

Location:

Fells Point, Baltimore, MD

Description:

This project is an urban farm/food center which primarily houses a **Vertical Farm** and an **Intensive Aqua-Farm**.

Category: Graduate / Upper Level

Assigned Program:

It was proposed that the City of Baltimore would facilitate the development of a building with structures to house alternative food production and retail distribution of food and creative products. It was also highlighted that as part of our sustainable design focus, alternative energy sources or systems, and natural ventilation when seasonally feasible, are required for some of the major spaces listed below, specifically:

- a. Urban Vertical Farming (8000sf)
- b. Intensive Aquaculture (8000sf)
- c. Community Demonstration Garden Area.

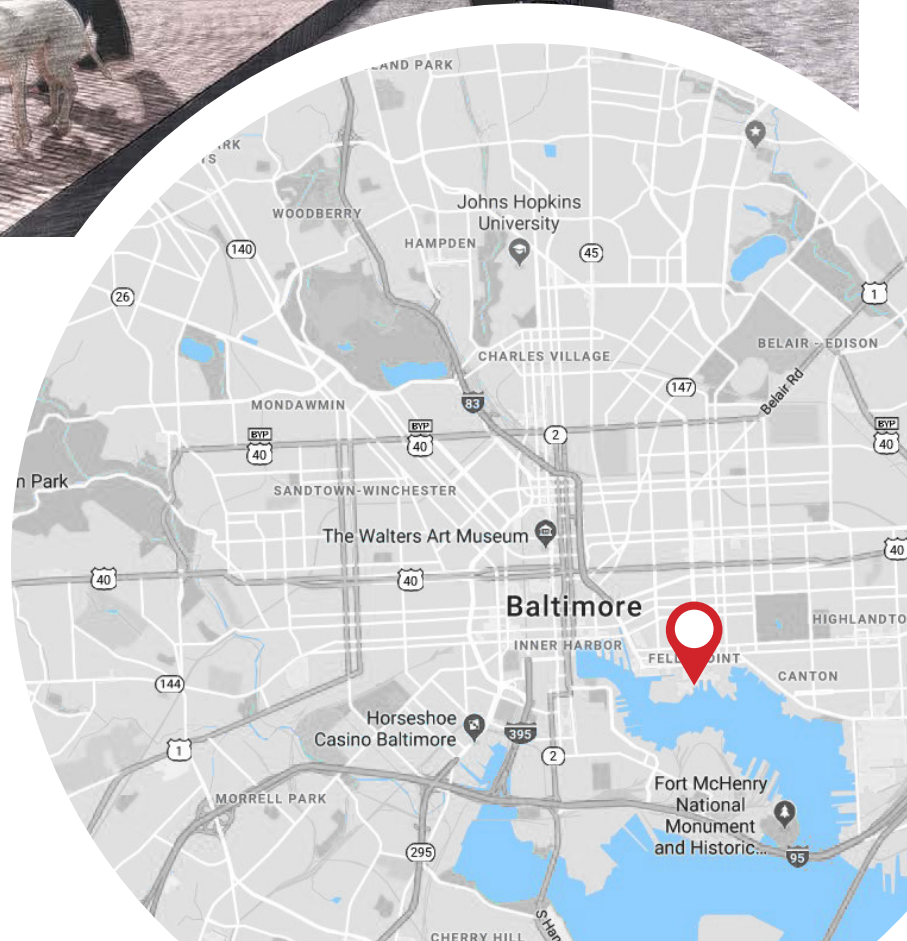
Assigned Objectives:

The focus was on integrated systems design and the Objectives included the understanding of:

- Site analysis & design
- Formal order & circulation
- Sustainability
- Codes: egress planning, ADA access study, construction types, etc.
- Structural system
- Materials
- Environmental controls - natural & HVAC
- Building services
- Detail design

**Design intent:**

To define space in the form of an urban farm that would bring about environmental awareness to the urban public. The idea was to let the site design the building and allow it to express the true nature of the usage of the building through the material palette. Most of the waterfront which includes Fell's point itself has a rustic and repurposed industrial ambiance to it and this was reiterated by this design. From a distance, the observer is well notified of the purpose of the building and when close by, they are engulfed in the intricate activities within.



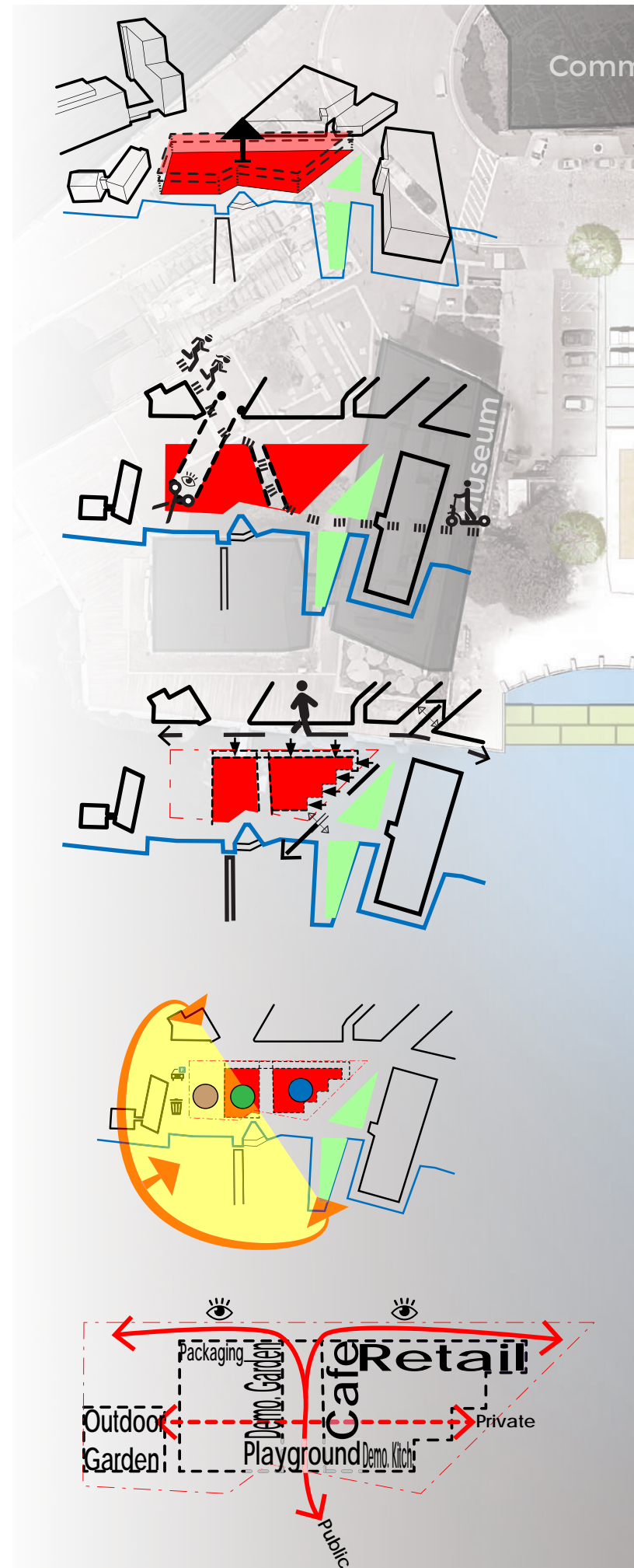
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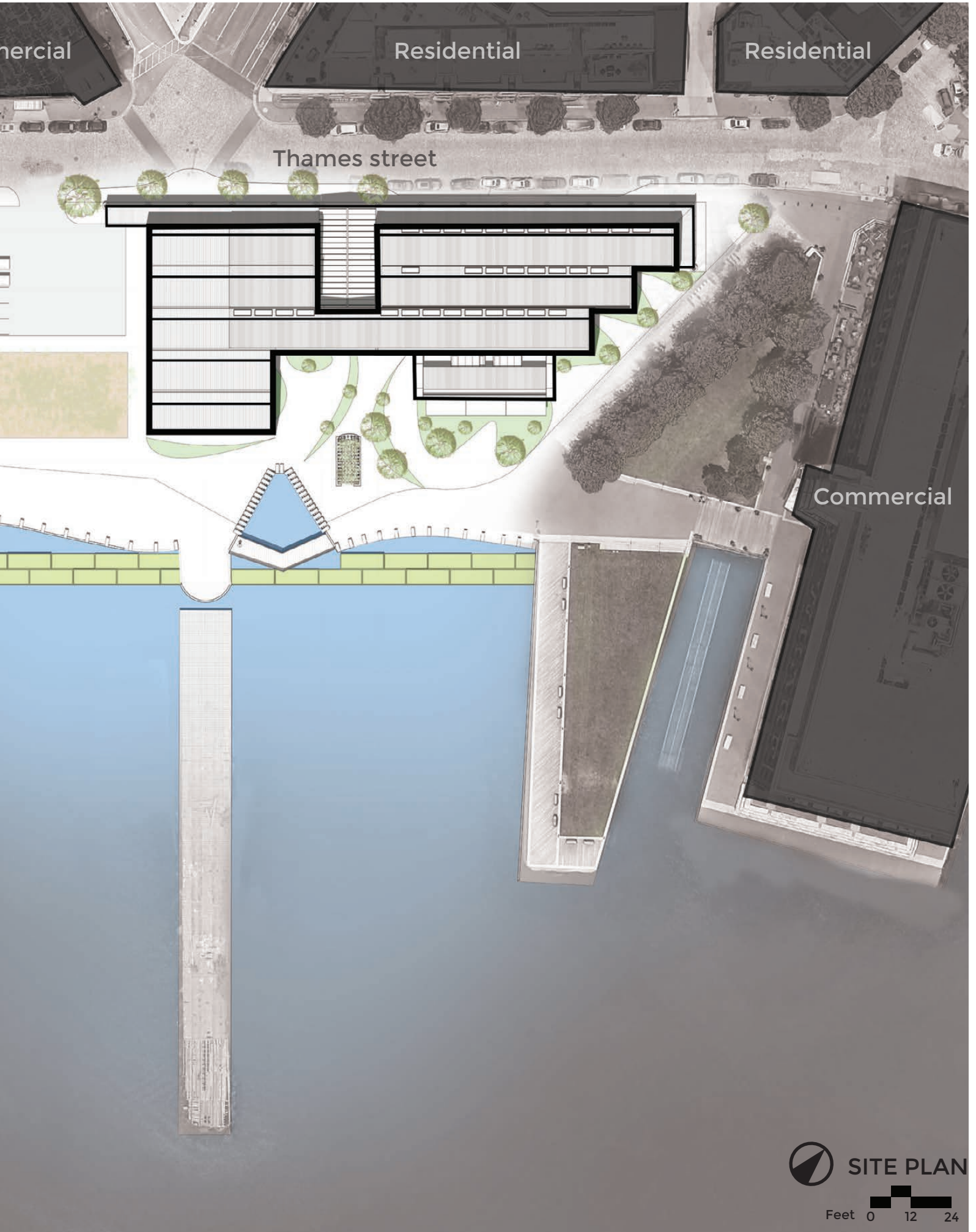
Code: Visual continuity to water
+
Jogging path

Spatial decompression

Solar orientation
=
Main program placement

Supporting program
addresses public facades





Commercial

Residential

Residential

Thames street

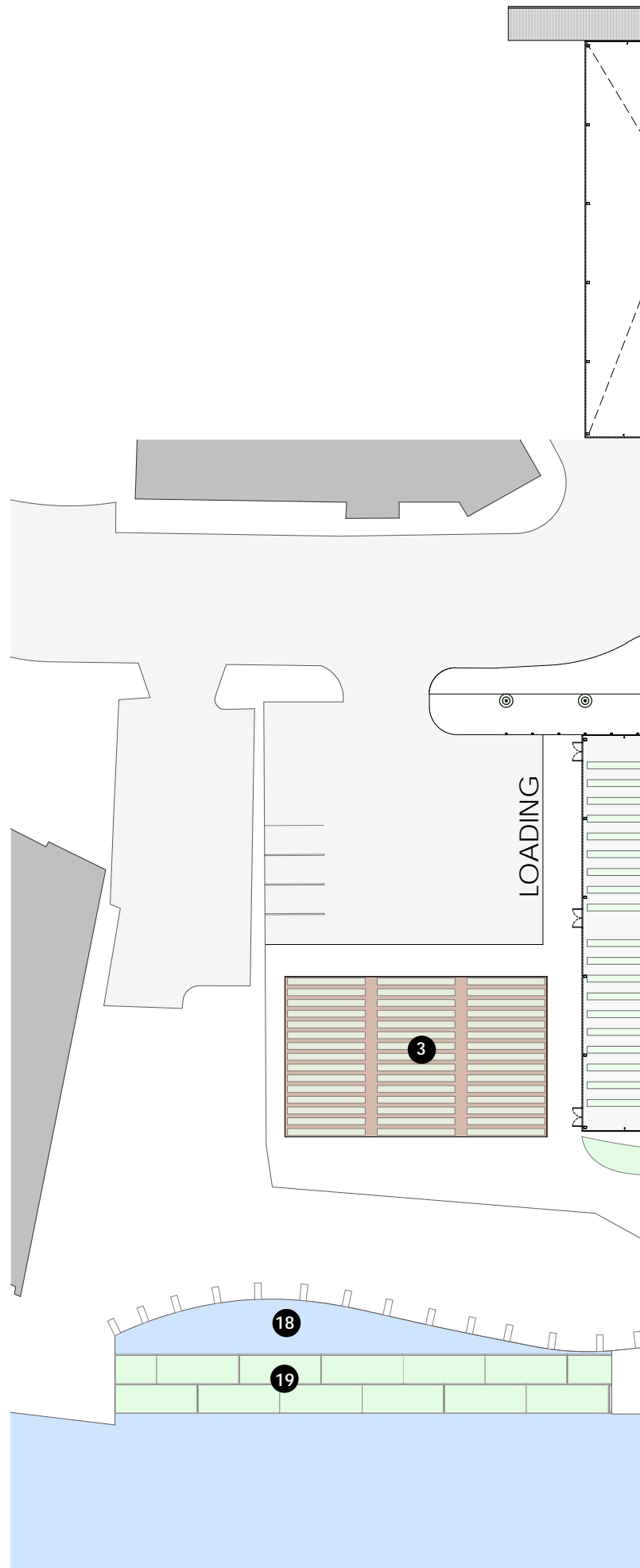
Commercial

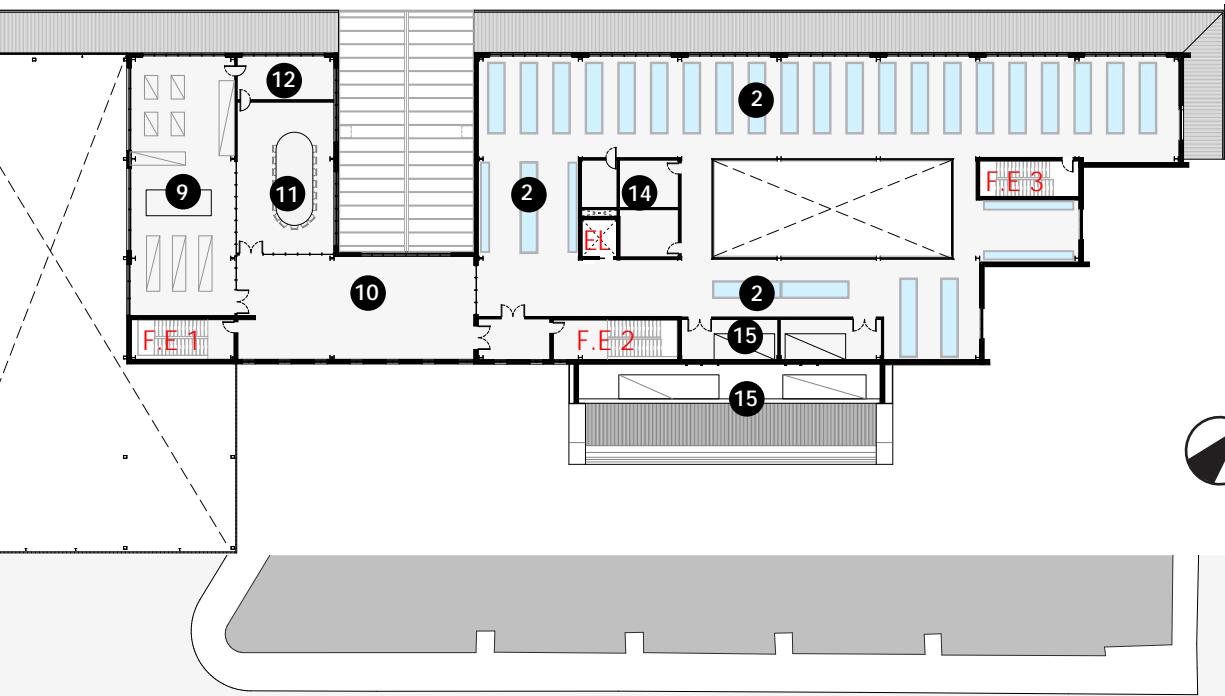
 **SITE PLAN**

Feet 0 12 24

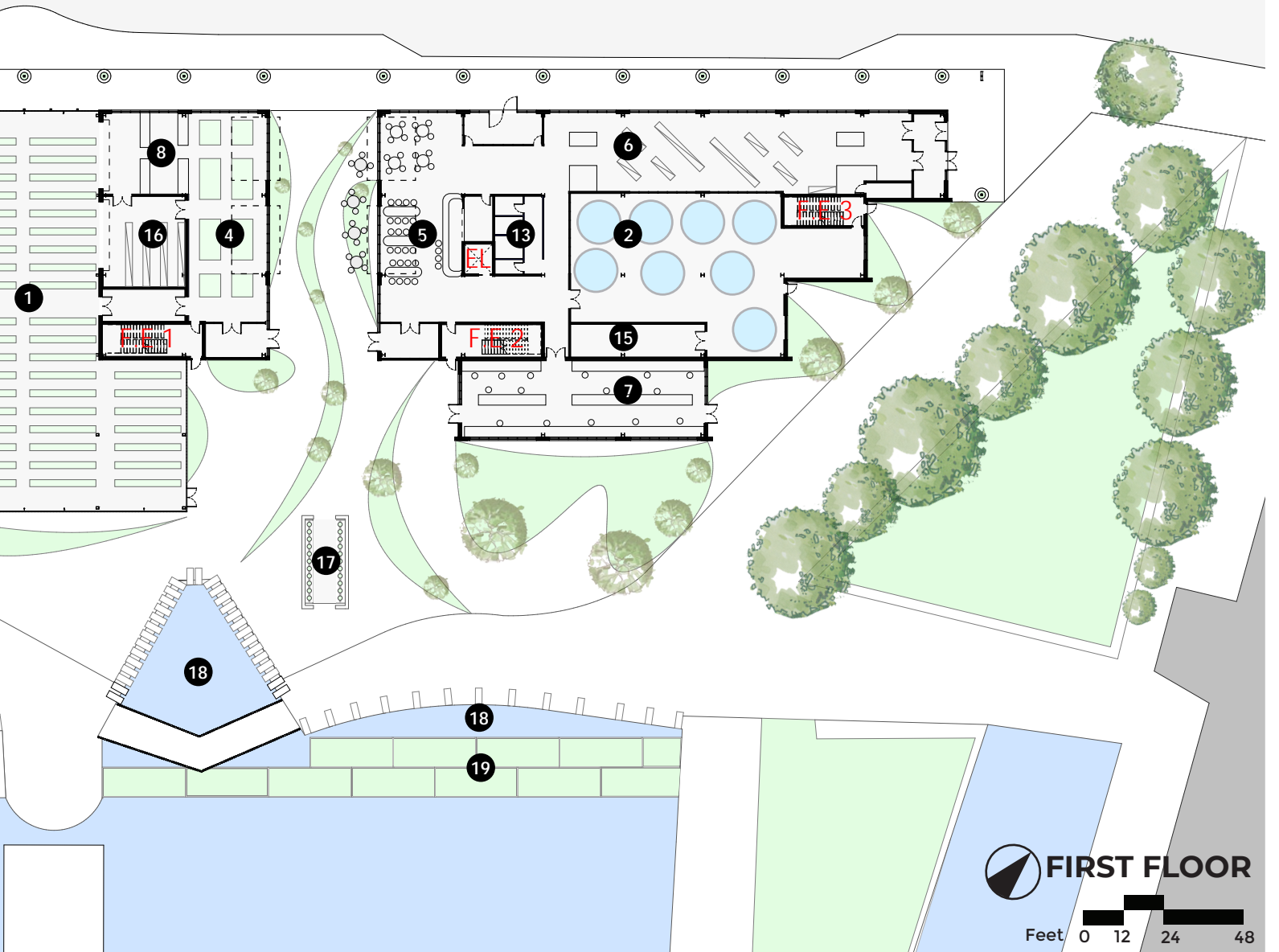
KEY

1. Vertical Farm
2. Aquaponic Tanks
3. Outdoor Garden
4. Demonstration Garden
5. Cafe
6. Farm Retail
7. Demonstration Kitchen
8. Processing & Packaging
9. Lab + Resources Library
10. Open Offices
11. Board Room
12. Director's Office
13. Rest Rooms
14. Changing Rooms
15. Mechanical
16. Storage
17. Giant Hydroponic Wheel
18. Oyster Pond
19. Floating Grow Beds





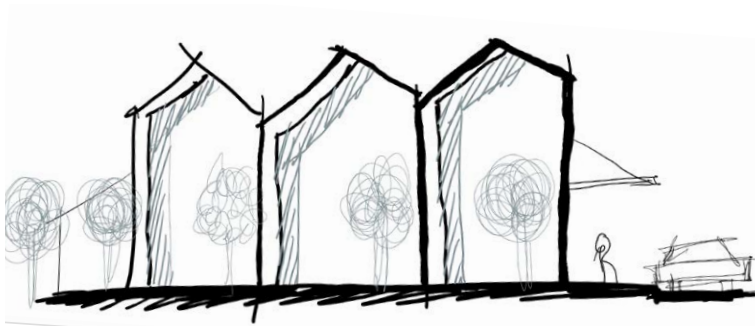
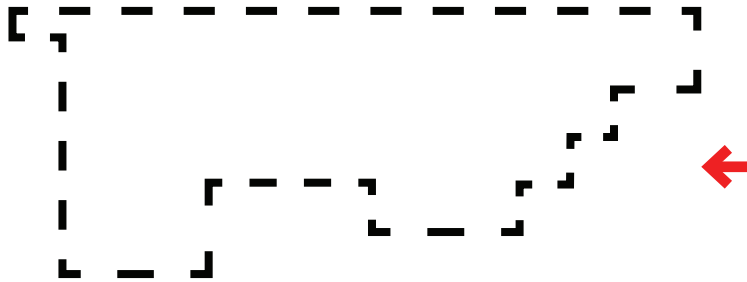
SECOND FLOOR



FIRST FLOOR



My goal was to reinforce the function of the building as an industrial production space while applying contemporary dimension to the sawtooth roof.



Concept sketch



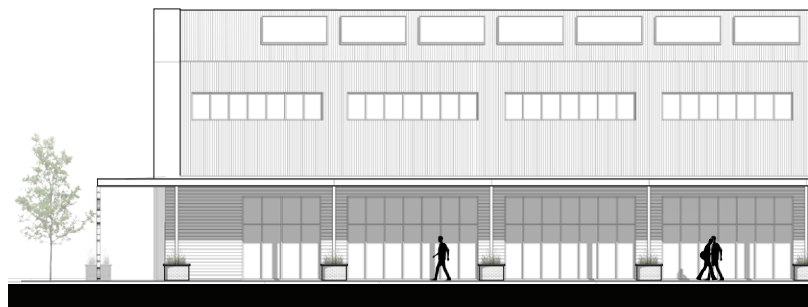
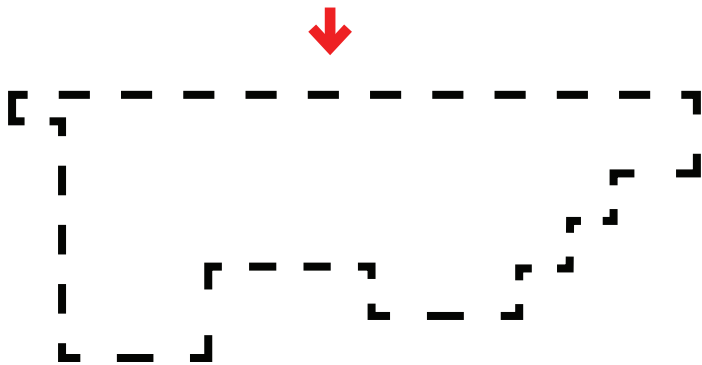


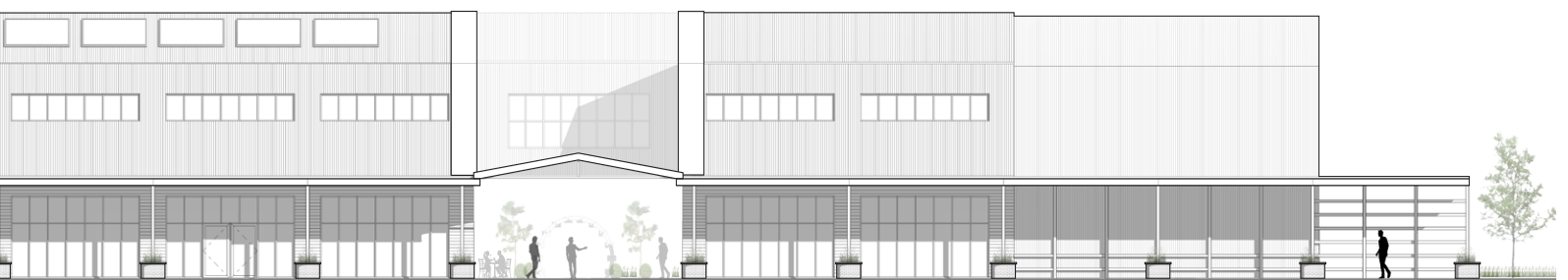
North East Elevation

The covered walkway and arcade sought to engulf the pedestrians and expose them to the activities on the building's interior.

These spaces also double as extensions to the Cafeteria and Demonstration Garden for outdoor activities like cafe sitting and market day tables.

The walkway roof also helps reduce the scale of the building relative to the pedestrian as an observer and provides the much needed refuge from harsh weather elements. An element relatively not present in Fell's Point, a neighborhood with a high walking score.





North West Elevation

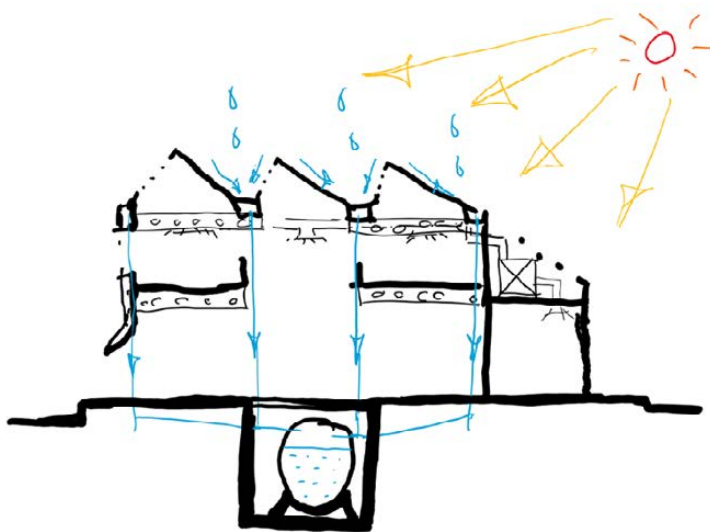
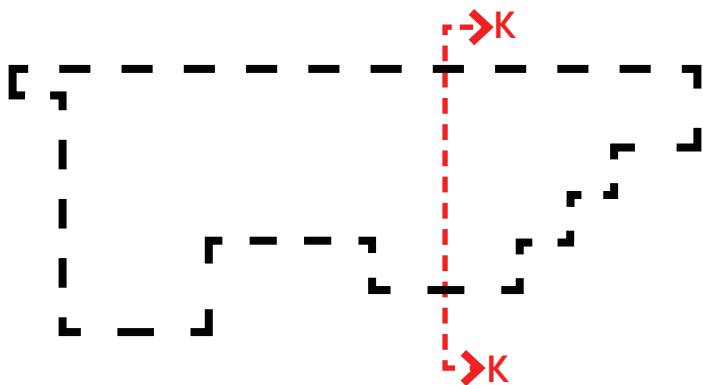
The rotating tunnel planter in shown in the image is more of public art in form of a garden that engages the public in a fun and expressive way.

Below, the section sketch diagram illustrates the considerations I made regarding the saw-tooth roof. It facilitated for the implimentation of three sustainable features that are:

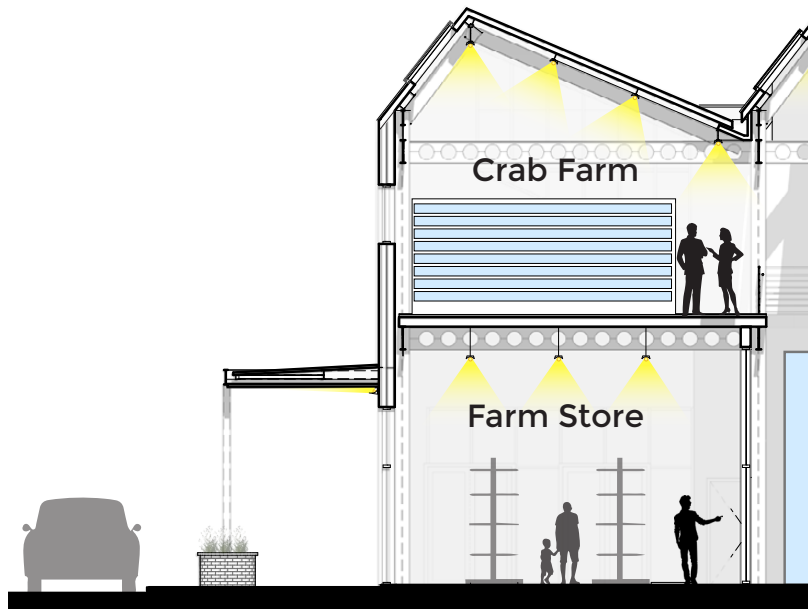
1: To capture rain water, store and process it under the building which would be later pumbed back up into the Aqua Farm.

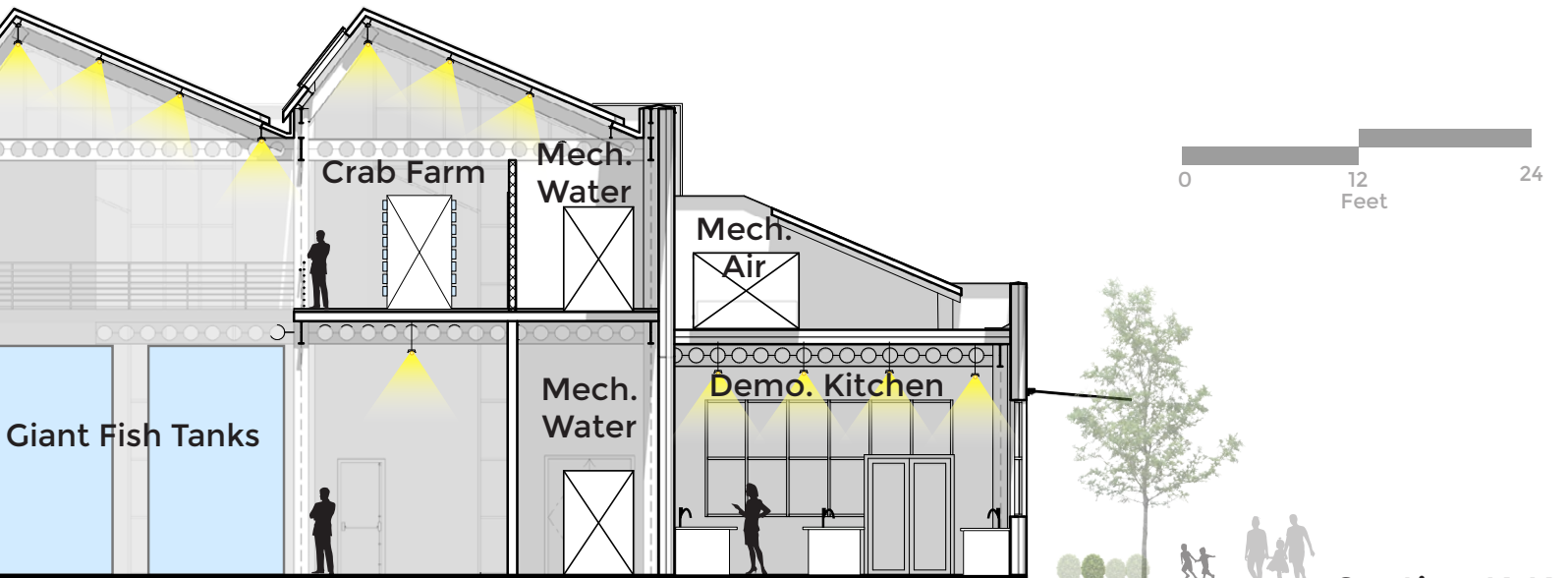
2: To allow the indirect northern natural light into the building.

3: To capture The Southern Solar Sunlight at a relatively optimal angle.



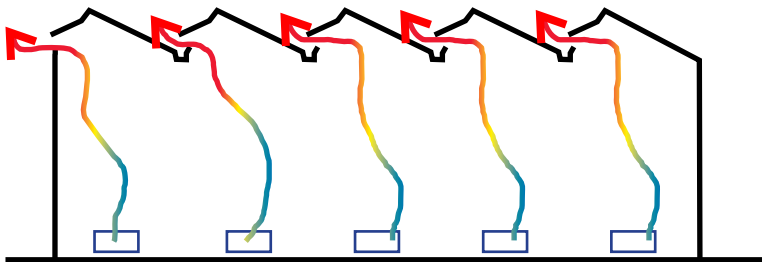
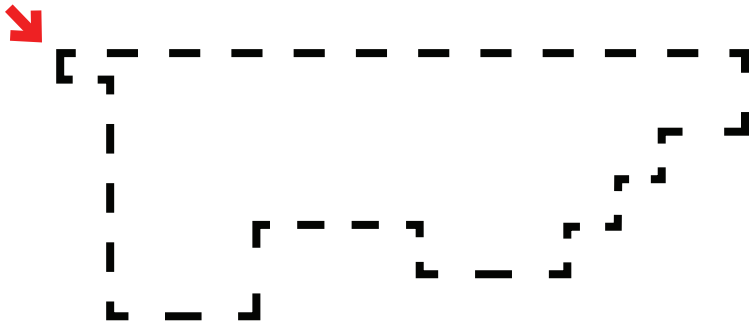
Concept sketch



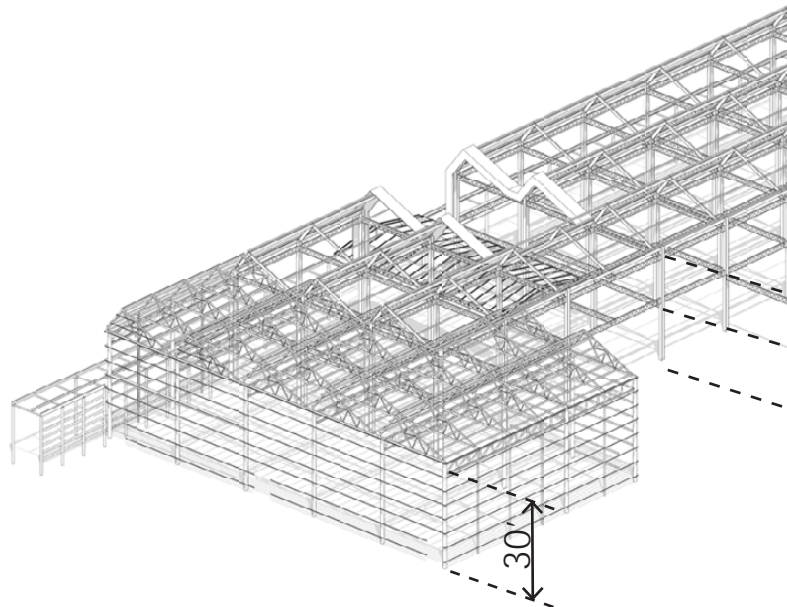


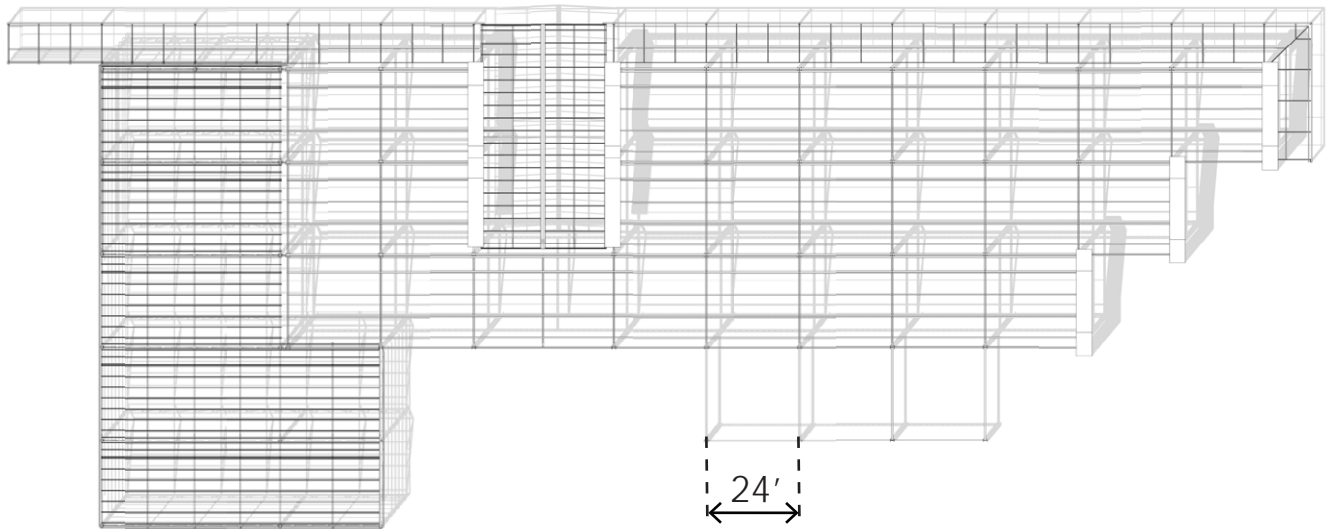
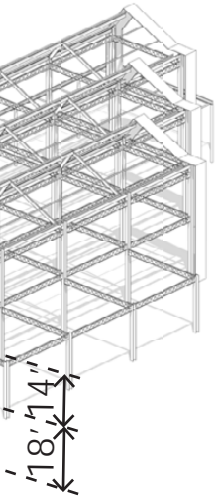
The air and ventilation units are located on the bottom of the Vertical Farm walls thus the lack of hanging HVAC equipment led to the lighter structural members.

The saw-tooth roof would also facilitate in the natural ventilation of the farm using stack effect through louvered windows to allow hot air to escape while the fans at the bottom of the walls pulled in cooler air.



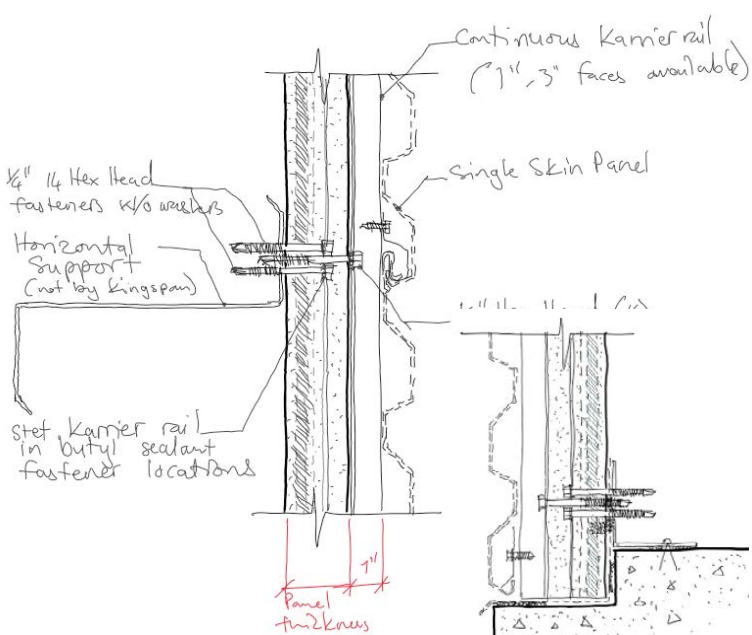
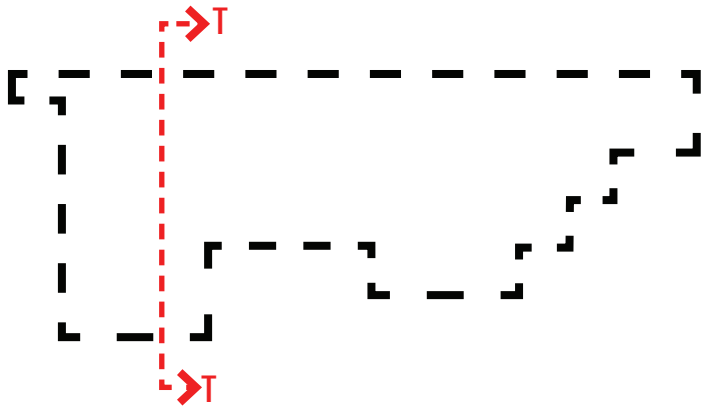
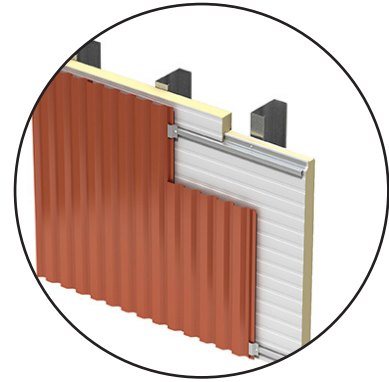
Vertical Farm Natural Air Circulation Concept Diagram





The Vertical Farm envelope is comprised of tripple layered hollow-core translucent polycarbonate sheets.

The rest of the building alternates cladding from corrugated metal sheets to wood laminates fastened to the structure using the same substructural system.



Envelope detailing explorations

