

port city paper
1026 king street

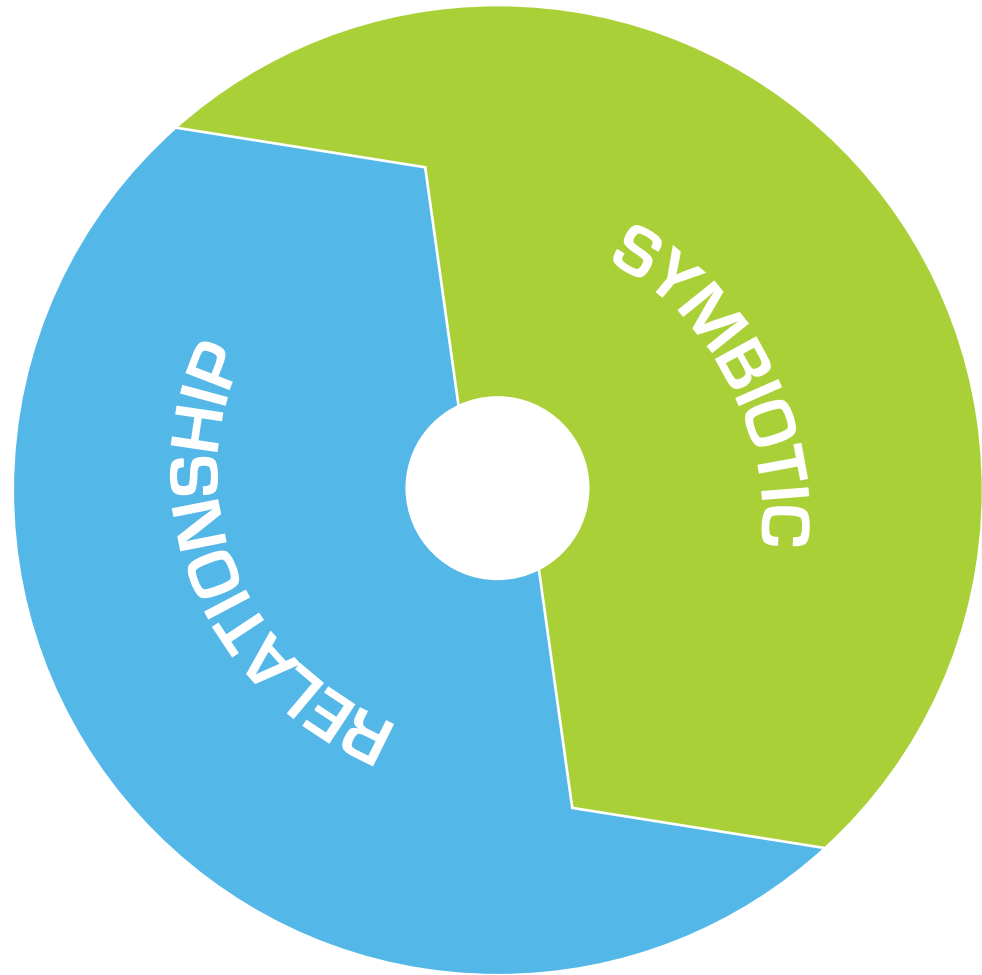
[charleston]
VERTICAL FARM

EXISTING PORT CITY PAPER BUILDING



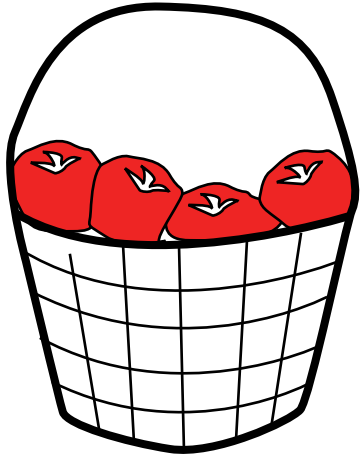
[charleston]
VERTICAL FARM 

SUPERIMPOSED ON EXISTING



[charleston]
VERTICAL FARM

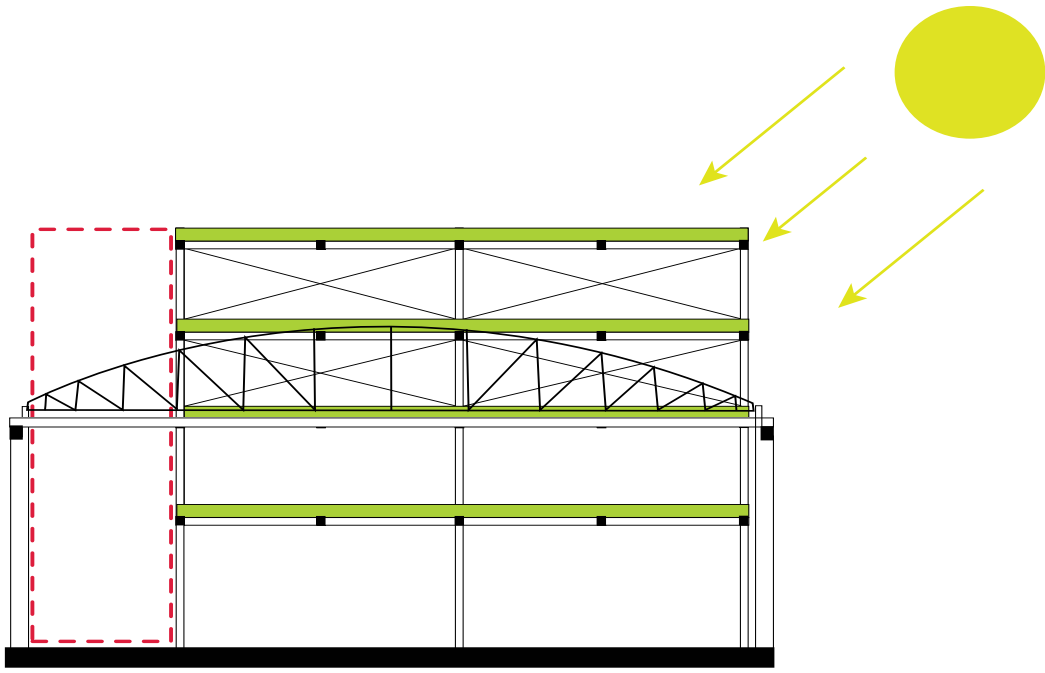
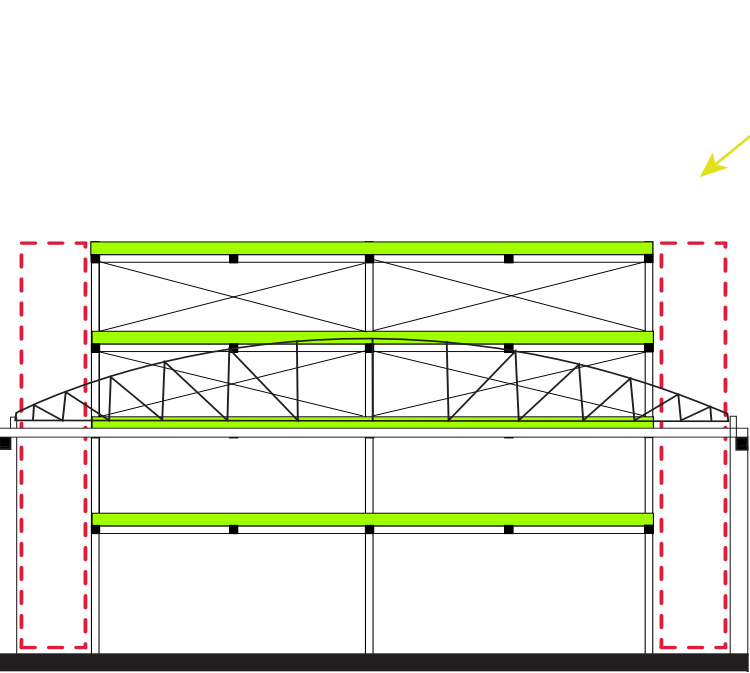
SYMBIOTIC RELATIONSHIP CONCEPT



The success of the farmers market **DEPENDS** on the vertical farm grow rooms for produce.

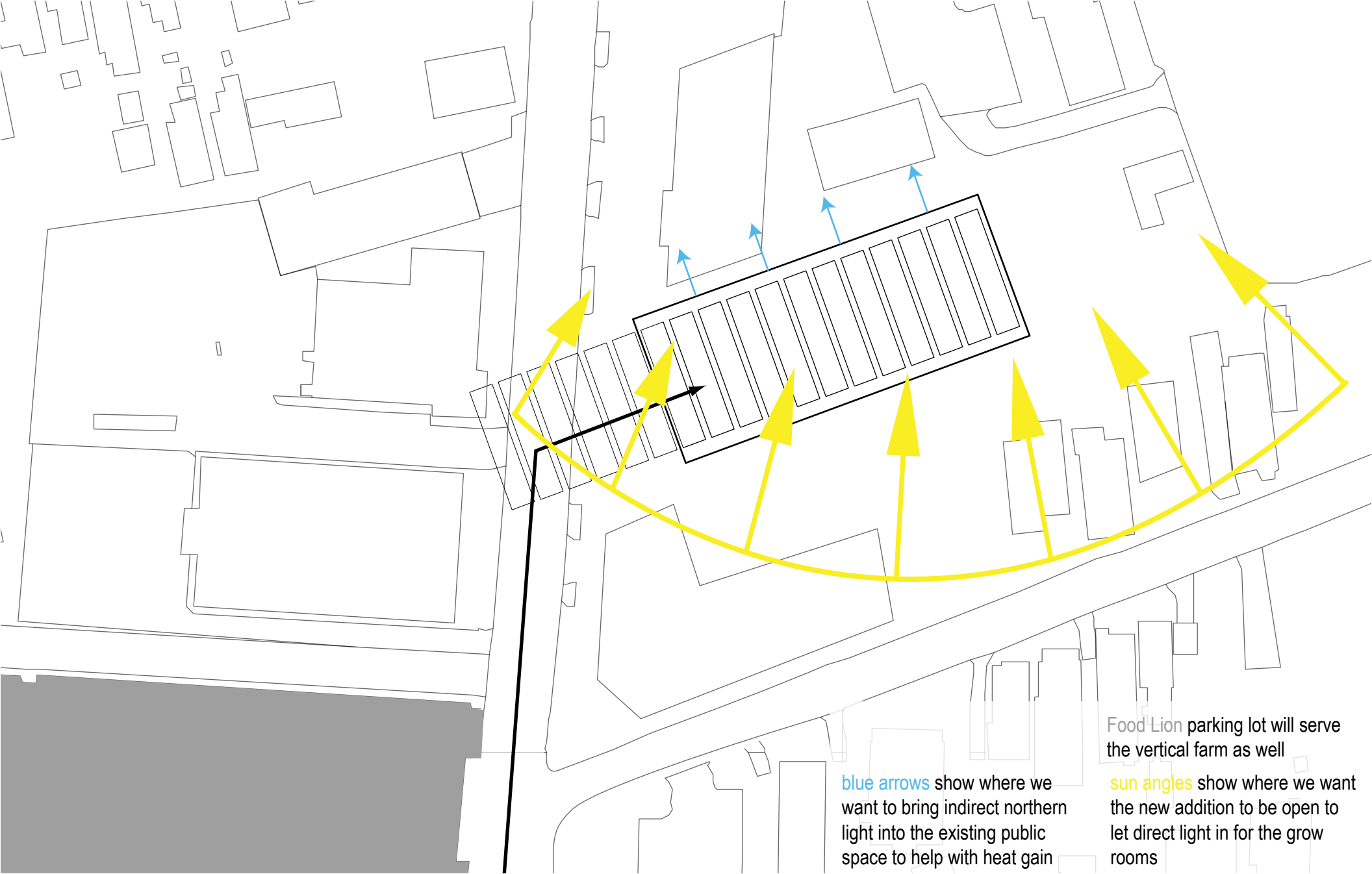


The effectiveness + impact of the vertical farm on the community **DEPENDS** on the farmers market.

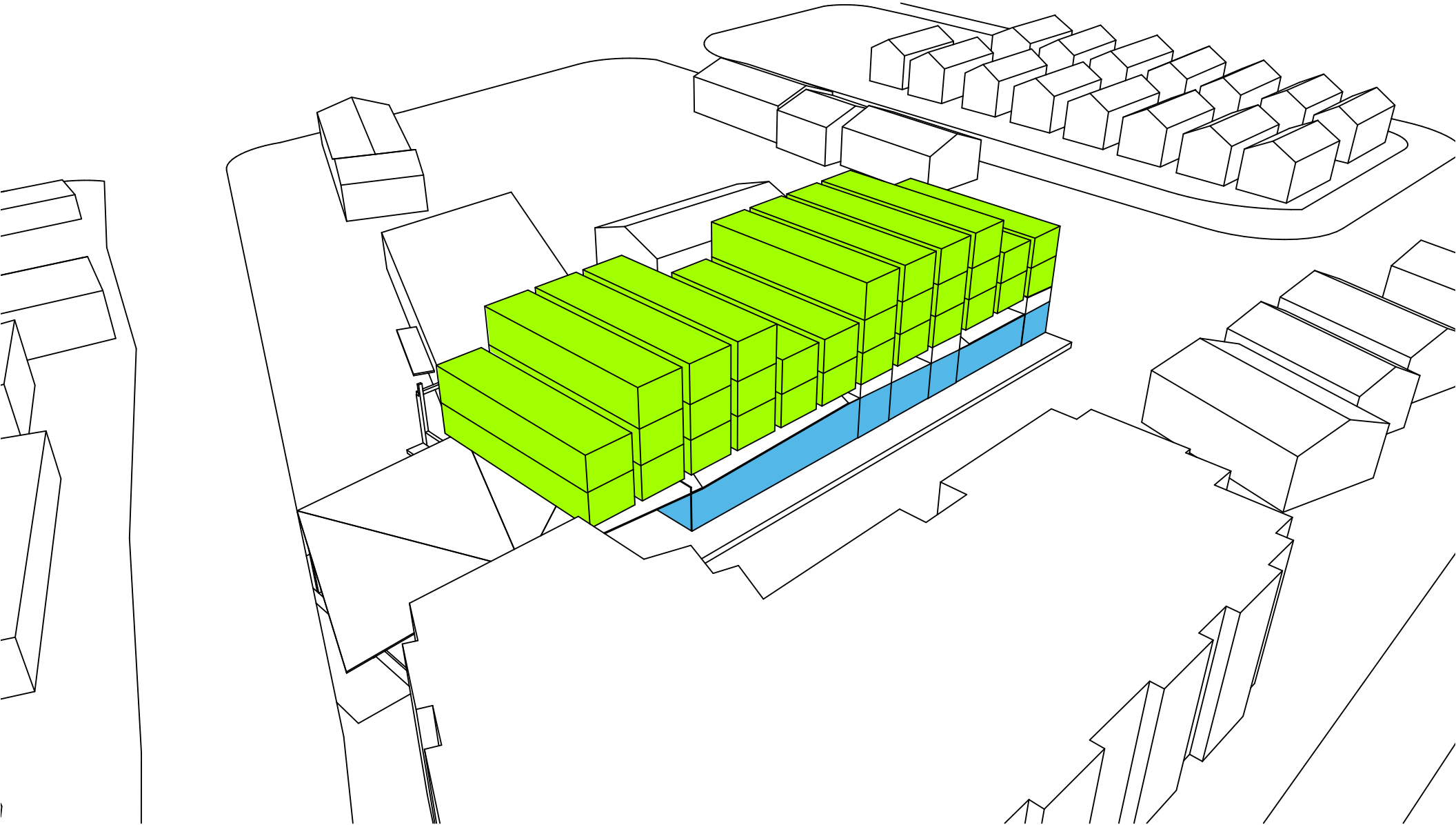


[charleston]
VERTICAL FARM

SHIFT WITHIN THE EXISTING FRAMEWORK



[charleston]
VERTICAL FARM

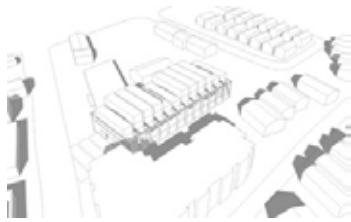


[charleston]
VERTICAL FARM

PUBLIC VS. PRIVATE



JANUARY



9:00 AM

10:30 AM

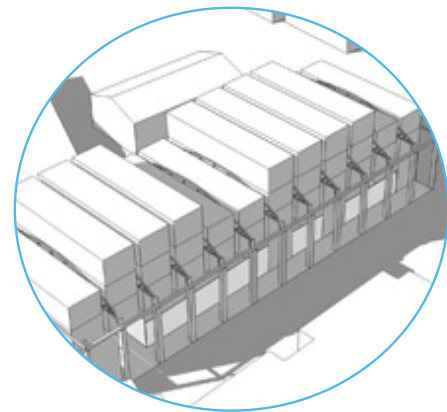
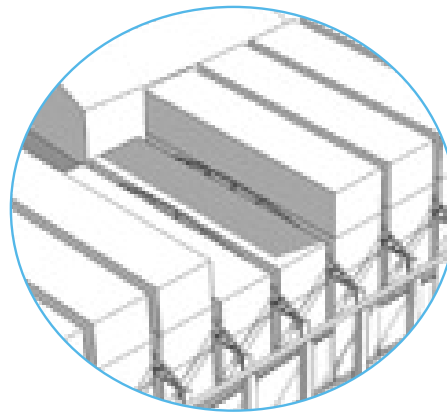
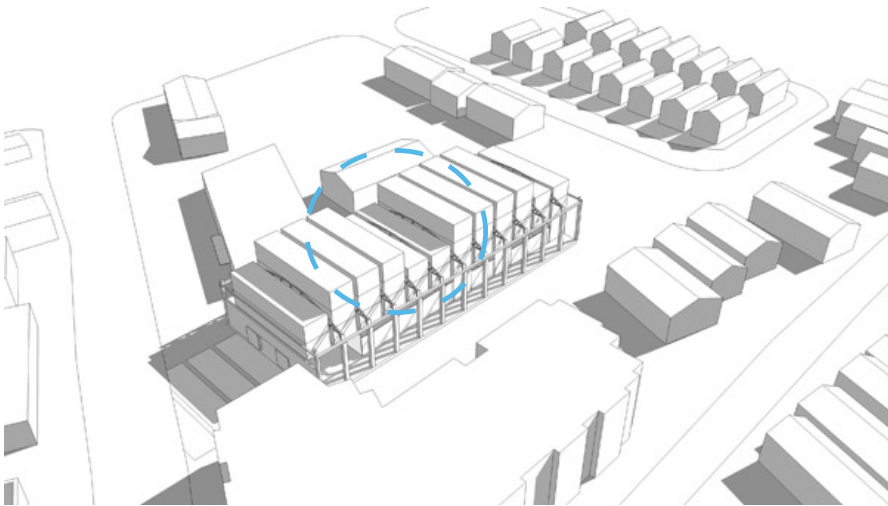
2:00 PM

3:30 PM

5:00 PM



JULY



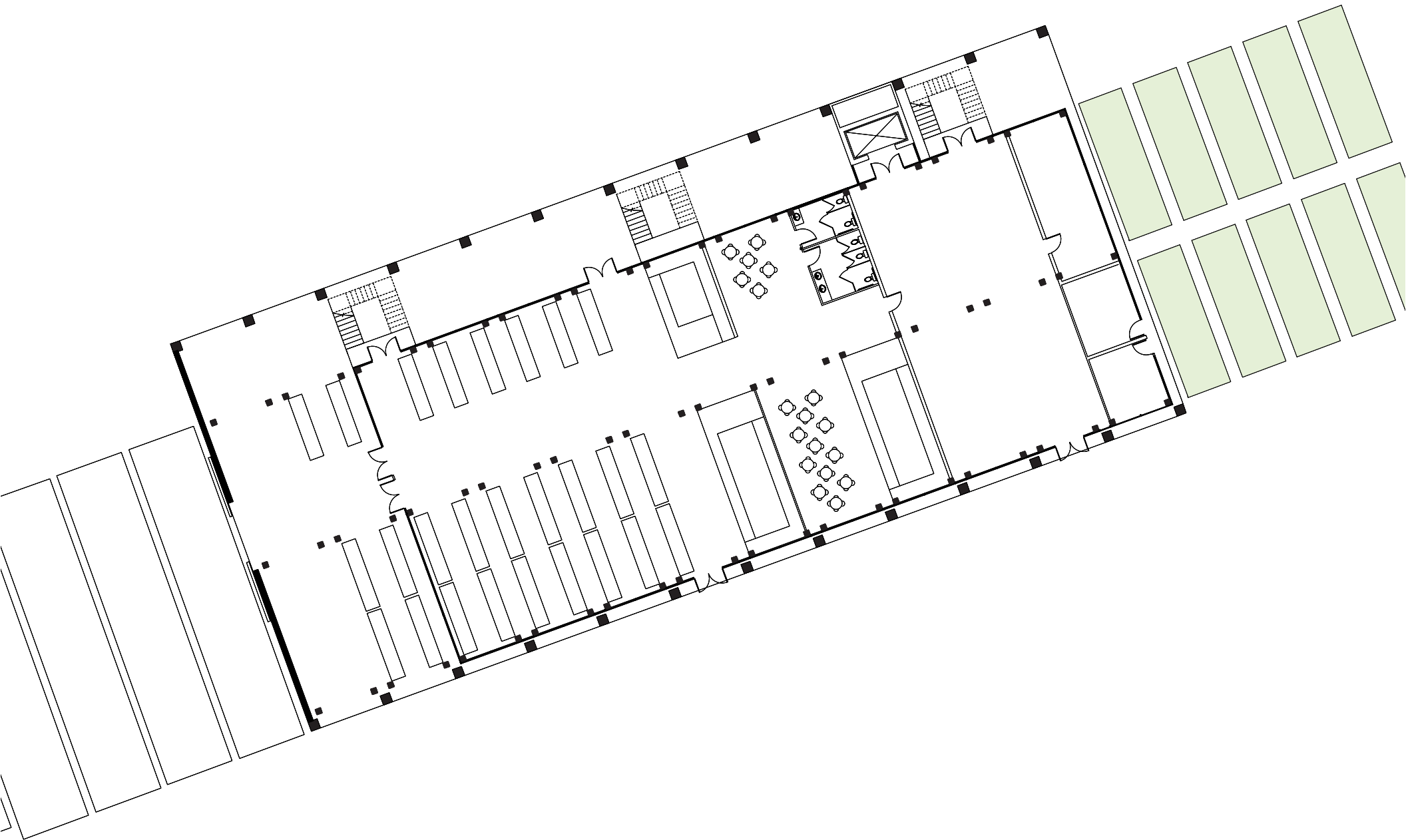
[charleston]
VERTICAL FARM

DESIGN GOALS



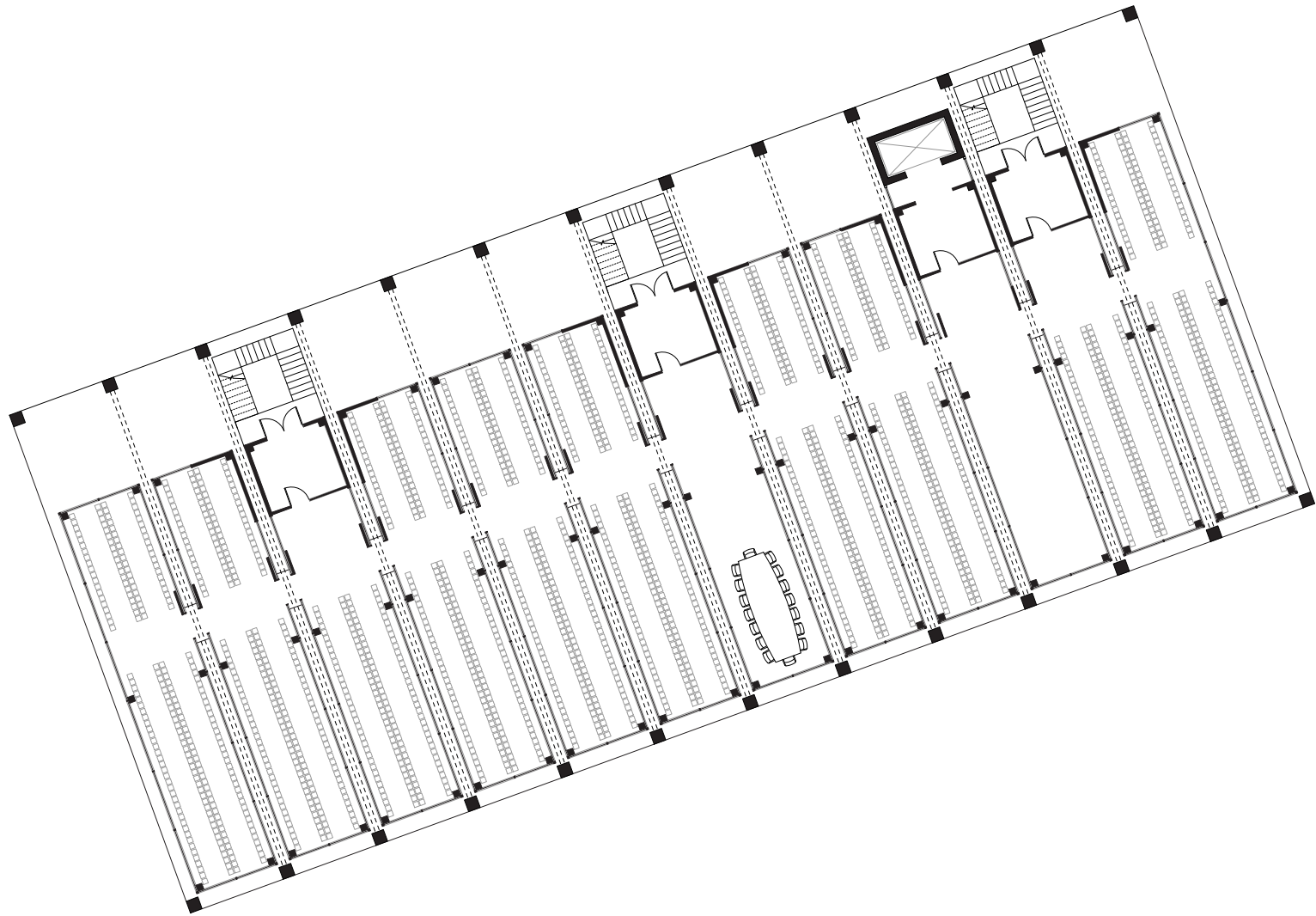
[charleston]
VERTICAL FARM

SITE PLAN



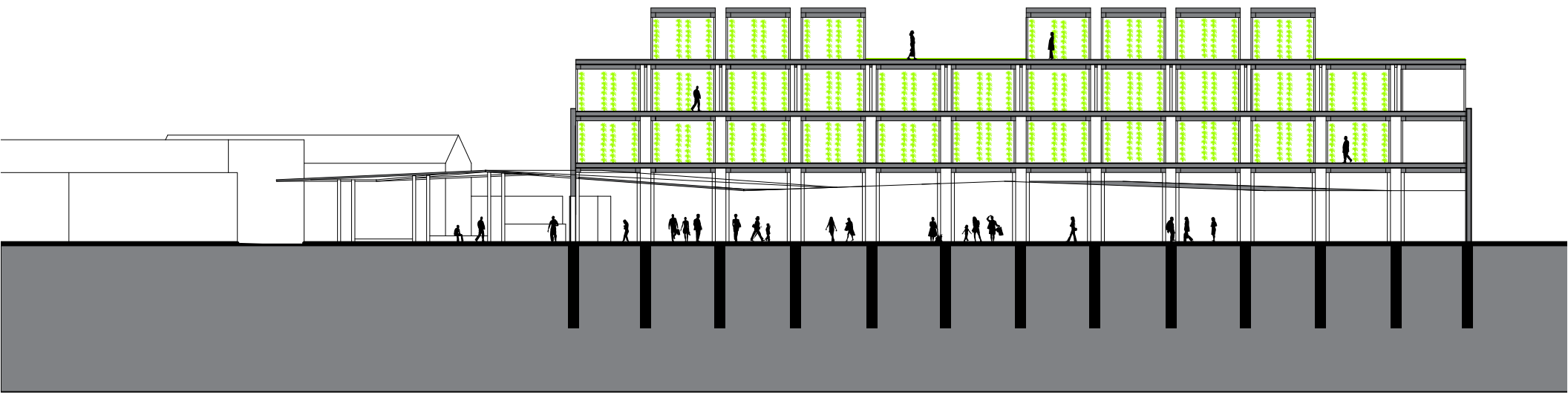
[charleston]
VERTICAL FARM

FIRST FLOOR PLAN



[charleston]
VERTICAL FARM

SECOND FLOOR PLAN

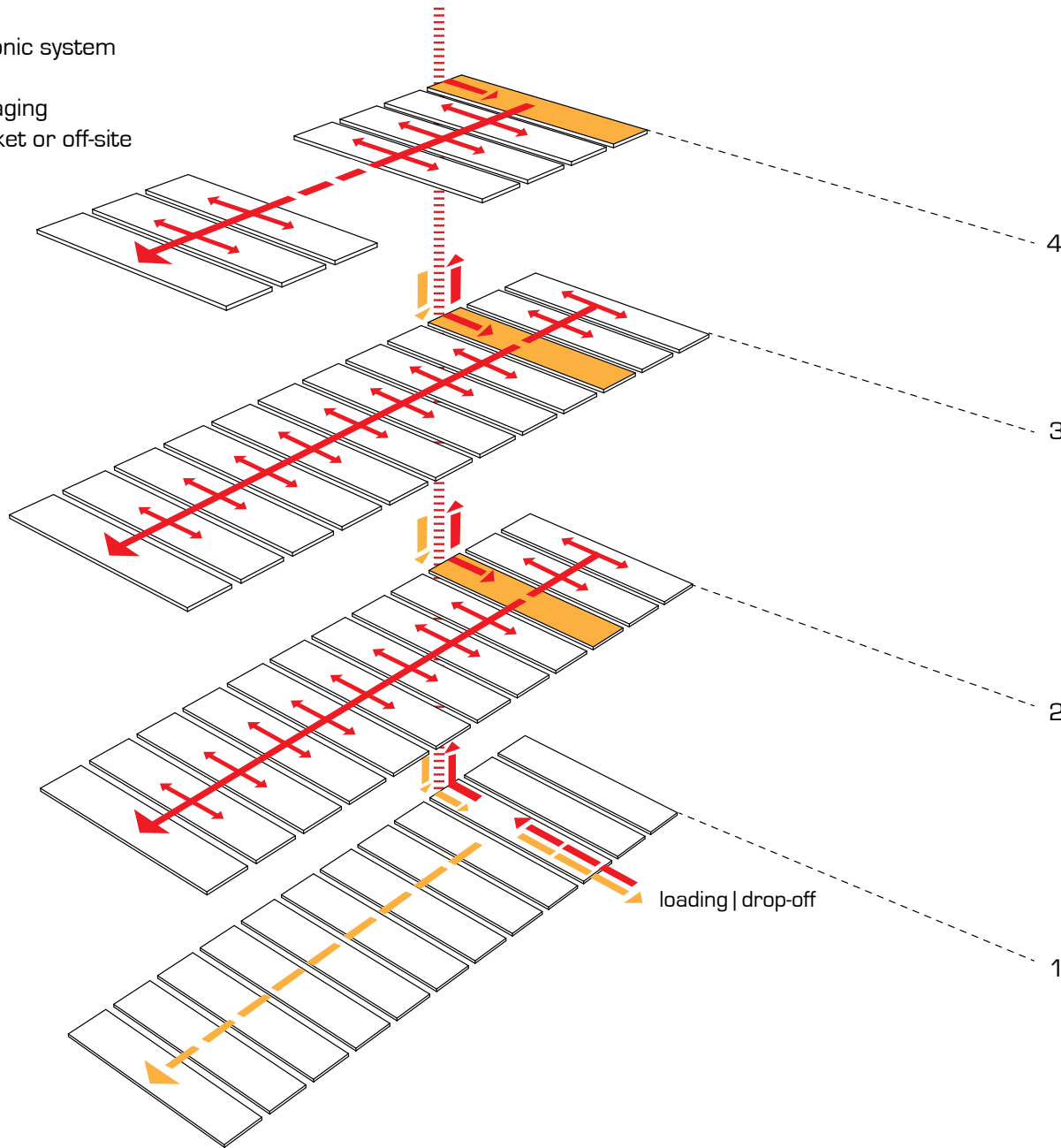


[charleston]
VERTICAL FARM

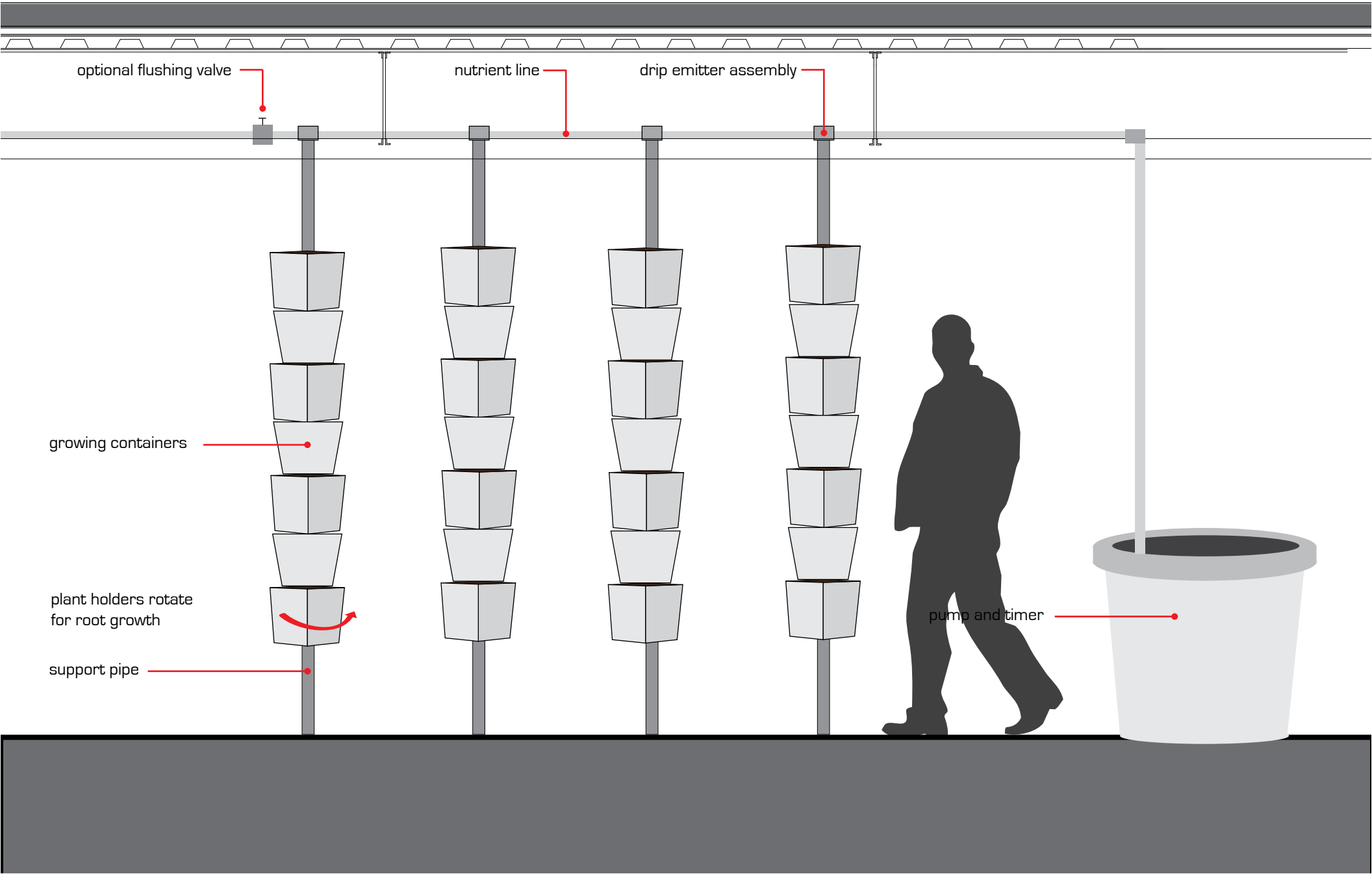
SECTION

- ① delivery | drop off
- ② seed sorting
- ③ transfer to hydroponic system
- ④ plant growth
- ⑤ organization | packaging
- ⑥ distribution to market or off-site

- ||||| elevator
- plant growth
- plant distribution

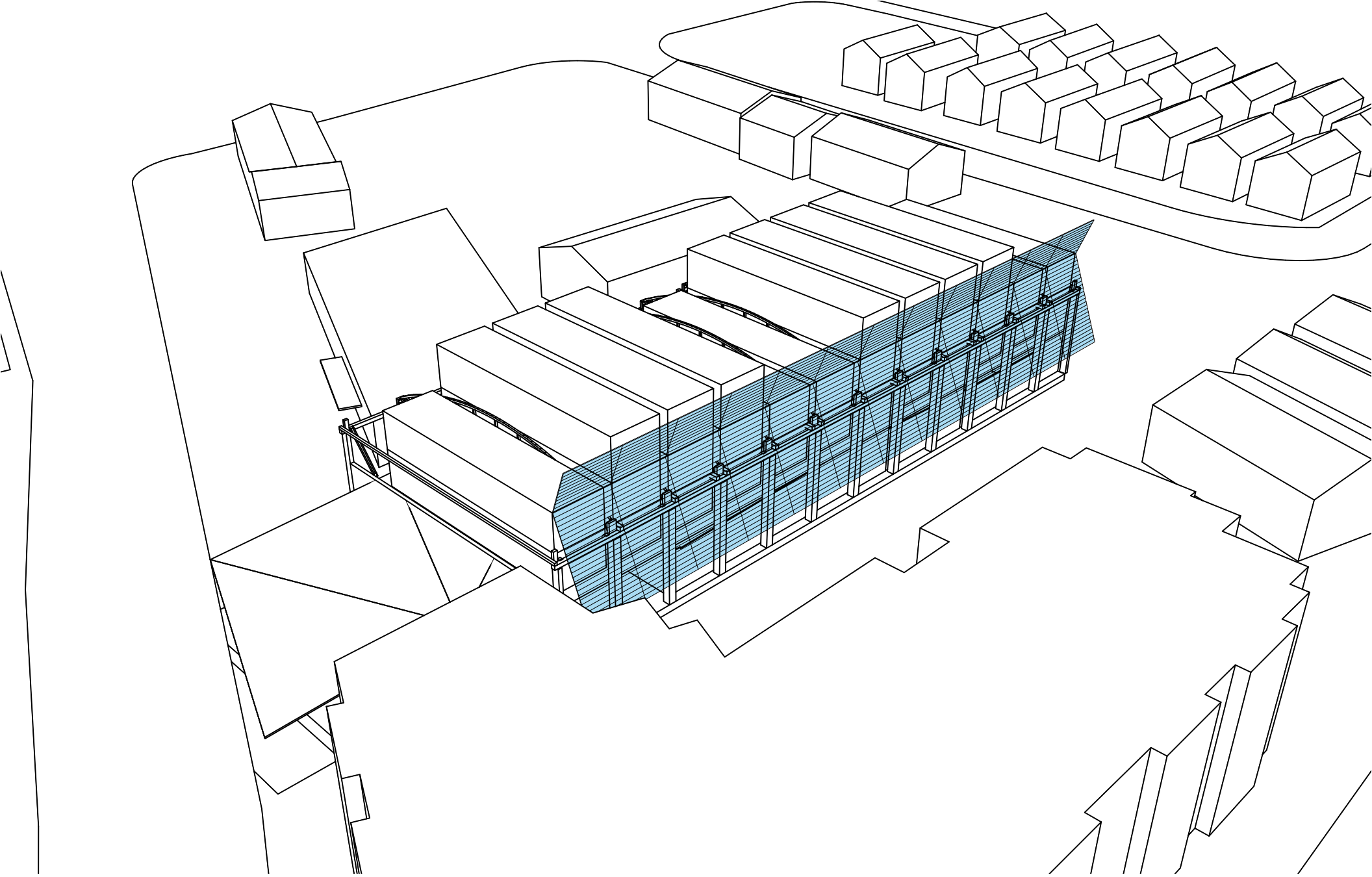


[charleston]
VERTICAL FARM



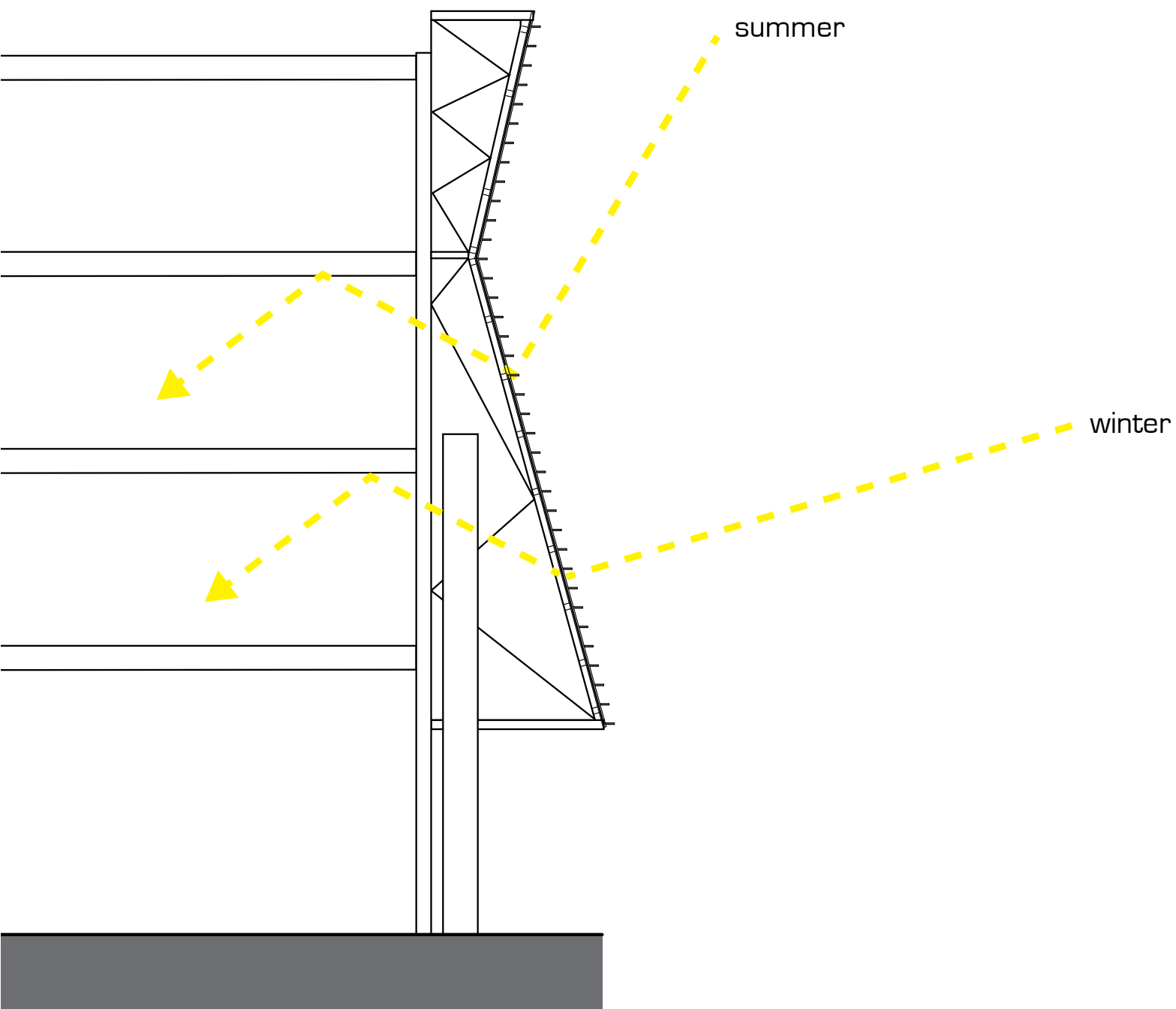
[charleston]
 VERTICAL FARM

GROWING SYSTEM



[charleston]
VERTICAL FARM

LOUVRE FORM



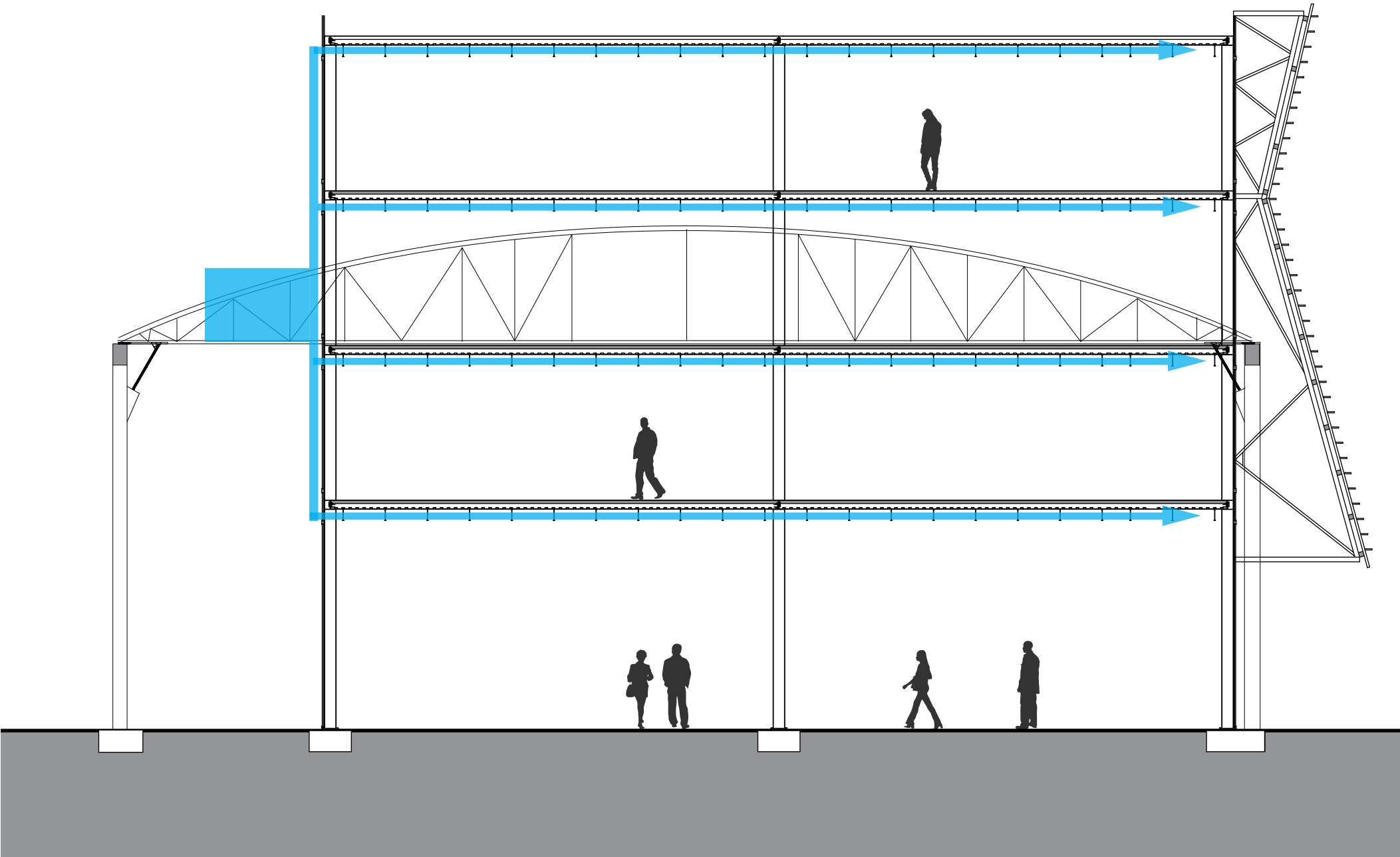
[charleston]
VERTICAL FARM

LOUVRE CONCEPT DIAGRAM



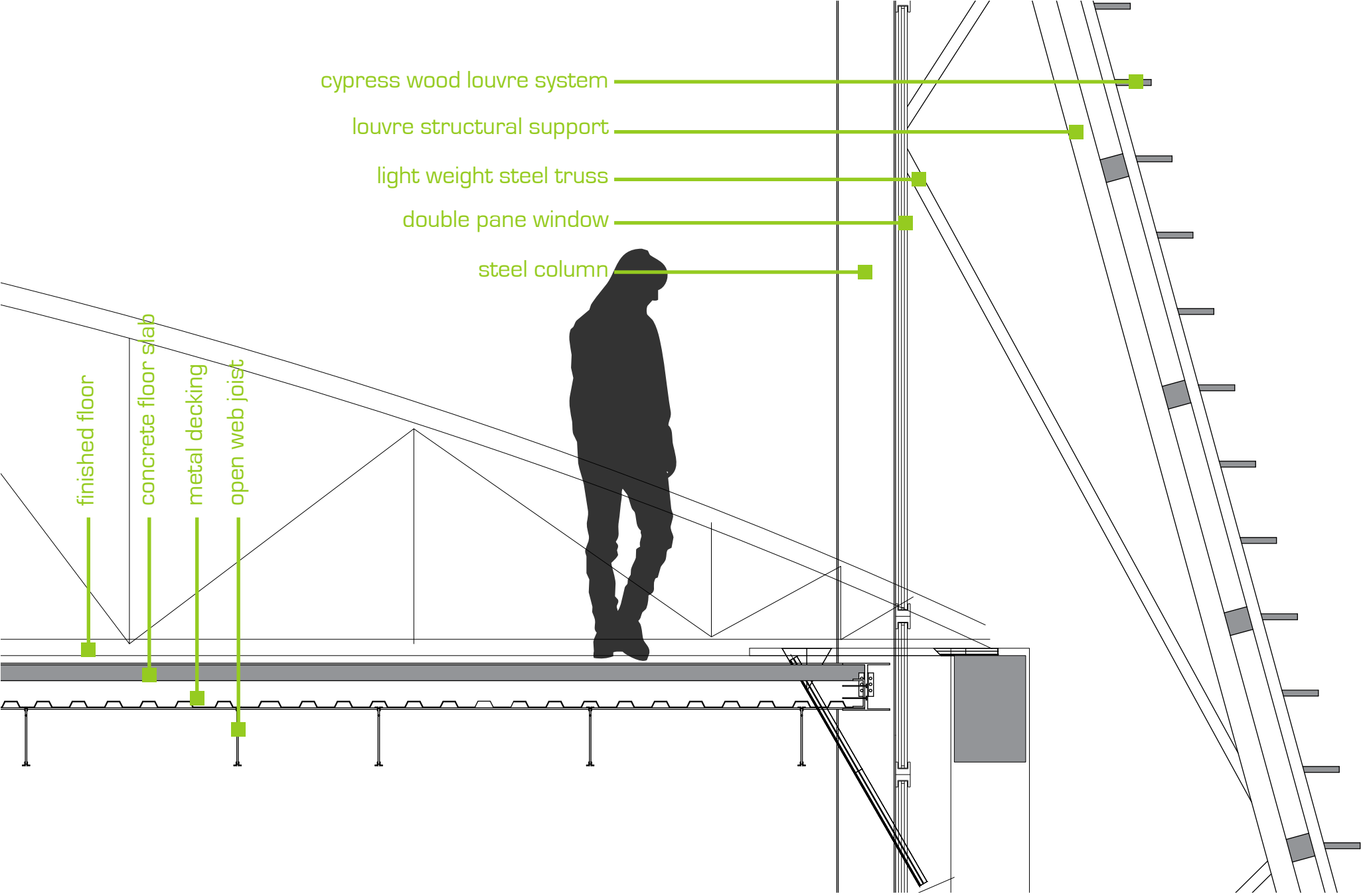
[charleston]
VERTICAL FARM

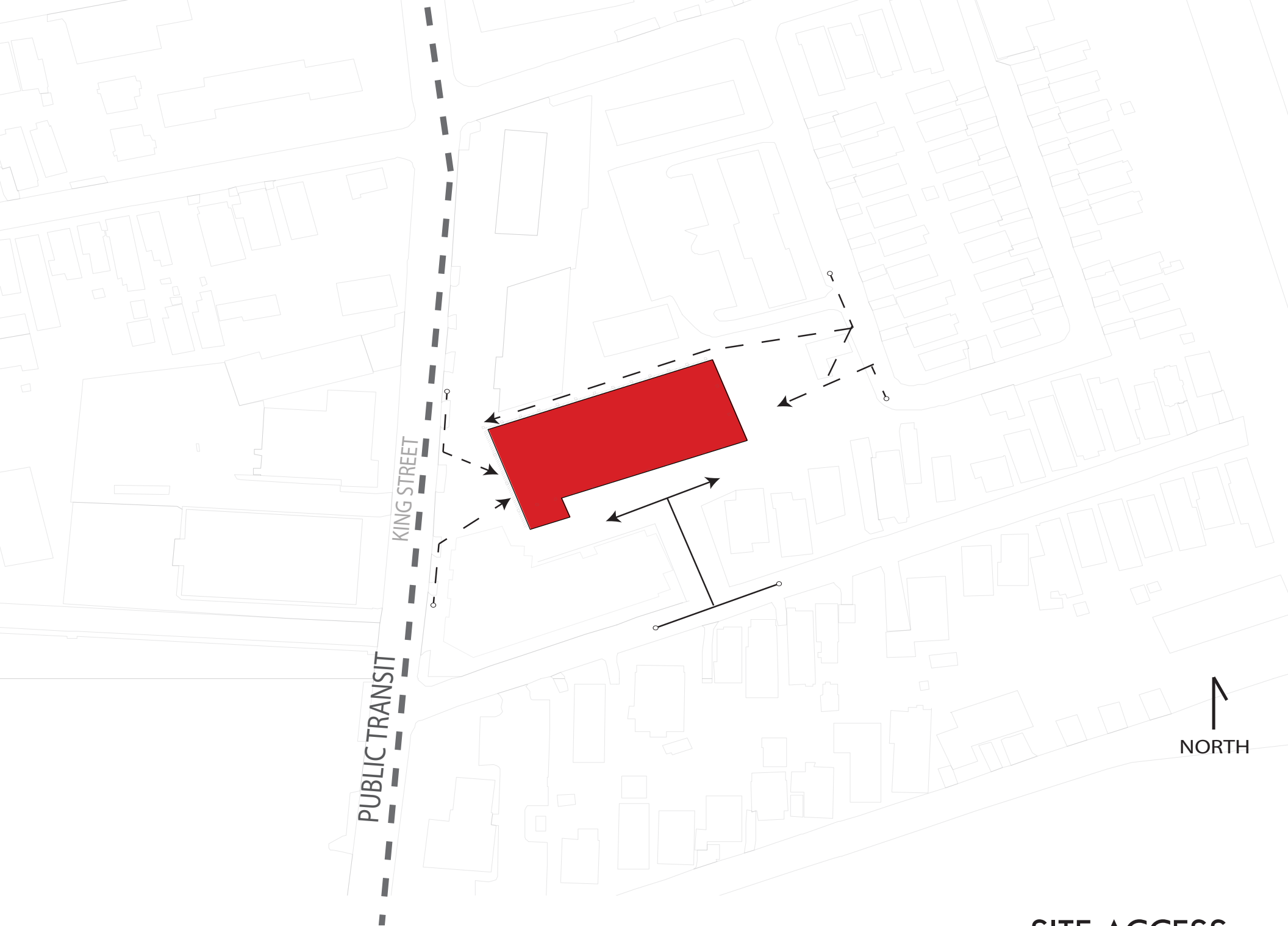
UTILITY LOCATION



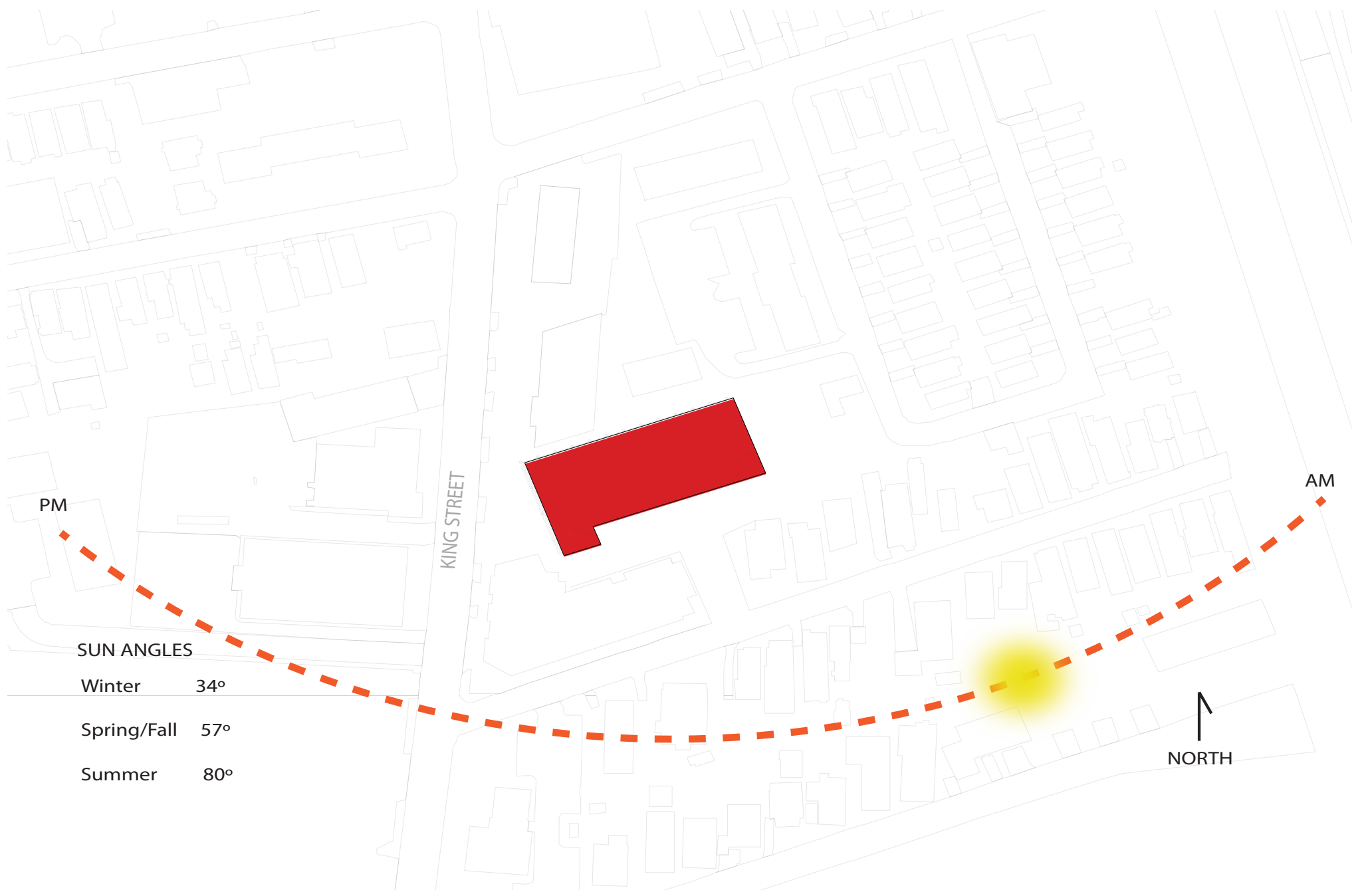
[charleston]
VERTICAL FARM

BUILDING SECTION





SITE ACCESS



PM

KING STREET

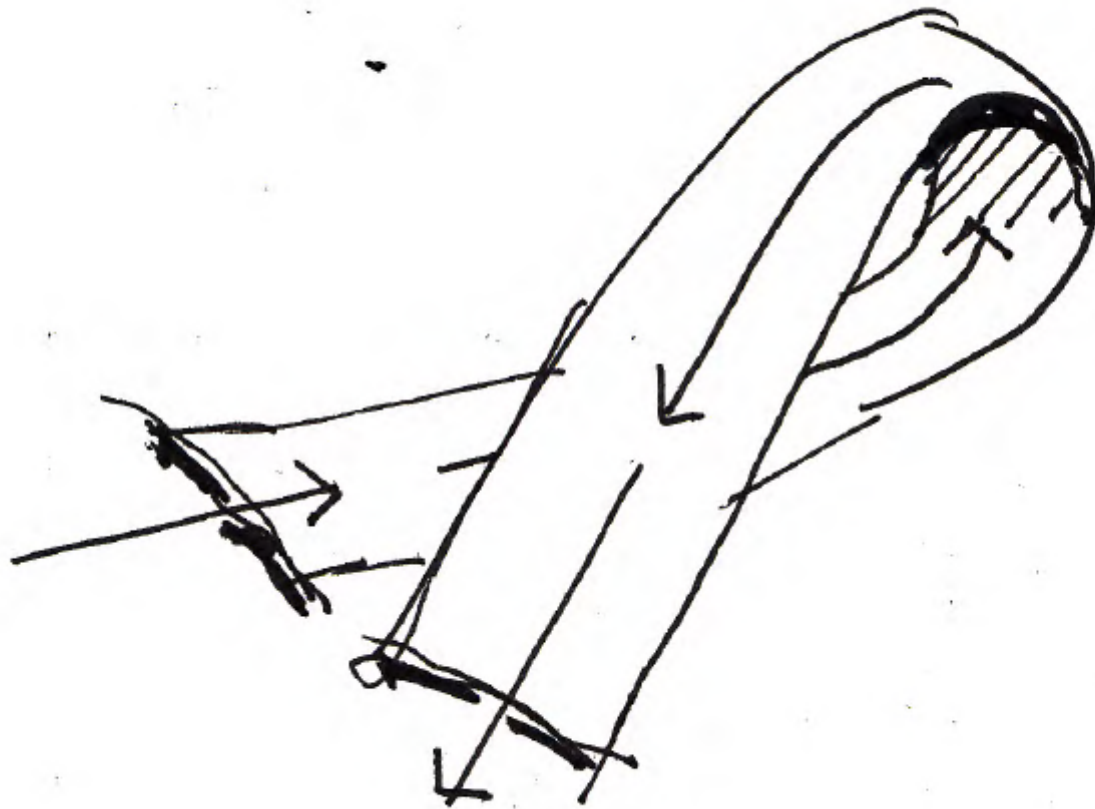
AM

SUN ANGLES

- Winter 34°
- Spring/Fall 57°
- Summer 80°

NORTH

SUN DIAGRAM



Transparency through the RIBBON

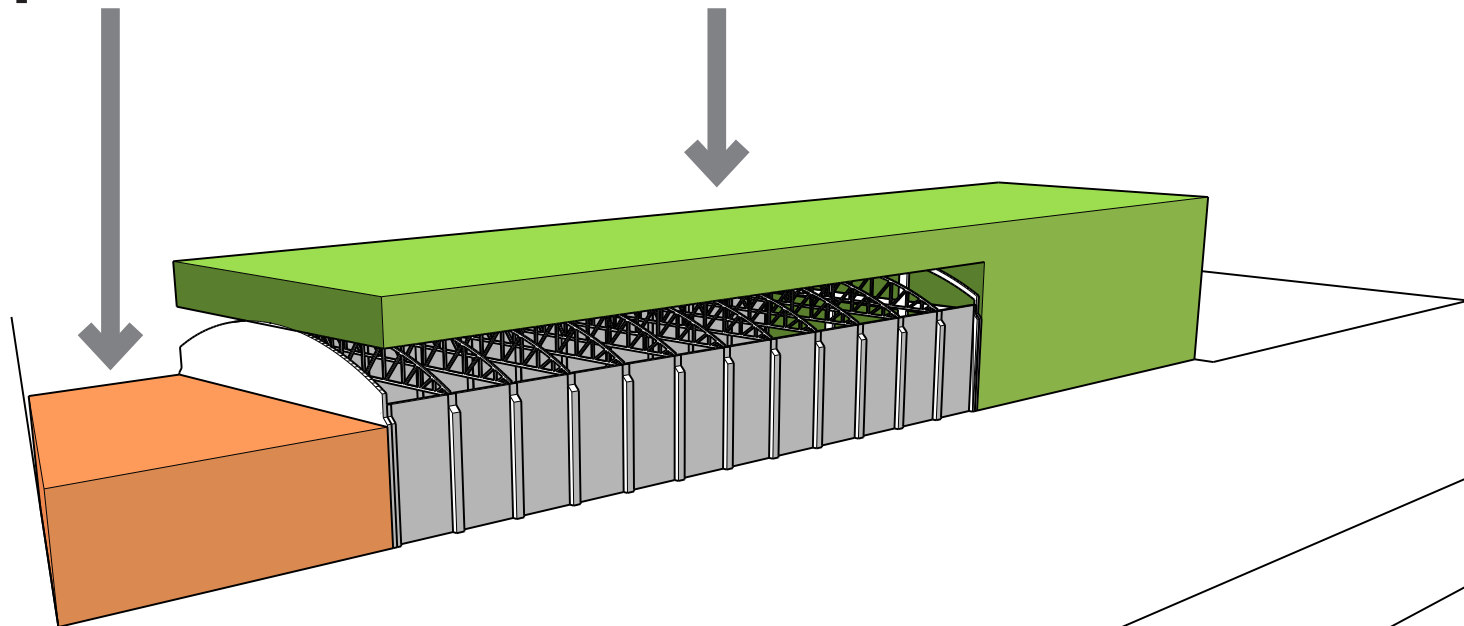
Something else that was important to us was maintaining a transparency through our space. Where the public and private can speak the same language by the way the building takes them to their designated spaces.

Another significance of this RIBBON is to allow a visual transparency, creating educational opportunities where the public learn how vertical farm works and trust the process of vertical farming.

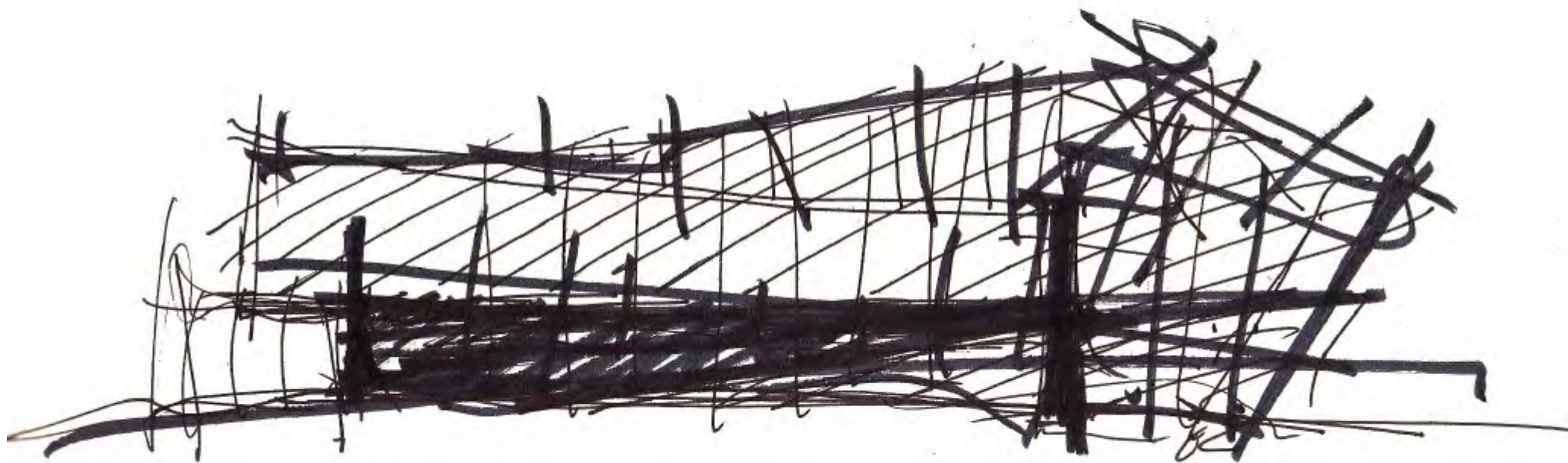
CONCEPT

public

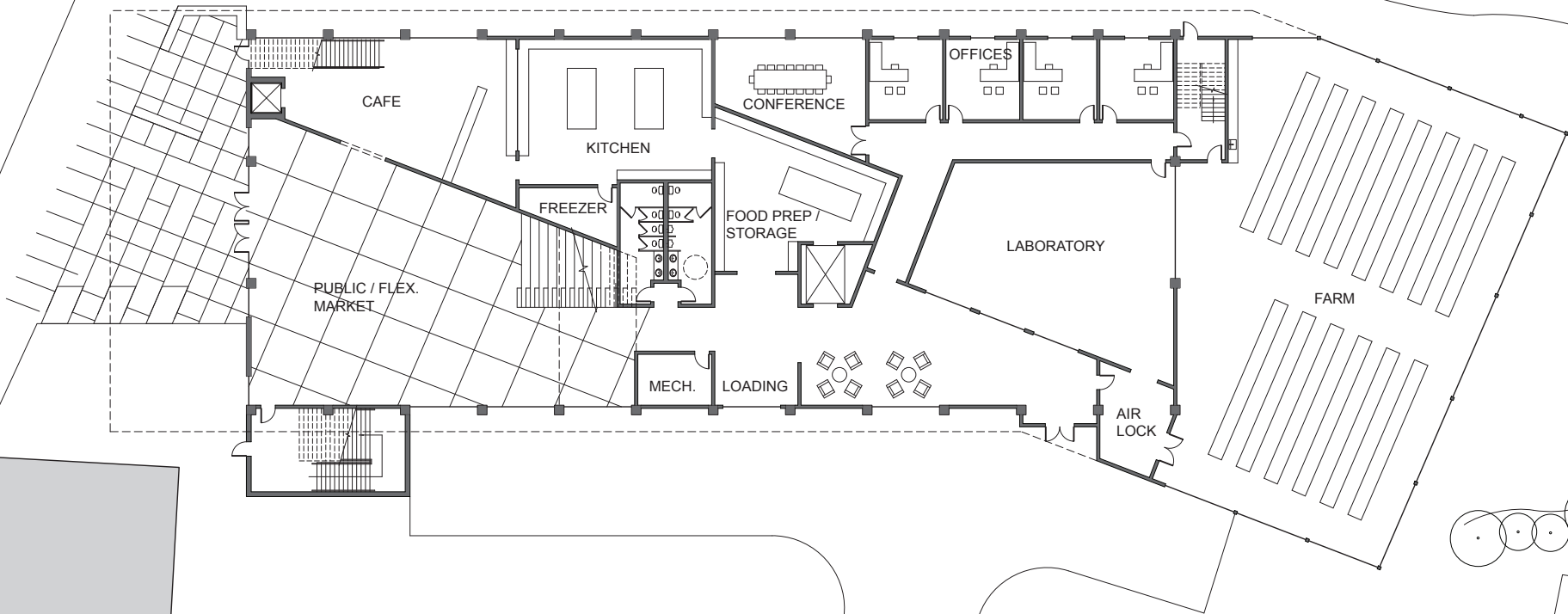
farm



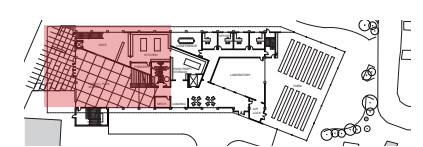
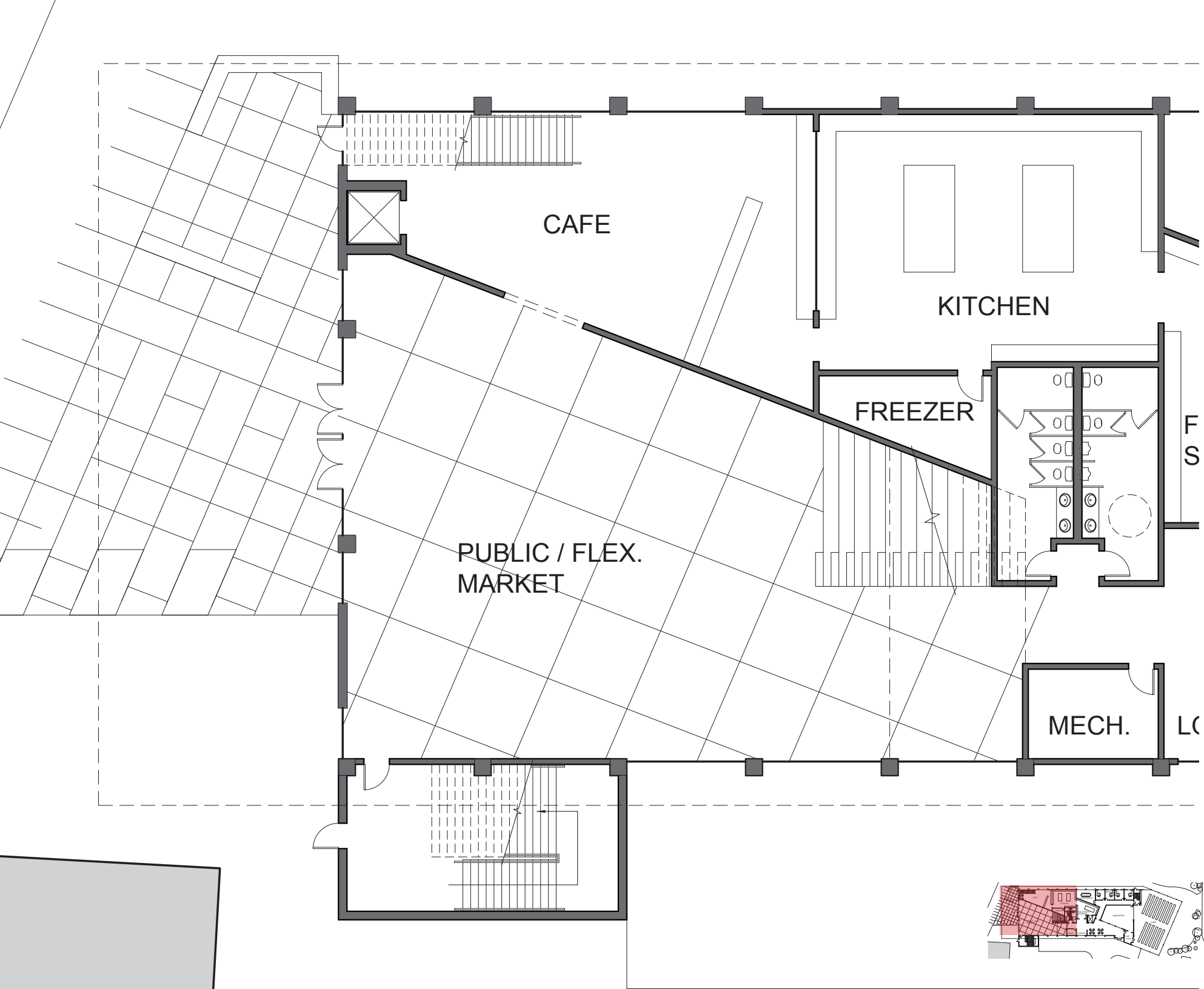
CONCEPT

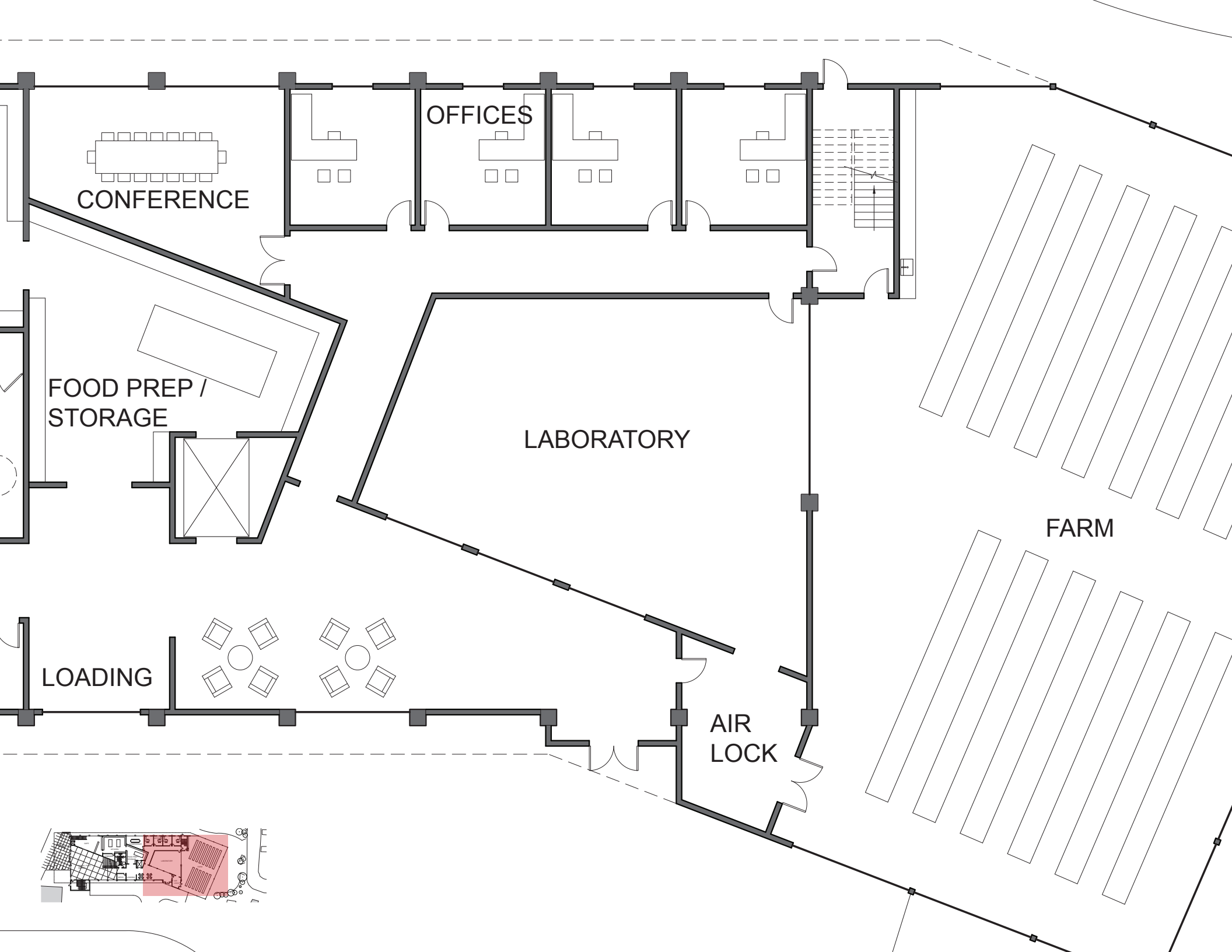


CONCEPT



MAIN LEVEL





CONFERENCE

OFFICES

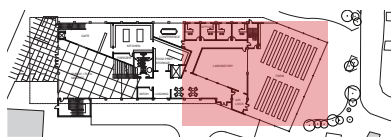
FOOD PREP / STORAGE

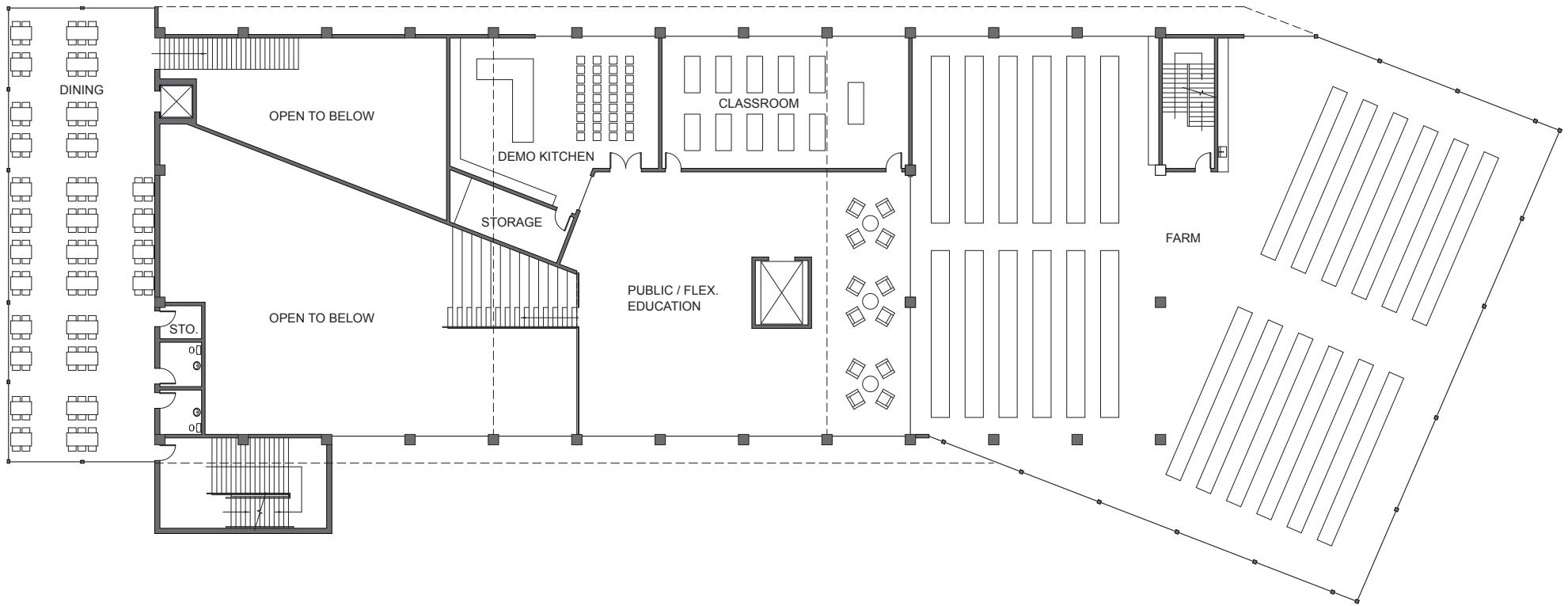
LABORATORY

LOADING

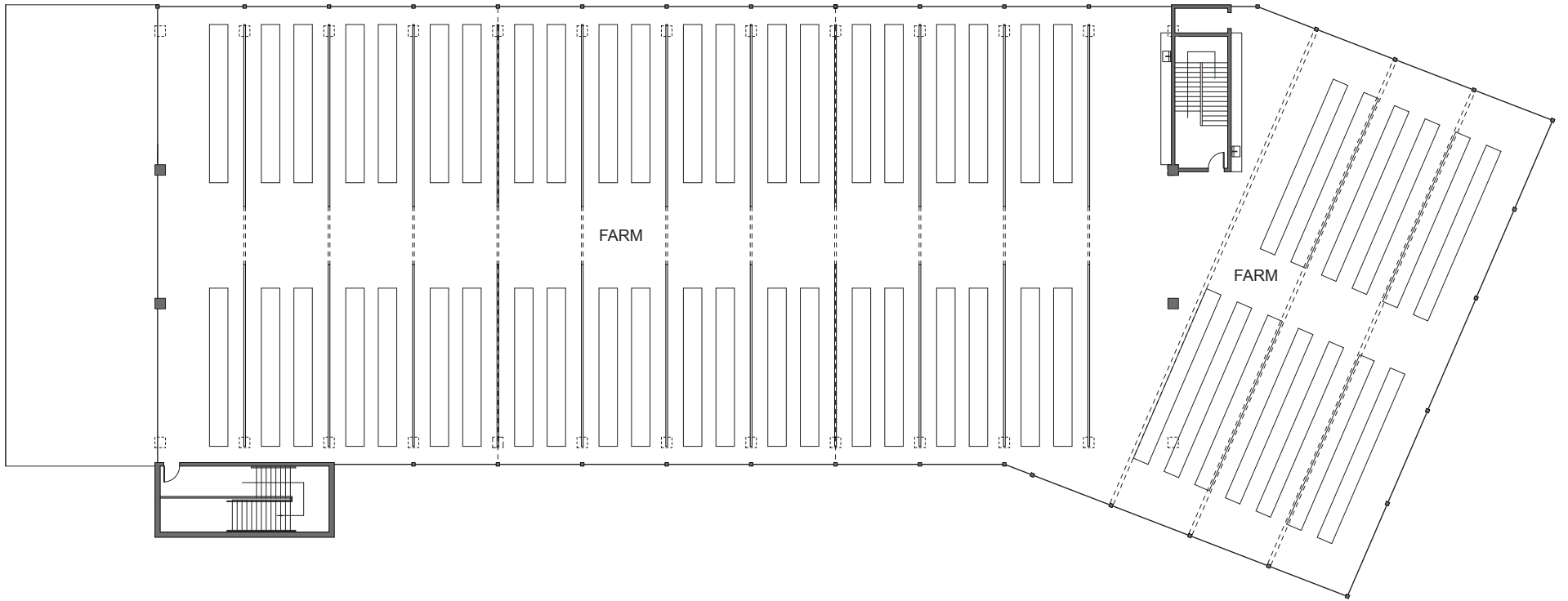
AIR LOCK

FARM

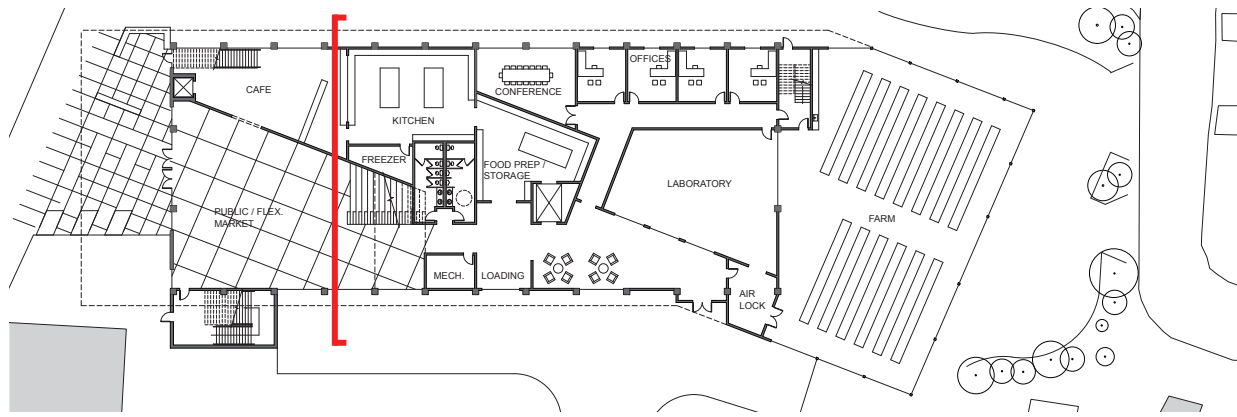




SECOND LEVEL



THIRD LEVEL

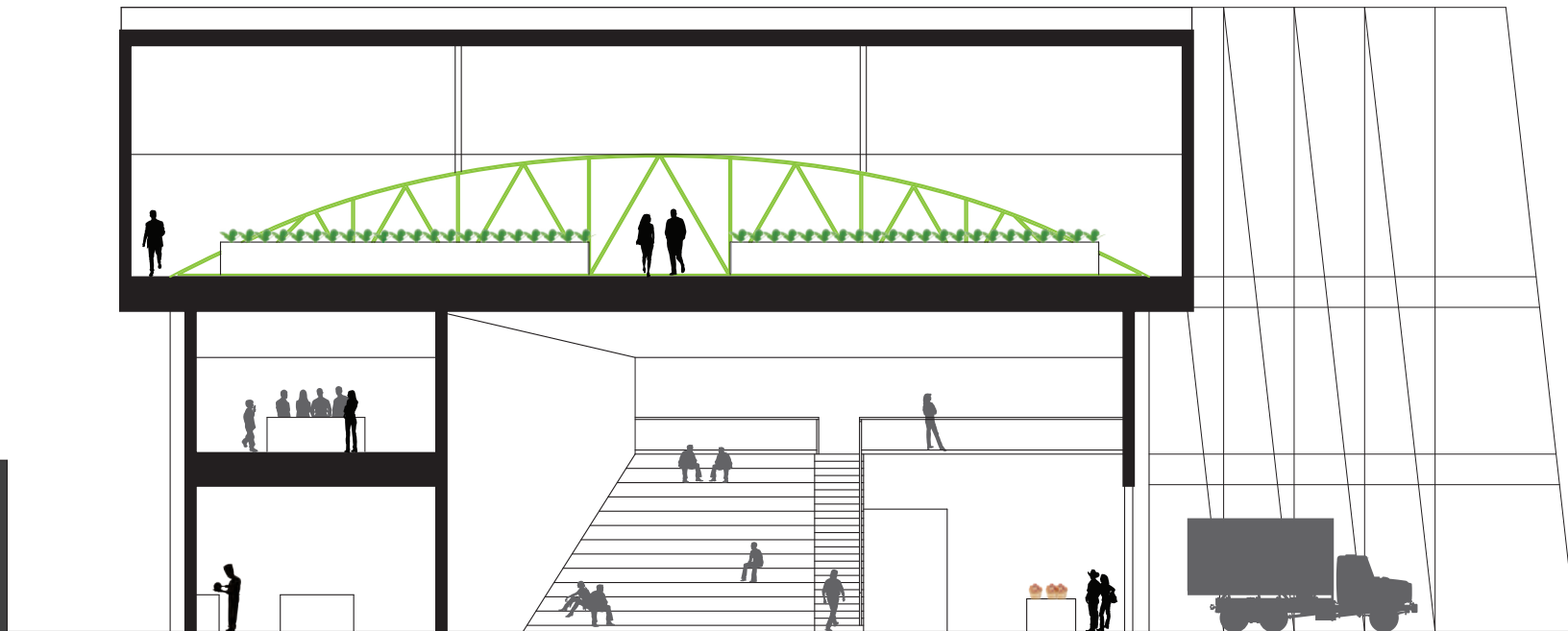
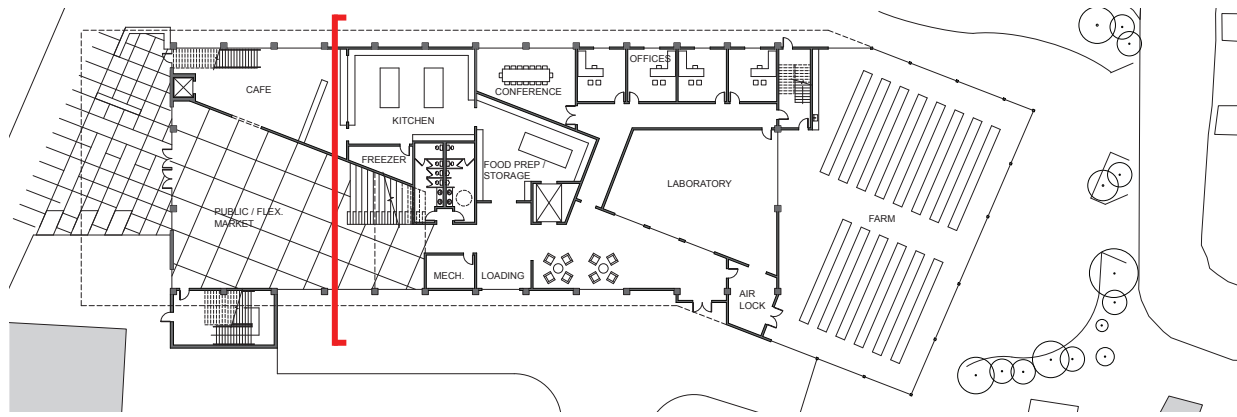


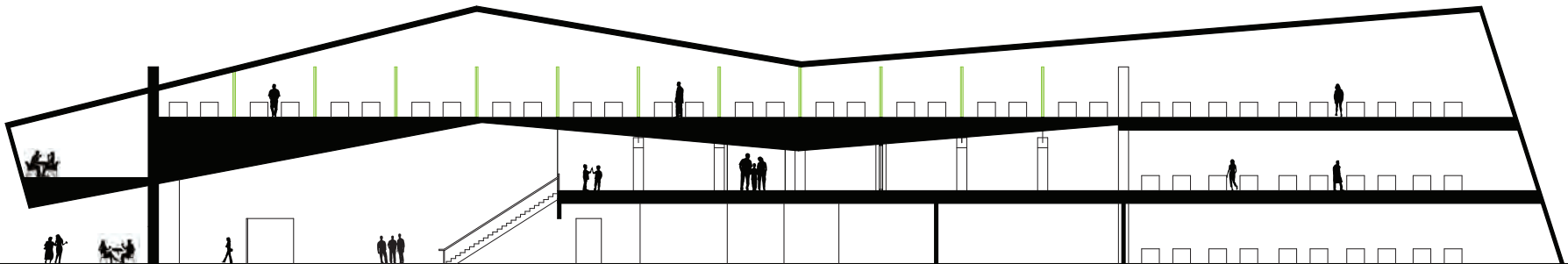
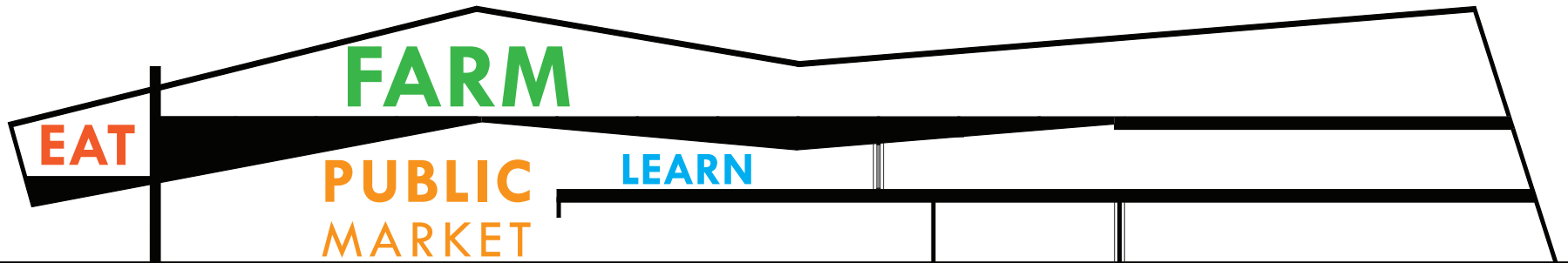
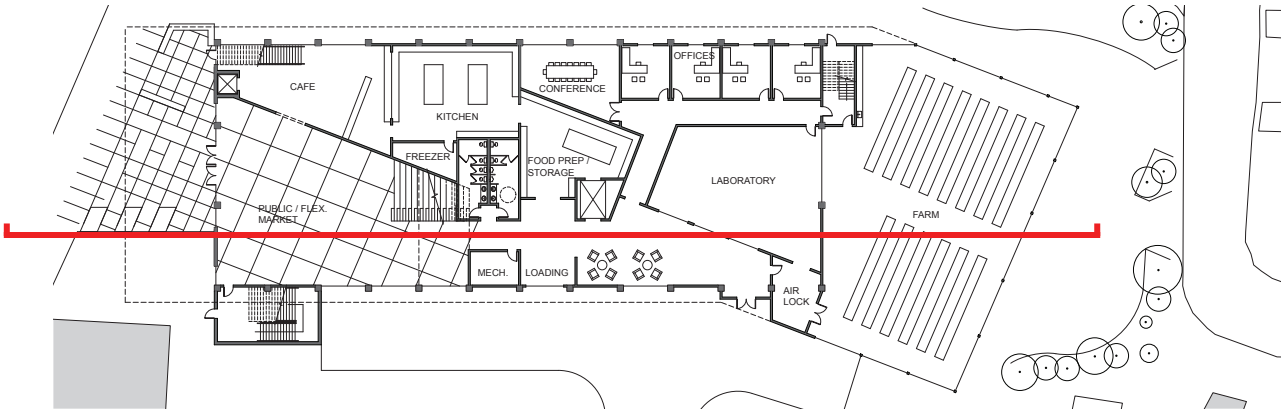
FARM

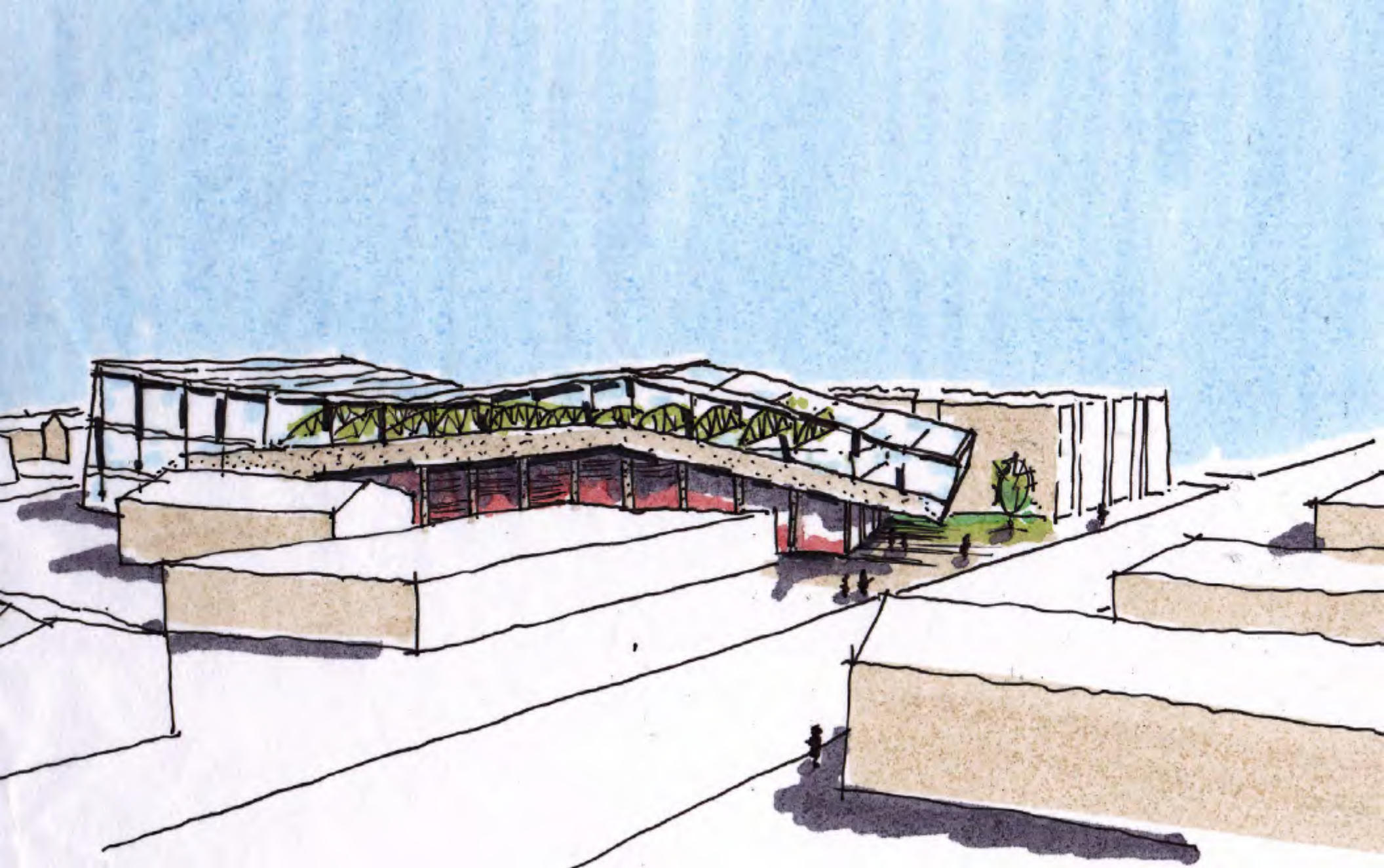
LEARN

EAT

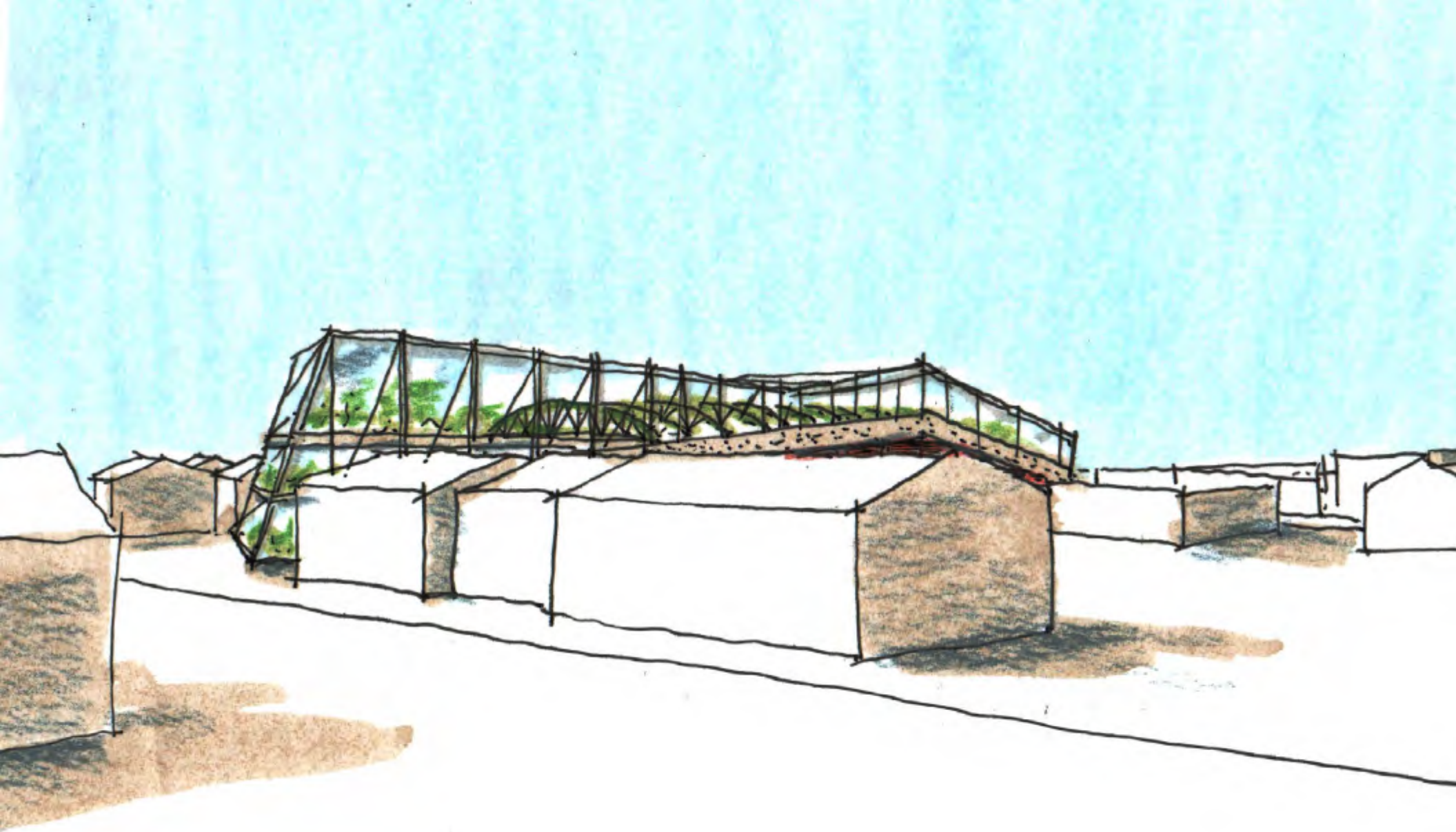
**PUBLIC
MARKET**



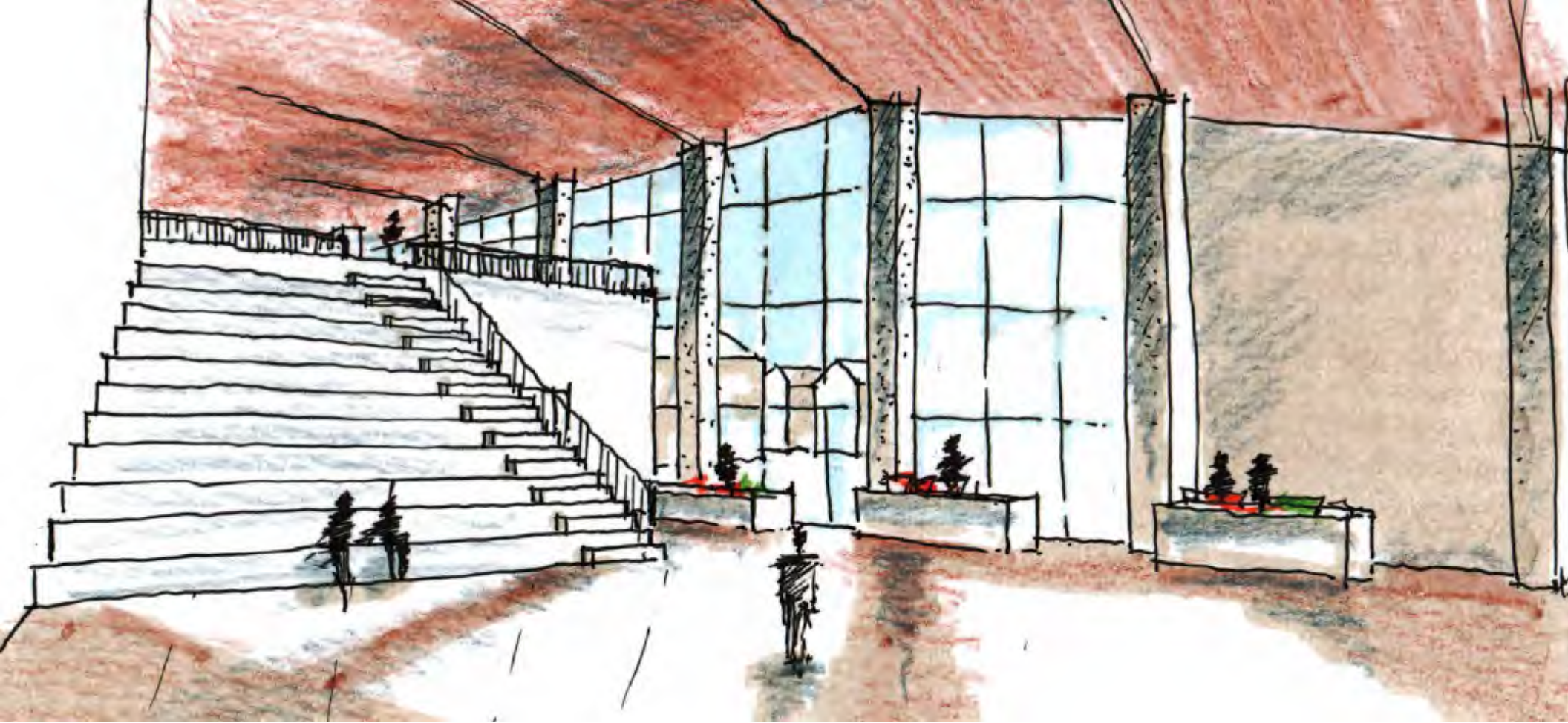




BIRDSEYE



ROMNEY AT ATHENS CT.



ENTRANCE



38,390 SF

OF FARMING

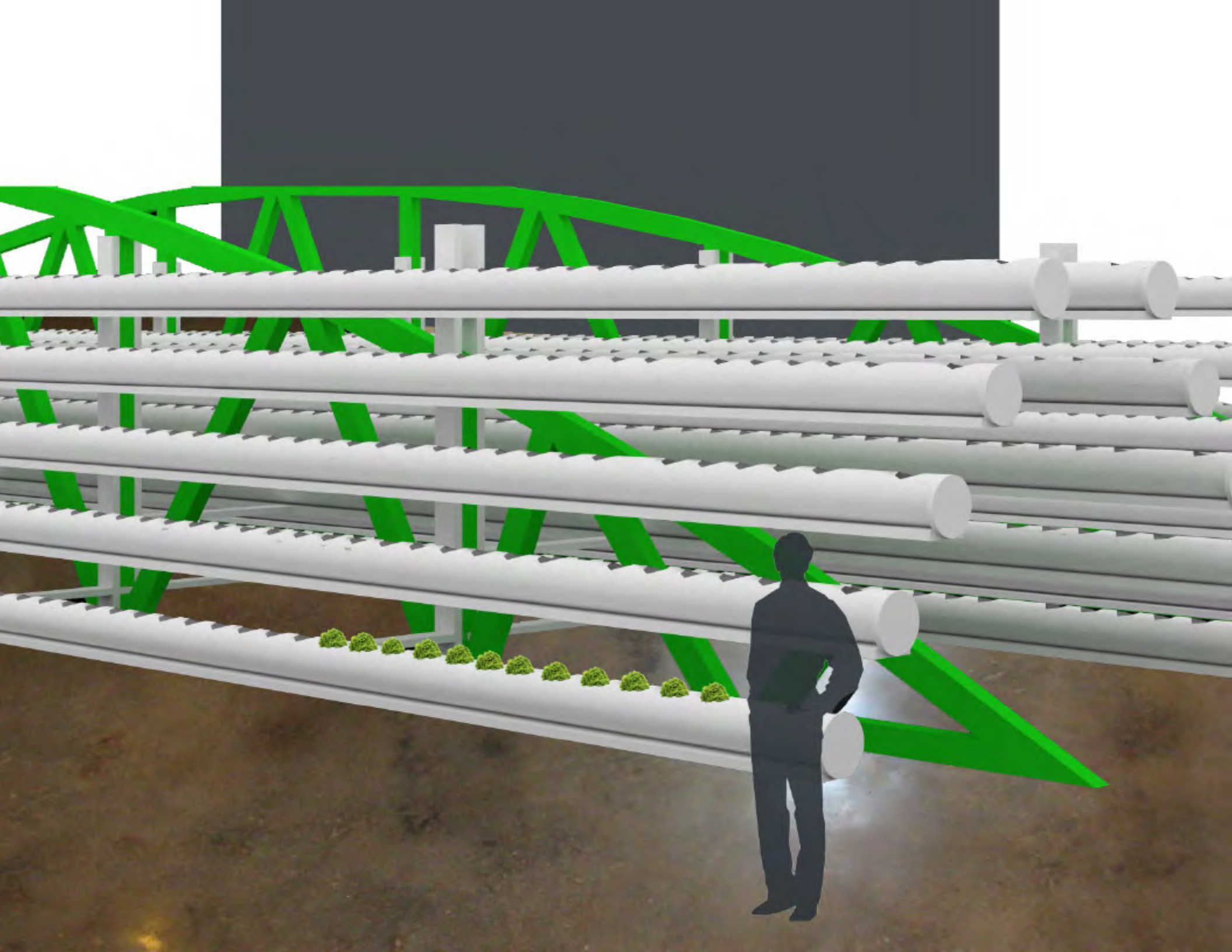
AEROPONICS

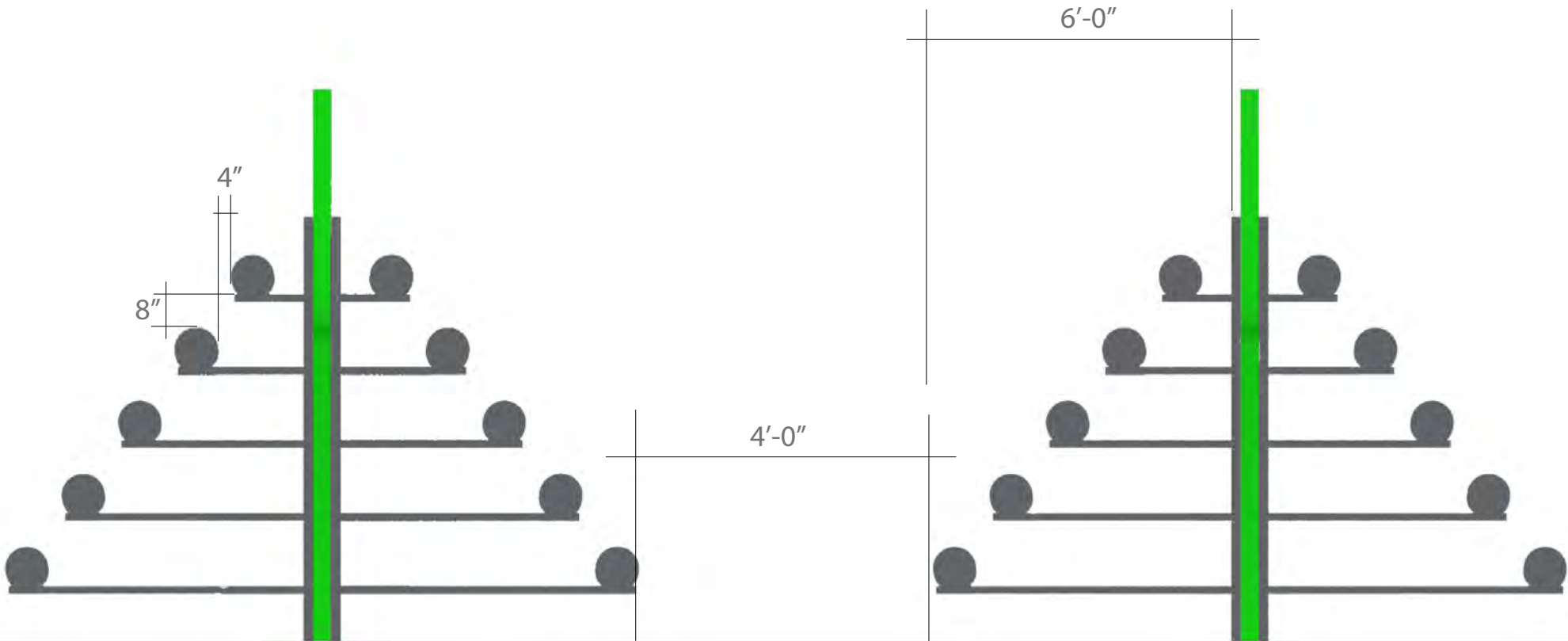
Tomatoes
Strawberries
Cucumbers

HYDROPONICS

Potatoes
Lettuce
Beans

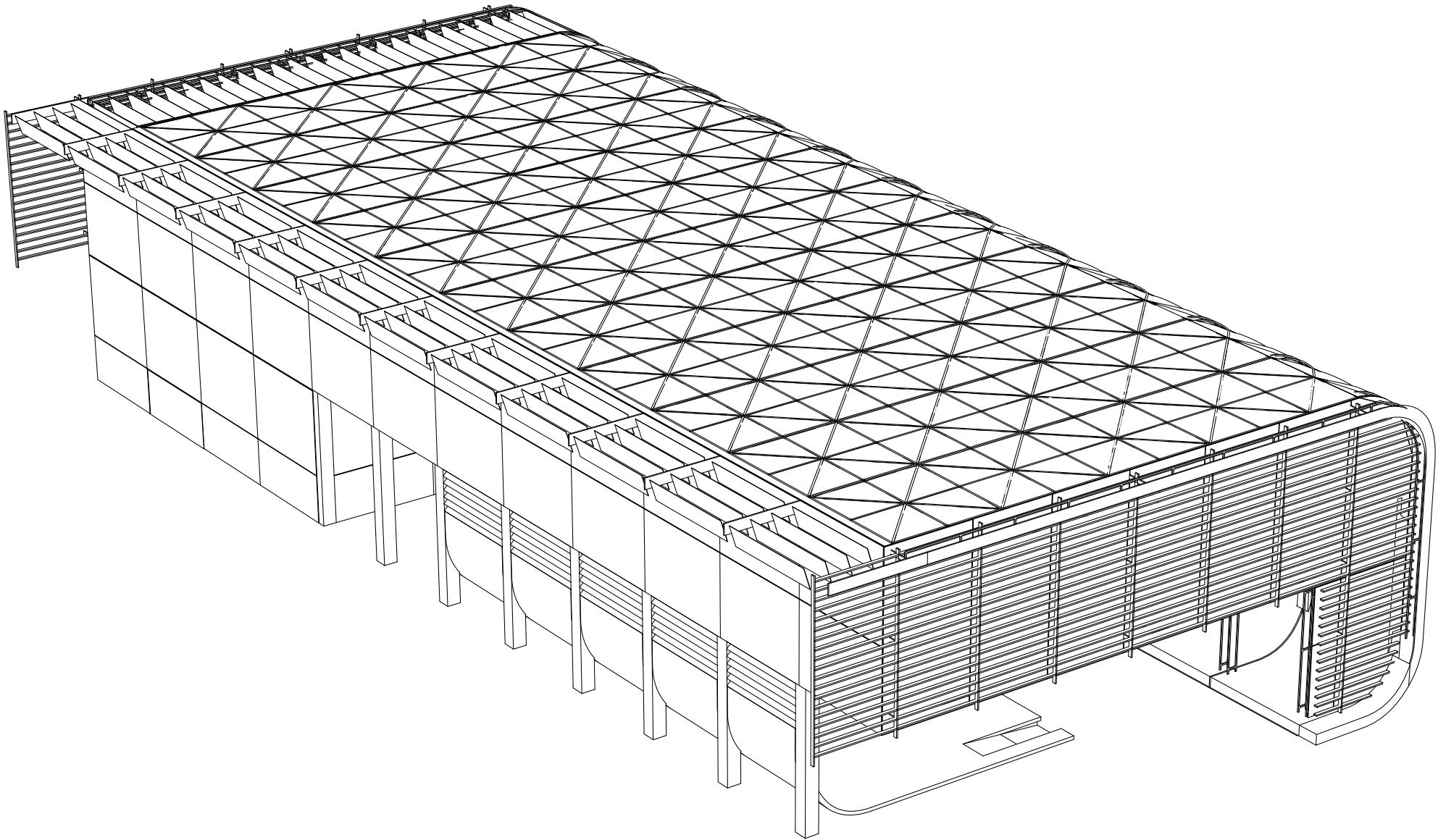
THE FARM







KING STREET



8.1 vertical farming

8.2 conveyance system

8.3 structural intervention

8.4 drawings

8.5 details

8.0 overall concepts



HYDROPONIC BAG UNIT

20 plants per row
8 rows
2 sides

320 plants

CROP ROTATION UNIT

320 plants per bag unit
4 plants per rack
26 racks per crop unit

33 280 plants

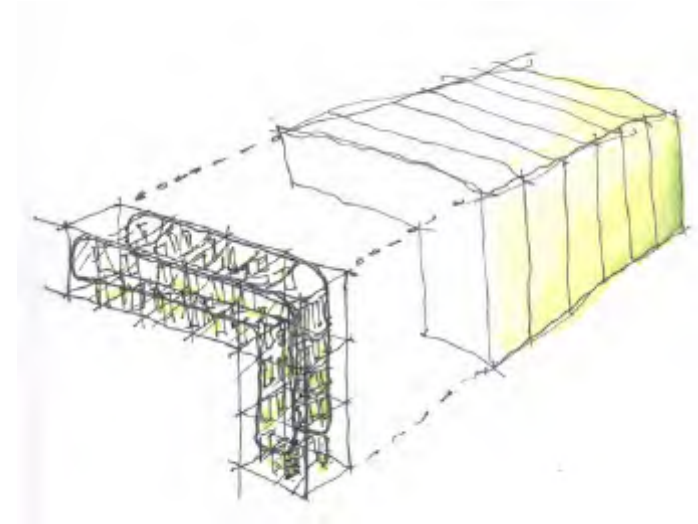
x 11

366,080 plants

**AVG. CROP ACRE CONSISTS OF 7,000 TO
13,000 PLANTS**

~36 acres

PRODUCTION CALCULATIONS



8.1 vertical farming

8.2 conveyance system

8.3 structural intervention

8.4 drawings

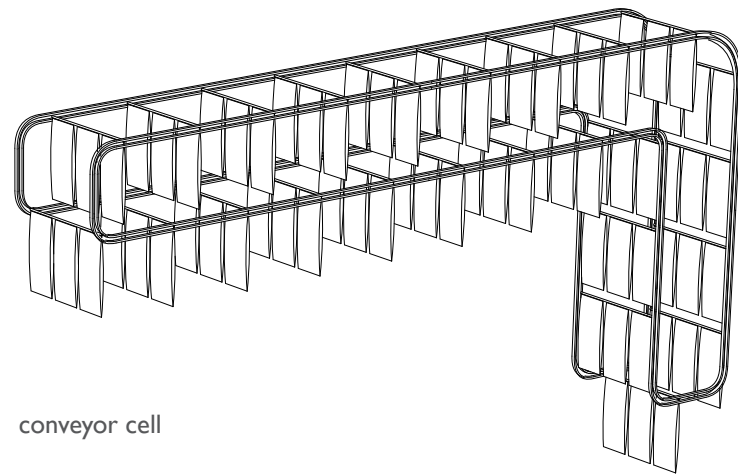
8.5 details

8.0 overall concepts

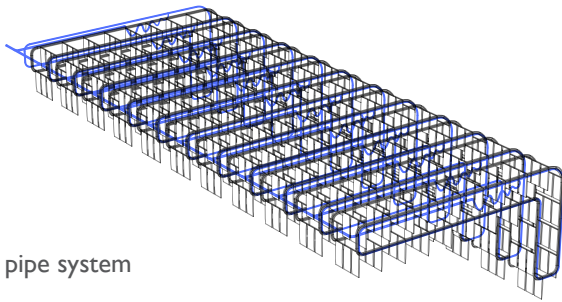


conveyancefarming
thomas jasper + meghan welford

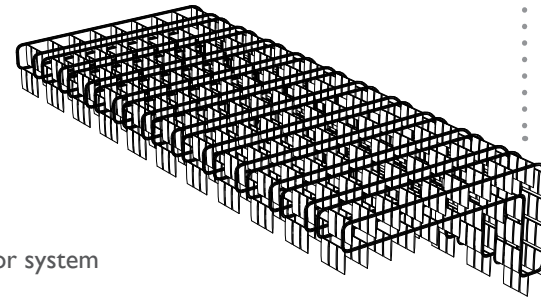
each conveyor cell fits between the existing barrel vaults arrayed every 16 feet from east to west



conveyor cell

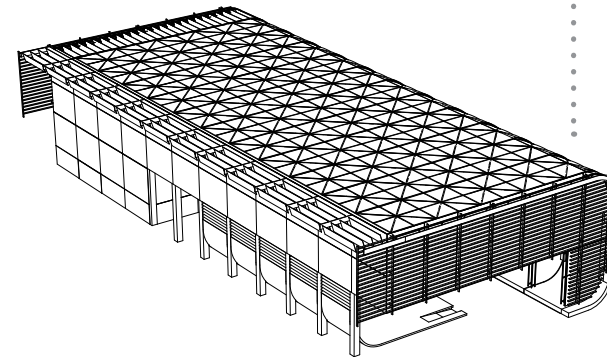


water pipe system



conveyor system

provides water for the hydroponic bags rotating within each conveyor cell



8.1 vertical farming

8.2 conveyance system

8.3 structural intervention

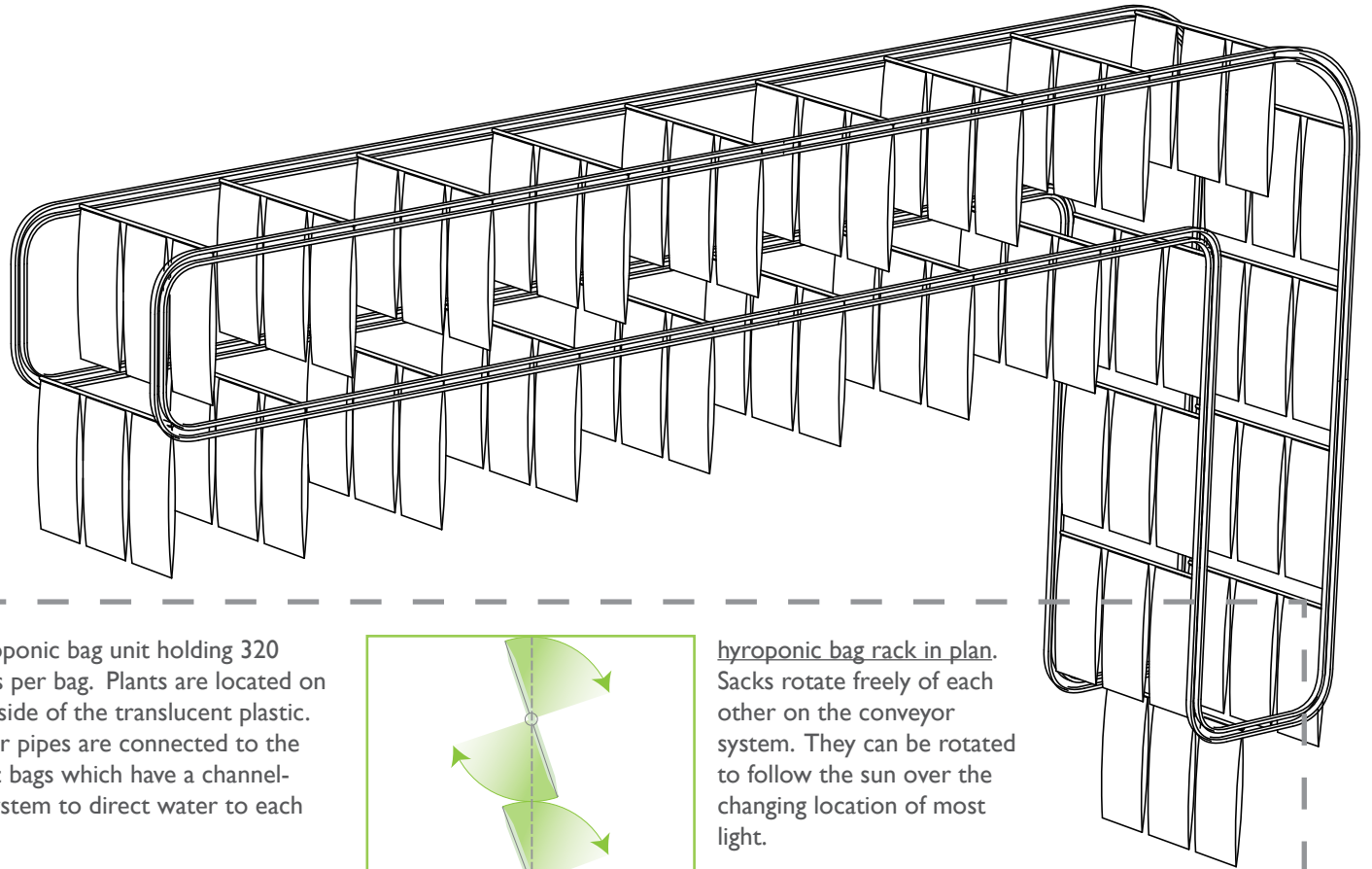
8.4 drawings

8.5 details

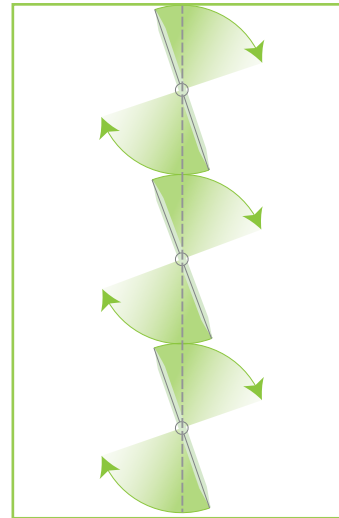
8.0 overall concepts



conveyancefarming
thomas jasper + meghan welford



hydroponic bag unit holding 320 plants per bag. Plants are located on each side of the translucent plastic. Water pipes are connected to the pastic bags which have a channeling system to direct water to each plant.



hydroponic bag rack in plan. Sacks rotate freely of each other on the conveyor system. They can be rotated to follow the sun over the changing location of most light.

8.1 vertical farming

8.2 conveyance system

8.3 structural intervention

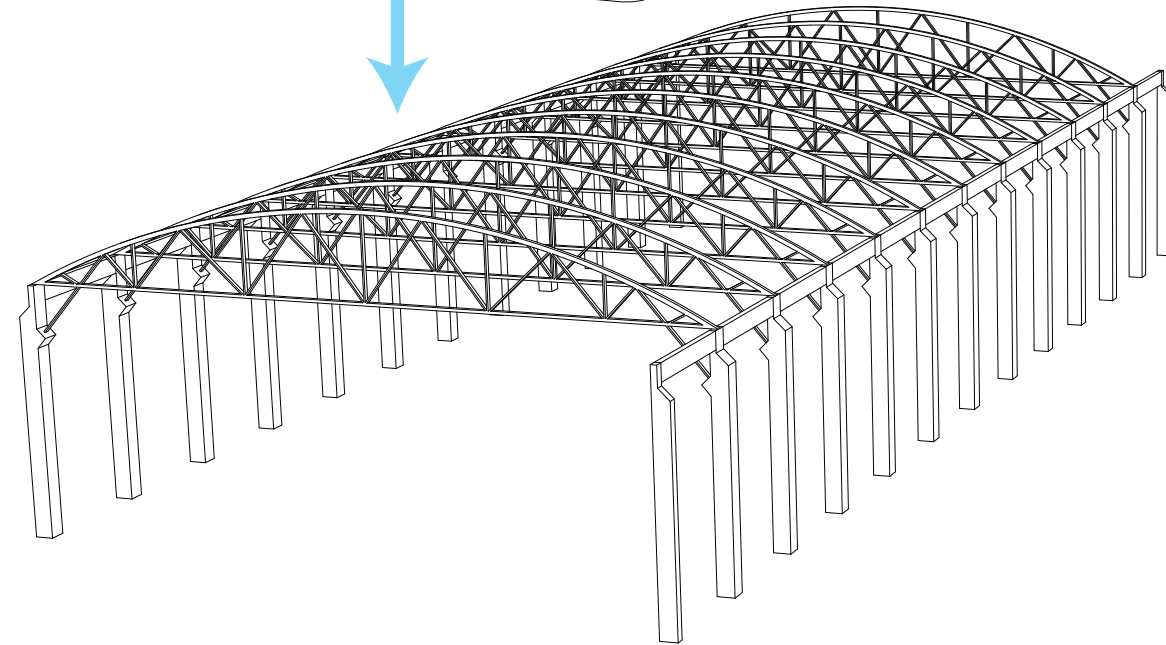
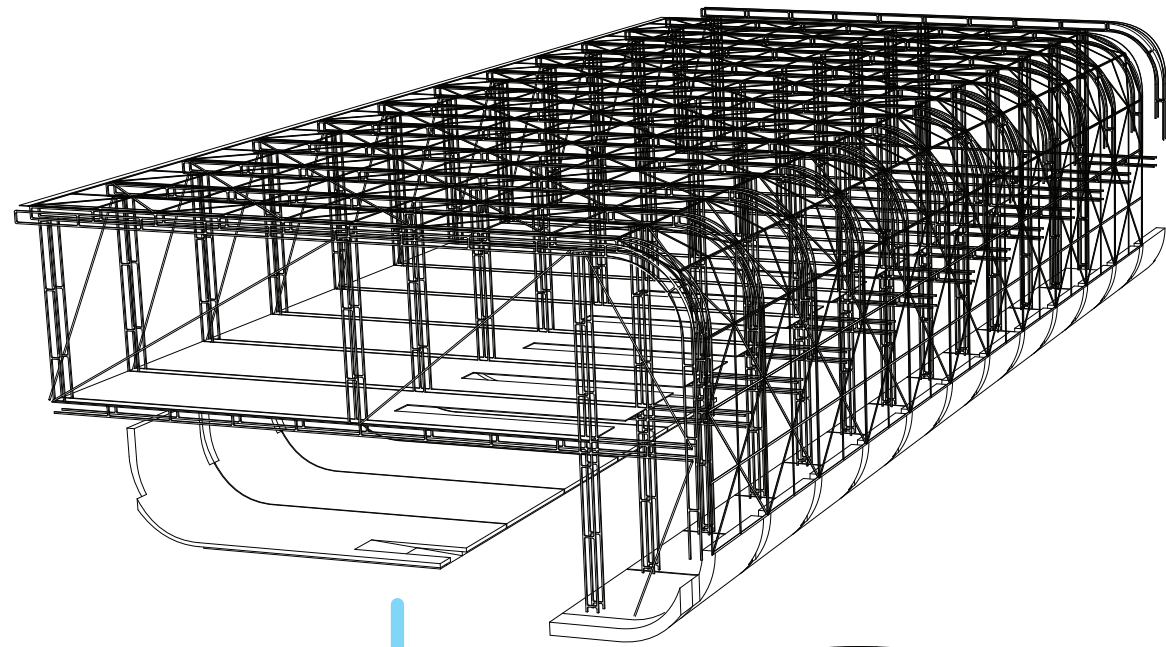
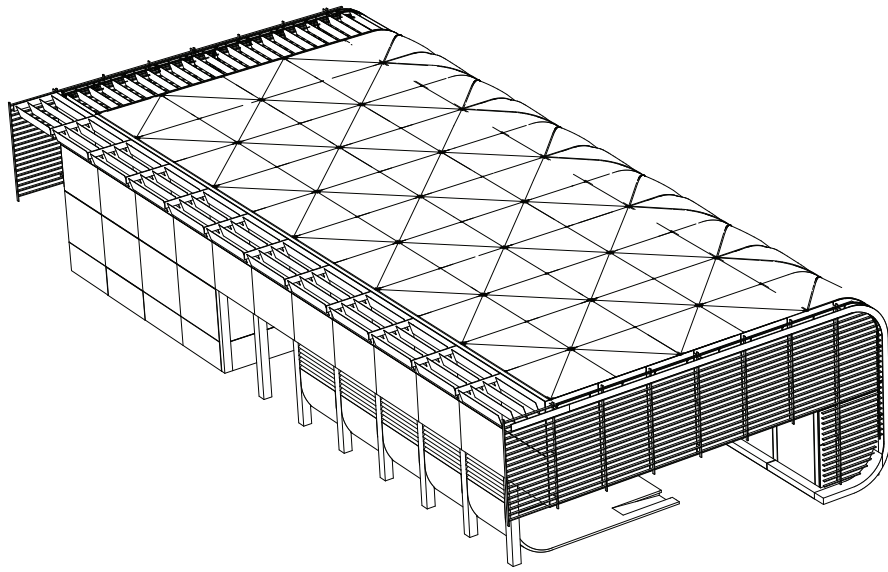
8.4 drawings

8.5 details

8.0 overall concepts



conveyancefarming
thomas jasper + meghan welford



8.1 vertical farming

8.2 conveyance system

8.3 structural intervention

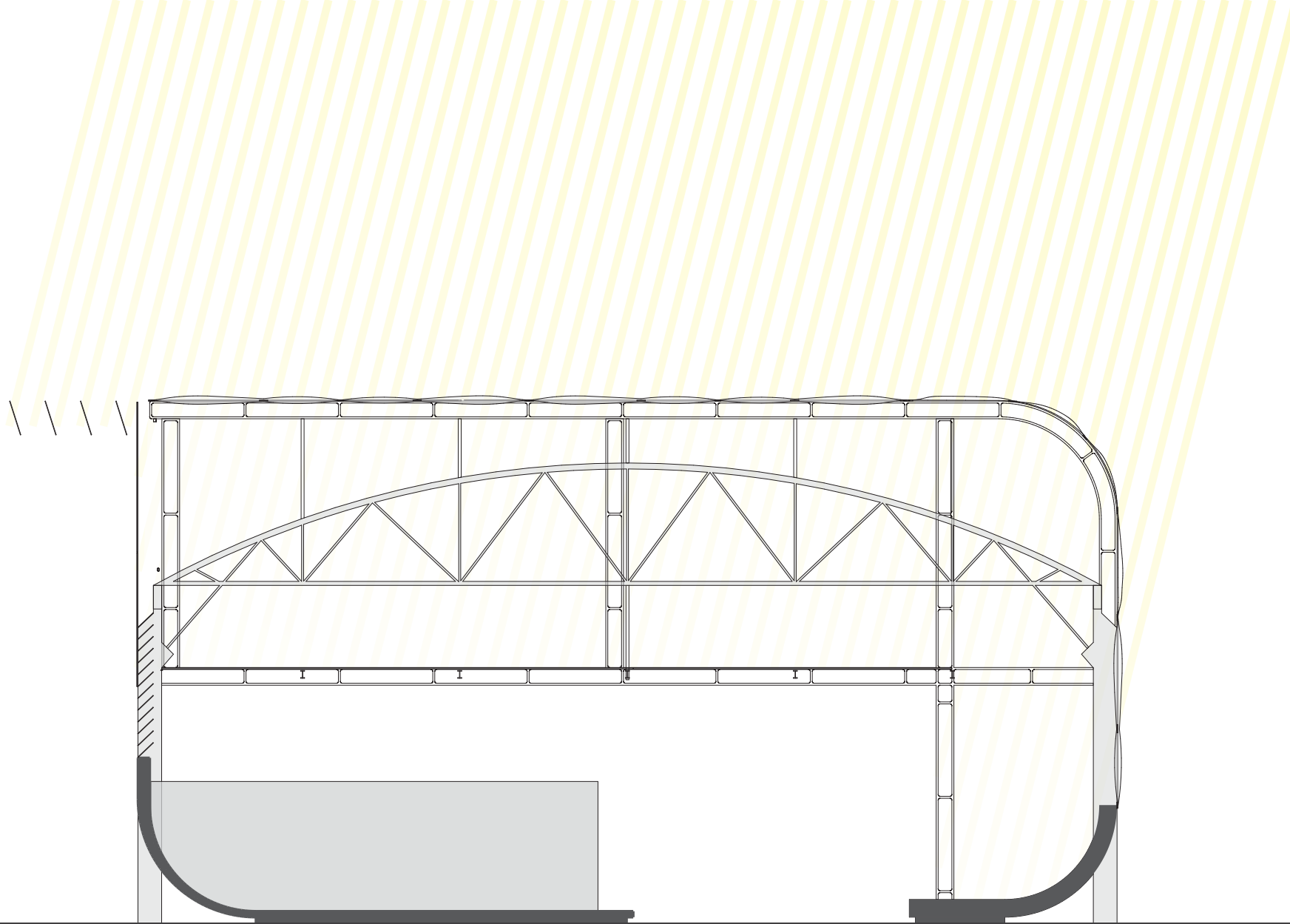
8.4 drawings

8.5 details

8.0 overall concepts



conveyancefarming
thomas jasper + meghan welford



8.1 vertical farming

8.2 conveyance system

8.3 structural intervention

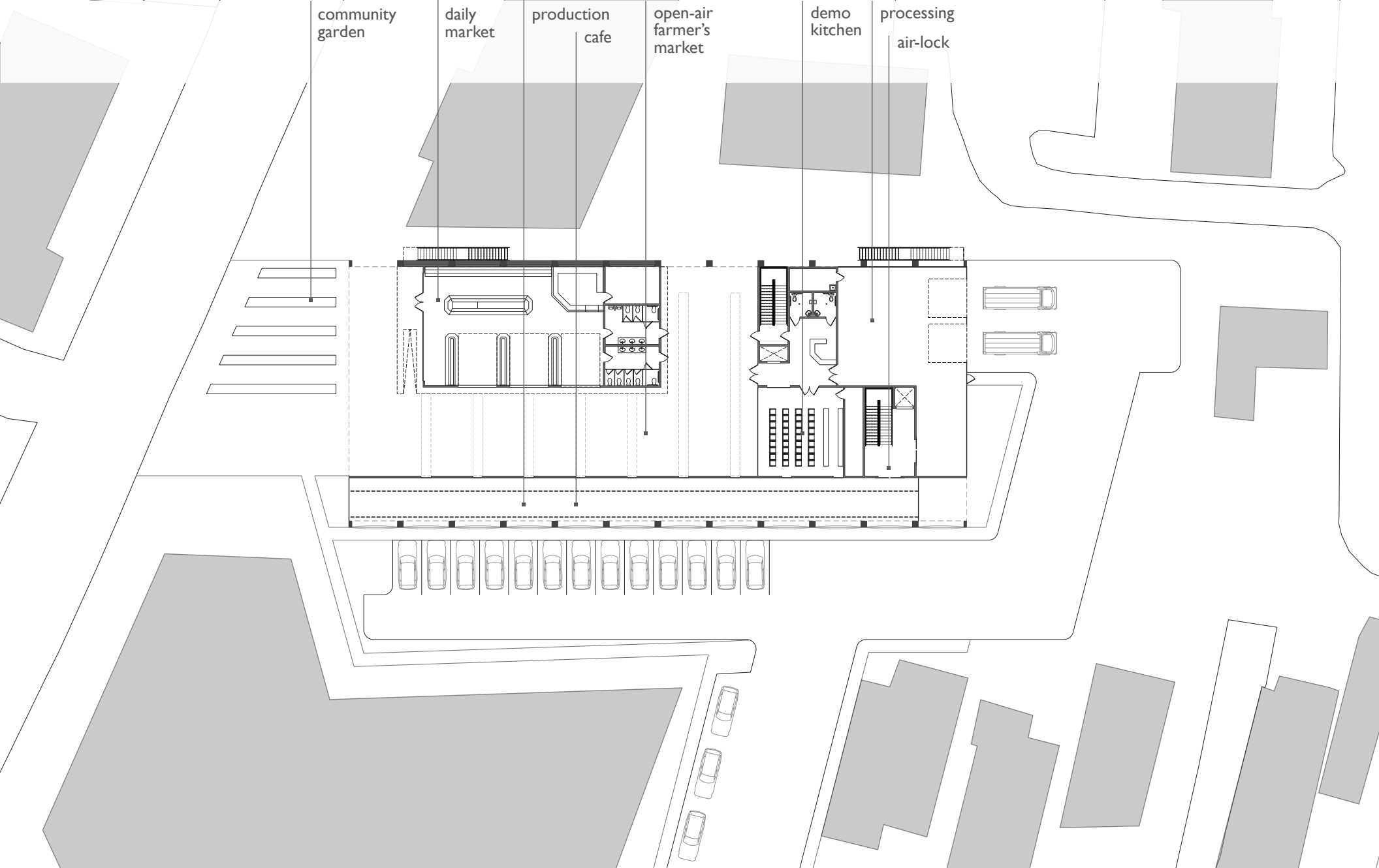
8.4 drawings

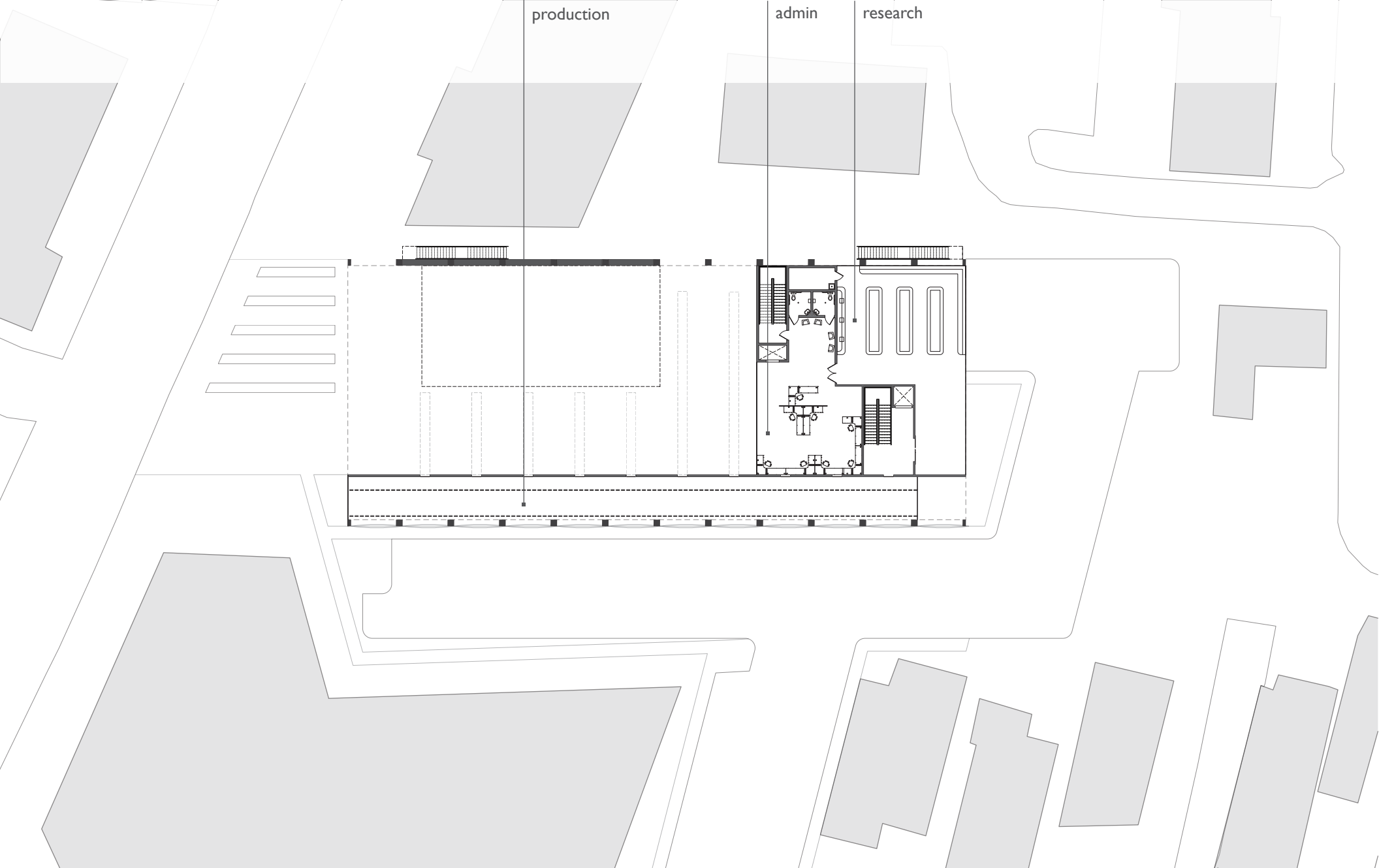
8.5 details

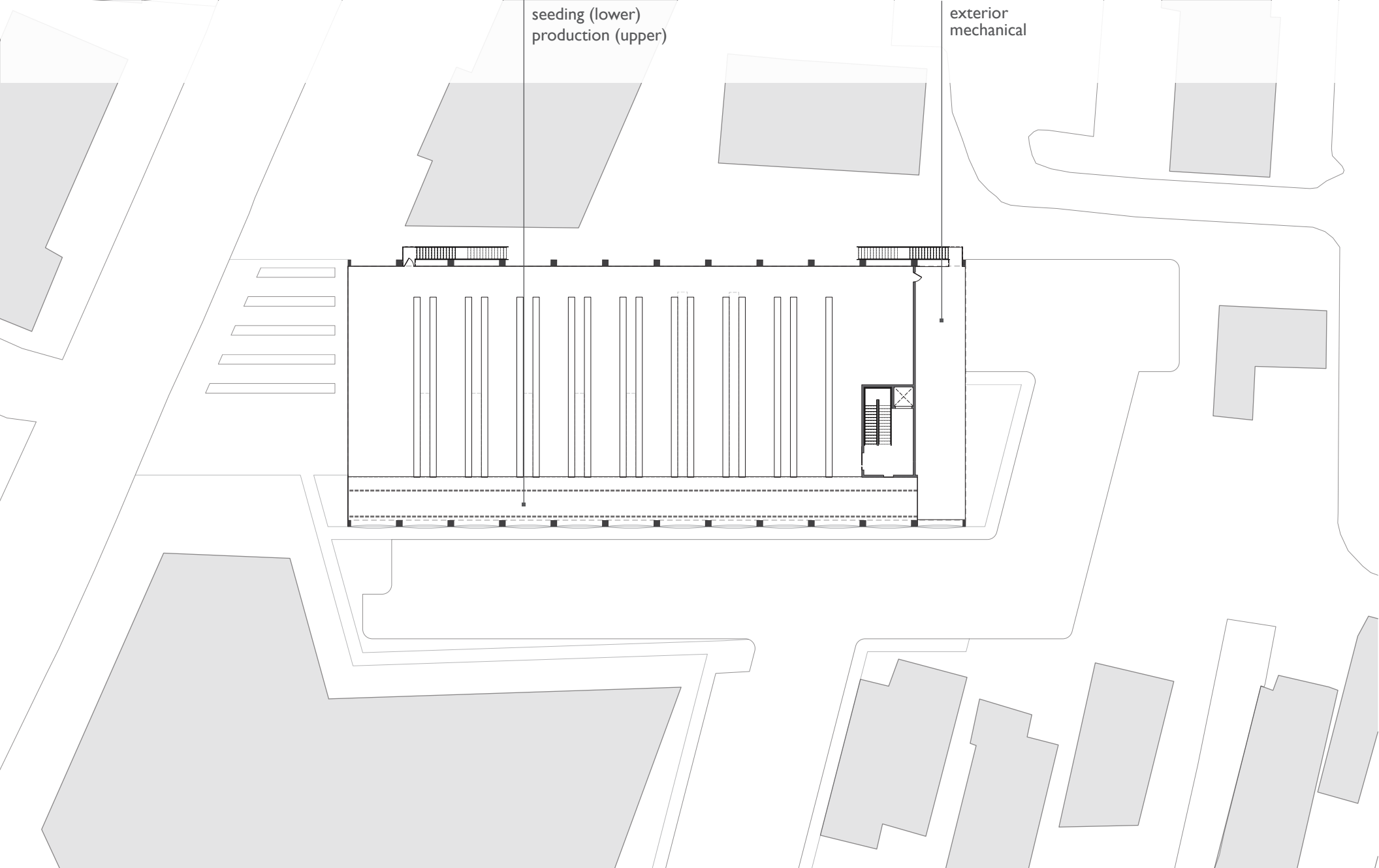
8.0 overall concepts



conveyancefarming
thomas jasper + meghan welford







8.1 vertical farming	8.2 conveyance system	8.3 structural intervention	8.4 drawings	8.5 details
8.0 overall concepts				



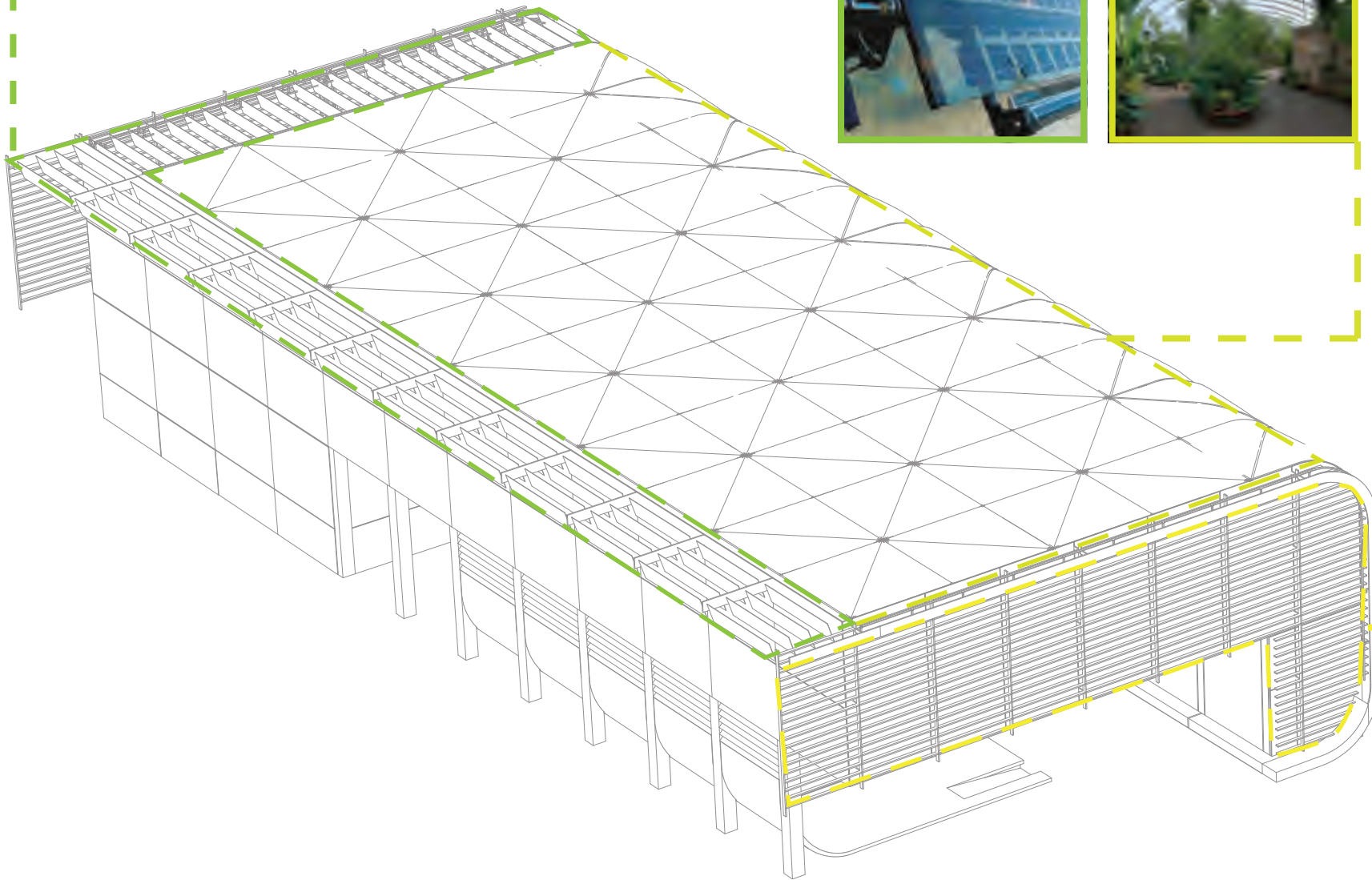
Photovoltaic Paneling



ETFE Envelope



Wood Frame



8.1 vertical farming

8.2 conveyance system

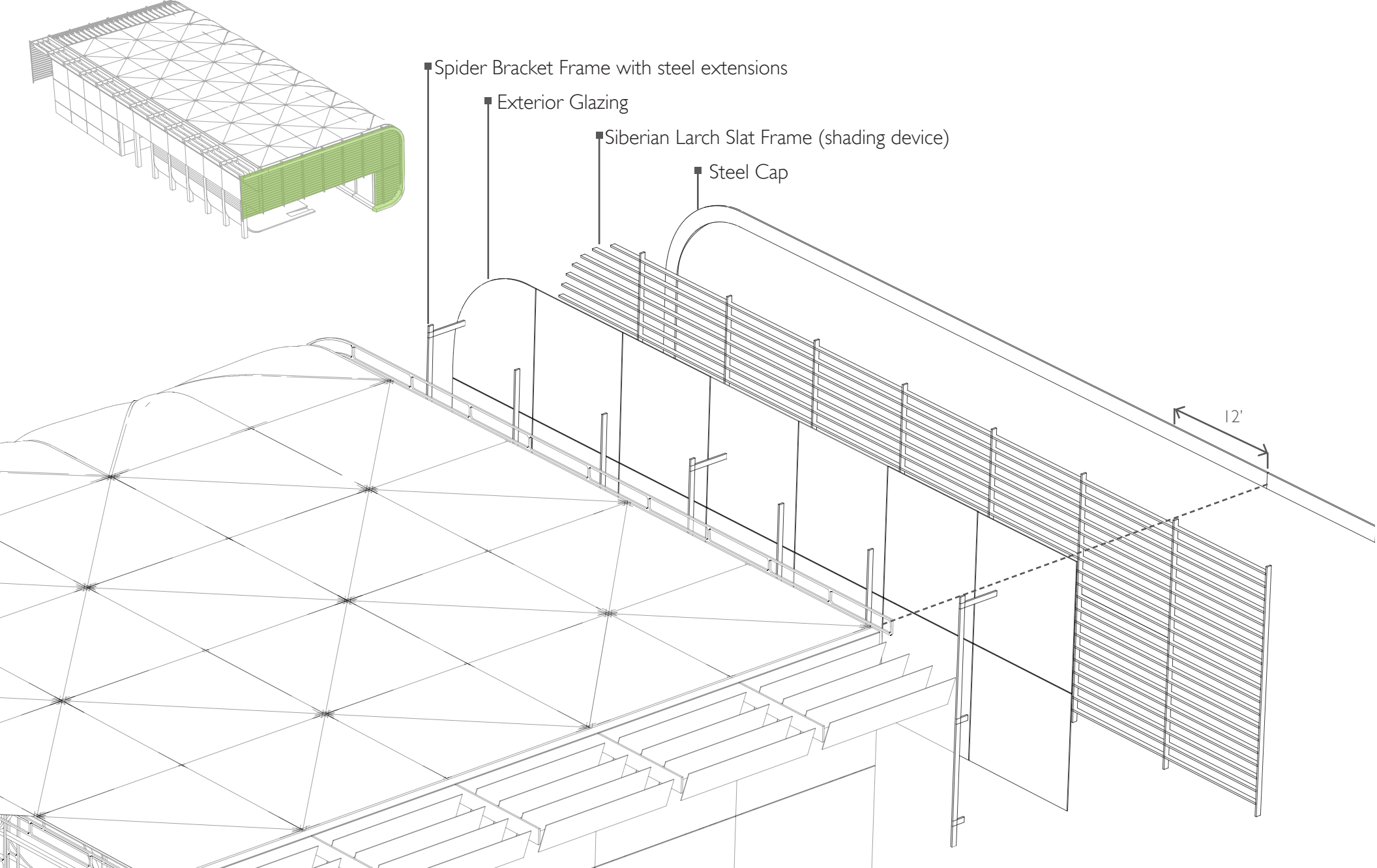
8.3 structural intervention

8.4 drawings

8.5 details

8.0 overall concepts





Spider Bracket Frame with steel extensions

Exterior Glazing

Siberian Larch Slat Frame (shading device)

Steel Cap

12'

8.1 vertical farming

8.2 conveyance system

8.3 structural intervention

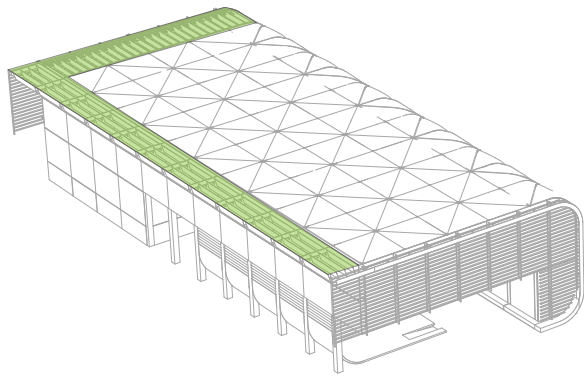
8.4 drawings

8.5 details

8.0 overall concepts



conveyancefarming
thomas jasper + meghan welford



Operable Mounting Frame

Glazing

Photovoltaic Rotating Mount

Photovoltaic Cells

Steel Frame Extension

8.1 vertical farming

8.2 conveyance system

8.3 structural intervention

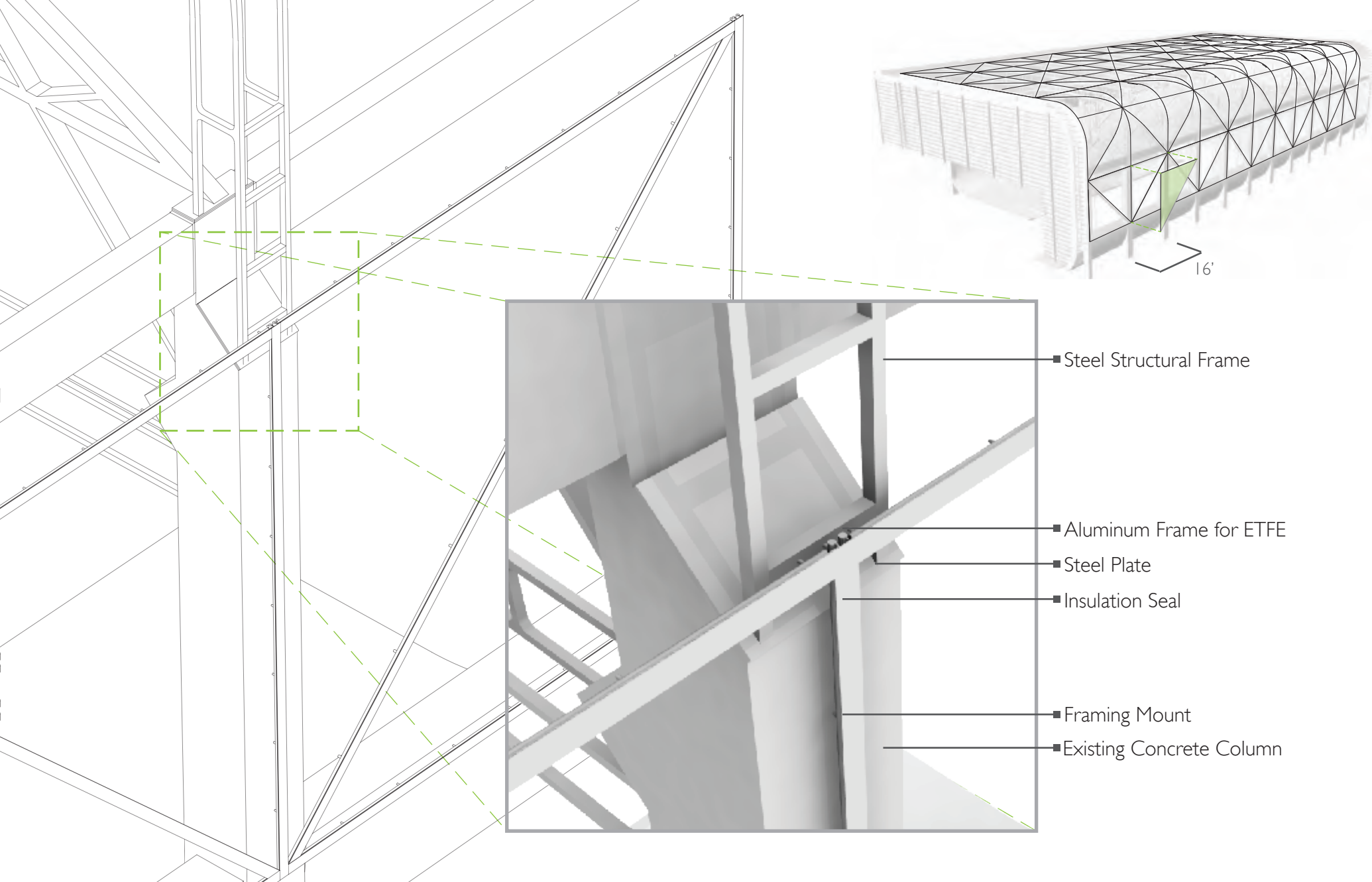
8.4 drawings

8.5 details

8.0 overall concepts



conveyancefarming
thomas jasper + meghan welford

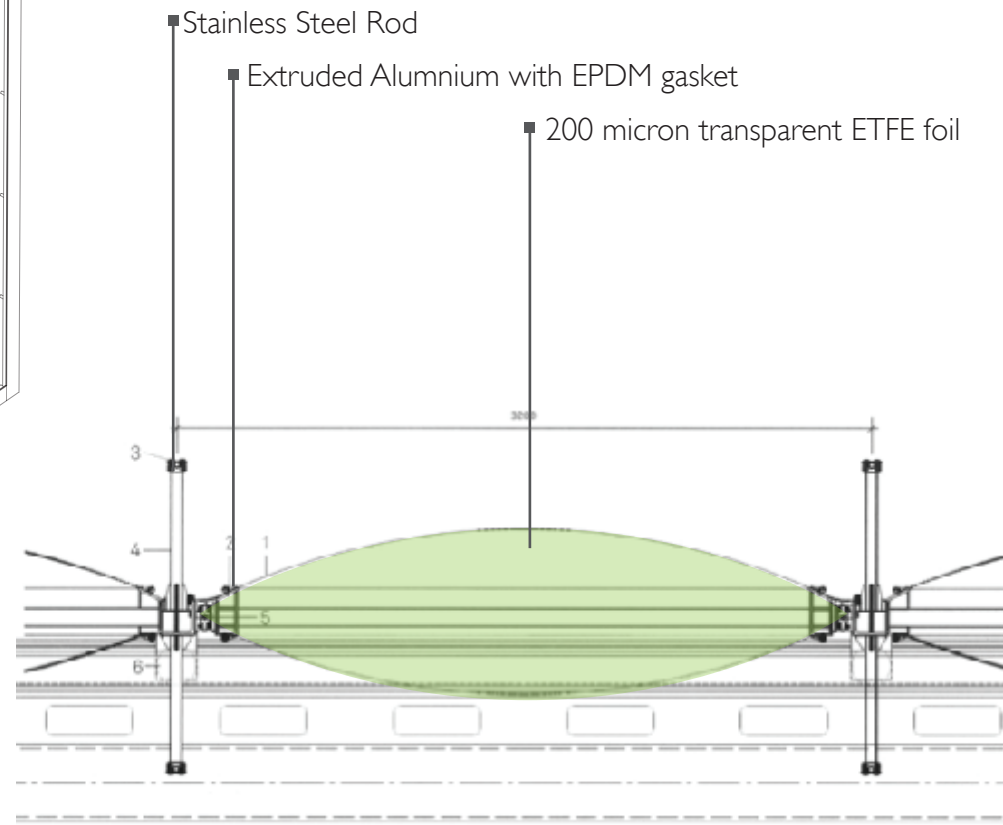
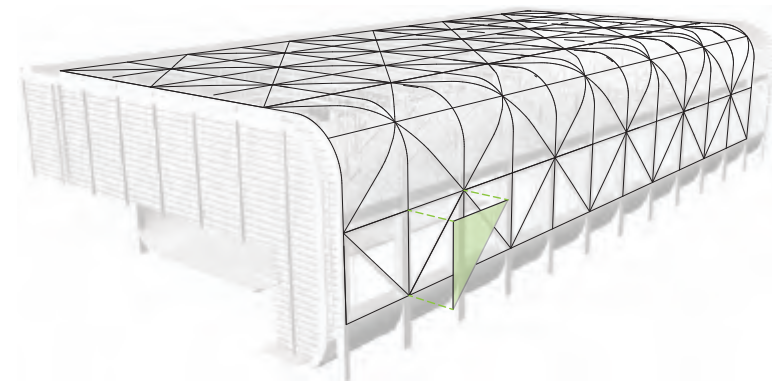
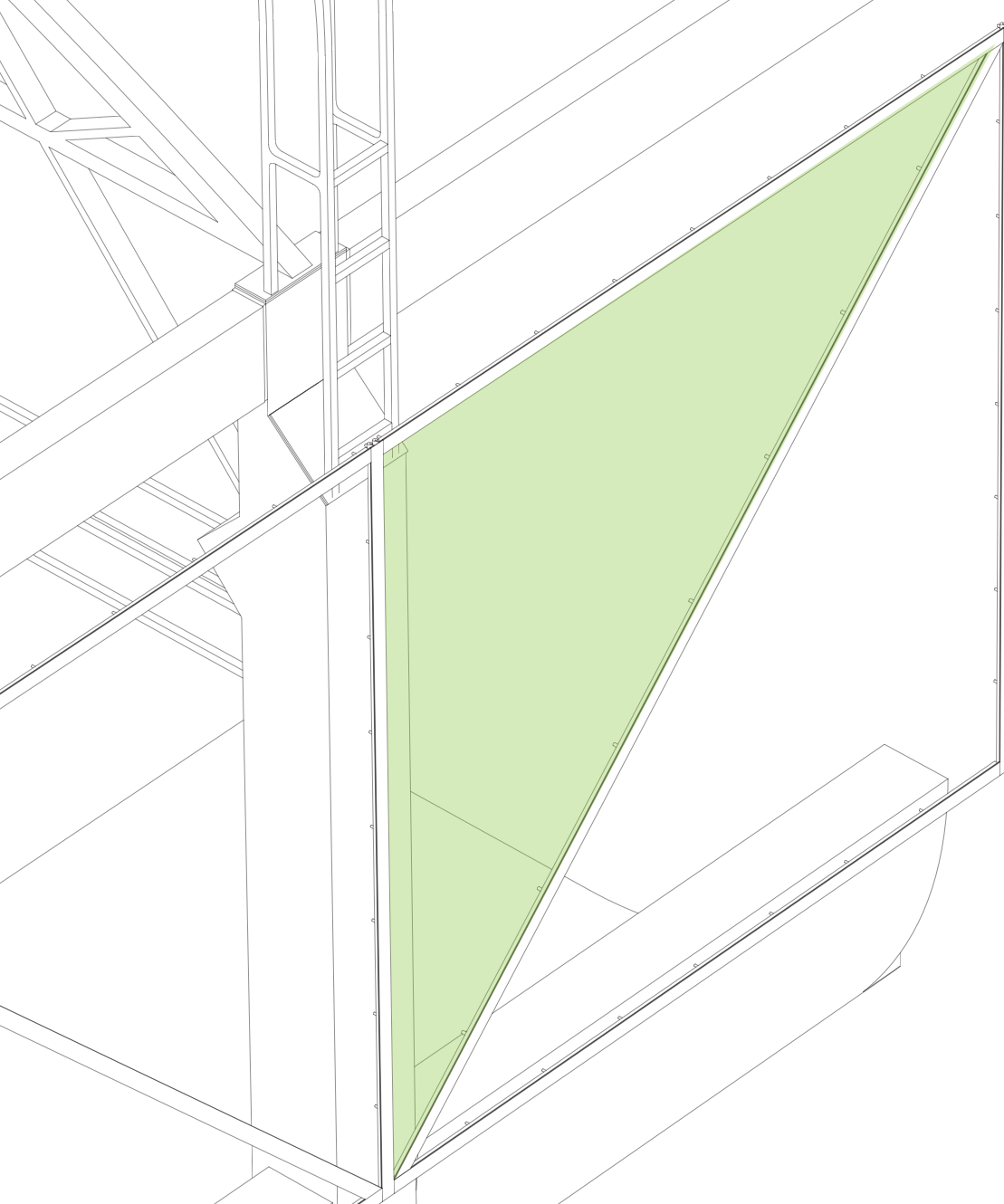


- Steel Structural Frame
- Aluminum Frame for ETFE
- Steel Plate
- Insulation Seal
- Framing Mount
- Existing Concrete Column

8.1 vertical farming
8.2 conveyance system
8.3 structural intervention
8.4 drawings
8.5 details

8.0 overall concepts





8.1 vertical farming **8.2** conveyance system **8.3** structural intervention **8.4** drawings **8.5** details

8.0 overall concepts



re:planting charleston's urban food culture with local

ROOTS



SITE LOCATION 1056 KING STREET CHARLESTON, SC



Peninsula View



Context View

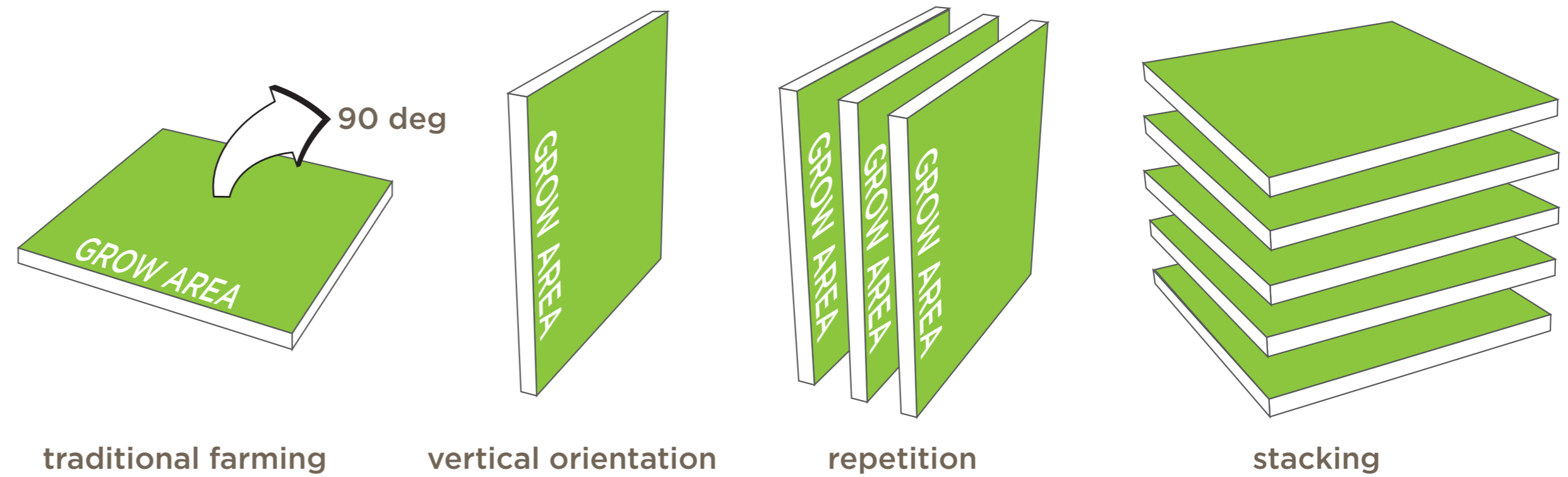


Neighborhood View

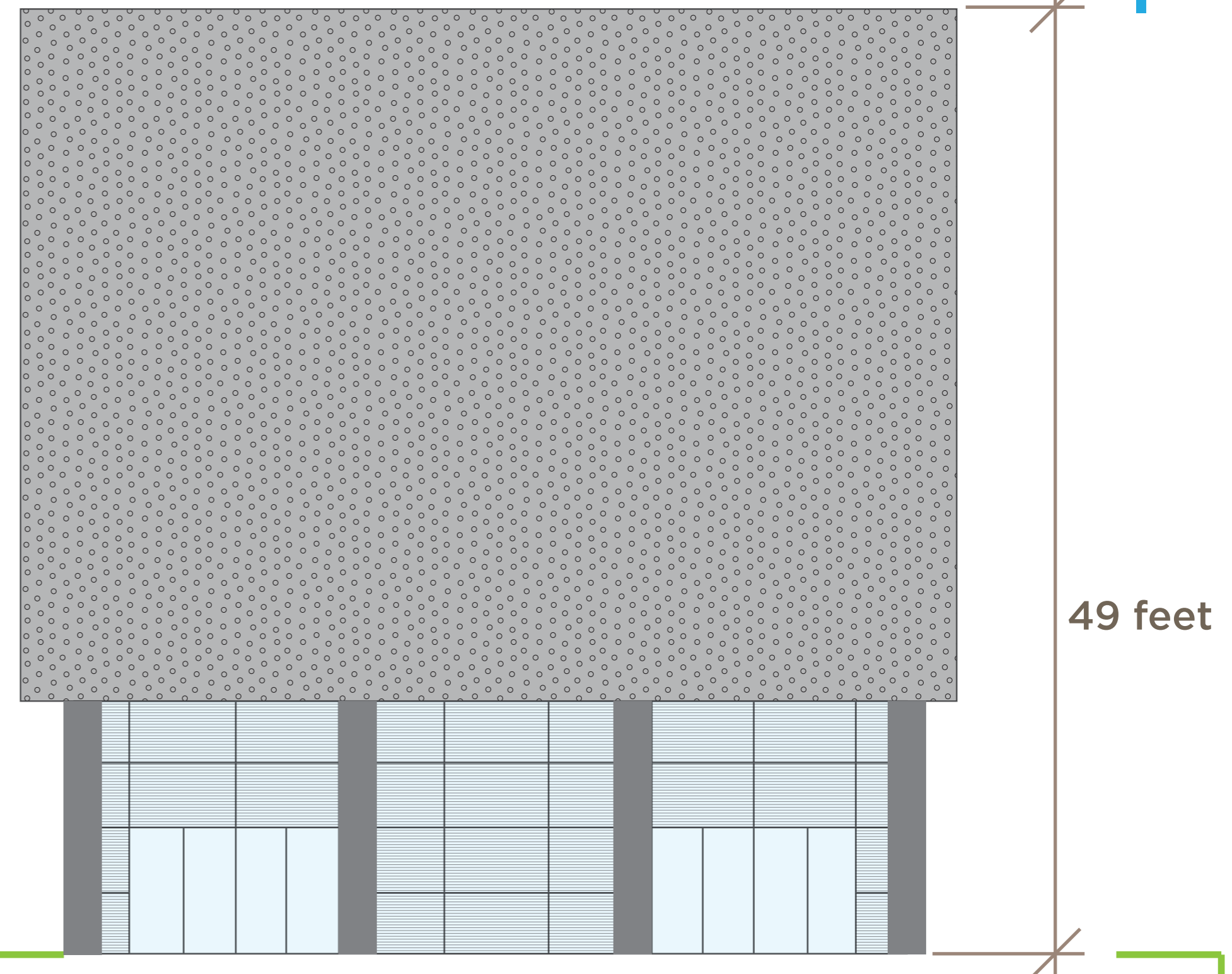
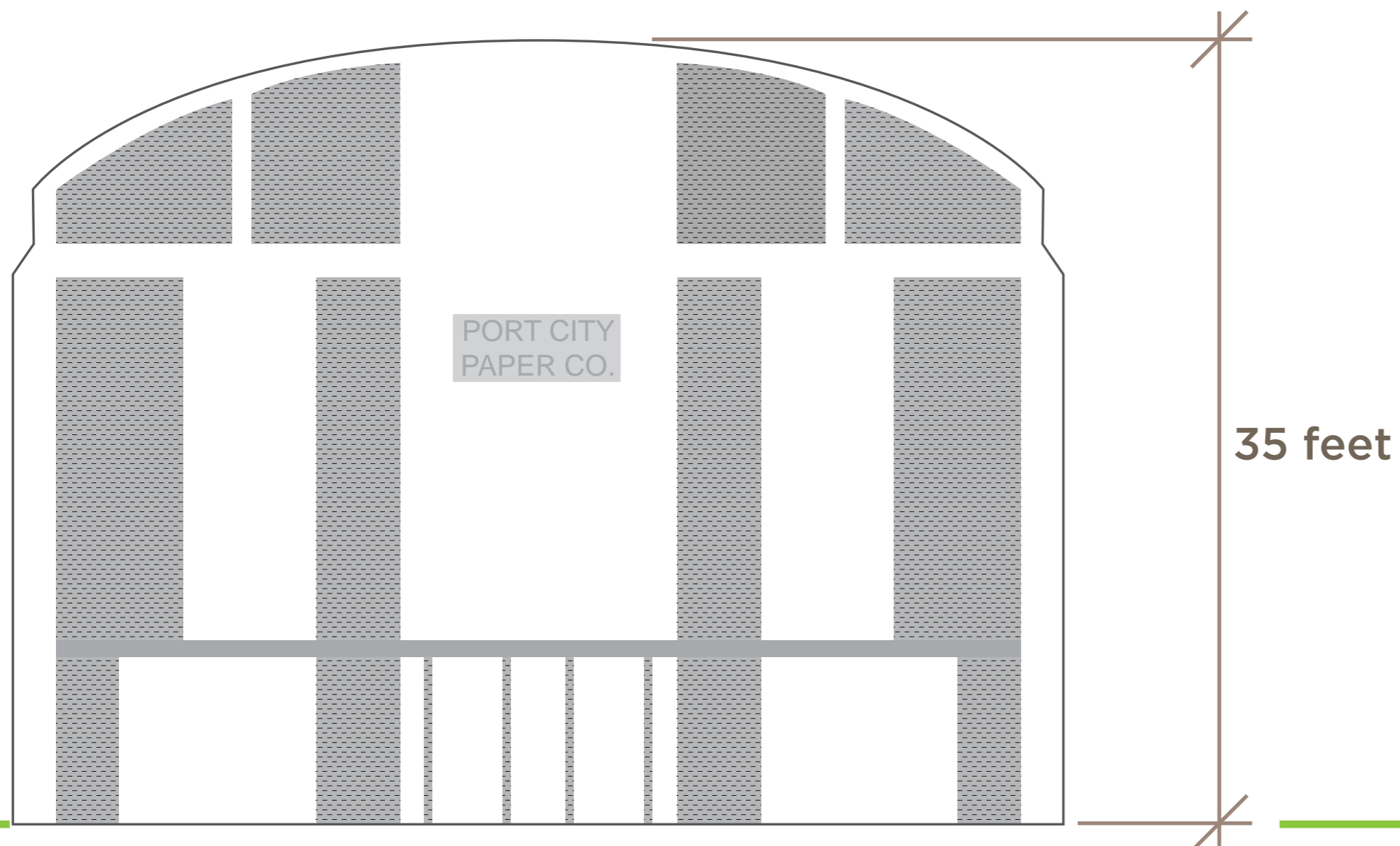
CITY ZONING REGULATIONS

The idea behind vertical farming takes the horizontal component of farming and begins to repeat and stack grow areas in the vertical direction. Many vertical farm design proposals to-date take this concept and repeat dozens of floors which results in a skyscraper design.

Since Charleston does not have tall skyline, a skyscraper would dominate the cityscape which would take away from the city's historic ambiance. On site there is also a height restriction that prevents this exact thing from happening. Therefore we can use the horizontal stacking method to maximize grow space within our allowed height.



50 FT HEIGHT RESTRICTION



COMMUNITY SUPPORTED AGRICULTURE

“THE BOX SCHEME”

Community Supported Agriculture is a form of an alternative food network and a socio-economic model of agriculture and food distribution.

The community pledges to support the farming operation by purchasing seasonal or annual memberships. Both the growers and the consumers share the risk and the benefits of the farming operation.

CSA members can only get what the vertical farm grows but they are guaranteed a box full of fresh vegetables every week.

The average CSA membership in the United States ranges from \$350 - \$500 per growing season, which lasts between 14 - 20 weeks. The membership is very affordable at \$20 per week.



BENEFITS OF BECOMING A CSA MEMBER:

- Seasonal and annual memberships*
- Weekly pick-ups at the Local Roots Market*
- Pay a fixed rate for fresh produce*
- Start or stop your membership at any time*
- Discounts and benefits for members*

LOCAL ROOTS FARMING DISTRIBUTION

WHOLESALE OPERATION

The wholesale operation of the Local Roots Vertical Farm will specialize in farming leafy greens like kale, spinach and different types of lettuce. Local groceries and restaurants can purchase organic, locally grown and harvested crops at a wholesale price throughout the year.

Leafy greens are excellent crops to specialize in. They are high in nutrients and can be used in millions of ways. If the vertical farm dedicates half of an acre of space to growing leafy greens, we can grow more than 300 plants per harvest. Using hydroponic and aquaponic technologies, we can decrease the growth period of the plants to 50 days which gives us around seven harvests per year. Even though the farm will be selling the crops wholesale, it is still estimated that the operation will earn approximately \$250,000 of revenue in it's first five years.



BENEFITS OF A WHOLESALE OPERATION:

- High yields and high density*
- Frequent harvesting*
- Provides organic crops to local groceries and restaurants*
- Eliminates distribution-related transportation time and costs*



FARMER'S MARKET

The farmer's market will be available to the general public. Non-CSA members can purchase fresh vegetables from the vertical farm in a boutique grocery setting. The market will also help encourage CSA



MARKET CAFE

Adding a cafe to the farmer's market will further encourage visitors to eat local produce from the vertical farm. It will be a great way to showcase different recipes using the vegetables grown right upstairs.



EDUCATION KITCHEN

An educational lab and test kitchen will be available to CSA members to use for sustainable food education, testing recipes. Learning how to cook with their fresh vegetables. Non-members can also pay to take classes as well.



DONATION PROGRAM

The vertical farm can pledge to give back to the community every week by donating the unsold crops from the farm to local non-profit relief organizations.

COMMUNITY SUPPORTED FARMING

The success of the vertical farm depends entirely on the support of the community. The farm itself will provide crops for a variety of community-based program elements but in order for the whole system to be cyclical, the community must be able to actively support the farm. The Local Roots design places all of the public spaces on the ground floor so that people can easily participate in the facilities and amenities. All of the farming takes place on the second and third floors. This organization allows for the vertical farm to be conceptually- and literally, supported by the community.



ARCHITECTURAL DESIGN CONCEPT

1

VERTICAL
FARMING



- + Transparent public/community space on ground floor
- + Heavy, opaque farm space floats above

2



KING STREET

- + Glass curtain wall for transparent ground floor
- + Utilize existing grid and concrete columns
- + Extend farming space out towards the street

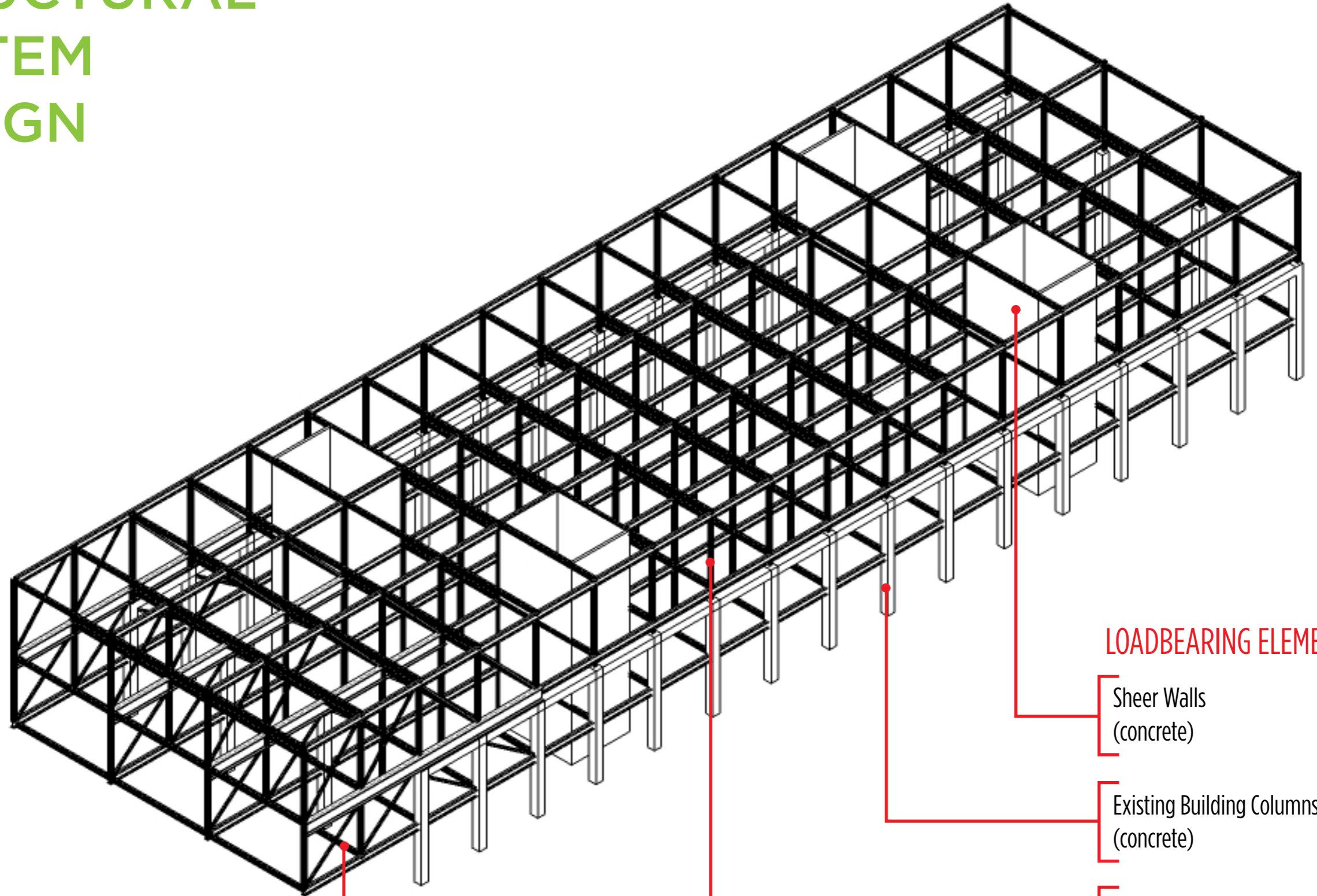
3



KING STREET

- + Vertical farm space “floats” on community space
- + Floating occurs visually with a glass ground floor
- + Floating occurs literally with the large cantilever
- + Public moves from street to building transparently

STRUCTURAL SYSTEM DESIGN



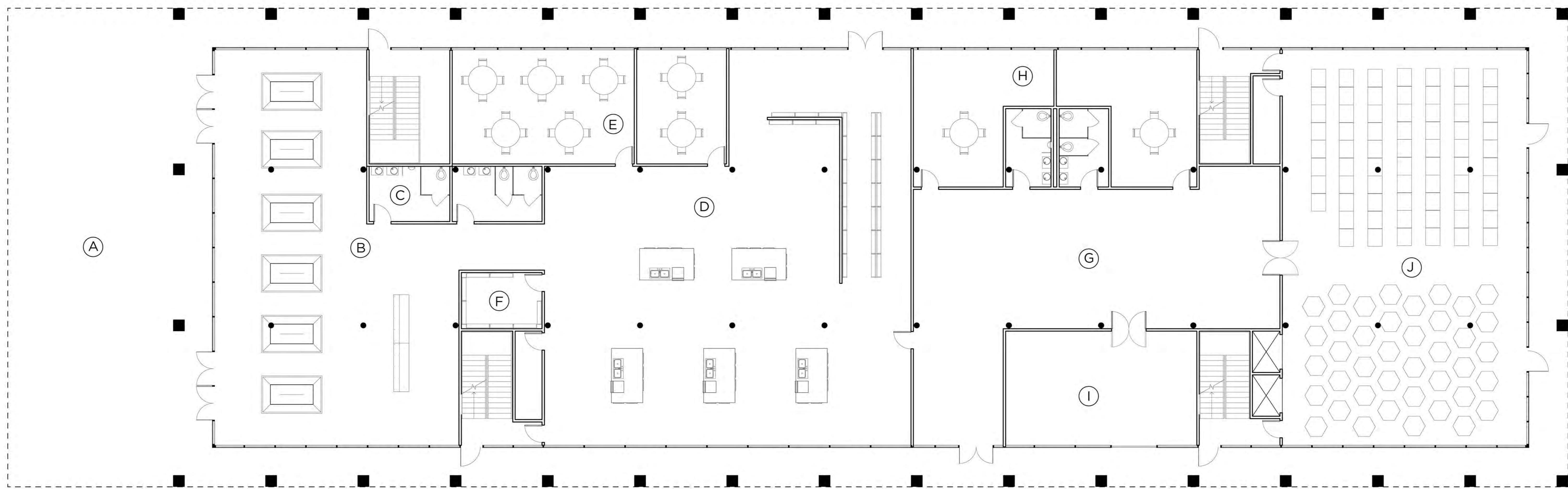
LOADBEARING ELEMENTS

Shear Walls
(concrete)

Existing Building Columns
(concrete)

Steel Columns
(W10x49)

Cantilever Cross Bracing
(steel tubes, 6")





GROUND FLOOR PLAN



<ul style="list-style-type: none"> A. OUTDOOR CAFE AREA B. MARKET AND CSA PICK UP C. RESTROOMS D. EDUCATION LAB/KITCHEN AREA E. EDUCATION LAB/CLASSROOMS 	<ul style="list-style-type: none"> F. STORAGE AREA G. ADMINISTRATION H. PRIVATE OFFICES I. LOADING ZONE J. SEED LAB AREA
---	---

FARMER'S MARKET



FARM CROP SELECTION

The crops that will be grown in the vertical farm were selected based on a number of factors. The overall business model of the whole vertical farming operation aims to maximize diversity and yields through crop selection while maintaining positive profit margins.

A sustainable-farming economic model achieves strength in crop diversity. Crops with offsetting growth patterns and market prices will produce the most stabilized revenue. In order to create this offset, crops were selected based on profits at market, volume per harvest, yields per year and number of harvests per year.

\$ HIGH PROFITS PER CROP

▬ HIGH VOLUME CROPS

▾ HIGH YIELD PER YEAR

🌾 HIGH HARVEST RATES

SPINACH



YELLOW SQUASH



GREEN ONIONS



KALE



LEEKS



ZUCCHINI



SNOW PEAS



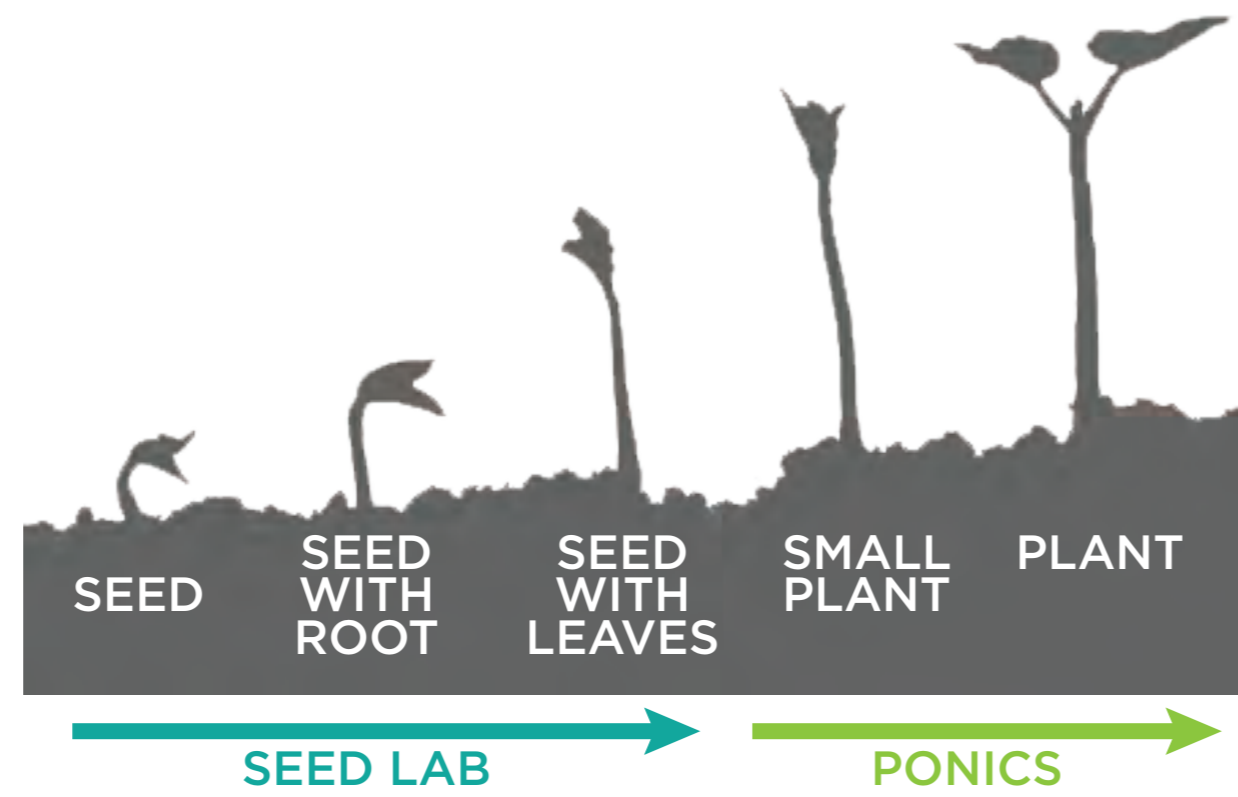
TOMATOES



BEAN SPROUTS



SEEDING SYSTEMS DESIGN

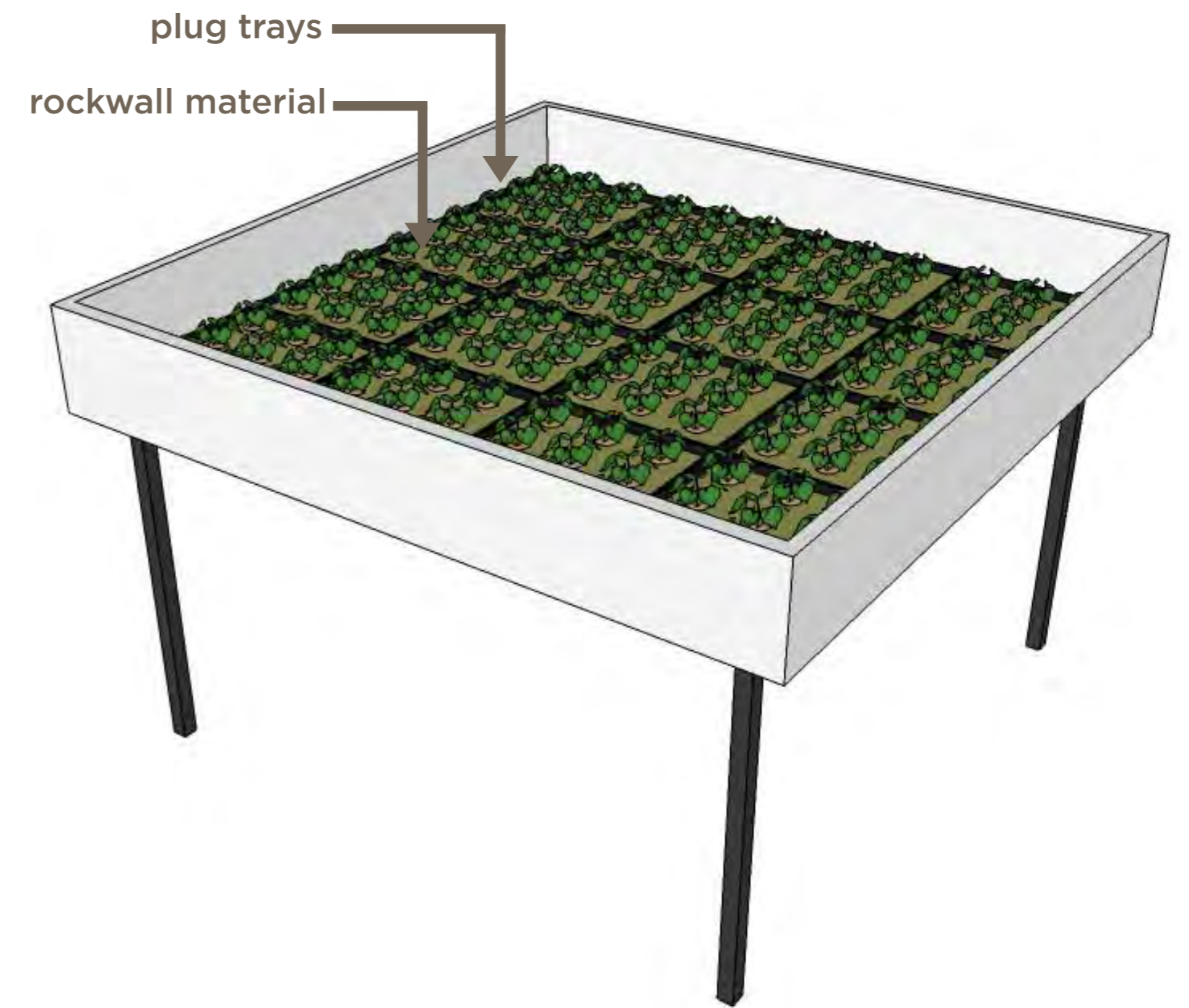


Before a plant can be placed into a hydro-, aero-, or aqua-ponic system, they must be nurtured as seedlings in a seed lab, or nursery. The seed lab has specialized technologies that quickly accelerate the growth of seedlings and are specific to the different ponics systems.

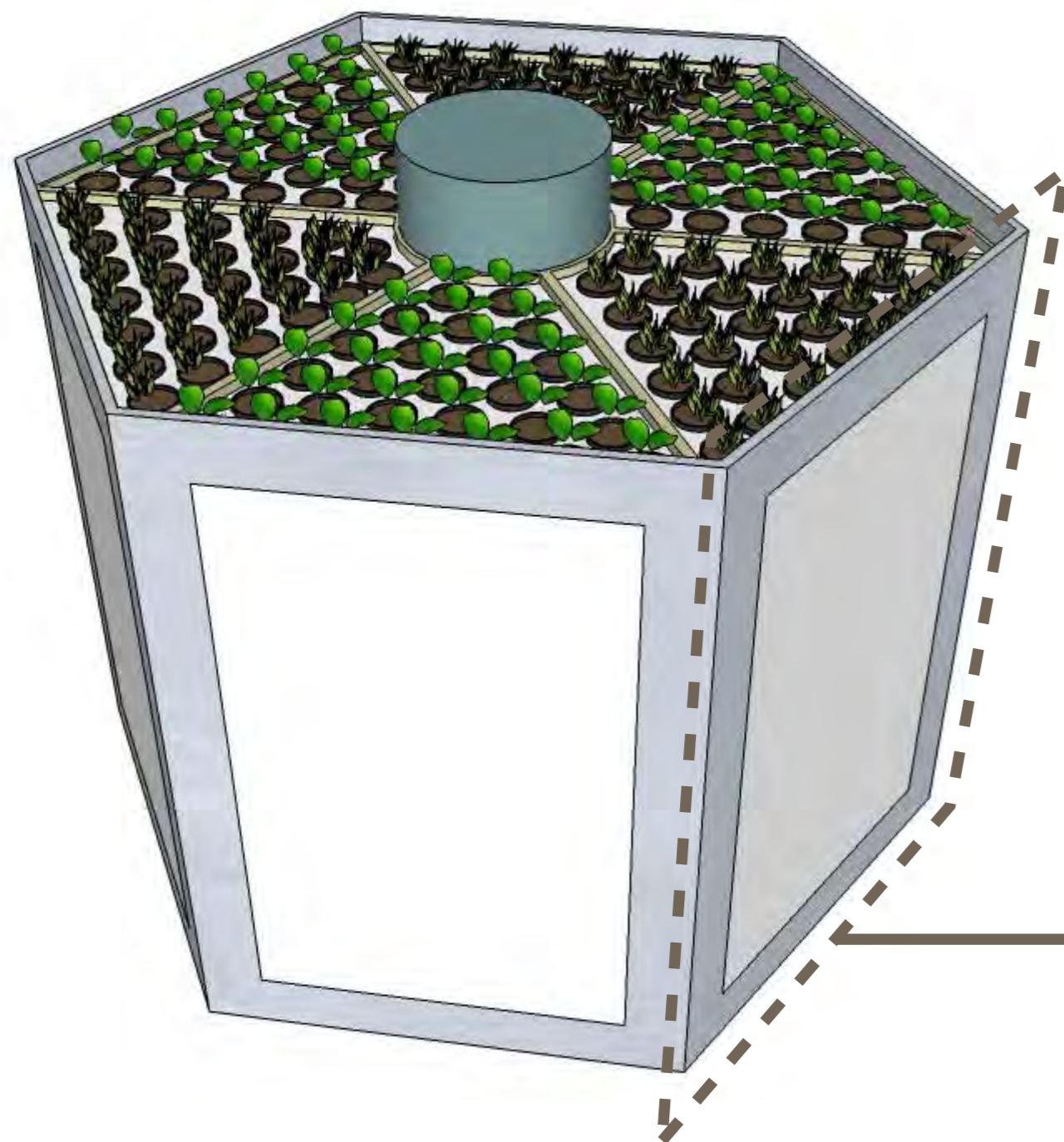
Hydroponic and aquaponic seeds are started in the tray system. Two seeds are placed into each “plug” which is made up of inorganic material. Once the plants are 2-3 inches tall (from 1-4 weeks), they can be transplanted into the larger systems for full maturation.

Aeroponic seeds are nurtured in a separate system where each seed is implanted into 1-5/8” thick neoprene inserts in the plug trays. The vortex spray constantly sprays the roots with an oxygen-rich nutrient solution.

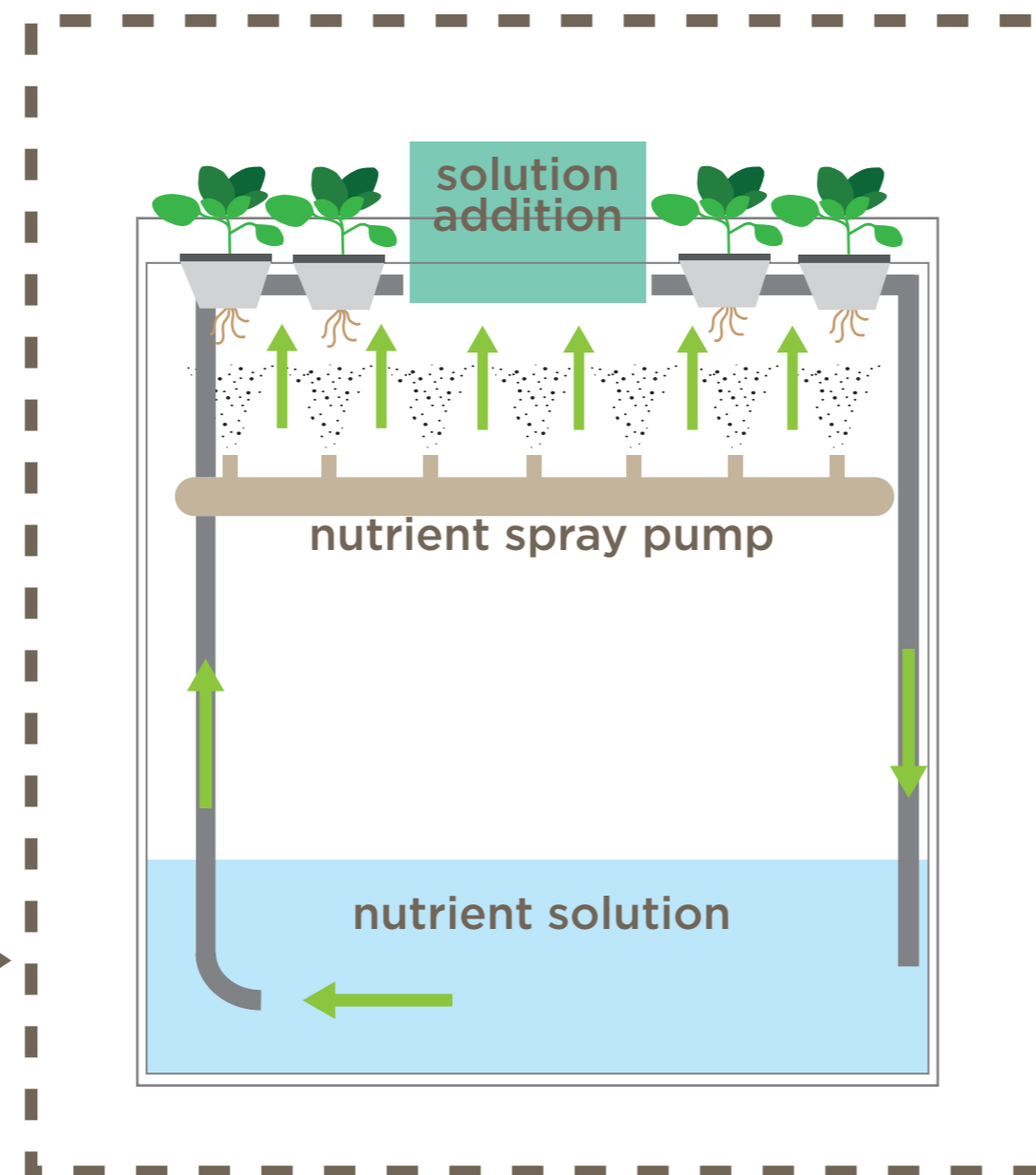
HYDROPONIC AND AQUAPONIC SEEDING TRAY SYSTEM



AEROPONIC SEEDING SYSTEM



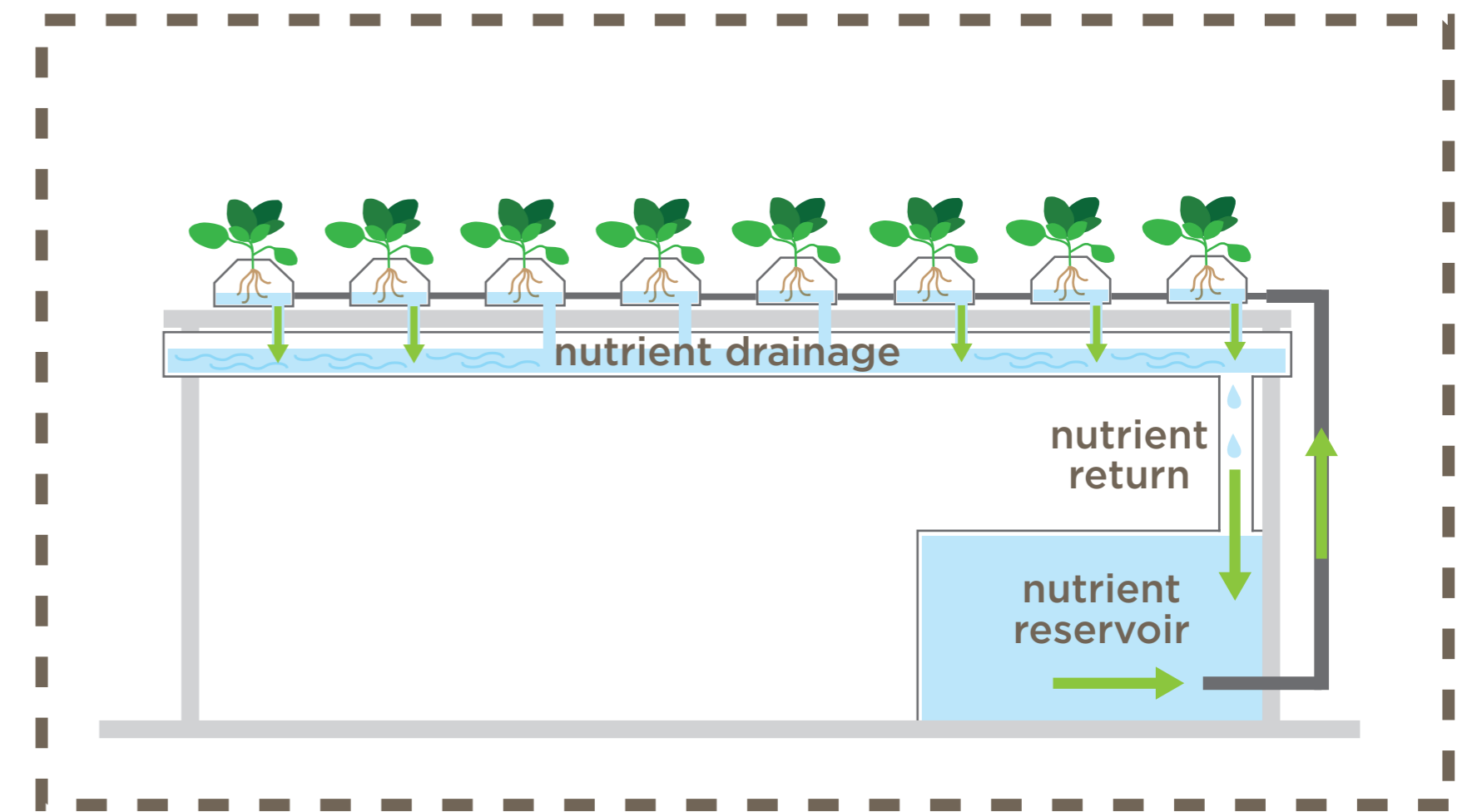
AEROPONIC SEEDING SYSTEM SECTION



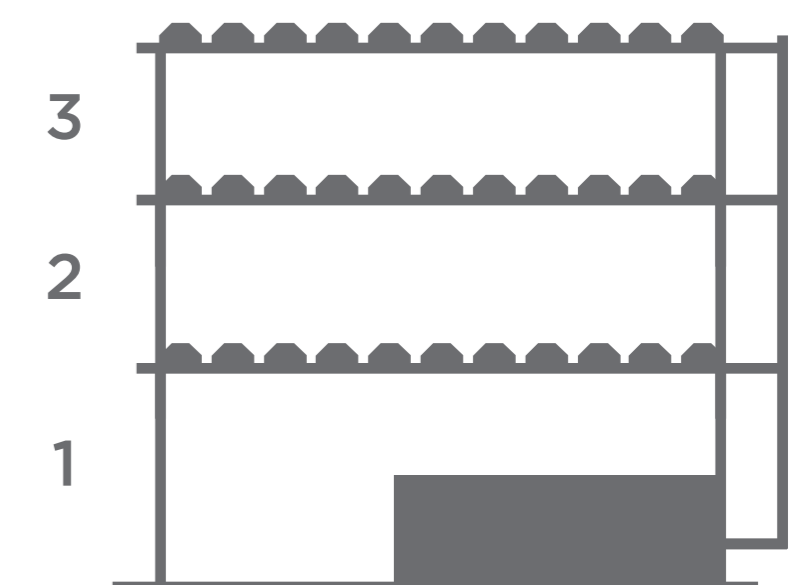
HYDROPONIC SYSTEM DESIGN

This system grows the plants in water without the use of soil. The water is infused with a mineral nutrient solution which is easily absorbed by the plant roots, thus eliminating the need for soil. The nutrient solution can also be reused which keeps water usage very low. This system is very versatile in that almost any terrestrial plant will grow in hydroponics and produce stable and high yields.

HYDROPONIC SYSTEM SECTION



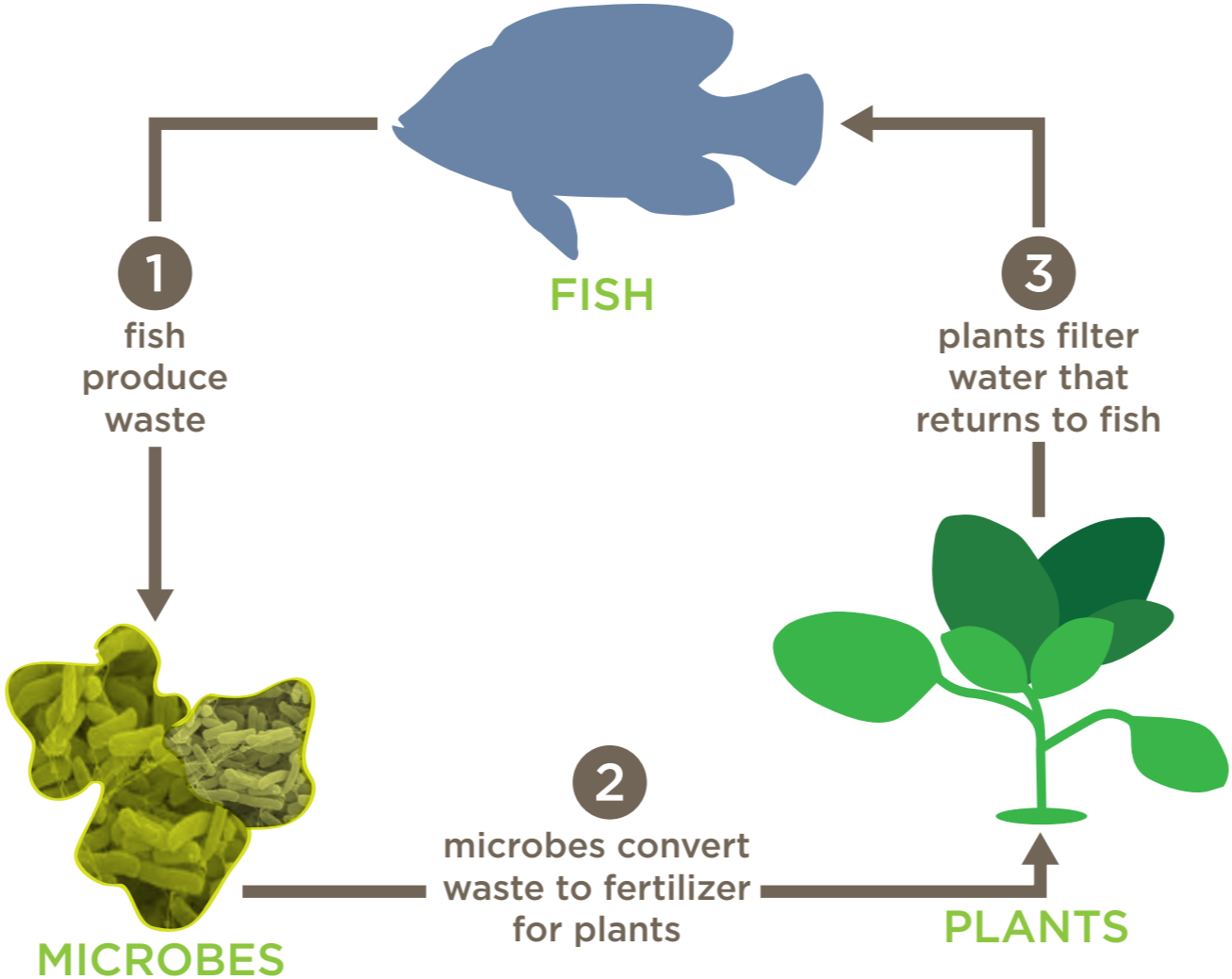
HYDROPONIC SYSTEM COMPONENT



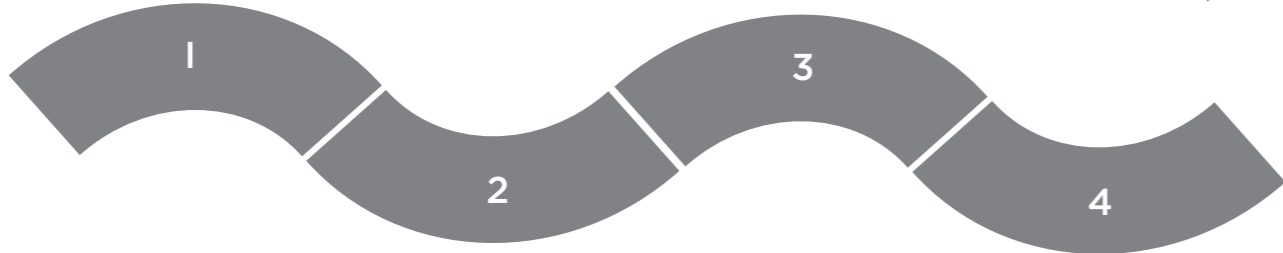
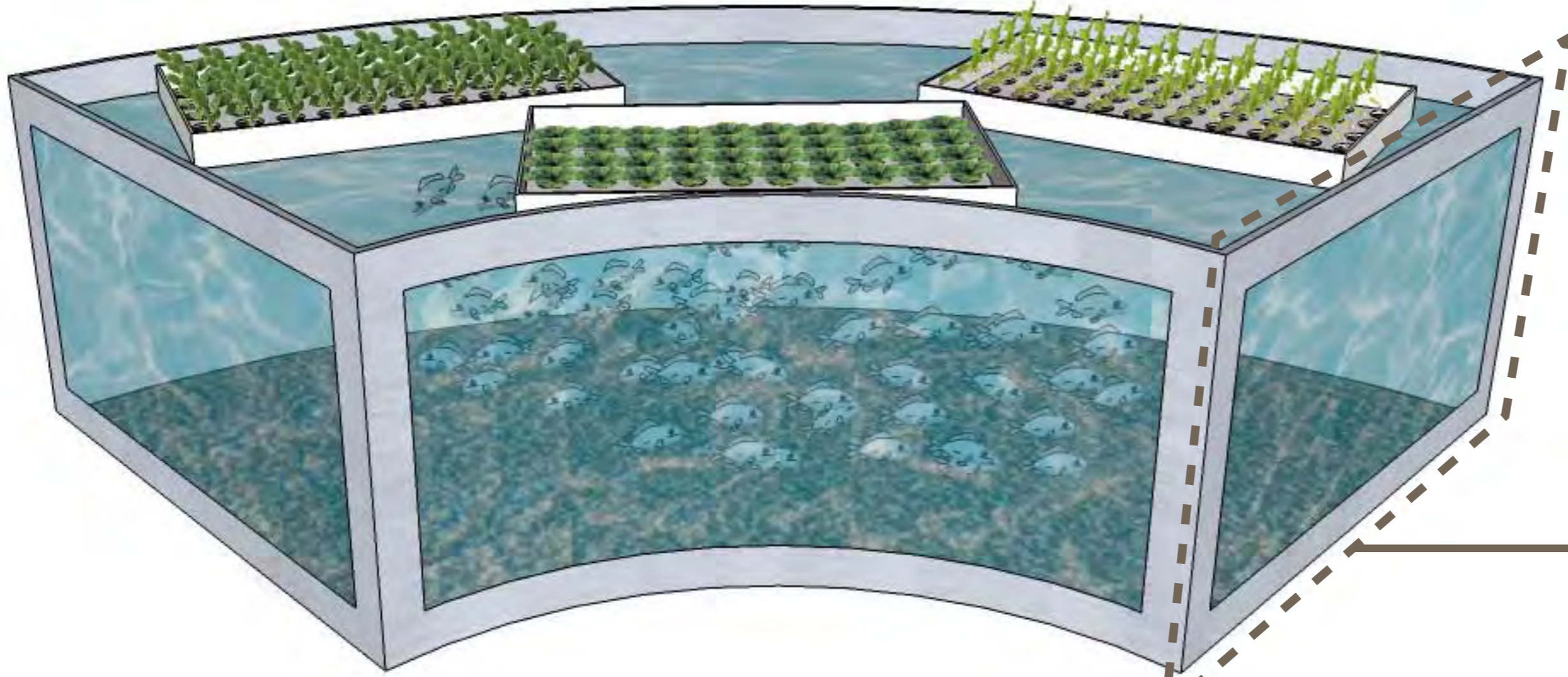
SYSTEM STACKING

AQUAPONIC SYSTEM DESIGN

This system combines traditional aquaculture with hydroponics in a symbiotic environment. In the aquaculture, effluents accumulate in the water, increasing toxicity for the fish. This water is led to a hydroponic system where the by-products from the aquaculture are filtered out by the plants as vital nutrient, after which the cleansed water is recirculated back to the fish.

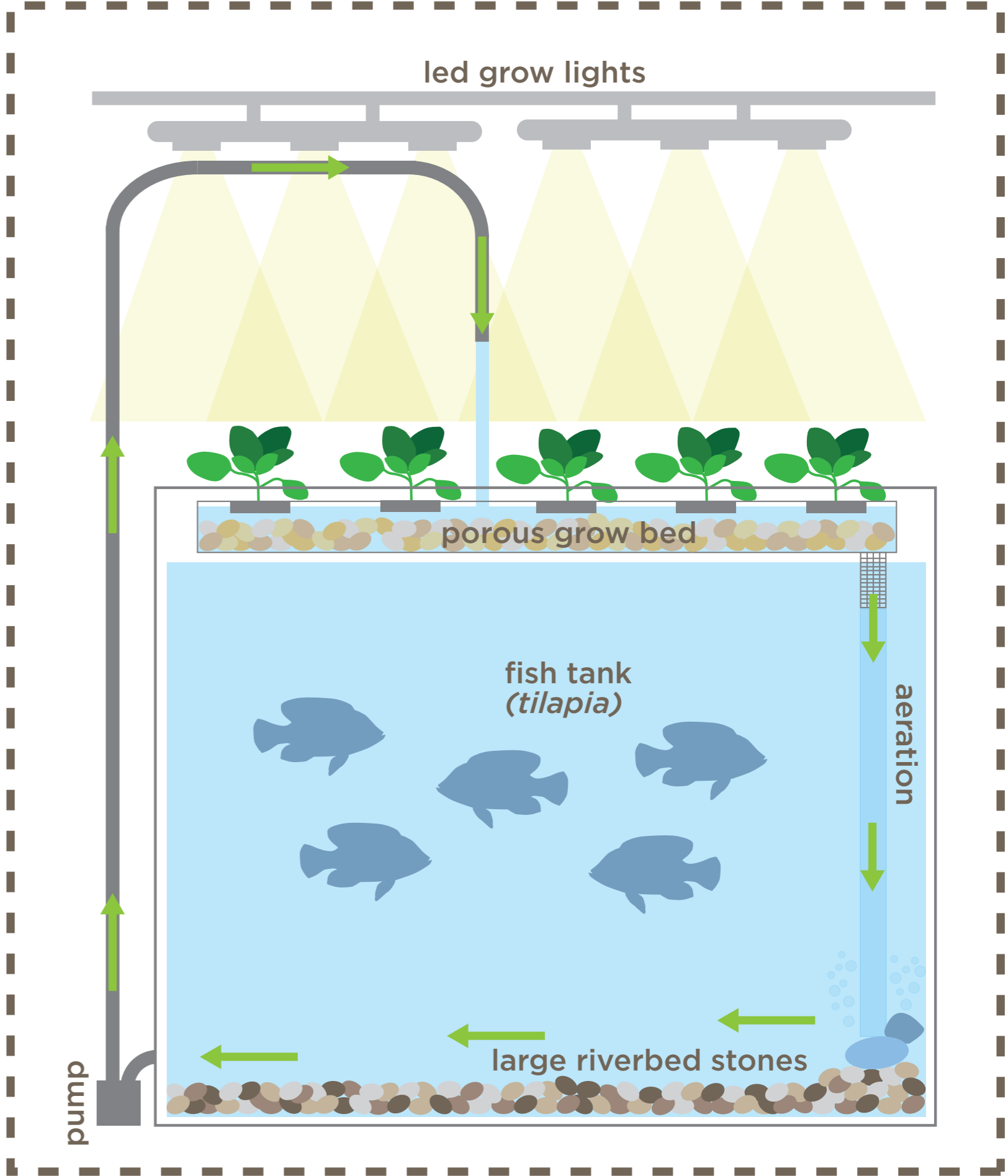


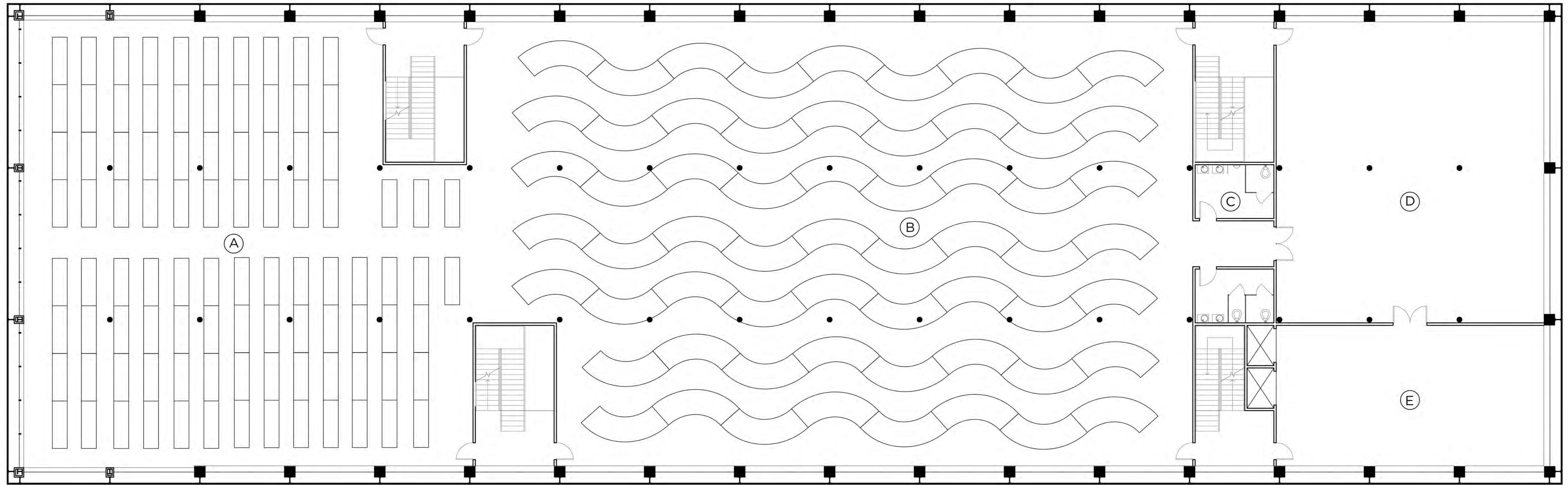
AQUAPONIC SYSTEM COMPONENT



SYSTEM ARRANGEMENT

AQUAPONIC SYSTEM SECTION



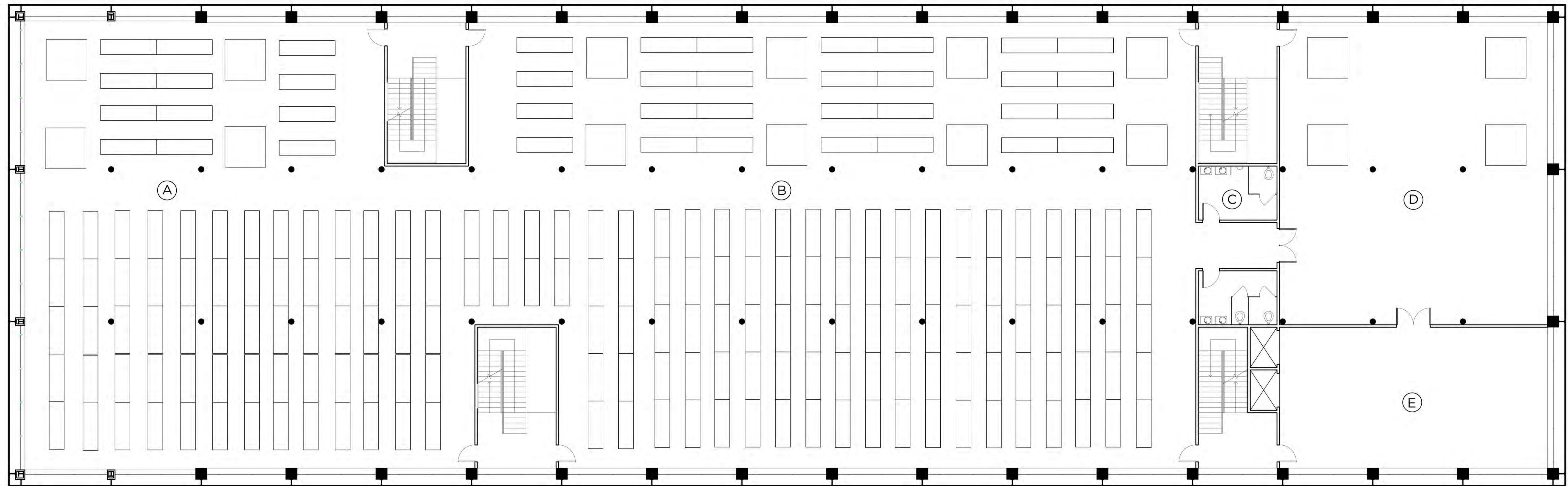




SECOND FLOOR PLAN



- A. HYDROPONICS
- B. AQUAPONICS
- C. RESTROOMS
- D. HARVESTING AREA
- E. CSA BOX PREP AREA





Local
ROOTS

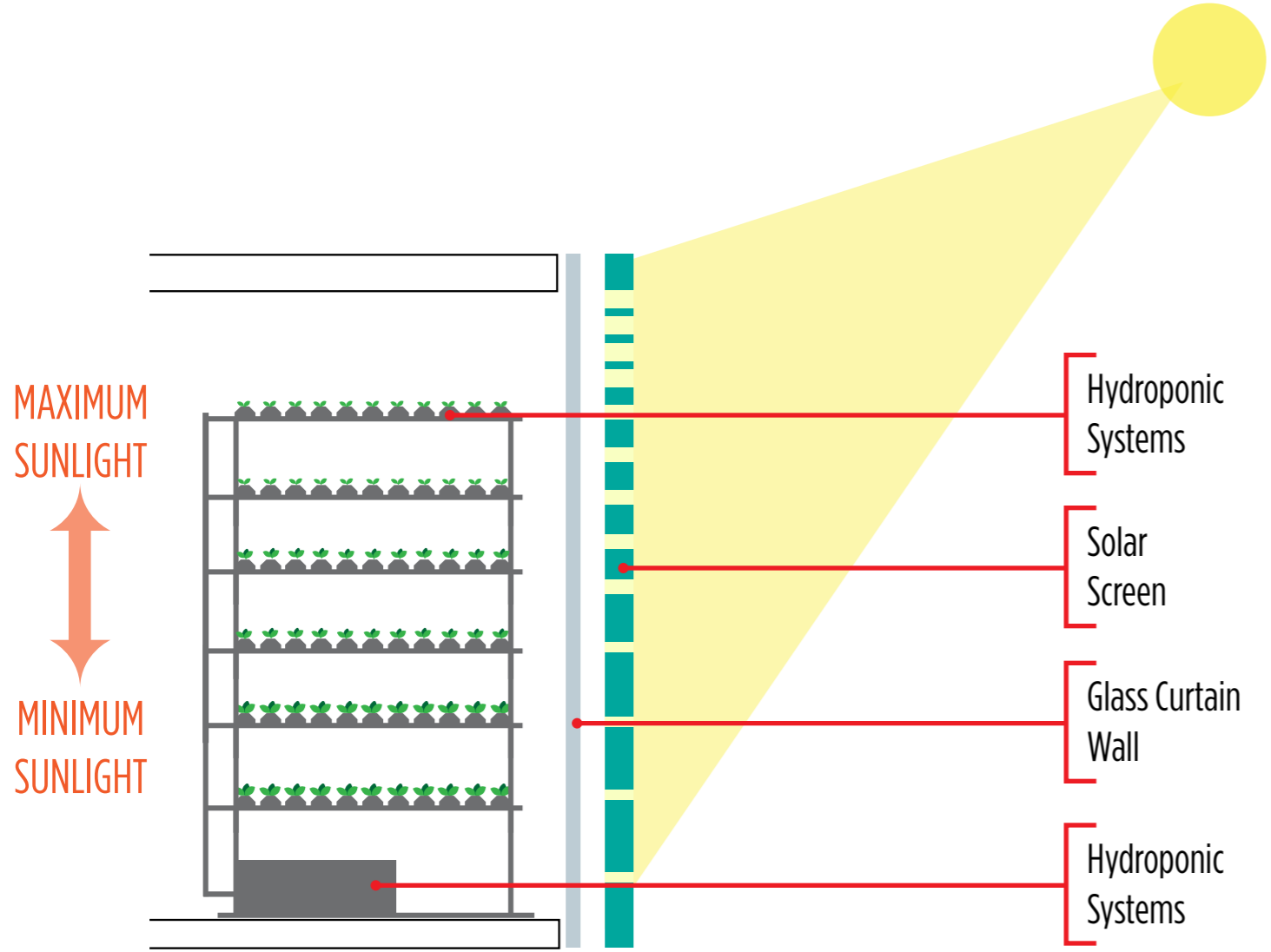
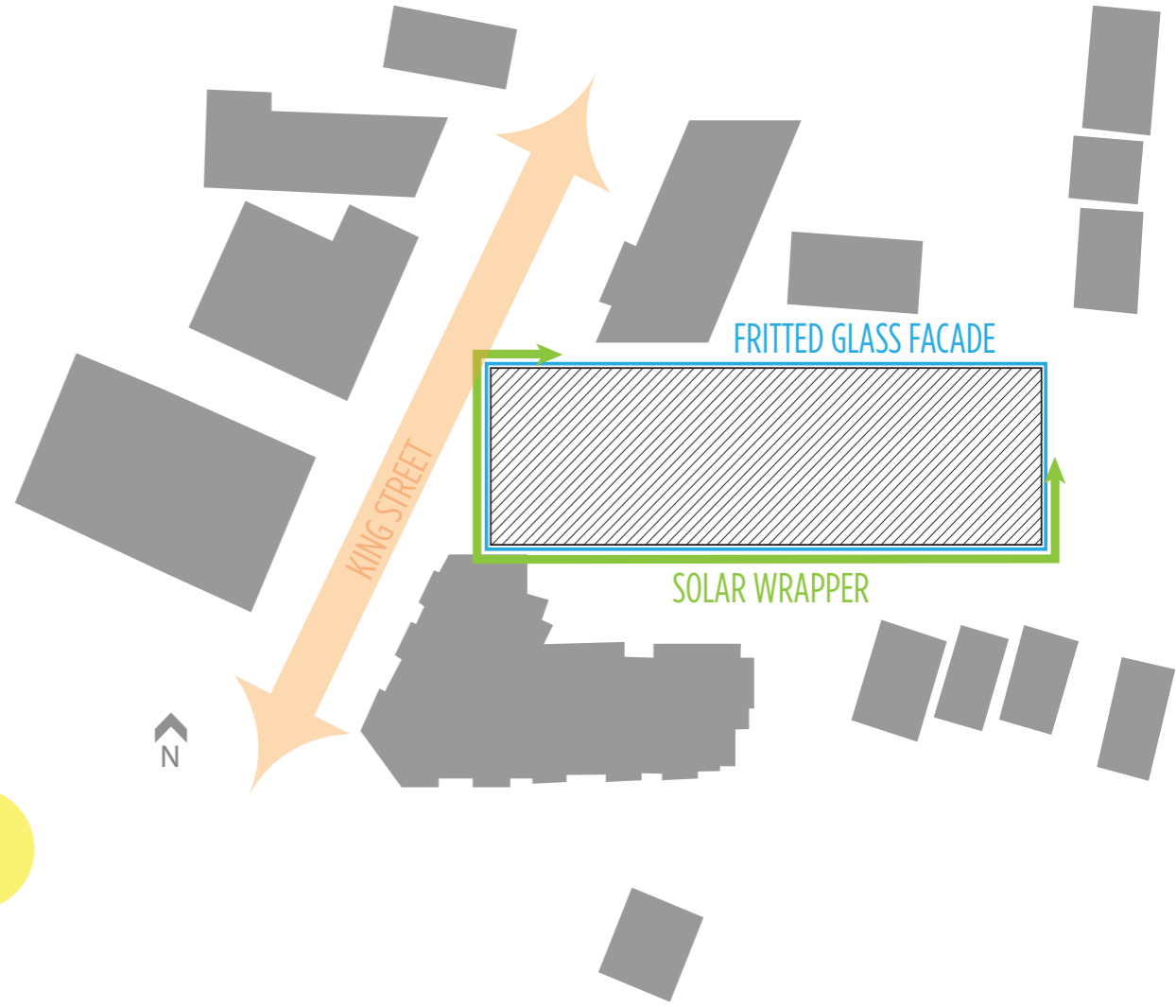
THIRD FLOOR PLAN

- A. HYDROPONICS
- B. AEROPONICS
- C. RESTROOMS
- D. HARVESTING AREA
- E. WHOLESALE PACKAGING AREA

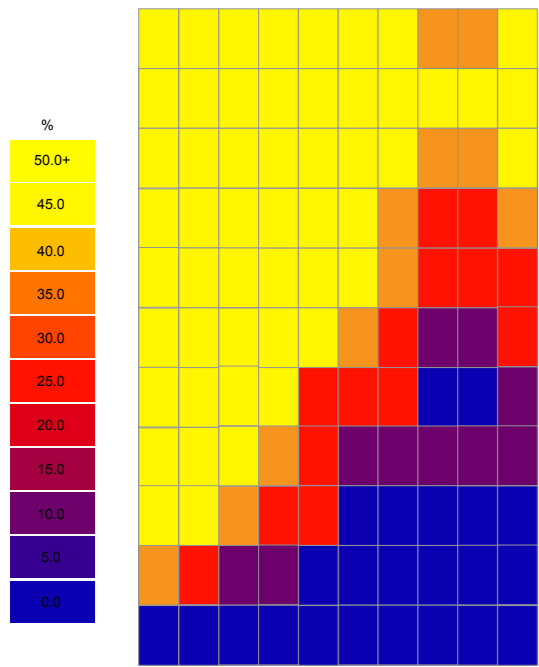


INTELLIGENT BUILDING SKIN

The envelope of the building follows the architectural concept of a heavy mass floating on top of a transparent base. Since the top two floors are farming, there has to be some daylight exposure through the skin. Crops that are early on in development will require more direct sunlight than matured crops so the openings in the skin can help determine where certain crops will go inside the farm space. The openings themselves will be determined by a solar analysis of the building mass.

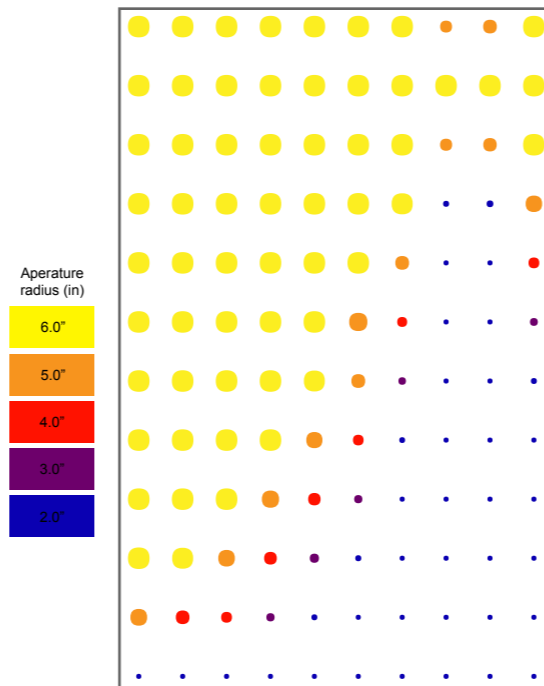


PARAMETRIC PERFORATED PATTERN



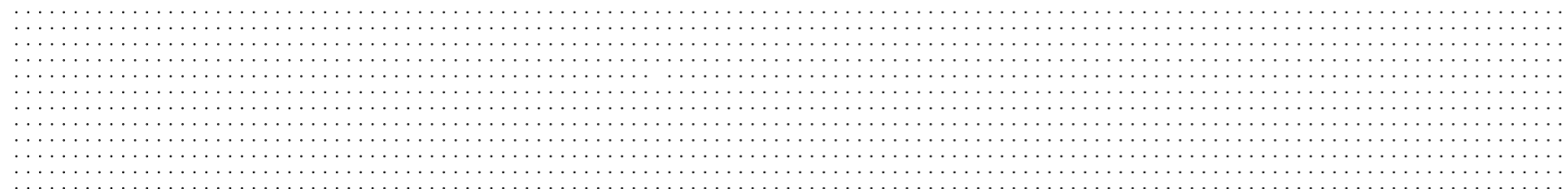
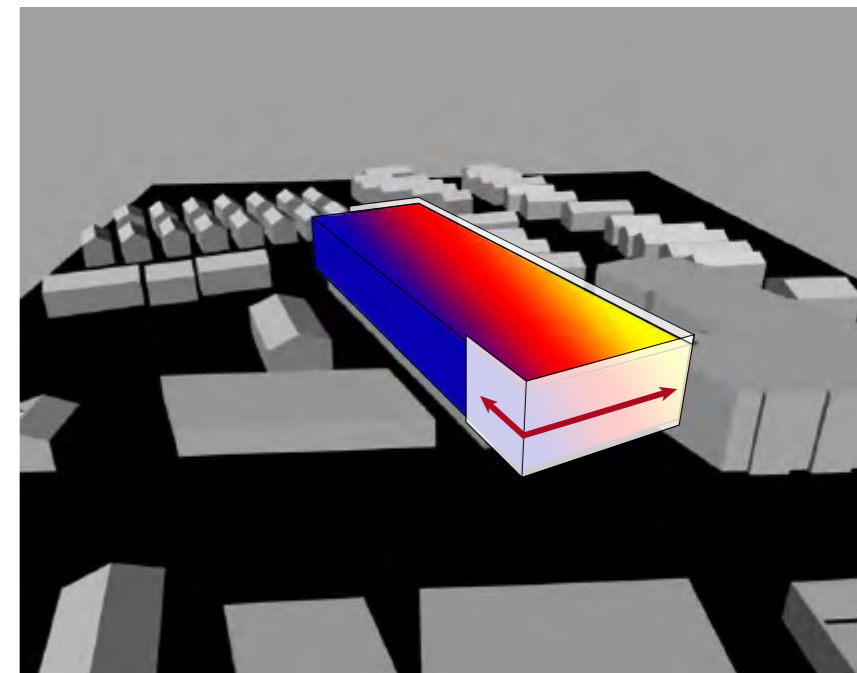
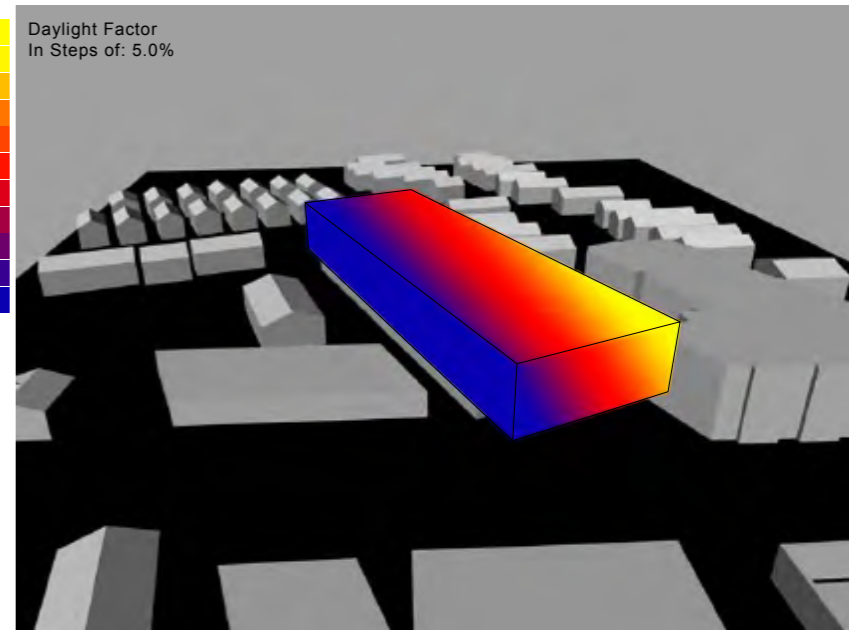
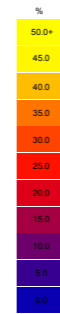
EXPOSURE GRADIENT > GRID

Colors from the gradient are isolated into a grid so each color can be assigned an aperture opening

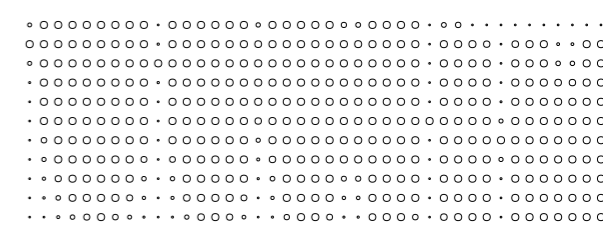


EXPOSURE > APERATURE

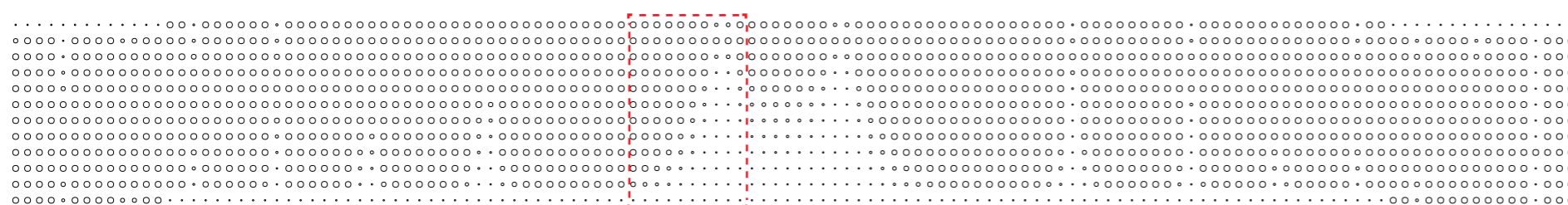
Using the established parameters from the solar analysis, the openings of the apertures will decrease based on the % of solar exposure.



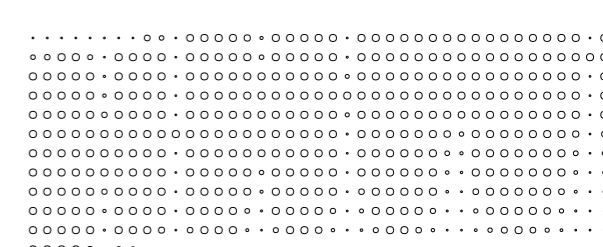
NORTHERN FACADE



WESTERN FACADE

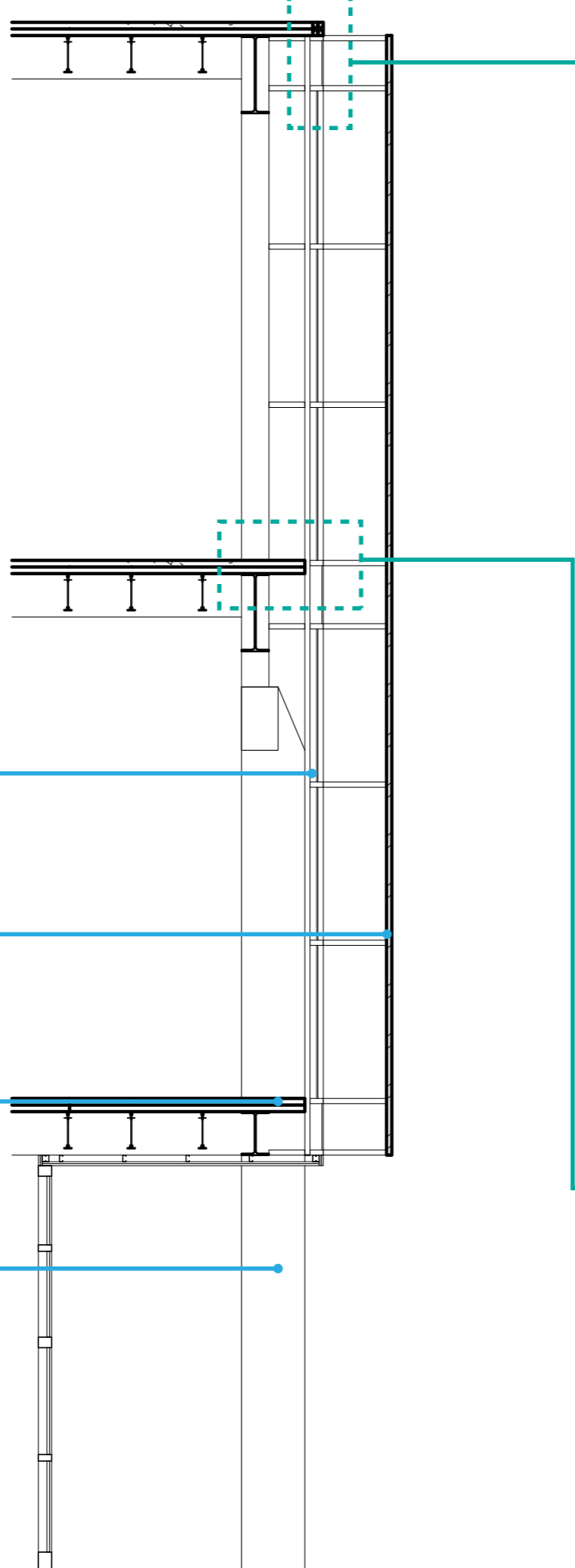


SOUTHERN FACADE

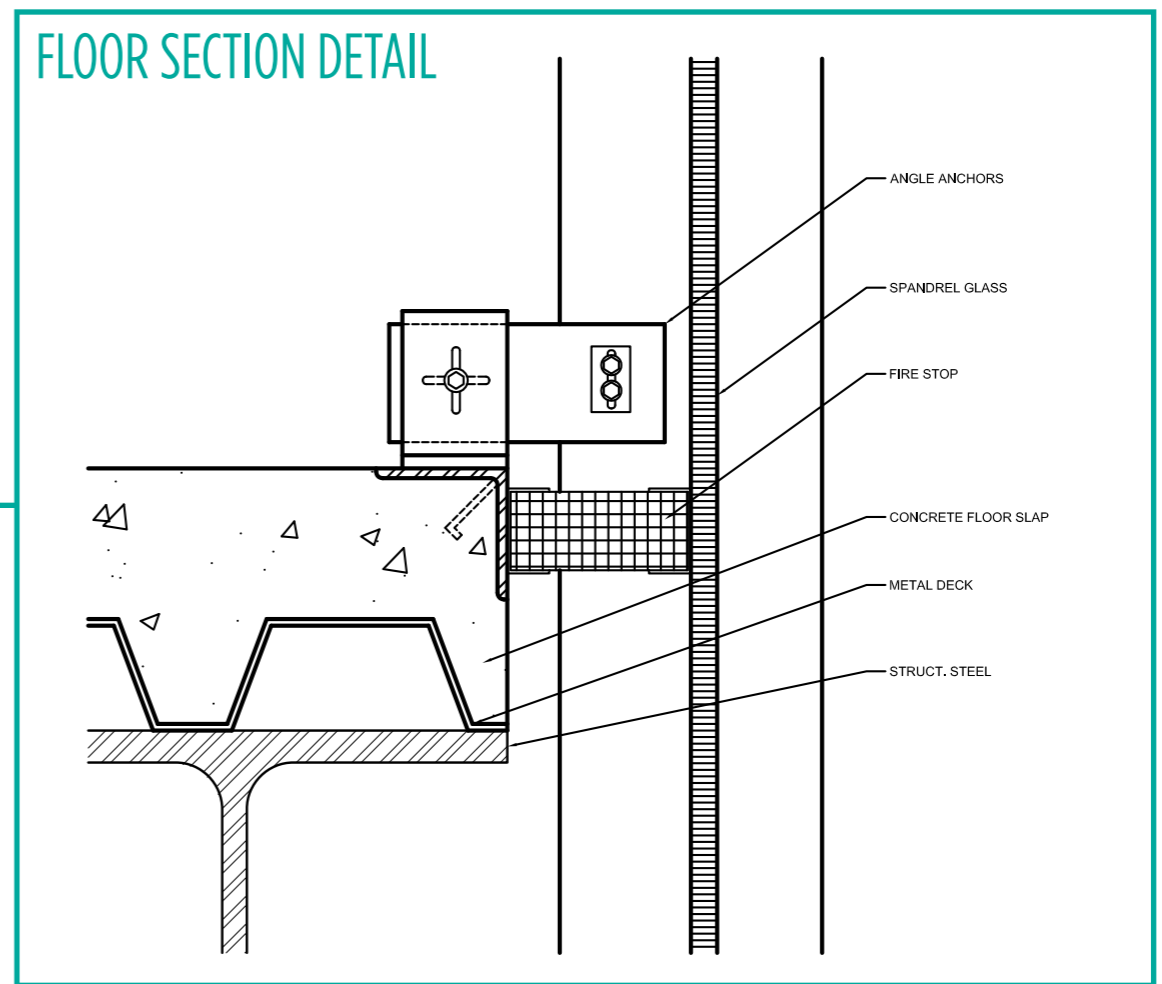
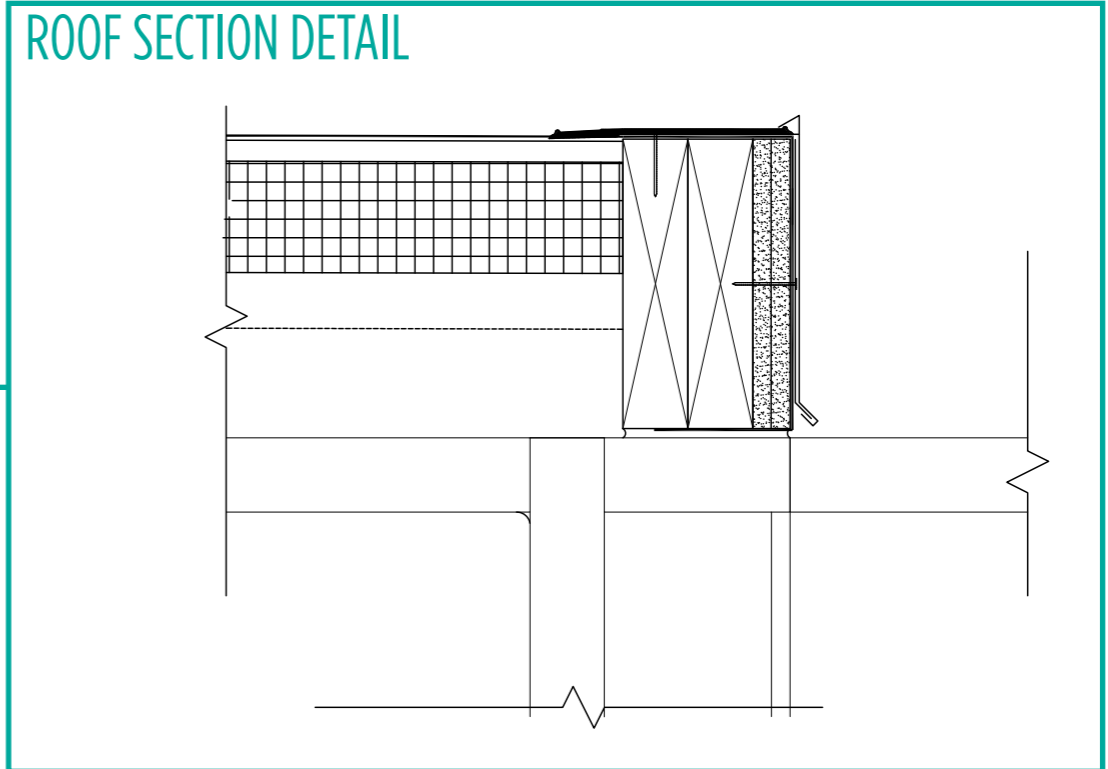


EASTERN FACADE

WALL SYSTEM SECTION



- Curtain Wall (fritted glass)
- Solar Screen (corten steel)
- Floor Slab (concrete)
- Existing Building Columns (concrete)



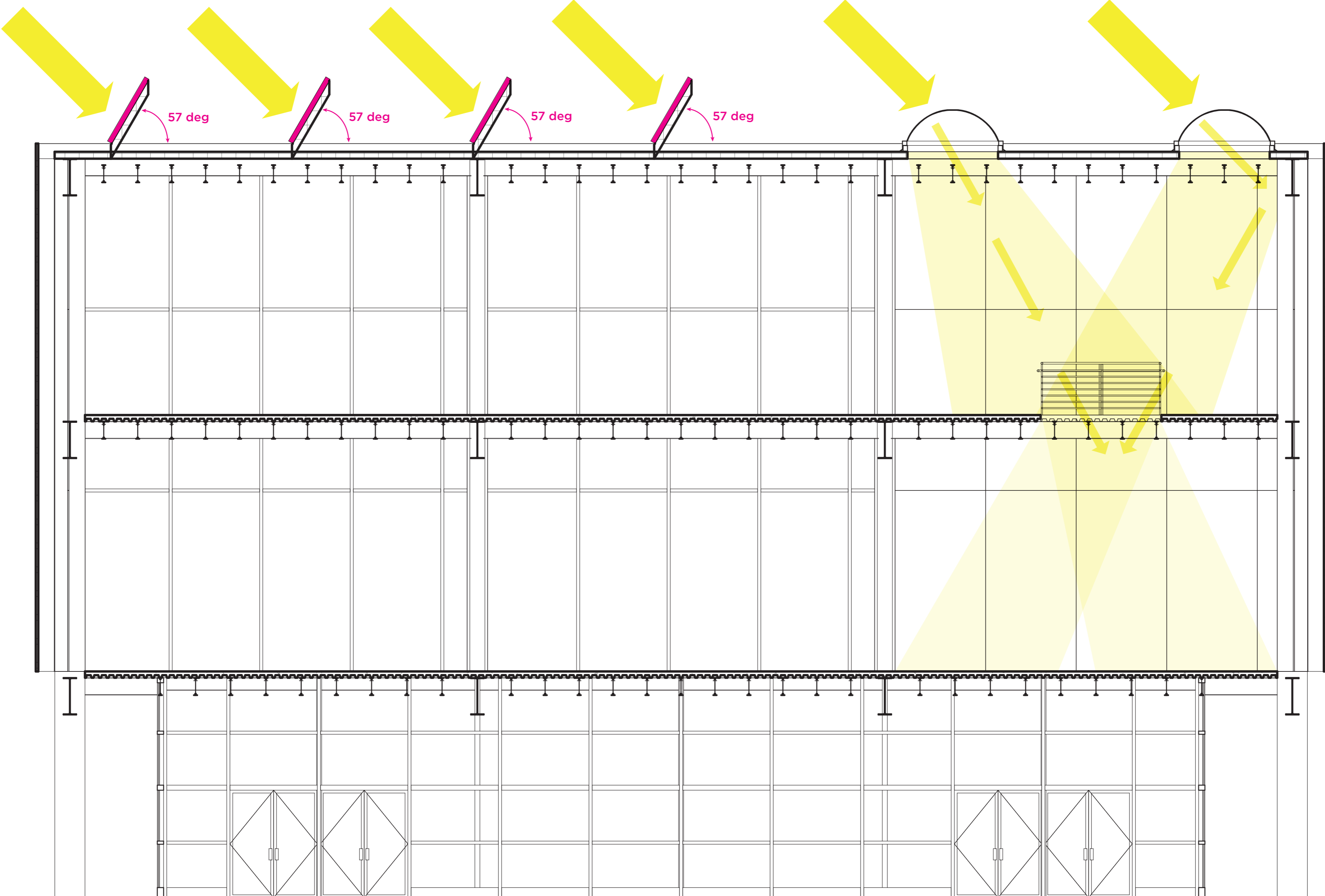
DAYLIGHTING AND SOLAR SYSTEMS

The second and thirds floors of the vertical farm have very little solar exposure. A majority of the growing systems require LED or flourescent lights but daylighting is still desirable for the people who inhabit the building. Photovoltaic panels will help generate electricity needed to power the grow lights. Domed light scoops will bring daylight into the third floor and light wells will continue the light into the floor below.

SUNLIGHT

PHOTOVOLTAIC PANELS

LIGHT SCOOPS





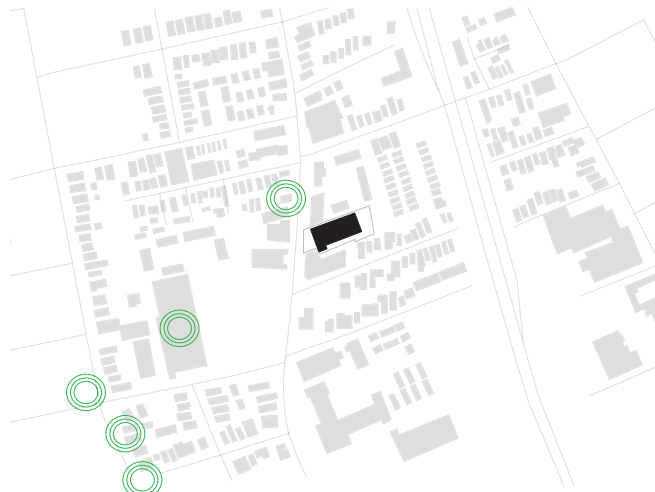


existing Port City Paper building



50'
maximum
building
height



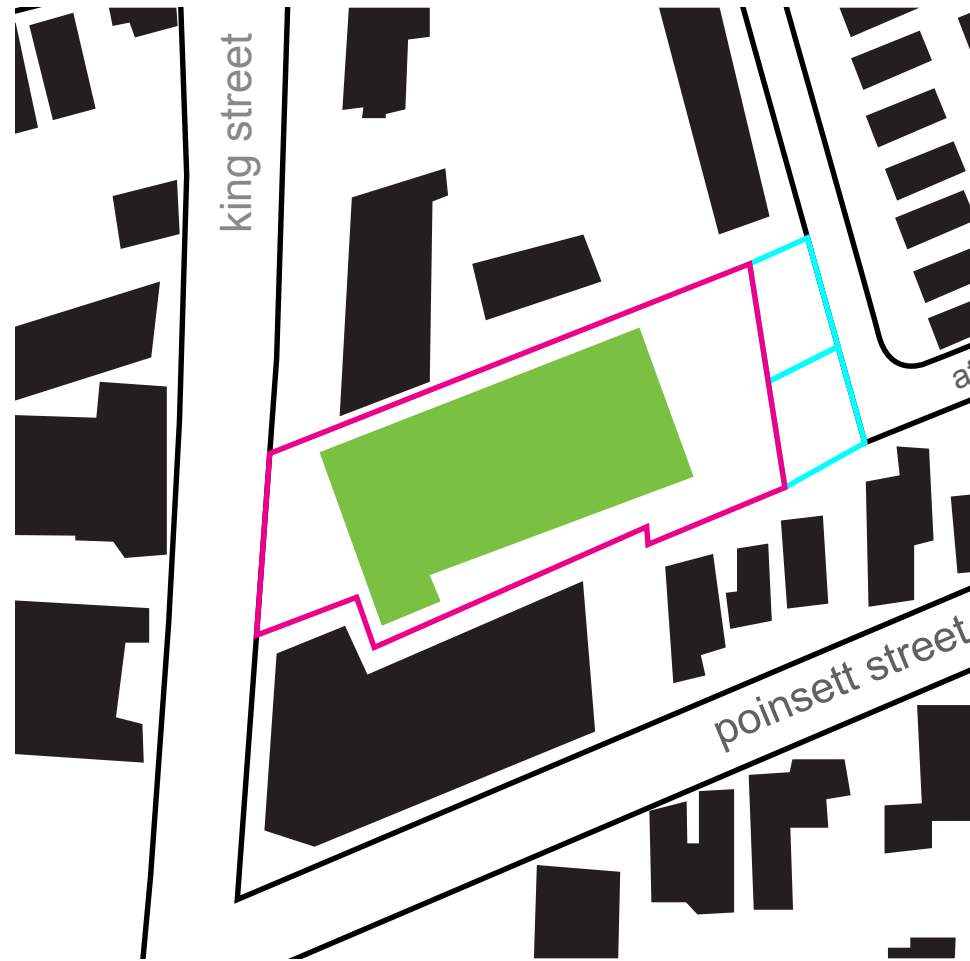


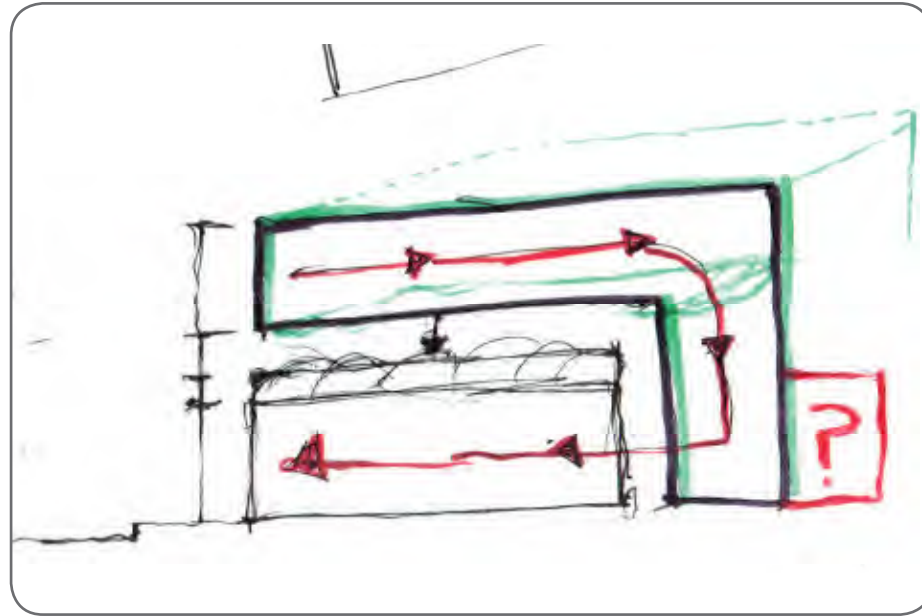
nearby food establishments



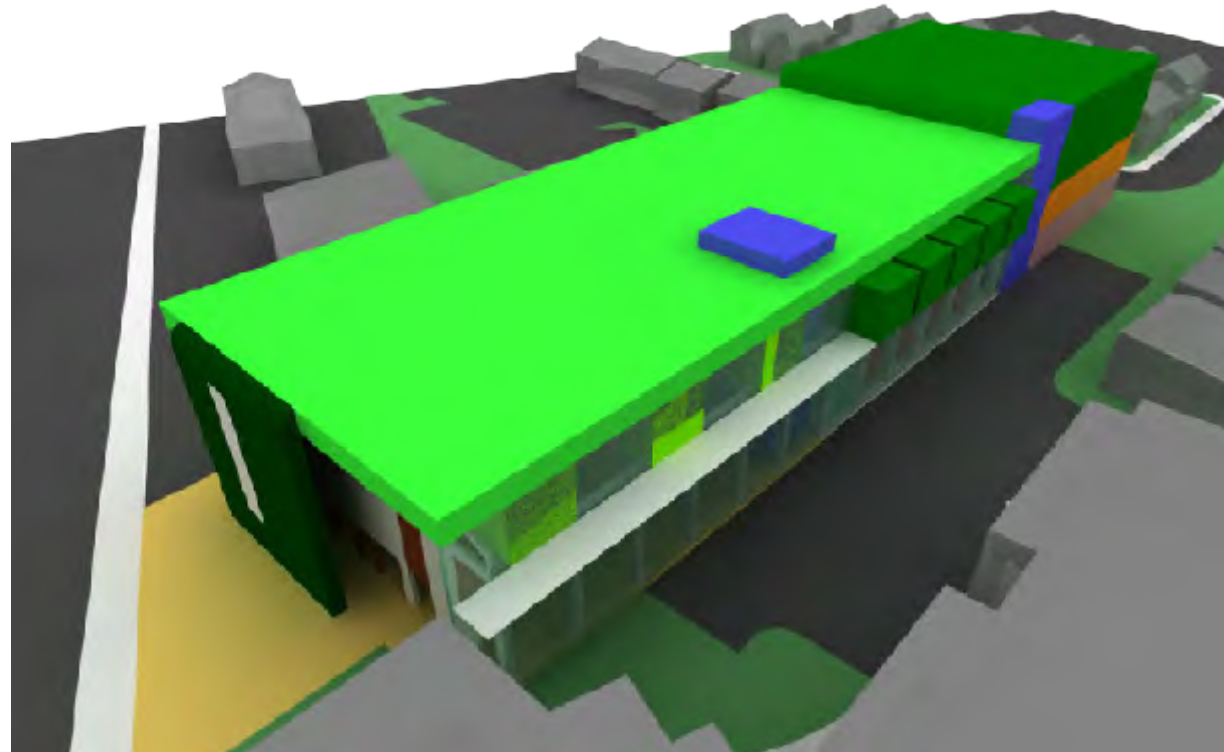
major arteries





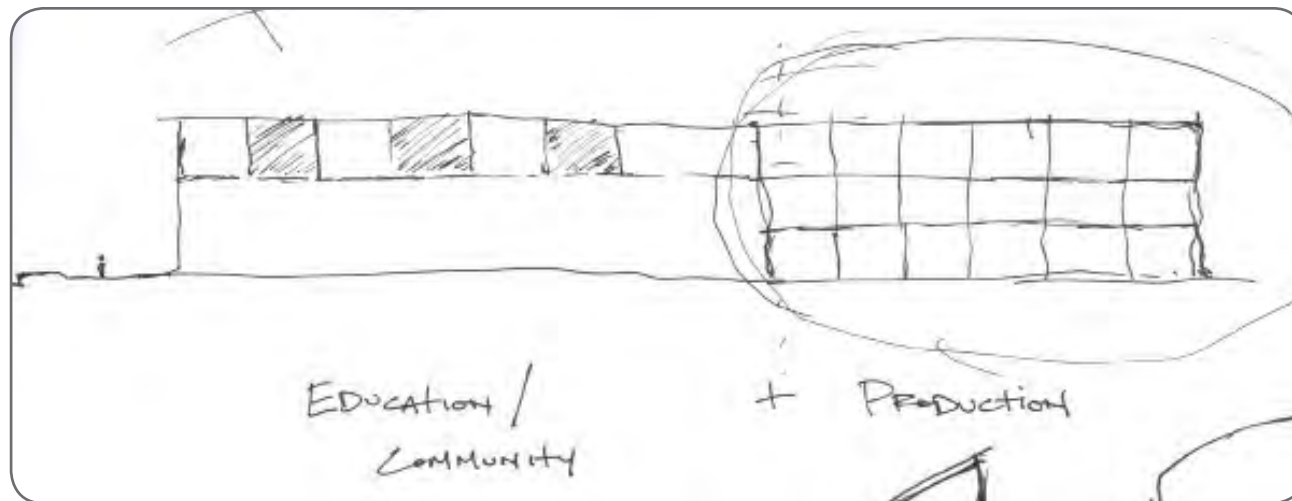


adapt.
reuse.
construct.
merge.
integrate.
enjoy.





- parking
- office/research
- production growpods
- circulation
- education growpods
- green roof
- green wall
- building skin / open air market



how do we strike a balance?

3 shades of green

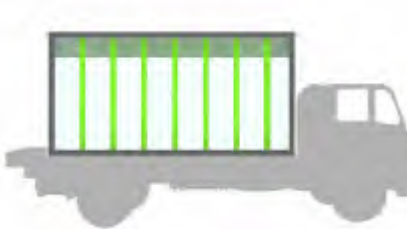
farming



sustainability



cost

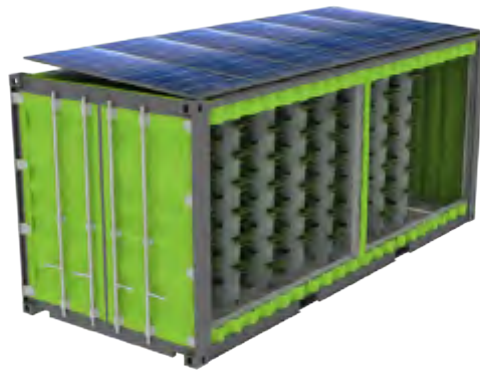




=



a custom growpod



=



a retrofitted shipping container.....



recalling the local history of Charleston as one of the largest port cities in America....

The Port of Charleston is the **sixth largest U.S. port** in terms of cargo value.

5 marine terminals in the area [**2 downtown**]

It is a **heavily-invested resource** - enacted a recent 10 year, \$1.3 billion capital plan.

A new terminal has been planned that will boost **total container capacity in the port by 50%** is set to open in 2018.

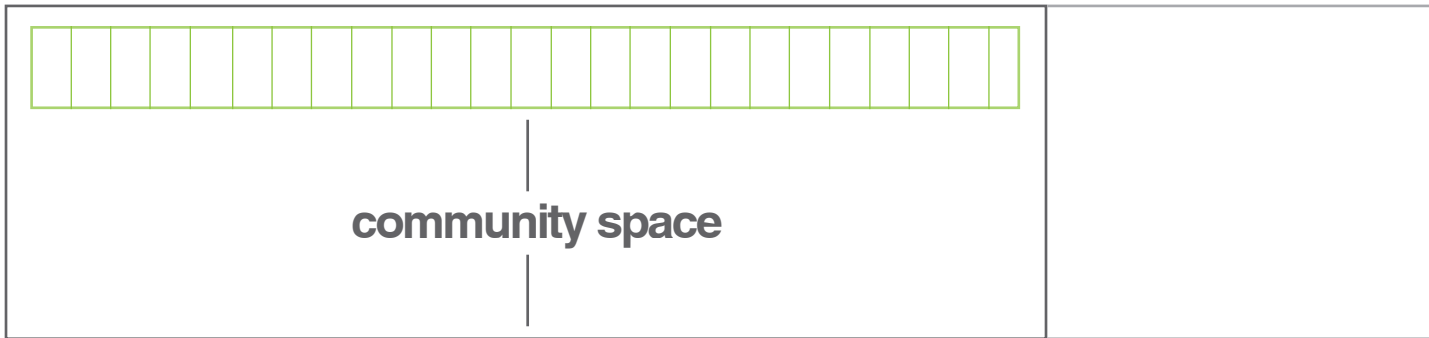


production is important, but serving the local community is **KEY.**





grid stacked



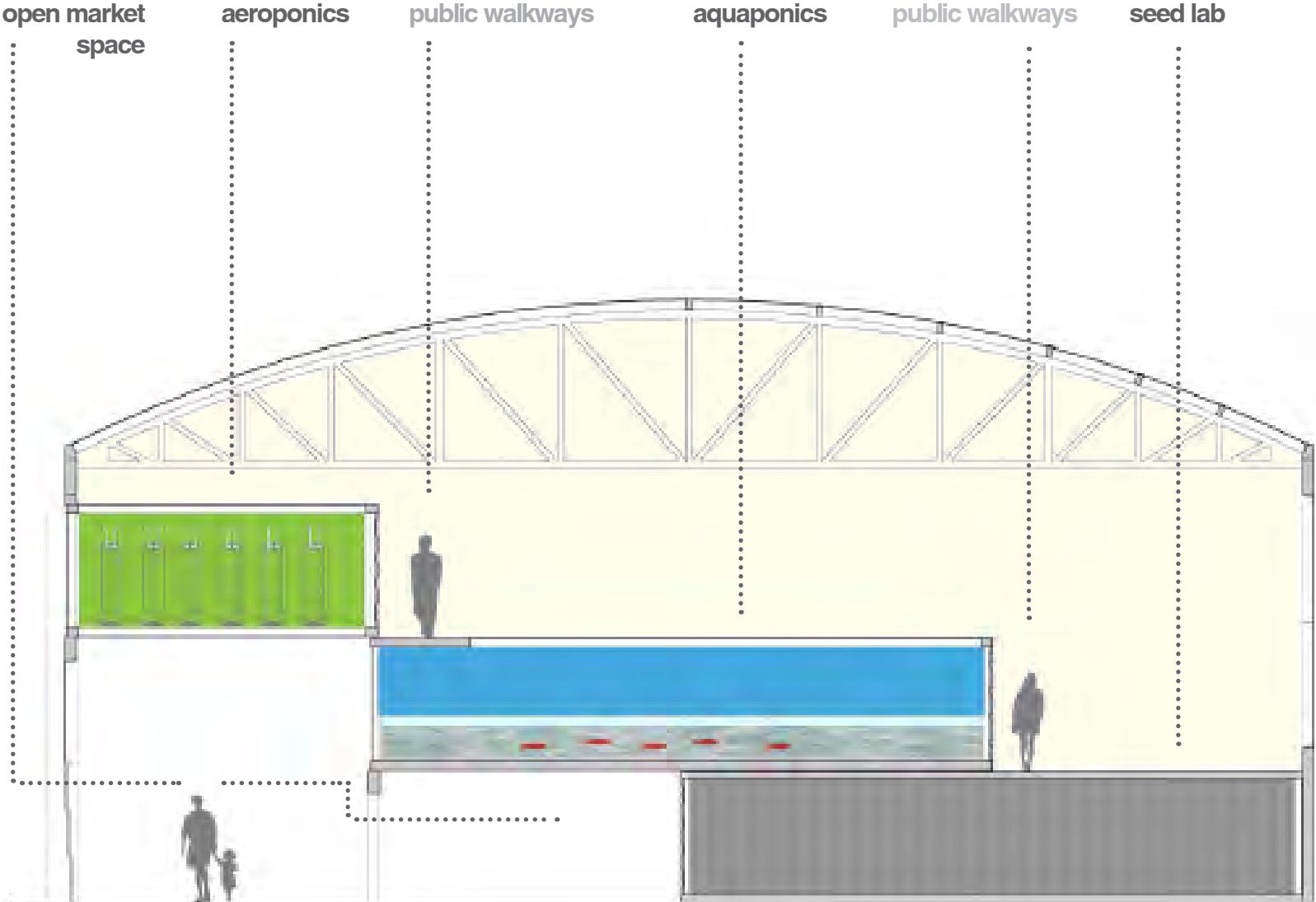
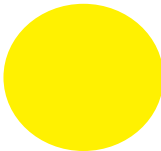
single row, stacked

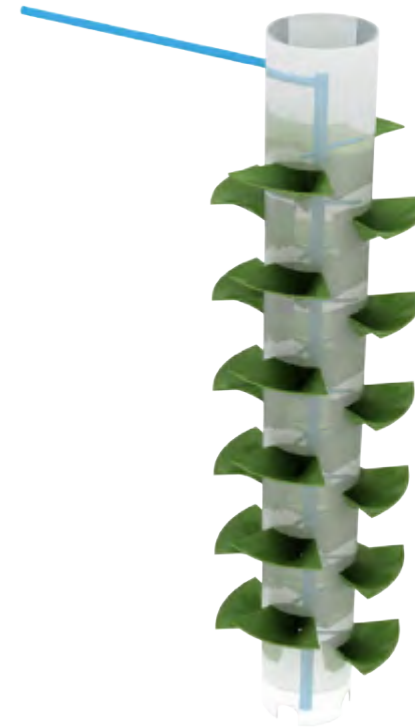


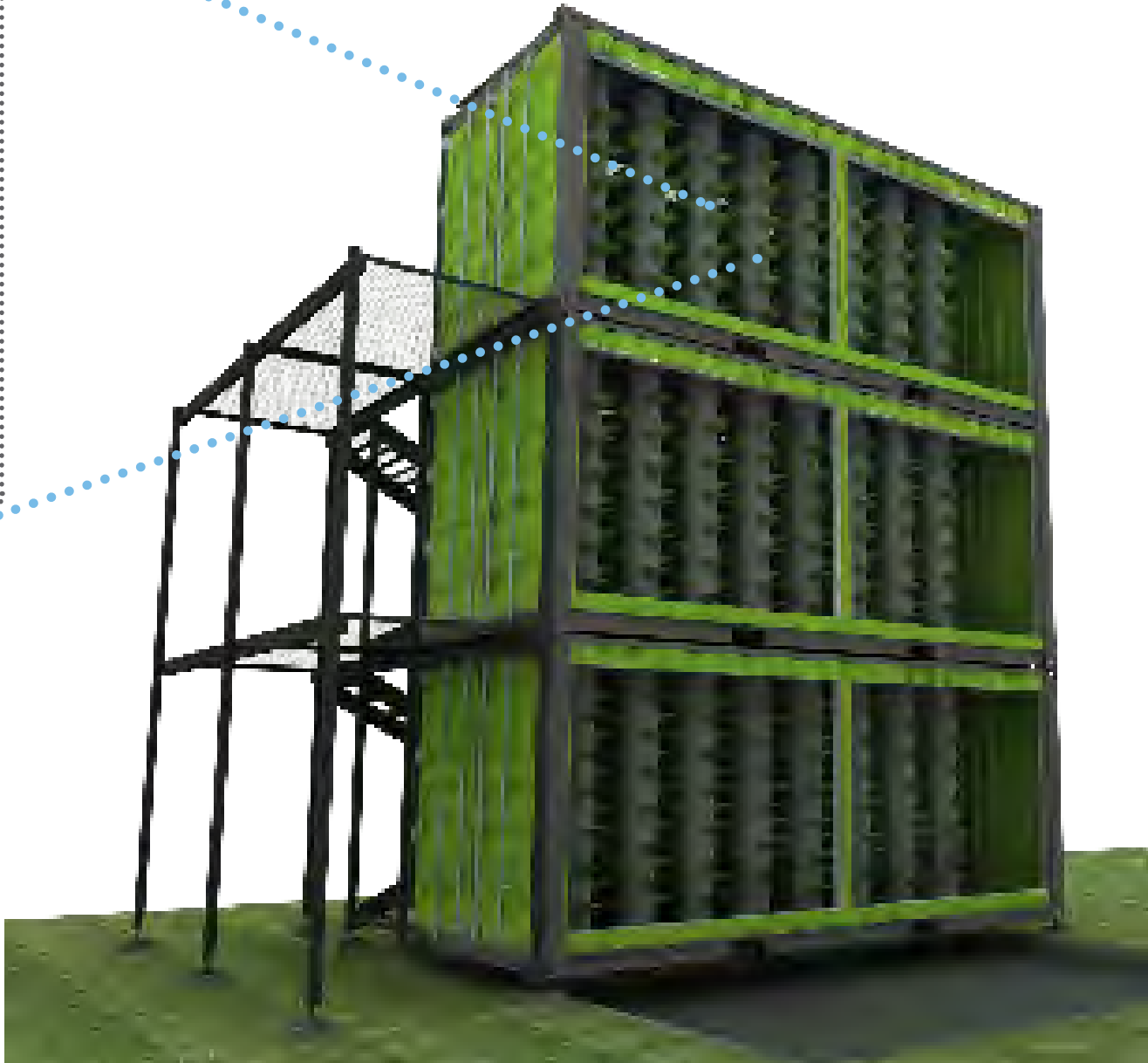
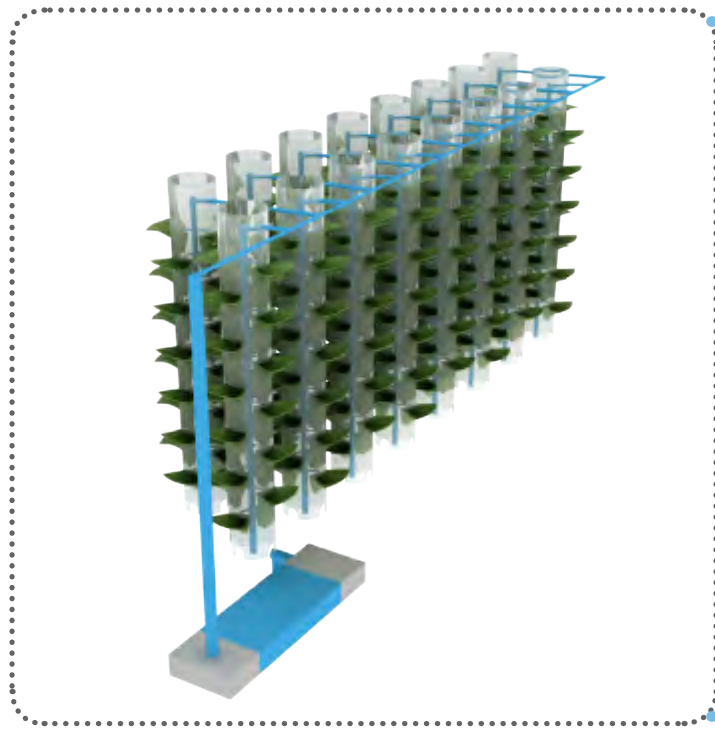
stepped *

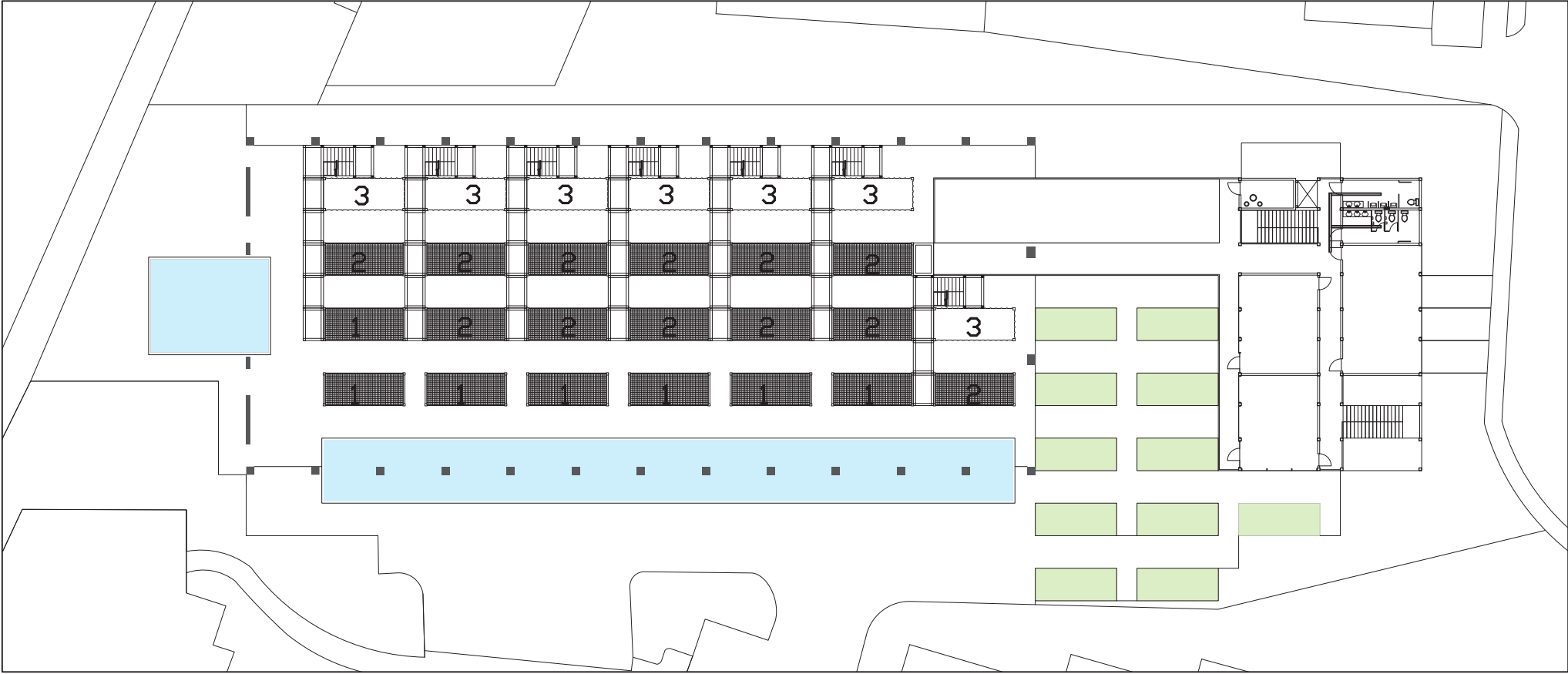


20 and 40 foot shipping containers





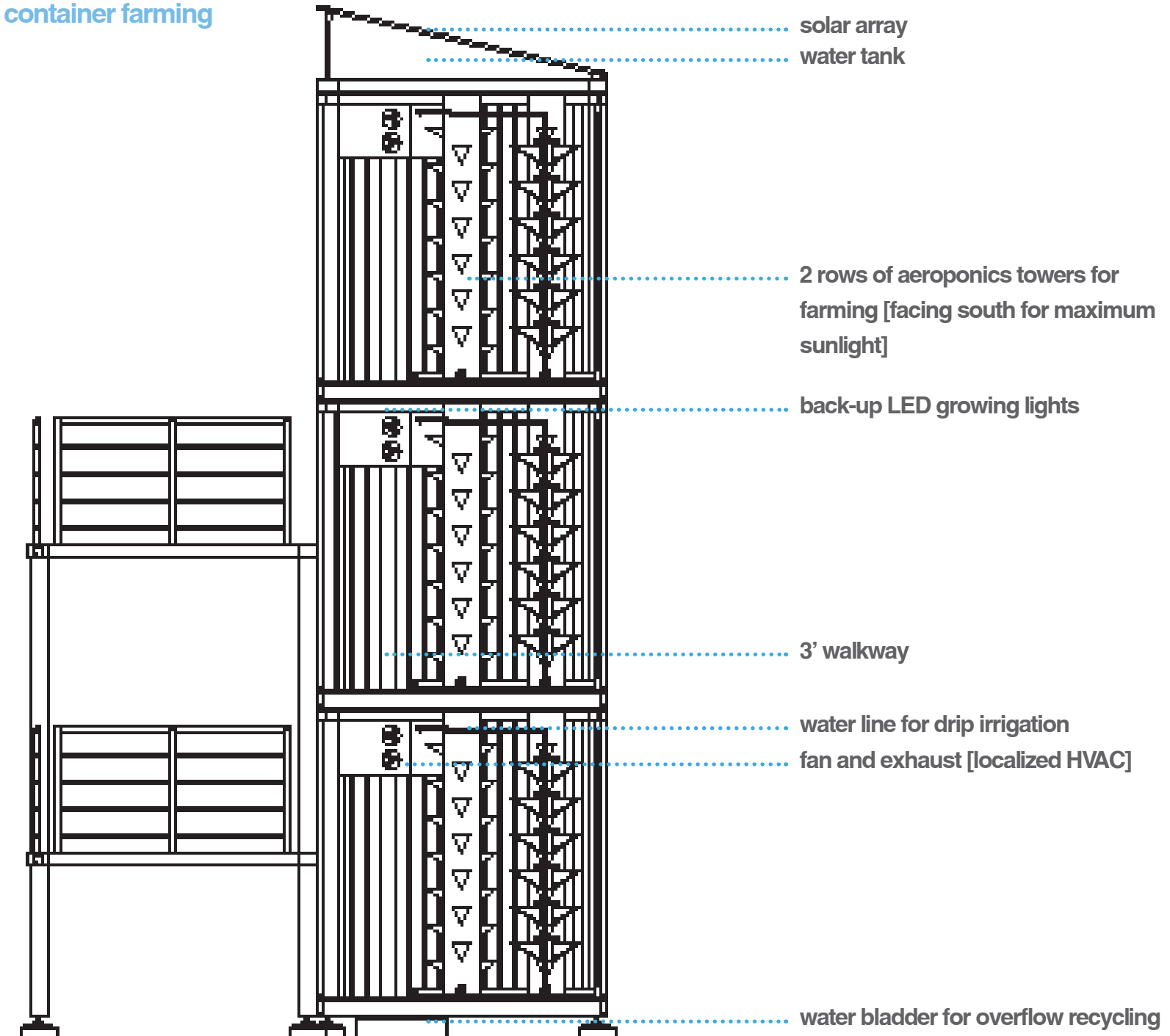




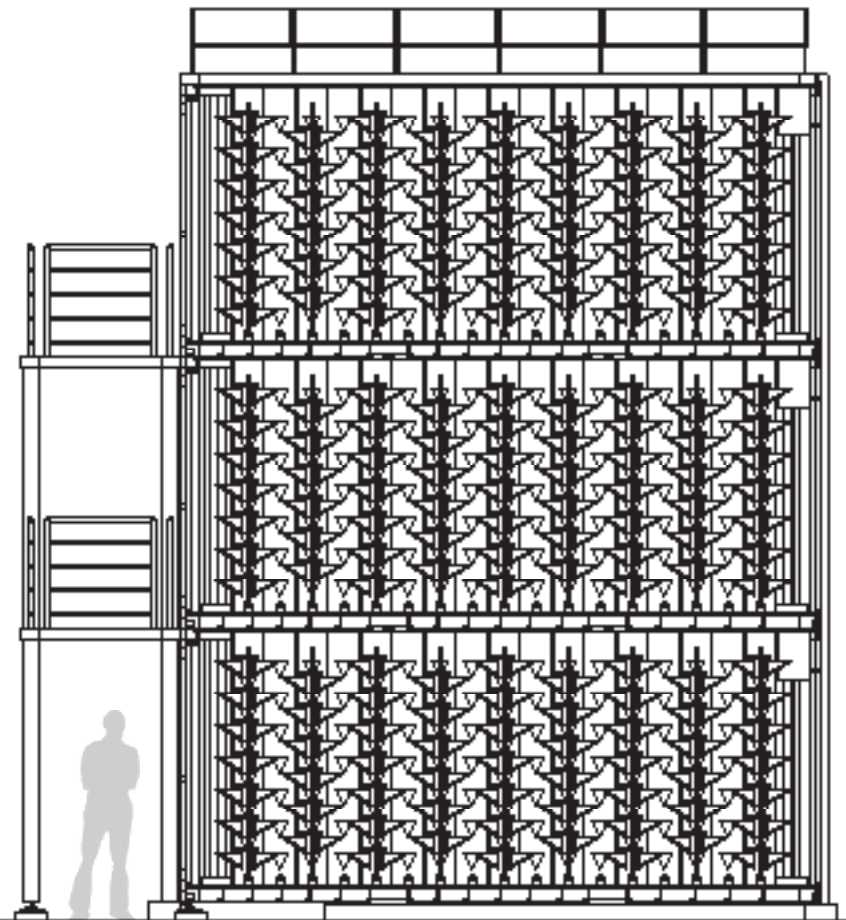
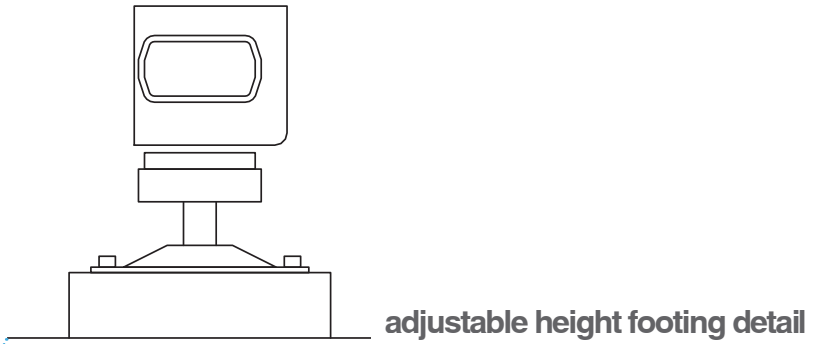
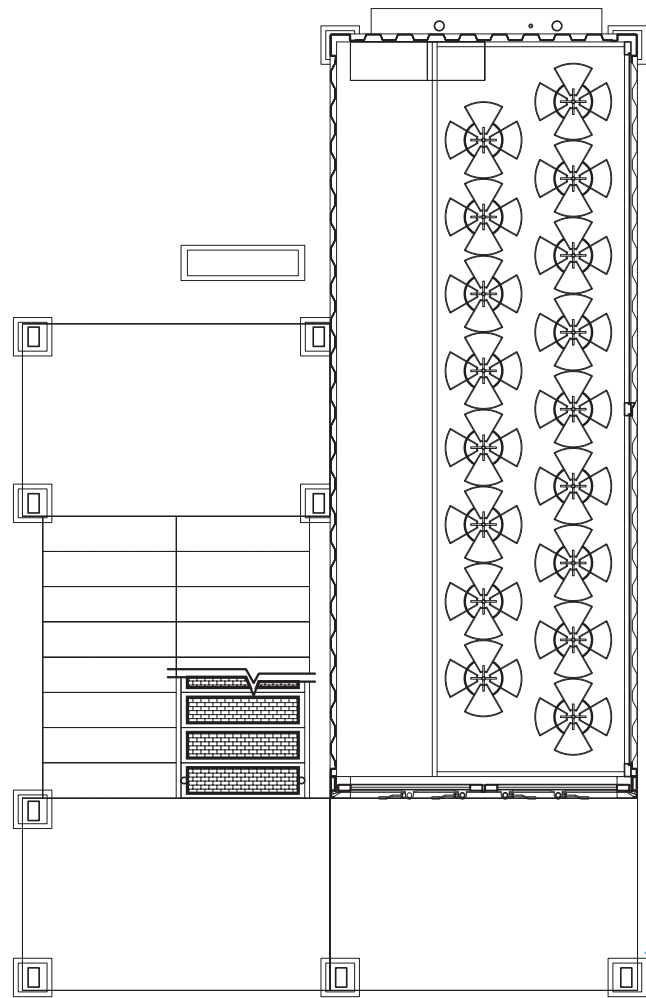
third floor plan



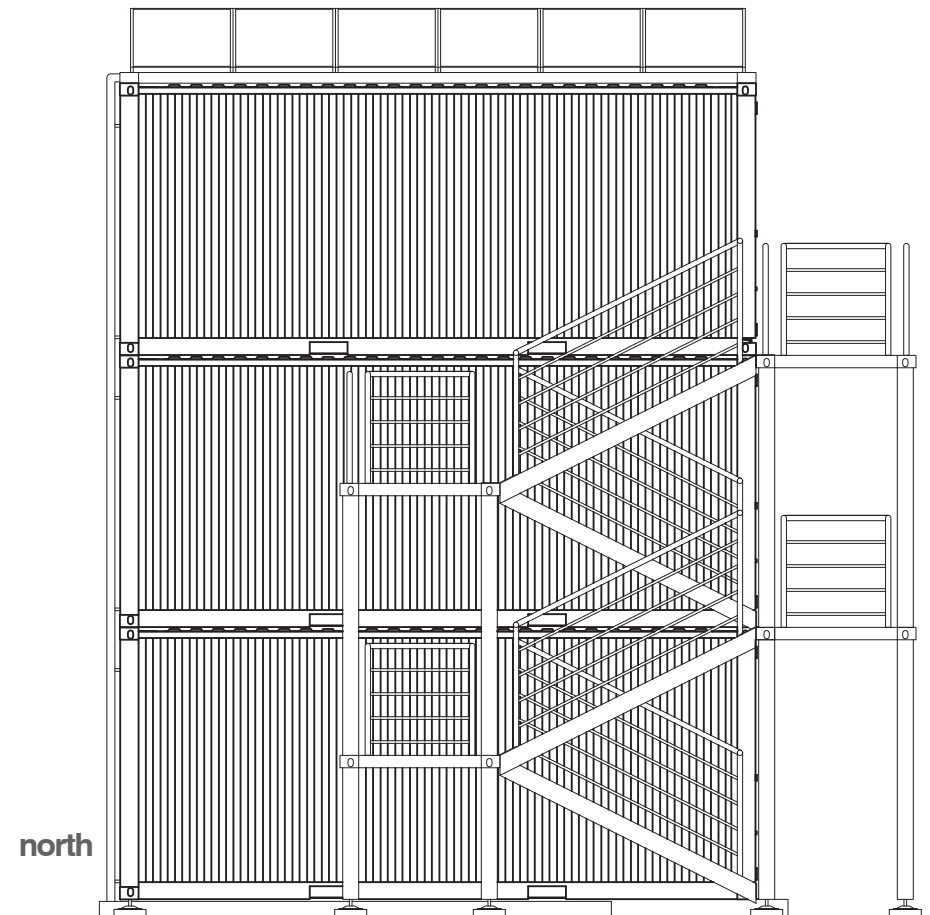
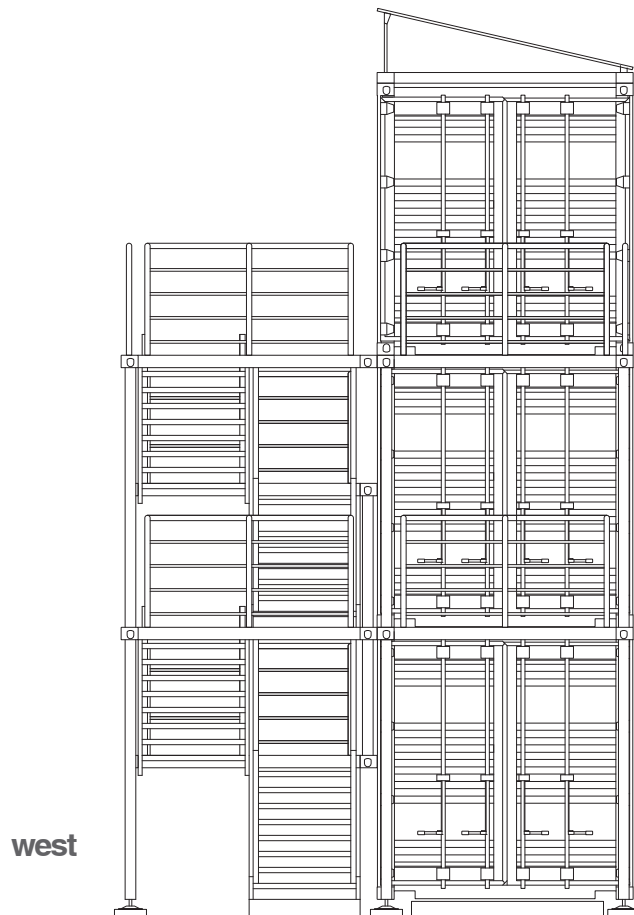
triple-stacked container farming



plan + south elevation



stacked container tower elevations



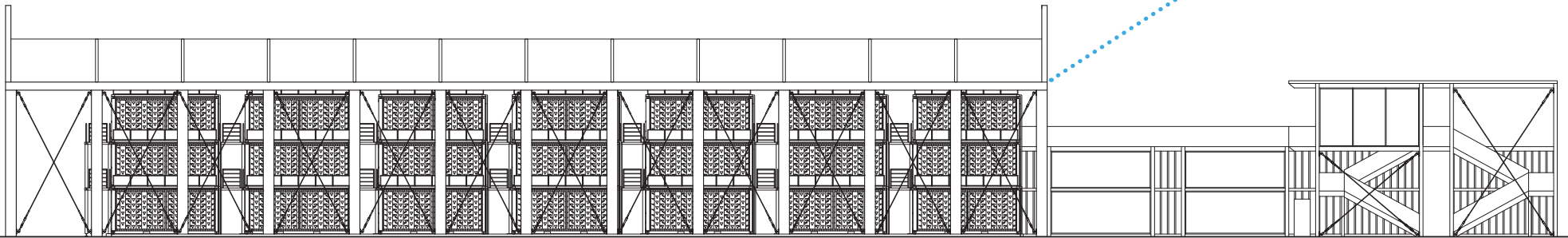
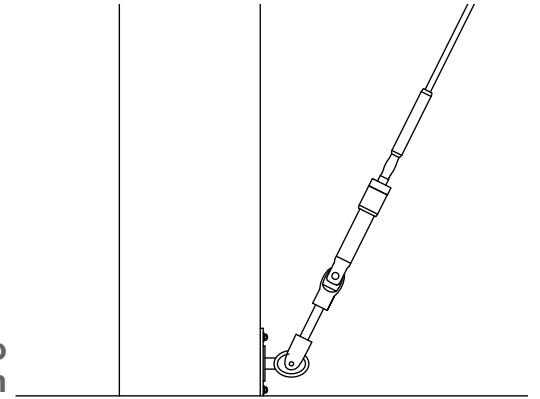
structural concepts

open-air concept

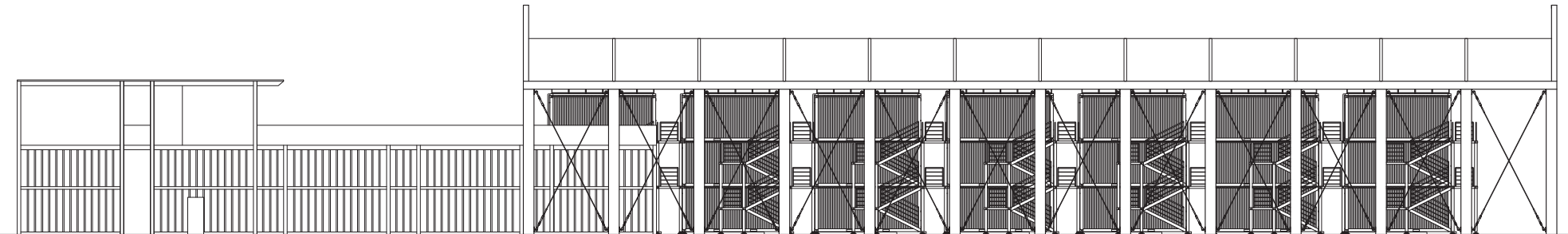
preserve existing building character

complementary new construction + community space on rear parcel

steel cable connection detail to existing concrete column



south elevation



north elevation





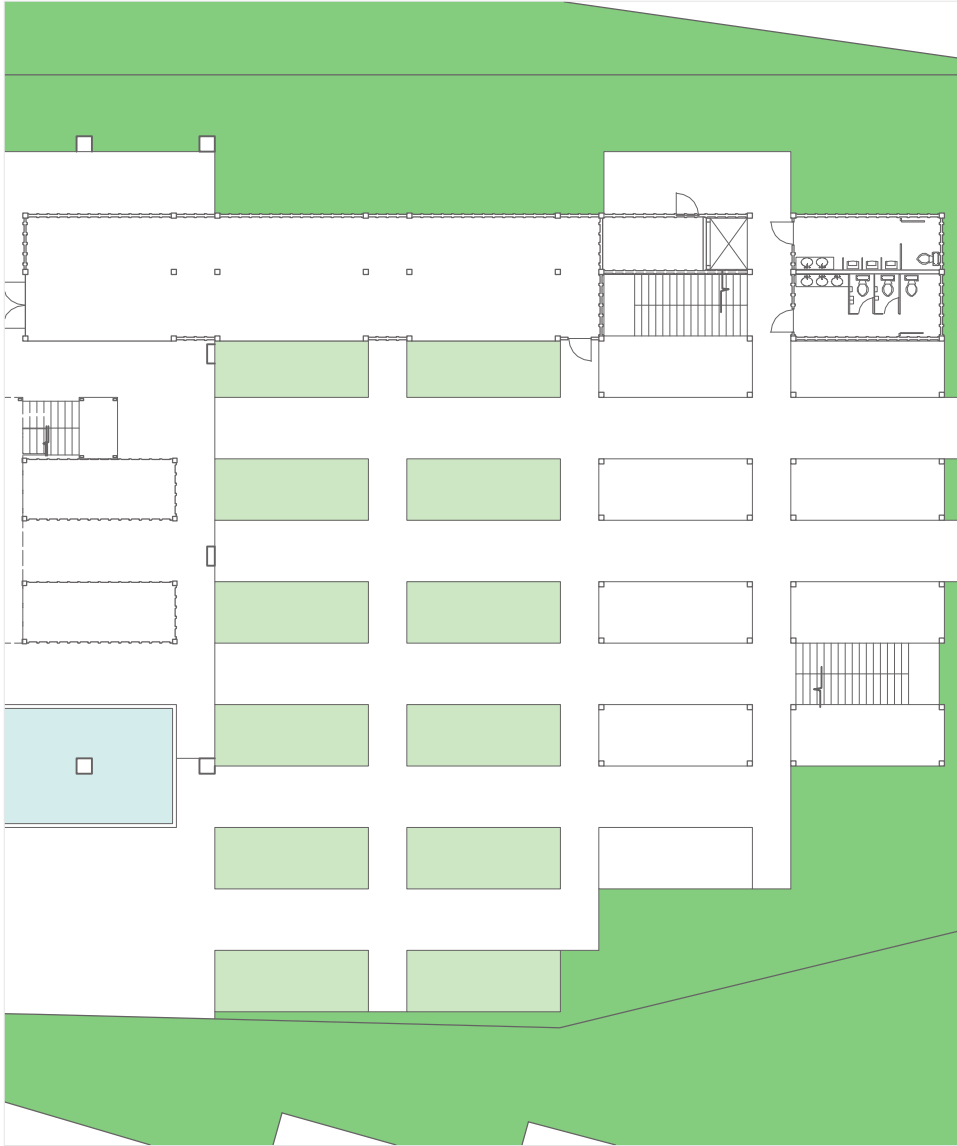
schematic design.

chrisfelegie | joemcneill

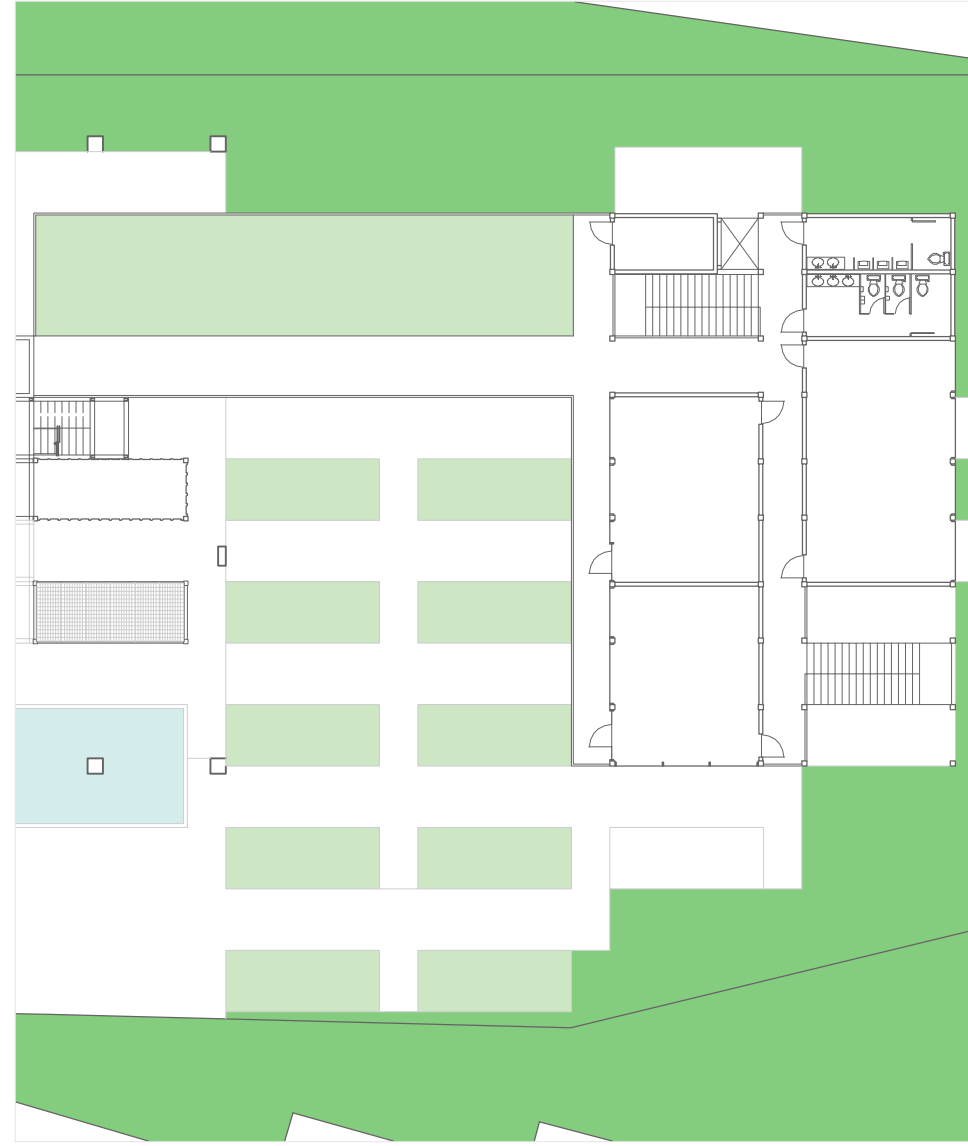




new construction



ground floor plan



3rd floor plan



-  extensive **adaptive reuse** strategies
-  **evaporative cooling** effects
-  south side **water collection pool**
-  **solar energy** collected through tower arrays
-  **green roof tray** technology
-  **repurposed materials**



happy farming. 

thanks.

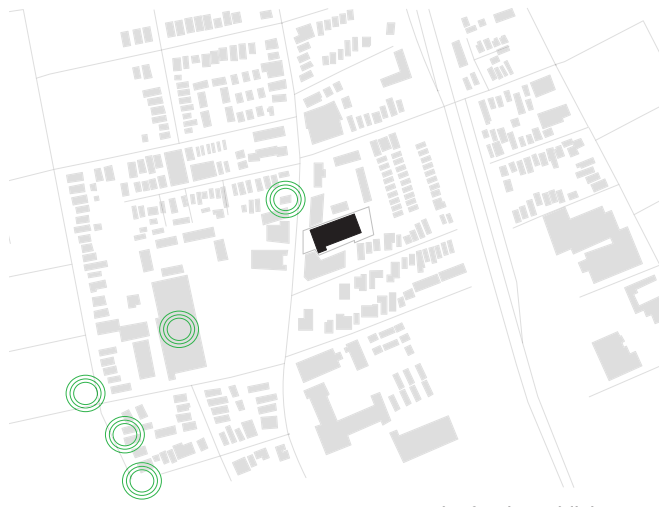


port
city
ponics





50'
maximum
building
height



nearby food establishments



major arteries



access to planned building

3 shades of green

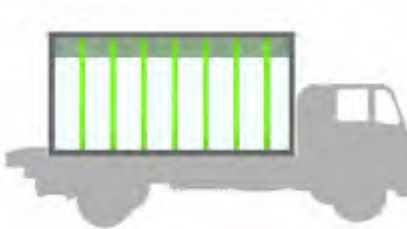
farming



sustainability



cost





how do we strike a balance?



=



a custom growpod







=



a recycled shipping container....

recalling the local history of Charleston as one of the largest port cities in America....

-  The Port of Charleston is the **sixth largest U.S. port** in terms of cargo value.
-  5 marine terminals in the area [**2 downtown**]
-  It is a **heavily-invested resource** - enacted a recent 10 year, \$1.3 billion capital plan.
-  A new terminal has been planned that will boost **total container capacity in the port by 50%** is set to open in 2018.

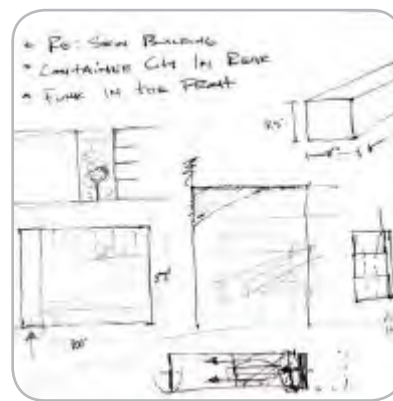
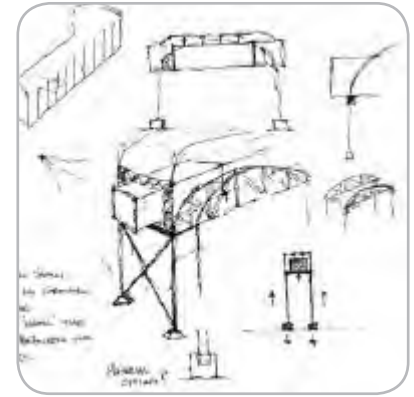
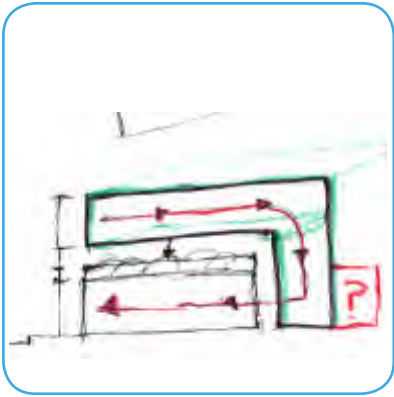


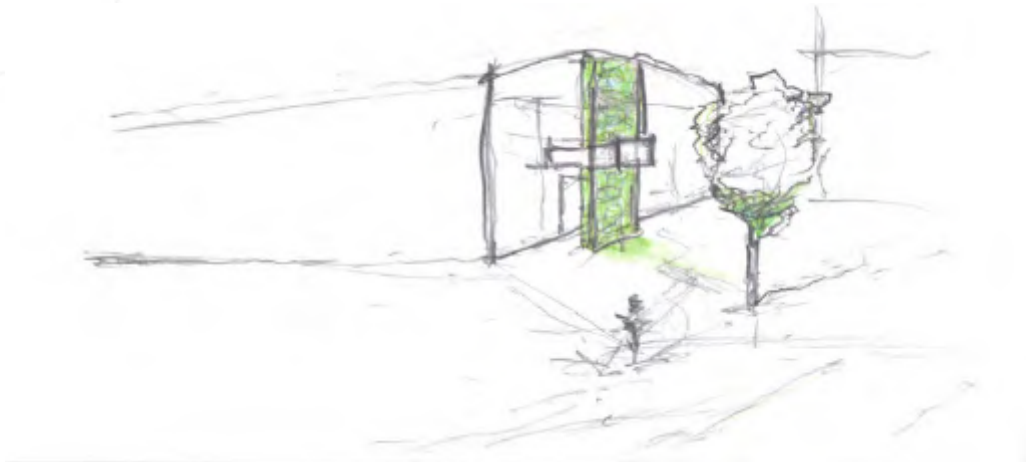
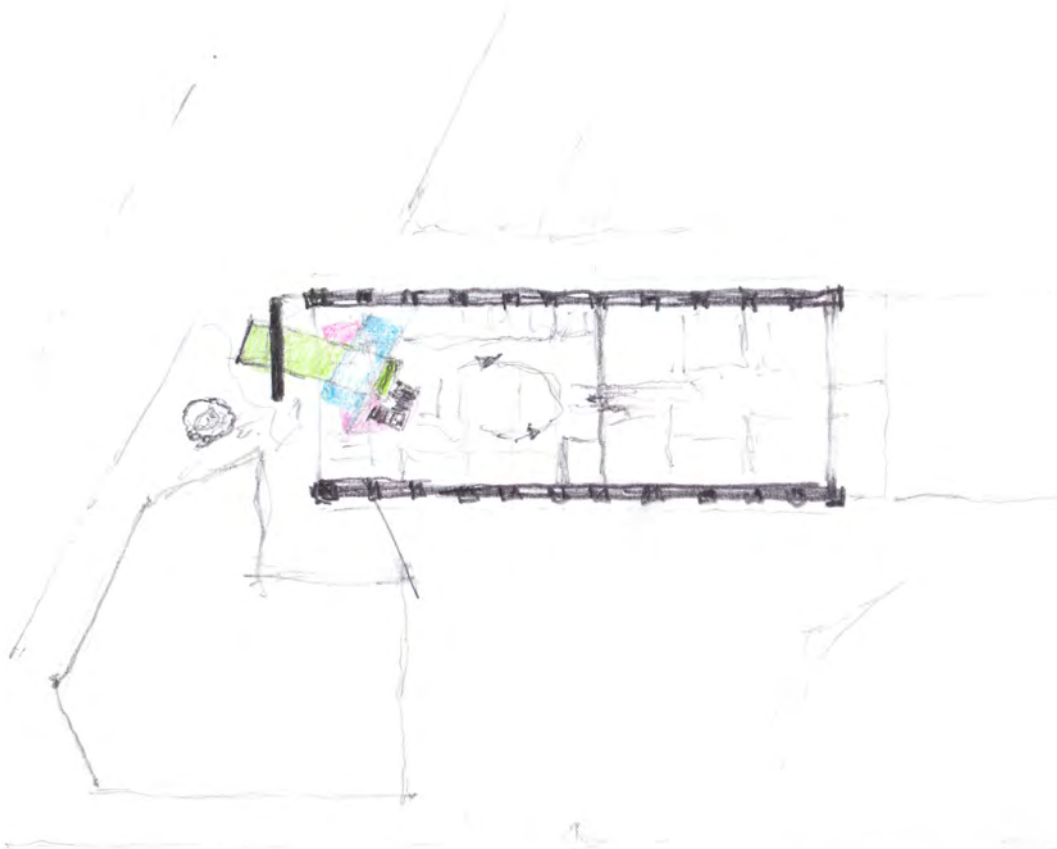


site plan [with major arteries]

production is important, but serving the local community is **KEY**.





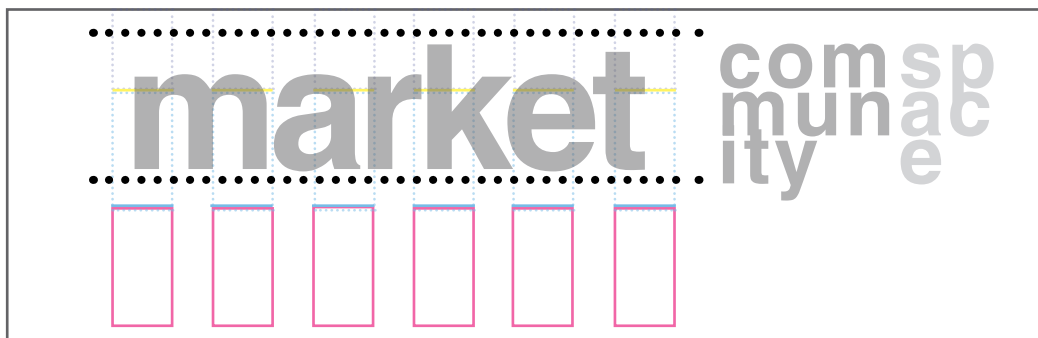




grid stacked

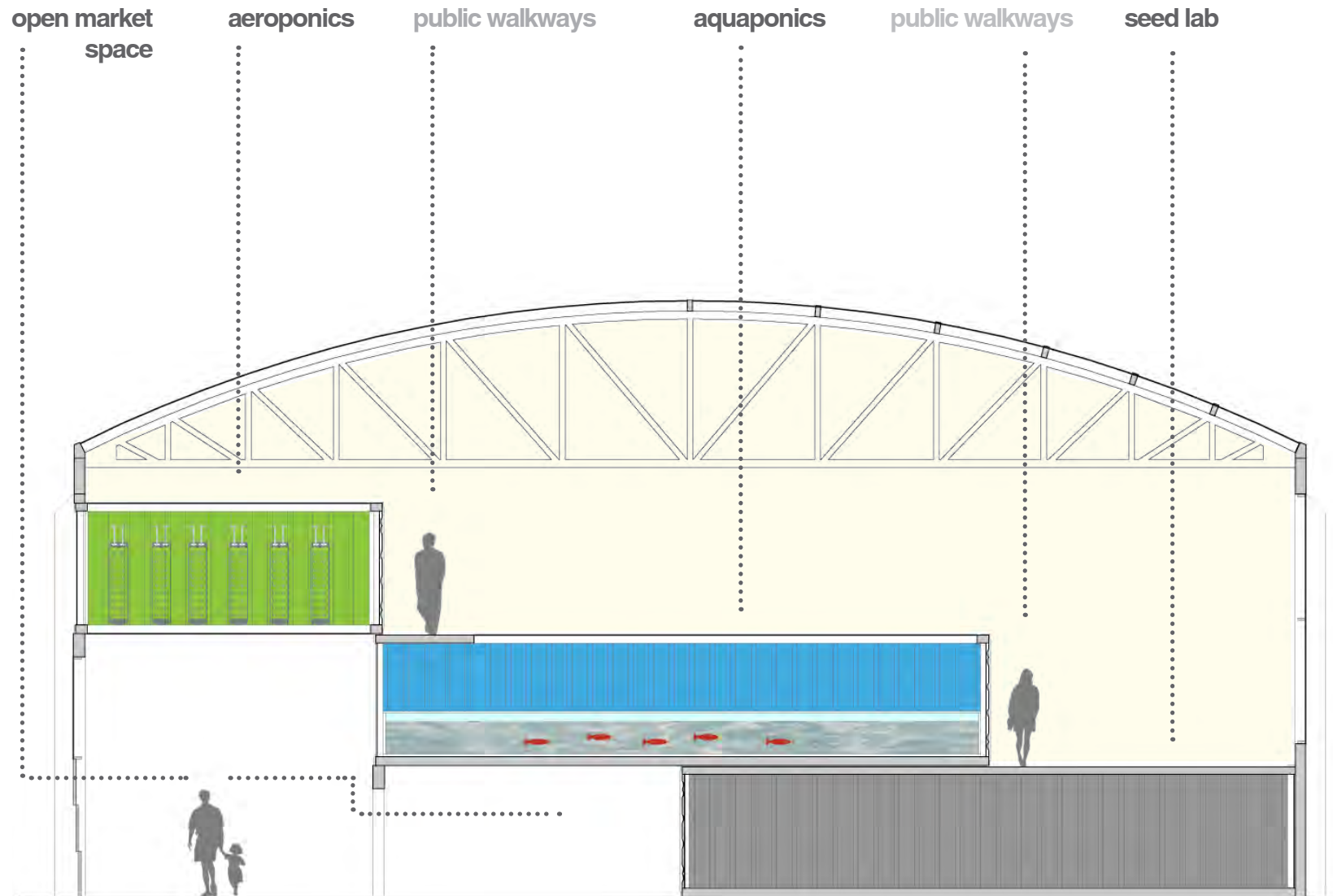
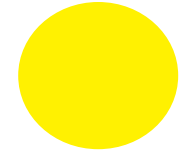


single row, stacked



stepped



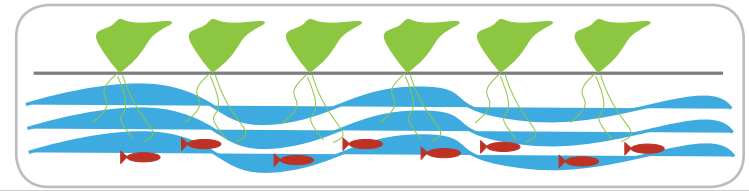
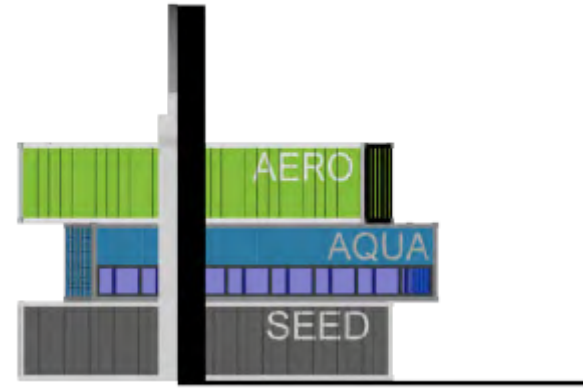




aeroponics



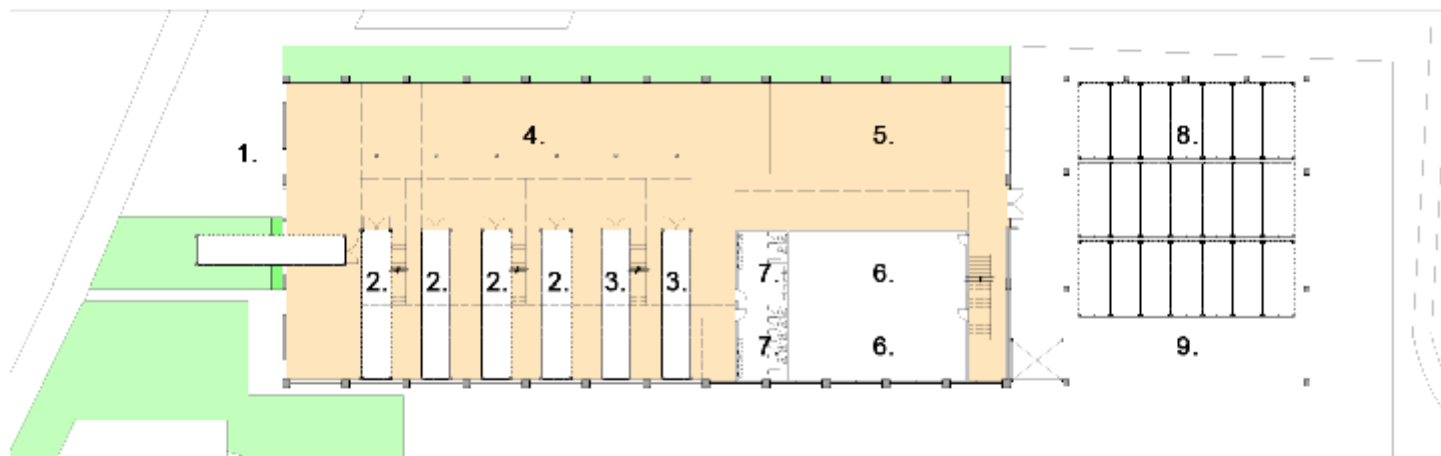
hydroponics



aquaponics

[combination of aquaculture + hydroponics]





1st floor plan

Legend

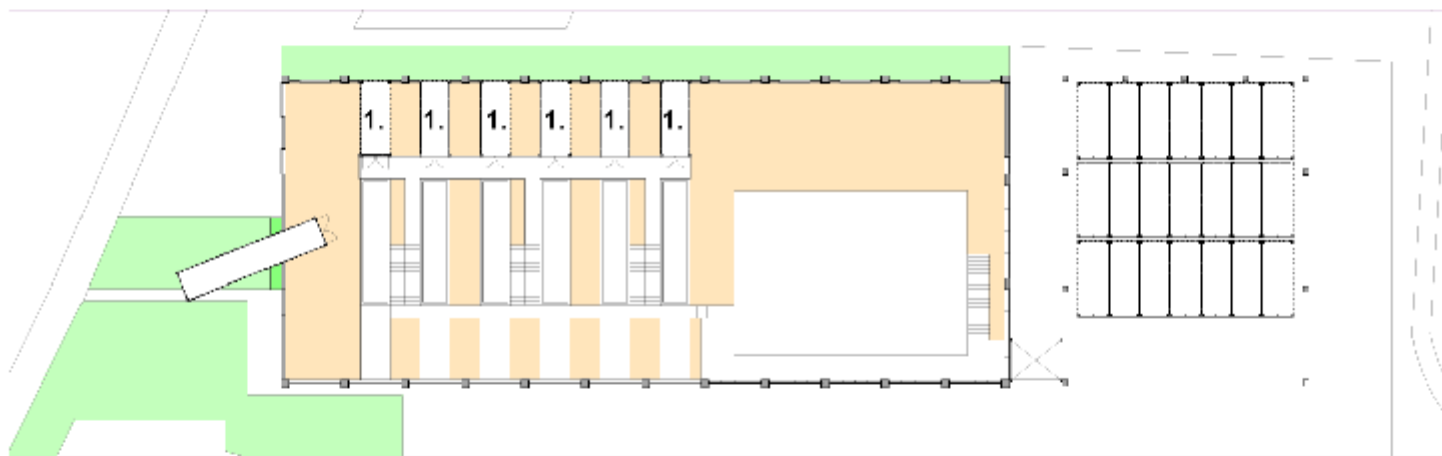
- 01 entrance
- 02 seed containers
- 03 storage
- 04 market
- 05 cafe
- 06 offices
- 07 bathroom
- 08 20' container storage area
- 09 work area



2nd floor plan

Legend

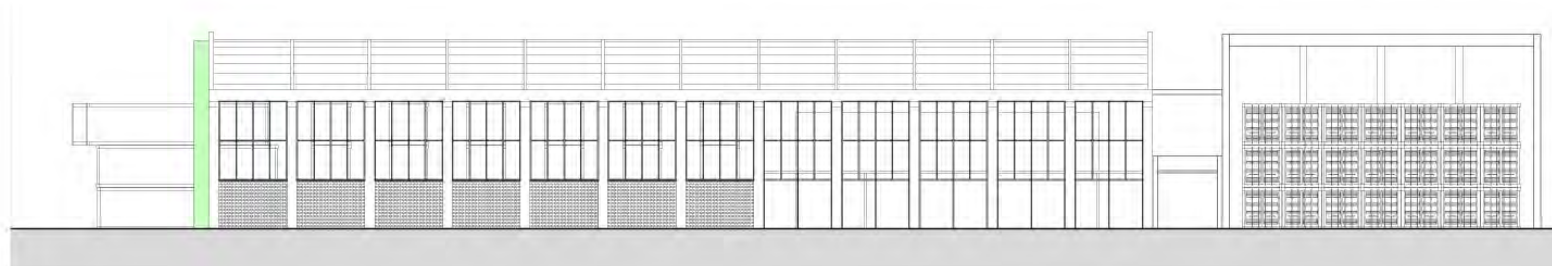
- 01 aquaponic containers
- 02 classroom
- 03 kitchen classroom
- 04 bathroom



3rd floor plan

Legend

01 aeroponic containers



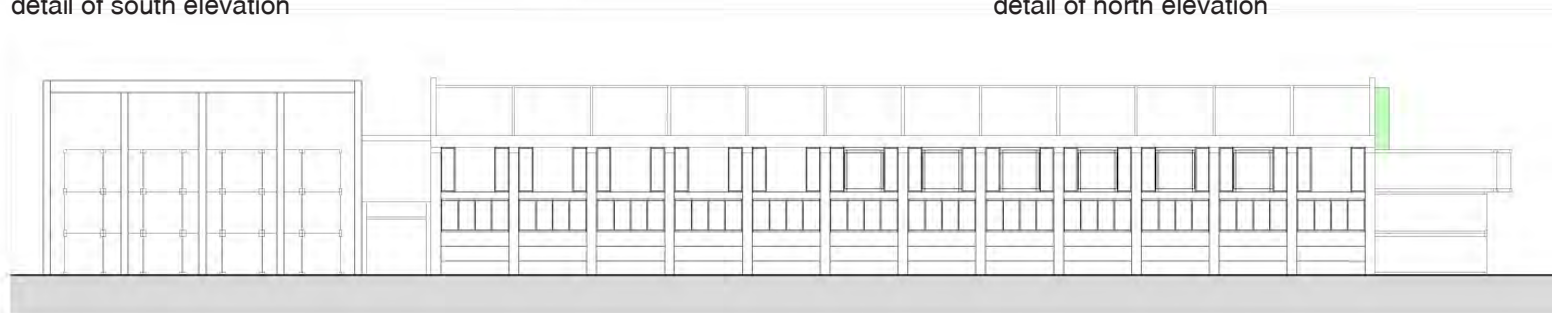
south elevation



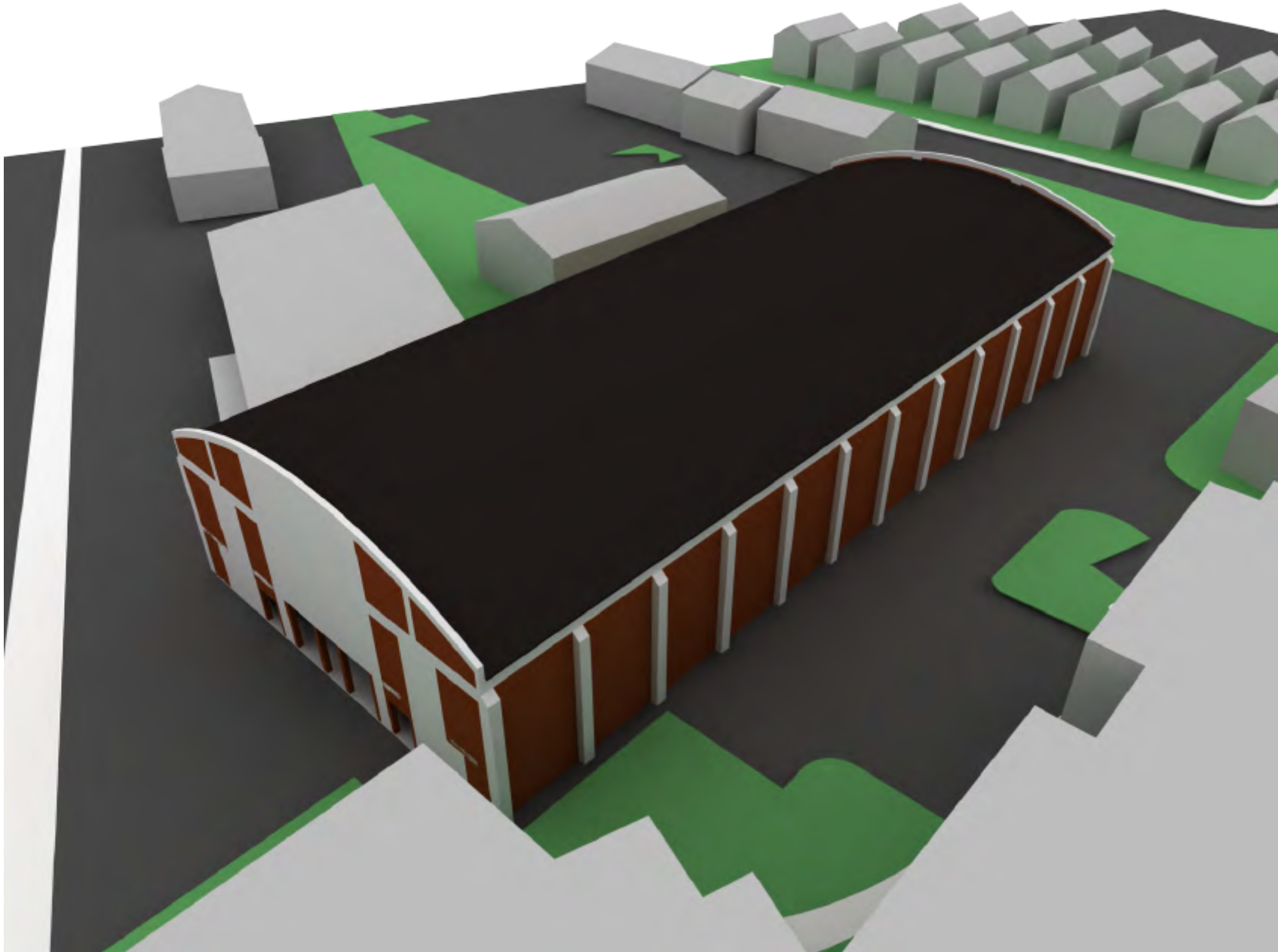
detail of south elevation



detail of north elevation



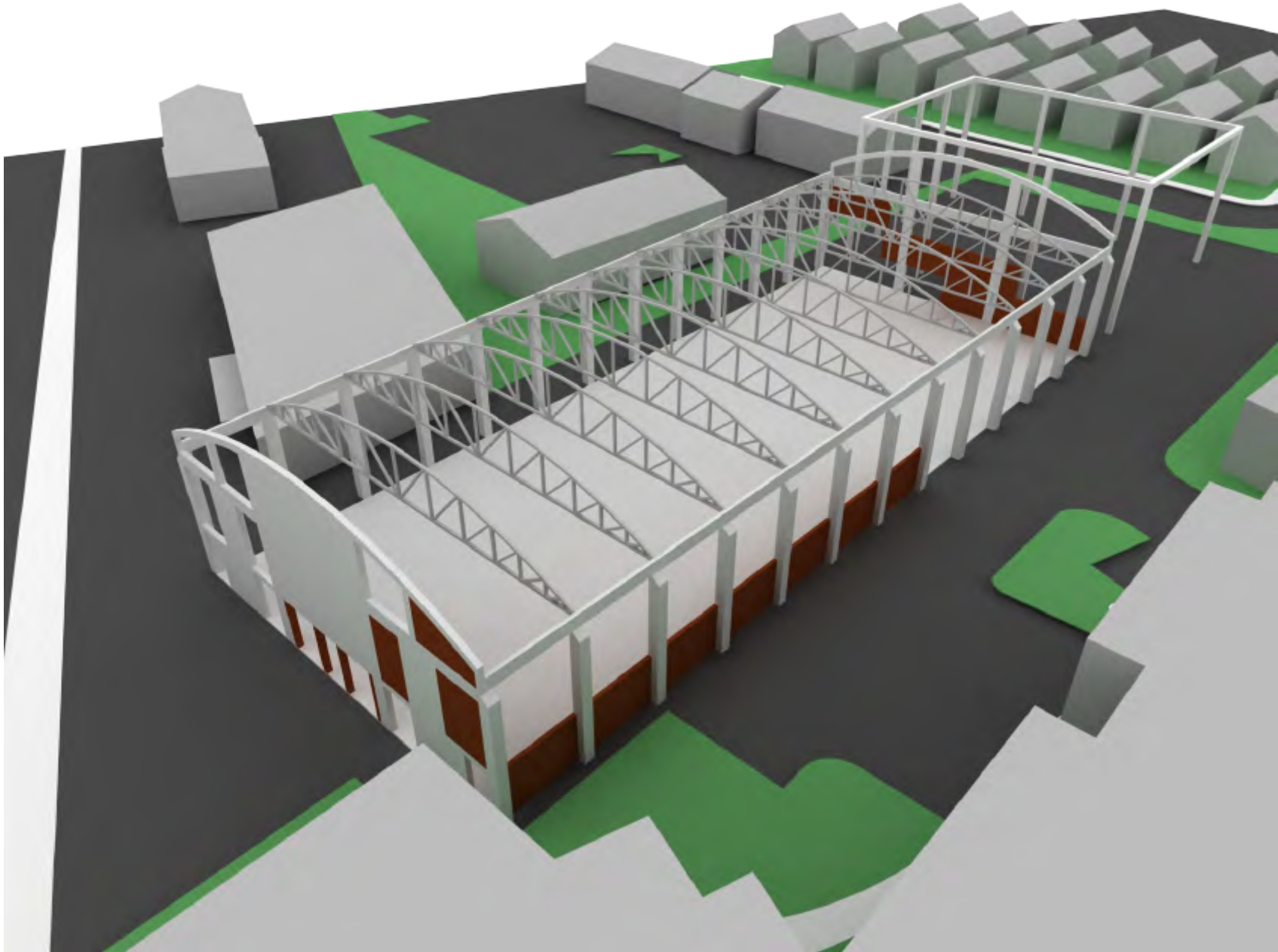
north elevation



existing



removed pieces



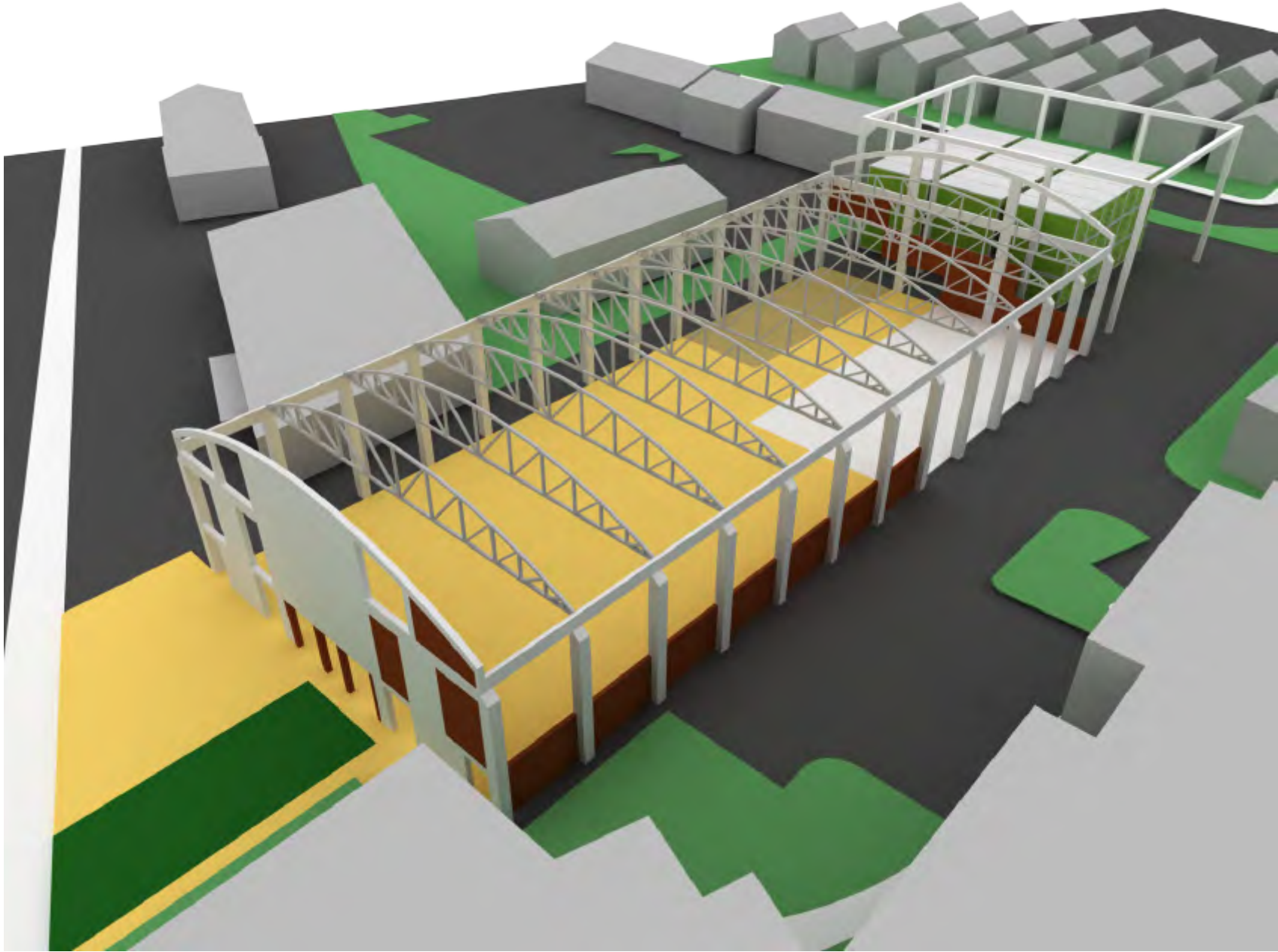
new structure in the rear



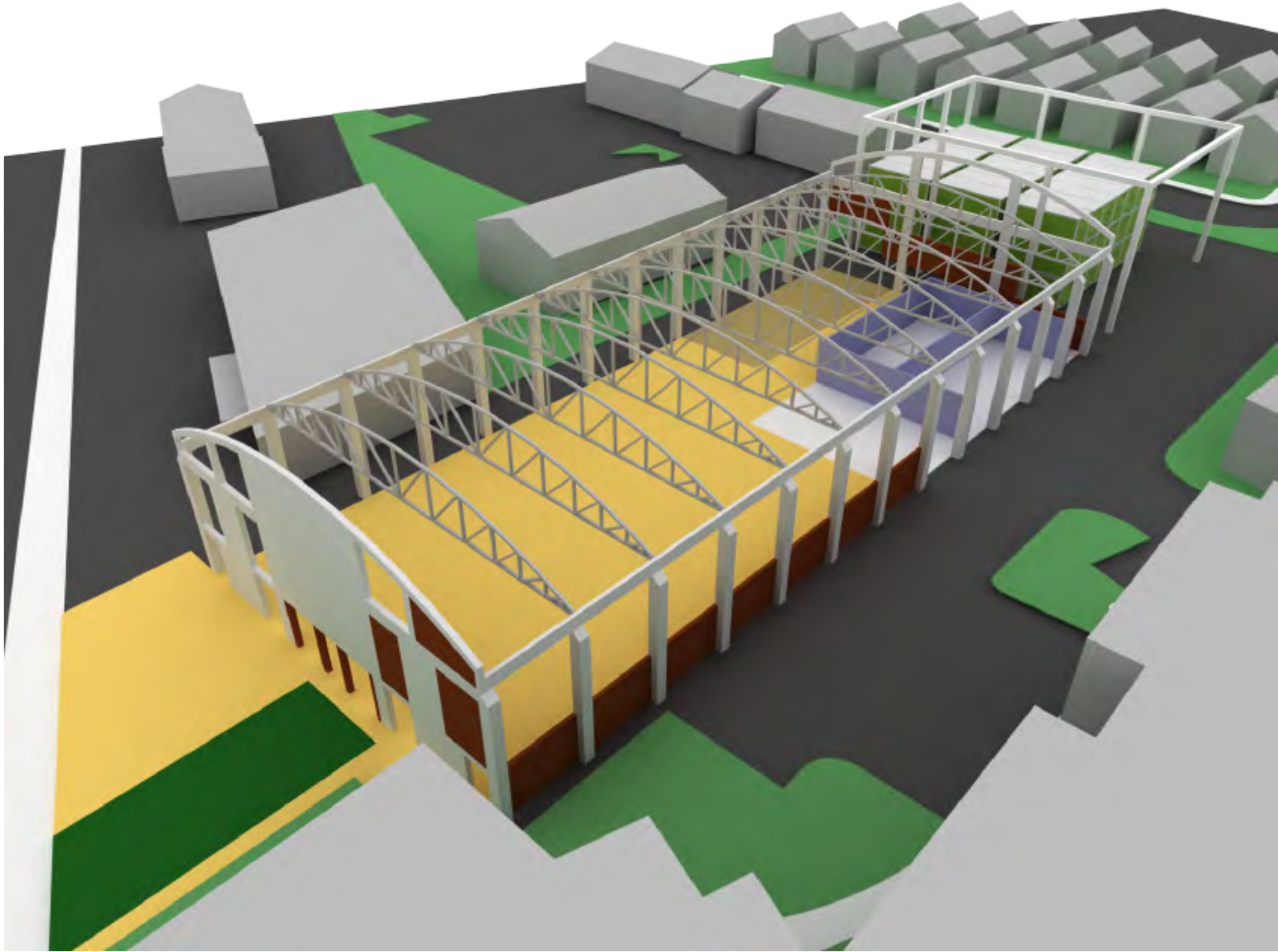
containers in the rear used for growing and shipping
63 [20' containers] x 800 cubic ft growing space = 50,400 cubic ft growing yield



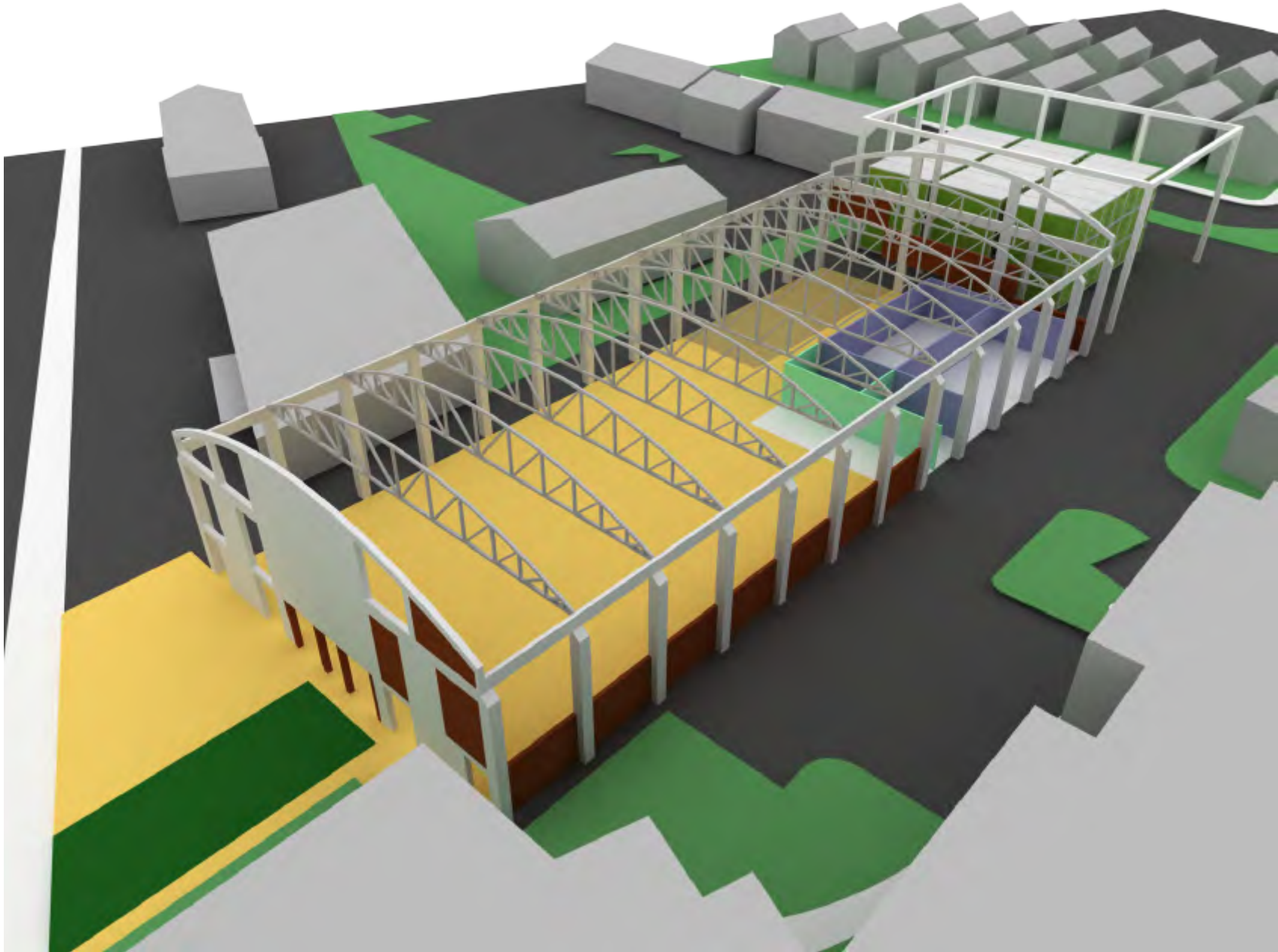
cafe
1,500 sq ft



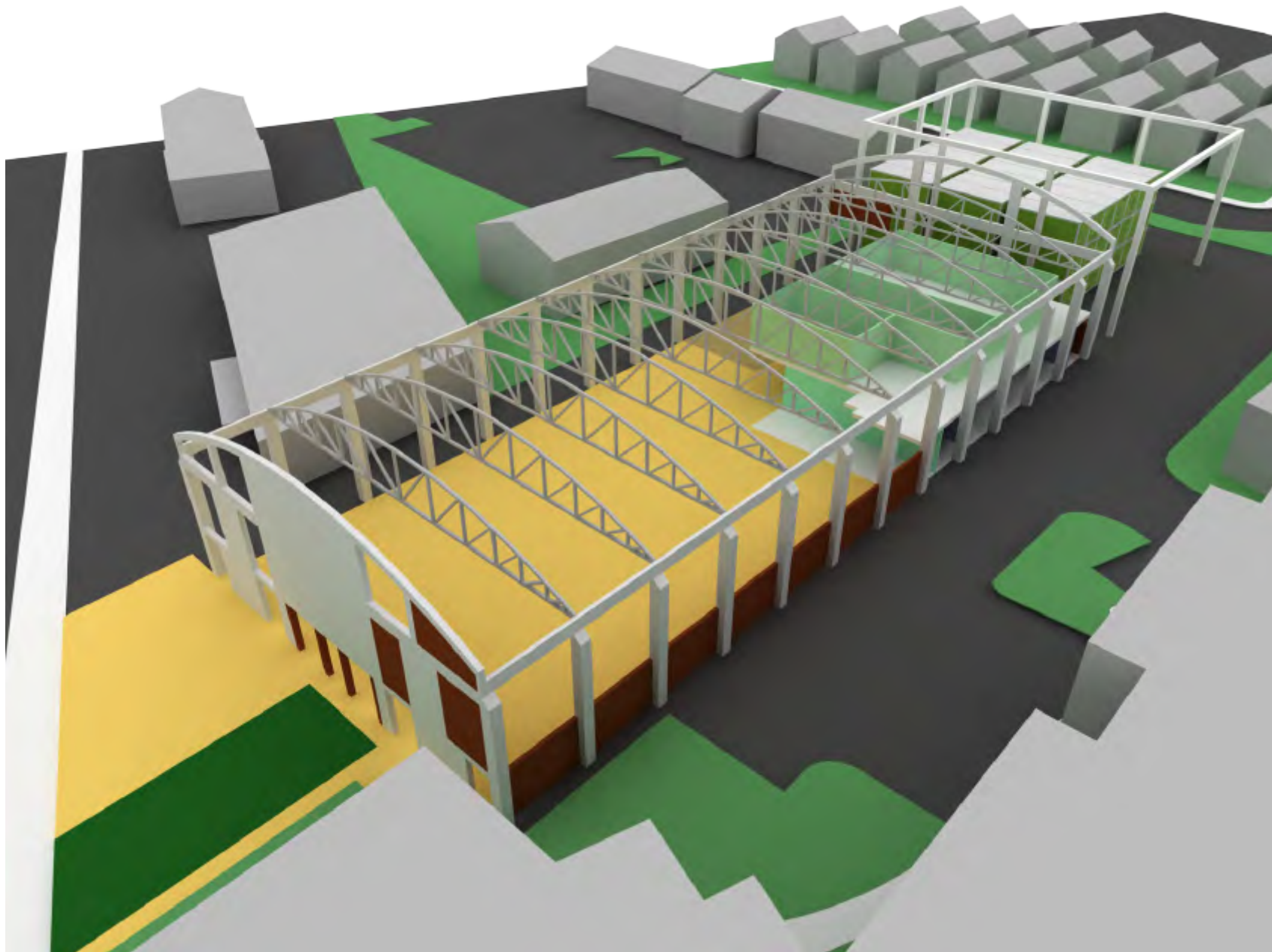
market
13,200 sq ft



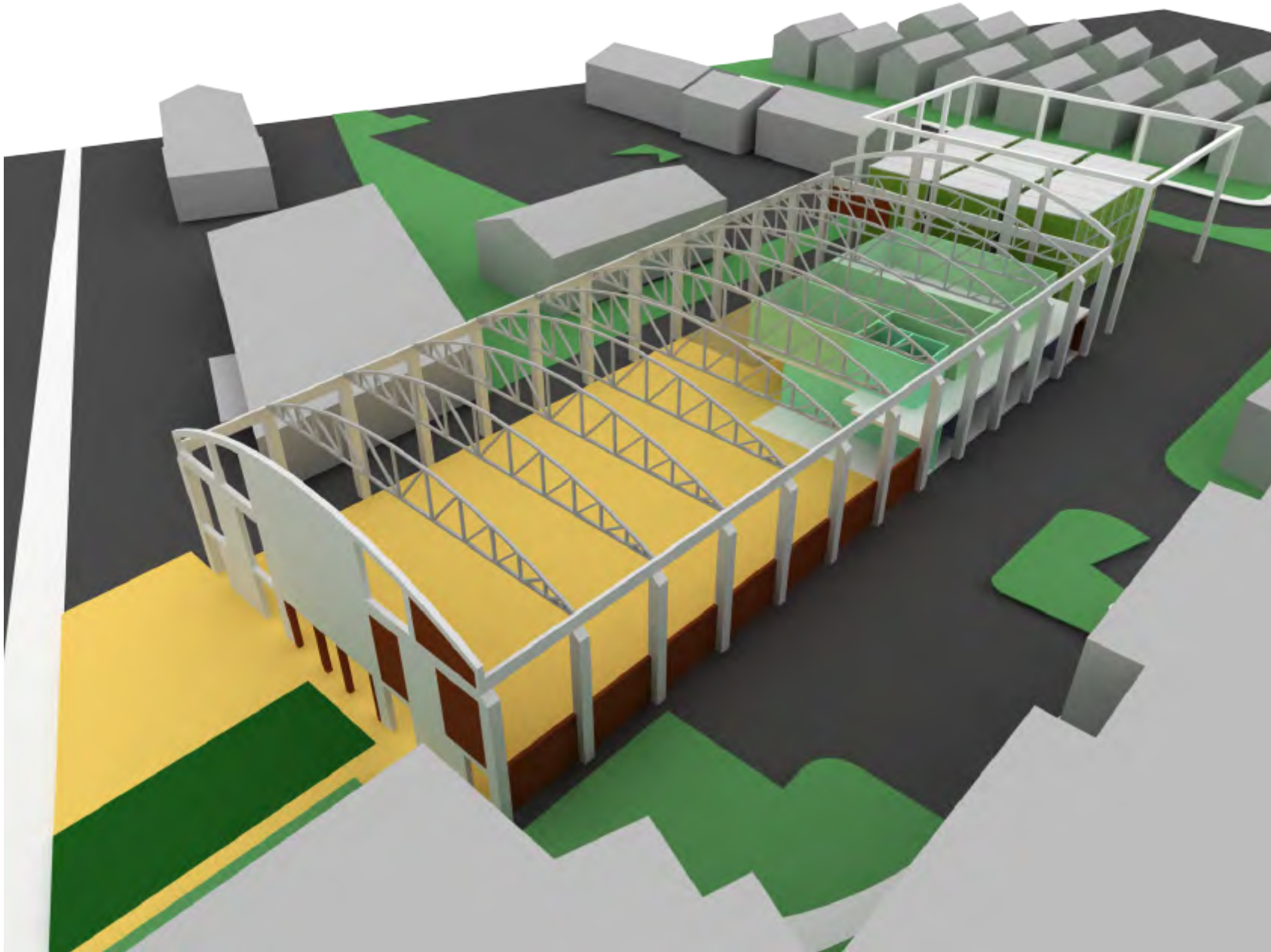
office
2,000 sq ft



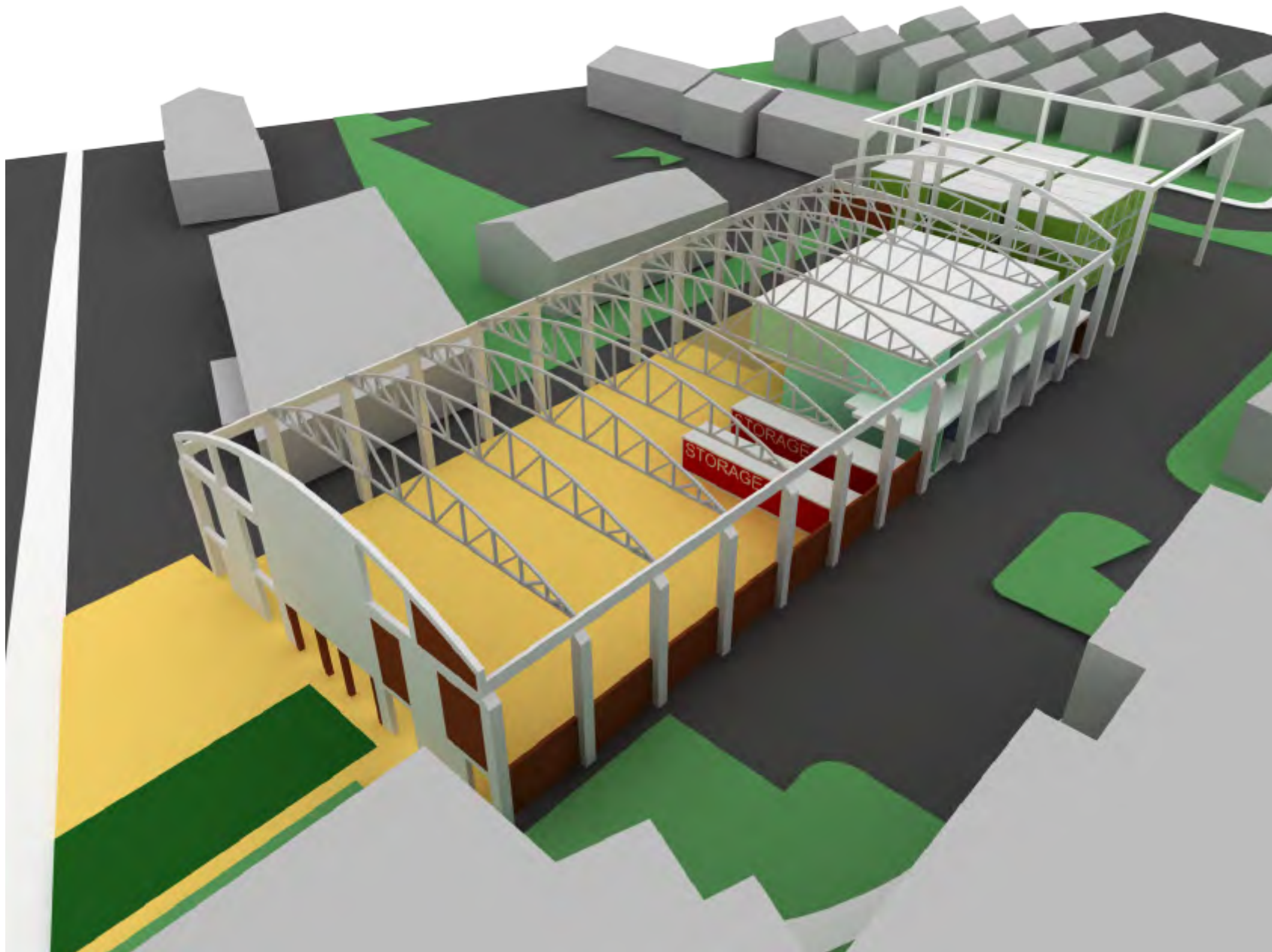
1st FL bathroom
560 sq ft



classrooms [2 regular + 1 kitchen]
2,500 sq ft



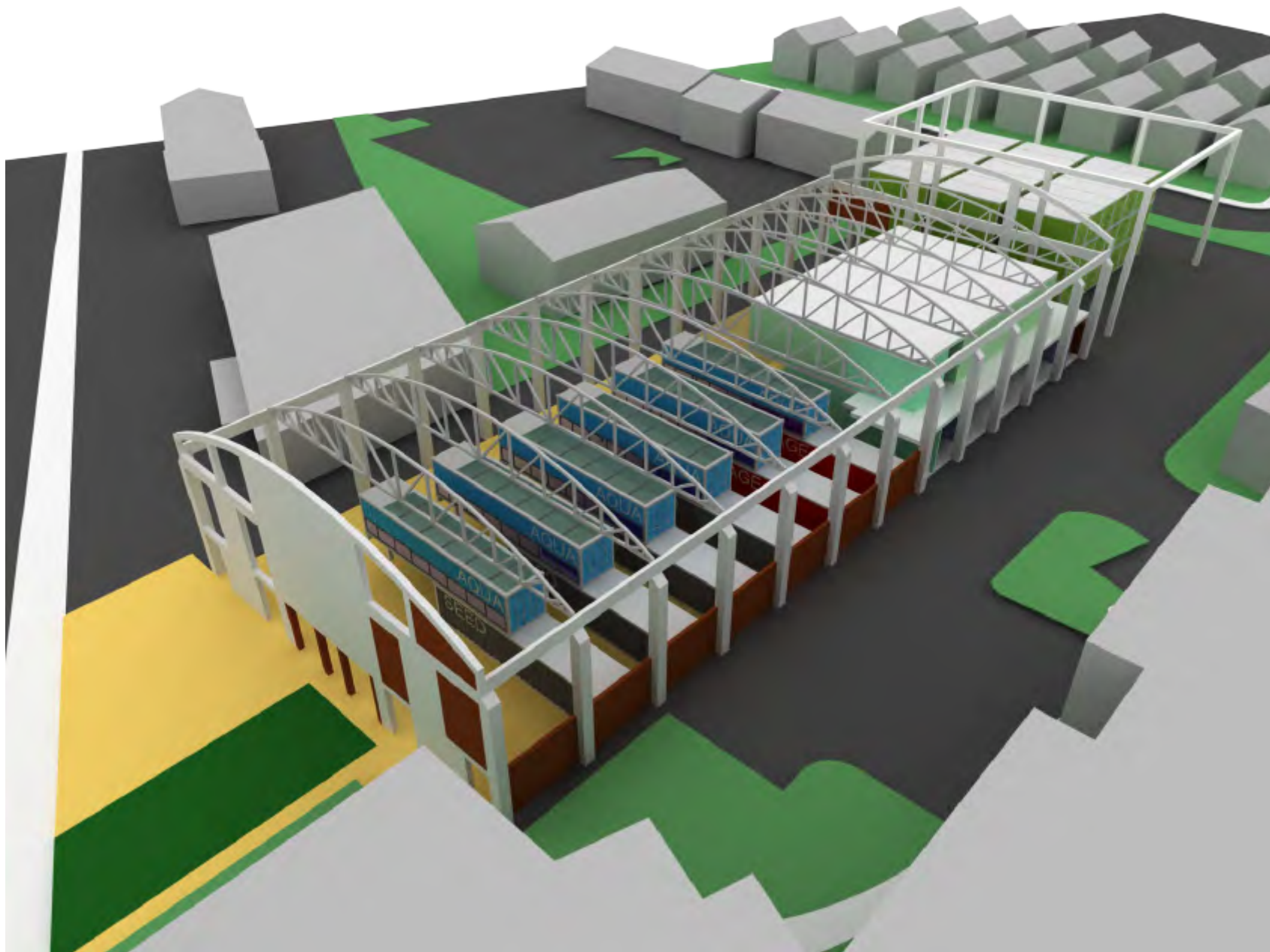
2nd FL bathroom
200 sq ft



storage
[2] 40' containers = 640 sq ft



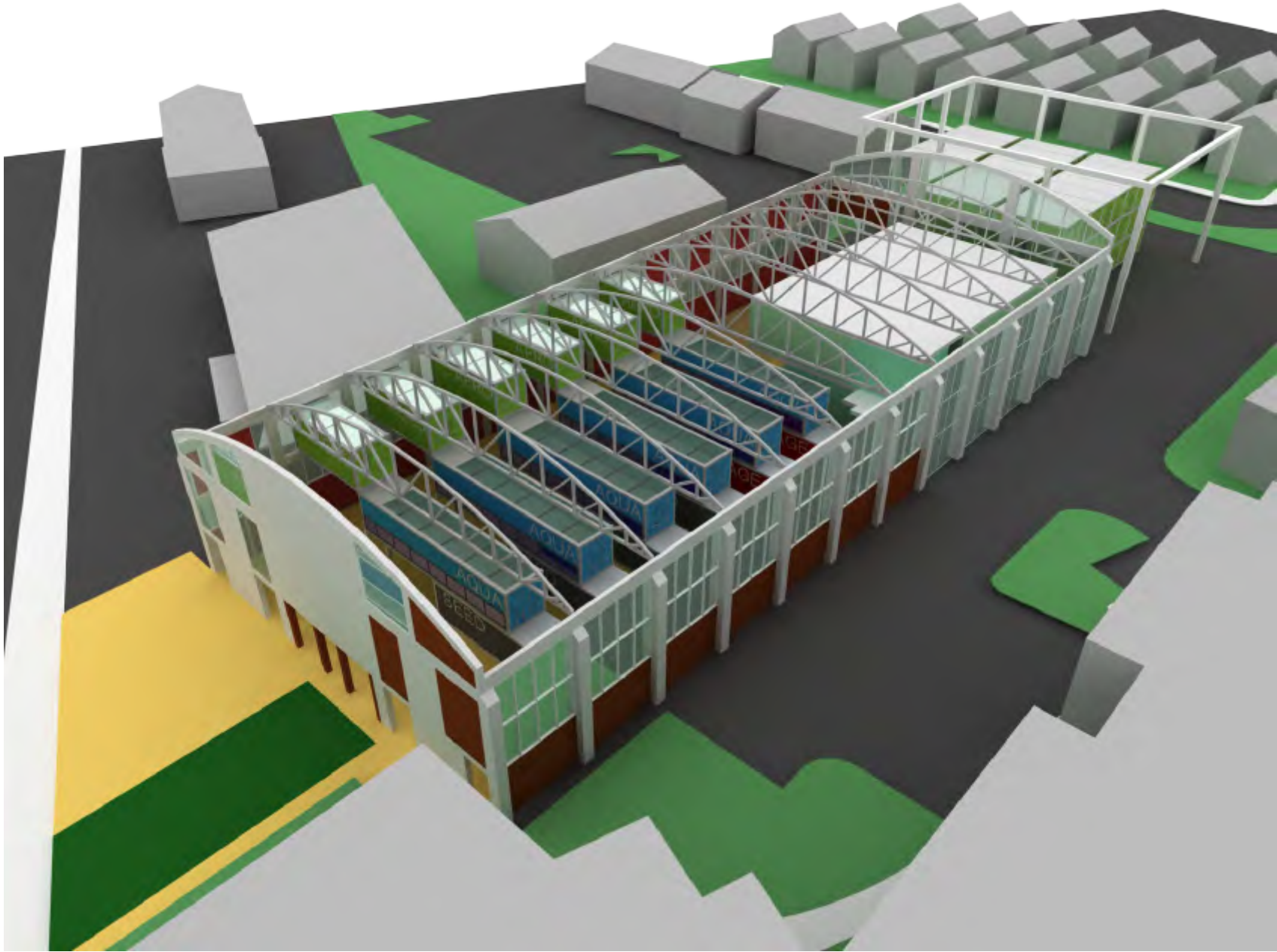
seed lab
4 [40' containers] x 1,600 cubic ft growing space = 6,400 cubic ft growing yield



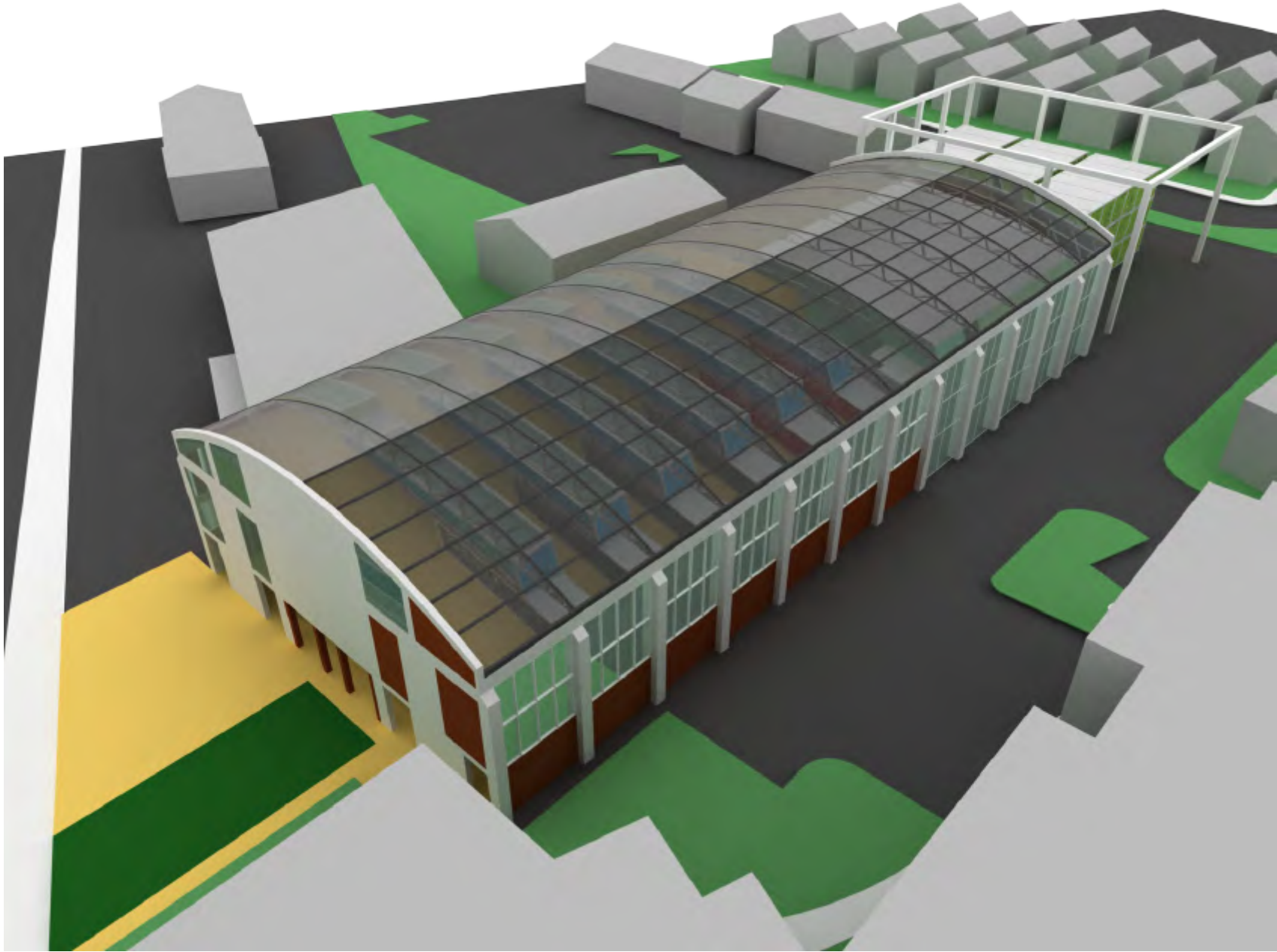
aquaponics containers



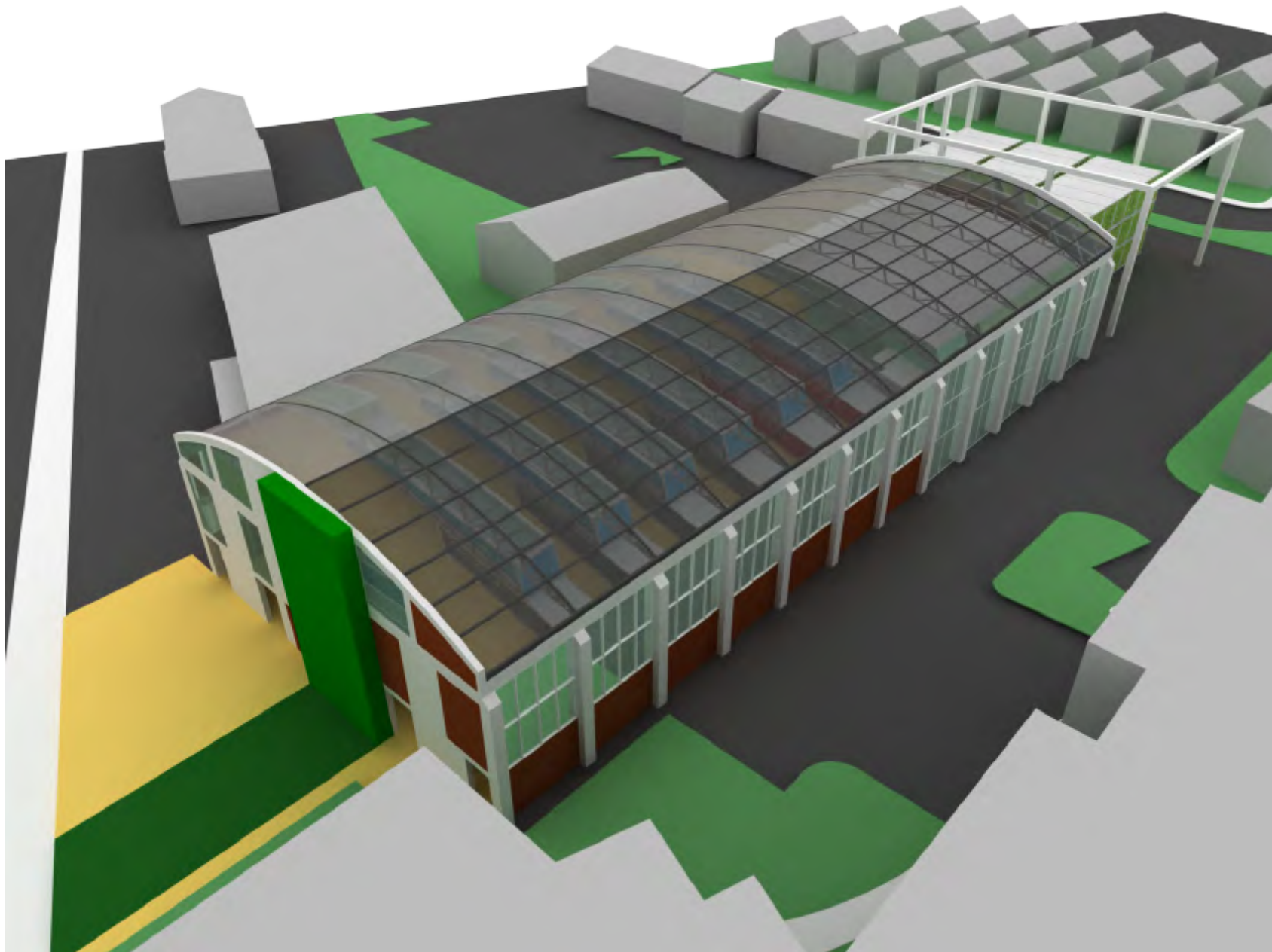
aerponics containers
6 [20' containers] x 800 cubic ft growing space = 4,800 cubic ft growing yield



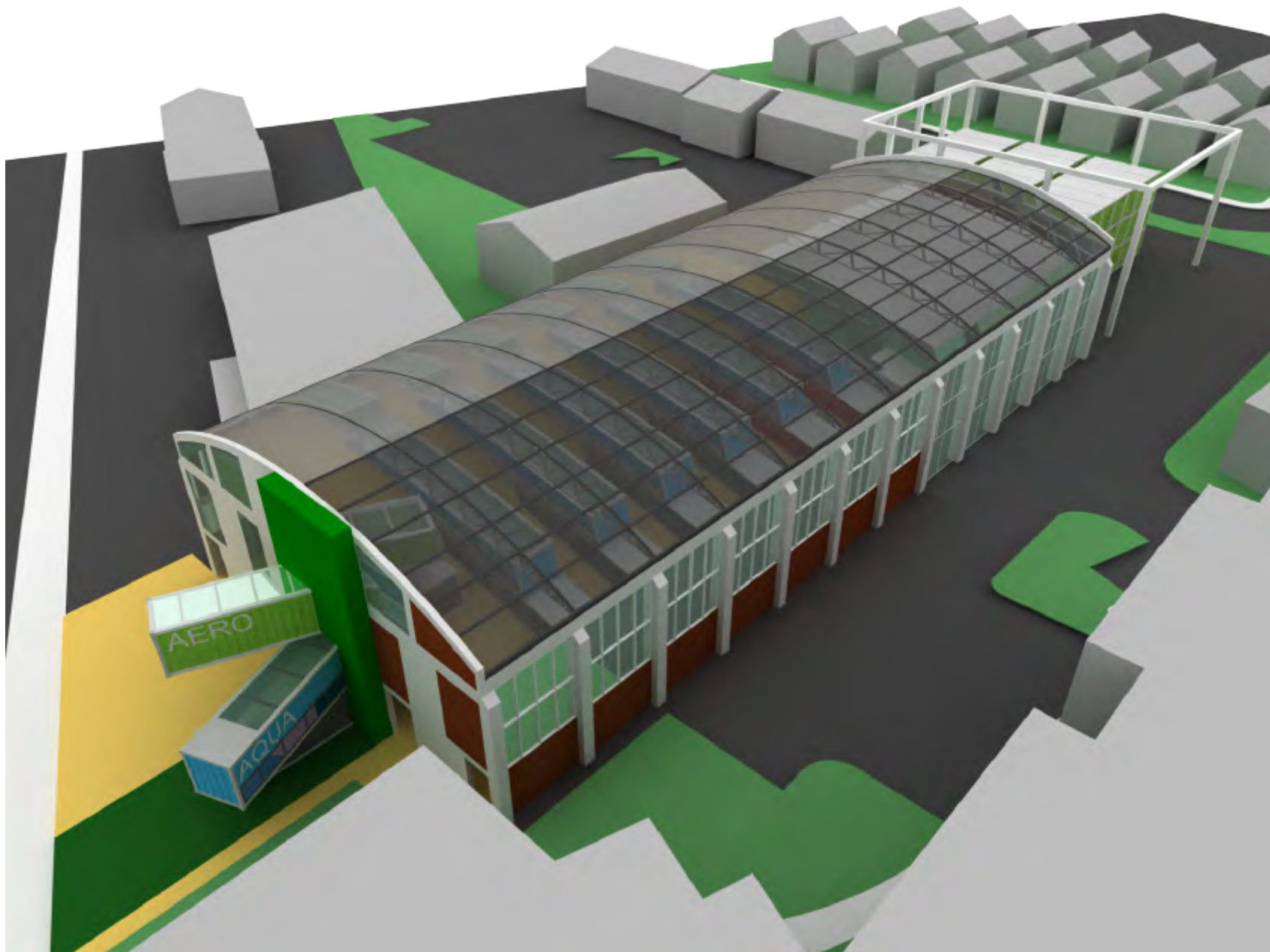
new facade



roof



green wall



3 story learning sculpture
3 [40' containers] x 1,600 cubic ft growing space = 4,800 cubic ft growing yield





GRAFTED VERTICAL FARM
GROW. COOK. EAT.

SITE

DESIGN

STRUCTURE

FLOOR PLANS

SECTION

ENVELOPE

FARMING

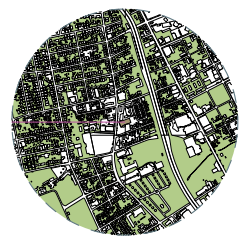
Grocery & Markets

- Food Lion **1**
- Piggly Wiggly **2**
- Harris Teeter **3**
- The Vegetable Bin **4**
- Bull Street Market **5**
- Queen Street Grocery **6**
- J & W Grocery **7**
- President Market **8**

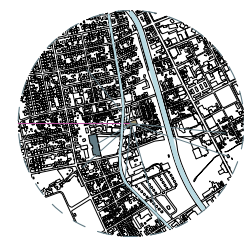


time by vehicle

time by walking



surrounding green space
 This map shows the existing green space within the surrounding context of the site. A major goal for the vertical farm is to influence and teach the community on how to make and manage their own urban gardens.



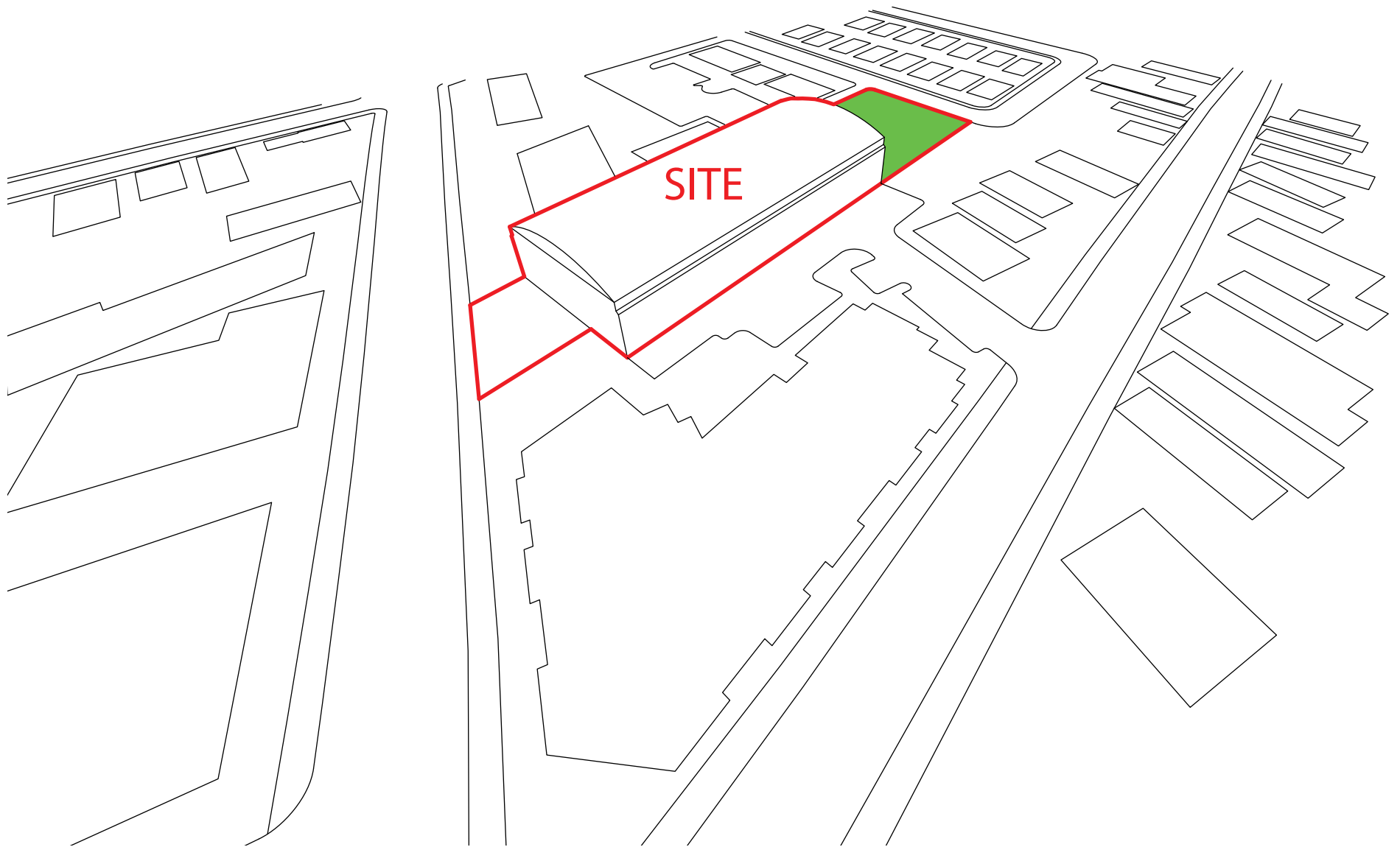
transportation + food resources
 The main transportation networks for the vertical farm site include I-26 as a major connection to the rest of the state, and Huger Street as a main connection to downtown Charleston.

- context zone 1**
 This zone features both residential and commercial program. The only other food resource is in this zone.
- context zone 2**
 This zone features a large amount of residential program and undeveloped land. It is also the first zone to include interstate I-26.
- context zone 3**
 Zone 3 features many residential structures as well as two of the restaurants within the surrounding context of the vertical farm site.
- context zone 4**
 This zone is mainly made up of residential program. The zone makes a concept of a vertical ideal for its current location.

GRAFTED VERTICAL FARM

GROW. COOK. EAT.

- SITE**
 - DESIGN**
 - STRUCTURE**
 - FLOOR PLANS**
 - SECTION**
- ENVELOPE**
 - FARMING**



GRAFTED VERTICAL FARM
GROW. COOK. EAT.

SITE ■■■

DESIGN ■■■

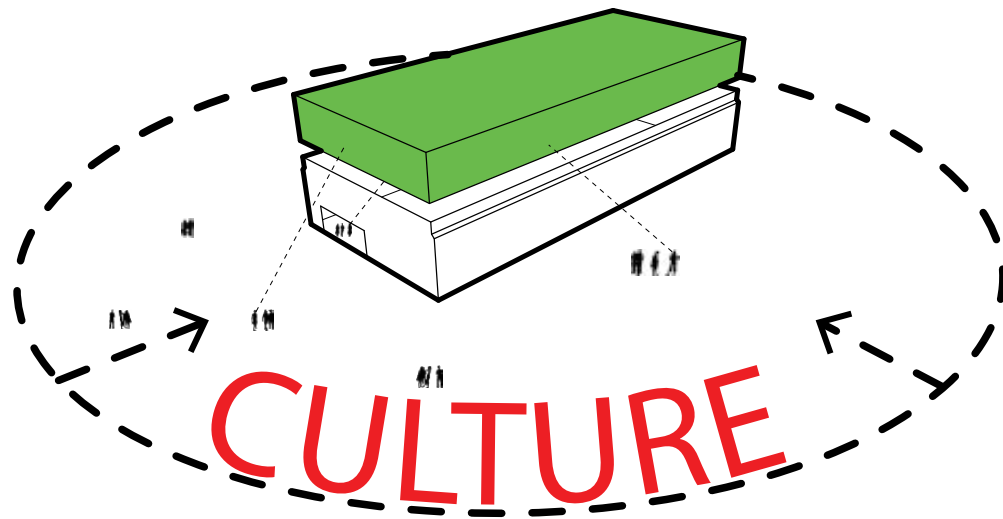
STRUCTURE ■■■

FLOOR PLANS ■■■

SECTION ■■■

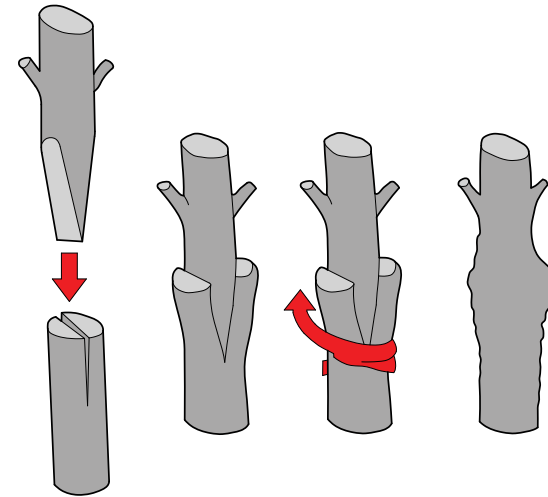
ENVELOPE ■■■

FARMING ■■■



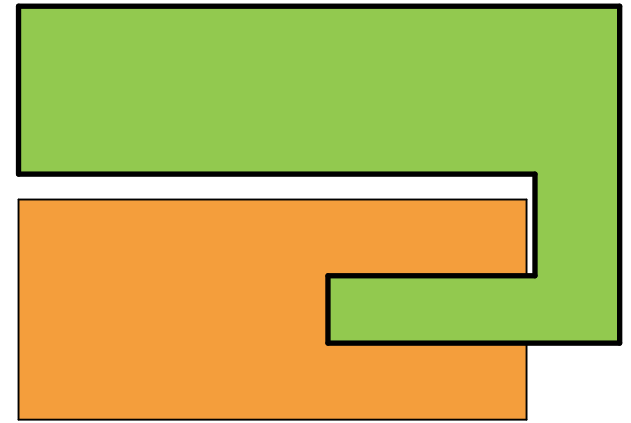
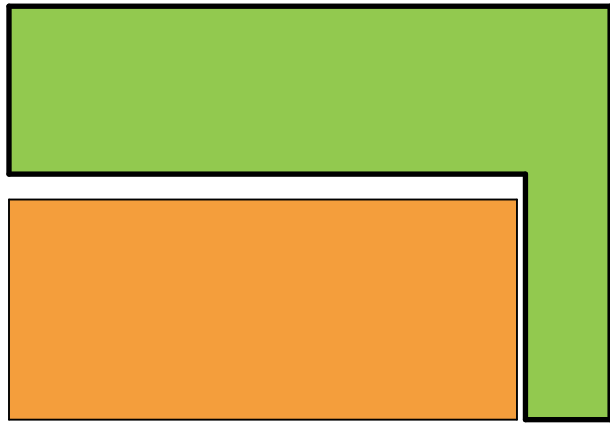
CONCEPT

A major design focus for our project is to integrate the vertical farm within the local community, and for the building to serve as a community center.



GRAFTING

Our design strategy is centered around the idea of grafting. The project examines how to graft the new vertical farm with the existing structure.

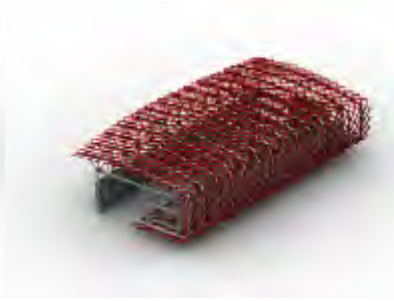
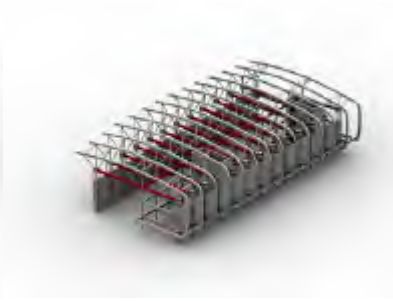
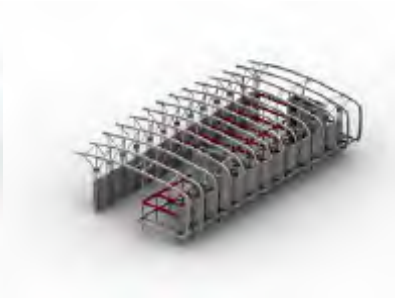
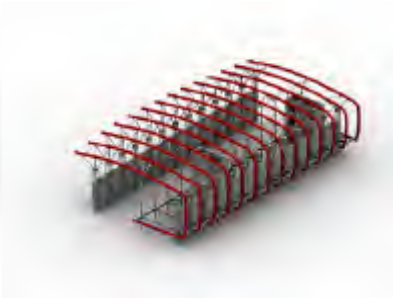
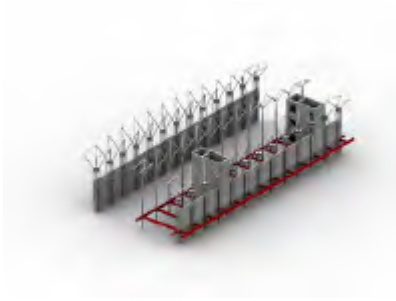
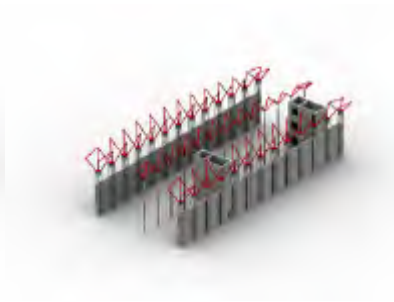
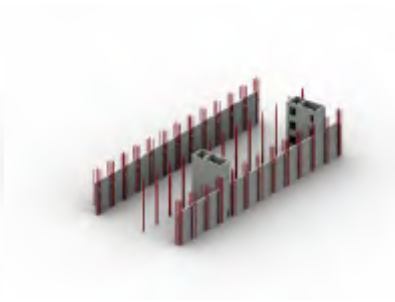
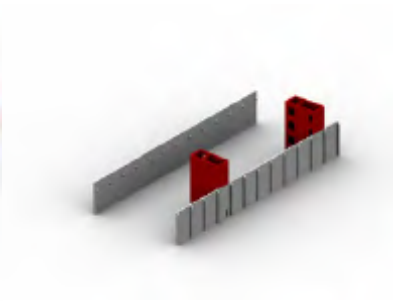
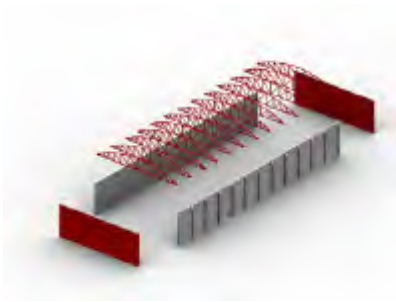


GRAFTING 1.0 |||

The initial graft worked well with using the existing structure, but still created a boundary between the cultural and farm programs.

GRAFTING 2.0 |||

The second iteration of the grafting process begins to mix both of the programs and provide maximum transparency for the vertical farm.



GRAFTED VERTICAL FARM
GROW. COOK. EAT.

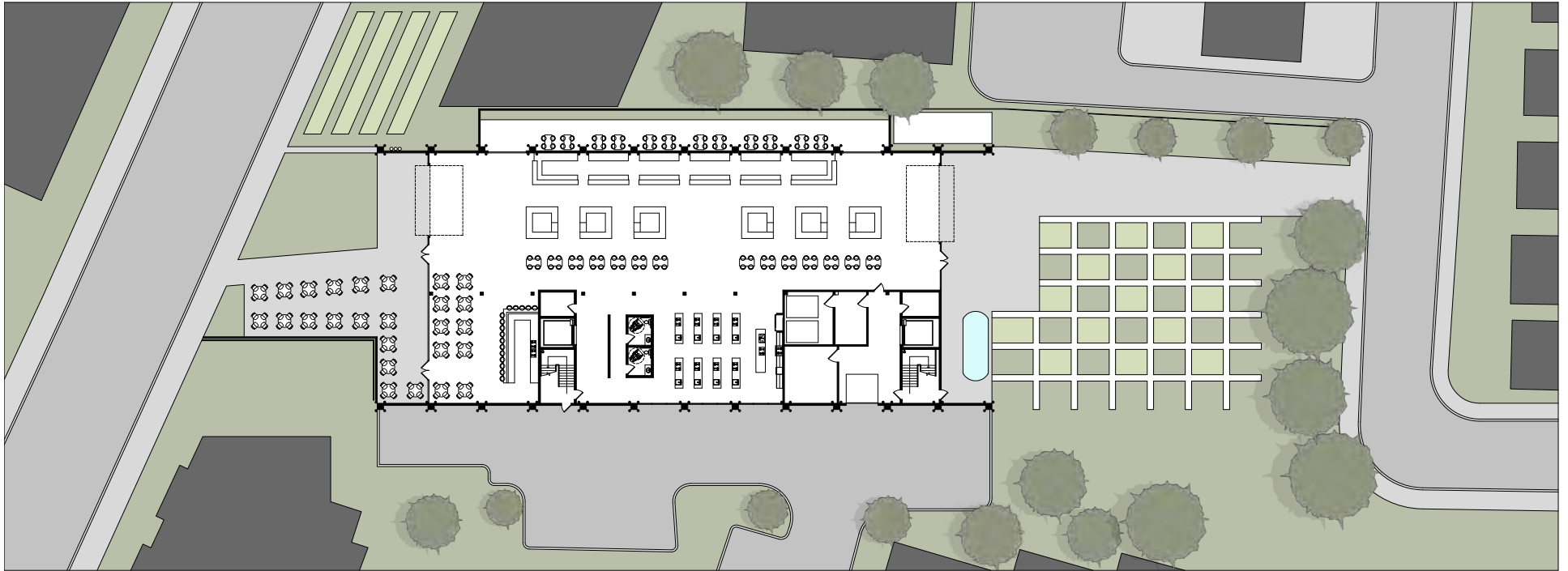
SITE ■■■
ENVELOPE ■■■

DESIGN ■■■
FARMING ■■■

STRUCTURE ■■■

FLOOR PLANS ■■■

SECTION ■■■



GRAFTED VERTICAL FARM
GROW. COOK. EAT.

SITE

DESIGN

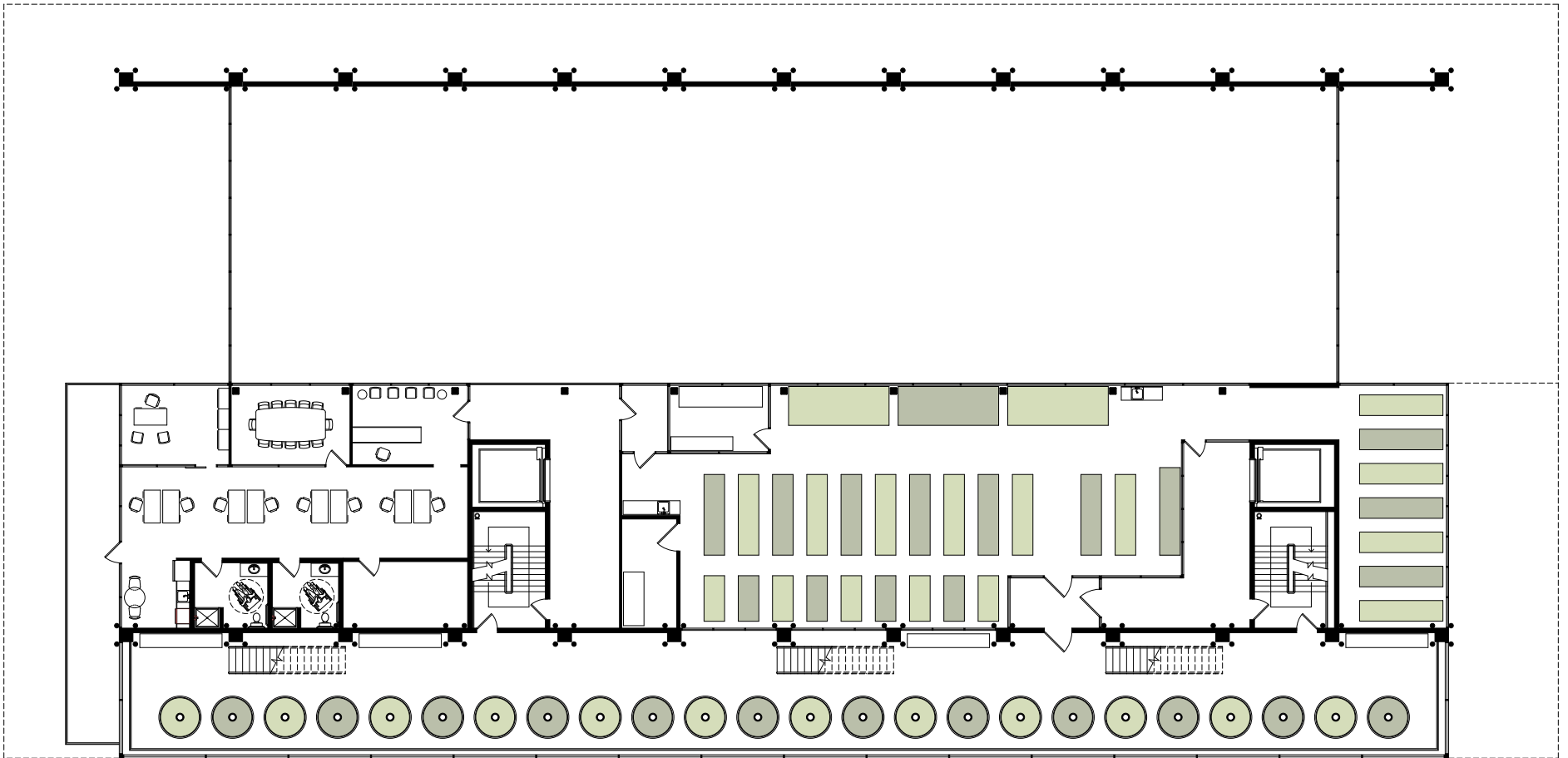
STRUCTURE

FLOOR PLANS

SECTION

ENVELOPE

FARMING



GRAFTED VERTICAL FARM
GROW. COOK. EAT.

SITE

DESIGN

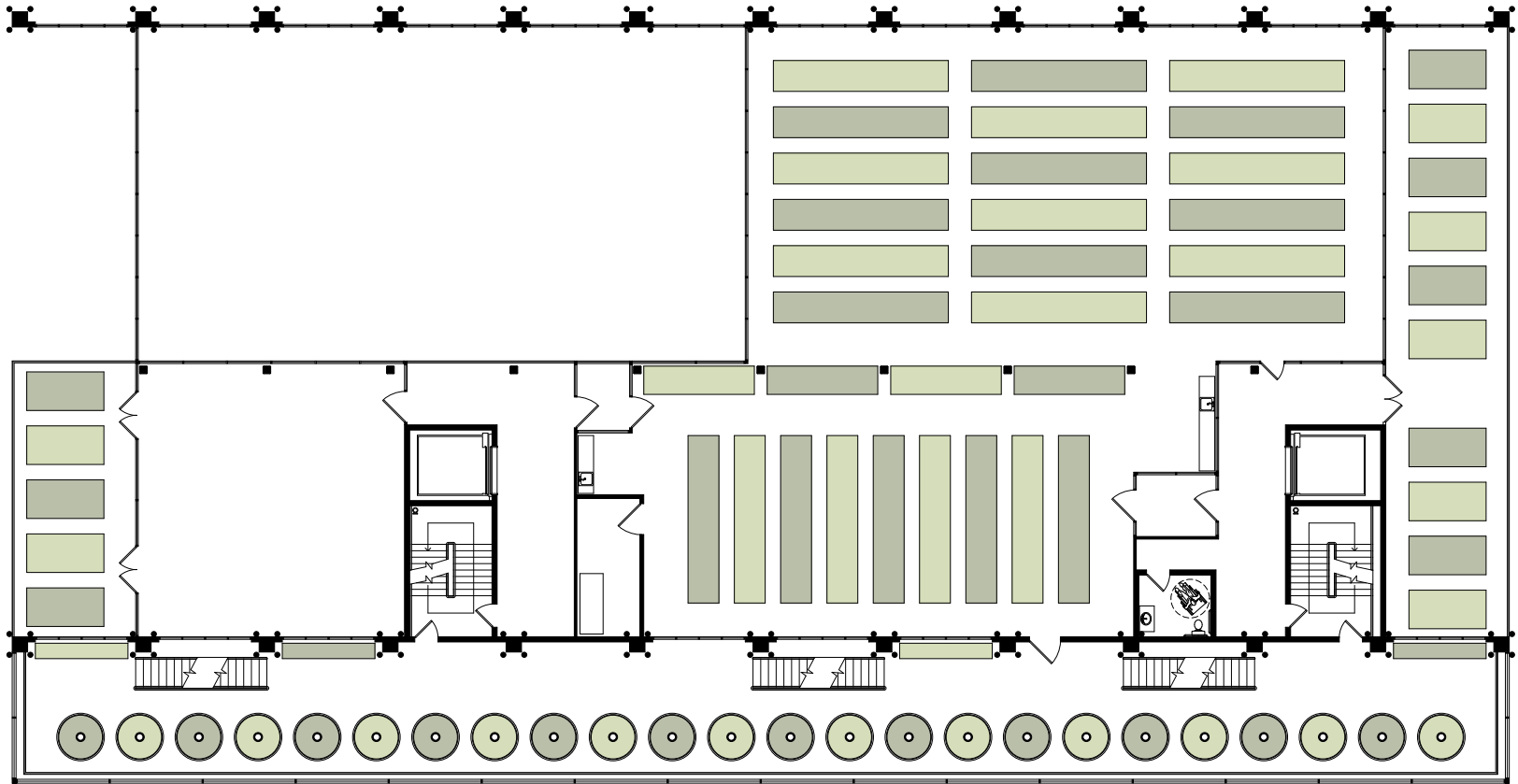
STRUCTURE

FLOOR PLANS

SECTION

ENVELOPE

FARMING



GRAFTED VERTICAL FARM
GROW. COOK. EAT.

SITE

DESIGN

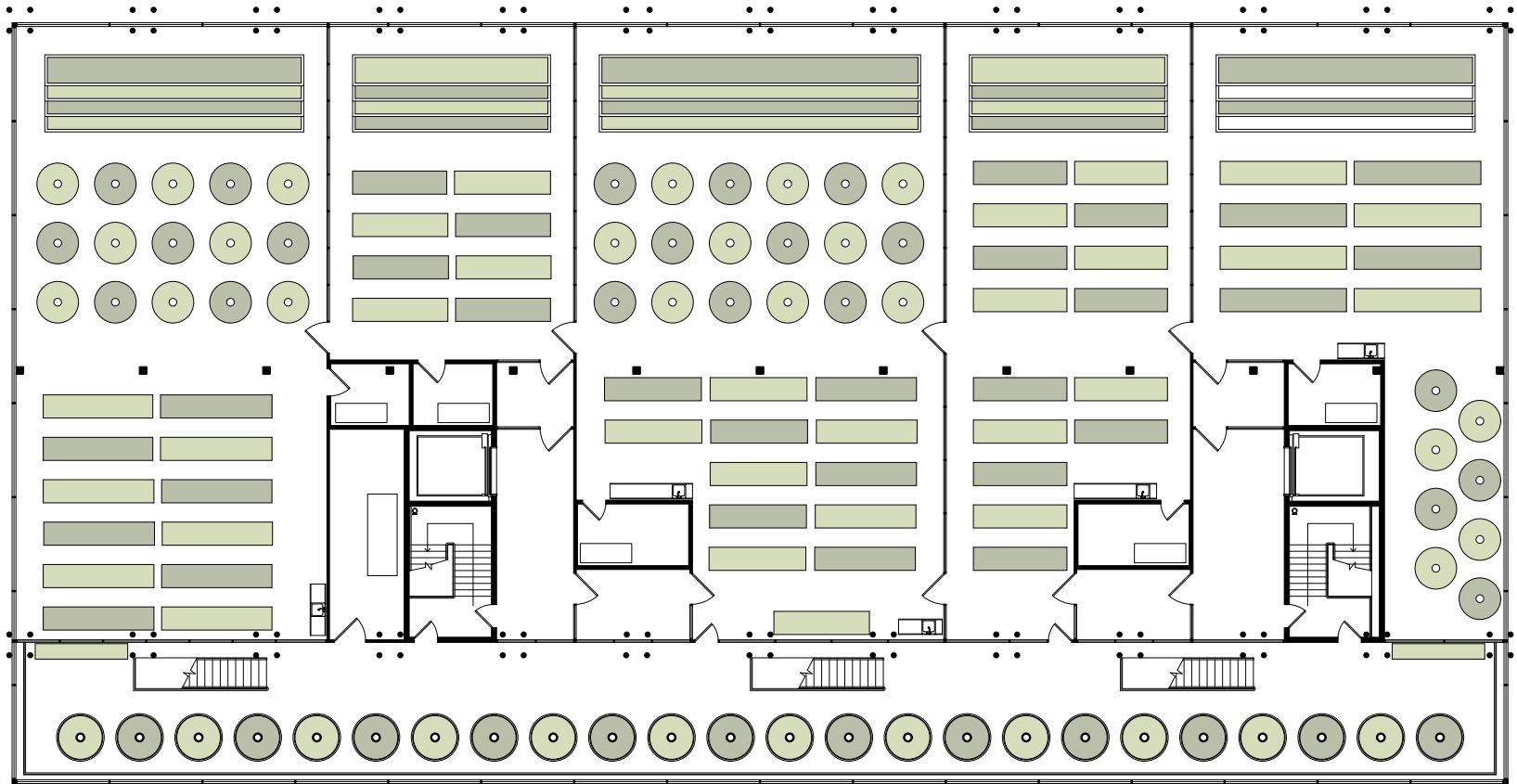
STRUCTURE

FLOOR PLANS

SECTION

ENVELOPE

FARMING



GRAFTED VERTICAL FARM
 GROW. COOK. EAT.

SITE

DESIGN

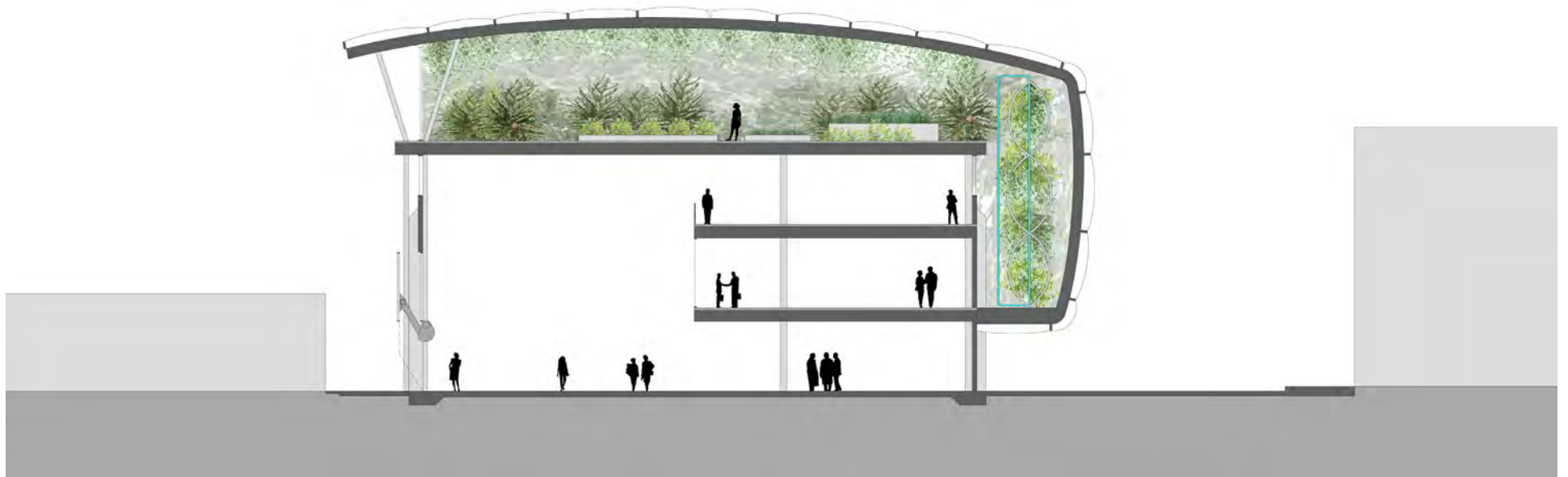
STRUCTURE

FLOOR PLANS

SECTION

ENVELOPE

FARMING



GRAFTED VERTICAL FARM
GROW. COOK. EAT.

SITE

DESIGN

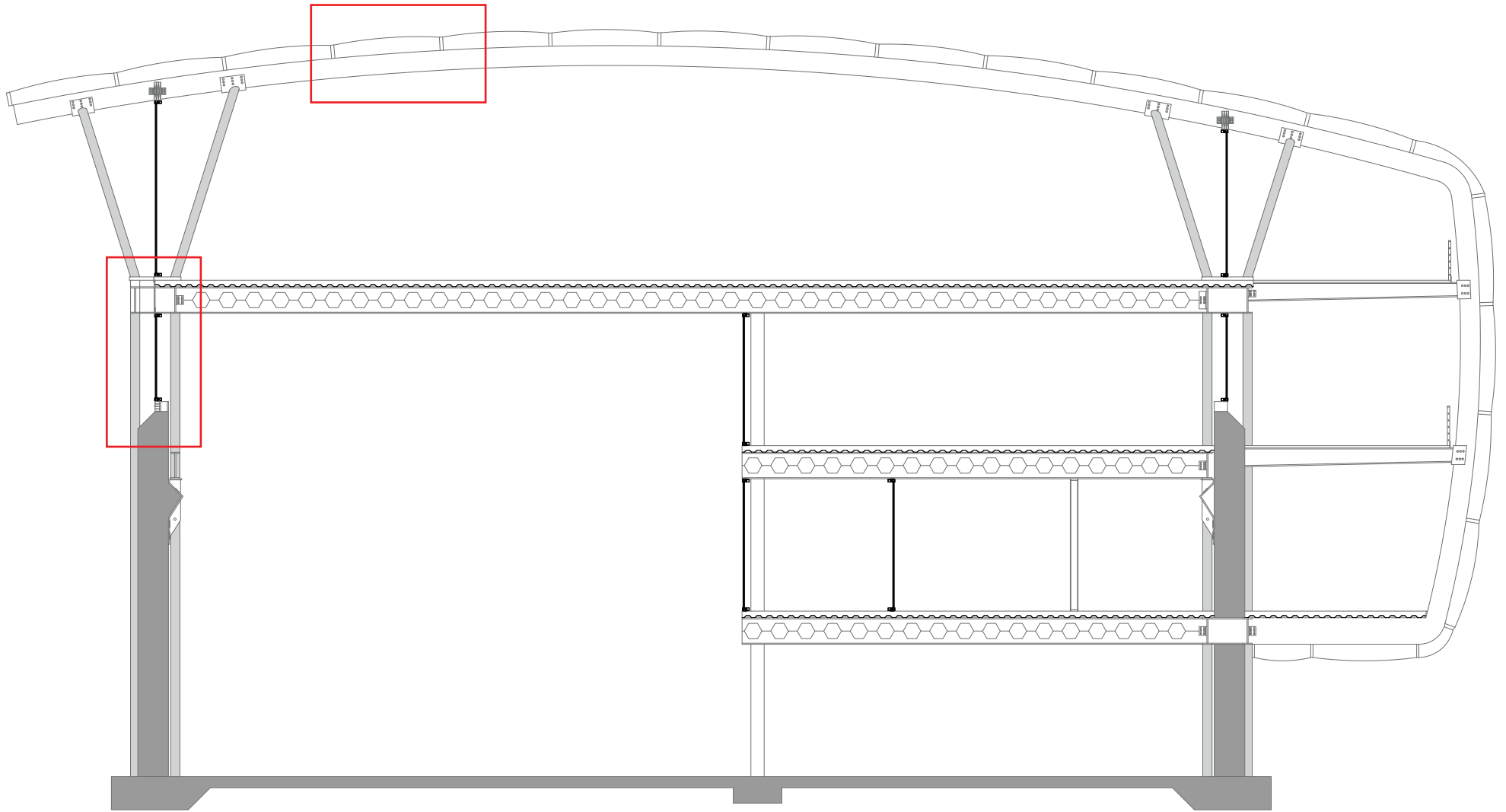
STRUCTURE

FLOOR PLANS

SECTION

ENVELOPE

FARMING



GRAFTED VERTICAL FARM
GROW. COOK. EAT.

SITE

DESIGN

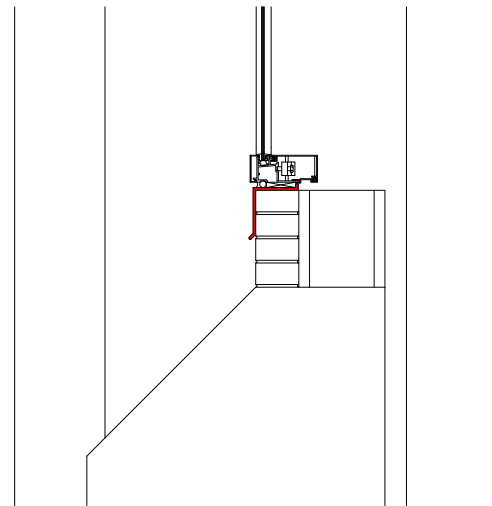
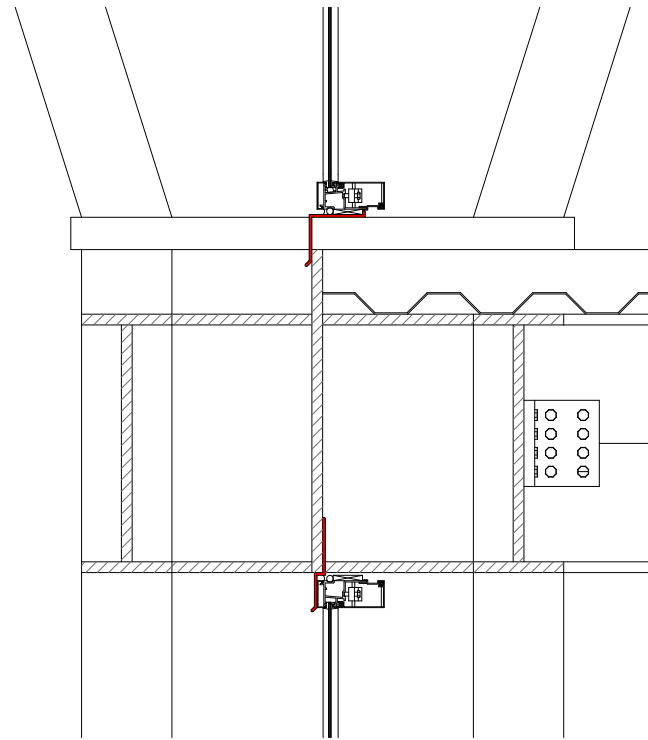
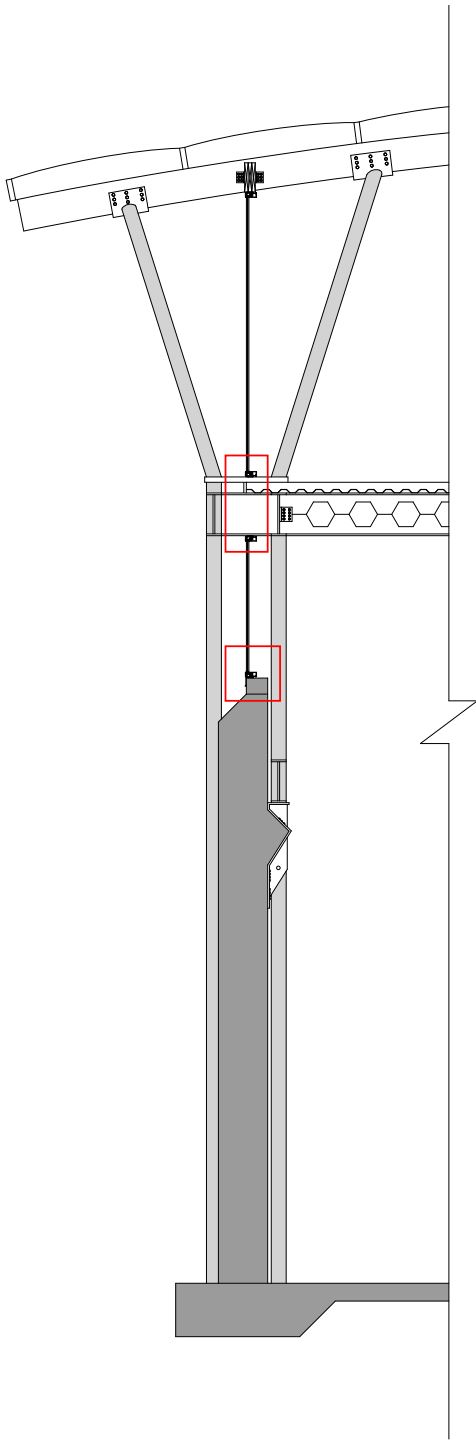
STRUCTURE

FLOOR PLANS

SECTION

ENVELOPE

FARMING



GRAFTED VERTICAL FARM
GROW. COOK. EAT.

SITE

DESIGN

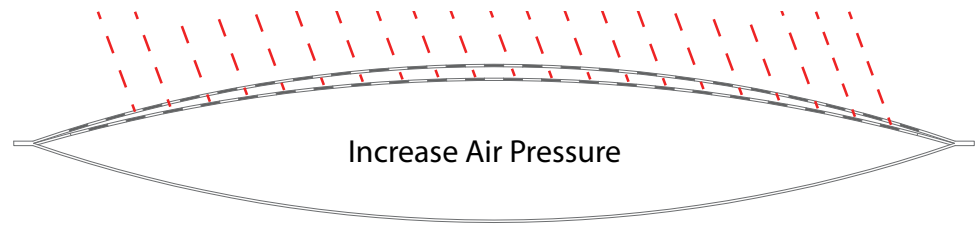
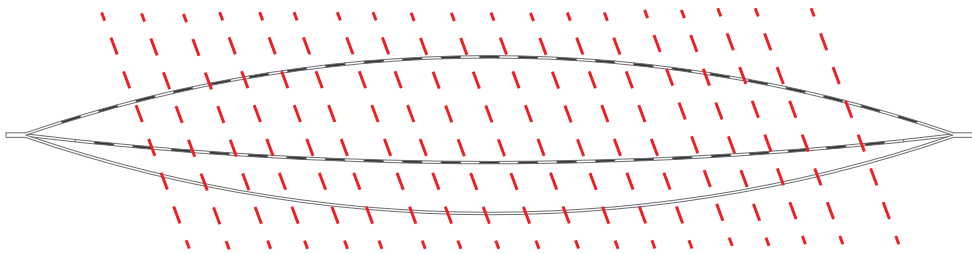
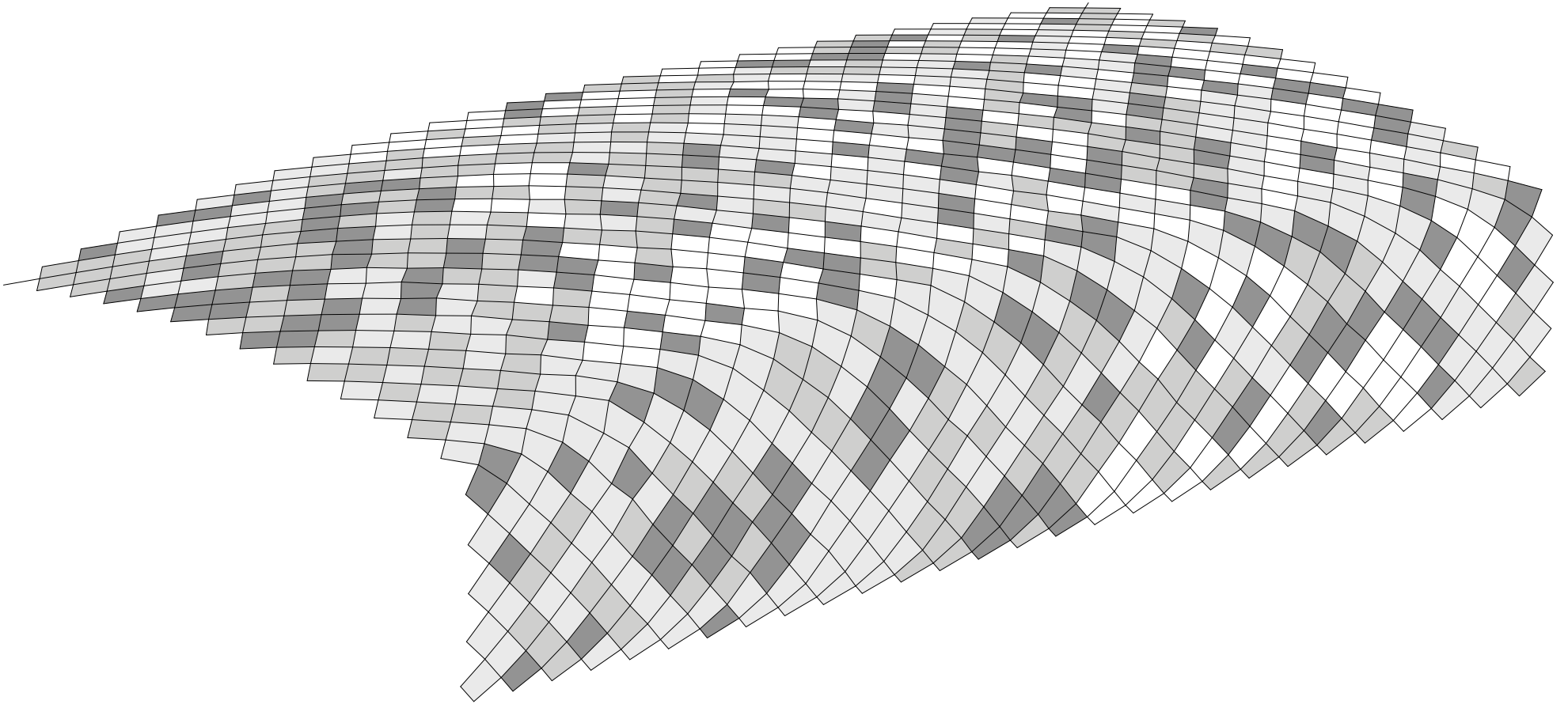
STRUCTURE

FLOOR PLANS

SECTION

ENVELOPE

FARMING



GRAFTED VERTICAL FARM
GROW. COOK. EAT.

SITE |||

DESIGN |||

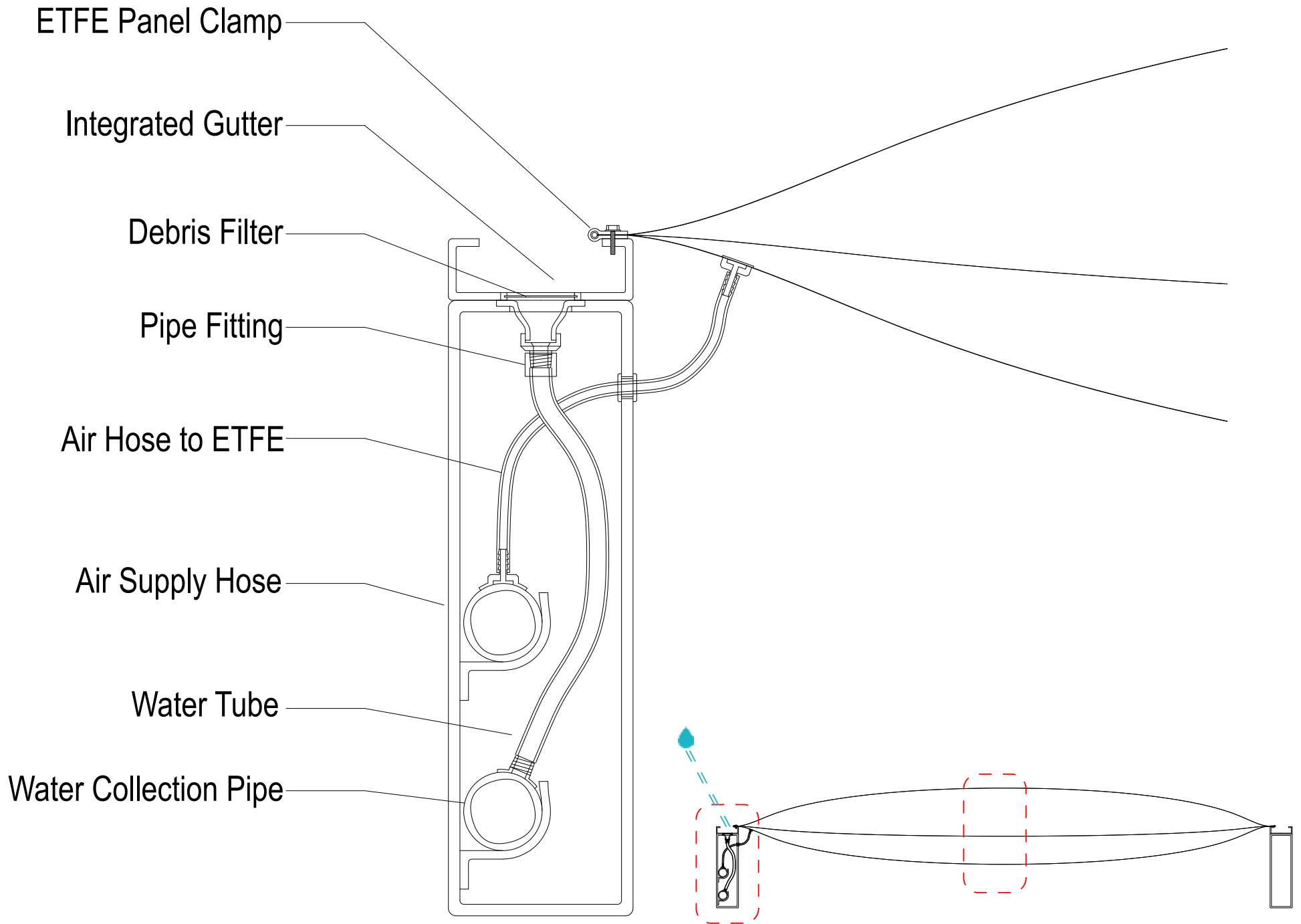
STRUCTURE |||

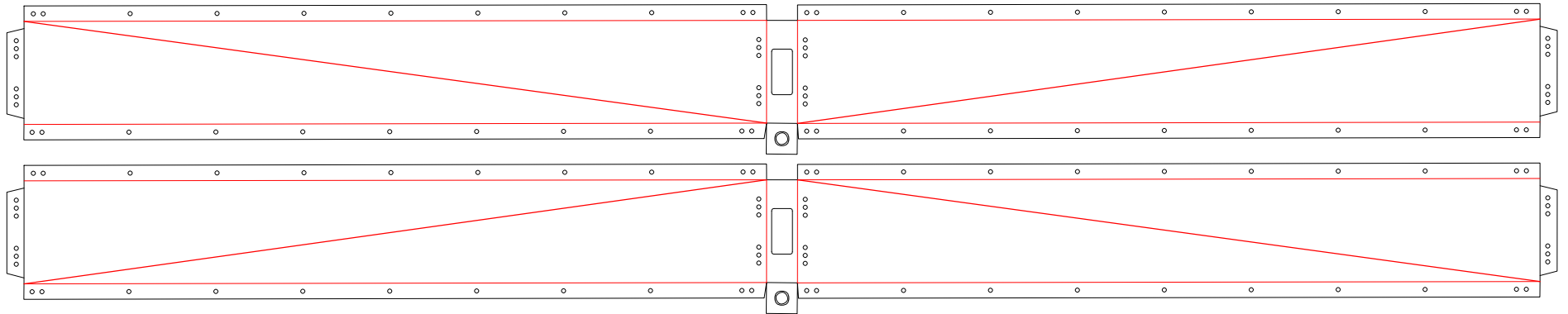
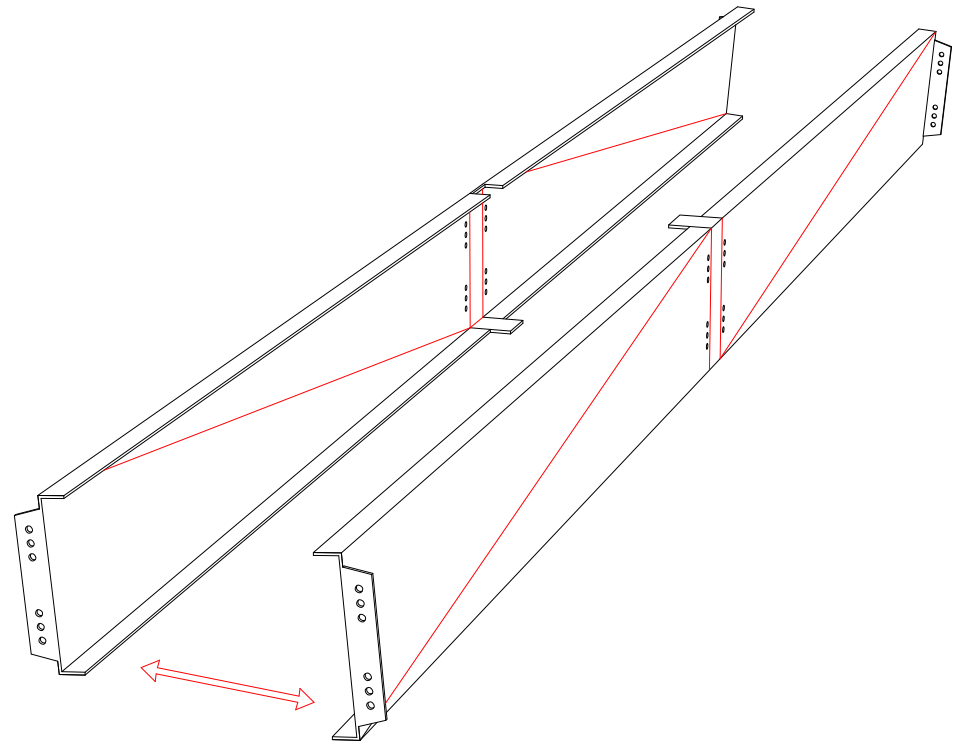
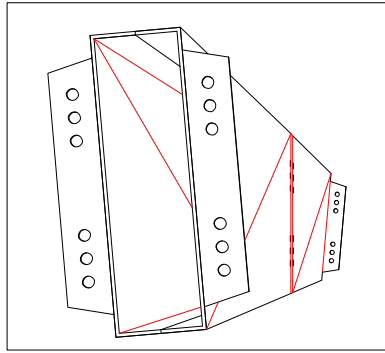
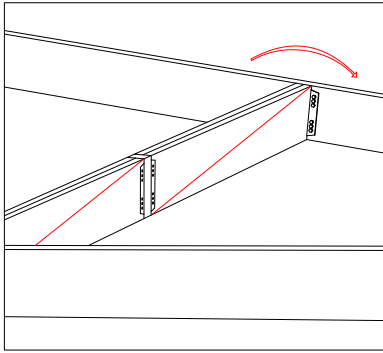
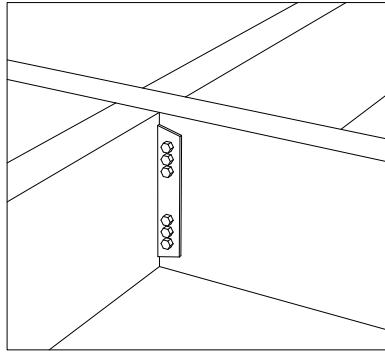
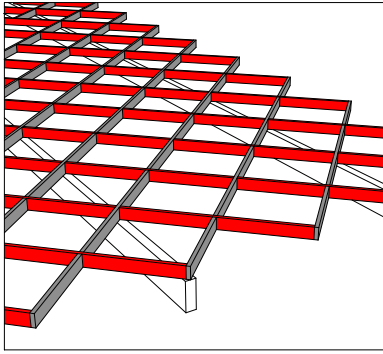
FLOOR PLANS |||

SECTION |||

ENVELOPE |||

FARMING |||





GRAFTED VERTICAL FARM
GROW. COOK. EAT.

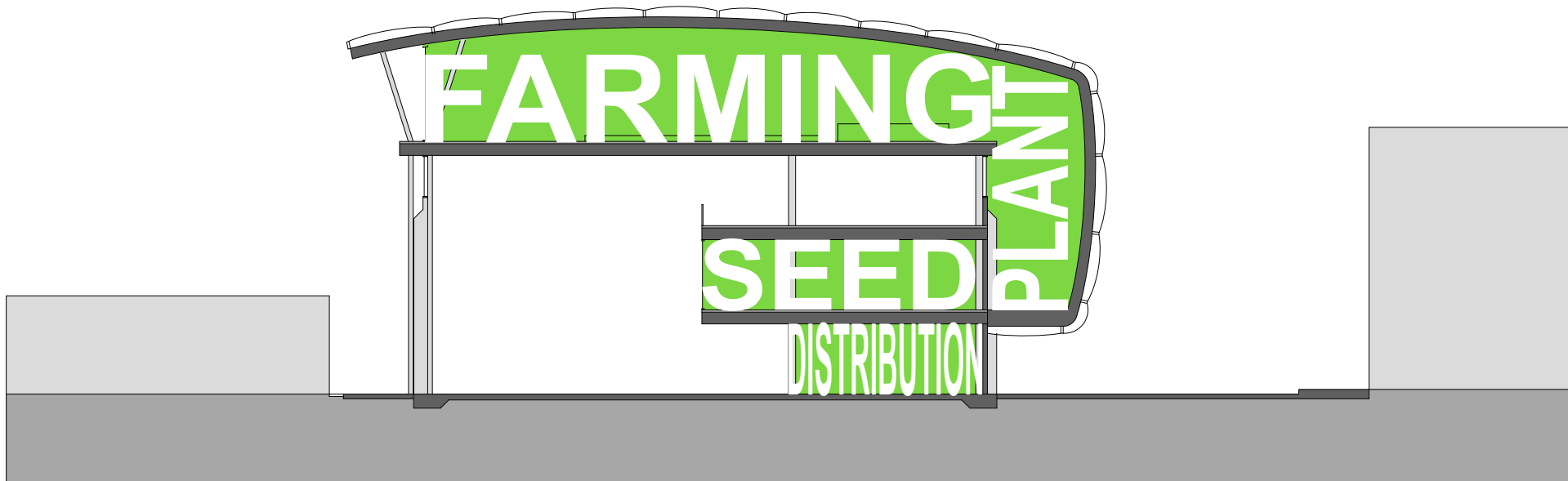
SITE |||
ENVELOPE |||

DESIGN |||
FARMING |||

STRUCTURE |||

FLOOR PLANS |||

SECTION |||



GRAFTED VERTICAL FARM
GROW. COOK. EAT.

SITE

DESIGN

STRUCTURE

FLOOR PLANS

SECTION

ENVELOPE

FARMING



GRAFTED VERTICAL FARM
GROW. COOK. EAT.

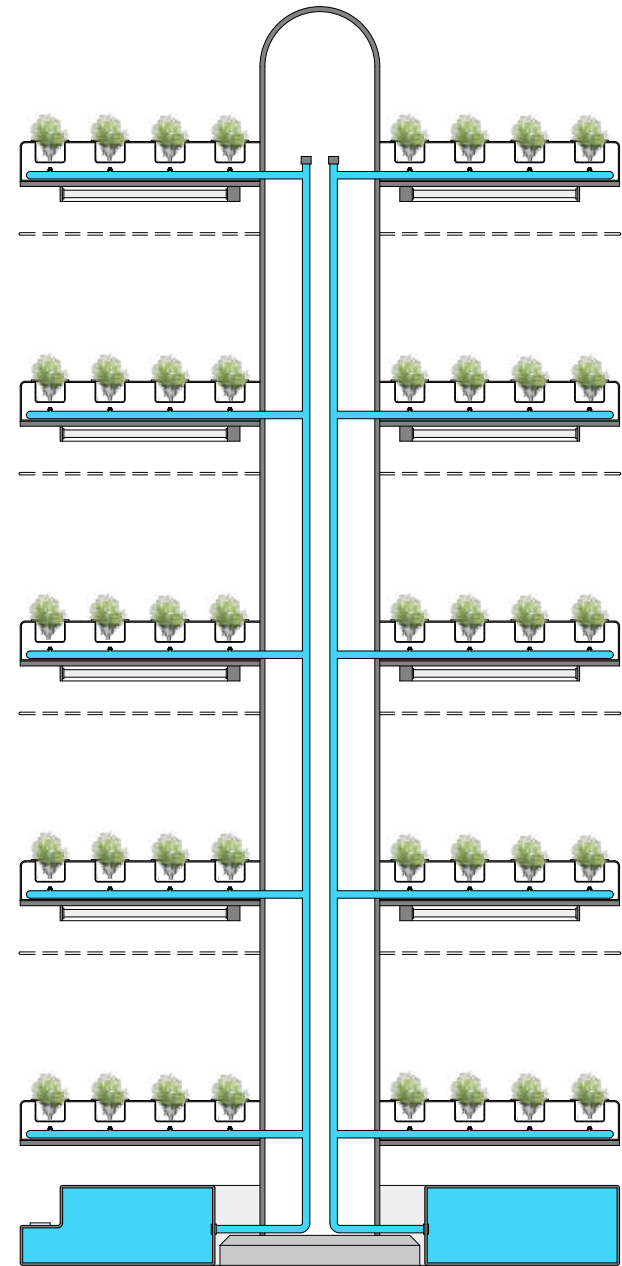
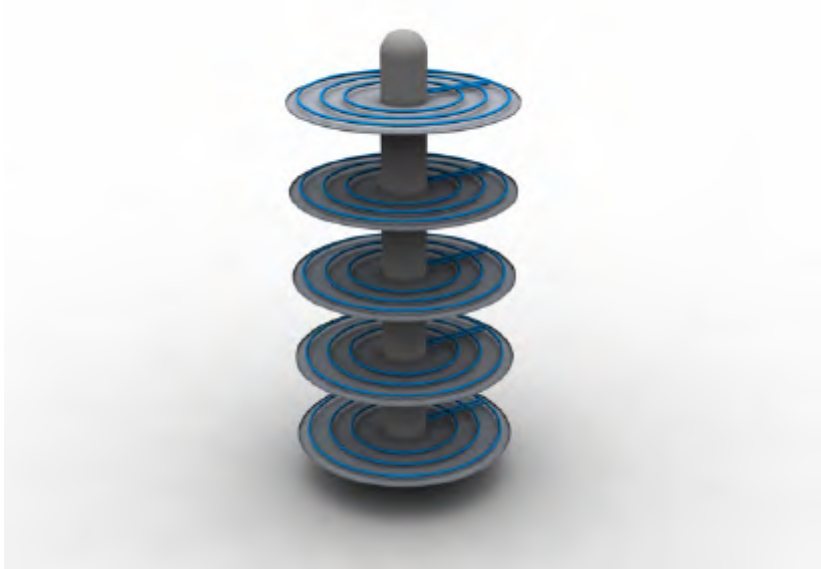
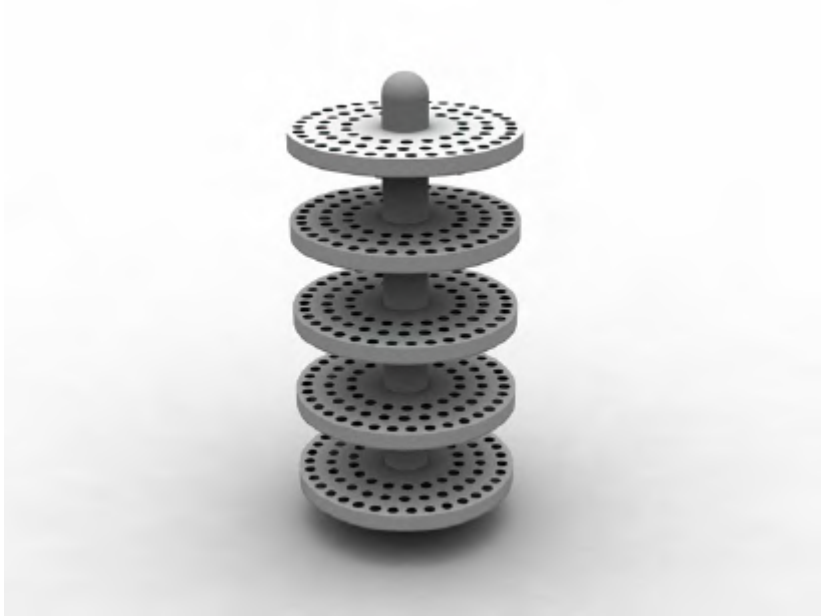
SITE
ENVELOPE

DESIGN
FARMING

STRUCTURE

FLOOR PLANS

SECTION



GRAFTED VERTICAL FARM
GROW. COOK. EAT.

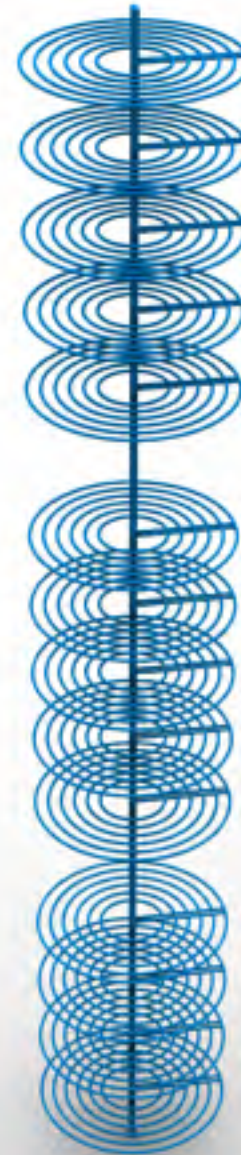
SITE ■■■
ENVELOPE ■■■

DESIGN ■■■
FARMING ■■■

STRUCTURE ■■■

FLOOR PLANS ■■■

SECTION ■■■



GRAFTED VERTICAL FARM
GROW. COOK. EAT.

SITE

DESIGN

STRUCTURE

FLOOR PLANS

SECTION

ENVELOPE

FARMING