



CIRCULAR BIOPLASTIC HUB

Transforming Fruit Waste Into Everyday Value

Dissolving the Interior for New Ecologies

Reimagining Kingston through Material Cycles, Community Systems, and the Value of Waste

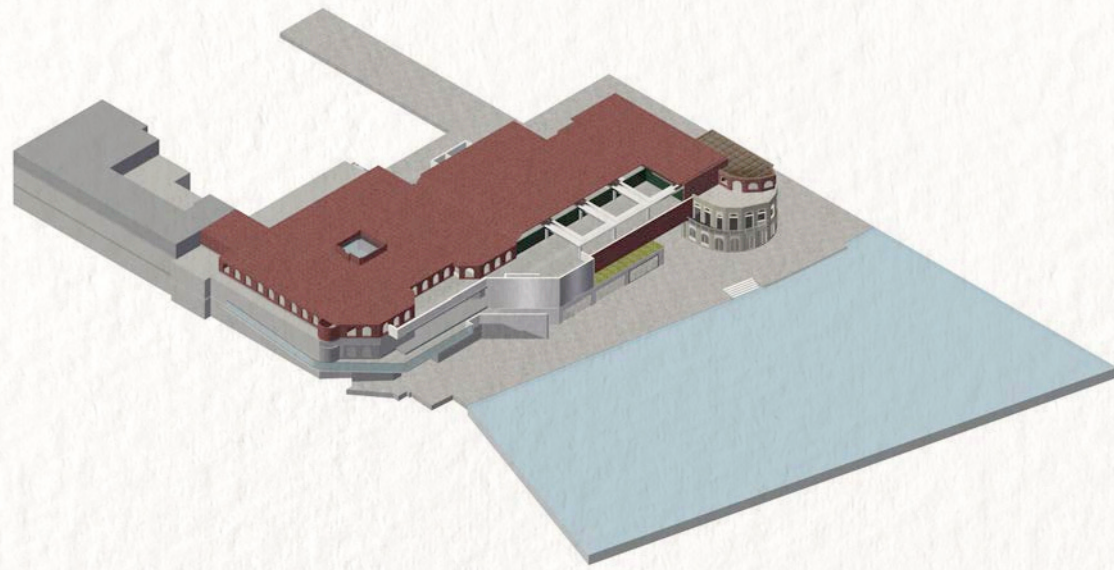
This project aims to establish a working model of circular sustainability that transforms organic fruit waste into biodegradable bioplastic, reducing reliance on petrochemical plastics and encouraging behavioural shifts through public engagement in material-making, education, and ecology.

Kingston, a historically riverside town with a rising rate of food waste and strong community presence, provides the ideal setting for testing hyper-local circular systems. The project reclaims an overlooked urban site and reimagines it as a regenerative public space. Fruit waste, sourced from local cafés, markets, and an on-site juice bar, is collected and processed on-site. A public drop-off point invites participation, allowing visitors to contribute peels and directly observe the transformation process.

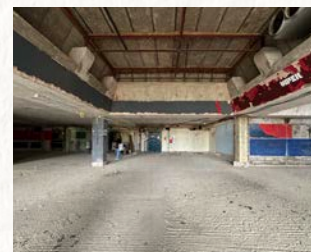
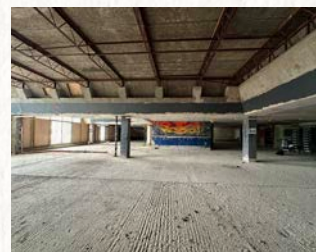
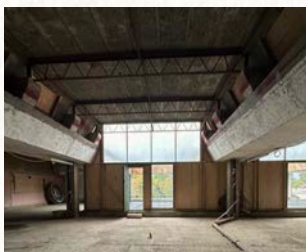
The spatial programme includes a visible production area, an open fabrication studio, and a hands-on workshop where people can experiment with moulding bioplastic. A composting station processes waste into fertiliser for a rooftop orchard and edible garden. The site also houses a juice bar, a retail area, and open public seating to encourage longer stays and deeper engagement.

This project directly responds to the Climate Emergency by addressing waste as a root environmental issue. Through public engagement, circular systems, and material innovation, it offers a replicable model for low-impact, community-based climate action.

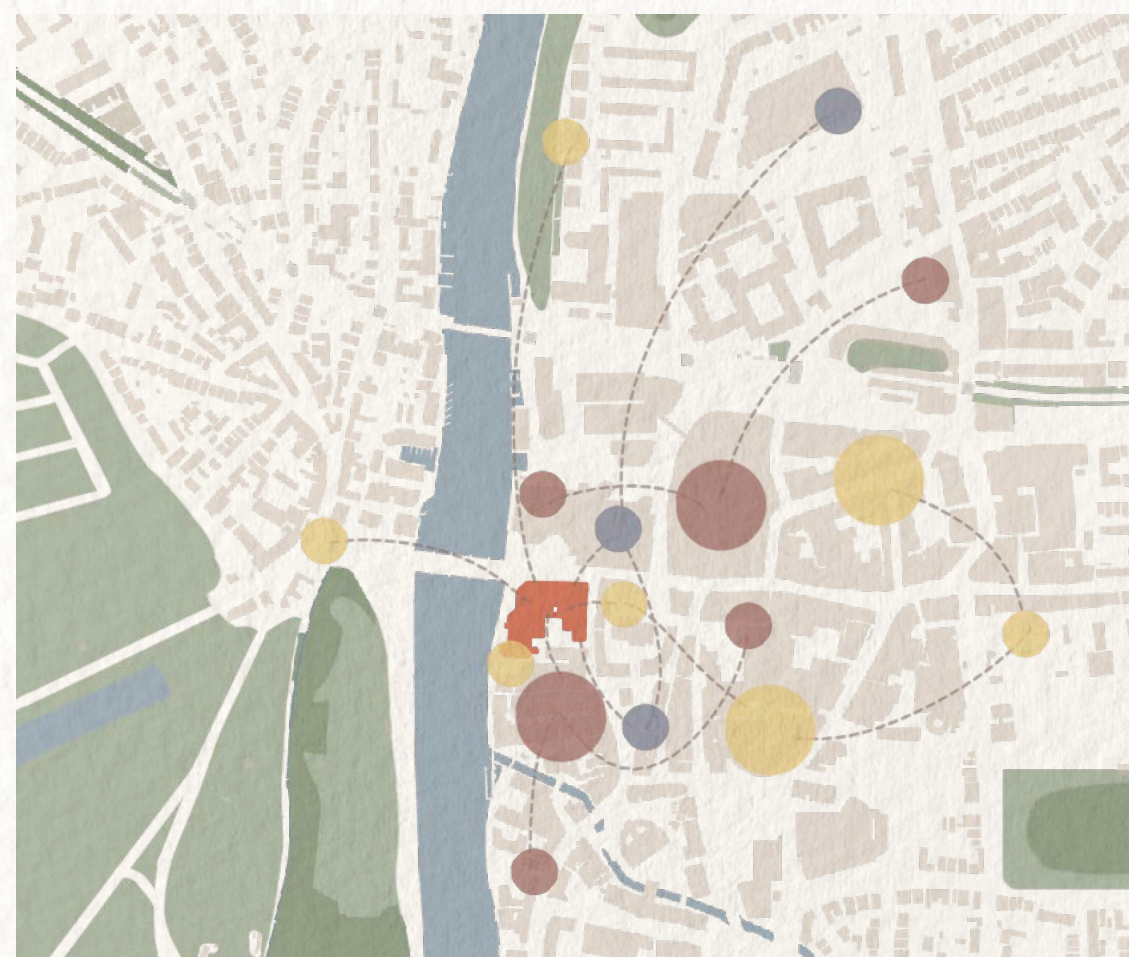
More than a manufacturing facility, this is a civic ecology. It is an infrastructure that dissolves traditional interior boundaries and embeds sustainable practice within spatial experience. The project connects making, growing, and learning into a visible, participatory system that reframes waste as a beginning, not an end. It transforms waste into useful material while creating real opportunities for community learning and long-term environmental impact. In doing so, it contributes meaningfully to local climate resilience.



The site/ Bishop's Palace House Kingston - Digital Model



Interior snapshots of the site, capturing its dormant potential before transformation



FRUIT PEELS COLLECTION POINTS

- THE SITE
- RESTAURANTS
- CAFES
- FOOD MARKET

Based on national food waste statistics, an estimated 280-300 tonnes of fruit peels are discarded annually in the Royal Borough of Kingston upon Thames. This organic material, typically treated as waste, represents a valuable local resource.

Restaurants, cafés, and retail brands mapped across the area are key collection points – their daily fruit waste becomes raw input for on-site bioplastic production, transforming a disposal problem into a self-sustaining material cycle.

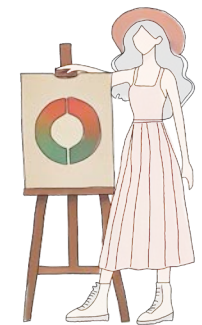
TARGET AUDIENCE



The Creative Designer



The Conscious Consumer



The Volunteer



The Health-conscious Family



The Student

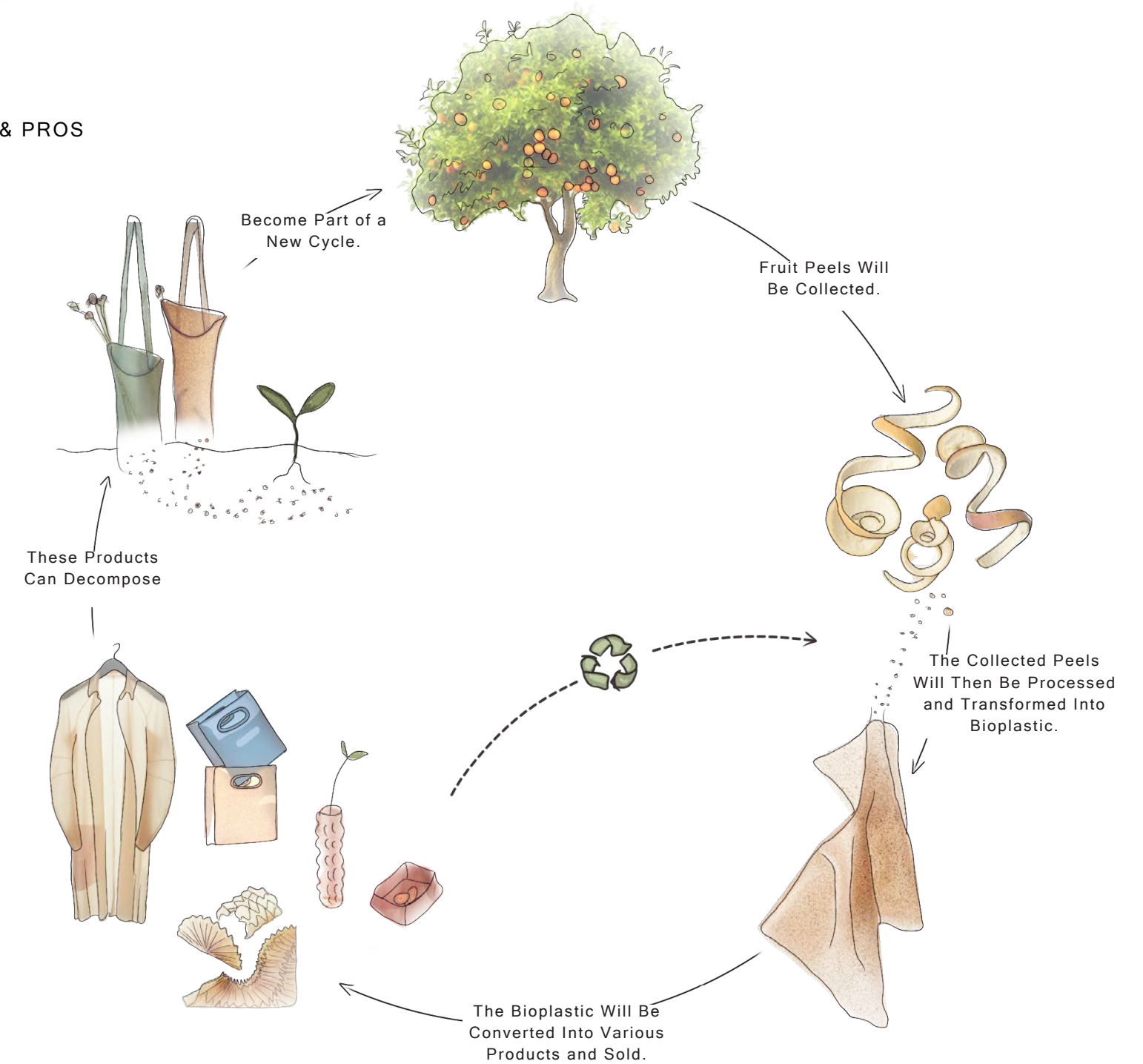


The Curious Explorer



The terrace becomes a soft threshold, connecting inside and outside, the individual and the collective. It is a place to pause, observe and participate.

CIRCULARITY & PROS





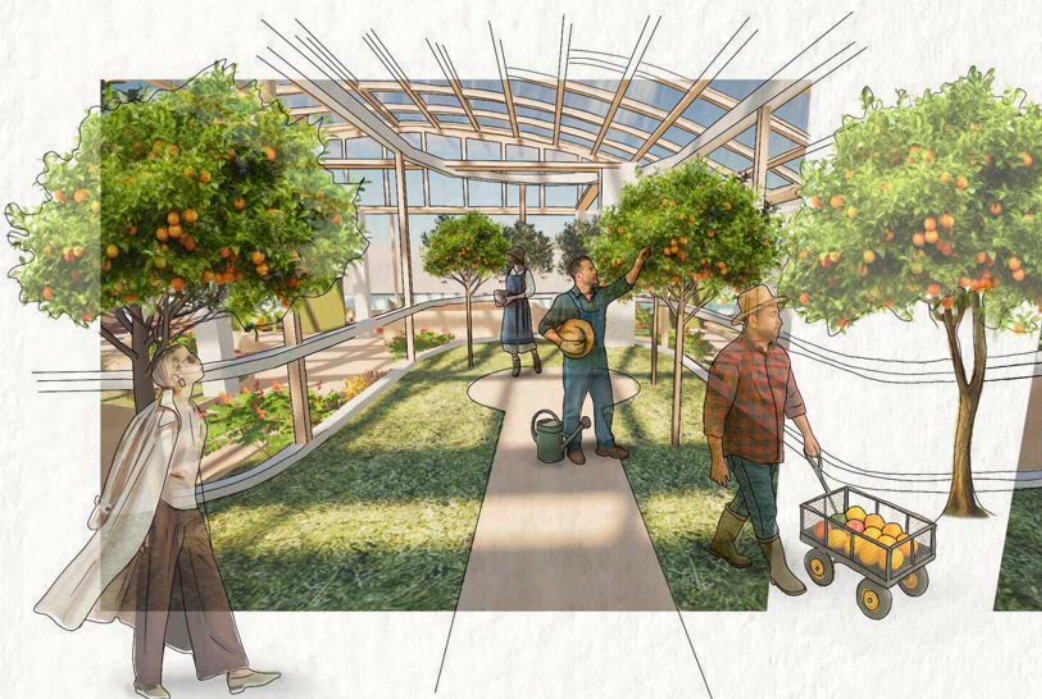
Retail & Display



Bioplastic Production Area



Bioplastic Workshop

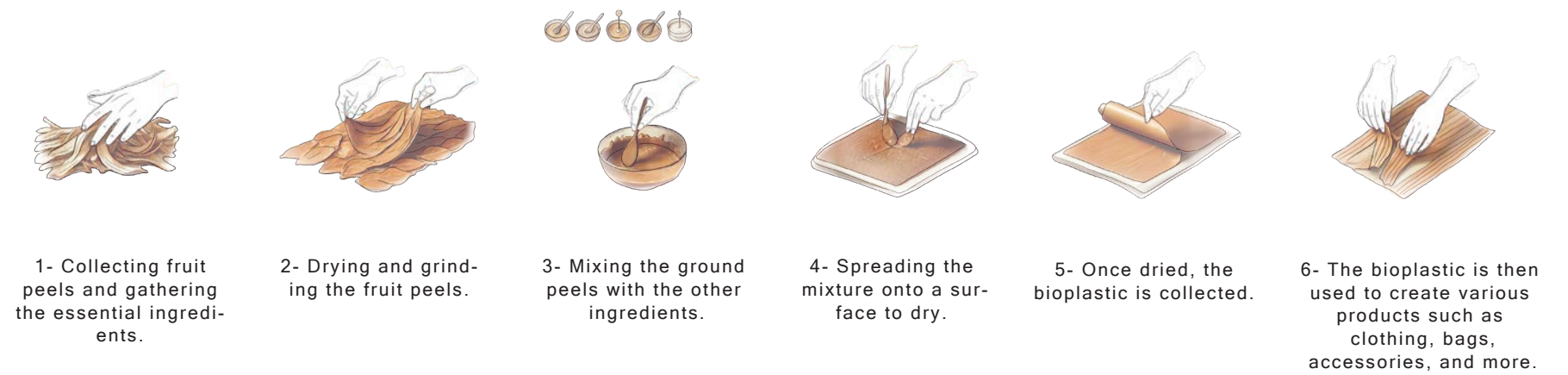


The Orchard

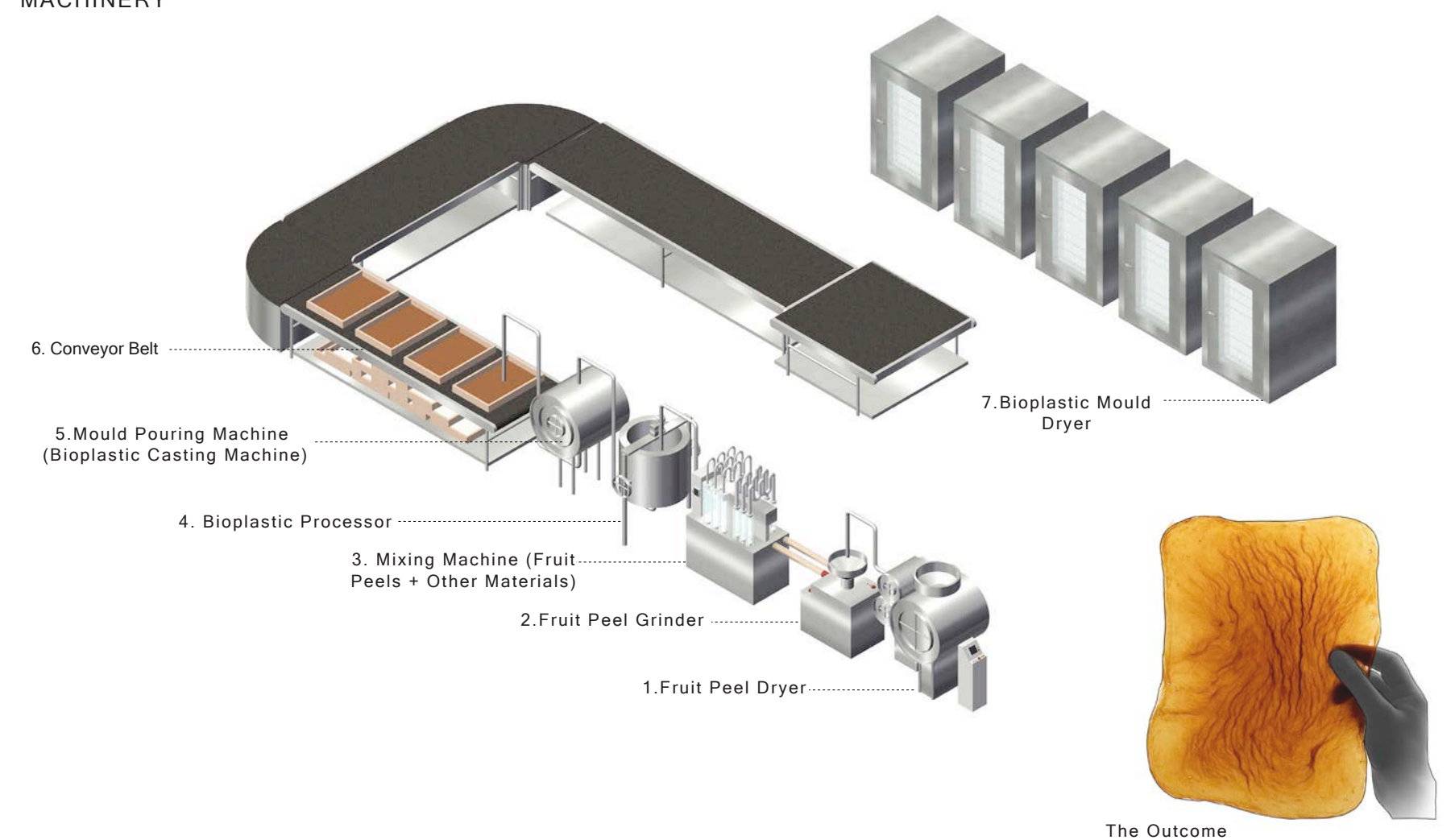


The Enclosed Garden

PROCESS



MACHINERY



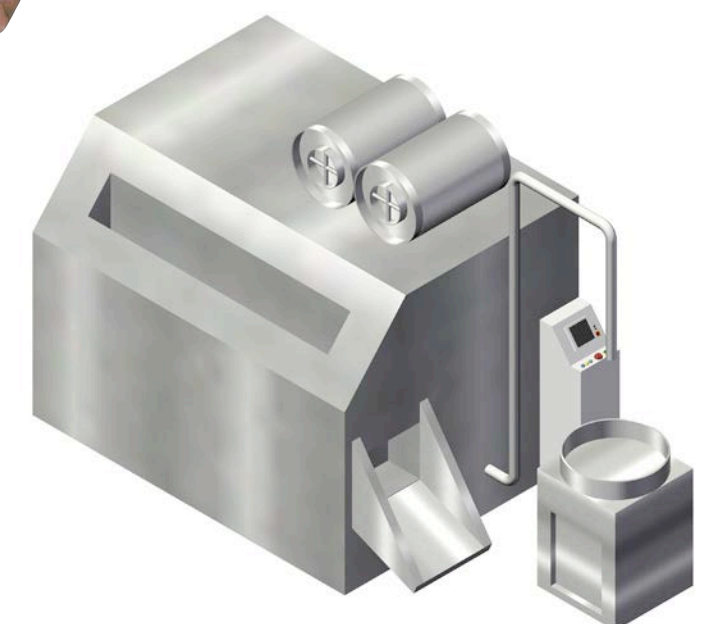
From Leftovers to Living Soil

At the heart of the site's circular system is a composting station, located in the orchard and visible through a glass wall. It transforms food scraps and defective bioplastics into living soil, closing the loop between waste and growth.

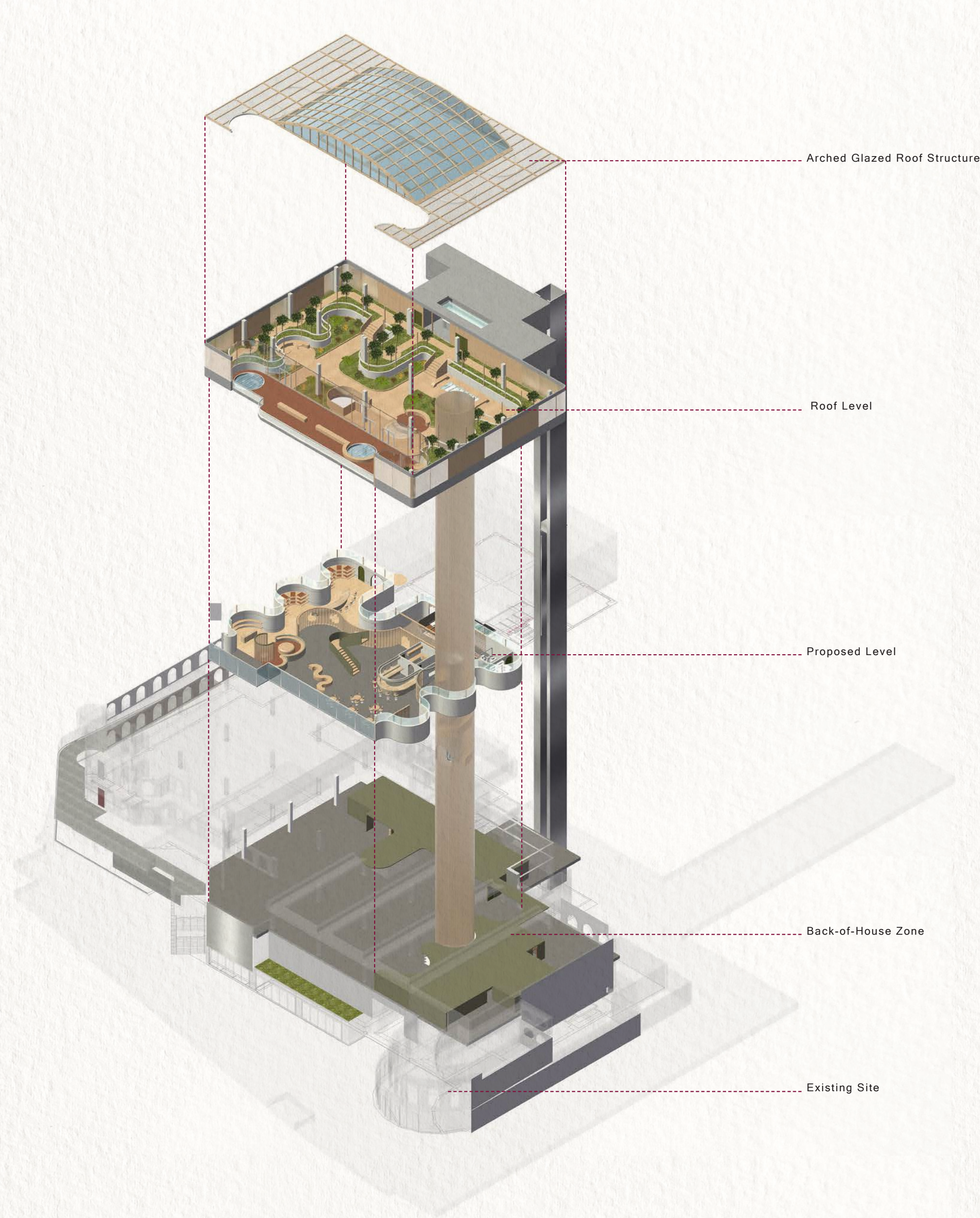
Daily leftovers from the café, unusable fruit waste, and excess bioplastic feed the composting cycle. Visitors can observe the process while relaxing in the garden, turning an everyday by-product into an educational moment.

The resulting compost nourishes the orchard, enriches the soil, and fuels new growth. Waste becomes nourishment. The cycle stays alive.

COMPOSTING MACHINE



EXPLODED ISOMETRIC

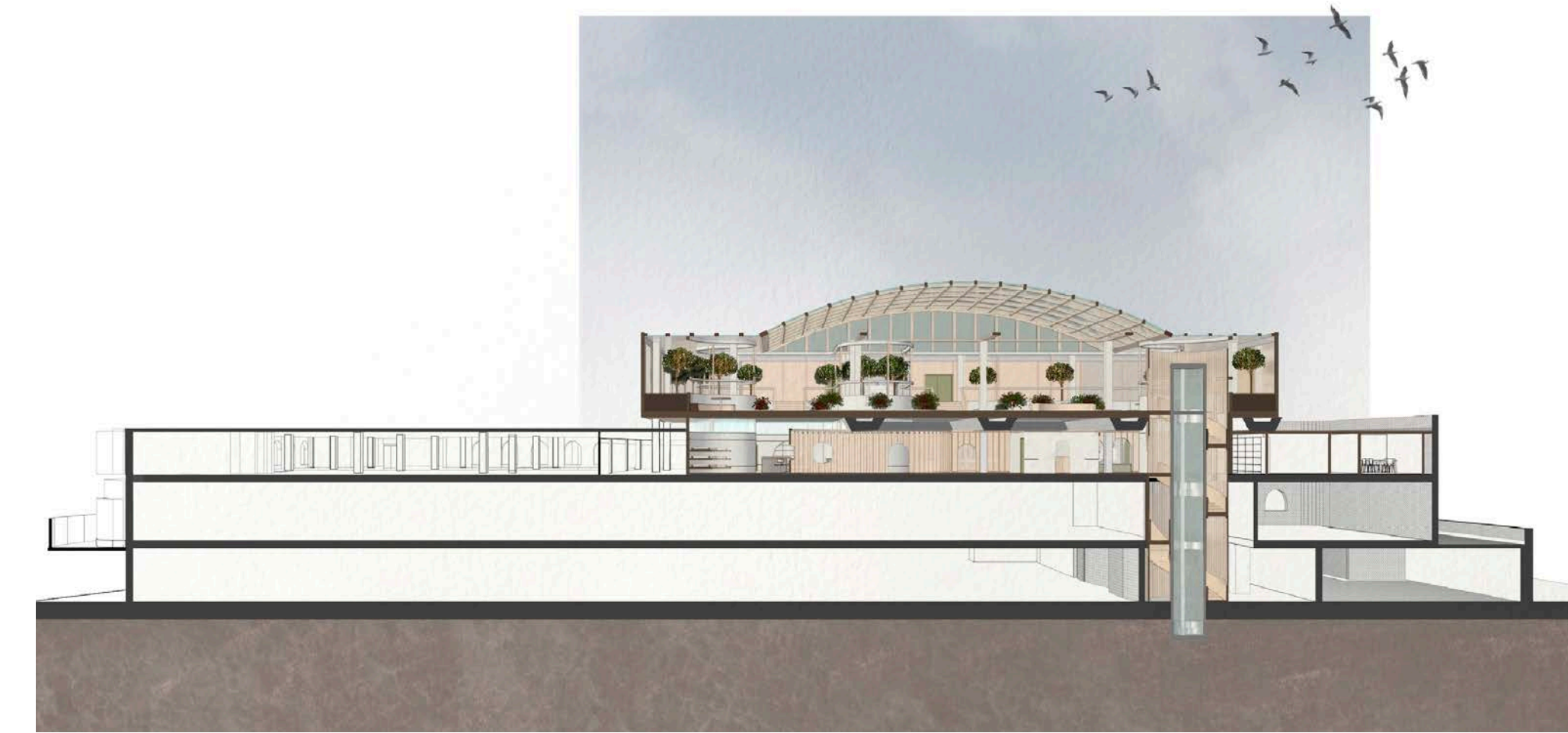
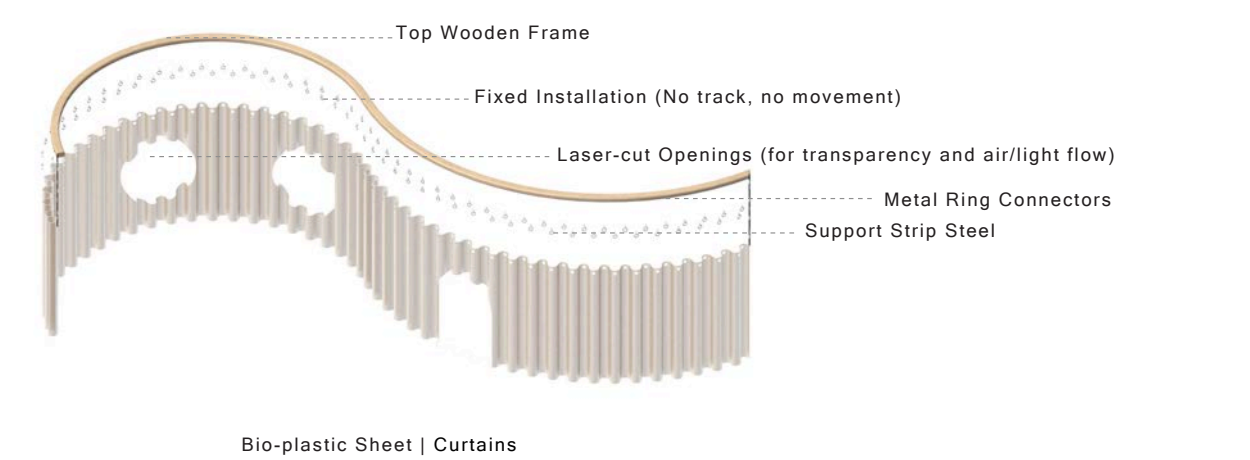


All materials are eco-friendly and aligned with circular economy principles. Each was selected for its low impact, natural origin, or recyclability, reinforcing the project's sustainable vision.

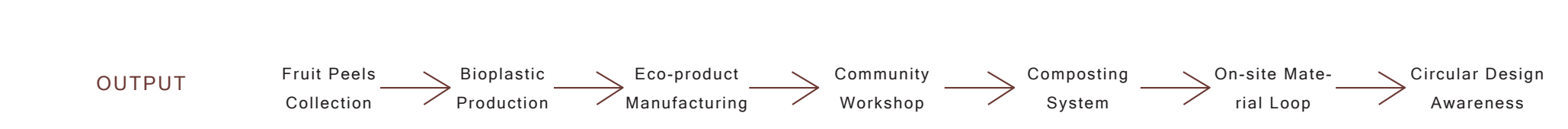
This panel combines two glass sheets with a semi-transparent bioplastic layer, framed in metal. It merges the clarity of glass with the sustainability of bioplastic.

CONSTRUCTION

Semi-transparent bioplastic curtains mark the entrance and appear throughout the space, immersing visitors in the project's core material. Perforations create filtered views, while openings guide movement and invite sensory exploration.

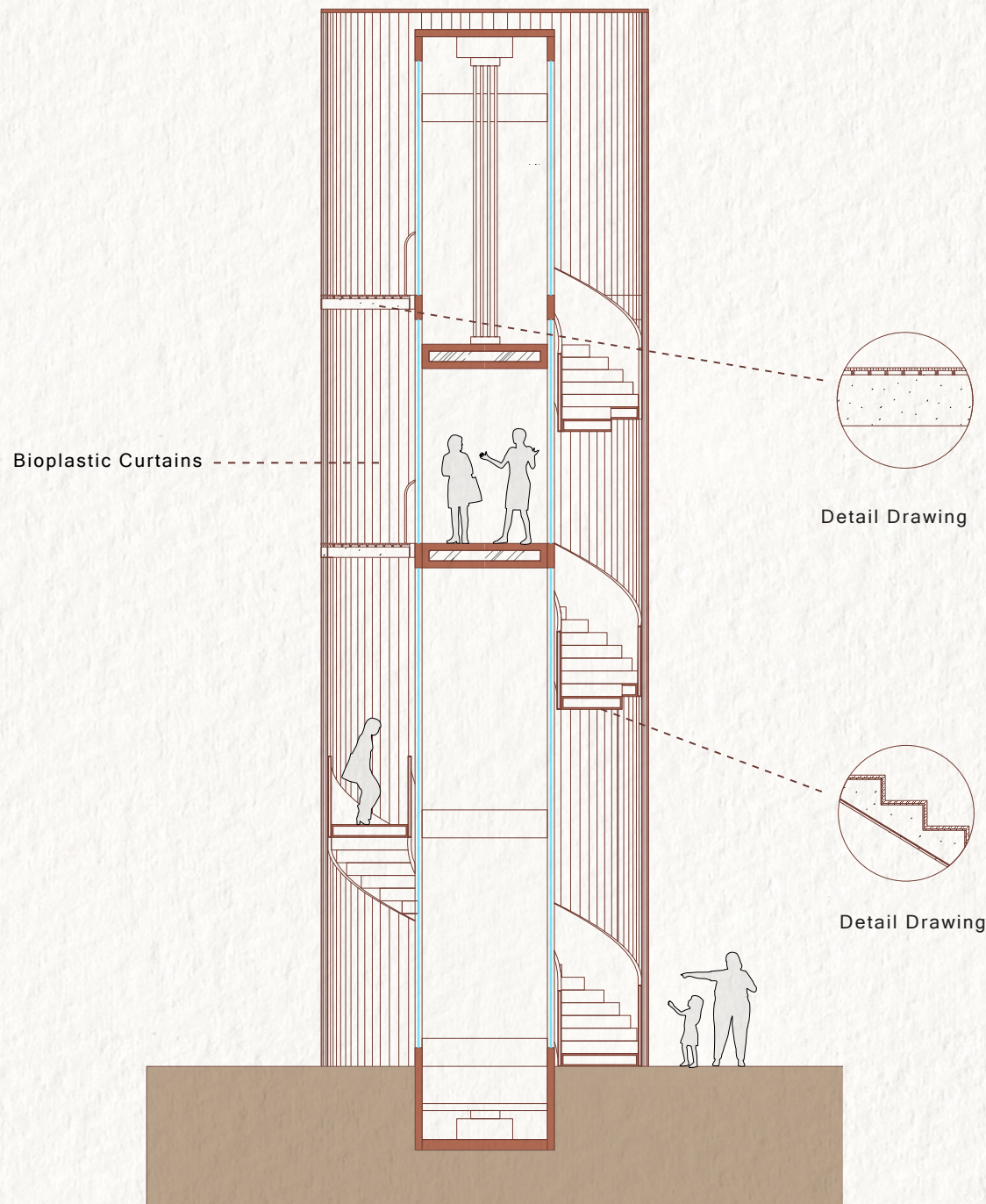


Perspective Section





1. The Entrance



The Entrance | Focus Area section

Visitor Journey



2. Bioplastic Production Area



3. Bioplastic Workshop



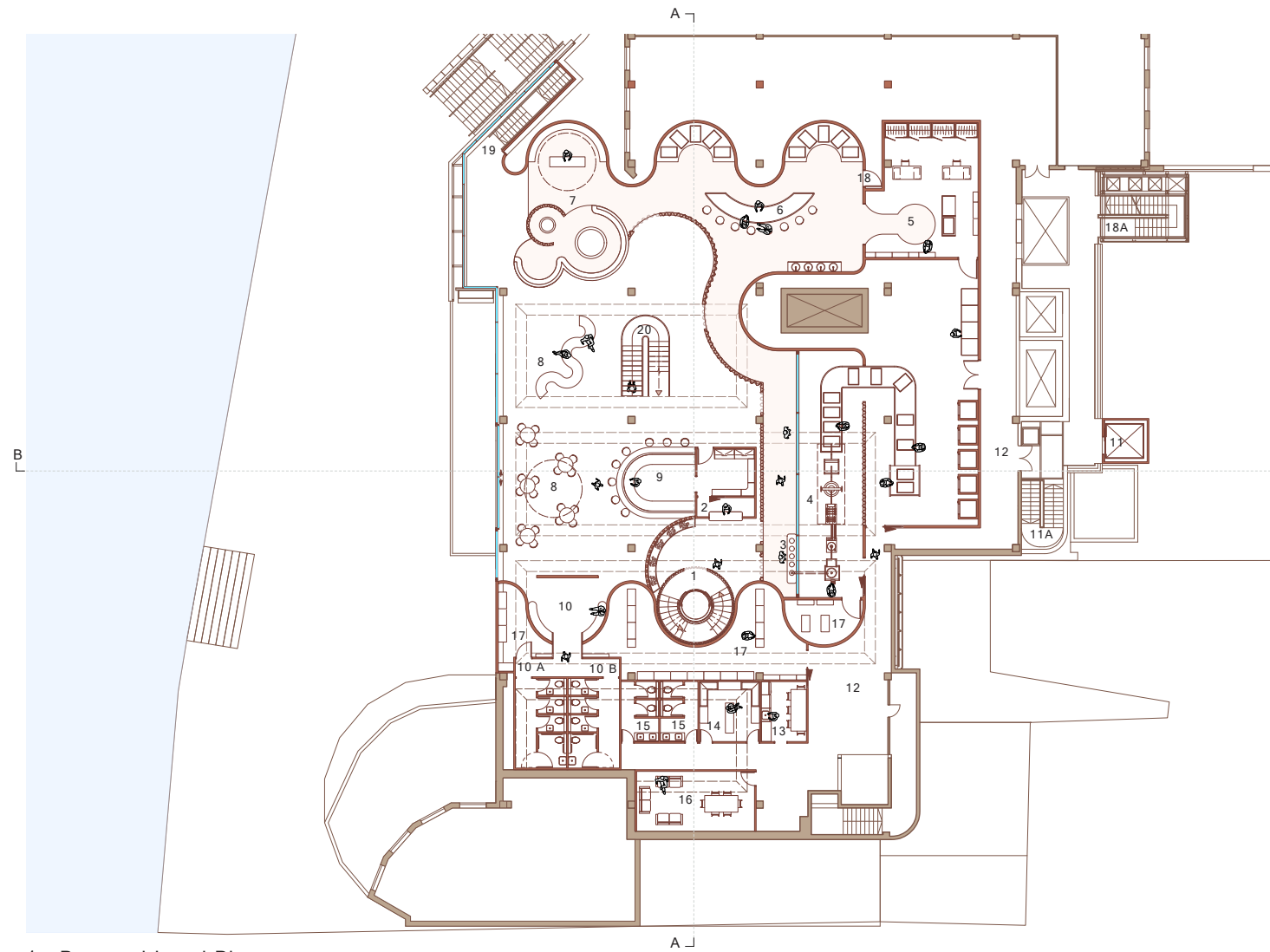
4. Café | Juice Bar



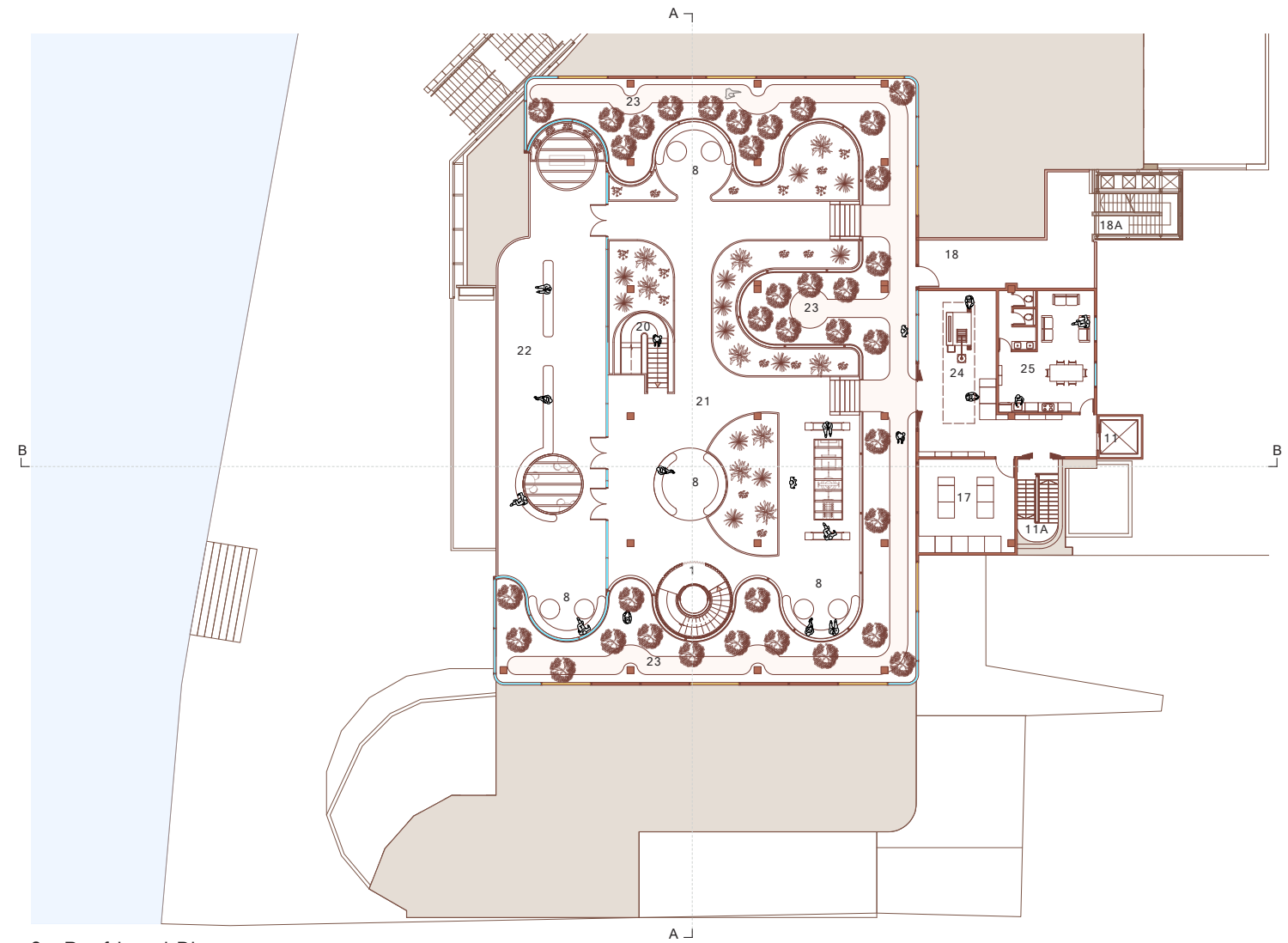
5. The Enclosed Garden



6. The Orchard



1 - Proposal Level Plan

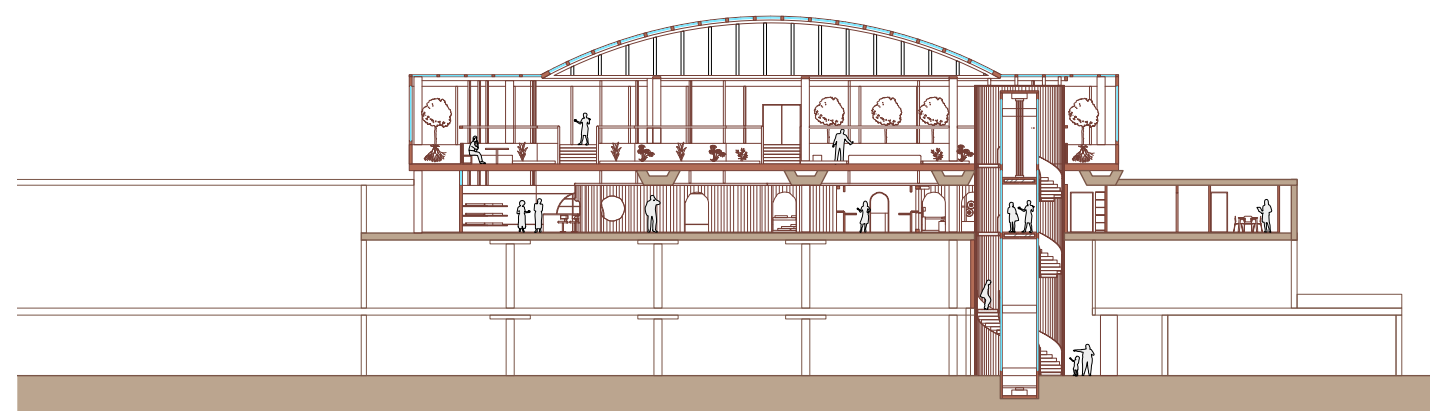


2 - Roof Level Plan

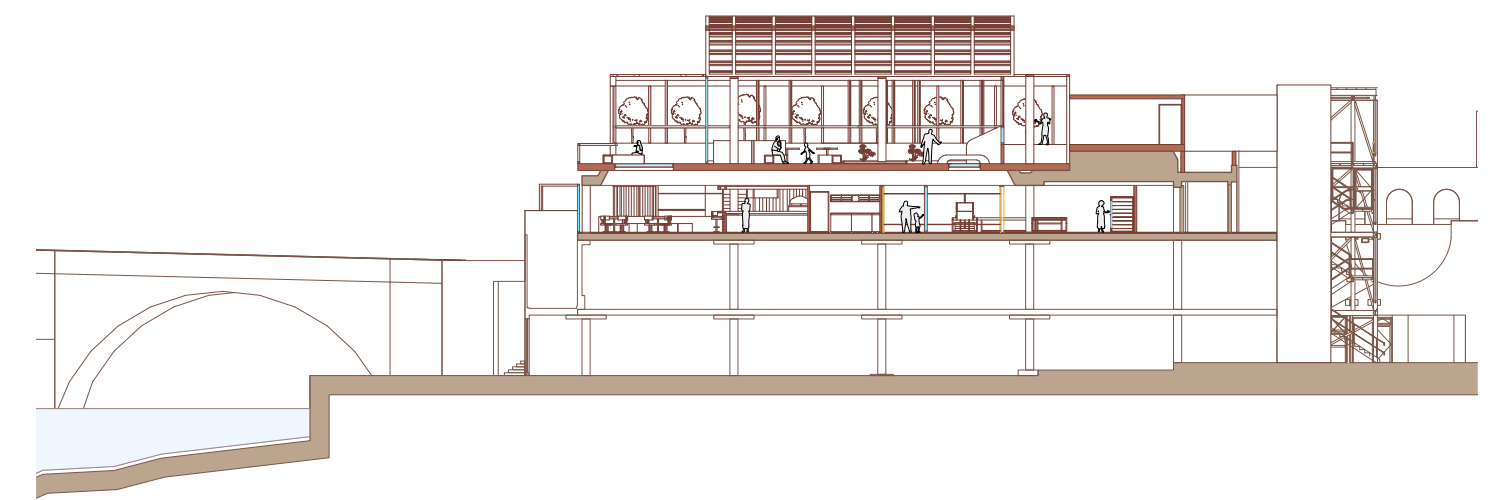
- 1- Entrance | Spiral Staircase & Lift
- 2- Reception
- 3- Fruit Peels Drop-off Point
- 4- Bioplastic Production Area
- 5- Bioplastic Fabrication Studio
- 6- Bioplastic Workshop
- 7- Retail & Display
- 8- Seating Area
- 9- Café | Juice Bar

- 10- WC
- 10A- Male WC
- 10B- Female WC
- 11- Staff Lift
- 11A- Staff Entrance
- 12- Back of House
- 13- Staff Kitchenette
- 14- Staff Locker Room
- 15- Staff WC
- 16- Staff Break Room

- 17- Storage Zone
- 18\ 18A- Emergency Exite
- 19- Secondary Exit
- 20- Staircase
- 21- Enclosed Garden
- 22- Terrace
- 23- Orchard
- 24- Composting Zone | Machine
- 25- Staff Facilities Room



Section AA



Section BB