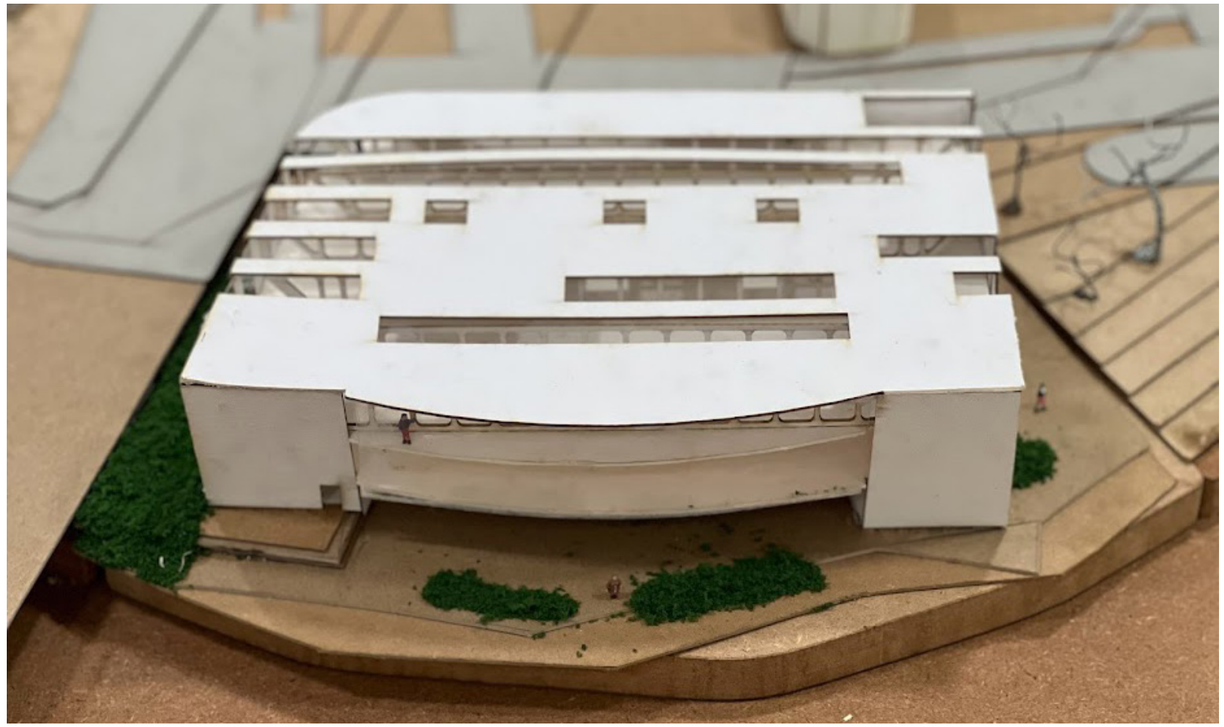
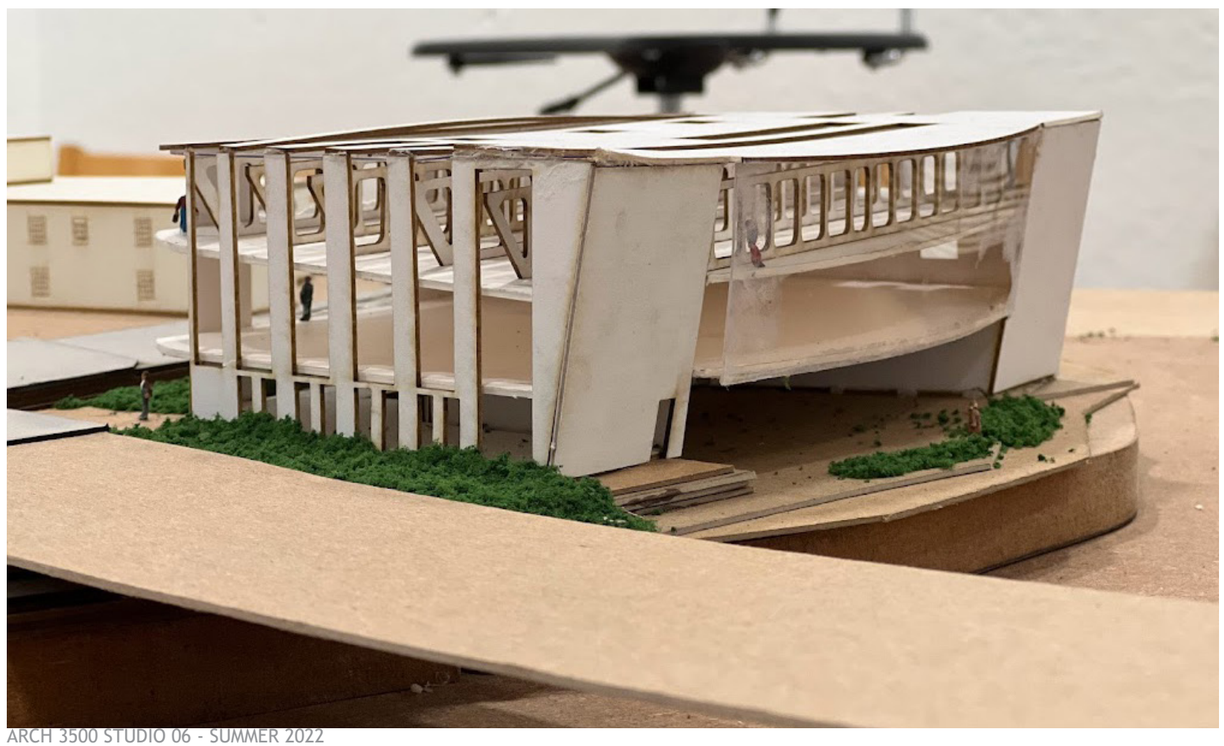
Team Lamp Team Portfolio

Joe Slunt & Oscar Mendoza

Professor Anthony Piermarini

Studio 06





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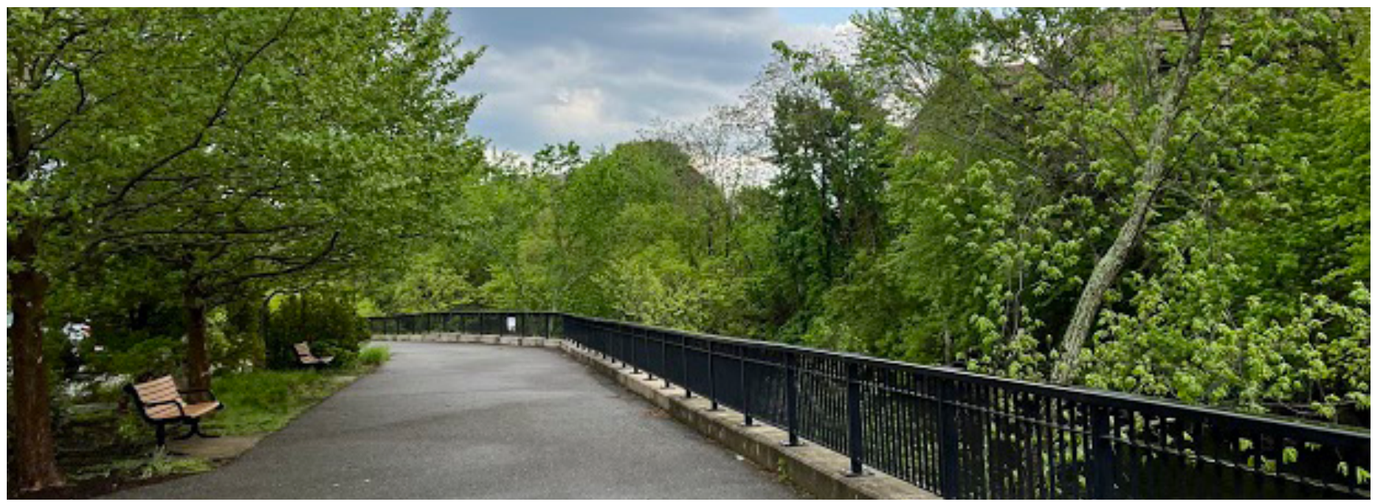
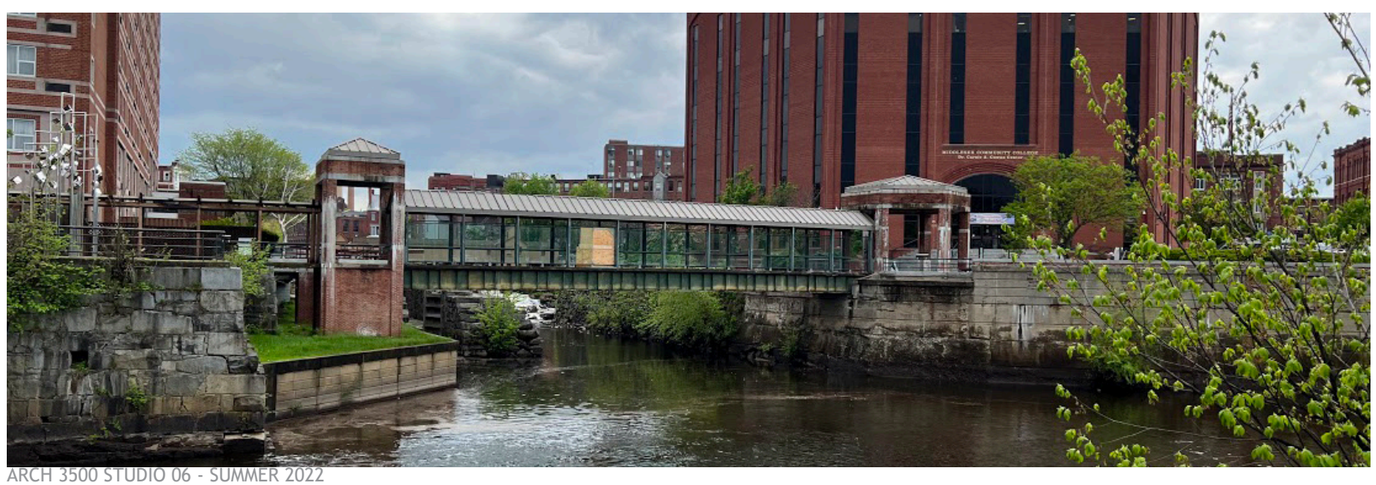
Phase 1: Site Context Documentation & Analysis

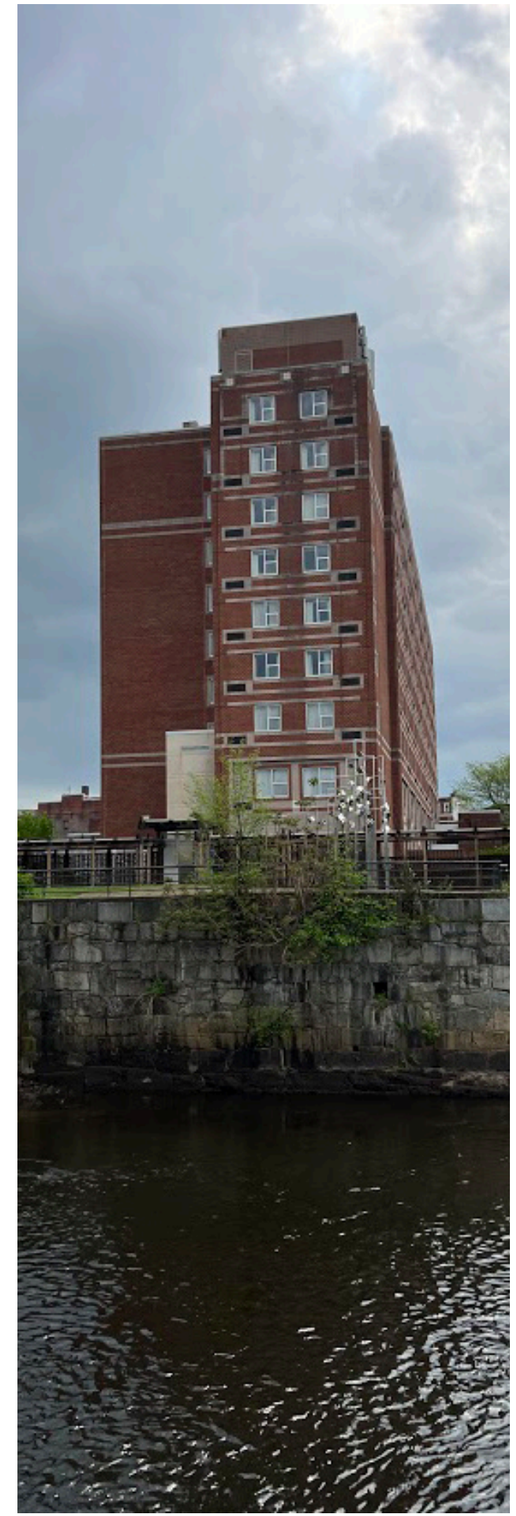
Site Summary

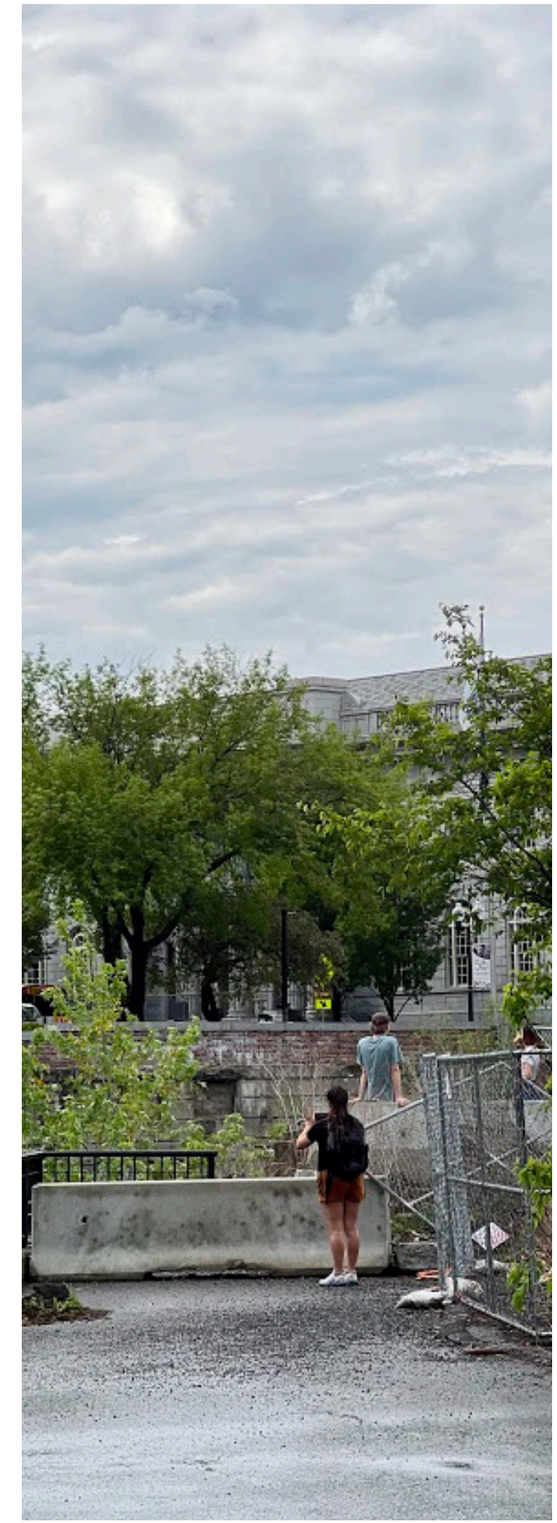
After spending a significant portion of the day in Lowell, we were able to understand and hone in on three major aspects that we as a team would want to address and focus on moving forward in our design. Located on 1 E Merrimack St, the first aspect that came to mind was establishing connections between the site and the rest of Lowell. With it being set right next to the water canal, surrounded by other large scale buildings (Lowell Auditorium), and it being along the end of the bridge, it opened up the possibility for us to take advantage of that. The second aspect that is similar to the first, given it's location, we knew we wanted to create an exterior that was visually appealing for the usual pedestrian and encourage them into our Maker Space building. The third and final aspect that we took away after this site visit was to maximize the square footage we were given by utilizing it to create cooperative workspaces between people using the same spaces, but also attempt to encourage users to learn from others who would be using other maker spaces in the same floor. Through group research, we were also made aware that the usual resident lacks the resources or space to hold certain equipment, whether that be because it's too expensive or too large to fit in a home. We aimed to provide access to these equipments and a comfortable space for any user.

Site Photos

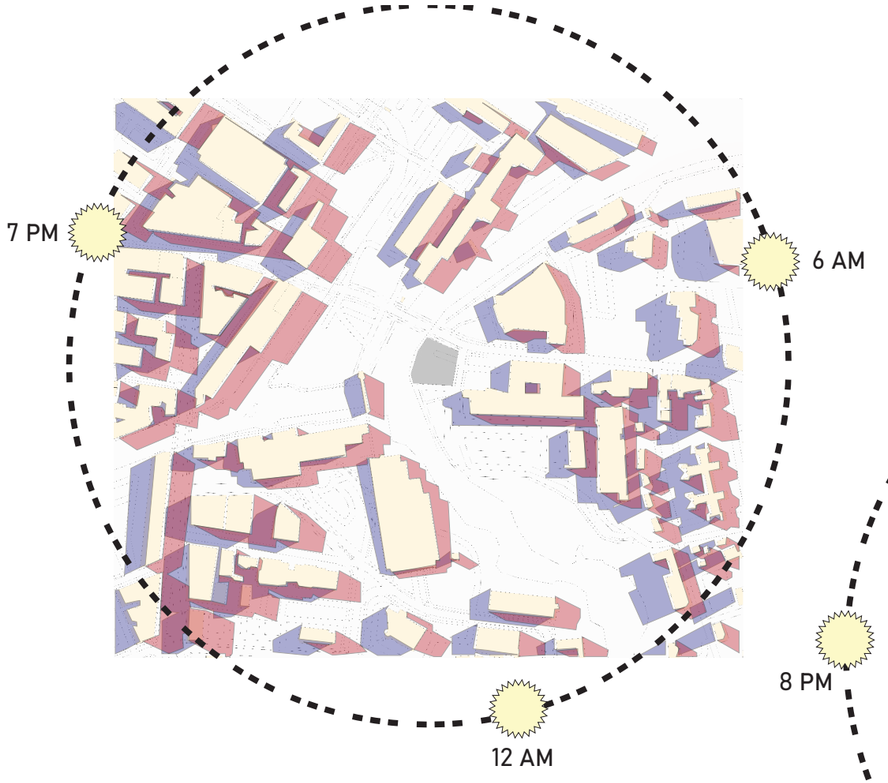




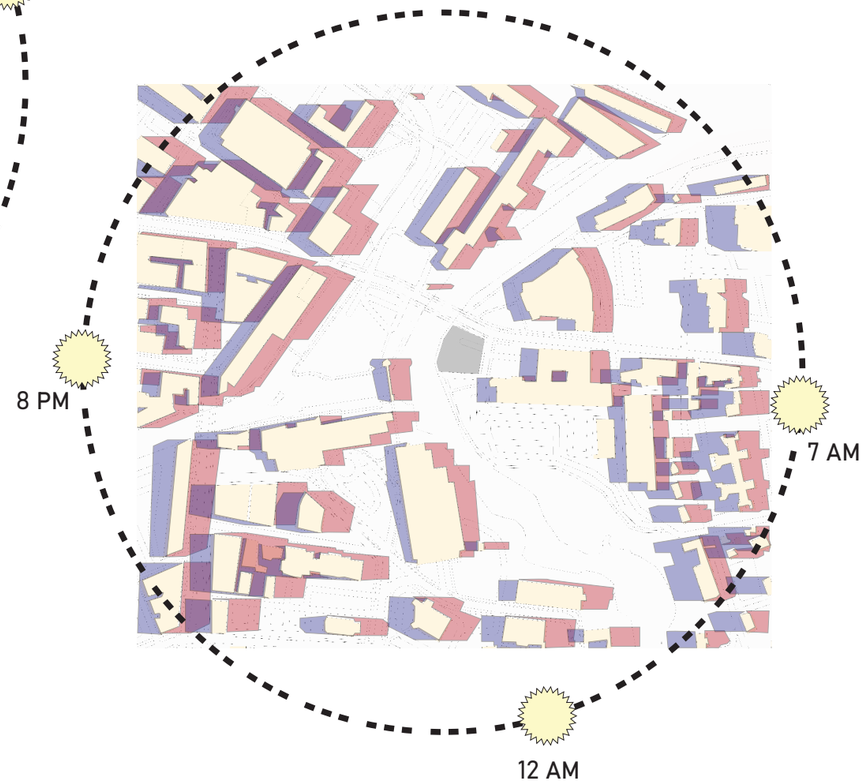




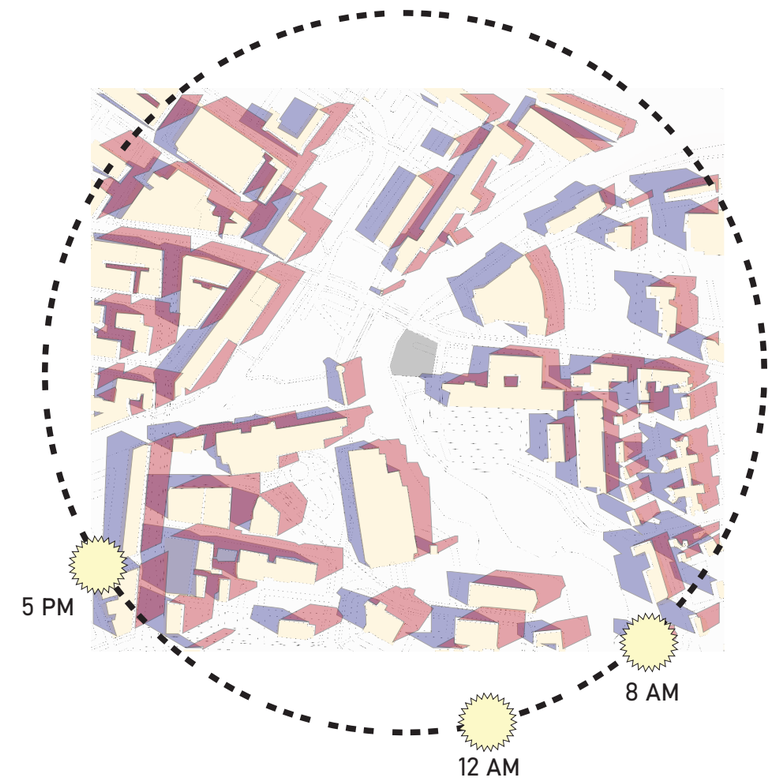
Sun Diagram (Joe Slunt)



SUMMER SOLSTICE



AUTUMN EQUINOX

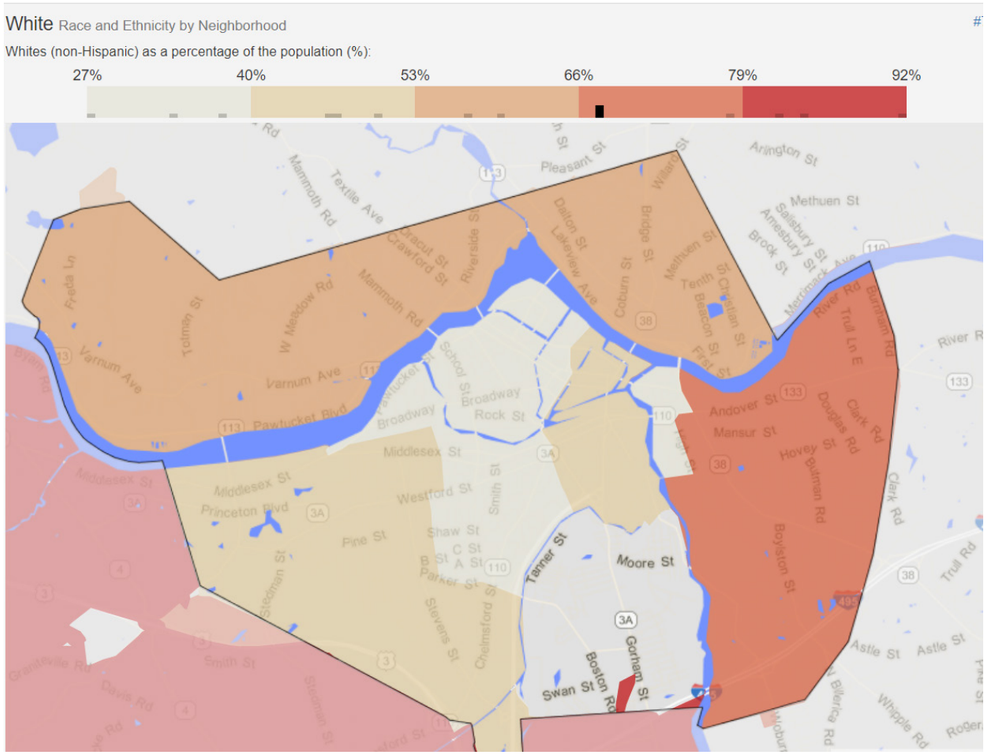


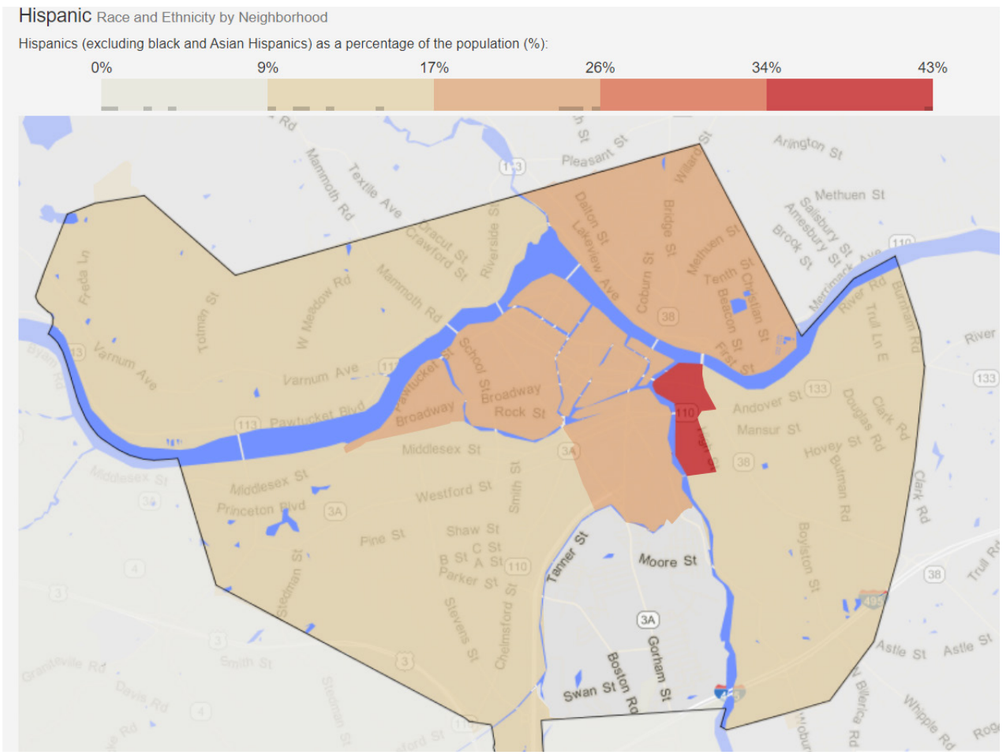
WINTER SOLSTICE

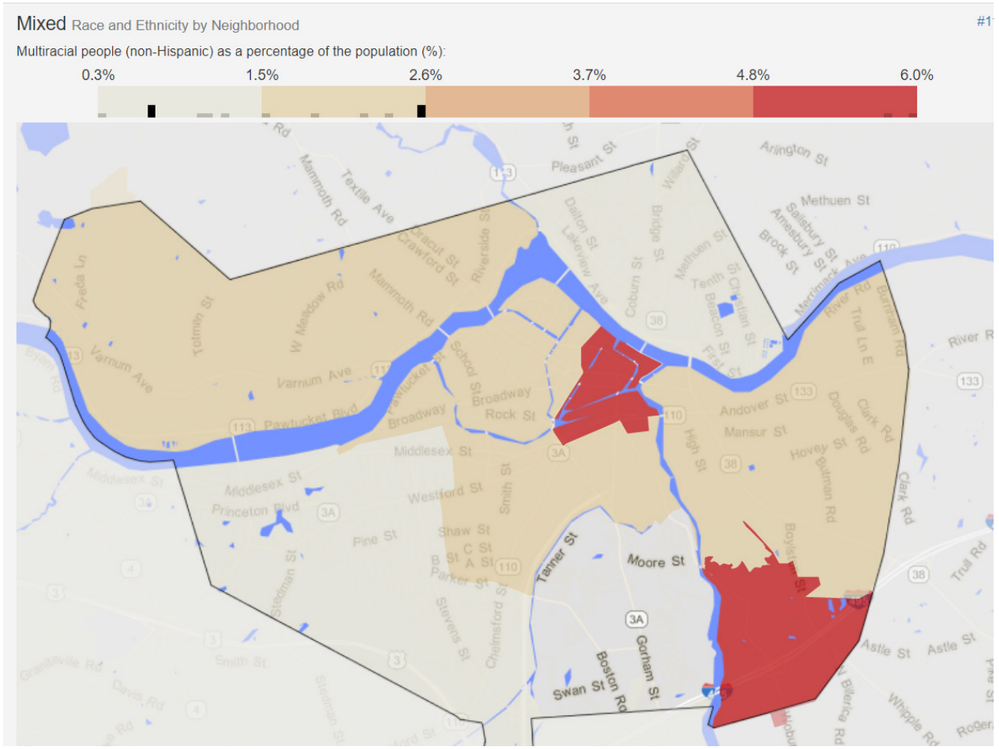
SHADING STUDY

- SUN RISE
- SUN SET

Cultural Demographics (Oscar Mendoza)



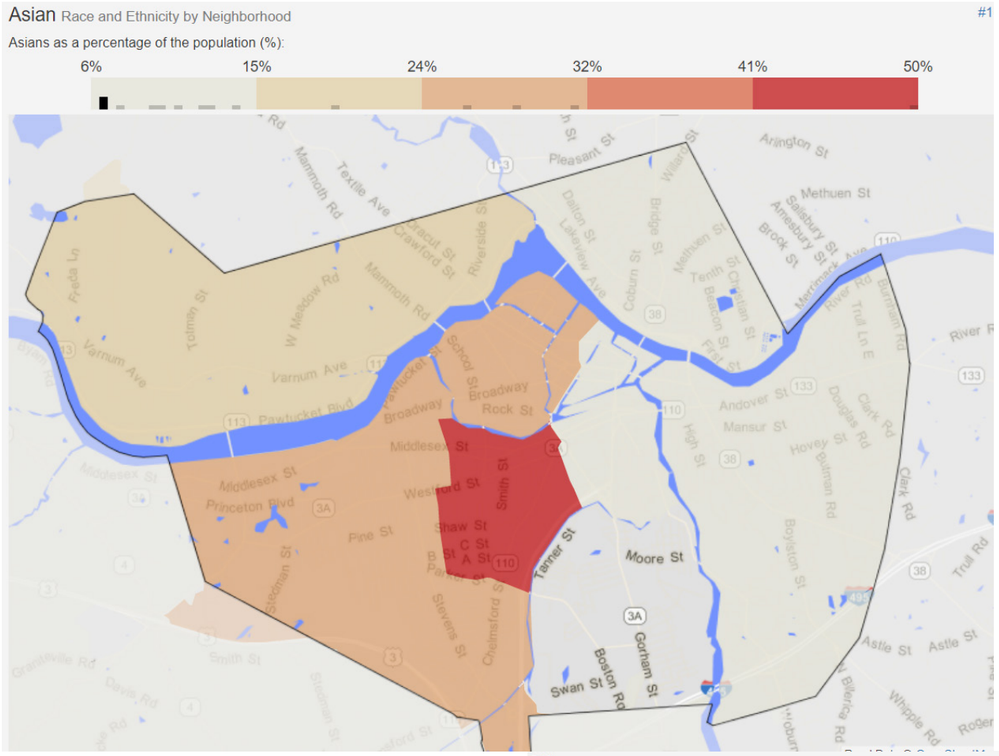


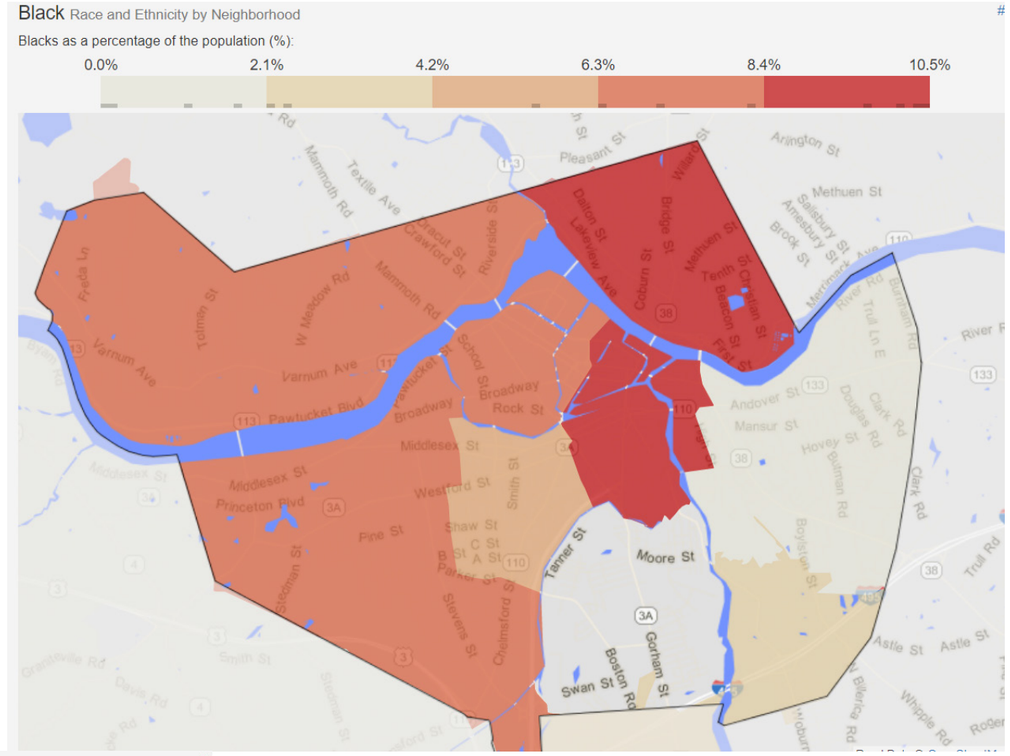


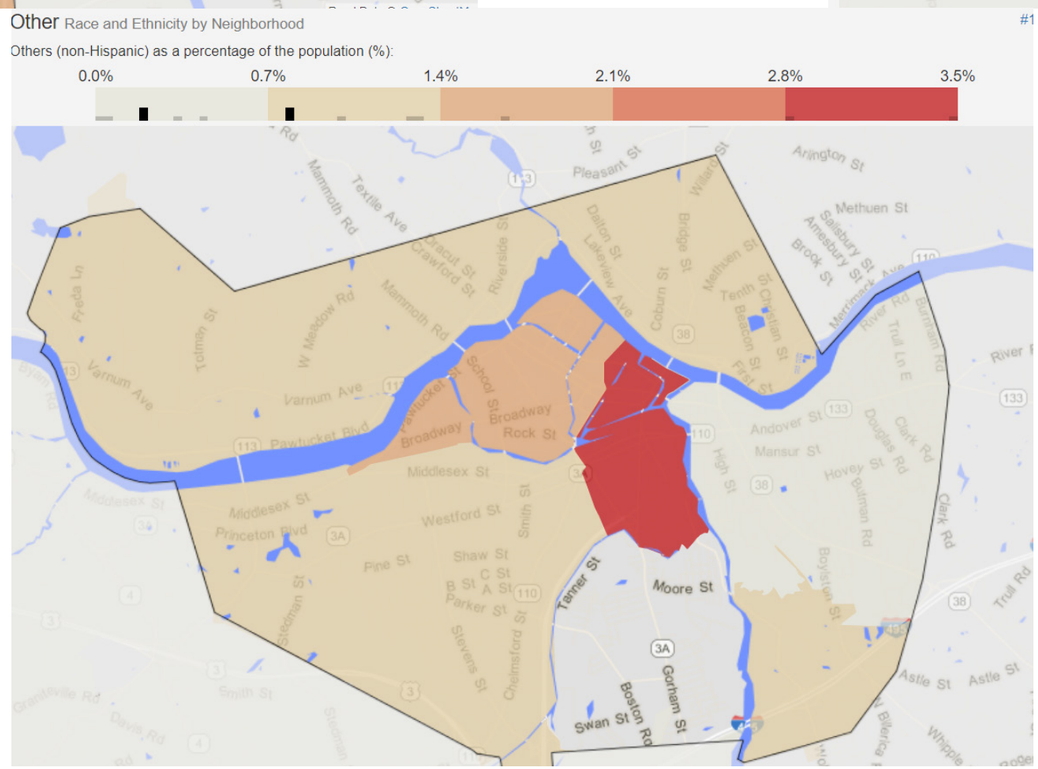
The majority population of Lowell is White at 49.4%. While it has largely remained like this, in recent years that number has slowly started to decrease as more people of different racial groups begin to move to the city. The neighborhoods where they are more populated (density-wise) are Belvidere & South Lowell, and Pawtucketville & Centralville

Lowell's Hispanic population sits at 18.7% The population density is much more dispursed compared to the other maps. Lower Belvidere is the neighborhood with the highest density with all the other neighborhoods sharing a similar figure aside from Sacred Hearts

The mixed racial group makes up 2.1% and while they make up a small percentage, they occupy Downtown and South Lowell.







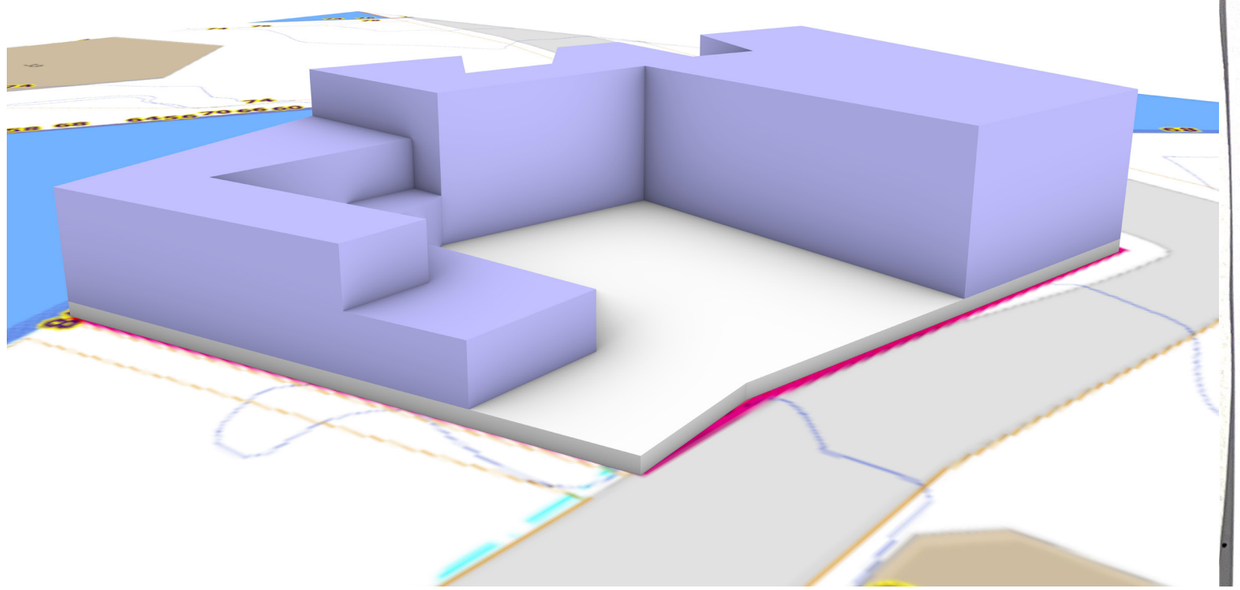
Lowell's Asian population makes up 21.2% and it boosts the largest Asian population that is of Cambodian origin in the U.S at 12.5%. The population density is primarily in the western region of Lowell which comprises of Lower Highlands (where we see the highest percentage), Highlands, Arce, and Pawtucketville.

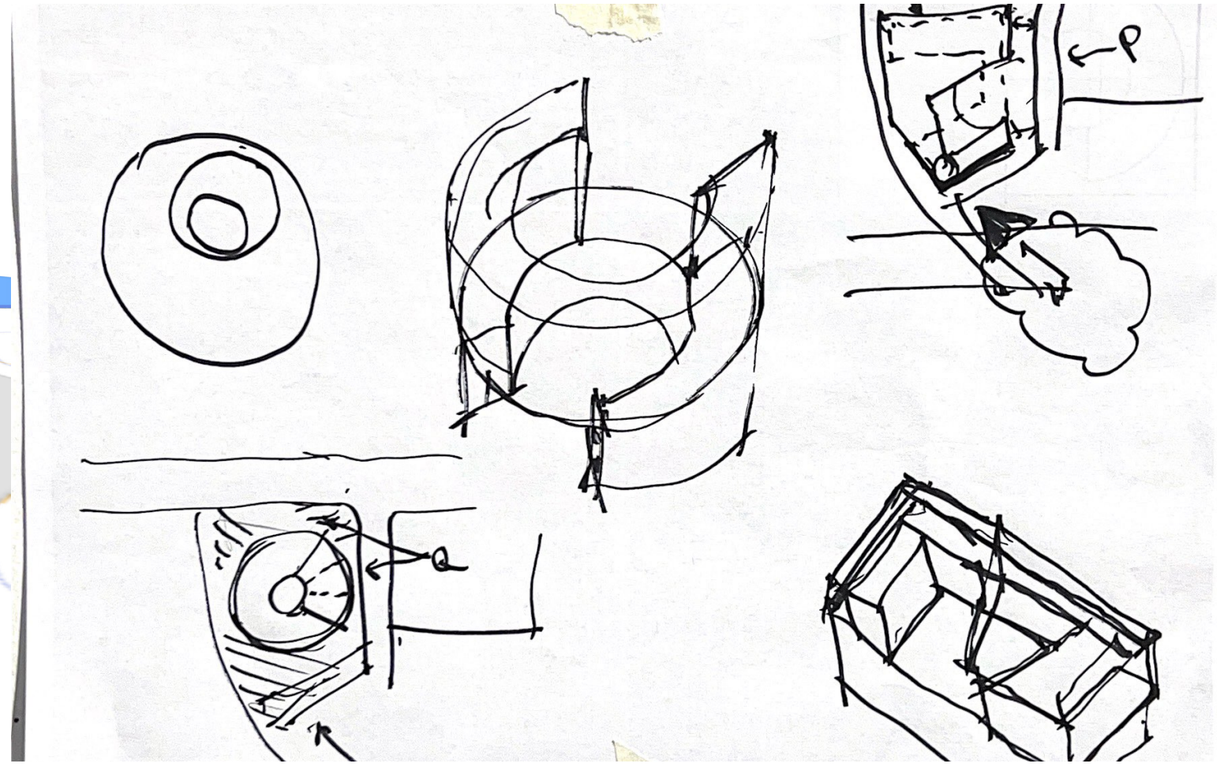
Lowell's African American population makes up 7.2%. While they make up a small percentage of the overall population, they are similarily disbursed as the Hispanic racial group. The neighborhoods with the highest density percentage is Centralville, Downtown & Lower Belvidere, while Pawtucketville, Acre & HIghlands also have a large density percentage.

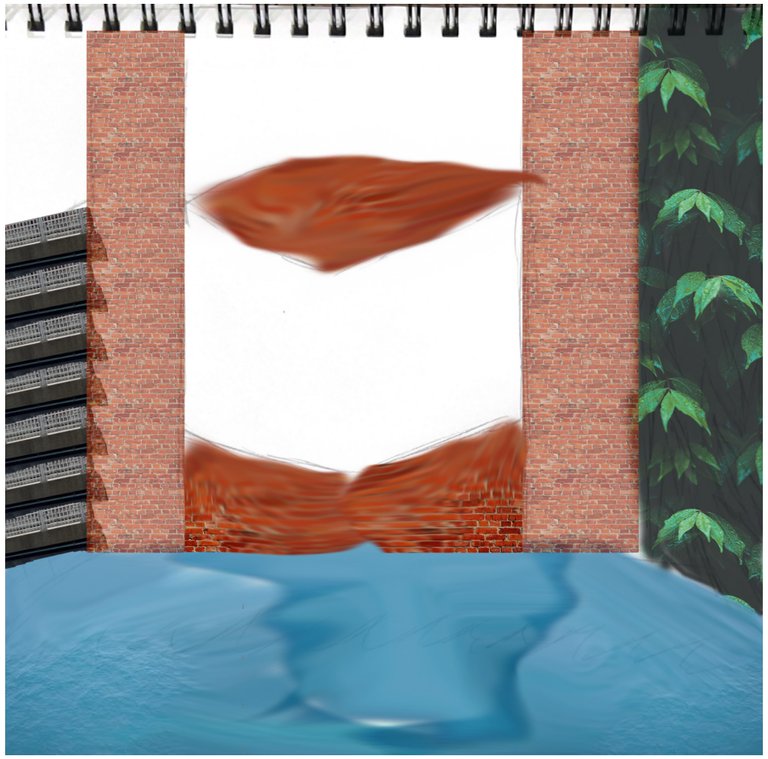
Groups classified under "other" makes up 1.3% and can be pinpointed to Downtown & Lower Belvidere, similarily to the Mixed racial group.

Phase 2: Precedent Analysis & Initial Concepts

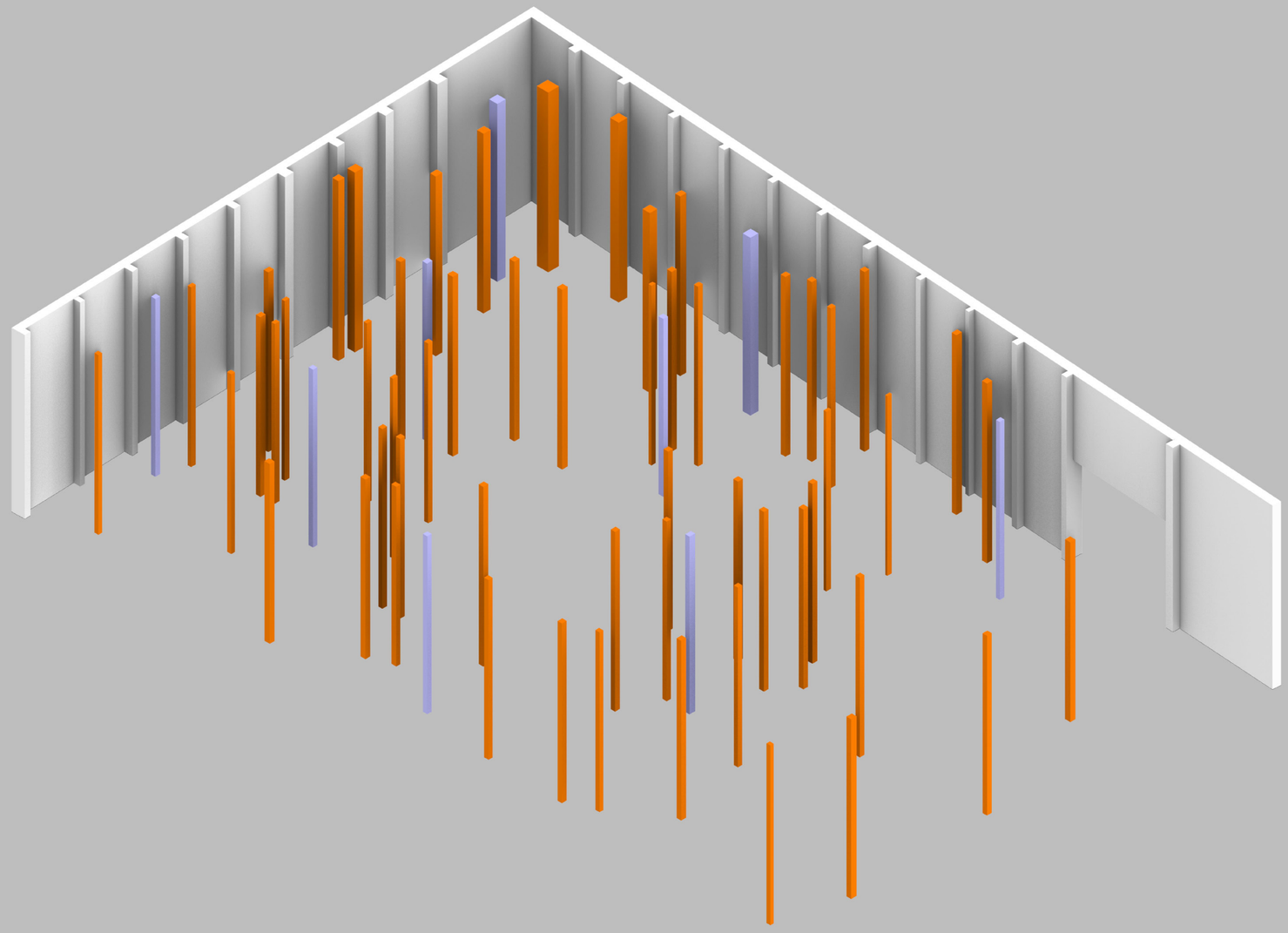
Concept Model | Initial Concept | Discursive Image`



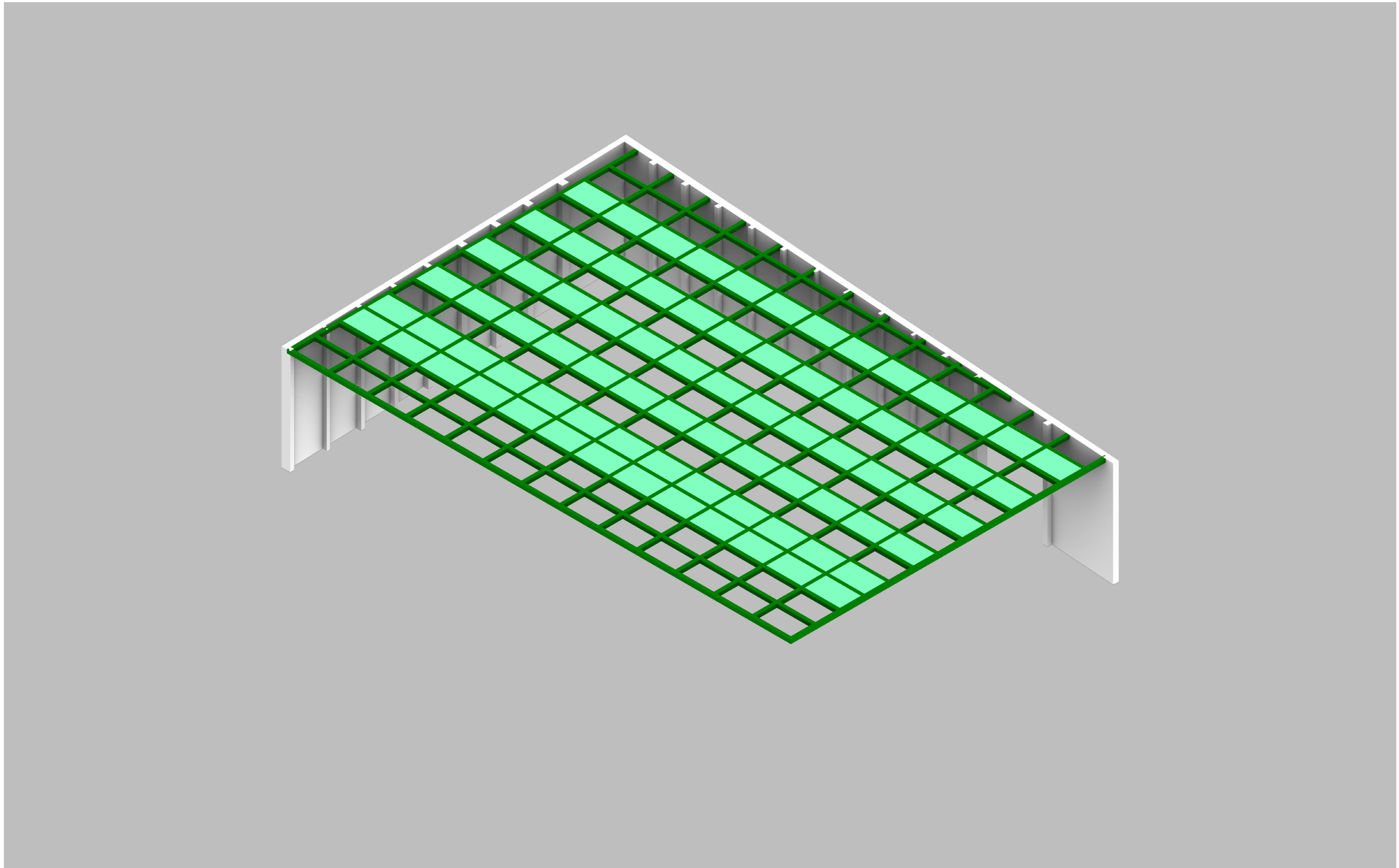




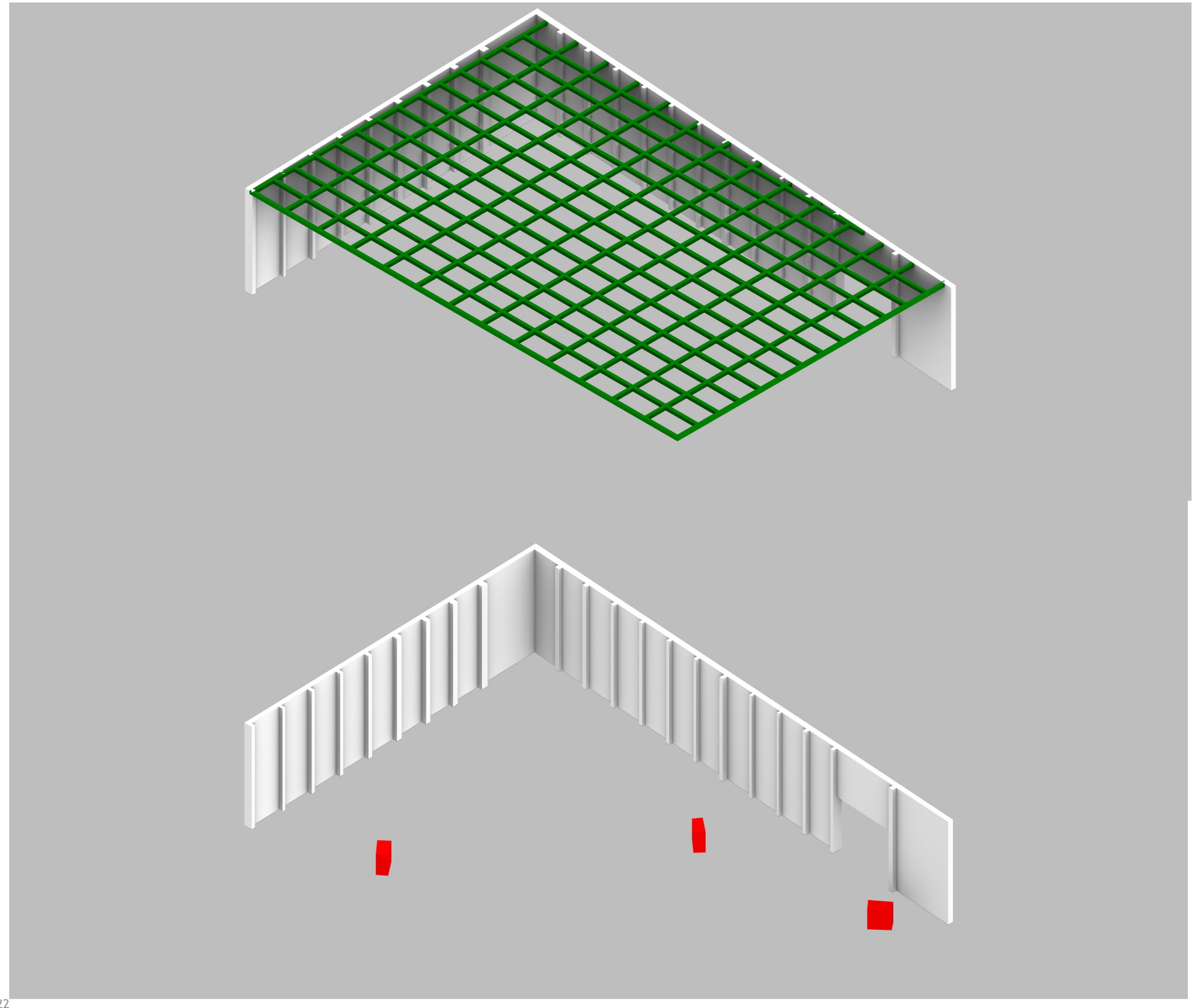
Structure Columns



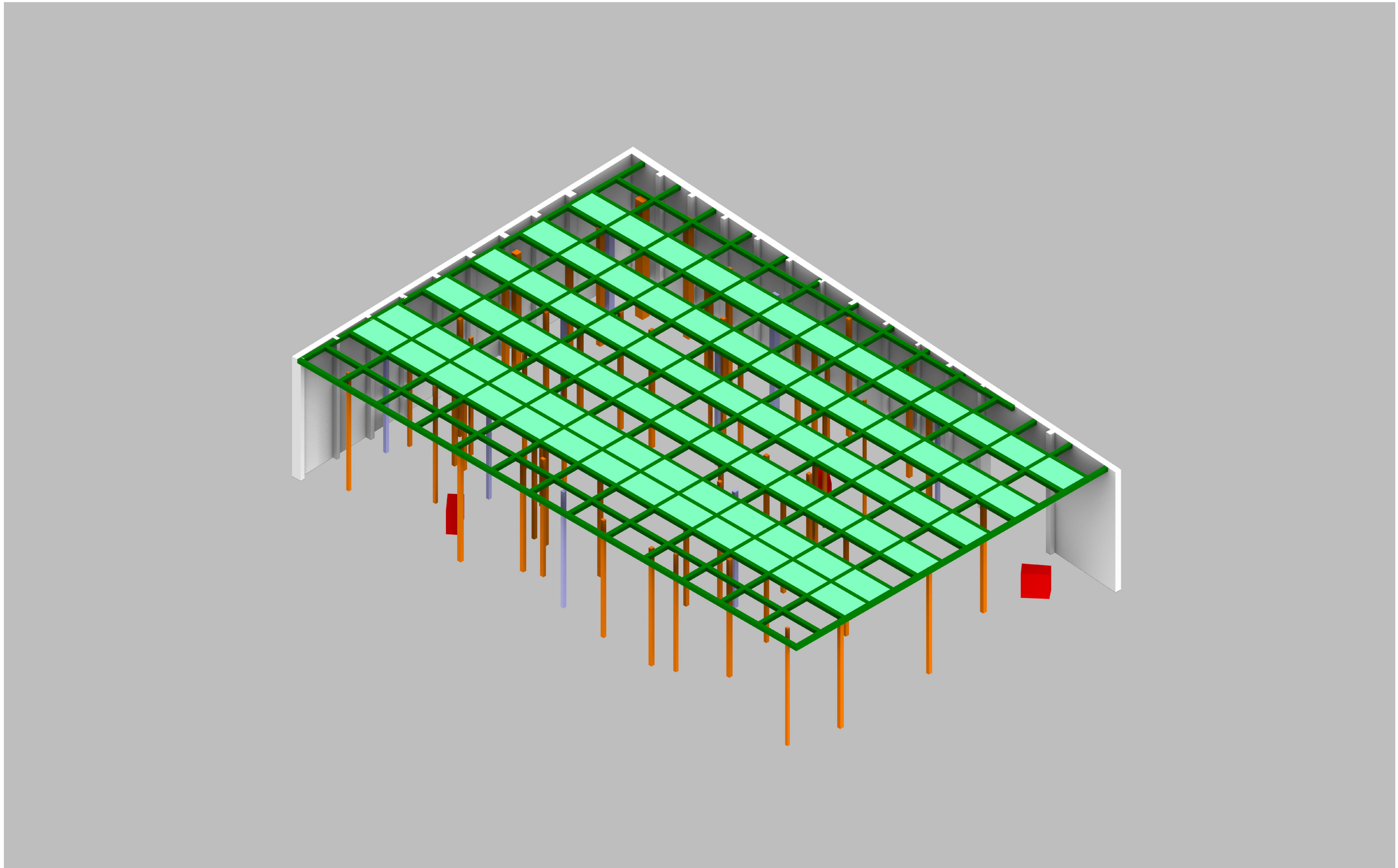
Enclosure

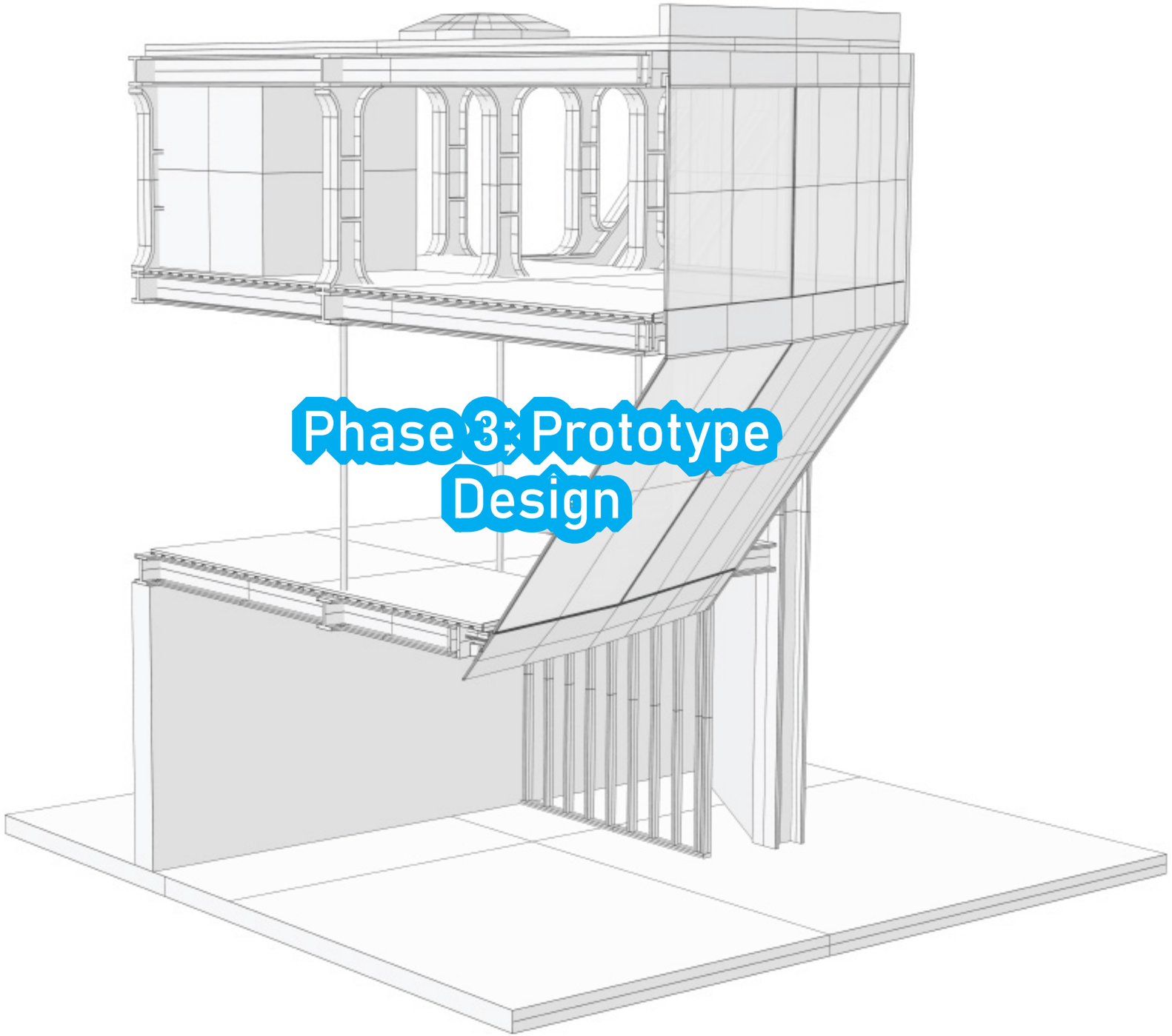


Environmental Control Systems



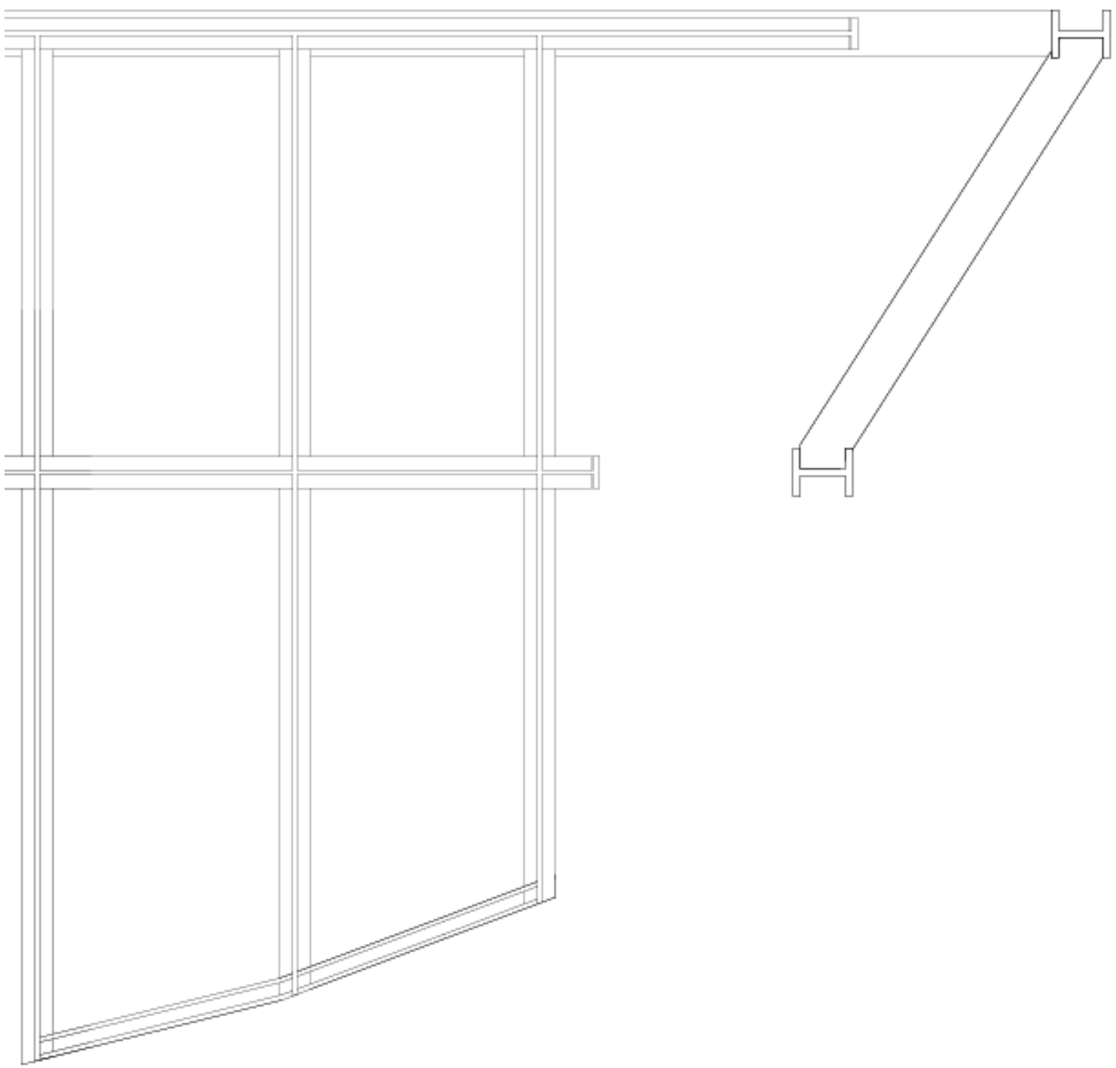
Composite Model



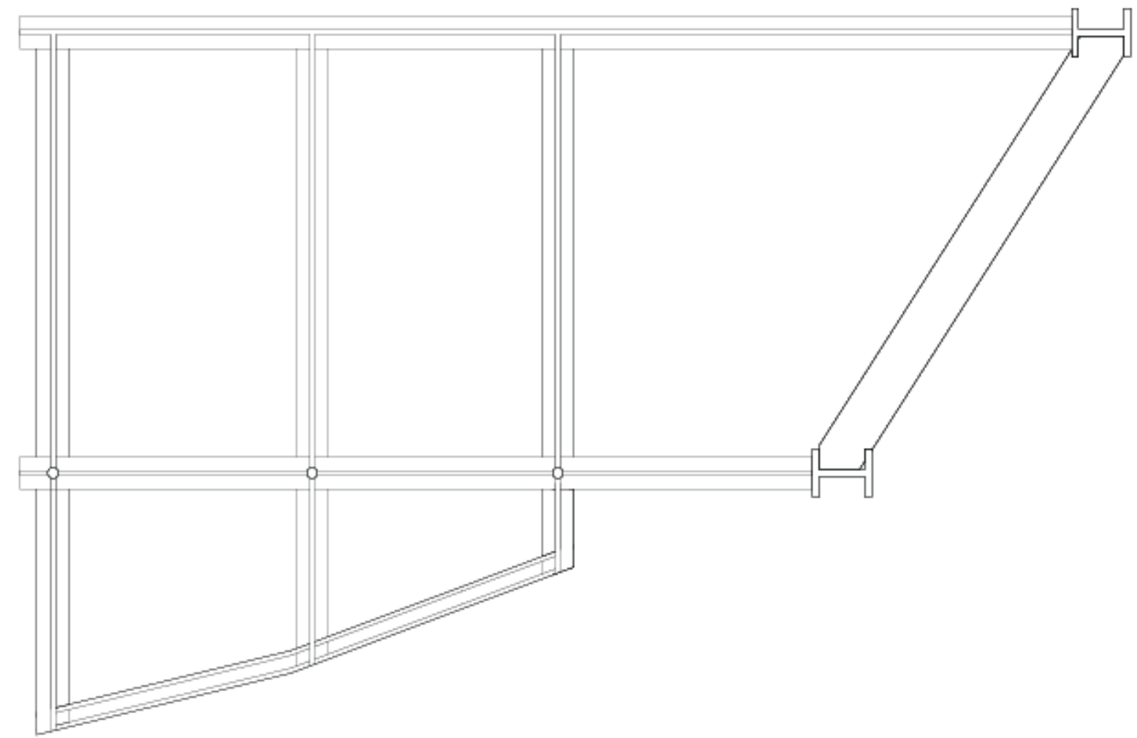


Phase 3: Prototype Design

Prototype Floor Plans

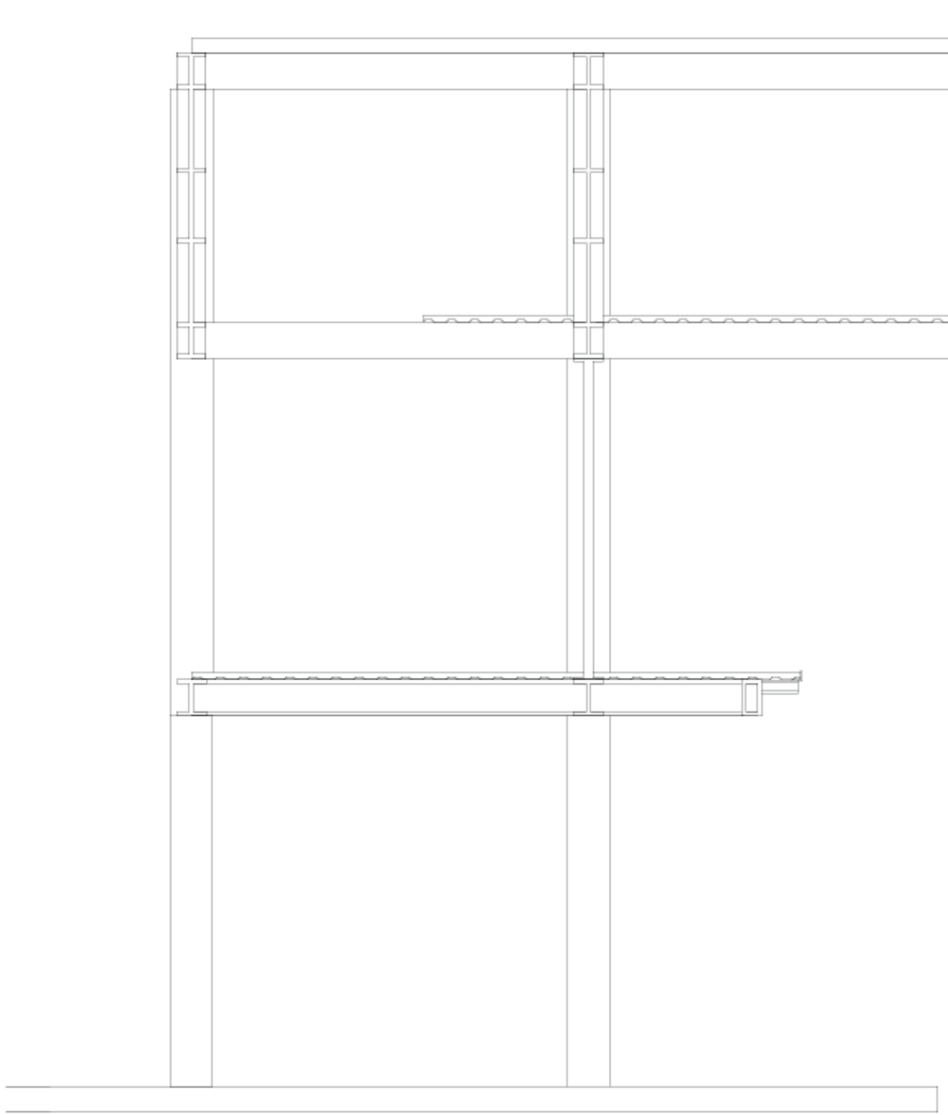


First Floor Plan
Scale: 1′=1/4″

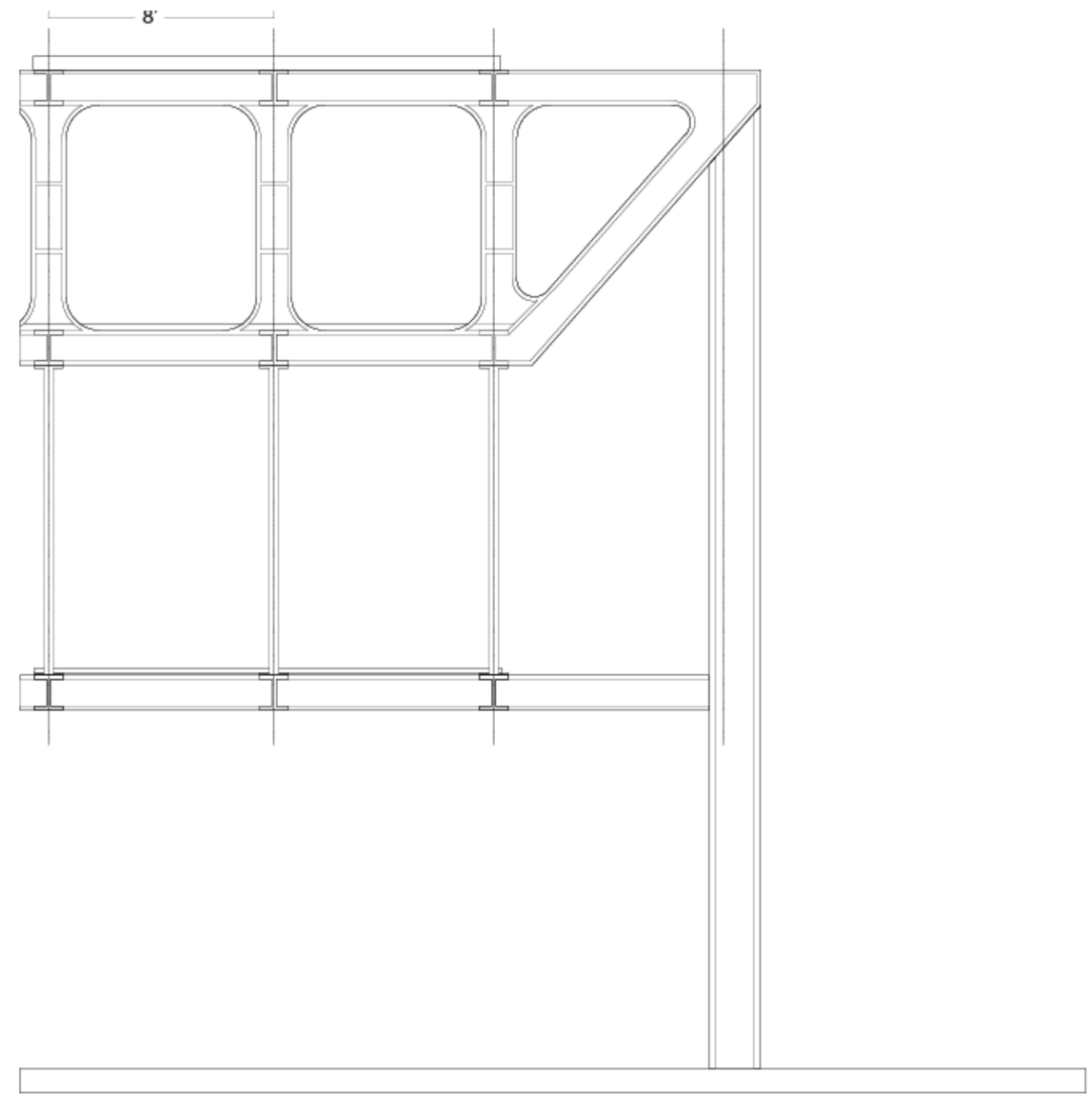


Second Floor Plan
Scale: 1′=1/4″

Prototype Sections

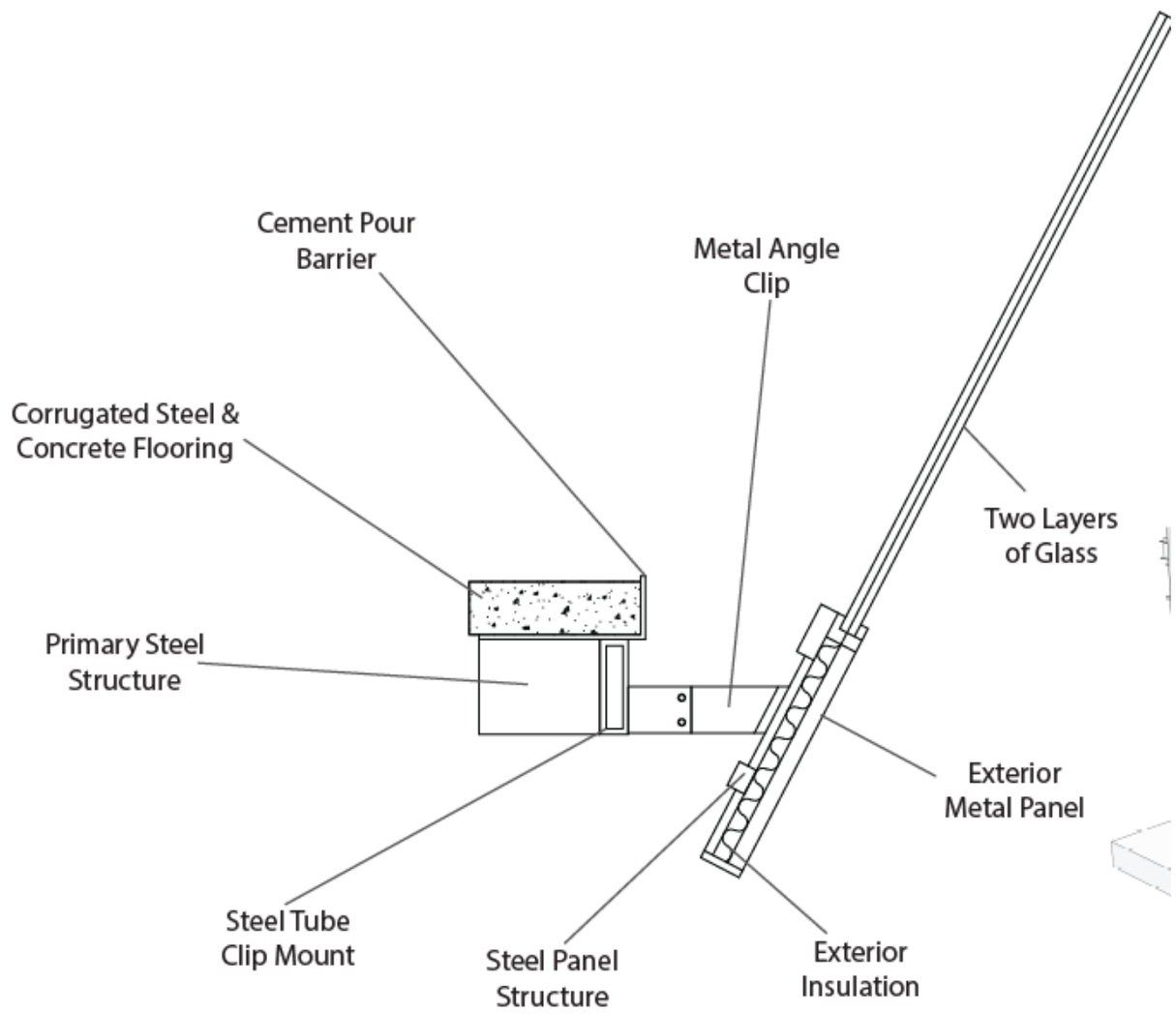


Left Section
Scale: 1′=1/4″

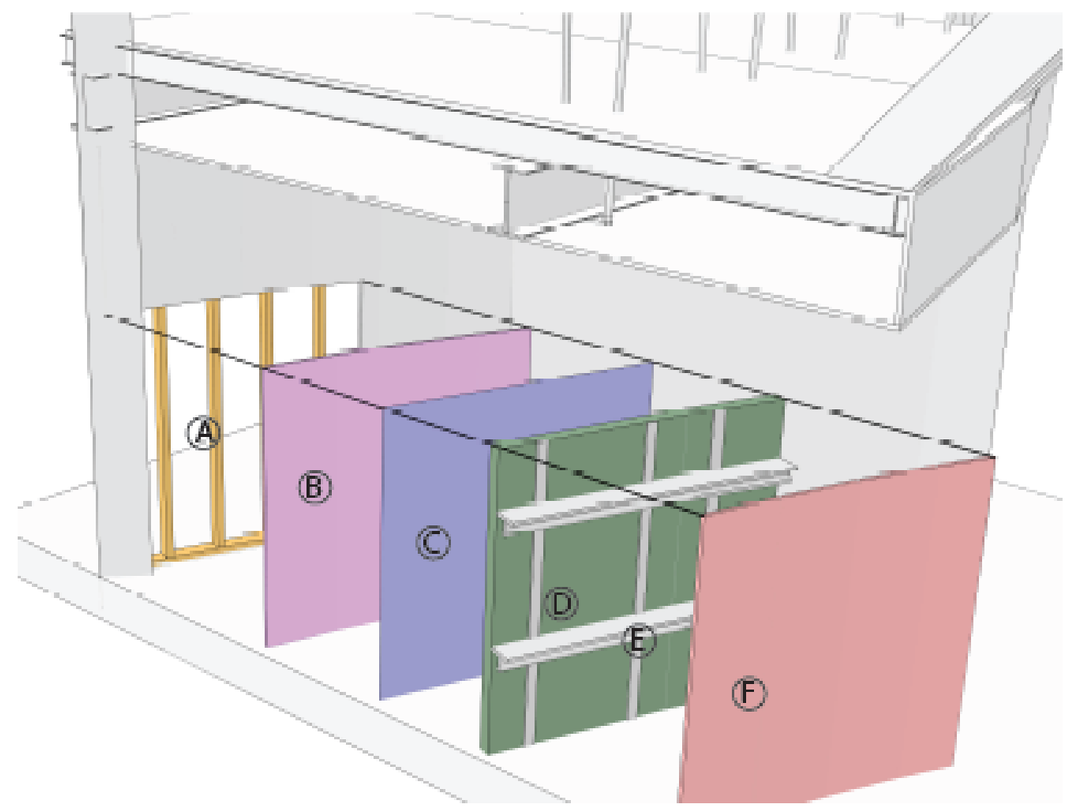


Front Section
Scale: 1′=1/4″

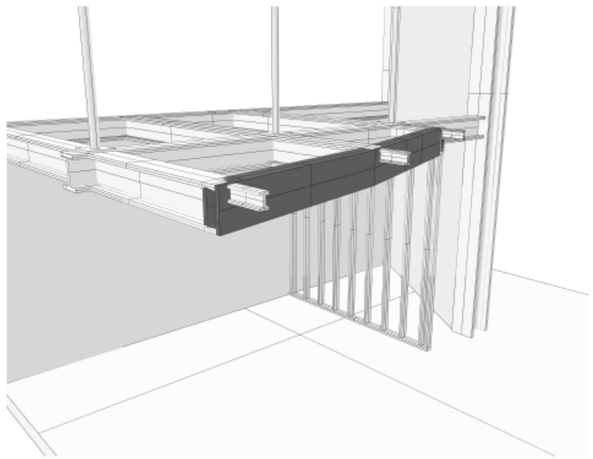
Prototype Curtain Wall & Metal Panel Enclosure

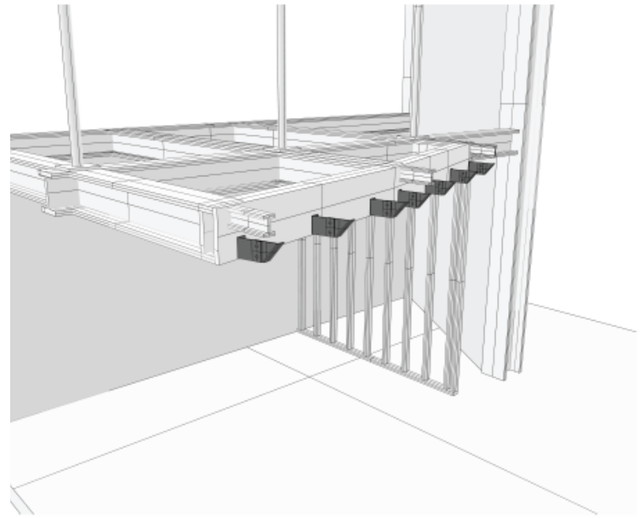


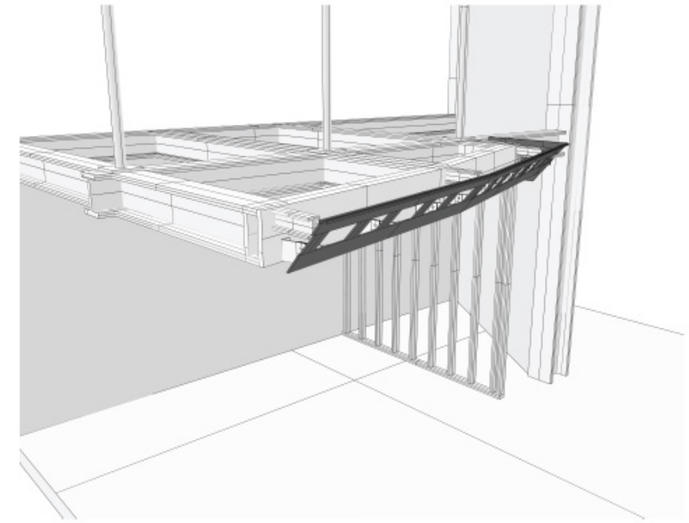
A) Steel Stud Framing
B) Sheathing Layer
C) Water Proof Layer
D) Thermal Control Layer
E) Panel Mounting Z-Clip
F) Exterior Metal Panel

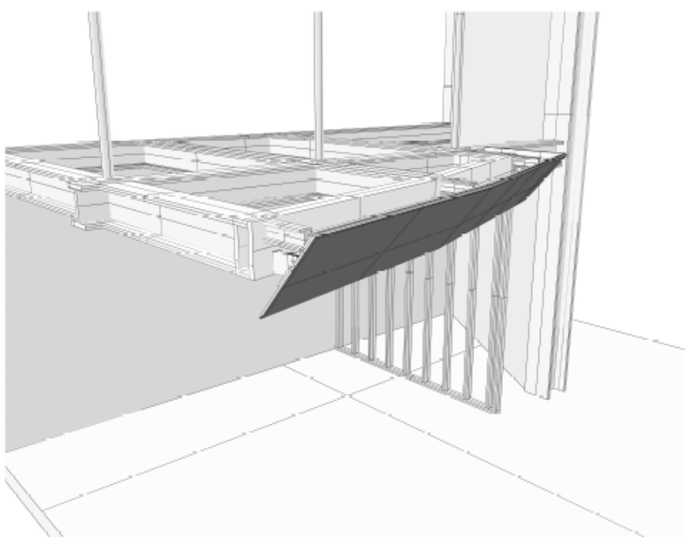


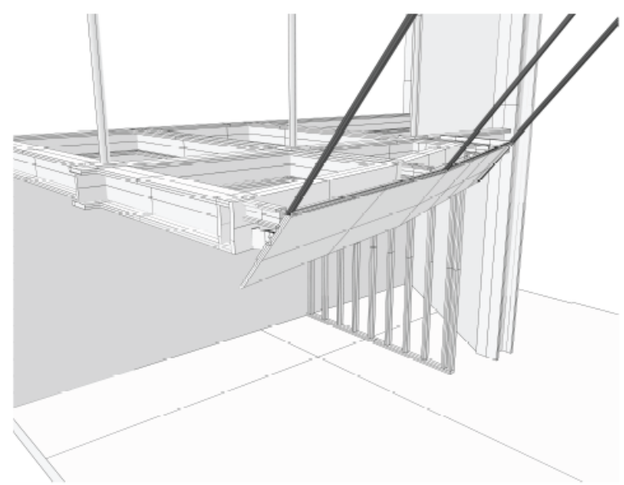
Prototype Curtain Wall Assembly

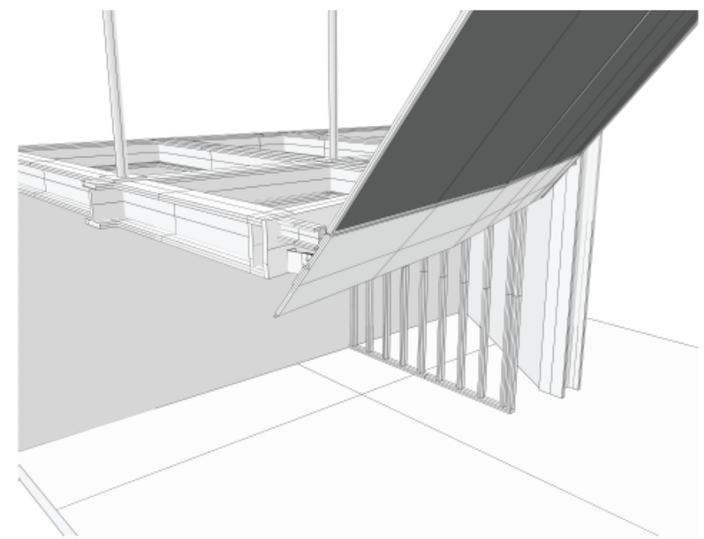




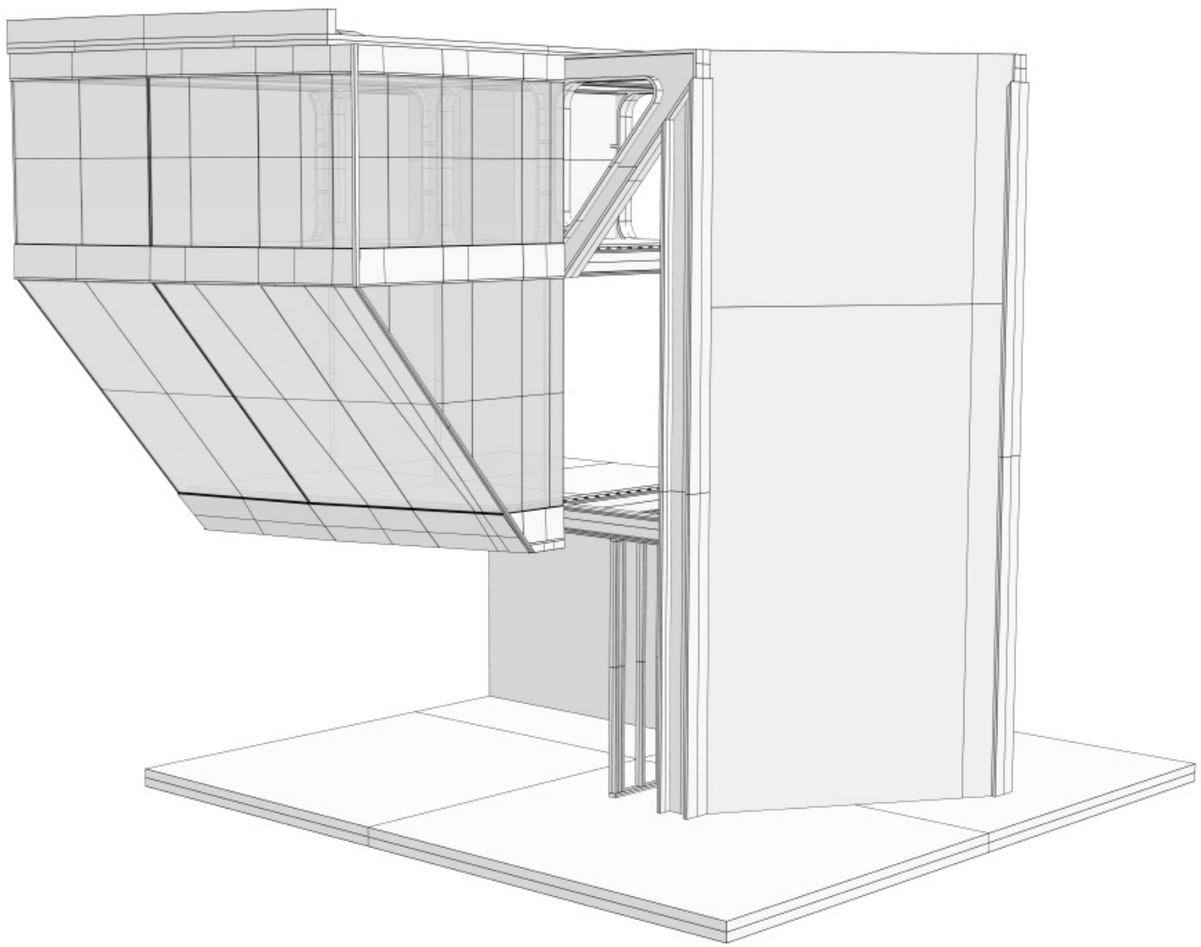


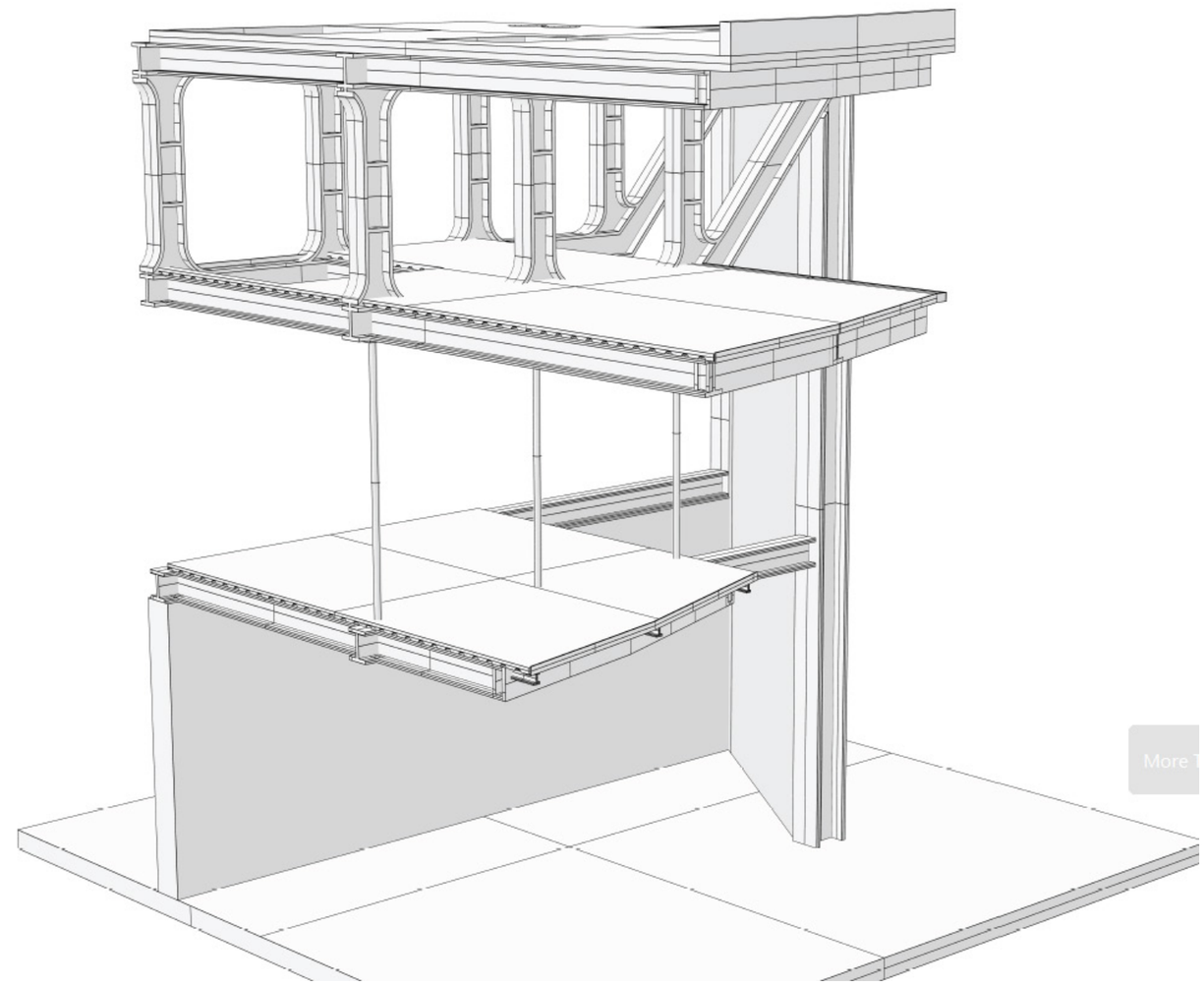




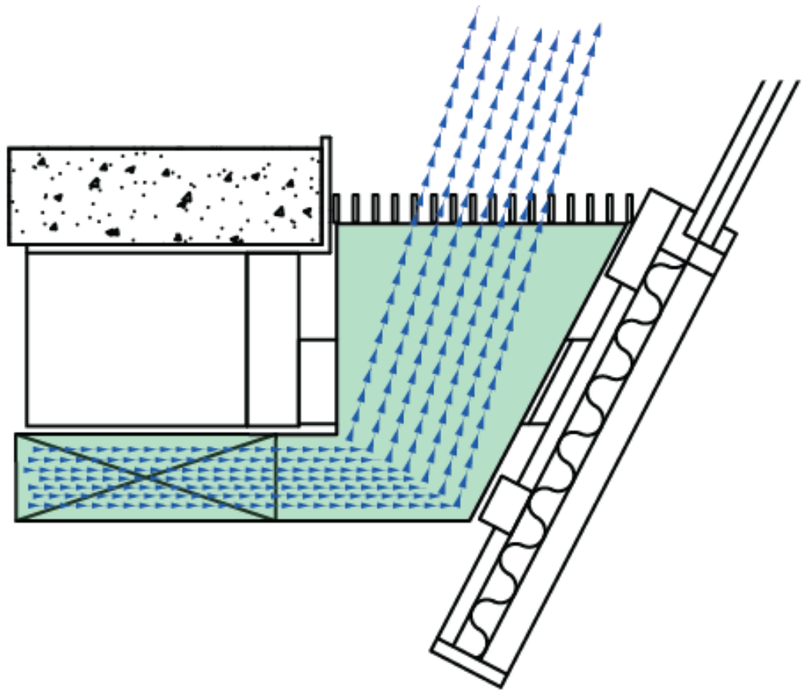


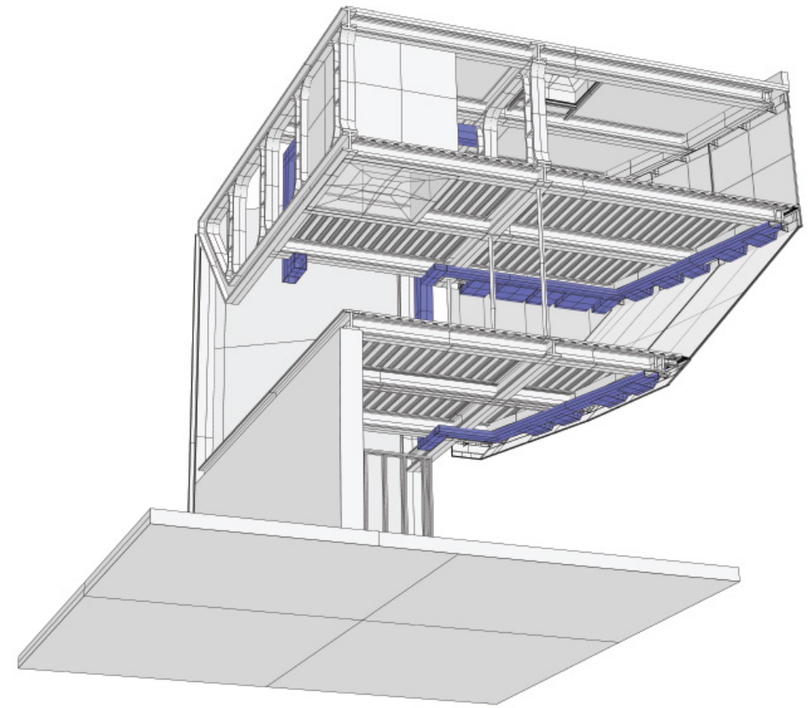
Prototype Model

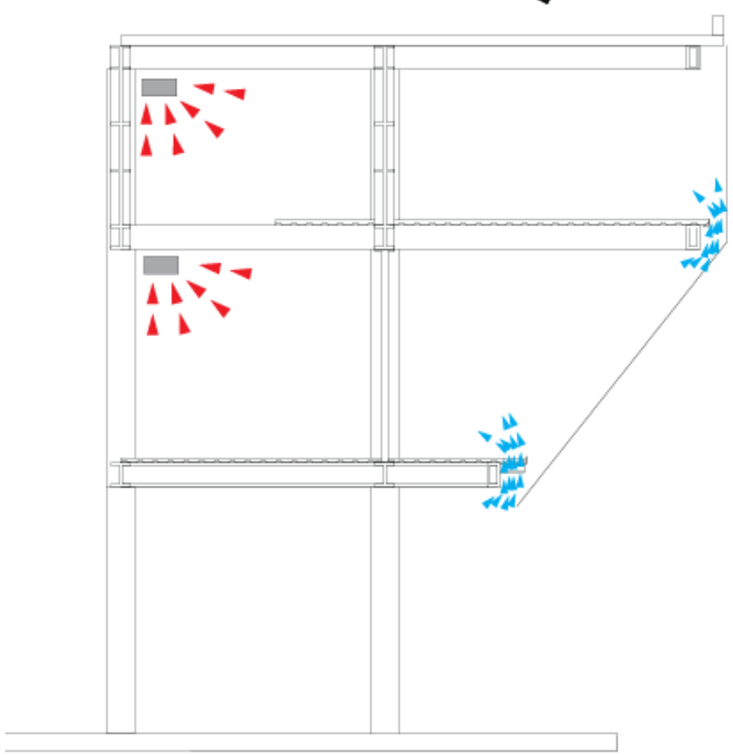


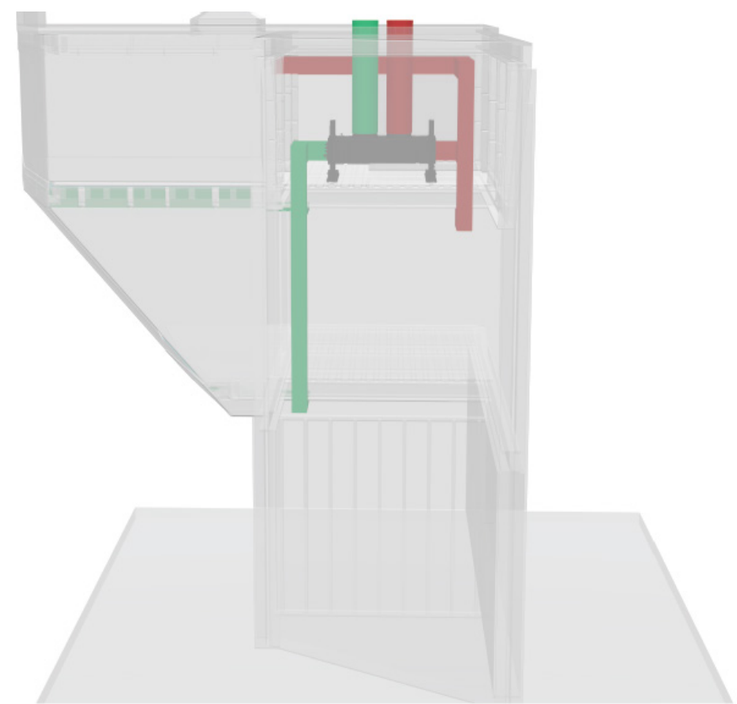


Prototype Passive & Active Systems







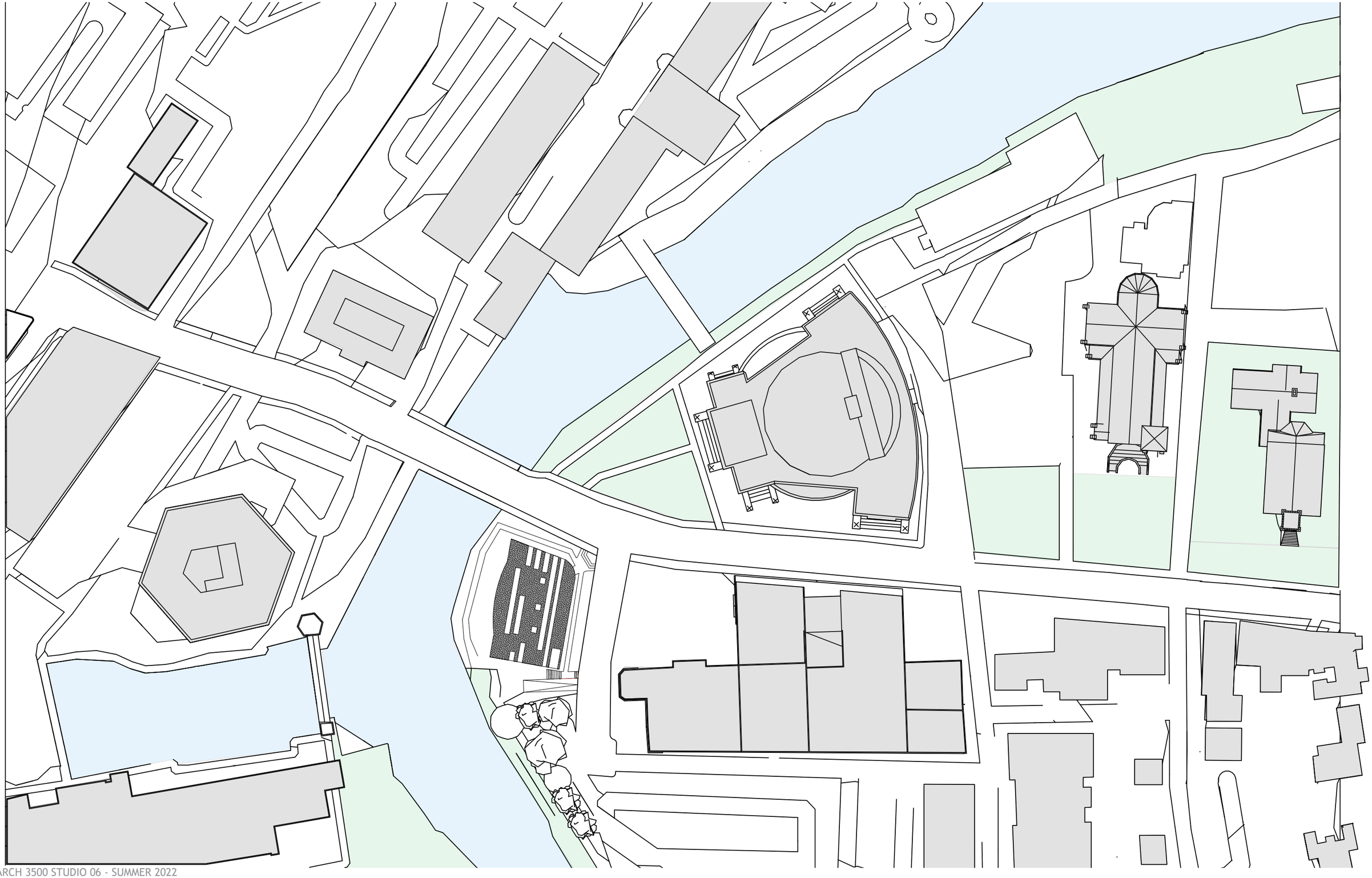


Phase 4: Integrated
Building Proposal

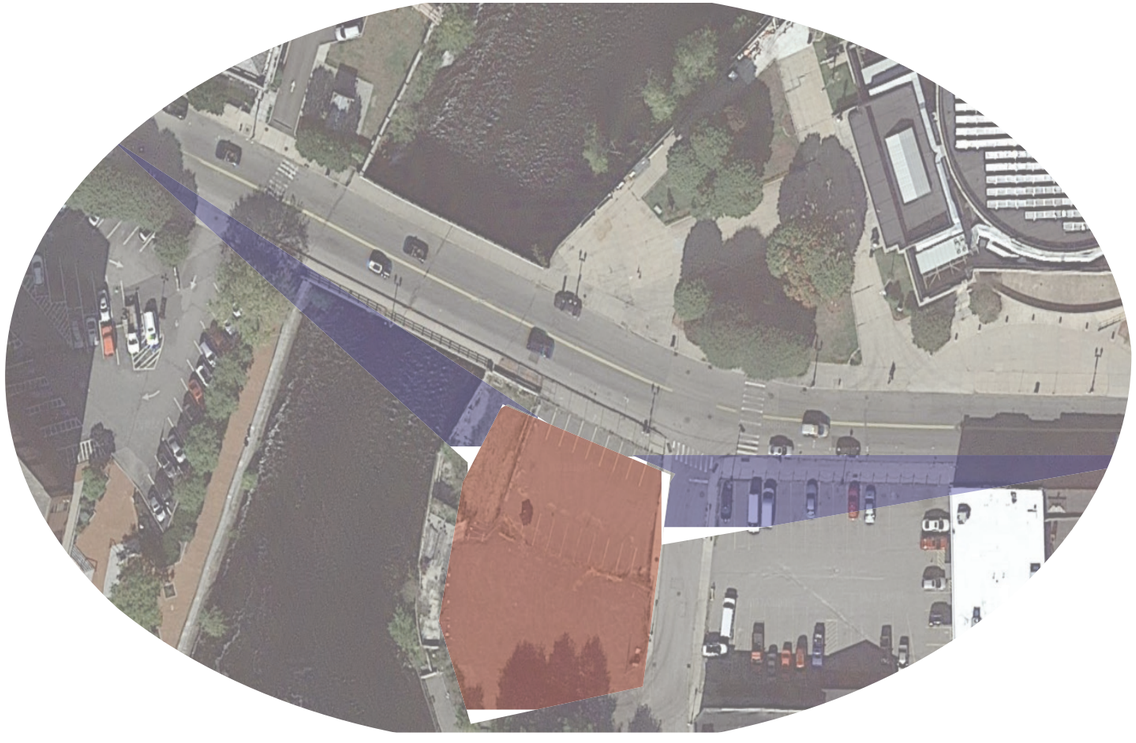
Final Project Introduction Statement

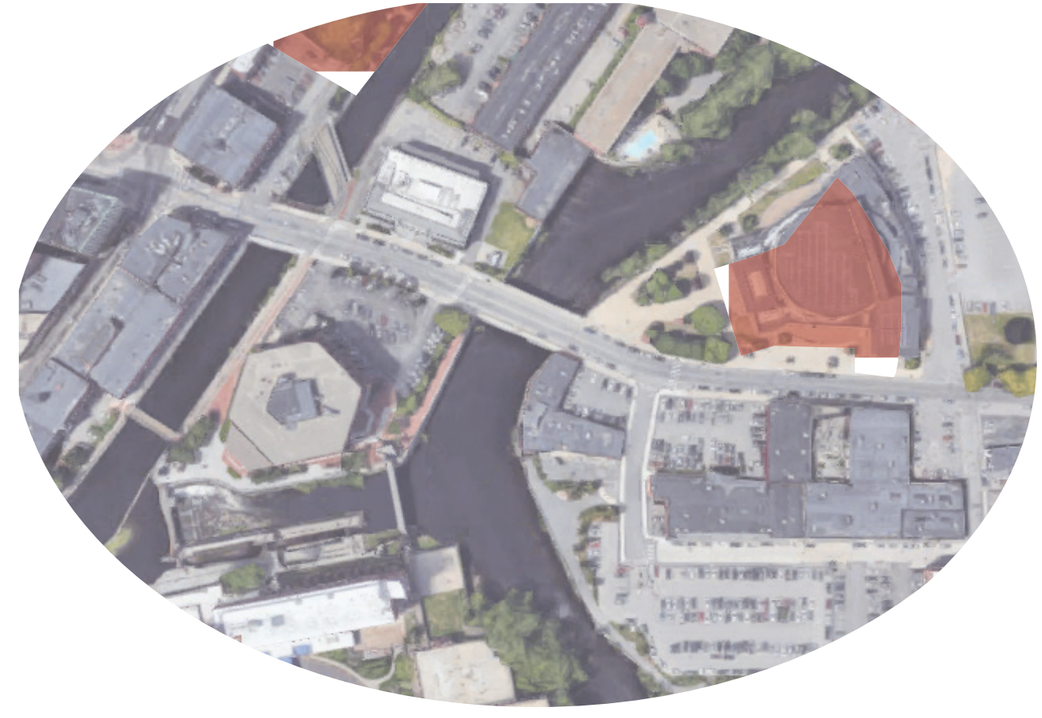
We were tasked with designing a makers space in Lowell, Massachusetts. We spent a lot of time researching the site and realized there were three key points we wanted to tackle during this project. We wanted to incorporate the views of not only out of our building, but also the views into our building. We wanted people to be enticed to enter our space with certain design aspects and then once they entered, they would then benefit from the beautiful views of the river and a heightened unobstructed view of the surrounding area. Next we want to emphasize the importance of thresholds and the division of space. This is slightly contradictory to our focus of being welcoming, but having a space which can function as a welcoming community space, but also act as a private space to work, learn, and thrive, was an important aspect to us. Finally, we wanted to focus on the community and the way people interact inside our space. We wanted to create a space that holds tools and machines that people simply could not have in their own home whether that be because of price or size limitations. However, along with providing the tools, we also wanted to make a space that encourages learning from one another and growing as makers together instead of just individually like most other makers spaces.

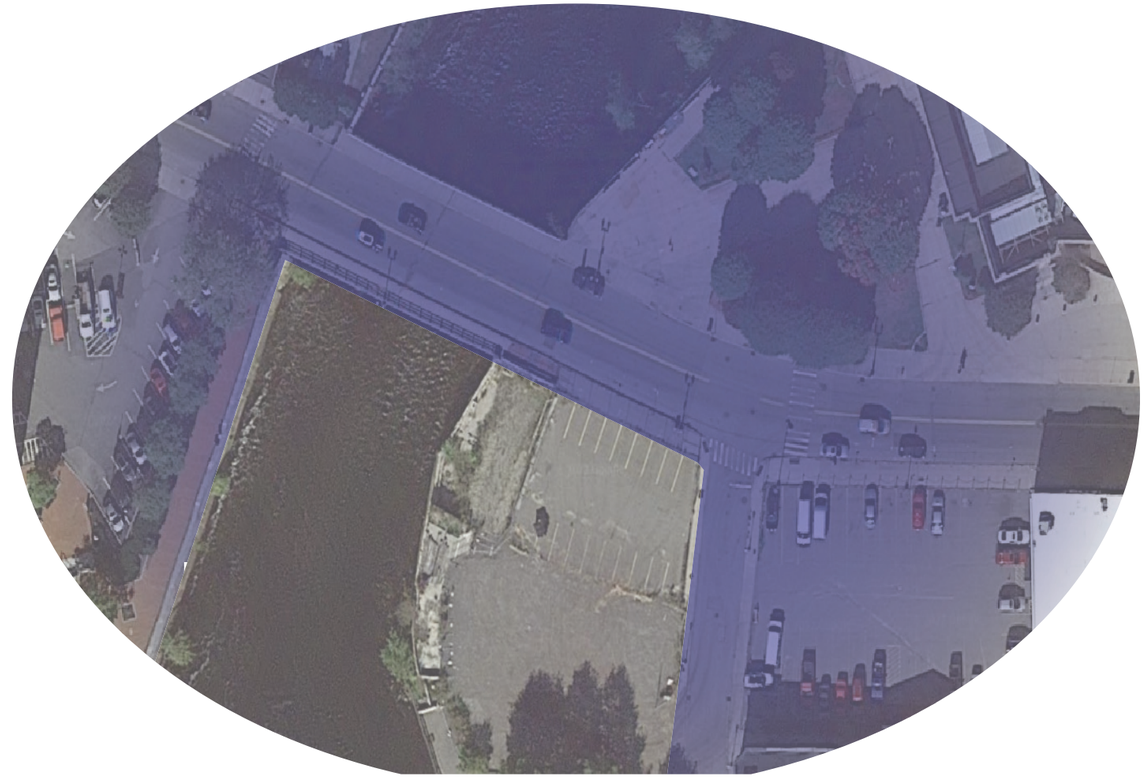
Urban Site Plan



Site Context: Approach | Community Spaces | Public Arrival

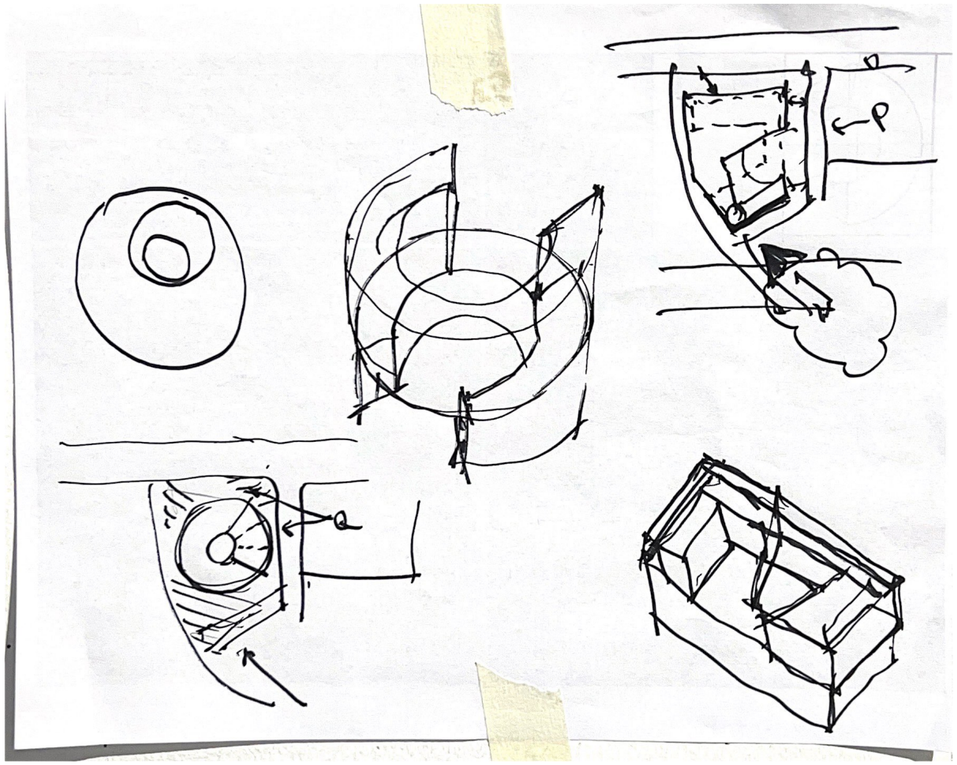


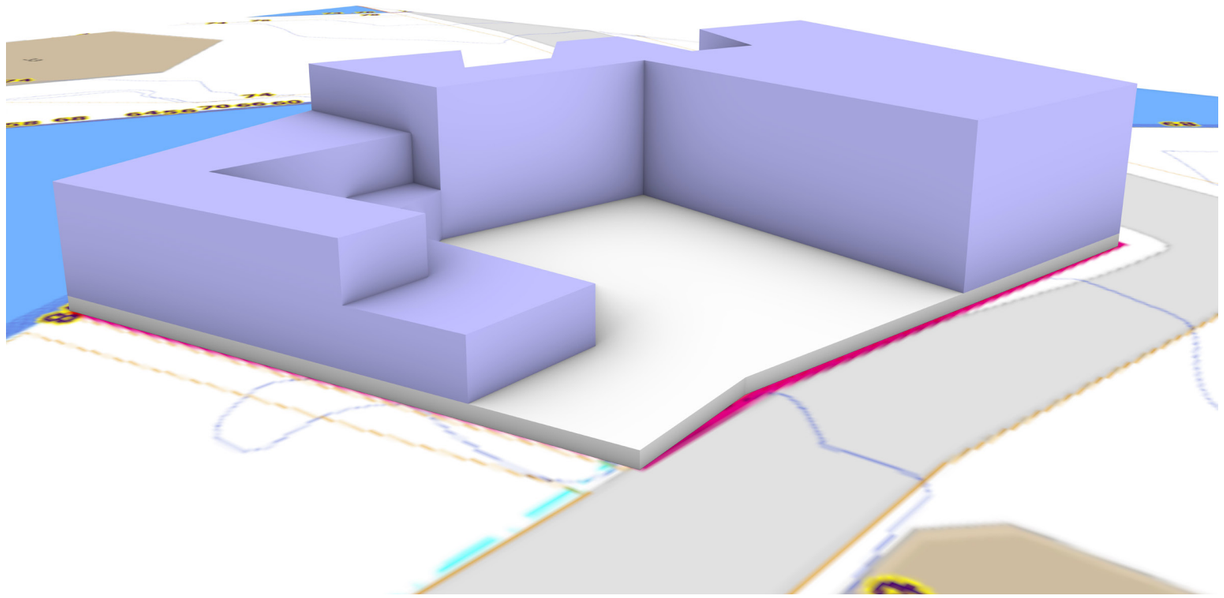




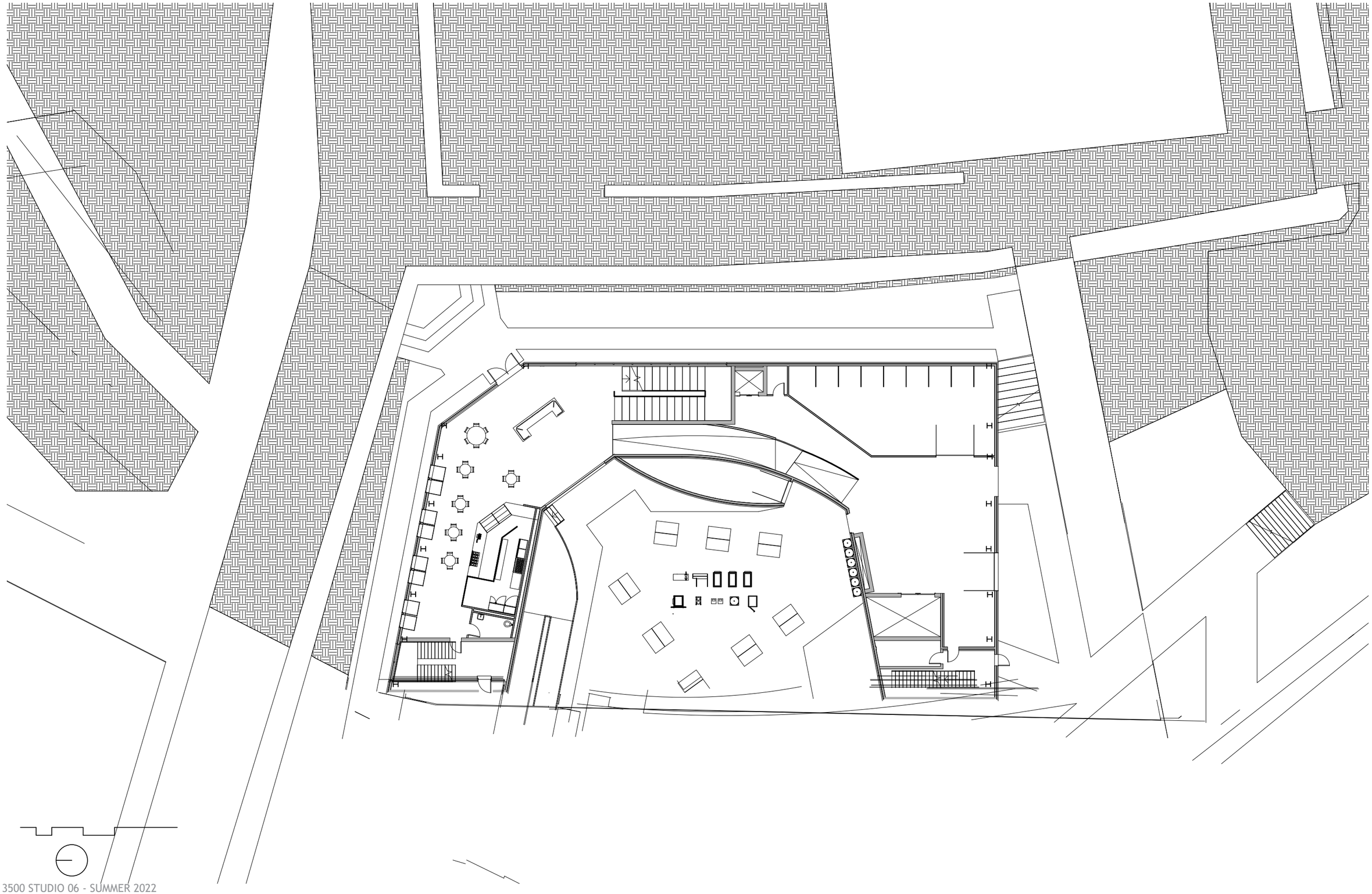
Site Image

Early Concept Thinking

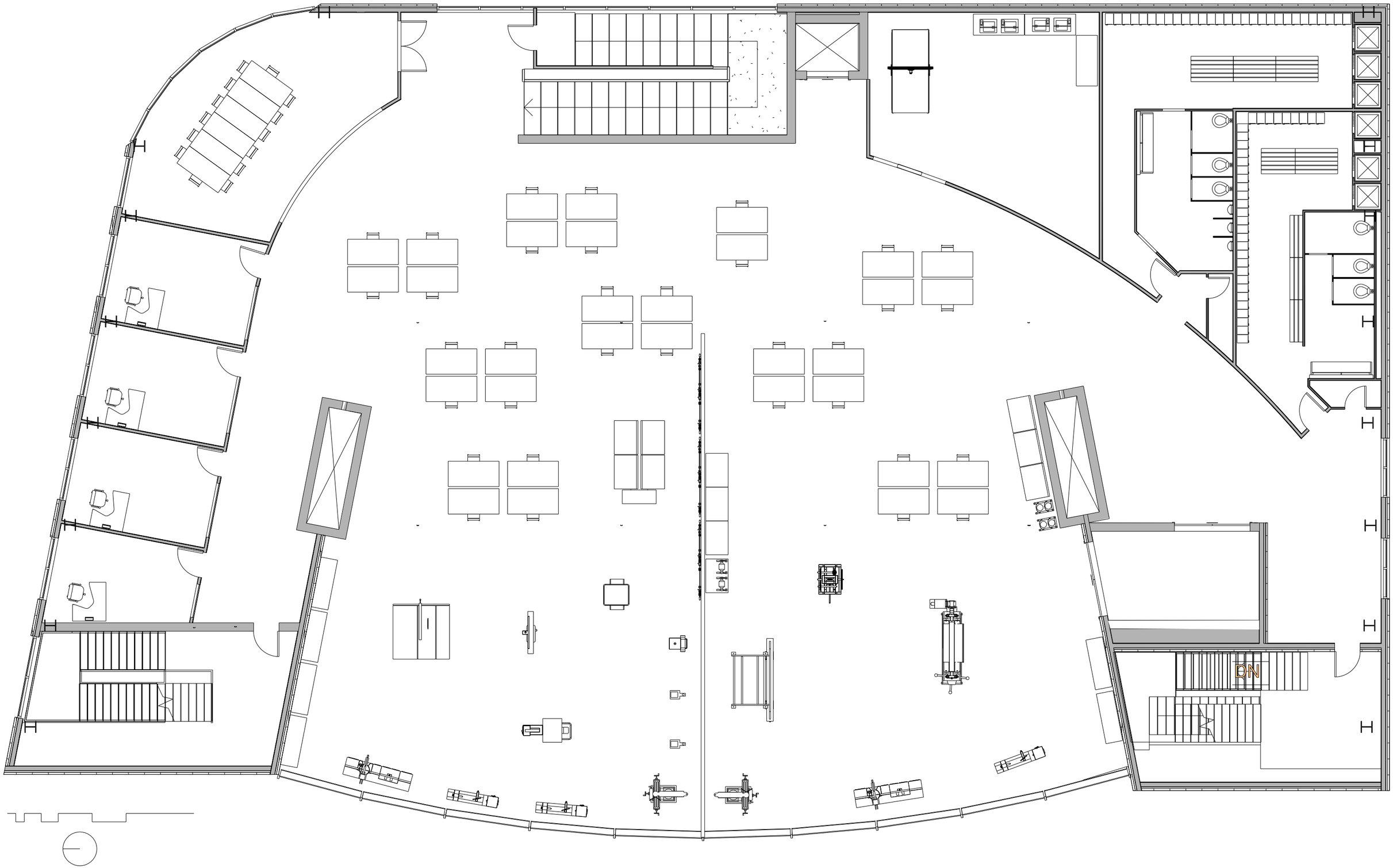




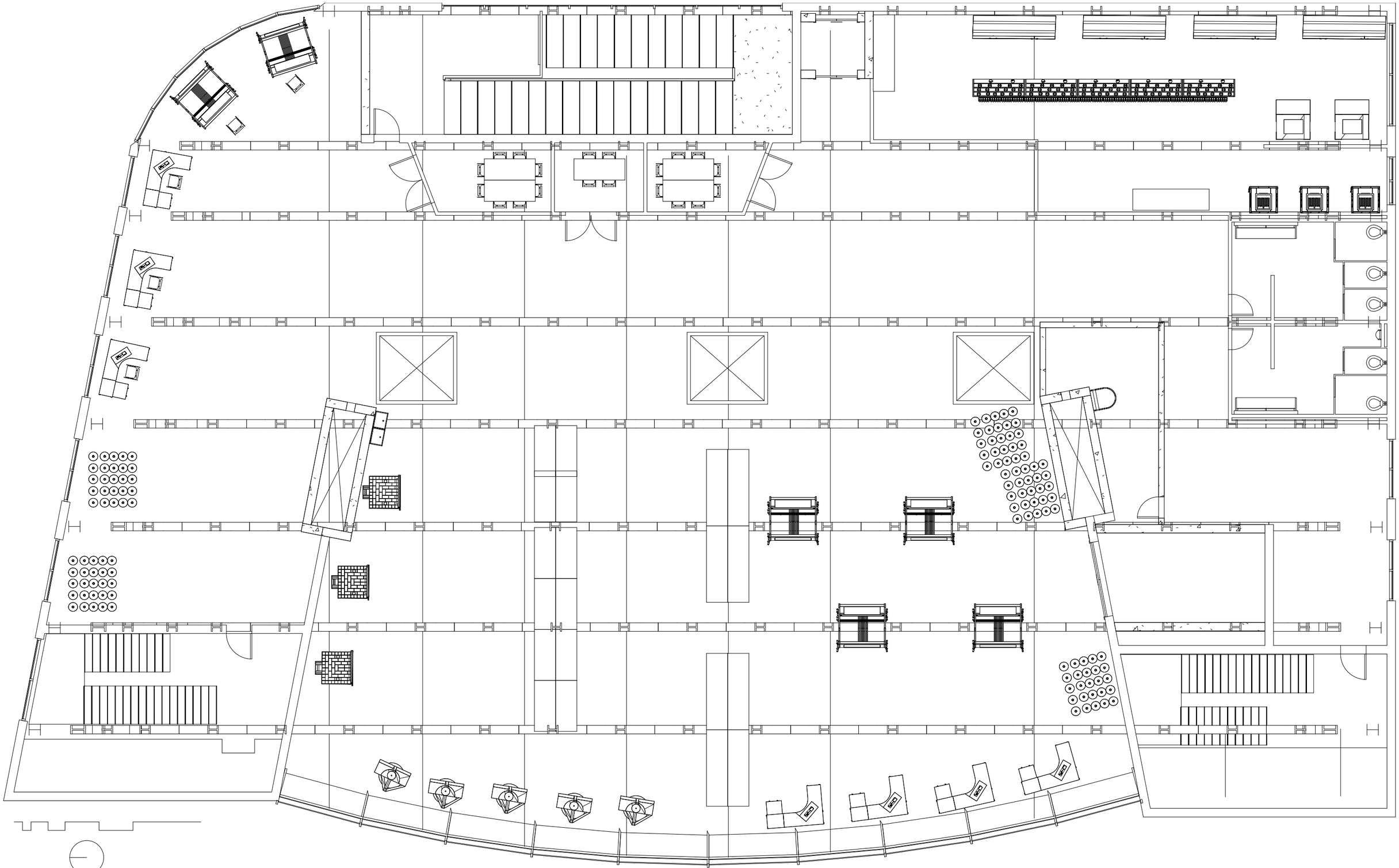
Ground Floor Plan



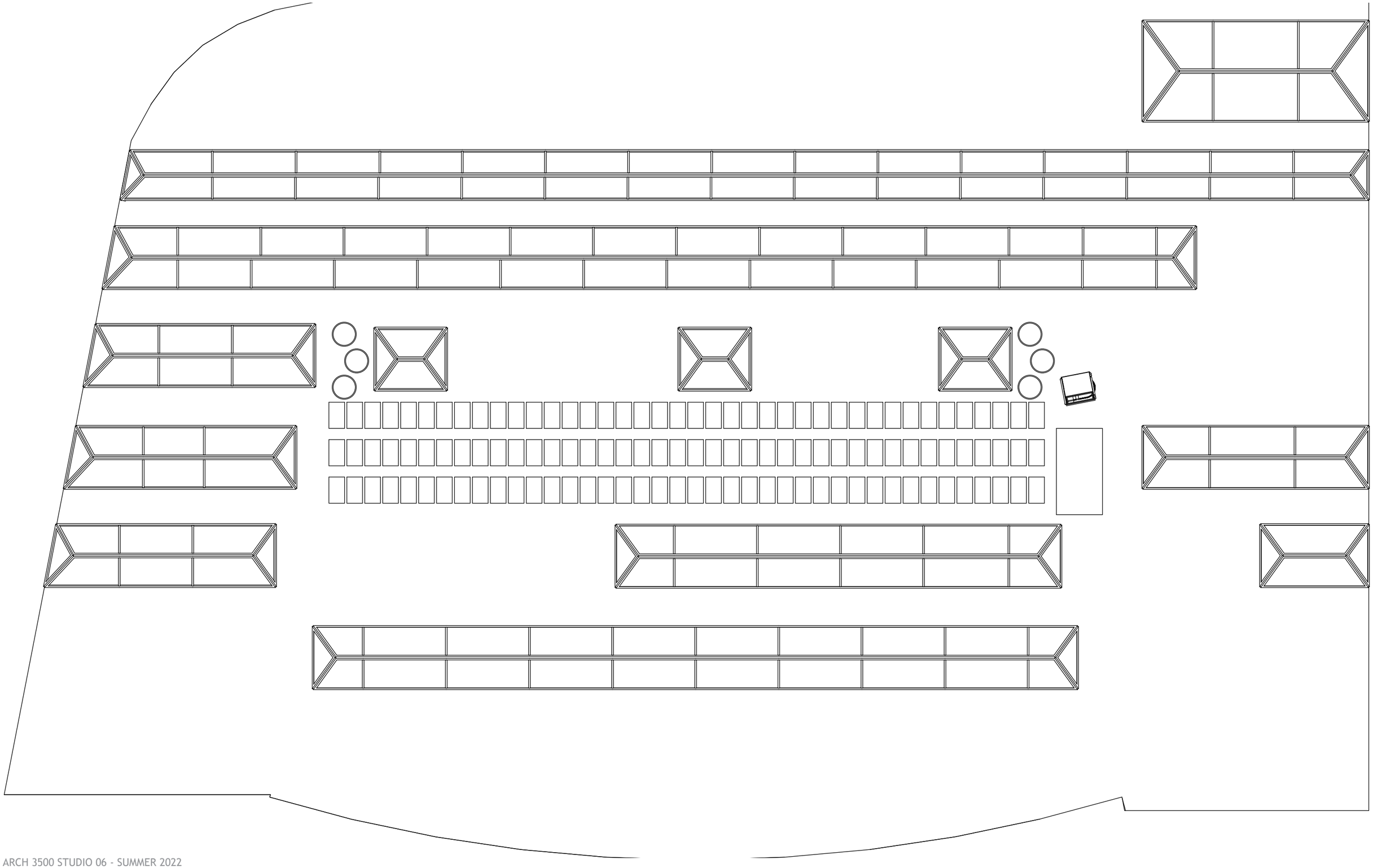
Second Floor Plan



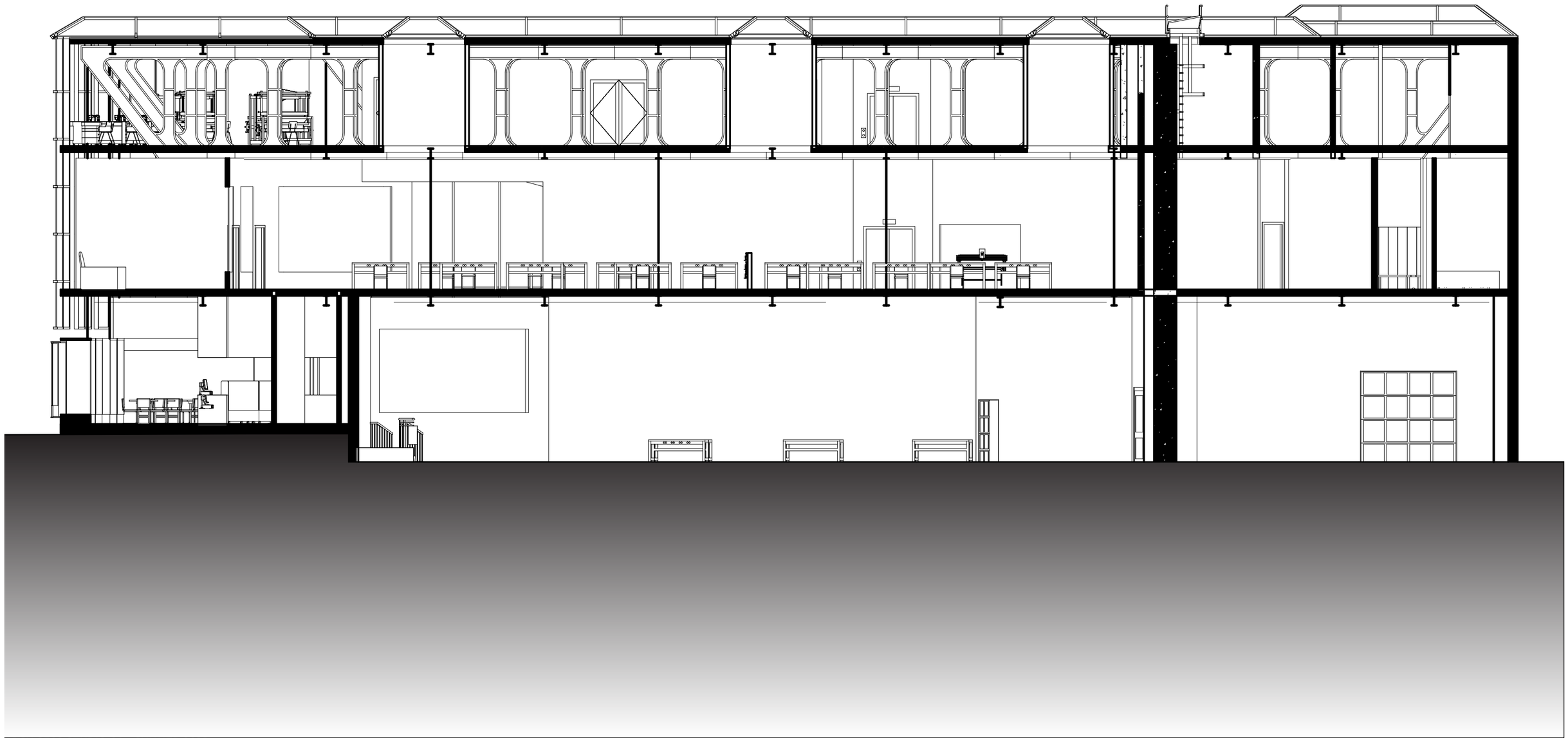
Third Floor Plan



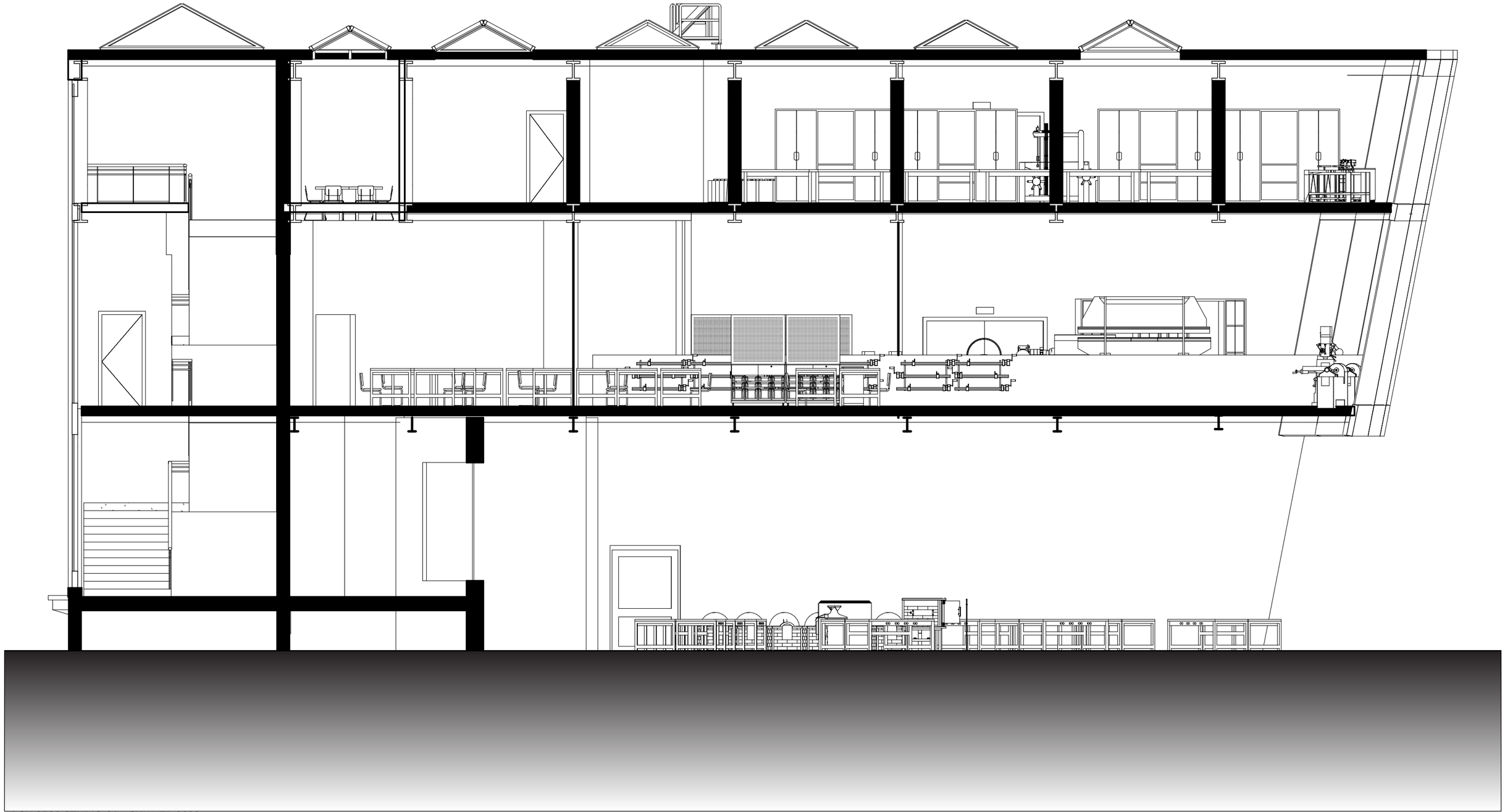
Roof Plan



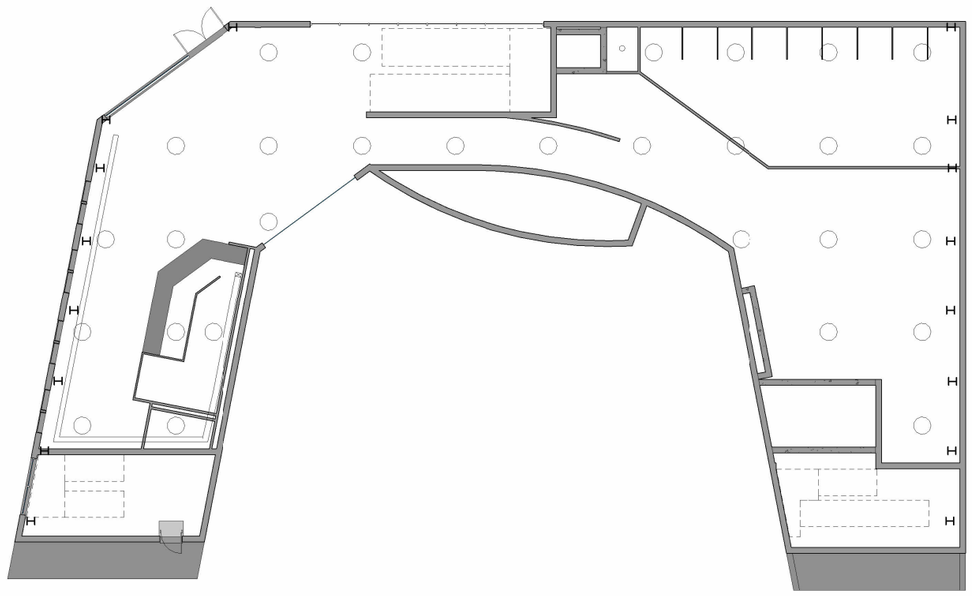
Section A-A

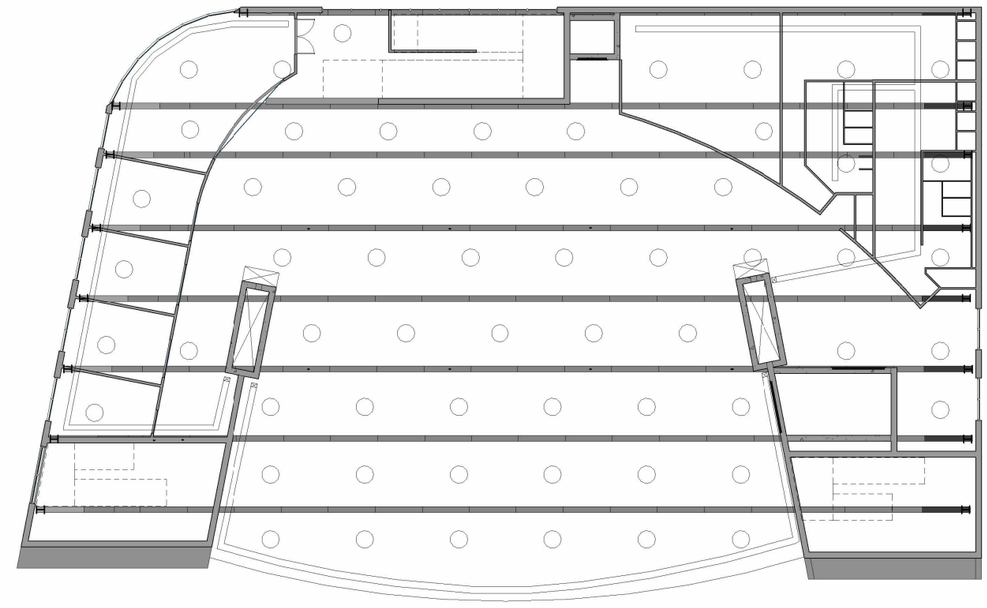


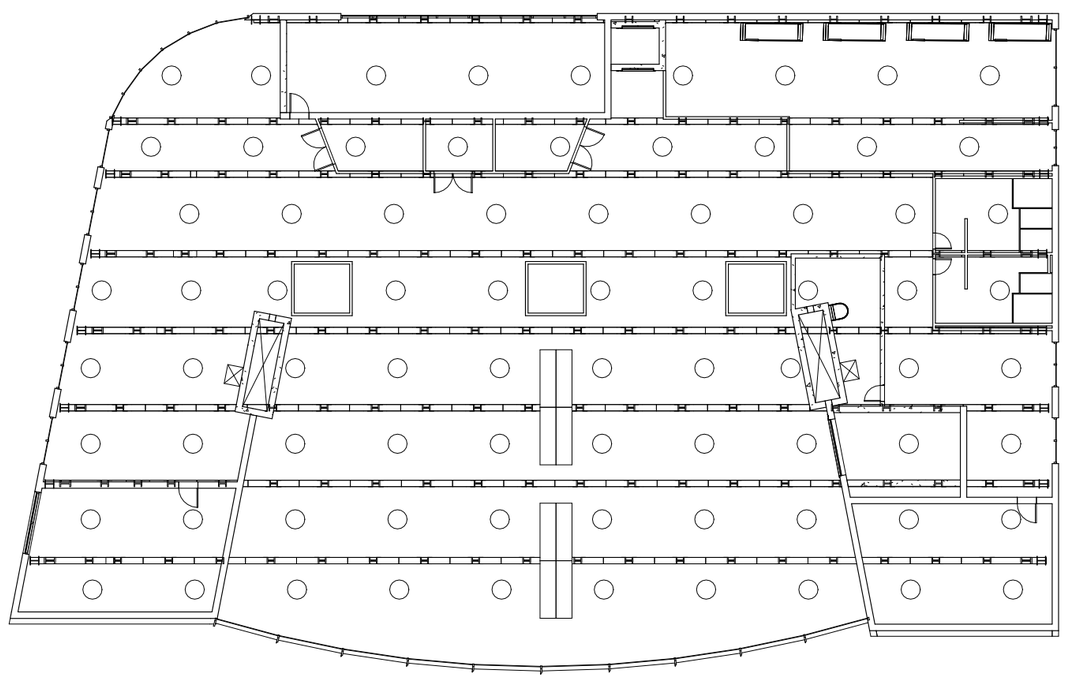
Section B-B



Reflected Ceiling Plans







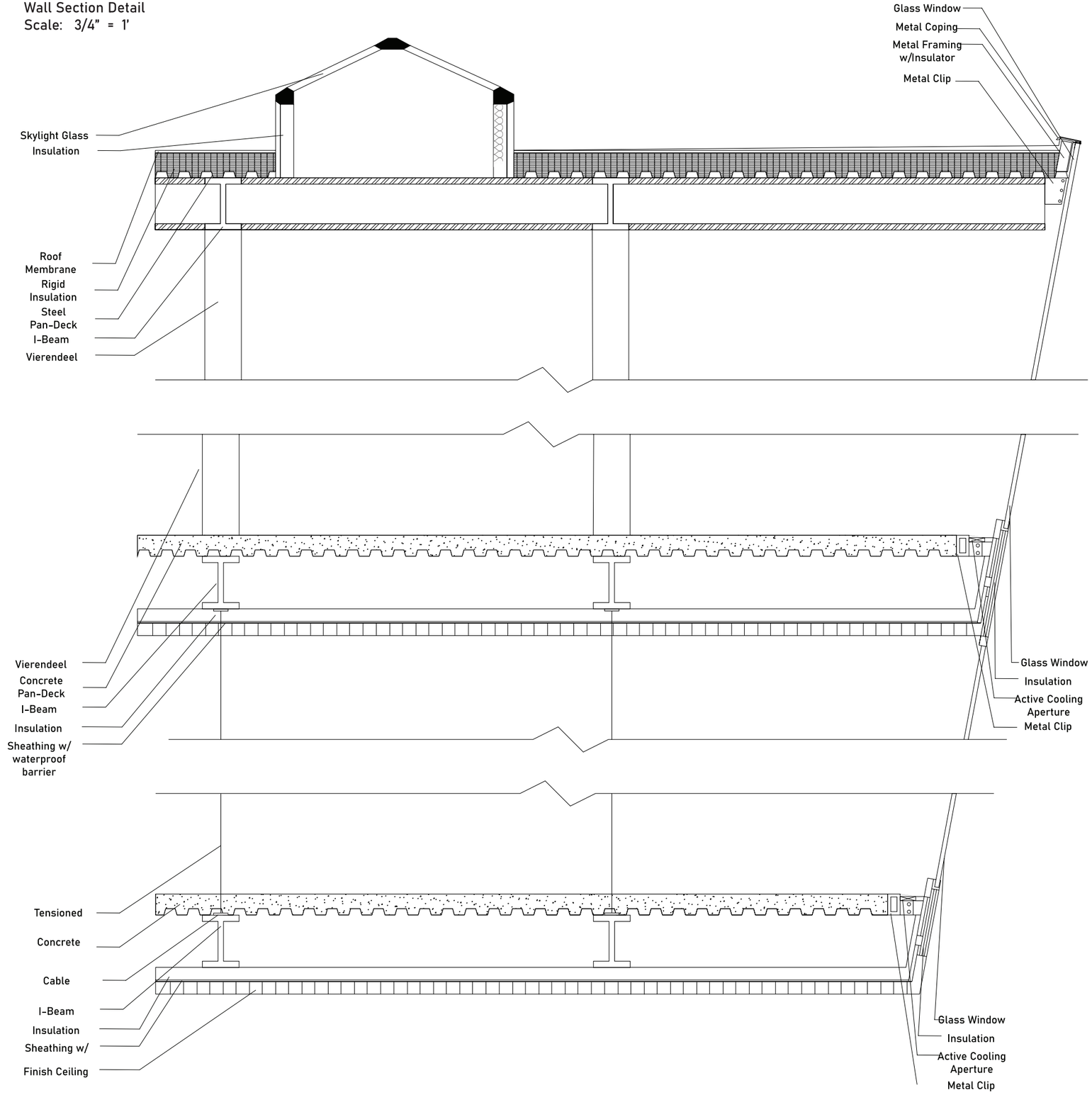
Entrance Perspective

Second Floor Maker Spaces Perspective

Third Floor Vierendeel Trusses Perspective

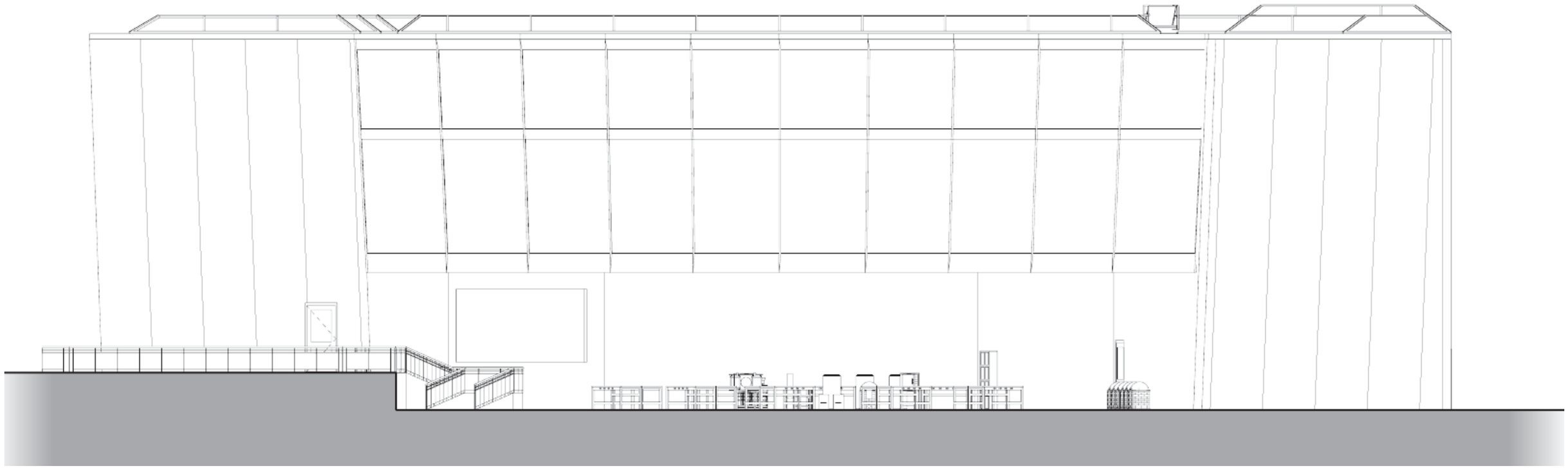
Detail Wall Section

Wall Section Detail
Scale: 3/4" = 1'



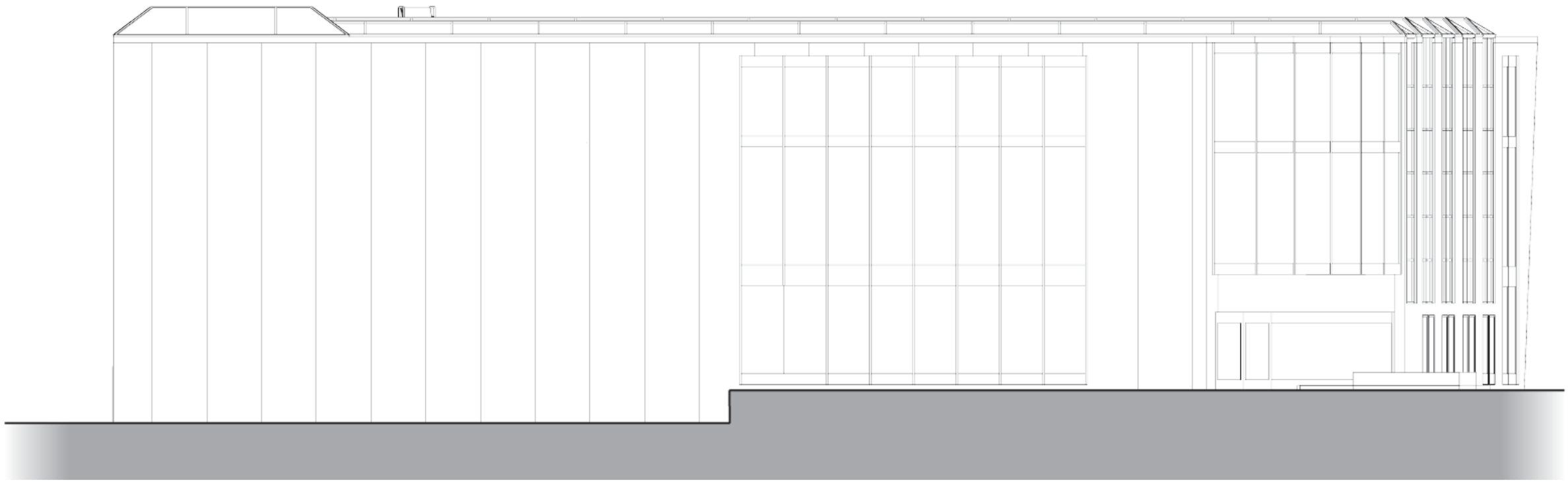
Greenway Elevation

Canal Elevation

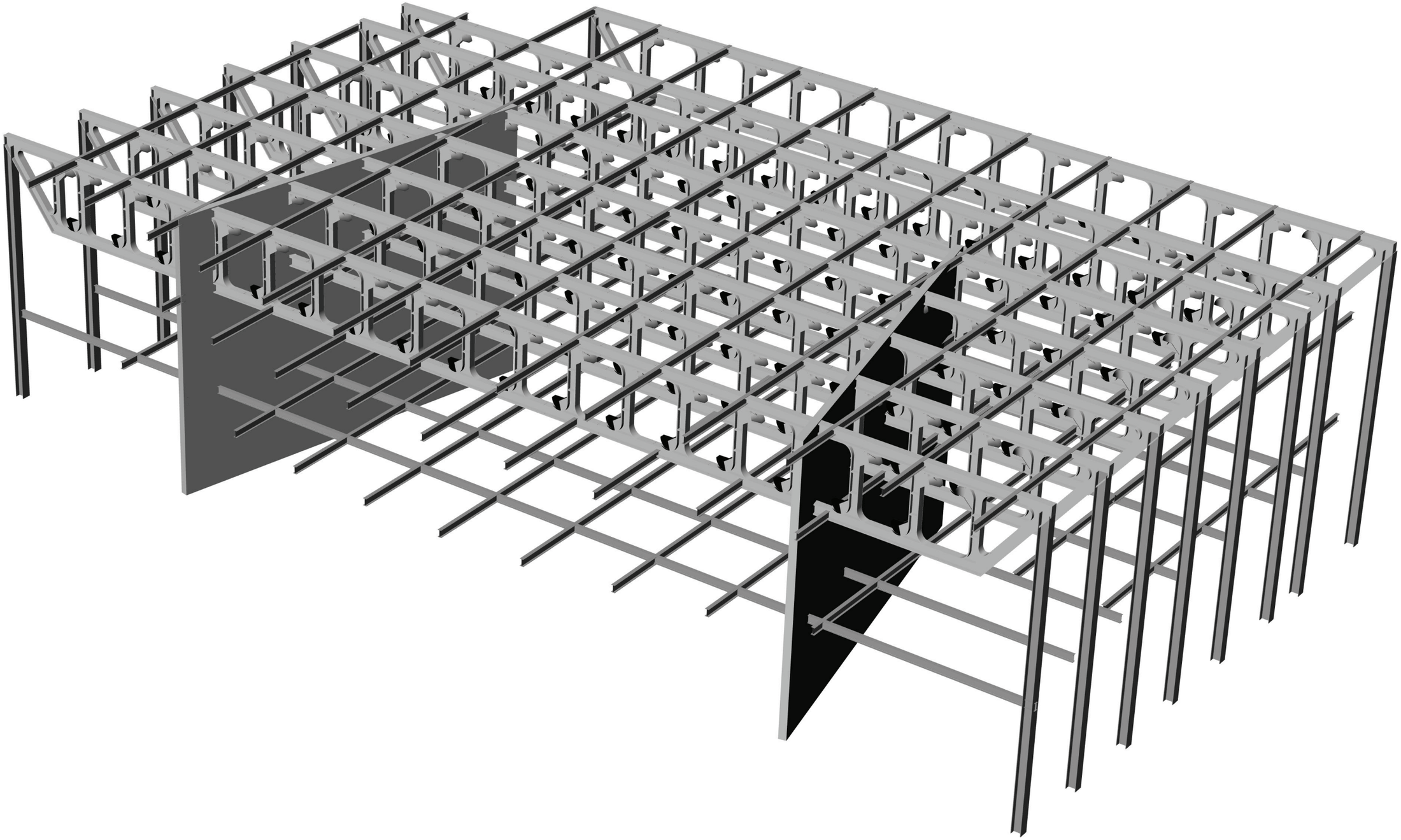


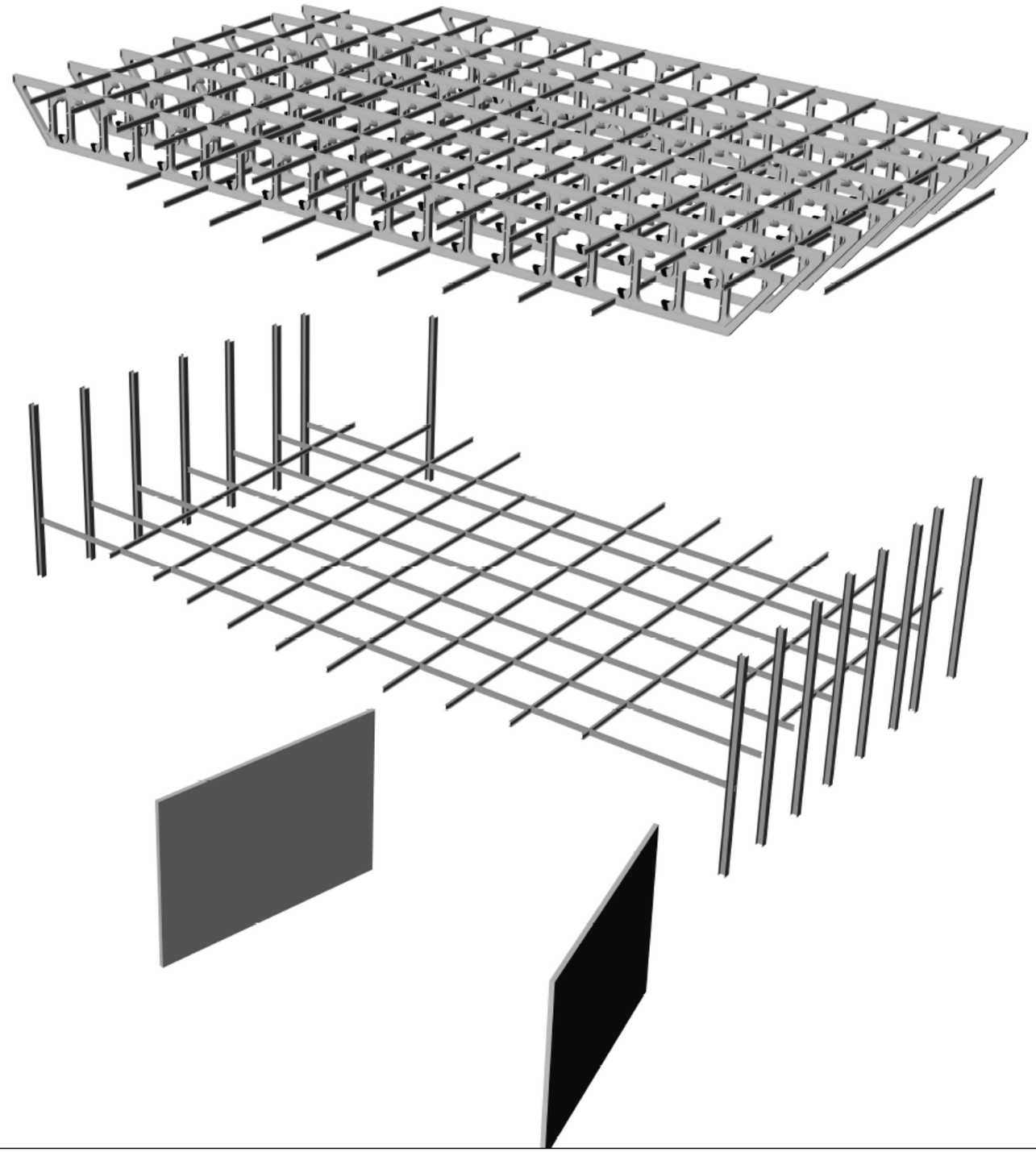
E Merrimack St Elevation

Davidson St Elevation

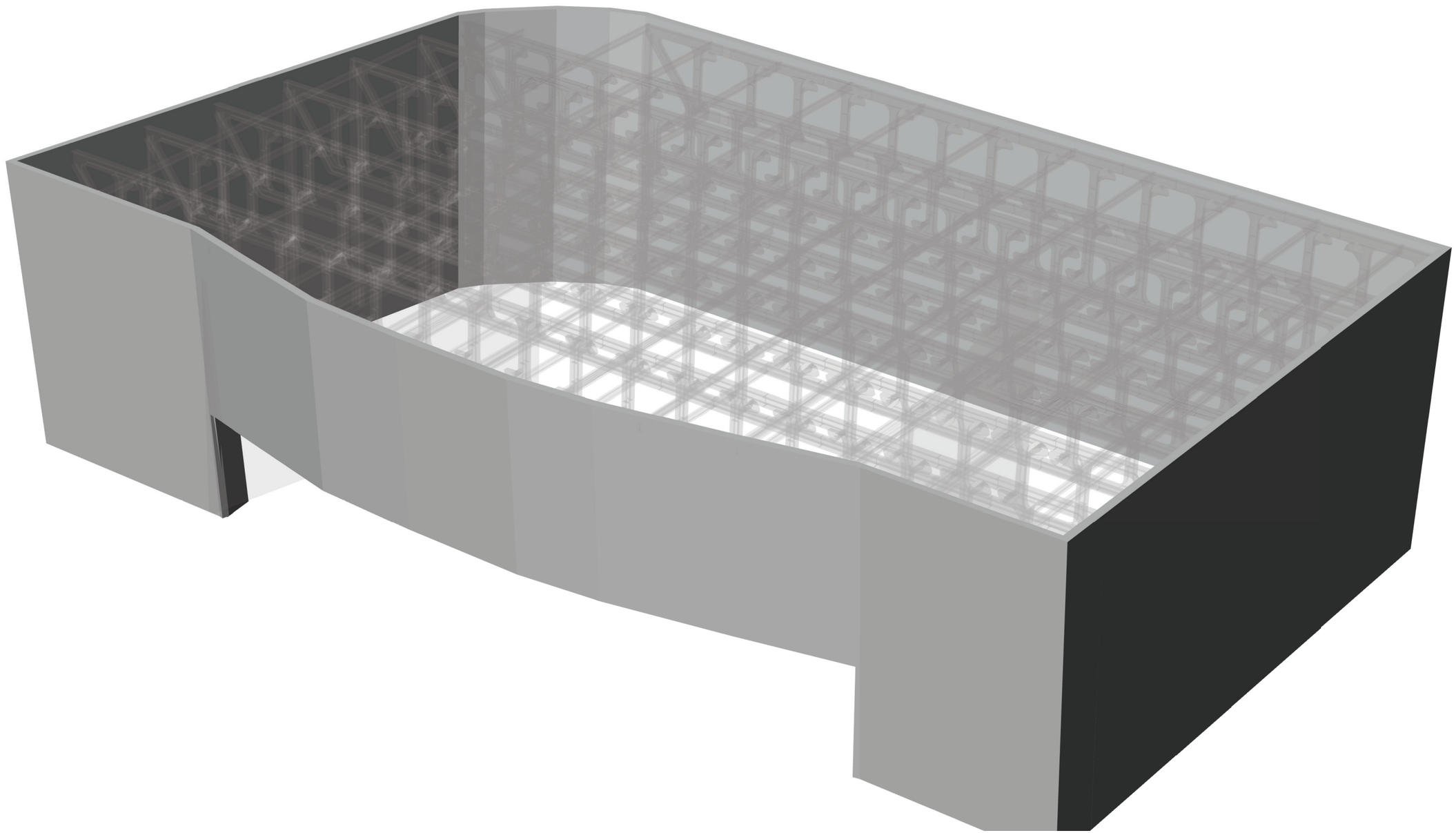


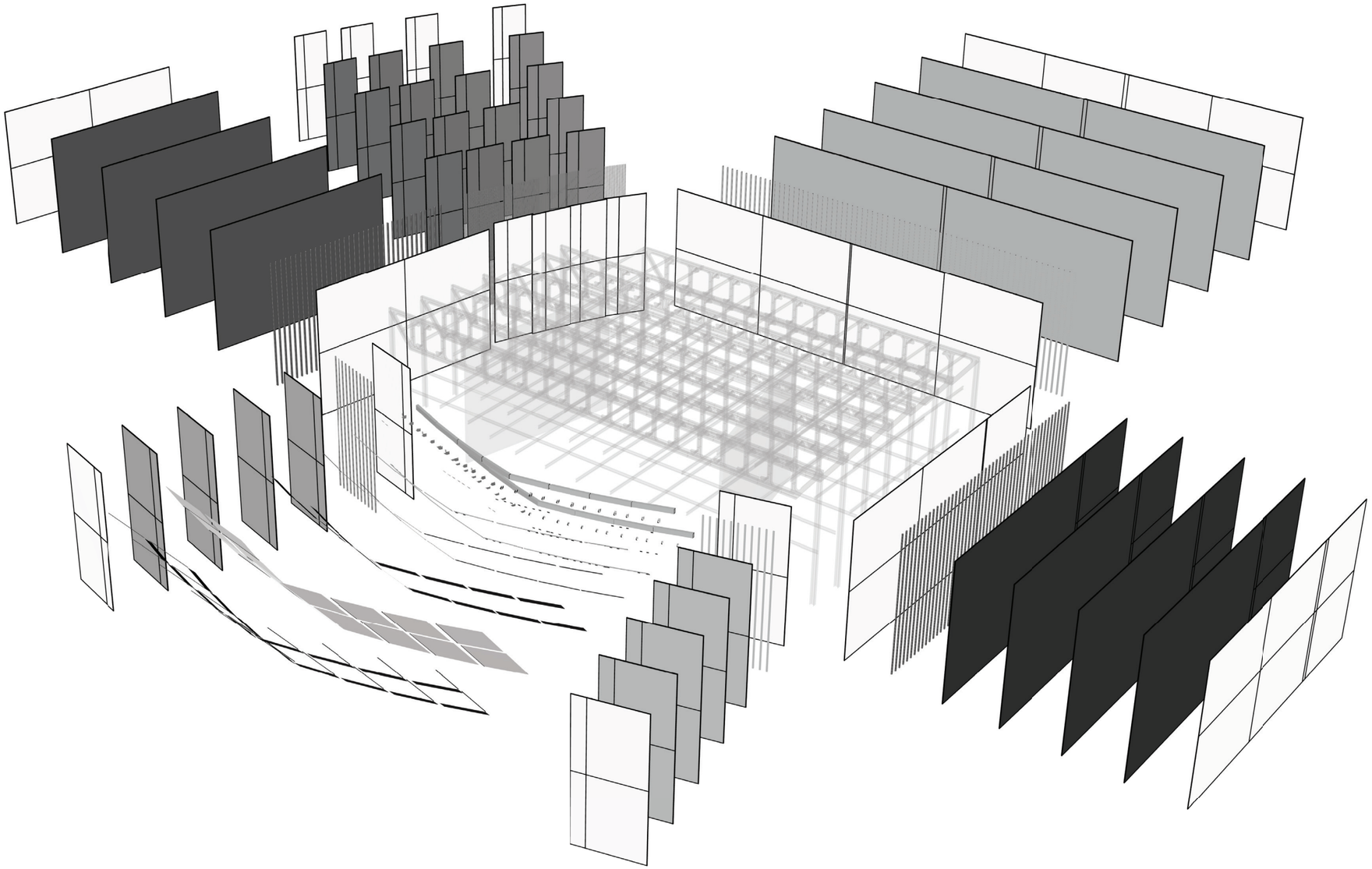
Structure Diagram



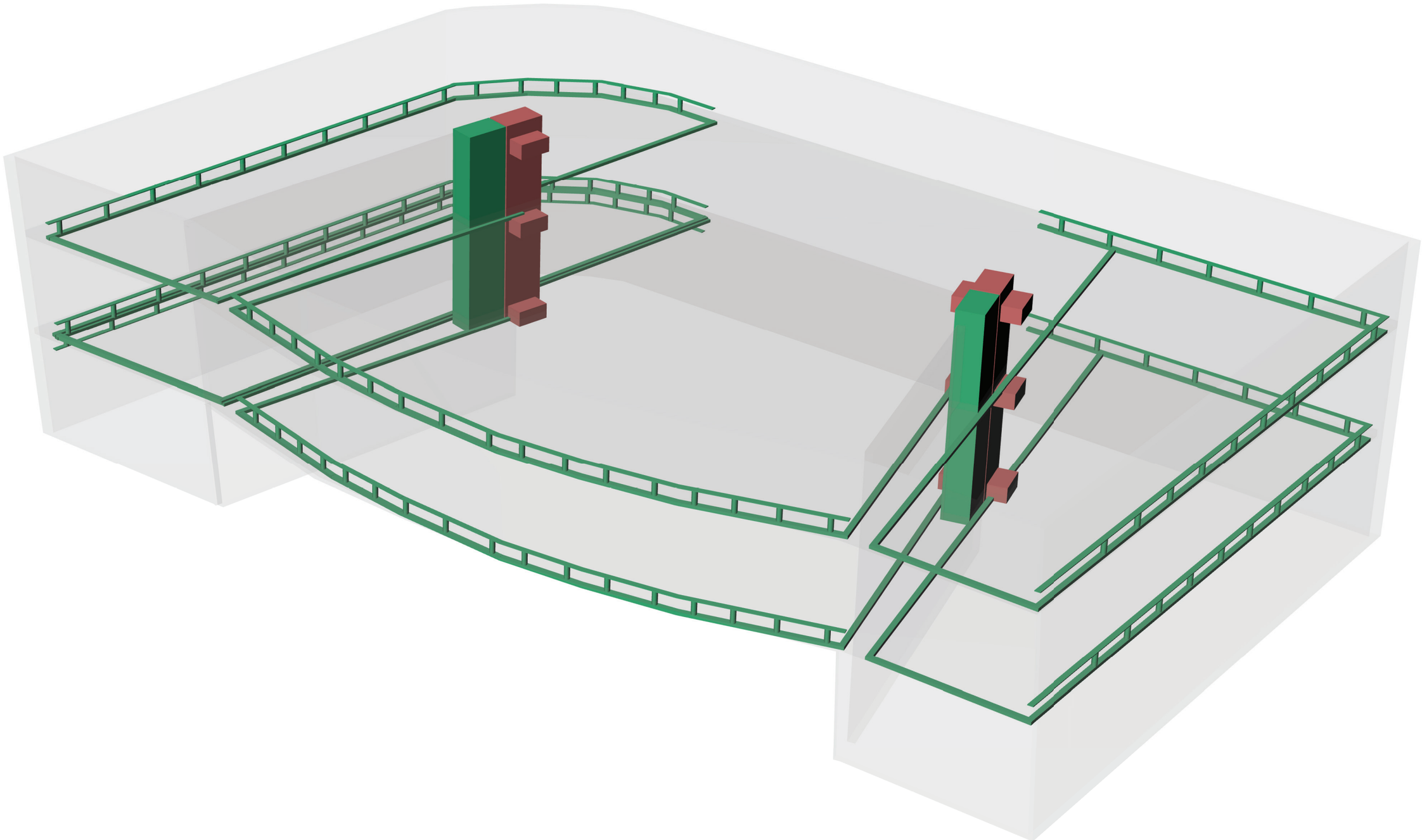


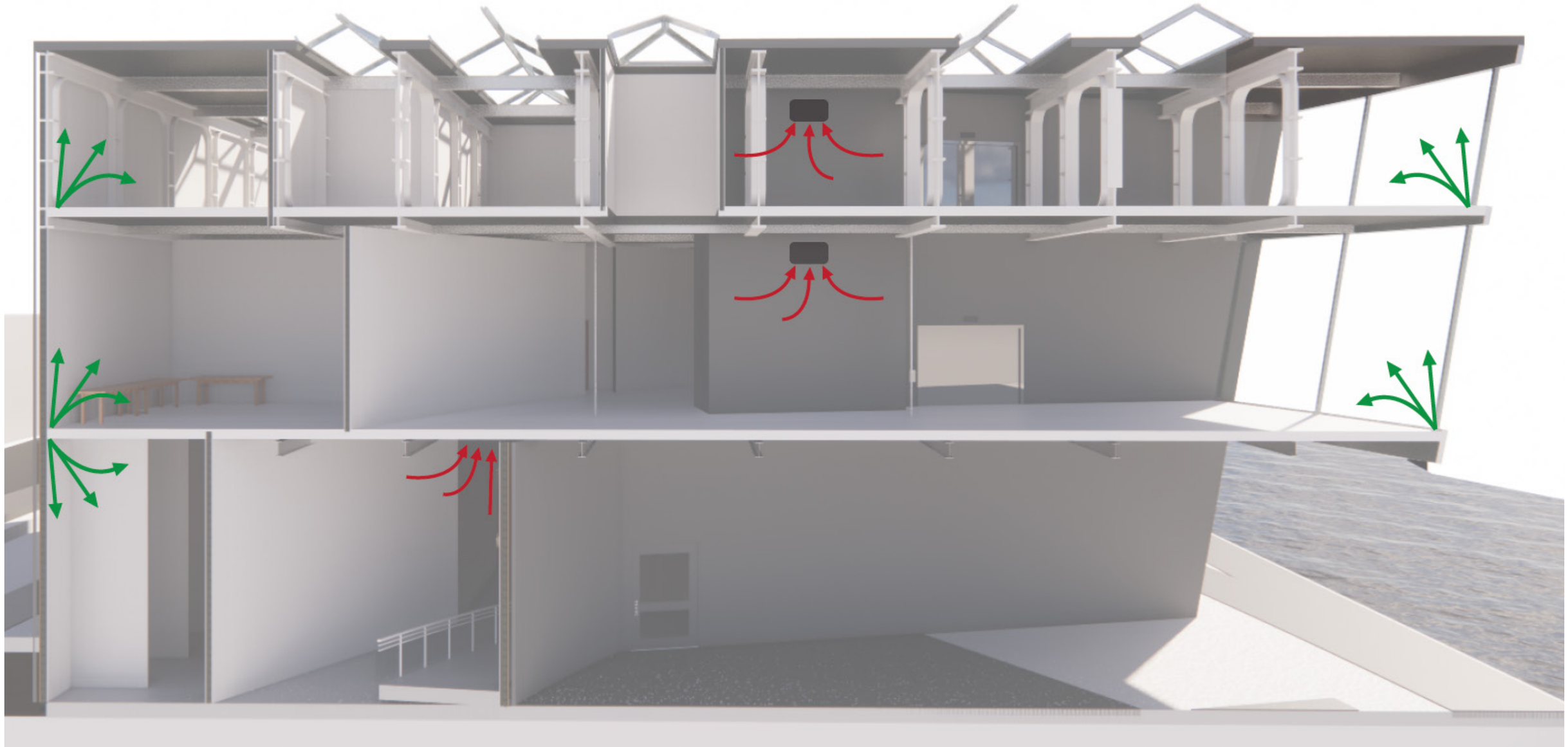
Enclosure Diagram



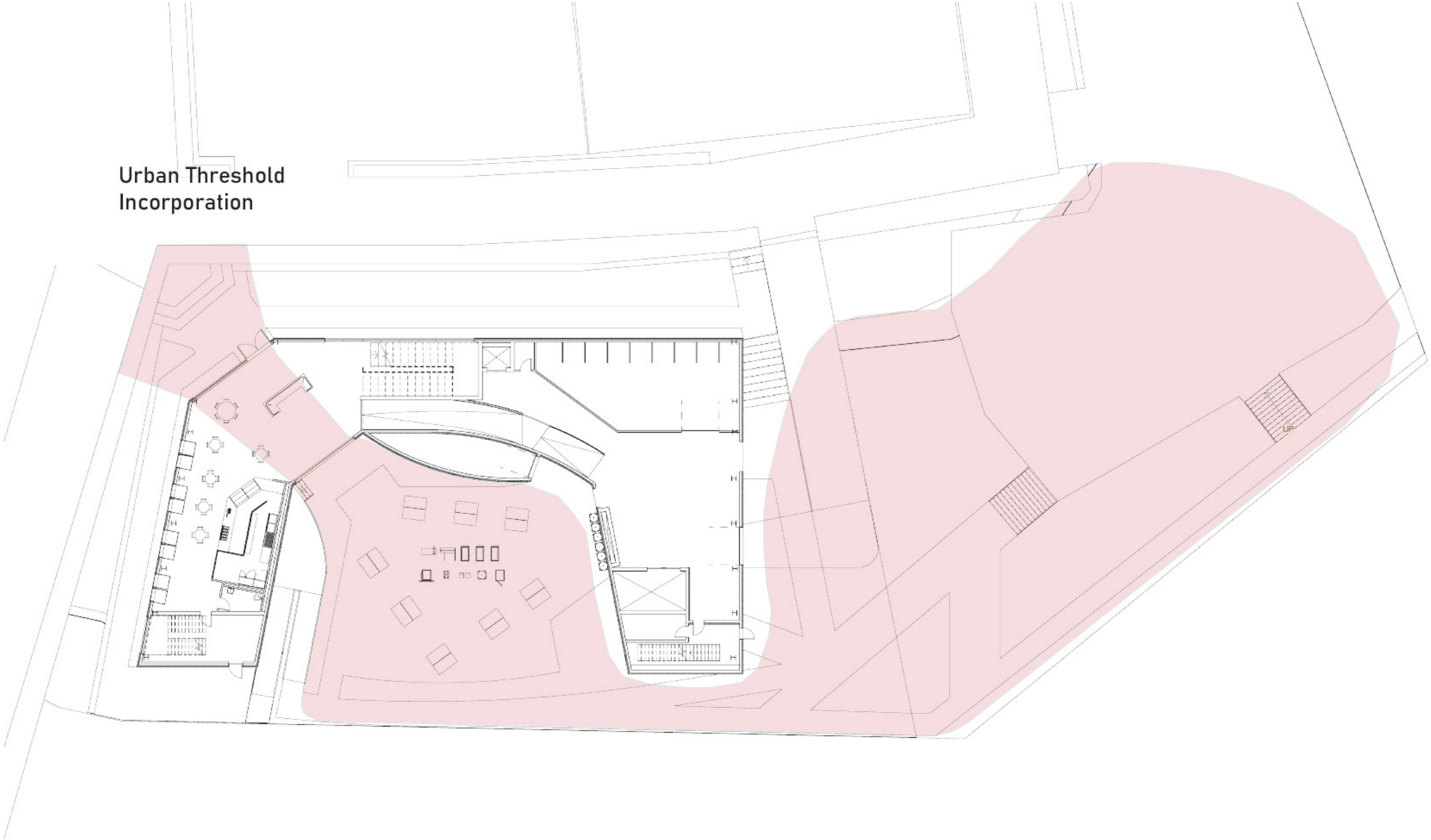


Active Cooling Diagram

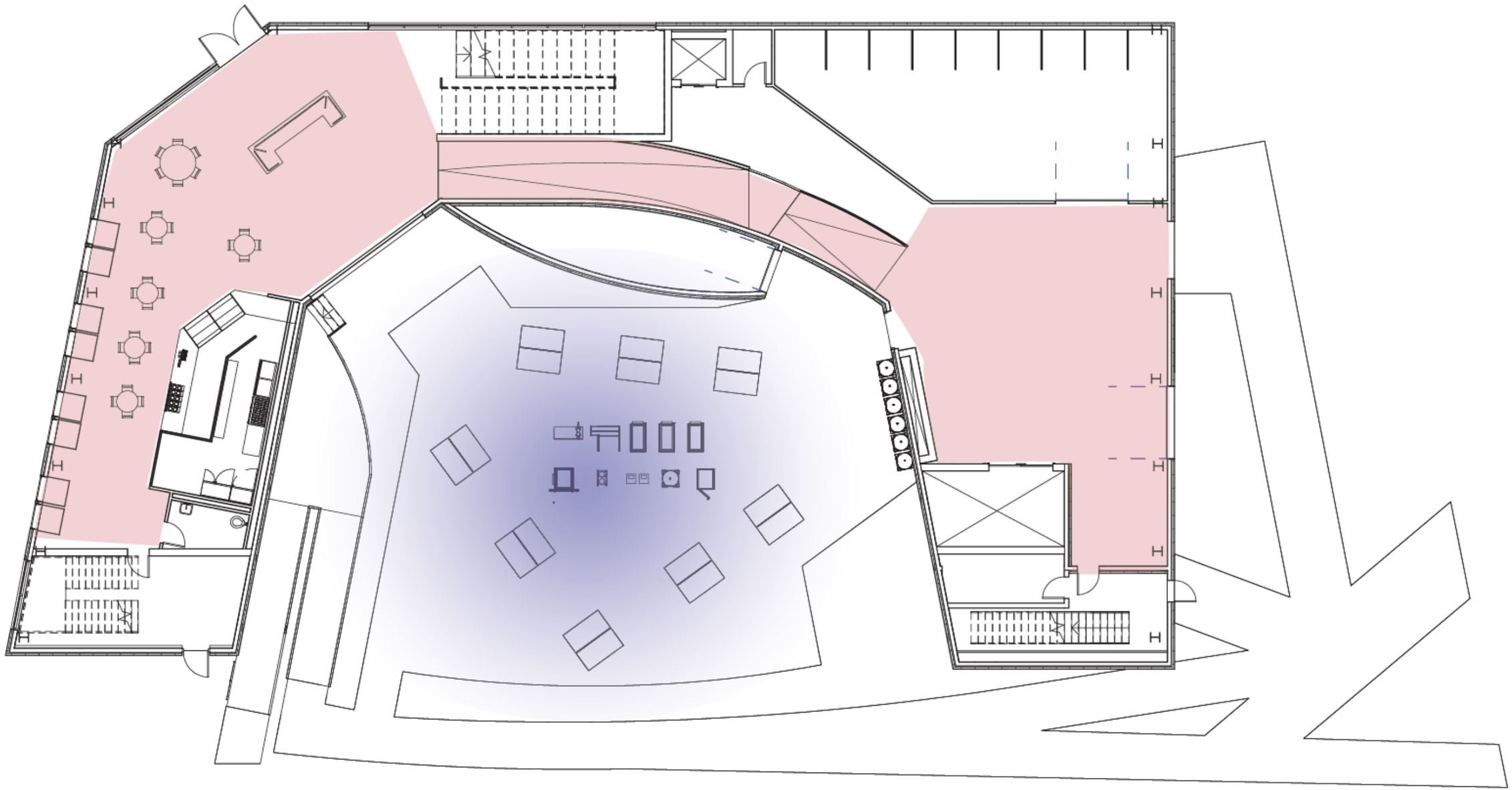




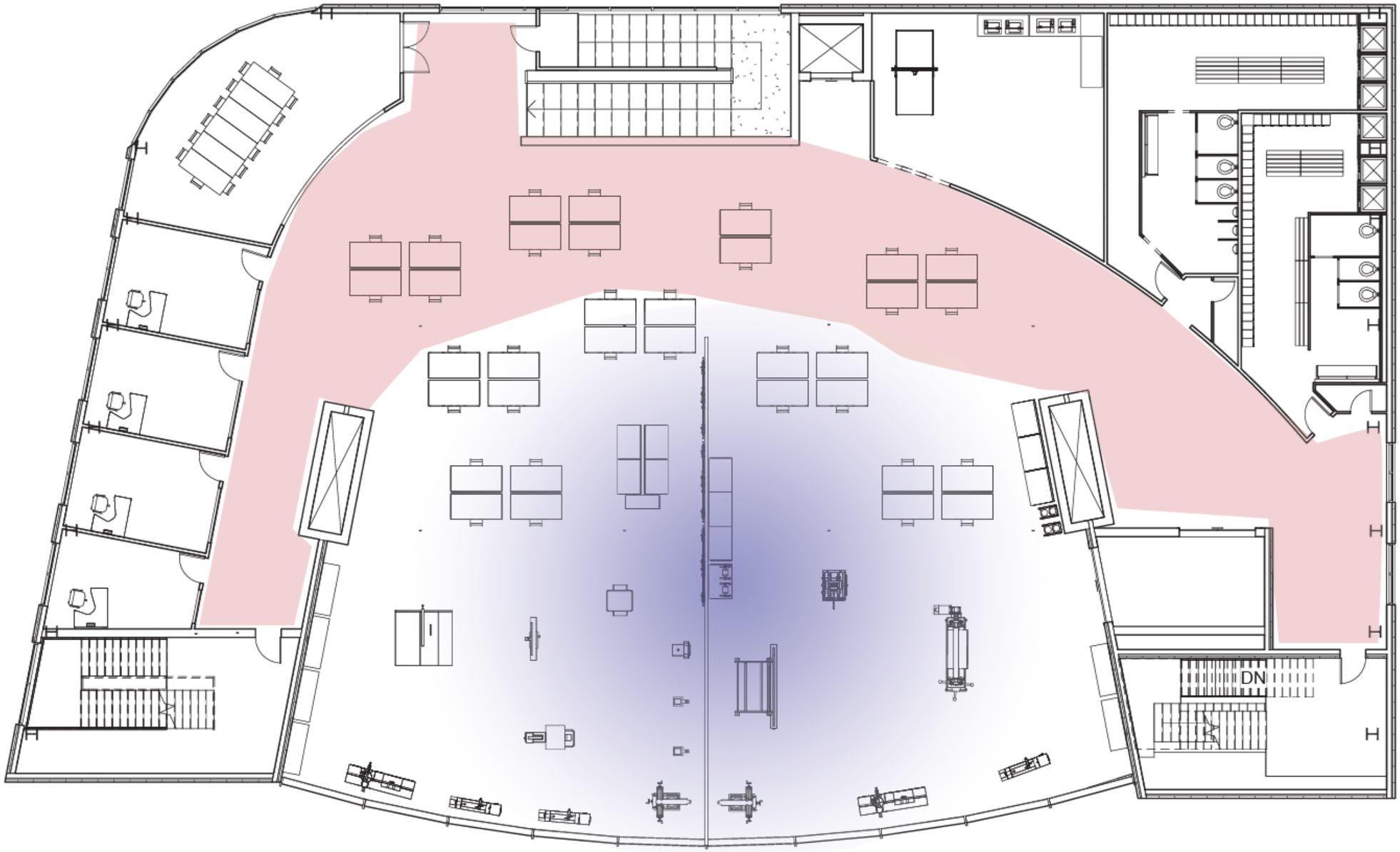
Urban Threshold Diagram



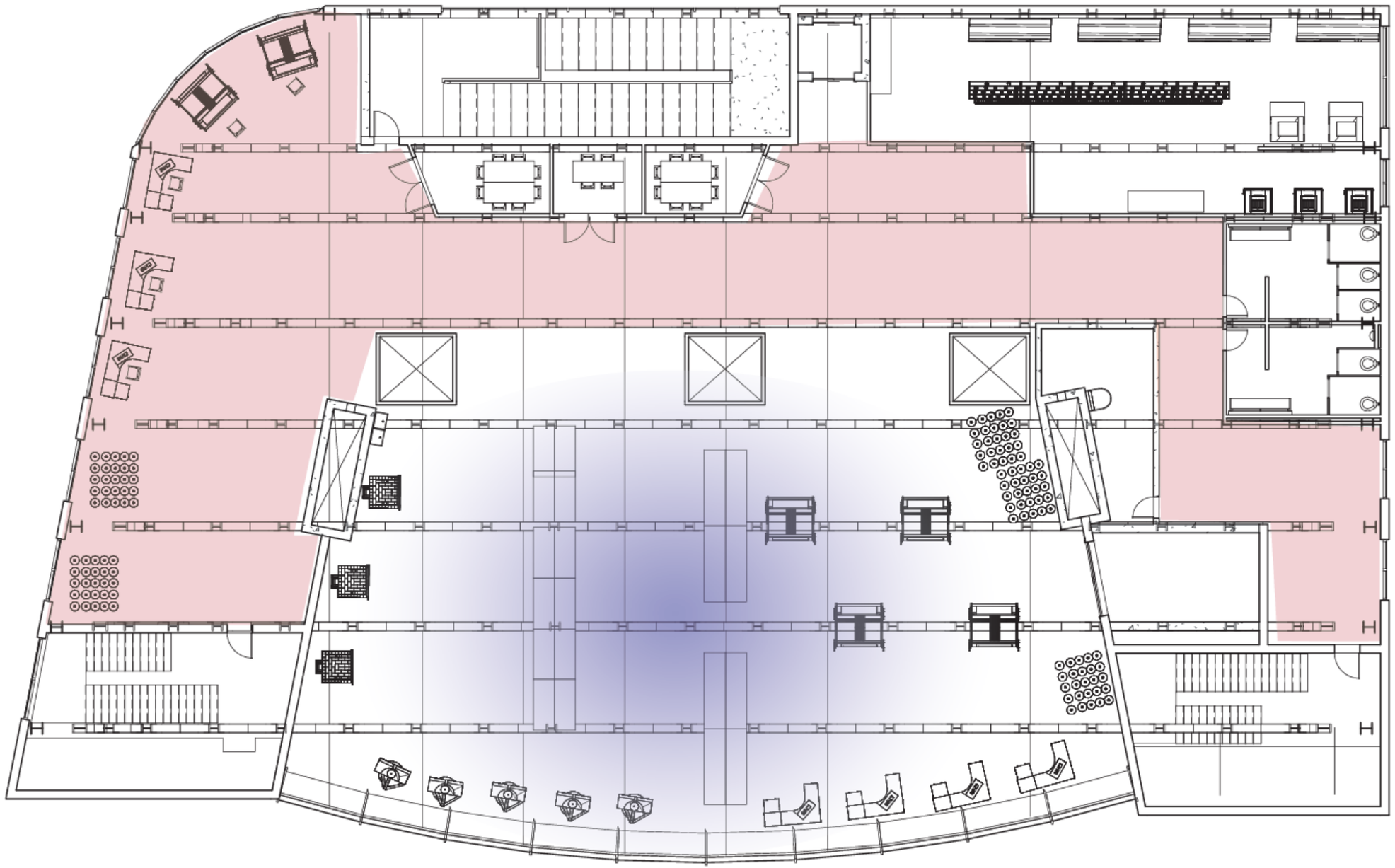
Circulation Diagram



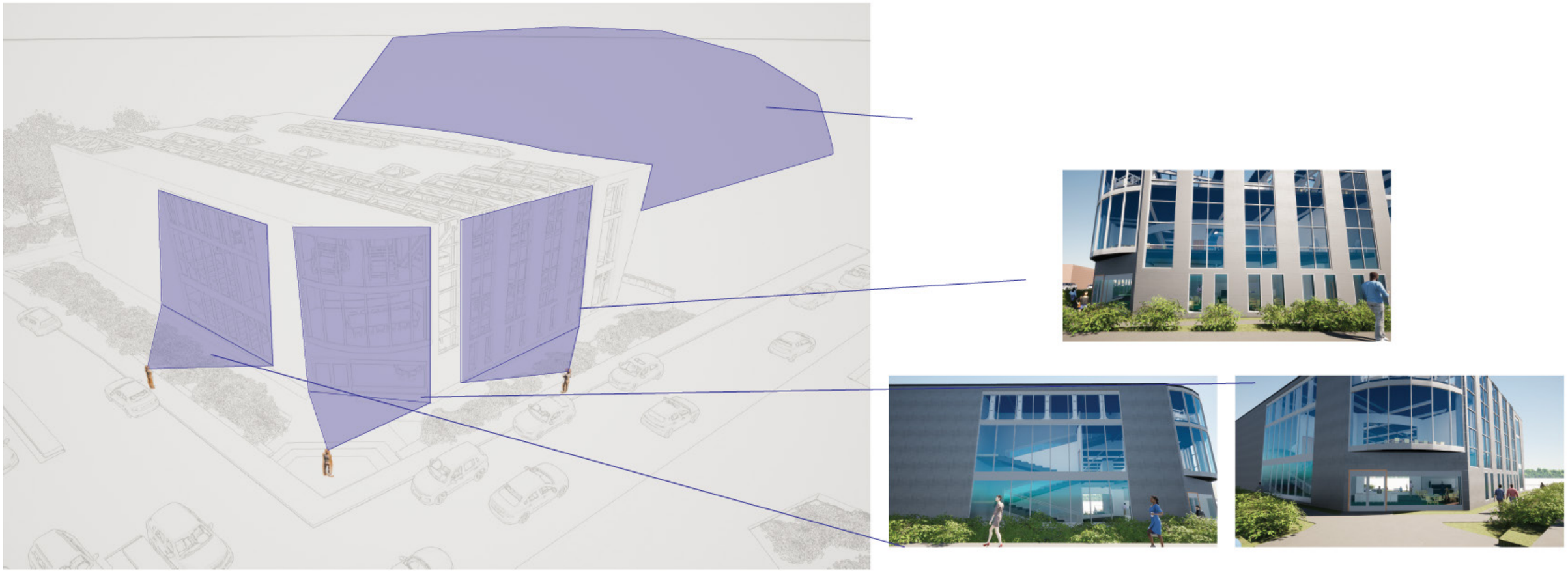
Circulation Diagram



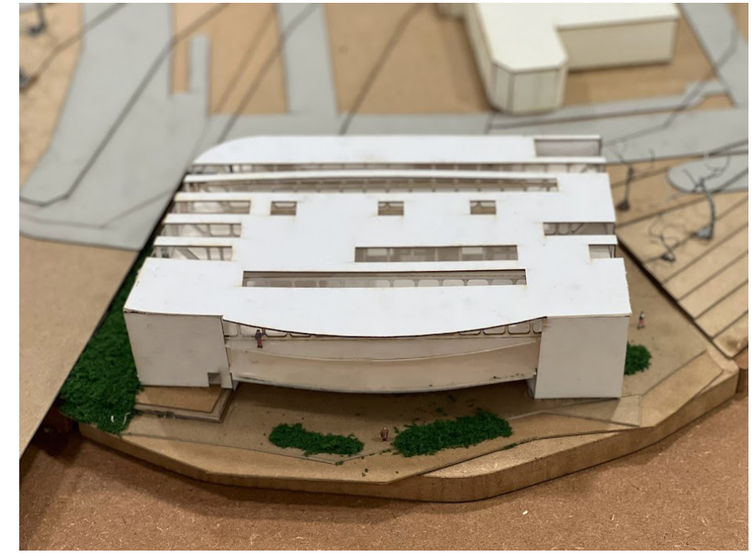
Circulation Diagram

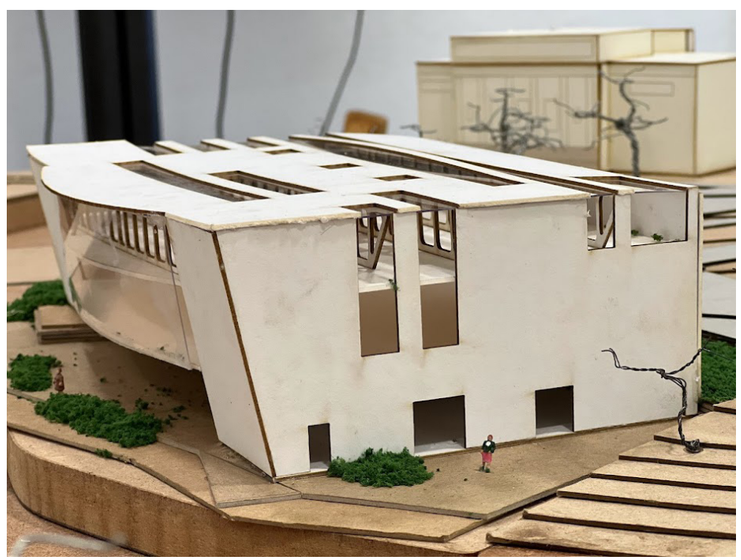


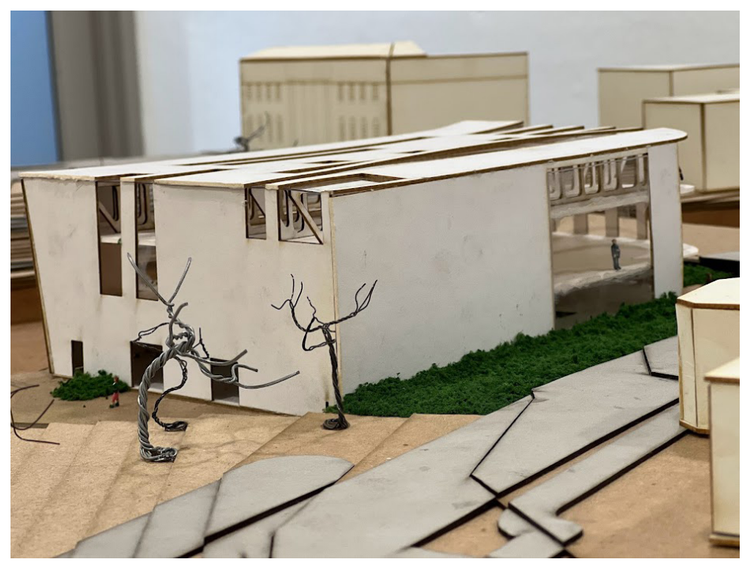
Critical Views

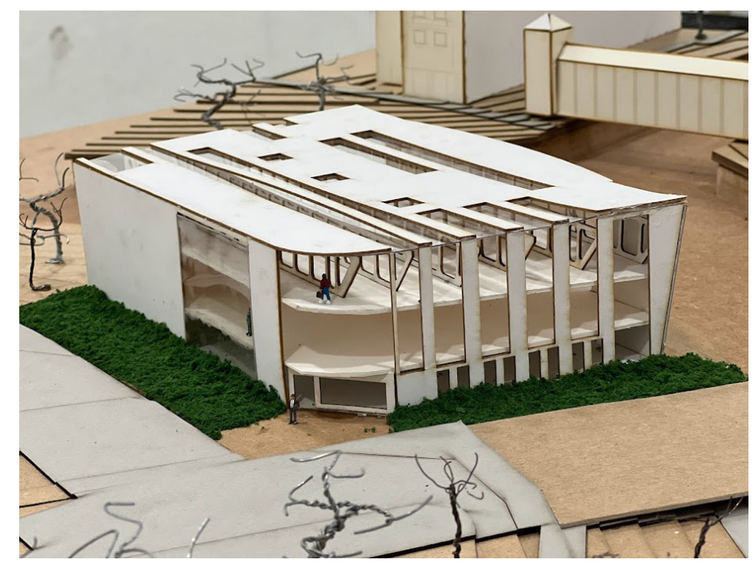


Physical Model 1/16 Scale









Physical Model 1/2 Scale