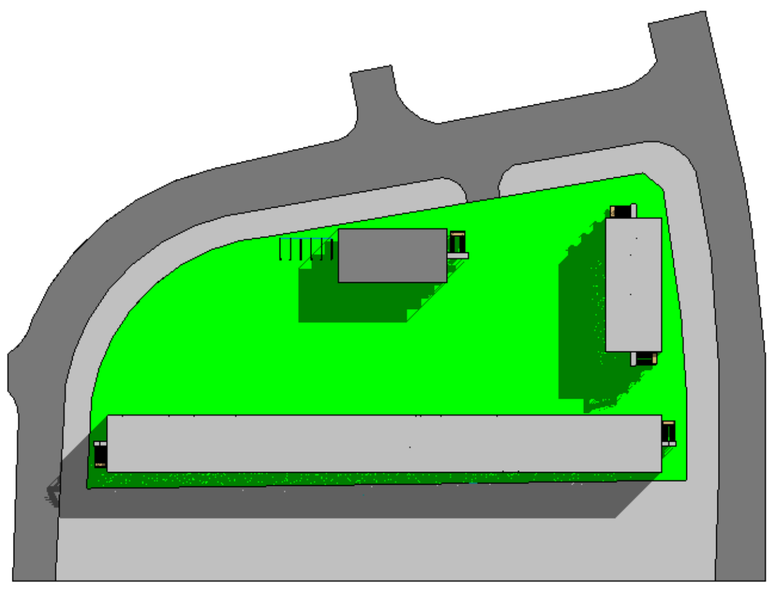
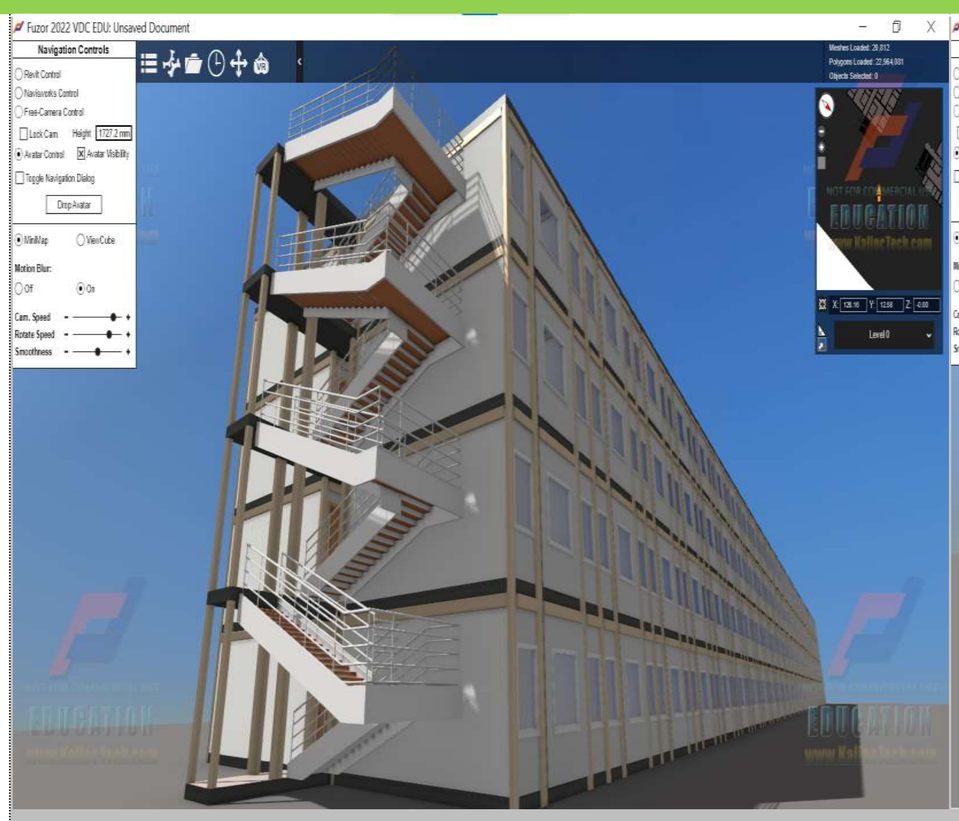
Site Layout Plan 1:1000

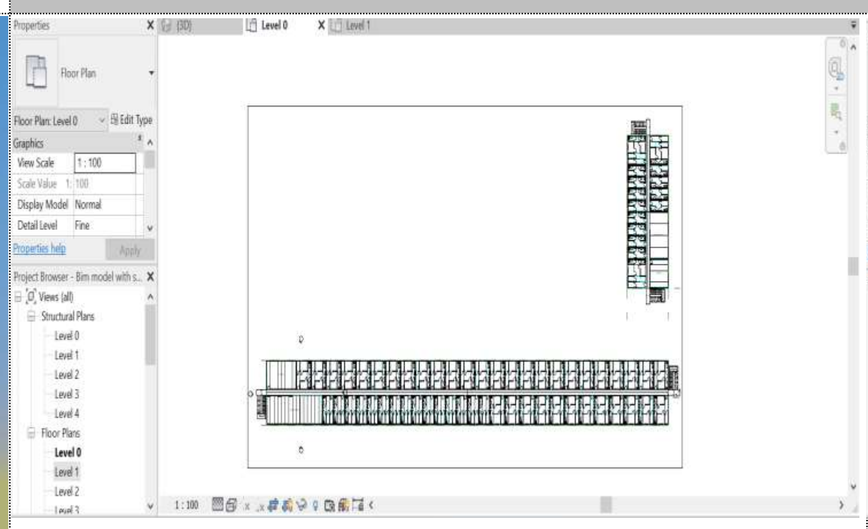


Description: The large gap (46 m wide) between the management building and domestic building B will act as the emergency vehicular access. The kindergarten is planed below the management building to ensure easy access for pupils.

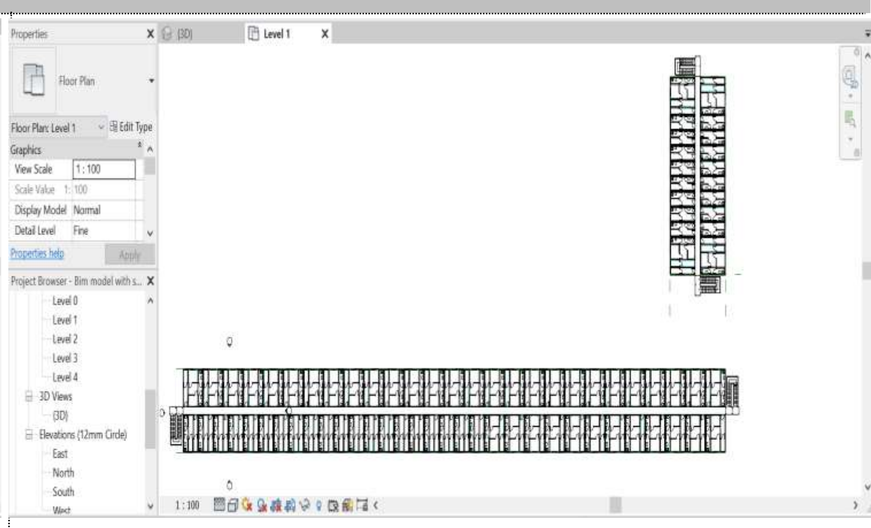


Perspective View: **The architectural design of the buildings is to optimise the cross ventilation and natural lighting among various units and the corridor. Under such design concept, the prevailing wind can reduce the cooling load, which can achieve sustainability.**

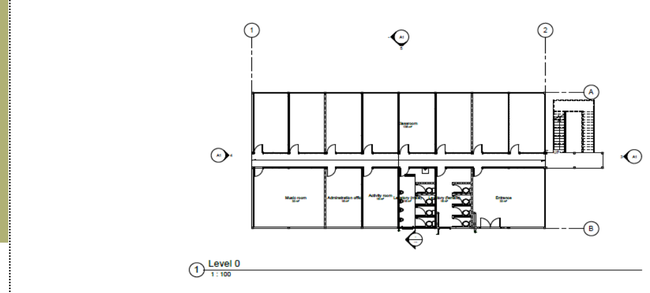
Perspective view of kindergarten building in 1:100 scale



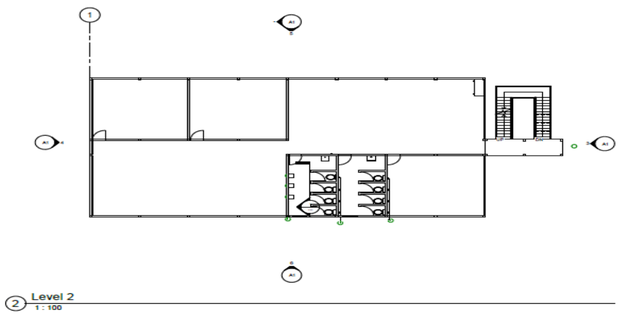
Ground floor plan of domestic building A and B in 1:100 scale



First floor plan of domestic building A and B in 1:100 scale



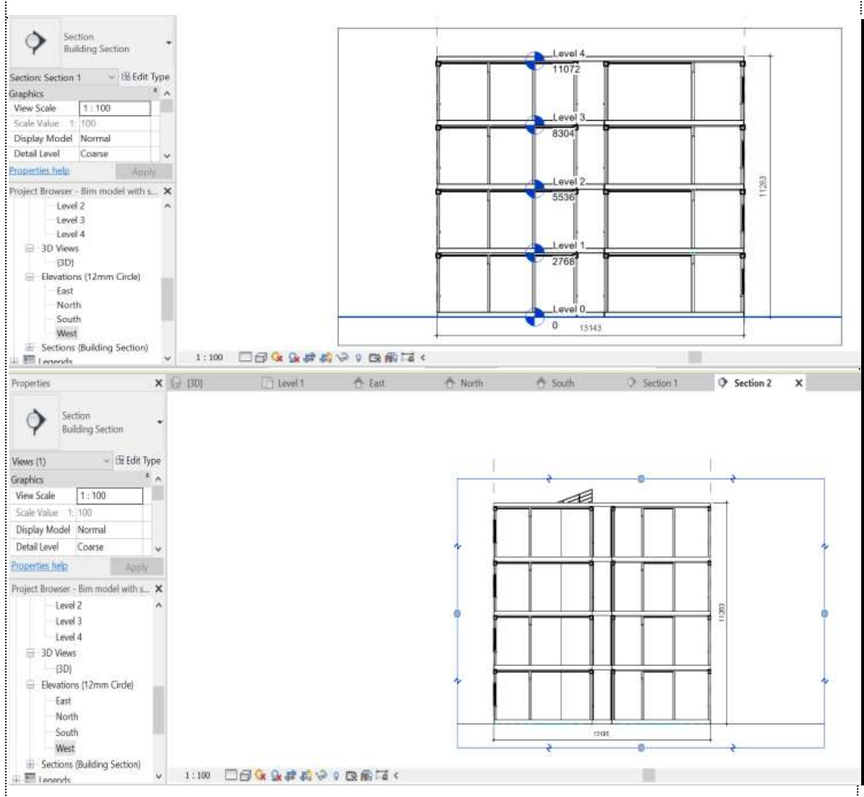
Ground floor plan of kindergarten building in 1:100 scale



Second floor plan of domestic building A and B in 1:100 scale

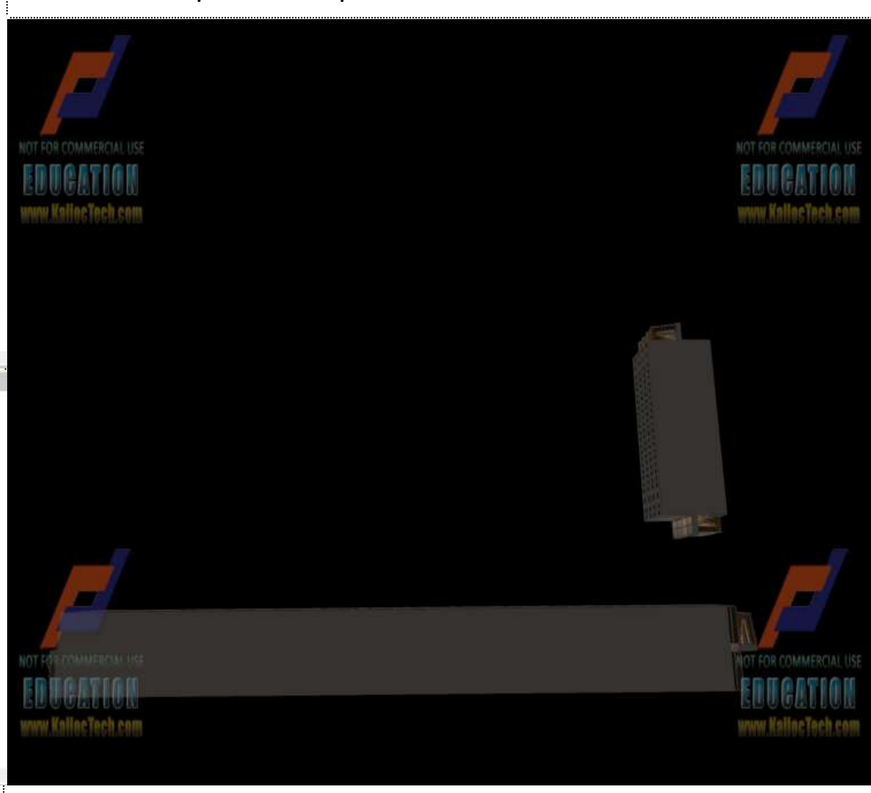
Description: The floor plan of the first and second floor is identical

Sectional view of kindergarten in 1:100 scale



Sectional view of domestic building A and B in 1:100 scale

Description: In the first stage, four major constituent modules are developed for DfMA principle, following the assembly of units in the software. Units are further assembled to building A and B after approval from building surveyor to check for the compliance of building regulations through Revit.



Overall Bird Eye view (Night View)

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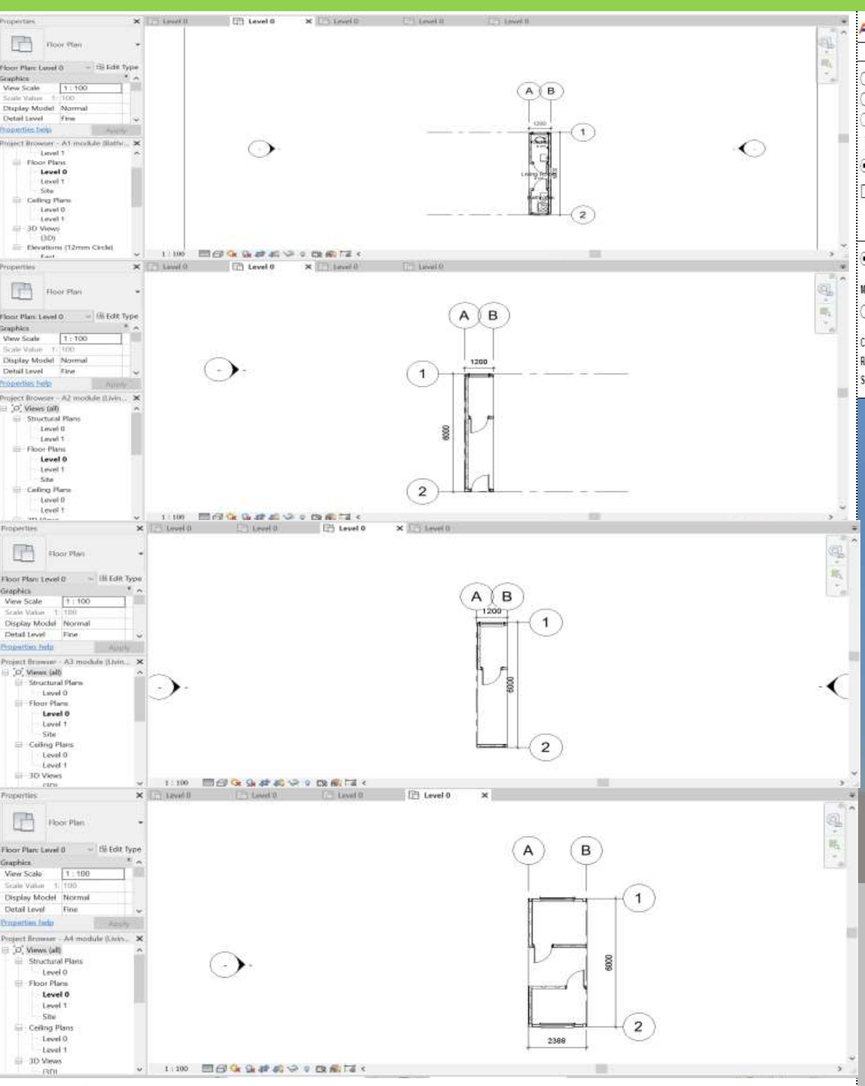
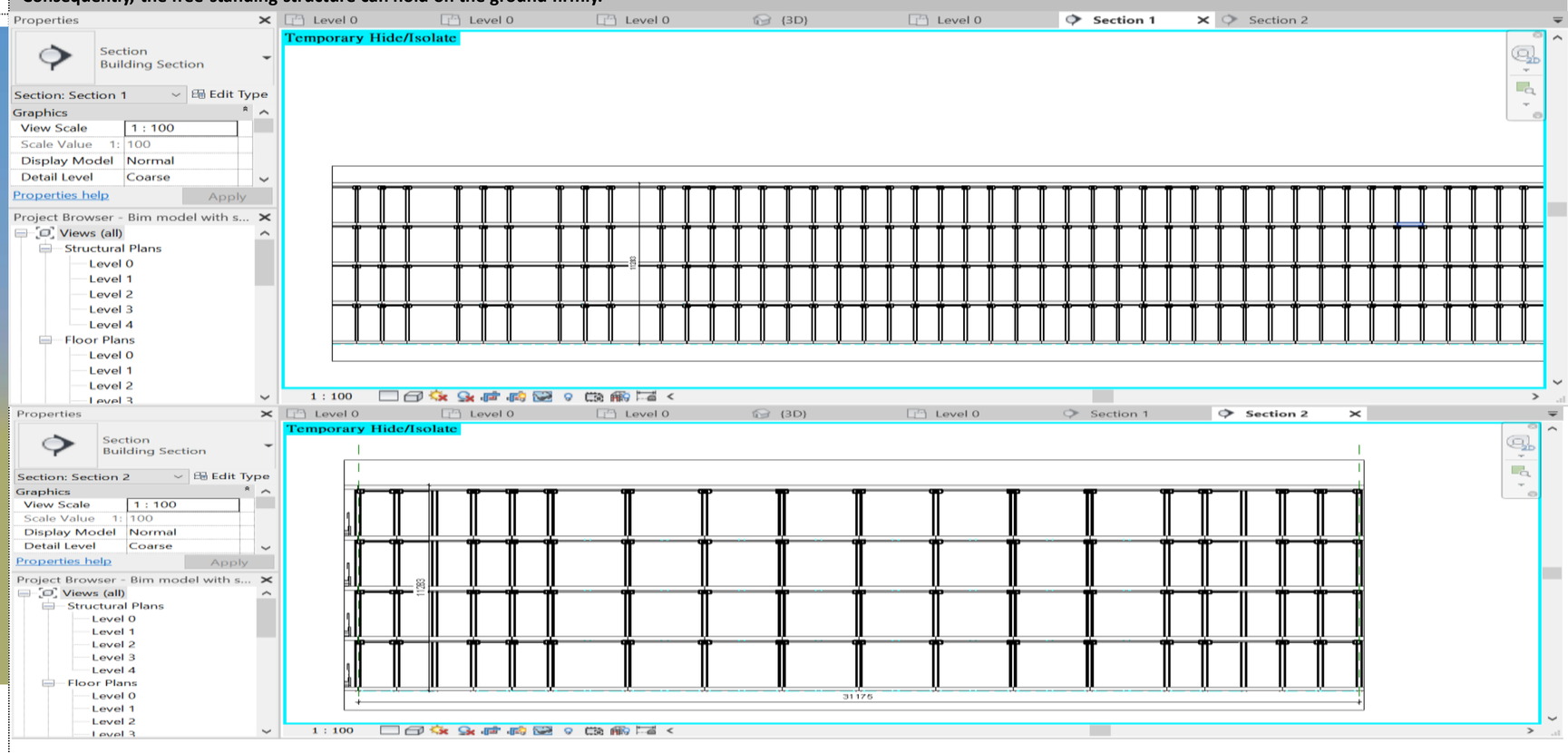


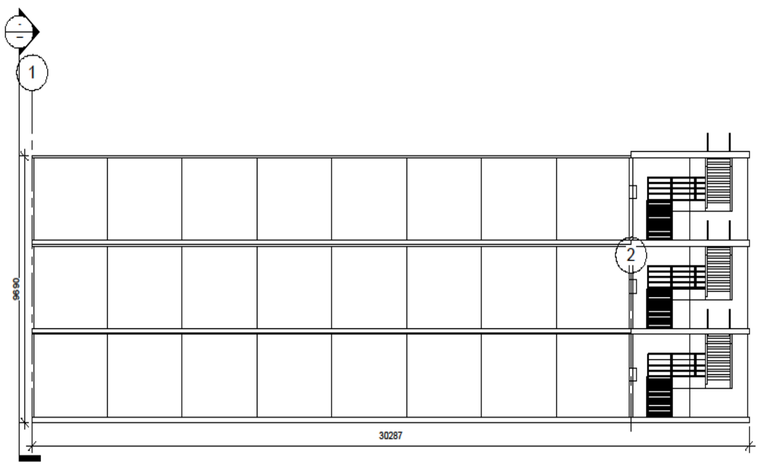
MiC/DfMA: All units intended for habitation are assembled by the above four modules, which are less than 2.5 m in width. This highlight the repetitiveness of the units. In addition, candle-loc system is installed at the sidewalls of the modules to provide easy assembly.

Perspective View: Every modules are supported structurally by four hollow square steel columns and beams while all floors in both domestic building A and b are load-bearing. Consequently, the free-standing structure can hold on the ground firmly.

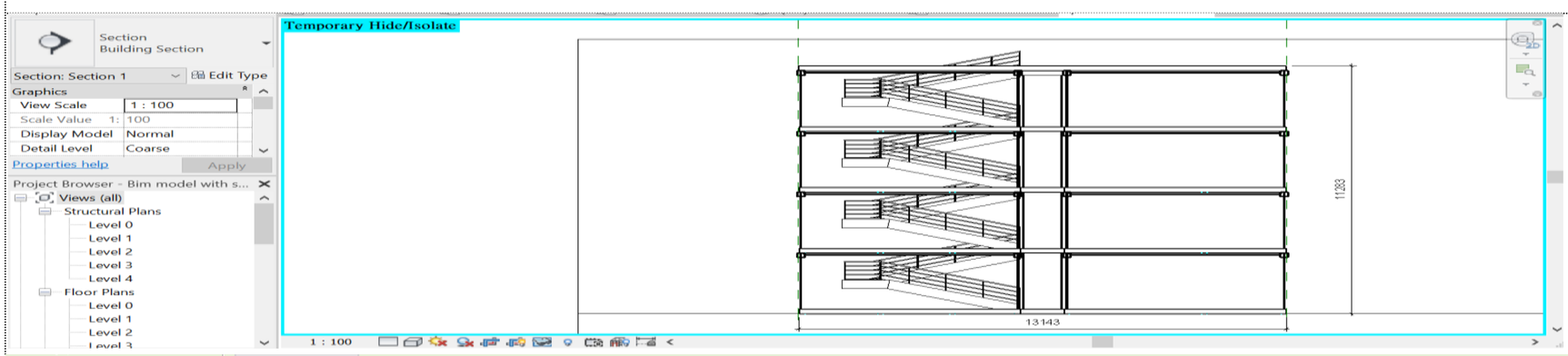
Perspective view of kindergarten building in 1:100 scale

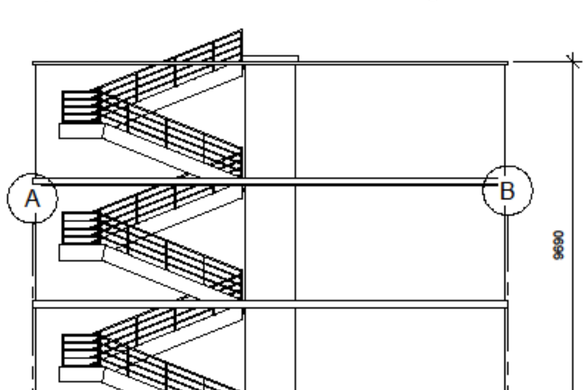


Internal Perspective of first floor of domestic building A and B in 1:100 scale

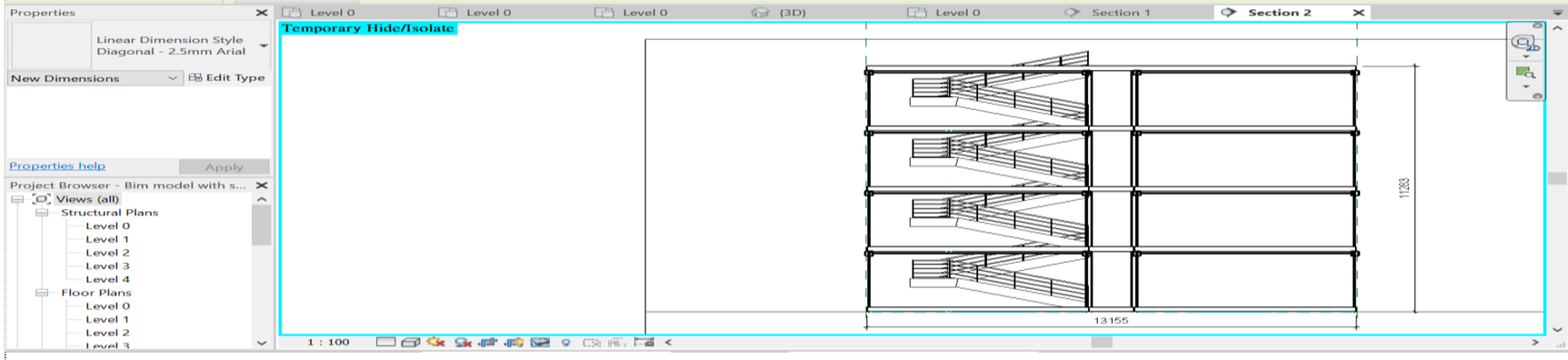


Internal perspective of first floor of kindergarten in 1:100 scale





Sectional Perspective of first floor of kindergarten building A and B in 1:100



Sectional Perspective of first floor of domestic building A and B in 1:100

Description: In the first stage, the structural team receives the architectural design in .rvt format, following the placement of columns and beams in the software.

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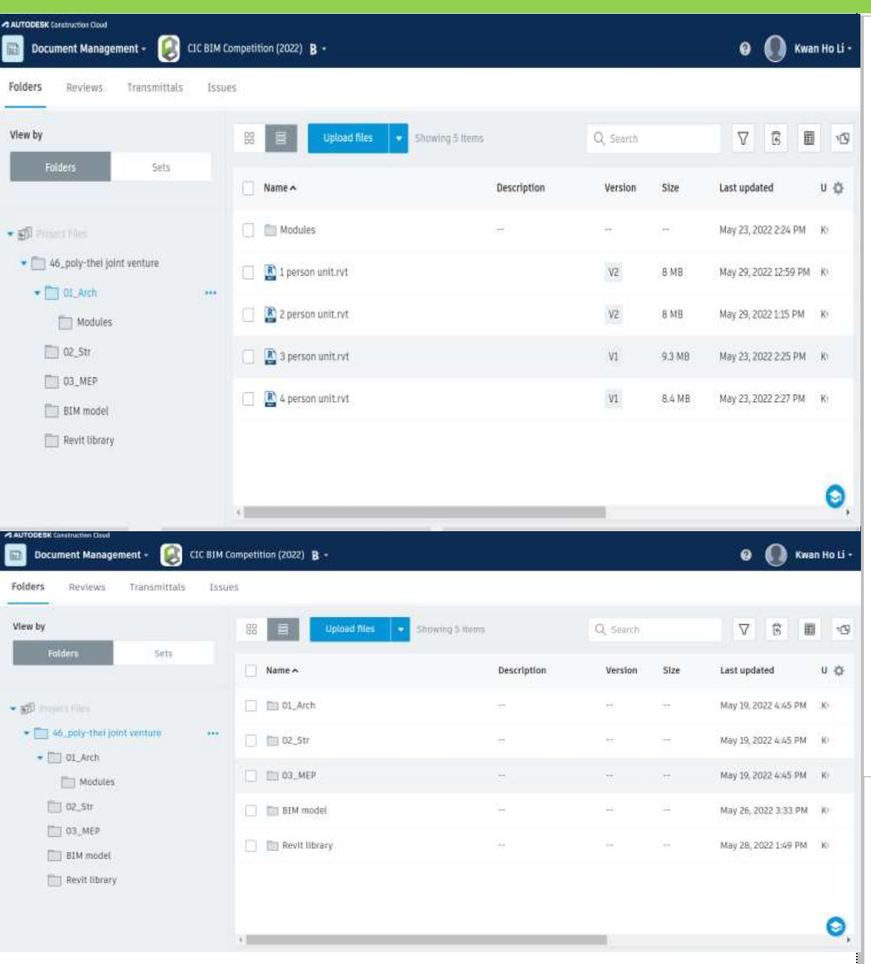
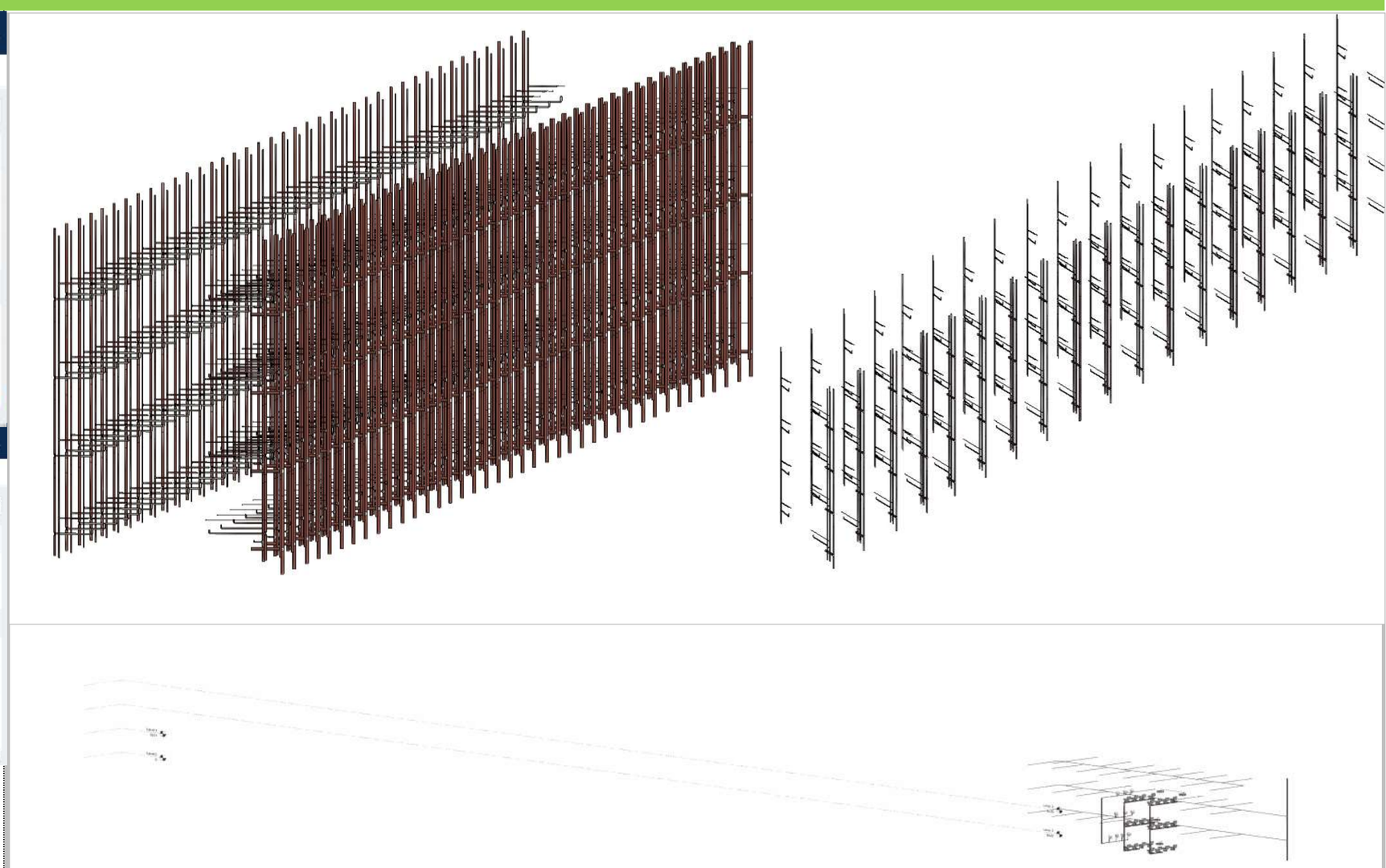
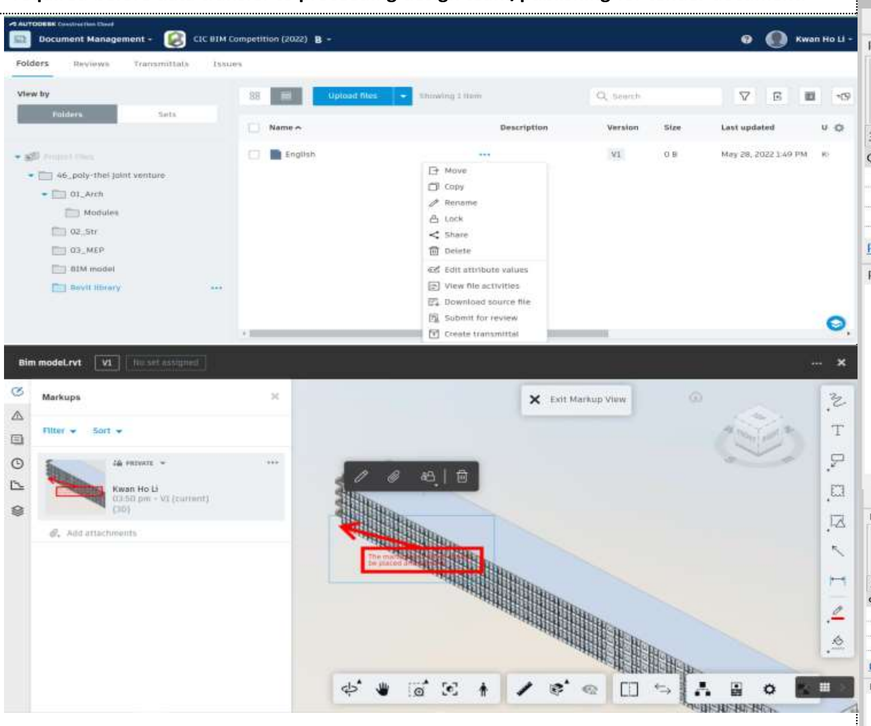
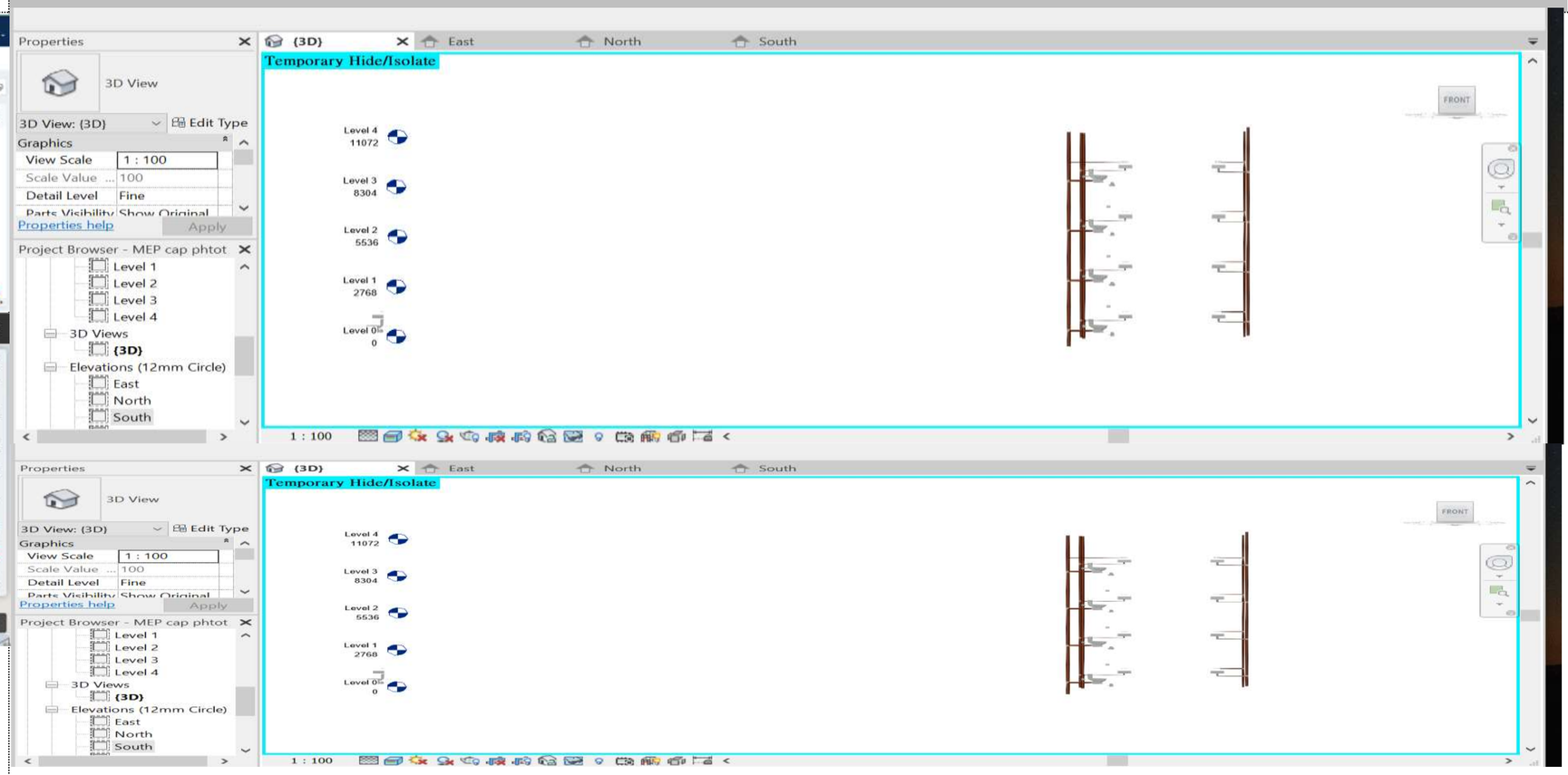




Design Coordination: Our design teams strictly follow the ISO19650-1 workflow. The architectural, structural and building service consultant teams are given limited access to interdisciplinary information and approval from the lead/PIM consultant is required before data transfer to proceeding design team/publishing for tender document.

Perspective View: The sewage and water pipes of domestic building A and B are deliberately installed on the external walls of the modules to facilitate maintenance work

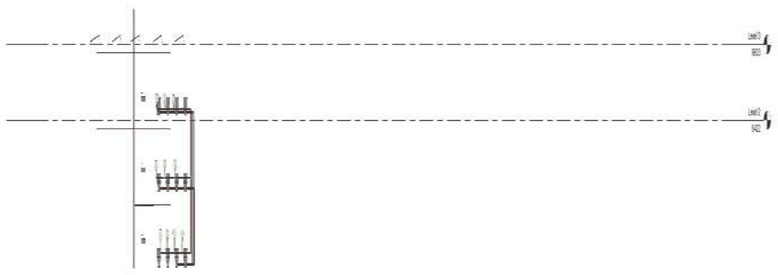




Project Team Collaboration: To avoid design clash and misunderstanding, design teams utilise the comment function of BIM 360 to distinguish errors in internal versions of BIM models before publishing. In addition, vital information such as standard Revit families are shared internally through BIM 360 to facilitate information sharing.

Internal Perspective for domestic building A and B in 1:100 scale

Internal Perspective for kindergarten building in 1:100 scale



Sectional Perspective for kindergarten building in 1:100 scale

Sectional Perspective for domestic building A and B in 1:100 scale

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