



# ALEC RODRIGUEZ

# PORTFOLIO

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# CASA LUCERNA 01

Residential – Courtyard Housing  
(St. Augustine, NE-II-60 zoning project with required courtyard)









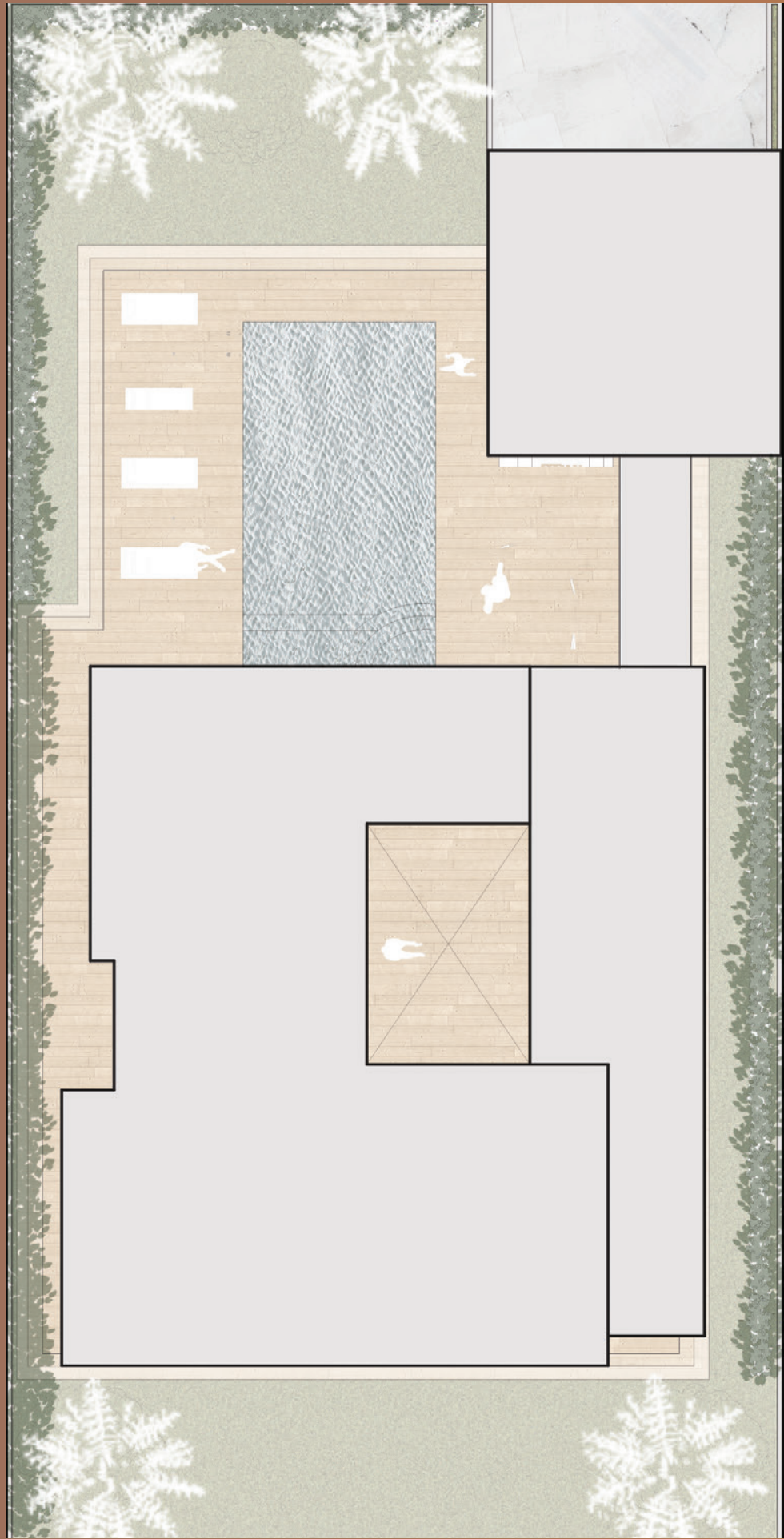






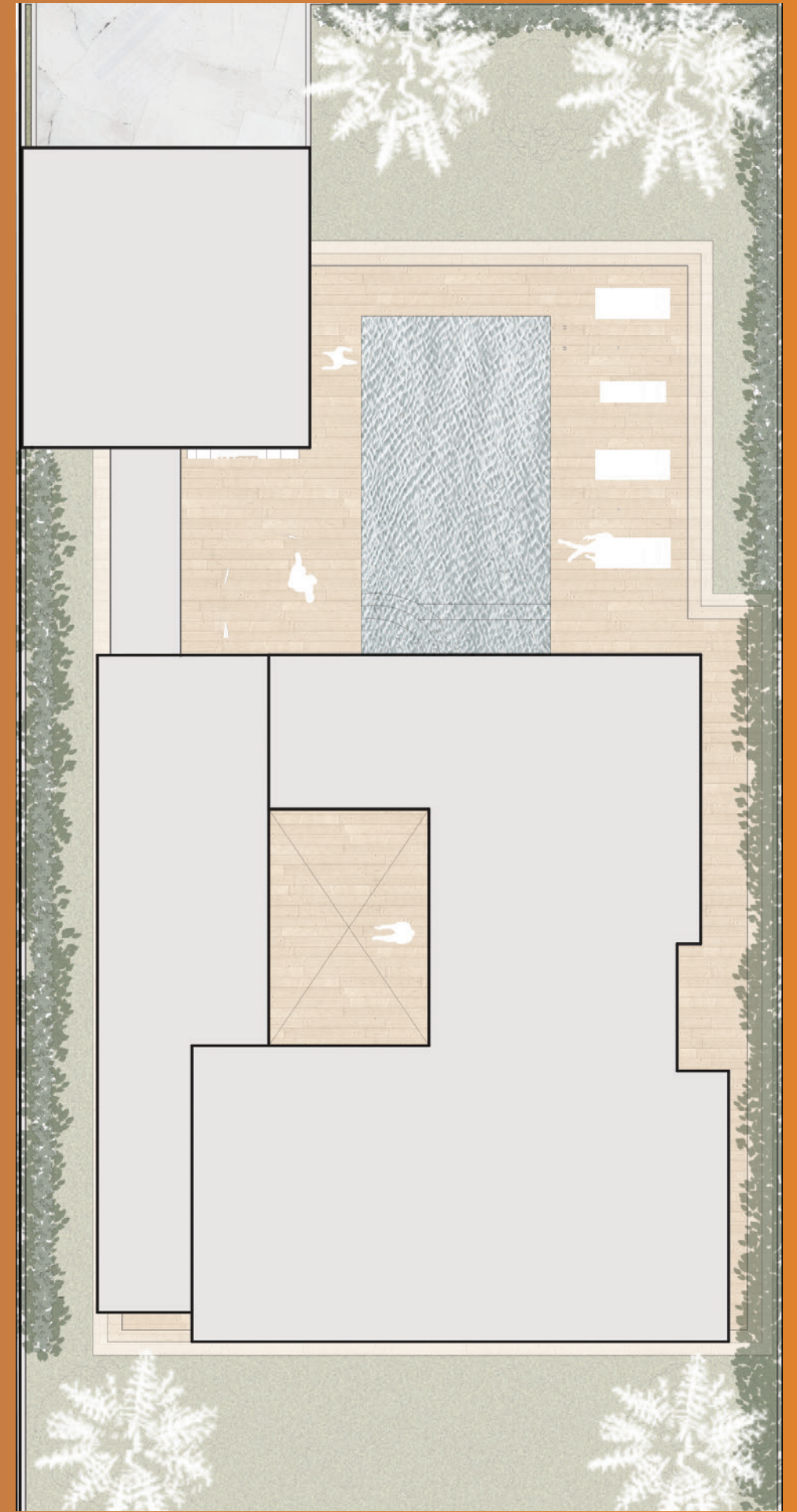




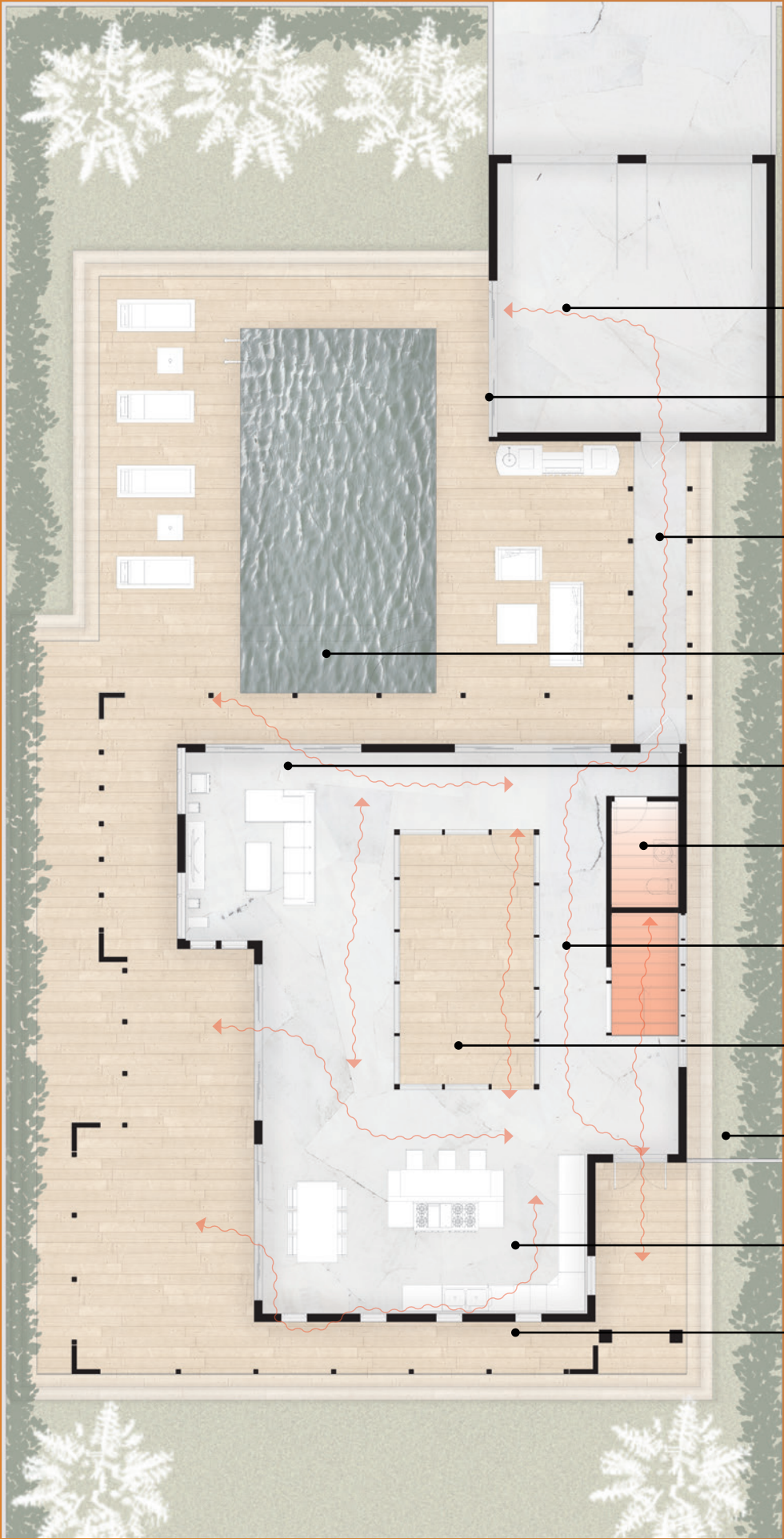


# COURTYARD LIVING

**NE**  
**CII**  
**60**



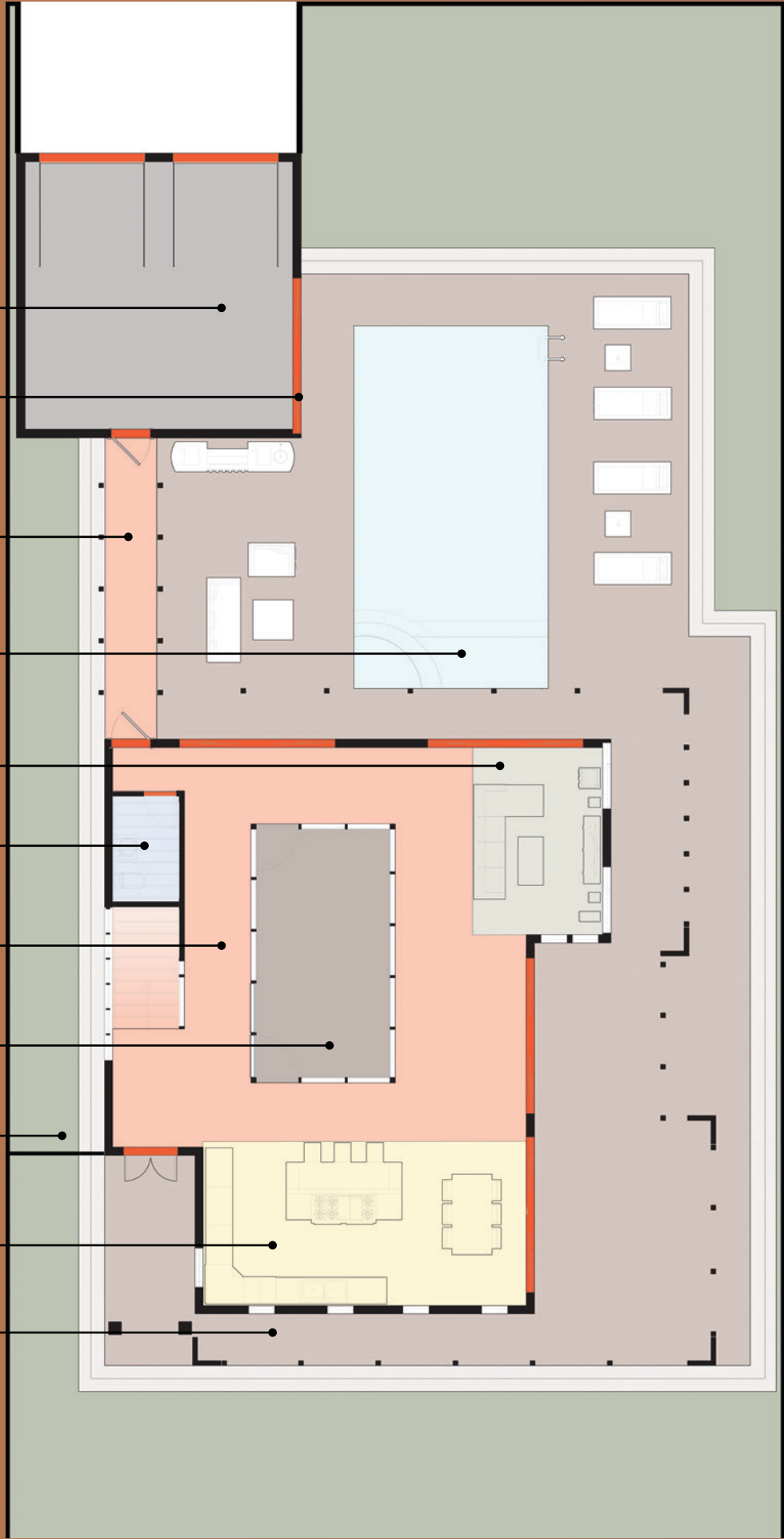




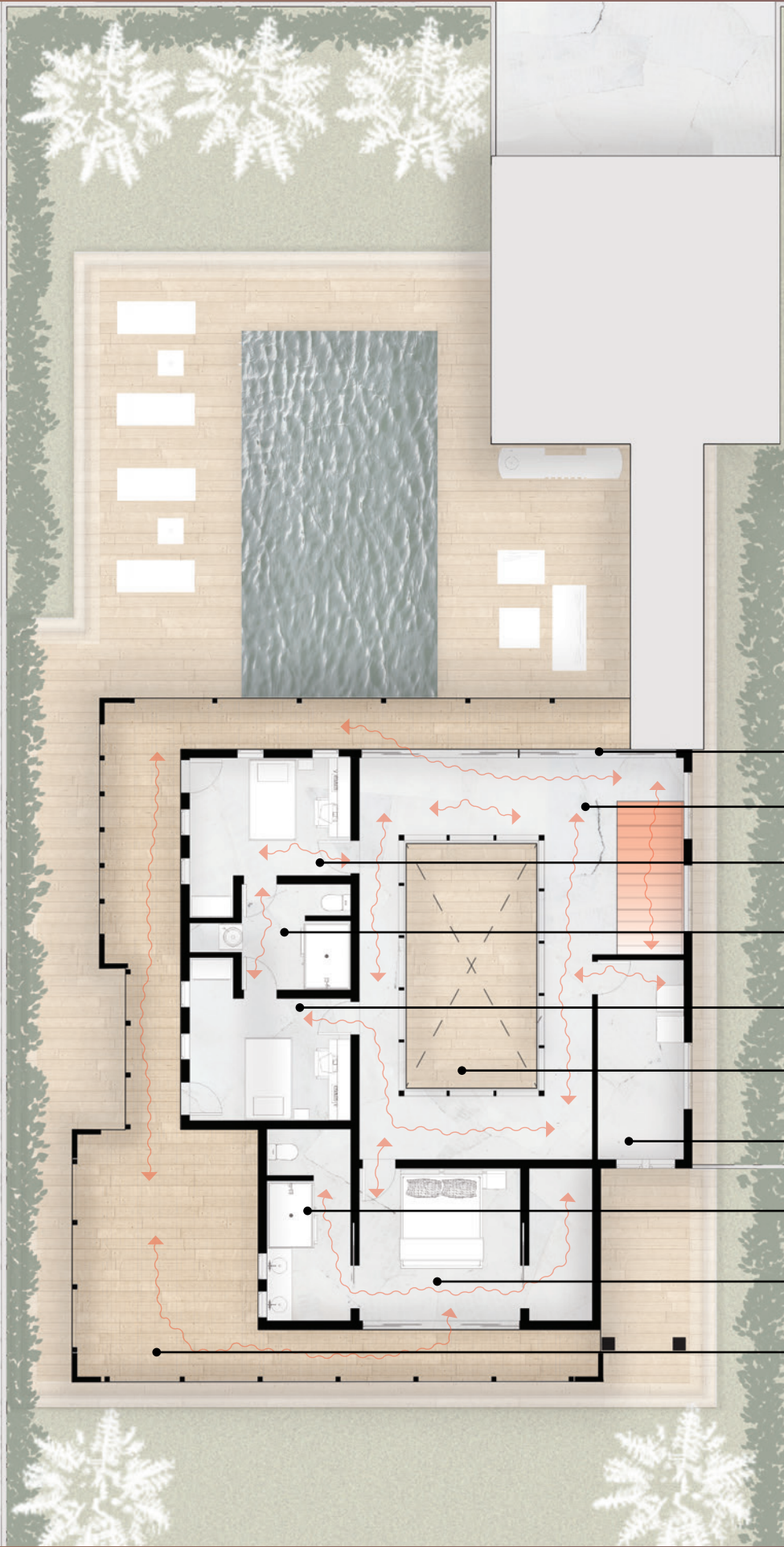
# PROGRAM FLOOR 1

- GARAGE**
- DOORS**
- CIRCULATION**
- POOL**
- LIVING ROOM**
- BATHROOM**
- CIRCULATION**
- COURTYARD**
- GREENERY**
- KITCHEN + DINING**
- PATIO**

**1,058 SQFT**



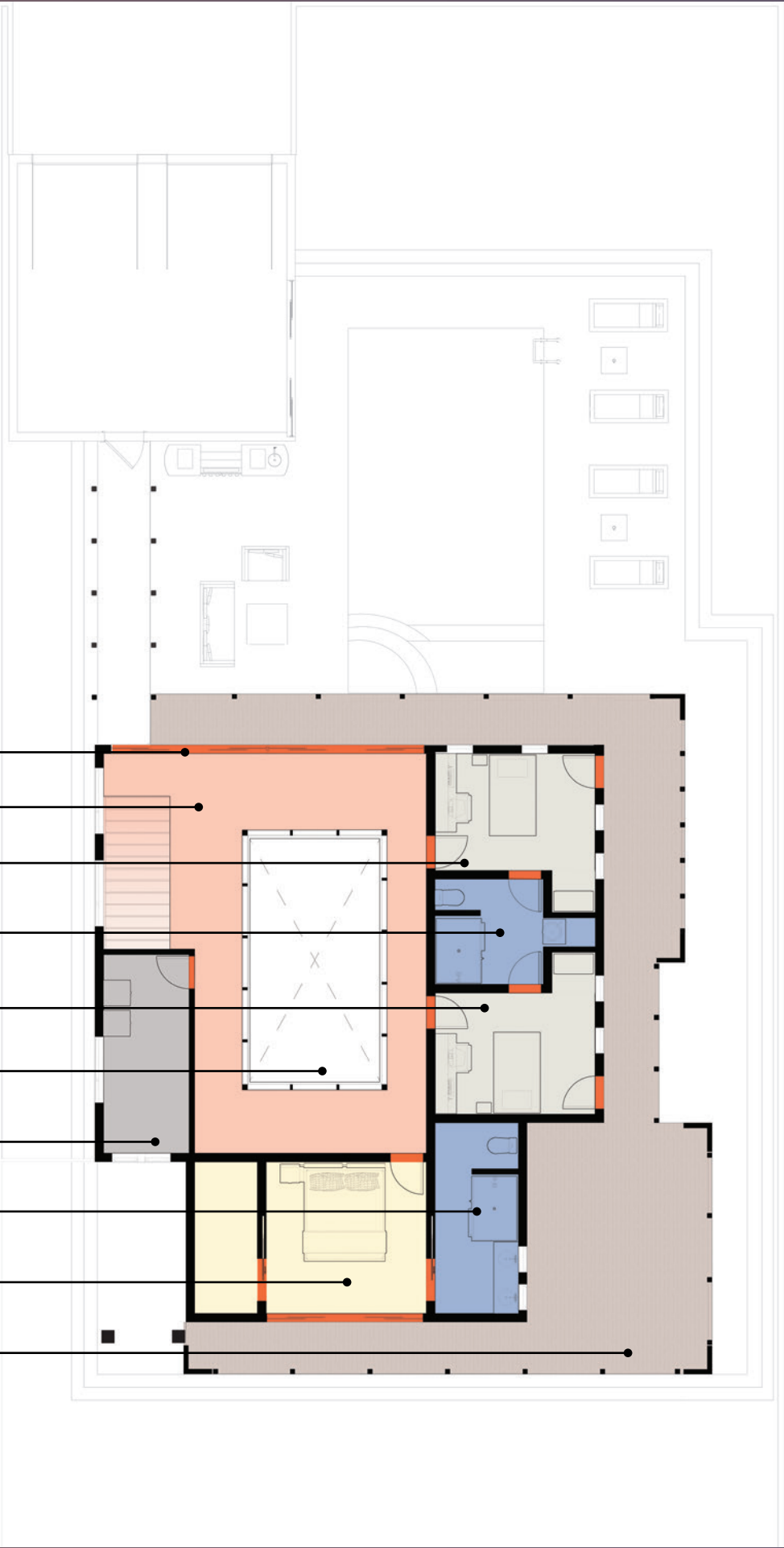




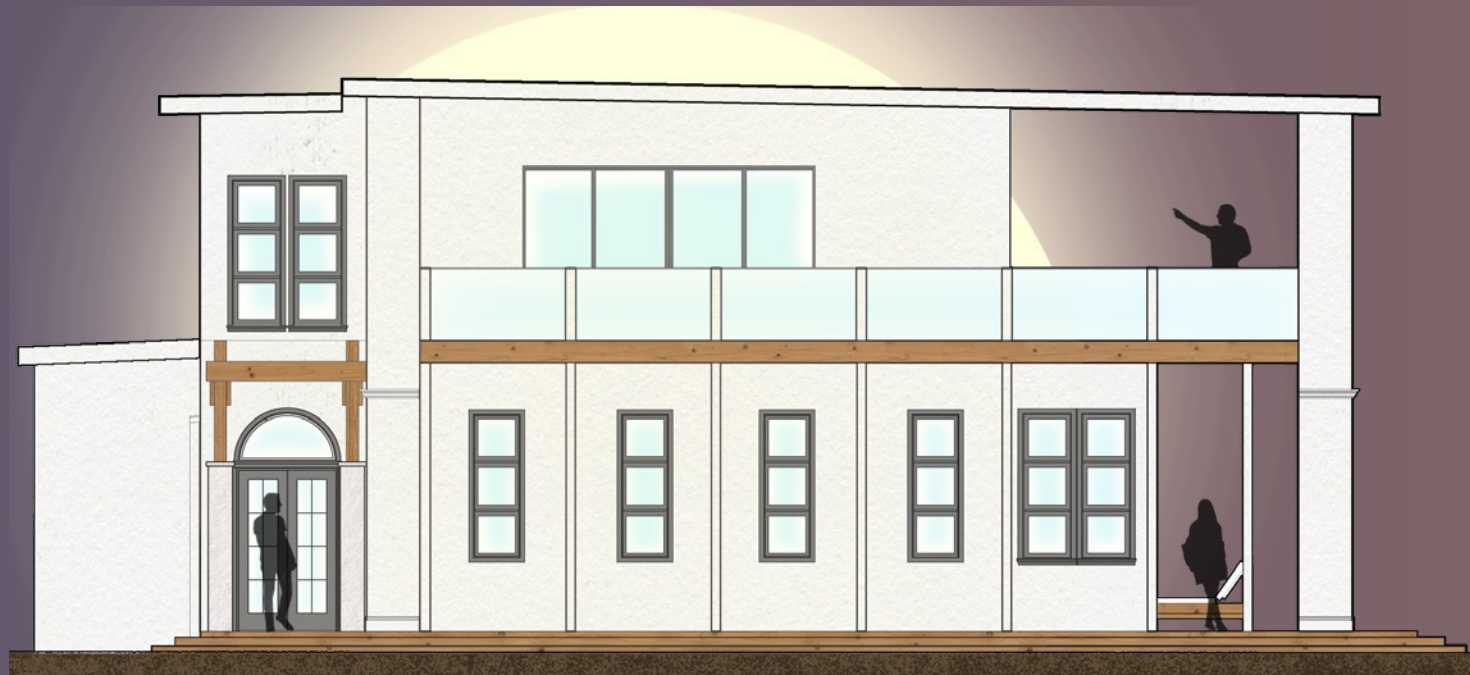
# PROGRAM FLOOR 2

|  |                          |
|--|--------------------------|
|  | <b>DOORS</b>             |
|  | <b>CIRCULATION</b>       |
|  | <b>BED 1</b>             |
|  | <b>J&amp;J BATH</b>      |
|  | <b>BED 2</b>             |
|  | <b>OPEN COURTYARD</b>    |
|  | <b>LAUNDRY + STORAGE</b> |
|  | <b>MASTER BATH</b>       |
|  | <b>MASTER BED</b>        |
|  | <b>PATIO</b>             |

**1,175 SQFT**







# ELEVATIONS

















# PERCH HOUSE

## 02

Residential – Sustainable Micro-House  
(Portugal, under 600 sq ft, sustainable materials, 3D-printed concrete)







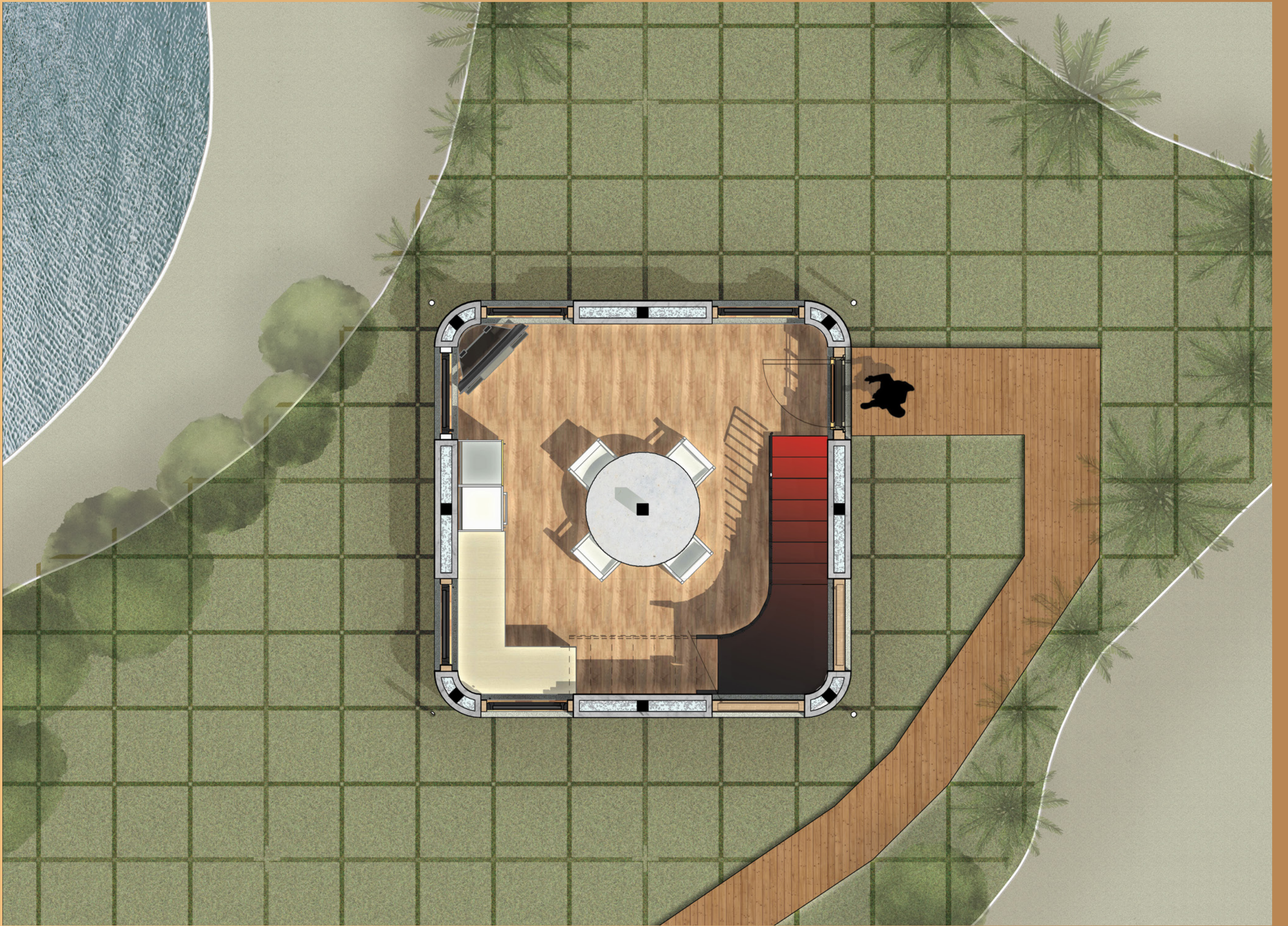








# FLOOR 1

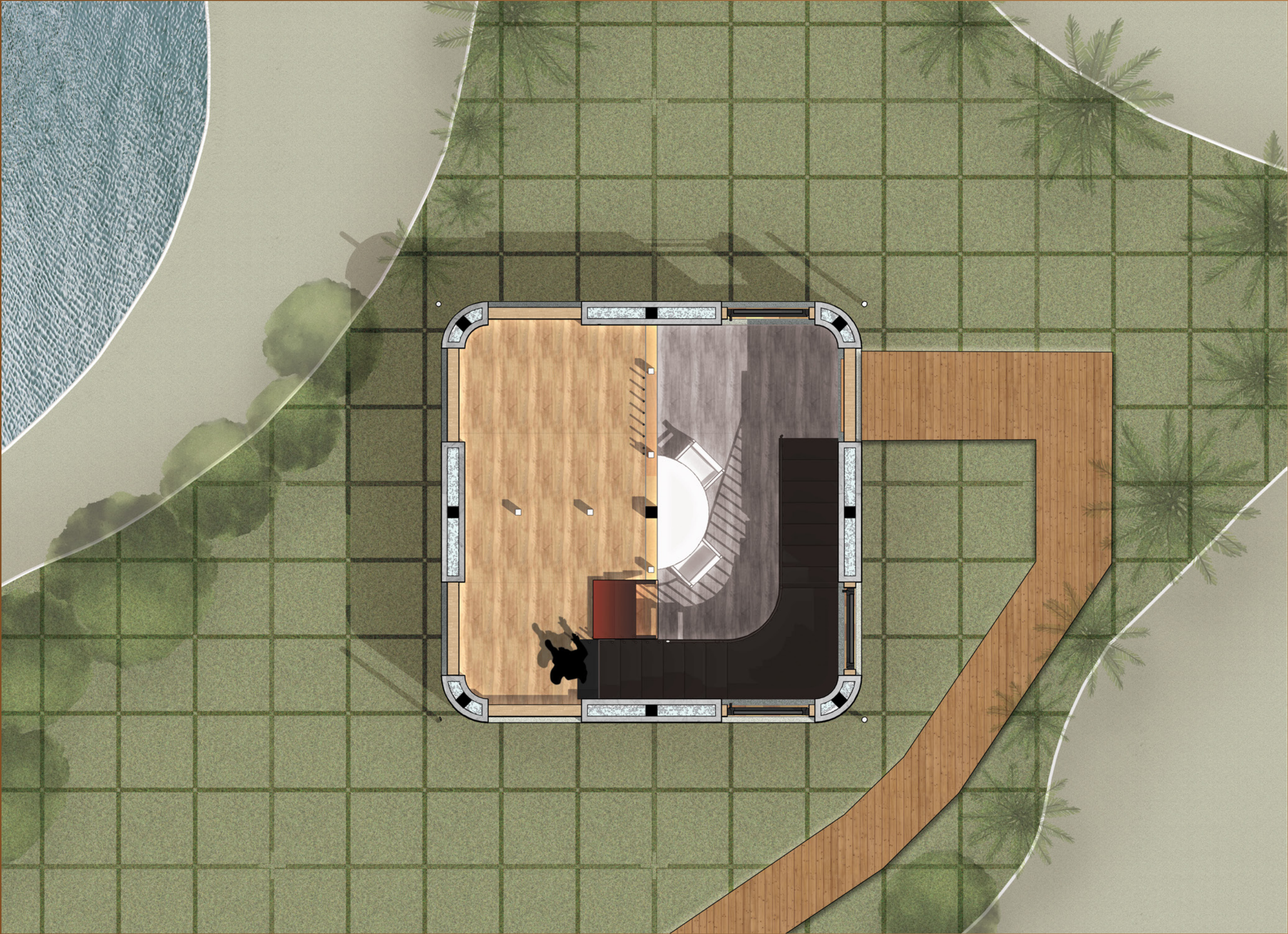








# FLOOR 2









# FLOOR 3

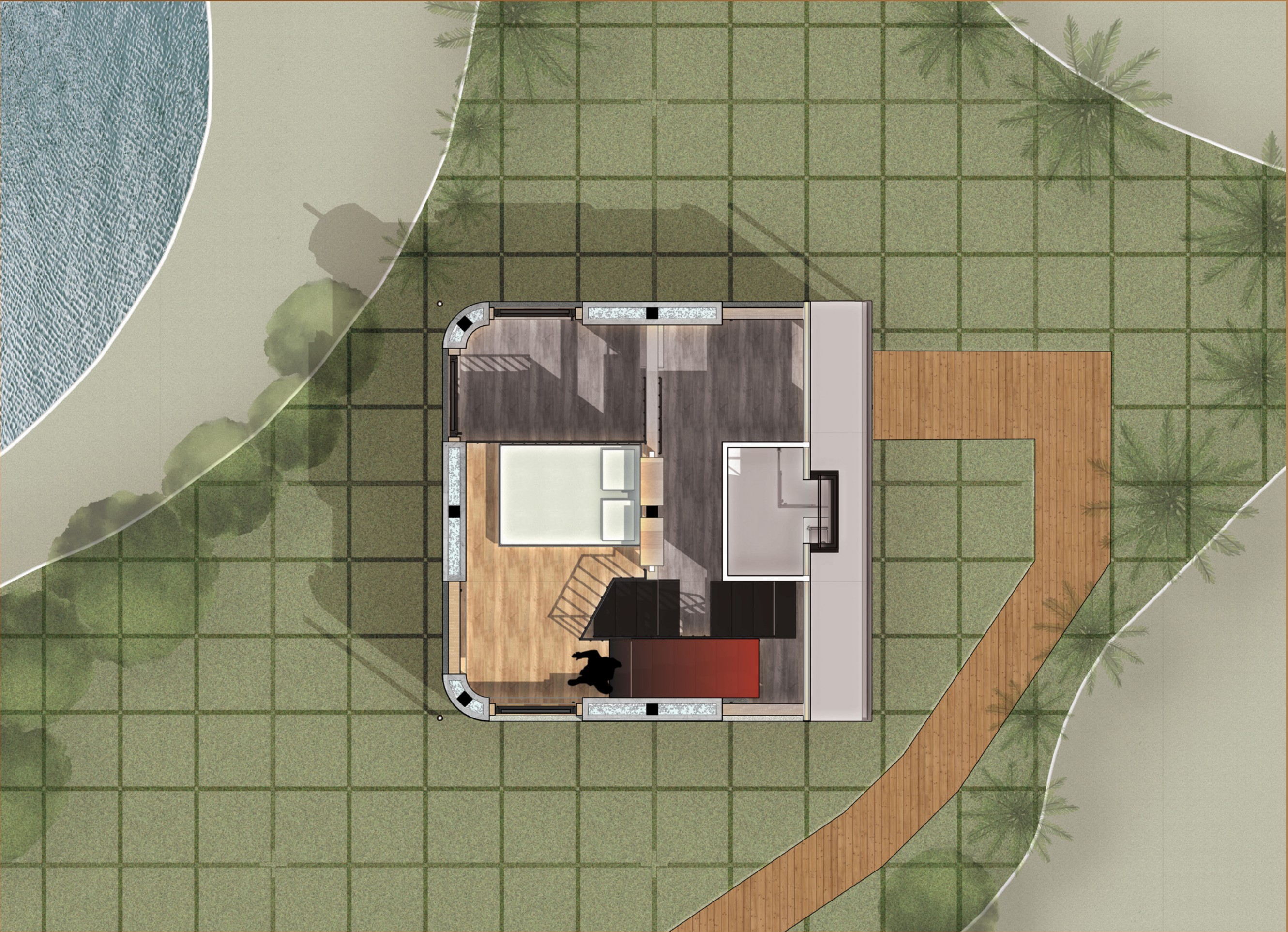








# FLOOR 4

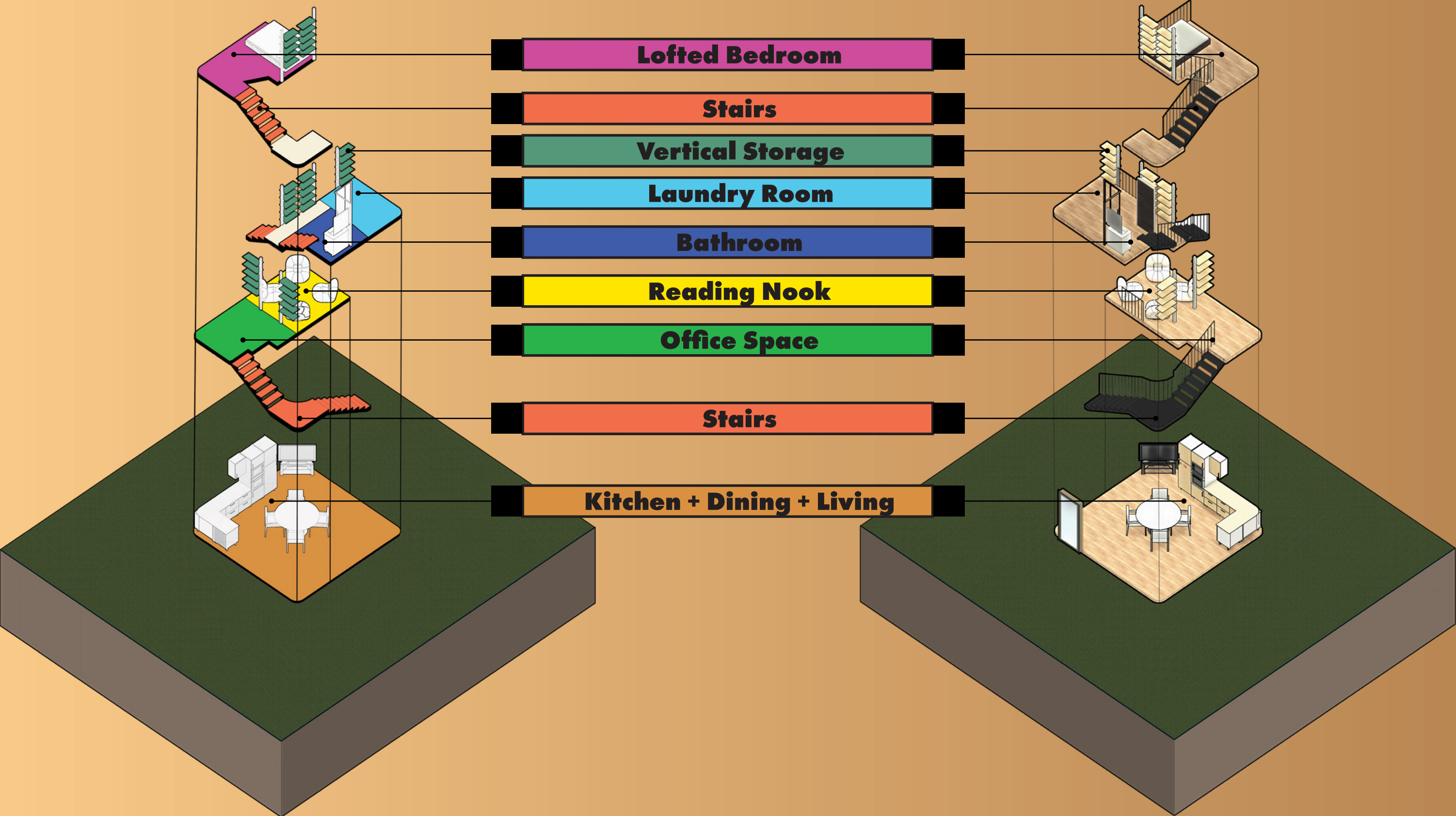






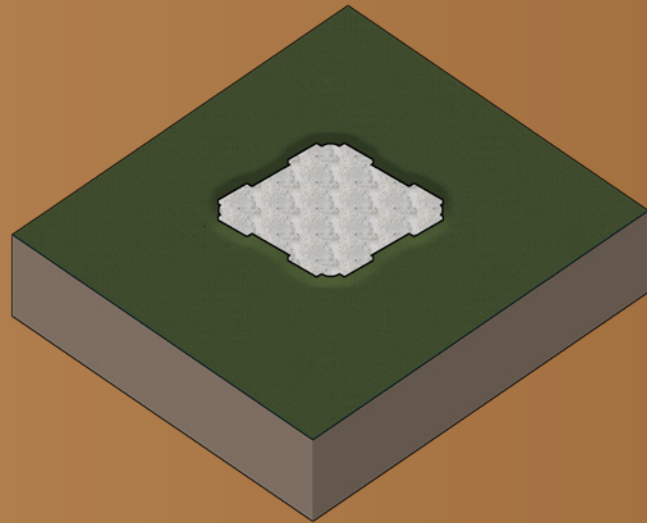


# EXPLODED AXONOMETRIC





1.



## 1.Foundation

Construction begins with a reinforced concrete slab foundation, poured and leveled to match the 16×16 ft footprint. Steel plates and anchor bolts are embedded in key locations to support future column connections and service conduits.

## 2.3D-Printed Concrete Walls

Using a robotic arm, 3D-printed concrete walls are constructed directly on the slab. Each wall is formed as a dual-shell system with a 6-inch cavity, which is later filled with rock wool insulation.

## 3.GLT Columns

After wall printing, Glue-Laminated Timber (GLT) columns are installed inside the cavity between the concrete shells. These 6×6 inch vertical supports are anchored to the foundation plates and fastened at key floor levels, providing structural integrity for the multi-story build.

## 4.CLT Wall Panels

Where solid enclosure or operable openings are required, Cross-Laminated Timber (CLT) wall panels are inserted between printed walls. These panels reduce thermal bridging, provide surface rigidity, and support window and shelving installations.

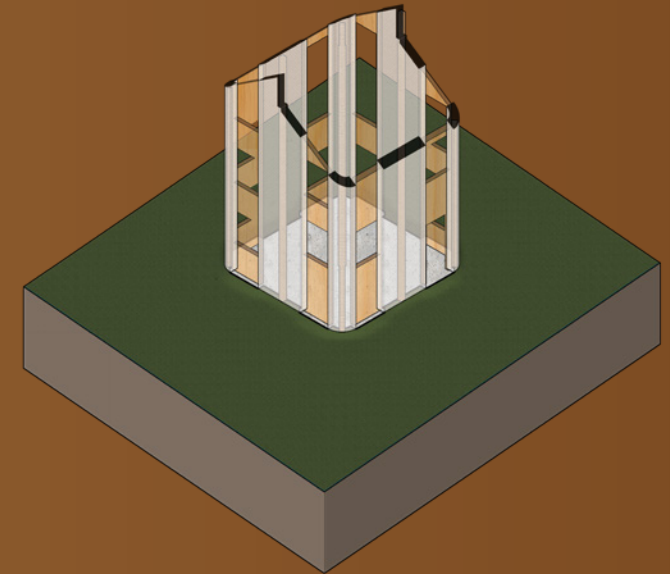
## 5.CLT Floor Plates

CLT floor slabs are craned in and dropped onto pre-installed steel seat plates or custom brackets connected to the GLT columns. These panels form each interior platform and are precisely cut to allow for stair openings and vertical storage walls.

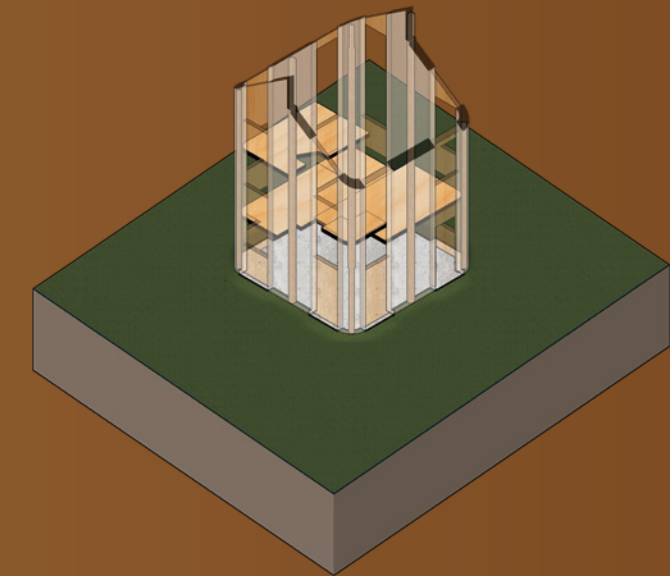
## 6.MEP Systems / Roof Assembly

Mechanical, Electrical, and Plumbing systems are routed through the insulated concrete cavity, within CLT cores, or along soffit runs as needed. The structure is capped with a pitched CLT roof framed to support operable clerestory windows at its peak. These allow rising hot air to escape, completing the passive stack ventilation loop. A standing seam metal roof finish is applied for durability and climate resilience.

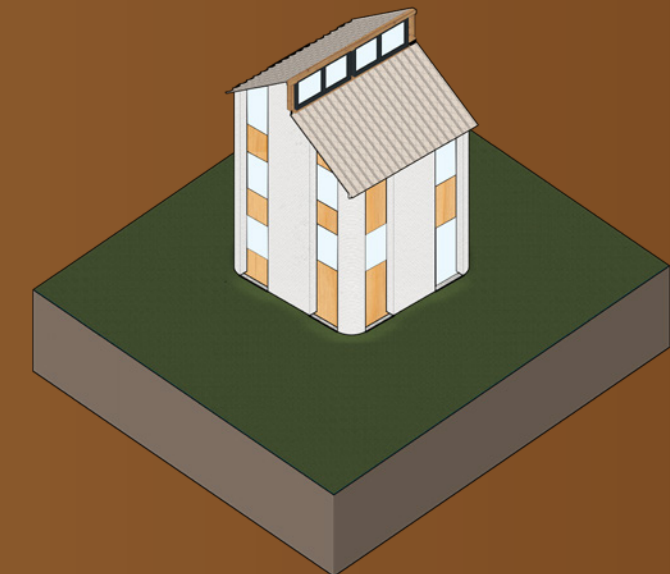
4.



5.



6.





# WEST



## Materiality, Elevation, Passive Ventilation

The primary structure is **defined by 3D-printed concrete walls**, which provide thermal mass, sculptural expression, and modular precision. These walls are **printed with a double-shell system**—two concrete layers separated by an internal cavity—allowing for integrated insulation and concealed structure. Within this cavity, **GLT (Glue-Laminated Timber)** columns provide vertical support, while **CLT (Cross-Laminated Timber)** panels are used for floors and selected interior and exterior walls, offering both structural performance and a warm, tactile quality. The combination of white concrete and light timber creates a soft yet grounded aesthetic, especially apparent in the elevation drawings where the contrast between printed texture and smooth wood infill is clearly articulated.

The elevations reflect a **vertical stacking strategy**, with each floor plate offset slightly to create overhangs, and spatial variation. This shifting massing also facilitates strategic placement of operable windows for cross-ventilation and daylight control. Openings are positioned to respond to solar orientation, framing views while minimizing unwanted heat gain. The **light-colored materials** further reduce thermal absorption, keeping the structure cool during peak daylight hours.

# SOUTH





# ENVIRONMENTAL AFFECT

**MONTH**      **AVERAGE H**      **AVERAGE L**

December      8°C / 46°F      14°C / 57°F

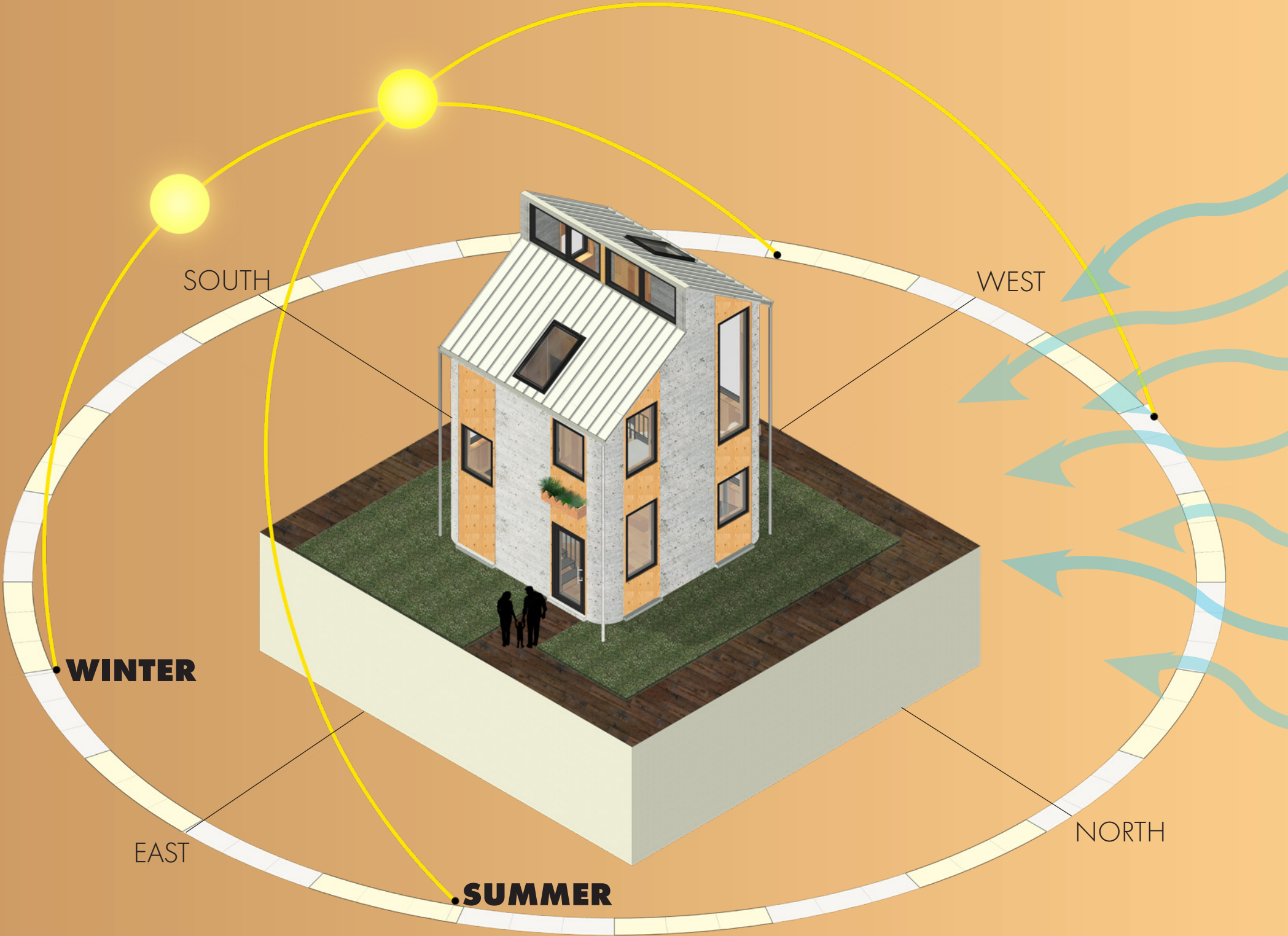
January      7°C / 45°F      13°C / 56°F

February      7°C / 45°F      14°C / 57°F

June      15°C / 59°F      23°C / 73°F

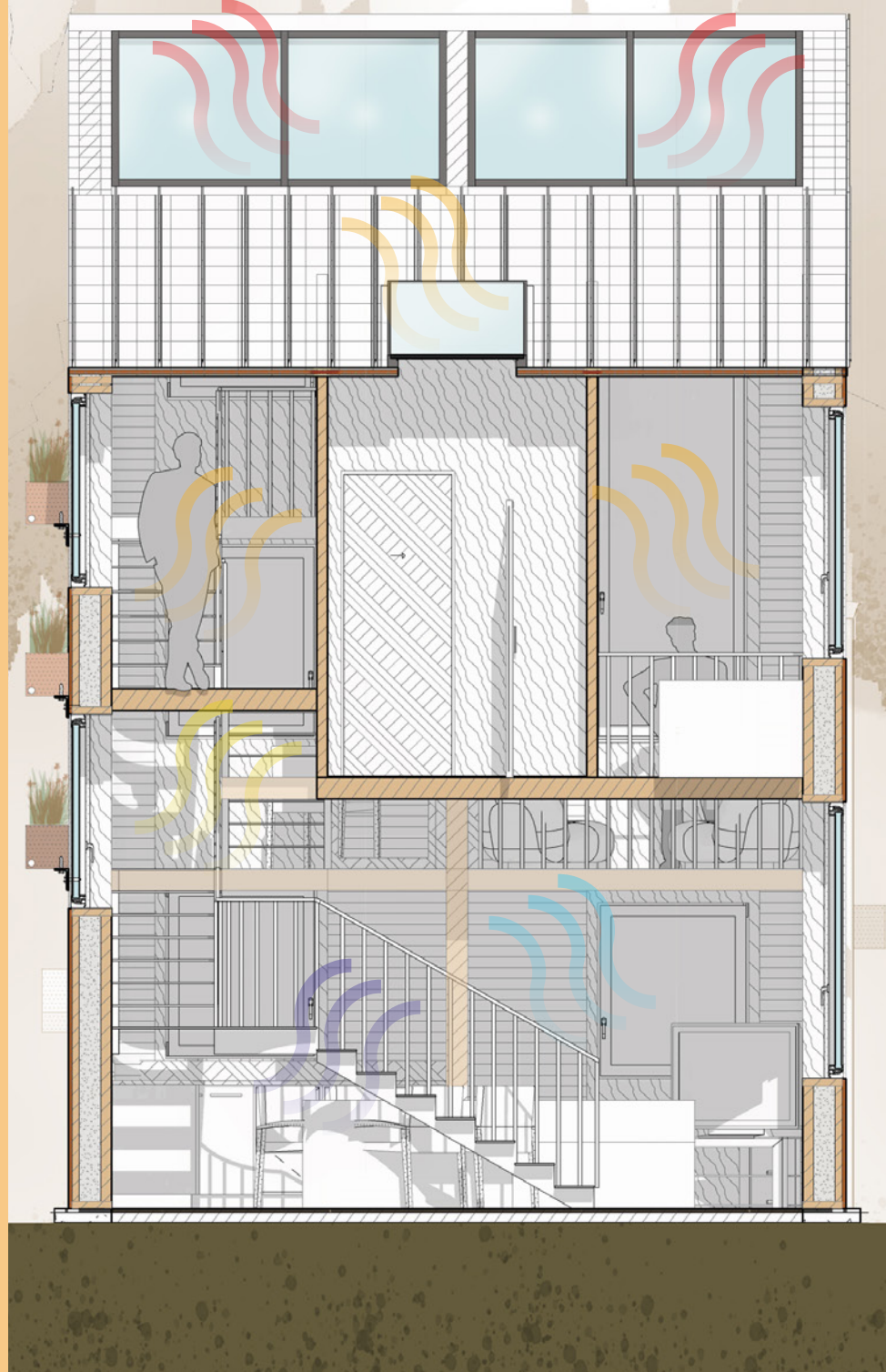
July      17°C / 63°F      25°C / 77°F

August      17°C / 63°F      26°C / 79°F





# EAST

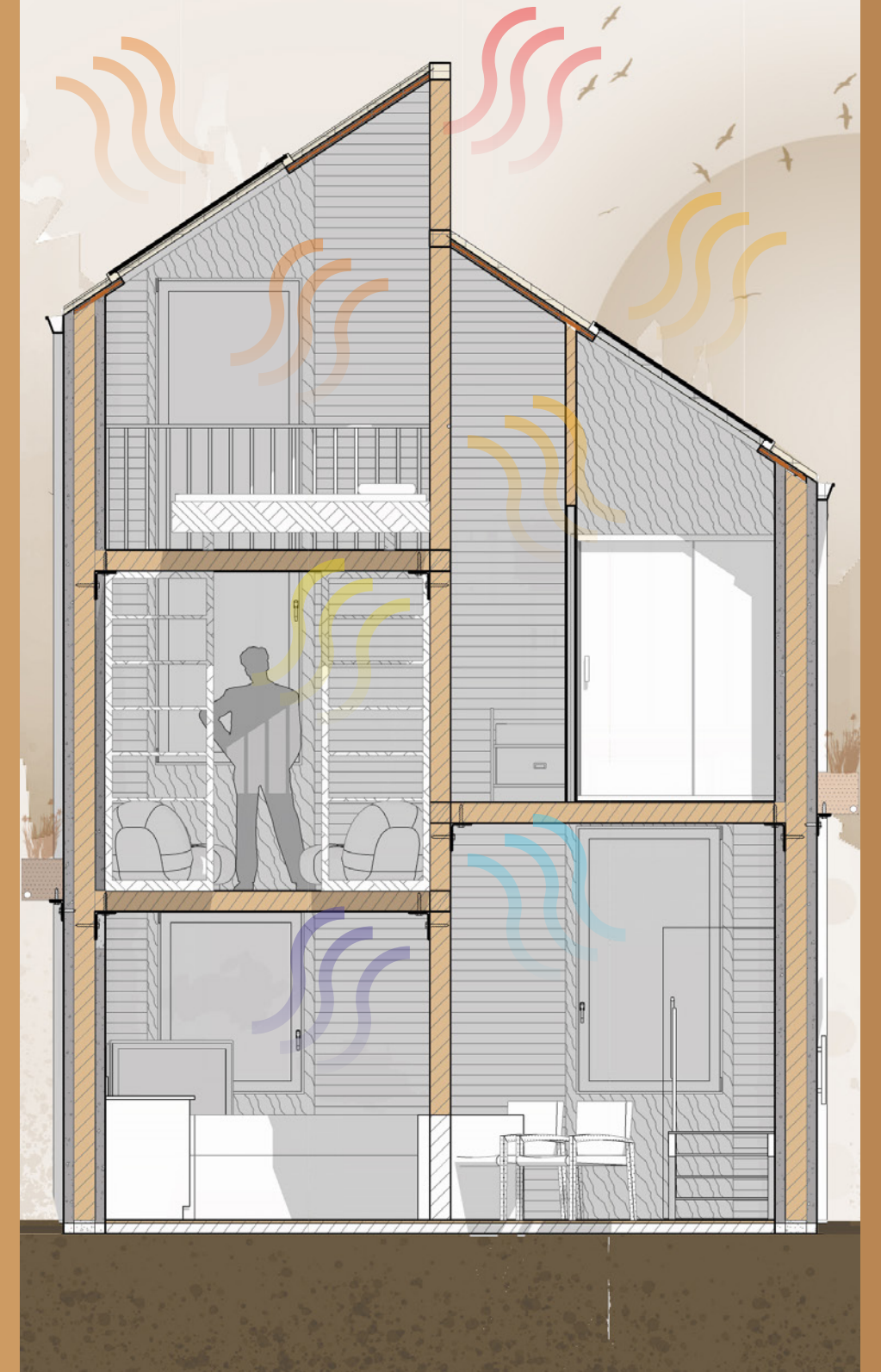


## Materiality, Elevation, Passive Ventilation

In section, the vertical logic of the project is expressed through its **stacked platforms** and a centrally organized ventilation core. The building encourages natural airflow through the **stack effect**: as interior spaces warm, hot air rises through the stairwell and open volumes, collecting beneath the pitched roof. At the apex, **operable clerestory windows** **allow this hot air to escape**, drawing cooler air from lower openings and **enabling a constant breeze**. This passive cooling system **minimizes mechanical intervention**, which is especially effective in the warm, dry climate of Portugal.

Between levels, a series of **shelving walls** **double as vertical partitions and built-in storage**, taking advantage of the compact footprint by activating every inch of **vertical space**. These open storage walls not only organize the home but also maintain visual porosity and airflow continuity, **allowing wind to move freely between platforms and across the structure**. By combining structure, storage, and ventilation, the design transforms a small volume into a high-performing, breathable living system, responsive to both climate and human use.

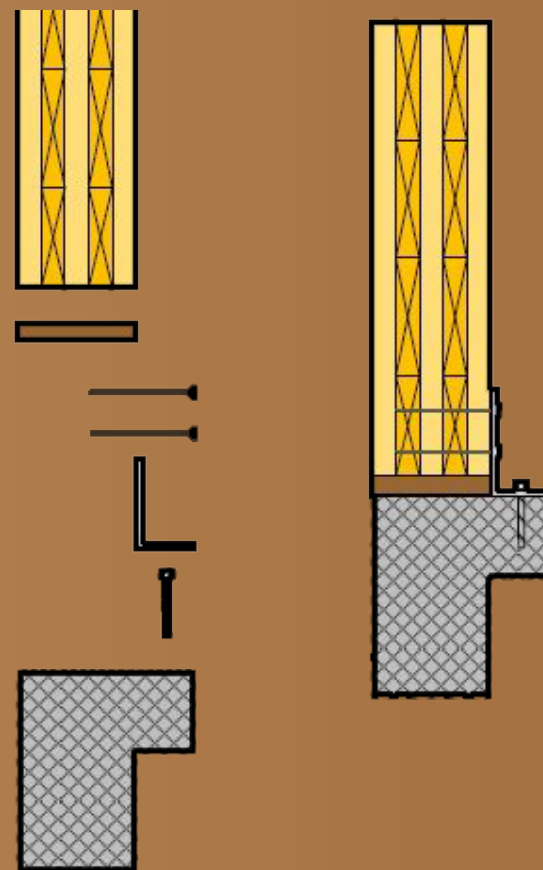
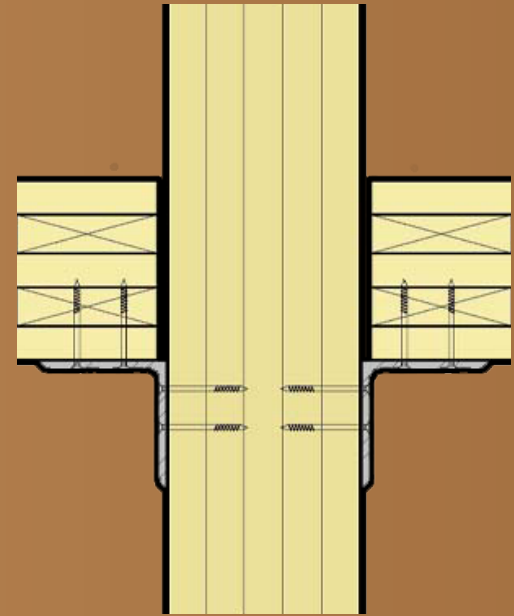
# SOUTH





# DETAILS & PRACTICALITY

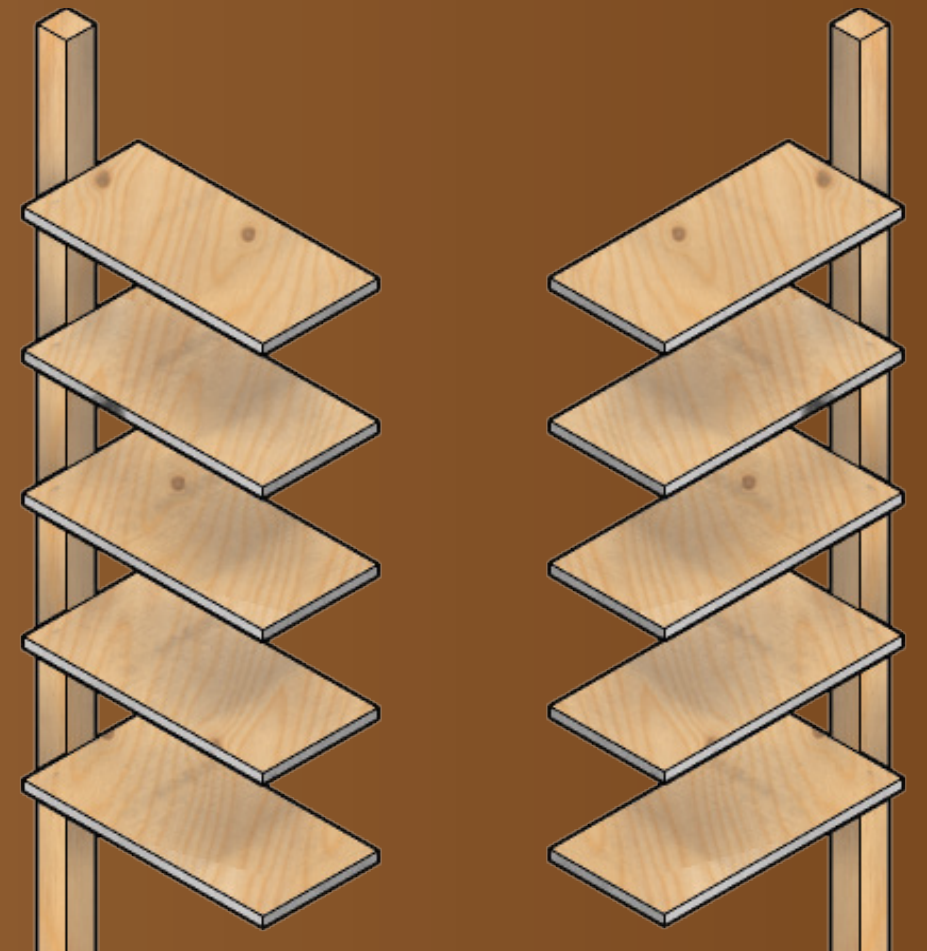
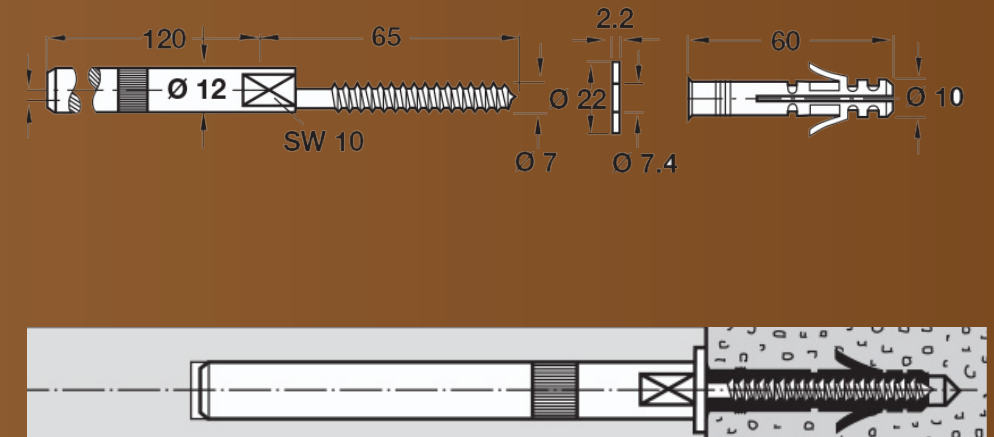
Wall To Foundation / Function Assembly



Section / Function Assembly



Vertical Storage / Function Assembly







## ABOUT ME

I am a graduate architectural designer who thrives at the intersection of creativity, persistence, and purpose. Architecture, for me, has always been more than drawings and buildings—it is a way of connecting people to place, designing spaces that are both responsive to the environment and meaningful to the communities they serve.

My academic path reflects that same drive. I completed a five-year Bachelor of Architecture degree in just four years at the University of Miami, a journey that included an immersive semester abroad in Rome, where I deepened my appreciation for how history and modernity can coexist in the built environment.

Balancing a full course load with working 25–35 hours a week taught me discipline, resilience, and how to manage responsibility under pressure without losing sight of creativity.

I bring curiosity and adaptability to every design challenge. I’ve developed strong command of tools like Revit, Rhino, AutoCAD, and the Adobe Suite, but I see technology as only one part of the equation. My interests lie in sustainable design—whether it’s exploring off-grid housing prototypes with 3D-printed concrete, reimagining historical typologies for modern collective living, or designing housing that fosters both privacy and community.

Beyond architecture, I am someone who believes in versatility and creative expression. My background in Division I basketball taught me leadership, teamwork, and perseverance, while my journey as an independent music creator sharpened my storytelling, branding, and public speaking skills. These experiences—whether on the court, behind design software, or on stage—shape how I approach design: with focus, collaboration, and a vision that bridges disciplines.

At my core, I am a problem-solver who enjoys tackling complex challenges with a balance of logic and imagination. I see architecture as an opportunity to not only build but to inspire—crafting spaces that improve the way people live, work, and connect with one another.