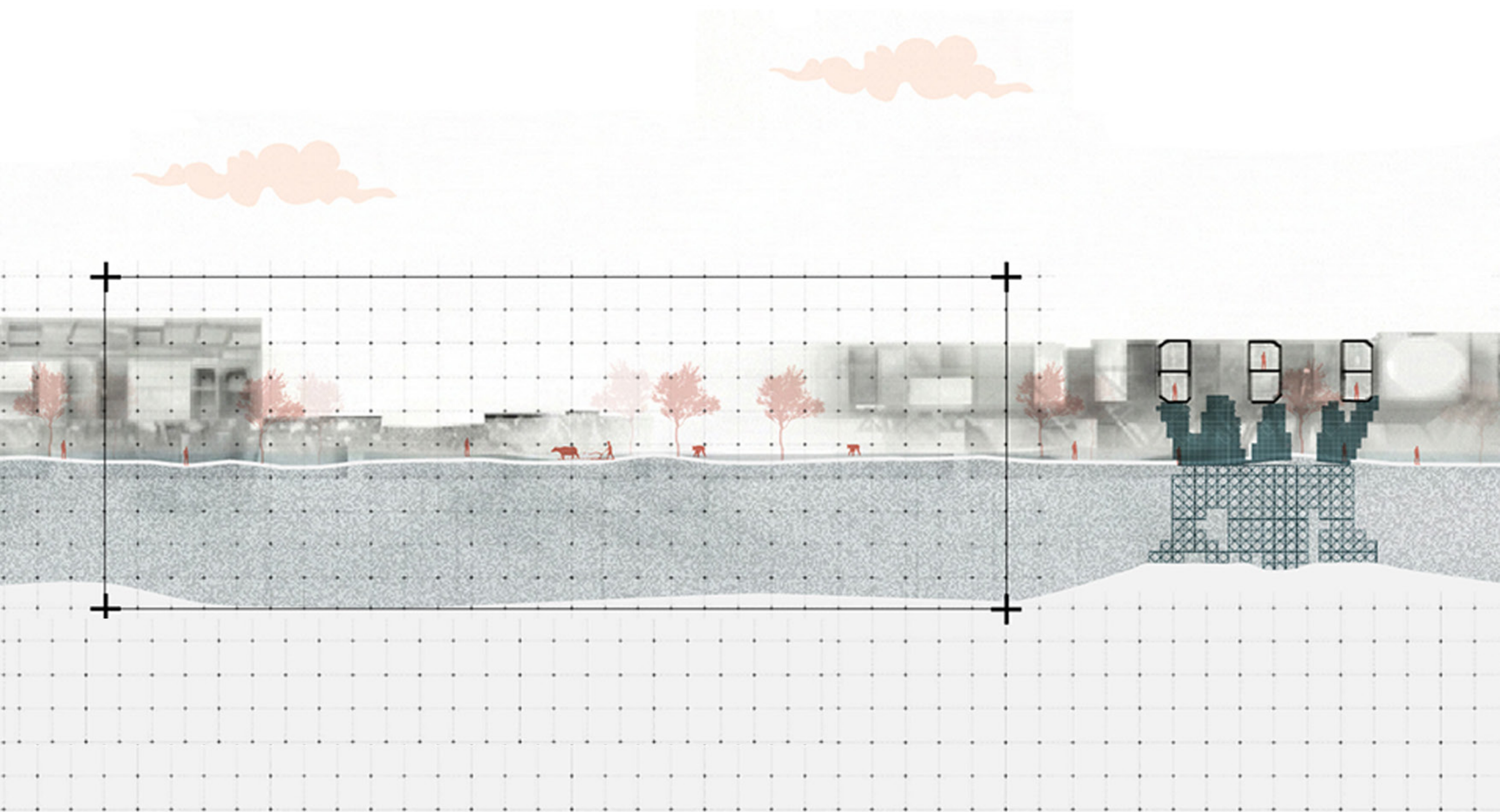
Architecture Portfolio
Selected Works | 2026

Nikhil Narendiran



Contents

1 Arkora

Type : **Masters Thesis at Architectural Association**

Location : **Majuli | India**

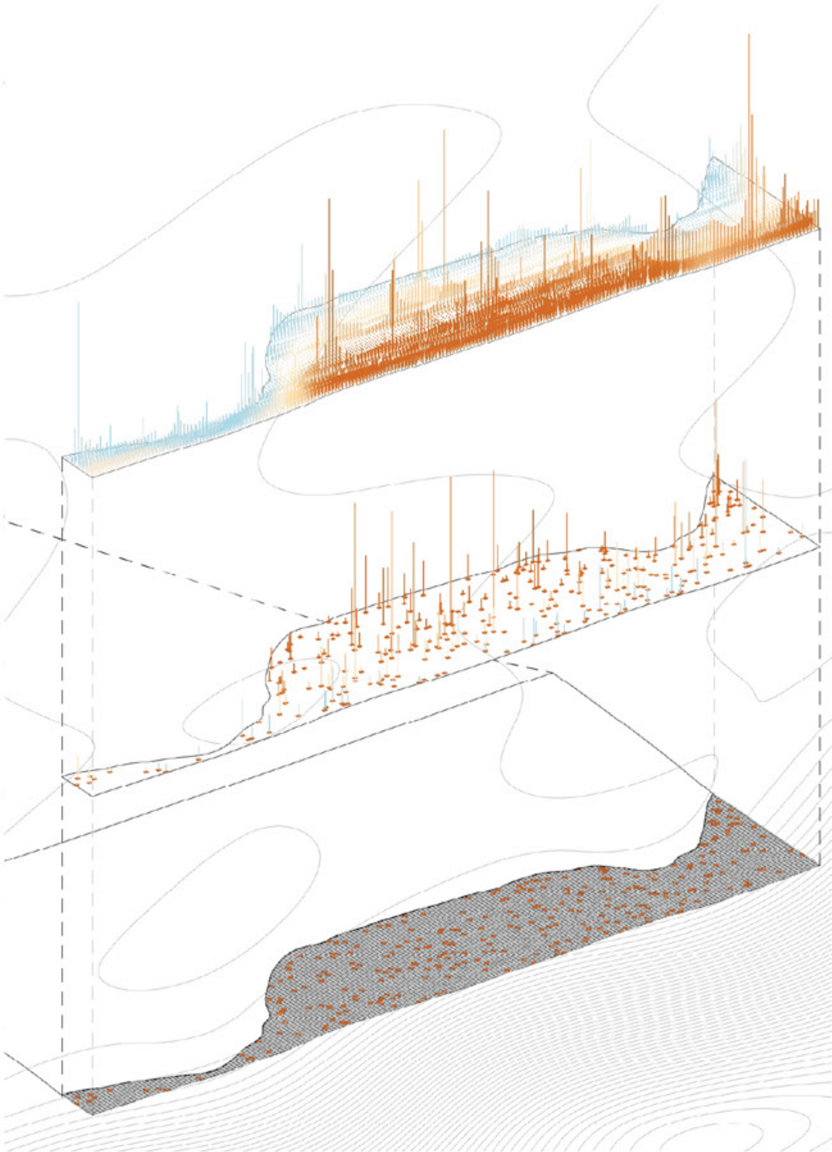
Skill Set : **Rhino | Ansys|Flow 3D |Material | Fabrication | Grasshopper | WFC | MOEA | Rule-based Algorithms| Topos |Karamba**

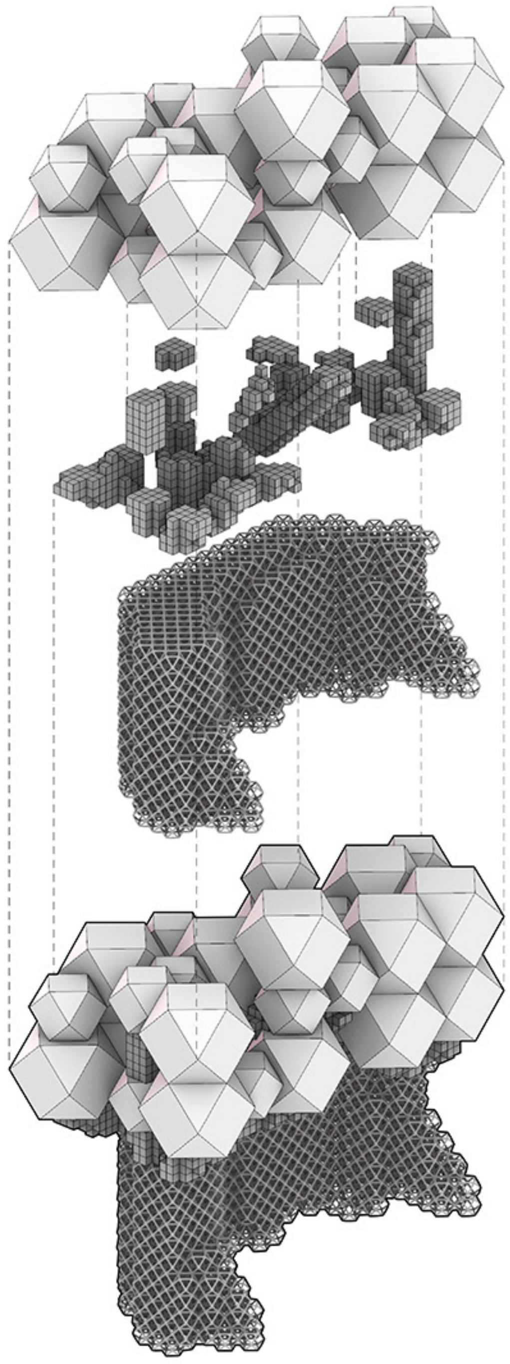
Team : Group of 4

Abstract : The chaporis, the lush, high landforms that support the island's ecosystems and populations, are being gradually eroded by seasonal flooding and erosion on Majuli, the biggest inhabited river island in the world. Villages are uprooted as these delicate areas disappear, upsetting livelihoods, cultural continuity, and the close bond between people and the Brahmaputra River.

The work reconceives architecture as an active participant in the evolving Brahmaputra landscape, something that grows, adapts, and intervenes, rather than standing apart from the river's shifting force. The study positions-built form as an ecological agent capable of redirecting water flows,shaping sediment behaviour, and accelerating the emergence of new ground. Building on this premise, the project develops an eleven-year territorial strategy composed of modular units, bamboo frame-works, and adaptive living systems embedded within Majuli's unstable fluvial terrain. In the early years, submerged biological scaffolds capture suspended silt, initiating the rise of fresh topography. As deposition thickens, these interventions reorganise into amphibious clusters resilient enough to anchor themselves on uncertain ground while con-tinuing to choreograph sediment movement. Crucially, this architectural ecology extends beyond its environmental role: it supports the continuity of livelihoods, protects settlement patterns, and reduces the cycles of displacement that repeatedly fracture community life. By enabling land to grow with the people who depend on it, the system safeguards agriculture, fishing networks, and cultural practices that are inseparable from Majuli's identity, allowing communities not only to remain but to thrive within the river's shifting rhythms.

The project proposes a built environment that evolves in synchrony with the river, reimagining settlement as a symbiosis between land, water, and people. **The future becomes a map of the past,** as each phase of habitation is inscribed into the Brahmaputra's shifting sedimentary memory. Erosion, once a force of displacement, is reframed as a generator of opportunity, with architecture amplifying sedimentation to rebuild lost ground. In doing so, the project advances a climate-adaptive model of urban emergence that grows from the river's rhythms rather than resisting them.

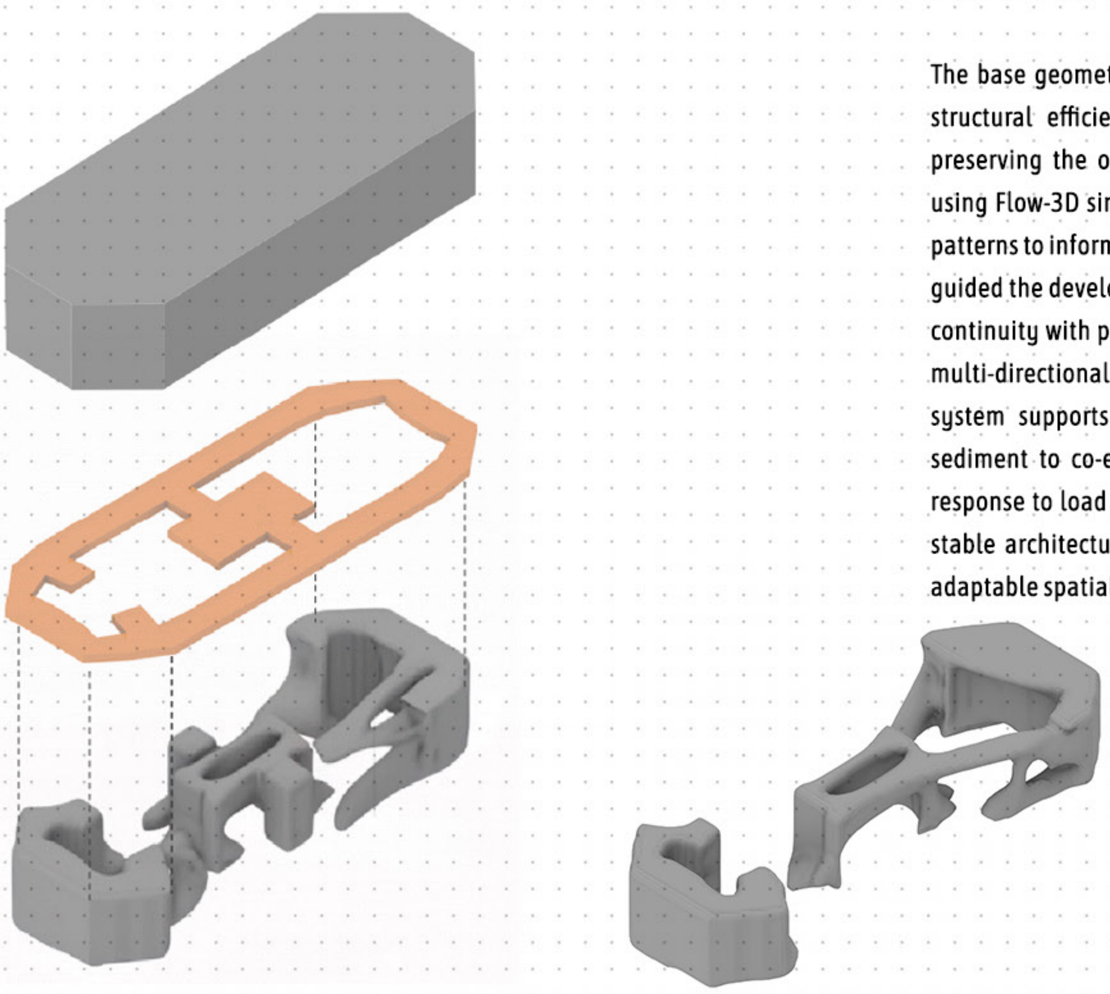


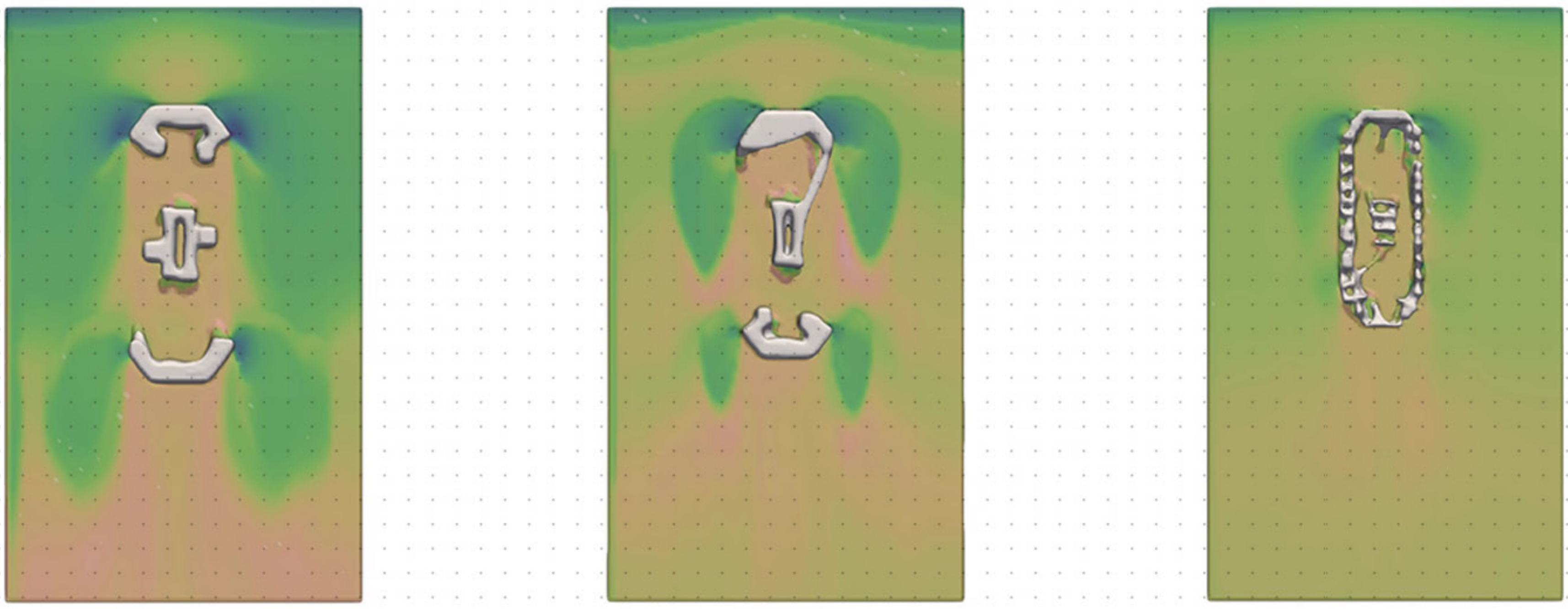


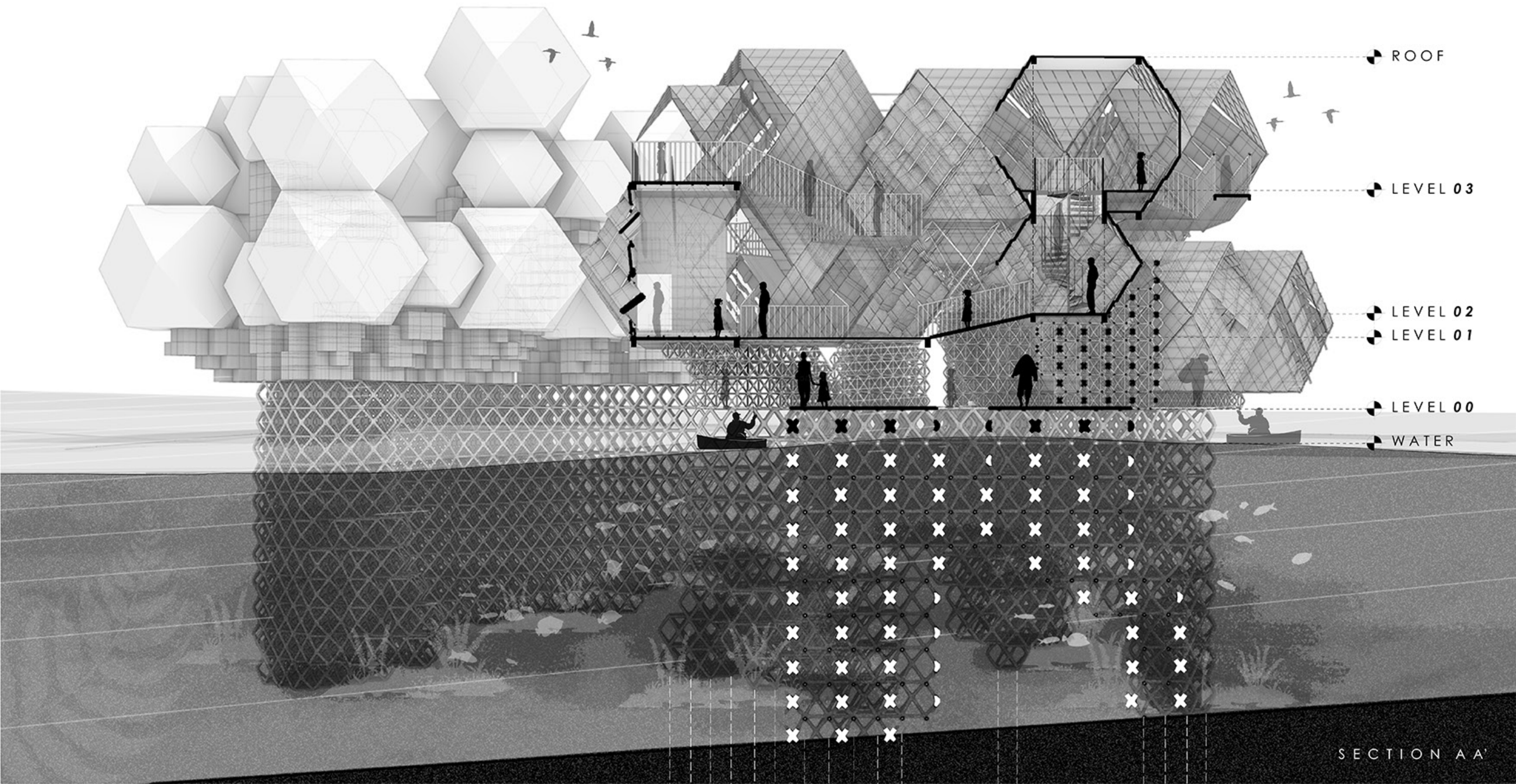
Site selection was driven by a data-centric workflow. River morphology, flow velocity, depth variation, and sediment transport patterns were first extracted and analysed using **ANSYS simulations.** This dataset informed a **machine-learning model** that evaluated and predicted multiple viable site locations along the river based on stability and sediment potential. A lattice-based sub-structure was then designed and optimised through **topology optimisation** to balance structural efficiency and permeability. The optimised geometry was tested in **Flow-3D to study hydrodynamics** and maximise sediment deposition. Finally, **modular clusters were designed** to adapt to varying flow conditions while supporting long-term ecological and structural performance.

Substructure and Superstructure Development

The base geometry was refined through topological optimization to improve structural efficiency under hydrodynamic and live load conditions while preserving the original footprint. Sediment capture potential was analyzed using Flow-3D simulations, allowing flow velocity, turbulence, and deposition patterns to inform material redistribution within the substructure. These results guided the development of a porous lattice framework that balances structural continuity with permeability, enabling sediment accumulation while resisting multi-directional forces generated by river flow and occupation. The lattice system supports ground formation over time, allowing the structure and sediment to co-evolve. Above this, a modular superstructure aggregates in response to load transfer and spatial requirements, forming a lightweight yet stable architectural system that integrates environmental performance with adaptable spatial organization.

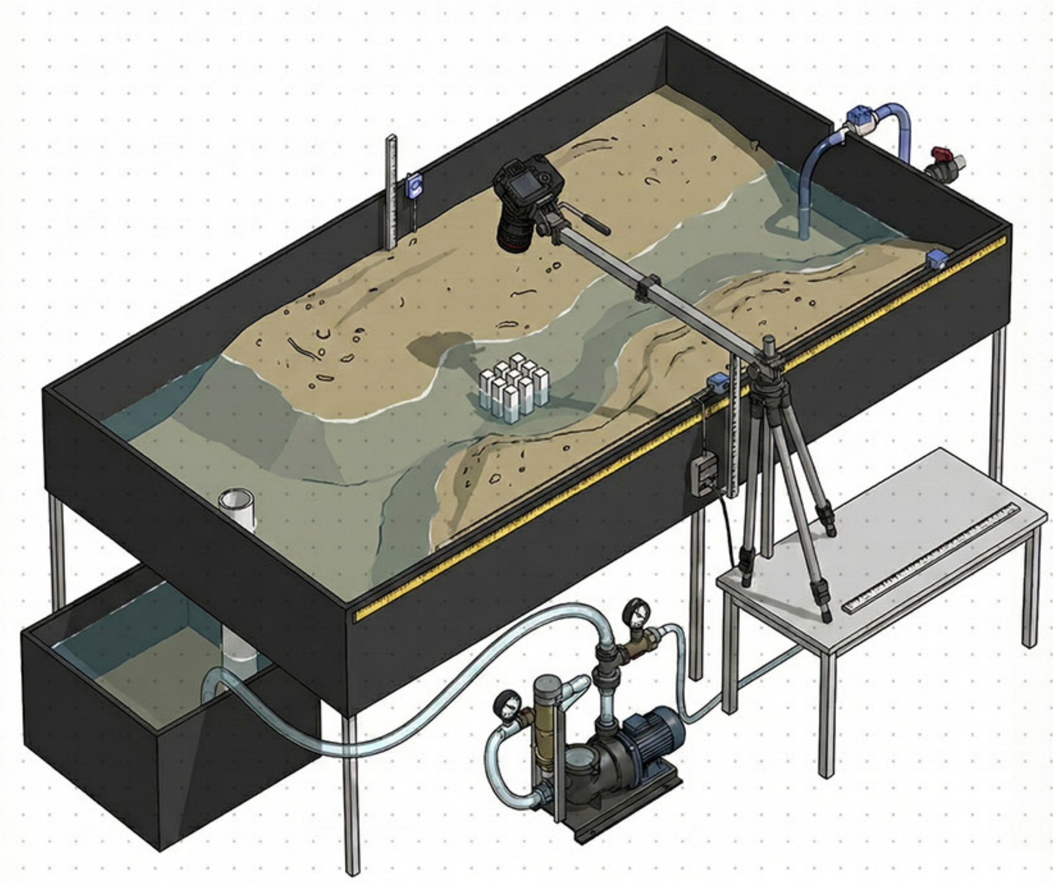


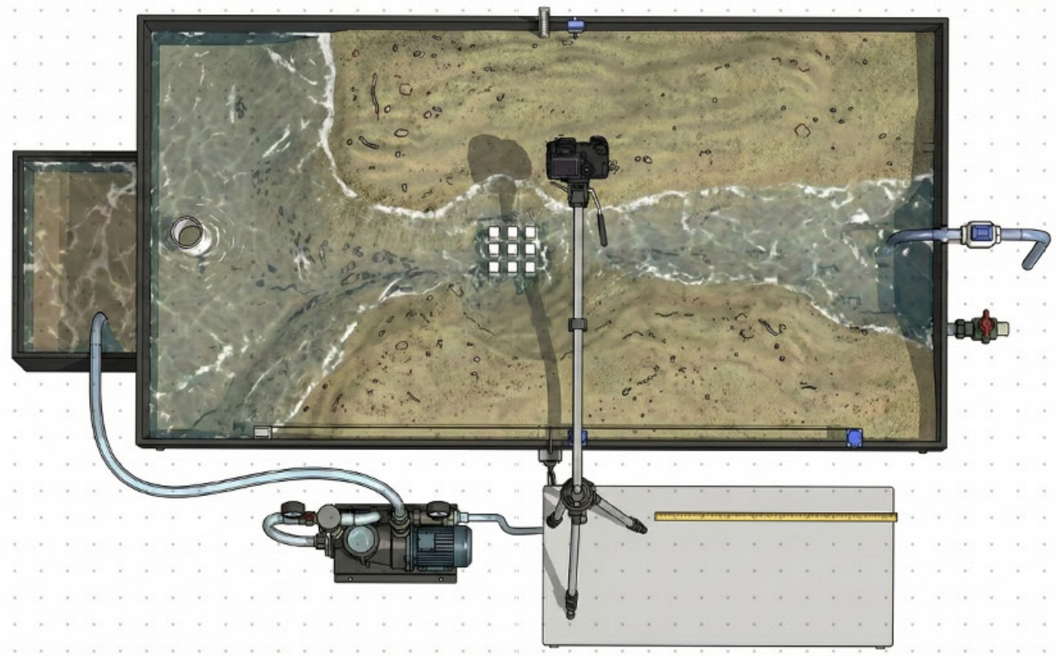


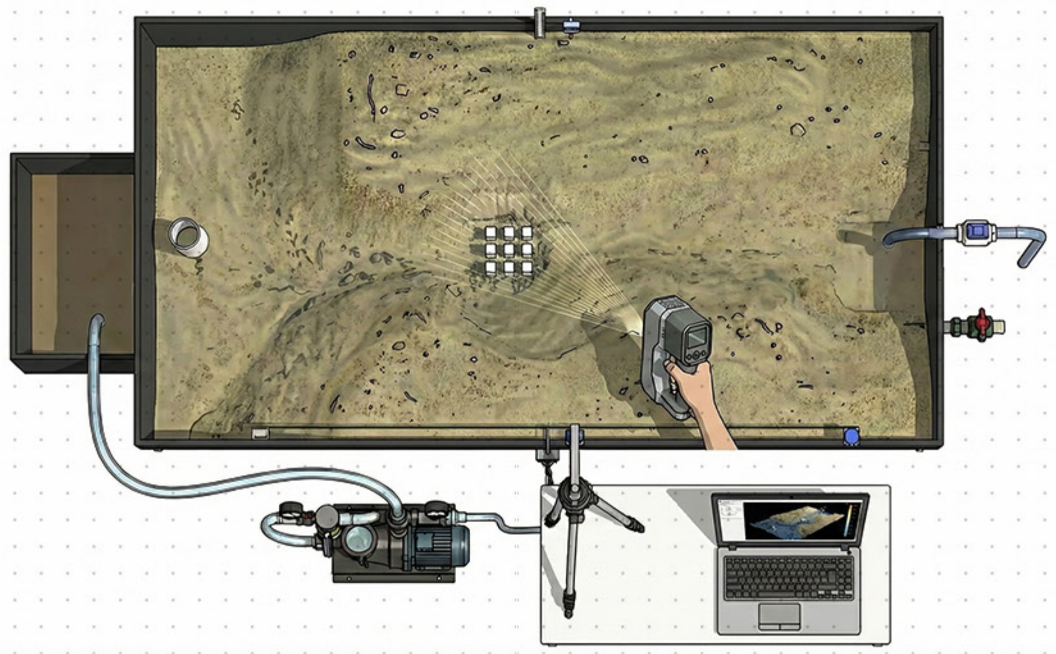


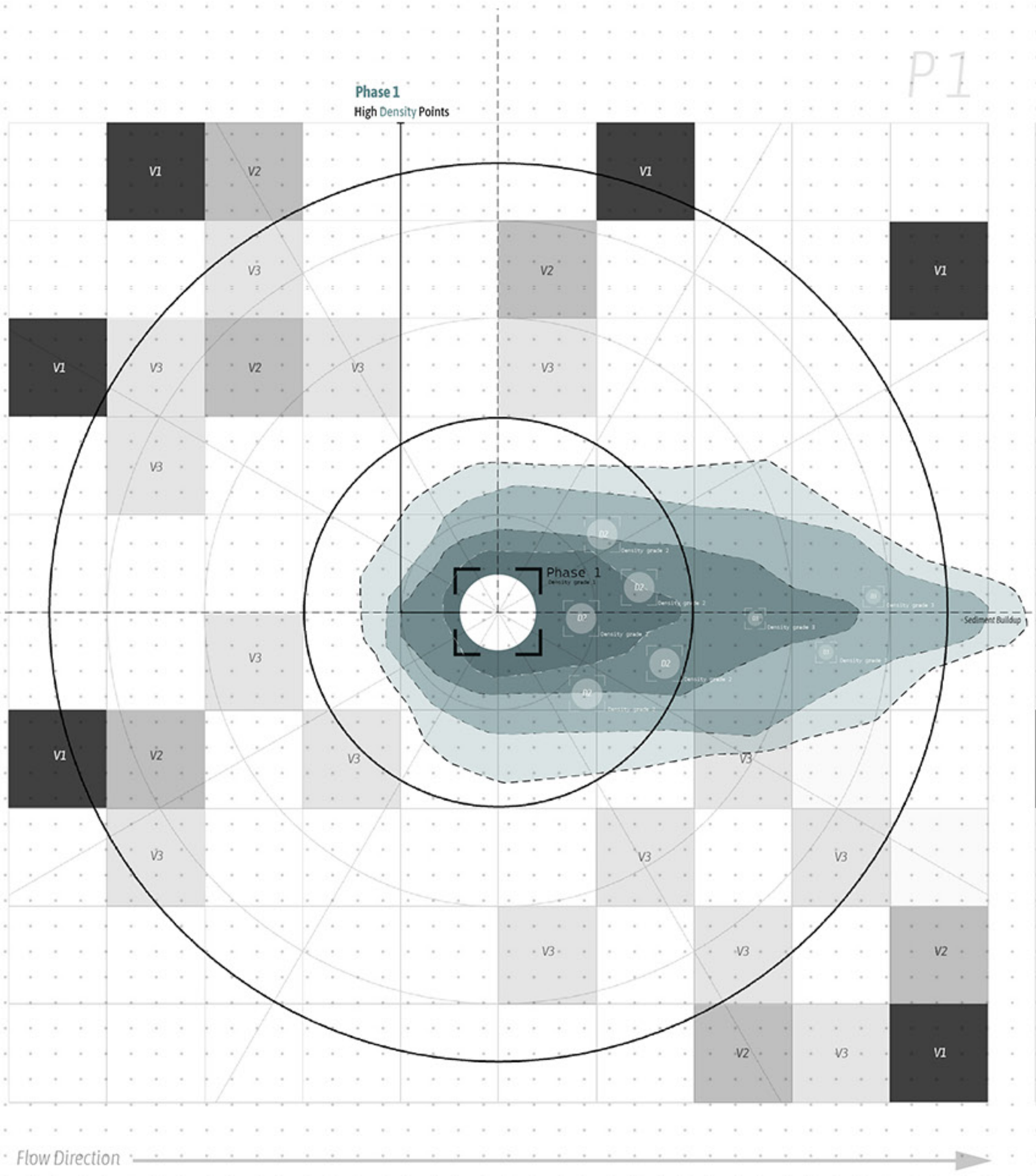
Sedimentation Tank Experiment

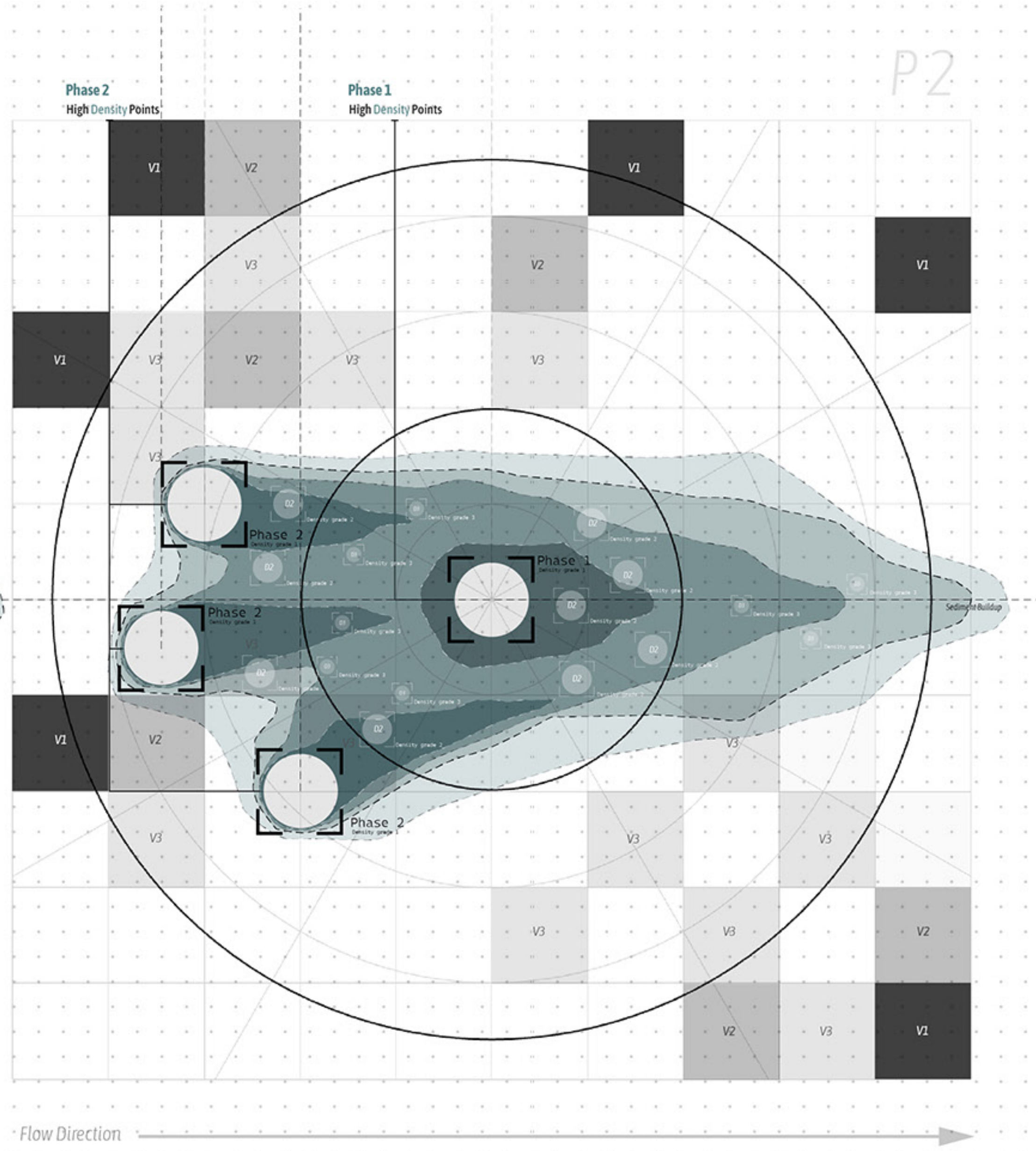
The sedimentation tank functions as a controlled physical model to study how flow velocity, obstruction, and spacing influence sediment transport and deposition. Water moving across a prepared sediment bed erodes, redistributes, and accumulates material in response to changing flow conditions and obstacles, producing measurable patterns of scour, wake zones, and deposition. These experiments reveal how small geometric variations generate gradients of stability and instability, forming the basis for translating fluid behavior into spatial logic.

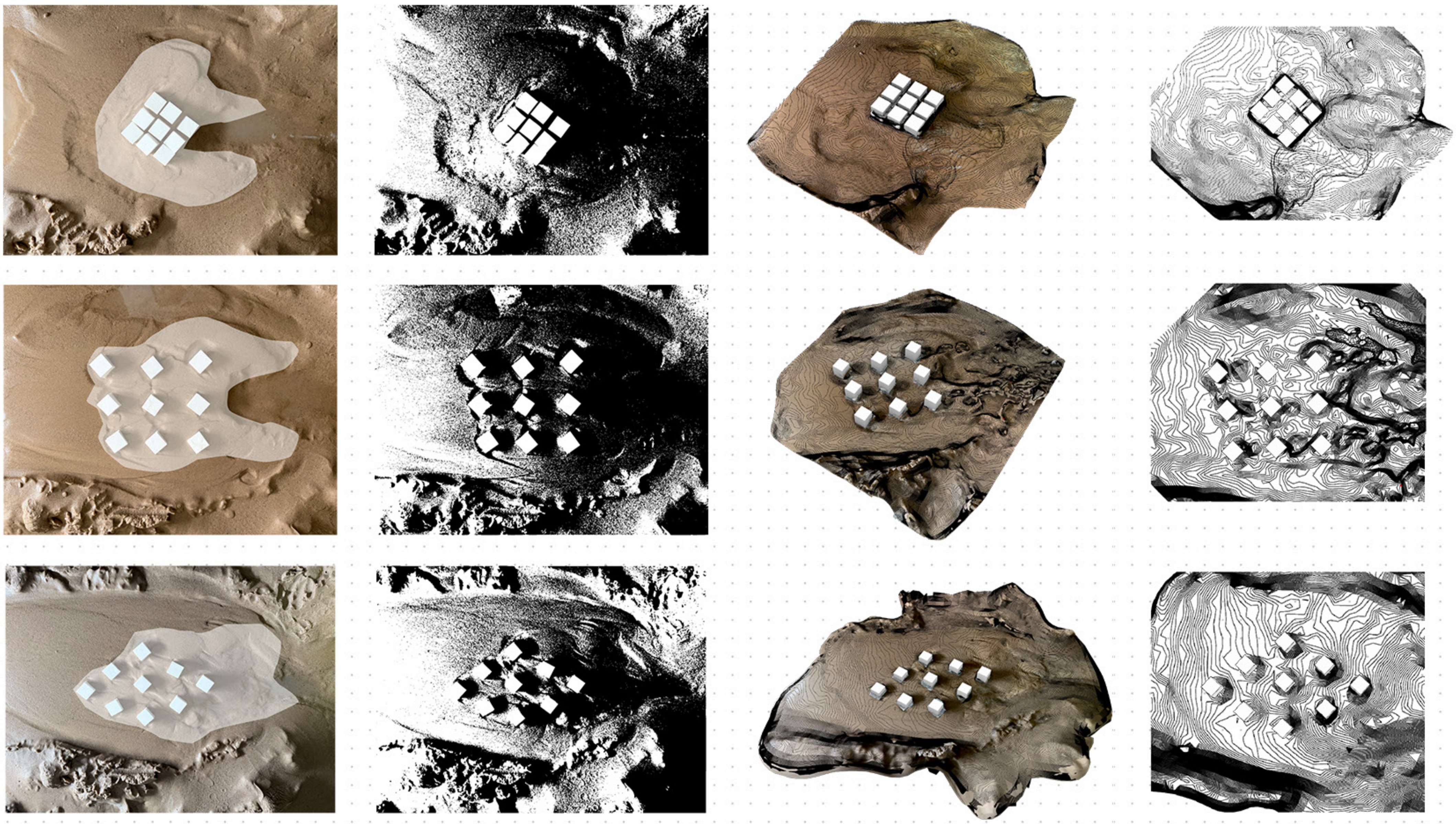


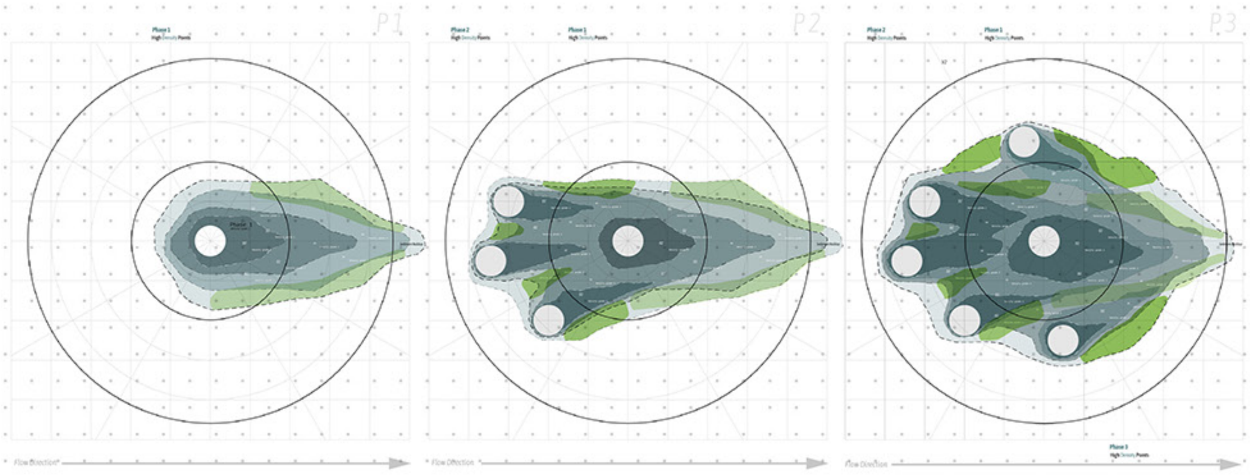






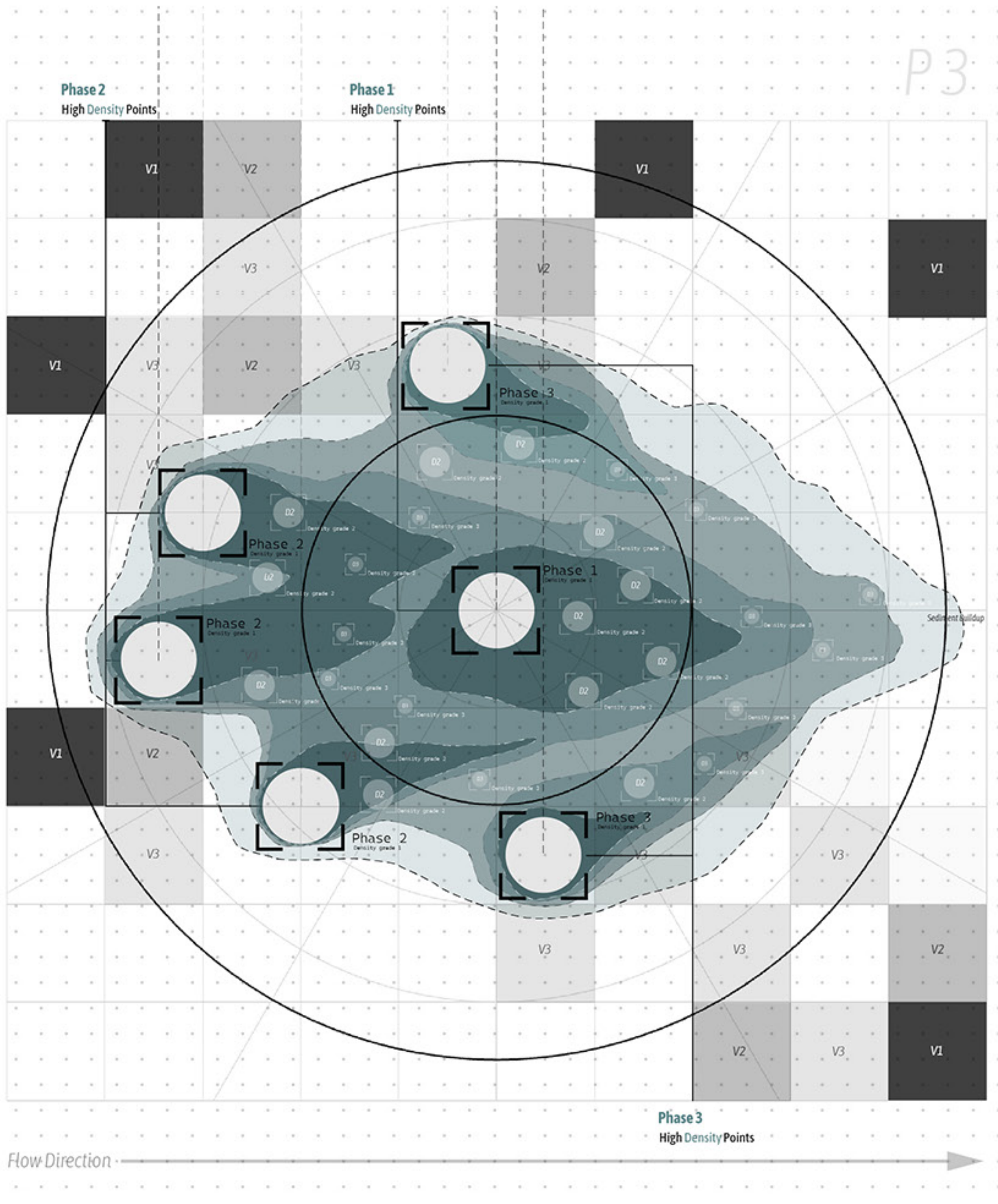


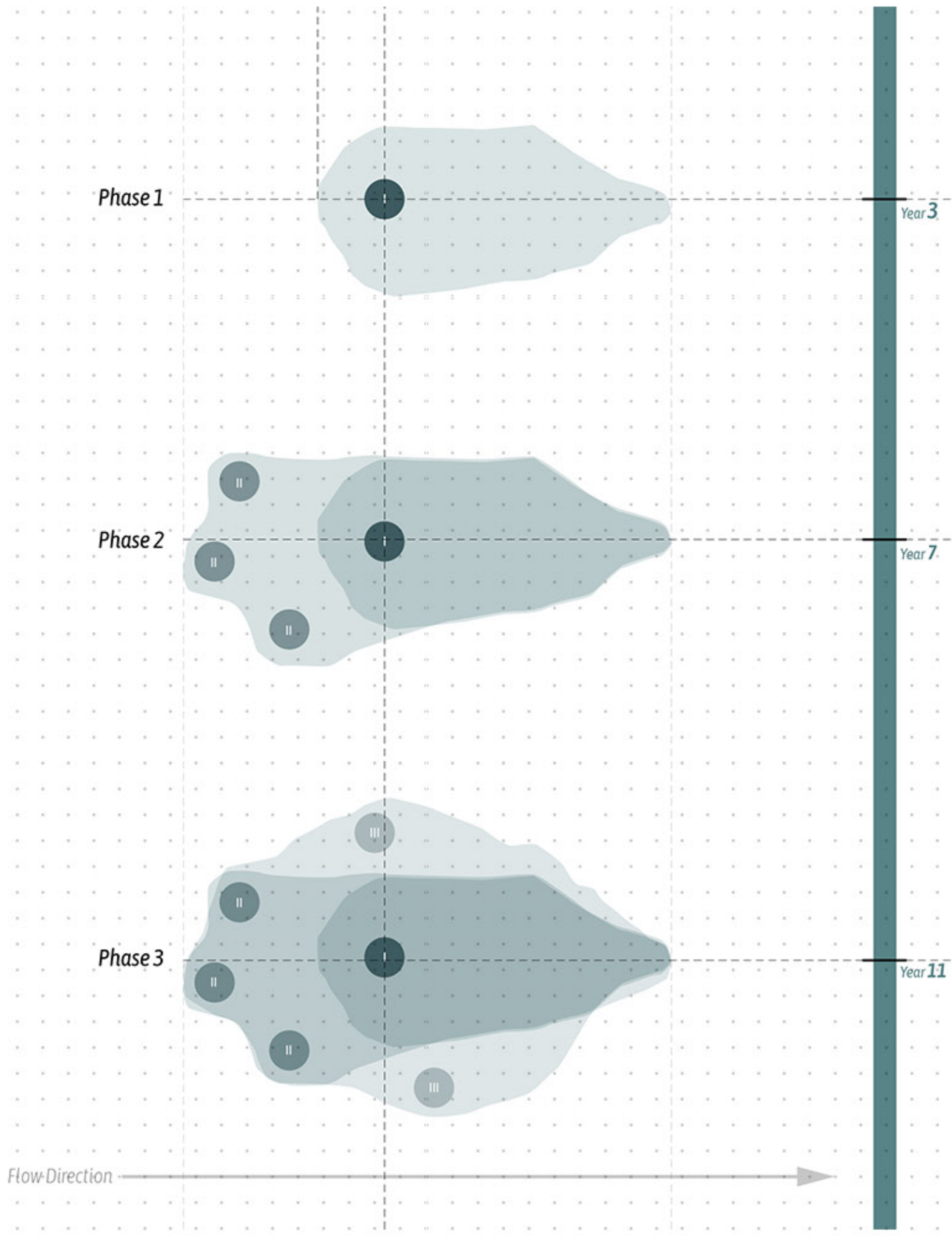


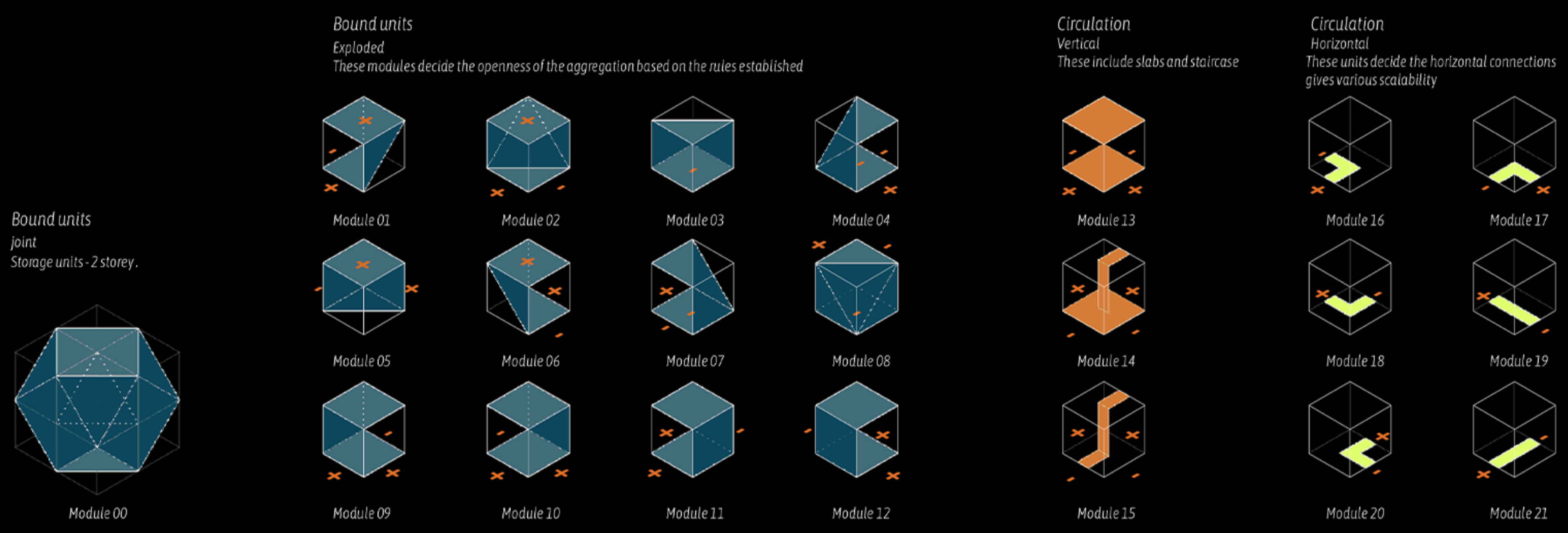


Sediment-Driven Spatial Framework

Observed sediment behaviors are abstracted into spatial fields that guide development through performance rather than fixed form. Zones of high accumulation indicate areas capable of supporting denser clustering, while transitional gradients accommodate adaptive or landscape-driven interventions. Development progresses incrementally, with early phases establishing stable anchors and circulation, followed by denser growth as sediment persistence increases. This phase-wise logic aligns structure, landscape, and density with long-term material stability, allowing spatial growth to remain responsive, scalable, and grounded in the dynamics of the landscape.

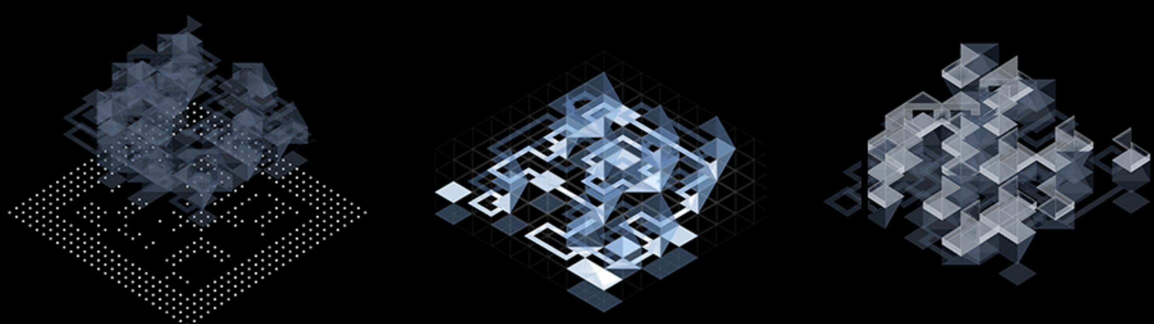






Designing the Proto units : Regional Scale

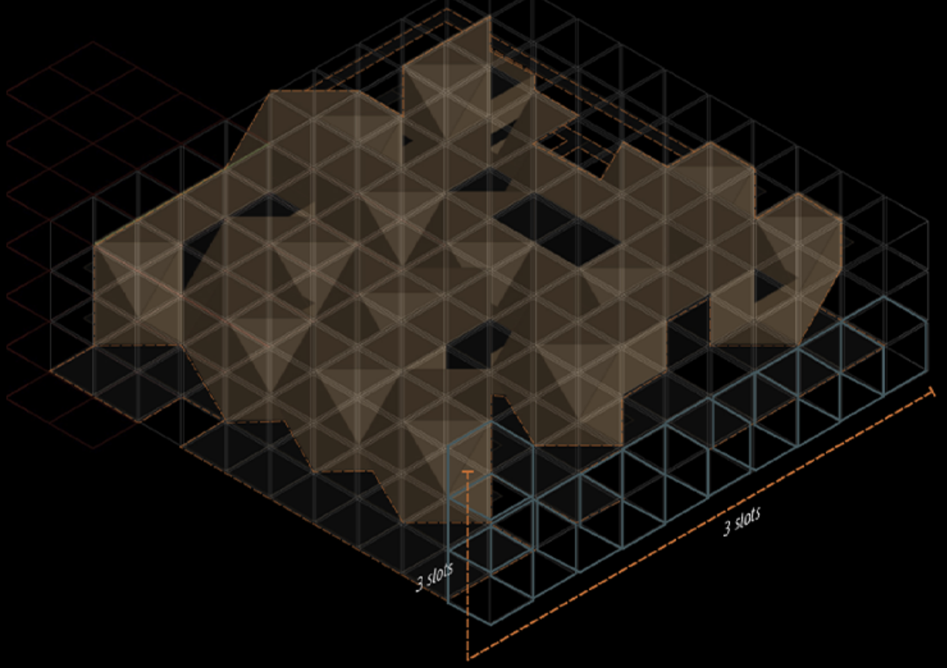
The proto units were developed using a Wave Function Collapse (WFC) framework, enabling rule-based aggregation driven by local constraints and global fitness objectives. For this process, the truncated cube was decomposed into its component geometrical parts due to its inherent spatial efficiency and versatility, and the resulting modules were broadly classified into bound units and circulation units. A series of trial aggregation exercises were conducted to refine this module set and calibrate their adjacency rules. The spatial simulation was structured on a 10 × 10 × 3 grid, composed of 3 × 3 m slots, with each cell acting as a testing environment for module placement. This setup allowed the system to iteratively evaluate how modules interact, cluster, and adapt in response to zoning logic and performance criteria such as fragmentation, floor area, and balcony potential. Observations from these simulations informed subsequent modifications to the linking logic, as well as the introduction of additional modules where necessary, progressively stabilising the proto-unit system.

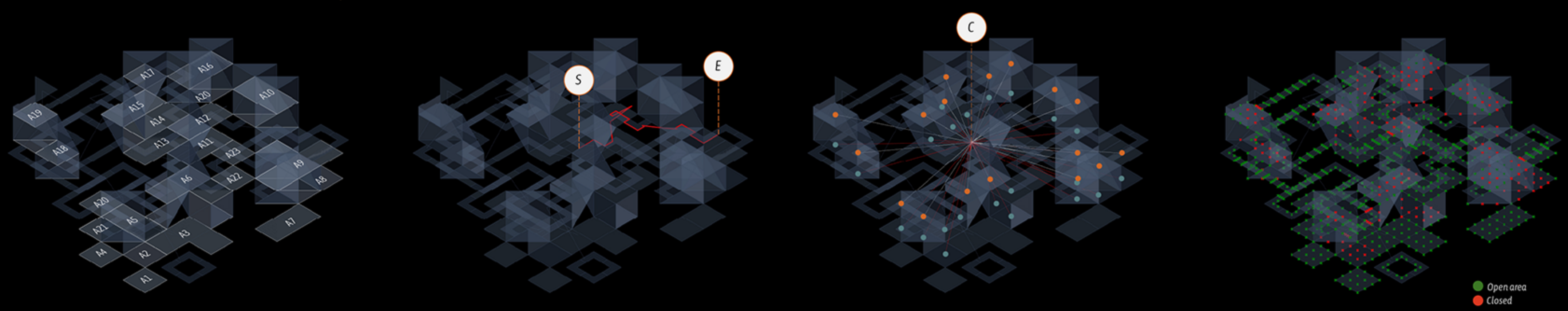


F1 - Minimising Fragmentation

F1 - Maximising Floor Area

F1 - Maximising Balconies



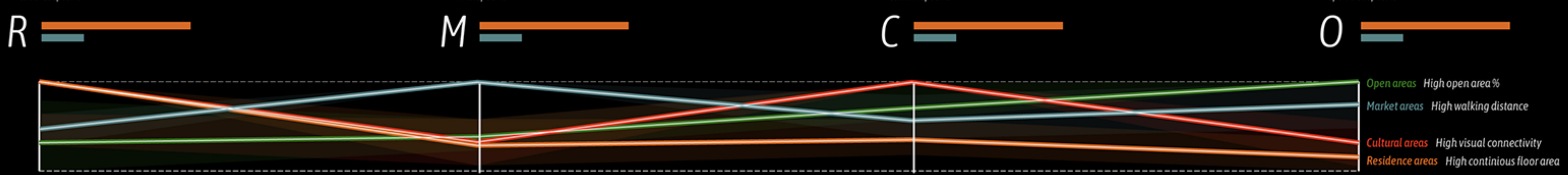


Continious Floor areas - R
Residence specific

Shortest walk - M
Market specific

Visual connectivity - C
Cultural specific

Open areas percentage - O
Open areas specific



Cultural

High visual connectivity
High continuous and usable floor areas
High open space ratio
High circulation distance

Cultural Low Density unit

Cultural High Density unit

Market

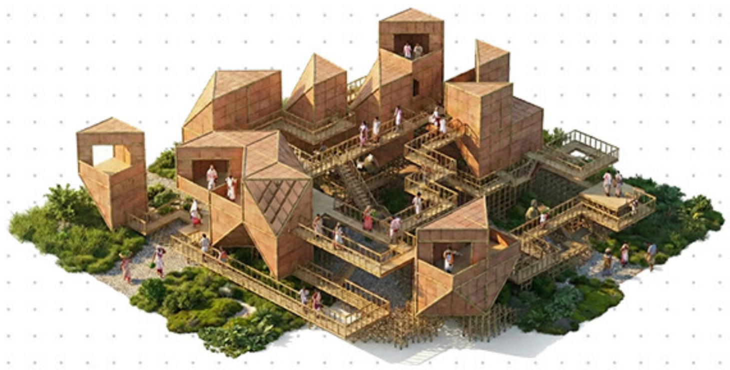
High visual connectivity
High continuous and usable floor areas
High open space ratio
High circulation distance

Market Low Density unit

Market High Density unit

Open

High visual connectivity
High continuous and usable floor areas
High open space ratio
High circulation distance



Open Low Density unit

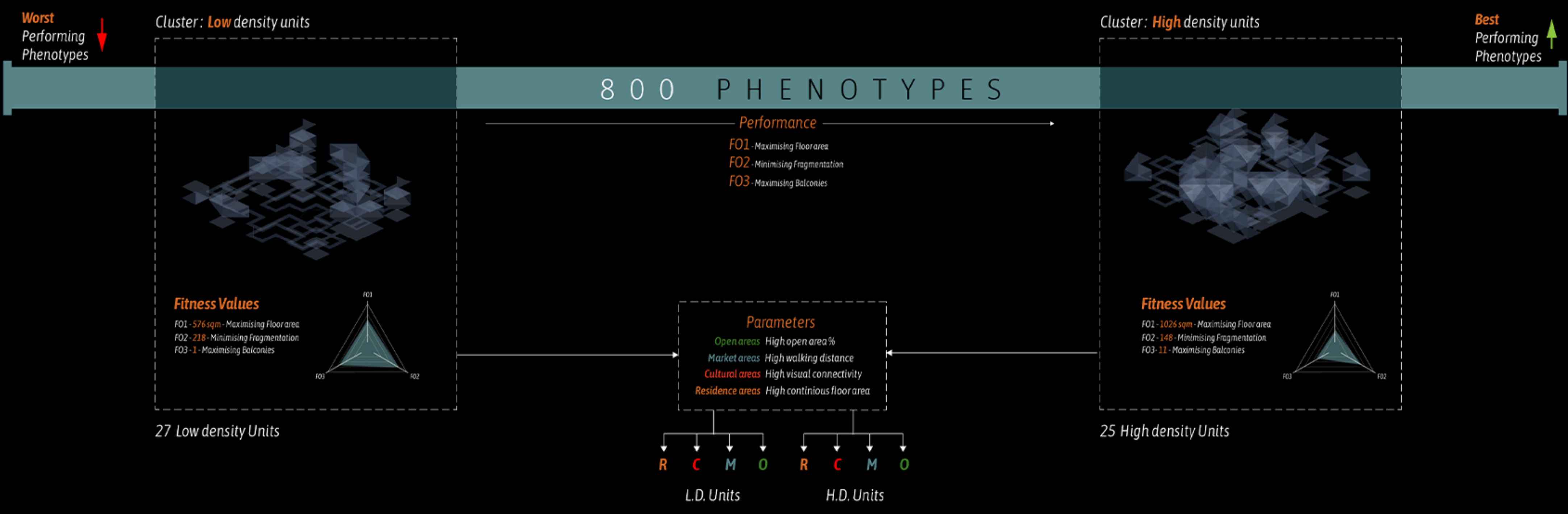
Open High Density unit

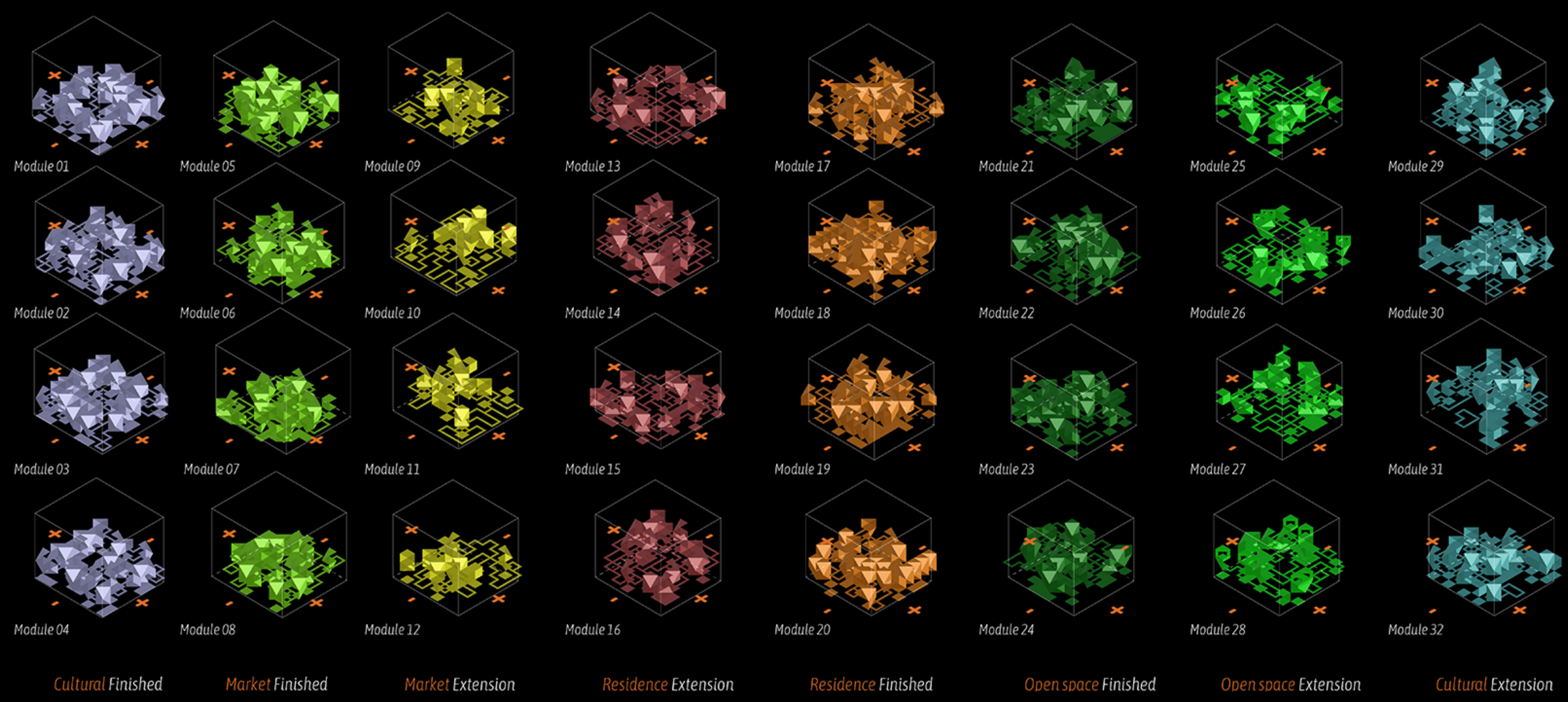
Residential

High visual connectivity
High continuous and usable floor areas
High open space ratio
Low circulation distance

Residential Low Density unit

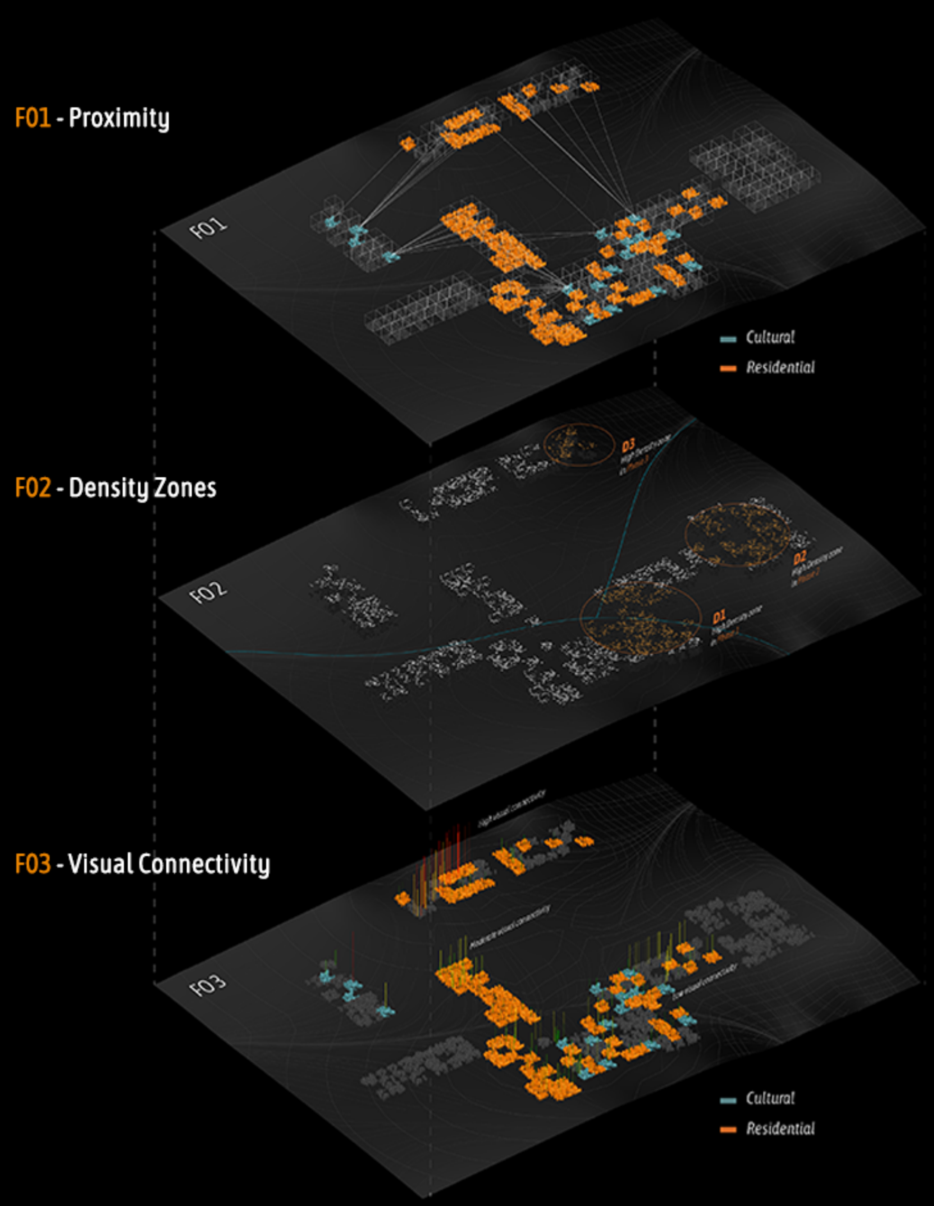
Residential High Density unit

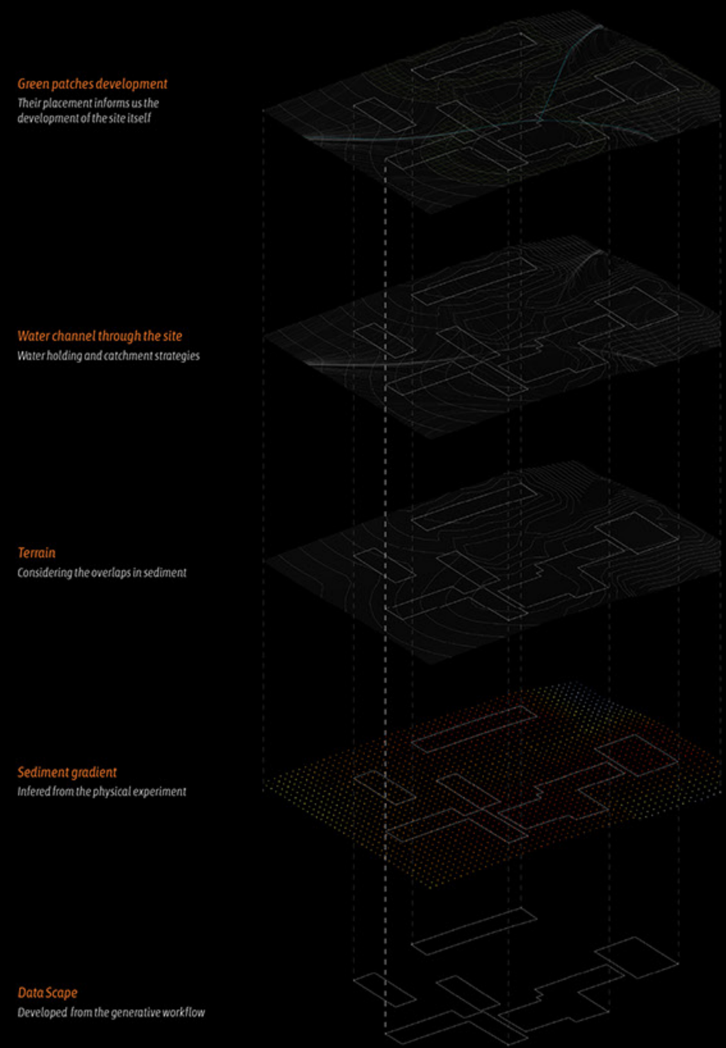


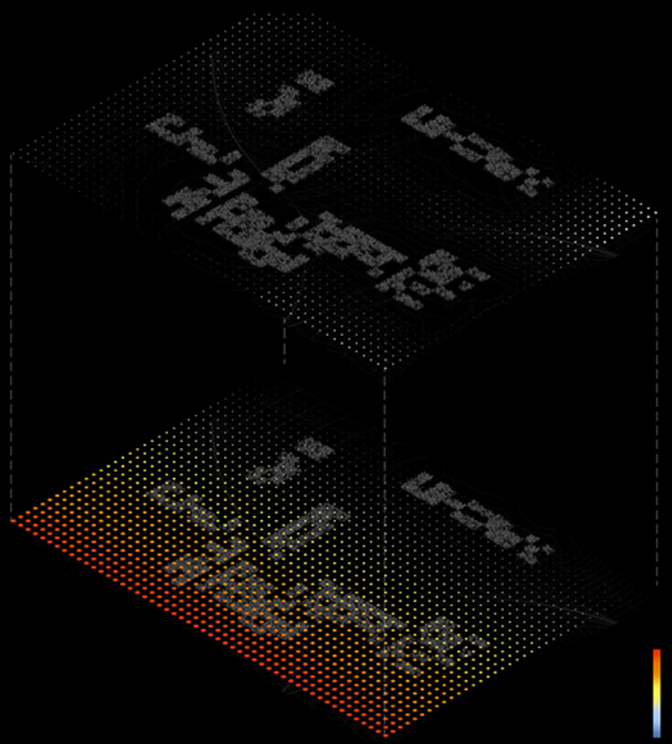


Designing the Master Plan: Global Scale

At the global scale, modular clusters are generated through a combined Wave Function Collapse (WFC) and multi-objective evolutionary optimization workflow. WFC establishes rule-based aggregation by propagating local adjacency constraints, allowing spatial patterns to emerge while ensuring compatibility between modules. These aggregated configurations are then evaluated and evolved using MOEA, optimizing multiple objectives in parallel. The resulting solutions are clustered to identify high-density and low-density extremes, revealing distinct spatial behaviors across the system. Each cluster is assessed against architectural criteria including proximity between functions, density zones, visual connectivity, open area percentage, and continuous floor area. From this process, eight primary typologies are defined and mapped onto the module set, generating controlled variations that support scalable aggregation.







Global Scale Aggregation & Analysis

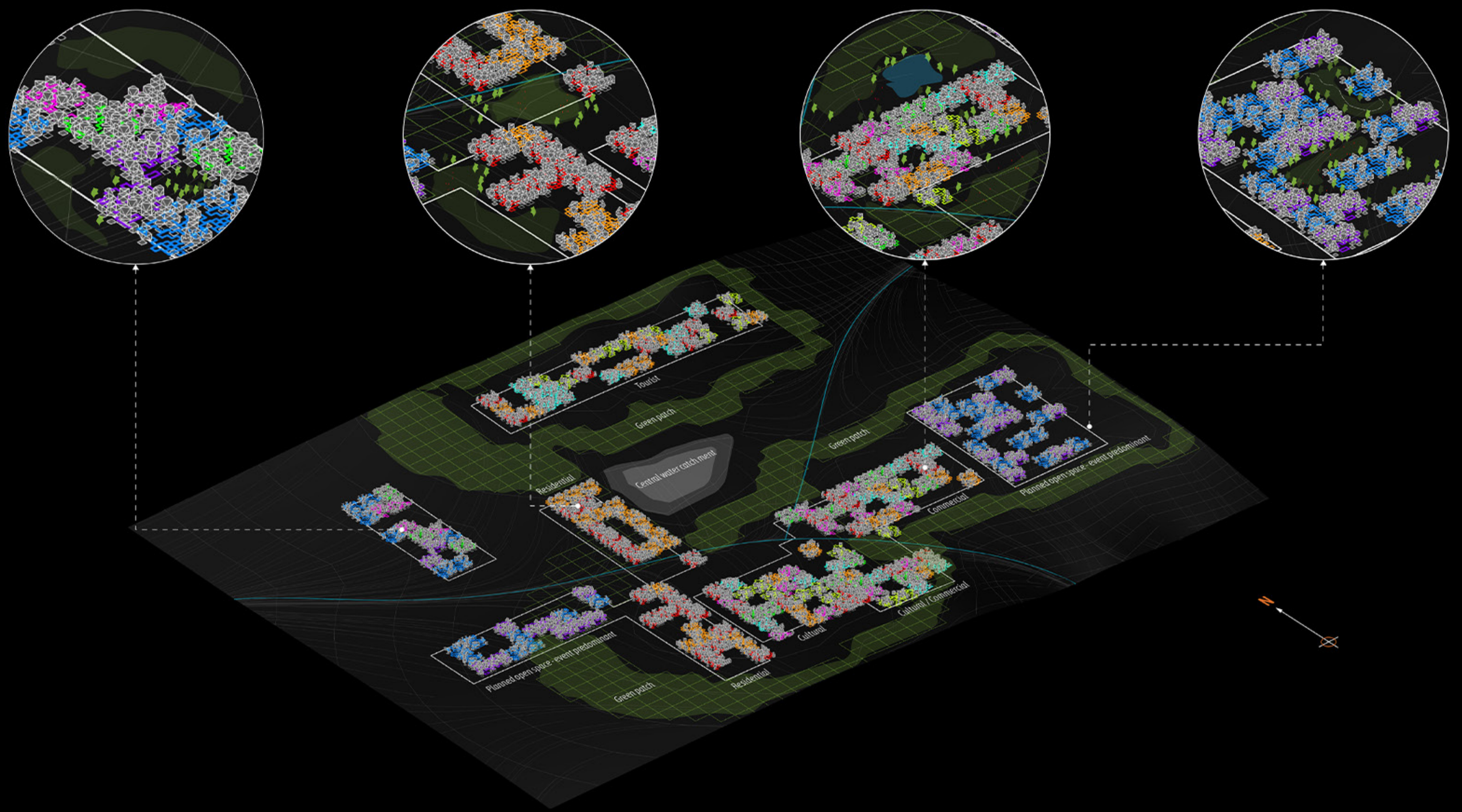
At the global scale, the settlement emerges through the layered aggregation of modular clusters guided by functional hierarchy, density variation, and environmental constraints. Functional and density overlays distinguish between developed cores and extension zones, revealing stable areas of spatial maturity alongside flexible edges reserved for future growth. Residential, cultural, market, and open programs are distributed through proximity-based rules that balance accessibility, separation, and continuity across the site. Density gradients regulate the intensity of development, allowing clusters to compact where performance thresholds are met and remain porous where adaptability is required. Through these overlapping criteria, the master plan is not fixed in form but negotiated through rule-based interactions, enabling phased growth that remains coherent, responsive, and scalable over time.

Performance and Events
A mix of cultural, occupational and residential zone

Residential
Hybrid of Residential and commercial zones

Central Zone
Nam Ghar, Residential & Occupational zones

Open Area
Mostly open area, for agricultural practices and further development



Casted Panels

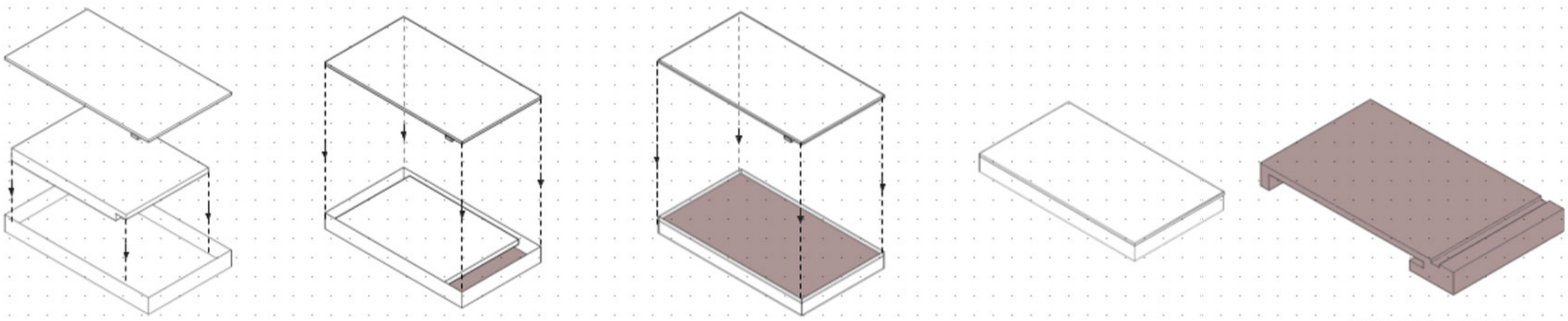
At the material scale, the system begins with cast earth-based panels developed through iterative binder and aggregate testing. Soil composites are layered and compressed within modular formwork, allowing controlled density, thickness variation, and fiber orientation. The casting process enables repeatability while remaining adaptable to local material availability and environmental constraints.

Sample 3
Sand :400g
Clay : 300g
Silt :100g
Binder : 300g + Lime 150g
Aggregates : Jute
Casted weight : 1650g
Weight after curing :1353g
Time required to dry : 2 days
Water loss percentage : 18%

Sample 5
Sand :600g
Clay :200g
Silt :150g
Binder :350g+ Lime 150g
Aggregates Bamboo + Coir
Casted weight : 1475g
Weight after curing :1017g
Time required to dry : 12 days
Water loss percentage : 31%

Sample 4
Sand :600g
Clay : 300g
Silt :150g
Binder : 300g+ Lime 150g
Aggregates : Coir + Jute
Casted weight : 1420g
Weight after curing : 745g
Time required to dry : 12 days
Water loss percentage : 47%

Sample 10
Sand :500g
Clay : 500g
Silt :100g
Binder : 50g + Water
Aggregates : Jute
Casted weight : 1550g
Weight after curing : 788g
Time required to dry : 15 days
Water loss percentage : 50%



STEP 1 STEP 2 STEP 3 STEP 4 CASTED PANEL

Markets & Residences

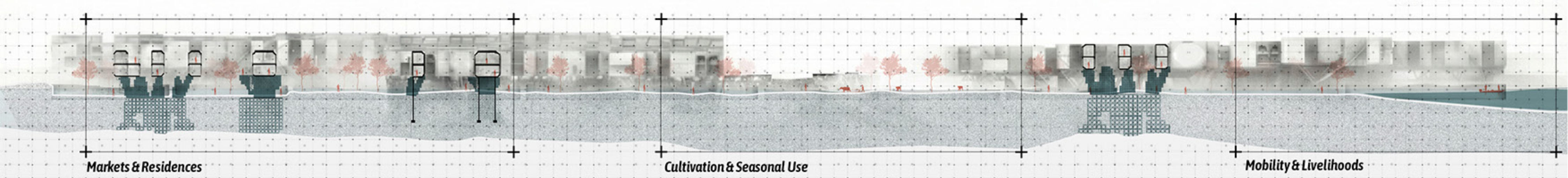
These zones concentrate everyday social and economic life on relatively stable ground. Markets, workshops, and residential clusters are positioned where seasonal flooding is manageable, allowing permanent structures to coexist with adaptive building techniques. The built fabric supports trade, craft, and community gathering, forming the social spine of the settlement.

Cultivation & Seasonal Use

Agricultural activities occupy the transitional edge between land and water. These areas respond directly to sediment deposition and seasonal water levels, enabling flexible farming practices aligned with Majuli's flood cycles. Fields, gardens, and temporary structures adapt over time, reinforcing food security while remaining resilient to erosion and inundation.

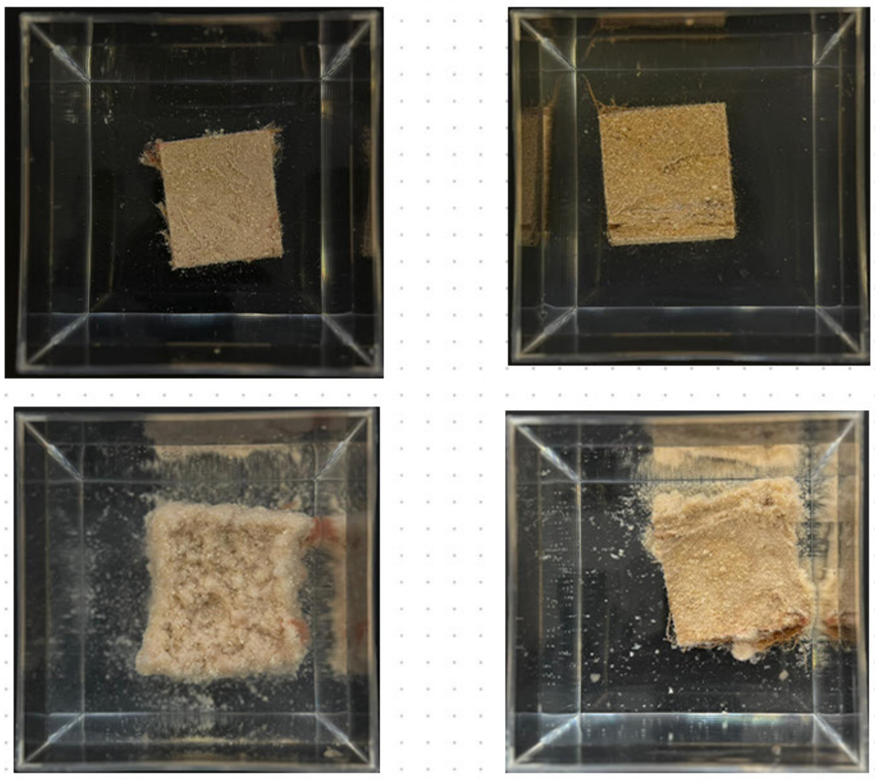
Mobility & Livelihoods

Water zones support fishing, transport, and river-based commerce that define daily life in Majuli. Jetties, platforms, and floating or semi-permanent structures allow continuous engagement with the river, even as its course and depth shift. These activities treat water not as a boundary, but as an active working landscape.



Markets & Residences ***Cultivation & Seasonal Use*** ***Mobility & Livelihoods***

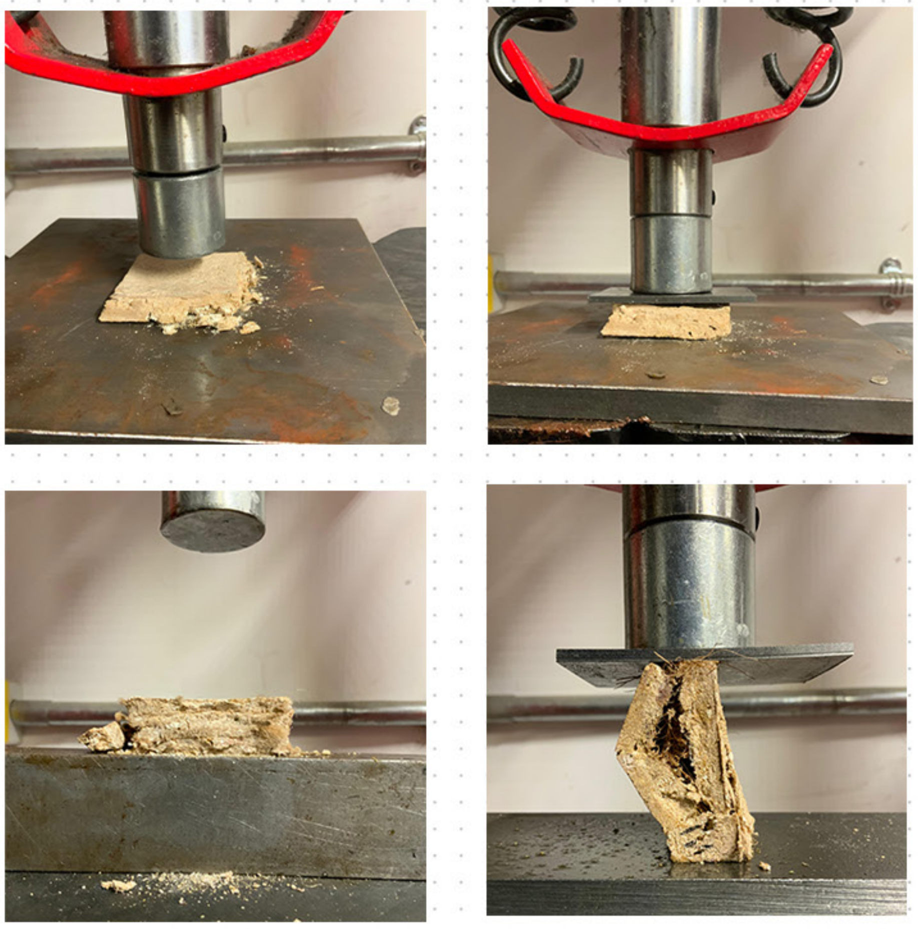
WaterProofing Tests



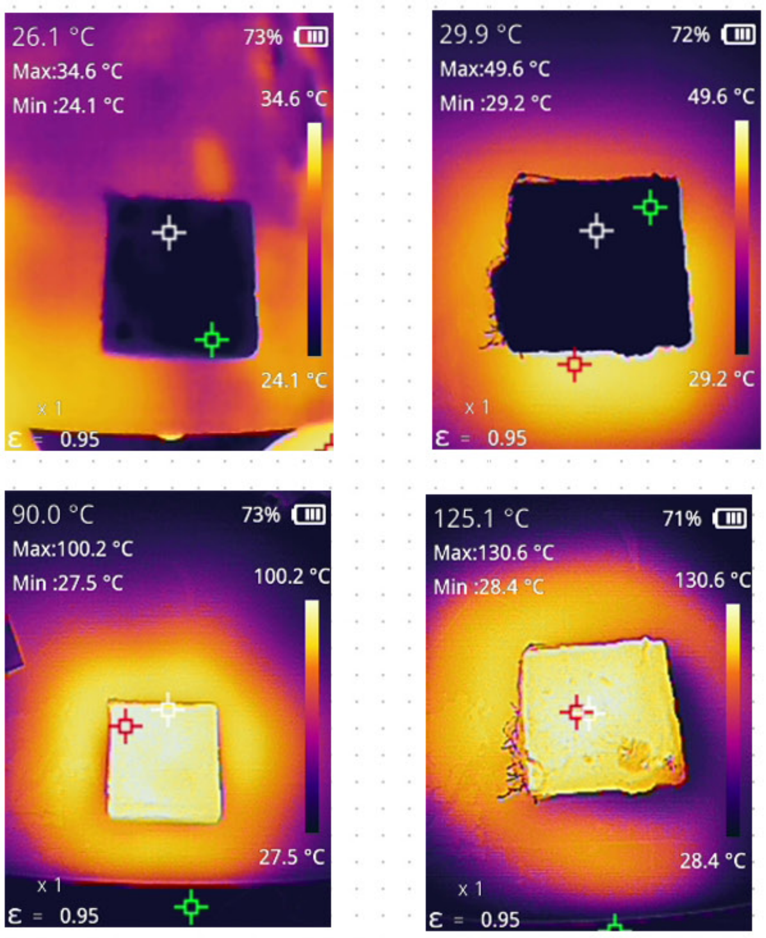
Material Performance

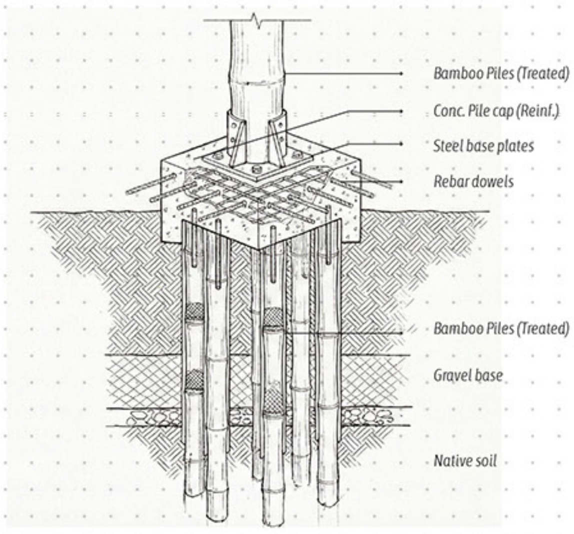
Material testing focused on the structural, environmental, and thermal behavior of clay-based panels reinforced with natural fiber aggregates and bio-based binders. Compression tests demonstrated that panels incorporating a coir-jute fiber mix achieved higher load-bearing capacity and more stable failure modes than jute-only samples, indicating improved internal bonding and stress distribution within the clay matrix. Water exposure tests revealed that untreated clay panels rapidly absorbed moisture and lost cohesion, while bio-resin coated samples maintained structural integrity after prolonged immersion, confirming the necessity of surface protection for long-term durability. Thermal imaging during controlled heating and cooling cycles showed that fiber-reinforced clay panels retained heat for extended periods, with coir-jute composites sustaining elevated temperatures longer than jute-only panels, suggesting improved thermal mass and insulation potential. Collectively, these results inform the architectural deployment of the panel system, guiding decisions on panel thickness, interlocking geometry, and material layering. Rather than functioning solely as infill, the tested clay-based panels operate as load-bearing, thermally active elements capable of supporting scalable aggregation, environmental responsiveness, and low-tech construction strategies..

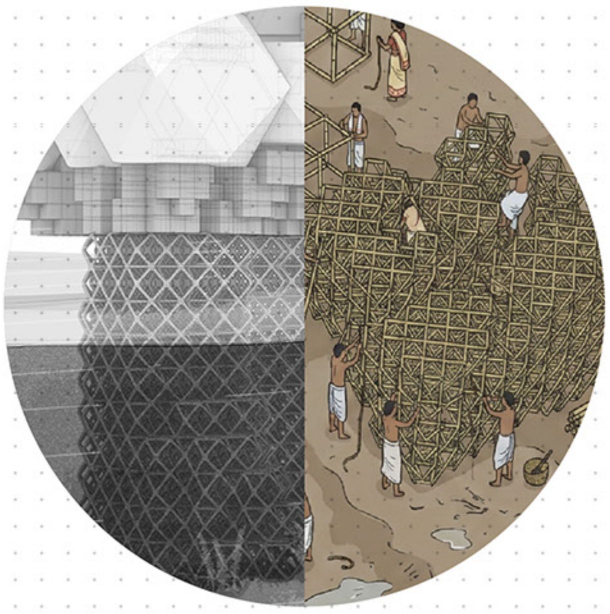
Strength Tests



Heat Retention Tests







Pile Foundations on Stabilised Land (Subsequent Phase)

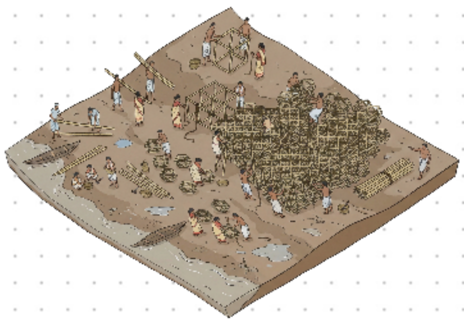
As sediments accumulate and the riverbed stabilises, permanent pile foundations are introduced to support new structures. These foundations respond to the newly formed ground, transferring loads to deeper, more reliable strata while remaining adaptable to future changes in water levels. Built form emerges only once the land has proven itself through time

Sediment-Capture Substructure (Initial Phase)

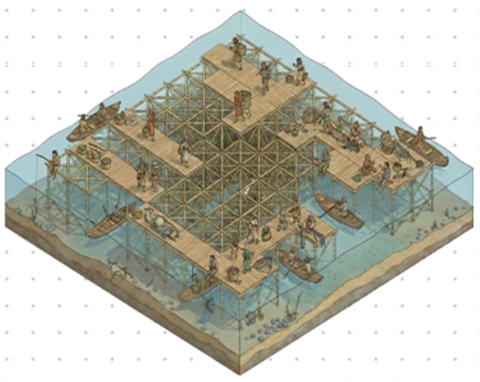
The initial substructure is introduced before stable land exists. Light, permeable frames and ground interfaces slow river flow and encourage sediment deposition during seasonal floods. Rather than resisting the Brahmaputra, this system works with its rhythms, allowing land to gradually accrete over time. The substructure acts as a catalyst for ground formation, creating the conditions for future habitation.

Incremental Assembly, Adaptation, and Phase-wise Development

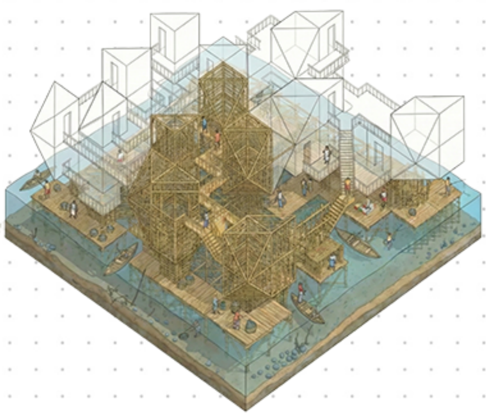
The project functions as an open-ended system that evolves through incremental assembly, occupation, and environmental interaction rather than a fixed master plan. Early phases prioritize minimal ground intervention, establishing a permeable substructure that engages sediment deposition and hydrological forces. As site conditions stabilize, primary structural frameworks are introduced, enabling modular aggregation and vertical growth. Occupation actively shapes form, with spatial configurations adapting to patterns of use, material performance, and environmental change. Over time, cycles of consolidation and densification occur, while underperforming elements are selectively removed or reconfigured. Phase-wise simulations visualize the coupled evolution of settlement morphology and sediment dynamics, illustrating how built structures and ground formation co-develop across successive stages, supporting long-term resilience and adaptability.



Stage 1 .Ground Preparation & Marking



Stage 2.Substructure & Sediment Framework

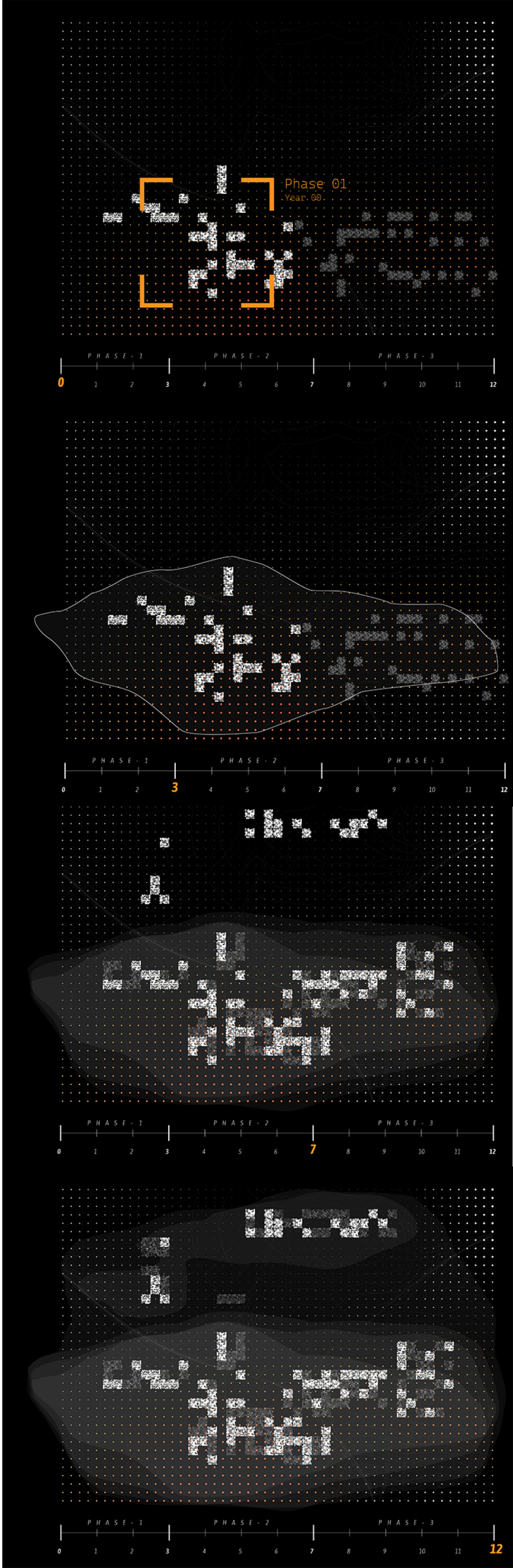


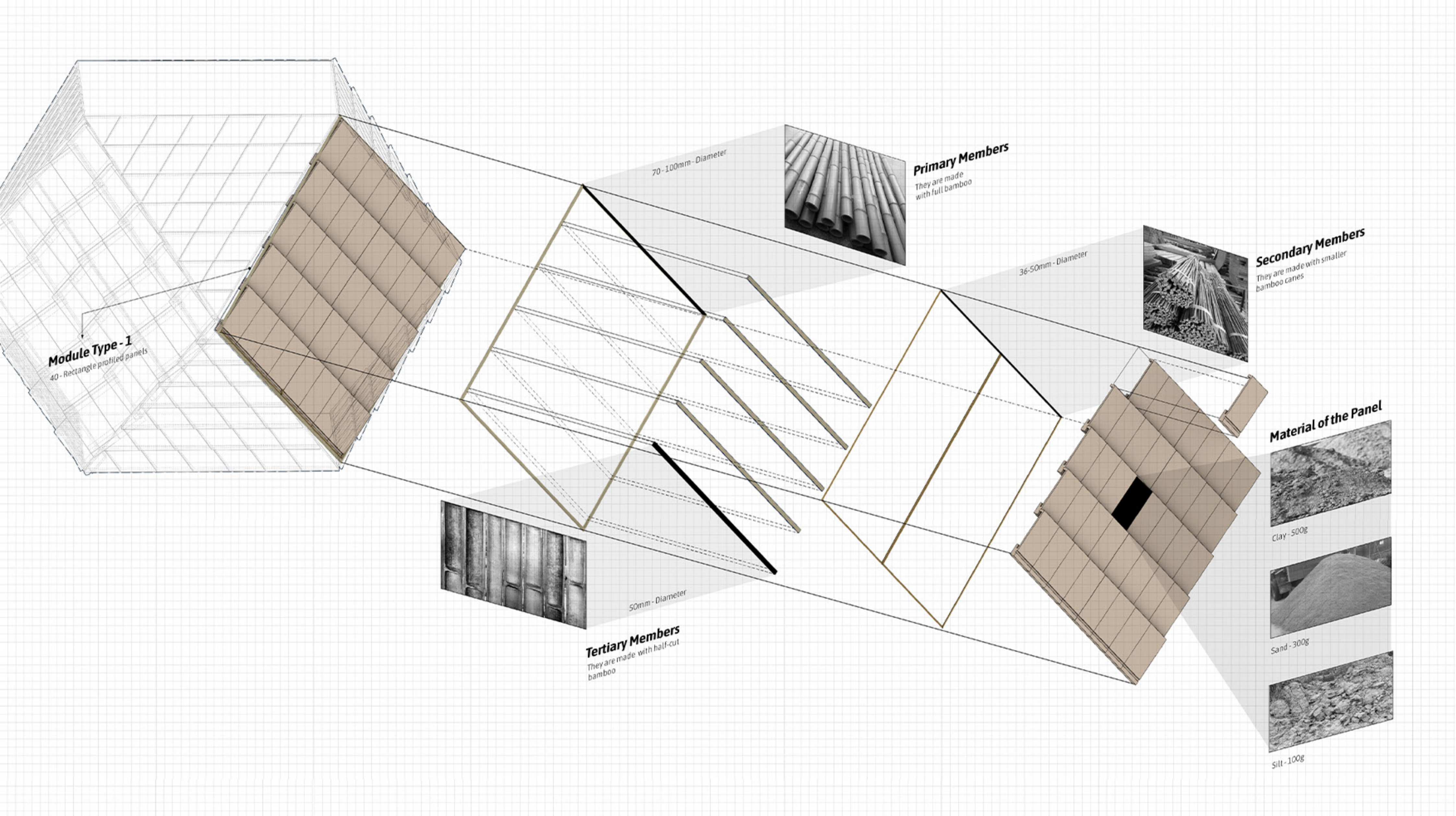
Stage 3. Primary Structural Frame

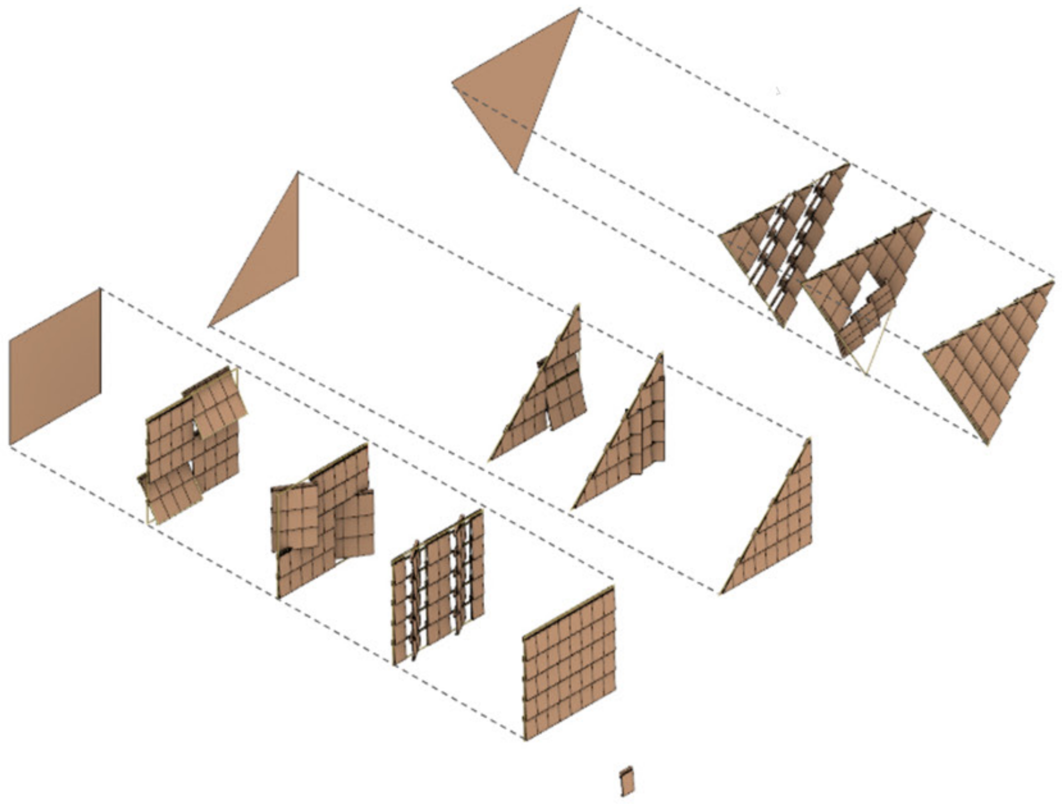
Stage 4 . Occupation & Adaptation

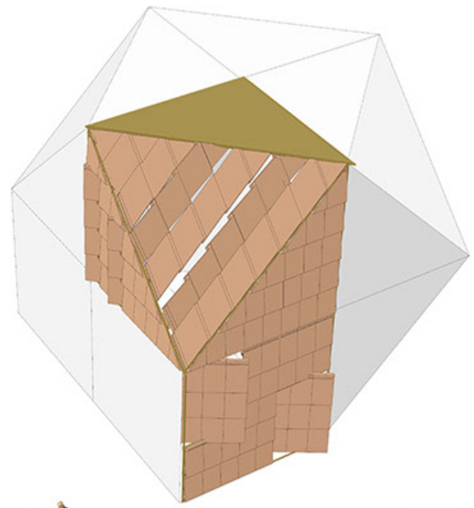
Stage 5. Expansion / Removal

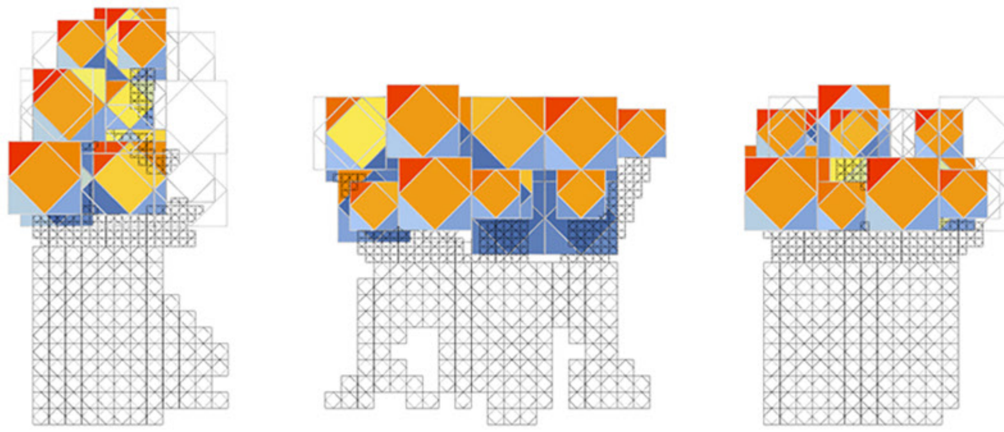
Stage 6 . Regeneration

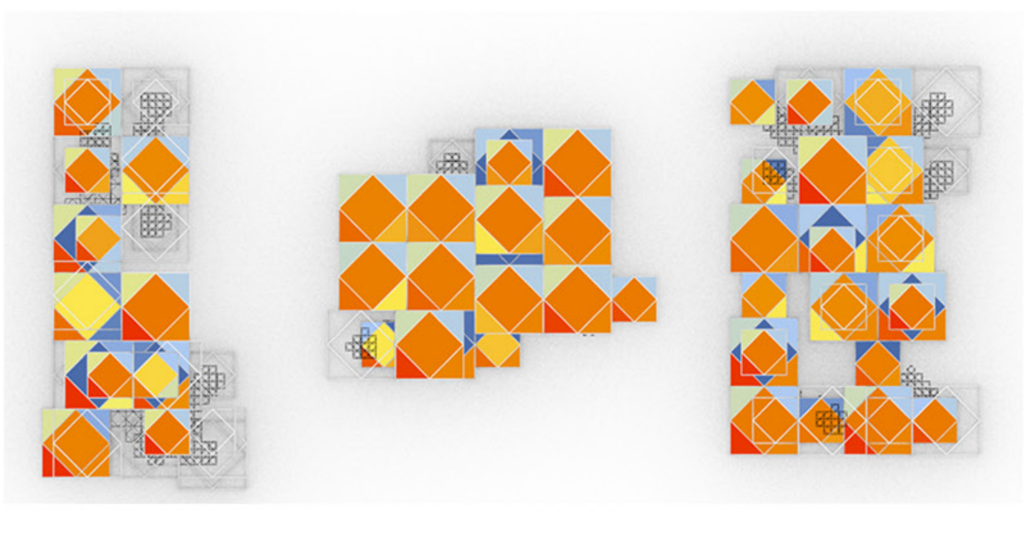












The project is developed as a kit-of-parts system combining modular earthen panels with a bamboo structural framework. Primary bamboo members form the load-bearing structure, while secondary elements distribute forces and support panel integration. Interlocking panels reinforced with natural fibers enable tool-free assembly, repair, and incremental expansion. Panel density and orientation respond to solar exposure, balancing shading, thermal mass, daylight, and ventilation to support scalable and climate-responsive construction.

2 EMERGENCE

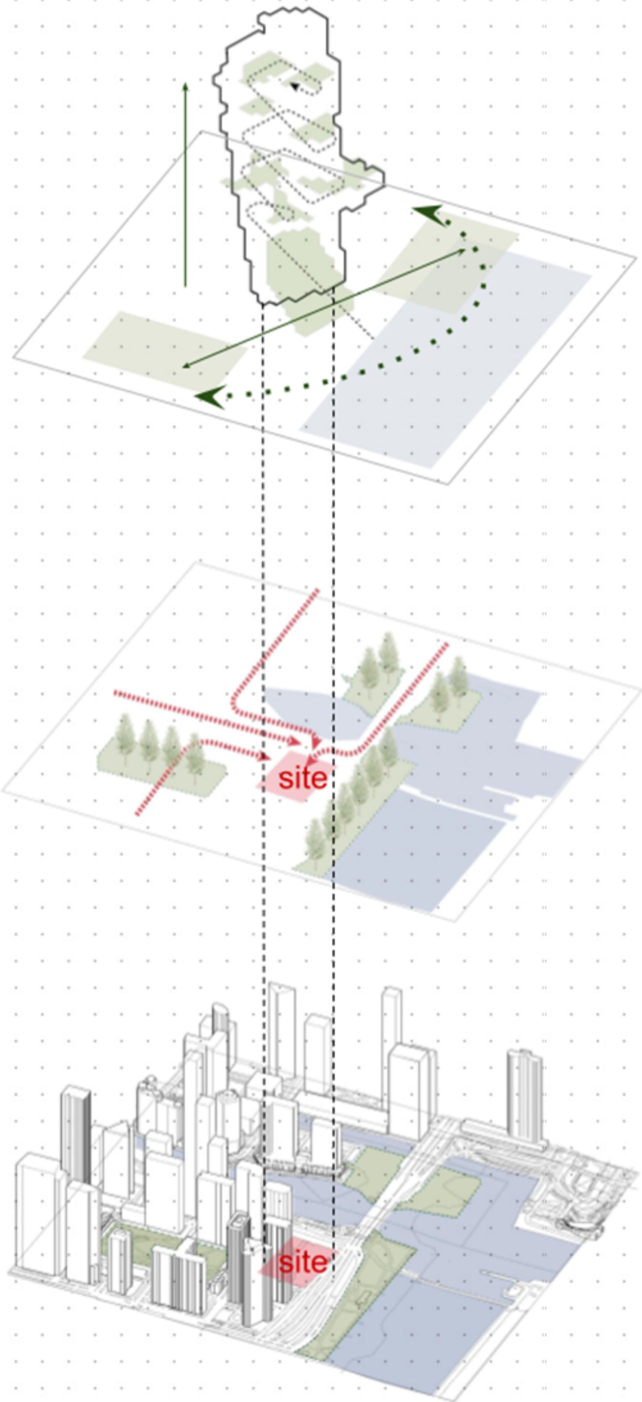
Type : Research Project at Architecutral Association

Location : Chicago

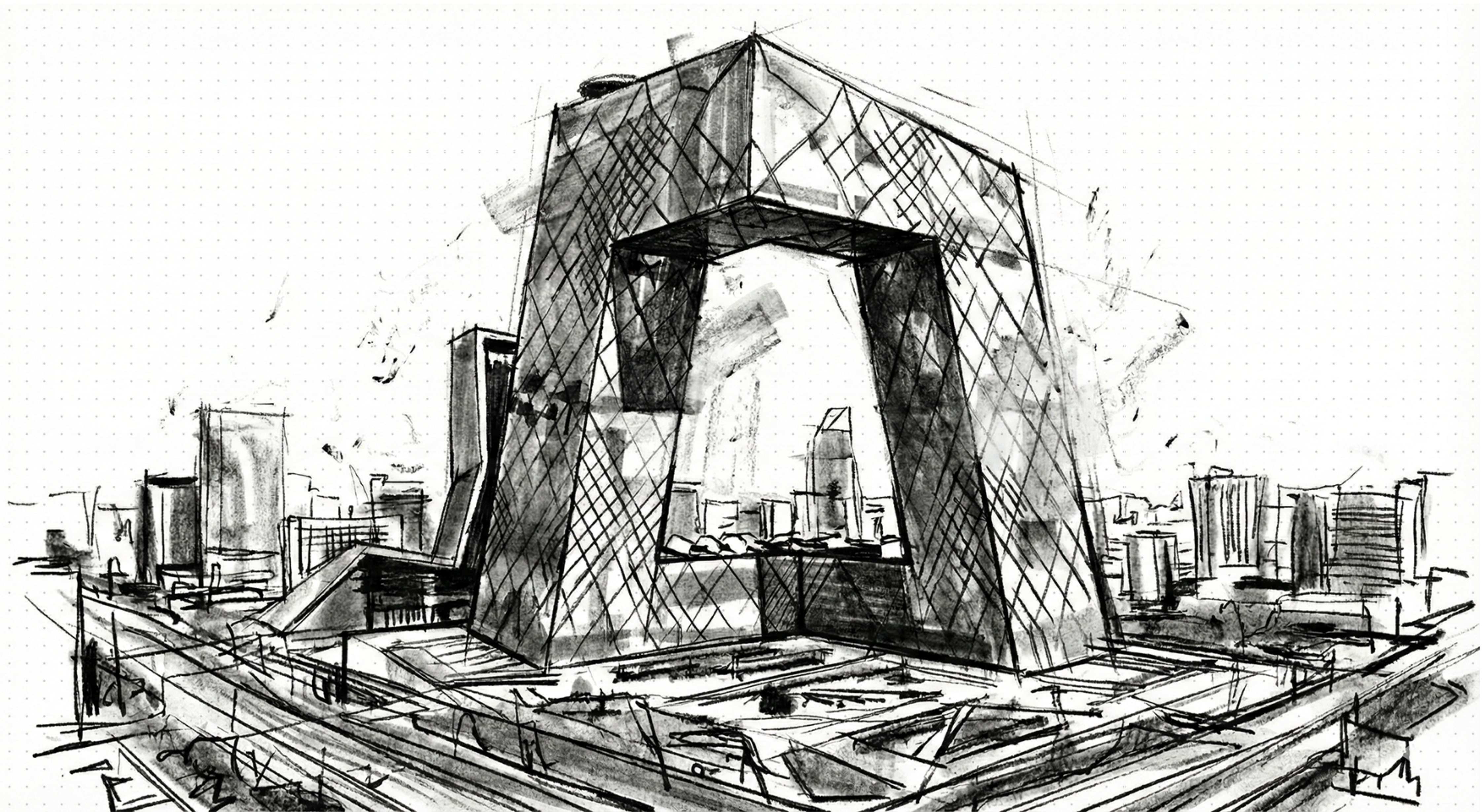
Skill Set : Rhino|Karamba|Ladybug|WallaceiCFD.

Abstract : This project explores a multi-objective, algorithm-driven workflow for high-rise tower design, inspired by the CCTV Headquarters and reinterpreted for Chicago's lakefront context. Evolutionary computation is used to generate and optimise tower massing in response to environmental forces, structural efficiency, and spatial connectivity.Looped structural logic informs adaptable modular systems, while genetic operations refine wind performance, solar control,and volumetric efficiency. A morphogenetic façade strategy is evaluated through material research and CFD simulations, balancing structural robustness, environmental responsiveness, and architectural expression.

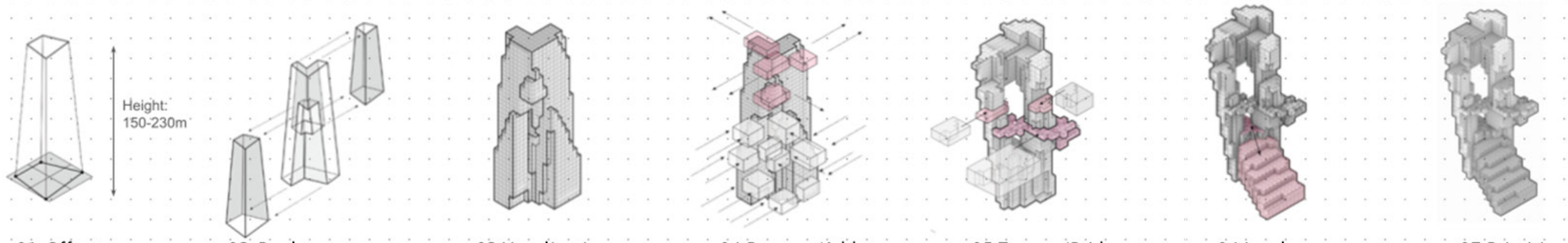
BUILDING MORPHOLOGY CONCEPT



- The building morphology acts as a mediator and extends vertically.
- Integrate movement patterns with the surrounding urban fabric.
- The green belts surrounding the site are fragmented by roads and adjacent buildings.



Primitive Construction



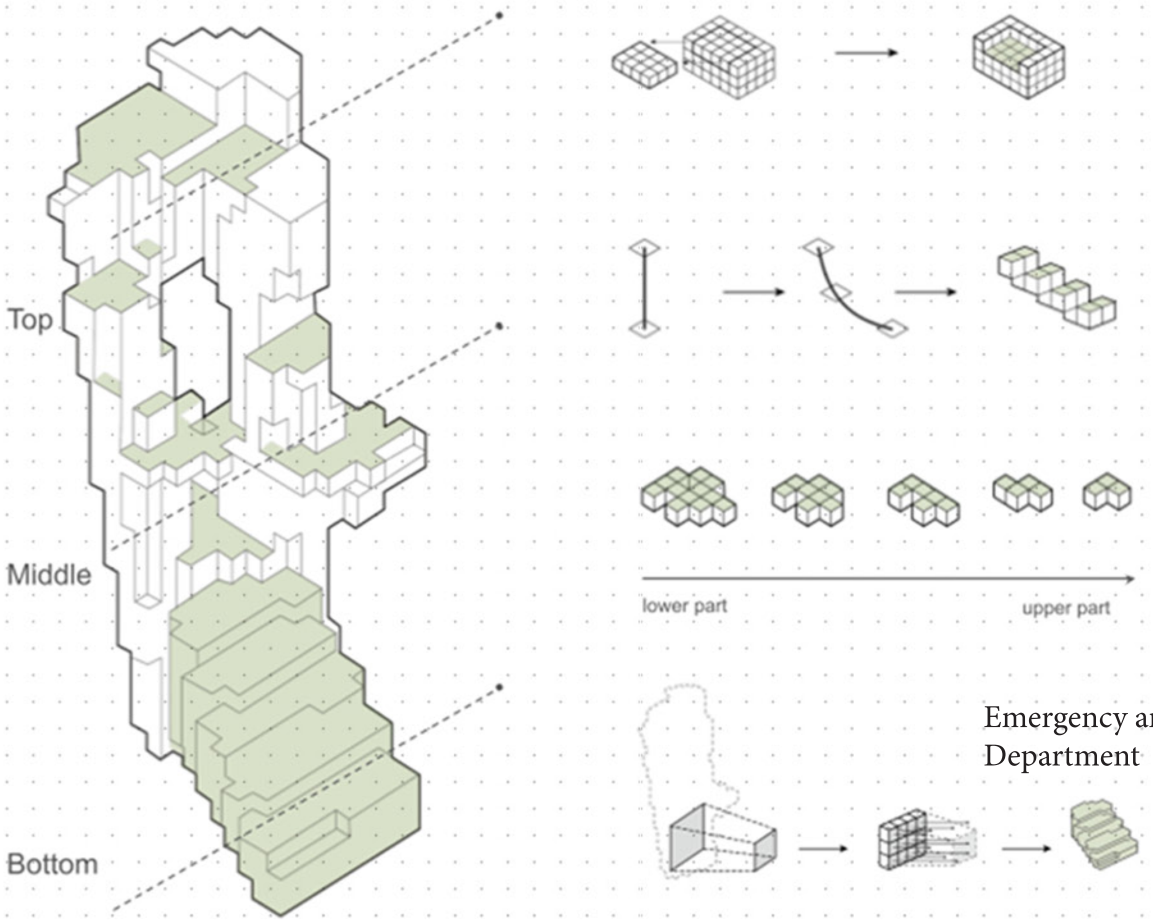
01. Offset 02. Boolean 03.Voxelization 04.Remove/Add 05.Terrace/Bridge 06.Landscape 07.Primitive

The massing strategy begins with a simple vertical primitive defined by height constraints between 150 and 230 meters. This base volume establishes structural continuity and proportional clarity, allowing subsequent transformations to remain legible and systematic rather than arbitrary.

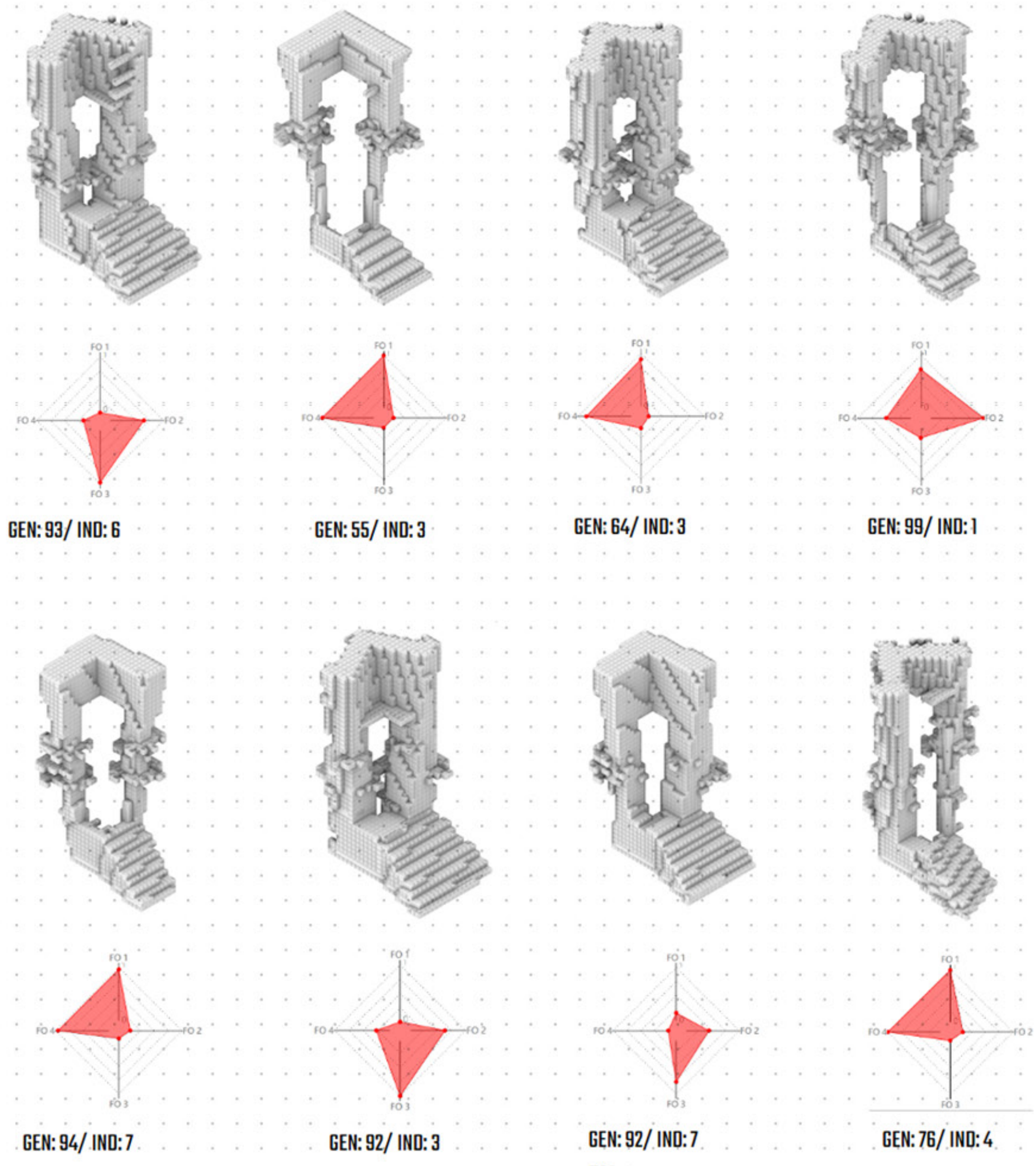
The form is progressively manipulated through a sequence of controlled operations. An initial offset introduces directional bias and breaks vertical monotony. Twisting is then applied to improve wind performance while increasing visual permeability and orientation. Boolean operations carve the mass to generate voids that later become social and environmental interfaces.

The resulting geometry is translated into a voxelized system, enabling precise control over density, porosity, and structural logic. This discretization allows additive and subtractive processes to respond to performance feedback, carving terraces and overhangs while preserving overall stability.

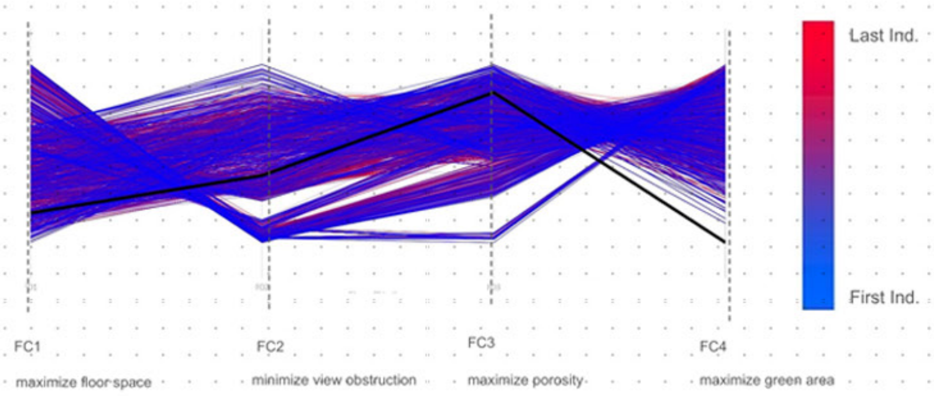
At upper levels, terrace and bridge elements are introduced to create elevated communal spaces and horizontal connections. At the lower portion, the structure expands into a landscape-integrated base, blurring the boundary between ground plane and tower. The final primitive is no longer a singular object but an assembled system of interdependent spatial components.



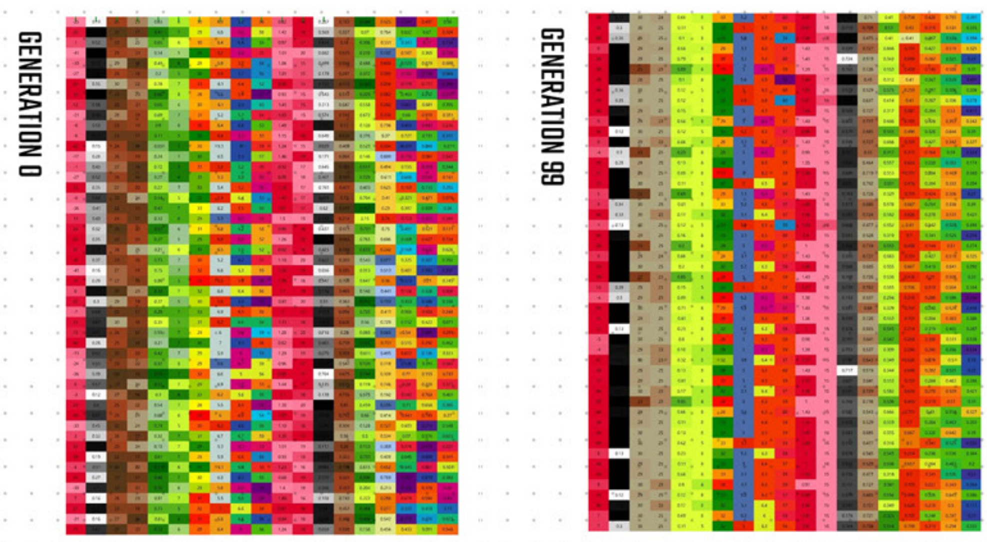
Best Performing Phenotypes



Best Performing Phenotypes

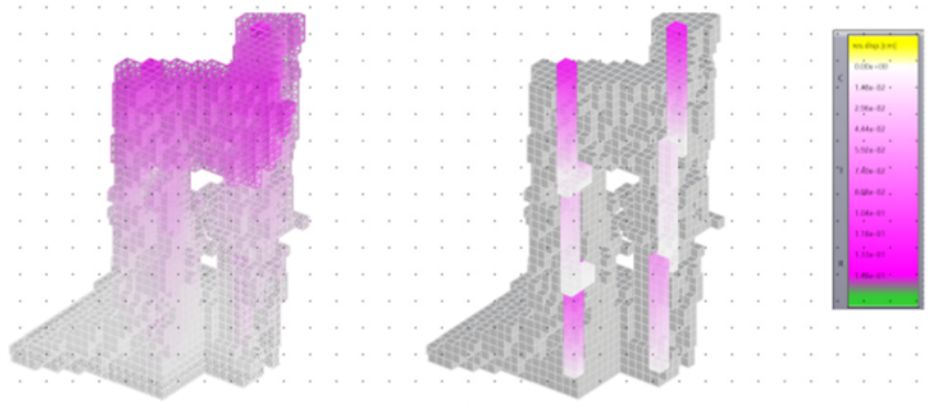


Gene Analysis

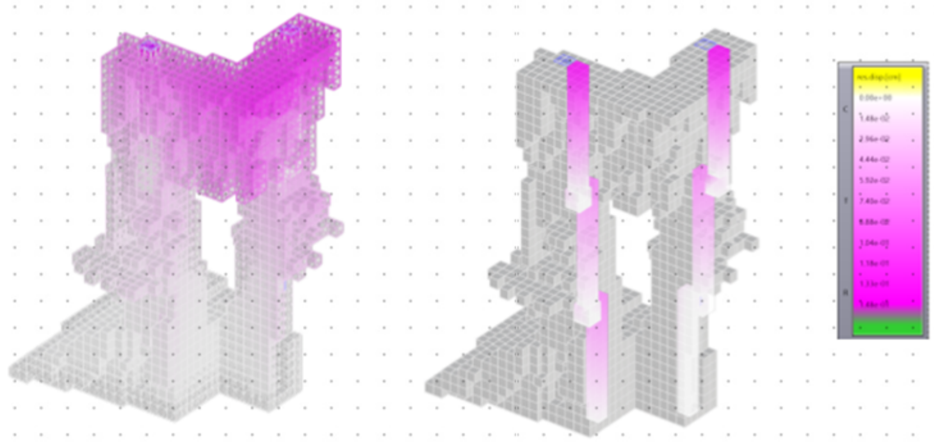


Structural Analysis

Gen: 29 Ind: 28

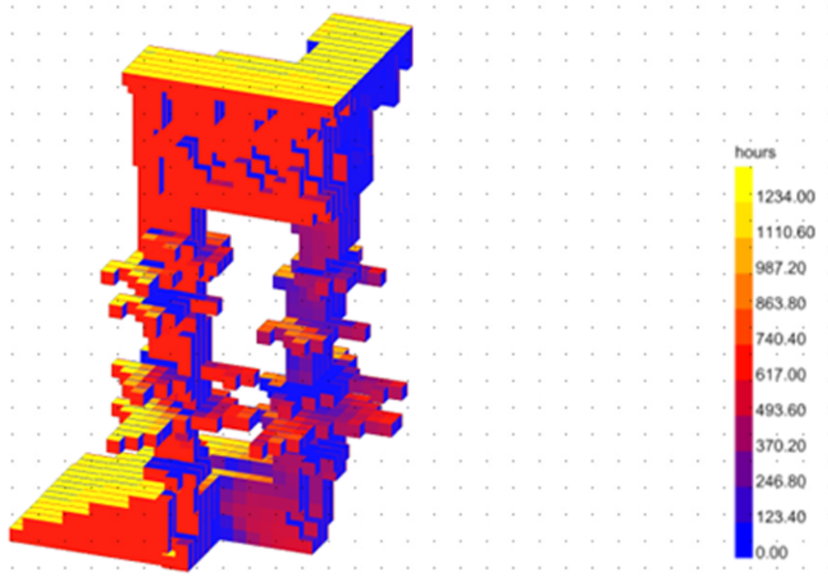


Gen: 94 Ind: 07



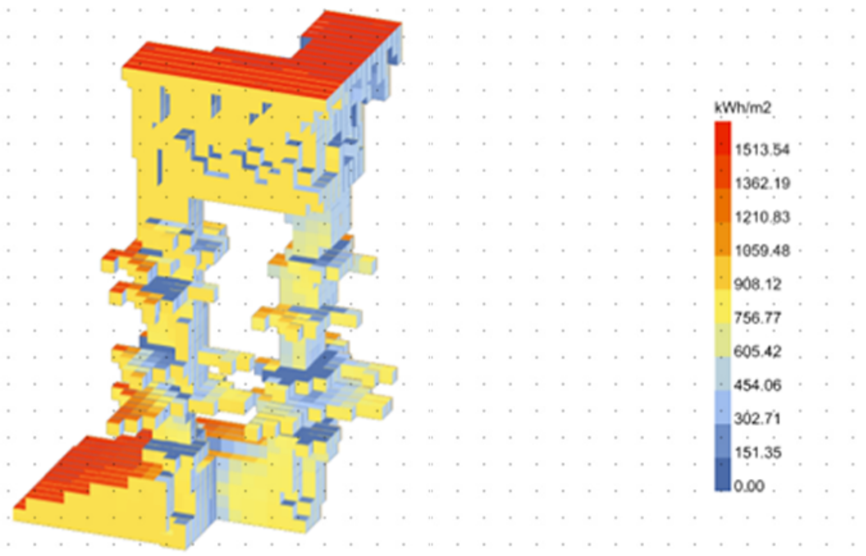
Post Simulation Analysis

Outpatient



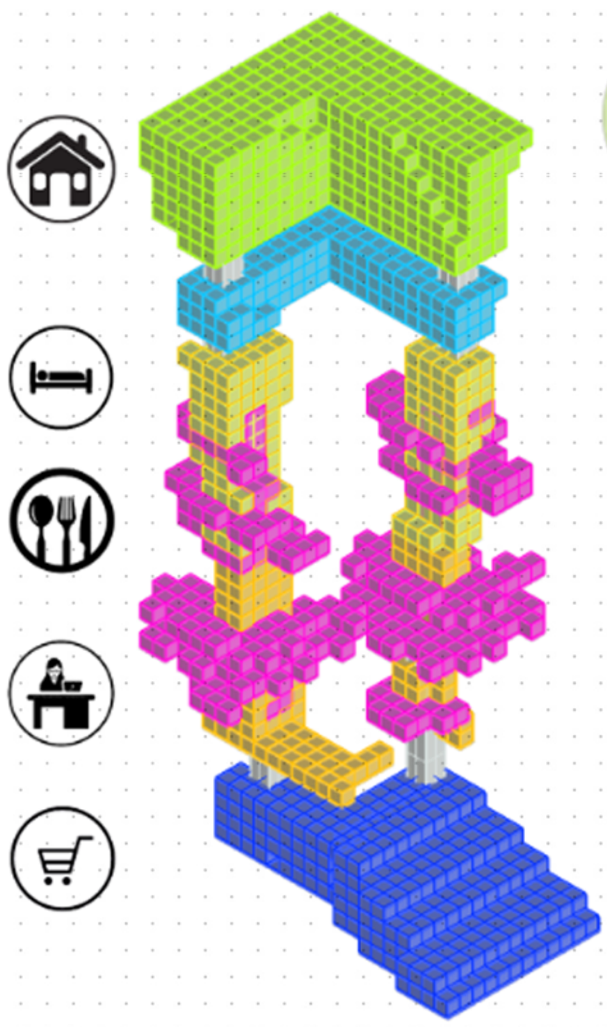
Test 1 :Solar Hours
Amount of average of hours is 333.8 h.

Fig.Solar Radiation Analysis |Gen 29:Ind 02



Test 2 : Solar radiation
Amount of radiaion is 468.5 kWh/m2.

Fig.Solar Radiation Analysis |Gen 29:Ind 02



Building Program

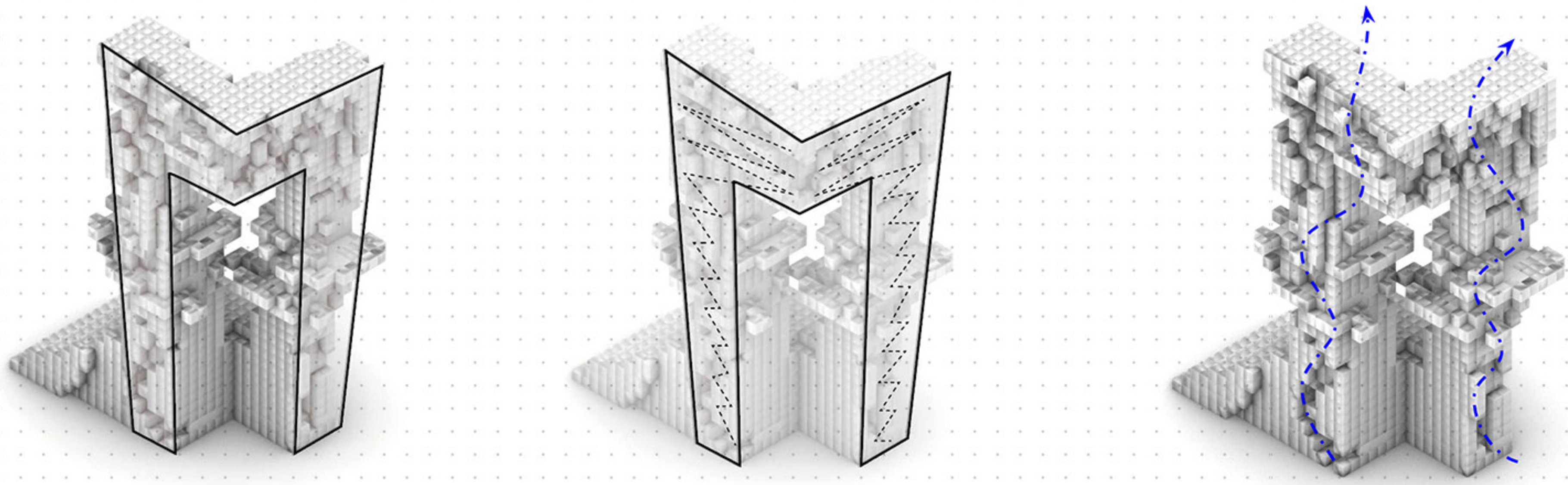
The project is conceived as a mixed-use vertical structure integrating commercial, office, hospitality, entertainment, community, and residential functions. Program distribution follows a clear gradient from public to private, ensuring legibility and efficient vertical circulation. Retail and commercial spaces activate the ground level and connect the building to the surrounding urban fabric. Offices, entertainment areas, and hotel programs occupy the middle levels, creating overlap between professional and leisure activities. Residential units are located at the upper levels, supported by community services such as childcare and healthcare facilities, providing everyday infrastructure while maintaining privacy.

Structural and Environmental Performance

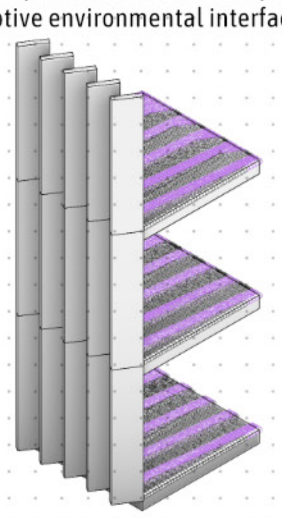
Structural analysis was conducted through iterative simulations to evaluate displacement and load behavior. Maximum displacement remains limited to 0.14 cm, supported by 1.20 m thick concrete cores and metallic I-shaped beams and columns. Structural members vary by height, with larger sections in lower zones and reduced sections above, ensuring material efficiency.

Post-simulation environmental analysis evaluated solar exposure and radiation. Average solar exposure reaches 327.7 hours, while solar radiation measures 459.4 kWh/m^2. Results confirm that voxel-based porosity and mass articulation effectively balance structural stability, daylight access, and thermal performance

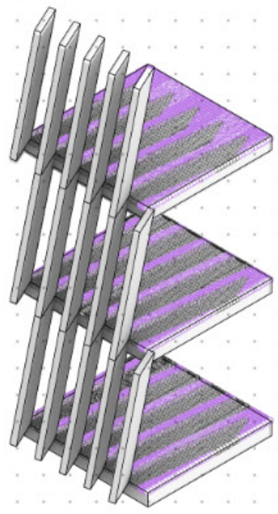
Facade Devlopment



The façade strategy is derived from the tower's voxel-based morphology, translating mass articulation into a responsive architectural envelope. Panel density, depth, and orientation vary vertically to address privacy, daylight, and environmental exposure. Public and commercial levels remain more open to encourage visual permeability and urban interaction, while residential zones increase opacity for comfort and privacy. Shading patterns are optimized to reduce solar gain while maintaining views. The system combines prefabricated panels, metallic framing, and glass infill for structural clarity and construction efficiency. CFD analysis confirms that the articulated façade reduces wind velocity and turbulence compared to a smooth envelope, functioning as an adaptive environmental interface.



Pattern 1
Shadow projected: 55%



Pattern 2
Shadow projected: 43%

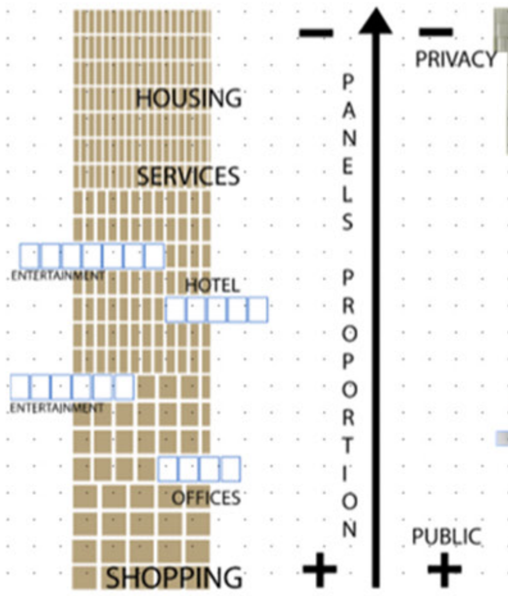


Fig.Façade Privacy Hierarchy

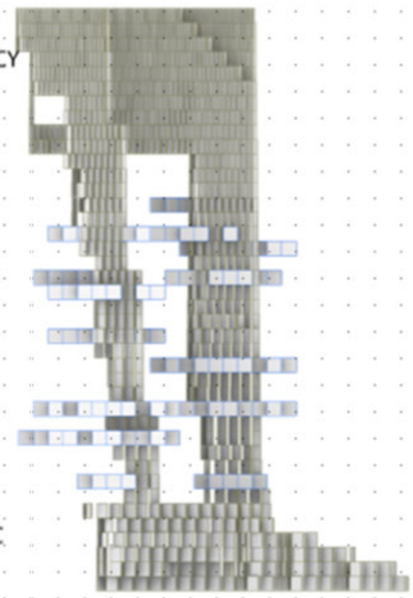


Fig.Façade Pattern

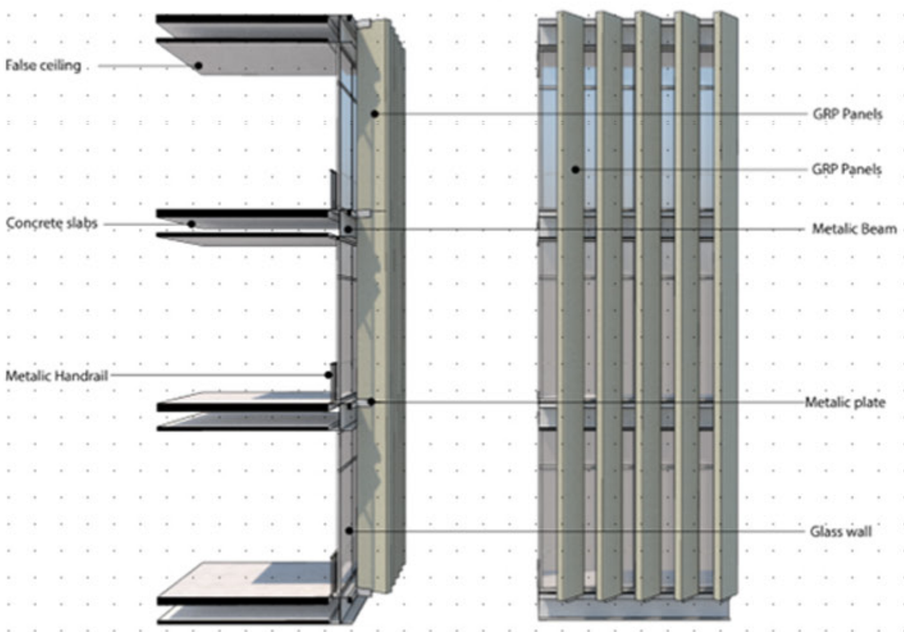


Fig.Facade Sectional Structure

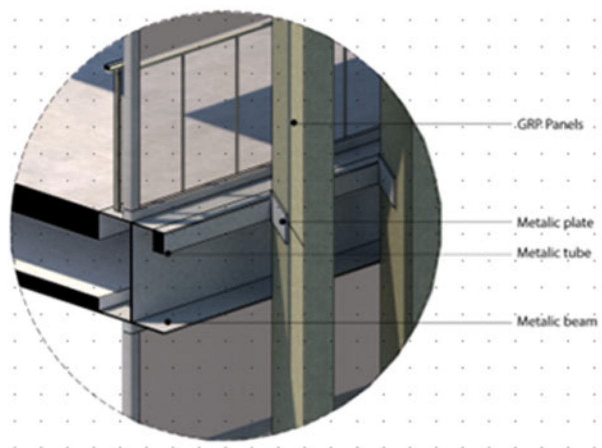
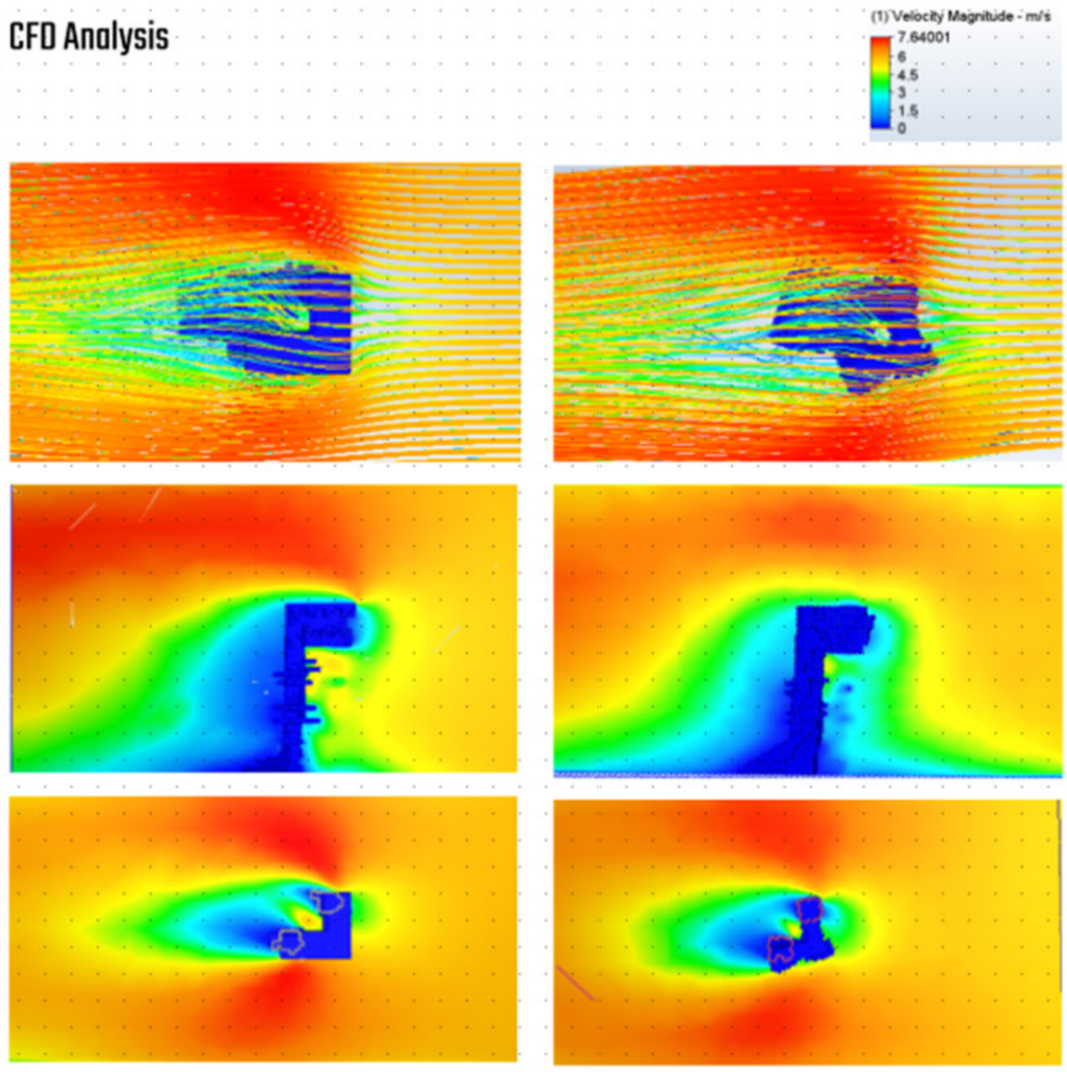


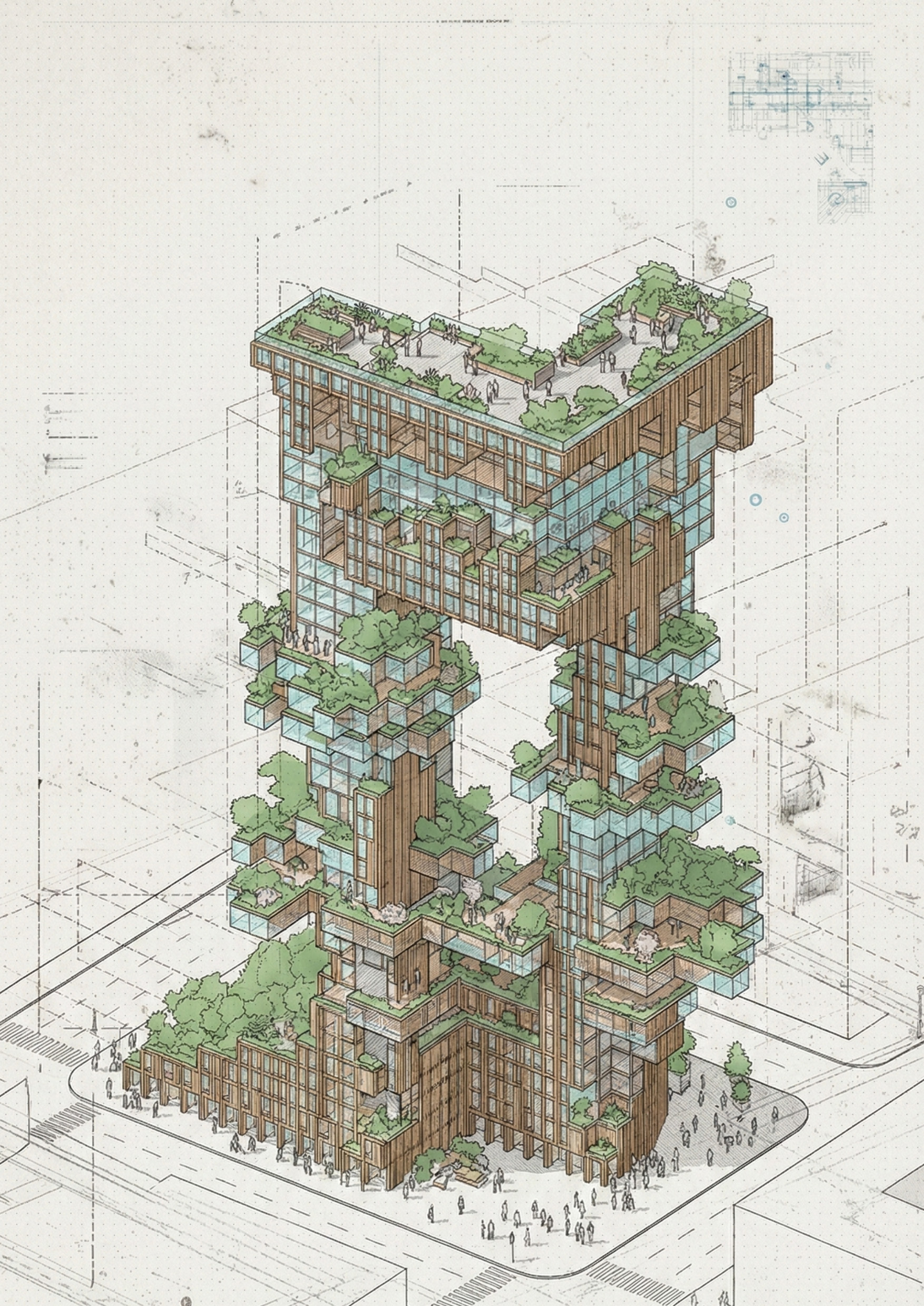
Fig.Facade Connection

CFD Analysis

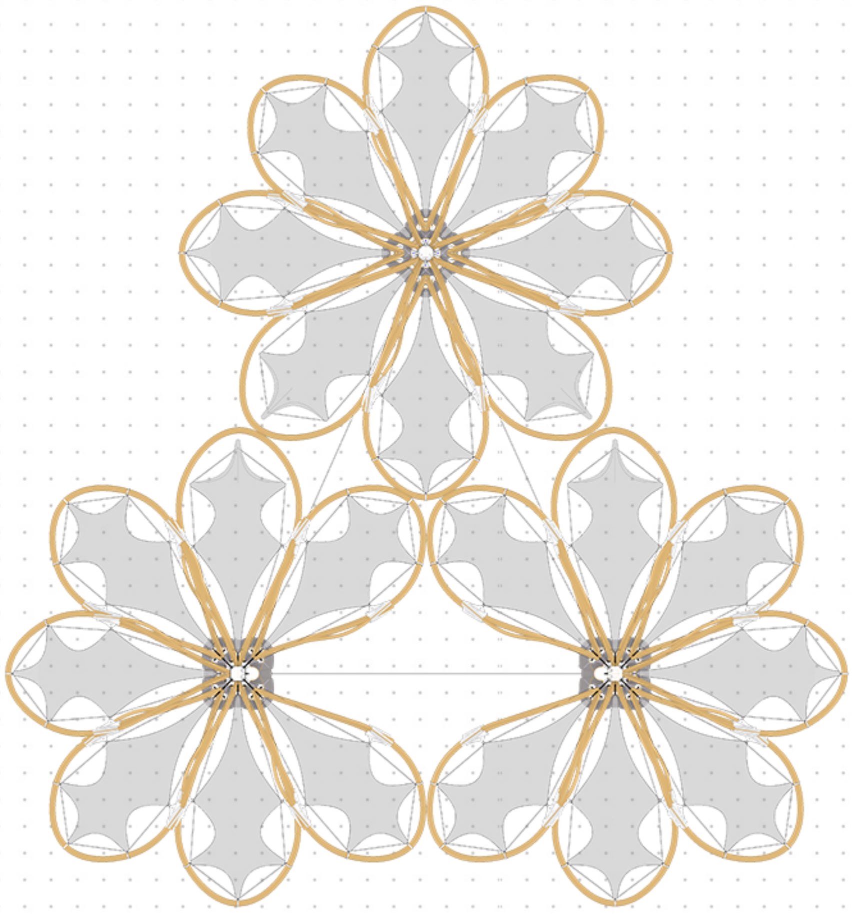


With Facade

Without Facade



3 Densi Flora



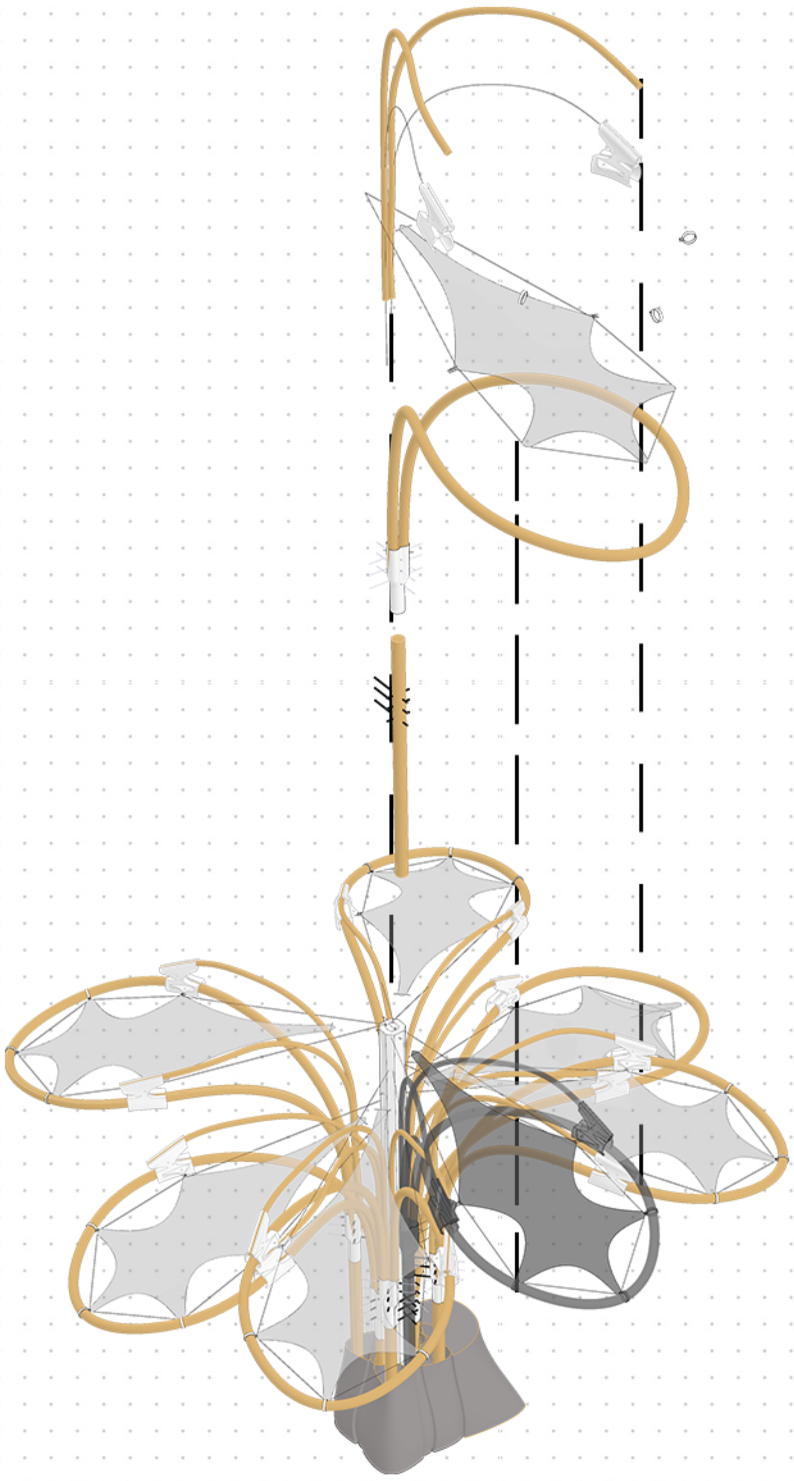
Type : Experimental | Built Pavillion| AA [EmTech] x Populous

Location : Bedford Square | London

Skill Set : Rhino | Karamba | Unity | Digital Fabrication | Manufacturing

Team : Fabrication

Abstract : In collaboration with Populus, Last year's EmTech design-build workshop culminated in constructing a full-scale (1:1) pavilion at Bedford Square, prominently featuring rattan as the primary material. Recognizing rattan's natural strength, flexibility, and unique bending characteristics, the workshop involved extensive computational analysis and digital experimentation to rigorously test its structural capacities. By strategically twisting and interlocking individual rattan elements, the design transformed a collection of inherently unstable modules into a coherent, structurally stable aggregation. The pavilion effectively demonstrated the integration of advanced computational methodologies with the precise craftsmanship needed to manipulate natural materials, showcasing an innovative approach to sustainable architecture and digital fabrication.




Please do not

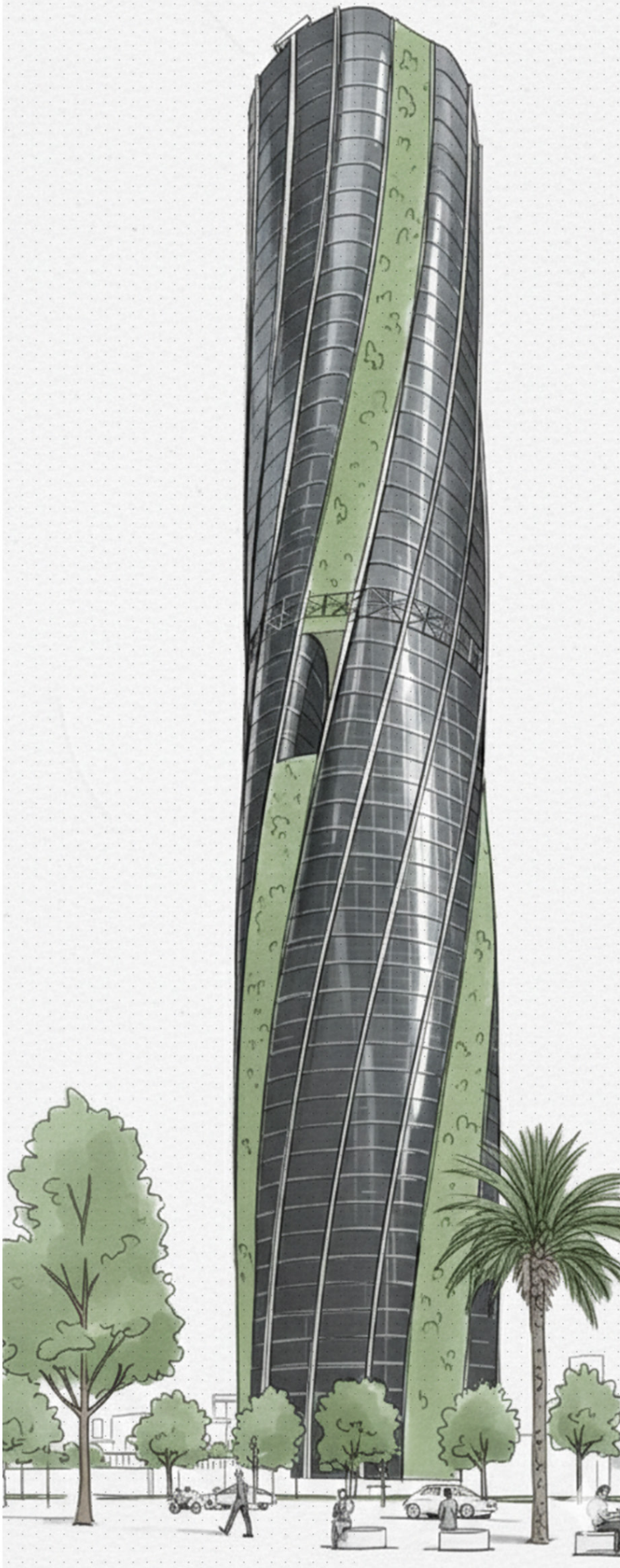
4 Microtopia

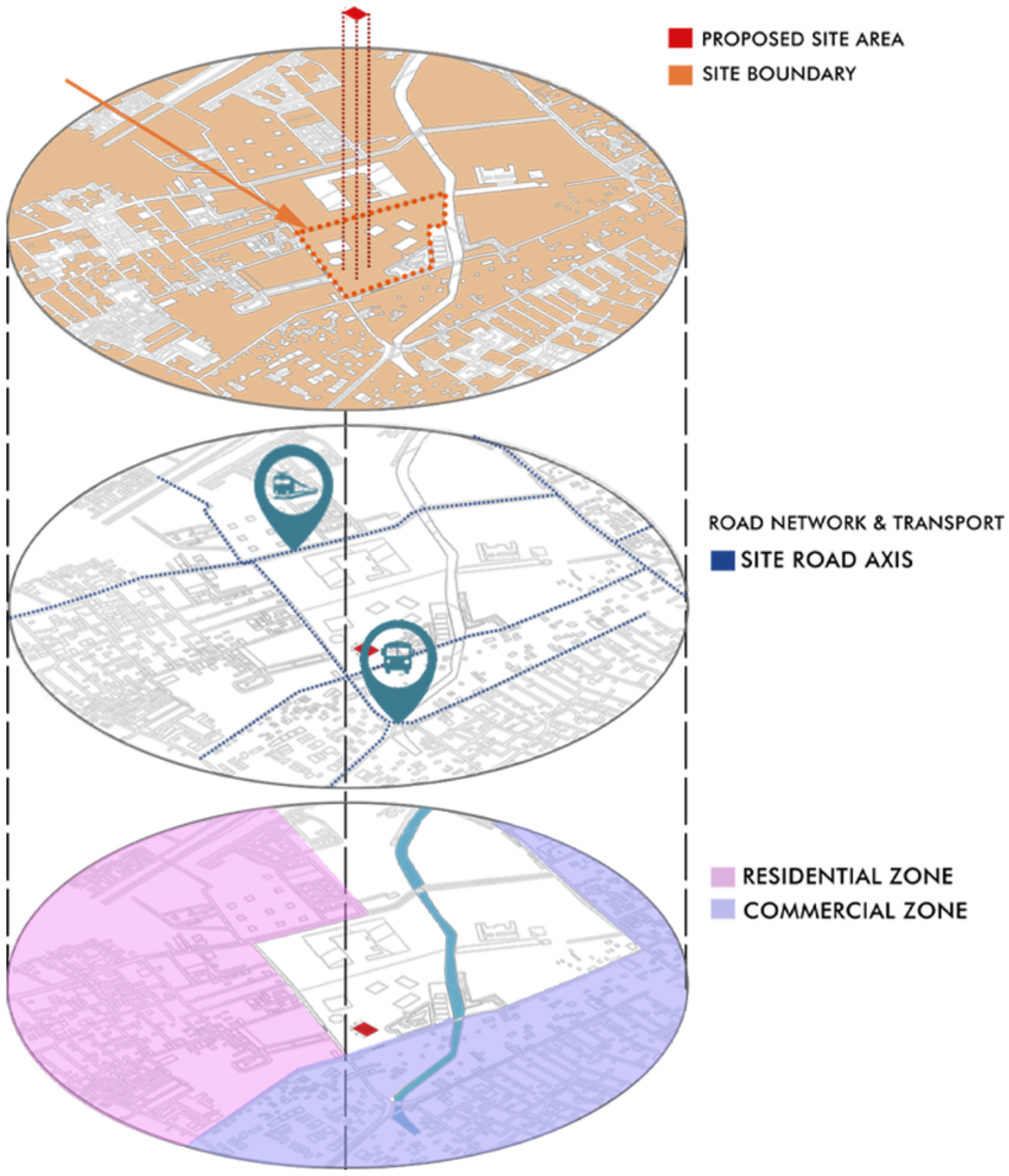
Type : Bachelors Thesis at Crescent School of Architecure

Location : Chennai| India

Skill Set : Rhino | Autocad|Revit |Lumion | Autodesk CFD |

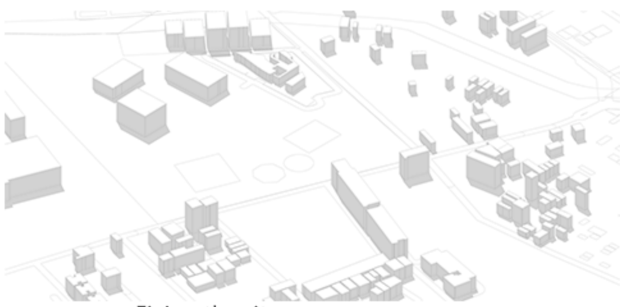
Abstract : Microtopia is a mixed-use skyscraper conceived as a vertical urban ecosystem that integrates residential, commercial, and recreational functions within a single high-rise structure. Designed as a response to increasing urban density, the project explores self-shading architecture inspired by natural forms to enhance environmental performance. A continuous twist of two degrees per floor generates dynamic shading, reducing solar heat gain while creating a distinctive architectural identity. The building incorporates sustainable strategies such as green façades, natural ventilation, daylight optimization, energy-efficient systems, and advanced water management to minimize environmental impact. Spatial planning prioritizes user comfort through generous ceiling heights, flexible layouts, and integrated community amenities, fostering a self-sufficient vertical neighborhood. Structurally, a hybrid system of shear walls, an internal core, and concrete-filled steel tube columns supports the complex twisting geometry. Microtopia proposes a future-forward model for high-density urban living, where architectural form, sustainability, and social interaction converge to create a resilient and efficient vertical community.



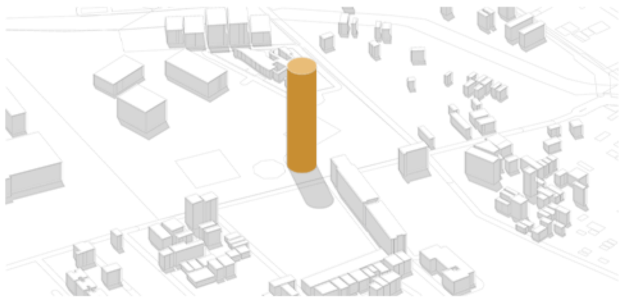


The aim is to design a mixed use skyscraper with a convex space for the people , within a amplified Neighbourhood. The prime objective of their design is to provide a beneficial built – environment to the current scenario of Delhi communitySkyscraper Design is not just a luxury but also a need. Skyscraper Design is admirable with its condensation of the form, functions, and services of the building in a relatively smaller footprint. But that hasn't restricted architects from creating beautiful iterations of skyscrapers, especially in India. Skyscraper Design harmonises the vertical volume while considering all of the residents and tenants needs. Skyscraper Design don't have to be simple blocks of rectangles, and to contradict these notions, the following are 20 examples of beautiful Skyscraper Design in India.

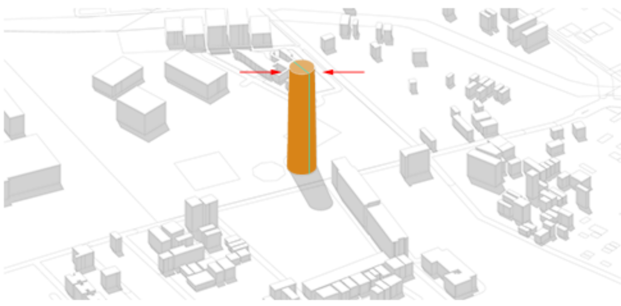
Chennai, the capital city of Tamil Nadu, boasts a skyline adorned with magnificent skyscrapers that stand as symbols of architectural brilliance and urban development. Among these towering structures are several notable buildings that have become landmarks in their own right. Chennai being a coastal city and an essential connectivity and commercial hub attracts a lot of visitors and even settlers each year. And the information they need to start a life in Chennai includes details of its incredible skyline. That can help them settle down, set up work and avail themselves of the city's recreational destinations.



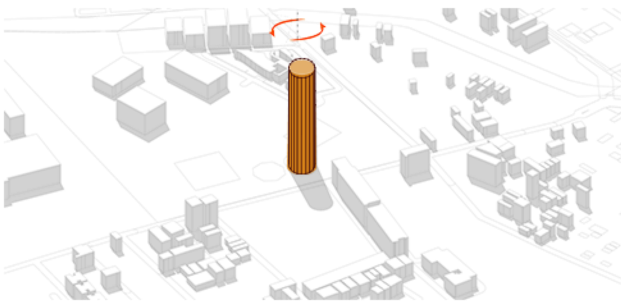
Fixing the site area.
And Building foot print centred on site



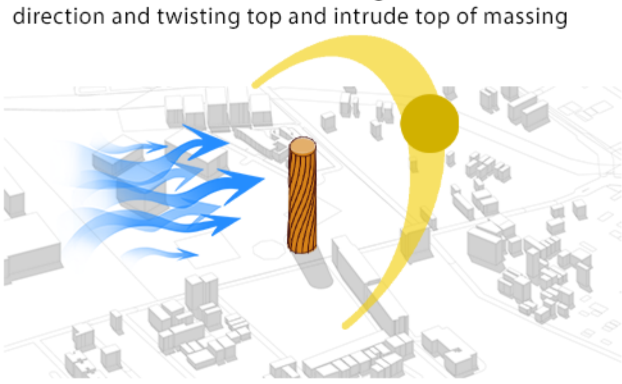
Building foot print extruded up.
And adding exterior frame

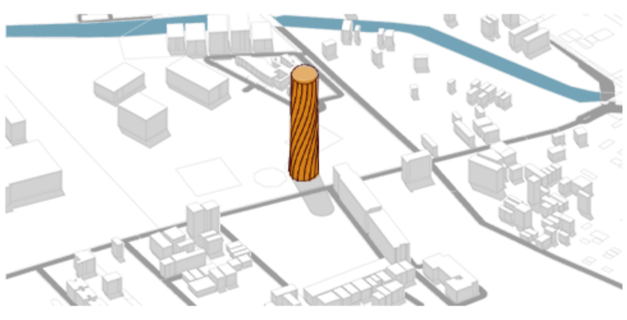


Orientation of crevasse to align east-west
direction and twisting top and intrude top of massing

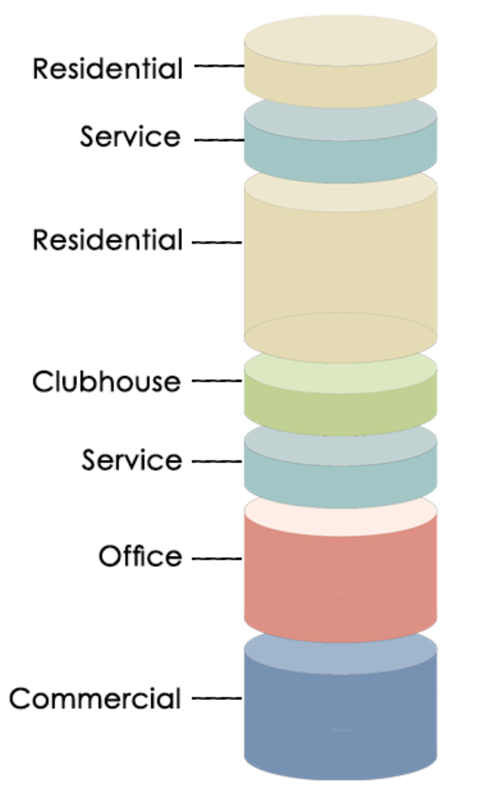


Twisting exterior frame of the building and
make the form as tappernig



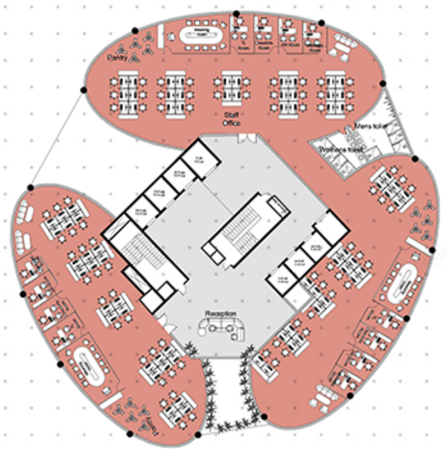


Building massing

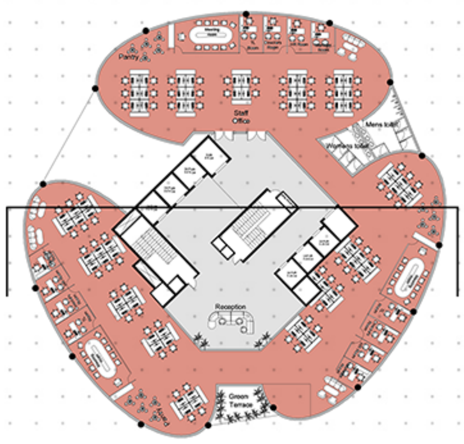


This project investigates the skyscraper not as a singular object, but as a finely tuned vertical ecosystem. The design is driven by the stacking and interlocking of programs, services, and infrastructure, treating the tower as a living diagram of urban life rather than a neutral container of floors.

The tower is organized around a compact core structure that anchors circulation, services, and life-safety systems. Around this core, flexible floor plates evolve in response to programmatic needs. Office Plan Type 1 and Type 2 prioritize efficient work environments with adaptable layouts, while residential three-bedroom units introduce privacy, orientation, and domestic scale at higher levels. These program shifts are expressed formally through subtle changes in plan geometry and vertical articulation.

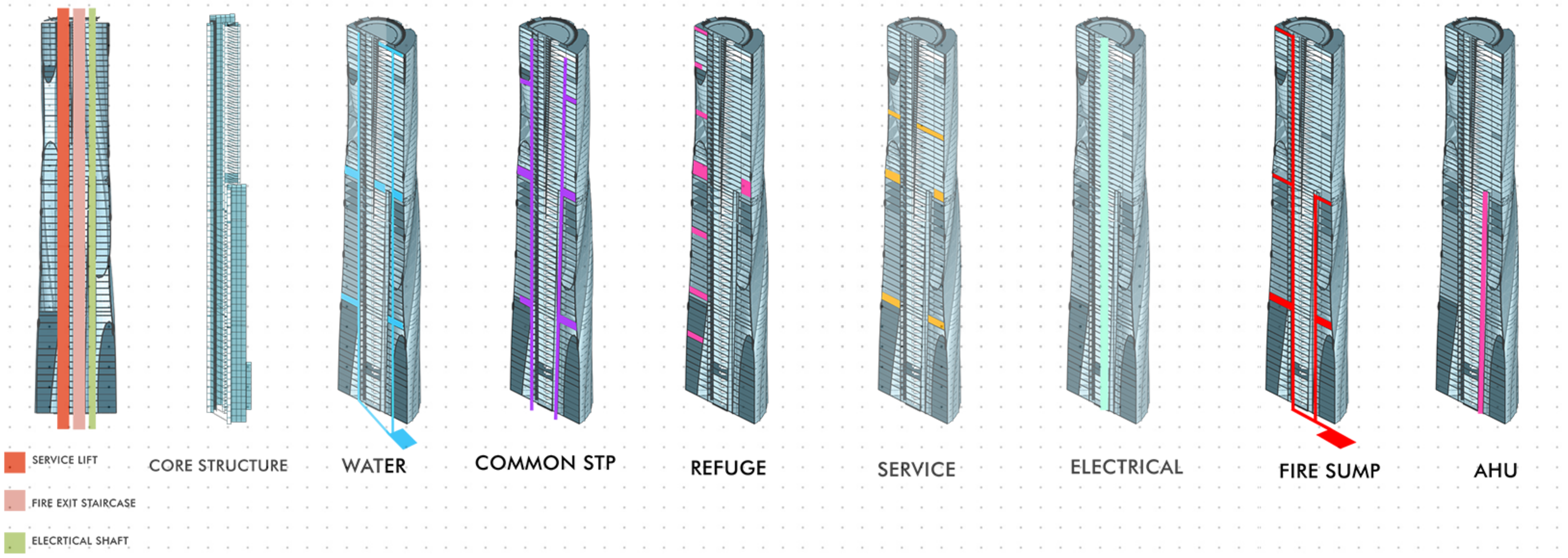


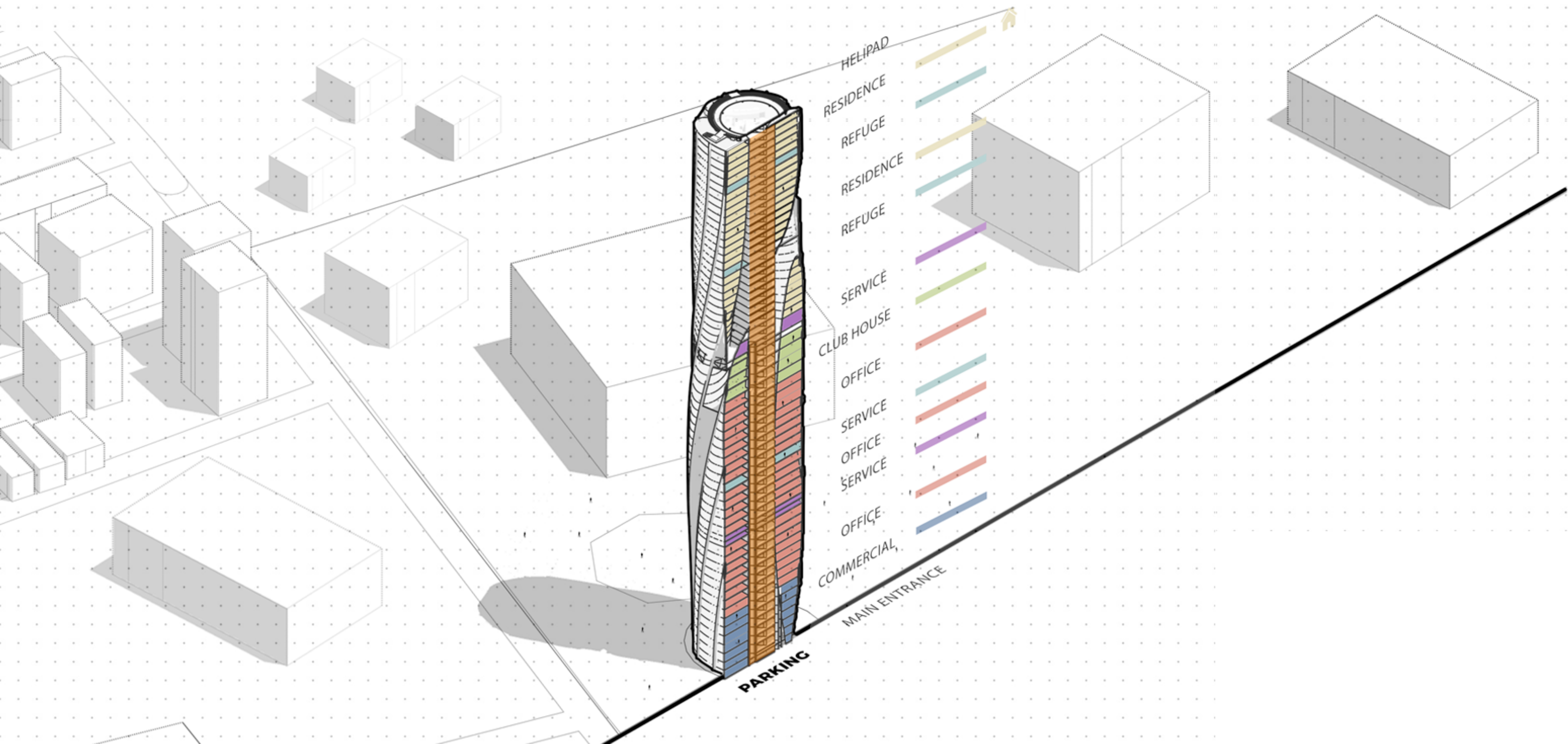
Office Plan Type 1



Office Plan Type 2

Residential - 3 Bedroom Units





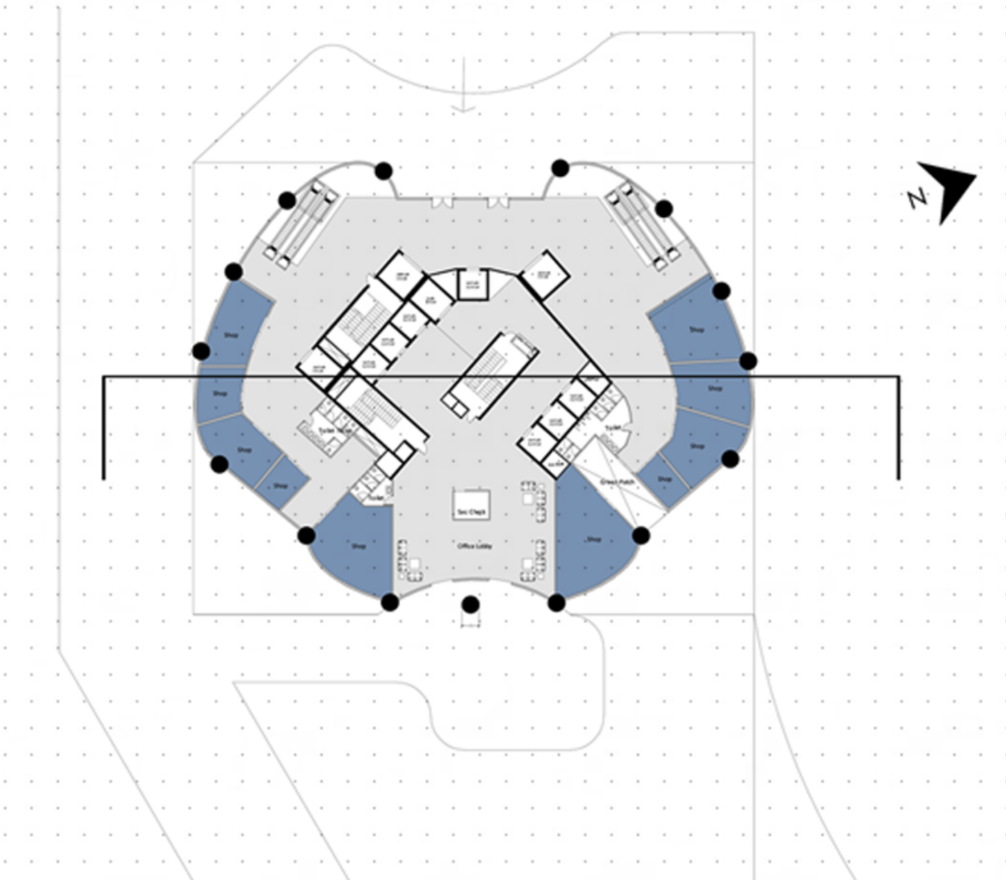
A key focus of the project is the clarity of vertical systems. Dedicated stacks for water, refuge floors, common services, electrical systems, fire sump, and AHU are explicitly mapped and separated, allowing the building to function as a legible machine. Rather than concealing infrastructure, the design celebrates it as an organizing principle that shapes spatial experience and performance.

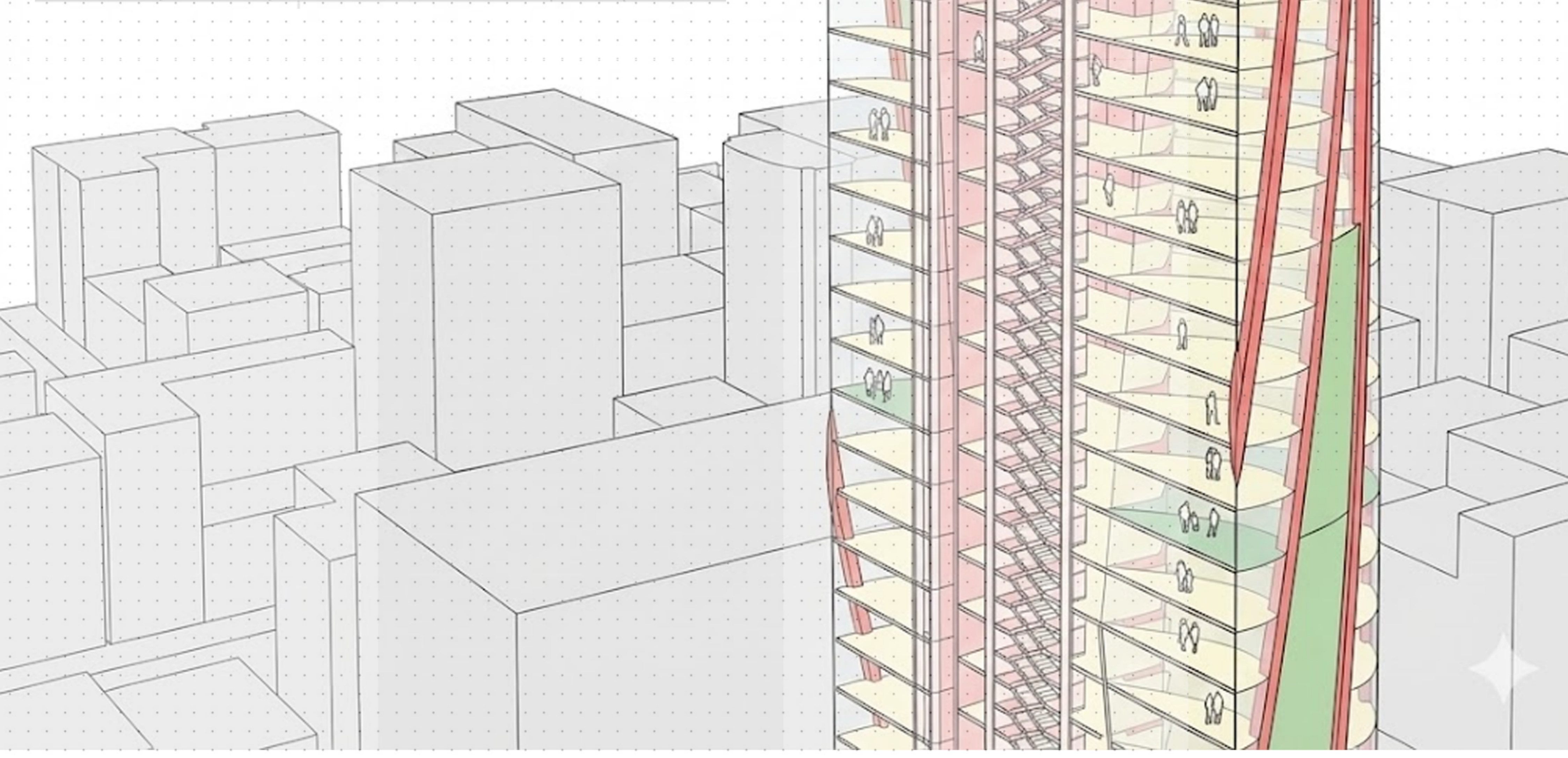
Program distribution follows a gradient from public to private: commercial and shared functions activate the lower levels, offices occupy the mid-rise zone, and residential units rise above, benefiting from light, views, and reduced urban noise. Service floors and refuge levels are strategically inserted to ensure safety, maintenance efficiency, and regulatory compliance without disrupting continuity.

Residential - 2 Bedroom Units

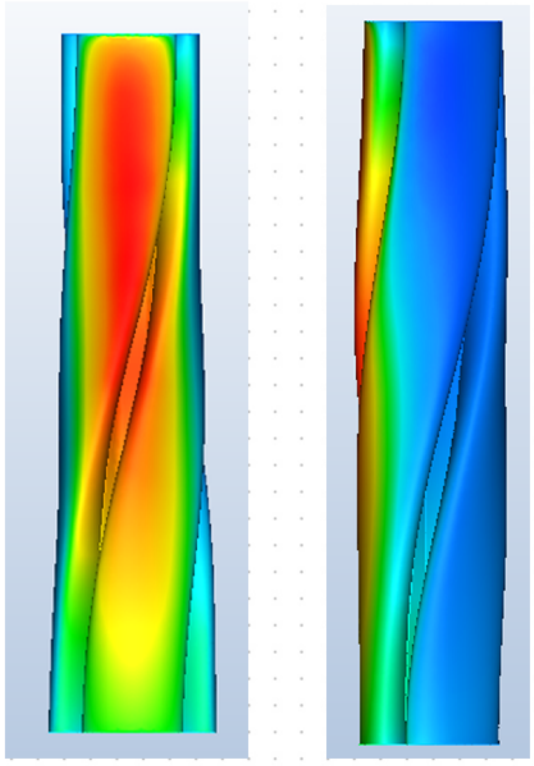
Residential - Penthouse Units Level 1

Residential - Penthouse Units Level 2

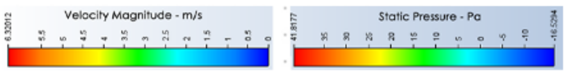




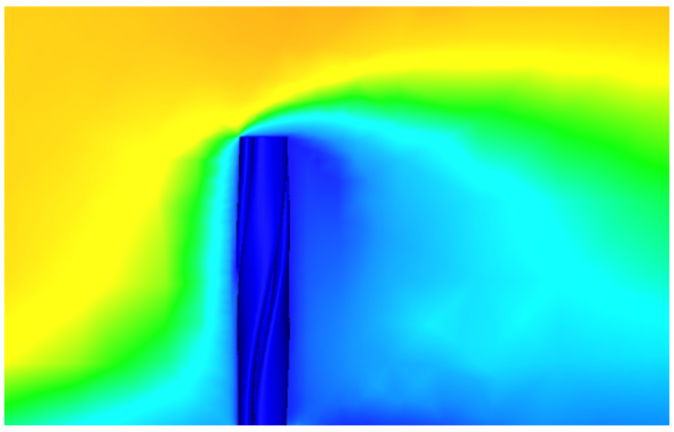
STRUCTURAL DESIGN



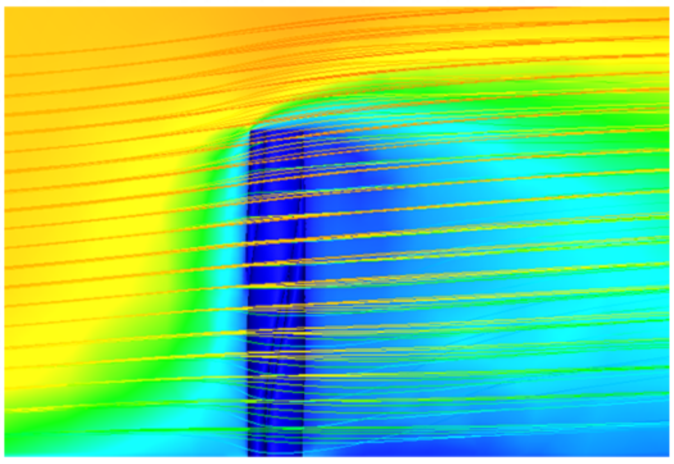
Wind Load Surface Pressure



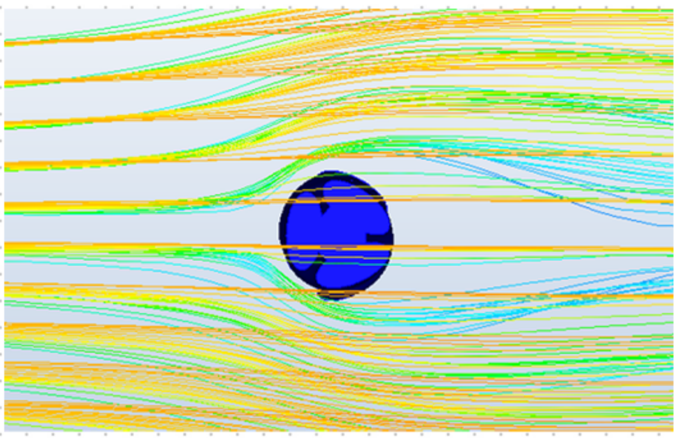
Source : Simulations Run on Autodesk CFD with a average wind speed of 5 m/s (Chennai) (Building Material as Concrete)



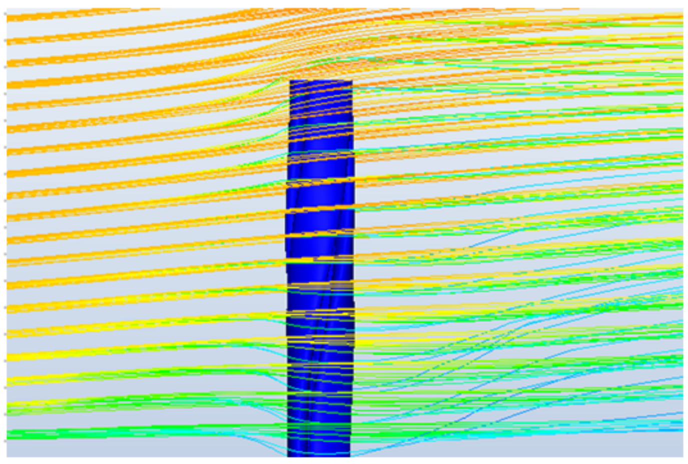
Wind Deflection Wrt building Side View



Stream Lines of the Velocity Flow on the Vertical Plane

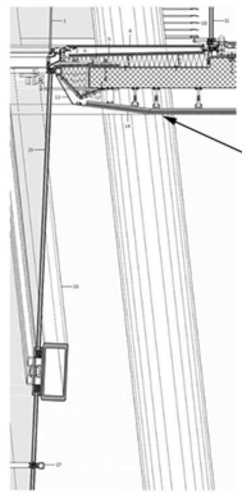


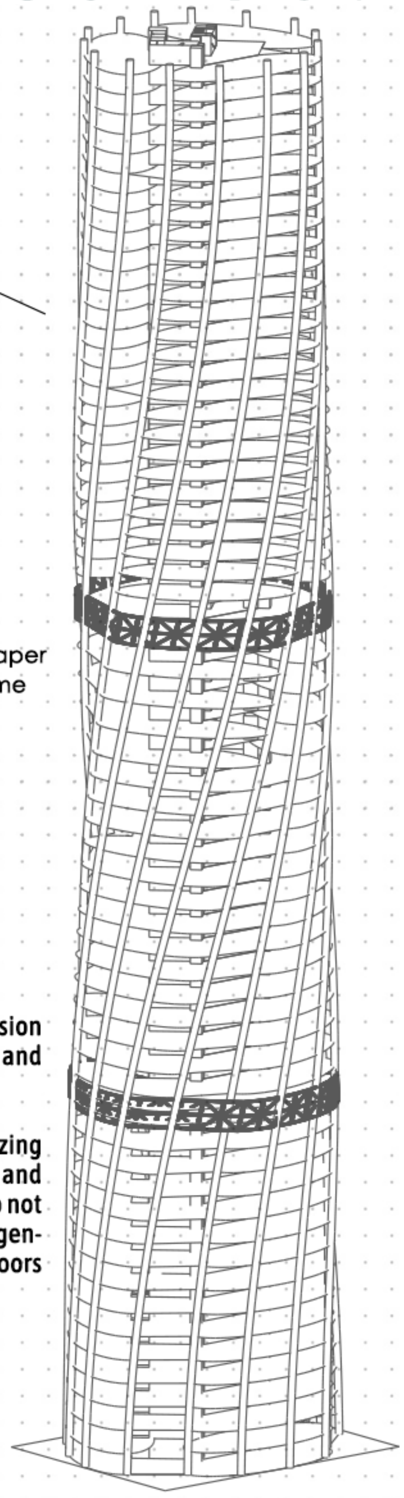
Wind Deflection Wrt building Top View



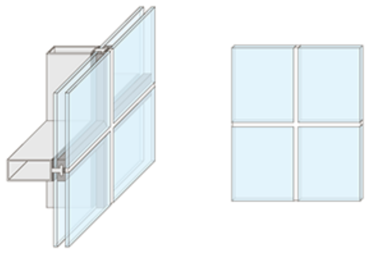
Wind Deflection Wrt building Side View

(RCFT) columns DETAILS





Columns in high rise buildings are generally made of reinforced concrete, structural steel, or a composite of both. Concrete is cheaper than steel in most countries, and has the advantage of offering some fire resistance capacity without further protection

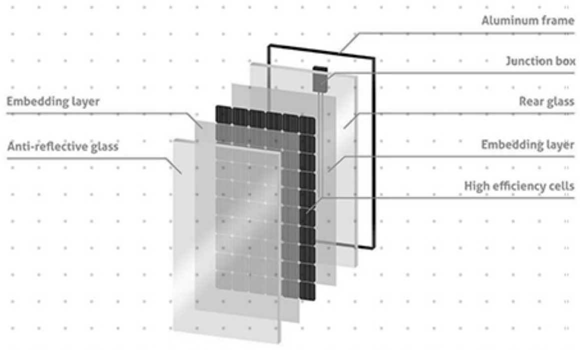


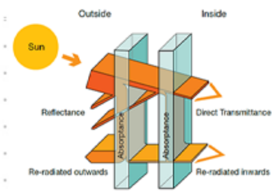
GLAZED FACADE

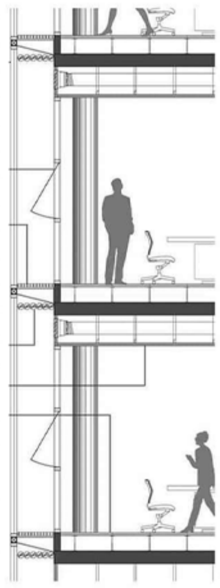
The outwear of the tower was made of a high-strength anti-explosion laminated glass. Each piece of the glass has its specific design and size and was all gathered to create the ruled surface.

Glazed façades are built around light and views. From double skin glazing and low iron glass to fritted glass, glazed facades come in many shapes and sizes. They can also be curtain walls, where non-structural outer walls do not carry any dead load from the building, other than their own weight. More generally, contemporary glazed facades are often built to span multiple floors while addressing lateral loads and sway.

PHOTOVOLTAIC GLASS



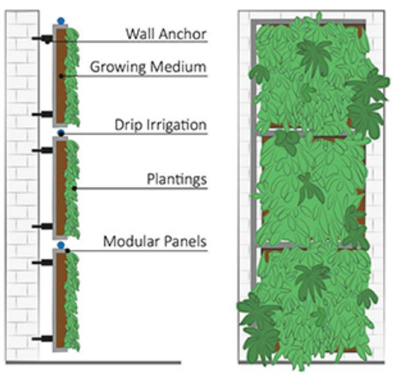


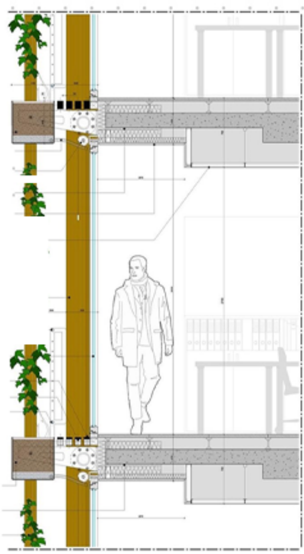


FACADE SECTION DETAIL

VERTICAL LANDSCAPE THE INCREASING DEMAND FOR NATURE

The greenery-covered tall building, an innovative building typology that substantially integrates vegetation into the design, promises to transform urban landscapes into more sustainable and liveable spaces.People demand reconnecting with nature for multiple reasons, including massive urbanization, health problems, energy crises, artificial digital proliferation and increases in screen time, climate change and resilience, environmental and air quality degradation, the spread of the COVID-19 pandemic, and poor aesthetics and urban design. Densely populated cities are often characterized by high stress levels and noise pollution from traffic, construction, and other urban activities.





5 Bionic Bloom

Type : **Experimental | Interactive Wall | CSA, Chennai**

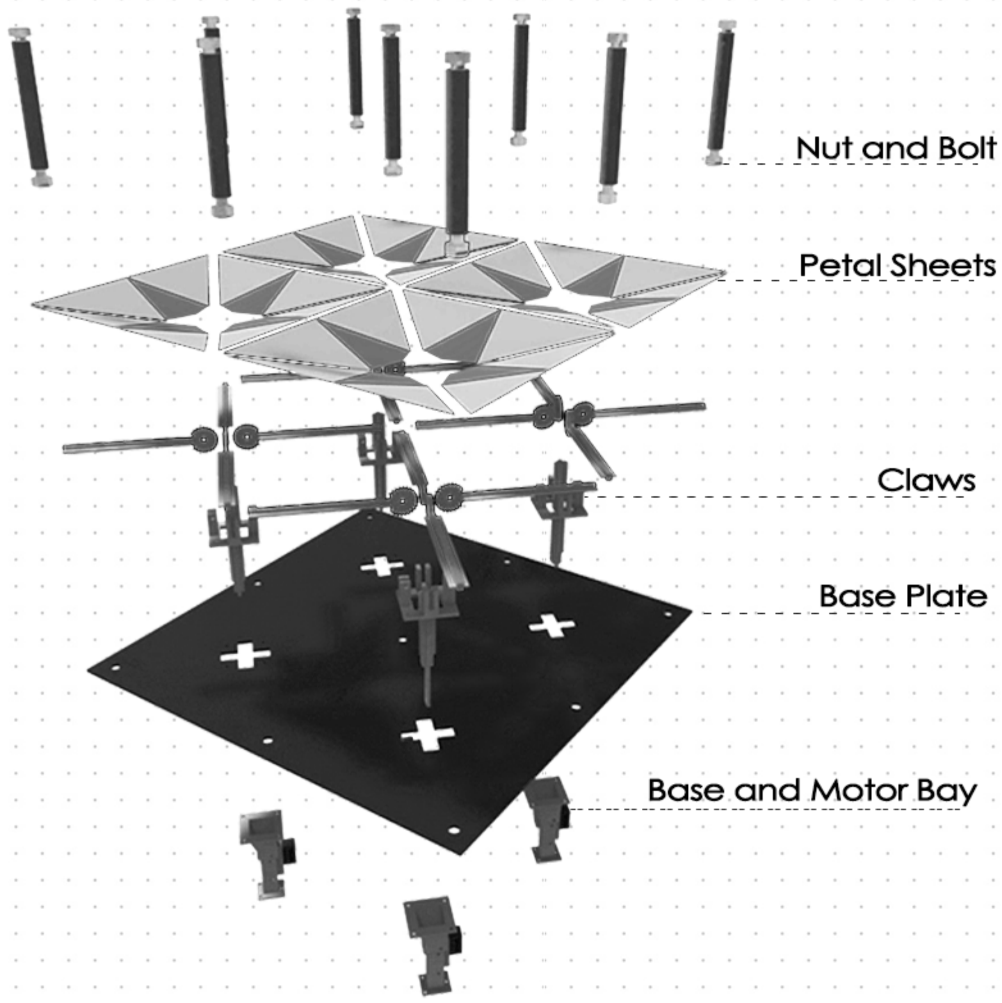
Location : **Chennai | India**

Skill Set : **Rhino | Touch Designer | Unity |Arduino | Digital Fabrication | Manufacturing | 3D Printing**

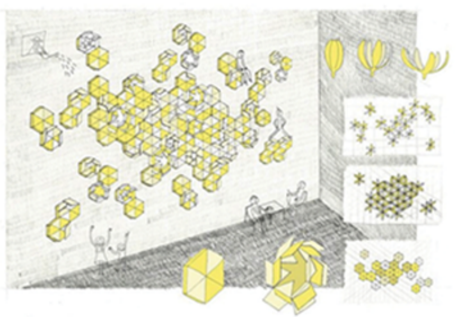
Team : Group of 5

Abstract : Anthesis describes the process and period of blooming that a flowering plant cycles through this process has been significantly used in the history of current times in many context to describe health energy and prosperity this in turn invokes a positive impact on people.

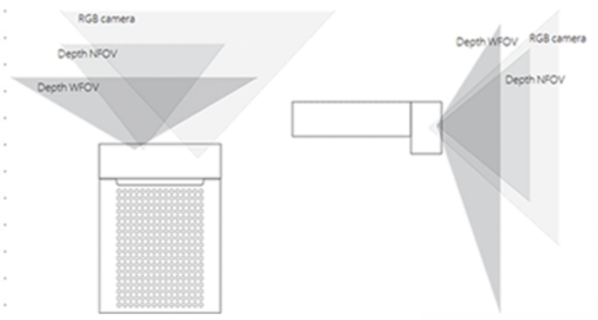
This project integrates ideology and symbolism into an interactive installation. Responding to human movement, it forms an aesthetic design system mimicking a blooming flower. Mass-produced using 3D-printed Snail-inspired units with servo motors, each unit operates through a microcontroller. Kinetic sensors and Leap Motion enable efficient data input for these units to bloom and close, potentially creating dynamic wall panels.



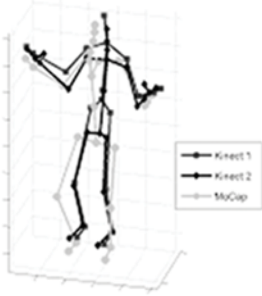
Exploded View of Cluster of Modules



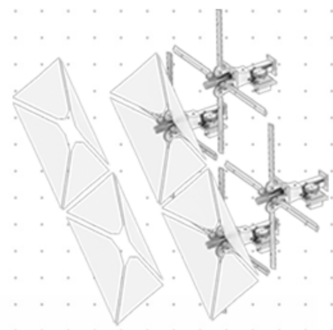
Bloom

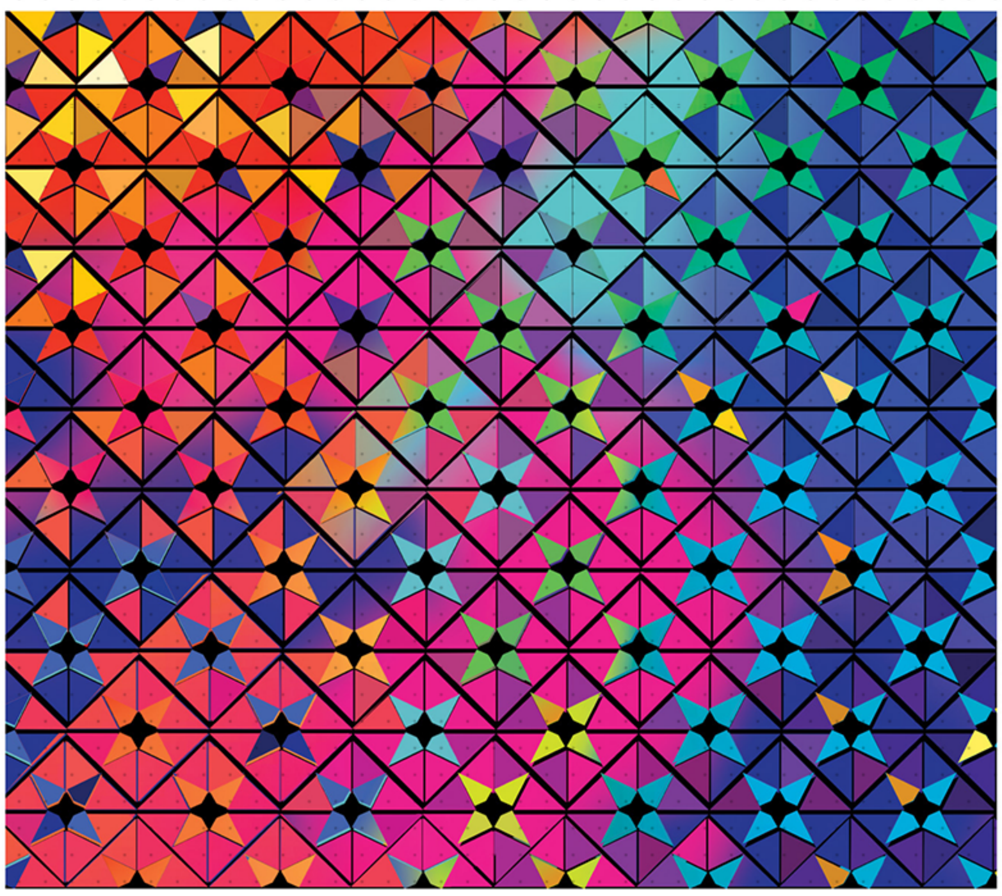


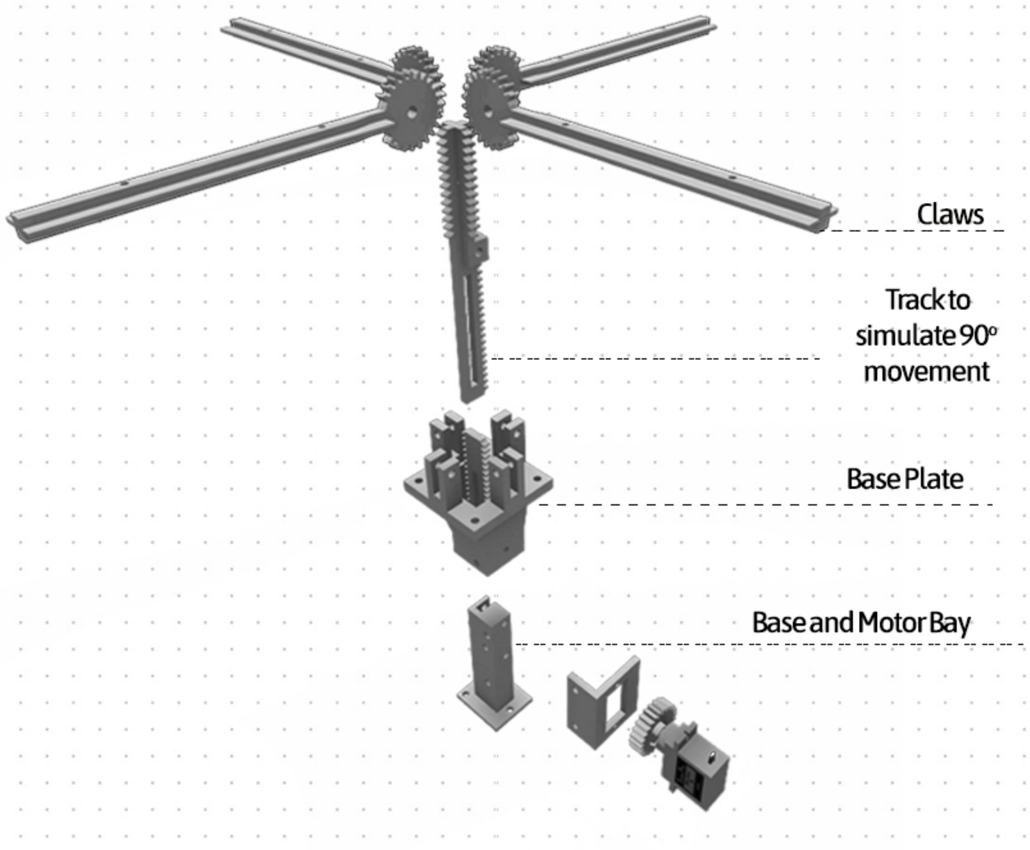
Sensors



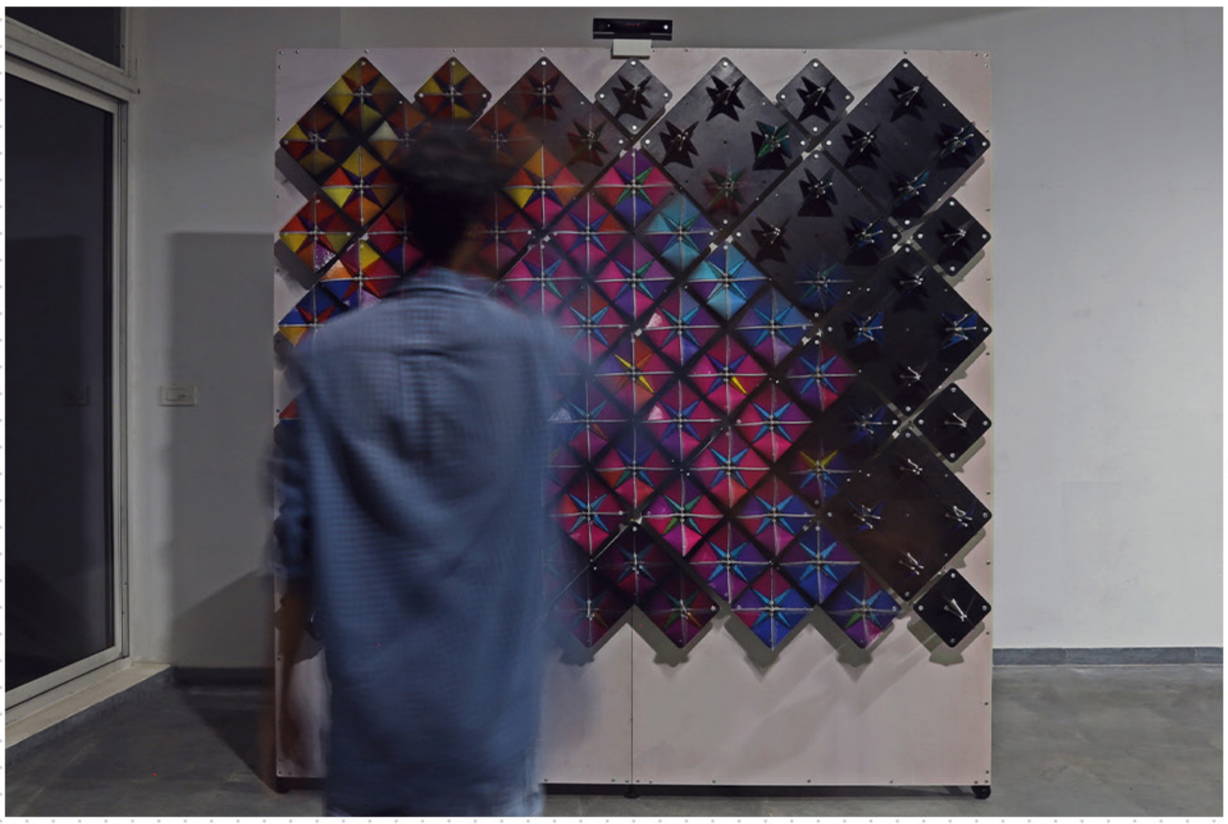
Points

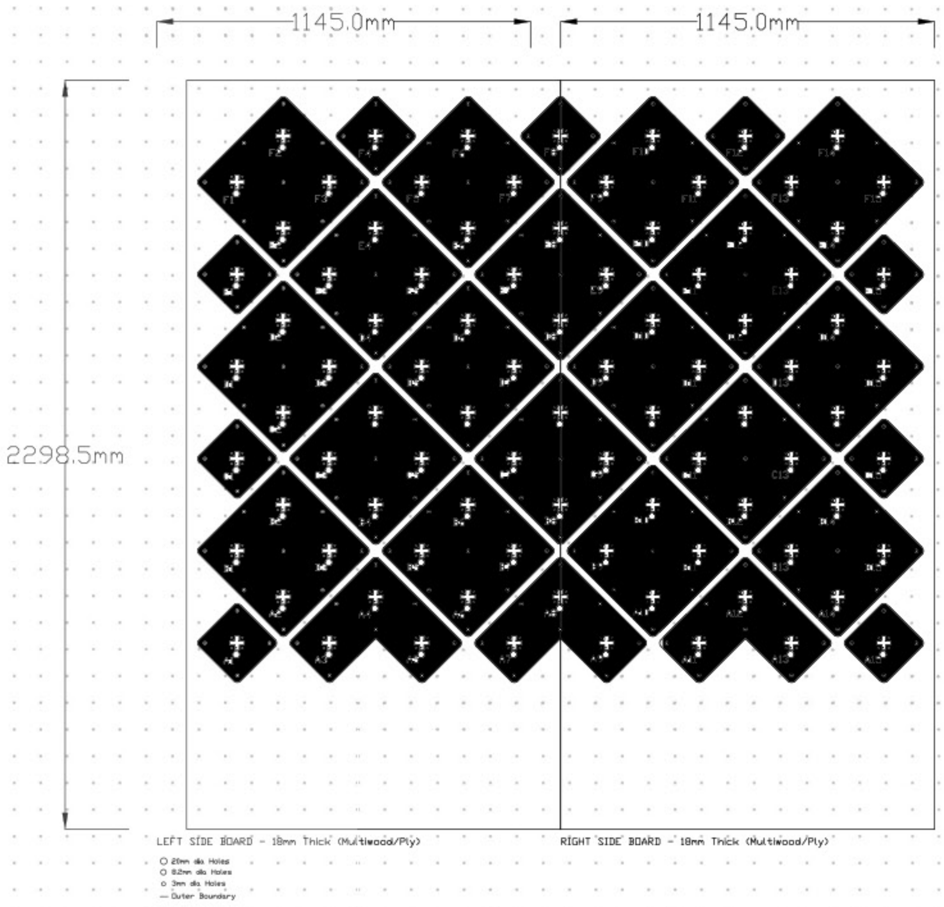


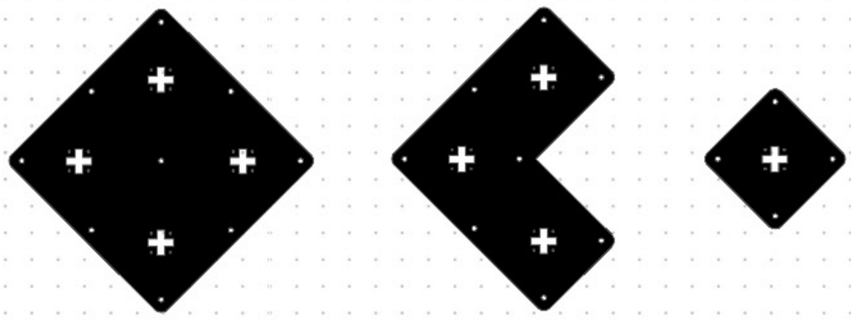


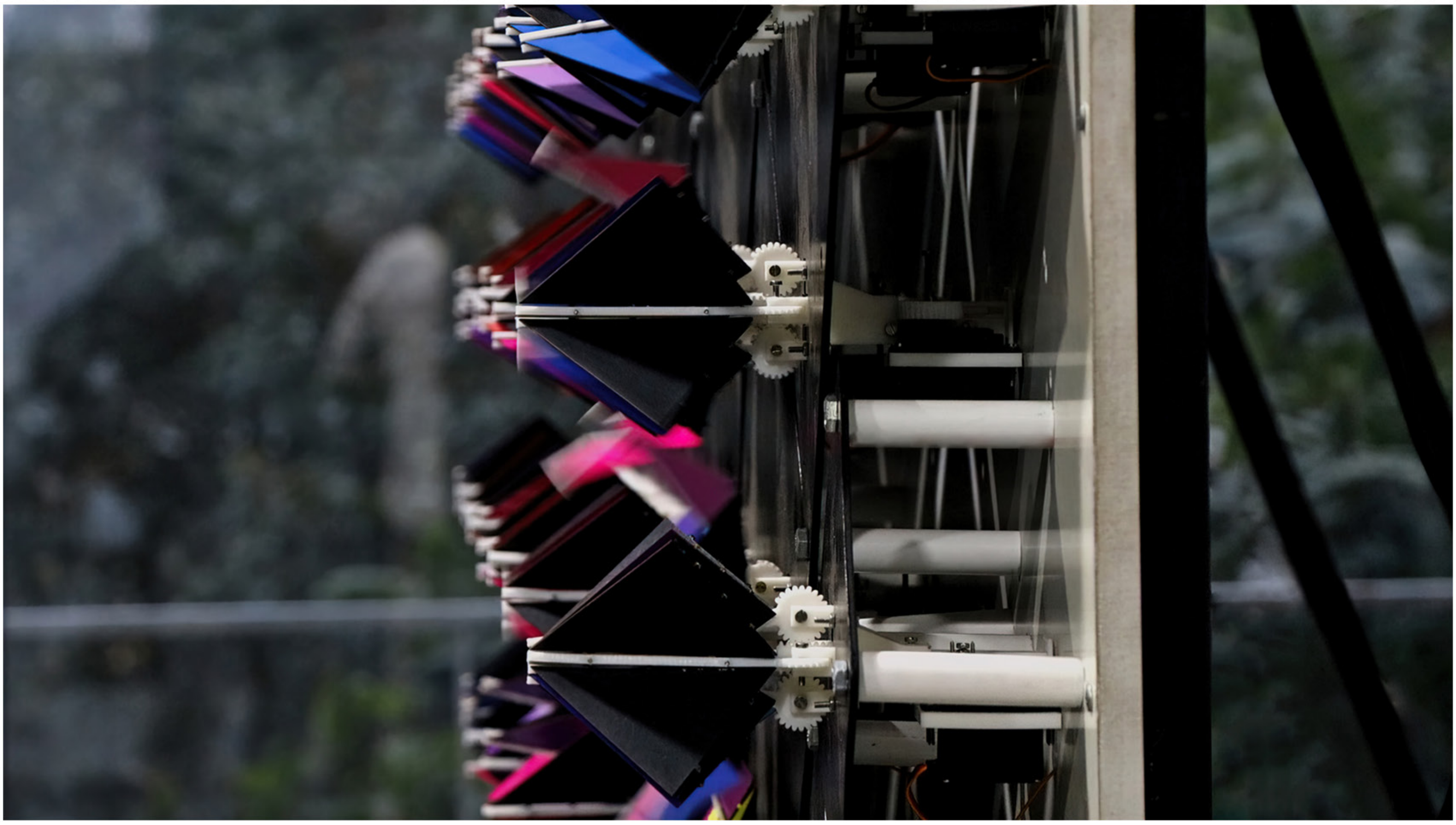


Exploded View of Module




1145.0mm
1145.0mm
2298.5mm
LEFT SIDE BOARD - 18mm Thick (Multiwood/Ply)
RIGHT SIDE BOARD - 18mm Thick (Multiwood/Ply)
20mm dia Holes
8.2mm dia Holes
3mm dia Holes
Outer Boundary





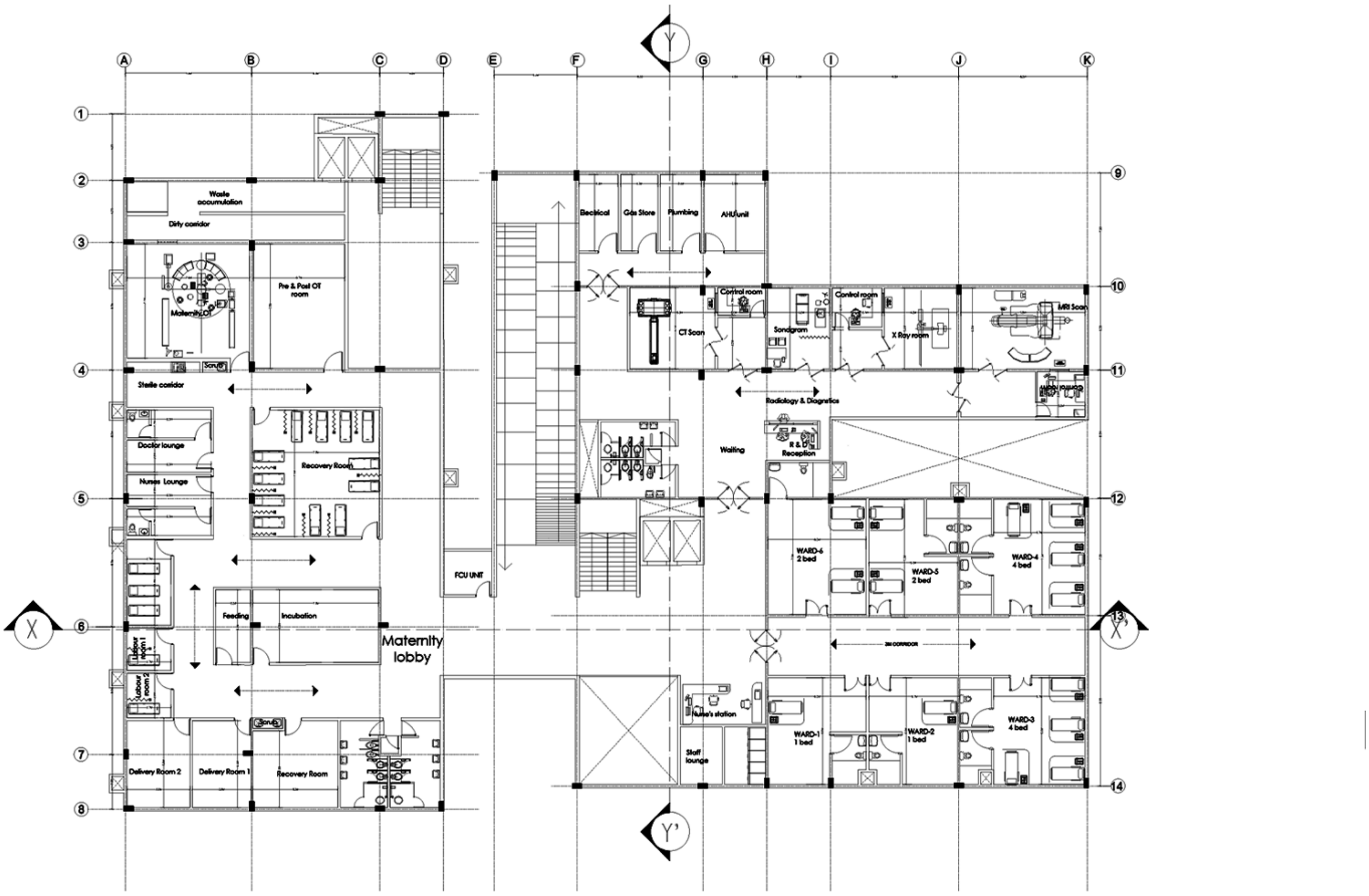
6 Unity Care Multispeciality hospital

Type : MultiSpeciality Hospital - Academic Project

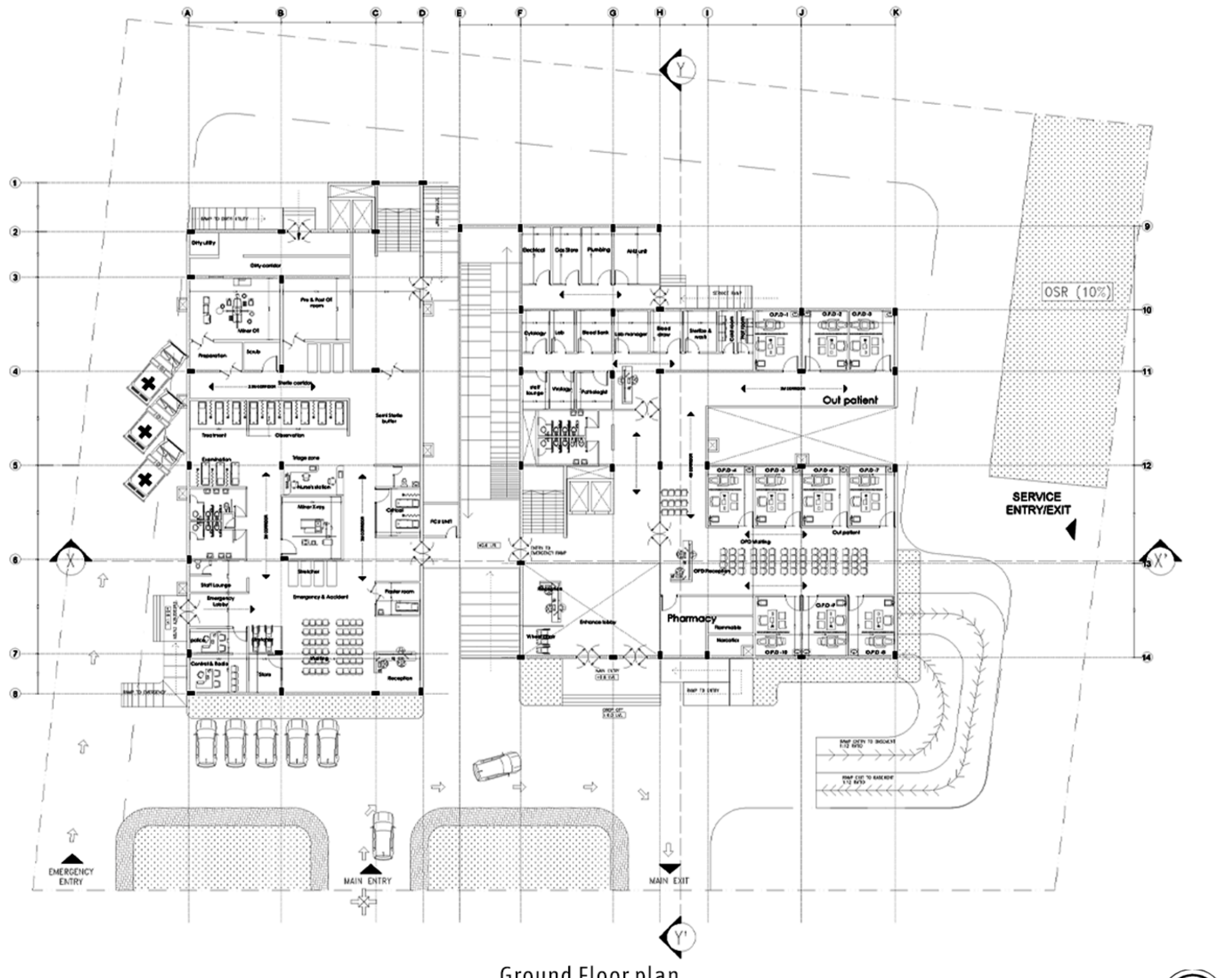
Location : Chennai| India

Skill Set : Rhino | Autocad|Revit |Lumion |Photoshop

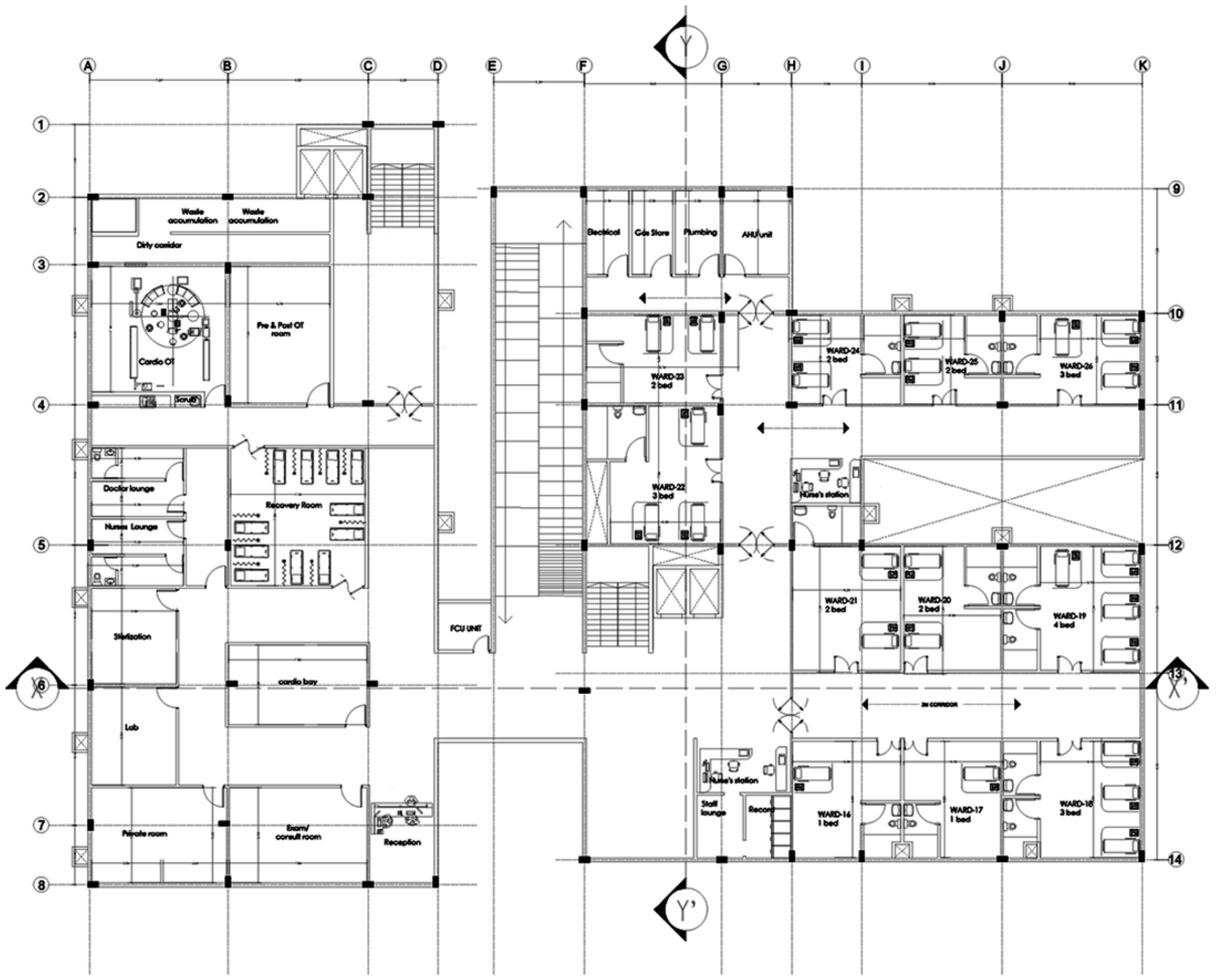
Abstract : The Project Aims to Design a Hospital That Encompasses All Medical Specialties and Provides a Capacity Of 200 Beds in Rooms Fully Equipped with All Necessary Treatment Facilities. Additionally, The Hospital Will Provide Accommodation for Doctors and Nurses. The Design Also Focuses on Ensuring Natural Lighting for Patient Rooms and Utilizing Sunlight to Generate Clean Energy. Fresh Air from The Surrounding Green Areas Will Be Incorporated, Along with Spacious Balconies to Encourage Social Interactions Among Hospital Residents.The Hospital Is Designed to Include Open Spaces for Visitor Waiting Areas, Allowing Natural Light to Penetrate These Spaces to Conserve Energy and Provide Natural Ventilation for Patient Rooms. Furthermore, A Network of Vertical Transportation Means Has Been Established to Ensure the Separate Movement of Doctors, Patients, Visitors, And Both Sterile and Non-Sterile Equipment Across Different Areas of the Hospital.



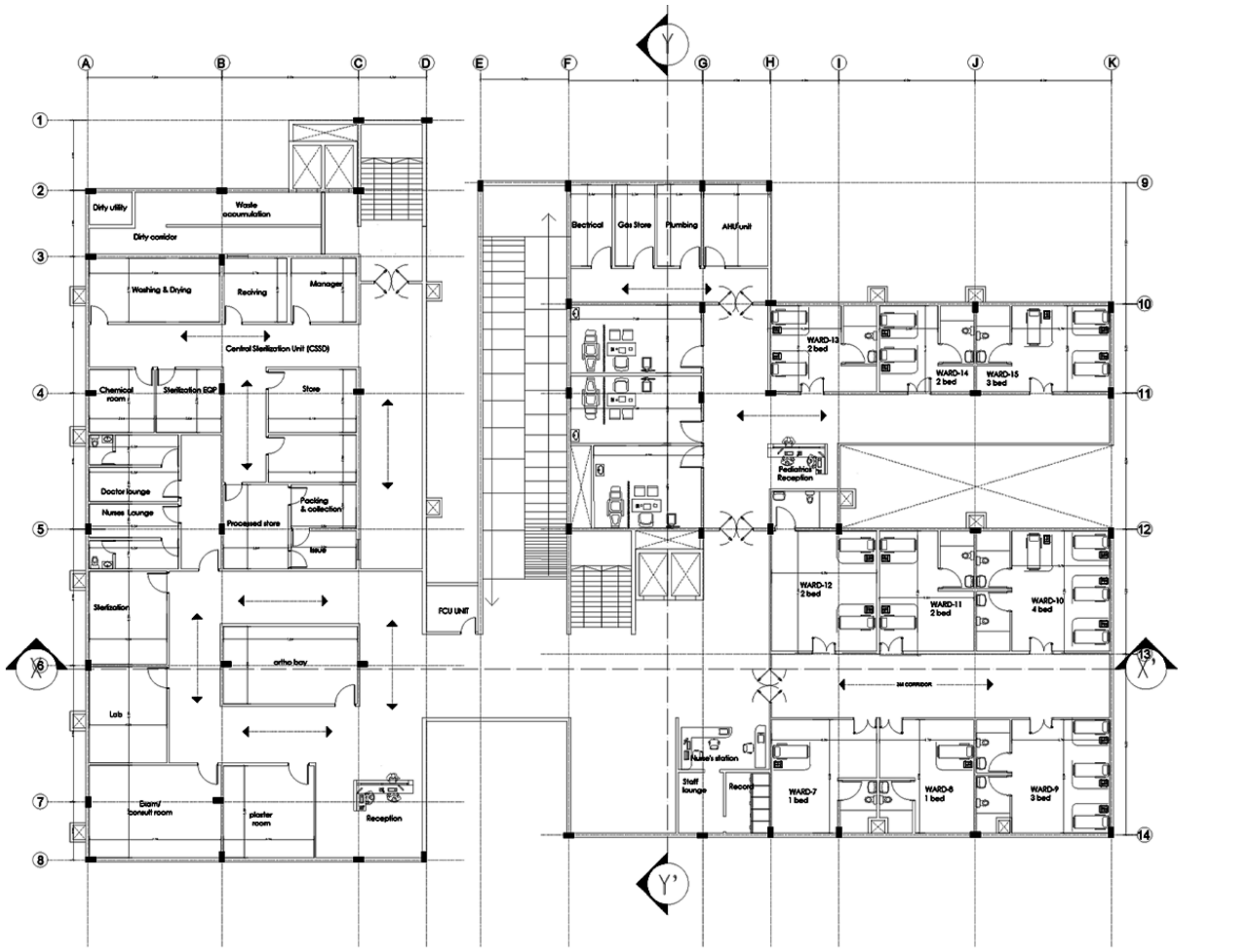
1st Floor plan
Maternity, Ward and Scan lab



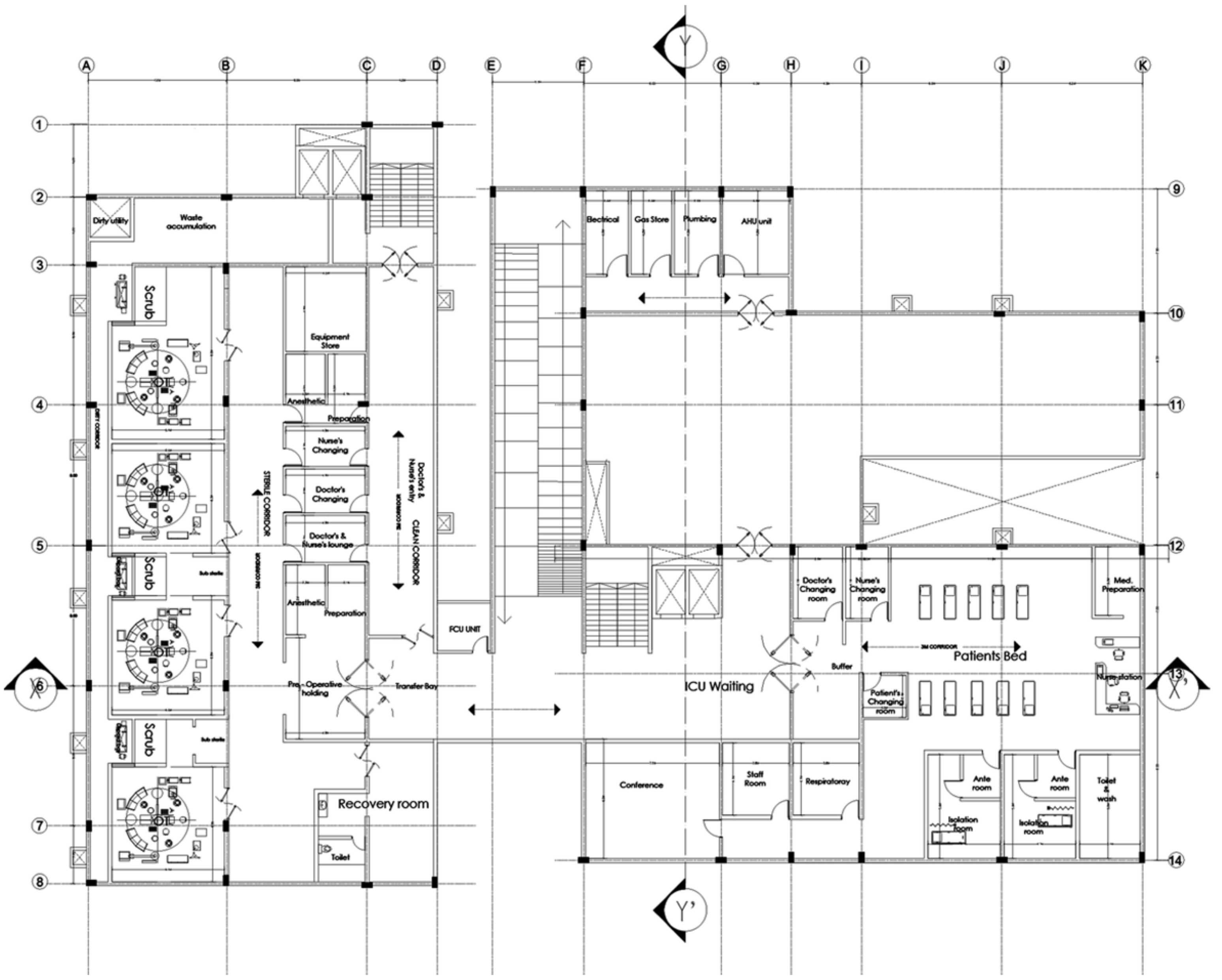
Ground Floor plan
Emergency and Outpatient Department



3rd Floor plan
Cardiac Department and Ward

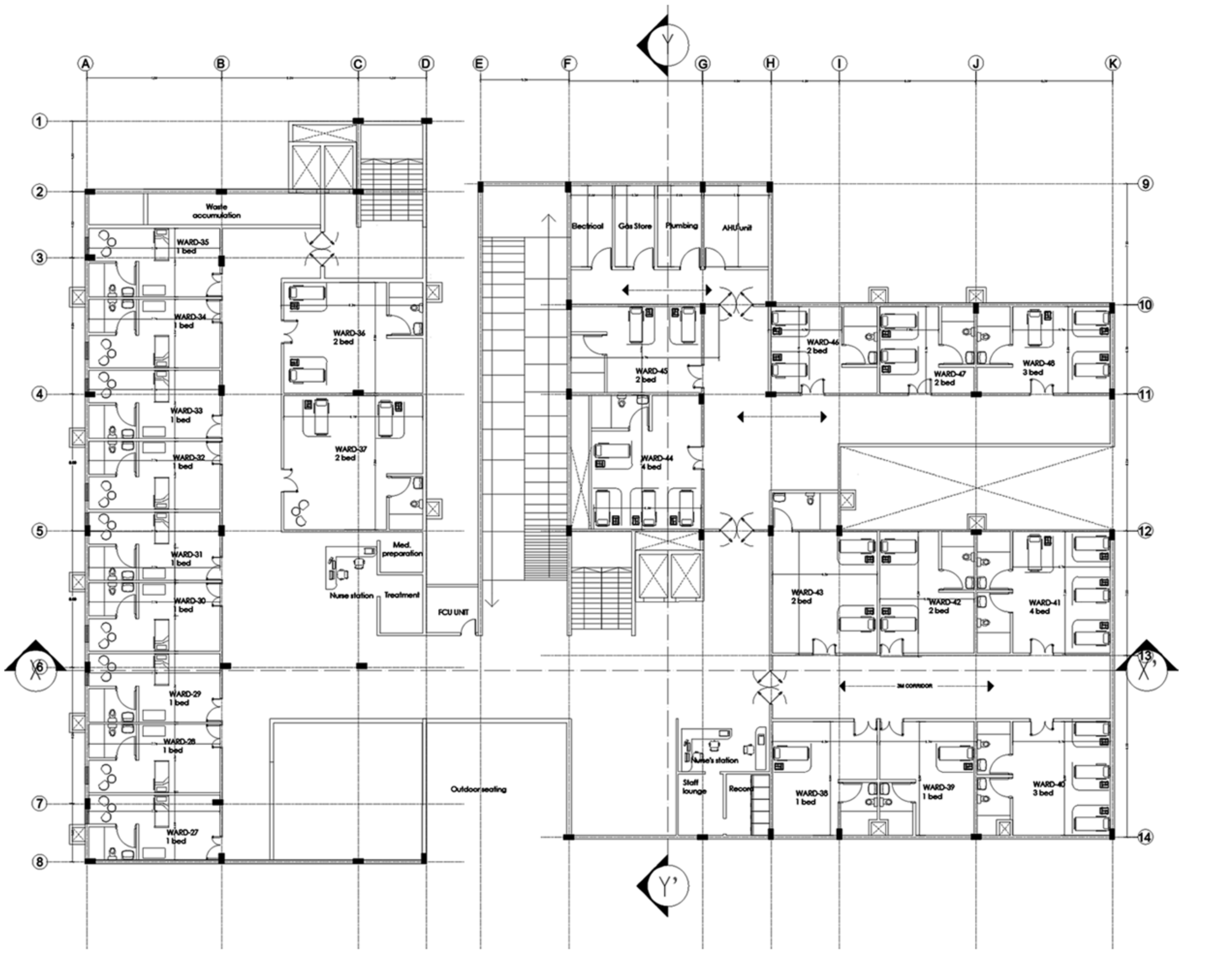


2nd Floor plan
Orthopedics, Ward and Central Sterile Supply Department



6th Floor plan

Operation Theatre Complex and Intensive care units



4th & 5th Floor plan

Private Ward and Shared ward room