

# **Down the Rabbit Hole: Merging Education, Neuroscience, and Wonderland in Architectural Design**

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Thesis submitted to the faculty of the  
Virginia Polytechnic Institute and State University  
in partial fulfillment of the requirements for the degree of

**Master of Architecture**

**in**

**Architecture**

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November 1st, 2023  
Alexandria, Virginia

Keywords: School, Montessori, Waldorf, Reggio, Neuroscience, Environmental design cognition, Alice in wonderland

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# Down the Rabbit Hole

Merging Education, Neuroscience, and Wonderland in Architectural Design



SHABNAM KAVOUSI  
November 2023

01

## ABSTRACT

Shabnam Kavousi

"Down the Rabbit Hole: Merging Education, Neuroscience, and Wonderland in Architectural Design"

The goal of this project is to reimagine learning spaces by combining education and architecture principles and a hint of imagination. This is done through designing a school in the Georgetown neighborhood of Washington D.C. for children aged 3-12. The design integrates Montessori, Waldorf, and Reggio principles with behavioral and neuroscientific insights. Additionally, the imaginative essence of "Alice in Wonderland" brings a whimsical dimension, adding an enchanting layer to the architectural narrative. The design of the school considers how space impacts cognition and creativity, in addition to functional aspects. Highlighting the bond between architecture and neuroscience, the design emphasizes how the built environment shapes children's cognition and emotions. Sensory experiences, architectural elements, and nature integration shape the ambiance, significantly influencing children's cognitive development. Through a blend of educational philosophies, neuroscience findings, and the timeless allure of Wonderland, it aims to sculpt an environment that encourages curiosity, creativity, and profound world connection in children.

## **ABSTRACT (GENERAL AUDIENCE)**

Shabnam Kavousi

"Down the Rabbit Hole: Merging Education, Neuroscience, and Wonderland in Architectural Design"

The aim of this project is to rethink the design of learning spaces by merging educational and architectural principles with a touch of imagination. This involves designing a school in the Georgetown neighborhood of Washington D.C. for children aged 3-12. The design incorporates ideas from early childhood education philosophies along with insights from behavioral science and neuroscience. To add a touch of whimsy, the project draws inspiration from Alice in Wonderland's story as an additional layer to the architectural story. The school's design considers how the physical space influences children's thinking and creativity while performing its practical functions. It underscores the close connection between architecture and brain science, emphasizing how the physical environment molds children's cognitive abilities and emotions. Sensory experiences, architectural elements, and the integration of natural elements shape the atmosphere, profoundly affecting children's cognitive development. By combining these diverse educational philosophies, neuroscience findings, and the timeless charm of the "Alice in Wonderland" story, the project strives to shape an environment that fosters curiosity, creativity, and a deep connection to the world for children.

## DEDICATION

*"To my father, **Sohrab Kavousi**, a guiding star through life's darkest nights, and in the cherished memory of my mother, **Farzaneh Pourtaghi**, whose love still whispers in the winds, I dedicate this master's thesis. Their unending support, her enduring grace, and the unwavering love of my caring husband, **Dr. Mehdi Taheri**, have been the constellations lighting my academic journey."*

## ACKNOWLEDGEMENTS

*In life's journey, we encounter many paths and companions, but it's those exceptional individuals who offer unwavering love and support that truly matter. I want to express my heartfelt gratitude to several people who have filled my heart with love and brightened my academic and personal journey.*

*To Dr. Paul Emmons, my mentor and advisor, whose constant encouragement and unwavering belief in me have played a key role in my success.*

*To Professor Susan Piedmont-Palladino and Professor Dave Dugas, my committee members, for their invaluable guidance and contributions to my work. I'm also thankful to the esteemed faculty of Virginia Tech's School of Architecture and Design for their unwavering support and inspiration.*

*To Professor Donna Dunay, for her consistent support in my academic pursuits. And to Ms. Stephanie Woodson, whose help has been crucial whenever I had questions about the program.*

*I'm immensely grateful to my beloved husband, Mehdi Taheri, for being my rock and unwavering support.*

*To my wonderful colleagues, Elyas Vahedi, Ameneh Amirhakimi, and Ralph Hale, for their thoughtful recommendations, practical solutions, and mentorship. My friend, Elmira Hamidi, has been a source of strength, and to all those who have supported me, your presence has been my inspiration.*

*To my cherished sisters, Shideh and Sanaz, my brother, Pezhman, and my father, Sohrab Kavousi, for their warm wishes, love, and kindness.*

*Lastly, in loving memory of my kind mother, Farzaneh Pourtaghi, whose spirit forever resides within me.*

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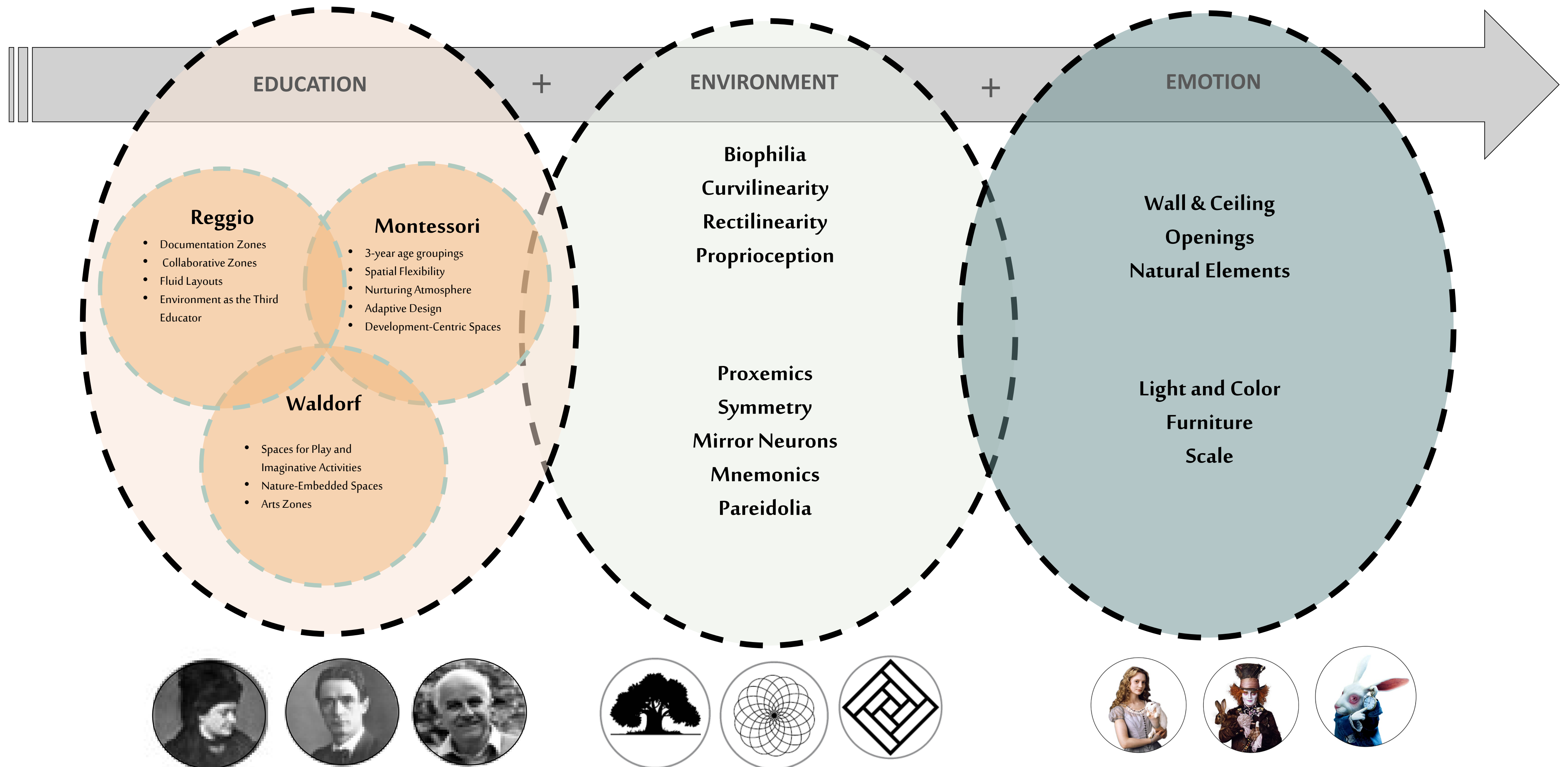
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# LITERATURE

## Unlocking Wonderland: A Dive into Principle for Children's Learning Environments

The theoretical foundation for the design was based on integrating imaginative essence with educational philosophies principles and neuroscientific insights to add an enchanting layer to the architectural narrative of learning space.



# EARLY CHILDHOOD EDUCATIONAL PHILOSOPHIES: MONTESSORI



The theoretical foundation of the design was based on the distinctive design principles of Montessori, Waldorf, and Reggio Emilia and their profound influence on the physical learning environments, offering unique insights into the marriage of educational theories and architectural design.

In the early 20th century, Maria Montessori revolutionized education with her unique approach, emphasizing individualized learning and meticulously designed environments. The Waldorf method, inspired by Rudolf Steiner, sought to nurture well-rounded, imaginative individuals. The Reggio Emilia approach, born in post-WWII Italy, celebrates the environment as an active participant in learning. Each of these educational philosophies have profound pedagogical implications for architecture and design, crafting spaces that stimulate, engage, and empower young minds.

## **Montessori Educational Framework: Design Principles and Their Pedagogical Implications**

Maria Montessori, an Italian physician, pioneered the Montessori educational method in the early 20th century. This approach is intrinsically linked with the concept of the "Universal Child" or "Child of the World." At its core, the Montessori model champions the ideals of individualized learning, meticulously prepared learning environments, and educators who serve as guiding architects, seamlessly connecting children with these environments. Anchored in the developmental phases of a child, this architectural interpretation of the Montessori method seeks to promote independence, the delicate balance between freedom and responsibility, and utmost respect for a child's innate psychological and physical growth.

### Key Architectural Considerations:

- **Nurturing Atmosphere:** Architectural designs aim to create a serene and joyful learning environment, where every element contributes to a sense of tranquility and inspiration.
- **Spatial Flexibility:** Architecture is conceived to promote children's autonomy, providing spaces that can be easily adapted to cater to their evolving needs and interests, and to facilitate individual exploration and discovery.
- **Development-Centric Spaces:** Architecture aligns with the distinct stages of child development, prominently spotlighting the concept of the "absorbent mind" during a child's formative years.
- **Adaptive Design:** The built environment remains dynamic, mirroring the Montessori philosophy of educators continuously adjusting their strategies to harmonize with the ever-changing needs and curiosities of the child.
- **Holistic Curriculum Integration:** Architectural designs harmonize with the comprehensive curriculum encompassing practical life skills, sensory exploration, mathematical challenges, and linguistic development.

This architectural exploration of the Montessori method underscores the importance of design in shaping an environment that cultivates young minds and fosters a lifelong love for learning.

# EARLY CHILDHOOD EDUCATIONAL PHILOSOPHIES: WALDORF



## **Waldorf Educational Framework: Design Principles and their pedagogical implications**

The Waldorf educational framework, initiated by Rudolf Steiner in Germany, derives its principles from anthroposophy. It visualizes the child not merely as a student but as a harmoniously integrated being. Thus, in designing spaces for the Waldorf system, emphasis is placed on nurturing imagination, ensuring that spaces facilitate an interdisciplinary blending of intellectual, practical, and artistic endeavors.

### Architectural Facets Inspired by Waldorf Principles:

- **Spaces for Play:** Given Waldorf's strong emphasis on imaginative play's pedagogical value, design elements ensure environments are conducive to free, imaginative expressions.
- **Integrated Arts Zones:** In the Waldorf design, spaces dedicated to music, dance, theater, and visual arts aren't just additional rooms but integral parts of the educational journey, reflecting the core belief in the symbiosis of arts and education.
- **Holistic Learning Environments:** Architectural layouts are not compartmentalized strictly by subject. Spaces are fluid, allowing subjects to intertwine, ensuring a holistic, interconnected learning experience.
- **Community Design:** Architecturally, classrooms and common spaces prioritize cohesive group dynamics, reflecting the Waldorf approach where age-similar cohorts progress together, creating a community-like ambiance.
- **Nooks of Imagination:** Special areas are crafted to nurture creativity and critical thinking, invoking imaginative exercises and thoughts.
- **Nature-Embedded Spaces:** The architecture seamlessly integrates indoor and outdoor environments. Nature isn't just viewed as an occasional learning backdrop; it's intertwined with everyday educational experiences, ensuring that every part of the environment, from the garden to the classroom, is a potential learning hub.

### Distinguishing Architectural Features from Montessori:

- A stronger emphasis on spaces that foster play, artistic expressions, and vivid imagination.
- Delayed introduction of spaces for formal academics until around the age of seven, prioritizing explorative and imaginative environments in the earlier years.
- Cohesive design elements that group children of the same age together, emphasizing the community over the individual in spatial design.

This architectural rendition of the Waldorf method underscores the significance of crafting spaces that resonate with its unique pedagogical philosophy, creating environments that are not just places of learning but sanctuaries of holistic development.

# EARLY CHILDHOOD EDUCATIONAL PHILOSOPHIES: REGGIO EMILIA



## **Reggio Emilia's Educational Framework: Designing Spaces that Echo the Reggio Emilia Pedagogy**

Born out of post-WWII Northern Italy, the Reggio Emilia approach emerged as a collaboration between Loris Malaguzzi and the community's parents. It uniquely views the environment as an active participant in the learning process, almost akin to a 'third teacher', emphasizing child-driven initiatives and project work. This approach consequently demands a thoughtful architectural reflection of its core pedagogical tenets.

### Design Principles Aligned with Reggio Emilia's Tenets:

- **Architectural Interactivity:** Designing with the Reggio Emilia approach involves crafting spaces where the built environment is more than just a backdrop; it's an interactive element, a teacher, rich in stimuli and exploration opportunities.
- **Fluid Layouts for Evolving Learning:** The architecture is inherently flexible, accommodating the emergent curriculum that dynamically shifts based on children's evolving interests.
- **Seamless Integration of Child and Environment:** Spaces are crafted to ensure a deep connection between the child, the immediate environment, and the broader community. This could translate to transparent partitions, access to community spaces, and interactive zones.
- **Design for Dialogue:** Open spaces, communal areas, and circular layouts promote open dialogue, encouraging transparent and reciprocal communication.

### Distinguishing Architectural Features from Montessori and Waldorf Designs:

- Collaborative zones are central to the design, championing the Reggio Emilia belief in collective learning.
- Designs avoid rigidly structured spaces, instead opting for modularity and adaptability, reflecting the dynamic, evolving curriculum.
- Incorporation of ample documentation zones - from walls that can serve as display areas to dedicated spaces for reflection, emphasizing the Reggio Emilia method's focus on documentation as a cornerstone of the learning process.

The Reggio Emilia architectural approach, therefore, involves crafting environments that are not only conducive to learning but are active participants in the child's educational journey, echoing the unique ethos of the Reggio Emilia philosophy.

### **Summary:**

In designing a school environment that integrates Montessori, Waldorf, and Reggio philosophies for children aged 3-12, a holistic, nurturing space is paramount. This shared environment, emphasizes the child's independence, tactile experiences, and connection to nature, all crucial to Montessori principles. Waldorf education underscores spaces that foster play, vivid imagination, and artistic expression, underscoring the child's development through imaginative activities. The Reggio approach shares common ground with Montessori and Waldorf by promoting a child-centric environment, where the surroundings act as a "third teacher," emphasizing exploration and expression. Overall, the harmonious blend of these philosophies champions a learning environment tailored to a child's intrinsic curiosity, creativity, and connection to the world around them.

# ENVIRONMENTAL PRINCIPLES OF ARCHITECTURE DESIGN

Nine attributes related to environmental cognition have been identified as a foundation for this design.



Figure 2



Figure 3



Figure 4

Properties of Environmental Cognition	Curvilinearity	Mirror Neurons	Rectilinearity
<b>Definition</b>	Curvilinear designs activate the anterior cingulate cortex of the brain (Jaffe, 2013) which has been linked to cognitive functions, including, emotional expression, relaxation, mood regulation, promoting communication, encouraging movement, aiding orientation, changing perception, and supporting the sense of community (Adnan and Mohd Yunus, 2012; Bar and Neta, 2007).	Relates to our empathy for others and our perceptual response to the external environment. These neurons activate in identical areas of the brain when an action is conceived, performed or witnessed being performed by another person or object (Rizzolatti and Craighero, 2004).	Rectilinear design elements activate the amygdala promoting focus and structure (Nasr, Echavarria and Tootell 2014).
<b>Design Insight in Wonderland Learning Center</b>	Areas may have softer, curved designs for relaxation and creativity	Opt for open and transparent layouts that provide visibility between classrooms and shared spaces	Sharp design elements can be incorporated into spaces where focus and attention are required

# ENVIRONMENTAL PRINCIPLES OF ARCHITECTURE DESIGN



Figure 5



Figure 6



Figure 7

Properties of Environmental Cognition	Biophilia	Symmetry	Proprioception
<b>Definition</b>	Connection with nature, or nature relatedness is unique in predicting happiness (Zelenski and Nisbet, 2014).	Balanced distribution and arrangement of various components of a building, such as spaces and forms, on the two opposite sides of a central line (Poirier and Wilson, 2010).	The awareness of one's body position in space (Morabito, 2016).
<b>Design Insight in Wonderland Learning Center</b>	<p>Maximize natural light</p> <p>Integrate plants and Sensory greenery in school design indoor and outdoor</p> <p>Visual access to nature</p>	Promotes a sense of order and harmony	<p>Varied Learning Environments design allowing students to adjust their body positions for comfort and engagement.</p> <p>Connects students with the outdoors allows them to orient themselves within the space</p>

# ENVIRONMENTAL PRINCIPLES OF ARCHITECTURE DESIGN

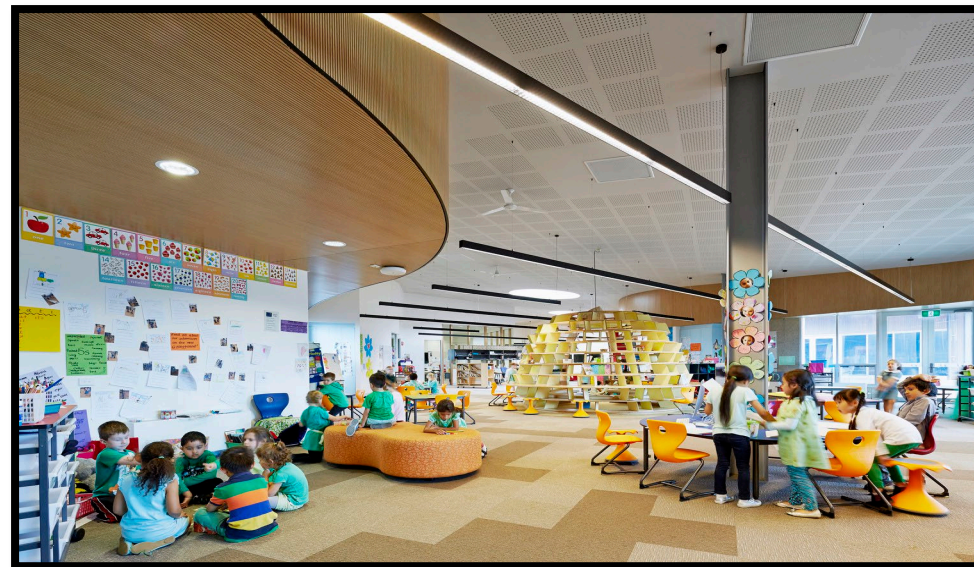


Figure 8



Figure 9



Figure 10

Properties of Environmental Cognition	Proxemics	Mnemonics	Pareidolia
<b>Definition</b>	The study of how space is used in human interactions (Åhs, Dunsmoor, Zielinski and LaBar, 2015).	The study and development of systems for improving and assisting the memory (Maguire, Valentine, Wilding and Kapur, 2003).	The phenomenon where the human brain perceives familiar patterns or faces in random stimuli, that spark imagination, creativity, and a sense of wonder (Morabito, 2016).
<b>Design Insight in Wonderland Learning Center</b>	accommodate various proxemic zones (for intimate one-on-one discussions, small group activities, and larger group instruction) to enhance communication, comfort, and collaboration among students and staff	Include distinctive memorable architectural landmarks at intervals	Design playgrounds with equipment or structures that could resemble animals, characters, or objects that stimulate pareidolic responses and invite imaginative play

# SITE ANALYSIS

## INSPIRATION

Figure 11. Children's Art School: Designed by Evgenii Kravchenko



Figure 12. Eco-Techno Park: Designed by Onat Öktem, Zeynep Öktem

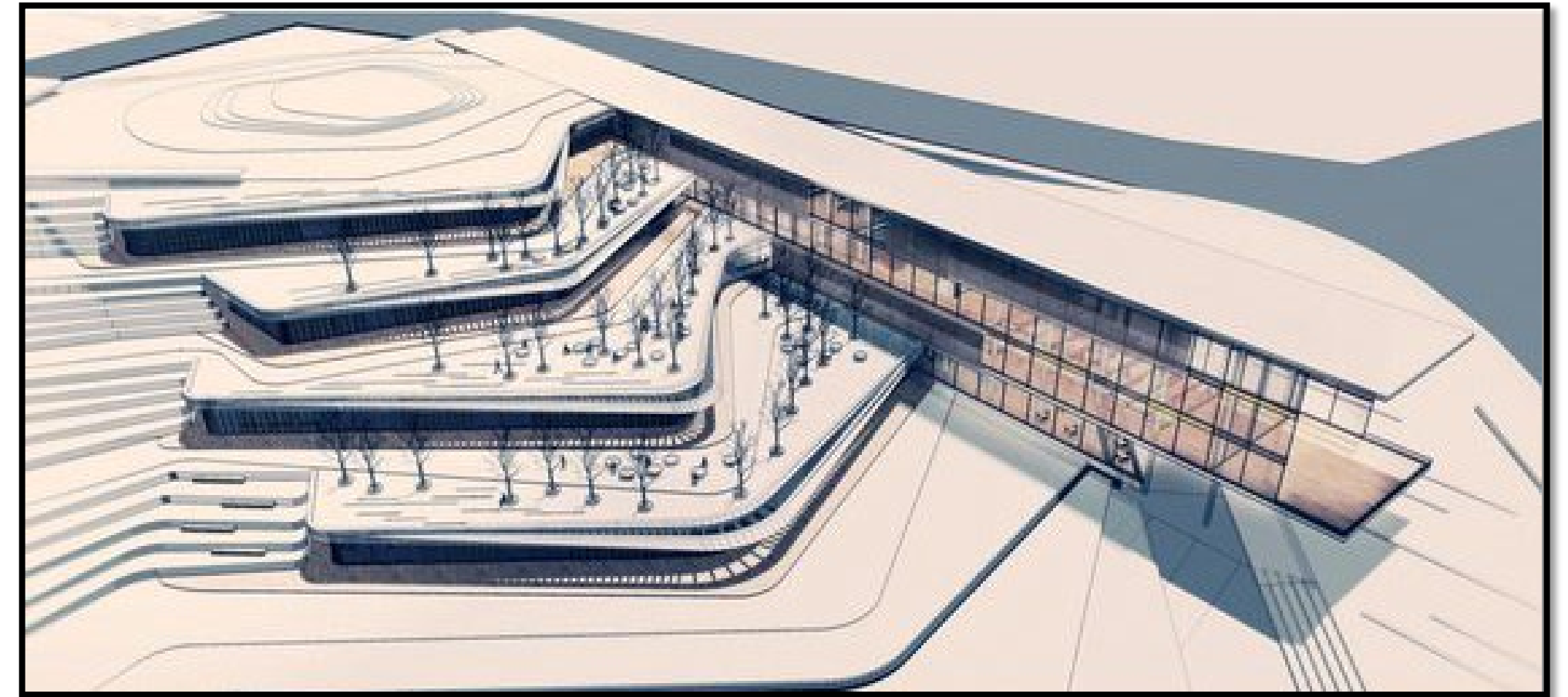


Figure 13. Baby Gym Barranquilla: Designed by the Mazzanti's Team

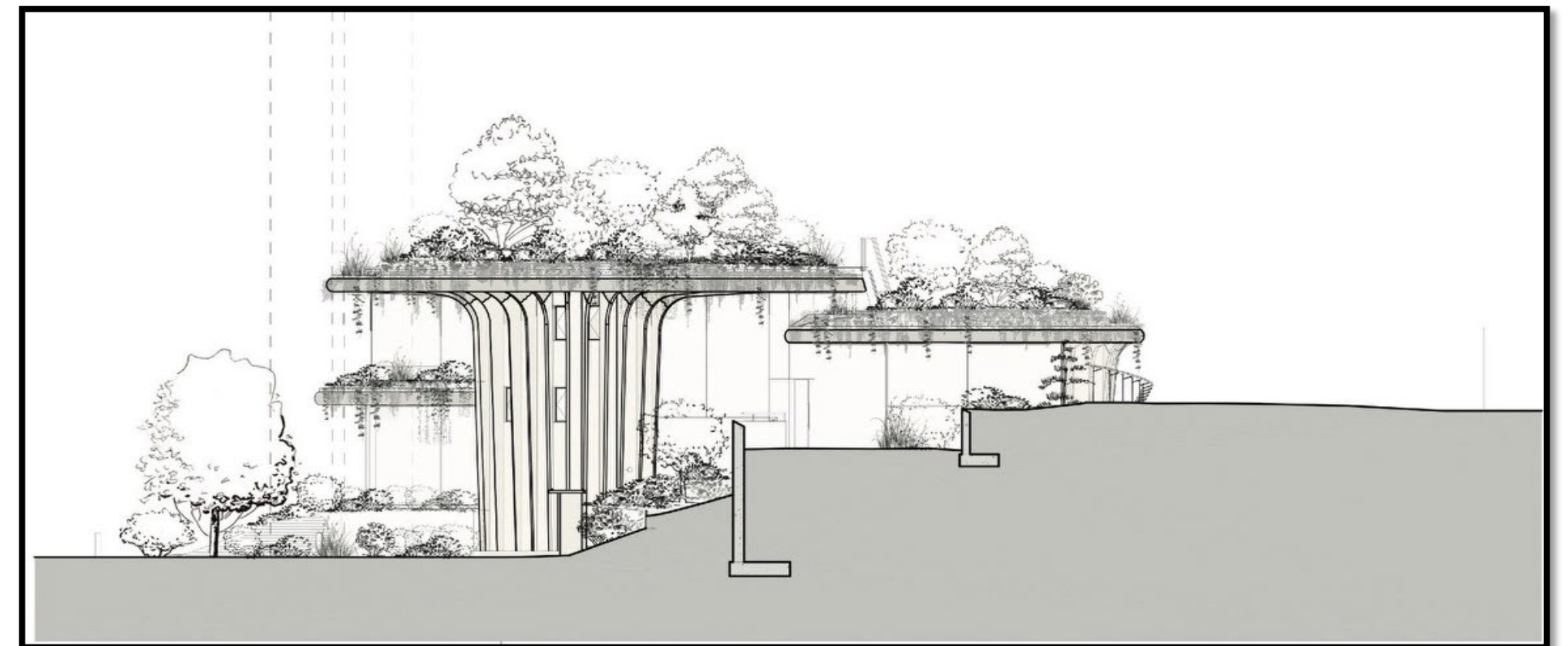
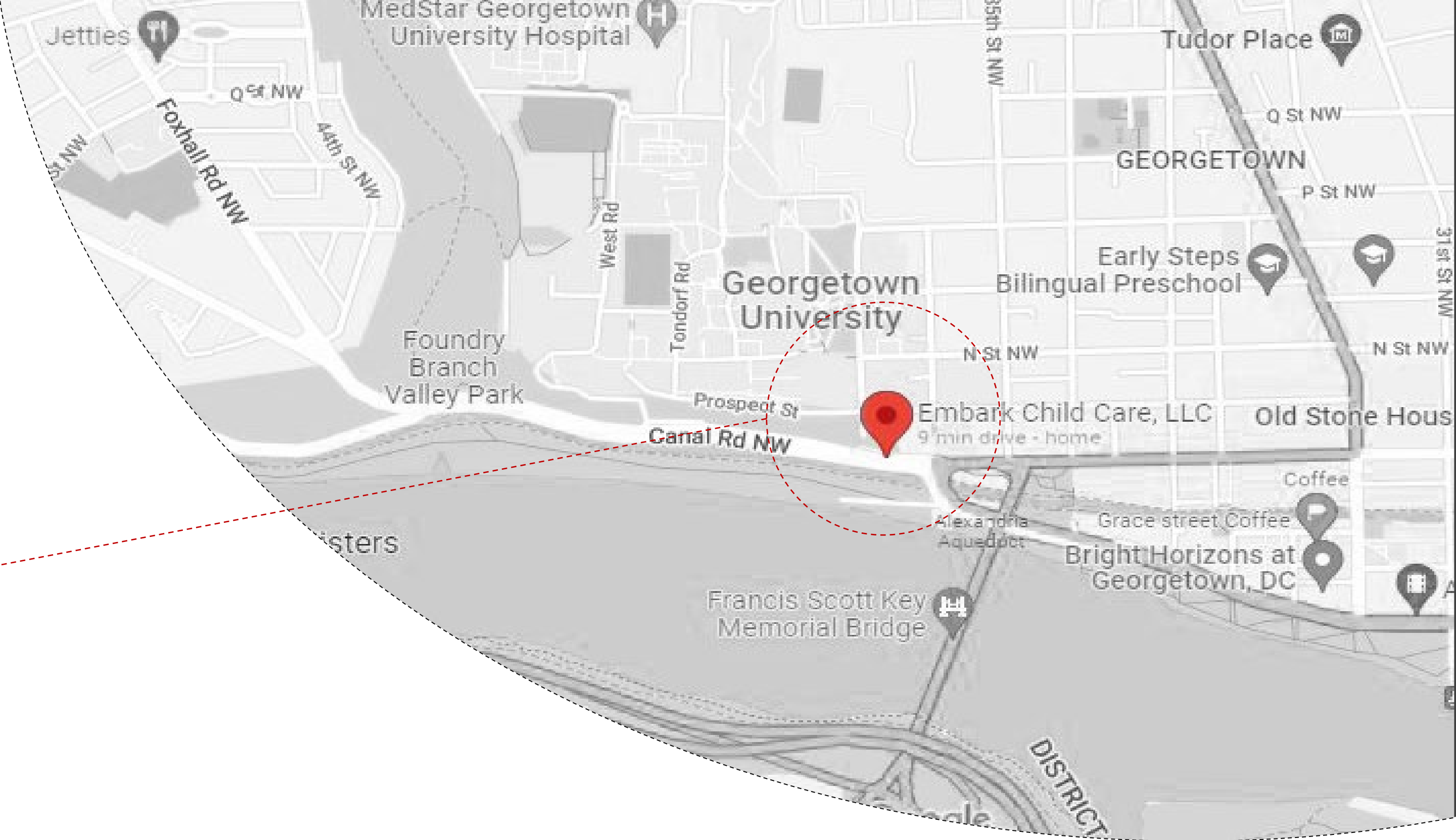


Figure 14. Maggie's Centre Leeds: Designed by Heatherwick Studio

# LOCATION



Site: Prospect St, Washington, DC 20007



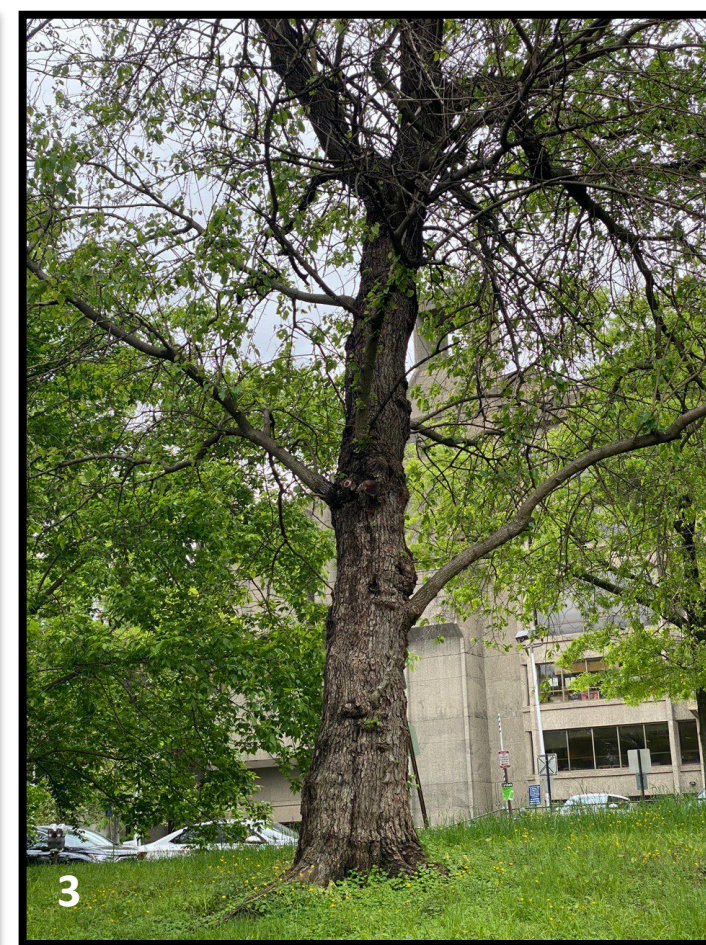
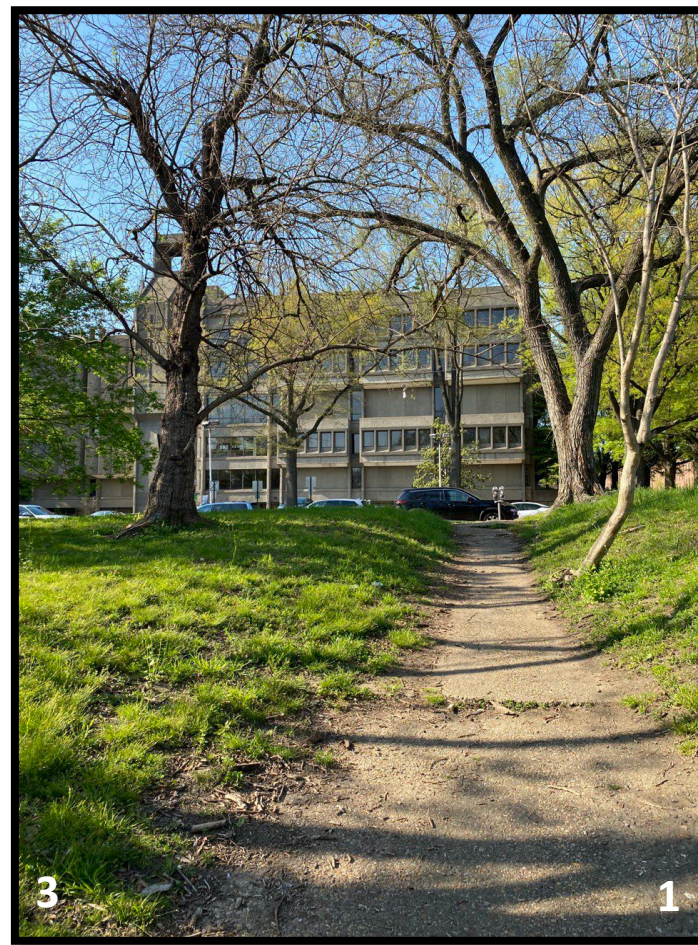
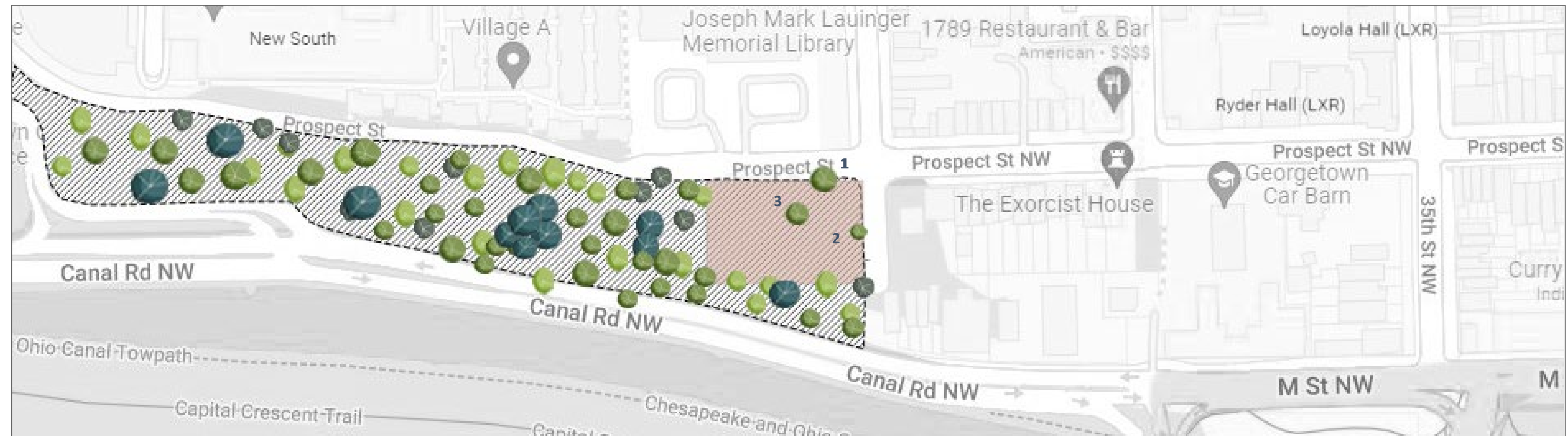
Panorama View of the site



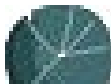
Washington DC Outline

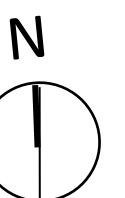
# VEGETATION

Trees have always been a defining feature of the District. There are a few trees on the site but other than the three that have been identified in the image the rest are smaller trees that need to be cut for the project.

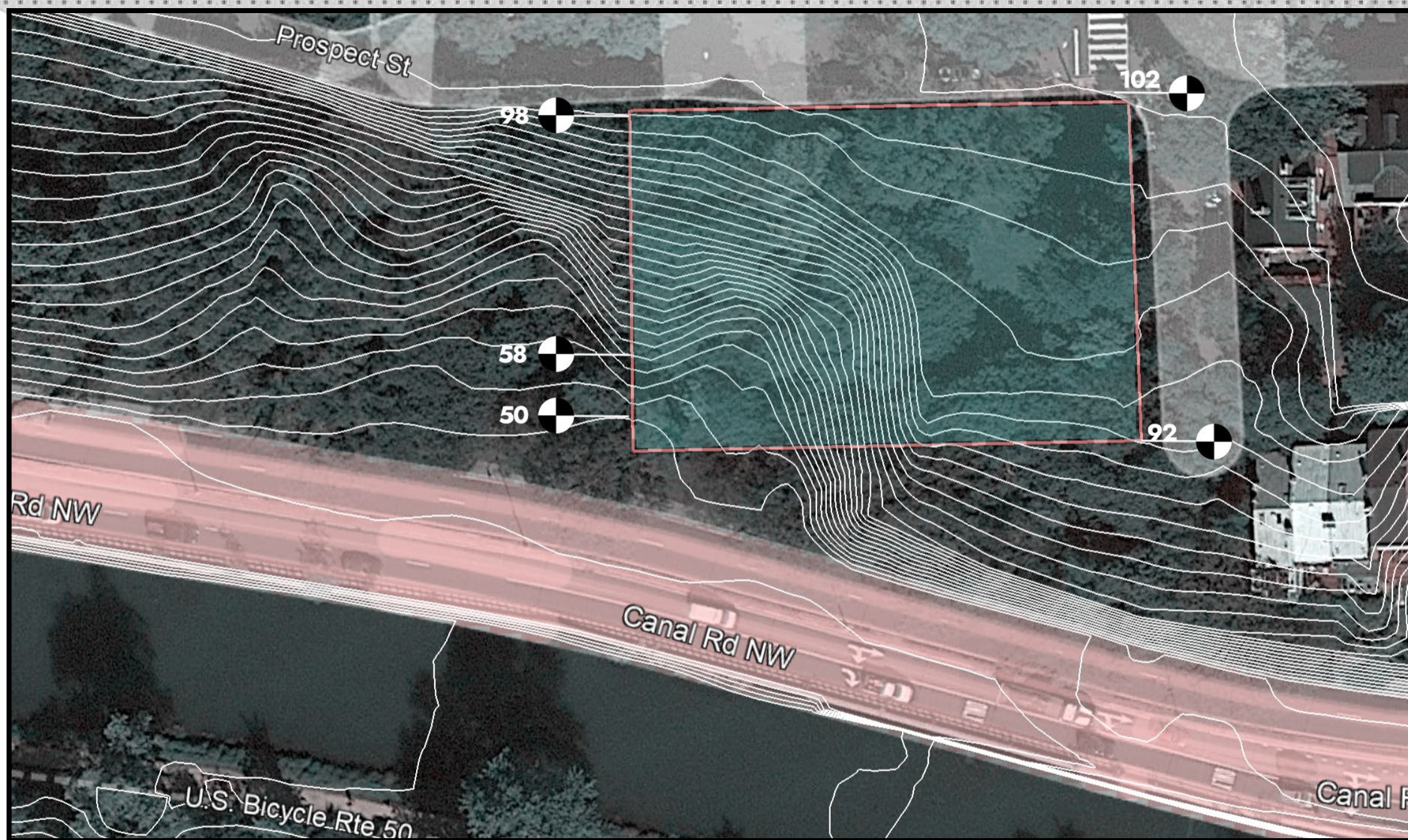
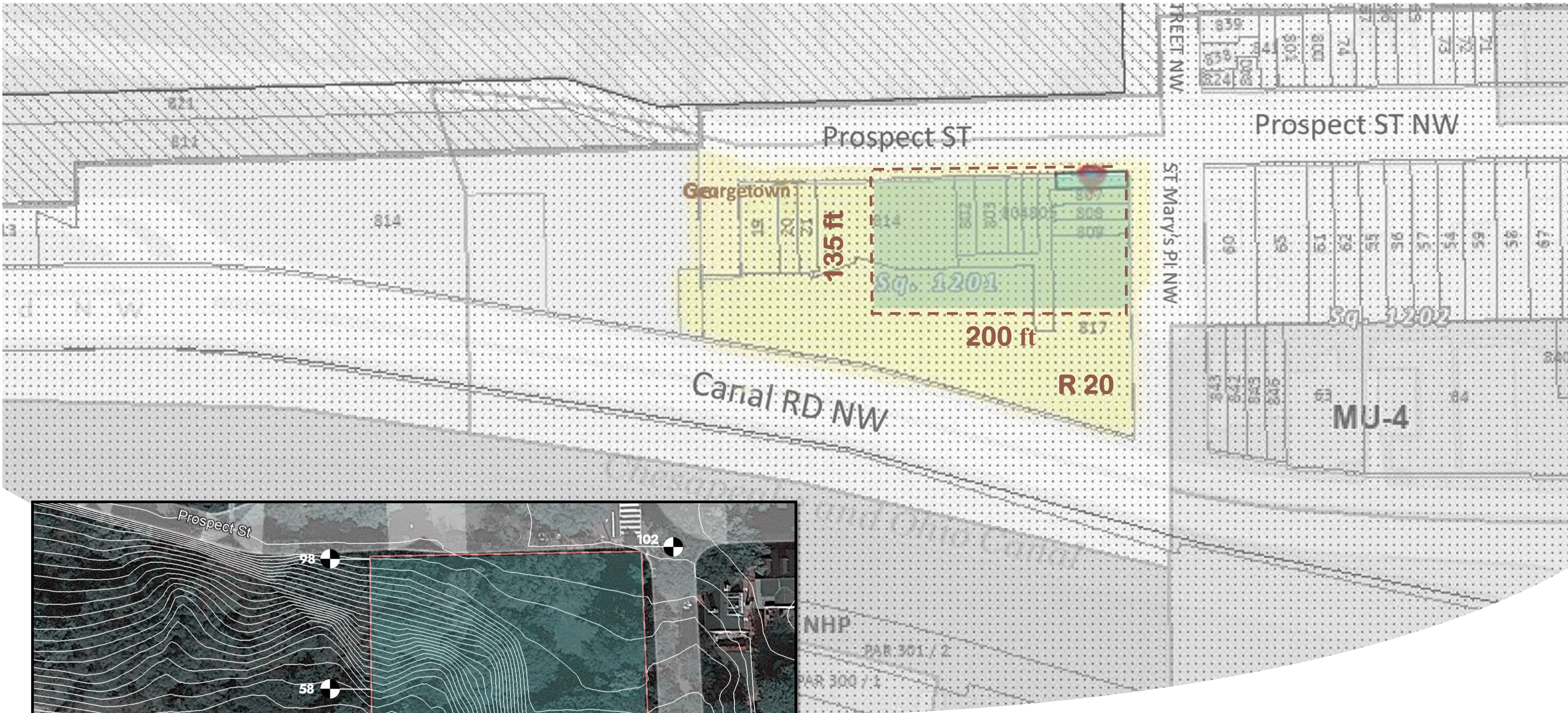


## LEGEND

-  Special Tree
-  Heritage Tree



# SITE INFORMATION



**Site Information**  
Zoning = R20  
Rear Setback = 20 Ft  
Side Setback = 5 Ft  
Area = 27,000 Sq Ft

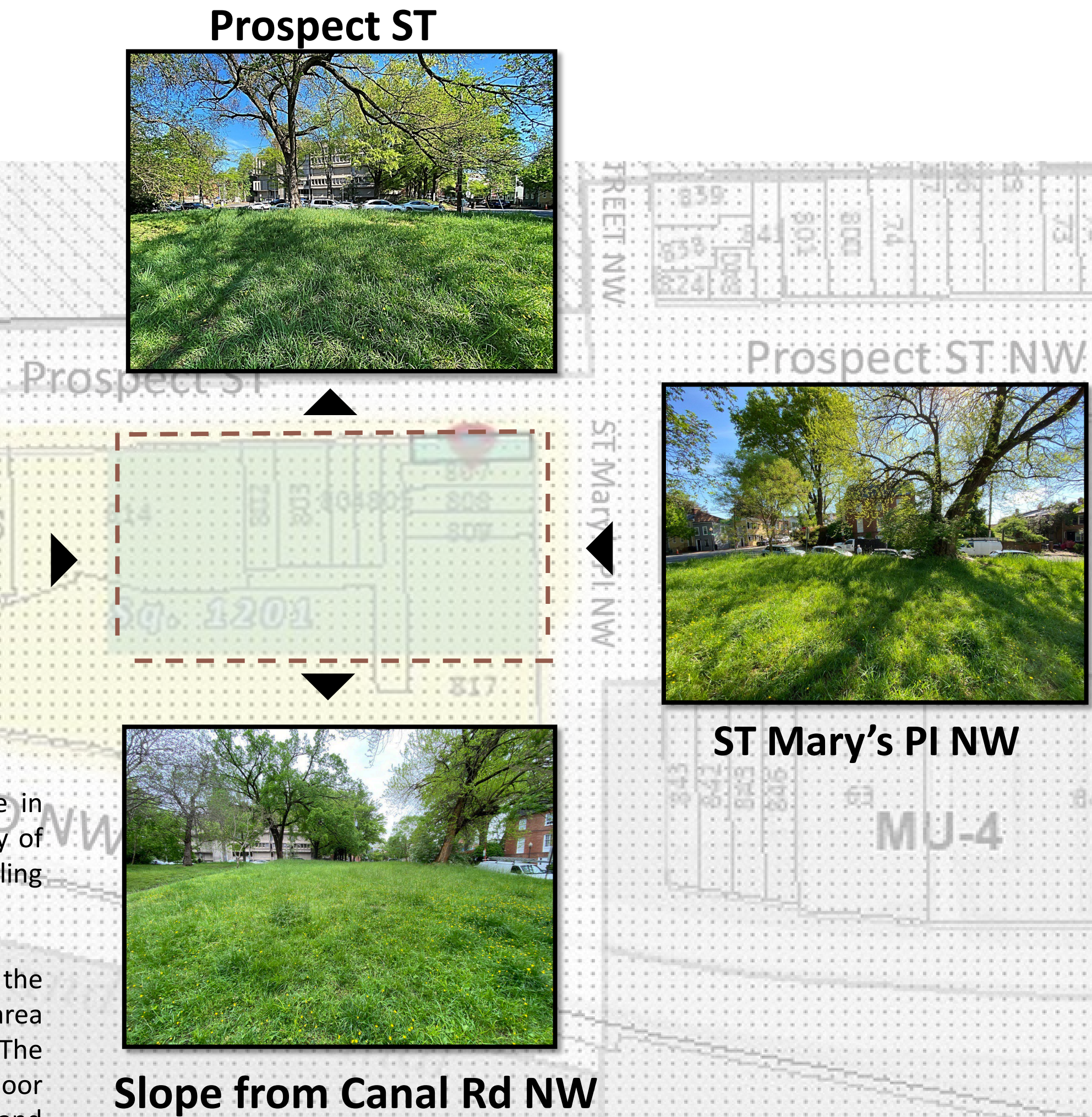


# LANDMARKS & SITE VIEWS

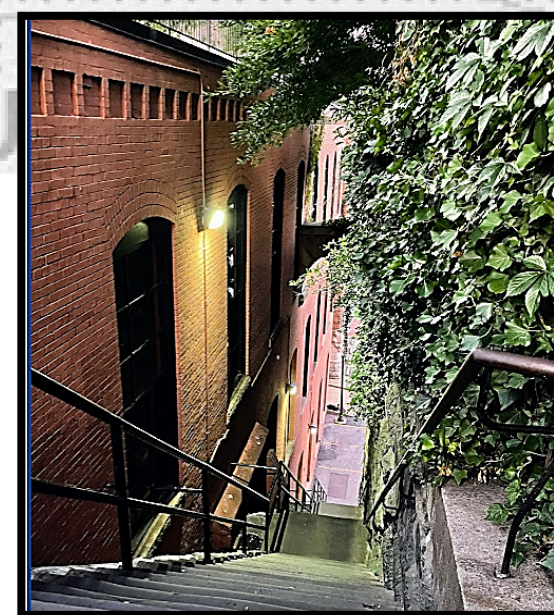
Drawing inspiration from "Alice's Adventures in Wonderland" – where reality blurs into fantasy - I imagined a young girl named Alice, who shared the same love for exploration and discovery. Alice, a bright-eyed and curious six-year-old, was eagerly anticipating her first day at Wonderland School. Walking hand in hand with her older sister through the streets, she marveled at the sights and sounds of the city. The sun shone high in the sky, and the air was thick with the sweet scent of summer flowers.

As they strolled down Prospect Street, She found herself with rows of brick houses lining the streets. Alice couldn't help but notice the vibrant colors and intricate patterns of the sidewalk beneath her feet. The concrete was adorned with a mosaic of different shades of red. Alice couldn't resist running her fingers over the rough texture, marveling at the intricate details of the pavement with occasional patches of grass and small trees providing a touch of greenery to the urban landscape. The sidewalks curve in unexpected ways like the paths in Wonderland. Along the edges of the sidewalk, Alice saw a variety of trees, some tall and slender with delicate leaves that rustle in the breeze, and others with sprawling branches that reach out towards her welcoming arms.

As they continued their journey, Alice's sister pointed out various landmarks and attractions along the way including the Georgetown University campus and the historic Canal. The immediate surrounding area of the school is a mix of residential homes, small businesses, and other educational institutions. The neighborhood is also situated along the scenic Potomac River, which offers stunning views and outdoor recreational opportunities. Alice's eyes widened with wonder as they passed by the Exorcist Steps, and the two Life-sized Transformers statue in blue and yellow color. She was filled with a sense of excitement and anticipation as they drew closer to their destination.



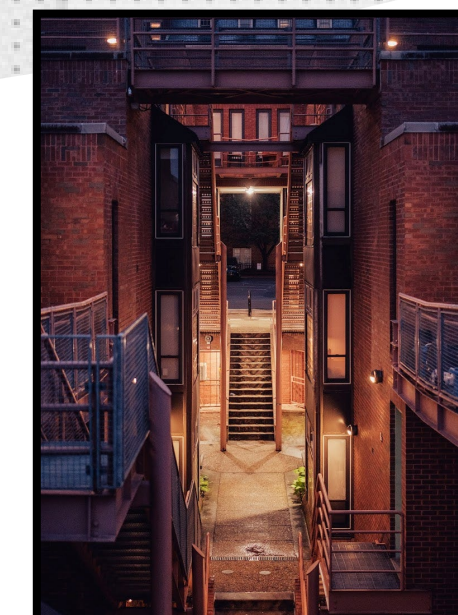
Joseph Mark Lauinger Memorial Library



The Exorcist Steps



Life-sized Transformers



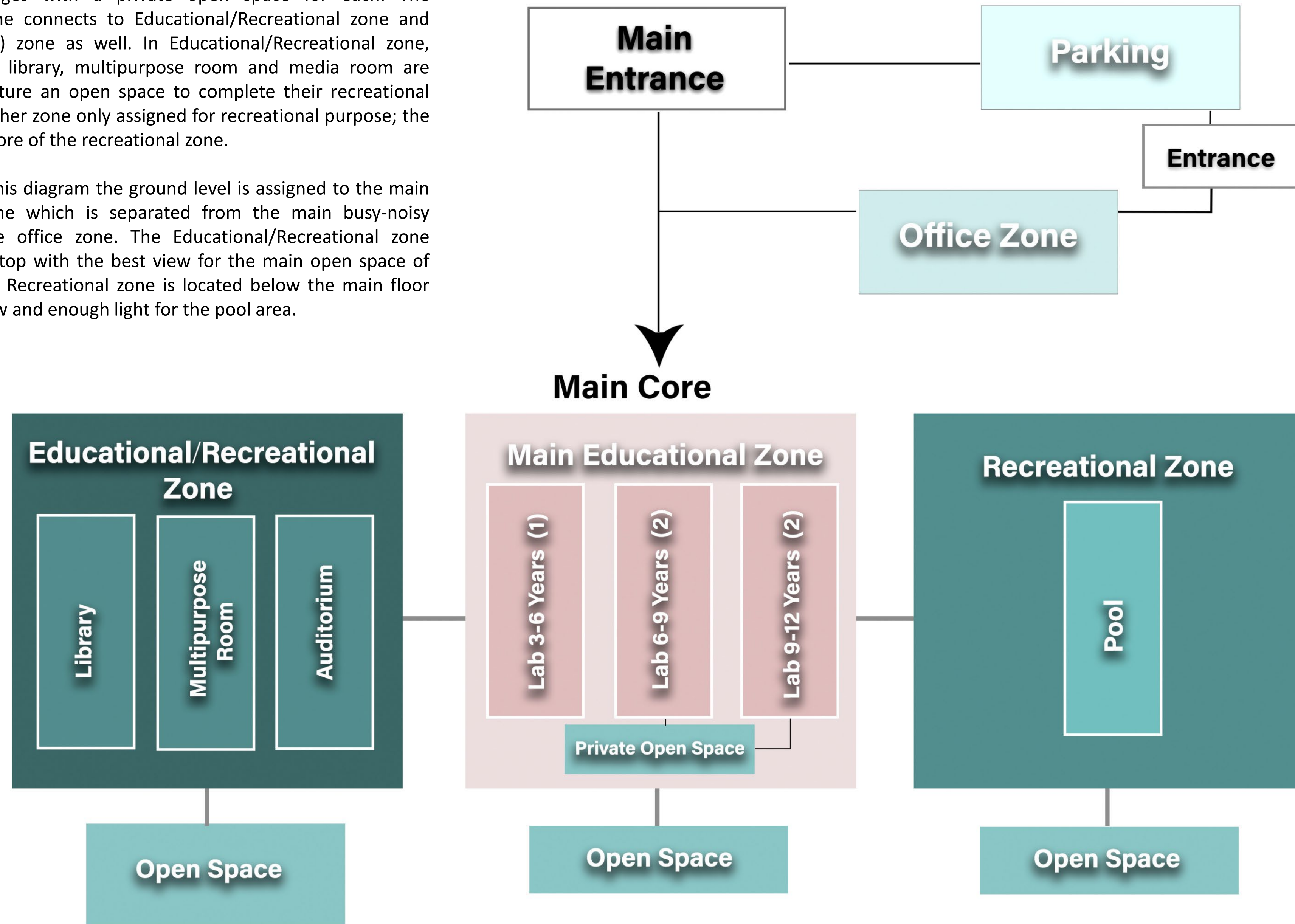
Village A Student Housing



# CONCEPT DIAGRAM

As the diagram shows, 4 different zones were defined where the office zone is the first one after entrance and has the most connection with the main educational zone while also accessible from parking. The main educational zone include 3 groups of labs for different ages with a private open space for each. The educational zone connects to Educational/Recreational zone and Recreational (R) zone as well. In Educational/Recreational zone, spaces such as library, multipurpose room and media room are placed that feature an open space to complete their recreational purpose. The other zone only assigned for recreational purpose; the pool the main core of the recreational zone.

Based on this diagram the ground level is assigned to the main educational zone which is separated from the main busy-noisy street with the office zone. The Educational/Recreational zone located on the top with the best view for the main open space of the school. The Recreational zone is located below the main floor with a good view and enough light for the pool area.



# ANALYSIS

## SITE PLAN ANALYSIS

### LEGEND

- PARK VIEW
- RIVER VIEW
- ROAD NOISE
- MAIN ROUTE
- SECONDARY ROUTE
- SUN DIRECTION

## VEGETATION

### LEGEND

- HERITAGE TREE
  - SPECIAL TREE
- Heritage tree is a private tree with a circumference of 100 inches or more (cannot be cut)
- Special tree is a private tree that has a circumference between 44-99.9 inches (permit is need to cut)

## FUNCTION

### LEGEND

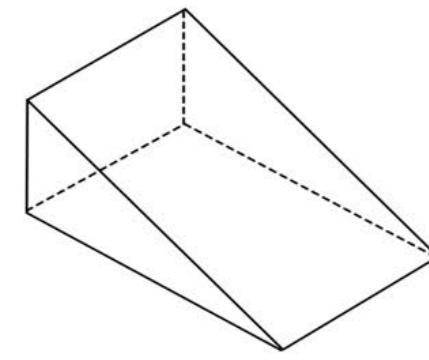
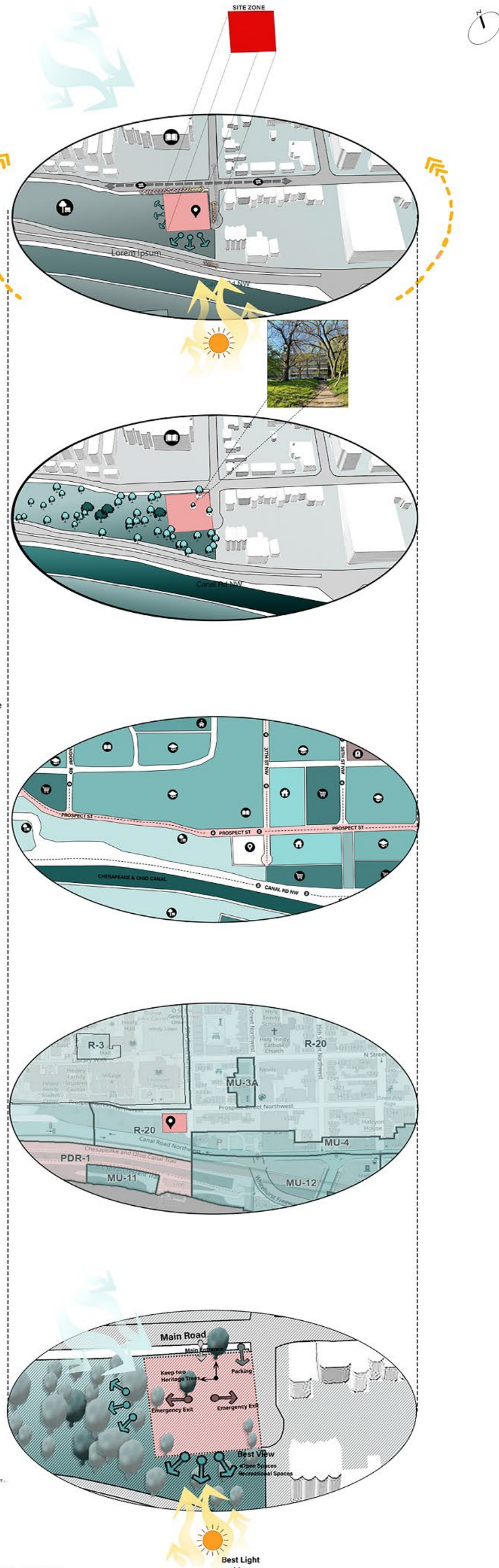
- SITE
- PARK ZONE
- CANAL OR RIVER ZONE
- MAIN ROUTE
- SECONDARY ROUTE
- EDUCATIONAL ZONE
- LIBRARY
- COMMERCIAL ZONE
- RESIDENTIAL ZONE
- RELIGIOUS ZONE
- CEMETRY

## SITE INFORMATION

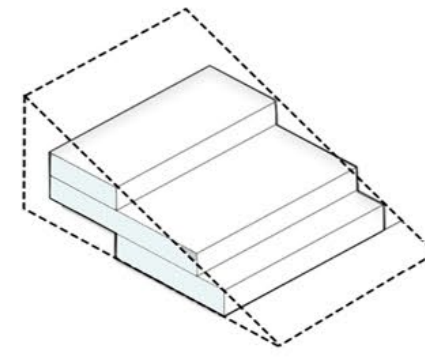
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 SIDE SETBACK=5ft  
 AREA=27,000 ft

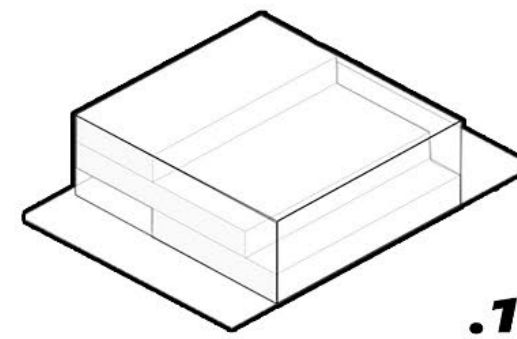
- 
- Best View  
 Open Spaces  
 Recreational Spaces
- Best Light  
 Open Spaces
- ### LEGEND
- OFFICE ZONE
  - EDUCATIONAL ZONE
  - RECREATIONAL and EDUCATIONAL ZONE
  - OPEN SPACE ZONE
  - RECREATIONAL ZONE



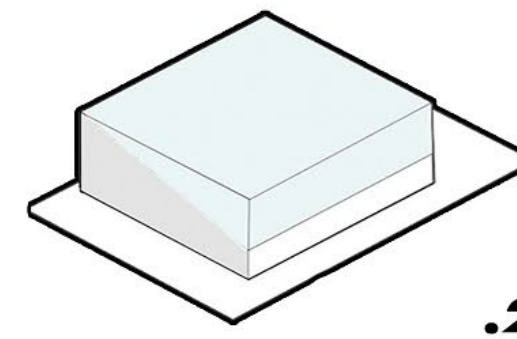
Sloped park



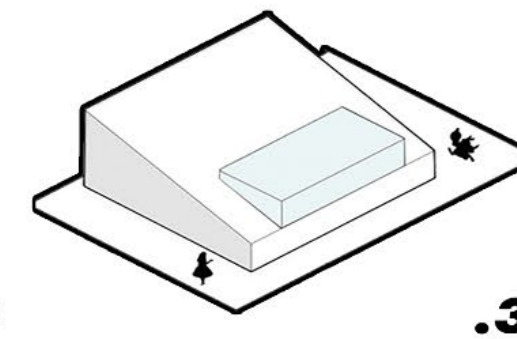
Architecture Concept



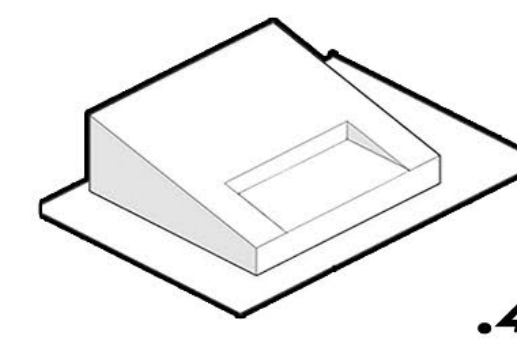
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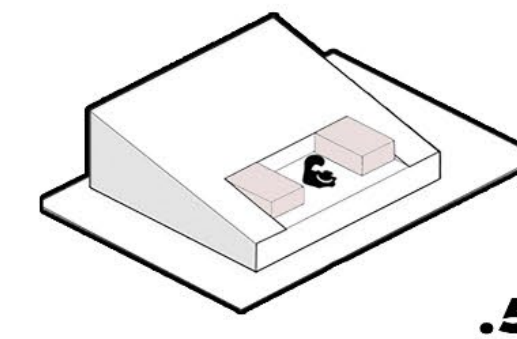
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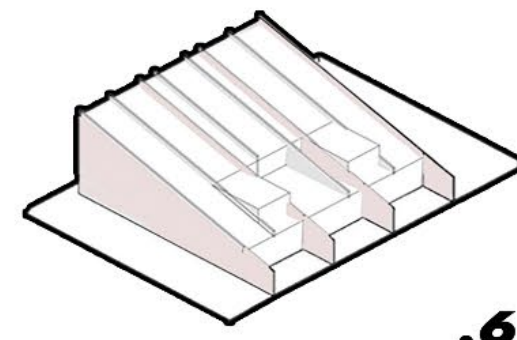
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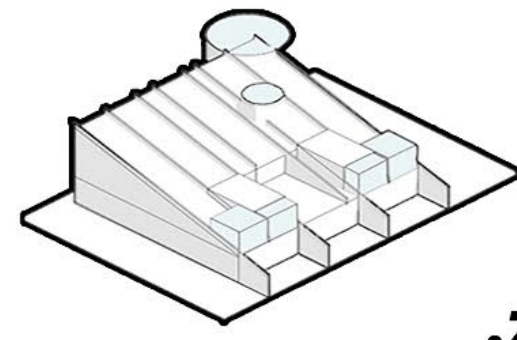
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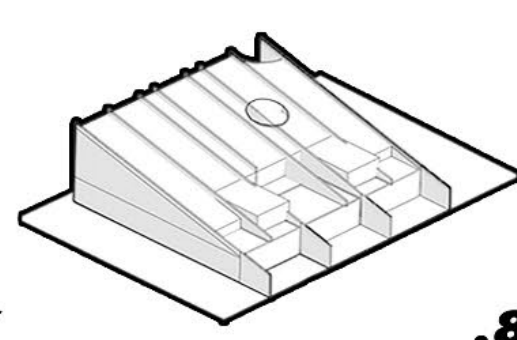
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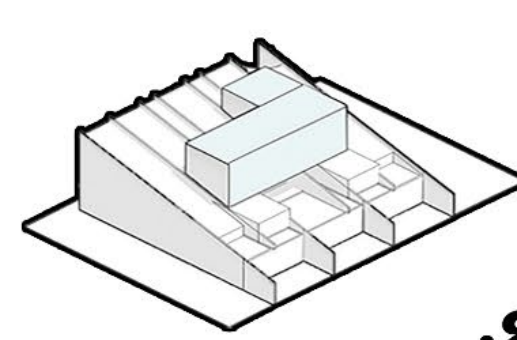
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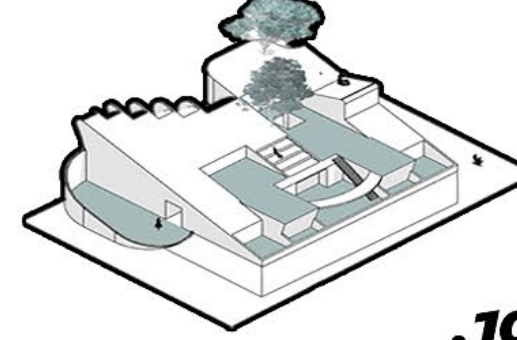
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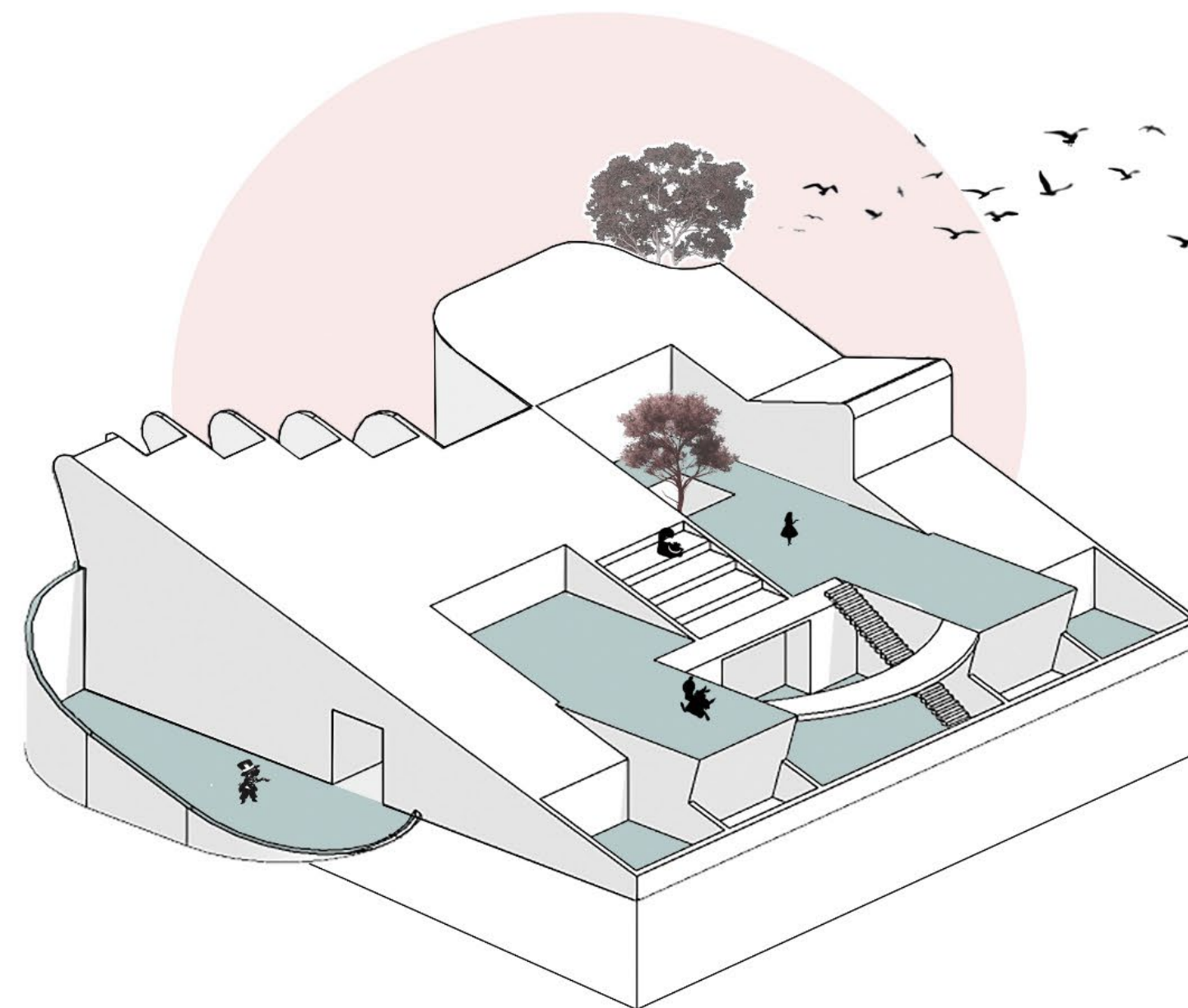


.9



.10

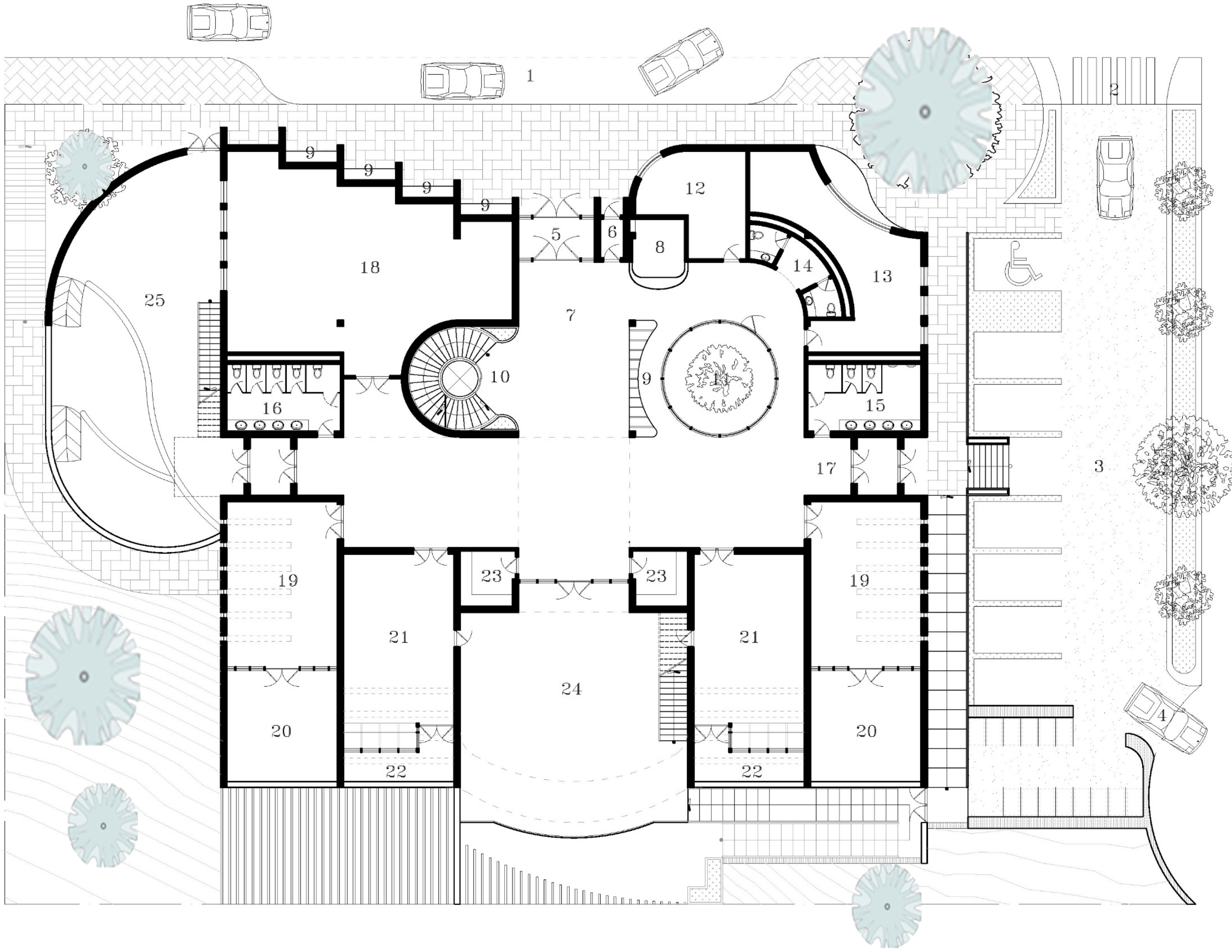
## DESIGN PROCESS CONCEPT DIAGRAM



# FINAL DESIGN

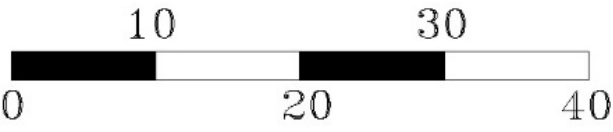
## FLOOR PLAN (0)

### GROUND ADVENTURE

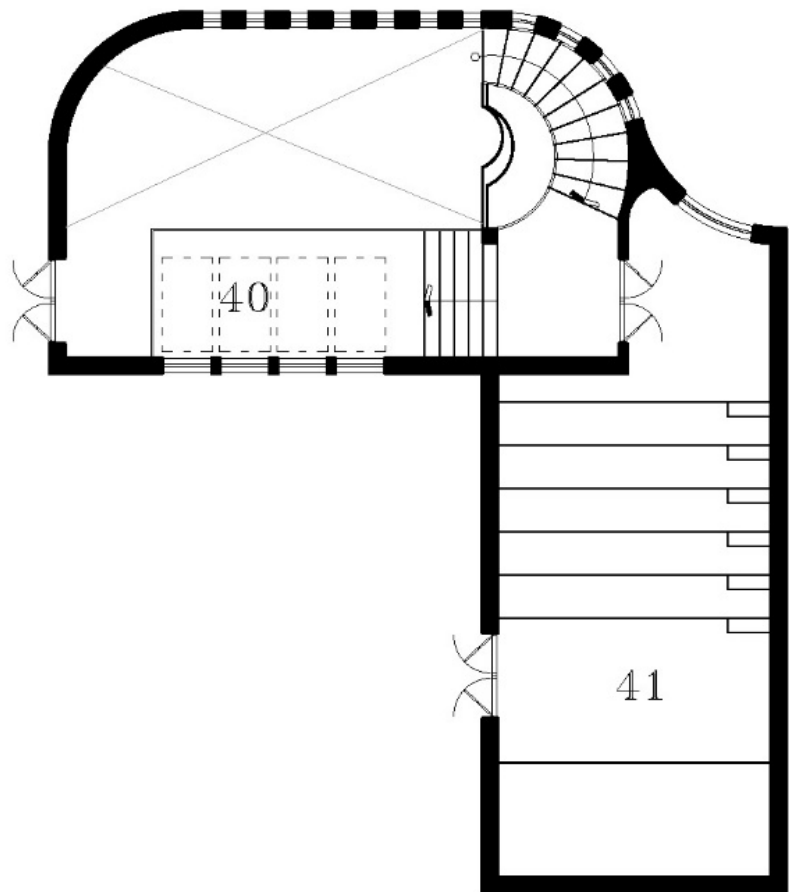
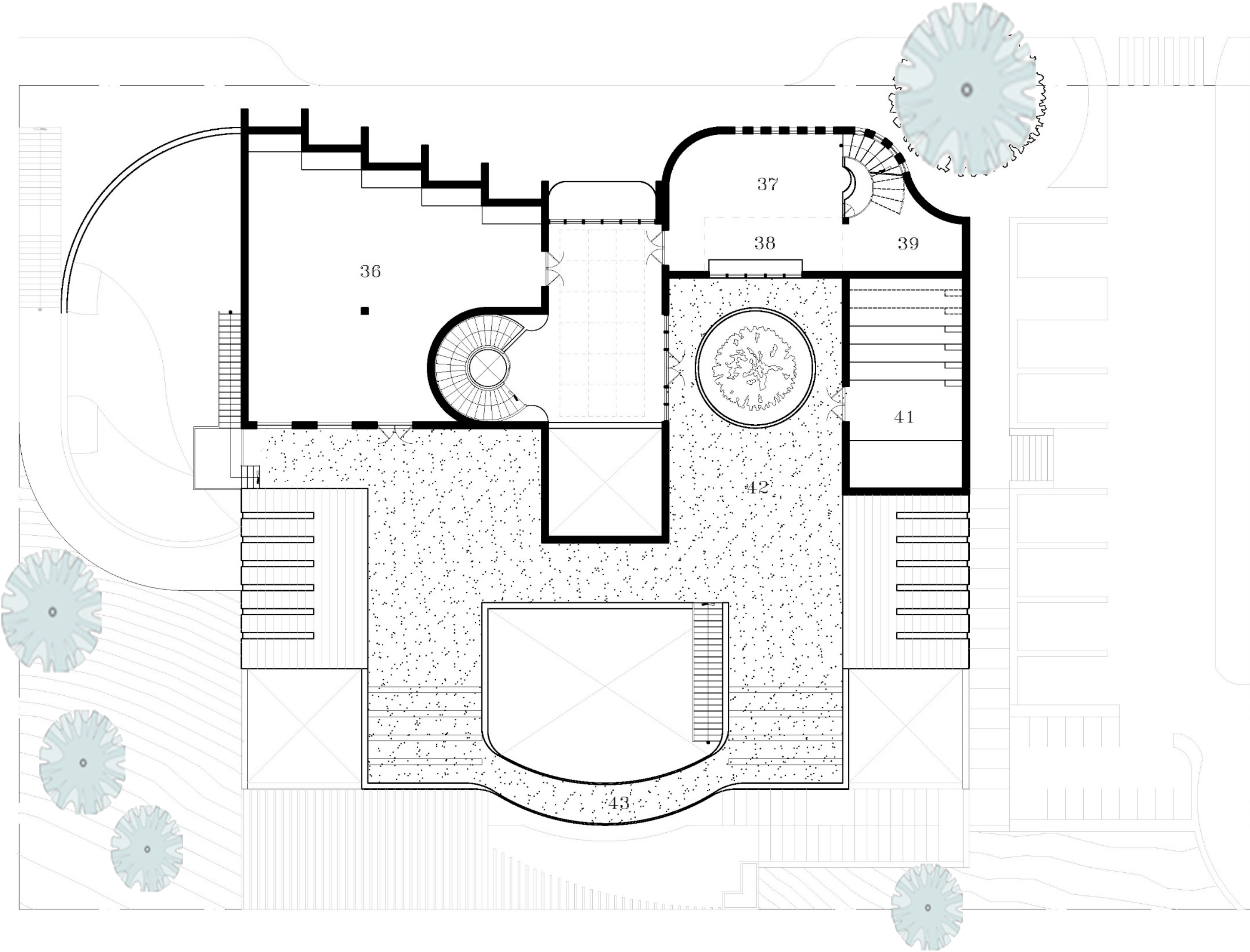


#### Plan Spaces Legend

- 1 Vehicular Queuing
- 2 Parking Entry
- 3 White Rabbit Parking
- 4 Parking Exit
- 5 Through The Looking Glass Entry
- 6 Drink Me Doorstep
- 7 Wonderland Welcome
- 8 Wonderland Welcome Desk
- 9 Caterpillar's Canopy Bench
- 10 Rabbit Hole (Stairs & Elevator)
- 11 Special Tree
- 12 Looking Glass Leadership Lounge
- 13 White Rabbit Lounge
- 14 Wonderwash Station (Staff)
- 15 Wonderwash Station (Boys)
- 16 Wonderwash Station (Girls)
- 17 Wonderland's Whispered Way
- 18 Looking Glass Learning Lab A (Age 3-6)
- 19 Looking Glass Learning Lab B (Age 6-9)
- 20 Looking Glass Lush Lawn
- 21 Looking Glass Learning Lab C (Age 9-12)
- 22 Dreamer's Delight Deck
- 23 Wonderland Storage
- 24 Golden Afternoon Garden
- 25 Mad Hatter's Adventure Land

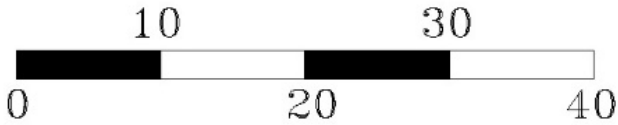


**FLOOR PLAN (+1)**  
**ABOVEGROUND ADVENTURE**

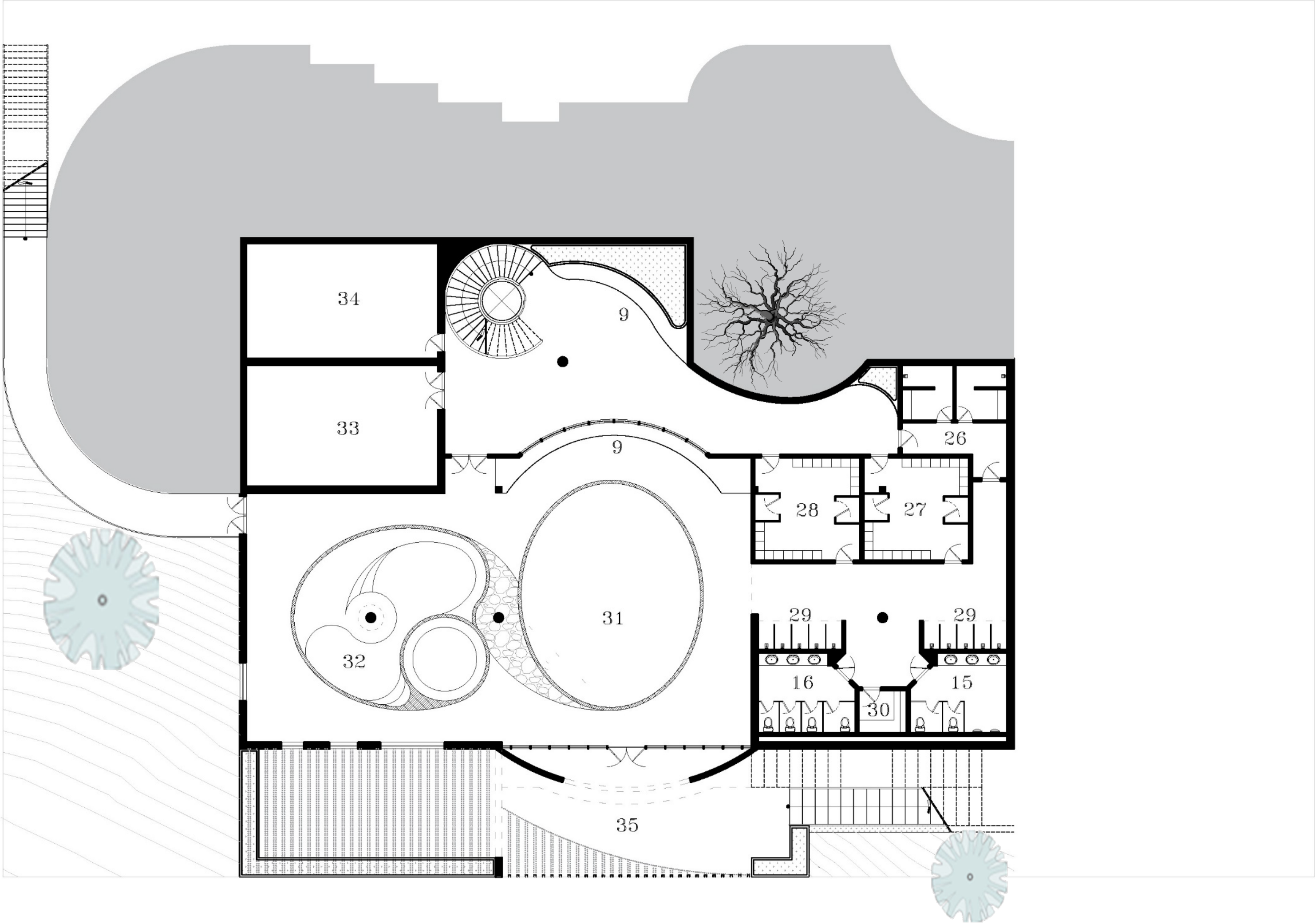


**Plan Spaces Legend**

- 36 Whimsical Yoga & Wonderland Wall
- 37 Dreamland Discovery
- 38 Wonderland Bay Window
- 39 Cheshire Cozy Corner
- 40 Wonderland Web of Words
- 41 Beyond the Bookshelf
- 42 Queen's Court Garden
- 43 Cheshire Cat's Cloud Bridge

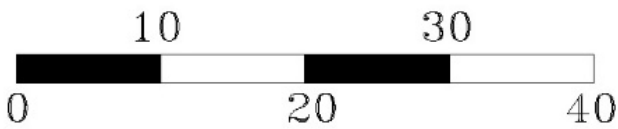


**FLOOR PLAN (-1)**  
**UNDERLAND ADVENTURE**

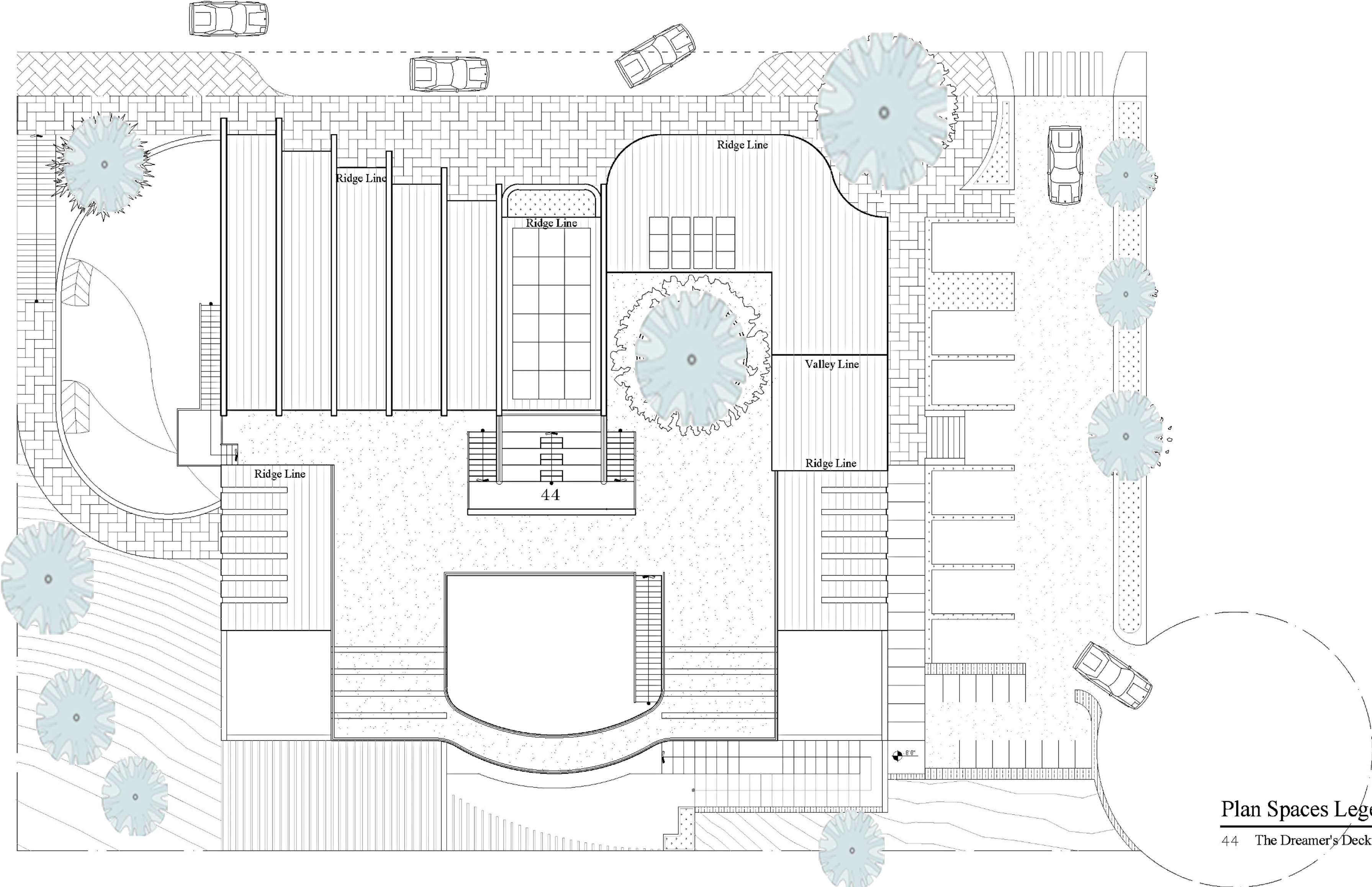


**Plan Spaces Legend**

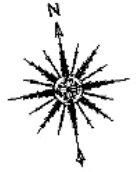
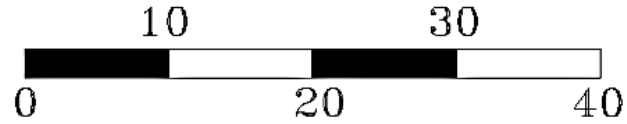
- 26 White Rabbit Locker (Staff)
- 27 White Queen Locker (Girls)
- 28 Mad Hatter Locker (Boys)
- 29 Rain Room
- 30 Dreamer's Dustin Den
- 31 Reflecting River-Pool
- 32 Alice's Aqua Adventure
- 33 Mechanical/Electrical Room
- 34 Wonderland Storage
- 35 Tea Party Terrace



**SKY PLAN**



**Plan Spaces Legend**  
44 The Dreamer's Deck

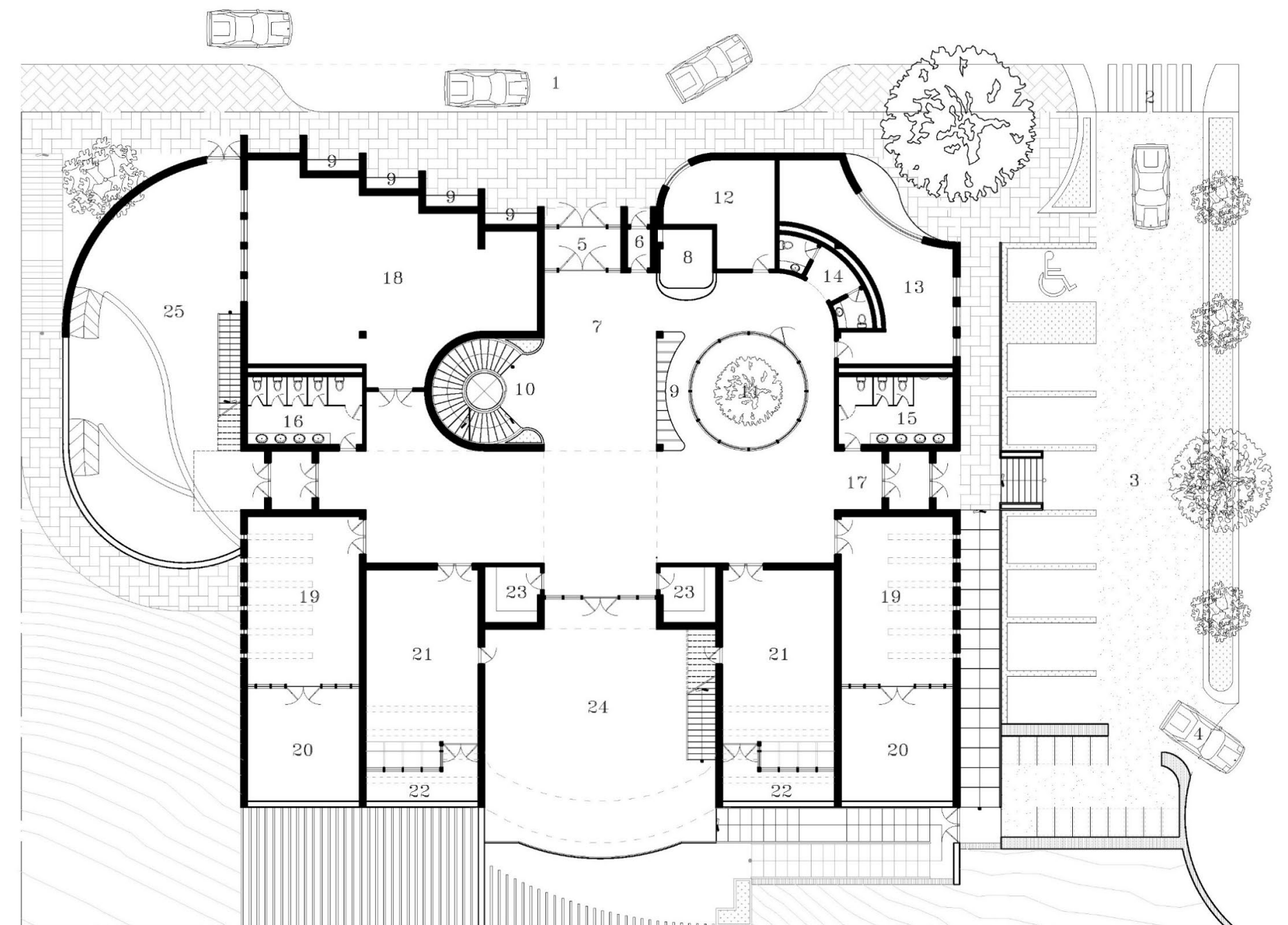


# ALICE IN WONDERLAND SCHOOL

So, let's go back to our story. Finally, Alice and her sister arrived at the Wonderland school, a beautiful brick building nestled among the leafy trees and lush greenery of the historic homes of the Georgetown neighborhood. The lush green trees of the park sway gracefully in the gentle breeze, creating a soothing sight for Alice's eyes. The birds chirp melodious tunes, adding a sweet release to the atmosphere. Alice's heart raced with excitement as she stepped through the doors, eager to begin her educational journey. Suddenly, she heard a voice calling her name. It was the Caterpillar, who was perched on a nearby mushroom, smoking a hookah. "Hello, Alice," said the Caterpillar. "Welcome to the Wonderland School. What brings you here?" With the Caterpillar's question still echoing in the air, Alice replied, "I'm here to explore and learn!" The Caterpillar gestured with his hookah for her to continue her journey. Taking in her surroundings, Alice noticed how thoughtfully the building was designed. "Why, the building seems to lean back a bit," she remarked, "making the sidewalk wide and inviting!" The pathway was broadened to allow cars to queue up, letting children be dropped safely at the main entrance on the prospect street. Right past this area, she spied an entrance, "That must be for the parking! For both cars and bicycles," she giggled, thinking of riding her own little scoter. She also noticed an exit leading to a dead-end alleyway, St. Mary street. "How curious!"

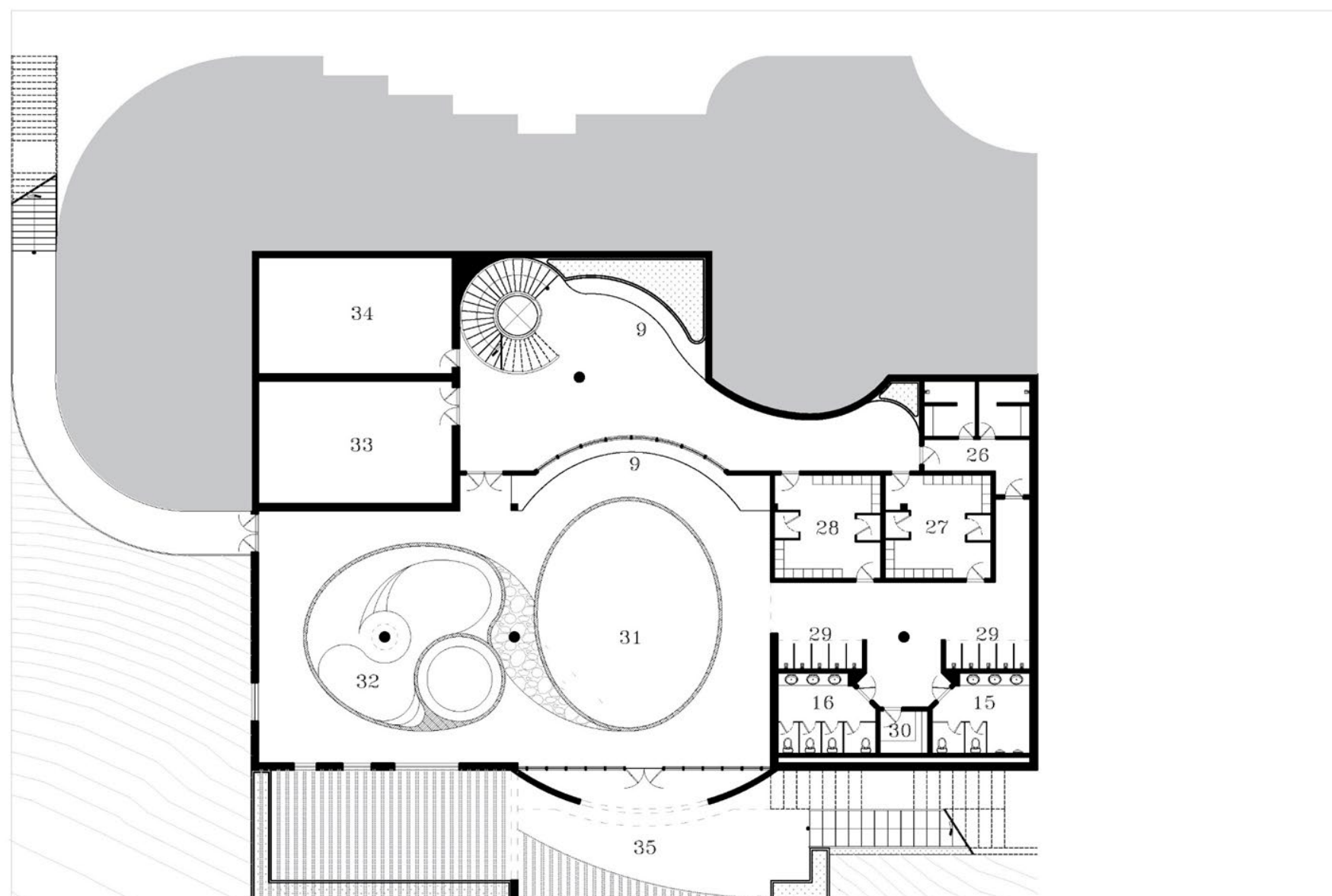
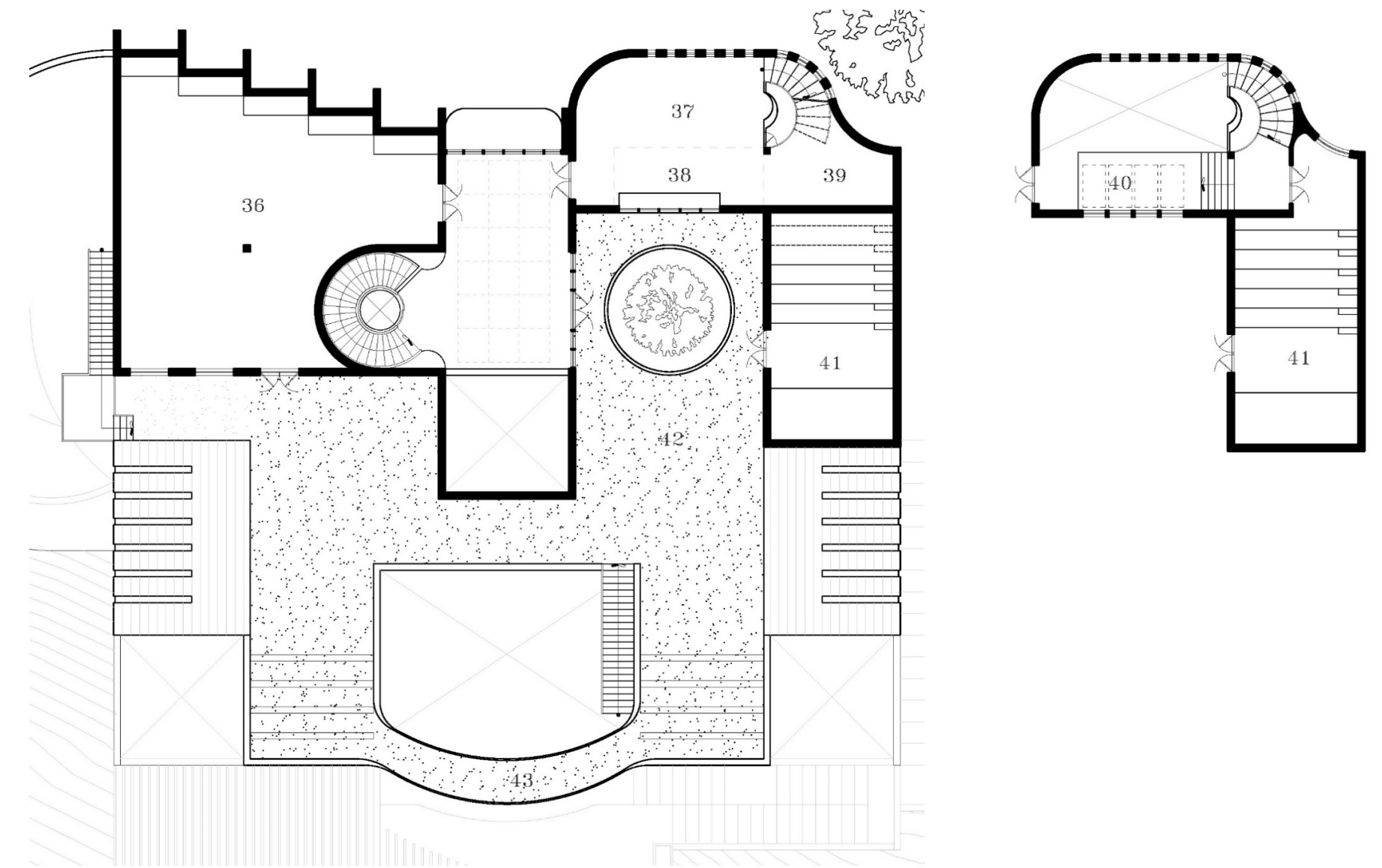
## Alice In Ground Adventure (0)

The main entrance, which faced Prospect Street, enchanted her the most. There were two doors: a regular-sized one and a tinier one just her size. "This must be the special entrance to the world of fantasy," she whispered excitedly to herself. As she stepped inside, a grand lobby welcomed her. To her right were majestic stairs and an elevator - gates to other realms within the school. On the left, she saw a beautiful preserved tree, its branches stretching towards a cozy sitting area. Behind this tranquil scene lay the office area, starting with a welcoming reception desk - surely a place for helping young explorers like herself. Further along, she saw doors labeled "Dean" and "Teachers", and two bathrooms. Passing the office area, Alice discovered the heart of the school: an educational zone with five mesmerizing labs. These labs, with their storage areas and bathrooms, seemed to encircle the corridor symmetrically. In the center, a wondrous open space aligned perfectly with the entrance. She could see that this area led to even more mysterious spaces above and below. Each lab room has its very own courtyard, where students could move between indoor lessons and outdoor discoveries. As she neared the end of the corridor, two emergency exits appeared. The right one invited her towards the parking area - perhaps an alternate entry for the teachers? The left one opened to a three-tiered playground. With wonder in her eyes, Alice was ready to immerse herself in this educational Wonderland.



## Alice In Aboveground Adventure (+1)

As Alice ventured further, taking the main staircase, she was whisked away to the upper level, the "Education Recreational Zone." A sense of connection washed over her as she spotted an opening allowing her to look at the level below. "Look over there!" she exclaimed, pointing towards the playrooms and library that lined both sides of the corridor. What caught her attention was a door leading straight to a roof garden. To her left, the playroom appeared with a thrilling rock-climbing wall and various play areas. The library wasn't just an ordinary one; it was an adventure waiting to happen. Alice was intrigued by the bay window offering a view of the preserved tree, cozy hiding spot, and suspended nets that seemed to float above. A staircase leading up to the nets continued onward to an art/media room, making Alice's heart race with excitement. This room, also, had a doorway leading to the roof garden and could function independently. But it was the roof garden that was the true gem of this magical school. Dominated by the presence of the special tree, it was like a scene out of a fairy tale. The panoramic view from an infinity bridge and platform made Alice feel as if she were floating in mid-air. For swift exits, she noticed two staircases cascading down to the ground, ensuring safety. "This place," Alice thought, "is the very essence of wonder and magic."



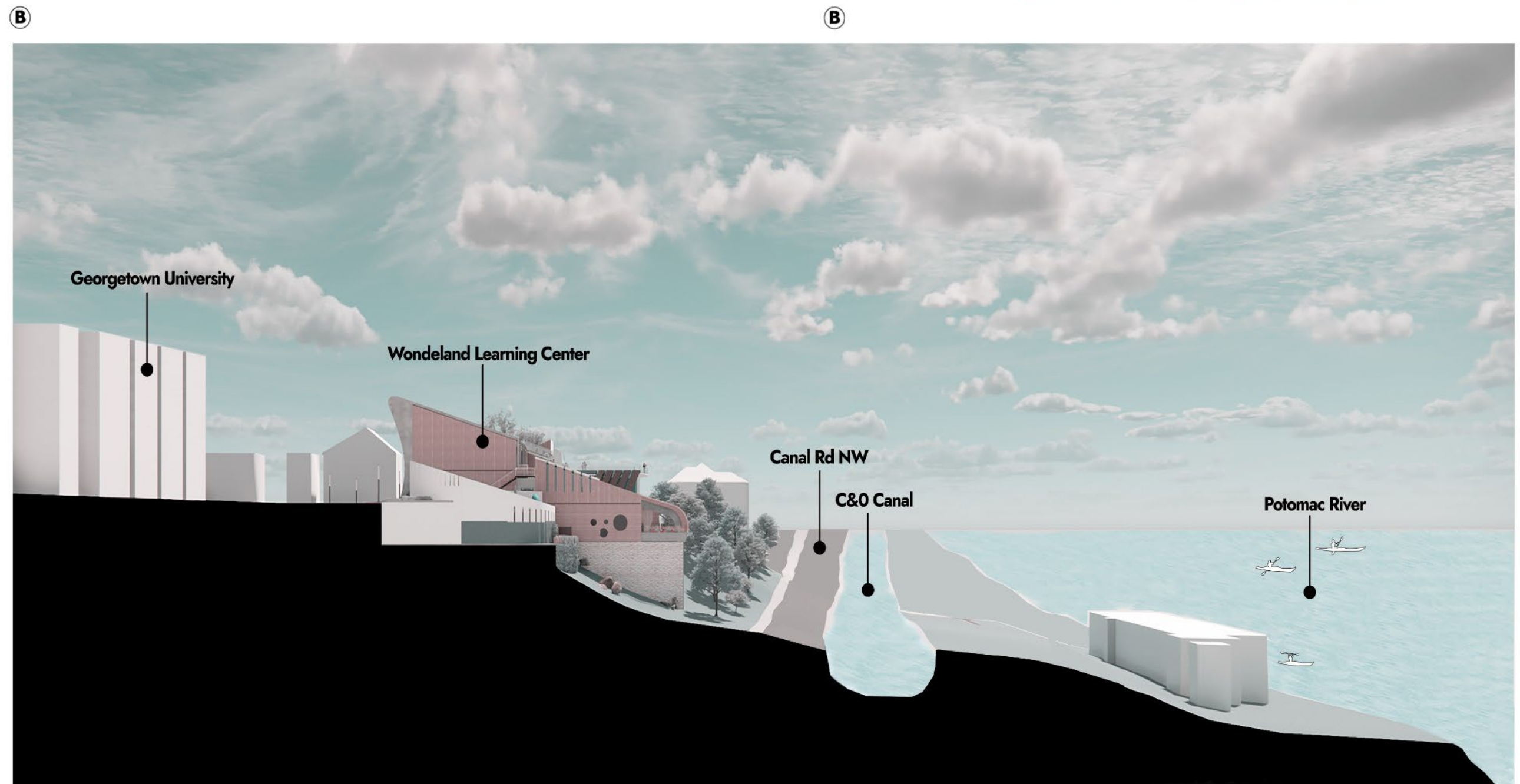
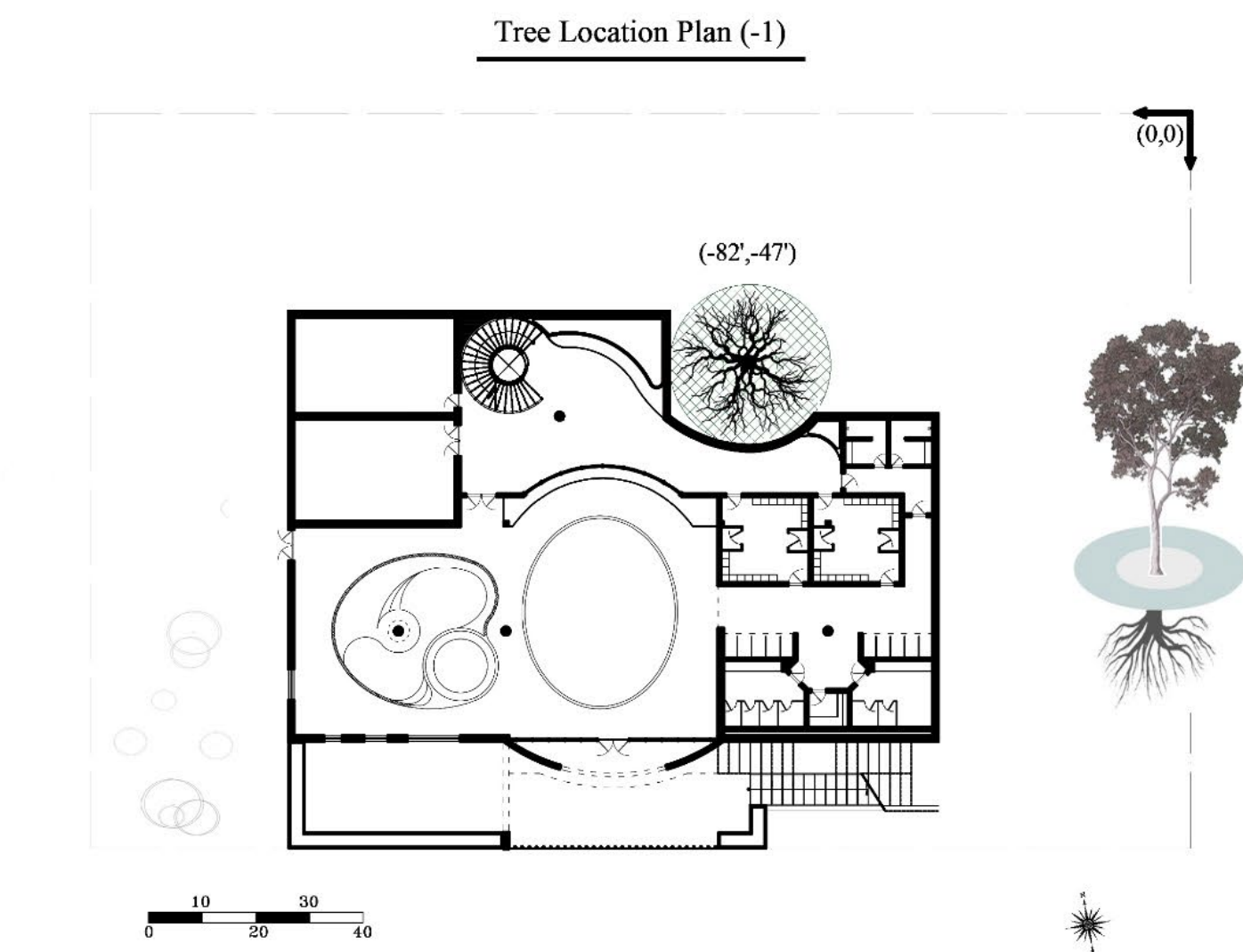
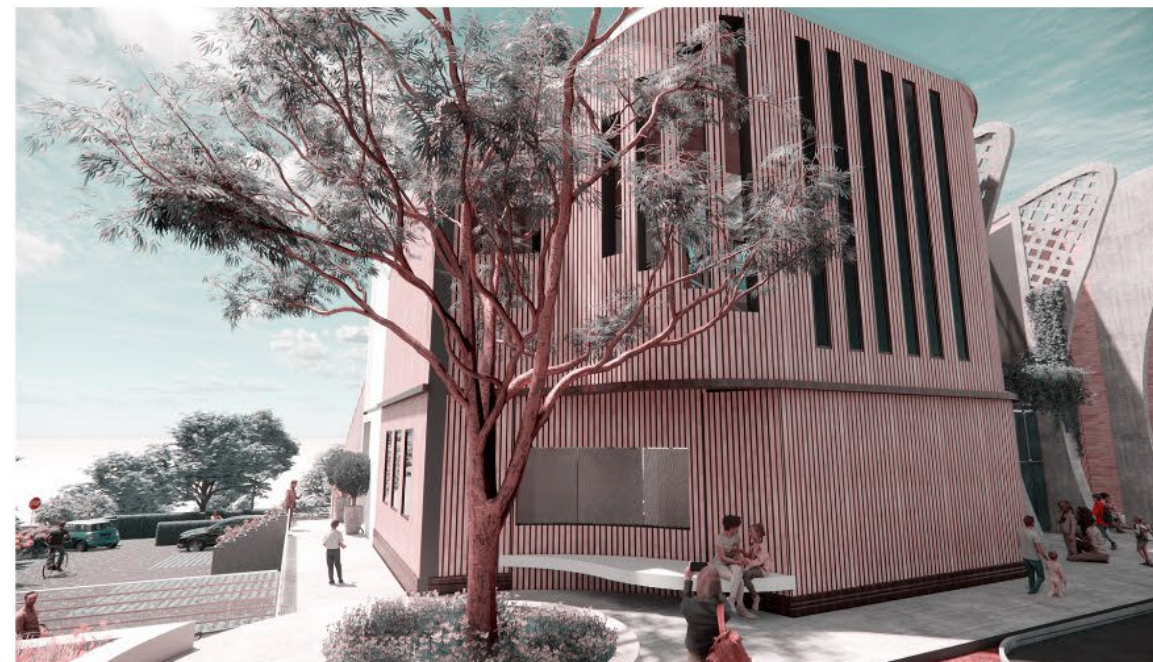
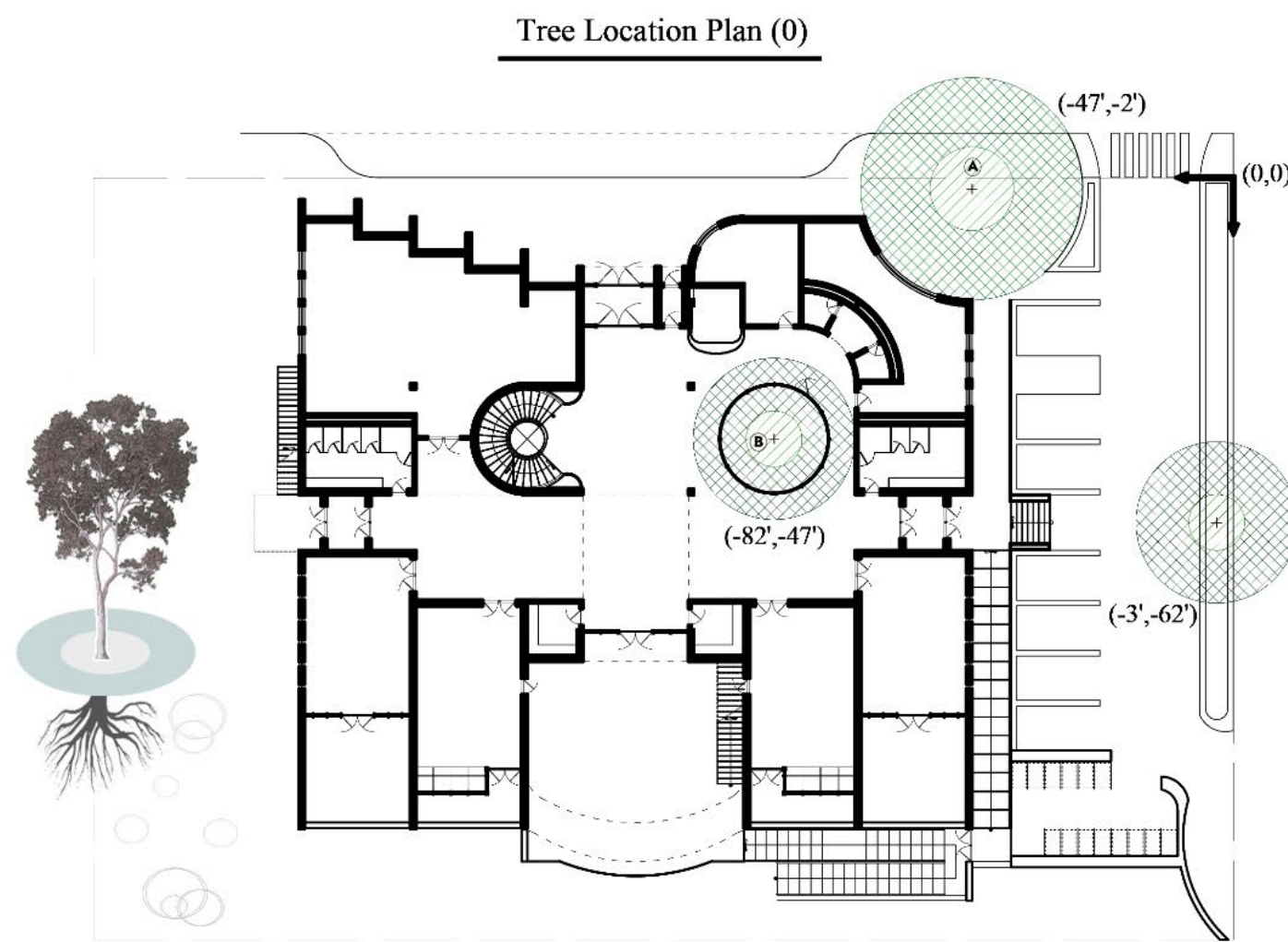
## Alice In "Underland" Adventure (-1)

Alice, with a mix of anticipation and curiosity, decided to use the elevator to descend into the school's basement. As she stepped out, she was greeted by a realm dedicated to recreation, its centerpiece being a pool. "I suppose this way is for emergencies," Alice mused, observing a direct route to the pool. Along this corridor, she spotted a mechanical room and storage area. A seating area caught her eye, perfectly positioned to provide a view of the water's mesmerizing ripples. Continuing her journey, she arrived at the locker rooms. With a chuckle, she noticed that students and teachers had their own separate spaces. After the lockers, showers and bathrooms acted as the gateway to the pool. The splendor of two pools, each of a different depth and decorated with a fountain, left Alice in awe. These pools opened out to a beautiful open space, linking to the outdoor areas on the other levels. "And just in case," Alice whispered to herself, identifying another emergency exit that led straight out to the main street. The basement was an aquatic wonderland, and Alice could hardly wait to dive into its delights.

As the day came to a close, Alice left the Wonderland School feeling grateful for the amazing experience she had. She knew that she had found a place where she could be herself and explore all the wonders of the world. And as she looked back at the school, she saw the Mad Hatter waving goodbye from the Dreamer's deck, his teacup raised in a toast to a day filled with adventure and magic. Alice left Wonderland school that day feeling proud of herself and inspired to continue exploring the world around her. And who knows, maybe one day she'll even find herself falling down another rabbit hole and discovering even more wonders in Wonderland. As the sun began to set, Alice made her way back down Prospect Street, her heart full of joy and excitement. She marveled once again at the intricate details of the sidewalk beneath her feet, feeling grateful for the wondrous journey that lay ahead.



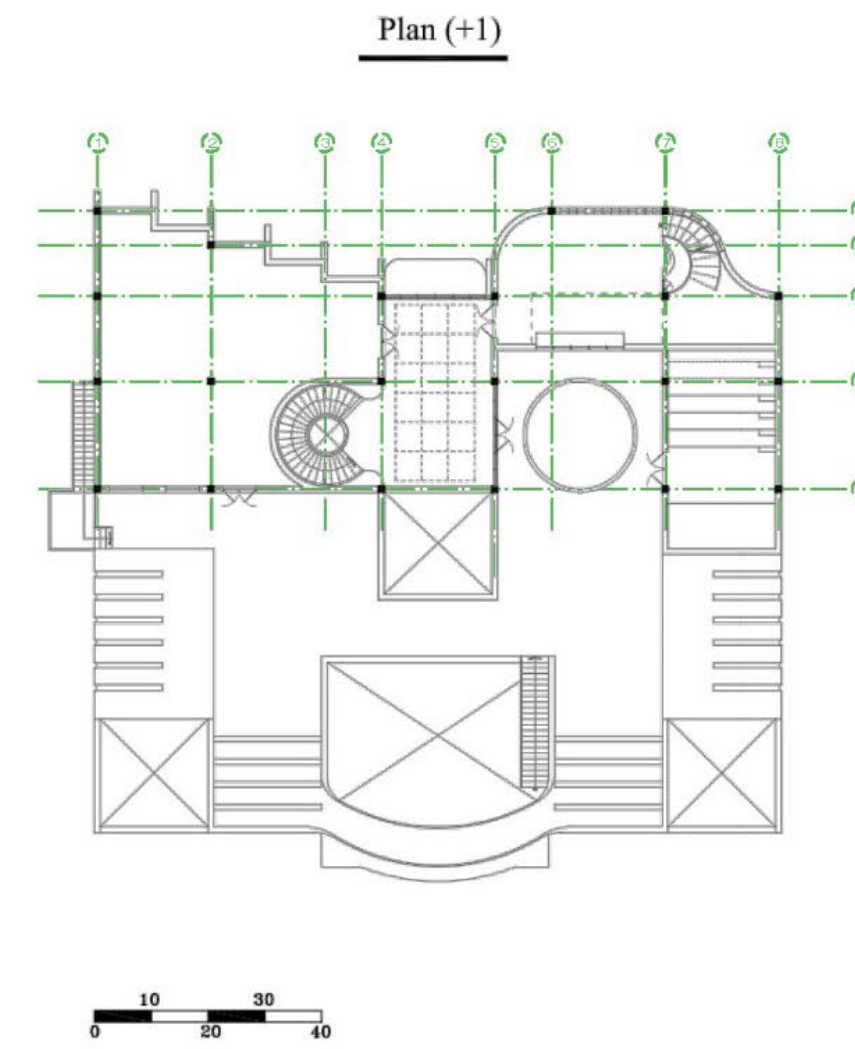
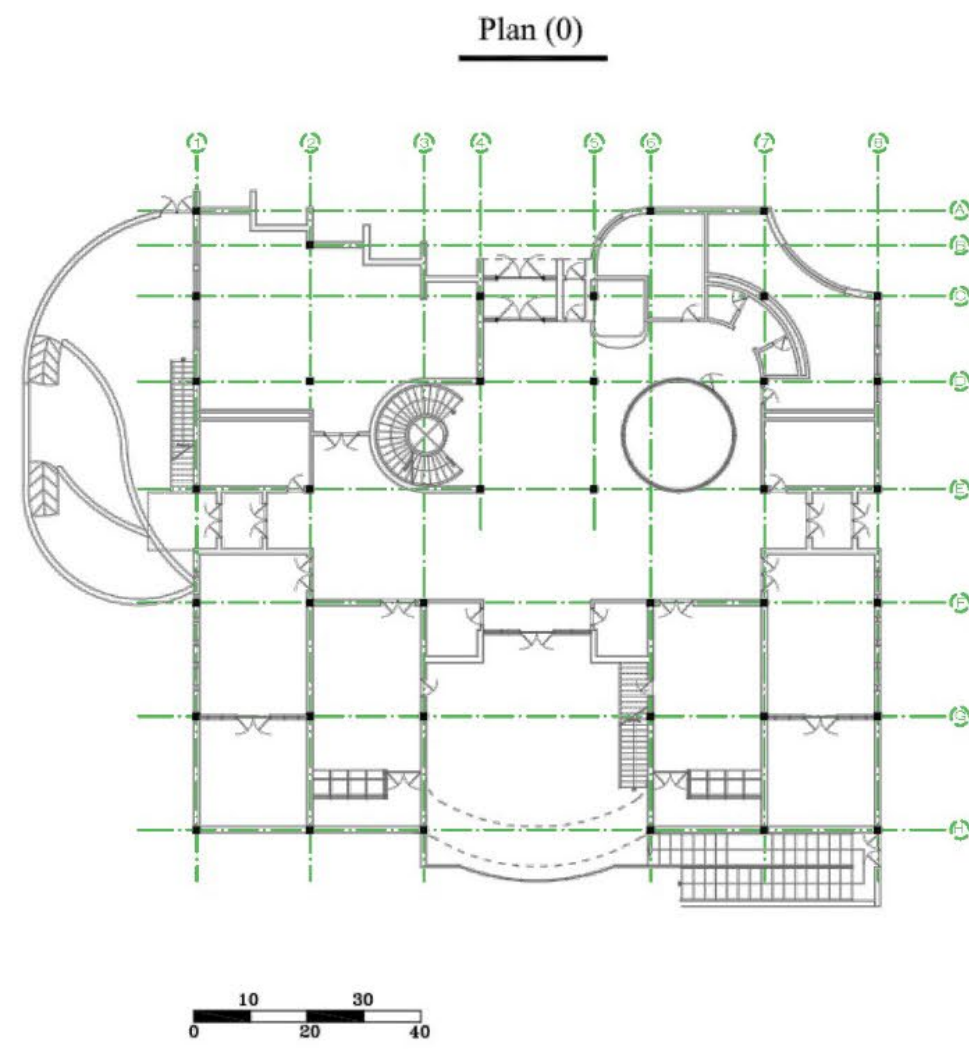
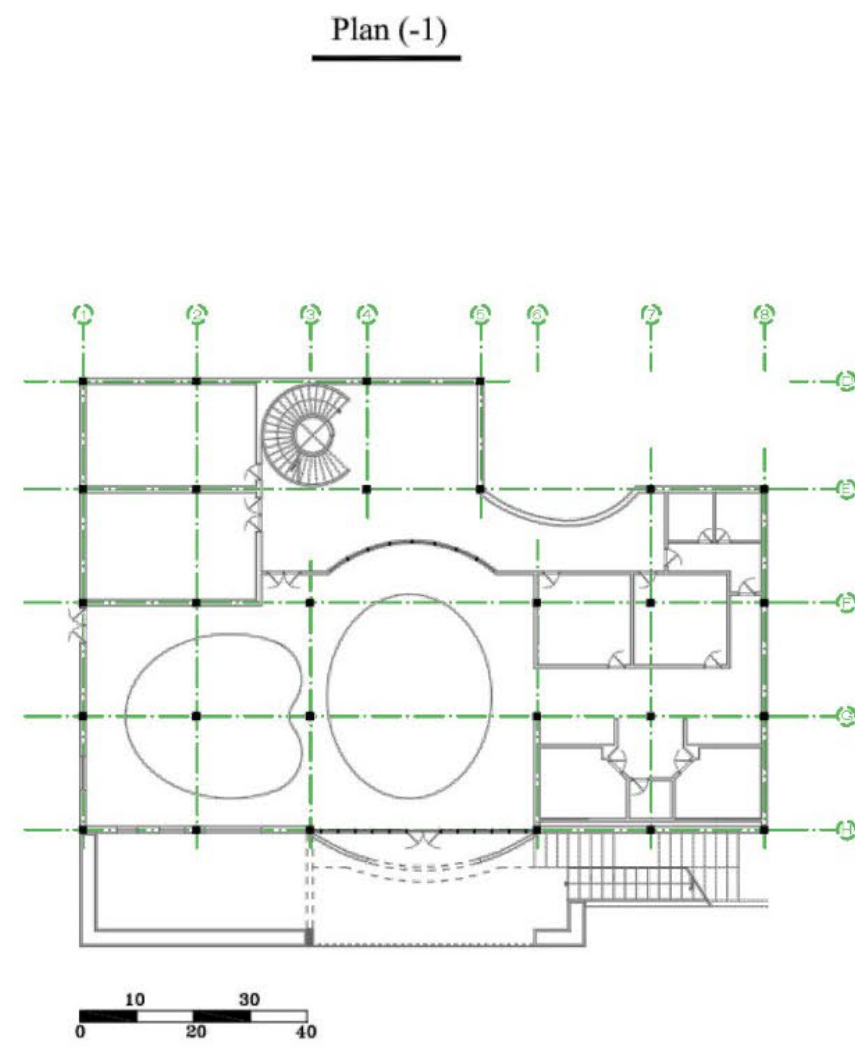
# SITE SECTION PERSPECTIVES & TREE LOCATIONS VIGNETTES



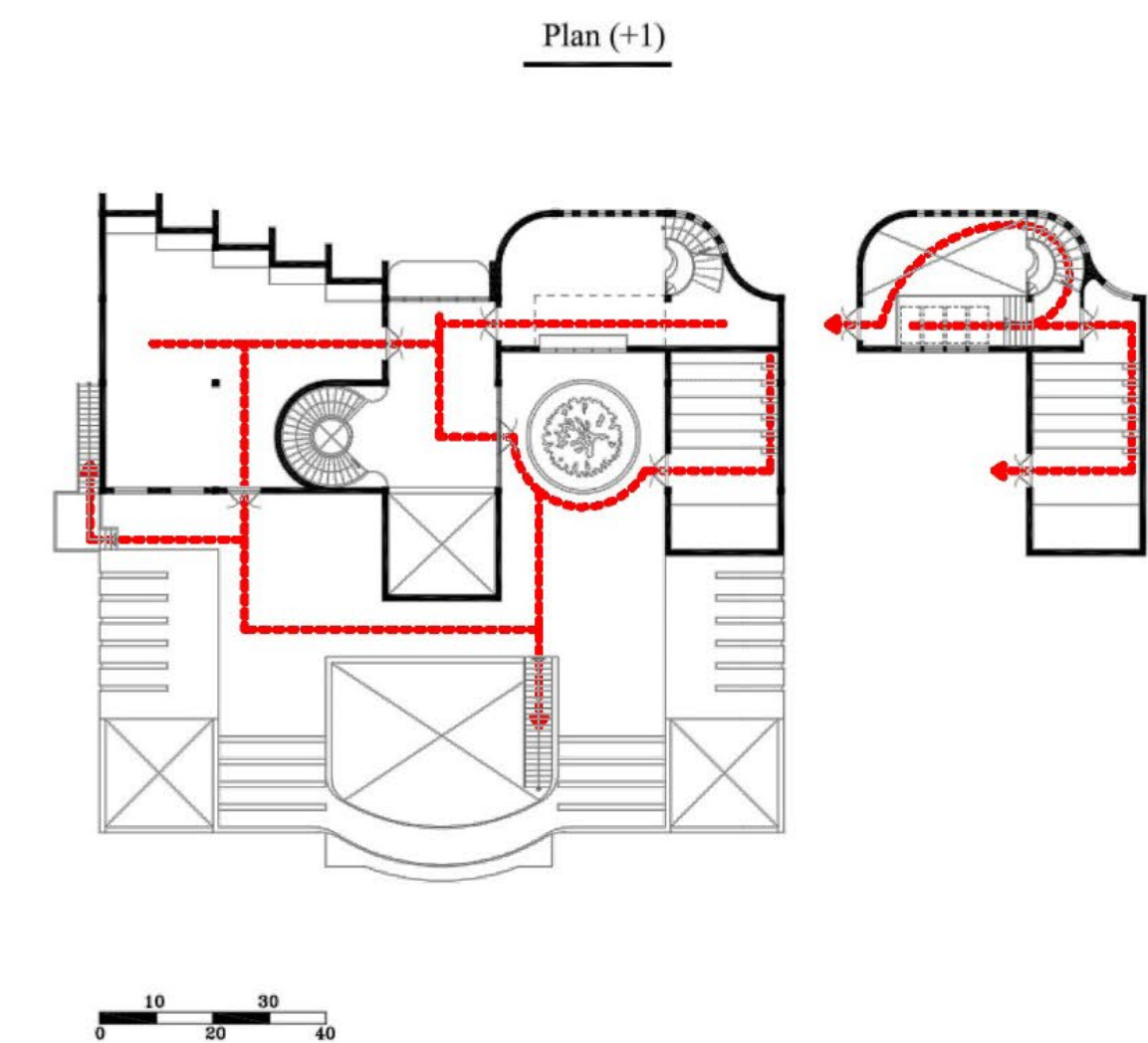
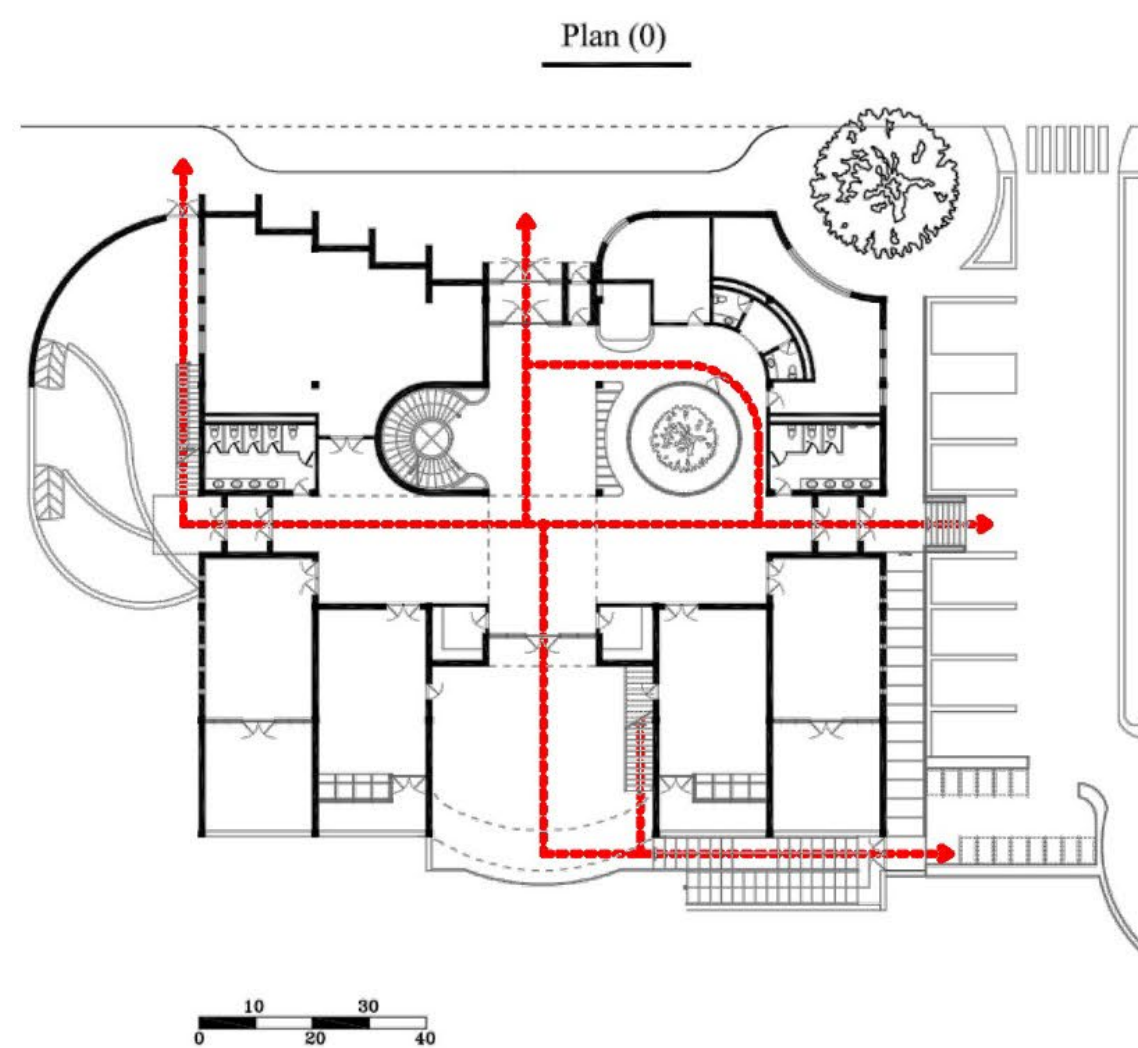
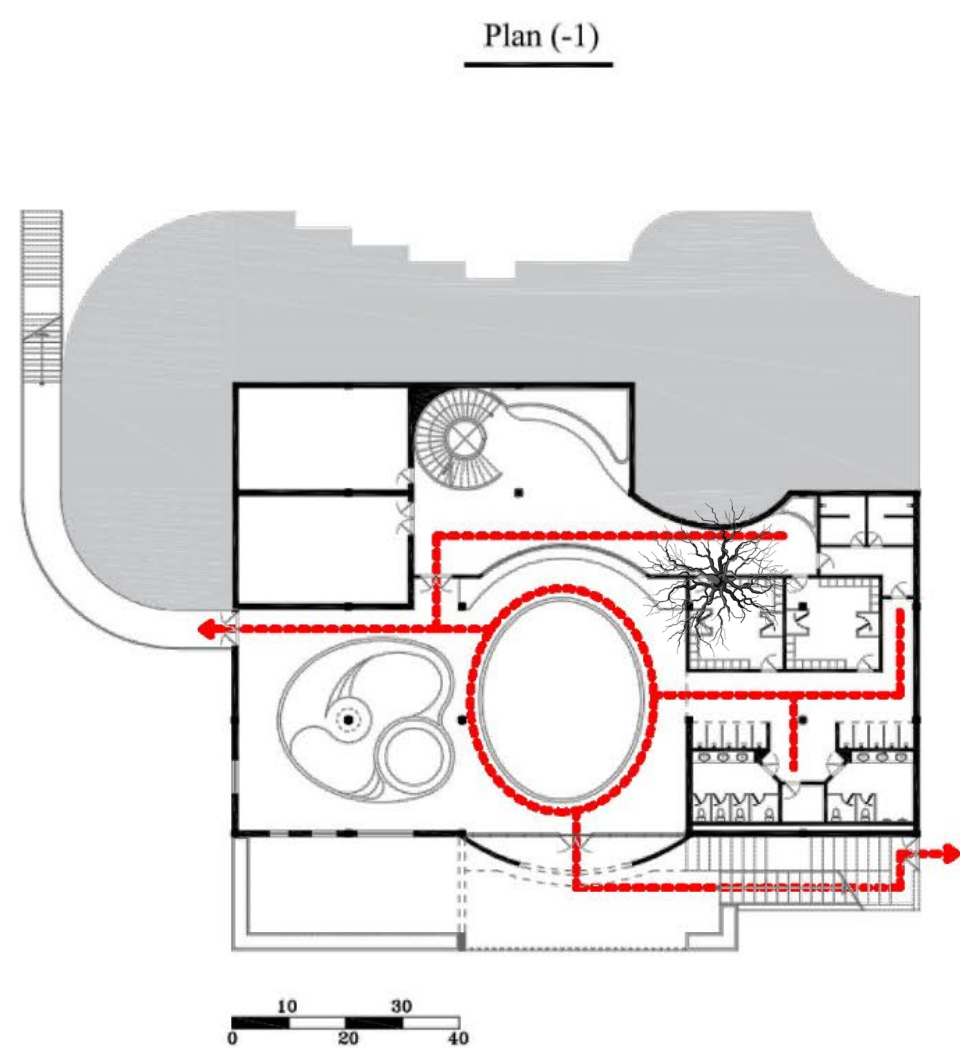
- Origin
- Special Tree
- Structural Root Zone
- Critical Root Zone

CRZ : 1.5 foot of radius per inch of diameter  
 SRZ: 1/2 foot of Radius per inch of diameter

# STRUCTURAL PLANS

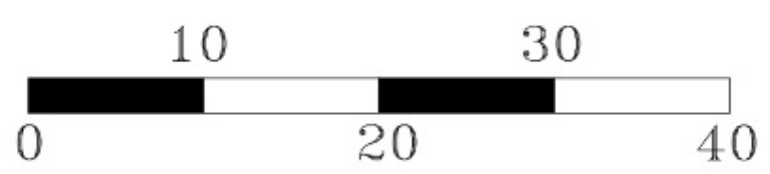
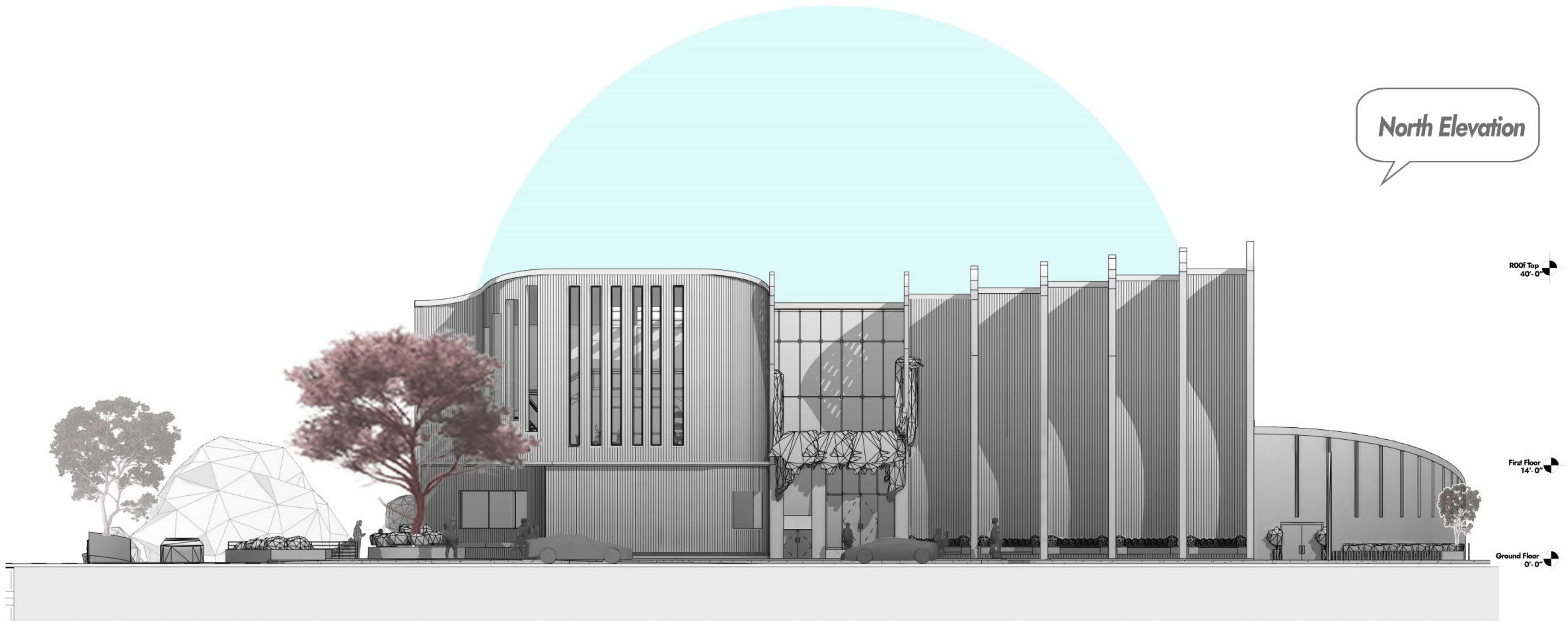


# EGRESS PLANS

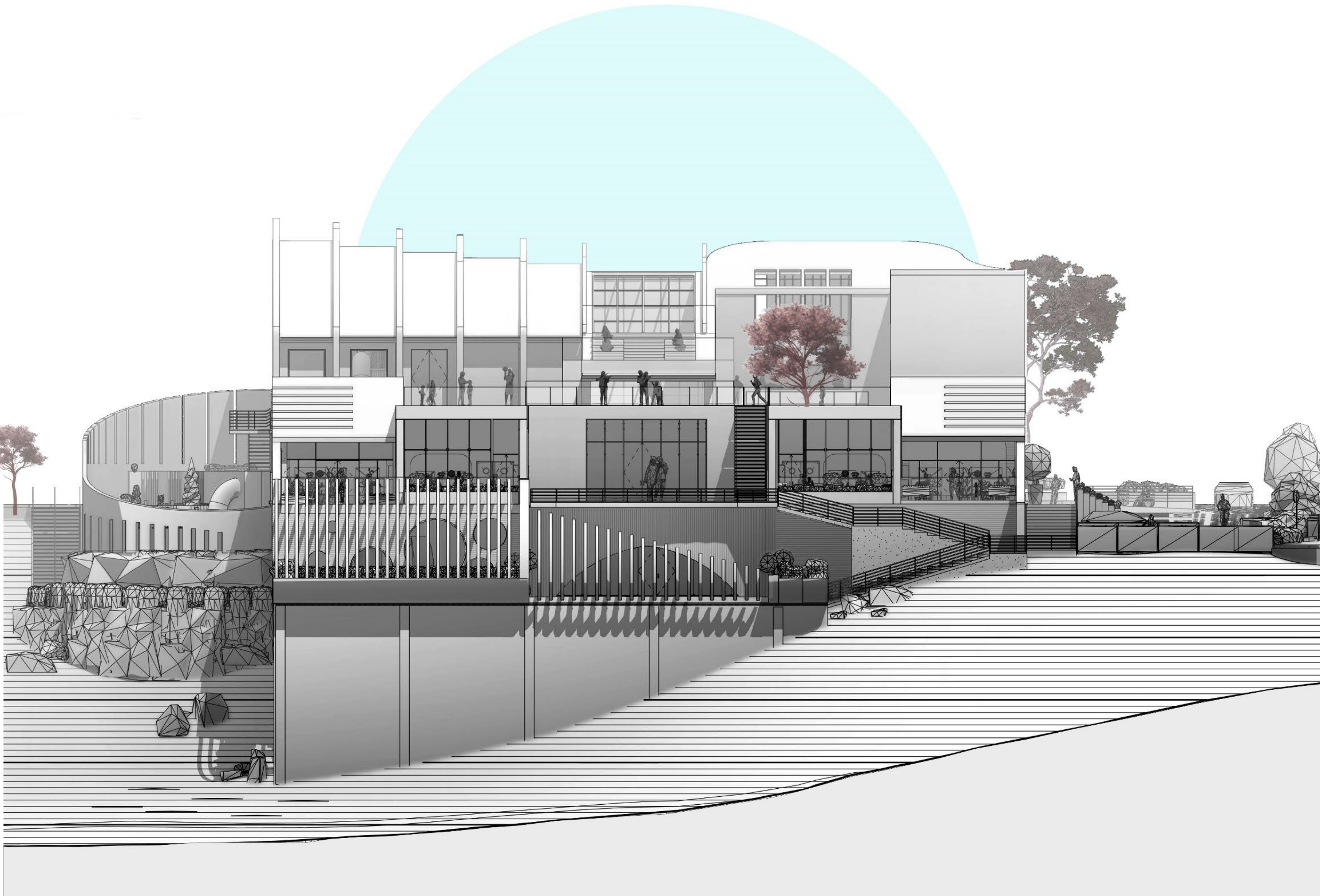


# ELEVATION

North Elevation



# ELEVATION



ROOF Top  
40'-0"

*South Elevation*

First Floor  
14'-0"

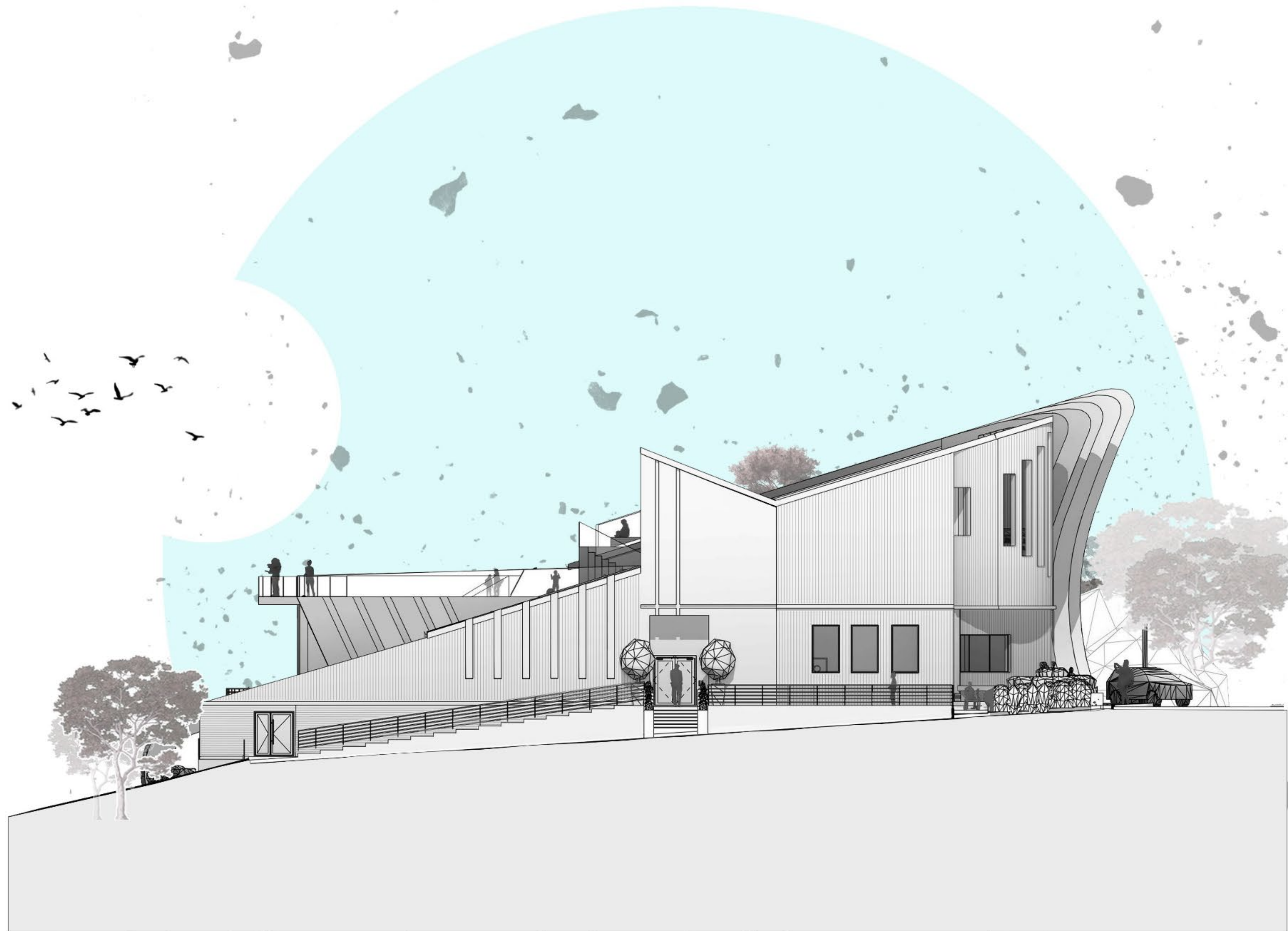
Ground Floor  
0'-0"

Underground  
-16'-0"



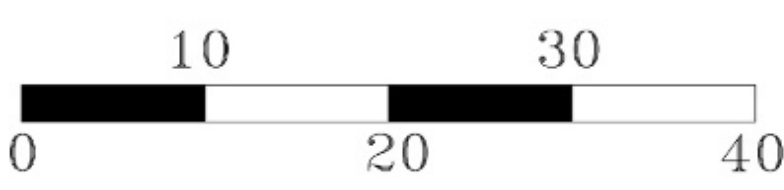
# ELEVATION

*East Elevation*

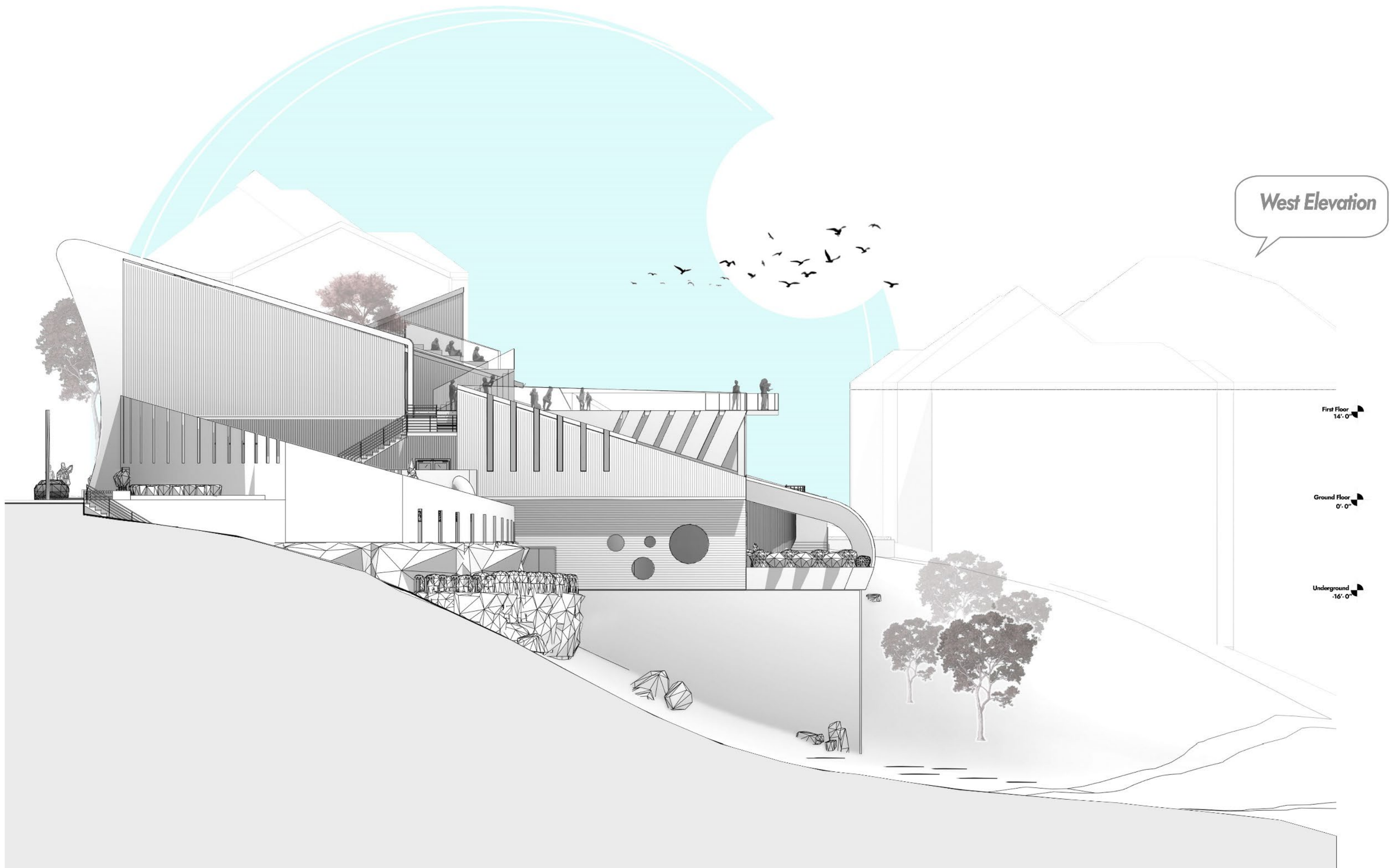


First Floor  
14'-0"

Ground Floor  
0'-0"



# ELEVATION

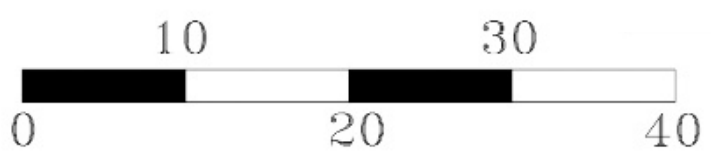


West Elevation

First Floor  
14'-0"

Ground Floor  
0'-0"

Underground  
-16'-0"



# VIGNETTES

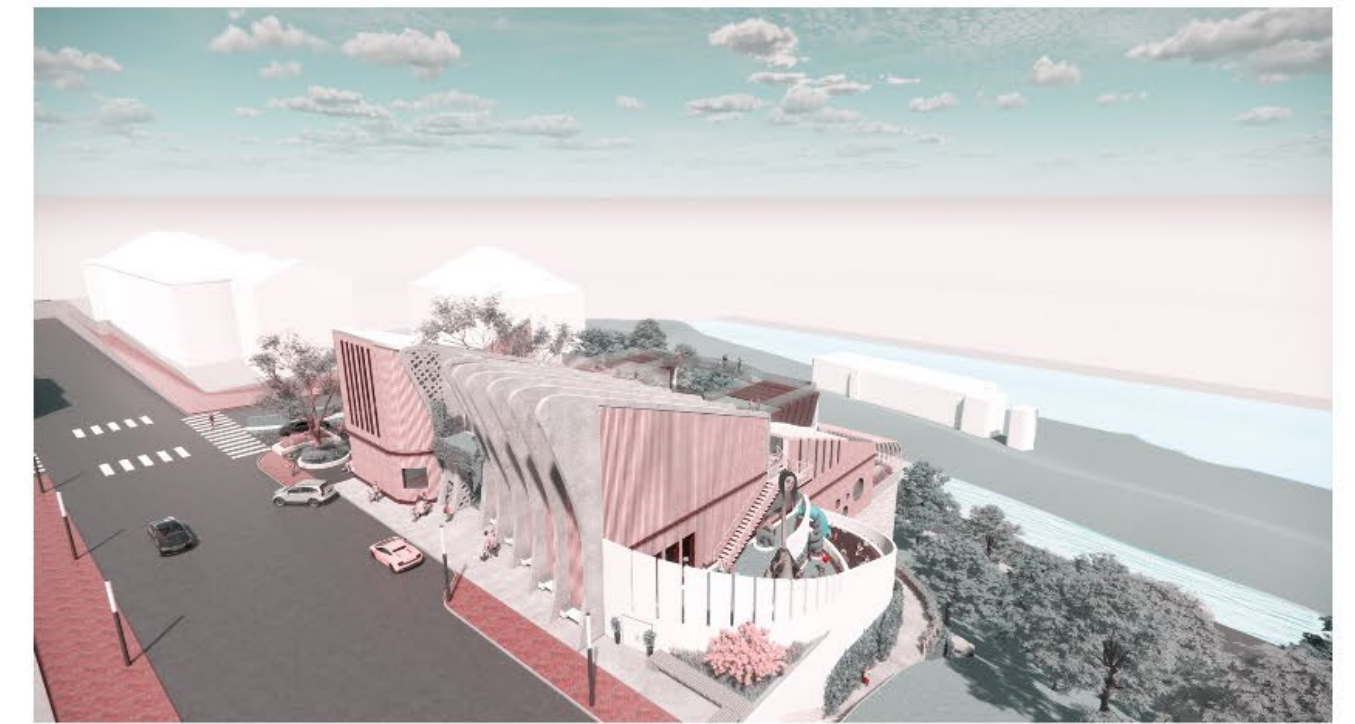
**Northeast View**



**Matt Hatter's Adventure Land**



**Northwest View**



**Southwest View**



**White Rabbit Parking**



**Southeast View**

# VIGNETTES

**Southeast View**



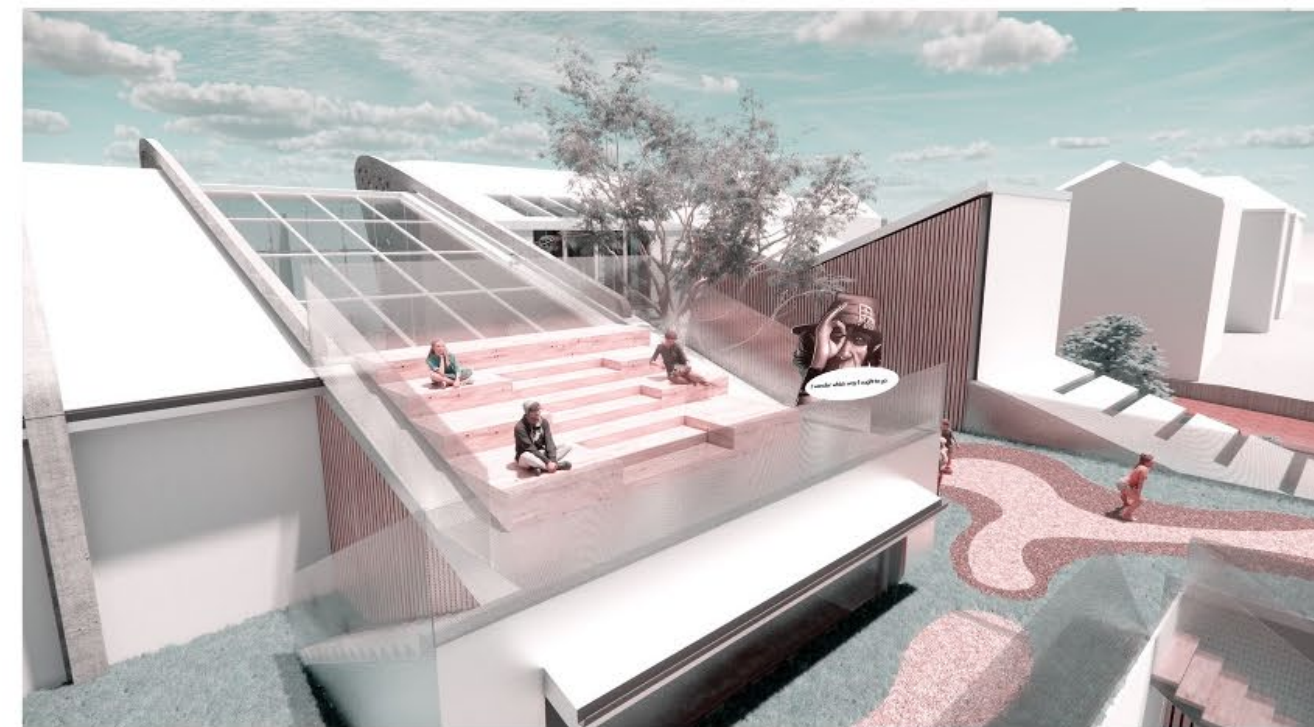
**Cheshire Cat's Cloud Bridge**



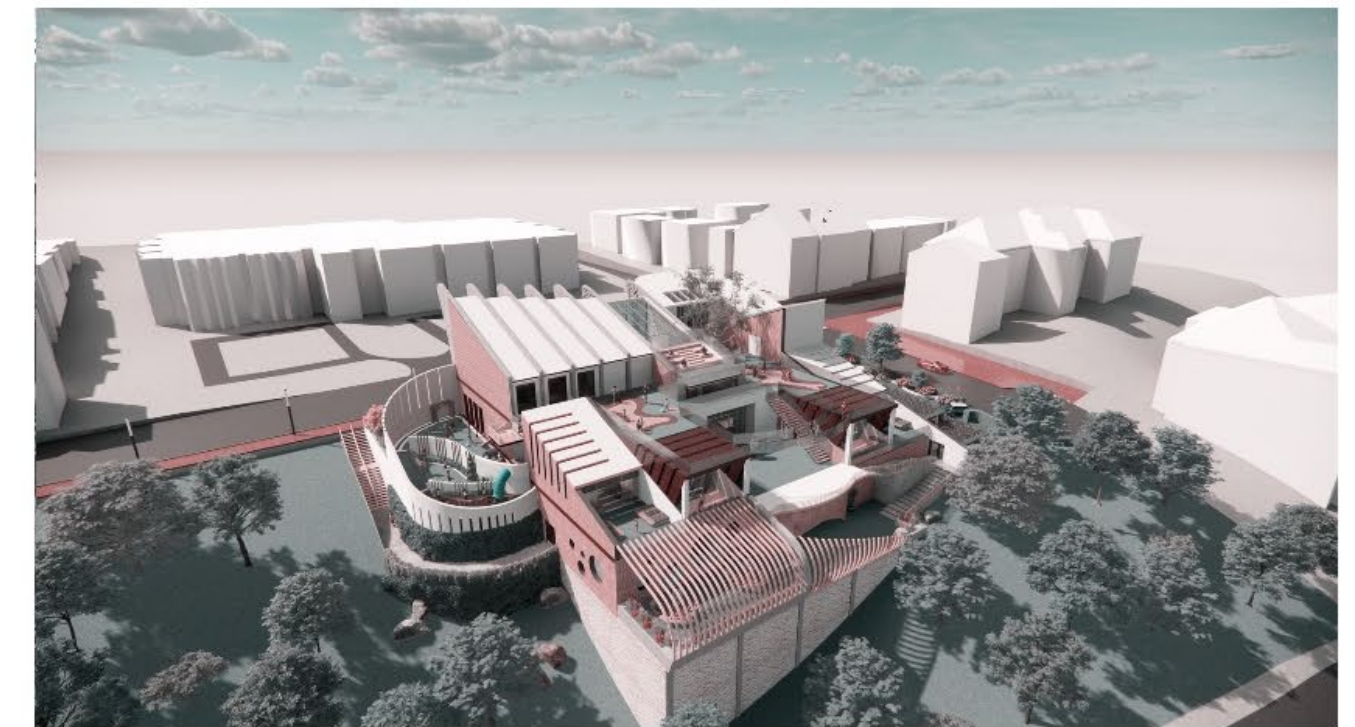
**Northeast View**



**Northwest View**



**The Dreamer's Deck**

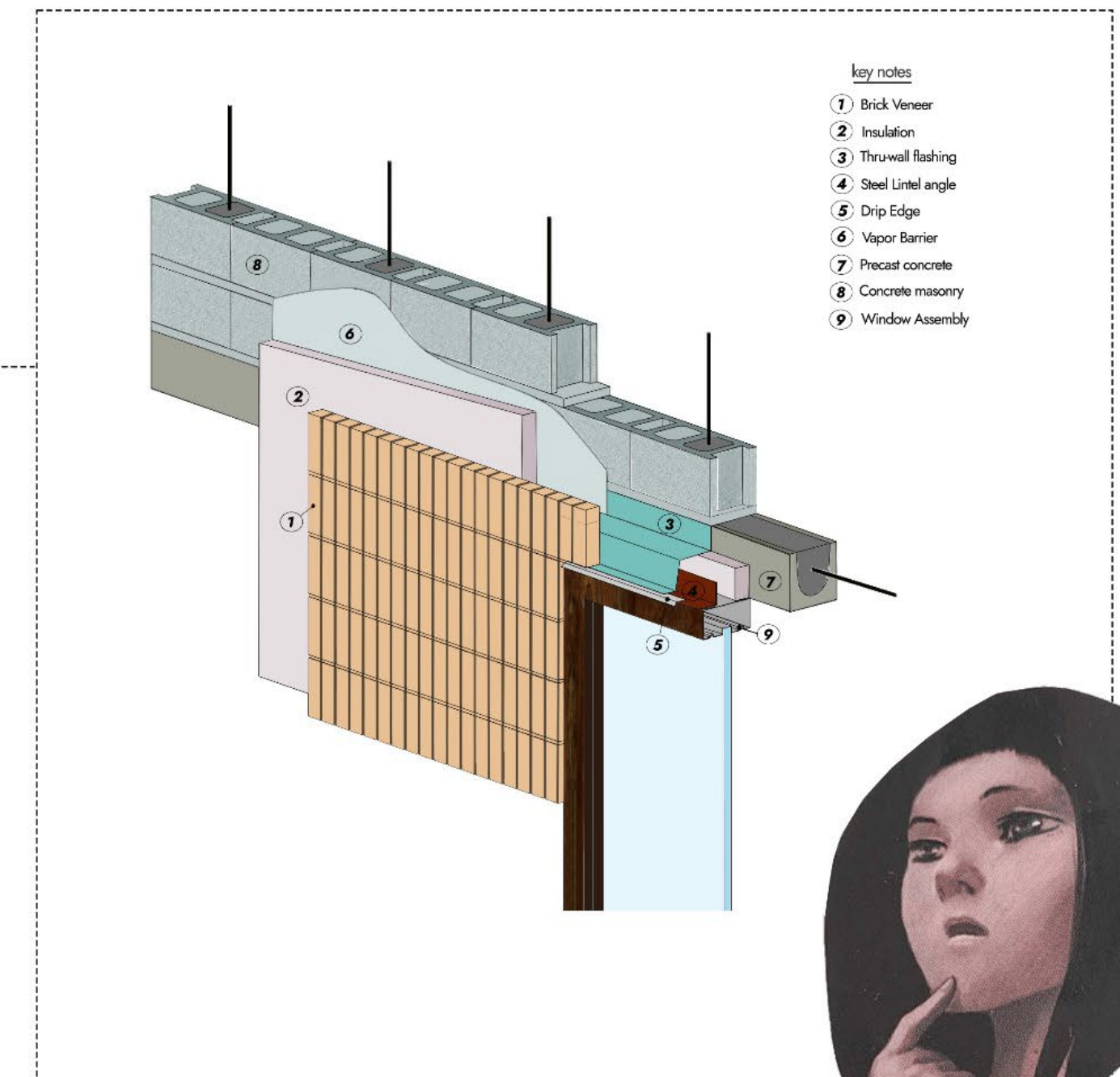


**Southwest View**

# MAIN COLORS & MATERIALS



## Detail



Stacked Stone



Vertical Brick Veneer



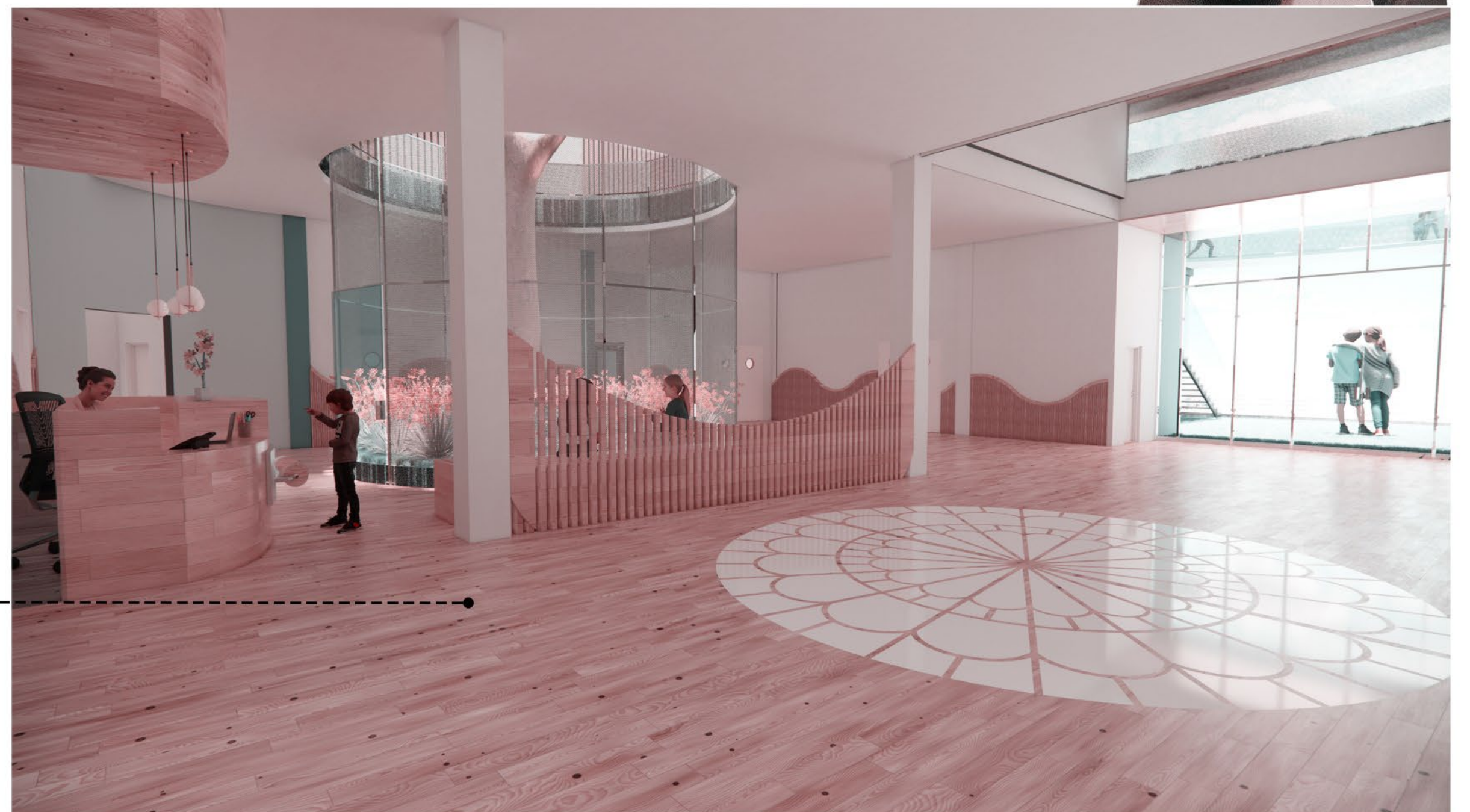
Horizontal Brick Veneer



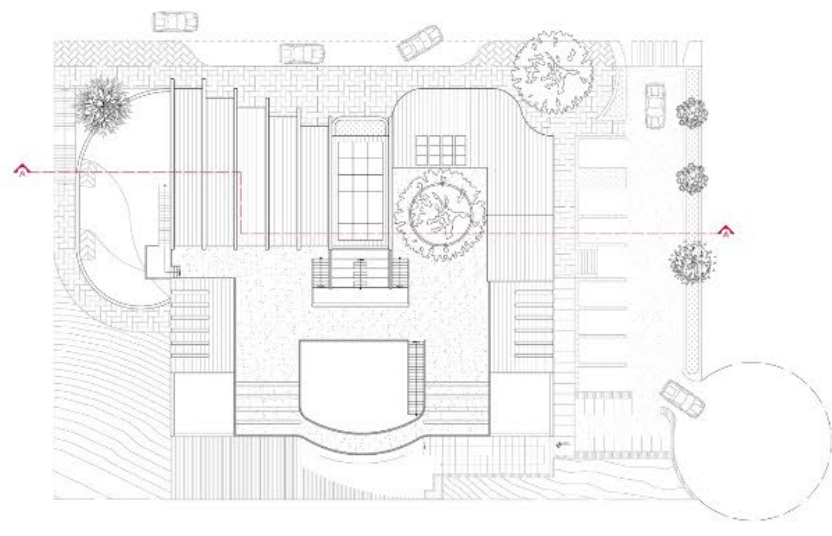
Walnut Wood



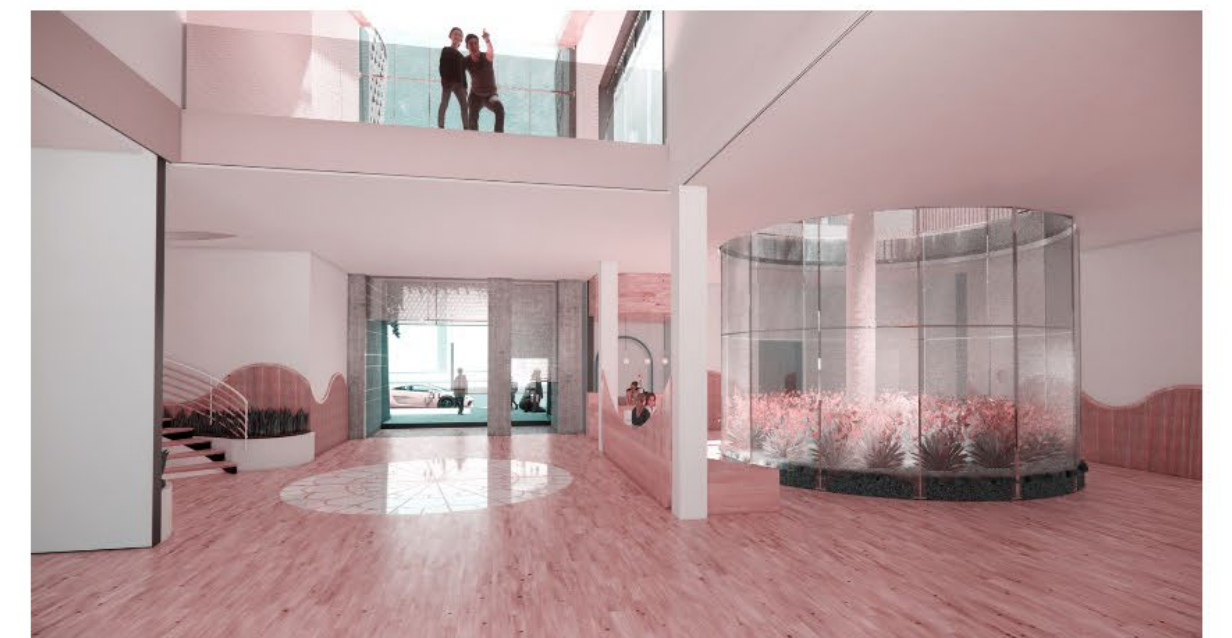
Pine Wood Floorboard



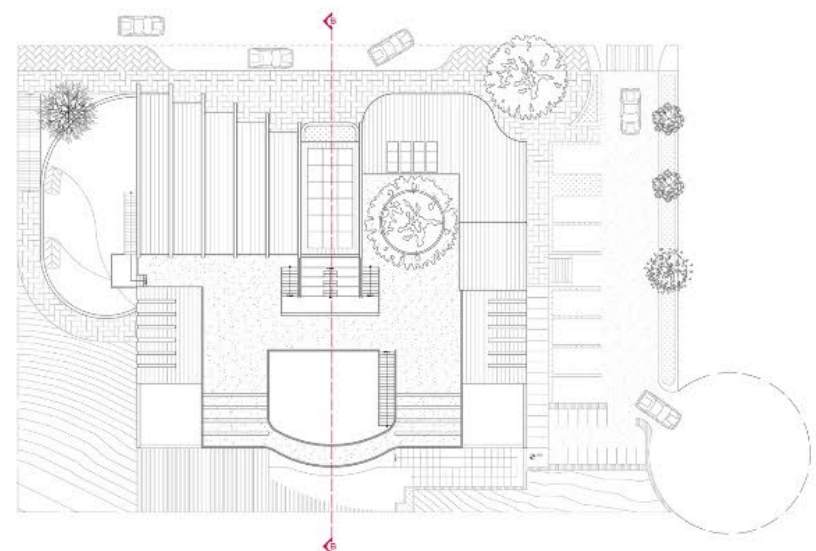
# SECTION A & VIGNETTES



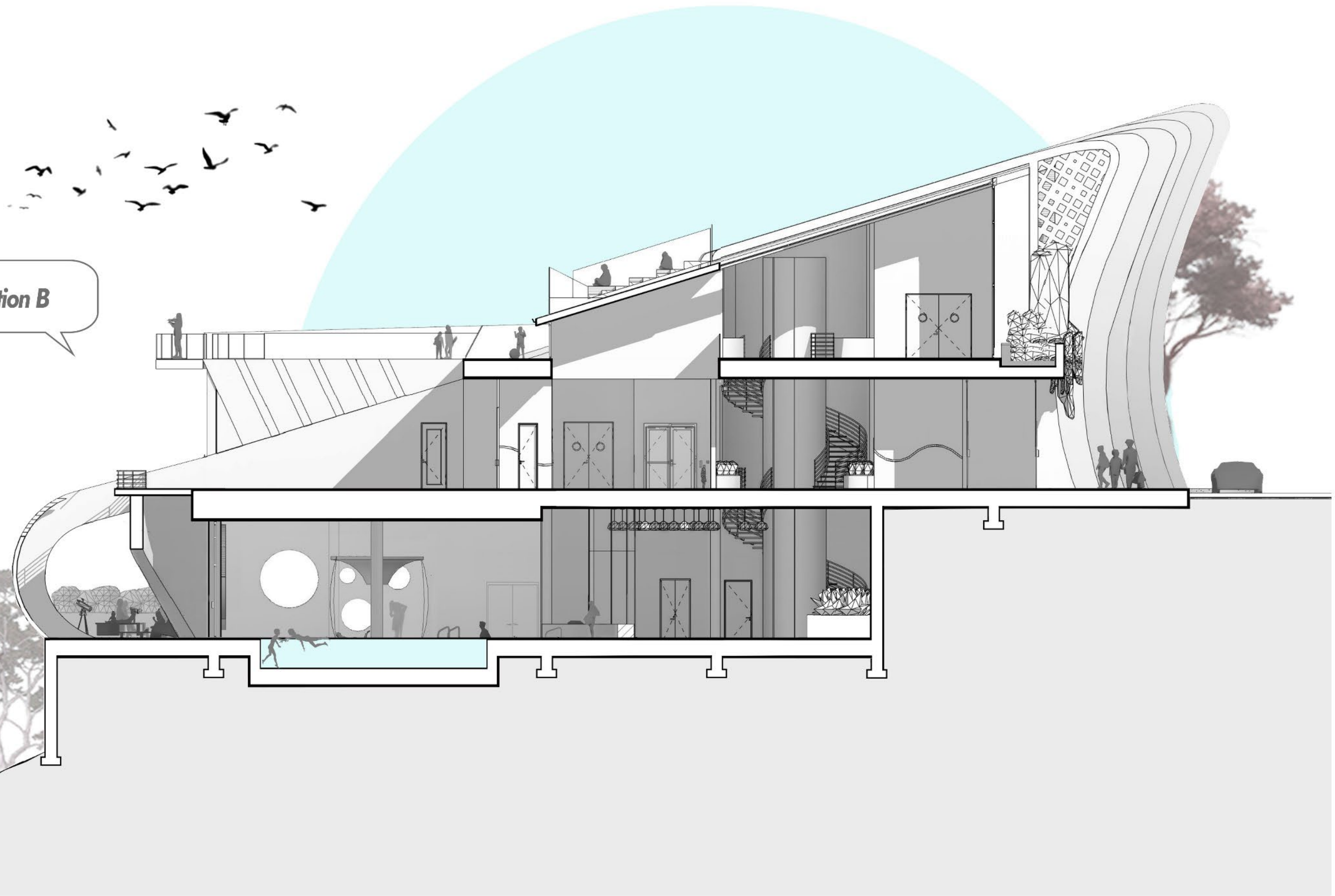
The preserved tree and its designed cylindrical environment as a memorable landmark stimulate the mnemonic principle.



# SECTION B & VIGNETTES



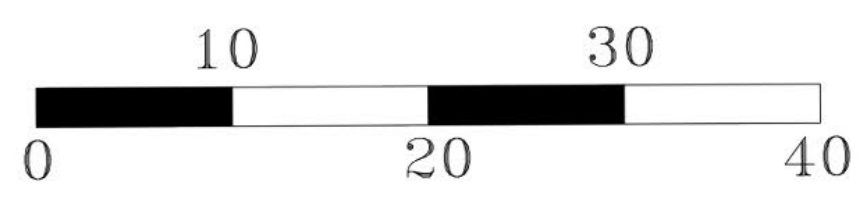
Section B



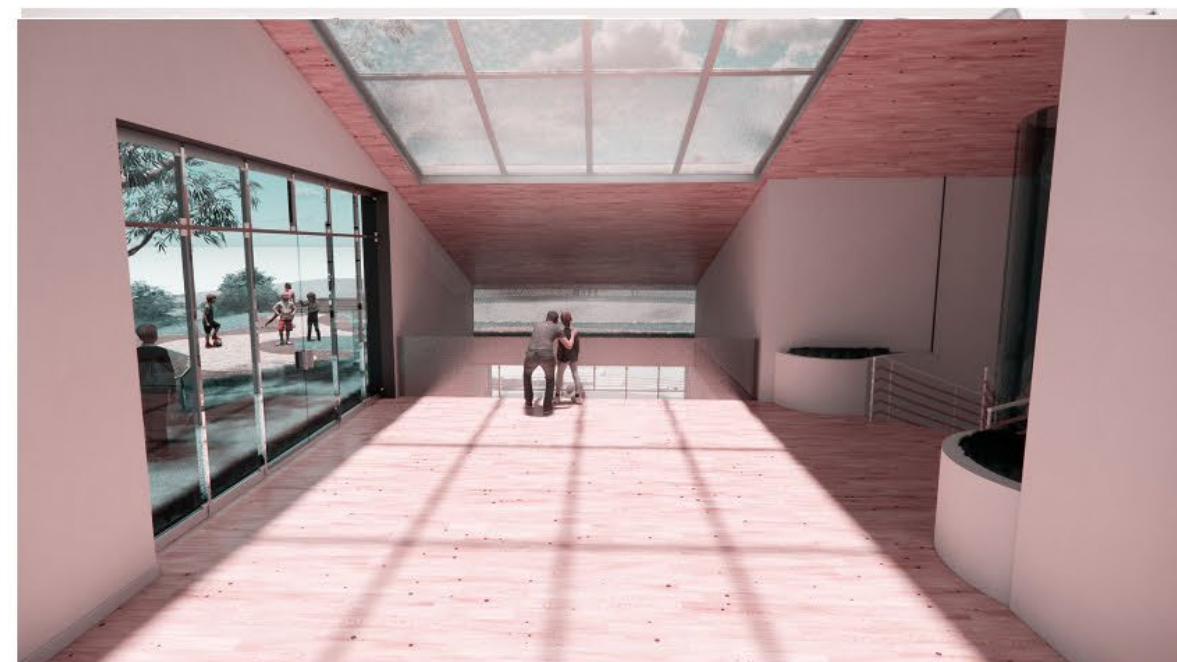
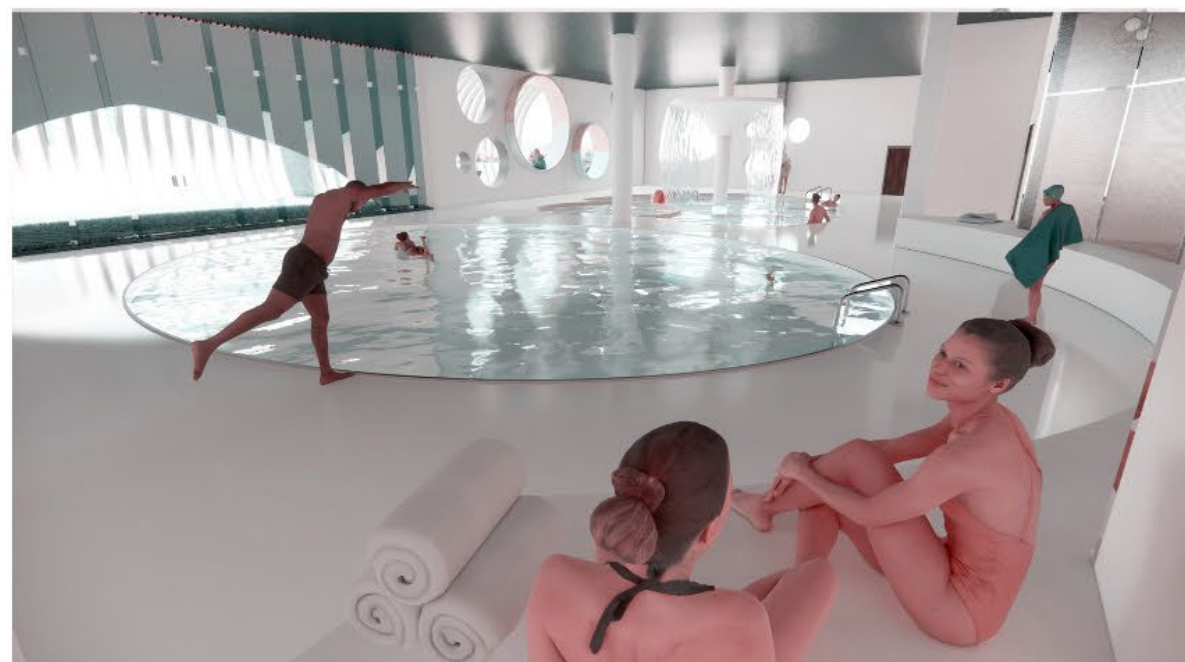
First Floor  
14'-0"

Ground Floor  
0'-0"

Underground  
-16'-0"



Applying the curvilinear design in the pool area stimulate the relaxation and mood regulation.

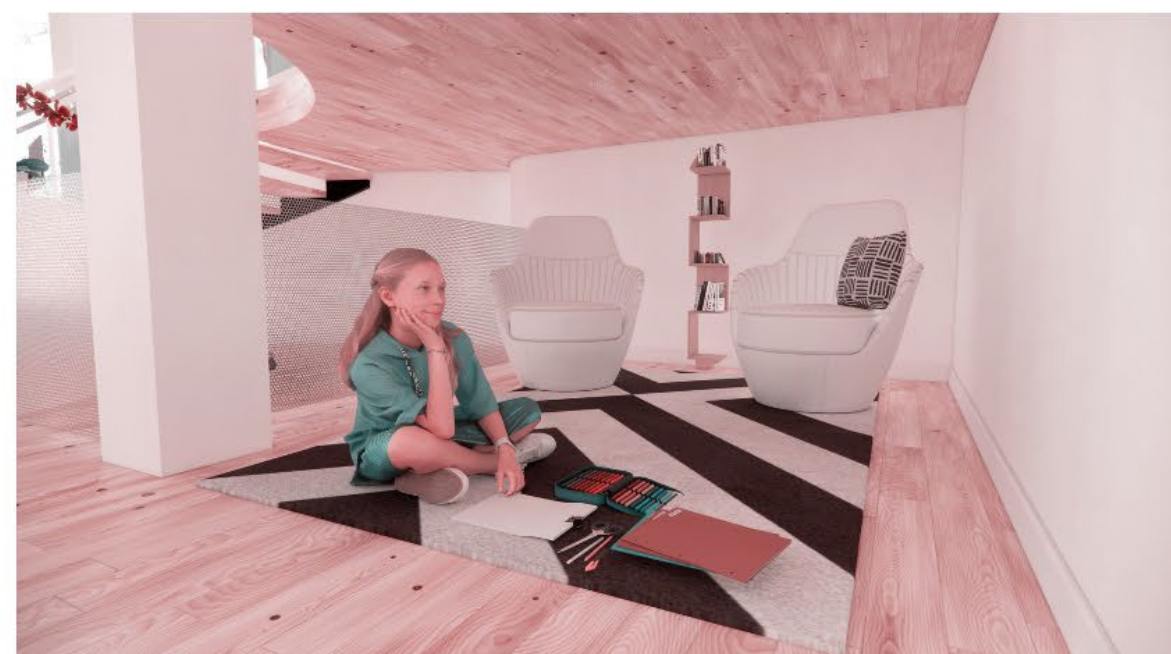
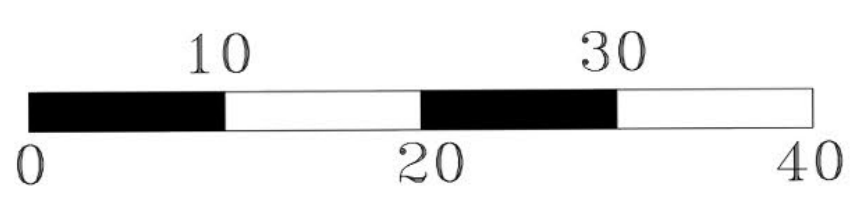


# SECTION C & VIGNETTES



Almost all the interior spaces connect to nature, physically and visually, emphasizing the importance of **biophilia** in the design

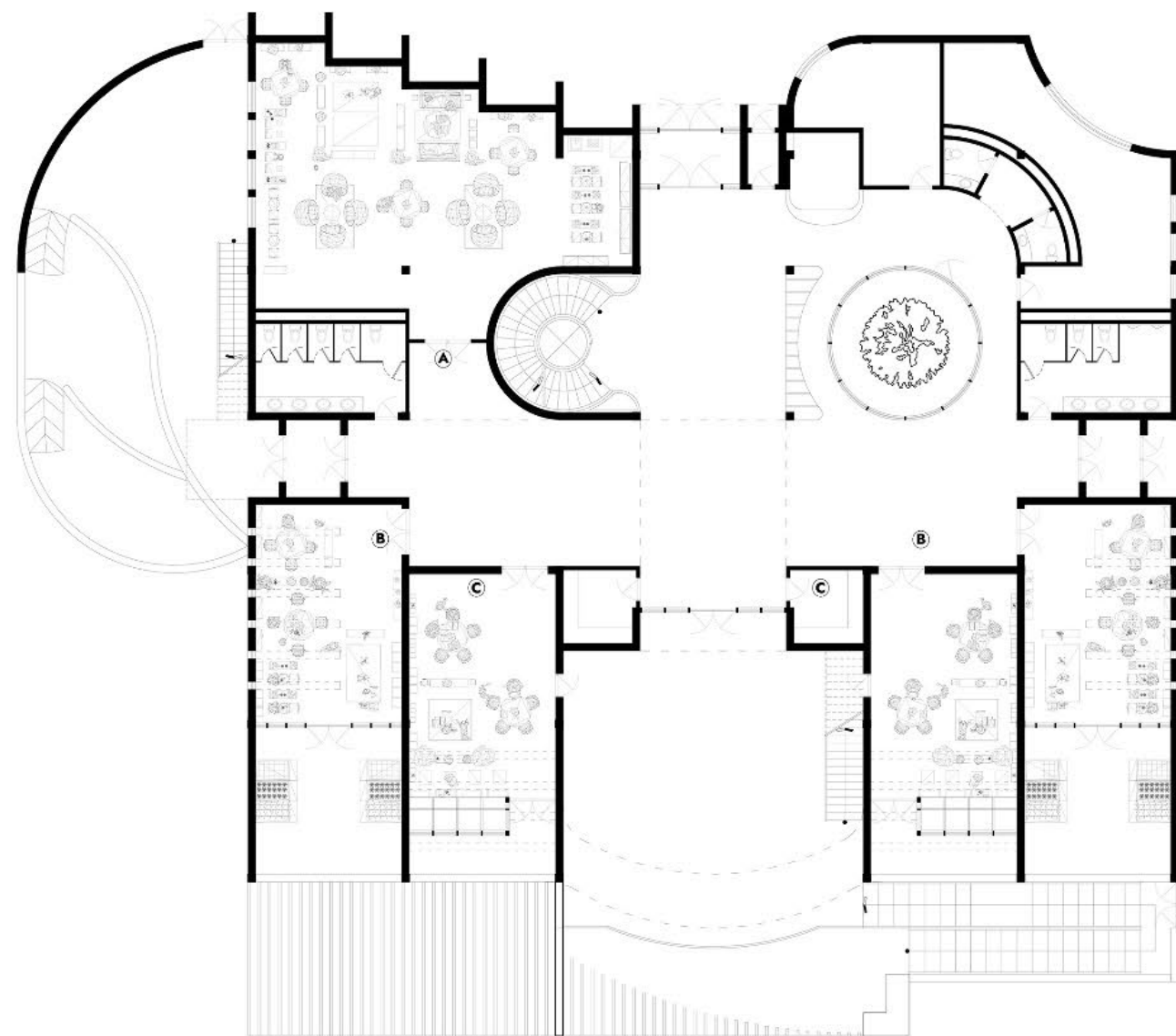
Open and transparent layout in the library and classrooms provide perceptual response to the external environment that stimulate **mirror neurons**.



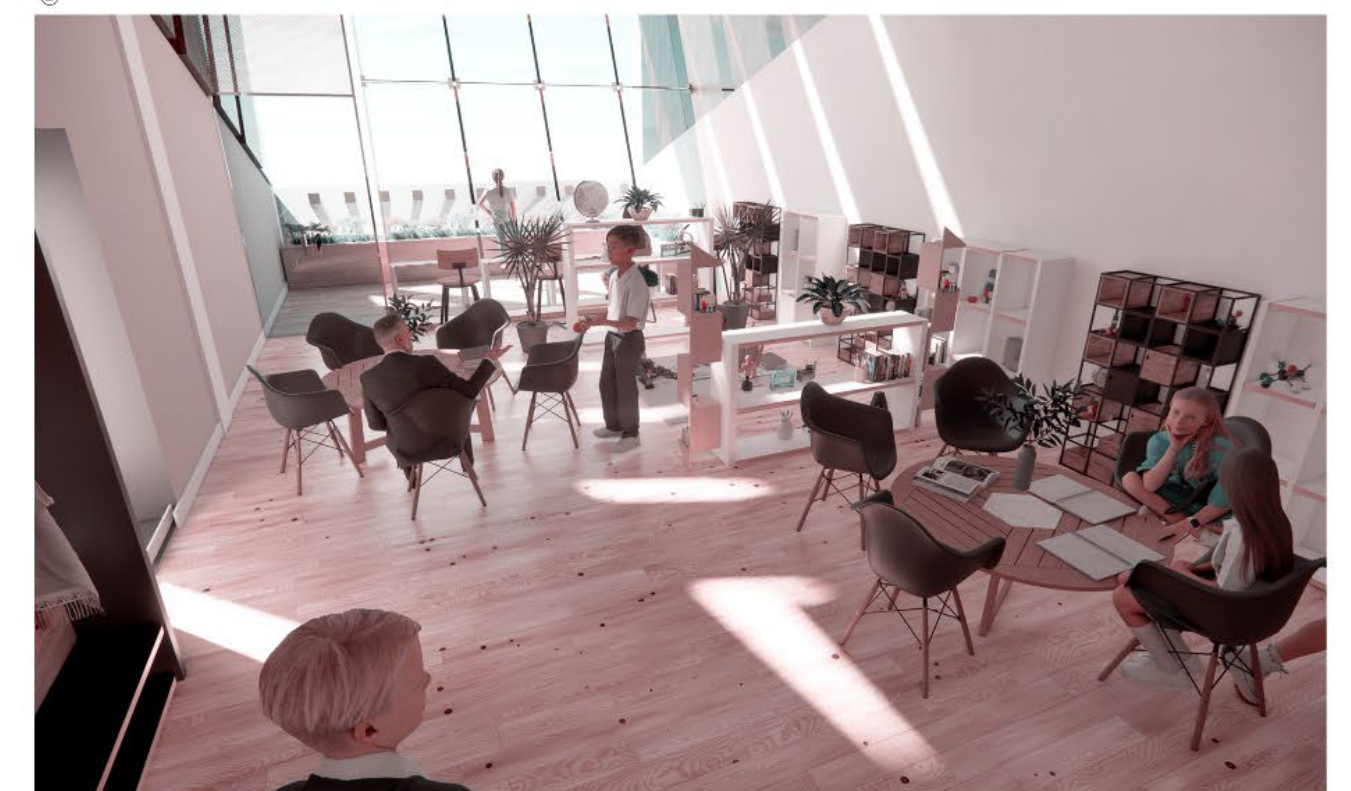
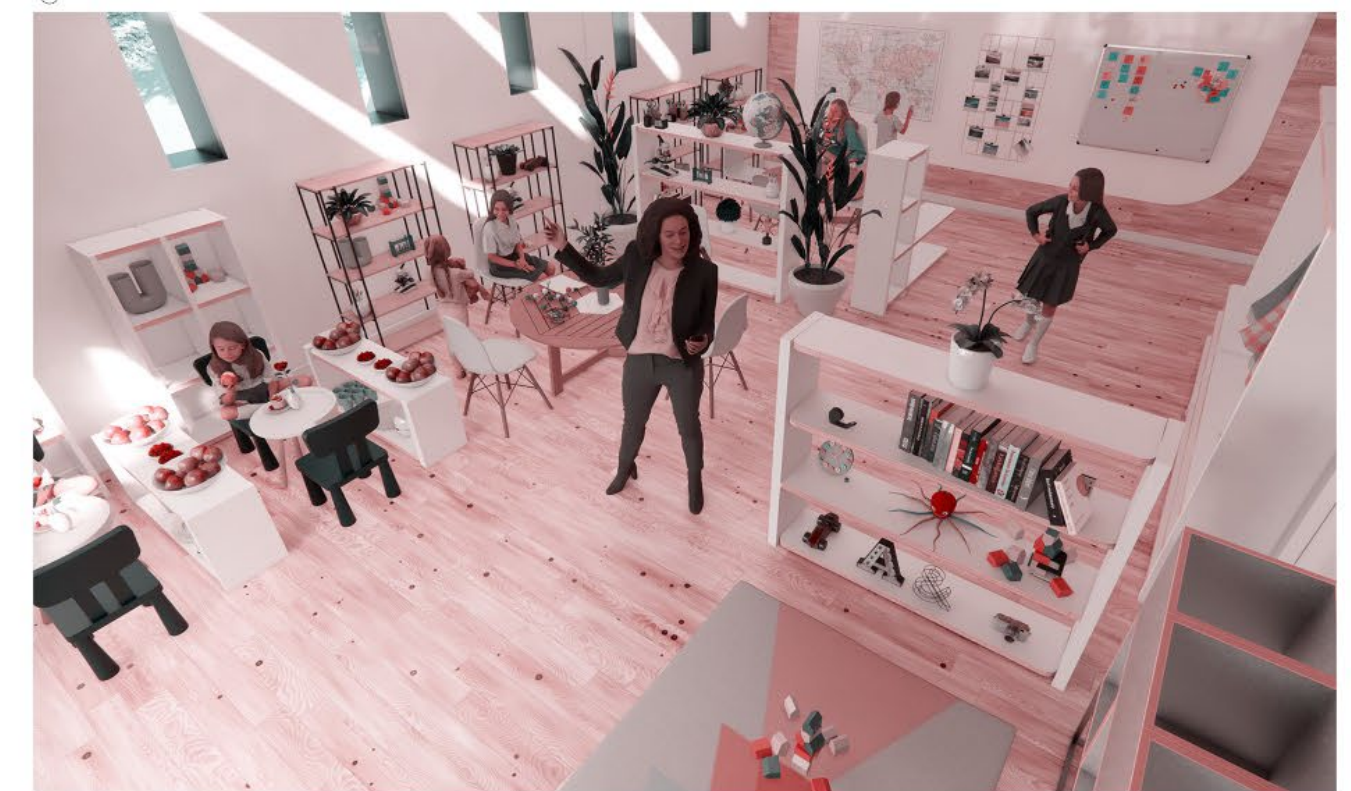
# LAERNING LABS & VIGNETTES



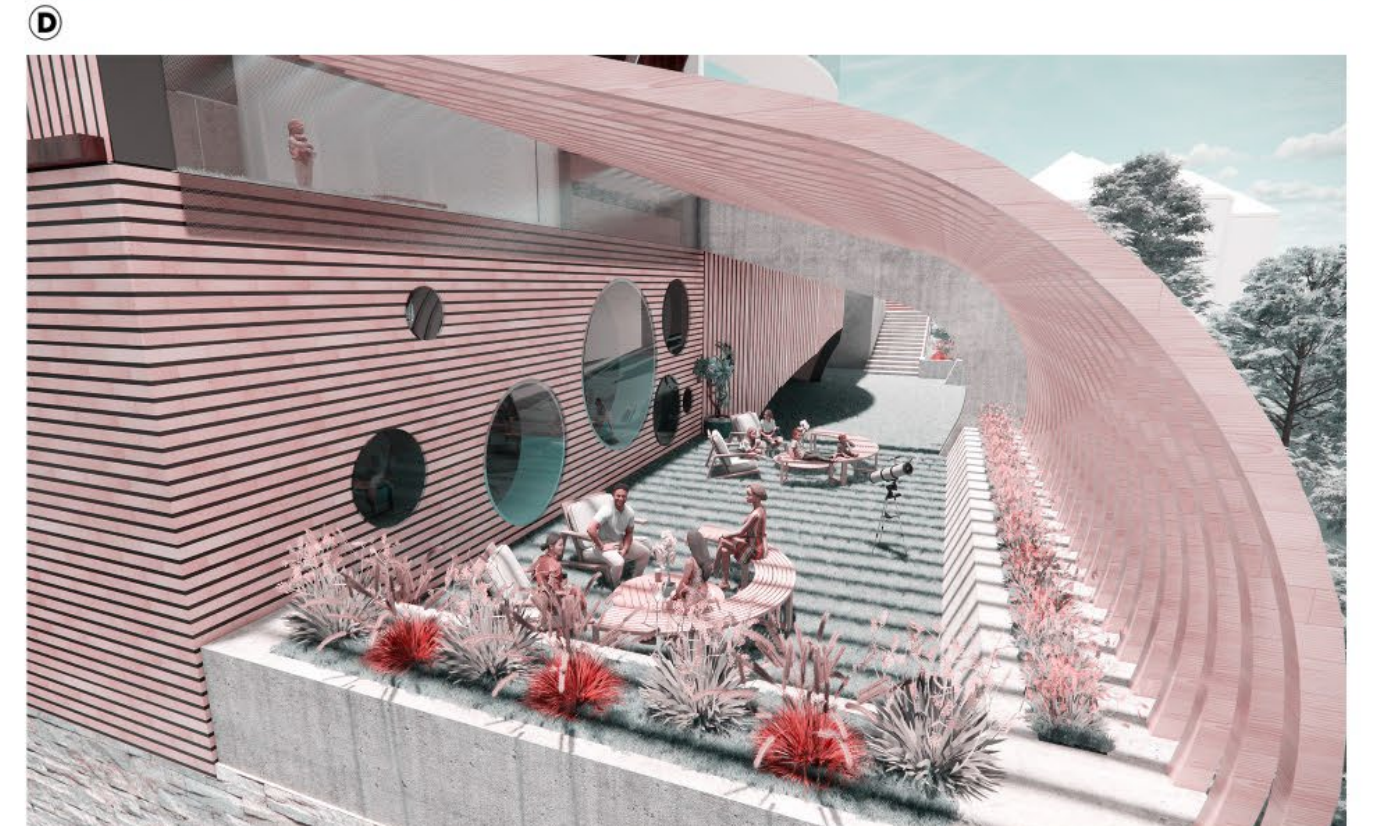
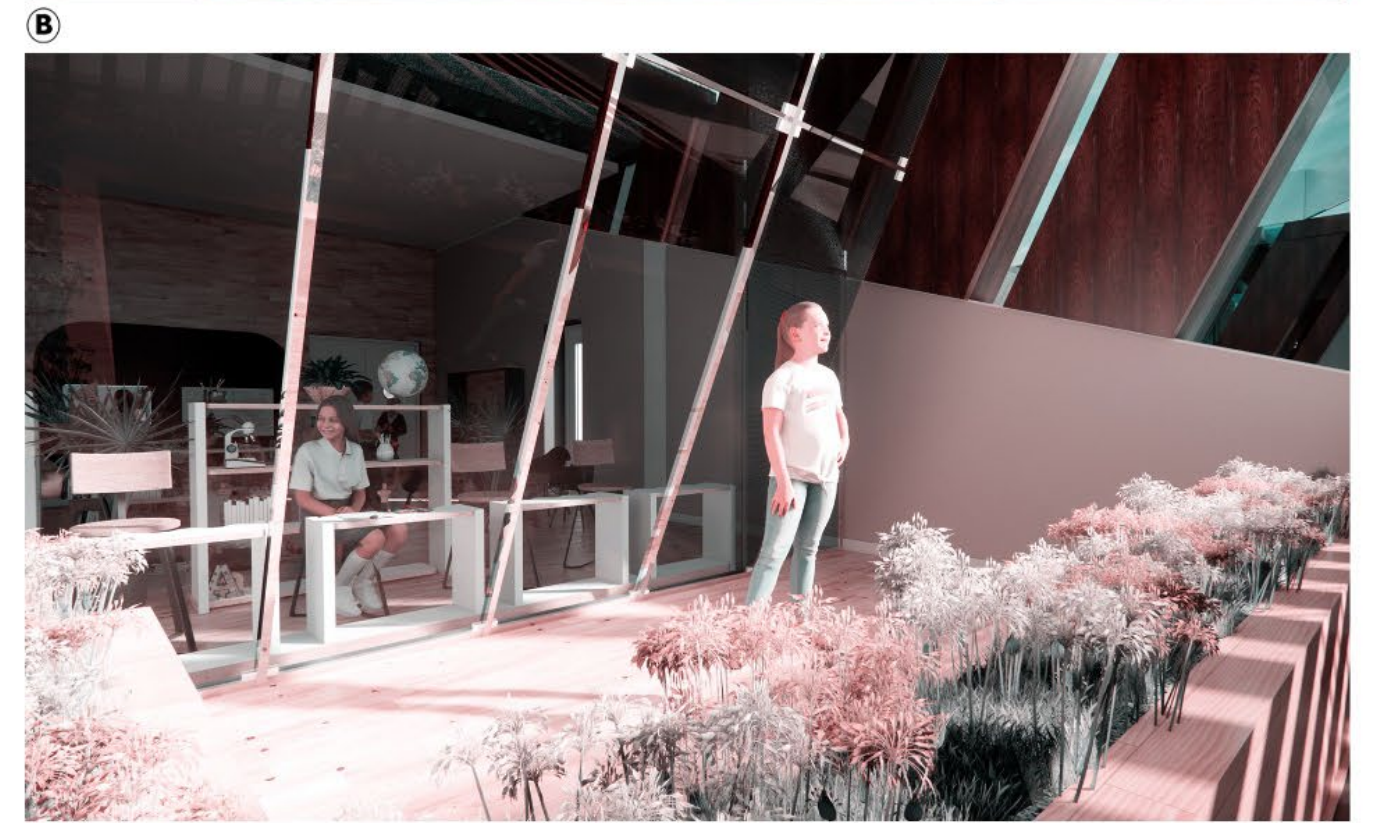
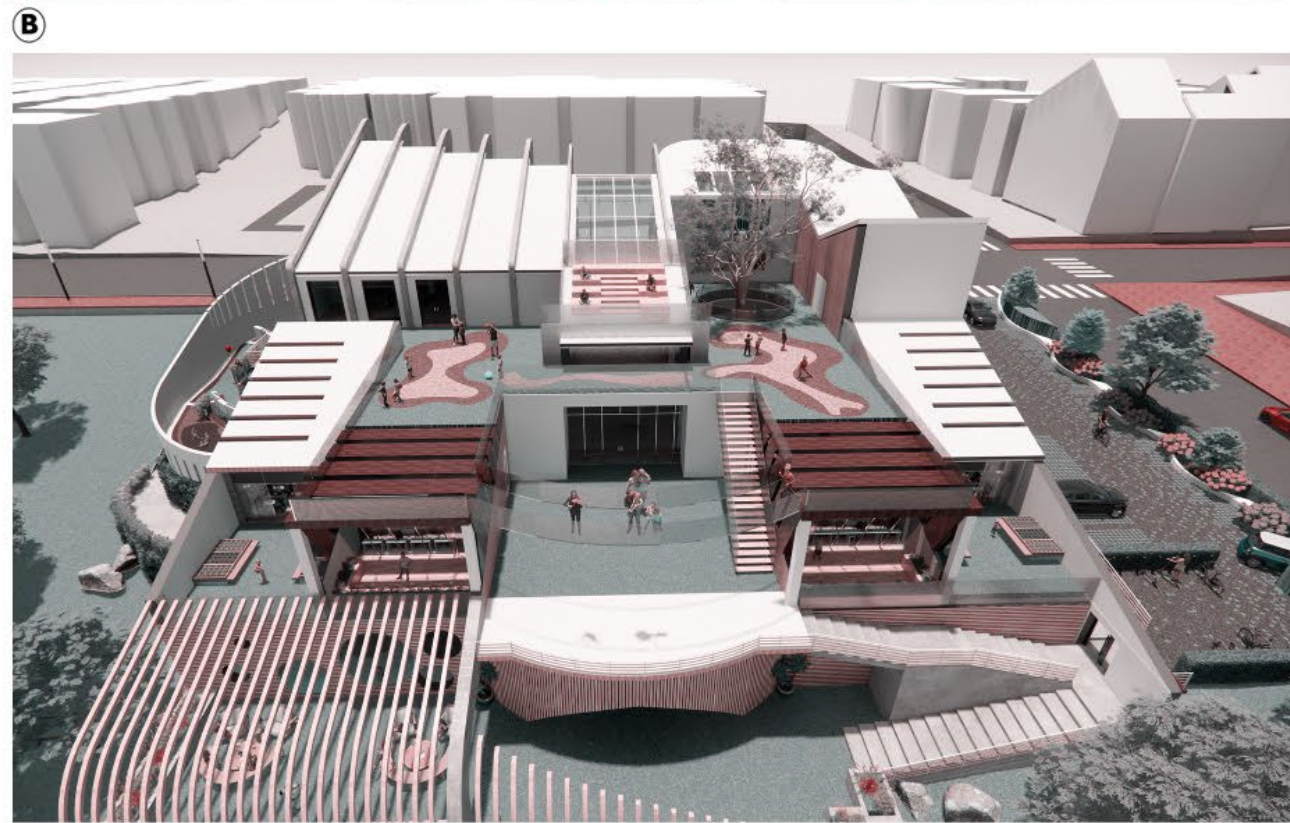
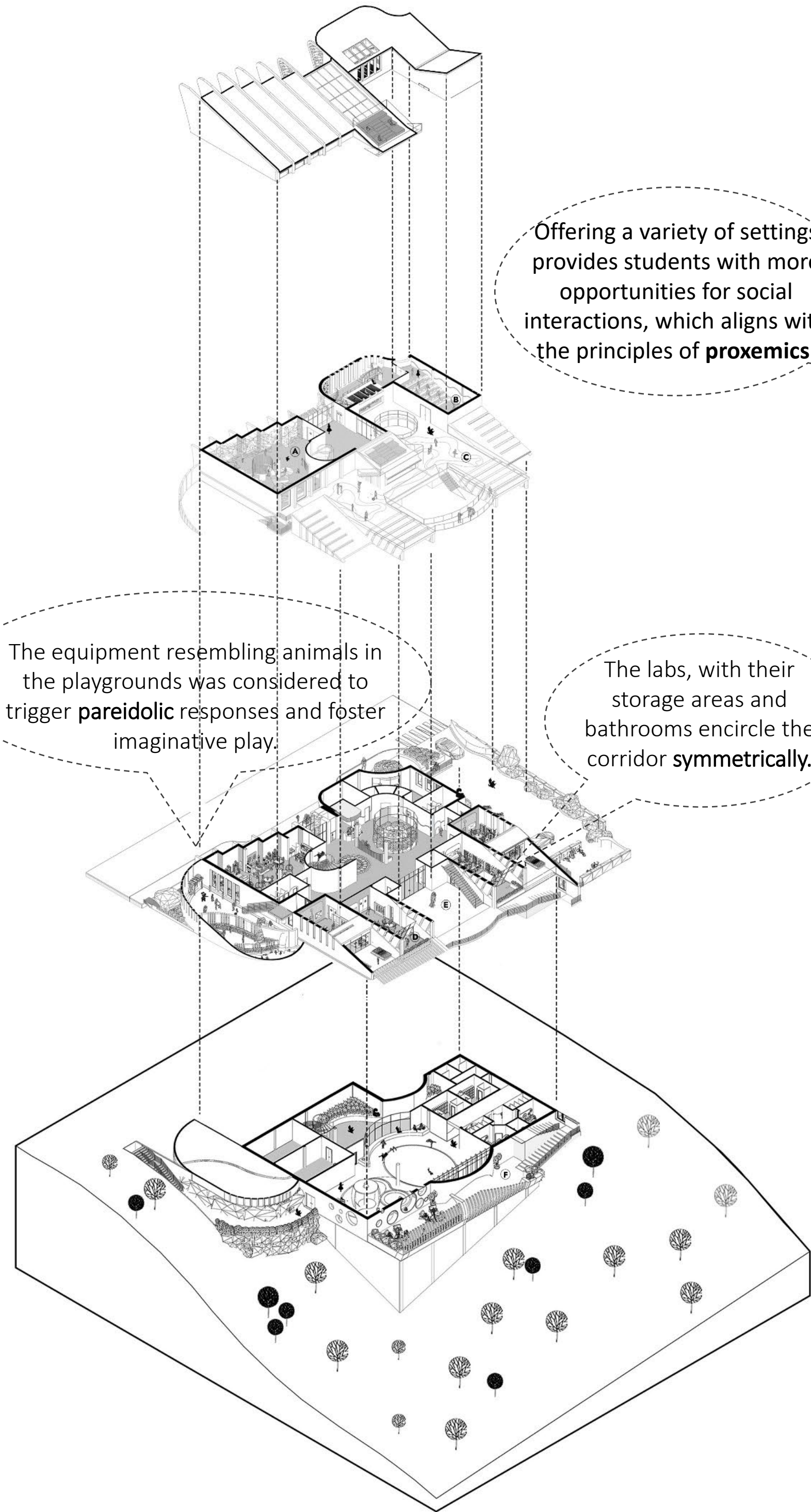
Varied Learning Environments design allowing students to adjust their body positions for comfort and engagement, which align with the **proprioception** principle.



Rectilinear design was incorporated in lab spaces where focus and attention is required.



# EXPLODED DIAGRAM & VIGNETTES



# CONCEPTUAL COLLAGE

Looking Glass Learning Lab A (Age 3-6)



# CONCEPTUAL COLLAGE

Southeast View



# CONCEPTUAL COLLAGE

Dreamland Discovery



# CONCEPTUAL COLLAGE

Wonder wash Station (Girls)



# CONCEPTUAL COLLAGE

Beyond the Bookshelf





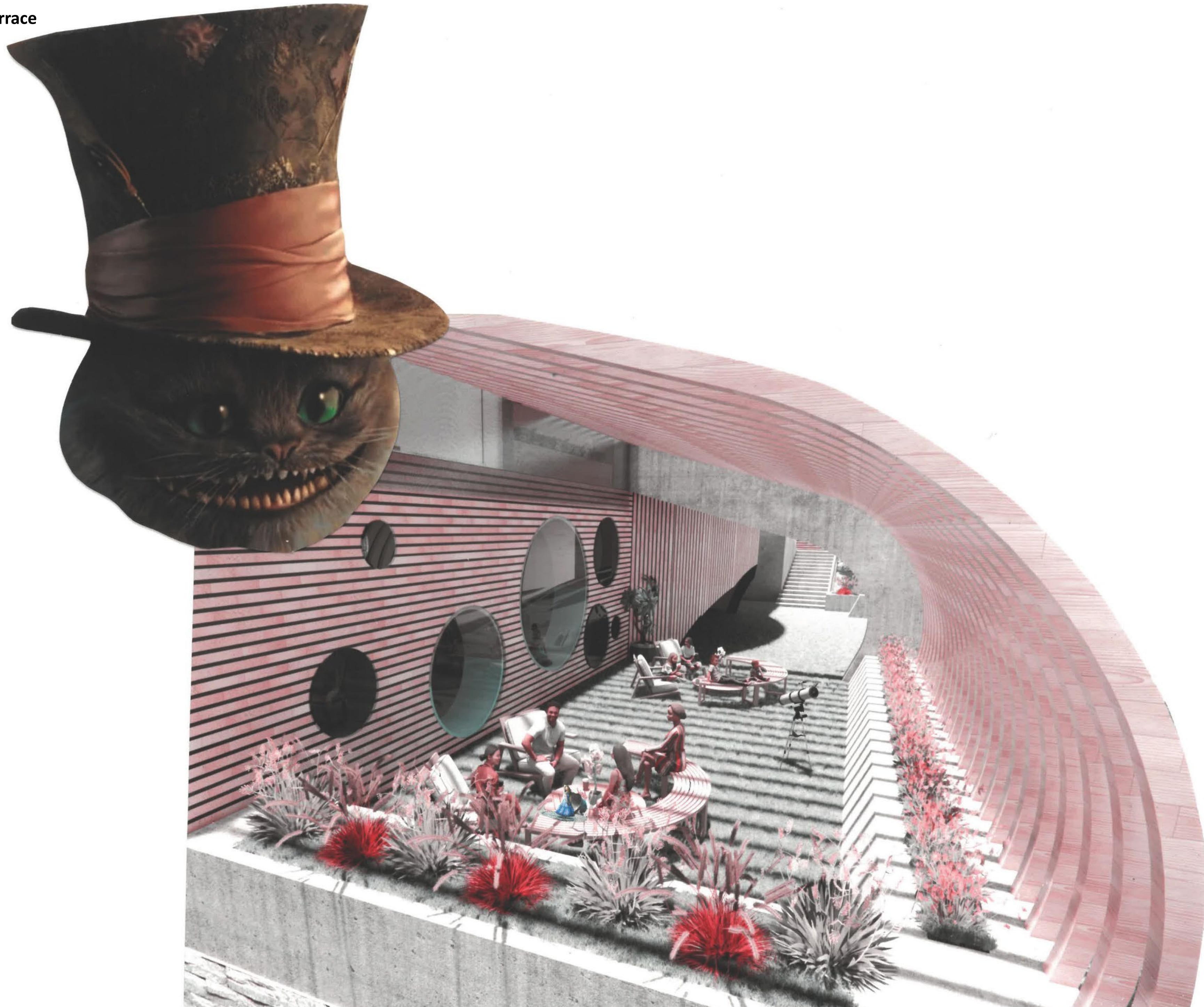
# CONCEPTUAL COLLAGE

Wonderland Welcome & Caterpillar's Canopy Bench



# CONCEPTUAL COLLAGE

Tea Party Terrace



# CONCEPTUAL COLLAGE

Whimsical Yoga & Wonderland Wall



# CONCEPTUAL COLLAGE

Reflecting River-Pool



# CONCEPTUAL COLLAGE

Cheshire Cozy Corner



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# IMAGE REFERENCES

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Fig. 1 Montessori M. (1964). The Montessori method. Massachusetts: Robert Bentley Inc. <https://www.vs.de/montessori/en/>

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# APPENDIX – BUILDING SQUARE FOOTAGE

SCHOOL NAME:		Wonderland Learning Center				
		SCHOOL LEVEL (Primary(3-6), Lower-Elementary School(6-9), Upper-Elementary School(9-12))				
		Size, SF	Quantity	Sub-Total NET SF	# Students	Notes
ADMINISTRATION ZONE	ENTRANCE AREA					
	Reception / Waiting	900	1	900		
	OFFICES					
	Principal / Head of School	150	1	150		
	Staff Office	600	1	600		
	Toilet	35	2	70		
	<b>Sub-total</b>			<b>1720</b>		
EDUCATIONAL ZONE	Lab 3-6	1400	1	1400	20	
	Lab 6-9	900	2	1800	30	
	Lab 9-12	750	2	1500	30	
	Storage	100	2	200		
	Mens Room	250	1	250	5	
	Womens Room	250	1	250	5	
	<b>Sub-total</b>			<b>5400</b>		
RECREATIONAL / EDUCATIONAL ZONE	Library	1100	1	1100		
	Art/Media Center	750	1	750		
	Indoor Playground	1700	1	1700		
	<b>Sub-total</b>			<b>3550</b>		
RECREATIONAL ZONE	Swimming Pool	3500	1	3500		
	Students Changing Room	300	2	600		
	Staff Changing Room	300	1	300		
	Shower Area	100	2	200		
	Mens Room	200	2	400		
	Womens Room	200	2	400		
	Janitorial	50	1	50		
		<b>Sub-total</b>			<b>5450</b>	
BUILDING SERVICES	Storage	600	1	600		
	Mechanical Room	600	1	600		
	<b>Sub-total</b>			<b>1200</b>		
CIRCULATION	Elevator	50	1	50		
	Stairs	250	1	250		
	Corridor1	1200	1	1200		
	Corridor2	2350	1	2350		
	Corridor3	1000	1	1000		
	<b>Sub-total</b>			<b>4850</b>		
	<b>NET SF TOTAL</b>			<b>22,200</b>		
OUTSIDE RECREATION SPACE	Playground - Hard Surface	1200	1	1200		
	Playground - Lawn	1700	1	1700		
	Roof Garden	3500	1	3500		
	Infinity View Platform	350	1	350		
	Infinity View Deck	250	1	250		
	Pool Terrace	1500	1	1500		
	<b>Sub-total</b>			<b>9000</b>		
PARKING	Car	120	6	720		
	ADA	135	1	135		
	Bicycle & Scooter	15	14	210		
	Parking	2000	1	2000		
	<b>Sub-total</b>			<b>3000</b>		

