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2025  
Architecture  
Individual Project

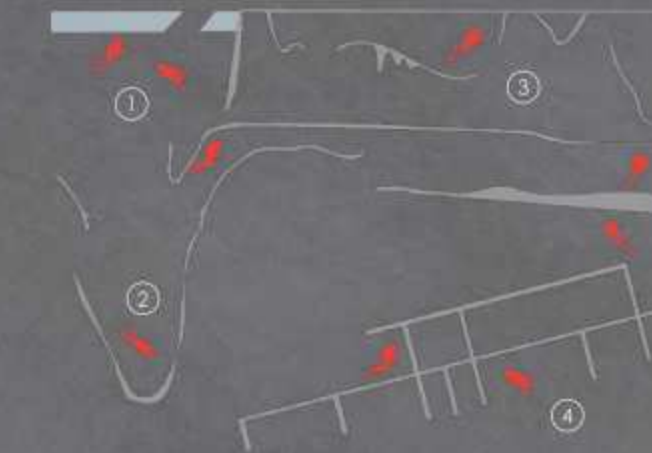
## Hazardous Diving Training Facility

While scuba diving is widely practiced as a recreational sport, its technical disciplines remain life-threatening. Cavern, public safety, deep, and wreck diving demand advanced decompression knowledge and equipment mastery, yet fatal risks persist. *Hazardous Diving Training Facility (HDTC)* trains professional divers by simulating volatile underwater environments for rehearsing critical survival skills.

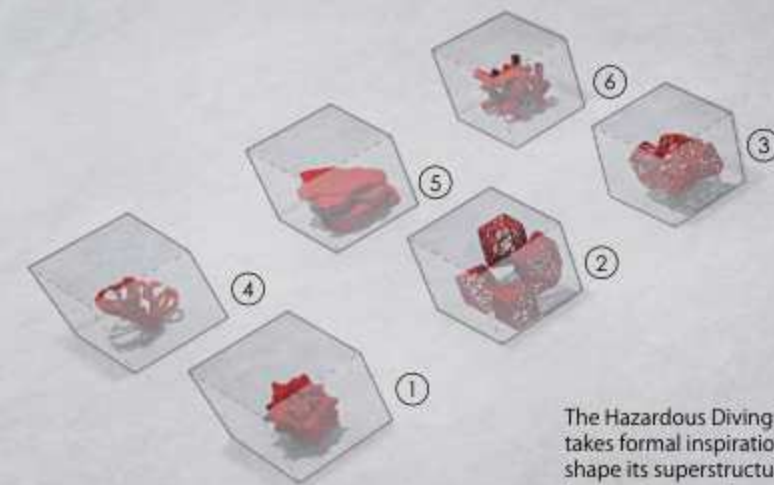


Dahab Blue Hole is a world-famous dive site known for its deep sinkhole and vibrant coral reefs. Despite its beauty, its extreme depth and labyrinthine structure have caused over 150 fatalities, earning it the name "Divers' Cemetery," with nitrogen narcosis, oxygen toxicity, and air depletion as leading causes.

Given both its popularity and danger, the Dahab Blue Hole provides a fitting context for HDTC, a training facility designed to prepare divers for a wide range of hazardous underwater conditions.



Overhead diving—such as cavern, deep, wreck, and ice diving—is highly dangerous due to limited visibility, restricted ascent, and extreme conditions, where small errors can become fatal. Dahab Blue Hole meets the deep and cavern criteria, making it an apt site for HDTC. The facility extends below the surface as a training hub and public landmark, also serving as a docking station for divers to verify skills before entering the Blue Hole.



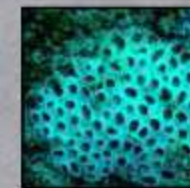
The Hazardous Diving Training Center takes formal inspiration from corals to shape its superstructure and substructure for overhead-environment training. Six coral types were studied as sources of spatial form.



Leather coral is a soft coral with a flexible, tentacled surface adapted to strong currents. Its current-modulating system inspires the design of fast-flow zones in this project.



Brain coral is a slow-growing reef builder with maze-like ridges. Its geometry informs spatial design for enclosed-space exploration and search-and-recovery training.



*Palythoa tuberculosa* has a porous surface and forms a rugged foundation on shallow-water reefs. Its texture inspires obstacle designs for claustrophobic navigation training.



*Aplysina archeri* is a sponge species that can grow up to 5 feet tall and continues growing throughout its lifetime. It is found in the western Atlantic Ocean.



Lettuce coral is a plate-like Caribbean coral that shelters marine life through symbiosis with algae. Its layered, leaf-like form informs the project's façade and superstructure.



Blue *Xenia* coral is a soft, photosynthetic species that thrives in moderate light and nutrient-rich waters, contributing movement and oxygenation to reef ecosystems.

Blue Xenia coral's light sensitivity inspires underwater trails that let visitors and divers explore the pool's edge while experiencing the contrast between light and darkness at night.



Drawing from lettuce coral's role as a foundation for marine life, its layered form is used as the basis for the façade design.



The 20-ft-long tubes for cavern-diving training, designed to simulate linear and confined overhead environments, draw inspiration from the ever-growing form of *Aplysina archeri*.



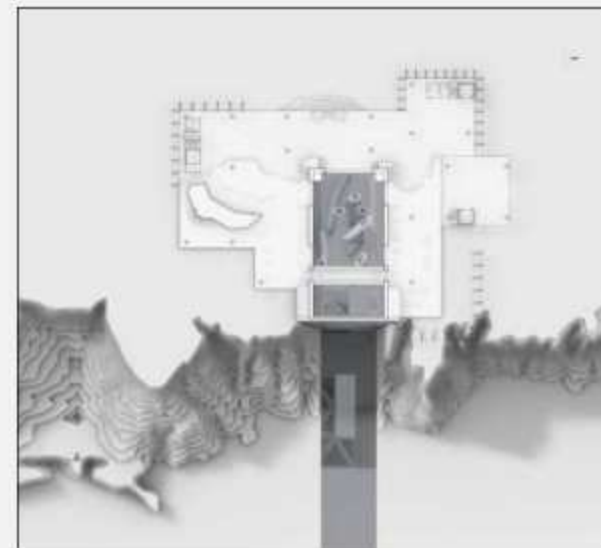
An obstacle inspired by *Palythoa tuberculosa*'s porous texture serves as a foundational training course for prospective cavern divers.



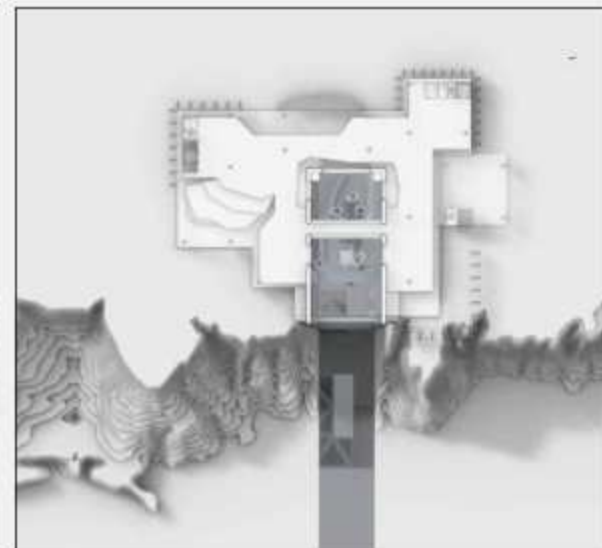
Drawing from leather coral's ability to circulate oxygen and nutrients in strong currents, its form informs the design of paired chambers for wreck-diving training, where complex structures generate intense internal flows.



Brain coral's maze-like form is used to challenge divers with environments more intricate than those derived from *Palythoa tuberculosa*, helping them adapt to higher levels of spatial complexity.



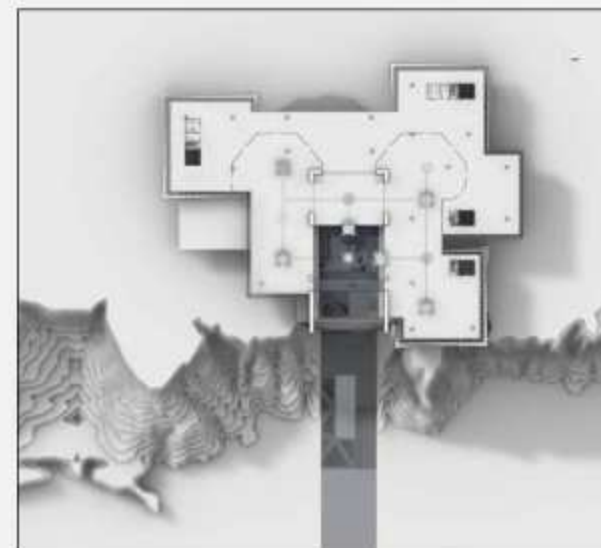
FLOOR 1



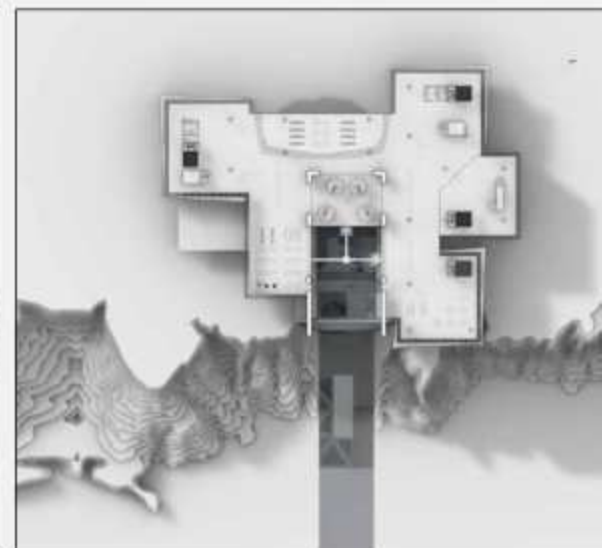
FLOOR 2



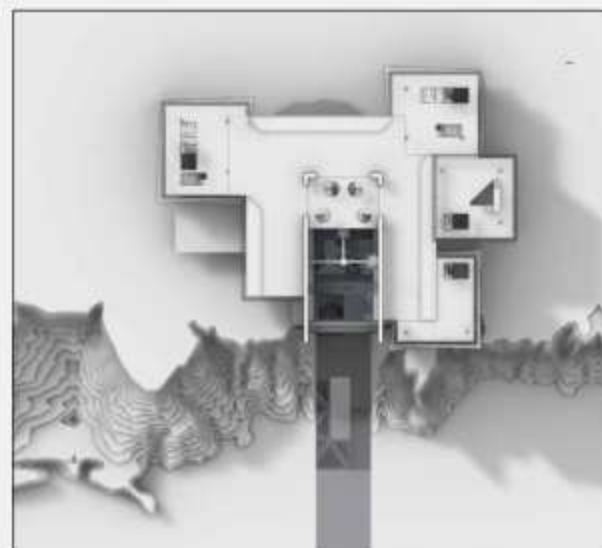
FLOOR 3



FLOOR 4



FLOOR 5

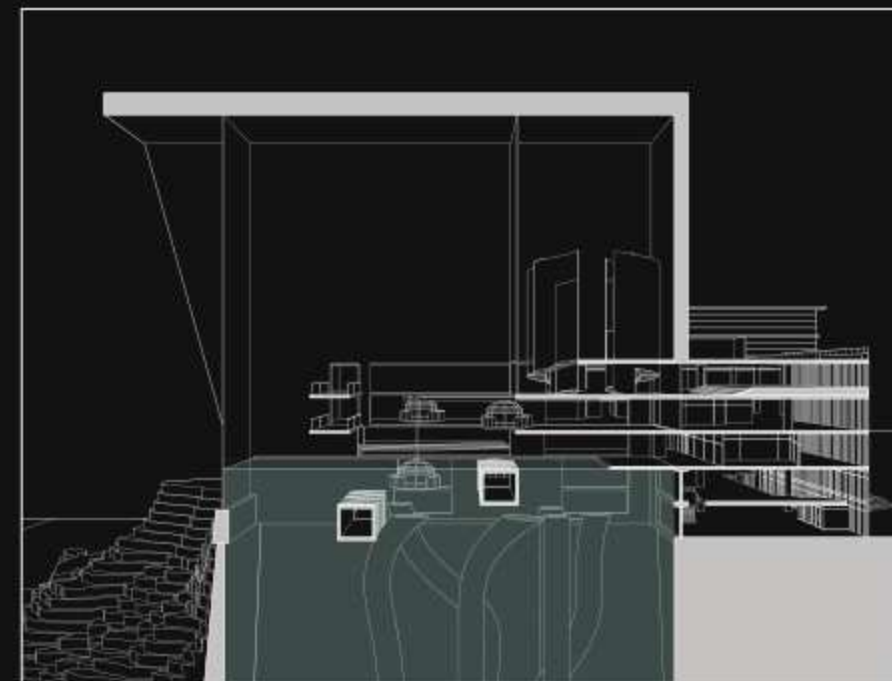
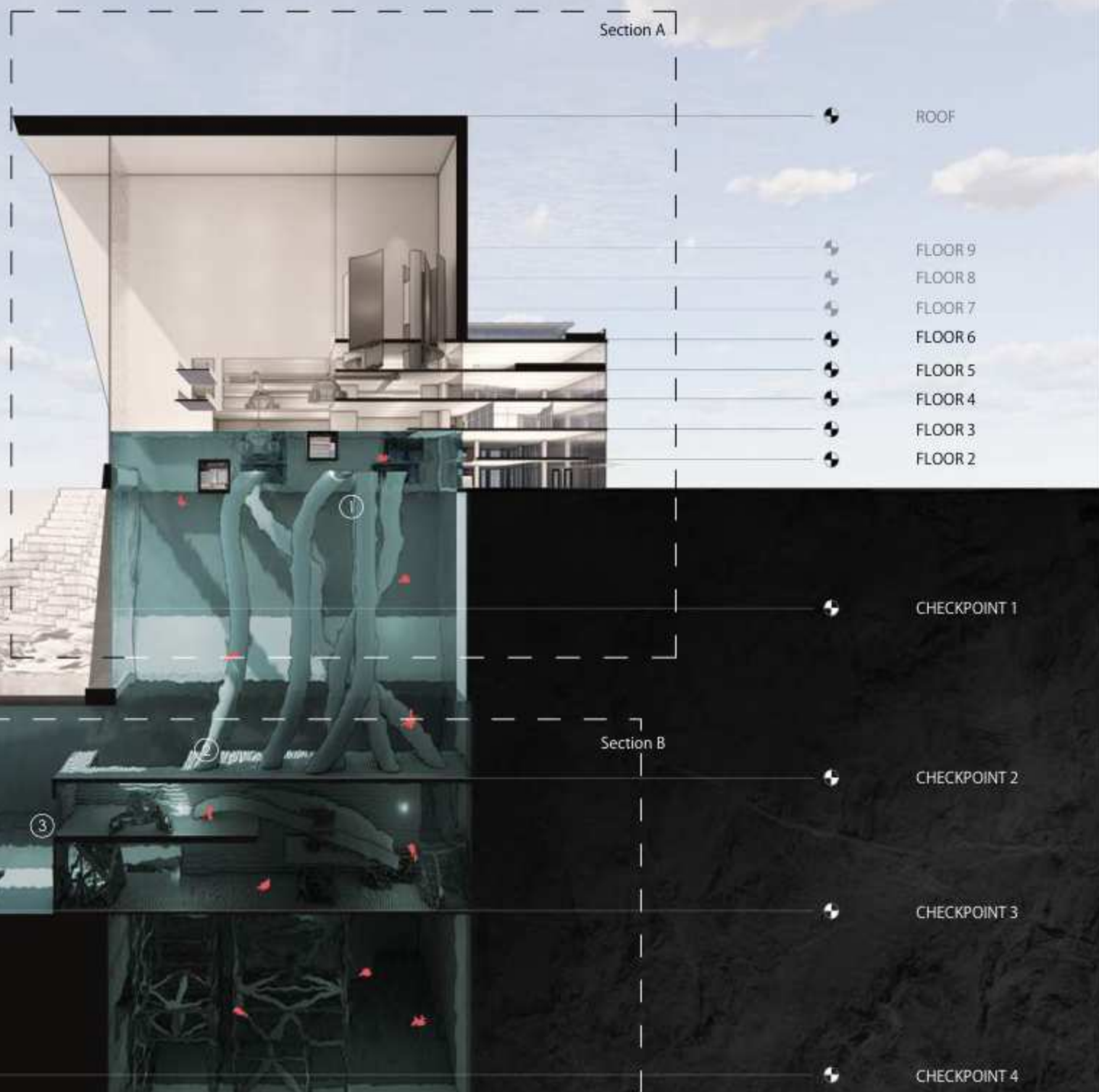


FLOOR 6

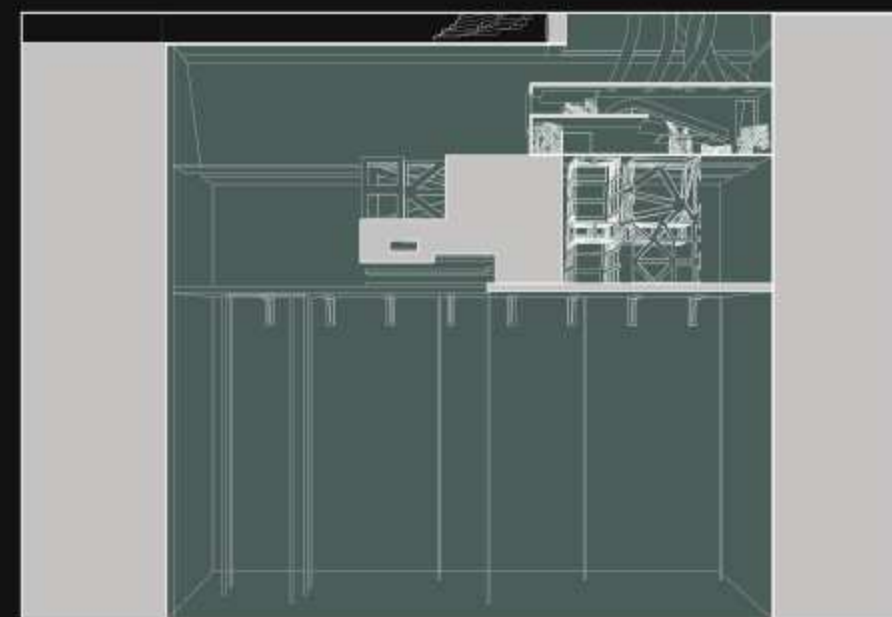
The 200-ft-deep substructure houses wreck and search-and-recovery chambers, 70-ft tubelines for confined navigation, mesh frameworks for cavern training, and a zero-light zone for deep-diving simulation—all arranged with minimal structural complexity.

Above, the superstructure supports immersive training through heavy-equipment deployment (e.g., diving bells), lecture spaces for theory and planning, and digital screen halls that preview the volatile underwater environments trainees will face.

The rule of thumb for scuba divers is to never venture to untrained environments. For instance, only if one is certified as a cavern diver, can they enter a real underwater cave environment. This project reflects on this axiom by setting a hierarchy of checkpoints that each contain training environments with different difficulties.



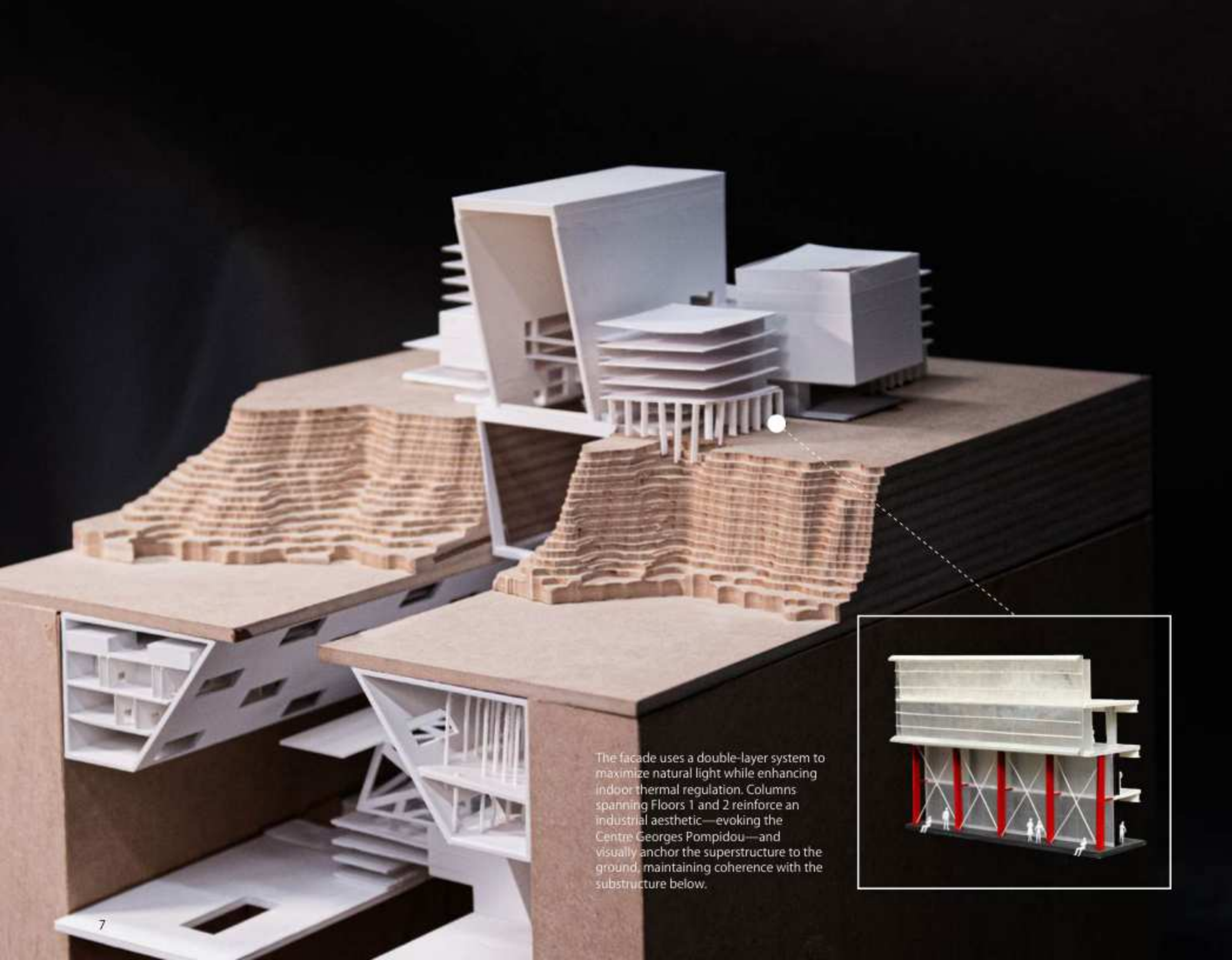
Section A



Section B

Section A shows Checkpoint 1 and its enclosing superstructure. Circulation on the first and second floors creates direct interaction, while interior glazing and stair connections link the two environments with visual and spatial continuity.

Section B presents Checkpoints 2, 3, and 4, each exposing trainees to increasingly extreme and alien underwater conditions.



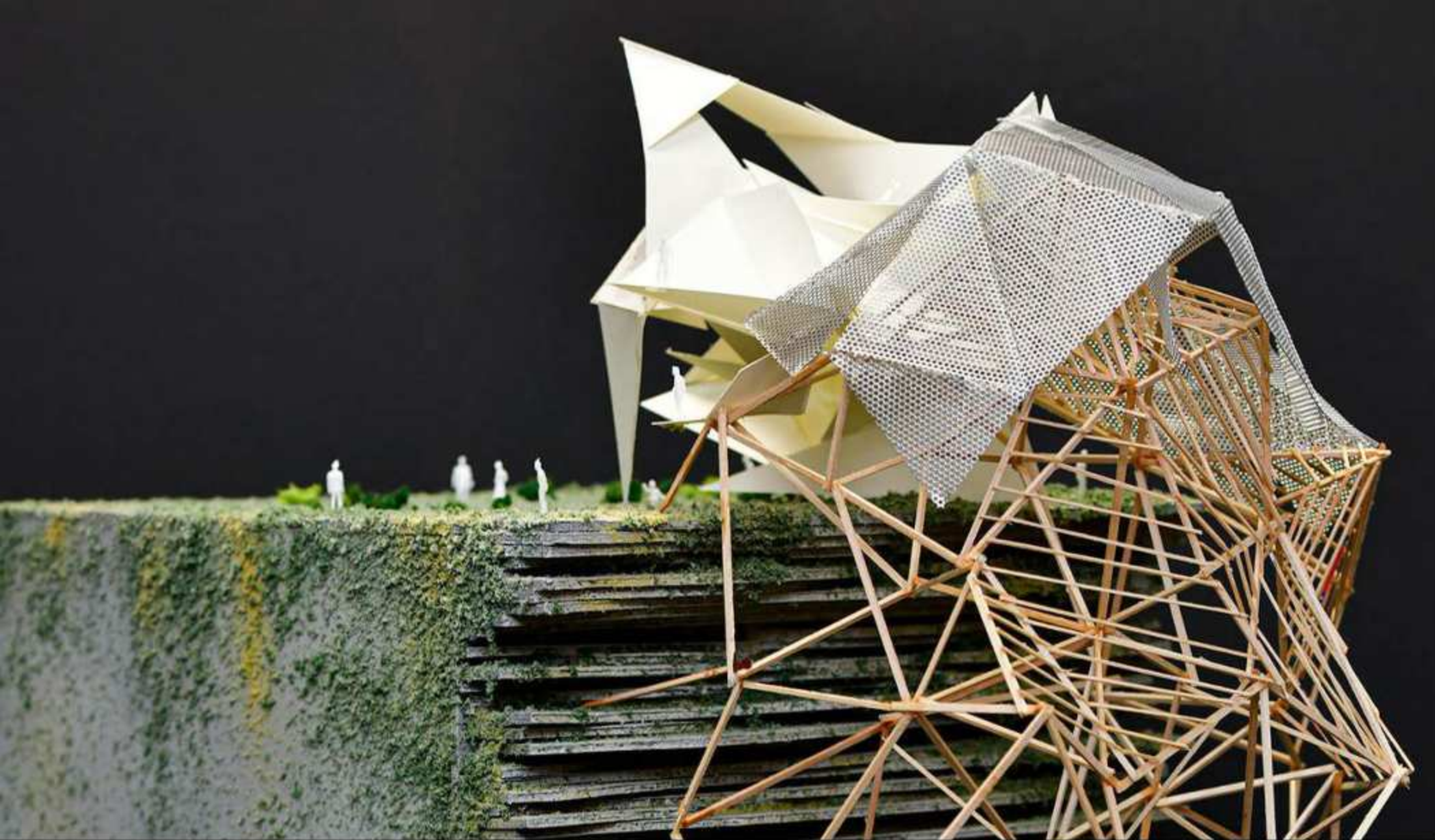
The facade uses a double-layer system to maximize natural light while enhancing indoor thermal regulation. Columns spanning Floors 1 and 2 reinforce an industrial aesthetic—evoking the Centre Georges Pompidou—and visually anchor the superstructure to the ground, maintaining coherence with the substructure below.



The wreck-diving chamber follows a modular spatial layout like real commercial vessels, allowing divers to train in realistic entry and extraction scenarios.

The cave-diving chamber emulates a dense stalactite reef by distributing posts of varying sizes and gauges. This unique spatial design provides a realistic training ground for navigating complex extrusions projecting from all directions.





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## Checkpoint

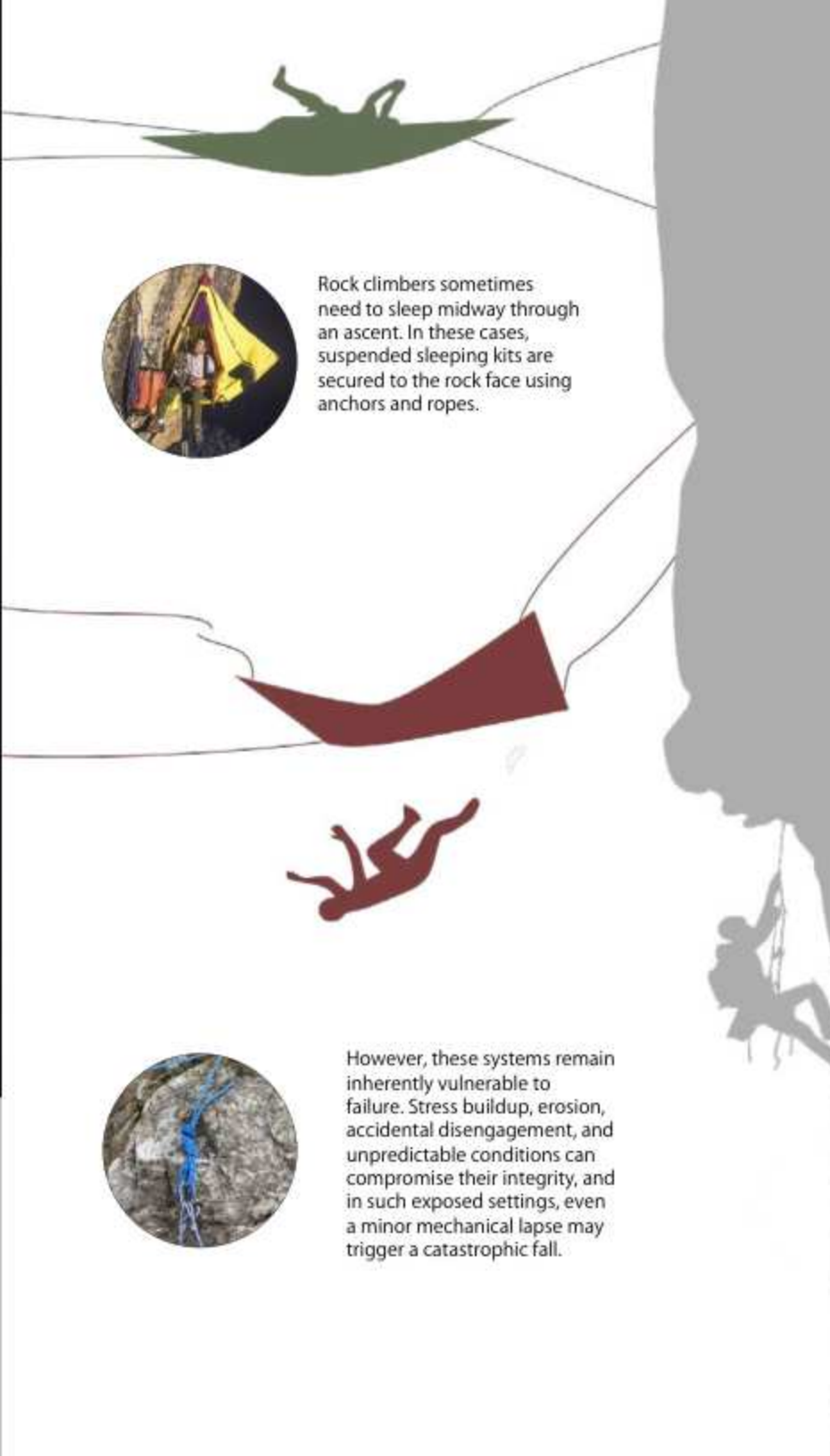
Ropes and harnesses reduce risk, yet failure remains possible, especially overnight. Checkpoint is a temporary shelter for climbers, providing stable platforms that protect them from mechanical failure and wind while they sleep.



Rock climbers sometimes need to sleep midway through an ascent. In these cases, suspended sleeping kits are secured to the rock face using anchors and ropes.



However, these systems remain inherently vulnerable to failure. Stress buildup, erosion, accidental disengagement, and unpredictable conditions can compromise their integrity, and in such exposed settings, even a minor mechanical lapse may trigger a catastrophic fall.



Penduline Tit

Penduline tits weave sealed, sack-like nests with narrow, concealed entrances. These structures often include decoy chambers that deceive predators and protect the eggs.

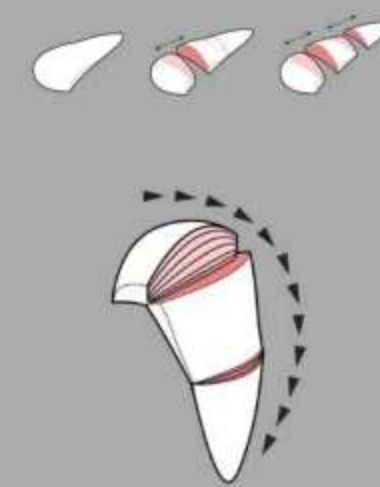


This dual function motivates the design of sleeping kits that are more secure, spacious, and better suited for storing climbers' gear.



Cicadidae

Using claws on their tarsi, cicadas can cling to stems and bark for days. Their systematized anatomy—head, thorax, and abdomen—and ability to remain stationary are key features informing this project.



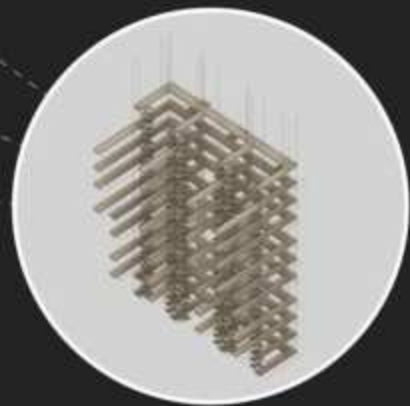
The form study references cicada anatomy, dividing an organic mass to test shade, platform, and framework. The final form conveys the project's spatial logic and installation.



The metal framework adopts a cicada-inspired form: 1-foot-diameter primary members act as spines, while 3-inch frames support the platforms and sleeping sacks.



The shade structure is a hybrid of metal mesh panels and carbon-fibre sheets with peripheral elements to allow partial indoor natural lighting.



A series of 11 platforms creates a safer circulation zone for climbers along the cliff face. In addition to guardrails, metal channels are available on each platform, allowing climbers to secure their carabiners while installing or removing their sleeping sacks.



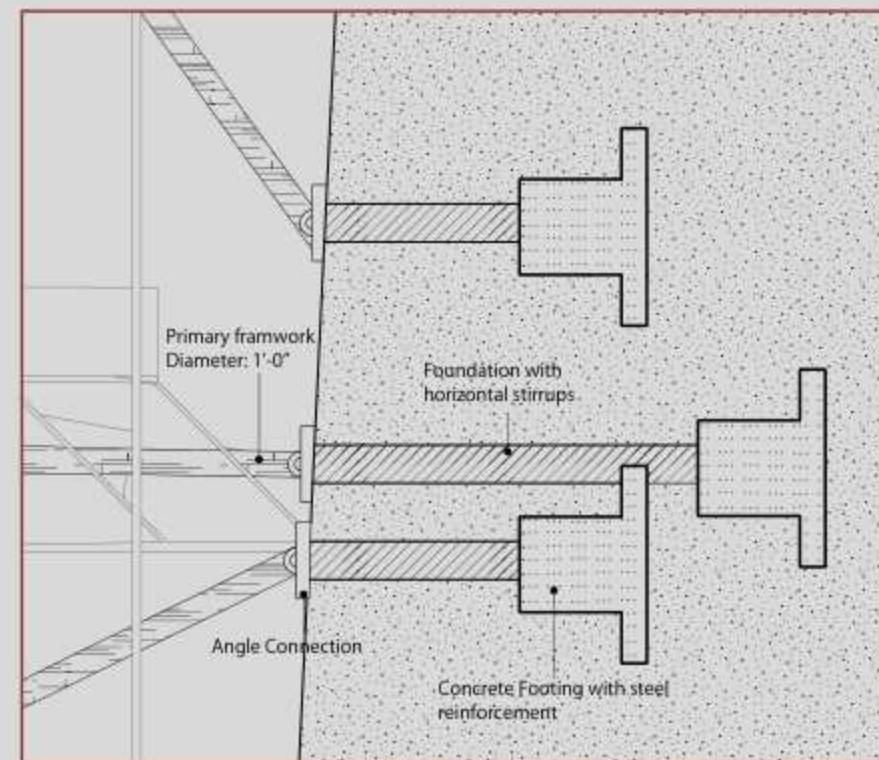
As demonstrated, Checkpoint seeks to provide a stable resting environment for rock climbers, who are often vulnerable to mechanical failures, severe weather, and unstable sediment. The writer hopes this project can serve as a prototypical piece of infrastructural architecture—one that inspires practitioners to develop more pragmatic, real-world versions.



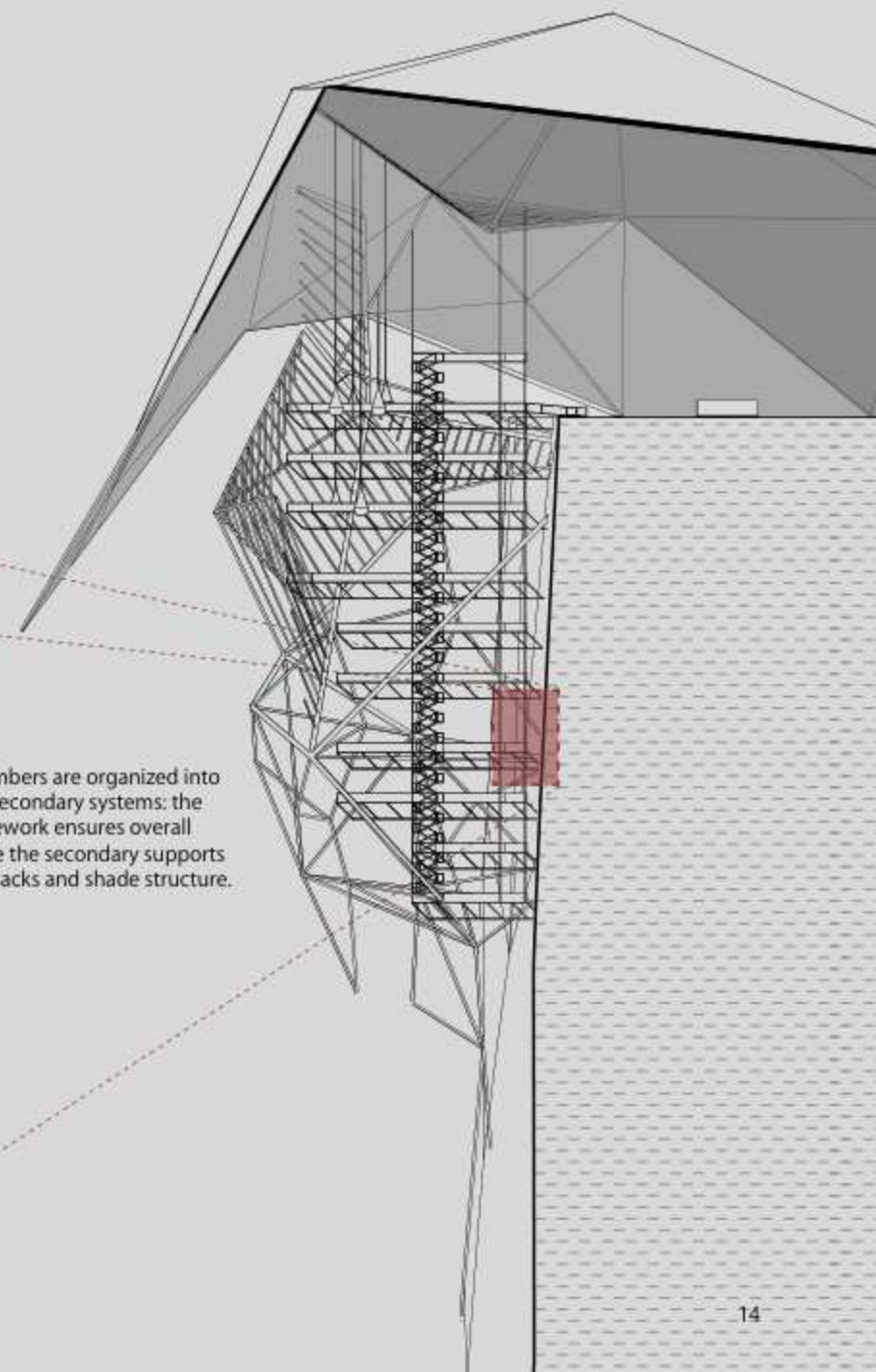
By drawing from penduline tit nests and cicadidae attachment strategies, *Checkpoint* becomes a secure resting point that reduces the risk of falling for climbers. Anchored directly to the cliff like cicadas on vertical surfaces, the structure provides a stable platform while reinterpreting traditional suspended sleeping systems through architecture.



The cicadas's body structure—its head, thorax, and abdomen—was reinterpreted as the project's anchor points, resting platforms, and shading elements. To ensure its stability, the primary and secondary frameworks are firmly embedded to the terrain using footings constructed within it.



The steel members are organized into primary and secondary systems: the primary framework ensures overall stability, while the secondary supports the sleeping sacks and shade structure.



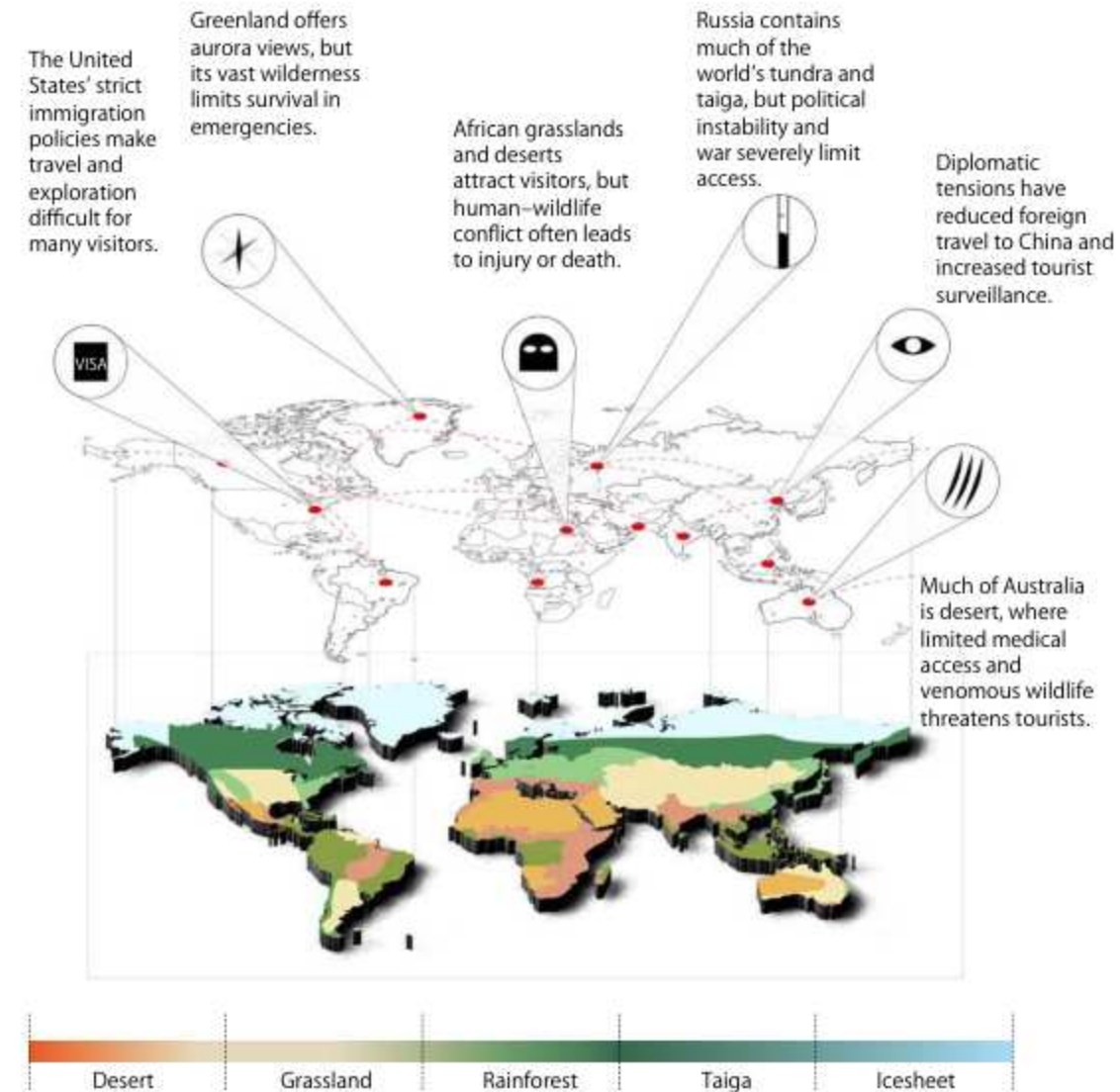


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Individual Project

## Biome Library: Pier 55-1

Expedition is a common dream, but logistical, legal, and environmental barriers often make it unattainable. *Biome Library 55-1* addresses this by bringing curated biomes into urban spaces, making exploration accessible to all.



Humans are driven to experience diverse environments and cultures, often through travel. While some pursue urban novelty, others are drawn to pristine natural landscapes.

However, exploring untouched biomes is inherently difficult. Their unpredictability—ranging from extreme climates to political and visa restrictions—makes such journeys largely inaccessible to untrained civilians.

Immaterial elements can convincingly simulate environments. By choreographing these within a confined space, it becomes possible to create a living project that is immersive, adaptive, and ever-changing.

## Immaterial Elements



The absence of visual reference induces uncertainty, prompting an exaggerated yet plausible sense of latent danger. As humans rely heavily on vision to regulate movement and orientation, visual deprivation creates the perception of nearby obstacles.



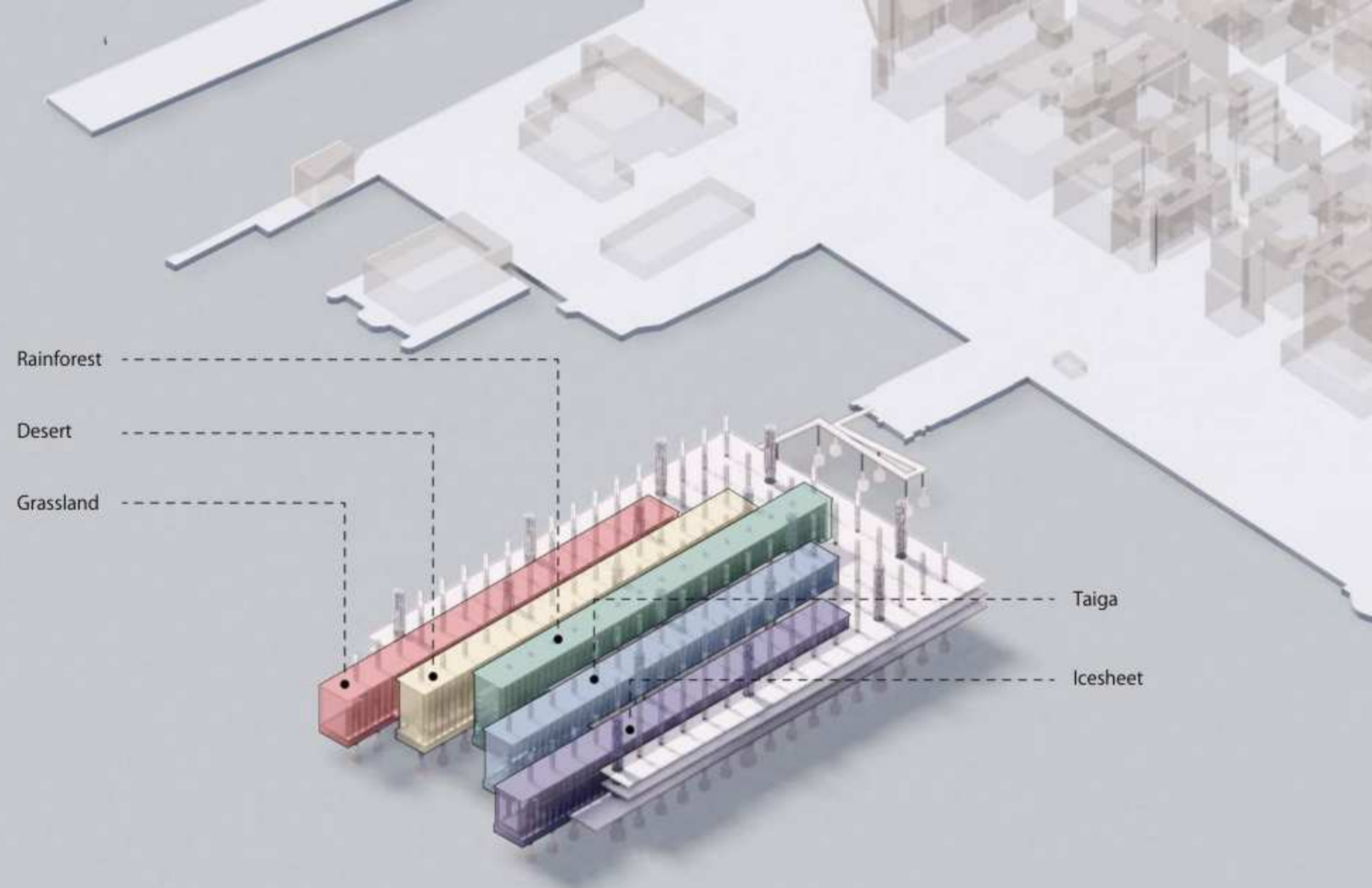
Temperature reflects the average kinetic energy of molecules in an environment. Human bodies respond similarly: muscle performance decreases in cold conditions, where tissues become more prone to injury, and increases in warmer environments.



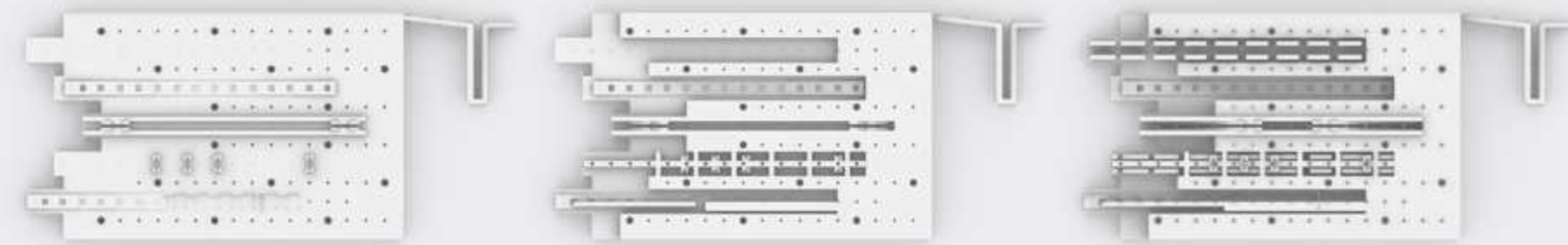
Light is an indispensable source of life, long emphasized in religious texts, art, and film. Humanity's instinct to pursue light has driven the development of systems that mitigate safety hazards caused by limited environmental awareness.



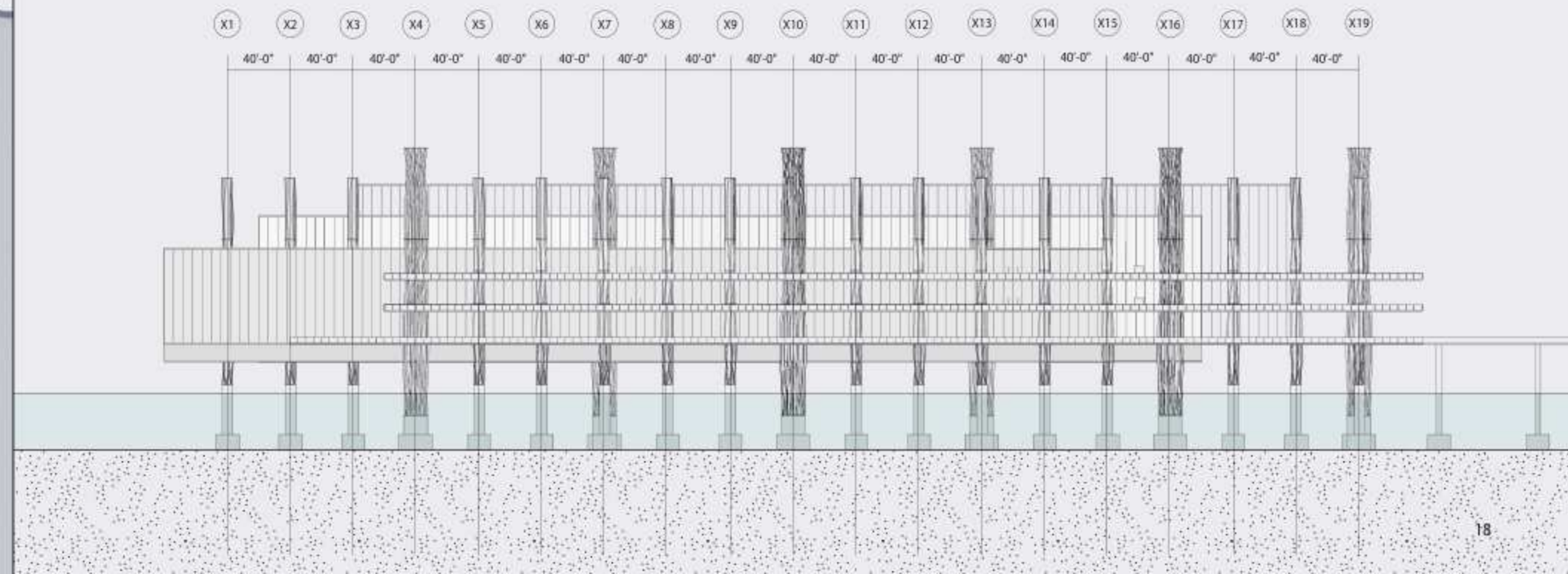
Thresholds and barriers can be formed through fundamental masses. Despite their clinical appearance, spatial arrangements still communicate entry, exit, and phase transition to users.



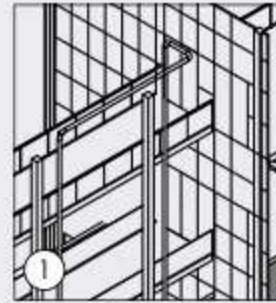
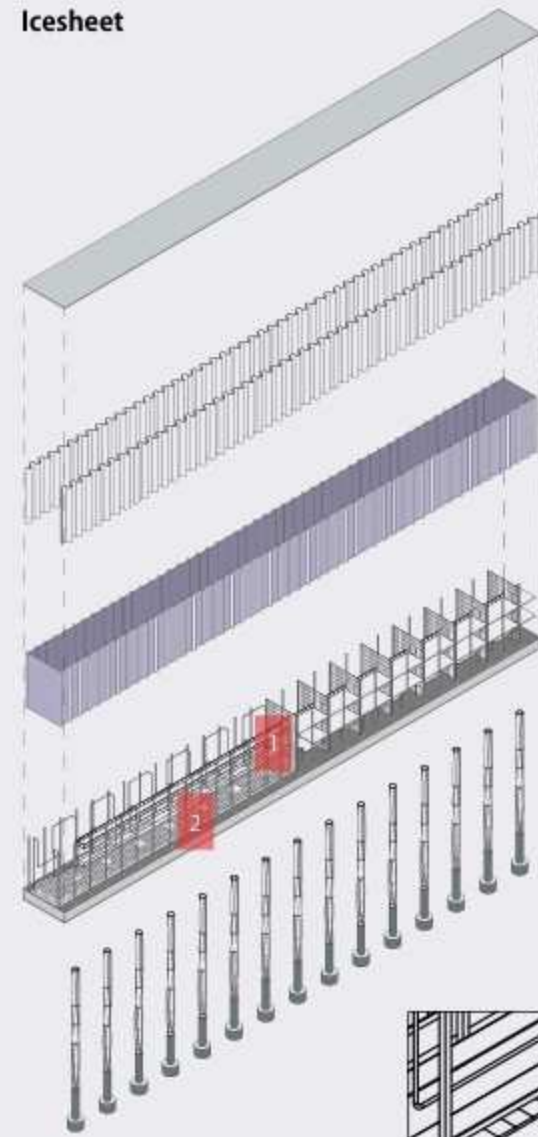
*Biome Library: Pier 55-1* is situated adjacent to Pier 55, New York and is conceived a cargo-ship-like architecture. Rather than transporting goods, the structure carries modular biome containers, each housing a distinct environmental condition using immaterial elements. The project reframes the pier as a point of arrival and exchange—where ecosystems are stored, displayed, and experienced amid urban context.



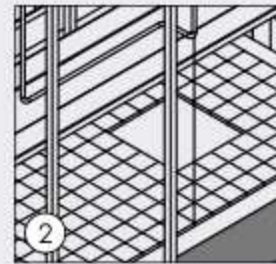
Similar to Toyo Ito's *Mediatheque*, *Biome Library: Pier 55-1* is comprised of waffle slabs supported by 209 tube-like columns. This strategy is effective, as it allows for the efficient concealment and storage of utilities such as pipelines and electrical systems.



## Icesheet



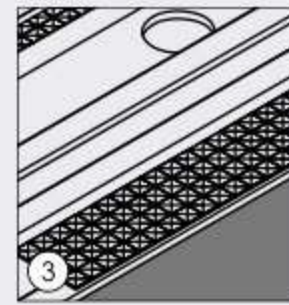
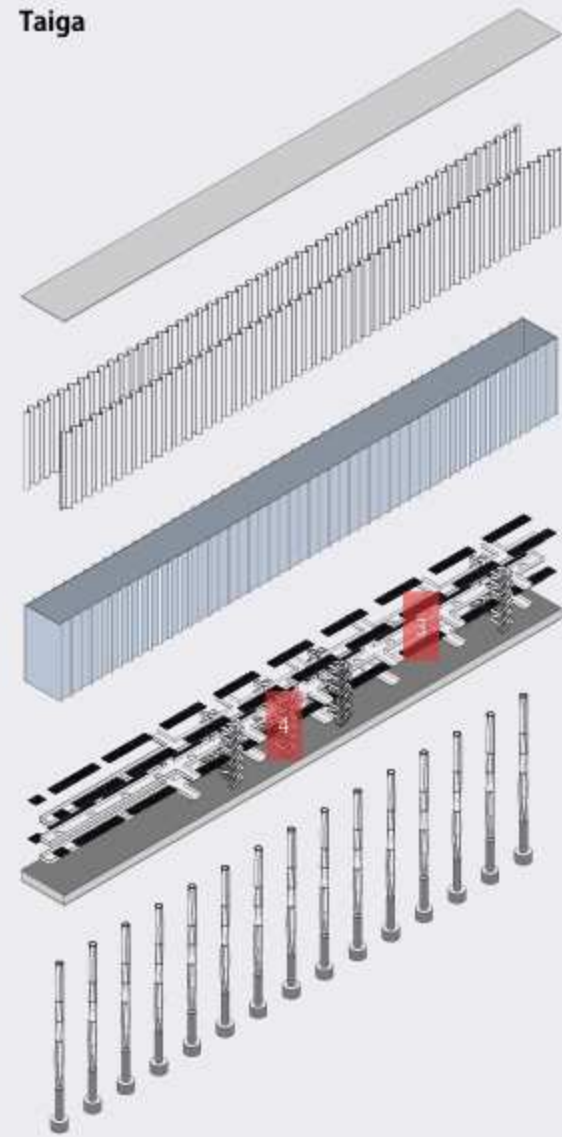
Pipelines deliver water and conditioned air to create controlled breezes, maintained within interior glass partitions.



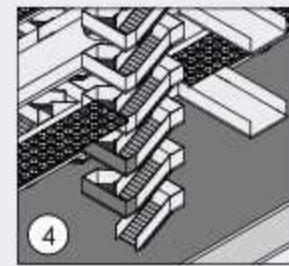
Pistons are tiled on Level 1 to mimic glacier movements and accumulation of snow.

Ice-sheet regions are characterized by freezing temperatures and dense fog that can easily disorient adventurers.

## Taiga



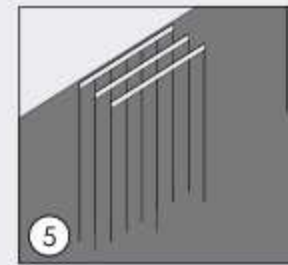
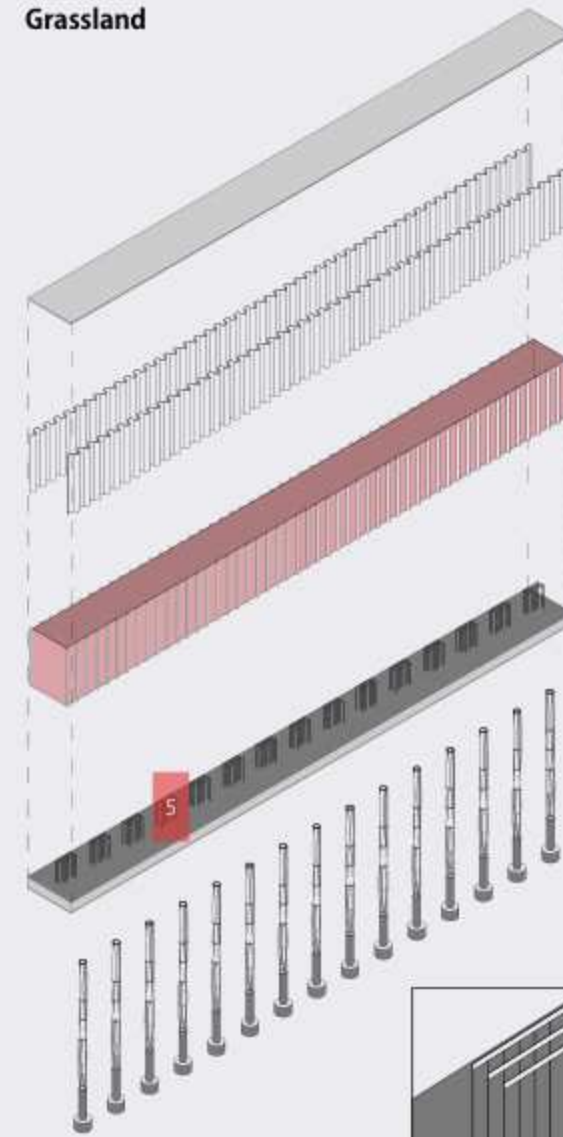
Apertures above the ceiling regulate interior lighting to match the darkness of taiga environments, and imitate leaf movements.



A solid stairwell extending through all floors functions like the thick trunks found in taiga forests.

Taiga regions are characterized by dense forests extending in all directions, along with frequent fog and freezing temperatures, though less severe than those of ice-sheet biomes.

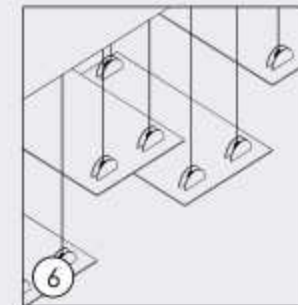
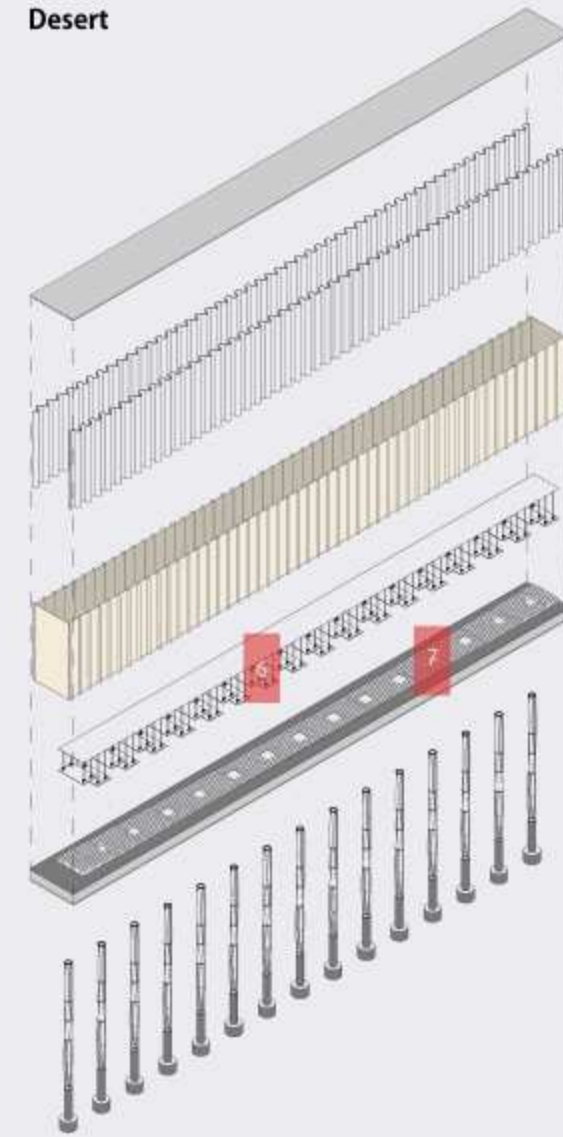
## Grassland



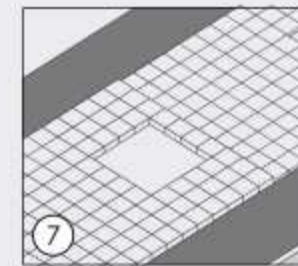
The tension and tilt of metal wires are adjusted via pulleys at the floor and ceiling, simulating wind across open grasslands.

Grasslands are defined by open, expansive plains and periodic winds blowing from all directions.

## Desert



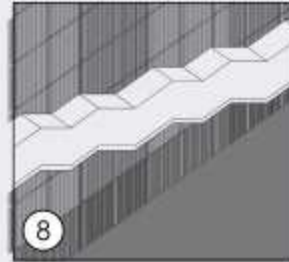
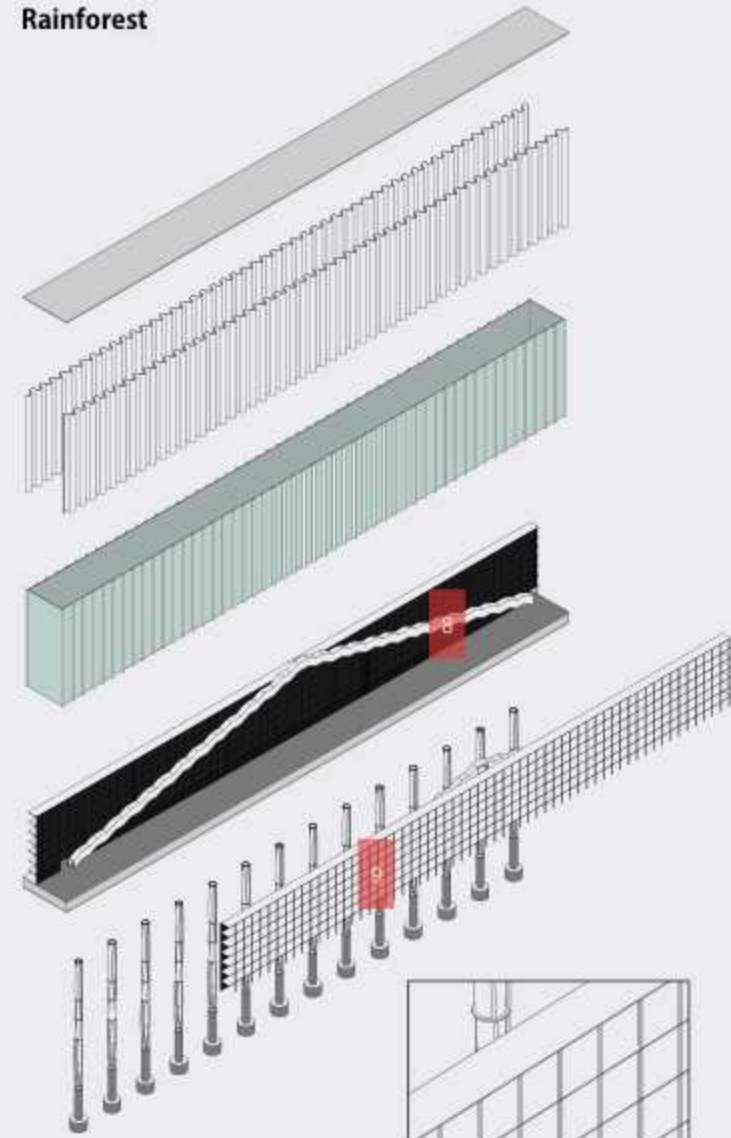
Mirrors mounted on a dynamic cable system are adjusted to control indoor glare and luminosity, emulating extreme sunlight conditions in desert regions.



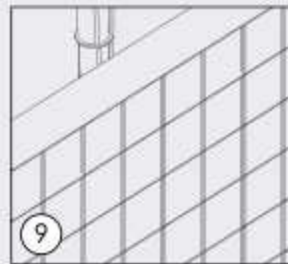
Pistons are tiled on Level 1 to mimic landscape changes due to winds.

Deserts are characterized by extreme heat, intense solar glare, and sparse vegetation.

## Rainforest



Linear stairs allow users to artificially experience changes in landscape elevation.



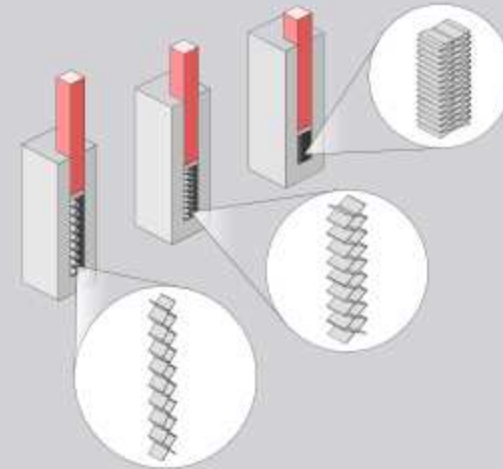
Subsidiary slabs supported by smaller columns generate a compact spatial quality commonly experienced in tropical forests.

Rainforests remain humid year-round, with dense deciduous vegetation covering much of the landscape. Daily temperature shifts also generate frequent fog.

Although immaterial elements demand careful and precise maintenance, their inherent susceptibility enables the creation of diverse and continuously changing environments. Because such elements require only minor calibration of the systems that generate them, spatial conditions can be easily adjusted.

The project leverages these qualities to provide users with ever-renewed pseudo-environmental experiences.

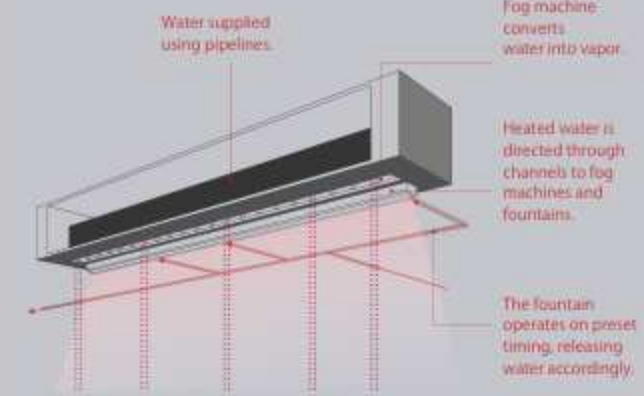
## Piston



Hexadrones regulate visibility and circulation by forming adjustable backgrounds that mimic natural obstructions found in biomes.

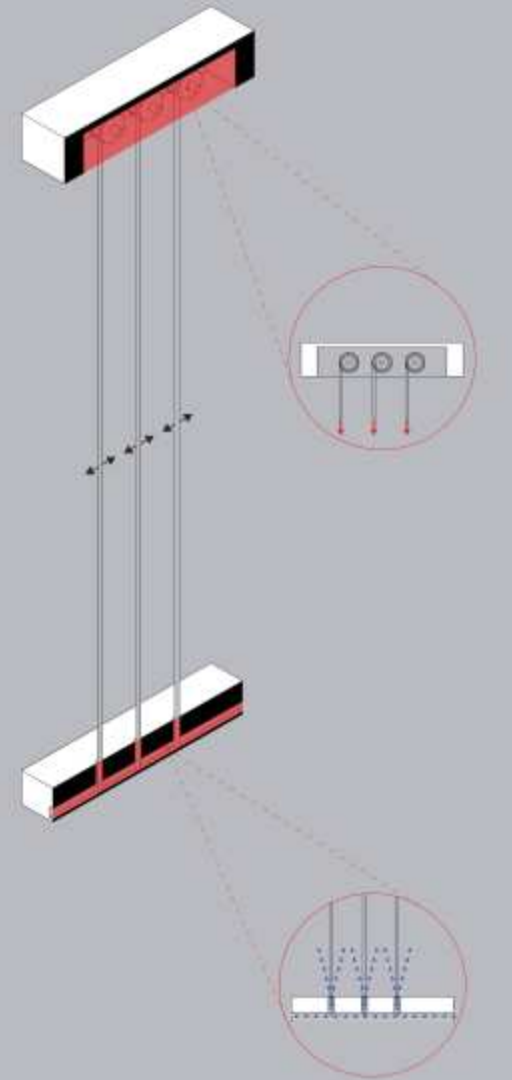
While the project minimizes materiality, complete emptiness would diminish realism. Because biomes are dynamic and ever-changing, visual and volumetric elements are necessary to convey a living environment.

## Fog Machine



Tropical rainforests are humid due to their geographical location and thick layers of vegetation. The use of fog machine and artificial waterfall produced enough amount of moisture to replicate the forests's feature and as visual impidence for the users.

## Dynamic Wire System



Tropical rainforests are humid due to their geographical location and thick layers of vegetation. The use of fog machine and artificial waterfall produced enough amount of moisture to replicate the forests's feature and as visual impidence for the users.

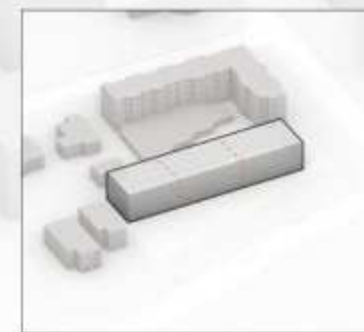


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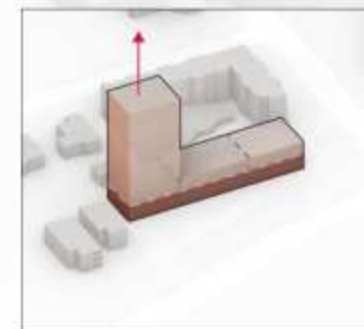
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Architecture  
Collaborative Project

## Interface

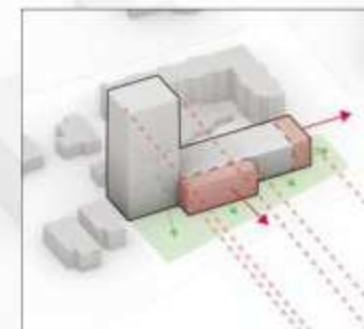
Dormitories are meant for rest but are often conceived as overly compact, chicken-coop-like spaces. *Interface* is an experimental mid-rise dormitory, apartment, and hotel project that provides balanced sunlight, activity, and a stronger relationship to the surrounding environment.



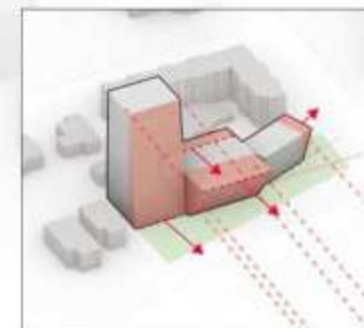
Concept development I distinguishes potential user group to allocate appropriate floor areas.



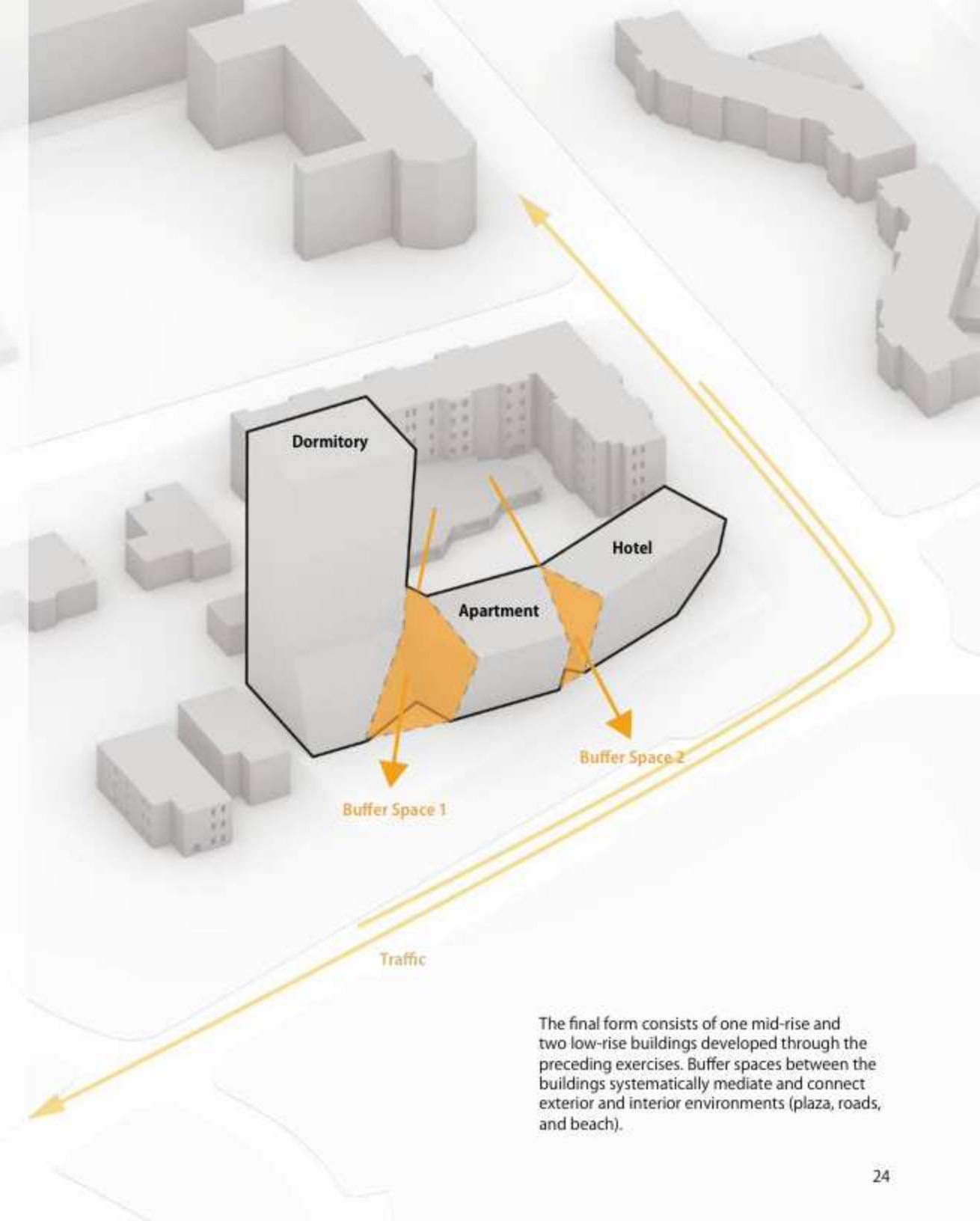
Concept development II further establishes the anticipated numerical area of residential floors along with the numbers and sizes of each unit.



Concept development III reflects on how the project would interact with the adjacencies via ground floor plazas.



Concept development IV further incorporates form-shifting techniques to relate the project to the context (beach and adjacent buildings).



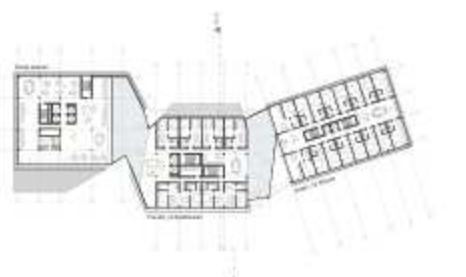
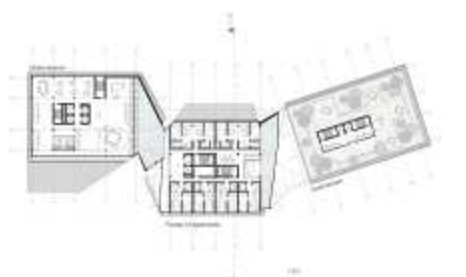
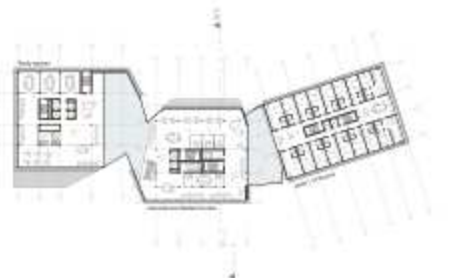
The final form consists of one mid-rise and two low-rise buildings developed through the preceding exercises. Buffer spaces between the buildings systematically mediate and connect exterior and interior environments (plaza, roads, and beach).



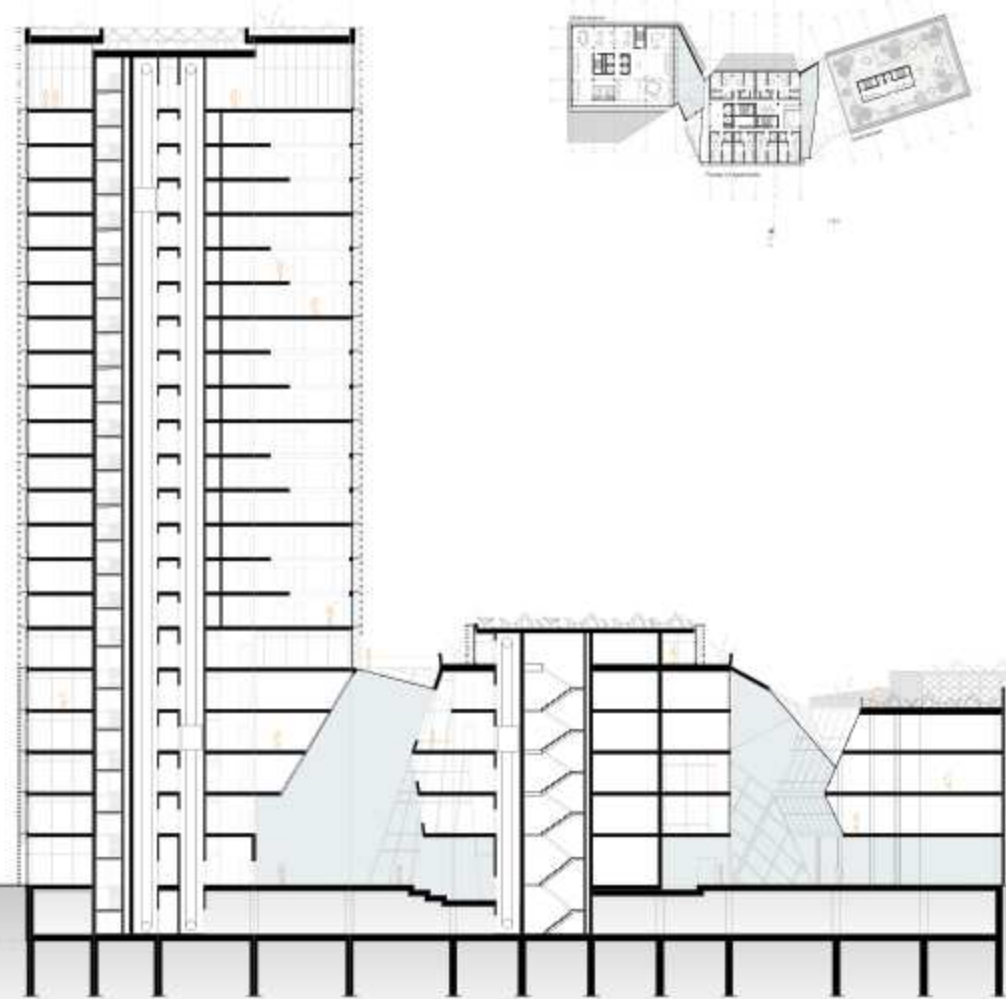
The mid-rise serves as a symbolic "lighthouse" of the project, projecting the school's identity outward.



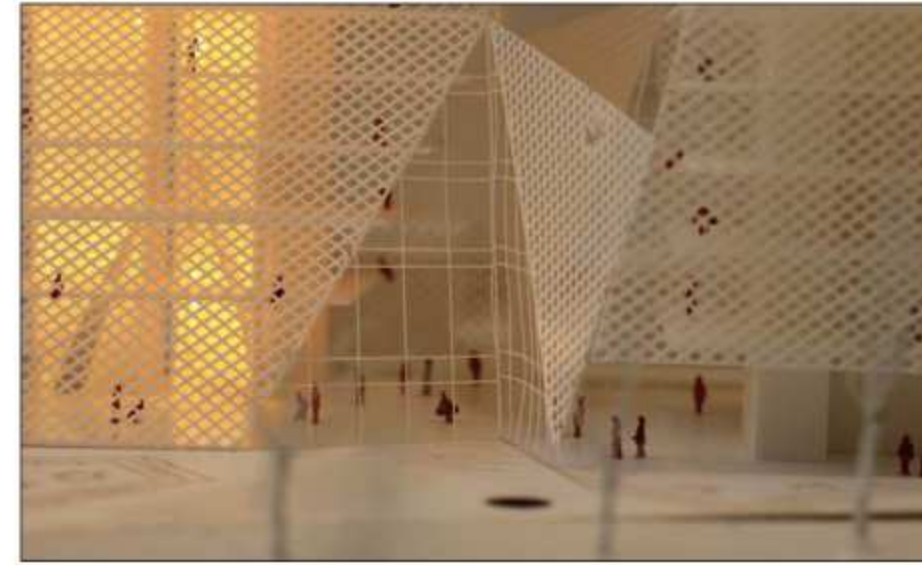
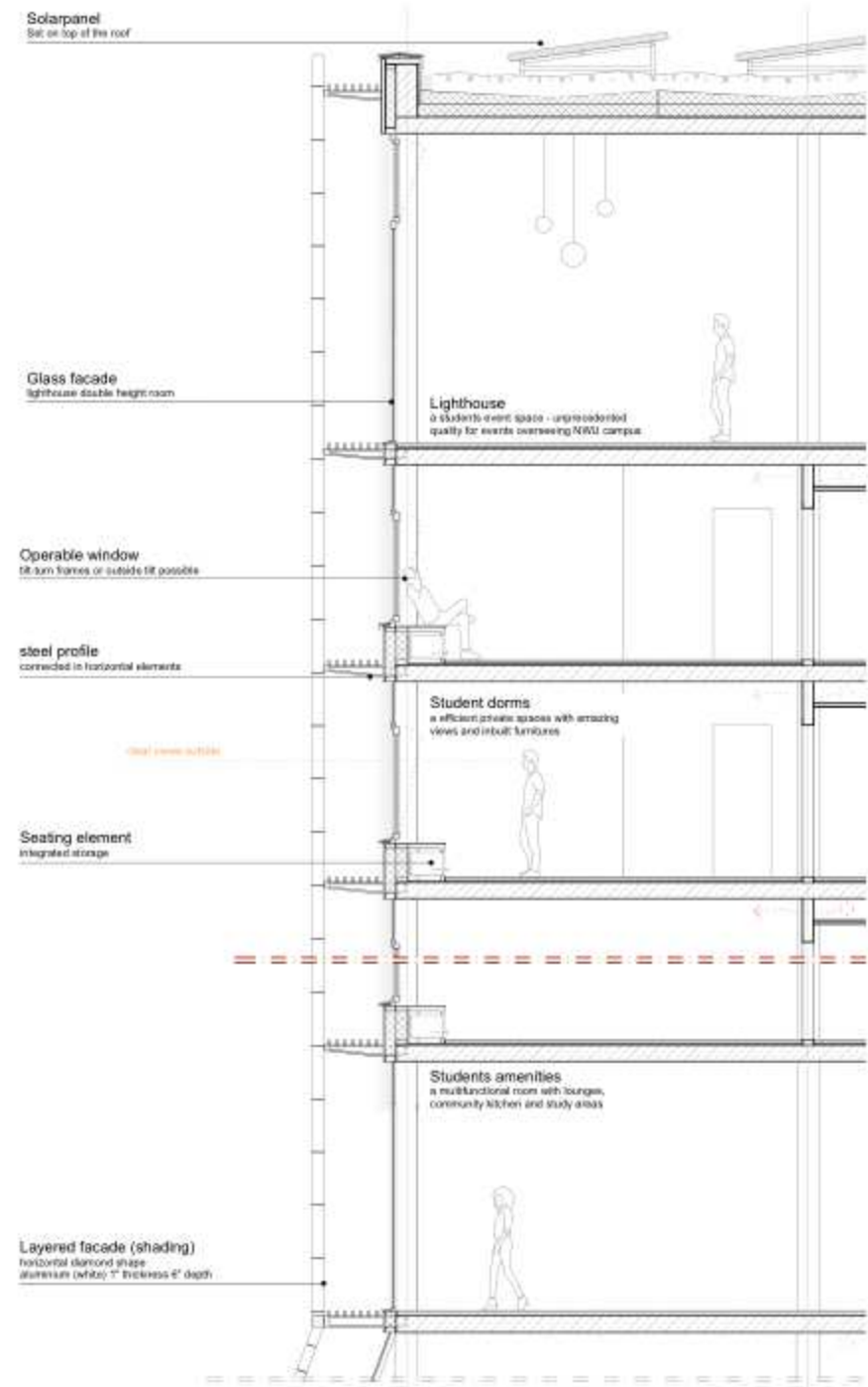
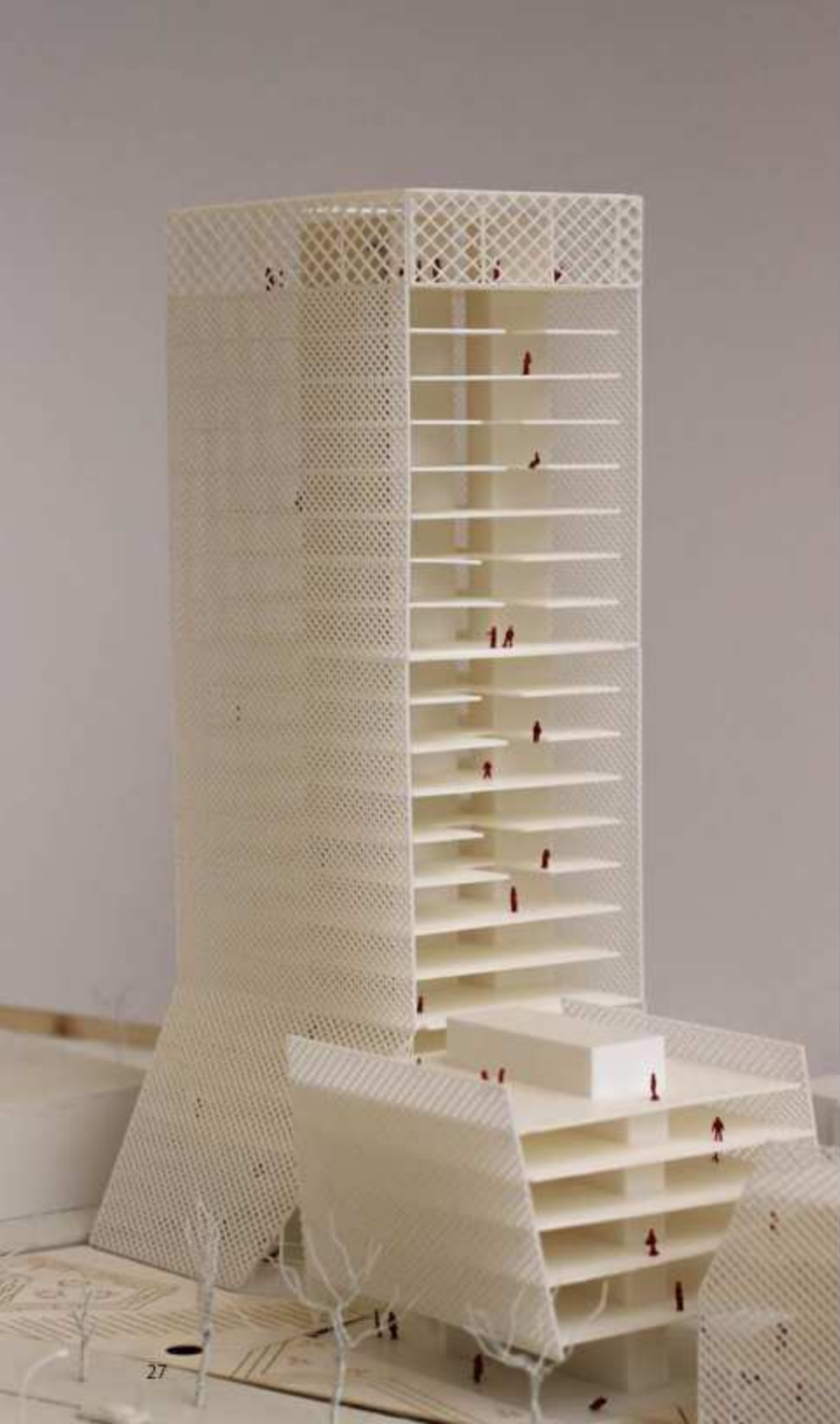
The plazas function as another device that allows residents to relate to pedestrians and traffic moving nearby.



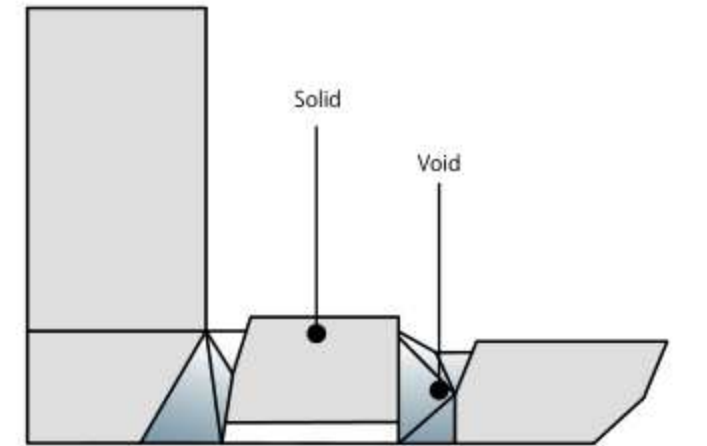
- 235
- 22<sup>nd</sup> Lighthouse 219
- 21<sup>st</sup> Dorms 205
- 195
- 185
- 175
- 165
- 155
- 145
- 135
- 125
- 6<sup>th</sup> - 20<sup>th</sup> Dorms 115
- 105
- 95
- 85
- 75
- 65
- 6<sup>th</sup> Dorms 53
- 5<sup>th</sup> Study (quiet) 41
- 4<sup>th</sup> Studio 29
- 3<sup>rd</sup> Study 27
- 2<sup>nd</sup> Dining 15
- Public Floor 0



The project is comprised of three superstructures that are woven together by buffer spaces. Floors 1-5 serve as amenity spaces, and buildings above that accommodates students, faculty, and guests.



The facade composition uses three different peripheral sizes. Scaled up or down by a factor of two, each size creates distinct visual and spatial interactions with the exterior depending on the program.



From a distance, the peripherals shift from a linen-like translucency to solidity. Combined with the buffer spaces linking the buildings, this creates an illusion that sharply distinguishes solid and void, clarity and matte surfaces.

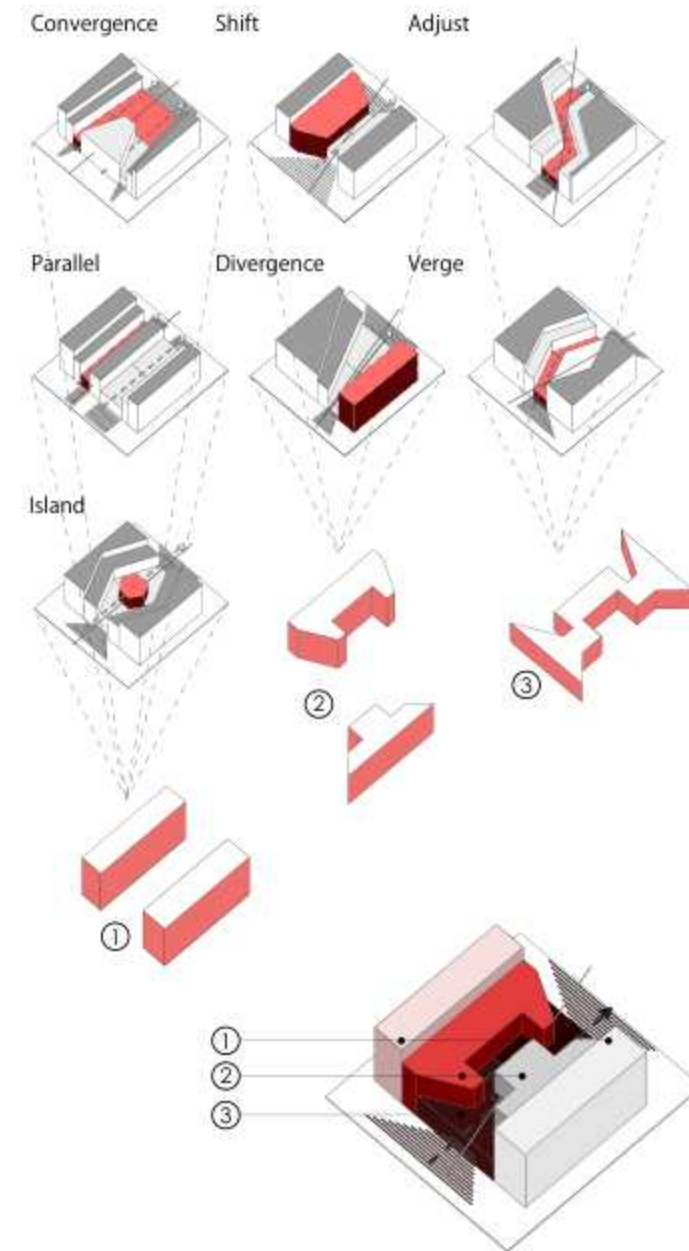


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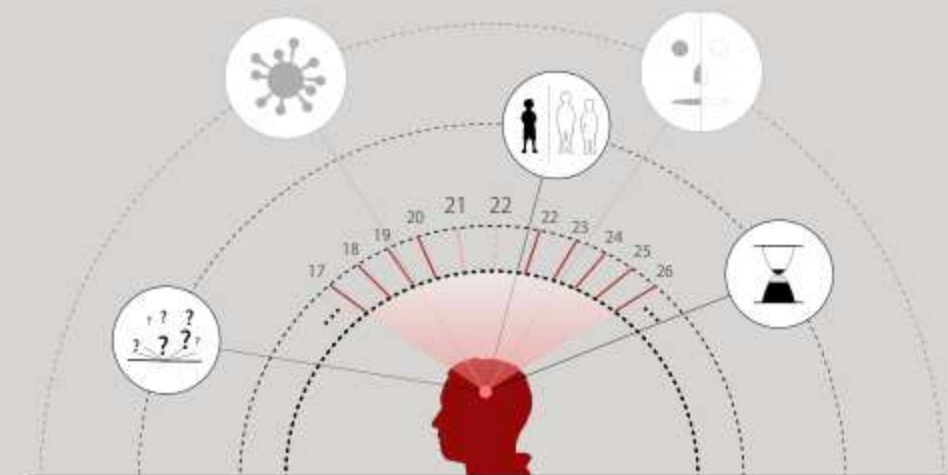
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Interior Design  
Individual Project

## The Superposition






Down syndrome is a lifelong genetic condition that affects immune, physical, and cognitive development. *Superposition* is a residential interior project that connects individuals with the condition to nature within an indoor environment.



The project began by spatializing concepts related to "superposition," expressed through seven terms of evenness, segregation, and desegregation. These were combined into three final forms that guided program placement, spatial organization, and circulation.



During developmental stages, individuals with Down syndrome may experience delays in academics, language, and behavior. These challenges can lead to social isolation, academic difficulties, and mental health concerns, with long-term effects that may persist into adulthood.

-  Individuals with Down syndrome often face academic challenges due to difficulties in understanding standard classroom instruction.
-  These differences often create social barriers between patients and their peers, leading to anxiety.
-  Down syndrome affects the immune system, making individuals more susceptible to illness.
-  Depression can arise from limited social interaction and awareness of perceived differences from others.
-  Although outcomes have improved in recent years, individuals with Down syndrome still tend to have shorter life expectancy than the general population.

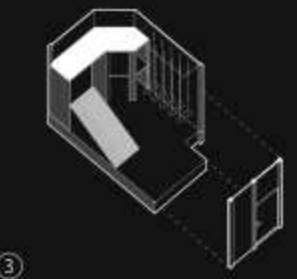
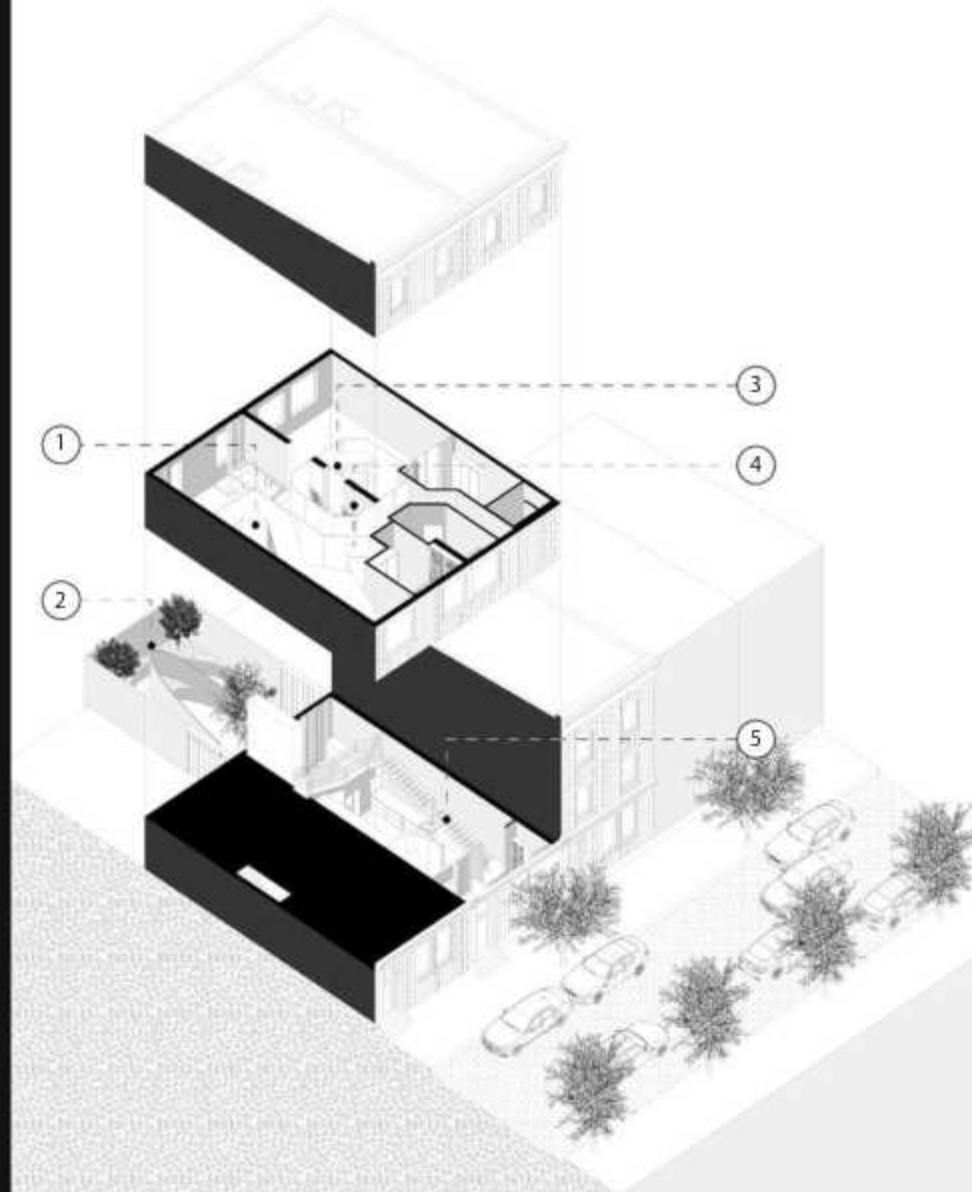
The family of four lives on Fulton Street in Brooklyn, where both children have Down syndrome. Concerned about their mental well-being and recognizing the limits of simply restricting outdoor activity, the parents seek a solution that is both safe and engaging for their children.



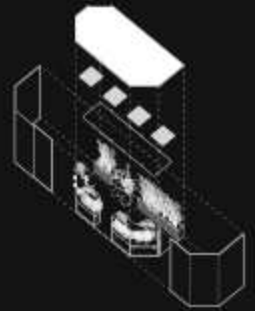
① The garden serves as the final destination after users move through the kitchen and dining area.



② The second-floor library incorporates playground elements that encourage children to move continuously and develop their muscles.



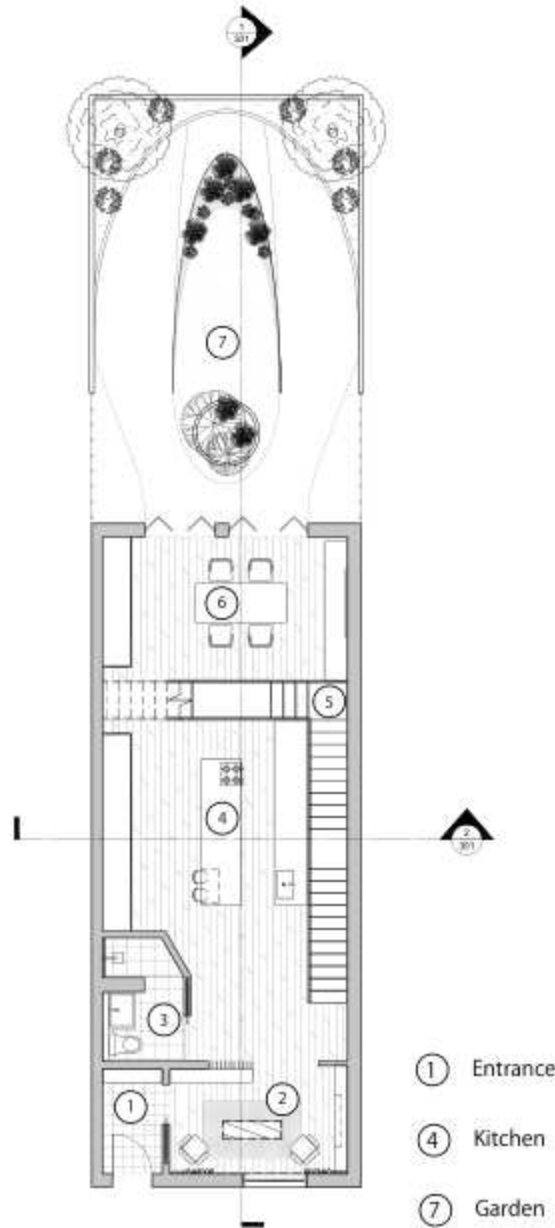
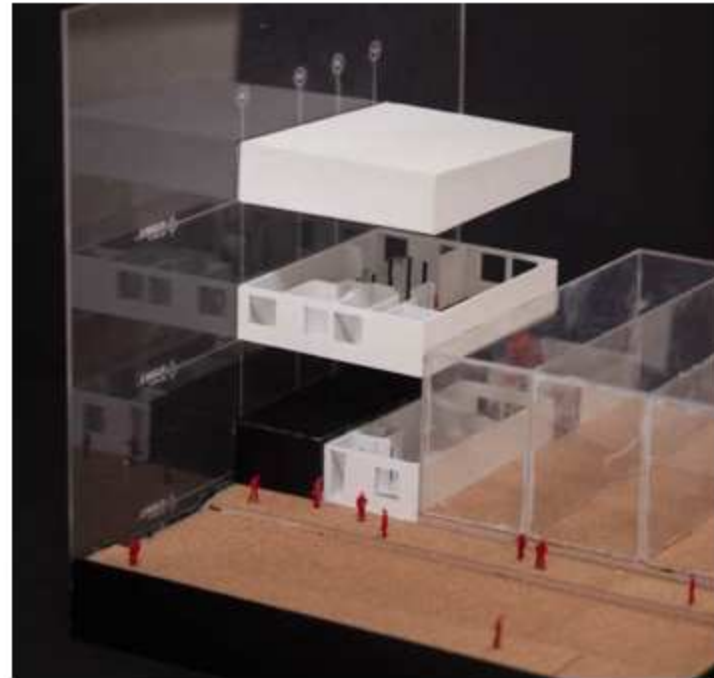
③ The fitness room functions like the library but focuses on physical activity, allowing Tim and Amanda to build strength, agility, and endurance.



④ Unlike the garden, the greenhouse is intended for learning about plants rather than active play.



⑤ Although the stairs appear impractical, the design encourages children to regularly use their leg muscles, helping prevent stiffness.



The first floor contains the kitchen, lounge, and garden, symbolizing a transition from urban to natural environments. A greenhouse extends this connection, reinforced by wood finishes throughout the furniture.

The kitchen and stairs are merged to reduce spatial footprint, while the dining area sits beside the garden entrance, allowing family members to remain connected to nature during meals.

- ① Entrance
- ② Lounge
- ③ Bathroom
- ④ Kitchen
- ⑤ Stairs
- ⑥ Dining Area
- ⑦ Garden



- ⑧ Living Room
- ⑨ Library
- ⑩ Greenhouse
- ⑪ Bedroom 1
- ⑫ Bedroom 2
- ⑬ Fitness Room
- ⑭ Bedroom 3
- ⑮ Bathroom 2

The second floor includes programs that support children's mental and physical development—a library, fitness room, and greenhouse. These spaces allow Tim and Amanda to study, exercise, and experience nature indoors under parental supervision.





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2022  
Product Design  
Individual Project

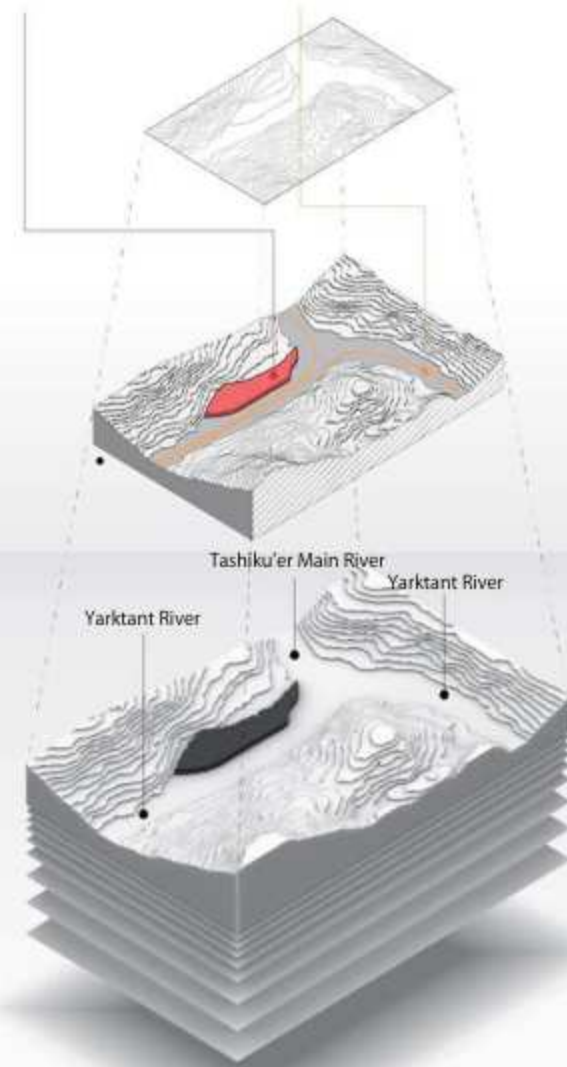
## Biomimicry: Flood Barrier

Global warming increasingly causes floods and droughts worldwide. In Xinjiang, outdated infrastructure worsens these impacts. *Biomimicry: Flood Barrier* proposes a prototype to address both flooding and drought.

The village is clustered near the east side cliff, with just a small margin between the Yarkant river and itself. Glaciers retreat at a rate of 240 square kilometers every year.

Tarim river works as a fundamental stream for its subsets: Yarkant, Hotan, Aksu, Kaxgar, and Kongqi river.

Many rural villages in China lack adequate infrastructure, leaving residents vulnerable to annual flash floods originating from Himalayan reservoirs.

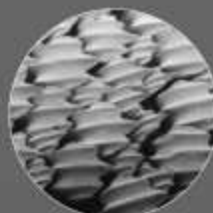


When glaciers collapse, gravitational potential energy converts into kinetic energy, accelerating flood surges downhill. Lacking wide buffer plains or natural breakers such as rocks, forests, or hills, the village is highly exposed; the narrow stream can further intensify flow, increasing its destructive force.



Seahorse's Spine

A seahorse's spine is formed by subdermal bones made of four small L-shaped plates, enabling controlled bending and twisting. This structure allows seahorses to withstand large deformations without fracturing.



Shark's Skin

Shark skin is covered with microscopic dermal denticles that are highly efficient in fluid dynamics. This mechanism has been widely studied and applied in products such as swimsuits and aircraft surfaces.



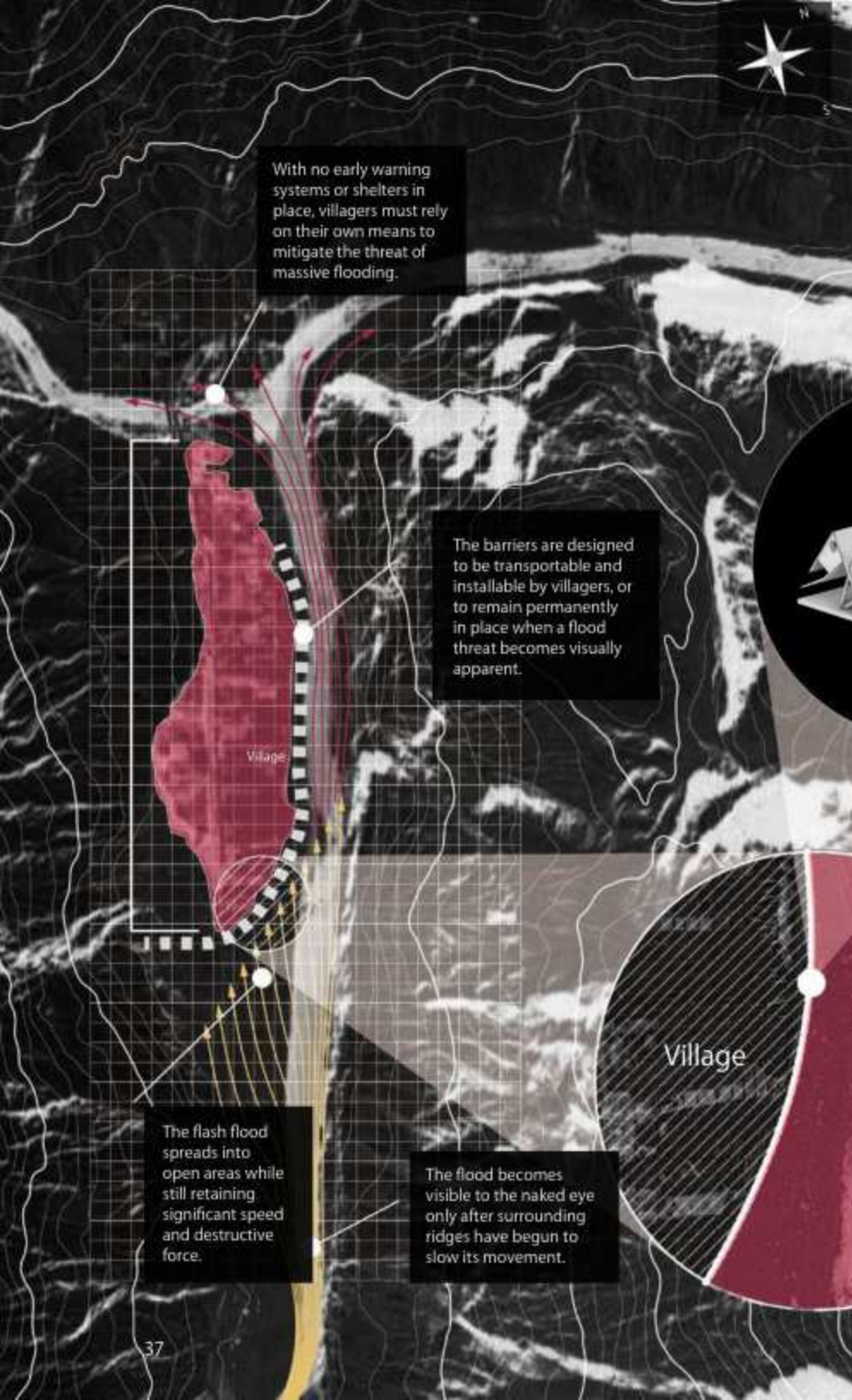
Bald Cypress's Root System

The bald cypress tree has multiple root modules that often protrude above the surface. Although their exact function is uncertain, botanists believe they help deflect debris such as rocks and logs while stabilizing the trunk and stem.



Oyster's Digestive System

Oyster cilia draw water through the gills, filtering plankton, algae, and fine particles. Waste is expelled as a cloud that disperses and dissolves into the surrounding water.

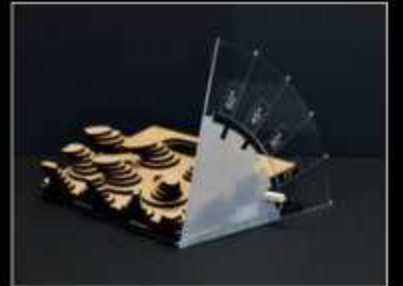
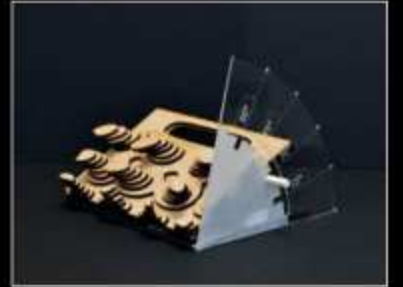
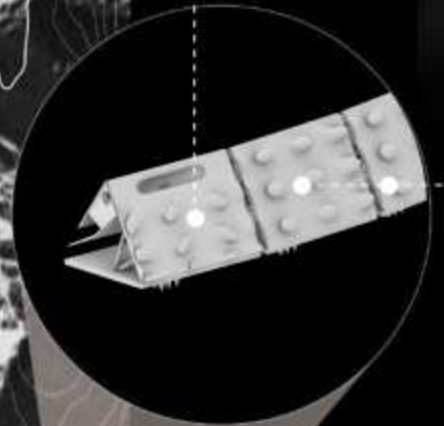
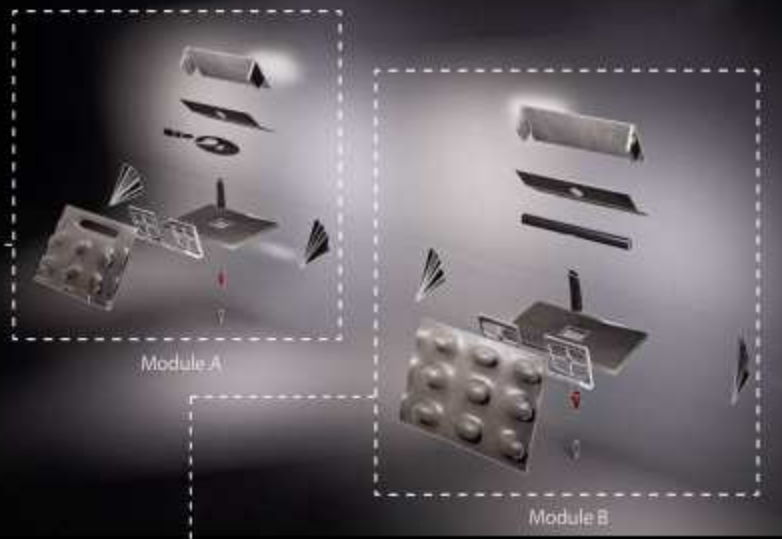
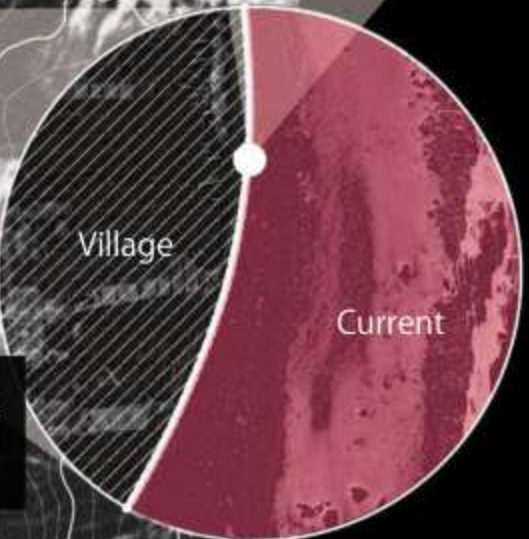


With no early warning systems or shelters in place, villagers must rely on their own means to mitigate the threat of massive flooding.

The barriers are designed to be transportable and installable by villagers, or to remain permanently in place when a flood threat becomes visually apparent.

The flash flood spreads into open areas while still retaining significant speed and destructive force.

The flood becomes visible to the naked eye only after surrounding ridges have begun to slow its movement.



Modules A and B share the same structural logic, integrating a shark-skin-inspired micro-profile, a piston system derived from bald cypress buttressing, an oyster-inspired water-collection mechanism, and seahorse-like spring components that allow smooth bending up to 30 degrees, with an optimal threshold of 15 degrees.

They differ primarily in exterior skin behavior: Module A uses angled extrusions to generate directional thrust as water enters, while Module B accelerates water flow to minimize exposure to hydrostatic load.



Seahorse's Spine



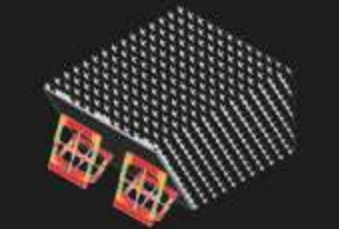
Shark's Skin



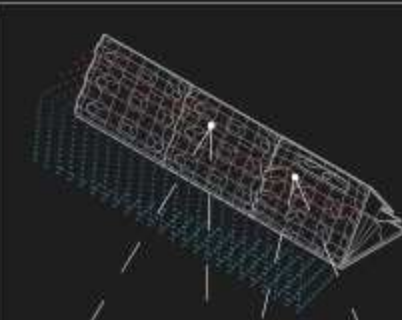
Bald Cypress's Root System



Oyster's Digestive System

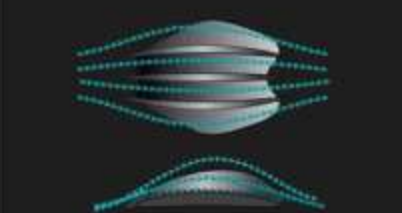


Seahorses withstand forces many times their body weight due to their durable, highly elastic spinal segments. In a marine environment where collisions with larger animals are common, this naturally engineered spine is essential to their survival.

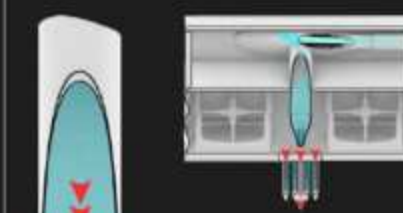
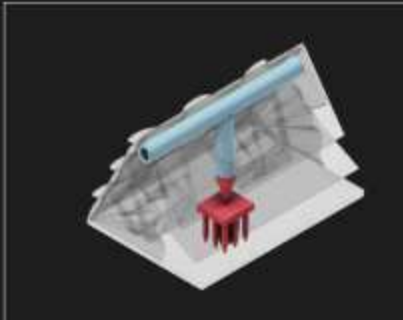


Module B accelerates water flow, reducing the duration of structural exposure to the water's weight.

Module A uses this logic to guide water into its chamber, enabling Module B to safely redirect it toward the reservoir.



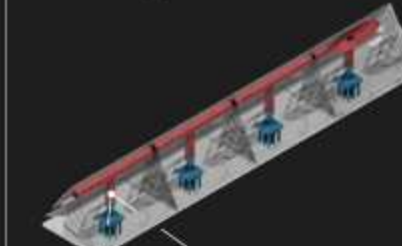
Shark skin has highly refined fluid-dynamic properties that allow large predators to move efficiently.



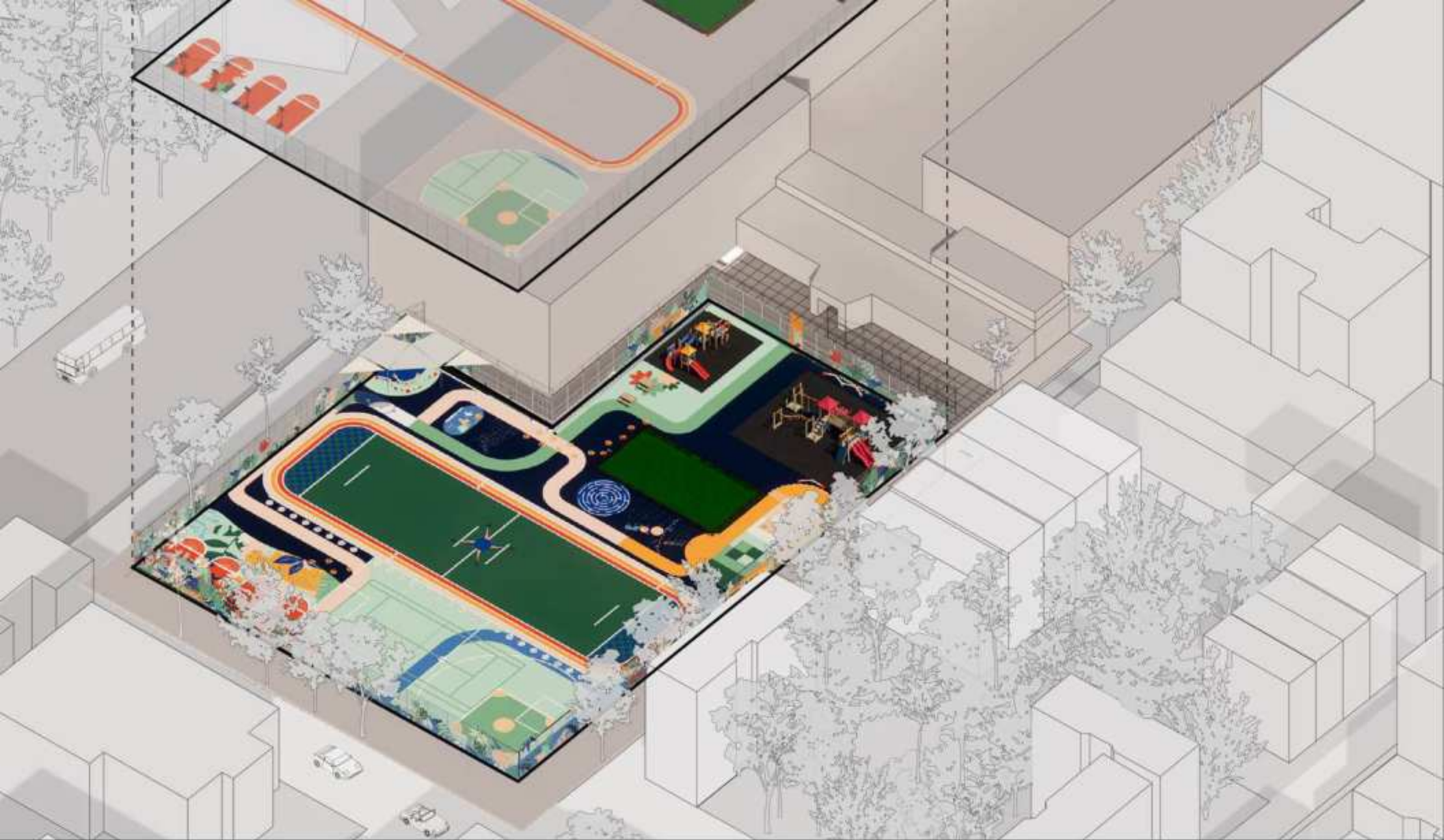
Bald cypress trees use anchor-like root strands to resist displacement in soft mud and sand. Drawing from this strategy, Modules A and B employ pencil-shaped anchors driven downward by water pressure.



Oysters naturally perform dual functions—digesting plankton while filtering microplastics—embodying an efficient, multitasking system.



Following this logic, the incoming water moves through Modules A and B, yet a portion of it is diverted to activate the anchoring mechanism.



07

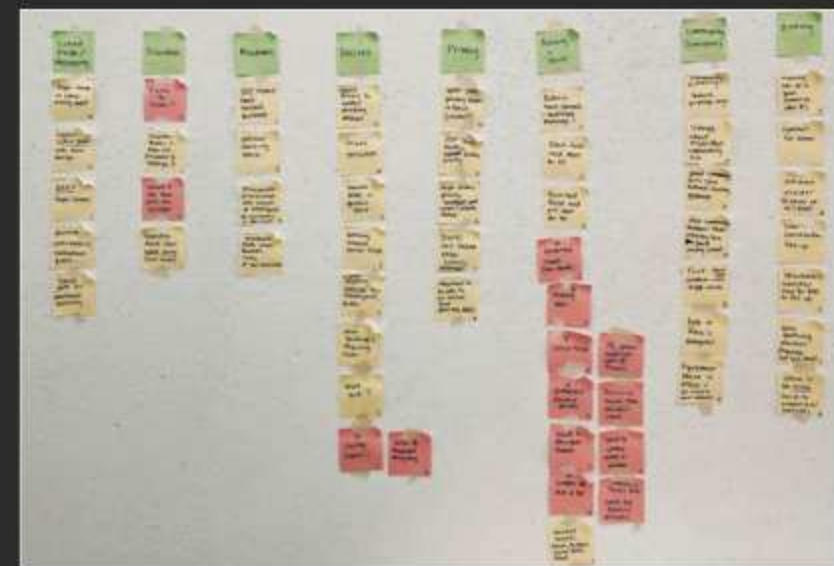
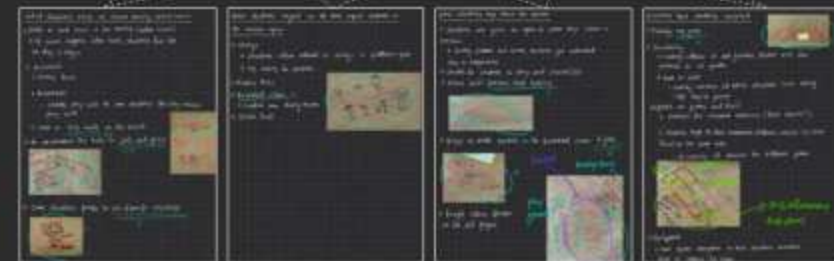
2025  
Landscape Architecture  
Collaborative Project

## Learning-Scape

Excluding children for efficiency often leads to spaces that ignore their needs. Learning-scape centers children's voices to design a more child-friendly playground.



Public School 206 is located in Upper Manhattan and features a large playground used for classes and recess. The school aims to welcome the community while preventing vandalism, encouraging the mesh fence to be read as a secure yet non-alienating boundary. Surrounding trees provide about 50% coverage, a key environmental factor in designing the requested shade structures.



Following the site analysis, surveys of students and faculty revealed a shared need for shaded playground areas. Students—especially female students—were dissatisfied with the lack of shade, while staff worried about dehydration under intense sunlight.

Differences emerged in priorities: students wanted shaded seating and artistic elements like murals, whereas faculty opposed ground drilling and favored practical features that support outdoor classes.



At faculty request, the former baseball field was converted into an outdoor classroom with a Type B shade structure. Lightweight yet stable fixtures allow the space to host up to 30 people comfortably.



The basketball court's high activity and central circulation make it an ideal site to express the school's identity through color and iconography.



One of Public School 206's signature programs is its gardening class, where students grow crops served in the cafeteria. To support this, a dedicated zone with tools, storage, and small-scale growing systems was created for hands-on learning.



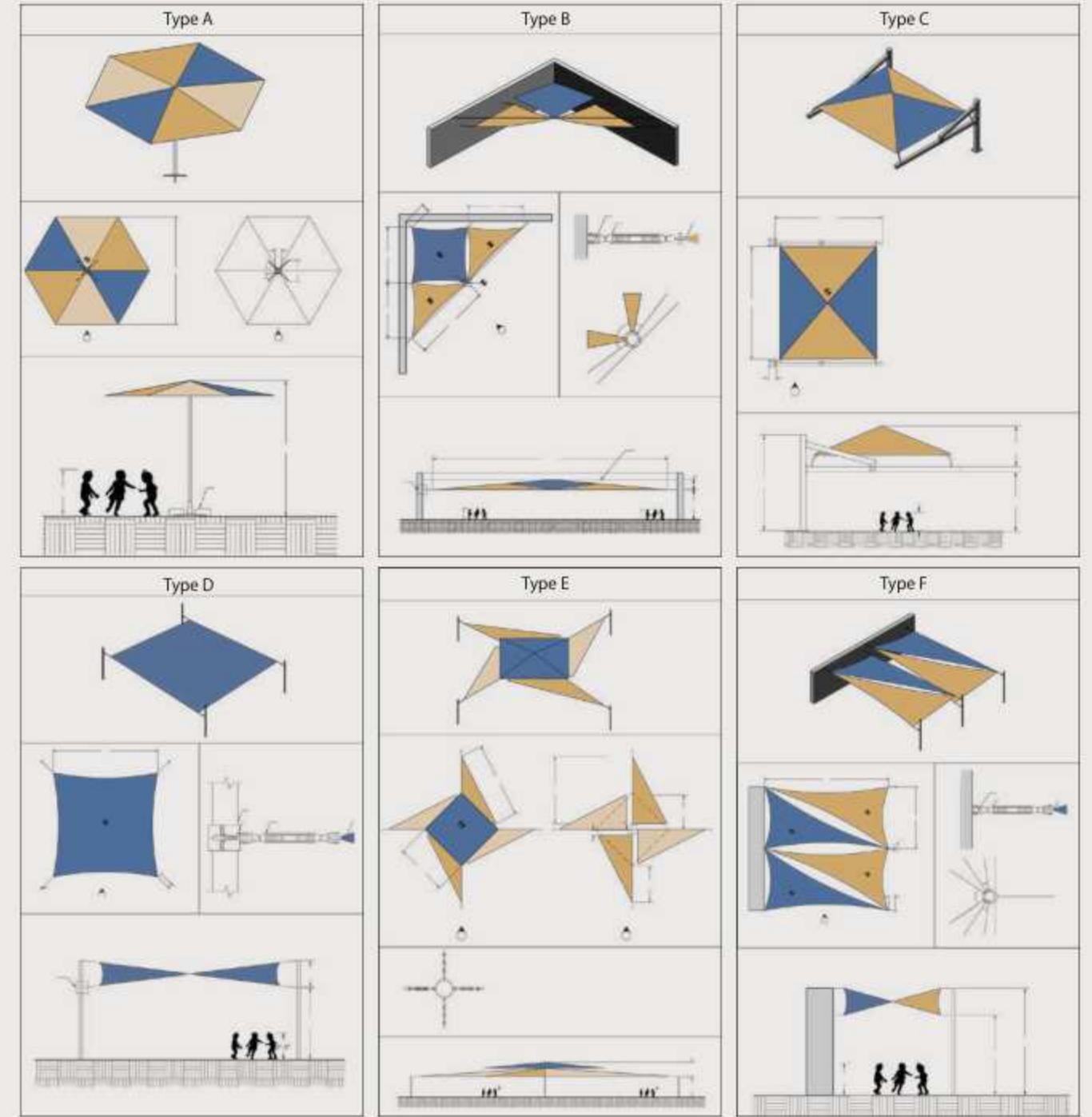
The school's fences are often damaged by community members using the grounds on weekends. Rather than reinforcing barriers, hosting community mural events can foster ownership and pride, encouraging residents to protect the fences instead of damaging them.





One of the most visible elements of Learning-Scape is its mural system. Inspired by existing wall paintings, the murals strengthen the identity of Public School 206 while integrating ground-based wayfinding, game zones, and spatial markers that assist faculty with crowd control.

The project also explores using scrap materials as fence ornaments through a community mural event. By inviting local residents to decorate the fences with repurposed neighborhood materials, the project fosters participation, stewardship, and environmental sustainability without relying on newly manufactured



Shade structures were a key component due to their visual impact and regulatory constraints. After evaluating options from parasols to post-and-fabric systems, a cantilevered design was selected to avoid ground posts that could pose safety risks. This option also provided the greatest shading capacity, satisfying both faculty and students.





08

2018 ~ 2025  
Miscellaneous  
Individual Projects

## Other Work

This chapter presents additional projects that showcase the writer's skills, critical thinking, and creativity. While architecture is practical, experimentation with form, style, color, and texture is essential, highlighting the value of exploring with diverse inspirations.

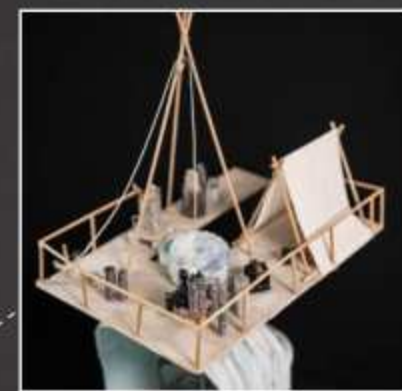
PADI: Project A.W.A.R.E



Professional Association of Diving Instructors (PADI) is one of the world's largest and most active scuba diving organizations. One of its core initiatives, Project A.W.A.R.E., focuses on marine conservation through rescue of entangled wildlife, removal of hazardous underwater debris, and support for related research.



As a PADI-certified diver, the writer created a sculpture from discarded plastics and electronics to express the project's mission. The work depicts public safety divers cleaning a polluted, confined body of water, highlighting the importance of marine stewardship.

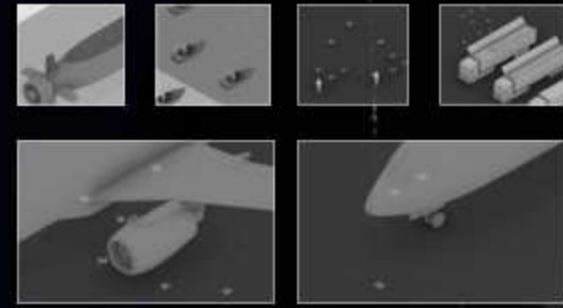


The imagined site is a confined body of water filled with industrial waste, retrieved and removed by divers operating from the deck above. Divers are equipped with double tanks, enabling longer underwater duration with reduced risk of nitrogen narcosis.



Divers operate in teams of three to ensure mutual safety and remove large debris, while at least two surface crews monitor and record each diver's underwater time.

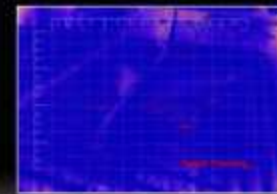
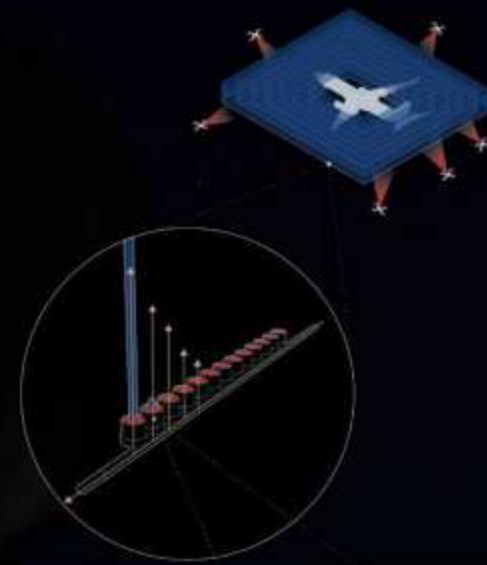
## Aviation Counter-Drone System



As drones become more capable, new security risks have emerged, particularly attacks using small, agile drones launched from blind spots to overwhelm conventional defenses. This project proposes a wide-area counter-drone strategy that can be implemented using existing technology.

Water jets from the outlets rise over 15 meters and overlap at each station, forming a protective shield around the aircraft.

The nozzles are regularly cleaned and tested during training to prevent wildlife nesting or debris buildup that could impair operation in an emergency.



The sprayed water forms a curtain that both physically shields the aircraft and disrupts AI-based object recognition when paired with underlighting. By adjusting water temperature, the system also confuses heat-seeking drones, much like flares divert missiles from fighter jets.

When a threat is detected, the control room triggers a simultaneous release, sending high-pressure water jets through the plastic caps.



This airport drone defense system uses spray nozzles installed around parking stands and along the runway, allowing fully boarded aircraft to be rapidly protected during taxiing and takeoff preparation.

## Anthropology as in Furniture



Humans have evolved over roughly seven million years and continue to do so, and furniture has followed a similar trajectory. From tree trunks to wooden chairs, it has progressed toward increasingly practical forms, eventually incorporating materials such as paper and fiberglass.

This sculpture explores the idea by juxtaposing three chair styles, each representing a different period in human history.

## Tessellation: Elevation



Understanding different interior wall designs is essential to creating dynamic spatial compositions. This exercise explores wall designs in two dimensions while partially translating them into three dimensions to convey a sense of spatial depth.

## Ritual & Sacrifice: Sailor to Captain



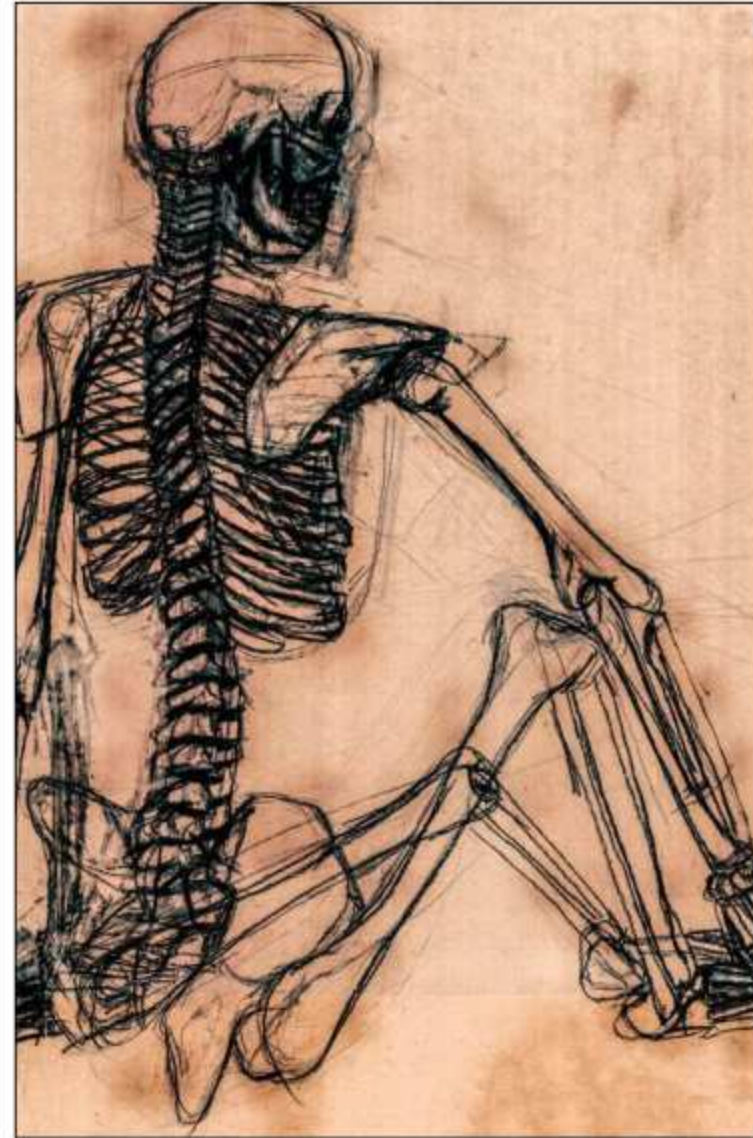
This creative storyboard exercise strengthens storytelling, visualization, and preparation for film production conducted in the first year drawing class.

## Creative Drawings



Graphite and pencil, 1-1/2 x 3'

Jesus, as the "Son," was born in a humble cottage, foreshadowing a life destined for sacrifice in order to redeem humanity from death. This imaginative drawing exercise represents the cardinal biblical crux by visually augmenting the immense spiritual weight of his fate.



Graphite and pencil, 3 x 5'

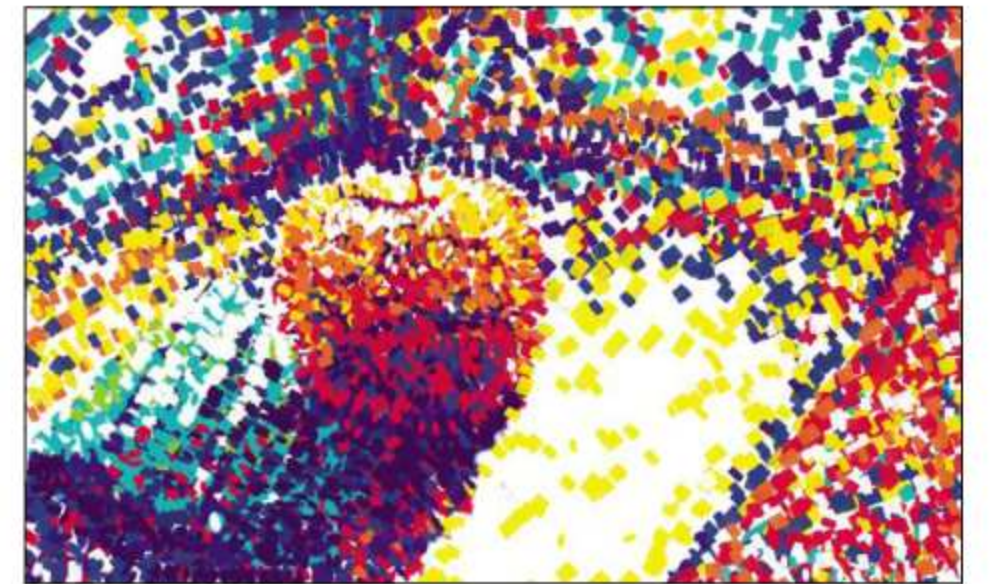
Anatomy is fundamental not only to sculpture and painting but also to design. This exercise depicts individual bone mechanics, enabling a deeper understanding of how the body functions as an integrated, dynamic system.

## Observation Paintings



Watercolor and acrylic on a cardboard, 1-1/4 x 2'

Alleys are composed of diverse systems, mechanisms, and objects. This painting exercise reflects an understanding of these varied components and their relationships.



Digital Painting, 10 X 14"

This painting exercise challenged students to move beyond literal observation and create a still life composed entirely of pixels.



Acrylic, 8-1/2 x 11"

This painting exercise deepened understanding of color channels (RGB, CMYK, and tone) by deconstructing a famous painting and reinterpreting it through each system.