

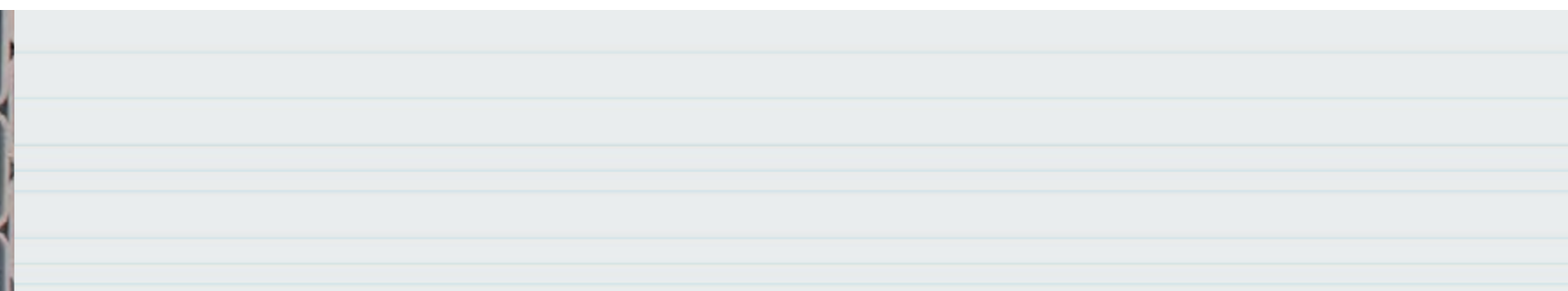
PORTFOLIO

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 [Bhavana Priya Balasubramanian](#)





Bhavana Priya B

ARCHITECTURAL DESIGNER

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R E S U M E

EDUCATION

University of Pennsylvania - Stuart Weitzman School of Design
Philadelphia, PA
Masters of Science in Design- Advanced Architectural Design (MSD-AAD)
Graduation with Distinction - top 15% of the graduating class

GPA :3.93/4

Rashtreeya Vidyalaya School of Architecture
Bangalore, India
Bachelor of Architecture (B.Arch)
Common Entrance Test Rank - 26G

GPA : 3.34/4

WORK EXPERIENCE

Teaching Assistant (MSD-AAD Studio & Design Innovation) <small>Pennsylvania, USA</small> Involved in teaching and guiding students for 2 mandatory courses as a part of the MSD-AAD program under Fabian Llonch for studio and Ali Rahim for Design Innovation at the Weitzman School of Design. Responsibilities include Time and Resource management, Understanding the role of Artificial Intelligence tools in Design, helping with Design decisions, fabrication and helping students navigate the requirements of the respective courses	September 2023- Present
Dumo labs (Summer Research Assistant) https://www.design.upenn.edu/dumolab/about <small>Pennsylvania, USA</small> Research on a project exploring potential of food waste in the design and construction industries.	May 2023- Present
Studio Svarup (Architectural Intern) <small>Delhi, India</small> Architectural drawings, construction drawings, diagramming concepts, rendering, material procurement, client presentations and cost analysis for different building materials.	January 2021- July 2021
INTACH (Indian National Trust for Art and Cultural Heritage) (Architectural Intern) <small>Bangalore Chapter, India</small> Documenting and detailing a 70 year old Chowtry (Marriage Hall) to be conserved.	July 2018
Studio XYZ (Graphic Design Studio, Mumbai, India; Worked Remotely) Involved in Branding, creating Graphics for products, and designing Instagram feed for, Gush Beauty, Tiger Baby Productions and Renee Lipsticks	March - May 2022
Nisha and Shefali (Fashion Boutique, Delhi, India; Worked Remotely) Curated content (Graphics and Written) for their Social Media	March-July 2022
Blocked (Workshop, Bangalore, India) An initiative to raise awareness and instill Design sensibilities and problem solving with diagramming tools among school going children	2018
Fenced (Workshop, Bangalore, India) An initiative to understand and provide the tools for a community in Arekere, Bangalore, India to address city planning issues	2018
Dimensions RVCA Annual Exhibition 13 (Bangalore, India) Co-Head of the Graphics Committee, In-charge of Designing and overseeing the production of all the visual communication for the Exhibition.	August 2018-May 2019

SKILLS

2D Drawings : AutoCAD, Rhinoceros 3D
 3D Modeling : Rhinoceros 3D, Sketch-up, Revit, Grasshopper
 Graphics and Rendering : Adobe Creative Suite, Key Shot, Enscape, Z Brush, Lumion
 Fabrication : Woodworking, 3D Printing, ABB robot Clay Printing, ABB robot Hot Wire Cutting
 Miscellaneous : Microsoft Office, Miro
 Other skills: Photography, Research and writing, Graphic Design

LANGUAGES

- English (Fluent)
 - Tamil (Native)
 - Hindi (Fluent)
 - Kannada (Native)
 - French (Level A)

WORKSHOPS ATTENDED

Architecture Workshop I - by Ar. Shubhra Rajee and Ar. Kevin Mark Lowe
Made in Earth - Workshop on Earth Plasters
Habitat Oneistox
Basics of carpentry -by Workshopbengaluru
Hafelle -Introduction to hinges and kitchen devices
Vault making workshop -by Ar. Senthil Kumar Doss;Play Architecture
Set Designing -by Saarang Pattwardhan
Wonder of Words -Writing workshop by Megha Bajaj

EXTRA CURRICULAR

- IAYP (International Award for young people) - silver level
 - Open water PADI certified diver
 - Part of an artists community known as the 'Broke Artists Collective'
 - Was part of a team of 6 that ran a food business 'La Botanas' as a part of the Cloud Mentor Entrepreneurship program

STUFFING, SHINGLES AND STRUCTURE

Project Partner : Dao Wu, Jiafeng Di

Critics : Nate Hume ; TA : Kyle Toyner

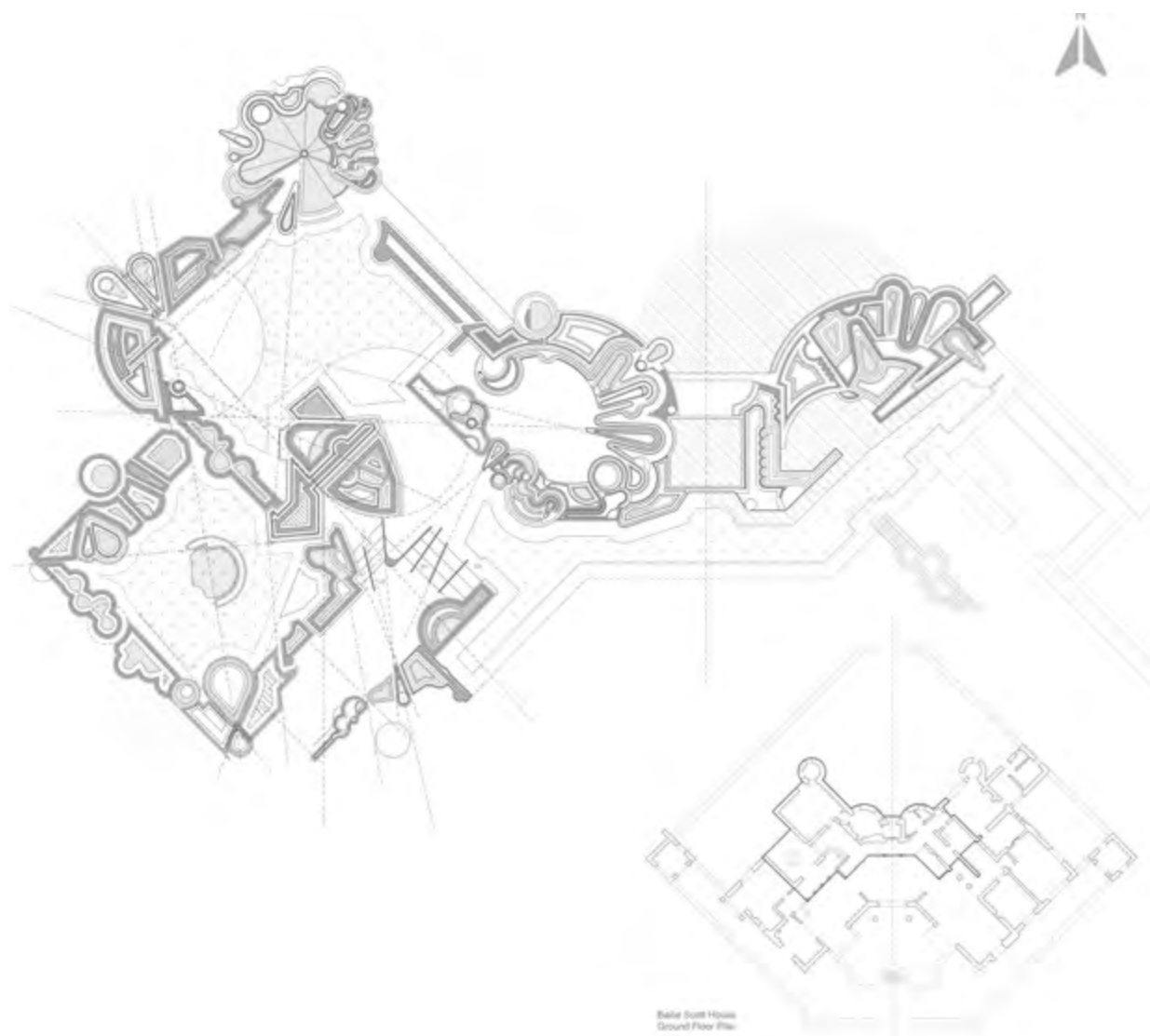
Softwares used : Rhinoceros 3D, Lumion, Adobe Creative Suite

Our project explores 2 structural systems that can be utilized to increase the volume occupied by an external wall.

After studying the plan of the Bailey house it was reduced to simple geometrical figures. Using projected geometries and techniques like mirroring, repeating and staggering we were able to achieve these interesting geometries that reflect in different parts of our design

The structure combined a nail laminated timber system, with a trellis while maintaining accuracy with 3D printed joinery. The main focus of the studio lied in its fabrication so we wanted to explore relevant methods of combining two pieces of wood together while considering sustainable practices.

The two types of shingles seen in our project help the facade act as a double wall system increasing insulation and maintaining indoor temperatures to a nominal. The success of our system lies in its scalability and its adaptability to different corner conditions.



Bailey House
Ground Floor Plan



FABRICATION SYSTEMS

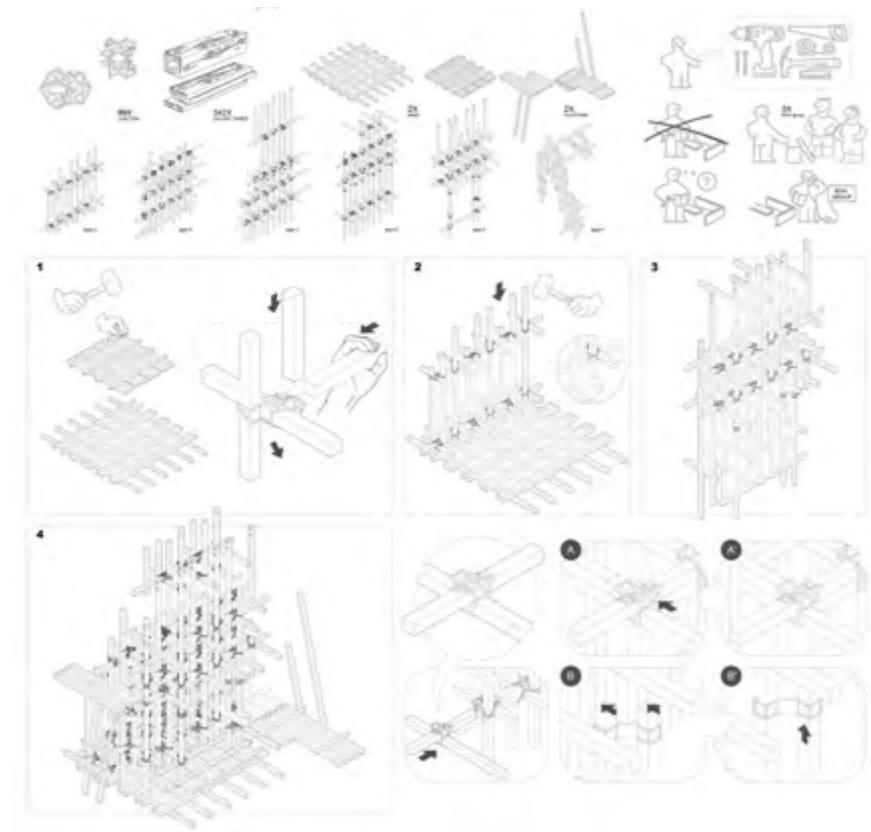
We explored 4 fabrication methods and systems that aim to work together in a system
 a. 3D Trellis b. Nail Laminated Timber c. 3D printed joints d. Sandwiched Compression Members

The Trellis helps to create a stable layers of structure that allows for air to act as insulation. Its modularity helps in its reproducibility

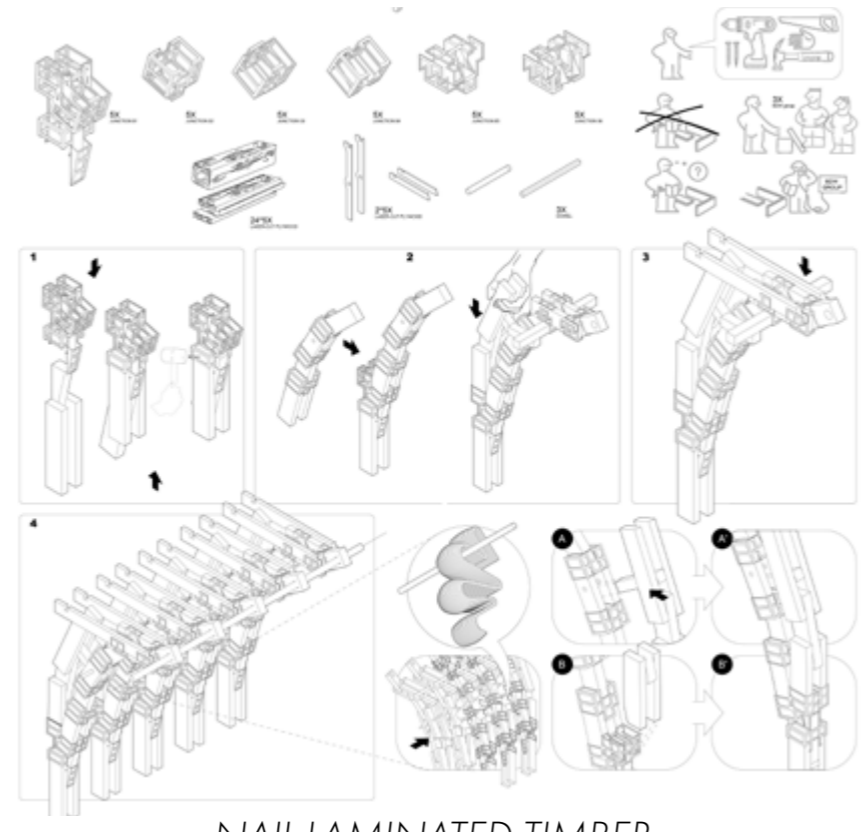
Nail Laminated Timber allows for easy fabrication of dimensional timber that readily available and requires no facilities, it also is an ancient construction technique that provides a unique aesthetic quality

3D Printed Joints are included as a part of the design information to be transferred and create an organised system of workflow.

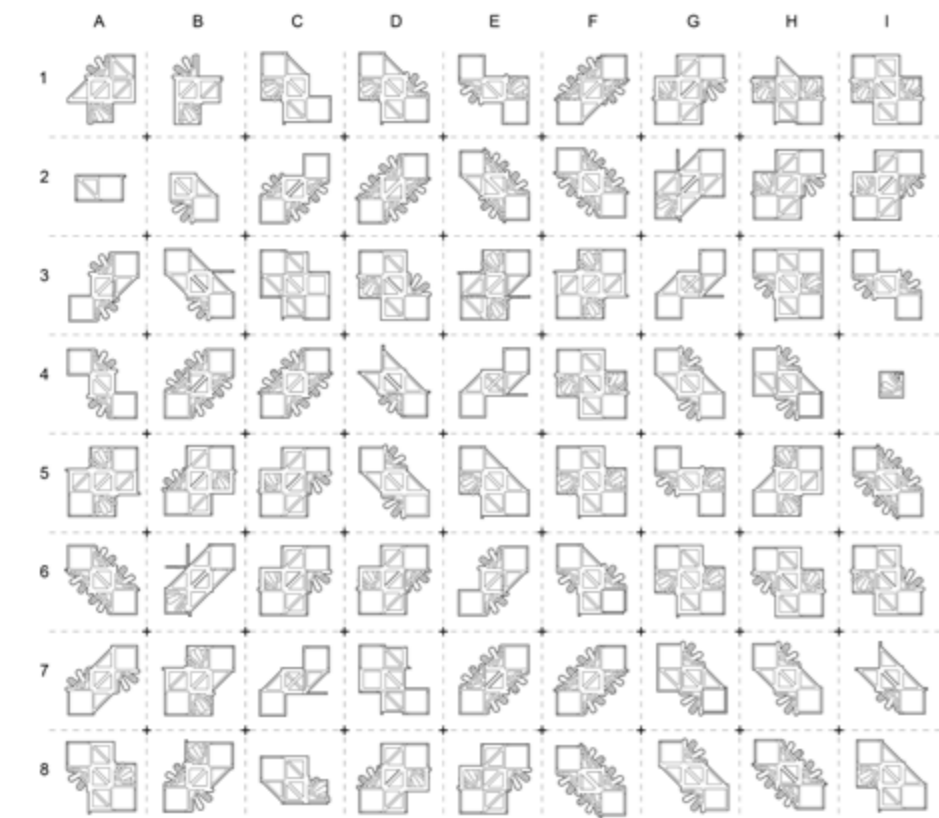
The Sandwiched Compression Members help realise the form and contain the 3D trellis and allow for the application of different systems to be installed on the facades



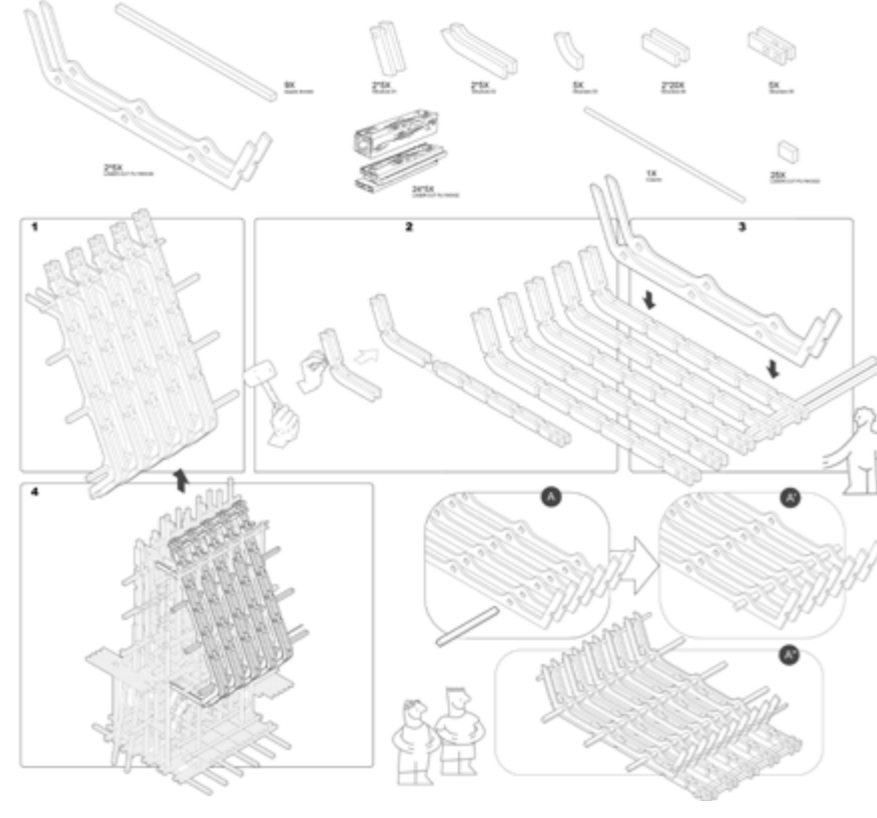
3D TRELLIS



NAIL LAMINATED TIMBER

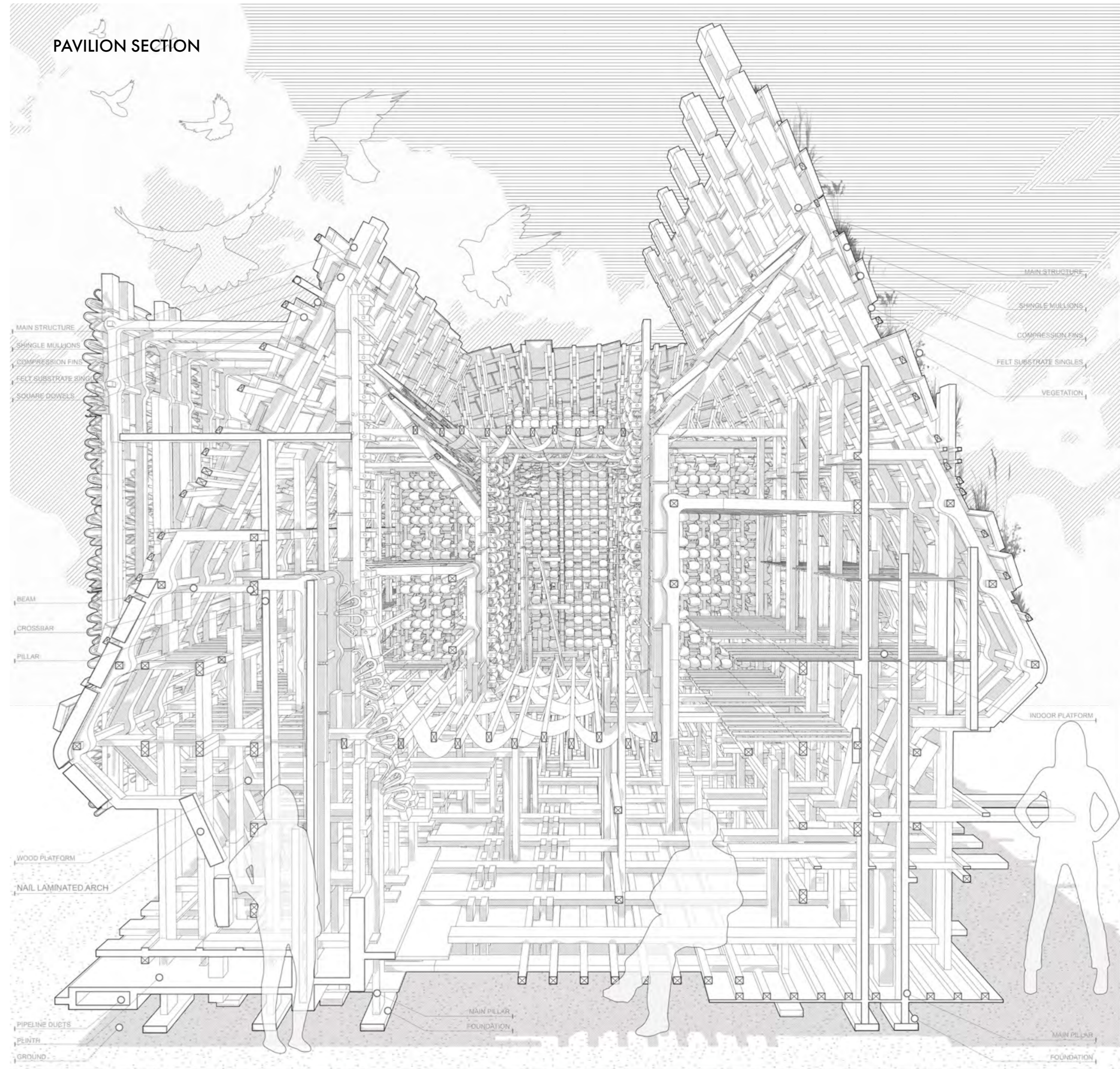


3D PRINTED JOINT



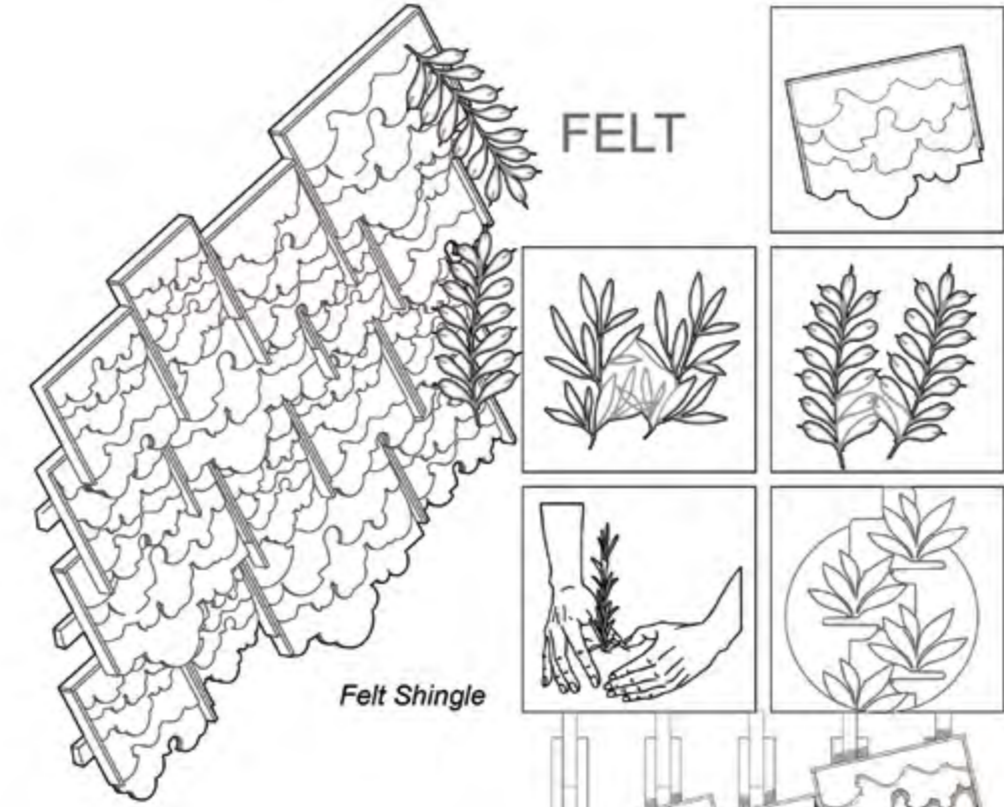
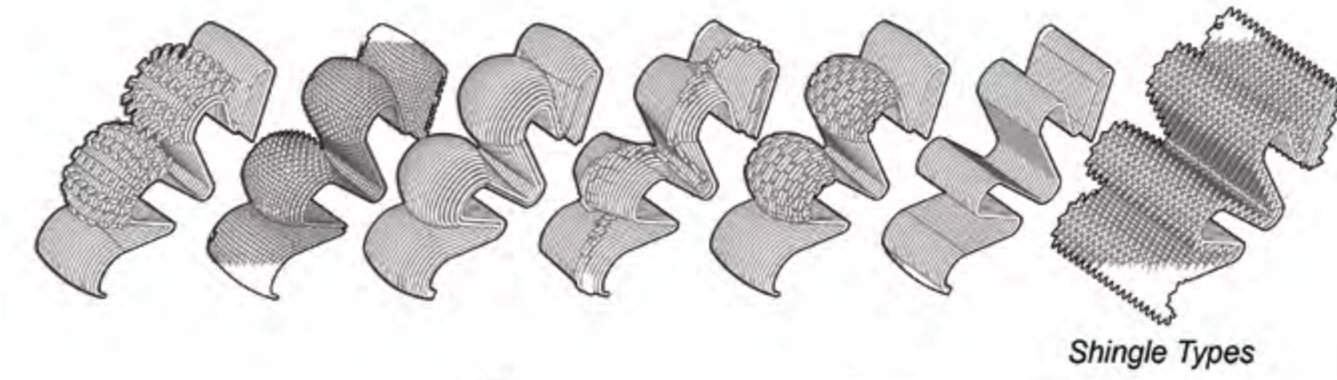
SANDWICHED COMPRESSION MEMBERS

PAVILION SECTION



HOW TO BUILD

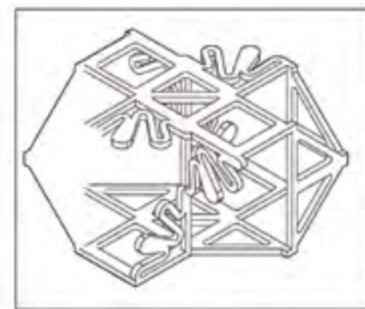
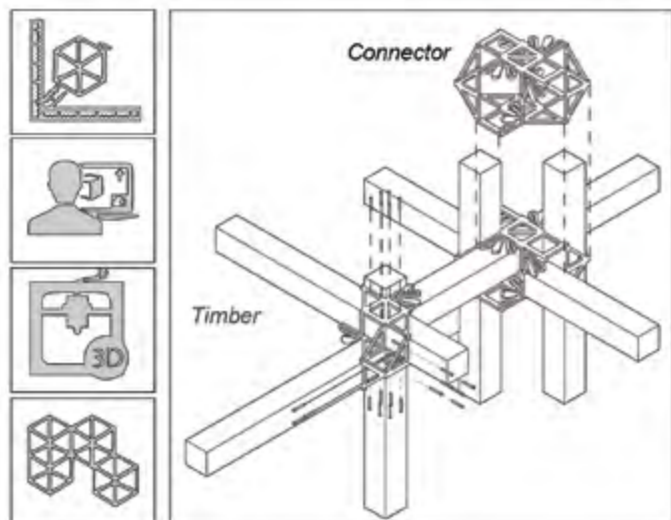
An important aspect of this project was its reproducibility and the merging of traditional and digital technologies.



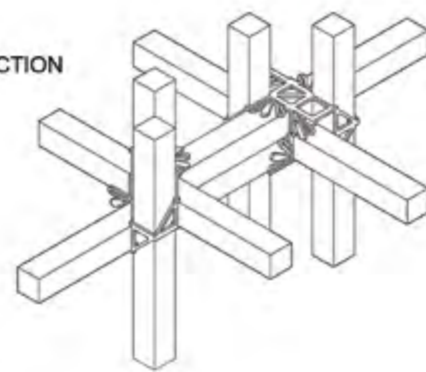
Vibrant Felt Substrate as shingle to grow vegetation and host micro-ecosystems!

3D PRINTED JUNCTION

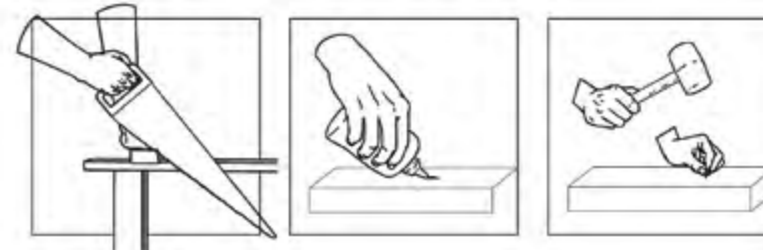
3D Printed junctions for ease of assembly, innovative design combinations and accuracy for construction



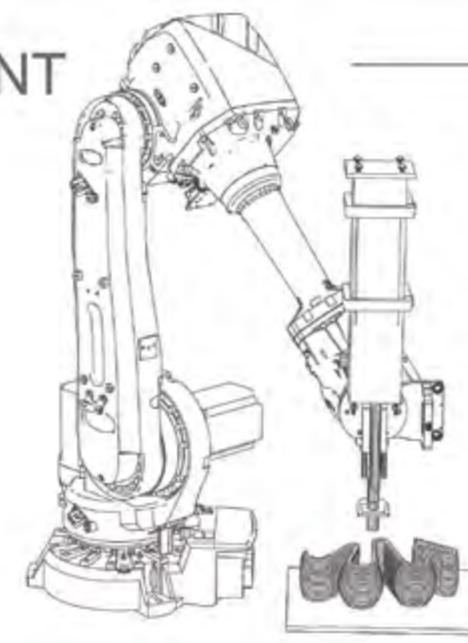
JUNCTION



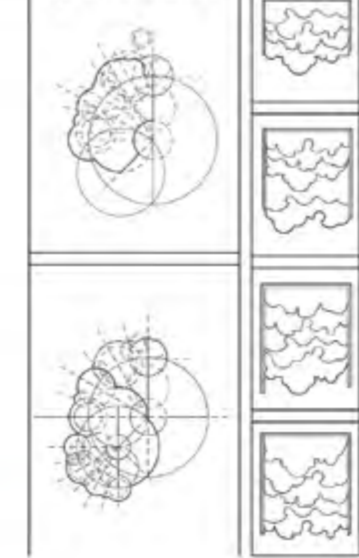
NAIL LAMINATED



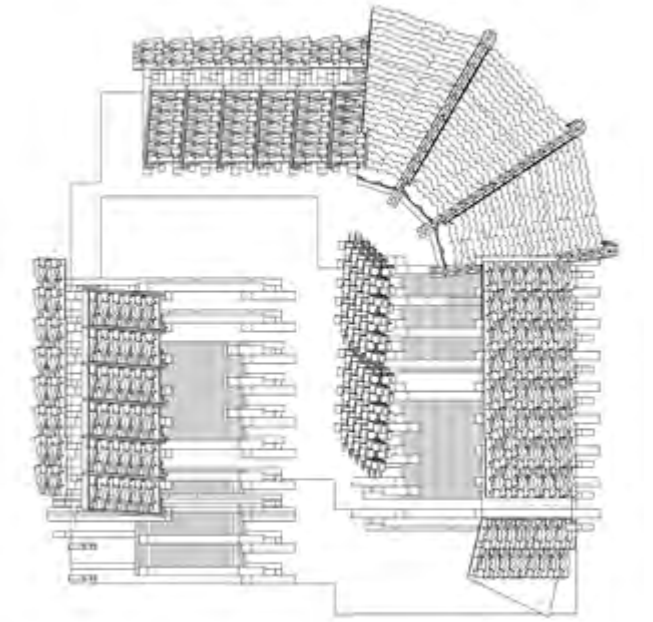
ROBOTIC PRINT



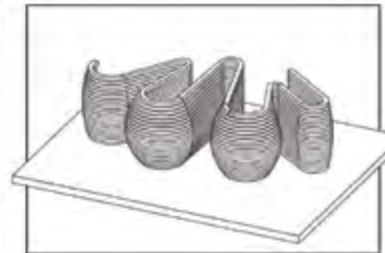
Figural Compositions



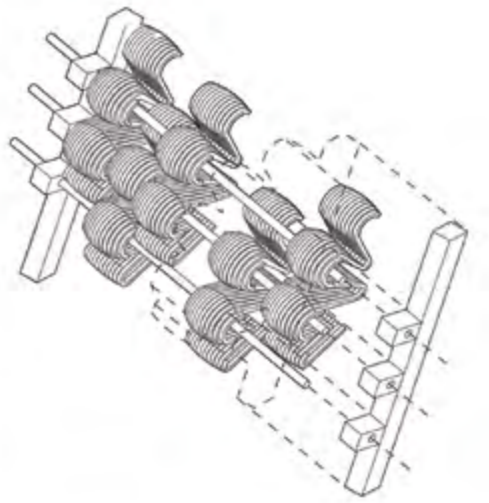
TURNING A CORNER



CERAMIC



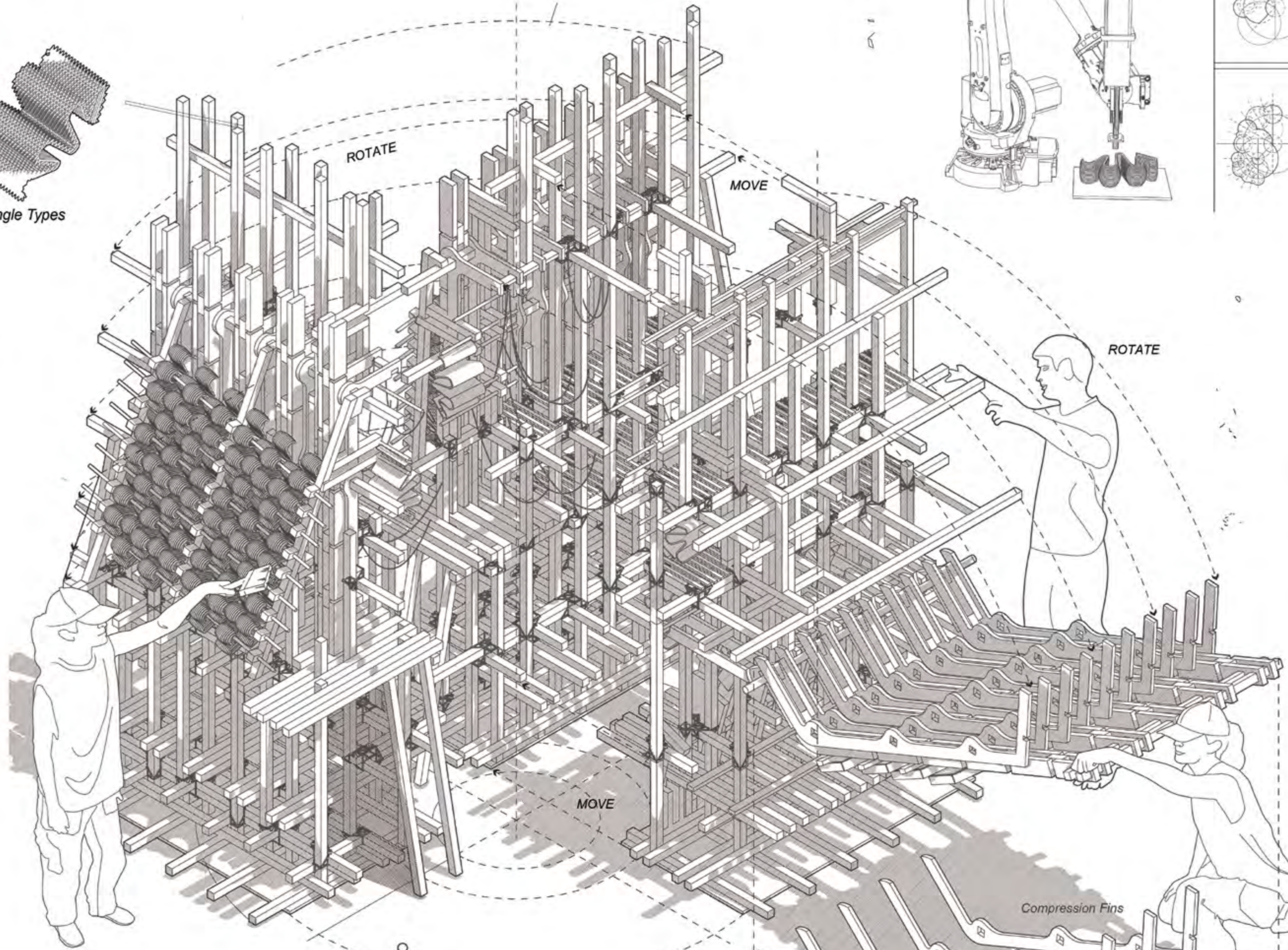
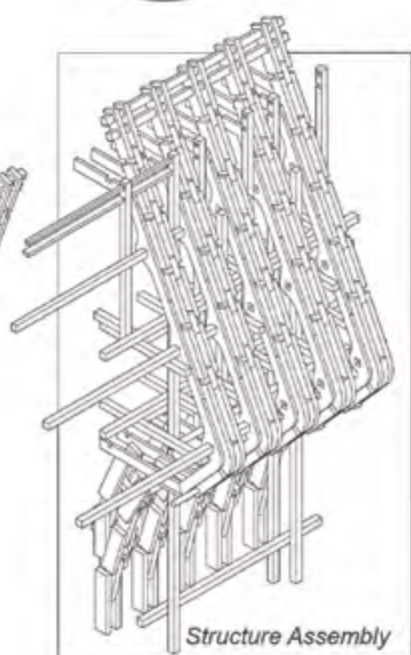
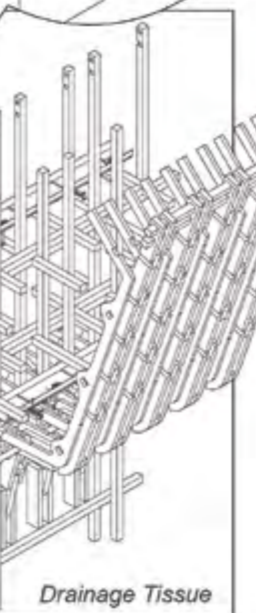
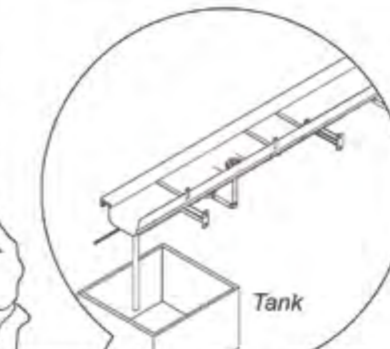
Clay Shingle Assembly Method



KINETIC ENVELOPE



Double shingle system with felt to increase thickness and house irrigation systems for cooling



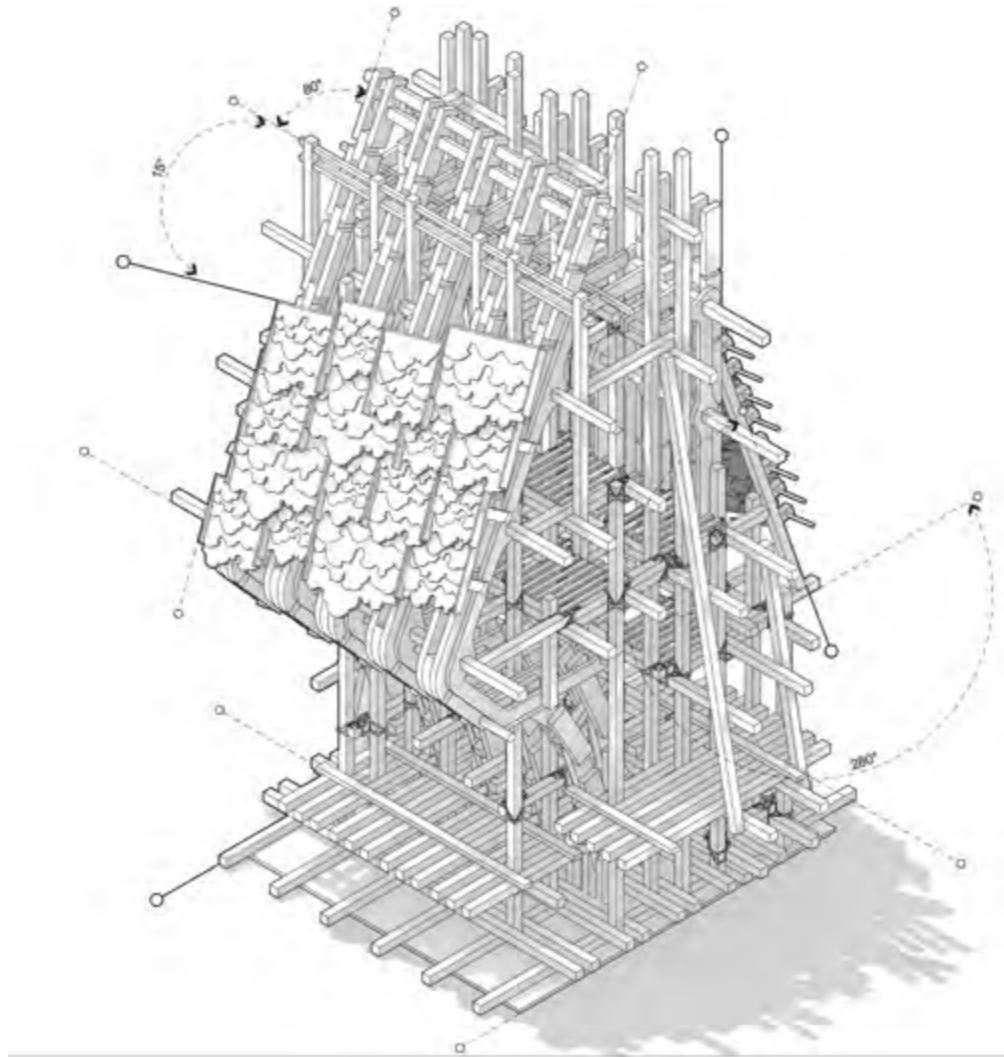
Compression Fins

Fabric

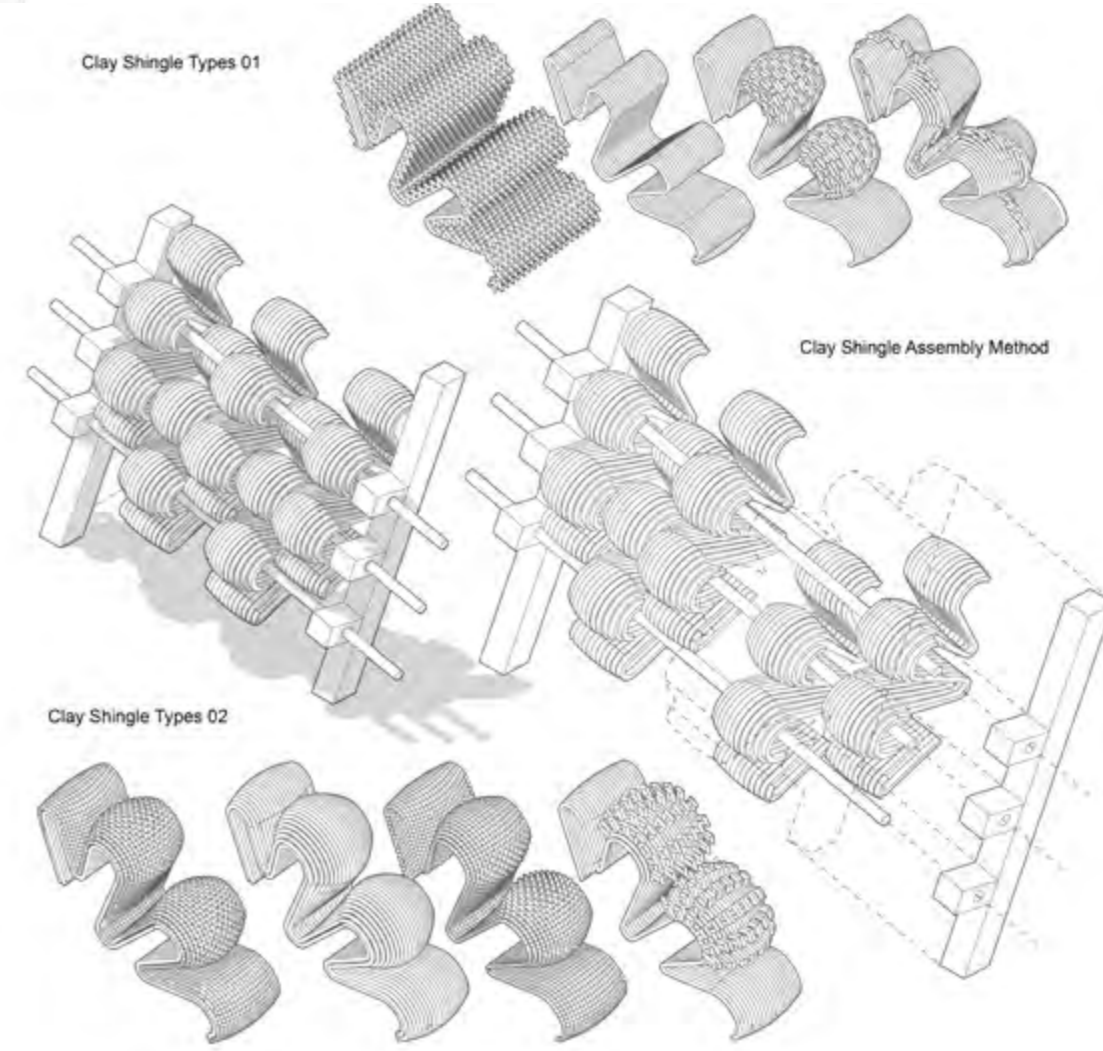
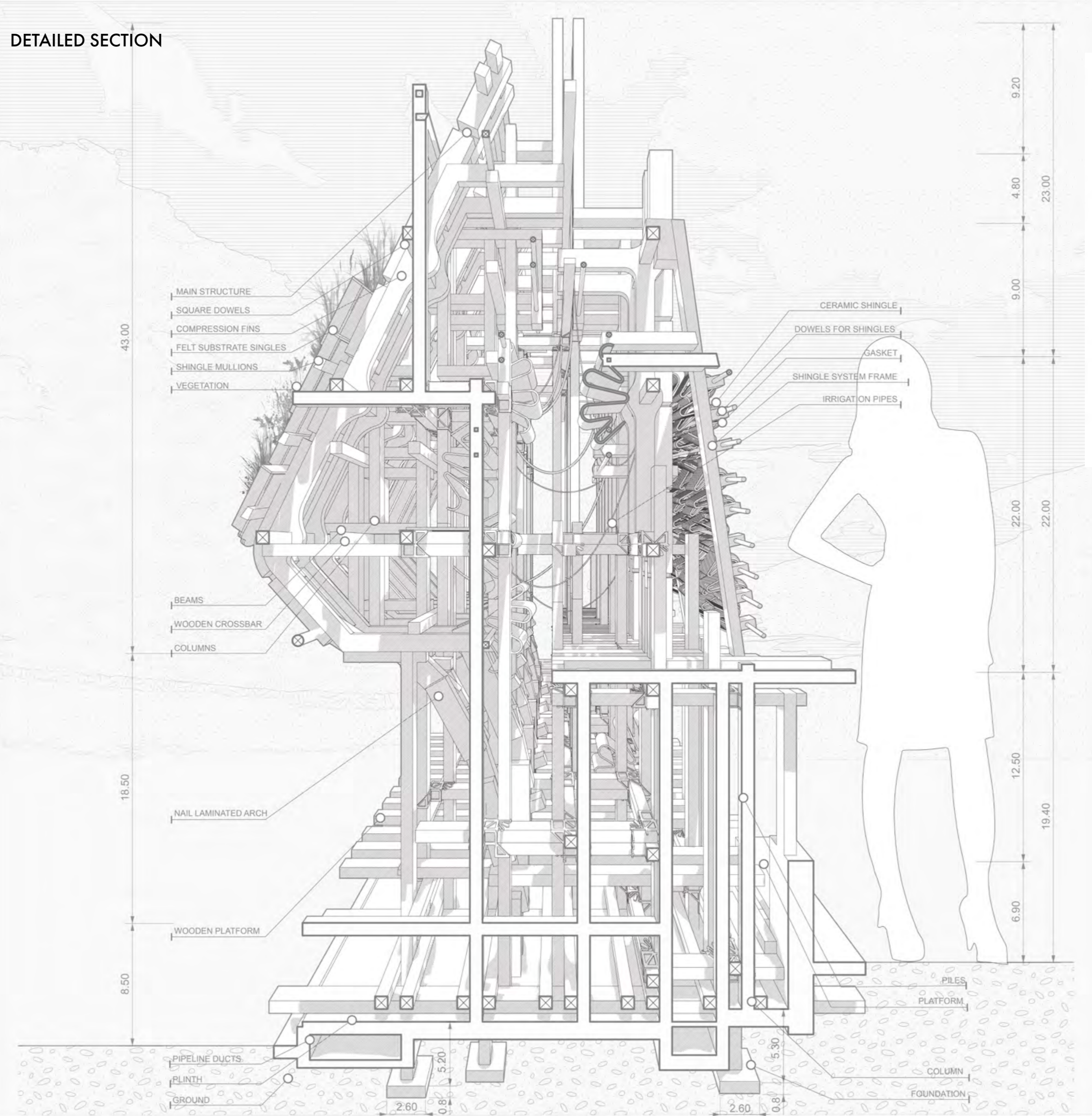
Drainage Tissue

Structure Assembly

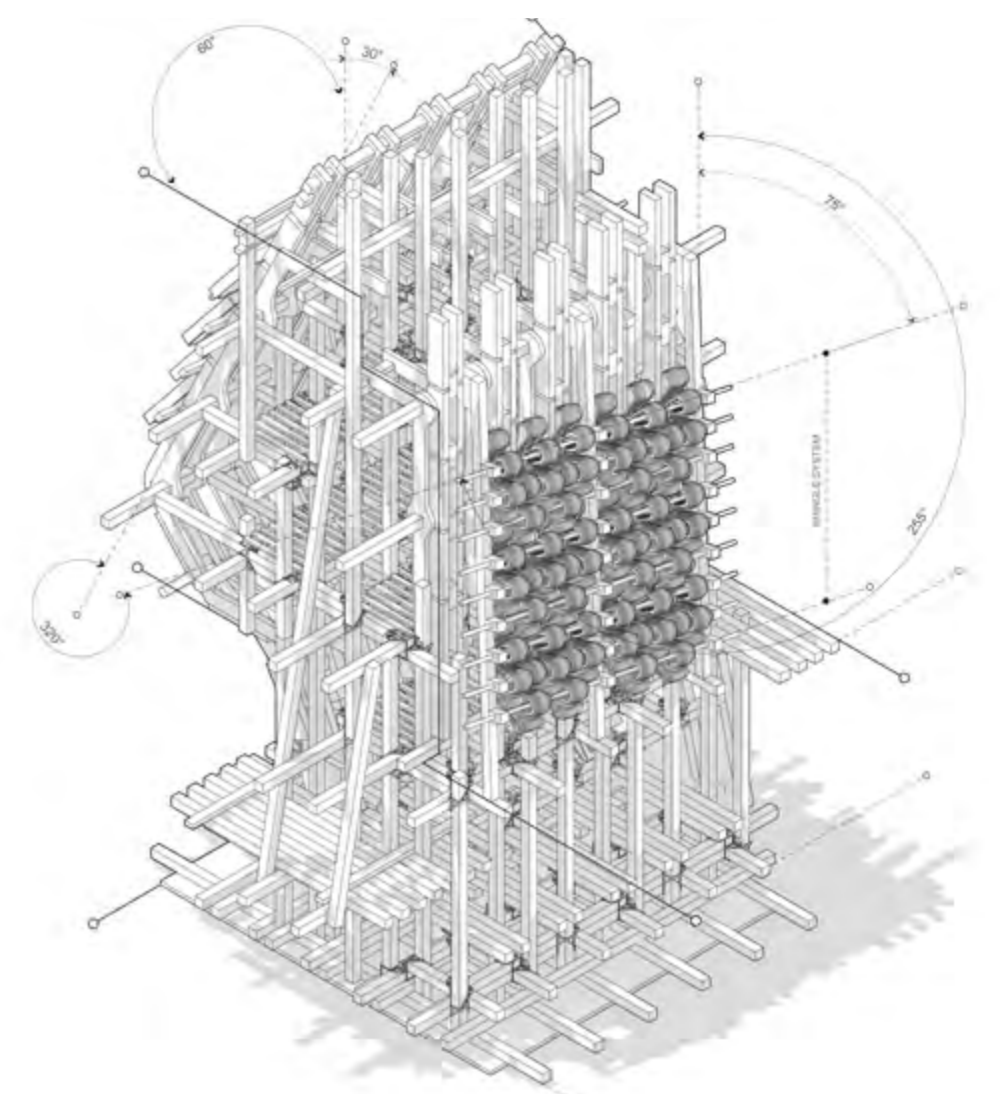
Double Shingle System



DETAILED SECTION

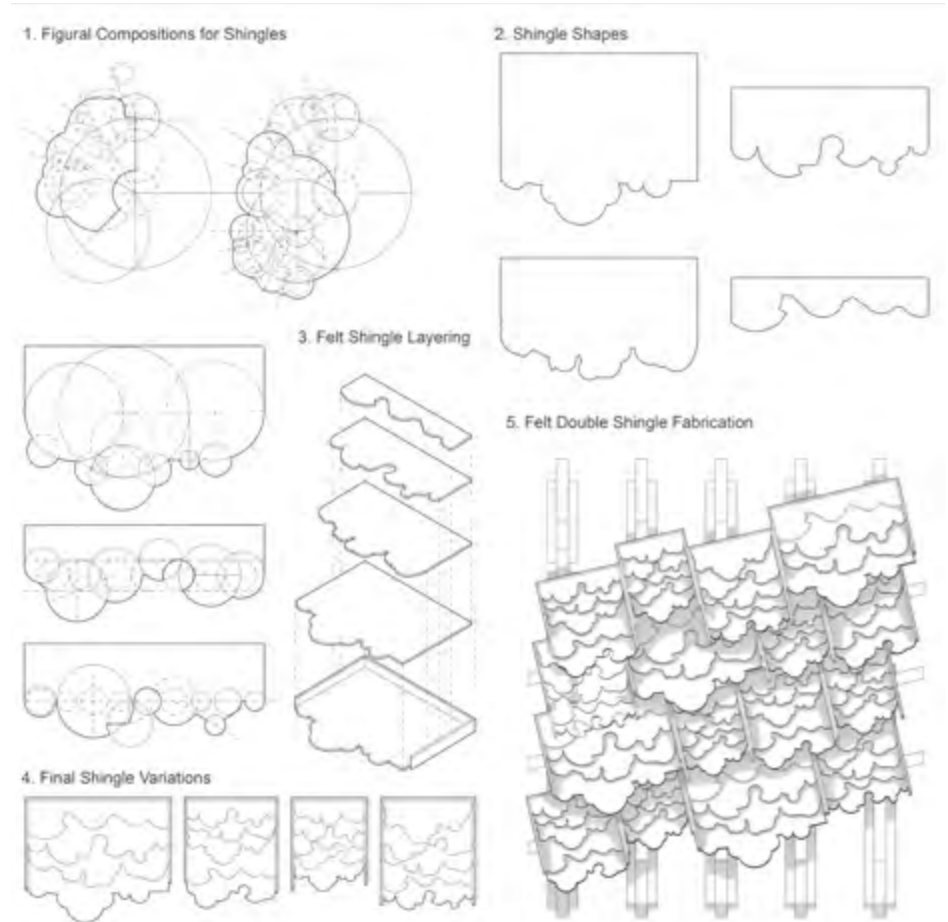


3D PRINTED CLAY SHINGLE SYSTEM



SECTION OF STUFFED FACADE FACING INDOORS

SECTION OF STUFFED FACADE FACING OUTDOORS



BIOSTRATE SHIGLE DEVELOPMENT

PHYSICAL PART MODEL OF STUFFED FACADE



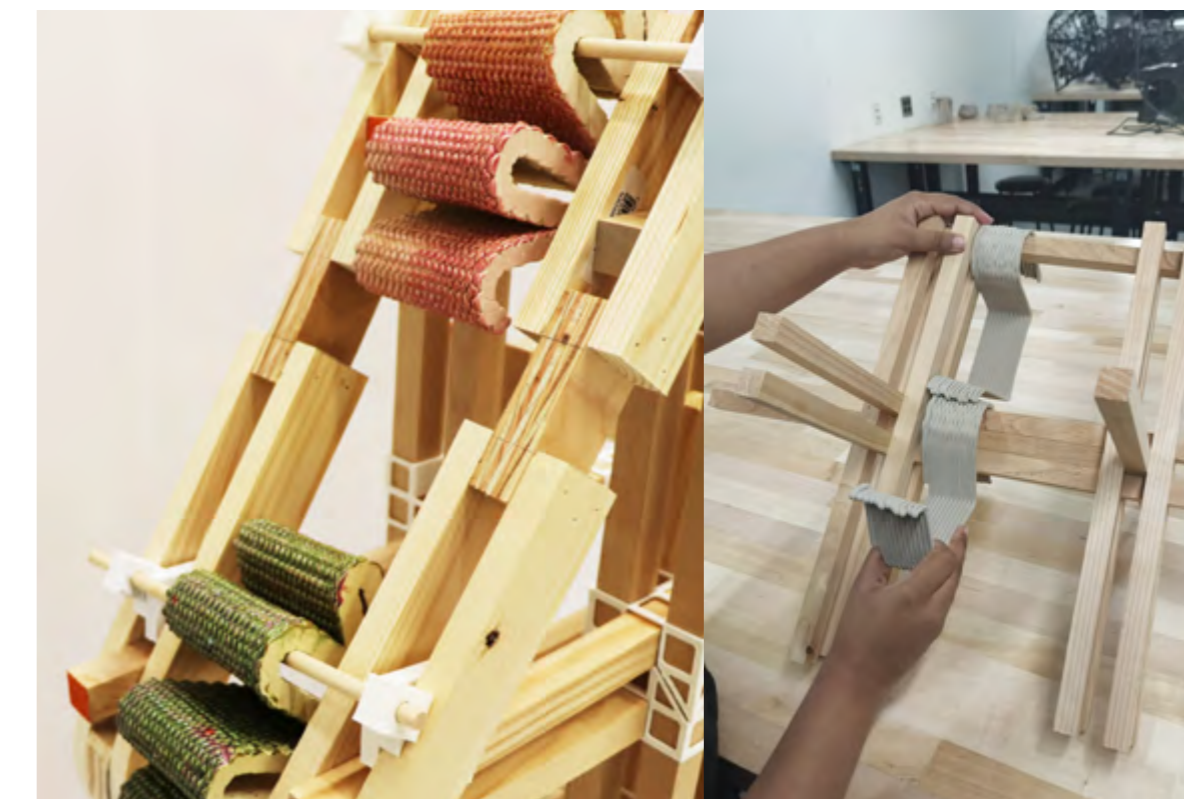
3D PRINTED- HAND GLAZED CERAMIC SHINGLES



VEGETATIVE BIOSTRATE SHINGLE SYSTEM



3D PRINTED JUNCTION SYSTEM



PROTOTYPING PROCESS IMAGES

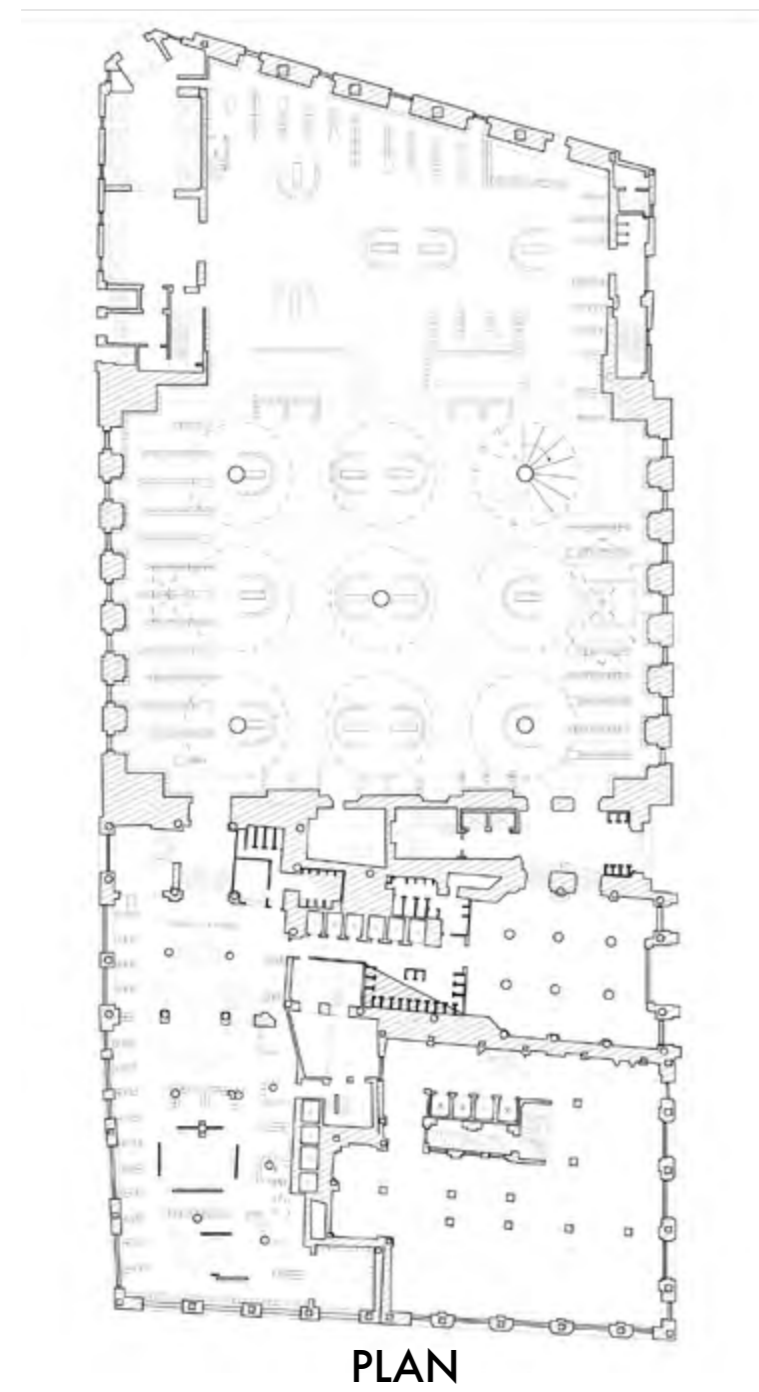
COIN NEXT

Project Partner : Yifan Lyu

Critics : Brian Deluna ; TA : Ana Caldran

The setting is the financial district of Manhattan. This Project is the manifestation of what a Data mining center would look like. The Project set out to explore the juxtaposition of figural forms and orthogonal geometries with an intent of establishing continuity and elegance throughout the facade.

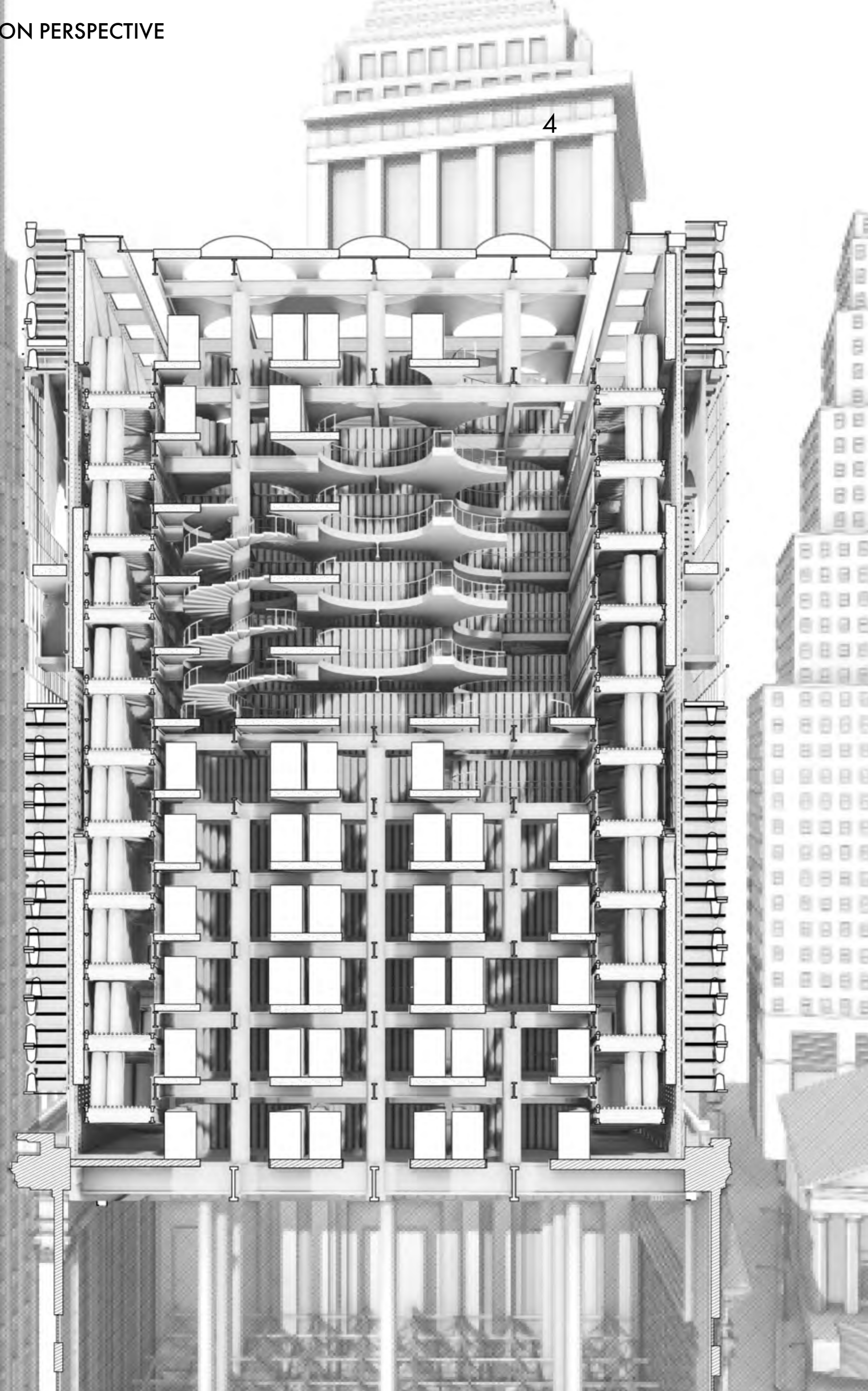
The interior of the project is a schematic representation of the spaces that house servers, with openings in the slabs to vent out the heat produced by the equipment. The ramps facilitate circulation and points of interaction with the servers and equipment hinting at the digital age we are living and headed towards.



PLAN

Images : (**Right**) Rendered elevation of the Data Centre on top of the New York Stock Exchange. Exploring the relationship between curved and linear geometry while varying scales of elements and creating elegant and seamless transitions
(**Left**) Ground floor Plan of the New York Stock Exchange





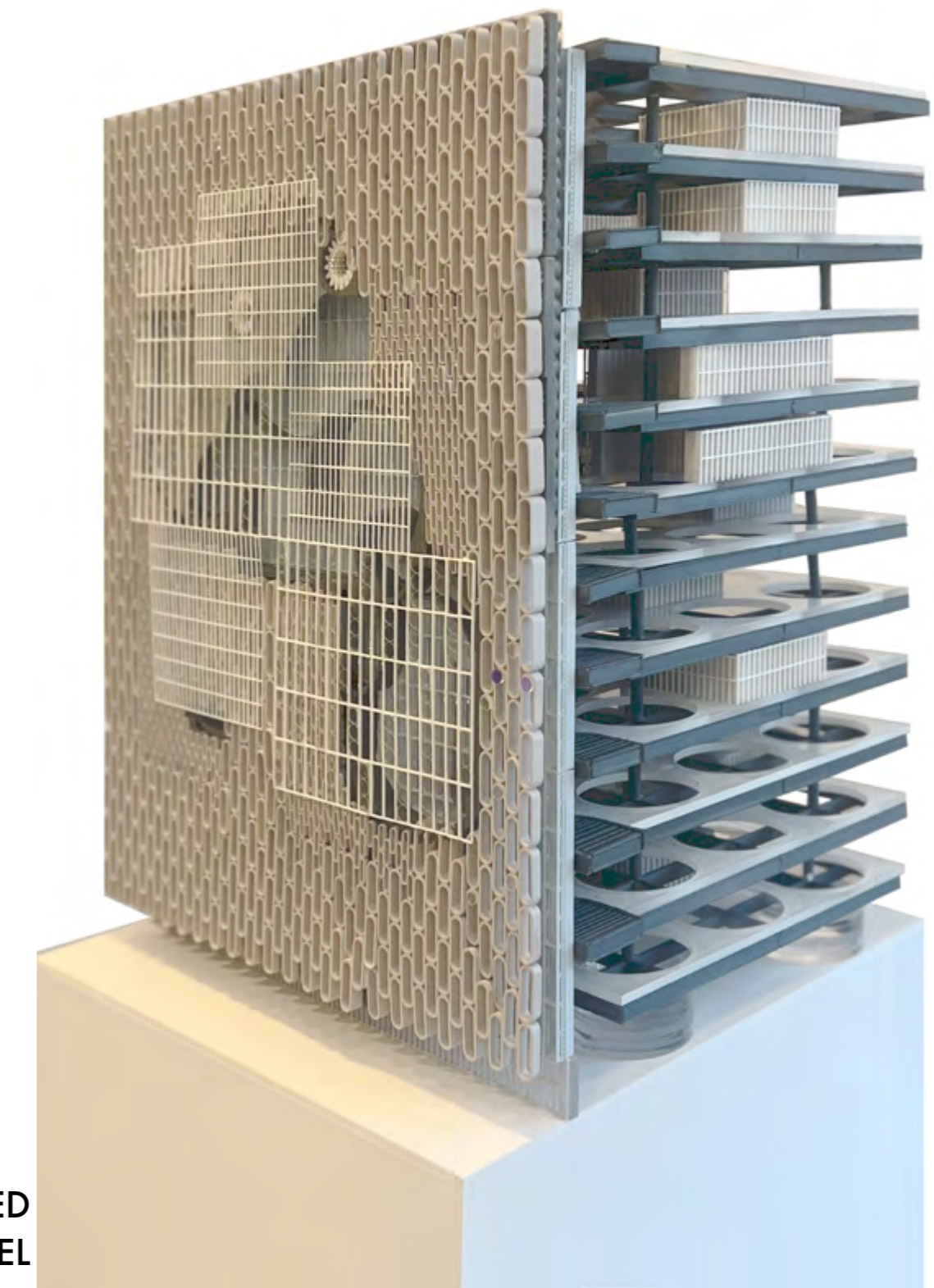
VIEW OF FACADE FROM THE INTERIORS

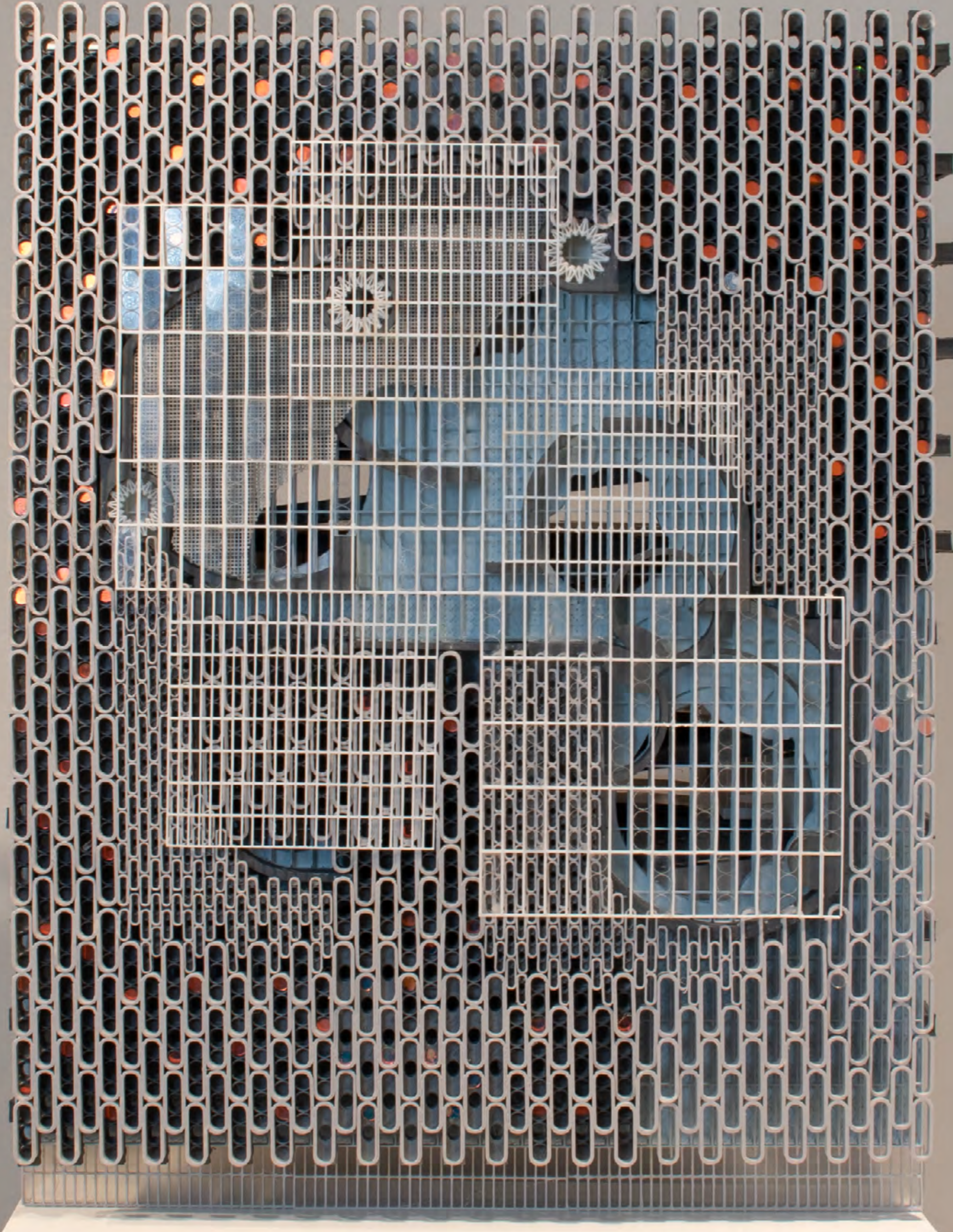


VIEW OF ATRIUM AND STAIRCASE

The Futuristic New York Stock Exchange (NYSE) is visualised to be filled with servers. It is an a building designed to house machines that hold, store and facilitate the exchange of information across the globe. It is important that this be ventilated adequately to reduce the load of mechanical cooling systems. As designers, we wanted to make responsible decisions that dont elimiate the human in the system of things, hence the large atrium space to allow for air to enter through the facade and escape through the roofs.

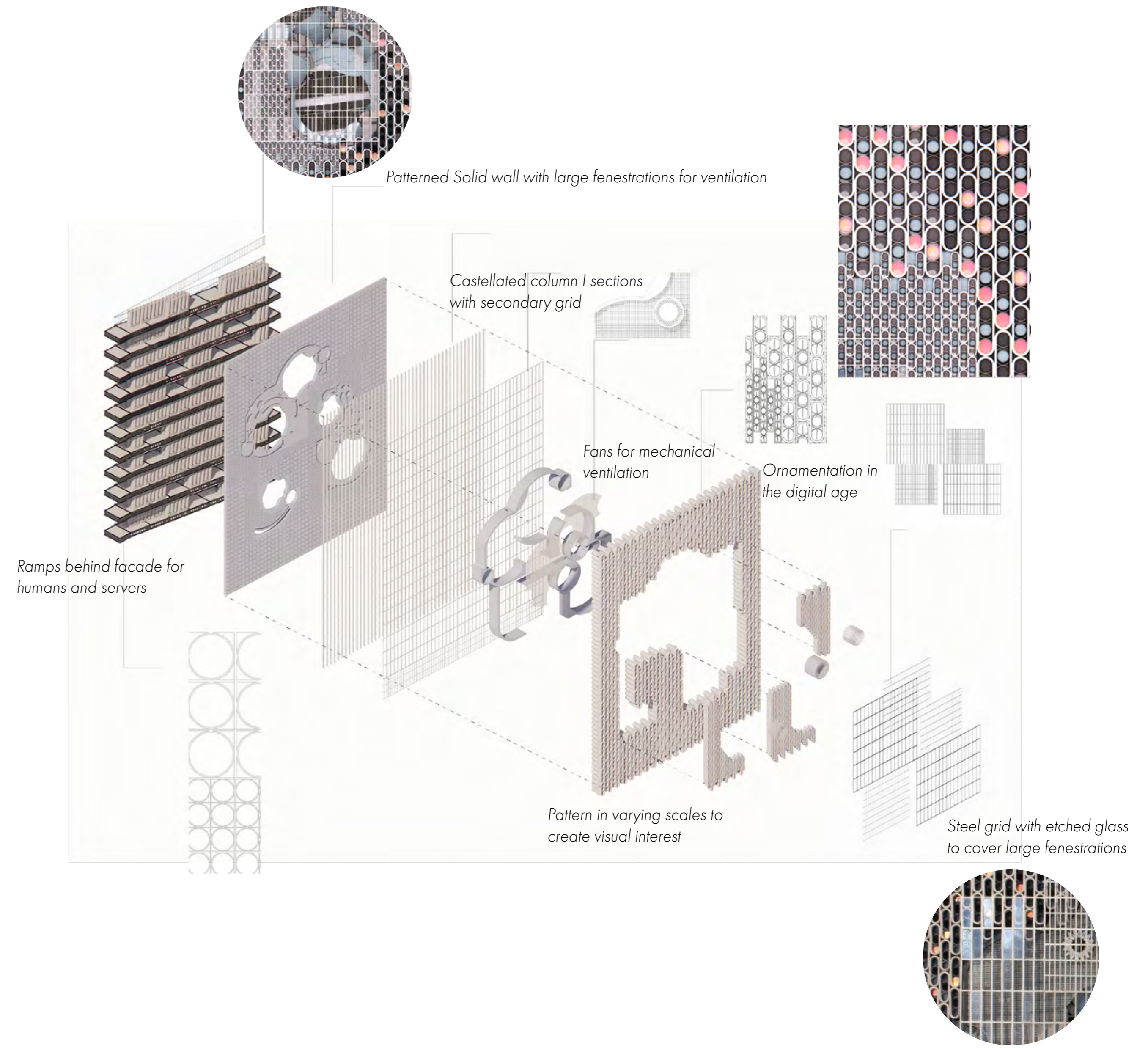
All floor slabs have continuous voids as they are flanked by servers to allow for easy ventilation. As an experience they also allow for individuals occupying the NYSEs existing building to look up and visualise the magnitude of resources the digital age demands

3D PRINTED AND ASSEMBLED
PHYSICAL MODEL



PHYSICAL MODEL

EXPANDED AXONOMETRIC OF THE FACADE



UNSEEN CYCLES

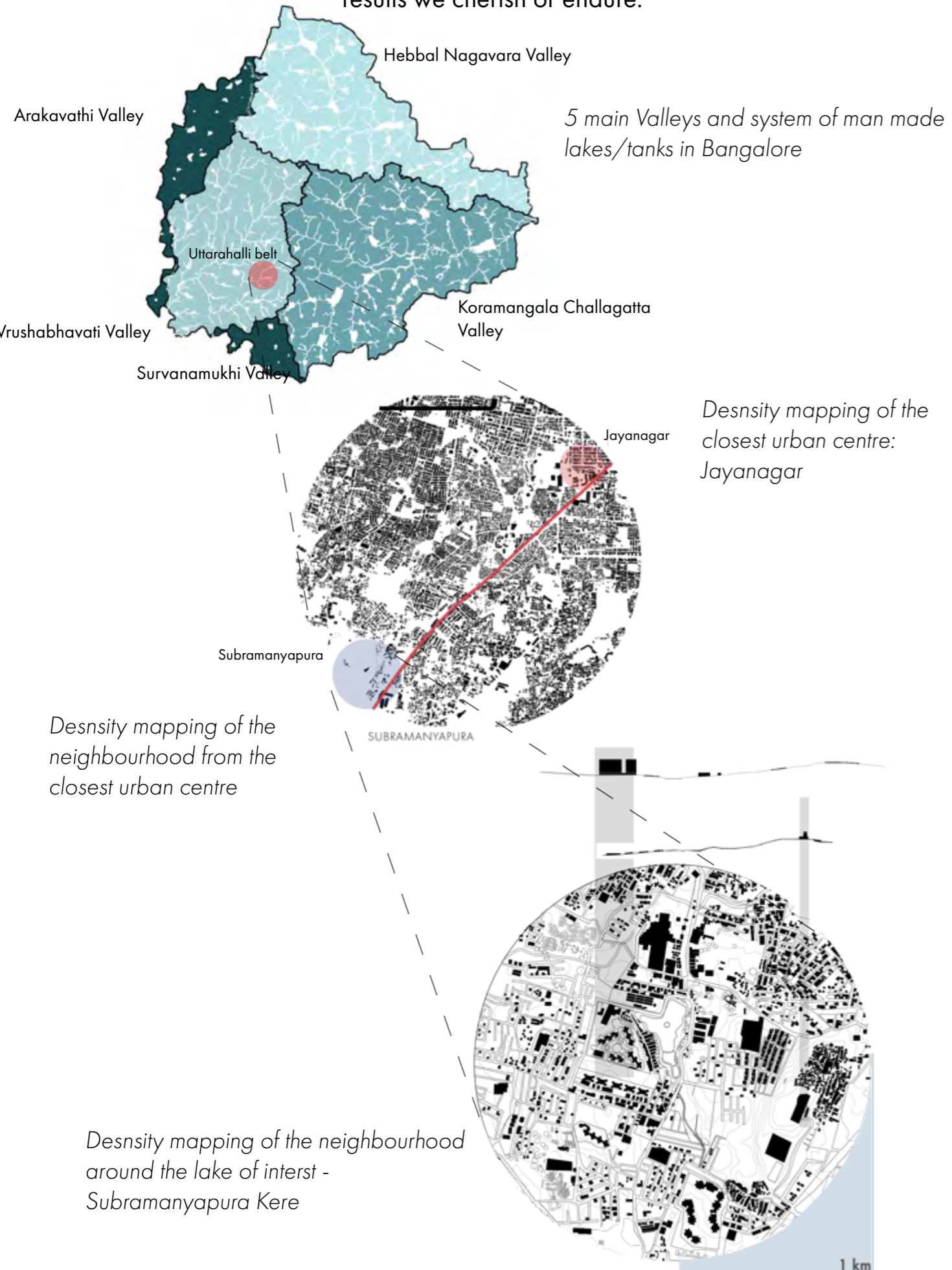
Undergraduate Thesis

Critics : Nagaraj Vastare, Sandeep Sen, Dinesh Rao, Bikramjit Chakraborty and Shubhra Rajee

Softwares used : AutoCAD, Rhinoceros 3D, GIS, Enscape, Adobe Creative Suite

Bangalore is built around a system of manmade tanks that help store water for the city across various valley lines. Over the years these have been abused and built on, breaking this network that is essential to meet the cities water needs

My thesis, Unseen Cycles, lays emphasis on the systems that go unnoticed, yet whose results we cherish or endure.



How can architecture facilitate an open relationship between water ecologies and their neighbourhood, ensuring the wellness of both and lays awareness through interconnected systems?'

Context and Site Analysis

TOPOGRAPHY

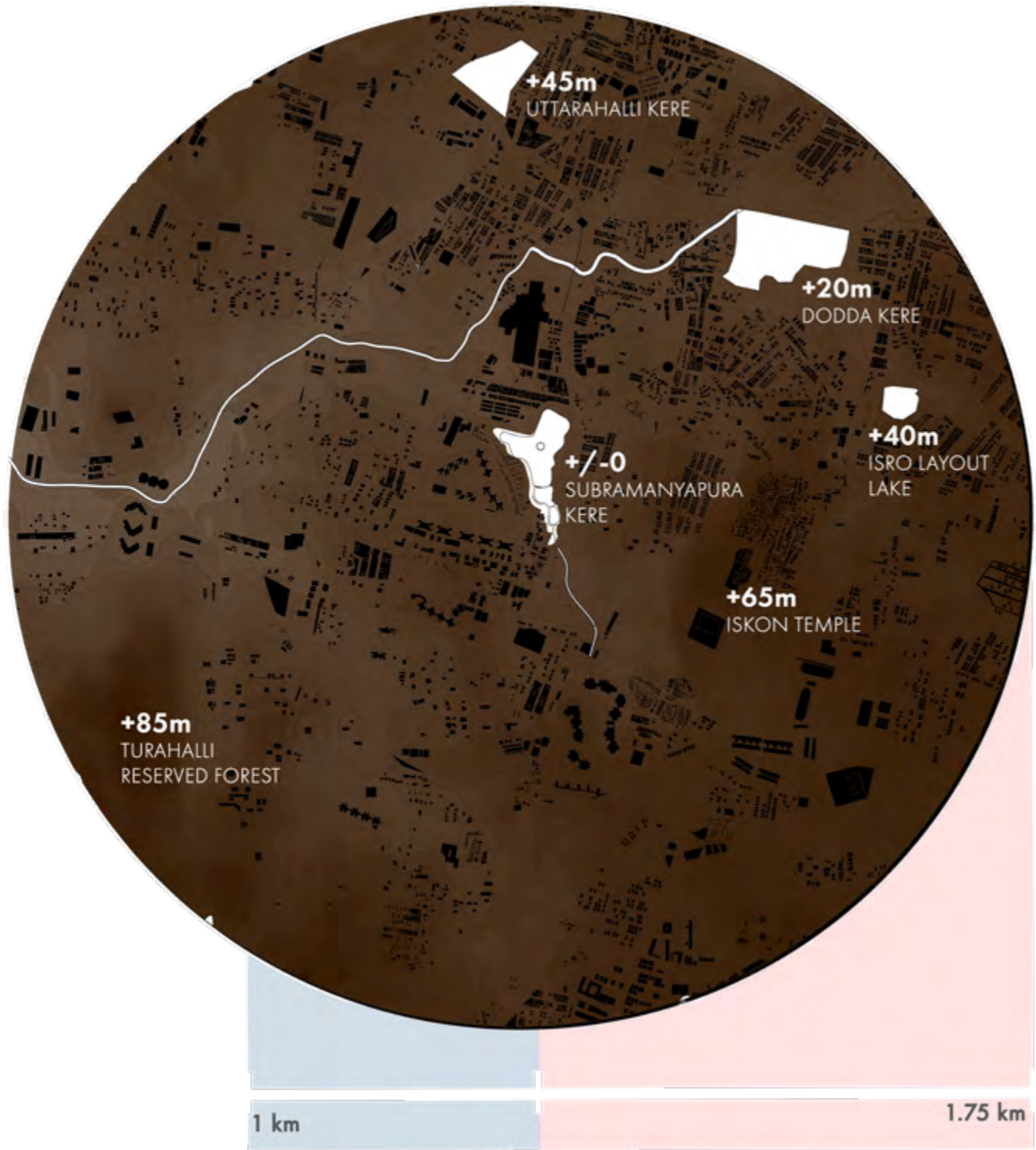


FIGURE GROUND



VEGETATION AND WATER BODIES



UTTARAHALLI KERE

CAPACITY- 1MLD
SEWAGE- 5-10MLD
SHORTAGE - 4MLD

DODDA KERE

CAPACITY- 1MLD
SEWAGE- 31.3MLD
SHORTAGE - 30.3MLD

SUBRAMANYAPURA KERE

RECIEVES LESS THAN 5 MLD OF
SEWAGE THROUGH THE
RAJAKALUVE

**QUANTITY OF SEWAGE
ACCORDING TO STUDY BY
IIHS**



- DODDA KERE
- THE VRUSHABAVATHI
- OUT LET FLOW OF THE LAKE NATURALLY TO THE VRUSHABAVATHI
- SUBRAMANYAPURA KERE
- AGRICULTURAL LAND
- RAJAKALUVE FEEDING FRESH WATER INTO THE KERE
- GUBLALA KERE



- DODDA KERE
- THE VRUSHABAVATHI
- OUT LET FLOW OF THE LAKE CUT OFF
- SUBRAMANYAPURA KERE- HYACINTH COVERED
- CONSTRUCTED DEVELOPMENT
- RAJAKALUVE FEEDING WASTEWATER INTO KERE
- LAKE COVERED BY SAND FOR DEV.

CONTEXT TIME LINE MAPPING OF YEAR 2000 & 2021

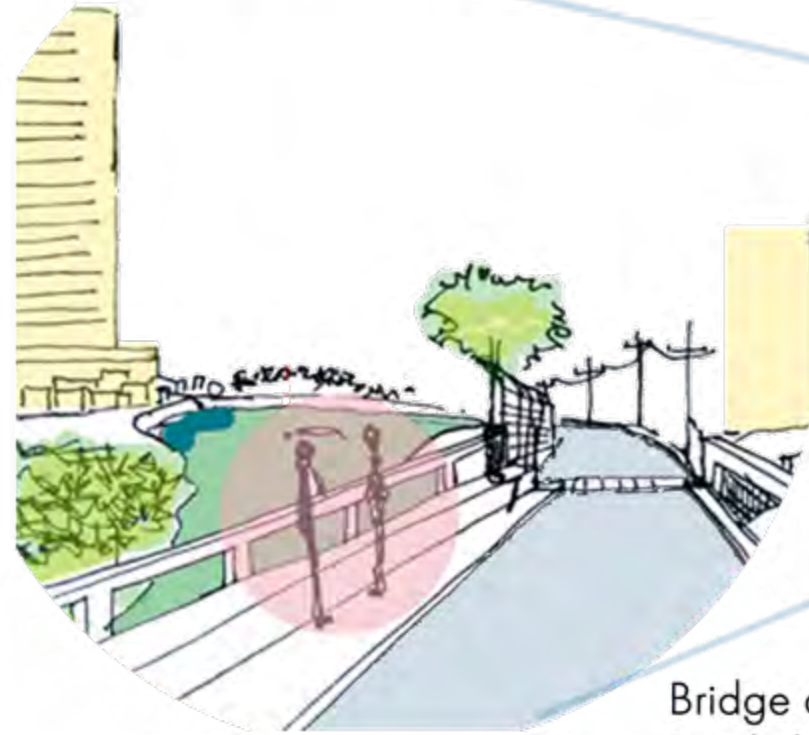
TOPOGRAPHY- The Lake in focus for this thesis is one of 3 important lakes in the Uttarahalli belt that connects to the Vrushabavathi river. to the right of The lake is a hilly terrain now owned by ISKON and to the left lies hills of Turahalli forest.

FIGURE GROUND- The Lake resides in Sub-urban Bangalore, and is mostly surrounded by residential and religious properties, it also has a previously functioning large scale textile mill to its north

VEGETATION AND WATER BODIES- The 3 lakes having lost their feeder and wet land systems have become collection ponds for waste water. Uttarahalli Kere and Dodda Kere both have established waste water treatment plants, where as subramanyapura kere receiving less than 5 MLD of waste water isnt supported by any infrastructure other than a feeder Cannal

(Kannada: Kere) refers to lakes or in the case of Bangalore man made tanks

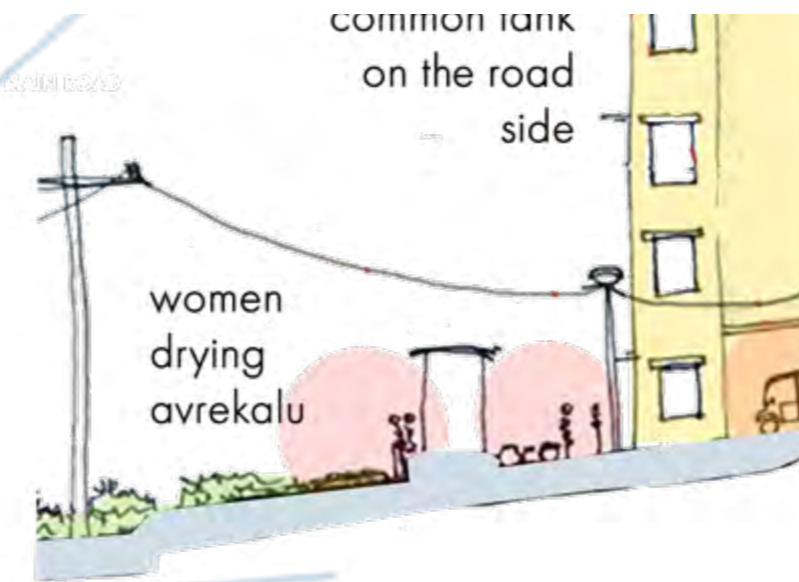
The bridge acting as a meeting point where people eat from Indira canteen in the context



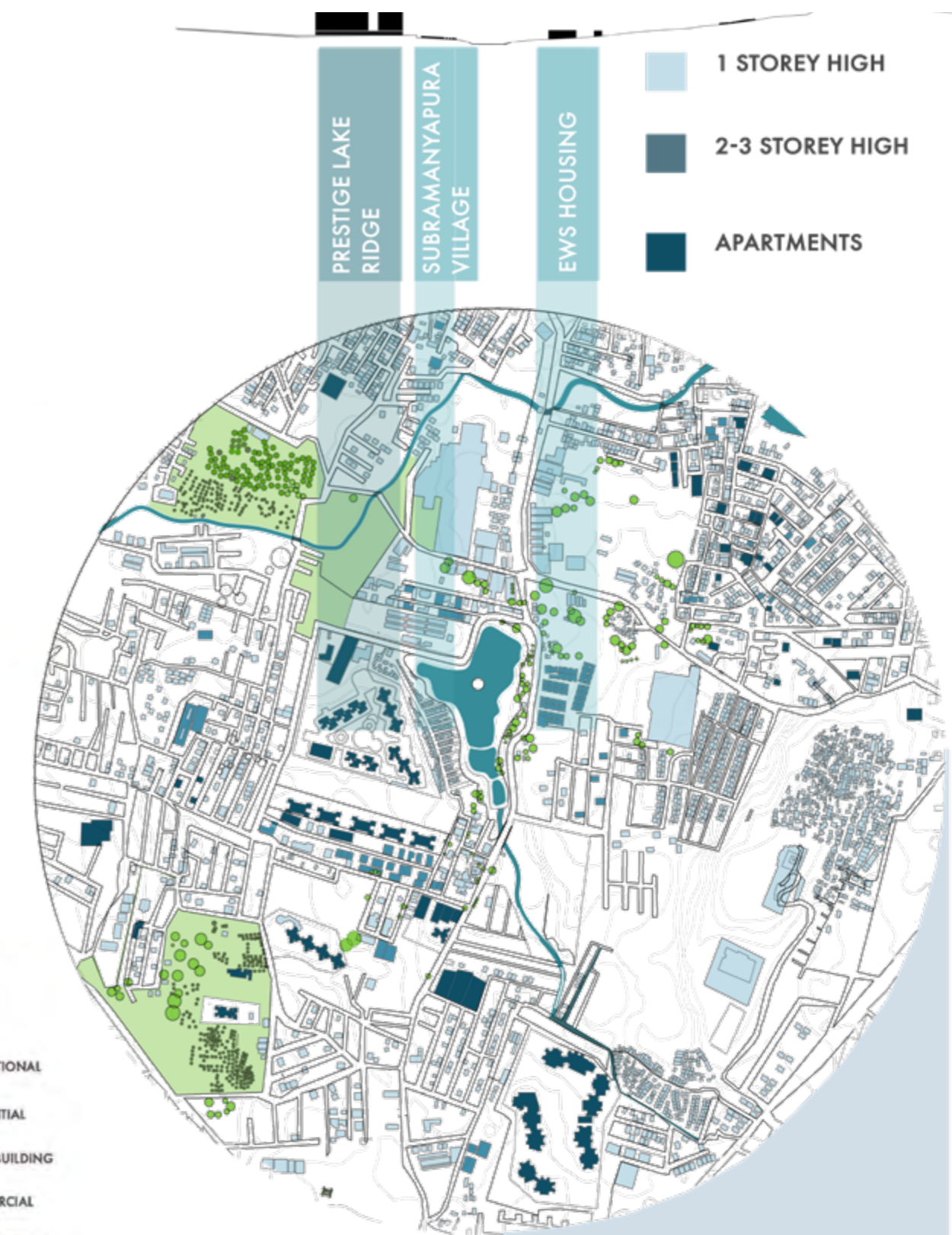
Bridge above the Rajakaluve draining into the lake



Access Road to Site
Main Roads to access site

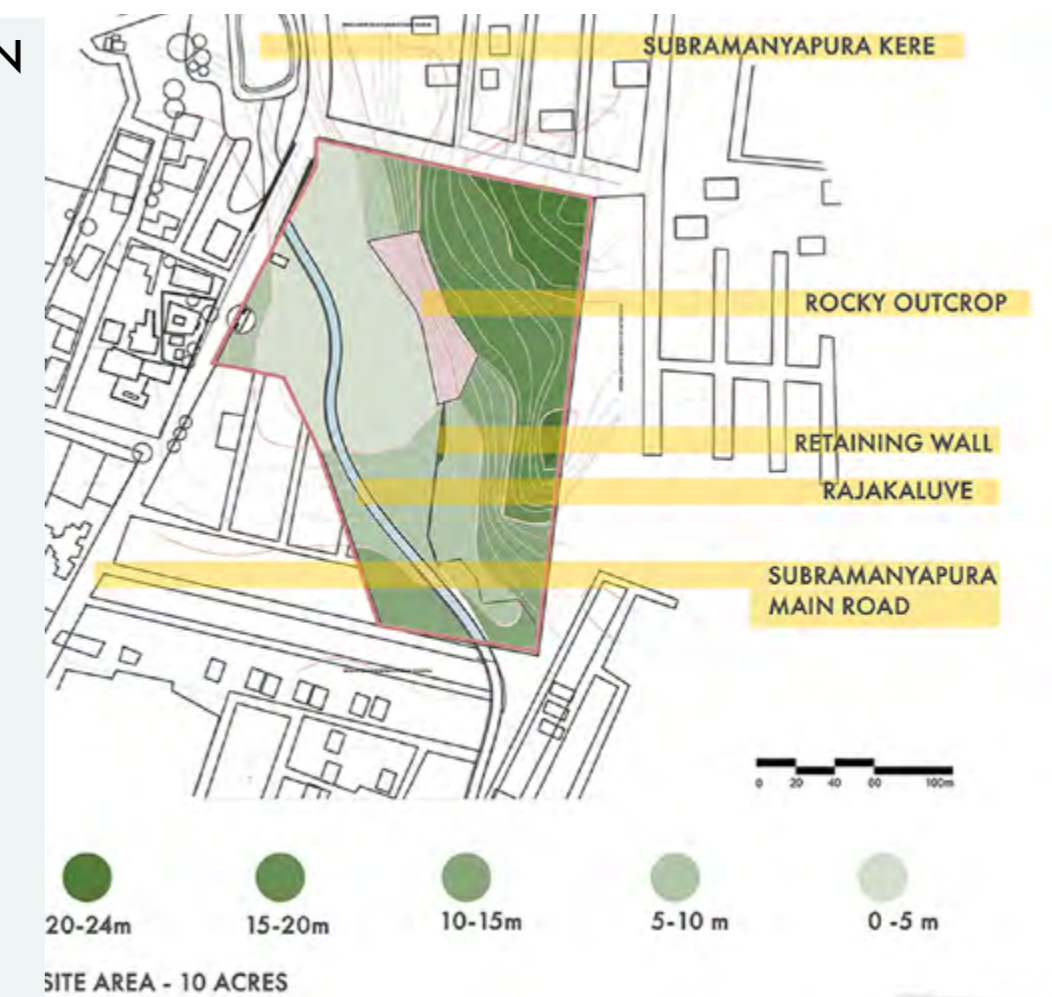


LAND USE



BUILDING HEIGHT & PUBLIC PARKS

SITE SELECTION



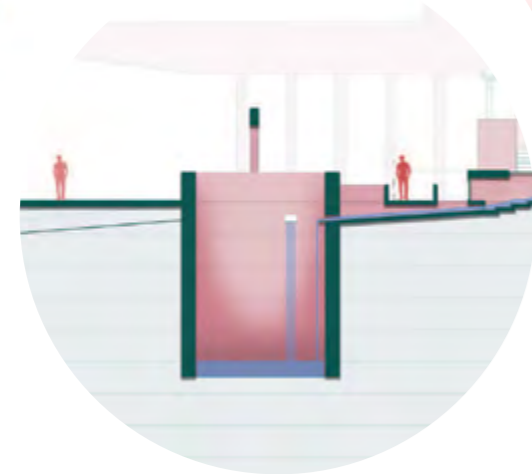
(Kannada: Kere) refers to lakes or in the case of Bangalore man made tanks

THE PROGRAM PROPOSAL

After a through study of the context and its social bearings, the main motives for the proposal were,
 a. Cleaning the lake
 b. Destigmatizing waste water
 c. A community oriented approach

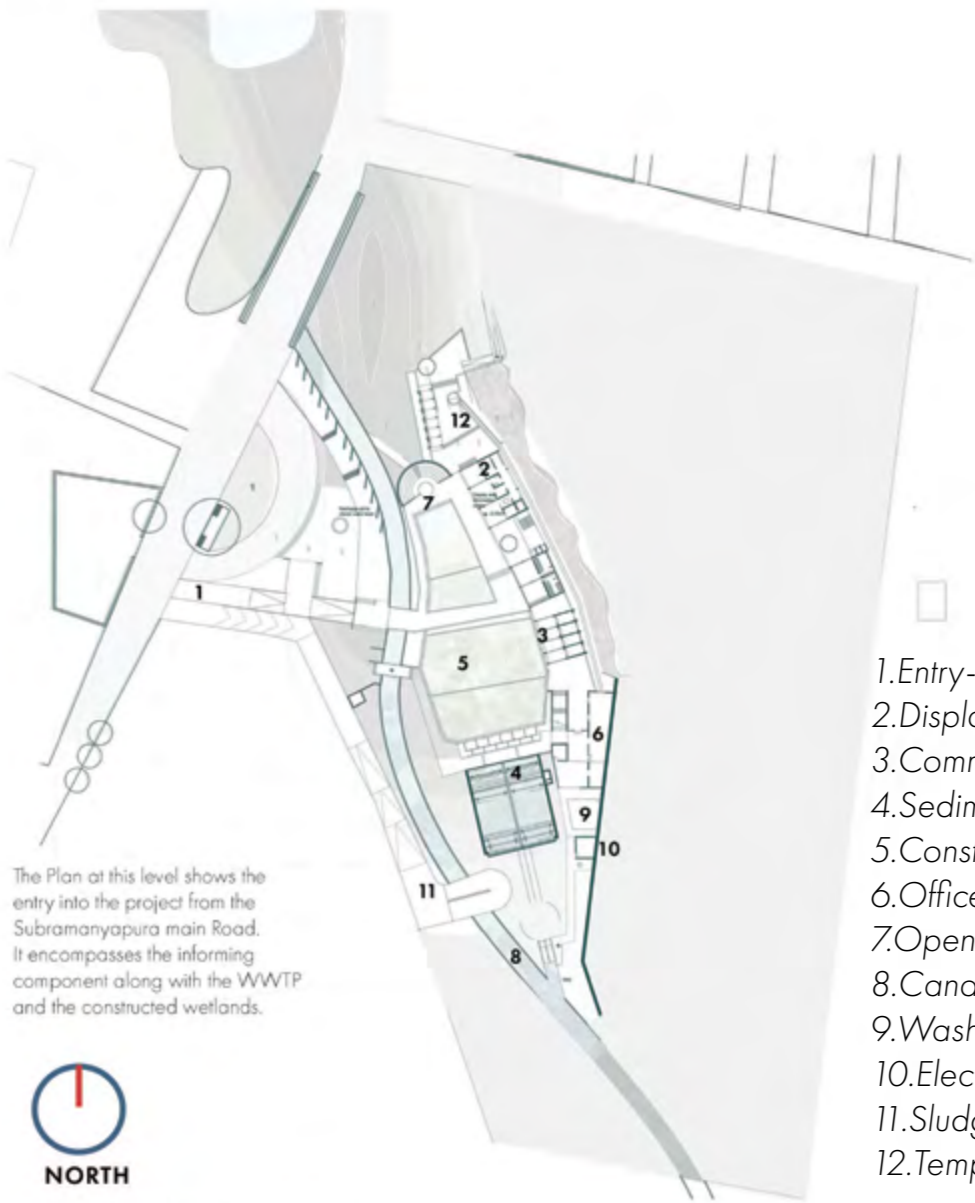
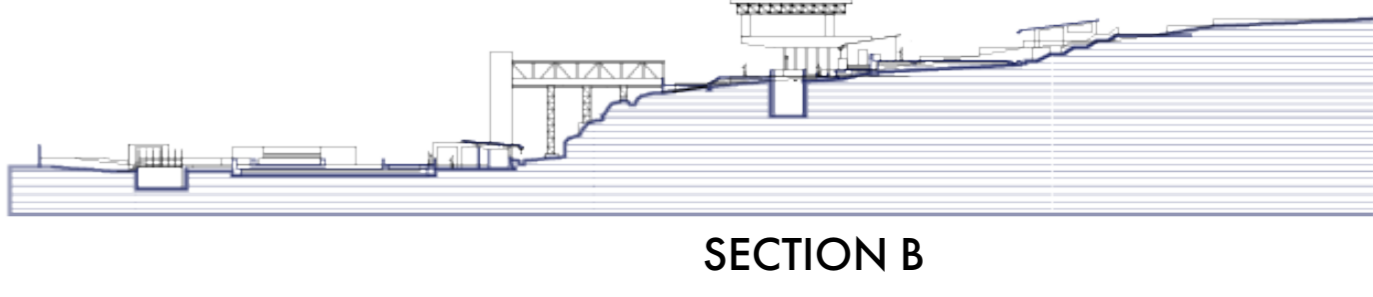
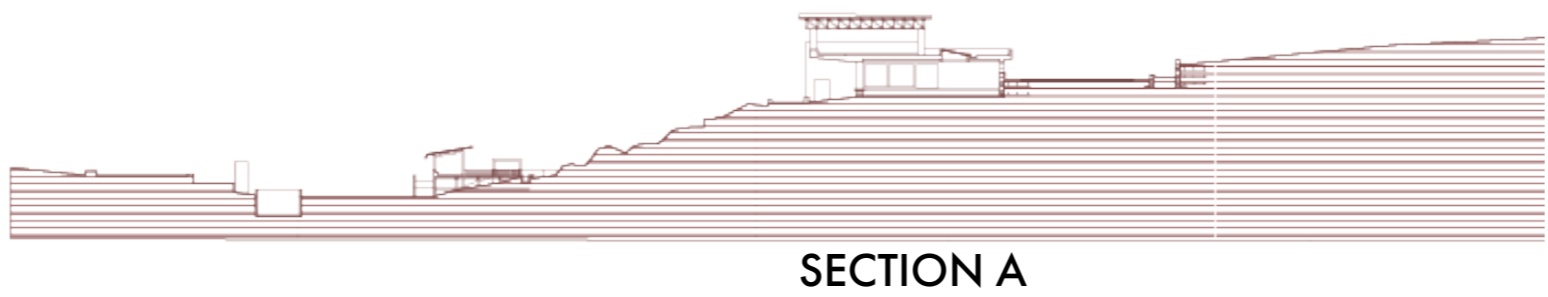
The site chosen had a waste water Canal (Kannada: Raja Kaluve) feeding into the lake (Subramanyapura Kere). It was flanked by residential buildings belonging to different economic classes. An opportunity was realised with the Government of India's 'Get India Fit' initiative and the lack of an accesible public park in the vicinity of the lake.

Hence it was proposed that the proposal would aim to **Clean** through a biophilic Waste Water Treatment Plant, **Inform** through various points of interation and instalations and **Engage** - through a accesible and open fitness centre for the public



SITE PLANNING AND SITE SECTIONS

The site was heavily contoured with a rocky outcrop in the middle. It was a conscious decision to occupy the site responsibly and allow for ground water to replenish through open green spaces during the monsoons. The entry to the site is at two levels. One through the waste water treatment plant (WWTP) and the other through the fitness centre that overlooks the WWTP



1. Entry- vehicular/pedestrian/service
2. Display/ Instalations
3. Commercial Point
4. Sedimentation Tank
5. Constructed Wet Land
6. Office -Admin
7. Open Air Theatre
8. Canal - Rajakaluve
9. Wash Area
10. Electrical Room
11. Sludge Collection
12. Temporary Stall Area

PLAN CUT AT LEVEL 2m



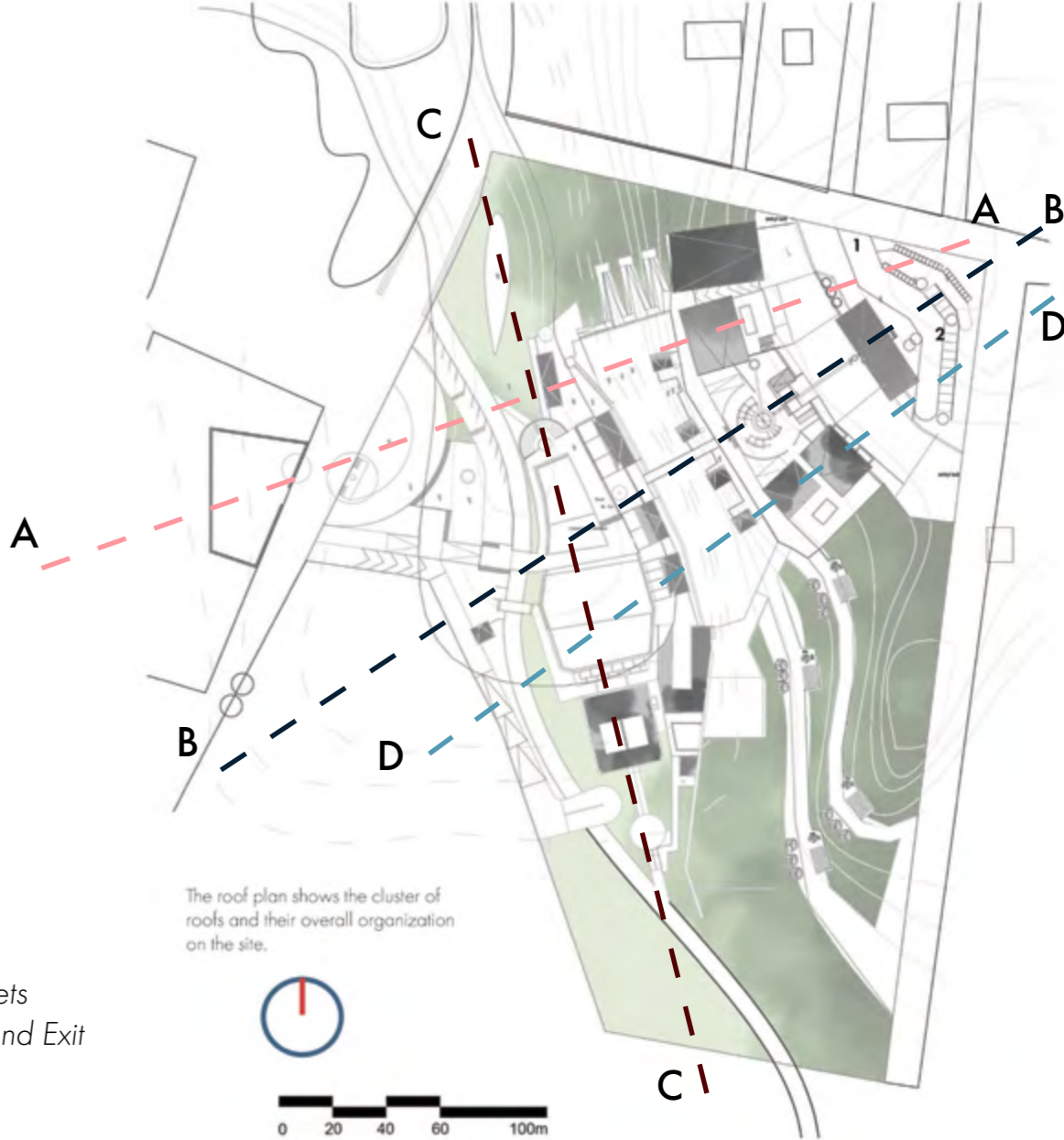
1. Fitness Studios
2. Indoor Games
3. Food Kiosks
4. Central Congrega
5. Jogging Track

PLAN CUT AT LEVEL 12.7m

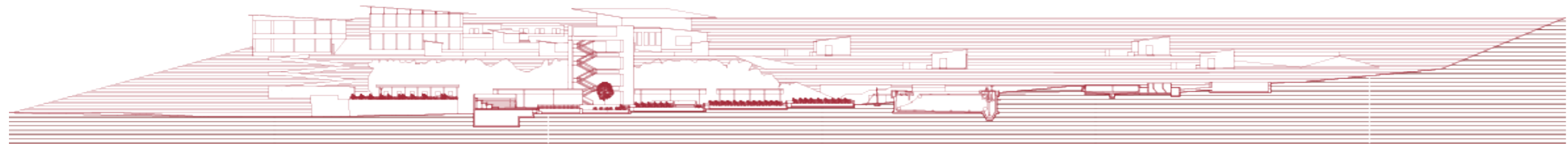


1. Fitness Studios
2. Indoor Games
3. Commercial Outlets
4. Pedestrian Entry and Exit

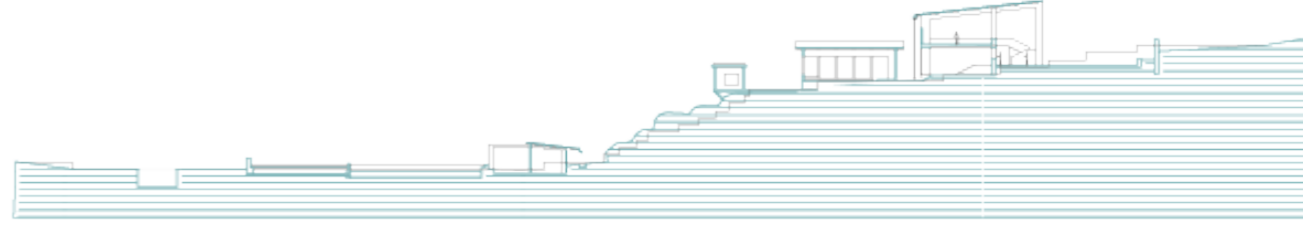
PLAN CUT AT LEVEL 15m



PLAN CUT AT LEVEL 20m



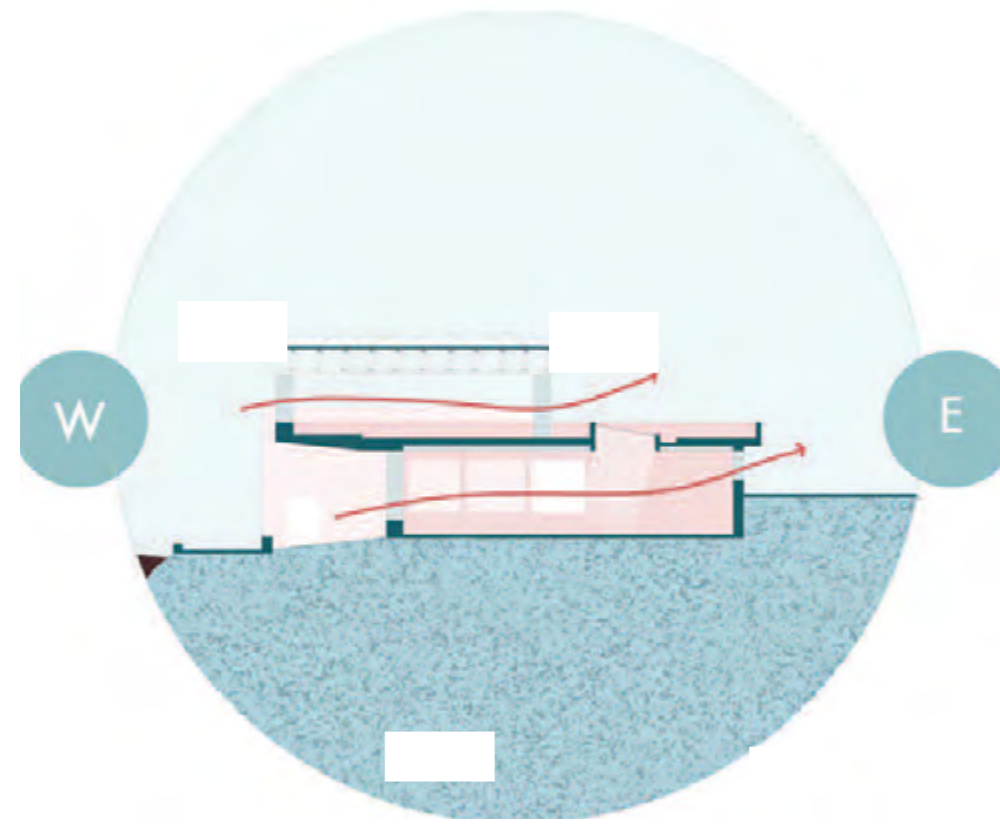
SECTION C



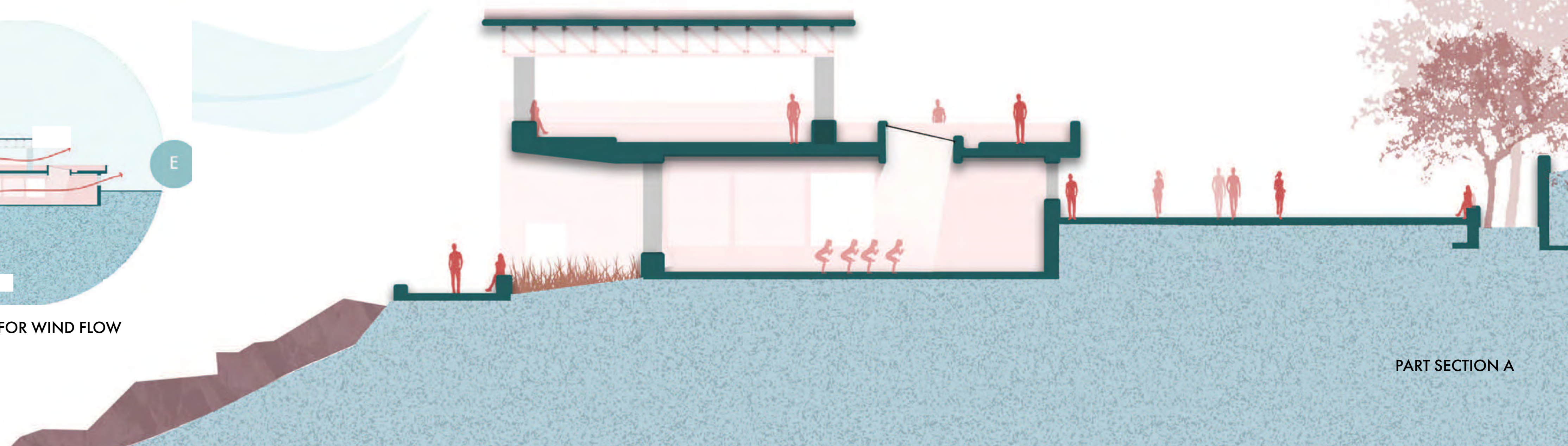
SECTION D

(Kannada: Kere) refers to lakes or in the case of Bangalore man made tanks

PART SECTION THROUGH THE FITNESS CENTRE AND WASTE WATER TREATMENT PLANT



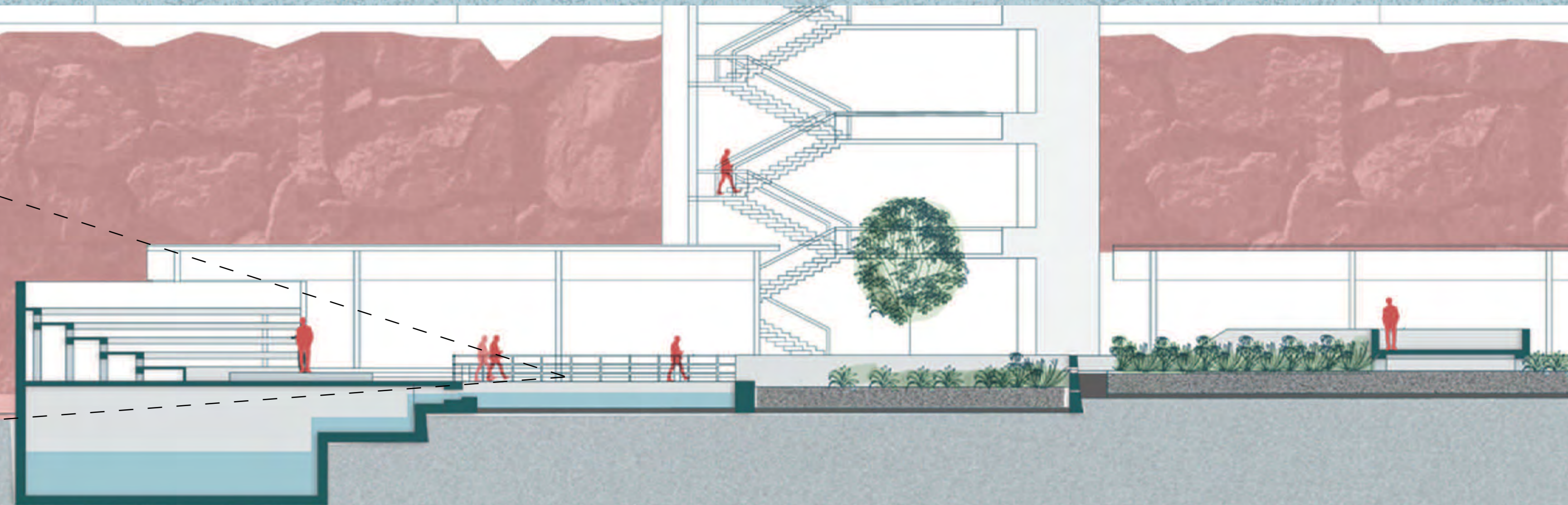
DESIGN FOR WIND FLOW



PART SECTION A



INTERACTION WITH TREATED WASTE WATER

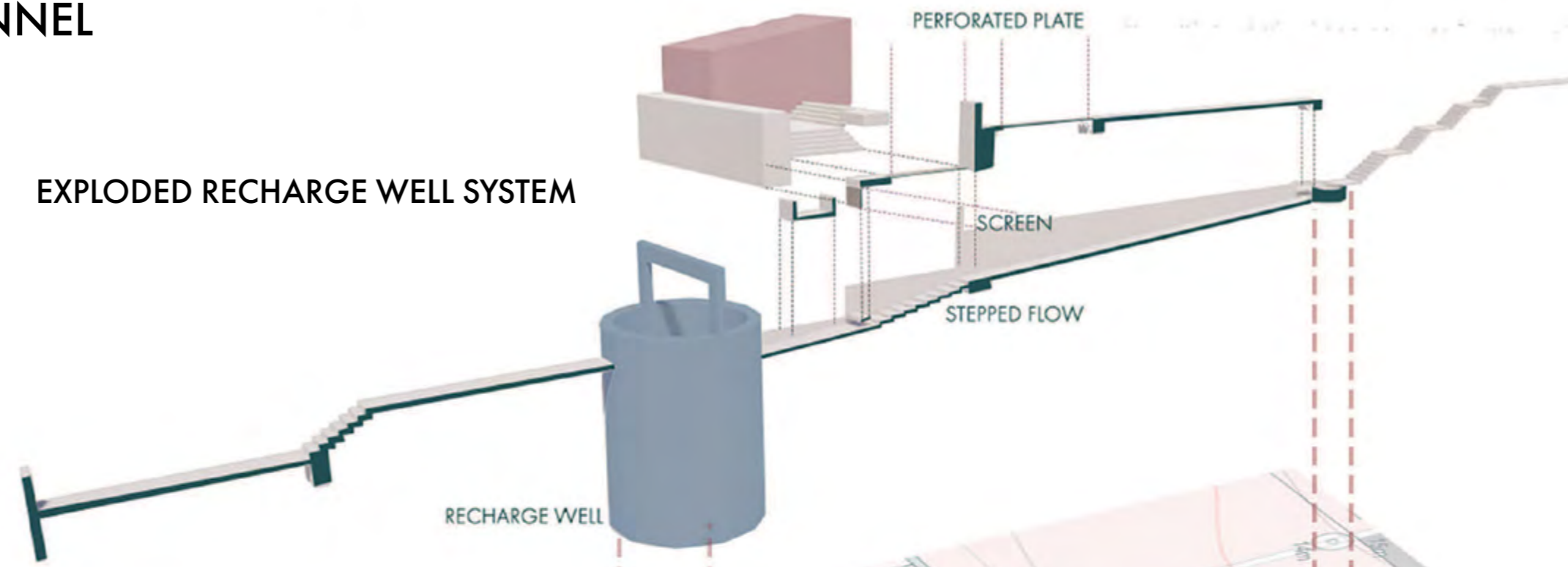


PART SECTION C

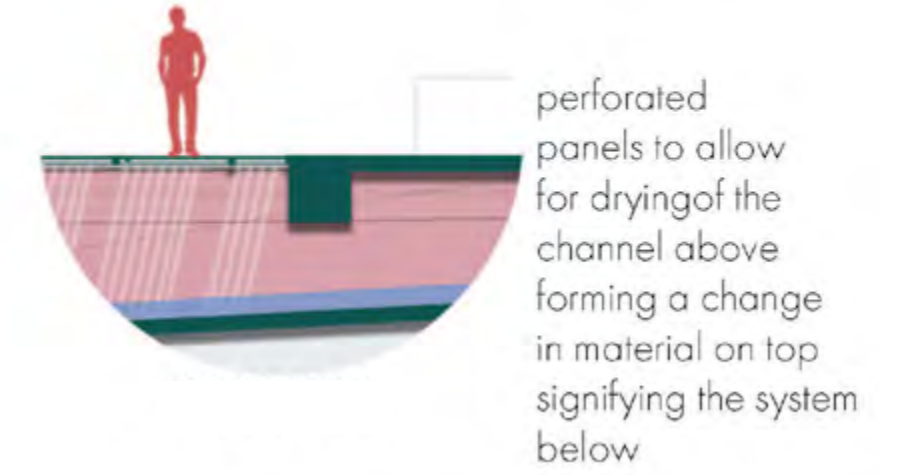
PART SECTION THROUGH THE RECHARGE CHANNEL

A very important aspect of restoring ground water, and checking its quality is recharge wells. They actively allow for percolation and provide a source of potable water for the communities that cannot afford to pay for this basic human necessity

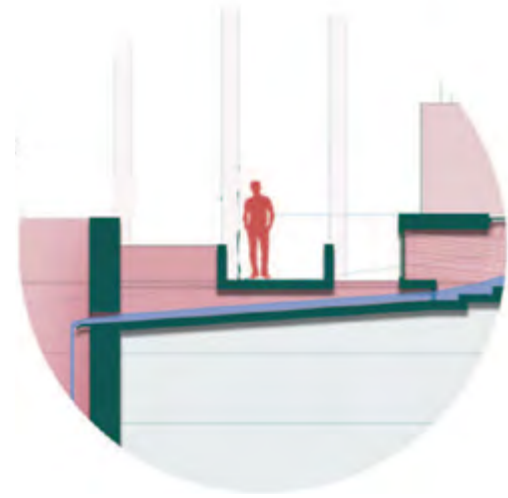
EXPLODED RECHARGE WELL SYSTEM



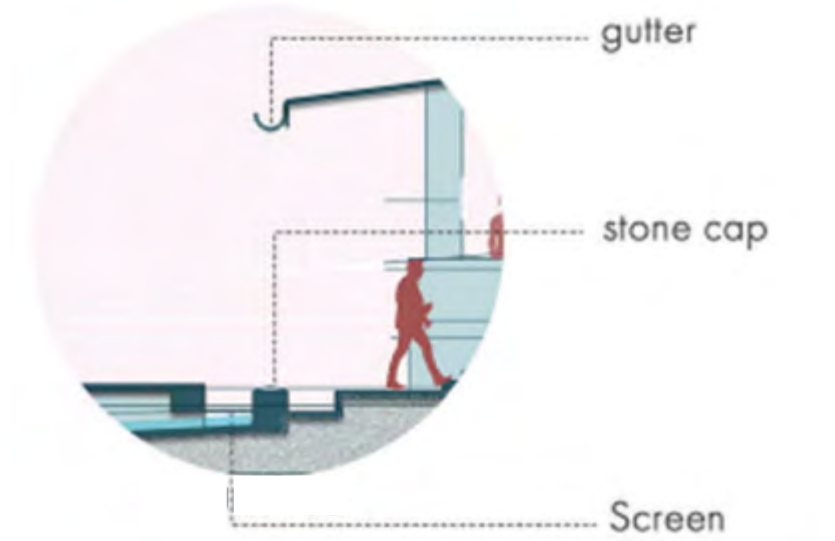
SCREEN DETAIL - SURFACE TREATMENT FOR CHANEL



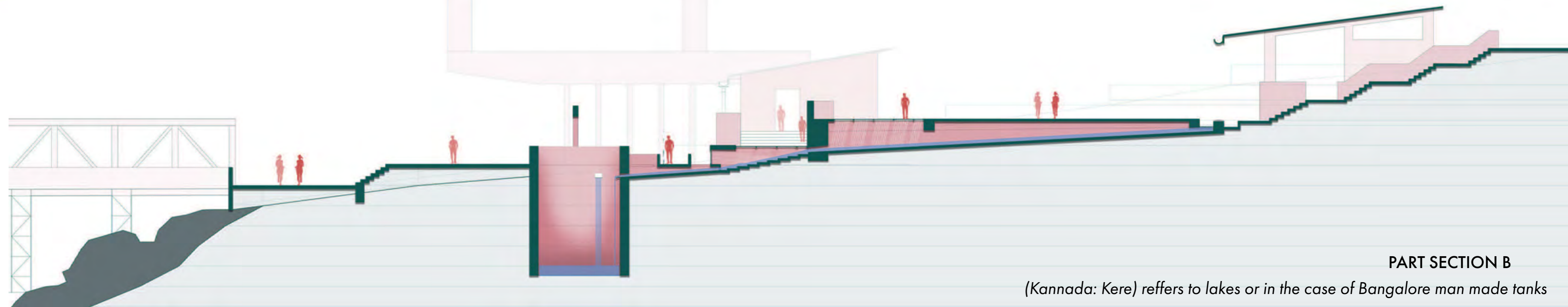
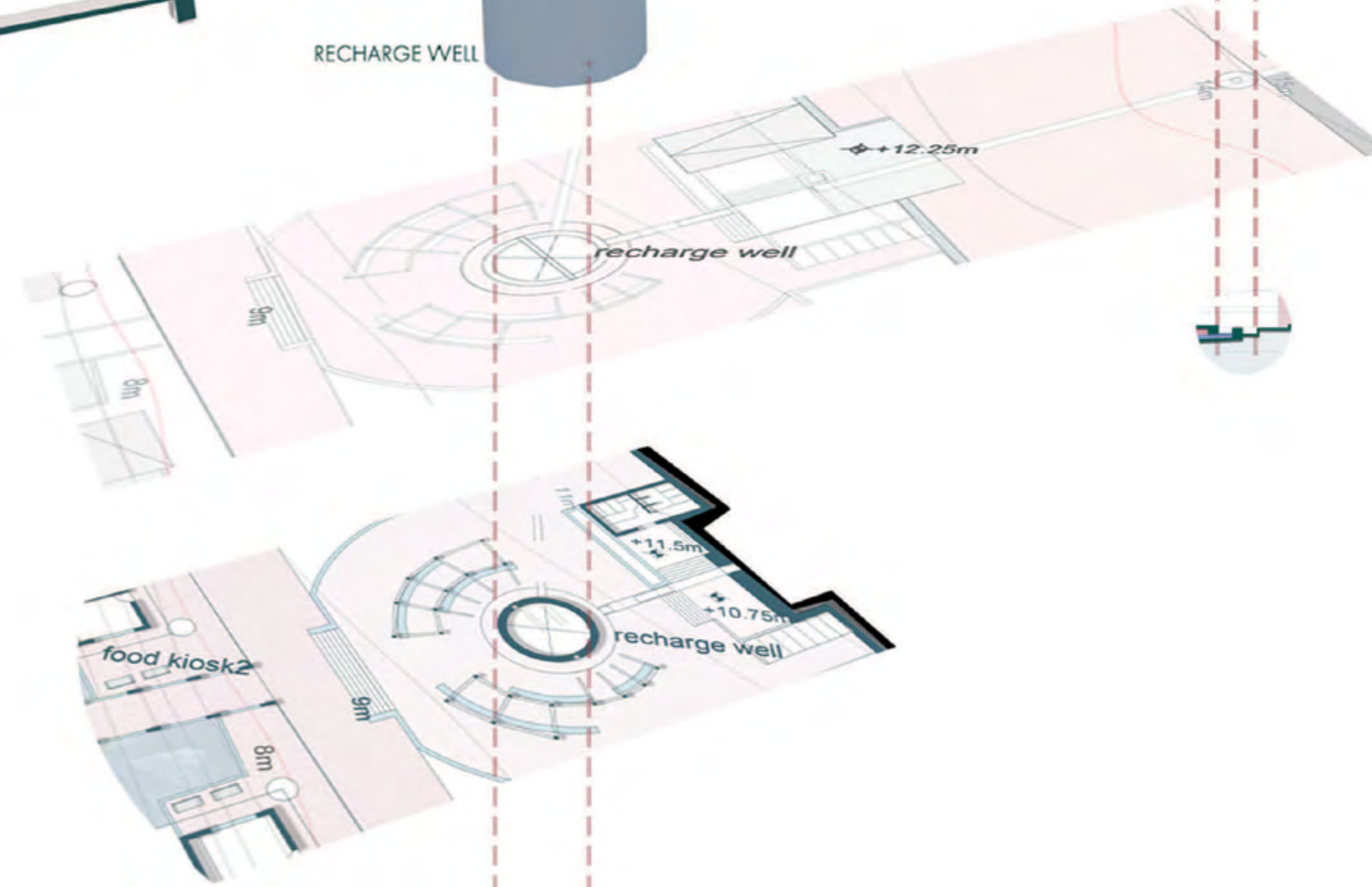
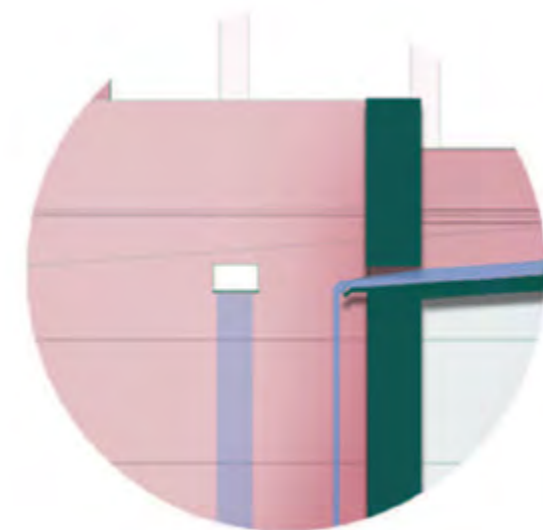
BRIDGE TO CROSS OVER CHANEL OF WATER



GUTTER DETAIL WITH ITS IMPLICATION ON GROUND



DETAIL FOR WATER TO DRAIN INTO THE RECHARGE WELL



PART SECTION B

(Kannada: Kere) refers to lakes or in the case of Bangalore man made tanks

INTERNSHIP AT STUDIO SVARUP, DELHI, INDIA

Worked at a small scale firm with a total of 4 designers, 2 interior designers and 2 architectural designers. The firm worked on architectural projects across India and provided interior solutions globally to clients hailing from New York and London.

My Roles and Responsibilities :

Architectural drawings, Construction drawings, Diagramming concepts, Rendering, Material procurement , Client presentations and Cost analysis for different building materials

Worked primarily on Residential Projects and a few Interior Design Projects
Was also involved in the initial phase of planning strategies to build a Resort in Khana Reserve Forest ,MP,India .

Materials Explored :

Terracotta ceramic blocks, Sandstone, Bricks, Concrete, Steel, Earthen oxide plasters, Wood Plastic Composites, Glass Fiber Reinforced Concrete, Aluminum Composite Panel

Fabrication Methods:

Brick Layering, Paneling, Water jet cutting and etching, Steel Fabrication

Softwares Used :

AutoCAD, Rhino, Sketchup, Microsoft Excel, Adobe Creative Suite

For more detailed drawings and work from the internship : <https://www.the-precedent.com/work-experience/project-two-llrgk-phlrj>



(1)



Images :

- (1) Multiple Floor plans for Jain Residence at Sector 72, Noida, Delhi, India and Images from site visit
- (2) Design Development for feature Wall for Client in Rajasthan
- (3) Pergola Design and Feature Wall design render in day and night settings for client in Rajasthan



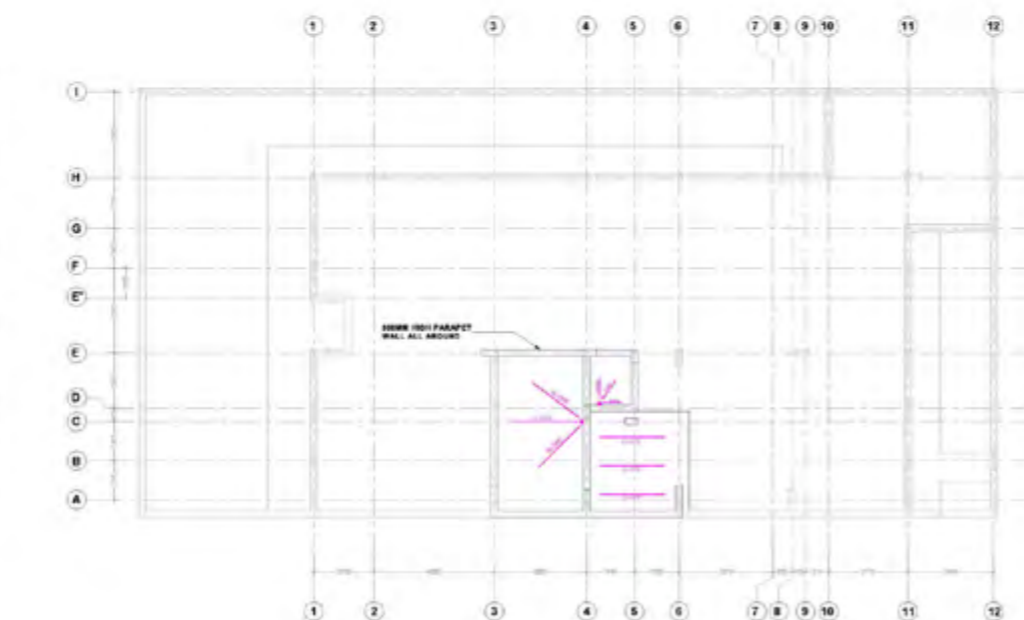
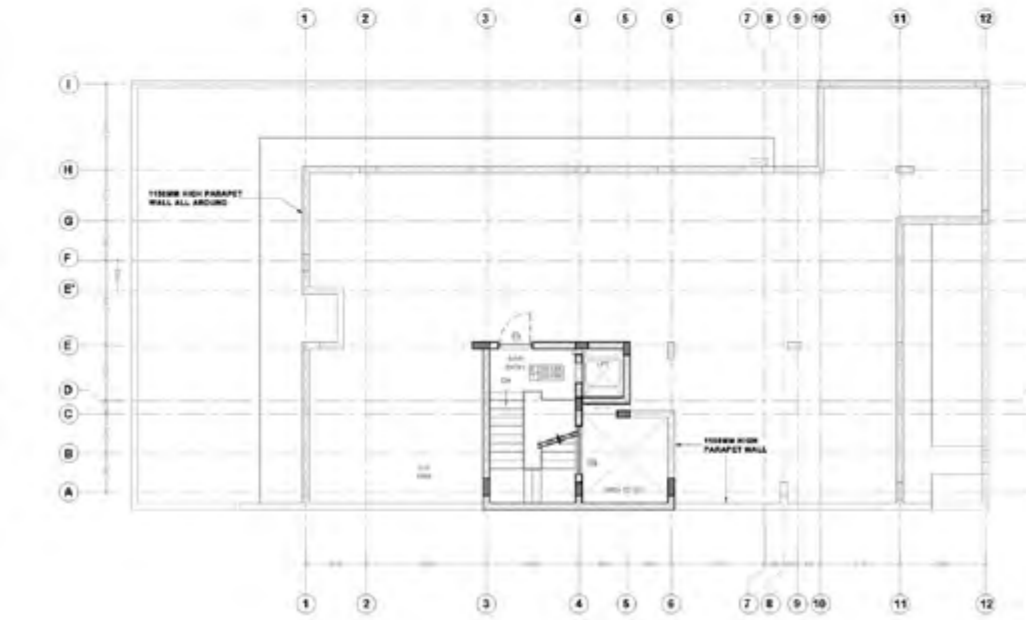
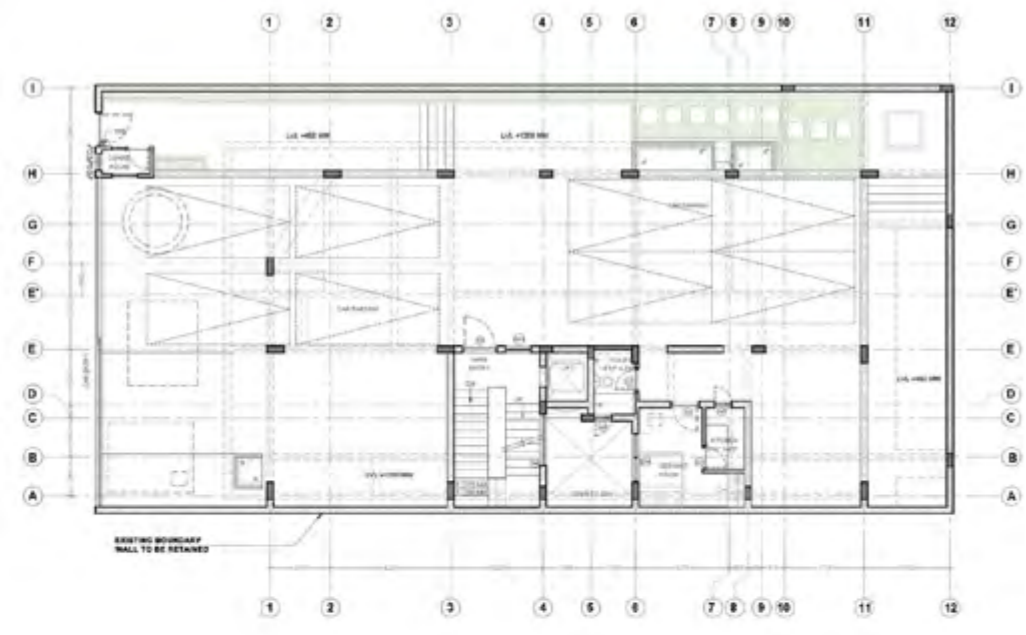
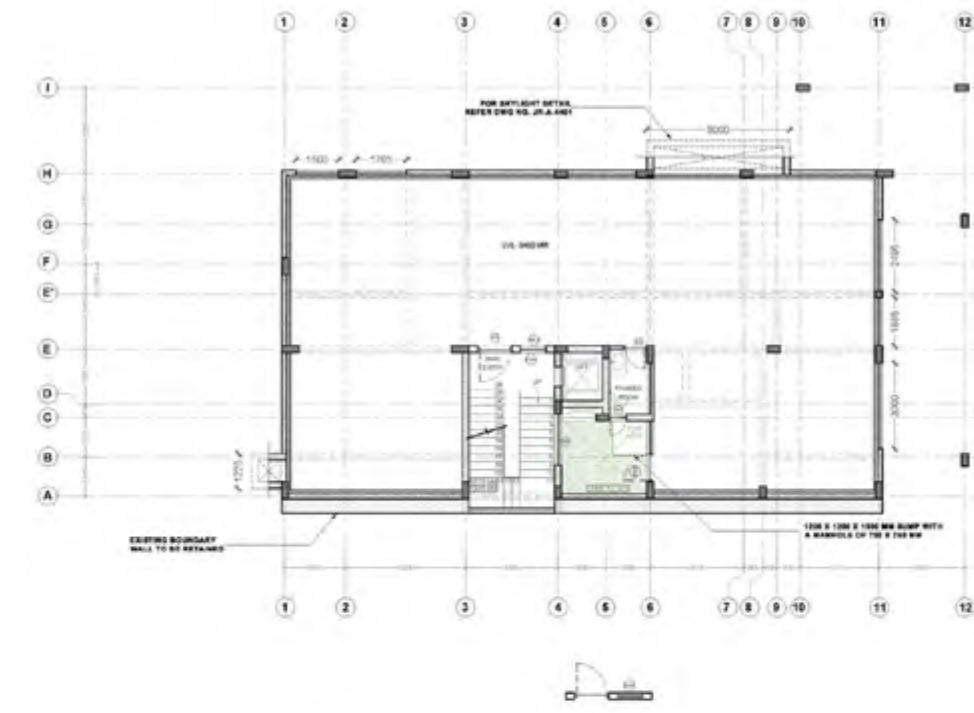
The entry stilt level used for parking; the area on the left will be covered with a jali to ensure privacy, while keeping the area ventilated

The basement level double height seen through the cut out. It is primarily lit by clear stories

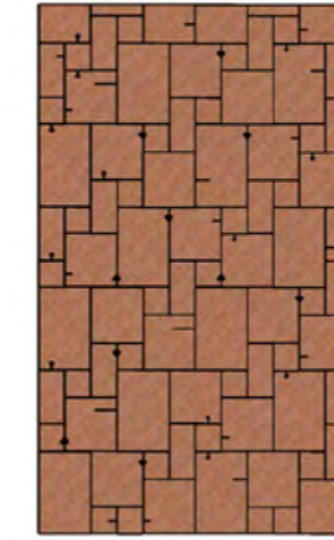
Conduits places in wall before it is plastered

Sunken Slab for toilets with a ventilation window at the farther end.

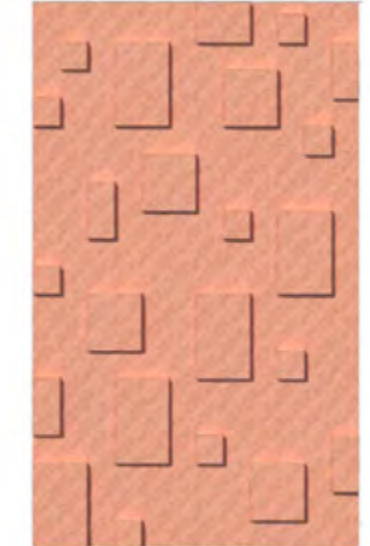
The Staircase next to the cut out and the elevator



(2)



The highlight wall was designed to have a traditional pattern of stone cladding. Keeping in mind that it should not create noise when shadow from the partially shading roof structure casts a shadow. Yet be interesting enough after sun down.



Hence a few alternating stone blocks were extruded to provide some depth and texture to the wall.

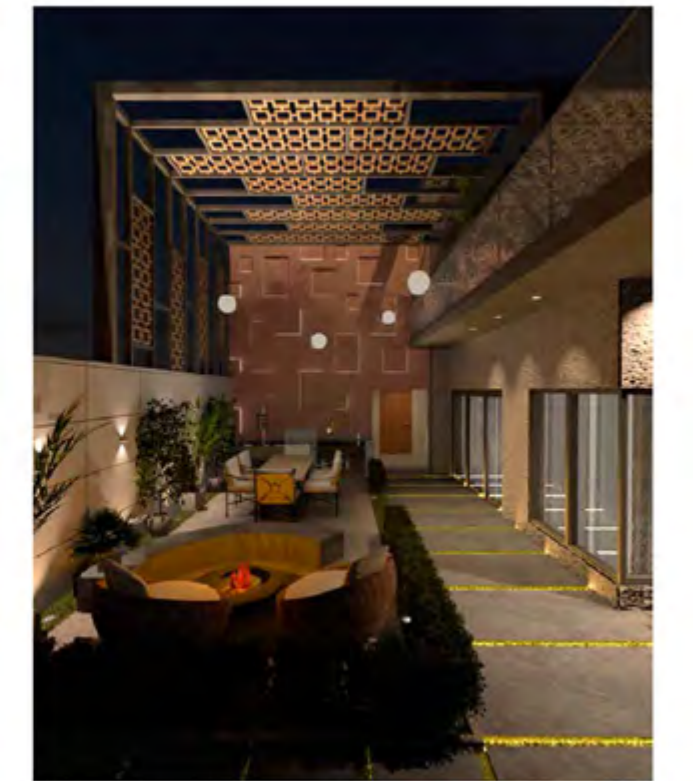


The protruded surfaces are lined with lights on their sides to create an interesting light feature on the wall

(3)



Day



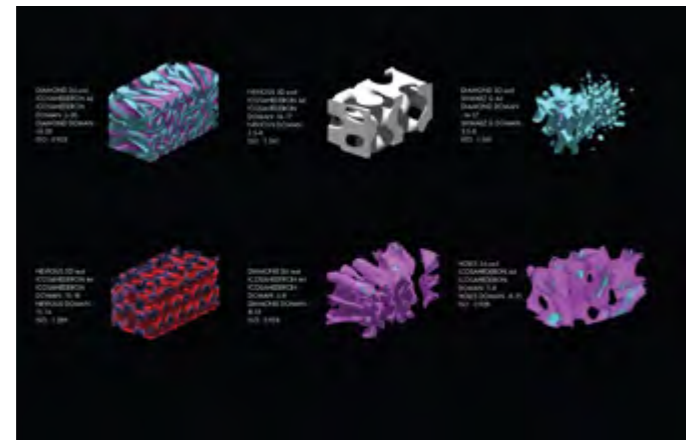
Night

OTHER PROJECTS

[1. Building With Food- Bio Materials Project at Dumolab](#)



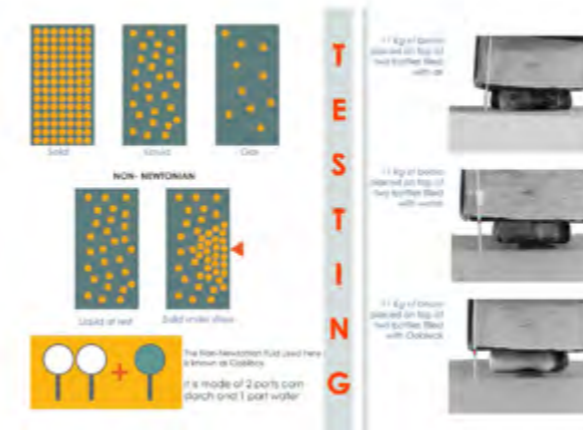
[2. Form and Algorithm 4D projected geometries](#)



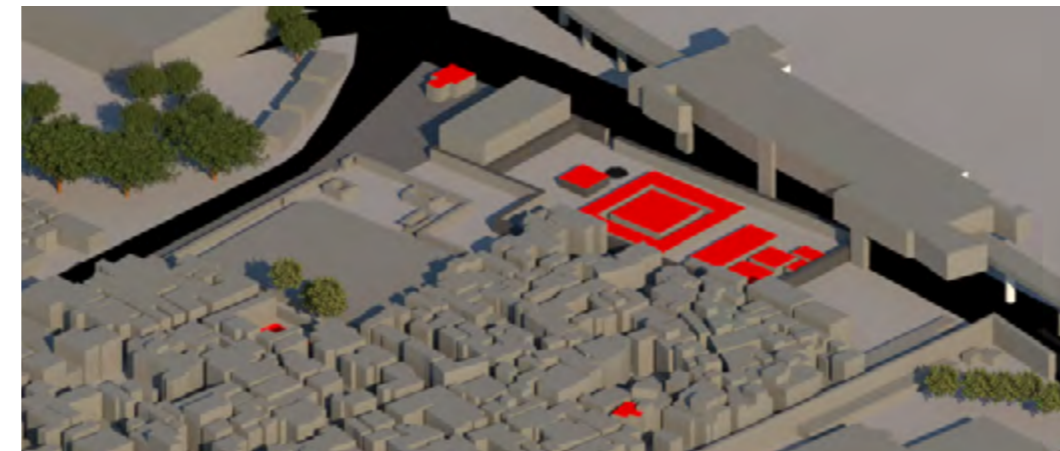
[3. ZENTRAIN - Understanding How to build a Green Building according to GRIHA standards](#)



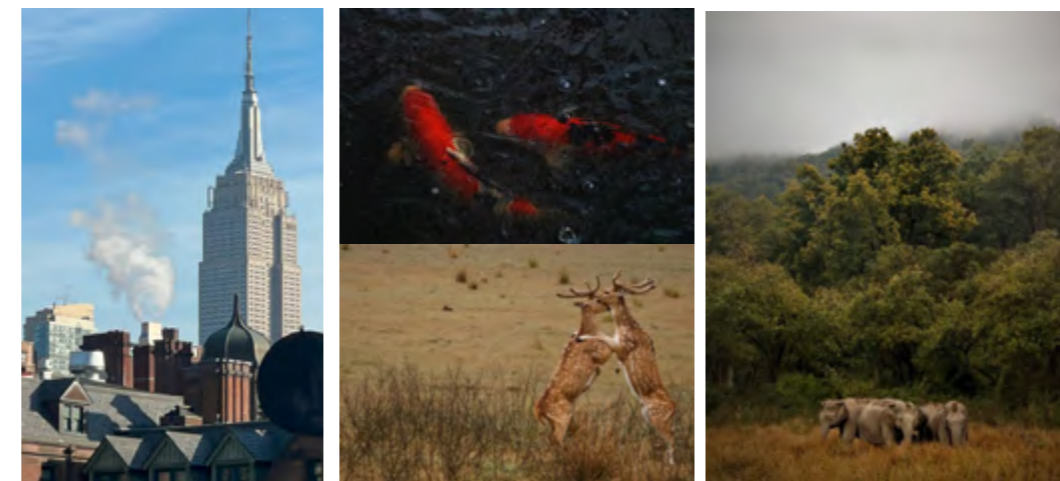
[4. Material Study Journey \(Not Just a Library\)](#)



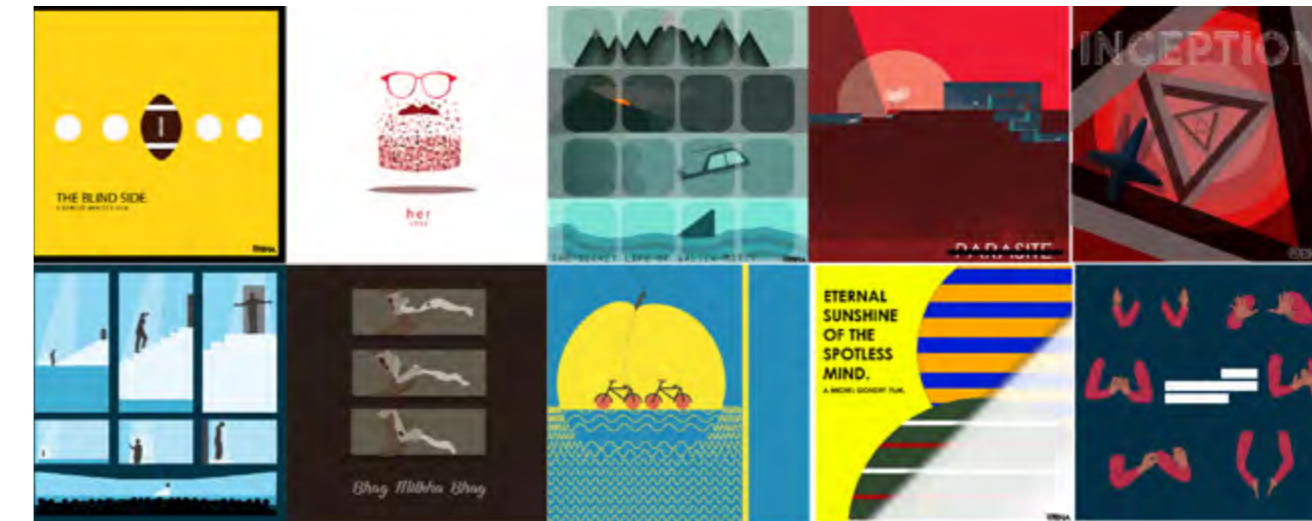
[5. Urban Context Study](#)



[6. Photography](#)



[7. Minimua Posters- Minimalist Poster Design](#)



WRITTEN WORKS

- [1. The Ghost of Contexts past present and future](#)
- [2. Oobleck](#)
- [3. Ethics in Architecture](#)

THANK-YOU

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