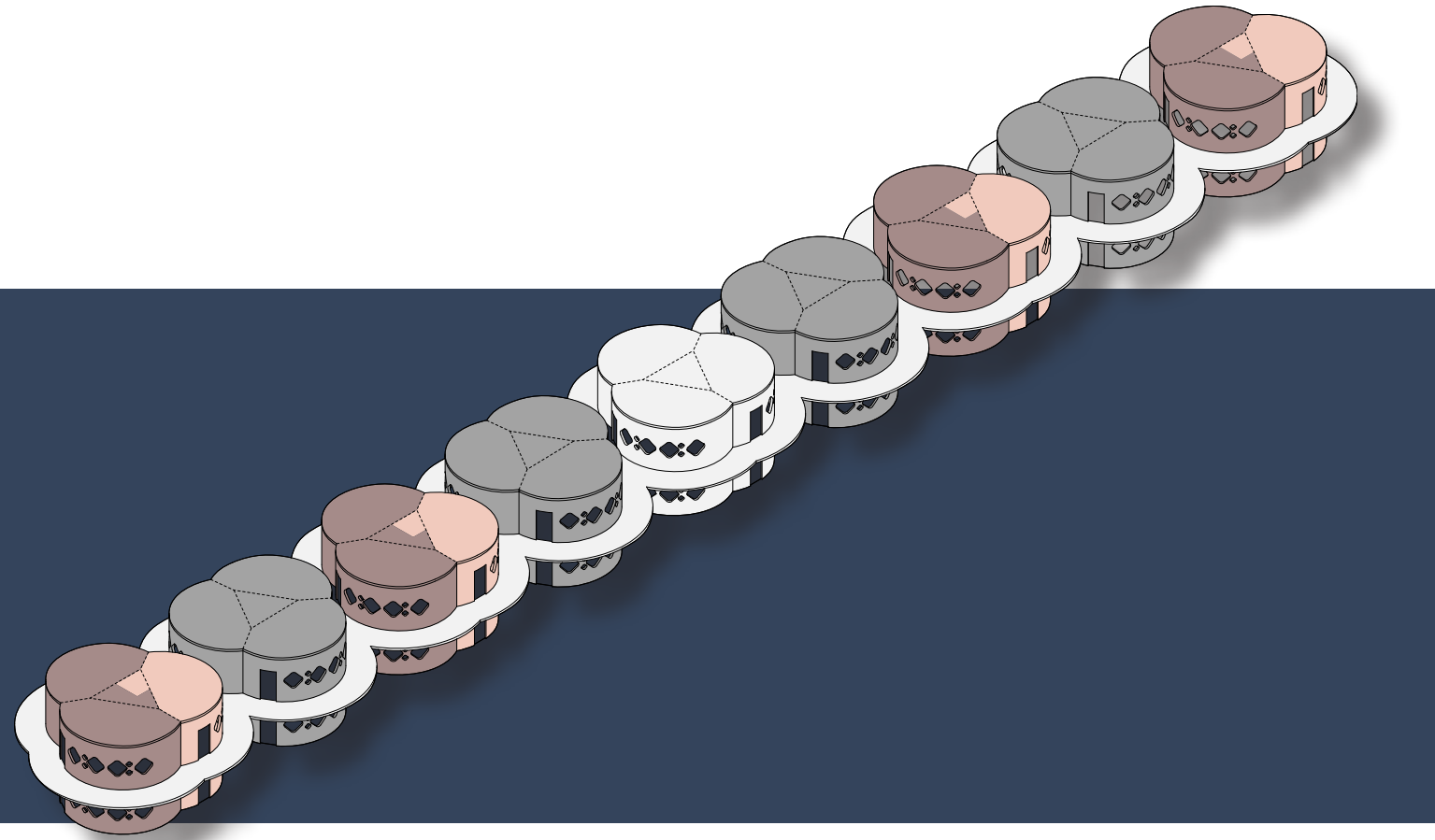




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## Modular Housing

In 2016, Prop HHH was passed which allocated \$1.2 billion <sup>1</sup> to fund 10,000 Permanent Supportive Housing and Affordable Housing projects<sup>2</sup>. Since it was passed, only 1 new project has been built, with 21 other projects currently under construction. It is anticipated that the final number of units will be around 8,000, which is 2,000 fewer than promised<sup>3</sup>. Meanwhile, the homeless population grows rapidly, so more urgent action is needed. We desperately need to save time and materials in order to abate

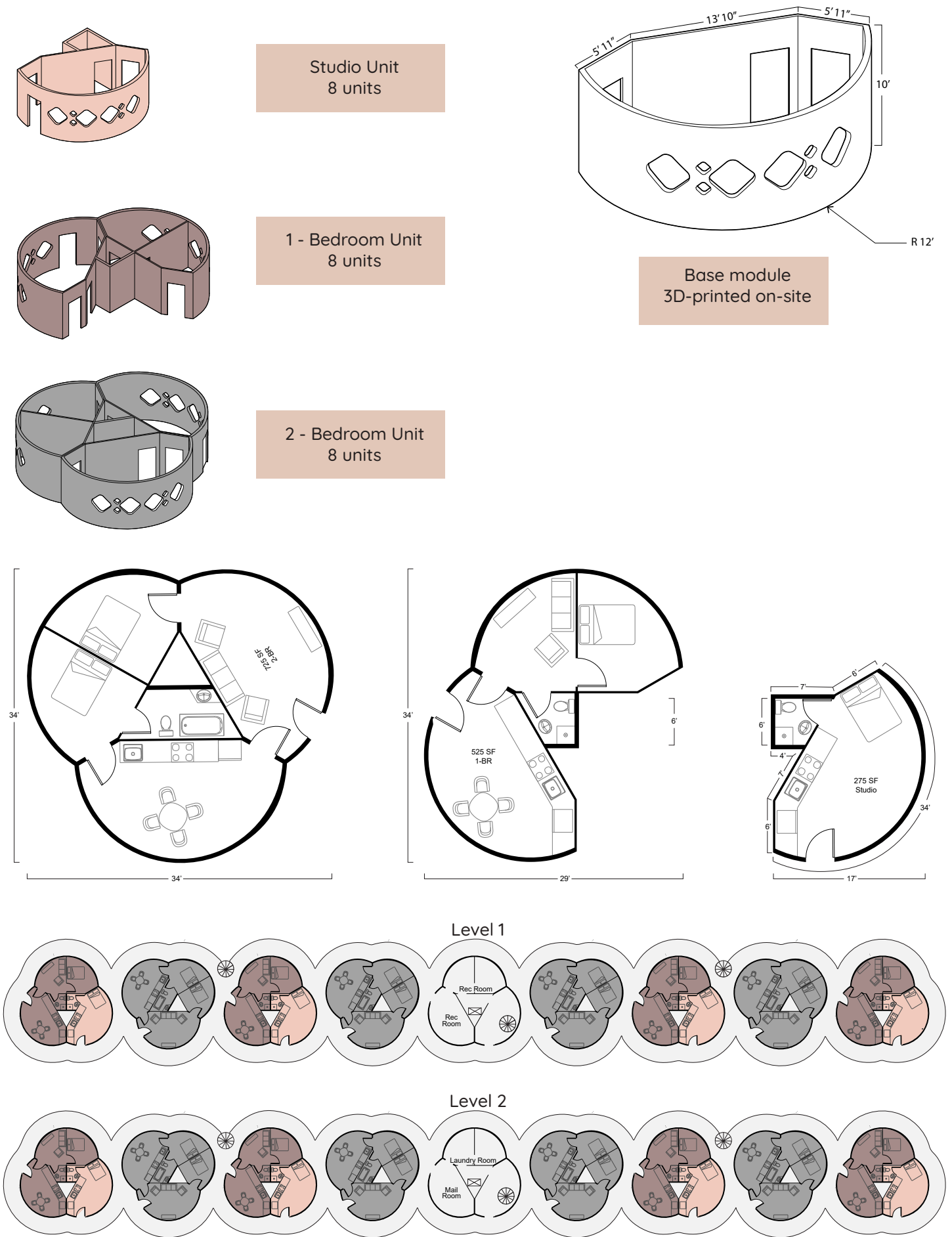
the extremely high rates at which the homeless population is growing in Los Angeles. Modular construction methods can cut construction times 20-50% due to parallel construction methods<sup>4</sup>. This proposal uses modular units that are 3D-printed on site and connected to create different sized apartments. The modules are round because it requires less material than a rectilinear building with the same square footage and the round walls make it better resistant to weather conditions such as wind and floods.

<sup>1</sup> Woetzel, Ward, Peloquin, Kling, and Arora. Affordable Housing in Los Angeles: Delivering more and doing it faster. McKinsey Global Institute, 2019. pg 11

<sup>2</sup> Los Angeles City Council and Mayor. City of Los Angeles Proposition HHH Permanent Supportive Housing Program Regulation, Policies, and Procedures 2018-19, 2019. pg 1

<sup>3</sup> The Times Editorial Board. Editorial: You can't see results yet, but LA's HHH homeless housing is being built. Los Angeles Times, 2019.

<sup>4</sup>Bertram, Fuchs, Mischke, Palter, Strube, Woetzel. Modular construction: From projects to products. McKinsey Global Institute, 2019, pg 11







## Full-Scale Mock - Up

With Aileen Zaldana, Jessica Gomez & Sergio Santos

In a group of four, a precedent was studied and a full-scale mockup of a connection system was created. The Precedent is S2OSB Headquarters, a concert hall in Sakarya, Turkey. The building has a dynamic and all-encompassing aluminum panel facade, breaking only at the main entrance where a monolithic quartz wall stands, leading the visitor to the door. The full-scale mockup demonstrates this connection.

First, a concrete foundation was poured and smoothed using hand trowels. Aluminum composite material was drilled, scored, cut, and folded to create three panels that mounted on the welded steel structure. Three quartz slabs were slotted at the top and bottom edges and held secure with T extrusions attached to the steel structure.

### Full-Scale Mockup Timeline

PROJECT TITLE		COMPANY NAME																																		
S2OSB Headquarters, Turkey		Materials and Methods F19 – WSOA																																		
PROJECT MANAGERS		DATE																																		
Aileen, Jessica, Sergio, Karin		10/15/19																																		
		October											November											December												
		WEEK 1			WEEK 2			WEEK 3			WEEK 4			WEEK 5			WEEK 6			WEEK 7			WEEK 8			WEEK 9										
		M	T	W	Th	F	Sa	Su	M	T	W	Th	F	Sa	Su	M	T	W	Th	F	Sa	Su	M	T	W	Th	F	Sa	Su	M	T	W	Th	F	Sa	Su
1	Concrete Foundation																																			
1.1	Concrete forming																																			
1.2	Pour concrete																																			
2	Steel Structure																																			
2.1	Acquire steel for welding																																			
2.2	Prepare shop drawings																																			
2.3	Cut pieces to length																																			
2.4	Weld																																			
2.5	Attach to foundation																																			
3	Metal Facade																																			
3.1	Prototype																																			
3.2	Prepare shop drawings																																			
3.3	Fabricate panels																																			
3.4	Assemble on structure																																			
4	Stone Facade																																			
4.1	Acquire stone																																			
4.2	Acquire fastening materials																																			
4.3	Assemble on structure																																			

A Gantt chart was used to split up tasks and ensure that all tasks were finished in a timely manner.



Concrete foundation smoothed with hand-trowel



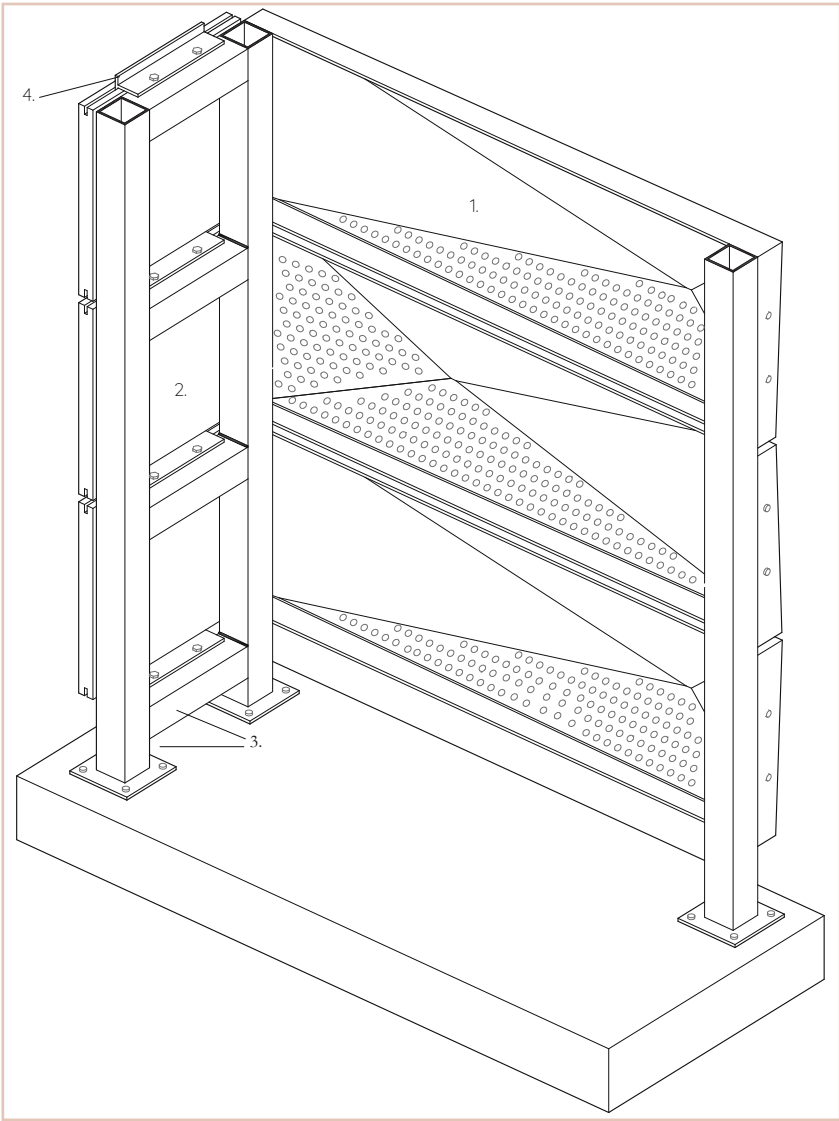
L-brackets connect panels to columns



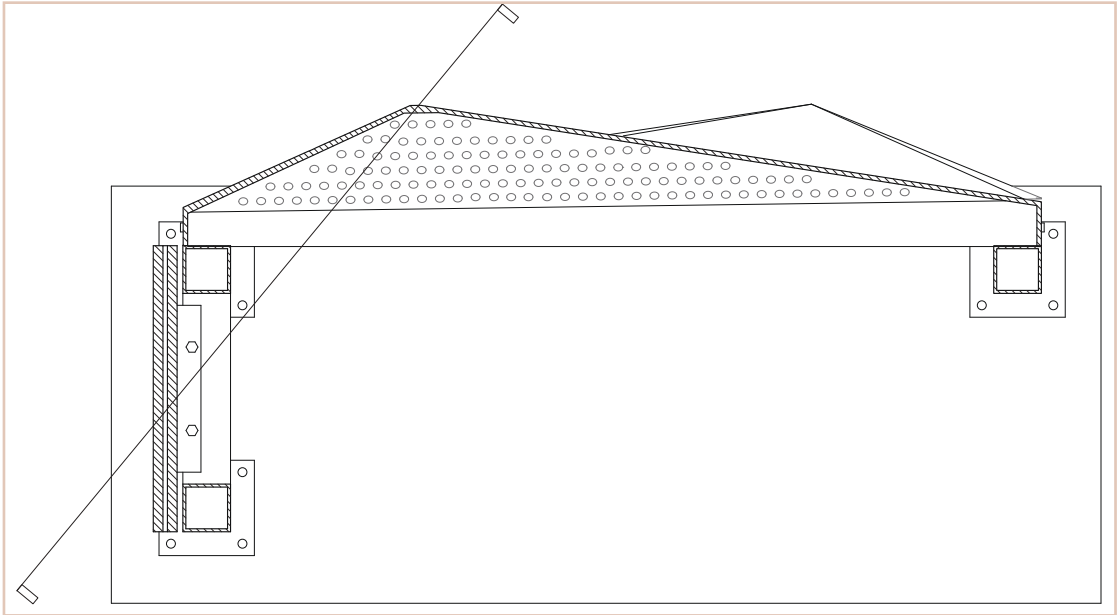
Precedent: S2OSB Headquarters by BINAA



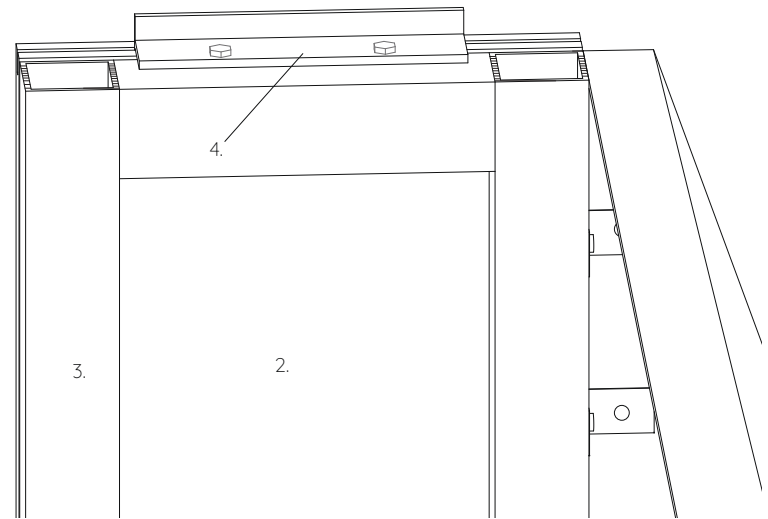
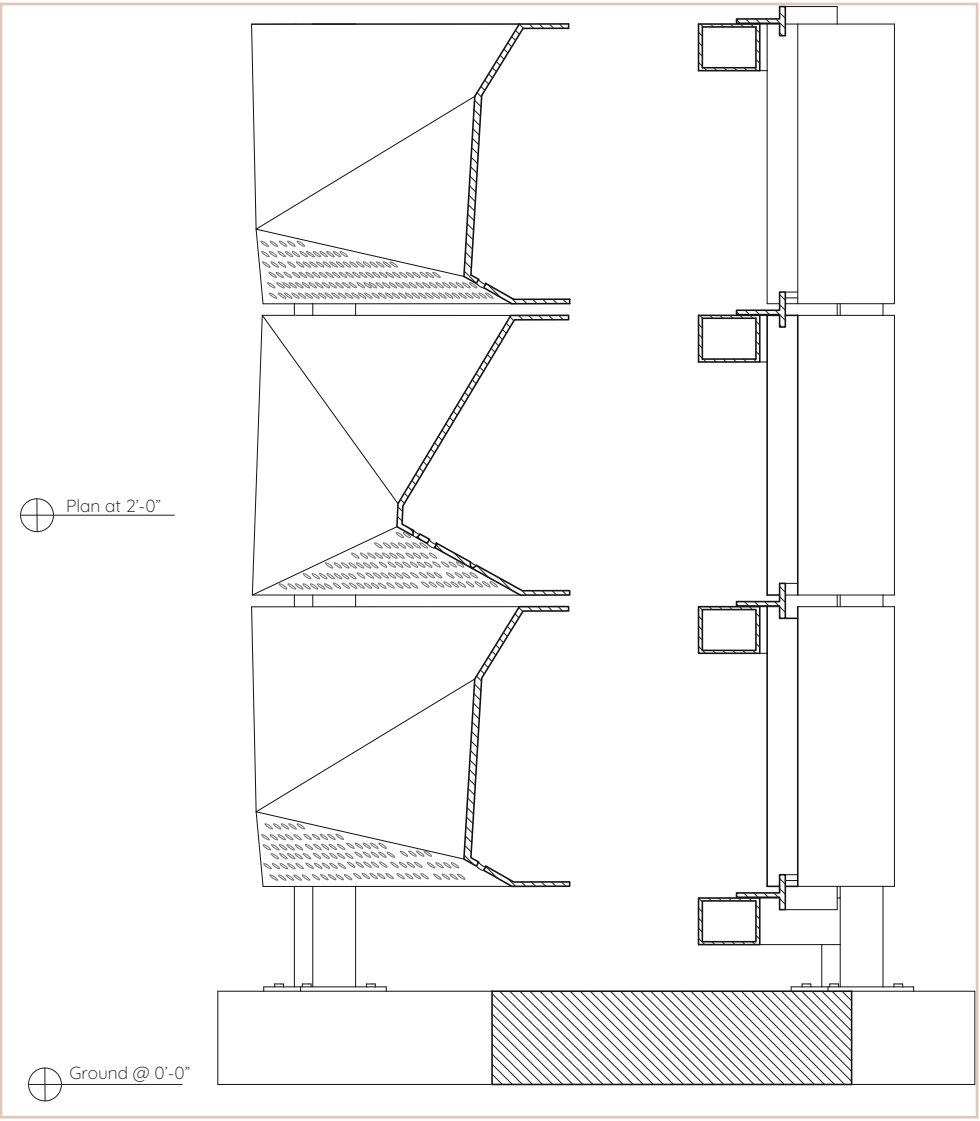




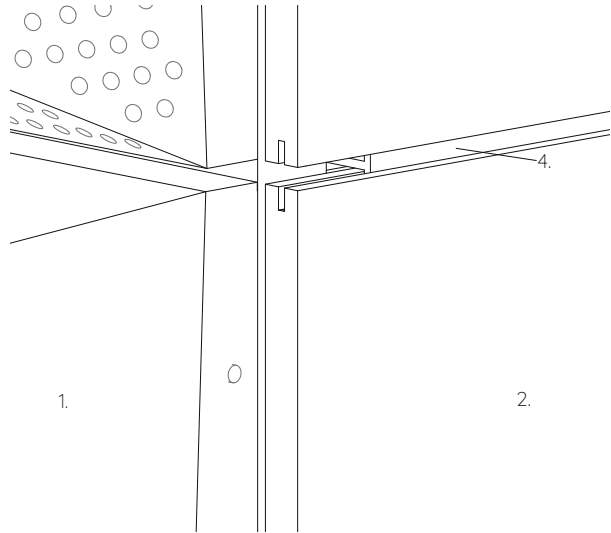
# The views



- 1. Aluminum Composite Material (ACM)
- 2. Quartz 3/4"
- 3. Steel Tube 2"x2"
- 4. Aluminum T-Bar



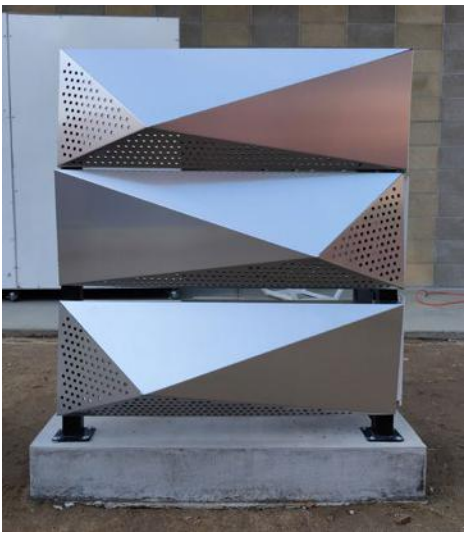
Interior corner detail



Exterior corner detail



Top



Front



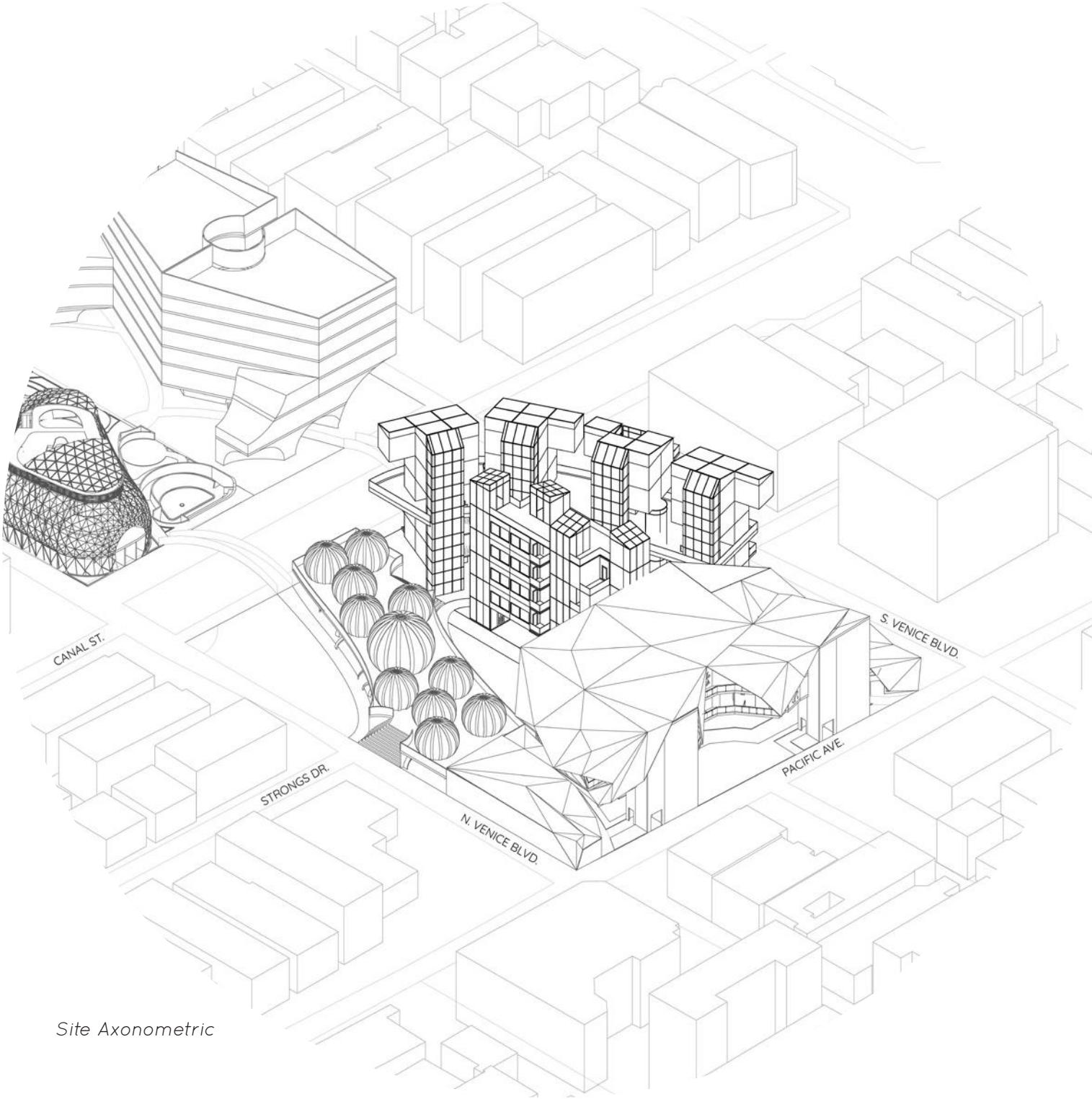
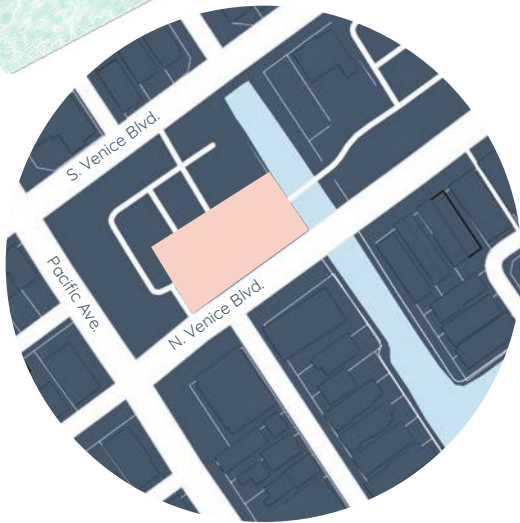
Back





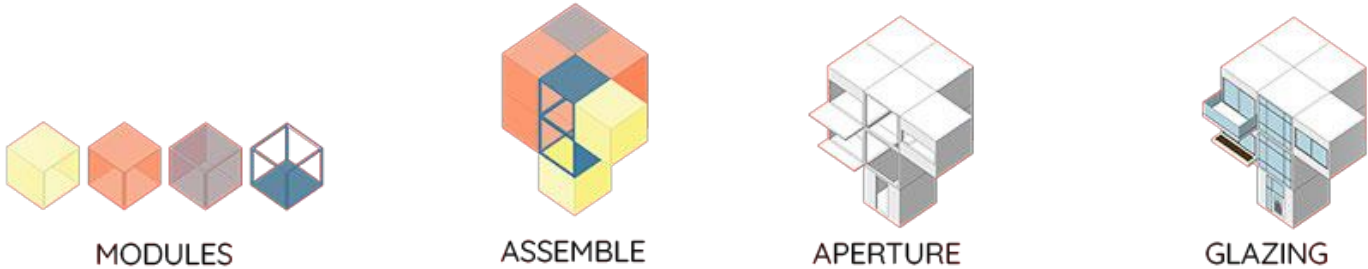
# Venice Housing

Situated on the canals of Venice, California, this housing project aims to make independent living easier for the elderly and those with disabilities by providing a moving vertical platform within each 3-level apartment. A second building contains 16 studio apartments for the unhoused individuals living in Venice.



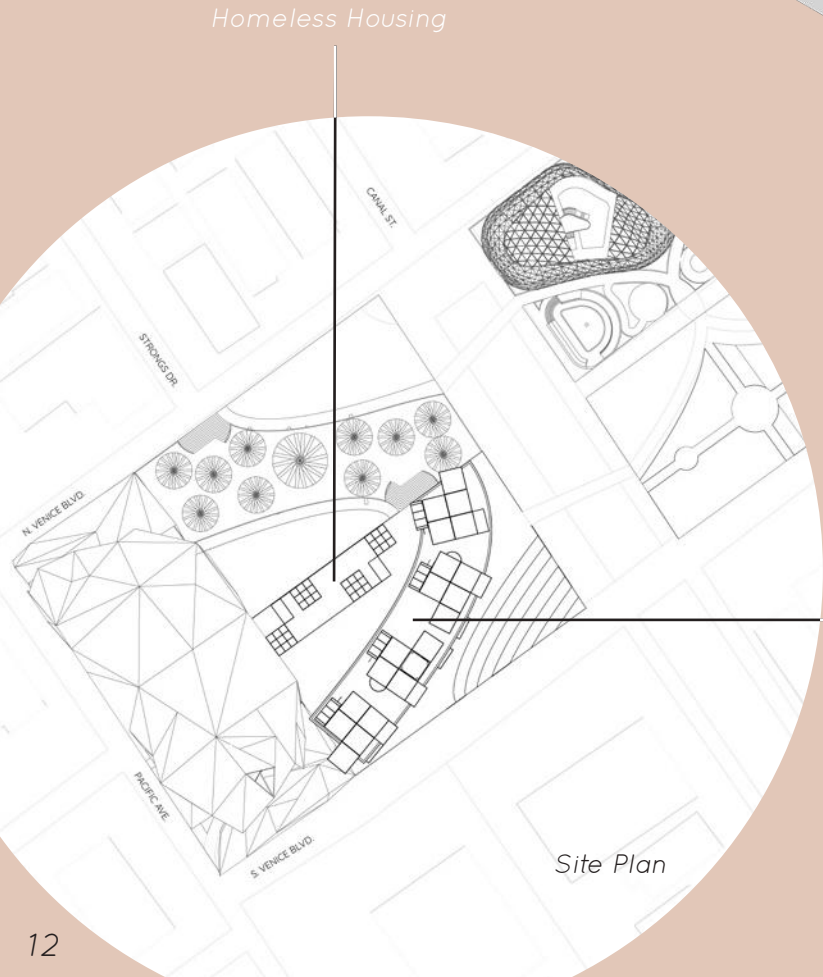
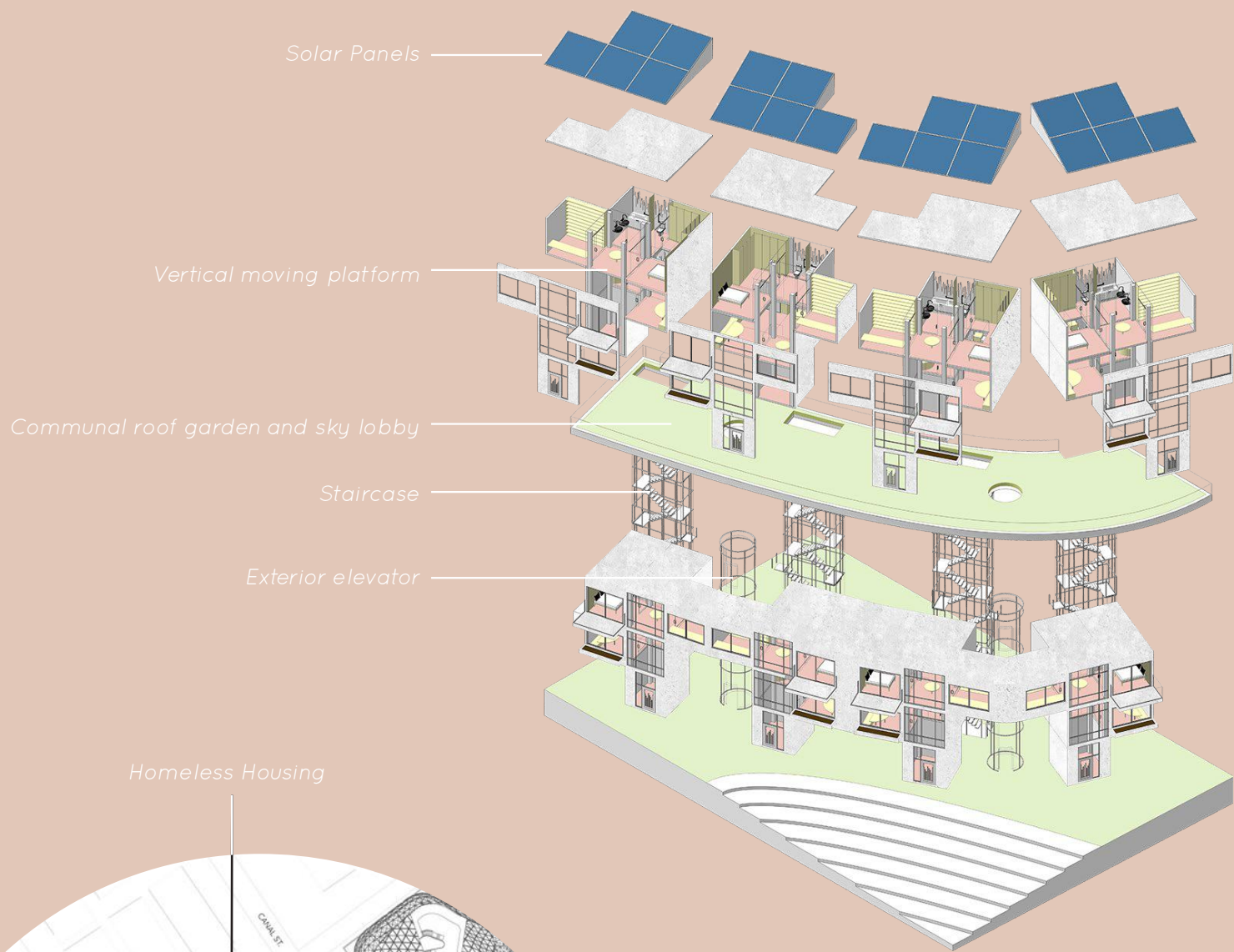
Site Axonometric

## Unit Generative Diagram

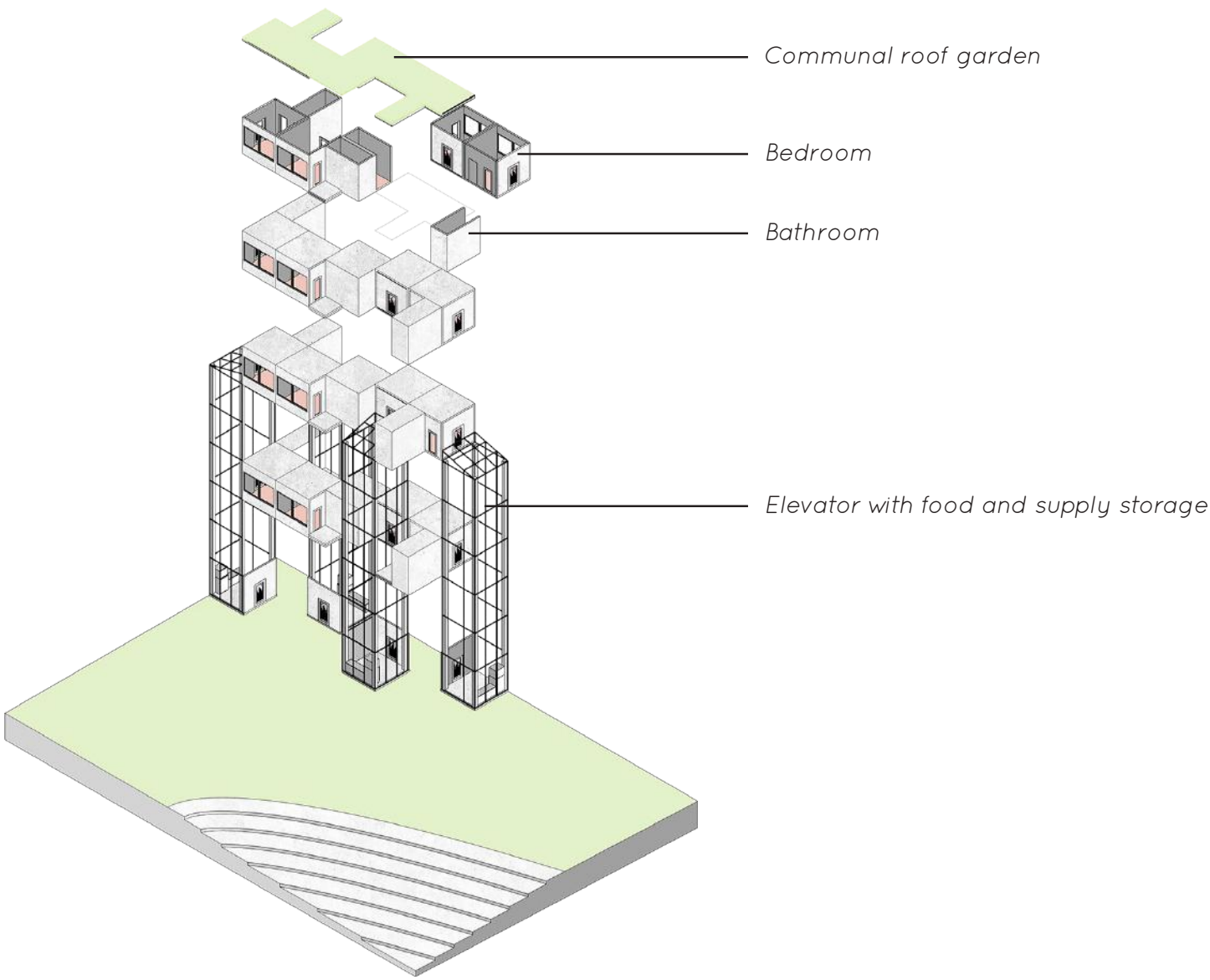




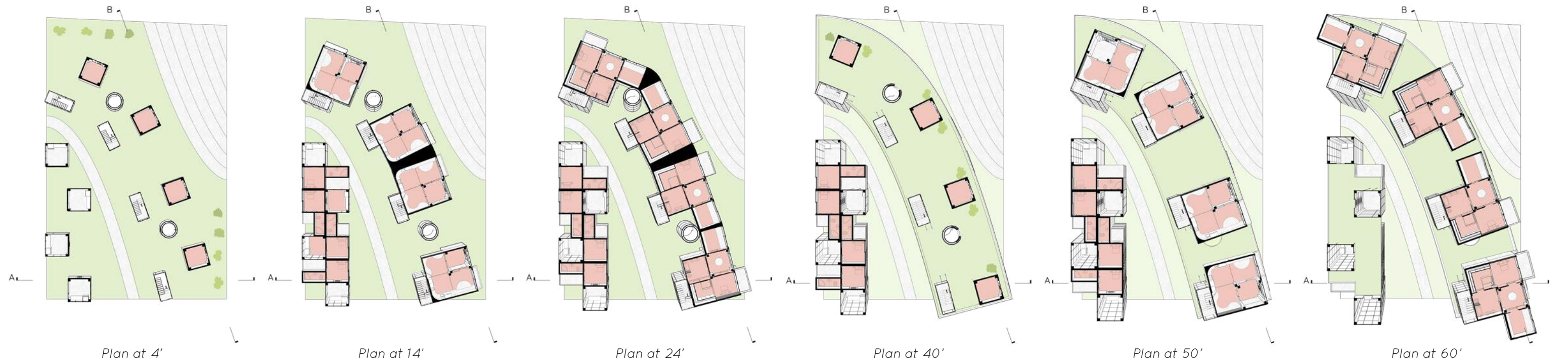
Multi-floor housing exploded axon



Homeless housing exploded axon





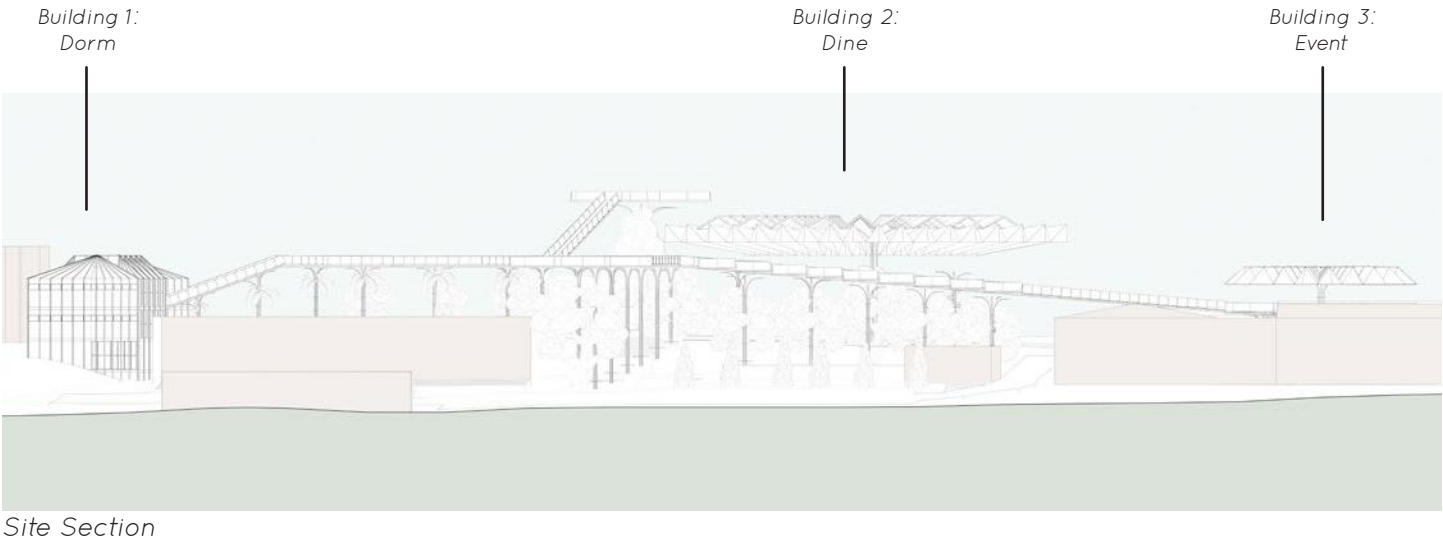
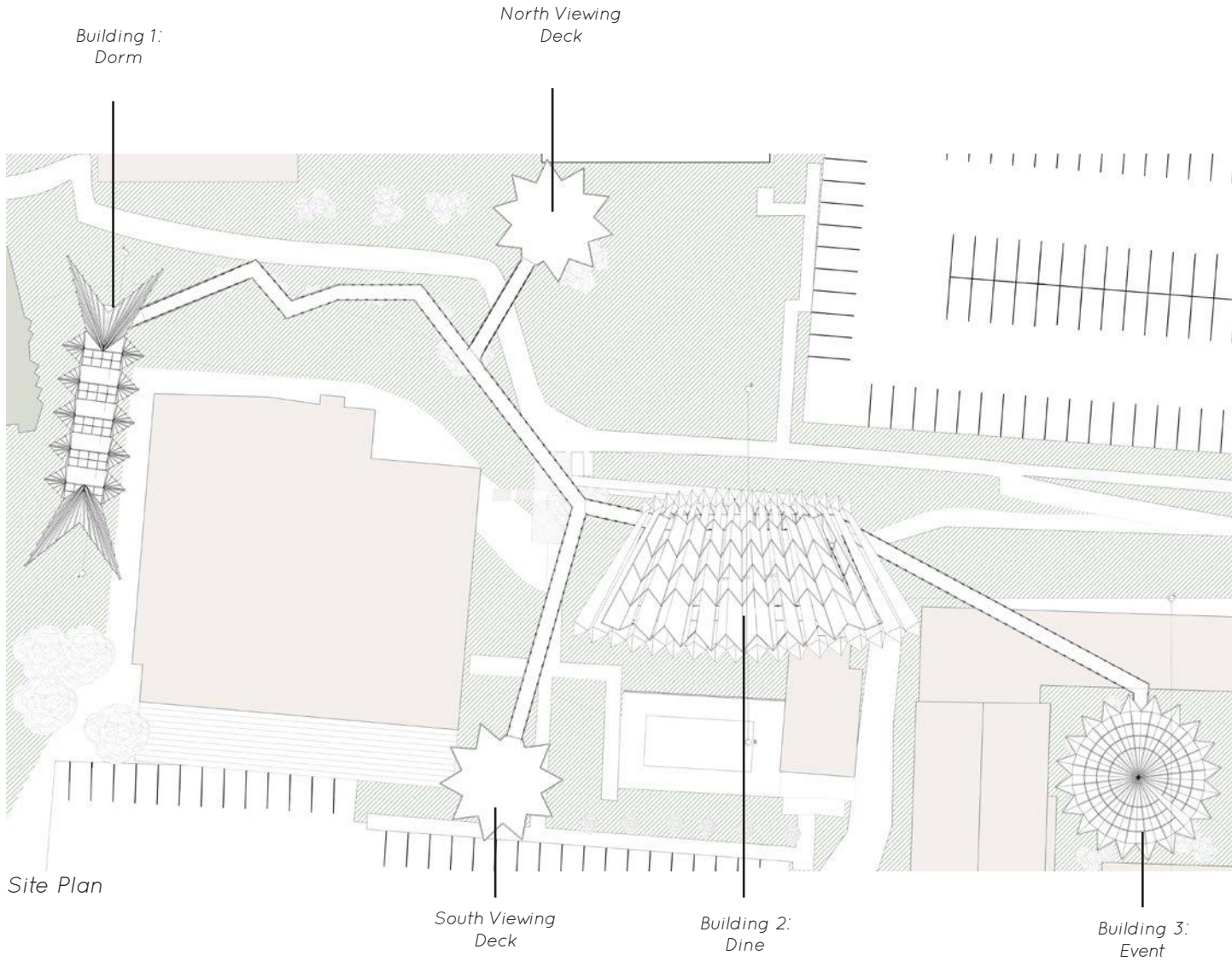






# Tree Network

The objective was to produce armor for the student body in response to a contemporary issue. The produced wings expand and retract to deter or invite conversation or attention, forcing surrounding people to keep their distance. This idea, the geometry of window blinds, and the importance of tranquility was used to develop a tri-structure, cross-campus dorm, dining, and event space.







1

Window blinds

3D-printed adaptor

Nylon thread controls wings

## Inspiration: Armor

2 stages:

**Timid stance:** expand

**Confident stance:** retract



2



3



4



5



Building 1: Dorm



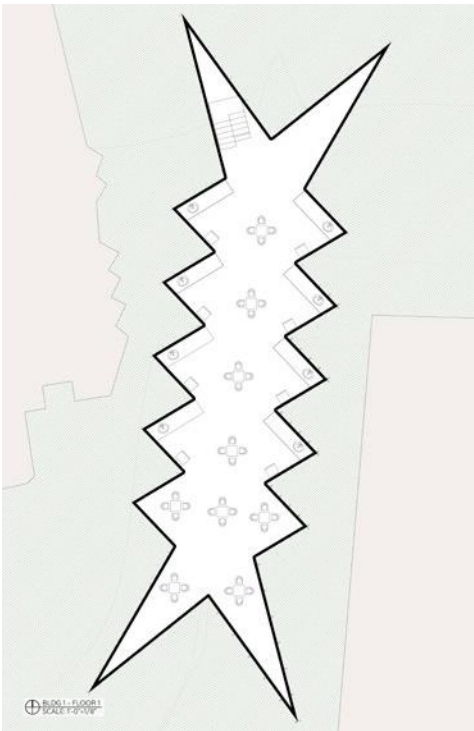
Level 2 dorm interior (double + shared closet)



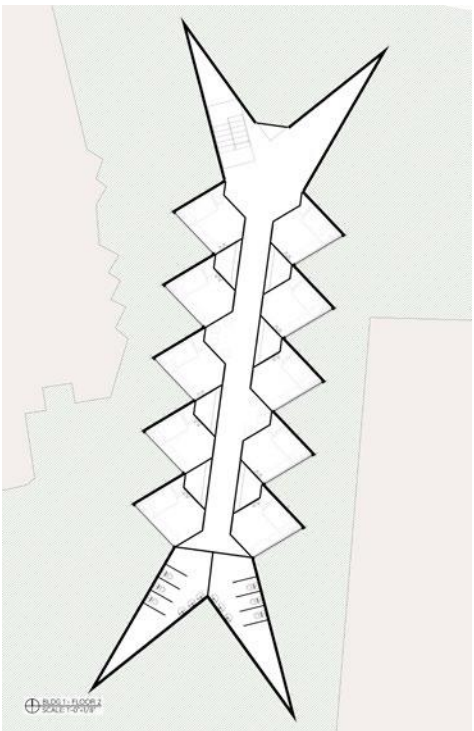
Level 3 dorm interior (single)



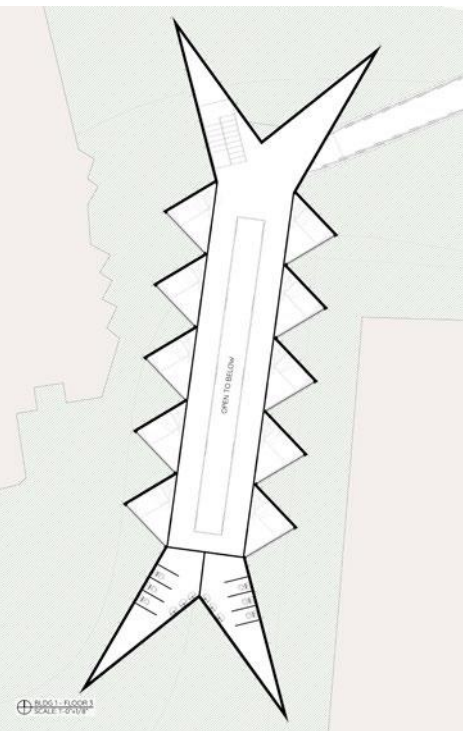
Interior Axon



Level 1: kitchen/dining



Level 2: Doubles with shared closets



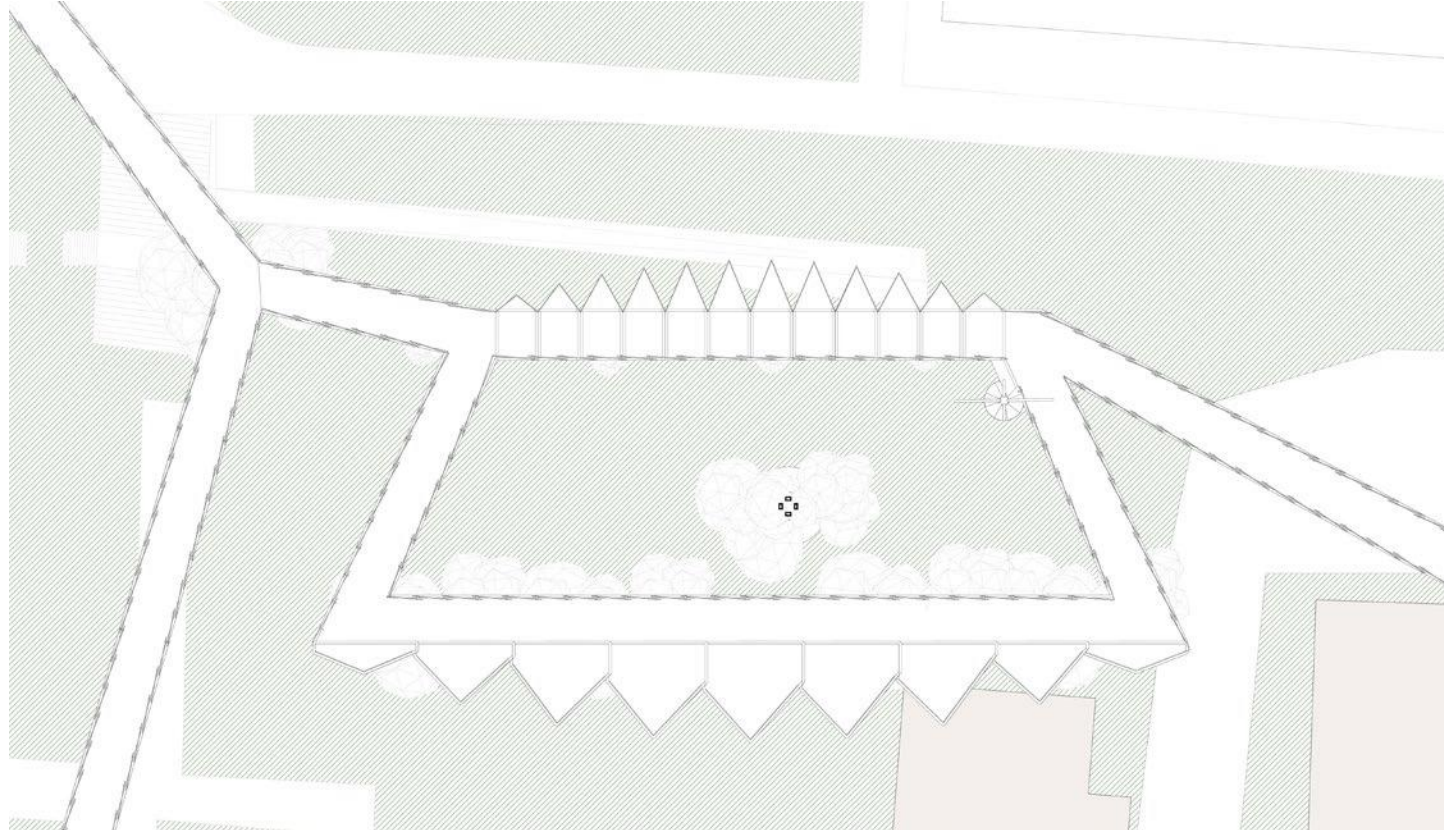
Level 3: Singles



Section A

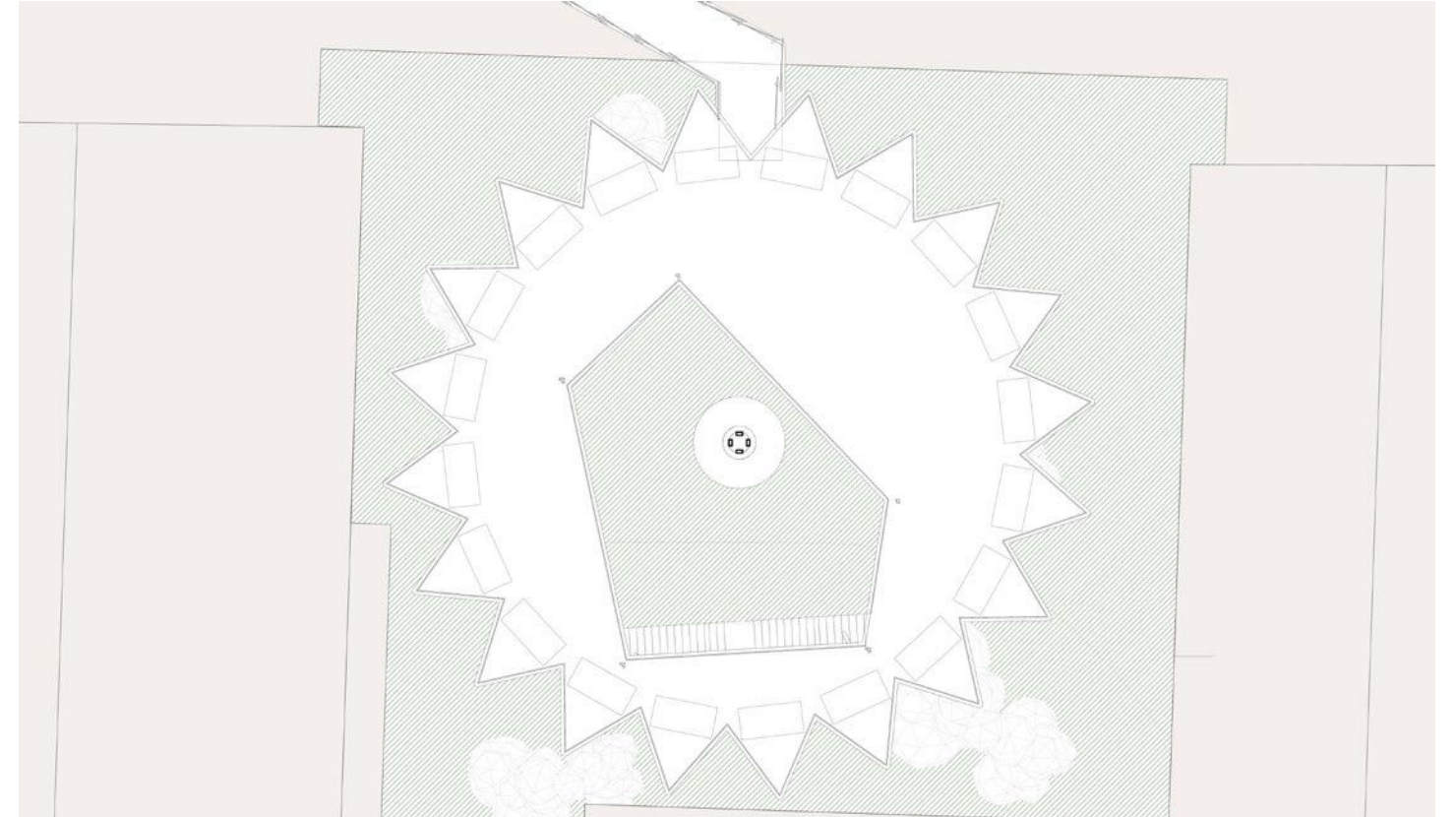


## Building 2: Dine



Plan: Choose an alcove to eat alone or with a small group.

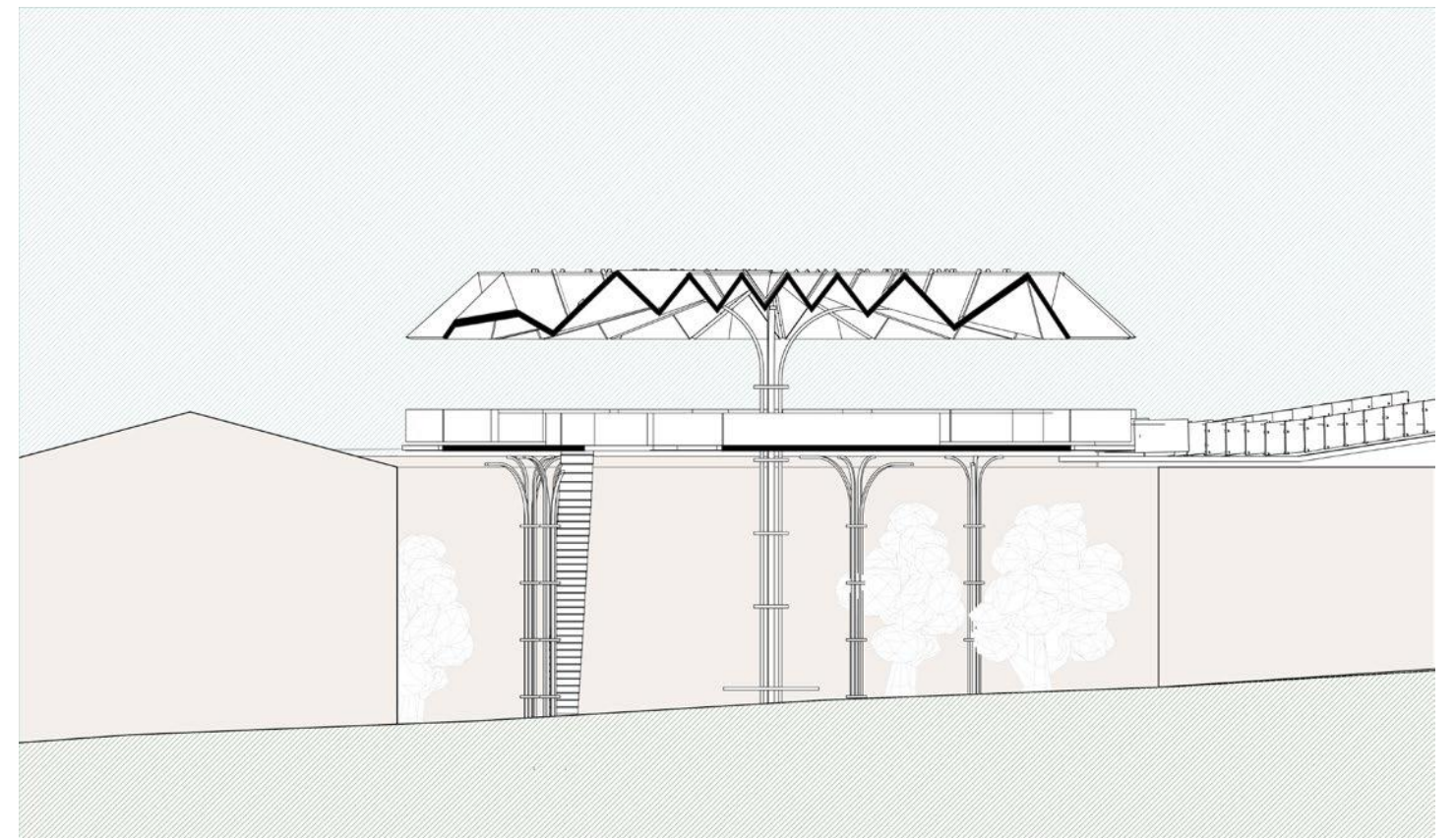
## Building 3: Event



Plan: Set up a table in each alcove during campus events.



Section B: Choose between a South view to the 5 freeway or a North view to the Verdugo Mountains.



Section C: Enter from above or from ground level.



