
PORTFOLIO
ERYN COOPER
2023

1

The Loop: Lisboa

Architectural Thesis Studio

*awarded Michael T. Berthold Energy Conservation Award, May 2023

2

Central Park Museum

Architectural Design II

*published in NYIT Atmosphere Magazine, 2020 & university's website, 2023

3

Arts & Ecology Center

Architectural Design V

4

Multi-Generational Housing

Architectural Design VI

The Loop: Lisboa

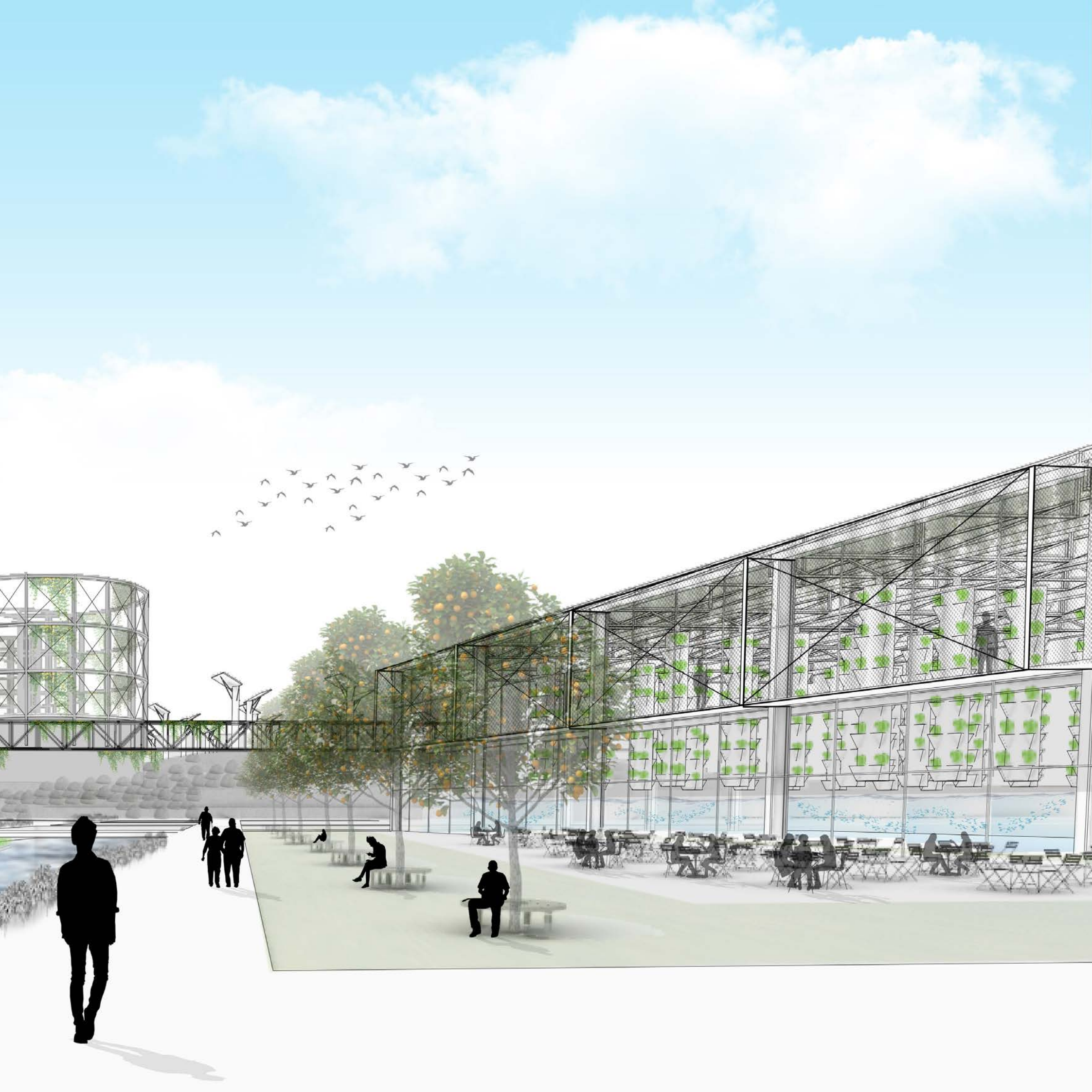
SITE: Lisbon, Portugal

40% of Portugal's arable land and pastures are increasingly affected by severe drought and rising temperatures. This has resulted in an increased dependence on food imports, which rely on transportation infrastructure that is often compromised due to wildfires, landslides, and floods.

This project offers a solution for the city of Lisbon to locally grow crops that have decreased in production due to climate change. Situated between the Tagus River waterfront and an existing commuter rail line, the project takes advantage of the site conditions for access to the fishing industry as well as providing multiple means of transporting excess food to communities in need. Formally an oil refinery, this adaptive reuse project transforms the narrative of the site from what was once harmful to the environment to a system that aids communities affected by the climate crisis.

The project operates as a closed loop, zero waste, climate resilient system comprised of food production, off-grid renewable energy, and public education. Each component of the masterplan collects, stores, and utilizes renewable energy to produce food through processes such as vertical farming, aquaponics, rooftop farming, and more. In times of crisis, components may operate on a decentralized system as well as adapt to grow several crops in order to supplement production of decreased crop yields.

Public paths bring visitors through the heart of production spaces and lead to market areas where visitors develop farm-to-table awareness, thus leaning further into Portugal's cultural importance on fresh food sources. Acting as a public park as well as a food production system, the complex system of paths allows visitors to have a unique experience upon every visit. Each trail loop provides different insight on the project's systems relating to energy, markets, transport, water collection, and food production. Through public education, transportation, and resilient food production, this thesis provides a holistic approach to remedying the affects of the climate crisis in Portugal.

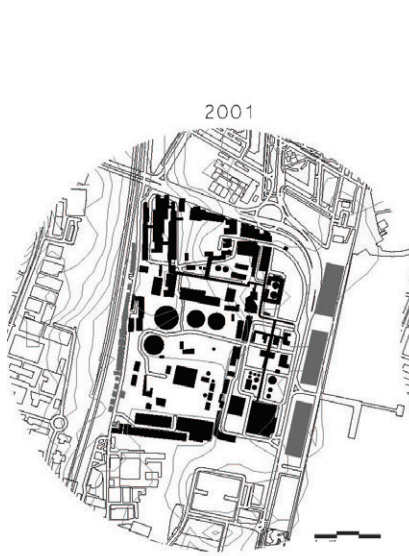


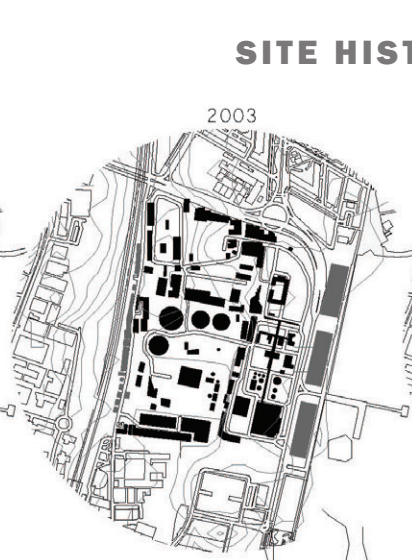
SITE HISTORY / EXISTING CONDITIONS

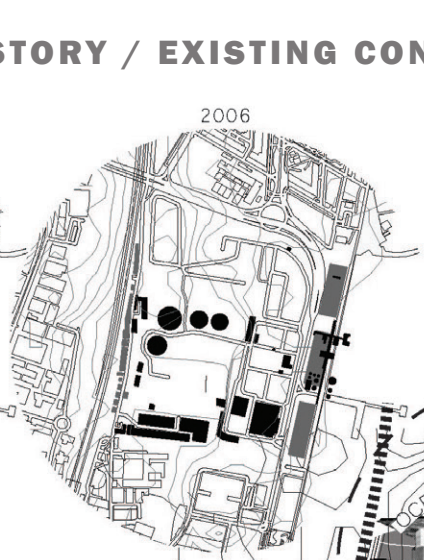
2001

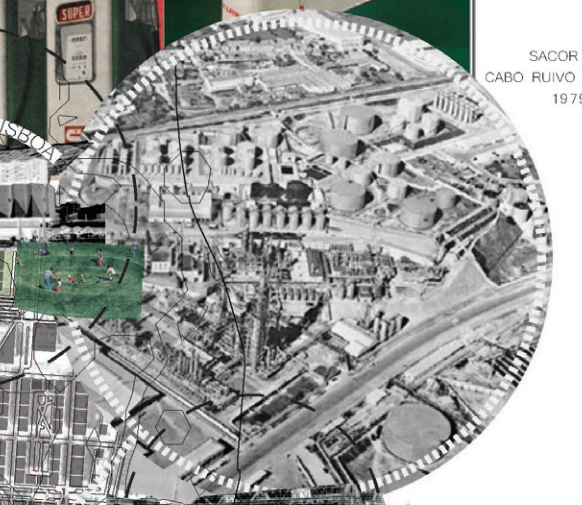
2003

2006









SACOR OIL
CABO RUIVO REFINERY
1979

OCEANÁRIO DE LISBOA

MARINA LISBOA

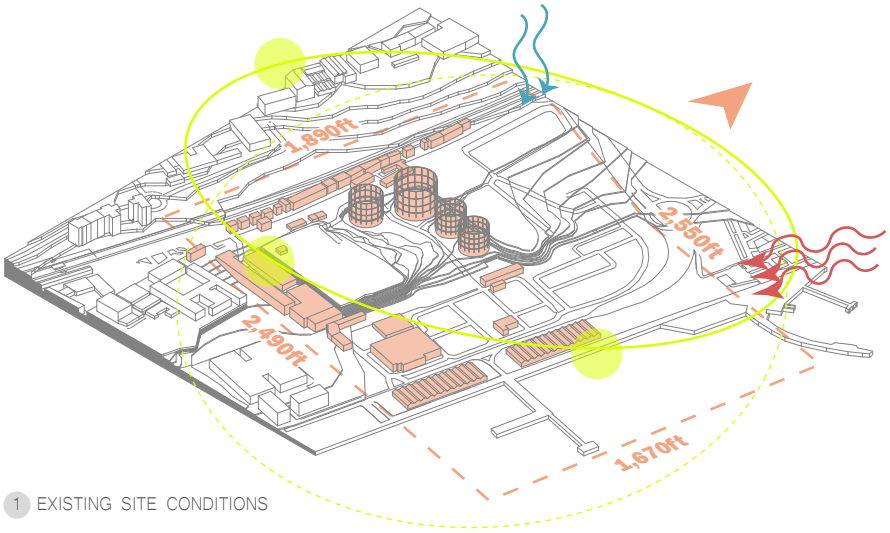
current

FORMER SACOR OIL
MATINHA GASWORKS
now owned & decommissioned by
GALP ENERGIA since 2003

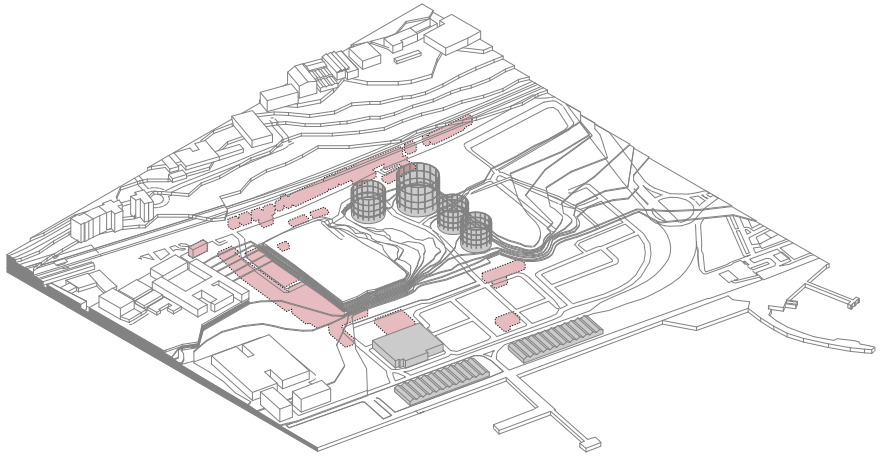
QUINTA DAS FLORES

DOCA DO POCO
DO BISPO

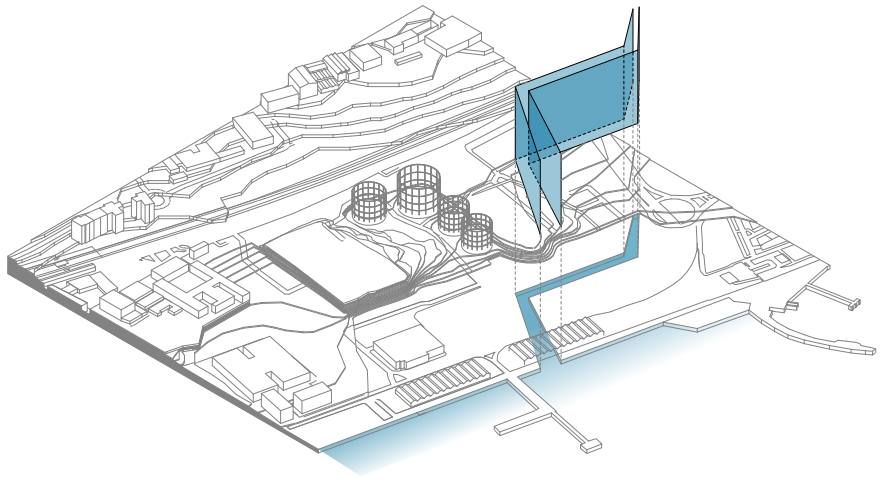
CONCEPT DEVELOPMENT



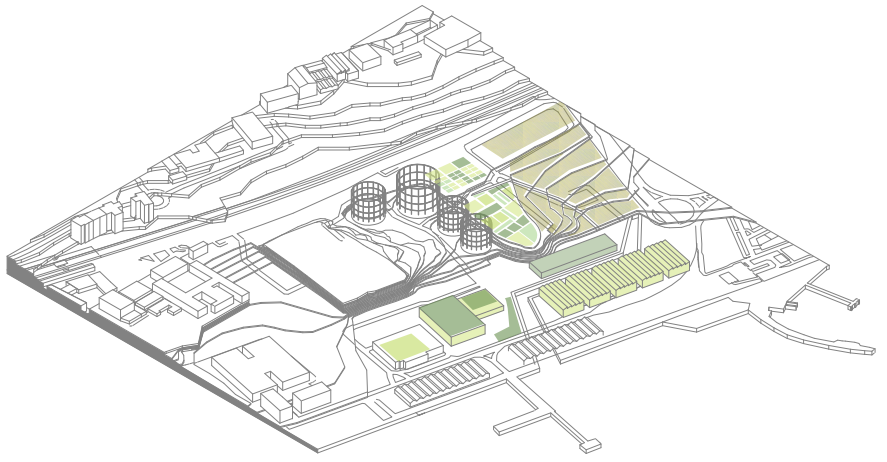
1 EXISTING SITE CONDITIONS



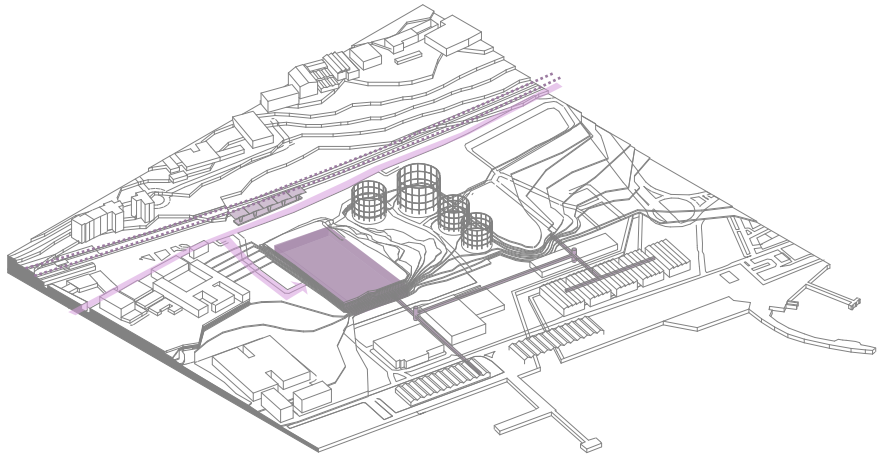
2 DEMOLITION
ADAPTIVE REUSE



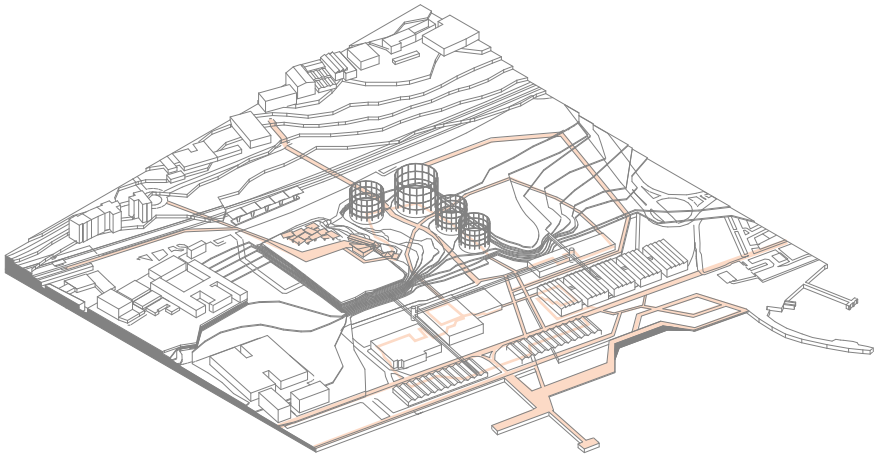
3 CANAL TO ALLOW FOR ACCESS TO WATER



4 IMPLEMENTATION OF FOOD PRODUCTION

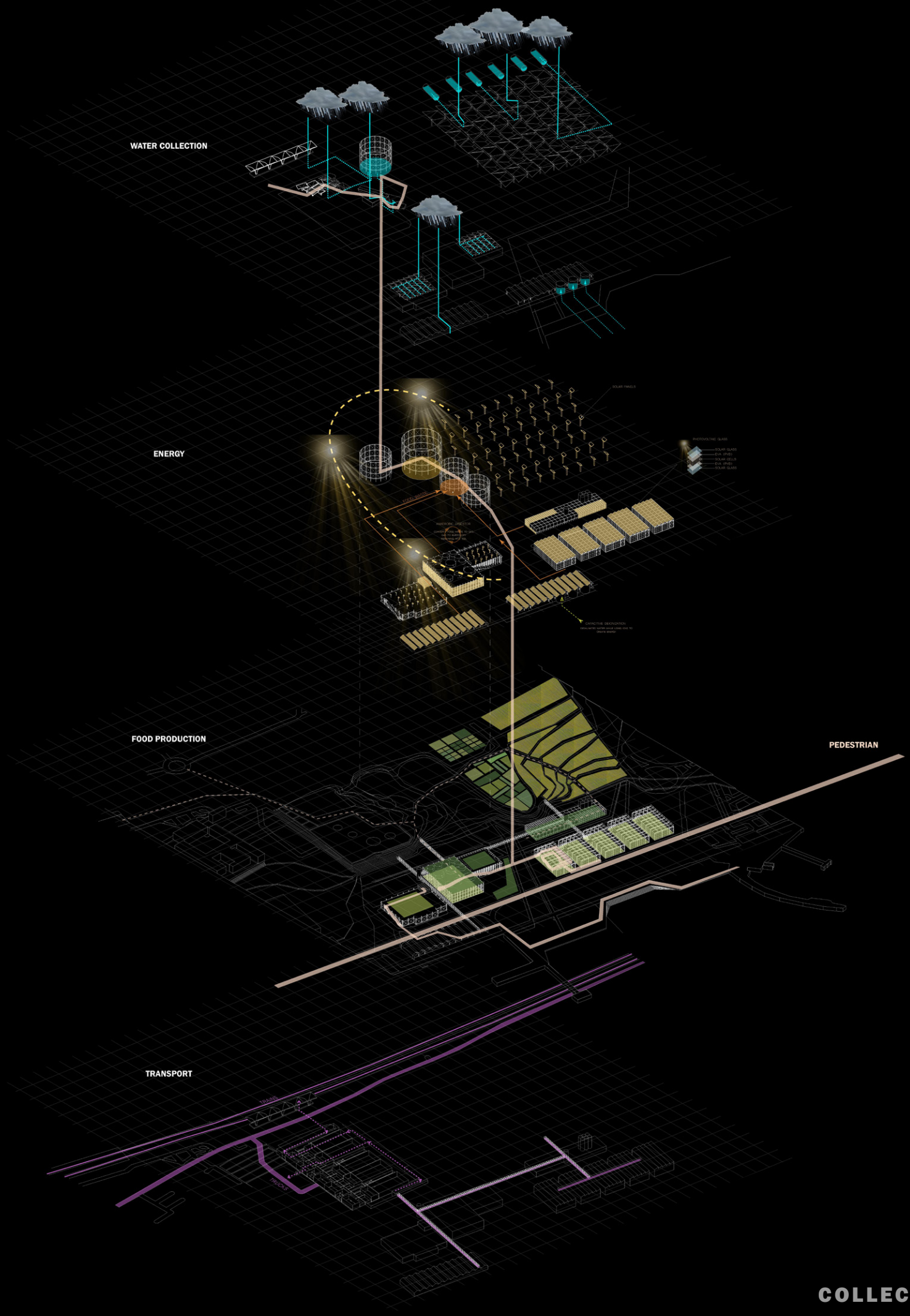


5 TRANSPORT SYSTEM

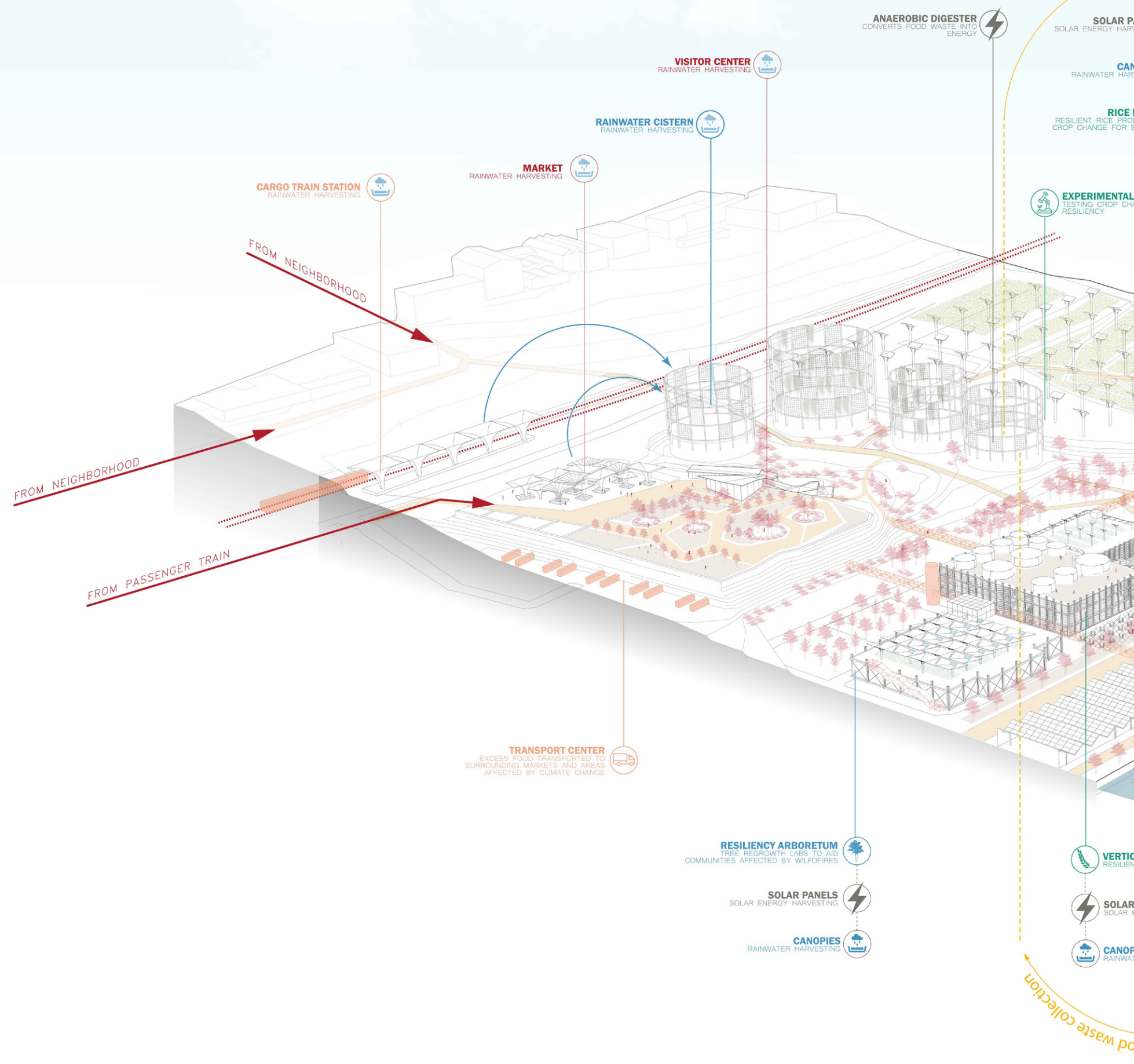


6 PUBLIC PROGRAM & INTERSECTING PATHS

PROPOSED MASTERPLAN



COLLECTION OF SYSTEMS


ANAEROBIC DIGESTER
CONVERTS FOOD WASTE INTO ENERGY
SOLAR P
SOLAR ENERGY HARV
VISITOR CENTER
RAINWATER HARVESTING
CAN
RAINWATER HAR
RAINWATER CISTERN
RAINWATER HARVESTING
RICE
RESILIENT RICE PRO
CROP CHANGE FOR S
MARKET
RAINWATER HARVESTING
CARGO TRAIN STATION
RAINWATER HARVESTING
EXPERIMENTAL
TESTING CROP CH
RESILIENCY
FROM NEIGHBORHOOD
FROM NEIGHBORHOOD
FROM PASSENGER TRAIN
TRANSPORT CENTER
EXCESS FOOD TRANSPORTED TO SURROUNDING MARKETS AND AREAS AFFECTED BY CLIMATE CHANGE
RESILIENCY ARBORETUM
TREE REGROWTH LABS TO AID COMMUNITIES AFFECTED BY WILFDFIRES
SOLAR PANELS
SOLAR ENERGY HARVESTING
CANOPIES
RAINWATER HARVESTING
VERTIC
RESILIEN
SOLAR
SOLAR E
CANOP
RAINWAT
od waste collection

gas converted to electricity

ANELS
VESTING

NOPIES
VESTING

FIELDS
DUCTION
EASONS

FARMS
NGE FOR

PHOTOVOLTAIC GLASS PANELS
SOLAR ENERGY HARVESTING

ADAPTIVE GREENHOUSE
ALLOWS FOR PRODUCTION CHANGES IN TIMES OF CRISIS

PHOTOVOLTAIC GLASS PANELS
SOLAR ENERGY HARVESTING

AQUAPONICS
RESILIENT LEAFY GREENS PRODUCTION

FROM NEIGHBORHOOD

RESILIENT WATERFRONT
PROTECTS SITE FROM FLOOD CONDITIONS

DESALINATION STATION
CONVERTS SALTWATER INTO DRINKING WATER

CAPACITIVE DEOINIZATION
DESALINATION PROCESS THAT CREATES IONS THAT CAN BE CONVETERED INTO ENERGY

FISHERY
FISH & OCEAN WASTE COLLECTION

PHOTOVOLTAIC GLASS PANELS
SOLAR ENERGY HARVESTING

CAL FARMING
T WHEAT PRODUCTION

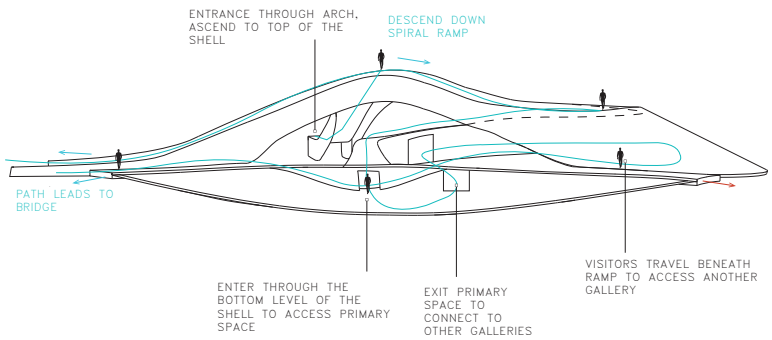
PANELS
ENERGY HARVESTING

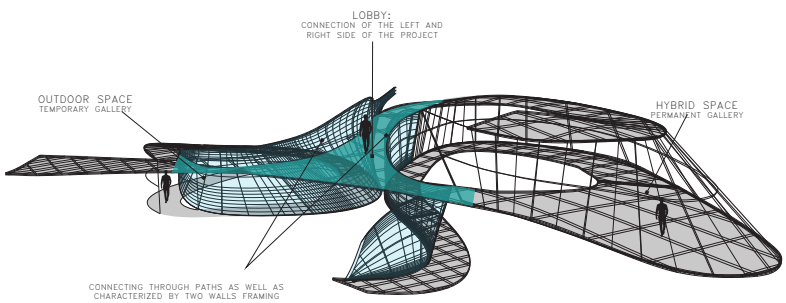
PIES
TER HARVESTING

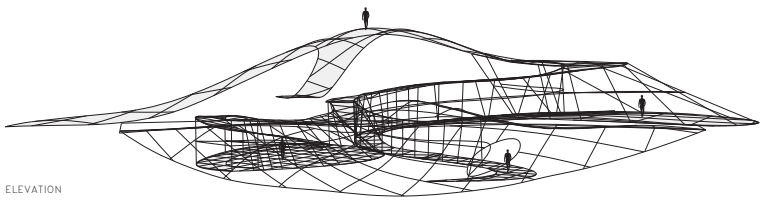
fo

Museum of Central Park

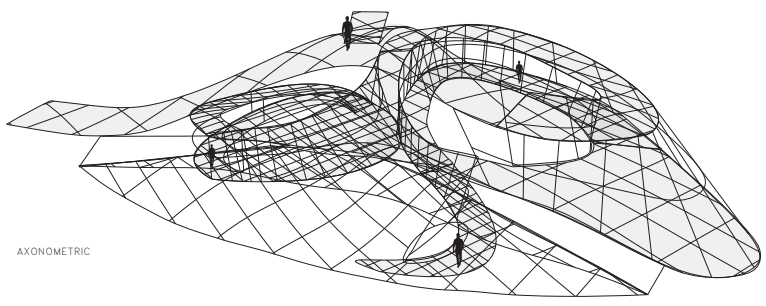
SITE: Central Park, New York
The form of this project takes inspiration from and pays a homage to the weaving conditions of Central Park's paths and roads while also providing many experiential connections between areas of the site and museum. Walls extend from and connect the Gapstow Bridge to the Inscope Arch with the shell of the museum becoming the monumental connection between the two. An outreaching ramp connects a beautiful courtyard and cafe area to the museum. Lastly, the lobby of the museum provides a connection between the looping systems of the shell. These looping systems shape the galleries of the museum which provide indoor, outdoor, and hybrid spaces. Permanent galleries provide uniquely framed views of Central Park while the temporary galleries provide spaces for New York's local artists and musicians to display their own art.



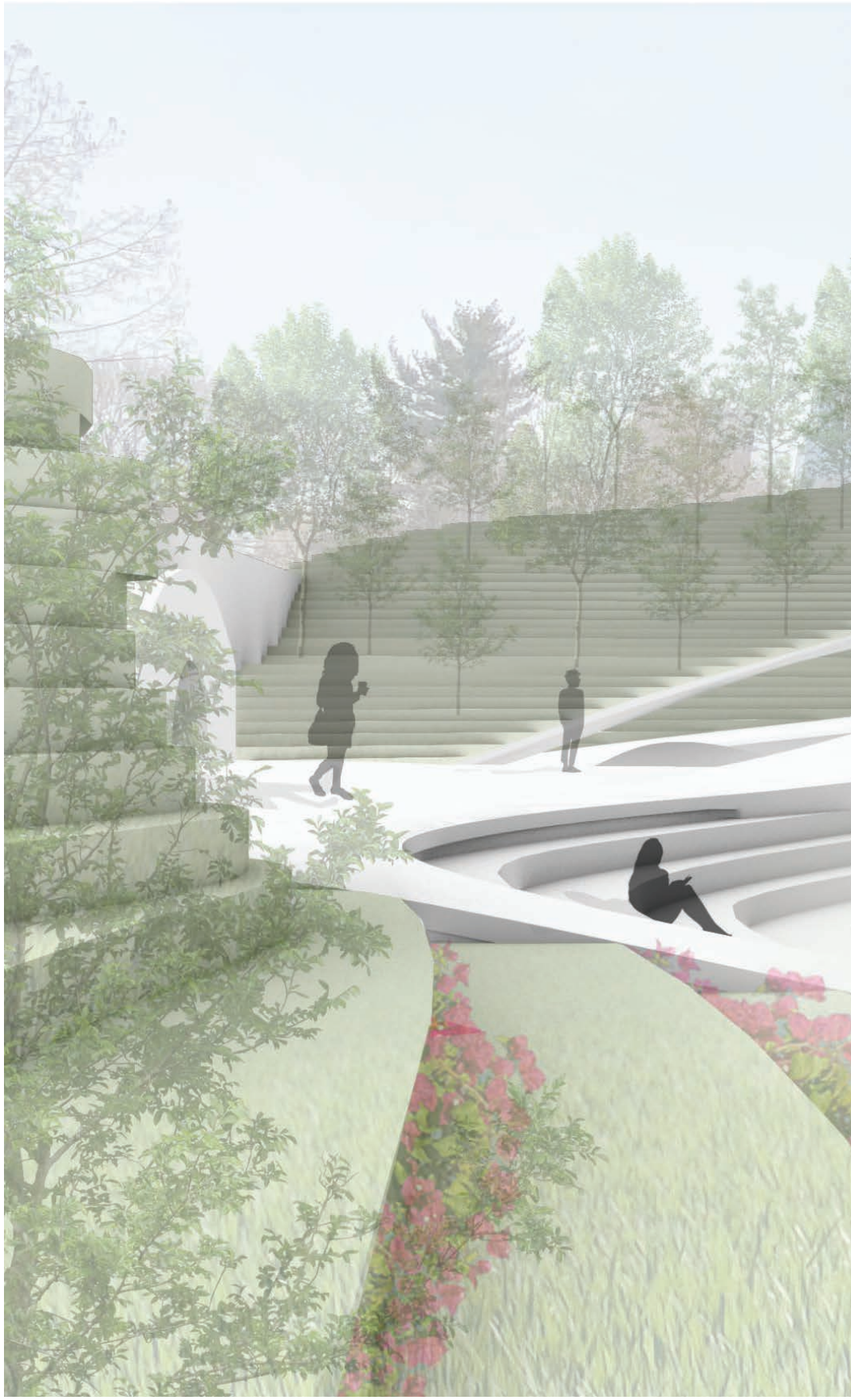


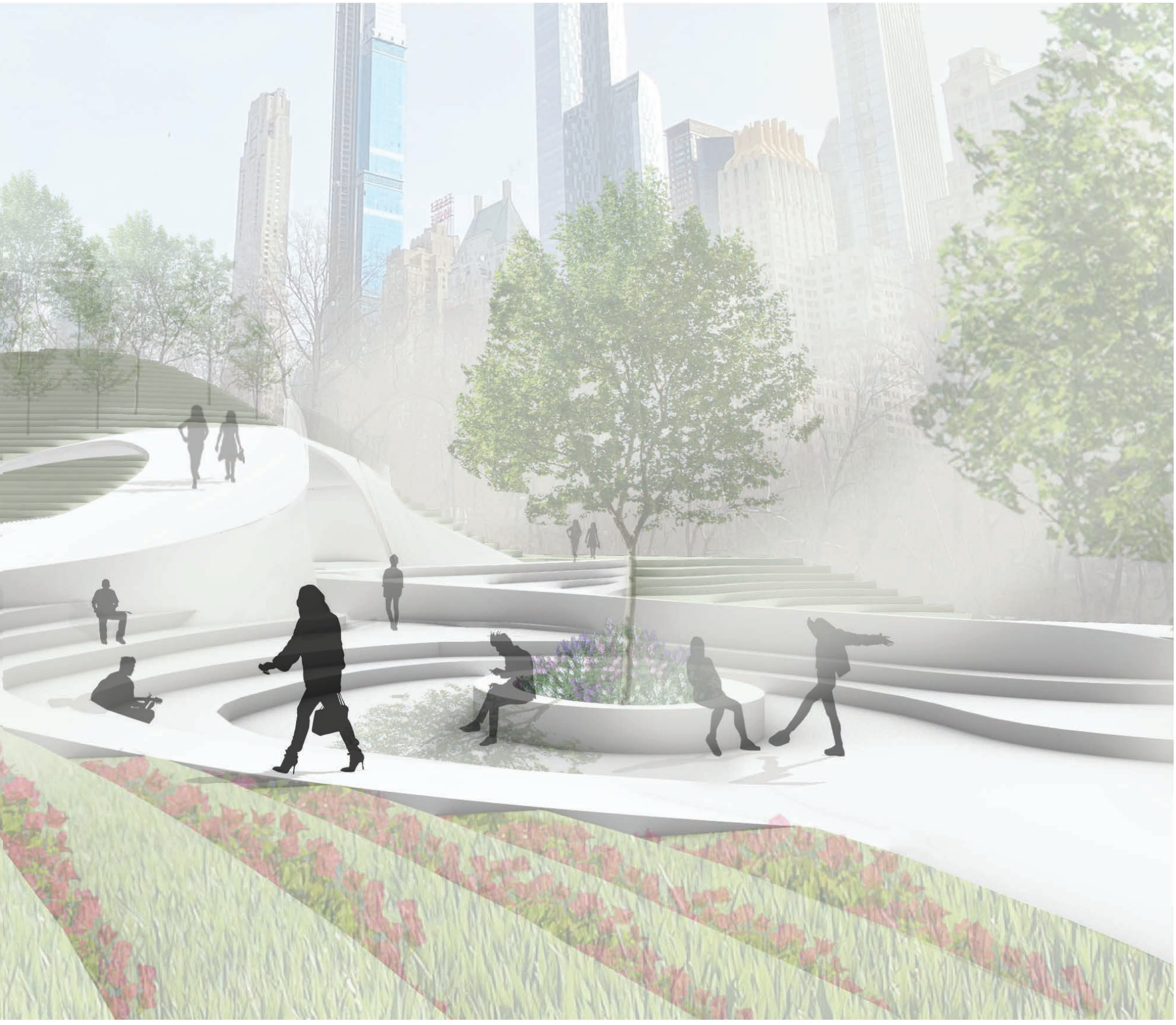


ELEVATION

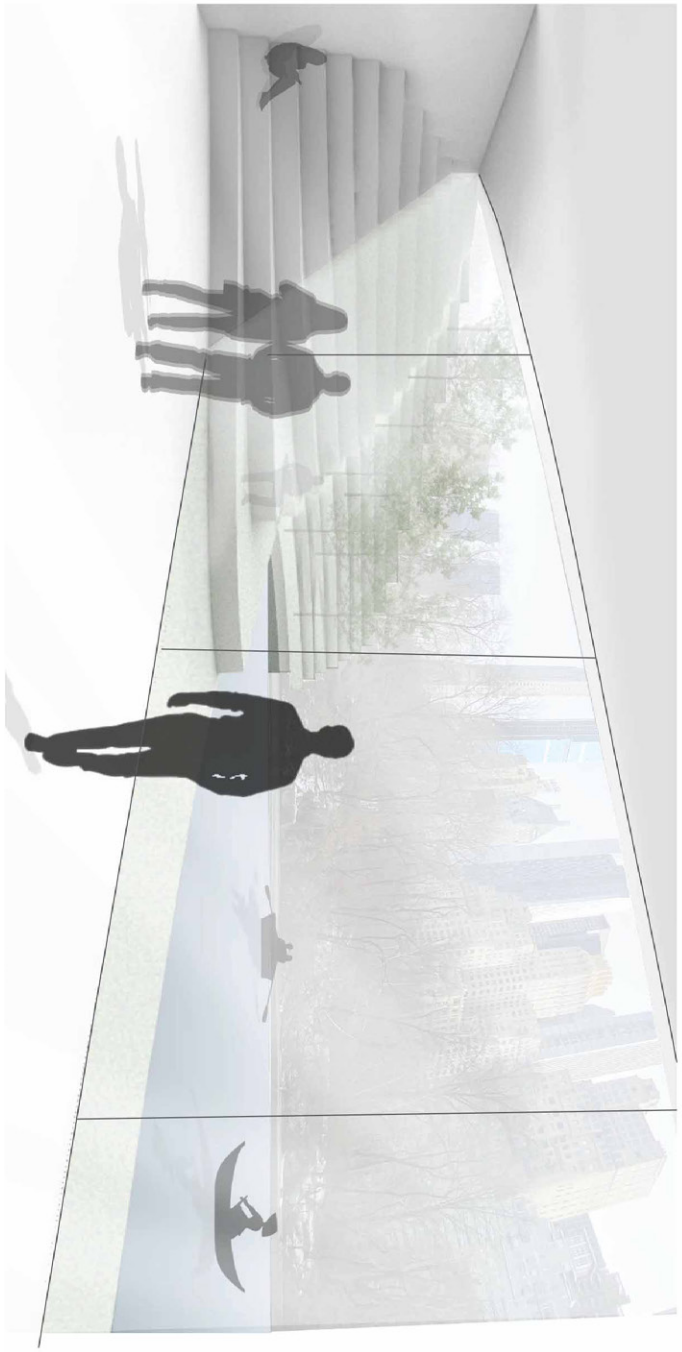


AXONOMETRIC

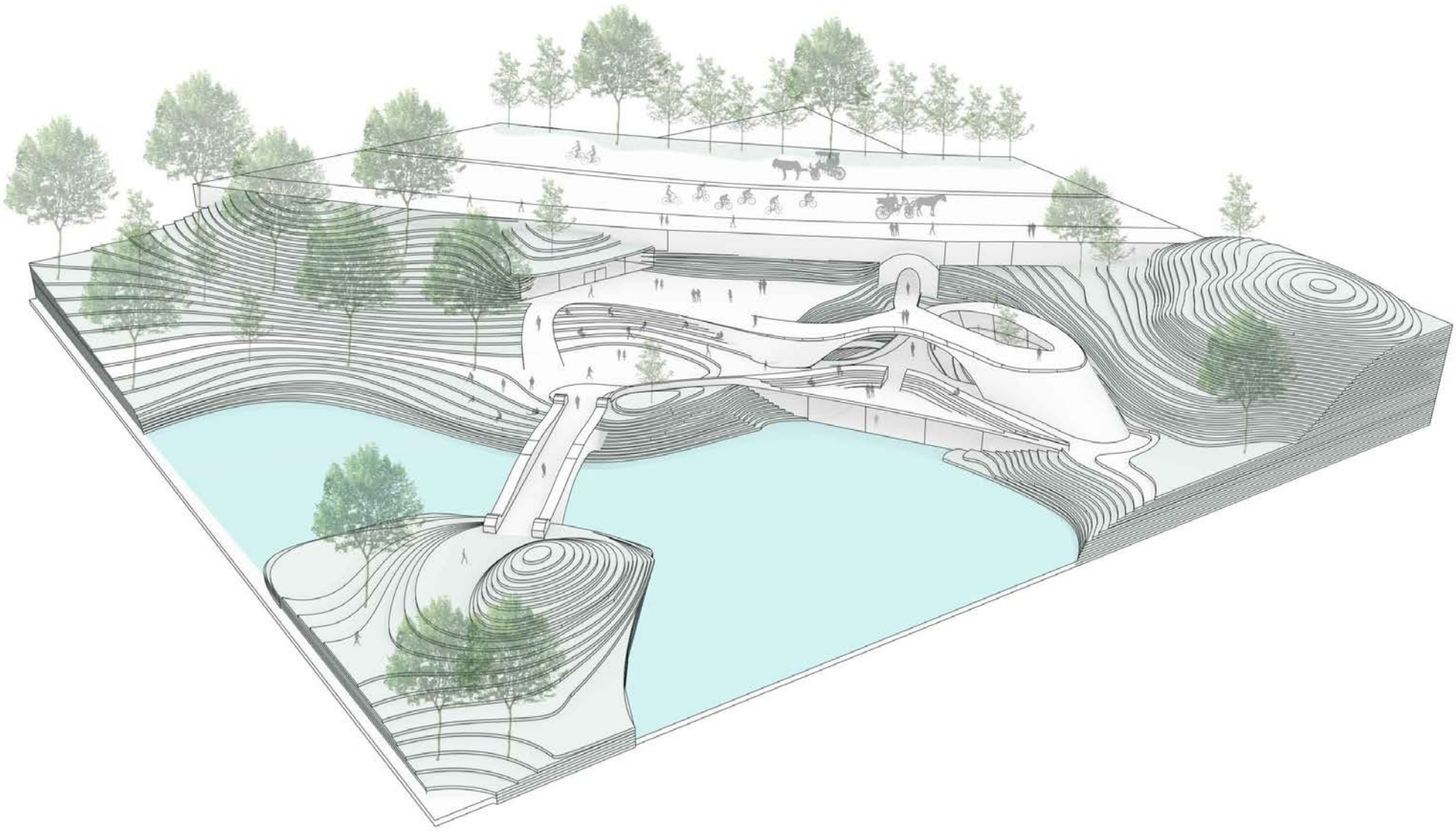




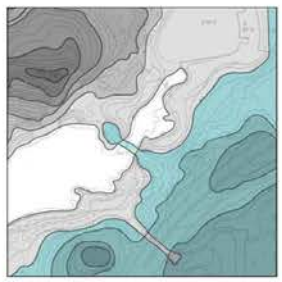
PRIMARY SPACE: PERMANENT GALLERY



HYBRID SPACE: PERMANENT GALLERY

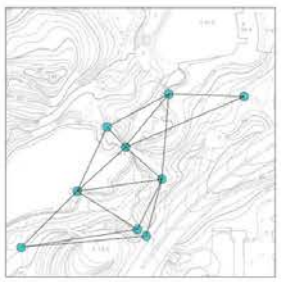


TOPOGRAPHY



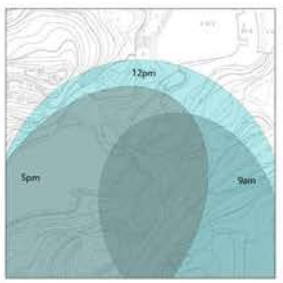
PATHS

VIEWPOINTS



WEAVING

SHADING

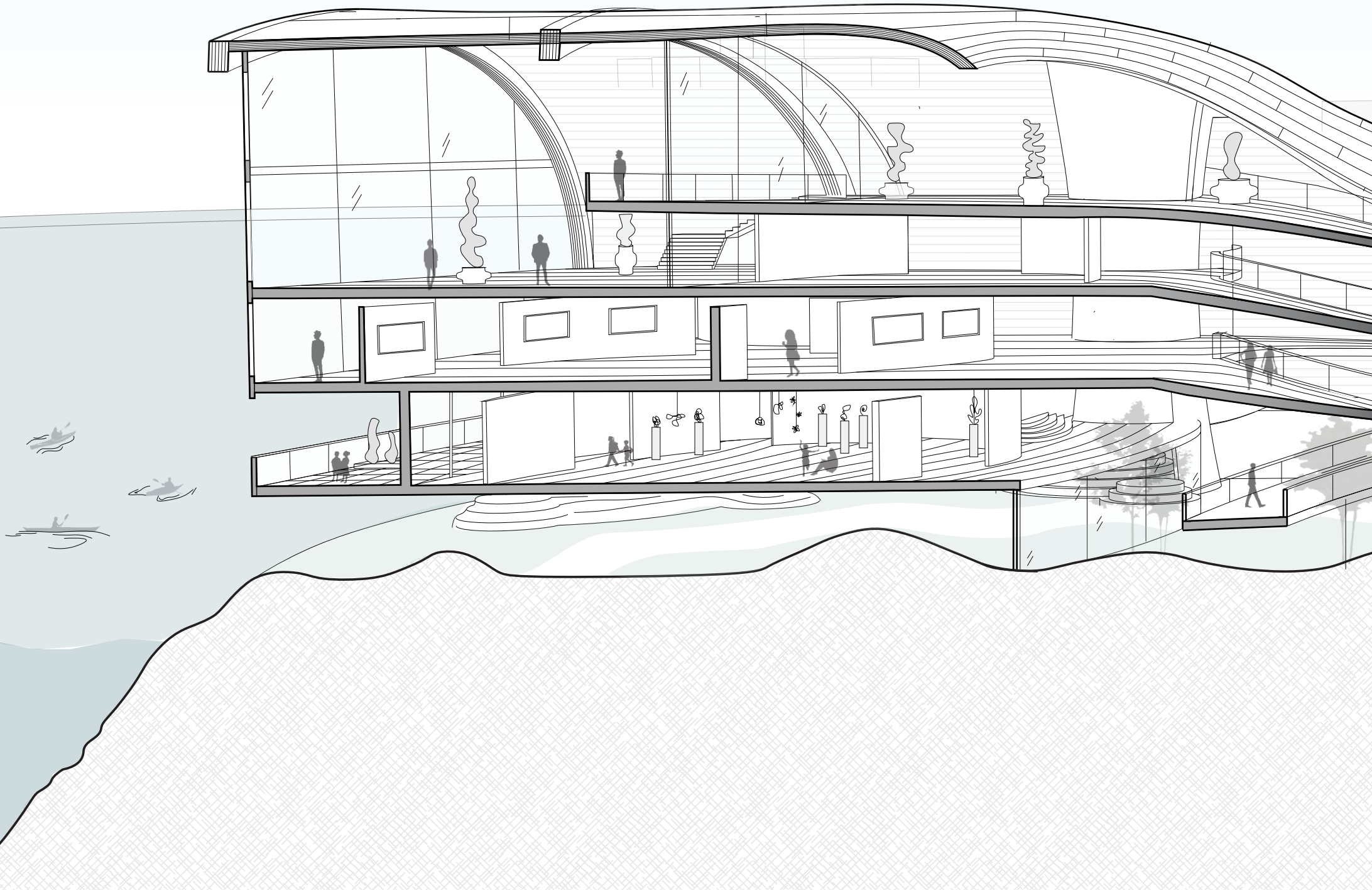


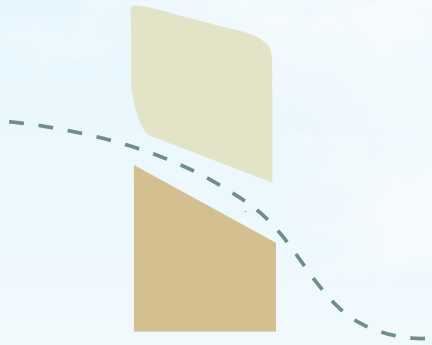
Arts & Ecology Center

SITE: Queens, New York

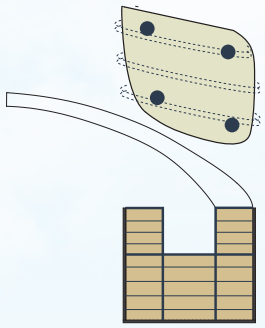
The project site is a 250' x 97' plot of land nestled between Socrates Sculpture Park and Hallett's Cove Beach. To the project's Southeast is the street and neighborhood of Astoria, Queens; and to the Northwest is the East River looking towards Roosevelt Island. Through studying the site we analyzed the striking differences between the rigid forms of cityscape and the fluid forms of the park and water. We took this contrast as the driving concept for the development of our project.

Our scheme explores the contrast between INORGANIC and ORGANIC forms, experiences, and organization. The continuation of the Socrates Sculpture Park path serves as the dividing line between these two experiences, which are then united through the circulation and nature in the core. The RIGID characteristics of the inorganic side represent the city grid which then transition through nature and into the FLUIDITY of the organic side of arts and thinking. The form of the building reaches out toward the water symbolizing an EMERGENCE from URBAN life into a NATURAL world.

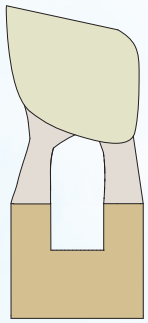




PARTI



STRUCTURE

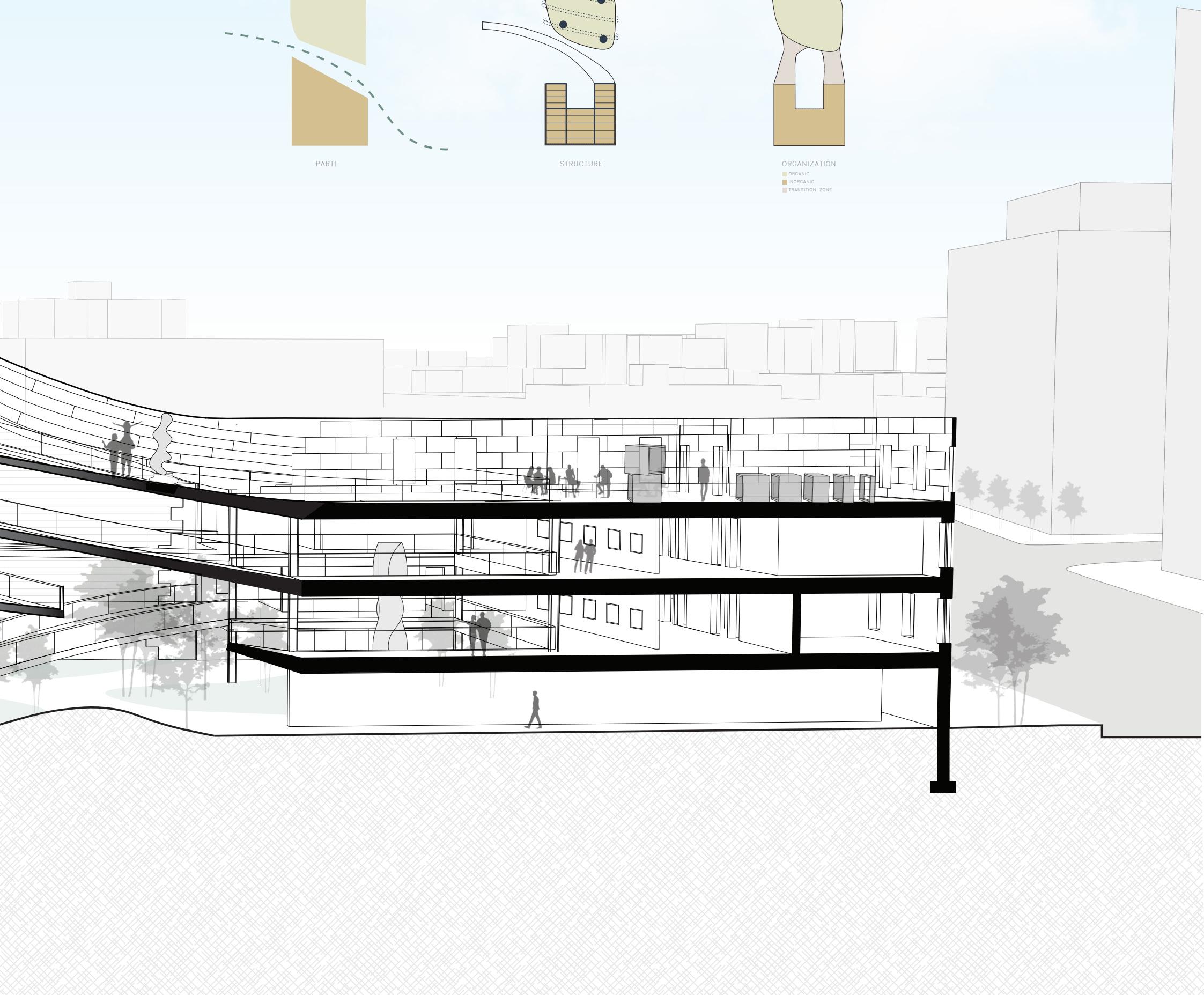


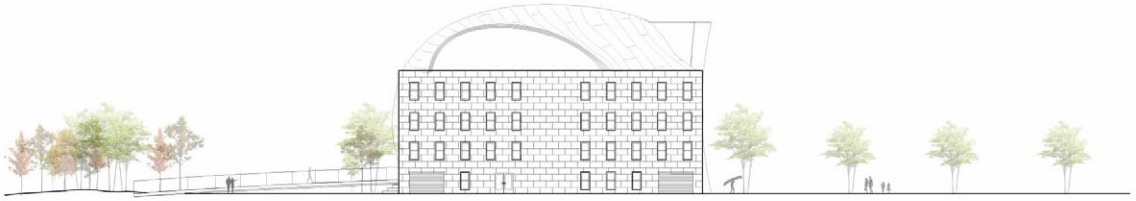
ORGANIZATION

ORGANIC

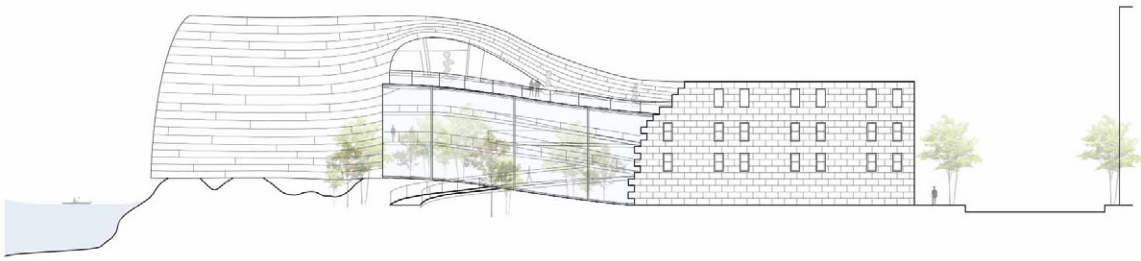
INORGANIC

TRANSITION ZONE

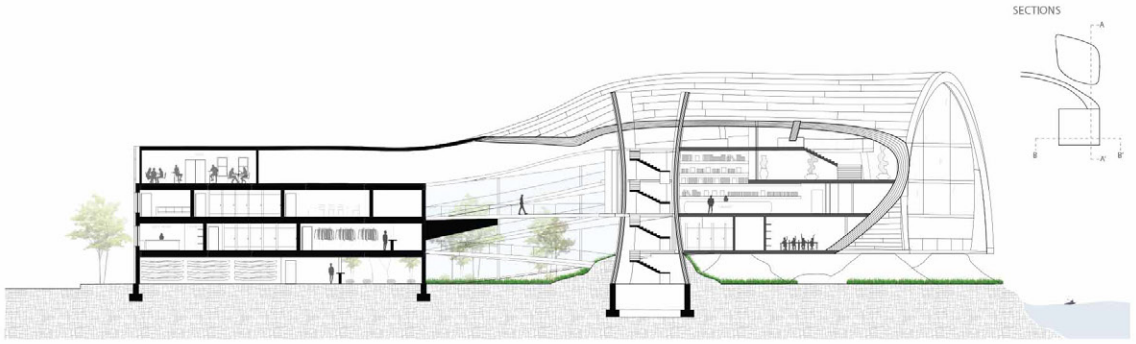




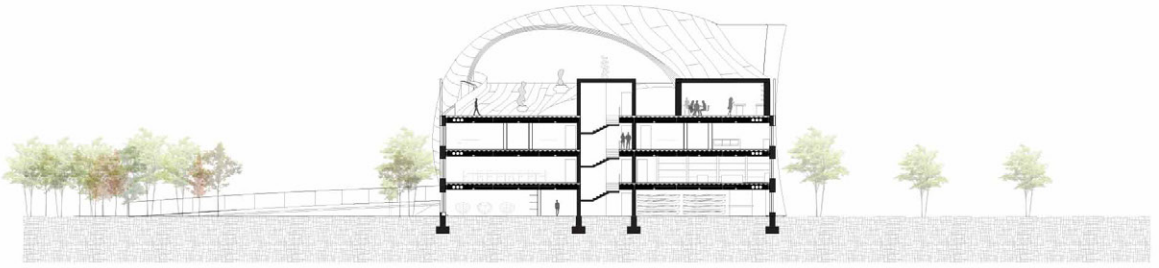
STREET ELEVATION



PARK ELEVATION



SECTION A–A′



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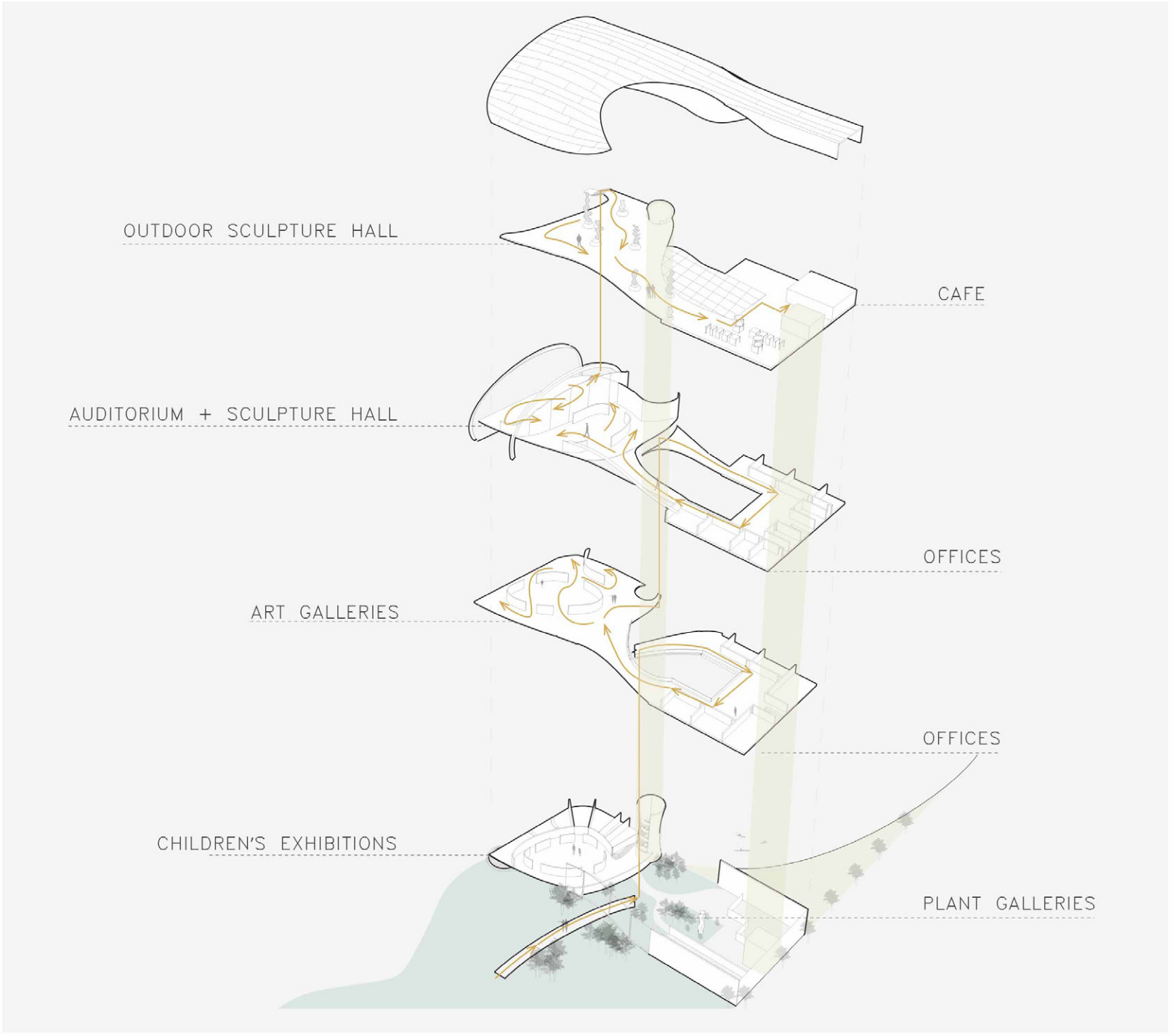
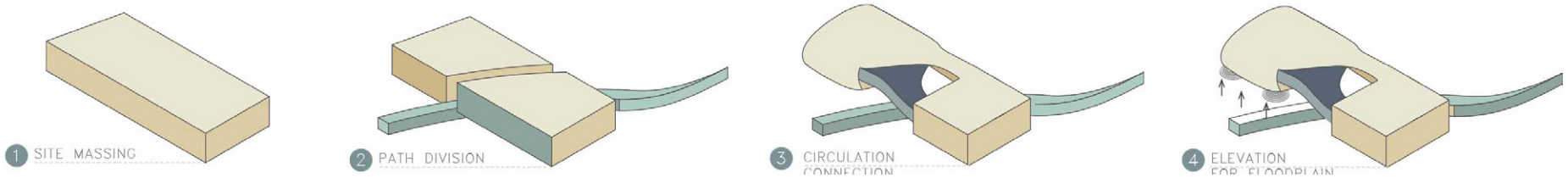


CONCEPT DEVELOPMENT

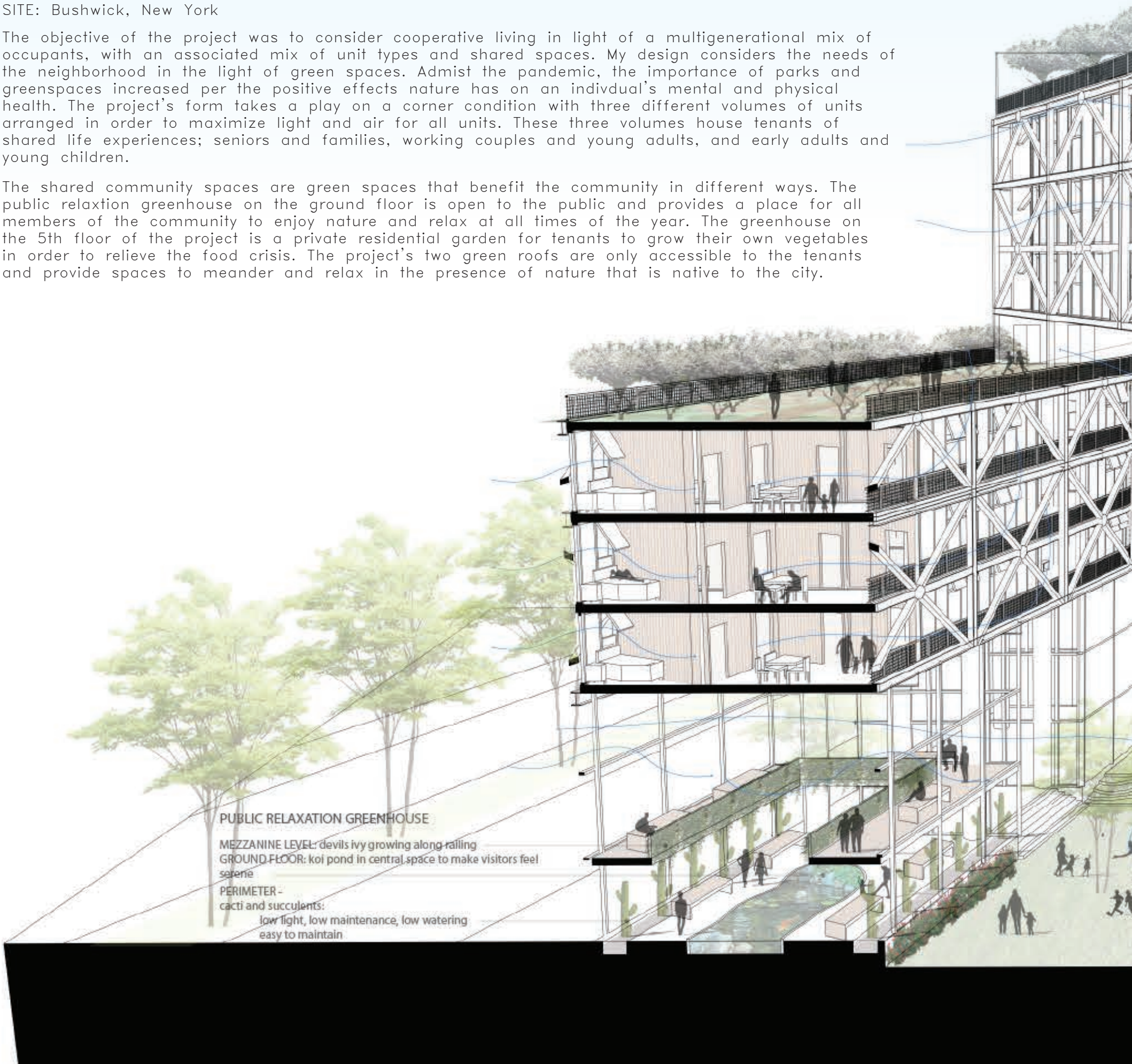


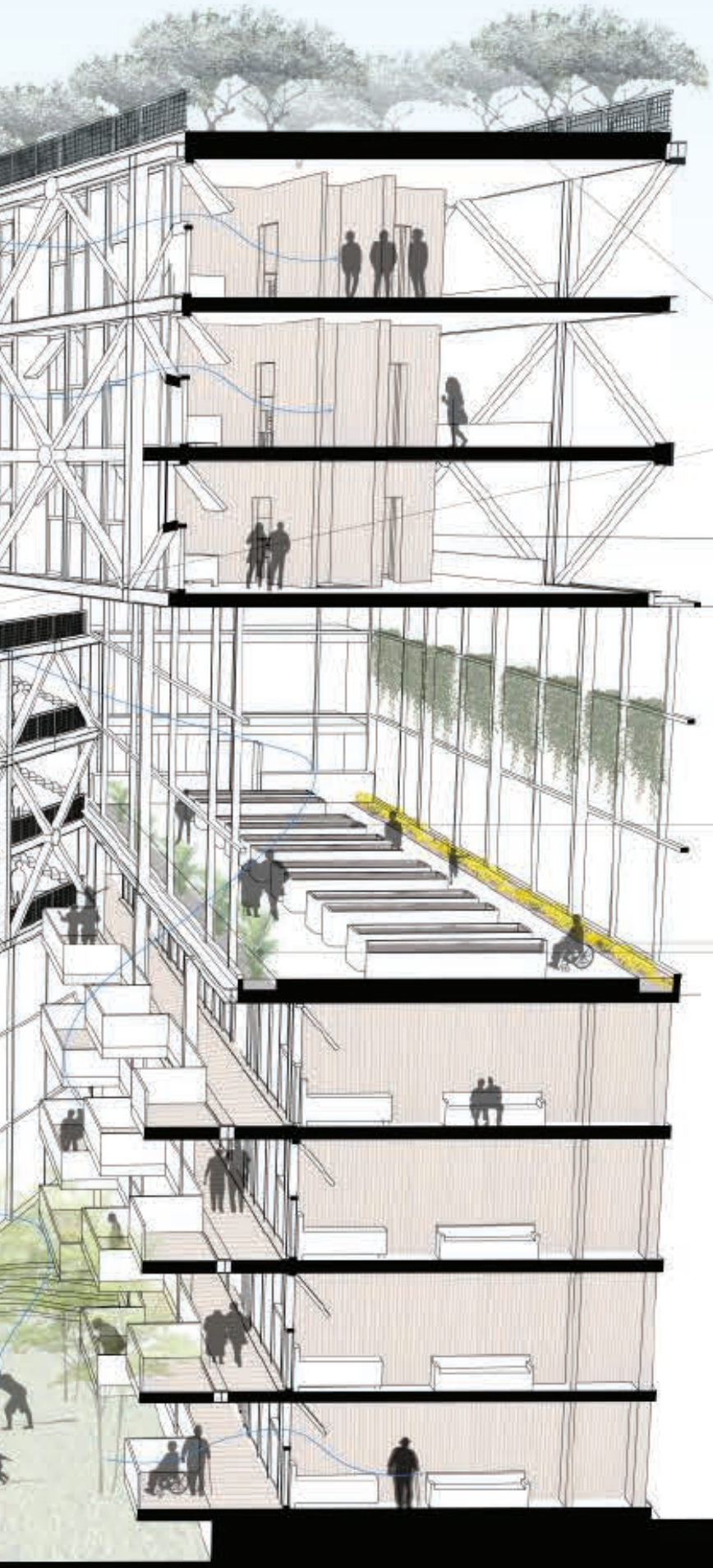
Multi-Generational Housing

SITE: Bushwick, New York

The objective of the project was to consider cooperative living in light of a multigenerational mix of occupants, with an associated mix of unit types and shared spaces. My design considers the needs of the neighborhood in the light of green spaces. Admist the pandemic, the importance of parks and greenspaces increased per the positive effects nature has on an indivdual's mental and physical health. The project's form takes a play on a corner condition with three different volumes of units arranged in order to maximize light and air for all units. These three volumes house tenants of shared life experiences; seniors and families, working couples and young adults, and early adults and young children.

The shared community spaces are green spaces that benefit the community in different ways. The public relaxtion greenhouse on the ground floor is open to the public and provides a place for all members of the community to enjoy nature and relax at all times of the year. The greenhouse on the 5th floor of the project is a private residential garden for tenants to grow their own vegetables in order to relieve the food crisis. The project's two green roofs are only accessible to the tenants and provide spaces to meander and relax in the presence of nature that is native to the city.





PRIVATE RESIDENTIAL GREENROOFs

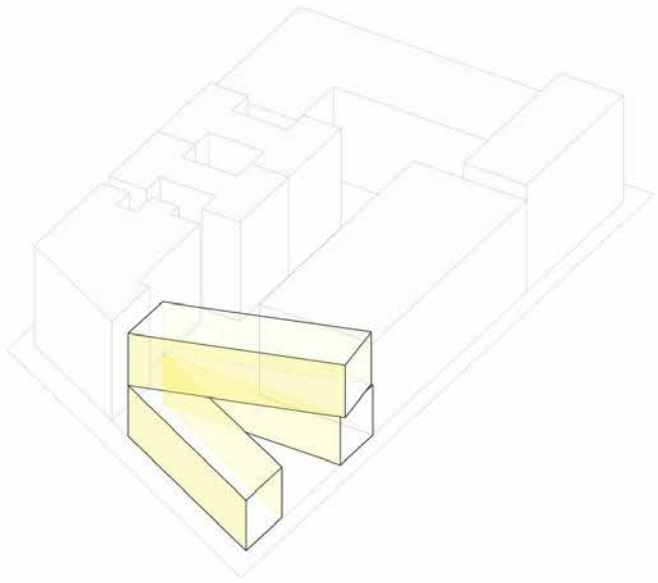
BEACH PLUM TREES:
- clusters of small white flowers during the spring
- small purple-blue fruits that ripen in the summer
- deciduous

PRIVATE RESIDENTIAL GARDEN

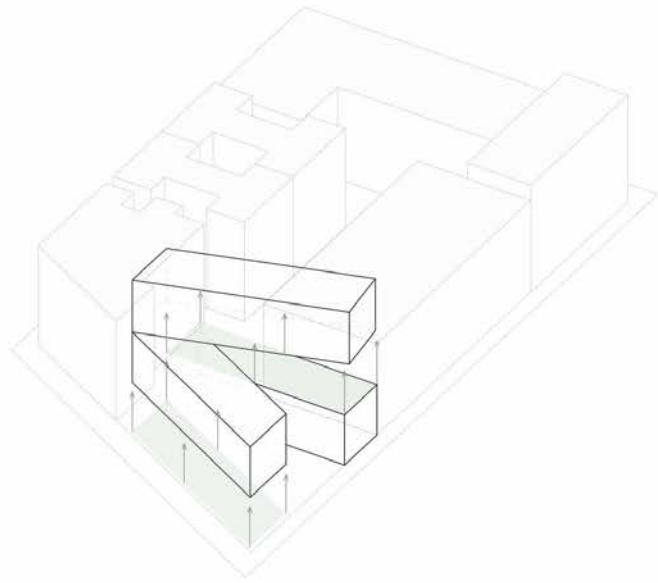
PLANT BEDS - residents plant their own vegetables
cool winter growth:
- lettuce, broccoli, peas, carrots

warm summer growth:
- cucumbers, squash, tomatoes, peppers

PERIMETER -
chrysanthemums, gerariums, shaded indoor plants

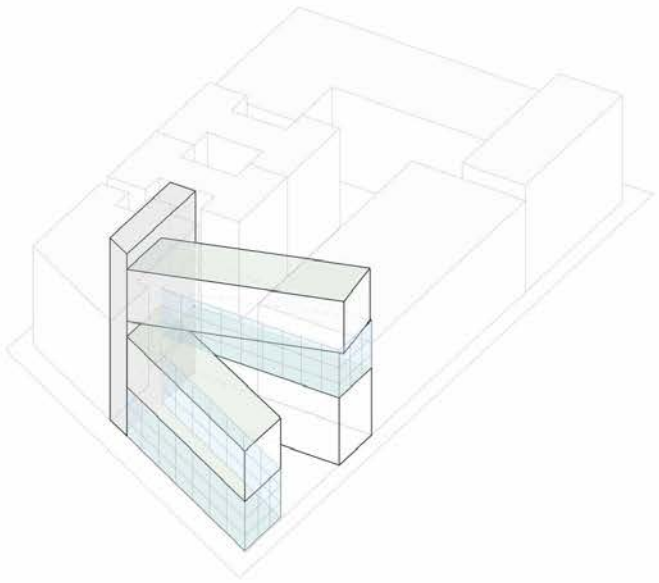


1 BUILDING COMPONENTS FACE DIFFERENT DIRECTIONS FOR LIGHT AND AIR OPPORTUNITIES

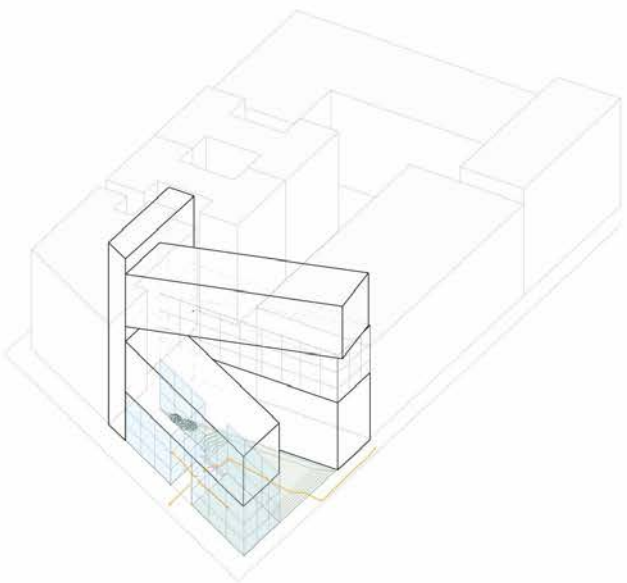


2 COMPONENTS SUSPENDED TO INTRODUCE GREEN SPACE BELOW

CONCEPT DEVELOPMENT

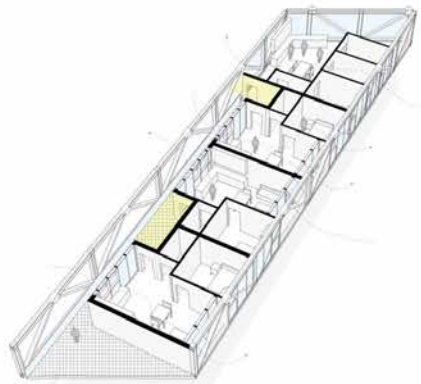


3 ENCLOSURE ADDED TO PROVIDE YEAR–ROUND GREENSPACES

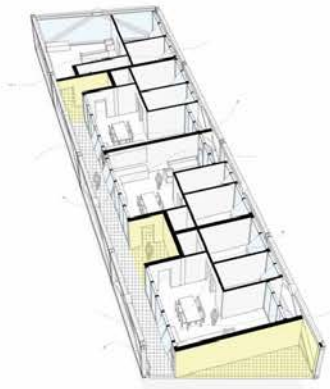


4 SPLIT IN GROUND LEVEL GREENSPACE TO ALLOW FOR CONTINUOUS PUBLIC CIRCULATION

Seniors and Families



Early Adults & Young Families

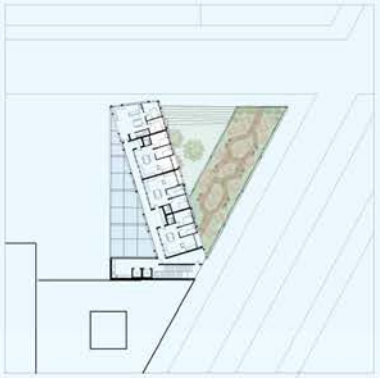


Working Couples and Young Adults

Site Plan

Ground Floor Plan

Level 5 Floor Plan



Level 8 Floor Plan