

The Wah Fu Weave 華<福>織法

新舊融合：華富重塑
Old & New Synthesis:
Reimagining Wah Fu Estate

**Honouring the Past,
Elevating the Future**

Social Anchor vs. Urban Commodity

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Mentors: Architect Esther Chan Ting Ting, Dr. Provides Ng



Digital Common(s)
數碼共同體



Wah Fu

History: Designed by Dr Donald Liao, 1967

Characteristics: Coastal cliffside location with steep terrain; exposed to sea winds and salt erosion

Social Context: Approximately 60% of residents are over the age of 40 (with 31% being elderly individuals aged 65 or older)

Architectural Heritage: Innovative "Twin Towers" design; "City within a City" concept; terraced hillside layout; pilotis (open ground-floor structure)



Dr. Donald Liao

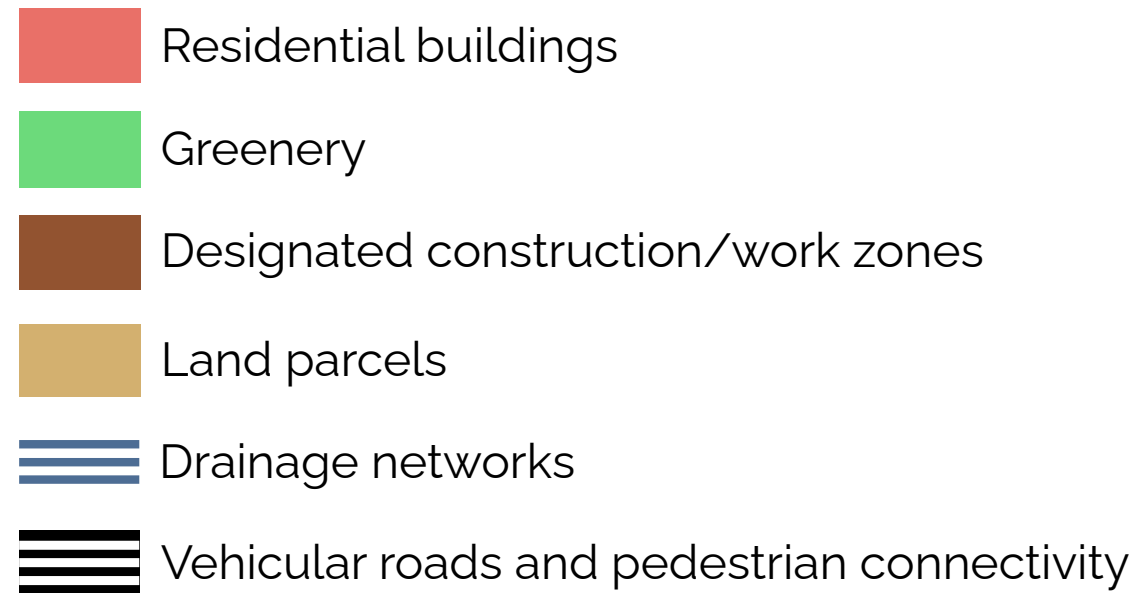
Engaging local residents in model buildings.



Mapping based on residents feedback.

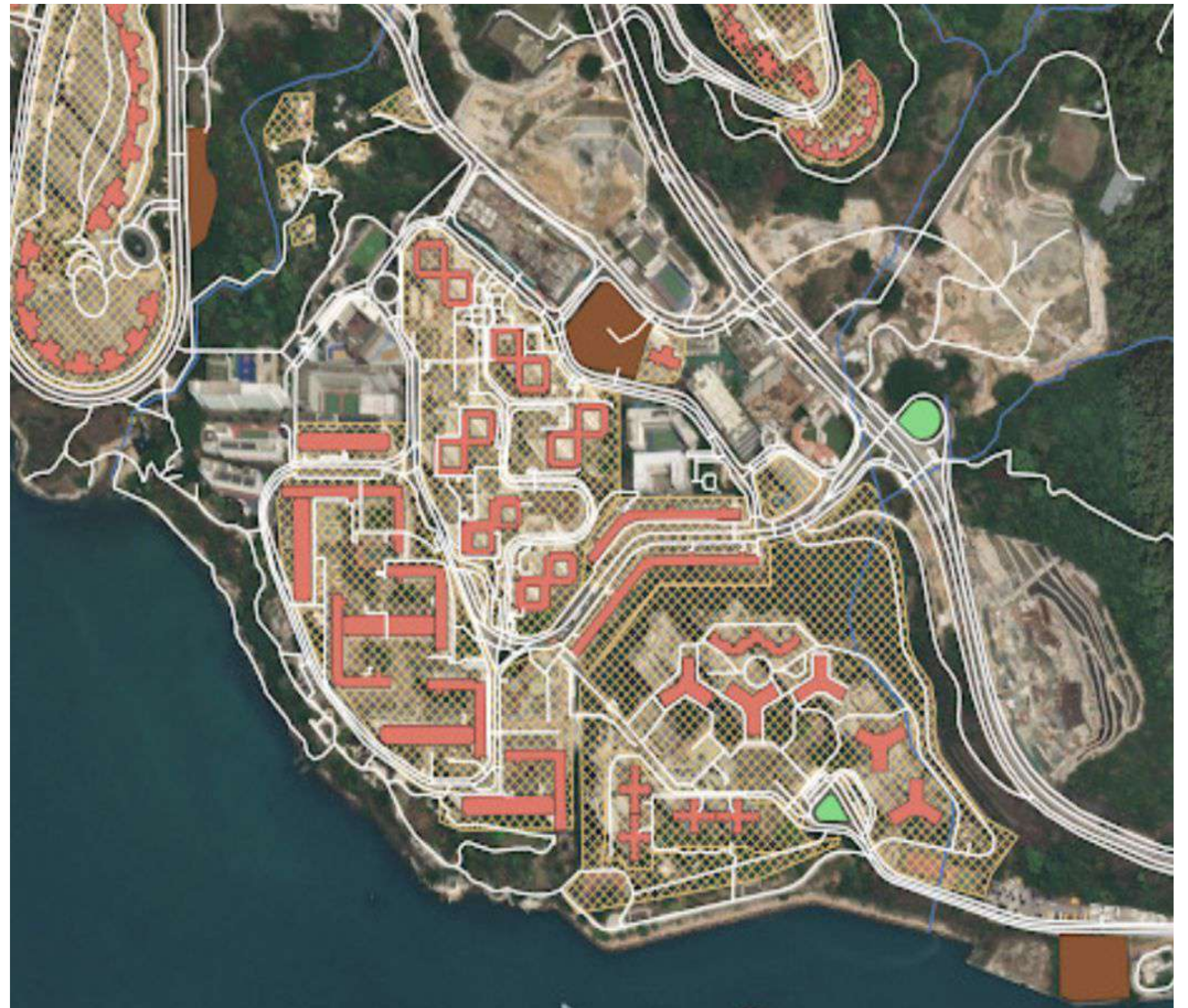


GIS Mapping

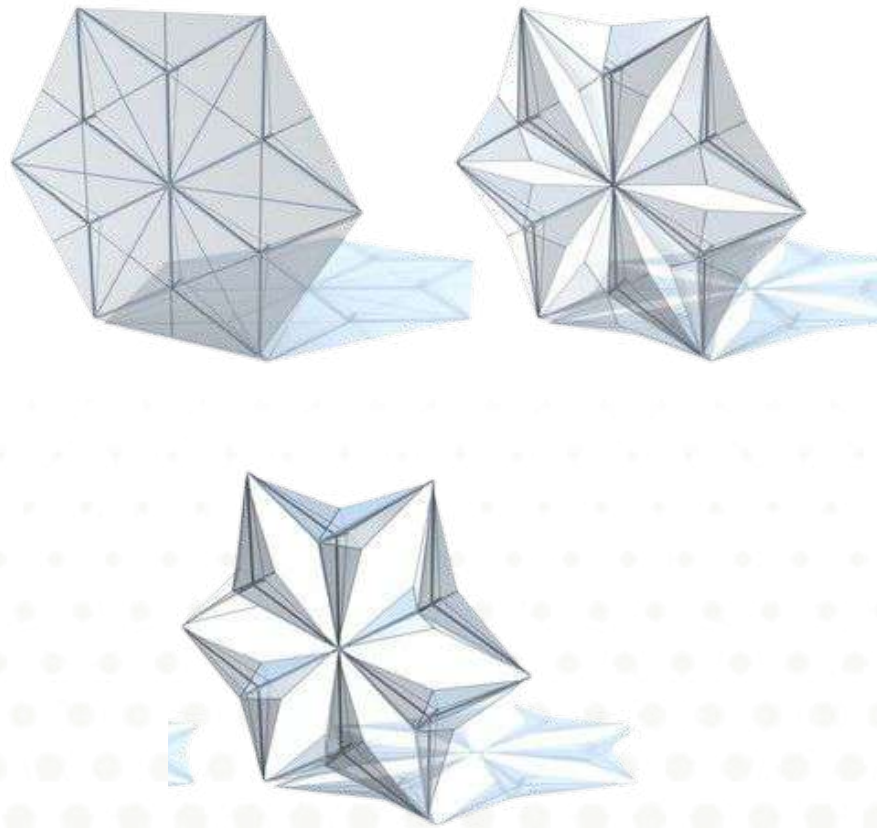
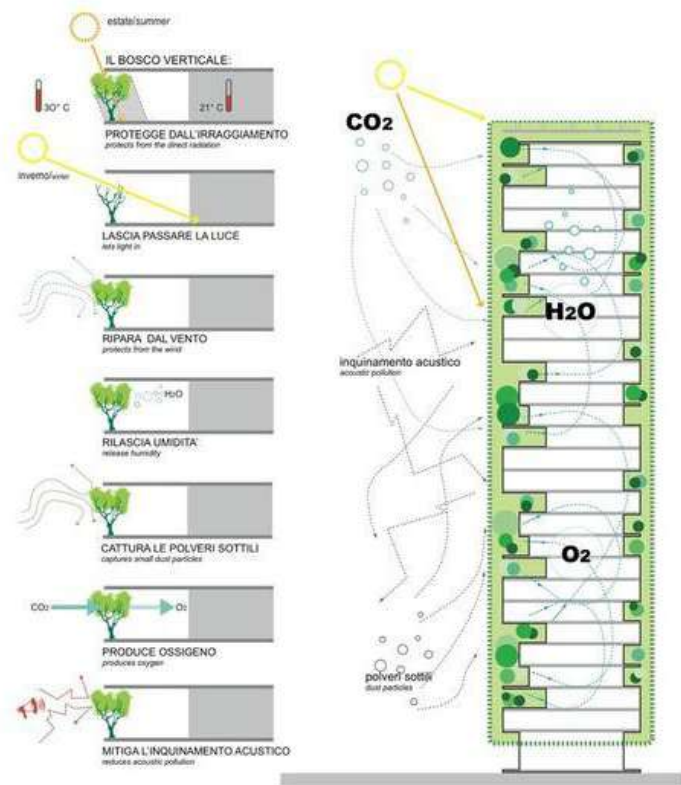
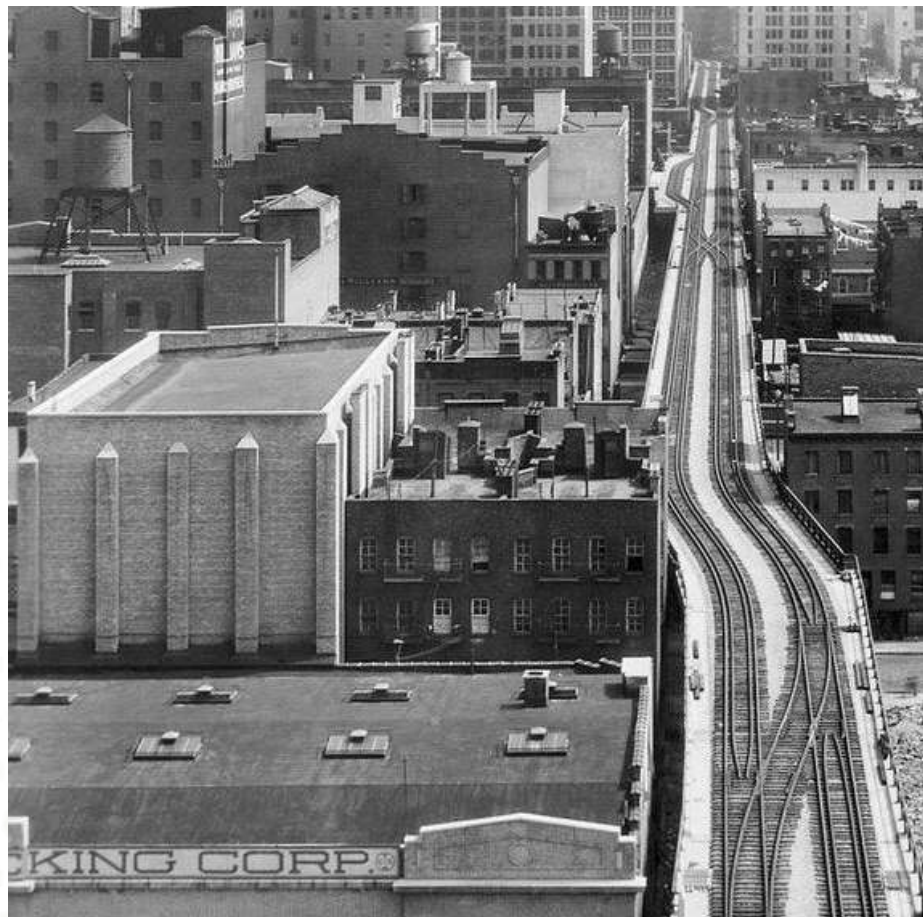
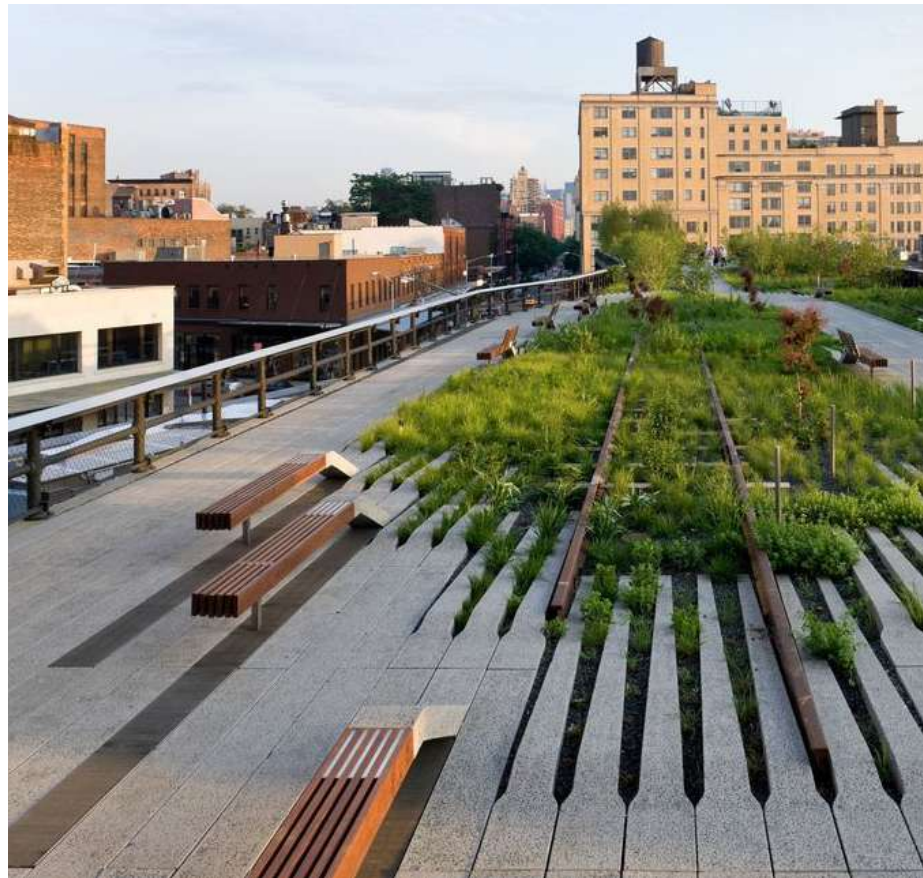


Key Takeaways:

- Proximity of the residential blocks to the oceanfront confirms direct exposure to coastal winds
- Dense urban development
- Lack of softscaping
- Lack of dedicated drop-off zones or clear pathways leading to transit nodes



Architectural Precedent Examples



Bio-inspiration	Shape	Biological Function	Application in Wah Fu
	Vertical accordion pleats, deep slits, and carvings, extra components with heat and humidity sensor	Creates a self-shading mechanism so that the plant can always cast a shadow on itself - passive shading	Incorporate geometric carvings and vertical ridges into the walls beside the walkways. As the sun moves, the ridges and cuts cast shadows on the ground/wall, creating natural cooling micro-climates and decoration
	Dual-diagonal square framework. Alternating squares reinforced with diagonal struts.	Creates a rigid, protective structural cage and withstands immense, crushing deep-ocean currents.	Open Lightwell: Eliminates massive interior columns to create a wide, soaring central atrium. Climate Comfort: Withstands Hong Kong typhoons while letting natural sea breezes flow straight into the market.
	Sweat evaporation, aiding self internal cooling.	Water flow through building mimicking blood vessels would evaporate into the air and cool it significantly.	To introduce self cooling system in Wah Fu estate, we could utilize the heavy rain from Hong Kong's subtropical climate and allow water to flow through building whilst watering plants and cooling internal and external air, successfully imitating vasodilation process, and by planting halophytes it can deal with different scenarios, e.g when there is drought we can use ocean water to flow as a temporary replacement.
	Translucent, floating bowl/bell shape with undulating, flexible tentacles	Uses its transparent domed body to filter light while moving through water	Glass canopy structures Natural Airflow: Shapes the corridors to easily catch cool sea breezes and guide them straight up into the hollow center of the tower.

Why we had the concept of this design

We designed this project because when old buildings are knocked down, neighbors lose the spaces where they talk and hang out. Traditional high-rises make people feel lonely behind closed doors. Our 4 designs changes this by keeping one tower and putting the old street spaces inside it vertically. Using an open middle area with stepped floors, neighbors can easily see and wave to each other. By adding wide ramps, wood, and plants to the main pathways, walking through the building becomes a fun, friendly space where kids and elderly residents naturally meet.

Research question

How can the adaptive reuse of Wah Fu Estate's twin towers help to provide comfortable, sociable community areas for elderly residents living alone?

如何為獨居長者提供舒適且具有歸屬感的公共社區空間？

Inspiration From Precedents:

4 Core Ideas

1) Walkway placemaking design

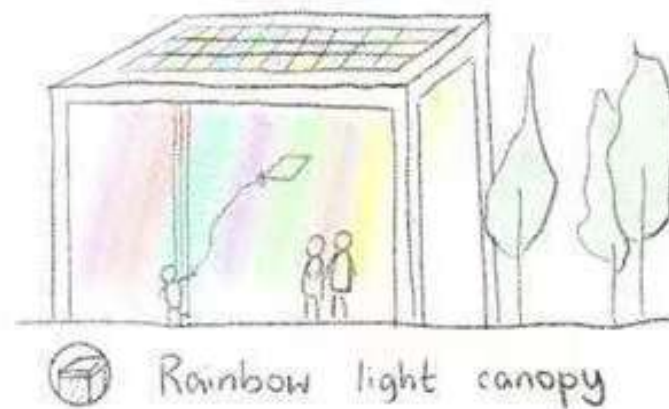
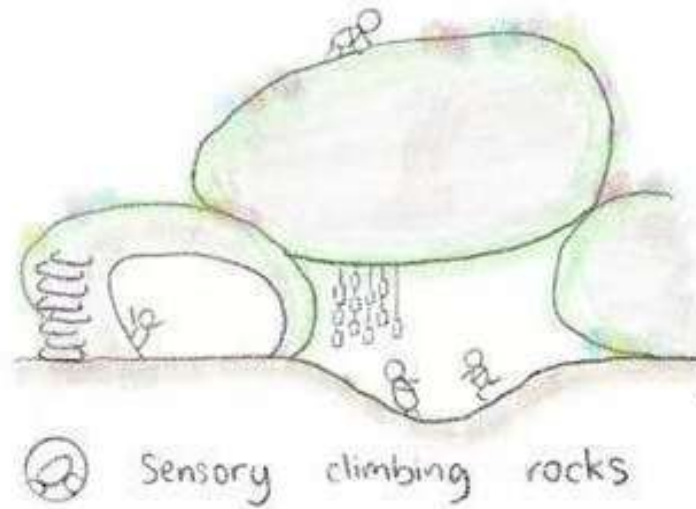
2) Vertical Social Streets

3) Comfortable Indoor Spaces

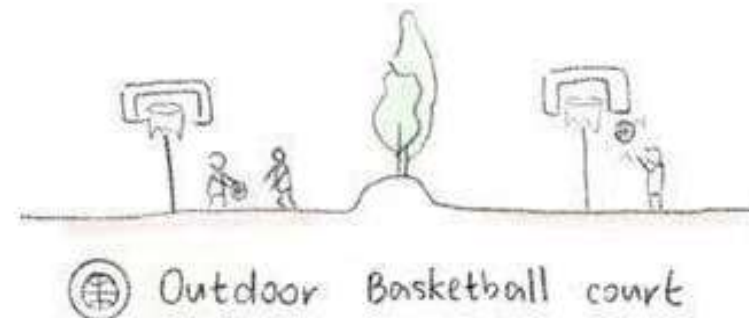
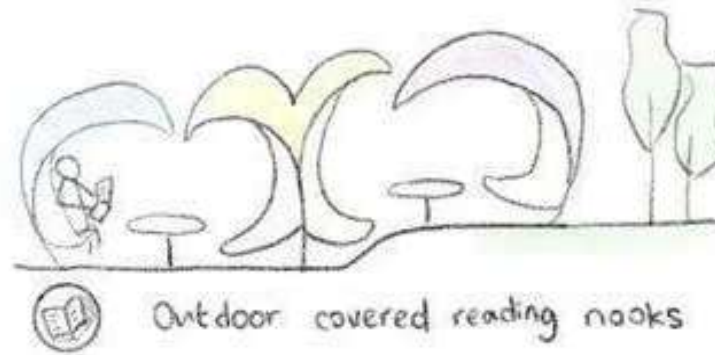
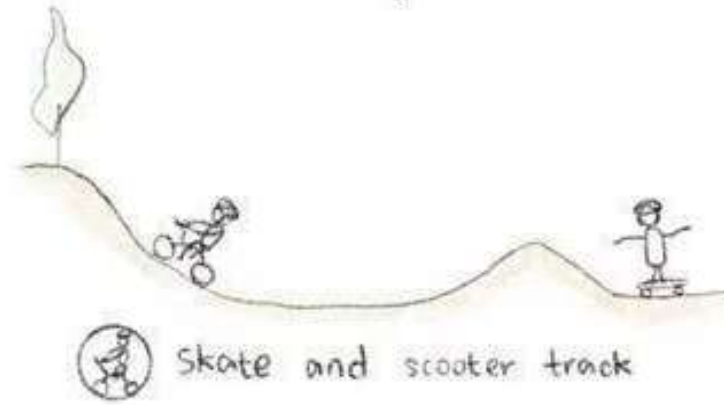
4) Evaporative cooling and revitalisation design

1) Walkway Place- making Design

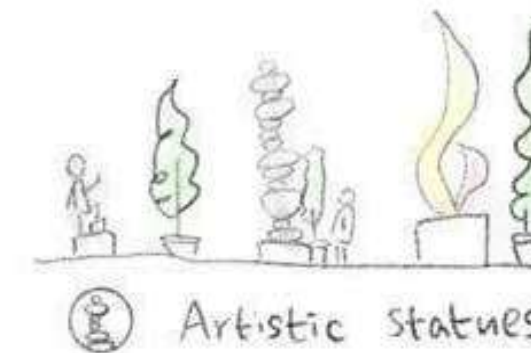
0-12 years old



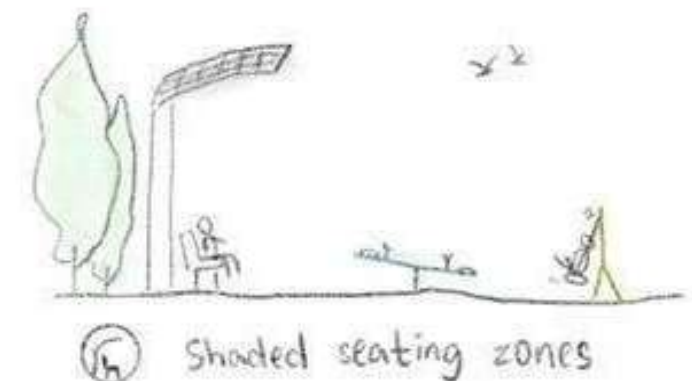
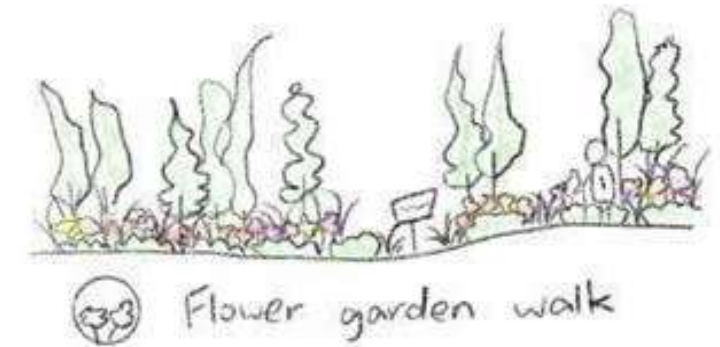
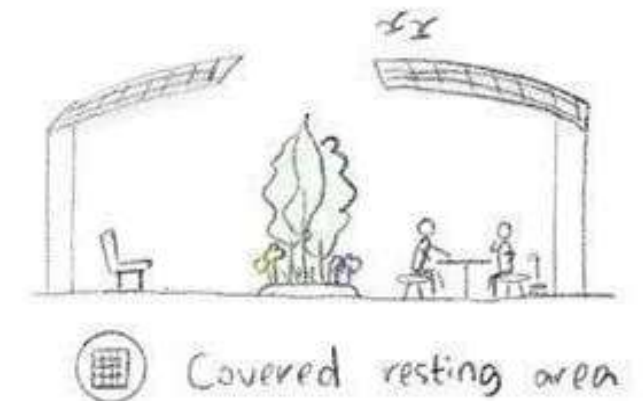
13-19 years old



20-60 years old



61+ years old





- Includes public bathrooms on the way
- Interesting stops on the way targeting each age group
- Resting area (mainly for the elderly) next to the children's playground



Earth tones are colors inspired by nature, like warm browns, soft tans, muted greens, and gentle terracotta. Studies show these colors help calm the brain, reduce confusion, and prevent sensory overload. Here is a breakdown of why these colors work so well for older adults with cognitive decline, such as dementia or Alzheimer's disease.

- **High Comfort, Low Stress:** Earth tones mimic nature, which naturally lowers blood pressure and anxiety.
- **Familiarity:** Browns, greens, and beige are deeply familiar colors. This helps the brain feel safe and grounded.
- **Reduced Confusion:** Complex patterns or stark white walls can distort depth perception. Muted tones help individuals understand where walls end and floors begin.

Citation: Stanzani Maserati, M., Mitolo, M., Medici, F., D'Onofrio, R., Oppi, F., Poda, R., ... & Capellari, S. (2019). Color choice preference in cognitively impaired patients: a look inside Alzheimer's disease through the use of Lüscher Color Diagnostic. *Frontiers in psychology*, 10, 1951.

2) Vertical Social Streets

- Atrium Ventilation & Views: Facilitates ventilation and creates visual connectivity across floors.
- Staggered Voids: Double-height voids establish diagonal sightlines between levels.
- Stair-Ramps & Seating: Allow the atrium to function as a small open-air amphitheatre.
- Green Walls: Vegetated facades reduce reverberation and channel sea breezes for comfort.
- High-Level Bridge: Cross-visibility bridge connecting residential areas to upper hill trails.
- Culinary Hub: Shared kitchen and event space for inter-generational gatherings.
- Widened Corridors: Features chess corners, laundry-chat lounges, and shared plant nurseries.
- Market Heritage: Allows elderly residents to sell their businesses and connect with the residential community.

Site Analysis & Community Needs

- Home Visit Insights: Deep demand for weather-protected, barrier-free gathering spaces close to residential units to prevent senior isolation.
- Neighborhood Enhancement: Re-establishing lost social anchors through targeted architectural interventions that encourage intergenerational mixing.







Design Concept – Adaptive Reuse & Collective Memory

The Core Strategy:

Preserve a single Twin Tower building as a living container, migrating traditional street-level topologies into a vertical format.

Architectural Drivers:

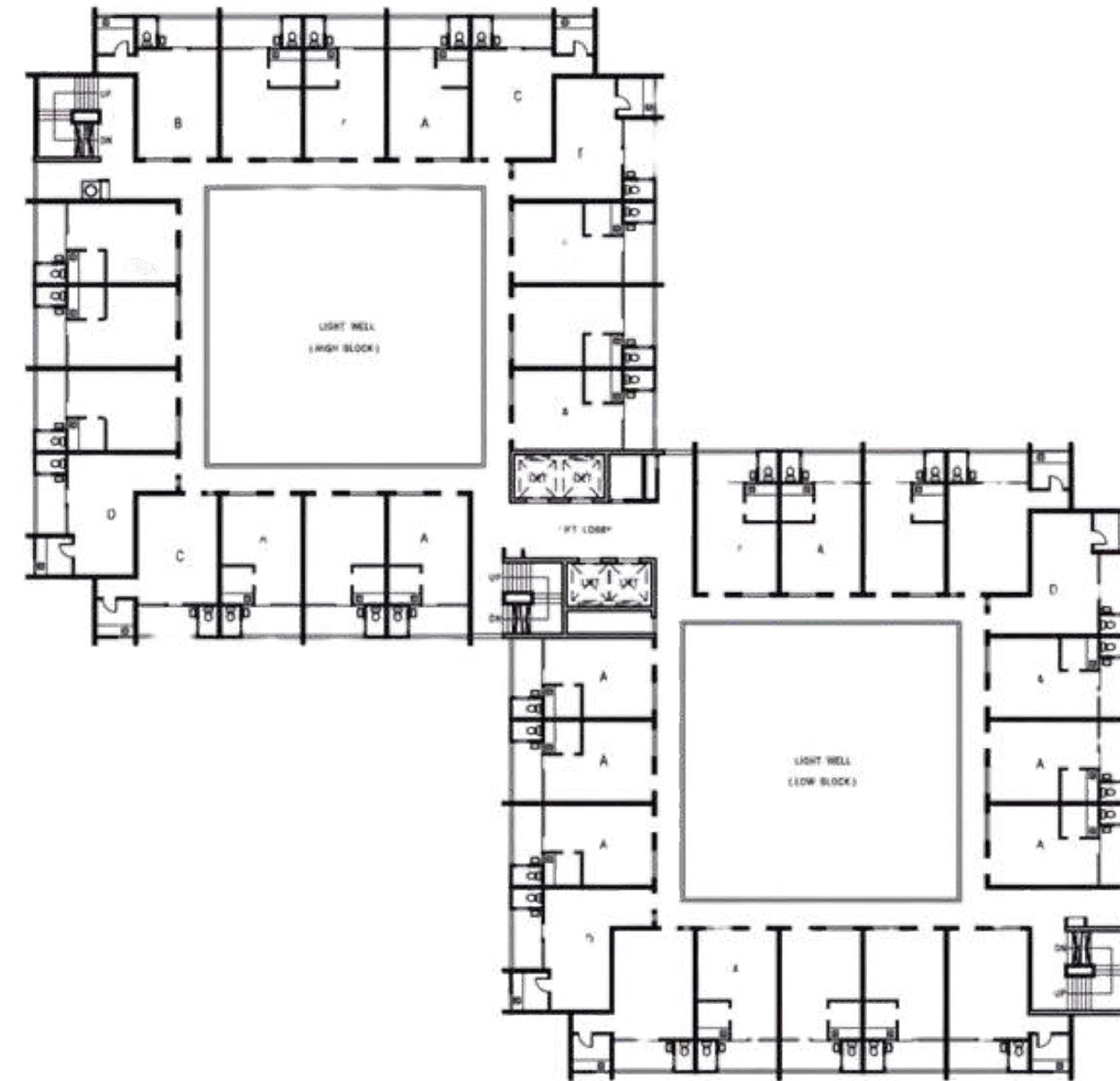
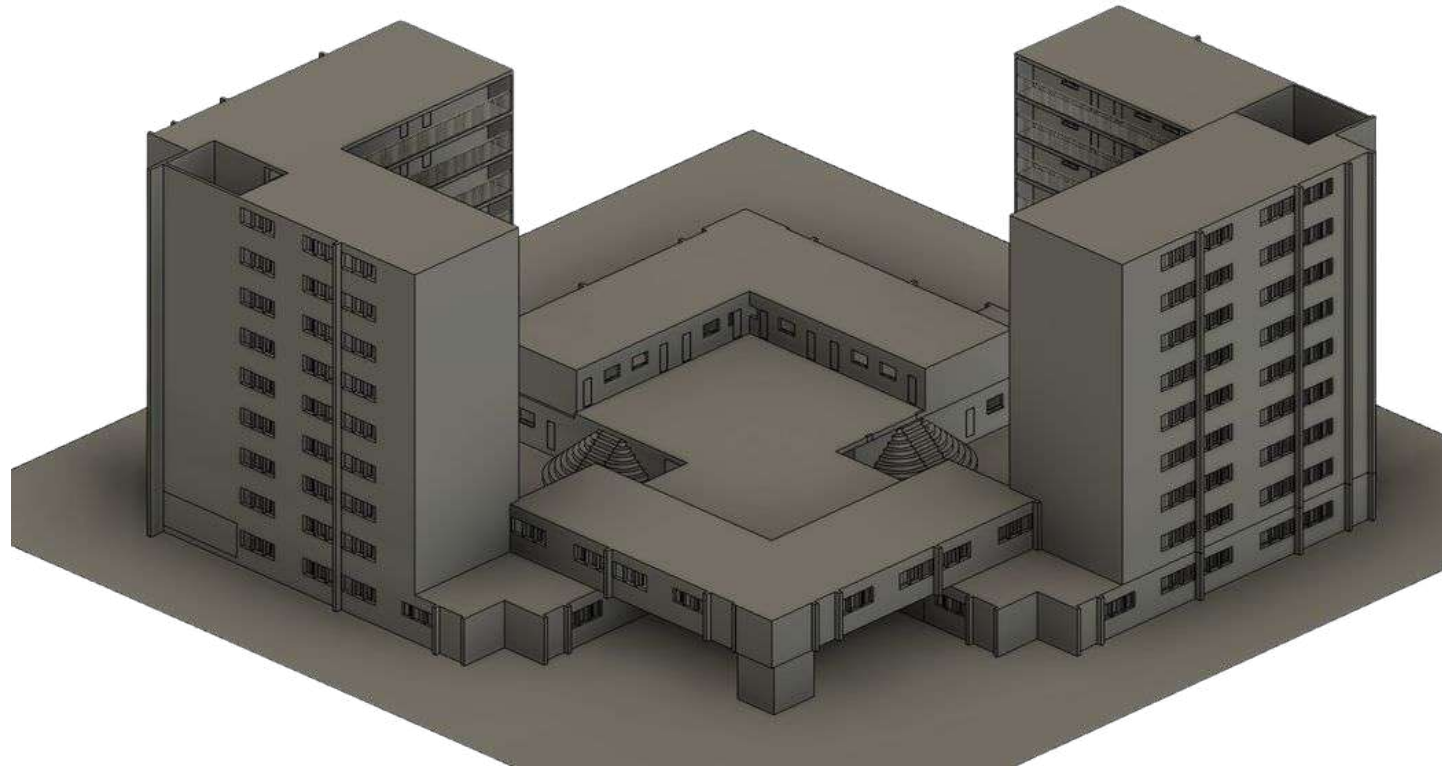
Repurposing spatial memories to create human-scaled, resilient micro-hubs within the existing structural grid.

Neighborhood Enhancement:

Re-establishing lost social anchors through targeted architectural interventions that encourage intergenerational mixing.



3) Comfortable indoor Spaces



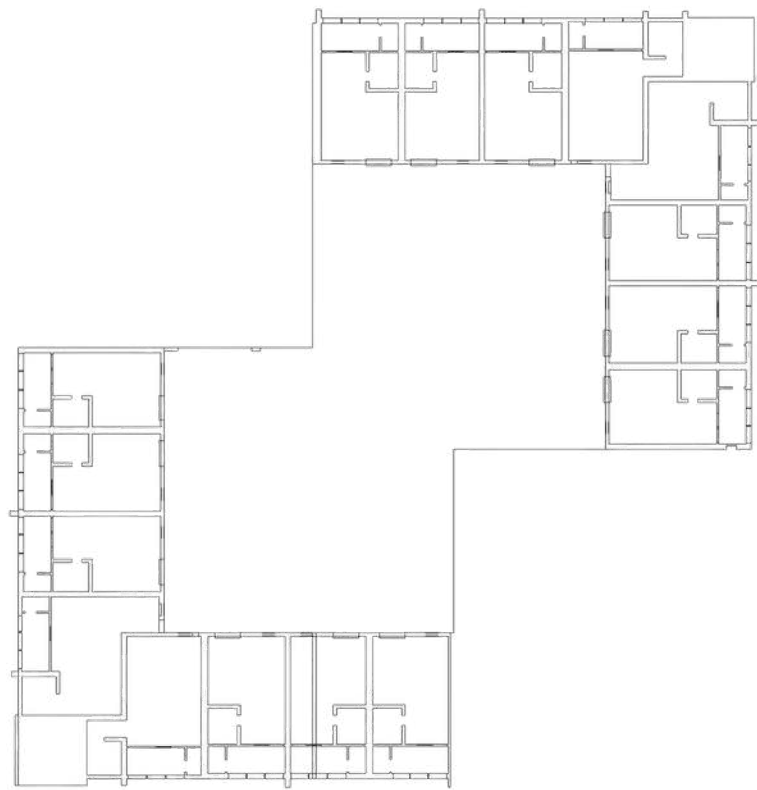
STANDARD BLOCK
TWIN TOWER
TYPICAL FLOOR PLAN

標準型大廈
雙塔式
標準樓層平面圖

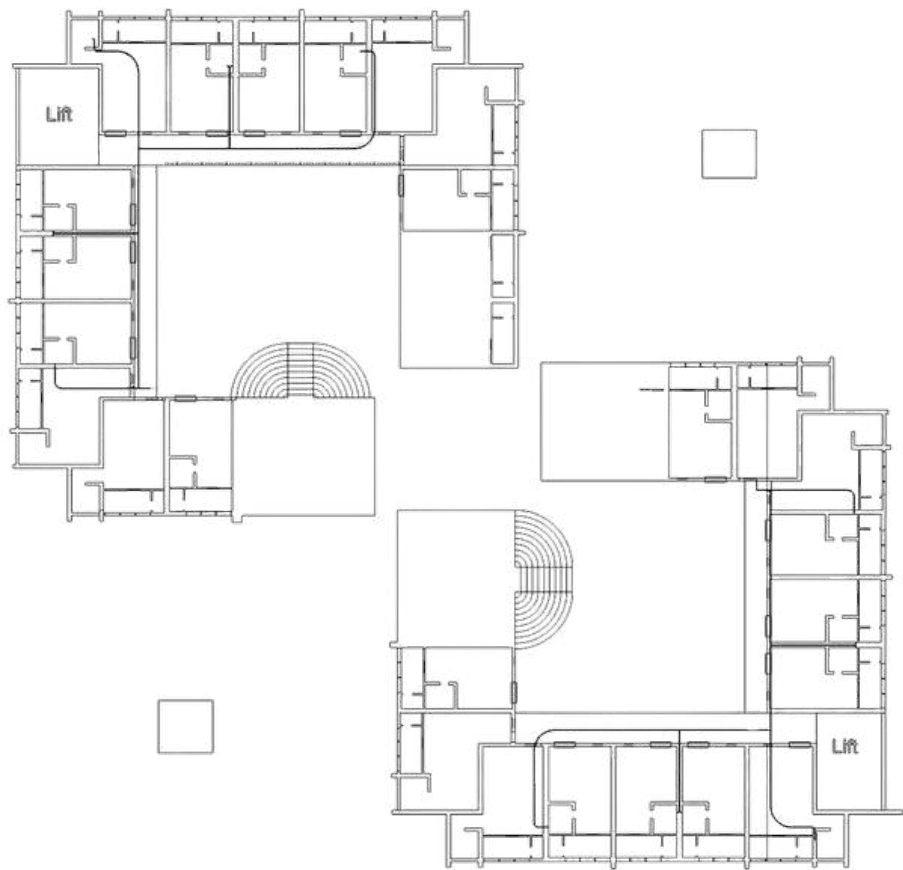
标准型大廈
双塔式
标准楼层平面图



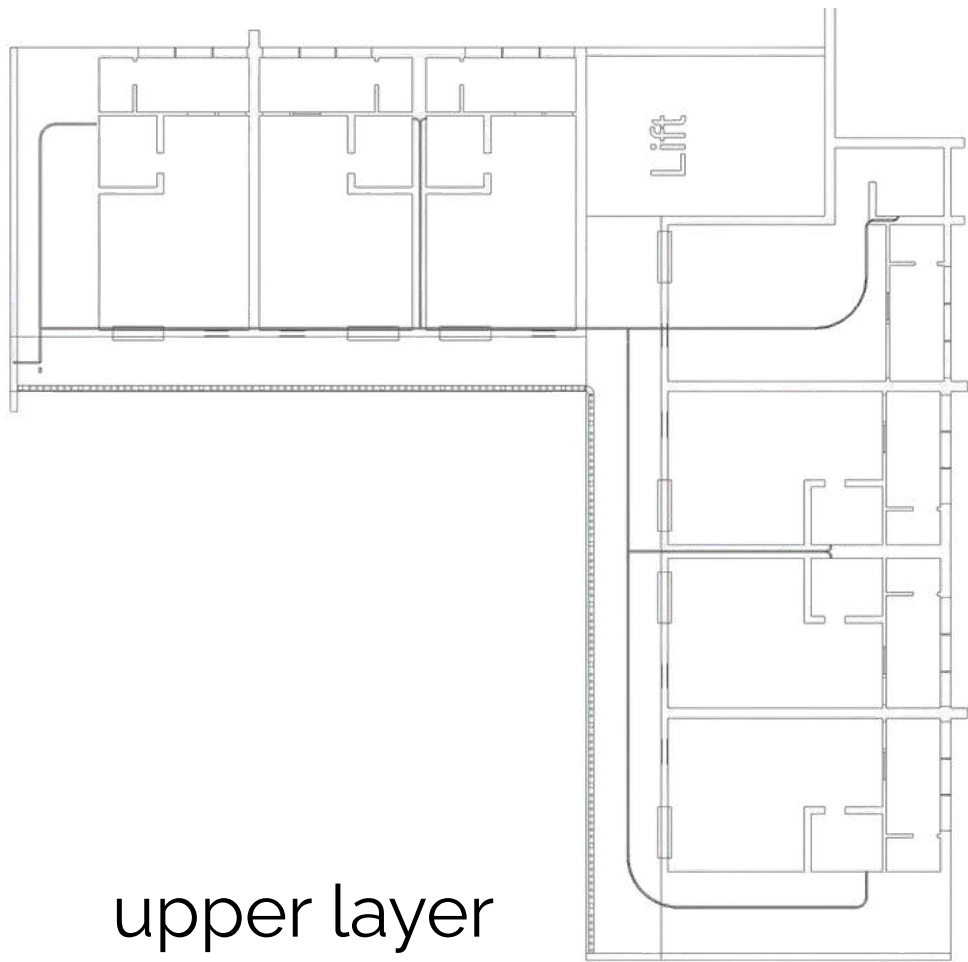
Floor Plans



center layer

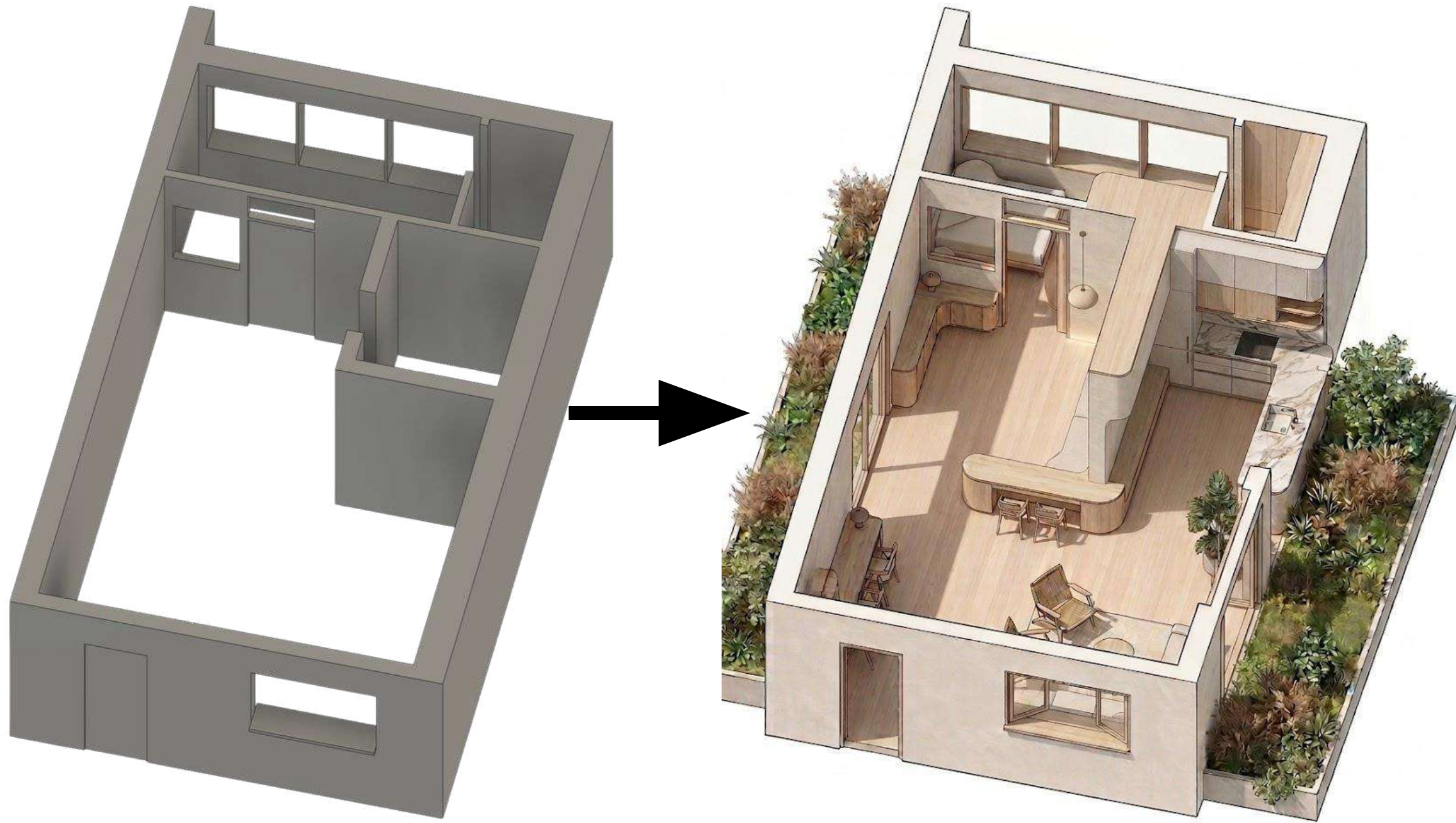


lower layer



upper layer

New unit type for families of 3 or more



4) Evaporative cooling and revitalisation design

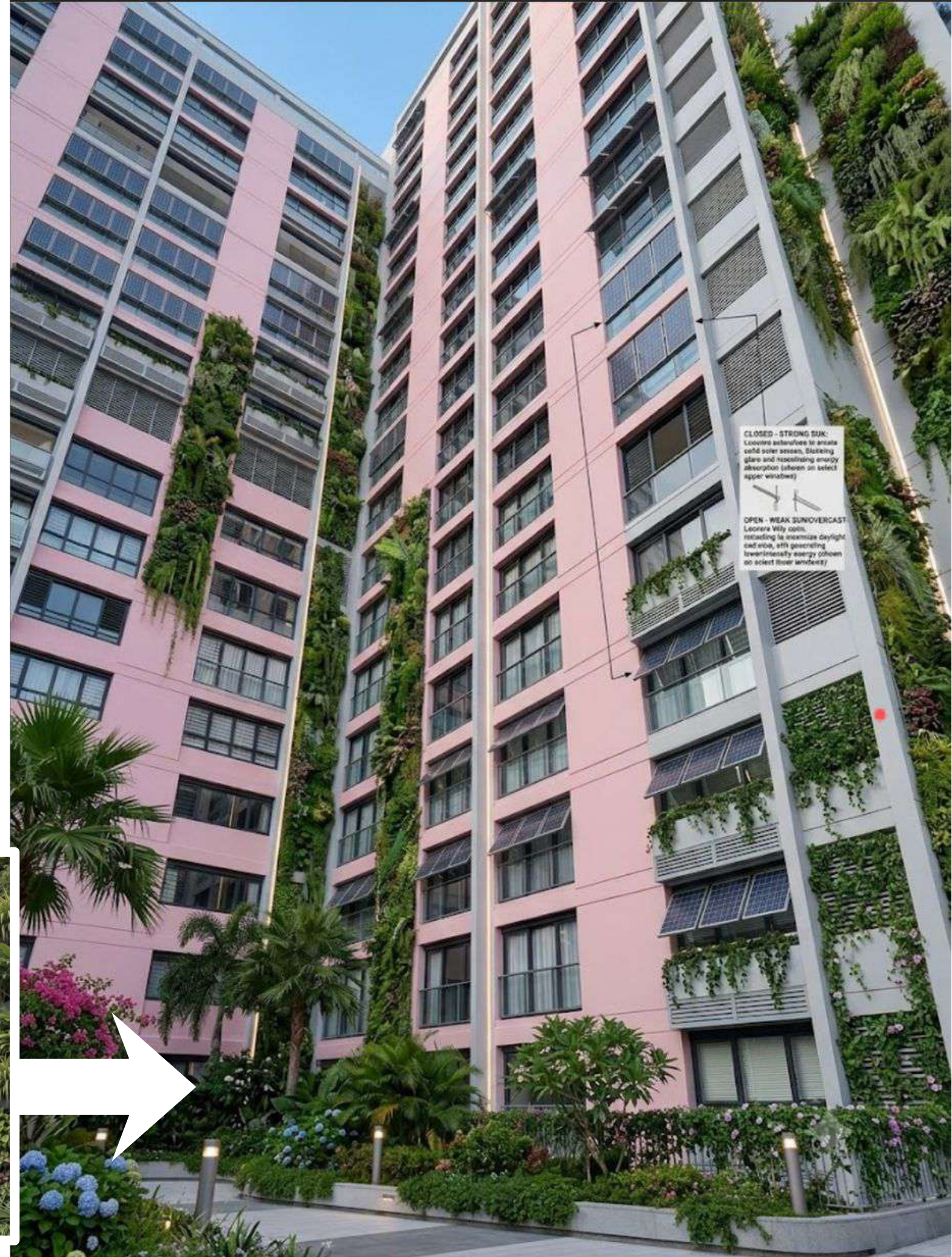
Solar panels usage:

- The solar panels are meticulously angled to close to effectively capture sunlight whilst shading apartments from intense glare, allowing maximum energy absorption and resident comfort.
- Solar panels angled open to allow weak daylight to shine through apartment without the strong glare.

Existing Condition



AI Simulation





Exterior facade design

Living green facade:

- Mimics human blood vessels, transporting water and conduct internal and external cooling of the building
- Reduces unnecessary electricity costs, alleviating financial burden on residents.

Integration of plants and solar panels

- Combines visual appeal with energy efficiency
- Creation of microclimates to increase community livelihood
- Improves property and aesthetic value, hence fostering civic identity.
- Preserves historical significance and initial design style.

Aesthetic value and resident well being

- Natural flow of water and soothing light blue colors complemented by serene natural green colors.
- Create a tranquilising atmosphere

Resident life

- Effectively reduce stress and foster community inclusion and harmony in inviting community spaces.
- Enhance the thriving wellbeing of residents.



Biomimetic Cooling Pipes

Materials used for pipe vessels:

- Recycled soft PVC plastic - reduce fossil fuel usage.
- Allows for malleable, flexible and soft pipe texture.

Tiny water nozzels:

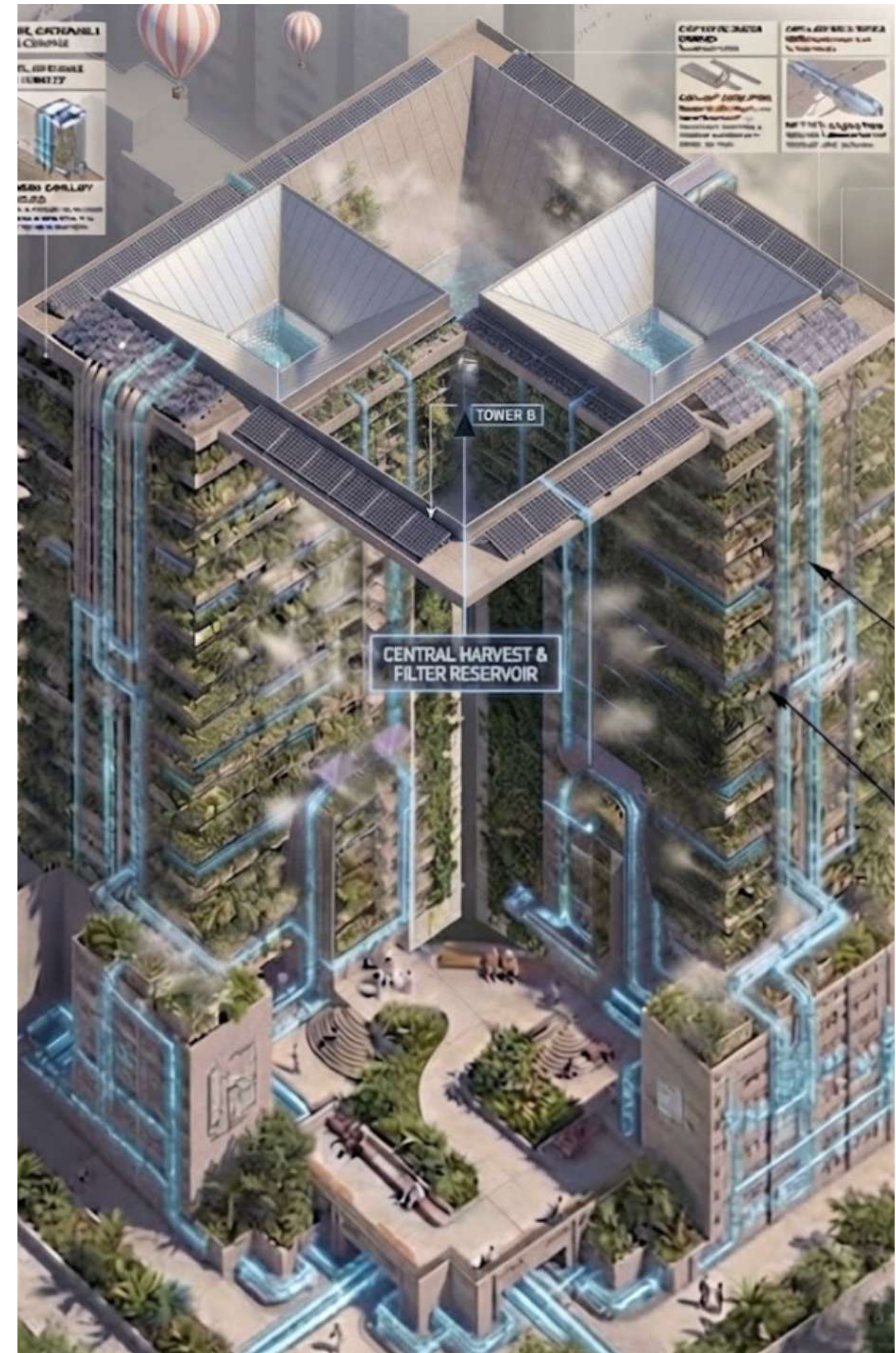
- Allow mist to spray out of building.
- Cool citizens during warmer months effectively

Microscopic openings in the pipes(only on outer green walls) :

- Allow plants to absorb essential nutrients
- Creates a stable and cool microclimate through reduction of urban heat island effect.
- Prevents building from absorbing initial heat load

Roof Cooling Tanks

- Rainfall collected through intake funnels on rooftop of building
- slightly slanted floor tiles to redirect water
- water filtered through eco friendly and natural filtration system
- utilise gravity to fill lower water vessels to engulf around building structure.





Our Vision: The future of community-driven adaptive reuse



第三屆 青年建築師計劃



Digital Common(s)
數碼共同體

Design Scientist 2026 Incubation Program
The 3rd Annual Program of The Citizen Architect Initiative



AI-For-Good 仿生設計夏令營

Artificial Intelligence & Biomimicry Design Workshop | Summer Cohort

