



Self-Sustaining Urban Oasis



Hotel Aarde
Graduate Thesis 2021
M.S. in Interior Architecture and Design
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Thesis Advisor: Max Zahniser



Human impact on the environment threatens the future of civilization as we know it. As an interior architect, I feel the imperative to explore all possible solutions for creating designs that start to heal our inflicted damage. My thesis seeks to challenge existing approaches to design and provide a possible alternative for generally-accepted uses of materials, natural resources and energy and to create a positive impact on the planet.

Welcome to Hotel Aarde, a self-sustaining urban oasis located on Cherry Street Pier in Philadelphia, Pennsylvania. Deep research into environmental self-restoration and the ties humans have to the natural world inspired me to create an interior eco-system that could sustain itself and bring visitors into a world that is completely different than the bustling, urban city of Philadelphia outside its walls. Through research on tourism psychology and history and the negative environmental impacts of tourism, the goal emerged of creating a getaway within one's own city where people could escape to a restorative environment within walking distance from their homes. I studied the concept of leisure and how it turns elite as cities become more developed and leisure activities become inaccessible to lower income brackets. To successfully create an oasis, it was vital that the space welcome the local community and provide resources to help connect people with nature. After researching biophilic design and its prevalence as a current design strategy, I felt something was missing in the approach to creating a truly sustainable built environment. The design needed to go deeper than just plants added to the interior. Combining all the above topics of research into the realization of a built environment began to inform what would become Hotel Aarde.

Aarde means “soil” in Dutch. The design centers around an interior terrain full of lush trees, plants and brush. The existing roof was converted into a glass roof that is 50% covered by solar panels on the south side of the building, providing natural energy. The remaining exposed glass roof has parametric fins designed to filter light through the building and also help warm the building naturally. Also, on the south facing walls of the structure, gabion walls were added to help naturally heat the hotel, but also disperse direct light into the building and help with temperature control. All of these sustainable, natural features work together to create a space for plants to grow and thrive in soil like they would naturally in a forest and also create a strong and attractive aesthetic for guests.

Each space within Hotel Aarde is intended to connect guests directly to nature. A series of bridges and meandering forest paths throughout the entire building provide an aspect of exploration. The building is carefully designed to elicit the sense of mystery and the joy of being within a self-sustaining urban oasis. The building is designed to heal people and the planet.

Table of Contents

Research and Programming

- Literature Review

- Precedent Research

- Case Study Research

- Program Research

- Site Research

- Design Probes

- Research-to-Design Statement

Design Development

- Process Work

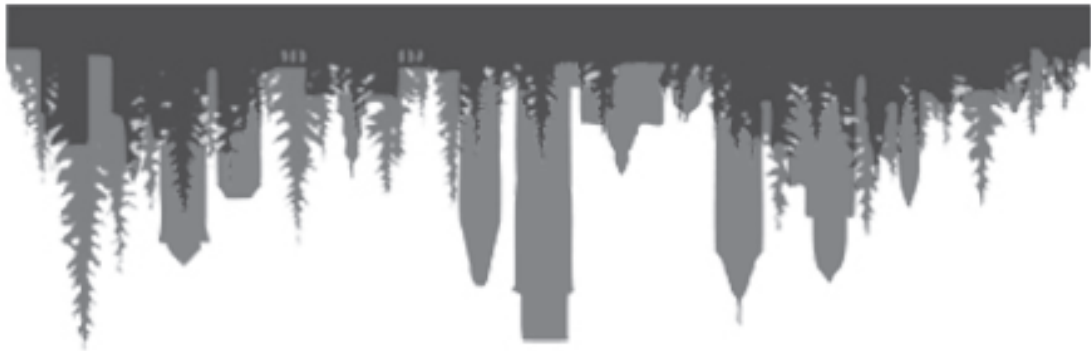
- Sustainability Features

Final Design

- Hotel Aarde



Literature Review



Self-Sustaining Urban Oasis

Thesis Literature Review – Final Draft

Phoebe DeFries

December 13th, 2020

Introduction: What is a self-sustaining urban oasis?

My thesis topic is a Self-Sustaining Urban Oasis. The definition of Oasis is “a fertile or green area in an arid region (such as a desert).” (Merriam-Webster) Translating the concept of an Oasis into a built urban setting, means creating a space in the center of a developed city where people can unwind, get away, restore themselves and feel at peace with nature, while being environmentally responsible.

The following literature review will combine research on environmental self-restoration, the history and impacts of vacation and tourism, leisure within cities, biophilic design benefits and an architectural precedent to provide a clear picture of what a Self-Sustaining Urban Oasis needs to create a true place of escape within a city.

Environmental Restoration: The Three Theories

There are three main theories of environmental self-restoration all tied into the concept of stress reduction. The first theory is Attention Restoration Theory (ART) by Rachel and Stephen Kaplan, which conveys conditions needed to properly be able to restore. The second theory is Stress Recovery Theory (STR) by Roger Ulrich, which states that due to human evolution, one must seek water and vegetation to properly de-stress. The third theory is Information Processing Fluency Theory (IPFT) by Yannick Joye, which explains that to be properly restored, one must be in an environment that is easy to process. All three

theories working together and properly devised, could create the ideal space for humans to restore in nature and recover from the daily stresses of urban life.

Attention Restoration Theory (ART) theory requires three specific qualifications to fully be effective and provide an atmosphere of environmental restoration. The first qualification is being away. Kaplan explains that being away does not mean physically leaving, but having the opportunity to psychologically escape. While there are ideal locations for getting away such as mountains, lakes, forests, meadows and streams, "for many people in the urban context, the opportunity for getting away to such a destination is not an option." (Kaplan) The second qualification is that aspects of the environment must be "rich" enough to create an entirely new experience and push one to "see, experience and think." Examples of fascinating environmental stimuli are clouds, snow, breezes, and sunsets, which Kaplan states all are met with an aspect of effortless thought. (Kaplan) The third qualification is that there is compatibility with the purpose for being in the said environmental situation. While it might seem hard to find a location that has all three qualities in an urban setting, they do exist.

One possible example of a successful ART location is a Japanese Garden; a space that has designed trails, paths, and greenery that make a small area feel much larger. (Kaplan) The overall feeling of being in a Japanese garden evokes the feeling of being away (the first qualification). The gardens also create a rich environment with the winding paths that people wonder through effortlessly (the second qualification). The third requirement, purpose, is found with the simple choice of going to this

built but natural setting. Taking Kaplan's ART theory into an urban setting is challenging, but if careful respect is paid to each of the qualifications, an environment of recovery and mental rejuvenation could be created. (Kaplan)

The second theory of environmental restoration is Stress Recovery Theory (STR) by Roger Ulrich. STR discusses stress recovery linked to human evolution. Ulrich states that when stressed, we are naturally drawn to environments different than ones currently inhabited. These environments typically consist of nature, water and vegetation. (Trench) Humans inherently gravitate towards the natural world and vegetation due to evolutionary ties. Humans were "more likely to survive near water and vegetation so it calms us," Ulrich states. (Ulrich) Our current habits are dictated by our ancient survival DNA. To bring humans to their calmest state, the natural setting must be "non-threatening, lacks tension, and is interesting." (Trench)

Ulrich conducted studies in the early 1990's and used natural visual elements to prove his theory of STR. Several of the studies were conducted on people in hospitals, prisons, residential settings, offices and schools. In a short period of time of visual exposure to nature, there was noticeable improvements in "reducing blood pressure, heart rate, cortisol levels, sweating of the hands, muscle tension, etc., which are all markers of an improvement in our parasympathetic nervous system activity." (Sok-Paupardin) Ulrich also monitored subjects' mood, anxiety levels and comfort levels. He was able to conclude that with introduction of nature, no matter where a person is located, there is overall positive effects on physical and mental health. (Sok-Paupardin)

The final theory of environmental restoration, Information Processing Fluency Theory (IPFT) by Yannick Joye, is based on environments that are easy for the human brain to process. (Trench) Joye states that one does not necessarily need to be in a natural environment in order to get its benefits, but that the environment itself needs to be made of individual parts that are easily processed. Fractal-based patterns are a good example of something easily recognized by the human brain, due to its geometry based in nature. An example of a fractal pattern is a spiral staircase based off the curves in a snail's shell. (*Natural Patterns*) This example and many more can be brought into a built environment. While this theory somewhat contradicts the other two because it can be invented, while the other theories rely on natural conditions, they all can be applied to a built environment with the goal of restoration. If one created a mental escape (ART Theory), with easy access to water and vegetation (STR Theory), and placed it in an environment with easily processable space, full of fractal-based designs (IPFT Theory) – an ideal space for environmental restoration could exist: an urban oasis.

Vacations: A Brief History and The Resulting Environmental Harm

Taking time-off and vacations are commonly linked to stepping away from work and breaks in educational schedules. Children have set breaks throughout the school year aimed to “improve attentiveness, boost learning productivity, reduce stress and help memory.” (Learning Liftoff) The same positive effects of time-off can be attributed to vacations from the workplace. However, the origins of the work vacation had an underlying motive of profitability.

Starting in the early 1900's, employers began to encourage workers to take vacation time, due to psychologist's beliefs that time off would directly impact productivity, and therefore create a more profitable business. (The Psychology of Vacations) If a worker was allowed time off to decompress and refocus, they would have more opportunity to make money for the business. (The Psychology of Vacations) While the foundation of time off was meant to benefit businesses first, psychologists did note that, time off and vacation are imperative to proper mental health and continued focus for day to day responsibilities. (The Psychology of Vacations) There is, however, a key negative impact that is associated with time off, and therefore travel: environmental harm. (The World Counts)

While vacation time is cherished and, in some cases, looked forward to year-round, there is no denying the extreme harm to the environment that comes from tourism. Between 1950 and 2018, the amount of international travelers jumped from 25 million to 1.4 billion, with no end in sight to these increasing numbers. (The World Counts) With massive numbers comes massive negative impact.

"The negative environmental impacts of tourism are substantial." (The World Counts) There is mass depletion of natural resources, pollution, and waste. Worldwide tourism accounted for 8% of global greenhouse emissions in 2013 and is expected to reach 12% by 2025. (Dunne) Doctor Ya-Yen Sun, an expert on environmental tourism, states that "one key step to low-carbon travel is to fly less, [and] choose destinations that are close to home." (Dunne)

Combining the need for time-off to properly mentally rejuvenate and restore, and finding a way to not cause more environmental damage to the environment from travel, is a hard problem to solve. There are options like taking a local spa day or staycation, but neither allow the full decompression experience of being removed from everyday life and taking substantial time away. Based on Sun's research, the most environmentally harmless vacation would be one that is easy accessed. When pertaining to urban life: a getaway in one's own city.

Leisure in Cities: The New Normal?

Writer Christopher DeWolf studied the growing trend of leisure within cities, especially in the city of Shenzhen, China. Shenzhen is a rapidly growing city of 18 million people and extreme wealth. Backed by Hong Kong investors and entrepreneurs, the city was founded in 1980 as a "Special Economic Zone," where factories were quickly opened, to draw people to relocate to Shenzhen from across the country. "The seeds of China's modern-day industrial revolution were planted in Shenzhen." (DeWolf) Once factories were established, tech and service industries also grew, and with these booming industries came skyscrapers, new architecture and innovation. (DeWolf) On the outskirts of Shenzhen, Gottlieb Paludan Architects and Schmidt Hammer Lassen Architects jointly created the largest waste-to-energy plant in the world, which included 66,000 square meters of solar panels. With a city leading in architectural innovation, rapid growth, and booming tech and service industries, the next step was putting leisure

activities at the forefront of development. “After such huge growth they’re now realizing they need to improve it by focusing more on quality of life,” says Jacob van Rijs, a founding partner of Dutch firm MVRDV. (DeWolf) Firms throughout the city are converting industrial settings into urban recreational blocks. These updated developments include theaters, cultural centers, galleries, art museums, and fitness centers. All of these urban spaces promote leisure, social gathering and an escape from day-to-day life, and all easily accessible and within close proximity to each other.

In the early 19th century, much like Shenzhen, much of American leisure in urban settings mainly originated around urban workplaces, such as mills and factories. (Souther) Leisure activities became an escape from daily duties. They “offered escape from the noise, filth, and stress of factory and tenement alike.” (Souther) Urban parks, ballparks, and amusement parks became important places for people to take a relaxing break from their consuming work life. Newer concepts such as urban entertainment districts were established towards the end of the 20th century, aimed at tourism and recreation. They often had themes such as sports, arts, and entertainment. The entertainment districts were all aimed at increasing attractions into cities. “Americans had rediscovered the city and once again romanticized its sophisticated appeal.” (Souther) There became a class divide as these attractions started adding admissions prices, leaving entire income brackets unable to continue their urban leisure. “Thus, by the end of the twentieth century, cities had seemingly moved a little closer to the socially segregated spheres of leisure that had also predated the rise of commercialized mass leisure that had marked their early twentieth-century counterparts.” (Souther)

Thriving cities with large populations need places dedicated to leisure. Cities with varied incomes need spaces that are inclusive and offer escapes for all. An inclusive urban oasis could create a space for all types of people in its city, and create a space that feels safe and welcoming to all its inhabitants.

Interiors: Biophilic Design Benefits

Although there are many sources that dive into biophilic design and human's natural tie to nature, this literature review will focus on the documentary *Biophilic Design: The Architecture of Life*, and Richard Louv's book *Lost Child in The Woods*. Both thoroughly explain human's ties to nature and what happens when that connection is severed.

The documentary *Biophilic Design: The Architecture of Life*, is a guidebook to a self-sustaining urban oasis. The film discusses human's need for contact with nature, and that biophilic design fulfills connectivity needs within the built environment. (*The Architecture of Life*) Given that people spend 90% of their times indoors, there is a need to create a more evolved indoor habitat. Jason McLennan, the founder of the Living Building Challenge stated that "for too long we've seen our cities develop with such an absence of life." (*The Architecture of Life*) How are we able to bring life back to a city?

Through discussions of direct nature (physical contact with natural elements), natural materials, and evoking nature (using familiar natural patterns), the film lays out the groundwork for what a successful biophilic design would look and feel like.

In addition, through spirit of place (finding connection and meaning to where one is physically), impacts of biophilic design (healing, work, community), and the ethical imperative (positive and moral benefits to the environment) behind biophilic design, the film takes a clear stance: "ultimately biophilic design is more about restoring our connection to nature, than it is about adopting a new methodology for design of the built environment." (*The Architecture of Life*) The urban oasis will bring all necessary aspects together to create a space that connects people back to their origins, and honors Tim Beatley's statement, "in this country we tend to think of cities and nature as polar opposites, when in fact we need to think of the concept of a city more like a garden." (*The Architecture of Life*)

Richard Louv, has dedicated his life to studying the lasting effects of humans being removed from nature. In his book *Last Child in the Woods*, he discusses topics of dissociation with nature, particularly for children. A term used commonly in the book for this dissociation is "nature-deficit disorder." The term is rather straightforward, and although not yet medically proven, it is a condition that he argues strongly. Harm is caused to children who do not spend time in nature. (Louv) This can translate into adulthood with lasting effects on their mental and physical state, such as depression. Without a learned baseline of understanding the curative qualities of nature, they never develop the tools to help themselves. (Louv)

To be able to create a place of true healing, restoration, and relaxation, biophilia needs to be at the heart of the design intent. Every detail, from materials and shapes that evoke nature, to location and bringing in nature itself, need to be studied and carefully planned. The goal being to combat nature-deficit disorder and bring life back into cities.

Presents: Existing Urban Oasis



There are an abundance of examples of urban buildings that use biophilic design and bring nature into an indoor setting, but not all of them focus on rejuvenation and escape. An example of an architectural project where the goal was to create “a botanic oasis” is the Wardian in London, England. The Wardian was designed and built by Glenn Howells Architects and developers Ecoworld Ballymore. The concept was inspired by Dr. Nathaniel Ward who transported exotic plants. (Killip) The building consists of 12 luxury residential penthouses, a communal swimming pool in the atrium, two restaurants, a gym, a theater and a rooftop observatory. It was important that the building be located on the water, and much of the building had

views of Canary Warf and downtown London. It was also essential that it be located near public transportation for easy access around the city. (Ecoworld Ballymore)



Blurring the transition between indoors and outdoors was a major component of the design. Each penthouse has 350 square feet of lush green terrace space, and the swimming pool is surrounded by over 100 different species of plants. The materials chosen were mostly natural materials such as marbles, woods, and glass. (Ecoworld Ballymore) There is even a special program within the building dedicated to garden maintenance. Glenn Howells Architects and Ecoworld Ballymore successfully created a space that brought the outdoors, inside of the building, with the intent of happier residents and a place to escape the city, while still being completely central.



As I mentioned earlier in the literature review, I plan to create an urban oasis that is inclusive. While the design elements and ideas behind the Wardian are great inspiration for my project and show a very effective space that brings in the natural world, it is not an accessible space for most. A large component to figure out in the program of the design is how and what can be accessible to the public and welcome all, no matter what their financial situation is. My goal is to create a space with a luxury look, but not attitude.

Conclusion

All research in regards to urban dwellers, leads to the same conclusion: people need a break from their work life and a place to escape. Through studying theories on environmental self-restoration, understanding the origins and need for vacation time, and learning from successful and unsuccessful trends of leisure within cities, the mental and physical requirements are

adherently clear and will be implemented in the oasis. In addition, comprehending the benefits and standards of biophilic design, as well as researching a successful architectural development that incorporates the foundations of “a botanic oasis,” inform a clear outline for the conditions of a thriving self-sustaining urban oasis. My thesis will seek to do its part in honoring nature and the built environment, to create an ideal urban escape catering to the human need of restoration and relaxation.

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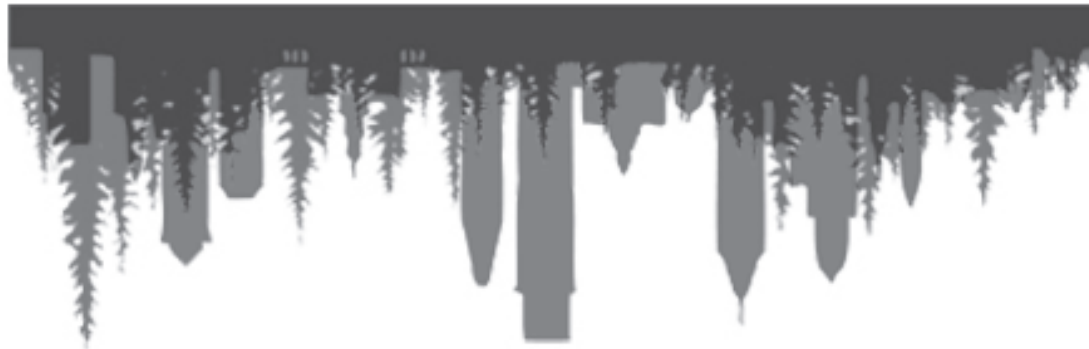
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Precedent Research



The Wardian

London, England

- Goal to design "a botanic oasis"
- Designed by Glenn Howells Architects
- Developed by Ecoworld Ballymore
- Inspired by Dr. Nathaniel Ward (famous for exporting exotic plants)
- 12 luxury penthouses, communal swimming pool in the atrium, two restaurants, a gym, a theater and a rooftop observatory
- Important that the building be placed on the water
- Essential to be near public transportation
- Each penthouse has 350 sf of terrace space
- Swimming pool is surrounded by 100 different plant species
- Meant to blur the lines between indoors and outdoors



Exterior



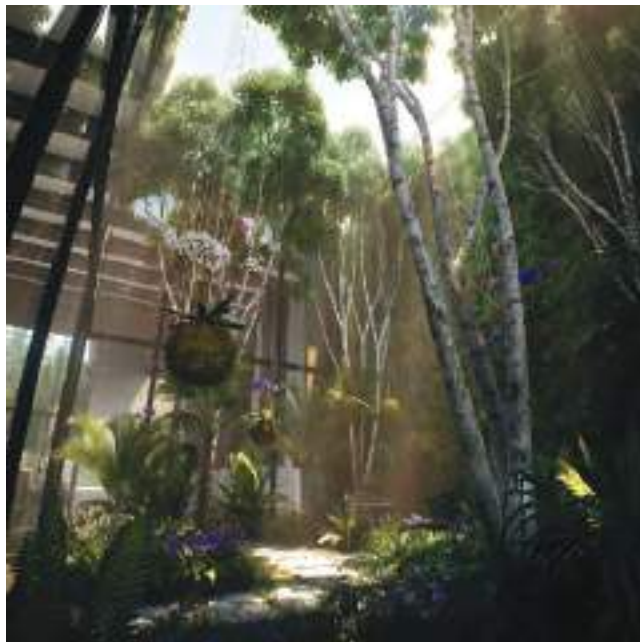
Lobby



Interior Pool



Lounge



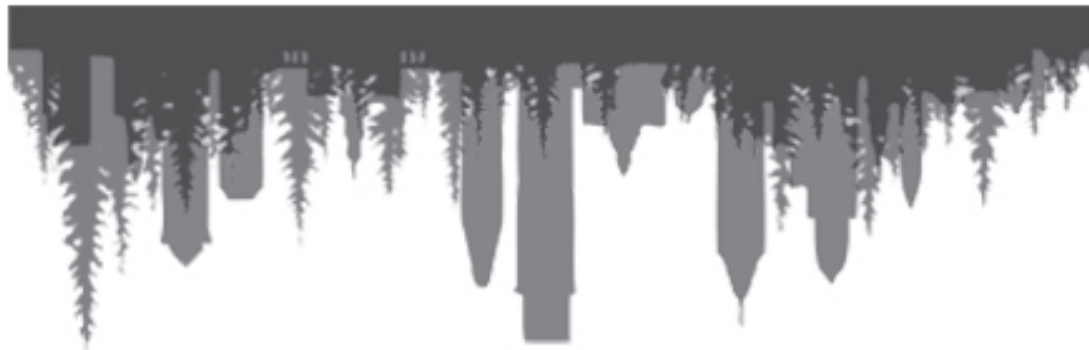
Atrium



Penthouse



Case Study Research



The Sagamore Pendry Hotel

Baltimore, Maryland

- Fells Point, Baltimore
- 1914 original building
- Built on the Recreation Pier
- 128 room boutique hotel
- Owned by Under Armour CEO
- Natural/Nautical feel mixed with luxury design
- Designed by Patrick Sutton
- \$60 million project
- Standard rooms = 370 sf
- Rooms cost \$400-600 a night
- Hosts events, including weddings



Front Exterior





Atrium



Pool



Restaurant



Guest Room

Sagamore Pendry Hotel - Interview

1/23/21

Interviewee: Joan, Director of Rooms/Operations

Q: What are the main goals and purpose of the facility?

A: The hotel was a recreation theater in 1914, then abandoned and Kevin Plank (Under Armour), who was developing Fells Point decided to build a hotel as well. The hotel is associated with Sagamore Spirits, farm and distillery.

Q: How would you describe the organization;s culture?

A: We are focused on taking care of internal guests. It starts from within - if our staff is happy, they will show our guests.

Q: How does the design differ from other facilities?

A: The design intent was to feel like one is on a cruise. They focused on authenticity, luxury level service, staff and guests. The designer is local and also focused on art and history.

Q: What type of people come here?

A: During COVID, more local people so that they can get away. During normal times, families and weddings/events are the focus for weekend guests and business trips are a focus on the week days.

Q: Is there an average age of occupants?

A: No.

Q: What are the different departments in the hotel?

A: Rooms division, food and beverage, engineering, security, human resources, sales, marketing and administrative.

Q: How do departments interact?

A: Very closely.

Q: What type of space does the staff require?

A: Each department has it's own space. Leadership has their own offices.

Q: Are there any special safety or security issues?

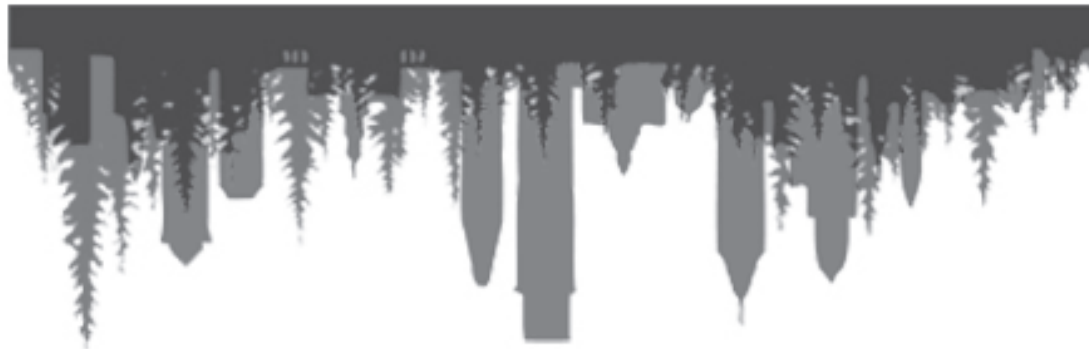
A: Fells Point has it's challenges and we partner with local security, who will help people to their cars and there is also 24 hour internal security.

Q: Are there special finishes or furniture?

A: Everything has to be luxury and any colors or designs need to be approved. The design continues to be updated and stay on trend.



Program Research

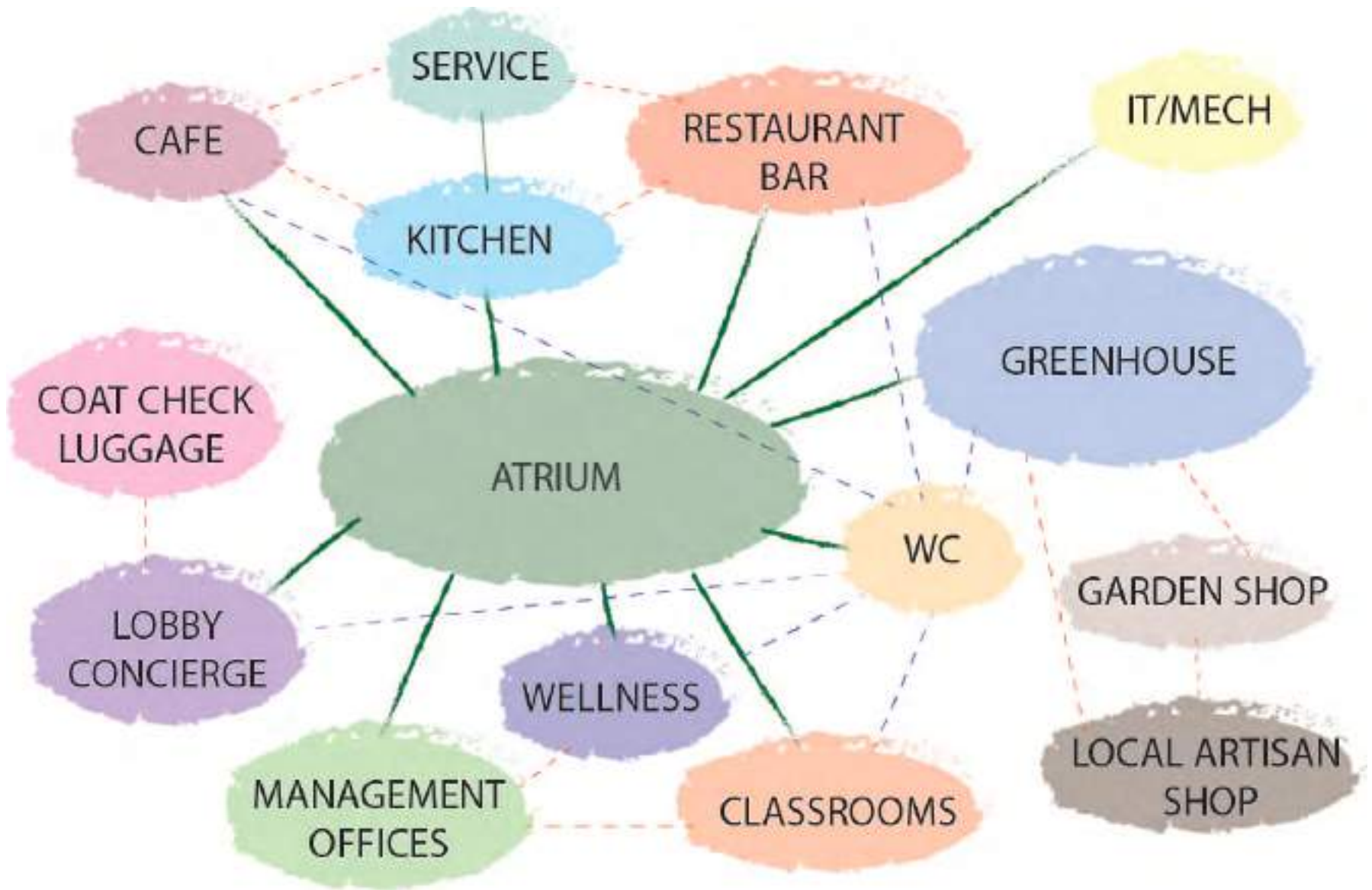


Initial Programming

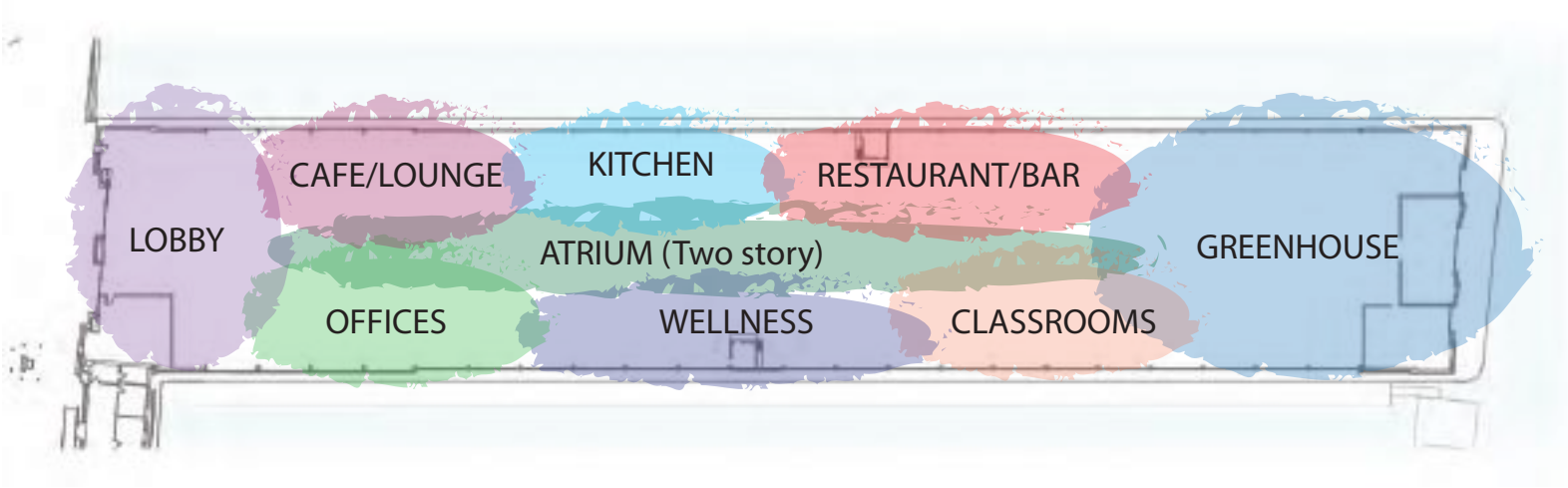
PROGRAM

- Atrium (aka small forest - through second floor, leave open): TBD w/ remaining space
- Lobby/Concierge: 1,000 sf +/-
- Public Restrooms: number? ADA all?
- Management Offices: 600 sf
- IT Room/Mechanical Room: 600 sf
- Coat Check/Luggage Room: 400 sf
- Cafe/Café Storage: 15 seats
- Bar/Lounge: 30 seats
- Restaurant: 60-80 seats
- Kitchen: 2,000 sf (larger, presentations)
- Service areas: 400 sf min
- Classrooms/Classroom Storage: 2,400 sf (15 people per)
- Yoga Room/Exercise Room/Wellness Offices: 1,000-3,000 sf (two story?)
- Local Artisan Shop: 800 sf
- Greenhouse/Garden Shop: 15,000 sf
- Guest Rooms (top floor): TBD w/ atrium size

Bubble Diagram



Initial Space Planning



SECOND FLOOR



Site Research



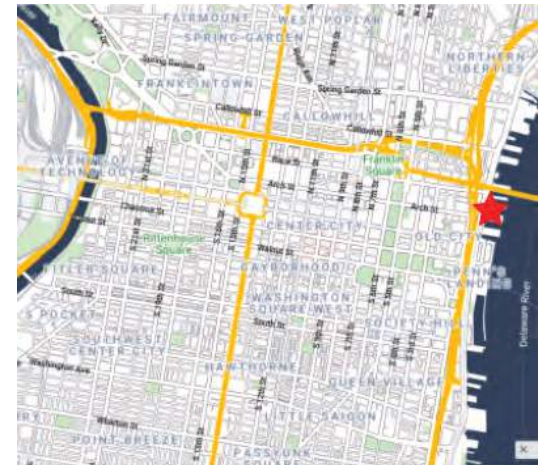
Cherry Street Pier

Philadelphia, Pennsylvania

- 121 N Christopher Columbus Blvd, Philadelphia
- 55,000 square feet
- 20th Century maritime warehouse
- Formerly Municipal Pier 9 - imperative location for Philadelphia's shipping and trade
- Located with easy access to center city



Pier View



Google Earth Views



Site Exploration



De-skinned Area



Interior View Outwards



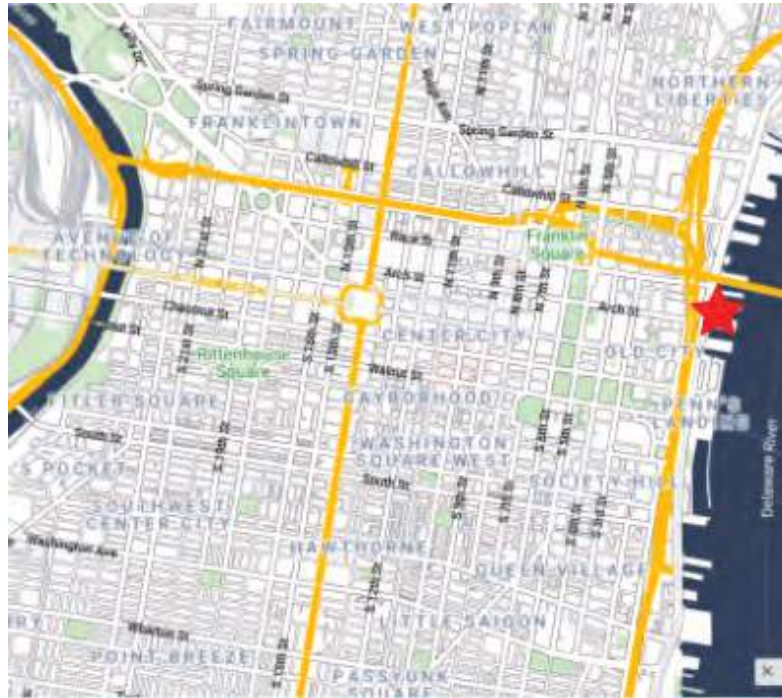
Empty Interior View



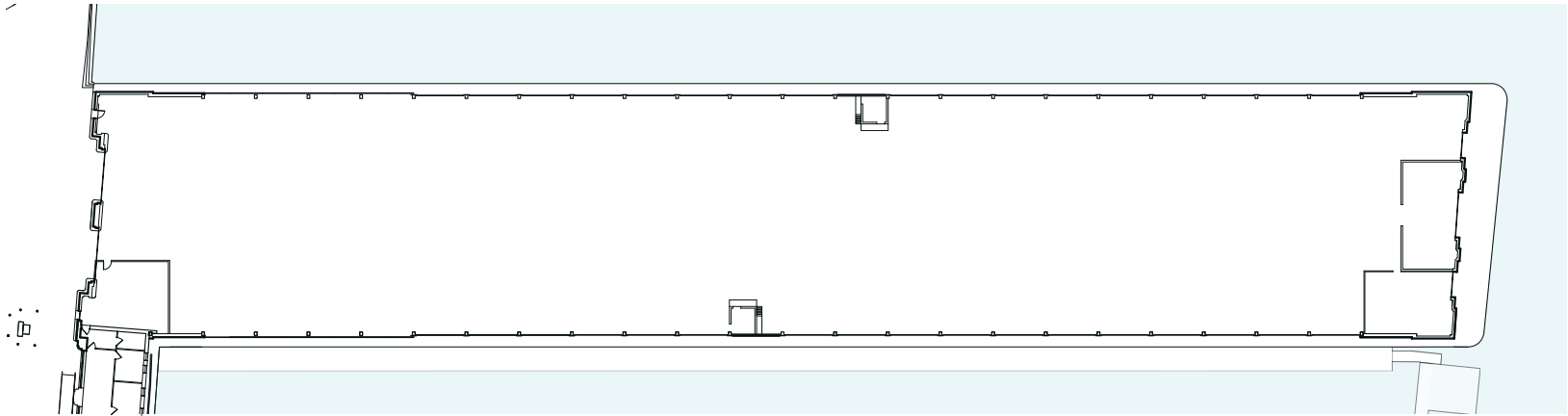
Exterior View

Site Requirements

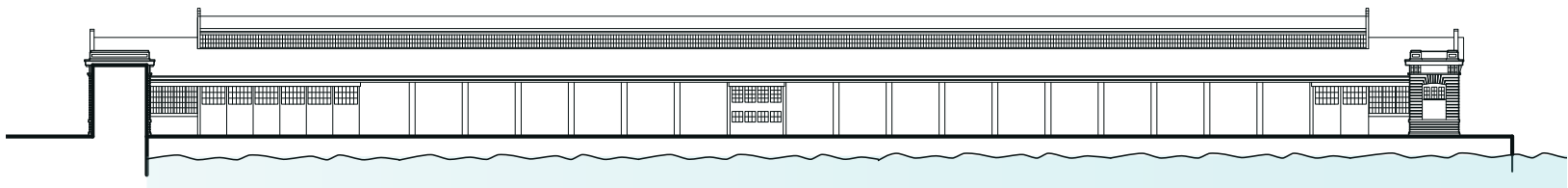
- Easy access for locals
- Easy access to local artisans
- Direct views of water
- Located near farmers markets
- Large enough space to create a "small ecosystem"



Existing Condition Plan and Elevation



Existing Plan

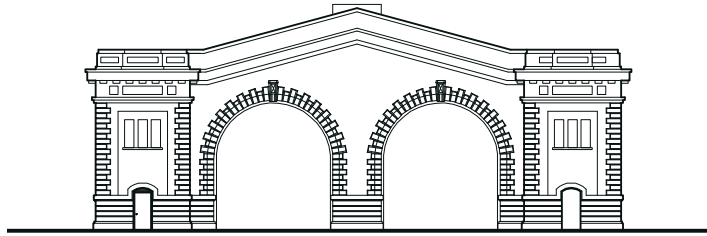


South Elevation

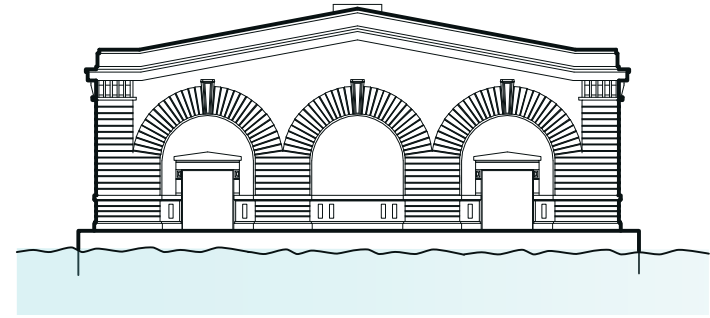
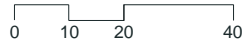


Existing Conditions

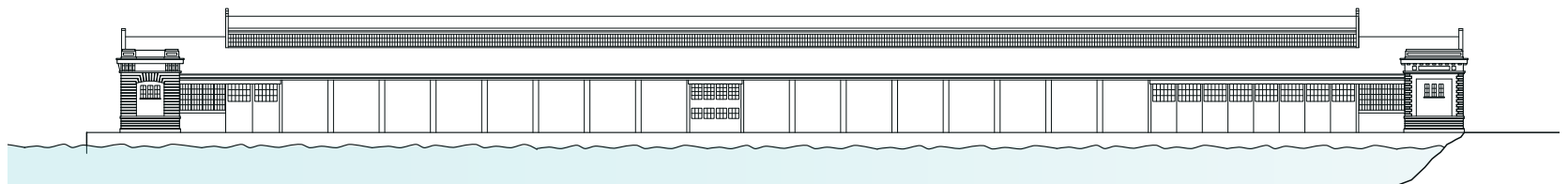
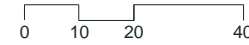
Existing Condition Elevations



West Elevation



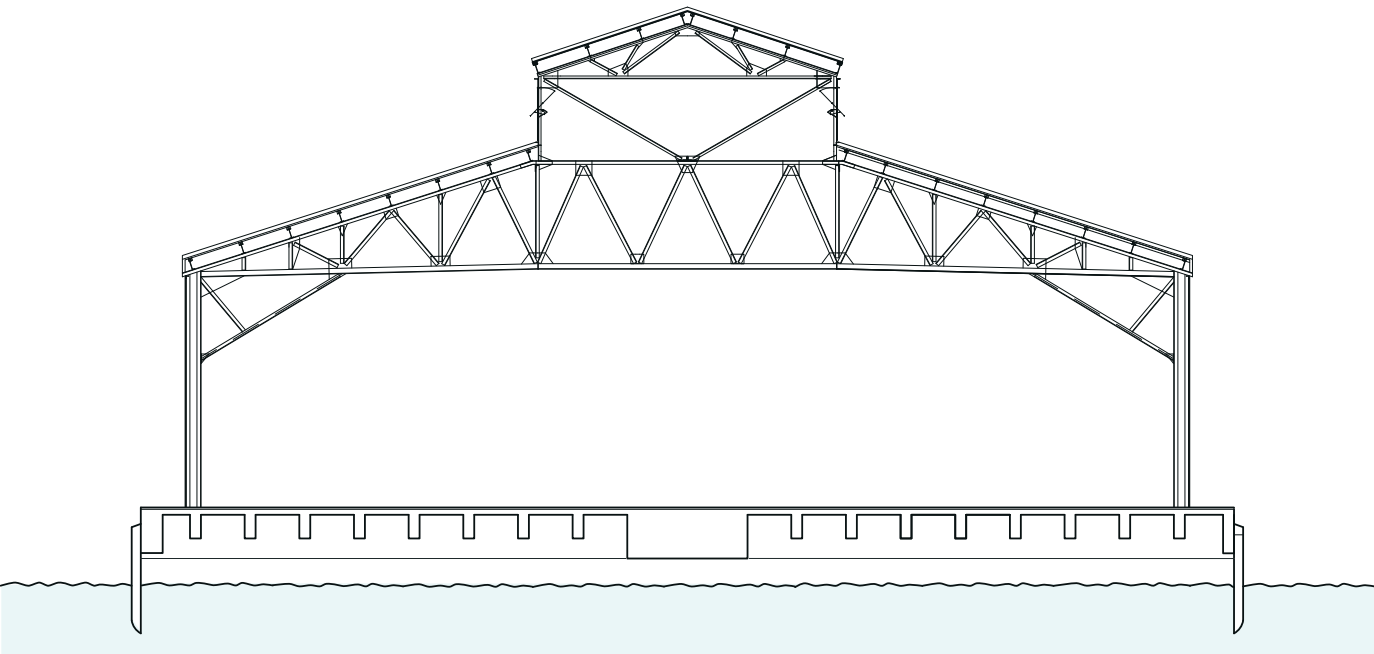
East Elevation



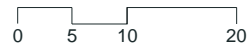
North Elevation



Existing Condition Section



Typical Section



Existing Conditions



Design Probes



Design Probe 1: Scale

Consider at what scale an appropriate response might be made to the issues raised in the review of your topic. Explore the question of scale in two ways:

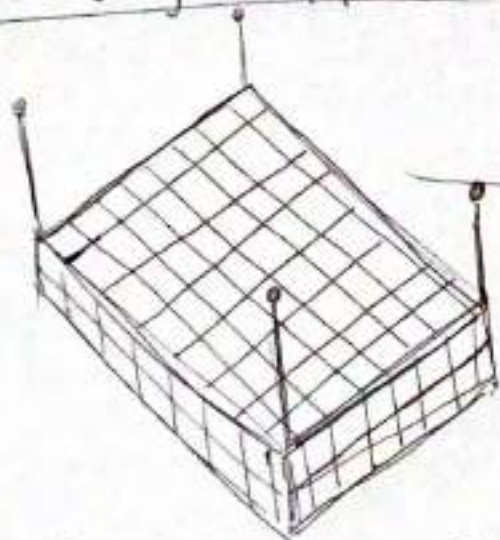
1) Map your topic. Prepare a drawing that represents some of the spatial qualities of your topic. At what scale should the map be made (does it represent a city, a building, a room)? What information is included in the map; what information is left out? What is at the edge of the map, and what is central?
Reading: Corner, James. “The Agency of Mapping: Speculation, Critique and Invention”

2) Design an object or piece of furniture that suggests a small scale at which your topic might be addressed. (For example, issues of educational achievement might be addressed through the design of a pencil, a backpack, or a desk.) The design should be presented in 3-dimensional form (model or drawing) with notes on how the item addresses the topic.

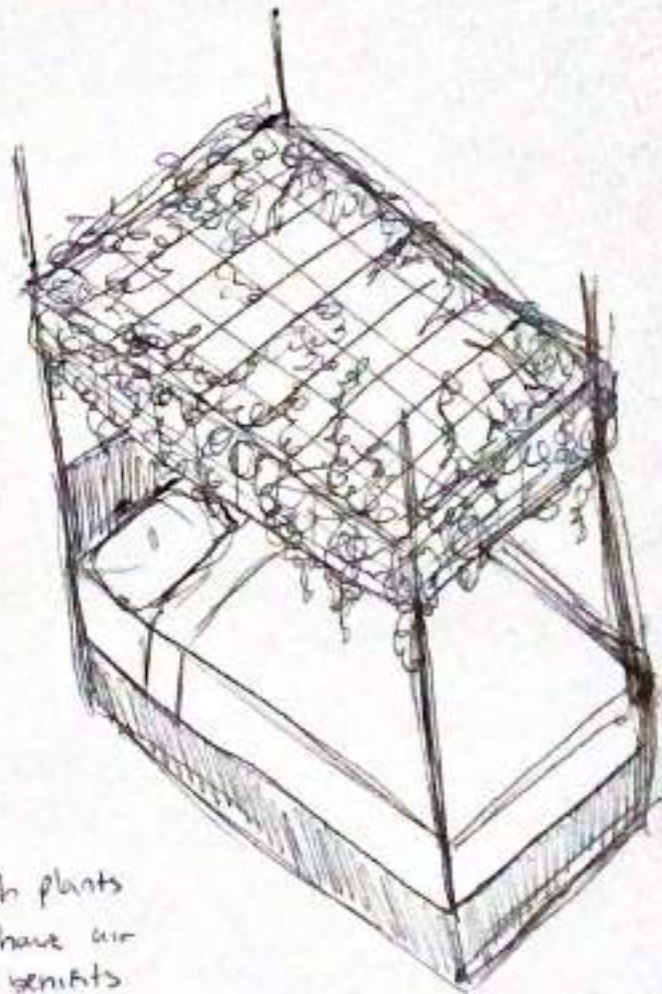
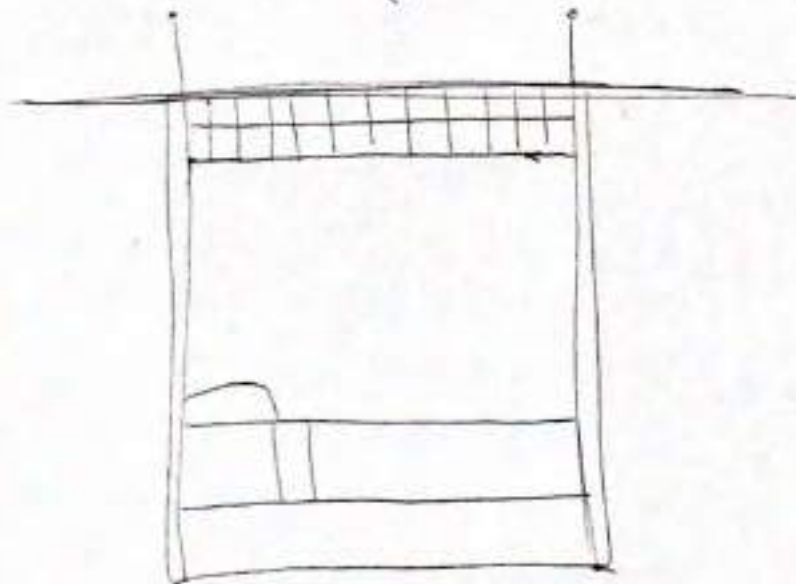
-  SITE
-  CENTER CITY FARMERS MARKETS
-  LARGE BODIES OF WATER
-  COMMUNITY GARDENS
-  PARKS



"Green Ceiling" canopy bed - Hospitality



- suspended from ceiling
- framework for indoor plants



- research plants that have air quality benefits
- don't attract bugs

GREEN CEILING CANOPY BED
SELF SUSTAINING URBAN OASIS



- Needs natural light
- Use multiple types of ivy for color and length
- Incorporate some type of track lighting

Design Probe 2: Material

Consider what would be an appropriate material response to the issues raised in the review of your topic. Explore the question of materiality in two ways:

1) Develop a palette of materials that responds to the issues raised in the literature. Compose and present this palette on one 11x17 sheet. How would you describe your palette? What materials existing in current environments and which do you think should be introduced?

Reading: Herzog, Jacques. "Thinking of Gadamer's Floor"

2) Drawing from your materials palette, construct three (3) study models that explore formal, material, tectonic, or spatial qualities you consider to be at stake in your thesis. Consider both the properties of the material and the actions/techniques that can be performed on them. (Refer to Richard Serra's Verblis.) The study models should be presented in class and documented as part of the design brief.





Design Probe 3: Experience Due Winter Week 1

Consider who is impacted by the topic you are interested in, and what experiences inform their perceptions and attitudes about the topic. It is important to consider both formative experiences and the day-to-day routine. Explore the question of experience in two ways:

- 1) Document the experience of a specific individual. Identify someone who has experiences related to your topic, and research (preferably through interview) their experiences, perceptions, and attitudes. Pay close attention to the environments that shape their experiences.
- 2) Design an experience that responds to the issues raised by the person or in the literature on your topic. The design may be in written or visual form, and should include information about the physical environment as well as the sensory and emotional experience.



Research-to-Design Statement

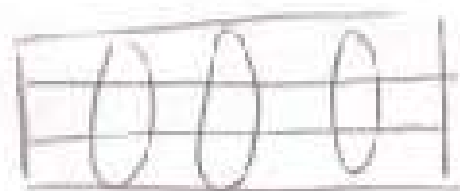
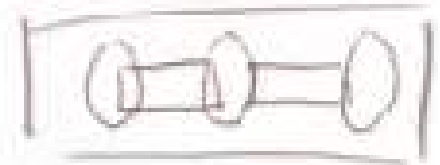
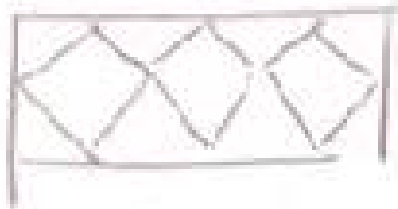
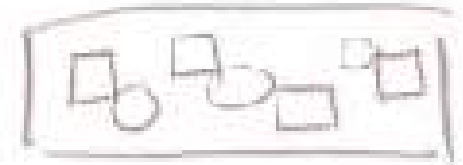
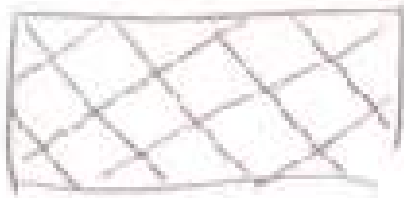
Combining research on environmental self-restoration, tourism, leisure, and biophilic design with the intended site location began to inform the design intent. With goals of bringing a thriving forest into an interior, providing a space for self-sustaining agriculture and greenery, all encapsulated within a full service hotel started the design process that follows...



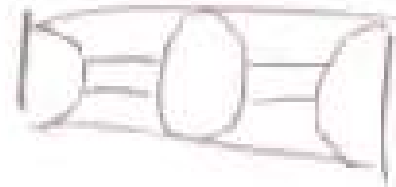
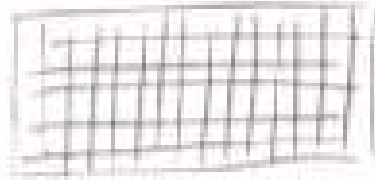
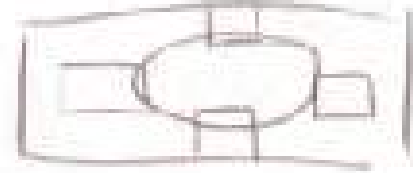
Process Work



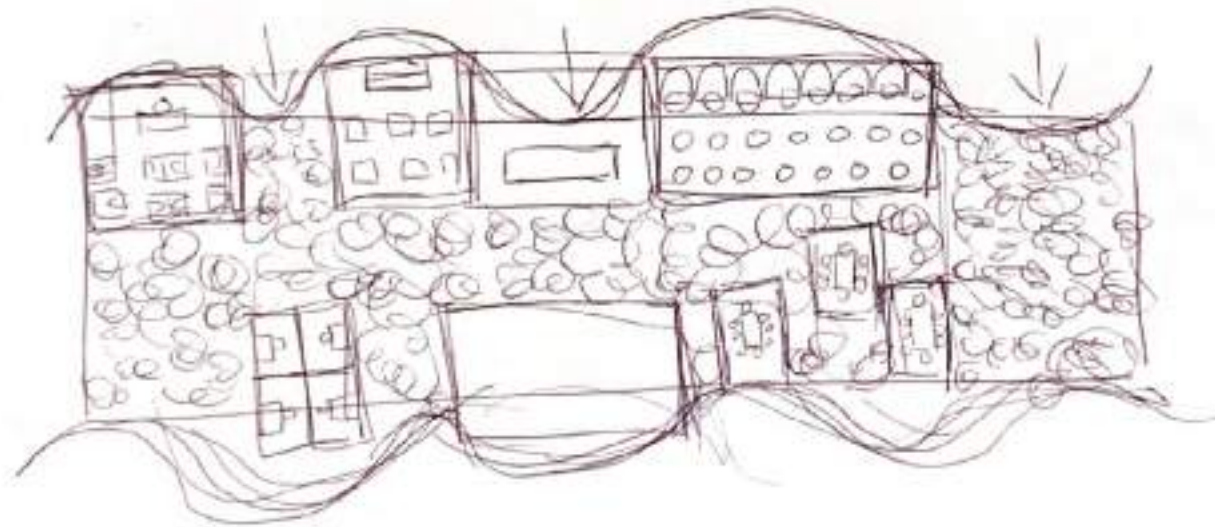
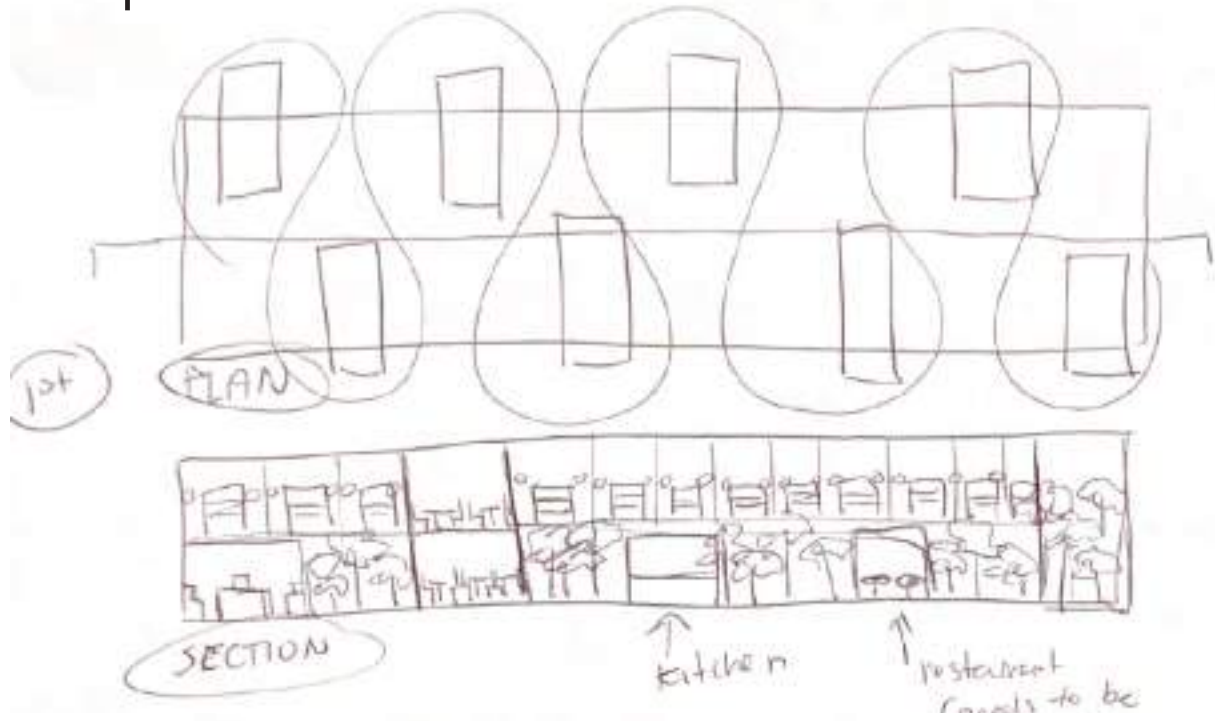
Parti Development



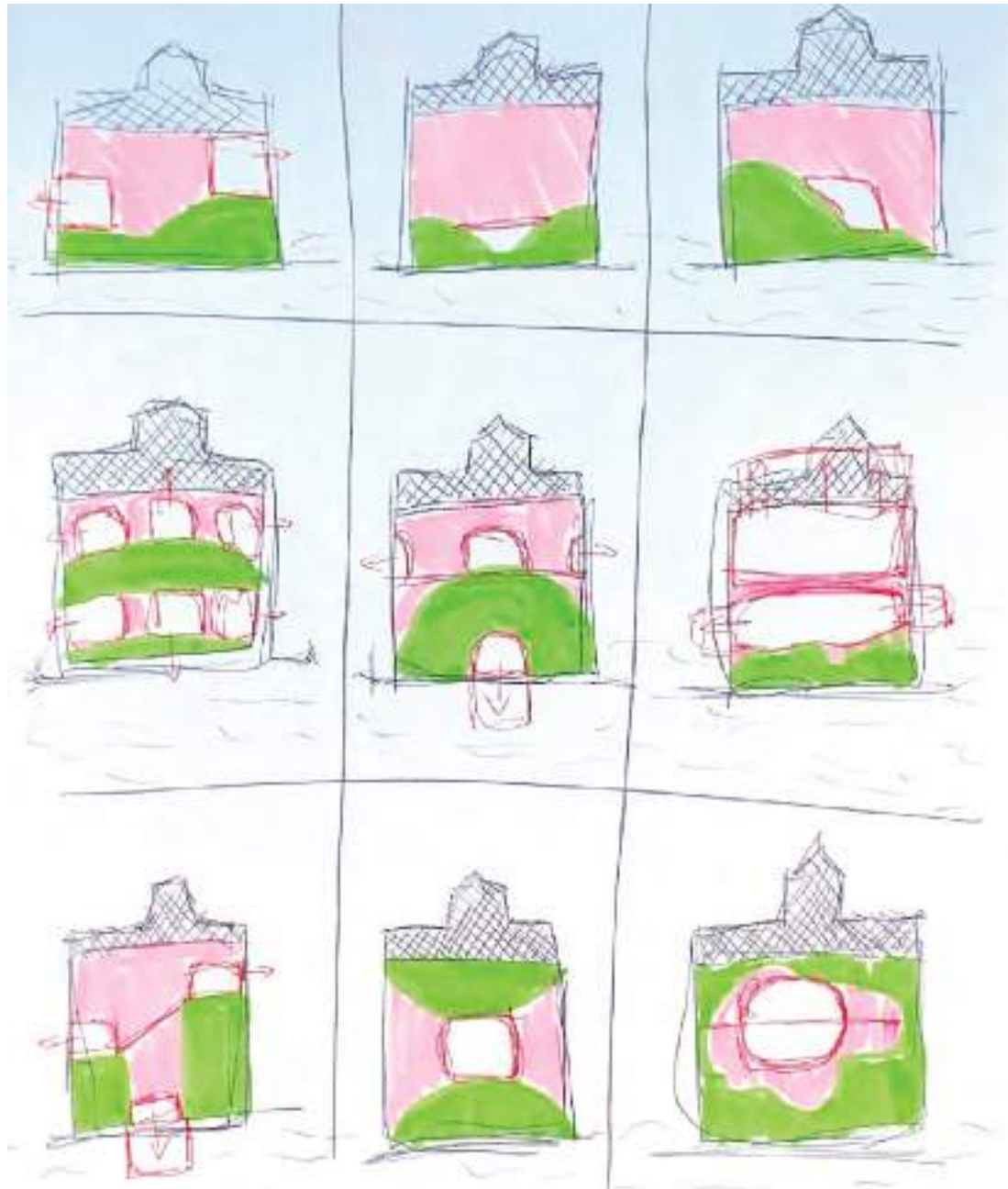
Parti Development

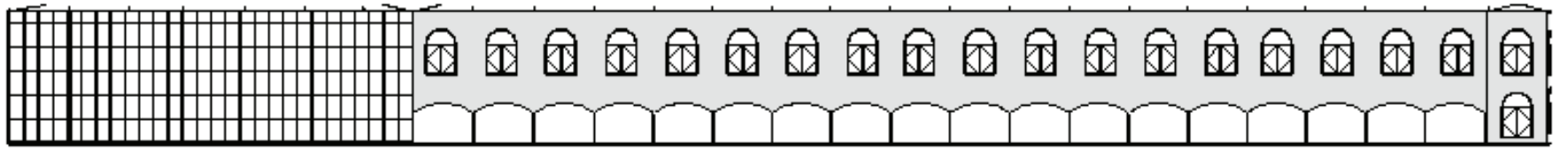
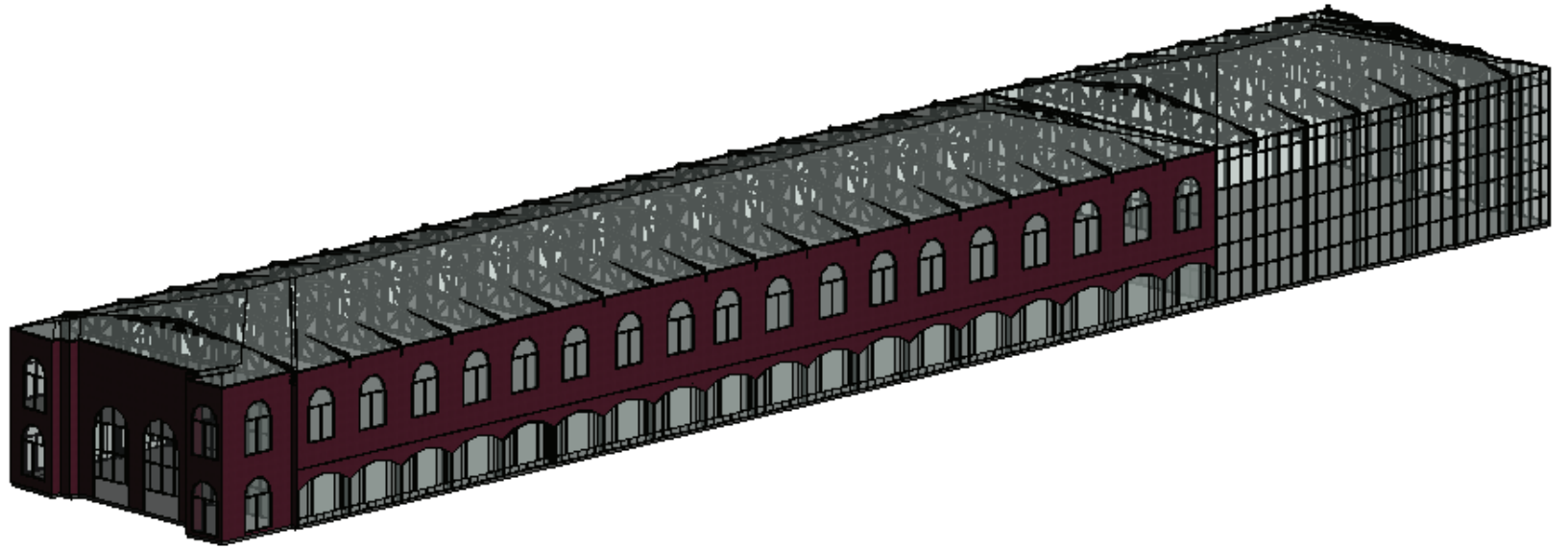


Parti Development

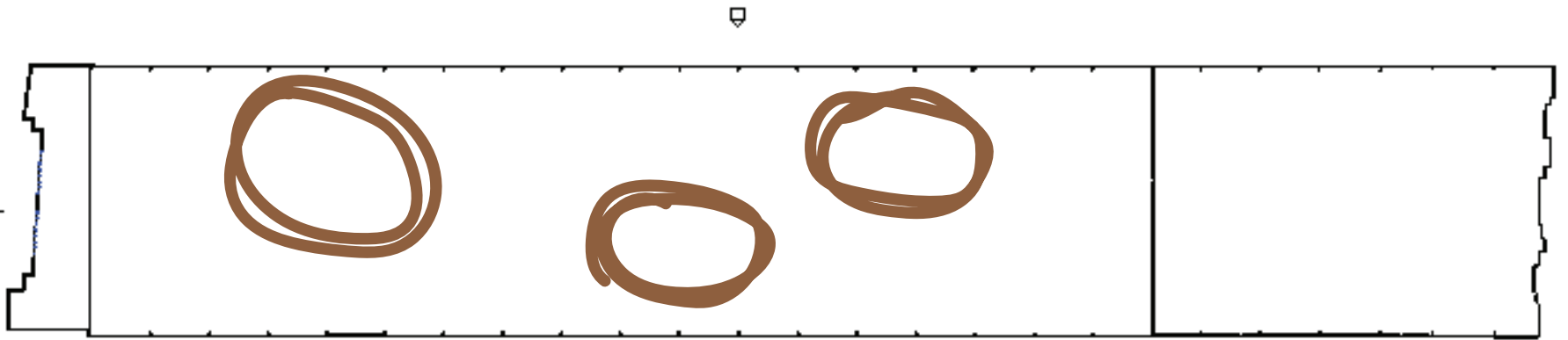
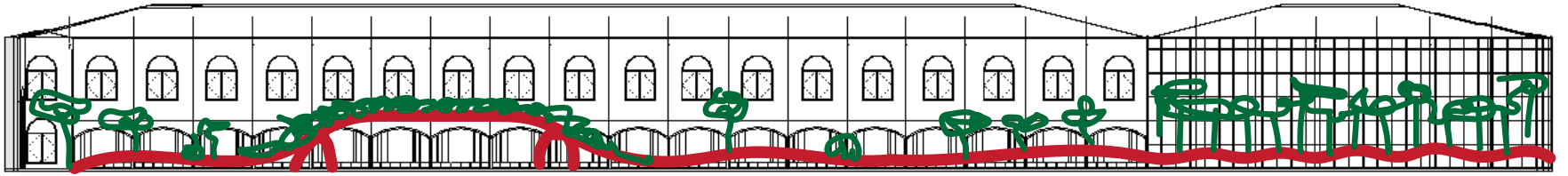


Sections Development





Draft



Inspiration Images - Forest Path



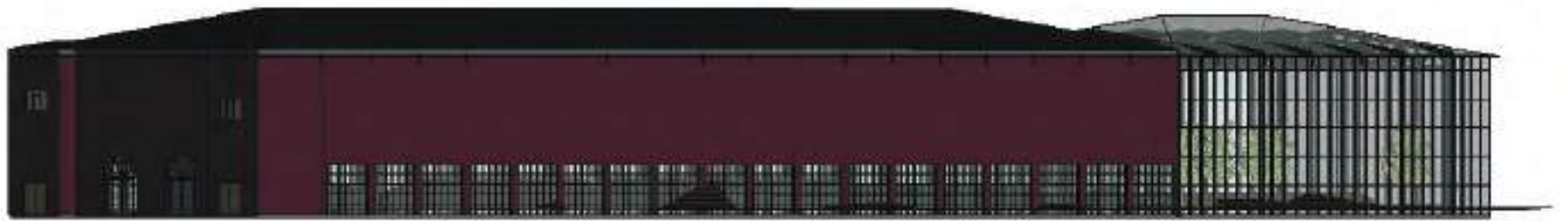
Inspiration Images - Urban Path



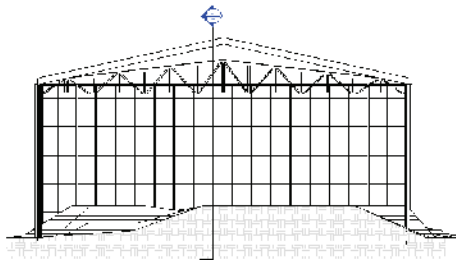
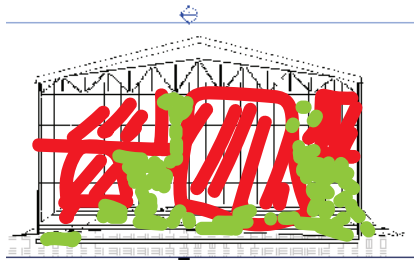
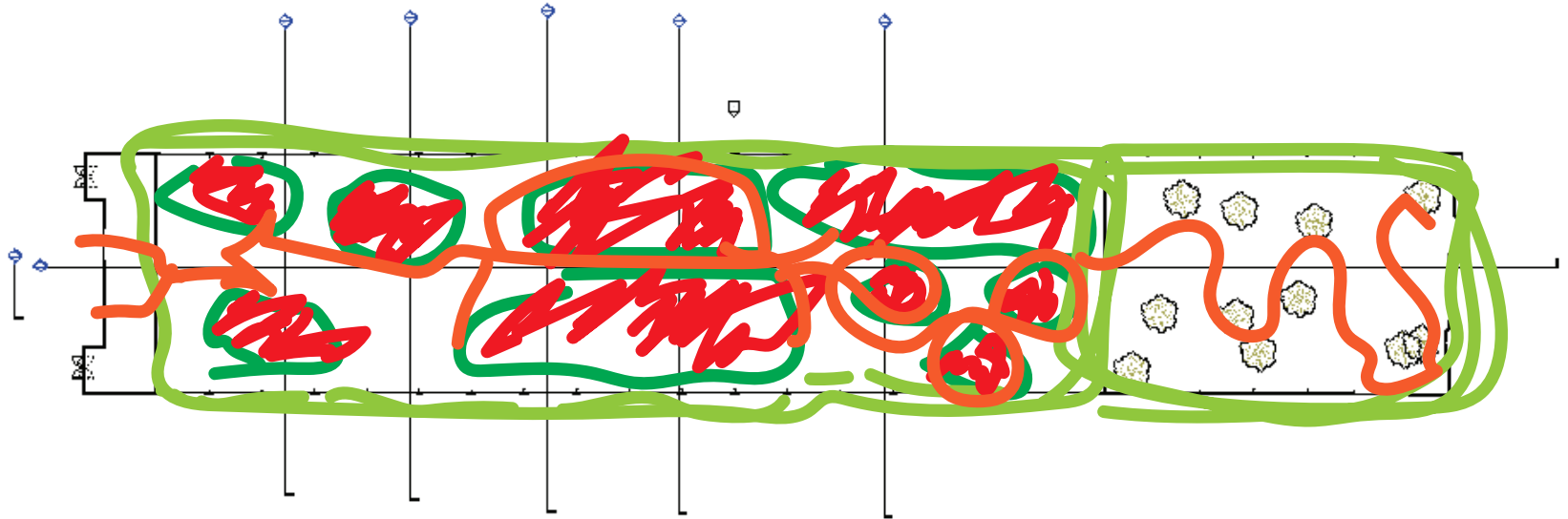
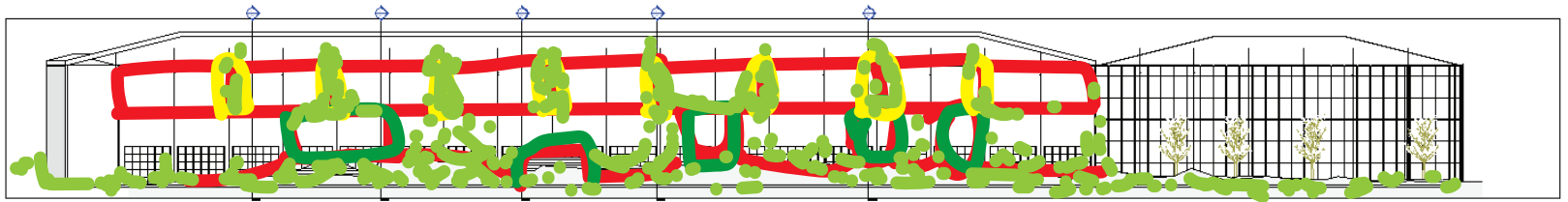
Inspiration Images - Interior Path



Draft



Draft



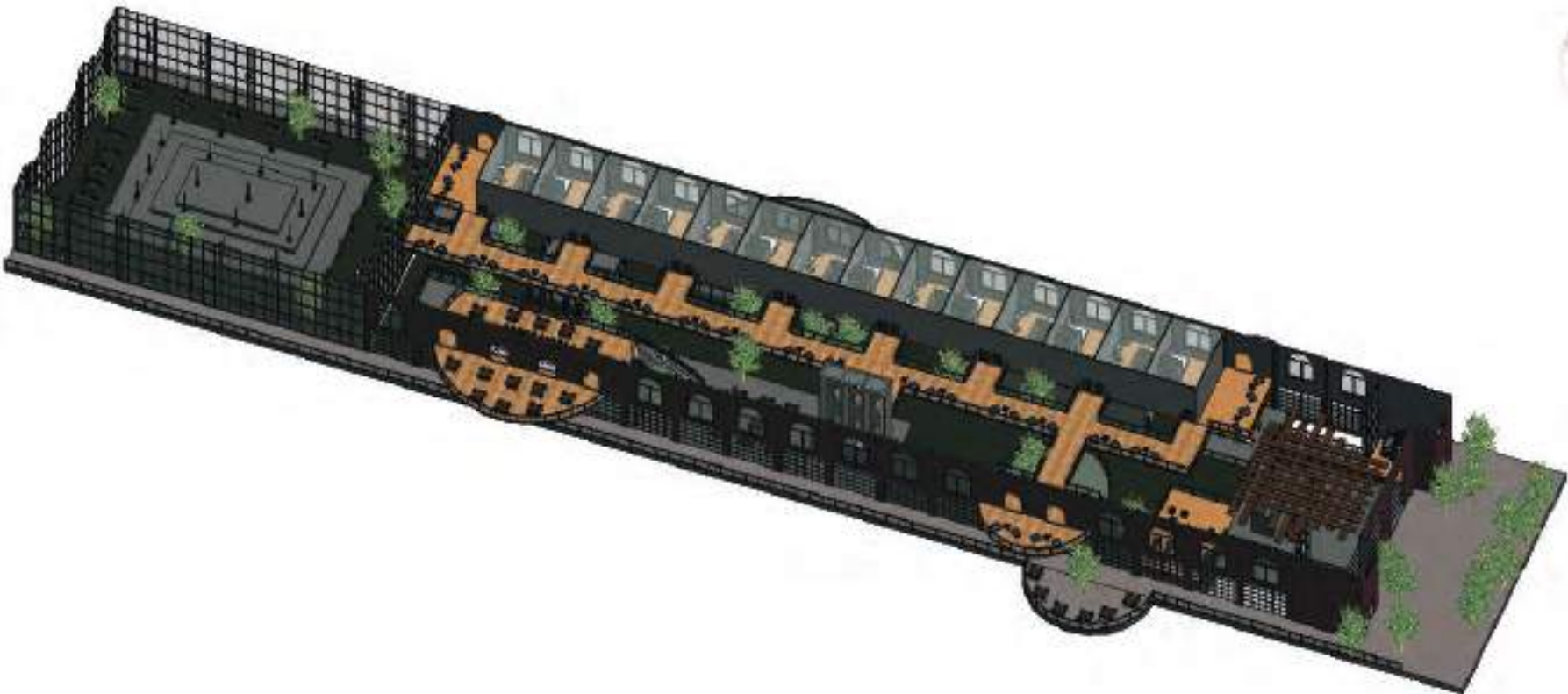
Draft - Path Ideas



Draft - Path Ideas



Draft Axonometric View



Draft Plans and Sections



0-100-0000
1/1/20



0-100-0000
1/1/20



0-100-0000
1/1/20



0-100-0000
1/1/20

Draft Views



Reception



First Floor View



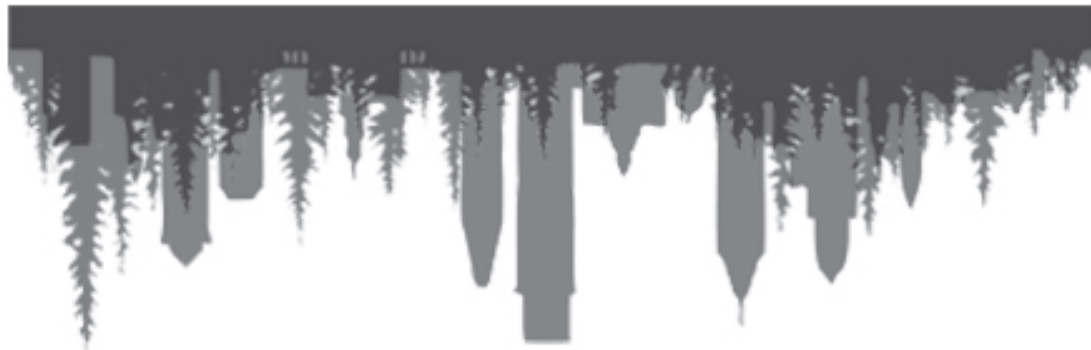
The Greenhouse



Second Floor Walkway



Sustainability Features



Sustainable Design Agenda

DESIGN AGENDA

To create a space for people to self-restore through nature and the environment, built in an urban setting.

To honor each petal of the living building challenge:

- 1) Site: Restoring a Healthy Interrelationship with Nature
- 2) Water: Net Positive Water Use
- 3) Energy: Net positive Energy Use
- 4) Health & Happiness: Optimize Well Being
- 5) Materials: Safe for all Species Through Time
- 6) Equity: Supporting a Just and Equitable World
- 7) Beauty: Uplifting the Human Spirit



Energy Modeling

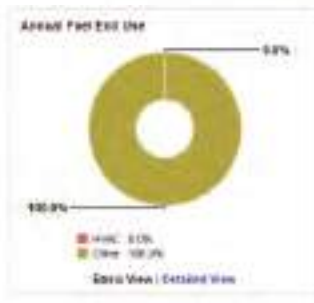
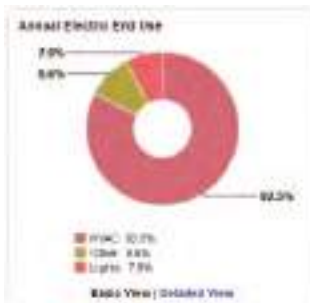
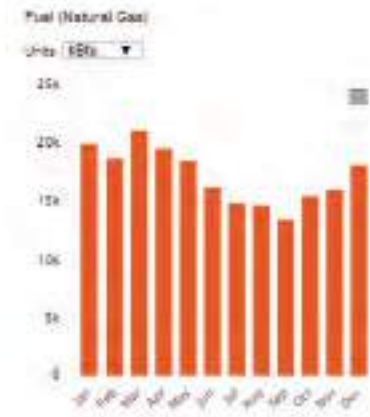
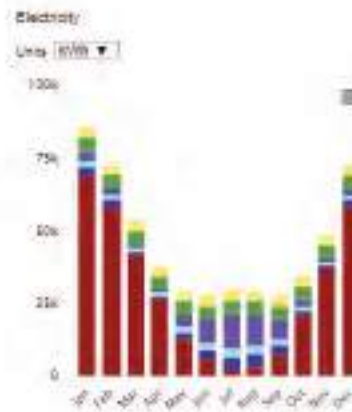
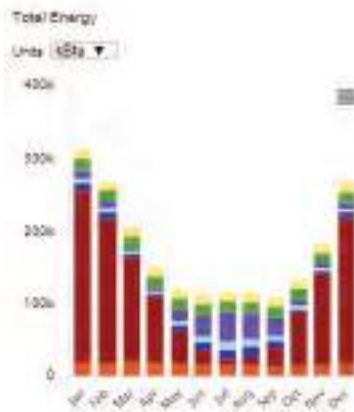
Annual Data



Monthly Data

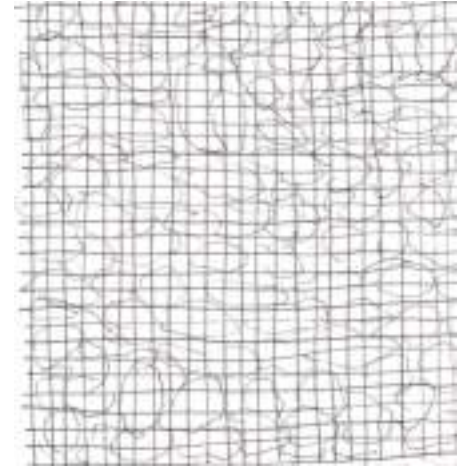
Display Charts For: CHERRY STREET PIER MODEL original.xm

Cost Energy



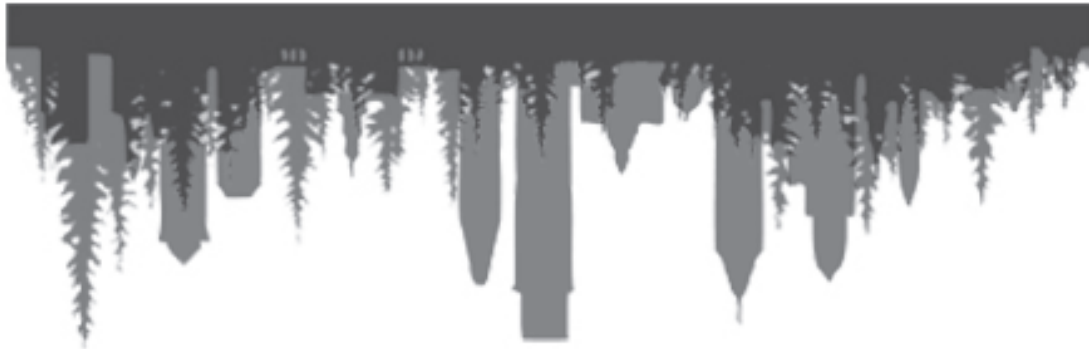
Gabion Wall Feature

- Interior gabion wall installed on south facing wall
- Made of local stones, re-purposed wire boxes
- Helps regulate temperatures naturally
- Helps with ventilation and natural light
- Technique used by river engineers





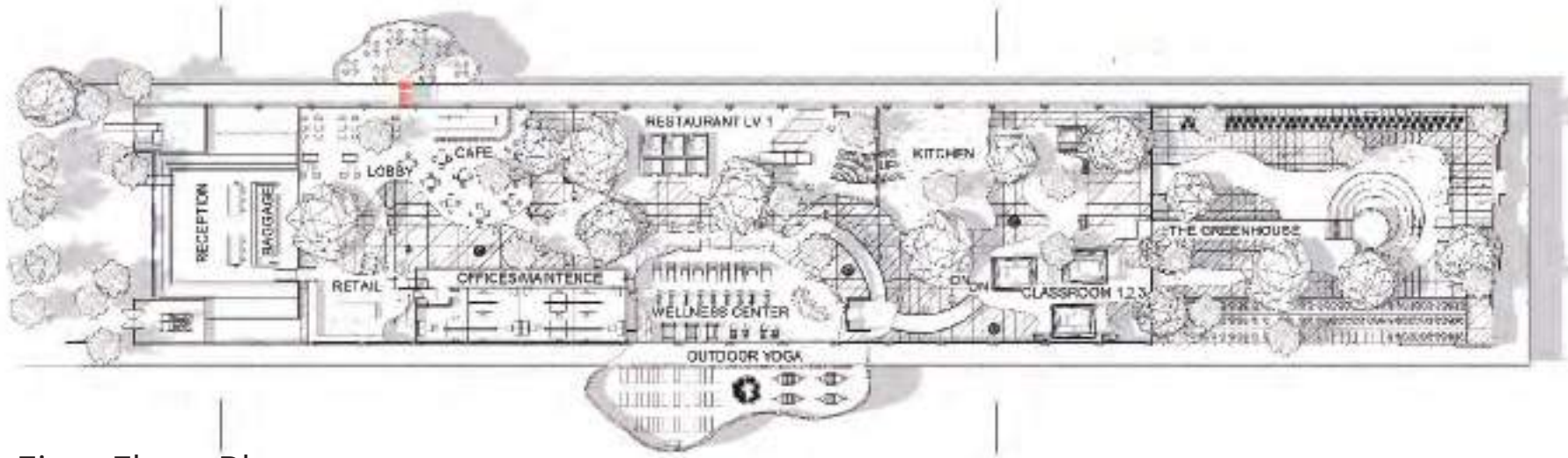
Final Design



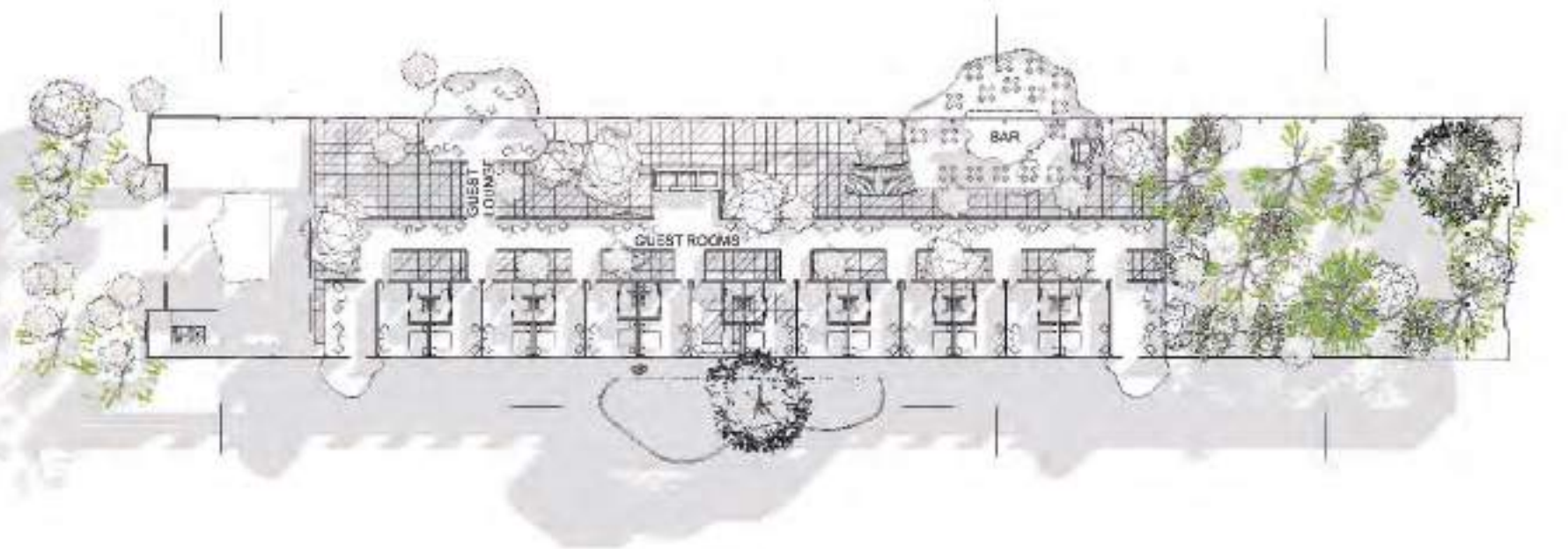
Welcome to Hotel Aarde

At Cherry Street Pier

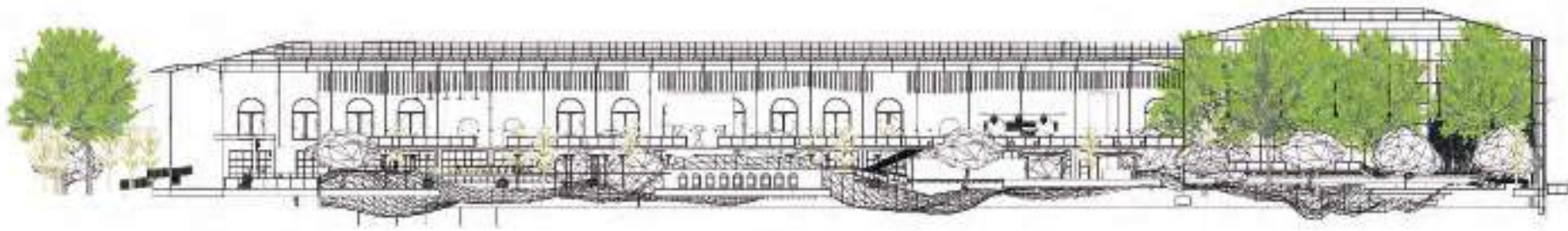




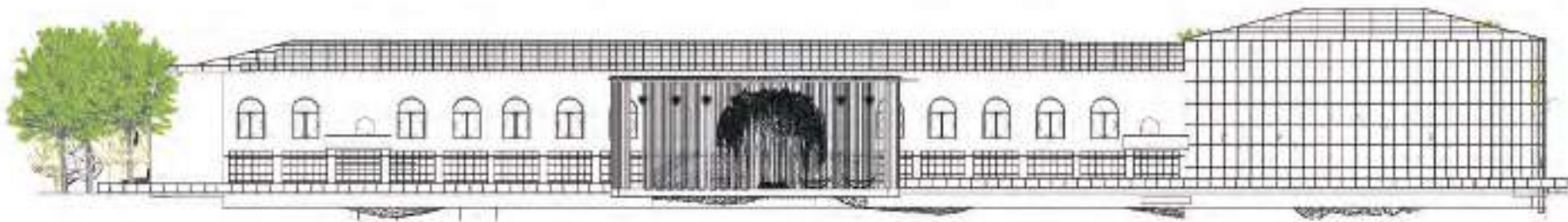
First Floor Plan



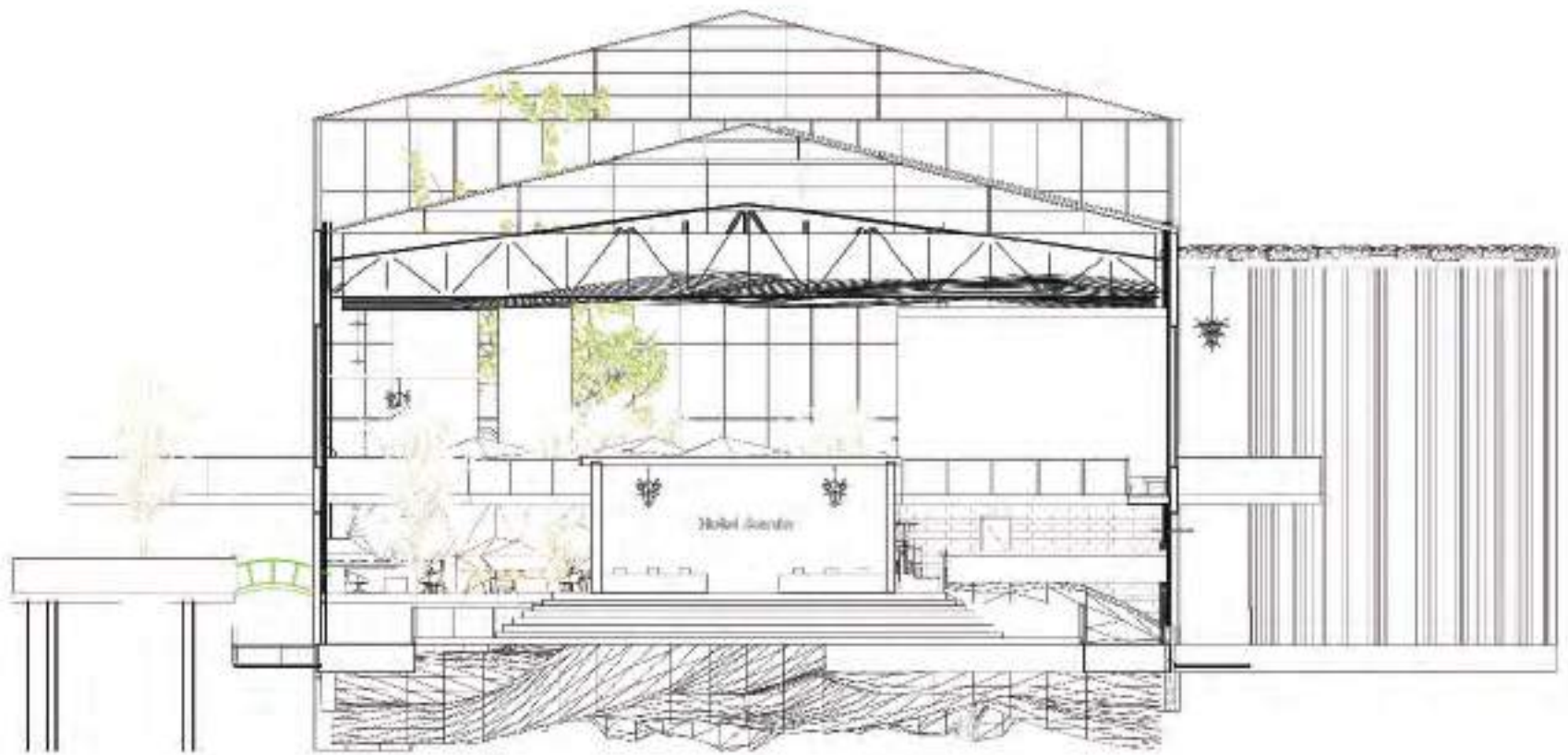
Second Floor Plan



Longitudinal Section



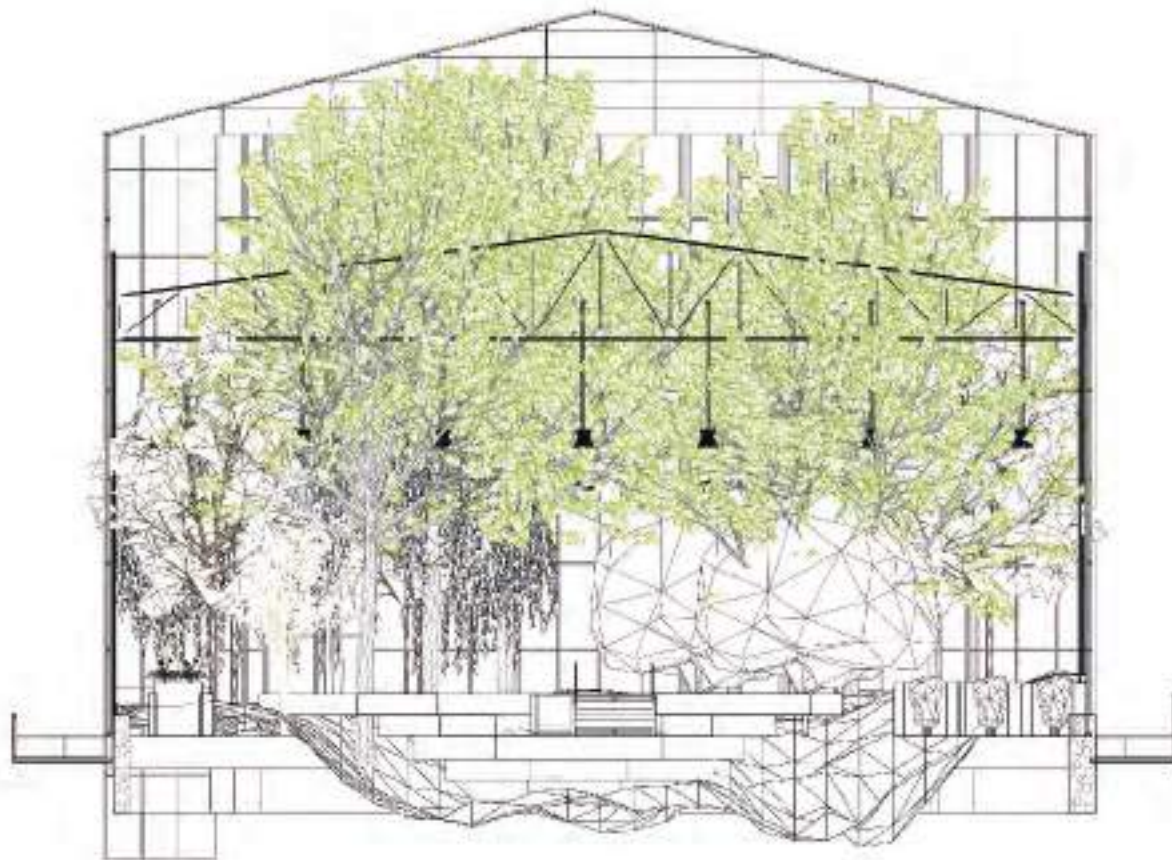
Exterior Elevation



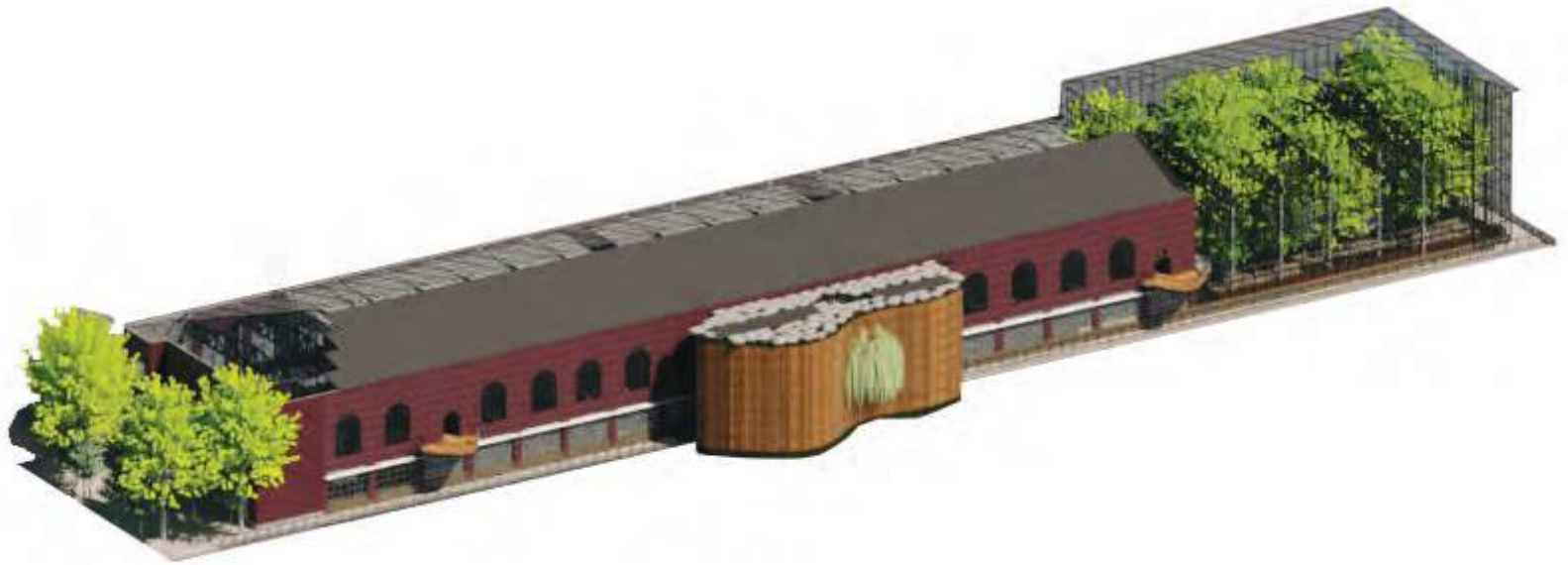
Entrance Section



Middle Section



Greenhouse Section



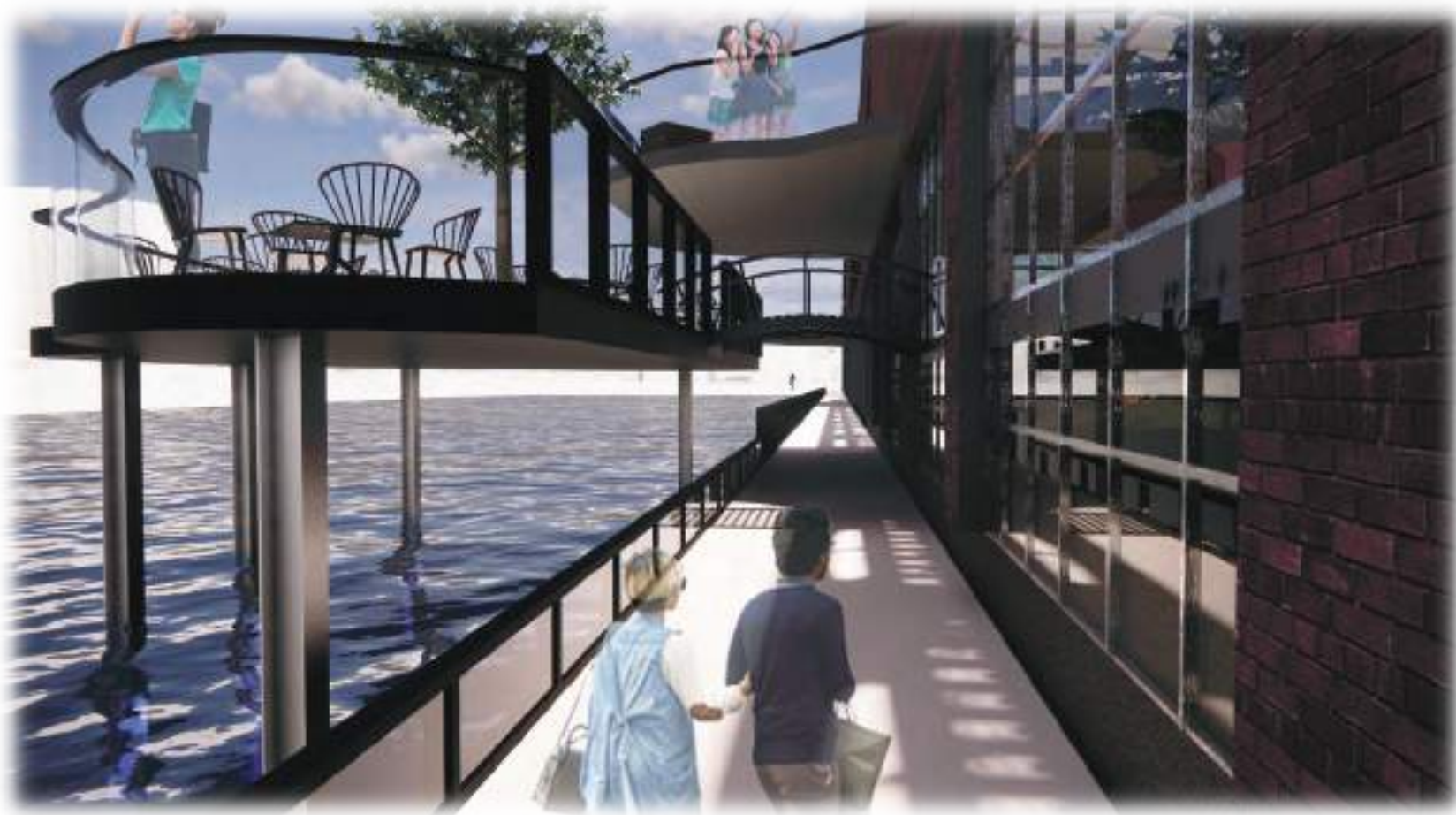
Full Building Axonometric



Second Floor Axonometric



First Floor Axonometric



Exterior View



Lobby View



View into Hotel



Interior Pathway View



Greenhouse View



Outdoor Yoga View



Upper Walkway View



Guest Room View



Upper Bar View

Thank you

Hotel Aarde at Cherry Street Pier
M.S. in Interior Architecture and Design
Phoebe DeFries