

PORTFOLIO

ULLAS MURUGESH RAO

Selected Works from 2016 -2024

01

02

03

04

05

06

Academic

Urban Renaissance

AADRL Thesis 2022-2024

(4 people Team work)

Reconstructing Childhood

Undergraduate Thesis 2021

Awards

1. COA-NIASA Thesis Award 2021
Zonal Winner and National Qualifier
2. A3 Foundation Award
National Winner
3. Proactis Award 2021

Urban Pause

Urban Design 2020

Professional Work

At The Purple Ink Studio

Projects

1. Sattva Villaments
2. MAHE Auditorium
3. MSAP Architecture Campus

Deployable Flatbots

AADRL Workshop 2022

(4 people Team work)

Competition Entries

Winning Entries

Projects

1. Railport
2. Topods
3. The Obelisk

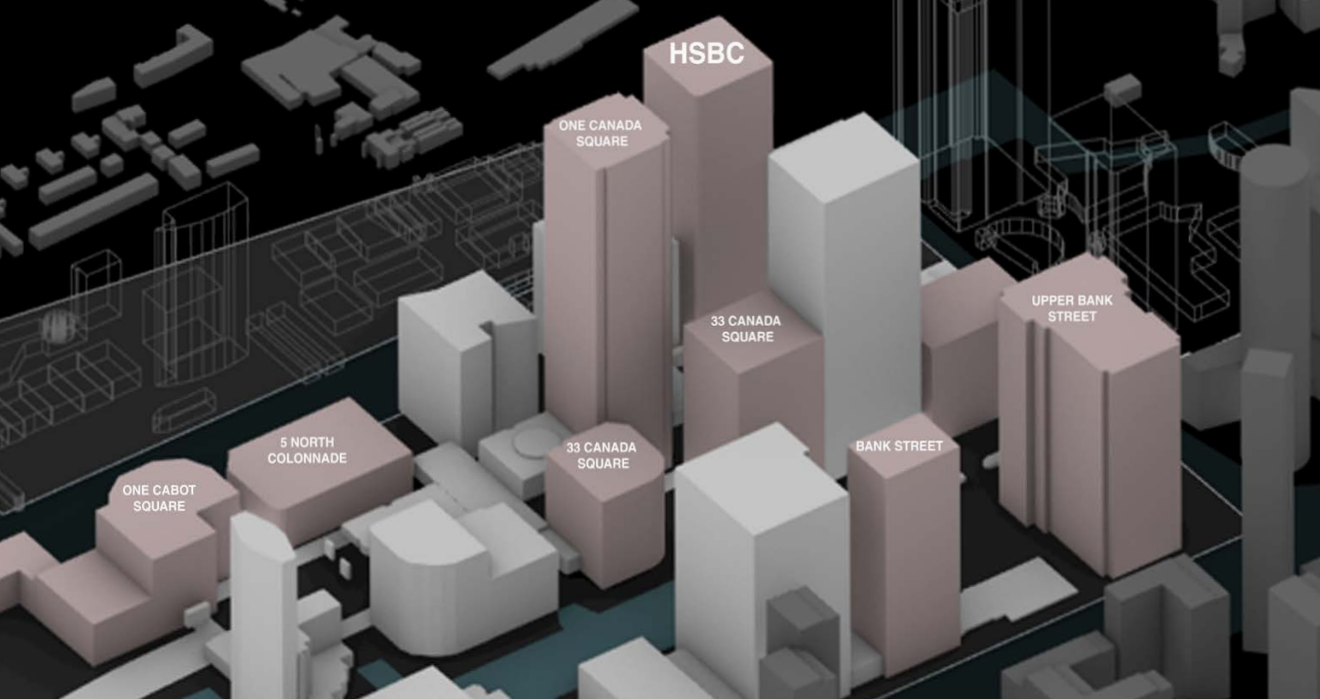


01

Urban Renaissance

Architecture and Urbanism | Studio Bhooshan, AADRL

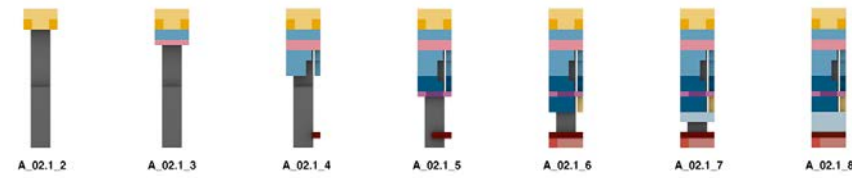
Urban Renaissance delves into urban cores characterized by an abundance of vacant office buildings, mirroring trends observed in hubs like London. Epicenters of commerce, such as Canary Wharf, are confronting hurdles as these architectural landmarks stand deserted, raising environmental apprehensions with 32% of construction waste being deposited in landfills. Urban Renaissance perceives this challenge as a catalyst for reimagining vacant districts by transforming them into vibrant, mixed-use urbanscapes.



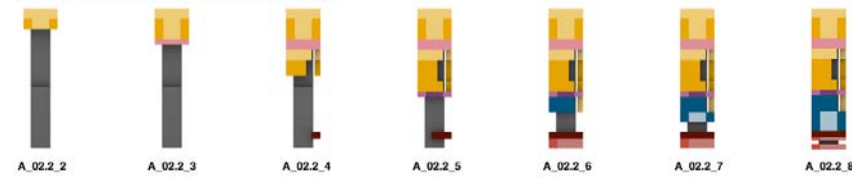
The proposal introduces a multimodal approach, departing from conventional office-centric strategies. It emphasizes dynamic transformations to meet evolving urban needs and involves a unique 4-stakeholder gamified model: residential, office, commercial, and city cooperatives. Through simulation-driven methods, it engages stakeholders holistically and integrates verticality and time into land-value assessments, resulting in a **4-dimensional simulation**. Implementing these methods on the HSBC building in Canary Wharf establishes a blueprint for neighboring structures.



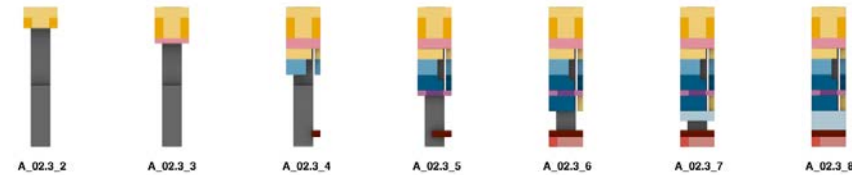
01 Block of Residential -> 01 Block of Office is added



02 Block of Residential -> 01 Block of Office is added



02 Block of Office -> 01 Block of Residential is added

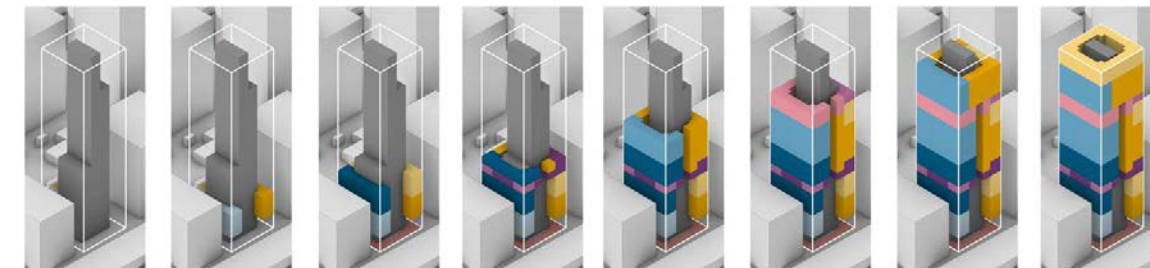


Voxels

- Co-Living
- Private Residences
- Private Offices
- Corporate Offices
- Co-Working Spaces
- Retail Warehouses
- Supermarkets
- Retail Shops
- Educational
- Government facilities
- Cultural / Art Centres

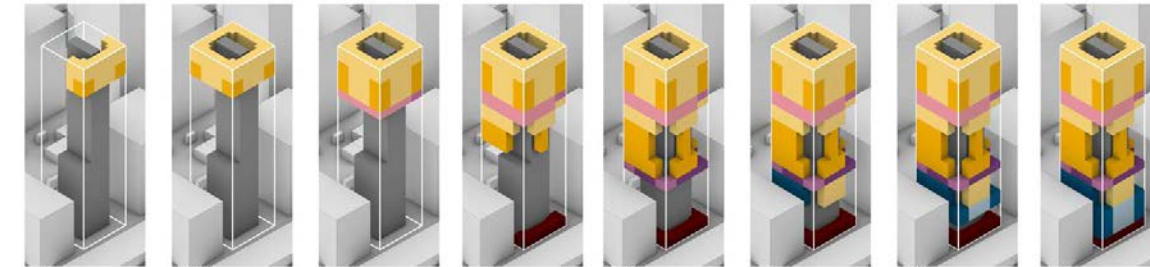
01.1 4D Land Value Simulation Iterations

Iteration A_01



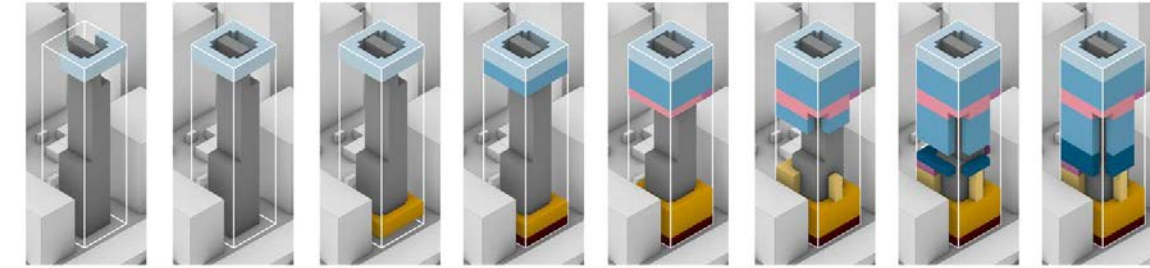
A_01.1 Population - 180 Revenue - 340	A_01.2 Population - 430 Revenue - 650	A_01.3 Population - 1200 Revenue - 2230	A_01.4 Population - 2045 Revenue - 890	A_01.5 Population - 3550 Revenue - 1650	A_01.6 Population - 4565 Revenue - 530	A_01.7 Population - 5805 Revenue - 435	A_01.8 Population - 6200 Revenue - 550
---	---	---	--	---	--	--	--

Iteration A_02



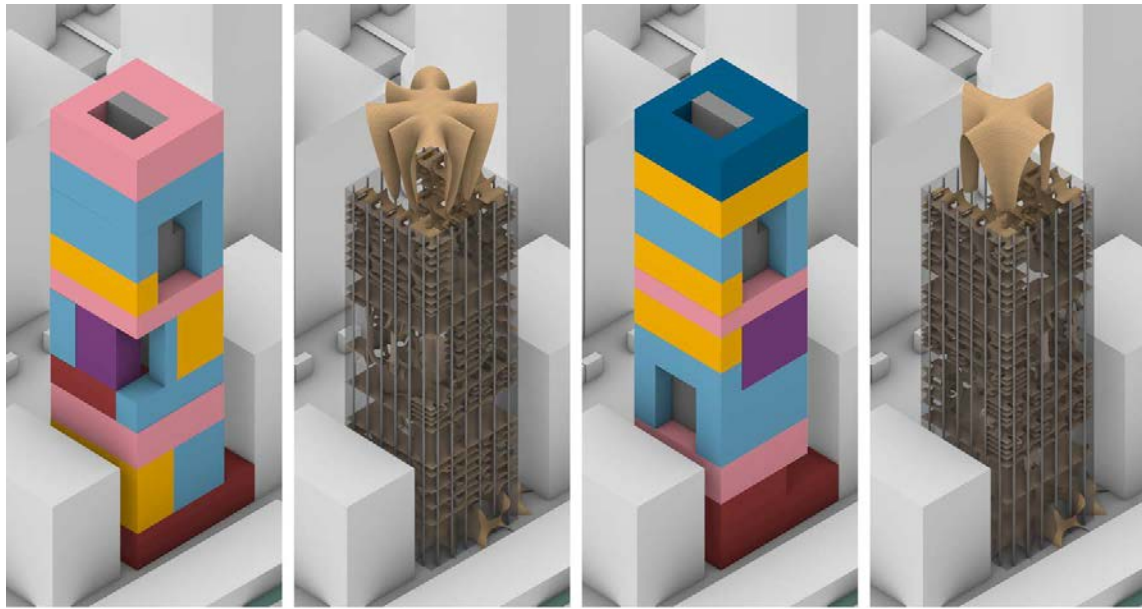
A_02.1 Population - 240 Revenue - 630	A_02.2 Population - 580 Revenue - 1130	A_02.3 Population - 1043 Revenue - 780	A_02.4 Population - 2530 Revenue - 1350	A_02.5 Population - 3645 Revenue - 380	A_02.6 Population - 4790 Revenue - 1230	A_02.7 Population - 5800 Revenue - 1550	A_02.8 Population - 6700 Revenue - 560
---	--	--	---	--	---	---	--

Iteration A_03



A_03.1 Population - 224 Revenue - 540	A_03.2 Population - 512 Revenue - 1750	A_03.3 Population - 1168 Revenue - 4530	A_03.4 Population - 2294 Revenue - 750	A_03.5 Population - 3415 Revenue - 730	A_03.6 Population - 4698 Revenue - 1540	A_03.7 Population - 5420 Revenue - 1335	A_03.8 Population - 6093 Revenue - 575
---	--	---	--	--	---	---	--

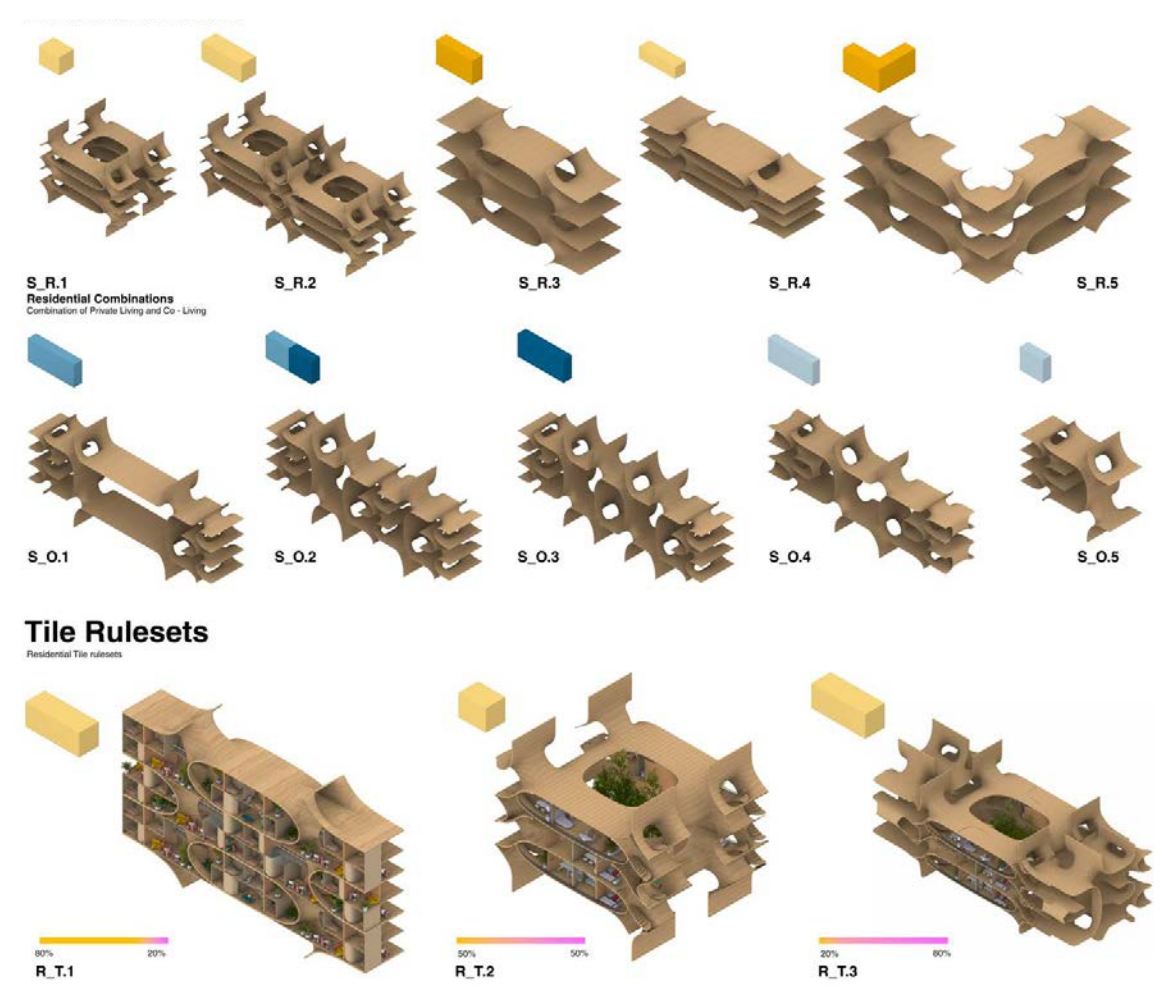
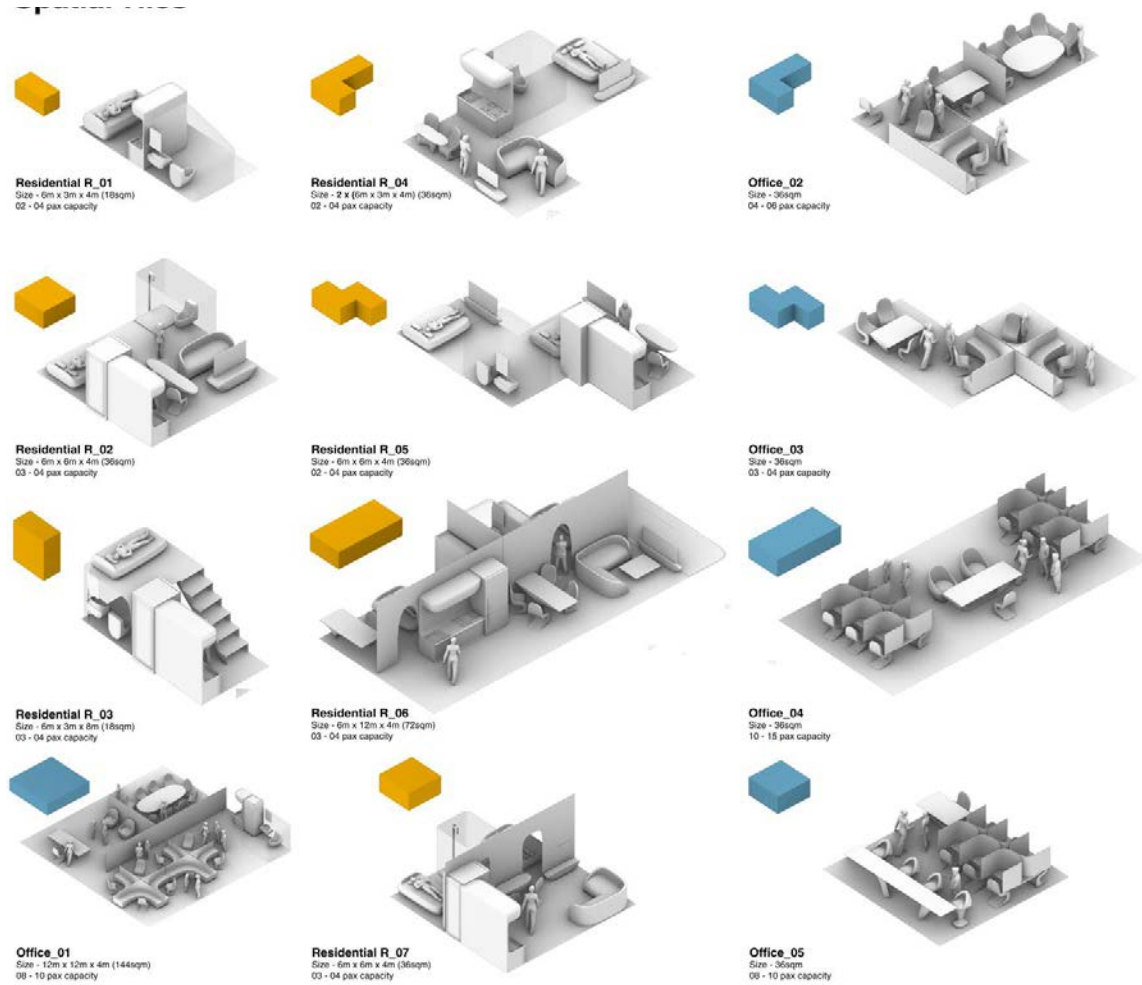
Interior Urbanism



01.2 Voxel replacement with Spatial Tiles



















01.3 Voxel replacement with Structural Tiles

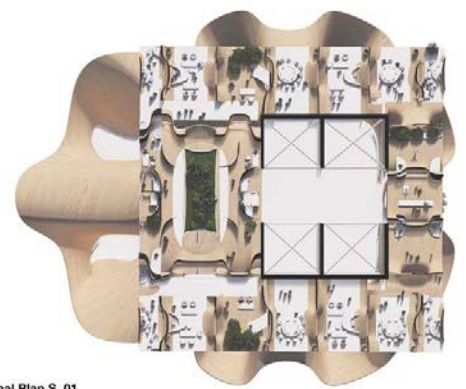




These Interior tiles could be swapped from the catalogue of tiles below

01.4 Swappable Interior Tiles - Voxels

			
Mixed Use Tile R_03 O_01	Residential Tile R_02	Residential Tile R_01	Public Tile P_01
			
R_03.1 02 x Studio 02 - 03 People	R_02.1 02 x 01 Bed 02 - 03 People	R_01.1 02 Bed Unit 03 - 04 People	P_01.1 Cafeteria 50 - 80 People
			
R_03.2 02 x Studio 02 - 03 People	R_02.2 01 x Studio 02 - 03 People	R_01.2 02 x 01 Bed Unit 03 - 04 People	P_01.2 Exhibition Space 60 - 100 People
			
R_03.3 02 x Studio 02 - 03 People	R_02.3 02 Bed Duplex Unit 02 - 03 People		
			
R_03.4 01 x Co-Working 06 - 08 People	R_02.4 01 x Studio 02 - 03 People		



Sectional Plan S_01



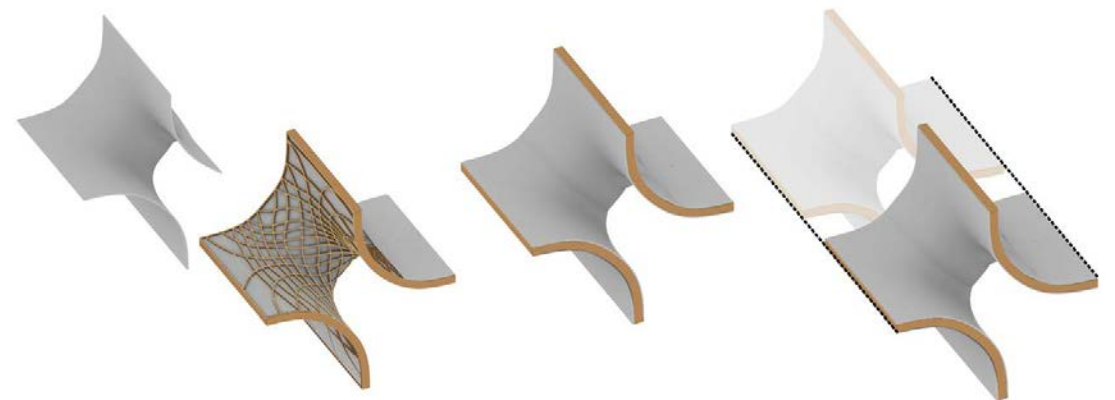
01.5 Fabrication

The construction strategy prioritizes the utilization of **light-weight materials** to facilitate seamless assembly, affording structural enhancements within the confines of an extant tower framework.

Reuse is accomplished through the techniques of mirroring, rotation, and the reassembly of structural modules.



Urban Renaissance | AADRL Thesis



Interior Urbanism



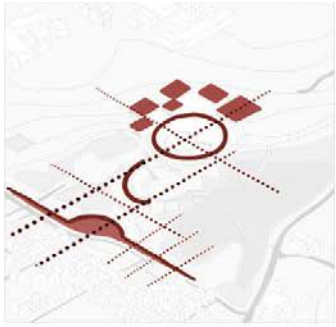


02

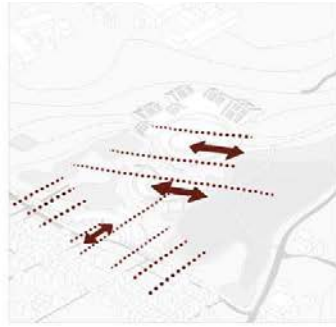
Reconstructing Childhood

Located at Sivakasi, Tamil Nadu

Activists' efforts have transformed Sivakasi from a symbol of child labor to a town with initiatives abolishing it, offering education to children. Government's move towards green crackers closed factories, rescuing many children, now provided with basic education by NGOs. The design aims to reimagine learning and play spaces in Sivakasi, fostering curiosity and experimentation, with adaptable environments for day and night activities.



ORGANISATIONAL PATTERN



RELATIONSHIPS AND CLARITY



SPATIAL DEFINITION AND EDGES



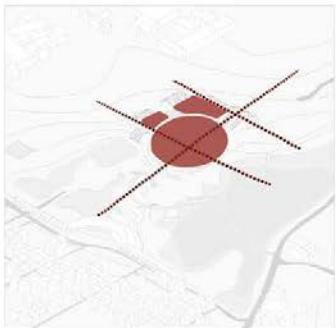
PLAY OF COLOUR



APPROACH AND ENTRY



PATH CONFIGURATION



HIERARCHY



SCALE AND PROPORTION



SEQUENCE OF SPACES



DAILY CYCLE - DAWN

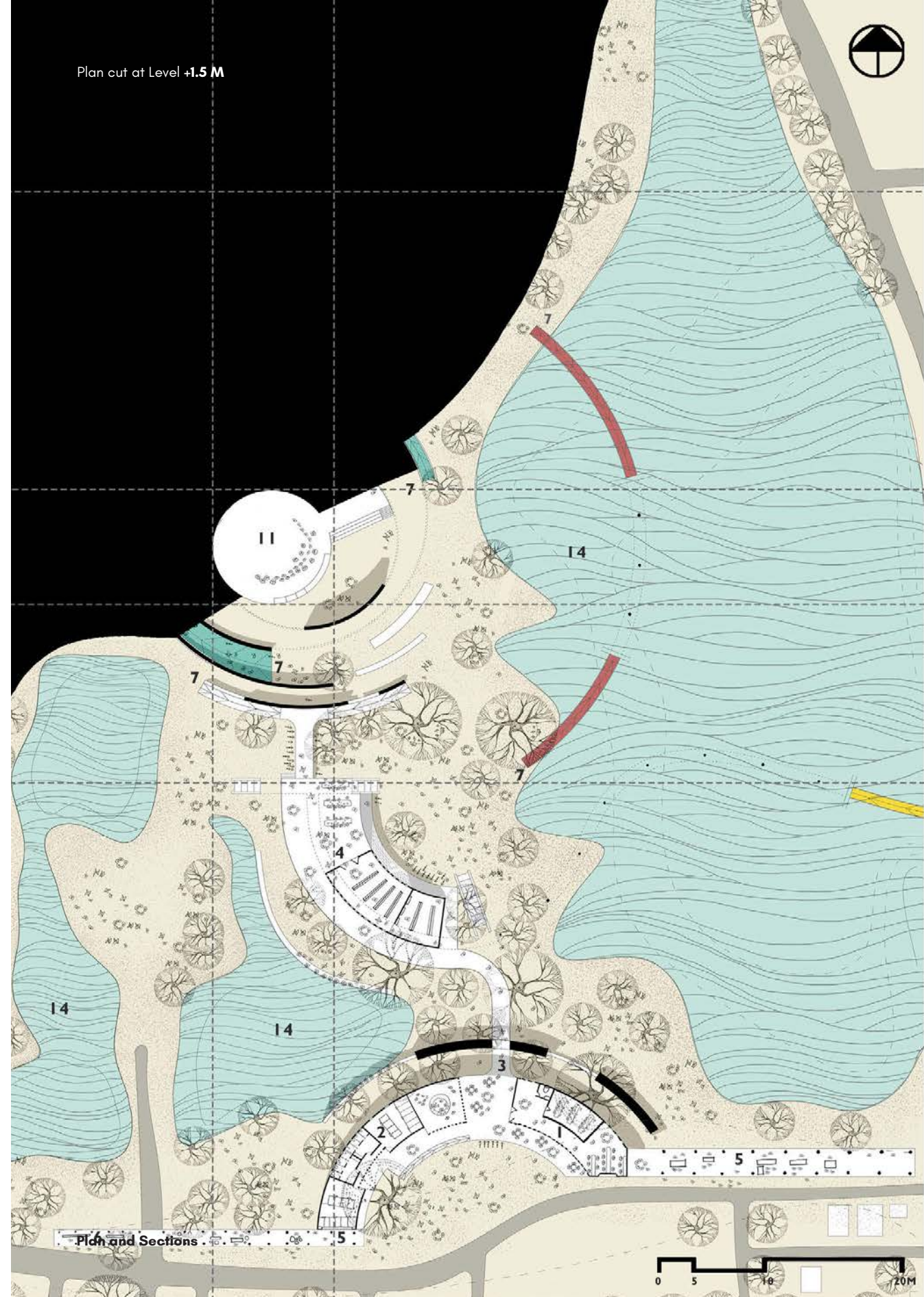


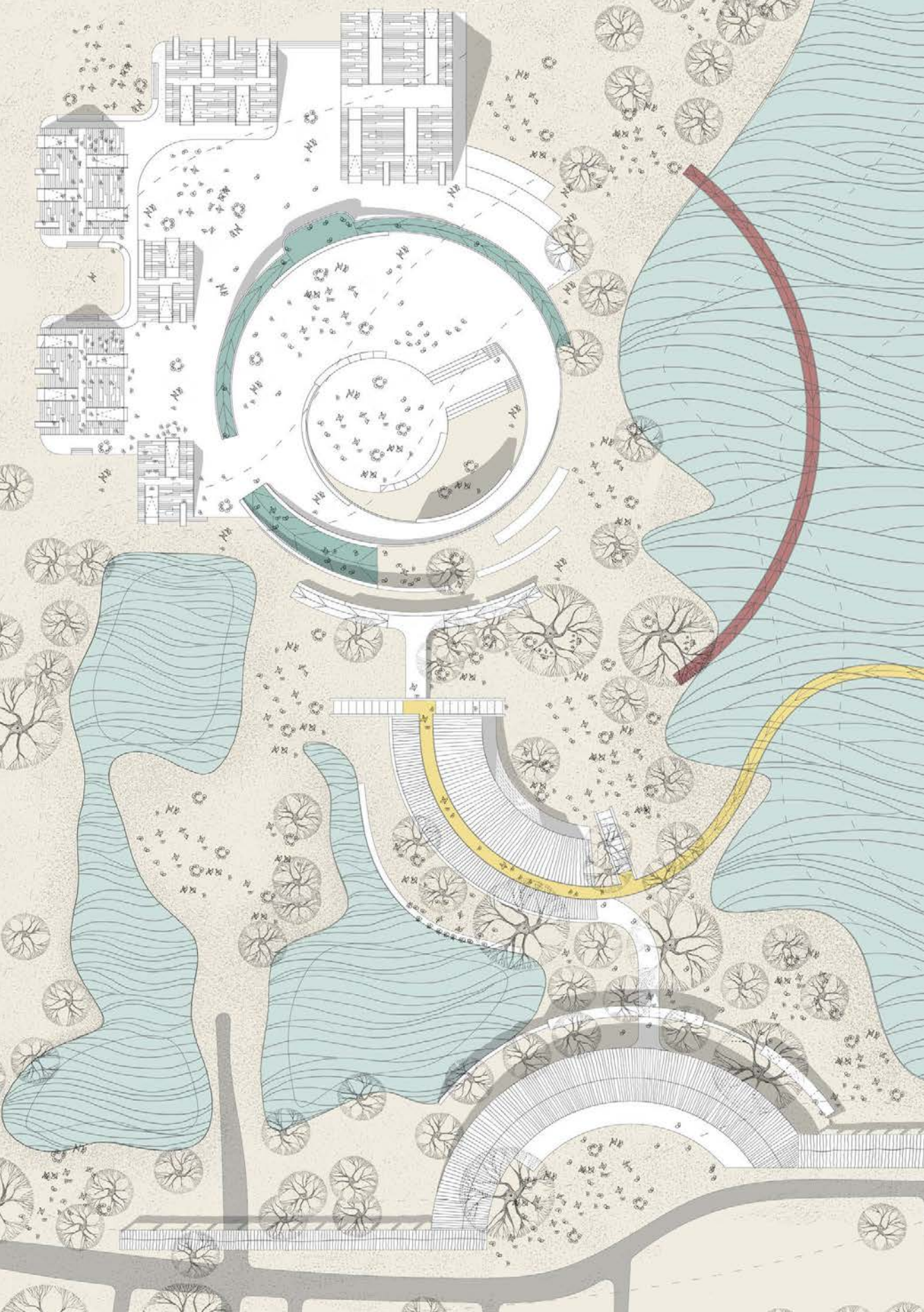
DAILY CYCLE - DUSK



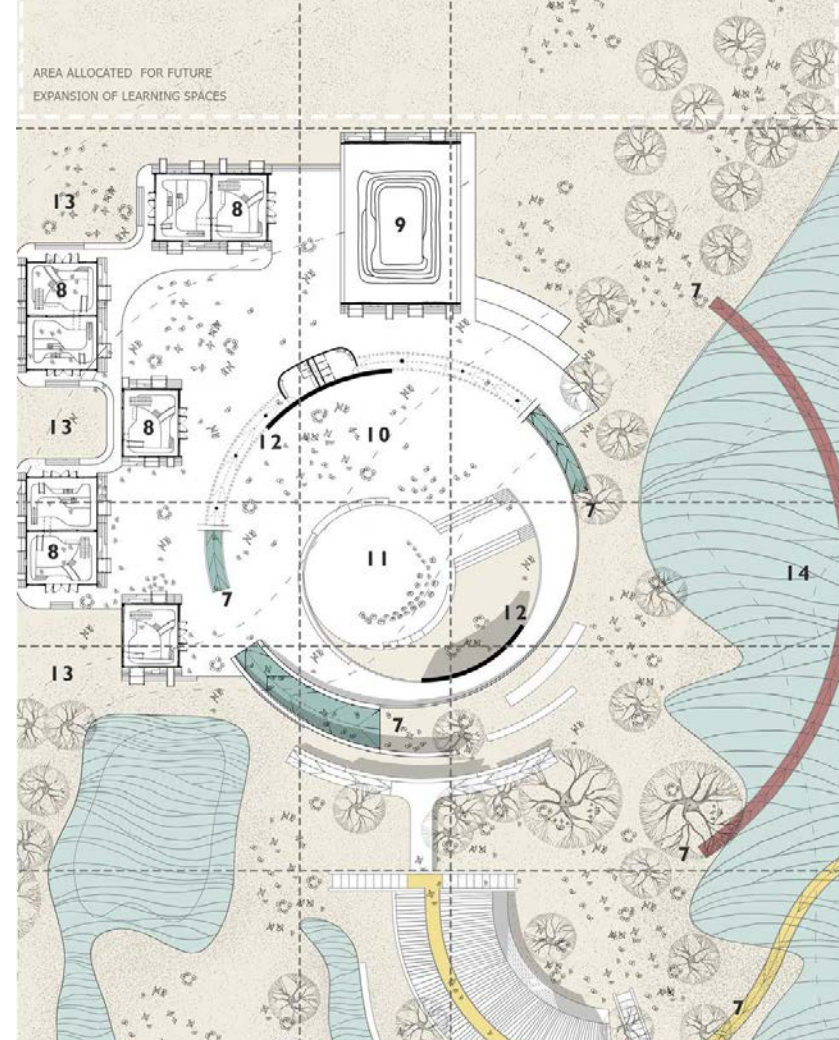
FESTIVAL CYCLES

Plan cut at Level +1.5 M



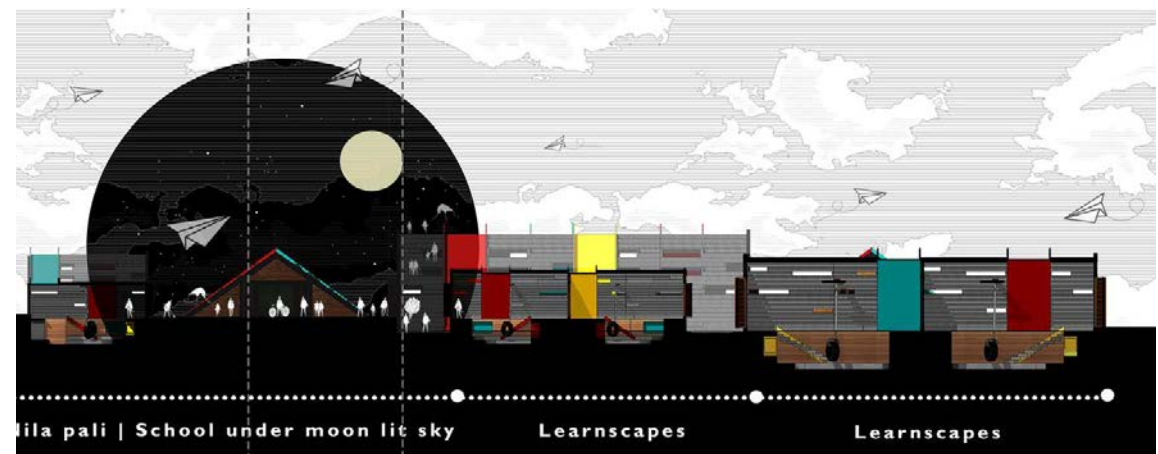


Plan cut at Level +4.5 M

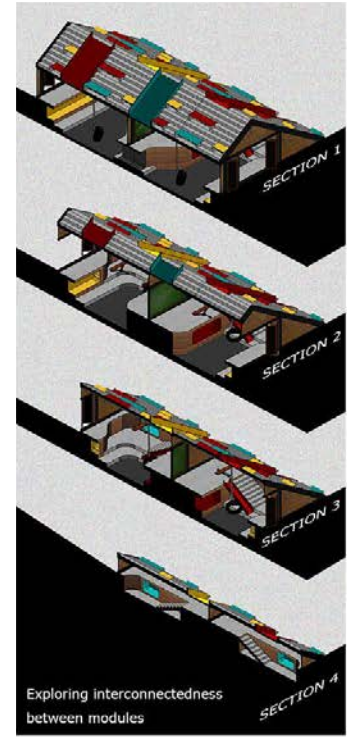
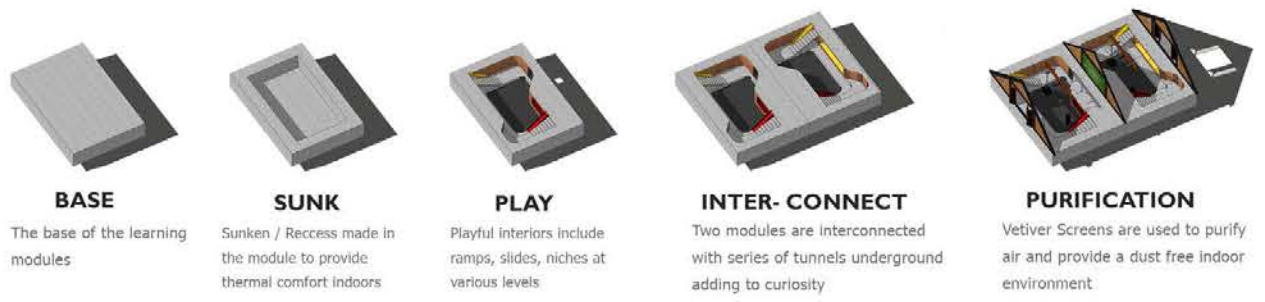
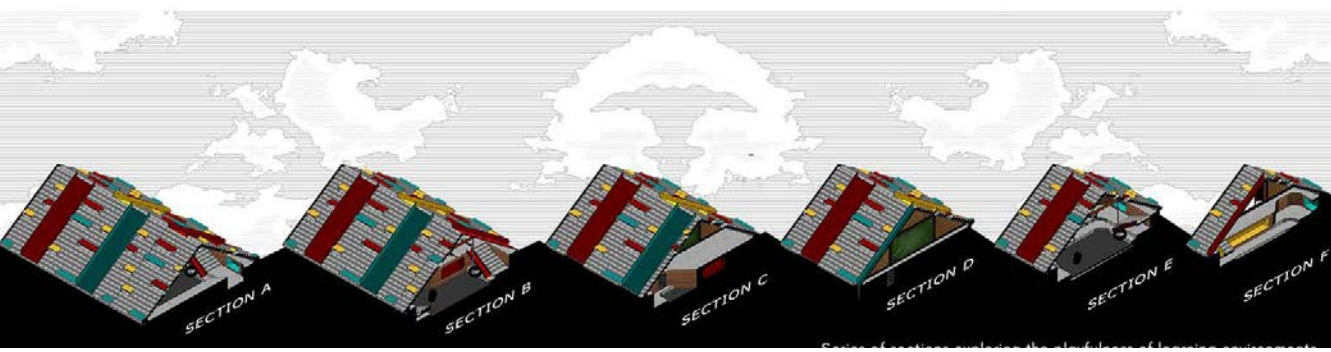
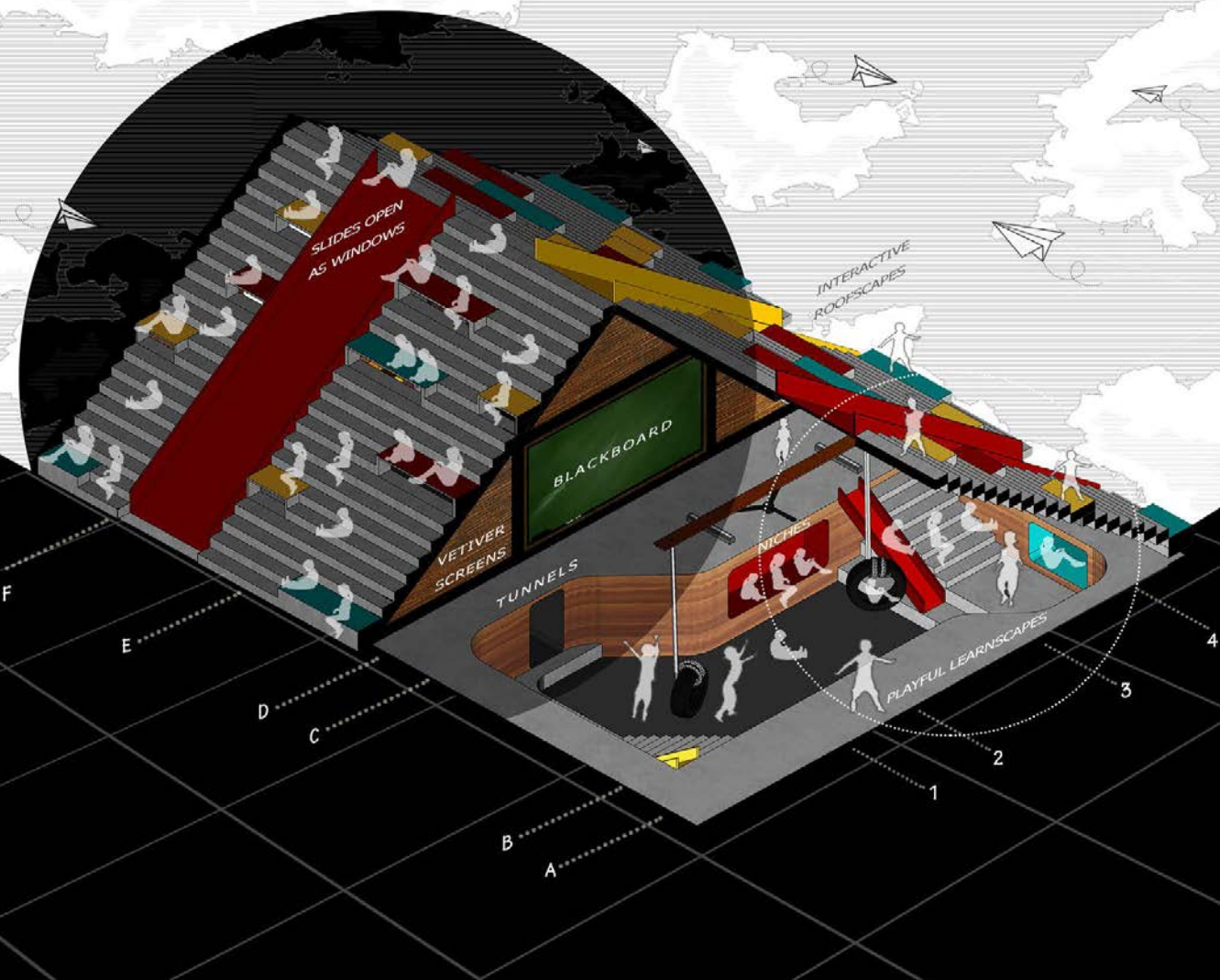


- LEGEND**
1. URAVINMURAI | Administrative Offices
 2. COMMUNAL LIVING
 3. ENTRANCE THRESHOLD
 4. LIBRARY
 5. TEMPORARY MARKETS
 6. BUS STOP
 7. RAMP FOR CYCLING AND WALKING
 8. LEARNING SPACES
 9. WORKSHOPS
 10. PLINTH FOR NILA PALI AT LVL +2.01M
 11. PLINTH FOR NILA PALI AT LVL +1.05M
 12. WALLS FOR DIGITAL SCREENINGS
 13. COURTS FOR OUTDOOR LEARNING
 14. KAMAI | WATERBODY

The **porosity** of the built spaces aids in establishing views through the water bodies on site. Series of thresholds create series of revelations when one travels through the site.



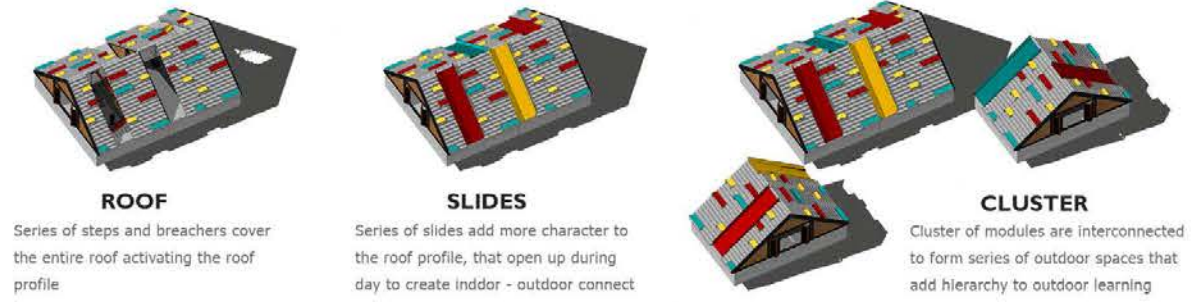
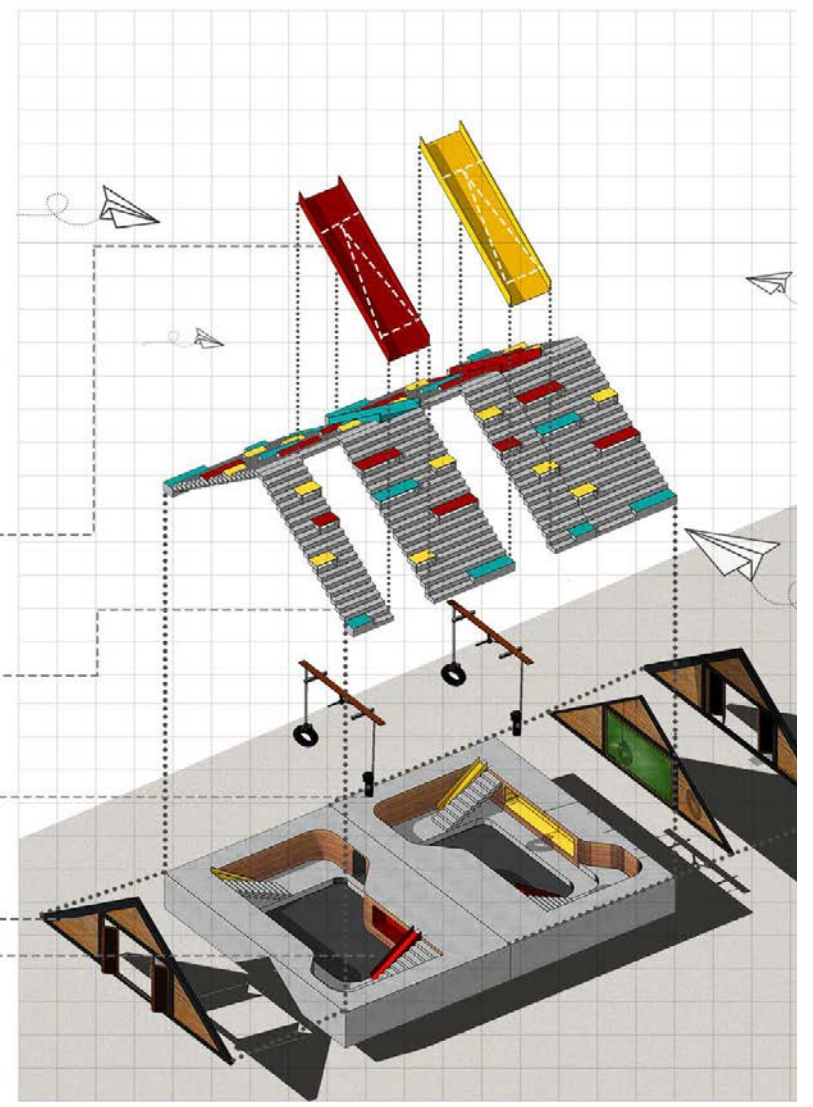
Plan and Sections



Playful Learnscapes & Interactive Roofscapes

The entire roof scapes would be activated during evenings post formal classes expanding for interactive discussions and allowing for smaller Nila Pali to sustain throughout the month till the Monthly ritual that happens during Full moon nights

- Foldable Slides**
Series of Slides that become a part of the facade fold open / double up as a window, allowing for indoor - outdoor connect and also allow for children to play
- Steps and Breachers**
Series of steps and breaches on the facade are made from ferroconcrete which activate the roof profile for evening school
- Playful Installations**
- Vetiver Screens**
- Playful Interiors**
Series of playful spaces at various levels create interesting learning - playful spaces





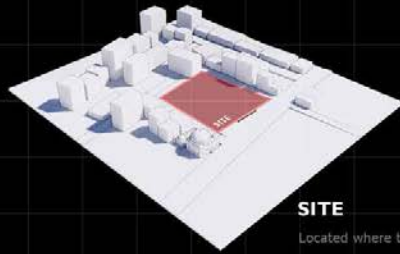
03

Urban Pause

Located at Johnson Market, Bangalore

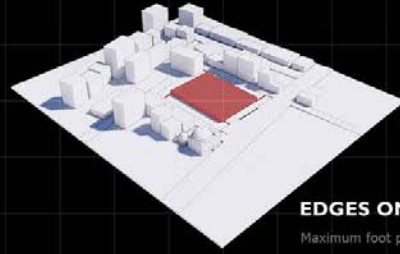
Johnson Market's decline necessitates a redesign to meet the needs of customers and vendors. Situated amidst the city's largest Shia community, the proposed program, including a culinary school and restaurants, seeks to elevate local cuisine within Bangalore's culinary scene. The design seeks to transform the site into a vibrant urban destination, resonating with immediate neighborhood and the city context. It addresses interventions at the site, neighborhood, and city levels to ensure a comprehensive architectural response.

03.1 Ideas | Process



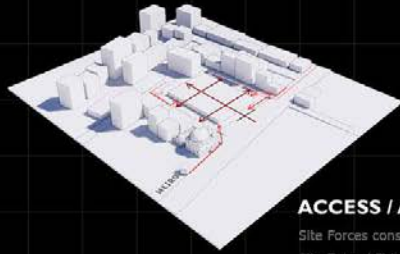
SITE

Located where the existing Johnson Market is situated



EDGES ON SITE

Maximum foot print the built up can create on site



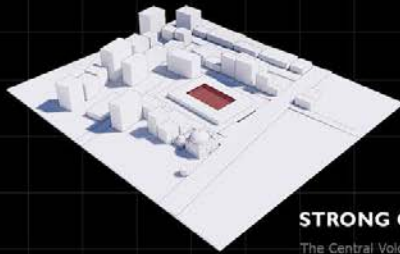
ACCESS / APPROACH

Site Forces considered while determining Site Entry / Exits



CENTRAL VOID

A Central Recreational space for the neighbourhood adds Spatial hierarchy to the project



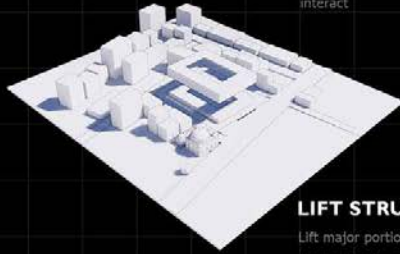
STRONG CENTRE

The Central Void in turn becomes a Strong Focal node for people to interact



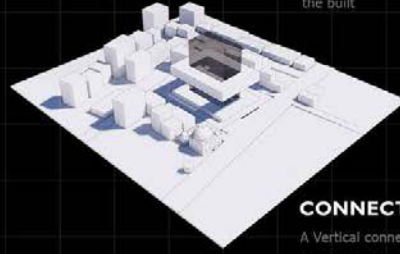
UPPER LEVEL CONNECT

Establishing Connect at various levels to allow public interactions throughout the built



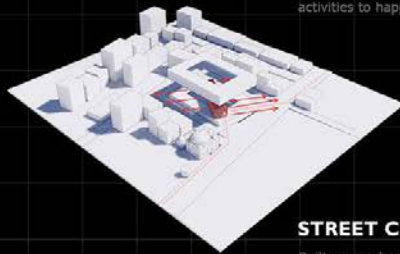
LIFT STRUCTURE

Lift major portion of the structure off ground level and allow for more public activities to happen below



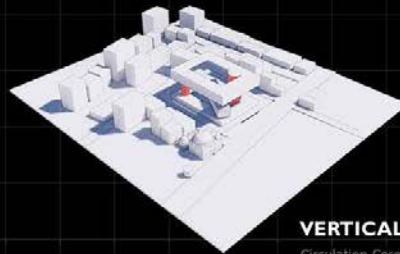
CONNECTING VOID

A Vertical connect established through the connecting Void



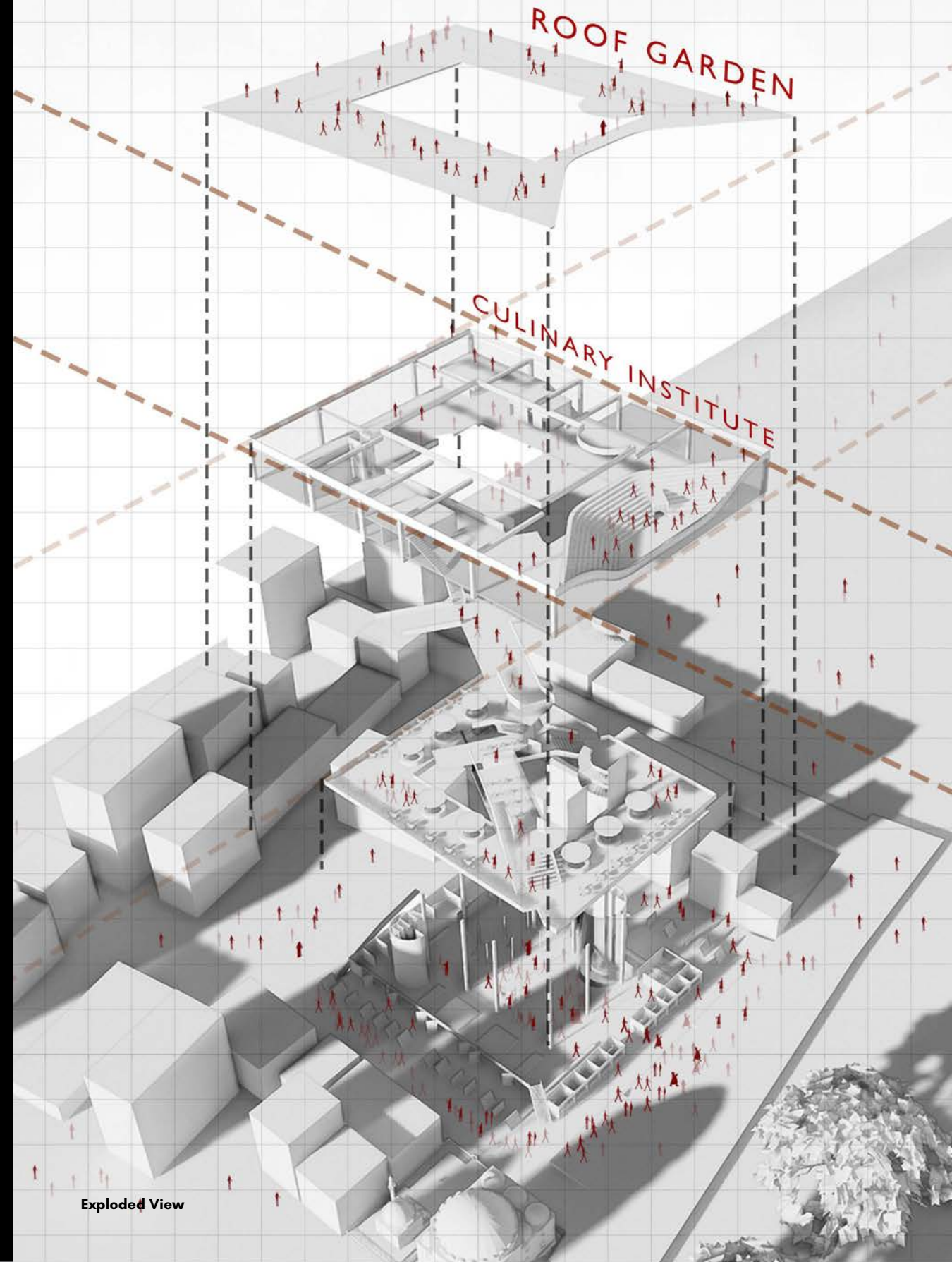
STREET CONNECT

Built mass when tilted at an angle establishes Serial Vision throughout and creates views with the Street

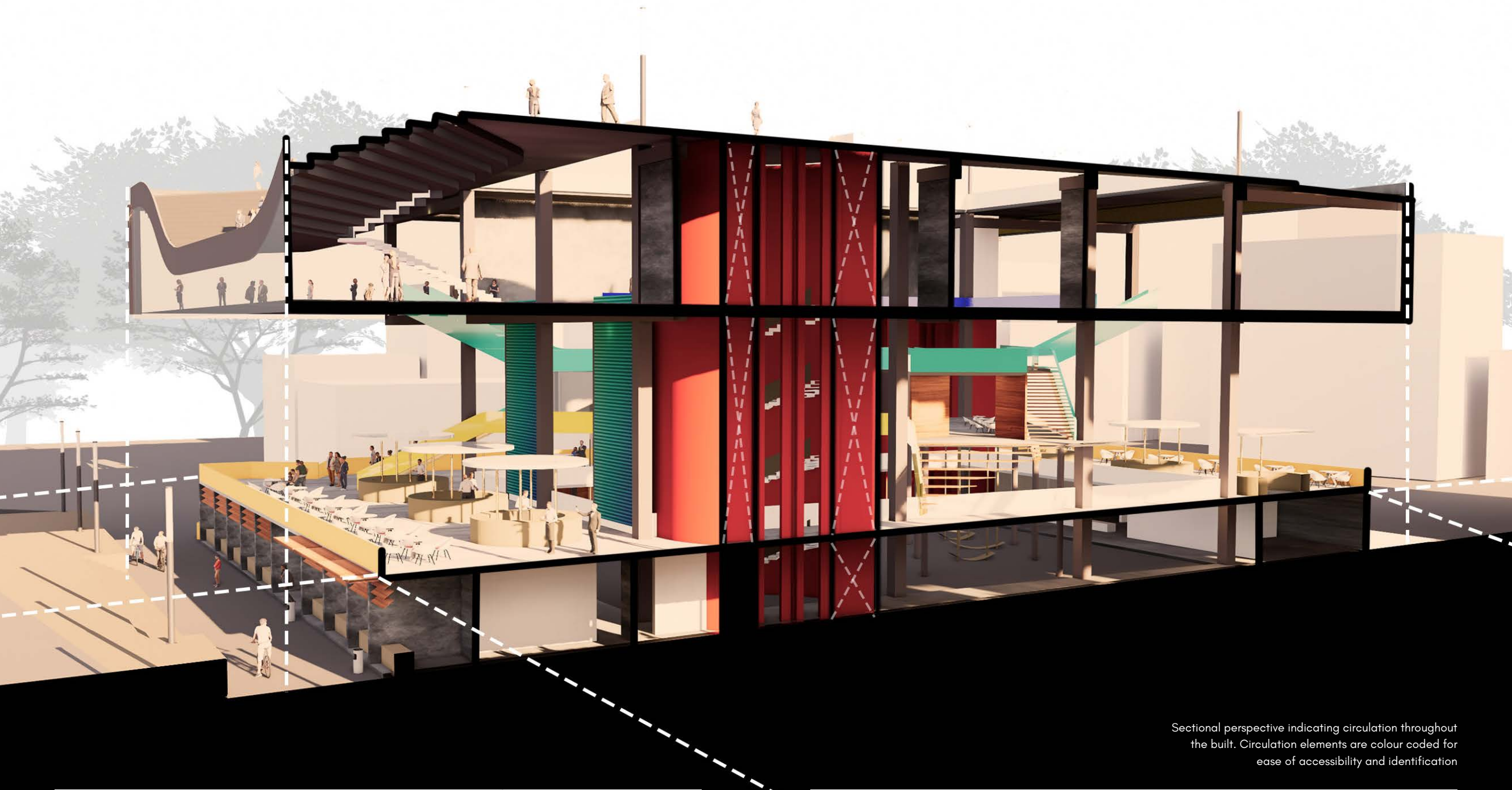


VERTICAL CONNECT

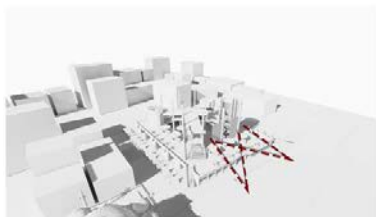
Circulation Cores connect the entire structure and provide access for physically challenged



Exploded View

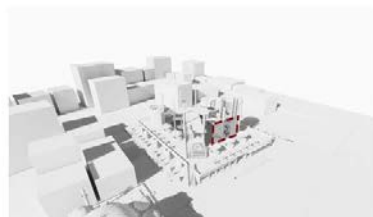


Sectional perspective indicating circulation throughout the built. Circulation elements are colour coded for ease of accessibility and identification



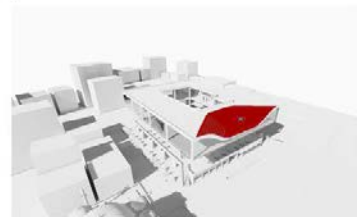
TRANSFORMING FACADE

Series of drop down LED panels with interactive displays create a visual connect with the vehicular and pedestrian flow around



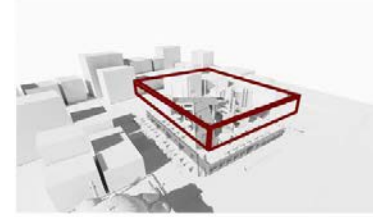
POROUS FACADE

These LED panels drop down alternatively making the built space still porous providing connect with the space beyond



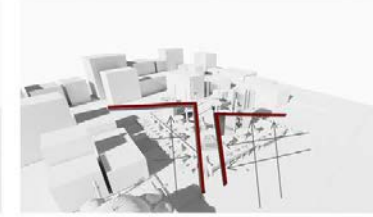
OUTDOOR LECTURE

Outdoor Lecture that is a part of the facade makes connect with the main street in front also acting as an attractor for the neighbourhood around



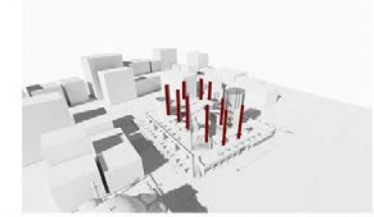
VARIED VOLUMES

Large Canopy of roof cover provides great shaded plazas that become pause points for the public around



SERIAL VISION

Series of revelations happen when one moves via the edges of the site. These views create a sense of curiosity and inquisitiveness and also establish connected views and vistas.



STRUCTURE

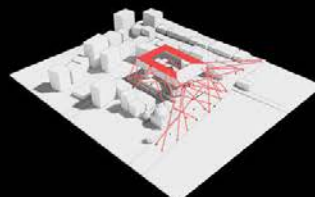
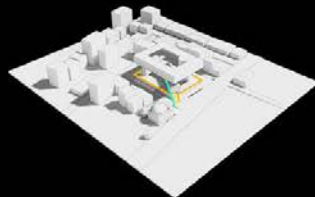
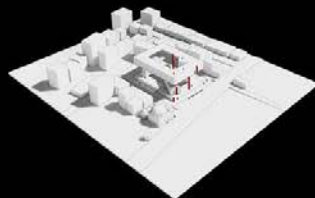
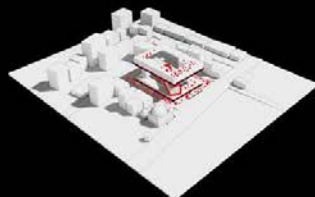
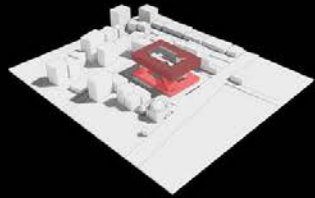
Series of MS Columns and RCC Cores allow for load transfer and also make the built space porous creating connect with the street and neighbourhood around

03.2 Design Strategies

SPACE

STRUCTURE

TIME



ORGANISATIONAL PATTERN

Establishing a transition from a public component of the program (Markets, Restaurants, Galleries) to the Private component (Culinary School)

RELATIONSHIPS & CLARITY

Establishing a connect with the surrounding built and creating a three dimensional connect with the neighbouring built at unit level. Also establishing a connect by addressing access from upcoming metro station and the residential area.

HIERARCHY

Hierarchy is achieved when user traverses through series of thresholds that happen at various levels which allows for transition from public to private spaces.

SPATIAL DEFINITION & EDGES

Spaces interact with the user along the edges both physically and visually establishing connect at the ground and above ground as well.

SCALE & PROPORTION

A Variation in scale establishes a series of hierarchies. There would be a transition from an intimate scale at various spaces to larger scales where there is more public participation.

COLOUR

Colour Coding helps ease in access and identifying spaces in a large public building. Parapets are colour coded giving a sense of direction and indicating the levels the user is in.

SENSORIAL

The aura of the food, the herb garden on the roof are definitely going to impact the users and pedestrians in and around the site. The floating mass on top also creates a dynamic play of light and shadow and this is going to create interesting shadows throughout.



Connectivity across levels



Elevation showing multiple activities across various levels throughout the Urban attractor



04 Professional Work

At The Purple Ink Studio and Freelance Works

Nestled amidst a topographically dynamic landscape, this architectural endeavor seeks to craft villaments characterized by a unified thematic framework while accentuating their singular diversity. The design approach intricately dissects the project into a series of modular elements, allowing for the bespoke configuration of each villa, thereby bestowing upon them distinct character and identity reflective of their unique spatial narrative.



04.1 Sattva Villaments

The masterplan endeavors to accommodate 122 villas within a 7.2-acre parcel, strategically allocating plots oriented towards the east, west, and premium locations. Complementing these residences are communal facilities including open-air gyms, herb gardens, playful landscapes, dedicated dog parks, and a central clubhouse.

The site is meticulously organized into four distinct tiers, delineated by the natural contours of the land, namely, the 903, 906, 909, and 910.5 elevation levels, enhancing the spatial coherence and architectural integration within the development.



(Scan QR Code for more details on Professional Work)

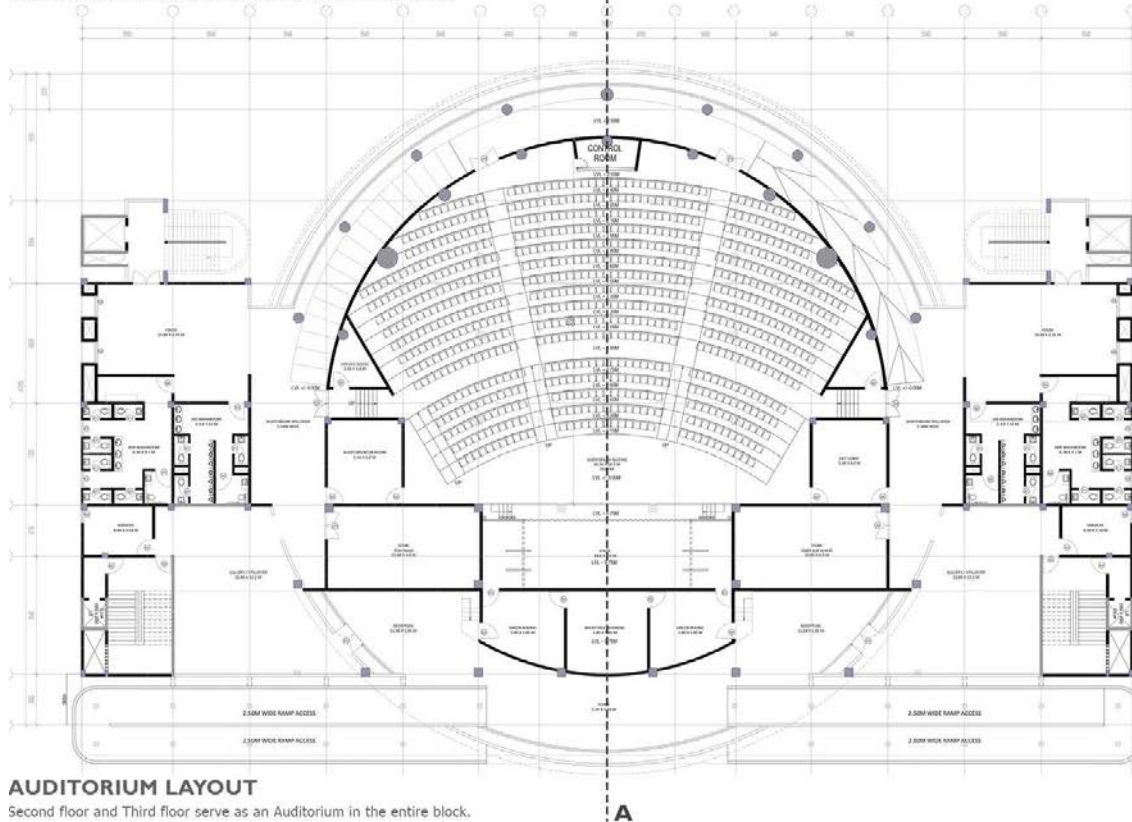
04.2 Food Court Working Drawings

(Scan QR Code for more details on the project)



FOOD COURT LAYOUT

Ground floor and First floor serve as a food court in the entire block.

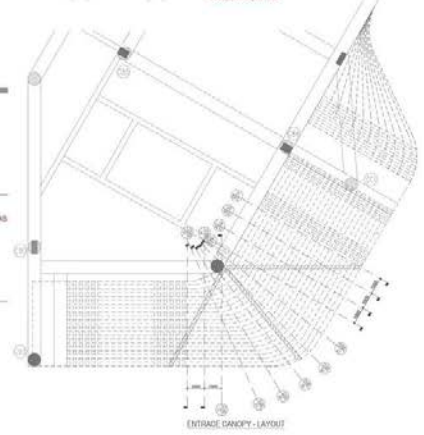
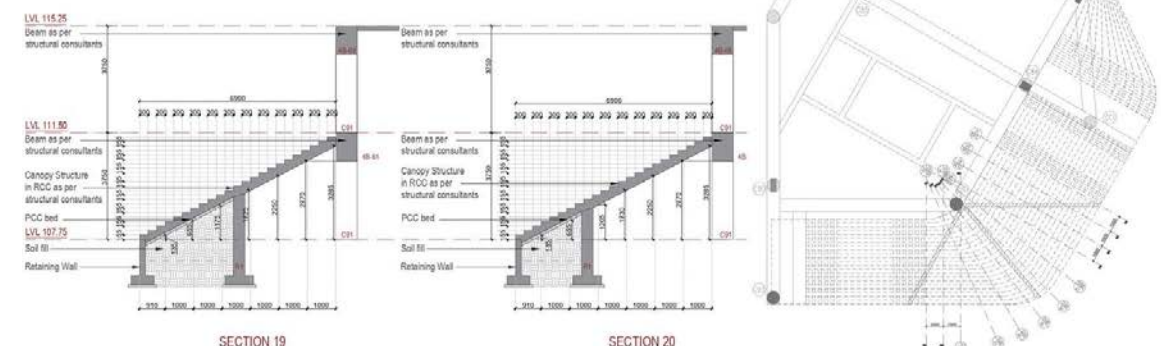
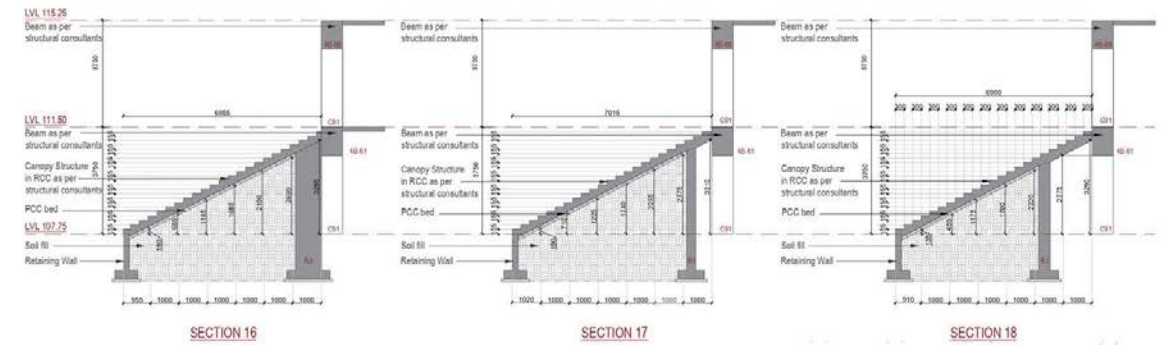
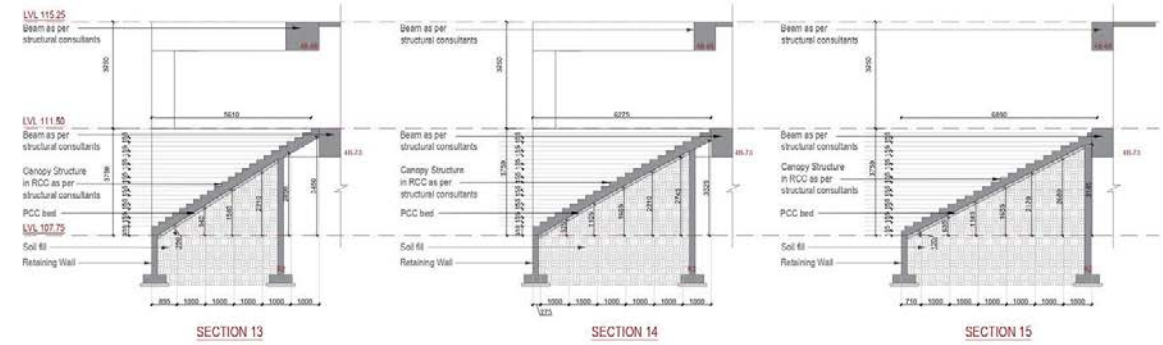
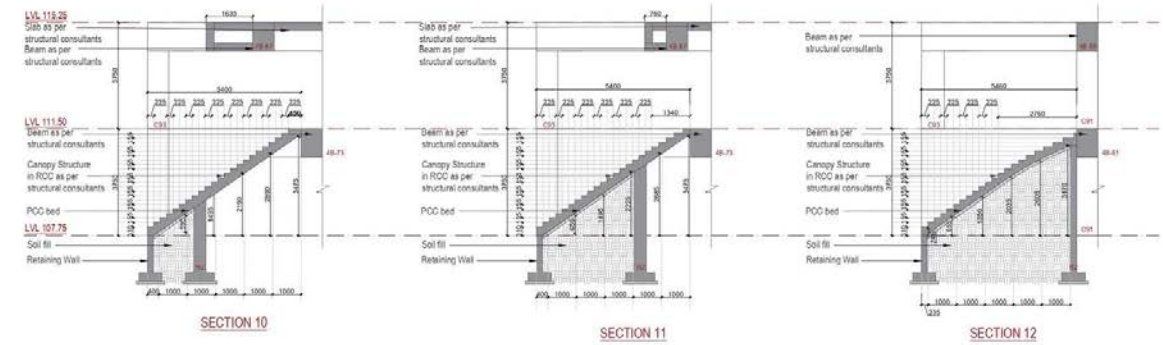


AUDITORIUM LAYOUT

Second floor and Third floor serve as an Auditorium in the entire block.

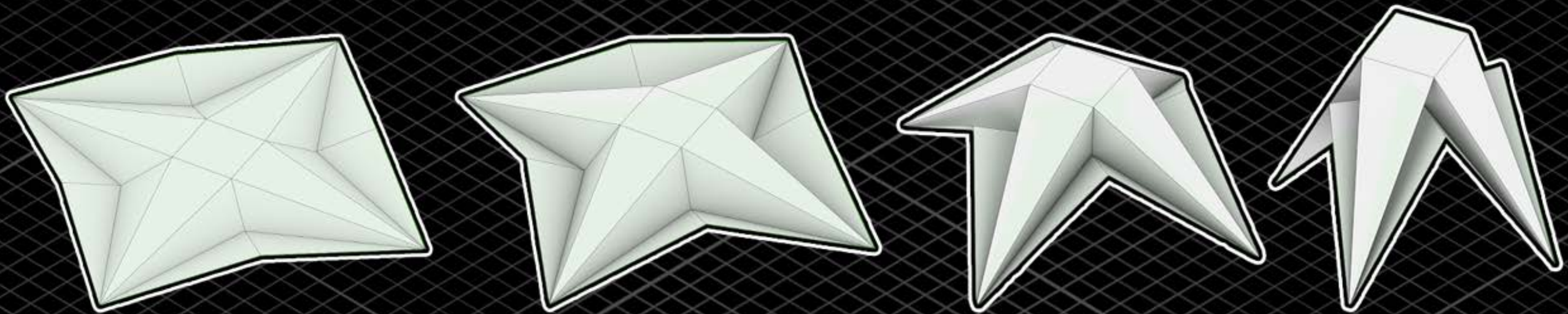
04.3 MSAP Entrance Canopy Details

(Scan QR Code for more details on the project)



ENTRANCE CANOPY - GFC DRAWINGS

Masterplan Layout

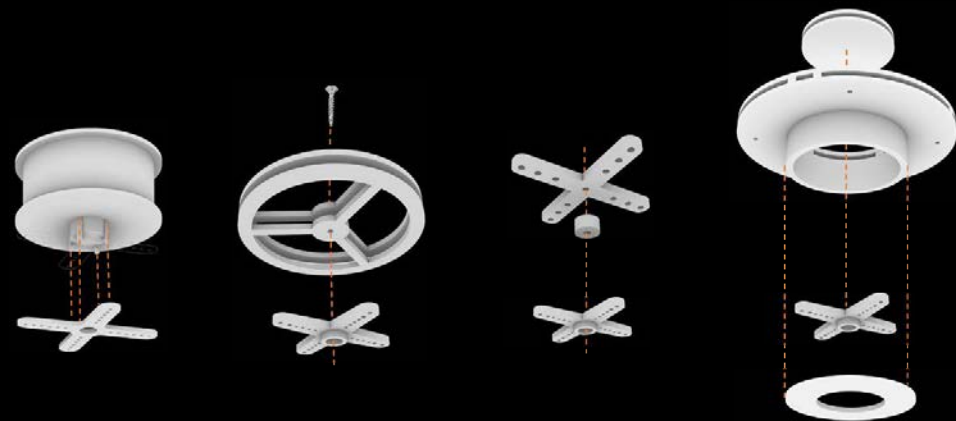
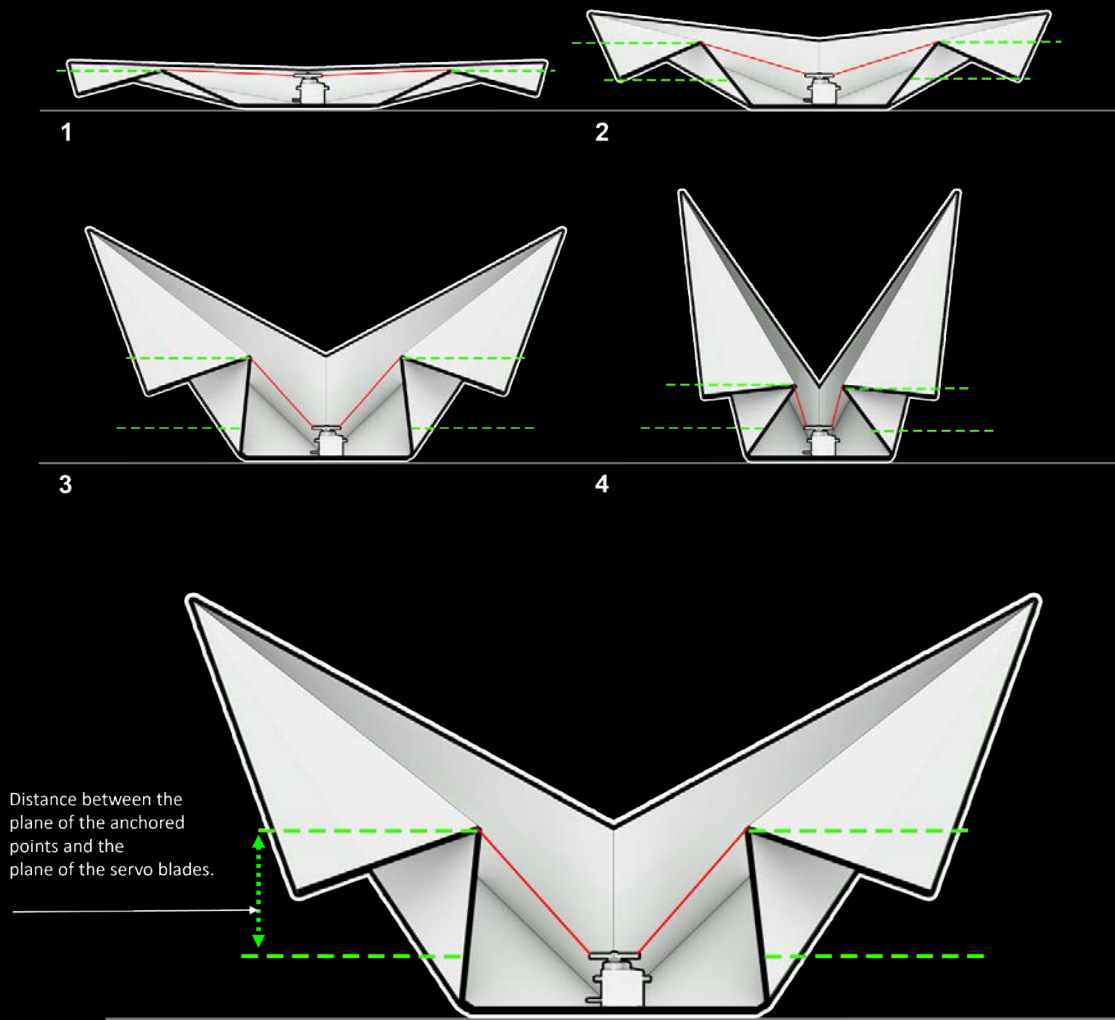


05 Deployable Flatbots

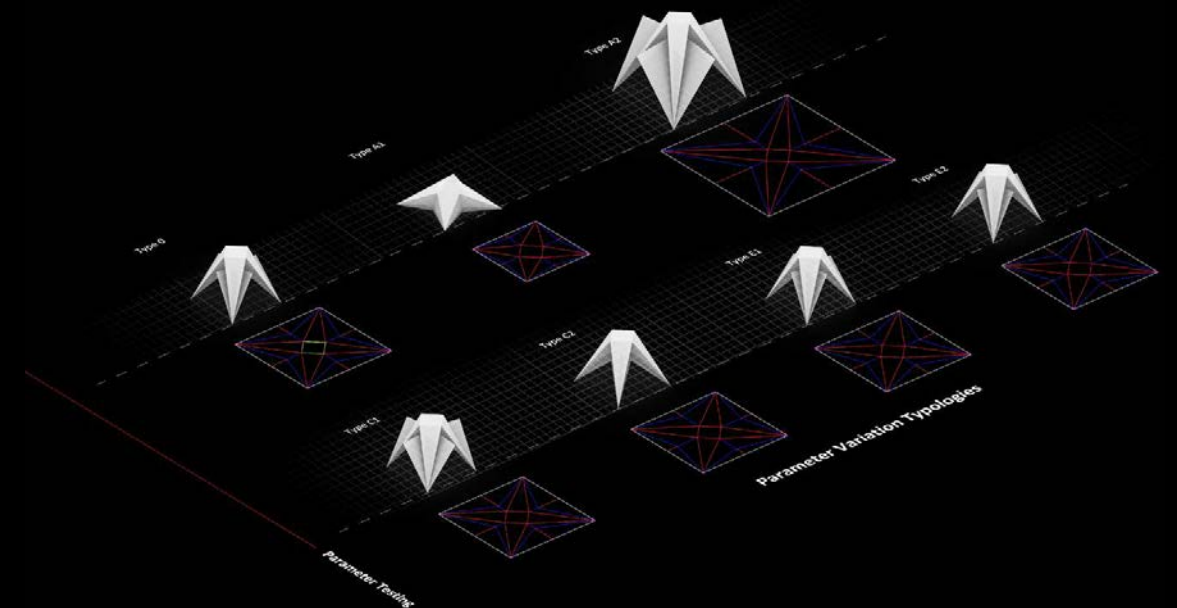
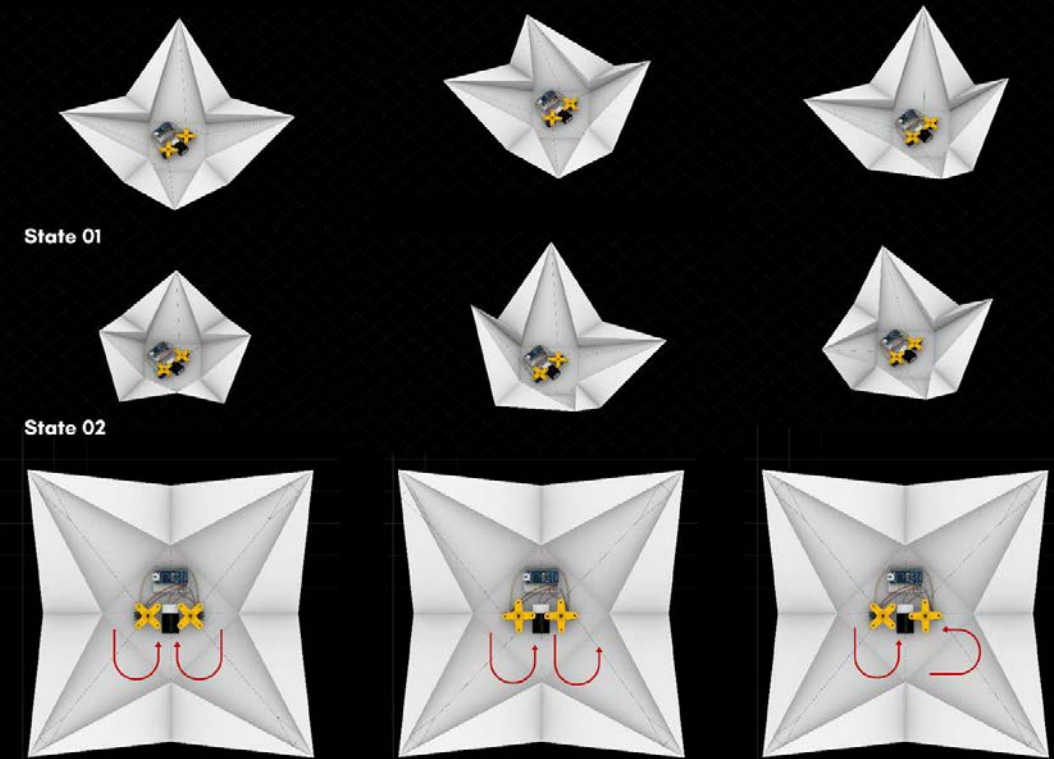
Workshop, Architectural Association, London

The workshop endeavors to pioneer the development of Deployable Flat-Bots, innovative robotic entities characterized by their capacity to morph into programmable flat surfaces through sophisticated kinematic deployment mechanisms, notably employing “fold and cut” patterning methodologies. This includes the application of kinematic principles facilitated by advanced laser cutting technology and the synthesis of complex algorithms through programming to imbue these robotic constructs

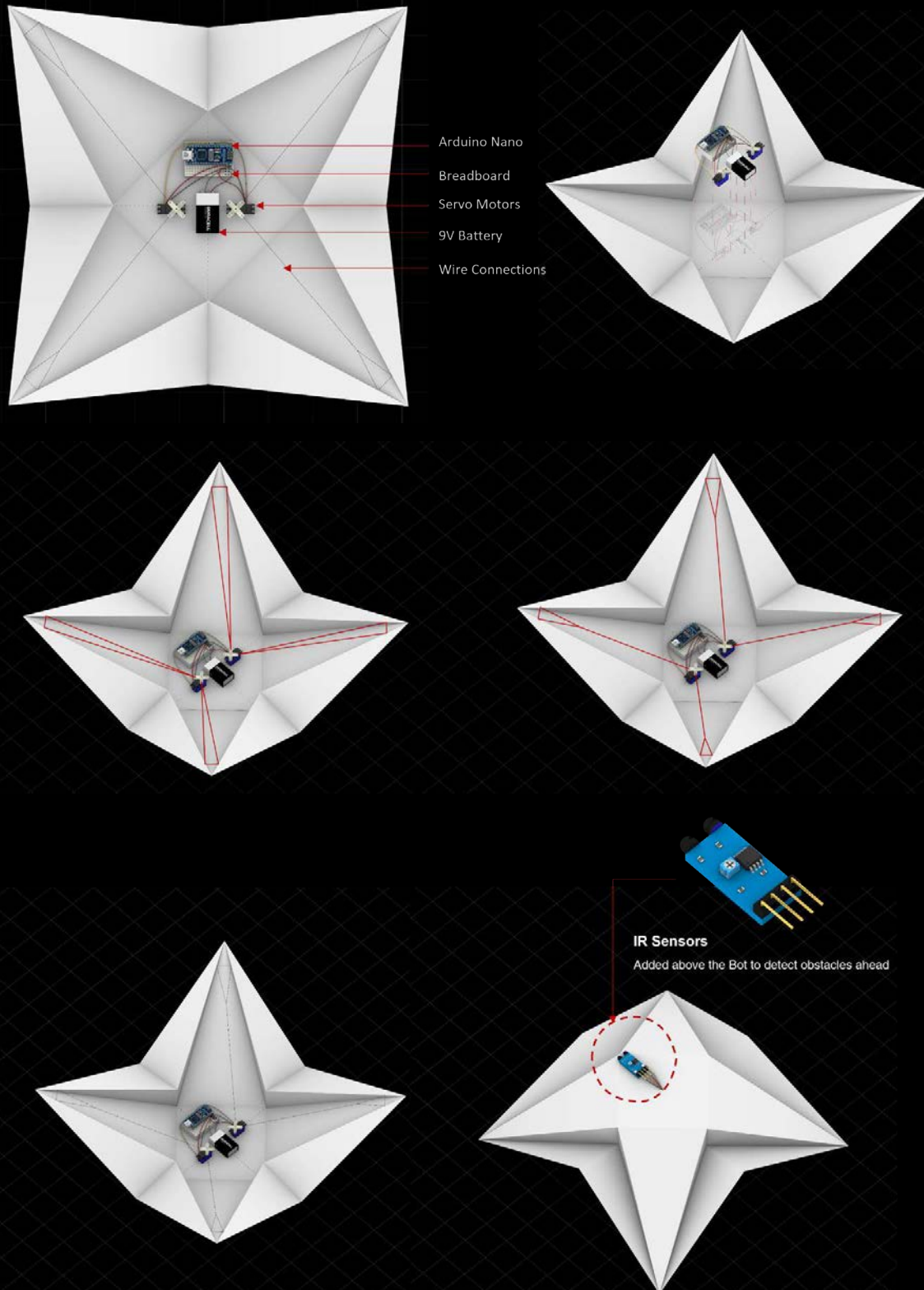
05.1 Deployment Section



05.2 Choreography of Servos



05.3 Electronics



05.4 Flatbot Working Mechanism

The bot's functionality, governed by Arduino's conditional coding, operates across three states: "Walking," where it navigates autonomously; "Steer/Course Correct," adjusting its path upon encountering obstacles; and "Play Dead," triggered by light exposure, showcasing adaptability. These programmed states enable versatile behavior, enhancing the bot's functionality across diverse scenarios.



06 Competition Entries

International and National Winning Entries

06.1 Railport, At Anand Vihar, India



Regional Winner and National Runner Up at Transparence 15.0

The architectural landscape of railway stations has evolved into versatile service centers, nurturing both employment opportunities and innovative initiatives. Through the expansion of infrastructure, these stations accommodate a myriad of passenger requirements, ultimately striving to cultivate efficacious and impactful public realms.

(Scan QR Code for more details on the winning entry)



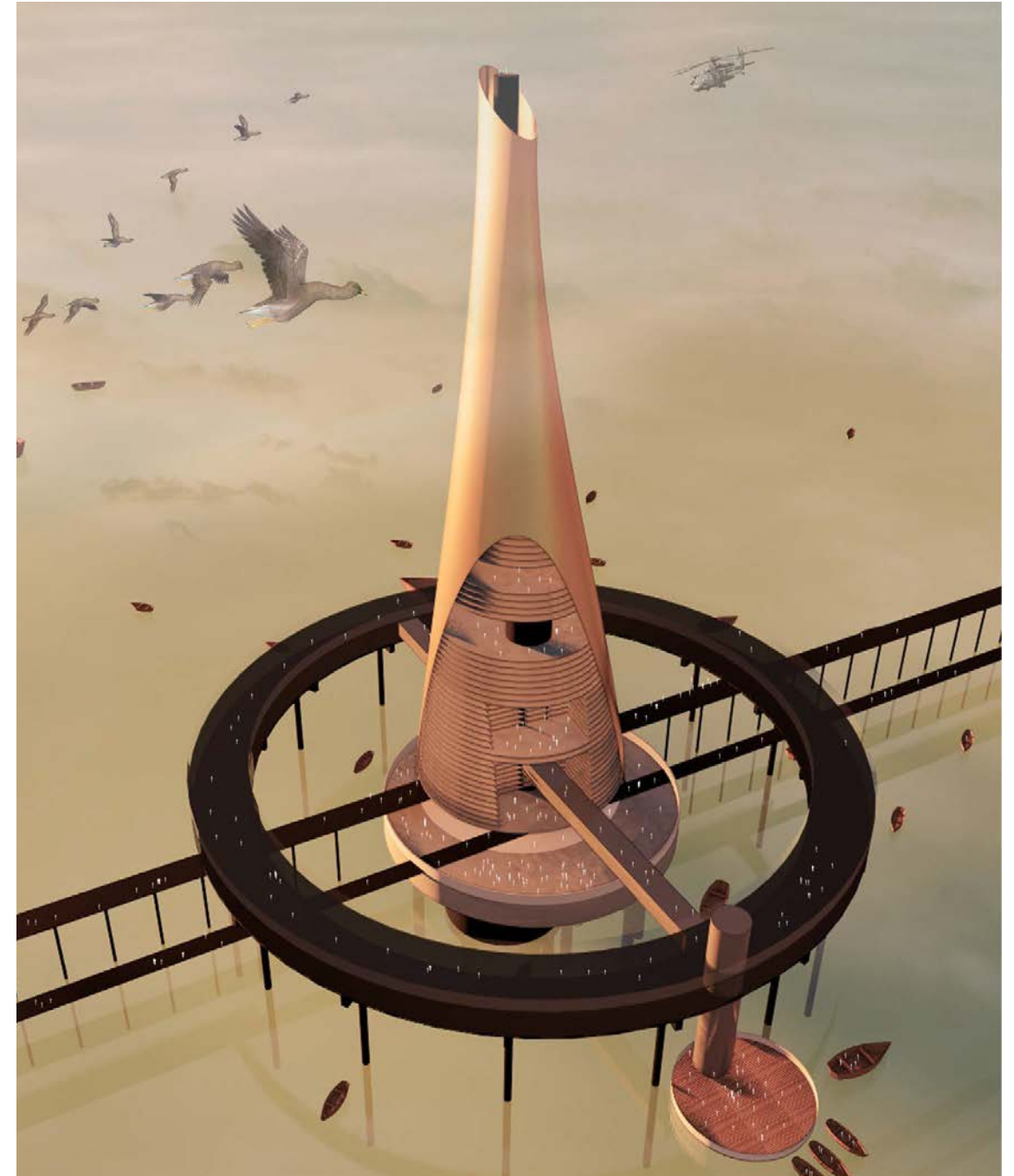
06.2 Topods, Telescopic Collapsible Washrooms



Regional Winner and National Green Innovation Award AYDA, National Winner at CERA Washroom Challenge

These collapsible pop-up washrooms address sanitation and water scarcity challenges while promoting community education. With a telescopic mechanism, they offer space-efficient solutions.

(Scan QR Code for more details on the winning entry)



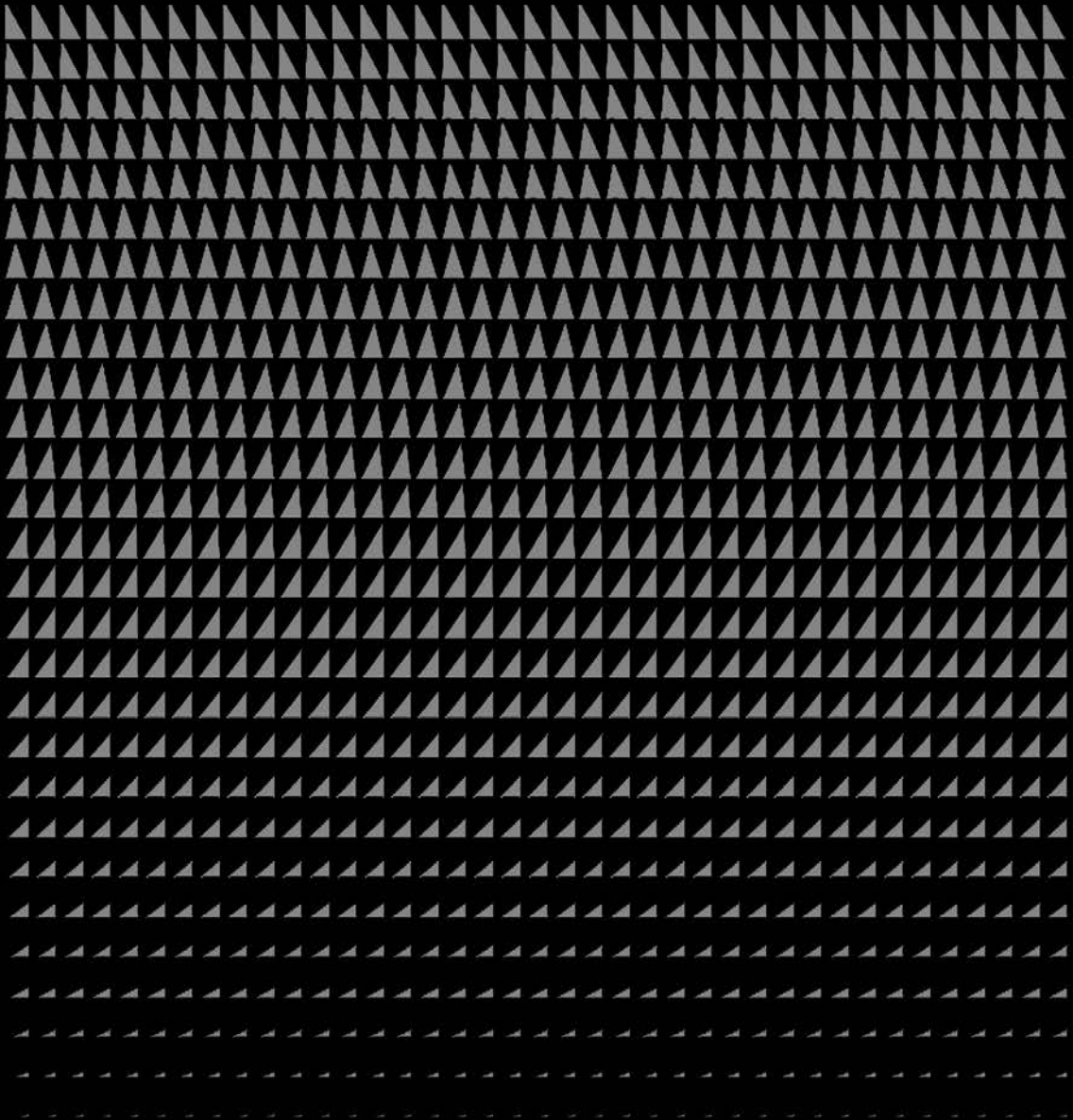
06.3 The Obelisk, At Rameswaram, India



Entry at CTBUH (Council on Tall Buildings and Urban Habitat)

A towering structure in Rameswaram purifies air with graphene exterior, integrating bridges with road and rail networks. Self-sustaining tower includes a museum for Dr. APJ Abdul Kalam and hydroponic labs for food production.

(Scan QR Code for more details on the entry)



U L L A S M U R U G E S H R A O

ullasm1998@gmail.com | +91-9901062572 or +44-7833874445

All works are done by Ullas Murugesh Rao unless otherwise mentioned