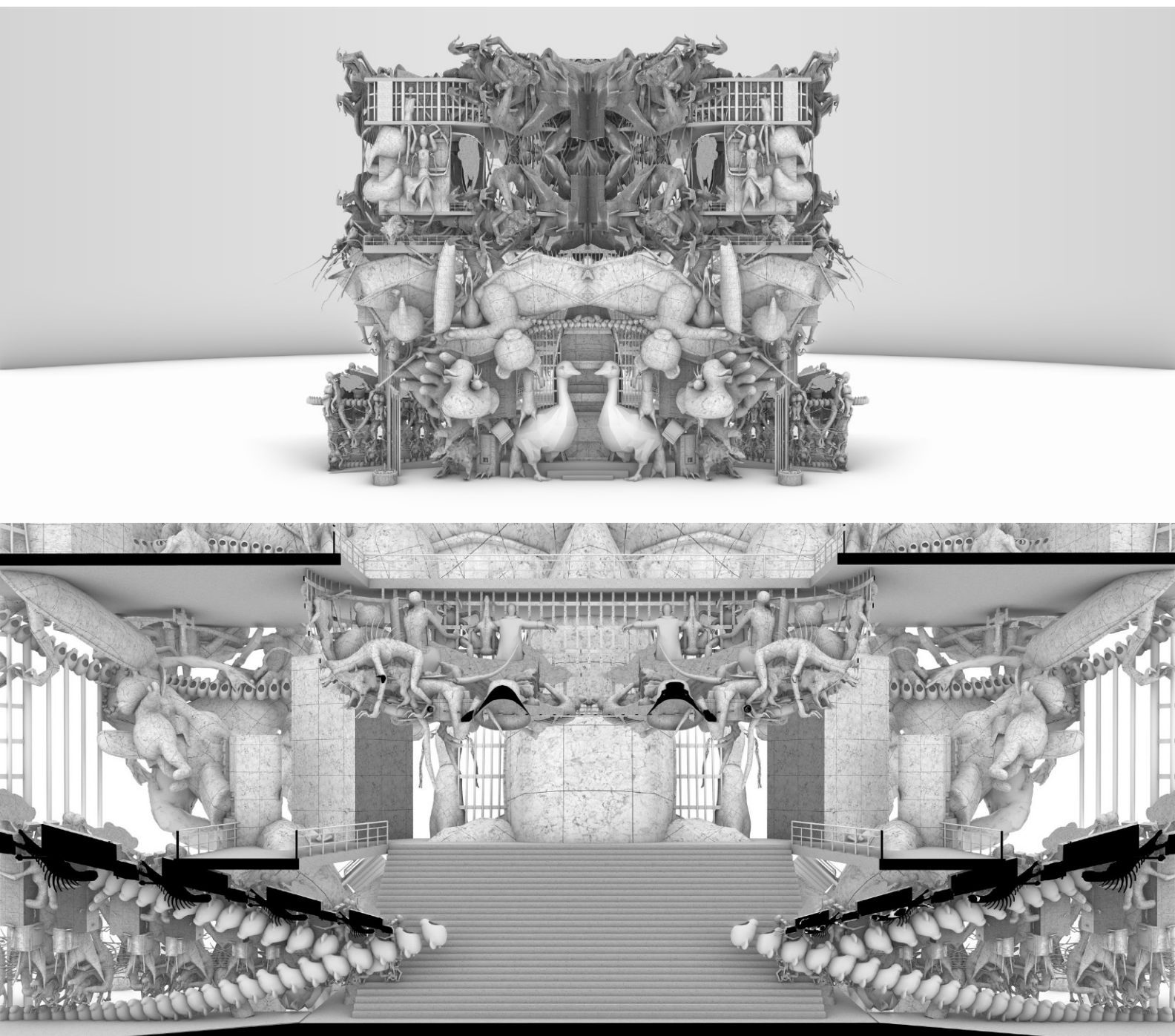
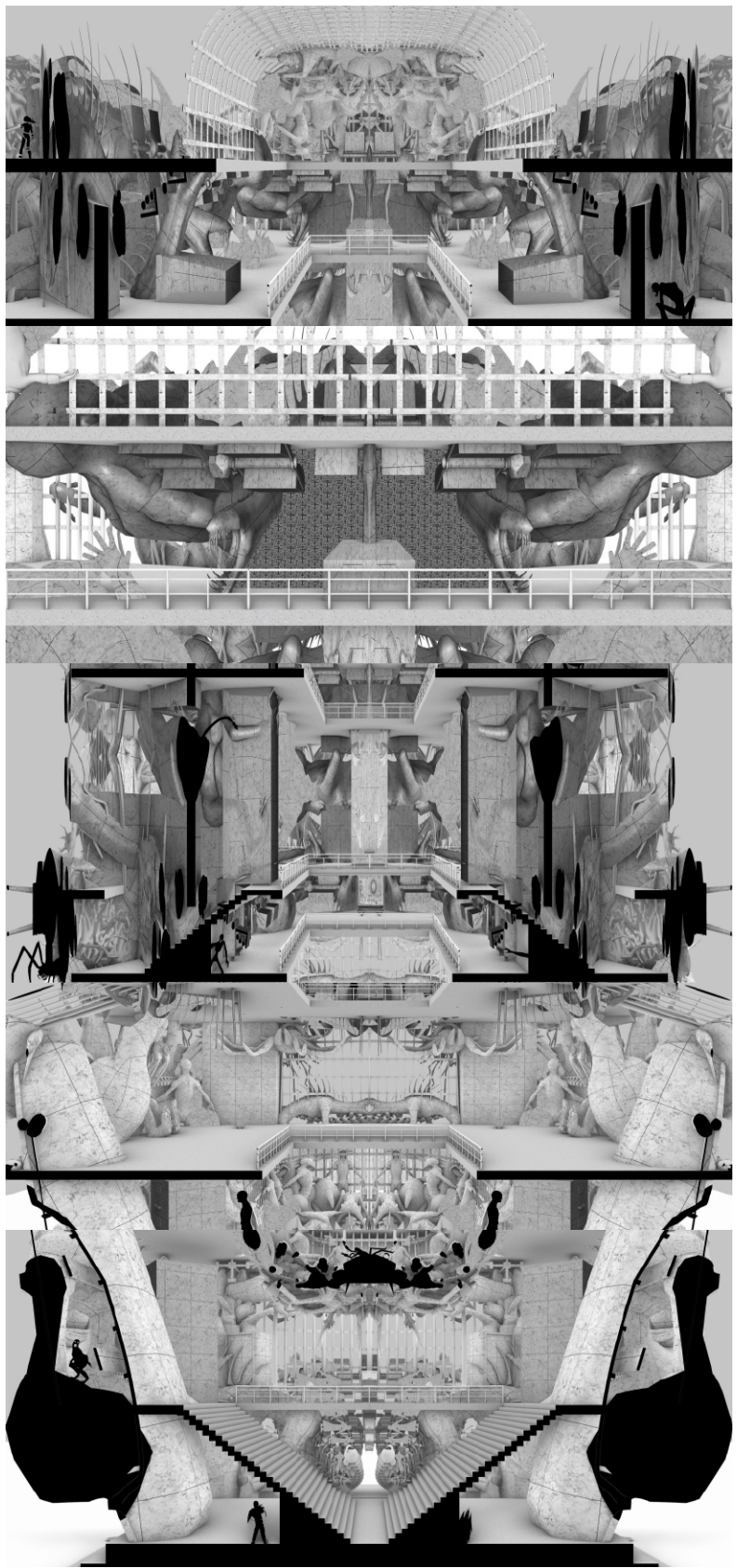


NOAH CHARLES LIAO

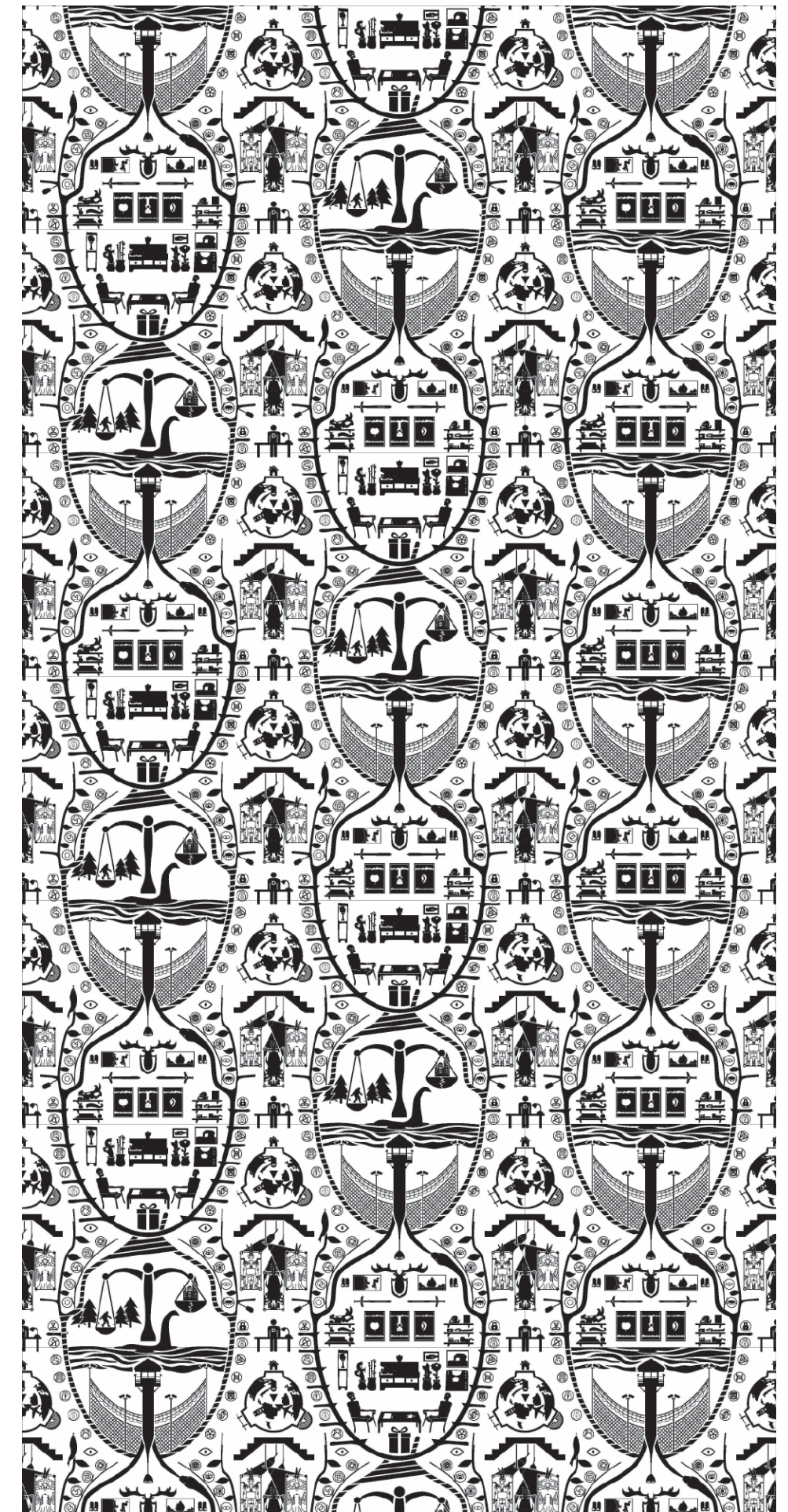
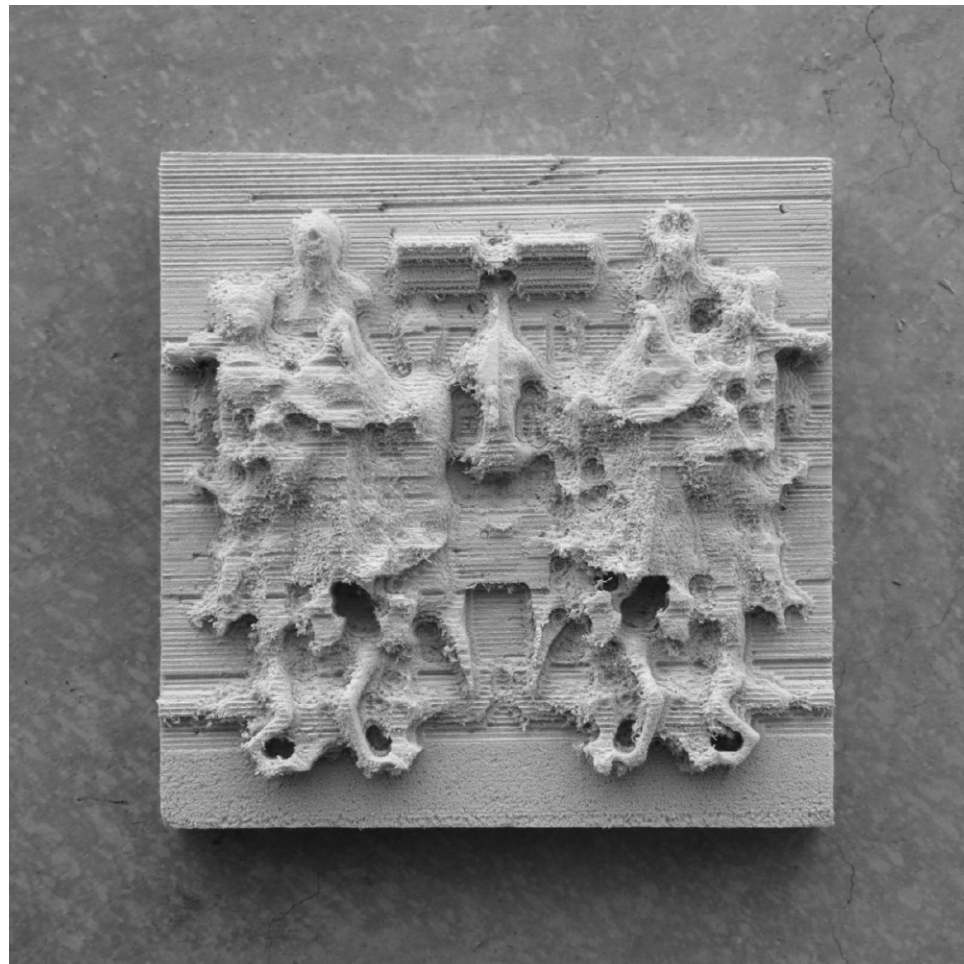
Design Portfolio
Cornell University
Bachelors of Architecture
Selected Works 2017 - 2022



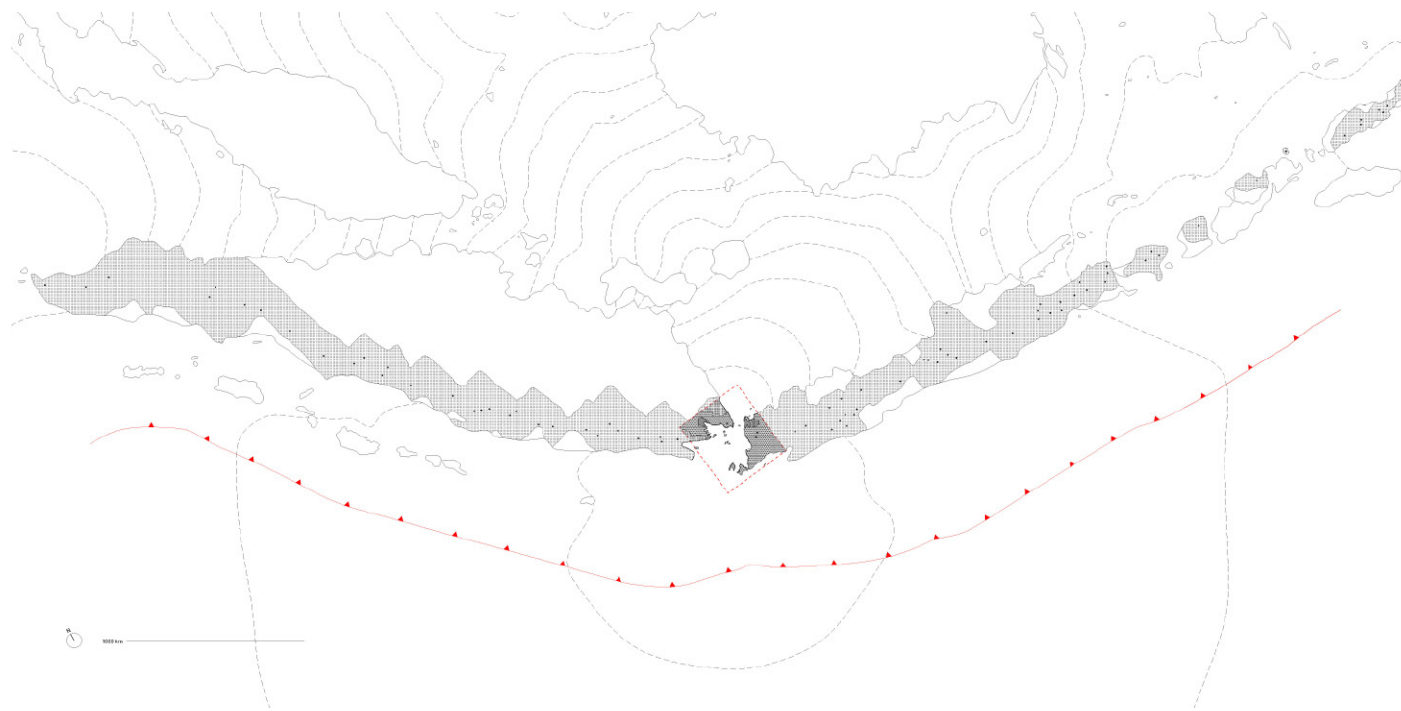
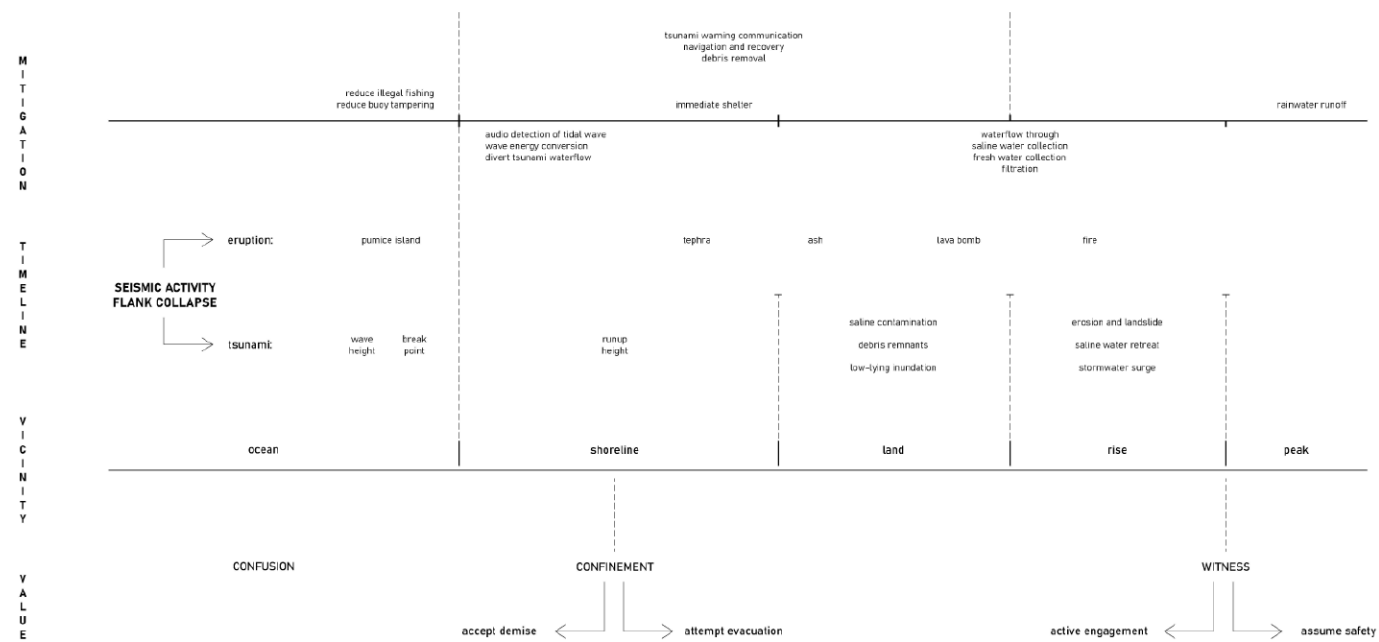
Empathetic Assemblies | Cult Investigation An advanced digital reality has led to the formation of new types of collectives. It is the inherent nature of the internet as a forum for anyone to disseminate and publish their beliefs that leads to the vast proliferation of novel collectives. For animated film, see: noahliao.net



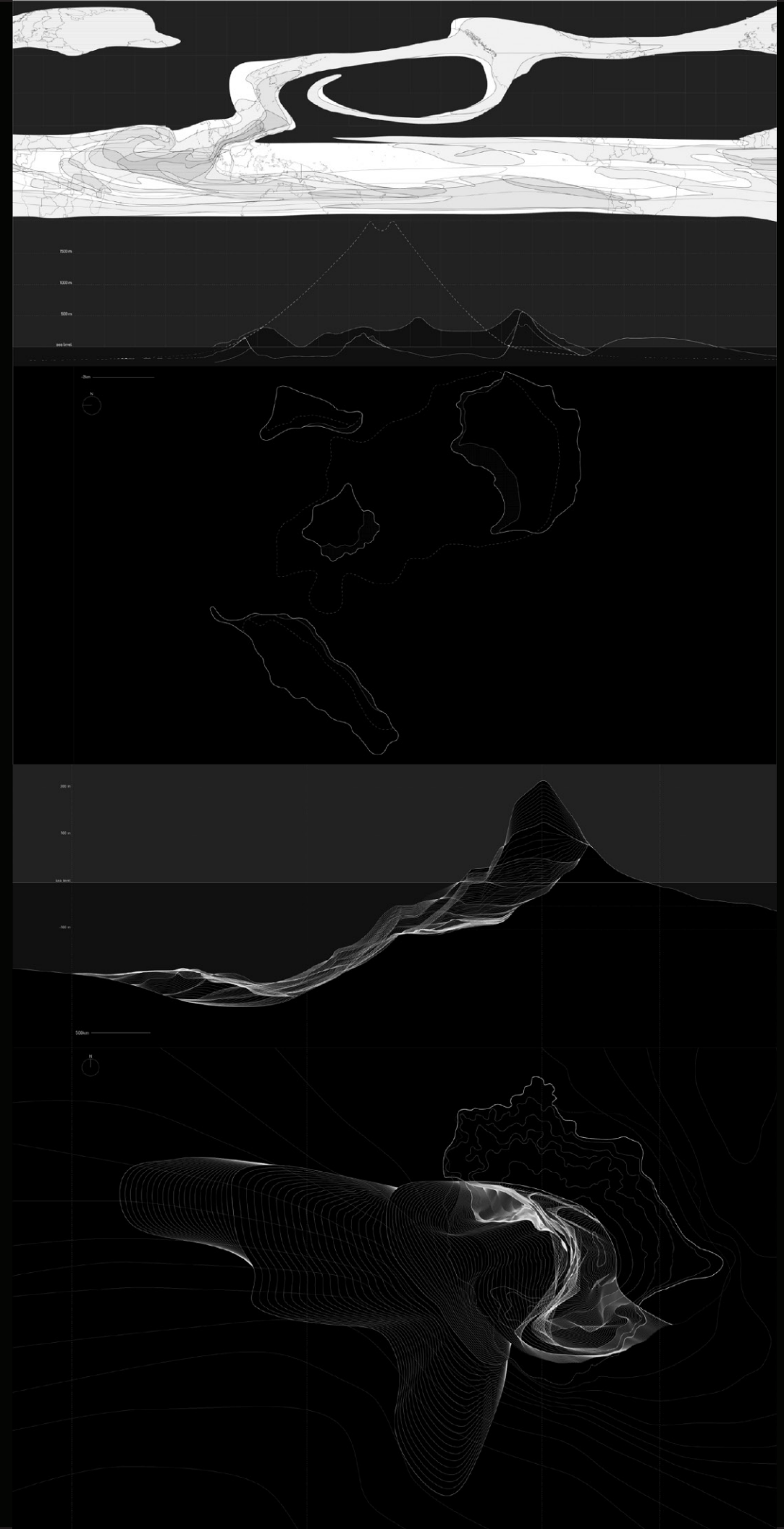
SCP Foundation | Mission Statement The Foundation operates beyond jurisdiction, empowered and entrusted by every major national government with the task of securing, containing, and protecting anomalous objects, entities, and phenomena

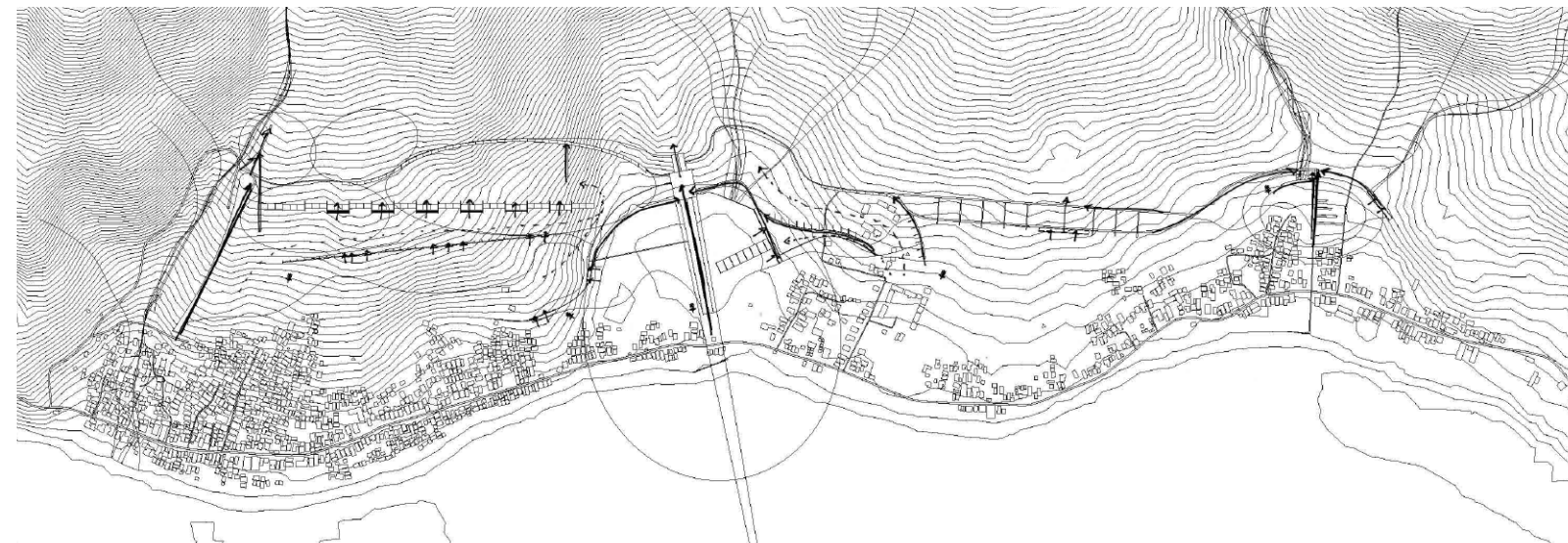
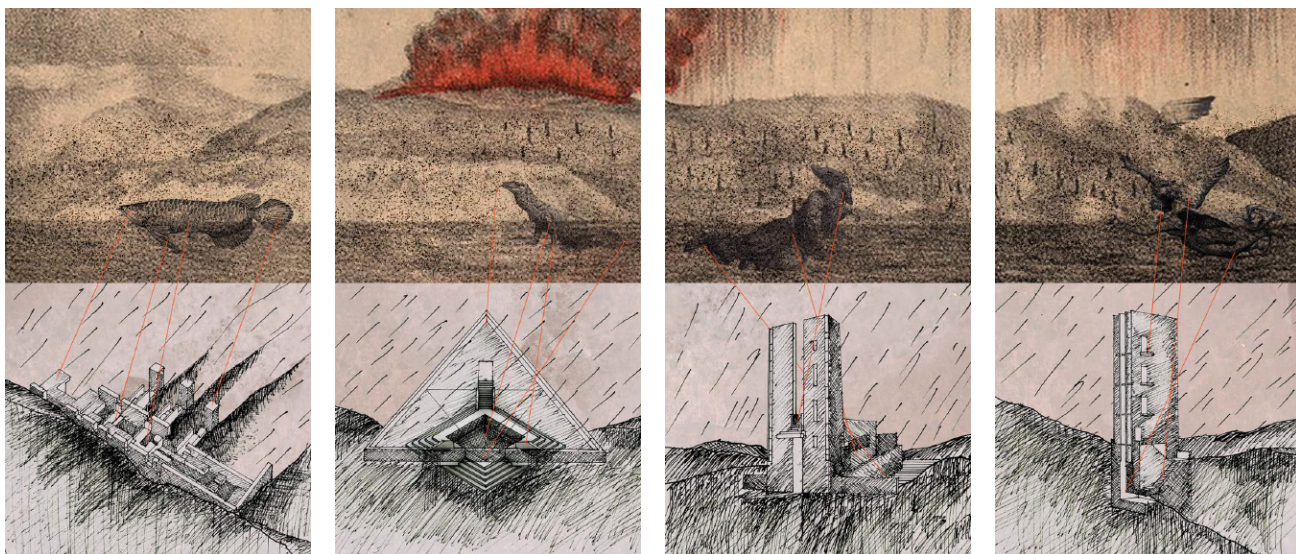
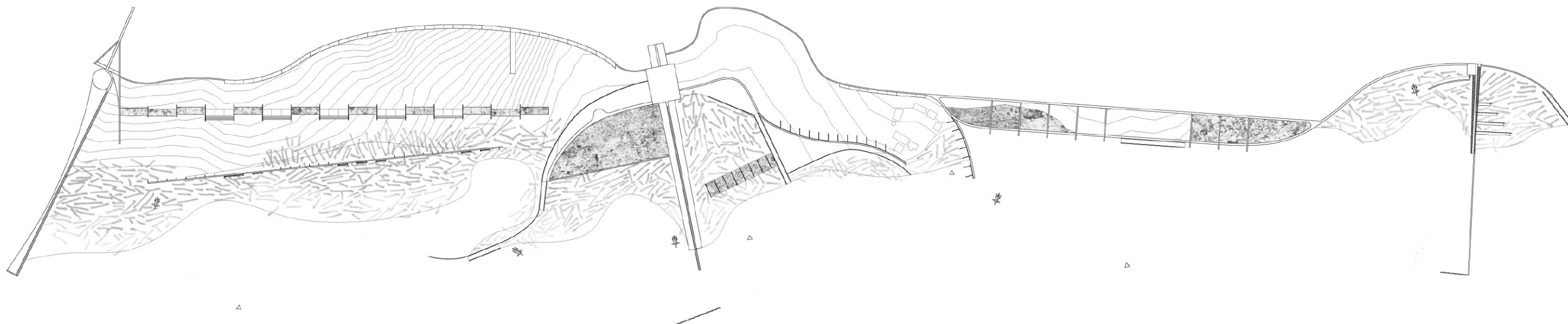


SCP Foundation | Through the examination of the collective's behaviors, rituals, and belief systems, in both digital and physical realms, various methodologies for the architectural expression of the collective mentality are designed through architectural space



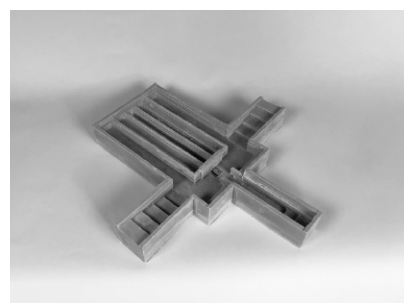
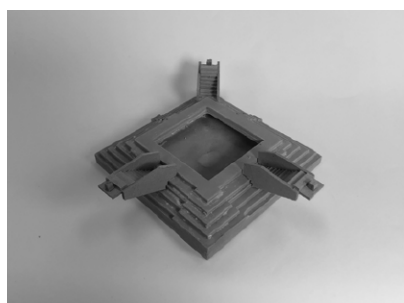
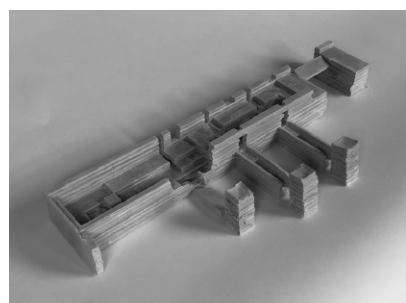
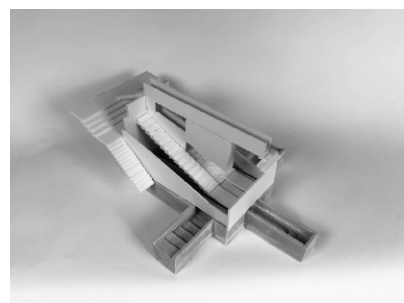
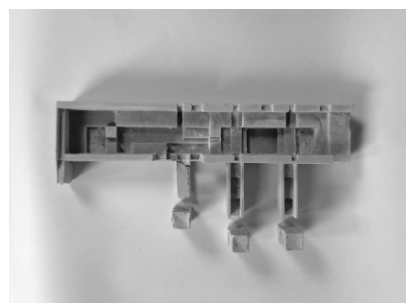
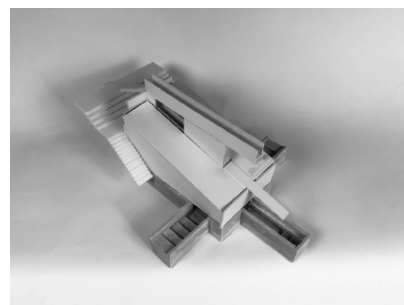
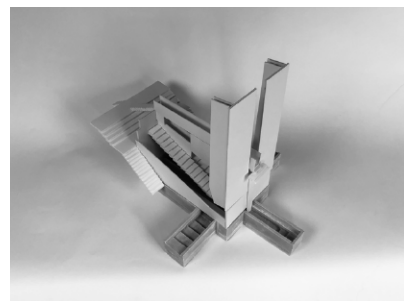
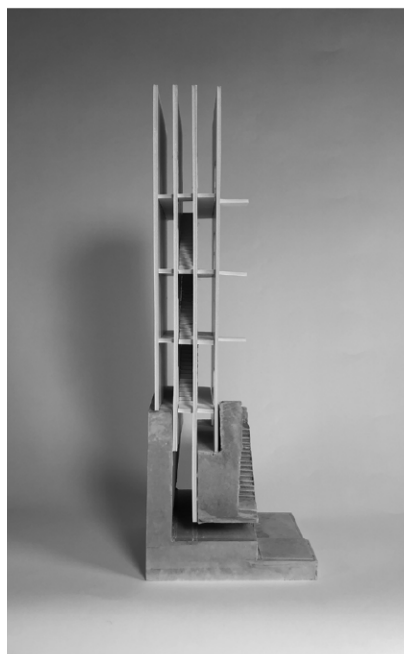
Disaster Machines | Krakatoa Outcomes of seismic eruptions or landslides include tsunamis, ash, jet plumes, lava bombs, wildfires, contamination, disease and debris

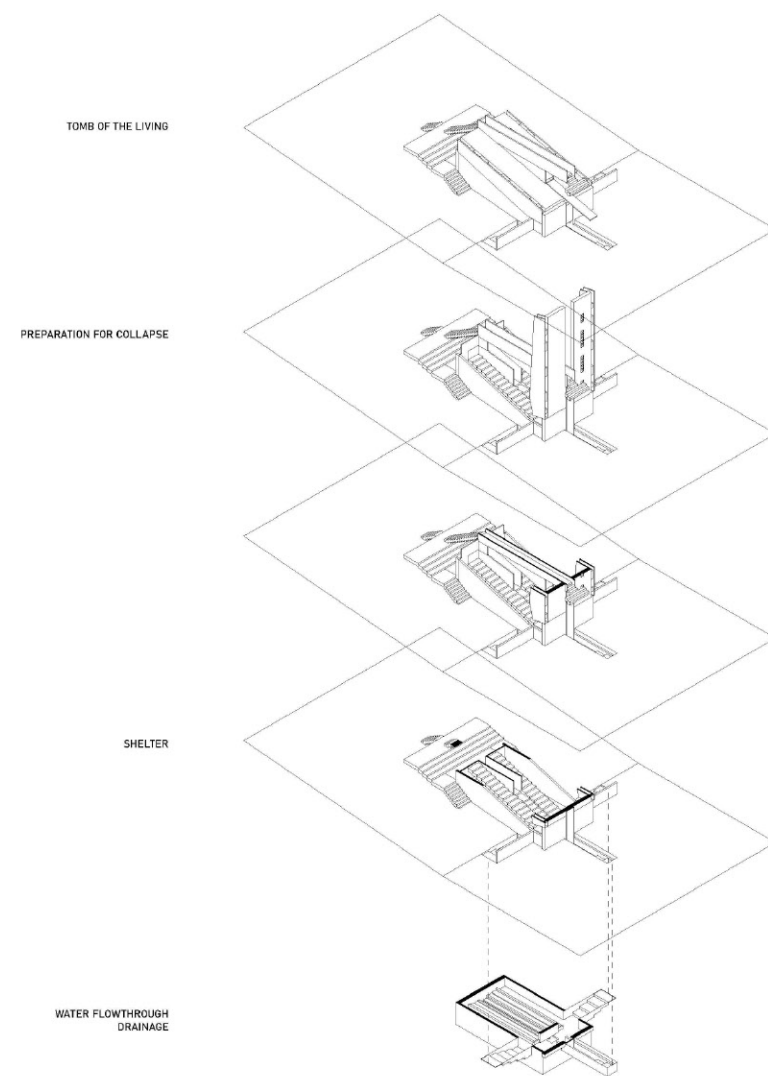
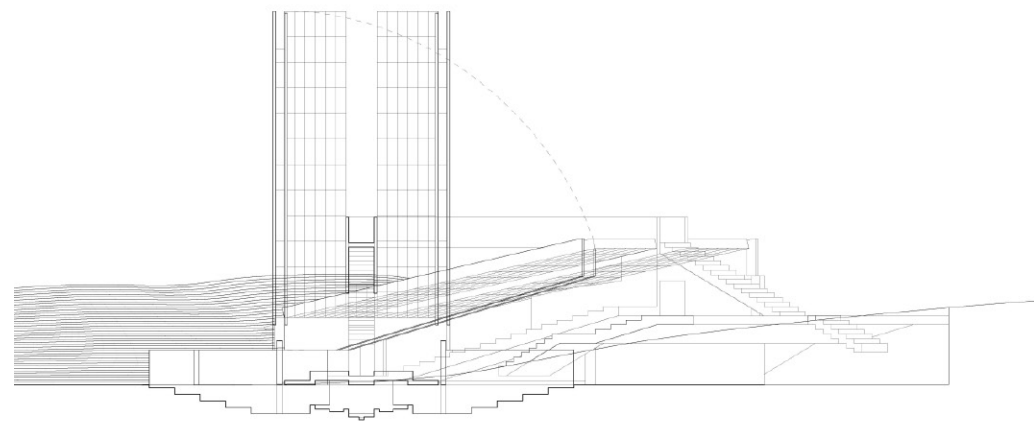




Prototypes of Resistance | Activation by various moments of the disaster isolated as wave and runup height, break point, lava bomb extinguishment, surge, retreat, erosion and landslide

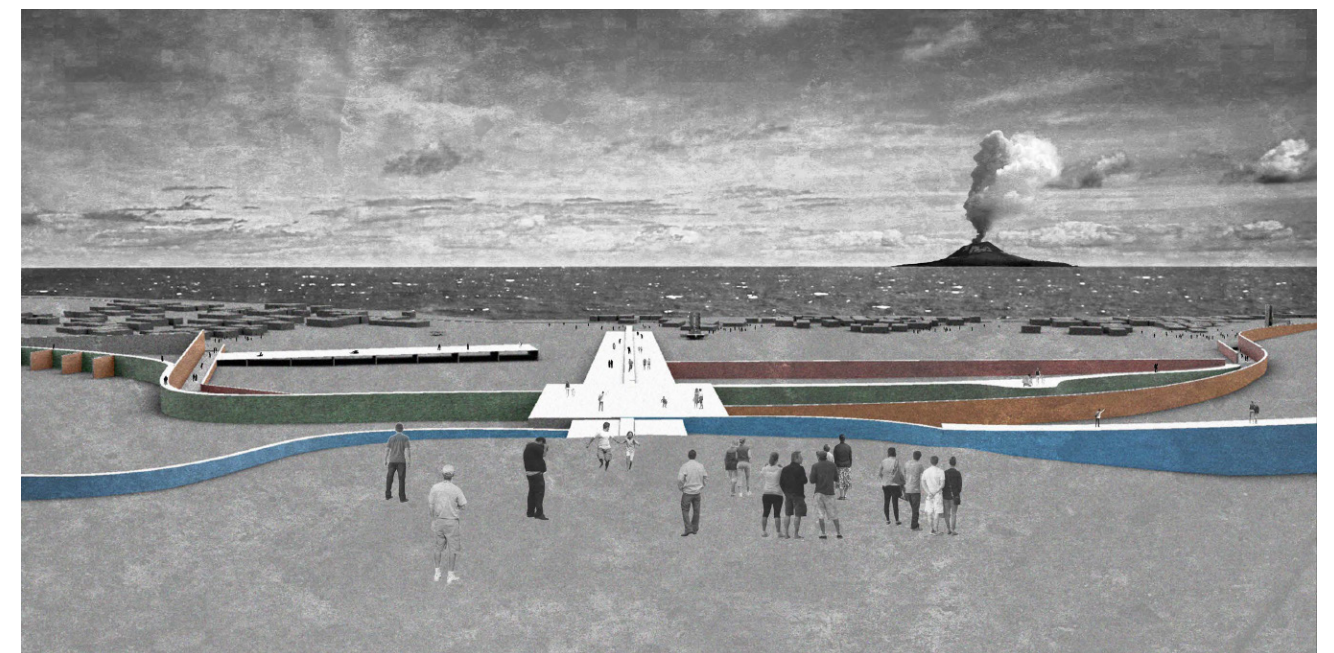
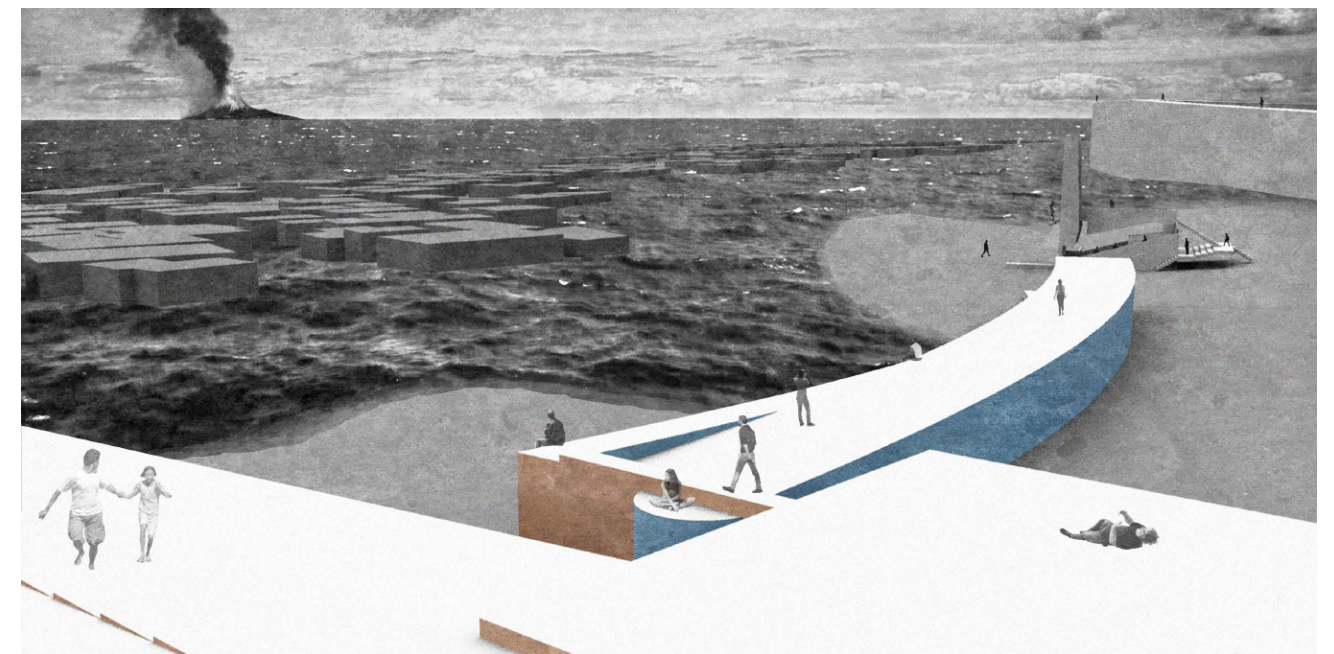
Infrastructure Fabric | Retreat and Collection Integration of hillside theaters of evacuation intertwined with debris and remnant assemblage systems





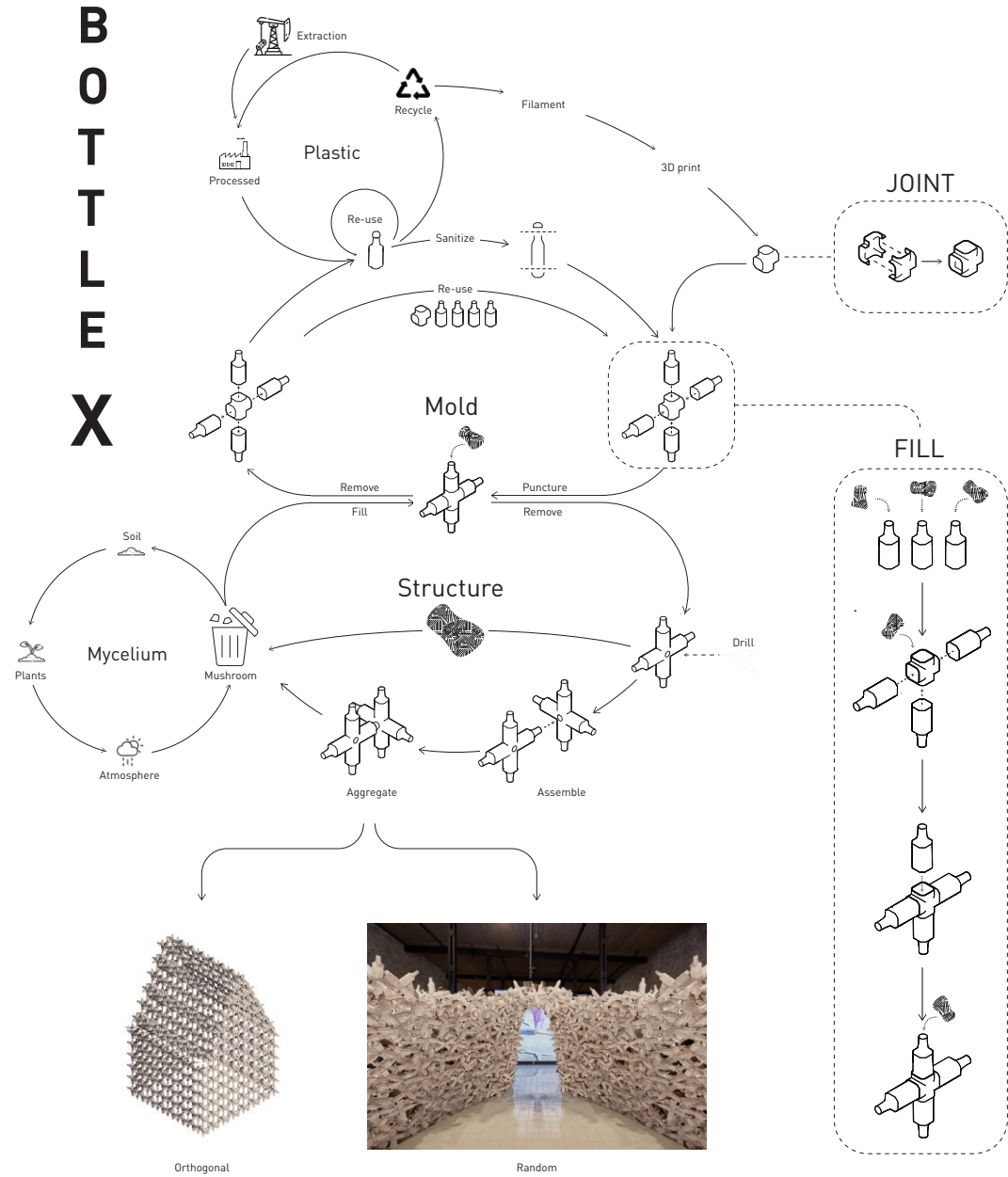
ACCEPT DEMISE

ATTEMPT EVACUATION



Human Condition | While disasters have predicted outcomes, certainty is indeterminable, and one must make the decision to attempt evacuation or accept their demise with control

BOTTLE X

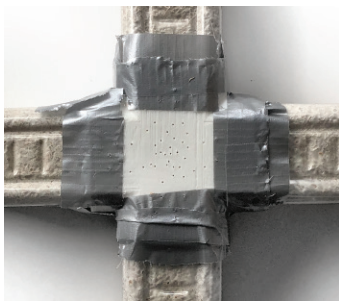


Orthogonal

Random



Cornell AAP | Fall 2021 | ARCH 4605/6605 Home:Grown | Marta H. Wisniewska



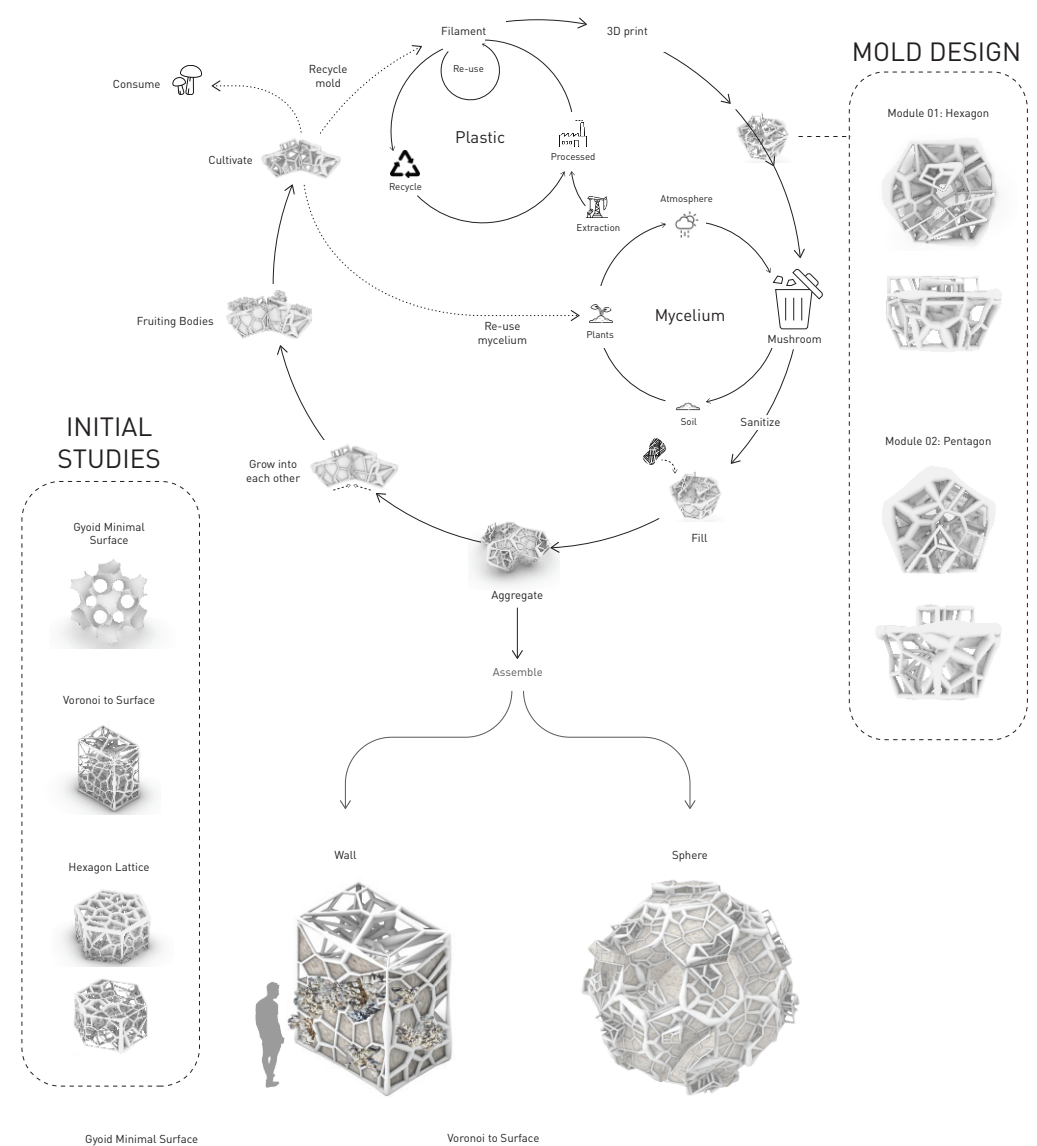
Mycelium composite is a promising alternative material for thermal, acoustic, and fire safety performance applications. However, mycelium requires production of a mold in order to shape it, which ironically creates a lot of waste for such a sustainable material. The project investigates a modular design out of mycelium, which minimizes waste as well as allows for adaptability.

As a solution to this, the project proposes the use of used plastic bottles and recycled 3D filament as the materials for the mold. The module is made up of 4 bottles and the filament is used to produce the joint that connects the bottles in order to create the cross form. After use, the mold can be either re-used for further reproduction as well as recycled.

The cross form of the module allows for multiple configurations. One configuration is the randomization, where the cross modules can be stacked randomly into a form and be connected through metal wires. The second configuration is when the cross is orthogonally organized with a more specific joint design. One possibility that is explored here is the mortise and tenon joint. This method especially favors one type of bottle form where the bottom of the bottle is wide enough to accommodate the top of the bottle, which is much smaller. So when the middle of the cross where the bottom of the four bottles are connected can be drilled and create the mortise.

Noah Lioa and Polen Guzelocak | nc139, peg67

SKELETAL SHROOMS



Gyoid Minimal Surface

Voronoi to Surface



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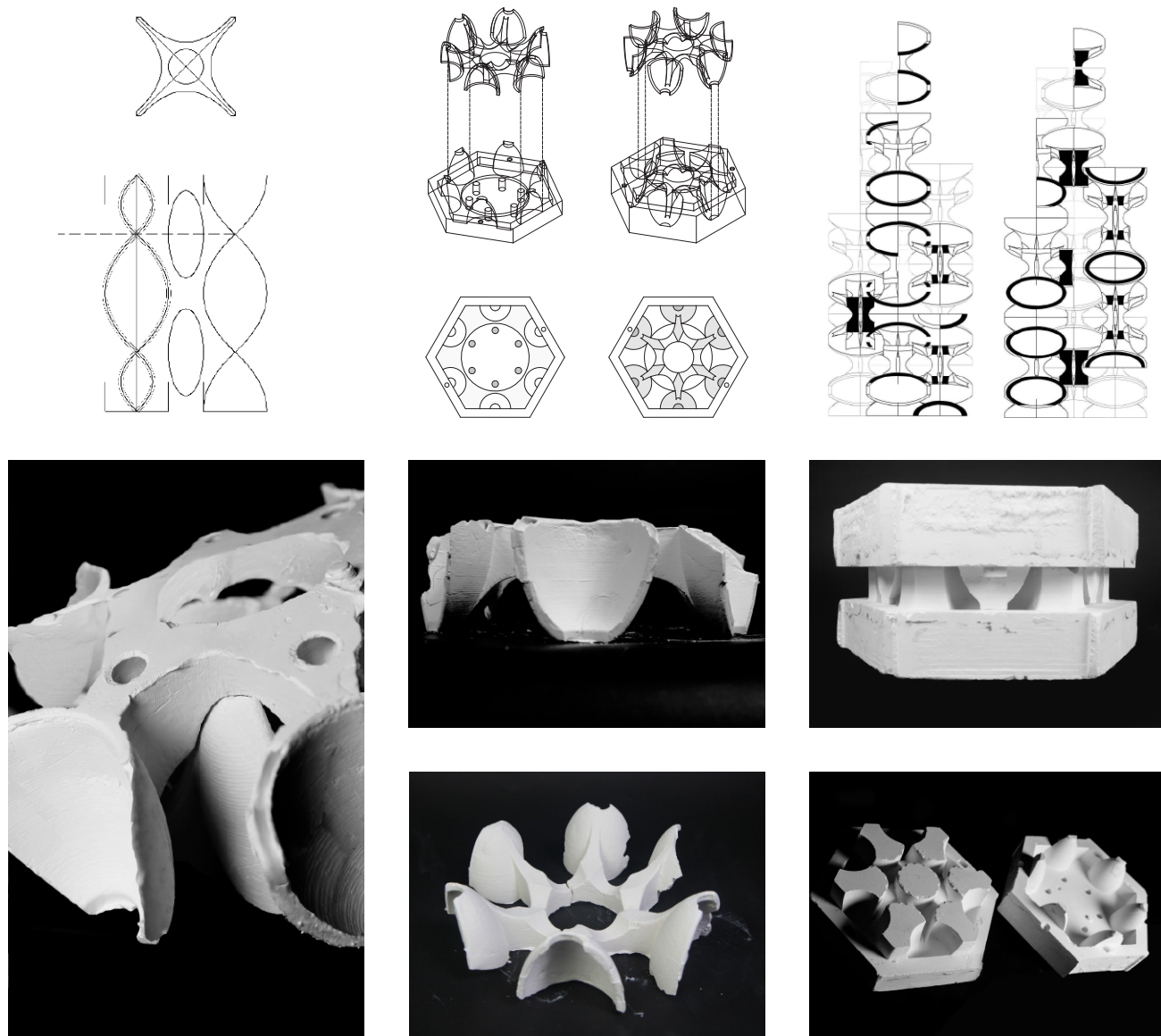
Mycelium composite is a promising alternative material for thermal, acoustic, and fire safety performance applications. However, mycelium composite is not a structural material without a skeletal frame. Thus, an adaptive lattice structure system is proposed as a light-weight and porous structural component that can host mycelium composite material. The study of lattice structures led to an initial test of a triply periodic minimal surface as a prototype. This form developed into a voronoi exoskeleton in imitation of the structural growth of mycelium.

When assembled into an aggregation, individual components of formwork and mycelium composite fuse together into a monolithic whole through the production of chitin. Mycelium composite grants the opportunity to join separate formworks upon the addition of nutrients for further mycelium growth. These aggregations, using six and five-sided forms, can be adopted for arches, domes, and wall assemblies.

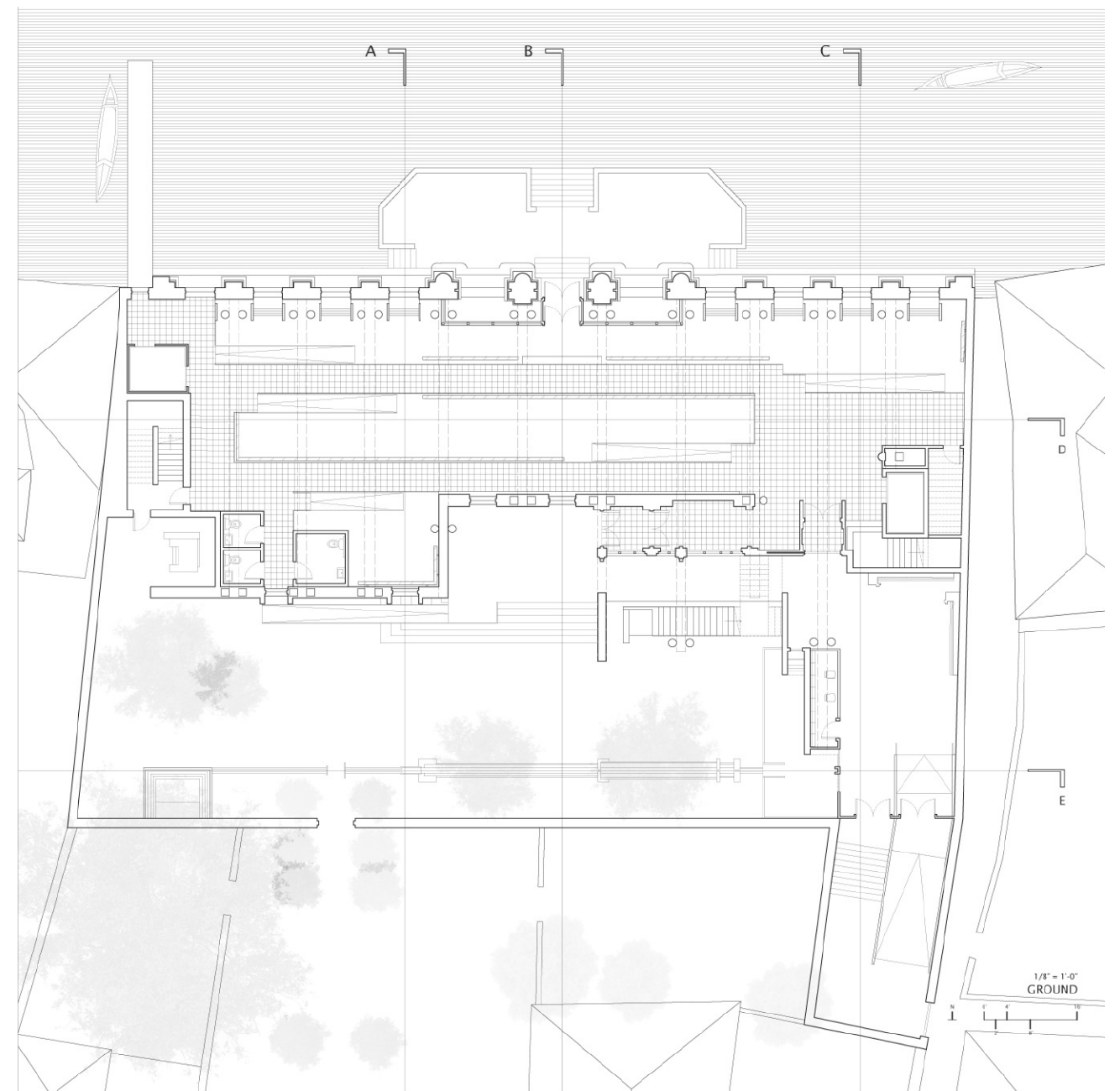
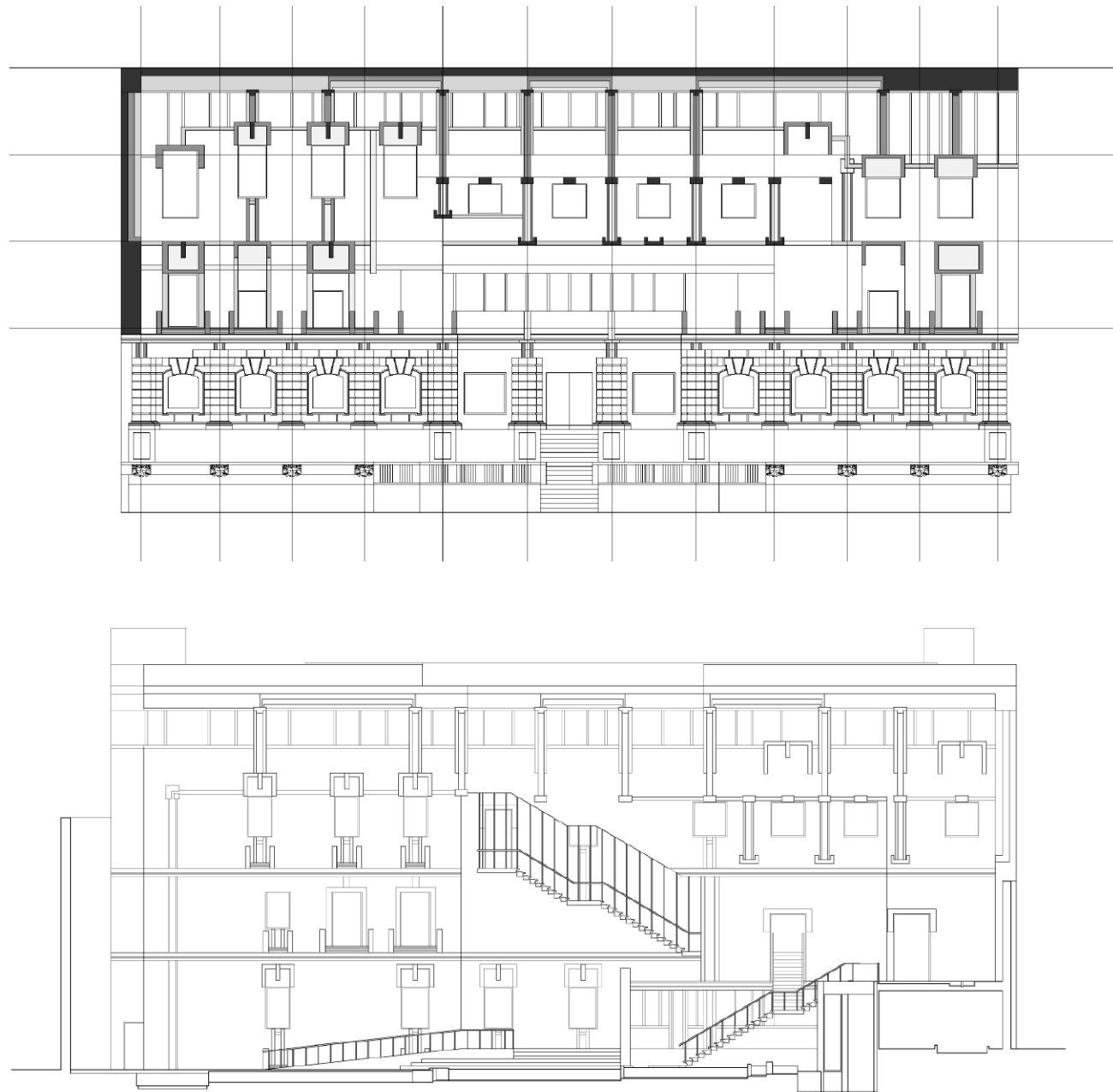
While the bottom of each block is secured for mycelium connectivity to neighboring units, the top is reserved for mushroom growth. The living materials digest themselves at the project end, rendering the cellulosic materials bioavailable. What is not eaten is composted, returning valuable organic matter back to the local ecosystem, and the skeleton remains to renew the life cycle of structural digestion.

Noah Lioa and Polen Guzelocak | nc139, peg67

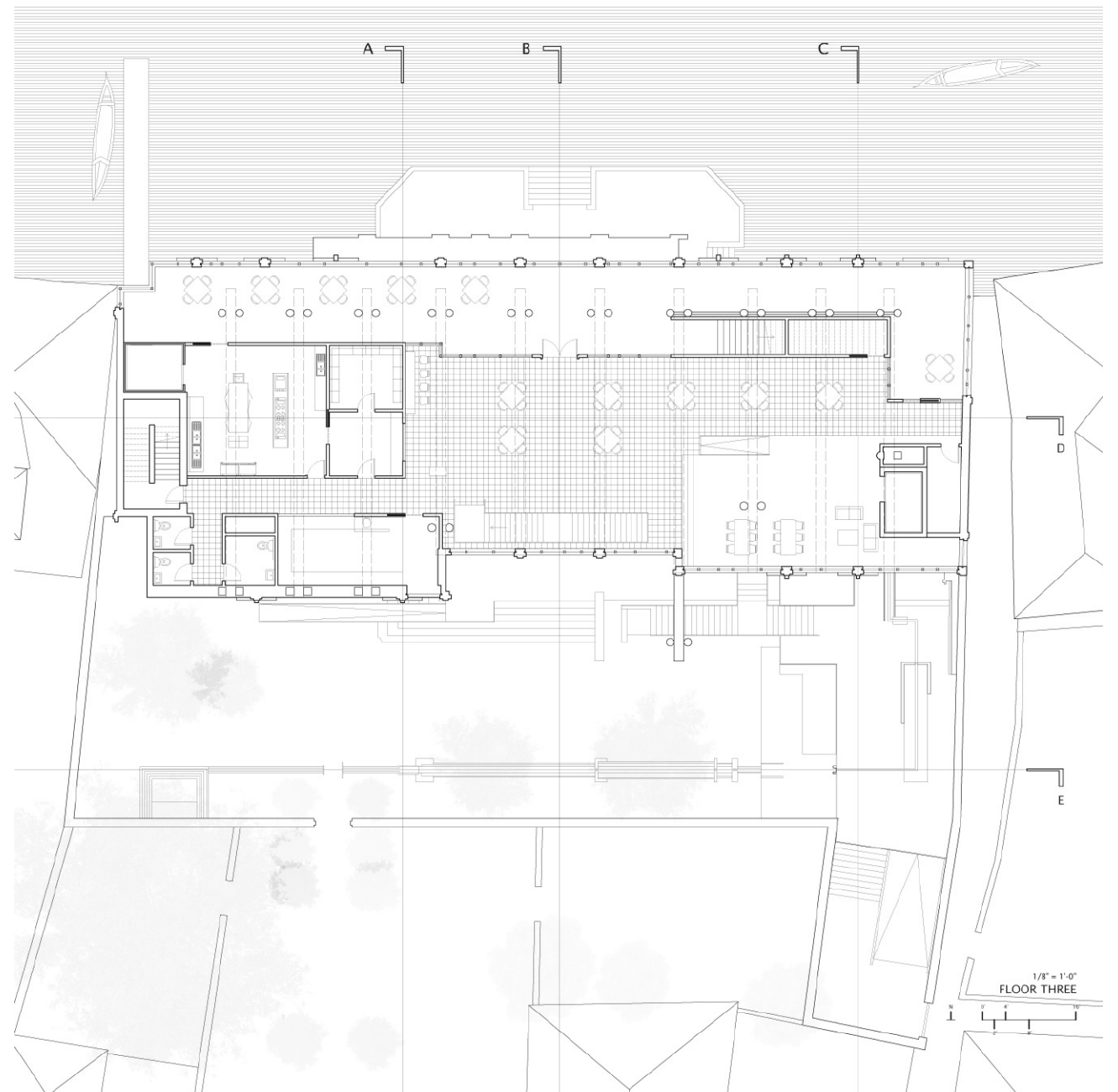
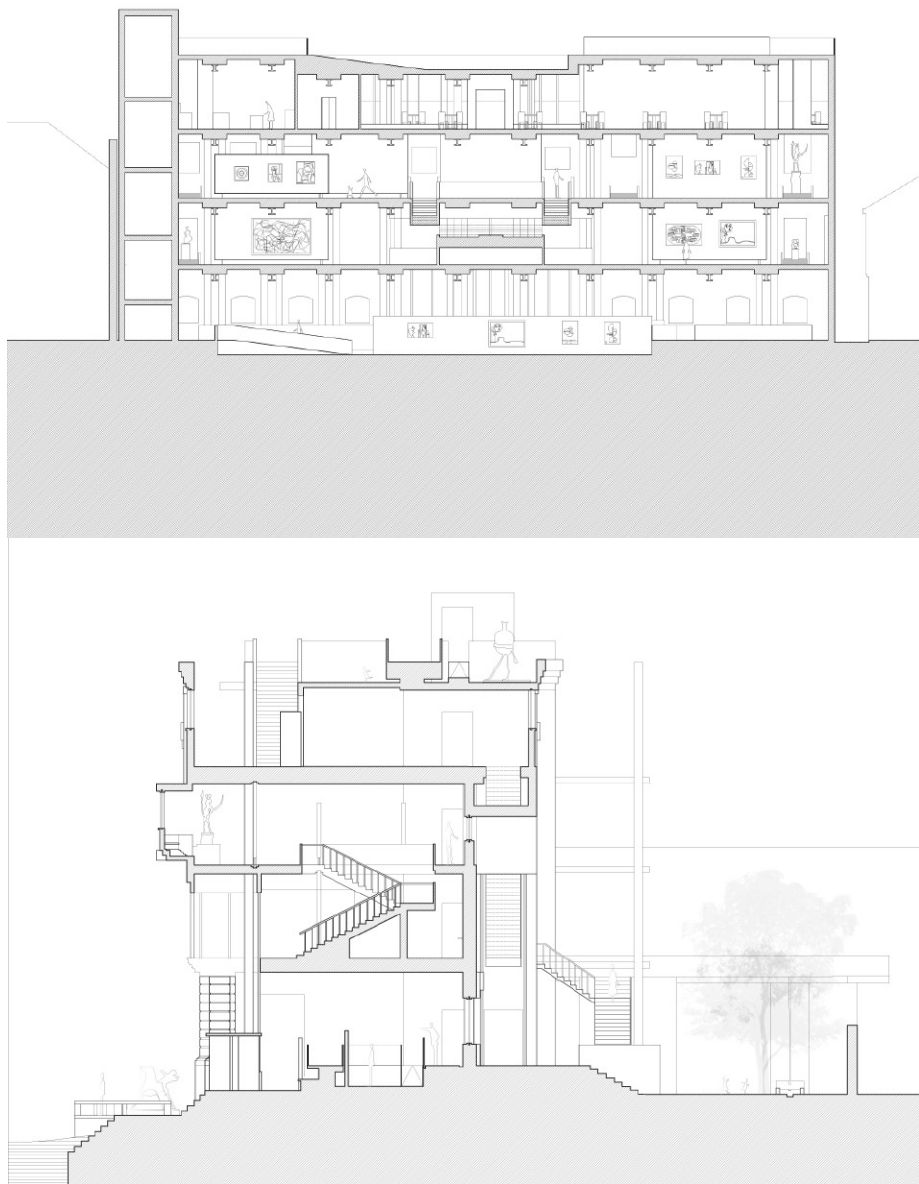
Home Grown | Mycelium joinery system to scale biological growth metabolisms in architectural production | w/ Polen Guzelocak

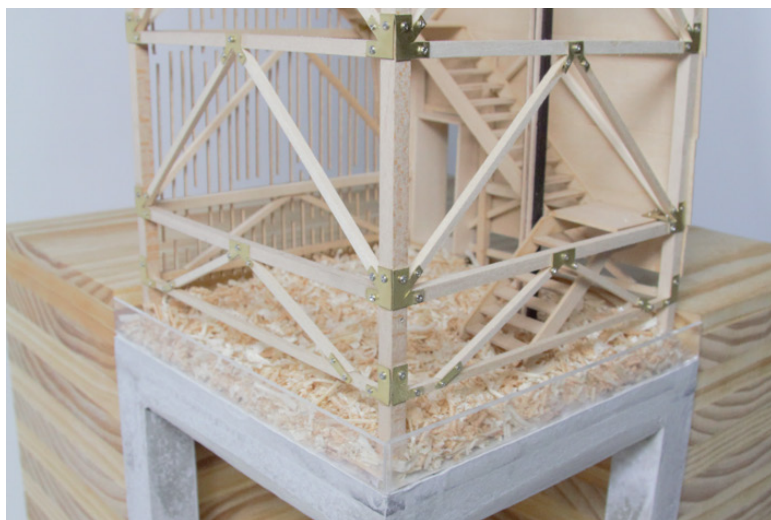


Hexaform | Imposing celtic knot on ceramic system | w/ Abel Aguilar + Turner Andrasz

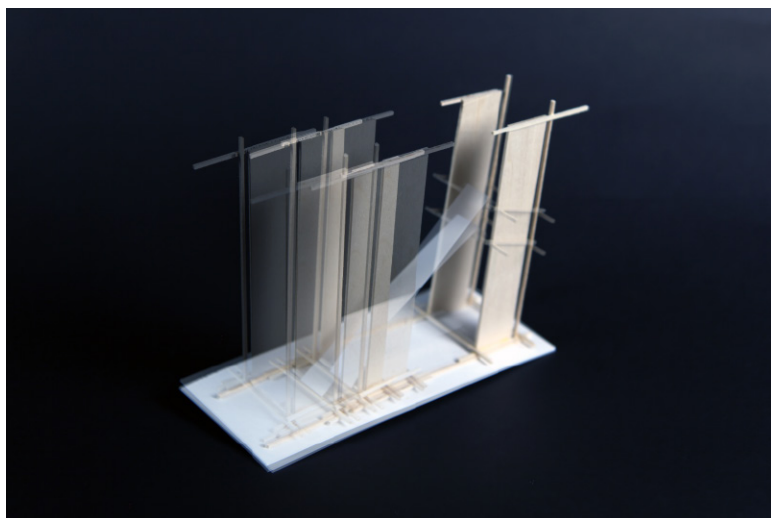
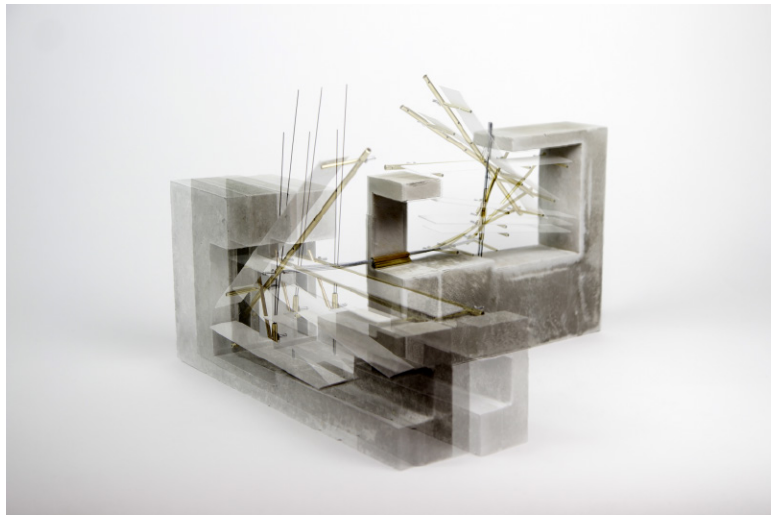


Peggy Guggenheim Museum | Elements of vertical circulation, horizontal differentiation, and pools of stationary display appendage from the framework of the existing facade





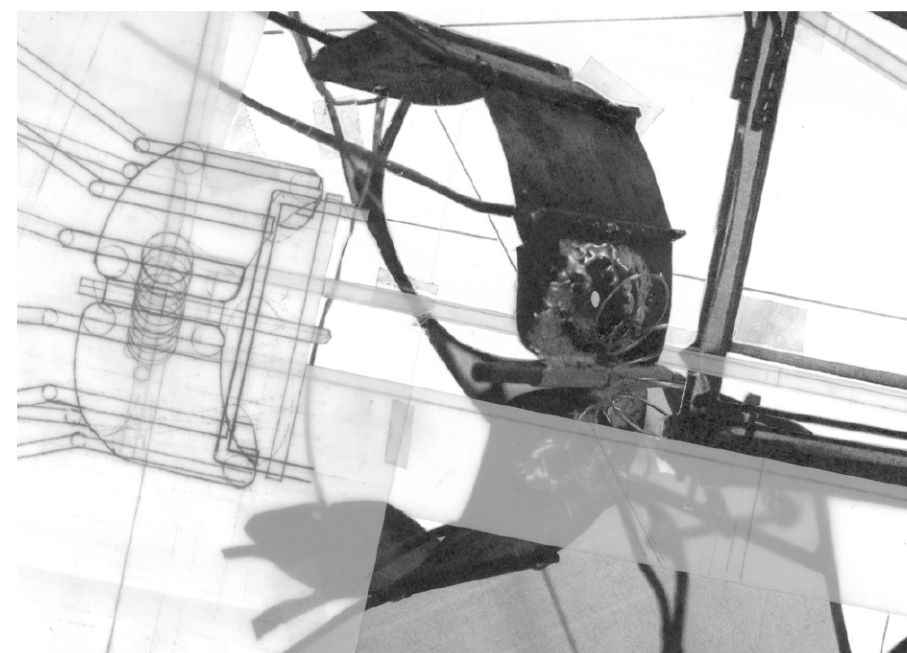
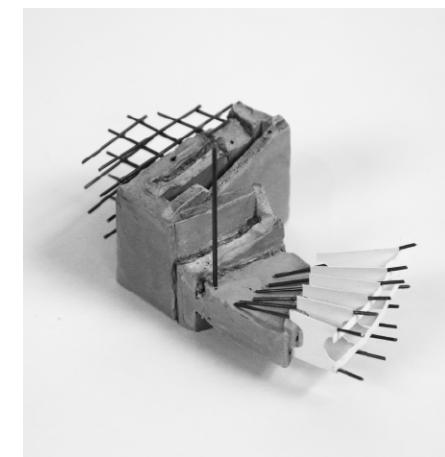
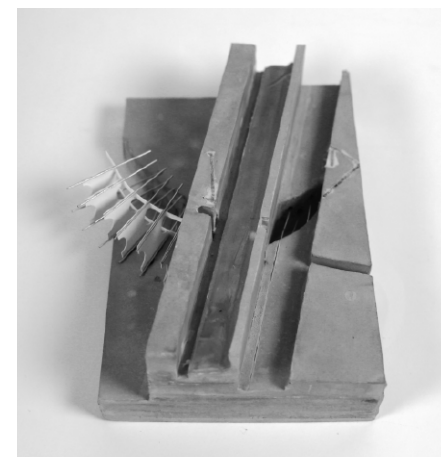
Keenan Observation Tower | Structural Model Diagonally braced steel frame system to resist lateral wind and earthquake loads, cladded with white oak fine lattice | w/ Xuan Yang + Jiarui Zhang

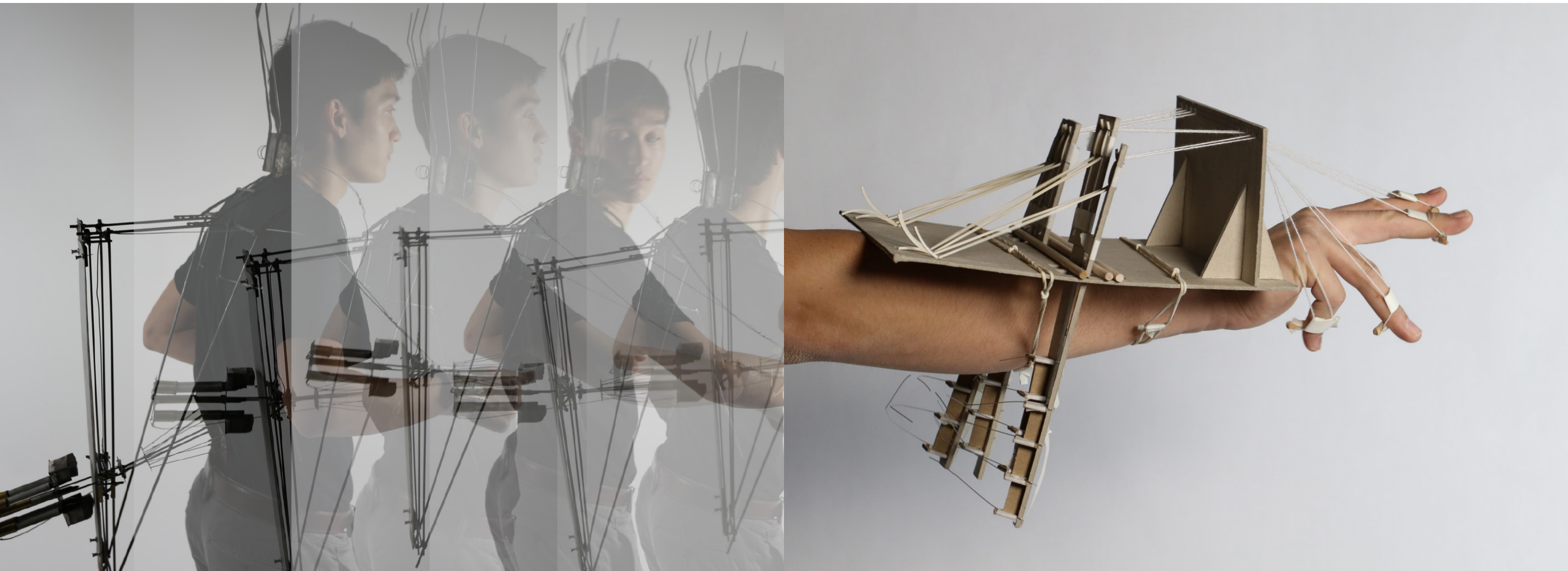


Adaptation 10: Loreto Stilt House | Mechanisms of rotation become opportunities for changing conditions of light, wind, and water

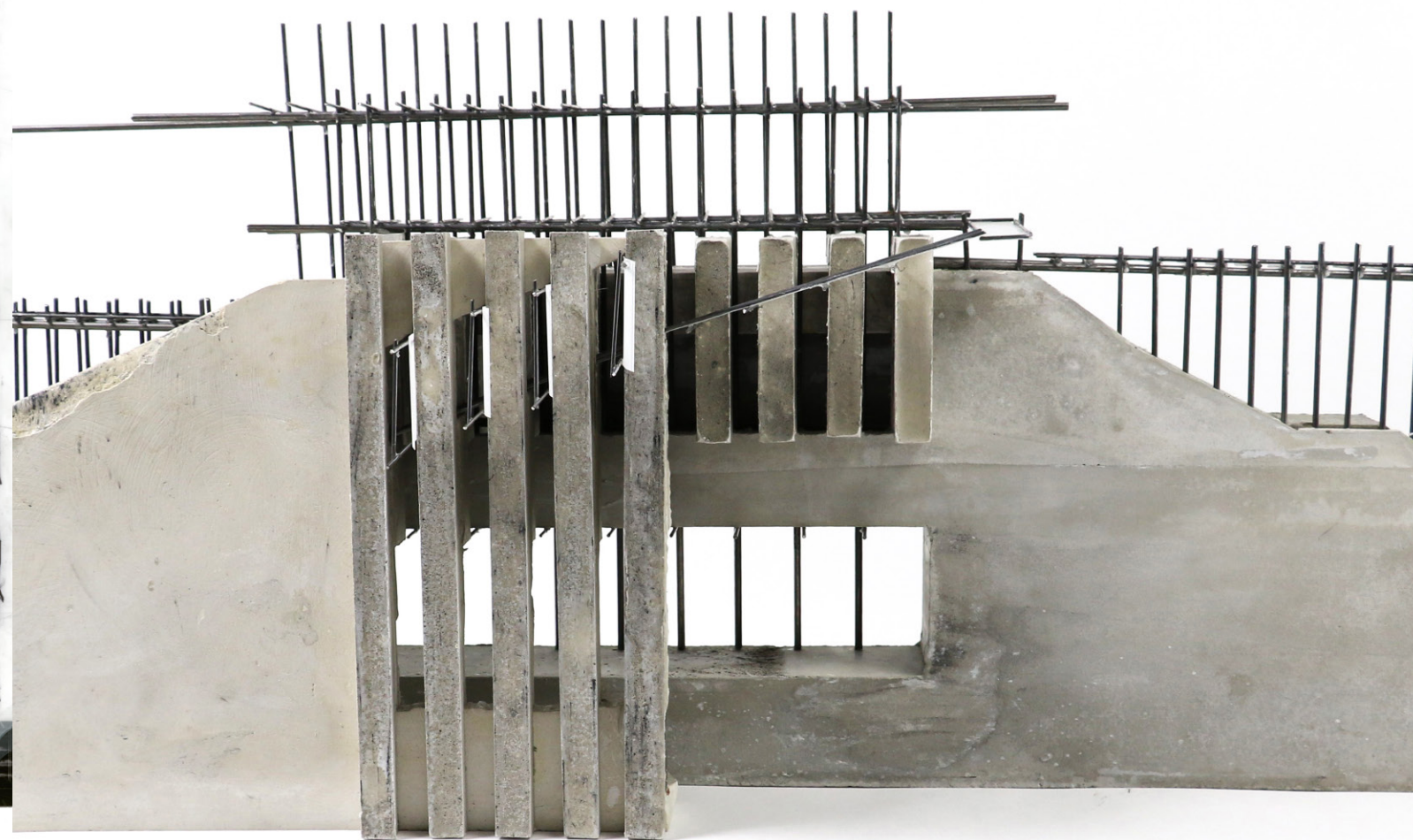


Performance Prosthetic | Exploring the manatee's ability to navigate its environment through changes in water and body orientation

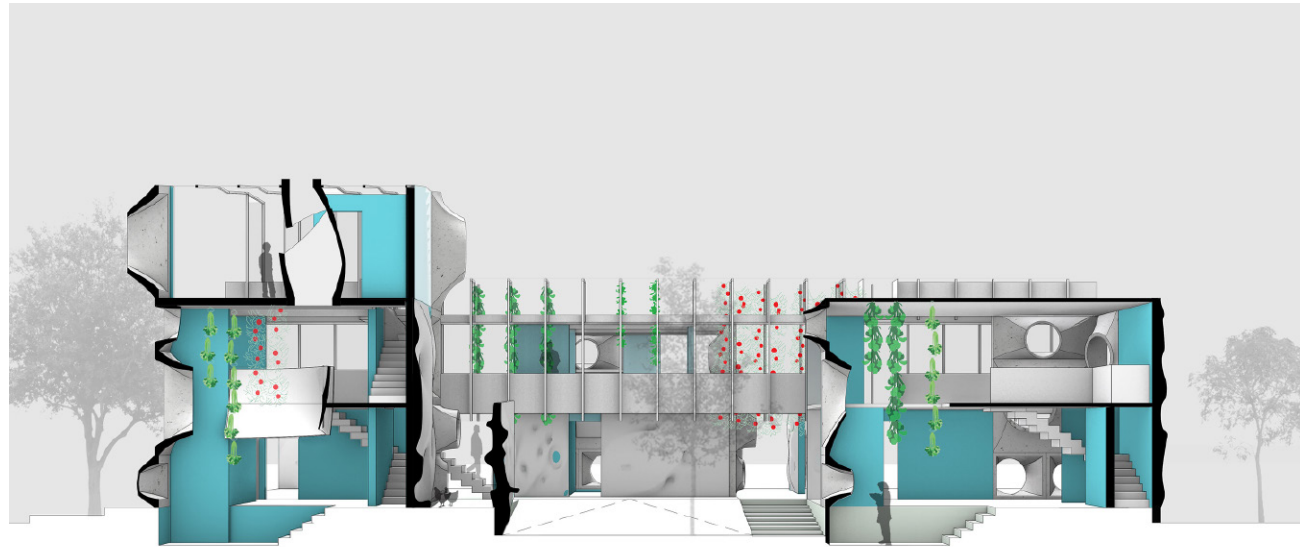




Touch | Manatee Movement on the extremities is transferred to signals on the spine



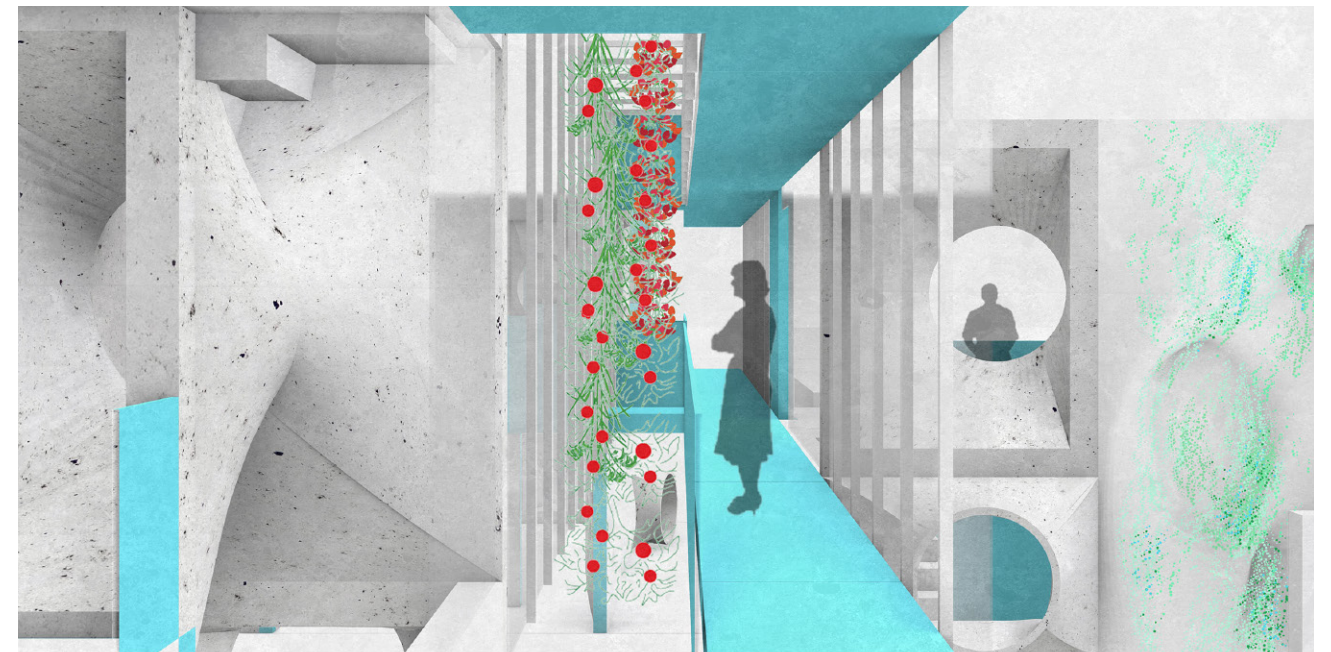
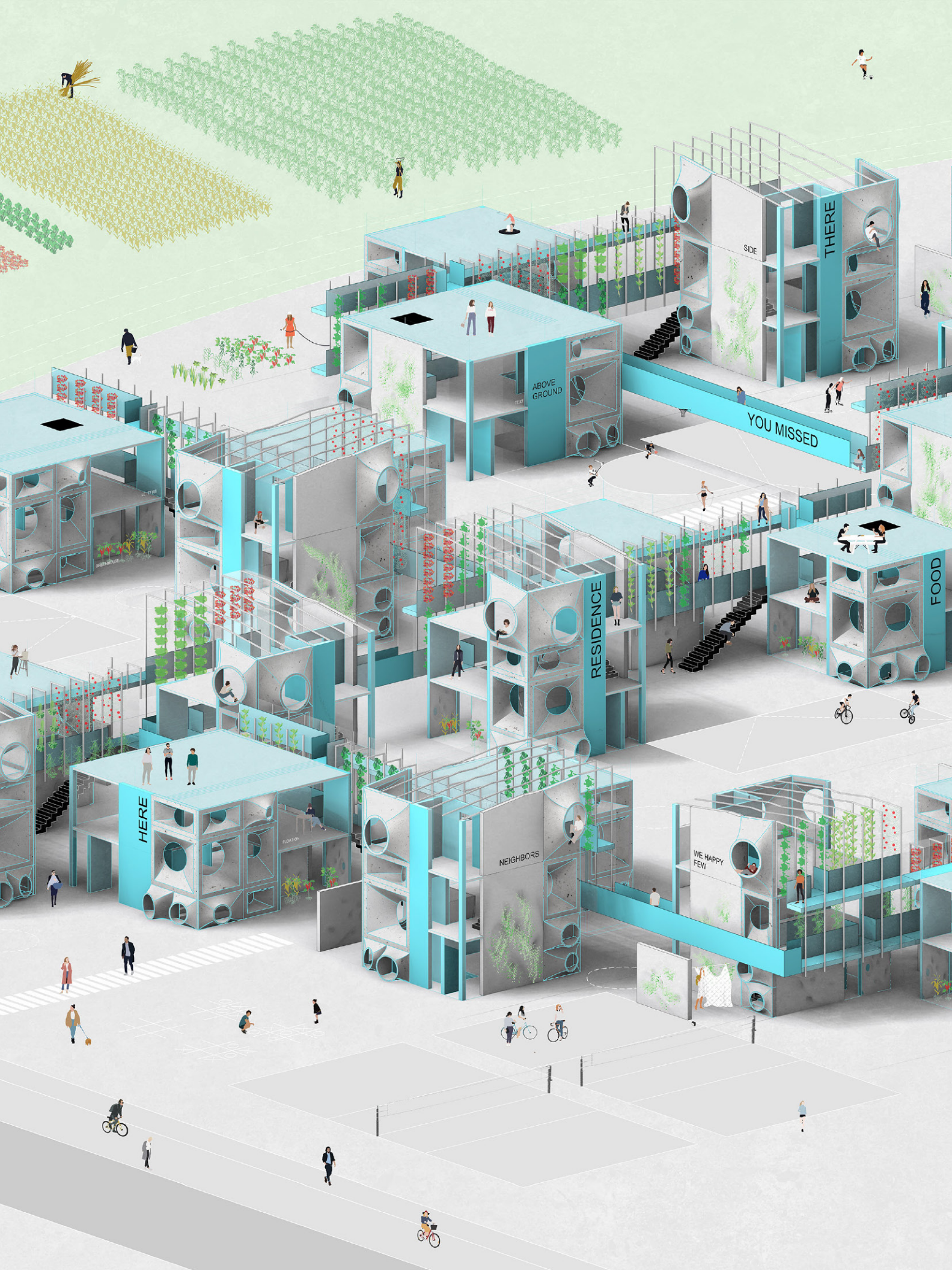
Touch | Channel Sensory rewiring is explored through landscape, as channels carved in the ground heighten sensitivity to light, water, wind



Fringe City: Hybridized Low-Tech and High-Tech Housing System | The distinct co-existence of regularized urban fabric, productive landscapes, and vernacular village fabric conditions opens the possibility to cultivate novel hybridized housing systems



Material Studies | Fabric Cast Concrete Coupling advanced construction methods and local building practices in rural-urban China | material studies w/ Bushra Aumir



Agricultural Development | Passive Solar and Ventilation Various curing, drying and green-house conditions of local agricultural practices, incorporated into adaptable housing systems

