

FUTURE PIDDINGHOE

A NUCLEATED AND CLUSTERED VILLAGE

NOUR AMHAL

MARCH 02 - STUDIO 04

TUTORS: JEFF AND NATE

DESIGN THESIS

RE-WILDING - VILLAGE - MAT ARCHITECTURE

Villages are usually characterized as either well functioning and growing or declining and decaying. Flooding is a major issue in Southeast, so this project is focusing on designing a village that is flood resistant, by doing so the landscape typology will be organised with different levels and hierarchies. This type of village will be a clustered and nucleated village type, where all settlements will share the same aqua-cultural activities and a common market.

DESIGN INTRODUCTION (SCOPE)

The design project's motivation is to create a nucleated clustered village, which is placed within the proximity of other villages in Southeast in order to strengthen the condition of future and neighbouring villages. The nucleated village is adjacent to the original Piddinghoe village as it is in the highest risk to be flooded. Piddinghoe will be turned into a new network of relocated inhabitants of flooded villages, as it will be designed to be prepared and even prosper in the event of a flooding disaster.

THESIS FOCUS (AIM)

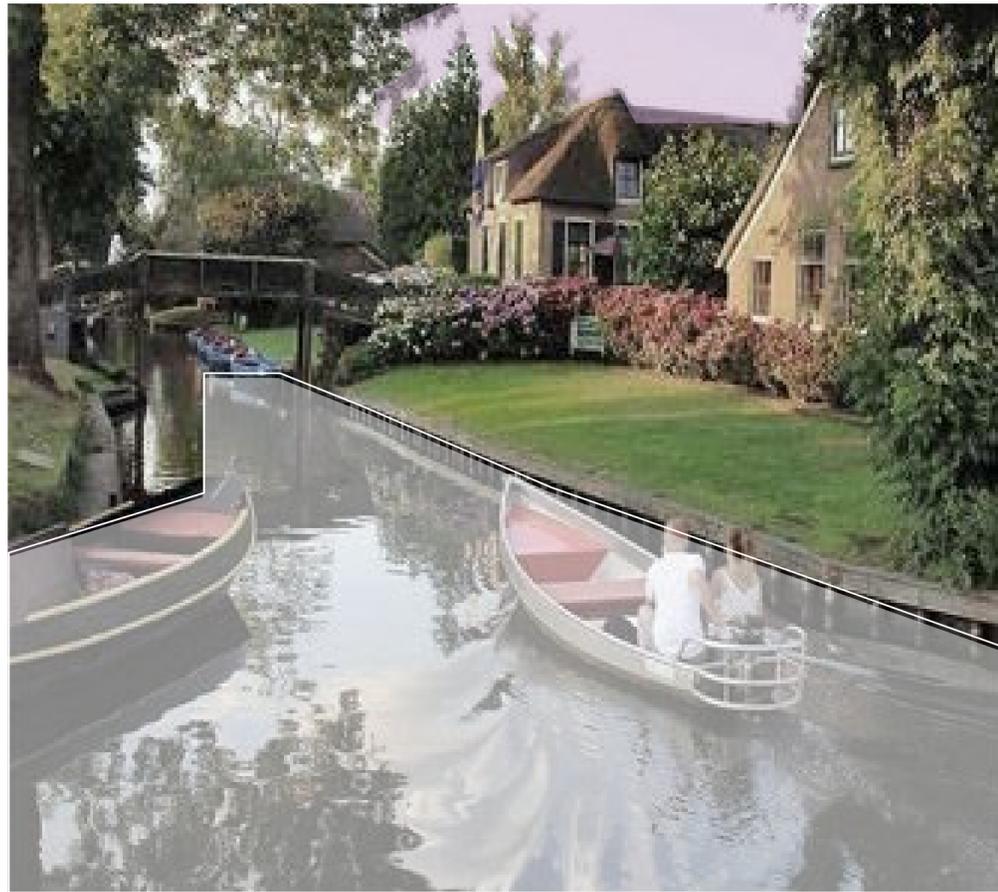
The aim of the design is to encourage the collaborative work between the settlements by using the potential benefit of agriculture and inter-settlement trade. The future village "New Piddinghoe" is an aqua-culturally programmed landscape, which will also improve the re-wilding both river and stream-based species. The ensuing waste will also be recycled as fertilizer to improve the village's agricultural production. The use of aquaponics in the units will create a balance between the agriculture and aquaculture. The aim is to connect a number of villages into a uniform network that promotes inter-community collaboration and specializations that would help develop the specific potentials of the village and that of the cluster as a whole, in order to strengthen the condition of the Southeast village. This project will therefore create an integrated and sustainable aquatic ecosystem that includes a fisheries terminal, fish processing centre, fresh fish market and restaurants which will benefit not only the local community but attract even more investments into the aquaculture / agriculture and tourism sectors.

PRECEDENT STUDIES

FLOOD CONTROL AND FLOOD ISSUES

CANAL TOWNS

Giethoorn, Netherlands and Fenghuang, China



01 Giethoorn, Netherlands

Its a town known as 'the Venice of the Netherlands' with its large concentration of canals and everybody boating and the houses match.



02 Fenghuang, China

Town where can feel the air of mystery, elegance and primitive simplicity. The mountain slopes are covered with green foliage, the fields are green and even the Tuo Jiang River reflects the greenery. The bridges over the water and unique houses built on stilts display a harmony that is so often portrayed in traditional Chinese paintings.



Lagoon City Venice

01

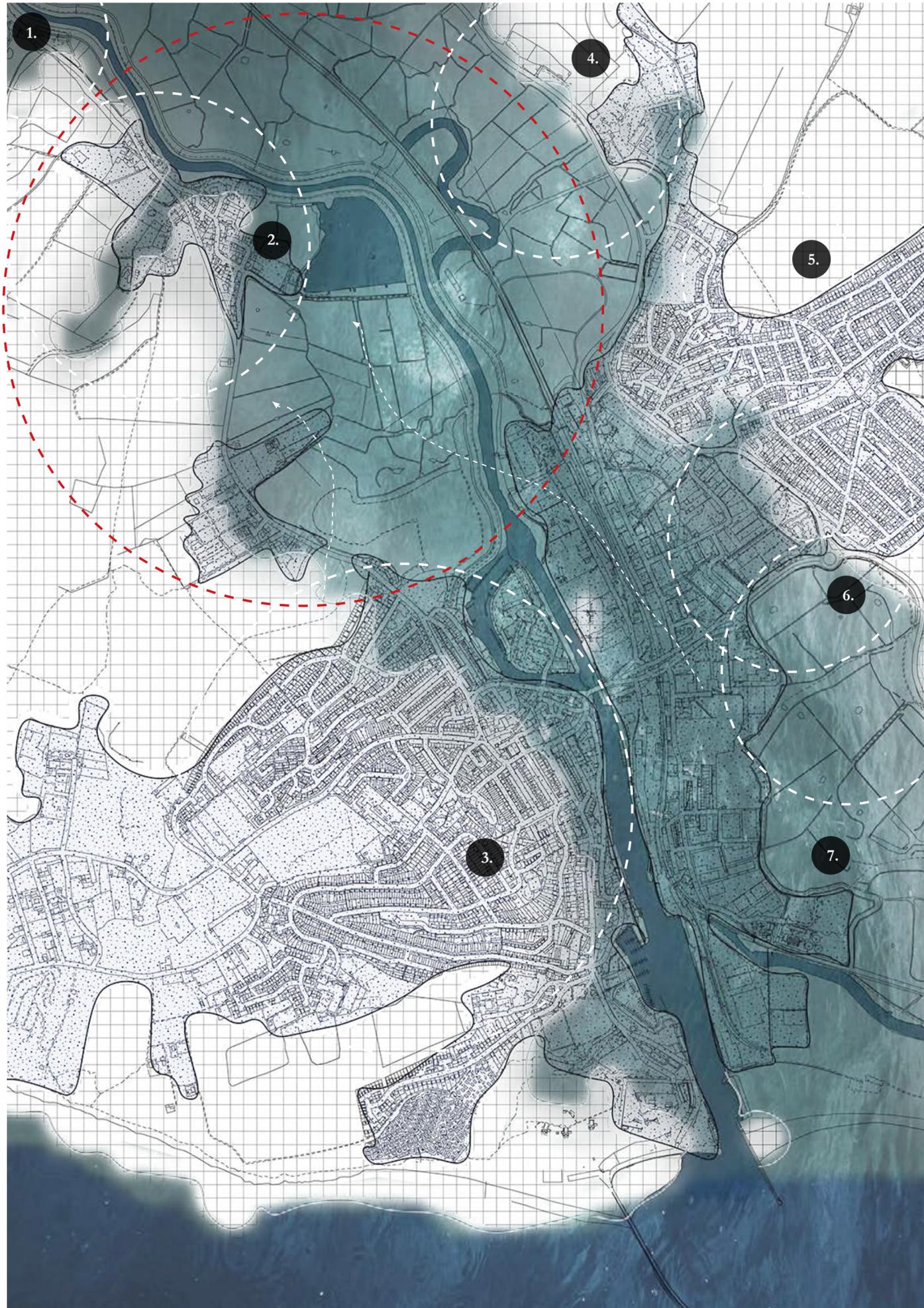
High tides like to this one take place in the city roughly once every five years or so. But this year's disastrous flooding is the worst it's been since 1966. It's the result of a confluence of risk factors involving the Moon, weather, sinking, a changing climate, and a billion-dollar project thrown off by political scandal. How the city navigates these issues moving forward could decide its future.



02

Flood levels in the lagoon city reached the second-highest level since records began in 1923 as a result of the acqua alta. More than 85% of Venice was flooded, including the historic St Mark's basilica. The mayor of Venice, Luigi Brugnaro, said this is the result of climate change.

FLOODING RISK THROUGHOUT NEWHAVEN

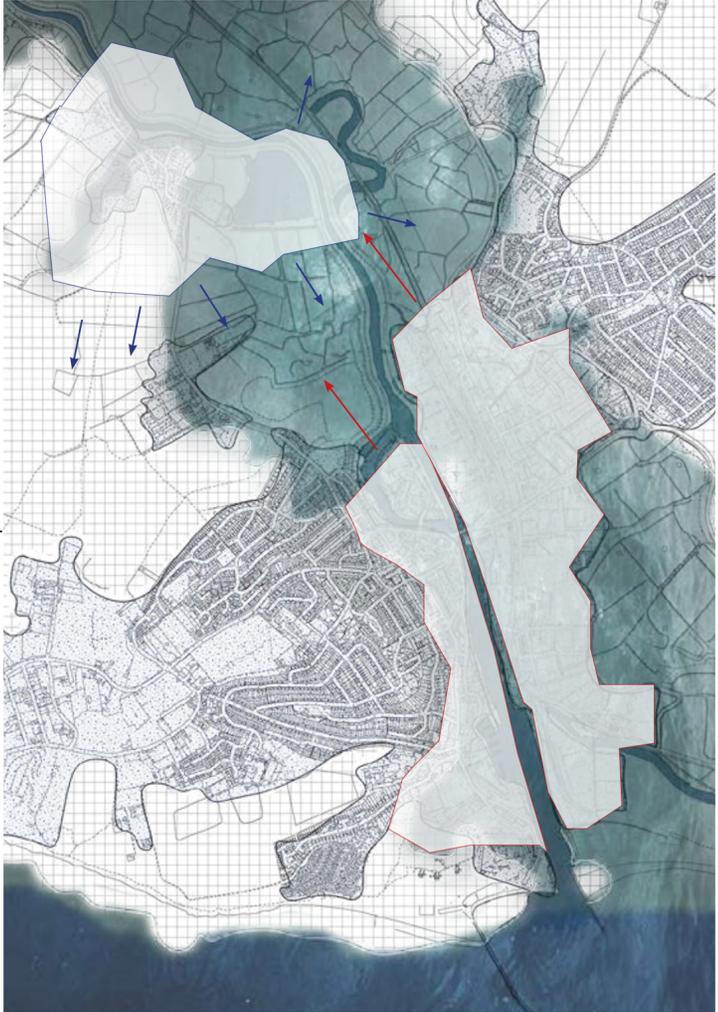


VILLAGE AND TOWNS LOCATED IN THE LOWER OUSE VALLEY

1. Southease
2. Piddinghoe
3. Newhaven
4. Tarring Neville
5. South Heighton
6. Denton
7. Bishopstone

MAP KEY

- Ocean water
- Ouse River Flow
- Flood Risk



PIDDINGHOE VS OTHER VILLAGES

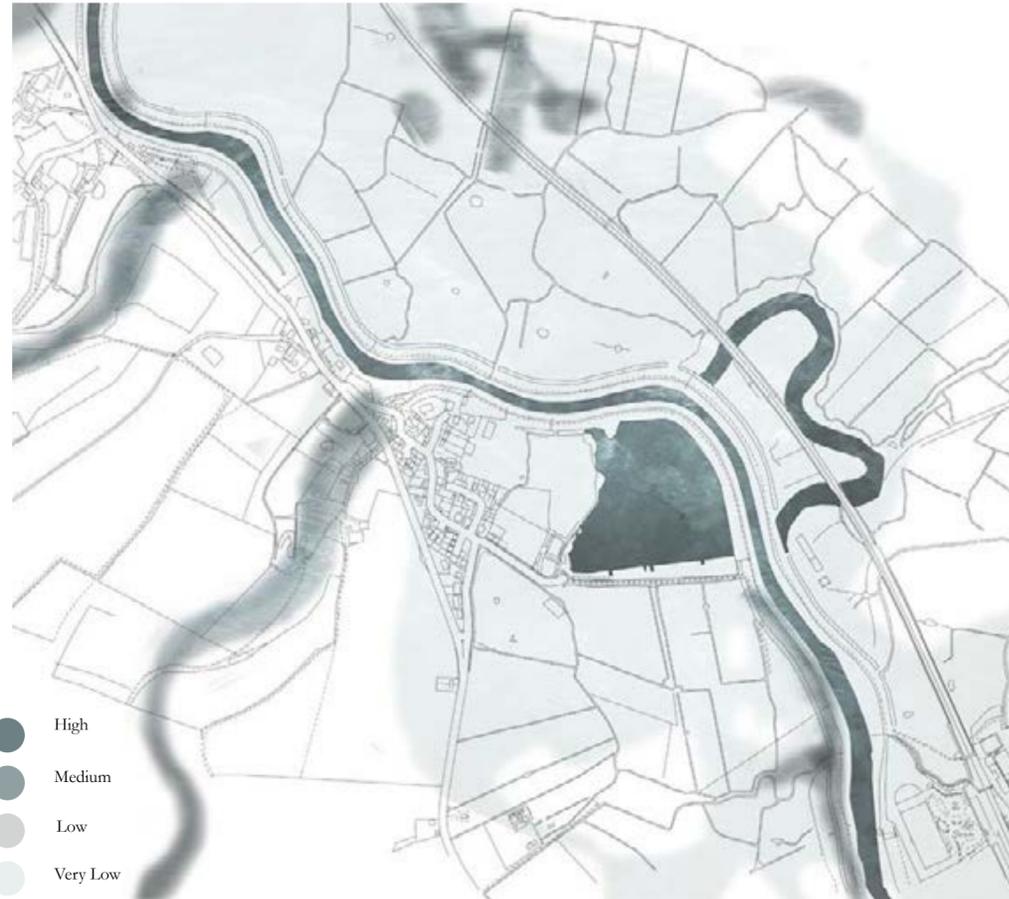
1. Expanding Village Circulating the flooding zones
2. Flooded zones from the south would be moving towards Piddinghoe.

MAP KEY

- Expanding
- Relocating

From Newhaven to Village flooding control system towards Piddinghoe. The village is further down which show it is the last to be flooded, its location shows that it will be partly flooded. So got to think of ways to keep the village intact and allow more villages to be able to resist the flooding situation.

SITE AROUND PIDDINGHOE



+ 0.0m



+ 0.0m



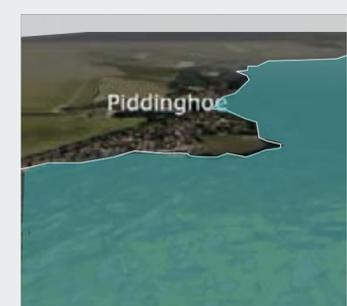
+ 1.0m



+ 1.0m



+ 1.0m



Sea Level Rise (m)
Source: CC2150 Coastal Futures Group

PIDDINGHOE

Land uplift in Piddinghoe

In the land boarder closer to the River Ouse there is a high risk for the sea level to rise. In the middle and central reason there will be a faster and higher increase with the flooding. Therefore means that the villages nearer to the coast has to come up with strategies in order to avoid catastrophics.

The evolution of The Ouse River



Today's Projection
Sea Level +0.5m



In 20 years
Sea Level +3m



In 50/60 years
Sea Level +30m

- Flood Zone
- Ouse River



- Site Boundaries
- Water Flow
- Biddinghoe Town

HOW PIDDINGHOE WAS FORMED



Formation of the Village

The focus here is to understand the formation of the Village of Piddinghoe, for an intention is to re form clusture of villages. The parish church, a pub, a smithy, a school, and a post office, combined with a shop, have started to form the Village. Some villages were abandoned because they have been lost to coastal erosion or the creation of reservoirs, which makes the remains less accessible to archaeologists.

The village clustered around a nucleus of church and manor house. The whole of the village is an Open field agriculture. It grew organically but others show evidence of planning with a scale of 250 population.

PLAN FORM, SITE LAYOUT AND BOUNDARIES

01. The Buildings are loosely spaced along a meandering lane, with bends creating closed vistas.

02. The churchyard and the green in front of it are the centre of the village, although they lie off the main street.

03. A grass bank in front of Church Cottages is significant

04. The River Ouse forms a strong boundary defining the eastern edge of the village.

05. The C7 forms a similarly strong boundary to the west.

06. The Hoe Recreation Ground is the most important open space.

1. St. John's Church

2. The old Vicarage

3. Deep Sea Anglers Club

4. Barn Converted For Residential Use

5. The Hoe

6. Blythe Cottages

7. Riverside Walk

8. Rounded Flints on Threshing Barn (Boathouse)

■ Circulation

■ Main road

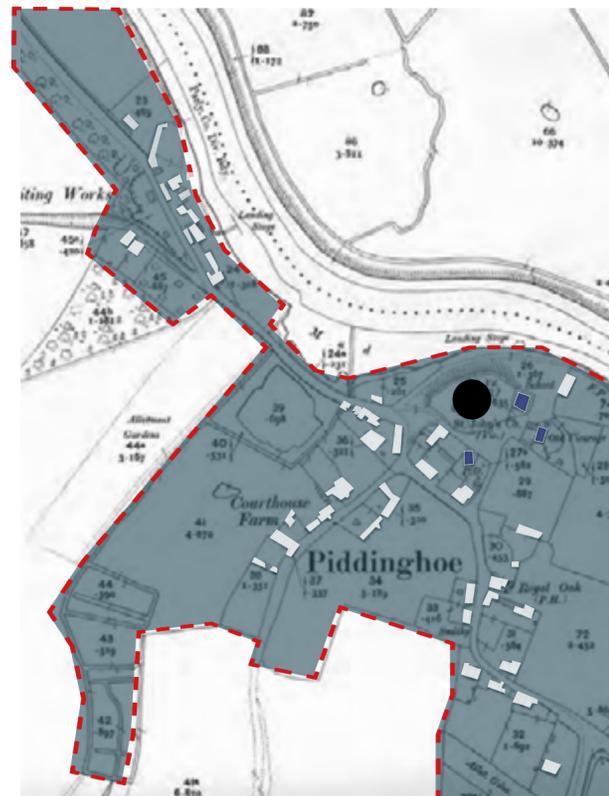
VILLAGE GROWTH



Farm Estate Map 1806



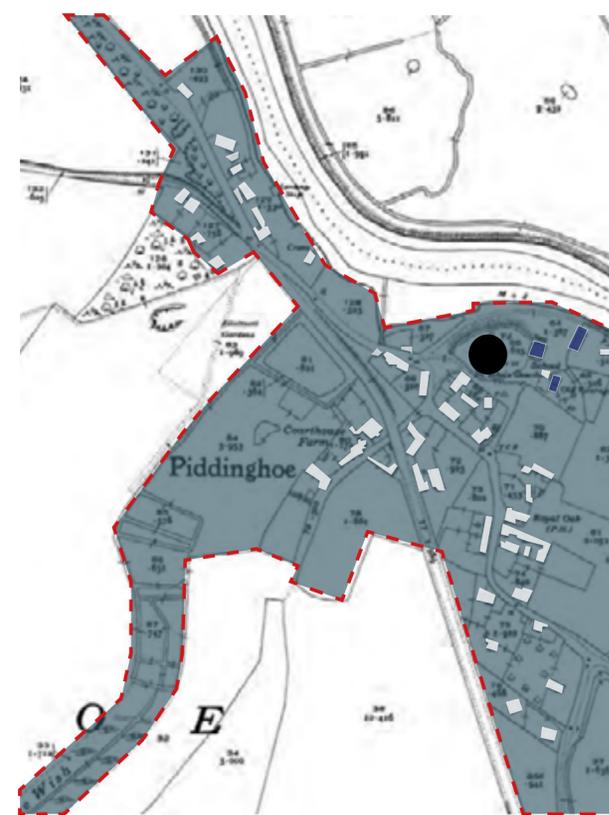
1897 Map



1908 Map



1929 Map



1932 Map



2019 Map

GROWTH

Worked fertile soil on its edges, started when the Saxons created a number of farms at intervals along the river now partly represented by the established villages such as Piddinghoe.

MAP KEY

- First buildings around the church
- Saint John's Church
- Barns / Cottages and houses added
- Piddinghoe

1806

With agriculture and fishing being the principal occupations. The map confirms that the Earl of Chichester owned the land to the north of Piddinghoe, based on Deans Farm and Hoddern Farm. It also shows the original route of the valley road which followed the higher land, avoiding the flooded valley of the river below. At this time, the Earl of Sheffield owned the land south of Deans.

1897

The map shows Piddinghoe as a small village surrounded by the fields of Courthouse Farm.

1879 - 1892

(Brick and Tile) works. The notable buildings were the new school (1879) and the Royal Oak Public House (1892), the shop and post office being located in old cottages. Century brick and flint cowshed. In 1982 a modern house (Headlands) was built rather dramatically in the former chalk quarry on the opposite side of the road.

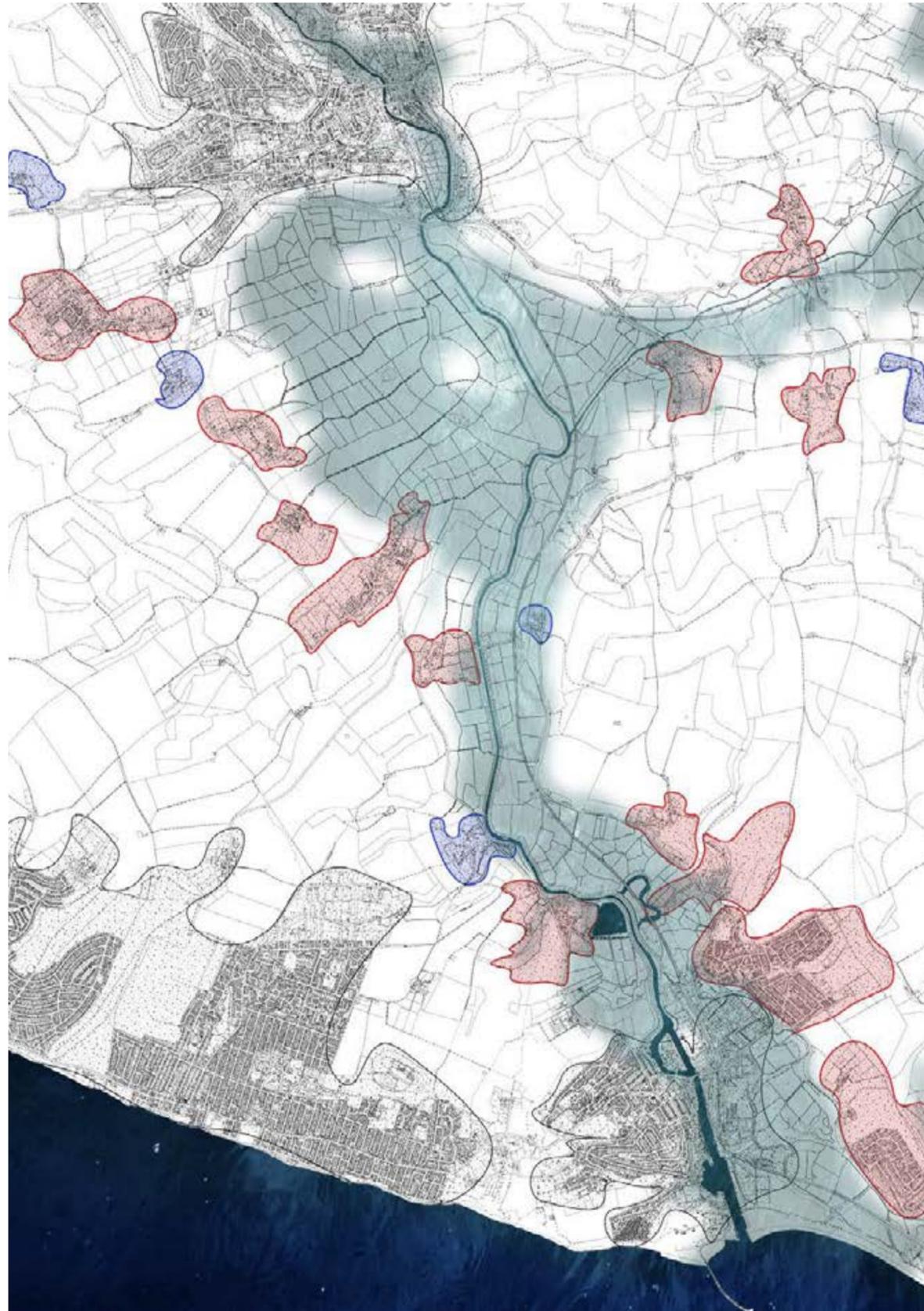
1960

Further new housing was added - Court Farm Close and Shepherds Close.

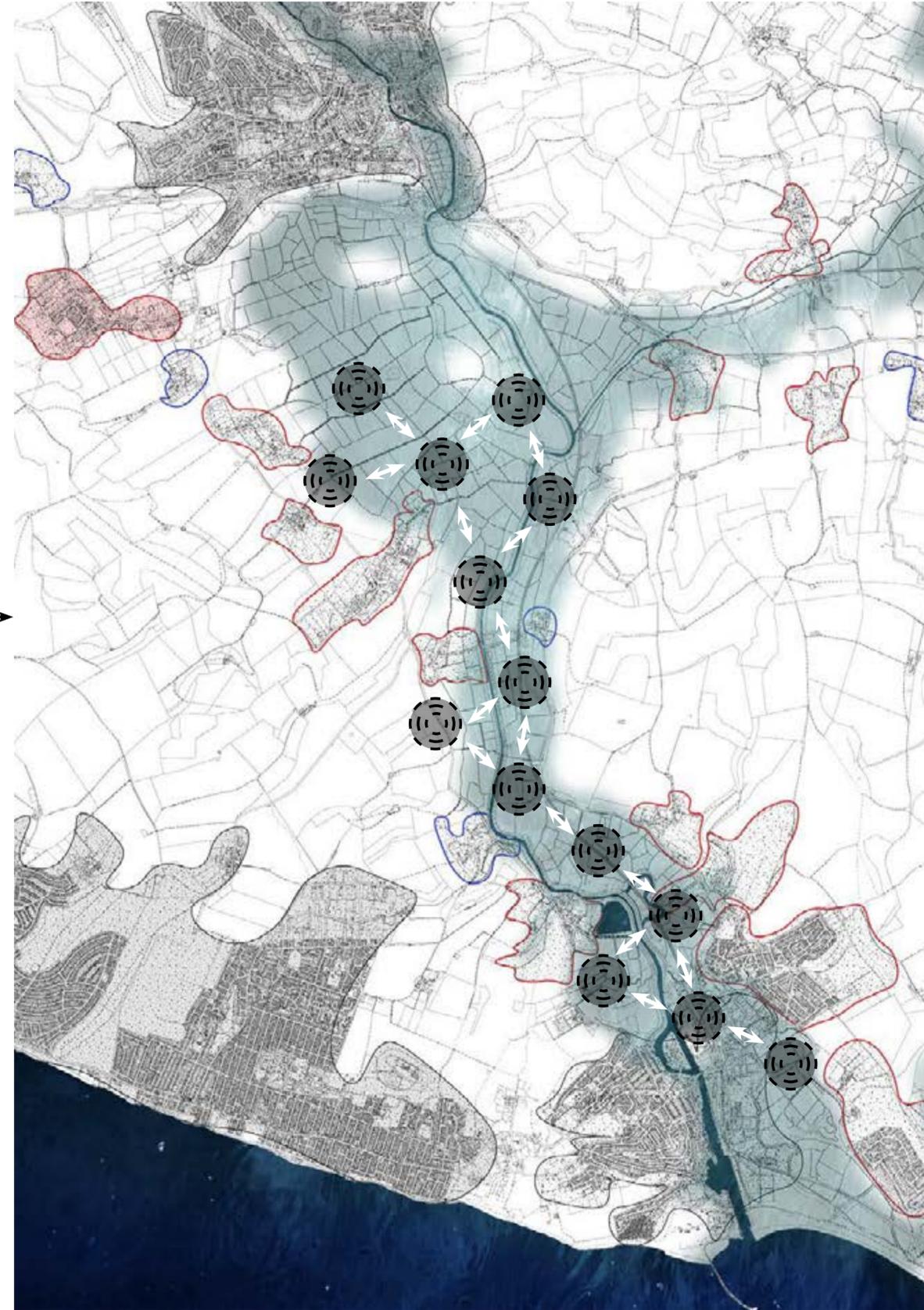
2019

Today it is a residential village with a strong sense of community, helped by the many activities which take place in the village hall and on the river.

EXISTING VILLAGES AND PRIVATE SETTLEMENTS



ADDING CLUSTURE OF VILLAGES



- Existing Villages
- Private Settlements
- Cluster of new Villages
- Certain space between the Cluster

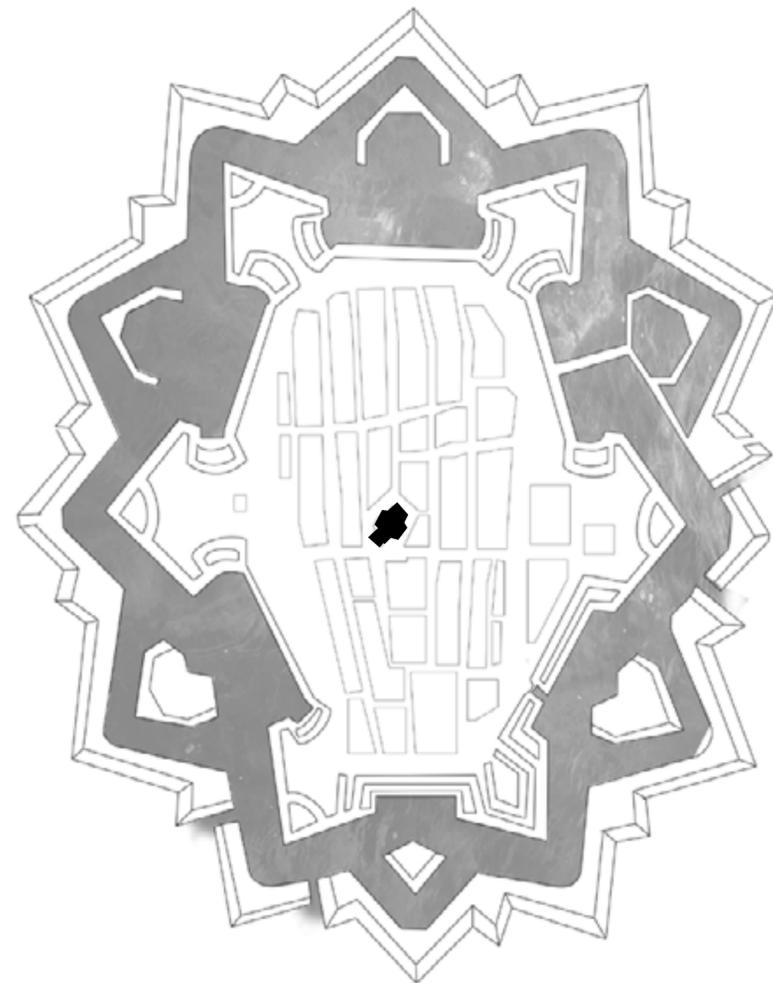
By allowing the success of fish natural sources to ameliorate the production of agricultural / farm lands, it would be an option to start focusing on locating cluster of land between the existing villages where the flood zone will most probably occur. Making use of the villages rather than them being forgotten and abandoned. Re-use of Villages, and additional cluster of villages while still allowing the re-wilding of the river/streams to take over the whole site.



STAR FORT BOURTANGE IN NETHERLANDS

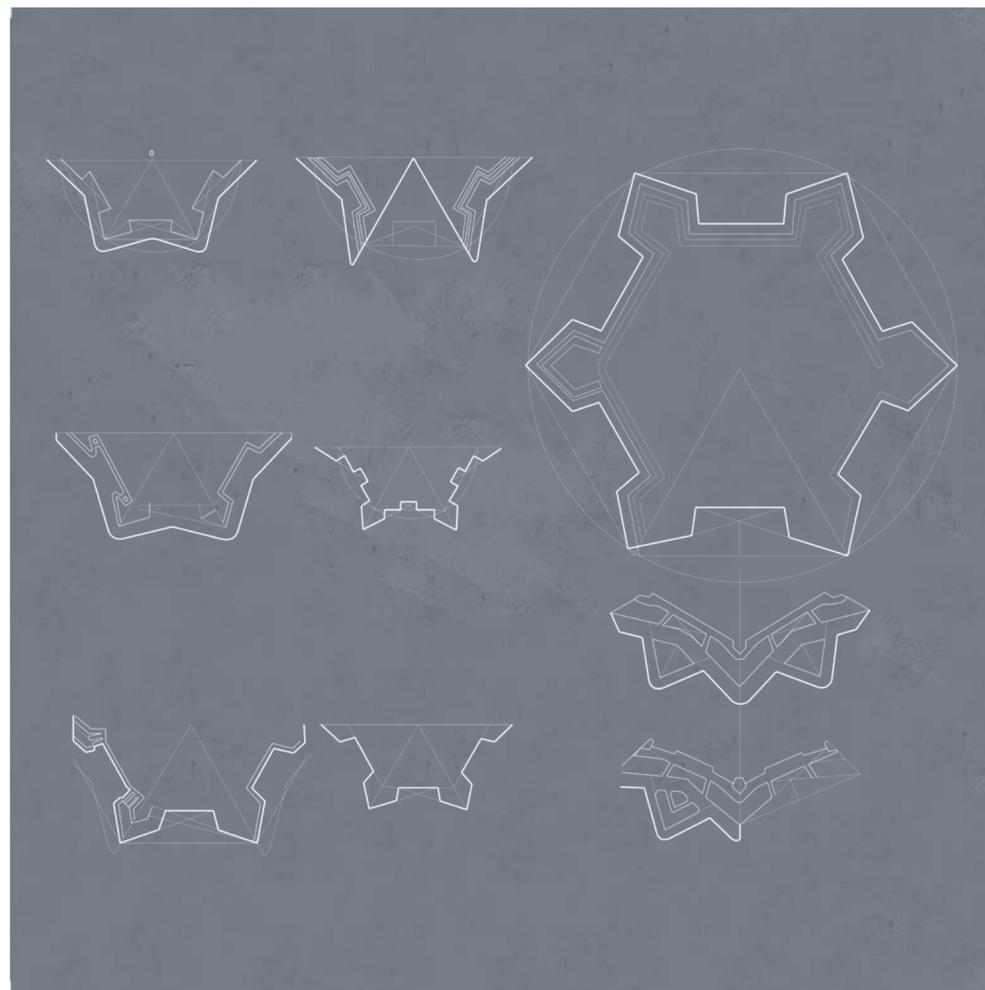
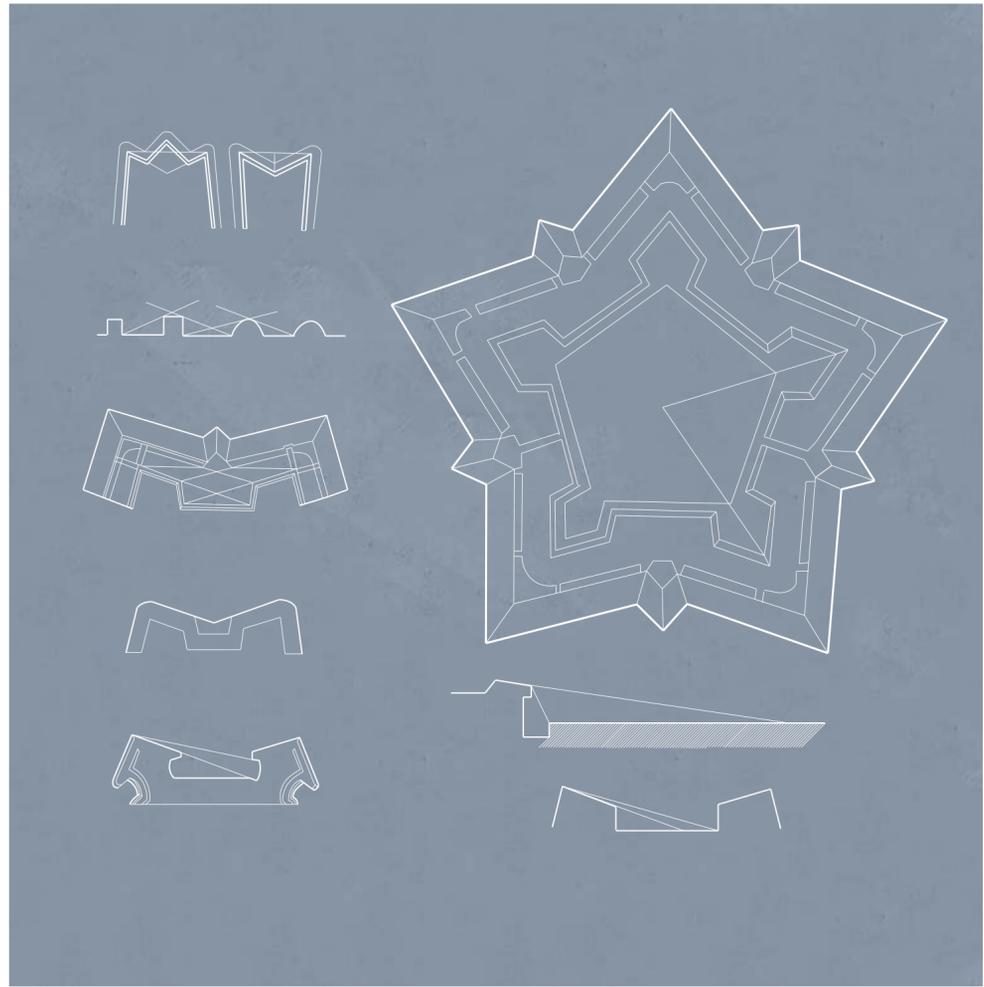
Built in 1593 and converted from a fort to a village in 1851

NAARDEN TOWN IN GOOI NETHERLANDS



Naarden is a small town located to the east of Amsterdam, in the Gooi and Vecht region. One of the best preserved fortified towns in Europe, it forms part of the historic Defence Line of Amsterdam, a 135-kilometre-long ring of fortifications around the city. Classical town centre still encompassed by two elaborate star-shaped moats and stone walls, it's one of the most remarkable examples of a fortified town in Europe, and a perfectly preserved piece of Dutch defensive history. The town's Grote Kerk is among the country's oldest churches and it houses a series of wooden vaults filled with scenes from the Old and New Testaments.

NAARDEN TOWN IN GOOI NETHERLANDS

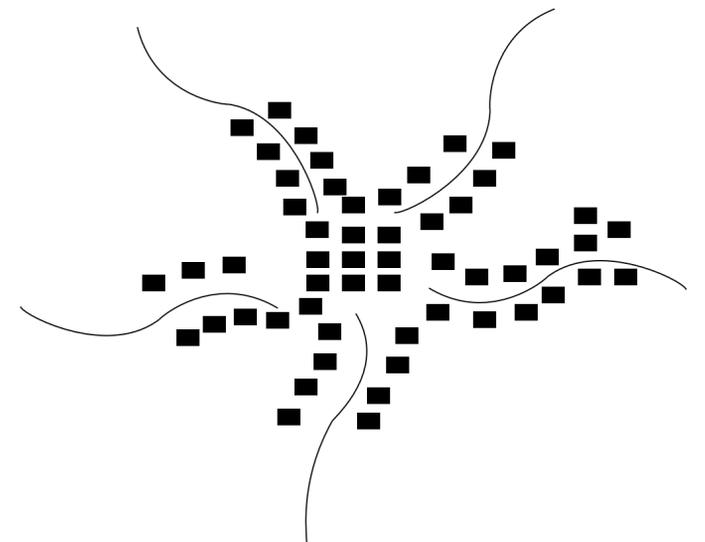
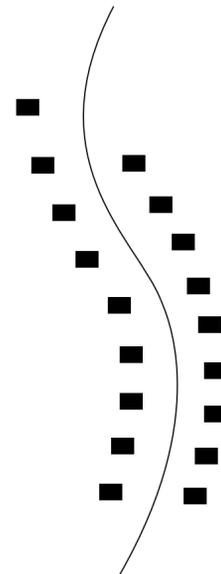
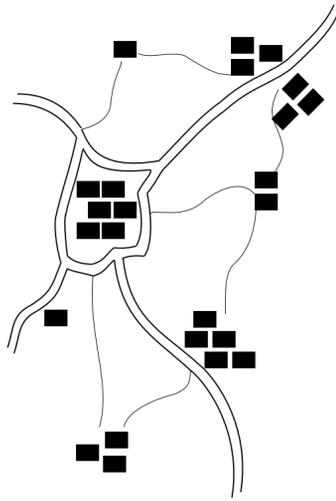
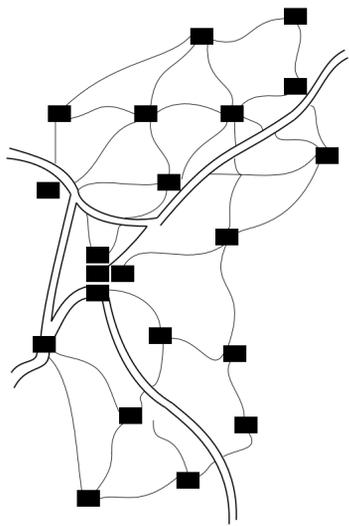


TYPES OF SETTLEMENT PATTERNS

DISPERSAL



LINEAR



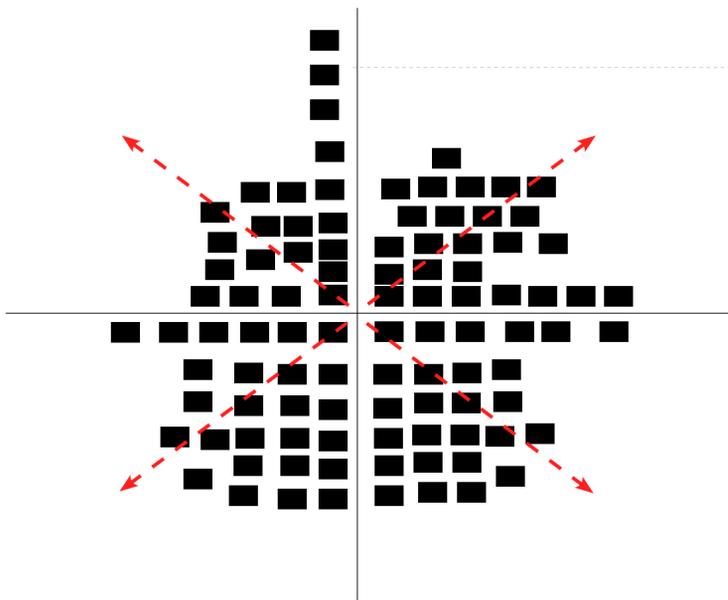
Individual buildings or farmsteads scattered over a wide area, with large open spaces separating them. Its development is often in rural settings or in regions that have limited fertile soil and natural resources. The spreading out of people ensures cultivation of vast lands for more yields.

Linear settlements consist of buildings or homes built to form a line, for instance, along a road or a river. Development of this type of arrangement provides easy access to transport routes which are sources of livelihood for residents.

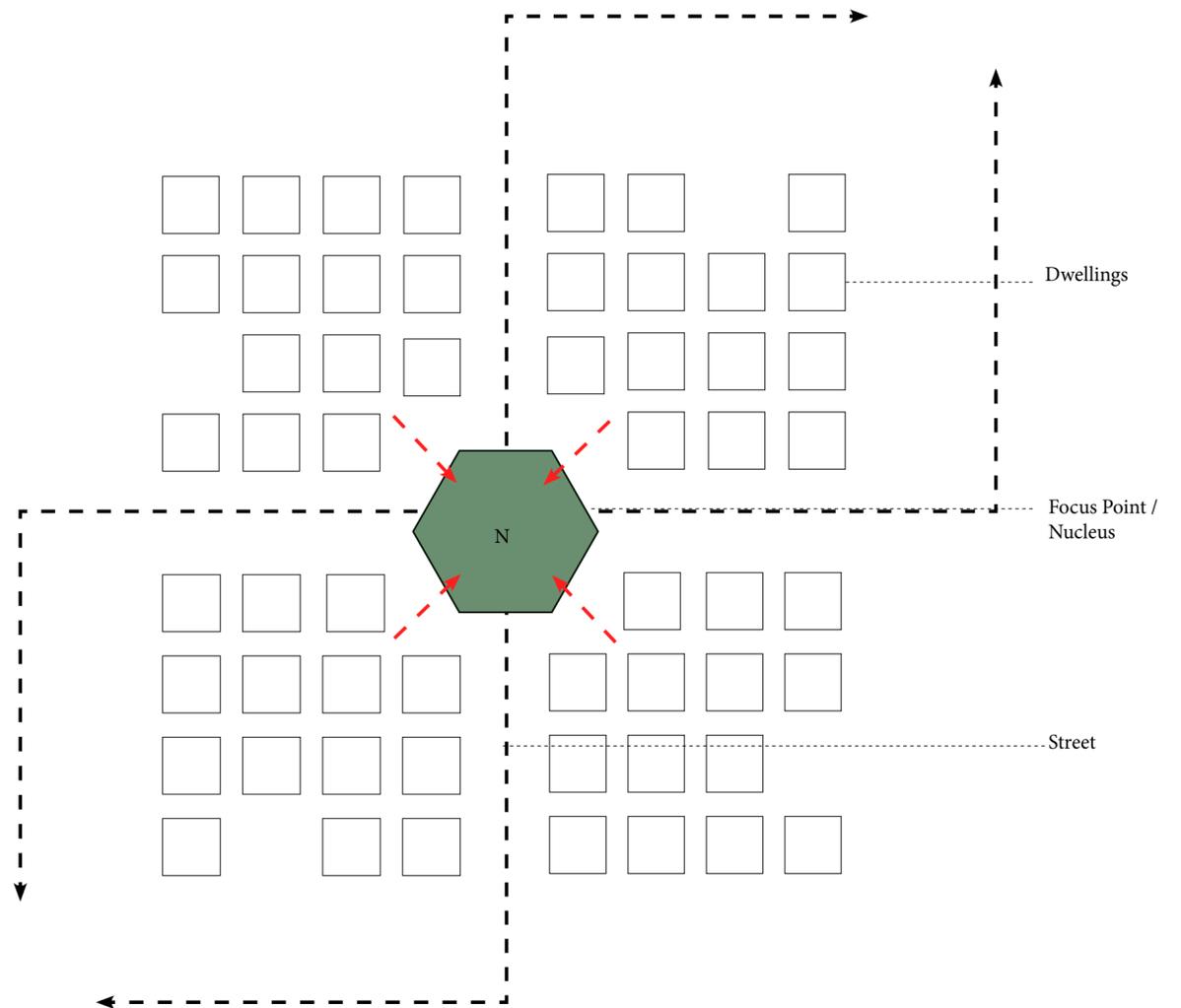
NUCLEATED



close to a water supply or located at a route centre.



Nucleated villages are large and have various functions, which can be used to classify them. In a rural setting, such a settlement offers limited services, but in an urban setting the range of services is more extensive. Nucleated villages developed around churches or monasteries are termed Ecclesiastical and provides for the people's religious needs.



01 localized water supply, the incidence of flooding, or rich soils so that farmers can easily get to their smaller, productive fields while continuing to live in the village. 'Nucleated settlement does not in itself necessarily induce a sense of community... nucleated settlement in itself is only a part of the process of constructing and maintaining a sense of common interest'

02 the reason for the development of such settlements as a combination of climate and soil quality leading to use of various agricultural techniques. Landowners in the medieval period built new houses in two rows on plots having equal sizes, creating burgage plots



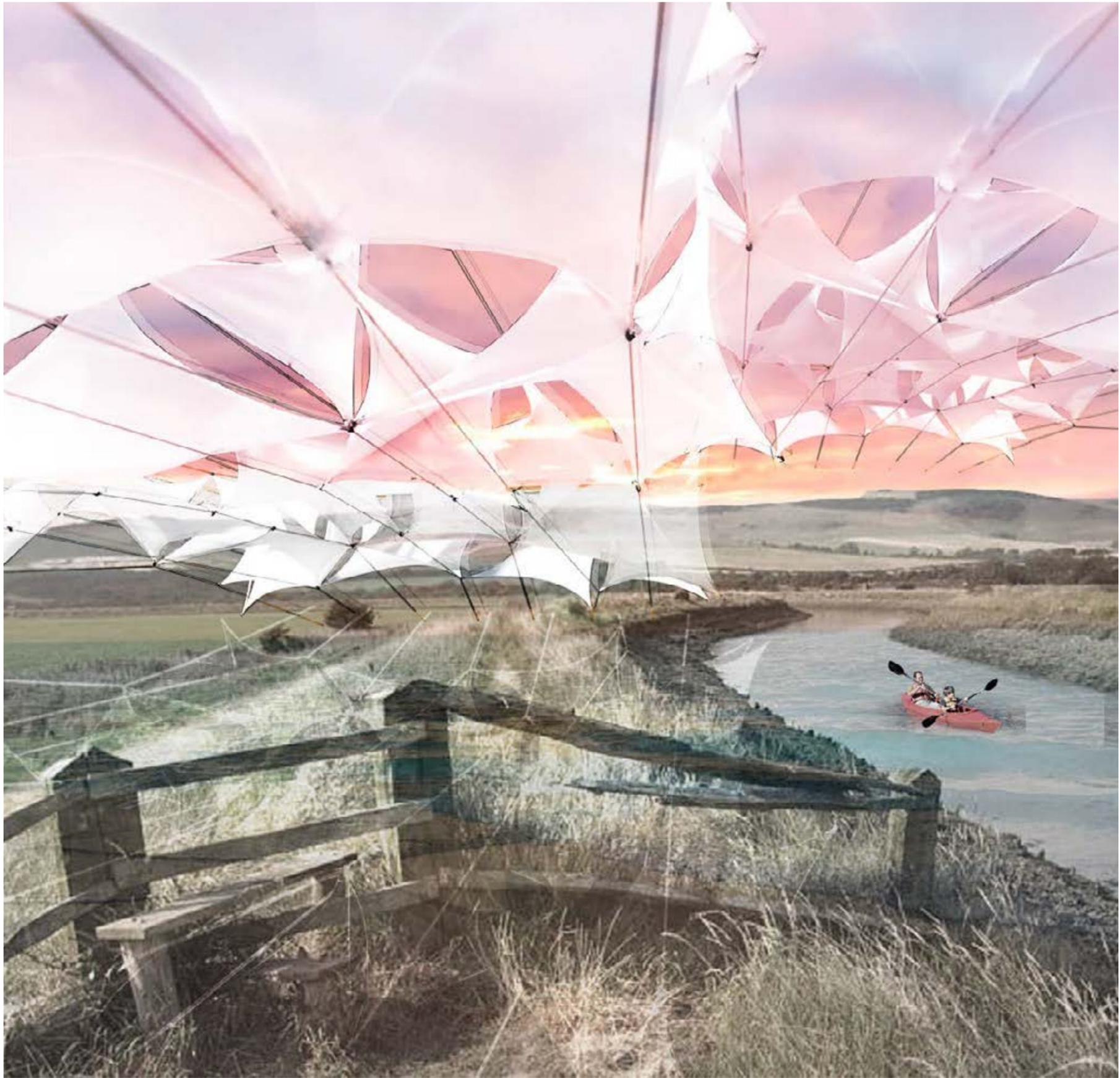
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PRIVATE AND PUBLIC SPACE



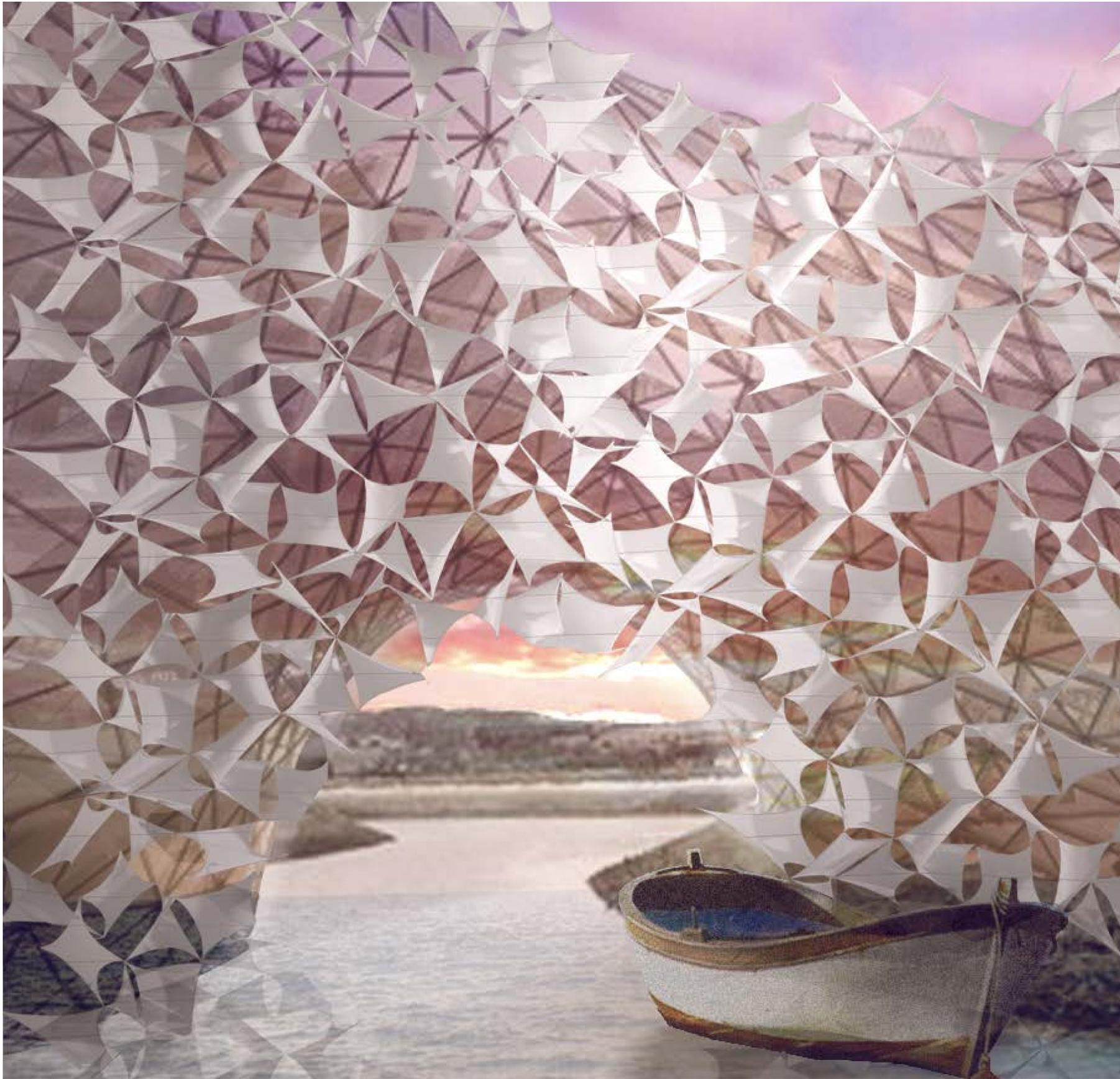
MONTAGE

SITE REFLECTION



MONTAGE

SITE REFLECTION



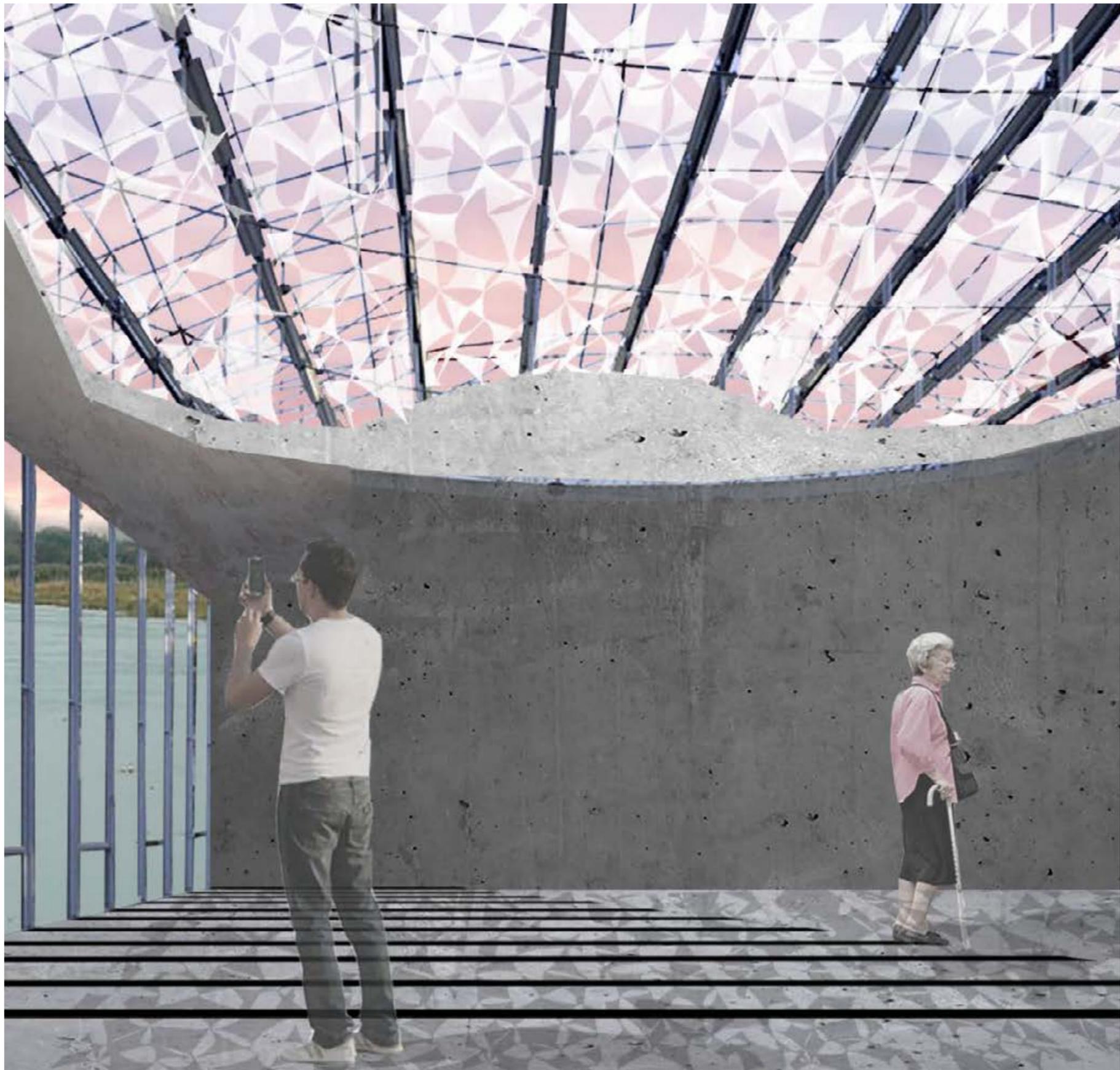
MONTAGE

LAGOON CANAL REFLECTION



MONTAGE

INTERIOR SPACE



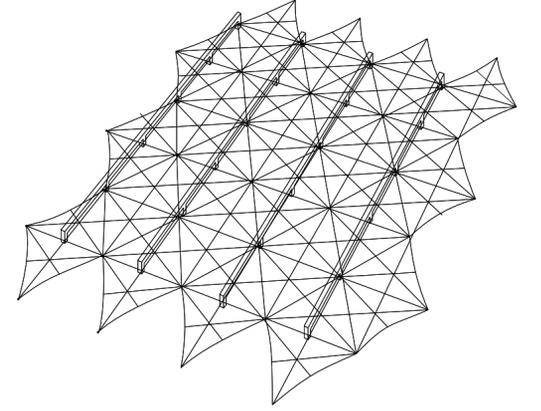
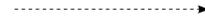
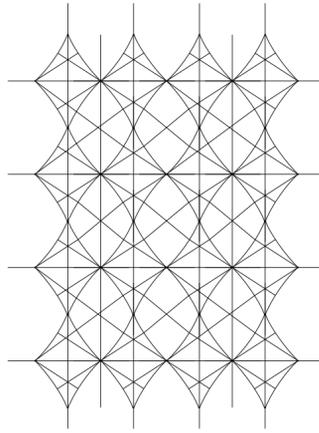
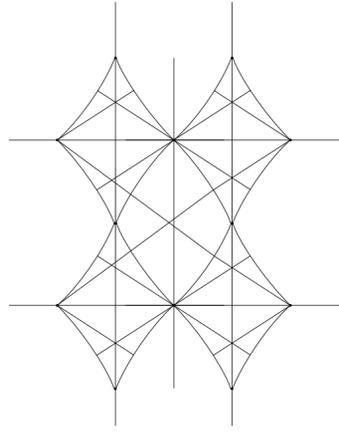
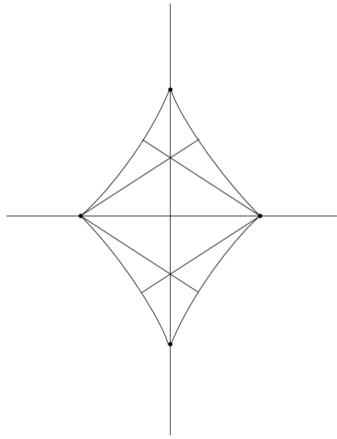
MONTAGE

INTERIOR SPACE

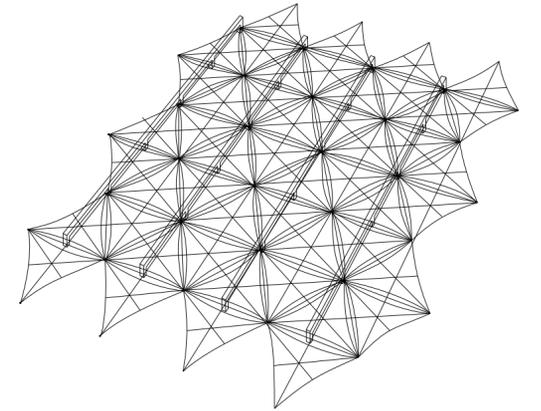
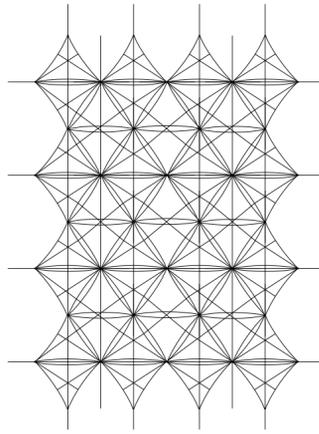
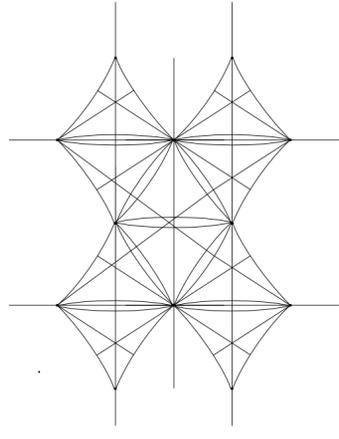
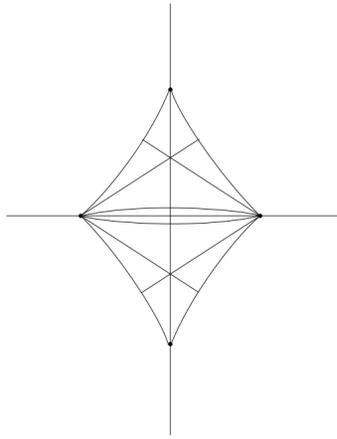
SET OF TENSIONED CANOPY SYSTEMS

1

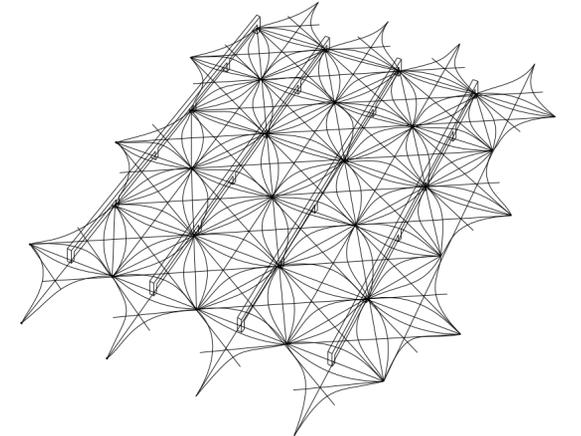
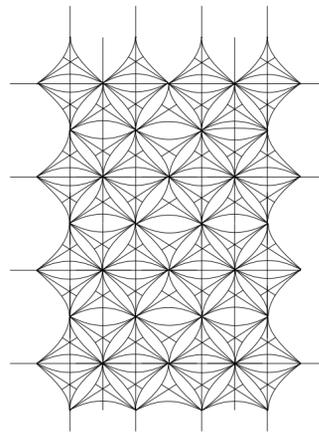
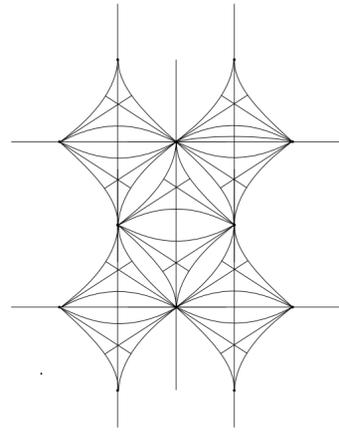
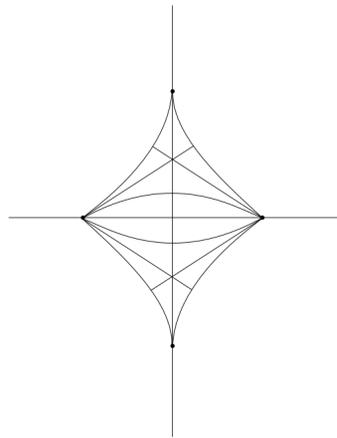
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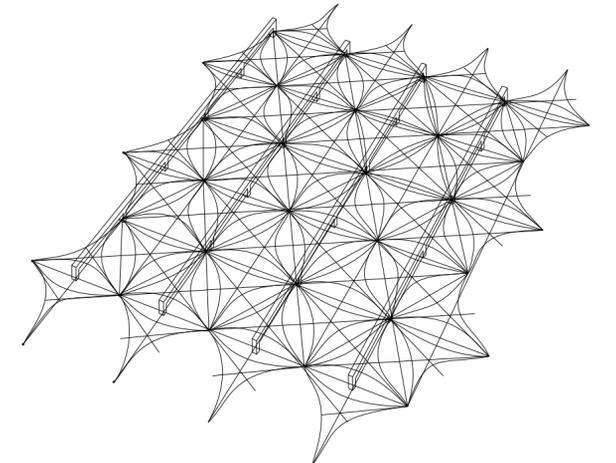
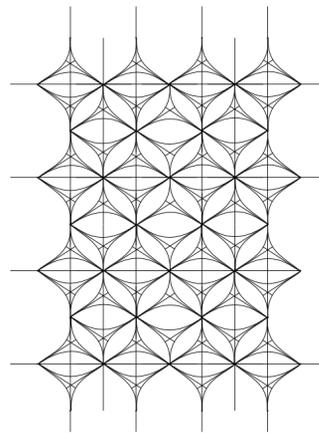
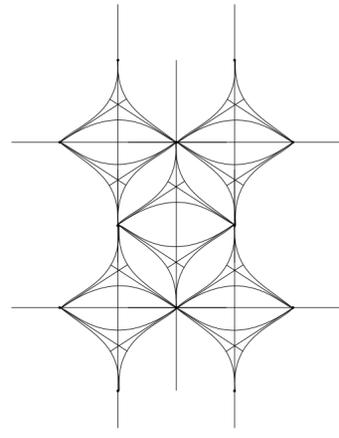
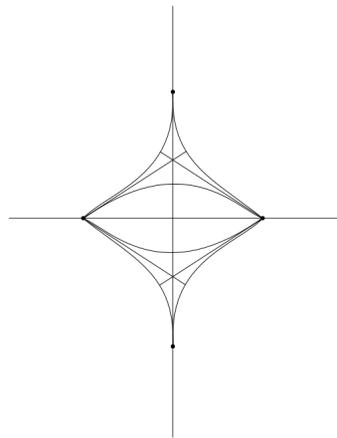
02



03



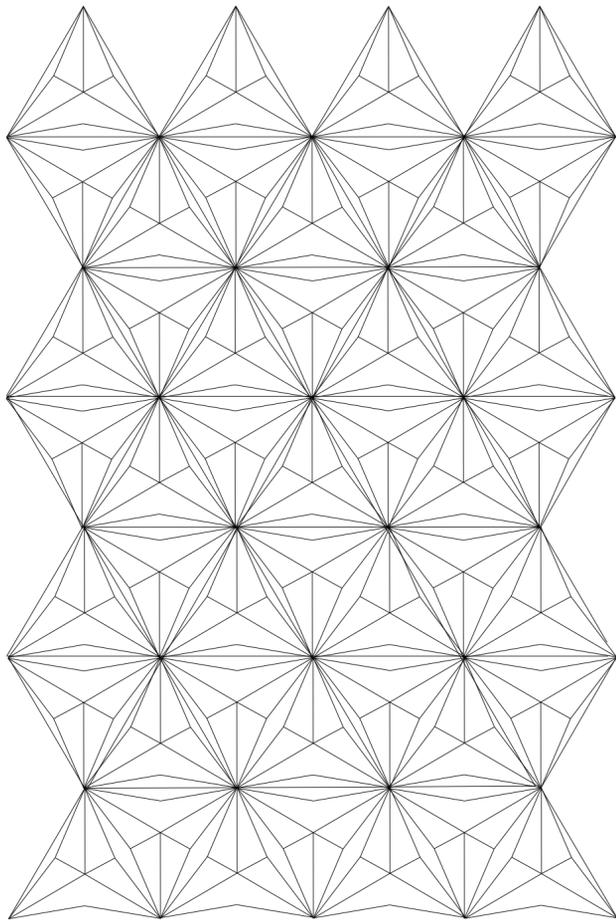
04



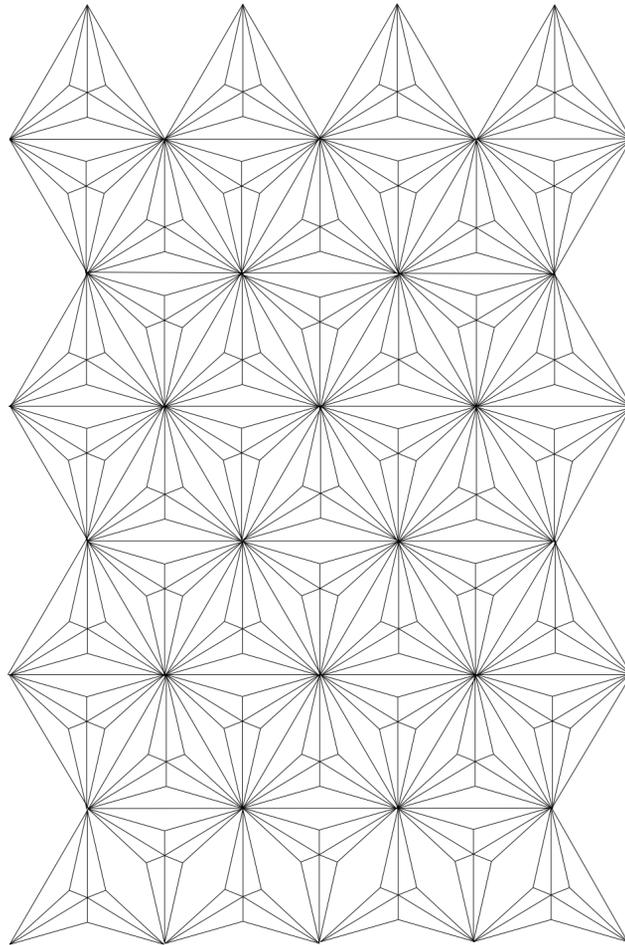
Sequence of the opening, this shows the horizontal elements which function as a canopy structure. This is testing the variables that regulate the opening

SET OF TENSIONED CANOPY SYSTEMS

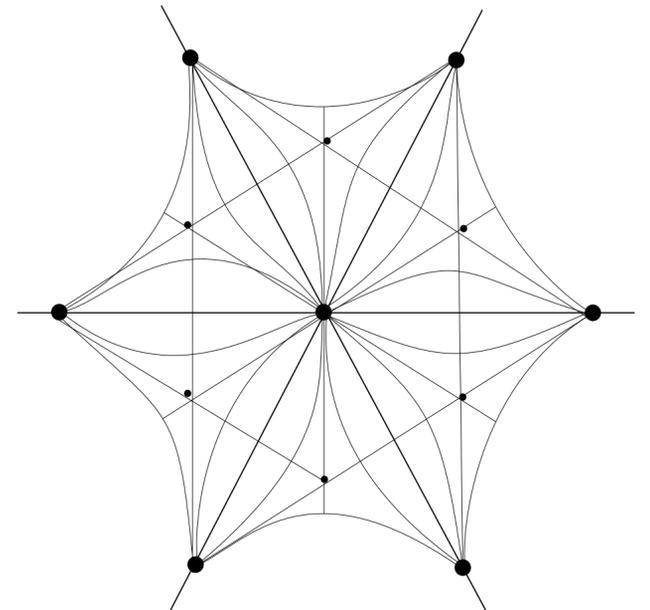
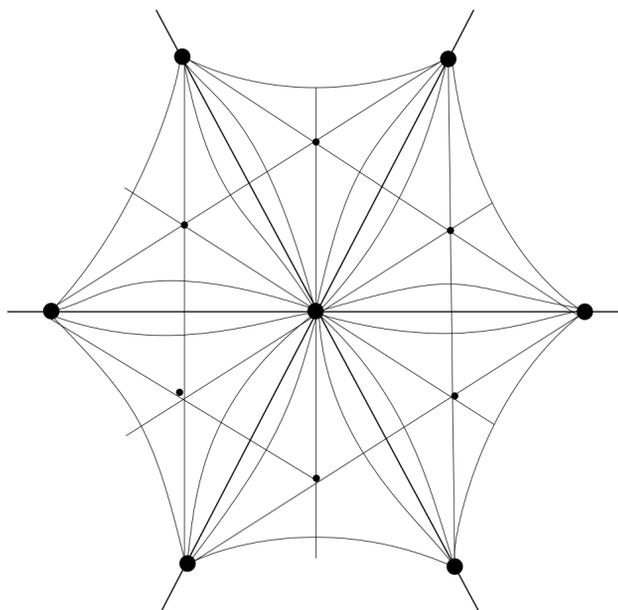
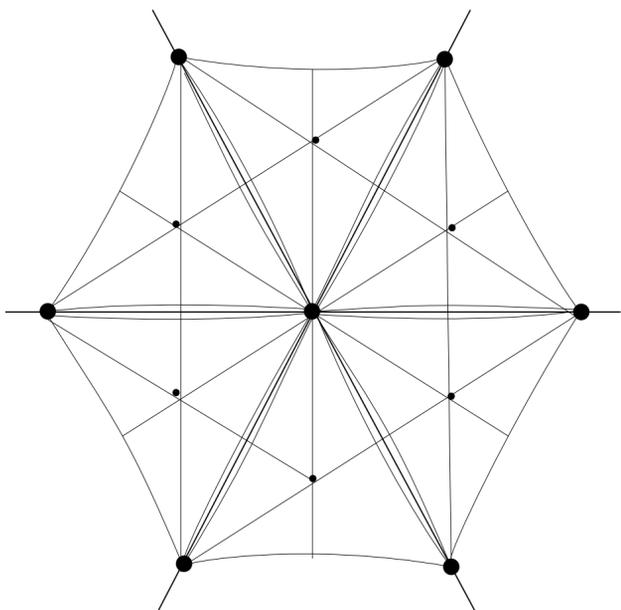
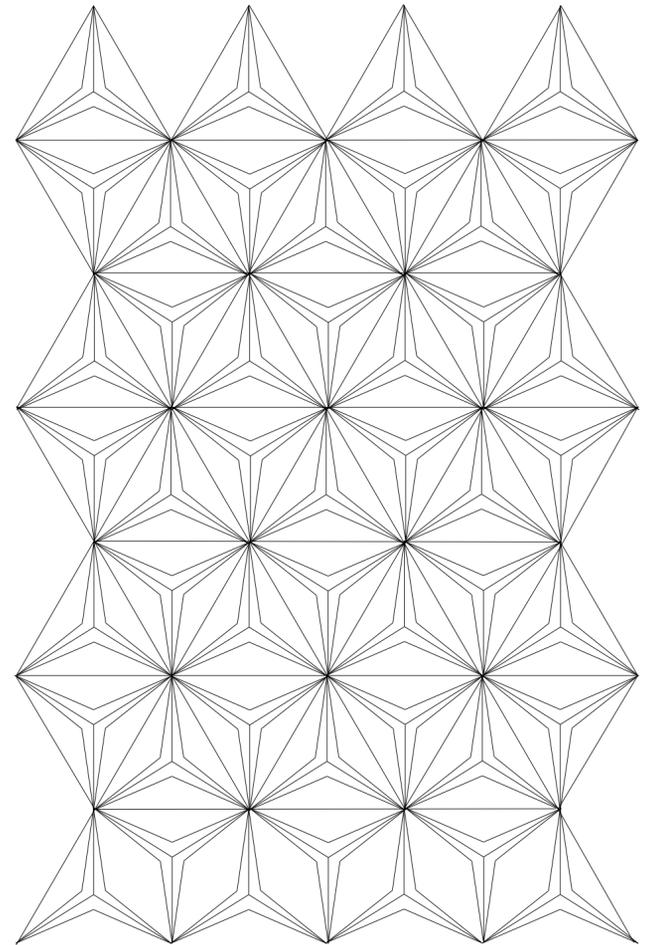
01

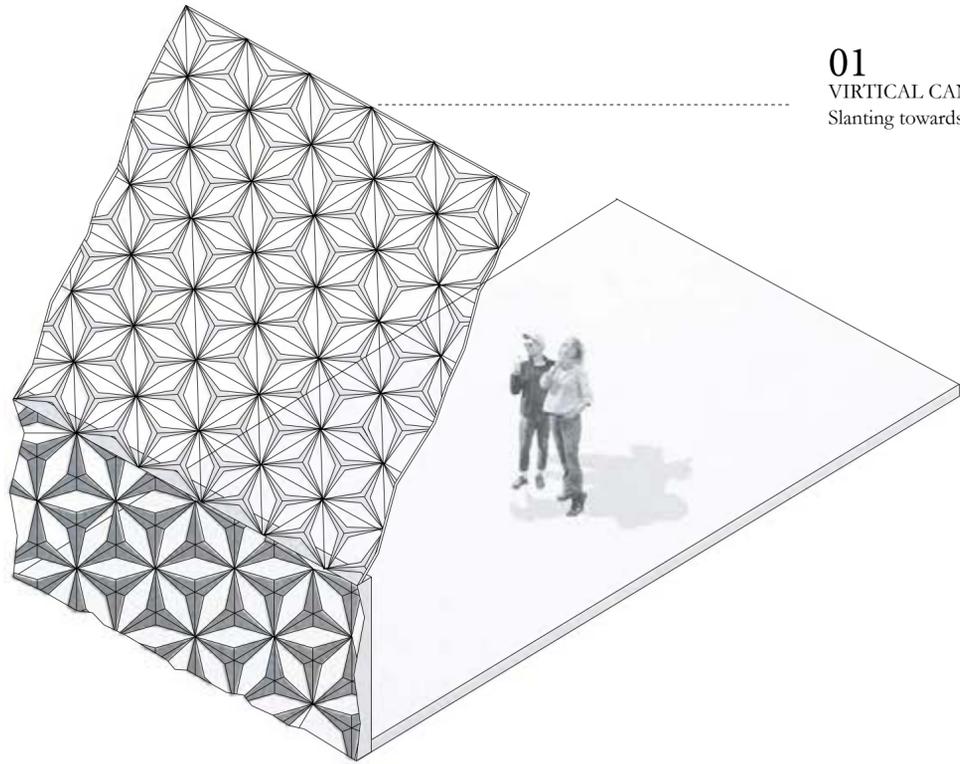


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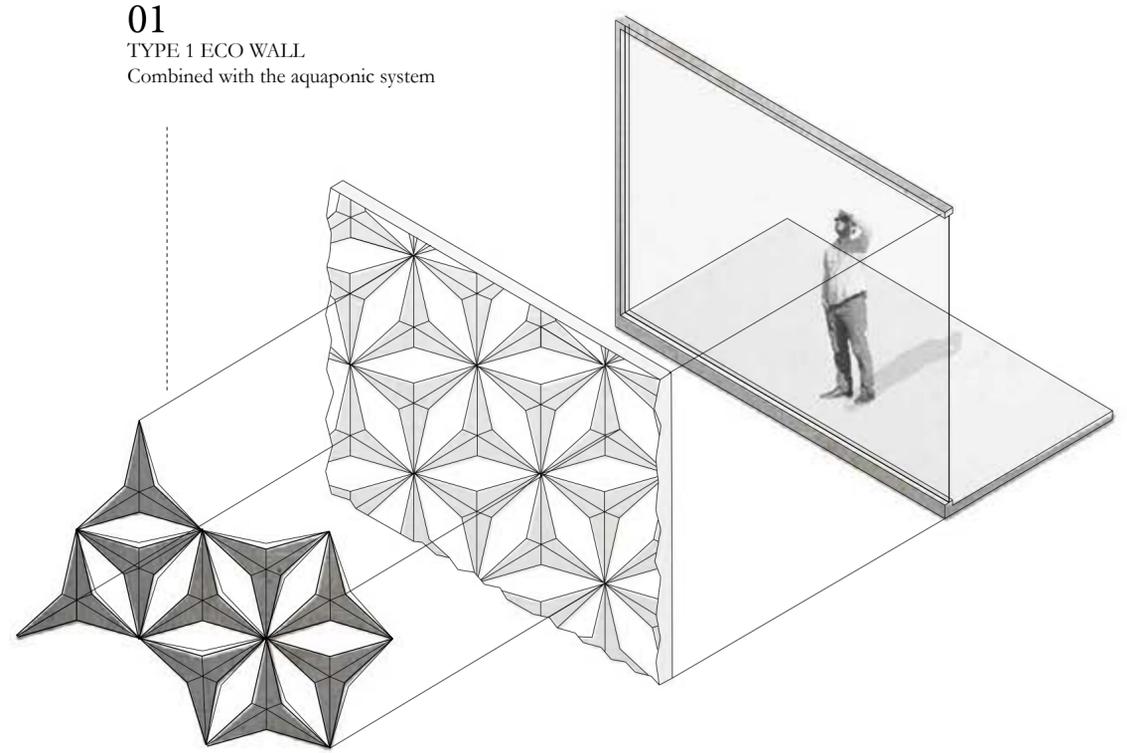


03

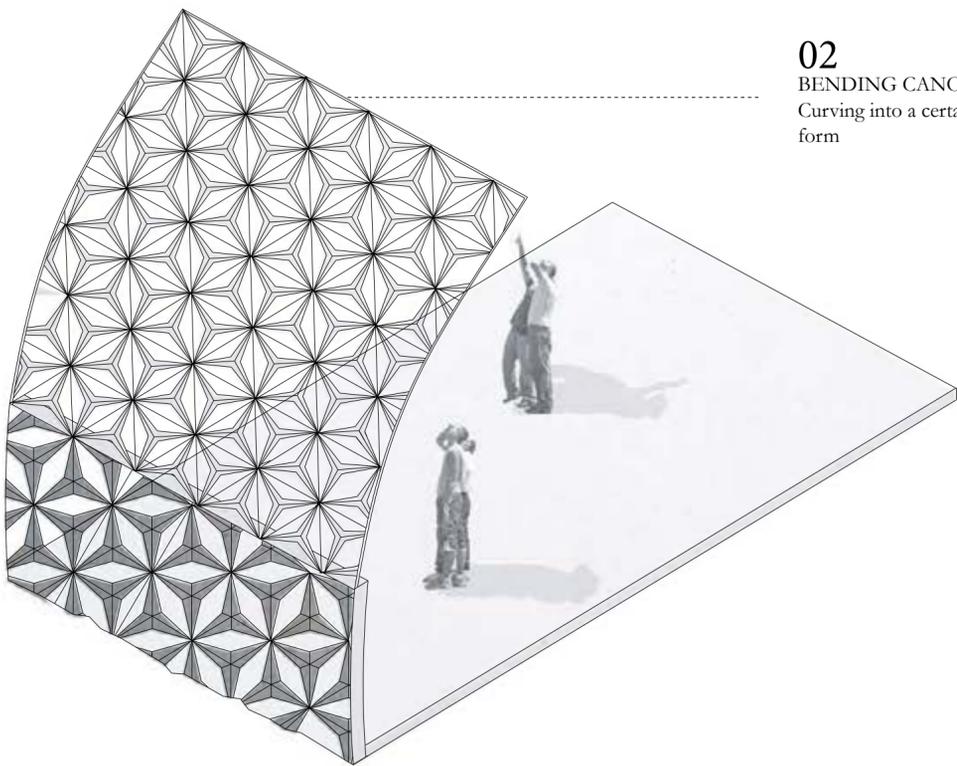




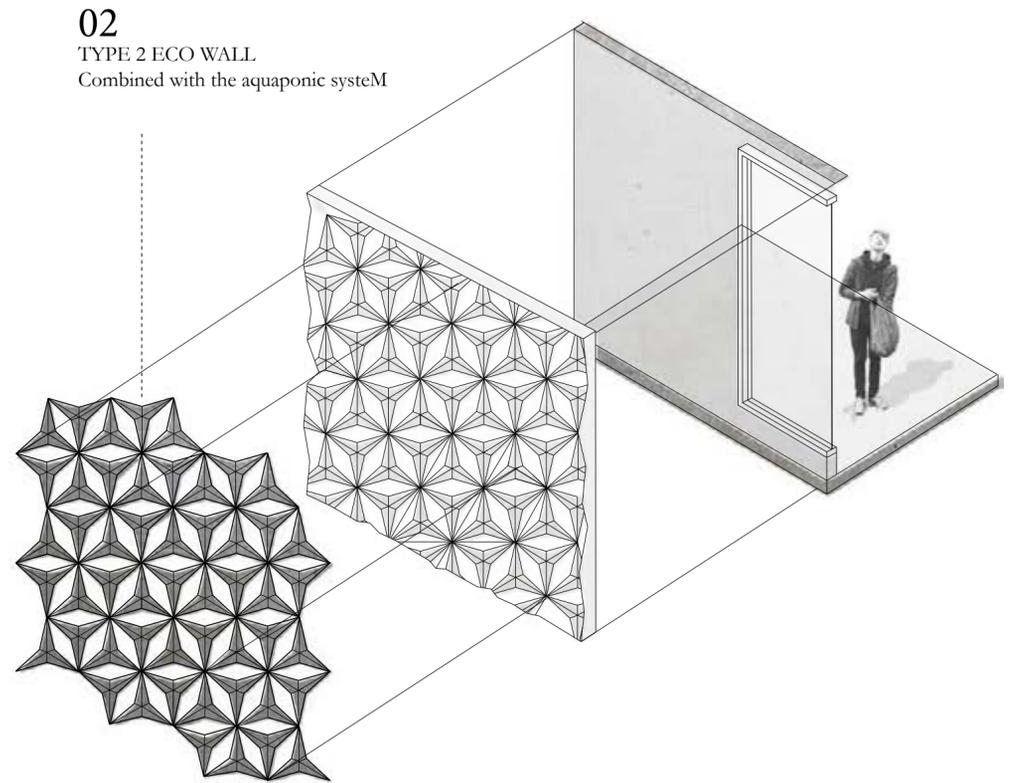
01
VERTICAL CANOPY
 Slanting towards the top



01
TYPE 1 ECO WALL
 Combined with the aquaponic system



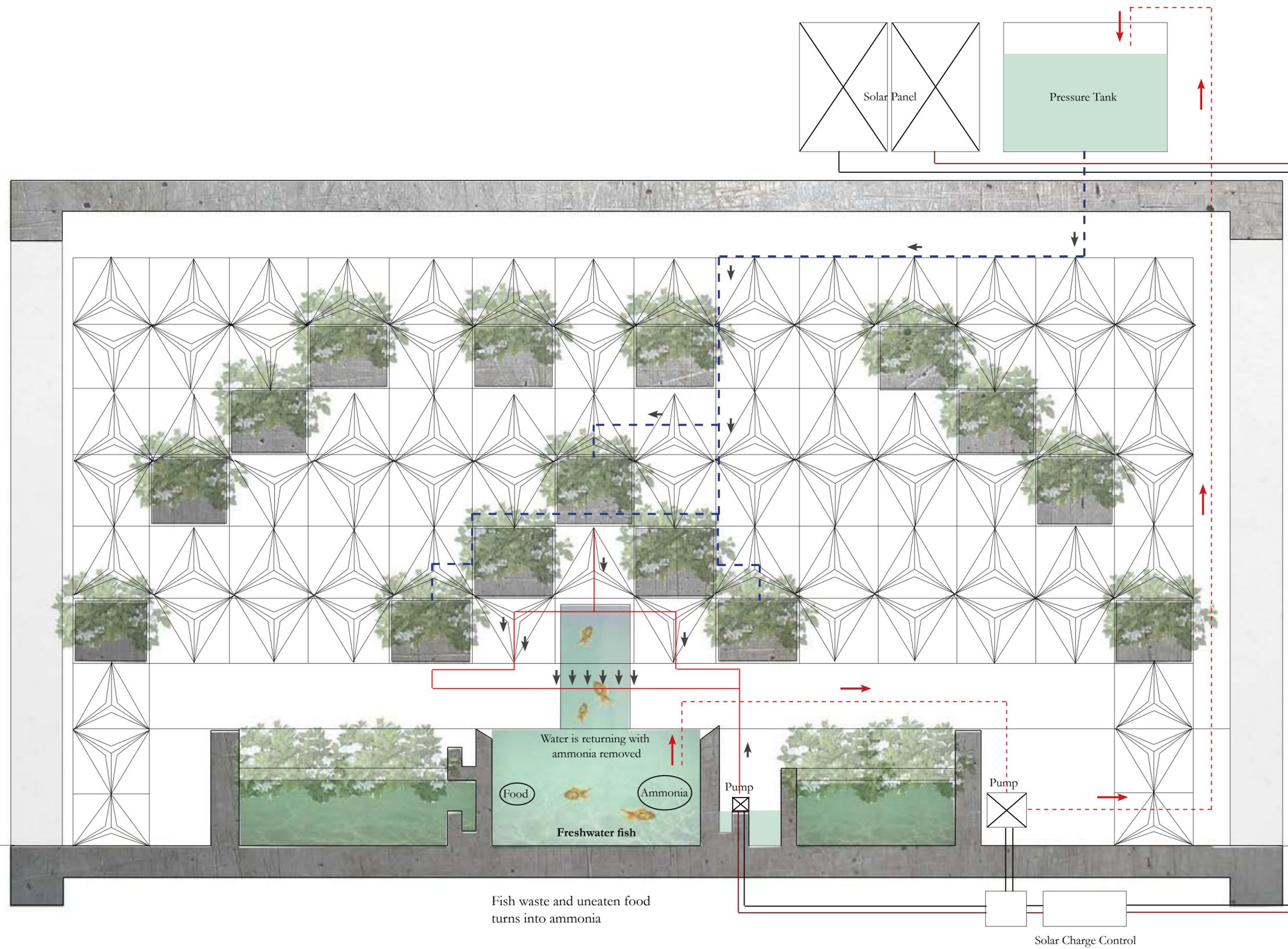
02
BENDING CANOPY
 Curving into a certain form



02
TYPE 2 ECO WALL
 Combined with the aquaponic system

WALL SYSTEM - AQUAPONIC

Aquaponic Nitrogen Cycle for Eco-walls



TERRETORY 01

River and stream species

The importance of the Phosphorus cycle:

Retention

Beavers, engineer ecosystems which can reduce Phosphorus runoff, retaining vital nutrients in upstream aquatic and riparian environments.

Filtering

Oysters and mussels filter nutrients from the water column. The bio-deposits that bivalve suspension feeders deposit play an important role in reducing the deleterious effects of eutrophication.

Upstream movement

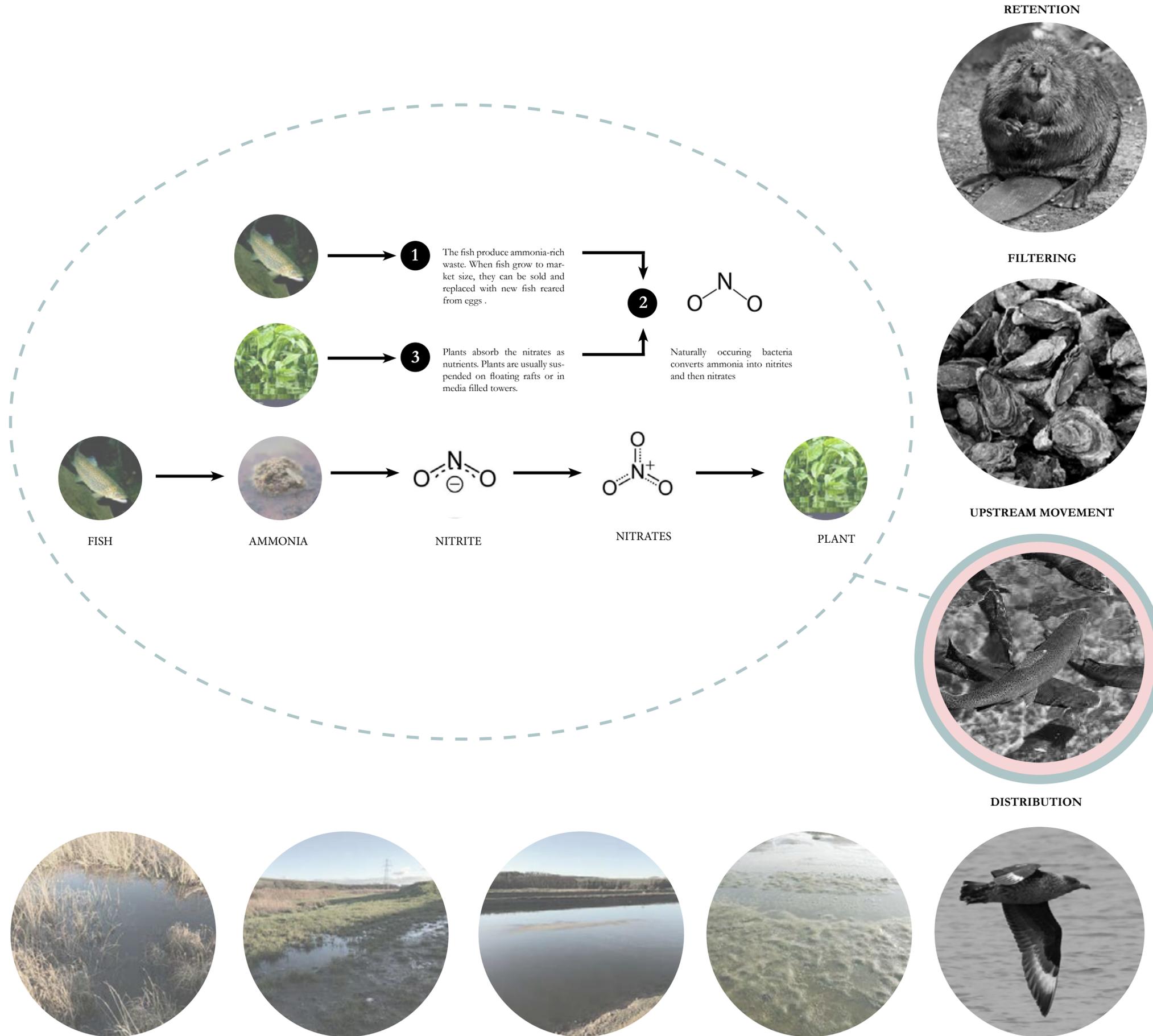
Fish and seabirds transport phosphorus from the deep ocean back to terrestrial systems. This biological pump importantly bioaccumulates a distributed source of Phosphorus and converts it into a concentrated form in the bodies of marine animals.

Distribution

Herbivores, scavengers and carnivores then distribute Phosphorus across the land. Animal digestion accelerates the cycling of nutrients to more labile forms in excreta.

DIAGRAM

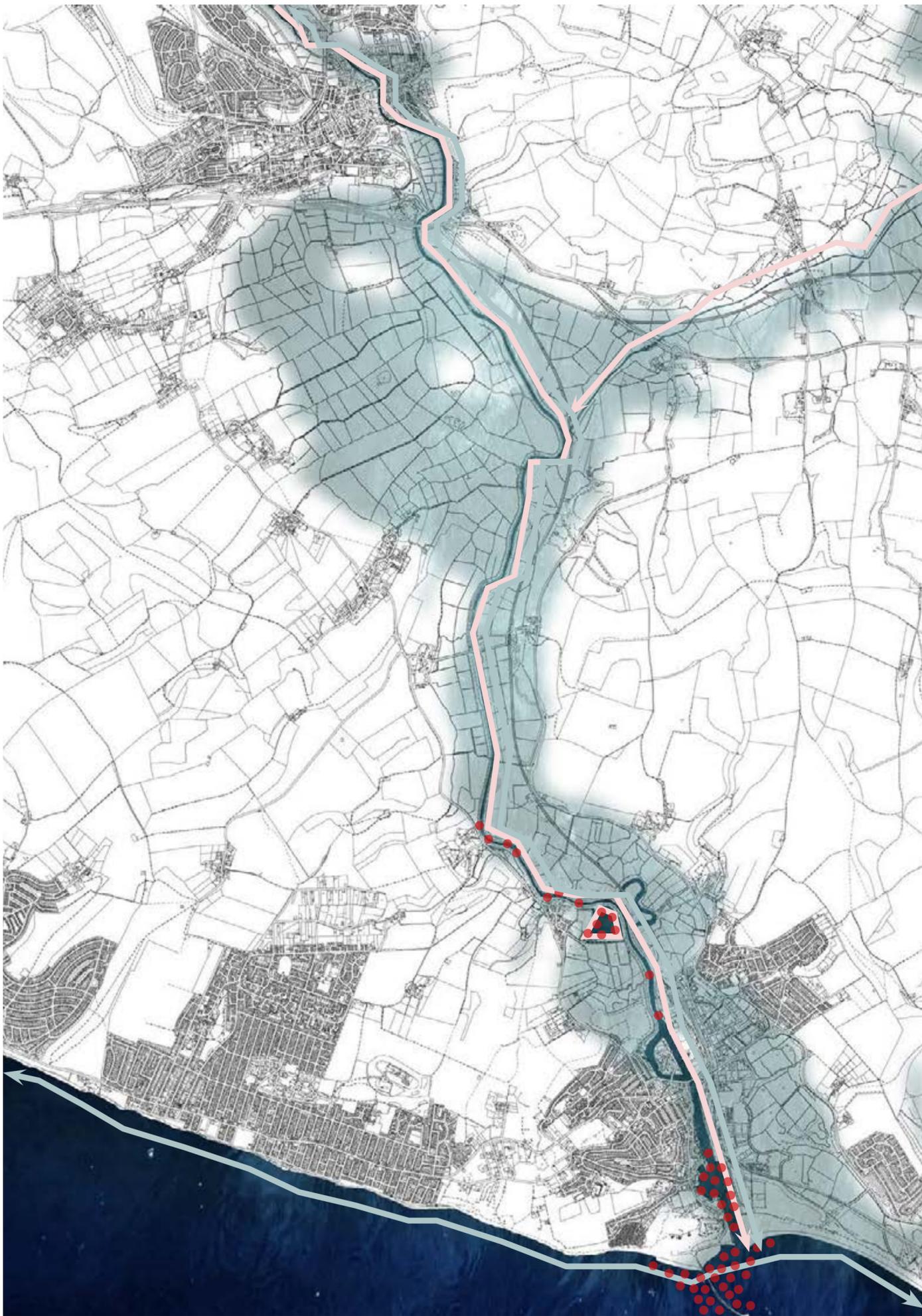
The diagram shows the interlinked transport of phosphorus by animals, in fertilising ecosystems across the world can offer much to management systems for climate resilience and nature conservation.



NEWHAVEN TO LEWES FISHING AND FISH MARKS

The river is rich with life which can include mussels and fresh water shrimps. Fish species you may come across includes Trout, Carp, Barbel, Perch, Pike, Grayling, Bullheads, Stone Loach, Tench along with the more common fish species found in UK rivers. The tidal section of the River Ouse also holds Bass, Grey Mullet, Twaite, Sea Trout and flounder.

- Salt water
- Fresh water
- Rare and Protected



BARBEL



PERCH



SHRIMP



CARP



TENCH



STONE LOACH



BULLHEADS



GRAYLING



MUSSELS



PIKE



BASS
(TIDAL)



TWAITE
(TIDAL)



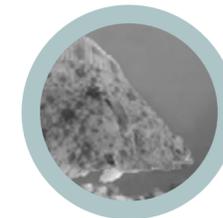
SILVER EEL



SEA TROUT
(TIDAL)



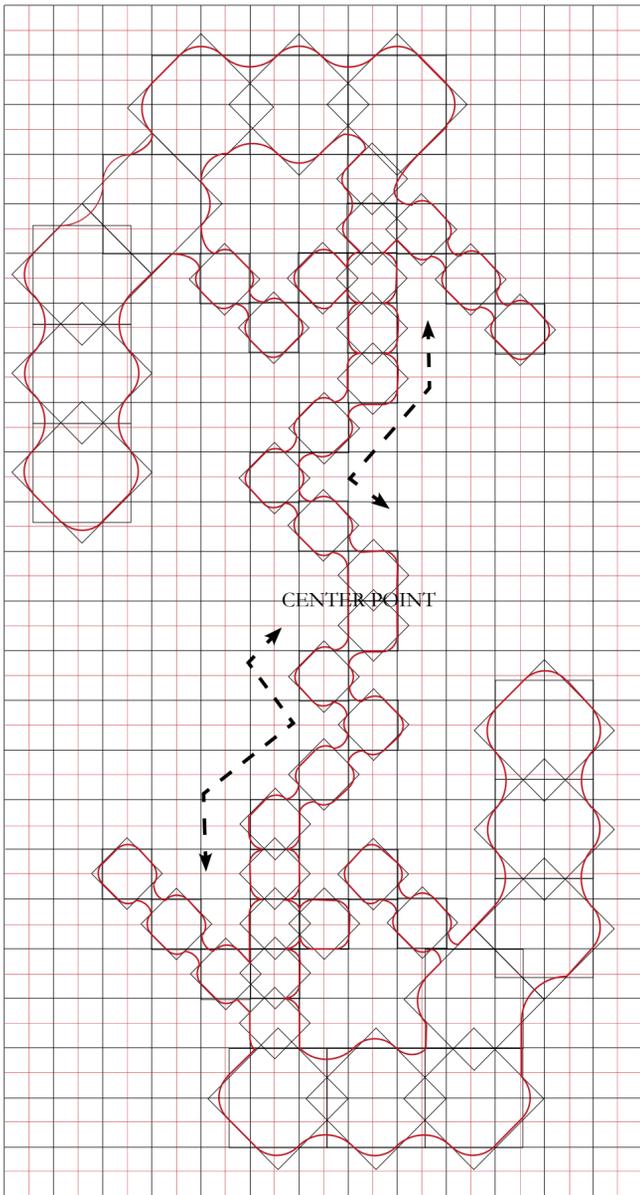
GREY MULLET
(TIDAL)



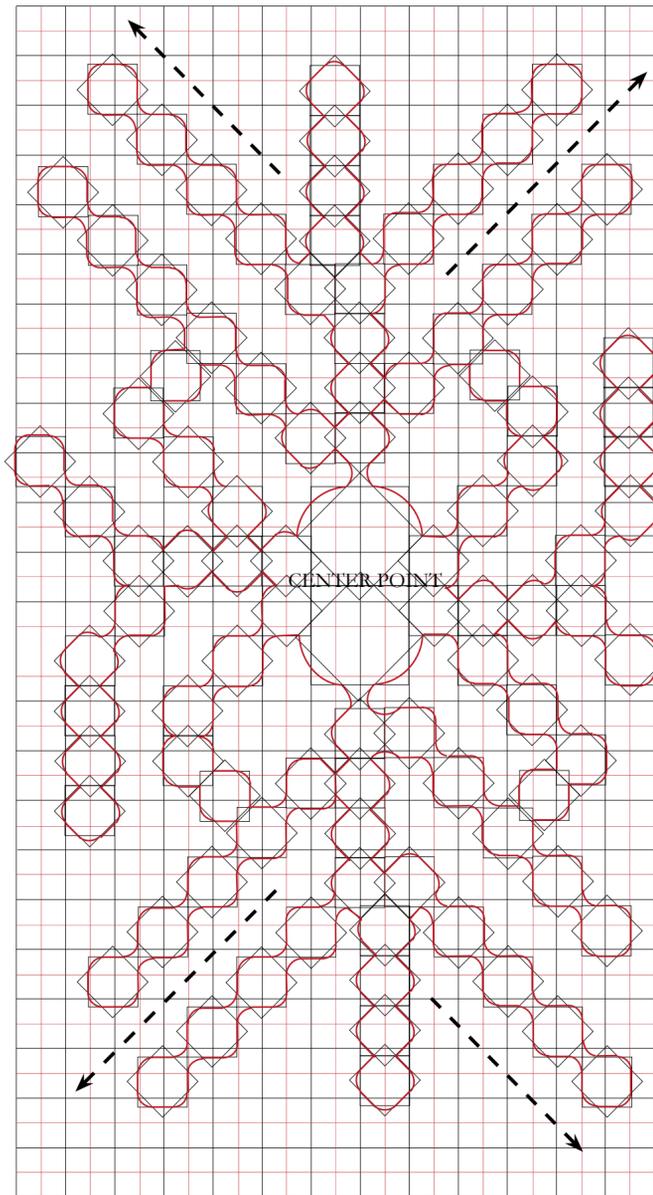
FLOUNDER
(TIDAL)

NUCLEATED PLANNING SYSTEM

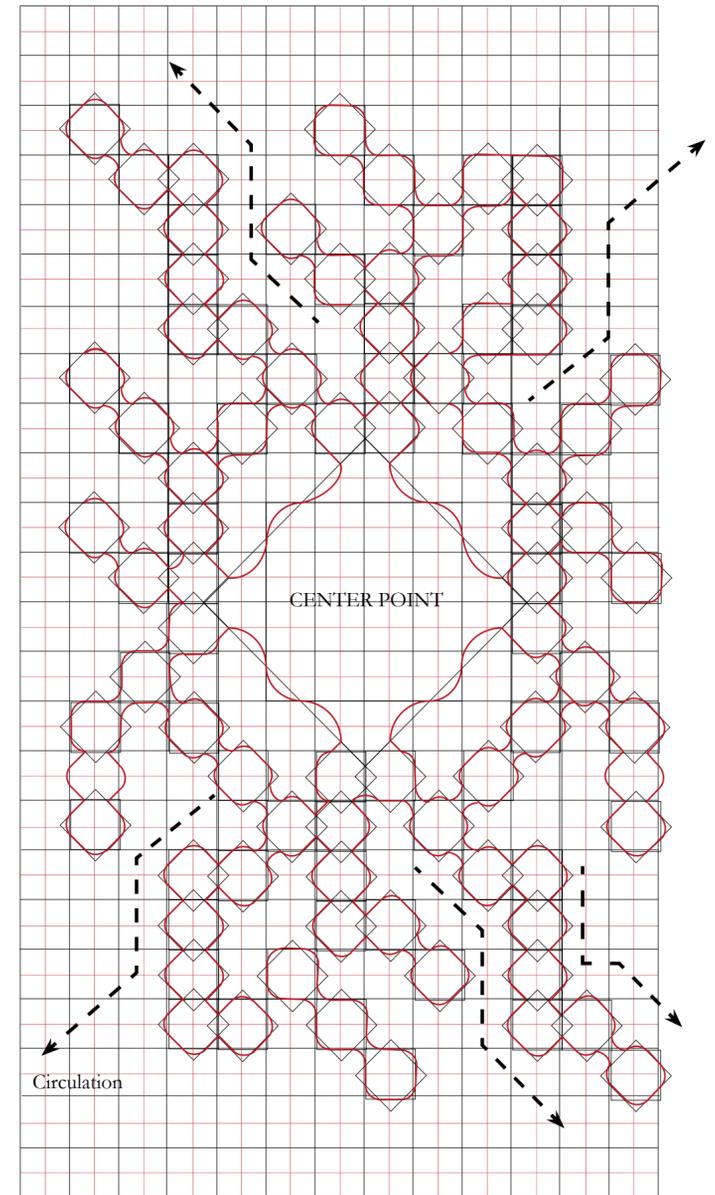
PROTOTYPE
01



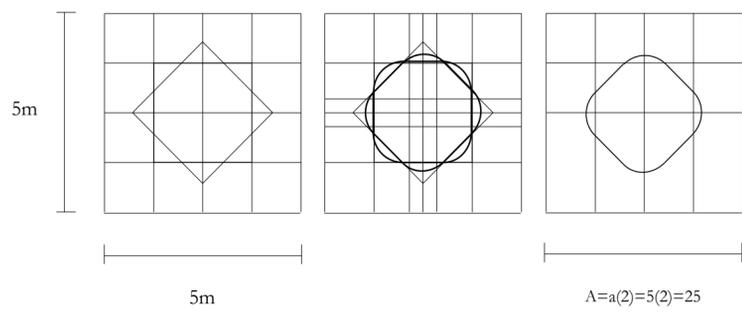
PROTOTYPE
02



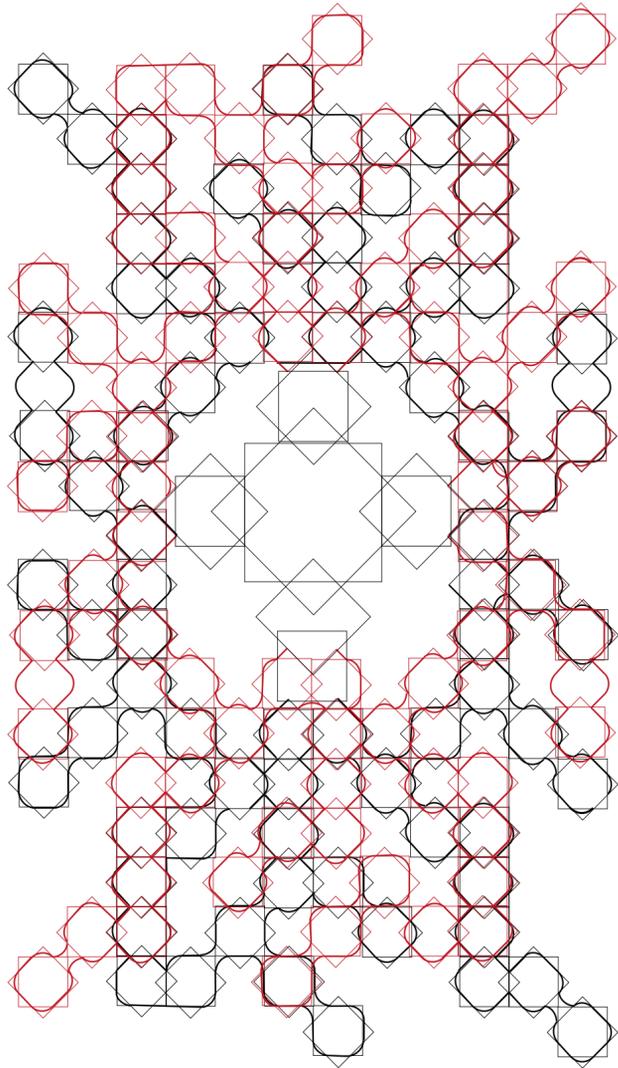
PROTOTYPE
03



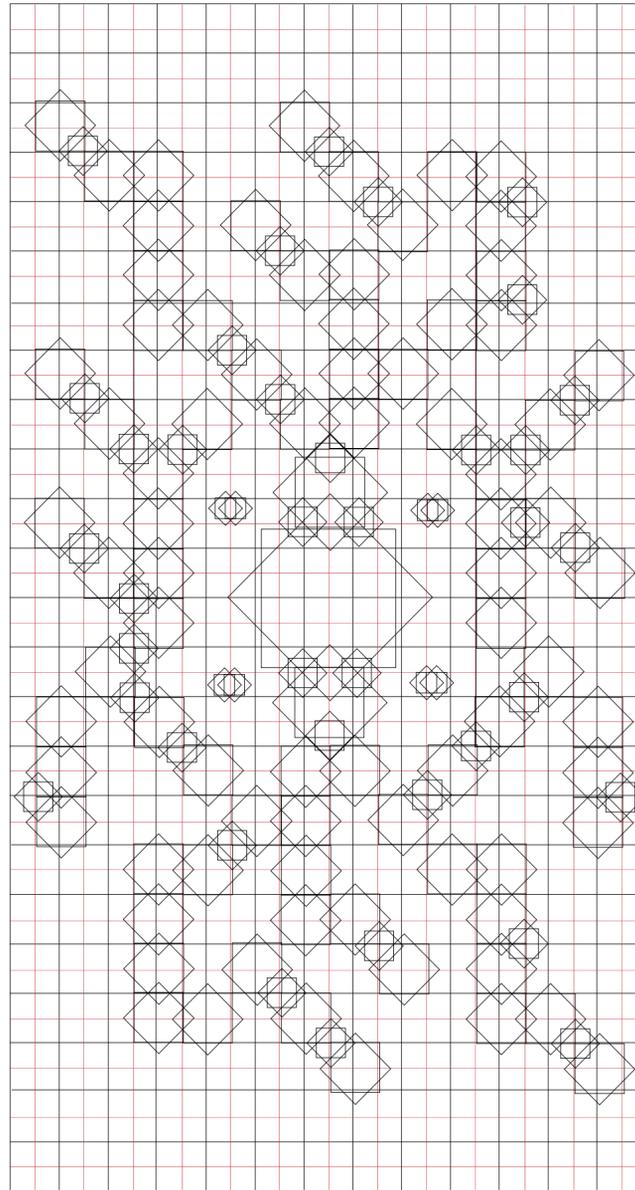
Additional Angles allowing a different set of views for the dwellings



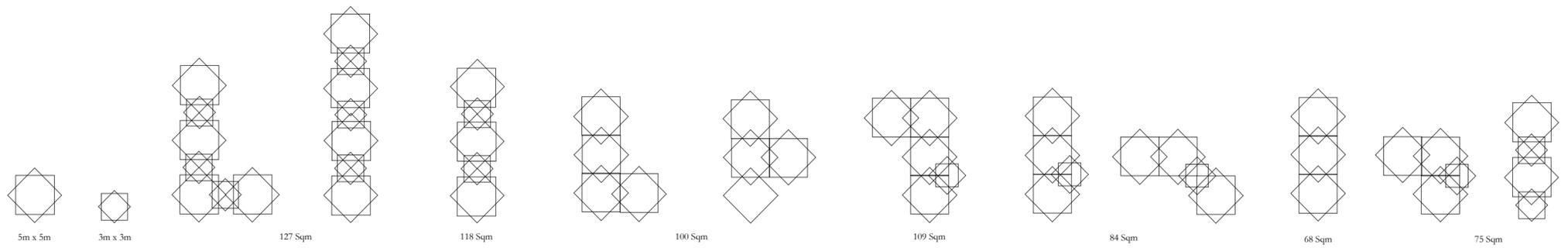
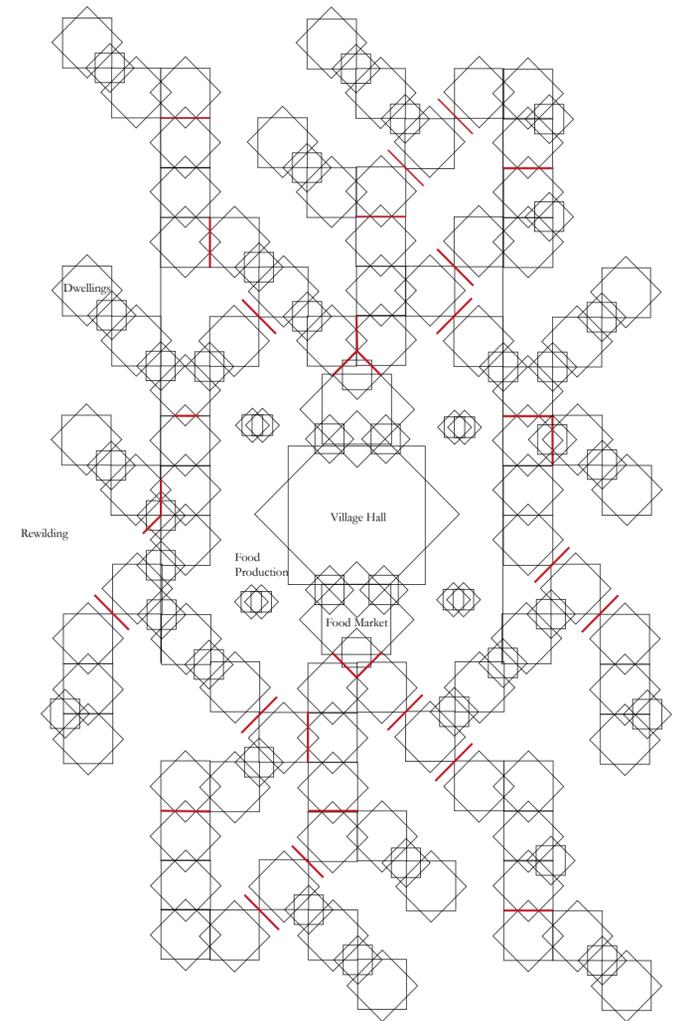
OVERLAY



AGAINST THE GRID

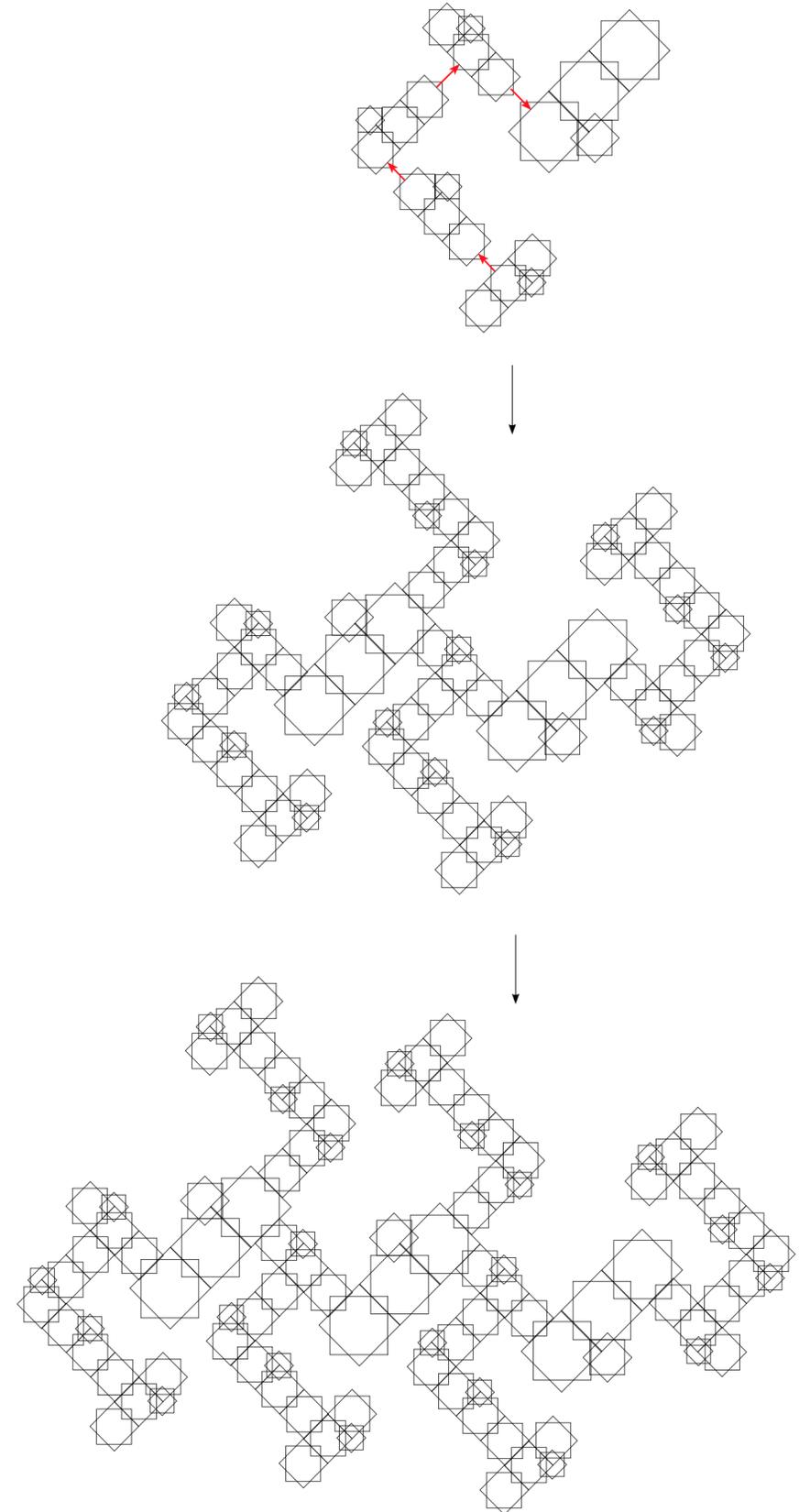
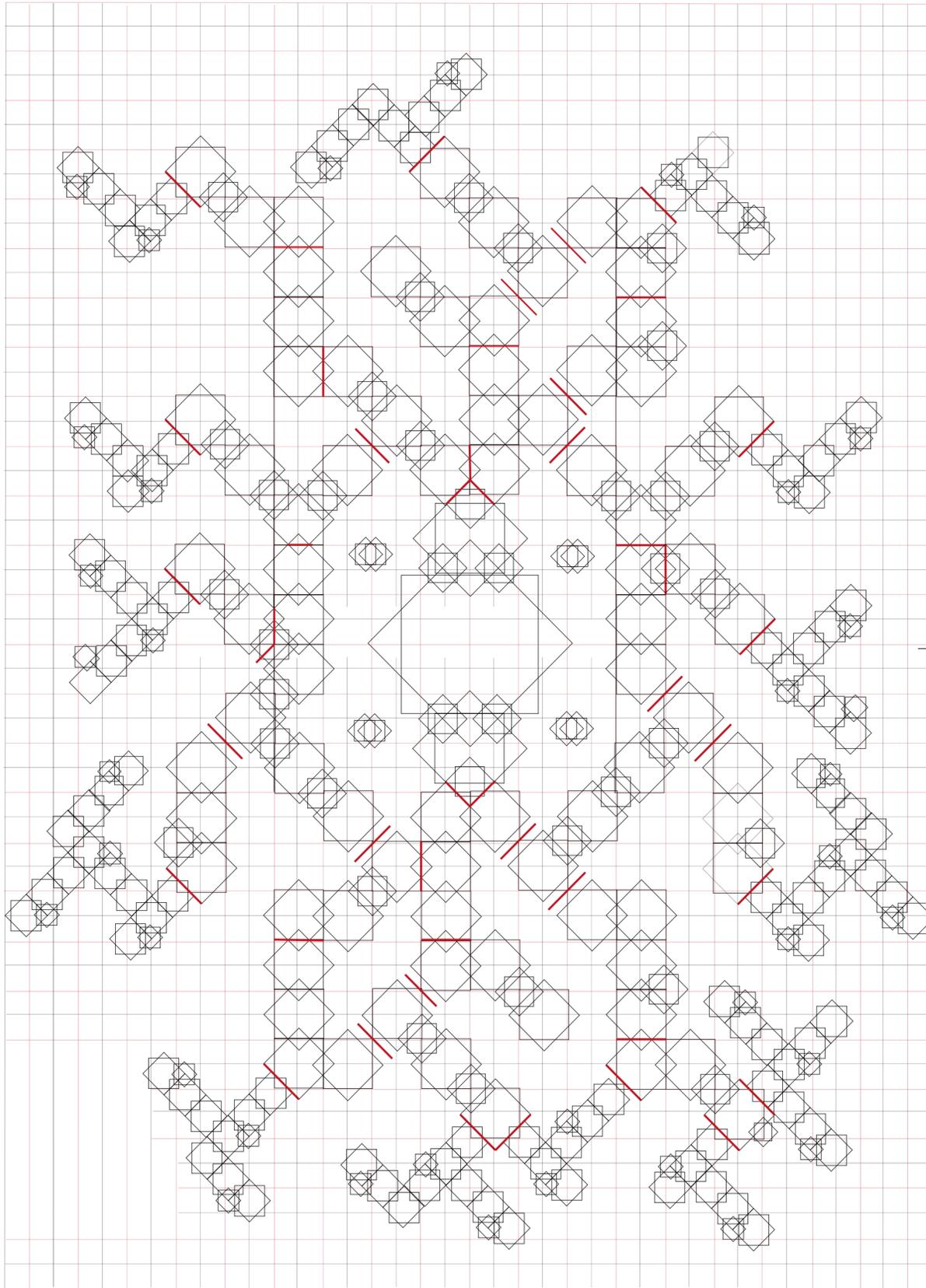


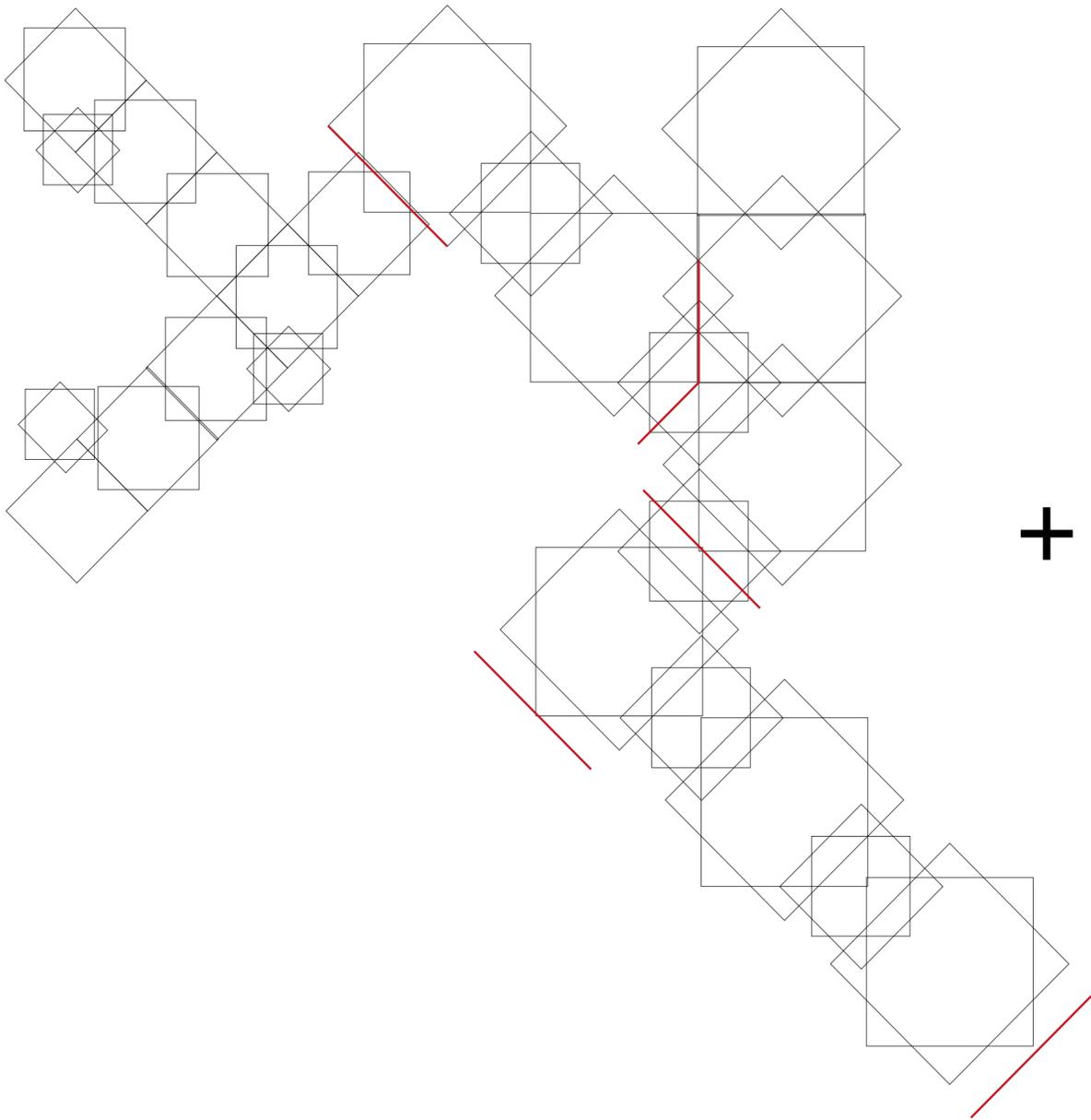
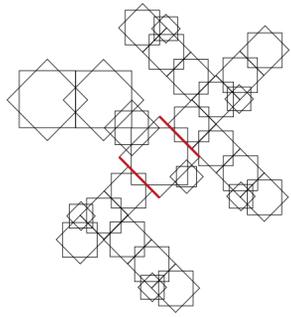
SEPERATING THE UNITS



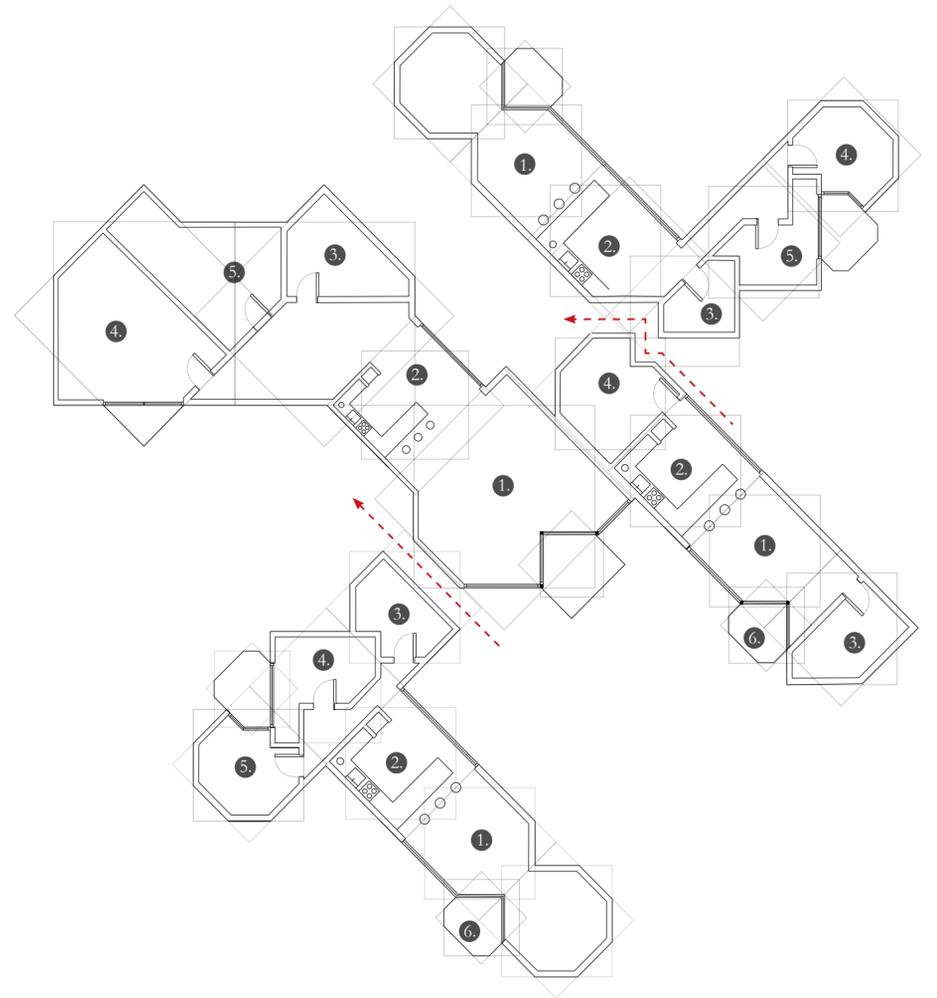
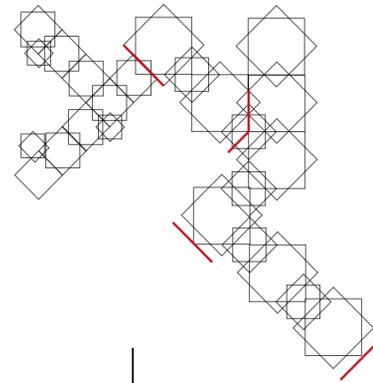
CONTROLLED DIAGRAM

USING THE FRACTAL GROWTH PRINCIPLE





CLUSTERED DWELLINGS



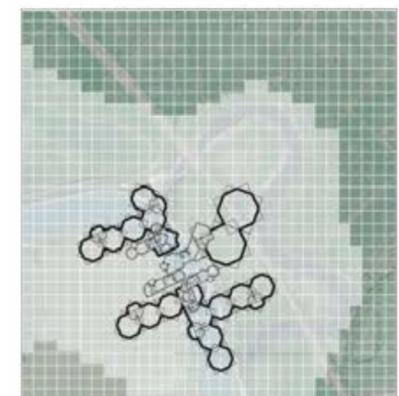
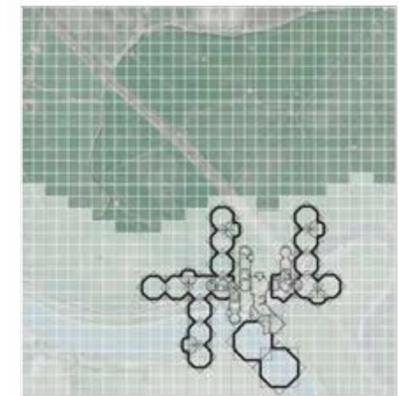
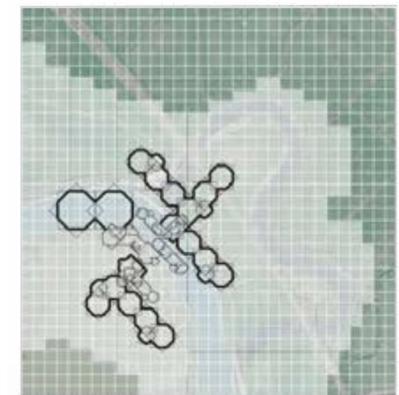
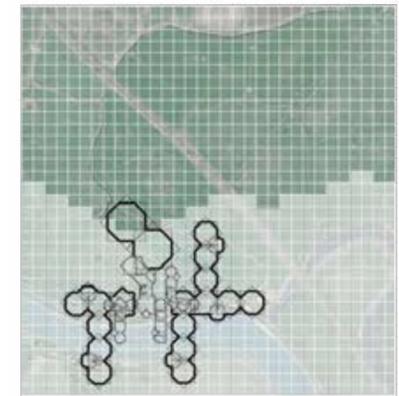
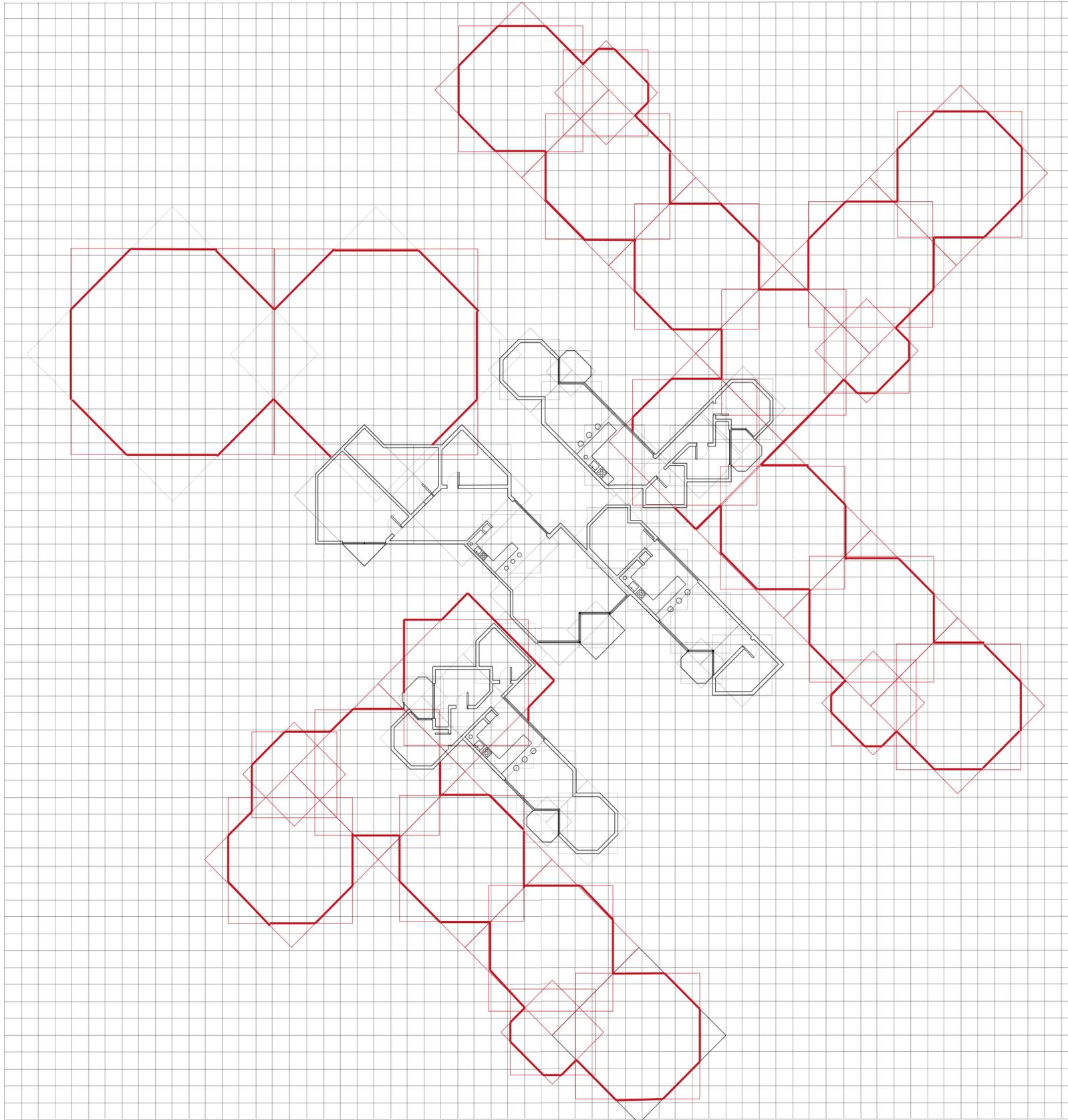
LANDSCAPE



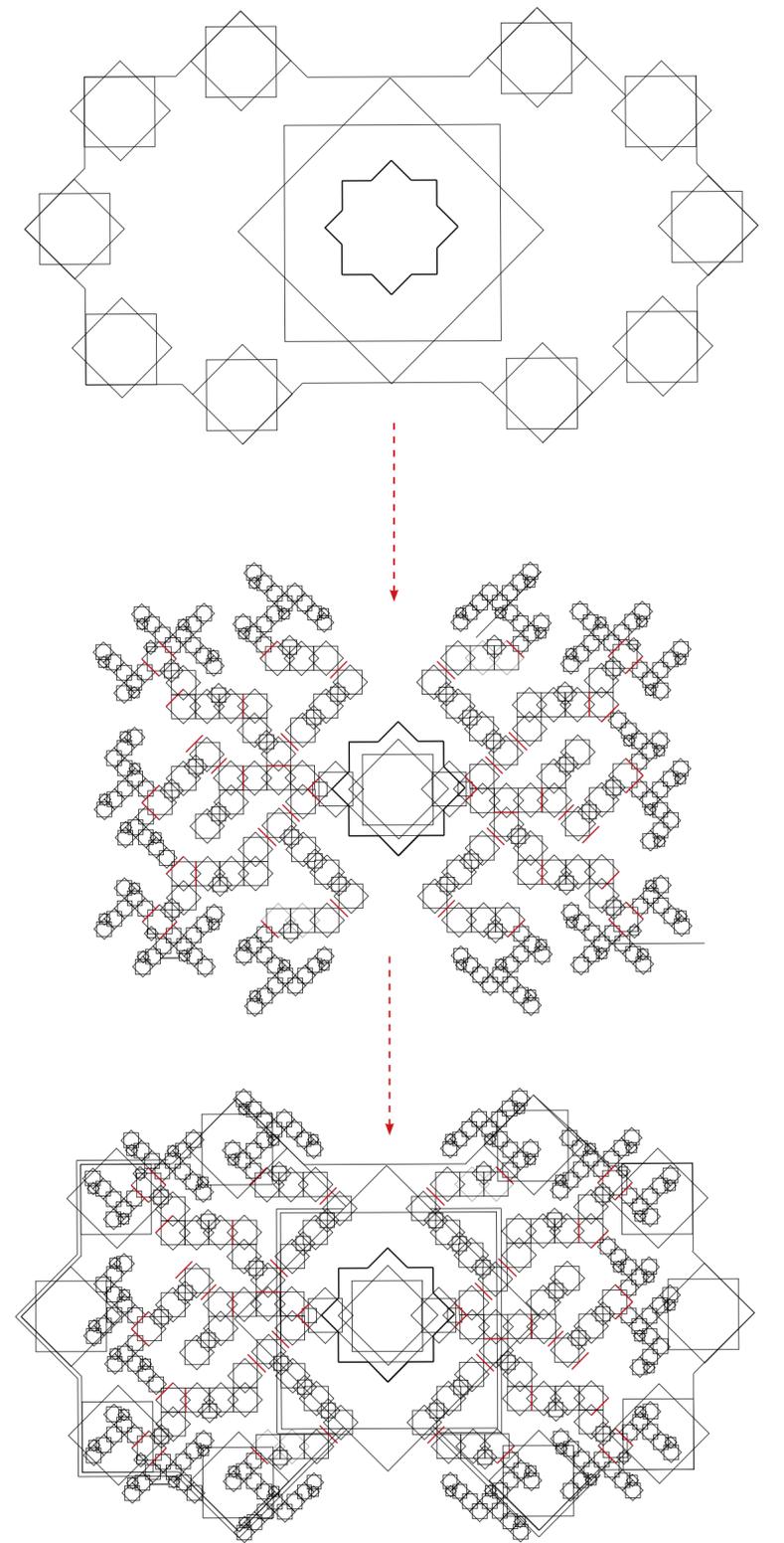
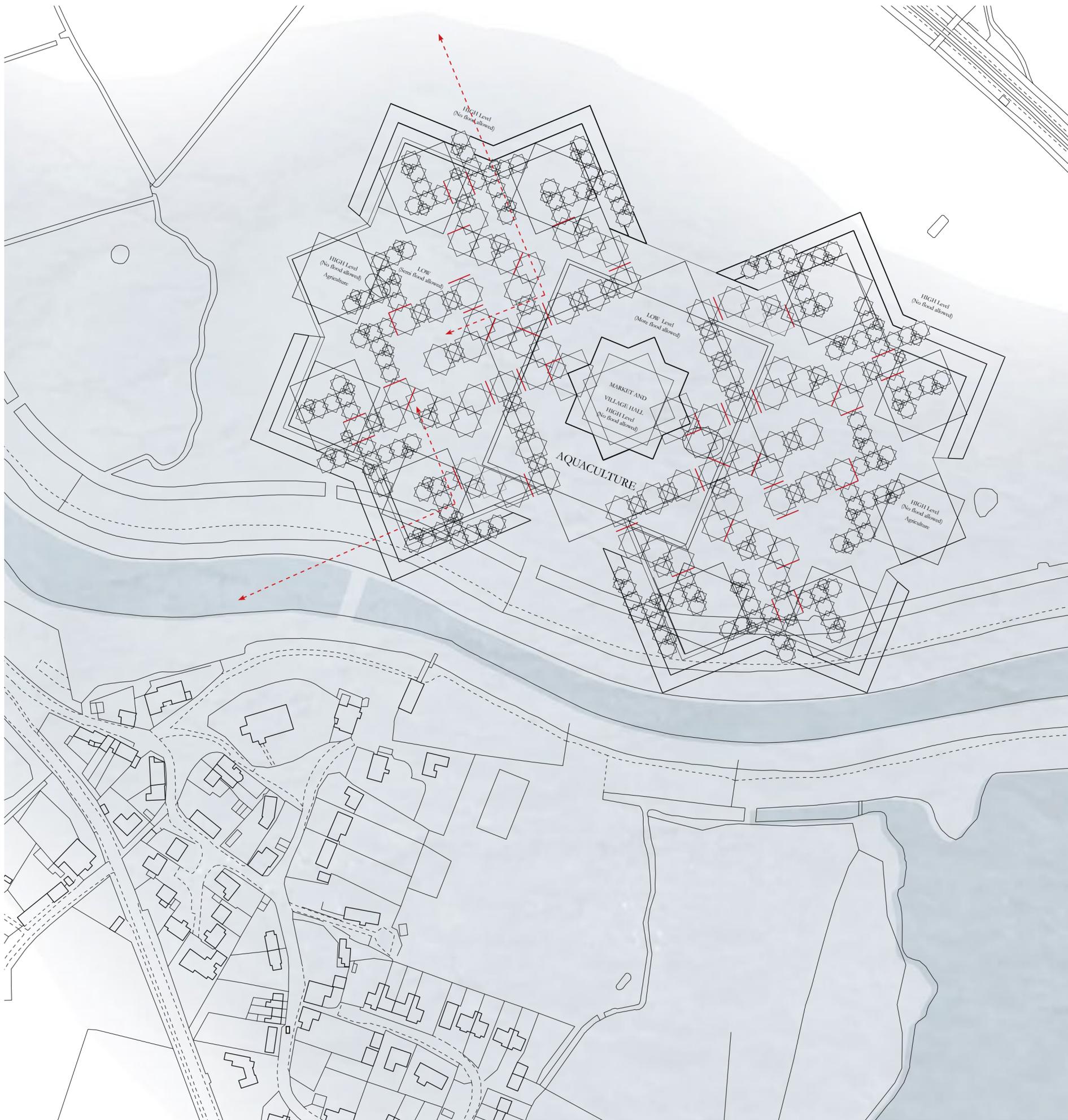
COMBINING TWO FRACTAL GROWTH

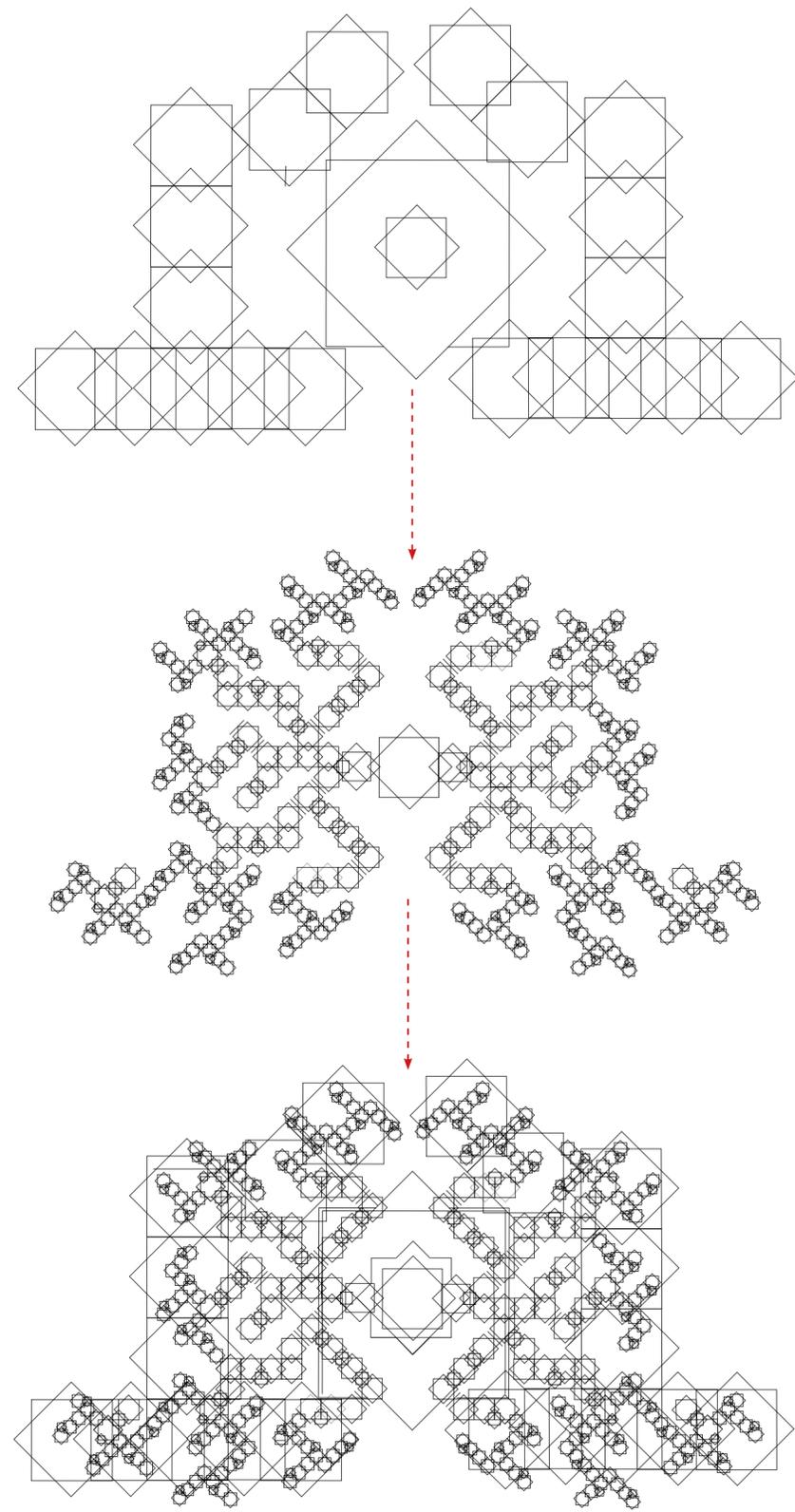
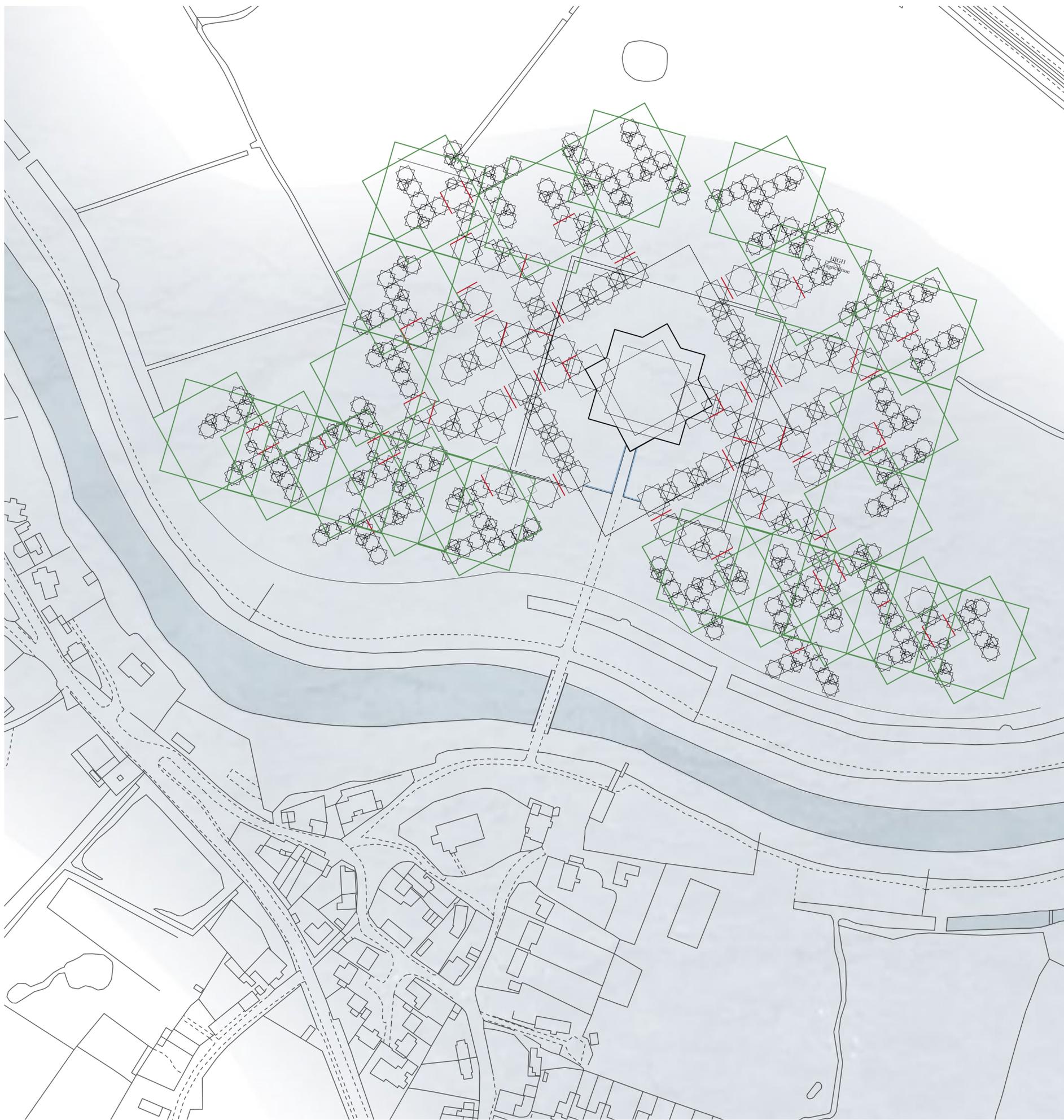
Hierarchy

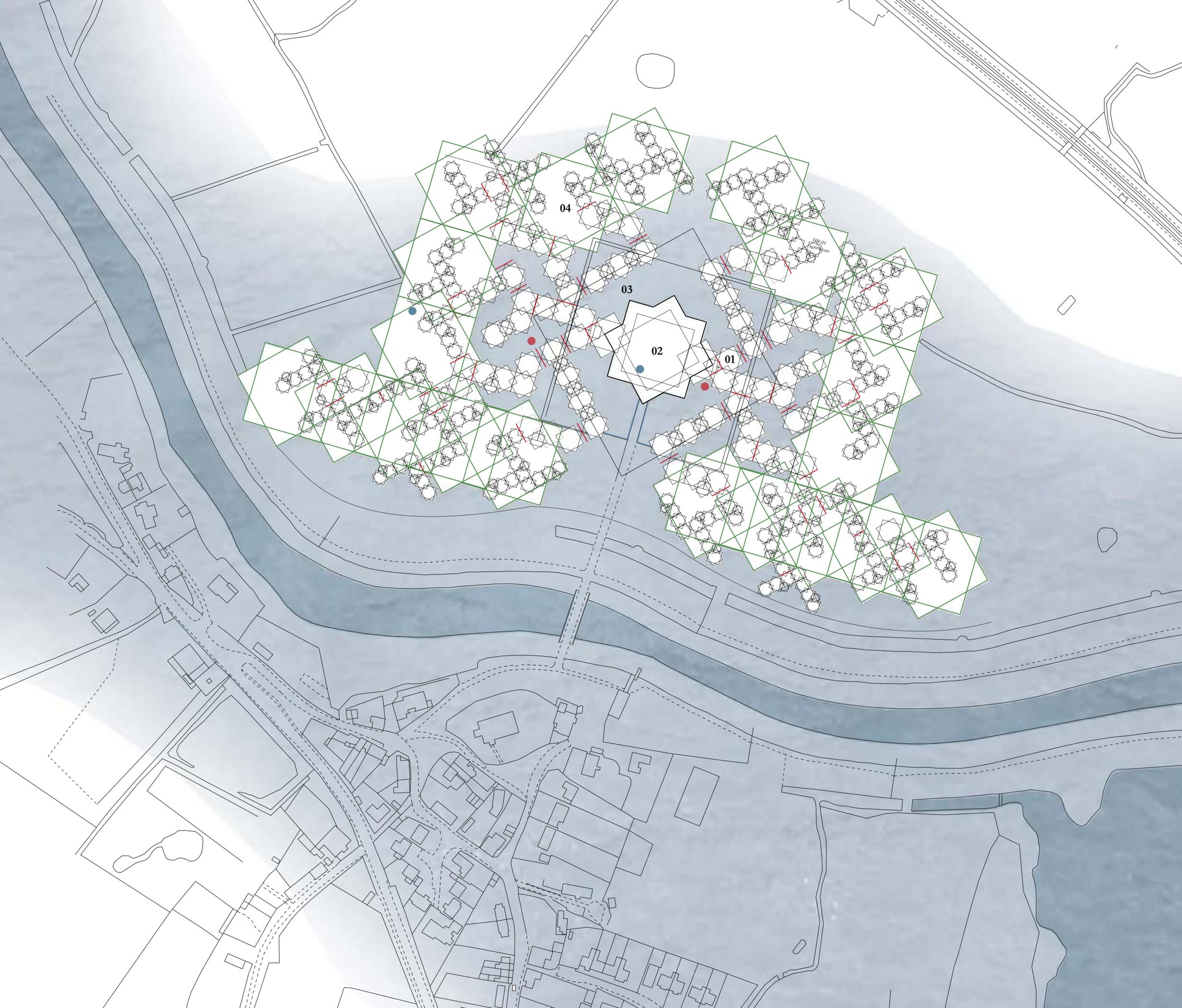
01. Nucleated landscape
02. Clustered Dwellings



Set of clustered Hierarchy using the Fractal growth system. The landscape was set up first, then the fractal growth of dwellings are placed and allocated within the hierarchy of the created land.

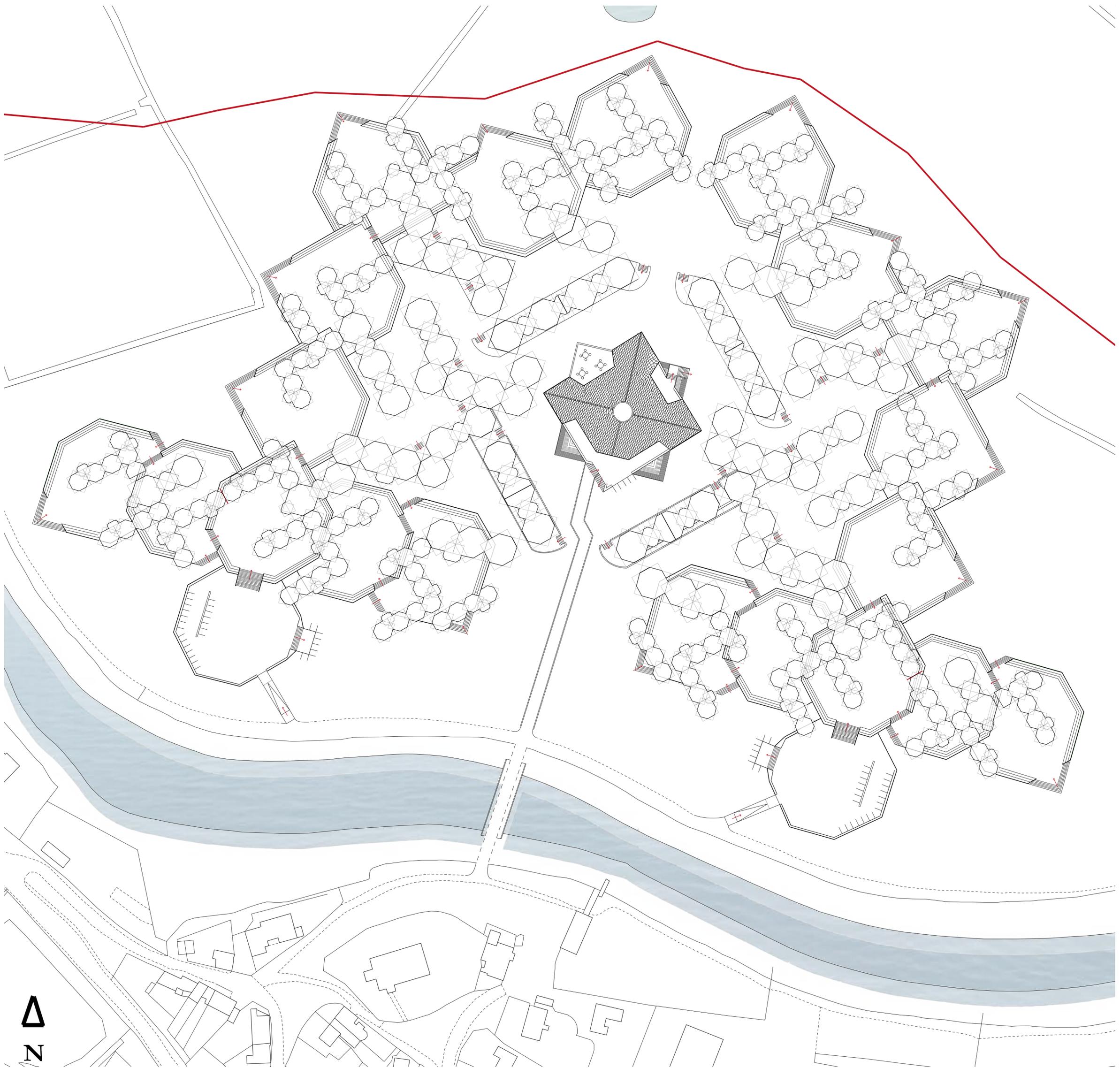






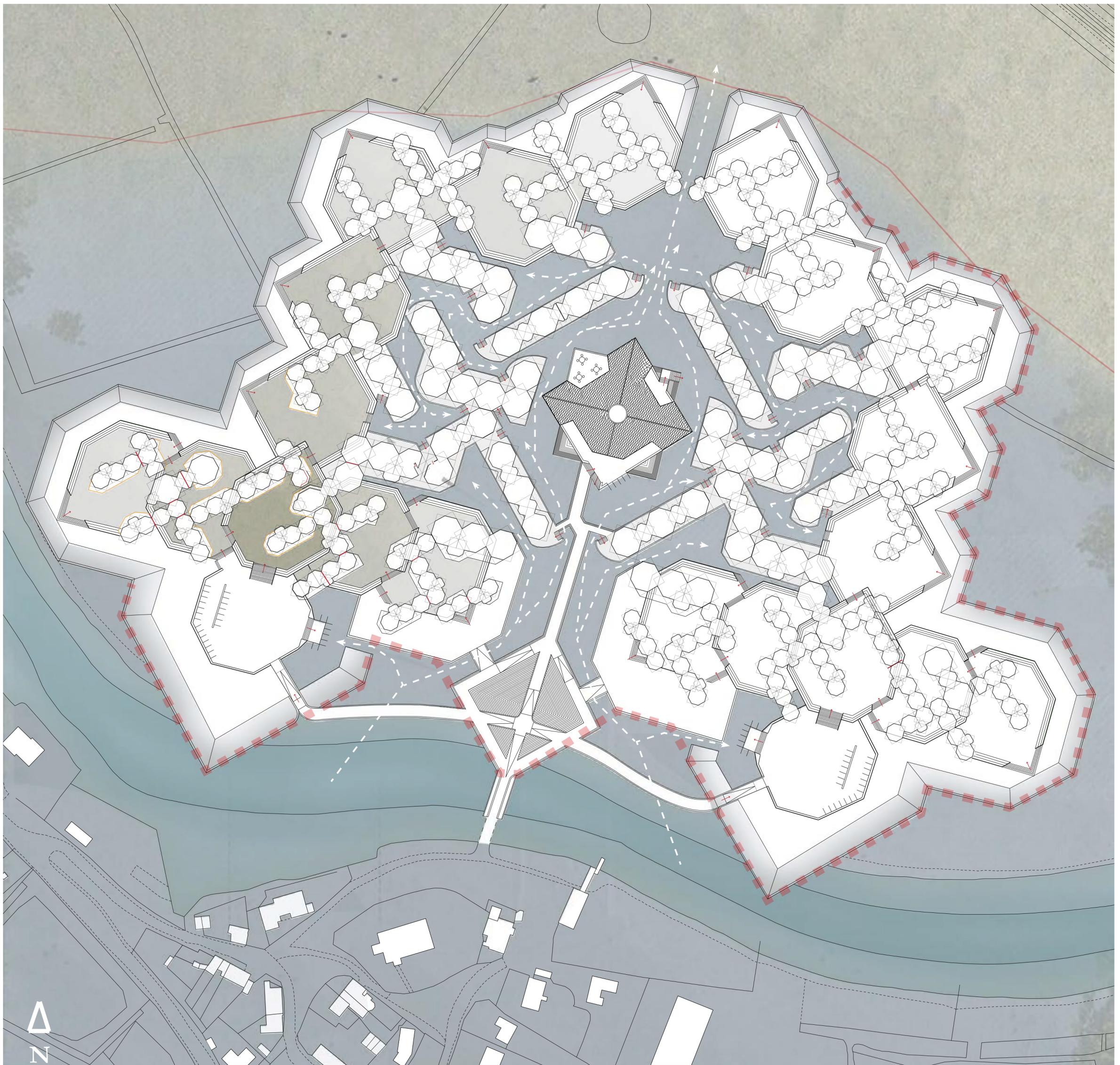
- Agriculture
- Aquaculture
- Cluster
- Above Sea level
- Below See level
- 01.** Clustered Housing
- 02.** Market and Village Hall
- 03.** Aquaculture
- 04.** Agriculture

New Piddinghoe Floating village is located opposed to the original piddinghoe village in south downs nearer to the Ouse river, this village is where the fishers trips, stable living conditions, lack of basic education, and regular natural hazards. The housing will be able to accommodate the hardship of the remote seafaring life and provide the citizen and decent living standard, with the criteria of max and min.



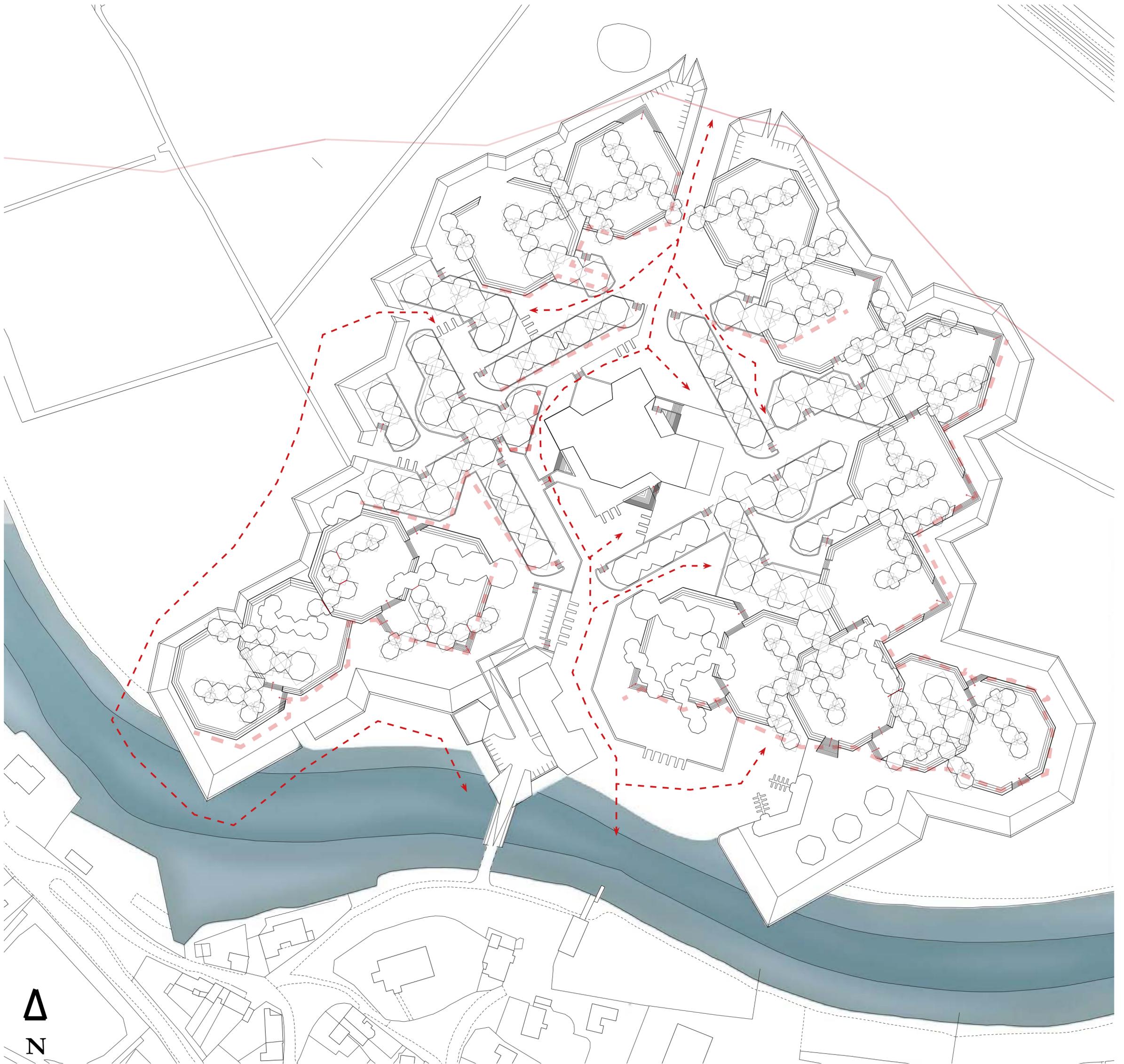
NEW PIDDINGHOE DIAGRAM
STRATEGICAL PLAN

Scale 1:1000



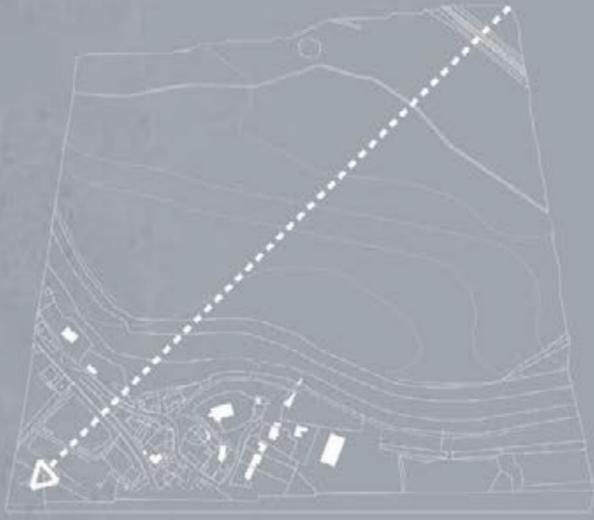
NEW PIDDINGHOE DIAGRAM
STRATEGICAL PLAN

Scale 1:1000

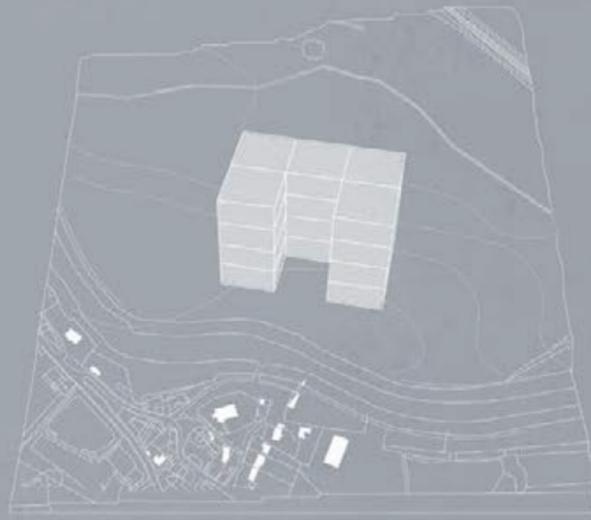


NEW PIDDINGHOE DIAGRAM
STRATEGICAL PLAN

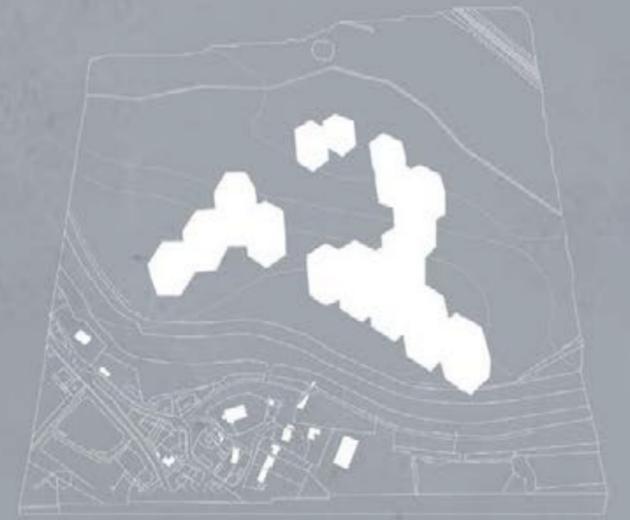
Scale 1:1000



TOPOGRAPHY AND ORIENTATION



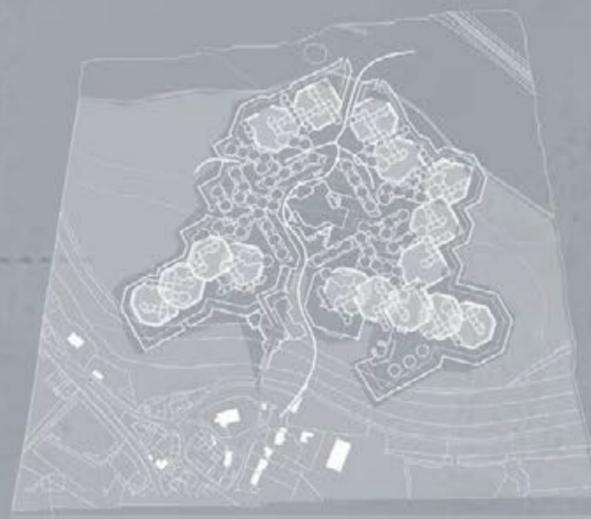
USE OF GROUND



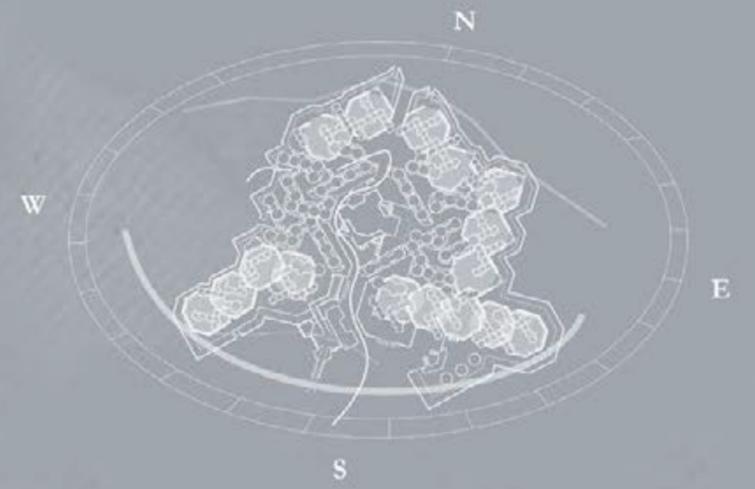
PROGRAMMATIC LANDSCAPE



VIEW AXIS AND FLOOD RISE



EXTERNAL CIRCULATIONS



BUILDING ECOLOGY SUNLIGHT

NEW PIDDINGHOE

Diagram Layout



FLOOR PLAN

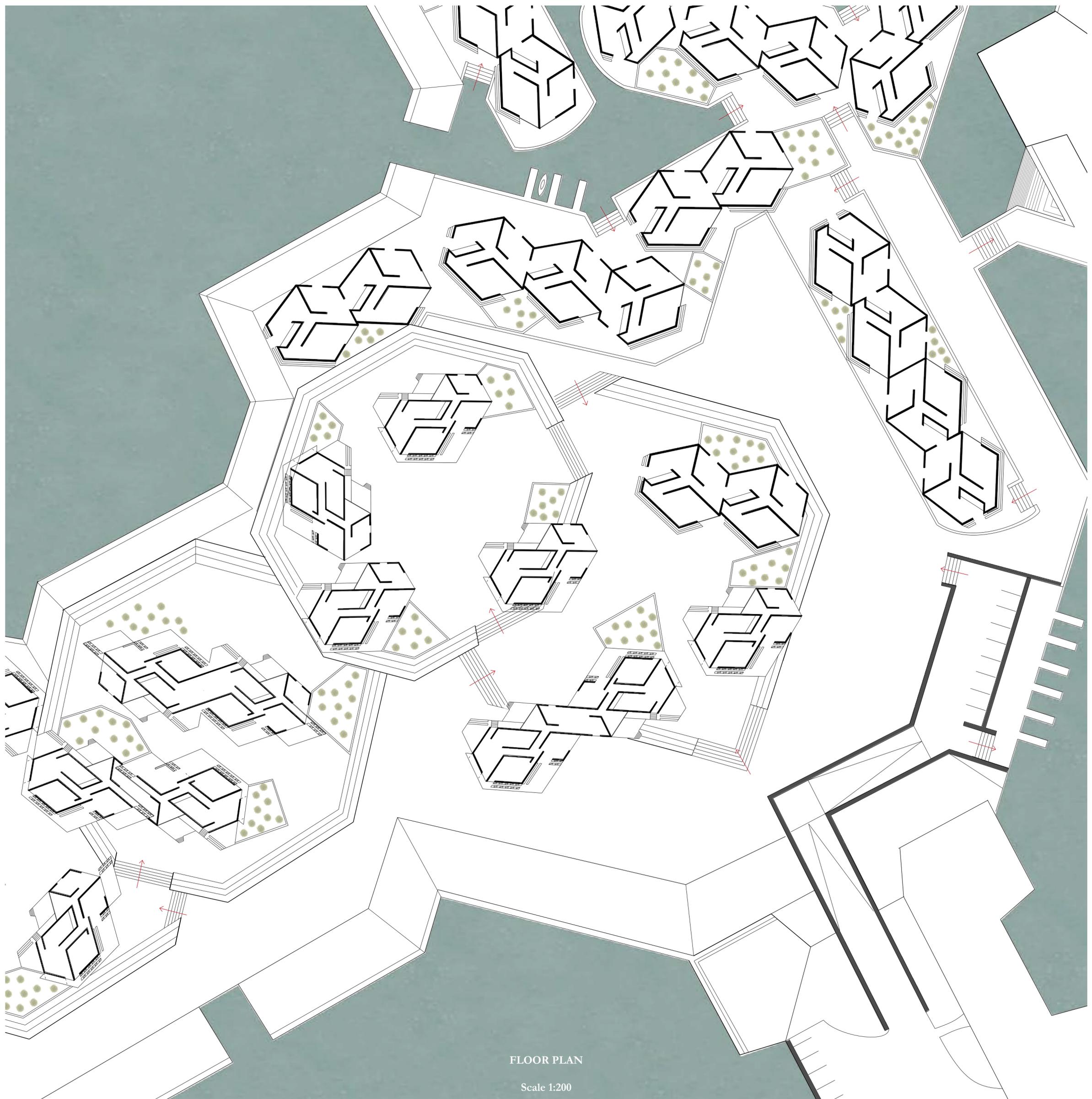
Scale 1:200



△
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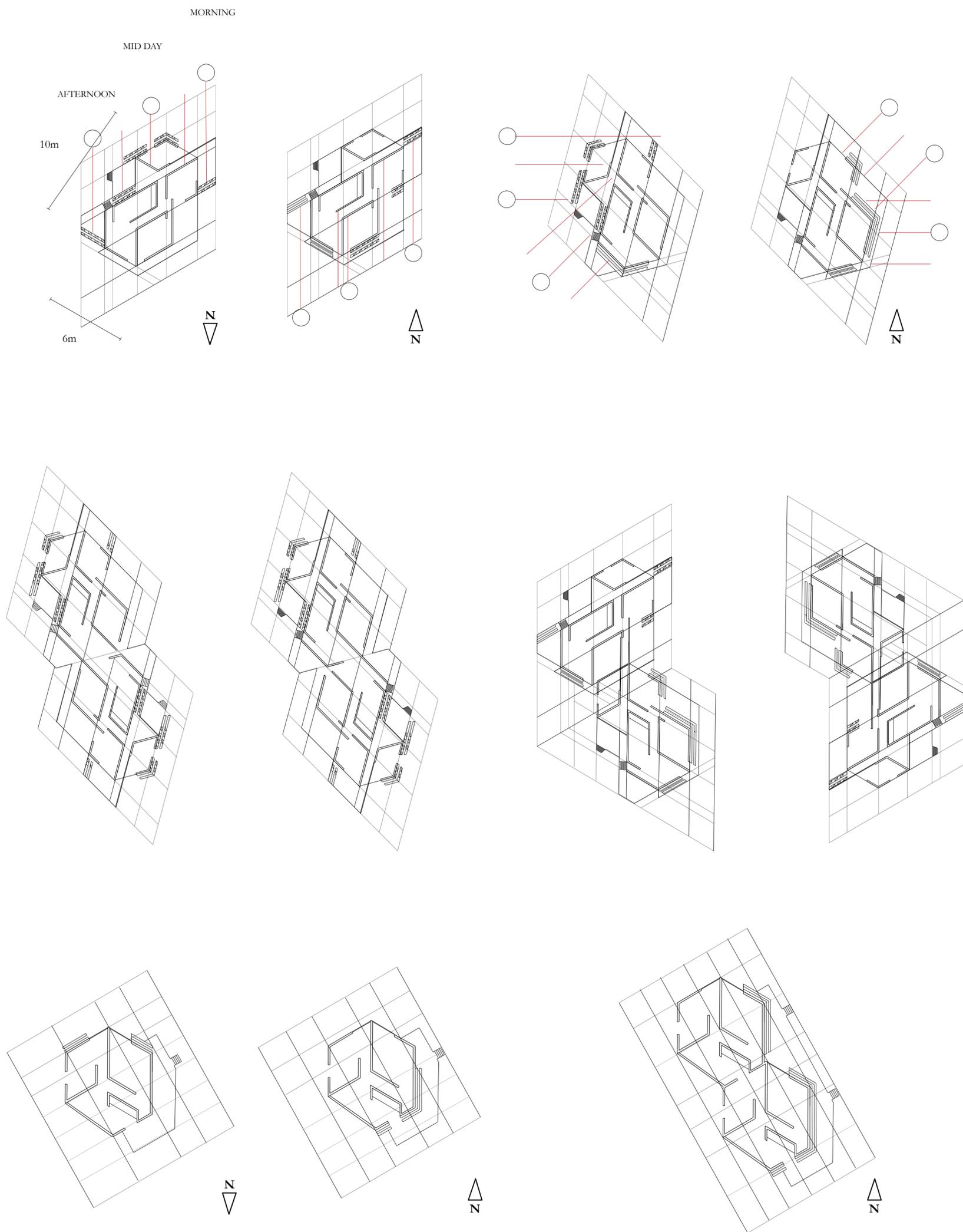
FLOOR PLAN

Scale 1:200



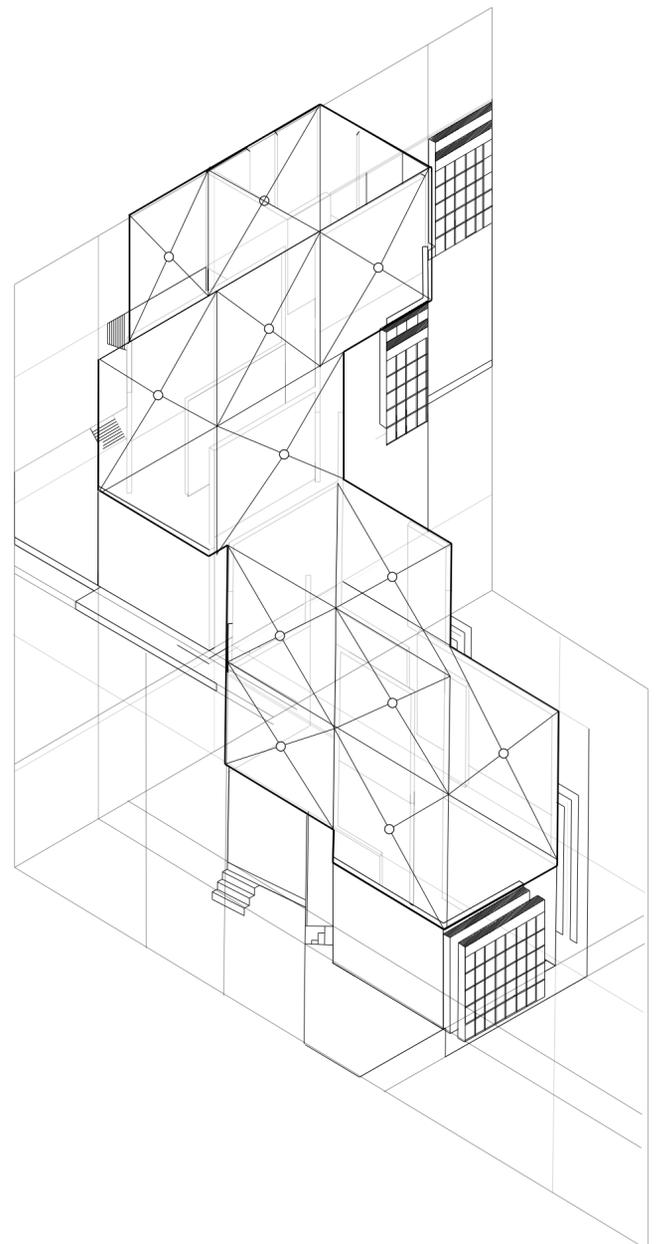
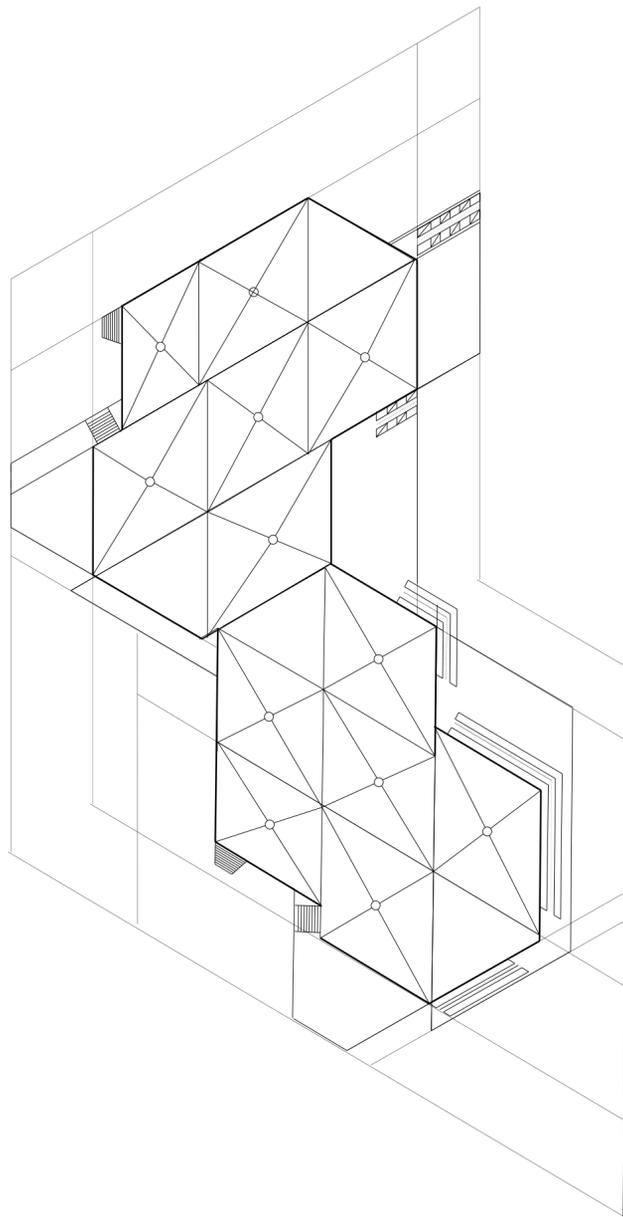
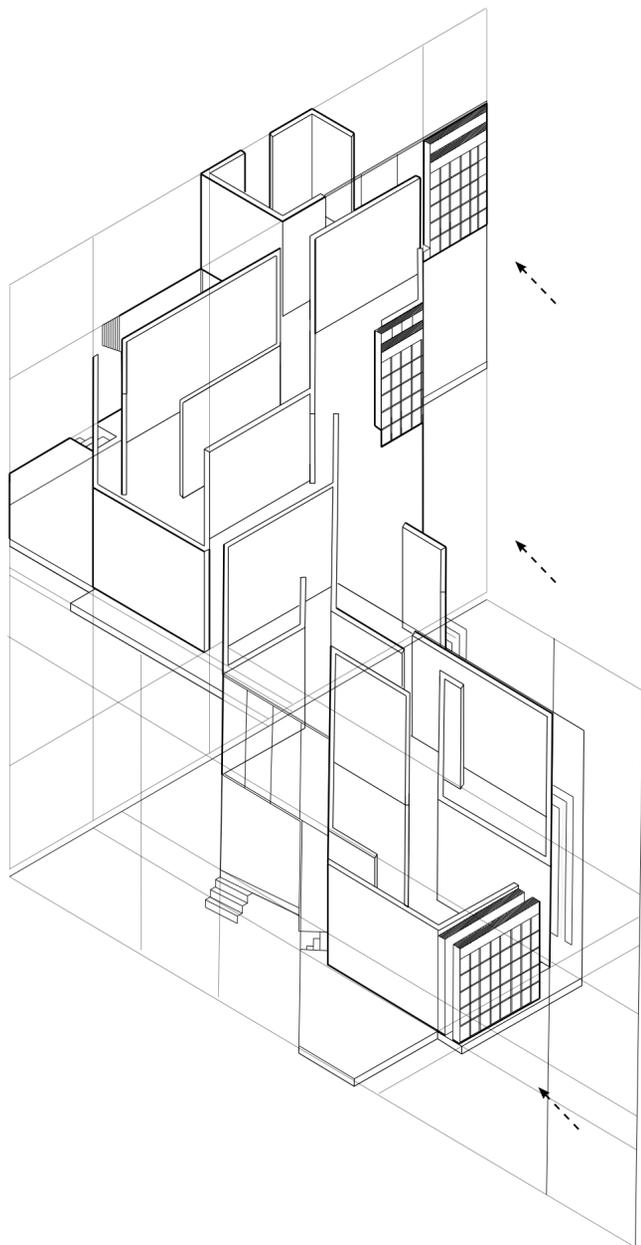
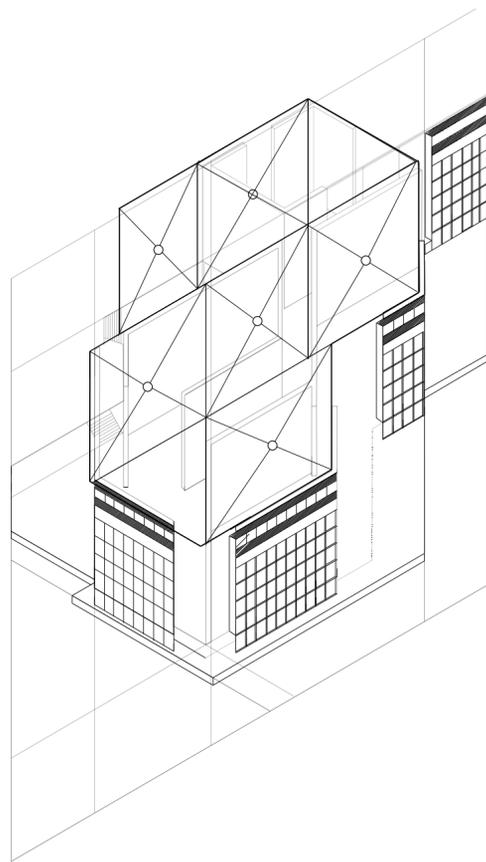
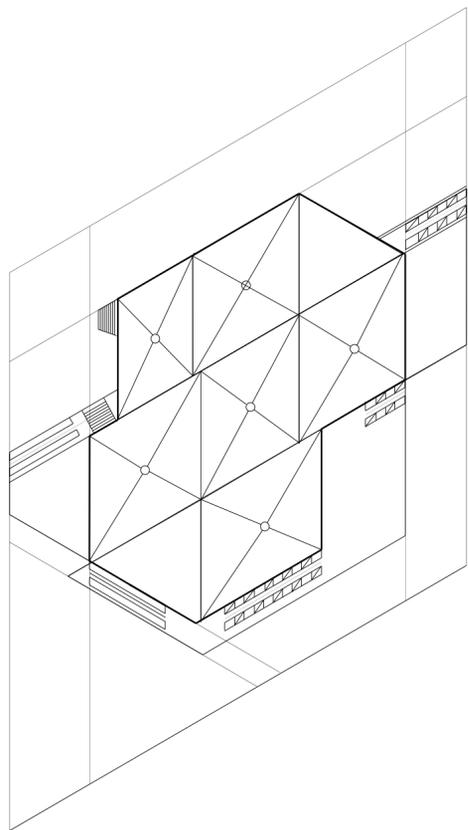
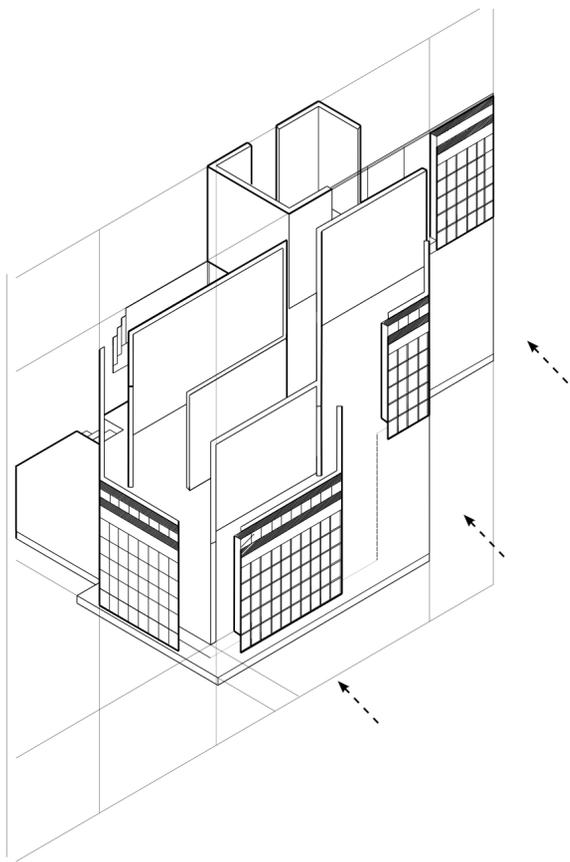
FLOOR PLAN

Scale 1:200



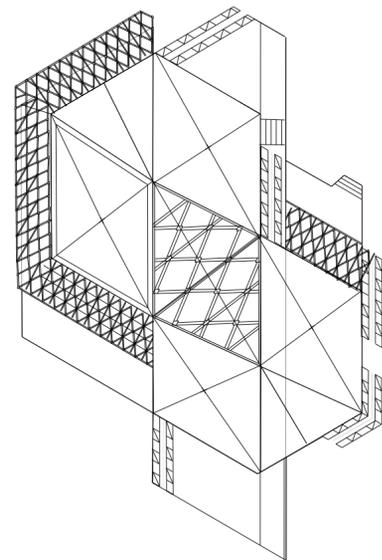
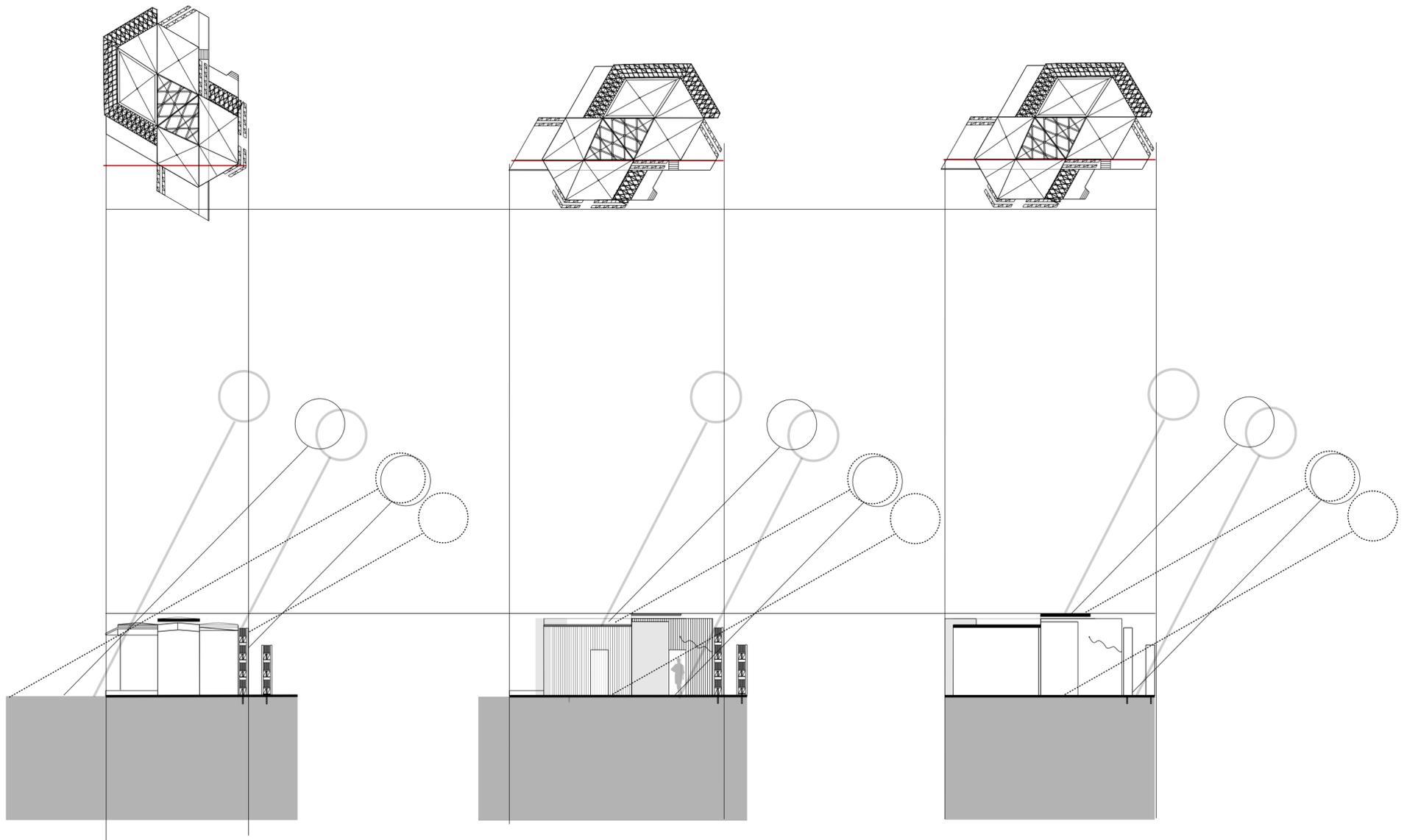
HOUSING UNITS

Scale 1:200



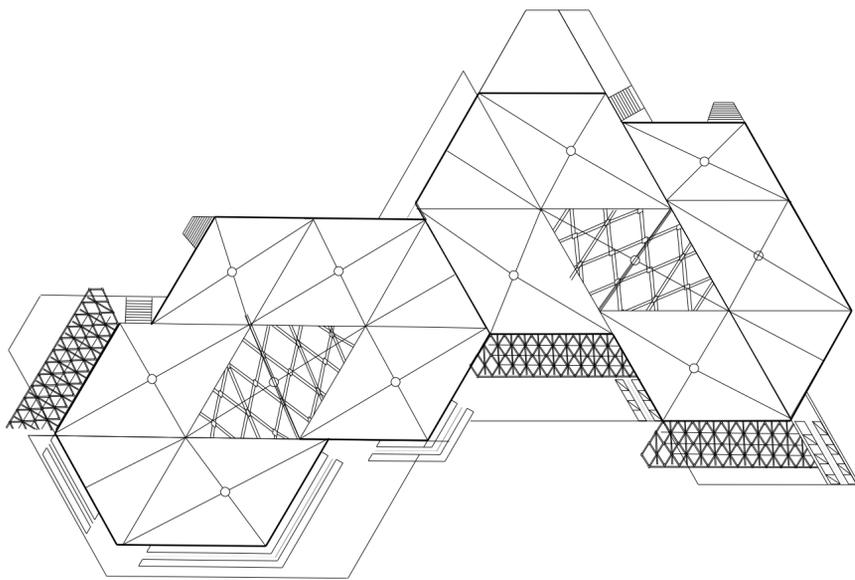
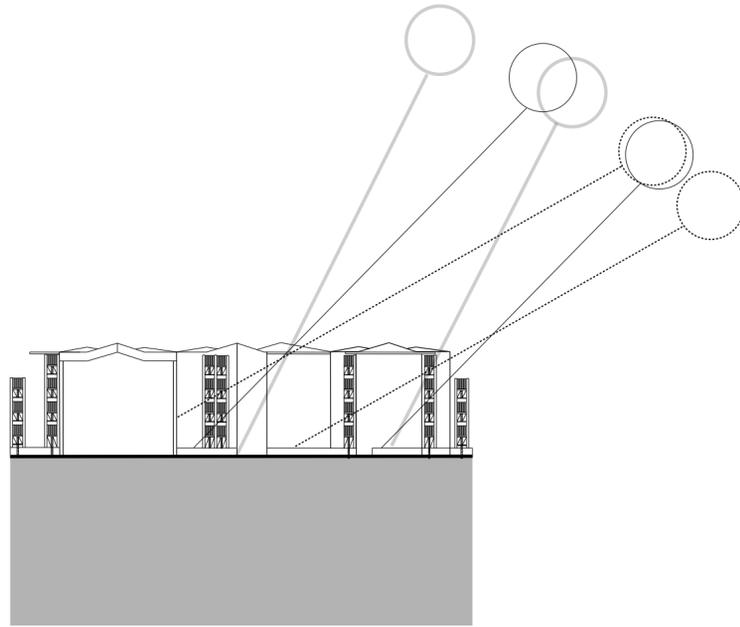
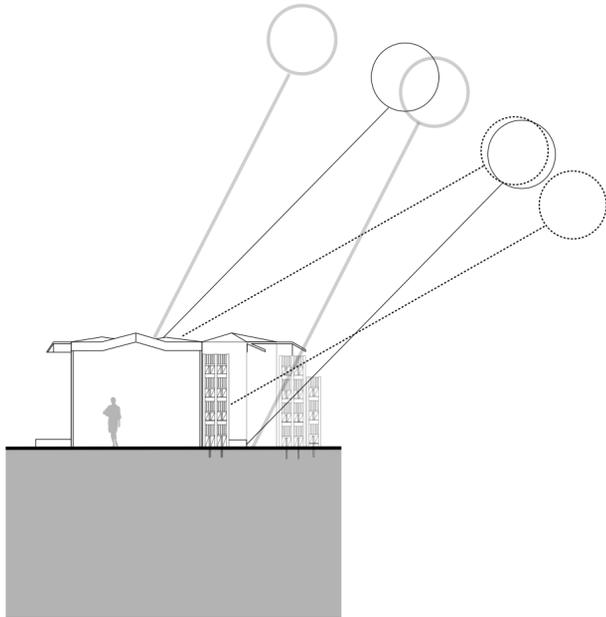
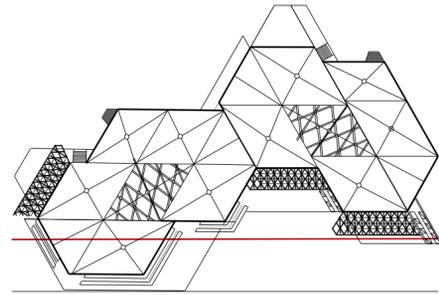
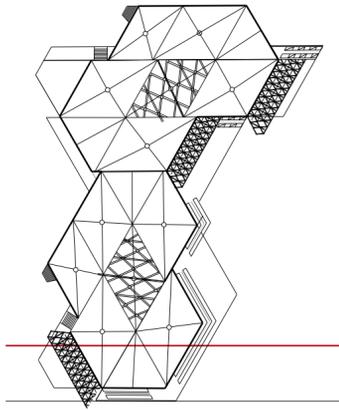
SUNLIGHT AND AQUAPONIC FACADES

Scale 1:100



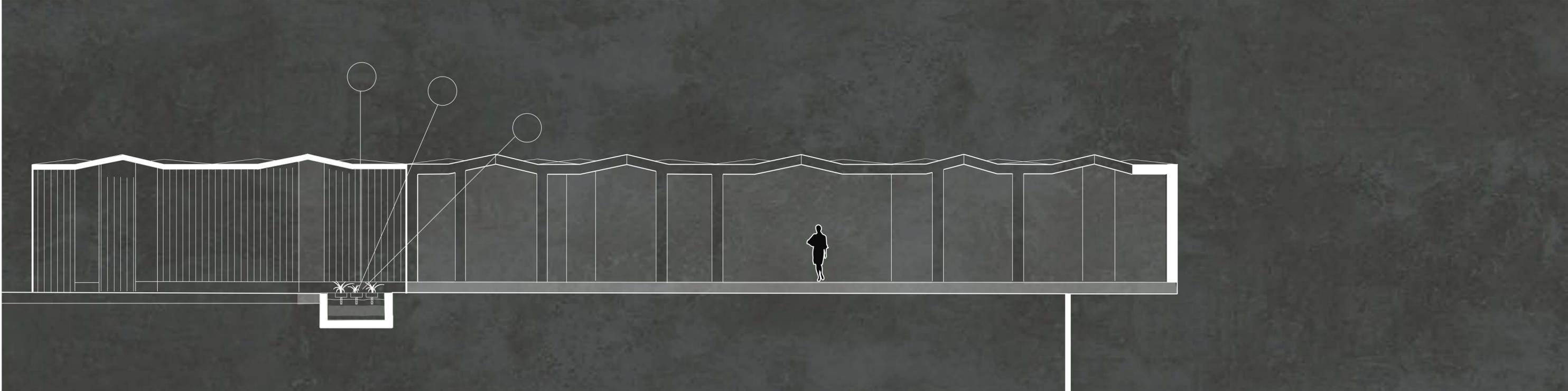
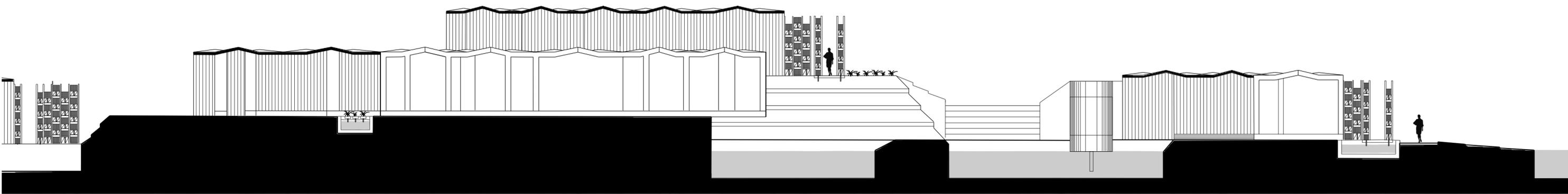
SUNLIGHT AND ROOF SYSTEM

- MORNING
- MID DAY
- AFTERNOON

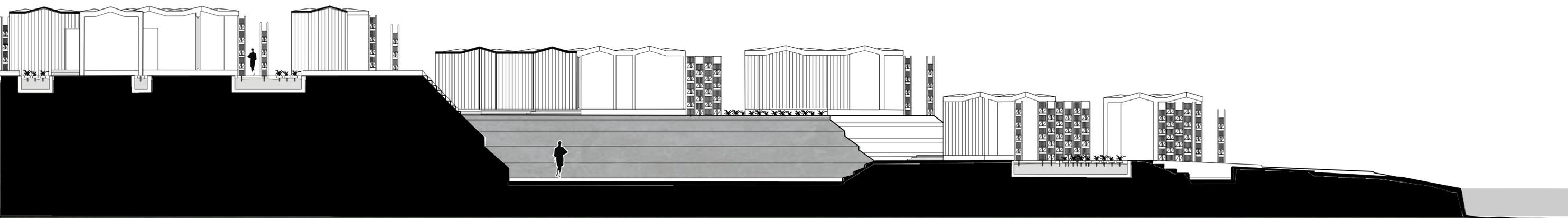


SUNLIGHT AND ROOF SYSTEM

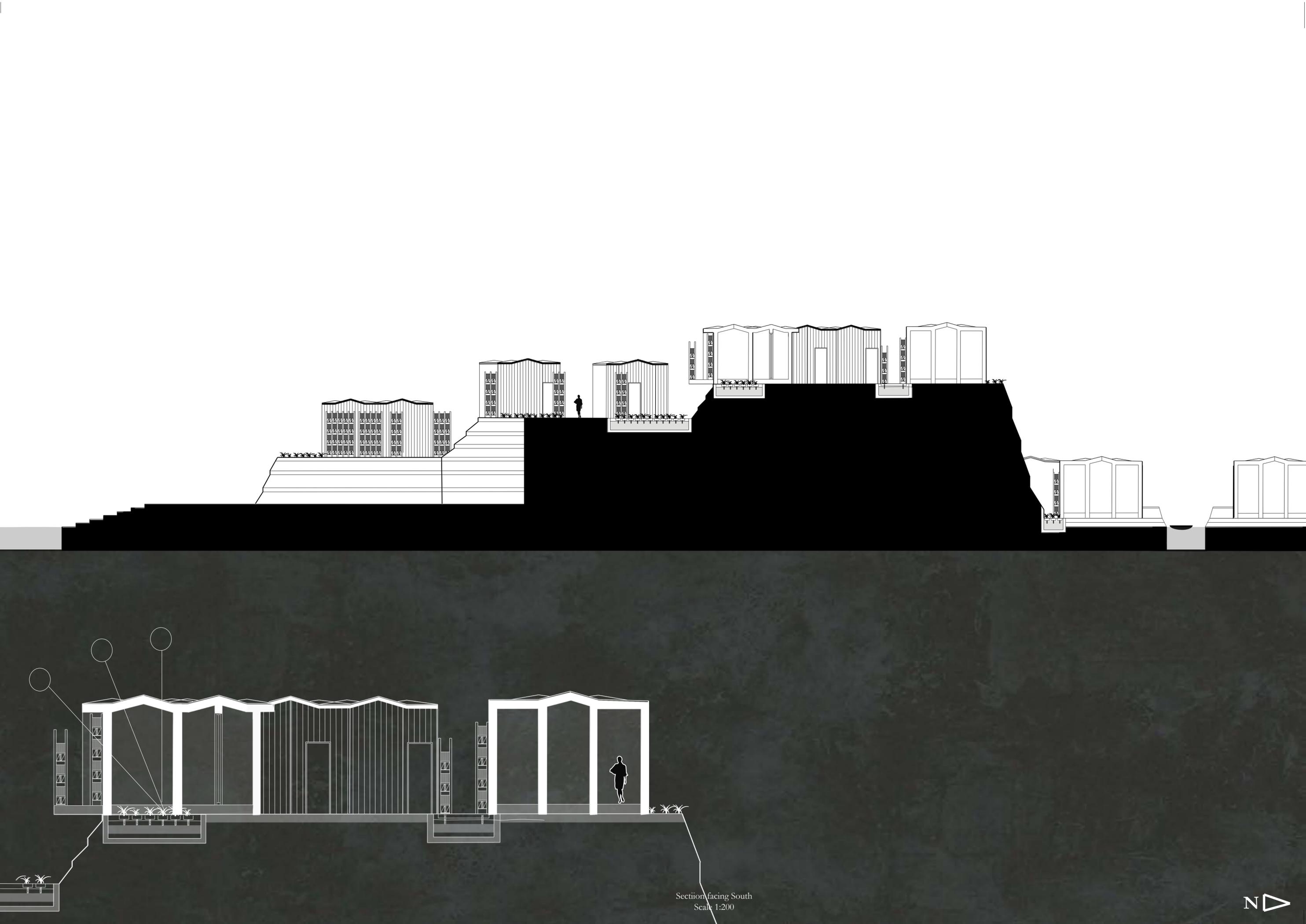
-  MORNING
-  MID DAY
-  AFTERNOON



Section facing South
Scale 1:200



Section facing South
Scale 1:200



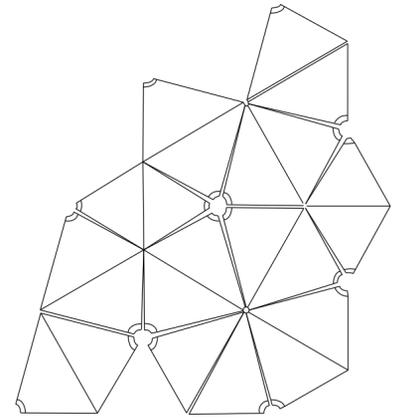
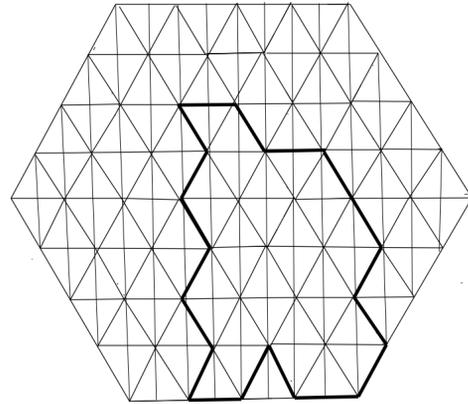
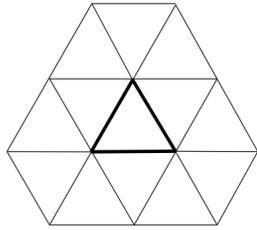
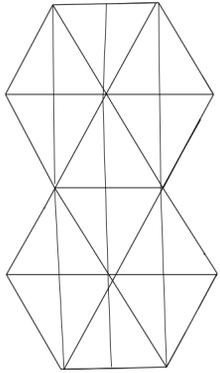
Section facing South
Scale 1:200



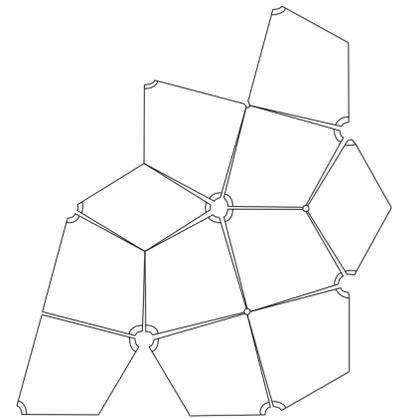
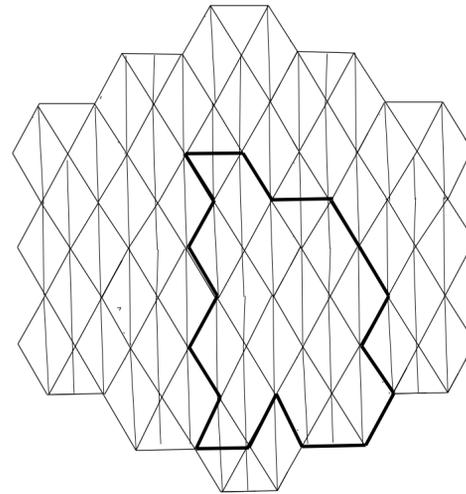
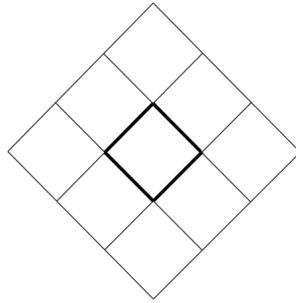
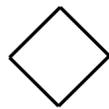
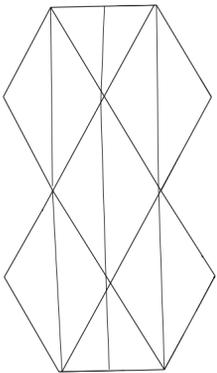
ROOF ARTICULATION

Different Geometrical Shapes

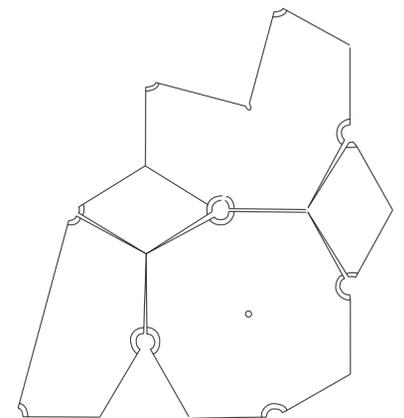
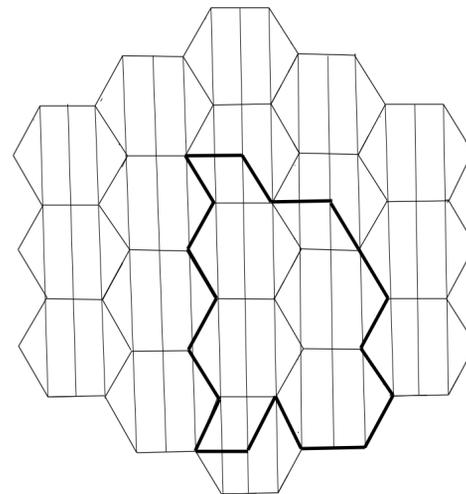
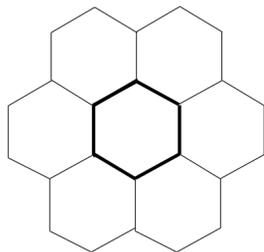
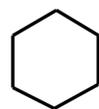
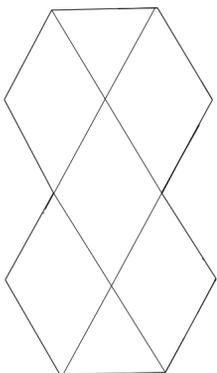
01.



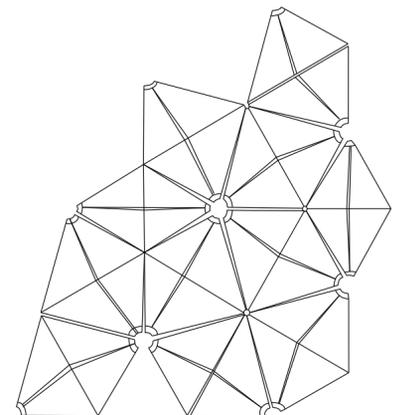
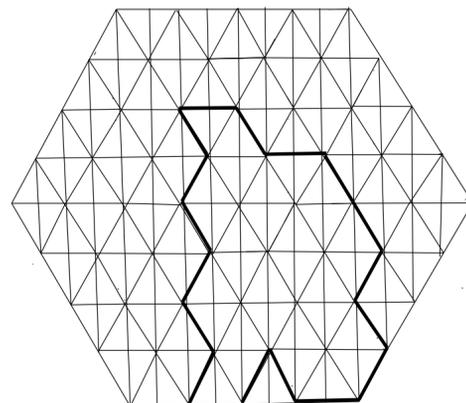
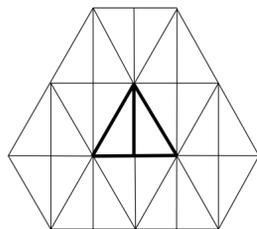
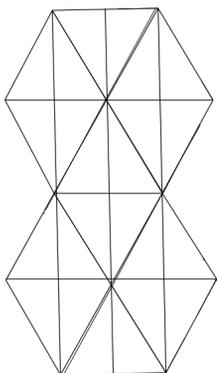
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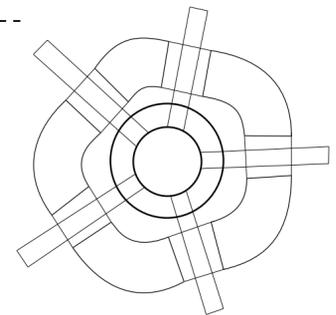
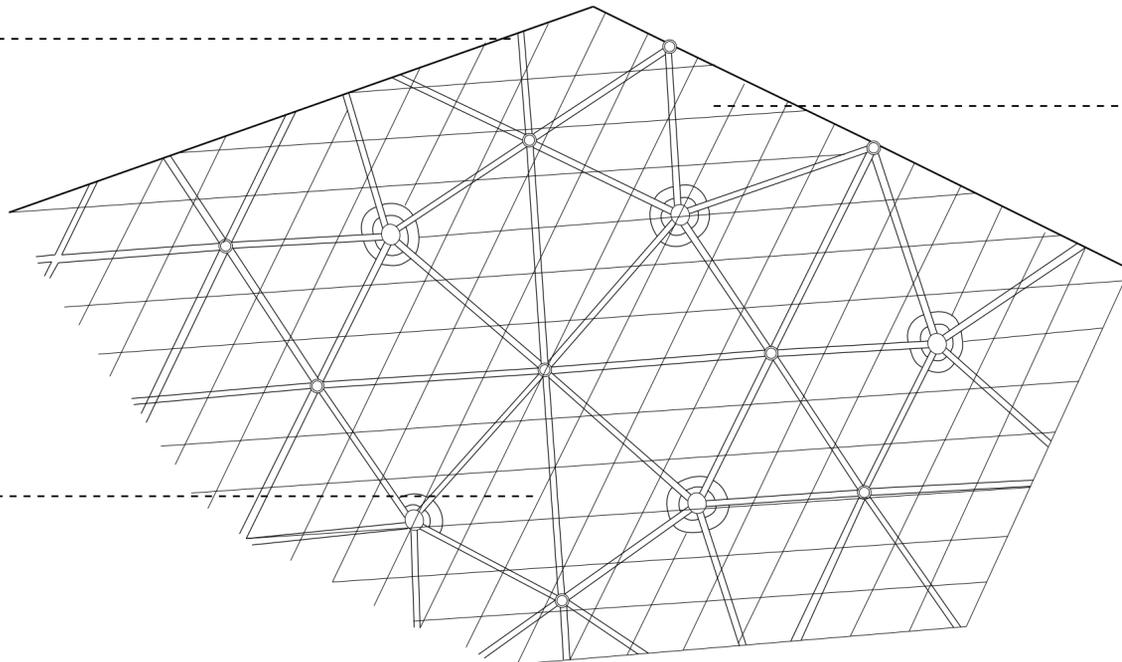
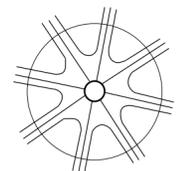
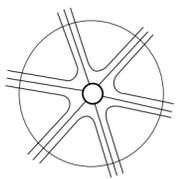
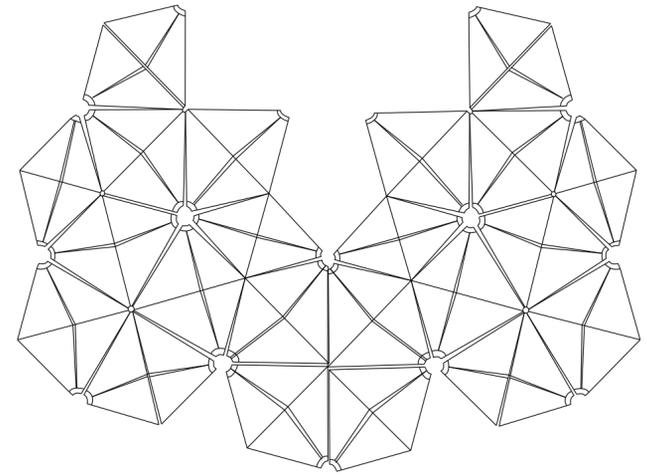
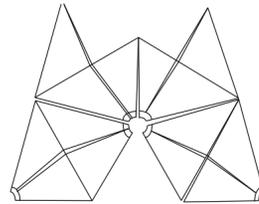
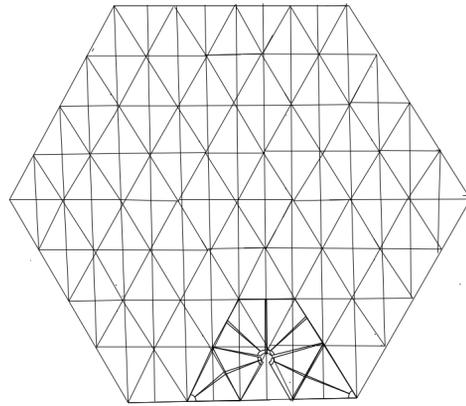
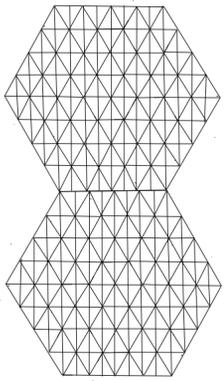
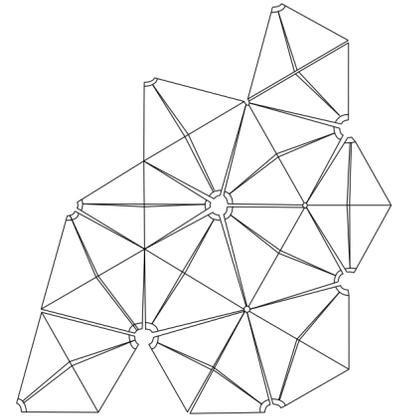
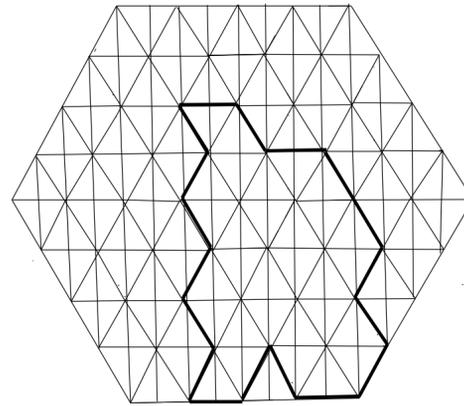
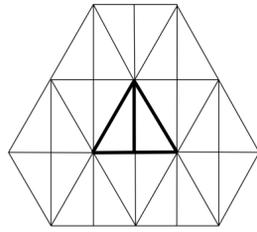
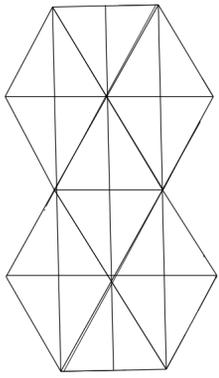


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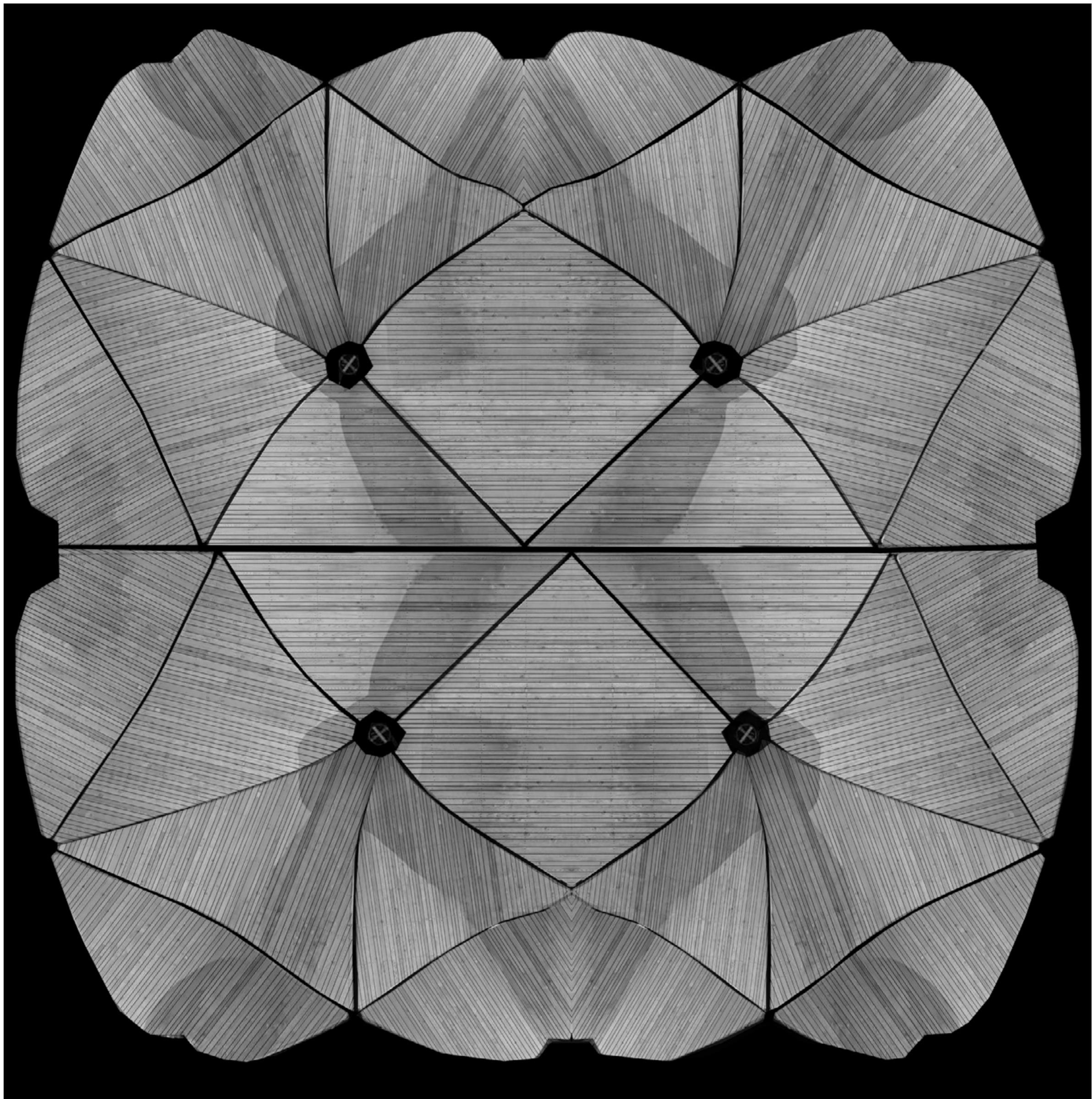


ROOF ARTICULATION

Different Geometrical Shapes





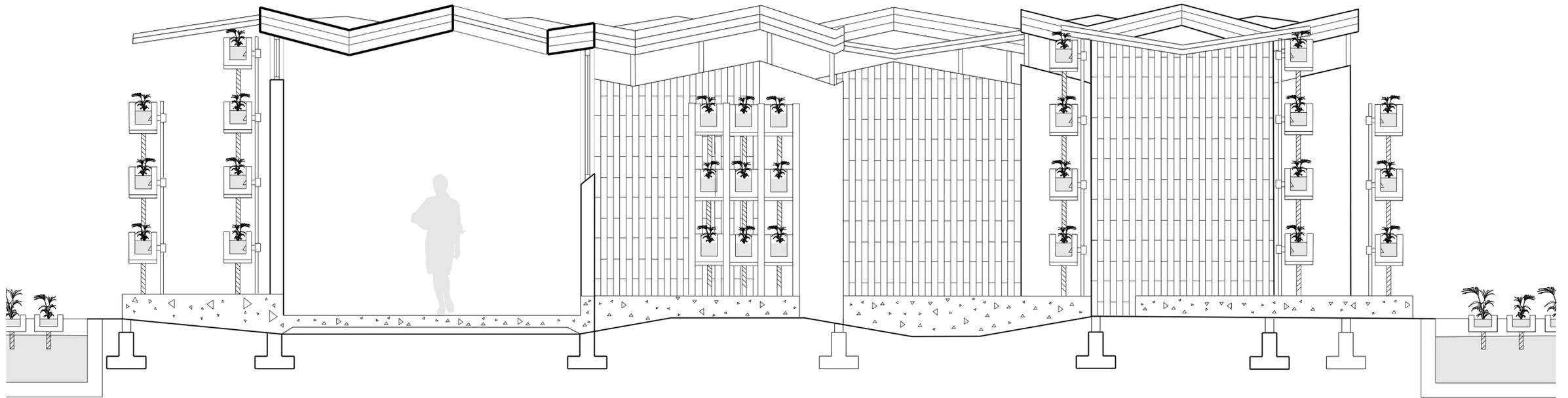


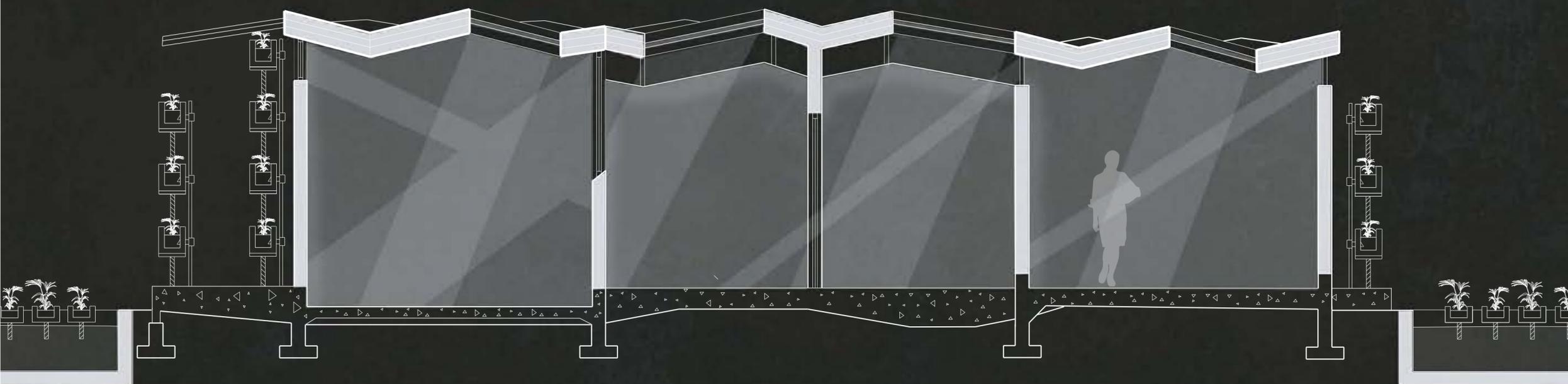


HOUSE SURROUNDED

by Hedges studio velocity

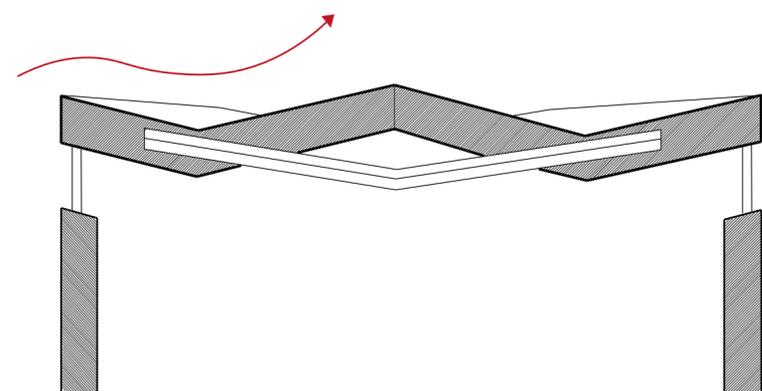
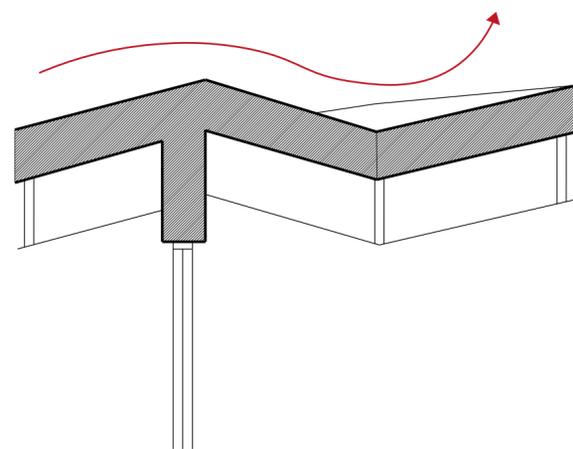
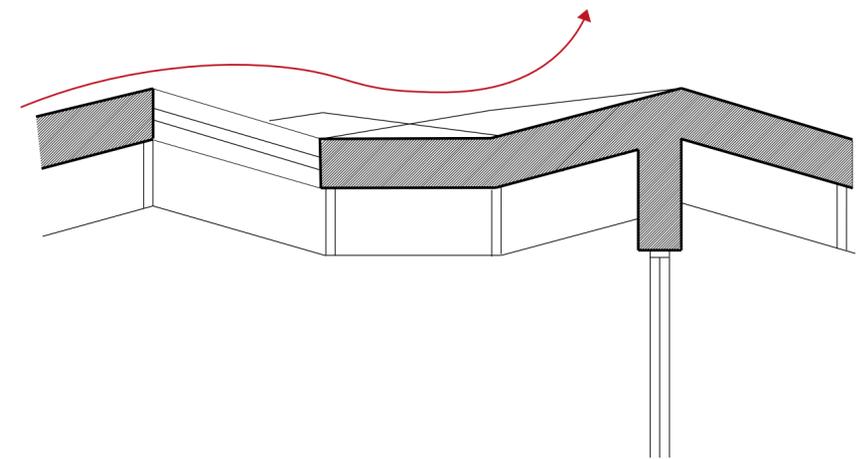
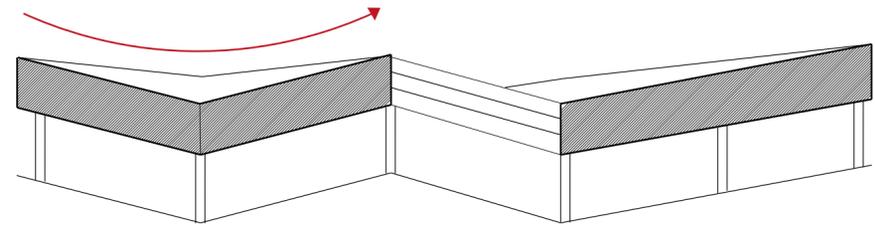
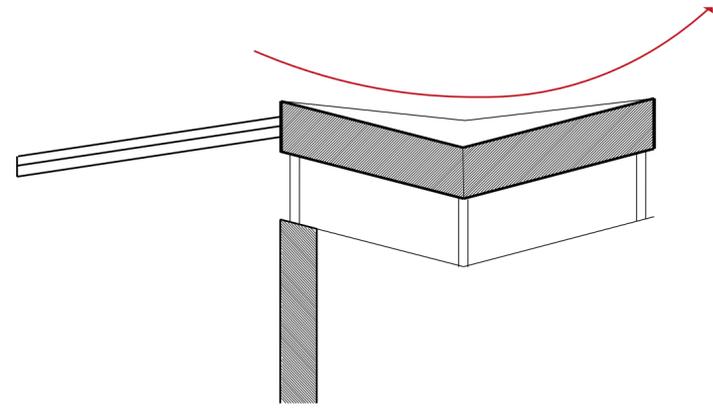
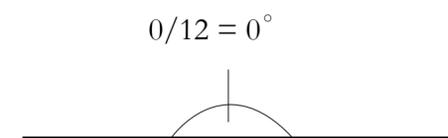
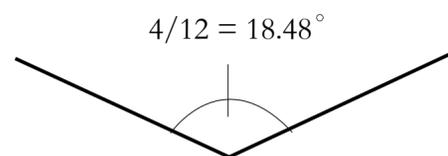
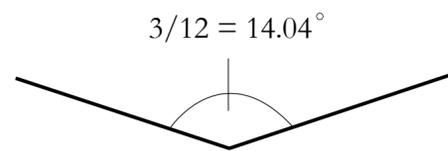
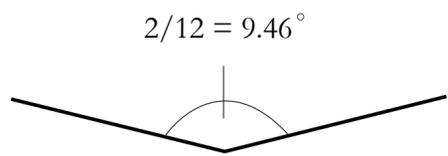
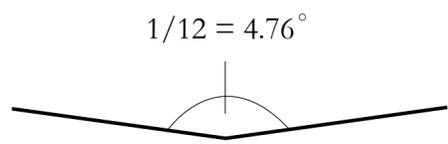
The existing hedge was just one layer high. The whole living space was made into a one-story building. The height of the seismic core with walls is lower than that of the hedges, and the twelve large roofs that float the upper part allow the entire site to be felt from inside, making it a livable space. From the outside, hedges and core walls ensured the privacy of the inside, but also made it possible to see the view from under the roof, reducing the presence of the building.

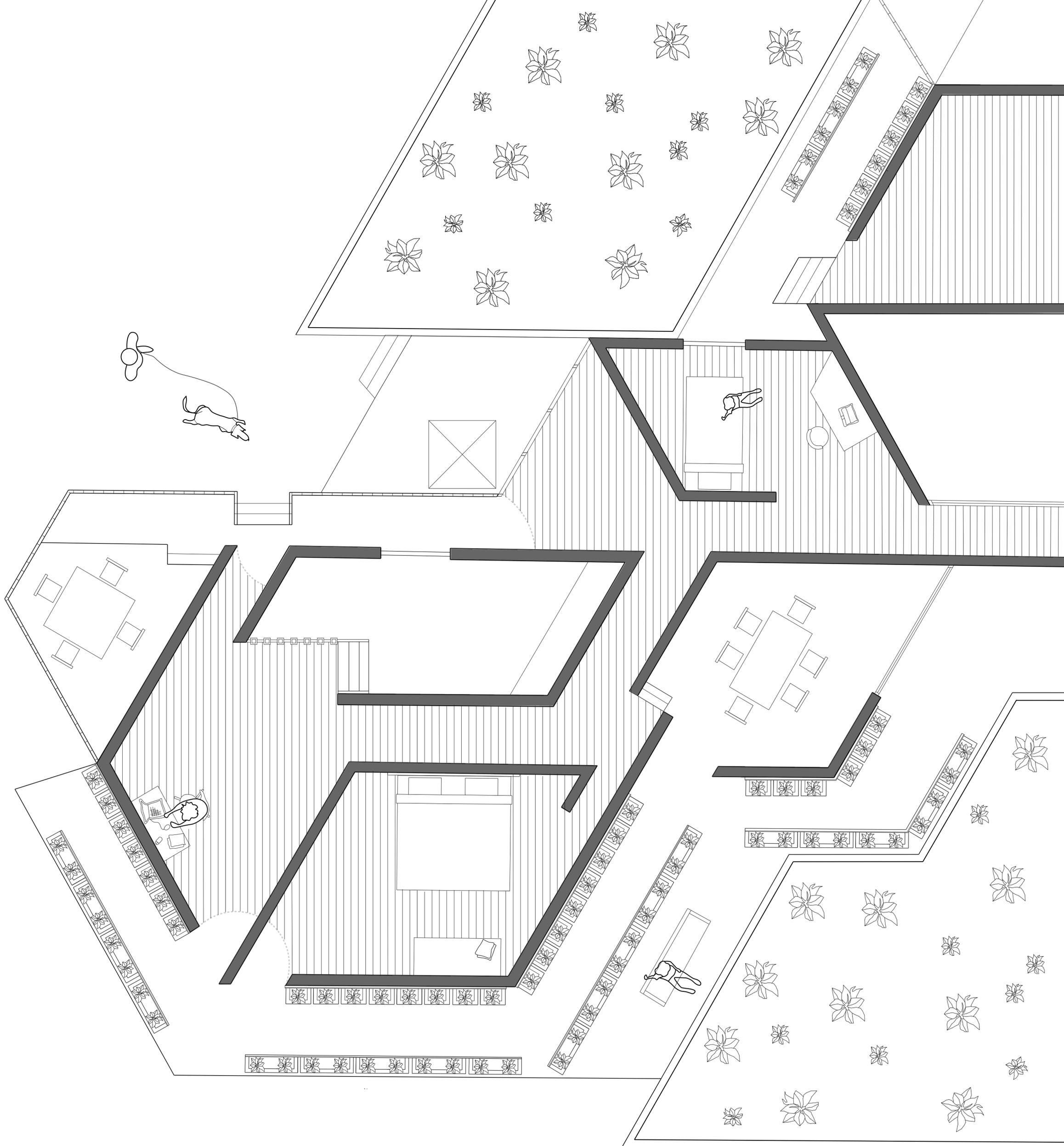


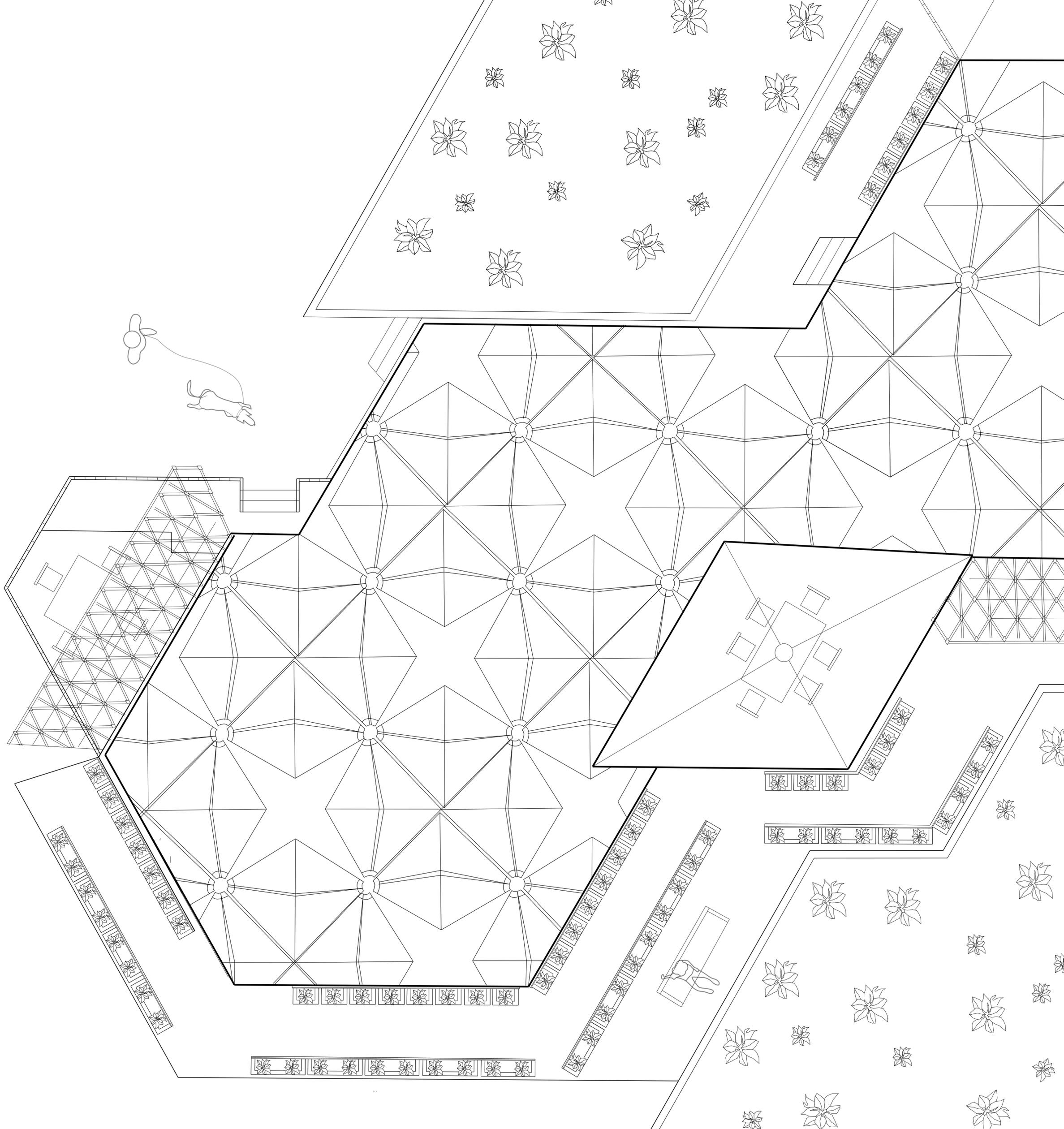


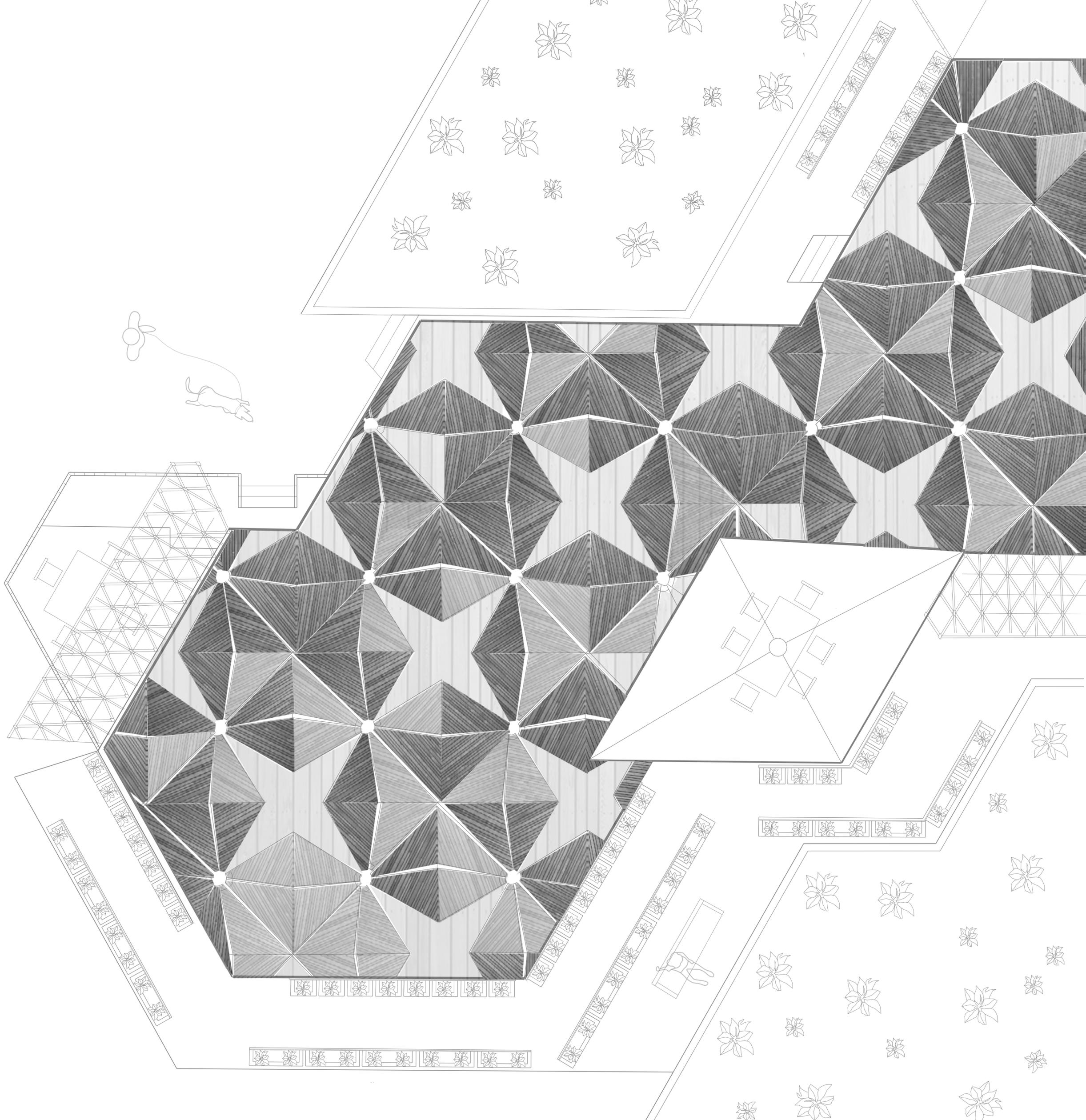
ROOF ANGLES

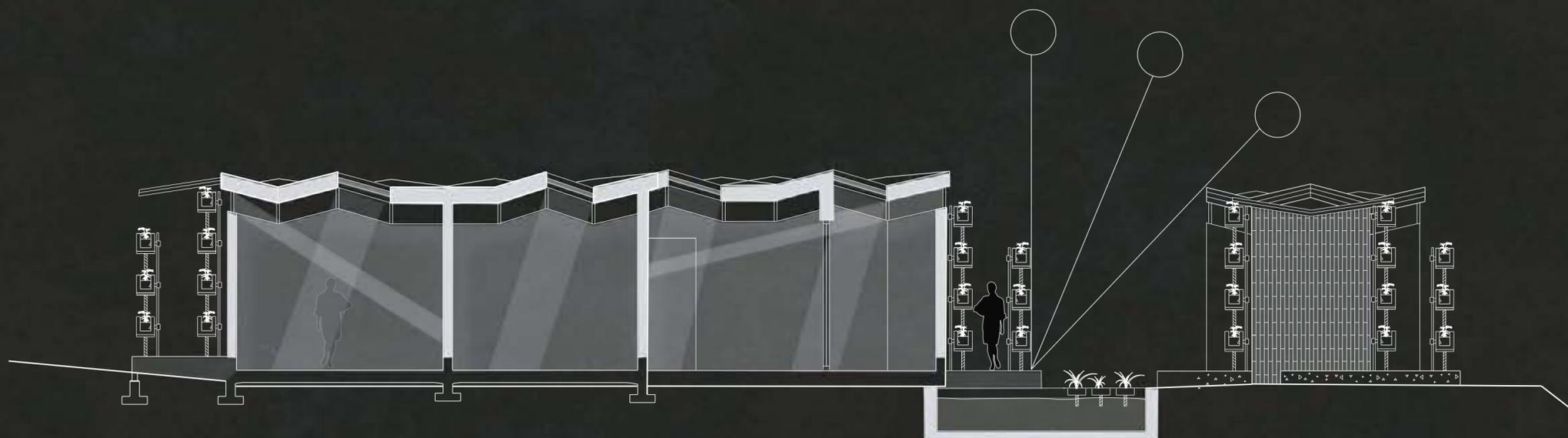
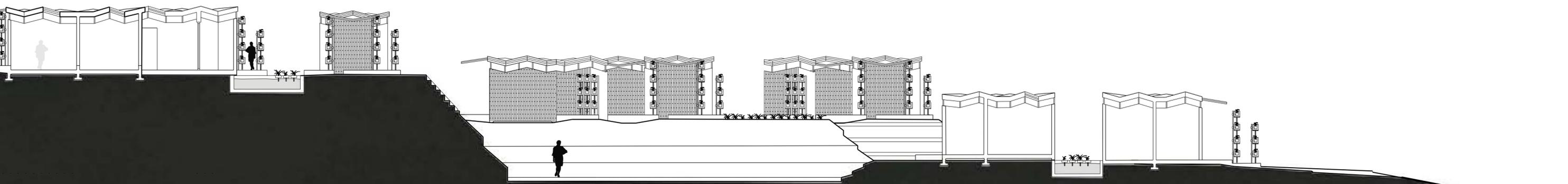
LIGHT

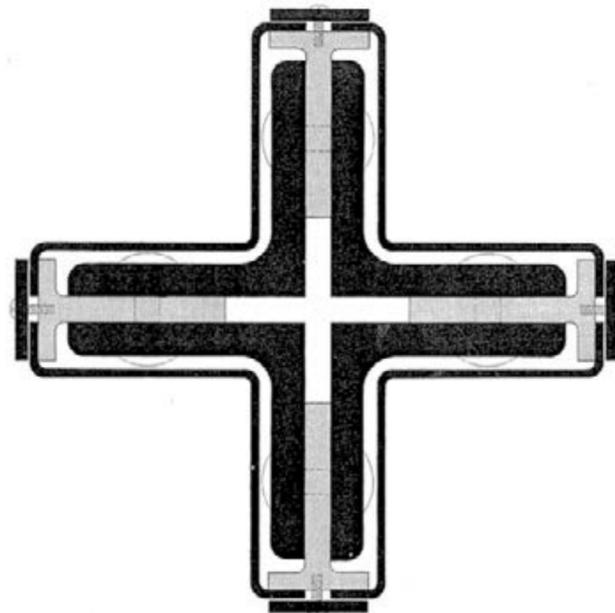












The Farnsworth House | Mies van der Rohe

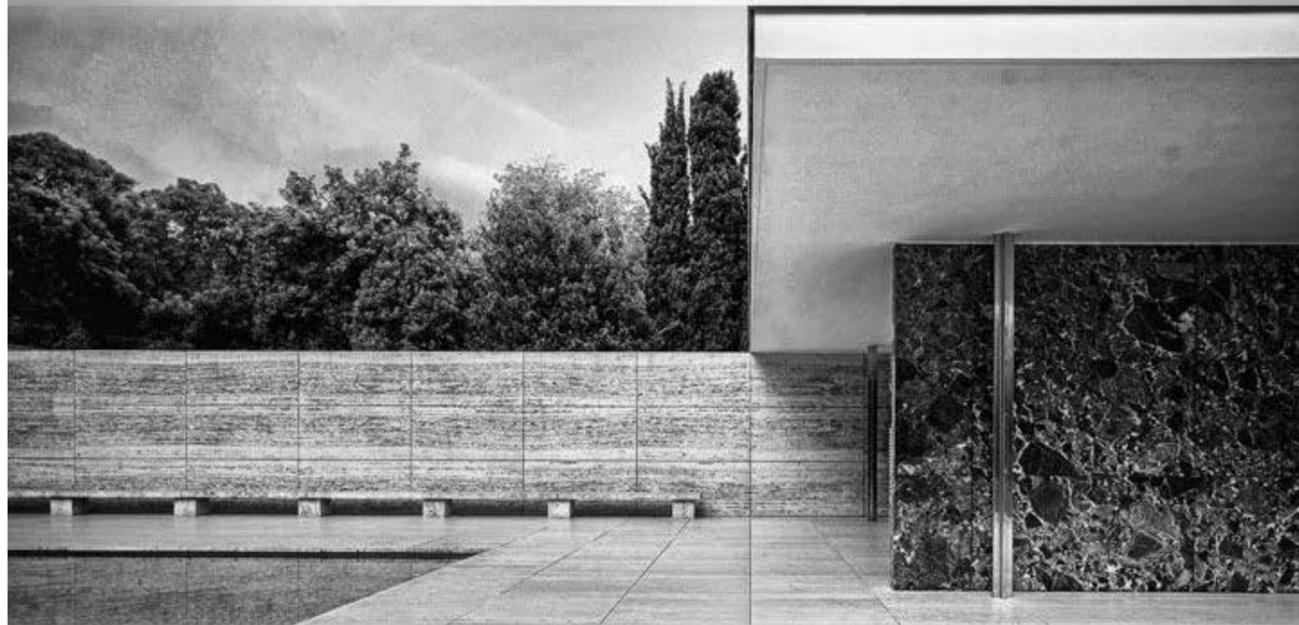
Two parallel planes held in suspension between the earth and sky by only eight steel columns—seems simple, but Mies worked through 167 drawings to come to his final, fearless design. Like Einstein's equation, its simplicity exudes an elegance through a thorough attention to detail. However, Mies did not create the Farnsworth House to be an iconic glass box viewed from afar. Rather, he hoped to create a space through which life unfolds both independently and interdependently with nature.

Upon visiting the 64-acre site, largely within a flood plain, Mies perceived the true power already present within the natural landscape. Thus began his quest for a transparent structure that would minimize the boundary between man and the natural world. With an open floor plan of only 2400 square feet, he created three distinct spatial interfaces: a transparent house, a covered terrace, and an open deck. His budget was \$40,000. Edith Farnsworth nurtured a sophisticated intellect and daring stance. Though charmed by Mies' quiet, bold genius, she was certainly aware of his minimal form and bravely gave him freedom to create—a visionary and rare move which allowed Mies' own vision to grow.

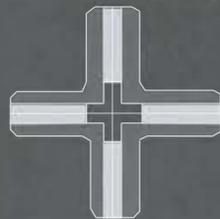
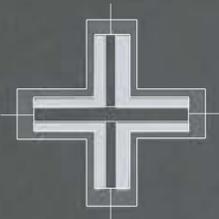
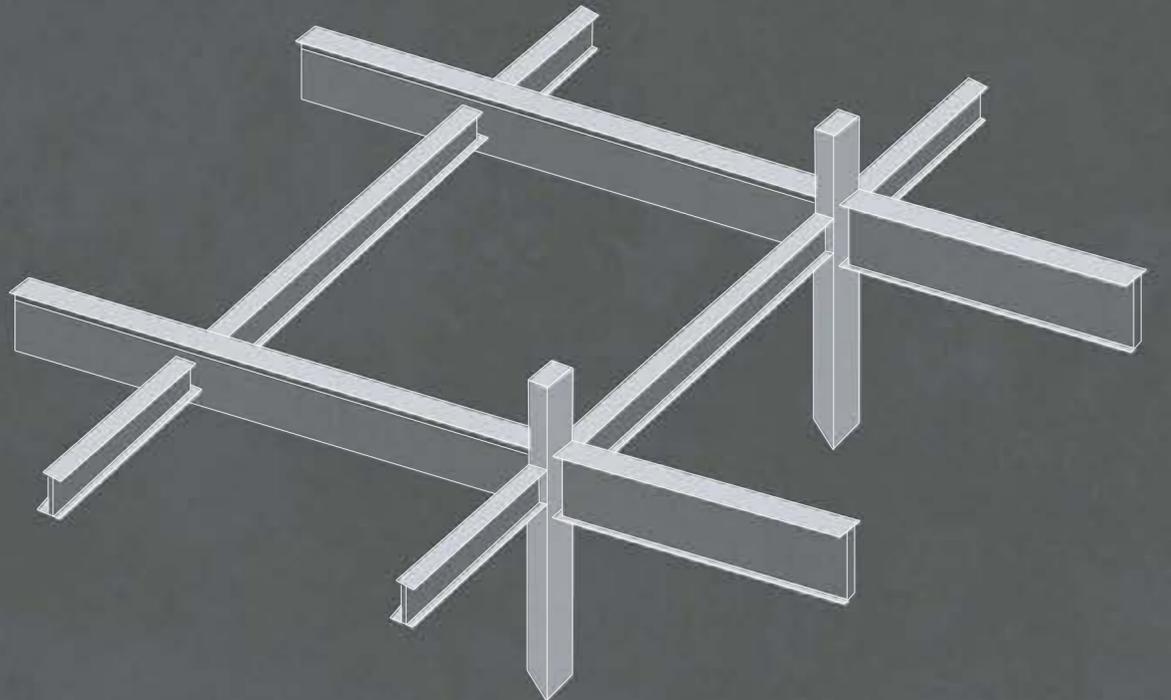
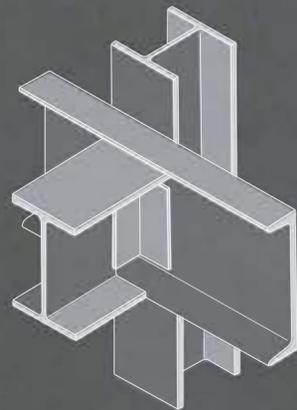
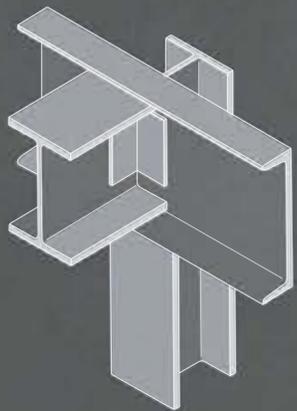
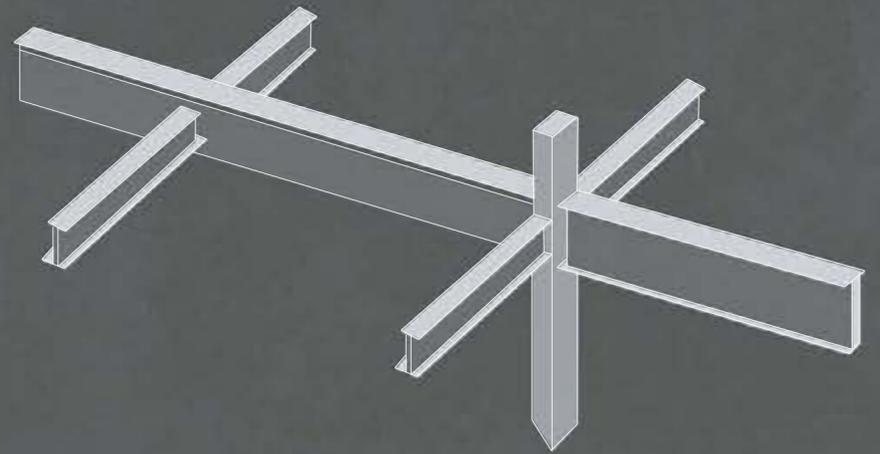
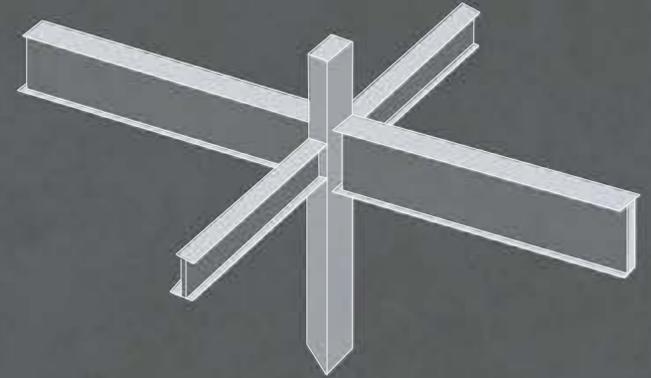
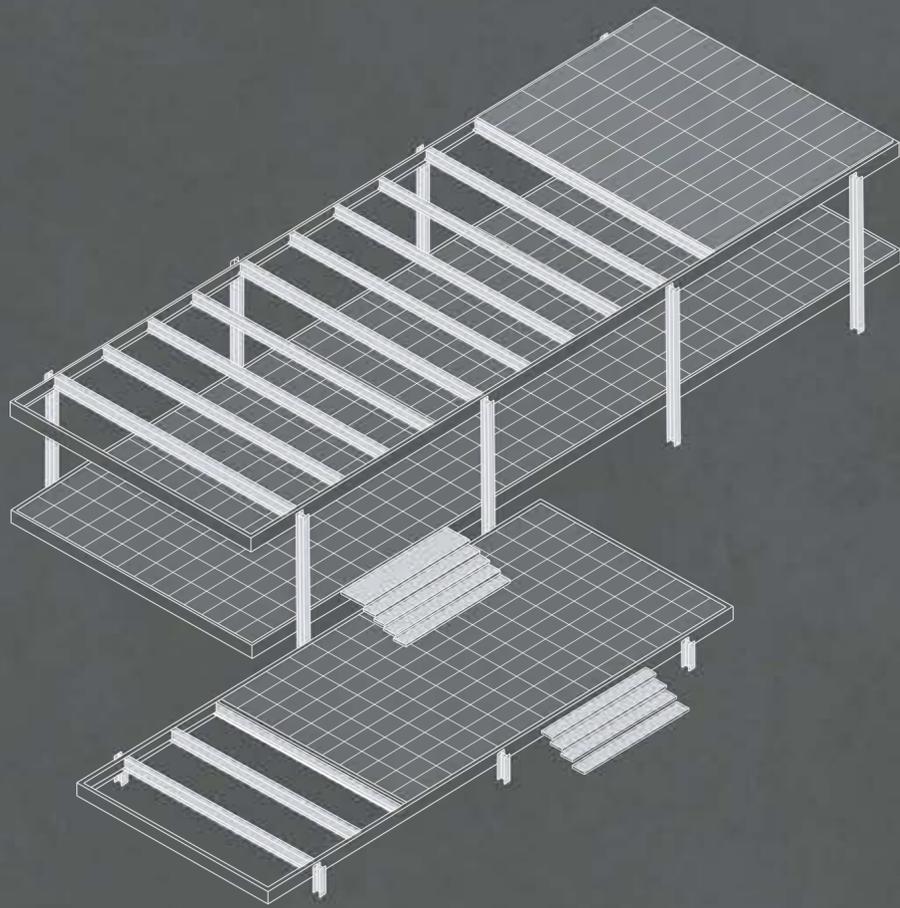
The Barcelona Pavilion | Mies van der Rohe

Glass, steel and four different kinds of stone (Roman travertine, green Alpine marble, ancient green marble from Greece and golden onyx from the Atlas Mountains) were used for the reconstruction, all of the same characteristics and provenance as the ones originally employed by Mies in 1929.

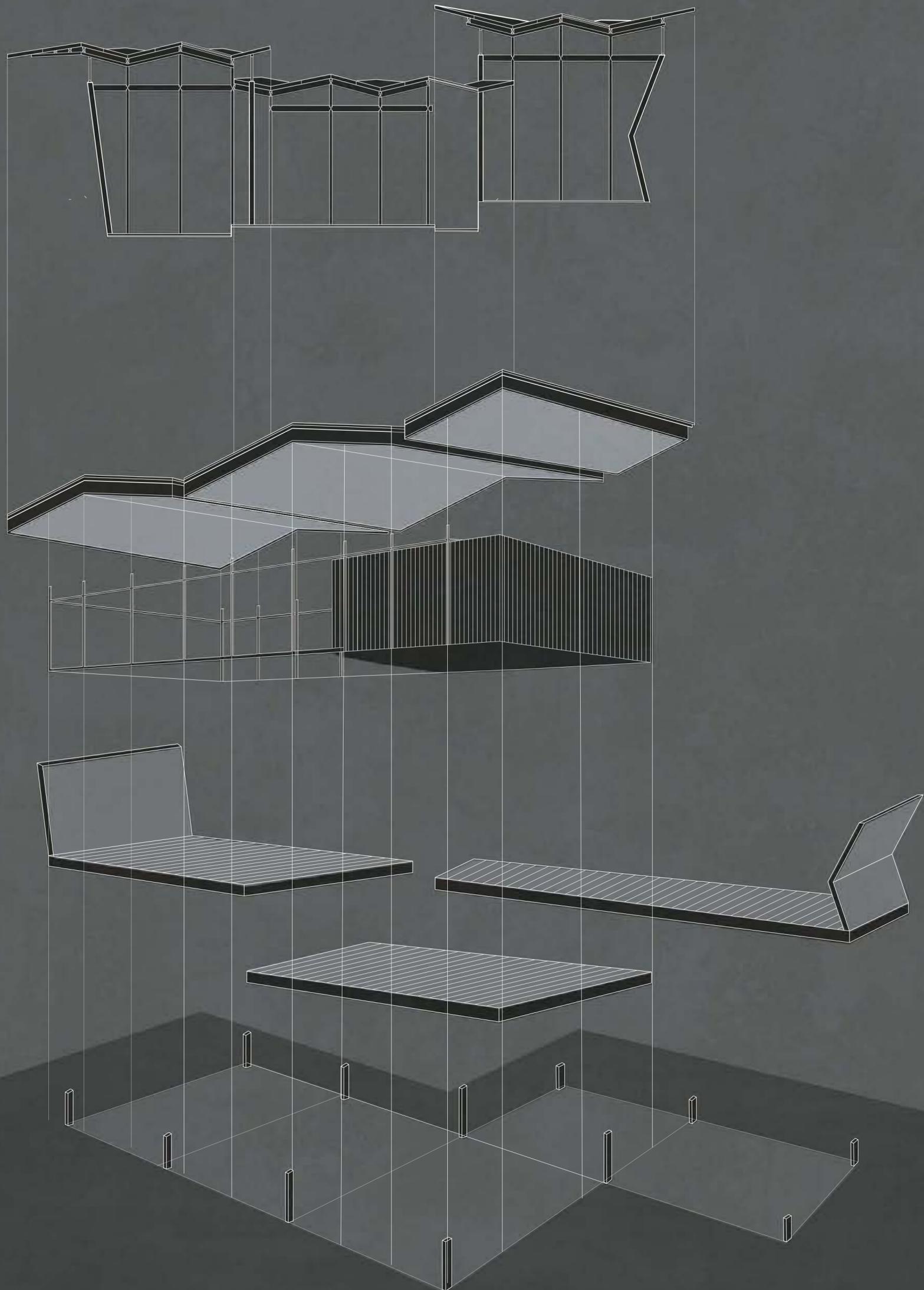
Mies van der Rohe's originality in the use of materials lay not so much in novelty as in the ideal of modernity they expressed through the rigour of their geometry, the precision of the pieces and the clarity of their assembly

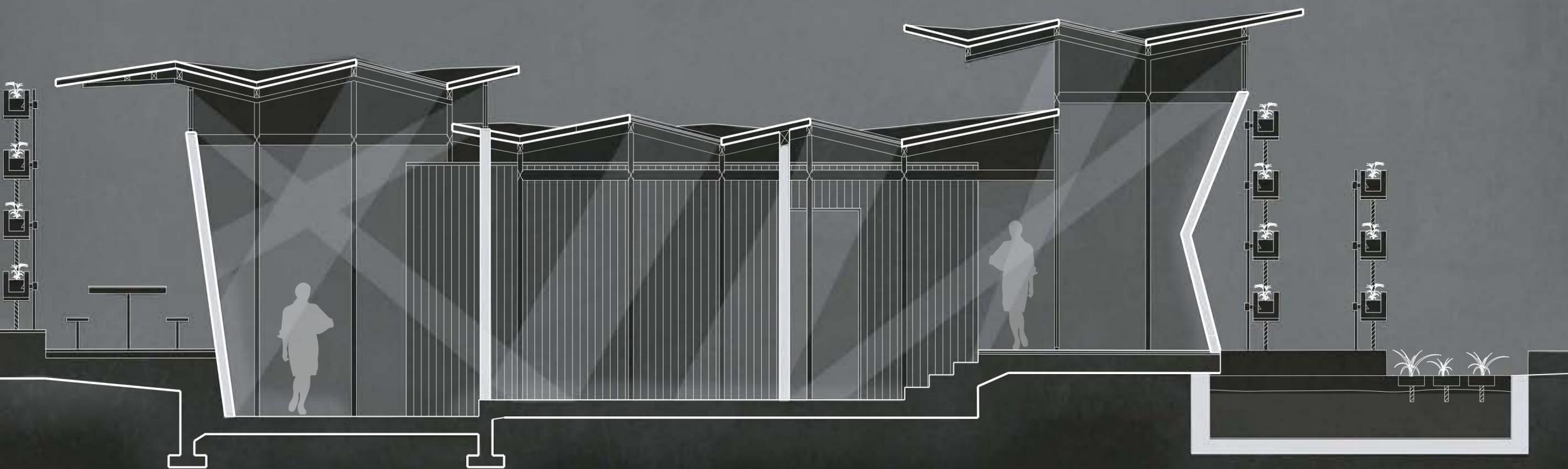


The Farnsworth House | Mies van der Rohe

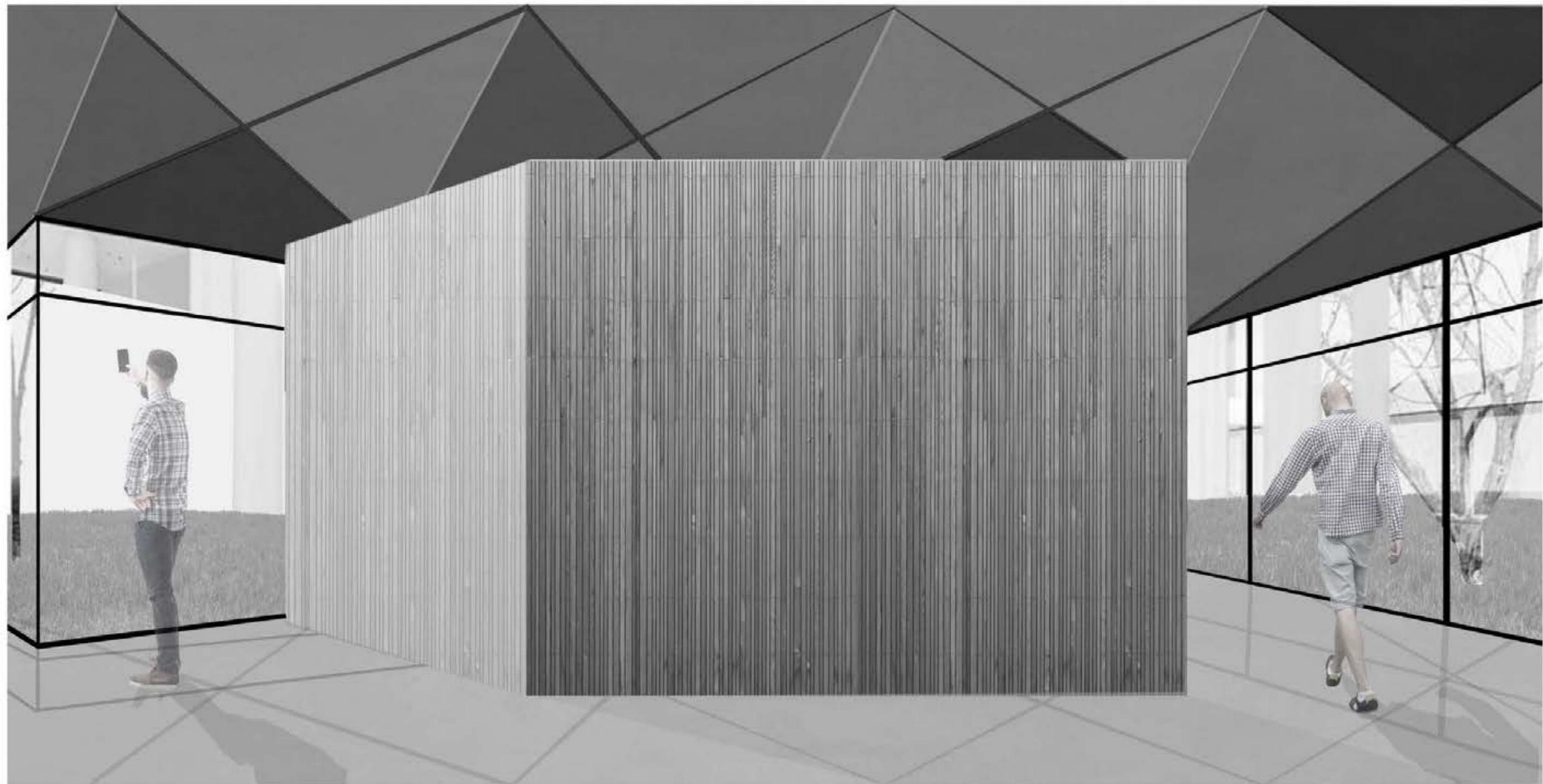


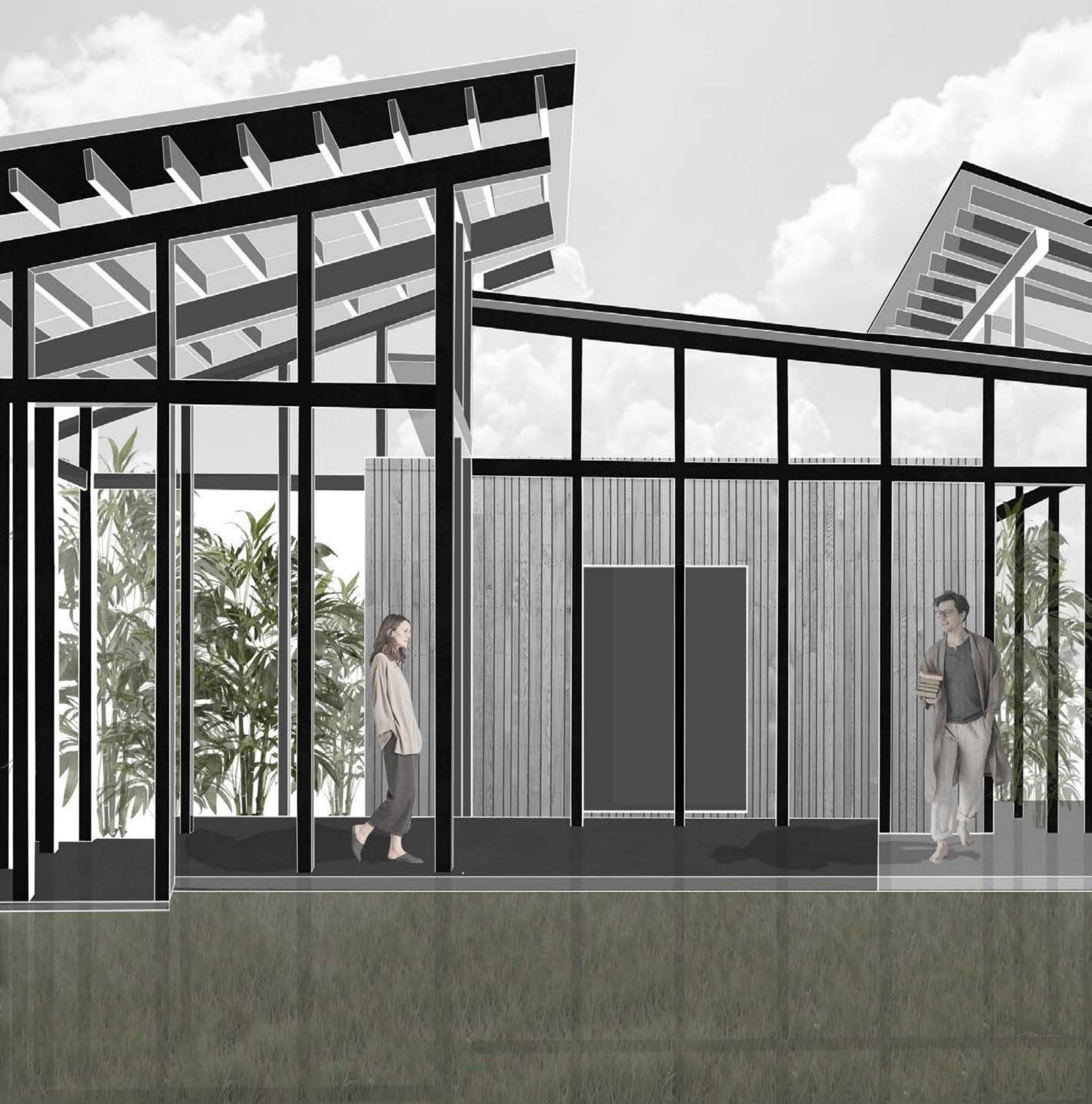
The Farnsworth House | Mies van der Rohe











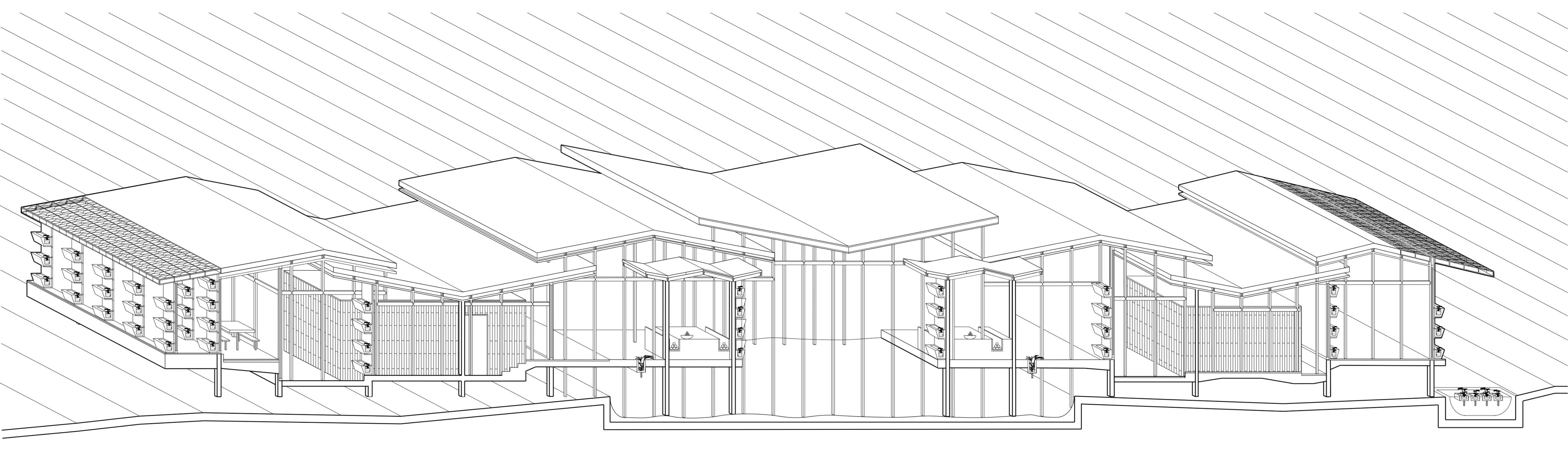


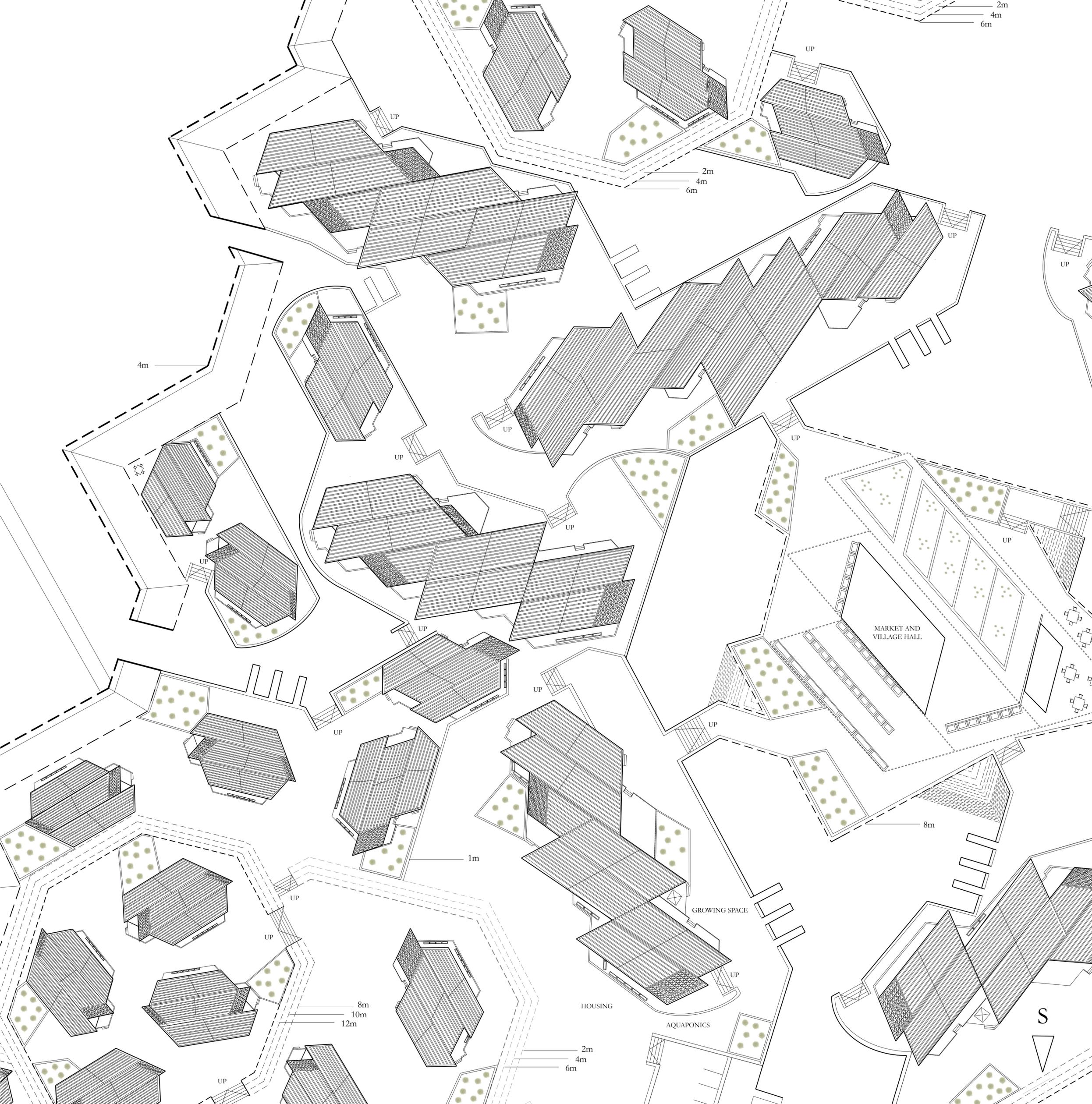


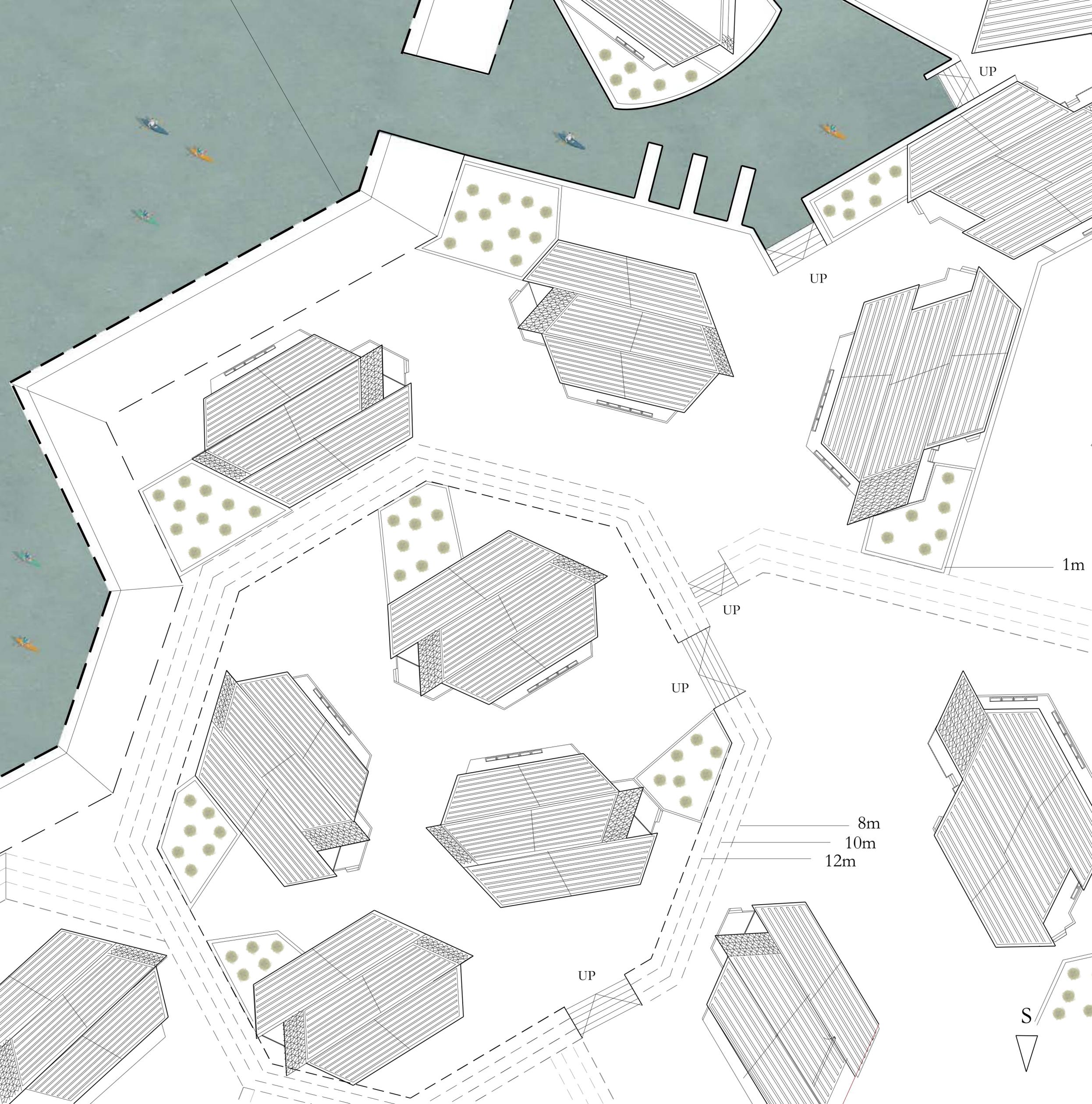


A clerestory roof has an interior wall built extending above one section of the roof, with this section of the wall is often lined with several windows, or one long window. The sections of roof either side of the vertical wall are typically sloping, allowing a large amount of natural light into the windows.









UP

UP

UP

UP

UP

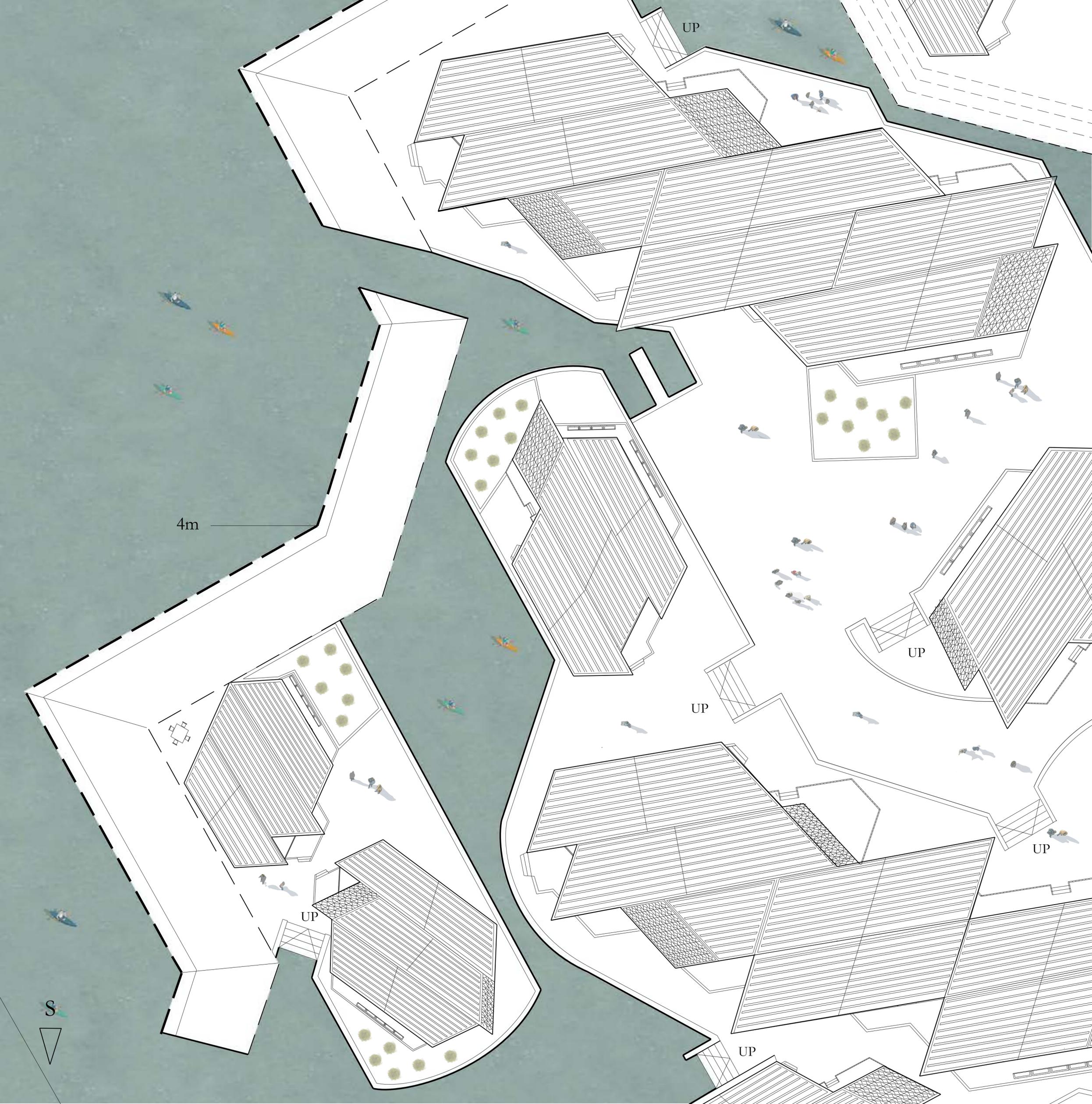
1m

8m

10m

12m

S



4m

UP

UP

UP

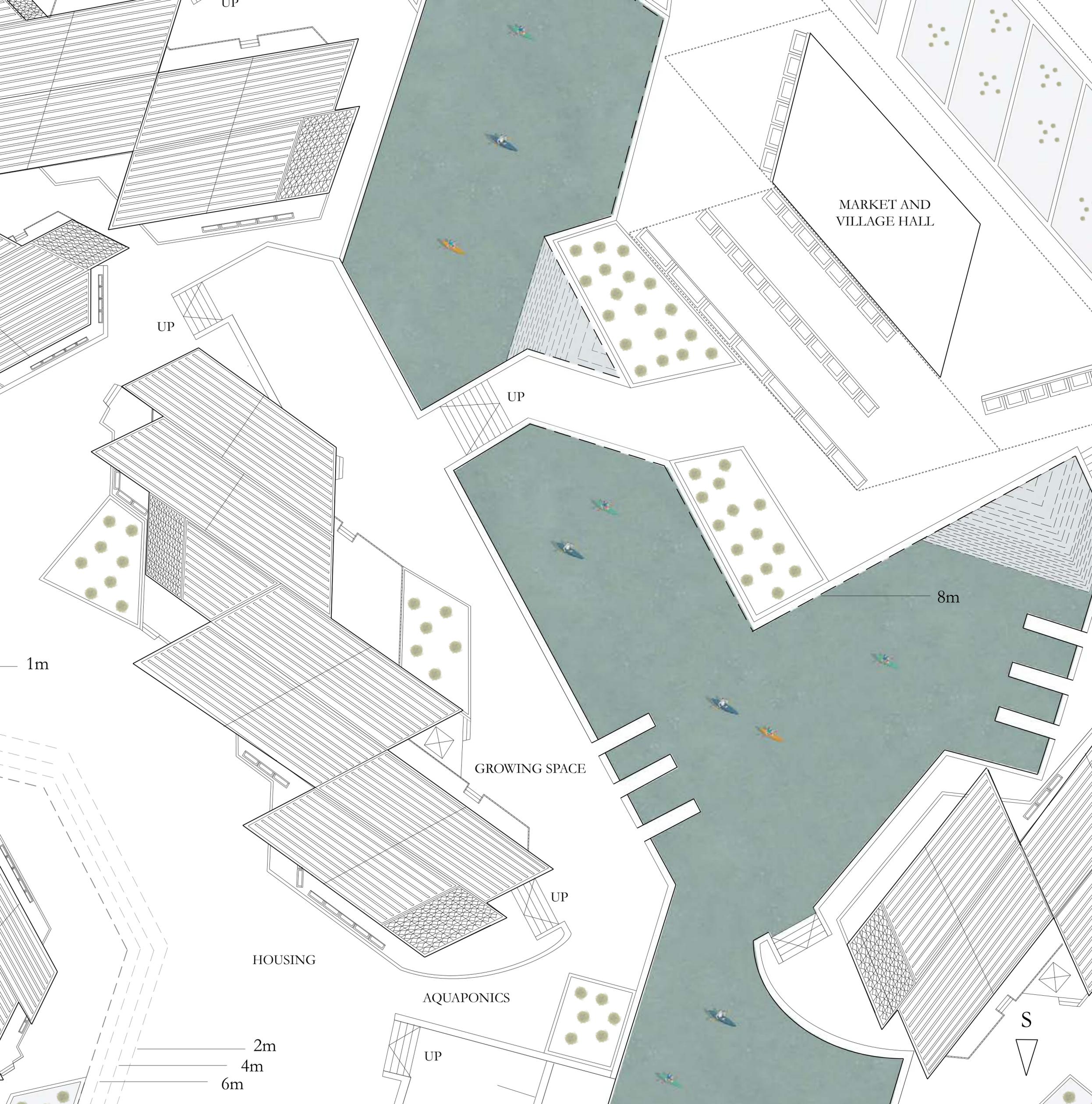
UP

UP

UP

S





UP

MARKET AND
VILLAGE HALL

UP

UP

8m

1m

GROWING SPACE

UP

HOUSING

AQUAPONICS

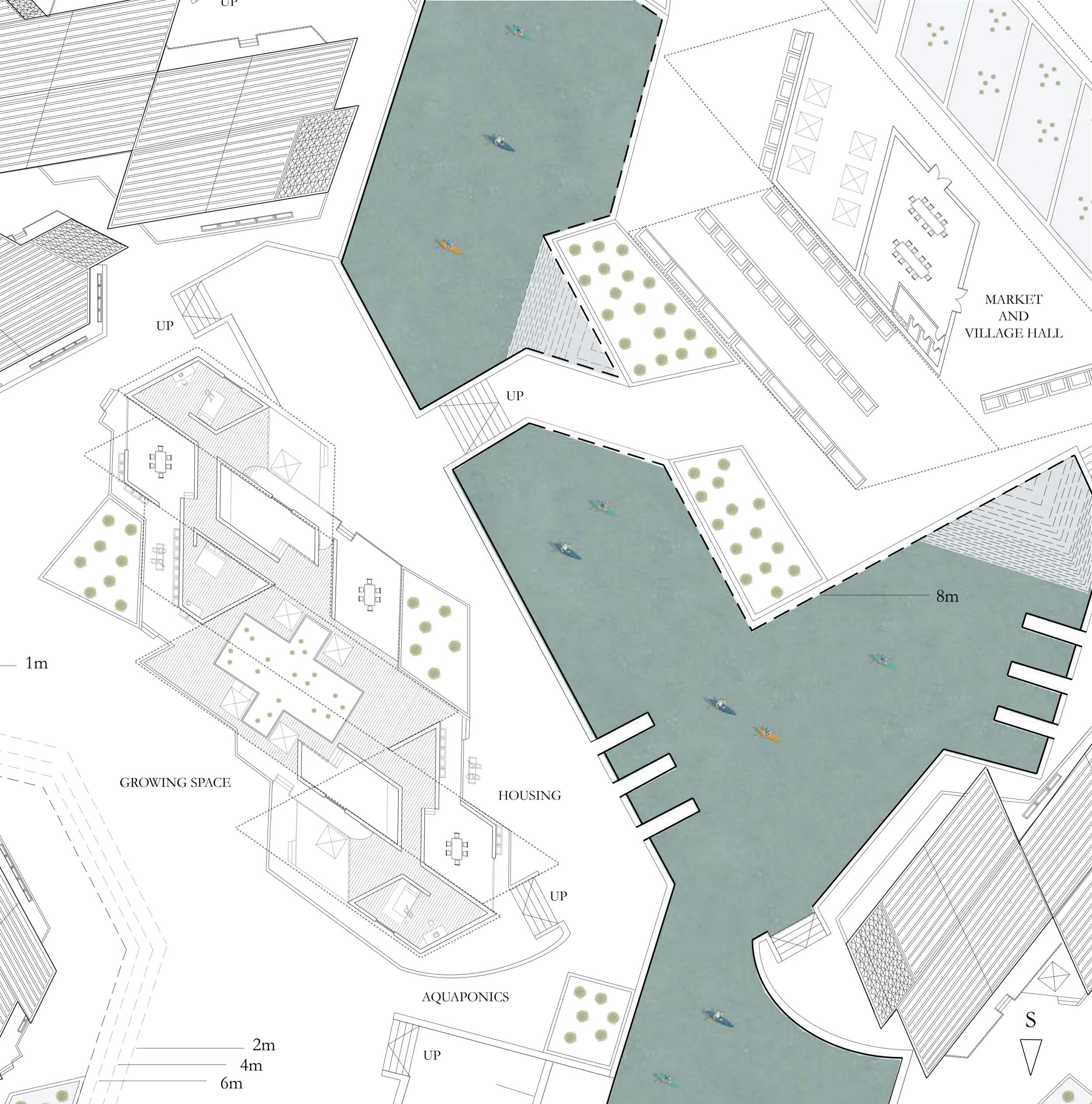
S

2m

4m

6m

UP



UP

UP

UP

UP

UP

GROWING SPACE

HOUSING

AQUAPONICS

MARKET AND VILLAGE HALL

1m

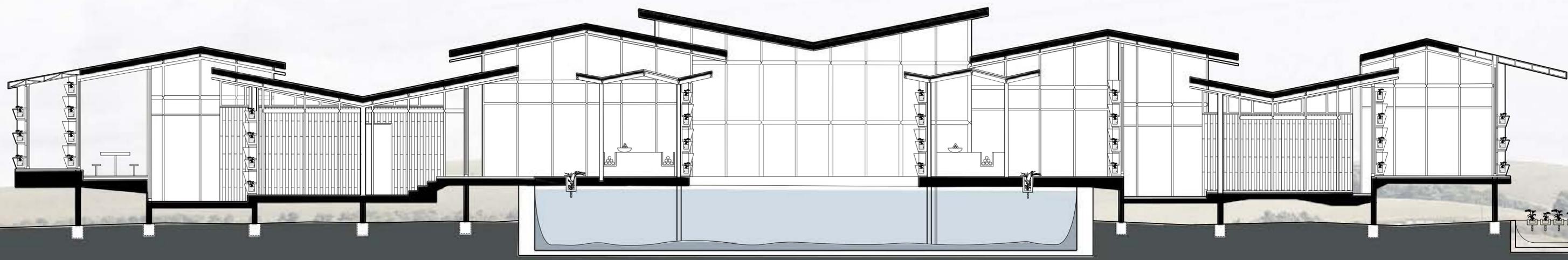
2m

4m

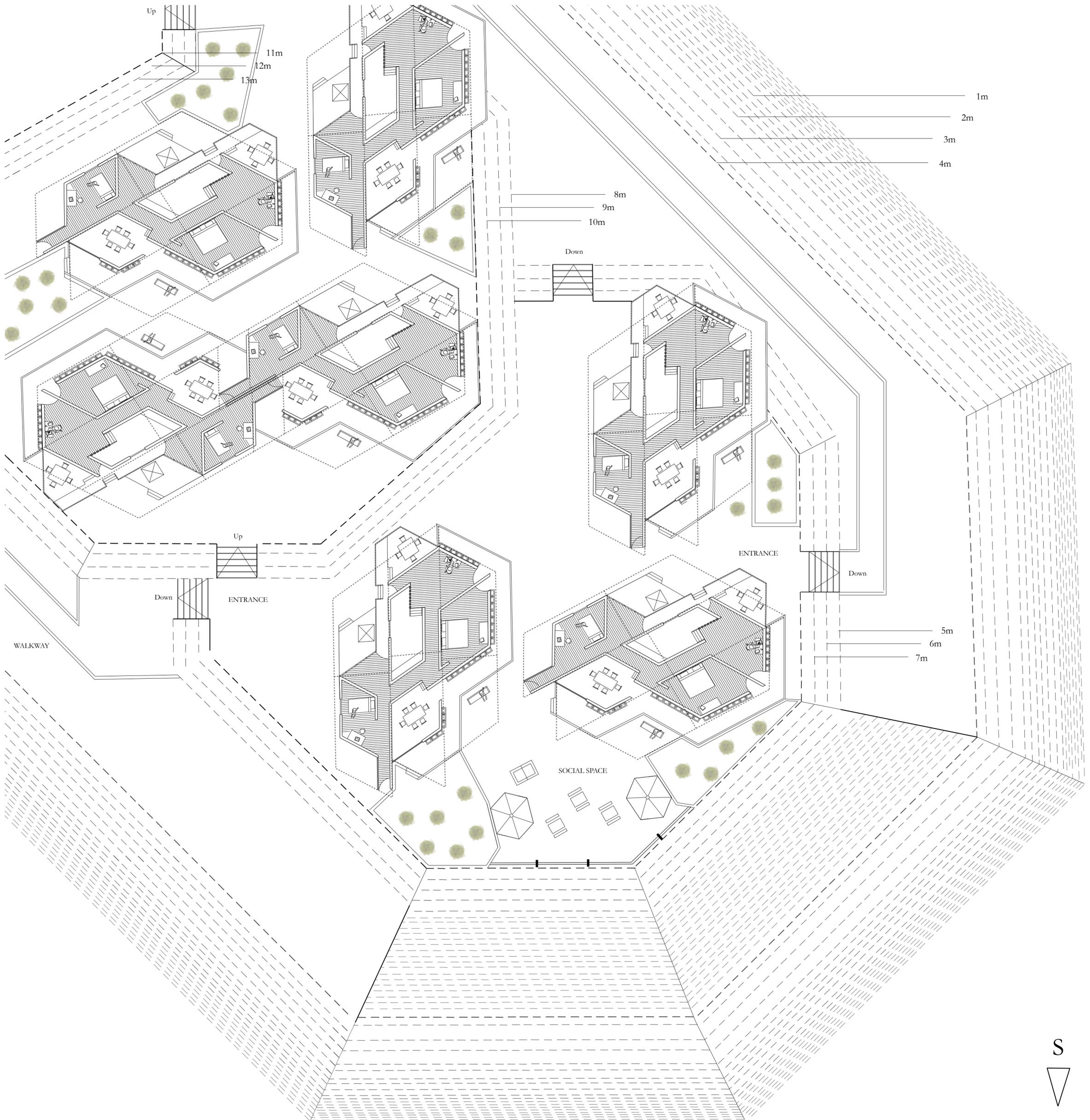
6m

8m

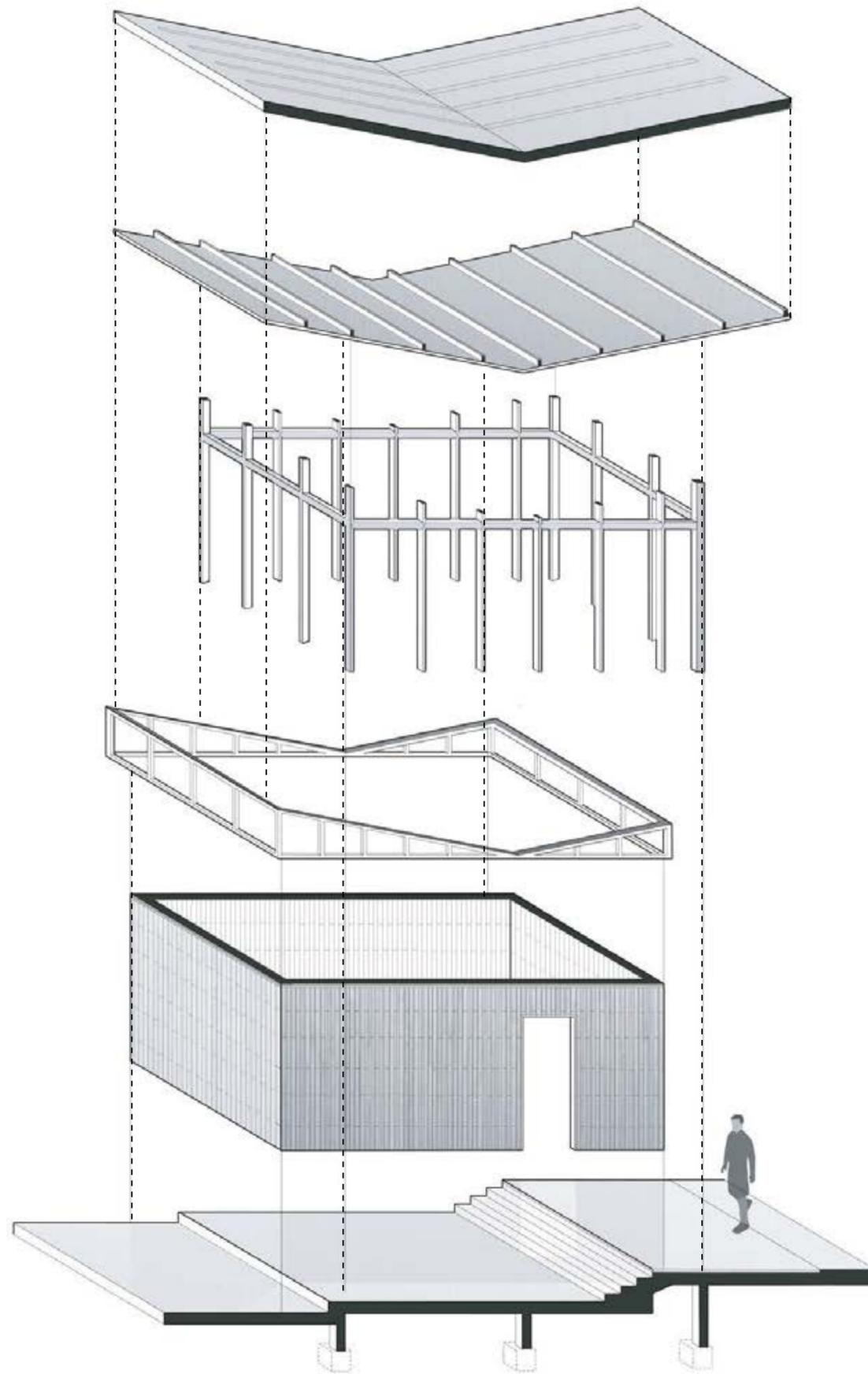
S



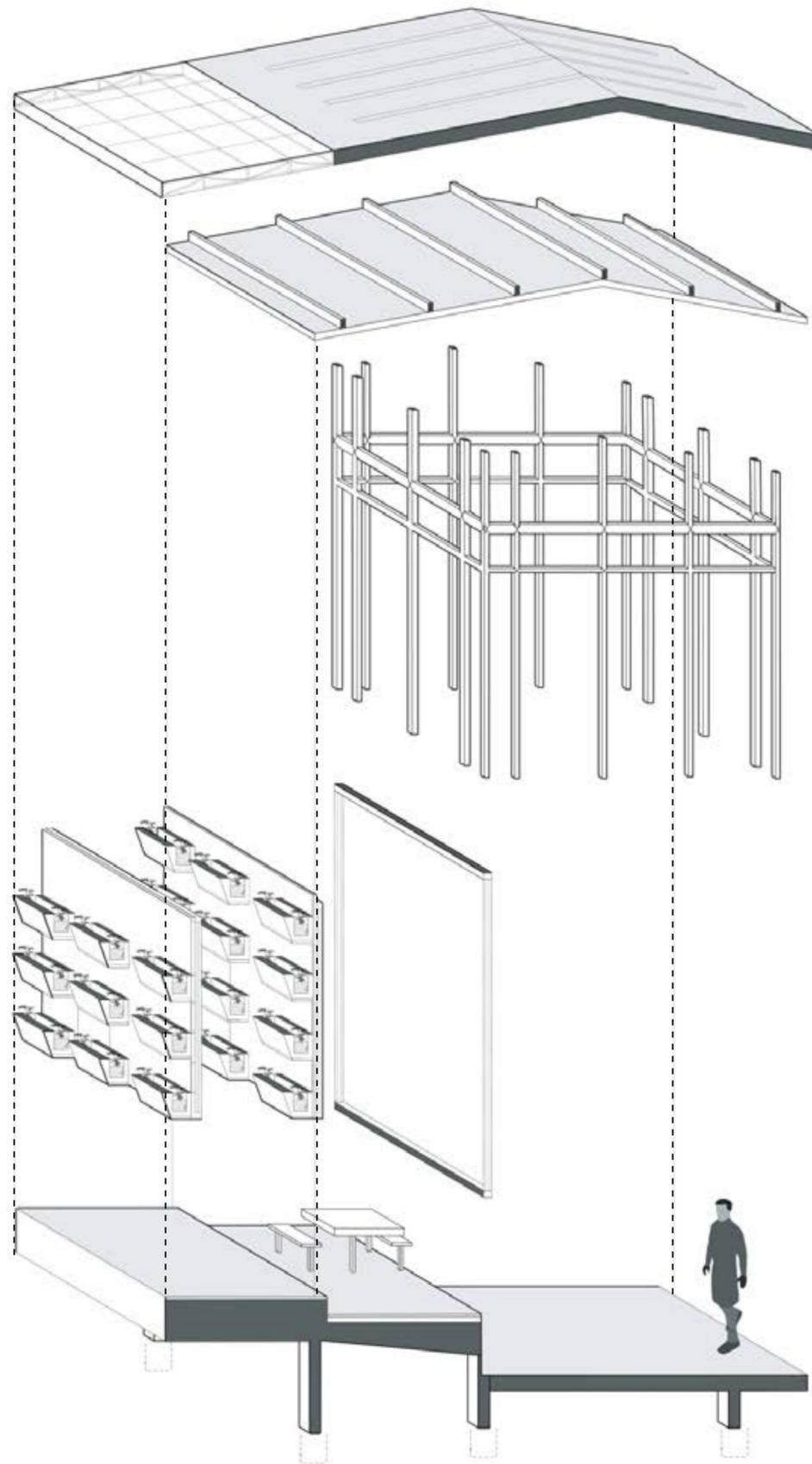
E
▽



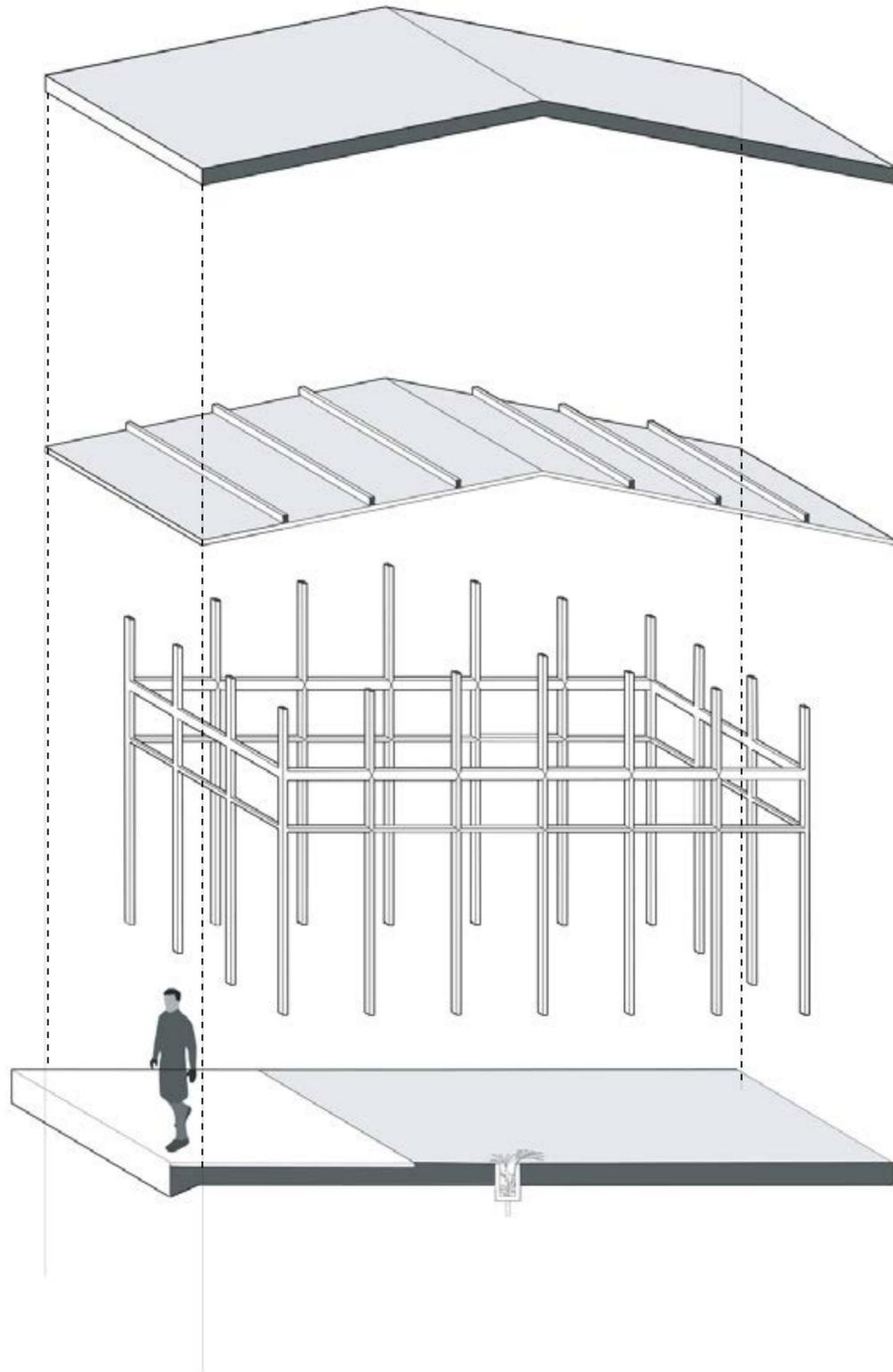
ISONOMETRIC
STRUCTURE DETAIL TYPE2



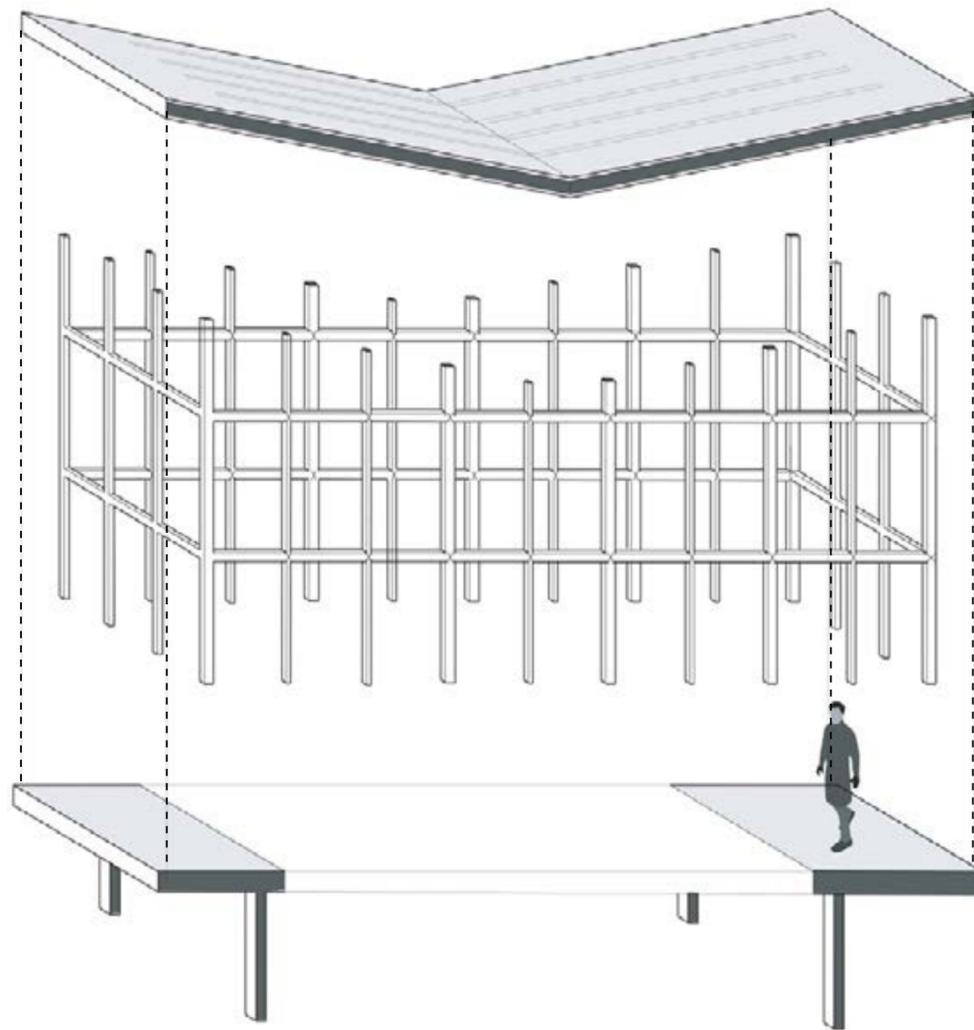
ISONOMETRIC
STRUCTURE DETAIL TYPE 1



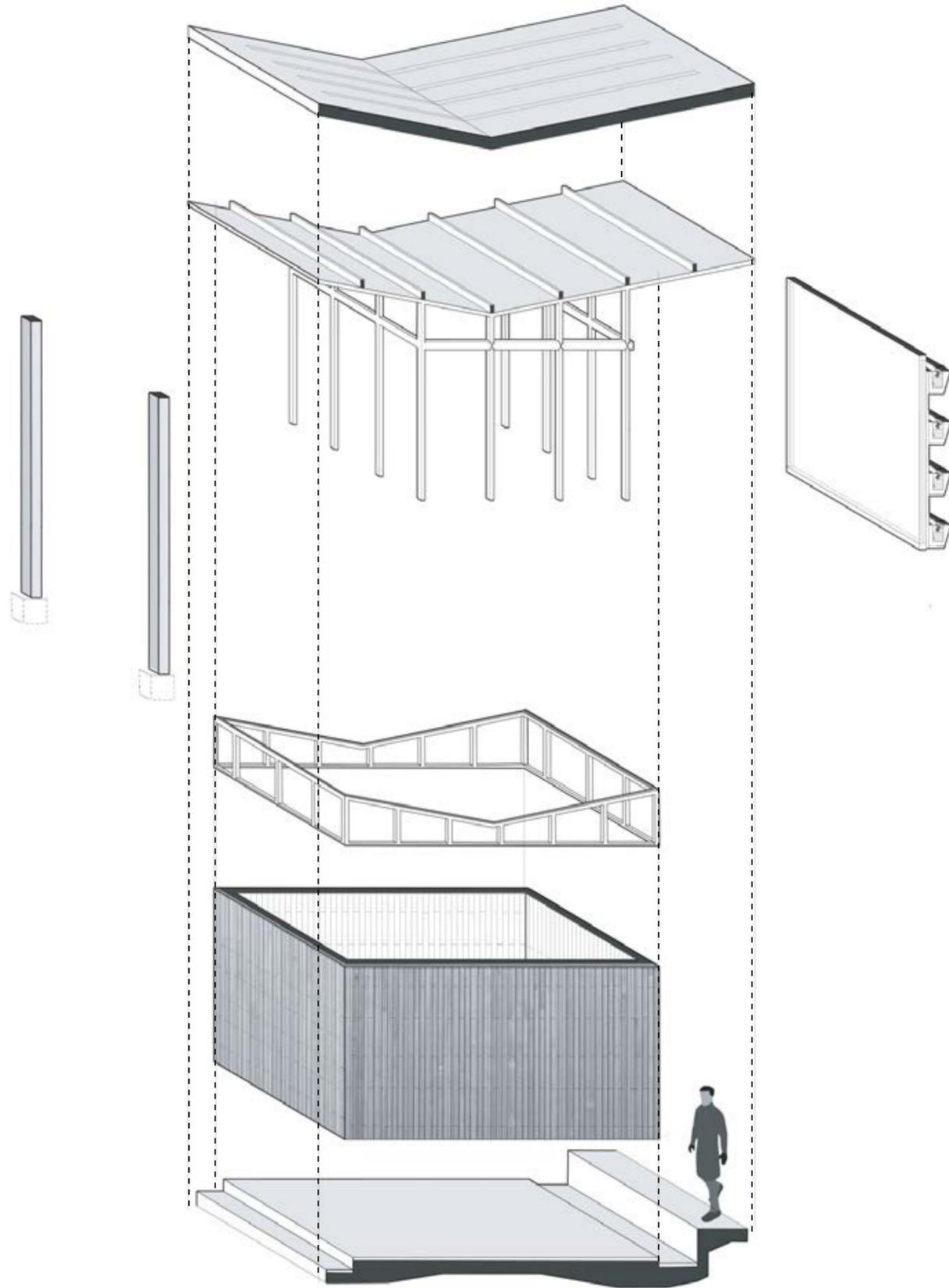
ISONOMETRIC
STRUCTURE DETAIL TYPE 3



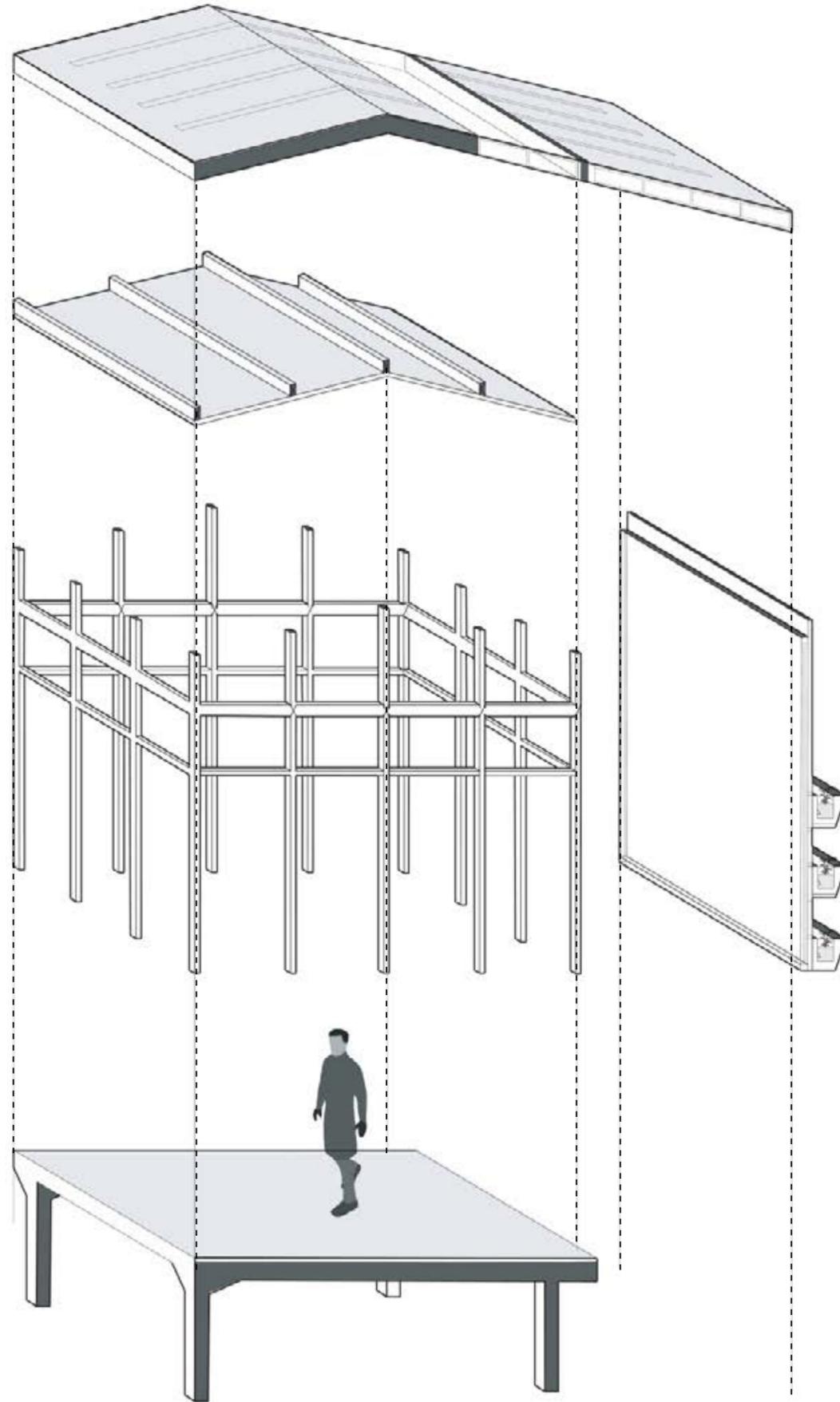
ISONOMETRIC
STRUCTURE DETAIL TYPE 4



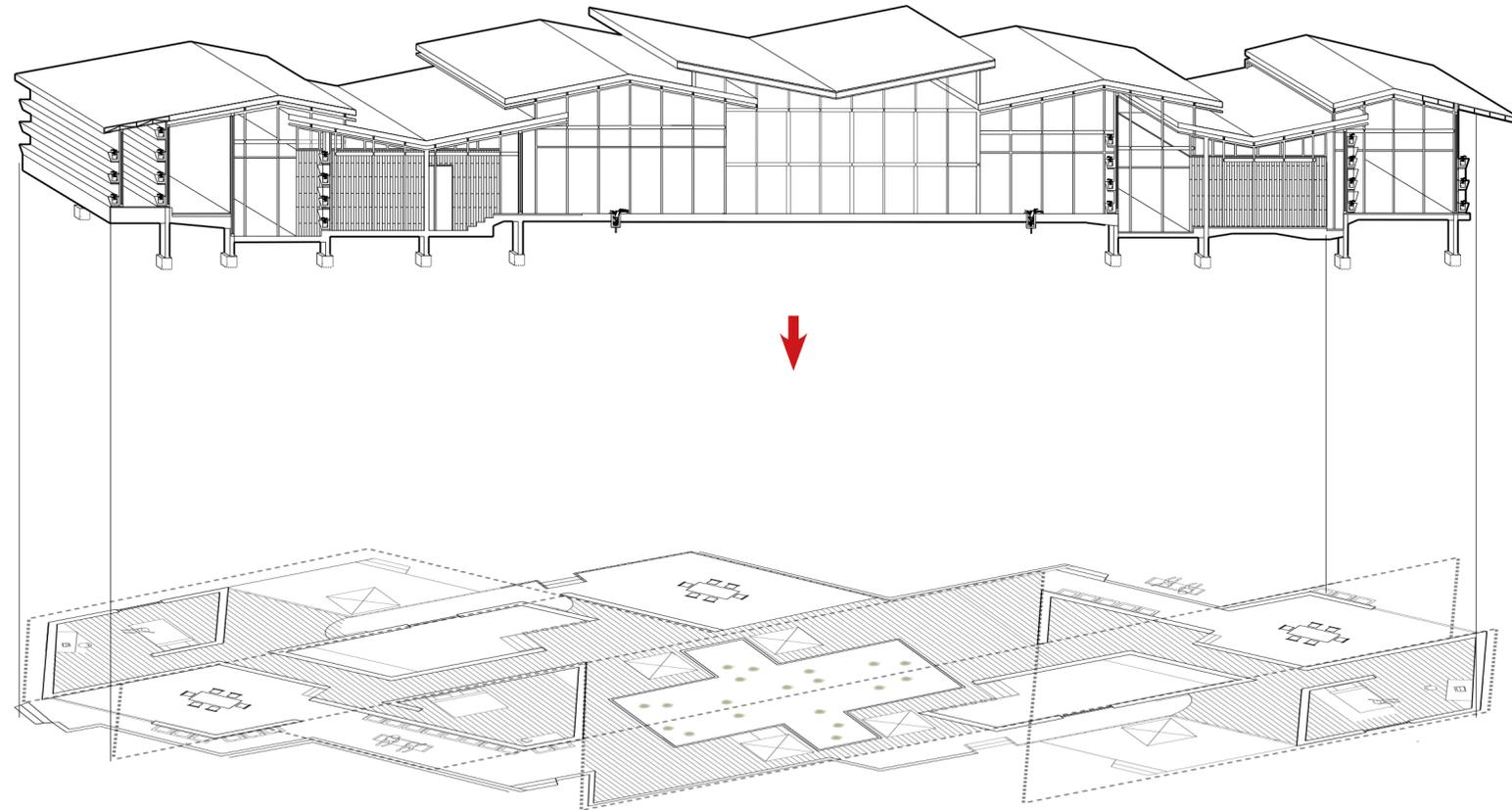
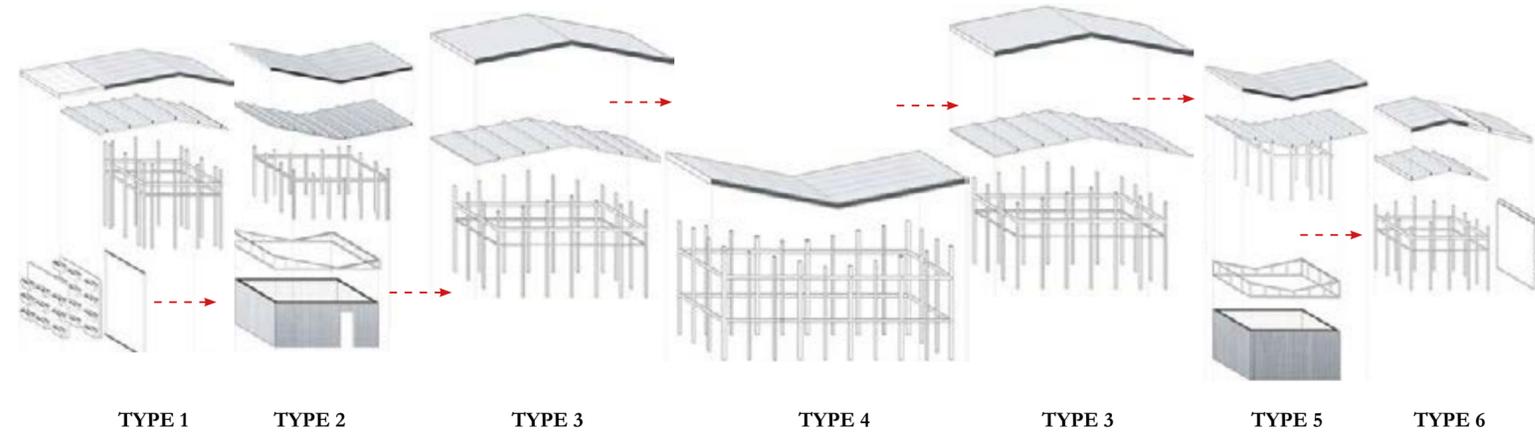
ISONOMETRIC
STRUCTURE DETAIL TYPE 5



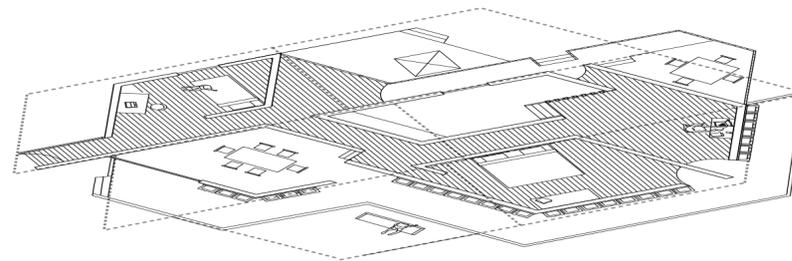
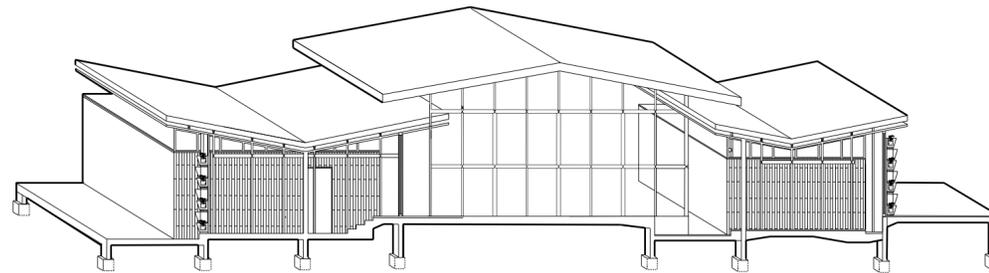
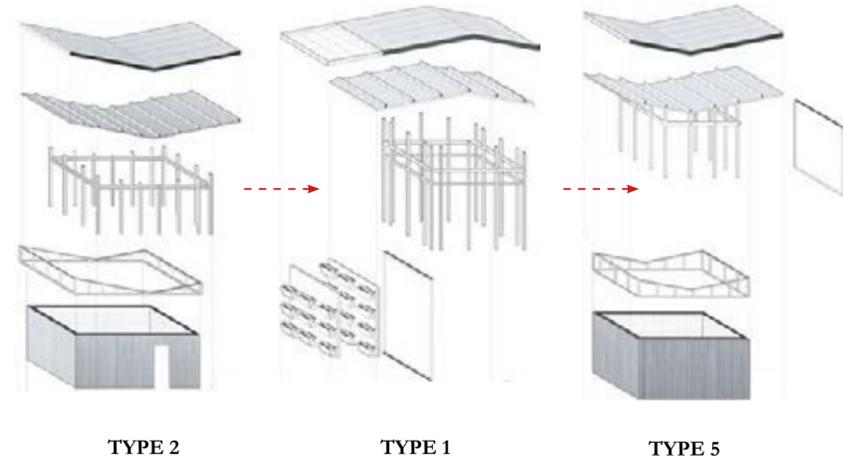
ISONOMETRIC
STRUCTURE DETAIL TYPE 6



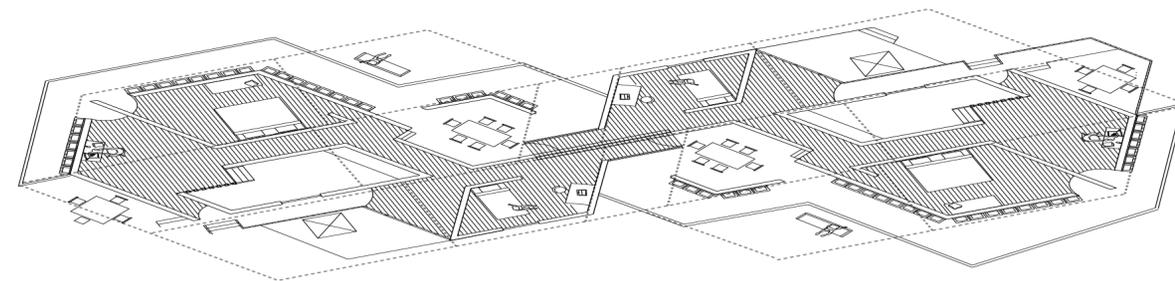
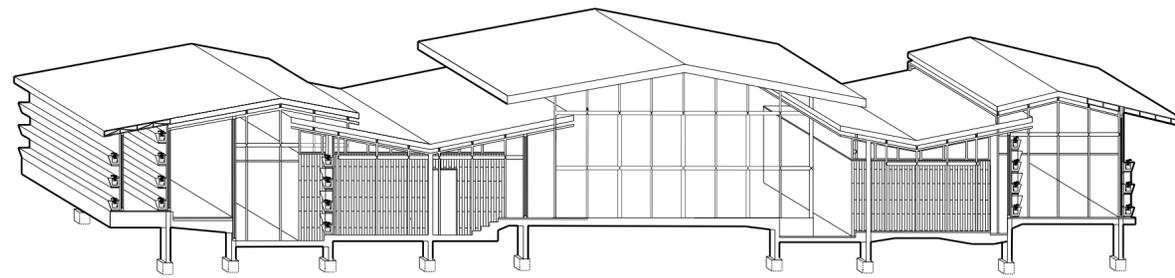
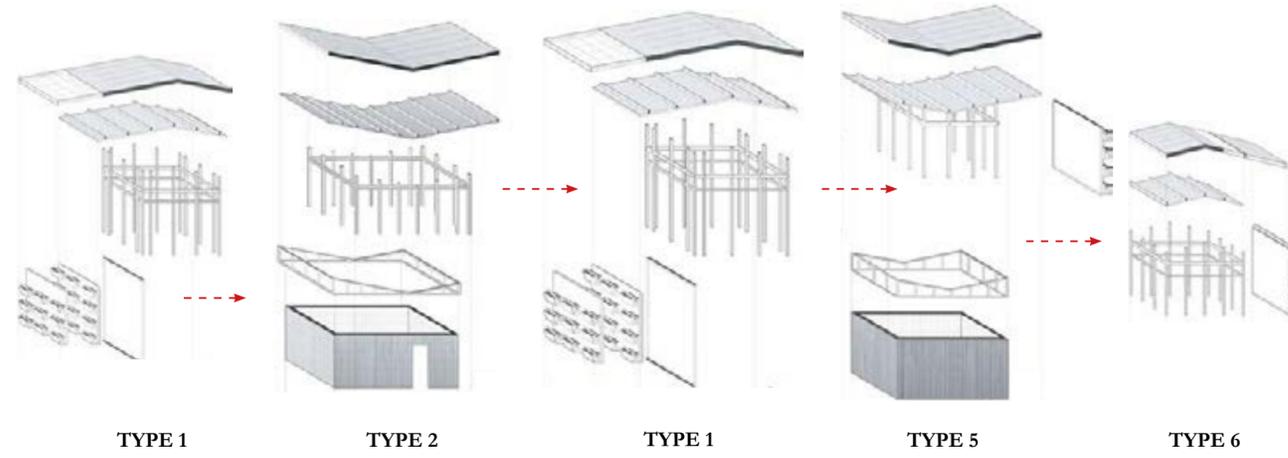
HOUSING WITH THE MARKET SPACE



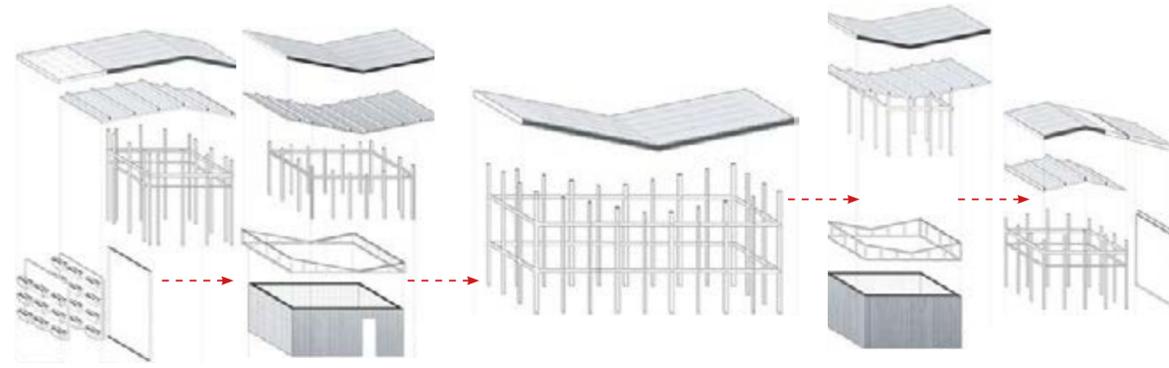
SINGLE FAMILY HOUSING



SINGLE FAMILY HOUSING



DOUBLE FAMILY HOUSING



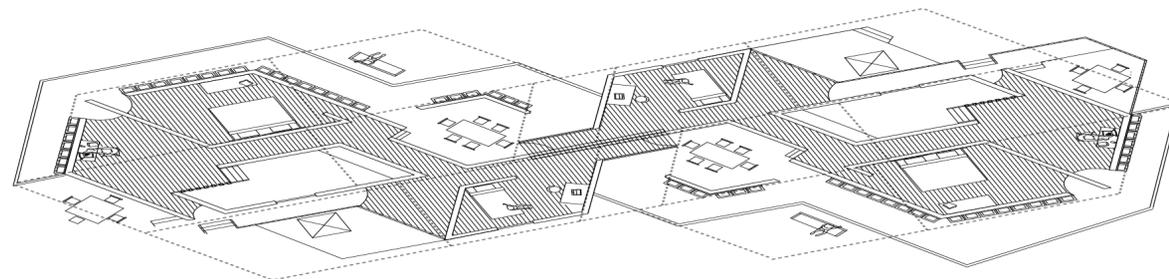
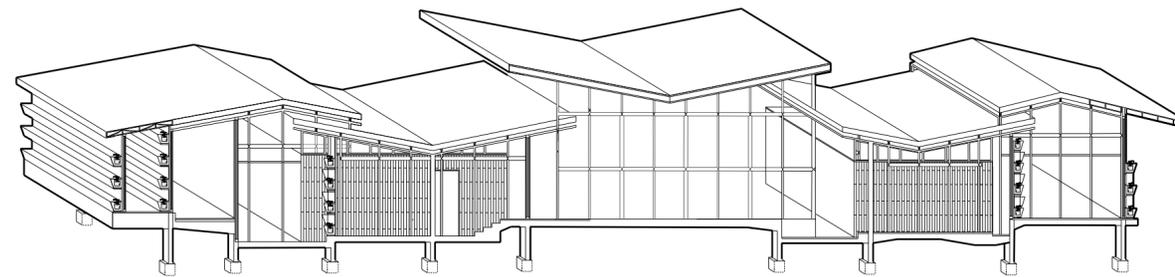
TYPE 1

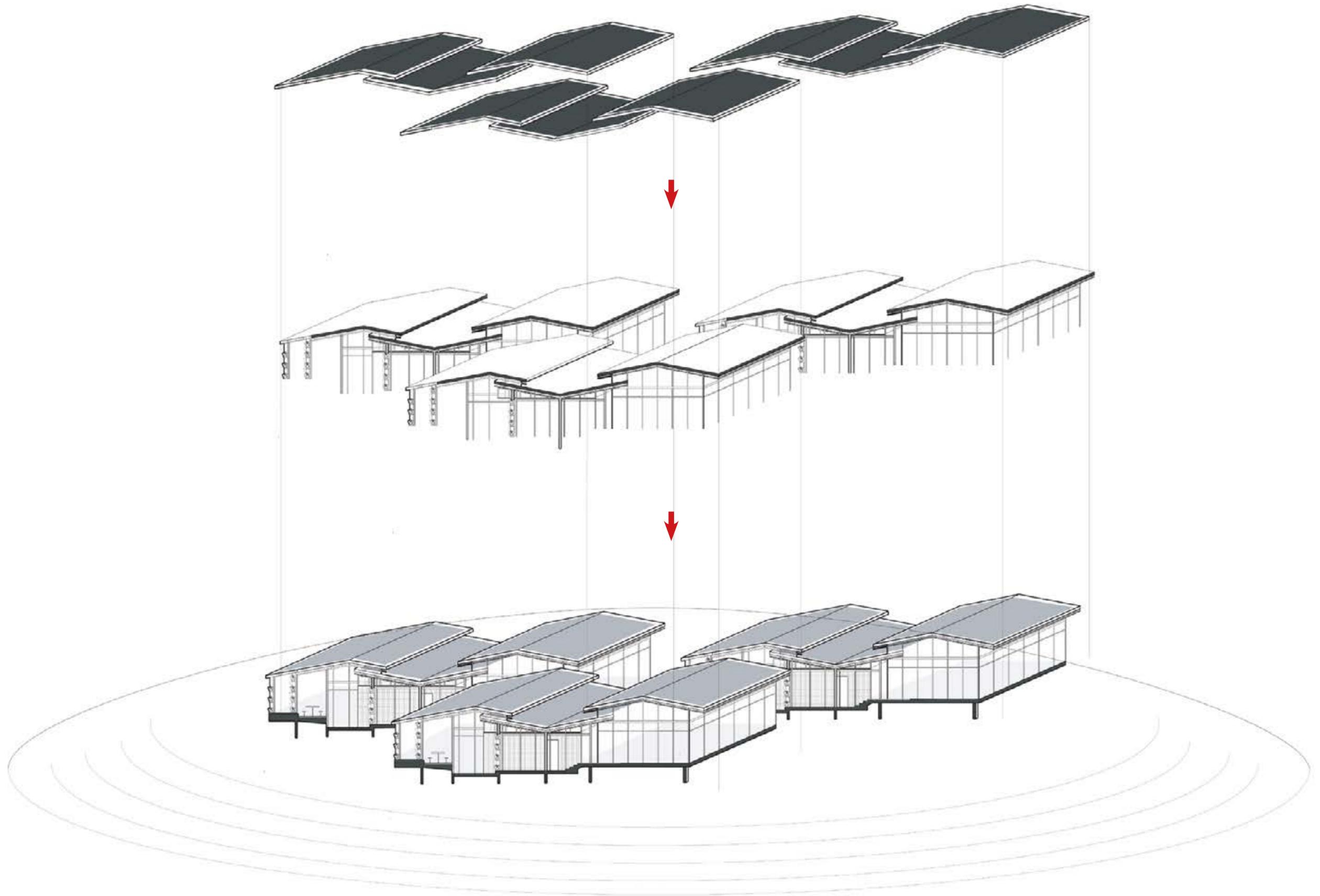
TYPE 2

TYPE 4

TYPE 5

TYPE 6



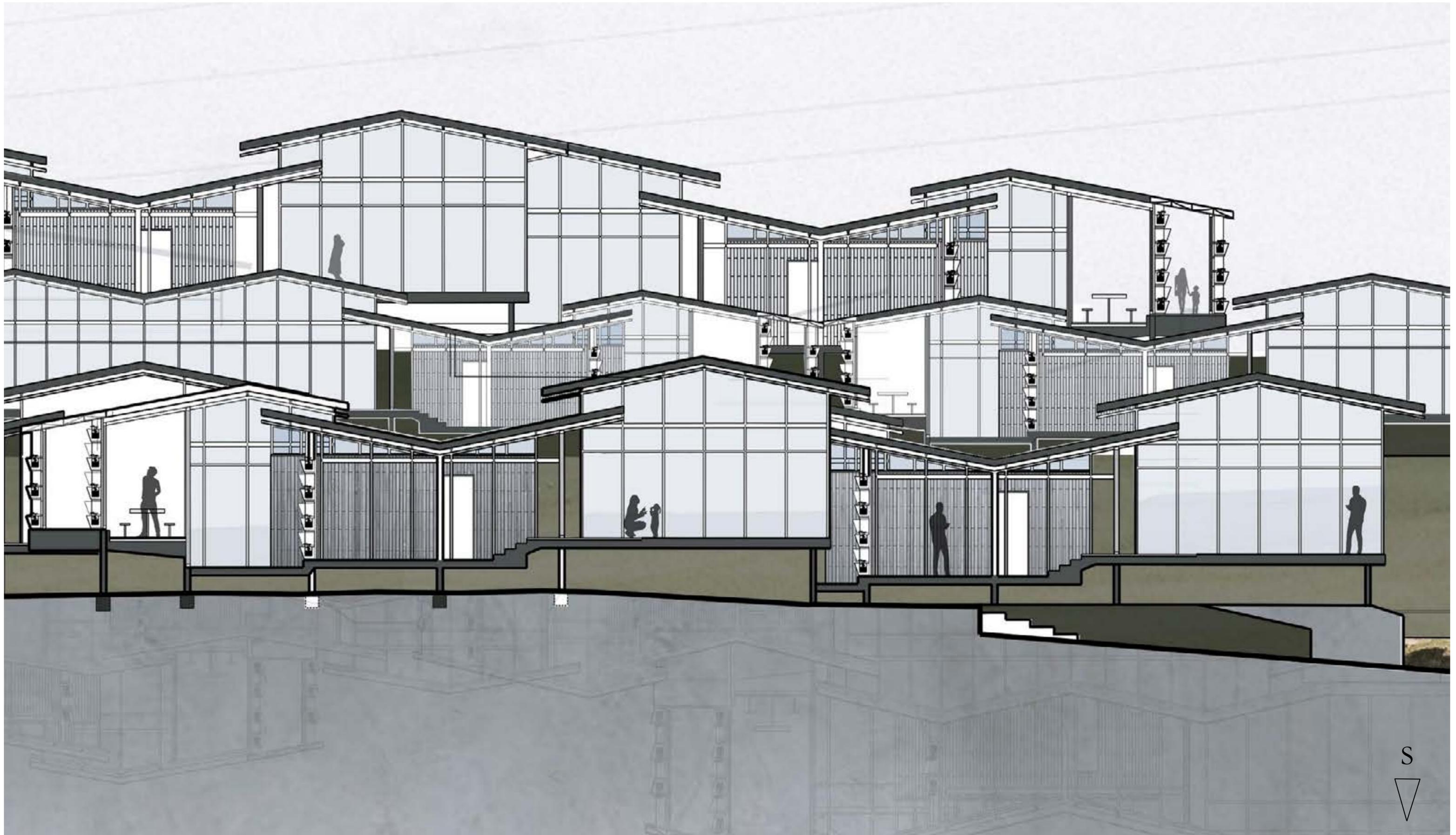


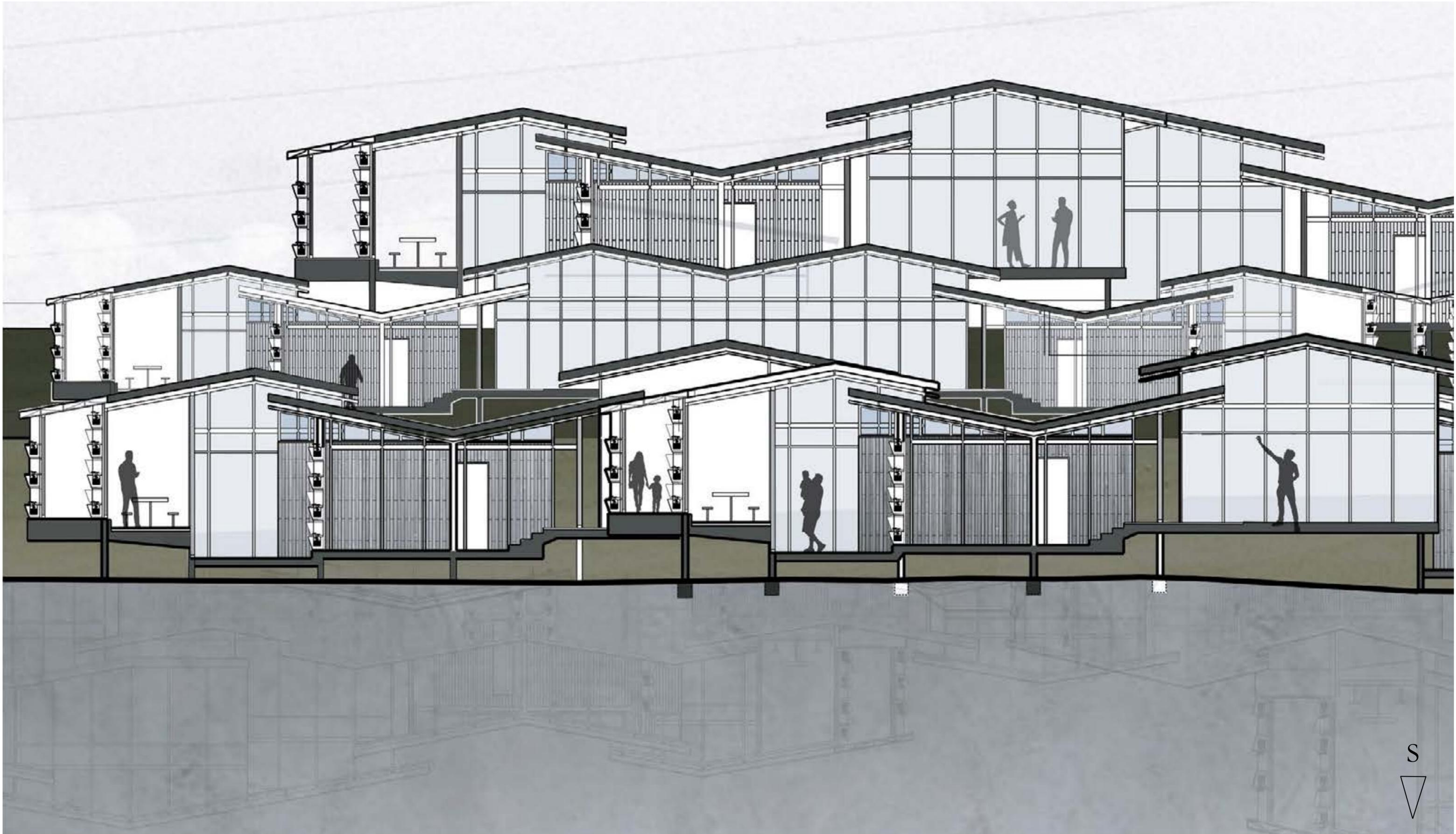






S
▽



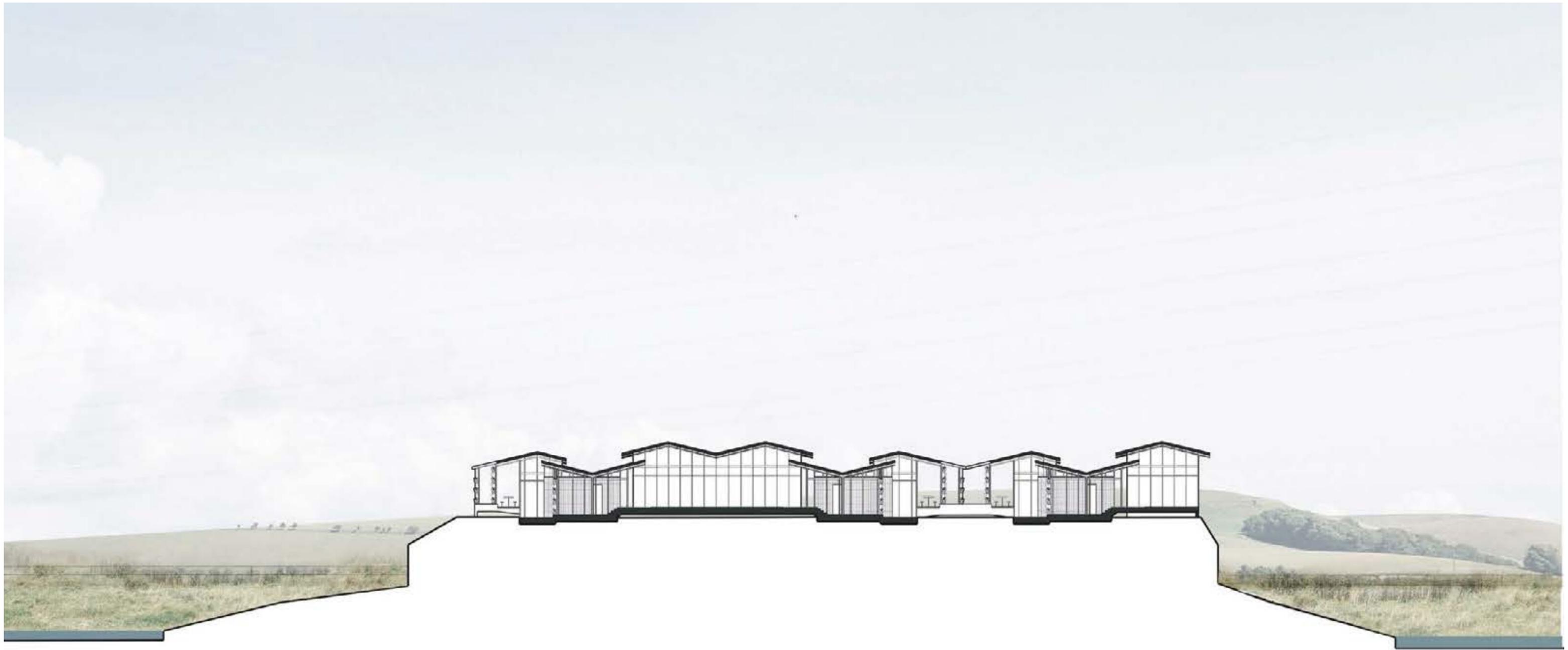


S
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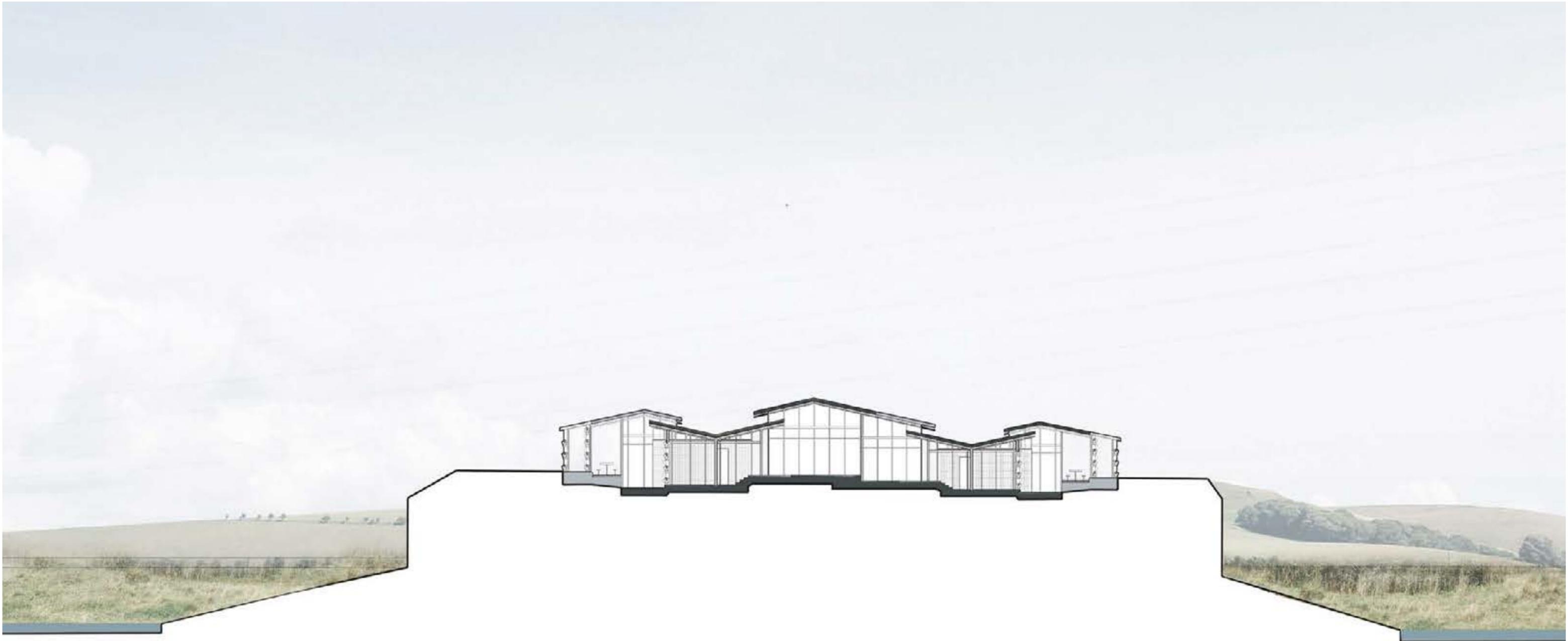
SECTION CUT GROUND LEVEL 1



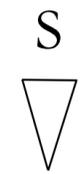


SECTION CUT GROUND LEVEL 2





SECTION CUT GROUND LEVEL 3





COMBINED ELEVATION
Showing the housing cluster





S









