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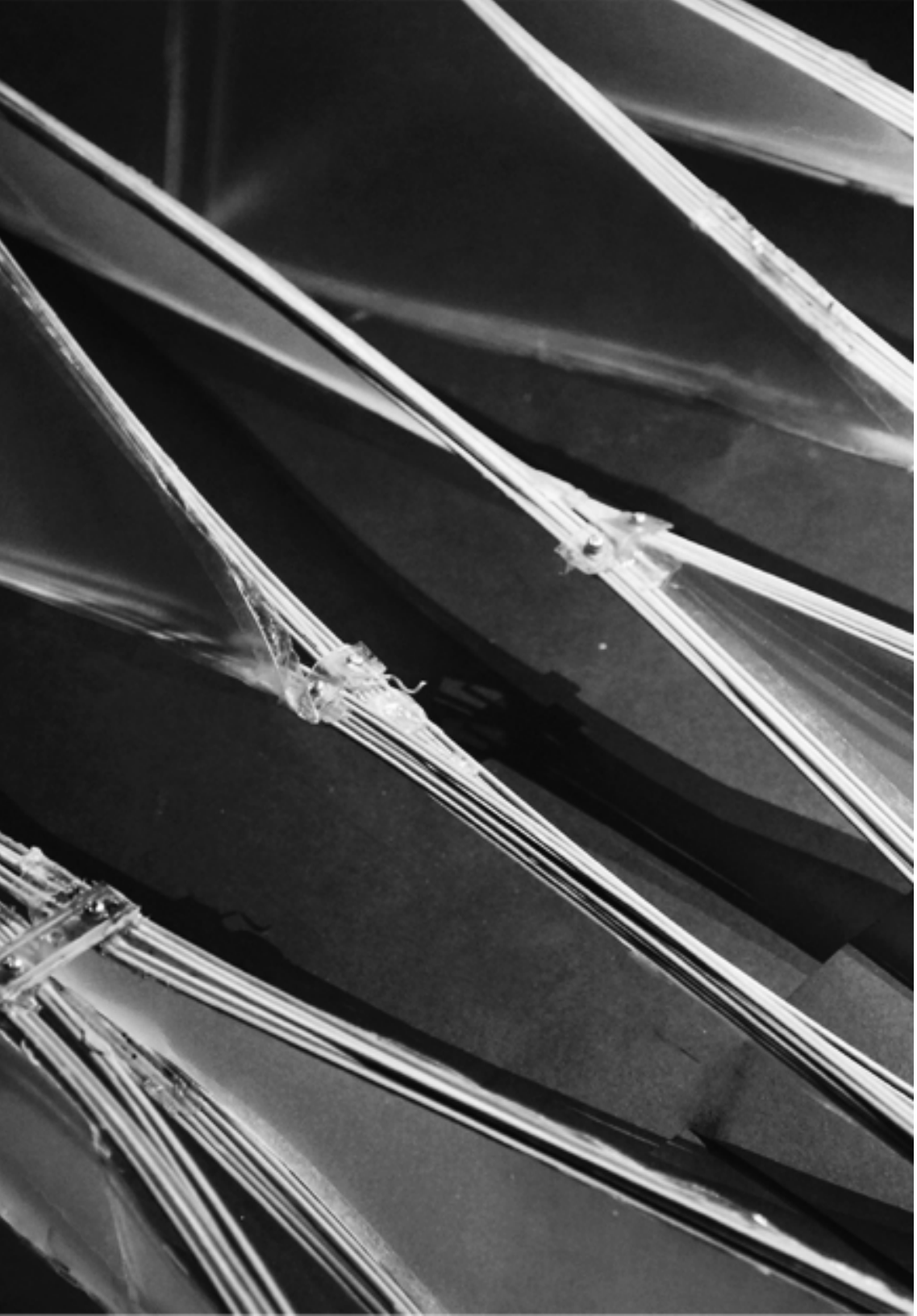
PORTFOLIO OF JIAJUN CHEN

Selected Works 2012-2019



CONTENTS

PROJECT 01

NEVER ALONE

PROJECT TYPE: ACADEMIC PROJECT | INDIVIDUAL WORK
SITE: ZHOUSHAN, CHINA
TIME: 2015. 11

NURSING HOME DESIGN FOCUSING ON INFORMATION EXCHANGE

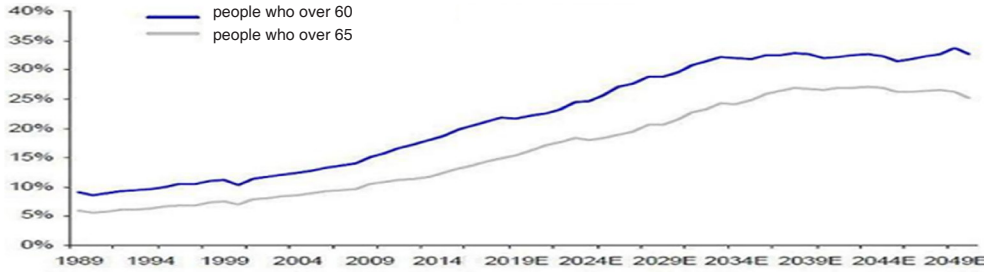
Nowadays, the aging problem is becoming increasingly serious, more and more old people are sent to the nursing home. The boring atmosphere cut off the elder people from the outside world. In order to solve this problem, This project designs a nursing home which focuses on its information exchange.

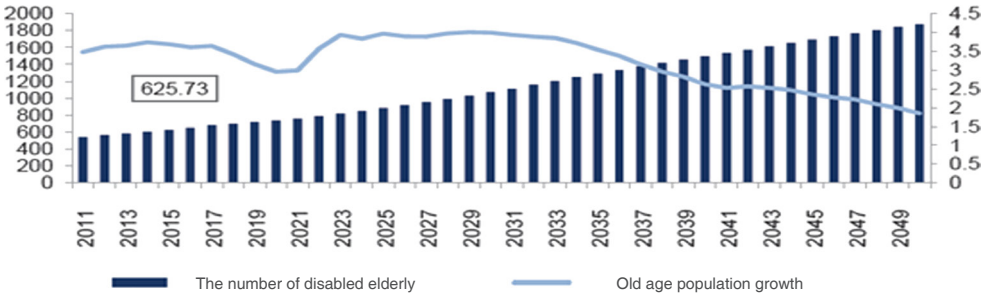
UNACCOMPANIED

HOMELESS

SPIRITUAL EMPTINESS

THE TREND OF AGING SOCIETY



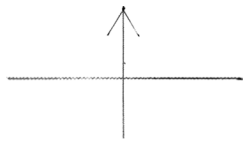


The first table above shows the estimated proportion of the elderly aged between 60 and65 in 1989-2023. By 2029 it probably will account for more than 30% of the population.
The second table above shows the number and growth rate of the disabled elderly, which continues to grow at an accelerating rate.

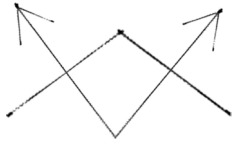
LOCATION

The site is selected in a peninsula in Zhoushan, Zhejiang, China, subtropical monsoon climate; plenty of rainfall and light, temperature is moderate.

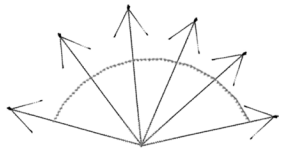
With the surrounding sea and sandy beaches, beautiful scenery, it is suitable for the elderly to live. A road and a small wharf are set to connect the mainland and transport goods.



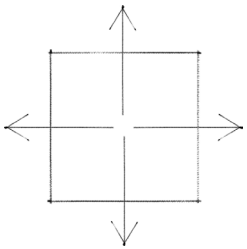
Of the same perimeter, a straight line provides vision in a single direction.



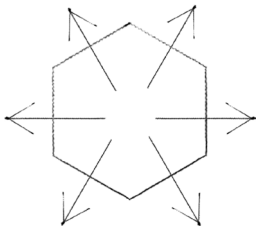
Under the same circumstance, a bent line provides visions in multiple directions.



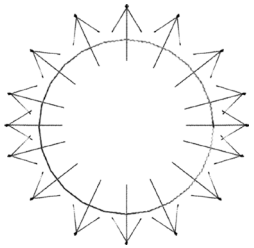
If the straight line is divided into numerous curves and form a circular arc and it can provide visions in all directions from the arc.



Similarly, a square enclosed space can only provide visions in four directions.



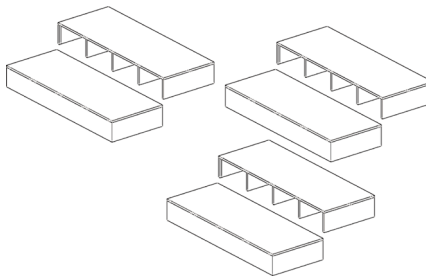
Hexagon is able to provide information exchange from six directions.



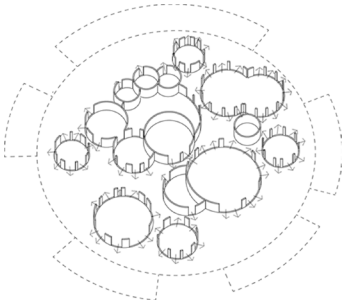
While a circular space can provide visions in all directions.

Normally, the elderly is extremely afraid of loneliness and eager to receive more information. So this project adopts a circular design, which enables the old people in the nursing home to interact with other outside world better.

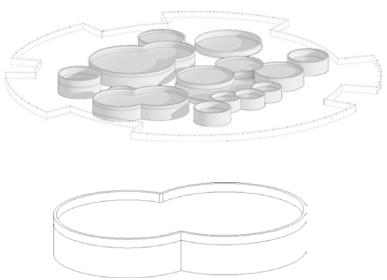
The design allows people to go up to the roof and a large number of vegetation and activity space are set up to ensure the elderly's demand for sunlight. In addition, the outer round contours of the dormitory area form a natural view platform.



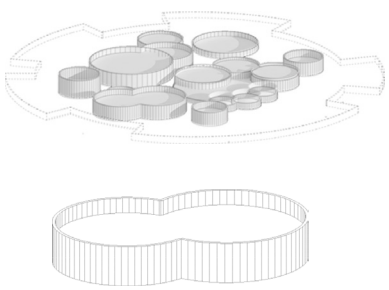
The traditional settings of the nursing home often form enclosed space, The streamline is too long so the users can not receive the outside information in all directions, which is bad for the old's people mental health.



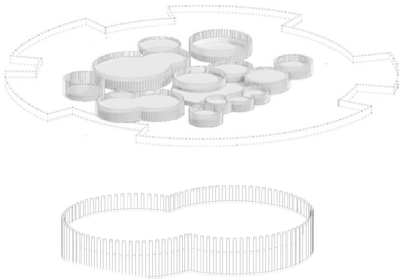
This project adopted circular inter-cross pattern. The streamline is short, sleek and interesting. In addition, a large area of glass in the circular envelope structure is more conducive to the information interaction. Therefore could meet the psychological needs of the elderly.



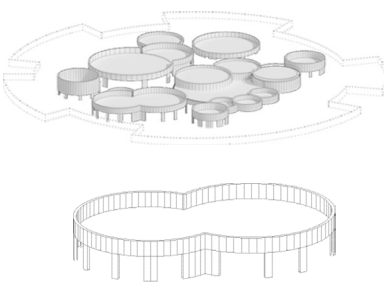
With the cylinders in several function spaces bearing weight, the outer wall only acted as a retaining structure.



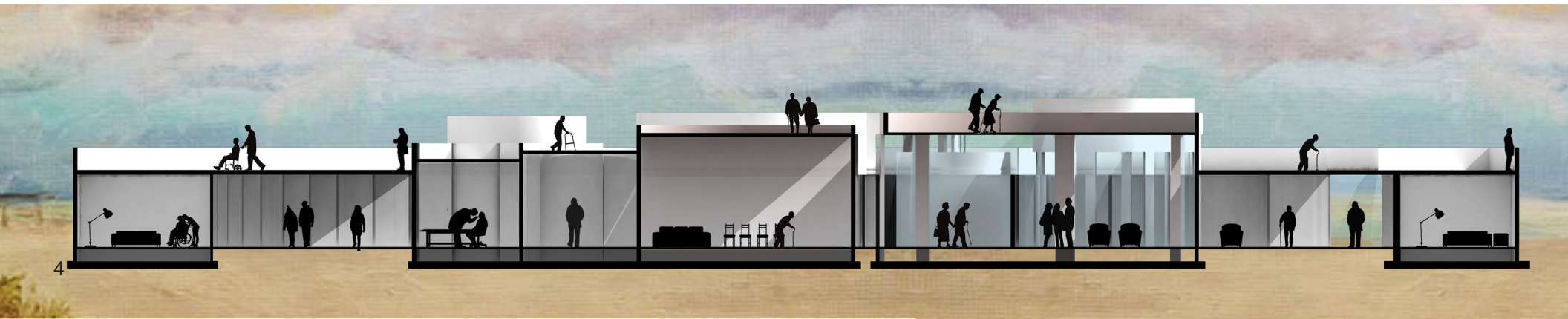
Split the weight bearing cylinder into various parts and each part is being stressed uniformly.



All the walls are considered as a shear wall and became load-bearing columns. It is equal to the structure that the columns, arranged in a circle, bear the weight of the floor.



The actual architectural structure: Some of the load-bearing columns are used as a lighting surface while the rest columns are actual weight bearing structures.



PROJECT 02

DISTORTED PAVILION

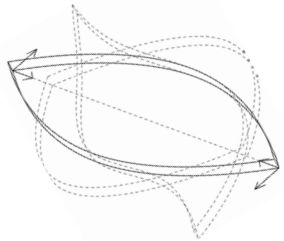
PROJECT TYPE: ACADEMIC PROJECT | INDIVIDUAL WORK
HAND-MADE
TIME: 2016. 07

INTEGRATED TENSILE MODEL CONSTRUCTION BASED ON BENT BEAM SYSTEM

This project takes bamboo cane to simulate situation of different spaces and different combinations of basic models when beam bended under different stress.

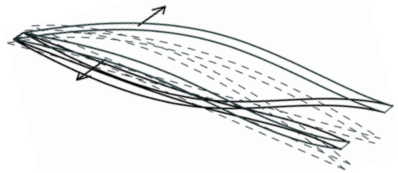
MOTIF THEORY

Connecting bamboo cane in both ends and press them. Different force amounts cause different changes. This project is taking on this theory.



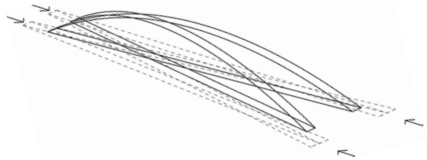
BASIC CONSTRUCTION I

Cross-connect the four bamboo canes as in the figure; press them in both ends, changes happen in construction. This is what we call basic construction I.



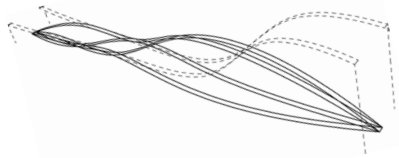
BASIC CONSTRUCTION II

Connect the four bamboo canes in one end as in figure; press the other side as opposite with horizontal direction. The final construction is what we call basic construction II.



BASIC STRUCTURE

Combine the basic construction I and II, connect them in one point. This forms the basic structure of this project.



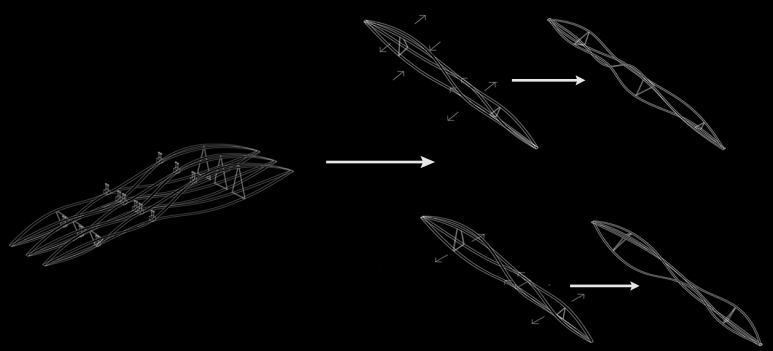
The horizontai force provided by a triangular bracket

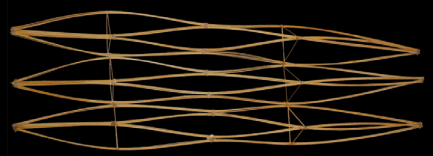
All fixed point in the construction is fixed by screws

SHAPE CHANGE

Set three basic structures, create new space, generates the basic figure. Pick two basic structures, connect them in one set point and press them to new changes thus creating new spaces and possibility, generating the final construction pattern.

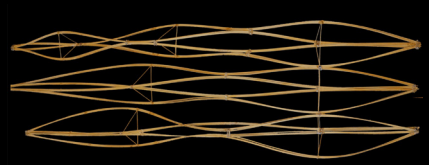
DETAIL OF SHAPE CHANGE:





BASIC FIGURE MODEL

As we can see, the new basic figure model is fluency in construction and with new space between basic structures. While the same basic structures created the same space, thus the whole construction is lacking of interesting in space.



SHAPE CHANGE FIGURE MODEL

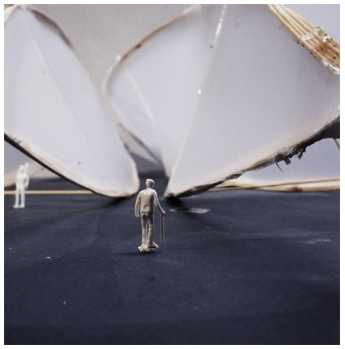
More shape changes are created in not only the whole construction but between each two structures.

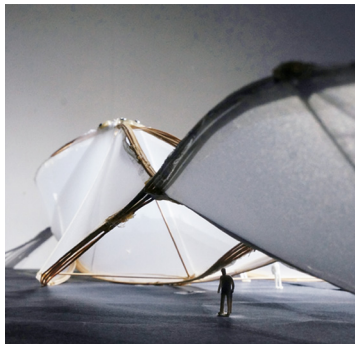
HANDCRAFT MODEL

Constructed by bamboo cane, fixed by screws, bamboo pole in the middle supports as the horizontal force. PVC paper and bamboo pole simulated the glass screen wall.

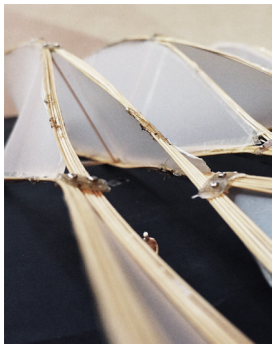
PRODUCTION PROCESS:

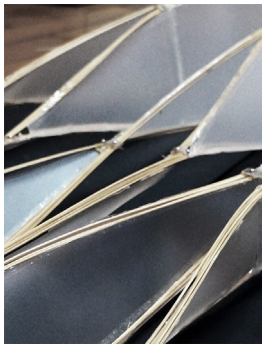
THE SPACE AND SHADOW AS HUMANS VIEW





THE CONNECTION METHODS AND DETAILS





PROJECT 03

ADAPTATION

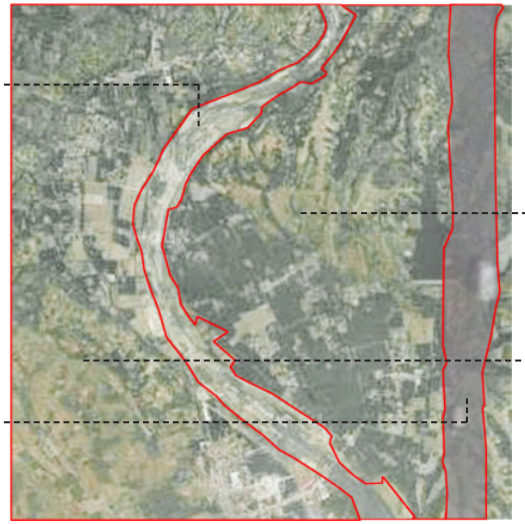
PROJECT TYPE: ACADEMIC PROJECT | INDIVIDUAL WORK
SITE: HANGZHOU, CHINA
TIME: 2014. 12

A TRANSFORMED SMALL HOUSE ON LIMITED FIELD

Small space, polluted surroundings, a polluted river flew through the space near the main road. This project aims to maximize the use of the field and build a comfortable small house.

polluted river

country road

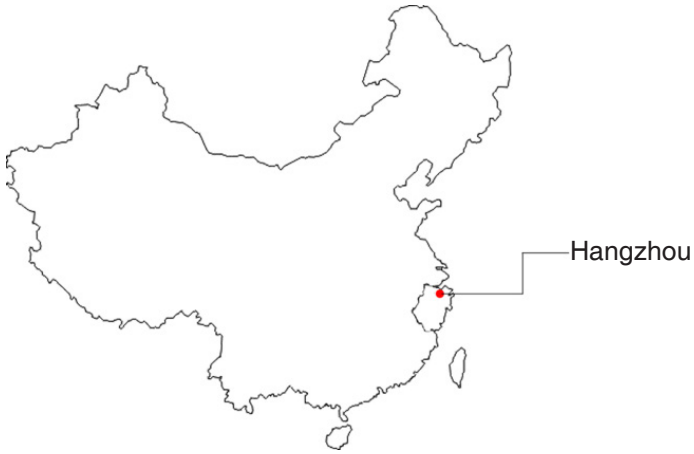


hill

barren land

LOCATION

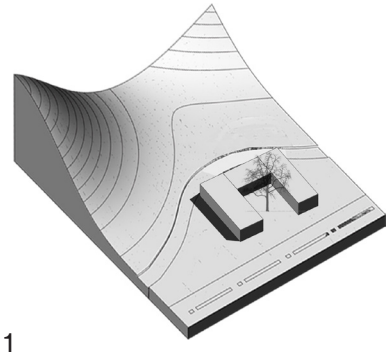
The site is designed on flat land, outskirts of Hangzhou. The surrounding environment is pleasant. There is a polluted river is nearby. There are two hills in the west. The main road is in the east of the site.



The site is selected in Hangzhou, Zhejiang, China
Subtropical monsoon climate: ample heat, plenty of rainfall.

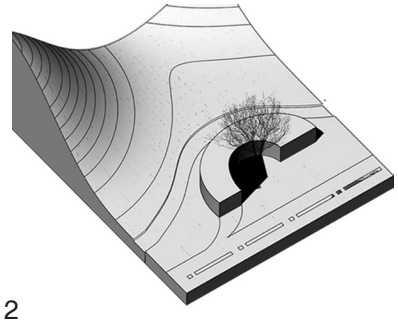
TERRAIN FEATURE:

has a lot of hills and plains, flat and many rivers flew through.



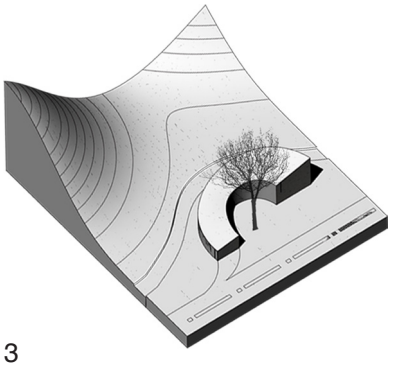
1

For the purpose of protect banyan tree in the middle, the house was set as the three - section compound.



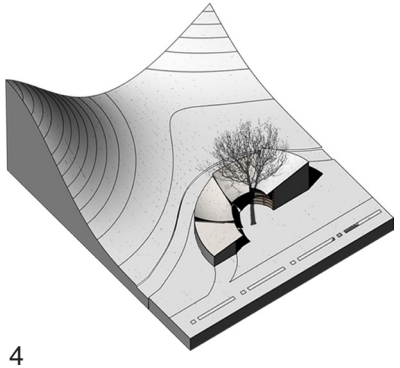
2

As the river to the west is close to a complete arc, the three section compound is transformed into a semicircle, still around the banyan tree.



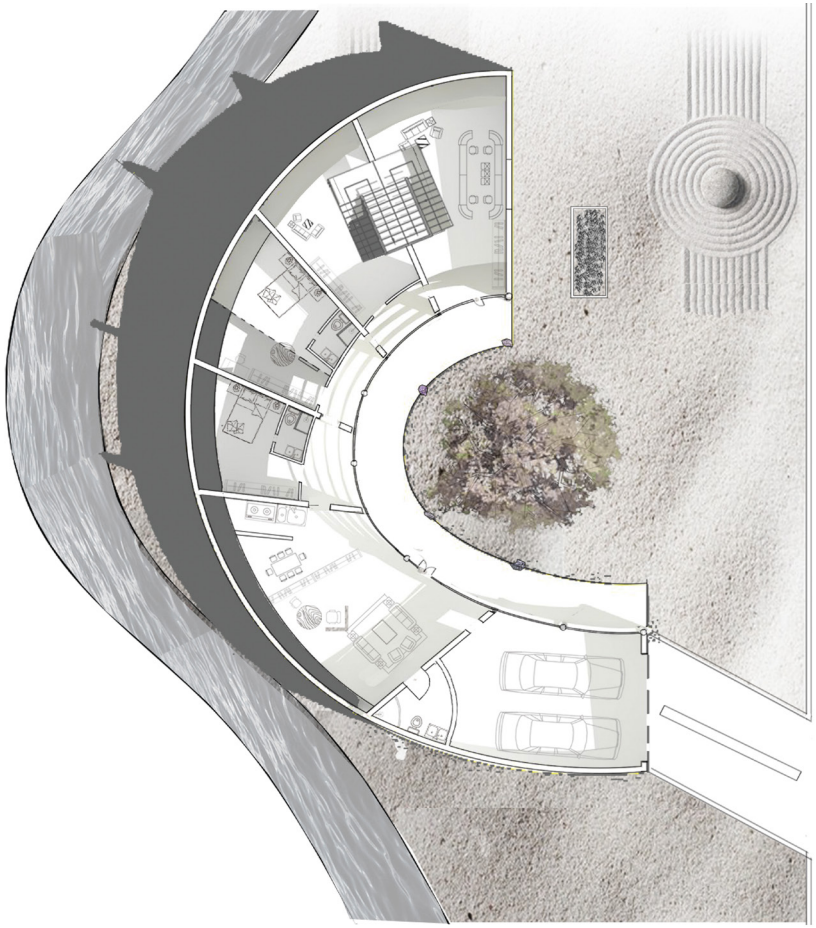
3

As the river to the west is close to a complete arc, the three section compound is transformed into a semicircle, still around the banyan tree.

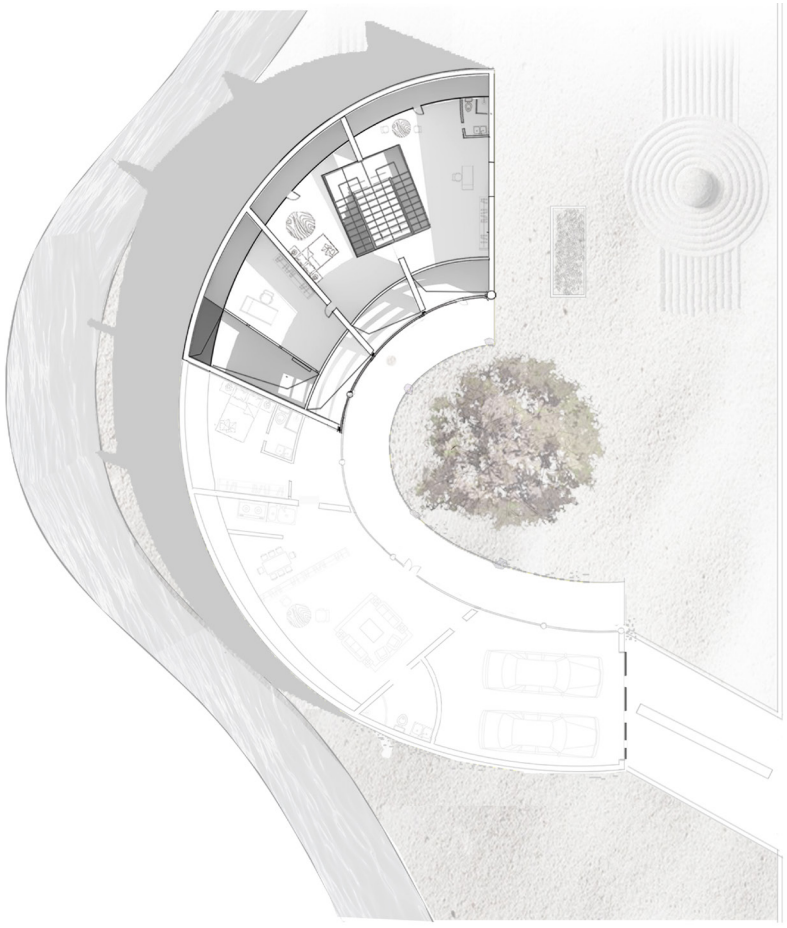


4

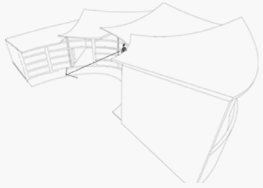
The drainage points on hyperbolic roof slope are dispersed, so four rolled up parts are set on the roof. The lowest point on each roof is the drain point.



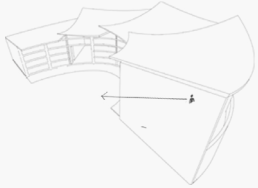
FIRST FLOOR PLAN



SECOND FLOOR PLAN

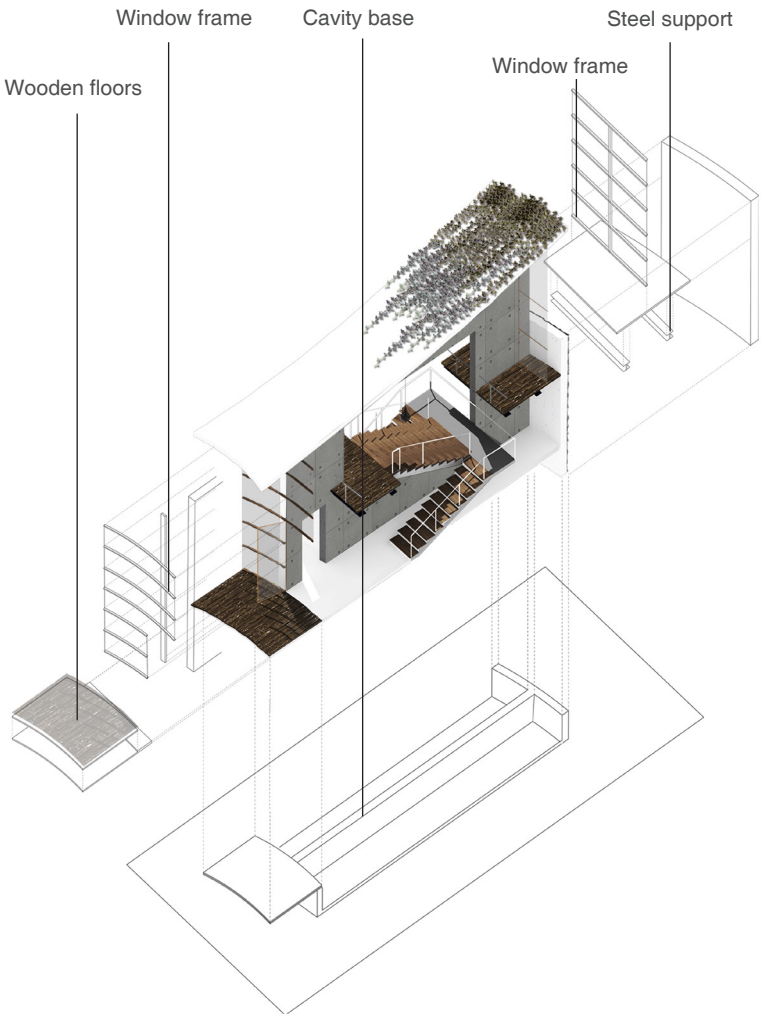


The site adopted Japanese drying landscape style. A stone is placed under the lowest point of each eaves to hold the rainwater. No window is set in the west side of the first floor.



Master bedroom, second lie and the studio take up two floors. The master bedroom and the studio are interconnected on the second floor.

The bare concrete wall bears the weight of the roof. Due to the polluted river, no window is set in the west side of the first floor and a high window is set up on the second floor, which can effectively reduce the unsightly scenery.



The fundamental parts adopted the cavity structure. Raised floor design can effectively segregate the wet soil.

PROJECT 04

FLEXIBLE MARKET

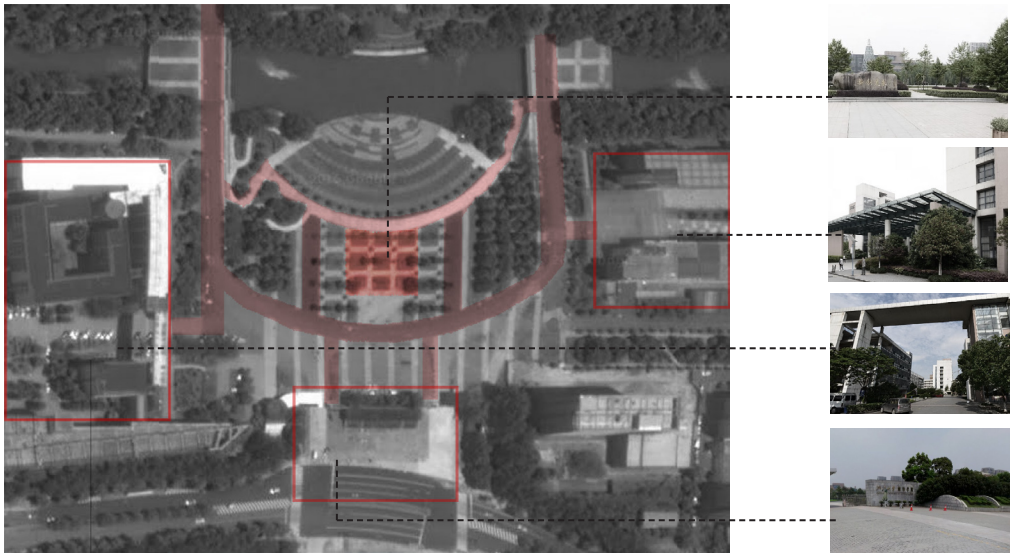
PROJECT TYPE: ACADEMIC PROJECT | INDIVIDUAL WORK
SITE: HANGZHOU, CHINA
TIME: 2015. 03

SELF-ASSEMBLE DESIGN BUILT ON STANDARD UNITS

The project is to design a simple- assembling market in the campus. I aim to maximize the use of the field as well as control the construction cost and protect the site. The flea market was formed by simple unit combined with activity center.

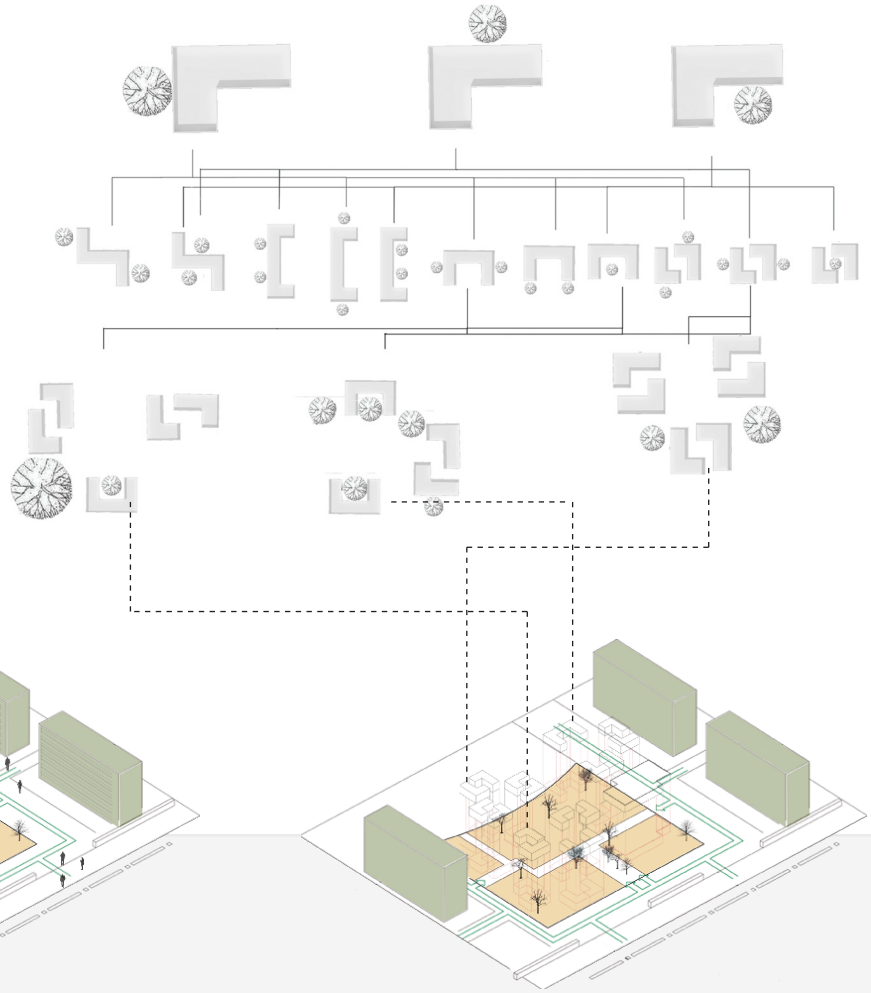
CURRENT SITUATION

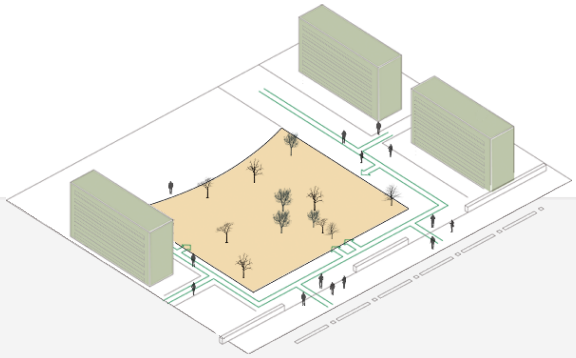
Selected in my university campus, it is a very crowded area. The teaching building in the east-west direction, the main gate is in the south to north direction. To the north side is the grassland. The site itself was on the grassland, which scattered some trees.



COMBINATION TYPE

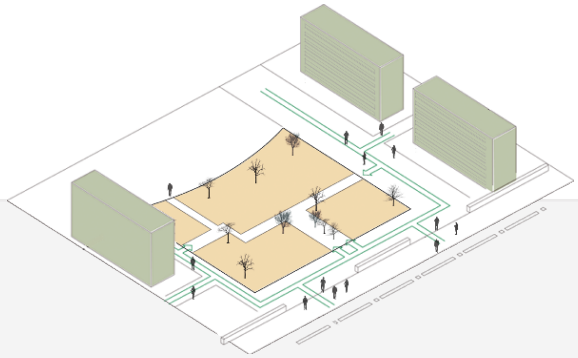
Each simple shop unit is set as “L”, which can combine with the trees or other shop unites. According to the location of the trees in the site, we selected three square-style combinations.





STREAM SURVEY:

The main gate is the first place, and then comes the teaching building. Only a small number of people go to the grassland on the north side.

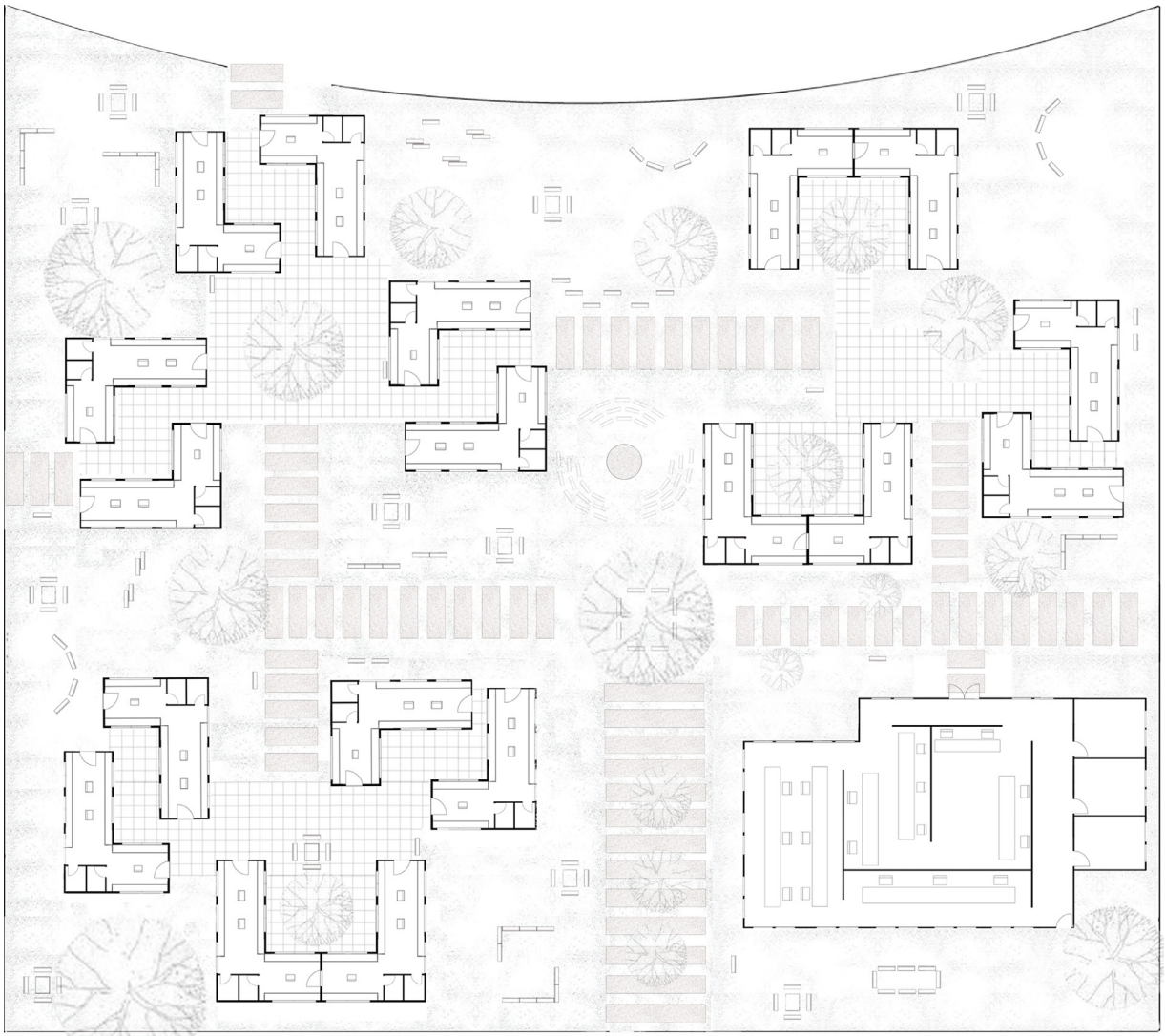


ENTRANCES AND ROADS DISTRIBUTION OF THE FLEA MARKET:

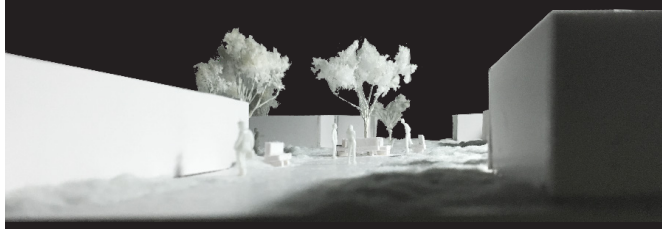
The main entrance faces south toward the main gate. The second entrance is in the south-north direction. Two entrances connected on a road.

LOCATING:

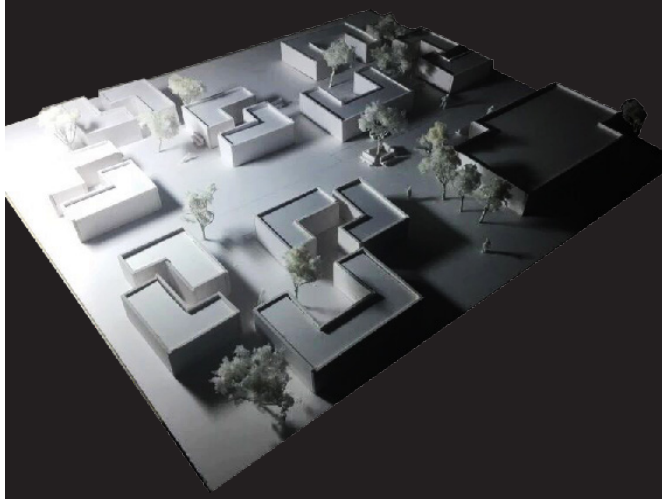
Set up the simple shops and the activity center according to the distribution of the trees and roads.



PERSPECTIVE VIEW:



PHOTOS OF MODELS:

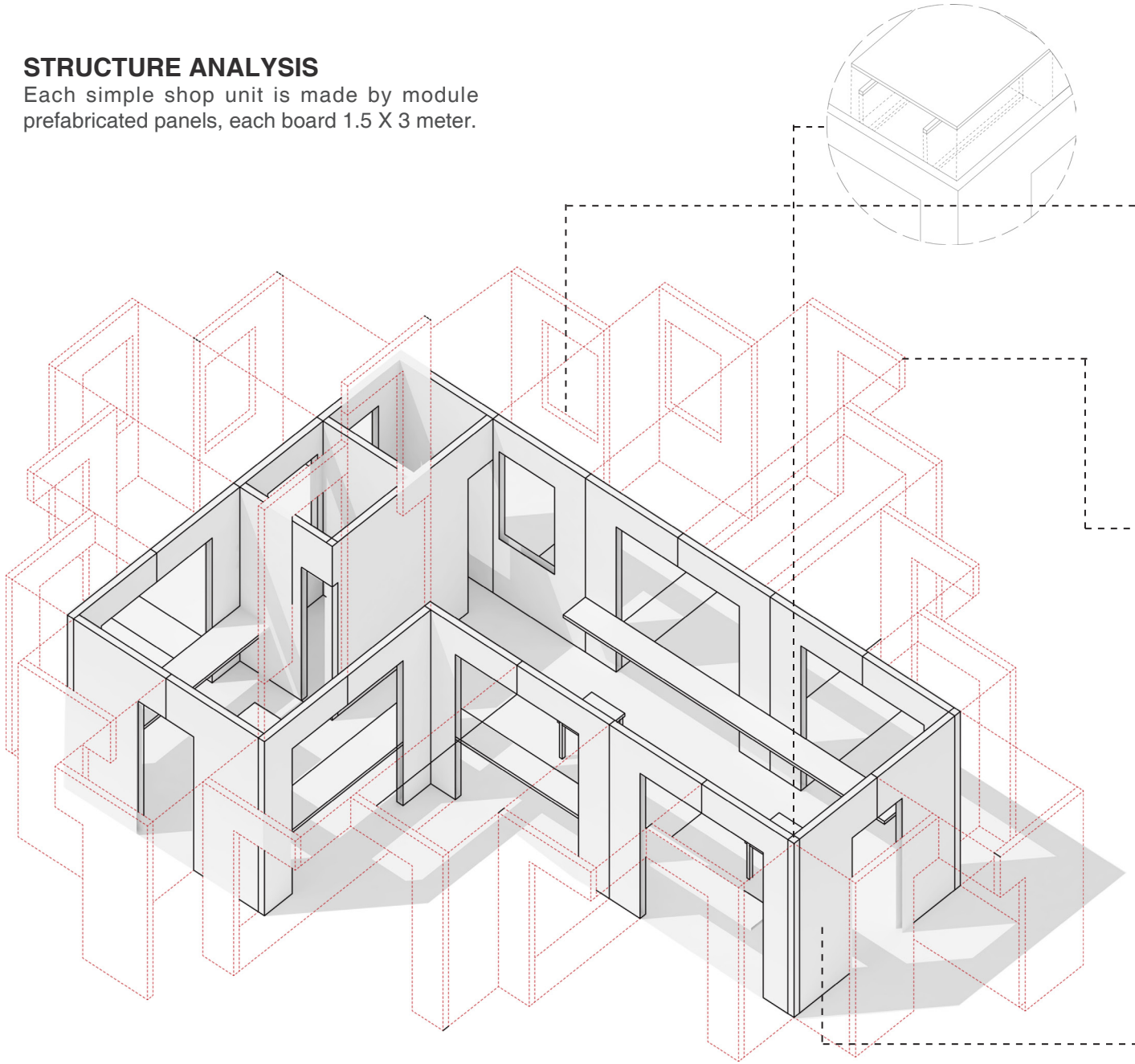


SITE PLANNING:

This is selected in a lawn.The main entrance faces south toward because of the stream survey.The unit of shop is open type so customer can have shoping without getting into the shop. On the southeast,there is a commercial complex to sale something important and handle official bussiness.

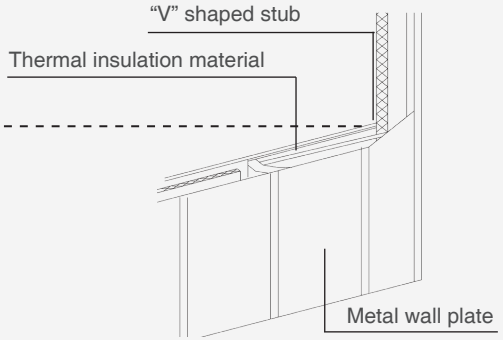
STRUCTURE ANALYSIS

Each simple shop unit is made by module prefabricated panels, each board 1.5 X 3 meter.

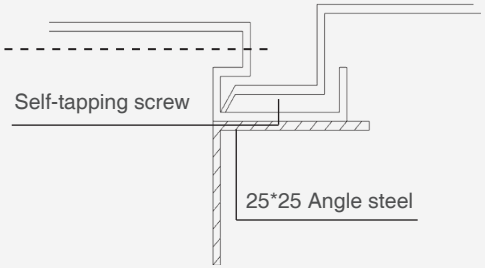


DETAILS

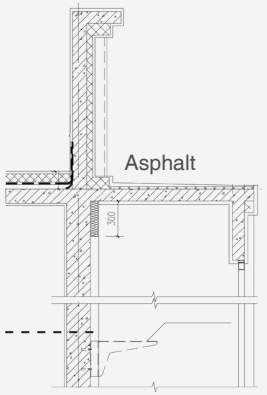
Describe the operating methods of plinth, parapet wall and each structure of the standard unit.



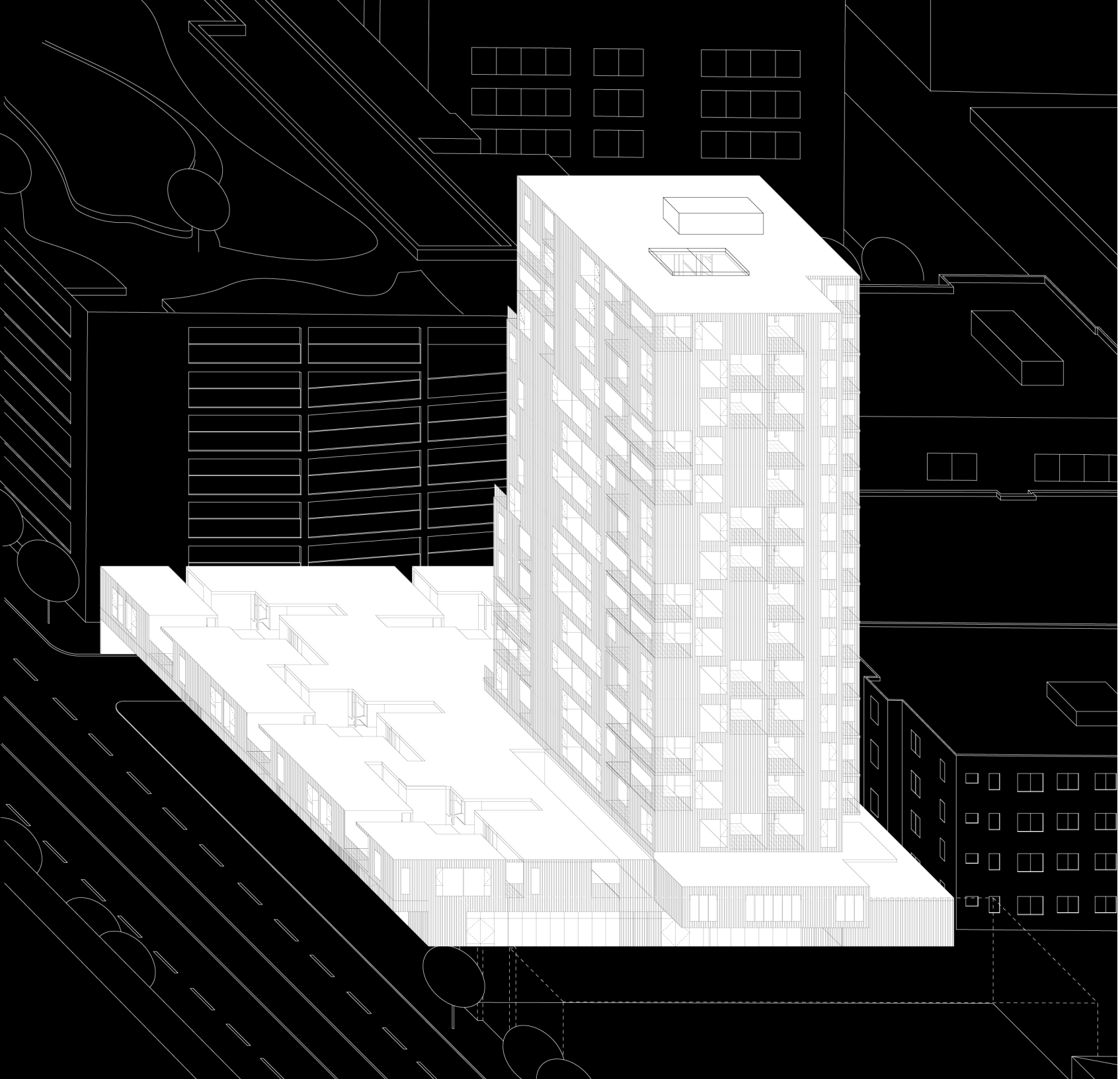
STRUCTURE OF METAL PLATE WALL



THE WAY OF BOLT CONNECTION



PARAPET



INFILL + MAT + TOWER

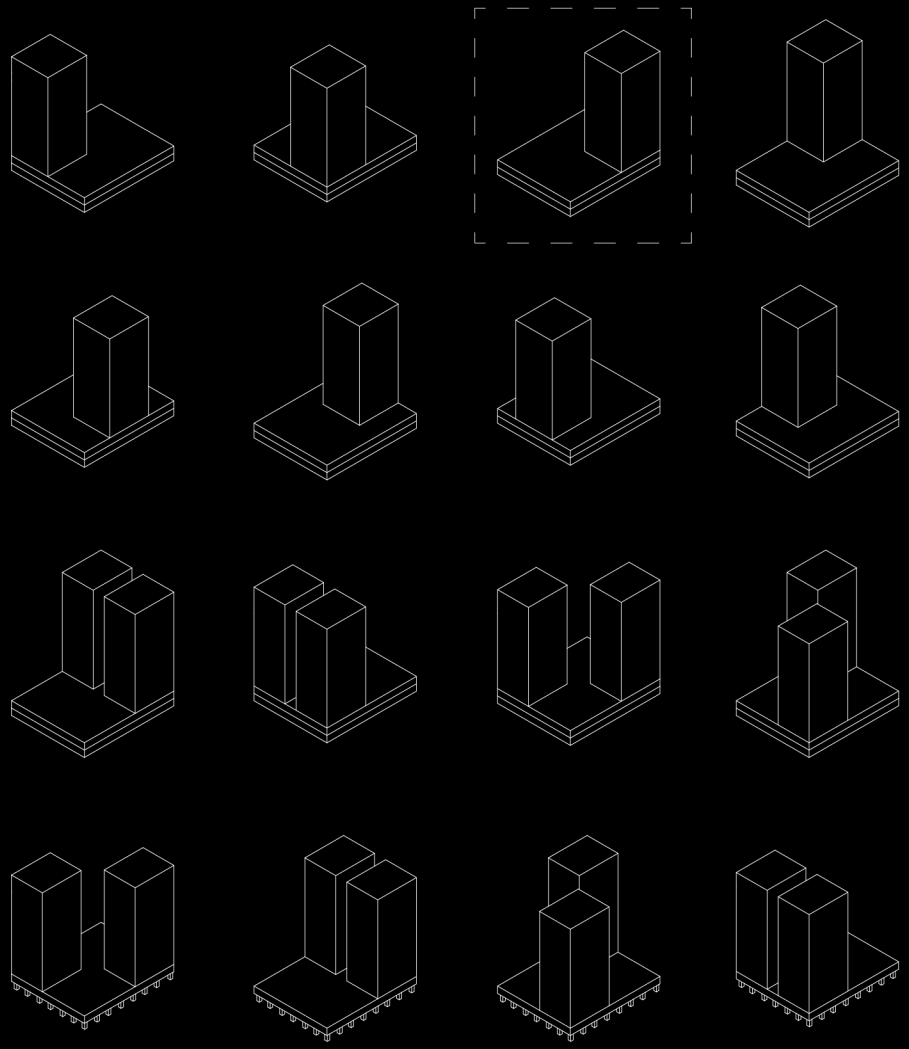
INFILLED AFFORD-ABLE APARTMENT IN DOWNTOWN LA

The project is trying to design an affordable housing with a hybrid type: Mat and Tower. The key of this project is to how to provide low-income people comfortable private spaces when trying to minimize the size of units as small as possible.

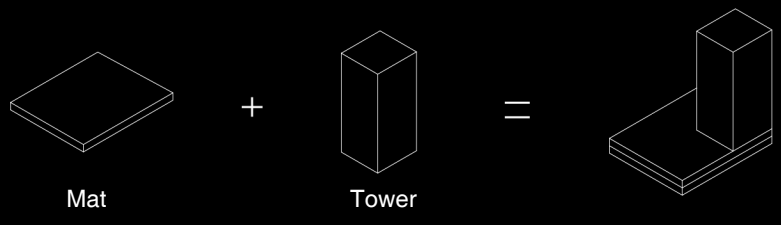
PROJECT 05

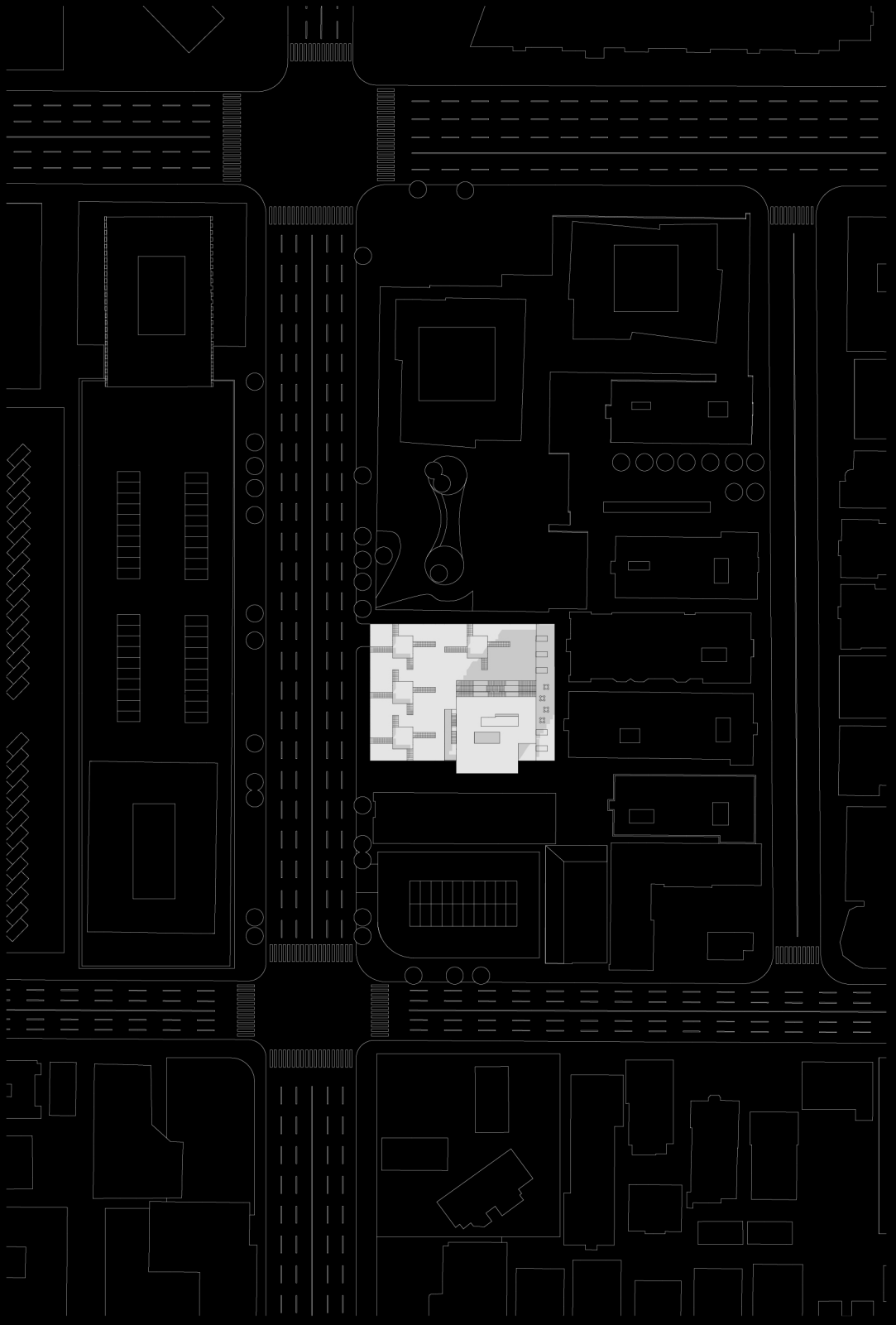
PROJECT TYPE: ACADEMIC PROJECT | INDIVIDUAL
SITE: LOS ANGELES, USA
TIME: 2018. 08

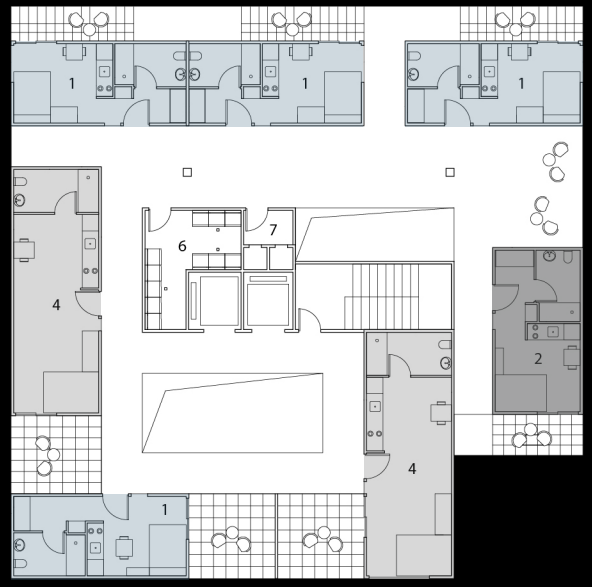
Diagram-Possibility



Hybrid

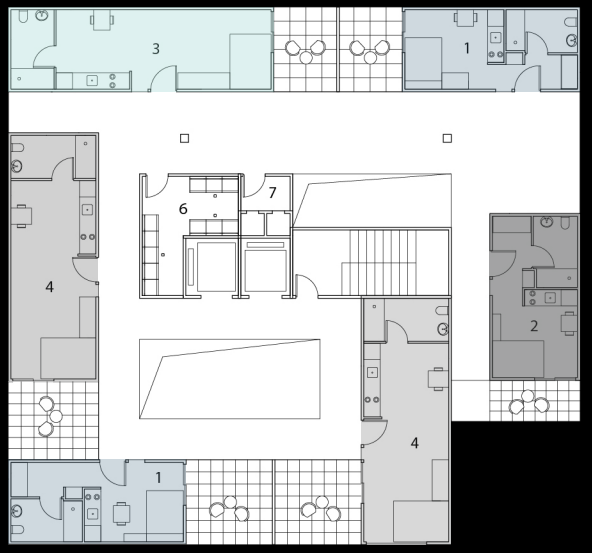




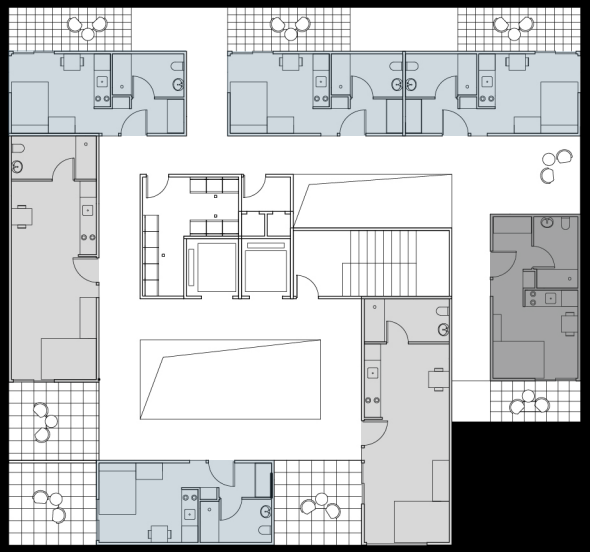


3rd FLOOR PLAN

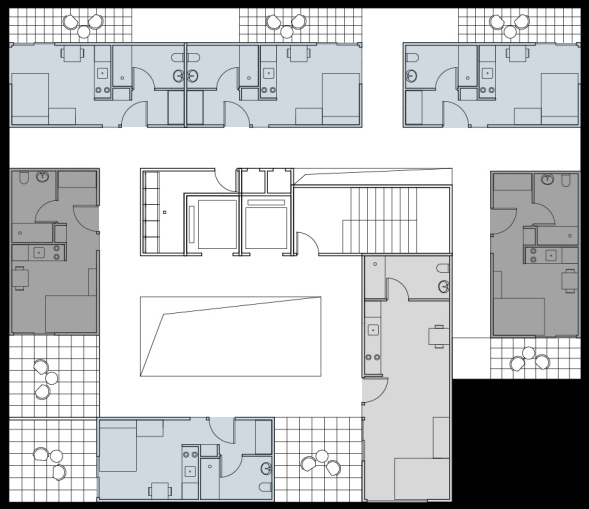
4th-5th FLOOR PLAN



6th-7th FLOOR PLAN



8th FLOOR PLAN



13th FLOOR PLAN

LEGEND

UNIT A

UNIT C

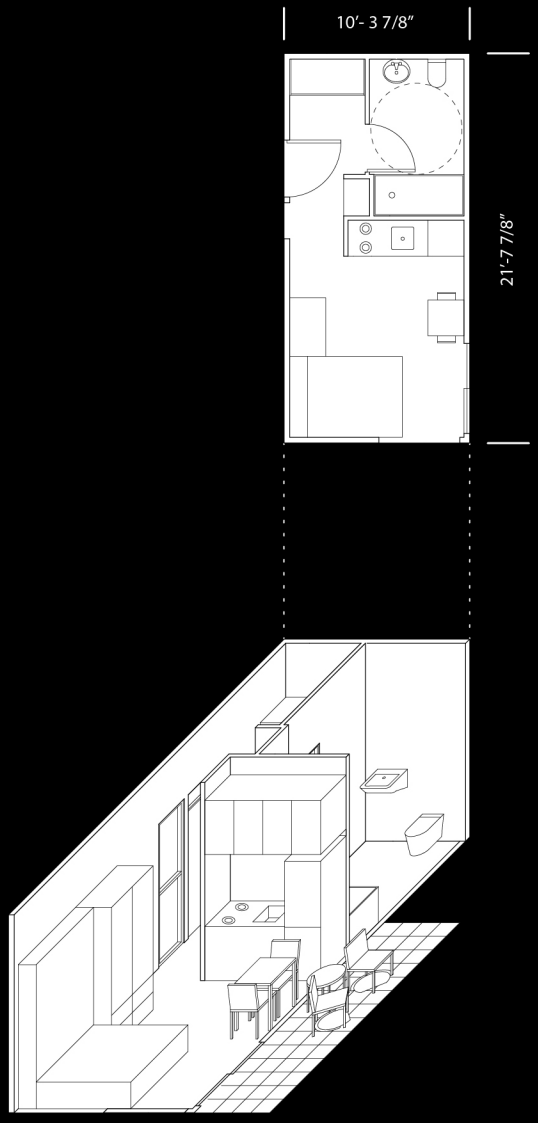
UNIT B

UNIT D

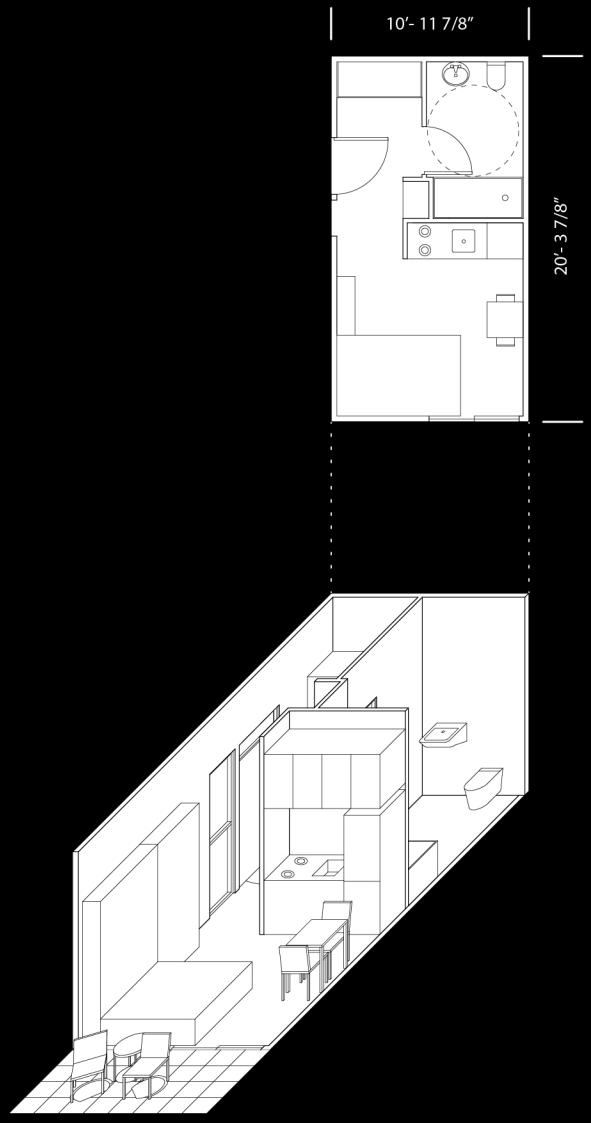
6. LAUNDRY ROOM

7. TRASH ROOM

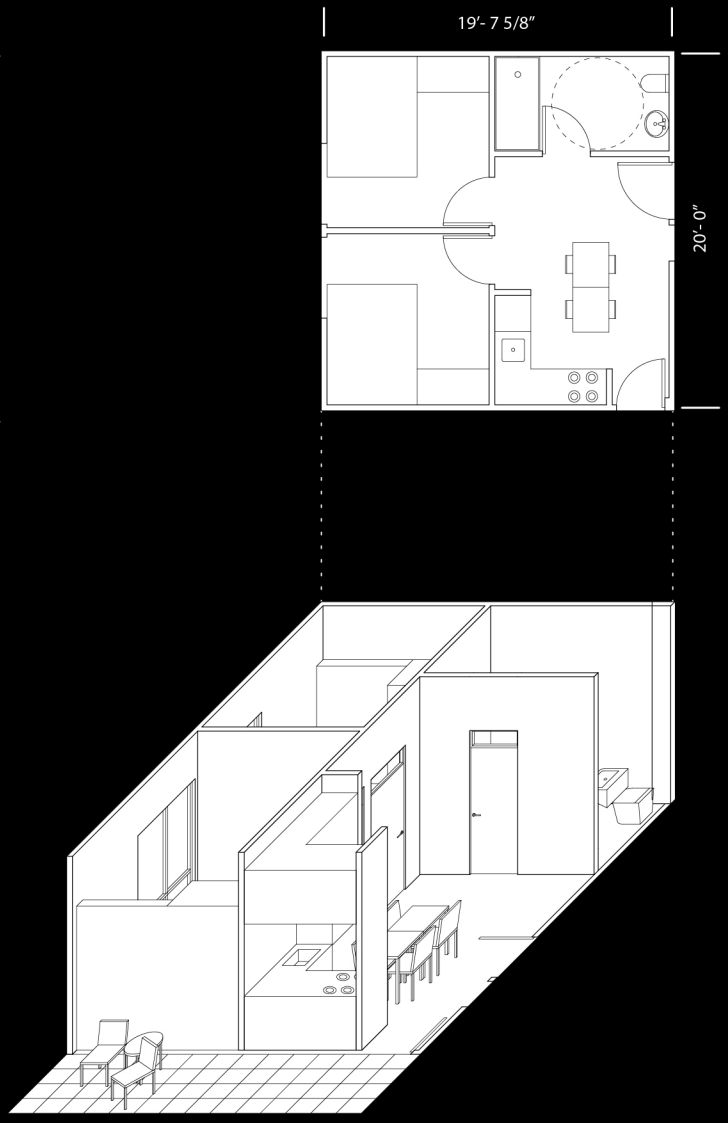
There are four types of units which are surrounded at the perimeter of the tower. These module units can be moved flexibly based on the project's requirement, which can reduce the cost of this project very efficiently.



UNIT A
203 SF



UNIT B
203 SF



UNIT E
368 SF

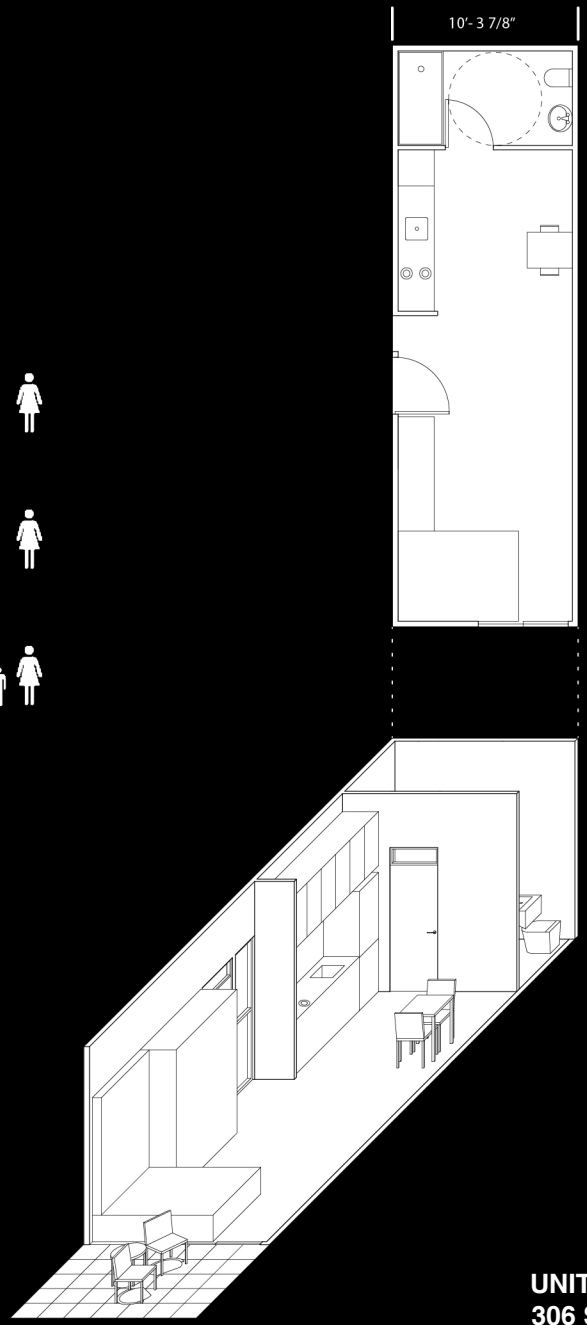
UNIT A

UNIT B

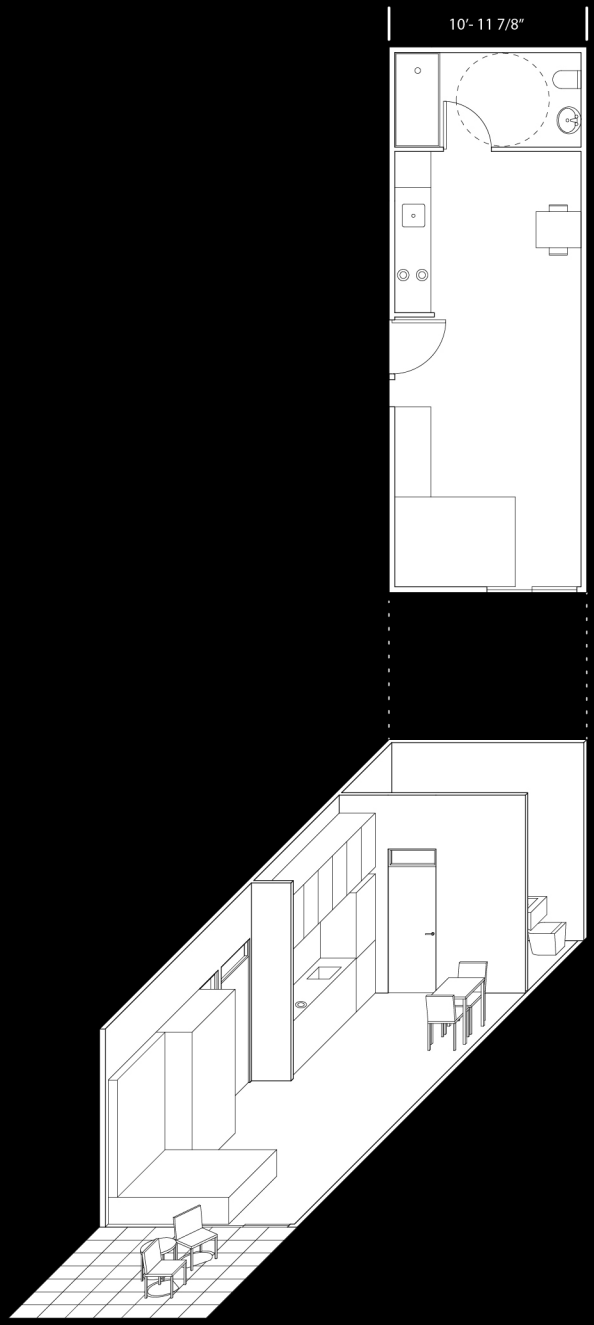
UNIT C

UNIT D

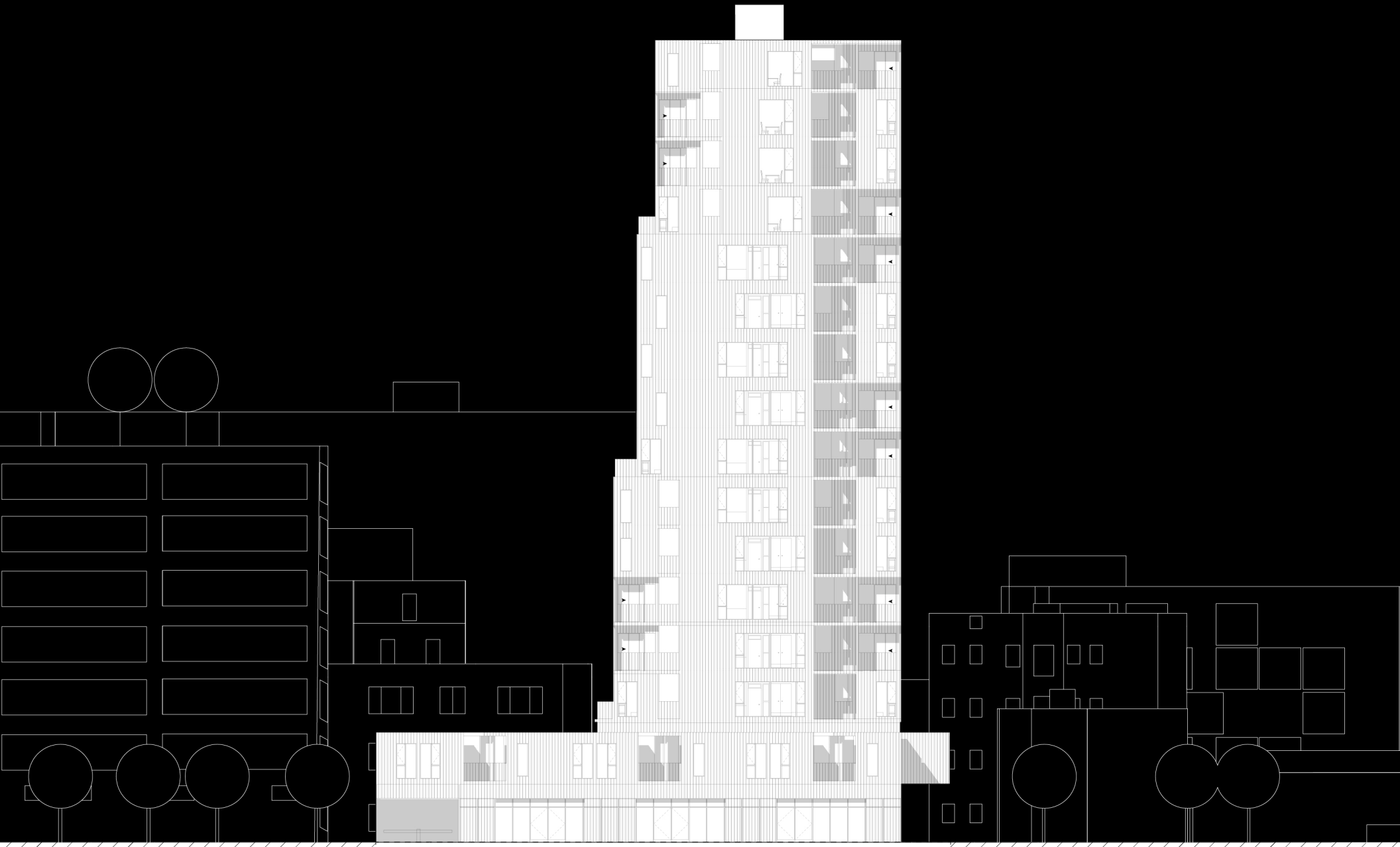
UNIT E



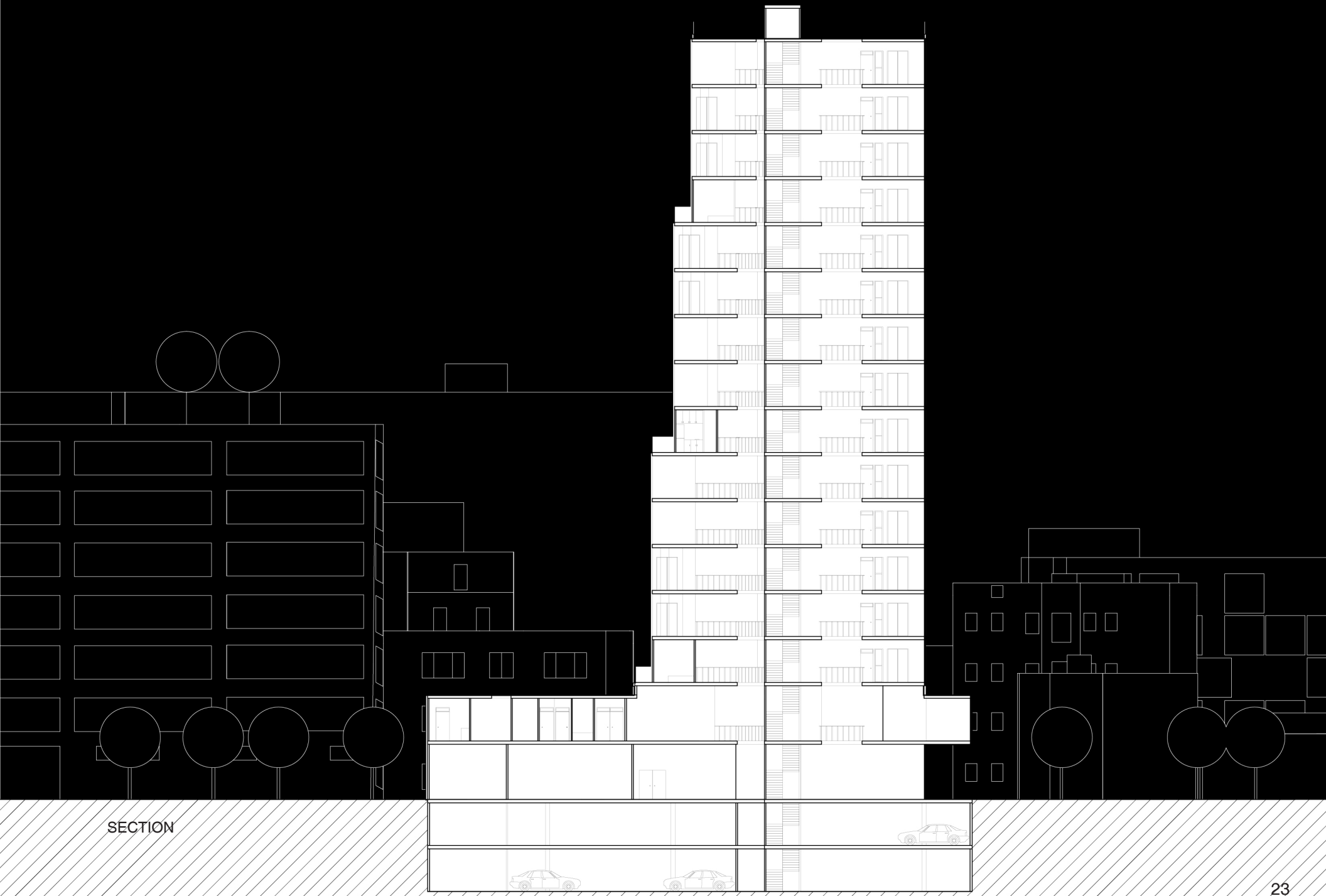
UNIT C
306 SF



UNIT D
306 SF



SOUTH ELEVATION



SECTION

PROJECT 06

GAP, ACCESS, GATHER

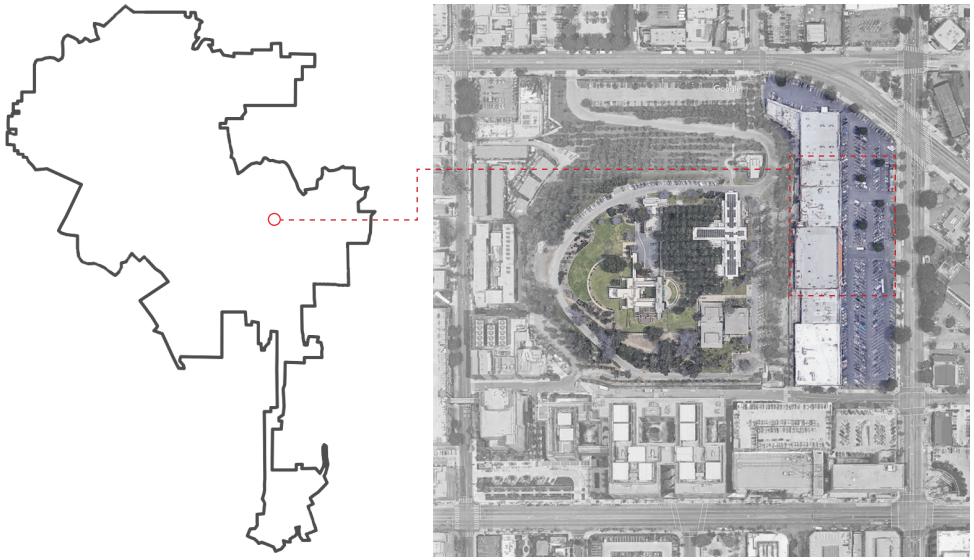
PROJECT TYPE: ACADEMIC PROJECT | INDIVIDUAL WORK
SITE: Barnsdall Park, Los Angeles, CA
TIME: 2018. 12

REHABILITATION CLINIC DESIGN ON SOLVING EXISTING PROBLEMS

This project is just a beginning to think about the functions and future of rehabilitation clinics. Based on the change from inpatient hospital to outpatient clinics, people start to consider more about prevent disease before it happens. How to design a comfortable and efficient outpatient clinic based on existing site condition is valuable to be discussed.

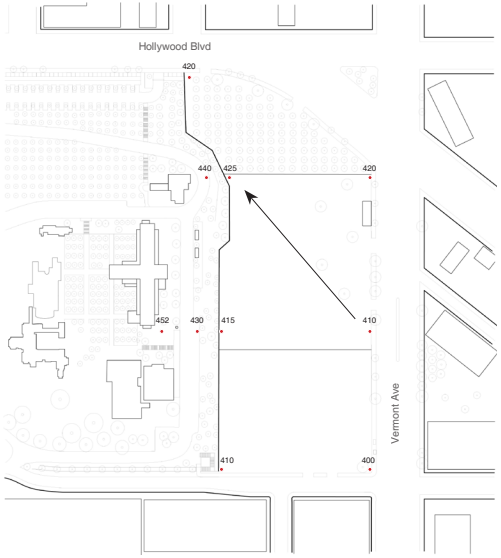
LOCATION

The site of this project is next the Barnsdall Park in Los Angeles which is at the intersection between N Vermont Ave and Hollywood Blvd. The existing building on our site now is a shopping center. This project is trying to design a outpatient rehabilitation clinic through borrowing the beautiful landscape of Barnsdall Park.



CURRENT SITUATION

The main chanllenge for the design is that the site has a 15 feet elevation difference from south to north. Also, the existing shopping center on the site has no much close relationship with the park and streets. Besides, there are three other existing problems are obvious.

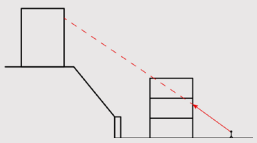


Poor visual connection between the existing shopping center

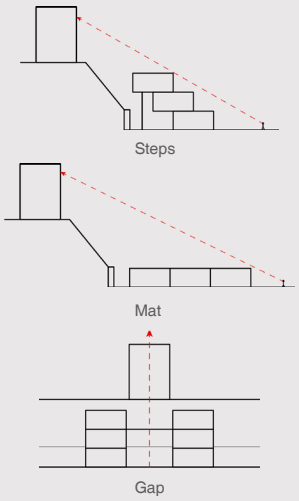
The retaining wall completely block the access between the site and Barnsdall Park

The transition from Vermont Ave to the shopping center is too awkward

Visual Gap



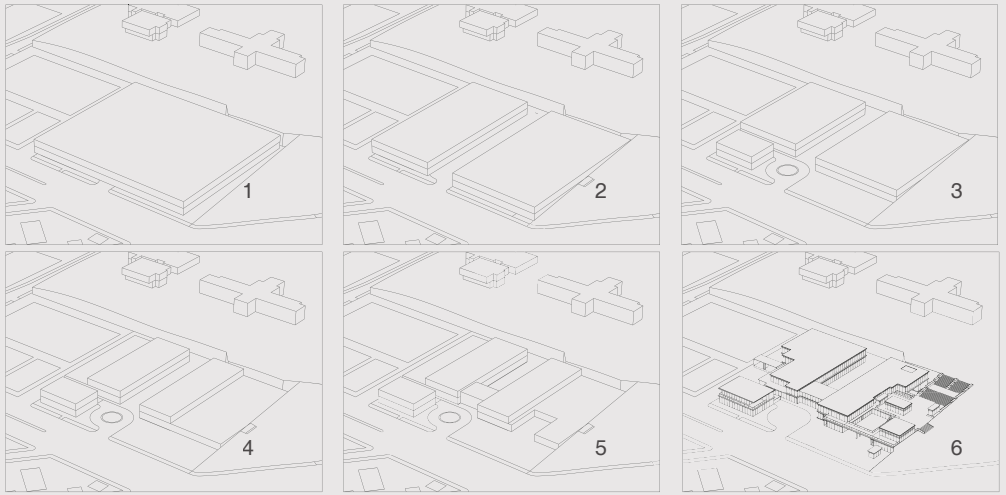
Because of the area limitation of this site, it is hard to have a view from the site to Barnsdall Park in normal way.

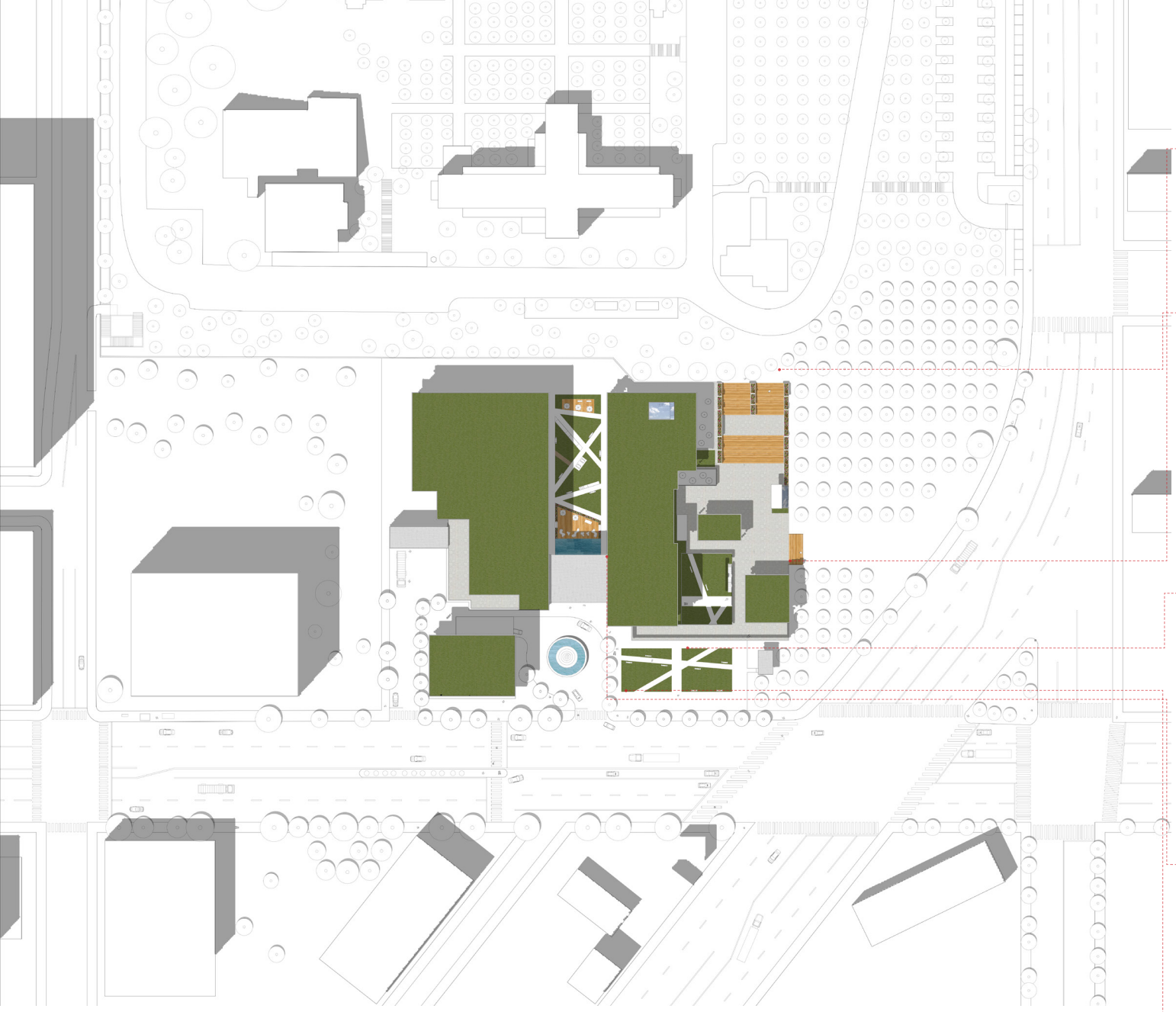


Compared to the area of the site, the building areas are relatively small, which limit to use steps

Because of the similarity between the area of the site and our clinic, one level building will lead to no extra outdoor space

Seperating the clinic into two parts which can create a visual corridor/gap

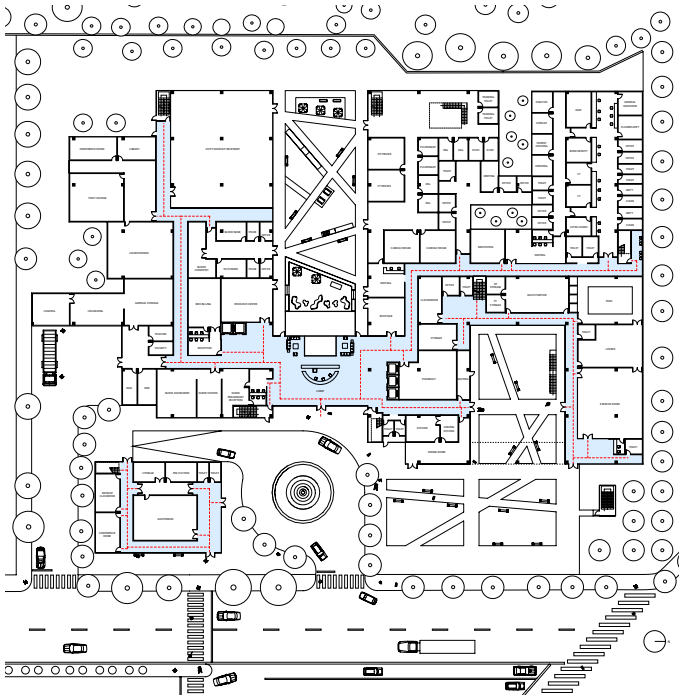




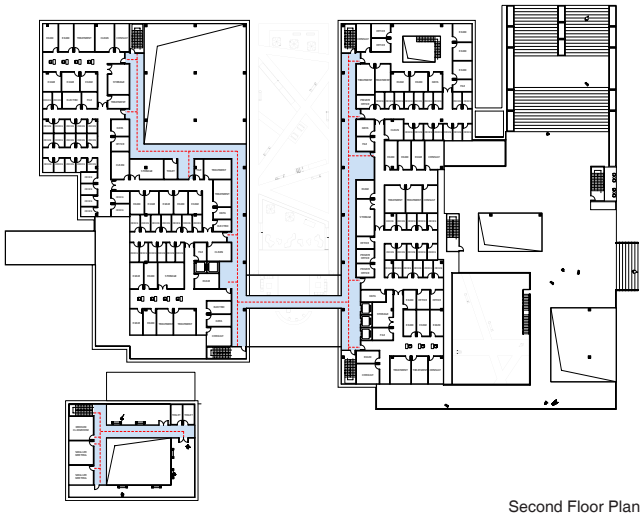
STRATEGIES TO SOLVE PROBLEMS

As I mentioned above, the three main problems - poor visual connection, lack of access to park and awkward transition which give me the direction to design my clinic. My project is actually designed based on how to solve these problems. Respond to these question, I have relative strategies to fix them - Visual gap, terrace and front green space.

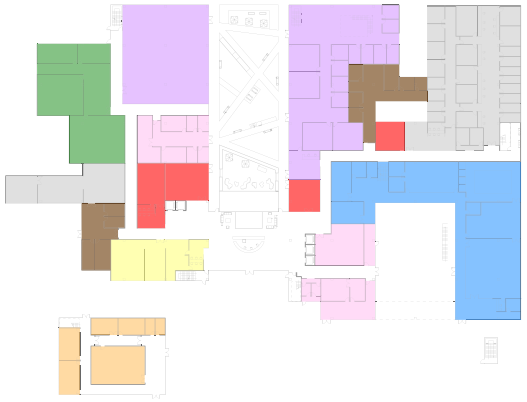
PROGRAMS DIAGRAM

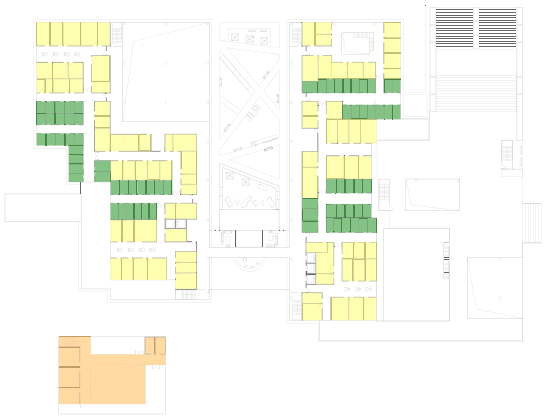


First Floor Plan



Second Floor Plan





Additional treatment rooms
Specialized cardio rooms

Exercise pavilion

Lobby/pubilc

Other office
Mechanical spaces

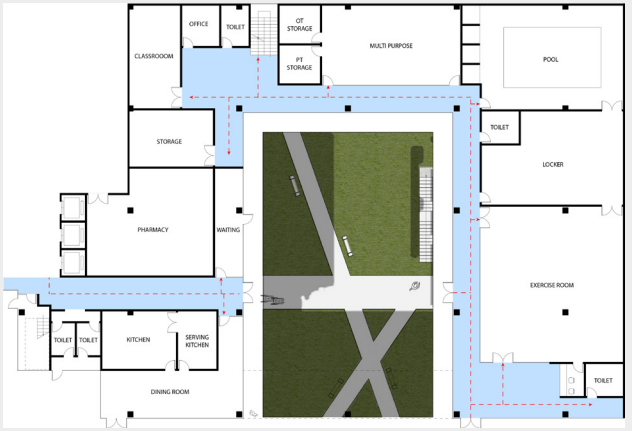
Education

Outpatient therapy
Assessment spaces

Pharmacy
Restaurant
Laboratory

Back of house
Radiation and imaging suite

Physician's work area
Staff spaces

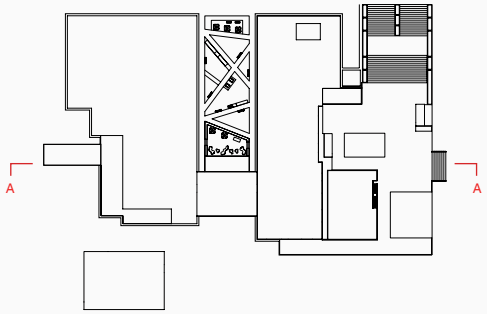


COURTYARD

The courtyard is surrounded by public programs which can be a very vivid space to gather people. Also this kind of surrounding arrangement can make people more convenient to go into those pblic functions like exercise pavilion, restaurant and pharmacy

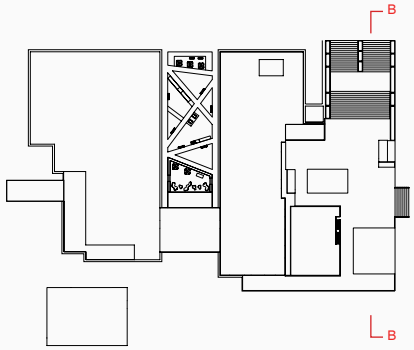
ACCESS

Taking advantage of the ground level's roof, a ramp is set to connect the clinic and Barnsdall Park Physically. In the meantime, the roof terrace also solve the problem of elevation difference of our site. The terrace actually is regarded as a public activity space for the community



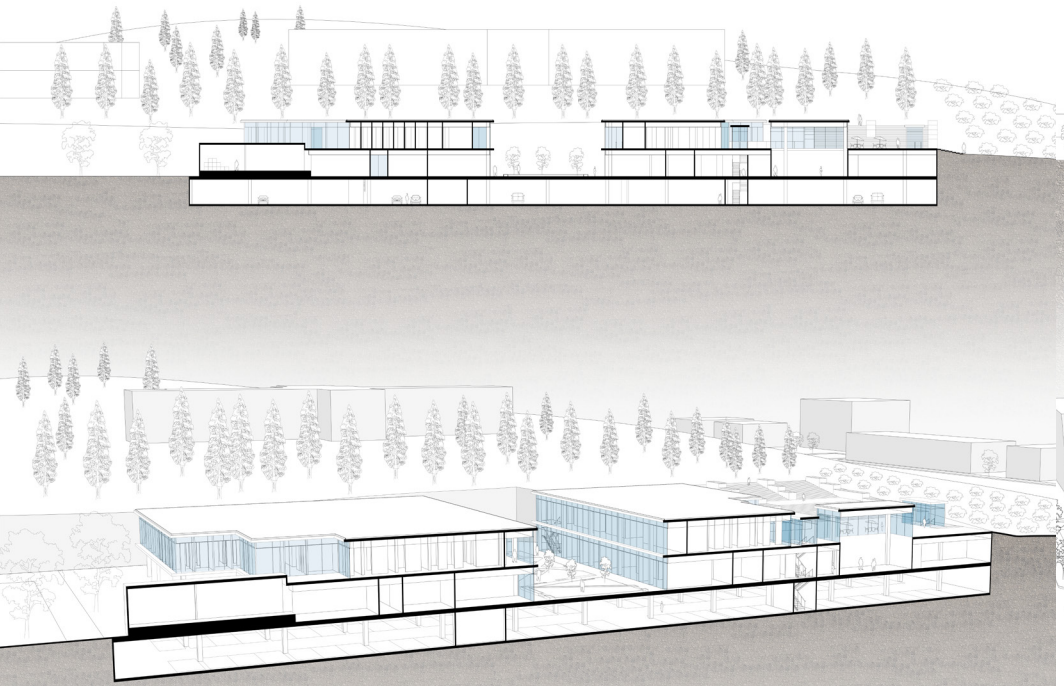
SECTION OF THE GAP

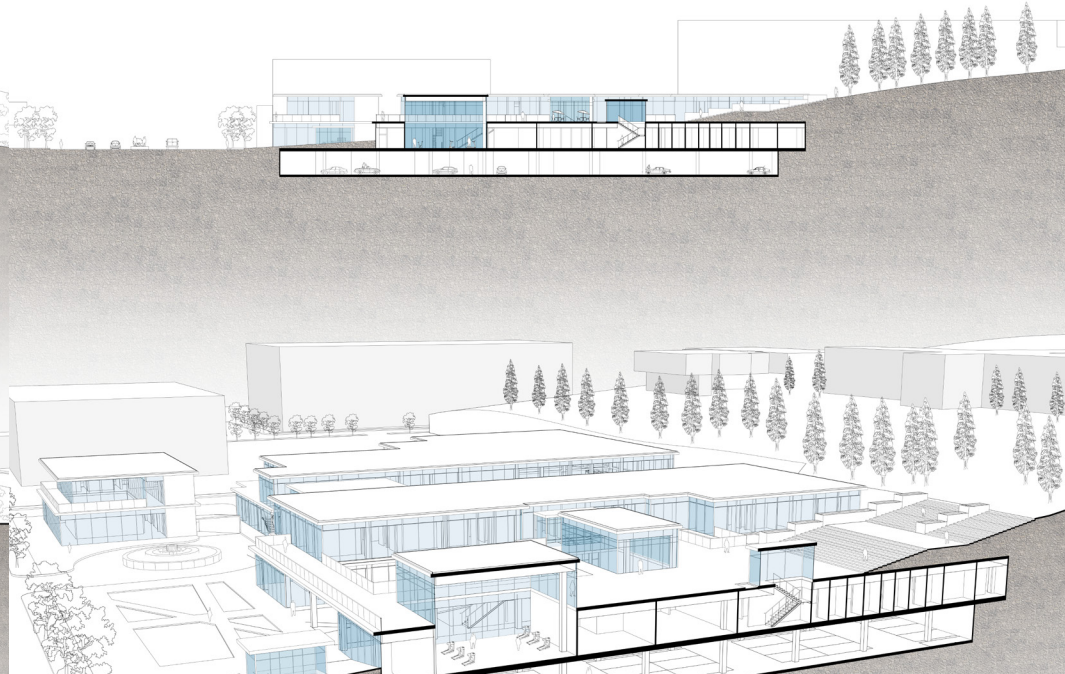
This section can clearly show the relationship between the central visual gap and the clinic. Therapy functions and clinics surround the central gap which can provide patients and staff a nice view

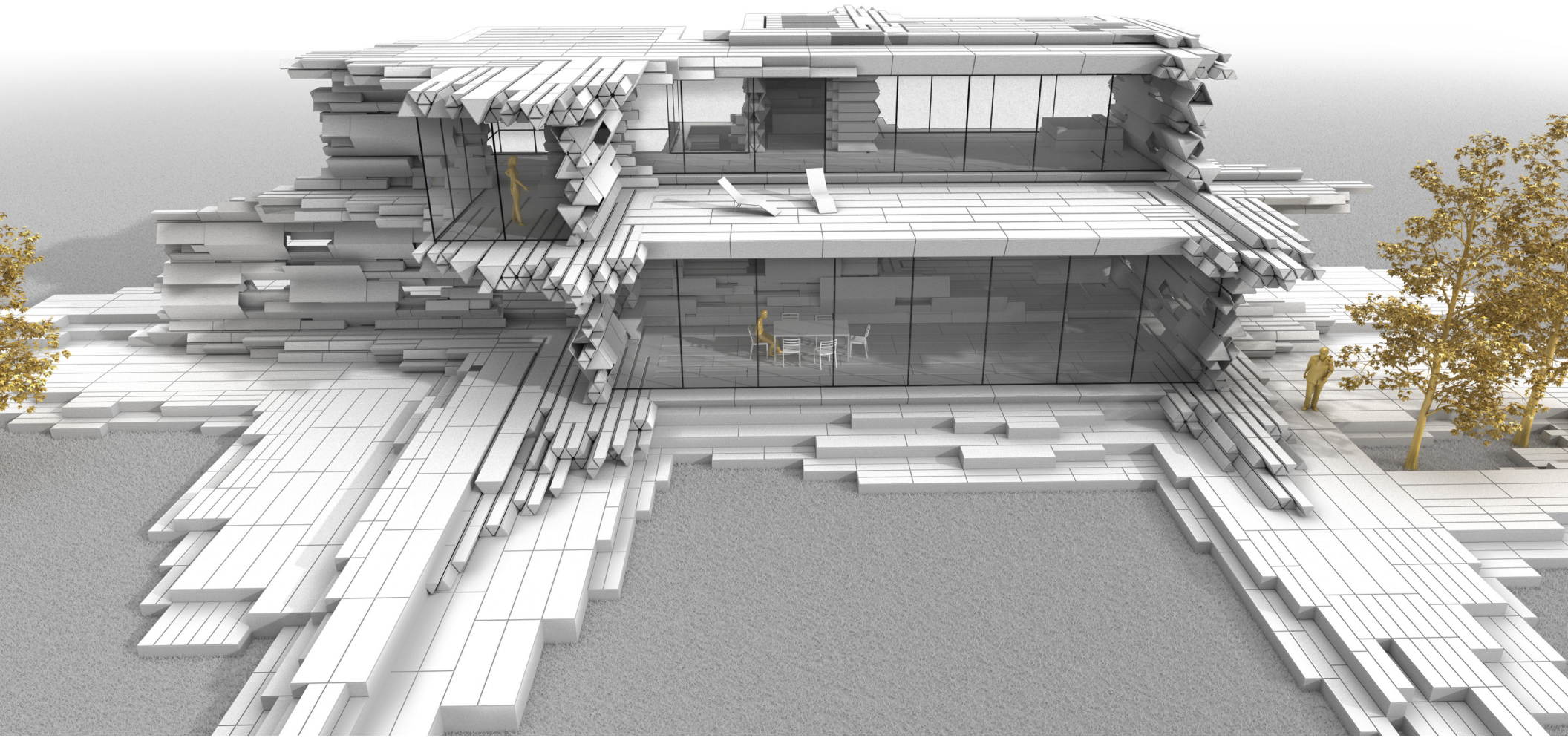


SECTION OF THE TERRACE

The terrace takes advantage of the ground level's roof to provide community a place to do activities and also plays an important role of connecting this clinic with Barnsdall Park.







PROJECT 07

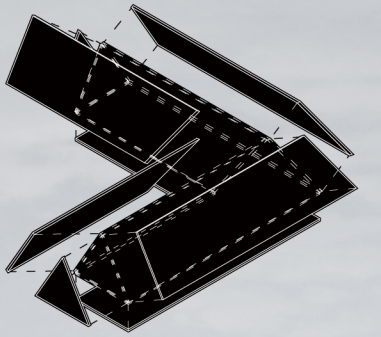
PART TO WHOLE

PROJECT TYPE: ACADEMIC PROJECT | INDIVIDUAL WORK
SITE: Los Angeles, CA
TIME: 2019. 05

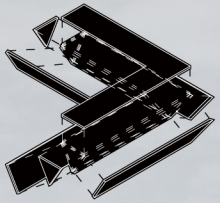
DEMOUNTABLE SINGLE FAMILY HOUSE

This project is based on the research about demountable concept from Jean Prouve. In order to redevelop this demountable concept from static to flexible space, this project tries to use few module pieces to create space and strcture which can be changed and extended continously. This kind of new demountable houses will have a strong relationship with landscapes, which seems like growing up from ground itself. The future of demountable architecture will be more natural and flexible.

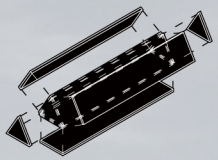
SIX MODULE COMPONENTS



MODULE ONE
7FT X 7FT

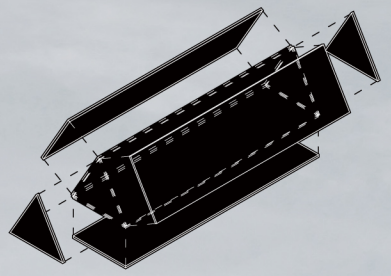


MODULE TWO
4FT X 4FT

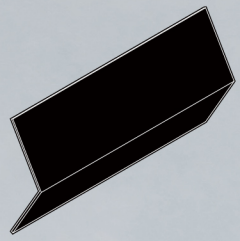


MODULE THREE
4FT

MODULE FOUR
4FT

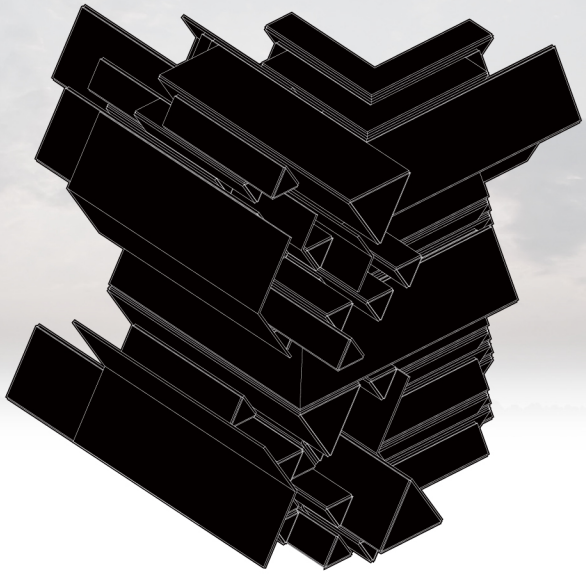


MODULE FIVE
7FT



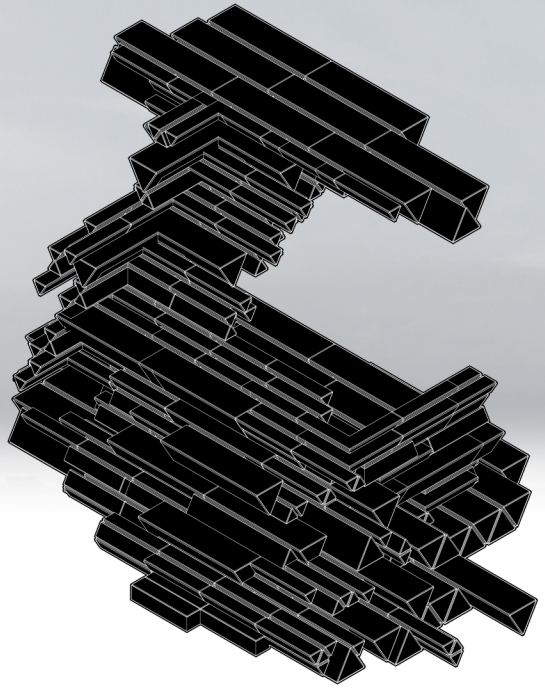
MODULE SIX
7FT

FORMS:
Using those six basic components, we can create any parts of a building needs.

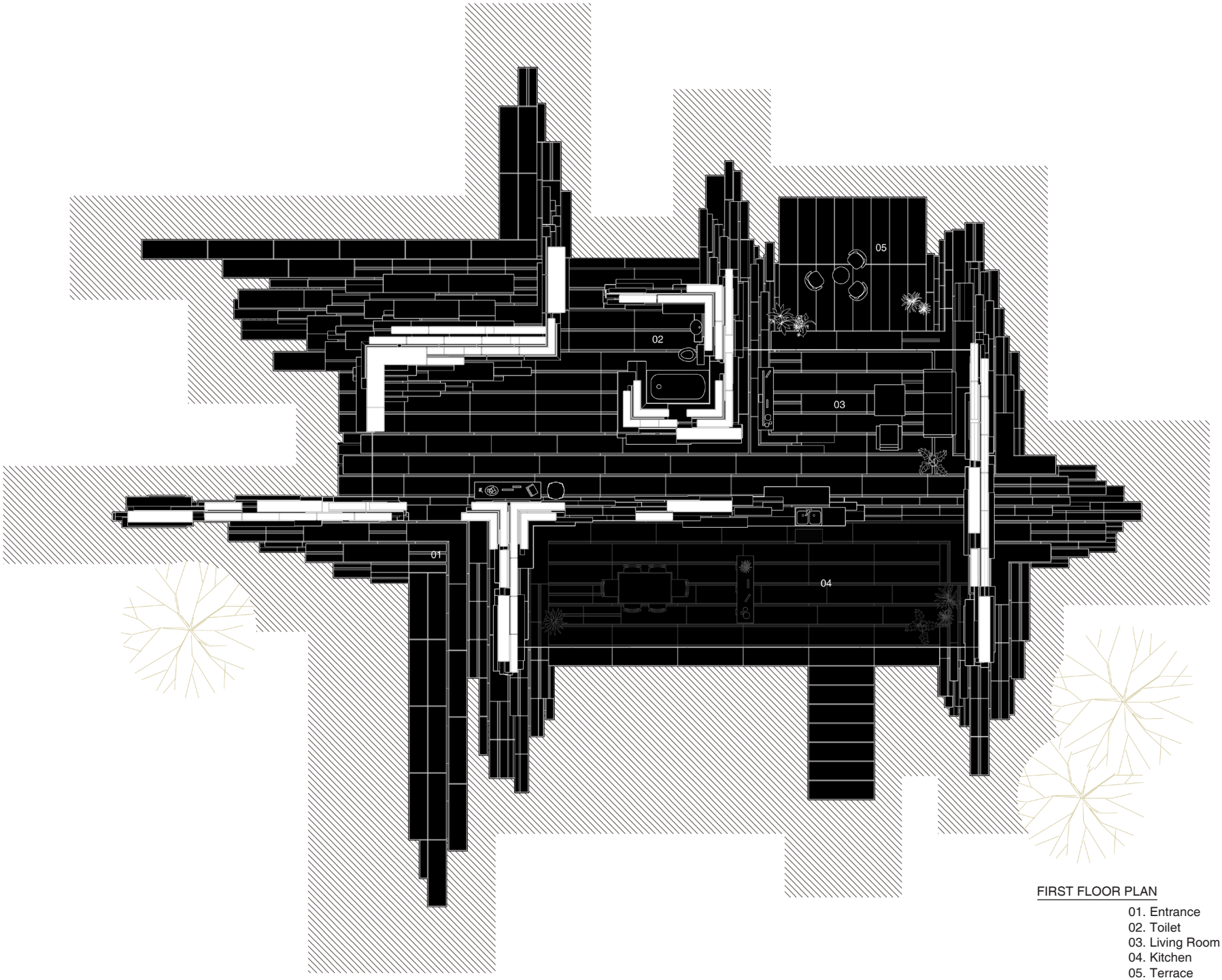


CORNER

WALL

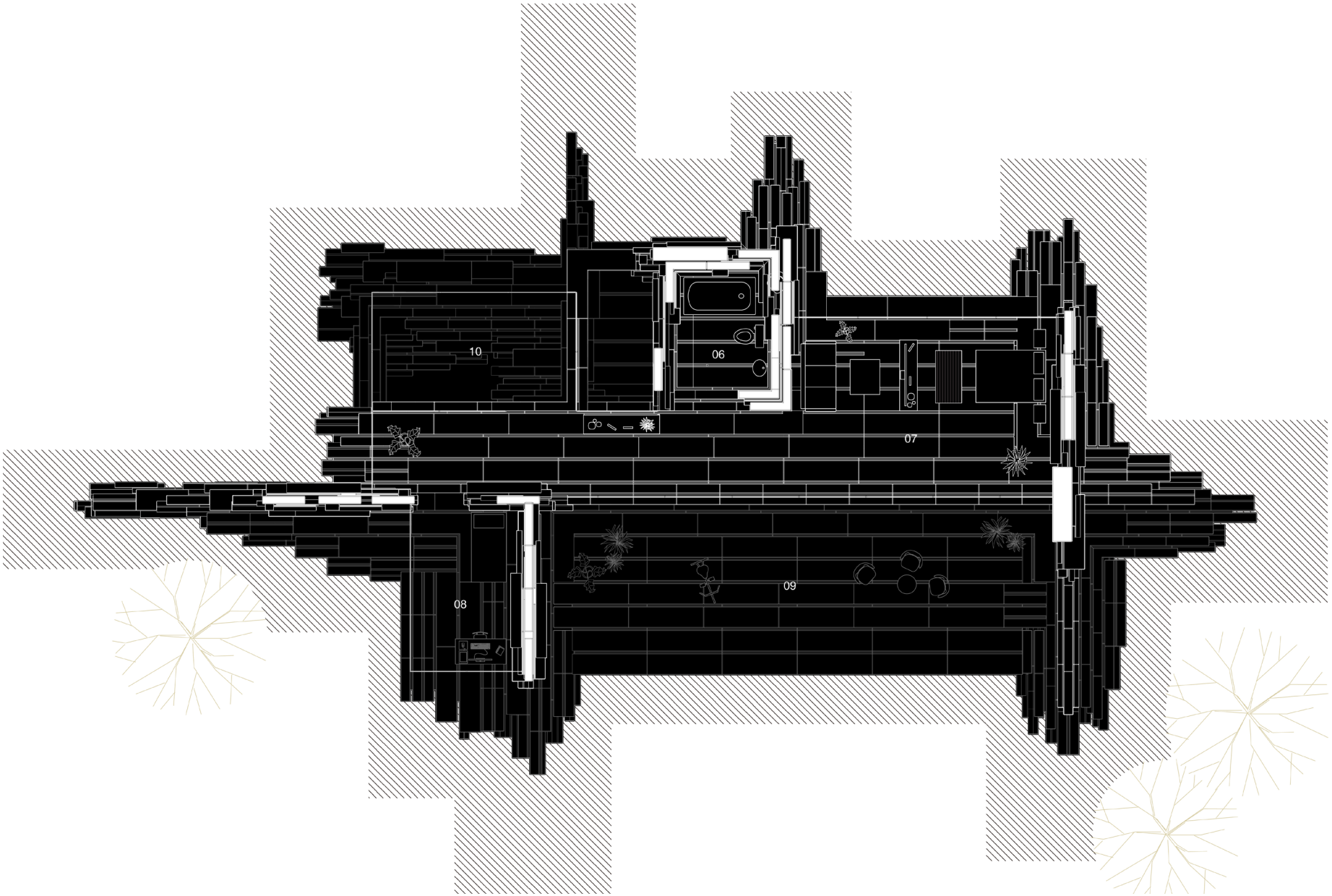


STAIR



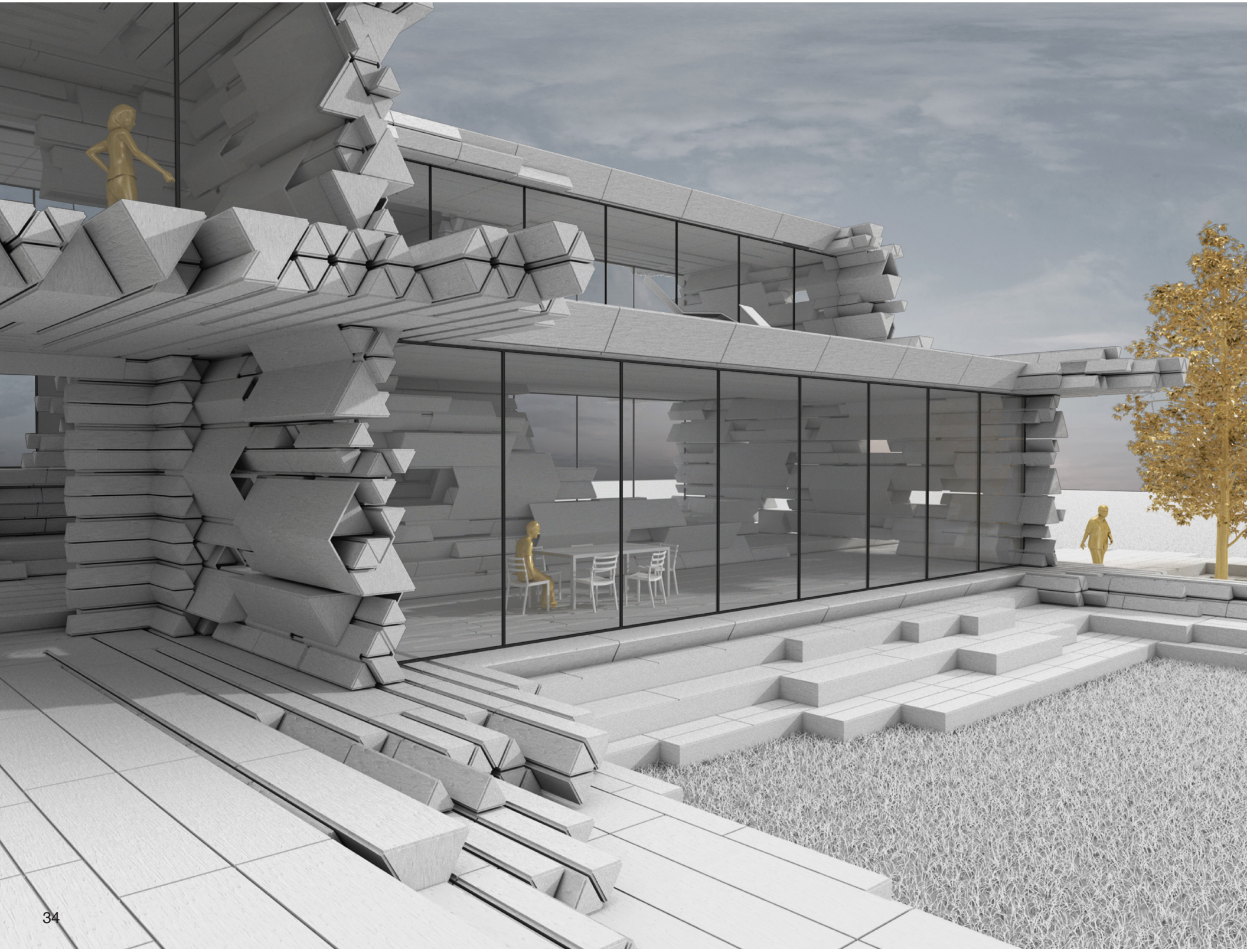
FIRST FLOOR PLAN

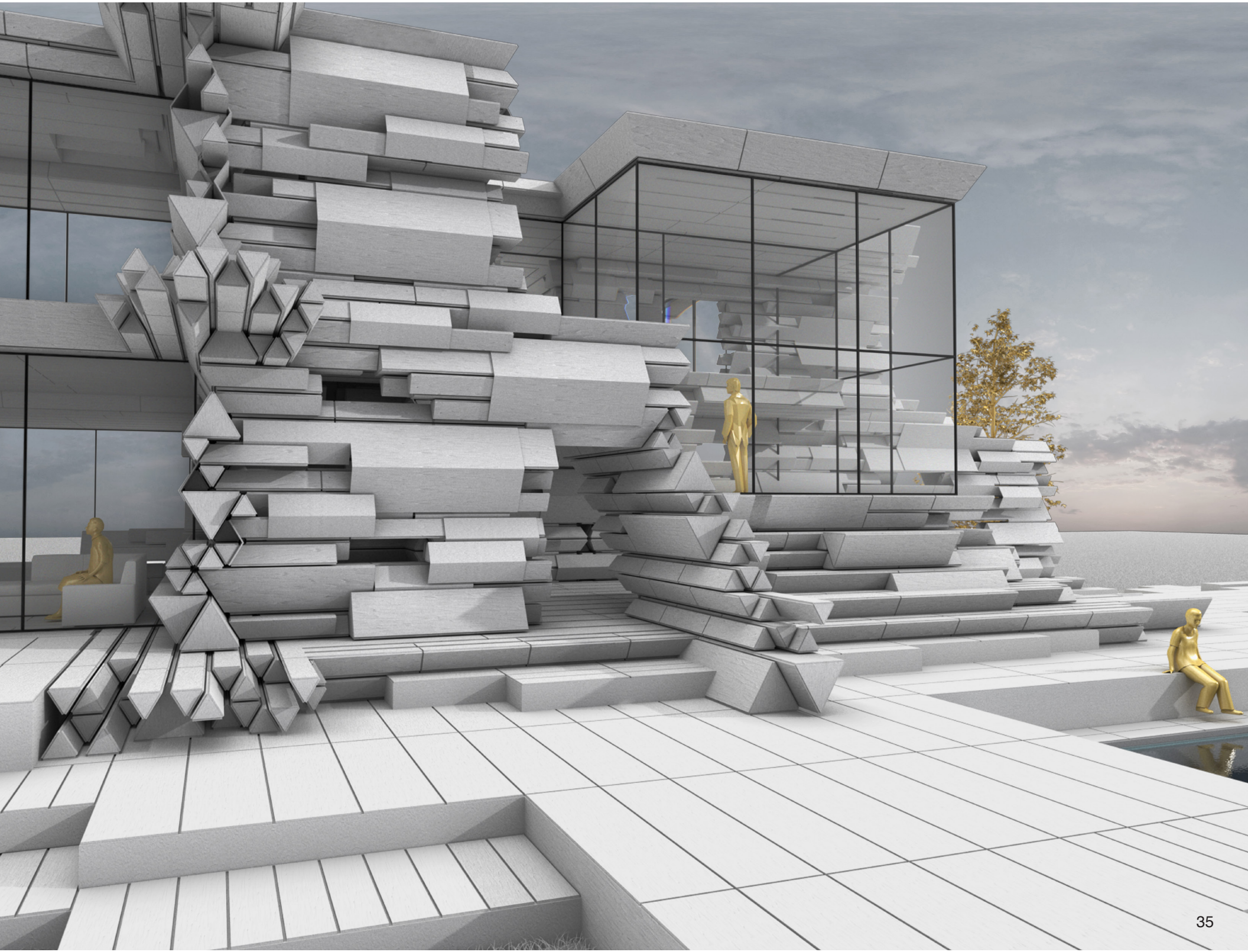
01. Entrance
02. Toilet
03. Living Room
04. Kitchen
05. Terrace



SECOND FLOOR PLAN

06. Toilet
07. Parent's Bedroom
08. Child's Room
09. Terrace
10. Vertical Circulation






PHSICAL DETAIL MODEL