

Framing Nature Cafe

exploring daily uses of plant-based materials



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01/ABSTRACT

The search for alternative materials with a lower environmental impact has been object of several research streams in the last decade.

In this context, Framing Nature is a project that proposes the creation of a research laboratory focused on plant-based materials where experimenting on the transformation of plants into industrial materials and promoting the creation and adoption of non-polluting materials.

This thesis is based on the development of an experiential space open to public to promote the use of products made of plant-based materials. After an initial investigation on the topic, case studies inspiring the project are analyzed. Finally, the design of the spatial solution is presented.

The spatial solution is composed of four spaces offering four different experiences: an interactive space presenting materials created by the laboratory, where the user can intuitively explore information about them. A reception area, displaying the finished products made by the new materials. A growing space that sells seeds and briefly explains the growth process of plants. A rest area for customers to rest and buy plant-based products.

The spatial layout conveys the the opportunities and possible uses of plant-based materials, allowing customers to interact with the space and foster knowledge on the use of alternative materials, at the same providing entertainment and consumption functions.





02/INTRODUCTION

Materials are an important medium for expressing the sense of space. They can express spatial information and forms, conveying the atmosphere through the characteristics of different materials. Plant-based materials have the characteristics of non-toxic and recyclable. As interior decoration materials, they can be recycled and reused, reducing the waste of materials

As a laboratory focusing on research about plant-based materials, Framing Nature advocates the use of natural alternatives for construction, design, packaging and daily-use products. However, as a laboratory, the interaction with people is lacking, affecting the possibility to promote the use of such alternatives to the public. Thus, the purpose of this thesis is to design a more interactive place that can reach this objective.

Combined with the environment and needs of the research laboratory, a coffee shop with an interactive and advocating function is the solution proposed to present the new plant-based materials to the public.

Different from traditional cafes, Framing Nature Cafe hopes customers can interact with the space and understand the products in a participatory way. The interactive nature of the installation enables customers to deepen their knowledge and understanding of the product.



03/OBJECTIVES

The purpose of project is to explore the use of plant-based materials in everyday life through the design of an experiential space that can promote them. The spatial design solution aims at taking advantage of the same materials as a construction and decoration medium.

Corresponding to the specific objectives: First of all, the decoration and structure of the space are replaced by plant-based materials. Second, through the combination of plant-based materials and space installation, customers can understand the materials as well as the company's products.



04/METHODOLOGY

The work is divided in four main parts.

P1> Theoretical framework: Explain the key concepts for the development and understanding of this topic. I will discuss the new research of plant-based materials and the application of plant-based materials in space.

P2> This chapter mainly introduces the application of new plant materials in different environments, primarily in the aspects of kitchen materials, to determine the materials of the interactive installations in the space and the technologies that will be used.

P3> Introduce the overview of the previous project of framing nature, describe the principal functions and products of the last space, determine the necessity of transforming it into a new type of space, and the applicable scope of the new material

P4> A new design scheme was concluded from the previous analysis. It mainly includes a simple description of the space, the study of the conceptual plan, the complete design plan, and the customer's experience in the area, showing the new material's characteristics through the new space.





Chapter 1- Overview on plant-based materials

This chapter's main content is the definition of new plant materials, looking for the current use of new materials, and the application of new materials in kitchenware. This chapter's content is more about the definition of functional materials, and there are some unique design cases.



1.1 Definition and typologies of plant-based materials

As the Minnesota Historical Society said in 2009, plant material includes various plant parts in many species. General categories of plant materials include grass, milkweed, bark, wood, gourd, stem, root, seed, and leaf. These materials can be used to build baskets, nets, ropes, and even fabrics. (Minnesota Historical Society, 2009). Plant composite materials are also more substantial than previous materials, such as plant composite cement (Obinna Onuaguluchi, 2016)

Standard production methods include felting, knitting, knotting, winding, knitting, and weaving. (Minnesota Historical Society, 2009) The fibrin of spiders fused into new plant materials is also degradable and more environmentally friendly than traditional materials. (Jürgen Scheller, 2005). The identification of plant material is usually carried out under a microscope. Some people may already have a closer understanding of the surrounding terrain, plants, and technology, which allows them to identify plant species through visual inspection. (Minnesota Historical Society, 2009)

1.1.1 interior decoration pollution

According to statistics, 2.8 million people worldwide die directly or indirectly from decoration pollution every year. With the continuous improvement of people's living environment requirements and the continuous pursuit of quality of life, indoor decoration is becoming more common. At the same time, unqualified building decoration materials have also caused severe pollution to the indoor air environment and caused severe damage to the health of residents (Jing Zhuo,2018)

Decoration pollution has become a significant problem endangering human health. Human beings spend 60% to 90% of their time working or living at home. The poor indoor air quality will directly endanger human health. Toxic decorative materials account for 68% of all ecological materials. It can release more than 300 VOCs and cause more than 30 diseases. (BrentStephens, 2015)

Interior decorations can also cause severe pollution. Children, pregnant women, and the elderly are more likely to be injured by indoor pollution because they spend more time indoors.

Indoor decoration pollution is new pollution caused by indoor decoration, caused by the improvement of residents' living standards.

Decoration pollution is mainly caused by gas pollution caused by materials and furniture used in the decoration process. Gas pollution mainly includes harmful gases such as formaldehyde, benzene, toluene, xylene, TYOC, ammonia, and radon. (Xu-hui, 2009)

Interior decoration materials are the leading cause of pollution. These materials can release gas for a long time. For example, radon comes from stone, formaldehyde mainly comes from board products such as flooring, and benzene mainly comes from paint and glue. When its content exceeds the standard, it will endanger health. (Brent Stephens, 2015) Formaldehyde and total volatile organic compounds are the primary pollutants that cause indoor environmental pollution, followed by indoor decoration. An unreasonable application of indoor materials can cause many health problems.

Plant material product could solve the material pollution problem, it also means that product could be recycled

1.1.2 characteristics of plant-based

The characteristics of plant-based materials are affected by different environments. On the one hand, plant-based materials have natural wood, but the structure of the material has excellent physical and mechanical properties, which are equivalent to hardwoods and have secondary processing properties like wood plannable and paintable. On the other hand, plant-based materials are susceptible to damage from humid and dry environments.

A basket woven from reeds, leaves, grass, or pine needles becomes saturated due to high humidity and may become too heavy to support itself. Expansion caused by humidity puts pressure on many traditional construction techniques. This expansion can cause the woven or bundled fiber bundle to break, resulting in the fiber bundle not being deployed in place. Twisting or breaking can also occur at the microscopic level of plant materials. (Minnesota Historical Society, 2019)

The application of plant-based materials should also consider its pros and cons. The color change of the material and the formation of precipitates under moderately different environments need to be considered. For example, under different acid-base environments, the state of the material is different.

-Physical deterioration: expansion and contraction due to excessive humidity or dry environment, and fragility due to excessive light; also including tearing, fracture, structural deformity, abrasion, and soiling.

-Chemical deterioration: The reaction between the article and other materials causes chemical changes and causes embrittlement and other problems.

-Biological degradation: mold, bacteria, fungus, dirt or insect or insect infestation.

Plant materials are relatively fragile, chemical, physical and other factors will cause damage to fragile items

Whether it is physical, chemical, mechanical or biological degradation, it may cause very fragile items, which are easy to embrittle, deform and lose. Objects constructed with plant materials, including three-dimensional objects such as baskets and hats, and two-dimensional or flat objects such as mats, should not be bent, scratched or worn. (Minnesota Historical Society, 2019)



fig. nationalgeographic.com

On the one hand, plant materials are environmentally friendly, can be degraded and have no major harm to the environment. On the other hand, plant materials are not as strong as traditional materials and need some protection (Yu Feng, 2008)





1.2 Plant-based materials in spatial design

As people spend more and more time in houses, offices, and other enclosed areas, it is crucial to ensure that they are a safe and healthy environment, primarily indoor areas designed for children and the elderly.

More and more new materials are also used in interior space. Now the design is not only for good-looking appearance but also for environmental safety and material sustainability.

No matter what kind of building the environment, environmental protection and health are more concerned with people. It is also a trend to explore new interior building materials

1.2.1 Effects of dangerous materials

The construction industry consumes a lot of natural resources and generates much waste. Resources are not often recycled or reused, and the remaining "waste" and products are usually sent to landfills. In addition to these harmful aspects of construction, many chemicals in the construction of residential, commercial, and industrial spaces release dangerous toxins through "exhaust." Toxins such as formaldehyde are found in paint products, wood veneers, roofing products, and insulating parts;

In the past 20 years, China's formaldehyde industry has experienced unprecedented growth. The formaldehyde produced and consumed now accounts for one-third of the world's formaldehyde. More than 65% of China's formaldehyde output is used to produce resins mainly found in wood products, the primary source of indoor pollution in China.

Although the Chinese government has issued a series of standards to regulate formaldehyde exposure, formaldehyde concentration in houses, office buildings, workshops, public places, and food often exceeds national standards. (XiaojiangTang, 2009) These materials are harmful to building residents and general air quality.

With the rise of the green building industry in the United States, many people have become more aware of the deeper issues related to architecture and design.(Kaitlin E. Keith, 2011)

Try to choose non-toxic, low-toxic, non-polluting, and less-polluting decoration materials, strictly check the production indicators releasing harmful gases, or conduct necessary testing.

(Xu Zhiqiang, 2006) Do not trust the so-called green building materials or green indoor environmental protection materials. , It is possible to distinguish quality to a certain extent by simply smelling, seeing, listening.

Environmental protection should be controlled from the source. Architects and interior designers have many tools at their disposal to reduce indoor air pollution and improve the living environment of human beings. The first step is to help reduce the entry of pollutants into the indoor environment. In designing, constructing, and selecting materials for decoration projects, green environmental protection materials should be selected as much as possible to control pollutants from the source. (Zhao Changmin, 2020)

Air pollution

Choosing paints and sealants with low volatile organic compound (VOC) content can significantly improve the indoor environment's quality. When the entire industry shifts to these products because of demand, manufacturers will be encouraged to stop producing toxic paints and contribute to a healthier environment. (He Xin, 2021)

Decoration pollution

Many materials are consumed in the internal decoration process, such as veneers, adhesives, etc. Conventional materials contain many toxic gases, and a large amount of gypsum board, thinner, and other materials are also used in the interior decoration process.

These materials contain benzene chemical substances, so the decoration needs to consider the benzene level of these materials (Ma Baolong, 2020) to control the air quality during indoor decoration and ensure that the building's indoor air quality meets the standard.

1.2.2 The use of plant-based materials in spatial design

Indoor building materials are different from the traditional materials (concrete, wood, brick), more and more new plant-based materials are used in the design

Fungus

Fungi are everywhere in the water, on the ceiling of our bathroom, in the ground. They can be mushrooms (edible, medicinal, hallucinogenic, or highly toxic) or other simpler forms such as molds. They can cause disease, but they can also produce antibiotics, such as penicillin, or help ferment amazing cheeses and bread pieces. (Eduardo Souza, 2020). Plastic products are flooded in the production of human society

In all aspects of life, seeking an effective and environmentally friendly alternative has become a top priority for humanity. The research on fungal mycelium composite materials is just under this background.

As a new type of biocomposite, the research team of Ecovative Design in New York and Steve Horton, professor of biology at Union College, researched fungal hyphae composites' application value in packaging applications. , Is currently in a relatively advanced stage. The research team has selected various fungi, used chaff, rice husk, and other plant fibers, added other nutrients needed for fungal growth after disinfection treatment, mixed them with fungal buns, and pressed them into blocks to obtain products that can be used for product packaging—fungus fiber cubes.

After treatment, fungal materials have better fire resistance and moisture resistance, and fungal materials are more environmentally friendly. The biodegradability makes the fungi not pollute the environment and can be reused

The fungal mycelium composite material is a kind of waste crop stems, seed husks, and other agricultural by-products or wood chips as the base material, in which fungi are grown to grow a specific density of hyphae as a bioadhesive, thereby fixing the base material and making It has the strength to use biocomposite materials. (Yang Jianwei, 2018) Compared with traditional non-renewable composite materials, the most prominent fungal mycelial composite materials are that they are degradable, sustainable, and environmentally friendly.

Because fungal materials can replace plastic products, they can reduce fossil energy consumption and reduce carbon dioxide emissions, which is of great significance for sustainable development.

Compared with other compressed short-fiber biocomposite materials, the fungal mycelium composite material is more straightforward in the process, does not require the use of traditional adhesives, and has a smaller density, which reduces the energy consumption of transportation.

In terms of safety, the finished hyphae will be dehydrated and inactivated, which can effectively prevent hyphae's continued growth, the spread of buns, and the mildew of materials. It also eliminates a series of allergens and pathogens, and the shape of the inactivated product will not change hair.

It can be used safely or in contact with the skin. It has specific fire resistance and water resistance. It does not release any volatile organic compounds, and it is not easy to age under ultraviolet light. It is effective. Ensure the strength of the material. Try to choose non-toxic, low-toxic, non-polluting, and less-polluting decoration materials, strictly check the production indicators releasing harmful gases, or conduct necessary testing. Do not trust the so-called green building materials or green indoor environmental protection materials. , It is possible to distinguish quality to a certain extent by simply smelling, seeing, listening.

Moss

According to statistics, people spend 80% of their time indoors. Excessive time indoors will create a barrier to the outside world. Not to mention physical health problems, indoor pollutants can affect people's health.

One of the ways to establish a new connection with the outside world is to introduce indoor plants. Living Moss Health Wall utilizes one of our oldest plant varieties to improve an indoor environment's visual appearance and enhance overall well-being.

In 1968, at the First Conference on the Effects of Air Pollution on Animals and Plants held in the Netherlands, bryophytes were recommended for general use as a biological indicator of pollution (Sun Shouqin, 2005) because they are easy to handle and have a wide range of specific air pollutants.

Moss is one of our oldest plant species, with nearly 15,000 species. It has strong vitality and can withstand harsh environmental conditions. It grows and multiplies in environments where other terrestrial plants are difficult to survive, such as high temperature, high cold, drought, and low light—known as a pioneer plant and pioneer.

In indoor environments, mossy walls are ideal for increasing healthy green spaces. Like other movable walls, they create a comfortable, warm atmosphere and pleasant smell for the entrance, foyer, or office. They have been shown to reduce stress, improve mood, improve concentration and other cognitive functions. In medical institutions, the movable wall can alleviate patients' anxiety, stimulate the pleasure receptors in the brain, and facilitate the rehabilitation of patients.

Moss provides an additional air filtration system that absorbs pollutants while generating oxygen. The report described a study conducted by the manufacturer in 2018 showing that three days after installing the moss wall, the carbon dioxide content dropped by 225%. Moss also produces negative ions, and its positive effects are currently being studied in many research papers. (AEC Daily, 2019)

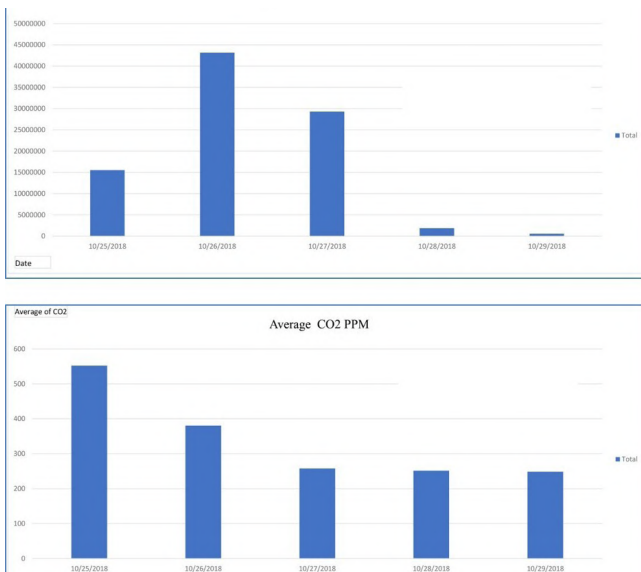


fig. AEC Daily



1.2.3 Case studies

The following cases mainly focus on describing new plant materials, many buildings, and indoor use of new plant materials.

On the one hand, it aims to interact between people and space to feel the area's transformation. On the other hand, it highlights the difference between new materials and traditional materials. The texture of traditional materials and new materials is quite different, and people's feelings in space are also different.

01 SEAmathy



02 Fabric Walls



03 Basic Coffee



SEAmpany

project name: 'SEAmpany'

design: daniel elkayam

photography: oded antman

<https://daniellkayam.myportfolio.com/>

Material sheet

Reason for choice

Choosing appropriate materials in the environment is the first thing I need to consider in the design process. In the first case, the designer used seaweed as the research object and was very impressed with me. Seaweed is environmentally friendly and reusable as a board material, which makes me think that the choice of materials in my own space has more possibilities.

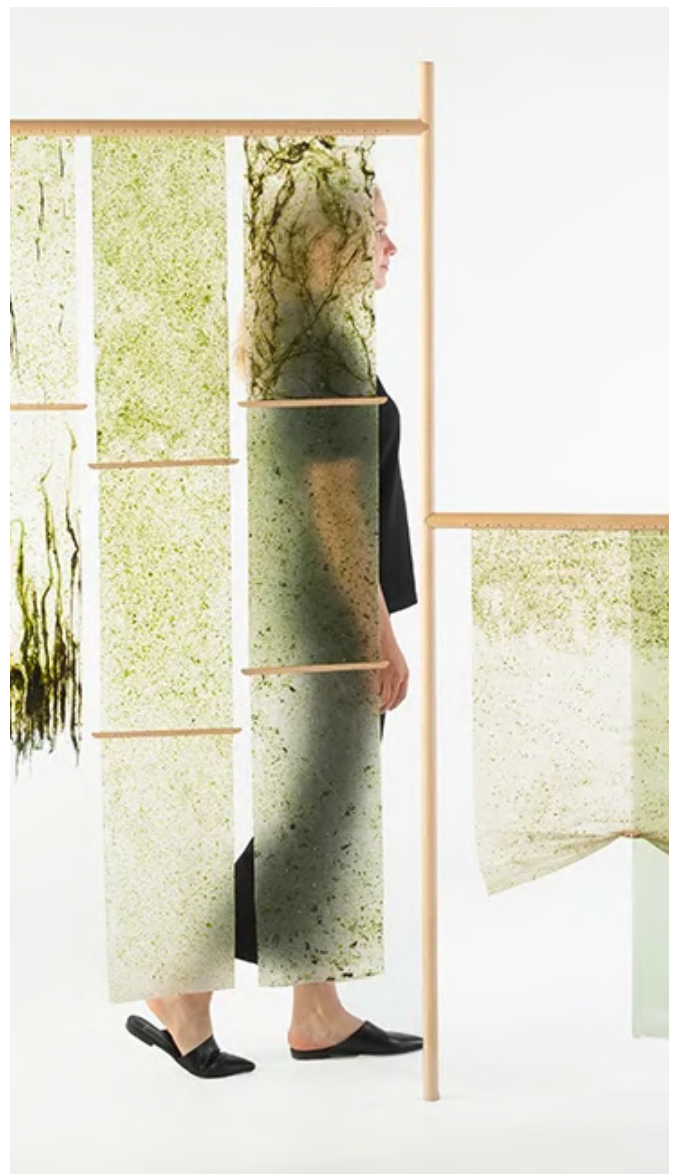


fig.oded antman

Project information

The designer Daniel Elkayam (Daniel Elkayam) is from Israel and his project "SEAMpathy" - a project to explore algae and make vegetarian materials.

Elkayam uses recyclable methods and zeroes pollution methods to create this biological material, re-cooked to reuse this material. When the material is used up, the material can be recycled again.

"MAYMA" is an attempt at another type of algae. Photosynthesis can still occur on the algae to form active fibers. The aspect material can breathe to maintain its activity.



fig.oded antman





relevance for the project

Through this project, we learn that it provides a green alternative material and studies the potential of the material itself so that human beings can integrate with nature to have a different understanding of the growth and recycling of objects. Simultaneously, materials are recycled and utilized often, which weakens more and more consumers' desire, makes people understand the precious resources, and leads to healthier and better consumption habits.

Highlight

- recycleable material
- different type of material sheet
- potential function



Fabric Walls

project name: Fabric Walls
Design MVRDV: Winy Maas,
Jacob van Rijs, and Nathalie de
Vriesphotography: oded antman
Location: Taipei, Taiwan
Year: 2017

<https://www.archdaily.com/883053/mvrdv-designed-auditorium-features-sound-absorbing-moss-like-fabric-walls>



Reason for choice

As the best plant to detect environmental quality, moss can beautify the environment and increase the air humidity and keep the air fresh.

And moss can also play a decorative role in the interior. As time goes on, it will show different forms. If it can match the design itself, moss will be a good

Project information

MVRDV transformed the 240-square-meter lecture hall of the JUT Foundation in Taipei into a moss-covered art installation, covered with textile works by Argentine artist Alexandra Kehayoglou (Samantha Barkley, 2017). This space is dissatisfied with the custom-made moss-style carpet, which adds a certain sense of comfort and interest to the originally monotonous space.

Highlight

- Growth of the plant
- Plant decoration
- Detection of environmental problems



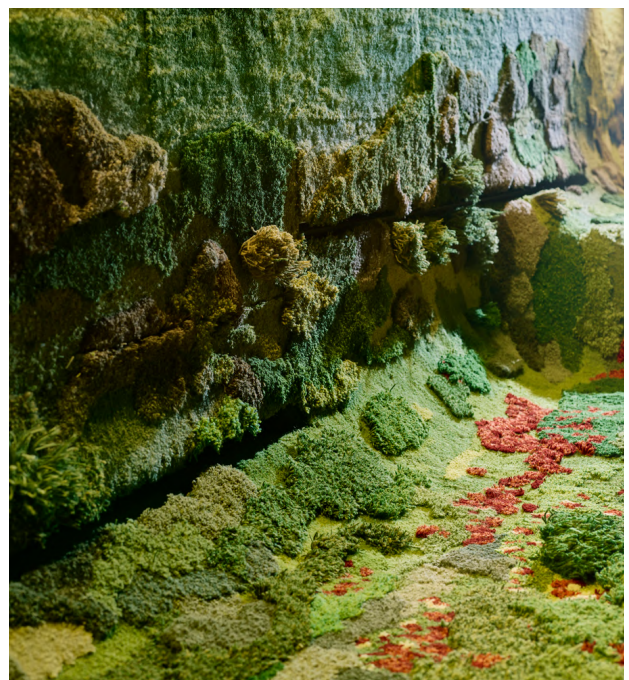
fig. Jut Group

The lecture hall is adjacent to the exhibition hall of the JUT Foundation on the ground floor. Wrap the entire hall with moss fiber materials, integrate the art hall and the assembly hall to the back row's audience.

Thinking

Unlike traditional interior decoration, plants as decorative materials can also show different states with the growth.

In interior design, it can be said that plants are framed in a particular form, waiting for them to develop into different plant forms.



Basic Coffee

project name: 'SEAmpany'

design: Office AIO

photography: Yujie Liu

Year: 2019

<https://www.archdaily.com/office/office-aio>



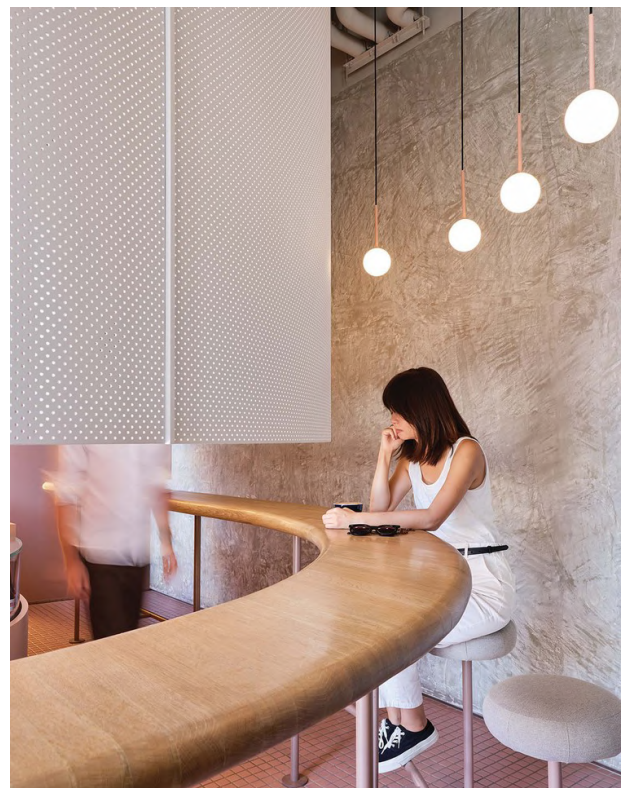
Reason for choice

The reason for choosing this coffee shop is that customers seem to follow the coffee-making process in this space. Customers not only stay at the door waiting for coffee but also know more about the coffee-making process, which also makes the coffee-making process more interesting.

Project information

The focus of this design is to change the customer's vision with the passage of space, and customers will gradually move forward with the coffee production process.

This sense of mystery and curiosity is made possible by a concentric spatial organisation, originated from a concealed coffee-making area, wrapped by a 'veiled' entry gallery and a curved seating area on the outermost layer. (Office AIO, 2019)



Thinking

This design's focus is to change the customers' vision with the passage of space, and customers will gradually move forward with the coffee-making process, which is also the most beautiful part of this scheme. Coffee making area and customer dining area are closely combined, and space also gives customers and shop assistants a place to interact.

Highlight

- Process of making coffee
- Spatial streamline
- Division of regions



Chapter 2- Plant-based kitchenware

In this chapter, I pay more attention to the materials of kitchenware in restaurants. Plant-based materials are not only highlighted in the interior space but also more reflected in the kitchenware. The recyclability of kitchenware is more convenient than that of freedom. The best expression is the design of kitchenware and space.



2.1 Plant-based materials in kitchenware

As the name suggests, plant-based material kitchenware is mainly made of plant materials or extracted plant materials and other materials for mixing materials.

Different from the traditional steel or ceramic kitchenware, plant-based kitchenware can be reused and recycled. As a research company with plants as raw materials, it is also necessary to study the application of appropriate materials to kitchenware.

2.1.1 Characteristics of plant-based kitchenware

New materials for kitchen utensils are similar to indoor space materials, focusing on fungal materials, such as Vegware company, which mainly uses various plant materials to make disposable kitchenware, which is pollution-free and can be recycled at the same time.

Vegware is made from plants using renewable, lower carbon, recycled or reclaimed materials, and designed to be commercially compostable with food waste, where accepted. Compostables are a practical solution for single-use food-contaminated disposables, allowing foodservice to achieve their sustainability goals. (vegware.com)



Palm leaf

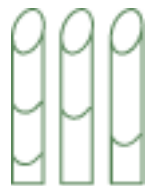
Made from naturally fallen Areca palm leaves in Southern India. Kitchenware suitable for hot and cold food. Fallen leaves are gathered and cleansed with high pressure water jets. Once dried, they are shaped under heated moulds. There are no coatings, additives or chemicals, just the natural leaf. Used to make our Palm leaf kitchenware, including plates, platters and bowls. (vegware.com)

there are some interesting information about their product



NatureFlex

A clear film made from wood pulp. The wood is sourced from sustainably managed forestry. Cellulose fibres in wood pulp goes through a casting process and regenerates into a certified industrial and home compostable film called NatureFlex. Used for our clear bags and some of our products' clear windows, it is greaseproof and suitable for hot and cold food. (vegware.com)



Bagasse

Made from a by-product of the sugarcane industry. Bagasse is a stylish eco alternative to polystyrene suitable for hot and cold food. Made from reclaimed sugarcane, our bagasse uses the dry fibrous residue left once sugarcane has been pressed for juice. A high-heat, high-pressure process is applied to press and shape the fibres. Used to make our takeaway boxes, plates and bowls. (vegware.com)

Vegware's products are mainly made of natural plant materials, many of which are waste materials. What attracts me most about Vegware is that they not only produce recyclable kitchenware, but also recycle and reuse the used materials

2.1.2 Some examples

We can not see that the kitchenware made of new plant materials is different from other kitchenware in appearance. It is more similar to the build's traditional plastic materials; we can't see that the kitchenware made of new plant materials is different from other kitchenware. It is more similar to conventional plastic materials. The main differences are in the internal structure and sustainability.



Vegware

Vegware is a company that uses plants as raw materials to make products. Their products can be recycled, and the products are harmless to the environment. Moreover, the products can be recycled into fertilizer to fertilize plants

renewable: The general materials are from plant materials, so the materials can be regenerated, and the materials can be degraded in the process of fertilization

healthy: Because the material comes from the plant material, so the material itself is not harmful to the human body

light: Plant materials are lighter than other decorative or building materials and have better ductility in use

<https://www.youtube.com/watch?v=LZD--a7ODaw&feature=youtu.be>

ECOVSTIVE DESIGN

Ecovative is a company that mainly produces mycelial plant materials, including plant mycelium packaging, plant meat and other products



The company also has extensive cooperation with Dell, IKEA, biomason and other companies

This company has a very attractive place for me is that plant materials can be formed in a very short time, which can not only ensure the production of products, but also can be fast

process of making holder model

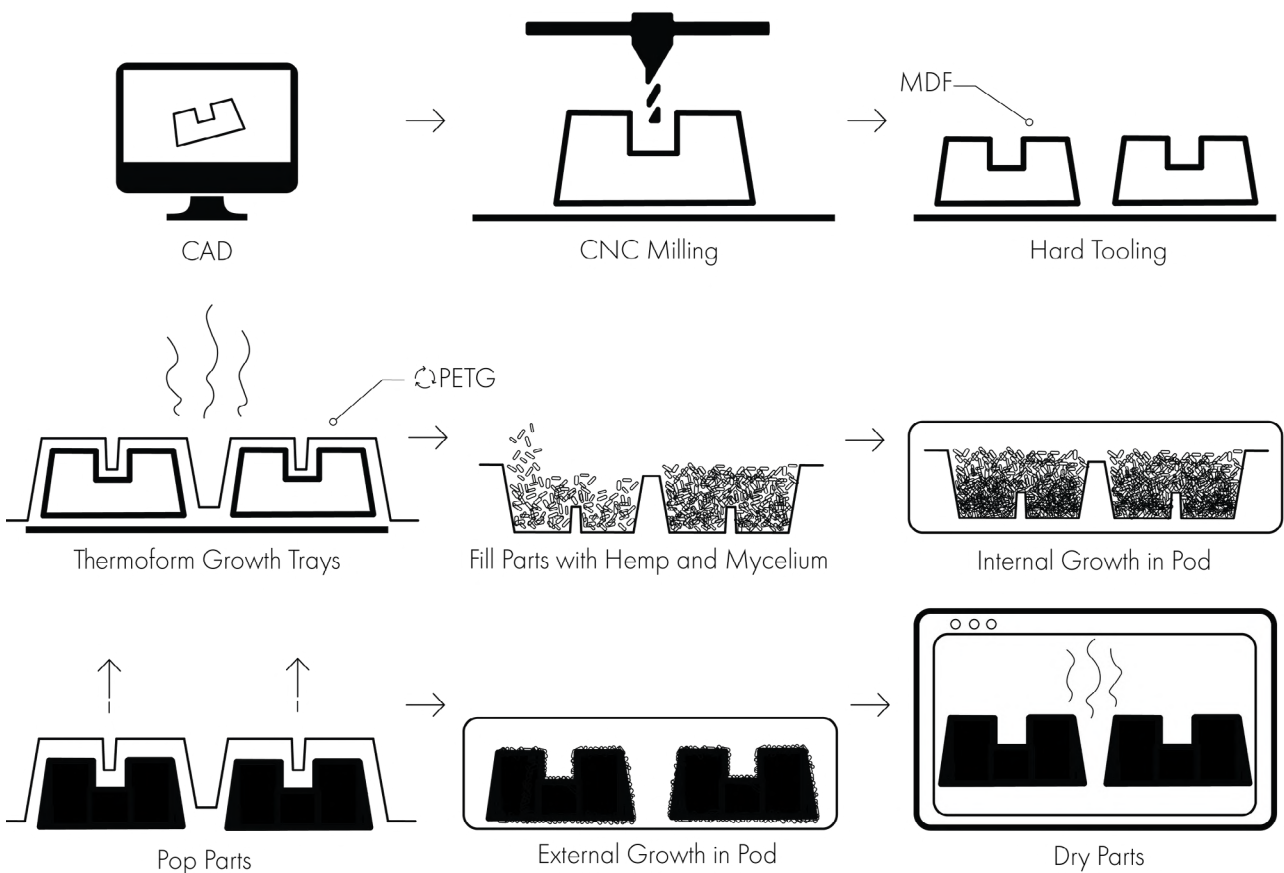


fig.mushroompackaging



Highlight

light

sustainable

protectable

fig.mushroompackaging

The company can produce all kinds of coasters and water cup trays. In the coffee shop, the tray can be directly used in a coffee cup or other utensils, which is convenient and environmentally friendly.



2.2 Kitchenware in food spaces

A coffee shop should have different types of kitchenware. Compared with other dining spaces, the styles and types of kitchenware in a coffee shop will be more abundant, similar to the coffee machine and other tools. However, the commonly used kitchenware used by customers is mainly cups, knives, and forks. Therefore, this chapter focuses mostly on the kitchenware for customers.

2.2.1 Typologies of plant-based kitchenware solutions

The most common utensils used in cafe are: cups, forks, knives and plates.

2.2.2 Some examples

CUP

The image of the coffee cup is consistent with the appearance and the whole space, reflecting the subjectivity of the design. The coffee cup can not only reflect the application of plant materials, but also have a certain degree of sustainable utilization

Recyclable

Sustainable

Smooth

Huskee.

HuskeeCup

Sustainable, versatile and beautiful.
Created using waste husk left over from the production of coffee. (us.huskee.co)

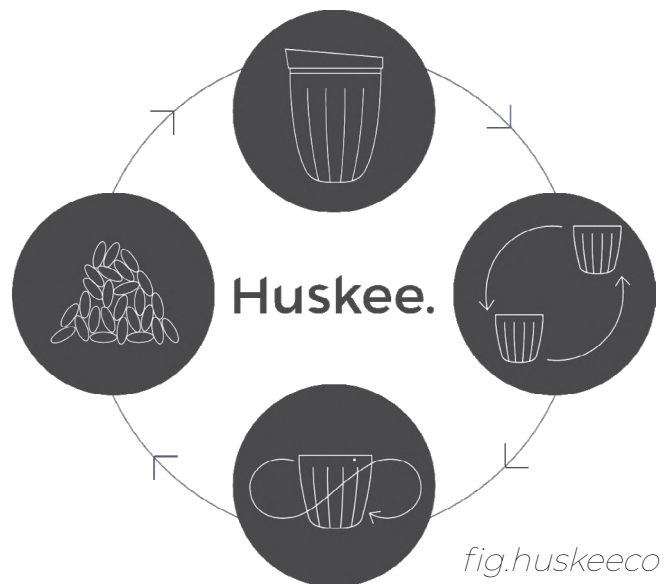


HuskeeCups generally live a long & full life. But at the end, they want them back! They are inviting every Swap cafe to be a collection point for any used or damaged HuskeeCups. (us.huskee.co)

Not only do they want to spare our oceans and landfill from single-use, They want to spare them from longer lived products too! They need to extend every single product to it's absolute maximum. (us.huskee.co)

From the product information, huskee's products are mainly made of coffee nuts, and kitchenware can be reused. Even if the kitchenware is damaged or damaged, there is no need to worry about the scrapping of the kitchenware.

HuskeeTech
Our unique biopolymer made from coffee husk that forms the basis of our cups, saucers and lids. (huskee.co)



Fork,Knife

fig.rosenthal.de



"Thomas kitchen" is the latest work of Rosenthal, the German porcelain manufacturer. Based on the company's 130 year history and the previous product lines of Konstantin Grcic and Stefan Diez, the office for product in Hong Kong led by Tomas ROS é N and Nicol Boyd Design has expanded the traditional dining table, including various household settings, functions and materials (rosenthal.de)

The kitchenware is composed of two parts, the former part is made of silica gel and other materials with strong durability, and the latter part is mainly made of wood and other environmental protection materials



inspiration:

fork and knife could combine with the **plant-based material** and **silica material**

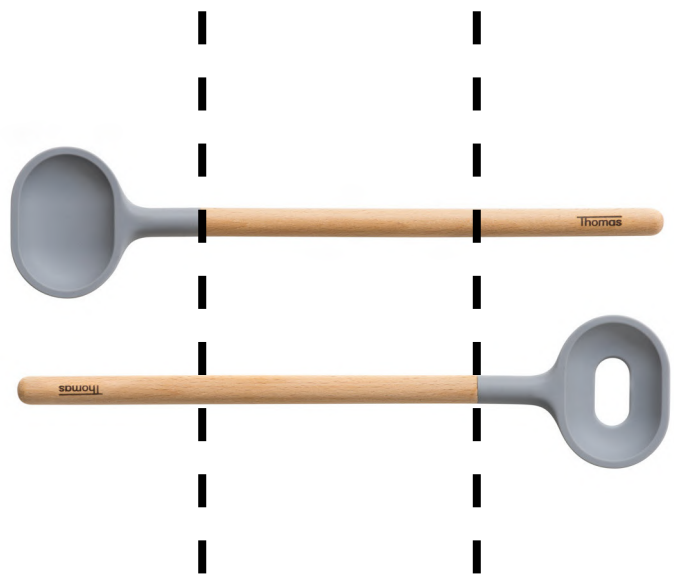
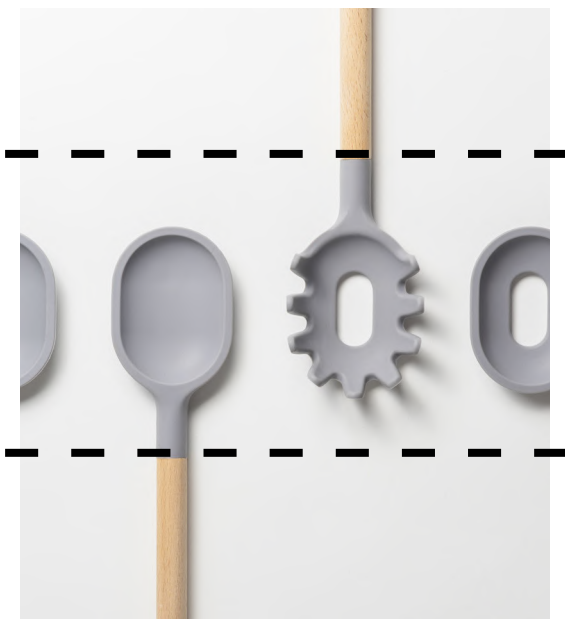


fig.rosenthal.de

Packing

Arabica is the most popular coffee shop in Asia in the past two years. This Japanese coffee shop can be famous because of its simple design style; on the other hand, it's clear packaging so that customers can identify their products for the first time.

% ARABICA



The logo clearly shows the characteristics of the product

Reflect the brand

Logo expression

Sustainable materials



fig.arabica.coffee





Chapter 3 - The case of Framing Nature

This chapter mainly introduces the previous project's "framing nature," the scheme's initial formation, and the design process. In this chapter, we can also see the connection and functional division of each part of the space, which also provides the basis for the design evolution of the following chapters.



Introduction-The Framing Nature

Framing nature is a plant materials company based in Milan, whose purpose is to develop new plants. These new materials can provide indoor decoration materials and be used as the production materials of small kitchenware or other products. The company not only produces materials but also provides the surrounding residents and the public with a way to learn about new materials



3.1 The concept of Framing Nature

The concept of design is the growth process of fungi, and the concrete growth process of fungi is abstracted as the growth of abstract geometric images. In terms of the evolution of the whole space, we can see that the geometric figures in the area are growing with the progressive development of the site, which is also in line with the shape of the room, and the geometric figures with different growth degrees also cooperate with other functions.



Framing nature cafe is an improvement based on the original plant reception room on the first floor. The purpose is to meet the needs of the surrounding residents and promote the role of the company.

This project's concept is developed from the process of fungal growth, from a single fungus at the beginning to a colony at the end.

In this development process, space will also change with the transformation of fungal structure and morphology.

Starting from the concept, for the further improvement of the design process, from this design process, mainly the following aspects are considered.



interior function of framing nature:

- 1.Reception area
- 2.reception area
- 3.product exhibition area
- 4.conference room
- 5.staff information exchange room
- 6.laboratory
- 7.product exhibition area

- 1. Materials, the use of research-related materials
- 2. Inspiration comes from the choice of initial conception
- 3. Demand, aiming at the needs of the surrounding residents and customers
- 4. Promotion, the promotion of product concept and use

Because of these ideas, space shows different space division. The use of frame form in the area, the use of plant materials in decoration, etc

Concept generation



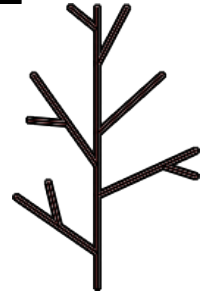
1 exposing



2 abstracting



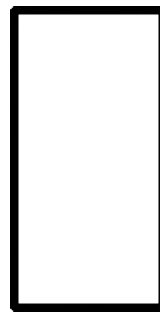
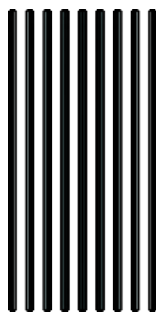
3 extracting



4 testing

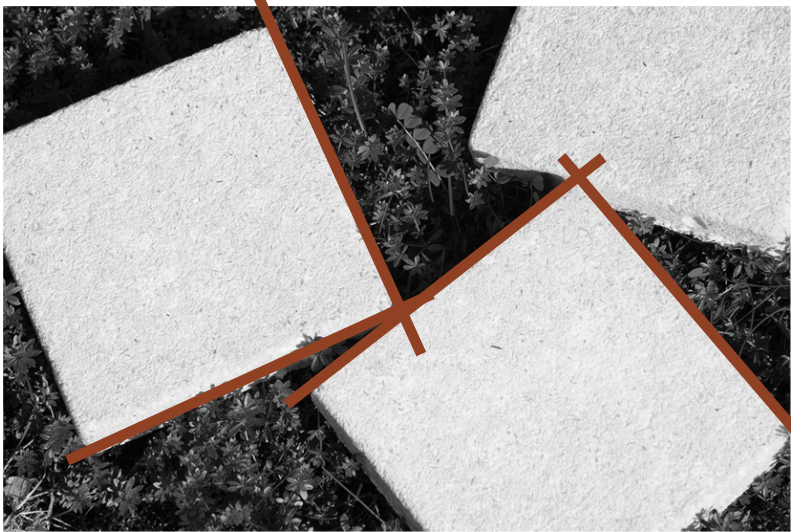


5 shaping



Spatial elements

FLOOR



FRAME



SHELF



Spatial space-ground floor



Framing
nature

reception
exhibition
treatment



meeting
exhibition



Spatial space-ground floor meeting room

Spatial space-ground floor meeting room



meeting
exhibition
chating

Spatial space-second floor lab



experiment
working

Spatial space-second floor lab



chating
discussing

Spatial space-second floor lab

Framing nature

Semi-finished material Second floor ▶

Leisure area ▶

Exhibit installation ▶

In our own office not only we help
create other healthy environments
but we have a complete plant-based environ-
ment of our own.

exhibition
leisure





3.2 Expanding the project

The following is a brief to better state the project's future and the thesis's direction.

The brief's primary function is to plan and design the idea, steps, design scope, and design details. It helps to clarify the design details and provides a background that facilitates the design process. It will provide a general design process for the design, avoid the problems and obstacles in the design process, speed up the procedure, and finally complete the thesis.

1. Project statement

the design inspiration of the whole area. The inspiration for framing nature comes from the growth process of plants. The formation of space is closely related to the inspiration of the design. The primary materials used in the area are wood, plant floor, plant frame, and natural stone so that employees can associate with plants' growth process in nature. Another essential element is the streamlined structure in the space, which is like walking in the forest. The room's color, mainly natural stone color and natural wood color, in the area of the floor and decorative materials will have plant elements. Therefore, the different feelings of space present inspirational, healthy, and dramatic space design. In this space, people will feel different space feelings.

2. Objectives

This project has two main objectives.

01. Show the company's products, let more customers understand the characteristics of new materials, to understand the impact of materials on the environment.

02. Give the surrounding residents a place to rest, promote products, but also provide a place for communication

3.Target

This project is aimed at the daily staff as well as the surrounding residents and customers. This group of people have the following demographic and psychographic profile:

Demography:

- 58% female and 42% male.
- All income level.
- Mainly middle audience: 60% are between 25 and 38 years old.
- Most of them are office workers around, engaged in different occupations.

Psychoraphy:

- Attractive space
- Be curious about new things.
- Enjoy group activities and social activities.
- Advocating health and pursuing a
- Higher level of life
- Passion for life

4.Space division

The first floor's space design is to show the space of the laboratory products and provide customers with a place to rest. This space is a place for display and leisure.

The entrance area mainly displays the company's products and image to have the most direct understanding of the products. This area accounts for about 30% of the space. After entering the room, there is the reception and coffee making area, where customers can wait for their coffee, accounting for about 25% of the room. Behind the coffee making area are the exhibition area and the rest area, where products will also be displayed. The site is about 45%





Chapter 4 - The project: Framing Nature Cafè

This chapter mainly introduces the extension project of framing nature. The coffee house project will be used as a supplement to the surrounding installations, and then space will be designed to meet the shortage of rest and meeting places nearby. On the other hand, it also publicized the company's products.



4.1 Introduction to the new spatial solution

Framing Nature is a laboratory focused on researching plant materials. Its products are mainly new plant-based materials. Through the cultivation and experimentation of different plants, plants are made into products with different materials, such as plates made of fungal materials, kitchenware made of bagasse.

The laboratory's original space design is dominated by research, and the reception personnel are also professional researchers and customers. The neighbors and customers seldom come to this space. The purpose of space renovation is also to attract more customers to participate in the space.

The concept of framing nature cafe is to transform the original conversation and business area on the first floor. While providing catering for surrounding customers, it can also promote the company's products. The laboratory also encourages customers to enter the space and interact with it.





4.2 Inspiration for the framing

In the next chapter, I will mainly introduce some case studies of the project, and extract the elements in line with my design from these case studies, and apply them to the final design

01 UK Pavilion
Heatherwick Studio
2010



02 Vira-Lata
Moradavaga
2015



03 Flip-it
Moradavaga
2019



04 Café Loge
The Cornerz + Kode
Architects
2018



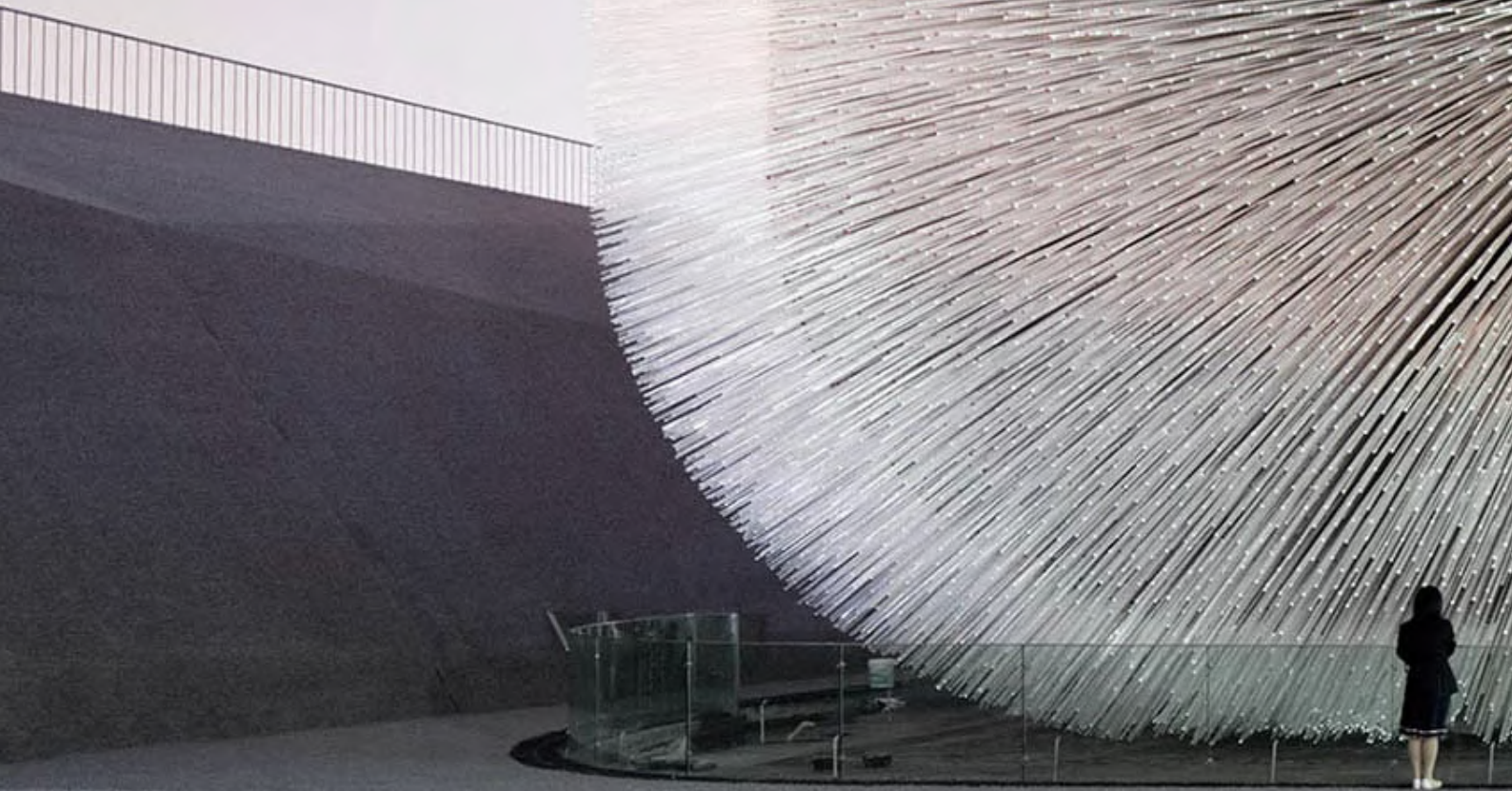
01 UK Pavilion

Location: Shanghai, China

Date: 2019

Designer: Thomas Heatherwick

<http://www.heatherwick.com>



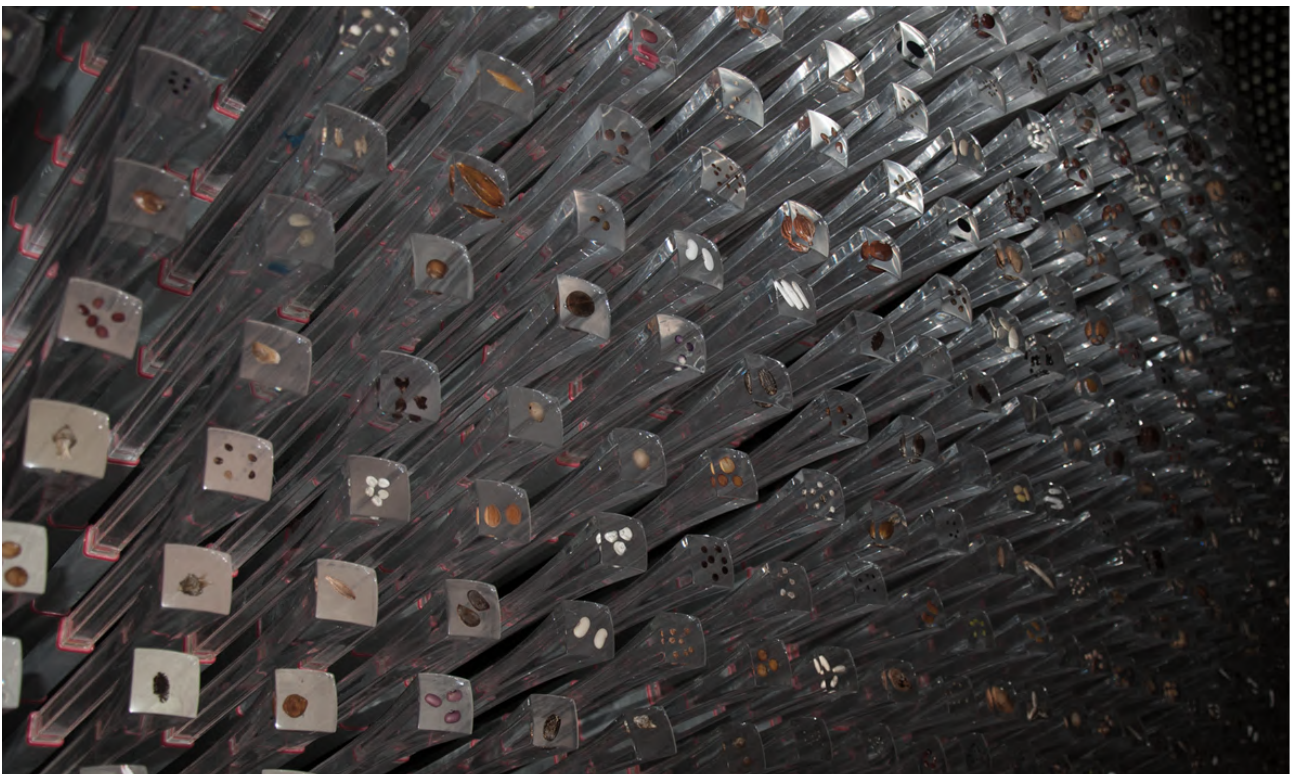
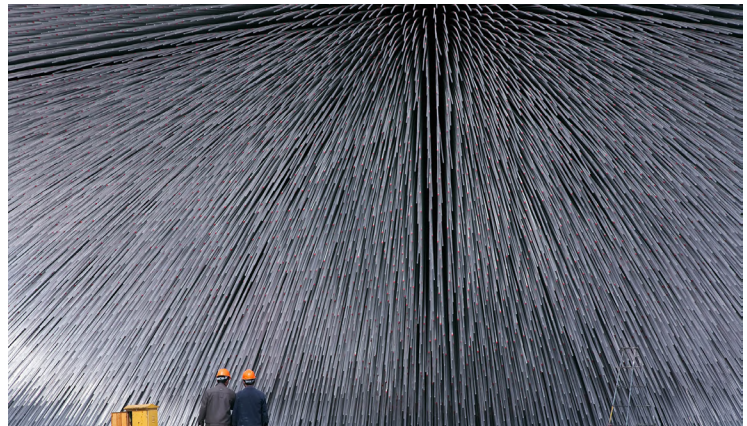


Description

Designed by Thomas Heatherwick in 2010 for the UK World Expo pavilion, the seed temple is composed of 60000 acrylic rods, each 7.5m long, illuminating the interior with 250000 plant seeds. The whole building seems to be on a piece of unfolded drawing paper, which appears to provide a resting green space for the public. Unlike other installations, this building is not to promote British historical and cultural heritage but to show British botanical research heritage

Reason for choice

The exciting part lies in the presentation of plant seeds, which distributes all the seeds in different acrylic pipes. This form is applied to the overall situation of architecture and reflects another state of an exhibition. The building's appearance is like a dandelion swinging with the wind, and the acrylic tube inside will again move with people's touch. At night, the whole building is like a seed of light. I was also fortunate to visit this building when I was in junior high school.





02 Vira-Lata

Location: Porto, Portugal

Date: 2015

Designer: Moradavaga

<https://moradavaga.com/VIRA-LATA>

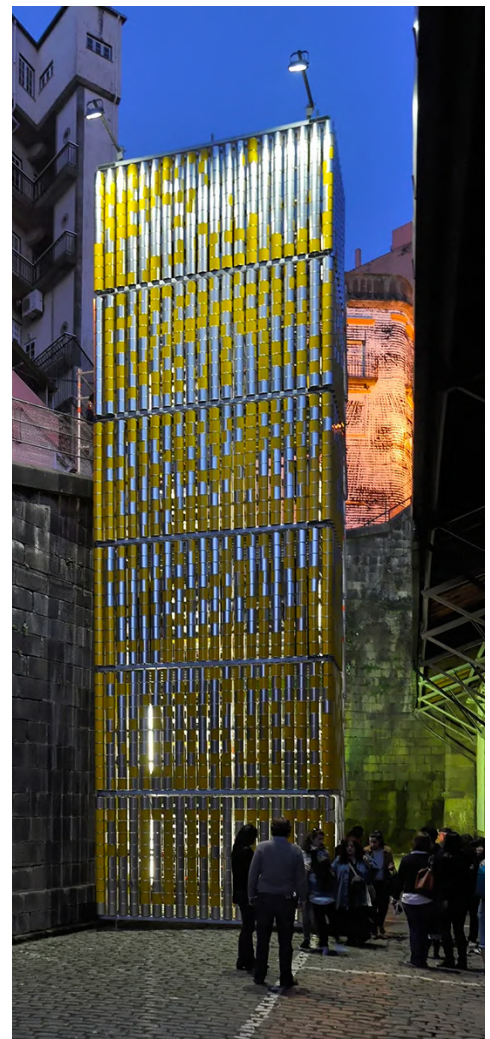
Description

The project, located near Porto railway station, consists of 2300 rotating cans. The building's facade is designed as a communication tower, followed by a functional public staircase connecting the station to the street above. Stairs also allow visitors to interact with the work actively. By turning any of the 2300 cans (as in a large pixel screen), the user can create the original message and image.



Reason for choice

What attracts me most about this project is that it can combine information elements to interact with people. The masses can see the information when they pass by and communicate with it when they pass by. The interactive crowd is also vast, children can change their favorite shapes on it, and the railway station can spread information through this tower. During holidays, it can also be used as a place for holiday activities



03 Flip-it

Location: Santa maria da feira, portugal

Date: 2019

Designer: Moradavaga

<https://moradavaga.com/FLIP-IT>





Description

This project is set up to commemorate a local football club. "Flip it" integrates the visual grammar in its concept, which is based on the standard grid of two ancient technologies: Portuguese sidewalk or traditional tile exterior wall and modern electronic display or digital screen. It has also become a way for fans to communicate with the city, leaving a dialogue message to the town while communicating with the equipment.



Reason for choice

On the one hand, this installation provides a way for the club to publicize; on the other hand, it provides an interactive installation for the fans and the masses, making the originally boring wall become an interactive installation. In the changing process of the city, it leaves an unforgettable memory belonging to this club.





Caféloge

04 Café Loge

Location: Seongnam-si, South Korea

Date: 2018

Designer: Kode Architects

<https://www.kodearchitects.com/>



Description

Caféloge cafe is located on the first floor of a typical office building in the commercial district of East PangyoCity, Republic of Korea. A curtain wall surrounds the upper part, and the lower part is covered with dark stone facing, transparent glass, and an exaggerated sigh. The interior space of the building seems to be deep in the forest. The wall's surface is centered on the center of the beginning part of the door and window's arched body, while the lower part is finished in white to emboss the flora, and the upper part is finished in dark green to enrich the space. The inverted arch design of the ceiling can further create a forest atmosphere, visually interrupt the equipment pipes, such as the ducts on the exposed top. Simultaneously, environmentally friendly wood is used on the floor to emphasize the feeling of the forest.

Reason for choice

This design combines forest elements with space design. It has some design elements similar to my coffee shop design. It combines the design with geometric elements.






Framing Nature Cafe

exploring daily uses of plant-based materials

4.3 Project development and details



From this series of cases, we can see the help of my space design and design language evolution. The language in space is as follows.

Interactivity

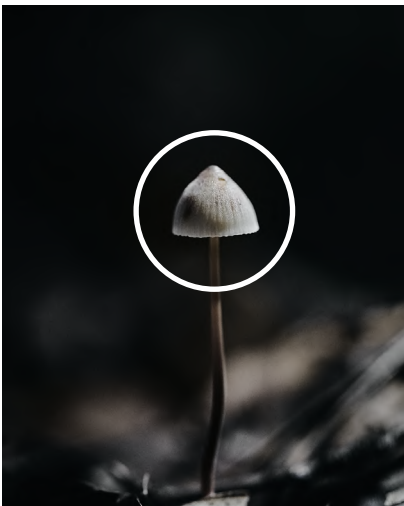
Recording of information

Communication between people

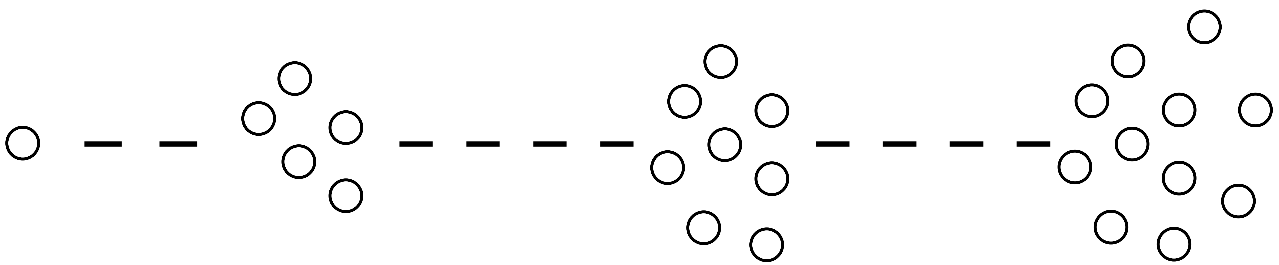
These attributes are fused with the original space elements to design a space that reflects the original space characteristics and more interactive.

4.3.1 Concept generation

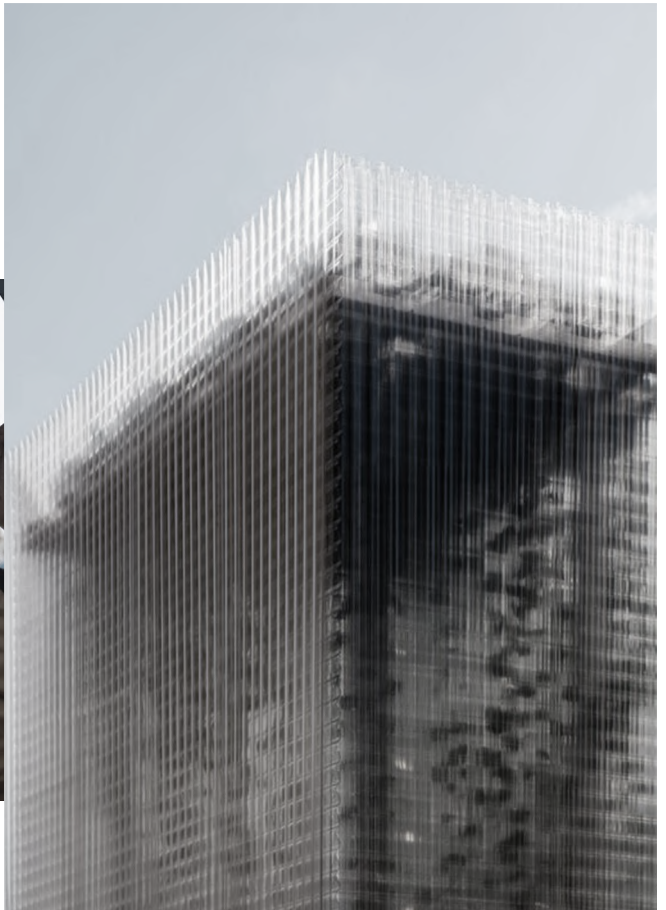
Just like the project I mentioned before, framing nature is a plant research institute. Based on the original foundation, it extracts conceptual design from the morphology of fungi, and compares the morphology in space to the growth of fungi.



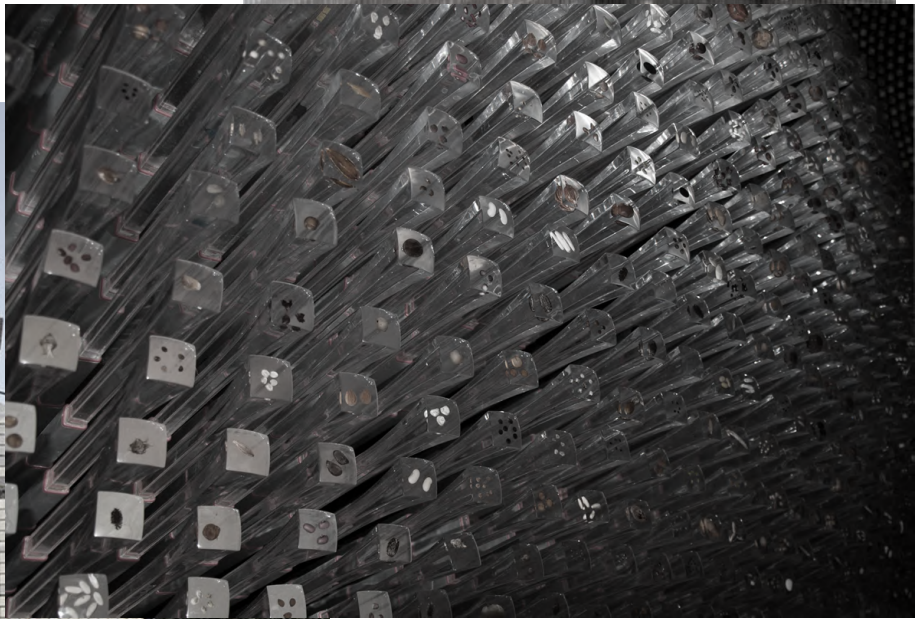
Element evolution



Moodboard



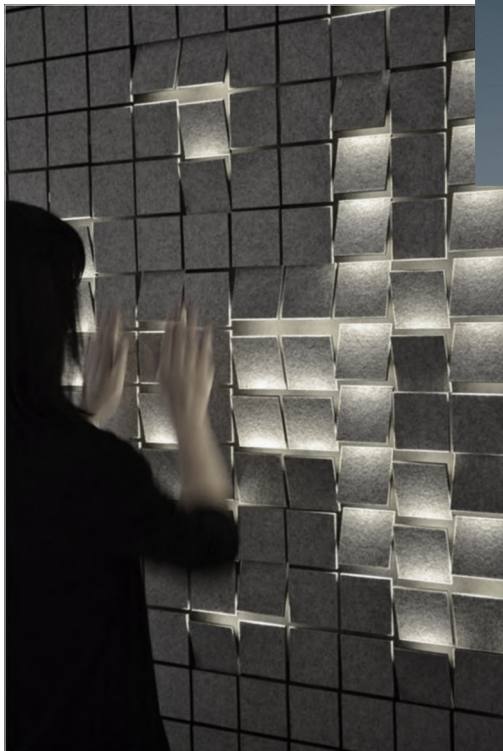
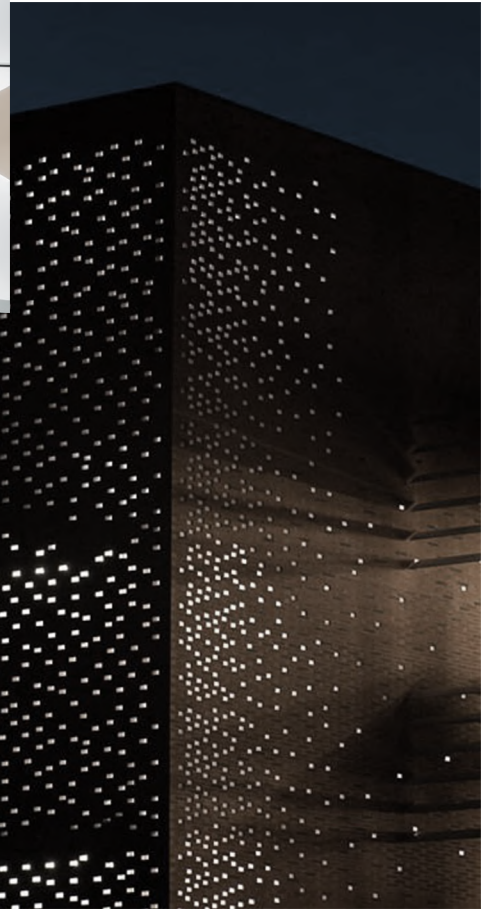
interaction



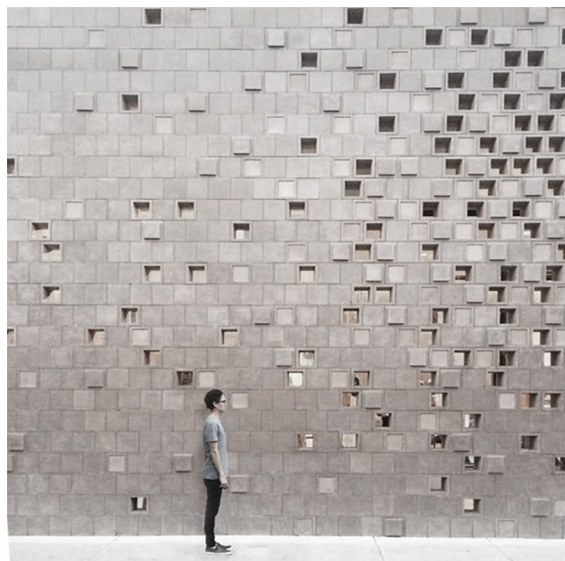
Informative



intensity



transitivity

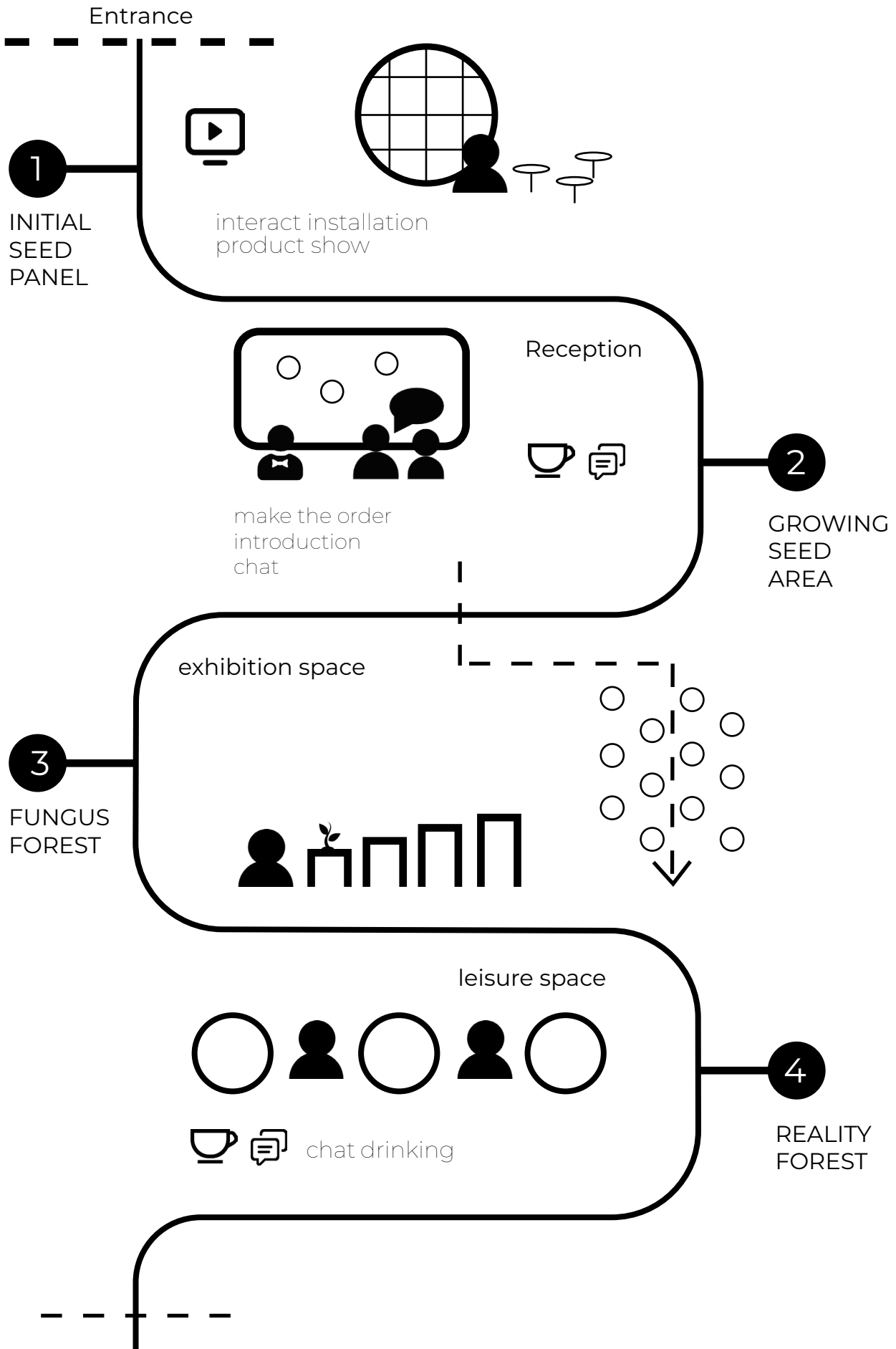


4.3.2 framing nature experience

The purpose of framing nature is to enable customers to participate in the activities in the coffee shop. People and installations in the space can interact, and understand the characteristics of our products while resting.

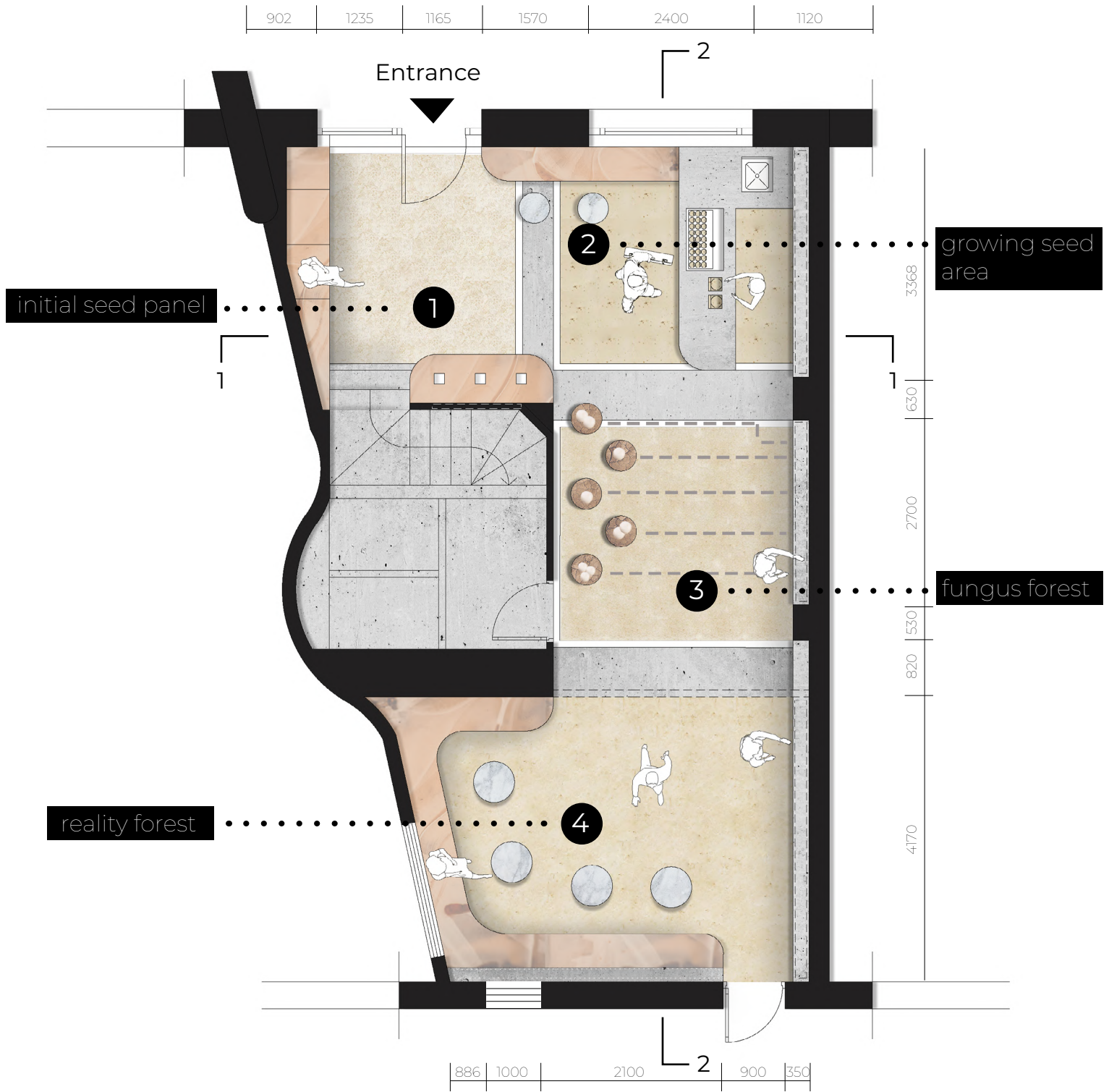
Promote the company's products, but also promote people's awareness of environmental protection.

Framing nature is a coffee shop that advocates customer participation. It's my main task for customers to discover the secrets in the space.



4.3.3 Framing nature layout

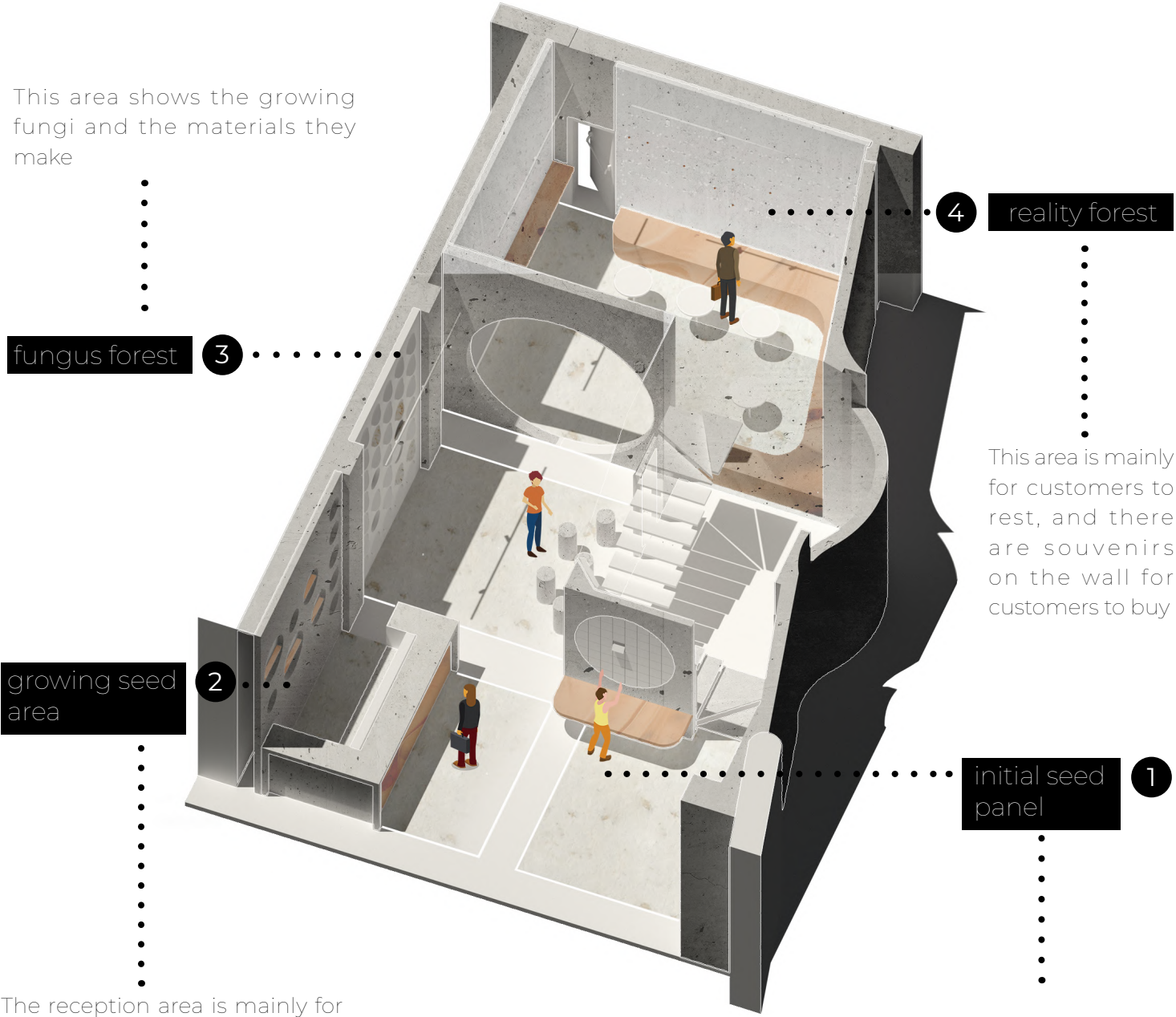
Master plan



Master plan

Perspective view

The perspective view enables more details to be seen in the whole scene. The space is mainly divided into four areas. When customers drink coffee, they also learn about the company's products



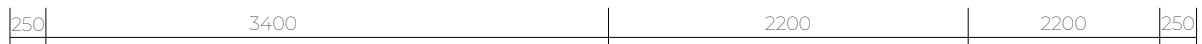
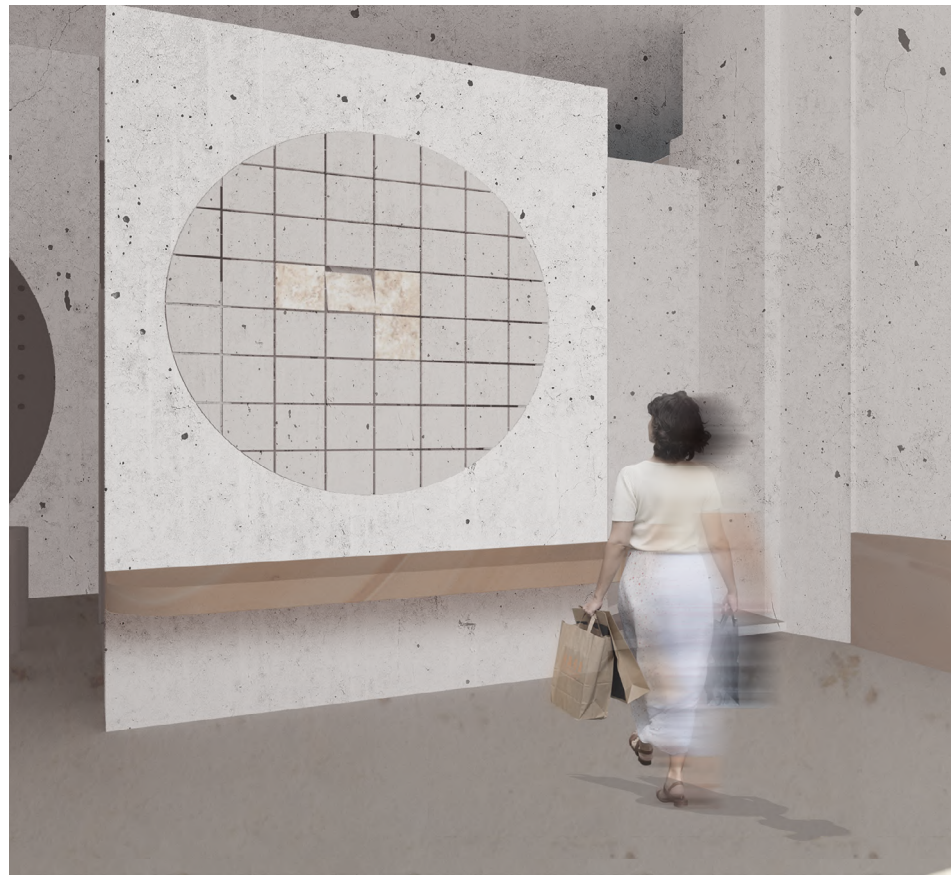
The reception area is mainly for customers to order food and drink

The entrance is the first place to introduce the product, and the panel enables customers to interact with it

4.3.4 INITIAL SEED 1 PANEL

The installations at the entrance is mainly used to show the function of the company's products. The disc is engraved with the information of plant materials, and also shows the information that plant materials can be used to make kitchenware.

Panel shows the information of **plant materials** and **kitchenware made of plant materials**



1-1 sectional drawing

initial seed panel

Initial seed panel

"The begining of the journey"

Seed panel has a two-sided structure. One side is the plant material of the lab, and the other side is the coffee variety of kitchenware.

This installations encourages customers to touch the product and understand the story behind it.

As the first step to enter the coffee shop, this interactive installations can attract customers enough, so that customers have enough interest in the space and products in the shop, which can not only enhance the fun of the space, but also enhance the interactivity.

These 60 pieces of material board have the products of different materials of our company, so that customers can intuitively understand the characteristics of the products.

User journey of Initial seed panel

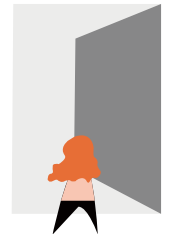
drink&have a meeting

someone want to have
a drink



enter into the cafe
consumer

find the cafe on the map



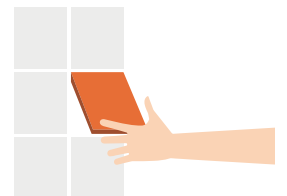
notice the installation

find the panel at the
entrance

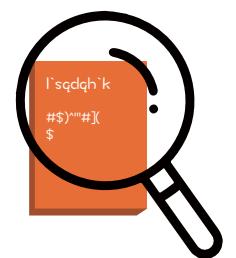


interact with the
installation

go close to the panel



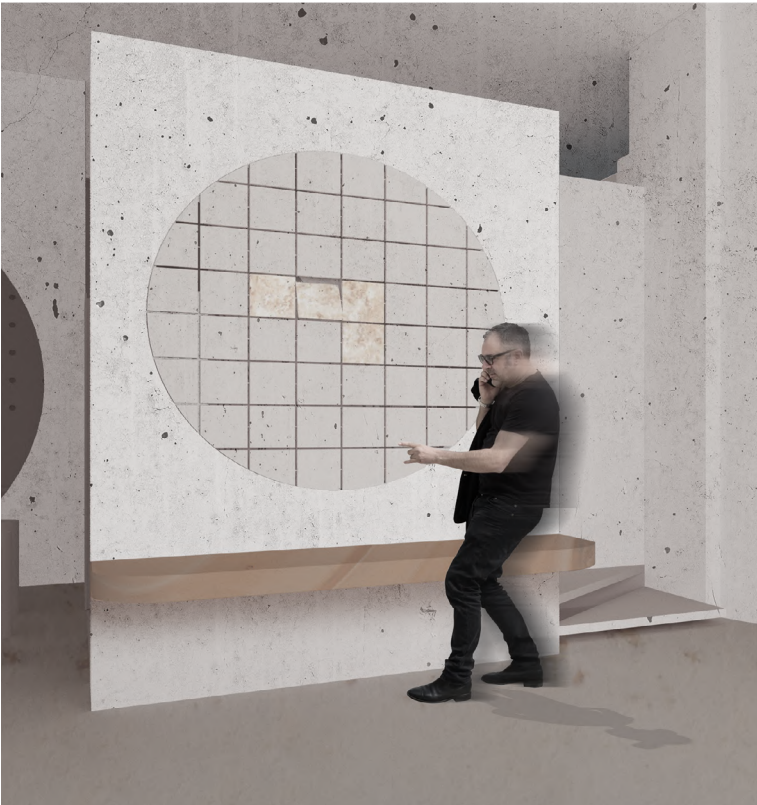
infomation on the
panel(material of the
kitchenware)



go to the reception to
buy the coffee&consult
material information



1



Function of initial seed panel

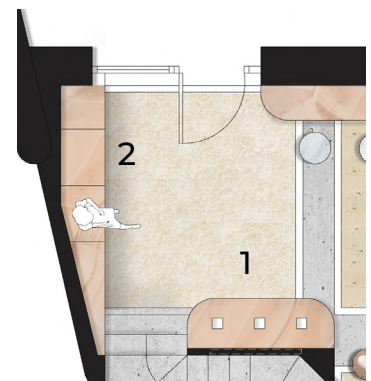
Interact with the panel to understand the company's product information.

- kitchenware information
- plant material information

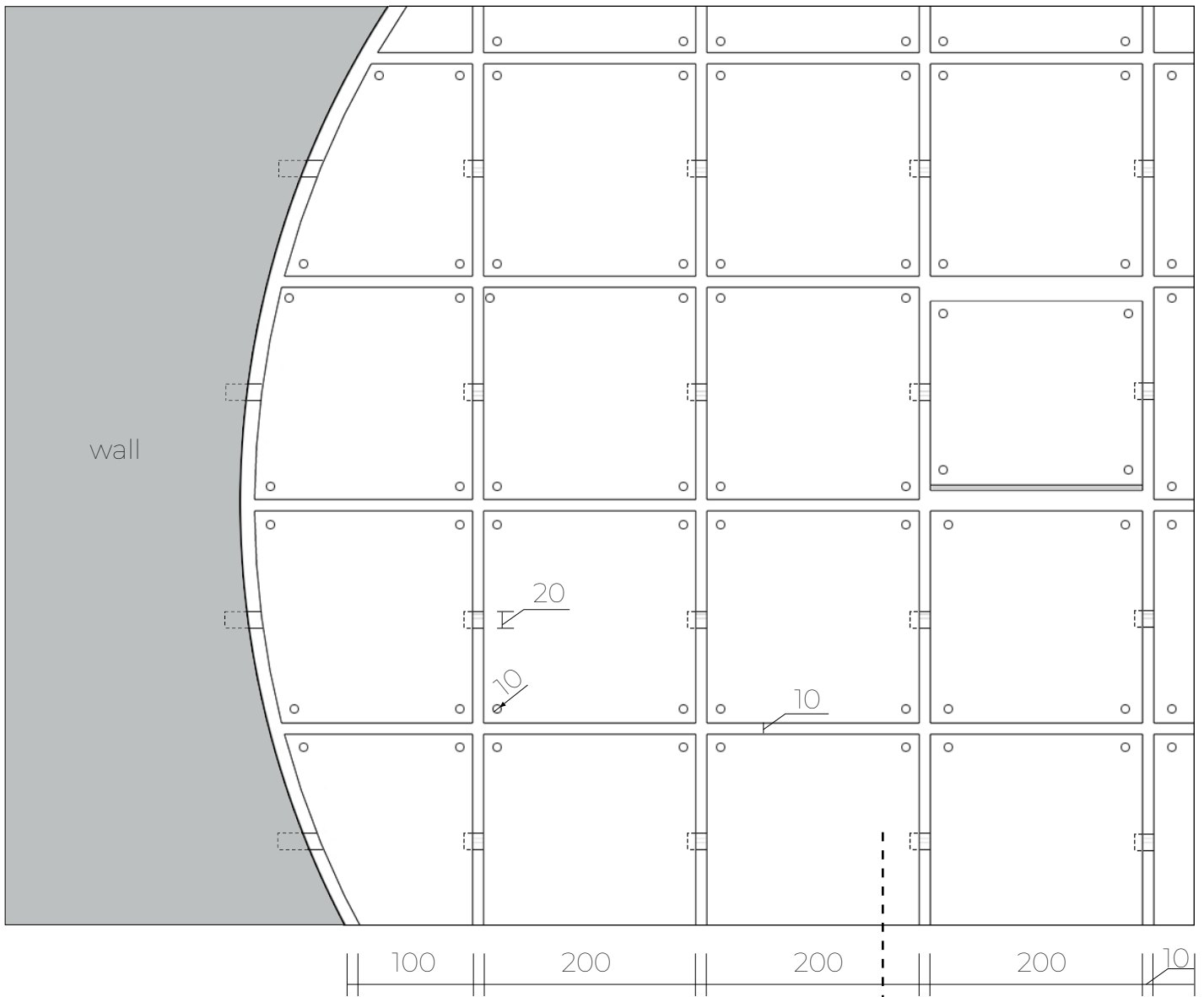
2



Sit at the entrance and wait in line to buy drinks



Seed panel technical drawing



portion of the panel

Material

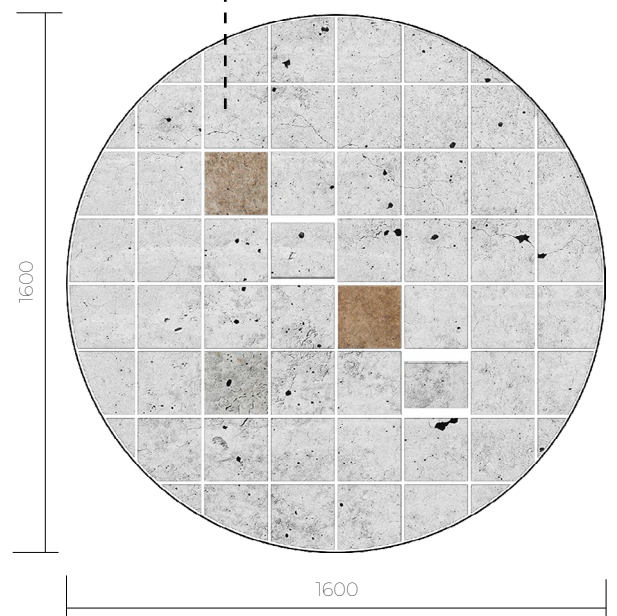


Concrete
The base material is concrete

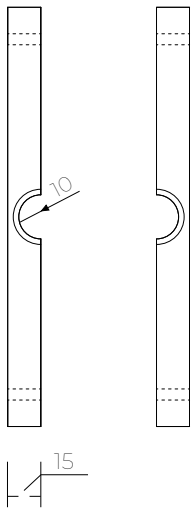
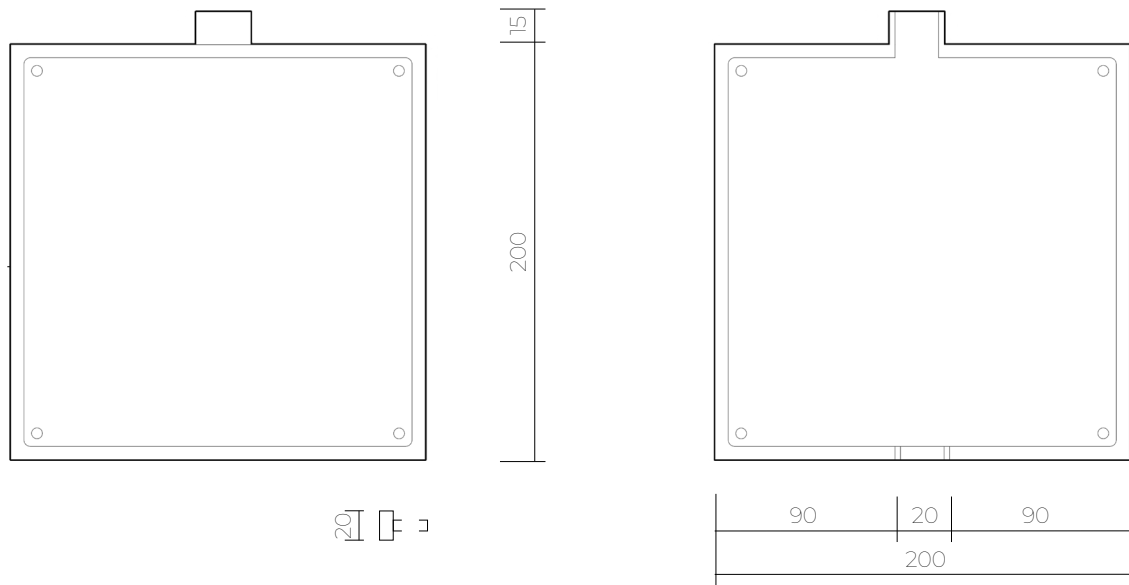


Plant material
facade on the concrete panel

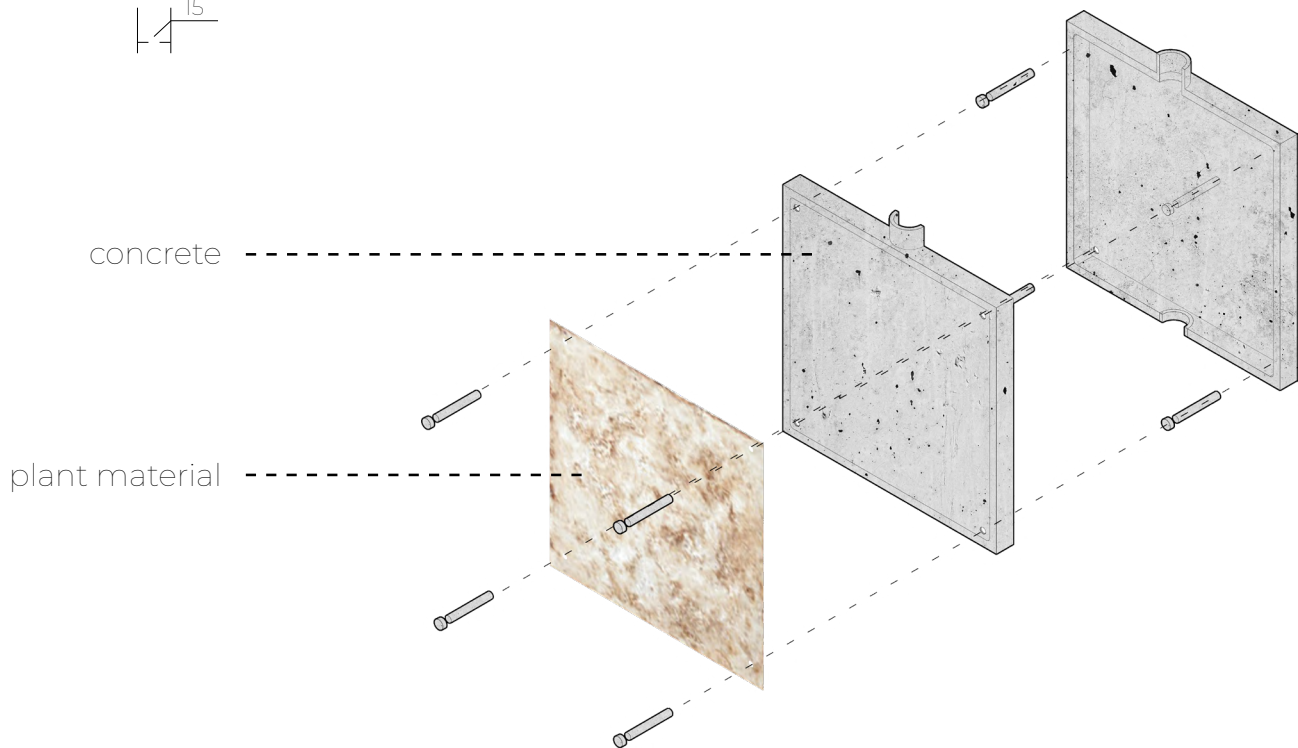
As the basic material of the panel, the concrete slab is attached with plant materials



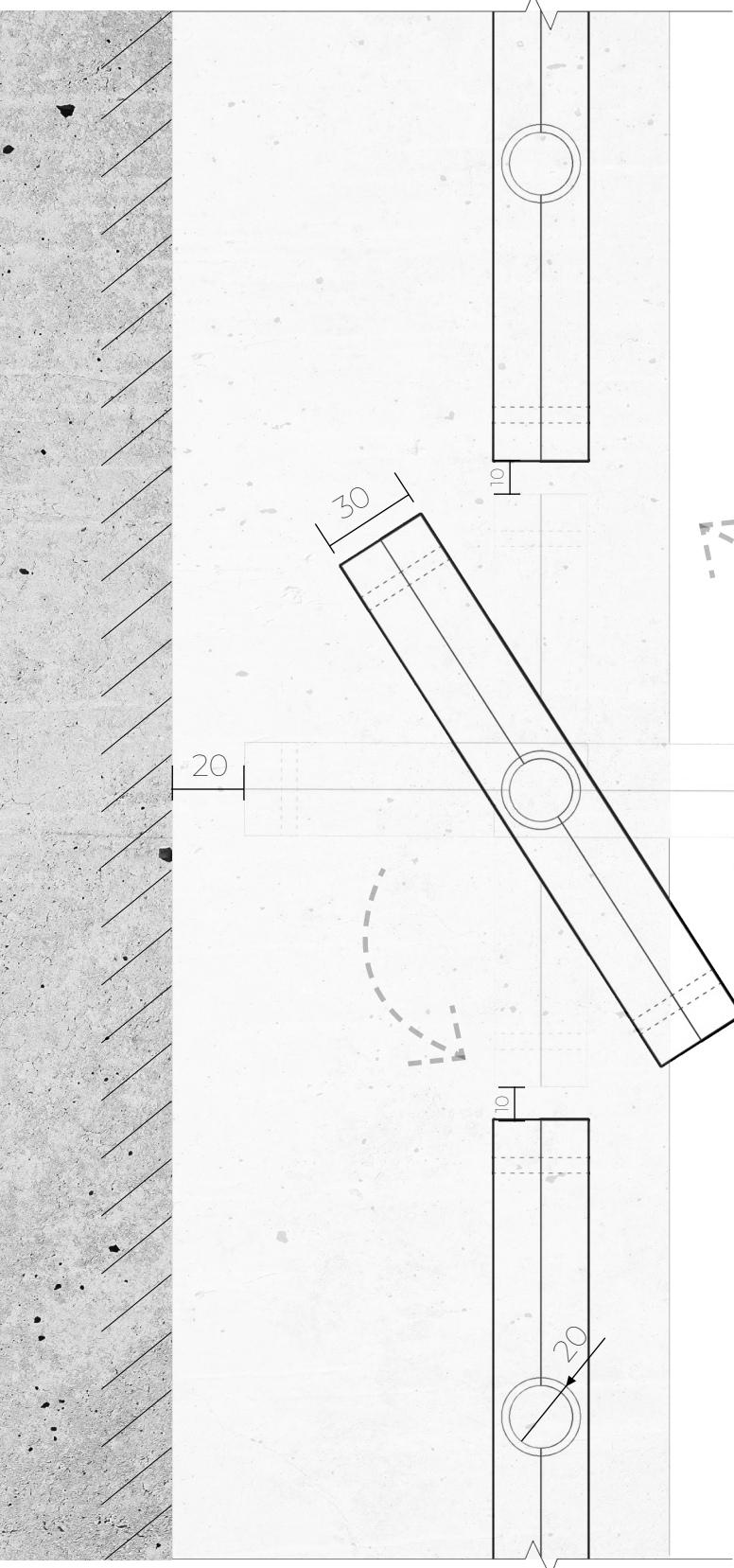
Panel component



The panel consists of two parts, one is the concrete bottom layer, the other is the surface layer of plant materials

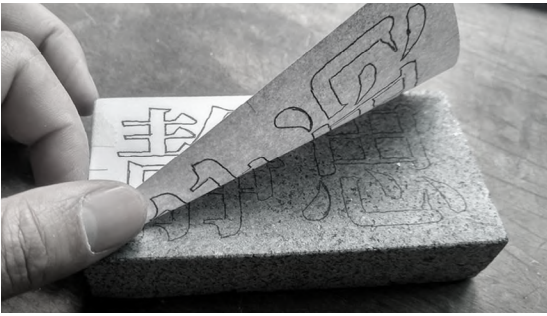


facade of the seed panel



Customers can interact with the materials on the panel to learn about the company's products

Engrave material panel



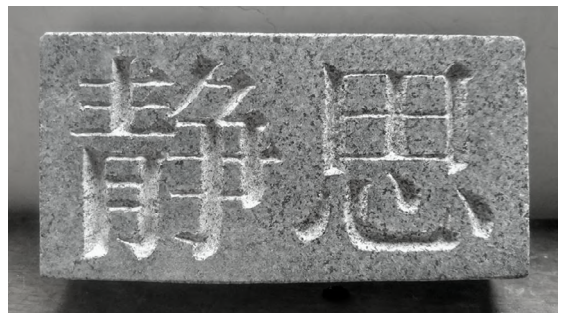
1 Align the printed words with the slate, paste them between the stone and the words with copywriting, copy the borders, and directly paste the words firmly with glue.



2 Carve out the outline on the paper with a chisel to accurately position the general form of the text



3 Hold the engraving knife in your hand and trim the details of the word with a push knife technique.



4 After the details are processed, the final sculpture is presented



Concrete facade Fungus & Plant facade

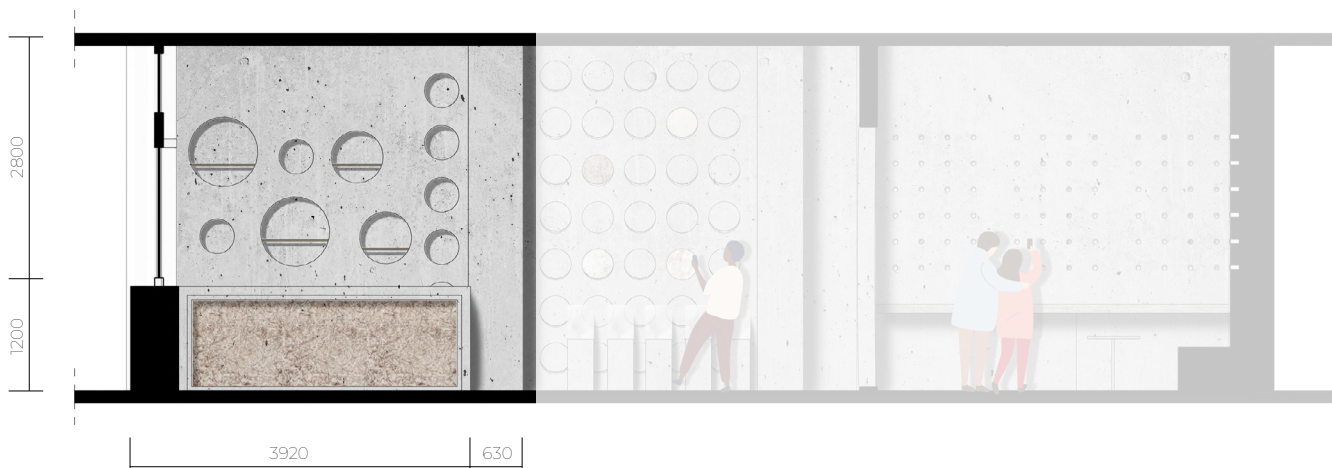
One side of the concrete is the information of the kitchenware, which is carved by the electronic engraving machine, and the other side of the plant surface shows the plant materials used to make this kind of kitchenware

4.3.5 GROWING SEED 2

AREA

"Order and wait here"

The main function of growing seed area is to serve customers. At the same time, customers can understand the company's products and culture during the waiting period

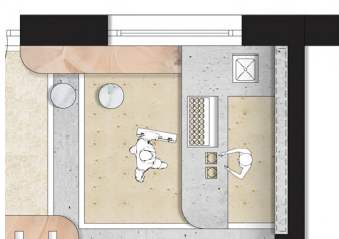


growing seed area

2-2 sectional drawing

main function

- treat customer
- show products



Product show



When customers are queuing up to order, they can look at the products on the table next to them and the raw materials of the products. If they are interested in the products, they can ask the staff for the information of the products

- product
- plant material

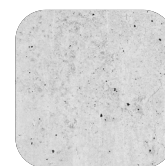


communication &
order drink

Function of the reception



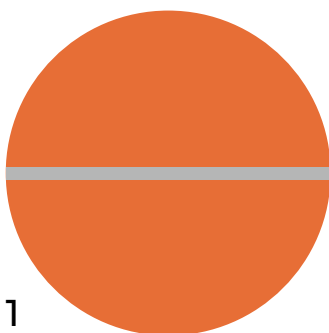
Storage is used to store drinks and coffee that ordinary customers will drink, and can be converted into two modes, which can pull out the board and change the way to storage the drinks.



Concrete
use on the wall

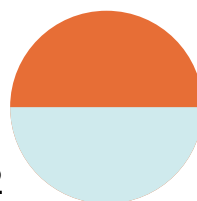


Plant material
board to hold
the stuff



1

1 type of the circle mainly storage the drink and jar. the board could extract with different functions.



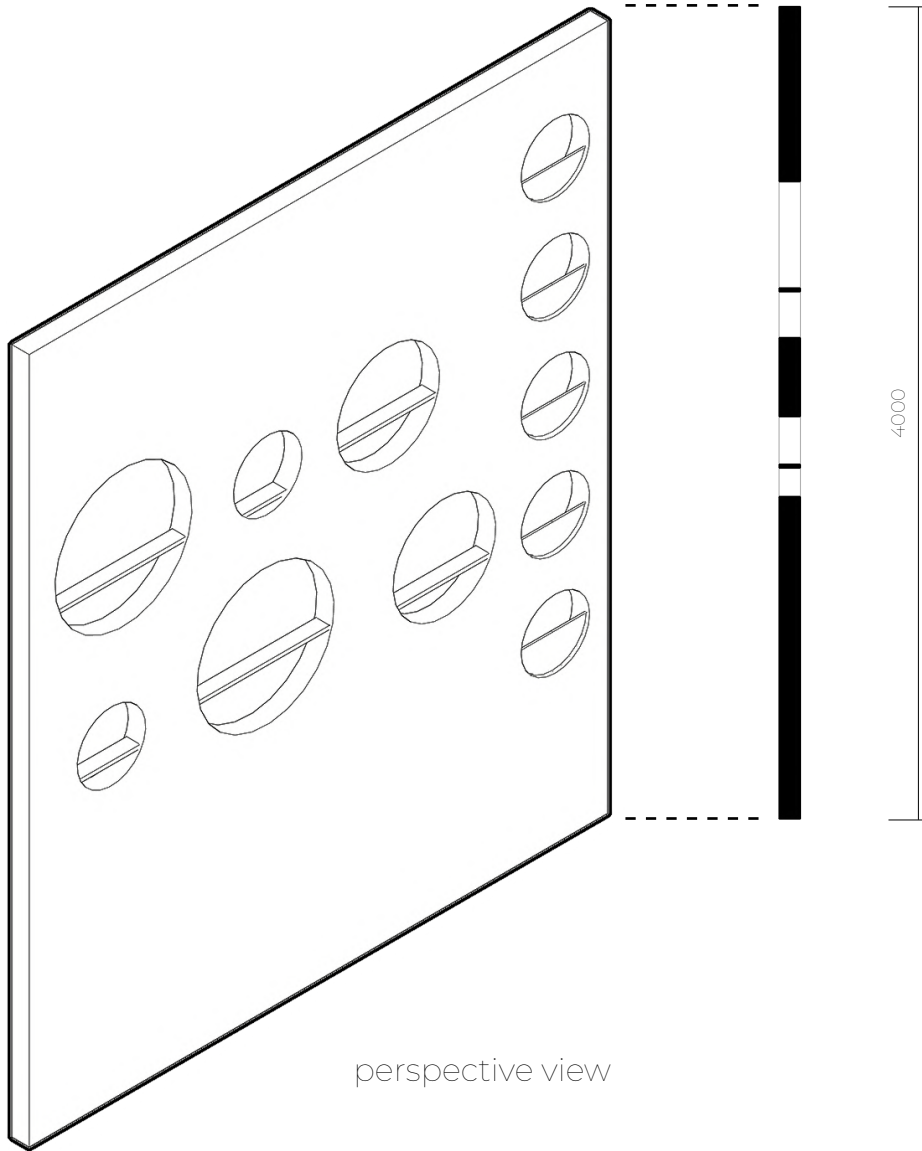
2

2 circles are more small, its function is to storage the coffee bean.

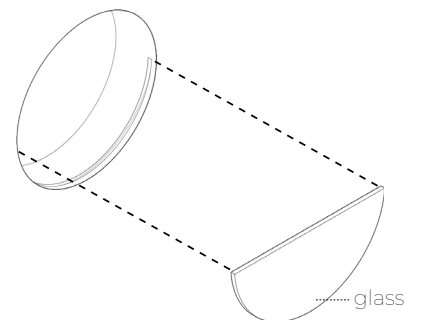
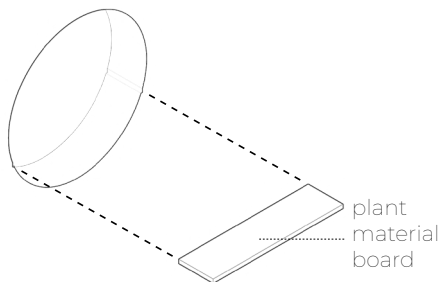
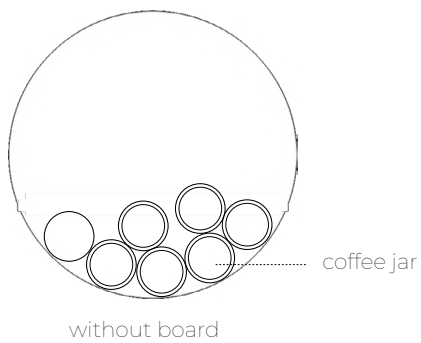
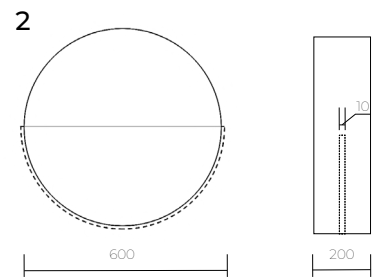
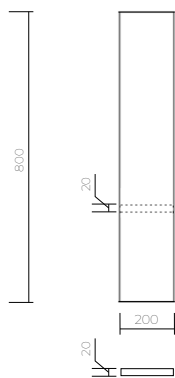
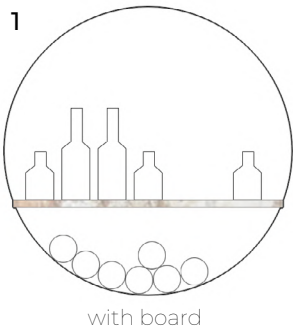
3 **Engrave word**

menu on the wall is engraving by the electric engraving machine.

Growing seed area technical drawing



perspective view



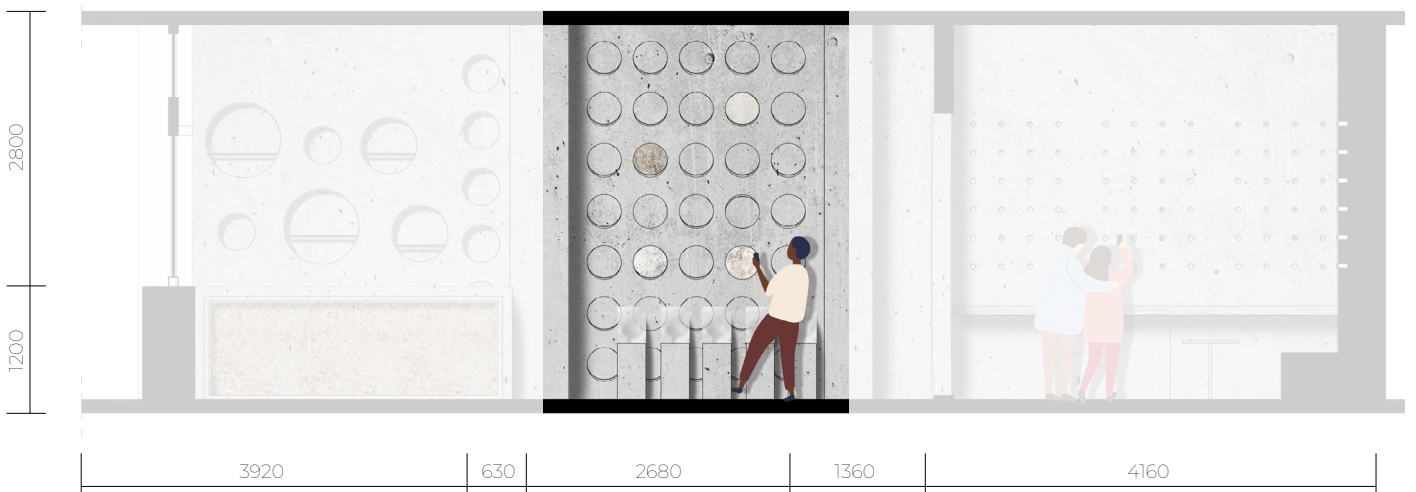
4.3.6 FUNGUS FOREST

3

"Watch the seeds grow here"

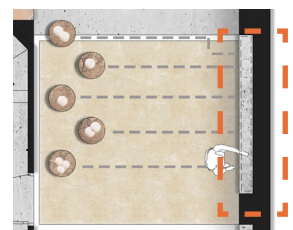


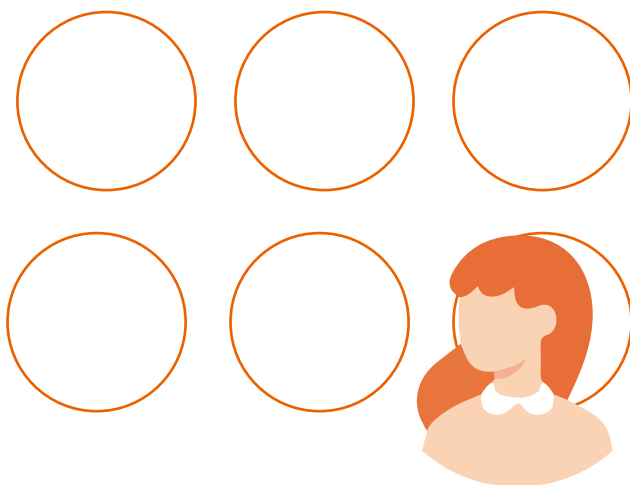
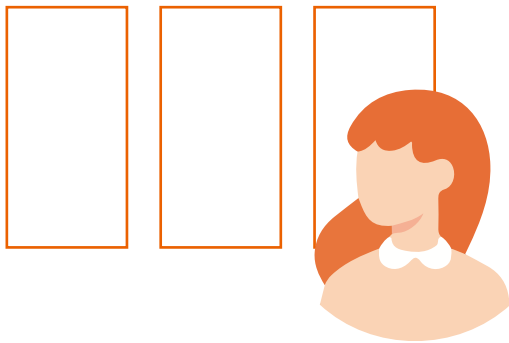
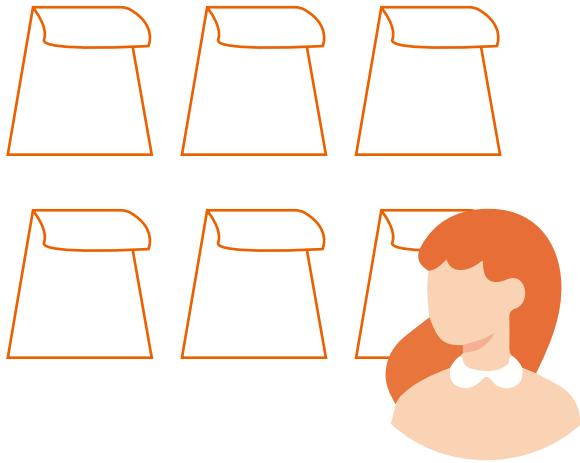
Fungal forest is mainly to show the growth process of plants, and show the materials made of plants. The column of plant growth can be opened for watering, and customers can also observe the growth of plants, so they can have a better understanding of the business of the laboratory. The shop assistant can regularly change the growing plants and the plant materials displayed on the wall, so that the space has a different sense of form.



2-2 sectional drawing

fungus forest





User journey of fungus forest

Seed wall phase

seed wall is the start of the forest. customer choose the seed that they like.



Growing column phase

plant will grow in this period, customer could notice the process of the plant

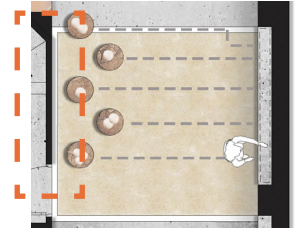


Product wall phase

Samples of plant -based materials planted by customers are displayed on the wall.

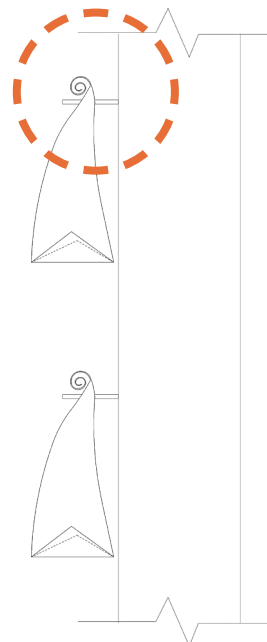
Seed wall

Seed wall mainly displays the plant seeds studied in the laboratory, which will grow on the pillars and can also be sold to customers



Framing nature not only encourages people to learn about products, but also encourages people to buy seeds and plant plants to beautify the environment.

customer could select the seed what they want on the wall



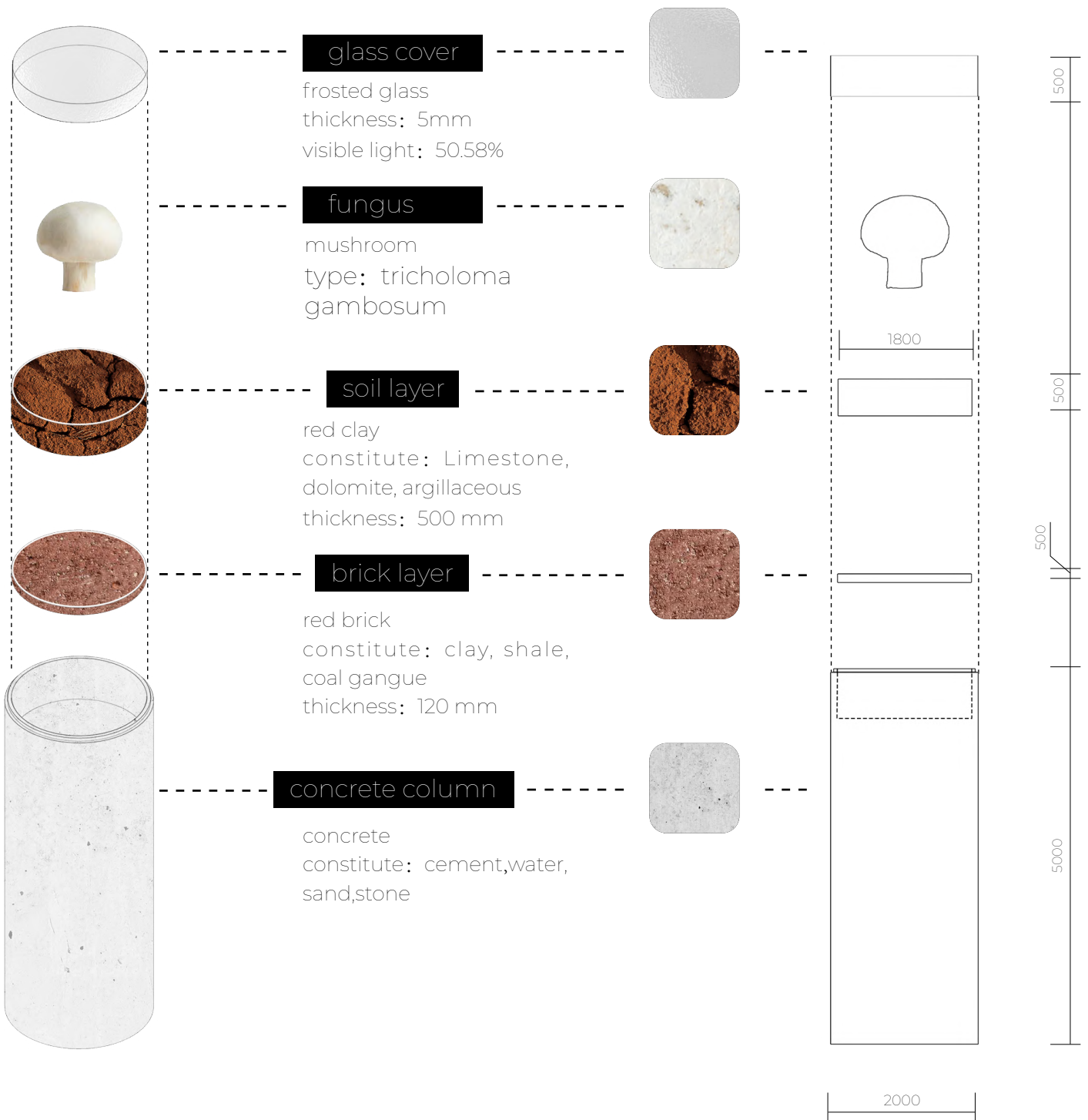
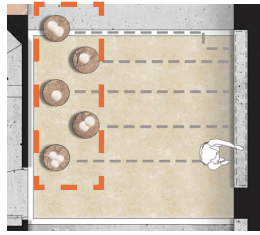
section of seed wall



package of framing nature

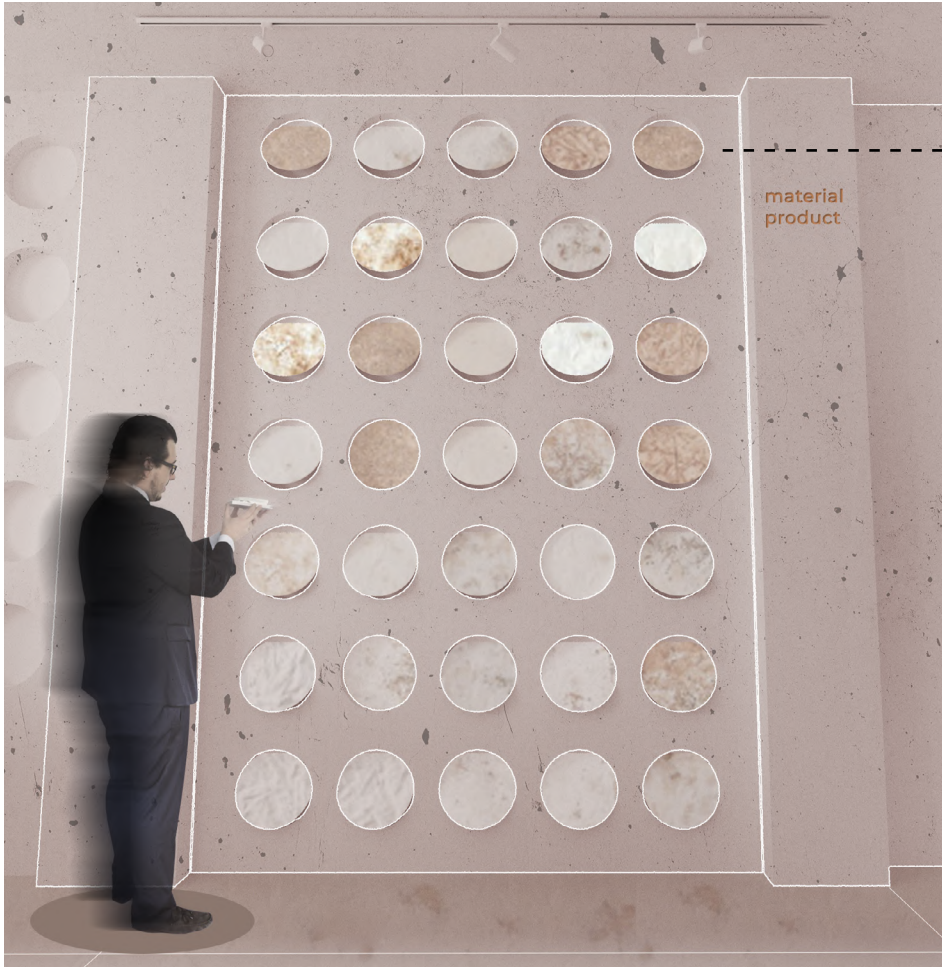
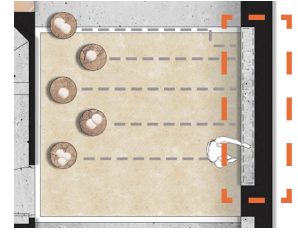
Forest column

Show the growth process of plants and the display of materials



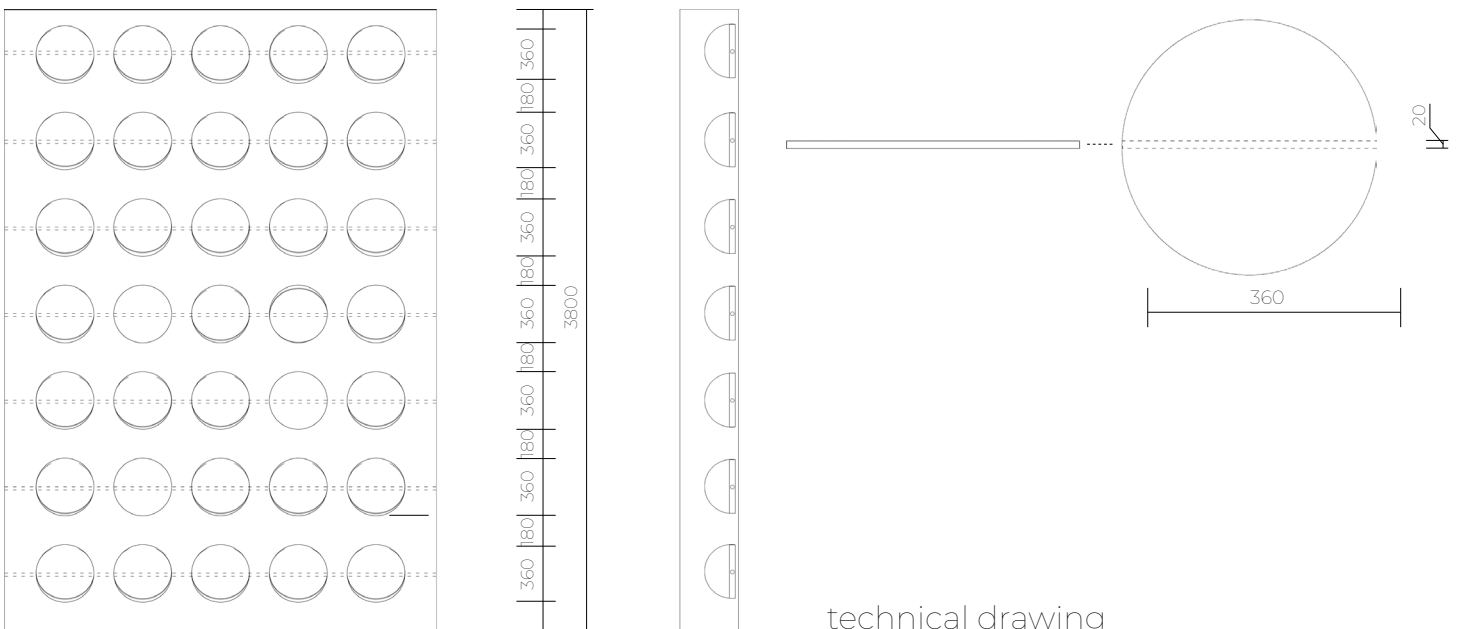
Material wall

The product wall displays materials made of plants grown by customers. This space also encourages customers to participate in laboratory projects.



example of the product

The sample is marked with the customer's name, plant type and time. Encourage everyone to participate in environmental protection activities.



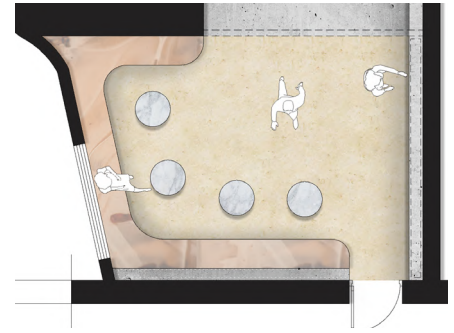
technical drawing

4.3.7 REALITY FOREST

4

"Choose your own gift"

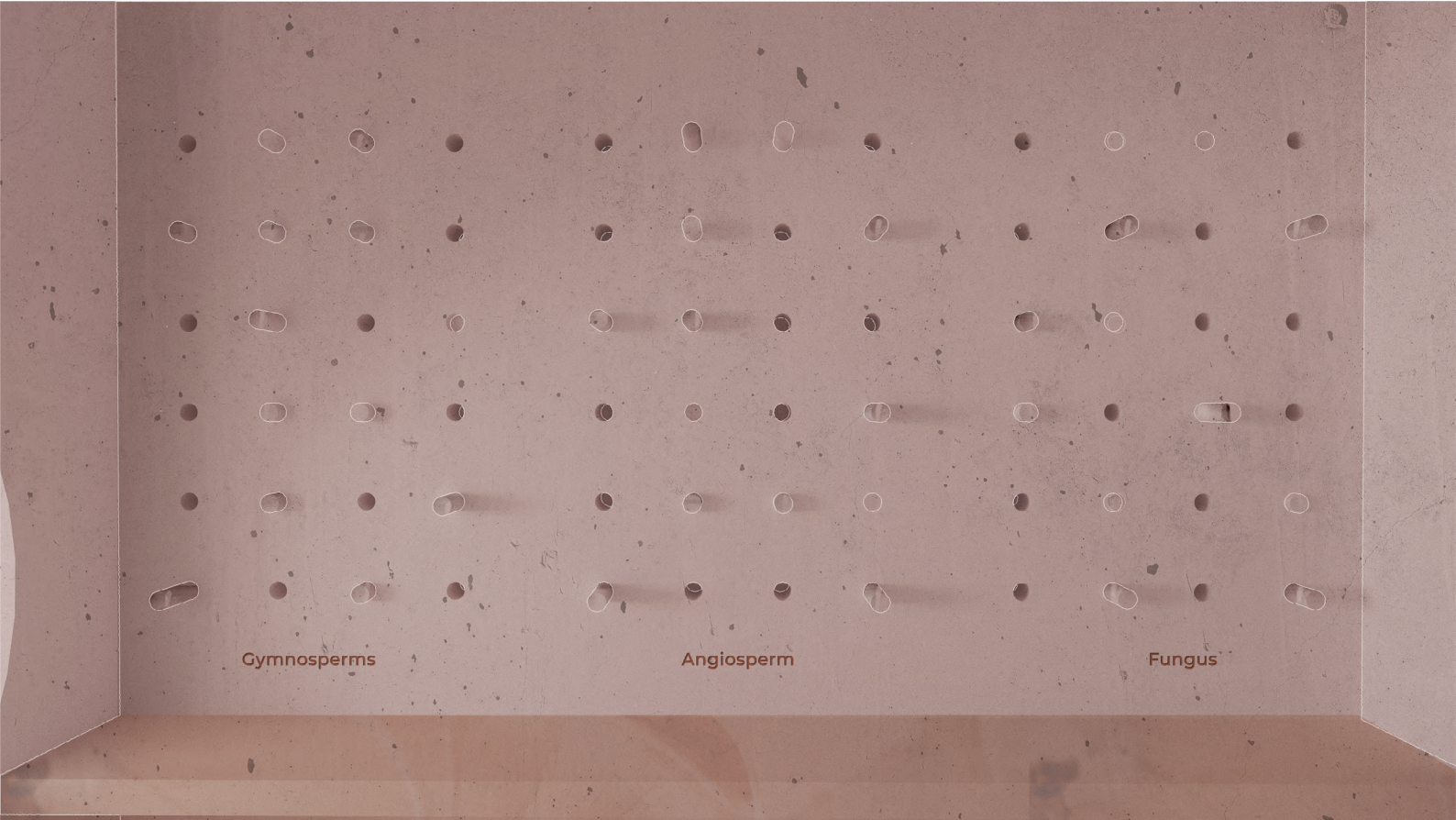
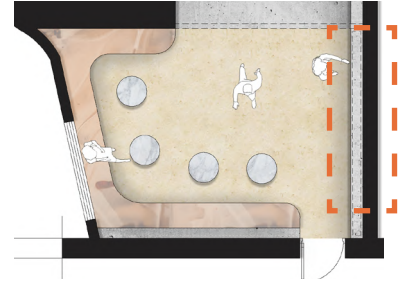
Reality forest mainly provides a place for customers to rest. The hollow wall is filled with souvenirs made of plant materials. Customers can choose their favorite materials after drinking coffee.



2-2 sectional drawing

Gift wall

This area is mainly made of materials from lab. gifts are cylindrical materials. The walls are divided into different areas according to plant materials. Customers can choose according to their own preferences.



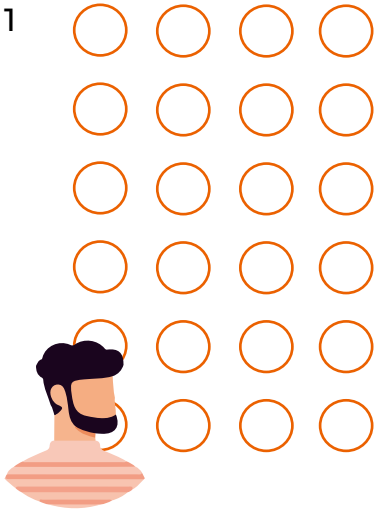
1
choose the
souvenir



2
leisure time
in this space

User journey of reality forest

1



Customers first enter the space to observe the gifts on the wall. The wall is divided into several sections according to different plant types.

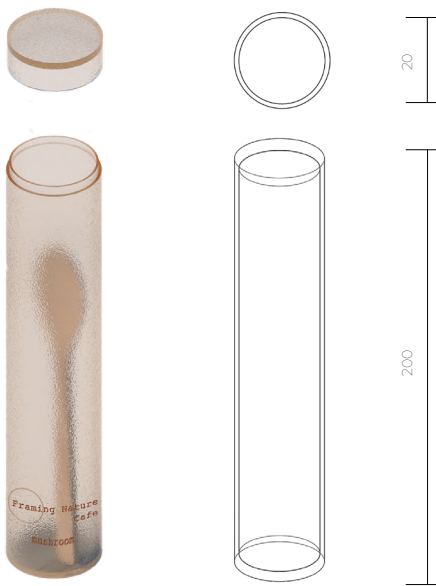
This area is divided into three types of plant classification.

Angiosperm

Gymnosperms

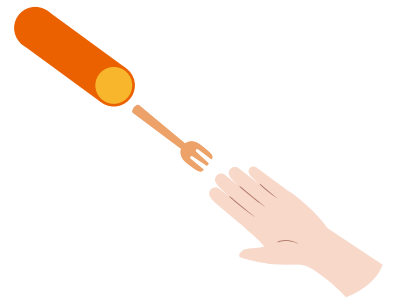
Fungus

technical drawing of of souvenir



kitchenware souvenir

Inside the sample are tableware models made of the company's plant-based materials, which customers can buy as souvenirs or directly use as kitchenware.



take out the kitchen from the packing



Resin
outside packing



Plant-based material
inside material

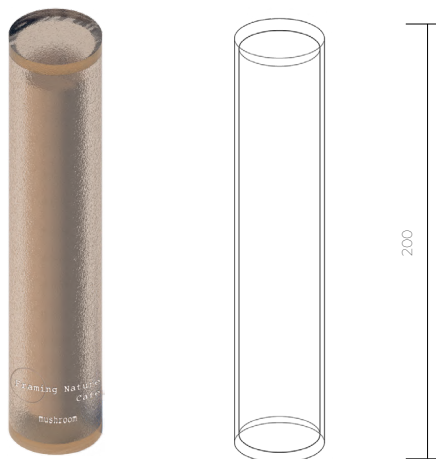
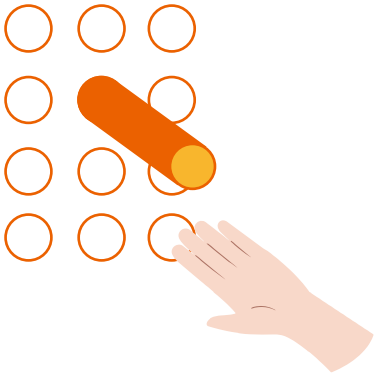


table accessory

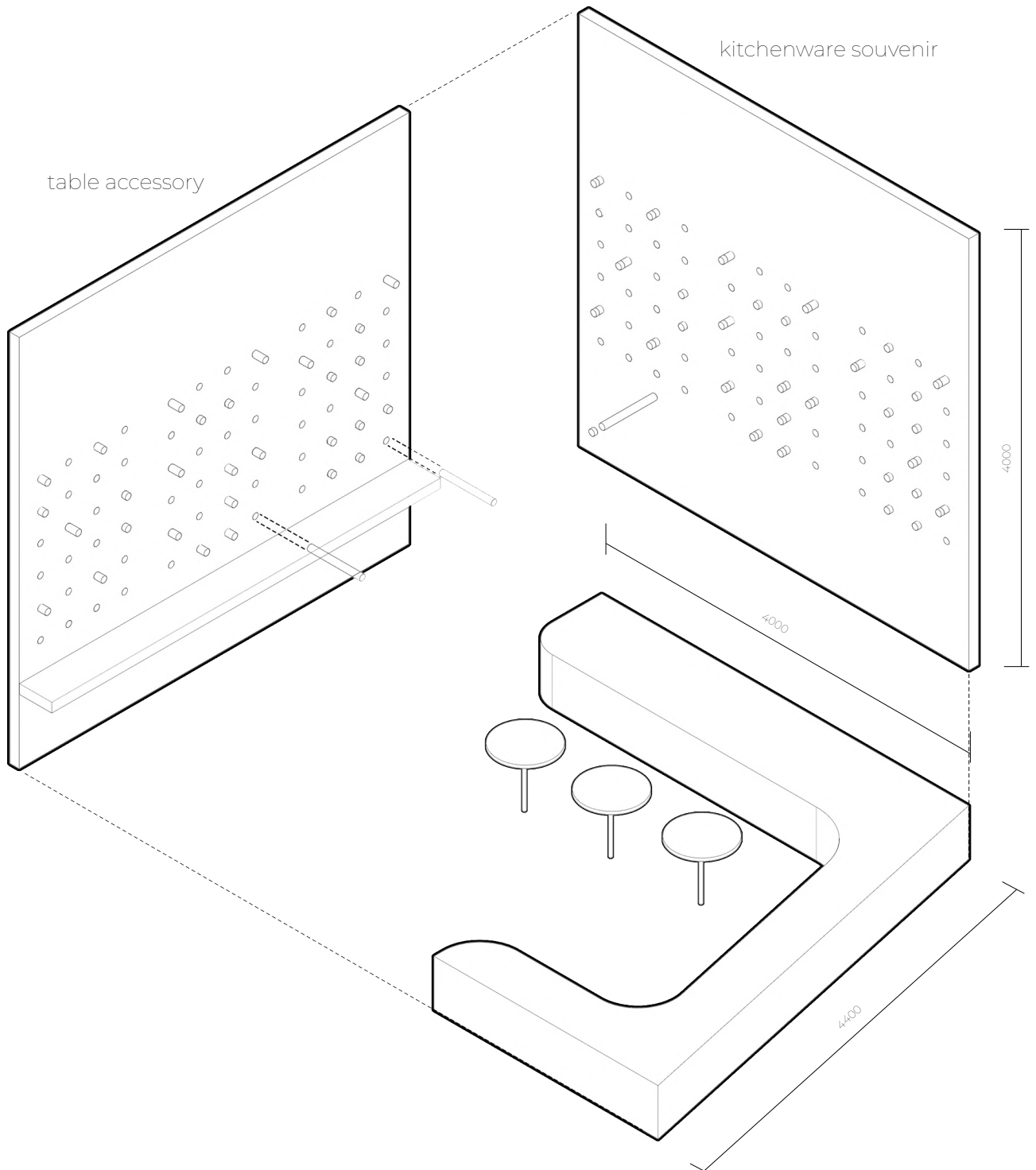
Inside the sample are tableware models made of the company's plant-based materials, which customers can buy as souvenirs or directly use as kitchenware.



2



One side of the two walls is table accessory, and the other side is kitchen souvenir. Customers can choose the gifts that they like on the two walls.



05/Conclusion

Plant-based materials have better characteristics than traditional materials in improving indoor space, such as pollution-free materials and recyclability. This thesis's innovation is to show the new materials studied in the laboratory through some new installation. The interaction between people and installation can better understand the company's products

Customers in this space do not passively consume but actively learn about the company's products and purchase products. This is the exciting point of this project.

Through the research of the thesis, it is found that many companies have started the research of plant materials. For example, Mogu Company uses plant materials for floor tiles and vegware plant materials for kitchenware. These materials are environmentally friendly and recyclable. However, it is learned from daily life that plant materials as decorations and kitchen utensils are not very common, and the promotion of plant materials in the future will take a long time.

From the writing of the thesis, I learned to understand design from a broader field of knowledge. While interior design pays attention to space creation, it also pays attention to the dynamics of people's behavior in the space, so that people can participate in the space and experience it from the space.

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