

I V Á N  
C A S T R O  
S E L E C T E D  
W O R K S

*Serendipity requires intentionality.*

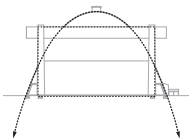
**POST COLONIAL**  
4-15



**GRIDDED UNDULATIONS**  
14-21



**ENTANGLED ECOLOGIES**  
22-27



**TENTtSEGRITY**  
28-33



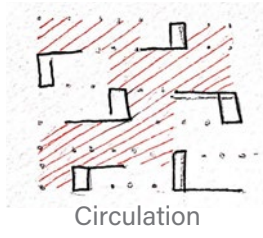
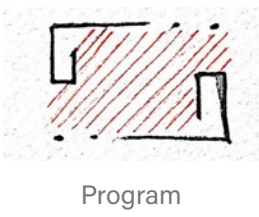
**OPEN HOME**  
34-35





POST COLONIAL  
GRAN CONSEJO DE LUZBELLA

San Juan, PR  
Fall '20 Studio



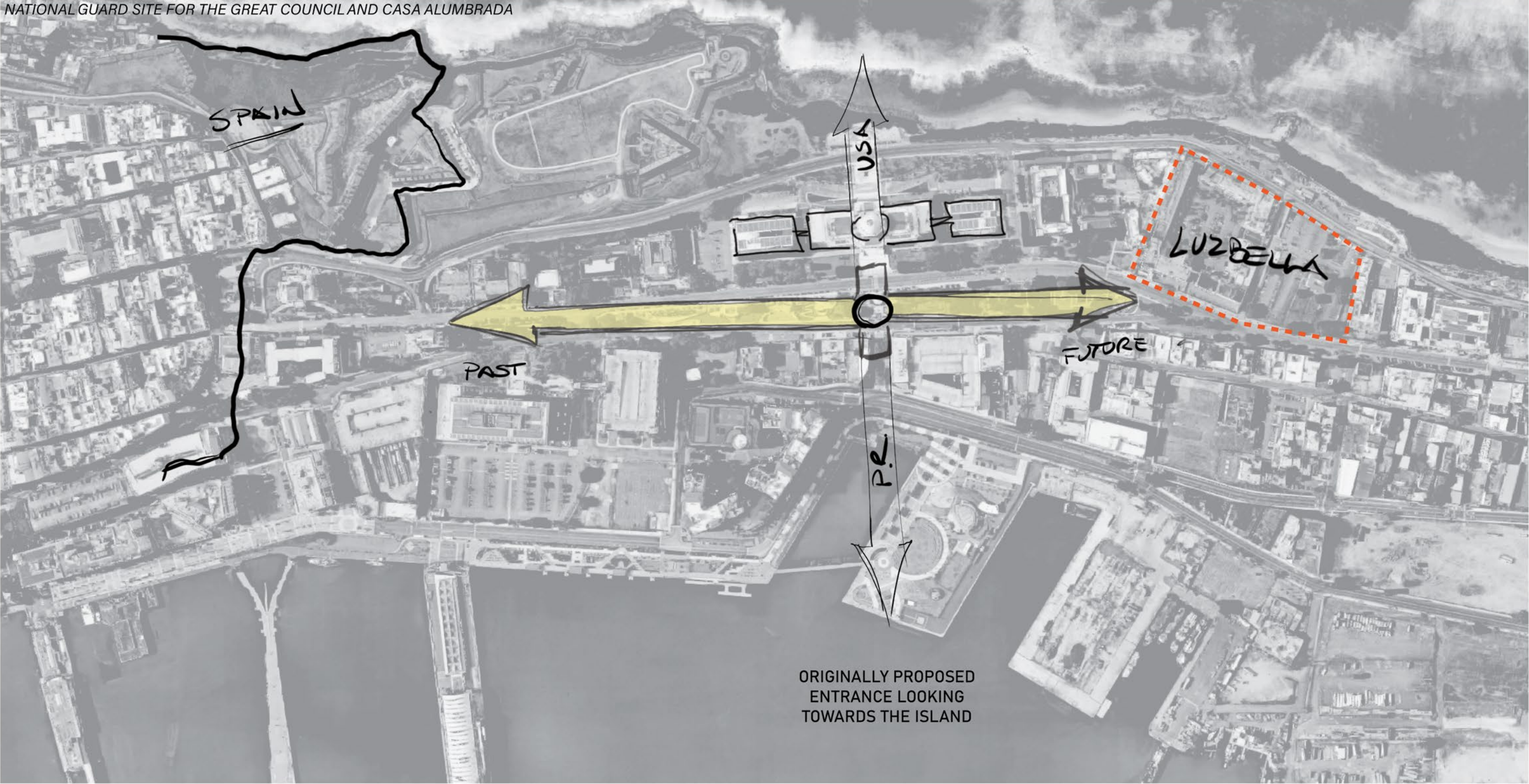
Based on Juan López Bauza's **utopian novel**, the new Puerto Rican parliament was inspired by the **Danza** and the **Afro-Caribbean rhythms** that make up most of our music and are always present in any political demonstration.



AXIAL CONNECTION TO OLD SAN JUAN

CURRENT MAIN  
ENTRANCE LOOKING  
TOWARDS THE USA

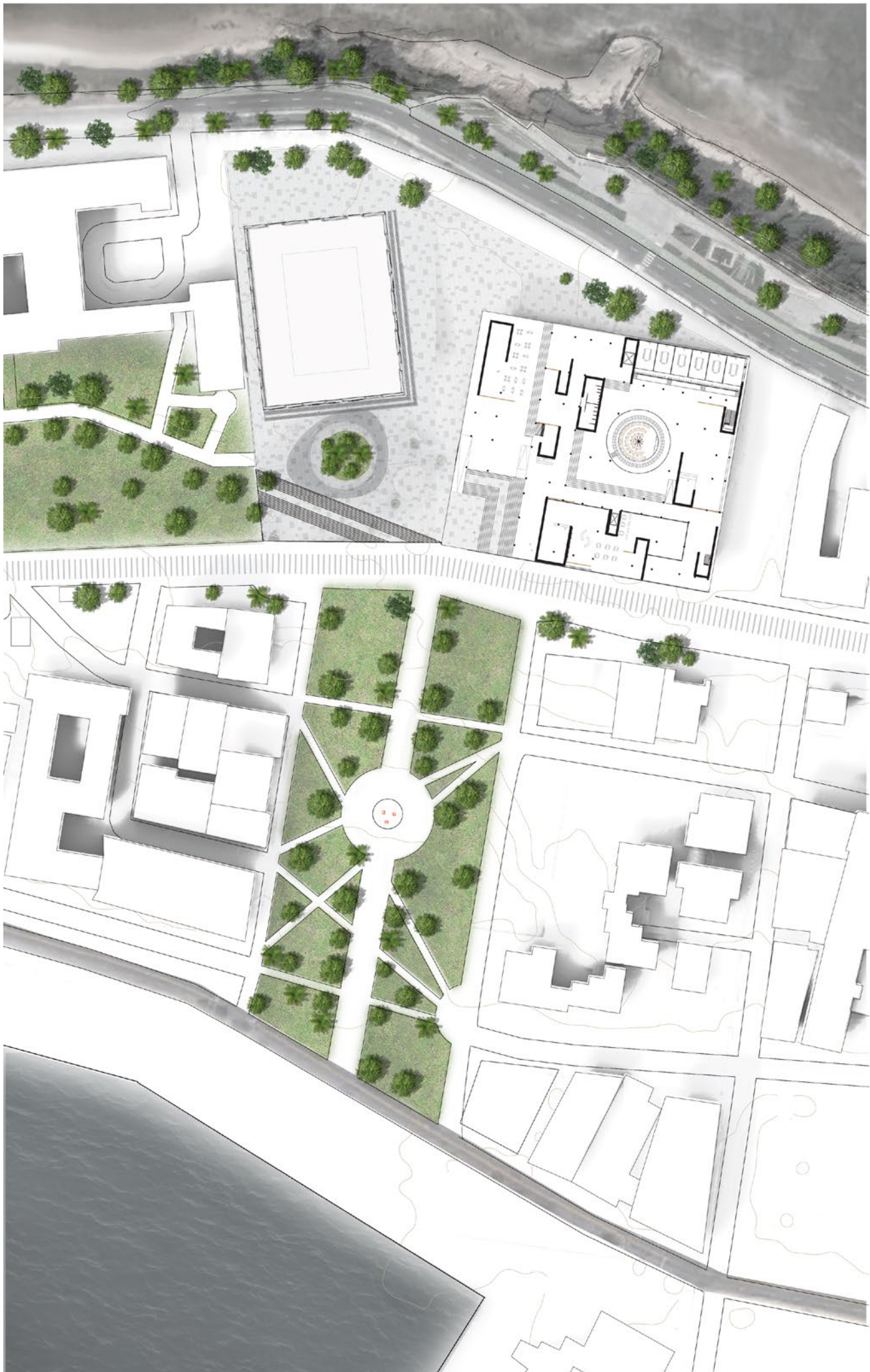
NATIONAL GUARD SITE FOR THE GREAT COUNCIL AND CASA ALUMBRADA



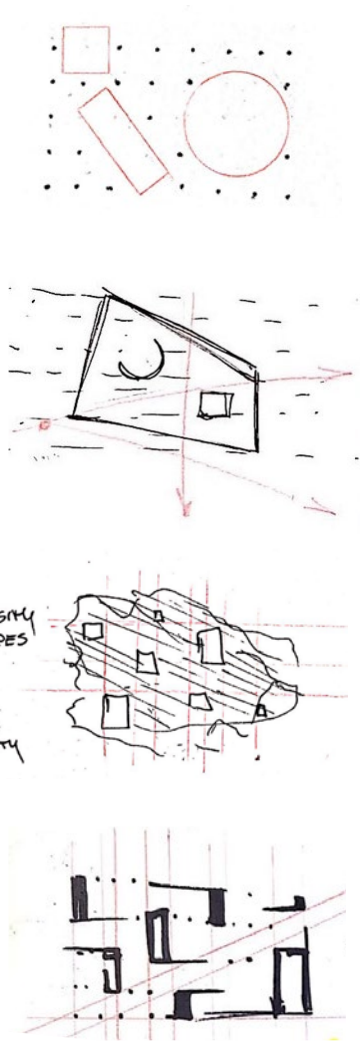
ORIGINALLY PROPOSED  
ENTRANCE LOOKING  
TOWARDS THE ISLAND

JUAN LOPEZ BAUZÁ PROPOSES A “DECOLONIZATION PROCESS” CALLED “LA CONCORDIA” THAT TEACHES THEIR HISTORY TO THOSE WHO SEEK TO BREAK THE PSYCHOLOGICAL BOUNDS OF THE COLONIZATION “VIRUS”.



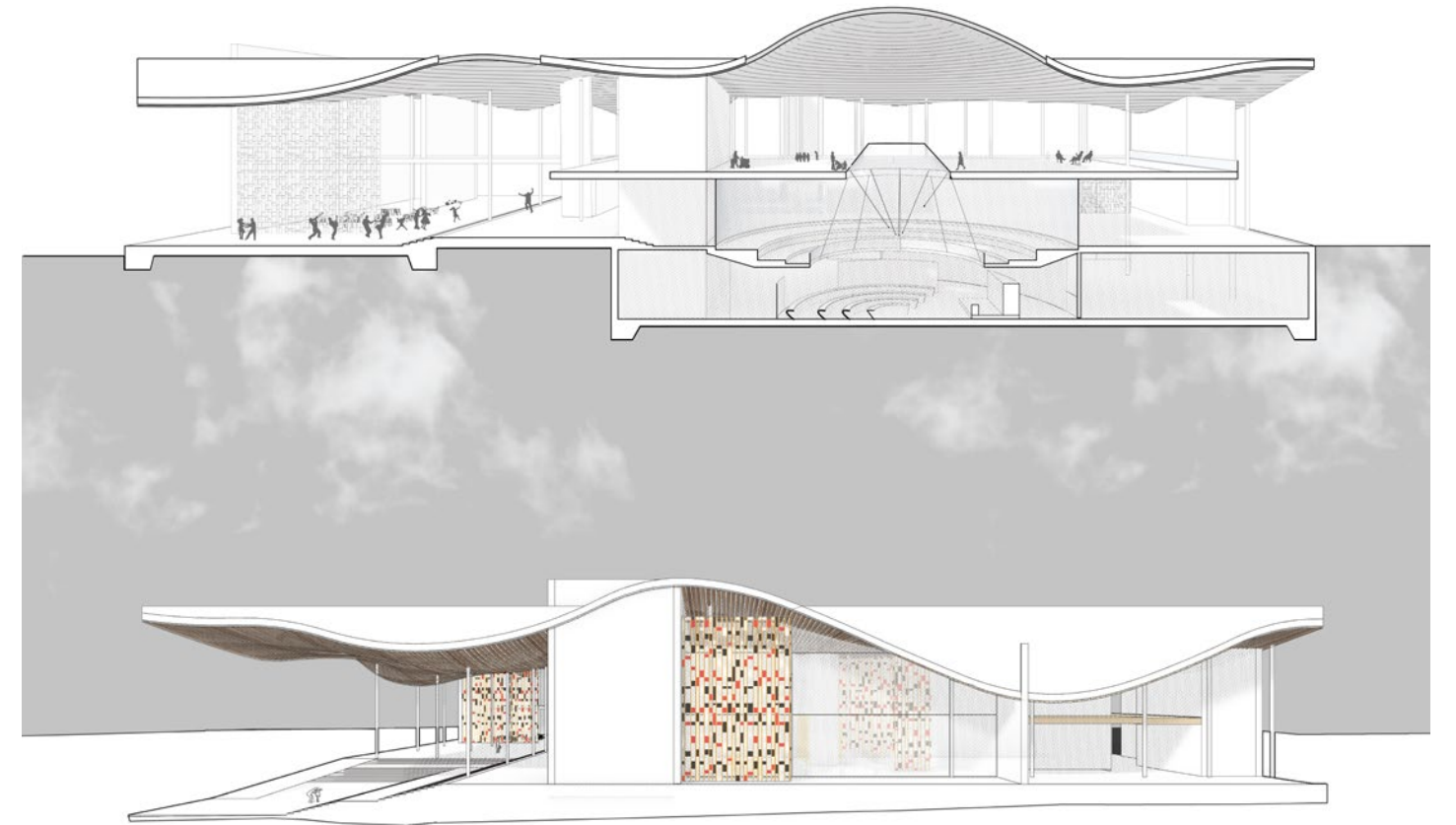
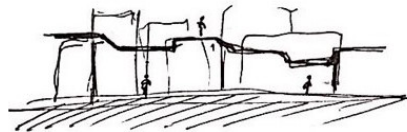


SILENCES :





DISPLACEMENT :



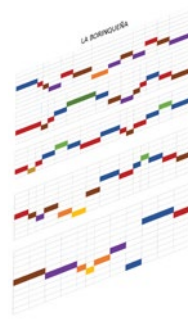
The building was developed as a formal interpretation of the three main characteristics of **AFRO-CARIBBEAN SYNCOPATION**.

Expansion and contraction of **SILENCES** in a rhythmic pattern  
The **DISPLACEMENT** of a datum line,  
and **LIGATURES** between elements.





ORIGINAL NOTATION



TIME UNIT BOX  
NOTATION



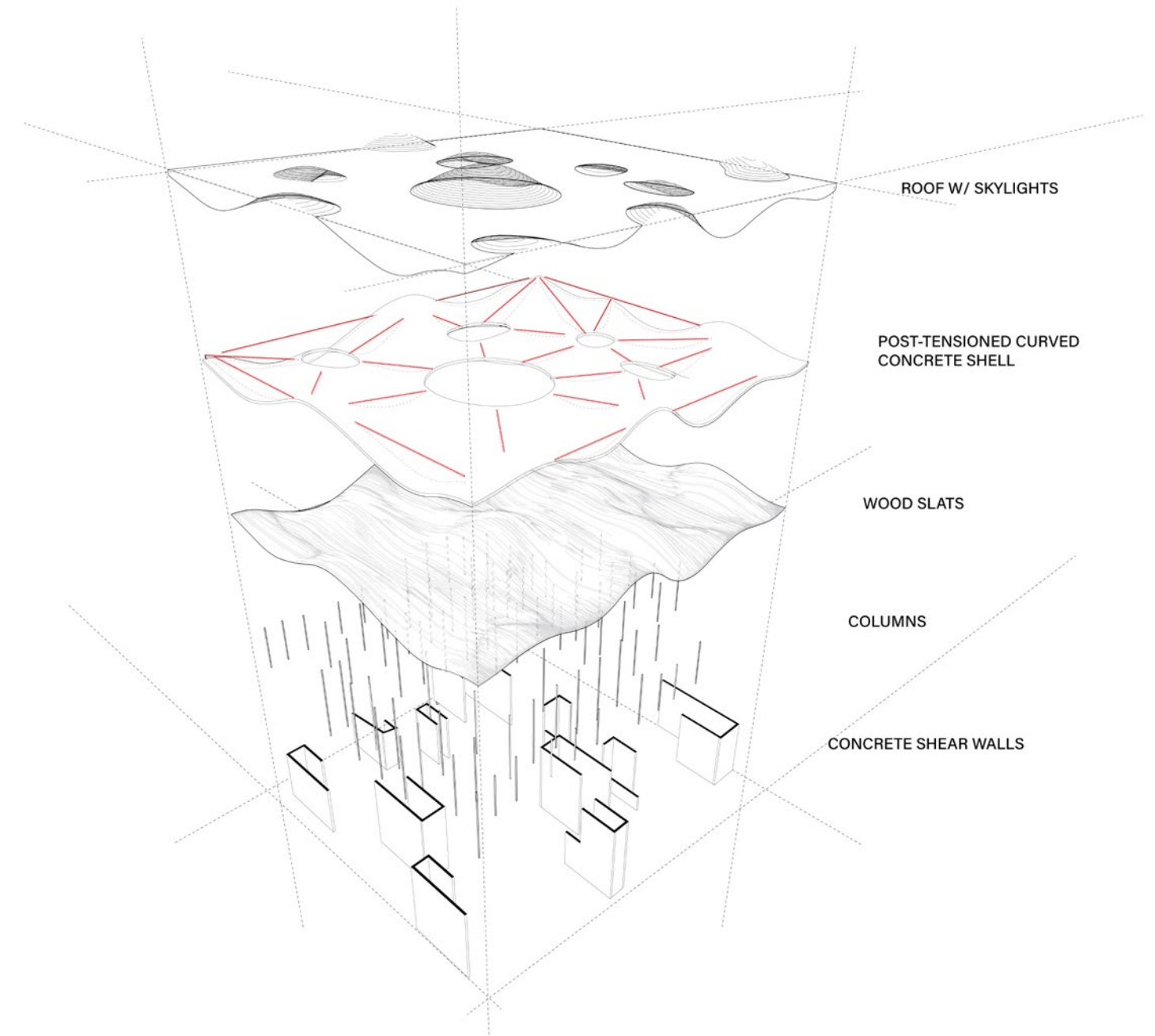
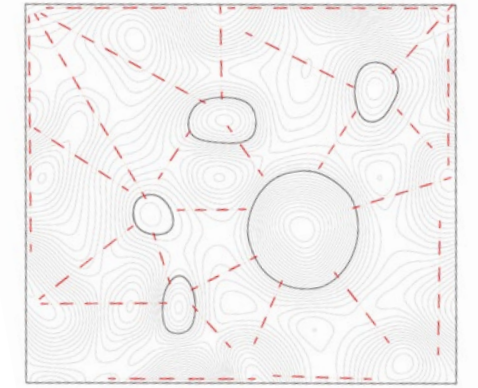
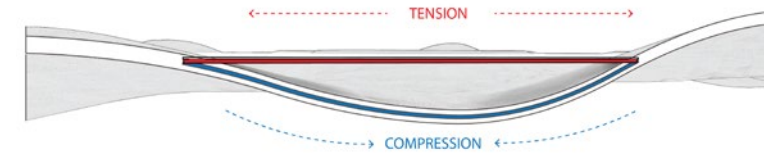
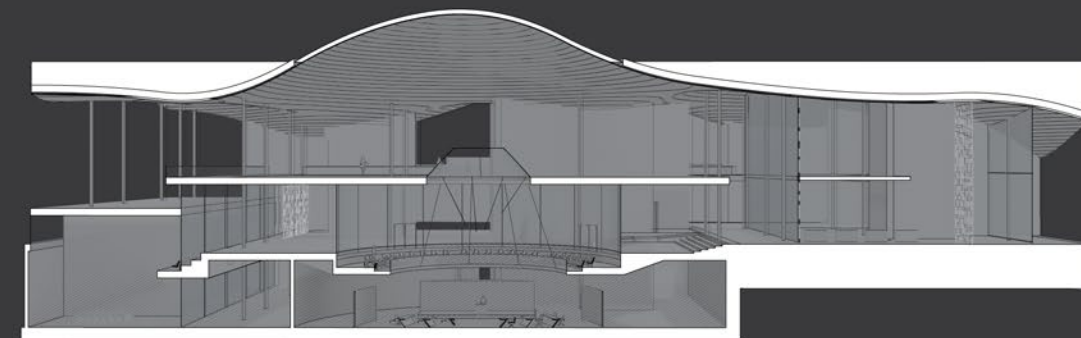
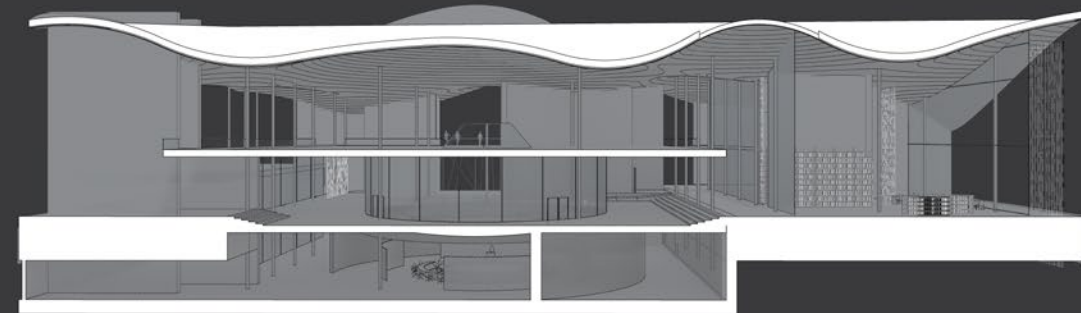
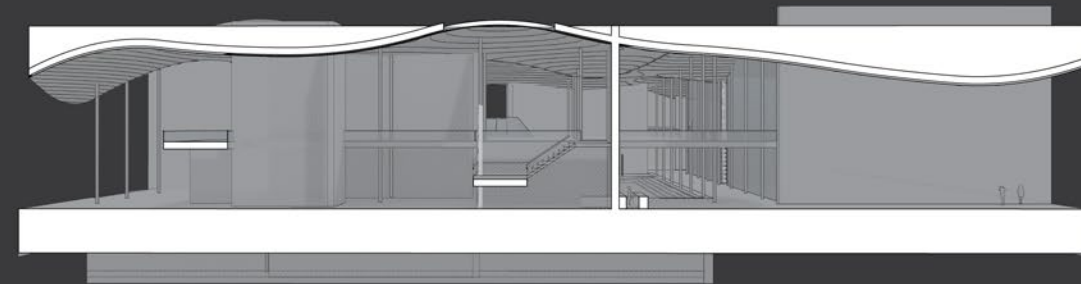
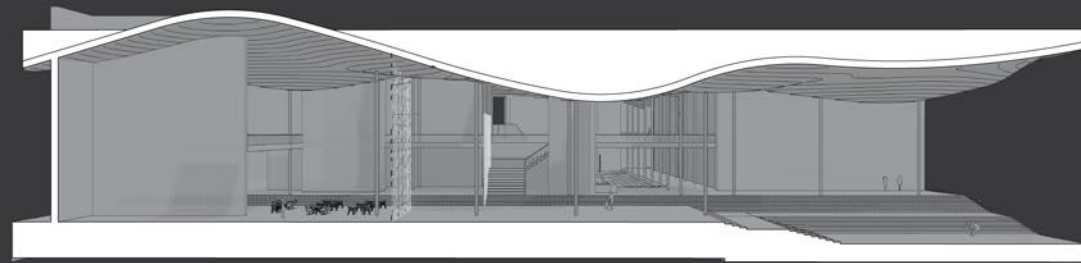
SHADING SCREEN  
PATTERN

## LIGATURES :

Formal Transcription of the Puerto Rican **National Anthem** through **TIME-UNIT BASED NOTATION**



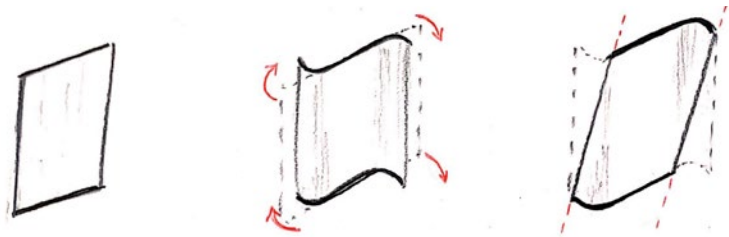




Structural Components



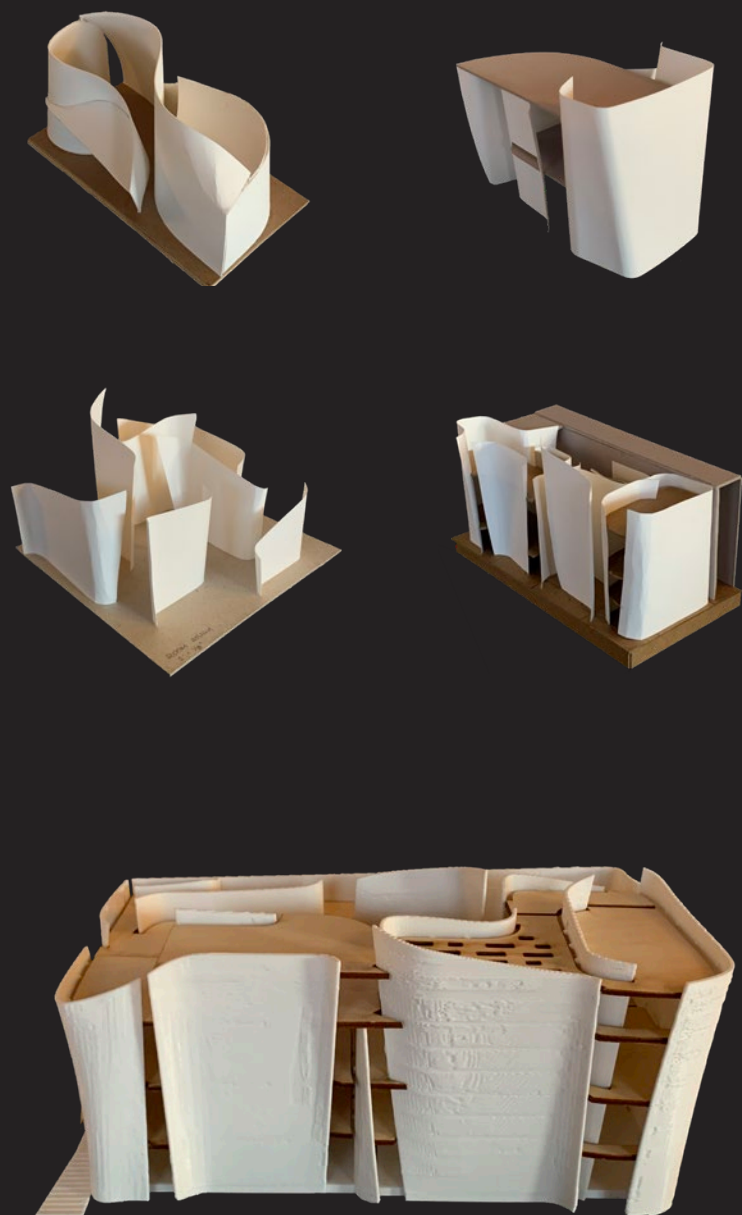
GRIDDED UNDULATIONS  
NATIONAL WAR LETTERS MUSEUM



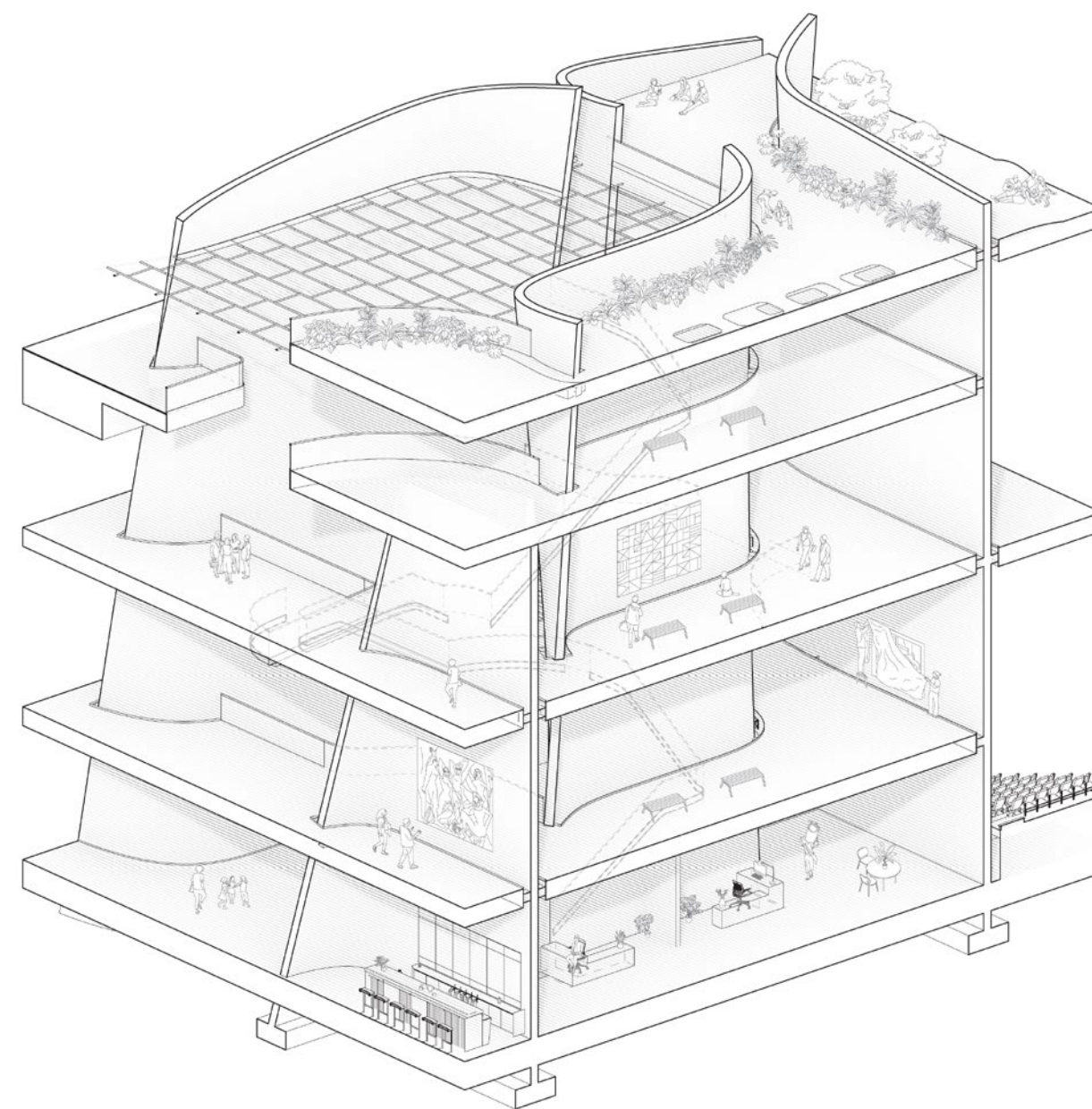
Inspired by the apparent **fragility of letters** sent in war and the powerful dichotomy of their **weightlessness against the profound emotions they carry**. The museum is intended to serve as a civic reminder of the **humanity and hope** embedded in these powerful vessels and as a steward to the stories that survive the **ruthlessness of war**.





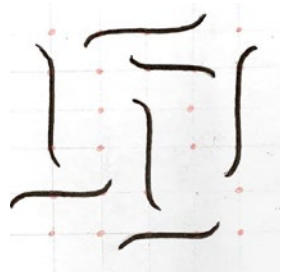


CONCEPT DEVELOPMENT



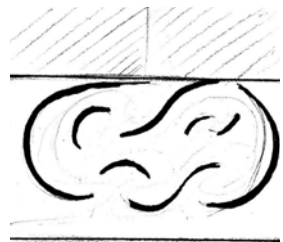
STRUCTURAL SECTION





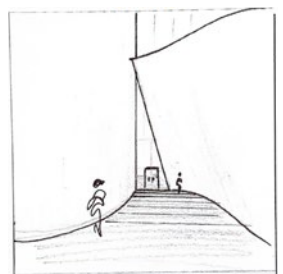
GRIDDED ONDULATIONS

War is an unforgiving machine. Relentless in its repetitiveness. A **gridded, standardized**, procession of pain. Life, like roots, **organically** intertwines this grid.



BRAIDED PATHS

Meandering walls create a **peeling of space**. Paths are temporarily sliced and visitors diverged. The walls appear dynamic, unorganized and arbitrary. However, they follow a strict structural pattern.



FRAMED THRESHOLDS

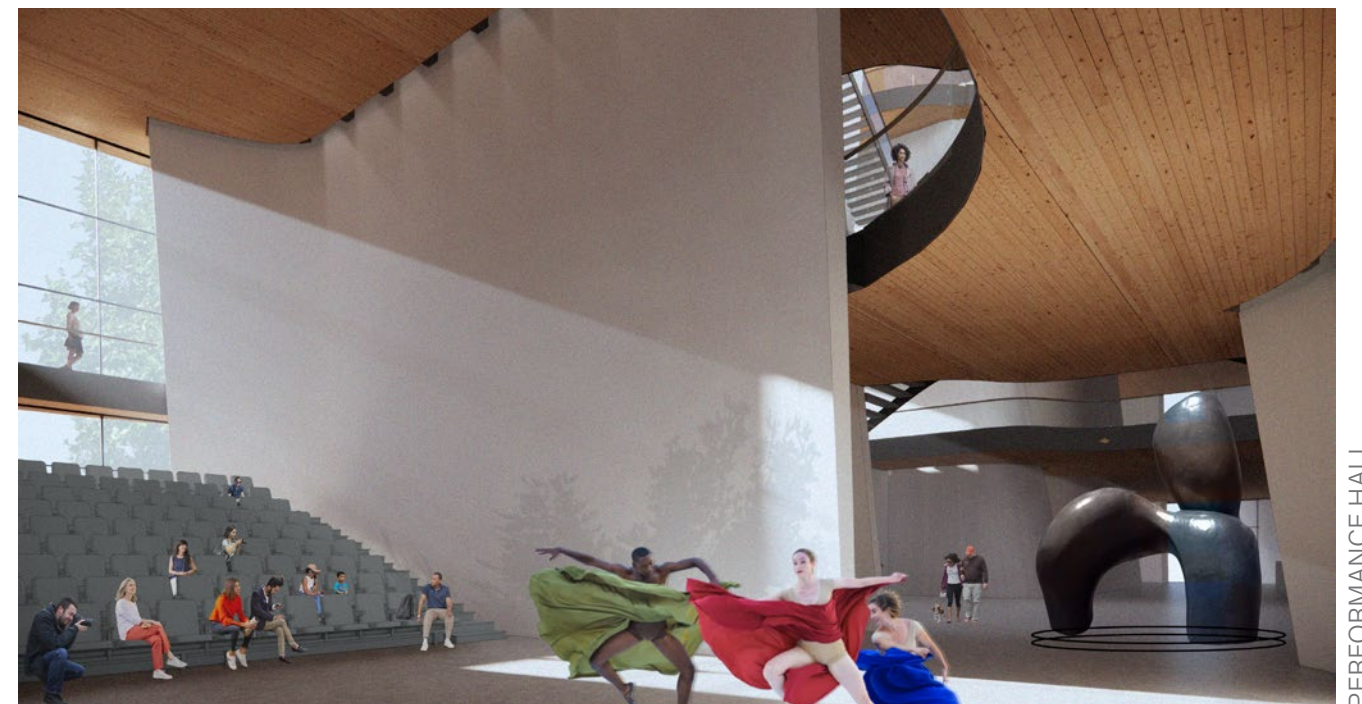
An angular entrance, prepares the visitor for the heavy truth of war. **Slanted walls appear weightless and delicate**, but hold within the powerful stories of those who experienced its ruthlessness.



EXPERIENTIAL ROOF TOP

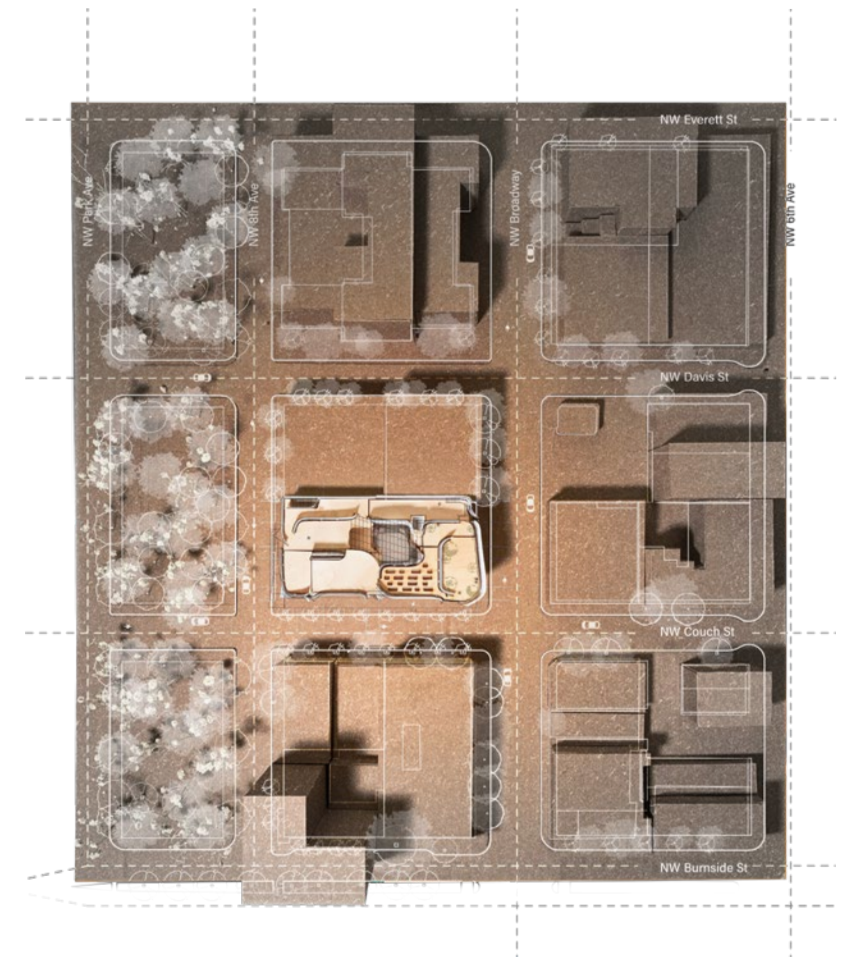


ROTATING EXHIBITS



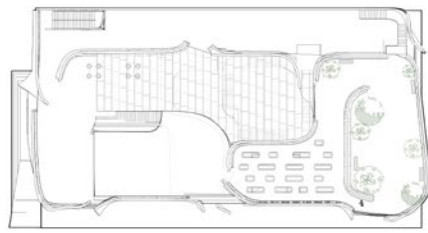
PERFORMANCE HALL



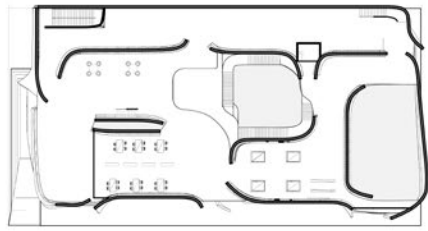


War is an unforgiving machine. Relentless in its repetitiveness. A gridded, standardized, procession of pain. Life, like roots, organically intertwine this grid. Curvilinear forms represent the pushback of hope against the oppression of conflict.

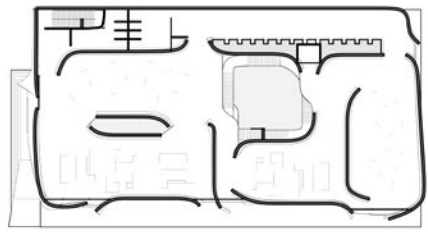




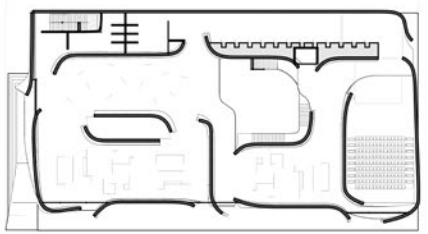
FIFTH FLOOR PLAN



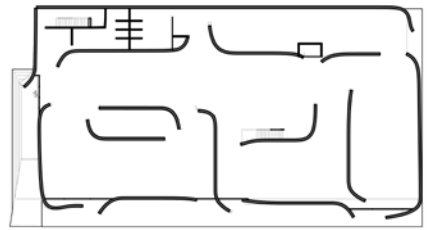
FOURTH FLOOR PLAN



THIRD FLOOR PLAN

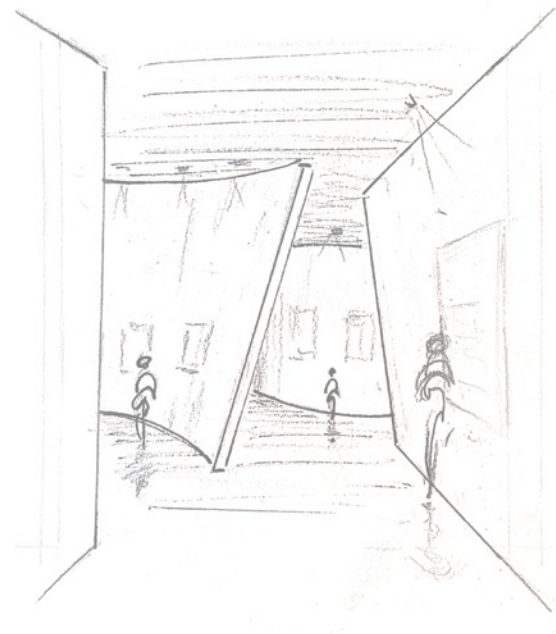


SECOND FLOOR PLAN



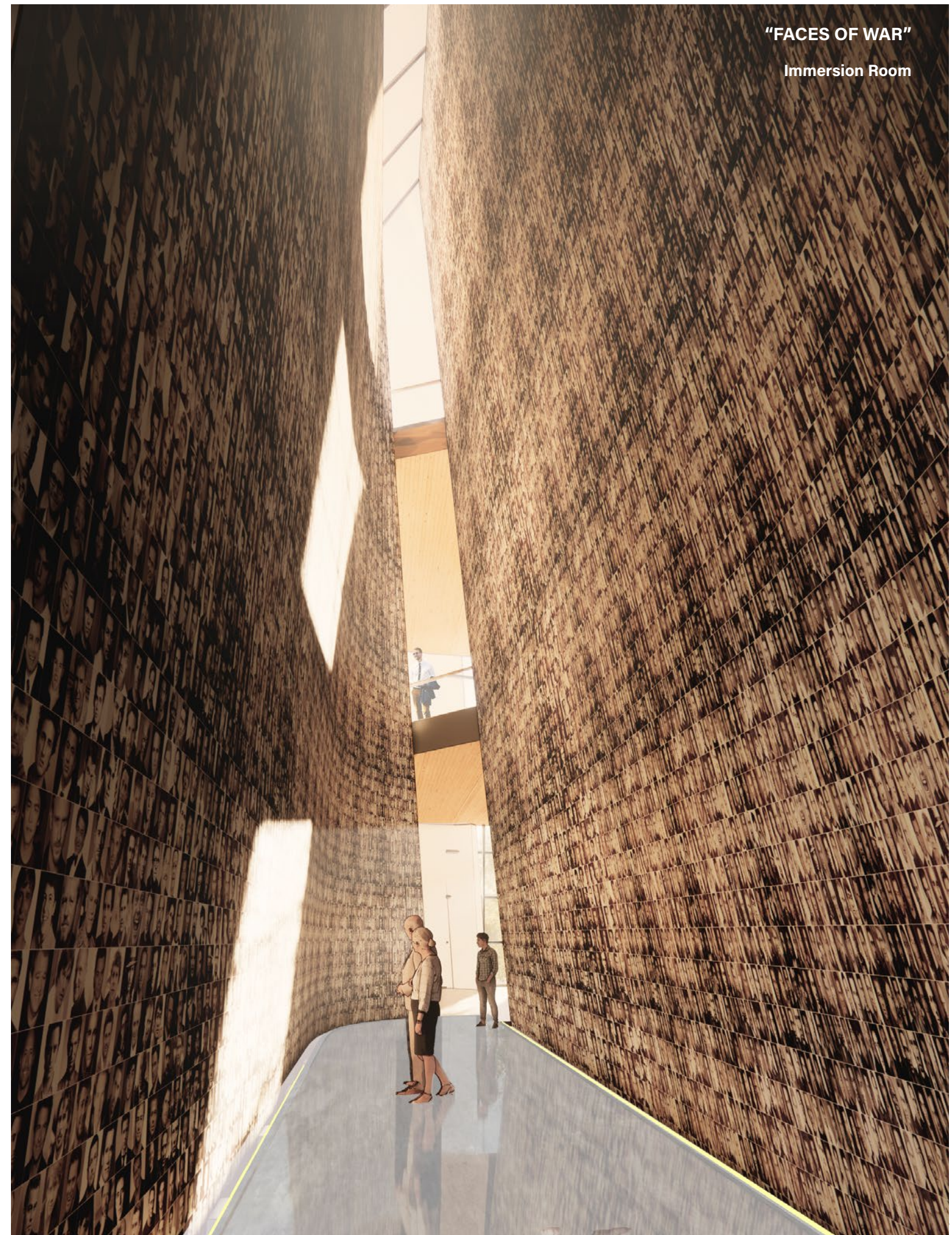
GROUND FLOOR PLAN

Through the folding structural pattern developed, the **load-bearing walls appear animated** as the visitor moves through the building. While the straight section of the wall remains static, providing the necessary structural stability, the curved sides contract or expand, creating the **illusion of diagonal planes** and providing a variety of spaces and diffused daylight through the floors.



## "FACES OF WAR"

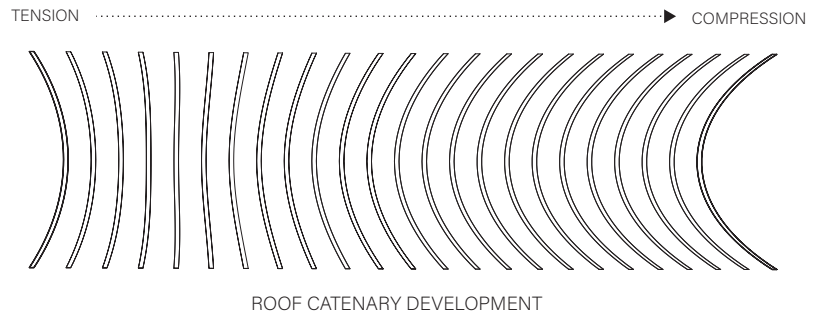
Immersion Room





# ENTANGLED ECOLOGIES

## ALGAE RESEARCH CENTER



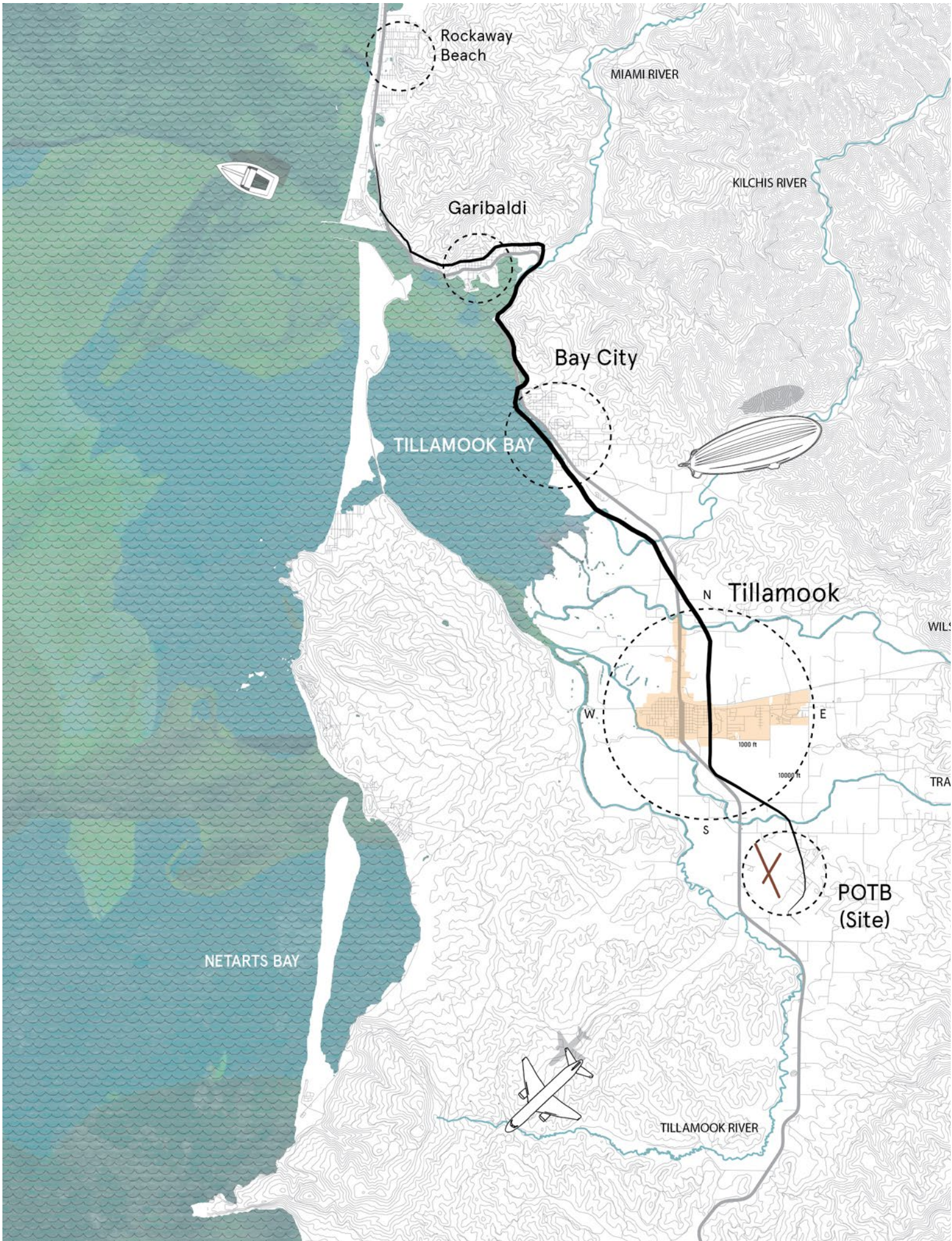
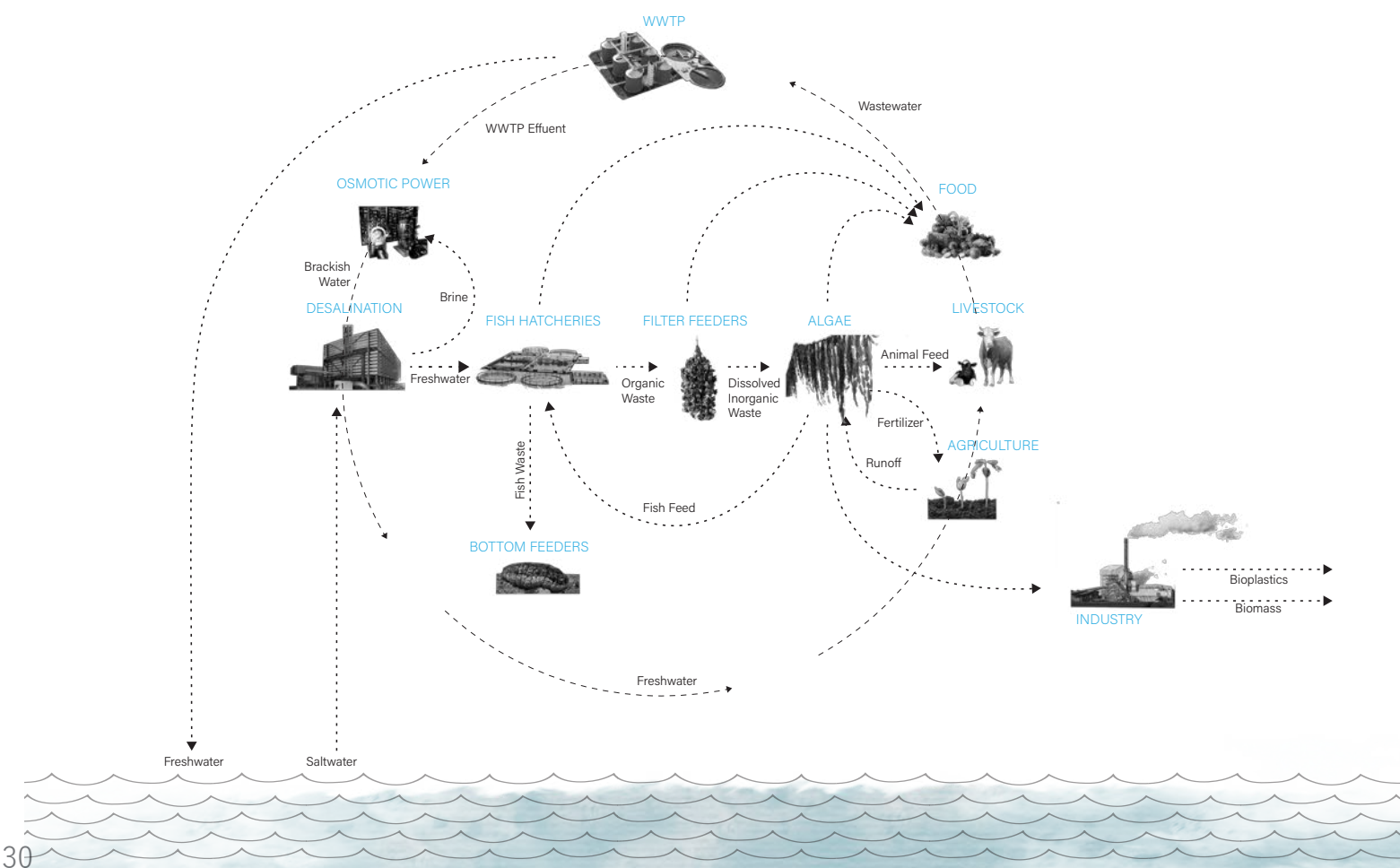
Developed to create a destination inside of the Port of Tillamook Bay, the **Research Center celebrates both its industrial heritage and its ecological richness.** The project aimed to **readdress the ruins of the Historic Airship Hanger** to allow for further expansion of the existing anaerobic digester, as well as honor the structure's historical relevance and its **potential in uplifting the Port's narrative.**





The current relationship of the local industries and the environment operates in a **linear flow** where industries gather external resources, consume them, and generate **harmful waste**.

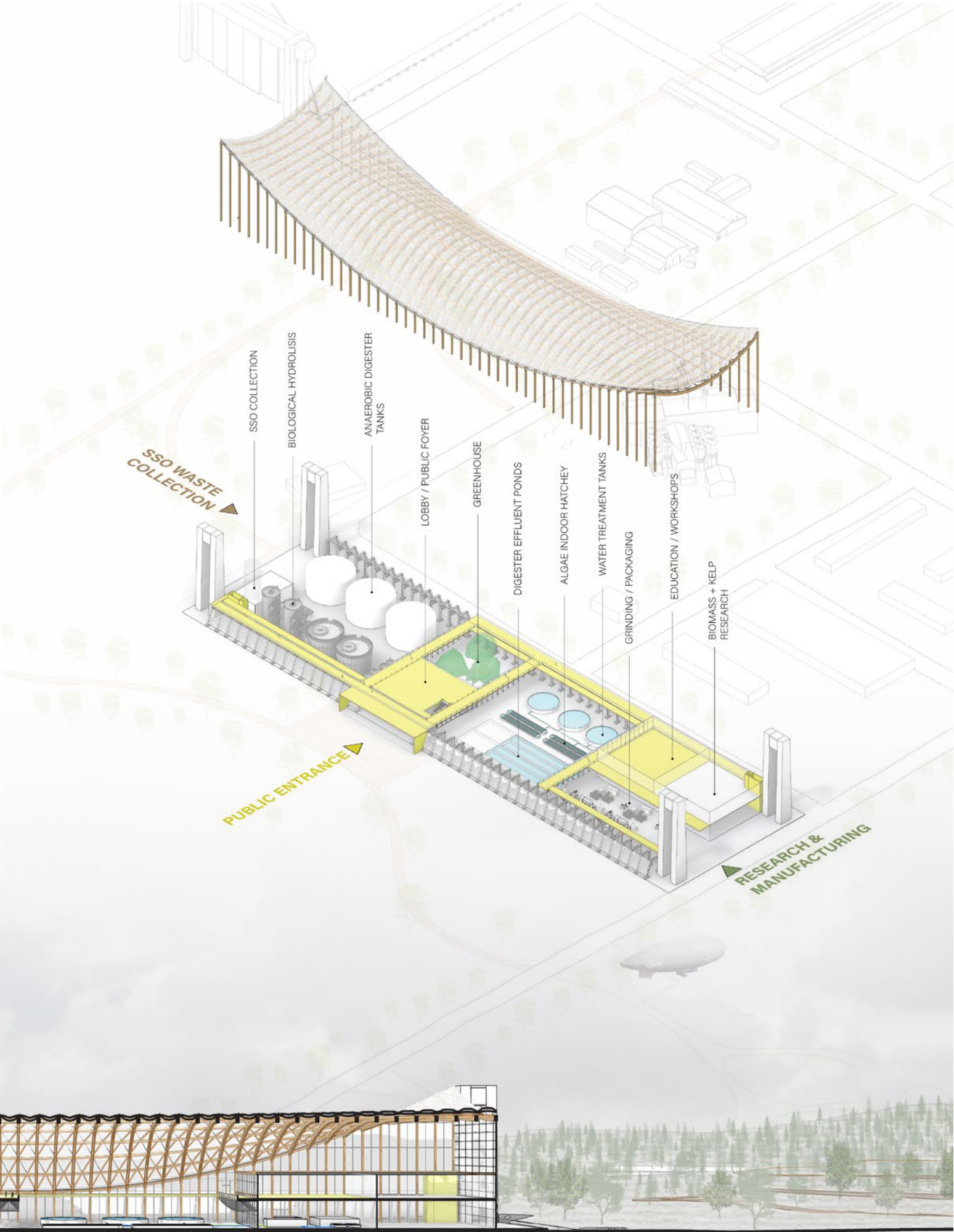
To address this issue, a **Closed-loop system** was proposed, where the waste of one industry could serve as a valuable resource to the other, with **algae serving as the central component**. This promotes local **economic incentives** among farmers and **water remediation** through its harvesting practices.





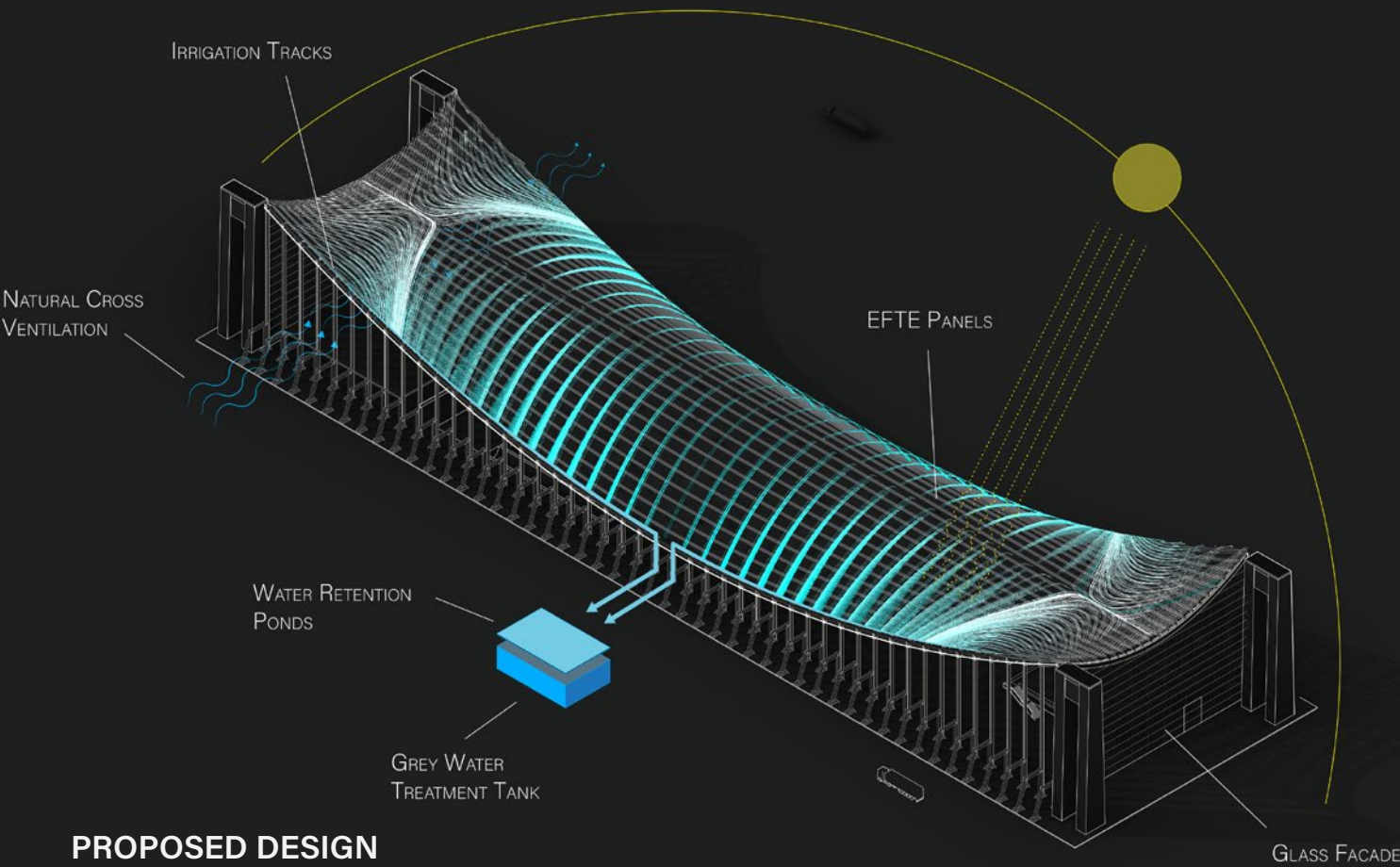
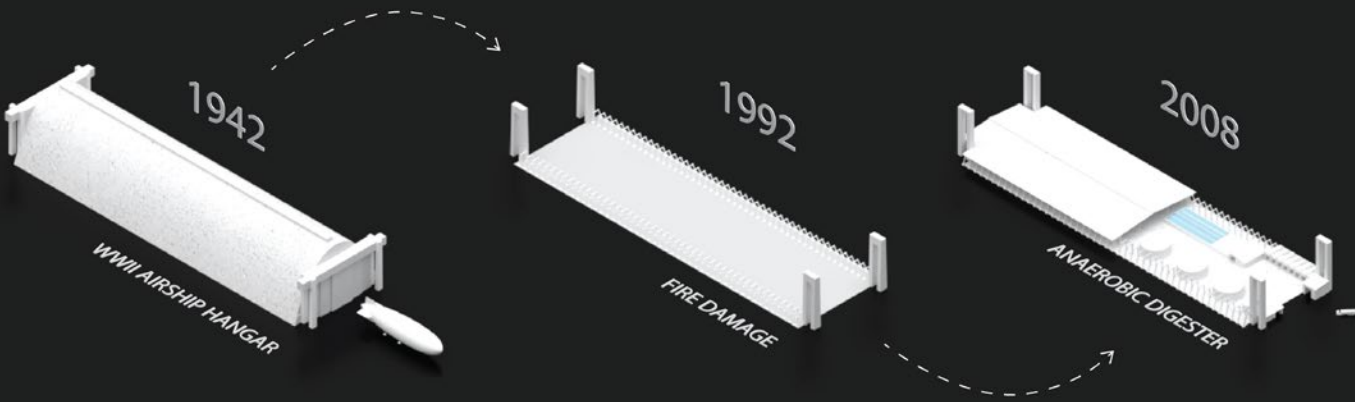


Reinterpreting the **original catenary vault as form generator** in both tension and compression, making use of locally-sourced materials, the purpose was to make the new structure feel **suspended above the old pillars**. Integrating existing processes with the proposed program while allowing public and ecotourism opportunities, the new building is composed of three programmatic elements: **Anaerobic Digester Expansion, Algae Research & Manufacturing Center** and elevated **Public Platforms**.



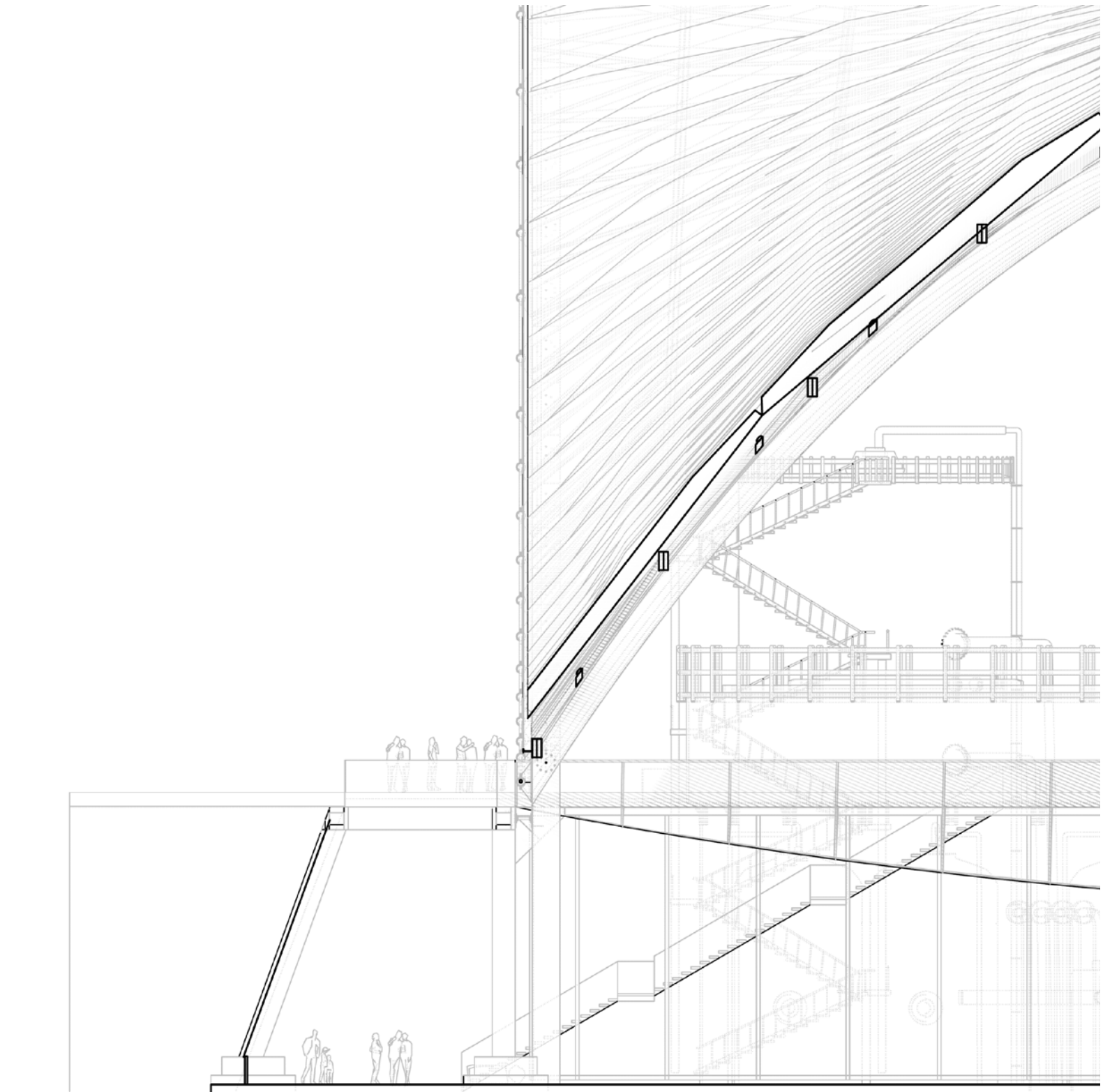


HISTORIC DEVELOPMENT



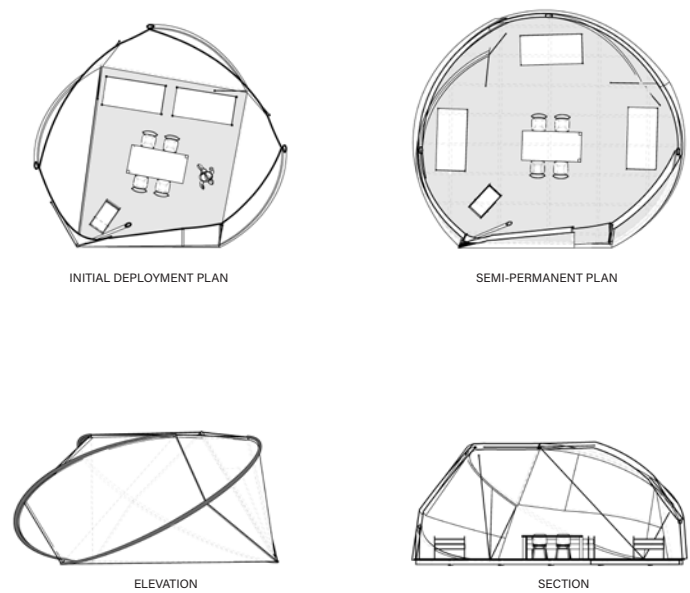
PROPOSED DESIGN

Rainwater Harvesting and Thermal Control

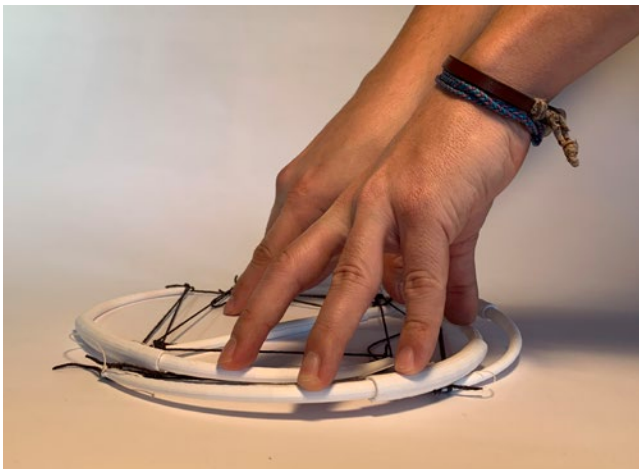
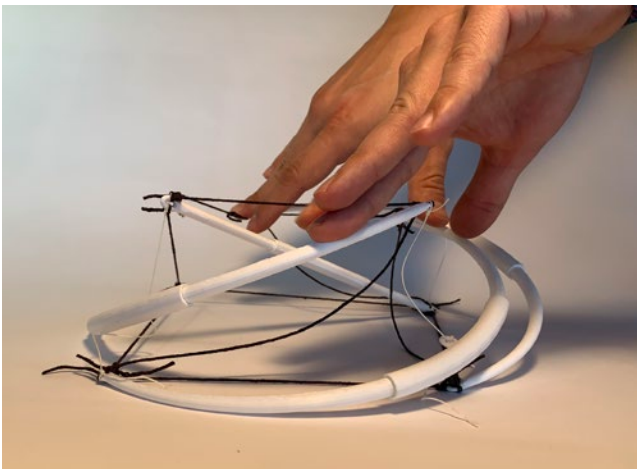
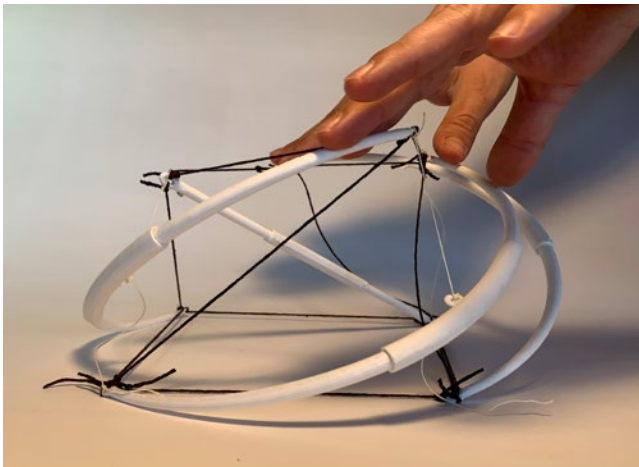
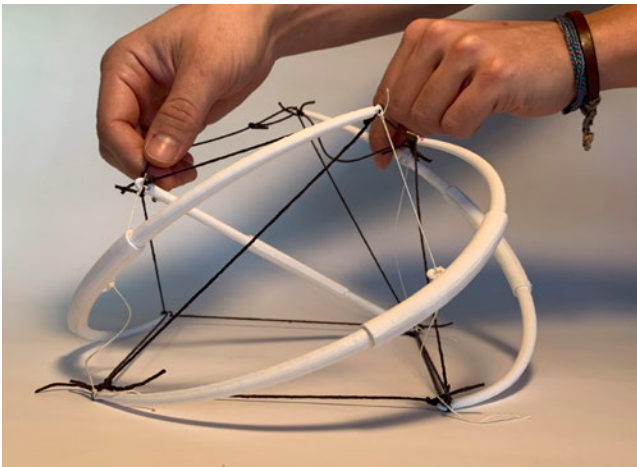
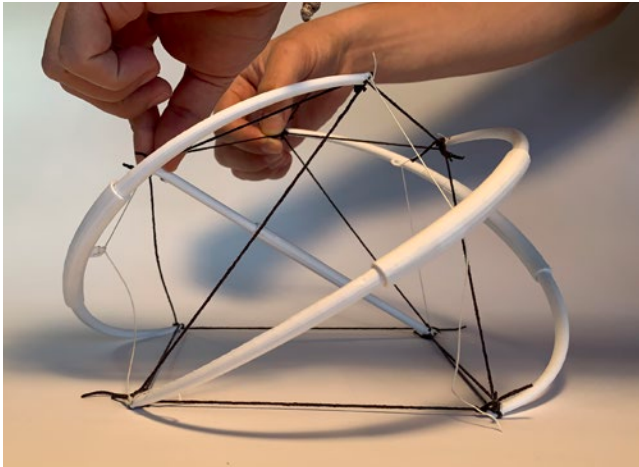
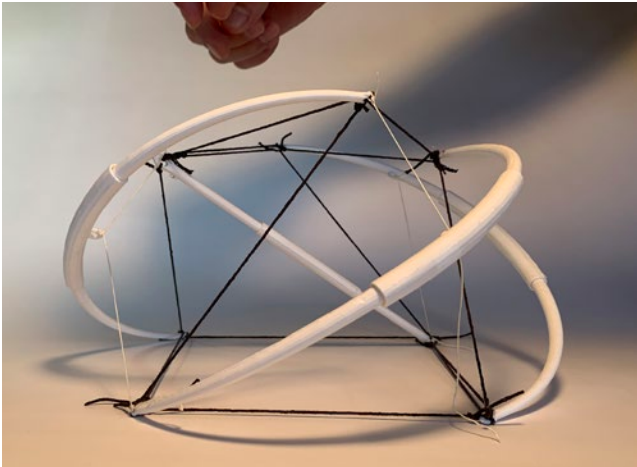




TENtSEGRITY  
RAPID DEPLOYMENT SHELTERS



With the impact of global warming, communities all around the world are being affected by the drastic changes in climate and the **increasing intensity of natural disasters** that arise from it. The design proposes **easily transportable private shelters** for immediate relief to victims of such disasters allowing them to retain their personal space. Secondly, the aim is to provide a space that fosters community and reconnects displaced people to nature as way to alleviate the negative effects of such events.





ASSEMBLY PROCESS

INITIAL DEPLOYMENT

SEMI-PERMANENT

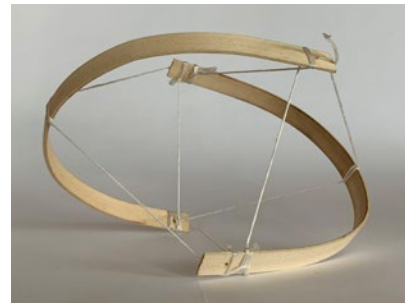
HARSH WEATHER



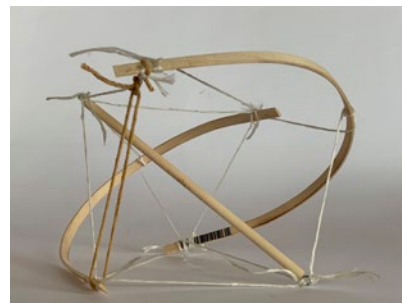




TWO ANGLED STRUTS



TWO CURVED STRUTS



THREE MIXED STRUTS

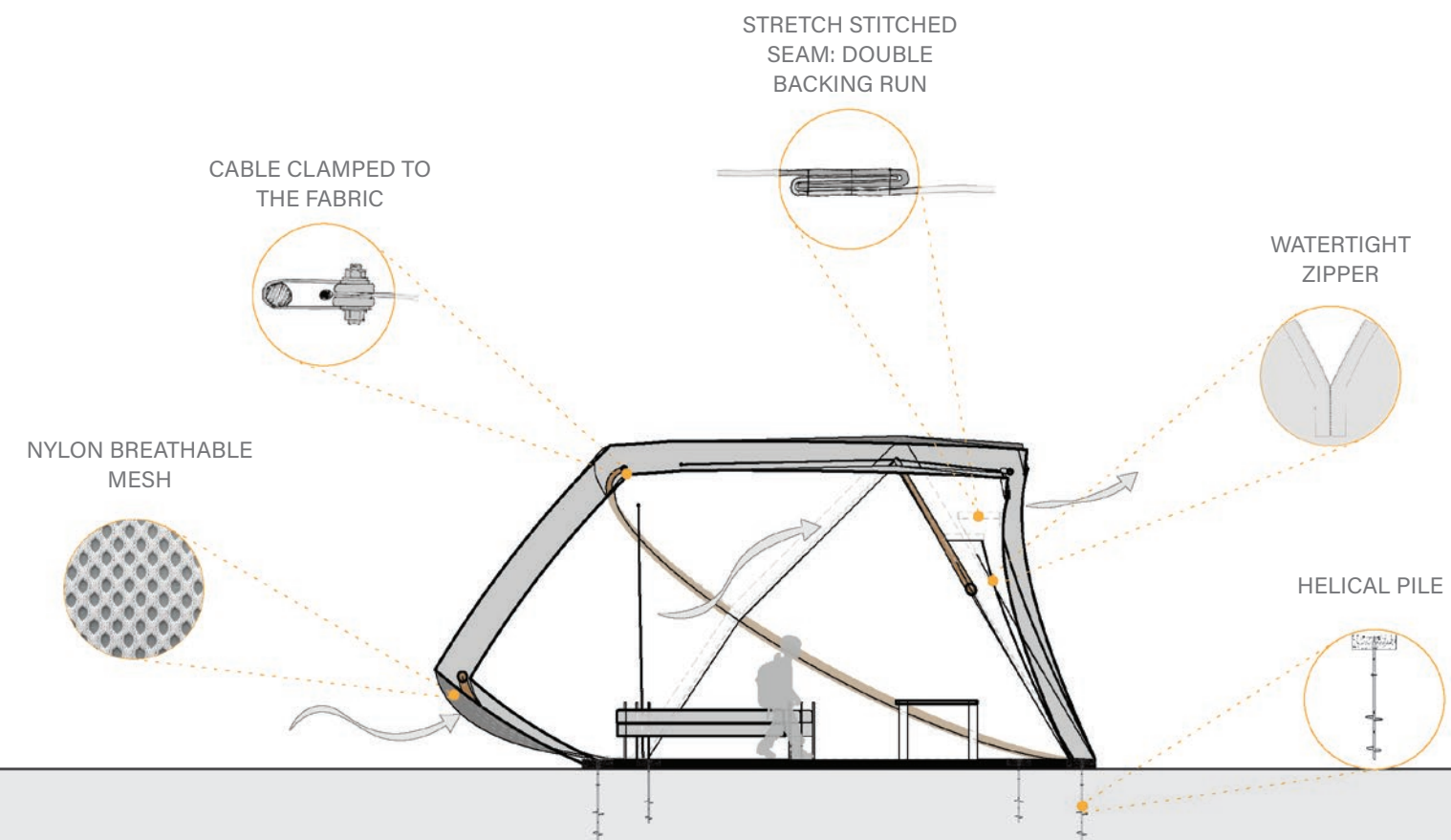


FOUR STRAIGHT STRUTS



FINAL DESIGN - FOUR MIXED STRUTS

The shelter's structural **dependence on the equal tension of all members allows for the quick disassembly** by loosening only one of the tension elements. The structure allows for dual methods of transportation, depending on the needs. One, as a **flat-packed** already constructed shelter that **effortlessly "pops up"** in place as shown in the last image on the left. The second as a **"kit of parts"** that is **assembled in place** with clear lables intended for shipping abroad or for limited transportation requirements.





# OPEN HOME

## GRID-ENHANCING MODULAR SHELTERS

Graduate Research | Published ACEE Summer Study Paper

Developed as an “open-source” project with the goal of using **disruptive new technologies like mass-timber panelized digital manufacturing**, distributed energy production/storage, and water reclamation microgrids to support systems-based approaches to creating **affordable housing and resilient communities**. Each unit would provide much-needed housing while reinforcing the local utility grid and **providing essential services during grid-disrupting event**.

### PROJECT TEAM:

Ivan Castro (M.Arch)

Paul Ward (M.Arch)

### SUPERVISOR:

Dr. Kevin Van Den Wymelenberg

### COLLABORATION:

MPP Modules

