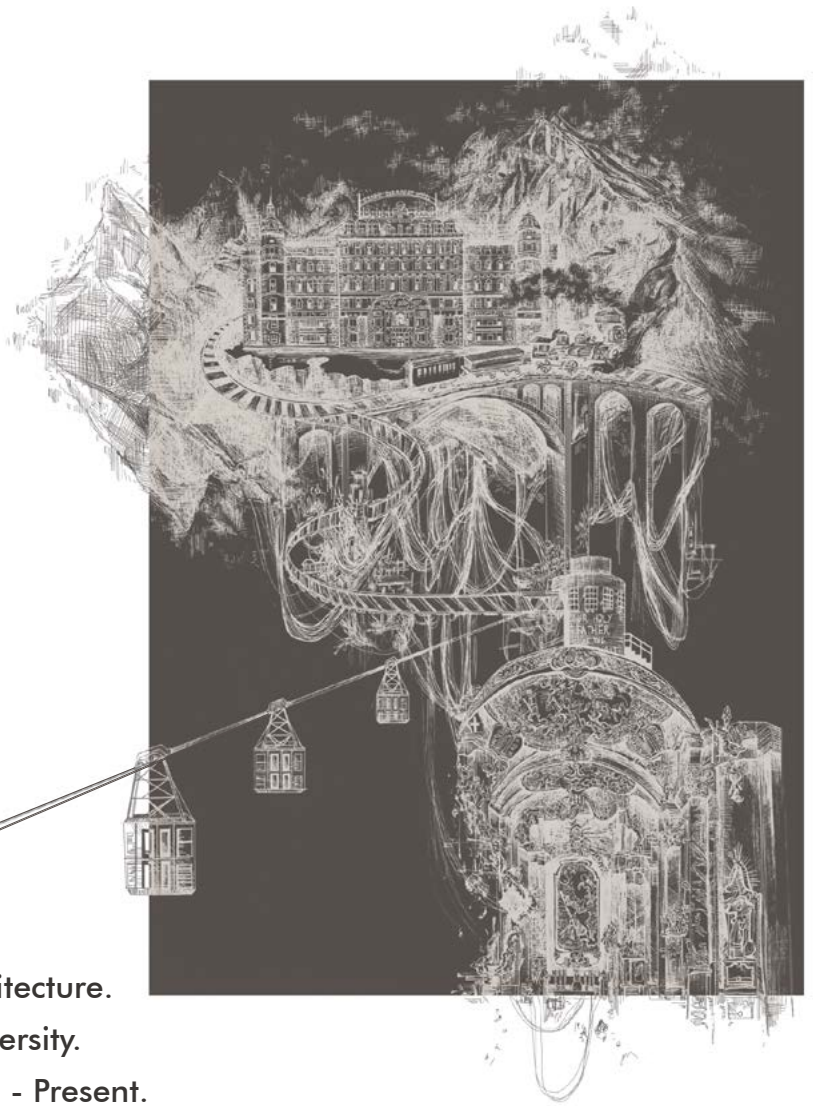


**Tina Wang**

**王亮婷**

B.A. Architecture.  
Columbia University.  
2021 - Present.



01



**Climatorium**

Architectural Design

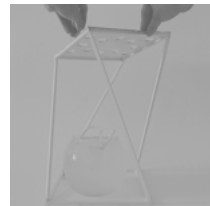
13



**Linkou Market**

Architectural Representation

15



**Material Link & Experiment**

Urban Analysis

23



**Play-Field**

Architectural Design

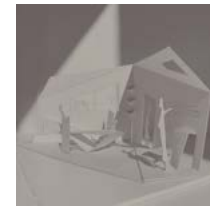
31



**Scaffold**

Graphic Design  
+  
Physical Modelling

37



**Room**

Architectural Design  
+  
Physical Modelling

41



**Materialogics**

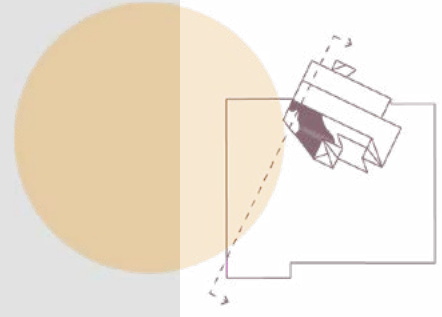
Material Science  
+  
Physical Modelling

49



**Heaven Lights**

3D Visualization  
+  
Physical Modelling



## CLIMATORIUM

**A new climate observatory and climate forum next to the Hayden Planetarium at American Museum of Natural History.**

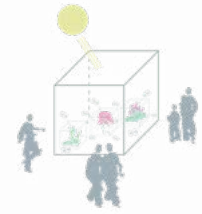
**Course:** Advanced Architectural Design II, Fall 2022.  
Professor Joeb Moore.

**Type:** Individual Project. 7.5 Weeks.

**Media:** ( Visuals ) Rhino. Illustrator. Photoshop.  
( Section Model ) Acrylic Sheets. 3D Filaments.  
( Massing Model ) 3D Filaments.

In traditional museum spaces, plants and animal specimens are typically enclosed side by side in dioramas. This suggests a nature-culture divide where artifacts are arranged in favor of human perspectives. How can a cultural institution promote integration over segregation? How can we create systems over objects?

My design thus focuses on the diagonal cutting of museum spaces. Slicing through rectilinear spaces, CLIMATORIUM is a series of "ecotones" where nature and humans meet, integrating into the designed environment. CLIMATORIUM focuses on establishing a series of experiential learning that takes place in transition areas. The diagonal vocabulary creates experiences that are not confined to interior spaces.



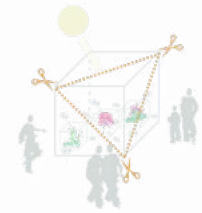
**The Manhattan Grid**

Because CLIMATORIUM is informed by the meaning of the landscape serves to explain, it is essential to understand New York's streets follow a horizontal and vertical criss-cross direction.



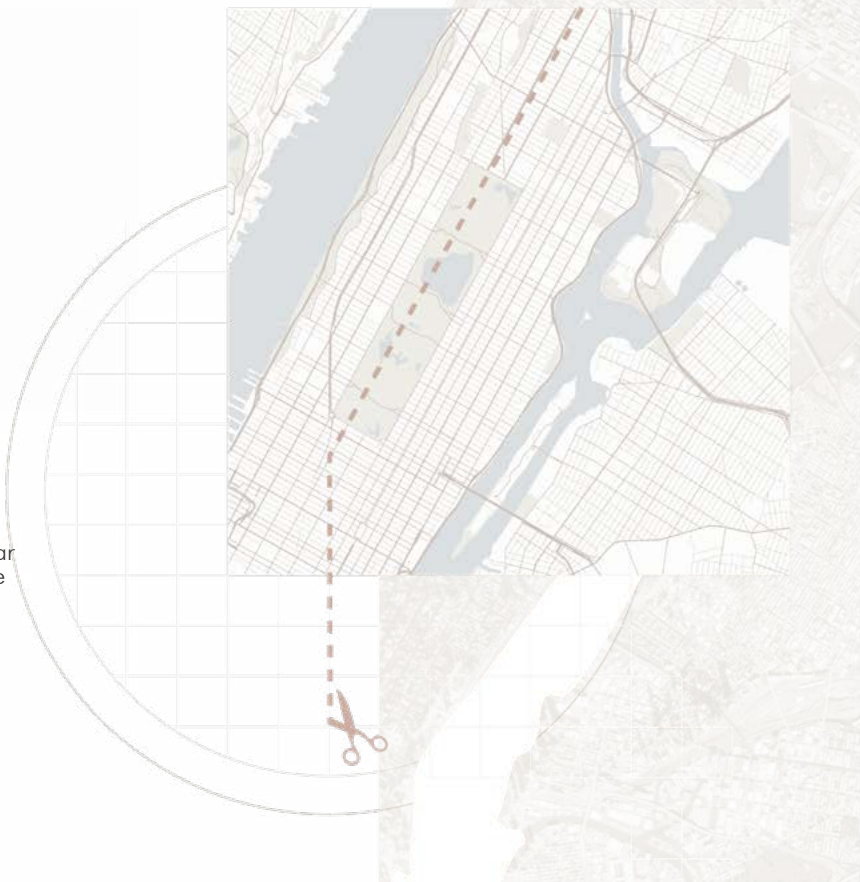
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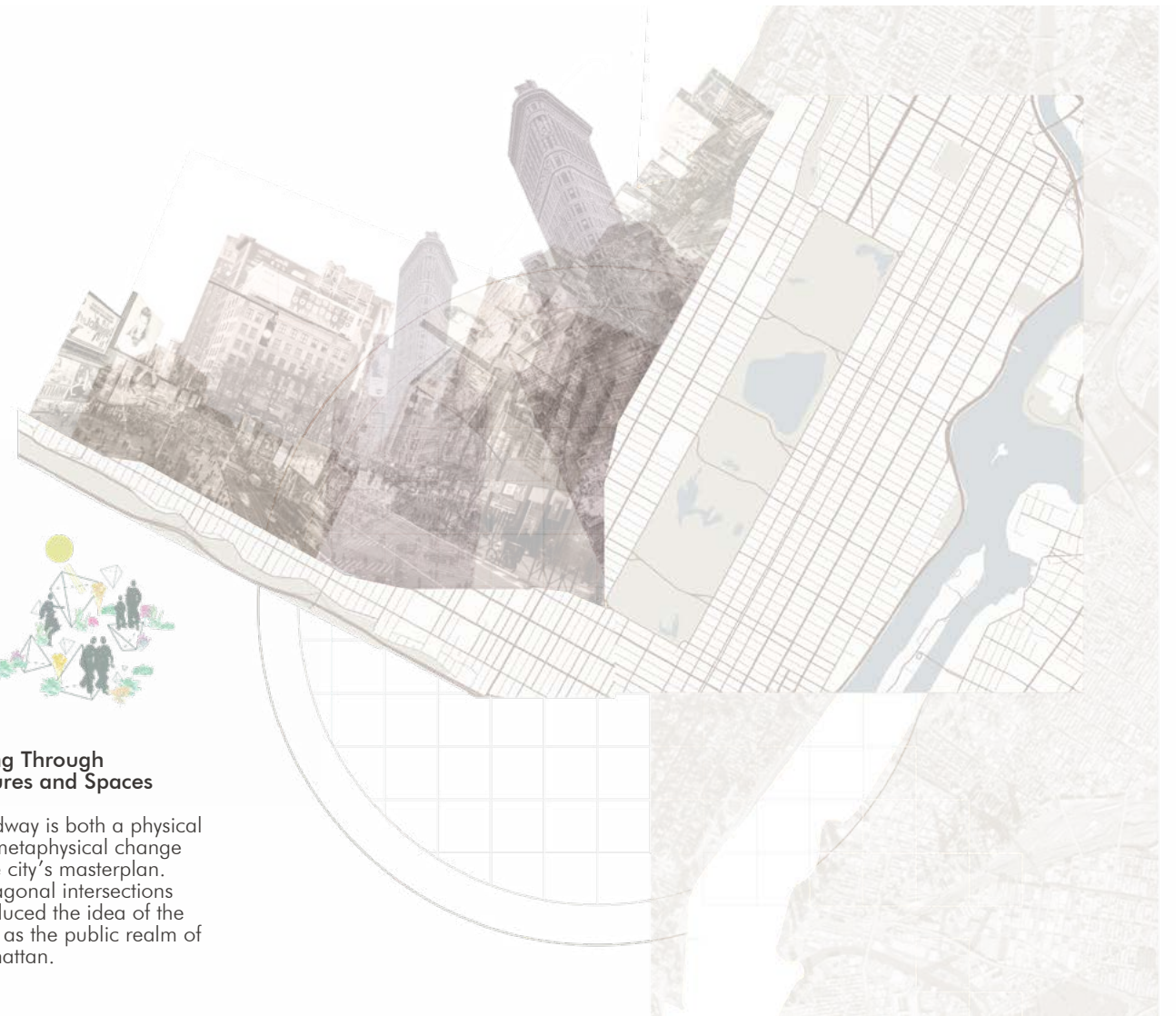
**The Broadway Diagonal**

Although New York expanded with a rectilinear vision, Broadway was salvaged from the grid. As it crosses from 10th to 72nd street diagonally, angular intersections created bowtie spaces (i.e. Herald and Times Square).



**Slicing Through Cultures and Spaces**

Broadway is both a physical and metaphysical change to the city's masterplan. Its diagonal intersections introduced the idea of the street as the public realm of Manhattan.





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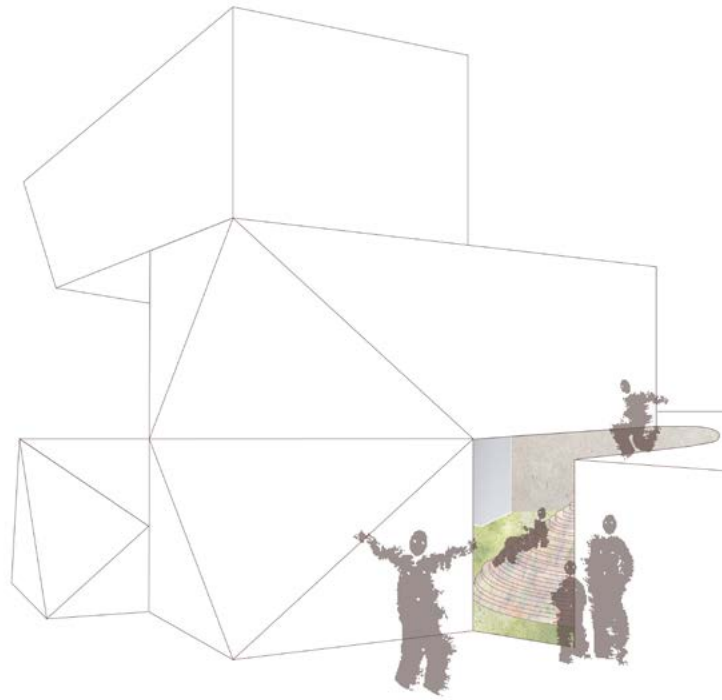
### Diagonal Space-Making Power

Inspired by the space-making power of Broadway, CLIMATORIUM is a stack of three interlocking volumes that are angled and aligned with the linear logic of the American Museum of Natural History.



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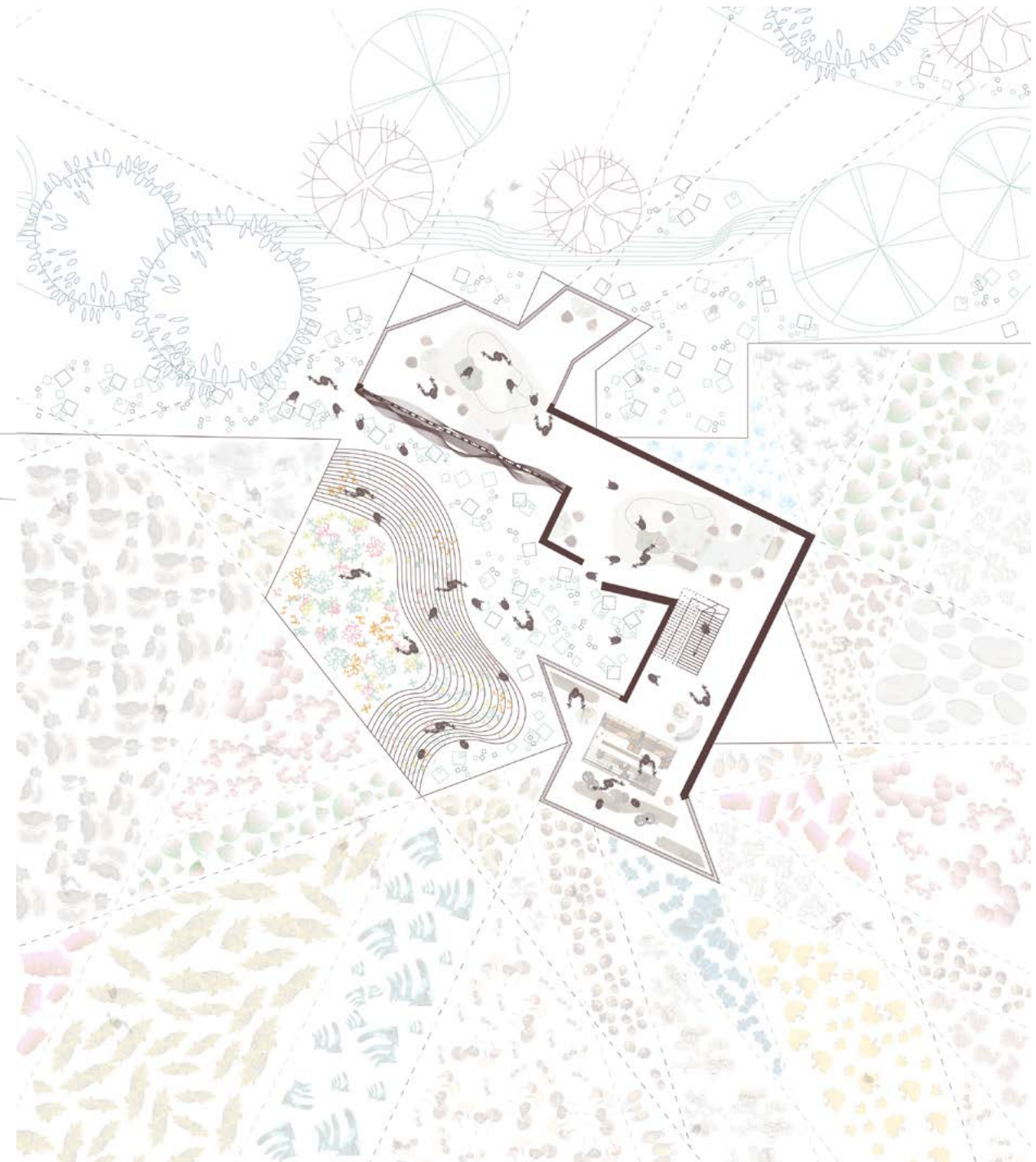


**Ground Floor**

Framed by the Climatoirum and the plinth, the crack reveals a partial view of the stepped landscape.

Metaphorically, the stepped landscape creates an accessible cultural experience that is not confined to the interior spaces. At the same time, it nurtures a fungal network

that seamlessly spills into the Bull Moose Dog Run. The mycorrhizal connectivity form with existing oak trees in the park help sequester carbon from the city.

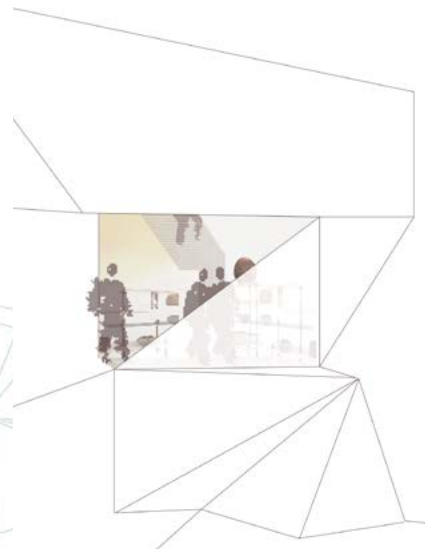


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**Second Floor Plan**

The porous nature of mycelium library provides a social context that encourages interaction on both sides of the wall.



**A. Main Entrance**

The second-floor portal presents a framed view that allows us to slowly progress across the mycelium walls and into the texture library.

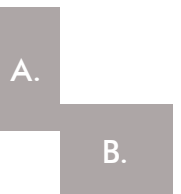


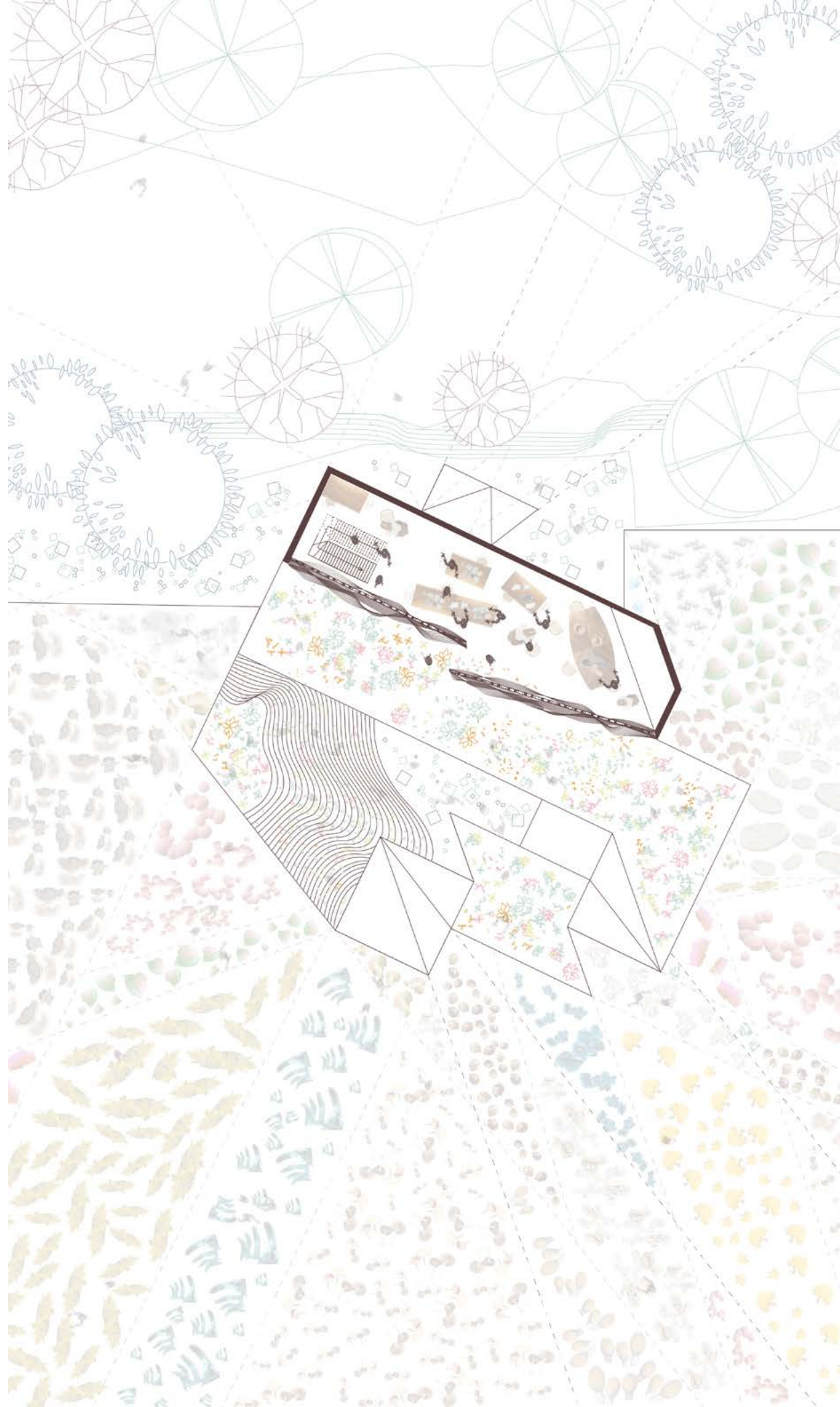
**B. A Circular Experience**

The coffee waste from the barista station is recycled into the mushroom farms – since coffee grounds are already pasteurized by the brewing process, it minimizes the energy inputs in growing mushrooms.

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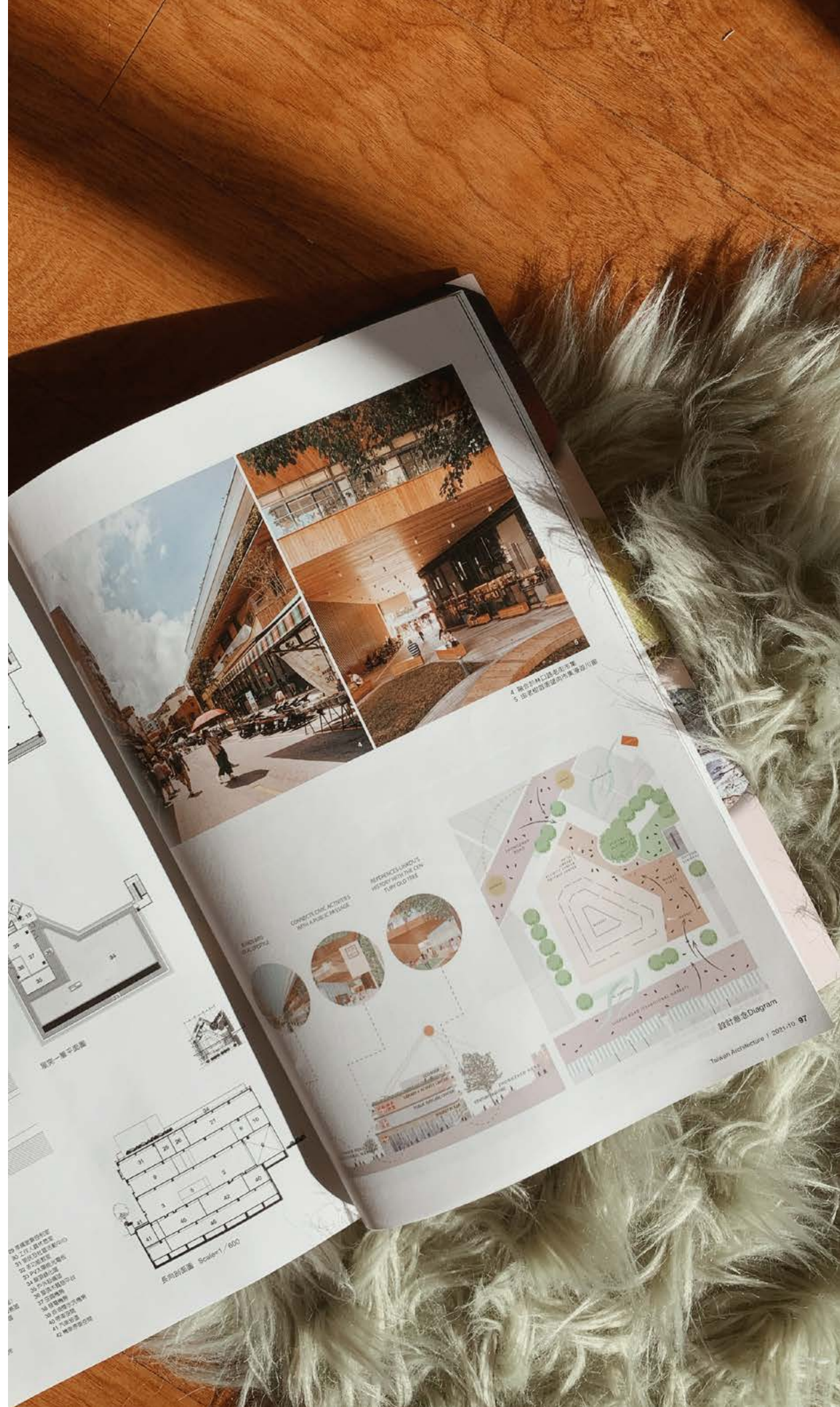
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The journey continues upstairs to the mycelium technology workshop, where we get hands-on experience in turning mushrooms into biobased objects like coffee cups.

All 22 species of mushrooms in the plaza are registered as growing in Central Park. The shape of the plots is informed by the diagonal lines extending from the Climatorium.





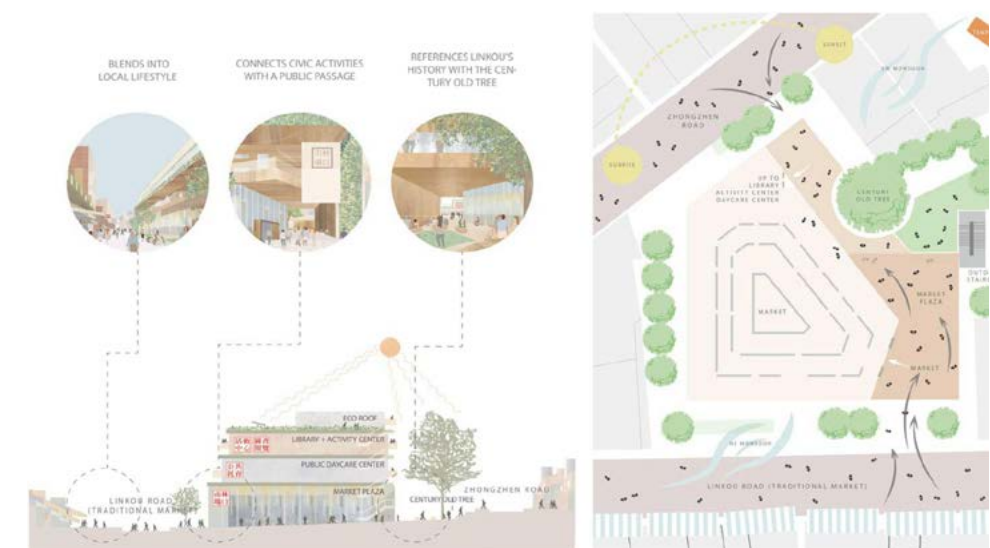
# LINKOU TRADITIONAL MARKET

Concept diagrams published in industry-specific magazines like Taiwan Architecture and Forgemind ArchiMedia.

Company: CTLU Architect & Associates.

Type: Internship Work.

Media: Illustrator. Procreate.



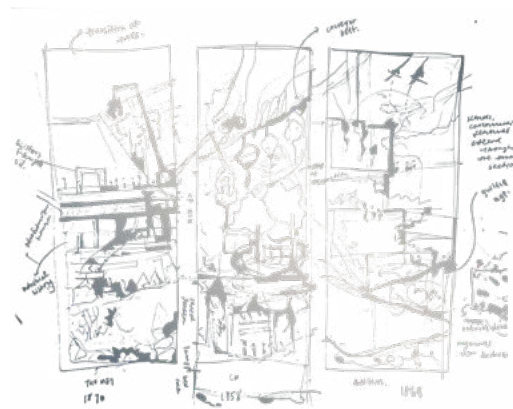
# MATERIAL LINKS

Three spatial-political-environmental 'core sections' - one in the Museum of Natural History, one in The Metropolitan Museum of Art, and one in the stretch of Central Park between the museums.

Course: Advanced Architectural Design II. Fall 2022. Professor Karen Fairbanks.  
Type: Pair Work with Samira Umpierre. 3 Weeks.  
Media: Illustrator. Photoshop.

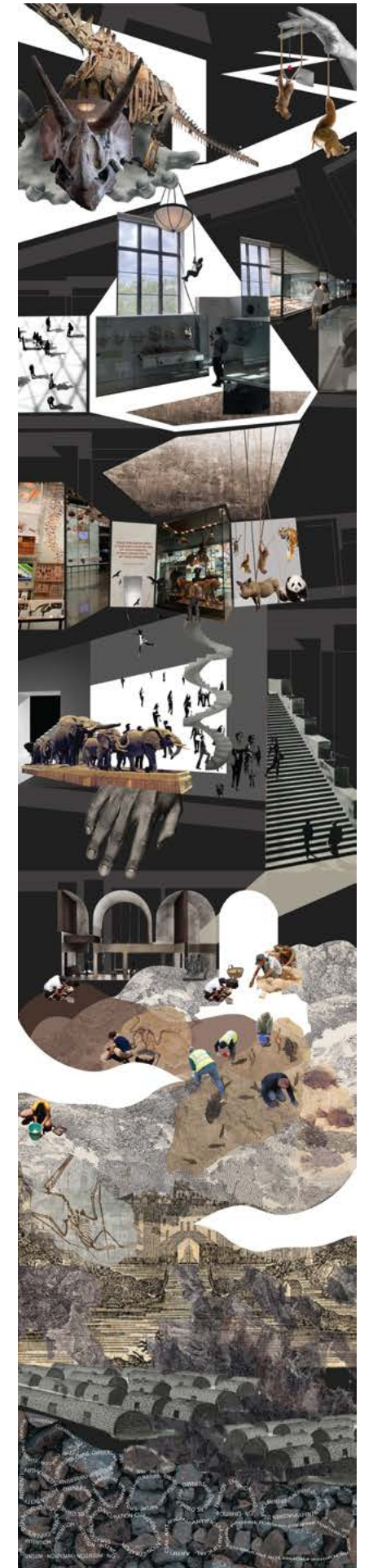
Our project focuses on the themes of curation and urban displacement as seen through a historical perspective. All three collages aims to represent the influence of the "curator" in the design of these three spaces. Repeating elements like giant hands, construction equipment, Seneca village and the Lenape people, these core sections raising questions regarding ownership and proprietorship of The Metropolitan Museum of Art, the Museum of Natural History, and the stretch of Central Park between the museums.

When these core sections are viewed side by side, we ask ourselves: Who gets to select, design, and present the history and our environment? What makes a good curation that can truthfully articulate the world today?



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## MATERIAL EXPERIMENT

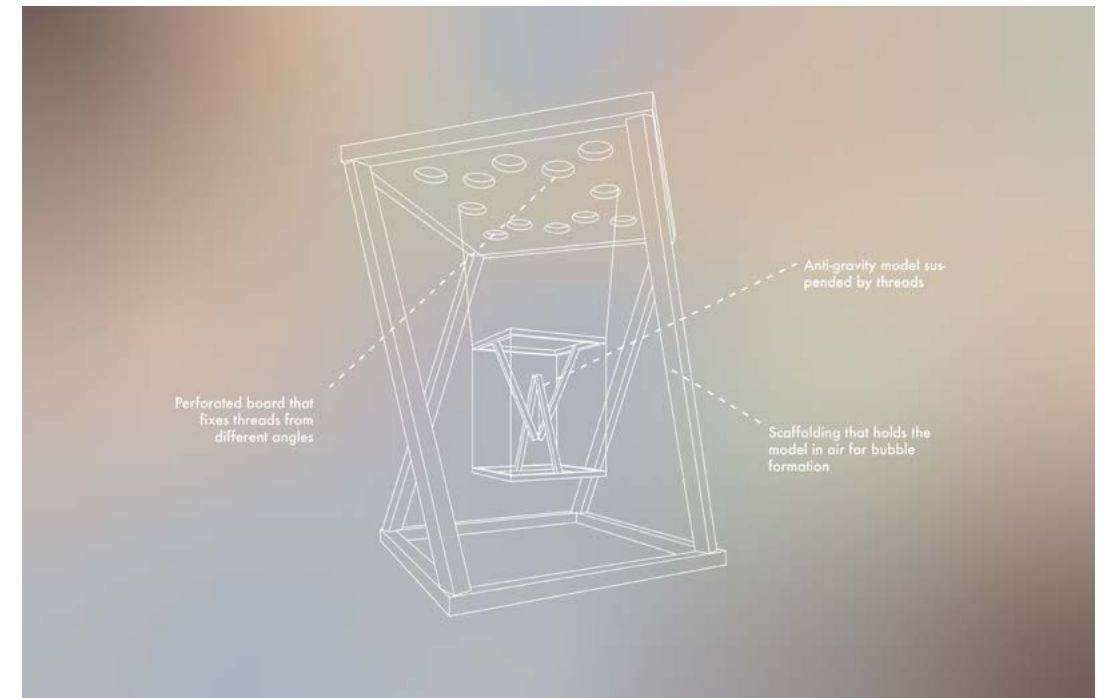
Reproduce, record and analyze how materials perform with experimental model-making and moving-image documentation.

**Course:** Advanced Architectural Design II. Fall 2022. Professor Karen Fairbanks.  
**Type:** Individual Project. 3.5 Weeks.  
**Media:** ( Video ) Adobe Premiere. ( Performative Device ) Bubble Solution. Threads. Wood sticks. Cardboard. Fish Tank.



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**M**ATERIAL EXPERIMENT zooms in on two details in the previous project MATERIAL LINKS: the giant hands and the museum dioramas. The idea is to explore the double meaning of those hands. As designers, we want to convey the forced displacement of Seneca Village by having hands remove buildings and trees. Yet for some viewers, the hands represent top-down urban planning that is inserting infrastructure into the existing city fabric.

Architecture is never shaped by a single hand, and never conceived by a single perspective. However, for museum dioramas, a fixed vantage point is crucial because small changes in perspective will kill the optical illusion.





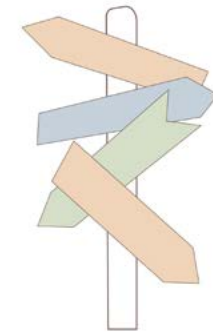
The hands are ambiguously positioned. It is not entirely clear whether they are inserting or removing objects.

The museum diorama relies on forced perspective illusion as small changes in viewing angle will render it useless.

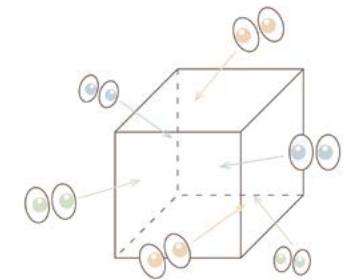
As a continuation of MATERIAL LINK, this performative model seeks to question:

What happens when the direction of action is not directly legible? ...meaning it could

never be decided objectively whether it is going upwards or downwards... What happens when the object in the display is something transparent and movable? Something that allows our view to permeate it?



Ambiguous directions of force



Transparent, movable device



**Bubble Surfaces**

The transparency of bubble surfaces reveals an ongoing adaptation to the multiple forces flowing through the model. Because the model is movable, each turn offers a new viewpoint.

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## PLAY-FIELD

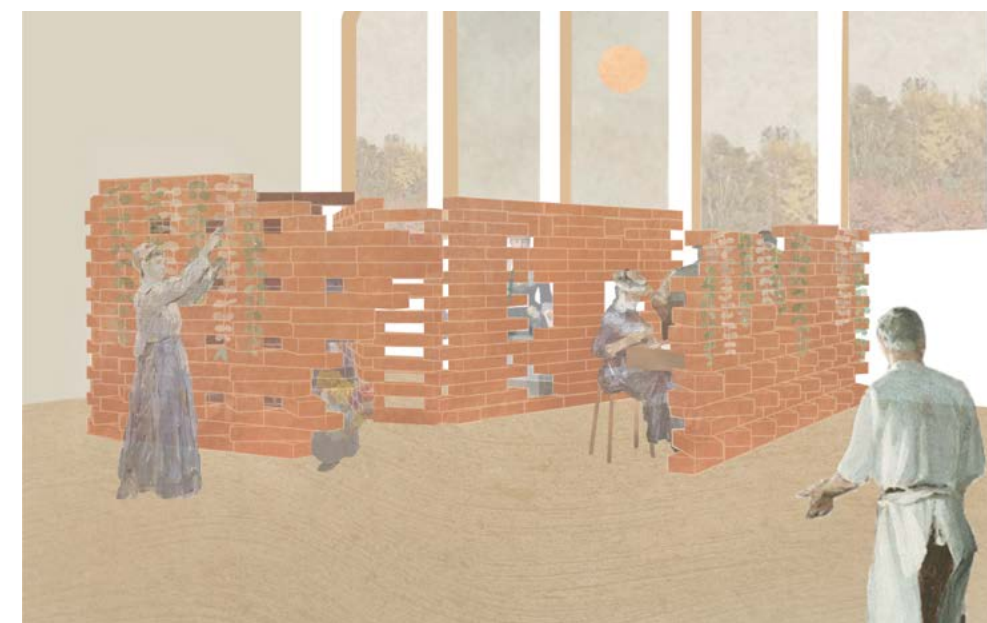
**Borrowing the idea of the social condenser, this project reimagines Columbia University as a public living room that seeks to extend the limits of a private institution.**

**Course:** Architectural Design: Systems and Materials. Fall 2021. Professor Diana Cristobal.  
**Type:** Individual Project. 7 Weeks.  
**Media:** ( Visuals ) Rhino. Illustrator. Photoshop.  
 ( Model ) Butter board. Wood sticks.

**P**LAY-FIELD reimagines part of the John Jay Dining Hall as a space that is socially and environmentally active. For me, the current design isolates dining spaces from the surrounding green spaces. Despite the fact that there are bushes and trees framing the outdoor dining area, they are placed in a very rigid manner, decreasing the chances of spontaneous meetings. My strategy is to create an extending structure that provides multi-functional spaces. PLAY-FIELD's program is grouped into four major functions, eating, resting, cooking, and socializing. By merging the interfaces between the spaces, PLAY-FIELD becomes more fluid and organic, in osmosis with its environment.

24

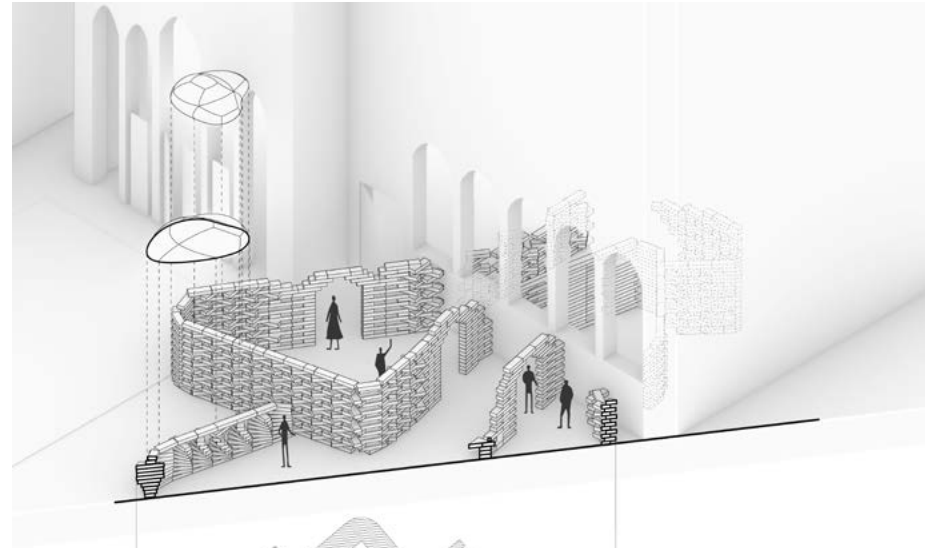
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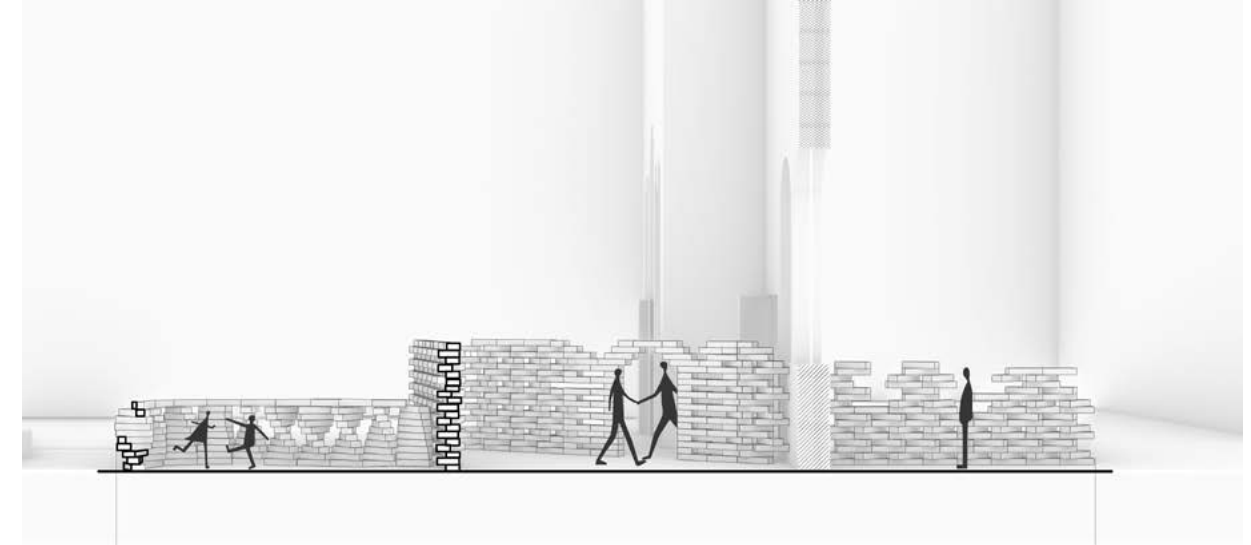
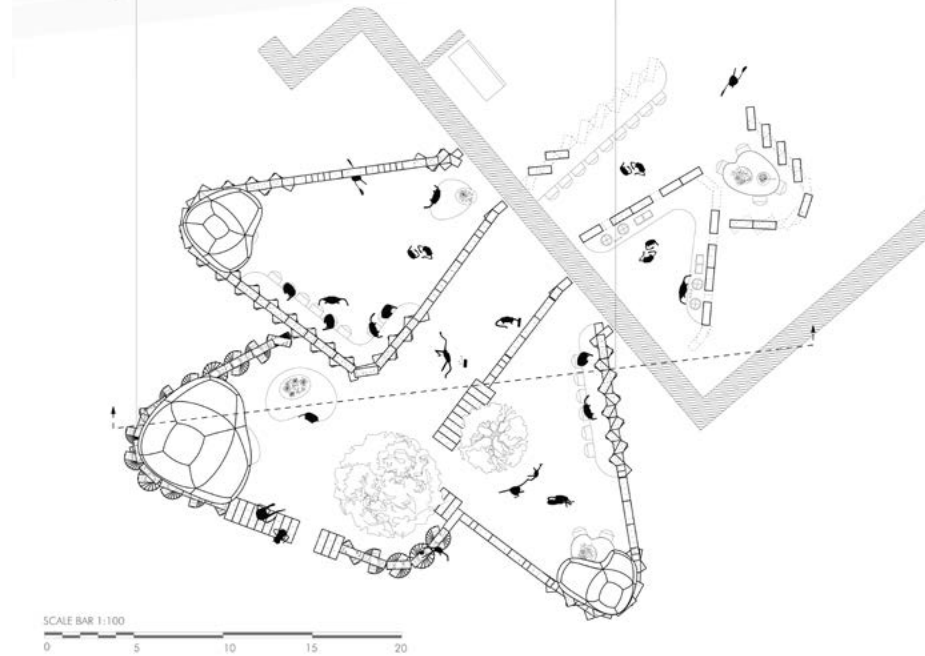
**Inflatable Roof**

Another notable feature of PLAY-FIELD is its inflatable roof. When inflated, it illuminates the area and create sheltered spots.



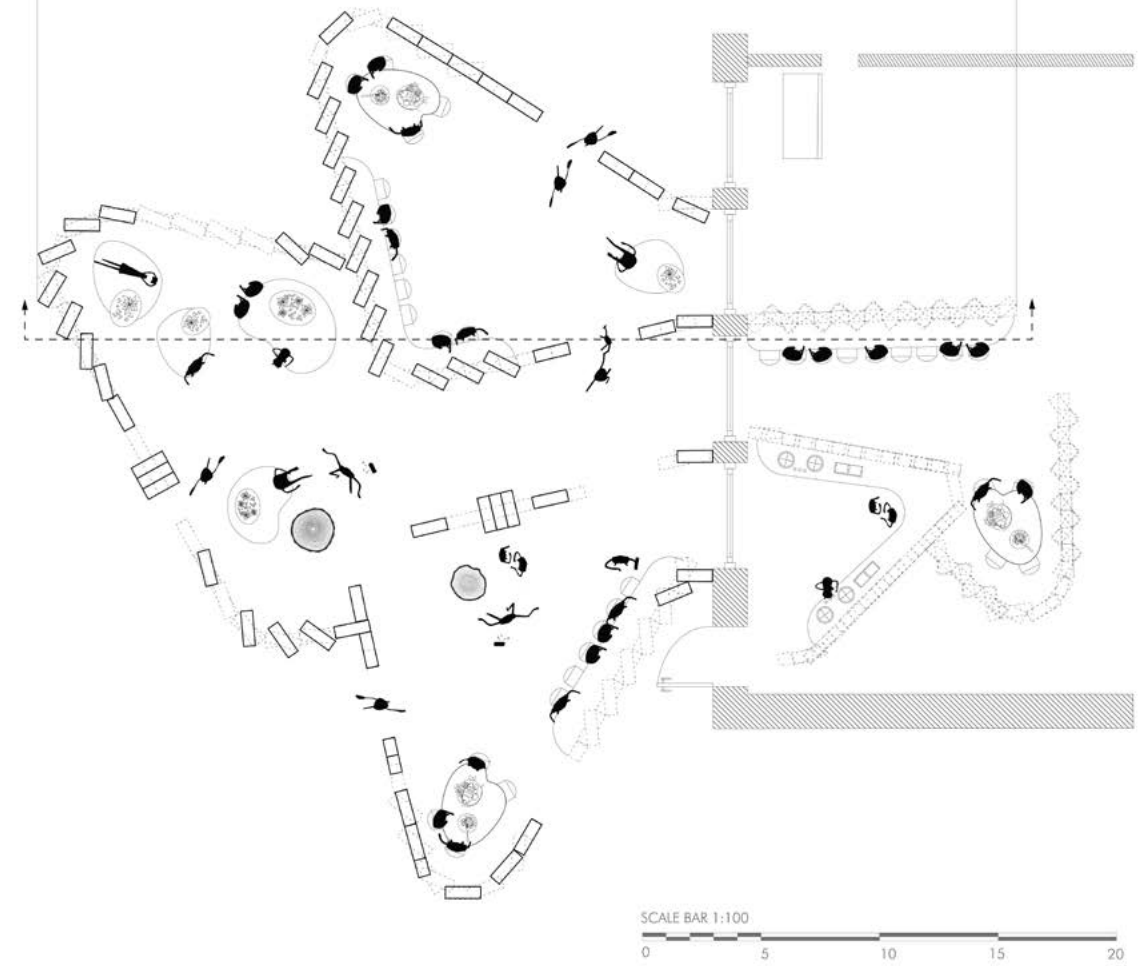
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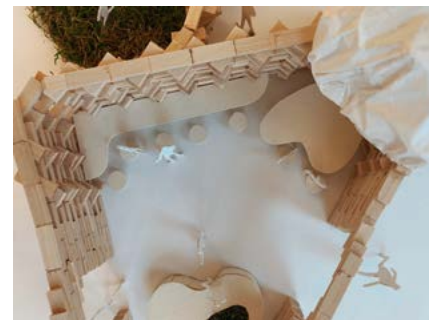
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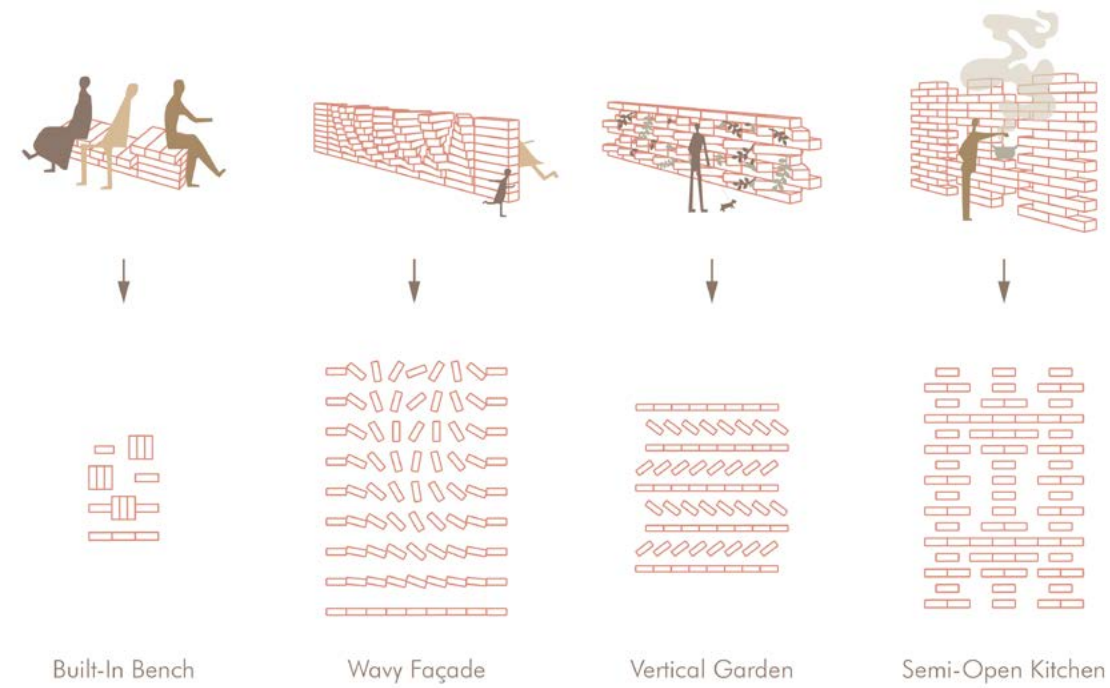
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**System of Bricking**

The continuity and repetition of the materials create a coherent visual identity between the old and the new. At the same time, PLAY-FIELD extends the traditional rectangular rigidity of

the traditional rectangular rigidity of John Jay, but with a restructured system of bricking that makes the module/space more flexible.

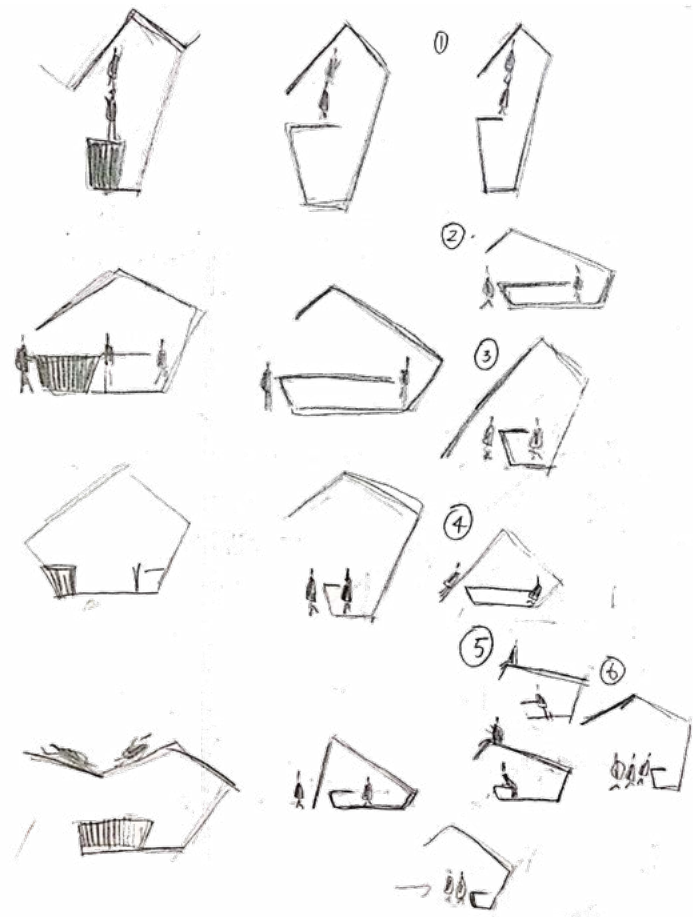


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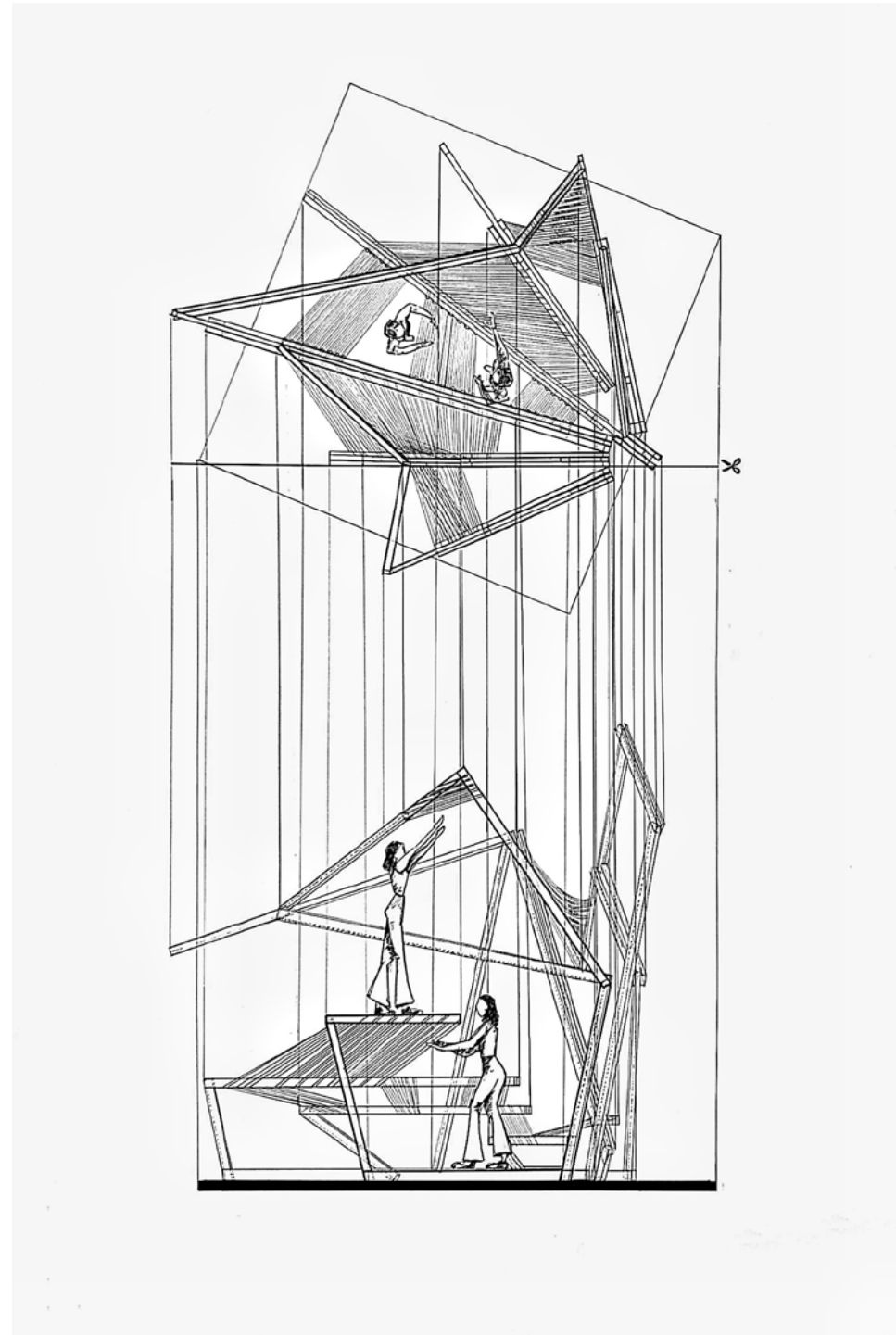


The model of SCAFFOLD depicts the six stages of baking. It uses the kitchen countertop as a barrier to control and mediate the relationship between people, as well as between inhabitants and the environment. As each section iterates, the countertop transforms in length and height. Looking from the bird's-eye-view, the secondary sticks used to reinforce six main sections form a soundwave-like pattern that is analogous to the diagram of SCAFFOLD (previous page). The geometric pattern created by the varying length of roofs strengthens the impression that baking is an organic process filled with liveliness and energetic movements.



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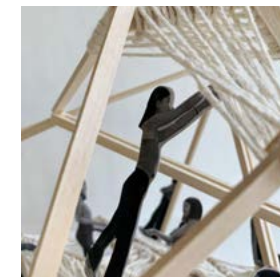
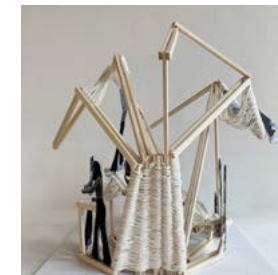
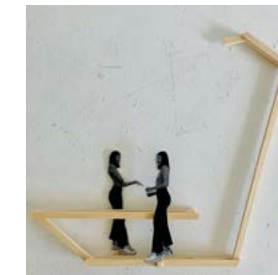


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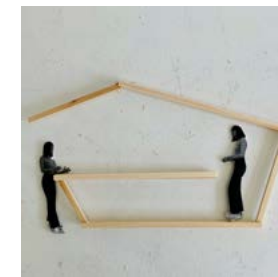
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In contrast to the chronological order of baking stages from bottom to top, the extending lines spread unevenly throughout the paper, suggesting that the reality often involves mess, spillages, and even disorientation.



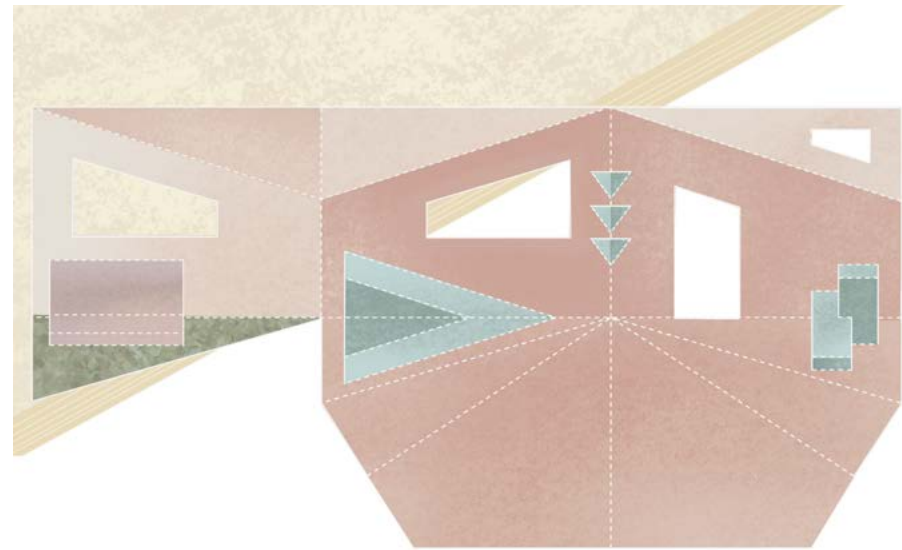
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# ROOM

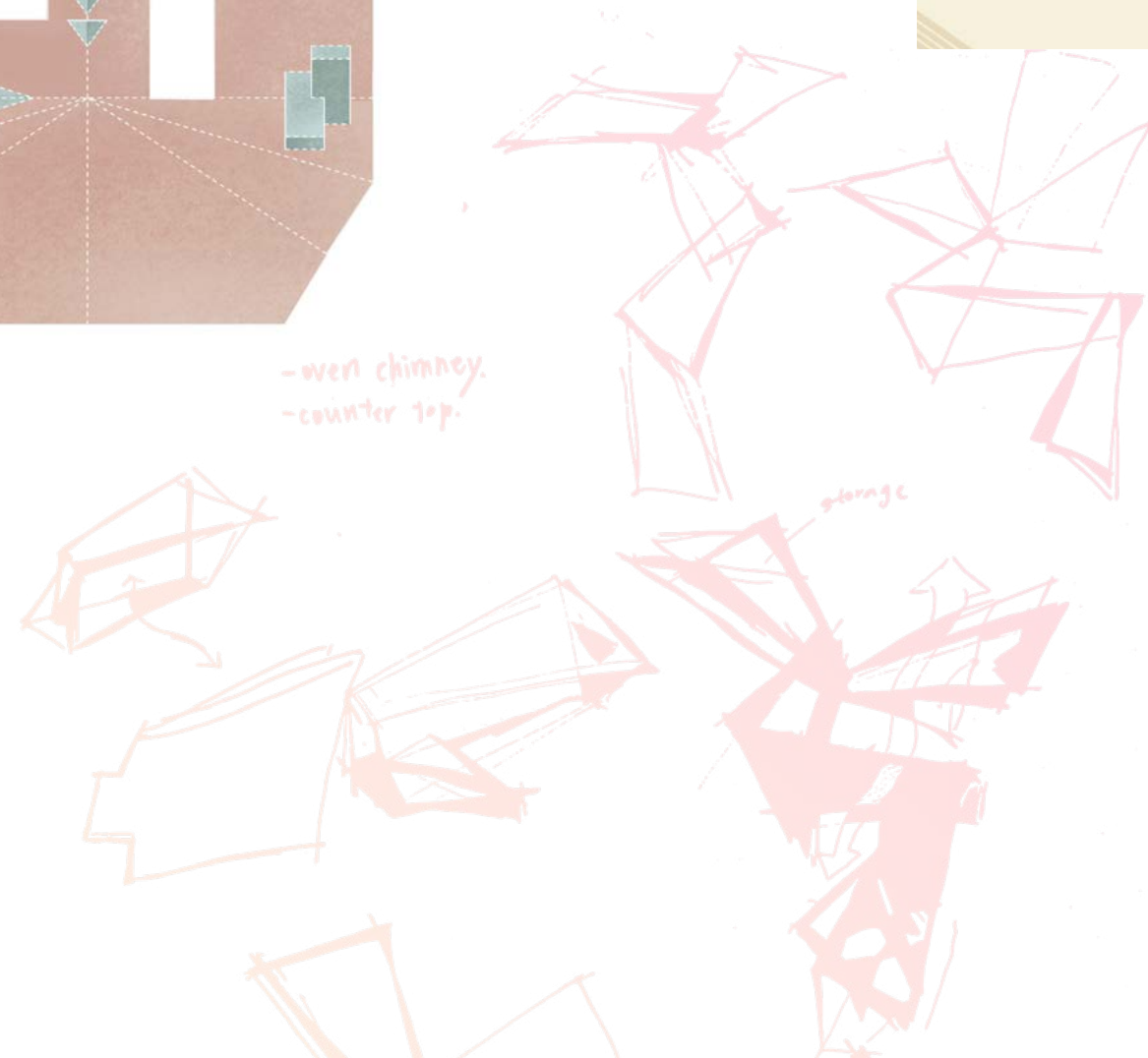
**A body sized room that control / regulate a chosen social and environmental phenomena. This design requires using laser cut as the fabrication tool.**

**Course:** Architectural Design: Systems and Materials. Fall 2021. Professor Diana Cristobal.  
**Type:** Individual Project. 4 Weeks.  
**Media:** ( Visuals ) Rhino. Illustrator. ( Model ) Butter board.



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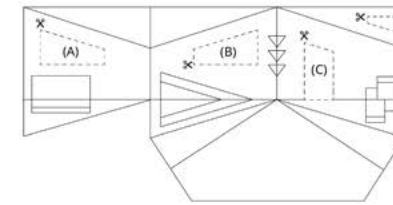
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People often say that the kitchen is “the heart of the home”. In many cases, it is even a synonym for domestic living. Yet with changing lifestyles, such as the rise of living alone and the trends of ordering in, more and more homeowners are seeking a simple and concealable kitchen that does not take up precious space in their apartment. The construction strategy ROOM is the folding of a single sheet of paper into different elements of the kitchen that fit perfectly into the allotted space - which is pretty similar to the logic of paper origami, or children’s pop-up books.

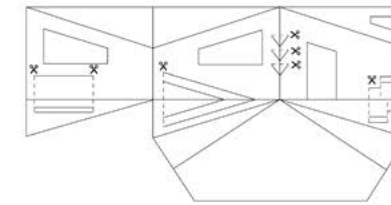


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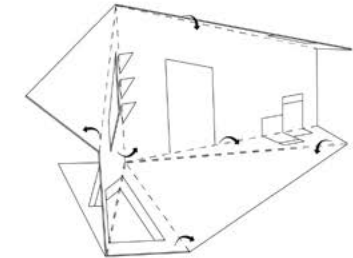
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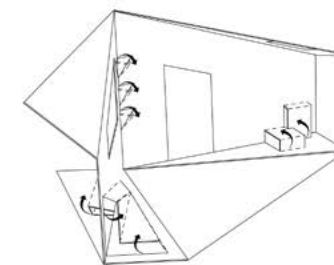
Step 1: Cut dash-lined areas. Preserve (A), (B), (C) for later use.



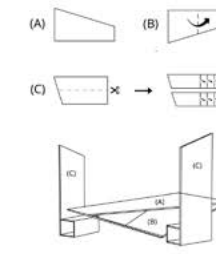
Step 2: Cut the dashed lines.



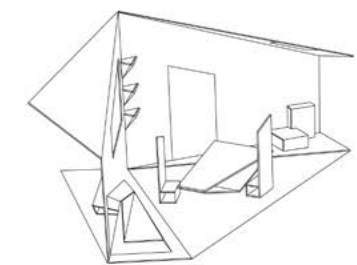
Step 3: Fold the dashed lines to create the structure of the kitchen.



Step 4: Fold the dashed lines to create kitchen fixtures.



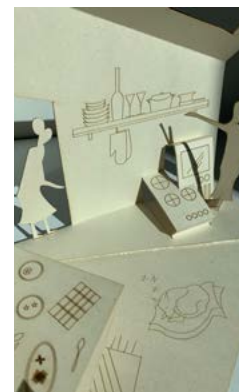
Step 4: Cut and fold (A), (B), (C) to make the dining table and chairs.



Step 4: Assemble and enjoy!

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**Flexible Space**

For me, the kitchen is not an enclosed workspace for mothers where only cooking takes place. ROOM is a living space that merges indoor and outdoor qualities. Designs like the opening V shape of the interior, the large glass window

in front of the countertop allow people to watch or participate as their food is being assembled. With the casualization of modern lifestyles, our kitchens are literally coming down all around us.

## MATERIALLOGICS: VESSELS

**A collection of decorative vessels that experiment with generative potentials of material logics and novel fabrication methods of architecture.**

**Course:** Material Logics. Fall 2022. Professor Julian Harake.

**Type:** Individual Project. 12 Weeks.

**Media:** Bubble Solution. Gelatin. Glycerin. Water. Food Coloring. Cheesecloth.

I thought I was a hardcore perfectionist. As a student completing a degree in architecture, I can plan, sketch, and model with fine levels of formal resolution. I find joy in seeing the clarity and elegance of form bespeak my ideas, of course, through the representation of computer models in the perspective window.

Something was missing. As I become more adept at designing with digital tools, I wonder why those designs look like single objects trapped in frozen shape space. Then, I start to question the primacy of geometric rationalization in the design process. Curious to see what structural behaviors that calculations could not initially provide, I want to explore the nonlinear material behavior towards the design of decorative vessels.





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**Form Finding**

The inspiration behind MATERIALOGICS came from observing the form of crumbled tissue. Something about their softness yet ability to hold their shape piqued my interest to play around with similar material. I began by playing with the garbage in the mailroom – most of which were common for architectural models like paper and wood sticks. Despite my intention to

repurpose these leftover materials creatively, my initial prototypes still felt and looked like objects trapped in their original form. I desperately needed a new material: one that was malleable but firm, porous but structured.



Order of Viewing



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DIVERGE

**Material Behavior**

The material sheet preserves its content but its properties are fascinatingly fluid.

MATERIALLOGICS offers architectural design formal possibilities – dim in outline – that require releasing design ownership and letting the materials take a course of action that may not always make logical sense.



**About Making**

Due to the intrinsic nature of the material – gelatin, food coloring, glycerin, bubble solution, and optionally cheesecloth – each vessel not only twist and curves but also droop, bond, and spread.

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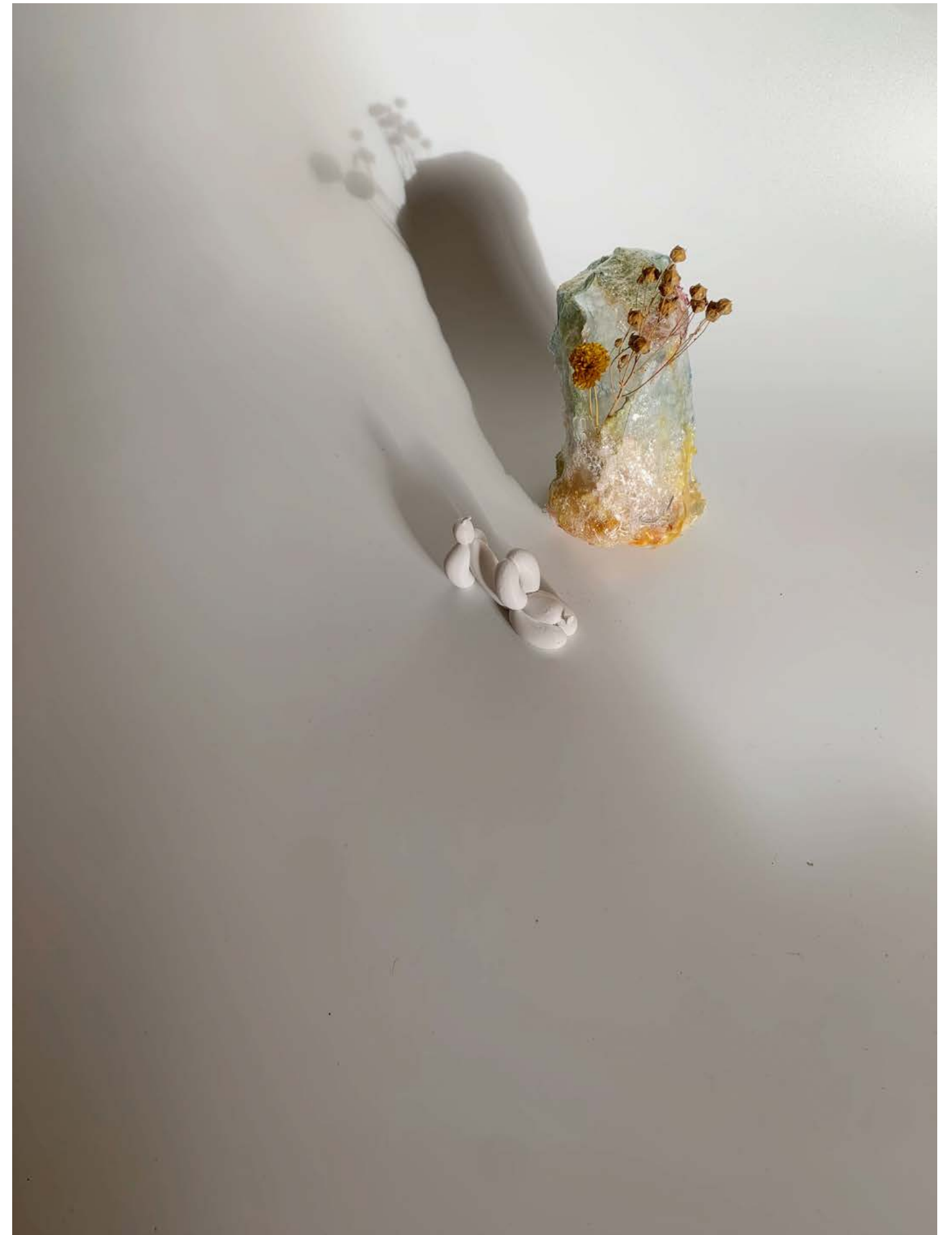
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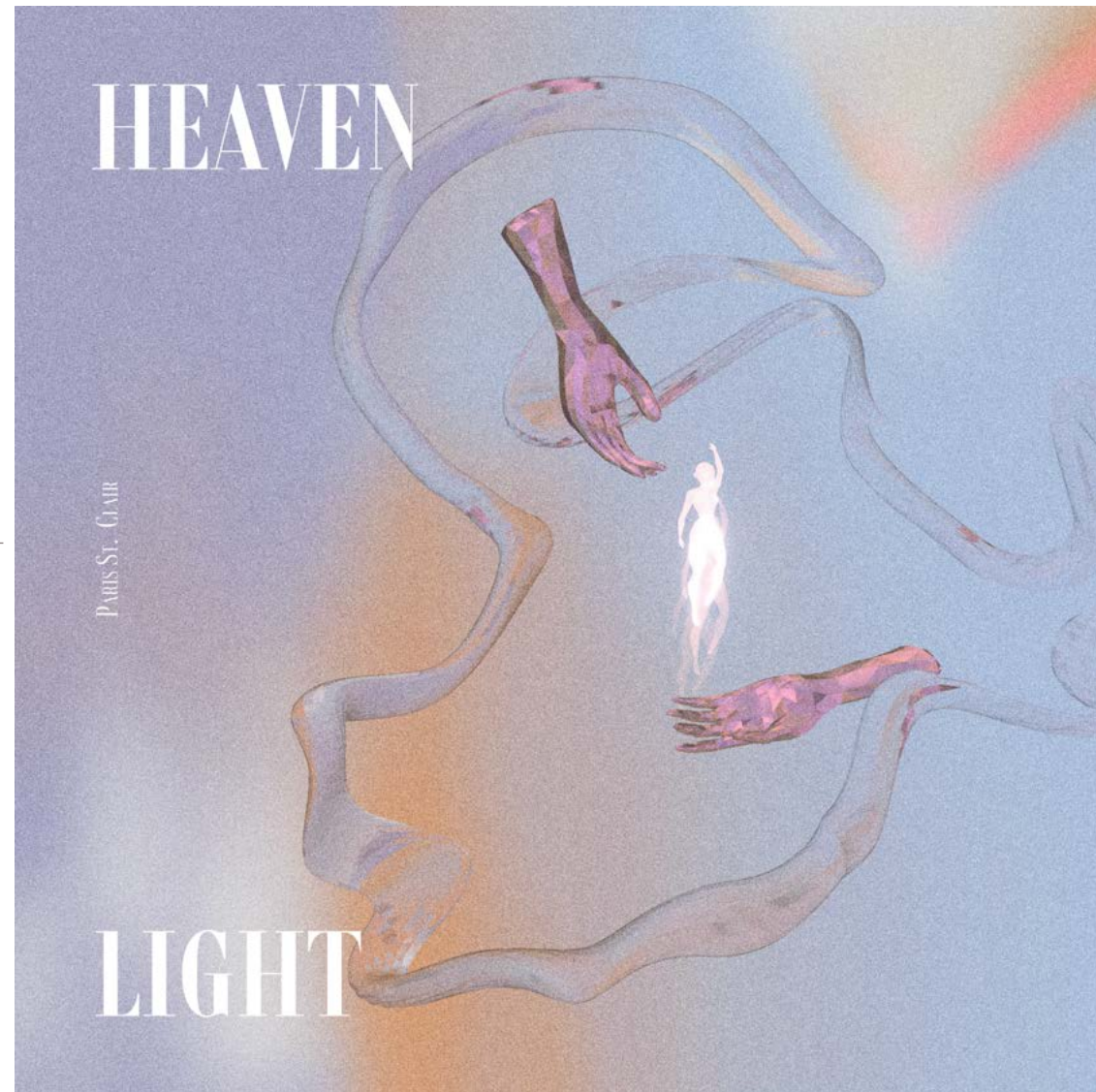


**About Experiencing**

MATERIALOGICS are not single objects; they are informed by the spaces around them and amenable to individual experiences. Crumple one thin sheet: it is a bowl. Combine two porous sheets: it is a pencil holder. Stack three folded sheets: it is a bookend. The life cycle

of these sheets is circular. The combination of materials can be used and reused by repeating the process of its heating. The sheet can be used as an adhesive when it is wet or used as a structure that permanently maintains its shape when it is dry.





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## HEAVEN LIGHT

Album Cover Design for LA-based artist Paris St Clair, including 3D turntable and still for his song, "Heaven Light"

**Type:** Freelance Work. 4 weeks.  
**Media:** Nomad Sculpt. Illustrator.

"I'll lead you through the night arise, arise  
 I'll beat your darkest side come by, alright  
 I'm with you no matter what will cross our path  
 I can't tell you where it leads us but it's worth the fight  
 Cause you will get the wonders in all the miracles you deserve  
 Baby you will see the world and you will understand why I'm in love  
 You will find the answers you've been asking for Who am I, Who am I  
 They will treat you like a King of Lord of the Heaven Lights, Heaven Lights"



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(734) 881-8903

lw2890@columbia.edu