2017-2025
selected works

architecture

P O R T F O L I O

ROUFAT NAHIN PRIOTA

content

2017-2023

B.Arch

2020-PRESENT

Professional Work

2020-PRESENT

Competition

01

WATER-HUB

A GROWTH-CENTRIC APPROACH FROM GENDER PROSPECT
CATALYZING WATER FOR COMMUNITY RESILIENCY

The coastal region of Bangladesh, vulnerable to climate change, faces water scarcity due to rising sea levels and salinity intrusion. This crisis disproportionately affects women, who walk long distances to collect drinking water, transforming water collection points into significant communal spaces. However, this daily burden, combined with traditional gender roles and conservative norms, excludes women from income-generating activities and the rural growth center, a vital hub for socio-economic activity and disaster information. This exclusion increases their vulnerability to climate change.

This project proposes a "WATER_HUB," a gender-focused, climate-responsive socio-economic center, to bridge the gap between rural women and the growth center, empowering the community through a growth-centric approach catalyzed by water.

pe
ndregraduate thesis

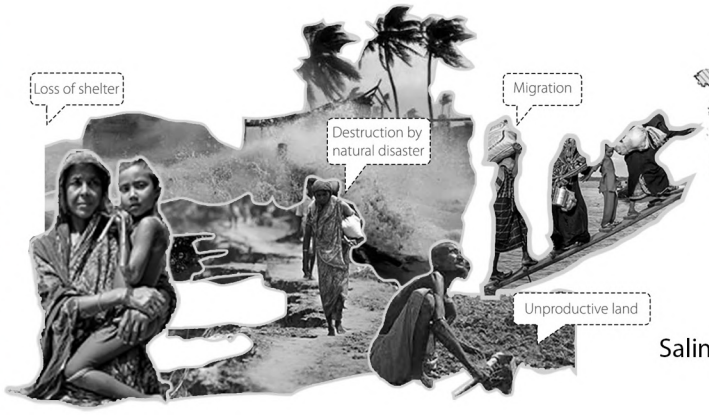
cus
saster resiliency
ommunity planning

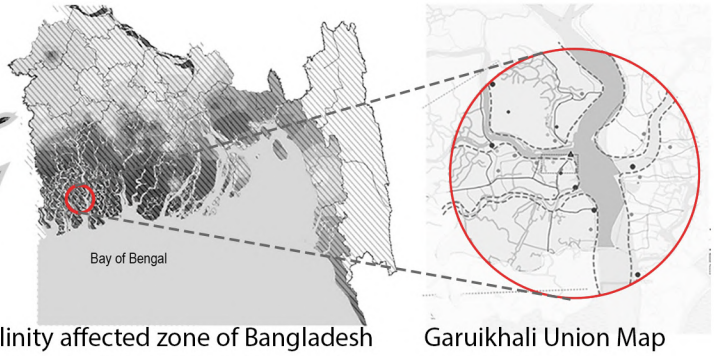
uration
4 weeks

site
Garuikhali Village,
Paikgacha,Bangladesh

supervisor
Dr Catherine D.Gomez
Simita Roy

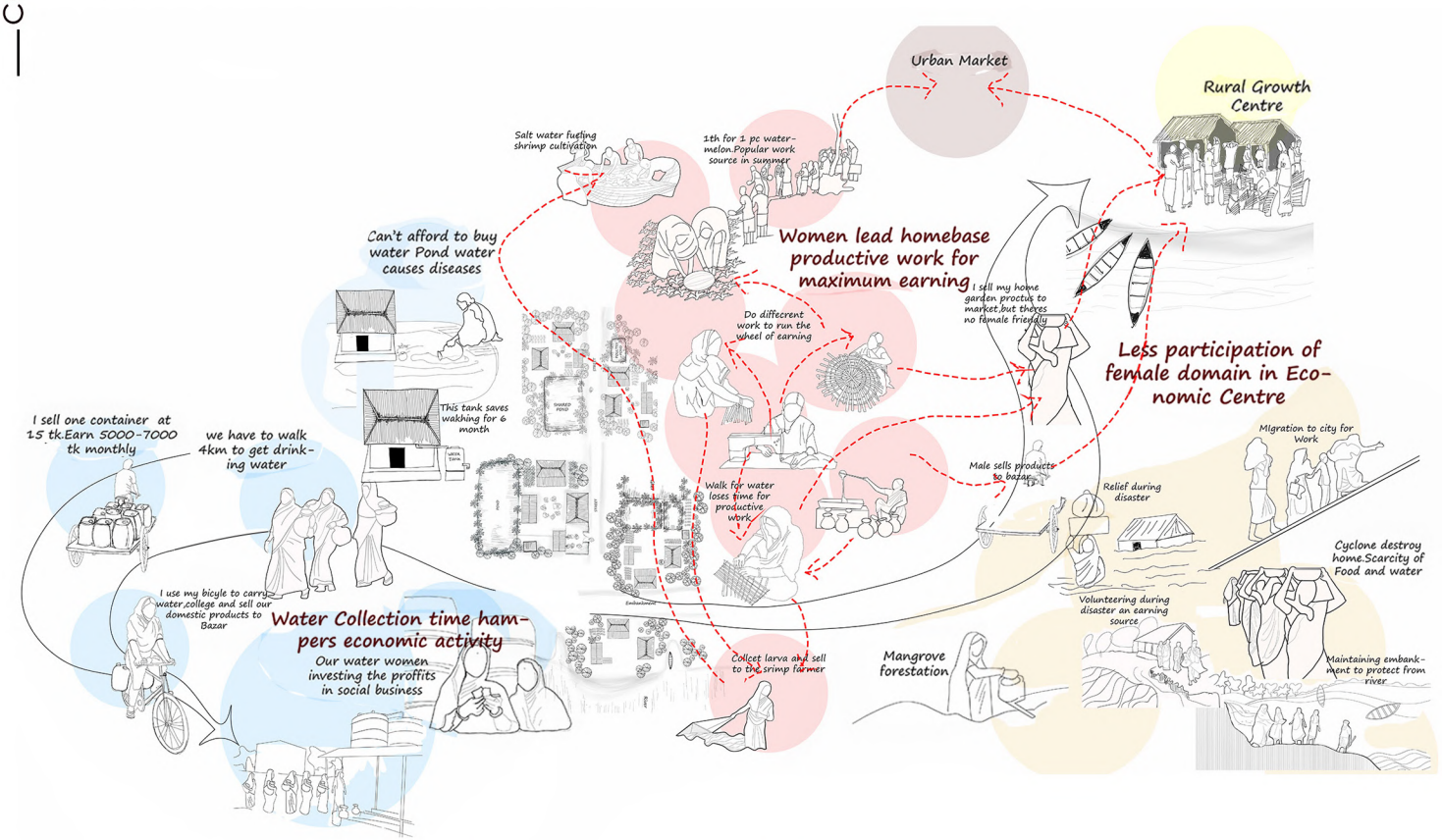
sofwares
GIS
archicad
rhinocerus
ladybug,karamba
sketchup
illustartor
photoshop



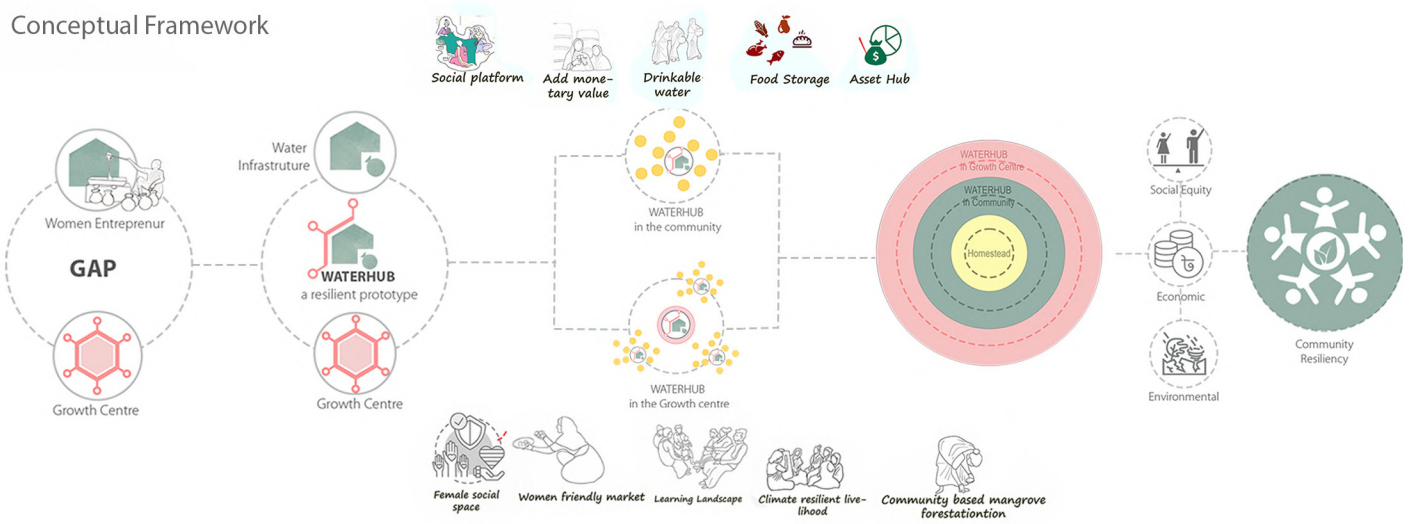


Salinity affected zone of Bangladesh

Garuikhali Union Map



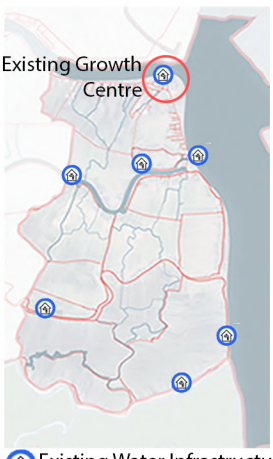
Conceptual Framework



The Water Hub proposes architectural intervention across macro–meso–micro scales. At the macro scale, it strengthens rural–urban linkages by integrating water infrastructure with growth-center networks, road–water connectivity, and mangrove buffers for climate adaptation. At the meso scale, it reorganizes the growth center with modular hubs—training, services, and community clinic—creating women-friendly public space and safer disaster logistics. At the micro scale, it designs privacy-layered, women-centered spaces around water collection, with a resilient service core and safe-failure zone enabling daily use and rapid disaster response.

Design Intervention in Macro Scale

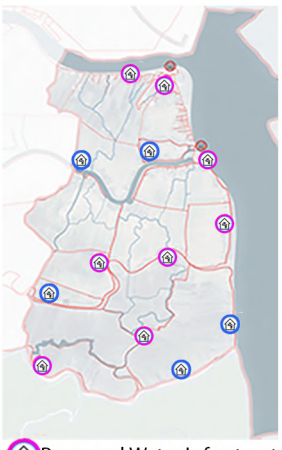
Existing Blue Network



Existing Water Infrastructure

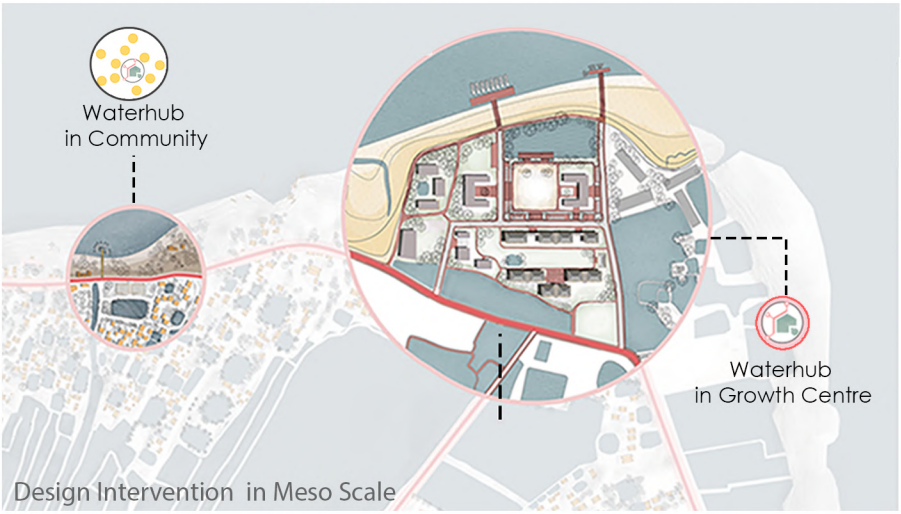
Existing Water Network Analysis

Proposed Blue Network



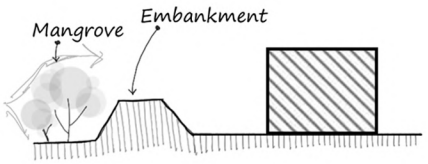
Proposed Water Infrastructure

Proposed Water Network Analysis

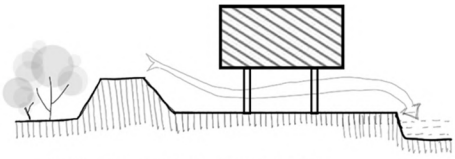


Design Intervention in Meso Scale

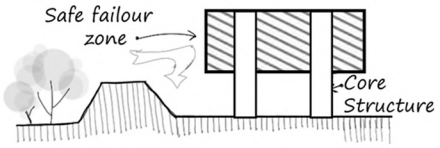
Design Strategy in Micro Scale



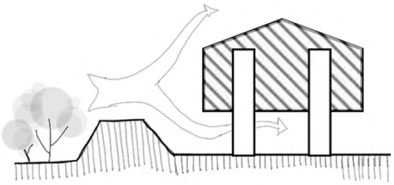
1 I Layer of mangrove as wind breaker



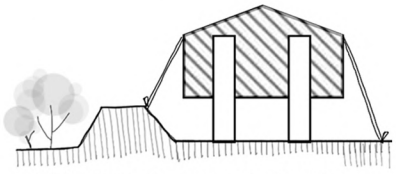
2 I High level plinth for flood protection



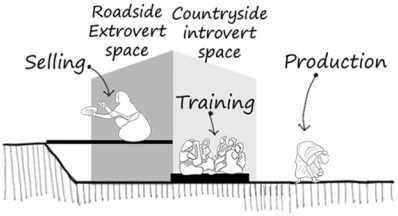
3 I Resilient structure



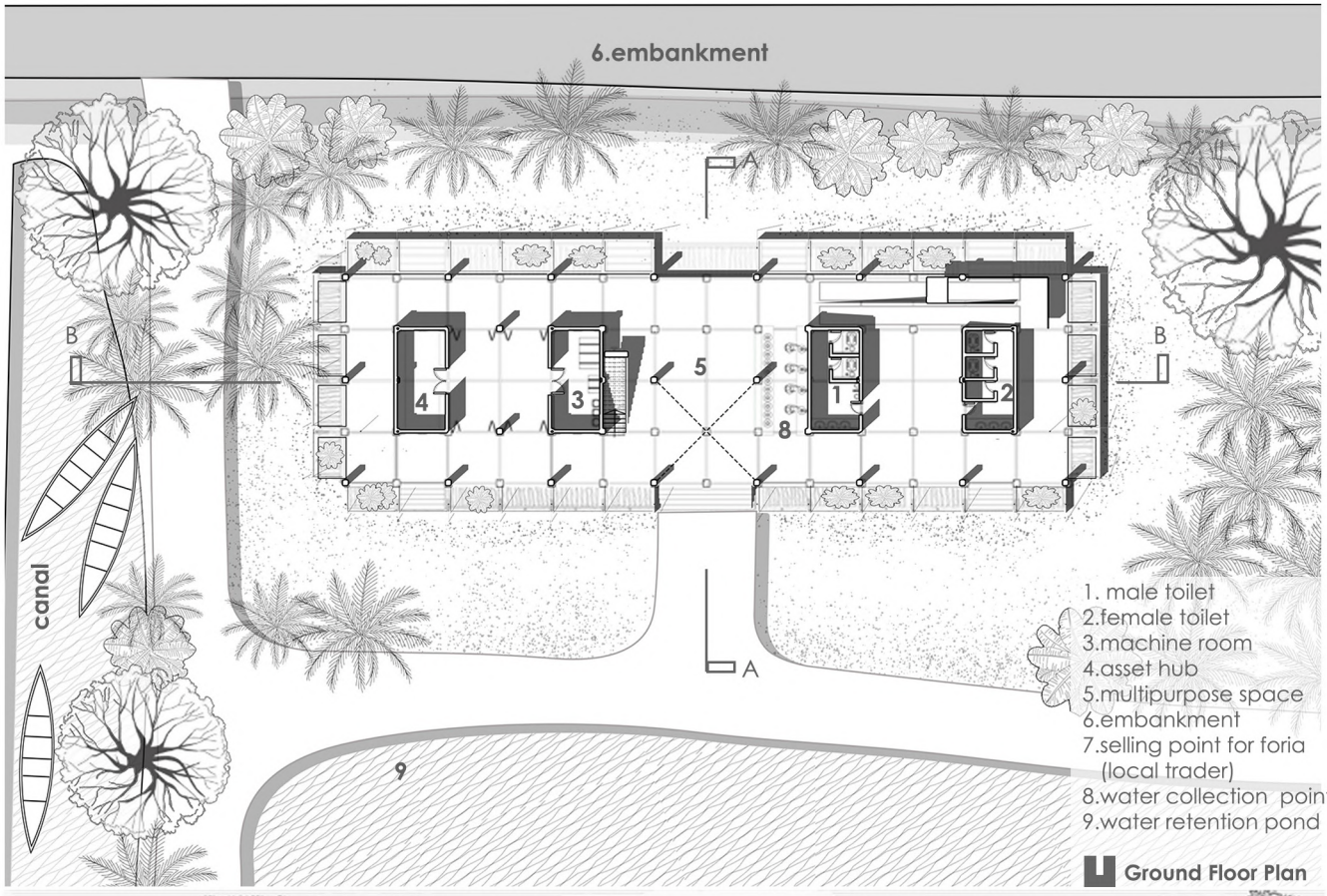
4 I Gable roof to cut wind pressure

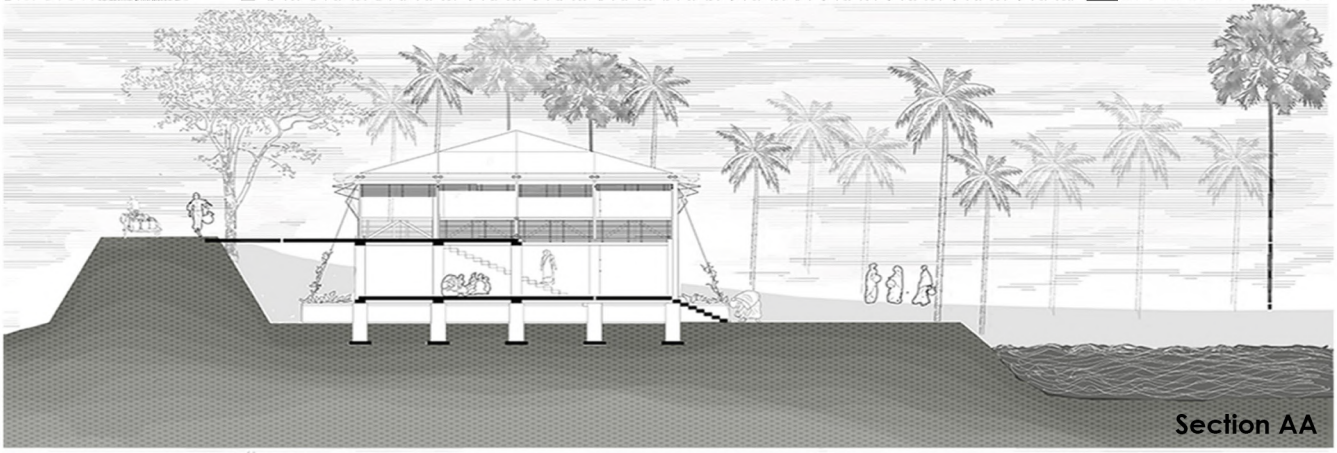


5 I Roof anchoring to ground using string

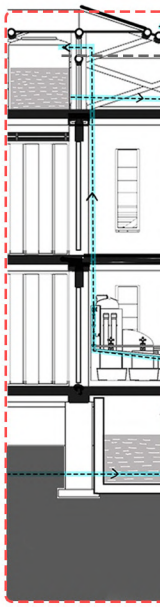


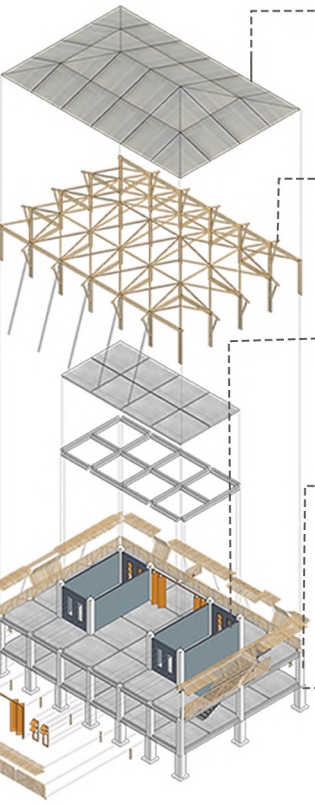
6 I Layer of space to make women friendly space and form following the function





local mater
system like
modular fer
easy constru
safe perform





Ferocement Roof

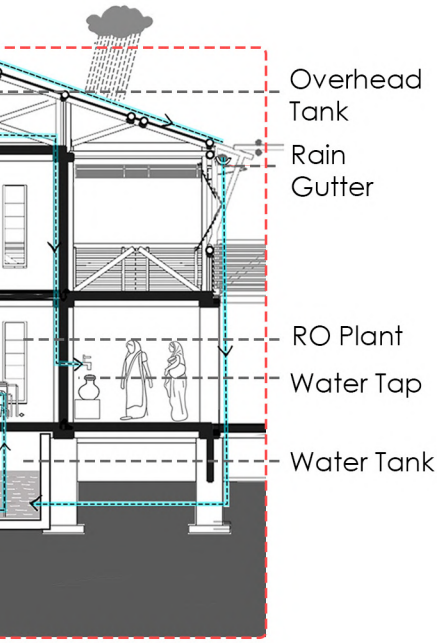
Bamboo

Ferocement Hollow Block

Ferocement Hollow Column

Ferocement Footing

rials as the **structural** bamboo framing and rocement elements for uction,quick repair and nance during disaster.



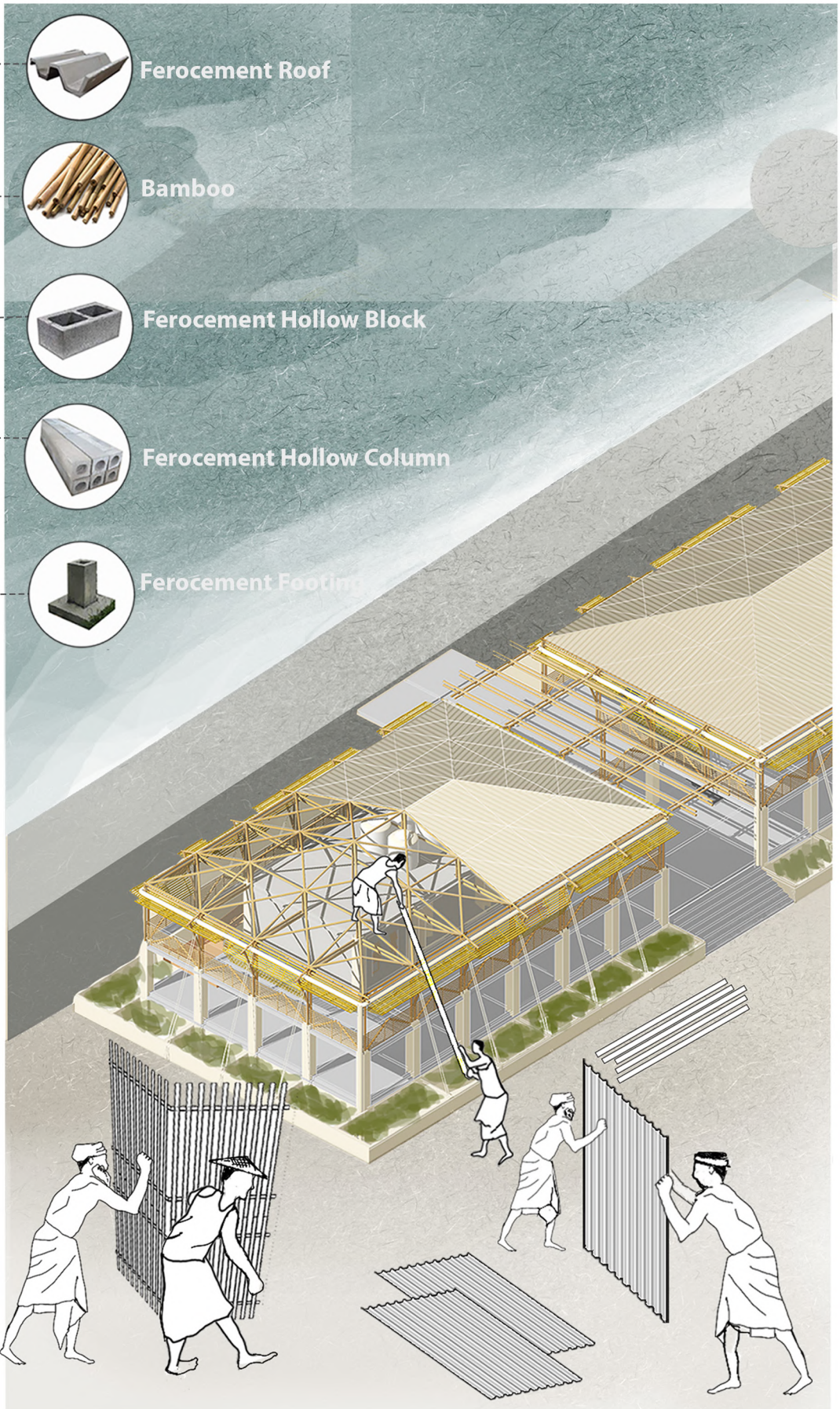
Overhead Tank

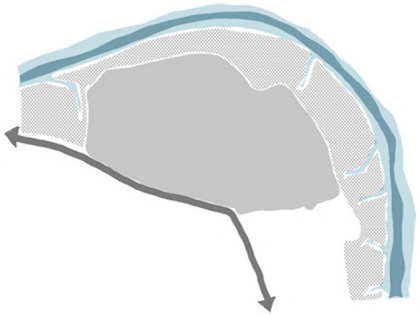
Rain Gutter

RO Plant

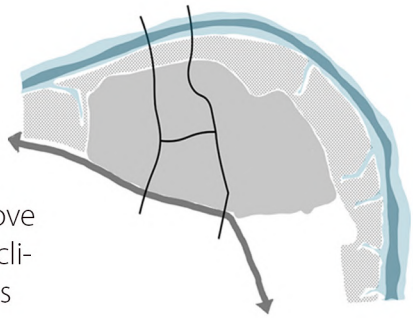
Water Tap

Water Tank

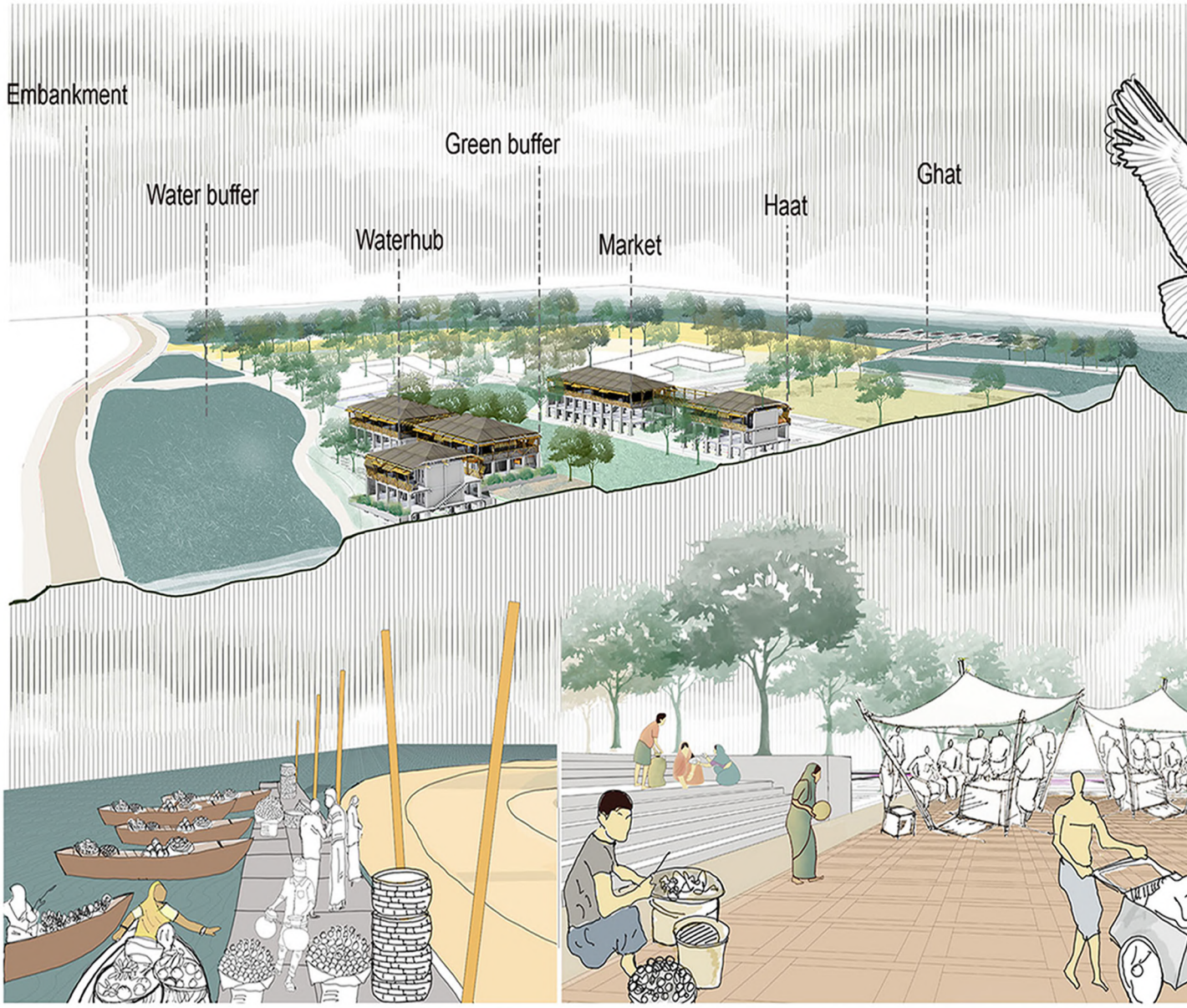




1 I Layer of mangrove to protect against climate vulnerabilities

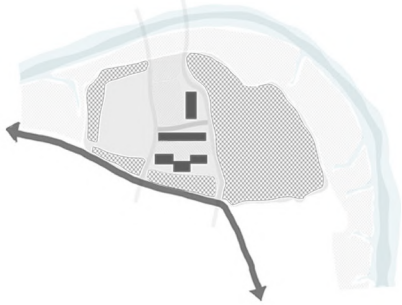


2 I Connecting green-blue network for intregated communication



Section Perspective I Perspective view of proposed “GHAT” I Perspective view of proposed “HAAT”

3l Layer of green-blue buffer to ensure privacy for women



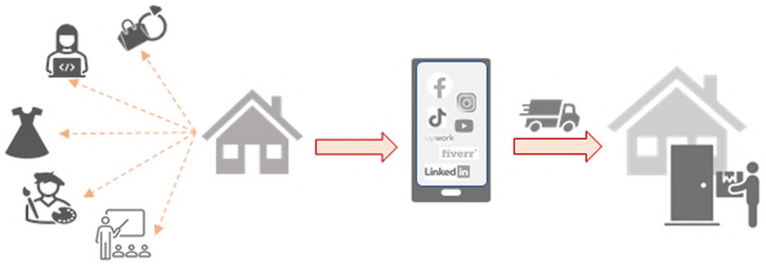
4 l Create a learning landscape for climate resilient livelihood

Perspective view of Growth Centre I Perspective view of waterhub-courtyard

02
E.CO HOME

Apartment for Homebased E-Commerce Entrepreneur

This project proposes a future-ready apartment model responding to evolving urban lifestyles in Dhaka, where home is increasingly becoming a hub for both living and earning. With the growth of online platforms such as Facebook and e-commerce, many women—especially homemakers—now run home-based businesses, turning domestic space into a production and sales environment. The design studies these changing needs, identifies new spatial requirements, and develops an apartment layout that integrates a dedicated workspace within the home without compromising privacy and daily comfort. In addition, shared community spaces are introduced to support social interaction, collaboration, and a stronger neighborhood network. Overall, the proposal promotes sustainable, healthy urban living by combining flexible domestic-work environments with community-oriented design.



Dhaka's women entrepreneurs are transforming their homes into creative hubs, using digital platforms to turn art, crafts, and consultancy into a thriving doorstep-delivery economy.

ype
ndividual
housing

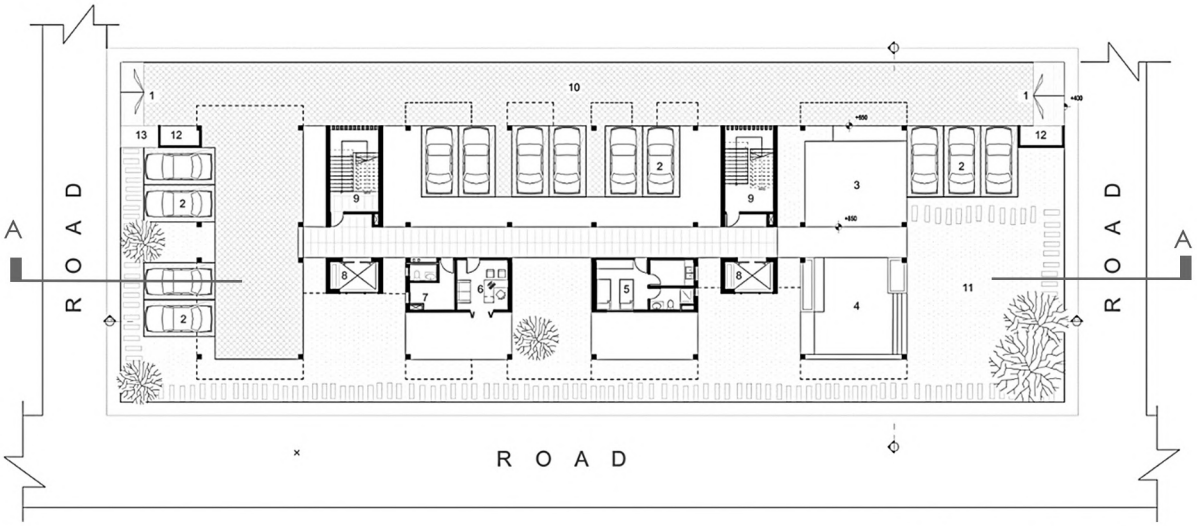
duration
8 weeks

focus
apartment idea
architectural details
community
urban living

site
Purbachol,Dhaka

instructor
Dr Zakiul Islam
Mahmudul Anwar Riyad
Ruhul Amin
Gourob Kundu

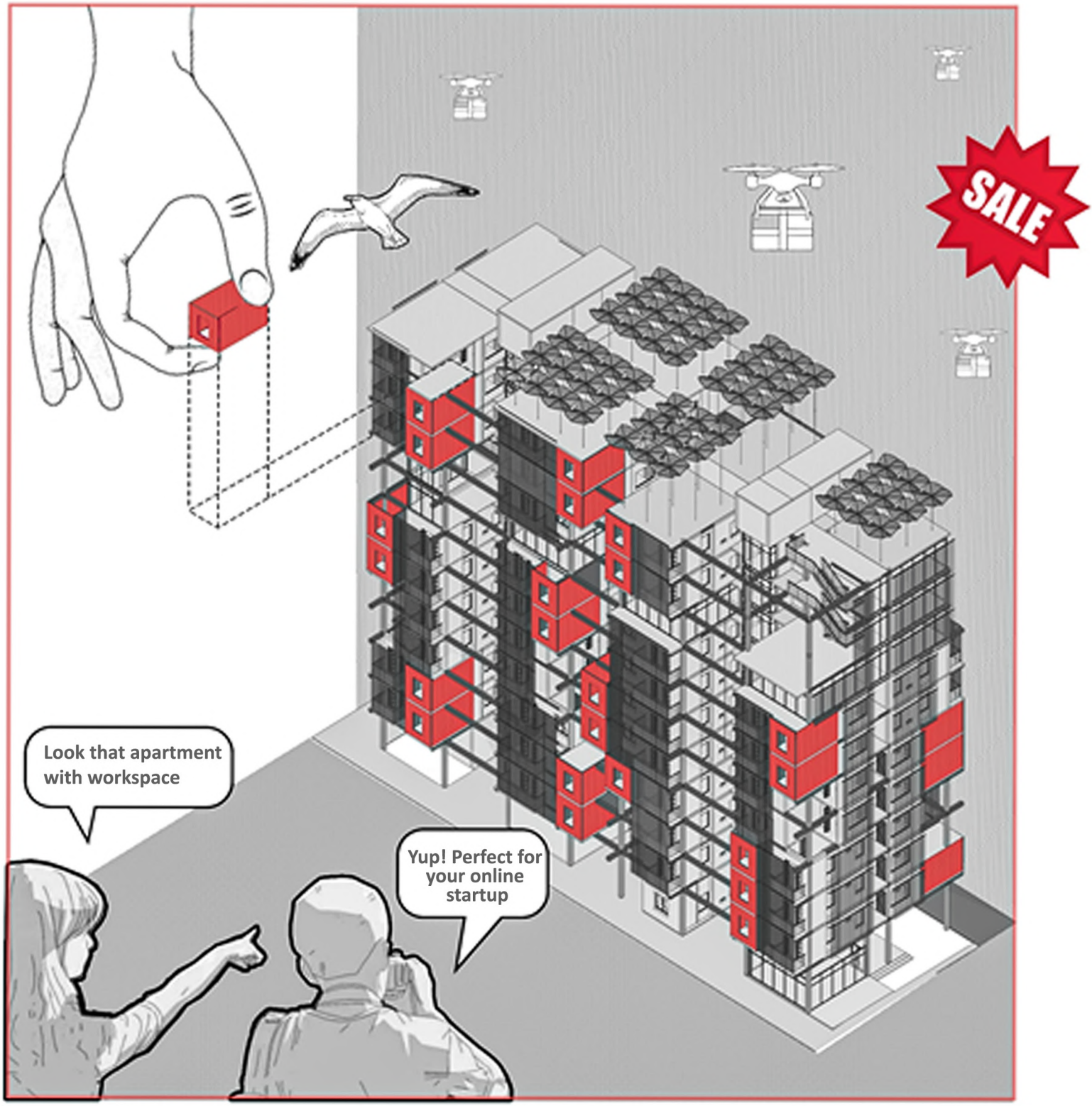
sofwares
archicad
autocad
rhinocerus
sketchup
illustartor
photoshop

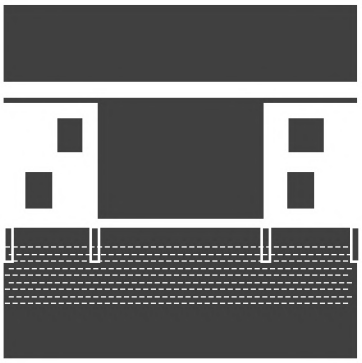


Ground Floor Plan

Section AA

DO YOU NEED A HOME WITH WORKSPACE?





03
UN-STOPPABLE
GROW YOUR OWN SPACE

In Bhabadah, the "Sorrow of Jessore," stagnant waterlogging traps ten lakh lives in hardship. Yet, the community's resilience shines through children who travel miles by boat for education. Our project transforms this crisis into a solution by establishing a child-friendly learning center at Badvita.

Designed for ages 5–12, this light structure of local materials integrates schooling with climate-resilient farming, such as floating hyacinth beds and hydroponics. By involving students in cultivation, the center provides nutritious tiffin as an incentive for attendance while teaching vital survival skills. This initiative empowers a new generation to navigate environmental adversity, turning the very water that isolates them into a source of sustenance and lasting communal strength.

type
group project

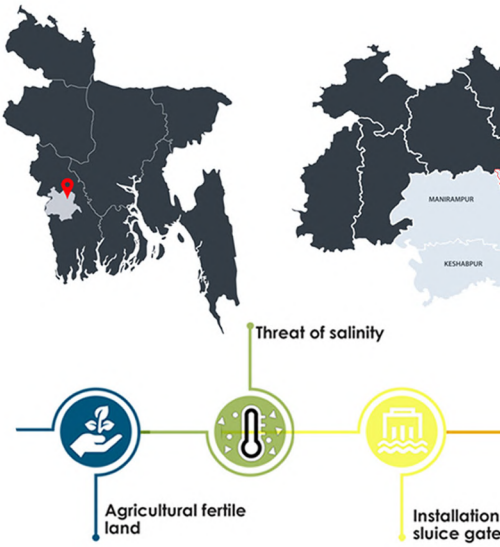
focus
child friendly space

duration
14 weeks

site
Bedvita,Jashore

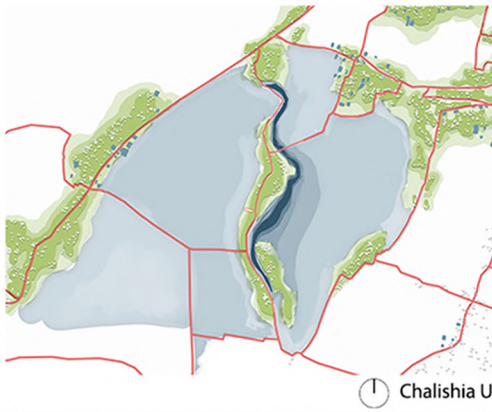
instructore
Dr Apurbo K Podder
Simita Roy

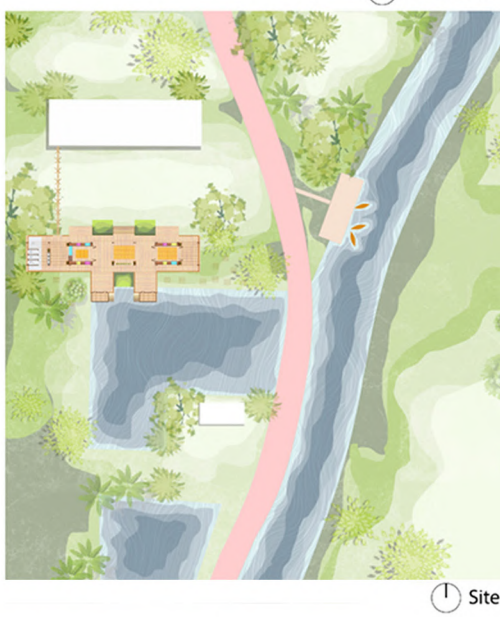
sofwares
autocad
rhinocerus
grasshopper :
ladybug,karamba
sketchup
illustartor
photoshop



Conteptual Framework

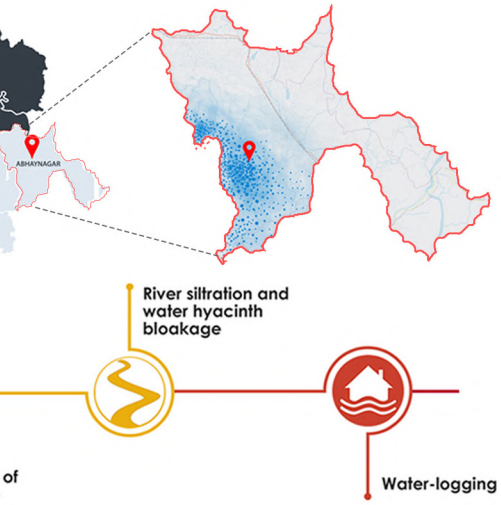
An Informal Learning Platform that integrates formal education with climate-resilient farming and resource utilization for the 5-12 age group. By fostering practical life skills and sustainable production, the initiative aims to transform a crisis into a resilient economy





Design Intervention

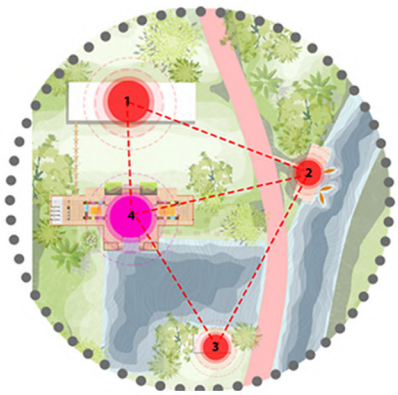
Strategically integrated with local int
Bhabadah's waterlogging crisis into a
tering climate resilience and practical



Ground Floor Plan

Utilizing a minimatislic approach of free-floor plan with bamboo and straw, the design creates a transparent learning landscape. Functional partition walls serve as book storage, and operable doors control openness to maintain a direct, interactive dialogue with the waterlogged environment of Bhabadah

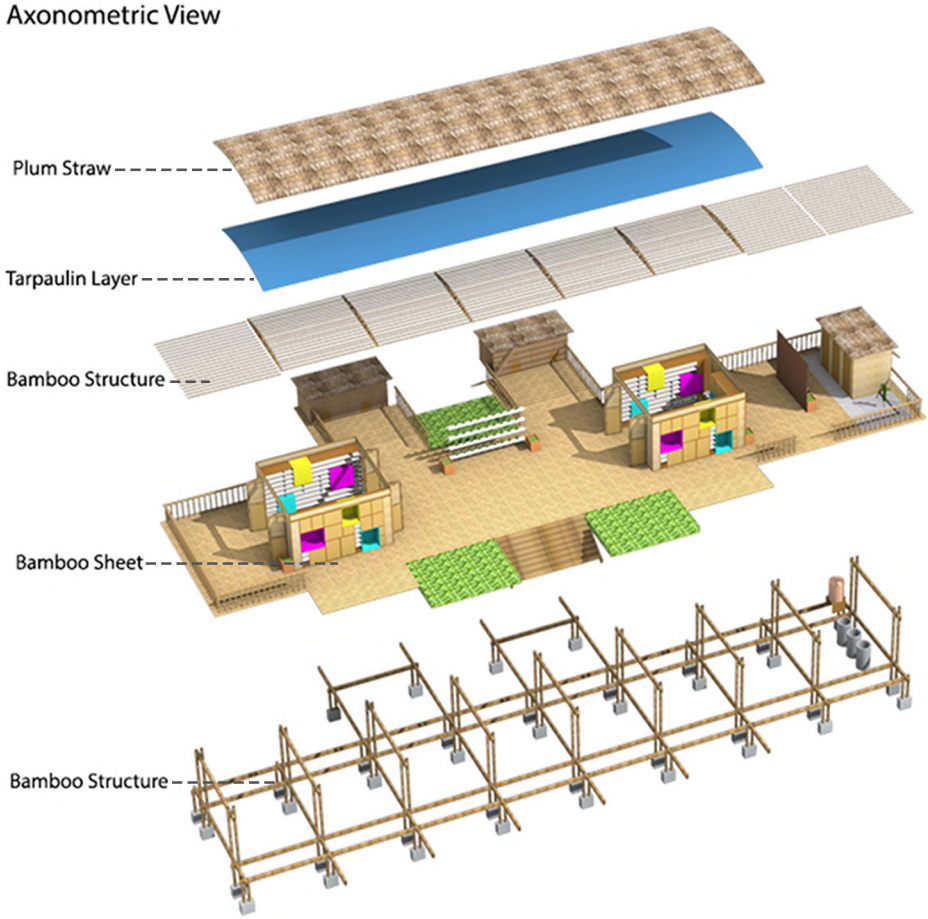
Nearby Schools and health Complex



Community Connection

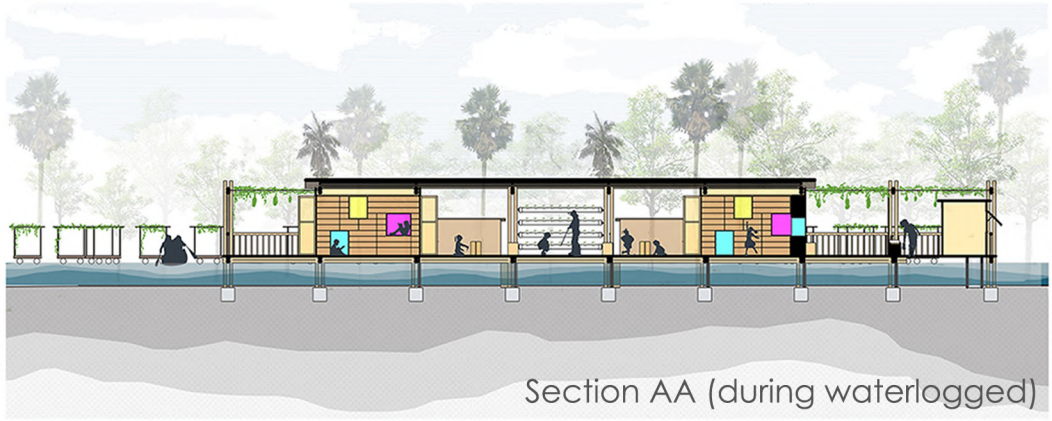
1. Existing Badvita School
2. Proposed Ghat on Dumurtola Khal
3. Existing Fisheries Training Centre
4. Learning Platform (CFS)

Axonometric View



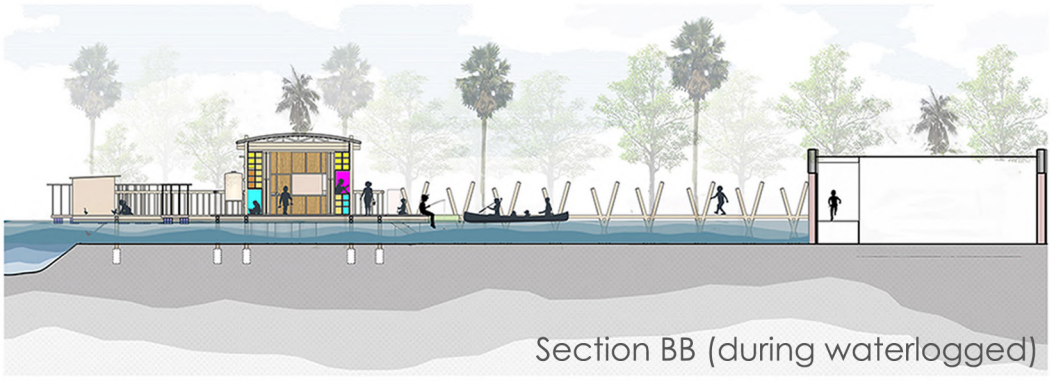
frastructure, this project transforms user-driven learning landscape, fos- education for ten lakh residents.

Section AA (normal time)

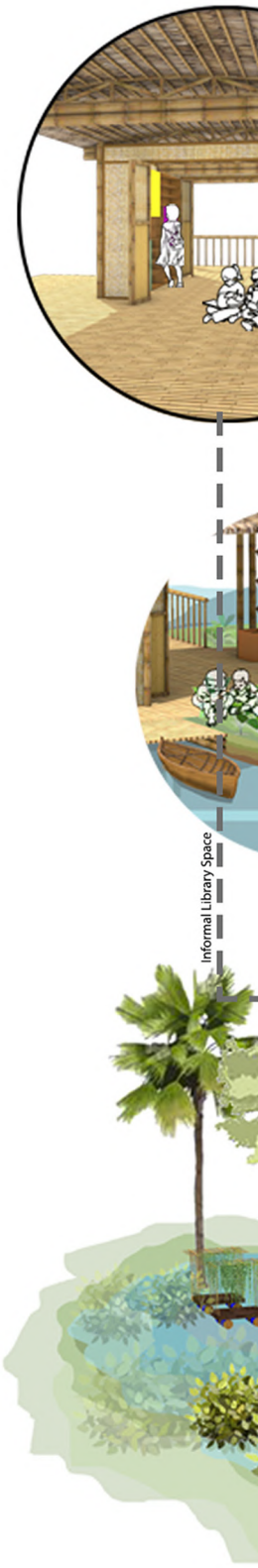


Section AA (during waterlogged)

Section BB (normal time)



Section BB (during waterlogged)




Common Activity Space
Farm Yard
Service Area
Served Area
Sanitation Area
Floating Farming

Normal time when children play ,work and learn

During the time of waterlgged ,the resilient architecture will help to adapt crisis

04

CONNECTING THE GREEN

Reimagining BUET Campus for Post Covid Era

Developed during the 2020 COVID lockdown as a fully online studio, this project proposed a "new normal" master plan for the BUET campus to support safer movement, learning, and social life while reducing virus transmission risks.

Working remotely in a team of four, we conducted an online survey through BUET community groups to understand the needs of students, faculty, and nearby residents. The findings highlighted rising health consciousness, congestion at key gathering points, and a shortage of flexible open spaces.

Our design strategy created a healthier, pedestrian-friendly campus by connecting underused negative spaces into larger continuous open areas and improving walkability. We revised circulation by proposing new vehicular access routes and additional entry gates to reduce bottlenecks. The plan included COVID-assistance points (masks, sanitizer, test kits), outdoor seating, hybrid open-air classroom concepts, and hotspot redesign with pavement markings to support distancing and crowd dispersion.

type
group project
urban design

focus
human centric design

duration
5 weeks

team mate
Israt Jahan
Tania Rahman
Arafat Mahmud

key works
concept generation
visualisation
drawing

site
BUET campus

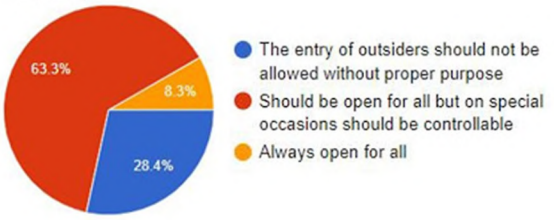
instructor
Dr Farida Nilufar
Tariqul Islam Tomal
Nayna Tabassum

sofwares
ARC GIS
rhinocerus
sketchup
illustartor
photoshop
lumion

Online Survey

Do you think campus area should be protected from outside entries?

264 response

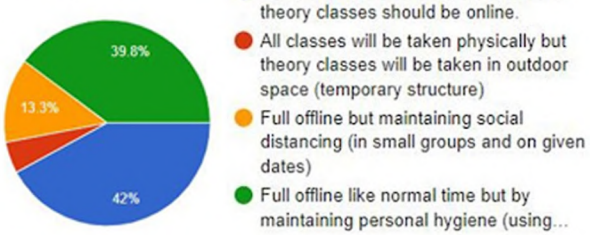


Related to cafeteria and small dining space?

264 response

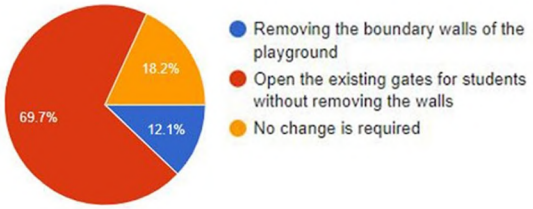
What do you think the class should look like before Covid 19 condition improve ?

264 response



What do you think can be done to make the playground more lively and student feindly?

264 response



Online suvery was conducted o understand the students need and find out the problems.Conceptual idea and design was based on the survey reports to create a user responsive pedestrian friendly healthy campus

Conceptual Framework

Existing multiused entry hampers pedestrian movement

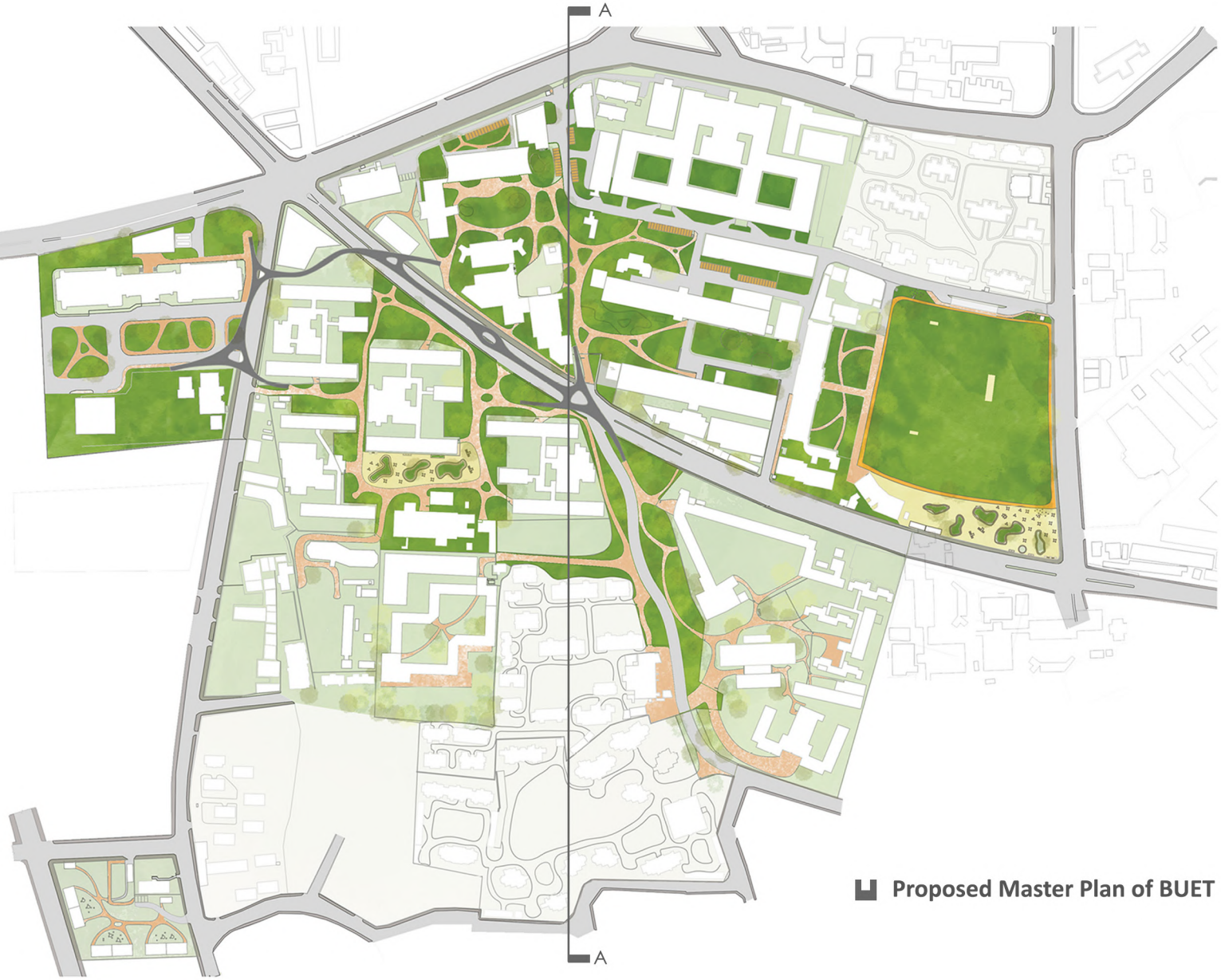
Cafeteria corona hotspot as crowd gathers here & segregated less used open space

Intregrated green space to disperse crowd

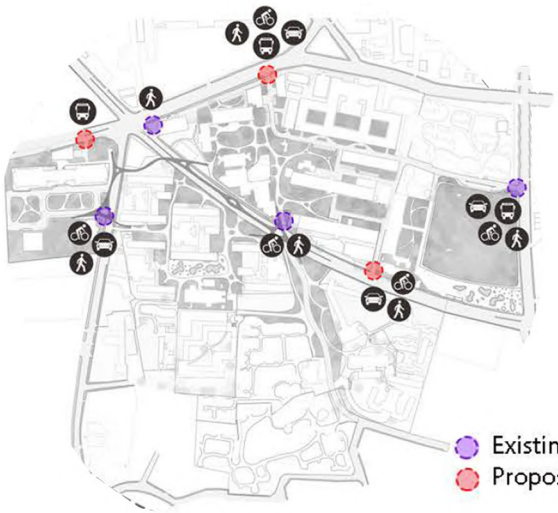
*Existing main entry only for pedestrian & bicycle access execpt for emergency situation
*New entry for vehicular access to avoid the pedestrialn friendly pathways.

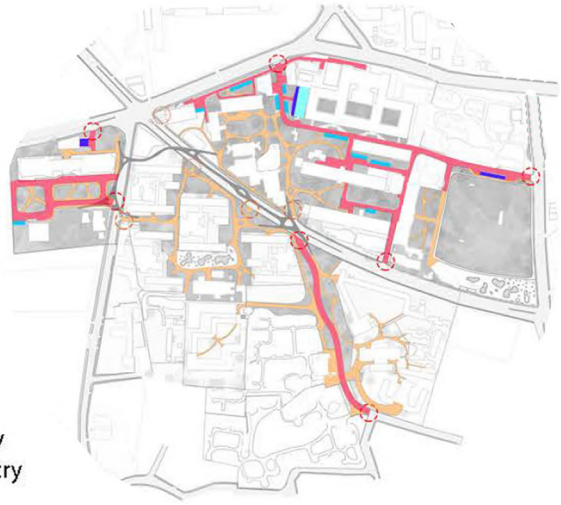
Connected open space & make them usable to create visual connection

Skywalk to connect three separated zone,avoid the crowd of Polashi Bazar & increase pedestrian friendly access



Proposed Master Plan of BUET

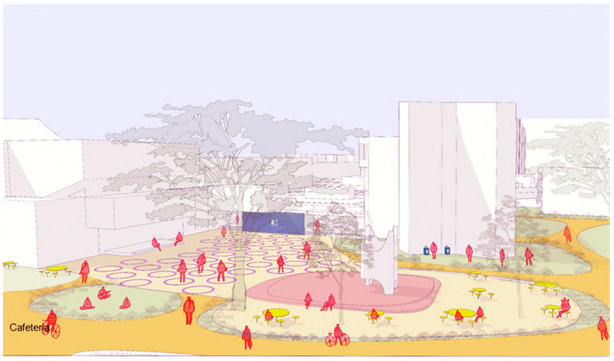




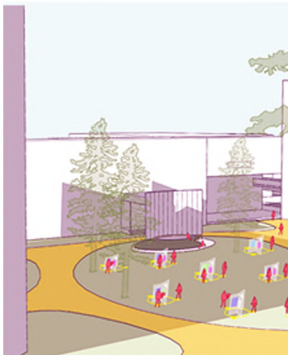
Pocket green spaces activate unused areas for social interaction and crowd dispersion. A new road network is proposed to prioritize walkability and improve pedestrian connectivity.

Vehicular Road
Pedestrian Walkway
Bus Stoppage
Car Parking

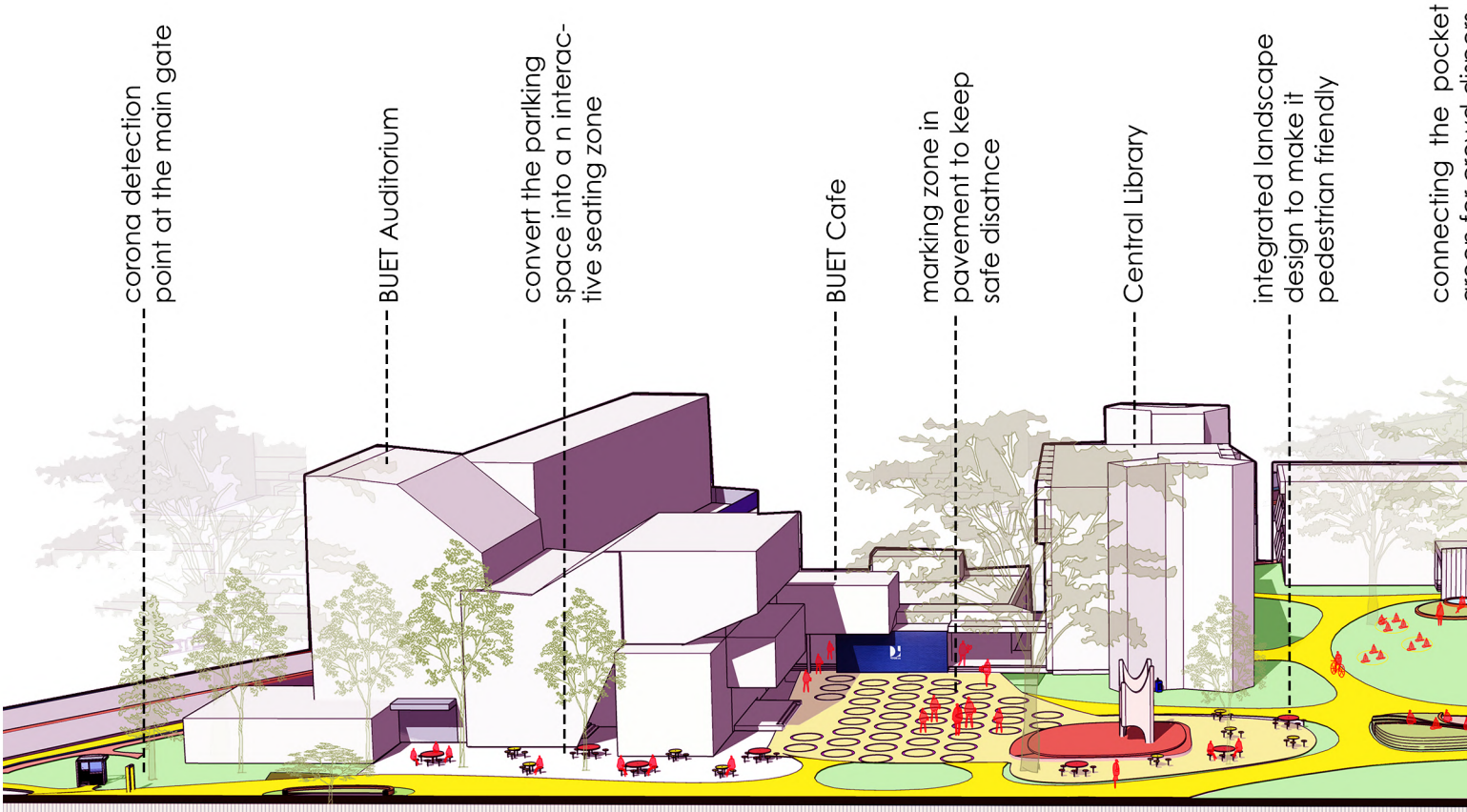
covid assistant point at the main entrance gate



social gathering near central cafe

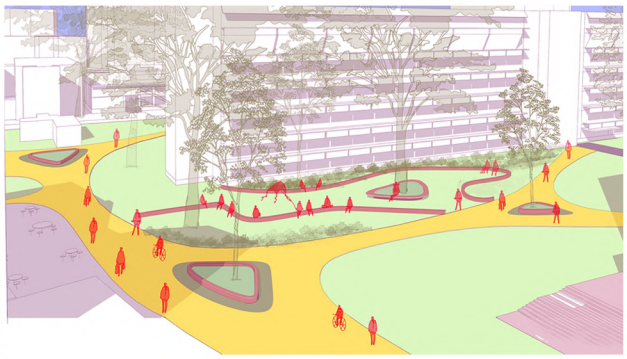


ocasional gatherin building



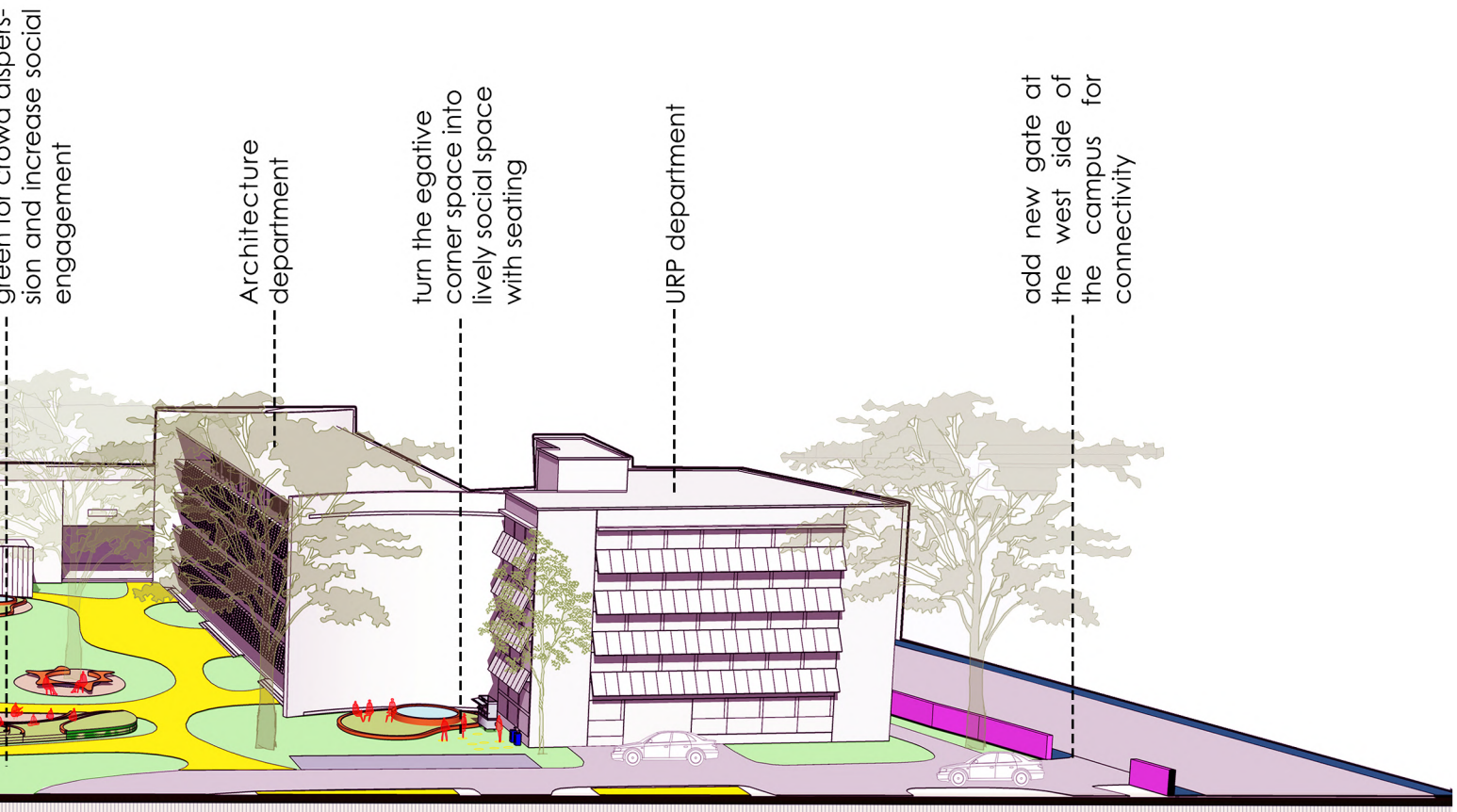
Section AA

ng near architecture



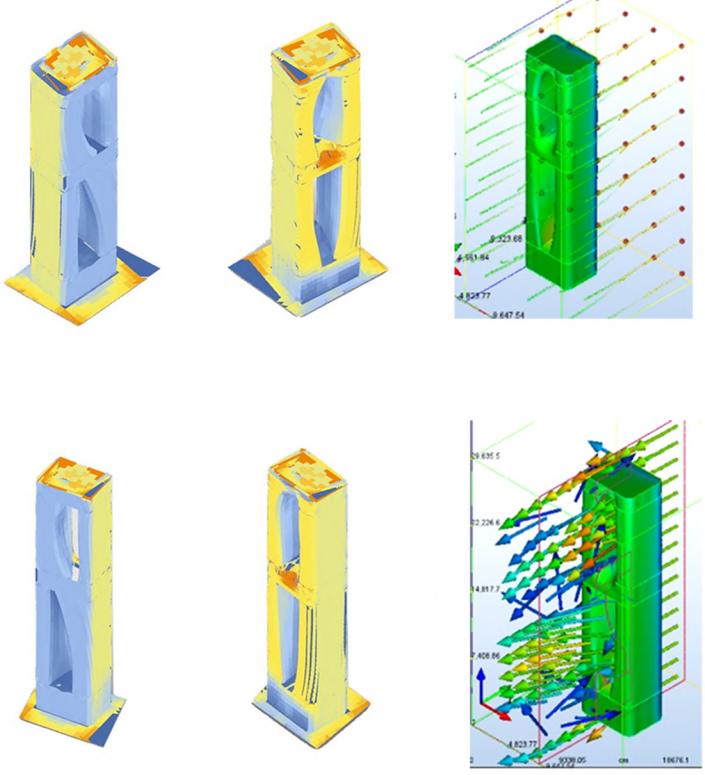
oudoor activity in front of civil department

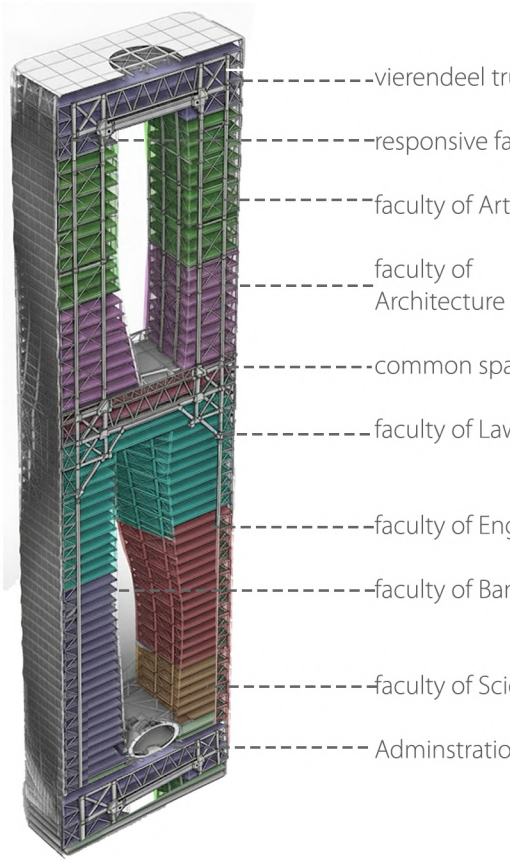
outdoor space to use as hybrid class



05
VERTICAL UNIVERSITY
Net Zero Emission Educational Building

This project proposes a net-zero vertical university on a 5400 sq meter plot in the tropical context of Dhaka. Starting from a rectilinear mass optimized for functional floor area, the form evolved through Ladybug radiation analysis and CFD wind simulations to create a climate-responsive architecture. The resulting mass features north-south voids for aerodynamic efficiency and an East-West environment-responsive facade to mitigate solar gain. A robust Vierendeel truss system ensures structural stability while maintaining the building's innovative, porous form.





Simulation with Radiation Analysis in Ladybug and Wind ANalysis in CFD | Structural System & Program Stacking Diagram

type
individual
highrise educational building

focus
structural design
net zero building

duration
8 weeks

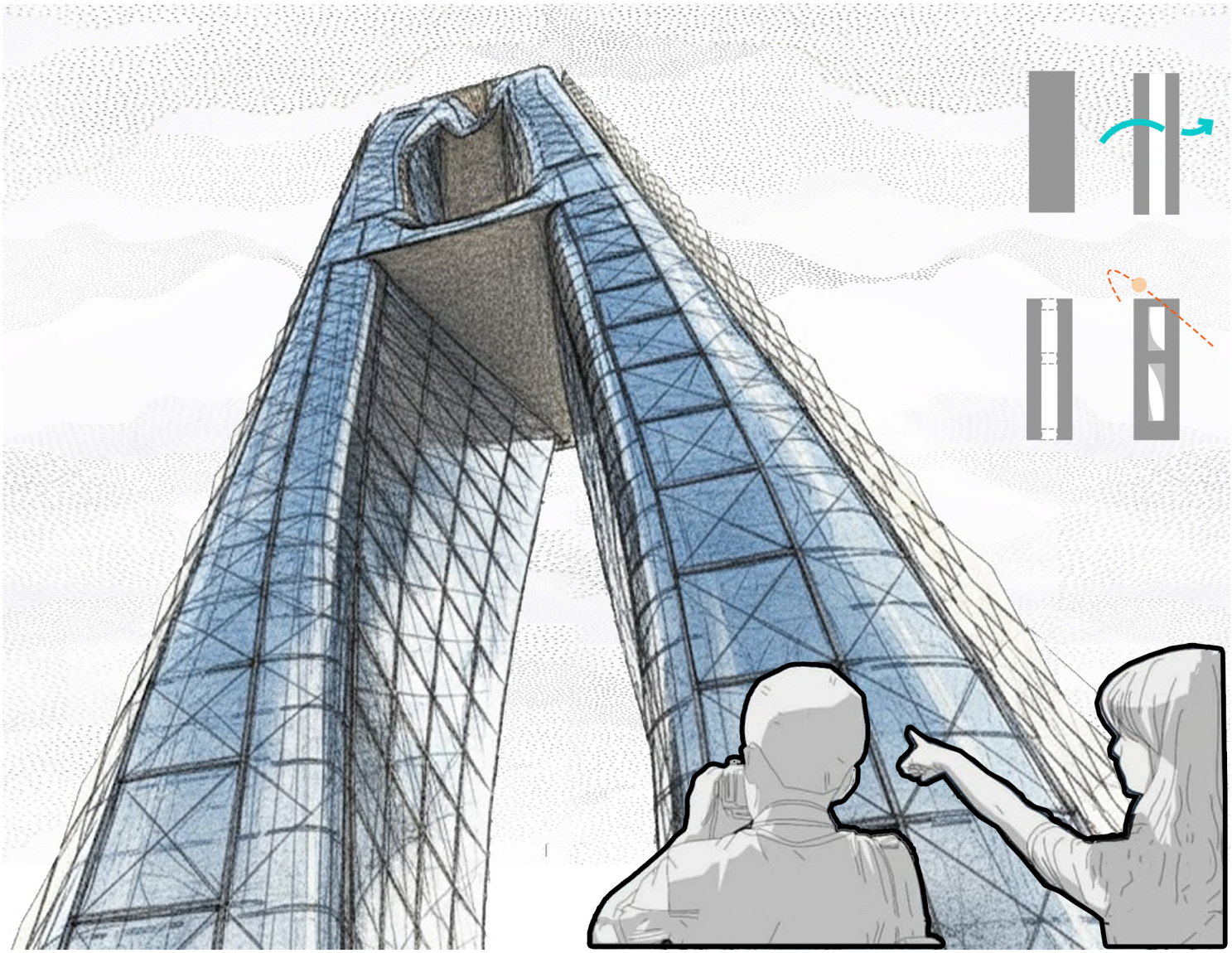
site
Lalbag,Dhaka

area
5400 sqm

instructor
Dr Ashiqur Rahman Joarder
Sayma Sarwar Trisha

3D modeling
archicad
rhinocerus
grasshopper

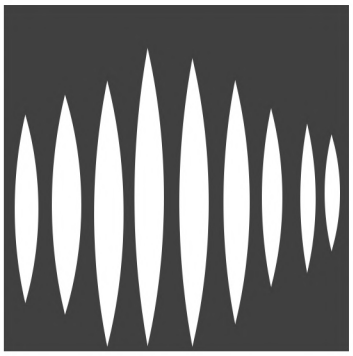
simulation
ladybug,
CFD



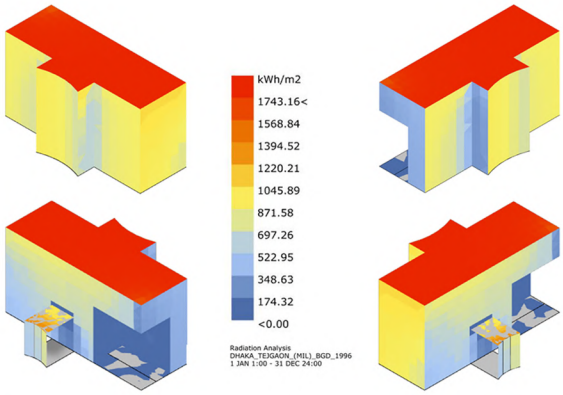
06

PARAMETRIC SURFACE

Creating a Environment Responsive Facade



This project was to retrofit the Administration Building of the Department of Architecture, BUET with a parametric screen to improve indoor comfort through a sun-responsive façade. A modular shading system was developed using Grasshopper, where panel rotation and aperture variation control daylight, glare, and heat gain to support thermal and visual comfort. The façade geometry was generated and refined through iterative parametric studies, balancing performance with architectural expression. To verify impact, an energy analysis was conducted before and after the intervention using a Grasshopper energy-analysis plugin, enabling performance-based comparison and optimization. The project demonstrates how computational design can support energy-efficient, climate-responsive architecture.



Radiation analysis of the existing building with ladybug before design phase

type
individual
retrofiting design

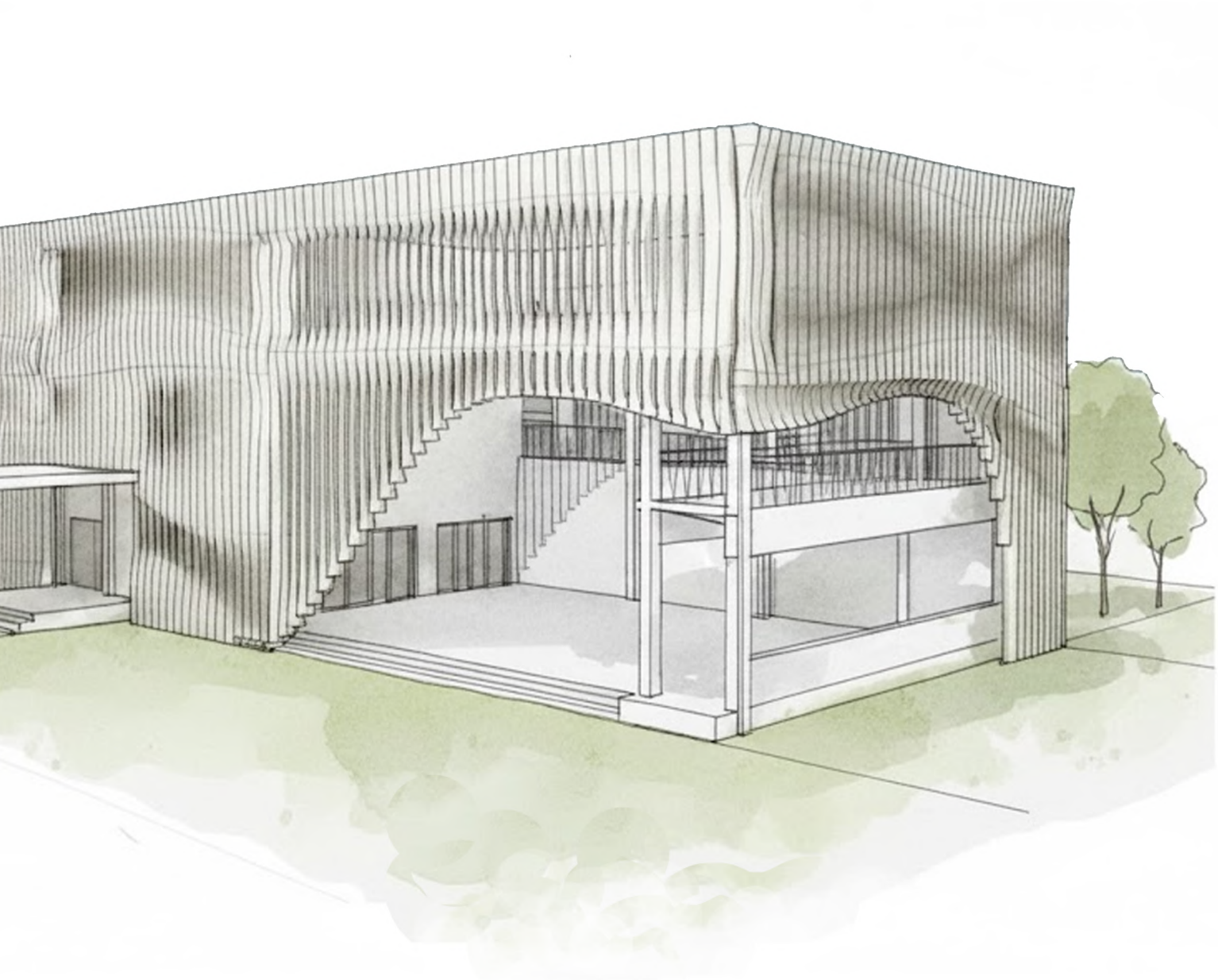
focus
parametric architecture
responsive design

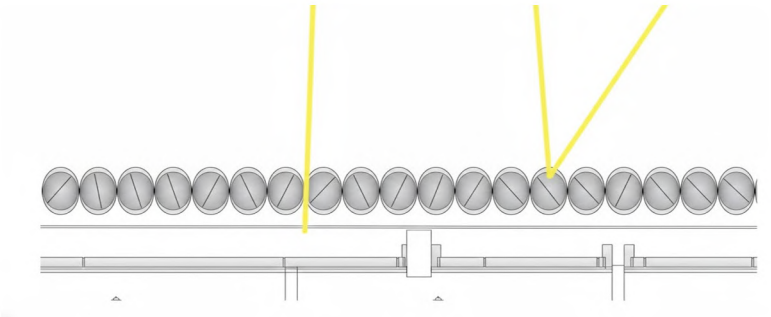
site
Adminstration Building
BUET

duration
5 weeks

instructor
Dr Ashikur Rahman Joardar

sofwares
rhinocerus
grasshopper :
ladybug
daysim
ecotect
climate studio

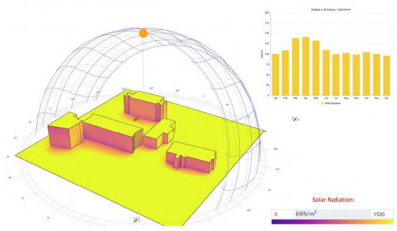




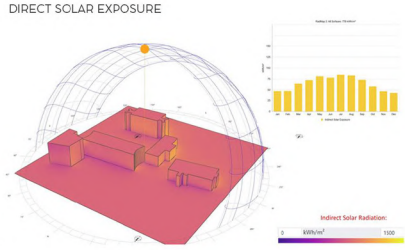
Sun-responsive module:
Rotating panels adjust the aperture to control daylight penetration indoors. The bending behavior of the tensile material enables the panels to flex and form variable openings for adaptive shading.

CLIMATE STUDIO: RADIATION ANALYSIS

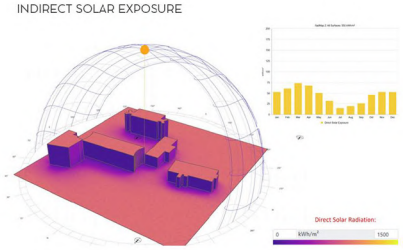
TOTAL SOLAR EXPOSURE



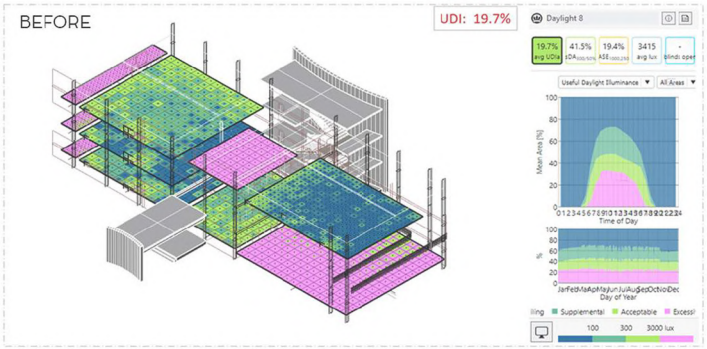
DIRECT SOLAR EXPOSURE

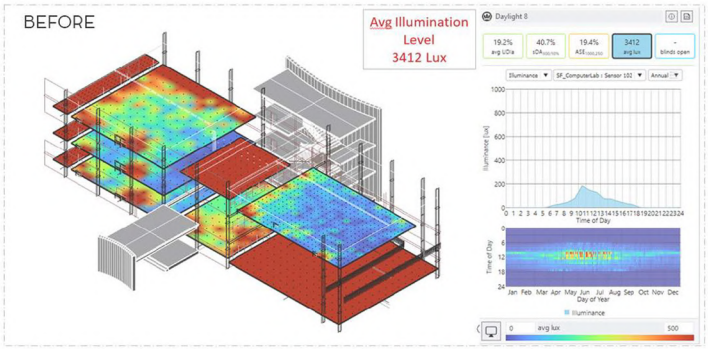


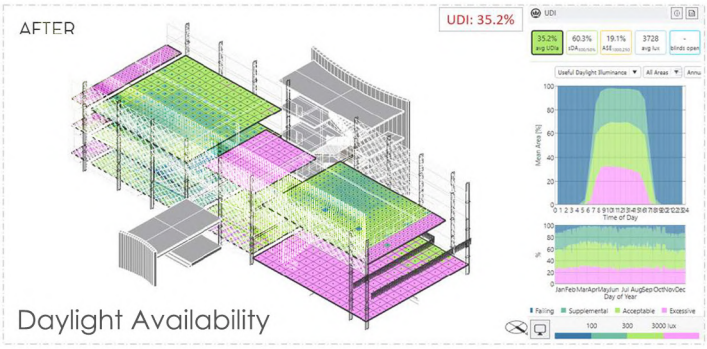
INDIRECT SOLAR EXPOSURE

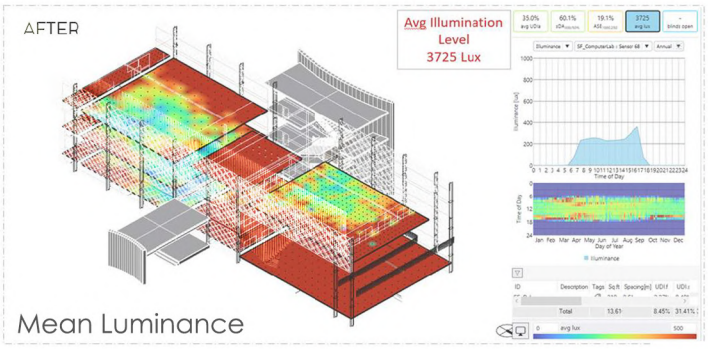


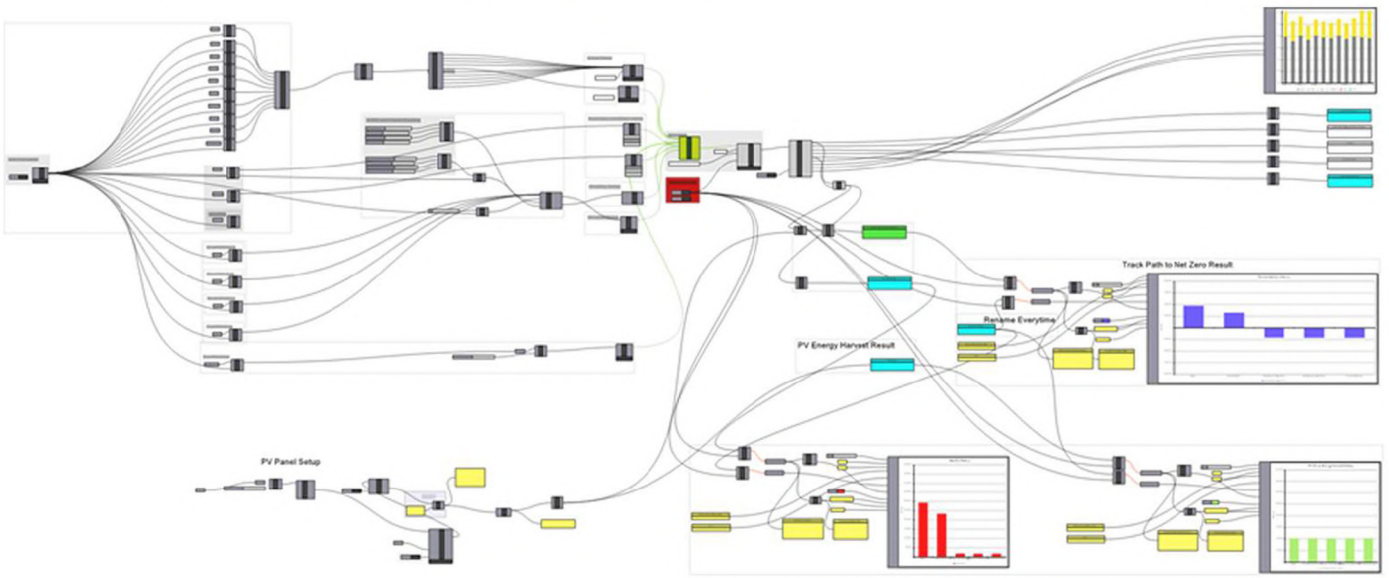
The diagrams show that the parametric façade intervention improved indoor daylight performance across the building. Daylight Availability (UDI) increased from 19.7% (before) to 35.2% (after), indicating a larger portion of the interior receives useful daylight. Mean luminance/average illuminance also rose from 3412 lux to 3725 lux, suggesting brighter and more evenly daylit spaces after the retrofit.











07
INSTALLATION
Construction of an Utilitarian Art

This first-year installation project explores the intersection of human ergonomics, computational design, and hands-on construction. Designed using Grasshopper, the form was developed through parametric logic responding to body posture, comfort, and structural flow. The installation was constructed at full scale, translating digital geometry into a tangible structure through wire mesh, concrete casting, and layered materials. Built in front of the Architecture Department, the piece merges seamlessly with the landscape, inviting interaction while celebrating light, structure, and human presence as an integrated spatial experience.

type
group
installation project

focus
ergonomic
parametric design
construction

teammates
Nayem Ahasan
Ahsanullah Hridoy
Adila Tahsin Sara
Aqib Nibir
Dishan Rahman
Ashiqur Rahman
Arafat Newaj
AS Labib

site
department of architecture, BUET

supervisor
Atiqur Rahman
Tarek Haidar
Tasneem Tariq
Fatema Tasmia

duration
3 weeks

sofwares
rhinocerus
grasshopper
illustrator
photoshop
after effect

Human Ergonomics:

Utilitarian seating should prioritize comfort to ensure that individuals can sit for extended periods with proper posture without experiencing discomfort or fatigue

Steps of structural skeleton:

Mixing of stone chips, White Sand & Cement in Ratio 3:2:1

X Axis

Y Axis

Wire Mesh Binding

Polythene Layer

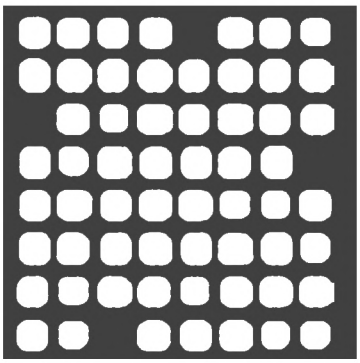
Casting

Porocity for drainage

Material:

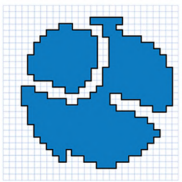
CELEBRATING LIGHT BEAM:

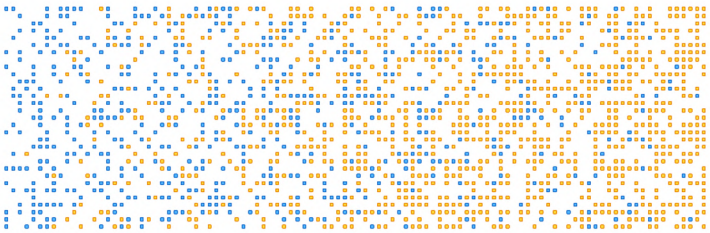
Light Beam comes through the punch which enlighten the human mind. It also use for water outlet.

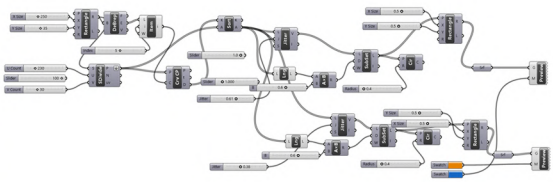


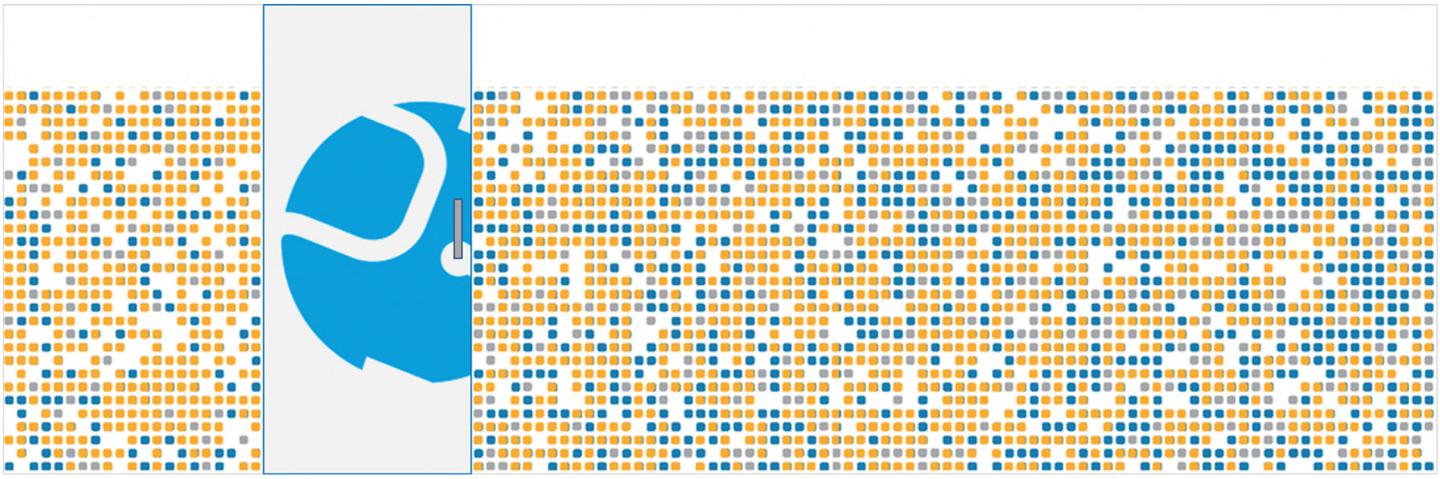
08
INTERIOR DESIGN OF WORKSPACE

This concept celebrates Brain Station 23's expertise by transforming binary logic—the fundamental language of code—into visual form. Raw sequences condense into pixelated patterns, symbolizing the transition from basic programming to complex digital solutions. Blended onto office glass, this graphic represents a modern, transparent tech culture.









type
individual
interior

focus
user experience design
office friendly

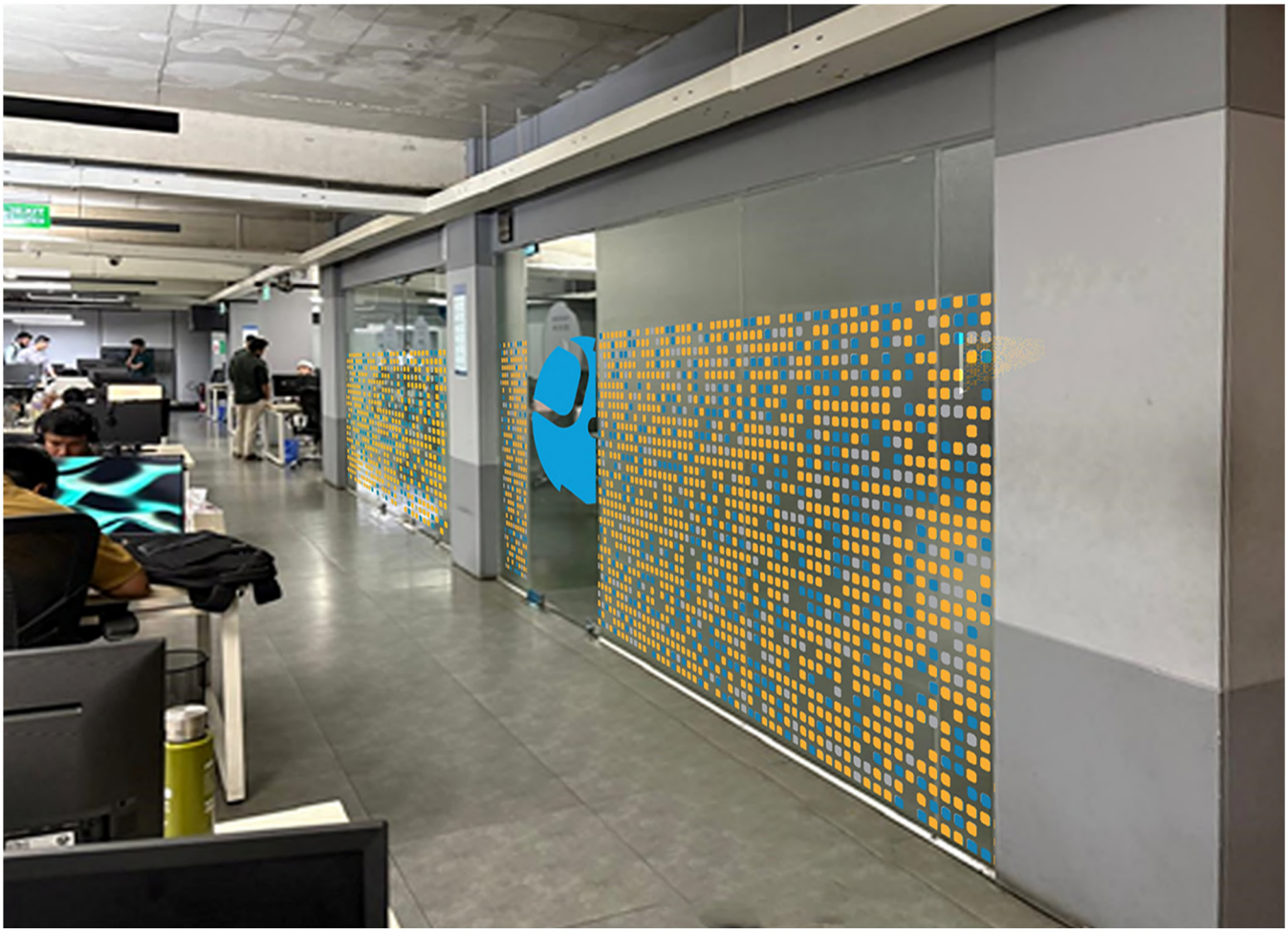
client
Brain Station 23

site
Dhaka

area
2000 sqm

duration
8 weeks

sofwares
rhinocerus
grasshopper
illustrator
photoshop
after effect



09

INSTALLATION

Construction of an Utilitarian Art

This mural design project was developed for a commercial bank in Bangladesh and implemented across 92 branches nationwide. Each mural draws inspiration from the unique identity, culture, and geography of its branch location, translated into zone-specific motifs and illustrated narratives. The designs unify local stories within a cohesive visual language, strengthening regional connection while maintaining brand consistency. Executed using laser-cut plywood, the murals combine precision, craftsmanship, and durability, transforming banking interiors into culturally resonant spaces that reflect place, memory, and collective identity.

type
individual
interior

focus
illustration
identity
design

client
NRBc Bank

Consultancy with
Sristy Architecture &
Consultancy

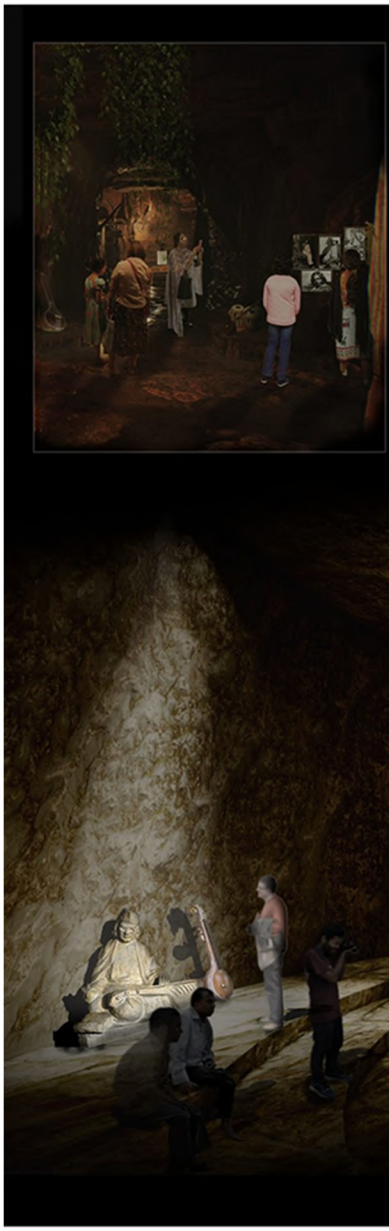
site
92 upozilla of Bangladesh

duration
6 month

sofwares
rhinocerus
grasshopper
illustrator

10
SPIRIT OF NAZRUL
Design of a Pavilion

recieved
GOLD MENTION



This competition explores the design of a spiritual space inspired by the indomitable spirit of Kazi Nazrul Islam, the Bidrohi Kobi of Bangladesh.

Nazrul's life was marked by struggle, resistance, and an unyielding pursuit of freedom emotional, spiritual, and political. Translating this journey into architecture, the design unfolds as a sequence of obstacles and thresholds, symbolizing repression and rebellion, culminating in an enlightened space where light becomes the metaphor of liberation. Dramatic light wells pierce the final volume, embodying spiritual awakening and triumph.

Located in Madhabpur Lake, Shrimangal, the ascending terrain reinforces Nazrul's philosophy of defiance, ascent, and ultimate transcendence

type
group
competition

focus
design idea
innovation

teammates
Nayem Ahasan
AS Labib

key roll
conceptual idea
drawing
illustration

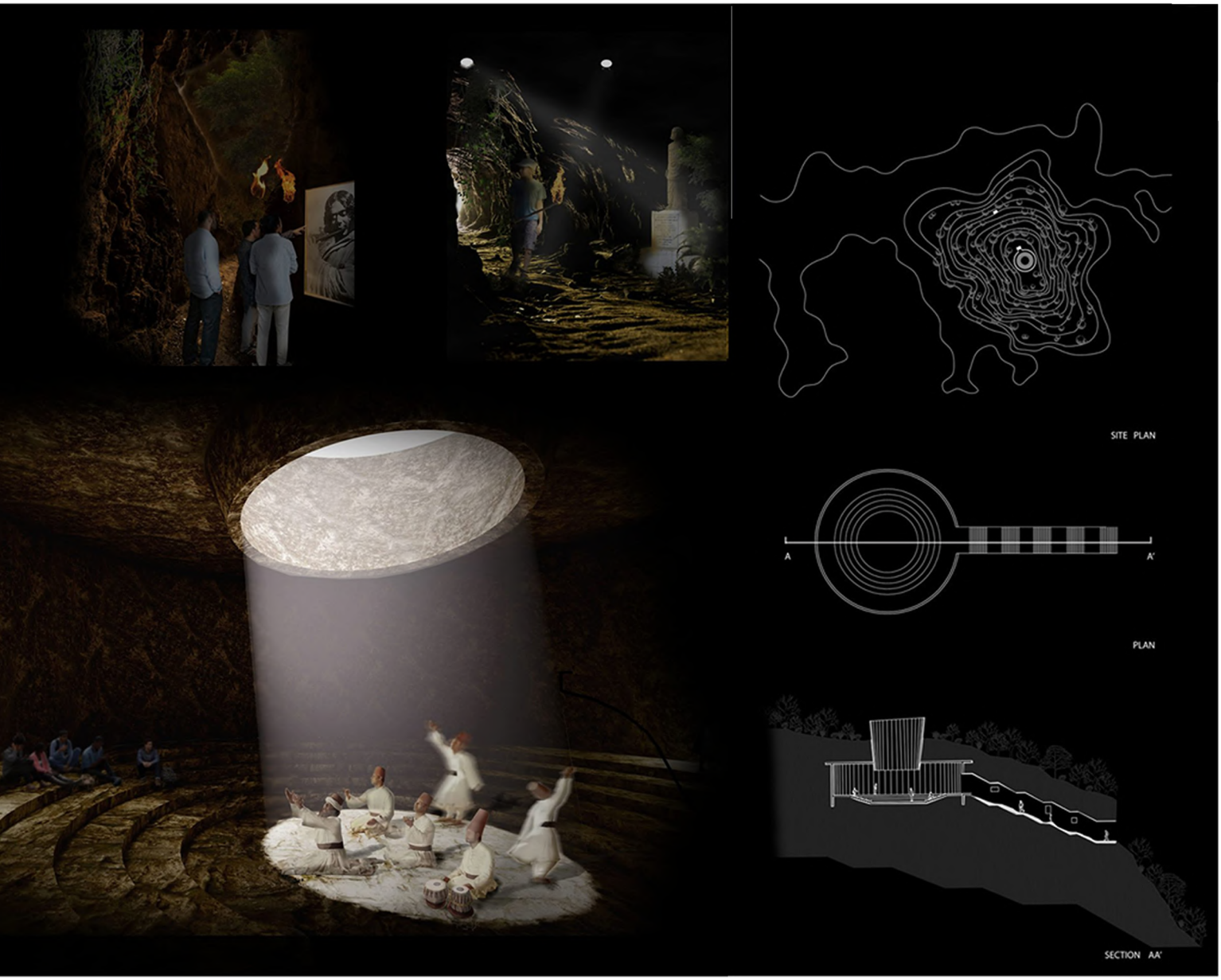
site
Madhobpur ,Syhlet

organiser
Archtwist

Juror
Ahsan Ullah Mazumder
Asma Naz

duration
2 weeks

sofwares
rhinocerus
grasshopper
illustrator
photoshop
after effect



11
SHUNDORBARI
Community Living with Compassion

This project proposes a resilient homestead for the Sundarbans mangrove forest, guided by the teachings of Bonbibi as a framework for compassion and adaptation.

The design encourages shared living through collective amenities—one bathroom, one storage space, and one cattle shed—used by two households to strengthen cooperation and reduce resource burden. Form and structure are developed to cut wind impact during cyclones, improving safety and durability. To respond to seasonal flooding, drums placed beneath the houses allow the units to float, preventing foundation shifting and structural deformation. Rather than resisting the Sundarbans' natural vulnerabilities, the project supports living with them—promoting community-based resilience in harmony with people and nature. Locally available, indigenous materials and low-cost construction strategies ensure the homestead is affordable, easy to build, and maintainable over time.

type
group
competition

focus
disaster resiliency
community
eco sensitive

teammates
Nayem Ahasan
AS Labib
Fatin Kasf NAfi

key role
design development
3D modeling
drawing

site
Shundorbon,
Bangladesh

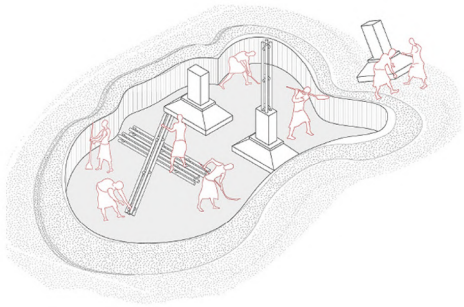
organisation
SEARCH

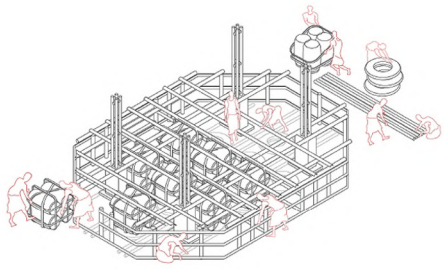
juror
Khandokar Sabbir Ahmed

duration
2 weeks

sofwares
rhinocerus
grasshopper
illustrator
photoshop
after effect

CONSTRUCTION METHOD_____RESIDENCE MODULE



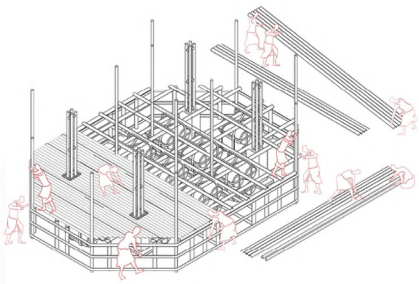


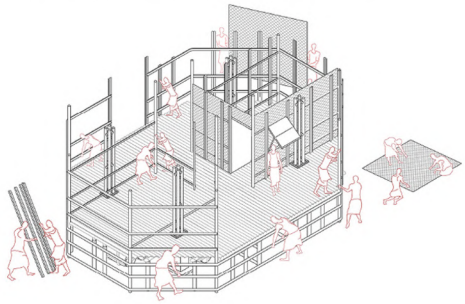
01_Foundation excavation

Materials	Quantity	Time
Precast Concrete Pillar	04	05 Days
Bamboo cane	04	

02_Floating system

Materials	Quantity	Time
PVC Barrel & Steel cable	44	03 Days
Tyre	11	
Bamboo cane	20	



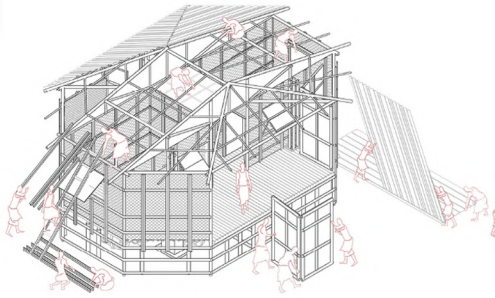


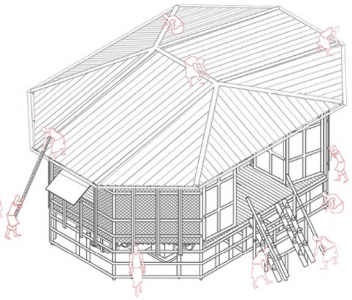
03_Platform & Vertical structure

Materials	Quantity	Time
Bamboo cane	30	02 Days

04_Facade & Window

Materials	Quantity	Time
Bamboo (chattai)	20	04 Days





05_Door & Roof structure

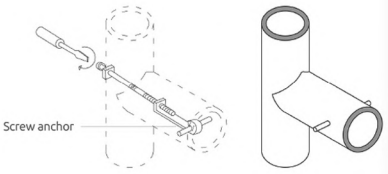
Materials	Quantity	Time
Bamboo cane	20	05 Days
Tin sheet	300 sq. ft	

06_Roof details & others

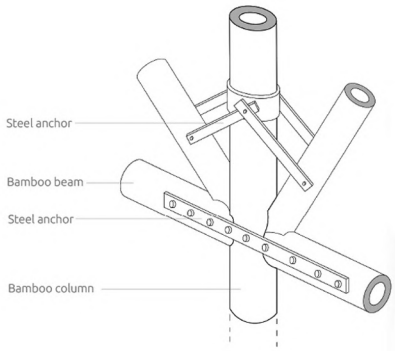
Materials	Quantity	Time
Bamboo cane (Rain water channel)	02	01 Day
Slice Tin (Roof edge border)	aforesaid	

JOINING__DETAILS

Bamboo interlocking joinings between column and floor beam :



Bamboo joinings in roof truss :



Preliminary Cost estimation

Residence__Module

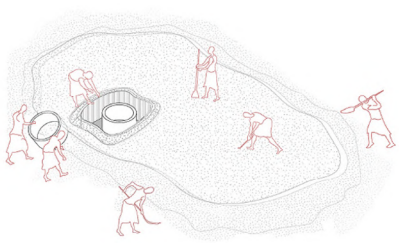
Materials	Quantity	Unit price	Total
Precast concrete pillar	04	5,000/=	20,000 Tk
Bamboo canes	96	100/=	9,600 Tk
PVC Barrels (used)	44	250/=	11,000 Tk
Steel cable	44	75/=	3,300 Tk
Tyre (used)	11	200/=	2,200 Tk
Tin sheet	300 sq.ft	10/=	3,000 Tk
Total			49,100 Tk

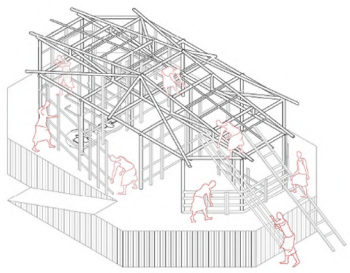
Service__Module

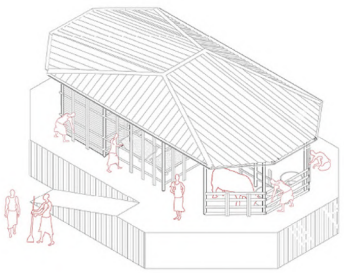
Materials	Quantity	Unit price	Total
Cement	1 Bag (50Kg)	450/=	450 Tk
Bamboo canes	32	100/=	3,200 Tk
Chari	02	300/=	600 Tk
Tin sheet	280 sq.ft	10/=	2,800 Tk
Total			7050 Tk

Cost per unit family (49,100 + 7050/2) = 52,625 Tk (approx.) (620.84$)

CONSTRUCTION METHOD_____SERVICE MODULE







01_Mud foundation

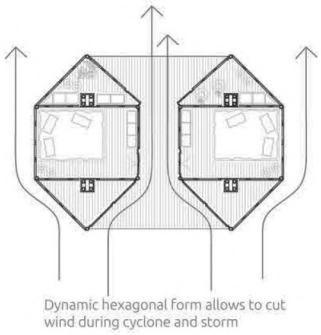
Materials	Quantity	Time
Mud	Locally available	03 Days
5% cement	50 kg (1 Bag)	
Chari	06 concrete modules	

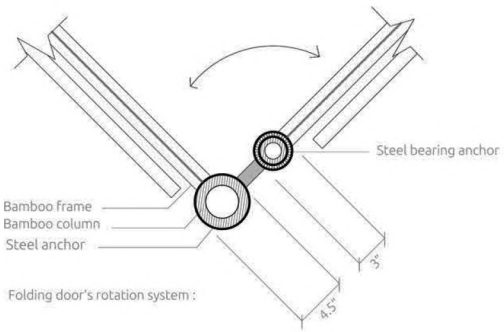
02_Facade & Roof structure

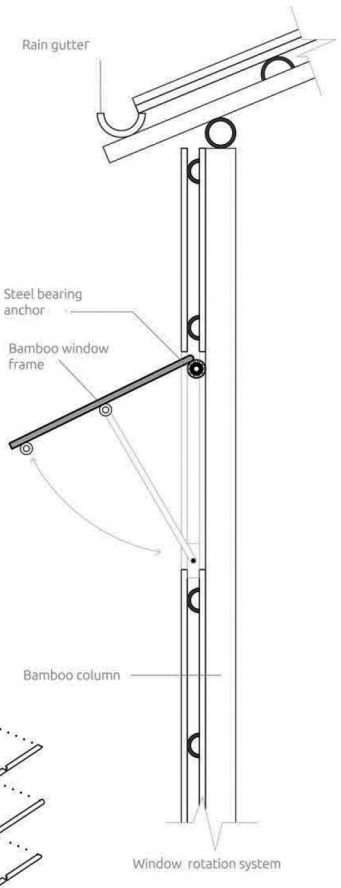
Materials	Quantity	Time
Bamboo cane	30	07 Days
Tin sheet	280 sq. ft	

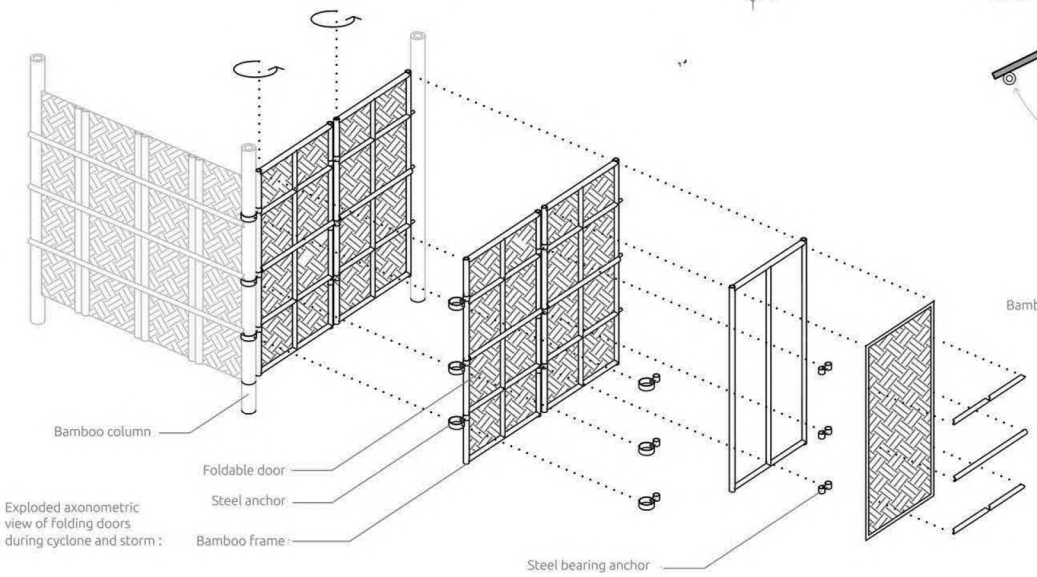
03_Roof details & others

Materials	Quantity	Time
Bamboo cane (Rain water channel)	02	01 Day
Slice Tin (Roof edge border)	aforesaid	





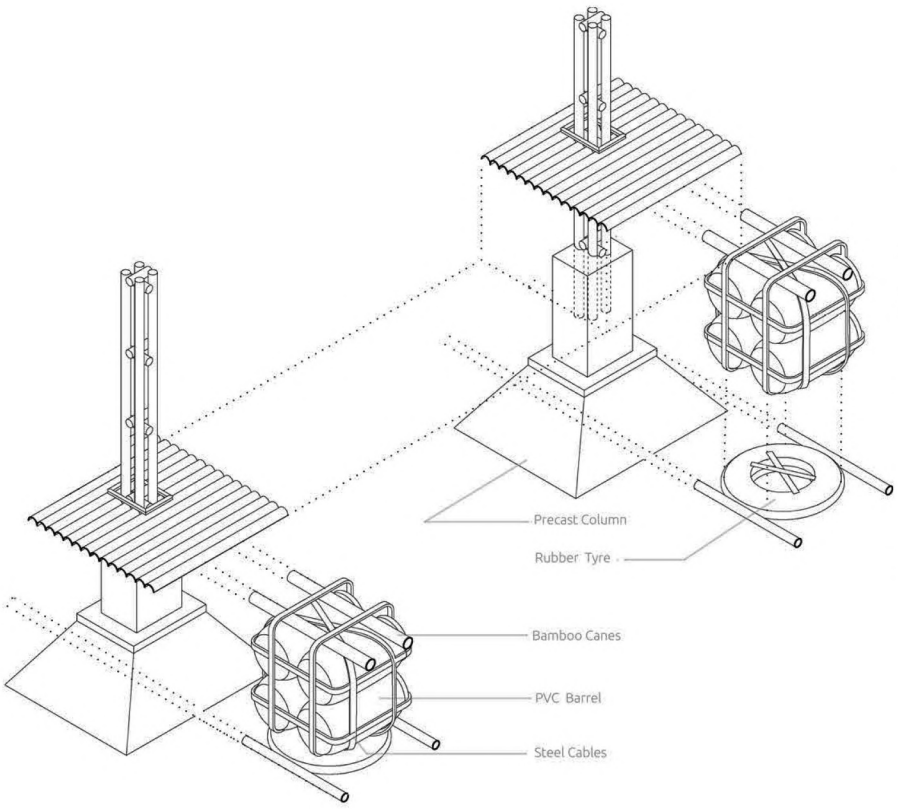


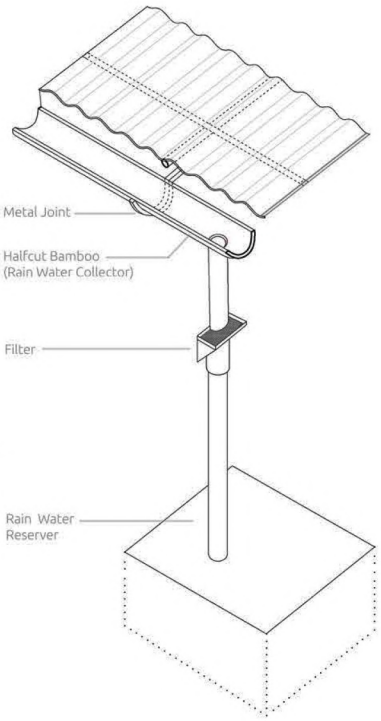


Normal Time

During Flood

Rain Water Reserver





Photography is both therapy and exploration for me. I capture architecture, nature, abstract forms, and portraits from my everyday surroundings. My passion for travel and photography continually informs my visual language and the way I communicate through the lens

Drops of Light I 2019

1st Prize

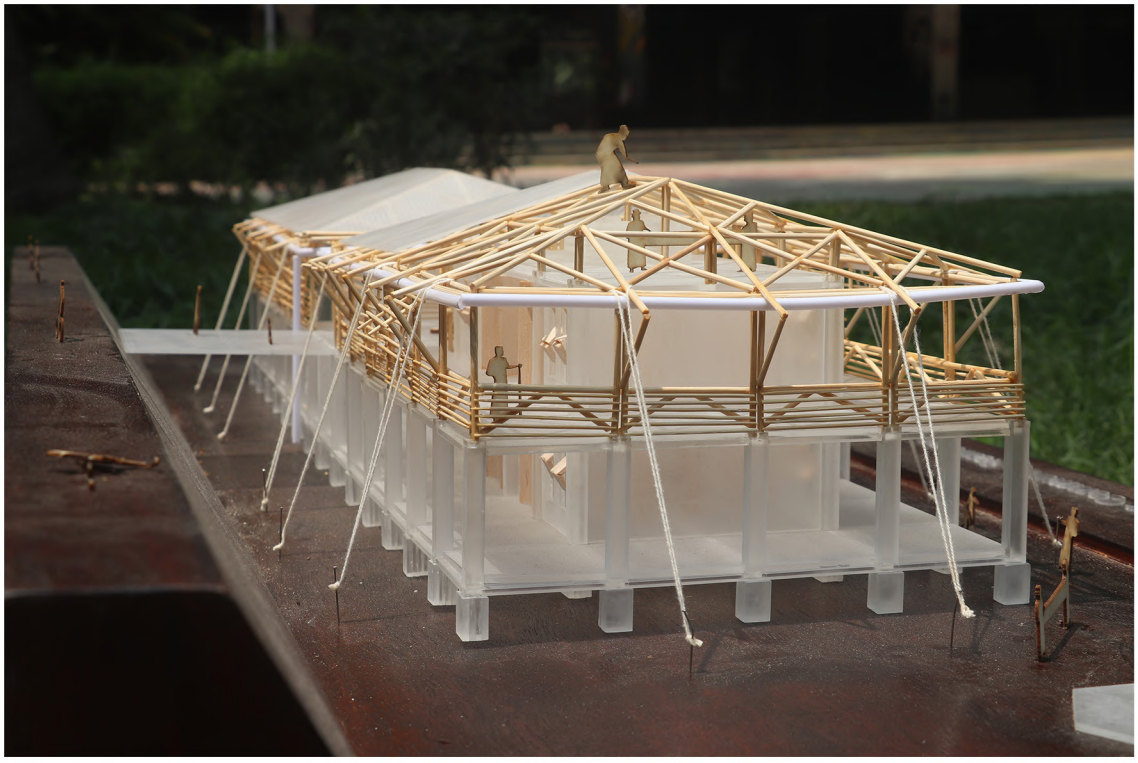
Inter University Photography Competition

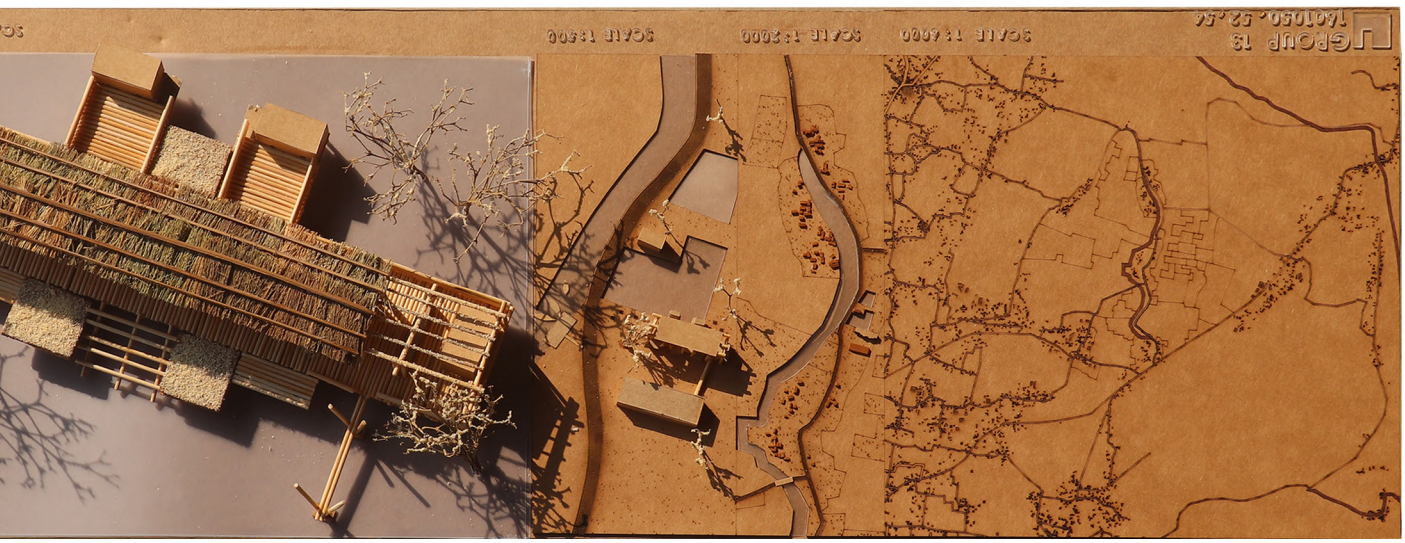
Beyond the Horizon I 2018

3rd Prize

Inter University Photography Competition

An invitation card for the Final Jury of the Department of Architecture, Southeast University, inspired by the building elevation and translated into a contemporary graphic composition that bridges architectural form and modern visual expression





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