Biophilic Pattern and Spatial Analysis

For the final project in EDI 104, the class was tasked with designing the ground floor entry space for the Nancy Cantor Warehouse using an original pattern work developed earlier in the semester. The project began with designing a 2-foot by 2-foot wall tile pattern that needed to repeat seamlessly and connect into a larger, marketable design system. Overall, the goal was to focus on cohesion, rhythm, and repetition. The wall pattern that emerged used a rhythmic, curvilinear lines and intentional negative space to create a layered visual rhythm, aligning with Principle 10 of biophilic design: Complexity and Order. This principle emphasizes nature's way of combining richness and detail with a sense of structure and harmony. Through repetition and variation, the wall design reflected this balance, calling back to patterns found in natural elements like water ripples, animal skin, tree bark, or cracked earth. These repeating yet varied shapes helped create a sense of natural order that feels both engaging and familiar to the human eye.

The second phase of the project asked the class to create a vinyl floor pattern using elements pulled from the wall design. The resulting floor layout used the negative space shapes from the wall pattern and resemble a cobblestone path or giraffe-like markings, offering a grounded visual texture that encouraged directional movement through the entry space. In the final stage of the project, a 3D installation was developed using SketchUp for the ceiling. This piece brought the design concept full circle by lifting and expanding pattern elements into a form that moved visually across the ceiling.

The ceiling component of the project connects directly to Principle 8 of biophilic design: Connection with Natural Systems. This principle focuses on helping people feel more in tune with natural rhythms, such as movement, growth, or environmental change. Although the materials used in the ceiling installation were artificial, the flowing, organic form aimed to mimic systems like wind, water, or tree canopy, creating a sense of dynamic motion within the built environment. As visitors walk through the space, the design encourages an awareness of how their movement interacts with the forms around them.

Overall, this project explored how biophilic principles can shape a design experience by integrating natural patterns, complexity, and a sense of connection to nature into an otherwise artificially built setting.

1. This is a description of the project and what we were doing/learning previous to this project and how it relates to this one. This is a description of the project and what we were doing/learning previous to this project and how it relates to this one.

2. From this project we chose a column from our matrix to abstract a pattern from. I chose the white water lily pads. I was initially inspired by the scribble texture sketch.

3. These are images of the space we were given to design. The wall is in the lobby on the ground floor of the warehouse next to the stairs to the first floor. We learned how to design flor human scale using ourselves as measurements.

4. After playing with the form of the lilypad scribble and using trace image in Illustrator from the analog sketch, the base form for the wall pattern emerged.

5. Using the negative space from the wall design, I got seven shapes that formed a lilypad. Using those shapes in different orientations, I created a floor path.

6. Taking the elements from the floor and wall designs, I combined the two pieces to create a 3D ceiling installation that pulls the designs together into a cohesive design and filters light into abstracted natural forms similar to water ripples into the space.

Project 2 Pattern Matrix

1

Fingerlakes Plants and Minerals:

Analog Pattern Analysis of Natural Forms

By Maisie Albert

Fall 2025 EDI 104 Project 2 (2/11-2/25)

This study is an analysis of morphology, form, distribution, and composition, using plants and minerals native to the Finger Lakes region of New York as a foundation for design exploration. By studying their essences and environments, similarities between plant and mineral forms emerge, revealing how nature expresses structure, adaptation, and beauty across different scales. This study aims to bridge the gap between the natural world and human design, using the Finger Lakes as a lens for considering this rounded form of creation. Through iterative sketching and digital refinement, these forms evolved into a cohesive visual language that reflects the interconnectedness of natural systems and human perception.

This analysis shows complexity and order, a biophilic principle that highlights the balance and Pattern found in nature, as well as symmetrical forms and patterns and visual connections with nature, where organic forms inspire built spaces. By analyzing these natural elements through texture, line weight, color, value, and composition, this study explores how biological forms can be transformed into bespoke solutions, strengthening the connection between nature and the built environment.

Cornelia Anemone Flower

Cornelia Anemone Flower, also known as Cornelia Anemone, is a perennial native to the Finger Lakes region. Its delicate, cup-shaped blooms with pale pink petals and golden centers are a beloved sight in woodlands and gardens alike.

Thriving in partial shade, this plant prefers moist, well-drained soil and spreads gently through rhizomes, making it a charming addition to shady spaces. Its resilience and ability to naturalize make it a low-maintenance choice for adding seasonal beauty to the landscape.

Radix

Radix, or radish, belongs to the mustard family and is a fast-growing, cool-weather vegetable. The plant forms a rosette of leaves and a fleshy taproot, which can be round or elongated depending on the variety. Radishes are prized for their crisp texture and peppery flavor, making them a popular choice in salads and as a garnish. The plant's leaves are also edible, offering a nutritious bonus.

Radishes are biennials, but they are typically harvested before the second year. They thrive in cool temperatures and require consistent moisture to prevent bolting (premature flowering). With their quick growth and versatile uses, radishes are a staple in gardens and kitchens alike.

Lady Fern

Lady Fern is a delicate, graceful fern with lacy fronds that add a touch of elegance to shady spots in the garden. The fronds are triangular in shape and have a soft, feathery texture, creating a beautiful contrast with other plants in the landscape.

Lady Fern prefers moist, well-drained soil and thrives in partial shade to full shade. It spreads slowly through rhizomes, making it a gentle addition to woodland gardens and shady borders. The fern's low maintenance nature and its ability to naturalize make it a valuable plant for adding texture and depth to shady areas.

Calleilla

Calleilla is known for its vibrant, cheerful blooms that resemble small, fluffy pompoms. The flowers come in various colors, including shades of pink, red, and white, and they bloom primarily in the spring and summer, adding a burst of color to the garden.

Calleilla prefers well-drained soil and thrives in partial shade to full sunlight. The plant is relatively low-maintenance and can tolerate a wide range of conditions, making it a resilient choice for gardeners. Its compact growth habit makes it suitable for small spaces and container gardening.

Orange Butterfly-weed

Orange Butterfly-weed, also known as Asclepias tuberosa, is a vibrant perennial native to the Finger Lakes region. The plant features bright orange flowers that bloom in clusters, attracting butterflies and pollinators with their sweet nectar.

Butterfly-weed prefers well-drained soil and thrives in full sunlight. The plant's deep taproot makes it drought-tolerant and resilient to harsh conditions. It spreads slowly through rhizomes, making it a gentle addition to gardens and naturalized areas.

Columbine

Columbine is a delicate and whimsical perennial native to the Finger Lakes region. The plant features nodding flowers with distinctive spurs and a variety of colors, including shades of blue, purple, pink, and white, attracting pollinators with their sweet nectar.

Columbine prefers well-drained soil and thrives in partial shade to full sunlight. The plant's deep taproot makes it drought-tolerant and resilient to harsh conditions. It spreads slowly through rhizomes, making it a gentle addition to gardens and naturalized areas.

White Water Lily (Pads)

White Water Lily, also known as Nymphaea alba, is a beautiful aquatic perennial native to the Finger Lakes region. The plant features large, floating leaves and fragrant, white flowers that bloom on the surface of the water.

White Water Lily prefers still or slow-moving water and thrives in full sunlight. The plant's deep rhizomes allow it to anchor in the mud and spread across the water's surface, providing shade and habitat for aquatic life.

Fluorite

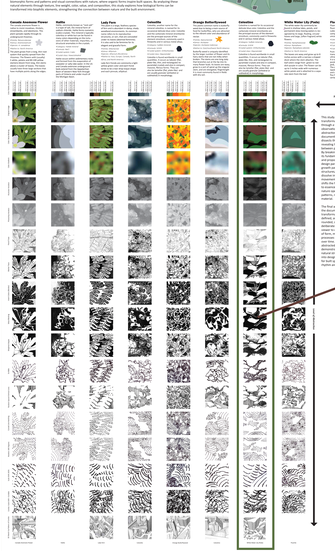
Fluorite is a colorful form of calcium fluoride, known for its vibrant hues and its ability to glow under ultraviolet light. The mineral forms in various environments, including hydrothermal veins and sedimentary deposits, and is prized for its aesthetic qquality and its role in various industrial applications.

Fluorite's crystalline structure allows it to exhibit a wide range of colors, including purple, green, blue, and yellow, making it a popular choice for decorative purposes and in the jewelry industry.

Shape Expansion Jewelry Model

This study captures the transformation of natural forms into wearable jewelry, emphasizing abstraction, deconstruction, and alternation. Rather than simply replicating nature, the process distills their structural logic, revealing hidden connections between plant life and minerals. Through this lens, nature becomes a fundamental tool, inspiring new proportions, unexpected combinations, and dynamic growth patterns that a conventional design process might never produce into coffee. Rich inspiration for this design originally stems the focus from interpretation of natural forms, where nature operates through repeating patterns, symmetry, and organic expansion.

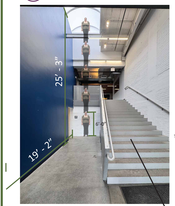
The final arrangement of the discovered, abstracted, and transformed forms, ranging from well-defined, angular structures to more fluid, organic expansions, celebrates sequencing allows the viewer to experience the evolution from the raw, natural form to the abstracted, transformed, and finally, the wearable. The interplay of natural structures and the transformed elements underscores the design's core focus on how nature inspires the human capacities found in nature.

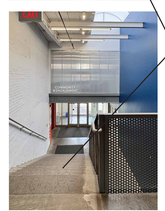


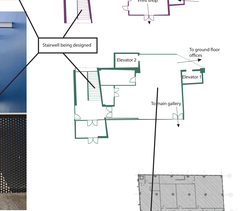
Existing Conditions

2

3







Process

6

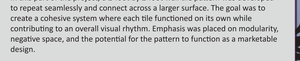
Ceiling

For this part of the project, we were instructed to create a 3D hanging installation that connected visually to the wall and floor. Using sketchup and the elements from both previous pieces of the project, we designed this installation to be a combined, abstracted 3D fixture that filters light to look like wave patterns throughout the space.

4

Wall

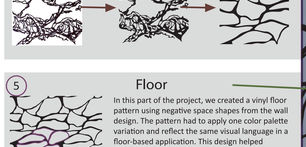
In this part of the project, a 2-foot by 2-foot wall tile pattern was developed to repeat seamlessly and connect across a larger surface. The goal was to create a cohesive system where each tile functioned on its own while contributing to an overall visual rhythm. Emphasis was placed on modularity, negative space, and the potential for the pattern to function as a marketable design.



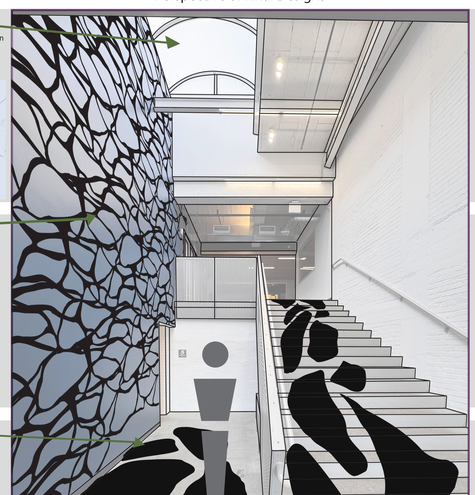
5

Floor

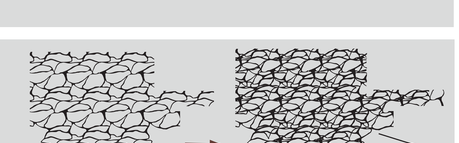
In this part of the project, we created a vinyl floor pattern using negative space shapes from the wall design. The pattern had to apply one color palette variation and reflect the same visual language in a floor-based application. This design helped connect the space across surfaces and guide movement through the entryway.



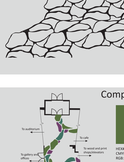
Perspective of Final Designs



Process (Continued)



Complementary



HEXBATLIP
CMYK: 22 / 0 / 44 / 10
RGB: 88 113 63

HEXWATER
CMYK: 0 / 12 / 60 / 0
RGB: 254 193 99

HEXWOTOLO
CMYK: 0 / 50 / 72 / 15
RGB: 64 124 70

HEXFORDBIO
CMYK: 0 / 46 / 4 / 55
RGB: 114 64 109

Possible Color Palettes

Diagram of the ground and first floors together to show continuity

Analogue

HEXWATER
CMYK: 0 / 12 / 44 / 56
RGB: 88 113 63

HEXWTOWO
CMYK: 0 / 12 / 60 / 0
RGB: 116 112 64

HEXWATOL
CMYK: 44 / 0 / 42 / 15
RGB: 64 124 85

Monochromatic

HEXWATLIP
CMYK: 22 / 0 / 44 / 56
RGB: 88 113 63

HEXWATEEO
CMYK: 22 / 0 / 44 / 76
RGB: 47 61 34

HEXWATOLO
CMYK: 25 / 0 / 42 / 35
RGB: 130 185 95

Wall Pattern Design Process

In this project we have been learning how to take our biophillia inspired patterns and turn them into functional wall tile patterns. In a 2ft by 2ft square (3), we took a drawing from project 2 (1) and played with the composition and form to make something that could be repeated on a plane without feeling like a wallpaper (2). In this project we are also focused on designing to human scale and learning how our bodies fit in a space; how to design for others in space at a scale that makes sense and is comfortable.

1

For project 2, one of the original images I chose to abstract and work with was of the white water lily, specifically a cluster of pads.

For this drawing, I took the above image of lily pads and used the scribbling technique to trace them and create abstract, unique, organic lines.

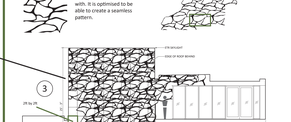
In this step, I imaged traced the previous image and started to play with the form and simplify it a little bit.

This is the final image of the lily pads I ended up with. It is optimized to be able to create a seamless pattern.

2

In this, I took my tile from the previous step and created a tile for each section to connect in an organic way and have a completed edge.

3



In steps 3 and 4, I took all of the pieces I created and scaled them to the wall. I then copied it and shifted the pattern down and to the left slightly for an interesting overlap. I put the finished piece in photoshop. I used perspective warp to mold my pattern to the wall the project was designing for.

4