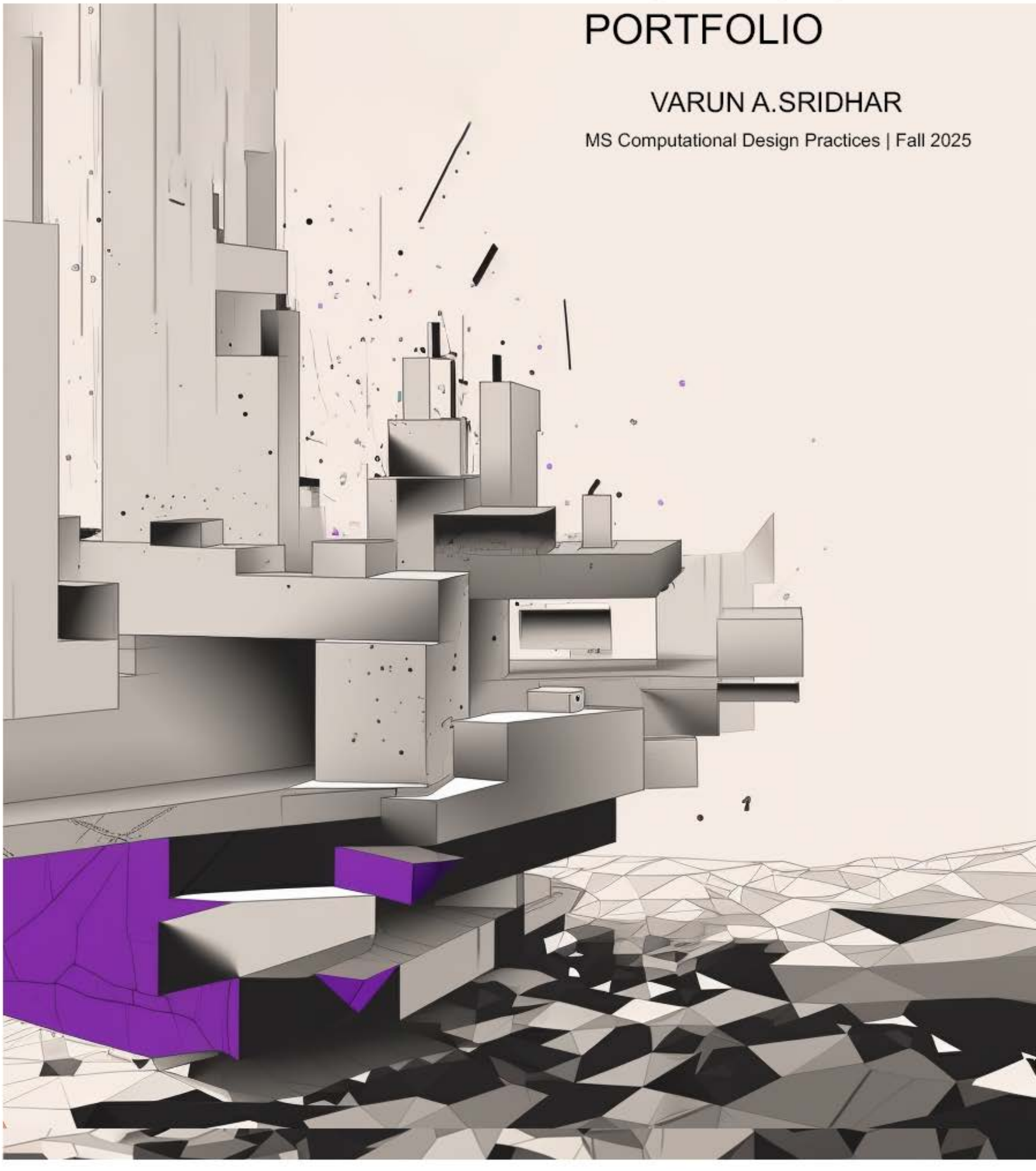
ARCHITECTURE PORTFOLIO

VARUN A.SRIDHAR

MS Computational Design Practices | Fall 2025



My architectural design philosophy aims to transcend the mere functionality of a building and create experiences that resonate with the complex nature of human beings. I believe that living spaces should serve as more than just utilitarian structures; they should actively contribute to our emotional well-being and elicit a range of feelings. To achieve this in my designs, I strive to incorporate the natural landscape into the building structures in such a way that it evokes a range of emotions in the users, such as feeling calm, secure, excited, and inspired.

If you would like to see more of my work:
https://valleyvarun.github.io/varunsa-portfolio/


BHOPAL HABITAT CENTRE

01. *What is a 'Habitat Center'?*

The word 'habitat' is a term in ecology which refers to the natural environment which nurtures the organisms living in it. A 'habitat center' is a multi-purpose building or complex, designed to be a hub for social, cultural, and intellectual activities. It provides a physical environment that fosters a vibrant and holistic community. Hence the term "habitat" is used to signify that it is a place for various types of people and activities to thrive.

A habitat is characterized by a unique set of physical features that not only define it but also differentiate it from other habitats. These distinctive characteristics largely determine the types of organisms that can thrive within it, and they are often the result of the habitat's geographical location, climatic conditions, and underlying geology. Like natural habitats, a habitat center is characterized by unique and prominent physical features that may distinguish it from the rest of the urban landscape. These features can include the architectural style, layout, the mix of amenities and facilities, and even the cultural and social activities it hosts.

The Bhopal Habitat Centre's design takes inspiration from Terrace-farming and the Amoeba. Green roofs have been provided on every floor so that the users of the building are always immersed in the habitat, while also combating the intense heat of the region. The amoeba-shaped terracotta facade mimics the terraced soil of a mountain, protecting the exterior walls from heat gain and creating a striking organic aesthetic.

SITE INFORMATION:

SITE COORDINATES:
23°13'44.63"N, 77°23'53.95"E

ALTITUDE:
around 540 meters (1772 feet) above sea level

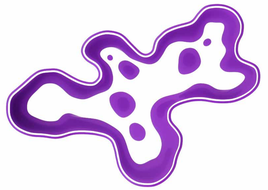
ADDRESS:
TT NAGAR, BHOPAL, MADHYA PRADESH, INDIA - 462003

SITE AREA:
54,748 sq.m (589302 sq.ft)

GROUND COVERAGE:
14520 sq.m (156292 sq.ft) = 25% approx.

SITE PERIMETER:
996 meters (3268 feet)

CONCEPT & IDEATION:



Amoeba shaped buildings

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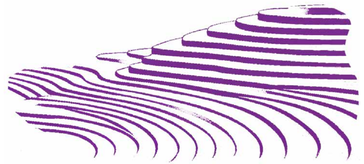
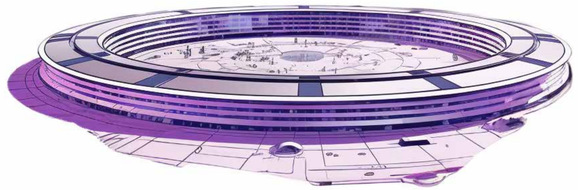
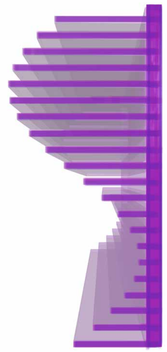


Floors stacked one above the other like a terraced hill



Central green space like in Apple Park by Norman Foster



Terracotta slabs protruding to form a vertical sine curve shape

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Eye shaped glass windows

Entrance doors like the opening of a cave

Images made on MidJourney:

'Beehive shaped stone walls'

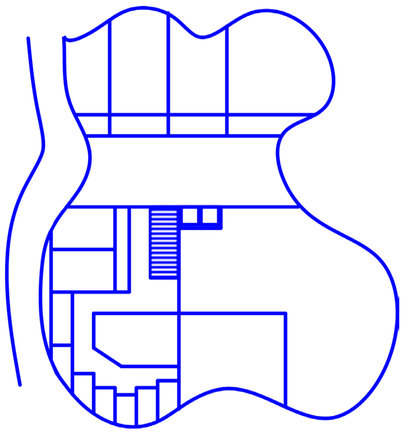
'Curving corridor surrounding a green landscape'

'Village style layout with central open space'

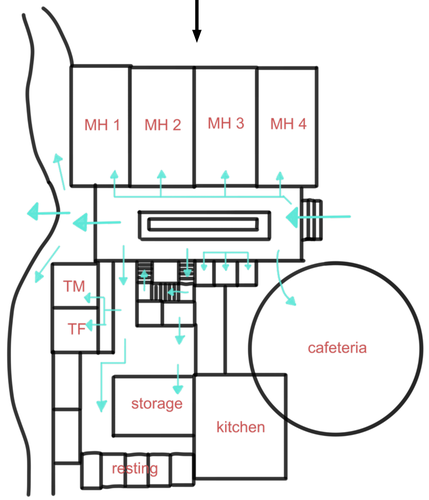
FLOOR PLAN DEVELOPEMENT:

Name	Number	Area (sq.m)	Total Area (sq.m)
Meeting Hall	4	100	400
Cafeteria	1	500	500
Kitchen	1	170	170
Storage Room	1	80	80
Main corridor & sitting area	1	250	250
Public Elevators	3	4	12
Basement to Storage Elevator	1	6	6
Men's restroom	1	30	30
Women's restroom	1	30	30
Resting rooms	5	10	50
AHU Room	1	25	25
Utilities Room	1	25	25
Electricity Control Room	1	25	25

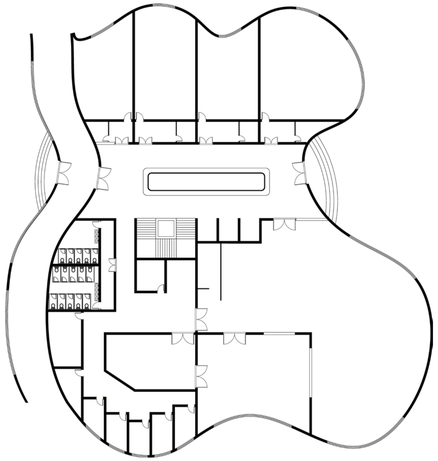
area programming



single line plan

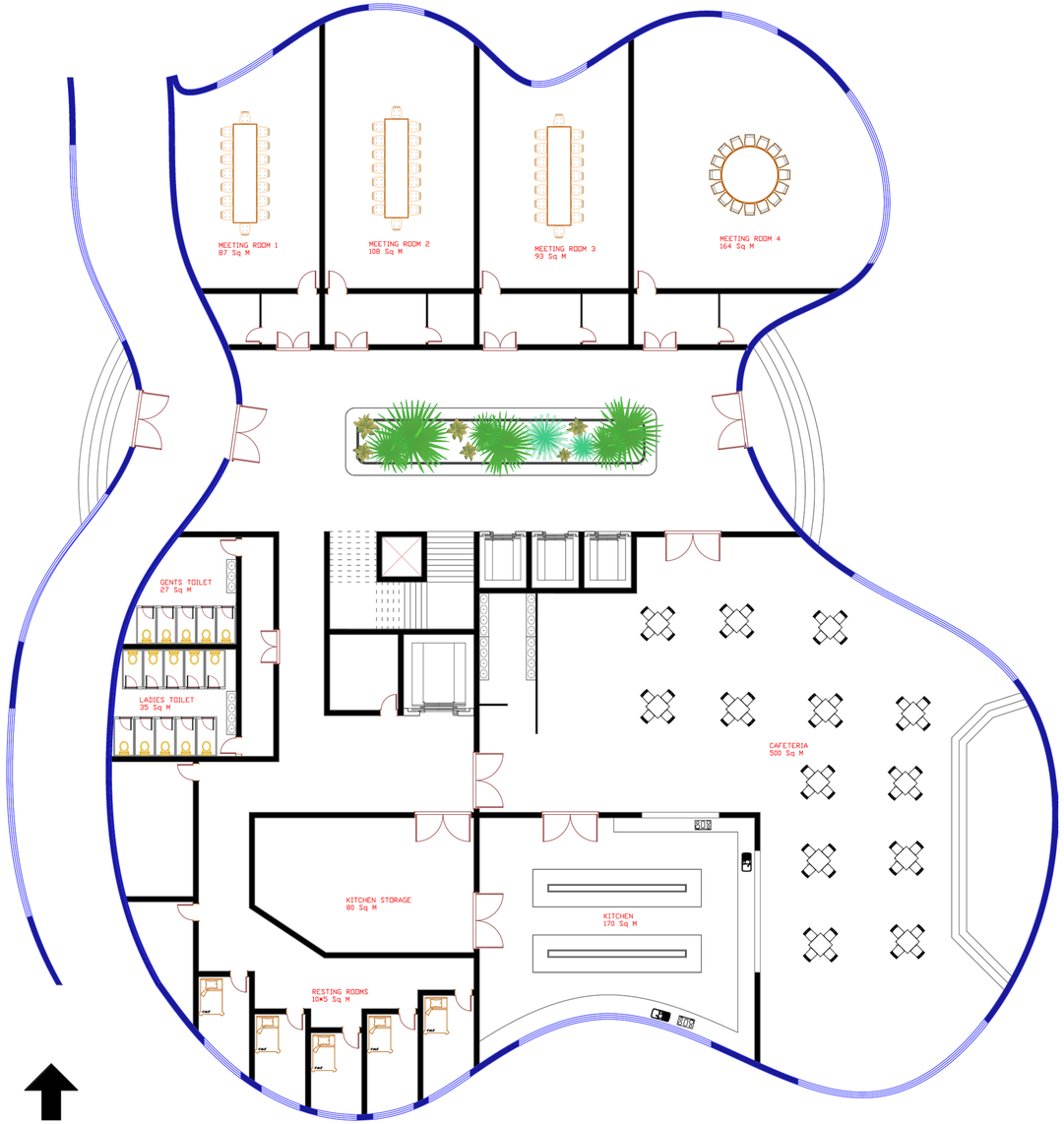


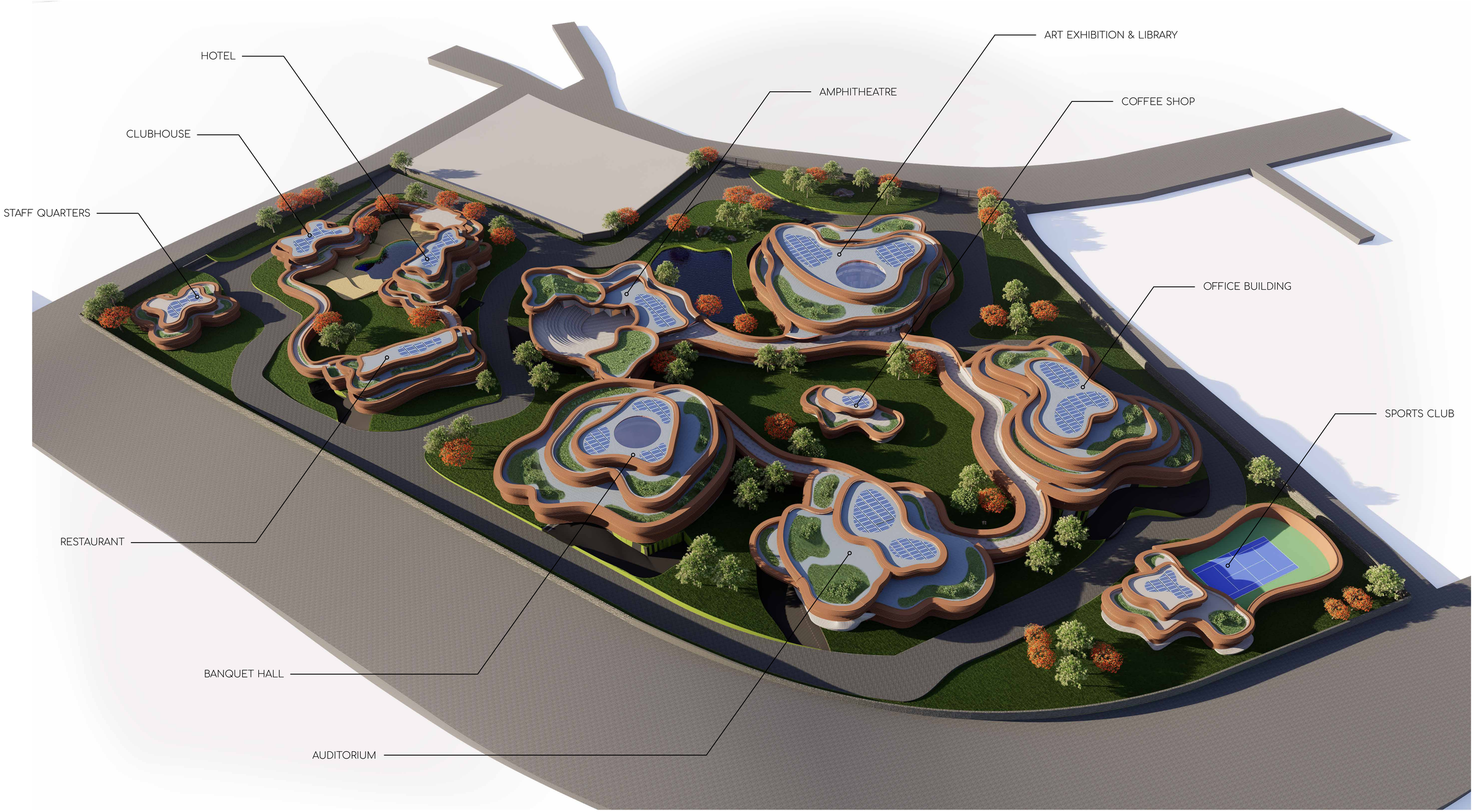
shapes representing the required spaces to scale



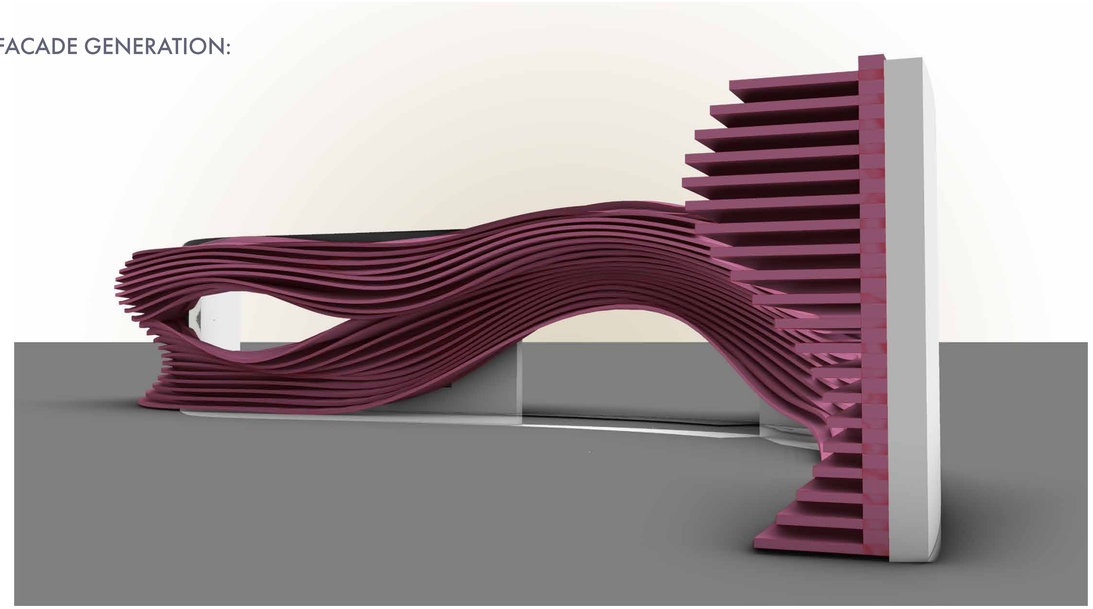
detailed floor plan

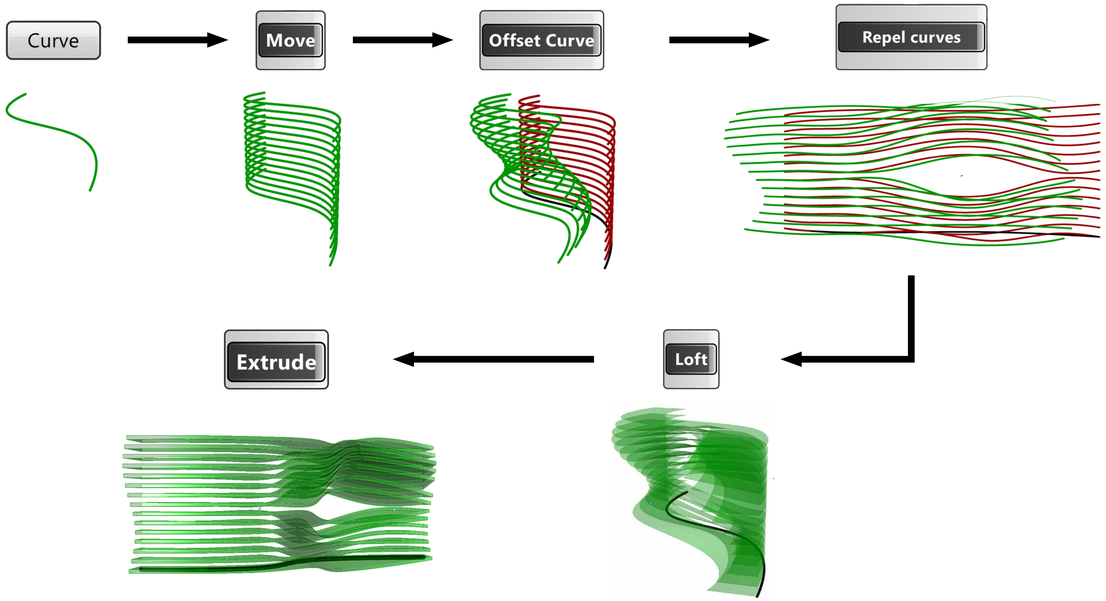
OFFICE BUILDING - GROUND FLOOR PLAN



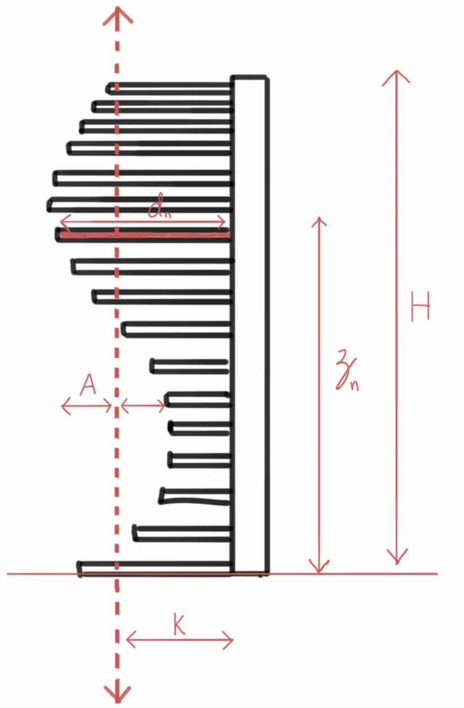

HOTEL
CLUBHOUSE
STAFF QUARTERS
RESTAURANT
BANQUET HALL
AUDITORIUM
AMPHITHEATRE
ART EXHIBITION & LIBRARY
COFFEE SHOP
OFFICE BUILDING
SPORTS CLUB

FACADE GENERATION:





LINK TO GRASSHOPPER CODE: https://github.com/valleyvarun/habitat_centre_project



$$d_n = K - A*sin((2\pi/H)*z_n + t)$$

The curves are offset by a distance 'd'.

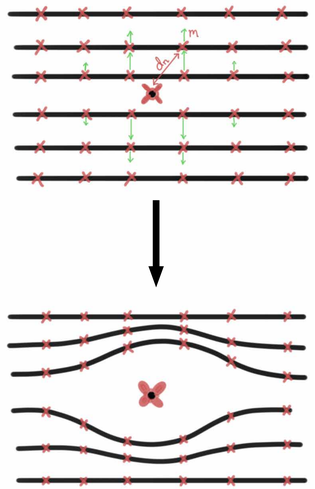
A = amplitude of the sine curve

H = height of the wall

K = distance of the sine axis from the wall

z = height at which the panel is from the base level

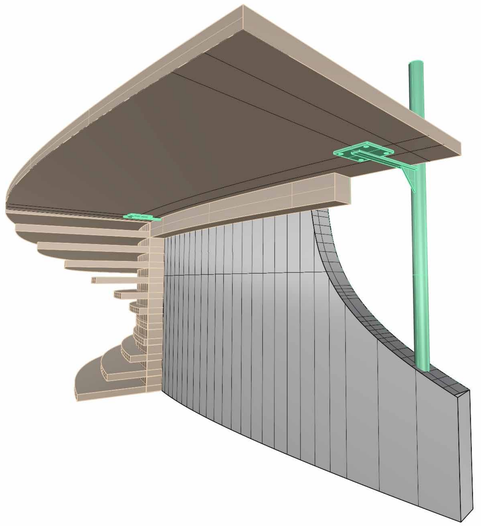
t = constant that changes the phase of the sine curve



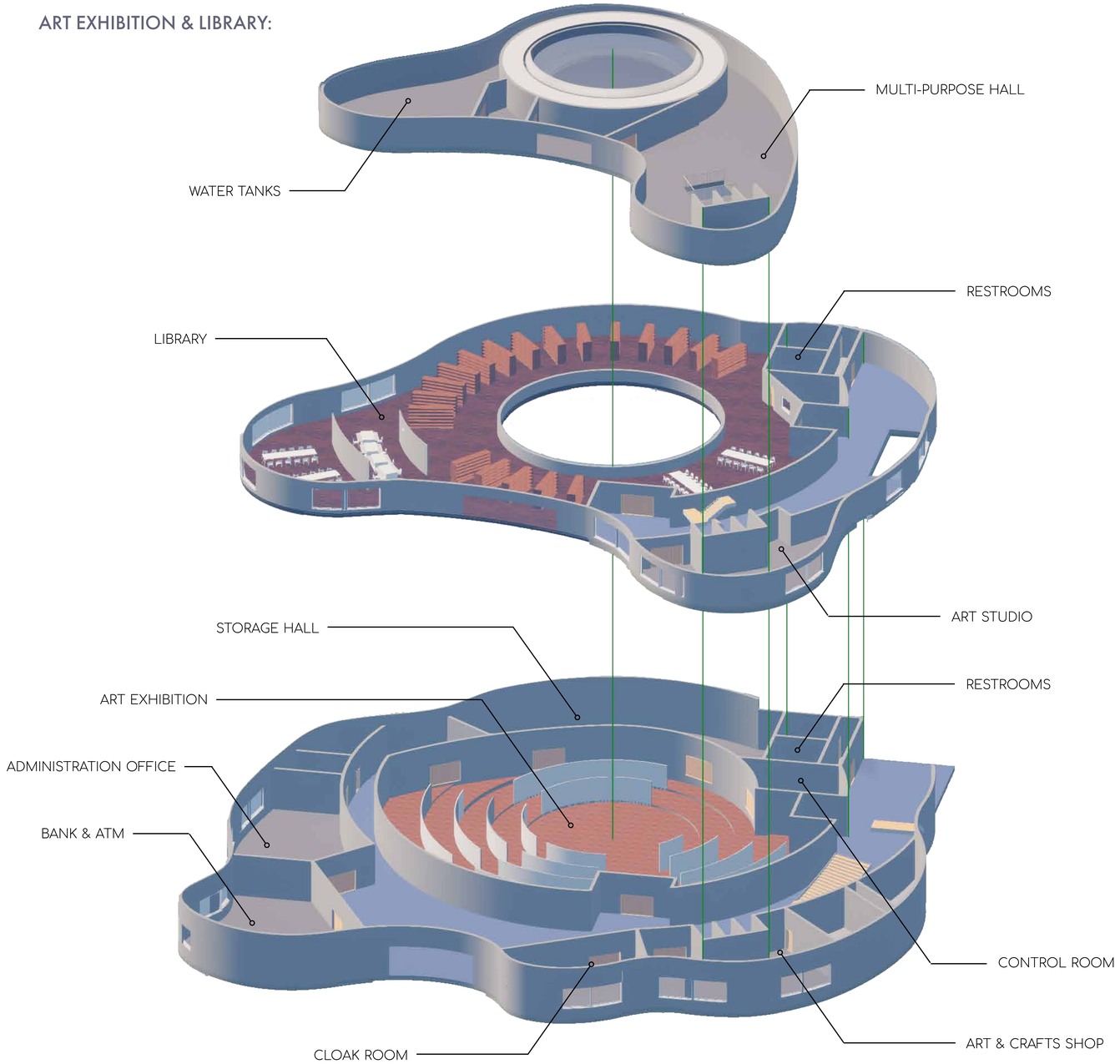
$$m_n = K/(d_n^2)$$

Points on the curves are moved on the z-axis by a distance 'm'.

d = distance between a point on a curve and the 'Repel Point'

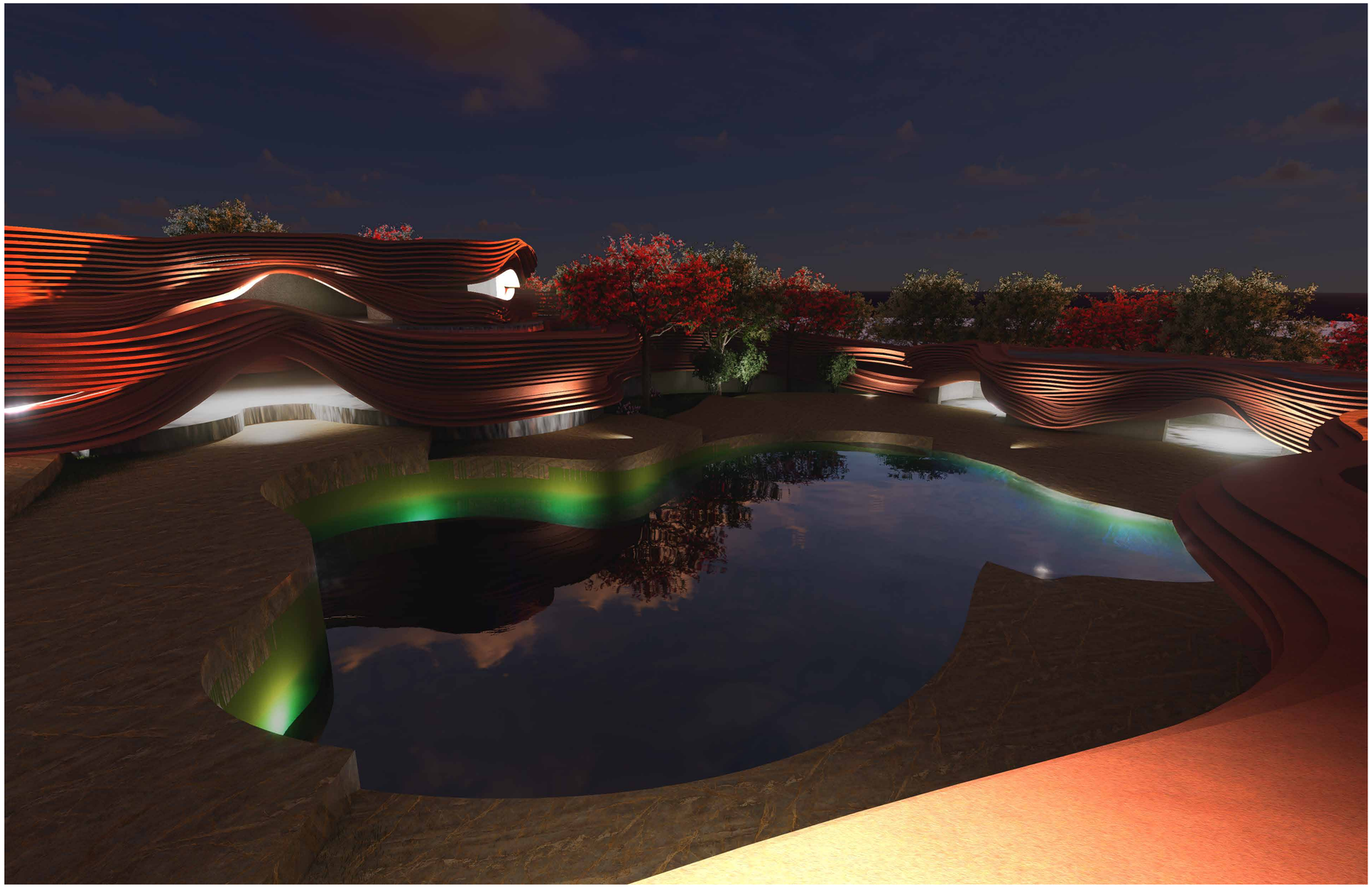


ART EXHIBITION & LIBRARY:



Aerial view of Art Exhibition & Library building

Visualization of the Art Exhibition made on MidJourney



TOOLS & SOFTWARE USED:

Site analysis: Google Earth, Qgis

Concept & Ideation: sketching, Sketchbook Pro, MidJourney, ChatGPT, Sketchup

Floor plan development: Sketchbook Pro, Autocad, Revit

3D modelling: Rhinocerous 7 + Grasshopper, Revit

Rendering visualization: D5 Render, TwinMotion, Photoshop

Explanatory diagrams: Sketchbook Pro, Photoshop, Indesign

Portfolio compilation: Indesign

PROJECT DETAILS:

Type: Academic project

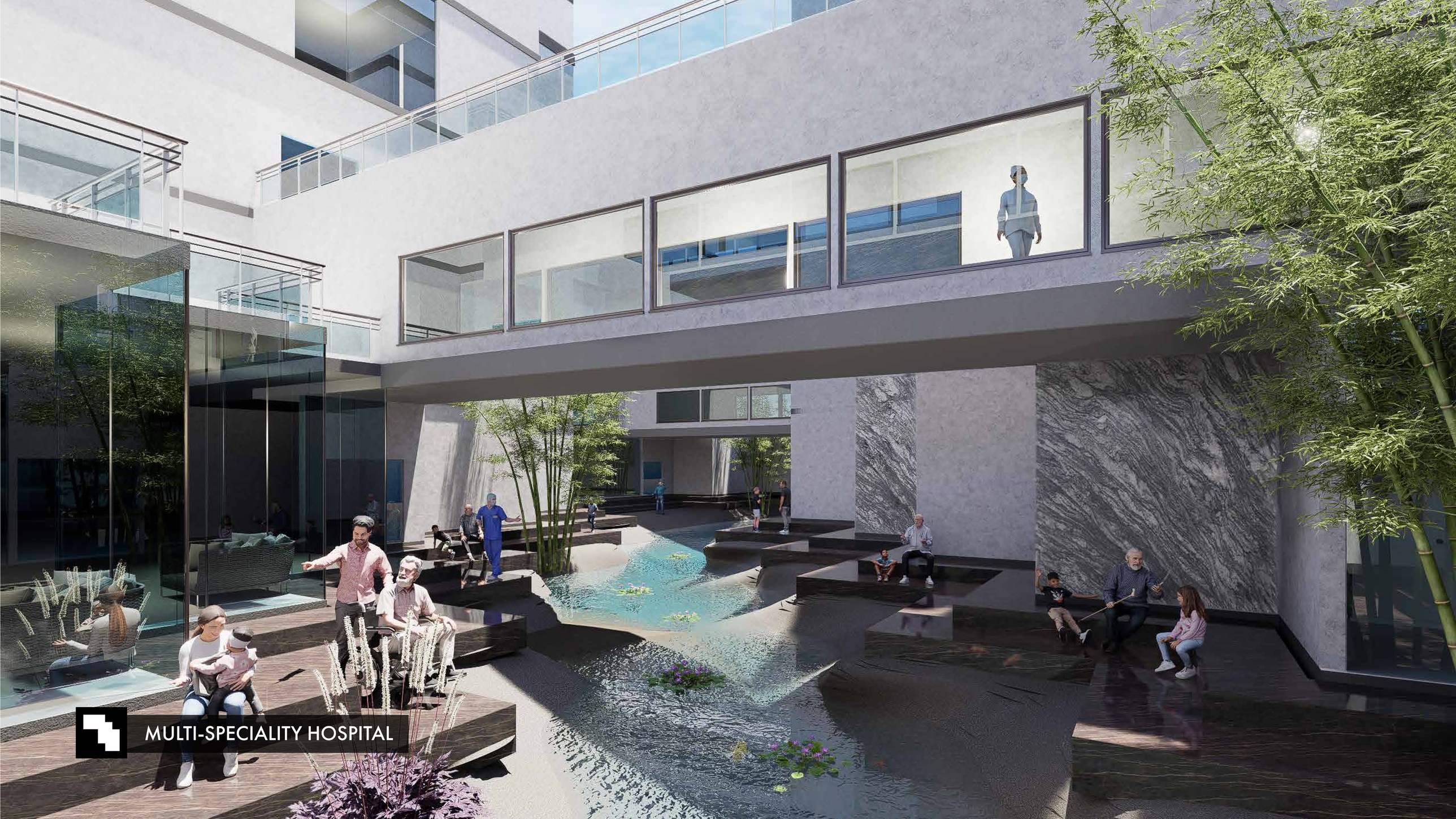
Task: Design a multi-use 'Habitat Centre'

Start date: January 2023

Semester & Year: 6th semester, 3rd year

Course: Architectural Design-VI (BARC06001)

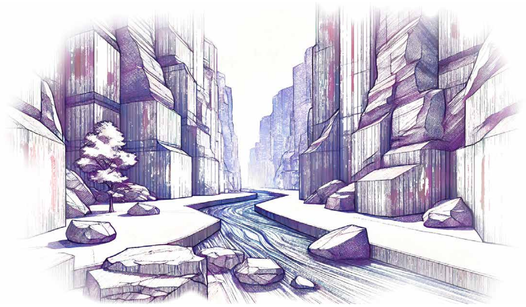
Site location: TT nagar, Bhopal, M.P, India


MULTI-SPECIALITY HOSPITAL

03. *Hospital is a Place of Healing*

Nestled strategically between an old age home and renowned educational institutions like MANIT and IIIT, our multispecialty hospital is thoughtfully designed to meet critical healthcare needs. It houses specialized departments such as Emergency, OPD, Orthopedics, Urology & Nephrology, Gastroenterology, Cardiology, Pulmonology, Oncology, and a fully equipped operational theatre, catering to a wide range of medical requirements.

With ICU facilities and IPD wards, the hospital places healing at the heart of its design. Inspired by the serene Banaras ghats of the Ganga, the layout embraces the natural beauty of a stream flowing through the site. Steps along the stream offer a tranquil setting, while green spaces connected to every ward create a seamless blend of nature and healthcare within the architectural concept.



A river flowing through a canyon

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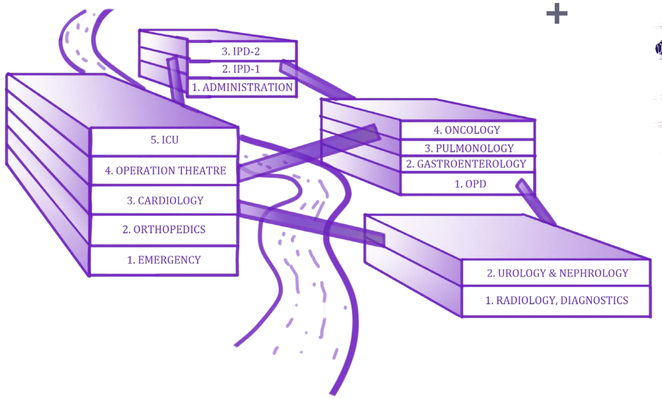
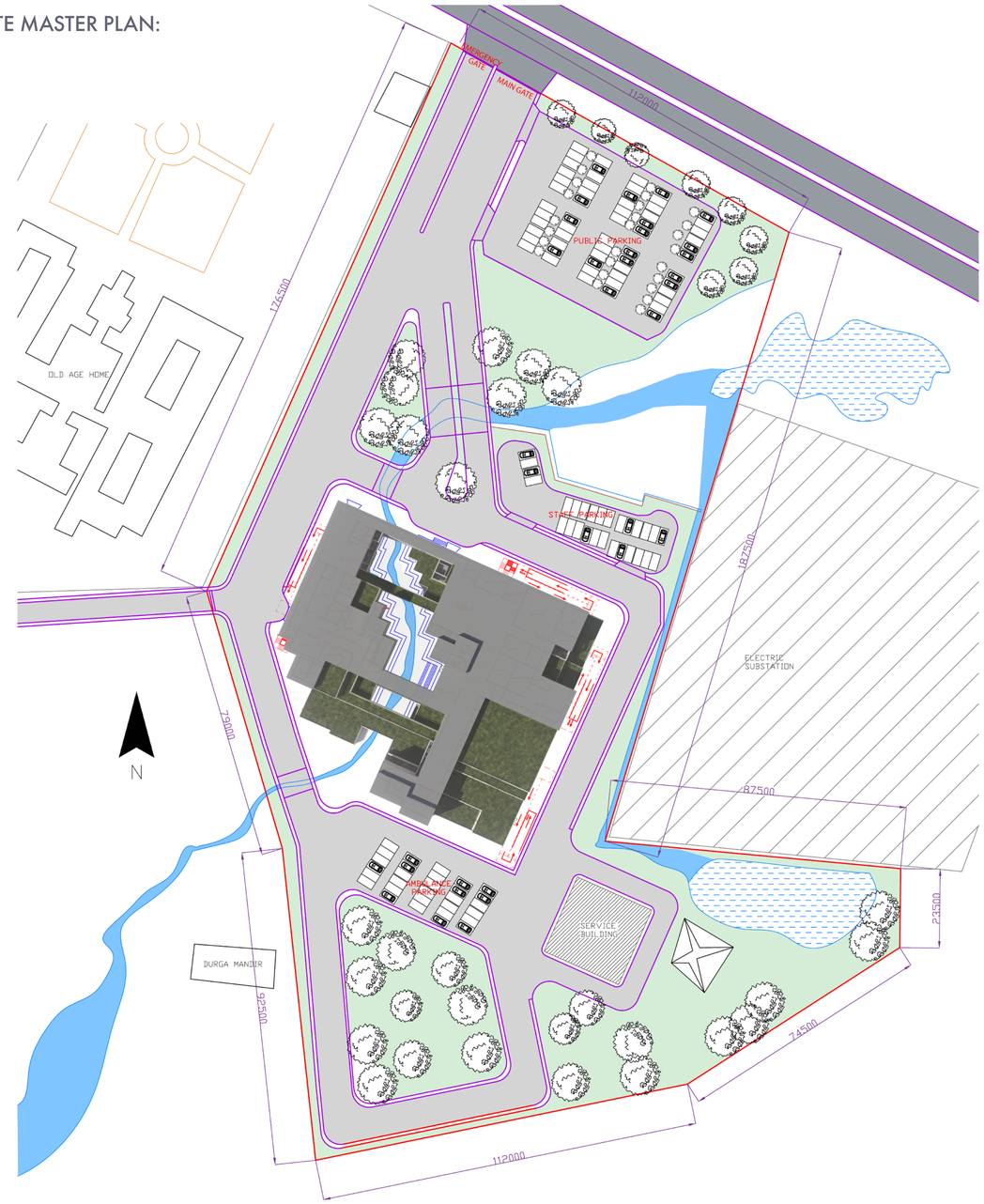
Ghats of Varanasi on the Ganga River

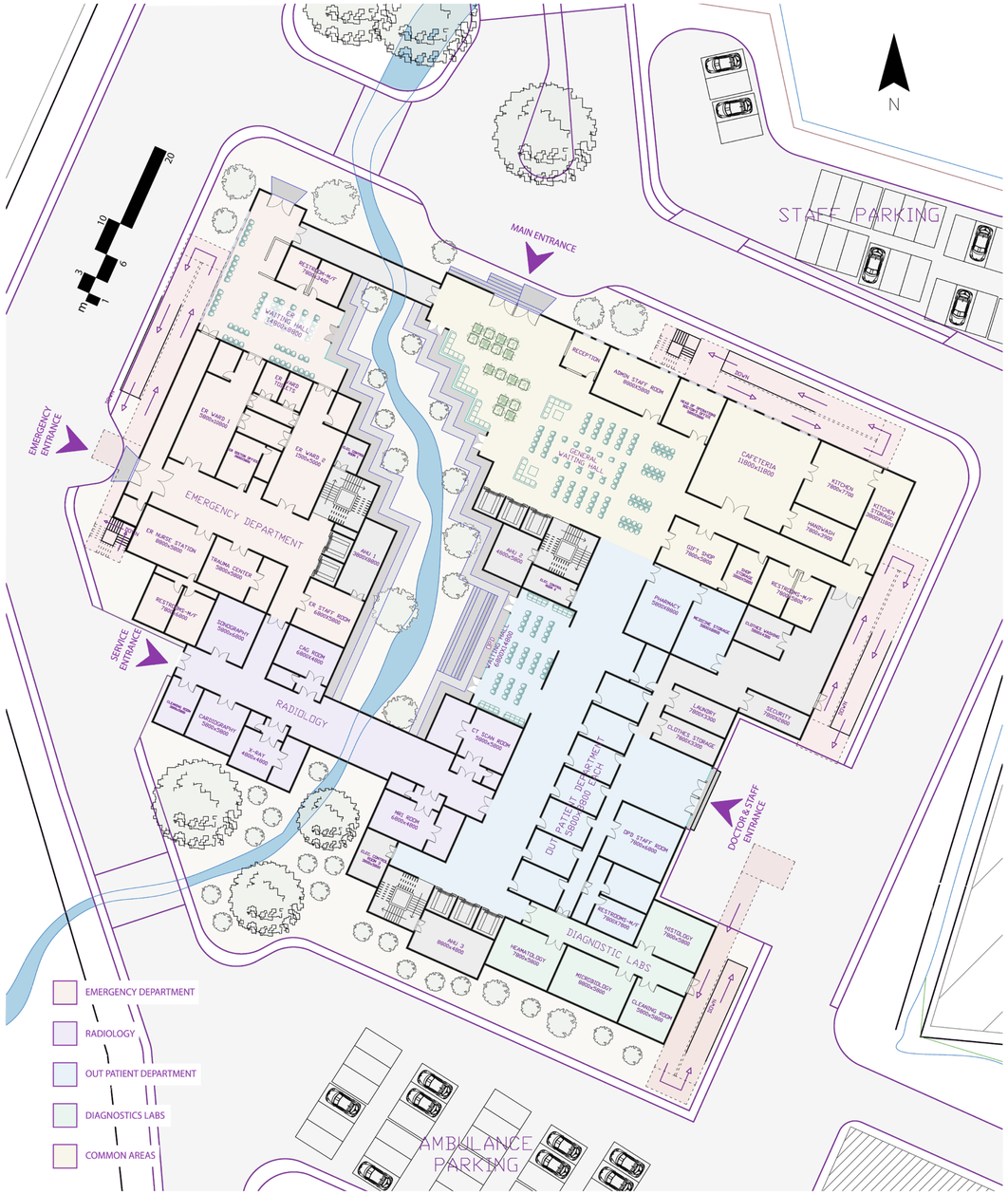


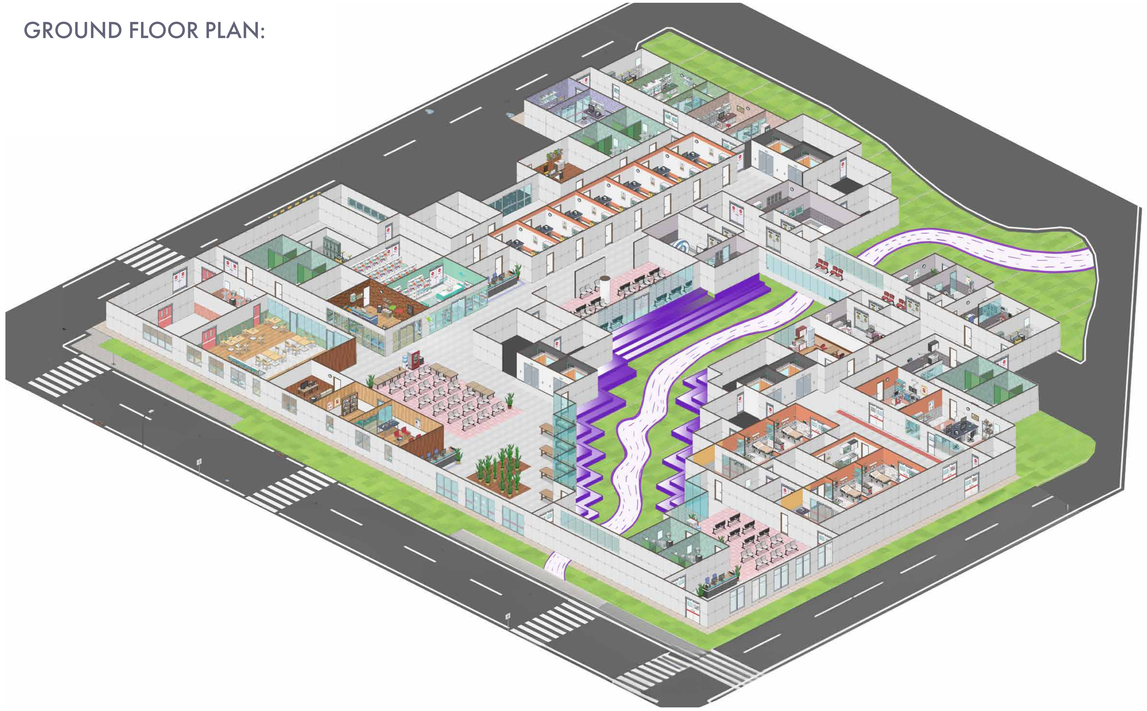
Zoning of hospital departments

SITE MASTER PLAN:



GROUND FLOOR PLAN:



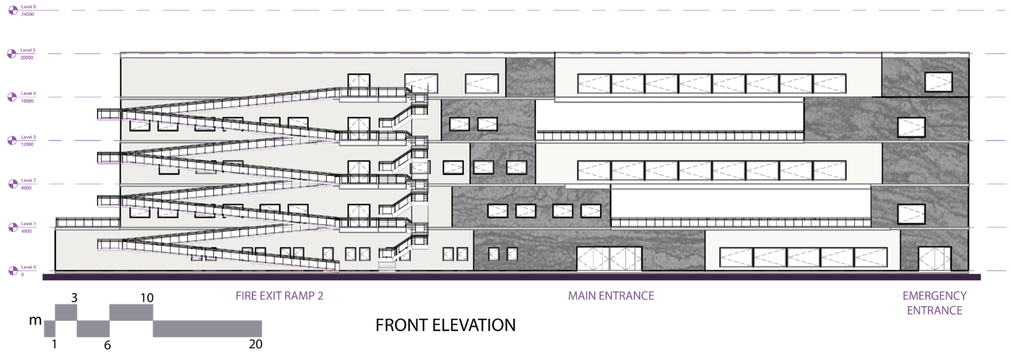


view of north-west corner of the hospital

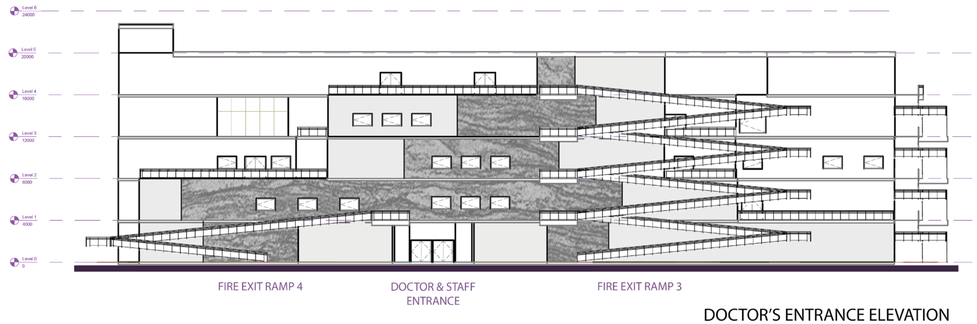
VIEWS & ELEVATIONS:

BACK ELEVATION

EMERGENCY-SIDE ELEVATION

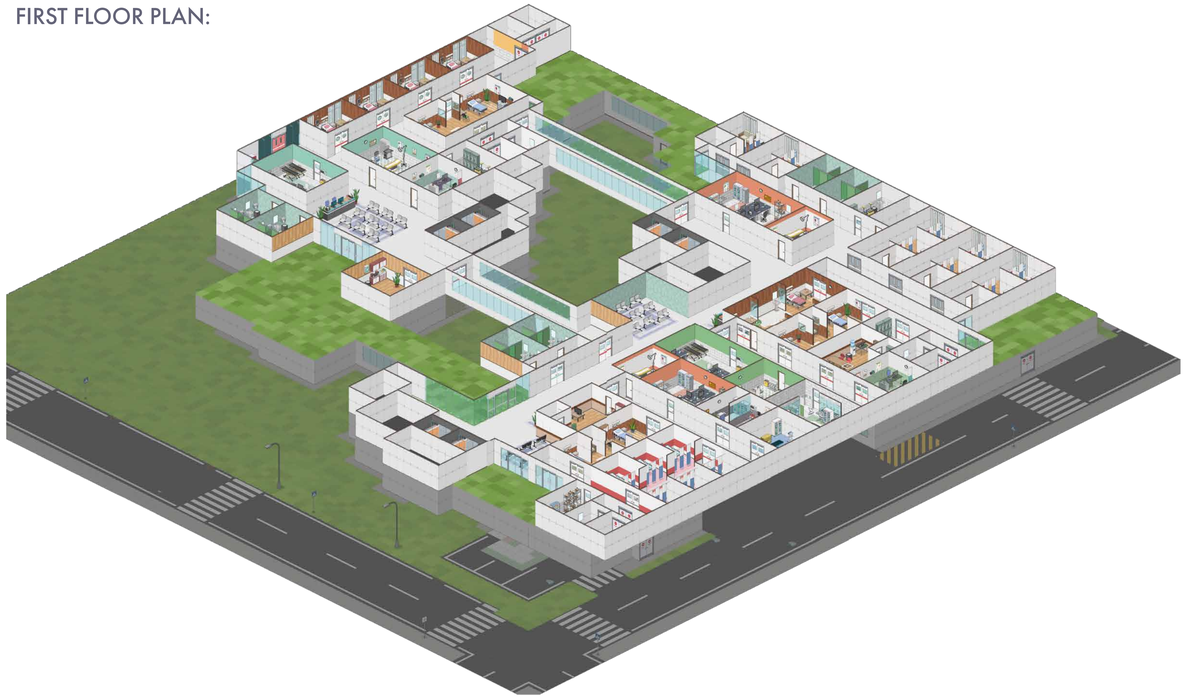


FRONT ELEVATION



DOCTOR'S ENTRANCE ELEVATION

FIRST FLOOR PLAN:



view of south-west corner of the hospital

TOOLS & SOFTWARE USED:

Concept development: ChatGPT - DallE

Floor plan development: Sketchbook Pro, Autocad, Revit, Project Hospital (video game)

3D modelling: Revit, SketchUp

Rendering visualization: D5 Render, Photoshop

PROJECT DETAILS:

Type: Academic project

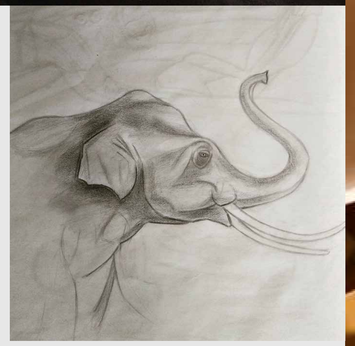
Task: Design a 'multi-speciality' hospital

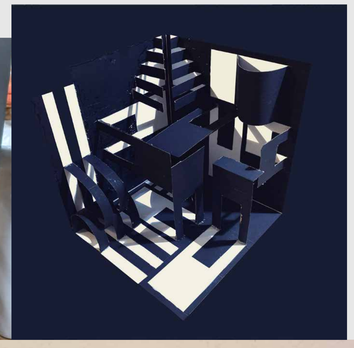
Start date: June 2023

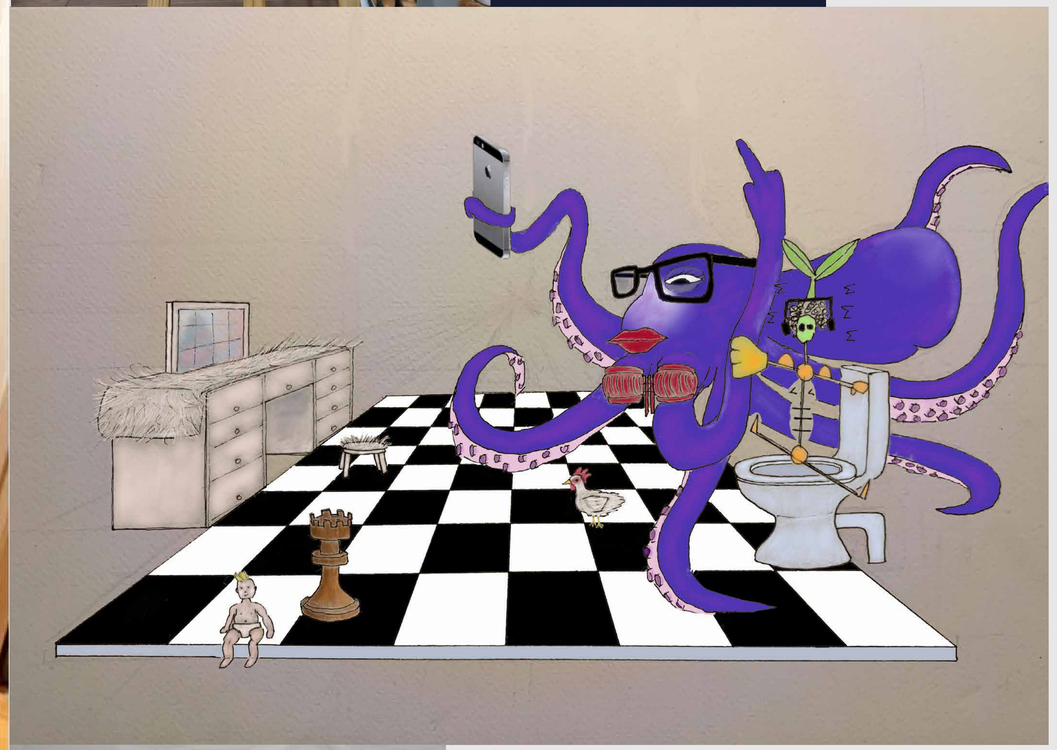
Semester & Year: 7th semester, 4th year

Course: Architectural Design-VII (BARC07001)

Site location: next to National Health Mission NHM campus & MANIT, Bhopal, M.P, India



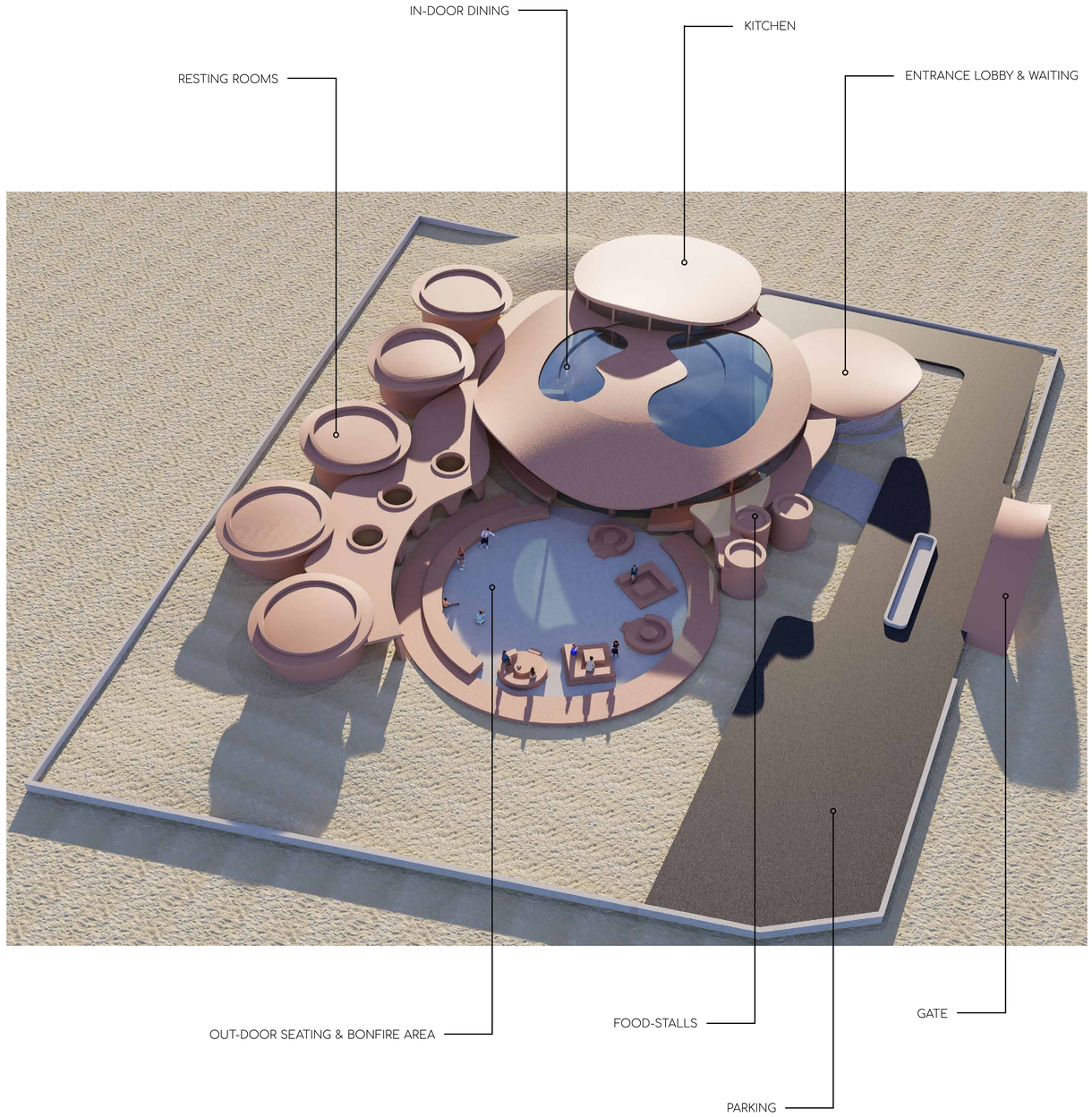




MISCELLANEOUS WORKS

1 | Chokhi Dhani Restaurant

Nestled in the heart of the Thar Desert, our Jaisalmer restaurant is an architectural marvel, blending modern design with traditional elements. Built using innovative ferroconcrete mesh and mud plaster, the structure mimics the desert's natural dunes, offering stunning panoramic views. Our restaurant has both out-door and in-door seating, additional food-stalls, and even resting rooms. Imagine dining under a canopy of stars, surrounded by the mesmerizing emptiness of the desert, enjoying a bonfire's warmth and a delectable culinary journey - that's the magic we offer at our desert oasis.



TOOLS & SOFTWARE USED:

3D modelling: Rhinoceros 7

Rendering visualization: D5 Render, Photoshop, MidJourney

Portfolio compilation: Indesign

PROJECT DETAILS:

Type: Academic project

Task: Design a restaurant that is constructed using a mixture of traditional and modern 'non-conventional' materials and techniques.

Start date: June 2023

Semester & Year: 7th semester, 4th year

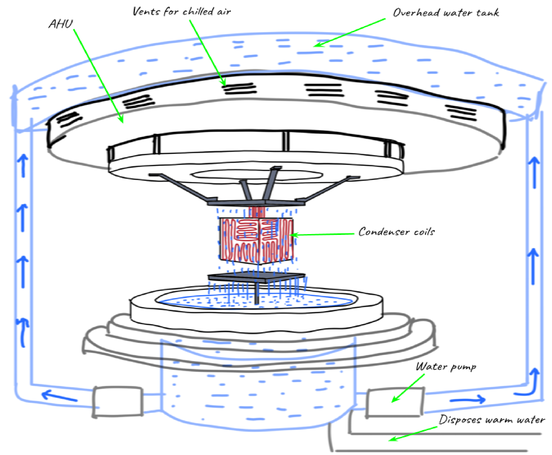
Course: Non-conventional Materials & Techniques (BARC07003)

Site location: Jaisalmer, Rajastan, India

In the city near the river, within the futuristic setting of a nuclear fusion reactor building, lies a captivating space designed to enhance thermal comfort and engage the senses.

This unique environment revolves around a central air conditioning system that is also an art piece. An awe-inspiring cube matrix constructed from copper condenser tubes emerges from the air conditioning system. Levitating in appearance, the copper tubes form four separate loops, intricately woven together. These tubes are cooled by cascading water from an elevated granite stone, which gracefully falls and envelops them. The cooled water collects in a sump below, and when its temperature surpasses a predefined threshold, it is flushed out. On the roof above, there are four AHU units as well as a water tank.

Amidst the year 2030, this extraordinary sanctuary allows scientists and operators to retreat from their demanding tasks, immersing themselves in a serene ambiance filled with refreshing breezes, soothing rainfall, and the beauty of art fused with science.



Software used: *Rhinocerous 7 + Grasshopper, D5 Render, Photoshop, Sketchbook Pro*

If you would like to see more of my work:
https://valleyvarun.github.io/varunsa-portfolio/

CONTACT ME:

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issuu.com/varunsa *<--- SEE MORE OF MY WORK*

instagram.com/varun.sa_/ *<--- I TRAVEL AND DO ART*

linkedin.com/in/varunsa-spab/

github.com/valleyvarun