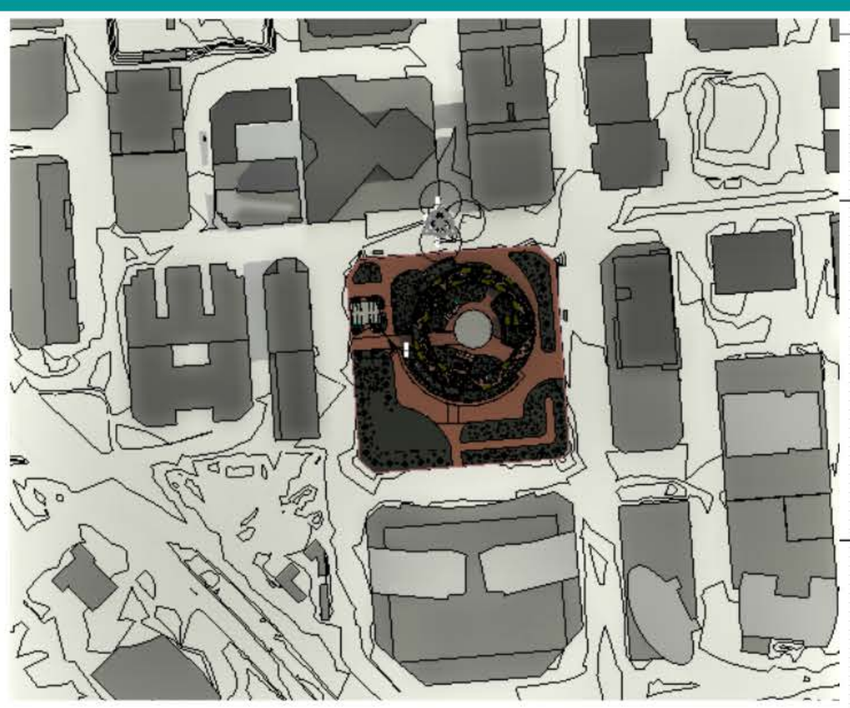
# CIC BIM Competition 2024 – Huenoflora



The site is loacted at 8 Sheung Yuet Road, Kowloon Bay, Kowloon. The existing CIC Zero Carbon Building (ZCB) will propose to develop as CIC Innovation Academy, with the surrounding buildings bounded by Wang Chiu Road, Lam Fung Street, Sheung Yee Road and Sheung Yuet Road.

Location Plan 1:2000

**Design Concept:**

Inspired by the Pentagon and Apple Park layout, the main building is of a ring shape, which aims to create a working or learning-friendly environment and gather everyone together. Large amounts of green open space on the site aim to enhance users' creativity and productivity.

**Building Form:**

Unlike the surrounding high-rise buildings, the design is only three stories high and has a unique ring shape, which is innovative. Located at the site center, the CIC Innovation Academy is a sign of being the innovation hub of the city.

**Spatial Arrangement:**

Facilities that are open to the public are located on the lower levels to increase convenience. For instance, the Exhibition Gallery and the performance space. The resource center and library are located separately on the ground and first floors. The cafe is located on the first floor.

Classrooms, labs, offices, and meeting rooms are mostly at higher levels.

**Connectivity:**

The ring-shaped design creates a friendly environment in which people can connect.

There is a parking space available on-site. Roads surround the site, and bus stops and an MTR station are nearby. The accessibility is high.

When an emergency happens, users inside the building could evacuate to the roof or the landscape outside.

**BIM Uses in Design, Coordination, Engineering, Analysis and Optimization:**

BIM helps improve the speed of design by using Autodesk Forma. Solar, wind, and microclimate studies can be analyzed early. Hence, our building design can be optimized.

**BIM Collaboration approach:**

Use BIM 360, Revit 2025, and Navisworks to manage and collaborate our design model with the markup function and update version checking.

**Quality of Design:**

Use Autodesk Forma to check the site coverage. Use Revit room schedule and Microsoft Excel to monitor the room area within 10% tolerance. Ensure the design fulfils competition requirements.

**Sustainability:**

The building surface uses curtain walls to utilize natural lighting.

In terms of ventilation, there are openings to increase the airflow. Passing natural wind could improve the air quality inside the building and lower the surface temperature by convection, hence less reliability to air conditioners.

A large area of green coverage and a green roof. There are also solar panels on top of the roof, which could help generate electricity for the building.

**MiC/ DfMA:**

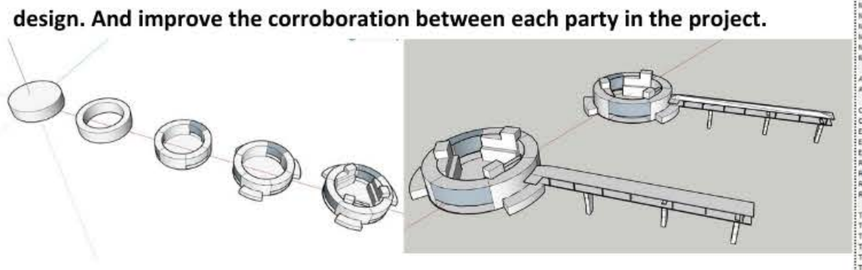
Curtain walls and concrete walls can be prefabricated and installed on-site. The repeating identical units of toilets, lifts, and stairways can use MiC to accelerate the construction speed.

**Constructability:**

Naviswork Manage to check if the building components clash and ensure the quality of the building.

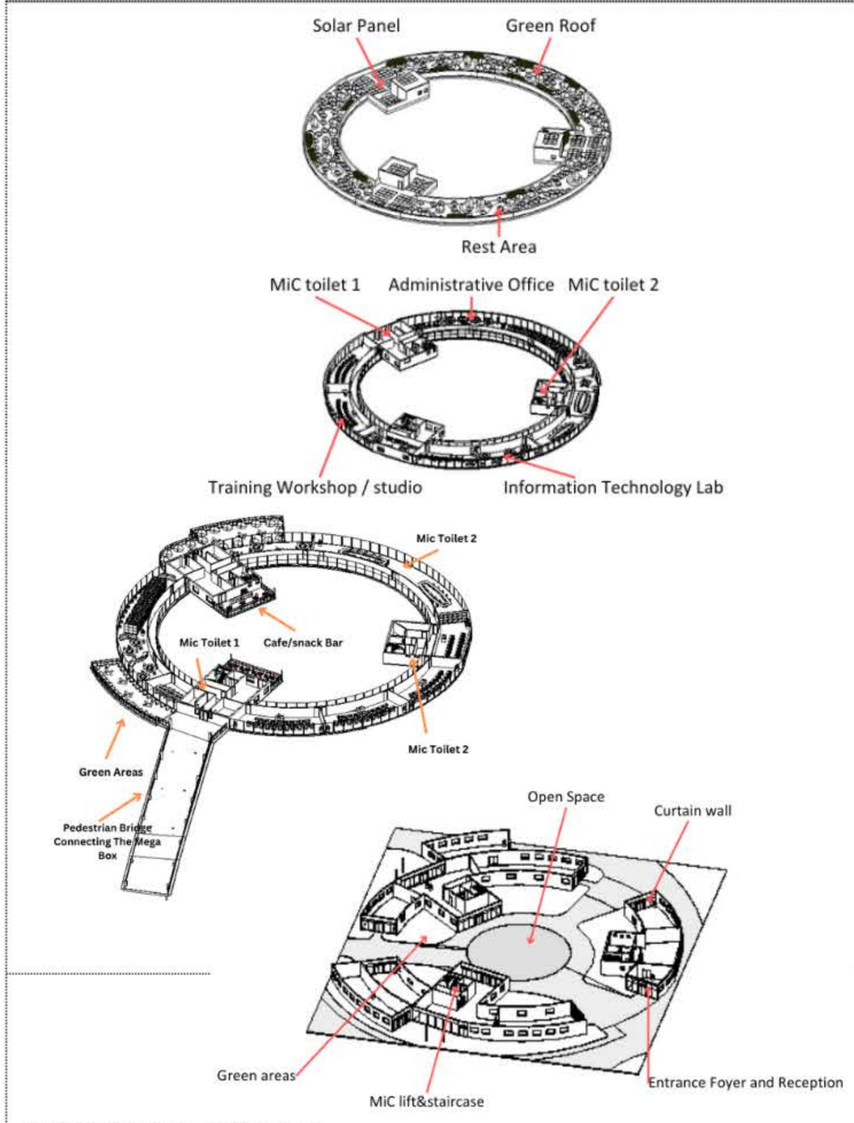
**Summary:**

BIM software speeds up the whole workflow and the quality of the building design. And improve the corroboration between each party in the project.



**Conceptual Diagram**

**Overall Bird Eye view:** Located at the center part of the site, the main circular shape building is easy to access. The surrounding greening landscape environment also provides a pleasant view for both users and pedestrians. (2nd Round)



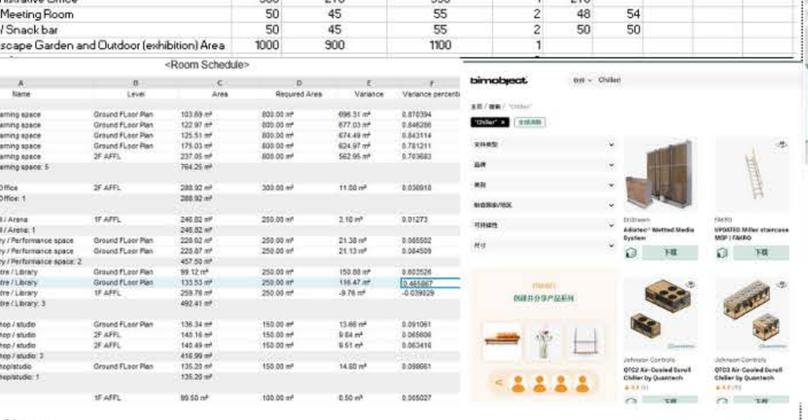

**Building Form and Space:**

Circle-shaped building with three entrance openings to increase accessibility to the public and users. The center's open area is available for large-scale activities and is Convenient for gatherings.

| | | Minimum area | Maximum area | | | | | | Total |
|---|---|---|---|---|---|---|---|---|---|
| 3 | Meeting and Learning Space | 800 | 720 | 880 | 1 | 404 | 231 | 121 | 756 |
| 4 | Resources Centre / Library | 250 | 225 | 275 | 2 | 226 | 251 | | |
| 5 | Classroom | 100 | 90 | 110 | 4 | 100 | 99 | 99 | 98 |
| 6 | Training Workshop / studio | 150 | 135 | 165 | 4 | 135 | 135 | 135 | 135 |
| 7 | Information Technology Lab | 100 | 90 | 110 | 4 | 108 | 90 | 90 | 97 |
| 8 | Exhibition Gallery / Performance space | 250 | 225 | 275 | 2 | 225 | 225 | | |
| 9 | Conference Hall / Arena | 250 | 225 | 275 | 1 | 236 | | | |
| 10 | Entrance Foyer and Reception | 50 | 45 | 55 | 1 | 49 | | | |
| 11 | Administrative Office | 300 | 270 | 330 | 1 | 278 | | | |
| 12 | Staff Meeting Room | 50 | 45 | 55 | 2 | 48 | 54 | | |
| 13 | Café / Snack bar | 50 | 45 | 55 | 2 | 50 | 50 | | |
| 14 | Landscape Garden and Outdoor (exhibition) Area | 1000 | 900 | 1100 | 1 | | | | |

<Room Schedule>

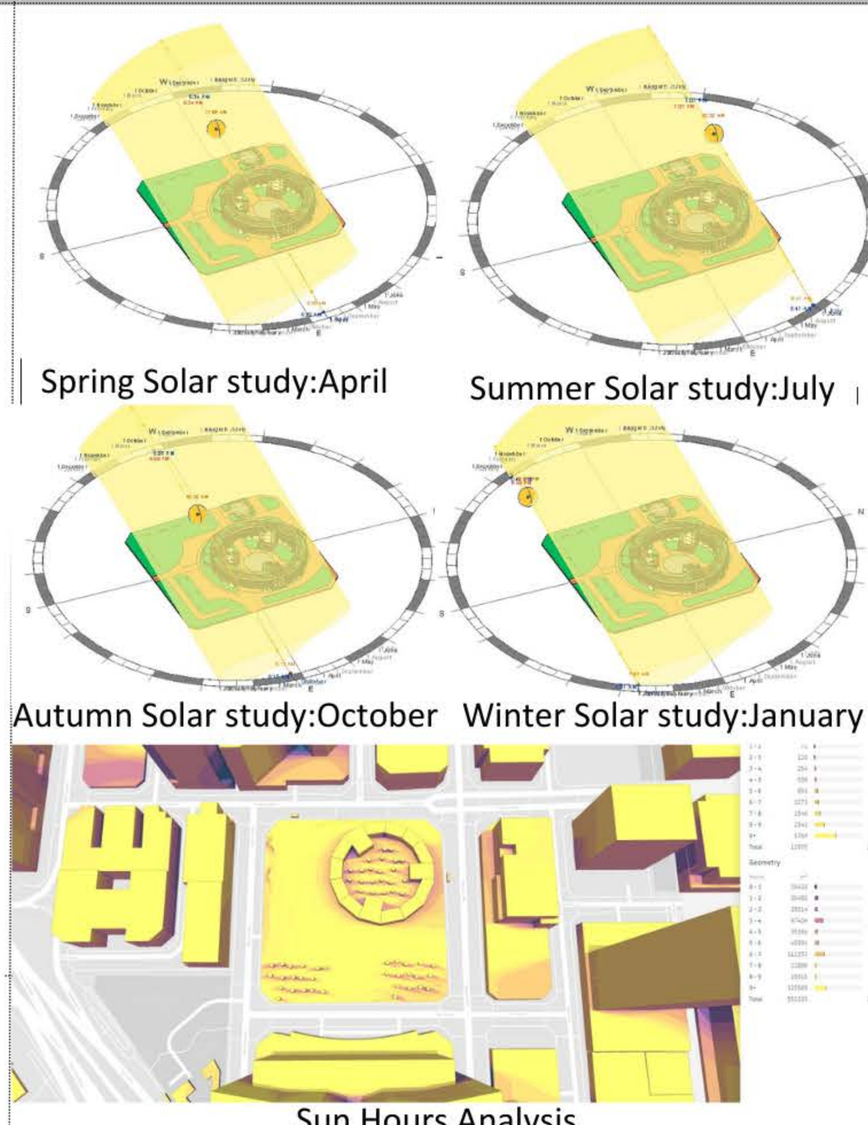
| A | B | C | D | E | F |
|---|---|---|---|---|---|
| Name | Level | Area | Reqired Area | Variance | Variance percenti |
| Meeting and Learning space | Ground Floor Plan | 103.69 m² | 800.00 m² | 696.31 m² | 0.870394 |
| Meeting and Learning space | Ground Floor Plan | 122.97 m² | 800.00 m² | 677.03 m² | 0.846286 |
| Meeting and Learning space | Ground Floor Plan | 125.51 m² | 800.00 m² | 674.49 m² | 0.843114 |
| Meeting and Learning space | Ground Floor Plan | 175.03 m² | 800.00 m² | 624.97 m² | 0.781211 |
| Meeting and Learning space | 2F AFFL | 237.05 m² | 800.00 m² | 562.95 m² | 0.703683 |
| Meeting and Learning space: 5 | | 764.26 m² | | | |
| Administrative Office | 2F AFFL | 288.92 m² | 300.00 m² | 11.08 m² | 0.036918 |
| Administrative Office: 1 | | 288.92 m² | | | |
| Conference Hall / Arena | 1F AFFL | 246.82 m² | 250.00 m² | 3.18 m² | 0.01273 |
| Conference Hall / Arena: 1 | | 246.82 m² | | | |
| Exhibition Gallery / Performance space | Ground Floor Plan | 228.62 m² | 250.00 m² | 21.38 m² | 0.085502 |
| Exhibition Gallery / Performance space | Ground Floor Plan | 228.87 m² | 250.00 m² | 21.13 m² | 0.084509 |
| Exhibition Gallery / Performance space: 2 | | 457.50 m² | | | |
| Resources Centre / Library | Ground Floor Plan | 99.12 m² | 250.00 m² | 150.88 m² | 0.603526 |
| Resources Centre / Library | Ground Floor Plan | 133.53 m² | 250.00 m² | 116.47 m² | 0.465867 |
| Resources Centre / Library | 1F AFFL | 259.76 m² | 250.00 m² | -9.76 m² | -0.039029 |
| Resources Centre / Library: 3 | | 492.41 m² | | | |
| Training Workshop / studio | Ground Floor Plan | 136.34 m² | 150.00 m² | 13.66 m² | 0.091061 |
| Training Workshop / studio | 2F AFFL | 140.16 m² | 150.00 m² | 9.84 m² | 0.065606 |
| Training Workshop / studio | 2F AFFL | 140.49 m² | 150.00 m² | 9.51 m² | 0.063416 |
| Training Workshop / studio: 3 | | 416.99 m² | | | |
| Training workshop/studio | Ground Floor Plan | 135.23 m² | 150.00 m² | 14.80 m² | 0.098661 |
| Training workshop/studio: 1 | | 135.26 m² | | | |
| Classroom | 1F AFFL | 99.50 m² | 100.00 m² | 0.50 m² | 0.005027 |

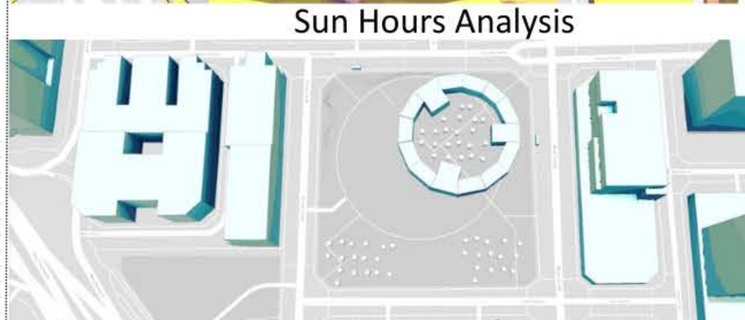



**Quality:**

--- Use of Revit Room Schedule and Excel to monitor space design and room area to be within 10% tolerance.

--- Use Revit load Autodesk family and Bimobject, CIC BIM Object Library to accelerate furniture and MEP placing.



Sun Hours Analysis



Daylight Potential Analysis

**Sustainability:** Autodesk Forma was used to simulate the solar analysis during the design optimization stage, and Revit solar studies were conducted to review the actual light potential of the building.

Solar panels and architectural fins are placed according to the solar study to utilize solar energy and reduce direct sunlight, which may increase indoor heat. To minimize the possible cooling energy use.

## CIC BIM Competition 2024

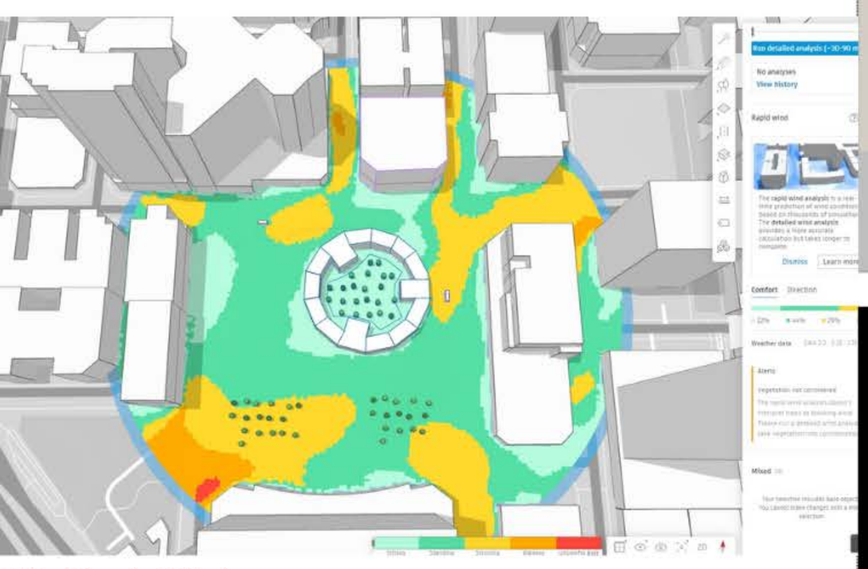
### CIC Innovation Academy

# CIC BIM Competition 2024 – Huenoflora

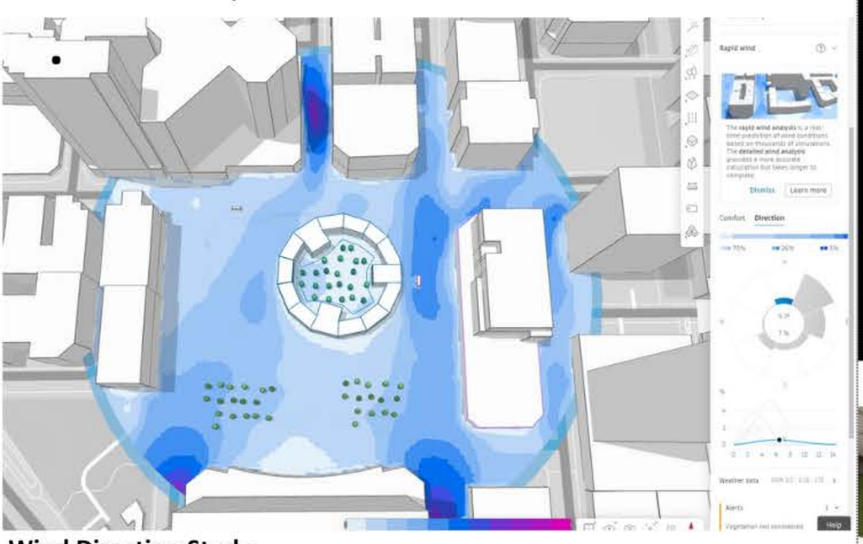
CIC Innovation Academy located at 8 Sheung Yuet Road, Kowloon Bay, Kowloon

Site Layout Plan 1:1000

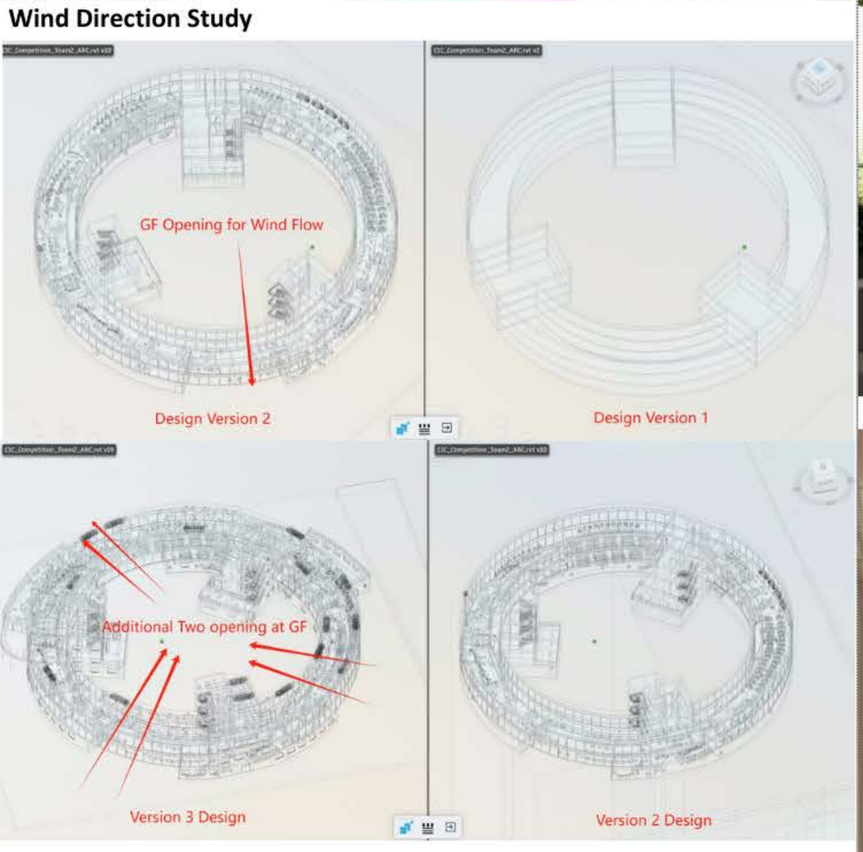
Perspective View (2nd Round)



Wind Comfort Study



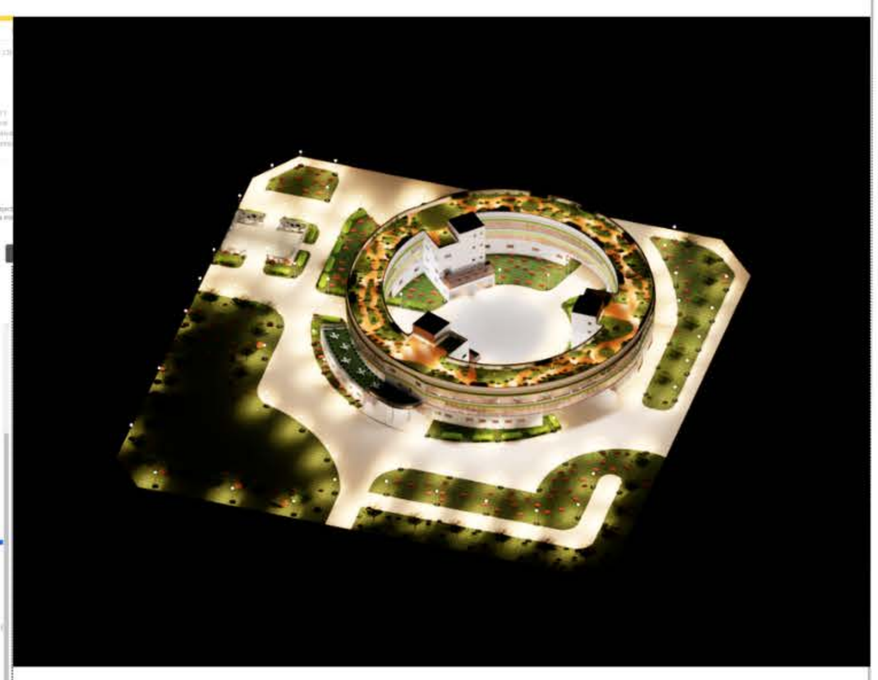
Wind Direction Study




## Computational Design:

**Using Wind Analysis, we found that the wind load from North East and South East is high, so we created an opening at GF to transfer the wind load to the west to neutralize the wind load.**

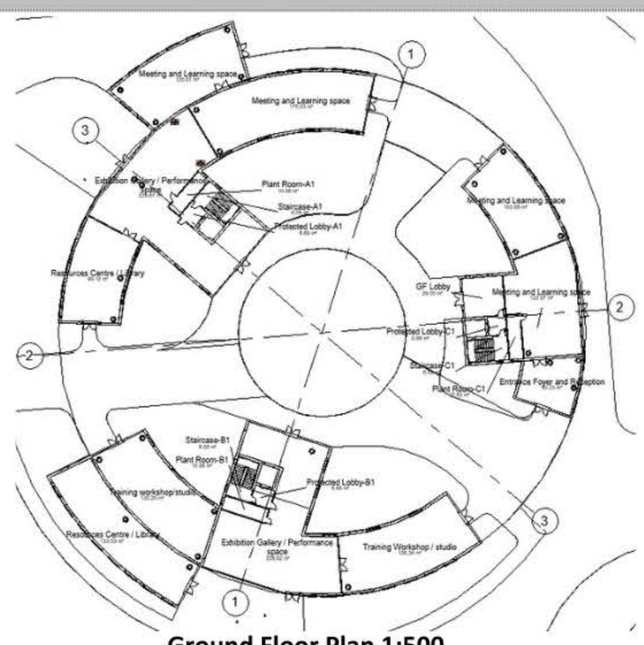
**Three versions of the building have been changed because of the decision.**



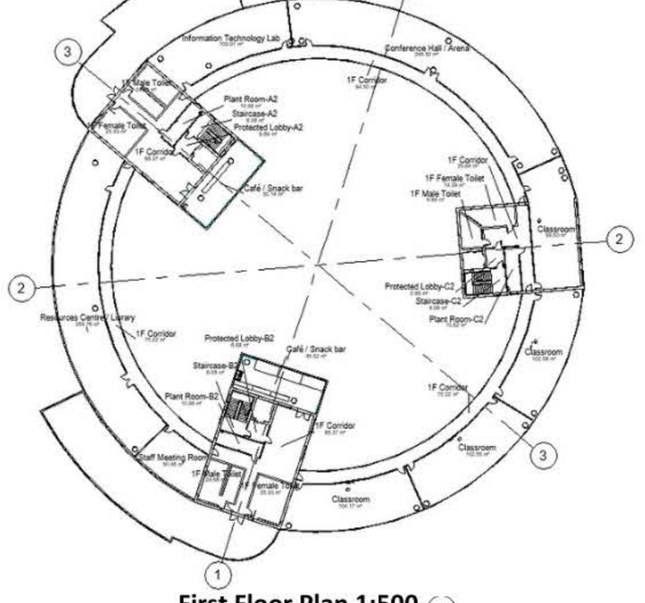
OverallBird Eye view (Night View)

Internal Perspective Exhibition Gallery / Performance space

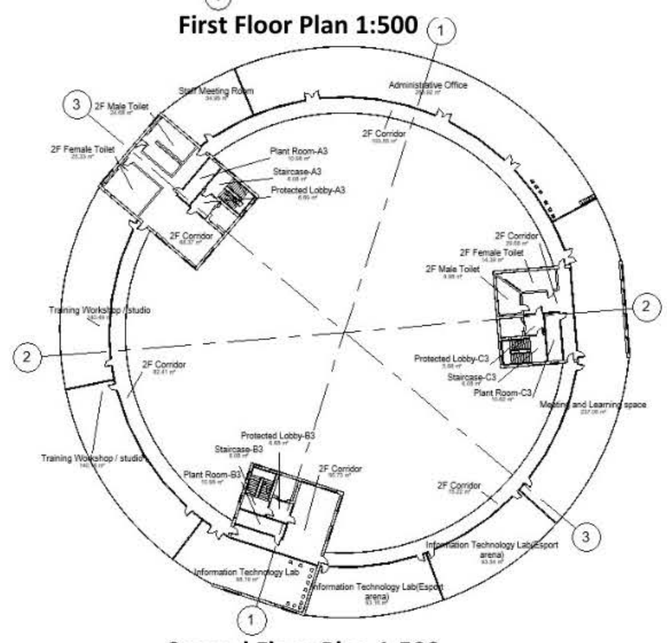
Internal Perspective Exhibition Gallery / Performance space




Ground Floor Plan 1:500




First Floor Plan 1:500 (1)




Second Floor Plan 1:500

# CIC BIM Competition 2024

## CIC Innovation Academy

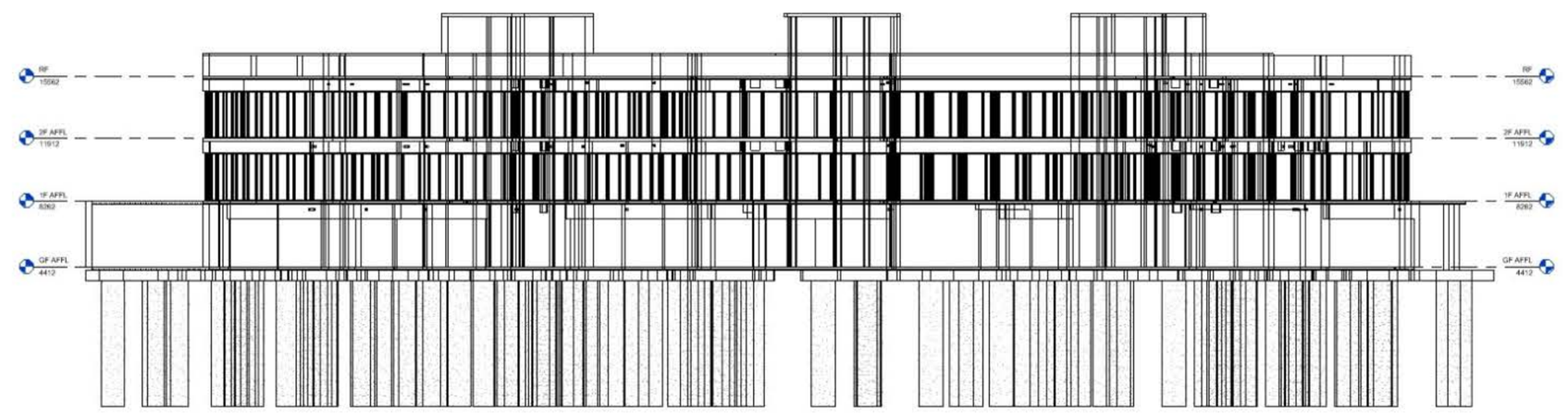
## Innovation Technologies:

**MiC/DfMA: The Staircase and Lift Shaft are repeated and identical in the three main buildings from G/F to R/F; MiC can be adopted to accelerate late construction.**

**Two types of toilets are also adopted by the MiC method.**

**Perspective View: Basic structure using piling foundation, with part of the curtain wall.**

**Internal Perspective**



**Sectional Perspective**

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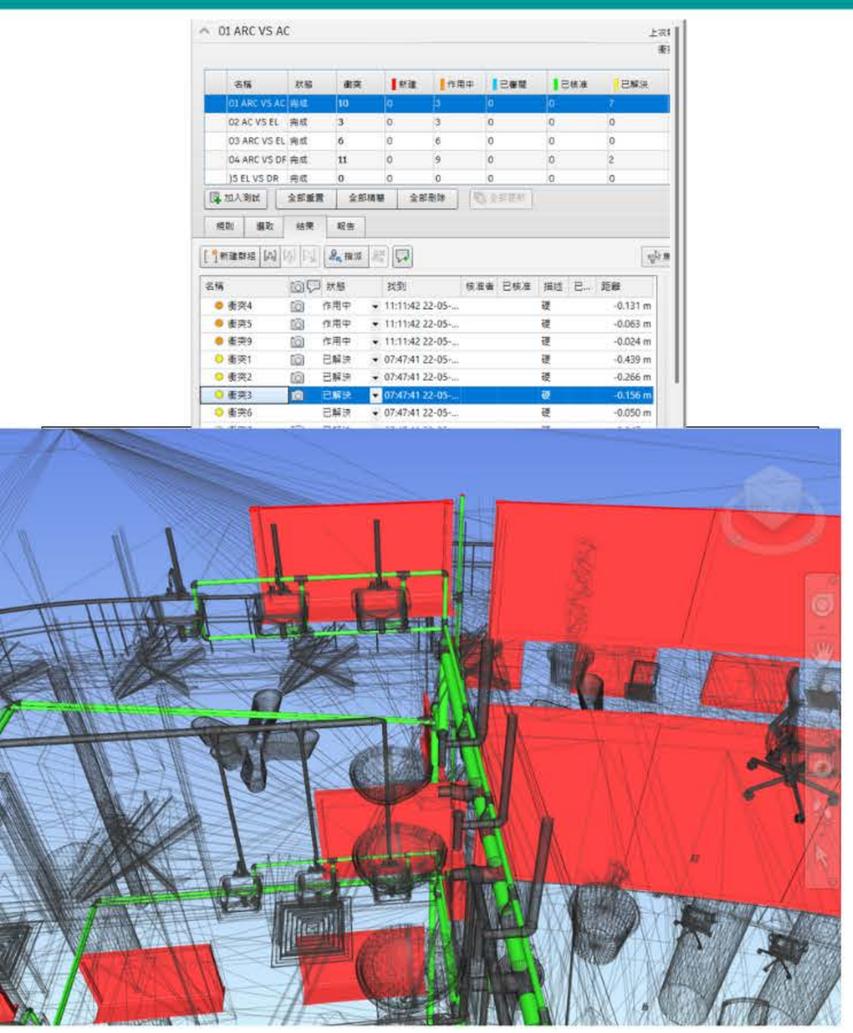
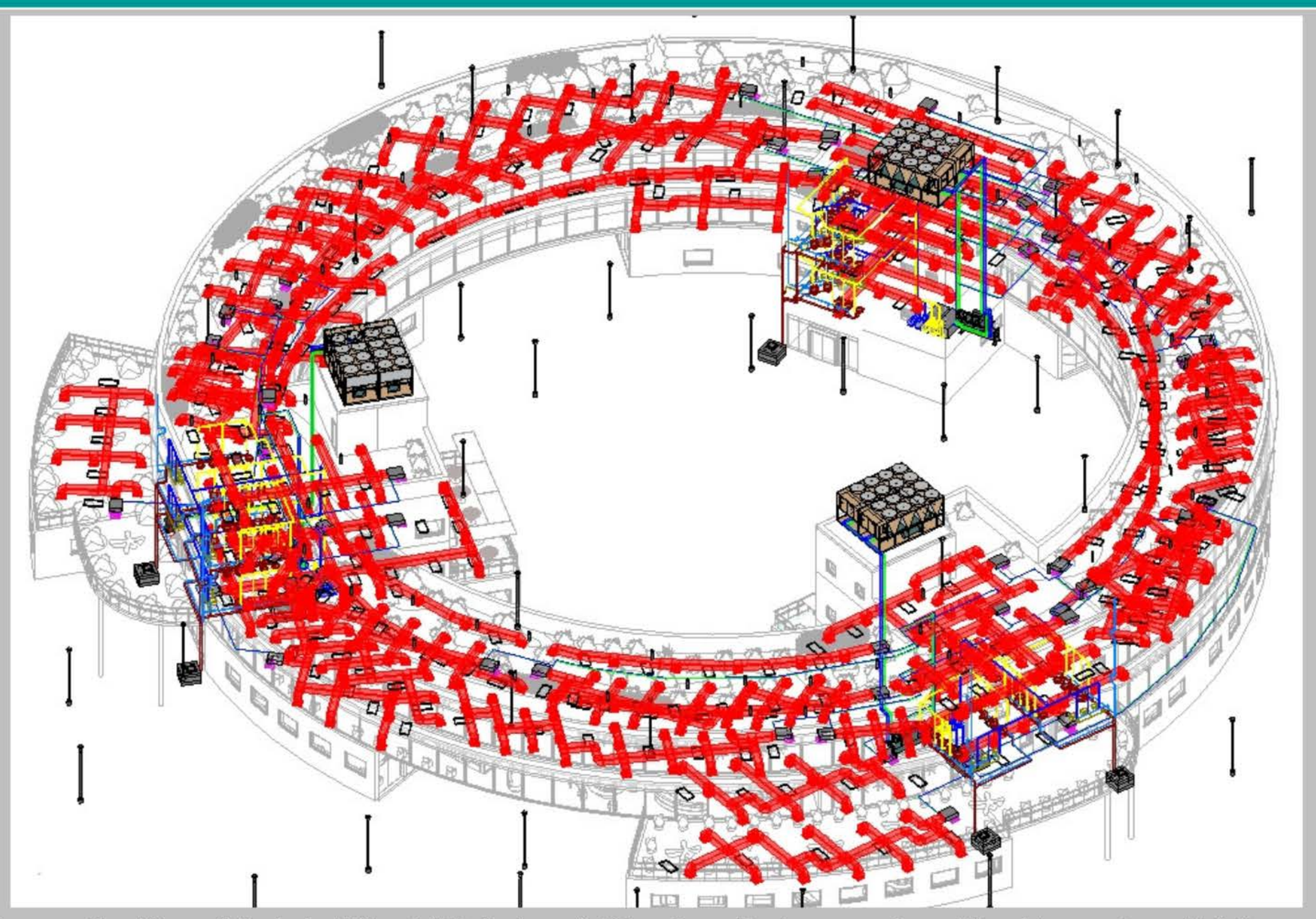
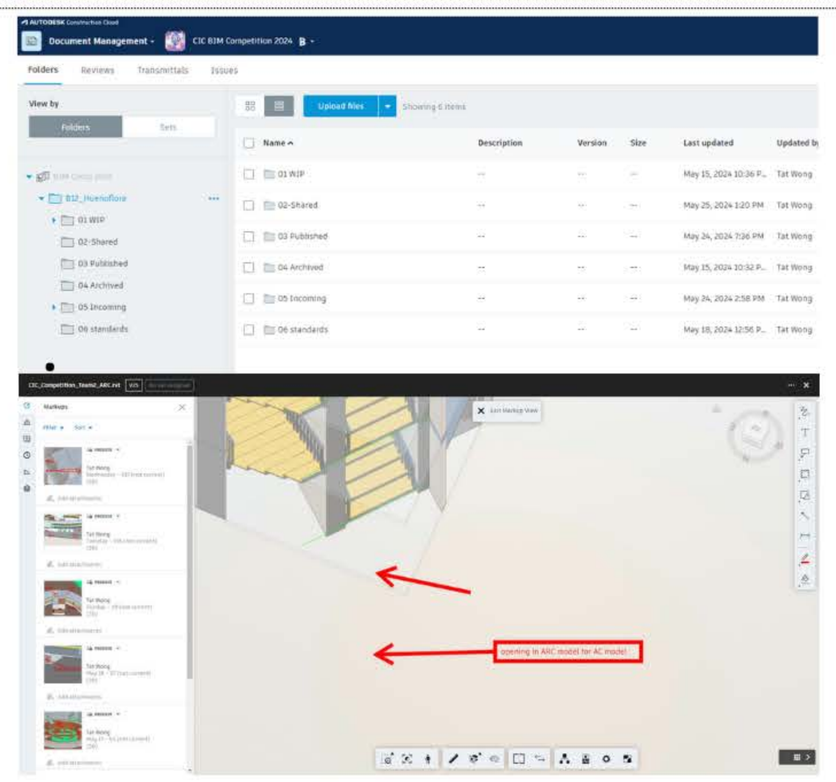



## Design Coordination:

**Use Navisworks Manage 2025 to combine Architecture, Structure, and MEP models into the same view and conduct clash detection, viewing for comment and coordination.**



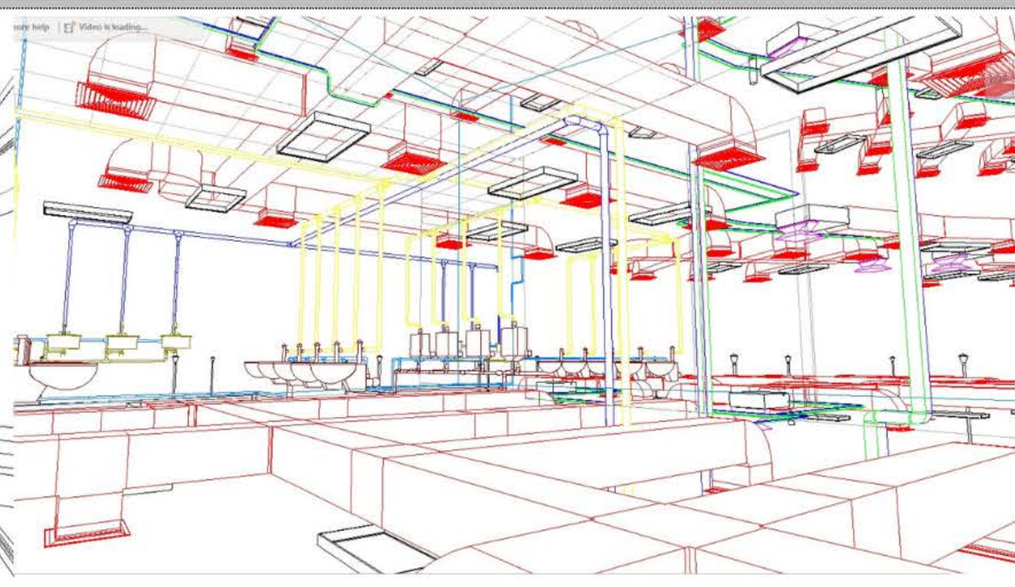
**Perspective View: Whole building MEP design of AC system, Drainage system, Plumbing system, Lighting system**




## Project Team Collaboration:

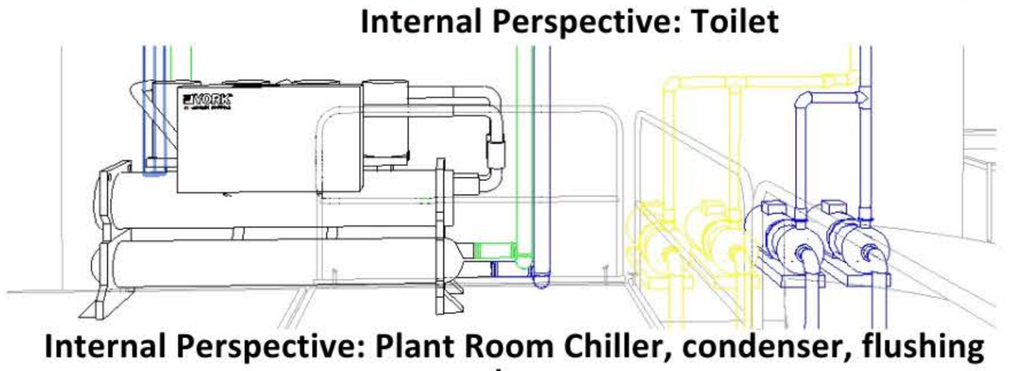
**Adopt BIM 360 as a common data platform (CDE) and create different files, such as work in progress(WIP) in different working trades. Documents, information, and models are created and shared during the project process. At the same time, create markups and announce team members for further actions**

**Internal Perspective: Conference area**

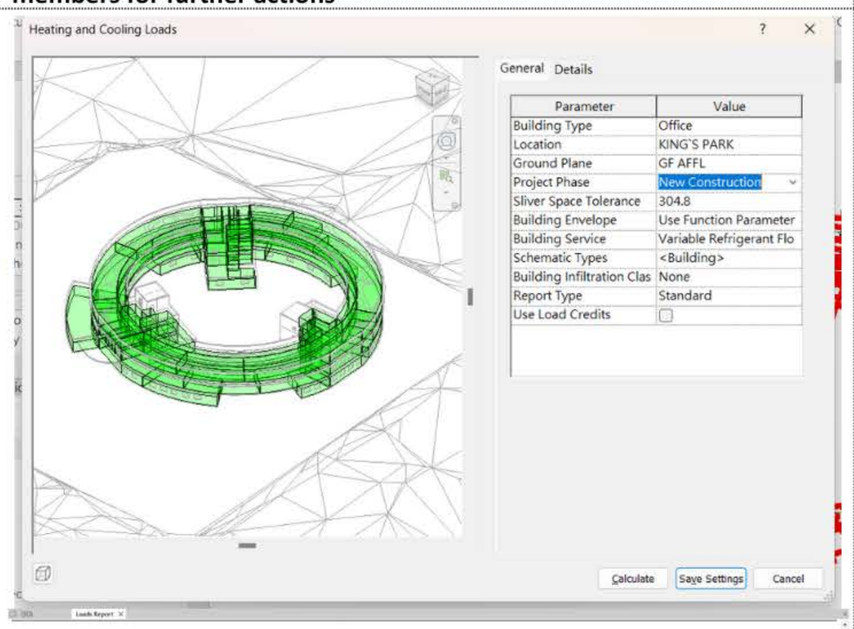


**Internal Perspective: Toilet**

**Internal Perspective: Roof Top Air Cooling Tower**

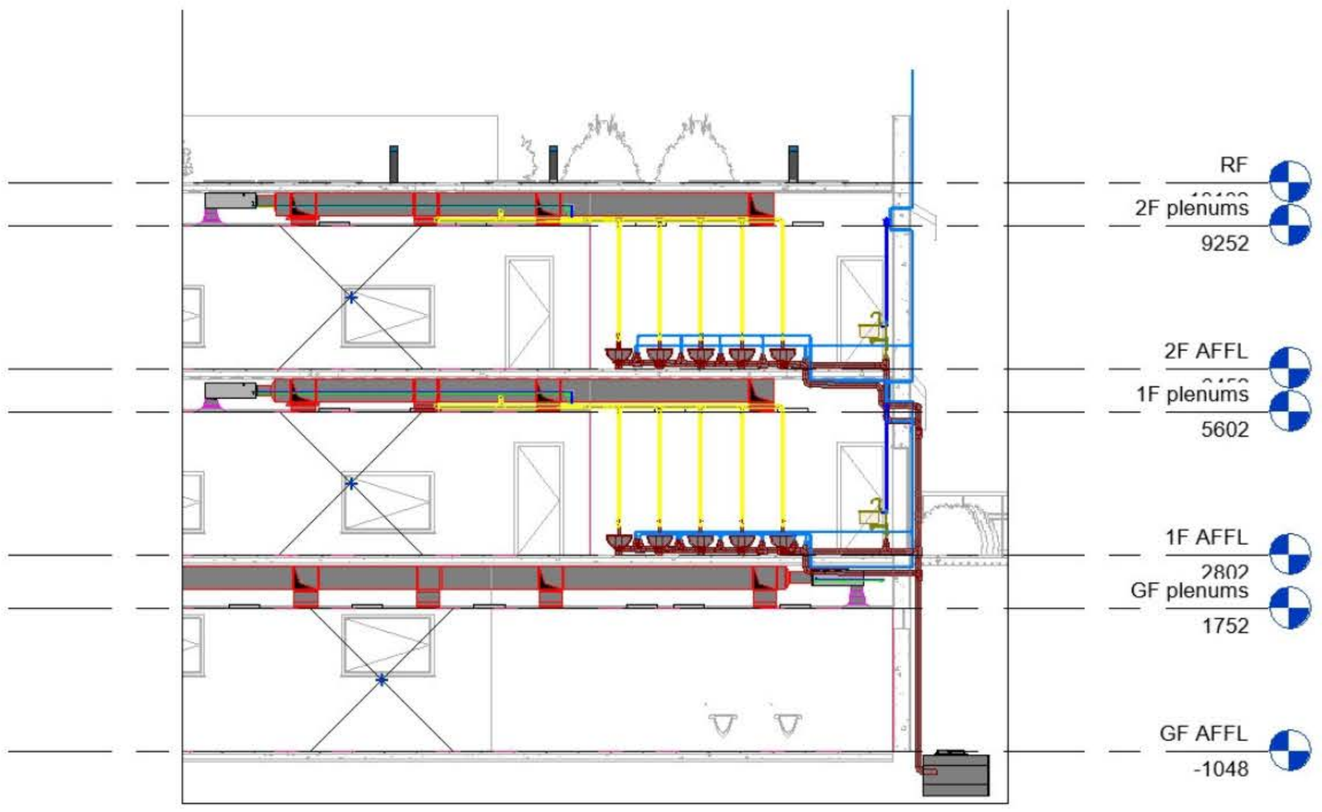



**Internal Perspective: Plant Room Chiller, condenser, flushing water pump, clean water pump**




## Computational Design :

**Conduct Cooling load estimation for AC modelling to determine the adequate air cooling flow and the design of the system layout. Hence, to ensure the quality of the AC system is reliable.**




**Sectional Perspective 1:500**

# CIC BIM Competition 2024

## CIC Innovation Academy