



PORTFOLIO

SUMEYA AHMED
ARCHITECTURE



ACADEMIC
2022-2024

TABLE OF
CONTENT

1

SELF SUSTAINING CO-LIVING
APARTMENT

03	Project Overview
04-05	Research and Site Analysis
06-07	Concept Diagram
08-09	Floor Plans
10-11	Sections
12	Outdoor and Indoor Views

2

SHARJAH CENTER FOR
FILM AND MEDIA

13	Project Overview
14-16	Site Analysis
17-18	Concept Diagrams
19	Auditorium View and First plan
20	Plan, Sections and Detail Section
21	Chunk Section, Detail Section and Views

3

MOBILE DESIGN
STUDIO

22	Project Overview
23	Unistrut Assembly and Install
24	Expanded Cork Insulation
25	Solar Panel Fixture
26	Bi-fold Door Instalation

4

COLLAGE OF ARCHITECTURE
EXTENSION BUILDING

13	Project Overview
28	Concept Diagram
28	Structure Diagram
28	Floor Plans
29	Sections
29	Interior Views

5

FLOATING, STITCHED AND
SUBTRACTED CITY CENTERS

31	Project Overview
32	Mapping Analysis
33-34	Structure and Concept Diagrams
35	Master Plan
36	Sections
37	Outdoor and Indoor Views

Self-Sustaining Co-living Apartment RESEARCH PROJECT

01

CORAL LIVING

A (Sub)urban Housing Prototype

Team member - Kanya Kansra

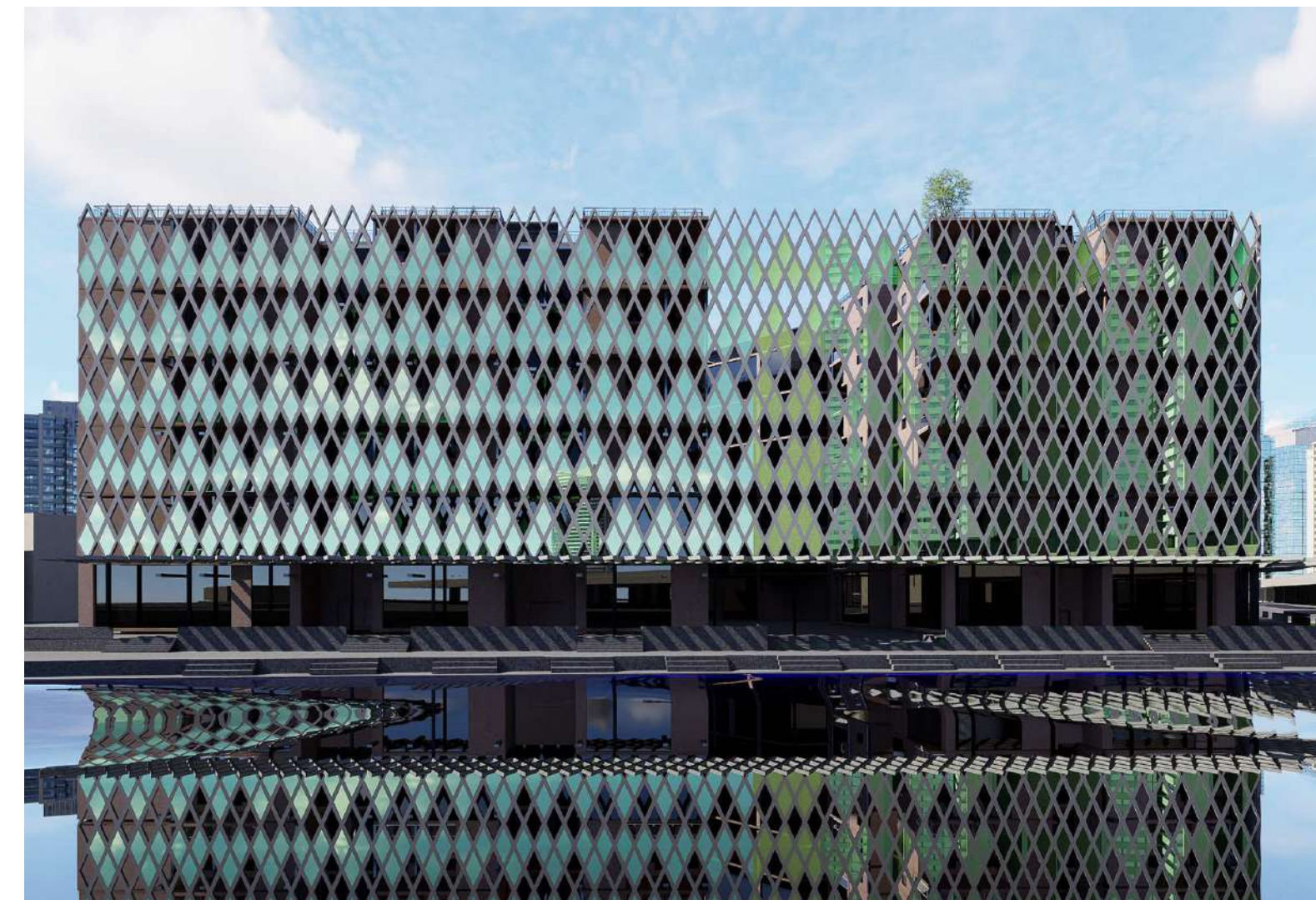
Site Location - Al-Jadaf, Dubai Canal,
Business Bay

Site Size - 15,000 sqm

Project Engagment

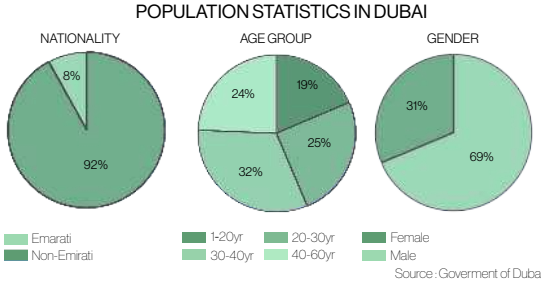
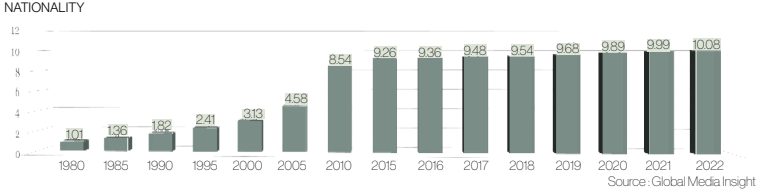
5th year project

A Co-living space that lets young professionals be able to live close to the busy areas and still be on a budget. The building is inspired by the self-sustaining mechanisms of coral reefs. Similar to corals, the facade panels harvest microalgae, from which biomass is extracted to generate electricity, reducing costs for the building.



DEMOGRAPICS AND USERS

The rise in the UAE's population is partly due to an influx of immigrants, attracted by the country's abundant job opportunities. Dubai, known for its vibrant economy, ranks among the top 17% of the most expensive cities globally.



LIVING EXPENSES IN UAE

Overall Living Expenses	Individual Cost (AED)	Family of Four Cost (AED)
Average monthly cost of living in Dubai	8,187	19,386

Type of Housing Accommodations	Average Price (AED)
1-room apartment downtown	5,366
Cheap 1-room apartment	3,140
3-room apartment downtown	12,763
Cheap 3-room apartment	7,635

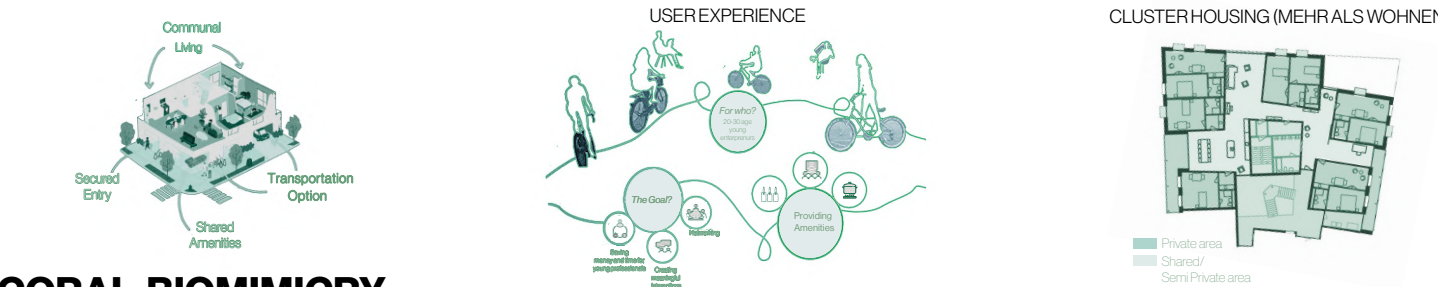
Average Salaries after Tax	Dubai Average (AED)
Monthly Salary	16,267
Annual Salary	195,212

Type of Housing	Individual Cost (AED)	Family of Four Cost
Fee Monthly Rent with utilities	4,381	7,805
Utilities, Electrical, heating, water etc.	462	697
Internet	330	330

Source: Pacific Prime

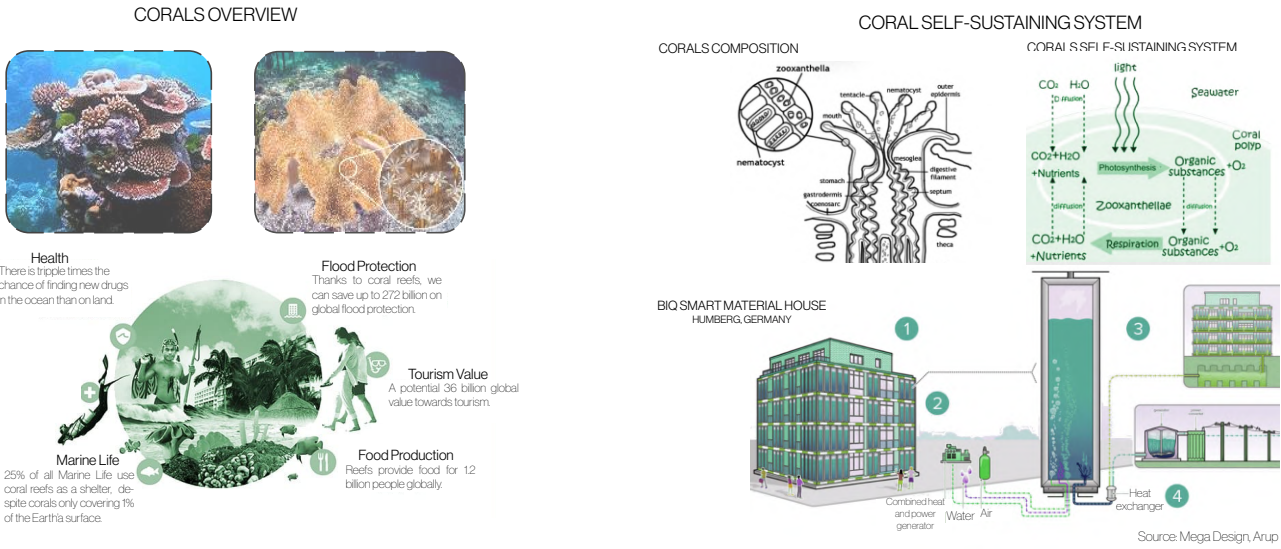
CO-LIVING APARTMENT

Young professionals in the UAE seek affordable living near busy areas, but high costs limit access. Co-living offers a solution with shared spaces, like living and dining rooms. This fosters community and networking, appealing to Dubai's young workforce while offering a budget-friendly alternative to traditional housing.



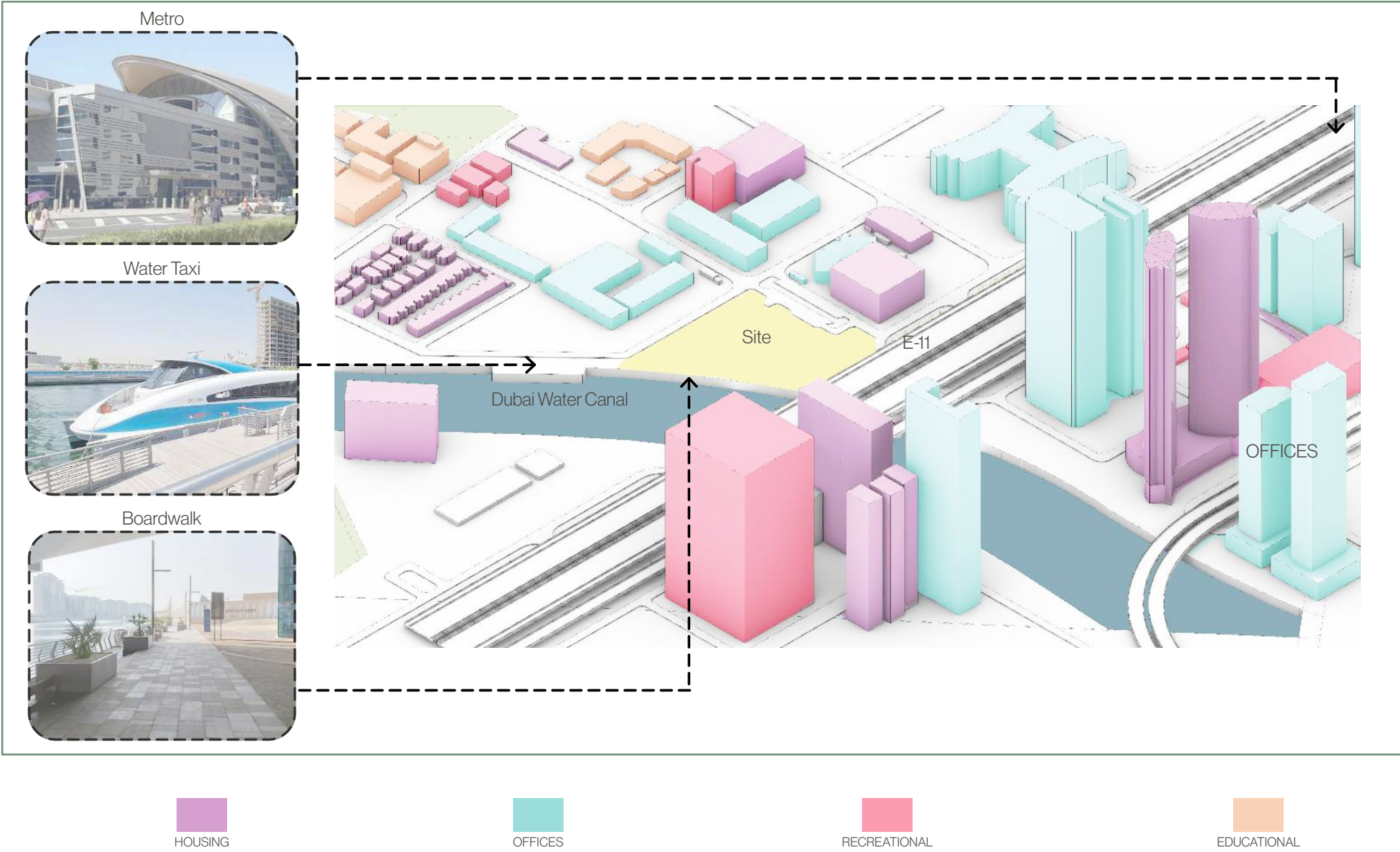
CORAL BIOMIMICRY

Coral reefs are made of tiny organisms called polyps that support many marine species, even though they cover only a small part of the ocean. Corals rely on micro-algae living inside them, which use sunlight and carbon dioxide to create nutrients, making corals self-sustaining. Inspired by this natural process, the proposed building design features a façade system where micro-algae grow in its chambers. These algae produce energy that can be used for electricity and heat, while the system recycles carbon dioxide to keep the algae growing.

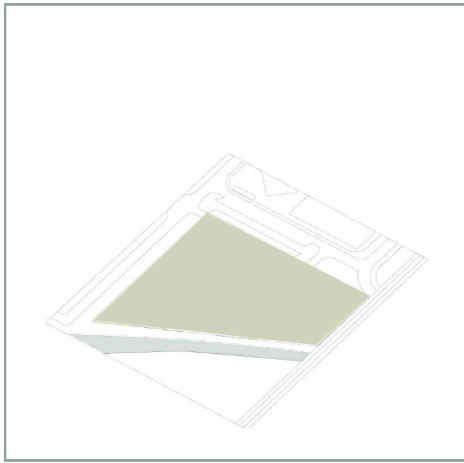


SITE ANALYSIS

The chosen location for this assignment is an empty plot in Business Bay, situated in front of Dubai Creek. This prime location offers co-living apartment residents easy access to transportation, close proximity to work opportunities, and convenient access to recreational areas.

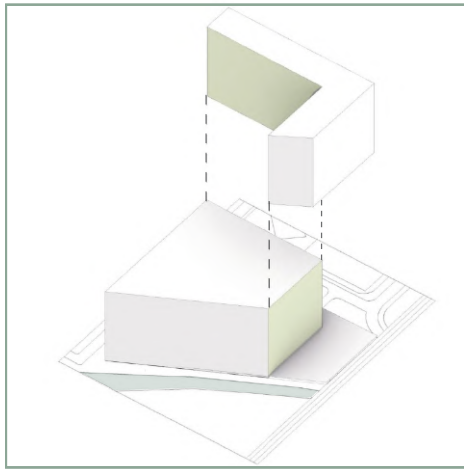


CONCEPT DIAGRAM



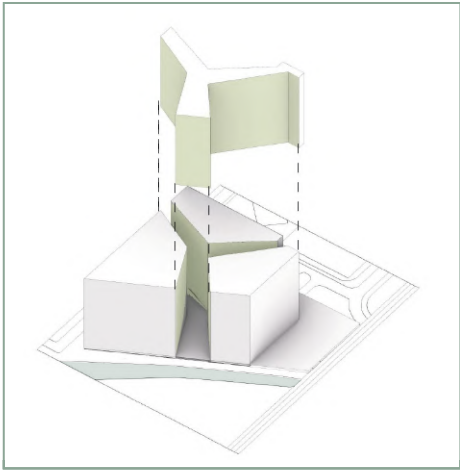
Site

Footprint of the Masterplan on the Site



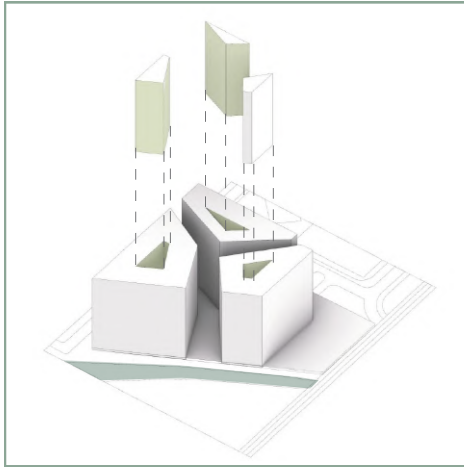
Alignment

Removing a chunk of the massing to align it to its surrounding buildings



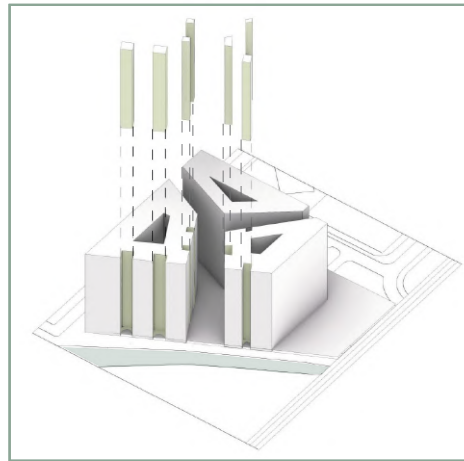
Pathways

Breaking one massing into three fragments to create sikkas that direct towards the boardwalk



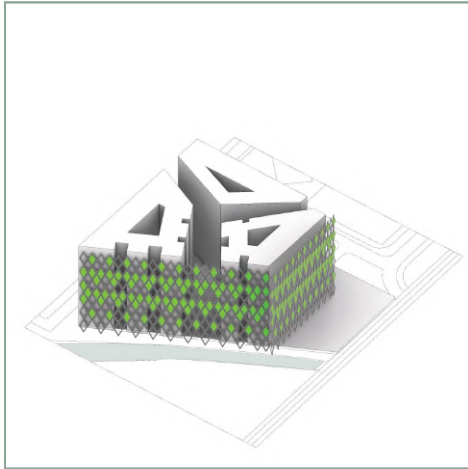
Lightwells

Removing a chunk of the massing to align it to its surrounding buildings.



Fragmentation

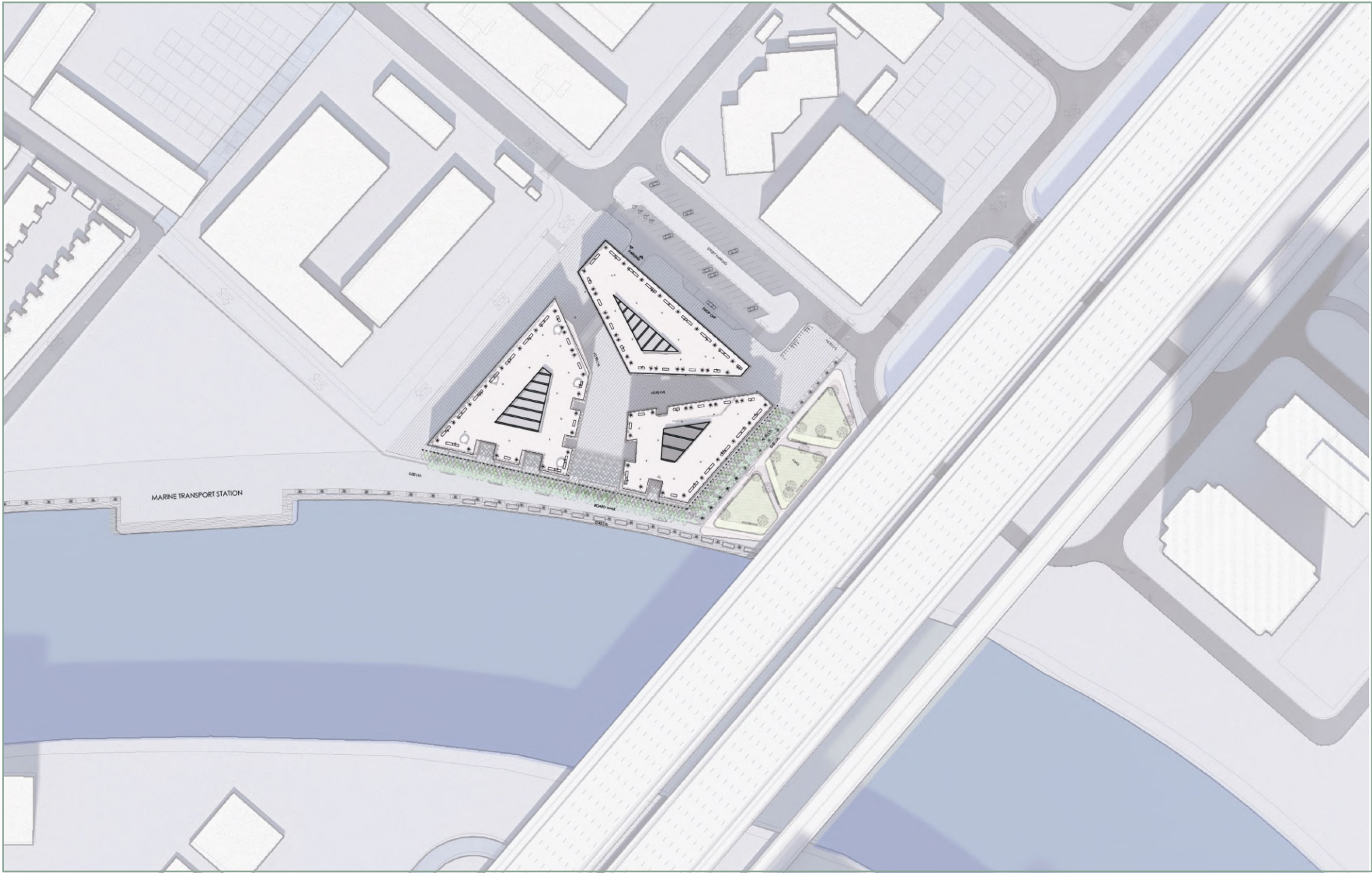
Allows for defined entry points and brings more light to the elevated courtyards.



Final Massing

Adding Algae Facade to the Massing to make it self-sustaining.

SITE PLAN



SCALE 1:1500

FLOOR PLANS

The ground floor seamlessly links sidewalks to the boardwalk, offering waterfront access and revenue-generating shops that boost affordability. Fragmented apartments create semi-private zones between the apartments for privacy without confinement, while bridges between buildings promote smooth transitions, enhancing both communal interaction and personal space.



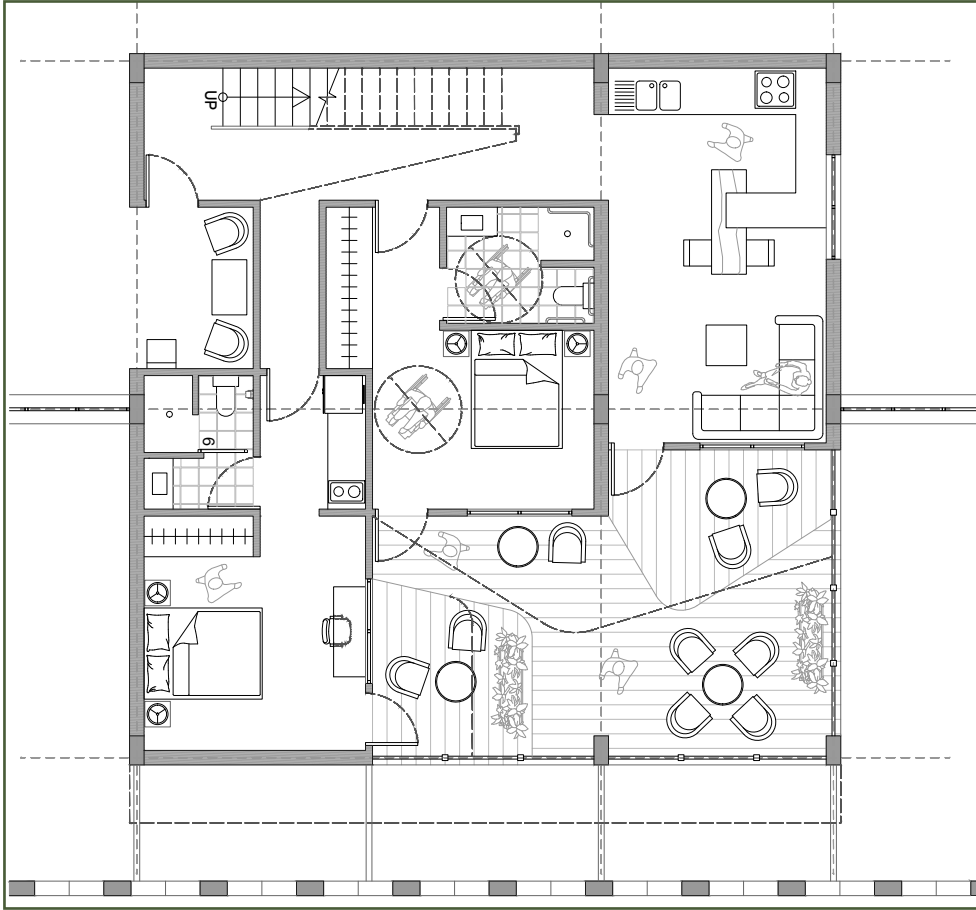
Ground Floor Plan
SCALE 1:250



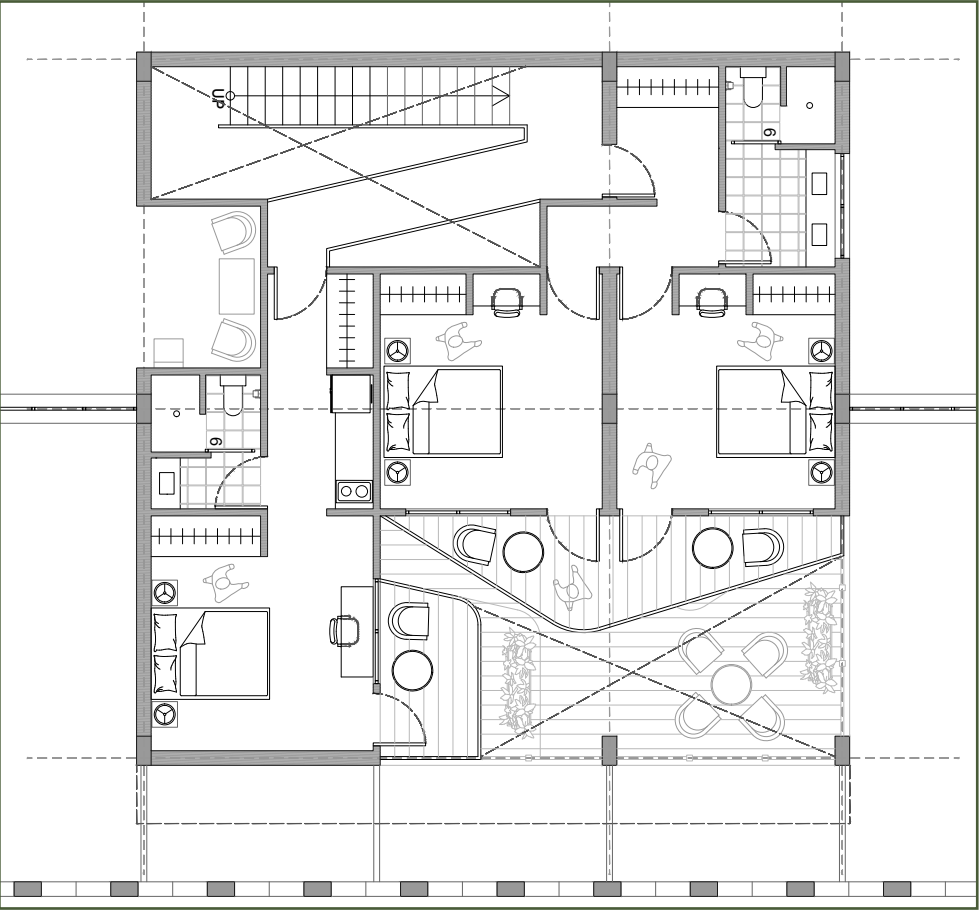
Apartment Floor Plan
SCALE 1:250

APARTMENT FLOOR PLANS

Each apartment spans two floors, featuring double-height spaces and integrated balconies that recreate the feel of urban homes with backyards or courtyards, scaled to fit apartment living. This design provides co-living residents with a homely atmosphere, blending communal living with the comfort of a traditional home.



Lower Floor Plan
SCALE 1:50

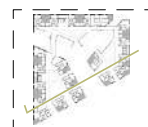


Upper Floor Plan
SCALE 1:50

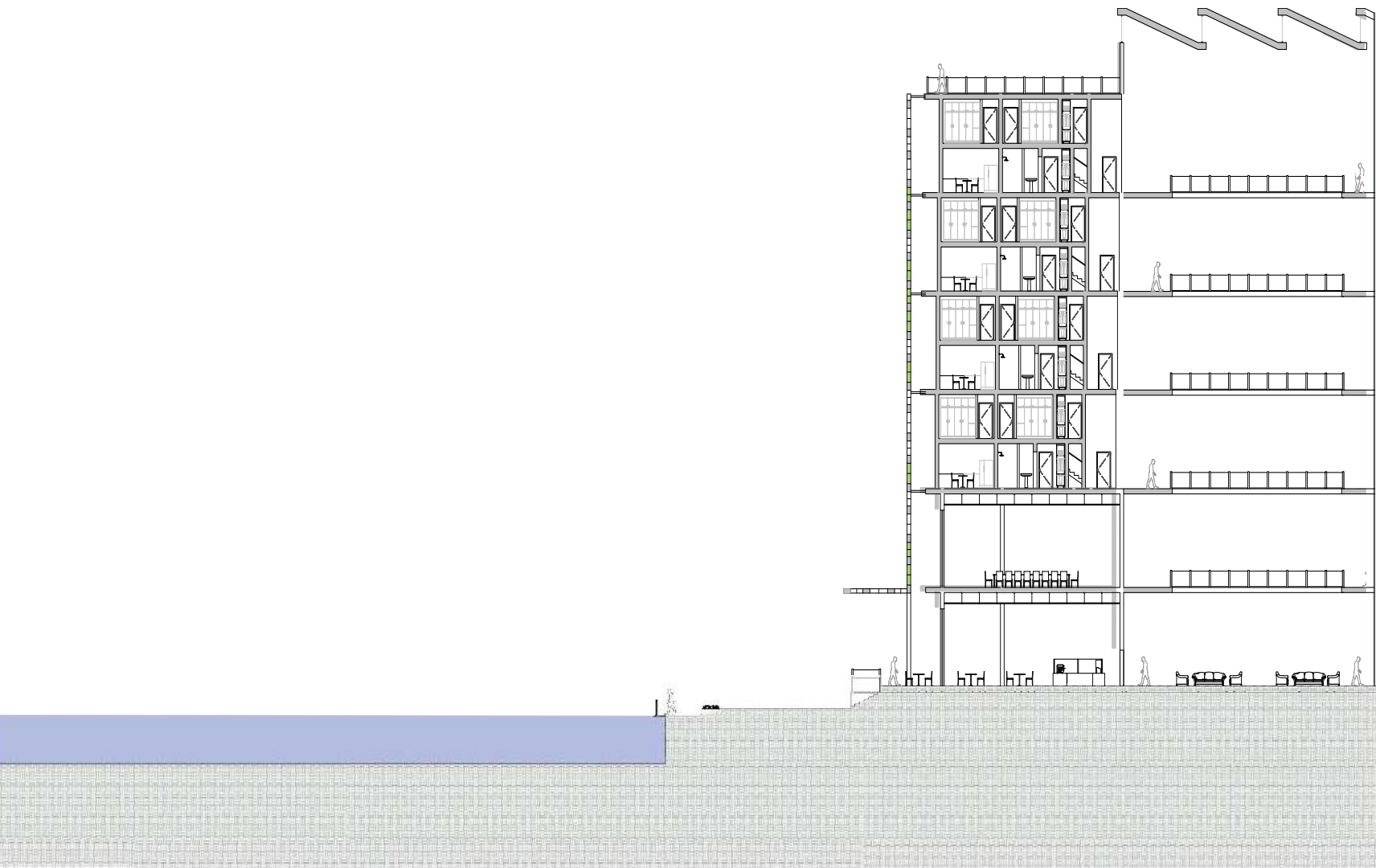
TRANSVERSAL SECTION



SCALE 1:150



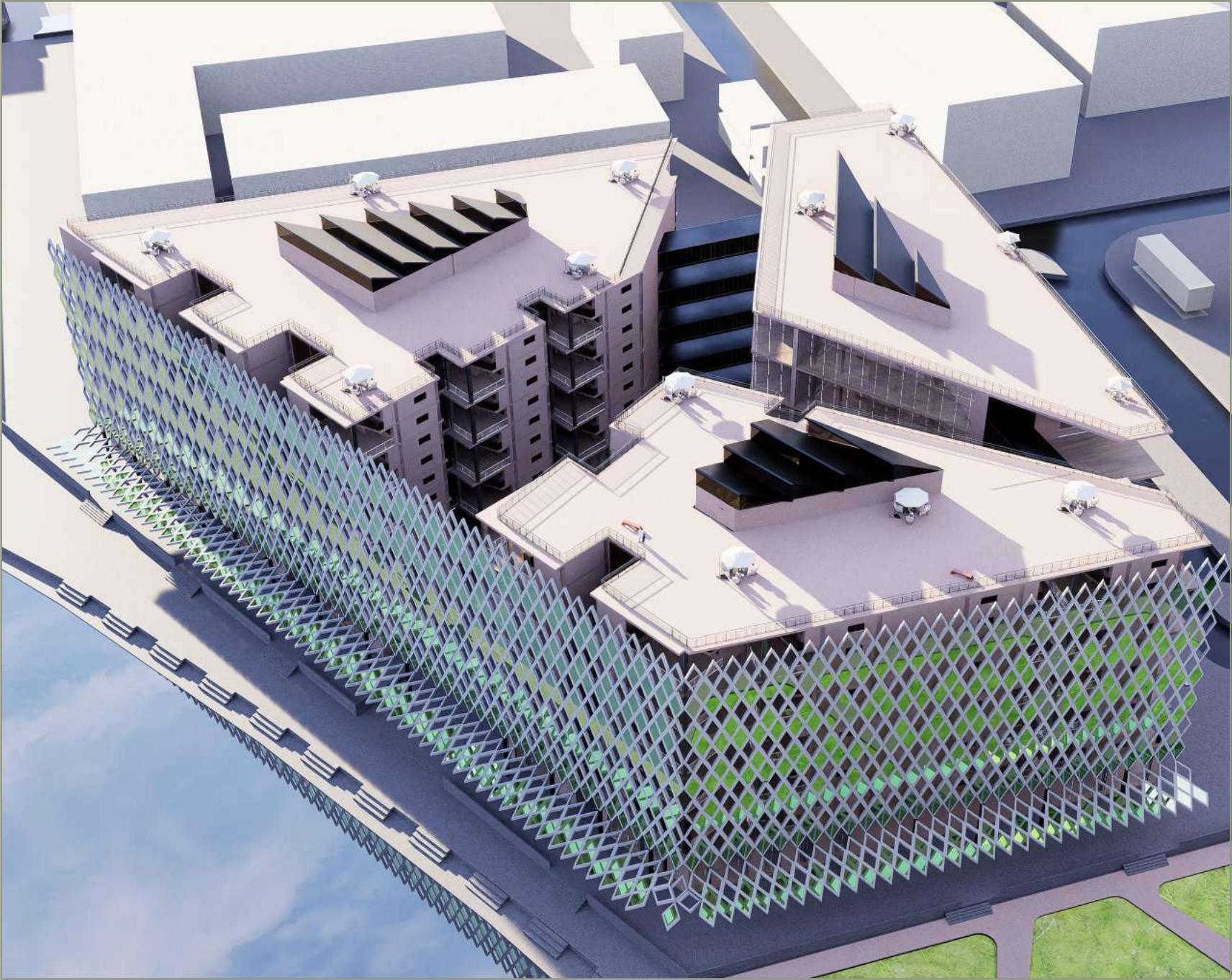
LONGITUDINAL CHUNK SECTION



SCALE 1:75



VIEW TOWARDS APARTMENTS



ELEVATED COURTYARDS



SHARED LIVING ROOMS



SHARED INTERAVITVE ROOMS



Sharjah Center for Film and Media COMPREHENSIVE PROJECT

02

UNVEIL THE BERM

A Community Auditorium Prototype

Team member - Radhika Aggarwal

Site Location - Al-Ihsan, Al-Ghafiya,
Sharjah-Ajman boarder

Site Size - 14,400 sqm

Project Engagment

4th year project

Situated within the residential district, the design of this project seamlessly integrates with its surroundings, serving as a central hub for public gatherings among the residents. Through the segmentation of its building structure, this project aims to provide visitors with an immersive and exploratory experience while implementing eco-friendly measures to reduce its carbon footprint.





SITE ANALYSIS

Nestled at the center of the residential zone, with taller commercial buildings at the front end of the Ajman side, the design capitalizes on the vast size of the site by incorporating a park that seamlessly flows over the building. This approach considers the height and visual context of the surroundings, to result in an optimal architectural design.



UAE HISTORY OF FILM

Sharjah's film history reflects its long-standing cultural interaction with other countries and communities that migrated to the region as early as the 18th century. The simplicity of outdoor screenings, such as at Sharjah Paramount, highlights the significance of film culture within the community, serving as a communal activity that fosters connection.

AHMAD GOLCHIN
UAE Cinema's Founding Father
1960

1972

تسويج دعاية لافلام الهندية المعروضة في صالات السينما من خلال لافتة تحمل بعض الصور عند مرئاً المراكب في بر ديرة بدبي ستة

1943
SHARJAH PARAMOUNT
First Cinema in the UAE

1953
AL WATAN CINEMA
First Cinema in Dubai

1970
REX CINEMA
UAE's First Drive - in Theater

1978
KHORFAKKAN CINEMA
Acquired by Sharjah Art Foundation

SITE DEMOGRAPHICS

The majority of residents on the site are migrant workers from India, Pakistan, Bangladesh, and Iran. Given that community film viewing serves as one of their few entertainment options, creating additional programs beyond media that foster gathering and interaction is vital in the design.

% who watches films in the Cinema

Country	2014	2018
UAE	67	90
Lebanon	46	48
Qatar	43	76
Egypt	28	19
Tunisia	14	39
KSA	42	39
Jordan	9	9

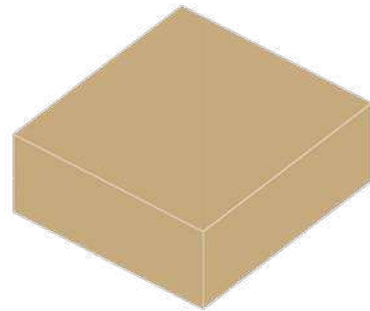
MIGRANT WORKERS
Getting off the Bus in the Evening after Work

BEDSPACE ADVERTISEMENTS
Stuck to the Walls at the Site
Giving Space to Families for Rent

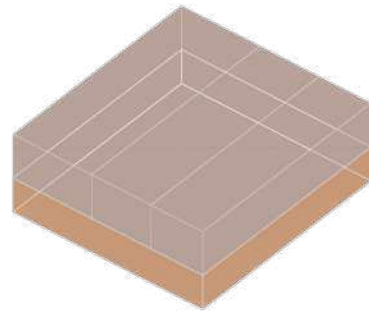
CHILDREN
Playing Around the Site

1978 KALBA, SHARJAH
Makeshift Open Air theater made for and by workers for their entertainment

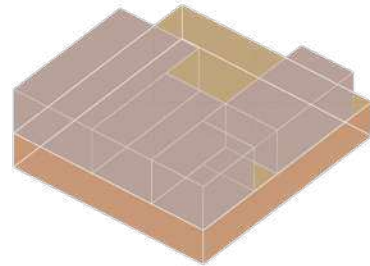
CONCEPT DIAGRAM



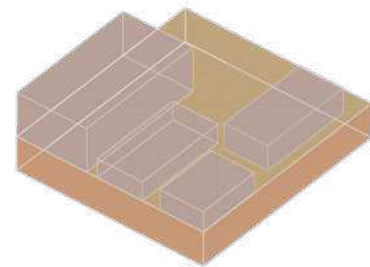
Splitting the initial volume into two parts according to usage based on noise levels



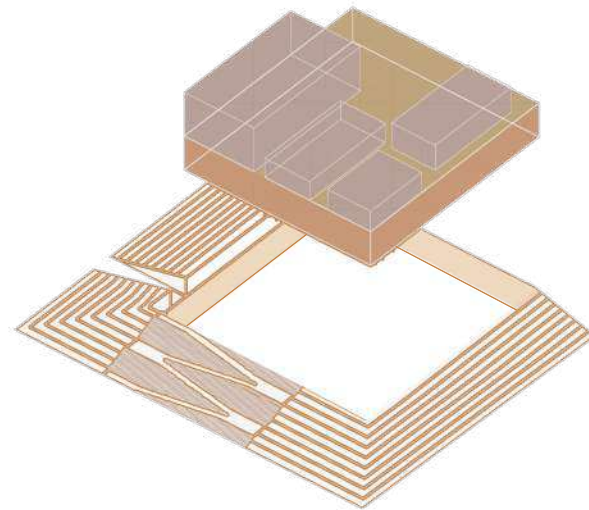
Further splitting the upper volume into 3 independent blocks



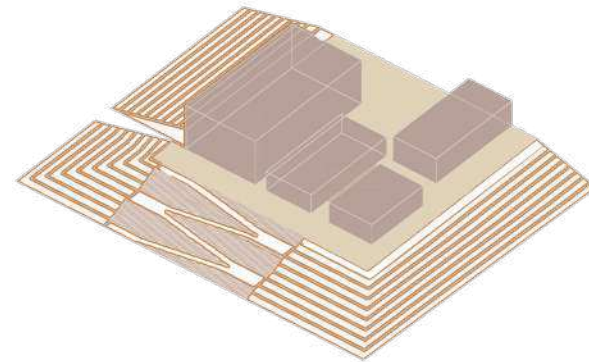
Subtracting spaces from the big volume to get independent units aligned next to green areas



Creating a green explorative path between the different buildings which acts like a Sikka

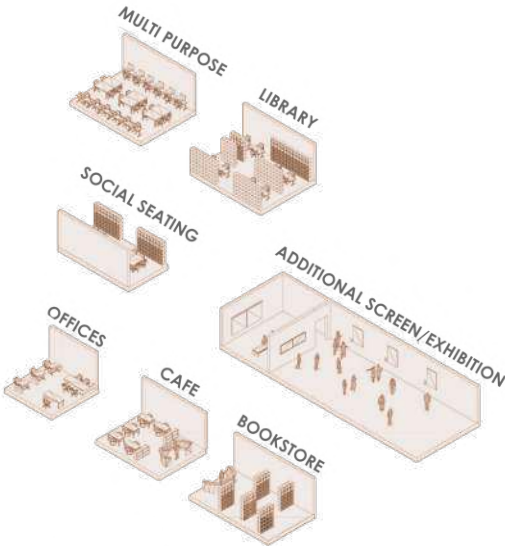


Situating the building inside a green berm on the site

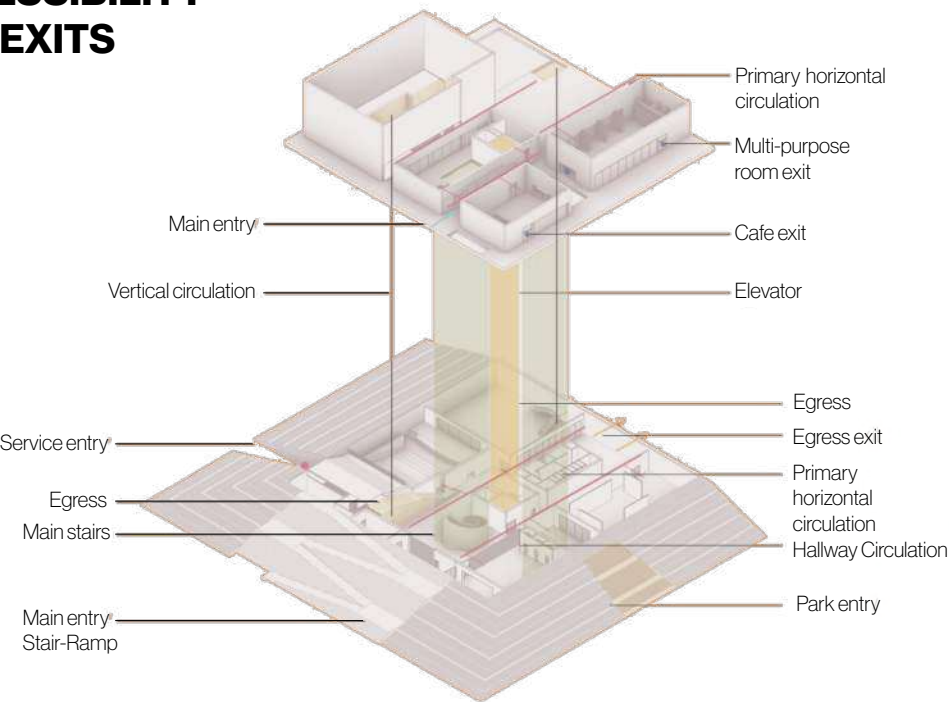


The berm places the film centre as a landmark in the neighbourhood by elevating the ground, giving the buildings an elevated look.

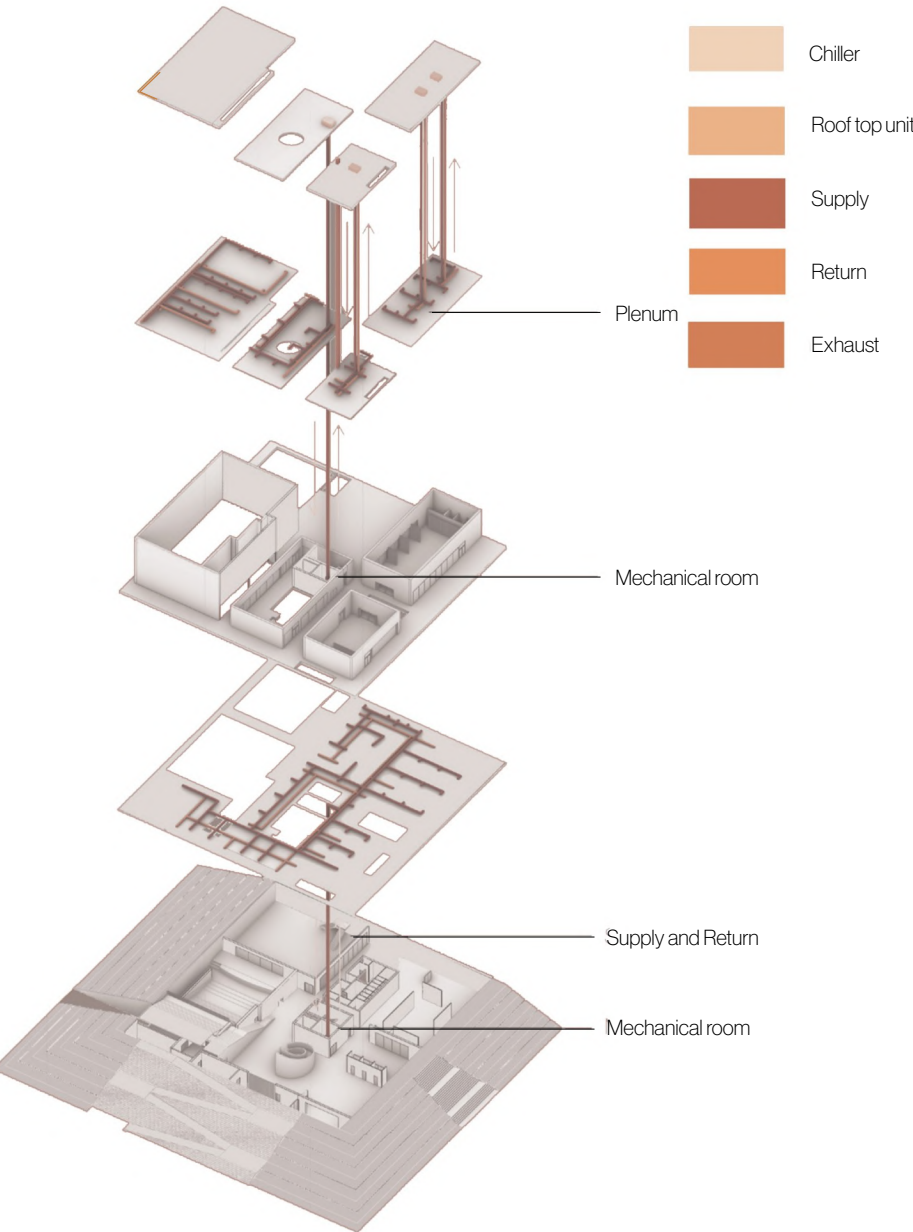
ADDITIONAL PROGRAMS



ACCESSIBILITY AND EXITS

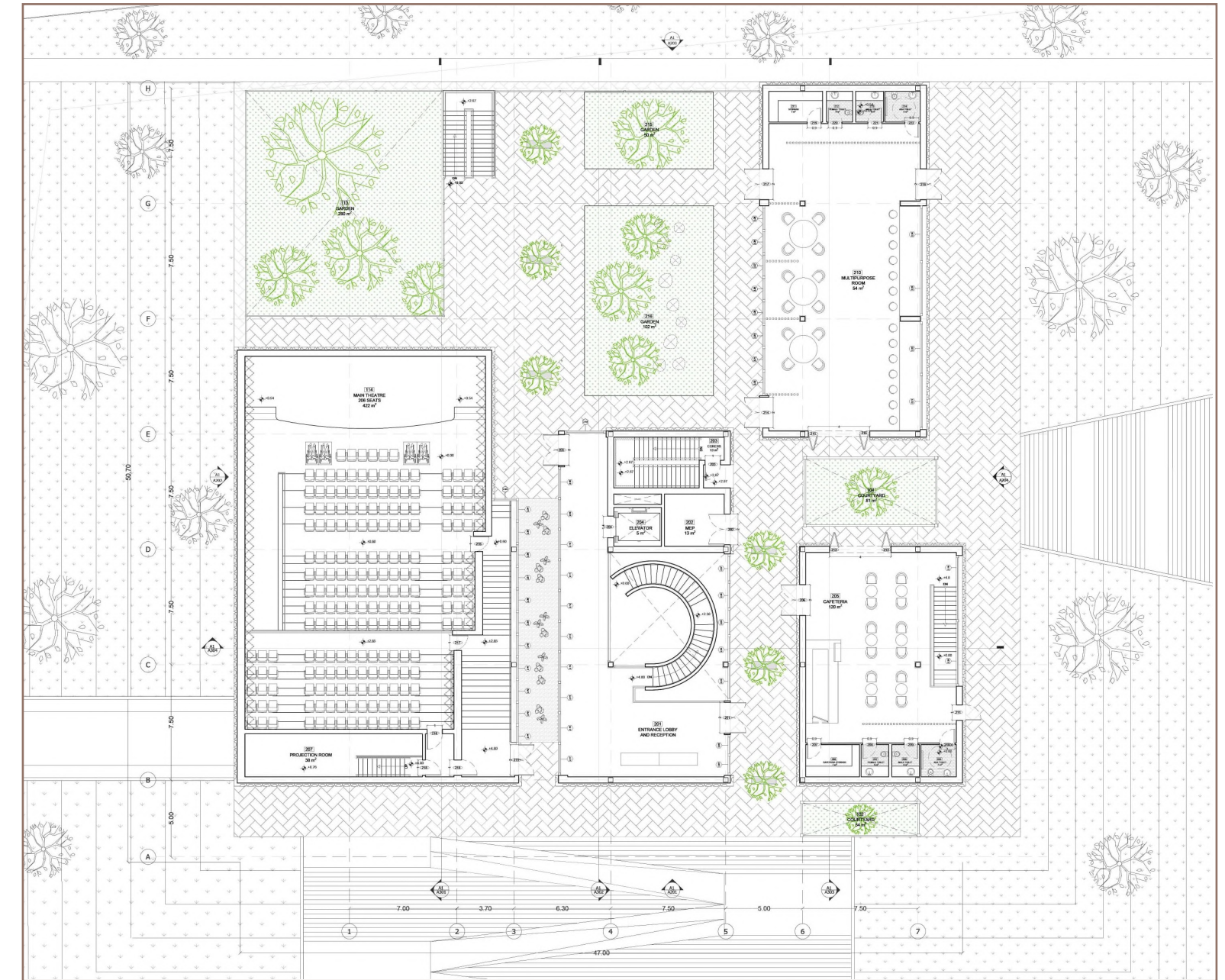


AIR HANDELING UNIT

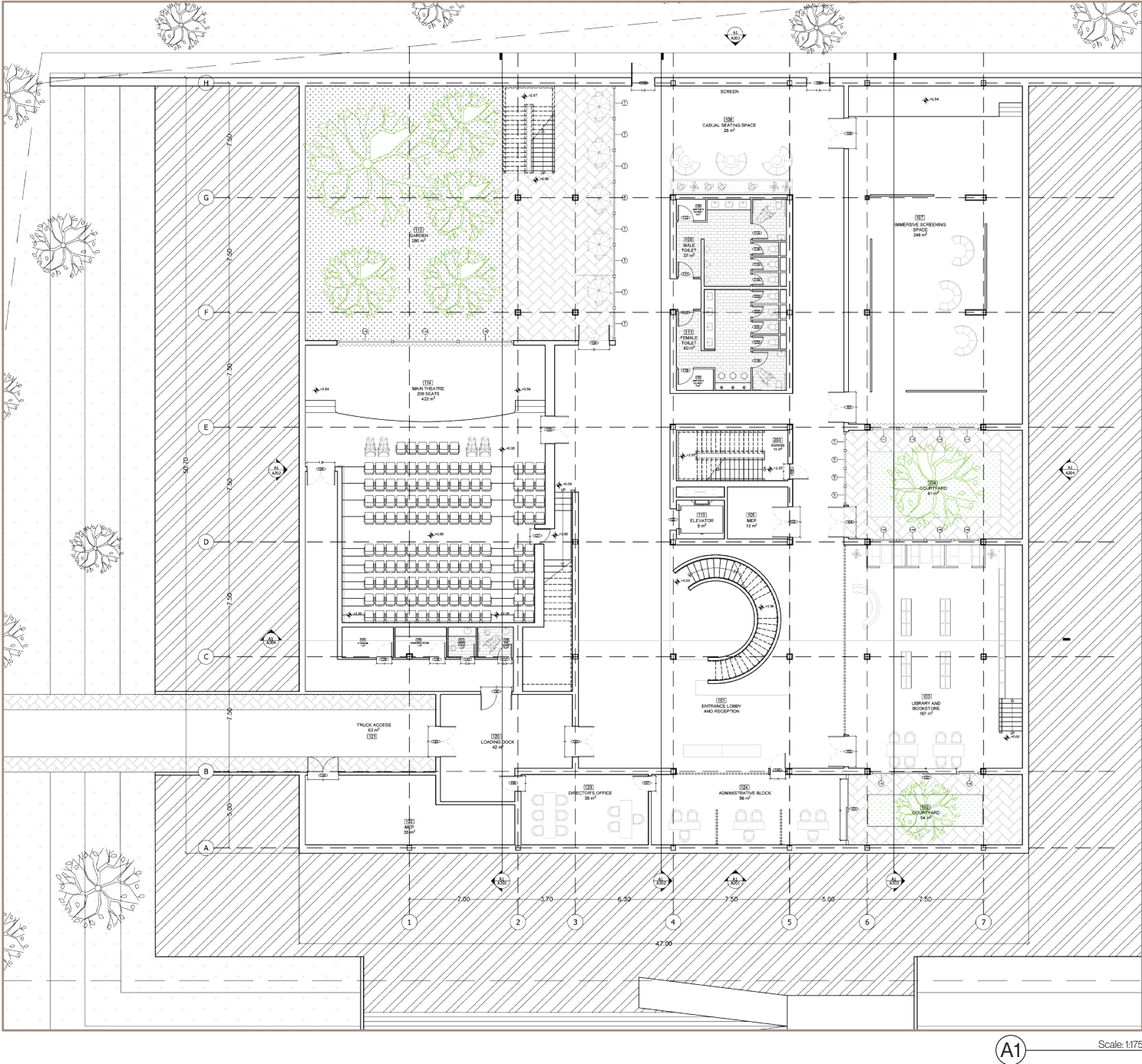




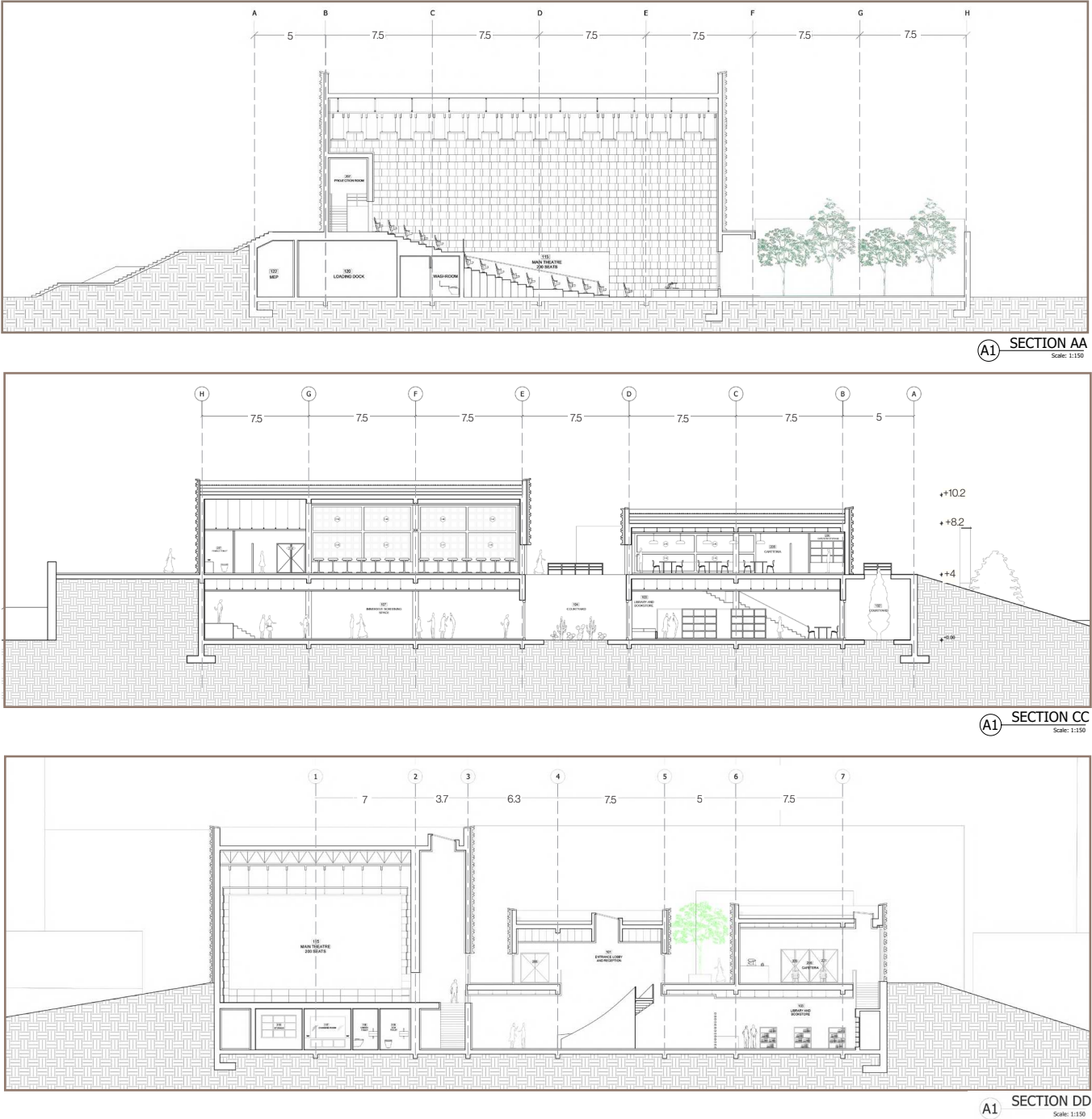
FIRST FLOOR PLAN



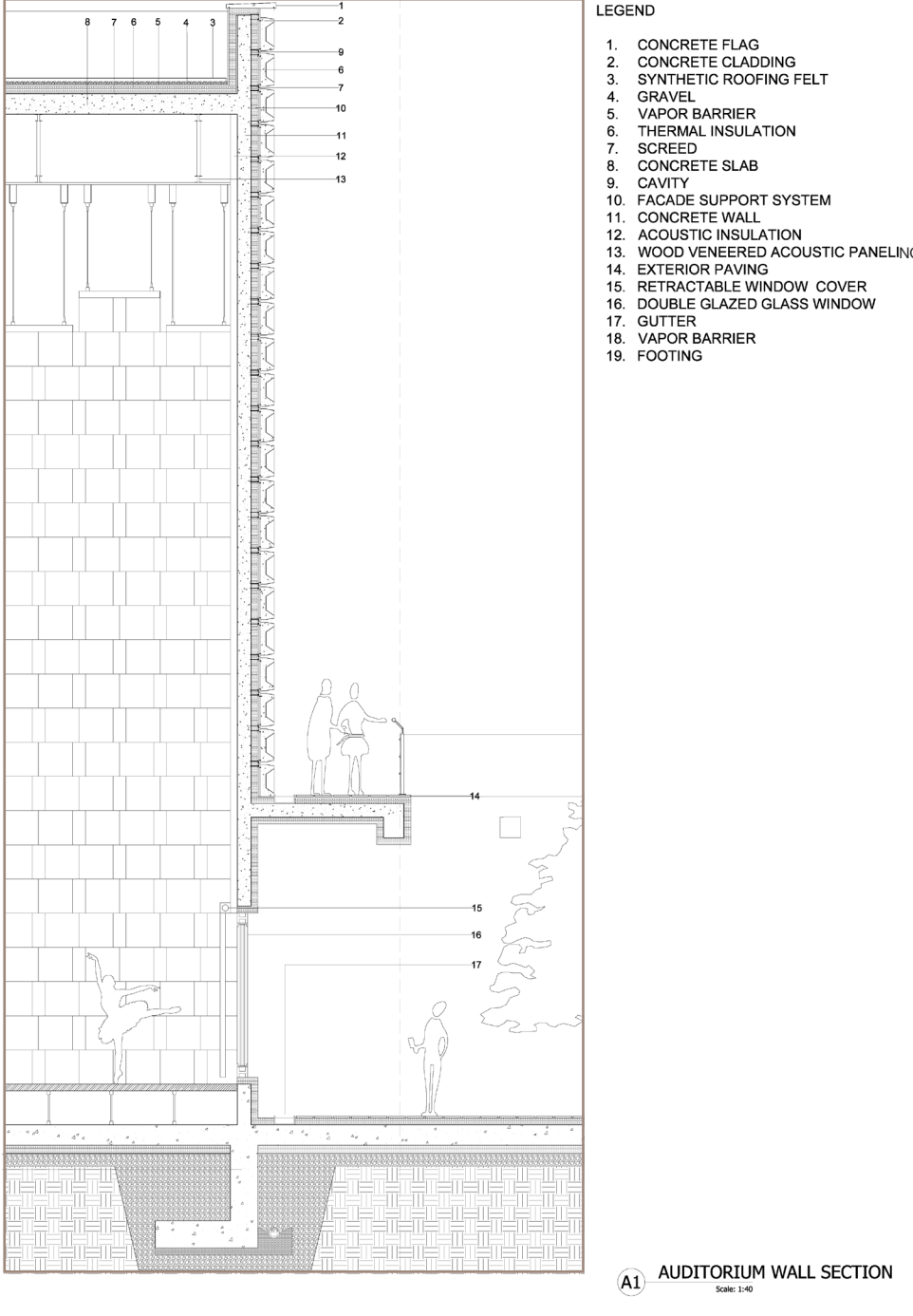
GROUND FLOOR PLAN



SECTIONS



AUDITORIUM WALL SECTION

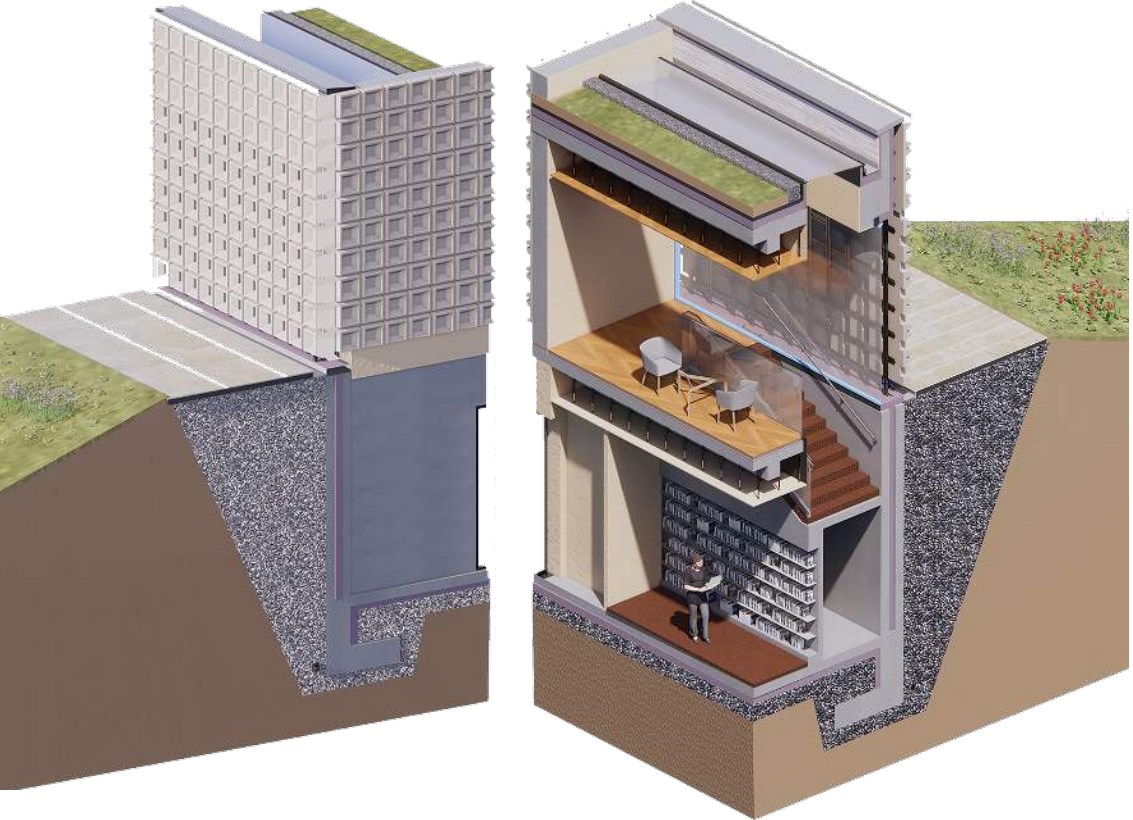


A1 AUDITORIUM WALL SECTION
Scale: 1:40

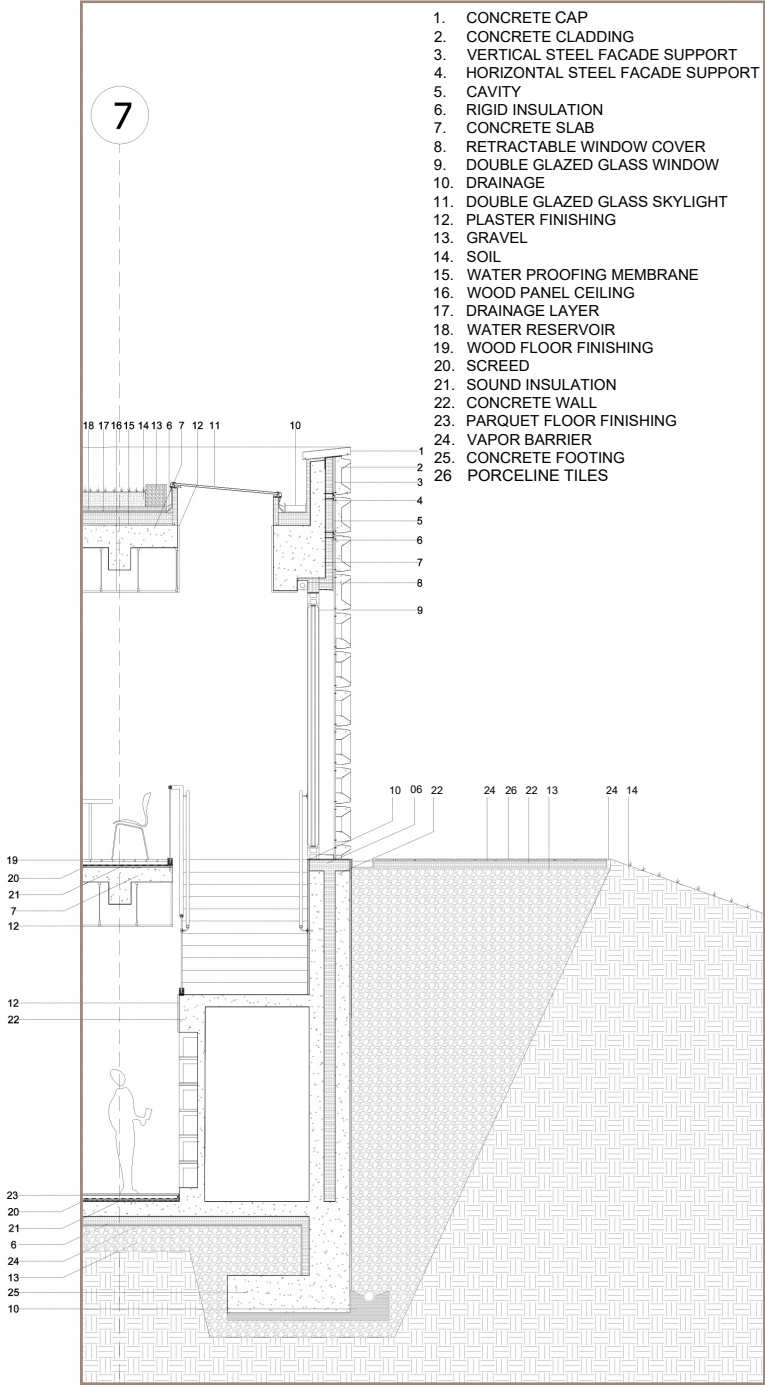
CAFE



CAFE CHUNK



CAFE WALL SECTION



Mobile Design Studio DESIGN-BUILD PROJECT

03

NEONOMADS JAWLA

A Renovated Container Prototype

Team - Collaborative Studio

Site Location - American University
of Sharjah, Collage of Architecture
Building (CAAD) Pavilion, Sharjah

Container Size - 28 sqm

Project Engagment

5th year project

The container is engineered to operate off the grid, relying on alternative energy sources. During its stay next to CAAD, the container will function as a versatile space, serving as a classroom, conference area, and event space. The ultimate goal is to make the building environmentally sustainable, incorporating reuse, repurposing, and recycling strategies where every piece attached is demountable.

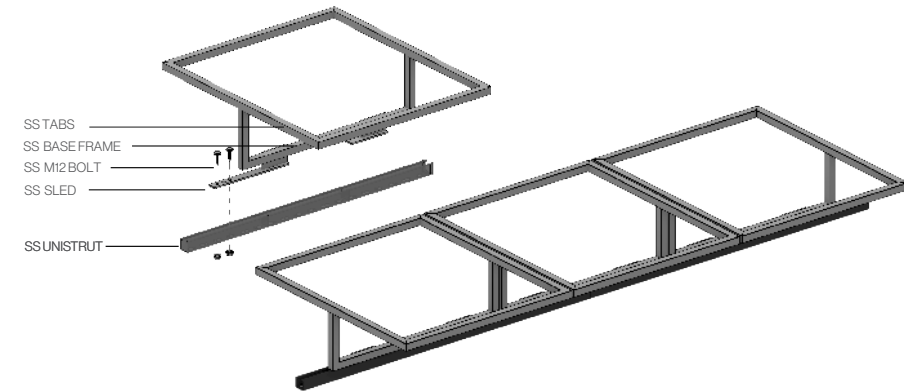


EXPANDED CORK INSULATION

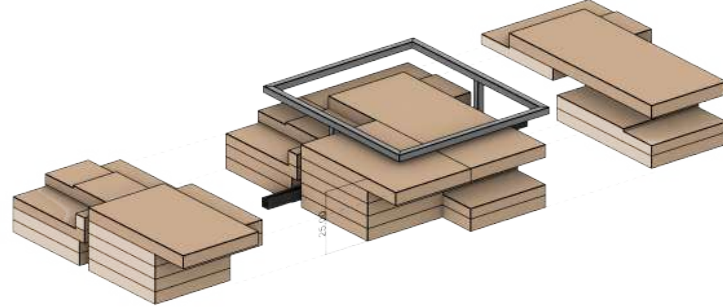
Expanded cork is produced by exposing cork granules to superheated steam within large formworks, causing them to expand and activate suberin, a natural binder. Suberin, a polyester biopolymer, prevents moisture passage and binds the cork particles. This material is lightweight, 100% natural, rapidly renewable, and easily biodegradable. It has excellent insulative properties, thanks to air trapped in the granules, is carbon negative, and rated Class E for fire resistance.



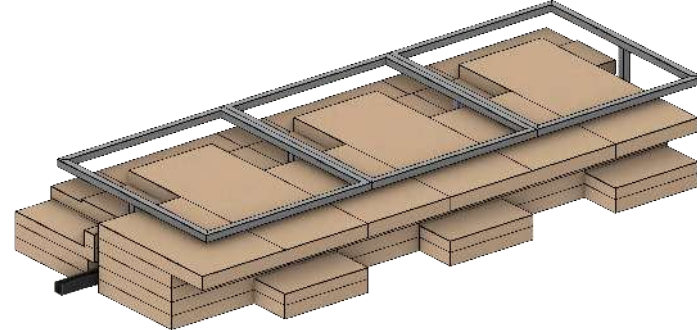
EXPLODED AXONOMETRIC OF CORK BASE FRAME AND UNISTRUT



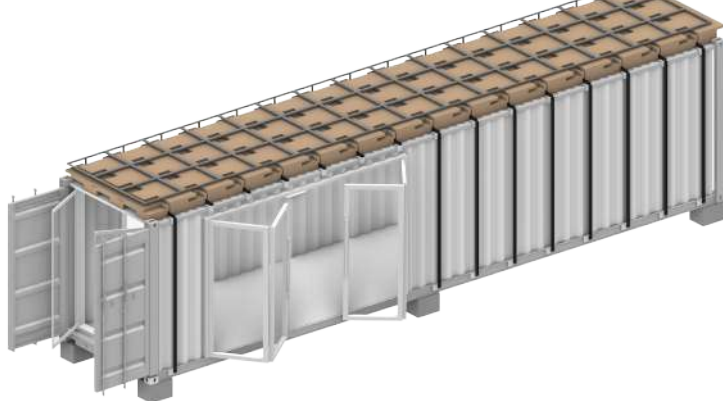
TWO UNITS OF INSULATION SLIDES INTO BASE FRAME AND UNISTRUT



EXPANDED CORK INSULATION MODULES ATTACHED

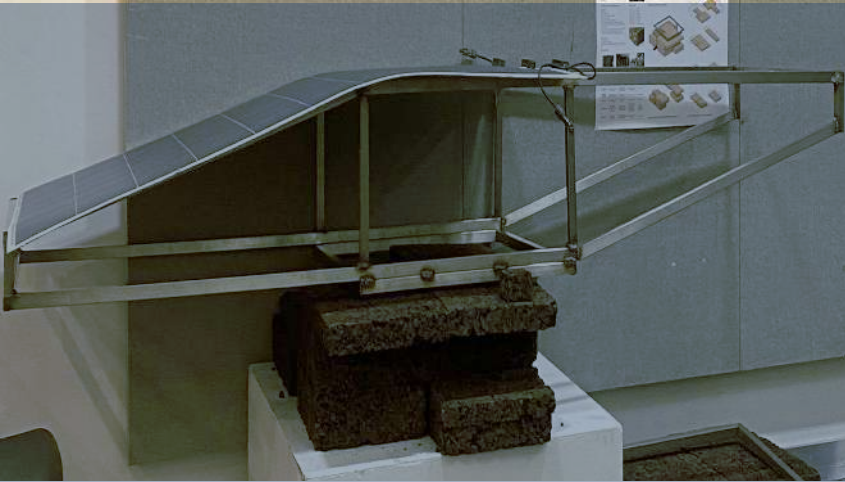


EXPANDED CORK INSULATION MODULES TOP OF THE CONTAINER

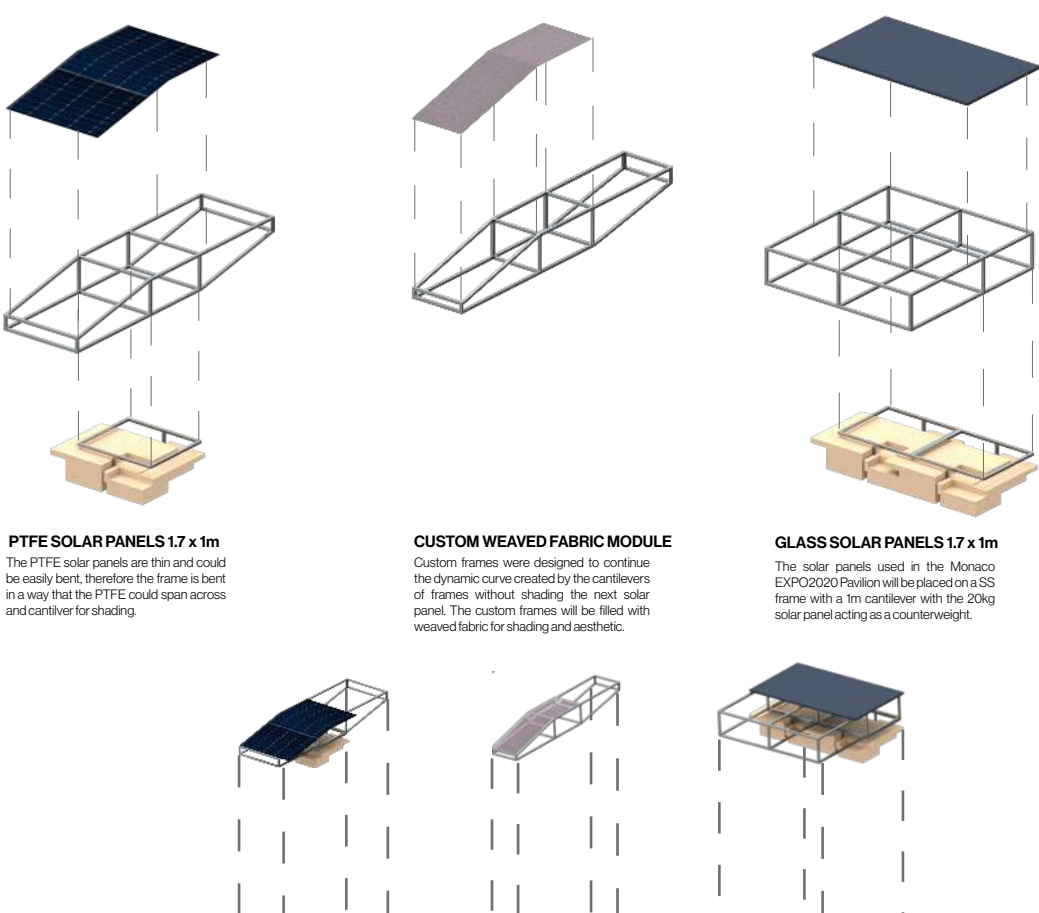
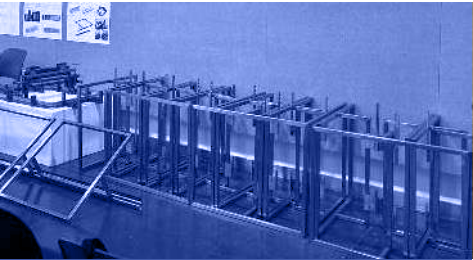


SOLAR PANEL FIXTURE

The composite panels consist of an insulation block and stainless steel frames, with three variations based on the material they support: glass solar panels, PTFE solar panels, and fabric. These frames cantilever at different angles, creating a dynamic overall curve. Additionally, the frames are supported by a base structure that holds the insulation, ensuring stability.



BASE FRAME WITH UNISTRUT MODULES

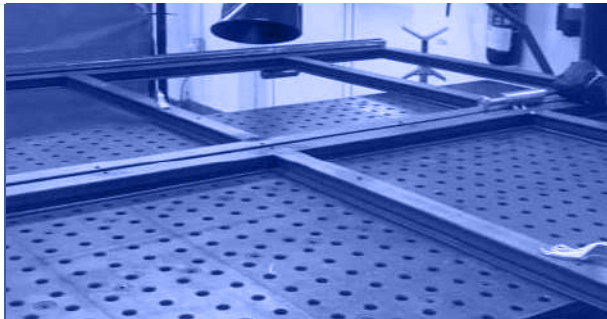


BIFOLD DOOR

Bifold doors offer a wide, unobstructed opening, ideal for connecting indoor and outdoor spaces. Constructed with metal tube and plate frames sealed with waterproofing, they feature large glass panels to maximize natural light and ensure durability.



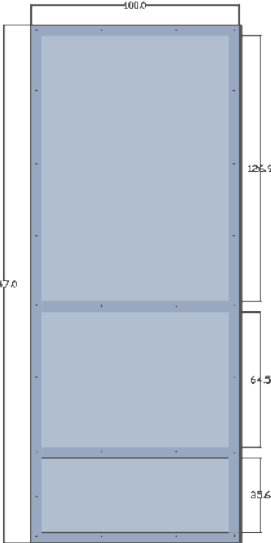
BIFOLD ASSEMBLY



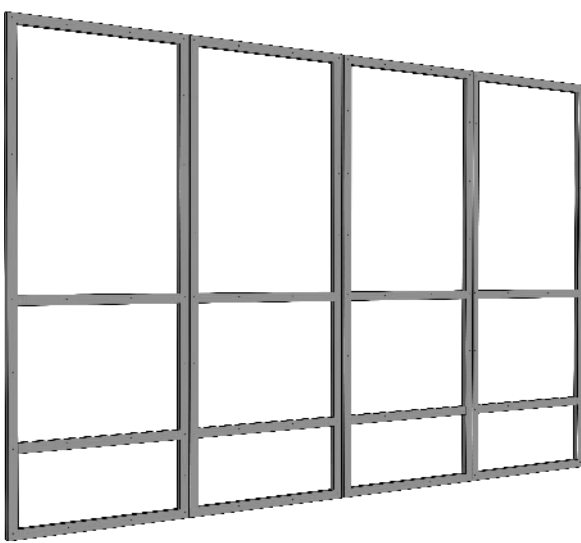
HINGE



ELEVATION



AXONOMETRIC



Collage of Architecture Extension Building

STRUCTURAL EXPLORATION PROJECT

04

THE GRAND LATTICE

Extended Design-Build Studio Prototype

Site Location - American University
of Sharjah, Collage of Architecture
Building (CAAD) Pavilion, Sharjah

Site Size - 28 sqm

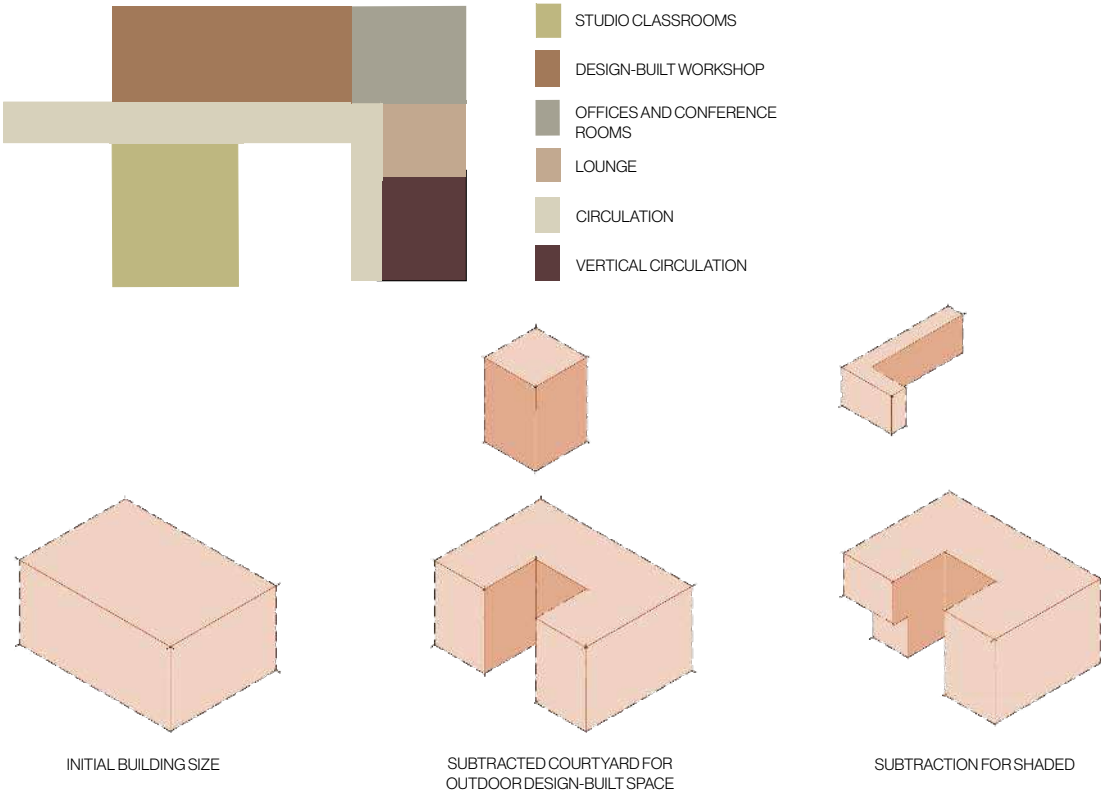
Project Engagment

3rd year project

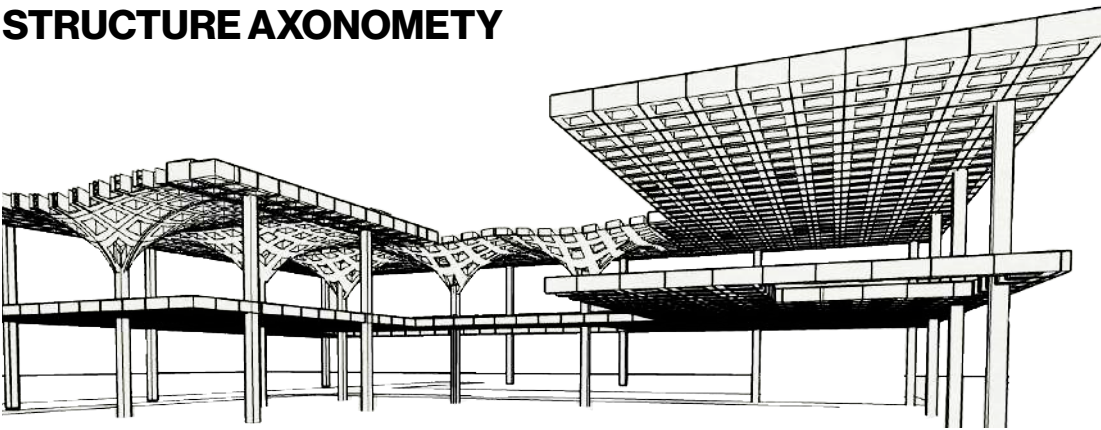
The extension building for design-build academic activities features distinctive spaces that foster a vibrant academic environment through its structural design. By utilizing a long-span waffle structural solution, it achieves a harmonious relationship between structure and spatial sequence, allowing for unobstructed movement and seamless flow between functions. The proposal includes studio spaces for two sections of 16 students, fully aligned with program requirements.



PROGRAM DIAGRAM

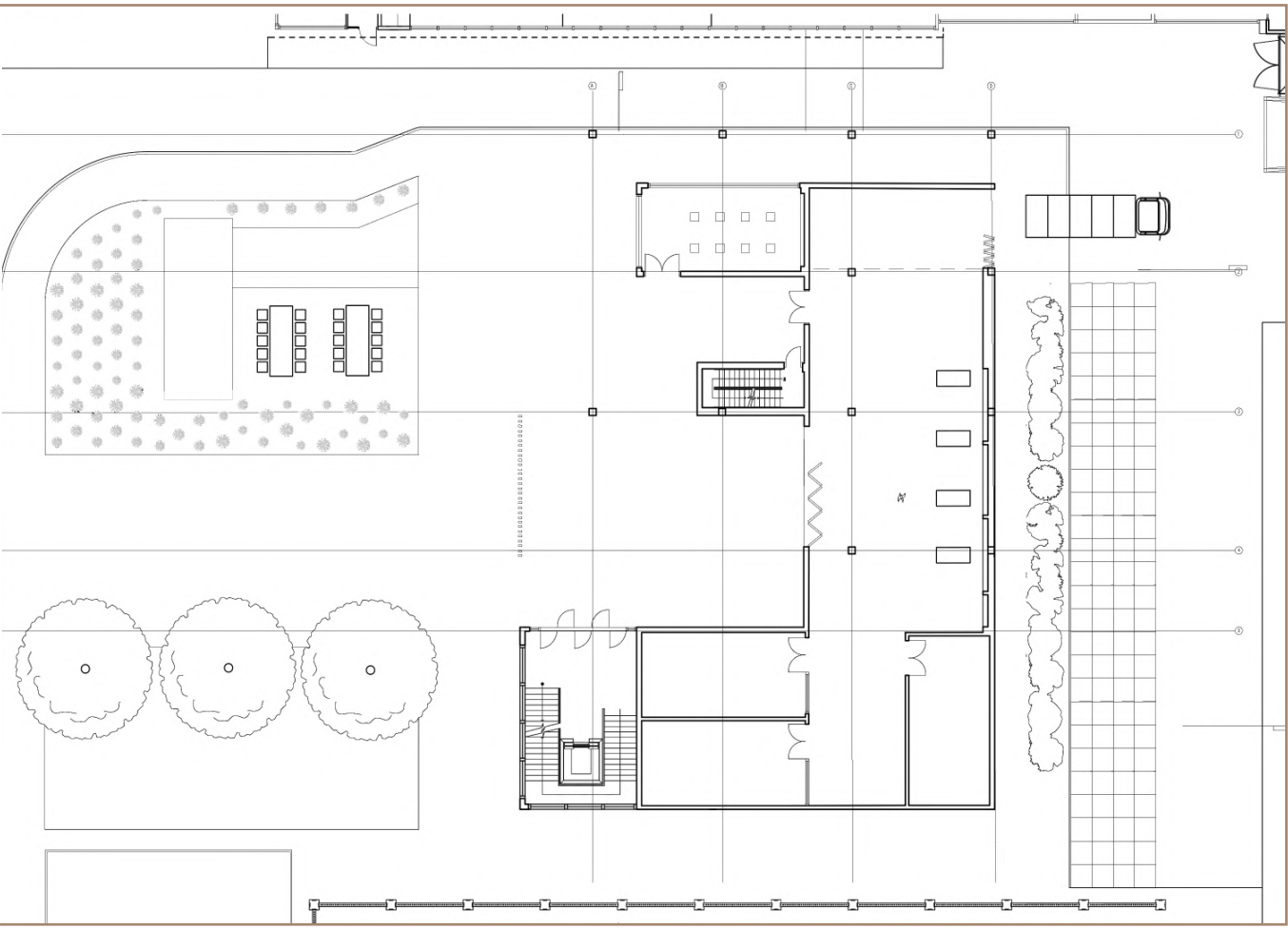


STRUCTURE AXONOMETRY



GROUND FLOOR PLAN

The ground floor follows a linear layout that promotes easy circulation, essential for students navigating with heavy materials in design-build studios. Additionally, the availability of both indoor workshops and an adaptable courtyard workspace enhances versatility, enabling students to choose the most suitable environment based on the specific needs of their projects.

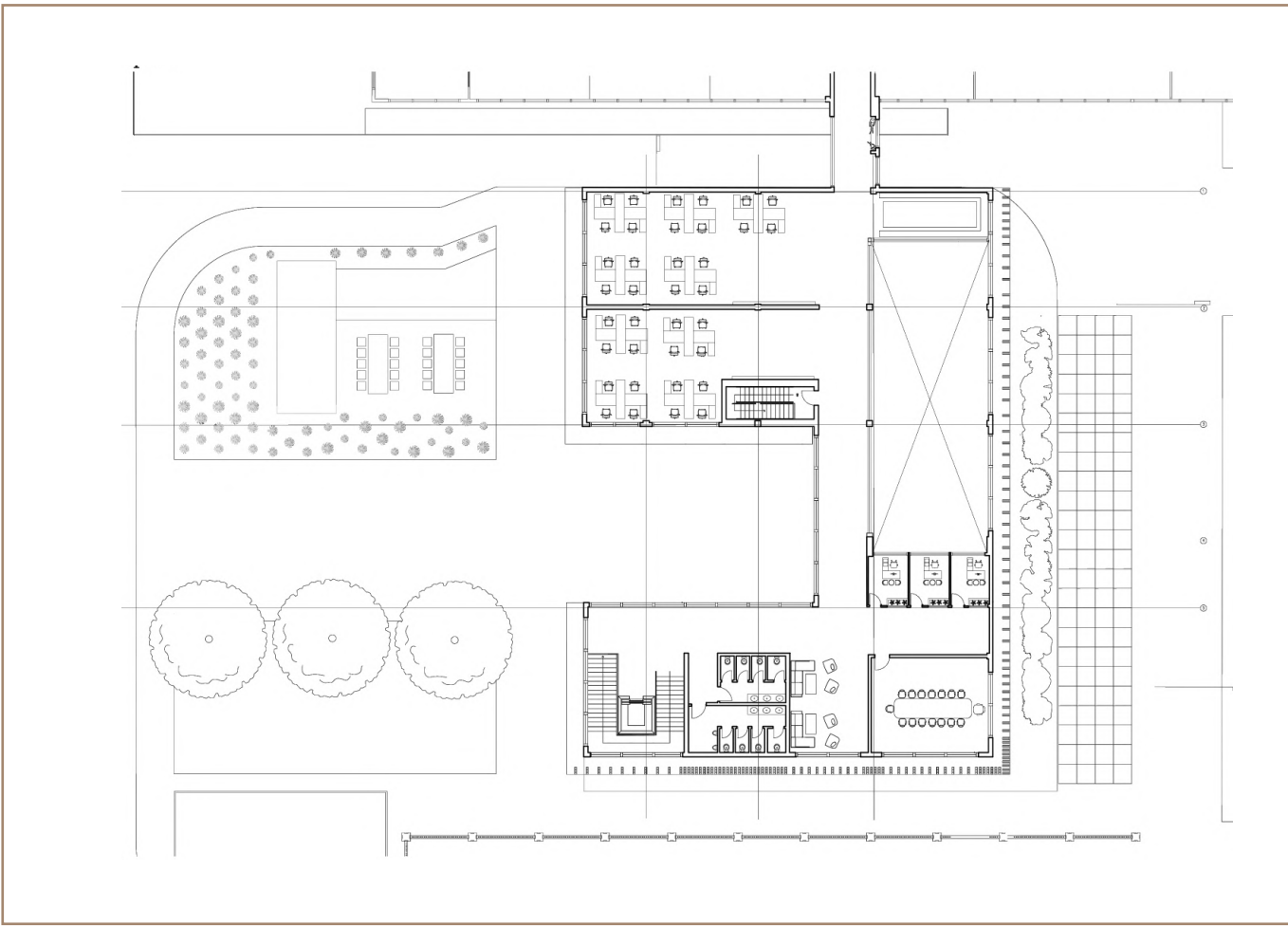


Scale: 1:150



FIRST FLOOR PLAN

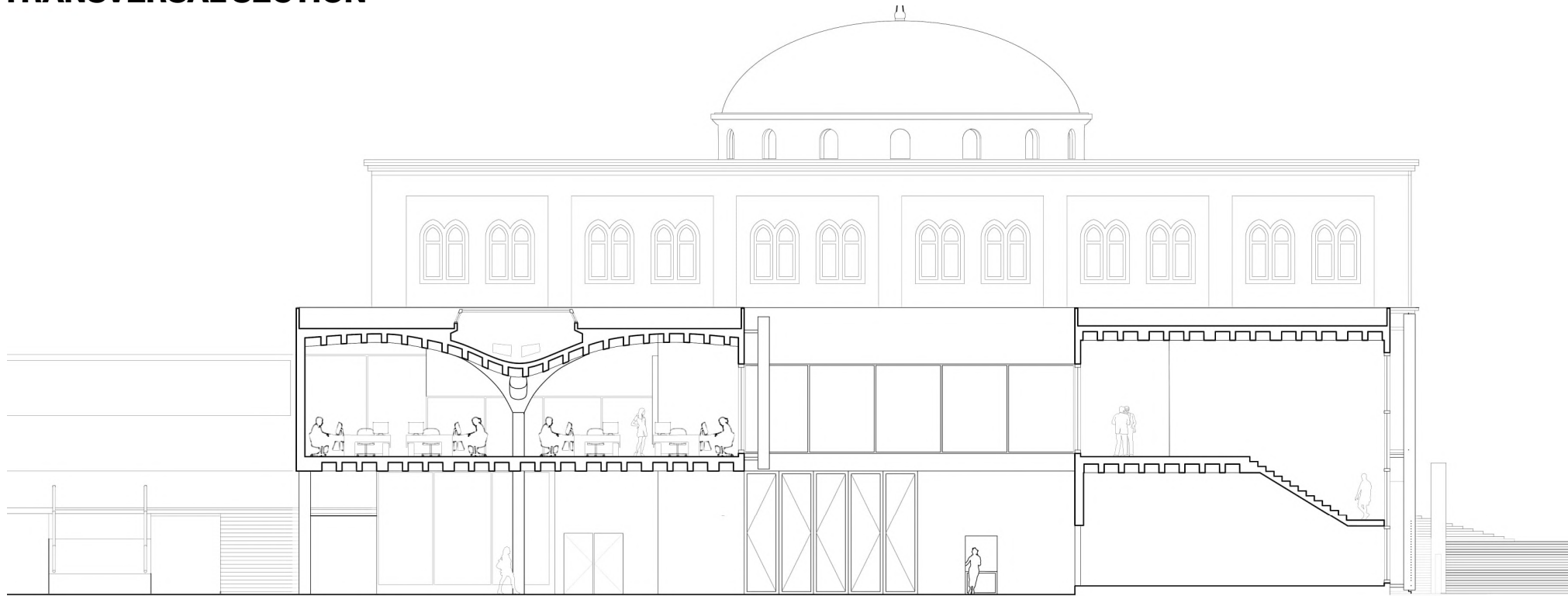
The first floor merges the existing architecture building with the new extension, seamlessly extending the studio spaces from the existing structure into the new addition. The orientation of these studios is designed to provide a panoramic view of the design-build area below, allowing both students and professors to observe ongoing projects from above.



Scale: 1:150



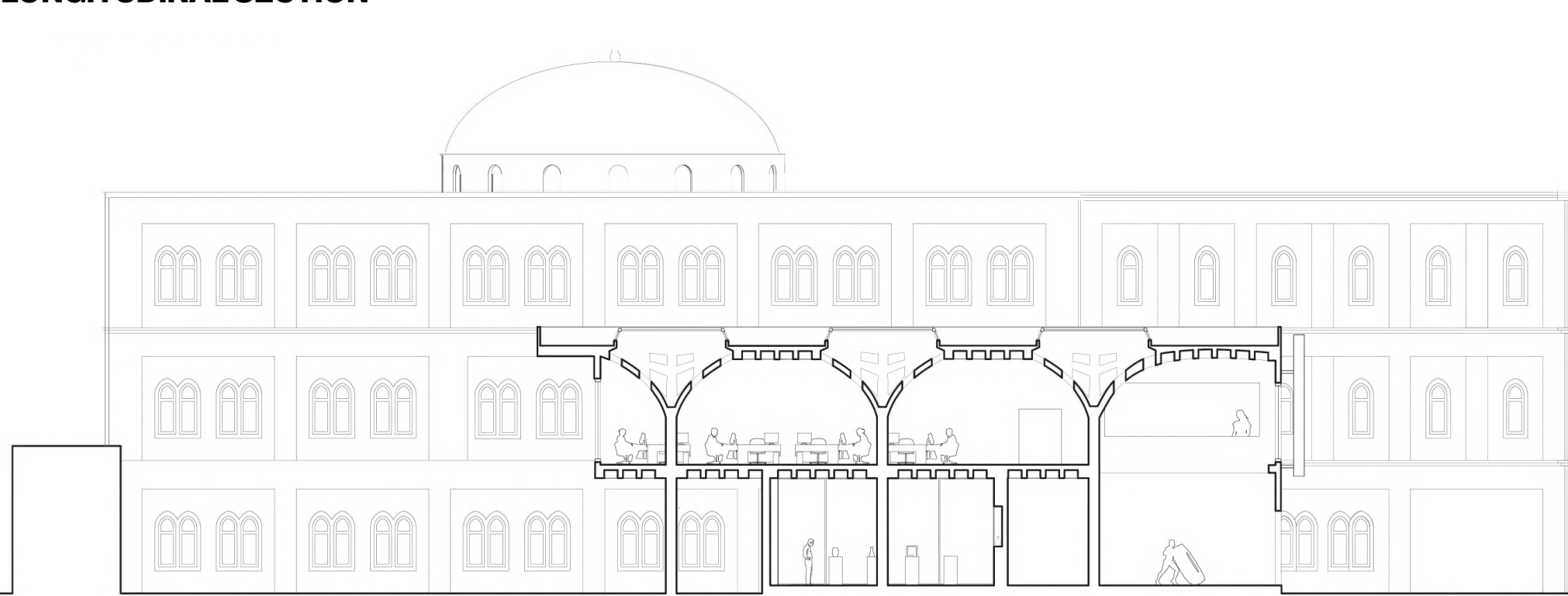
TRANSVERSAL SECTION



SECTIONAL PERSPECTIVE



LONGITUDINAL SECTION



STUDIO-A



STUDIO-B



BUILDING AREA



Floating, Stitched and Subtracted City Centers

URBAN MAPPING PROJECT

05

THE CELEBRATED DISPARITY

An Innovative urban prototype

Team member - Kanya Kansra
- Nitika Dileep

Site Location - Sharjah industrial zone 4, around Abu Sulayt Al Badri Mosque

Project Engagement

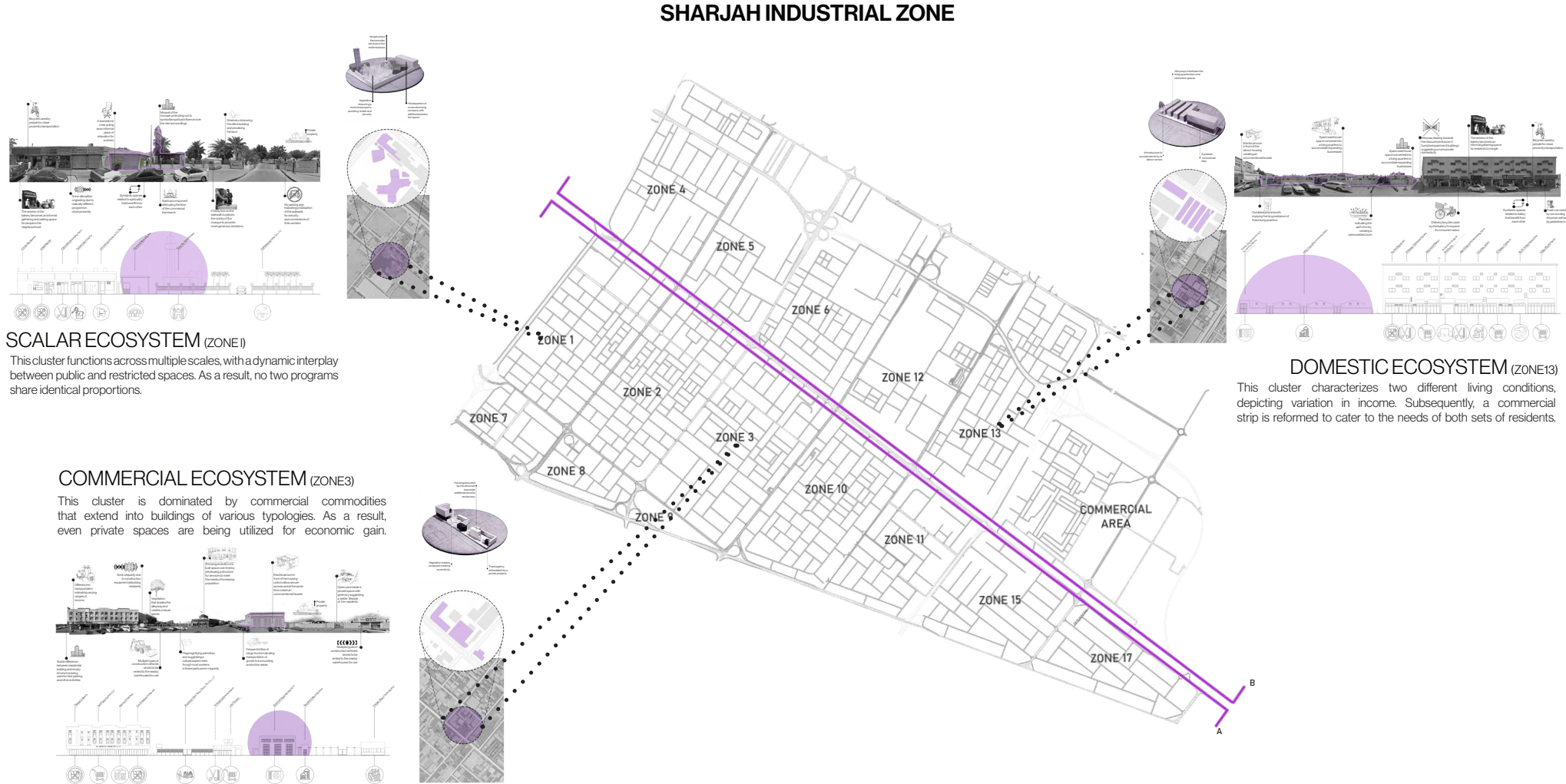
4th year project

This project explores alternative mapping methods by documenting social-environmental interactions in Sharjah's industrial areas. It introduces new volumes that integrates housing, commercial, and community center with existing infrastructure, enhancing workers' living conditions without demolition. A prototype in Industrial Area 4 adapts architectural systems of floating, stitching, and subtraction, integrating new plazas with the existing industrial infrastructure.



MAPPING DISPRATE ADJECENCIES

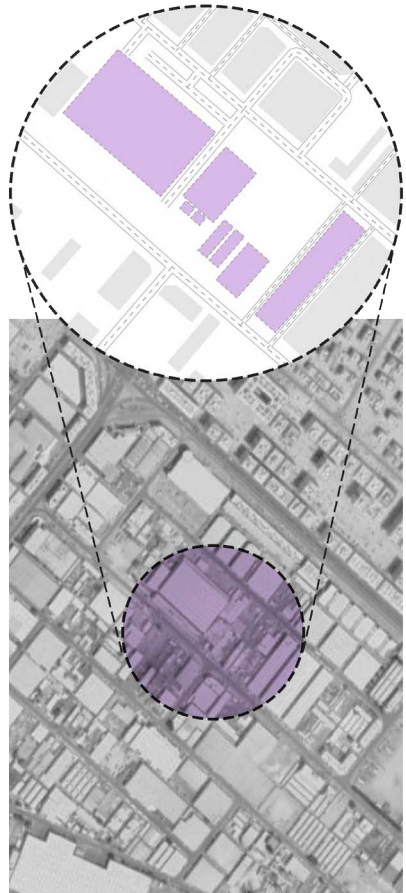
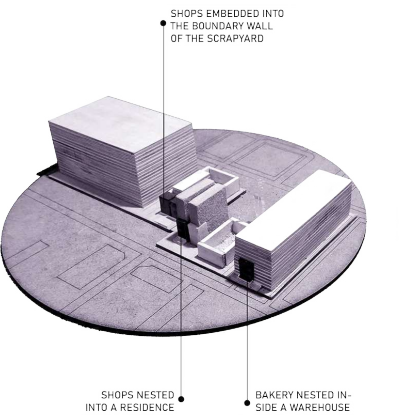
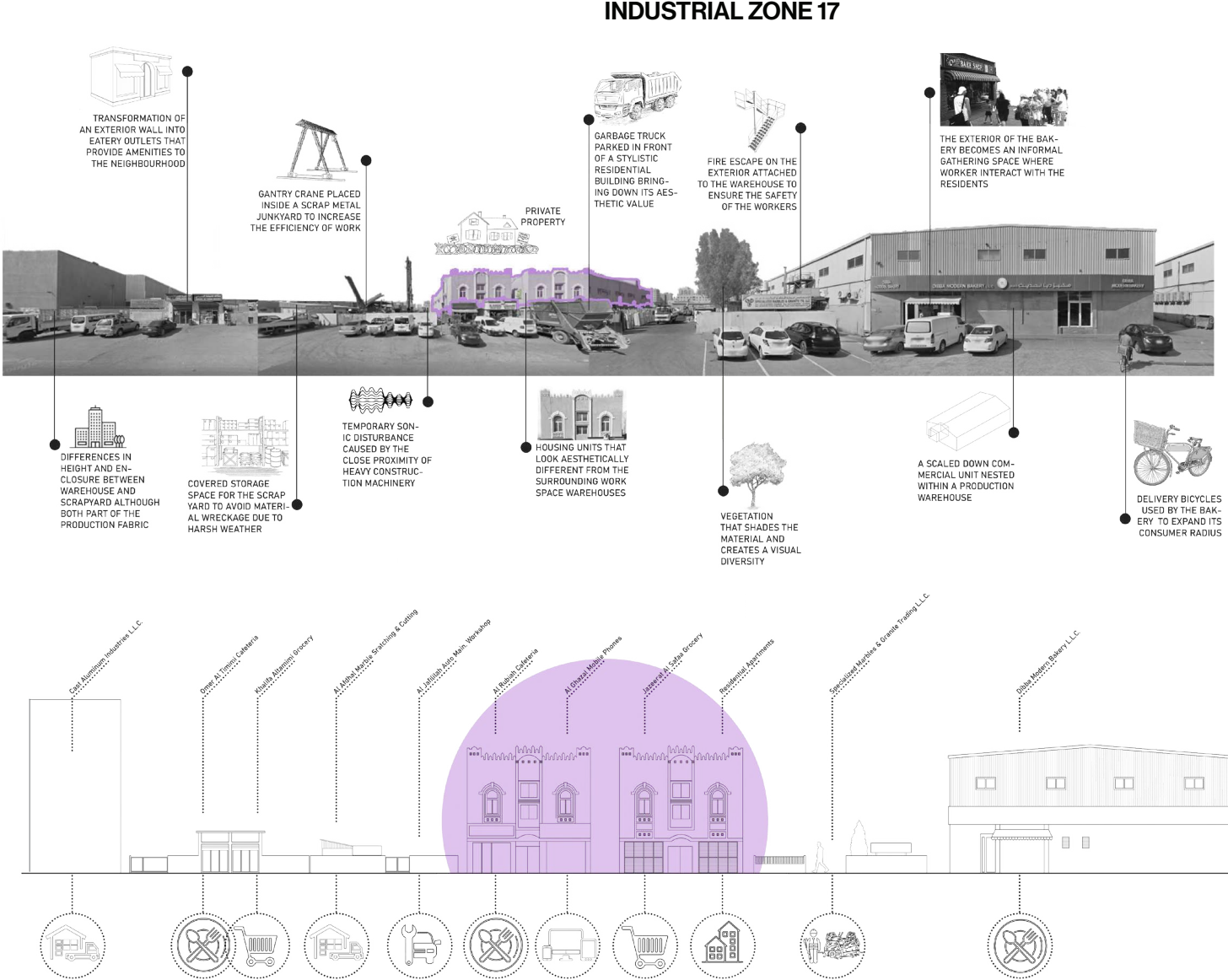
Mapping the industrial zone reveals recurring disprate adjecencies driven by the need for housing, food, and commodities, which weren't part of the original setup. For example, the nested cluster, primarily a production strip, integrates retail and domestic spaces, like a bakery within an industrial building, resulting in overlapping programmatic elements.

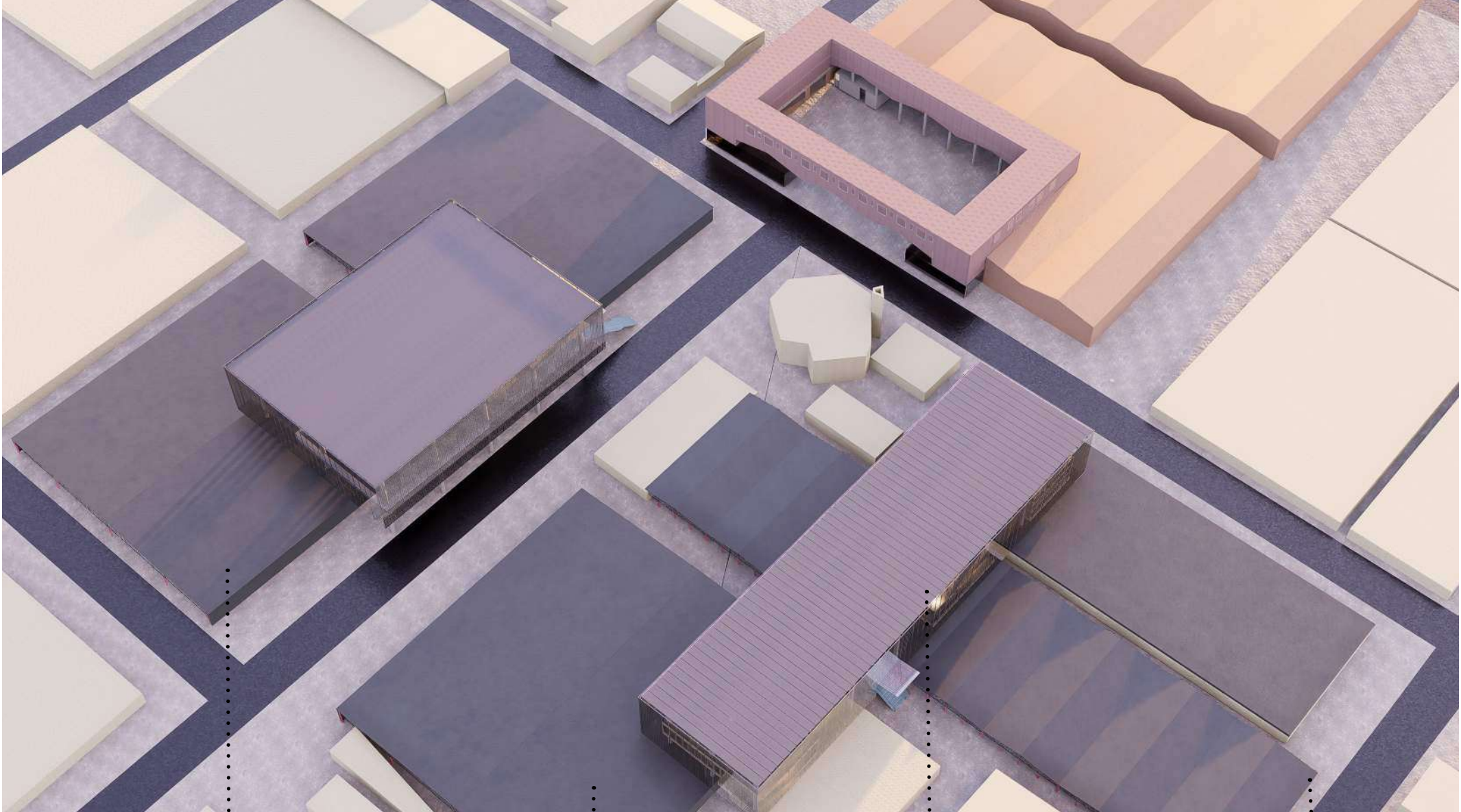


SECTION-A

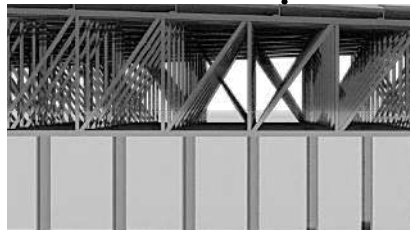


NESTED ECO-SYSTEM





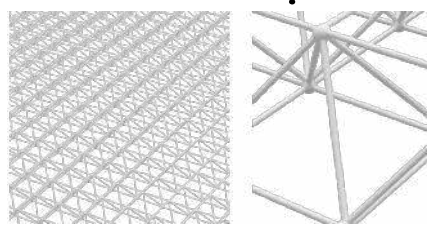
Long-span truss system



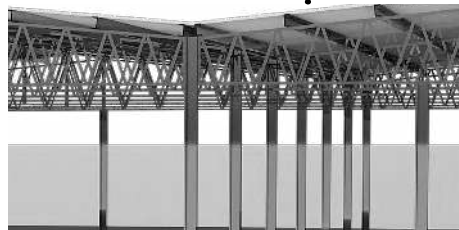
Flat surface truss system



New space truss system

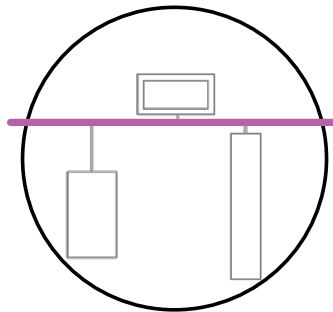


Consecutive truss system

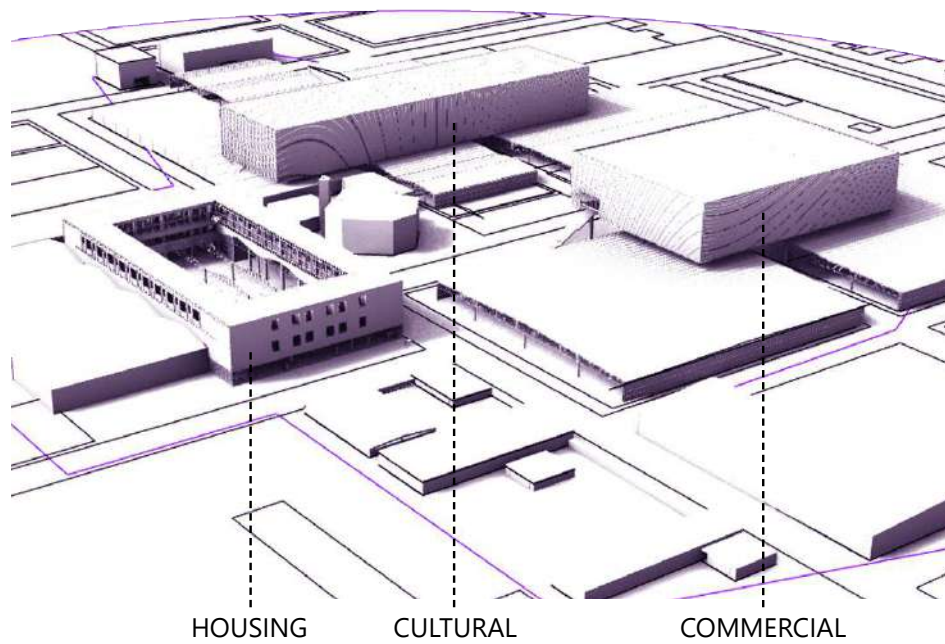
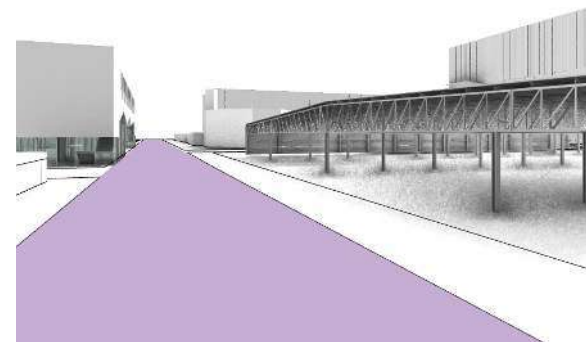


CONCEPTUAL PROPOSALS

To enhance the existing industrial ecosystem, new and diverse features are introduced to support adaptive reuse and provide access to programs that are often lacking in such areas, including recreational, commercial, and housing spaces. These three new building components branch from the original structure, following an architectural system of floating, stitching, and subtraction. This approach creates a more dynamic environment that embraces the integration of new structures within the existing framework, celebrating thoughtful urbanization without demolition.



Datum that connects to the entry of the three new volumes as well as the overall network of the urban scale



HOUSING

CULTURAL

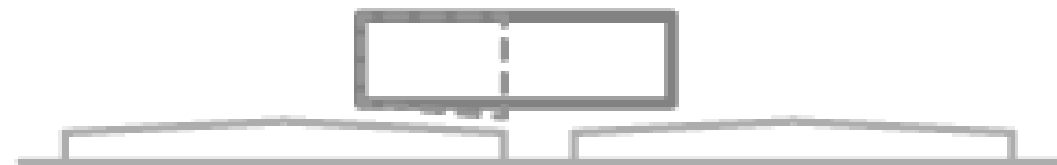
COMMERCIAL



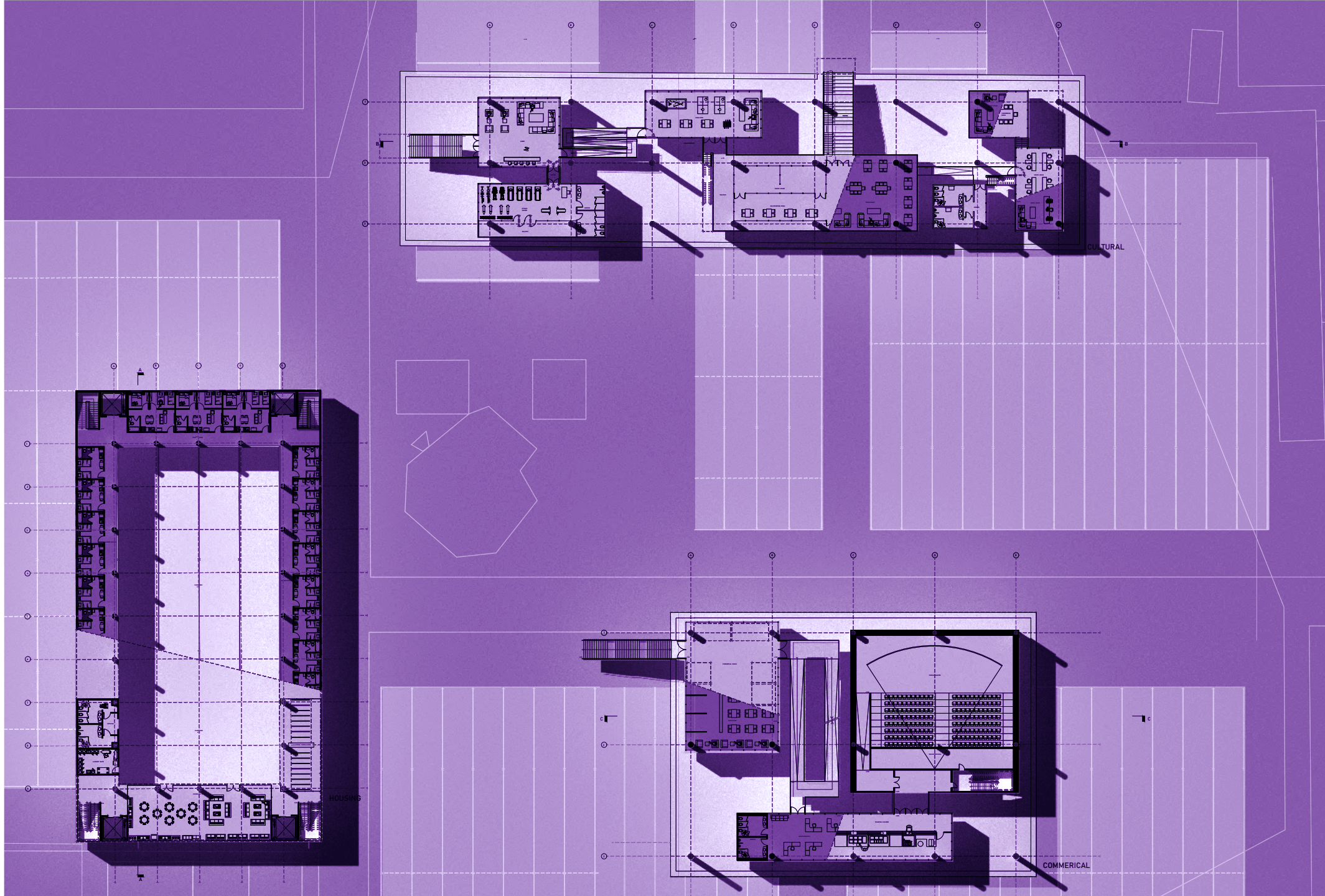
Housing Volume Biting Into The Existing Warehouses



Cultural Volume Stitching Different Types Of Production Spaces



Commercial Volume Sitting In Between Two Similar Production Spaces

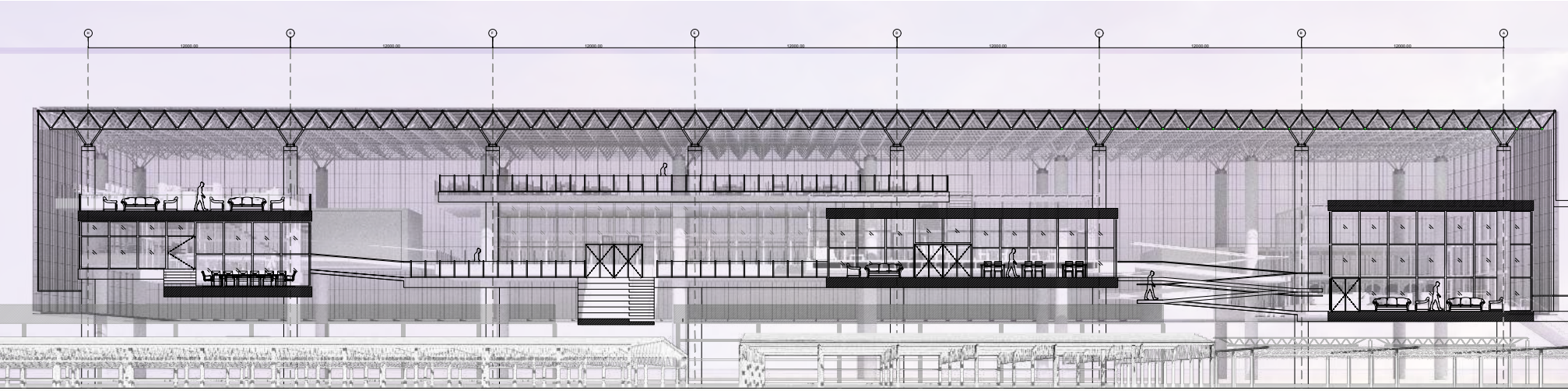


PLANS FOR NEW BUILDINGS

COMMUNITY CENTER SECTION AND SECTIONAL PERSPECTIVE

CULTURAL ZONE

This community center features a series of exploratory spaces with cubicles suspended on columns and enclosed in glass to maintain a lightweight appearance. The cubicles are connected by stairs and ramps, all covered by an external structure that blurs the boundaries between indoor and outdoor spaces, creating a fluid and open environment for exploration and interaction.



ENTRANCE

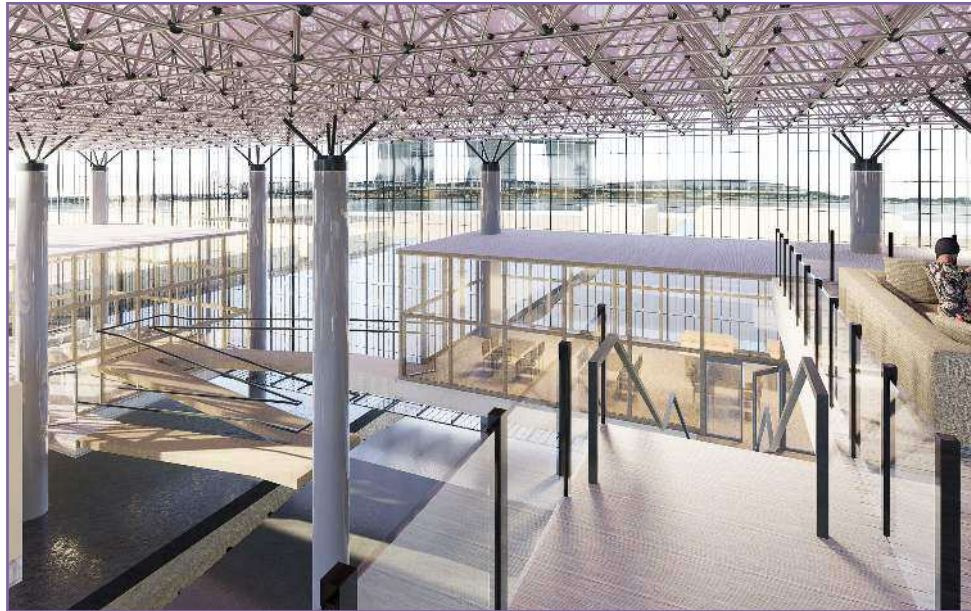


EXCERCISE EQUIPMENTS

CAFE AND LOUNGE



STAIRWAY AND RAMP CIRCULATIONS



MULTI-PURPOSE ROOMS

OFFICE AND STUDY AREAS

