



TAYLOR'S UNIVERSITY

Wisdom • Integrity • Excellence

GREEN STRATEGIES FOR BUILDING DESIGN

ARC61804

DESIGN PROGRESS

ASSIGNMENT 2

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01 SITE INTRODUCTION

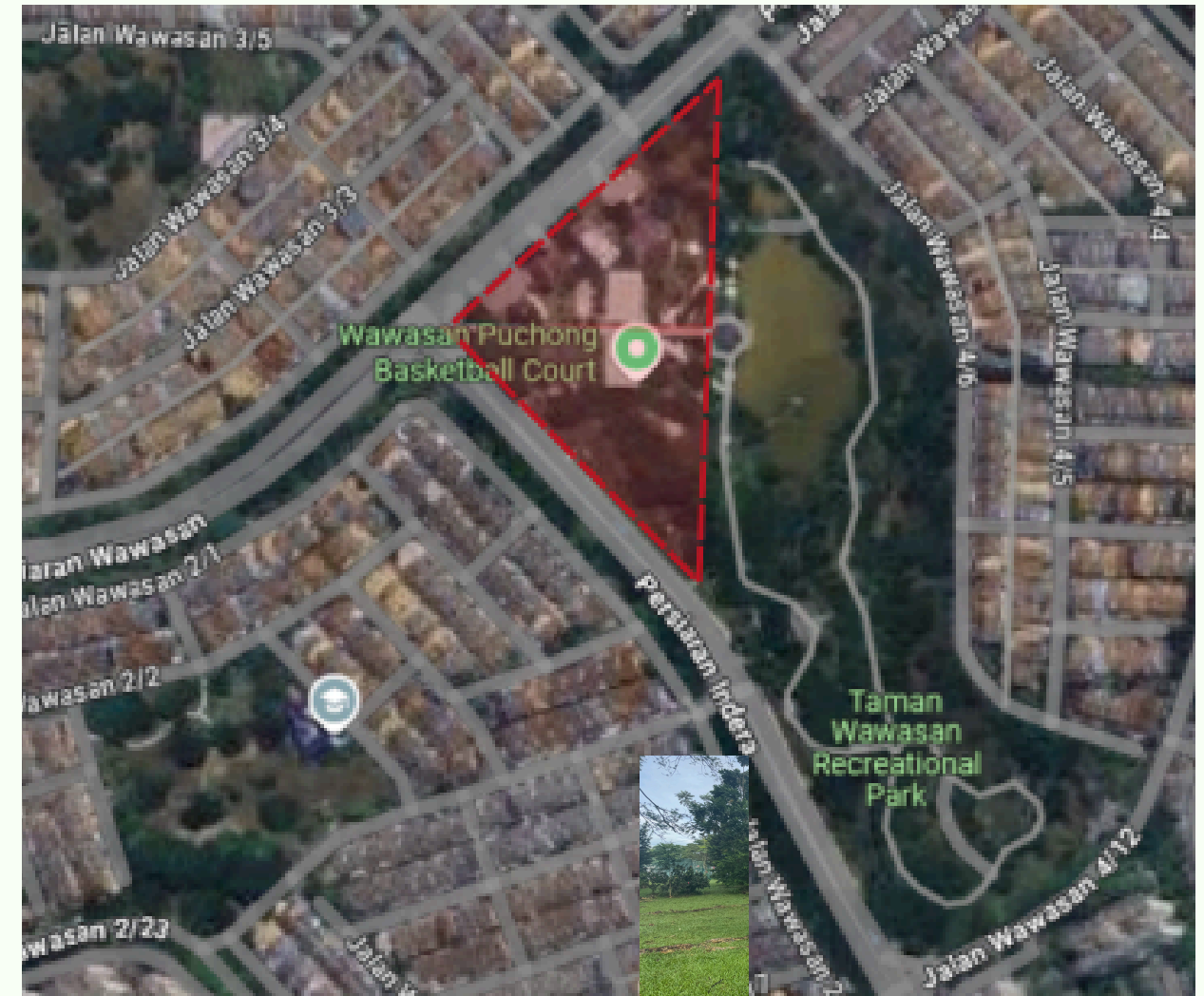
TAMAN WAWASAN CREATIVE & RECREATIONAL HUB

The project site is situated within Taman Wawasan, a well-established township in Puchong, Selangor. One of its key public amenities is the Taman Wawasan Recreational Park, a popular green space that spans approximately 38,800 square metres. This park serves as a community hub for leisure and outdoor activities, attracting residents of all ages from the surrounding neighbourhoods. Equipped with sports facilities, jogging tracks, landscaped gardens, and communal seating areas, it offers a balanced mix of active and passive recreational opportunities. The park's lush greenery, shaded walkways, and water features contribute to its role as an urban green lung, improving air quality and providing relief from the heat in Malaysia's tropical climate.



For The Living Loop, the focus is on the northern section of the park. A compact, activity-rich zone with parking areas, sports courts, rest shelters, and communal spaces. This area is mostly flat at around 49 m above sea level, with slight slopes near drainage corridors and a water body to the south.

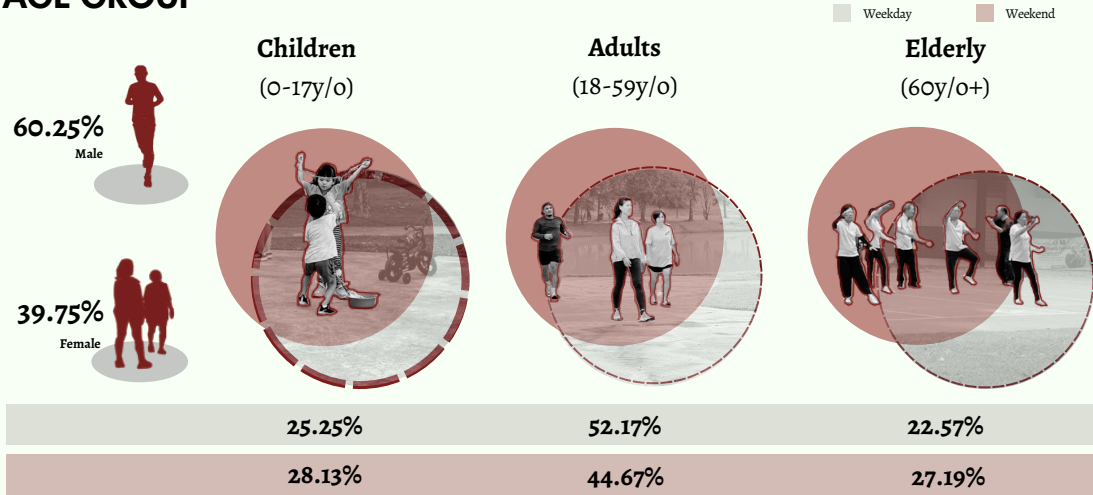
While the site faces challenges such as noise from nearby roads and solar heat gain from east-west orientations, it offers strong opportunities: existing trees for shading, water bodies for passive cooling, and open spaces ideal for capturing prevailing winds. These features make it a suitable location for applying passive green building strategies aligned with the project's vision of creating a rejuvenating, nature-connected environment.



01 SITE INTRODUCTION

USER DEMOGRAPHIC

AGE GROUP



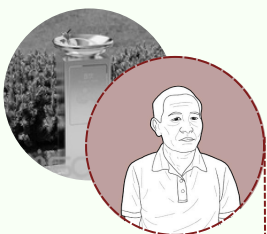
MAIN USER TYPE



WHAT THE COMMUNITY WANTS?



“loved the lakeside walk, but a **small cafe** would be great for snacks and drinks”



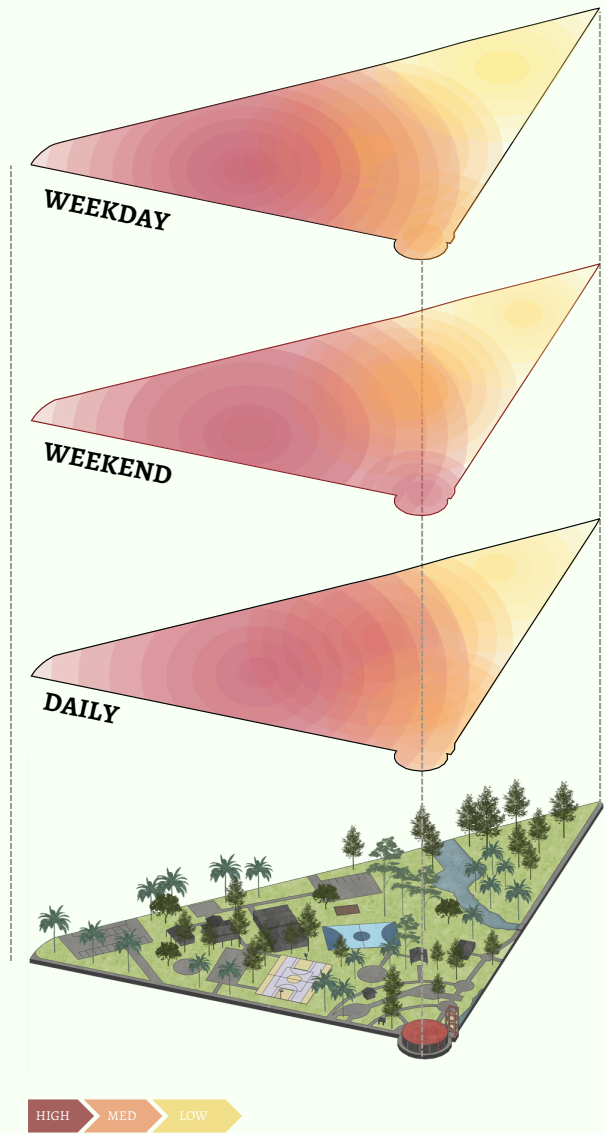
“definitely needs a **water dispenser** and more **shaded seats**”



“more **shaded, chilling resting spots** with benches would really be really useful”

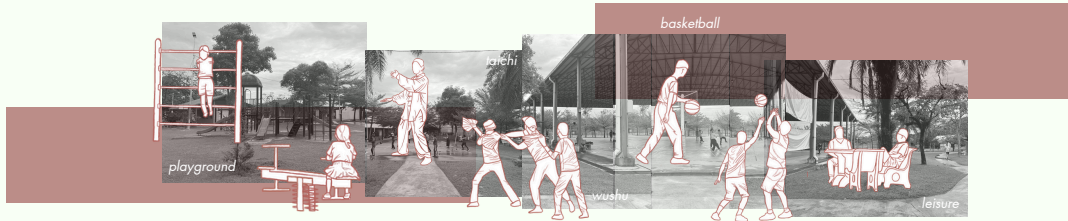
INTERVIEW HIGHLIGHT

CROWD INTENSITY ANALYSIS



HIGH CROWD INTENSITY

The **north** side of Taman Wawasan near the main entrance sees the **highest** crowd due to daily activities, with the **basketball court** as the main draw.



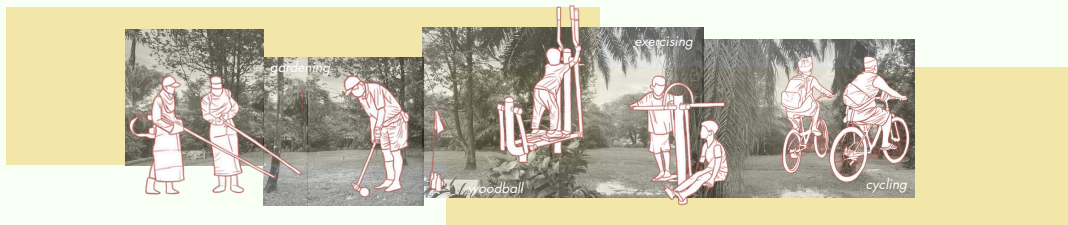
MEDIUM CROWD INTENSITY

The **middle north** site has **medium crowd intensity**, with gazebos, trails, and park facilities. The futsal court adds **moderate** activity.



LOW CROWD INTENSITY

The **northernmost** area sees the **least crowd** due to **dense woods** and few attractions. The rarely used **woodball court** is the only notable feature.



S.W.O.T.

STRENGTH

- Natural water acoustics
- Serene setting with minimal disturbance
- Easy accessibility from the car park

WEAKNESS

- Waterlogged soil
- Poor lighting during nighttime
- Lack of shading from the sun and rain
- Uneven traffic distribution (northern and southern sections of the site.)
- Insufficient parking slots

OPPORTUNITIES

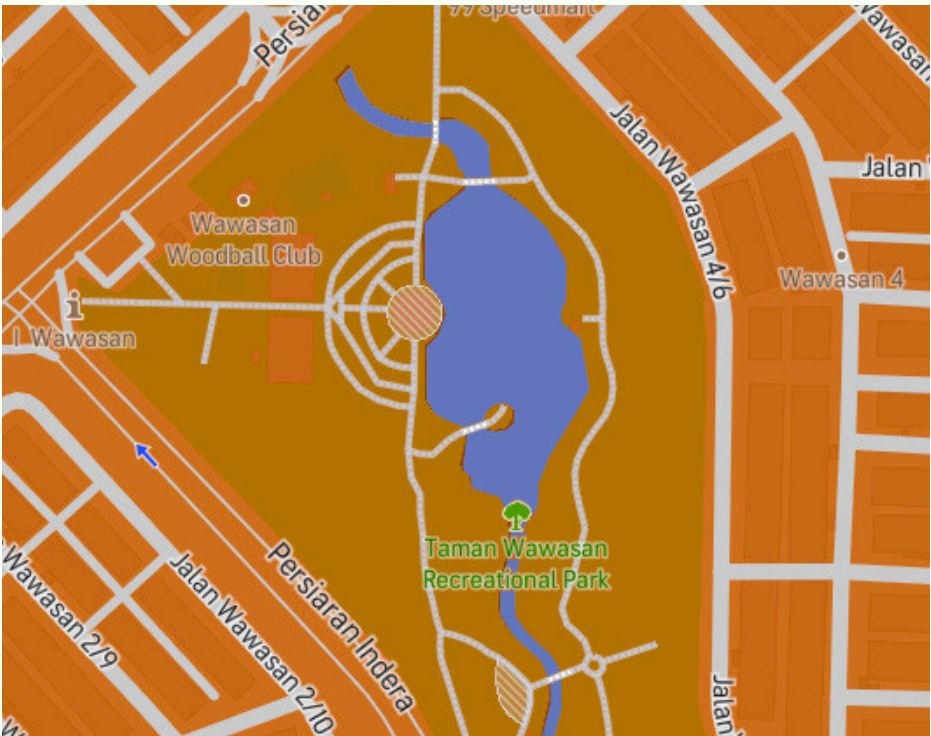
- Framing view across the lake for a stronger sense of place
- Improve degraded water edges
- Provision of the shaded resting area
- Integration with nature ie, trees

THREATS

- Environmental hazards ie, floods
- Safety and crime concerns at night
- Lack of user maintenance
- Overflow parking may damage softscape and block pathways

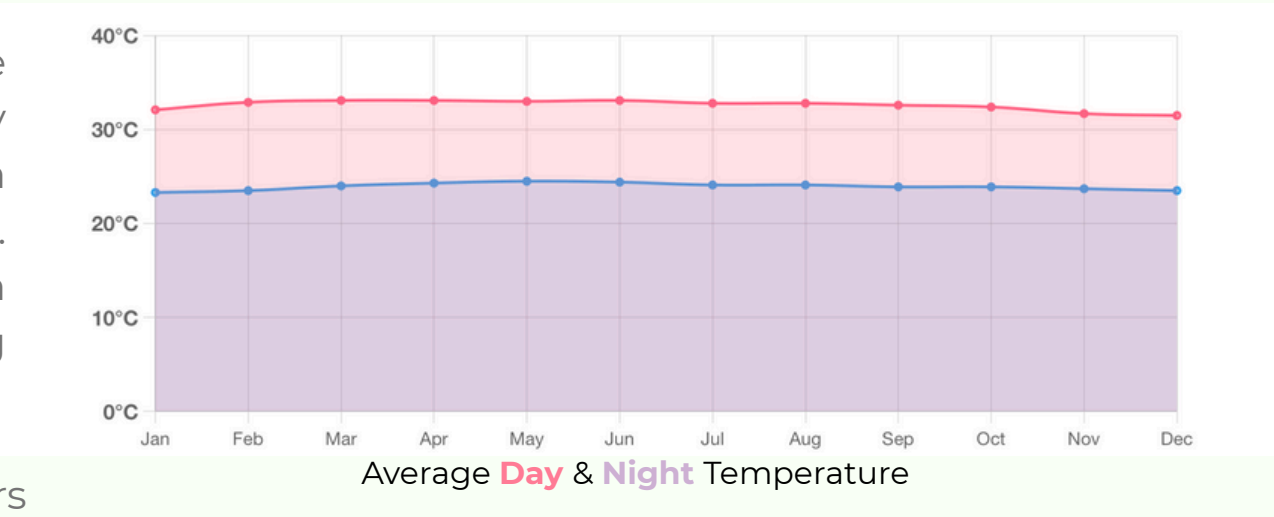
02 CLIMATE ANALYSIS

TEMPERATURE



Average maximum daytime temperatures range from a very warm 33°C in March to 32°C in the coolest month, January. Nights are cooler, with lows often dropping to around 23°C during the colder months.

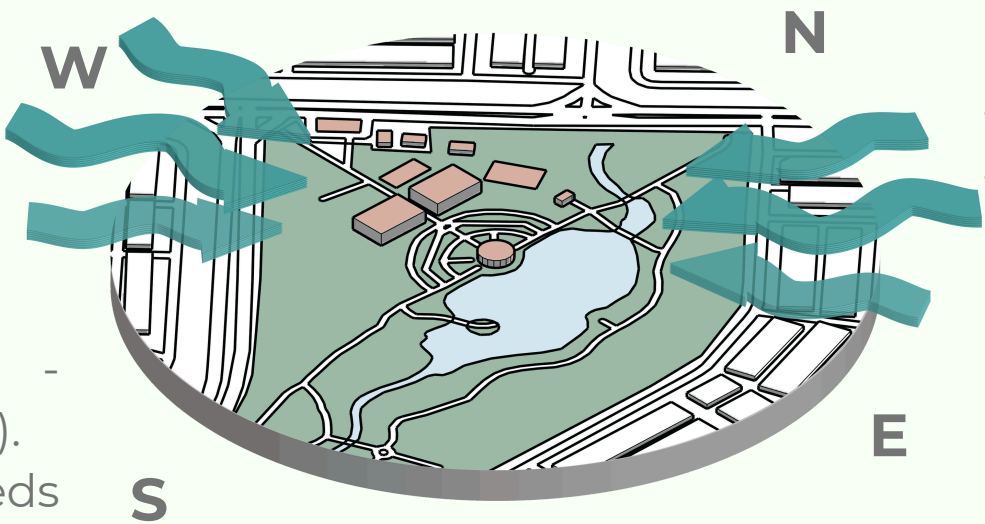
The **lowest temperatures** hours are typically between 4 a.m. and 6 a.m., while 3 p.m marks the highest temperatures time of the day.



WIND

Southwest Monsoon

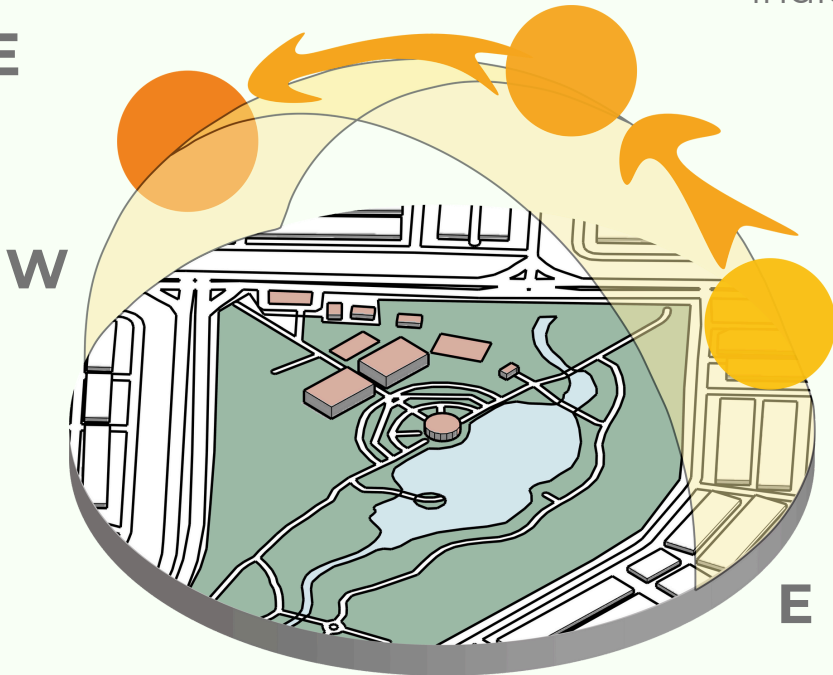
-(April - September).
-Wind speeds are usually below 7m/s.



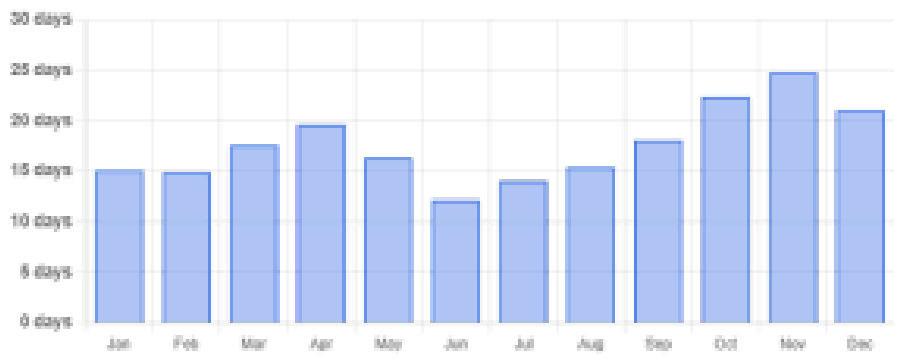
The Southwest Monsoon winds at Taman Wawasan Recreational Park **offer a cool and refreshing break from the heat** as it occasionally blows over the park, its softer breeze creates a peaceful and relaxing environment, with tree leaves rustling as the wind passes through.

Northeast Monsoon

-(October - March).
-Wind speeds can reach 15m/s.



AVERAGE MONTHLY RAIN



- **Highest Rainy Days:** November (~25 days) and October (~22 days), indicating a wetter late-year period.
- **Lowest Rainy Days:** June (~12 days) and July (~14 days), indicating a drier mid-year period.

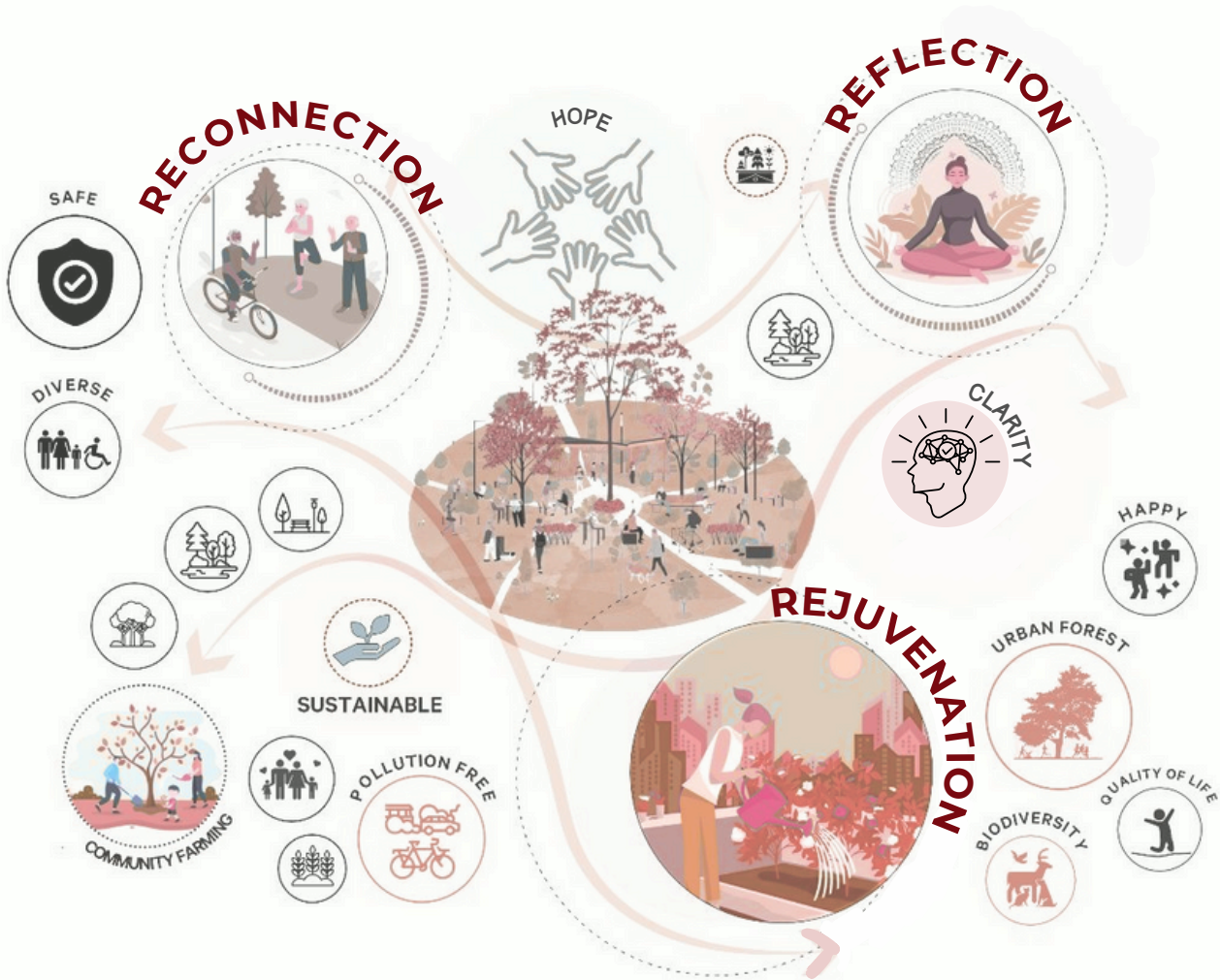
SUN

The **sun path** indicates high solar angles throughout the year, with the east and west façades being most exposed to low-angle morning and afternoon sun, which contributes to heat gain and glare. This makes it essential to incorporate shading devices, façade treatments, and orientation strategies to minimise thermal discomfort.

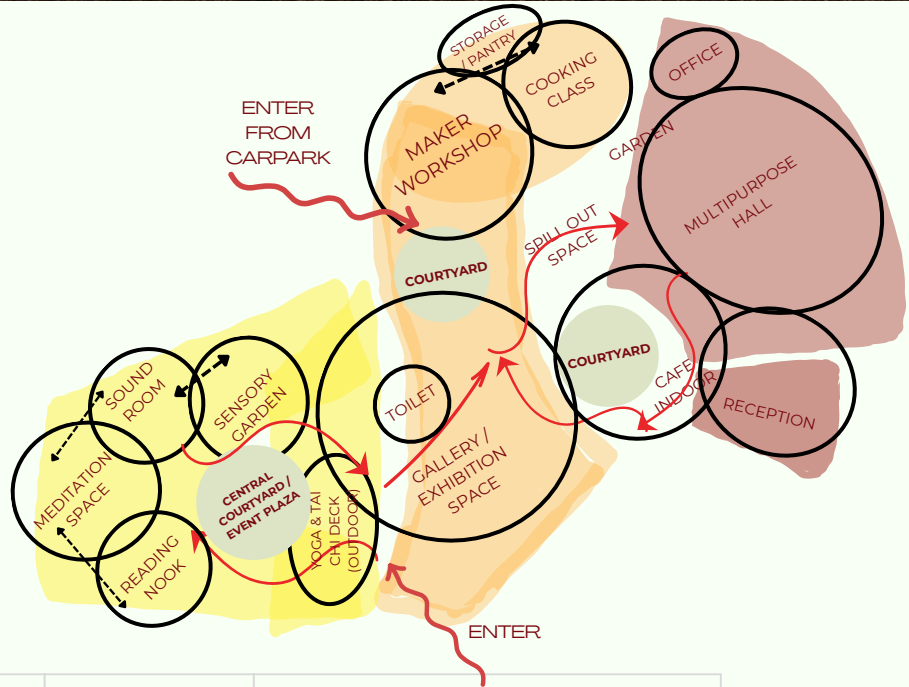
03 BUILDING INTRODUCTION

Project Name: THE LIVING LOOP
Function: Wellness and Recreational Hub
Total Floor Area: 860 m²
Design Concept: A **nature-centric community and recreational hub** designed to connect people of all ages through active recreation, quiet reflection, and social interaction. The building serves as a multi-functional space that integrates wellness activities, community gatherings, and nature engagement. Guided by the principles of **Rejuvenation, Reconnection, and Reflection**, the design adopts a **radial, nest-inspired layout** that flows organically with the site's terrain. Rooted in biophilic design principles, the project harmoniously blends architecture with its lush tropical surroundings.

RADIAL CLUSTER TYPOLOGY



ZONING + BUBBLE DIAGRAM



PROGRAMMES

Spatial Cluster	Programme Spaces	Area (approx.)	Design Intent
Rejuvenation	<ul style="list-style-type: none">Yoga / Tai Chi SpaceMaker WorkshopCooking / Multipurpose Room	~200-220 sqm	Supports physical and creative renewal through movement, making, and sensory play
Reconnection	<ul style="list-style-type: none">Central Courtyard / Event PlazaCafé (indoor-outdoor)Gallery / Exhibition SpaceLounge / Reading Nook	~240-260 sqm	Facilitates social bonding and intergenerational interaction in a vibrant atmosphere
Reflection	<ul style="list-style-type: none">Meditation Space (outdoor)Sound RoomSensory Garden (outdoor)	~180-200 sqm	Provides spaces for solitude, contemplation, and emotional reset
Support Spaces	<ul style="list-style-type: none">Toilets (M/F/OKU)Storage / PantryAdmin Office & Meeting RoomRamp/Stairs	~110-130 sqm	Ensures functionality, circulation, and operational flow

03 BUILDING INTRODUCTION

SITE PLAN



Oriented to harmonise with its natural context, the building follows the sun's trajectory. Welcoming soft **morning light** from the **East** and embracing the warm hues of sunset from the **West**. Its radial layout is strategically aligned with prevailing northeast and west winds, funnelling breezes through open wings to achieve natural cross ventilation. At its heart, the central core acts as a thermal chimney, releasing warm air and enhancing passive cooling. This climate-responsive orientation not only optimises user comfort but also deepens the connection to the surrounding parkland, reinforcing the design's inherent sense of flow, movement, and vitality.

03 BUILDING INTRODUCTION

FLOORPLANS 1:100



ROOM SCHEDULE

GROUND FLOOR

AREA	SPACE	AREA	SPACE
12SQM	SUPPORT KITCHEN	12SQM	FEMALE WASHROOM
65QM	PANTRY	5.5SQM	OKU WASHROOM
245QM	COOKING CLASS	8.75SQM	MALE WASHROOM
355QM	OUTDOOR MAKERSPACE	355QM	SENSORY GARDEN
405QM	MAKER SPACE	205QM	SOUND ROOM
125QM	STAIRCASE + LIFT	305QM	OUTDOOR MEDITATION SPACE
185QM	GALLERY / DISPLAY AREA	305QM	READING NOOK
45QM	REFUSE	85QM	UTILITIES
125QM	SUPPORT KITCHEN	85SQM	MULTIPURPOSE HALL
		205QM	RECEPTION

FIRST FLOOR

AREA	SPACE
32SQM	DANCE ROOM
20SQM	YOGA DECK
70SQM	ROOFTOP GARDEN
12SQM	OFFICE
12SQM	FEMALE WASHROOM
5.5SQM	OKU WASHROOM
8.75SQM	MALE WASHROOM



03 BUILDING INTRODUCTION

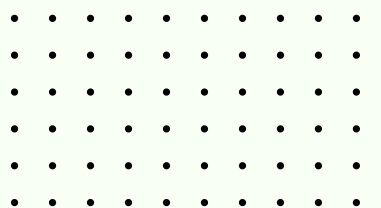
ELEVATIONS

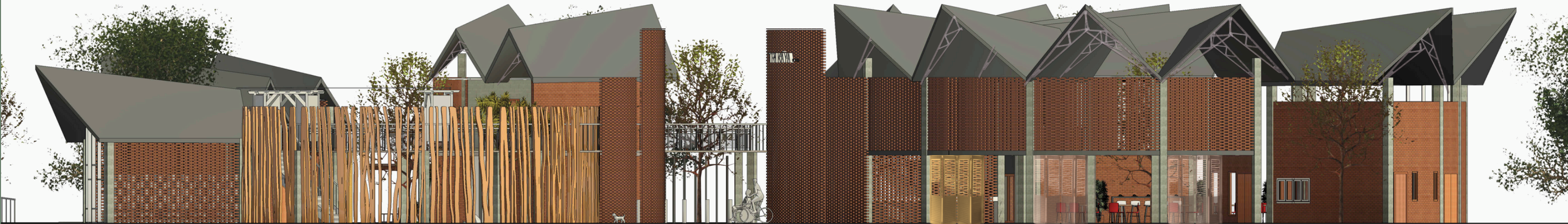


NORTH ELEVATION

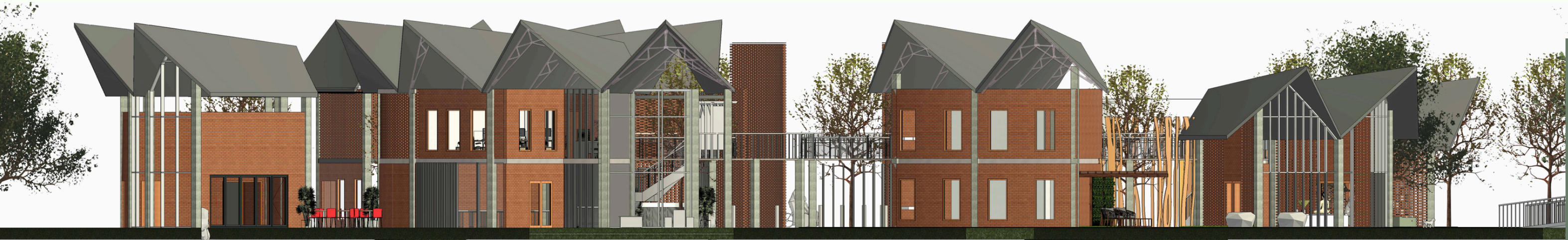


SOUTH ELEVATION

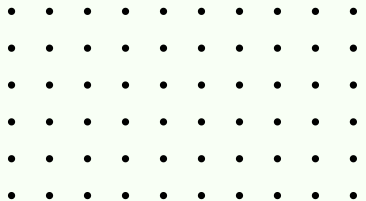




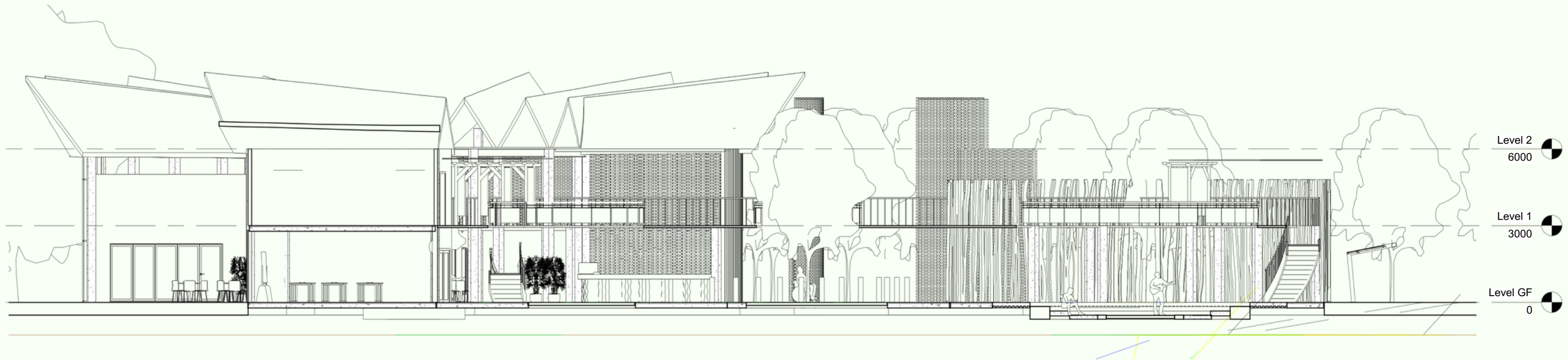
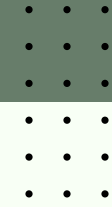
WEST ELEVATION



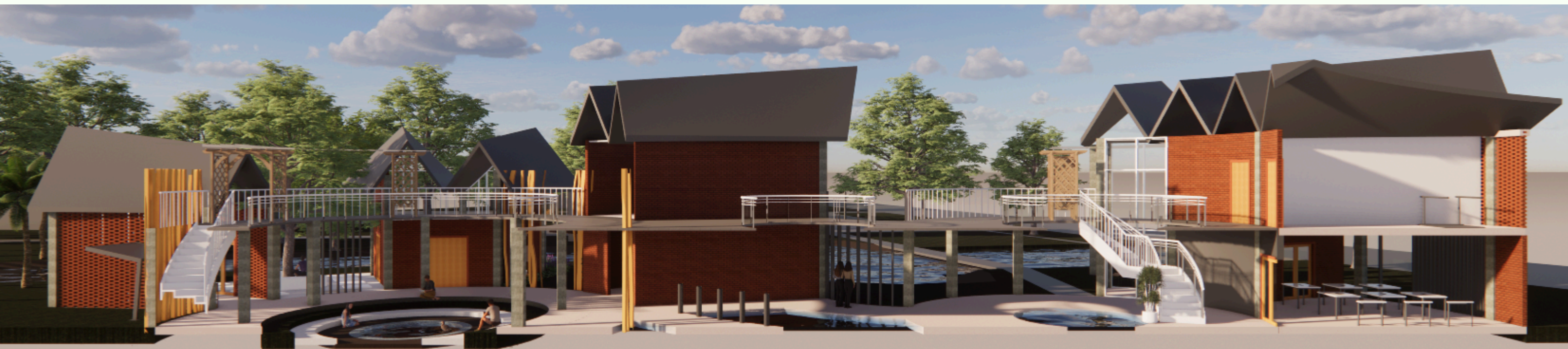
EAST ELEVATION



03 BUILDING INTRODUCTION

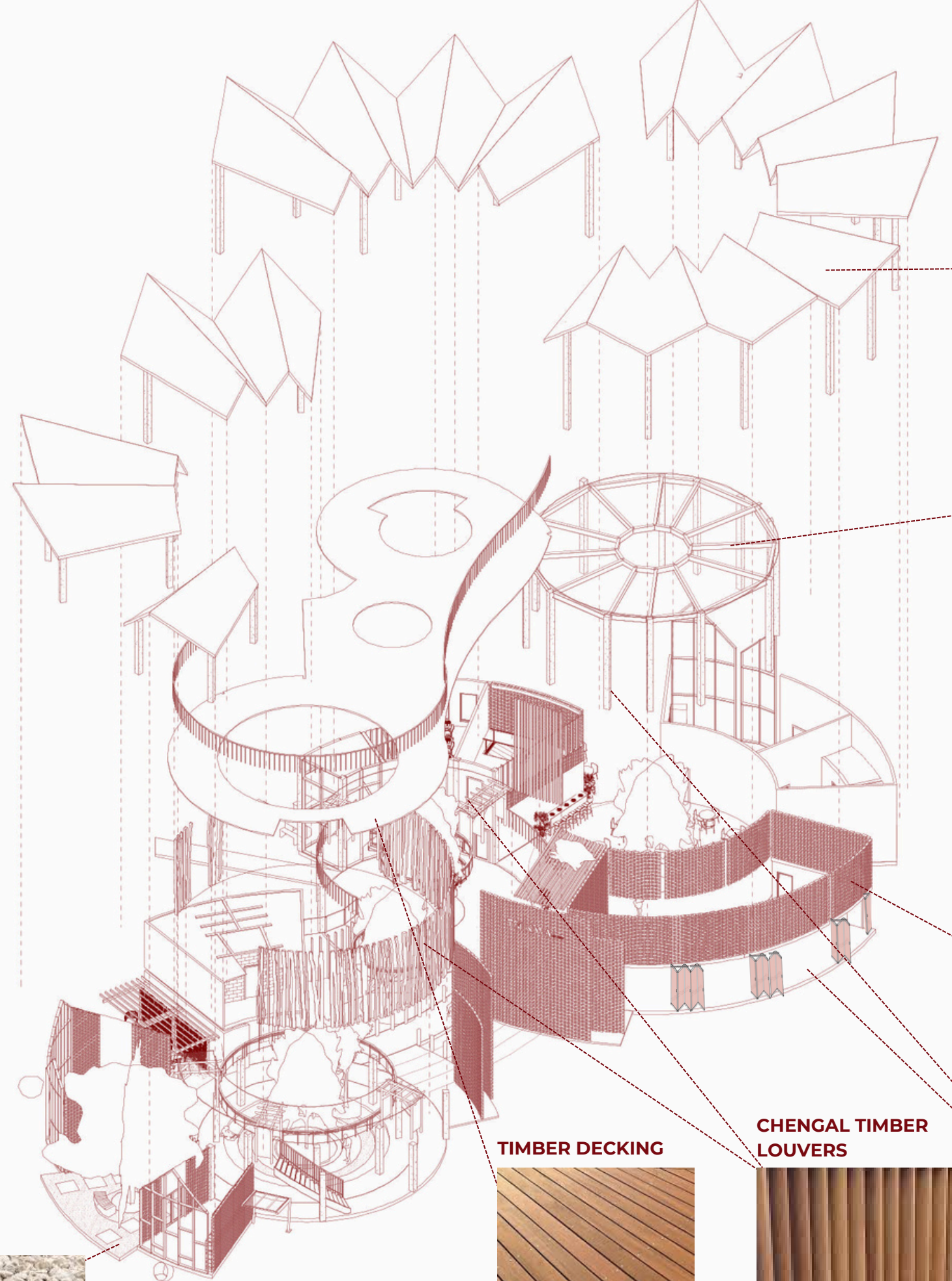


SECTION A - A'



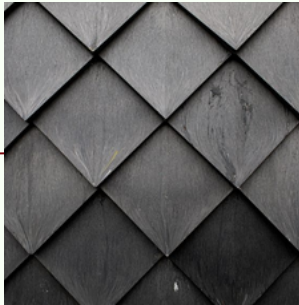
SECTIONAL PERSPECTIVE

EXPLODED AXONOMETRY



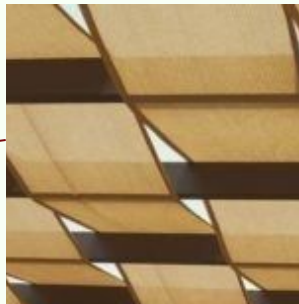
MATERIAL

RECYCLED PLASTIC SHINGLES



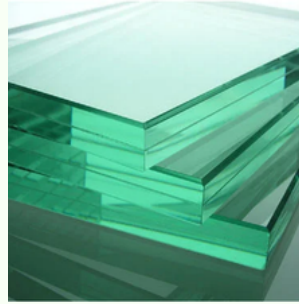
- Lightweight, weather-resistant roofing made from recycled materials.

FABRIC



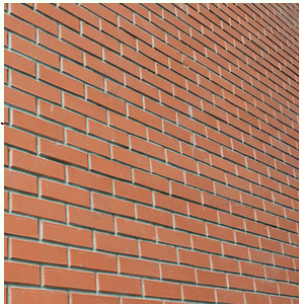
- Tensile shading element for outdoor comfort and diffused light.

LAMINATED GLASS



- Low-E glass for skylights and façades, controlling glare and heat gain.

BRICK WALL



- Perforated and solid brick for natural ventilation, texture, and thermal mass.

TIMBER DECKING



CHENGAL TIMBER LOUVERS



- Durable local hardwood louvers for sun shading and ventilation.

CONCRETE FLOOR + BEAMS + COLUMNS

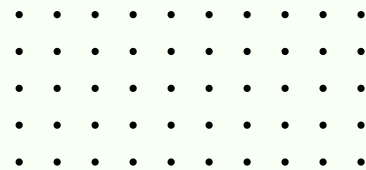


- Structural backbone ensuring durability and stability.

GRAVEL

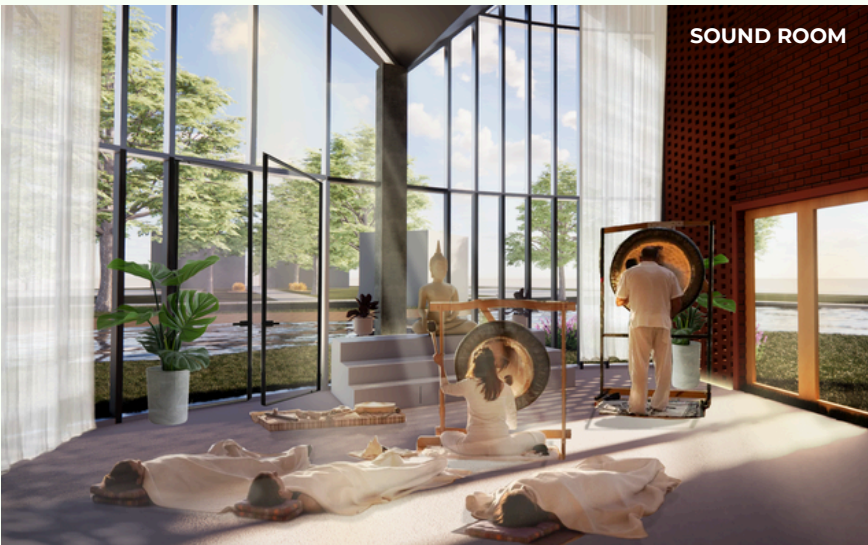


- Permeable surface for drainage and low-maintenance landscaping.



03 BUILDING INTRODUCTION

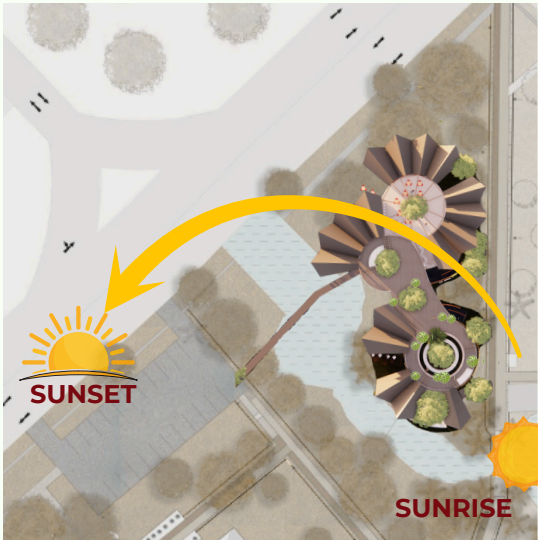
PERSPECTIVES



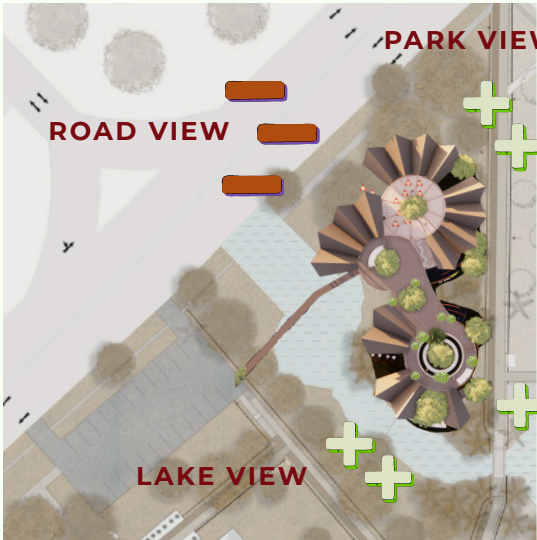
04 SITE PLANNING



Overall site layout showing building placement, access points, and relationship to surrounding park facilities.



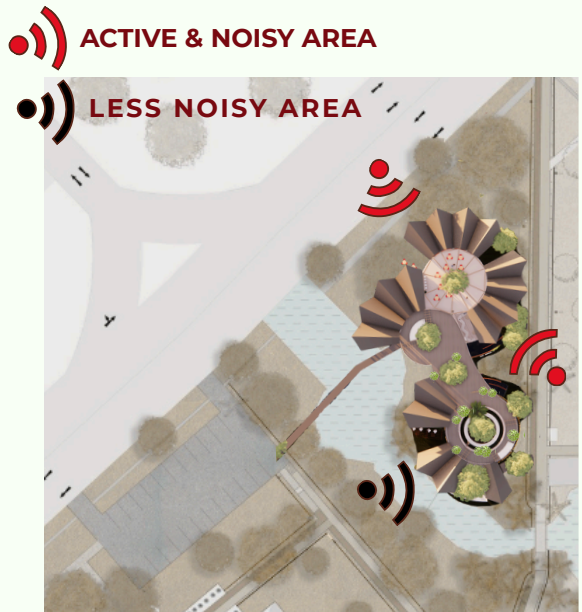
Building oriented to capture **morning sunlight from the east** and warm evening glow from the west, enhancing natural daylighting throughout the day.



Maximises park and lake views for relaxation areas while minimising exposure to road-facing views, enhancing user comfort and connection to nature.

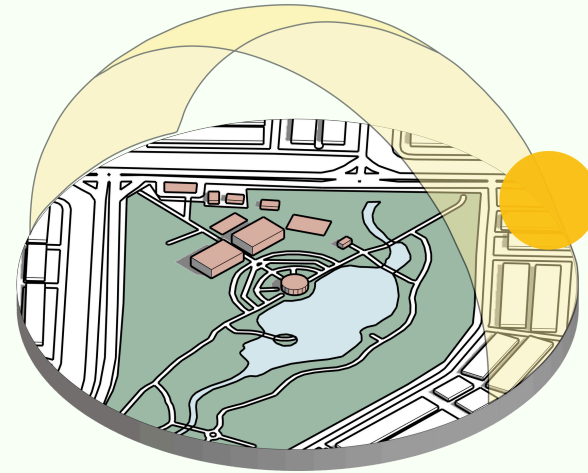
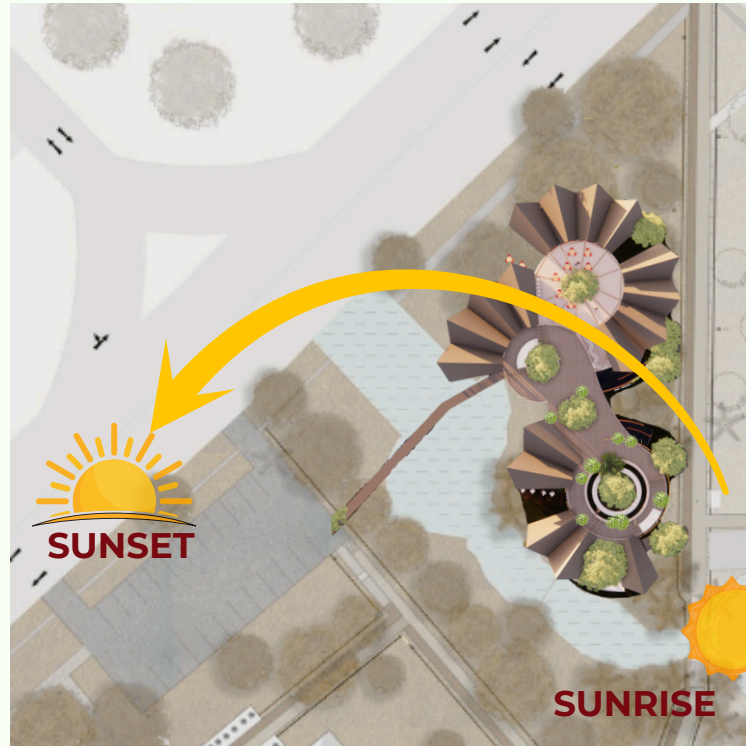


Harnesses prevailing northeast and west winds to promote **natural cross ventilation**, improving thermal comfort without mechanical cooling.



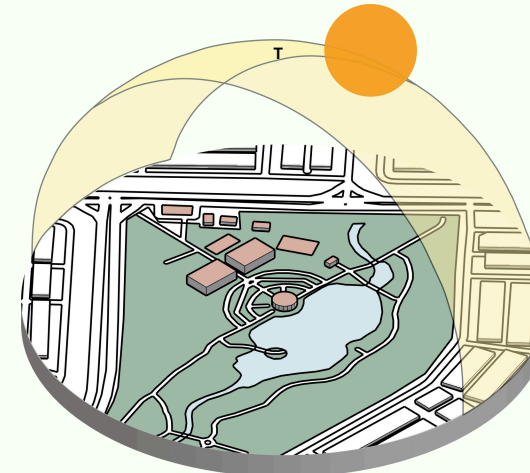
Zoning places active, high-noise functions near busier edges and quiet, reflective spaces in sheltered, low-noise areas of the site.

05 DAYLIGHTING



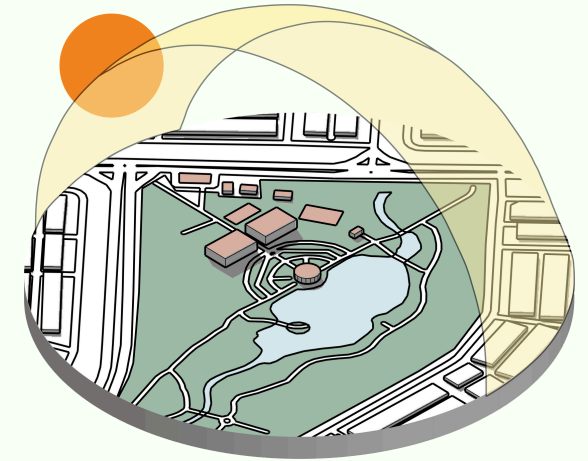
SUNRISE

In the early morning, soft golden light filters through the trees, creating **long shadows** and a **cool, refreshing atmosphere that feels hopeful and calm**, inviting early joggers, walkers, and families to enjoy peaceful moments and quiet reflection.



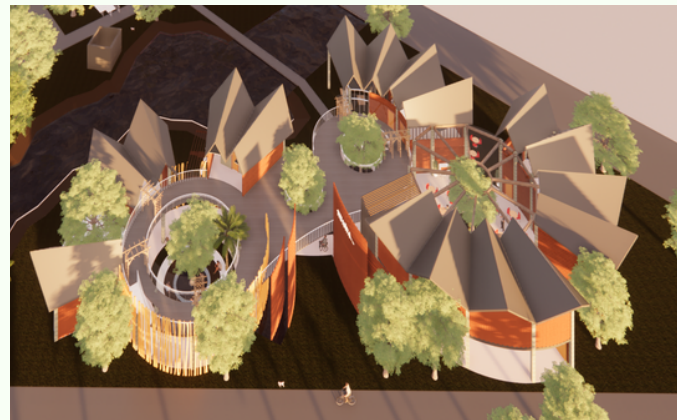
NOON

At noon, the park is **bathed in bright, intense sunlight, making open spaces lively yet hot**, while the shaded paths beneath the trees offer a cool, soothing escape from the midday heat.



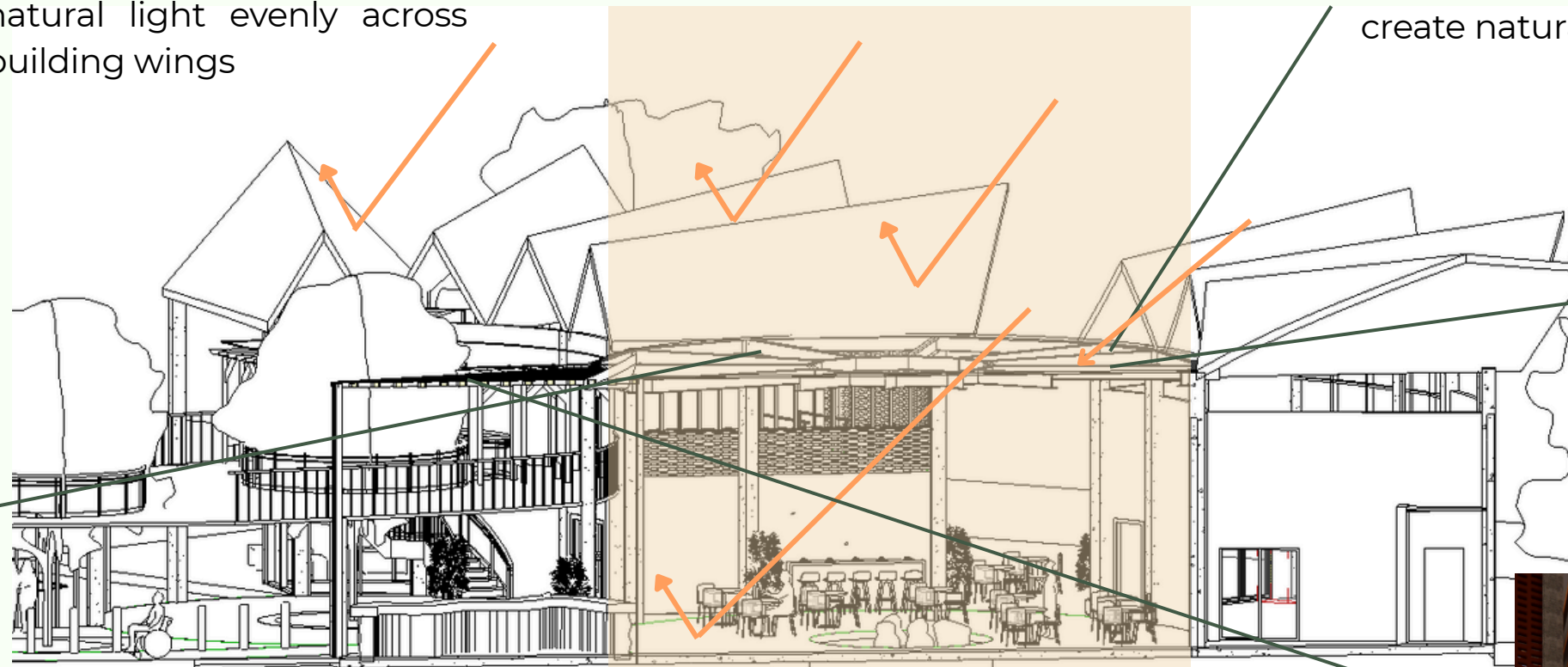
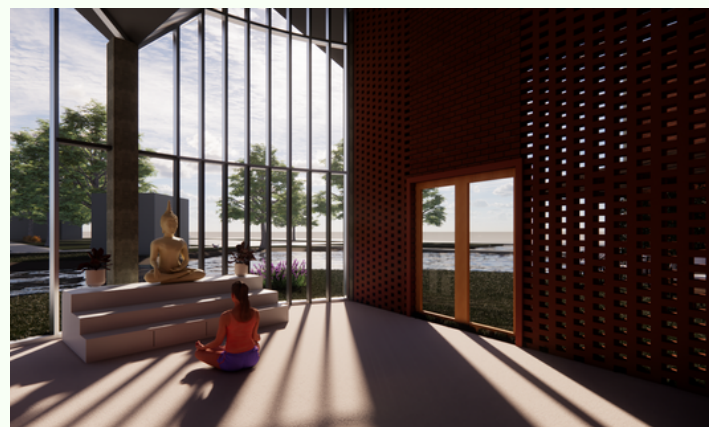
SUNSET

In the late afternoon, the park is **bathed in soft, warm light, with cooler air and long shadows** creating a serene, intimate setting where families and friends gather to enjoy a peaceful end to the day.



Radial Layout → Distributes natural light evenly across building wings

Low-E Laminated Glass Skylights
→ Brings daylight deep into spaces, reduces heat gain



Perforated Brick Walls → Filters sunlight, creates dynamic light patterns

Skylights are positioned above key circulation and communal areas to create naturally lit focal points.



Timber Louvers, Fabric & Overhangs → Blocks harsh midday sun, prevents glare



06 FACADE DESIGN

Overhangs & Roof Extensions →

Provide deep shading for windows and walkways, improving user comfort in outdoor transitional spaces.

Low-E Laminated Glass : Strategically positioned to frame scenic views of the park and river, curtain walls maximize natural daylight ingress while mitigating heat gain through Low-E (low-emissivity) coatings. This glazing system filters infrared and ultraviolet rays, keeping interiors bright yet thermally comfortable.

The Facade is designed as a dynamic environmental filter, balancing protection from Malaysia's intense solar exposure with the need for natural light and ventilation. Its orientation responds to the east-west sun path, with strategic shading elements reducing heat gain during peak hours while allowing breezes to permeate the building. This approach maintains a comfortable indoor climate while reducing the reliance on mechanical cooling.

Timber louvers along sun-exposed façades control sunlight penetration and allow constant airflow. Their warm, natural finish complements surrounding greenery while functioning as both a shade provider and ventilation enhancer.



Exposed Brick : The use of exposed brick serves as a passive thermal regulator, providing a natural means of regulating temperature. Acting as a thermal mass, brick absorbs solar heat during peak daylight hours and gradually releases it during cooler evening periods, thereby stabilizing indoor temperatures. This reduces the dependency on mechanical cooling systems, especially in the passive and semi-active zones.

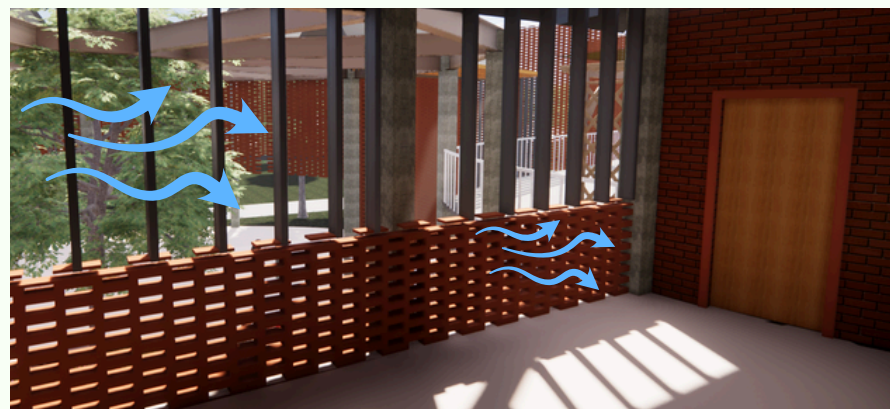
The use of **perforated brickwork :**

1. **Light Filtration** – Gaps in the brick pattern diffuse daylight, reducing glare and creating a soothing, dappled effect indoors.
2. **Ventilation** – Allows steady cross ventilation, particularly effective in semi-open corridors and transitional spaces.
3. **Visual Interest** – The patterned shadows cast throughout the day create a changing sensory experience that reinforces the building's biophilic intent.

07 VENTILATION



The design of The Living Loop prioritises passive cooling through a combination of courtyards, floor voids, and roof openings that work together to harness prevailing winds and promote air movement throughout the building. The **radial layout** creates **multiple wind entry points**, allowing breezes from the northeast and west to flow naturally into open wings.



- **Perforated brick walls and timber louvers** along the façade further enhance ventilation by allowing cross-breezes to pass through while maintaining privacy and shading.



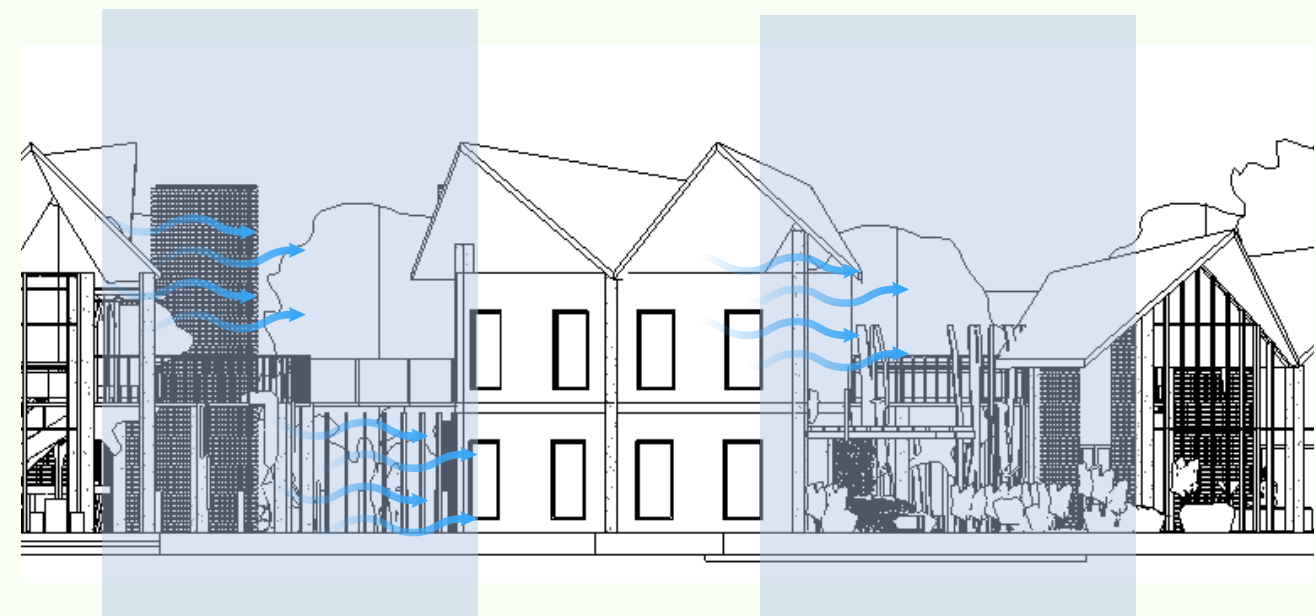
CENTRAL COURTYARD

Courtyards are strategically placed around preserved mature trees, functioning as open-air lungs for the building. These spaces not only provide shaded microclimates but also act as air intake zones, drawing cooler air into adjacent indoor and semi-open areas.



FLOOR AND ROOF VOID

Floor voids within multi-level spaces allow vertical air movement, enabling warm air to rise away from occupied zones. This is complemented by roof voids and clerestory openings that operate on the stack effect, releasing hot air at higher levels and pulling in cooler air from shaded areas below.



- The central space is intentionally left without a roof to facilitate the escape of hot air, promoting natural ventilation and ensuring smooth, continuous airflow throughout the building.

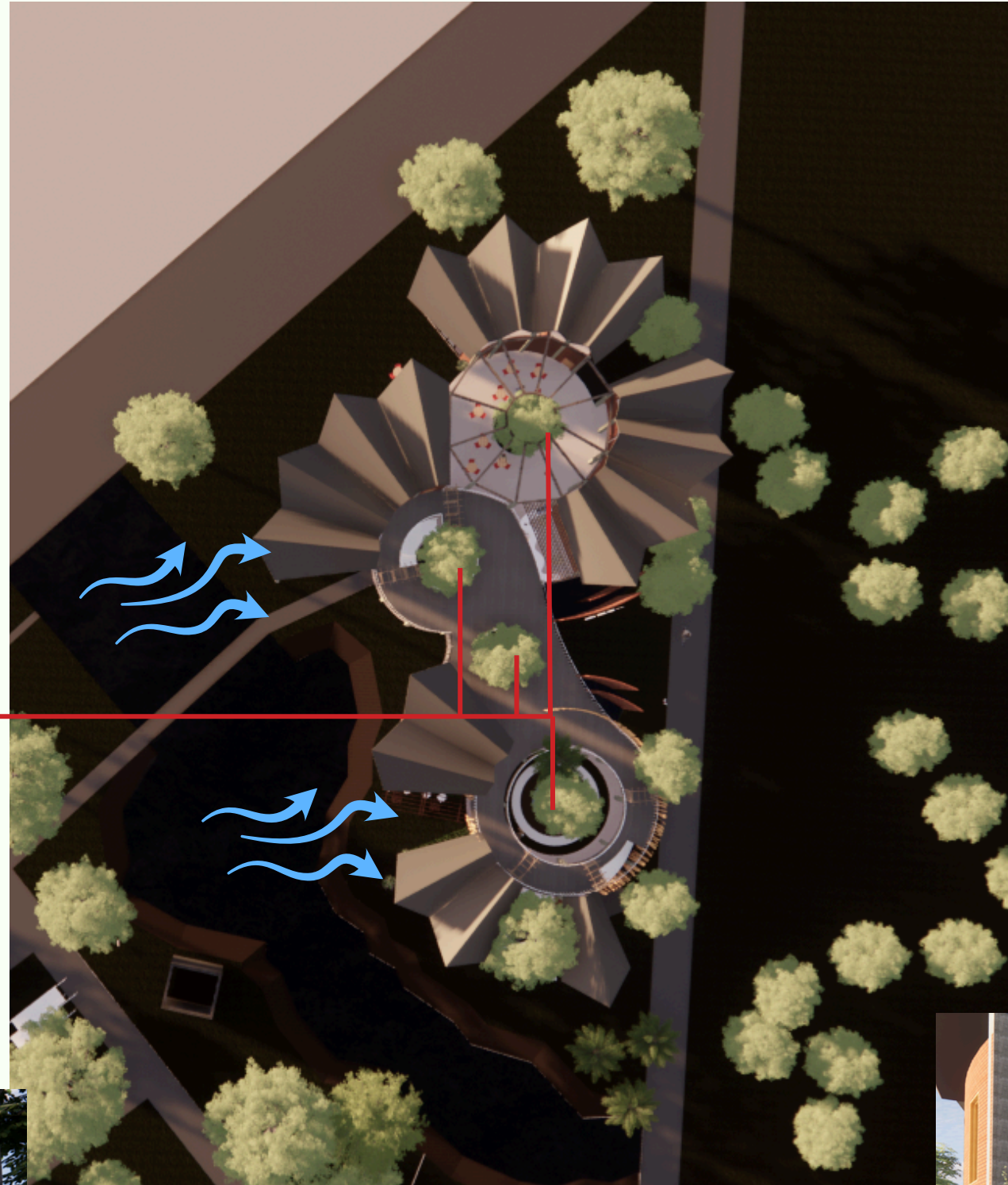
08 STRATEGIC LANDSCAPING



Preservation of Existing Trees → Courtyards are designed around mature trees, retaining natural shade and minimising site disturbance.

Microclimate Cooling → Tree canopies reduce solar heat gain and filter sunlight before it reaches built surfaces.

Visual Screening → Vegetation along road-facing wings acts as a privacy screen, reducing noise intrusion and enhancing the quality of views from within.



The landscape is not an afterthought, it is the heart of the design, shaping spaces, regulating temperature, and strengthening the building's bond with the park ecosystem.



Water Body Integration → Adjacent water features work with vegetation to create evaporative cooling effects.

Native & Low-Maintenance Species → Reduces irrigation needs, supports local ecology, and aligns with sustainable maintenance practices.

Layered Planting Design → Combination of tall trees, shrubs, and groundcovers for year-round shading and biodiversity support.



09 ACTIVE DESIGN STRATEGIES



Smart Lighting Solutions

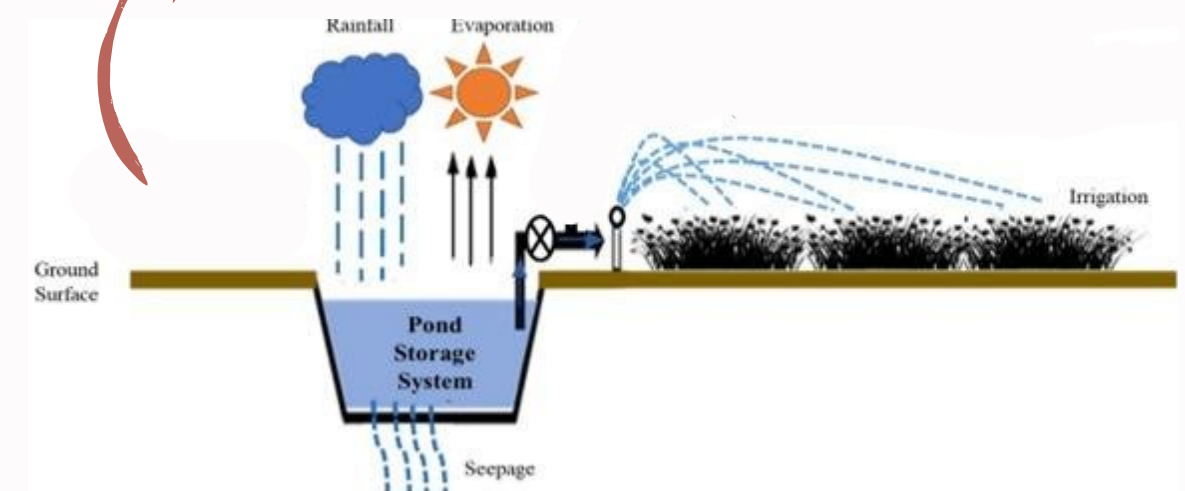
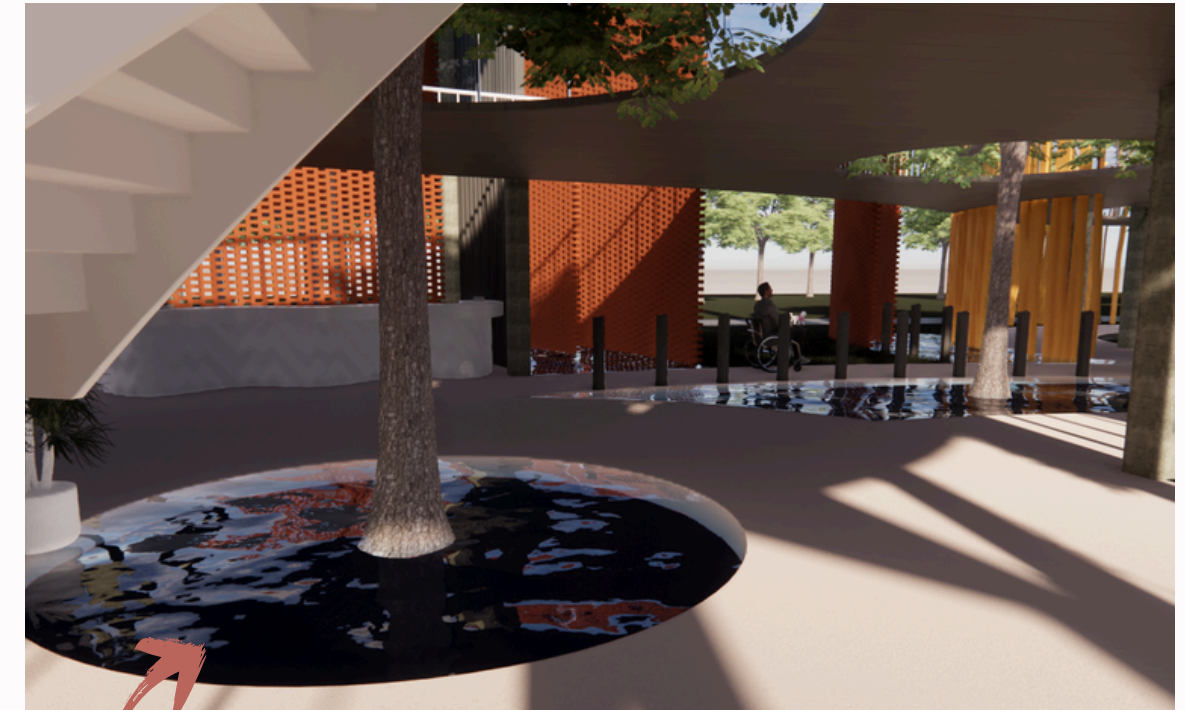
The lighting system incorporates LED fixtures with daylight sensors in indoor and semi-indoor public spaces, automatically adjusting artificial lighting according to natural light availability. Solar-powered pathway lighting ensures safe nighttime circulation while operating entirely off-grid.

Solar Energy Generation

The building's green roof is fitted with photovoltaic (PV) panels positioned to maximise exposure to the sun's path throughout the day. The energy generated is used to power low-energy systems such as pathway lighting, ceiling fans, and small electrical loads, reducing dependence on the grid and lowering the building's carbon footprint.



By integrating these active strategies alongside passive measures, The Living Loop achieves a balance between environmental sustainability and user comfort. These systems are intentionally designed to be energy-efficient, low-maintenance, and complementary to the building's climate-responsive architecture, ensuring long-term operational resilience.



Rainwater Harvesting System

Rainwater from the roof catchment is directed into underground storage tanks, providing a sustainable water source for landscape irrigation and cleaning of outdoor courtyards. This reduces reliance on treated municipal water and takes advantage of Malaysia's high annual rainfall.

10 REFLECTION

Working on The Living Loop has been a journey that taught me how interconnected every design decision is, from the earliest site analysis to the final detailing. Starting with the site introduction, I learned the importance of understanding the broader context before zooming in on a specific location. This step made me more aware of how infrastructure, accessibility, and surrounding land uses influence design possibilities. The climate analysis reminded me that architecture is always in conversation with the environmental factors, like sun paths, prevailing winds, and rainfall patterns are not just data points, but guiding elements that shape orientation, shading, and ventilation strategies.

As I explored daylighting, façade design, ventilation, and strategic landscaping, I began to see how passive strategies work together as a system rather than in isolation. The façade isn't just about looks; it's a filter for light, heat, and air. Landscaping isn't just for aesthetics; it cools, shades, and connects people to nature. Through site planning and the building introduction, I learned to weave active and passive design approaches, ensuring comfort and sustainability without sacrificing beauty or functionality. Developing active design strategies showed me that technology can complement, not replace, climate-responsive design. Overall, this project deepened my appreciation for sustainable architecture as a holistic process, one where site, climate, materiality, and human experience come together to create spaces that are meaningful, resilient, and in harmony with their surroundings.

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