

MYCELIUM MATTERS: THE DESIGN OF A ZERO WASTE RESTAURANT FOR SILO

Project Type: Sustainable Restaurant

Location: 14-16 Stoney St, London SE1 9AD

Area: 724 sqm.

Year: 2025

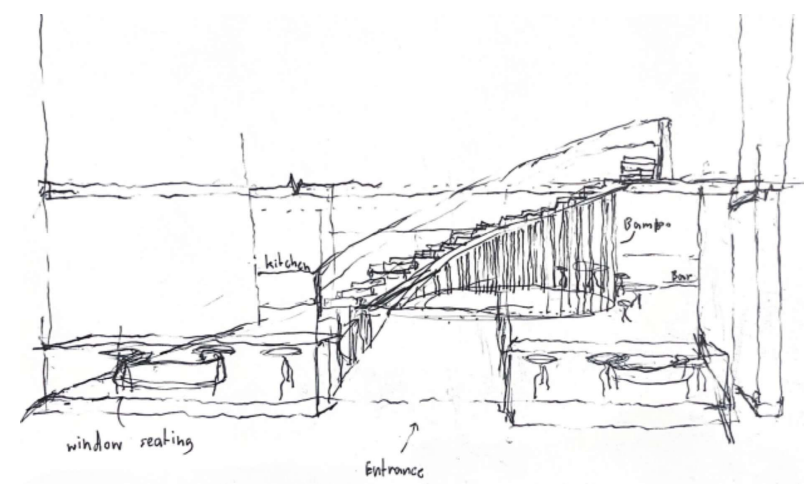
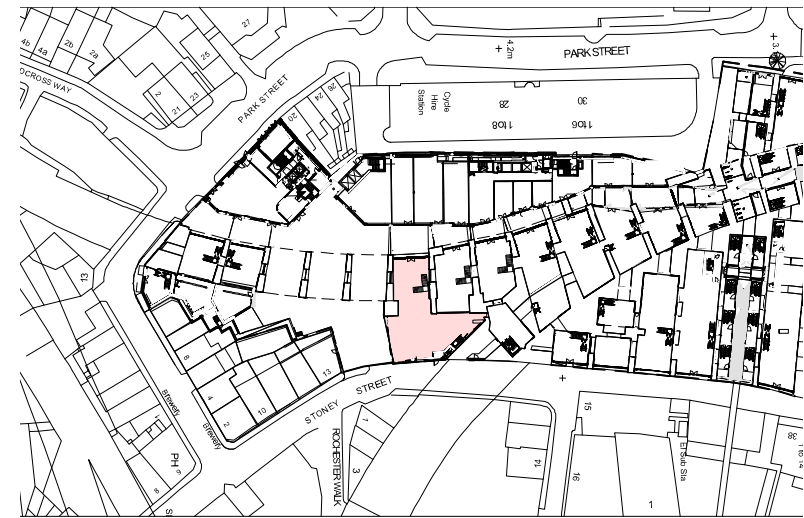
Silo Restaurant Animation

https://youtu.be/Wys_sH2QG0

This project responds directly to the Climate Emergency by rethinking how interior design can actively reduce environmental impact. By renovating the Silo restaurant at Borough Yards using low-impact, renewable materials including bamboo, oakwood, reclaimed timber, and mycelium. Mycelium grows by digesting organic waste materials, such as agricultural byproducts, sawdust, straw, coconut husk, cardboard, and even food waste. These materials act as a substrate (or growing medium), which the mycelium breaks down and binds together as it grows. This process not only transforms waste into a useful material, but it also locks carbon and creates something biodegradable, compostable, and naturally insulating. Mycelium are biodegradable, compostable, waste-derived, lightweight, insulating, non-toxic, moldable, versatile, natural, texturally unique, customizable, renewable, cost-effective, scalable materials and fibrous structure makes it an excellent sound absorber.

The aim of the design significantly reduces embodied carbon and promotes circular material use. The space reflects Silo's zero-waste philosophy, prioritizing reuse, natural finishes, and minimal resource consumption. A key feature is the on-site compost room, which transforms food waste into usable compost—demonstrating a closed-loop system that reduces landfill impact and carbon emissions. The design doesn't just avoid harm; it actively contributes to climate-positive goals through regenerative systems and visible sustainability practices.

Importantly, the project respects the character of Borough Yards while introducing climate-conscious innovation, showing that heritage and sustainability can coexist. Through these decisions, this project positions itself as a thoughtful, practical response to the climate crisis within the context of urban hospitality and adaptive reuse.



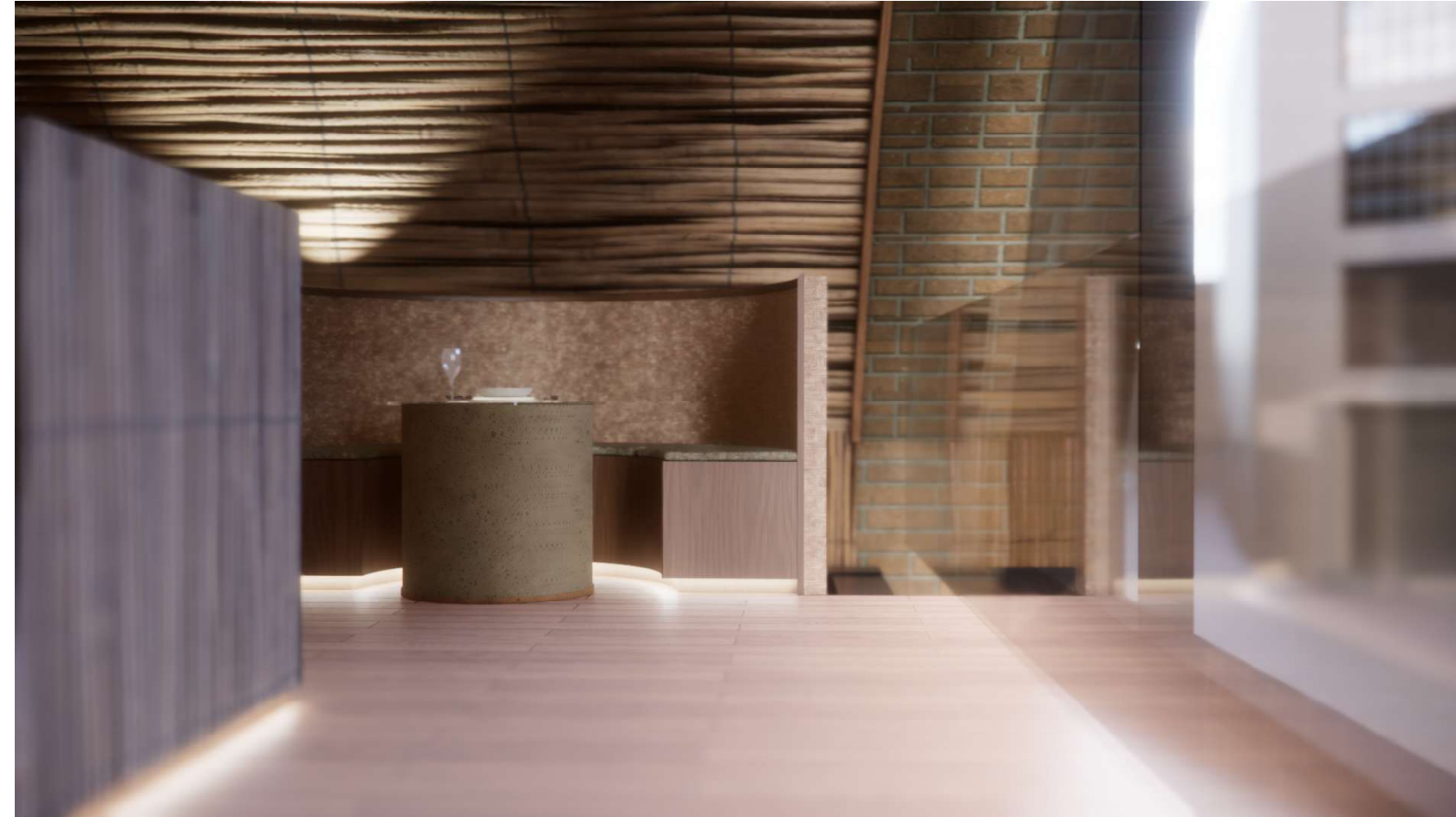
Looking to the Silo Restaurant from Borough Market



Ground Floor - Looking to Bamboo Staircase



First Floor - Mezzanine Dining Area



Clink Yards Elevation

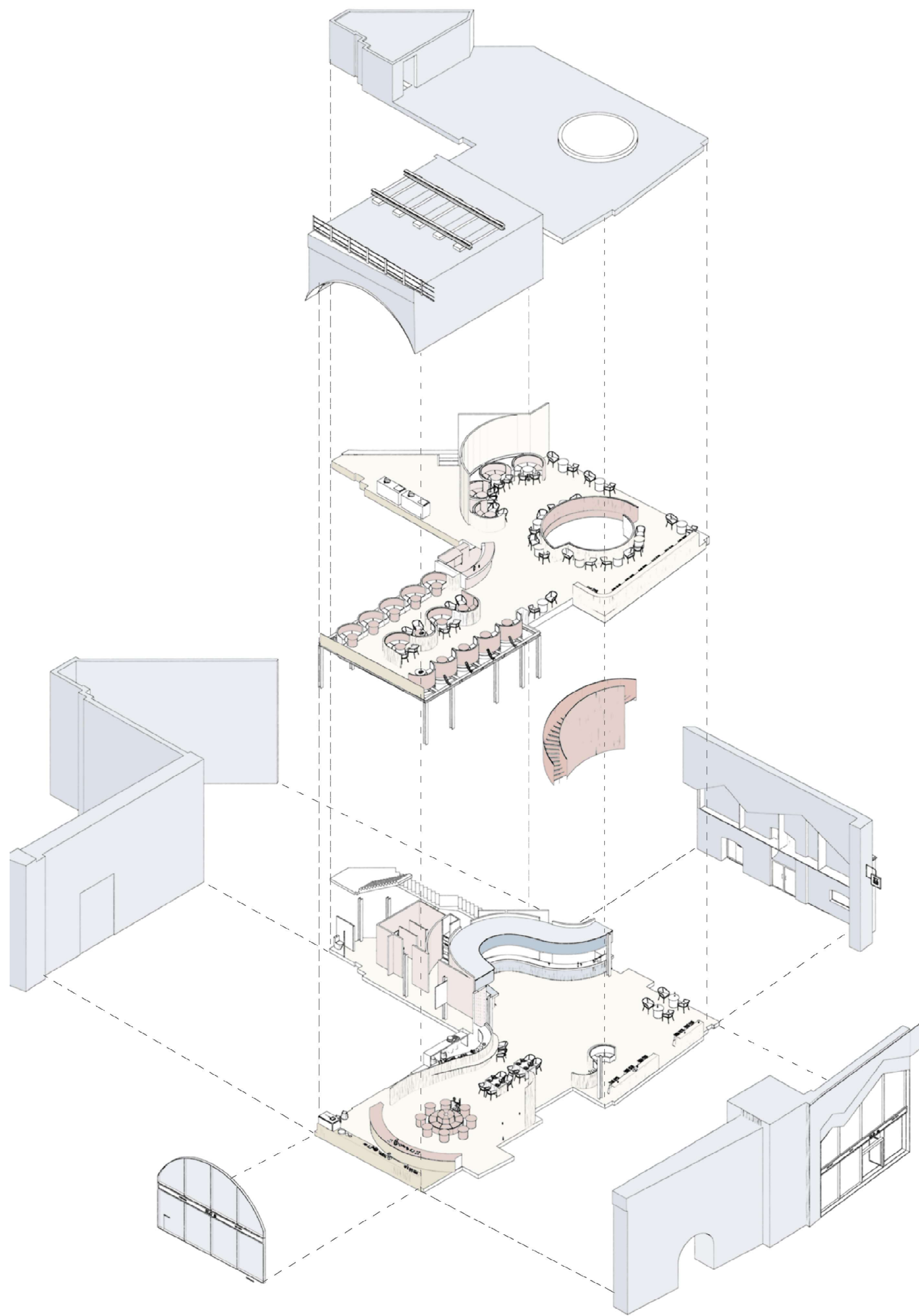


First Floor - Looking to the Lightwell

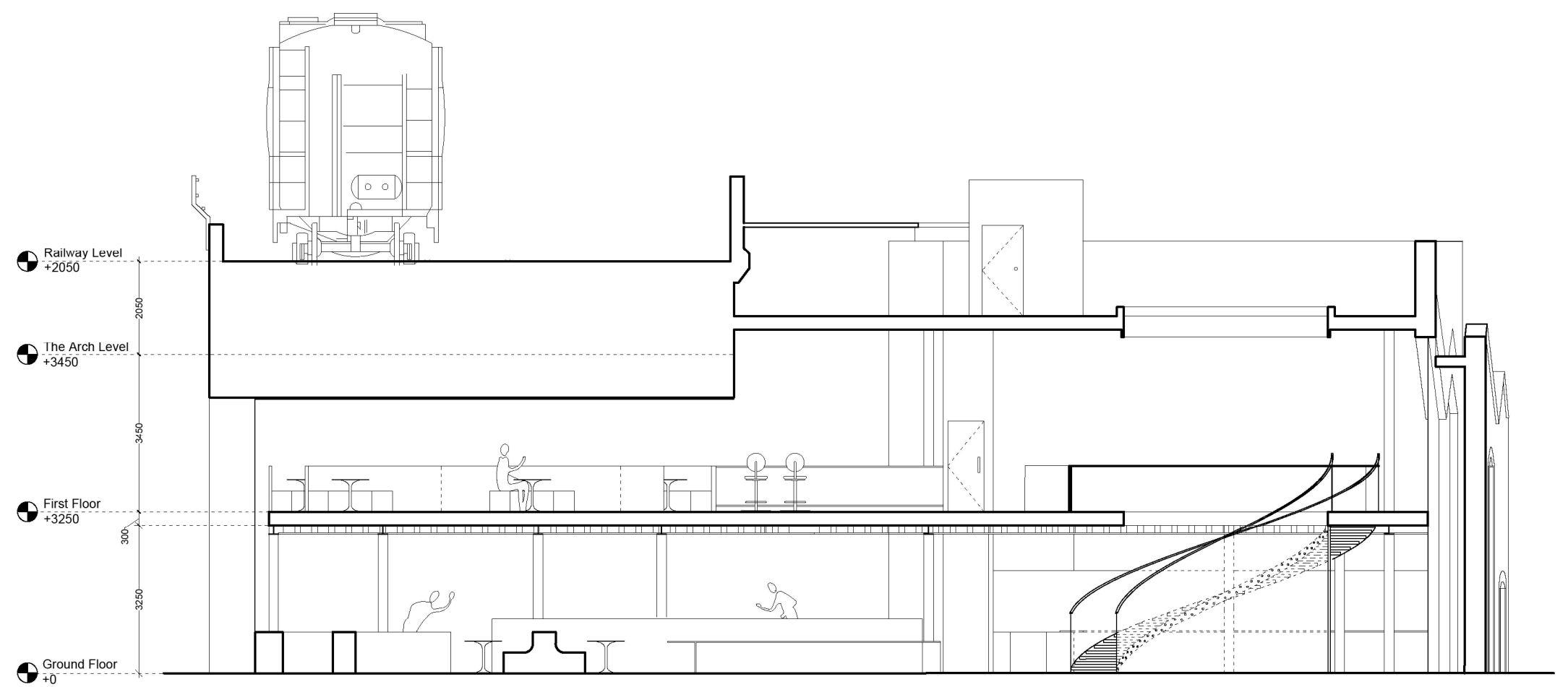


First Floor - Looking to Mezzanine Dining Area

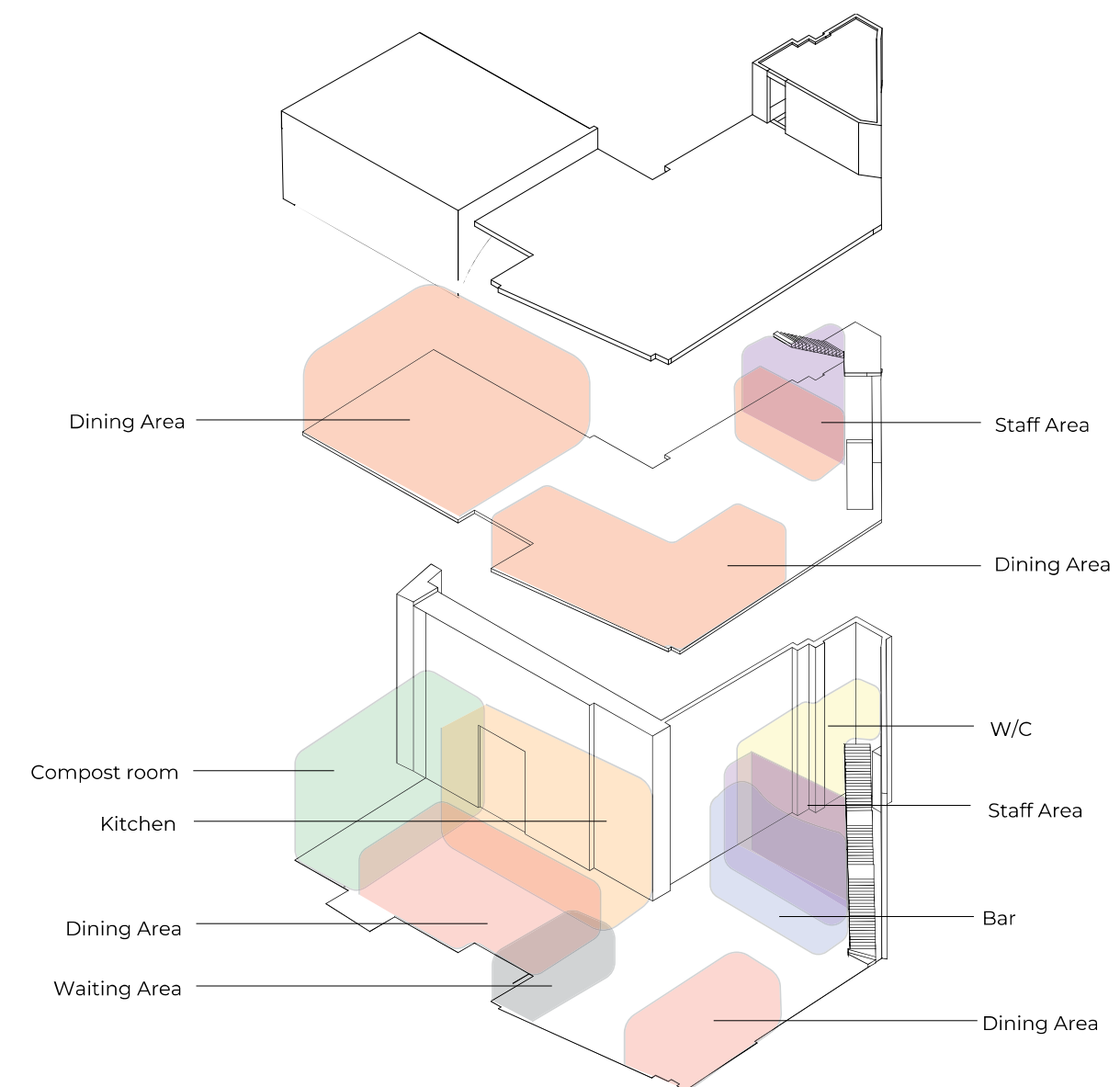




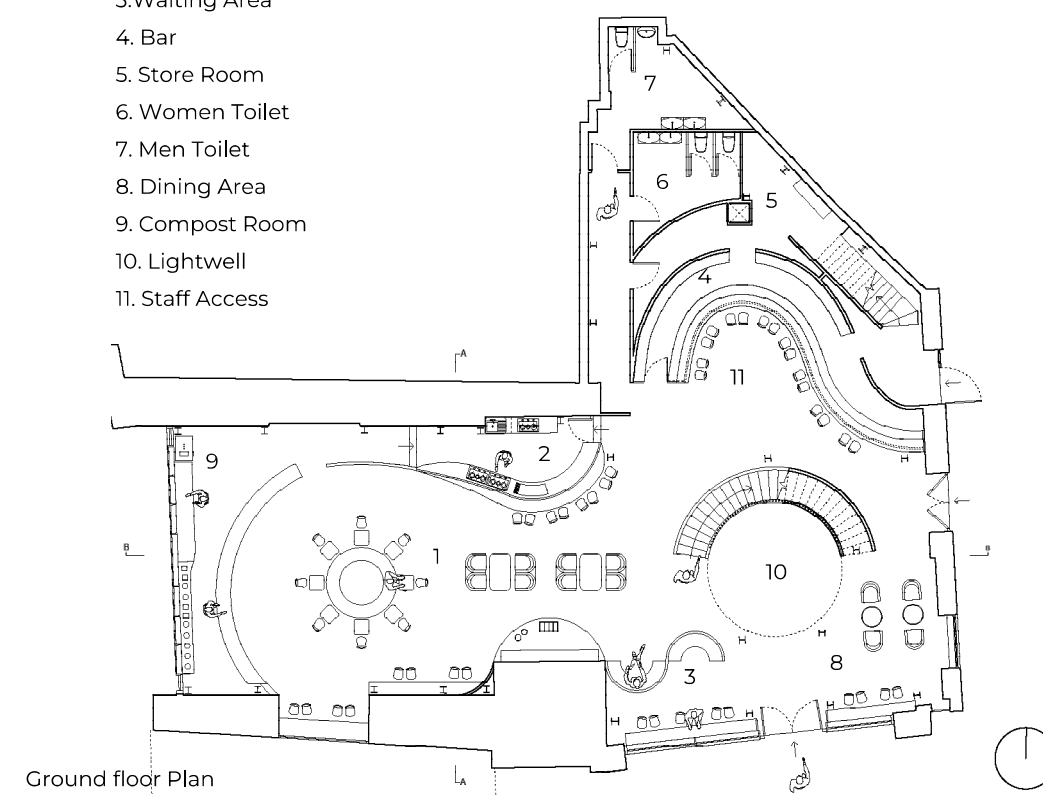
EXPLODED AXONOMETRIC



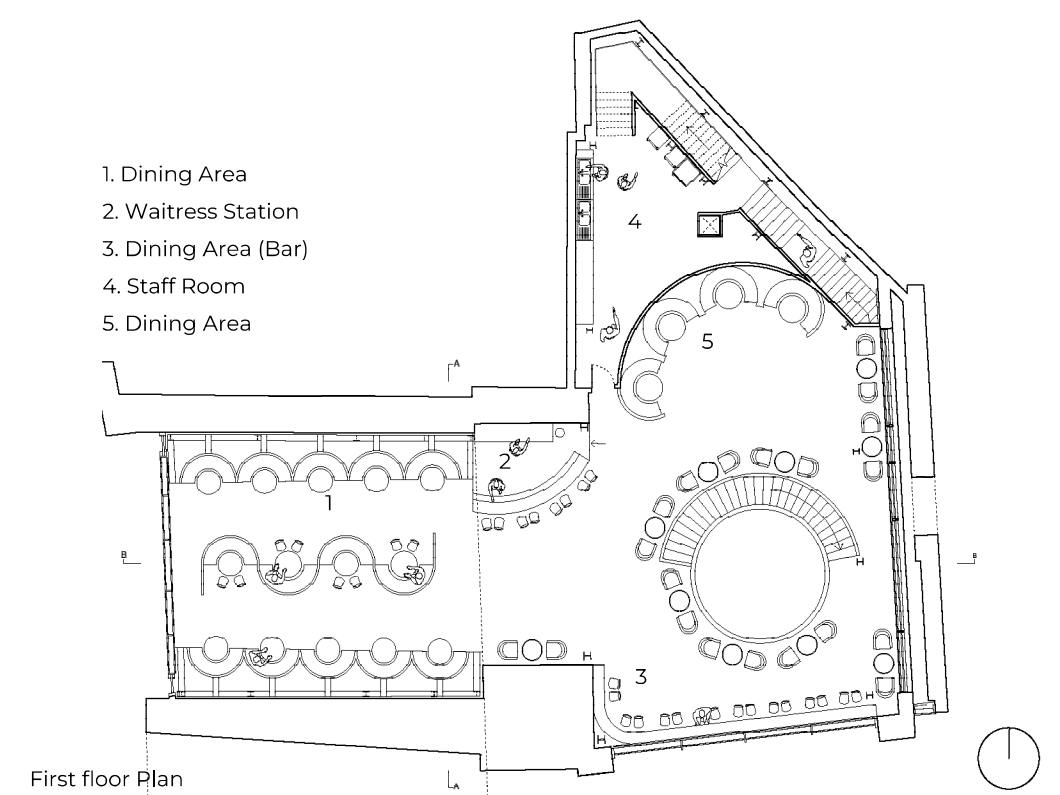
Section A-A



1. Dining Area
2. Kitchen
3. Waiting Area
4. Bar
5. Store Room
6. Women Toilet
7. Men Toilet
8. Dining Area
9. Compost Room
10. Lightwell
11. Staff Access



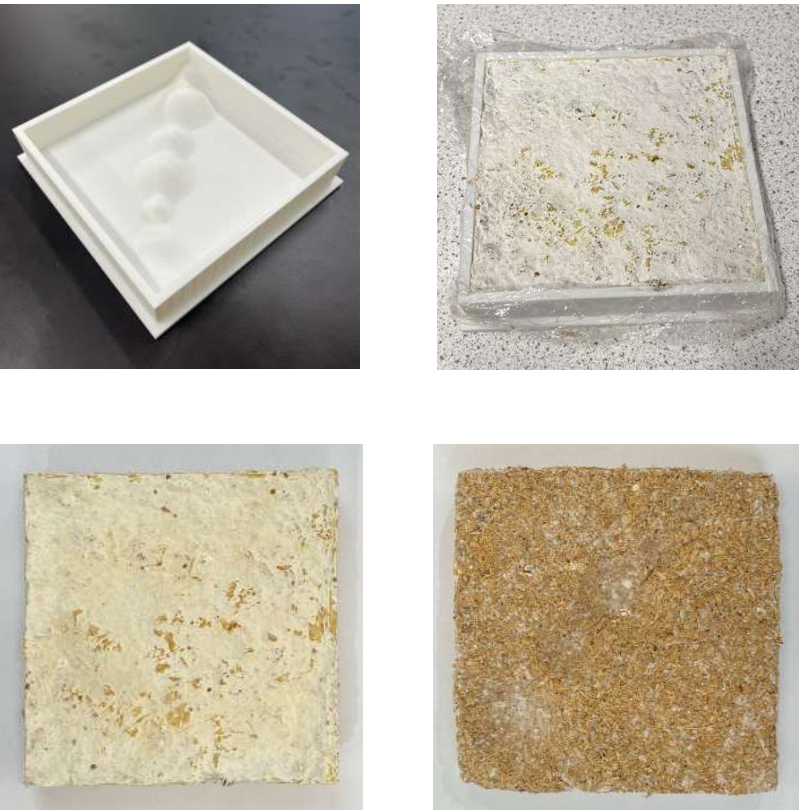
Ground floor Plan



First floor Plan

SELF GENERATE MATERIAL TILE

This is a mycelium tile I made myself using a simple, natural recipe. The main ingredients are mycelium and wood chip. The mycelium acts as the binding agent, while the wood chip serves as a basic nutrient source to support growth. I mixed them, placed the mixture into a mold, and allowed it to grow and dry. The result is a lightweight, compostable, and biodegradable tile perfect for sustainable design.

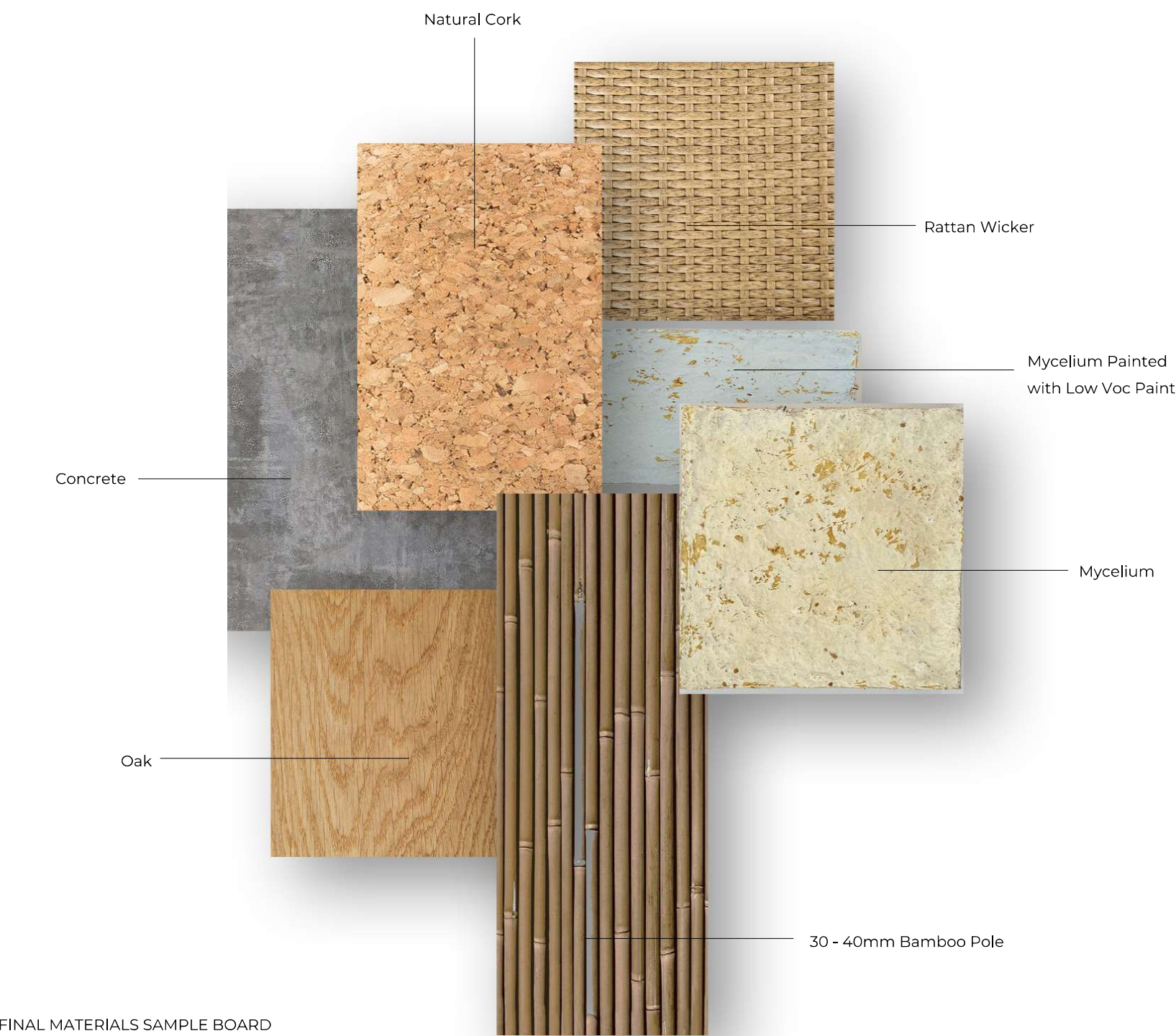
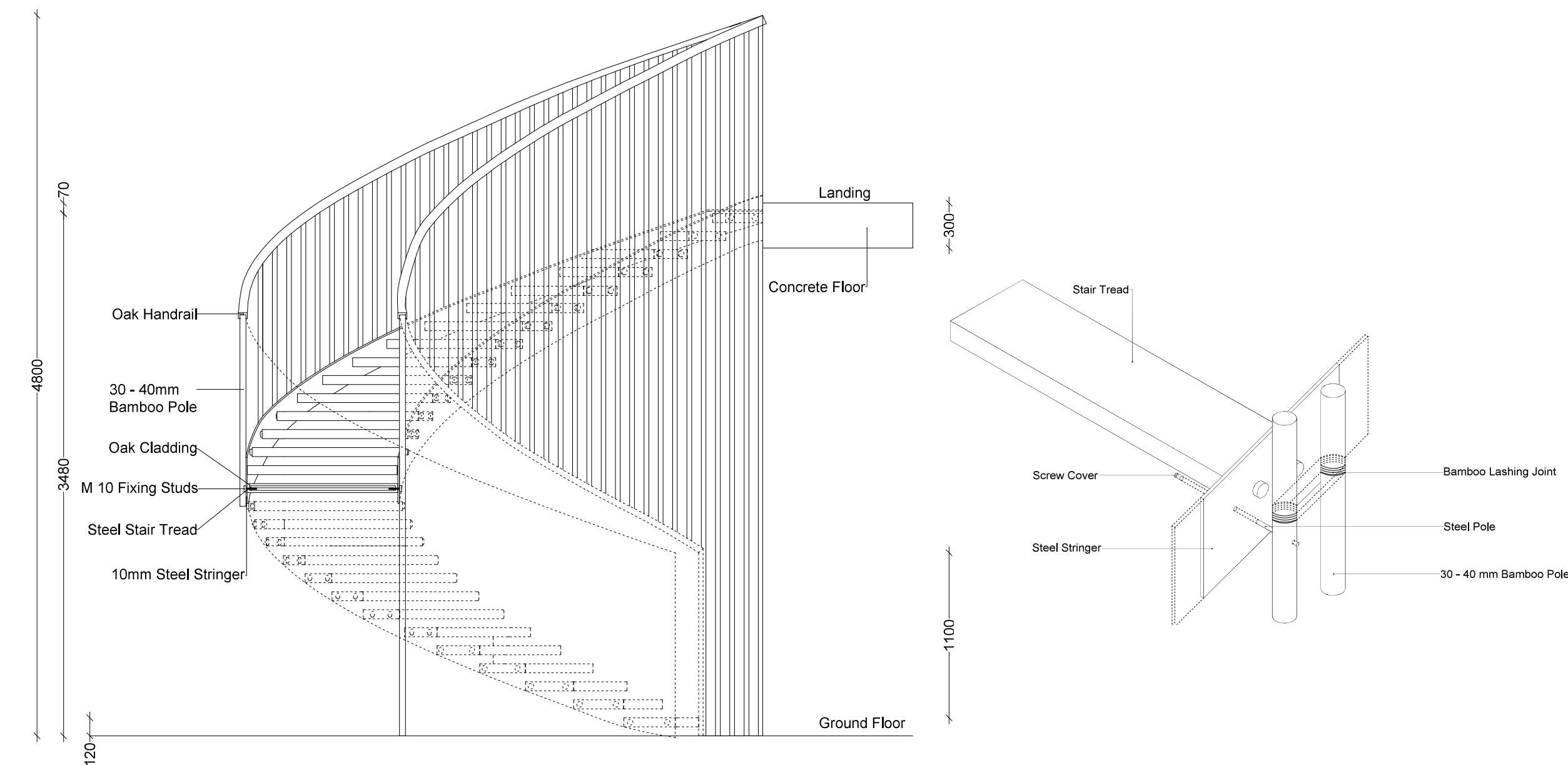


MYCELIUM EXPERIMENT

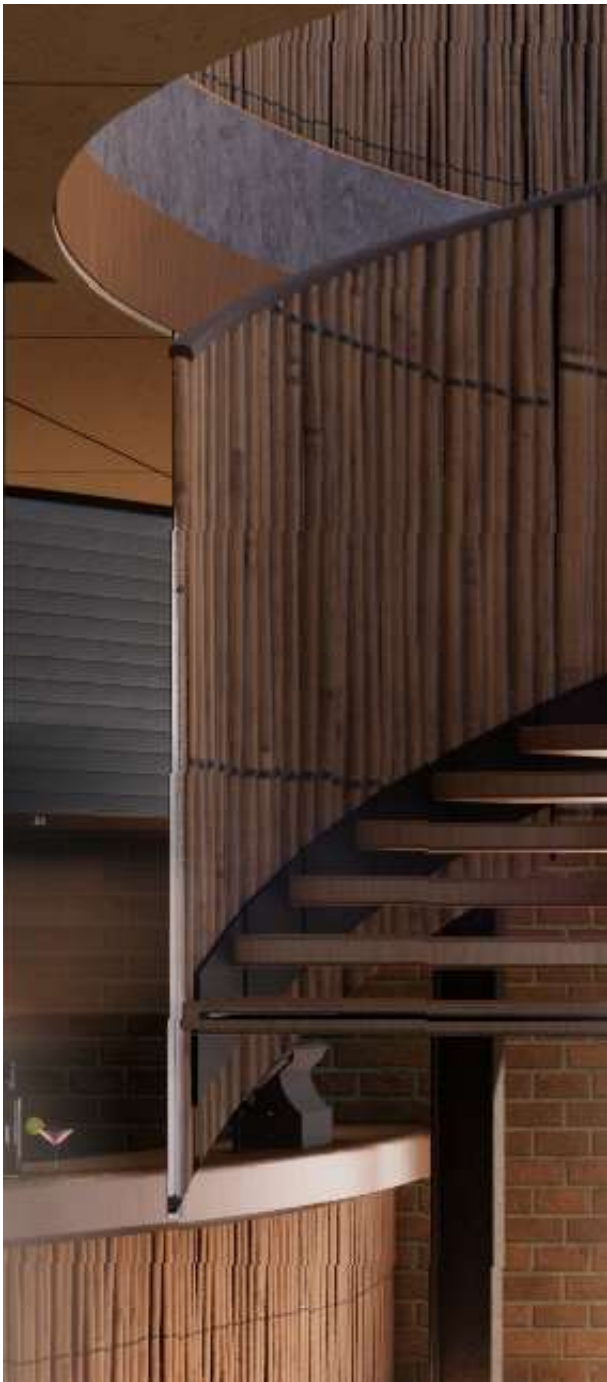
For this experiment, I placed a small piece of mycelium into a sterile petri dish containing a nutrient-rich medium. The goal was to observe how the mycelium spreads and colonizes the surface. I kept the dish in a clean, dark environment at room temperature to encourage healthy growth. Over time, the mycelium started forming a dense white network, showing its potential for use in biomaterials and sustainable design applications.



BAMBOO STAIRCASE

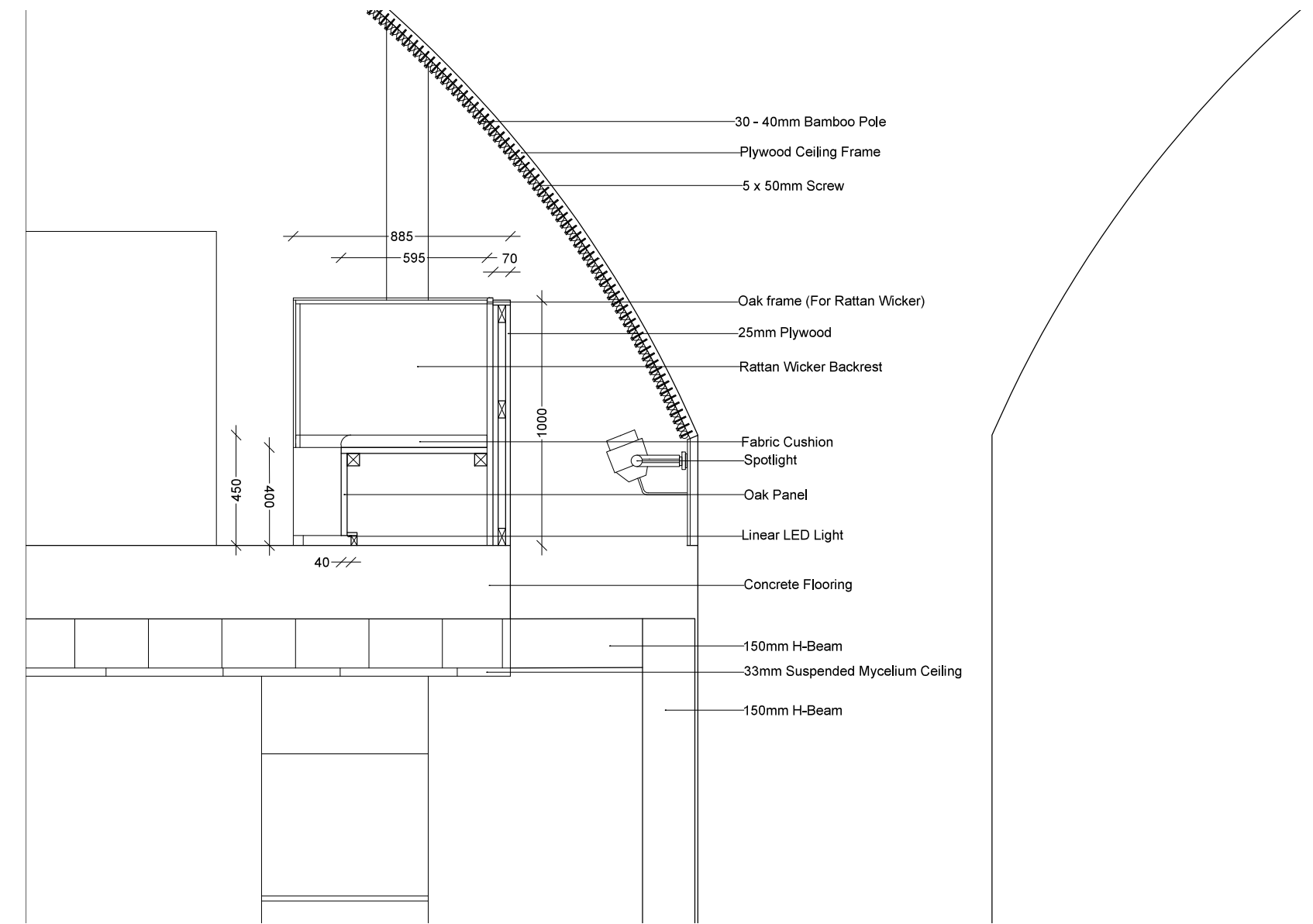


FINAL MATERIALS SAMPLE BOARD



MEZZANINE AND DINING AREA

This mezzanine dining area embodies sustainable design. A vaulted canopy is crafted from arched bamboo ribs, a highly renewable material, while the seating incorporates natural rattan wicker. The design creates a warm, eco-conscious space with a minimal environmental footprint.

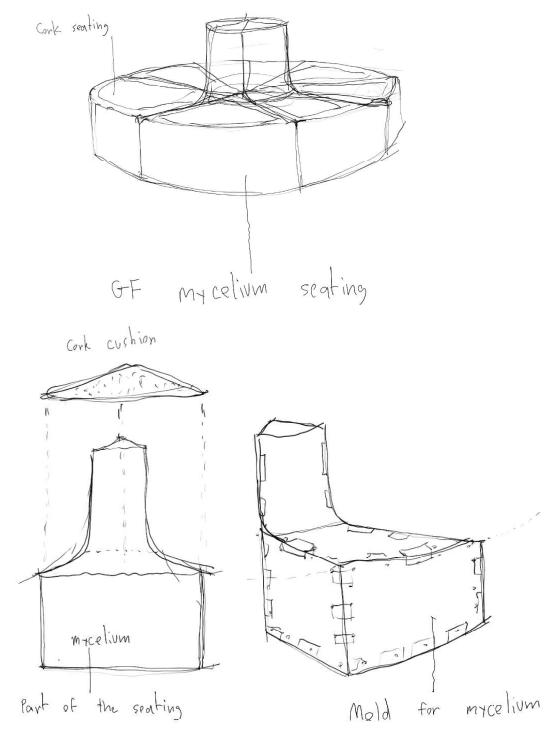


CUSTOMISED MYCELIUM SEATING

The design for mycelium seating, developed with a focus on sustainability, modularity, and integrated construction. The idea starts with creating moulds that allow the mycelium to grow into specific seating forms. While the mycelium is growing inside these moulds, I inserted wooden dowels directly into the material. This way, the dowels become built-in components, fully embedded connection points.

By embedding the joineries during the growth process, the seating pieces are ready to assemble, they can easily connect with other parts without additional fixing or drilling. This makes the design both efficient and clean in its assembly. The seats themselves feature cork cushions on top, offering comfort while keeping all materials natural and compostable.

The form allows for modular arrangements, such as circular group seating, and the overall aesthetic stays soft and organic, in line with the project's natural design language. The mycelium not only serves as a structural material but also visually reinforces the restaurant's commitment to zero-waste, bio-based design.



COMPOST ROOM

I designed this compost room as part of the restaurant's closed-loop system. It's a space where leftover food or waste from preparation can be collected and placed into a composting machine. The machine turns the waste into fertilizer, which we then send to local farms. Once the vegetables and fruits grow, they are brought back to the restaurant to be used in new dishes. This creates a sustainable cycle where nothing is wasted, and everything is reused. It's a simple but powerful way to support zero-waste dining and connect the restaurant directly to the food-growing process.

EQUIPMENT

On-site composters :

Turn organic kitchen waste into compost for local farms.

Dehydrators :

Reduce food waste volume by extracting moisture, making waste easier to manage and reuse.

Anaerobic digesters :

Convert food waste into biogas or nutrient-rich fertilizer.

In-house grain mill :

Freshly mills grains, avoiding processed flour packaging and promoting full-grain use.

Butter churners and oat rollers :

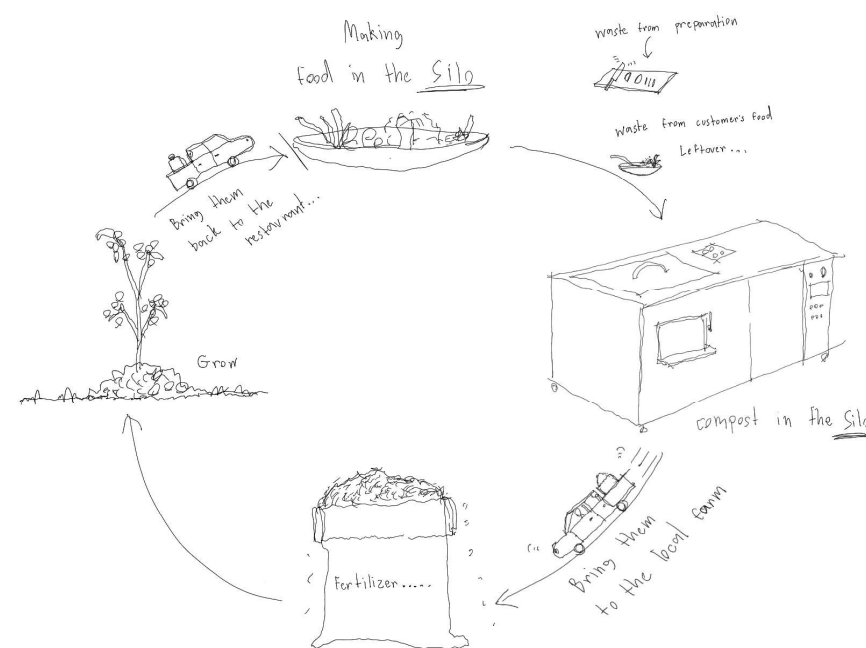
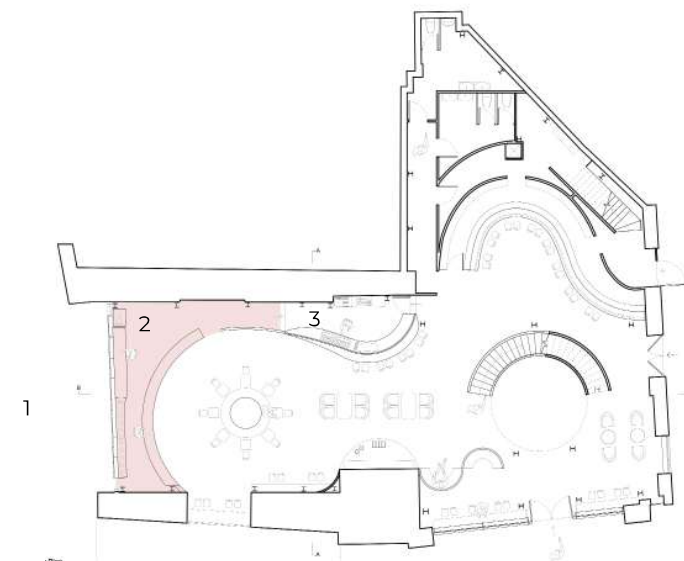
Allows making products like butter and rolled oats from raw ingredients, reducing external processing and packaging waste.

Fermentation stations :

For pickling, fermenting vegetables, and making kombucha or miso from food scraps.

Dehydrators and smokers :

Extend the life of foods without additives.



1. Looking to Fermentation Station from Dirty Lane



2. The Interior of Fermentation Station towards Dirty Lane



3. Looking to the Fermentation Station from the Kitchen

