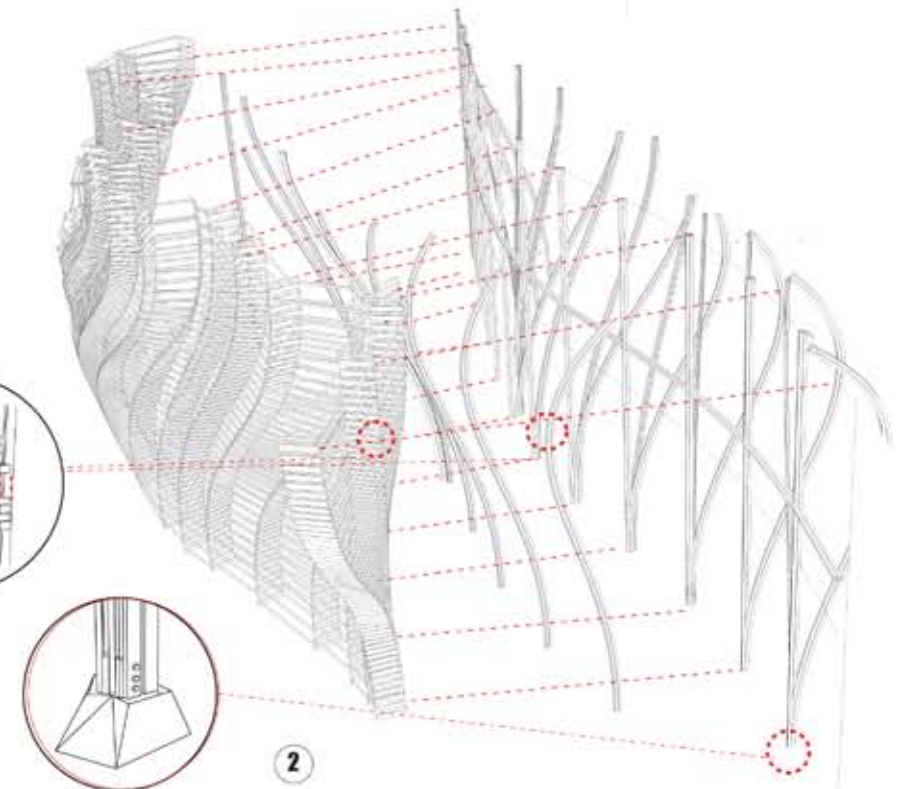
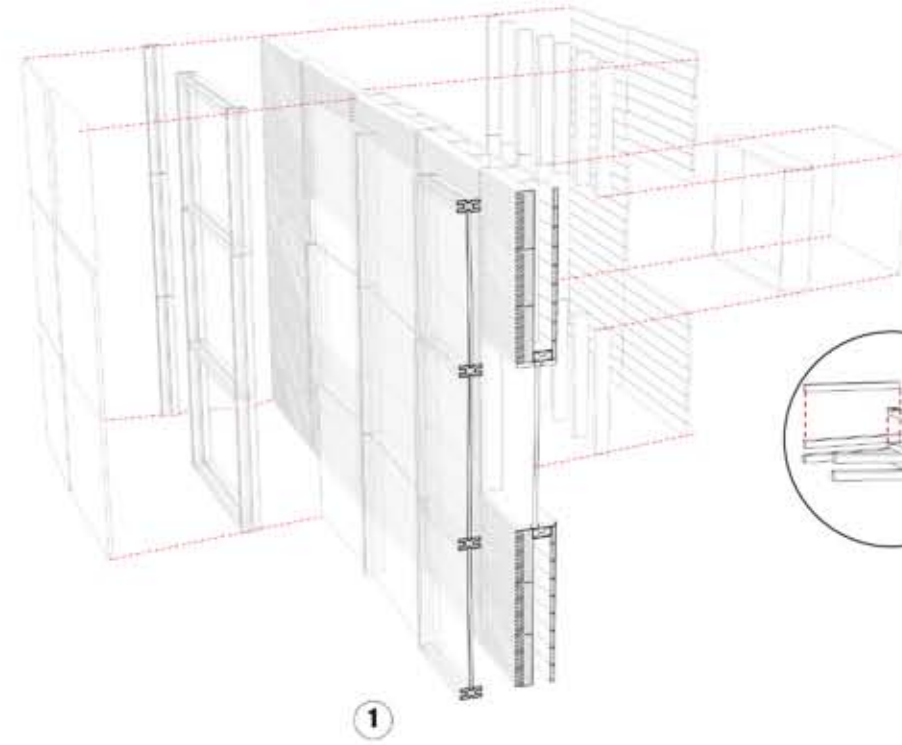
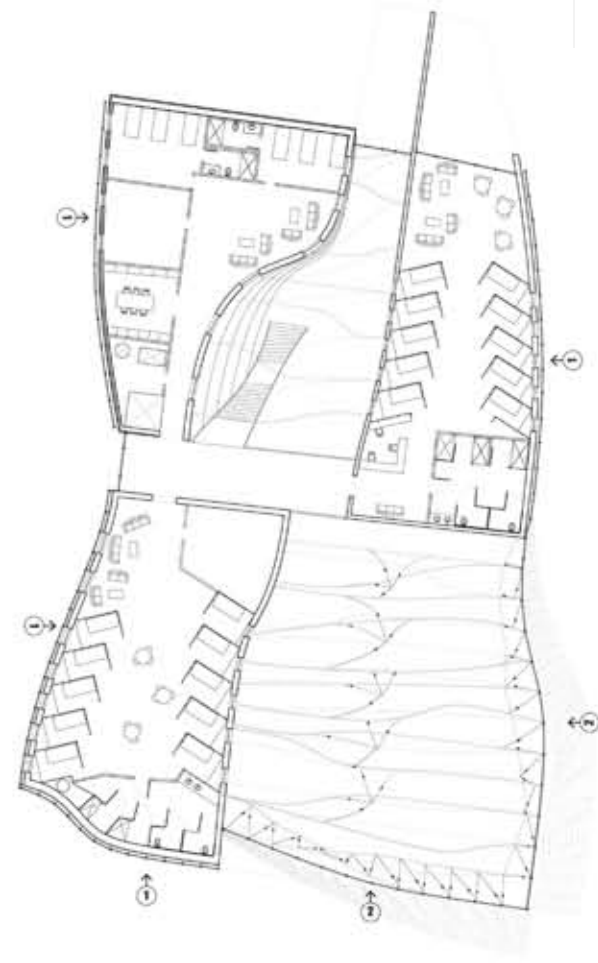


Soup Kitchen

Stewardson Competition Entry year5. semester2
duration: 10 days
program: soup kitchen/homeless shelter
10,000 sq. ft.

The primary programmatic massing strategy resonates from the typology of the courtyard dormitory. The introverted public space of the type serves to maintain the anonymity and humility of those inhabiting the kitchen's facilities, yet its public function demands less exclusivity. This project operates as a mediator between these two conflicting conditions. As a result, the interior courtyard becomes a covered atrium which extends itself into an open public dining room that embraces the campus and

the adjacent garden. These public spaces act as connective tissue between the library, the campus, and an adjacent, bustling, commercial avenue. The envelope system reinforces this conceptual tension by thickening the perceptual barrier between the outside and inside. The atrium and dining room offer a blurred space that lies between the private and the public, a filtered space where one can be immersed in social discourse, while feeling protected and at home.



1. Double Facade System

Behind a layer of glazing and an air space, wooden panels are routed so that the surface area receiving direct solar gain is minimized in the summer and maximized in the winter. The grooving allows the wall to cool itself via vents in the glazing system in the summer, while the deep penetrating light of winter heats the wall as vents are closed in order to minimize thermal comfort on the interior.

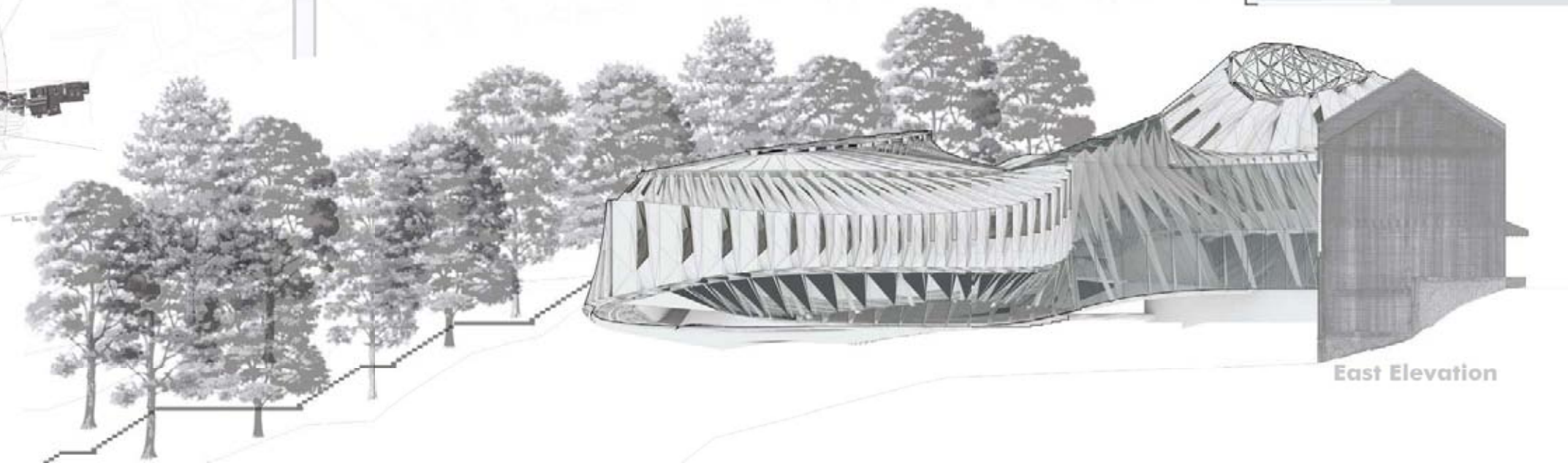
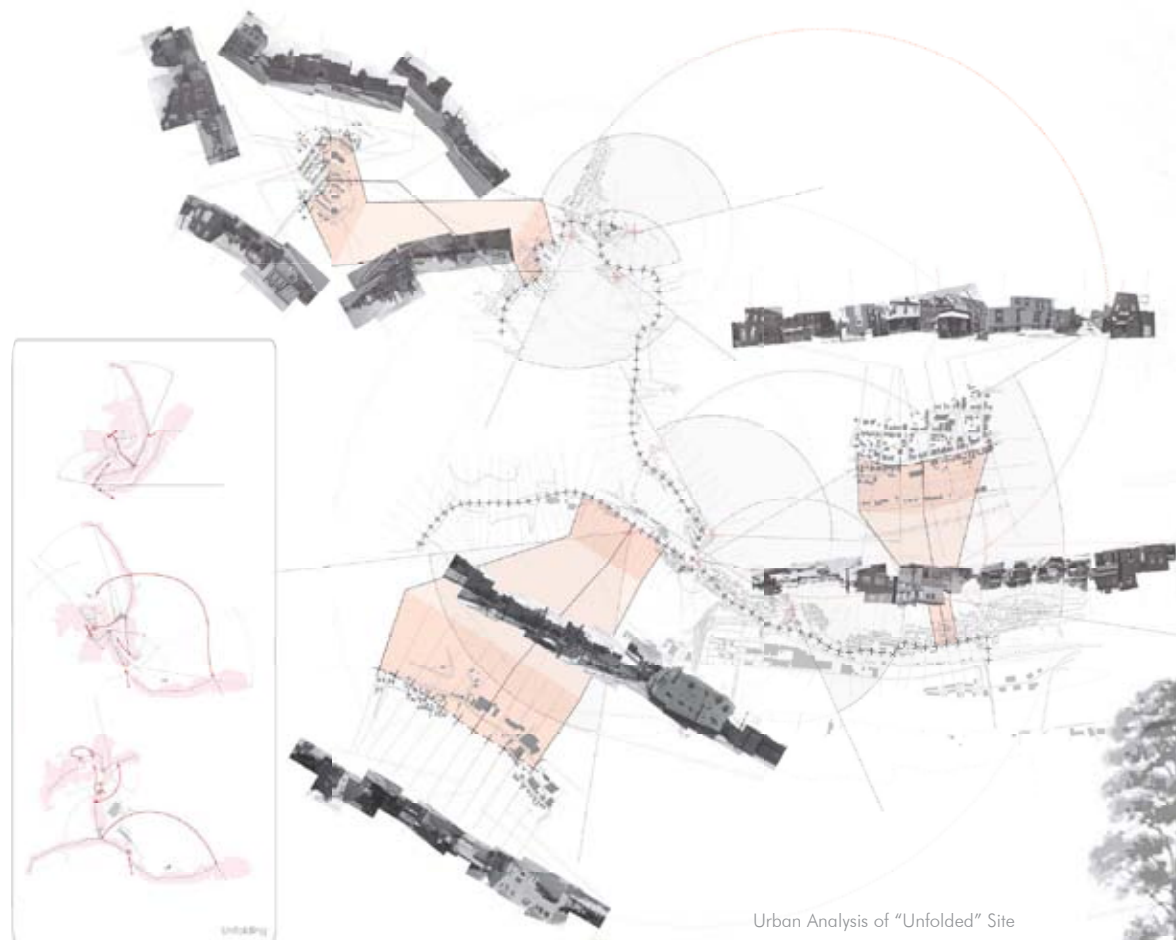
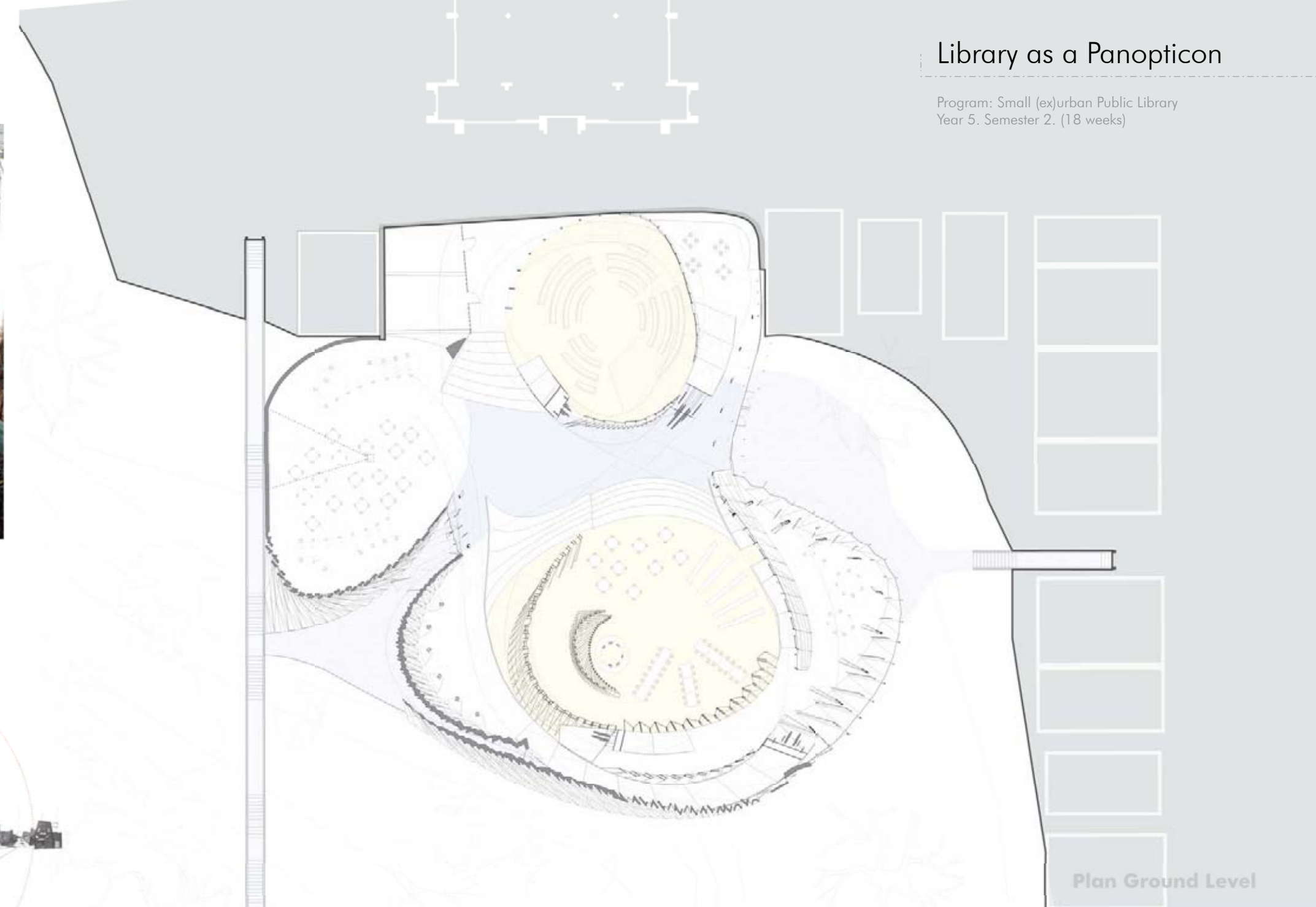
2. Shade Structure

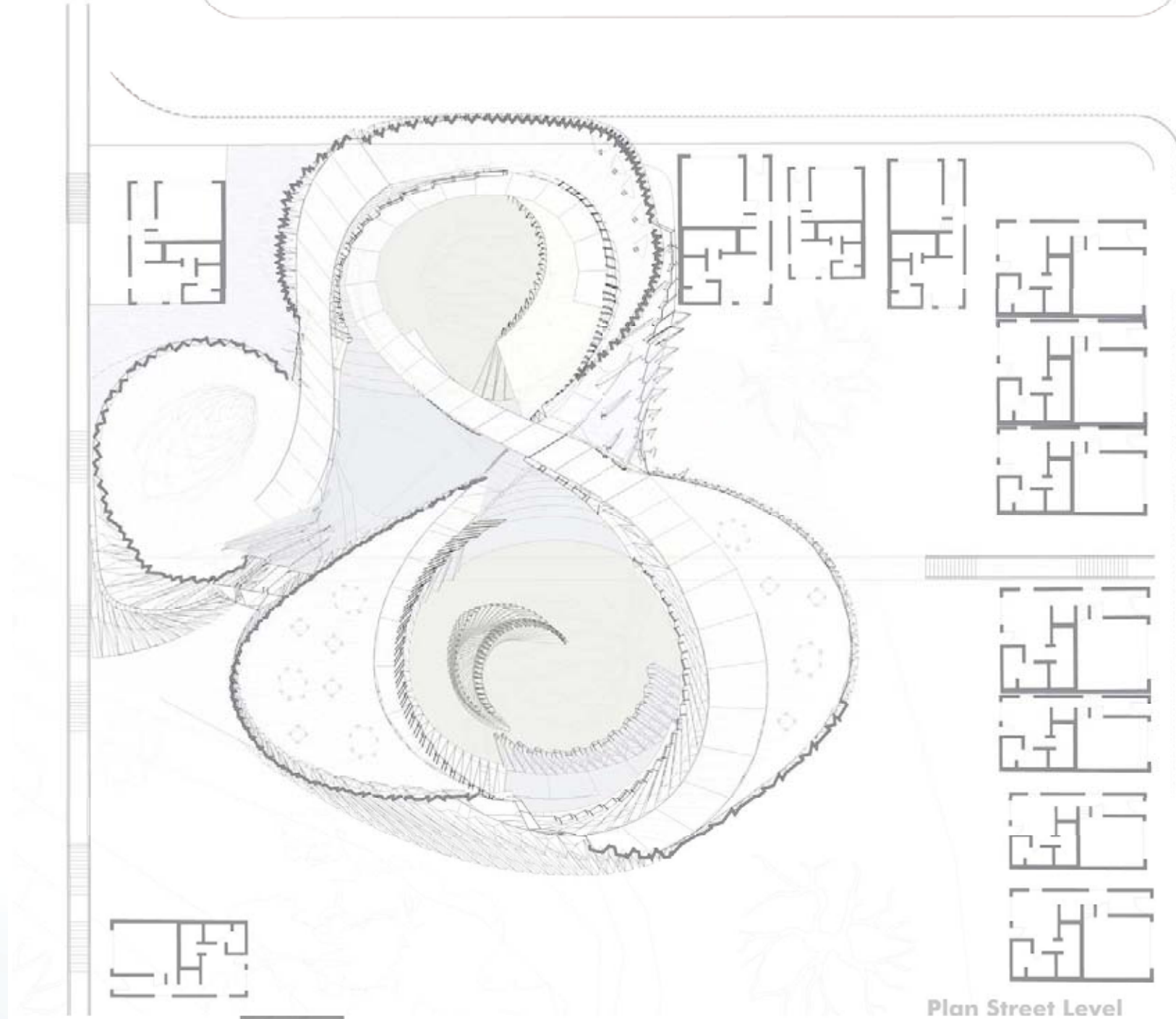
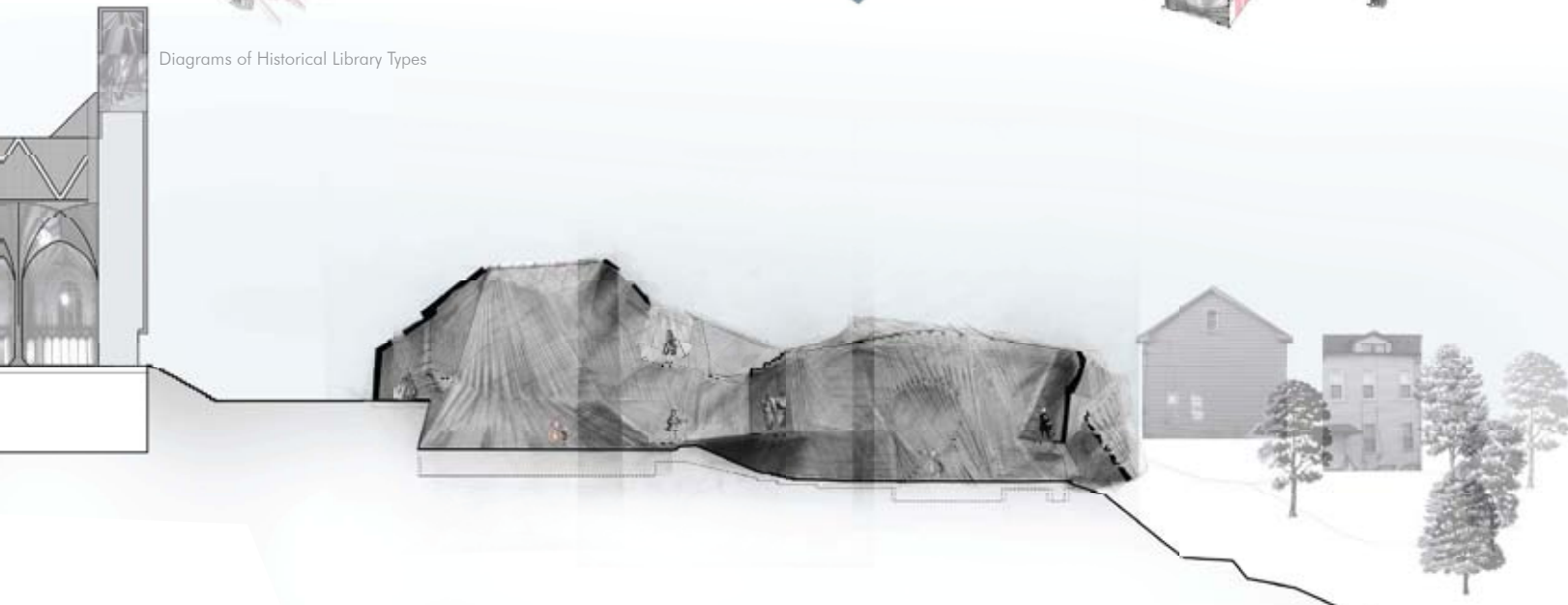
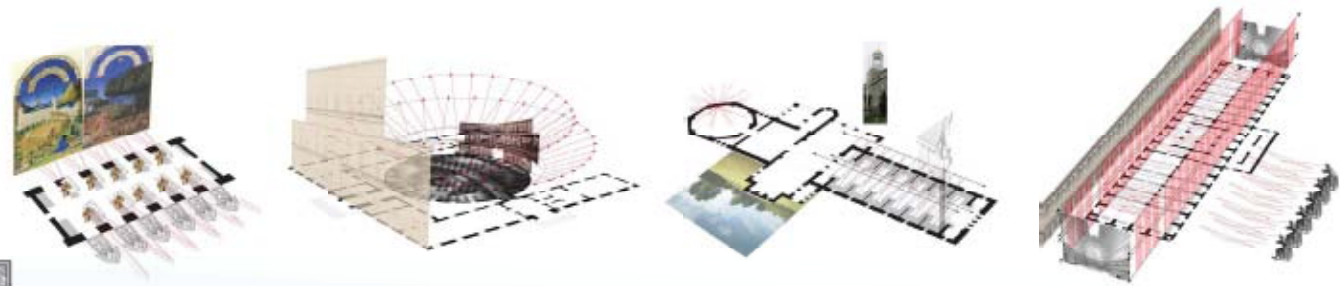
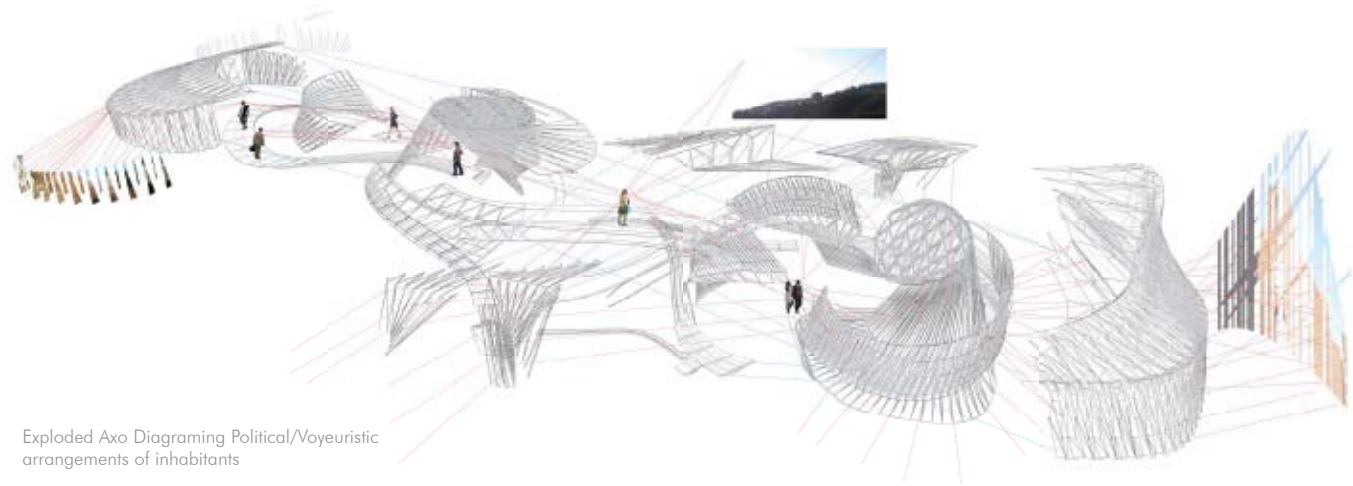
A system of filigree, curtain-like wooden shade structures protect the southern facade from excessive heat gain and reduce solar glare. Though, they primarily function as phenomenological elements, creating a blurred and layered spatial experience of the boundary of the building, shielding the building's inhabitants from voyeuristic surveillance.



Library as a Panopticon

Program: Small (ex)urban Public Library
Year 5, Semester 2. (18 weeks)





Pittsburgh Foodmakers



model view- market interior

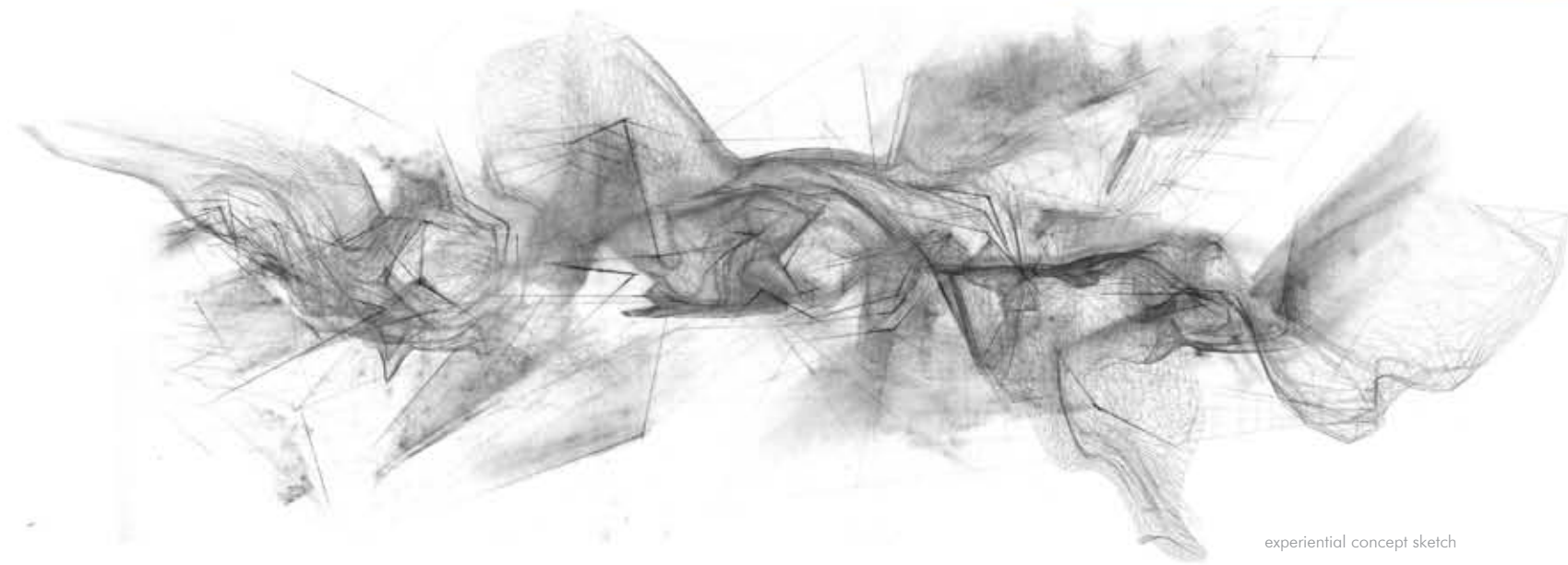


model view- school interior



model view- roof exterior

In order to accommodate a diverse and contradictory program, shared public zones become contingent upon ephemeral uses. Space becomes analogous to the probability fields of quantum particles. Fields of potential attract and repel. Boundaries are made ambiguous. Instead of regimes of difference delineated by walls, a complex roofing condition modulates space and light atmospherically. Public space becomes activated, heterogeneous, and indeterminate.



experiential concept sketch



model view- urban situation

Pittsburgh Foodmakers

Occupancy Studio: year4.semester1
duration: 16 weeks
program: hybrid farmers market, cooking school, community center, restaurant
15,000 sq. ft.



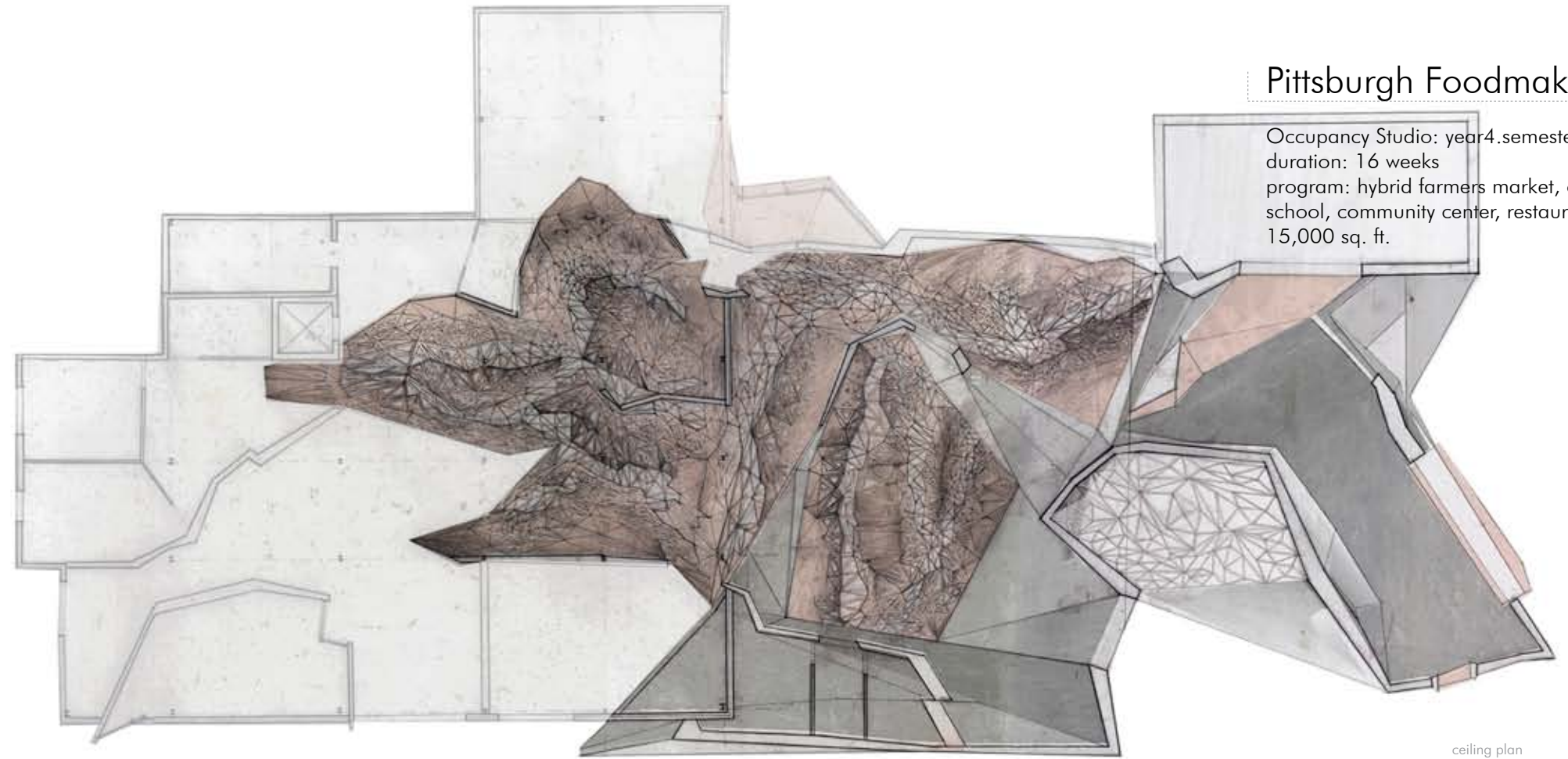
market entry



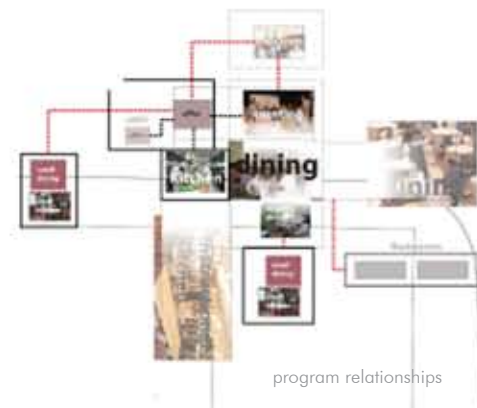
market interior



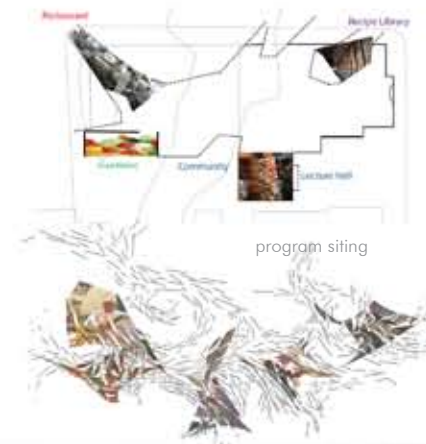
market interior



ceiling plan



program relationships

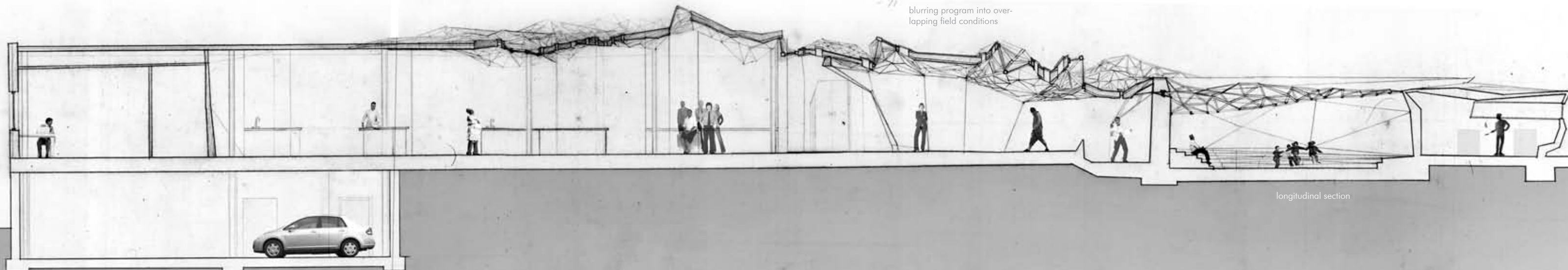


program siting



program concept sketch

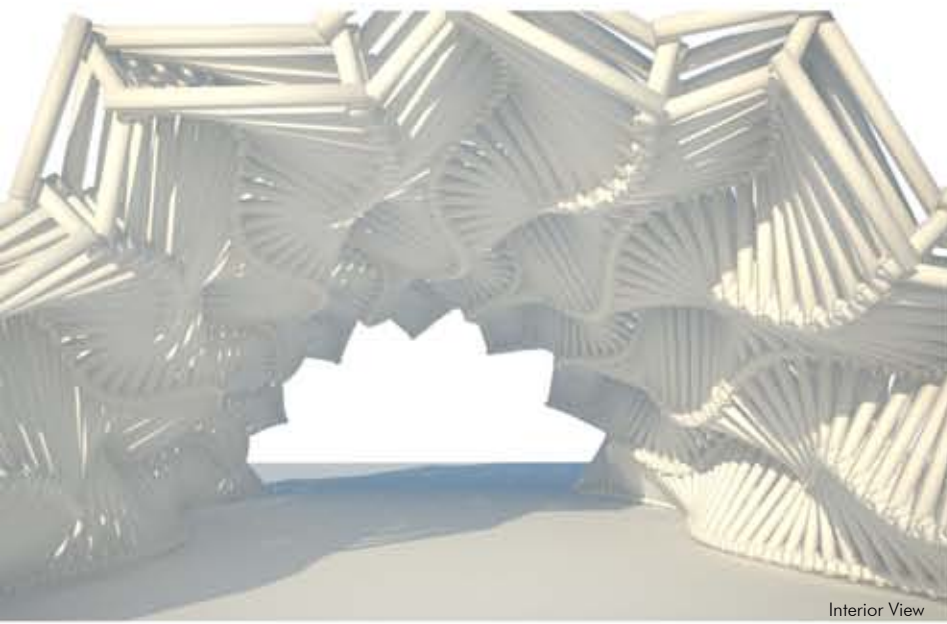
blurring program into overlapping field conditions



longitudinal section

Sequentiale Tragwerk

Digital Fabrication: year4.semester2
Prof. Gramazio + Kohler | ETH Zurich
duration: 12 weeks
with: Christopher Rofe and Benz Hubler



Interior View

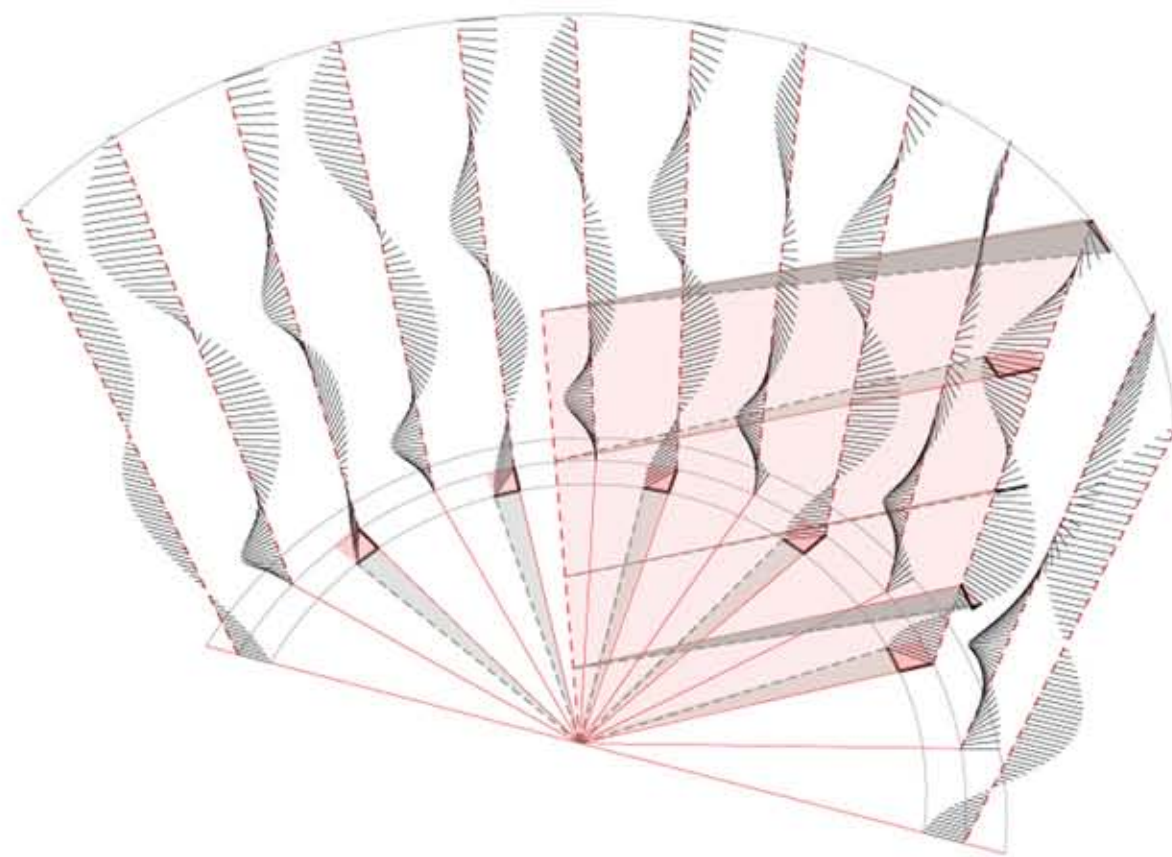
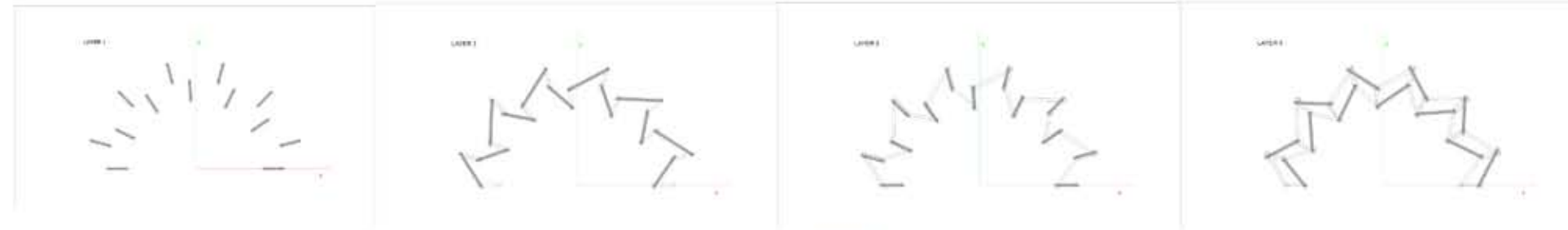
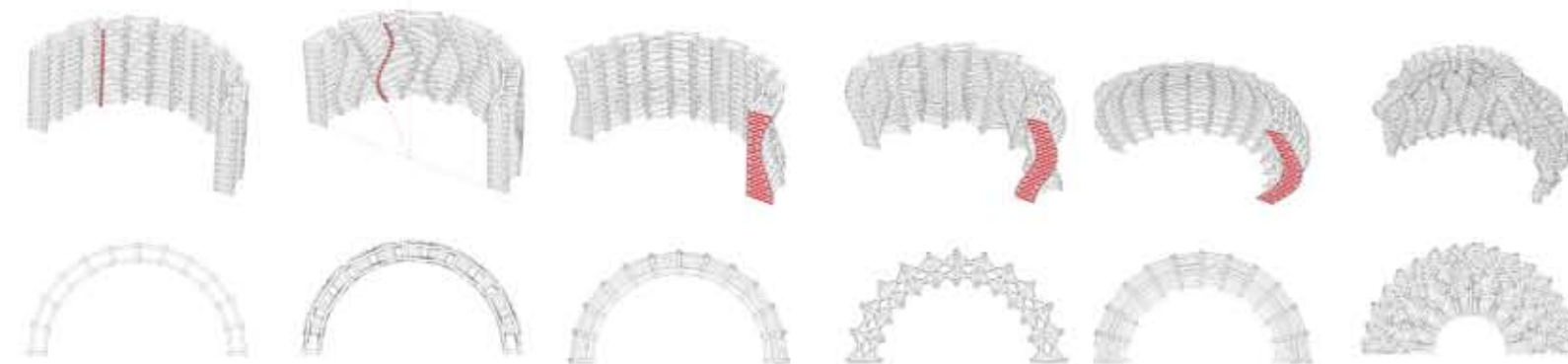
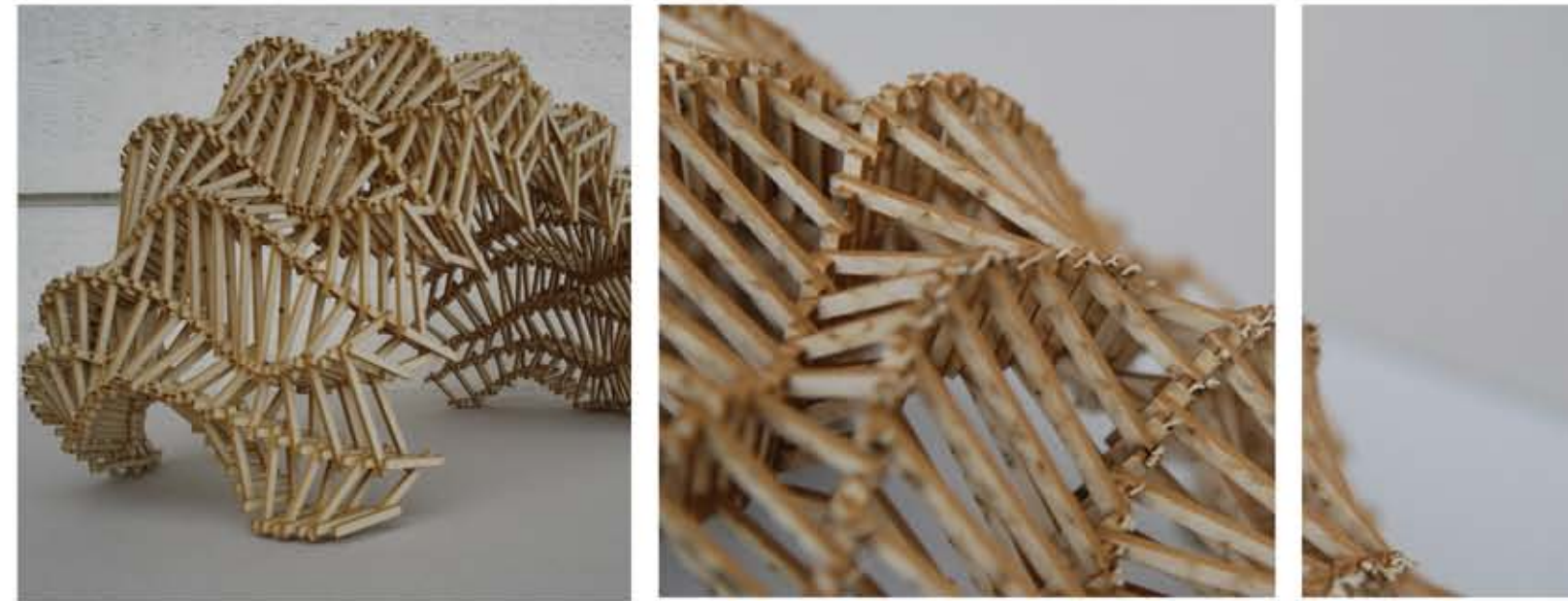


Diagram of rule structure



parameter: **base**

parameter: **oscillation**

parameter: **offset**

parameter: **oscillation**

parameter: **radius**

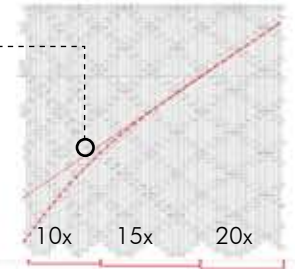
parameter: **seam**

Das Sequentiale Tragwerk

summer research workshop 2010
 Chair of Digital Fabrication ETH Zurich
 Prof. Fabio Gramazio + Mattias Kohler
 duration: 4 weeks
 w/ Jonas Epper, Benz Hubler, Jessica Knobloch, Teresa McWalters, Maria Vrontissi
 project: experiment with computational processes and 7 axis, additive industrial robot fabrication to design and build a shade structure on a roof terrace of the architecture building.



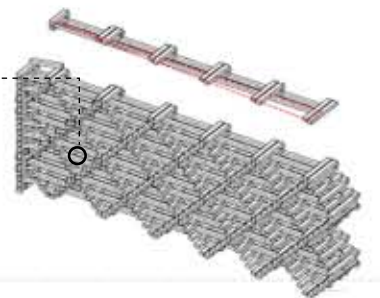
parameter: **scale**
 by altering the scale of the diagrid, the edge of the surface can terminate more succinctly in accordance with site limitations, and more smoothly, as the change in slope results in a curvilinear edge.



bolted connections between modules occur at nodes within the diagrid system



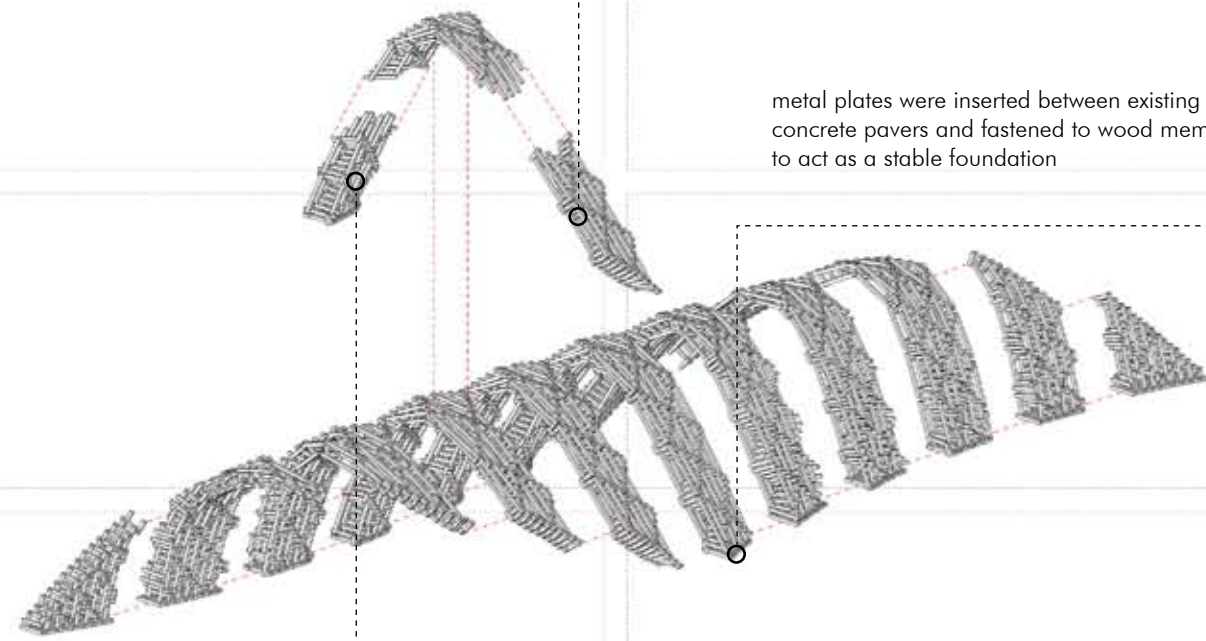
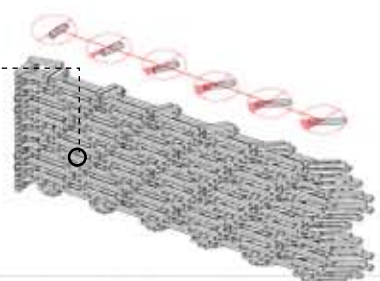
parameter: **offset**
 variability in the length of diagrid components allows variation in the legibility of the diagrid against the structure as a surface, as well as the shading performance.



metal plates were inserted between existing concrete pavers and fastened to wood members to act as a stable foundation



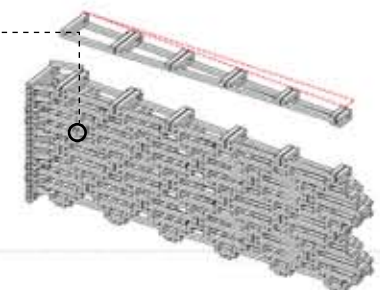
parameter: **rotation**
 variability in the rotation of diagrid components with regard to surface normals allows for variation in shading based on sun and viewing angles



the system was developed to enable the assembly of modules according to the dimensional constraints of elevator transport

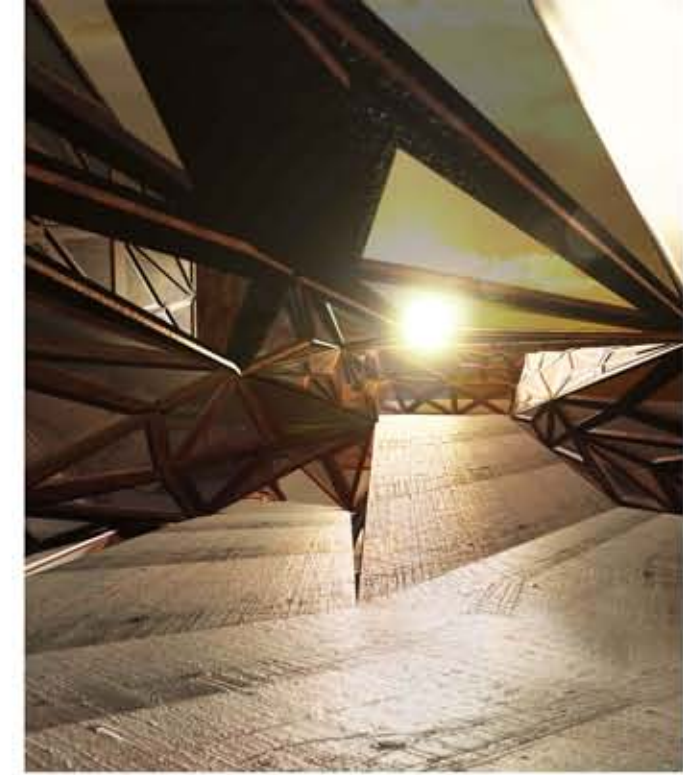


parameter: **depth**
 the depth of the structure varies to provide stability where the surface deviates from an optimal, compression only surface. The phenomenal affect of the structure as a filter is also variable.



Post-Apocalyptic Architecture Chapel of the New Light

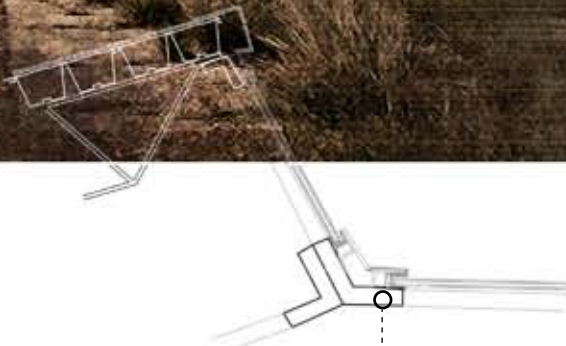
future imperfect studio: year3. semester2.
duration: 14 weeks
program: an emergent urbanism taking advantage of existing ruins and materials for a new city after the apocalypse, including a new worship center (this spread), as well as housing and industry (next spread)
5,000 sq.ft. worship
100 units housing
10,000 industry



The very premise of a post-apocalyptic construction conjures the dual and inextricably bound visions of utopia and dystopia. On the one hand, the chaos inherent in human relations, the supposed imperfections of reality, the very churning that promises failure for any and all ordering principles, is forever present as a negative, caught within its supposed opposite the "perfect place," the lost Eden for which we're forever doomed to search. On the other, the tabula rasa condition offers the unique opportunity to start anew, to redesign social structures, as they ought to be.

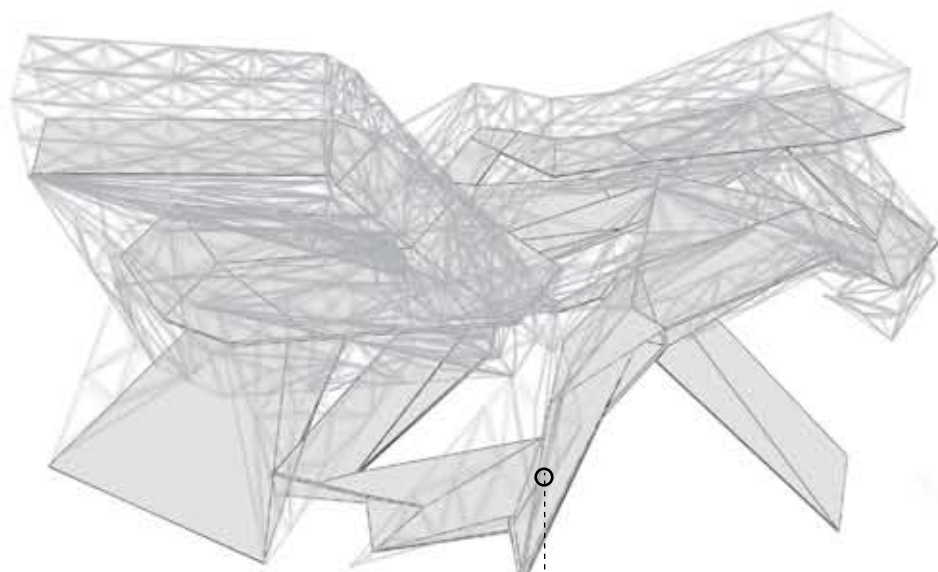
Herein lies the paradox. Every Utopian vision, whether represented through literature, film, or drawing, inevitably reveals its absence, its repressed other and denigrates to a dystopia, a supposedly perfect place that is anything but. We're left to flounder between a prison of repressive, ideological stagnation and an inherent dream of order. The struggle, then, ignites between the human desire for coherence and its antithetical partner necessitated by the divergent and pluralistic desires of a multiplicity, between Utopia and heterotopia.

roof-structure detail



circulation

Physical model



Post-Apocalyptic Architecture Heterotopic Dystopia

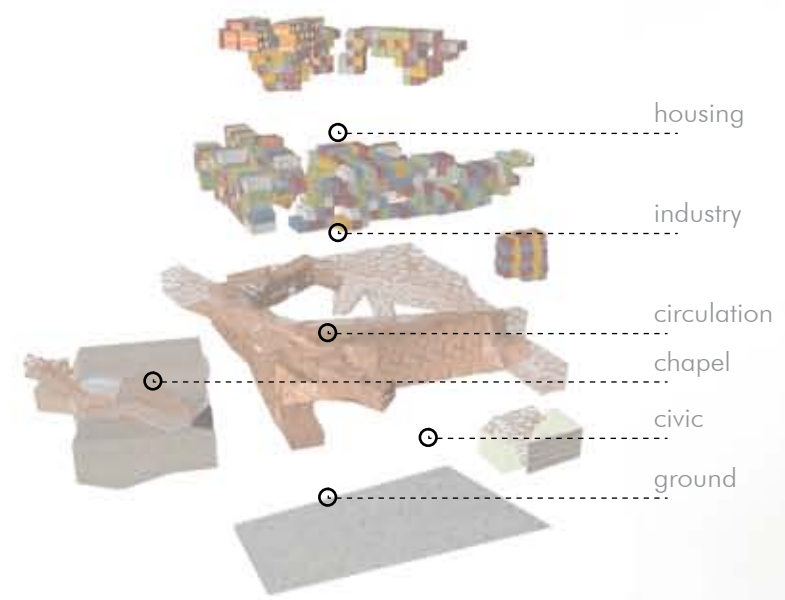
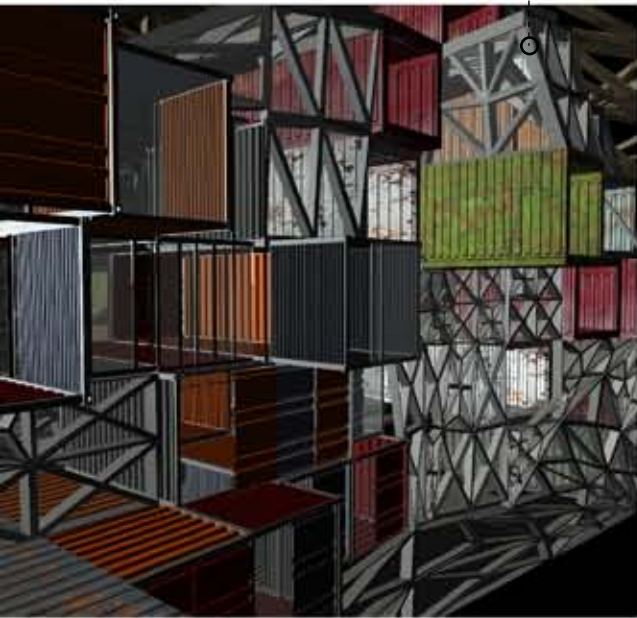
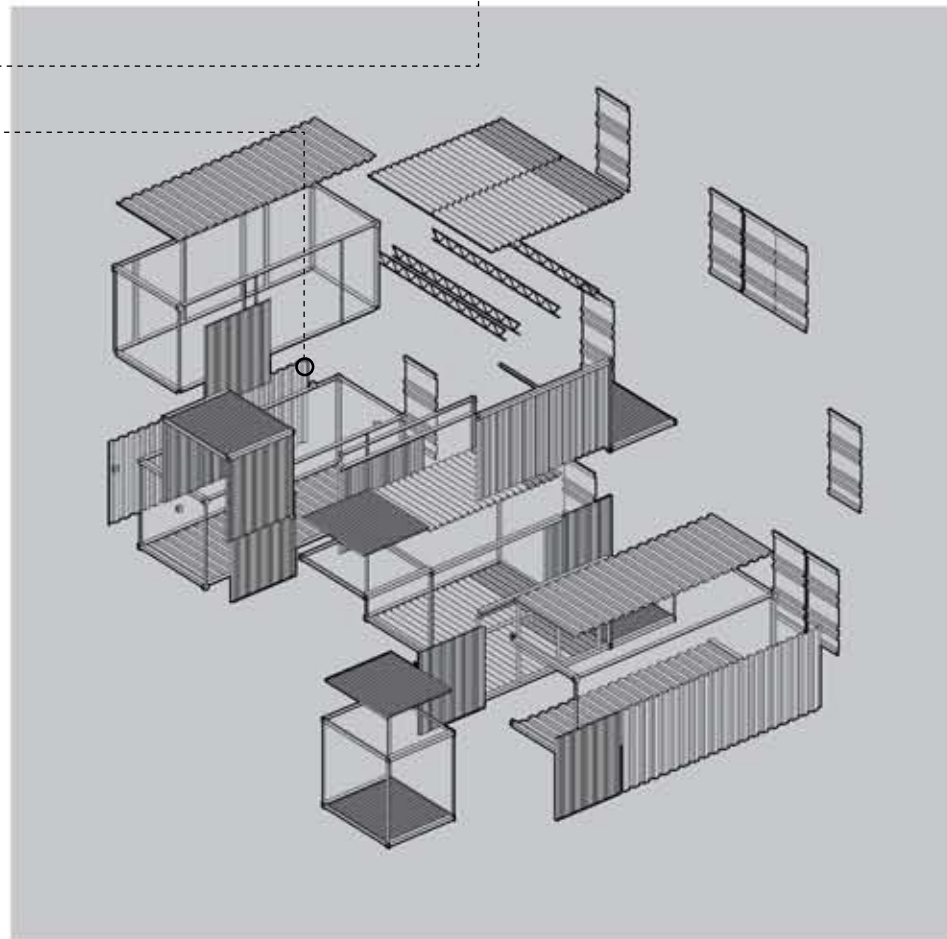
Domestic units are housed in abandoned shipping containers assembled by, within, and upon a steel megastructure that serves as a connective tissue, forged out of reclaimed steel from Pittsburgh's many bridges. The steel structure is defined by dialectically opposing forces. The primary, linear circulation sets a singular ordering operation for the entire system, yet this global ordering device is undermined at the local level. The structure can be altered to allow shipping containers to be plugged into the ever-changing grid at any point.

The containers and the truss-like structure form one single agglomerated structural and spatial network, where the global and the local, the collective and the individual, constantly redefine one another in perpetual feedback loops. As seen bottom right, the continual transformation is enacted by a mobile gantry crane mounted atop the steel mega structure. The gantry is a remnant of the city's industrial past, never disassembled or destroyed, yet sitting inactive, until awakened to a new use.

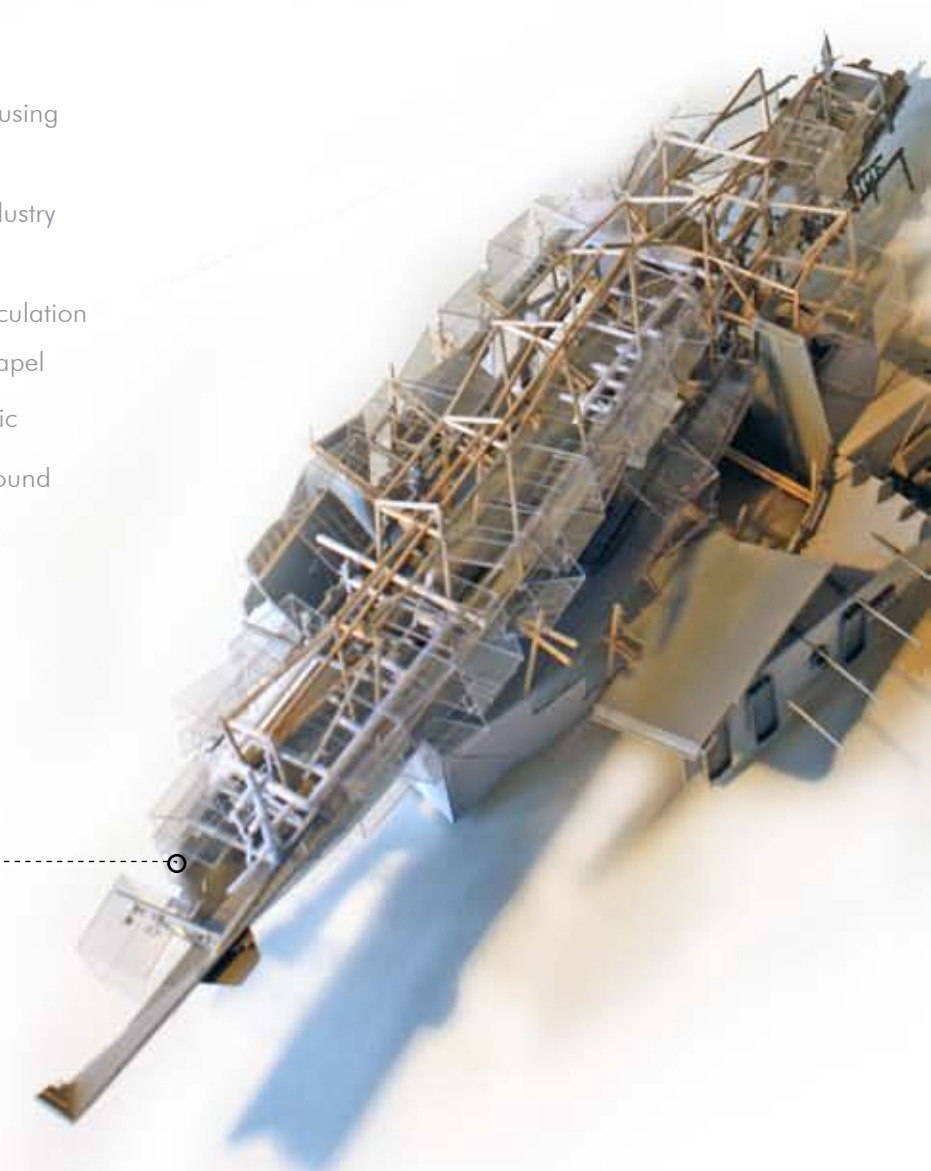
housing section

exploded axo
material assembly
housing system

housing system



concept model
constructed from model
aircraft pieces

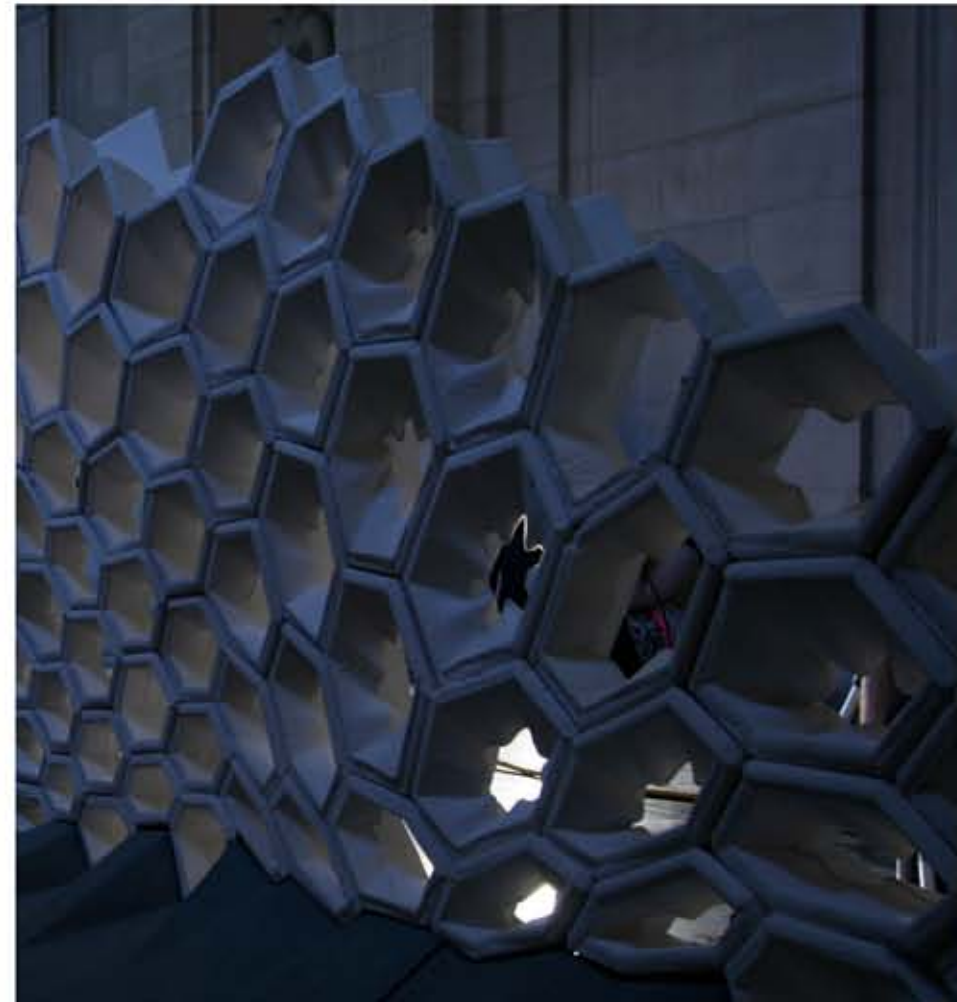
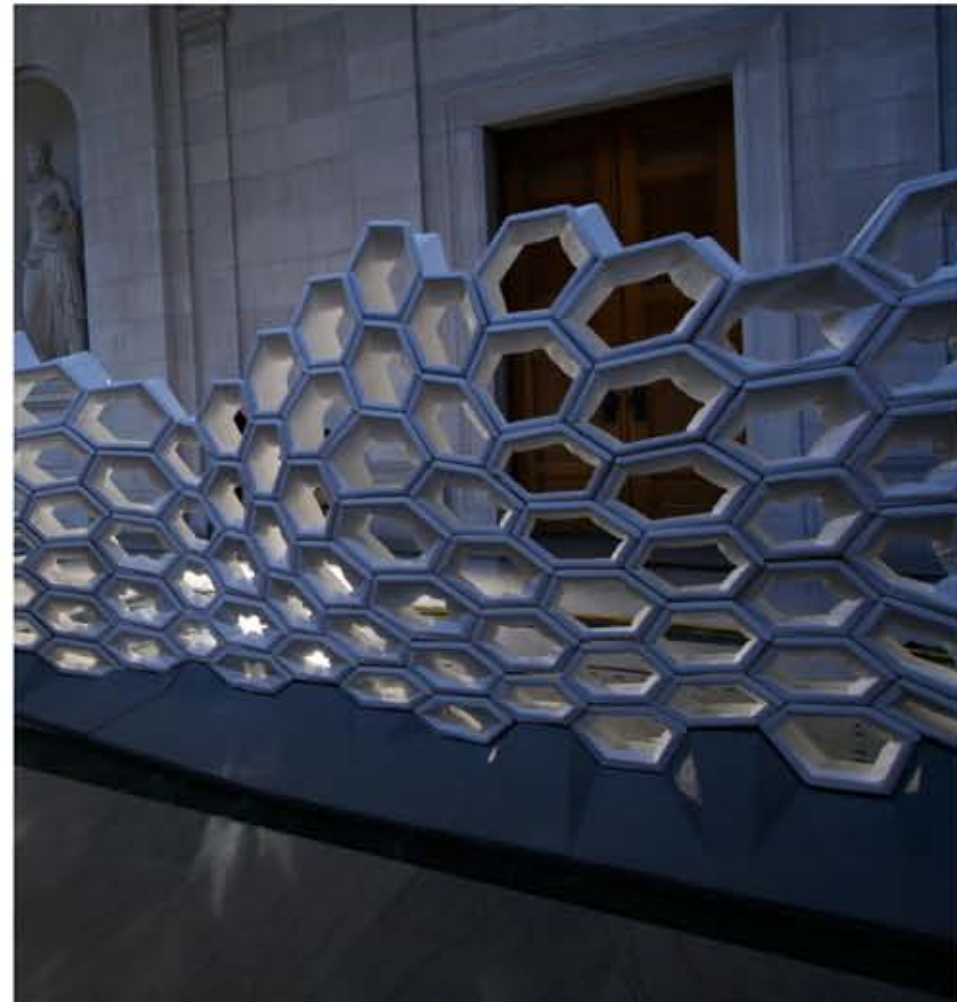
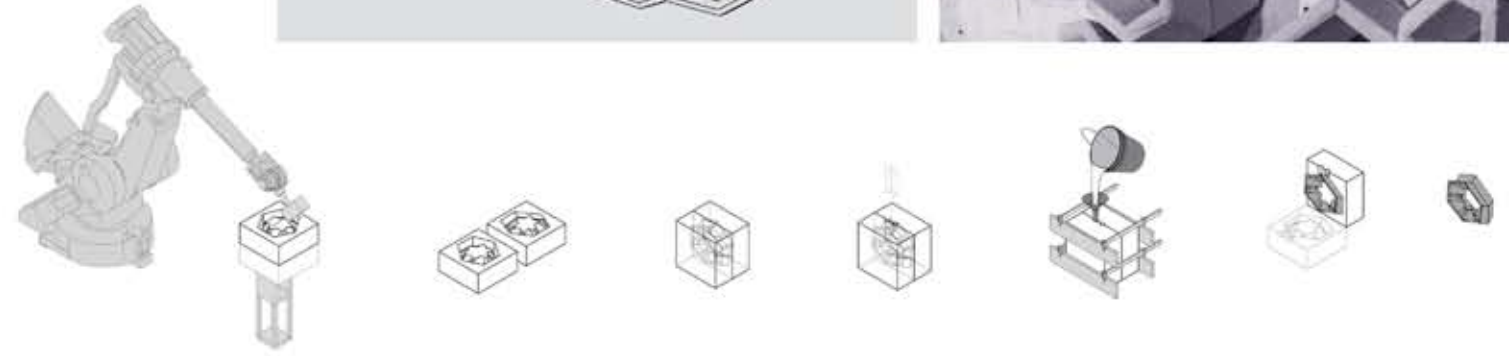
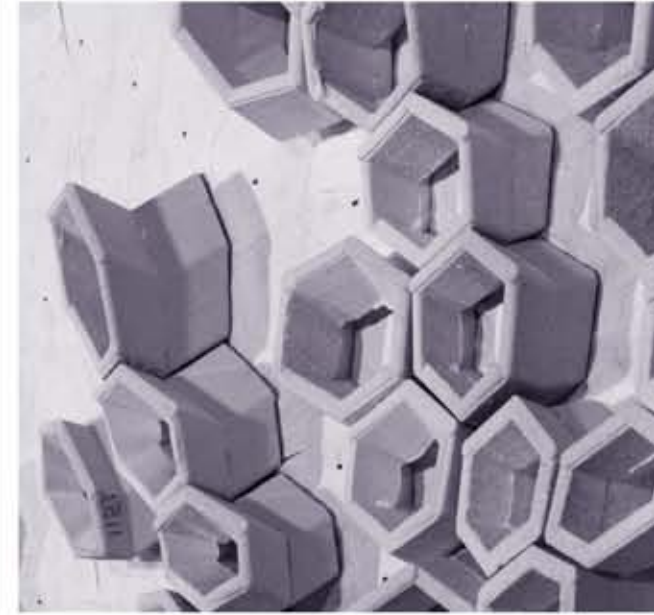
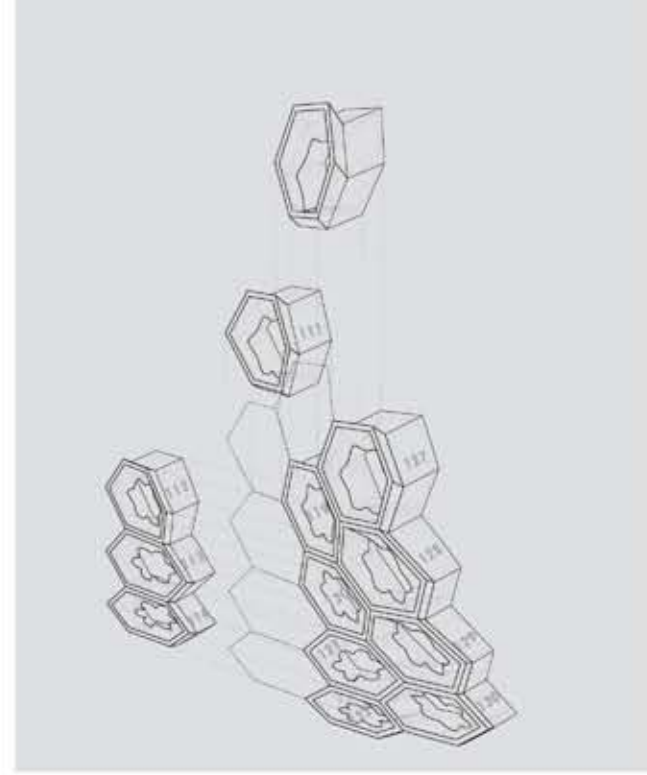
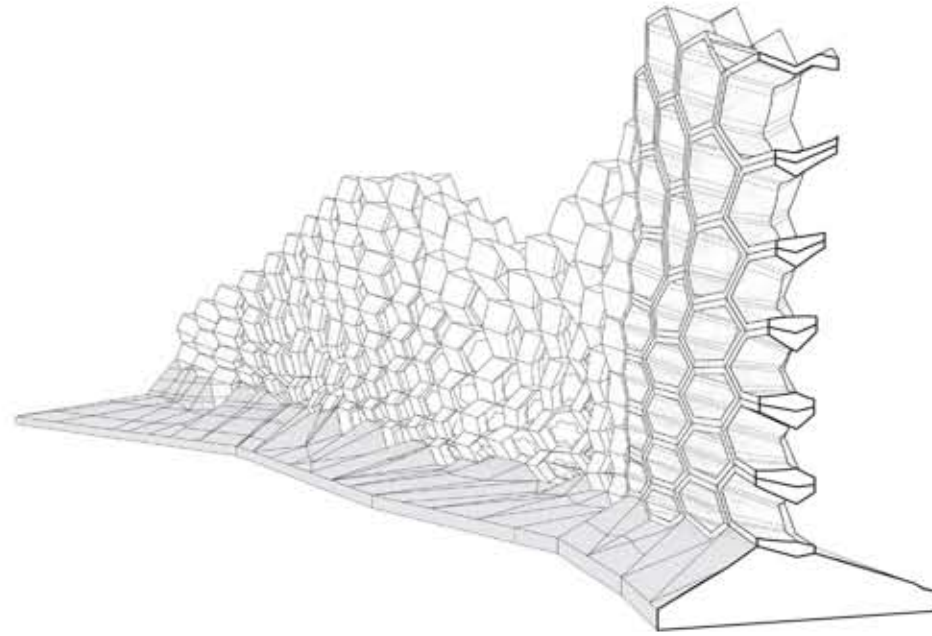


Pinch Wall

robotic fabrication elective: year4. semester1.
duration: 12 weeks
project: experiment with subtractive 7-axis robotic milling techniques.
with: Nelly Dacic, Jared Friedman, Christopher Gallot, Puja Patel, Craig Rosman, Giacomo Tinari

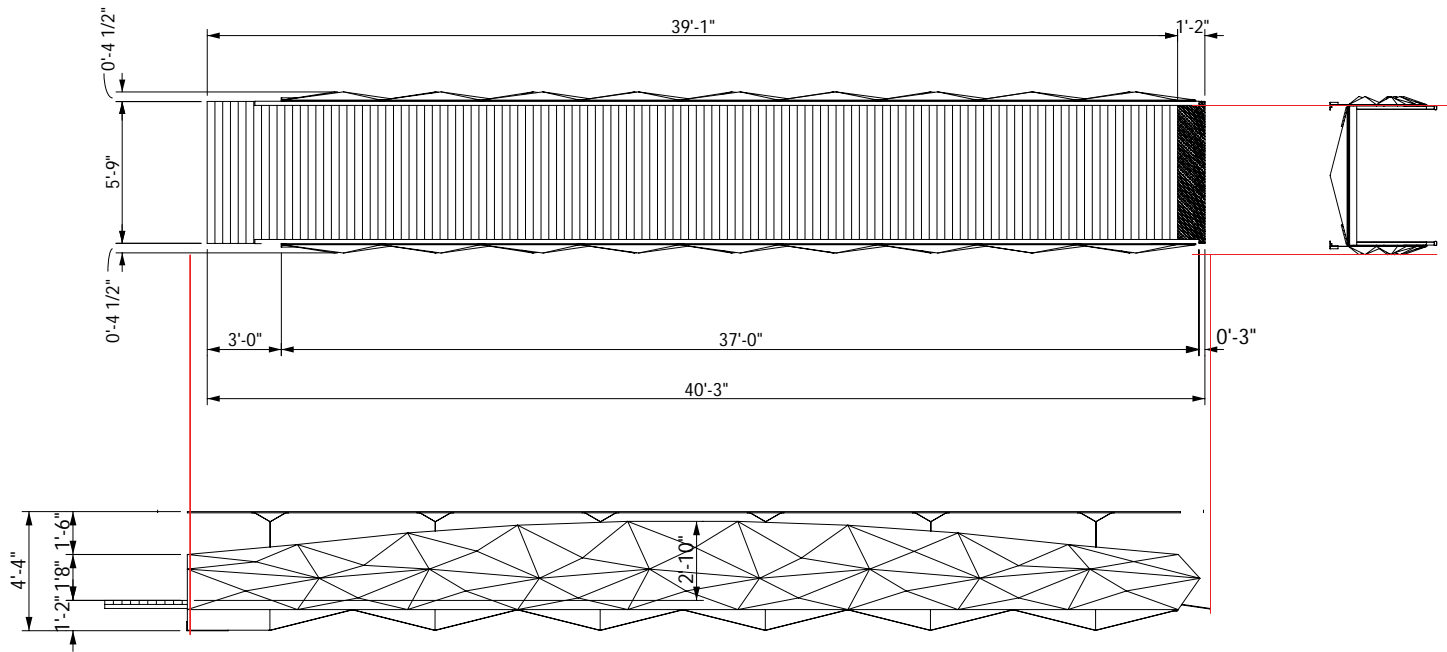
The pinch wall was designed using grasshopper in rhino to generate "swarfing" paths for a 7-axis industrial robot. These milling paths were used to cut 300 unique foam molds from which plaster blocks were cast and eventually stacked.

The design investigated mass customized components in aggregation to form a variable system that can performatively respond through parameters such as porosity, thickness, aperture size, and distortion, in order to manipulate views, shading, etc. The components interlock to form a structural masonry unit that could be incorporated into real life construction assembly systems.

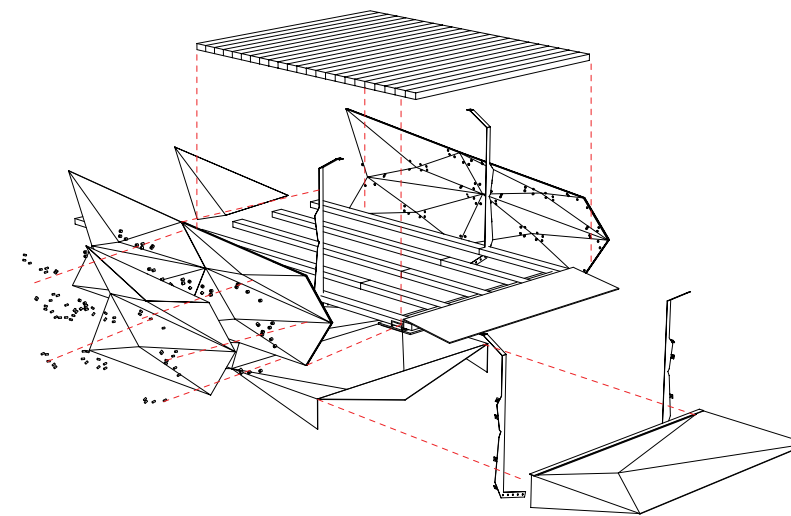
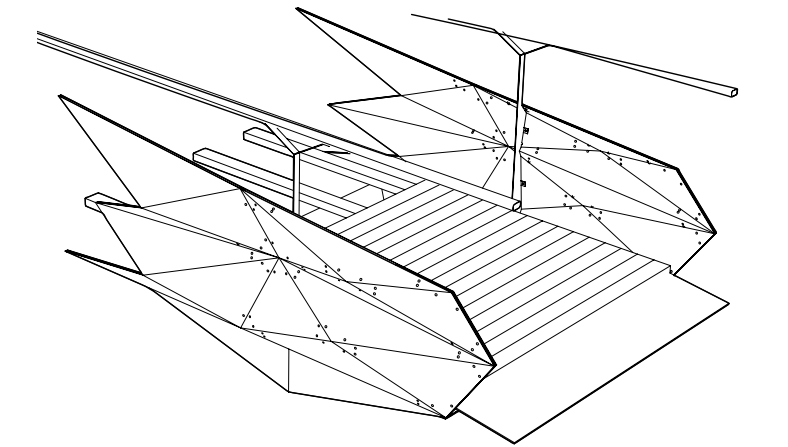
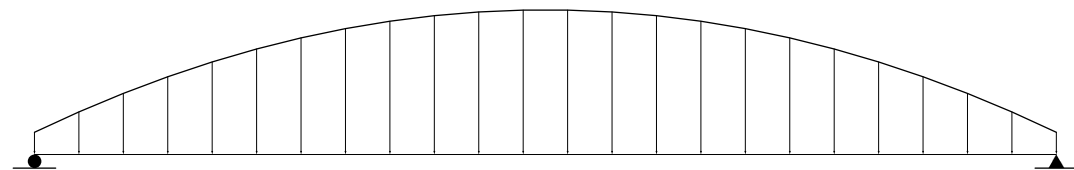


Folded Plate Bridge

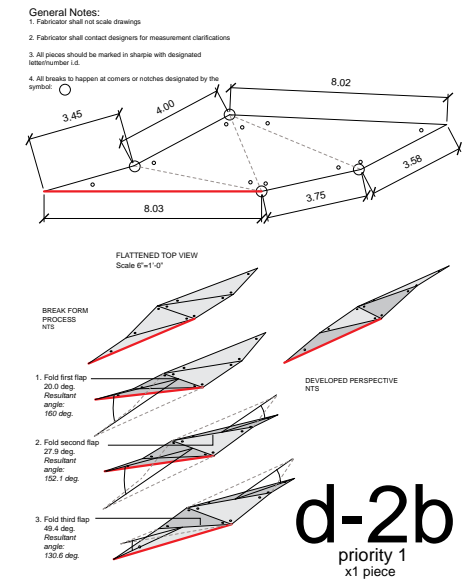
Alternative Delivery Method Elective
 Collaborative Class Project
 Program: Pedestrian bridge connecting childrens' daycare with green space on campus.
 Budget: \$1000 for 1:6 scale model
 Role: project manager and process and collaboration designer.



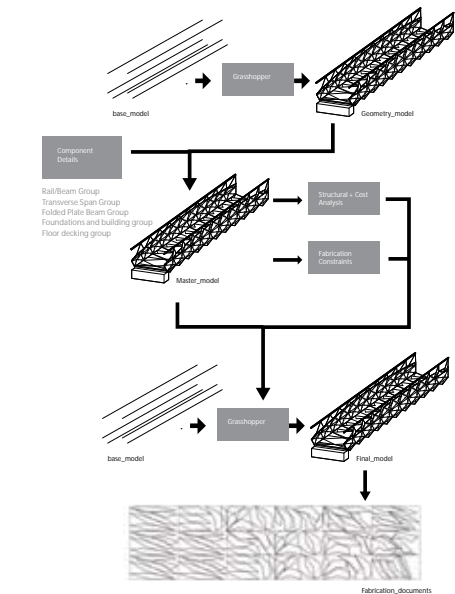
area = 5.67 * 40.25 = 228.217 ft. sq.
 @ 85 psf = 19,398.4875 lbs.



Exploded Assembly Axonometric



Sample Shop Drawing for Steel Plate Break-Forming



Digital Process Management

