PELÉ CARNEY

PELÉ CARNEY - CV

Contact - Pelecarney@gmail.com (US) 440-552-8481
Website and Digital Portfolio - https://www.thecreativedesignprocess.com/

Education:

Southern California Institute of Architecture — Los Angeles, CA
Master of Architecture II — Expected August 2027

The Ohio State University — Columbus, OH
Bachelor of Science in Architecture — May 2025
GPA – Dual Honors in Architecture & Undergraduate Research — 4.0

Clubs and Extracurriculars:

- AIAS SCI-Arc – Freedom by Design Consultant/Assistant
- AIAS Ohio State – Director of Freedom by Design chapter
  - Columbus West High School STEM Designation Community Partner
- The Columbus Crew at OSU Club – Vice President and Co-Founder

Accreditations and Awards:

- Knowlton Studio Book Award Spring 2023 – Under Zelig Fok
- Knowlton Studio Book Award Fall 2023 – Under Alex Oetzel
- Knowlton Studio Book Award Fall 2024 – Under Ashley Bigham
- GUI Competition Finalist Spring 2025 – Under Stephanie Davidson

Publications/Written Works:

- Double Zero One (Kindness) – Self-Published on Website — April 2024
- Double Zero Two (The Monster) – Self-Published on Website — September 2024
- Blossoming Identities in a Mad World - Self-Published on Website — January 2026

All Work Experience:

Research Assistant/Biennial Collaborator — June 2025
DAVIDSON RAFAILIDIS — Columbus, OH

- Fabricated five large, ½ scale wood models of “some repairs” context details for the 2025 Chicago Architecture Biennial. 2025 Best of Design Award from *The Architect’s Newspaper* in the category ‘Building Renovation – Residential” for their project “Some Repairs.”

Studio 9 Design Intern — May 2024 – Aug 2024
Moody Nolan — Columbus, OH

- Designed a to-be-built alternative school amphitheater and media center.
- Assisted with various site work tasks and material patterns/choices.
- Coordinated programming requirements and designed early-stage concept plans and diagrams for a community/recreation center.

Contractor / Counselor — July 2023
The Columbus Center for Architecture and Design — Columbus, OH

- Helped multiple groups of middle school students design a theme park project over the course of a week while facilitating conversations about architecture, landscape architecture, planning, interior design, and structural engineering.

Customer Sales Associate - Tools — Nov 2022 – Feb 2023
Lowes Corporation — Columbus, OH

- Assisted customers when picking out tools for various home or professional construction jobs, sorted and inventoried stock, and kept the tools department clean and organized.

Carpenter Apprentice / Summer Intern — June 2022 – Aug 2022
Hurst - Design Build Remodel — Westlake, OH

- Worked in the field as an apprentice, helping to remodel residential homes on projects ranging from $80,000-$300,000.
- Used architectural plans to lay out and construct additions.
- Individually framed sections of a garage, dormer, and hip roof.

Technology and Other Skills:

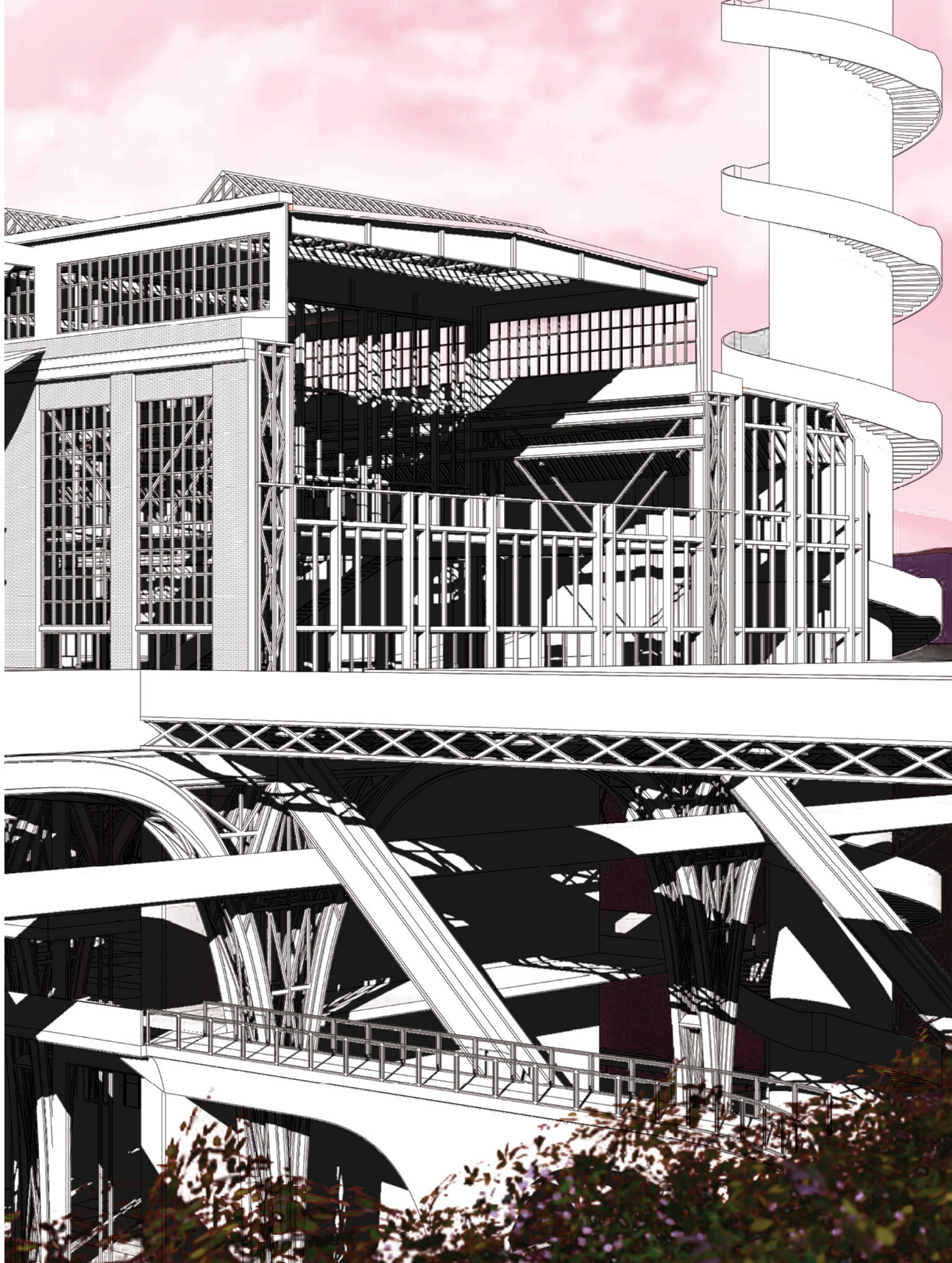
- Skills in Maya, Grasshopper, GHLaddybug, Rhino7/8, and Adobe Suite ZBrush, Cinema 4D, Autodesk Forma.
- Computer programming in Java, JavaScript, C++, Python, and HTML.
- Trained on C.R. ONSURD 5-Axis CNC Mill with RhinoCAM 2023.
- Basic VRay, TwinMotion, Blender, Climate Studio, Revit, and Enscape.
- Fine woodworking and residential construction.

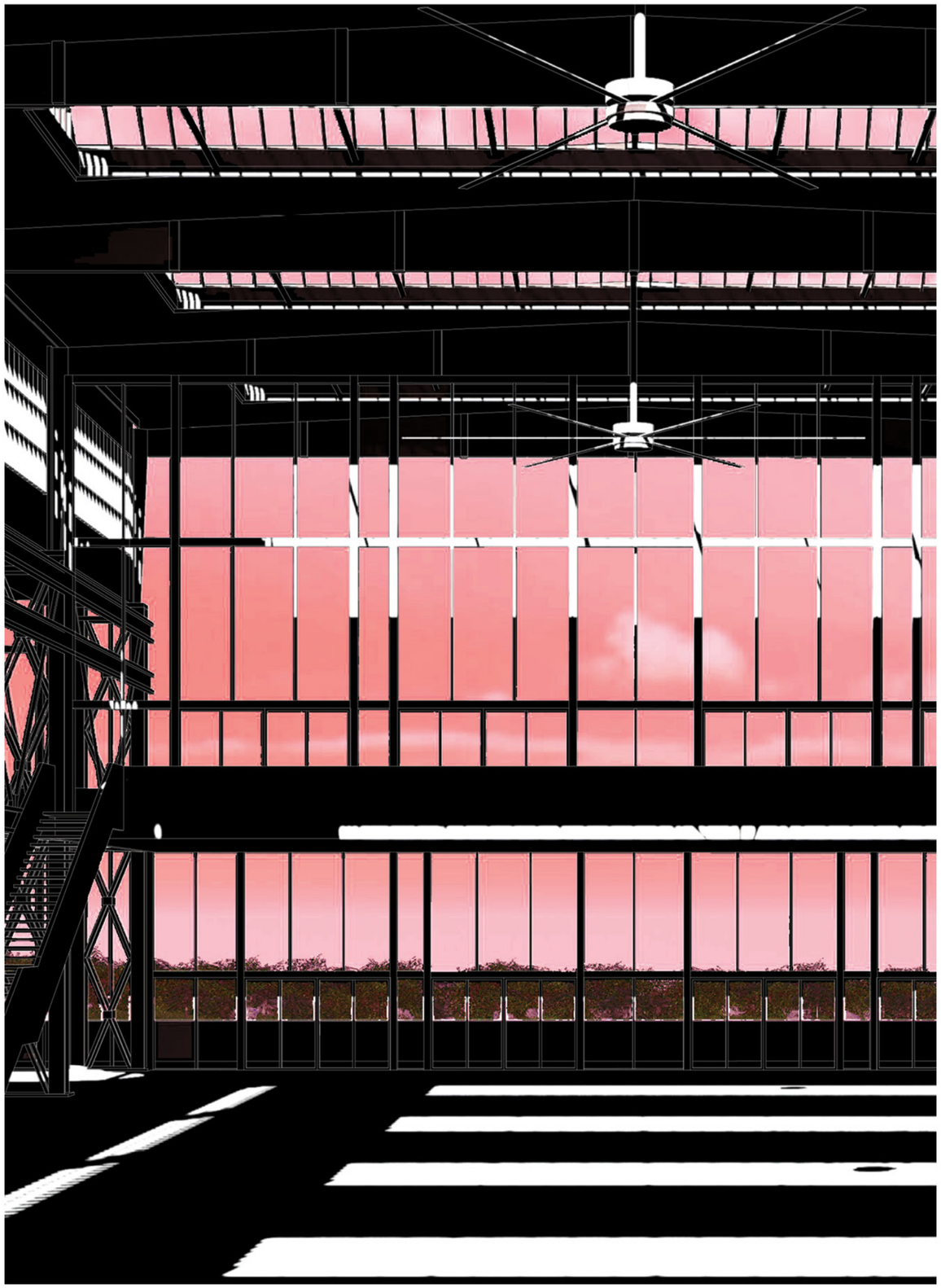
CONTENTS

IT TAKES TIME

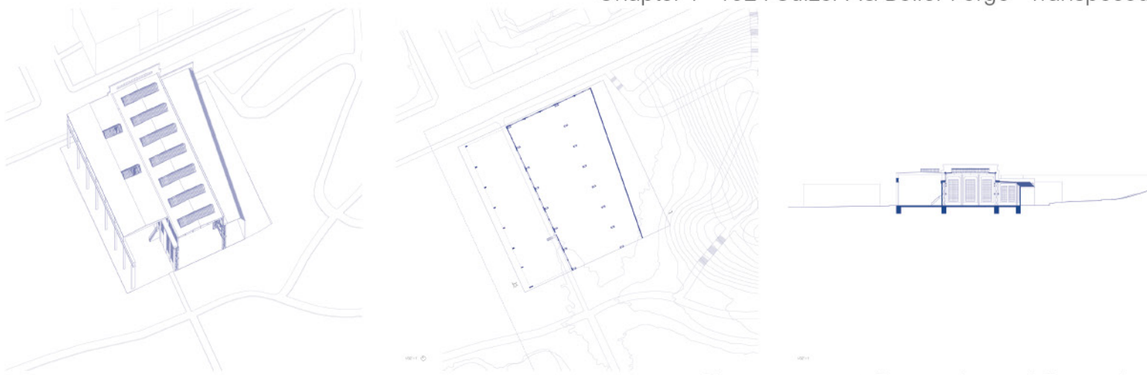
UG4 SPRING
STEPHANIE DAVIDSON
THE OHIO STATE UNIVERSITY, COLUMBUS OH

The project started in 1924, in Winterthur, Switzerland, as a Boiler Forge. A building that has undergone many adaptations and expansions since, catalogued in Architectural Affordances by Andreas Lechner et al. The building is imagined translated to our site in Detroit, Michigan, in the context of a similar industrial history. We imagine the building superimposed over the square area of impact near local landmarks. The project is then iterated over time through a series of chapters: Chapter 1 is the translation from Winterthur. Chapter 2 is an initial expansion and renovation to accommodate the program, a multi-space community center, the “now” stage. Chapter 3 then throws the project into a disastrous future, a flood from the river spills into space and erodes the foundation and surrounding wetlands. Chapter 4 is the recovery, a new relationship with water, infrastructure, and the cavernous fissure left behind by the floods. Claiming space, seeing disaster as opportunity, seeing history as a platform.



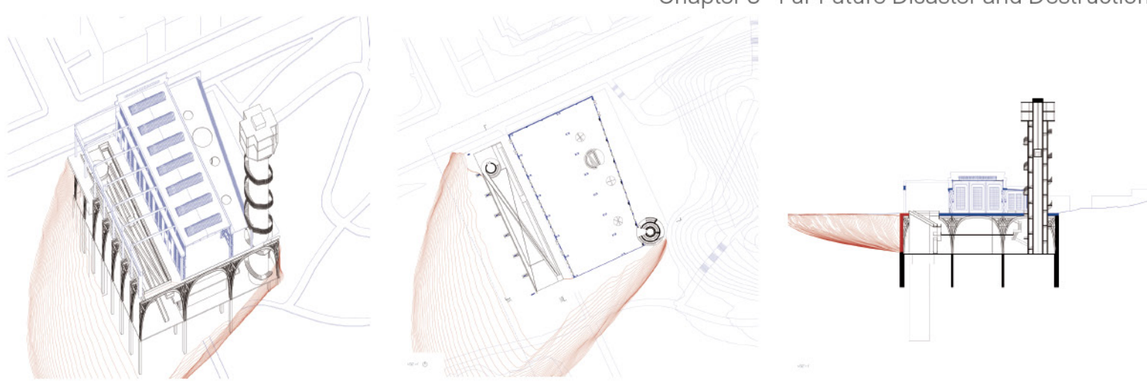


Chapter 1 - 1924 Sulzer AG Boiler Forge - Transposed

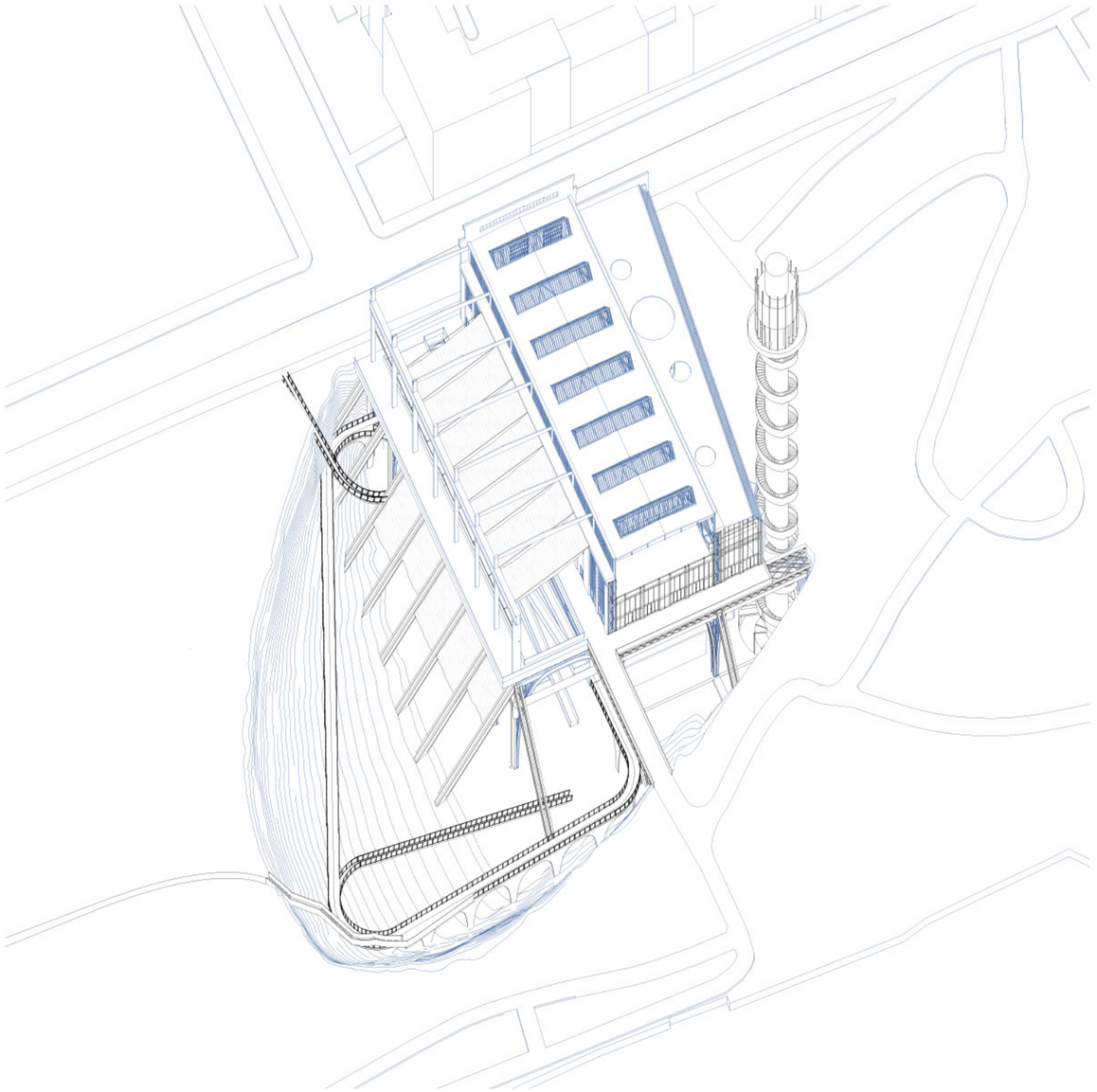


Chapter 2 - 2025 Renovation and Expansion

Chapter 3 - Far Future Disaster and Destruction

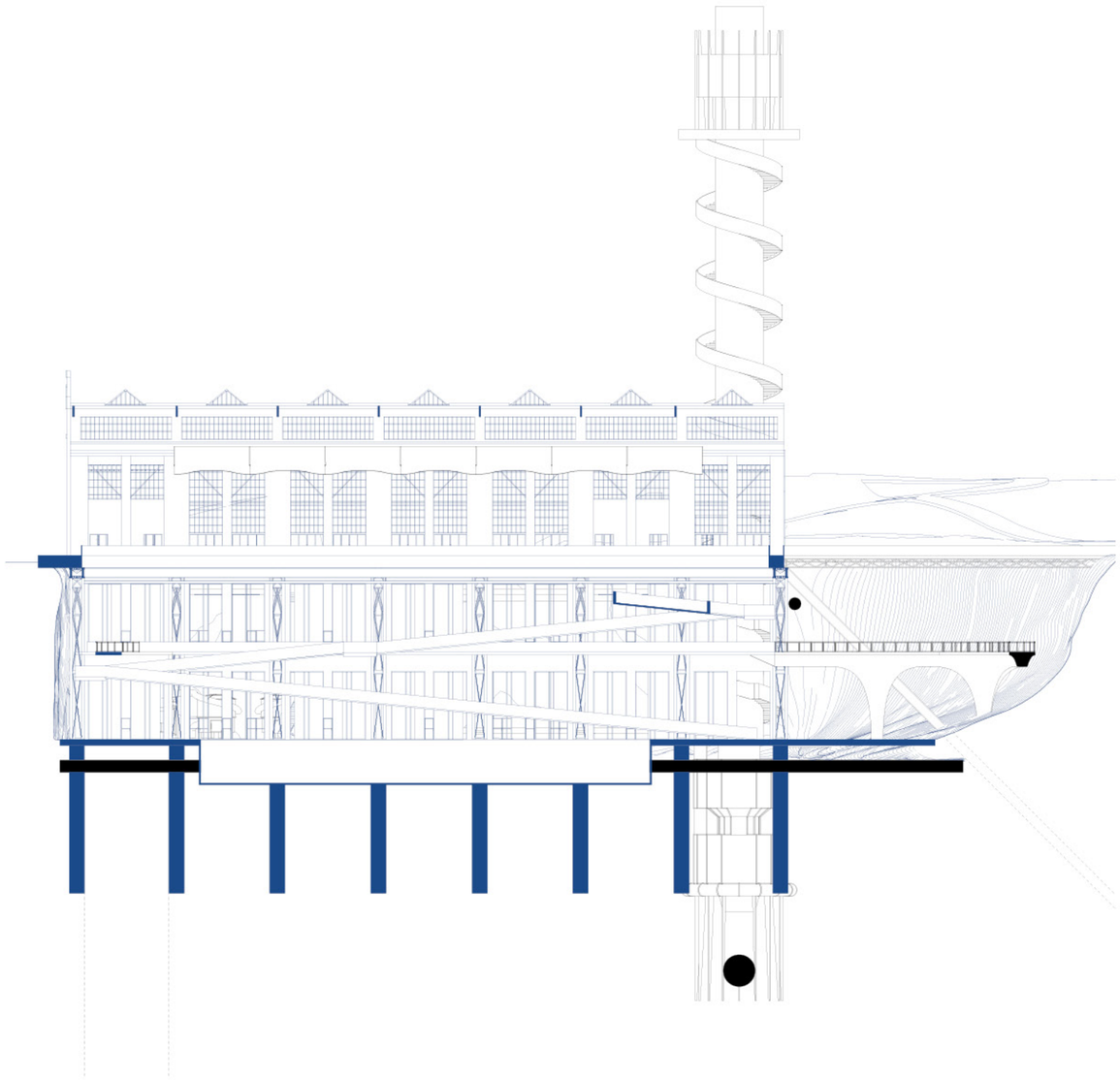


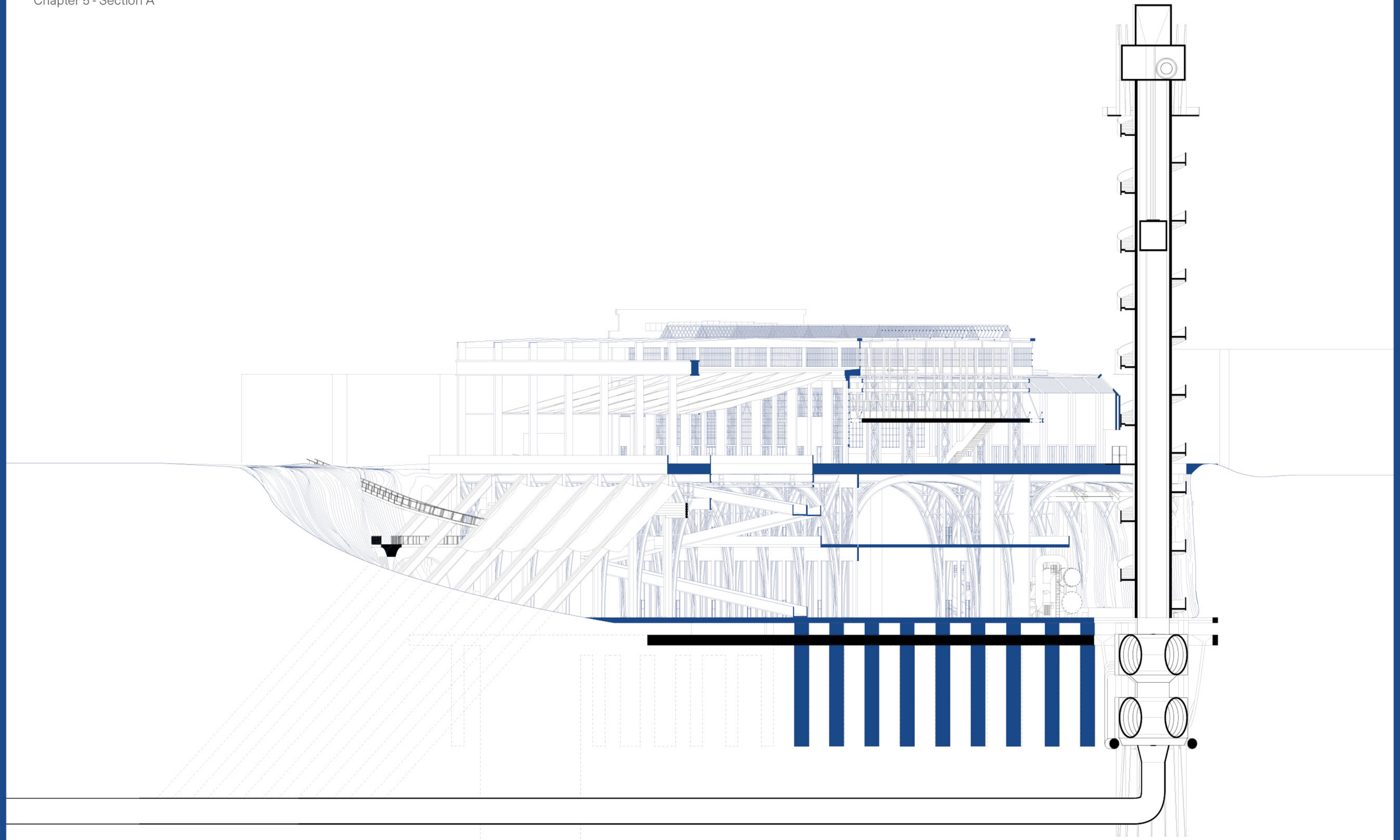
Preliminary Working Model Photos



Final Model Photo

Final Model Photos



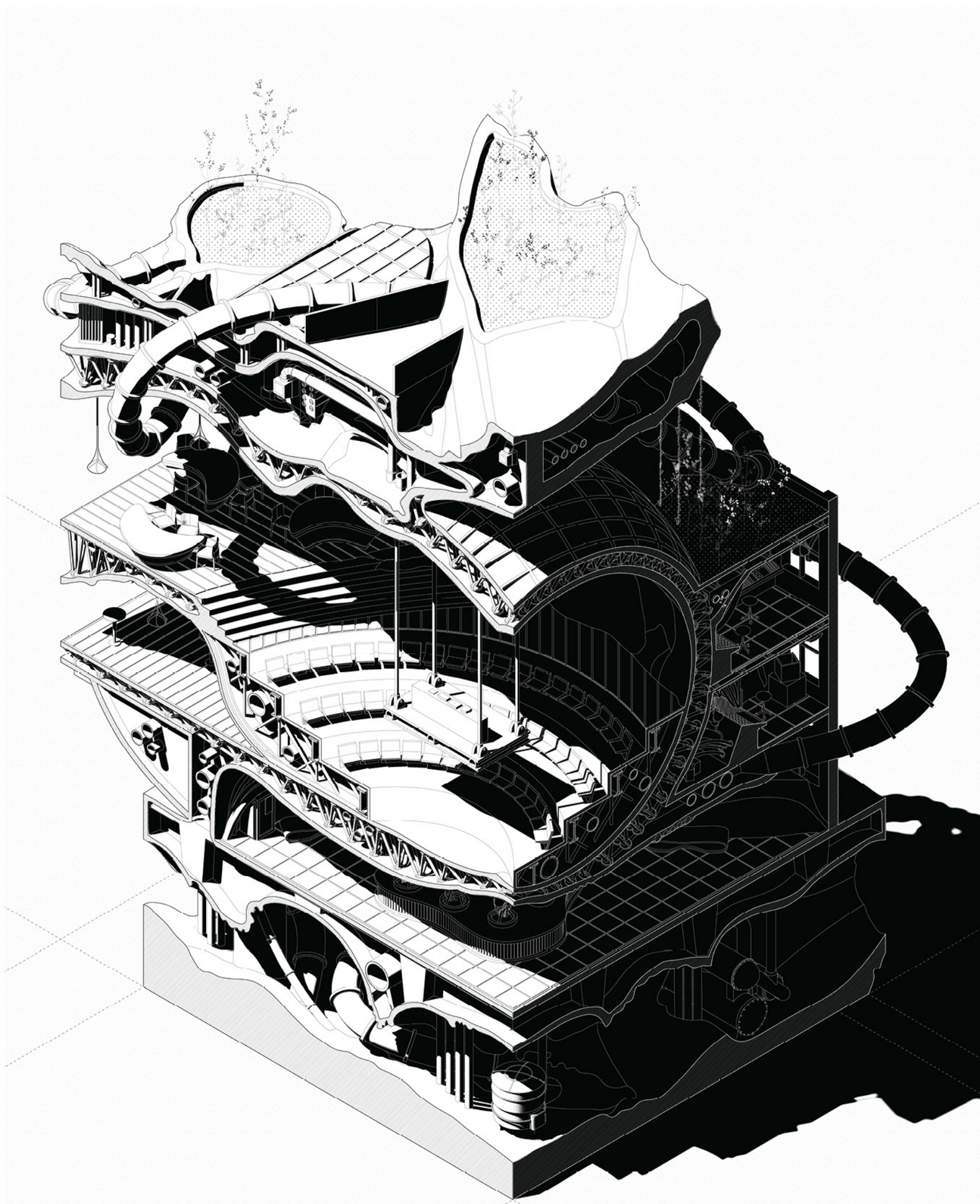


2GAX - AMALGA-MATION

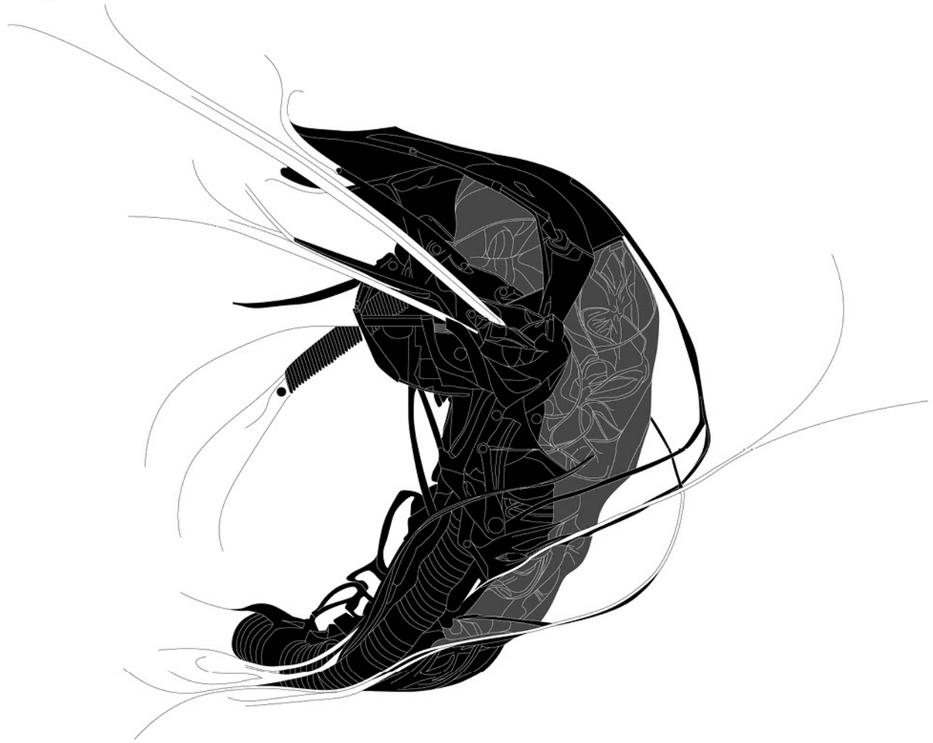
2GX FALL
WILLIAM VIRGIL
LOS ANGELES
PARTNER: JAROSLAV HERRERA

A series of references, of humanity, of mechanical objects, of insects, and of plants came together to generate a new form, the amalgamation. These forms and references then eroded the existing building and site – the old Lincoln Heights Jail in Los Angeles. A polluted, messy site, the amalgamation was an intervening force that drove change and repurposed the jail into a project about community, broader city engagement, and historic adaptation. What the product became is a mechanical beast, a series of layered systems that clean the polluted air and ground while formally defining the various programmed elements. An apartment/hotel, event spaces, creative offices, and a community theater.

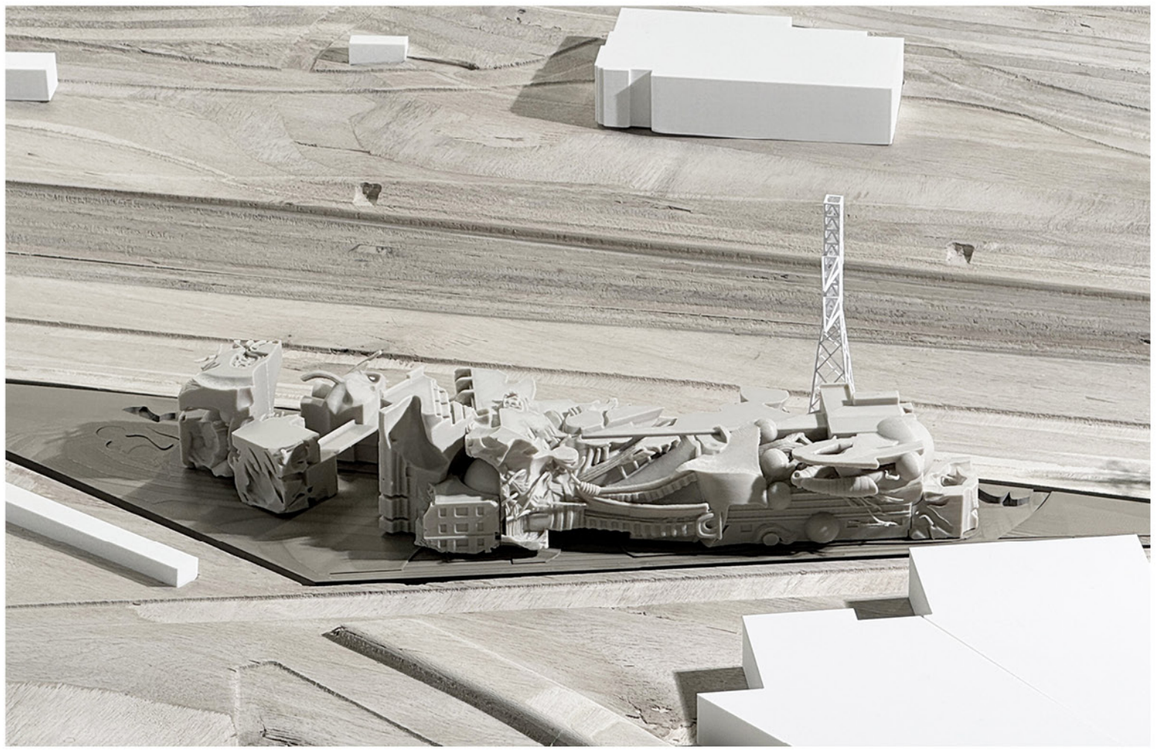
AI Statement: This project, as directed by the studio, used AI-generated imagery to create complex 3D mesh models, which were then used to erode the existing and propose new forms. I personally have major qualms with AI imagery, but as a tool, it was useful to explore in depth. The project is an exercise in technology and design. However, critically, all the graphics, models, and renderings were created by either my partner or me.



One of “The Hybrids”



Overall Model on Site



Amalgamation CNC Mills

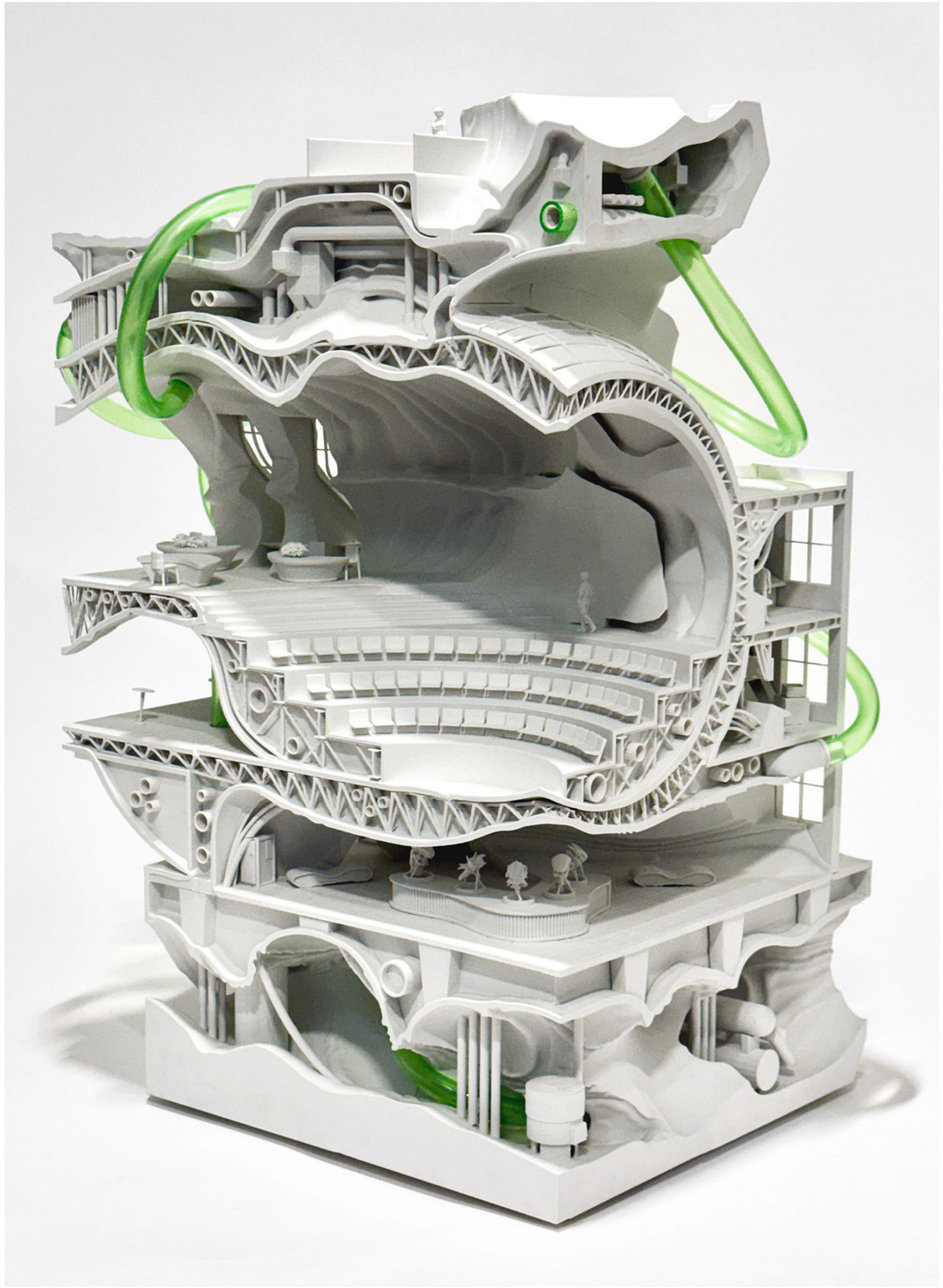
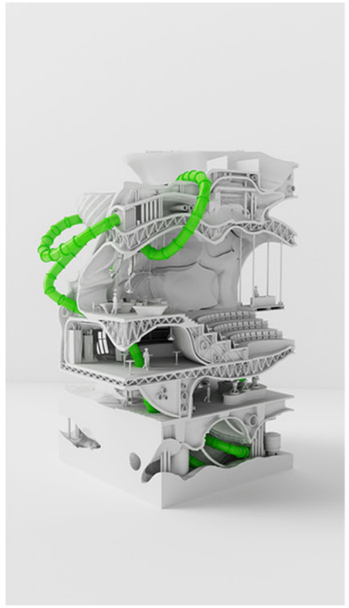
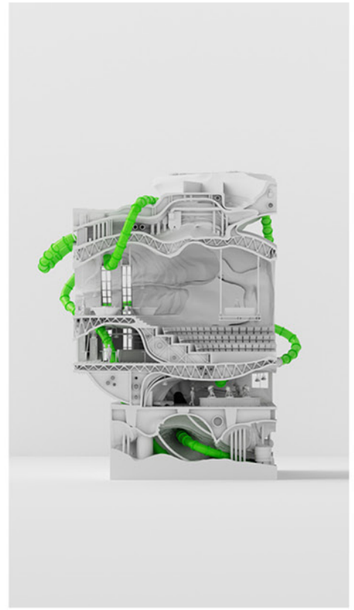
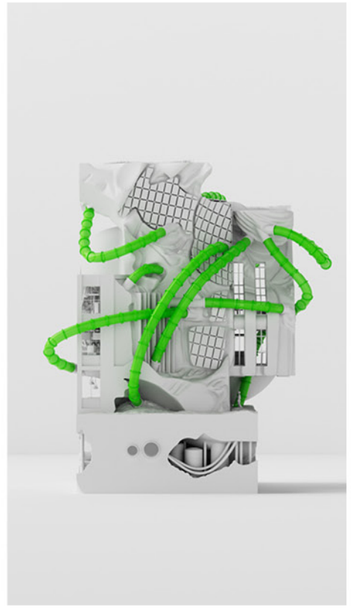


Photo of Final Model

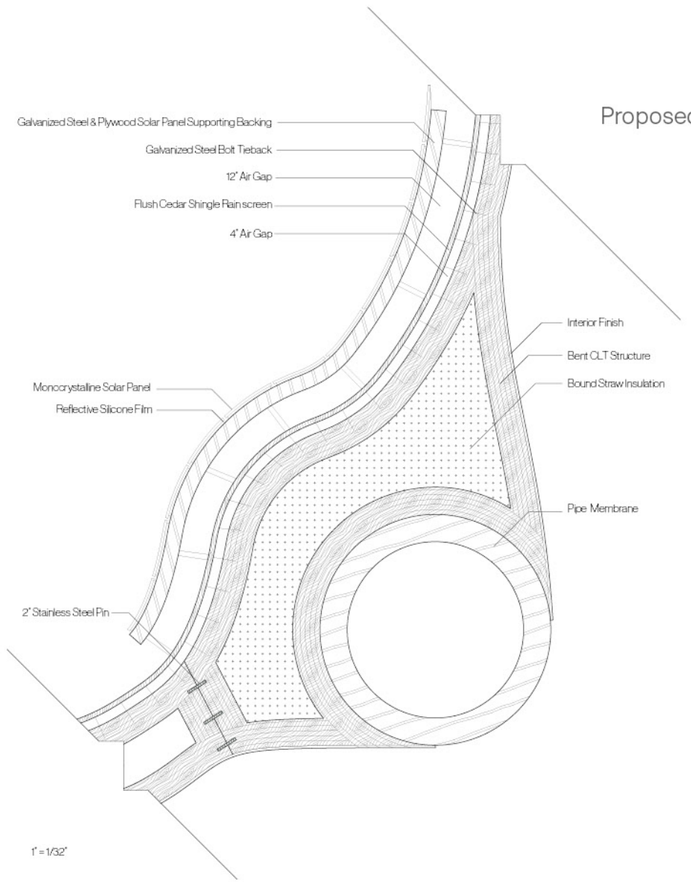
Renders of Model



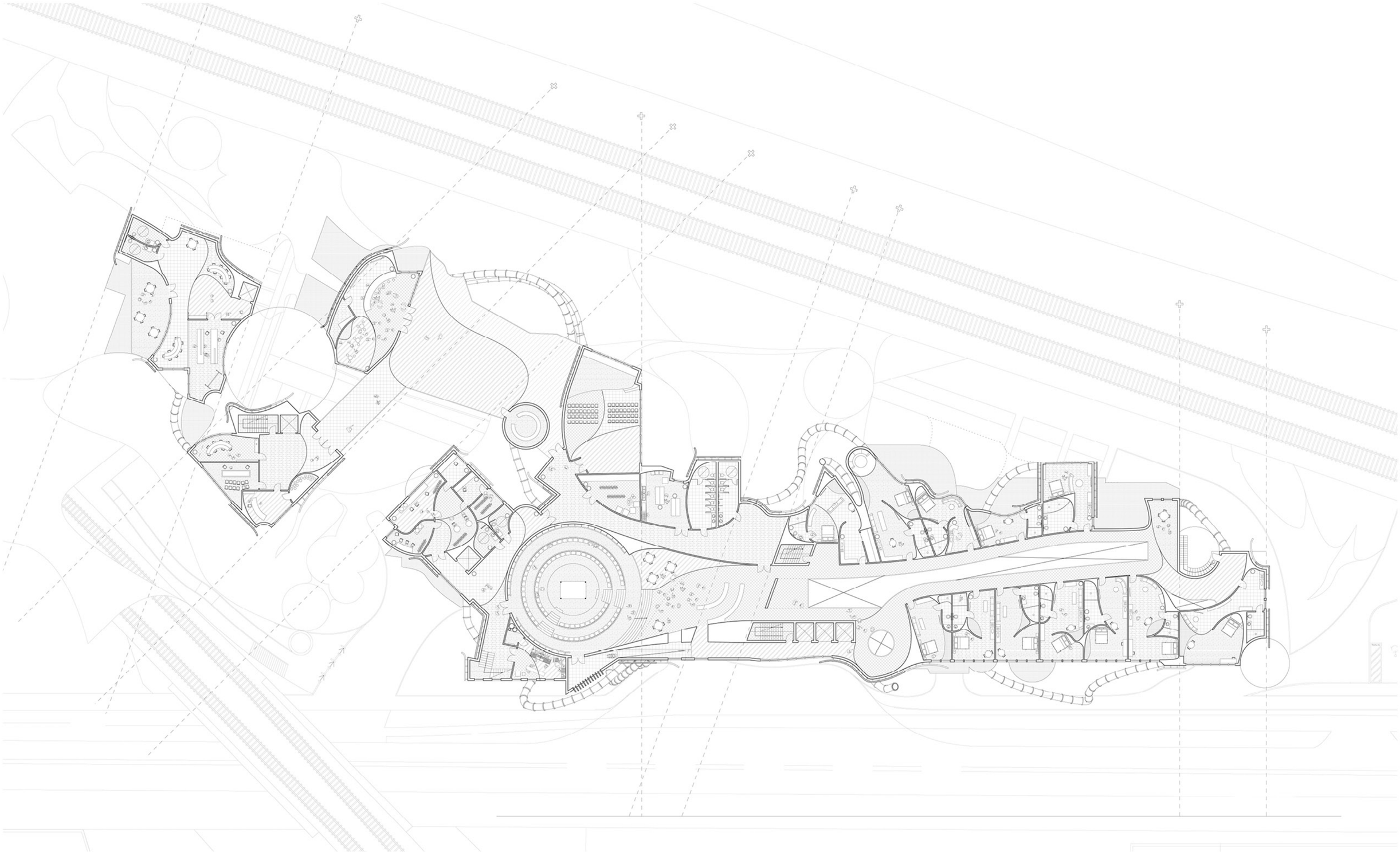




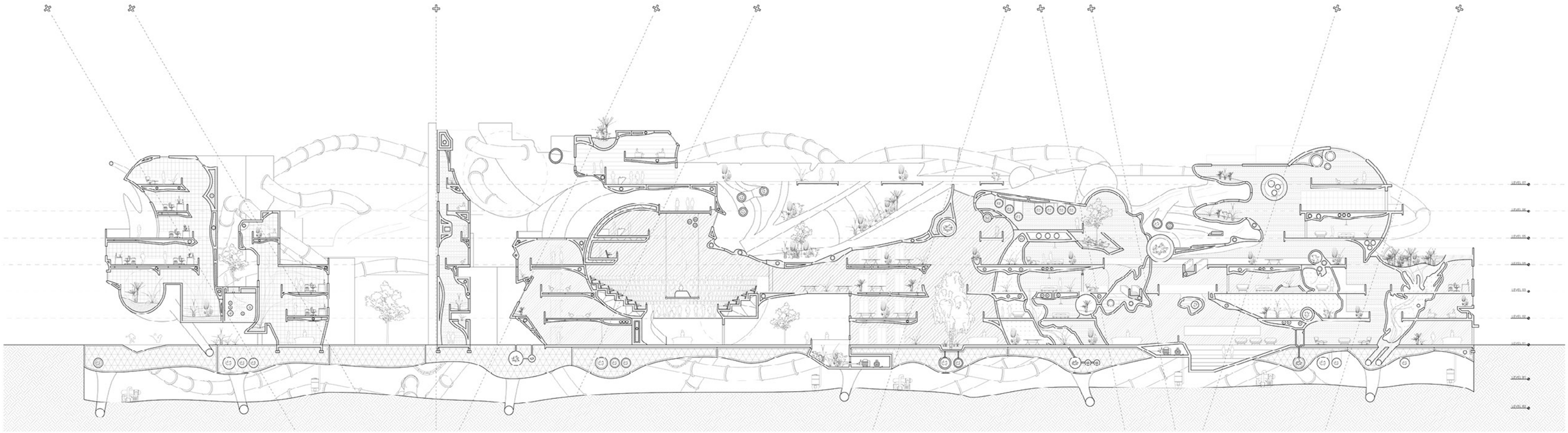
Proposed Material Construction



Upper Floor Plan



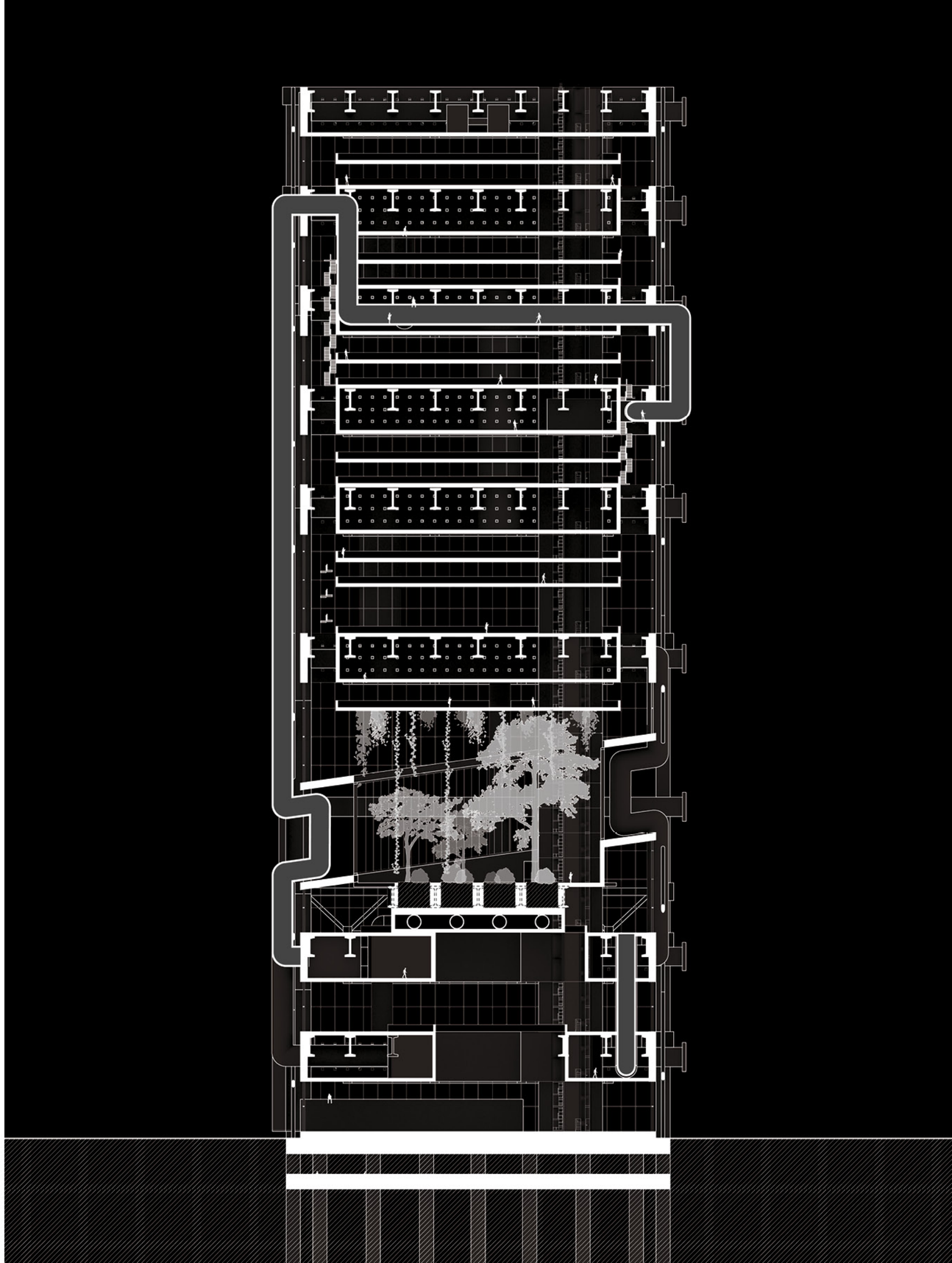
Section


LEVEL 07
LEVEL 06
LEVEL 05
LEVEL 04
LEVEL 03
LEVEL 02
LEVEL 01
LEVEL 00

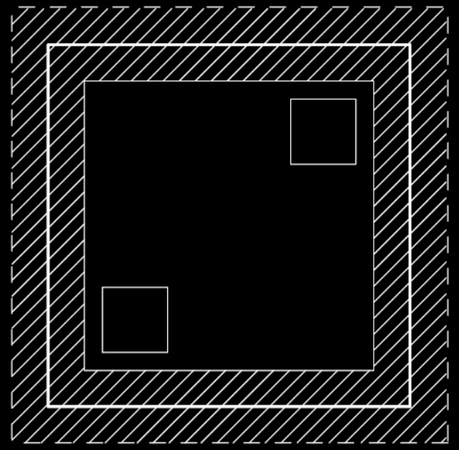
THE PALACE OF ALL TRADES

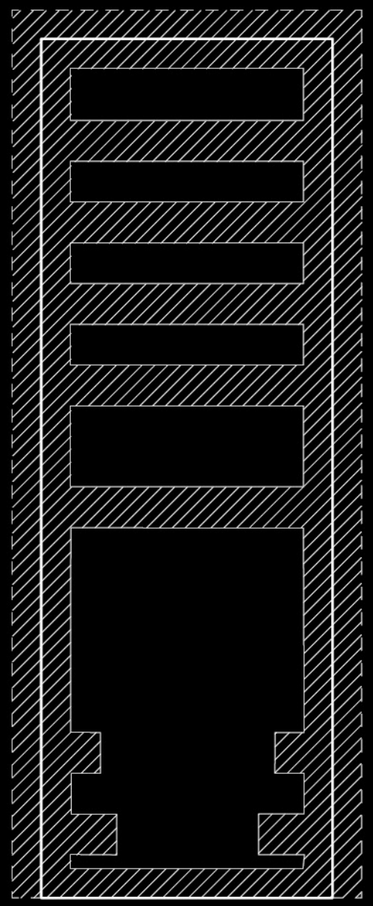
FALL UG4 - HONORS RESEARCH STUDIO
ASHLEY BIGHAM
CHICAGO LINCOLN YARDS
PARTNER:
HENRY GLEESON

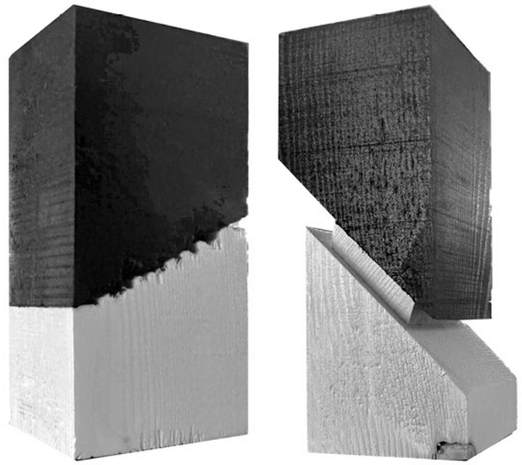
The Palace of All Trades was developed as a prototype operation to create more public space within developer project towers. As a research project, it was derived from the precedent of the later Soviet public workers' palace. These were large public monuments for performances, rehab, weddings, and many other programs. Our proposed example is a massive trade union hall placed within the Lincoln Yards district, where Stirling Bay Properties is proposing several projects over an old industrial yard. Our proposal is that the architect, through the game of scale and with spite for the developer, sneaks in oversized MEP and structural elements that are so incredibly oversized that they become inhabitable. A 12' conduit becomes a spiral staircase, a beam becomes a wall, and floorplate assemblies become a public union hall. The architect's scaling game becomes so obscene the traditionally firm barrier of the envelope is distorted and pushed outwards, causing these scaled elements to protrude and some interior elements to be disjointed from the skin.

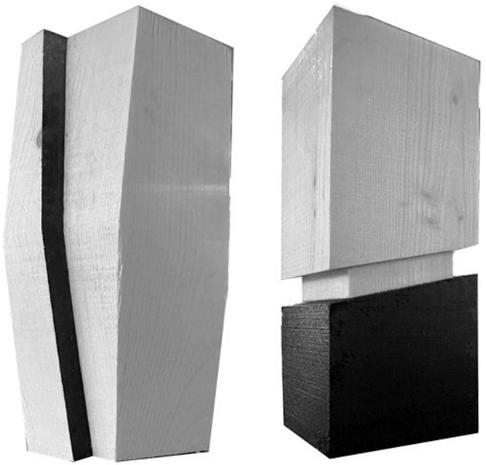


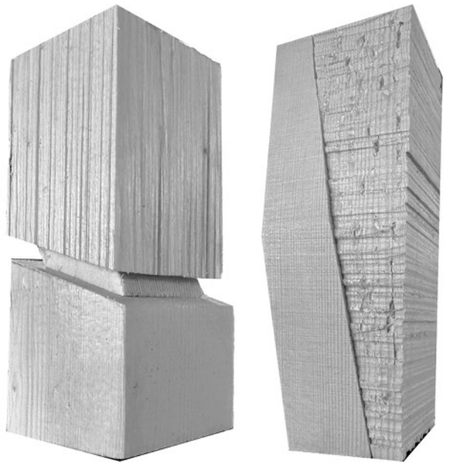
Mechanical/Envelope Diagram



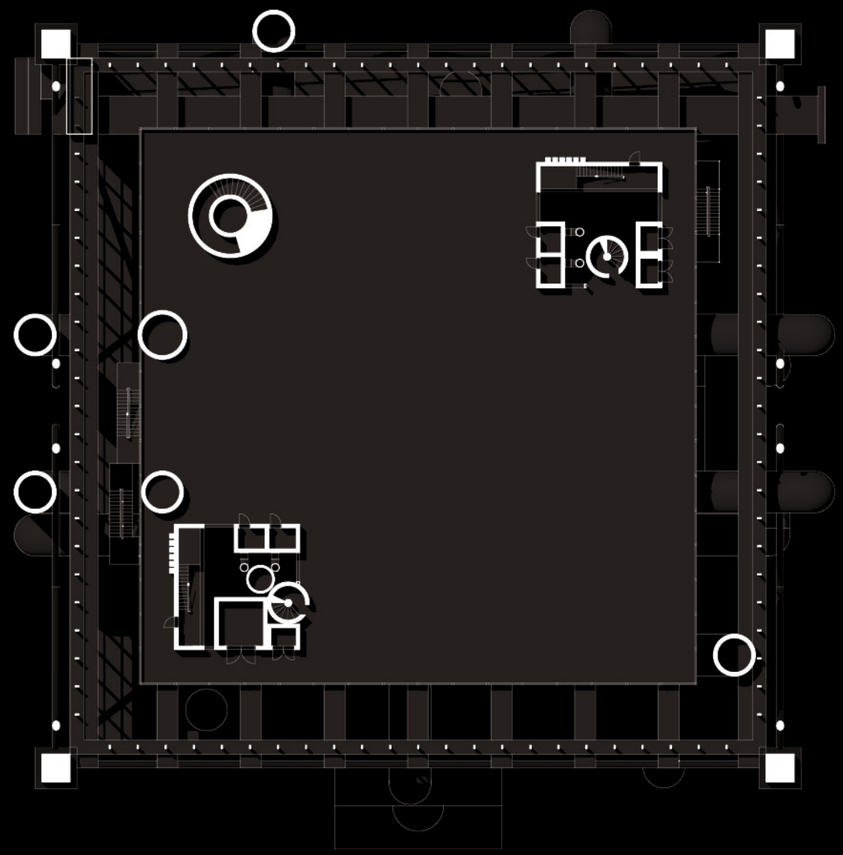




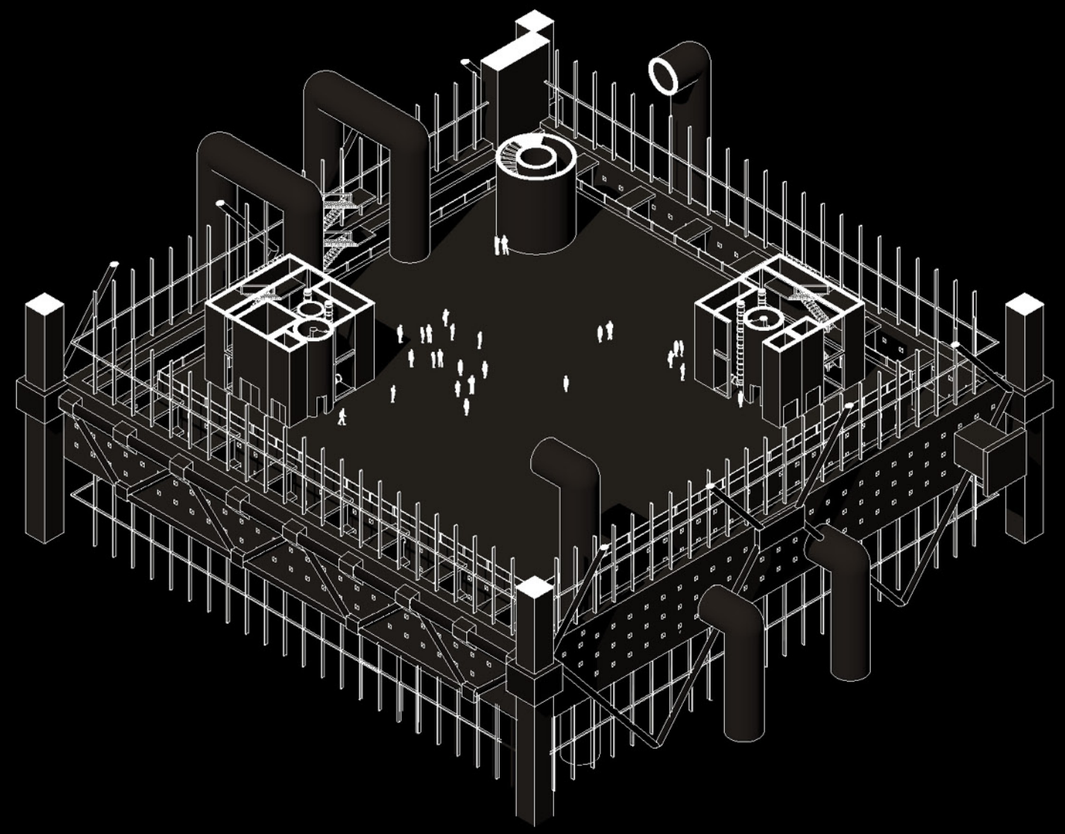




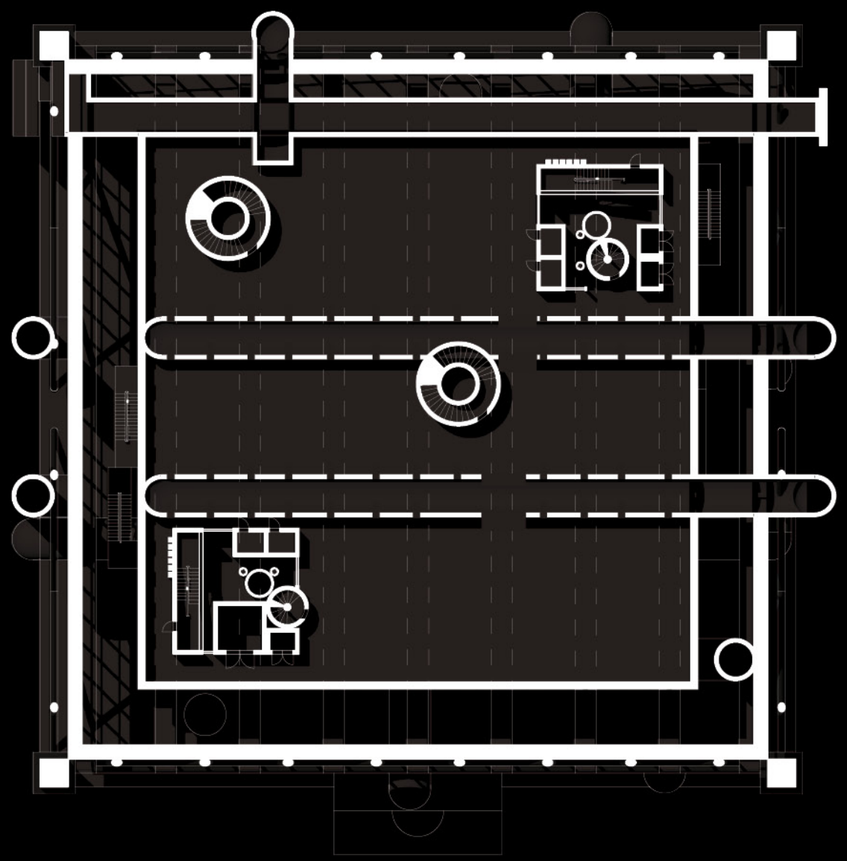
Typical Floor Plan



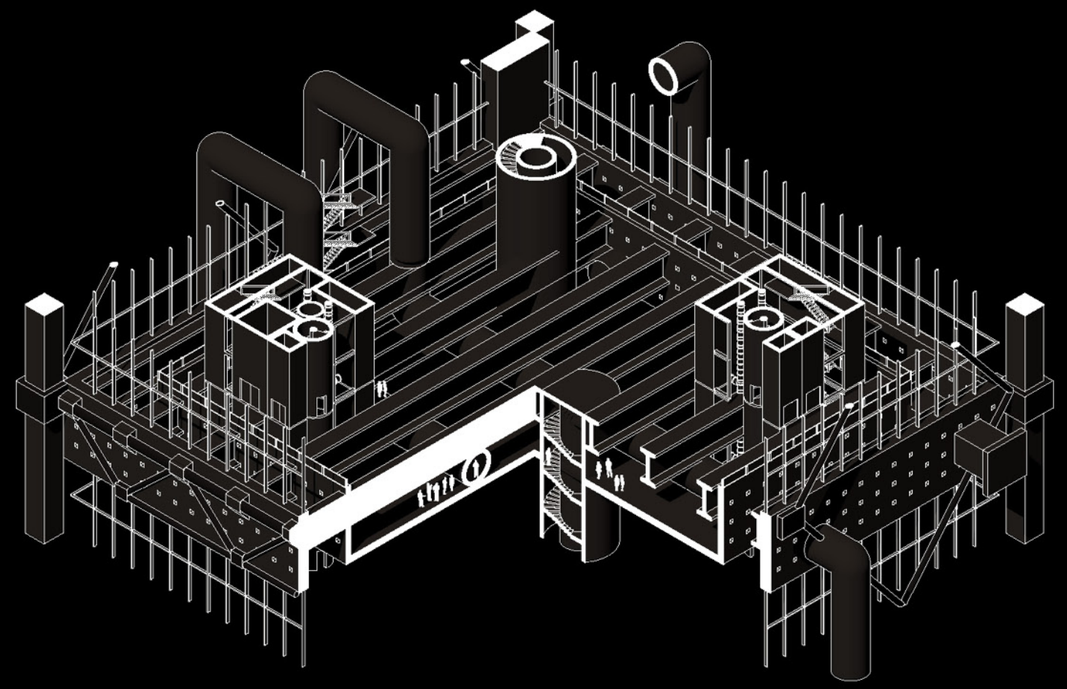
Upper Floor Axon Partial



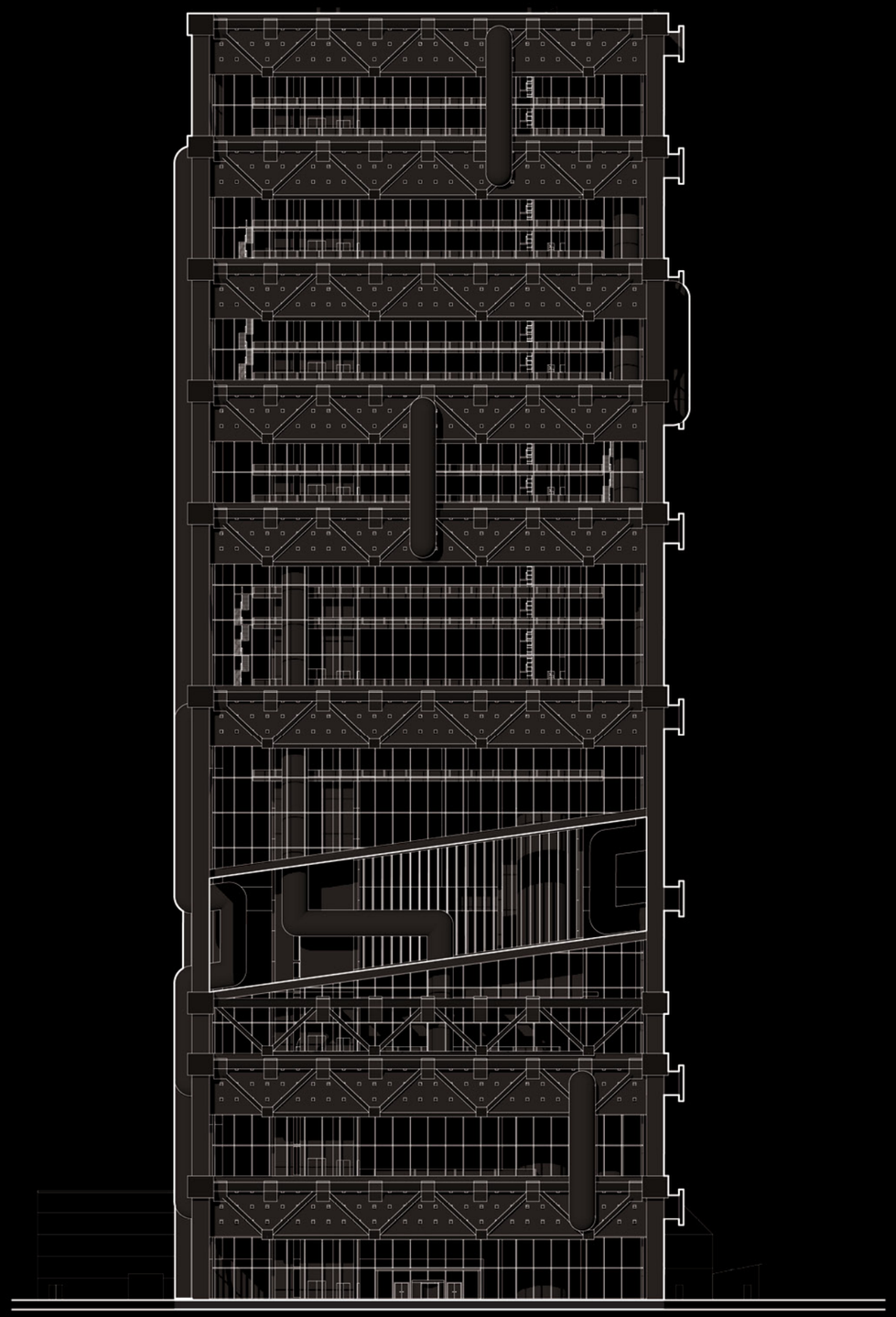
Upper Floor Through Plan

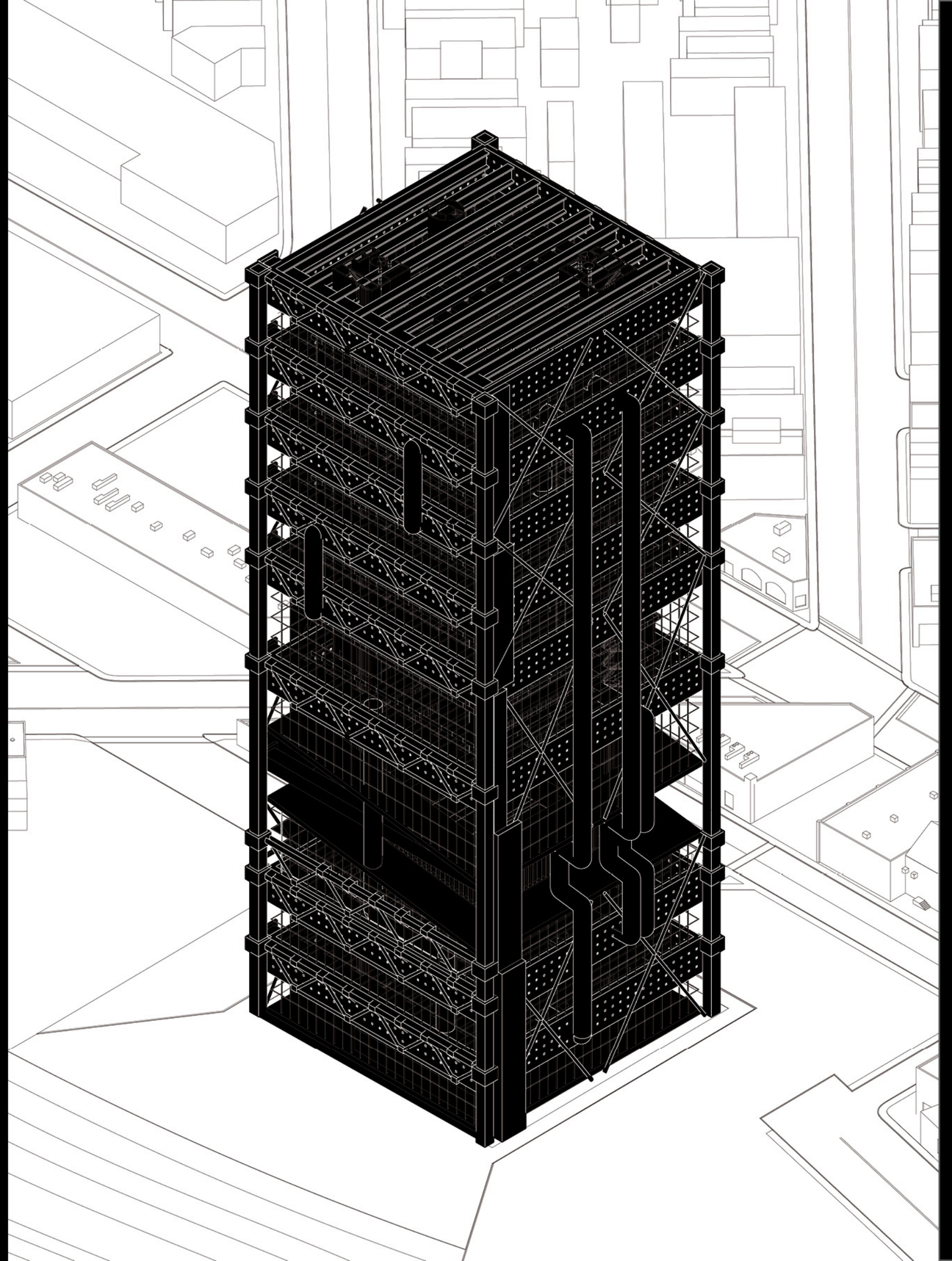


Upper Floor Cut Axon Partial



North East Elevation

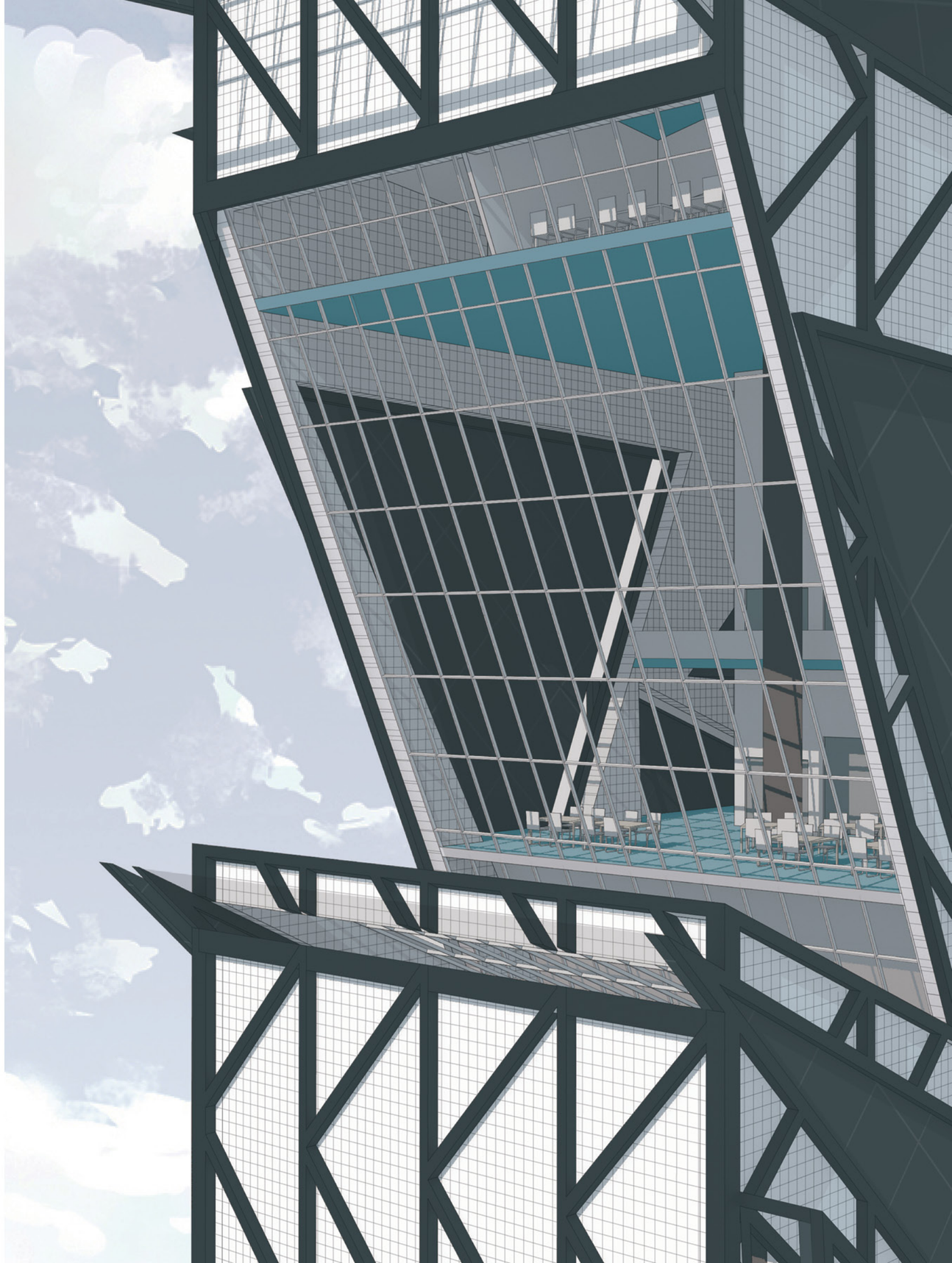




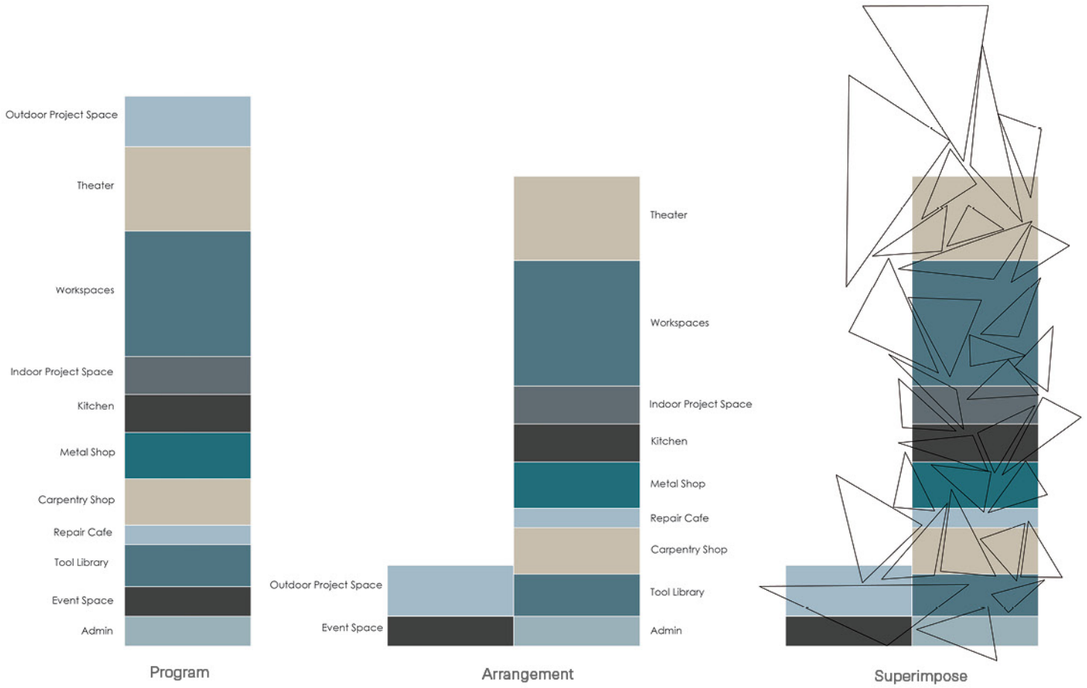
VERTICAL COMMUNITIES

UG3 FALL
ALEX OETZEL
FRANKLINTON COLUMBUS

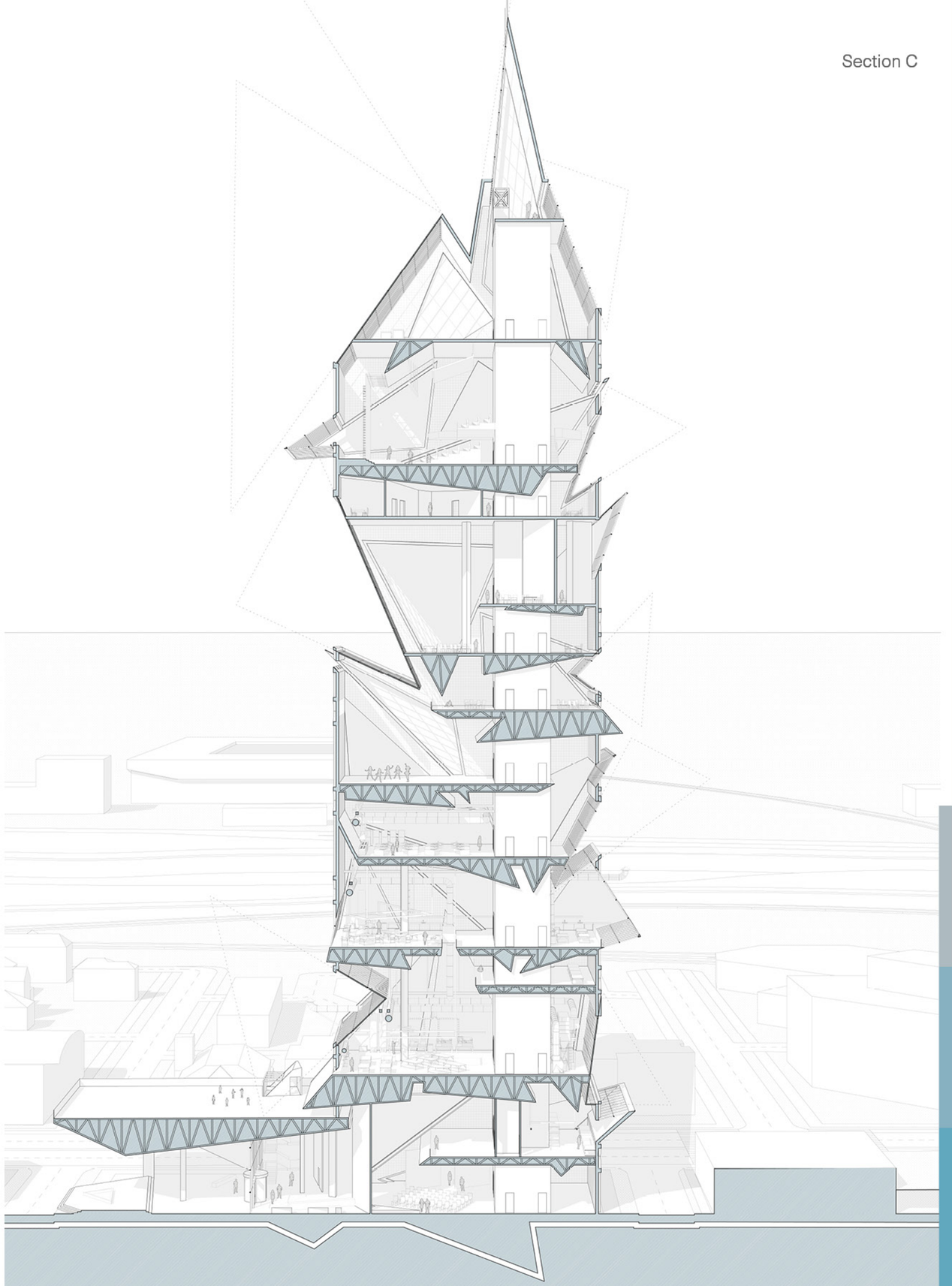
A vertical community – vocational school and community shed. Designed for the Franklinton area in the not-so-distant future of vertically dense cities. In a way, this project is pushing back on some of the local sprawl development and as a first experiment in drawing a vertical fabric as easily accessible and attractive as the horizontal. Formally, this uses the program and superposition operations to generate the shape and scale of the spaces. Using this method once in section/elevation to create apertures and carvings – then inversely in plan as an additive function to define space.



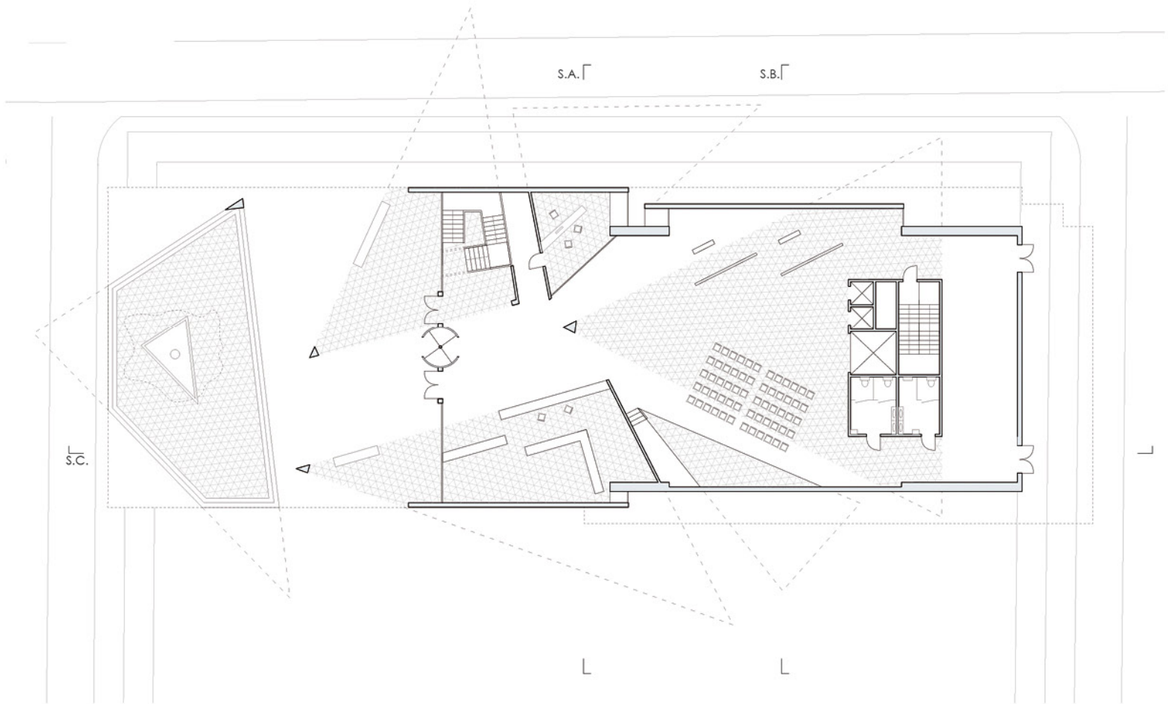
Program / Formal Diagram



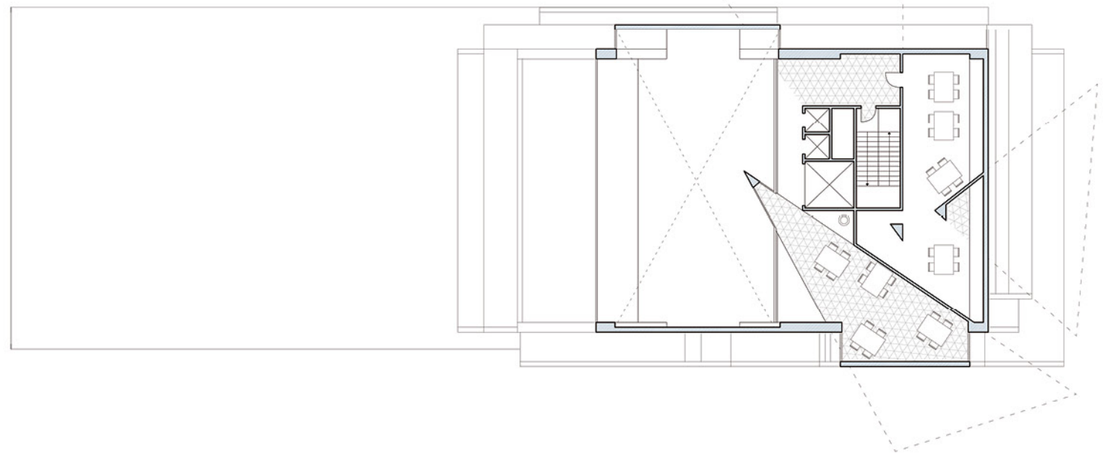
Section C



Ground Floor Plan

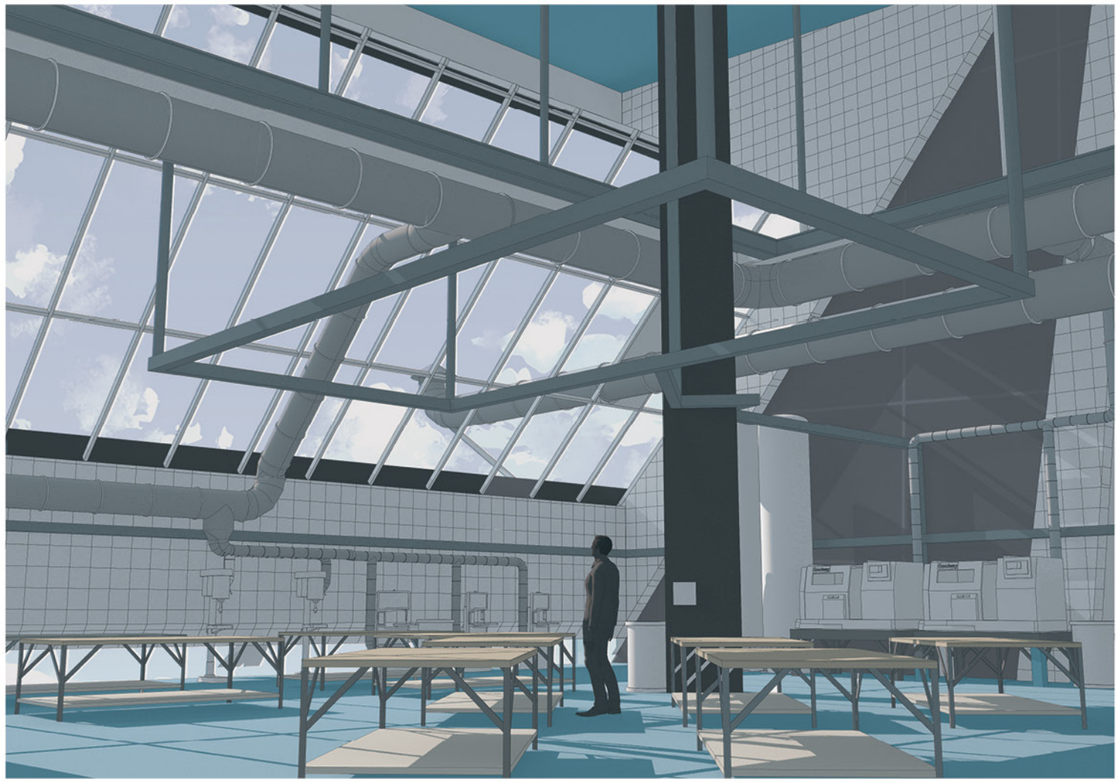


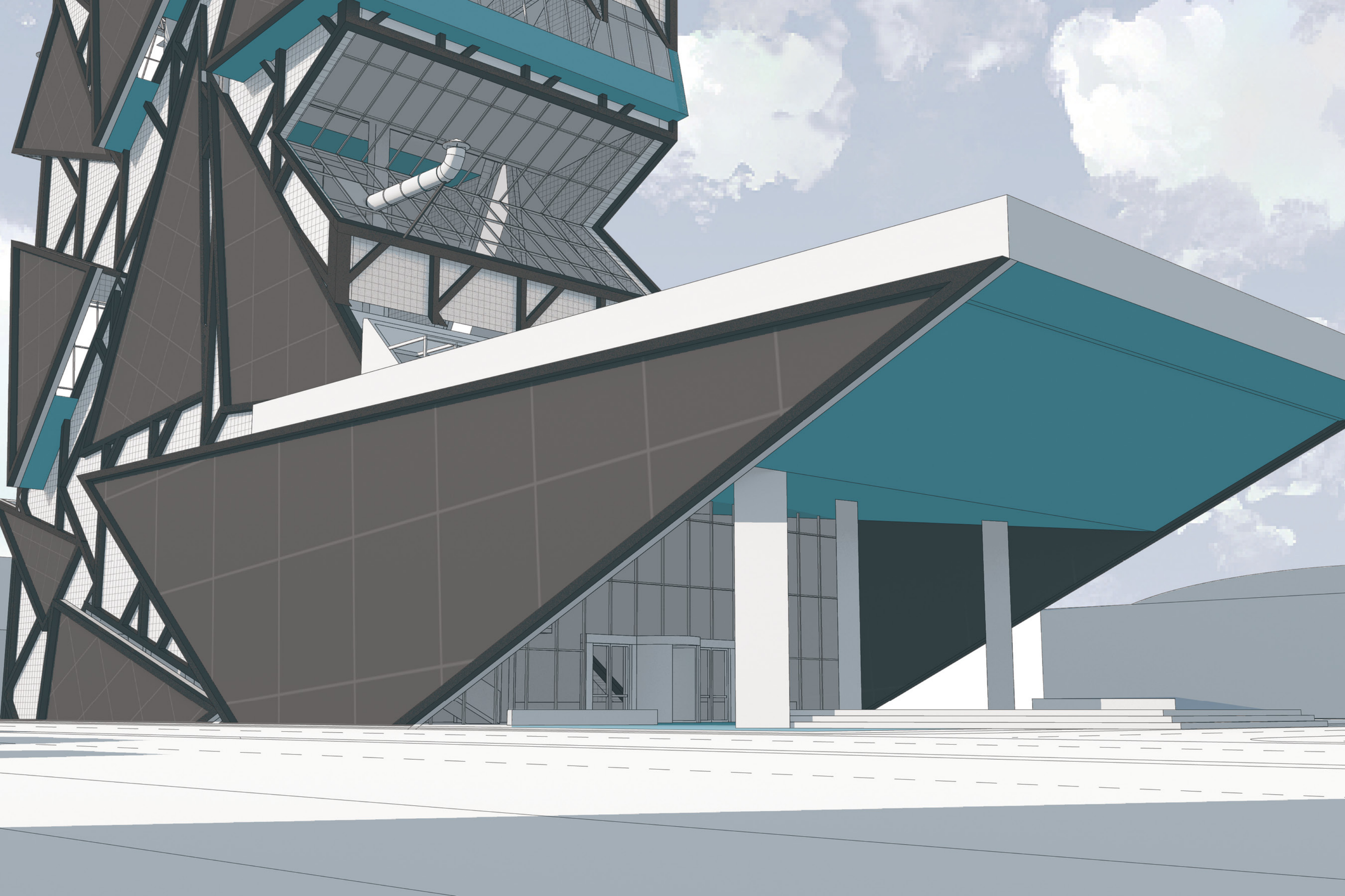
10'th Floor Plan



Section A & B

View of Wood Shop

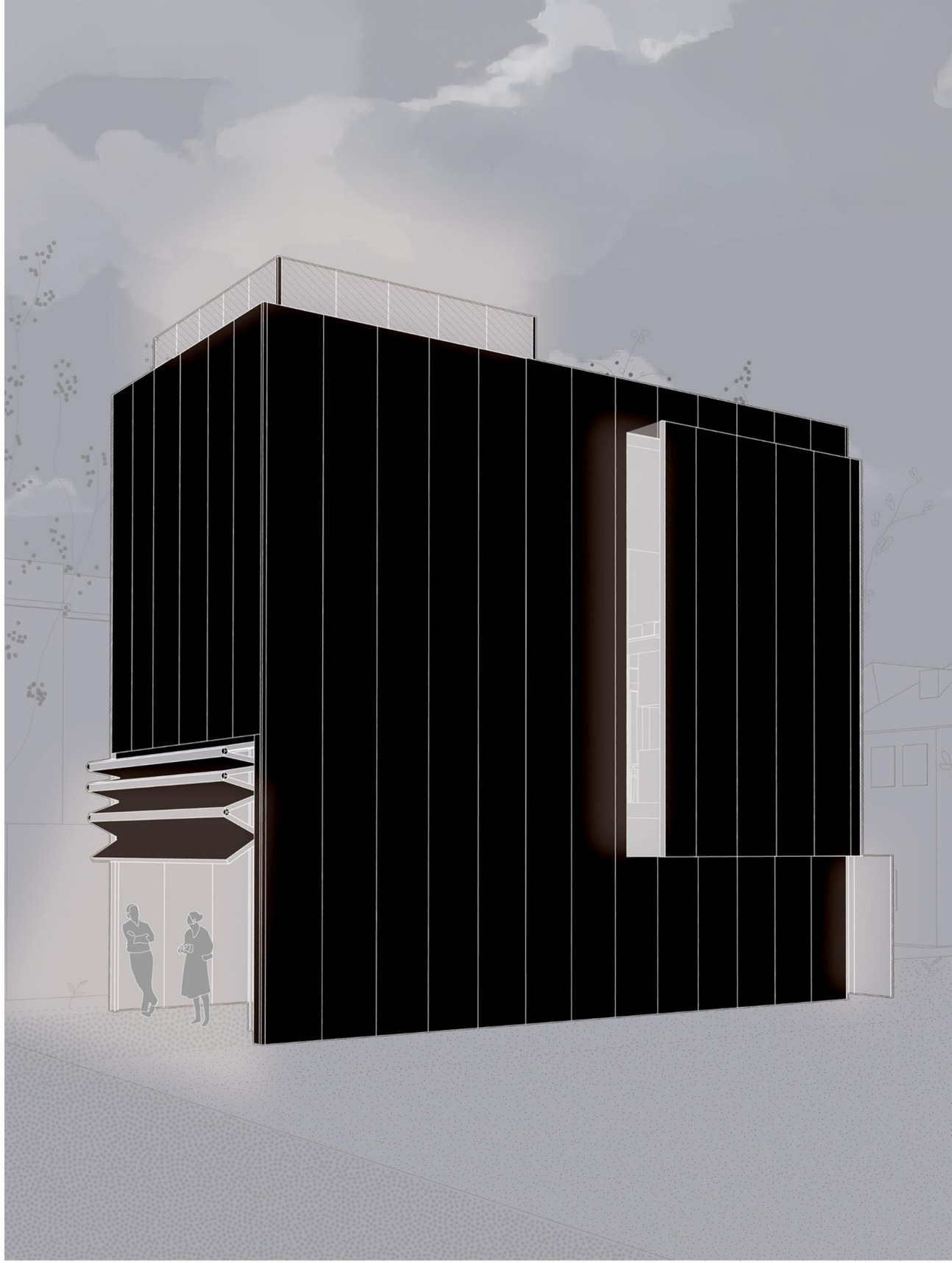


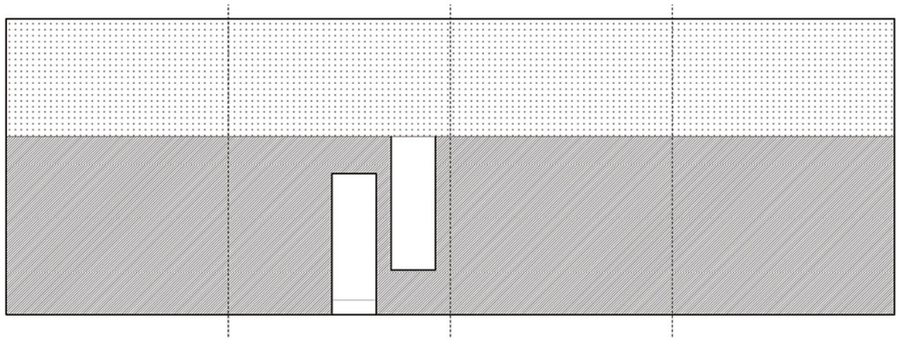


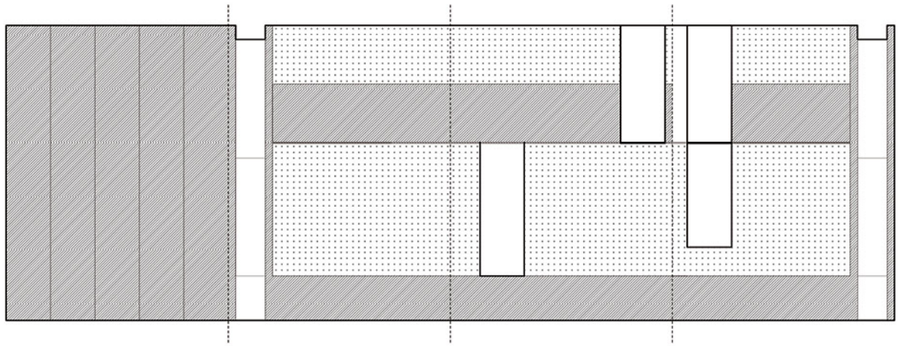
WORK-LIVE ADU

UG3 SPRING
ANDREW CRUSE
VICTORIAN VILLAGE, COLUMBUS OH

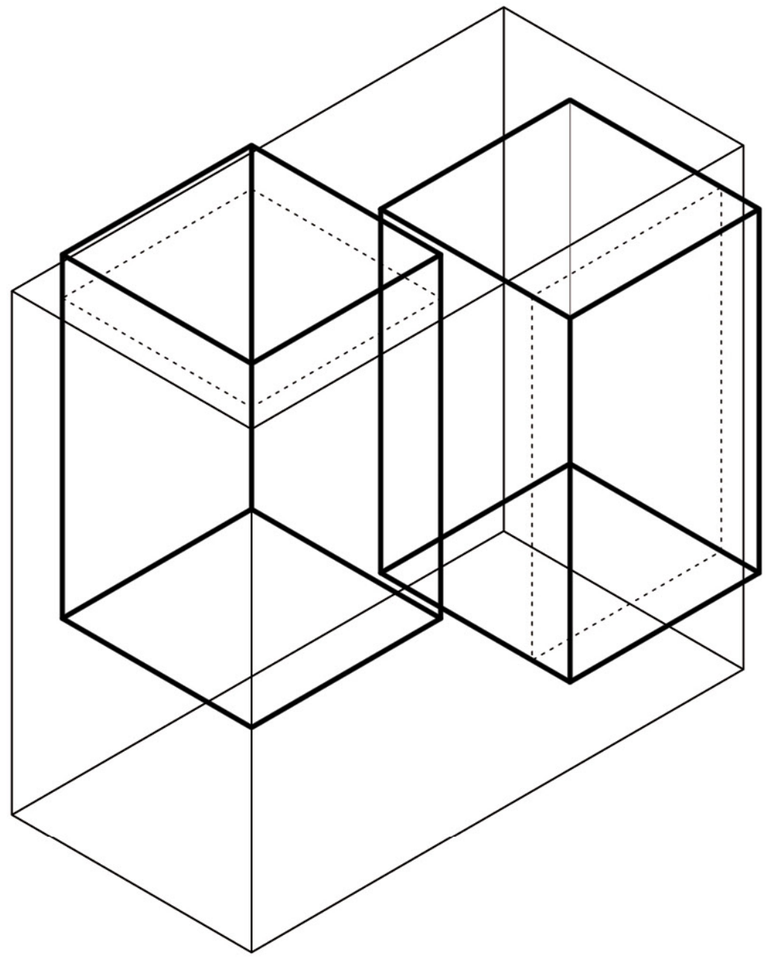
This project is defined by using a simple action of intersecting volumes to create varied hanging spaces ranging from a more “messy” workspace to a “clean” living space. It is situated as an accessory dwelling unit behind an existing home in Victorian Village Columbus. Given the urban context, it allows light and views through prescribed and limited apertures. Light is also dispersed through semi-transparent polycarbonate walls within the building and in the top protrusion, both to light the home, and house the indoor hanging garden.



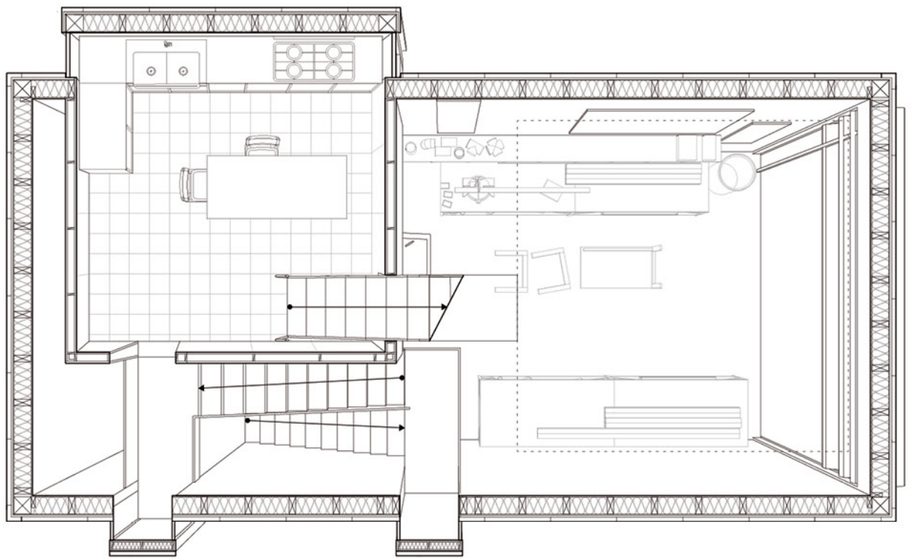




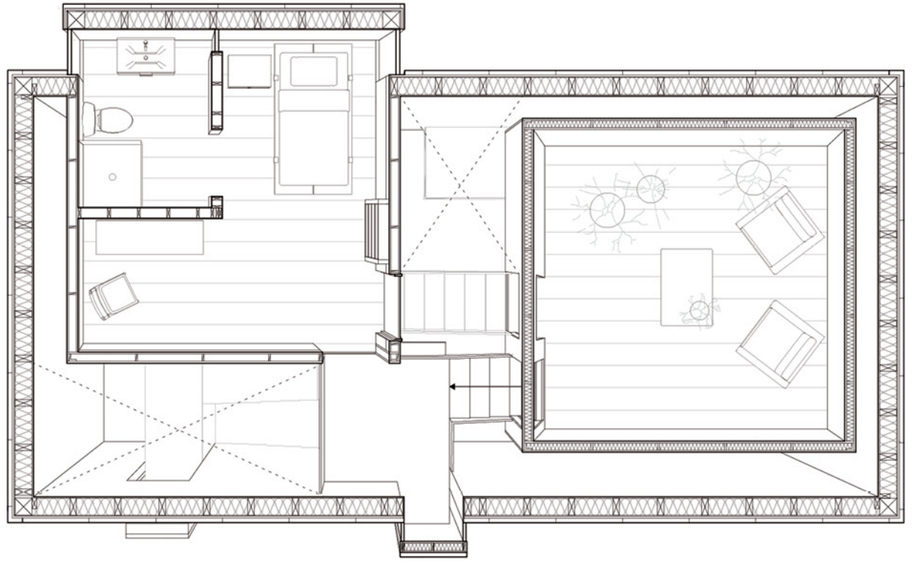
N W S E

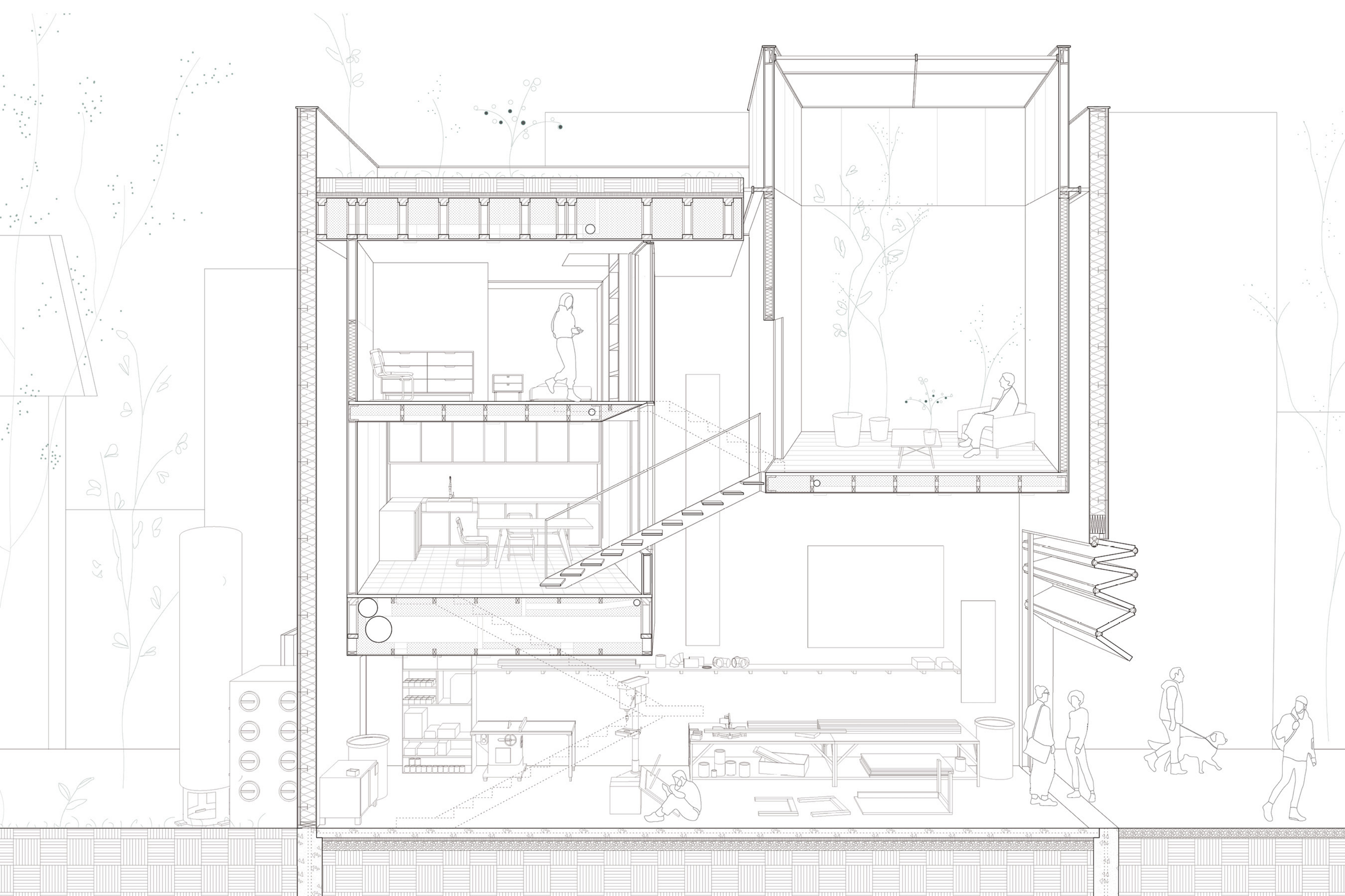


Plan 1 & 2



Plan 3 & 4





EXHIBITION WORK

CAB 2025
“SOME REPAIRS”

SUMMER ASSISTANT
STEPHANIE DAVIDSON & GEORG RAFAILIDIS
CHICAGO ARCHITECTURE BIENNIAL
ROLE - DETAIL MODEL BUILDER

Stephanie Davidson and Georg Rafaildis of DAVIDSON RAFAILDIS were invited to the Chicago Architecture Biennial to display their project “Some Repairs,” a series of restorative interventions on a cottage in Ontario, Canada. Thinking about the existing as something to be seen wholly, and a catalogue of the ways craftworkers fix building issues on the spot. Minimal drawings, intuition, and a skilled understanding of how materials work provided numerous moments of architectural significance. I was brought on to fabricate 5 ½-to-real-scale models of these fixes and interventions in New Zealand pine. Stephanie was my studio instructor for the senior competition studio, and she had faith in my ability, after seeing it firsthand in the studio, to fabricate these fine woodworking models for the Biennial. The execution and architectural choices within these models were a collaborative process, not solely dictated. My craftwork was displayed for the 2025 Chicago Architecture Biennial from August 2025 through February 2026.

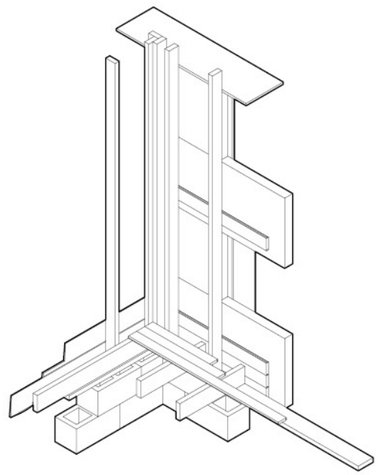
Photo @ Florian Holzherr

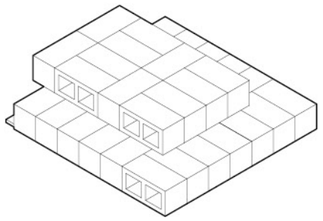
Model A

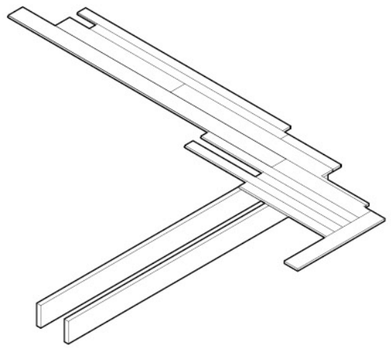
Made Router Table

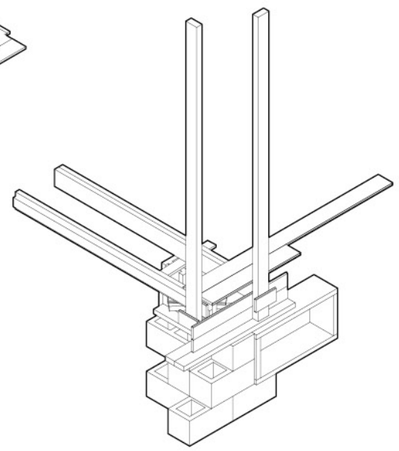
Block Progress

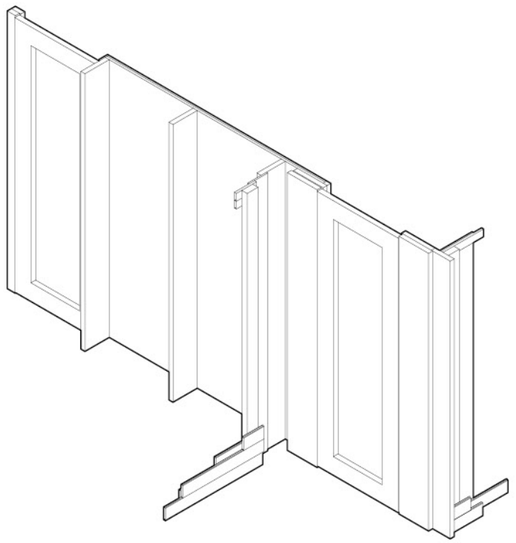
The 5 Models











Model B

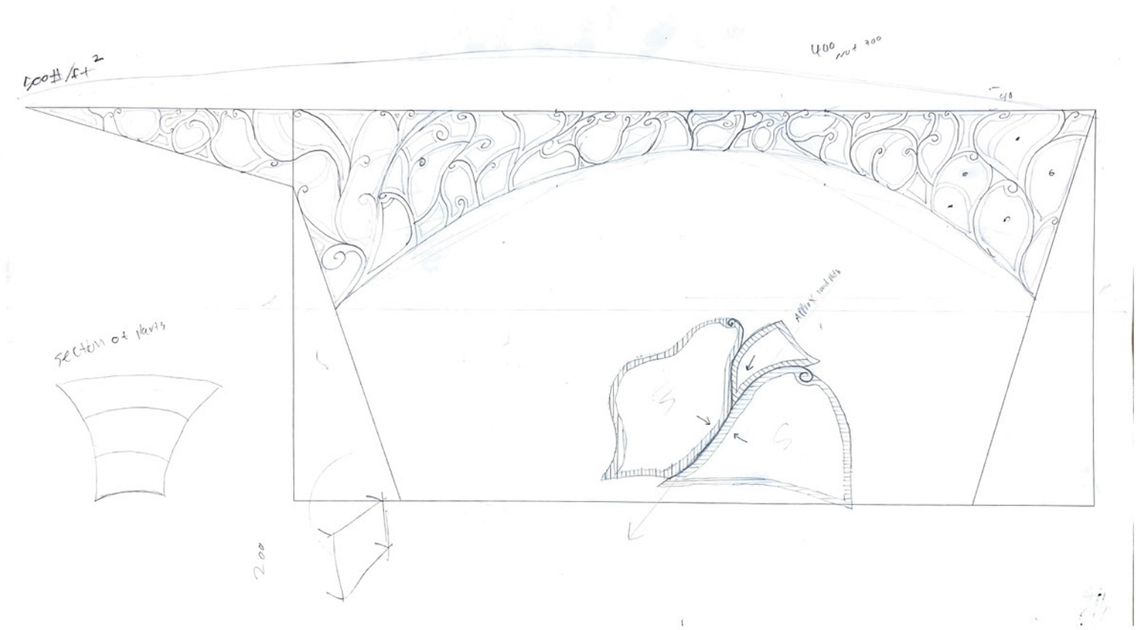
TECTONIC PROJECTS

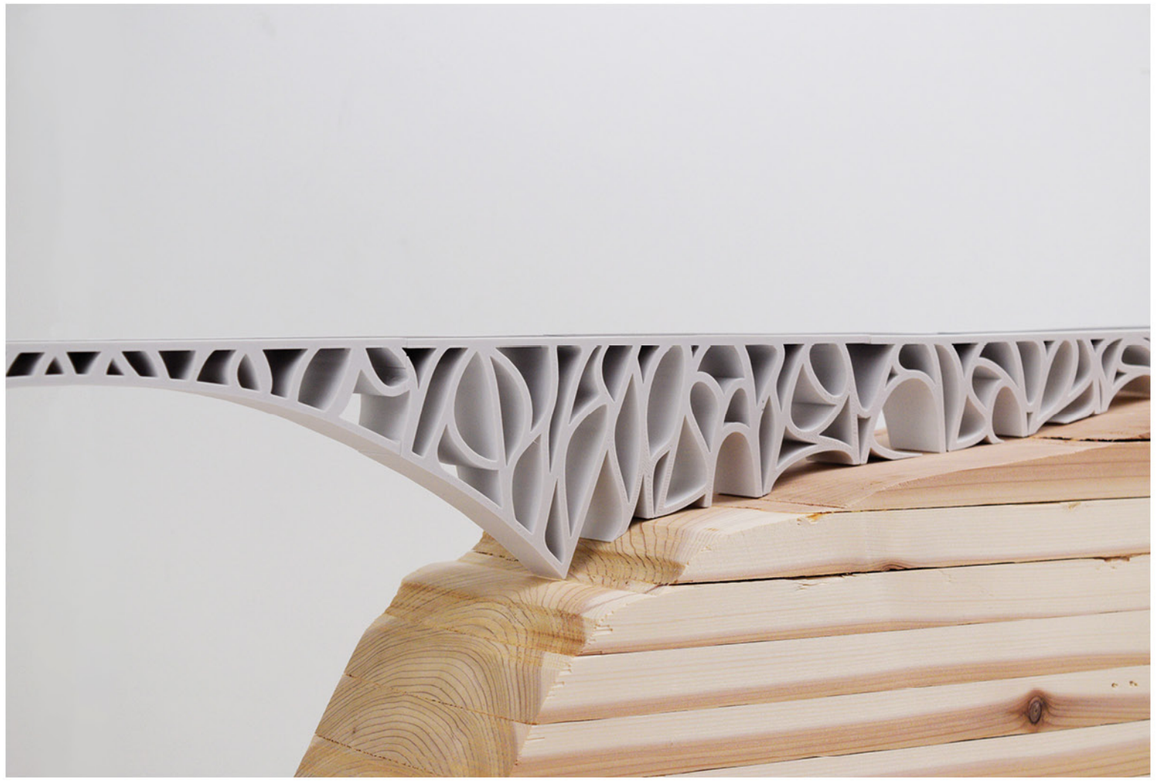
SALGINATOBEL BRIDGE CROSSING

2GAX
MATTHEW MELNYK
SCHIERS, SWITZERLAND
LEAD:
PELÉ CARNEY
PARTNERS:
HENRY GLEESON
YUNG-I SHIAO
SHENGHAO ZHOU
ENRUI LIU

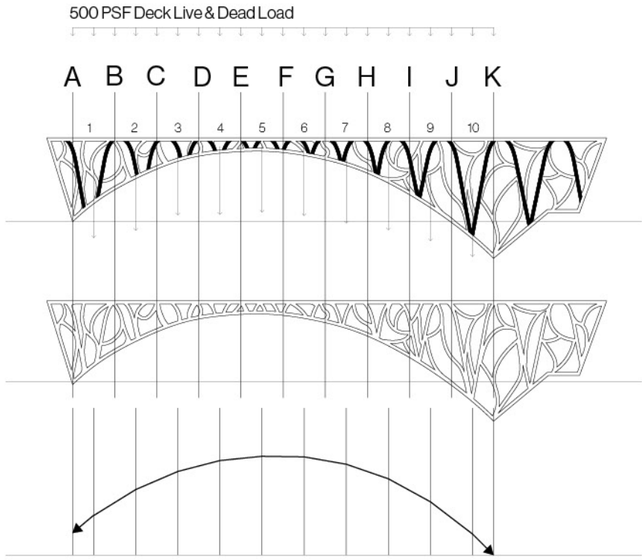
This project was based on the Salginatobel Bridge in Schiers, Switzerland. A case study for the Advanced Structures Course at SCI-Arc. It is a design class as much as it is a class about understanding materials and forces. We used a method called Graphic Statics to calculate the direction and magnitude of the forces in the bridge to inform the overall arc, the thickness of the members, and the choice of material. We started with an ornamental sketch inspired by some Swiss cast ironworks and the idea of flow and sprouting. Keeping true to this sketch and formal idea, we worked a system of curved CLT members, imagined to be fabricated by the firm of Blumer Lehmann, into the desired curves. The project was, in addition to a formal aesthetic idea, one about low-carbon solutions. Using relatively low-carbon materials, such as laminated timbers, to construct something that would have typically been conceived in concrete or steel opens new conversations about sustainable architecture and engineering.

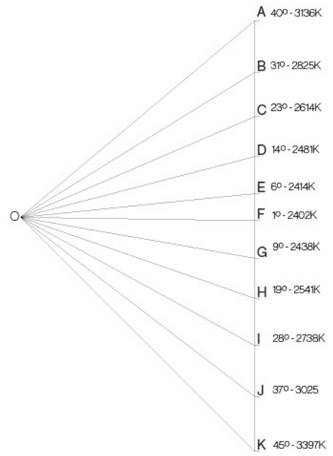
First Concept Sketch





Form and Force Diagrams





Cross Section Strength (Segment K)

Wood CLT Compressive Strength = 1500#/in2

2ft x 8ft = 16ft2 = 2,304in2
2,304in2 x 1,500#/in2 = 3,456K

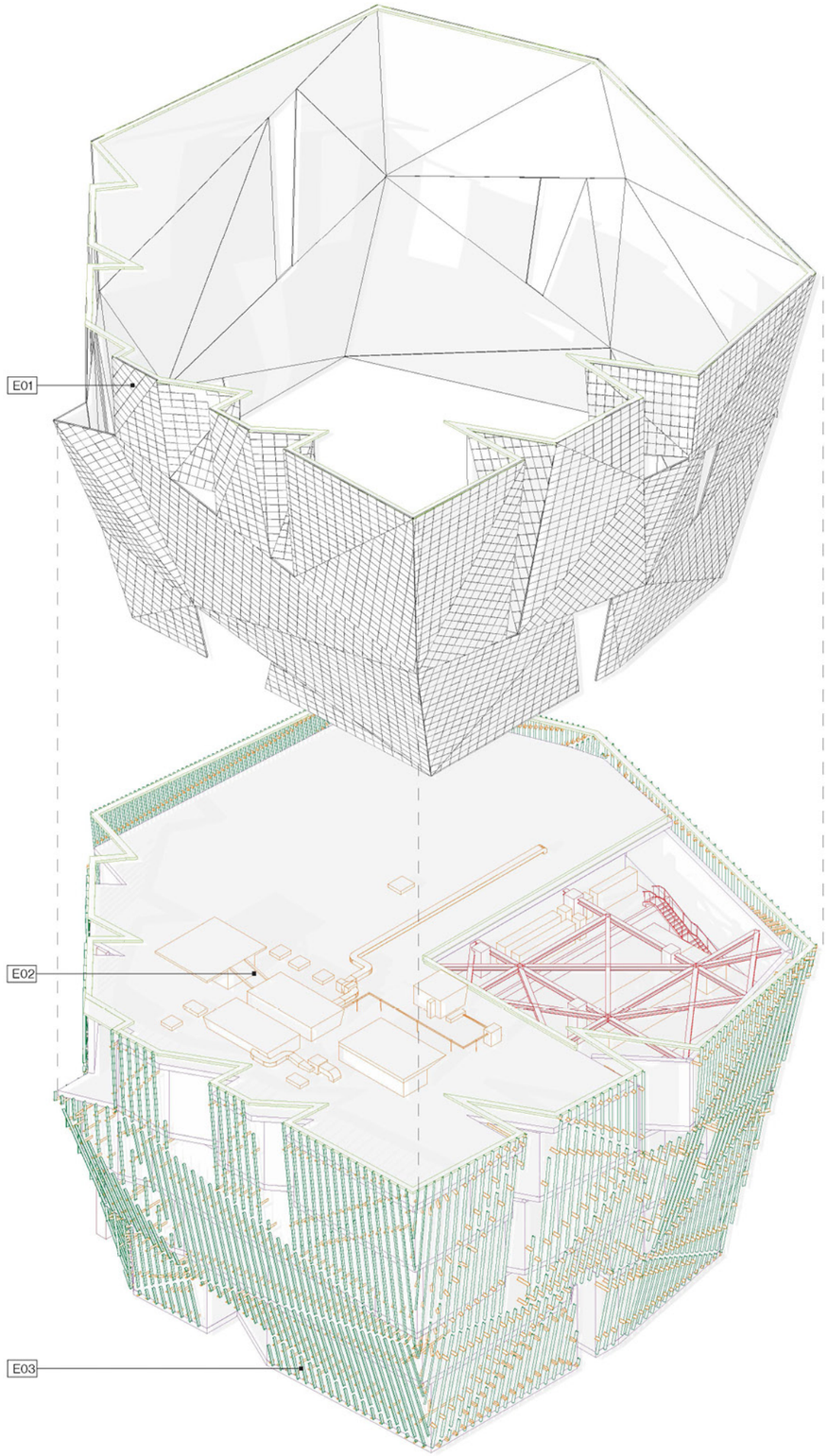
Max Segment Compressive Load = 3,456K

Segment	Area	PSF Live & Dead	Weight Kips	Segment	Volume ft^3	Density #/ft^3	Weight Kips	Length ft	TOTALS - K
1	539	500	269.5	1	8675	30	260.25	26.5'	529.75
2	539	500	269.5	2	6201	30	186.03	26.5'	455.53
3	539	500	269.5	3	4680	30	140.4	26.5'	409.9
4	539	500	269.5	4	3709	30	111.27	26.5'	380.77
5	539	500	269.5	5	3612	30	108.36	26.5'	377.86
6	539	500	269.5	6	3863	30	115.89	26.5'	385.39
7	539	500	269.5	7	4717	30	141.51	26.5'	411.01
8	539	500	269.5	8	7201	30	216.03	26.5'	485.53
9	539	500	269.5	9	8454	30	253.62	26.5'	523.12
10	539	500	269.5	10	9828	30	294.84	26.5'	564.34

KADOKAWA MUSE-UM COVER

2GAX
MAXI SPINA
TOKOROZAWA SAKURA TOWN
PARTNERS:
MATTIA GALBUSERA
MANUEL BELLO
JONATHAN KADAU
PERCIVAL REN

The Kadokawa Culture Museum by Kengo Kuma and Associates is originally a concrete, galvanized-steel, and black-marble project. We took on the task of completely reimagining the mechanical systems, structural performance, and material choices through the lens of sustainability and embodied carbon equivalencies. Each layer of the envelope (skin, attachments, supporting structure, primary structure, insulation, weather barrier, aesthetics) was assessed and recreated in a low-carbon alternative that would perform similarly. We achieved a 98% reduction in the Global Warming Potential (GWP) by using repurposed burnt cedar shingles (Shou Sugi Ban), cedar timbers, sealed cork panels, bundled reeds, and relocated castle stonework. Both the GWP and thermal performance of Kengo Kuma's building improved significantly through this exercise. Other considered systems were – fire rating, fire suppression, rainwater shedding, structural diaphragms, thermal bridging, and seismic design. We approached this project with intensity and respect for the original intent. We ensured that each proposed system was structurally sound and had appropriate attachment methods without sacrificing aesthetic considerations.



Chunk of Existing vs. Proposed - Skin and Global Warming Potential

EXISTING STRUCTURE | GWP + R VALUE

ROOF SYSTEM

R01 ALUMINUM PROFILE C-02
Extruded Aluminum - 400X50 mm
R = 0.003 / GWP = 9.3 kg CO-eq/kg

R02 HEA400 STEEL BEAM
Wide Flange Galvanized Steel - 400X380 mm
R = 0.03 / GWP = 2.6 kg CO-eq/kg

R03 ALUMINUM PROFILE S-01
Aluminum L profile - 7x7mm | thickness 2mm
R = 0.003 / GWP = 9.3 kg CO-eq/kg

R04 ROOF MACHINERY
Air Handler @ 136,000 CMH
R = N/A / GWP = N/A

R05 HVAC UNIT
Evaporator Units
R = N/A / GWP = N/A

R06 ROOF ASSEMBLY
80mm EPS Foam, Geotextile Mat, 6mm Tar Paper
R = 4.0 / GWP = 8 kg CO-eq/m²

FACADE

F01 STONE TILES
Black granite stone tiles 700x500x70mm
R = 0.08 / GWP = 22 kg CO-eq/m²

F02 STEEL PLATE
Bolted Galvanized Steel Plate 35x35mm t6
R = 0.03/ GWP = 2.6 kg CO-eq/ kg

F03 STEEL PROFILE L-01
Bolted Galvanized L-profile 65x65mm t6
R = 0.03 / GWP = 2.6 kg CO-eq/ kg

F04 STEEL PROFILE C-01
Galvanized C-Channel 200x100mm t6
R = 0.03 / GWP = 2.6 kg CO-eq/ kg

F05 STEEL PROFILE L-02
Welded Galvanized L profile 65x65mm t6
R = 0.03 / GWP = 2.6 kg CO-eq/ kg

F06 BOLTS T-01
Stainless Steel Hex Bolt t10
R = 0.03 / GWP = 2.6 kg CO-eq/ kg

F07 ALUMINUM W-FRAME
NSG Double Pane Aluminum Assembly
U = 0.5 / GWP = 51 kg CO-eq/m²

F08 GLASS PANEL
NSG Double Pane Plate Glass, Silicone Sealant
U = 0.5 / GWP = 51 kg CO-eq/m²

VERTICAL STRUCTURE

V01 REINFORCED CONCRETE PILLARS
Cast-in-place Rebar Reinforced Concrete 1m Round
R = 0.08 / GWP = 350 kg CO-eq/m²

V02 REINFORCED CONCRETE WALLS
Cast-in-place Rebar Reinforced Concrete 600mm
R = 0.08 / GWP = 350 kg CO-eq/m²

V03 EPS BOARD
Rigid EPS Foam Insulation Board 100 mm
R = 15.76 / GWP = 7.5 kg CO-eq/m²

V04 PLYWOOD PANELS
Standard Strand Board Plywood Panel 15 mm
R = 0.6 / GWP = 1 kg CO-eq/m²

V05 CONCRETE WALLS
Cast in place Rebar Reinforced Concrete 200 mm
R = 0.08 / GWP = 350 kg CO-eq/m²

V06 PLASTER BOARDS
Sheetrock Interior Plaster Board 15 mm
R = 0.18 / GWP = 2 kg CO-eq/m²

HORIZONTAL STRUCTURE

H01 WOOD FLOOR
Hardwood Poplar Floor Finish 15 mm
R = 1.0 / GWP = 3 kg CO-eq/m²

H02 STRUCTURAL PLYWOOD
Sub-floor and Structural Diaphragm 30 mm
R = 1.1 / GWP = 1 kg CO-eq/m²

H03 CONCRETE SLAB
Cast-in-place Rebar Reinforced Concrete 80 mm
R = 0.08 / GWP = 350 kg CO-eq/m²

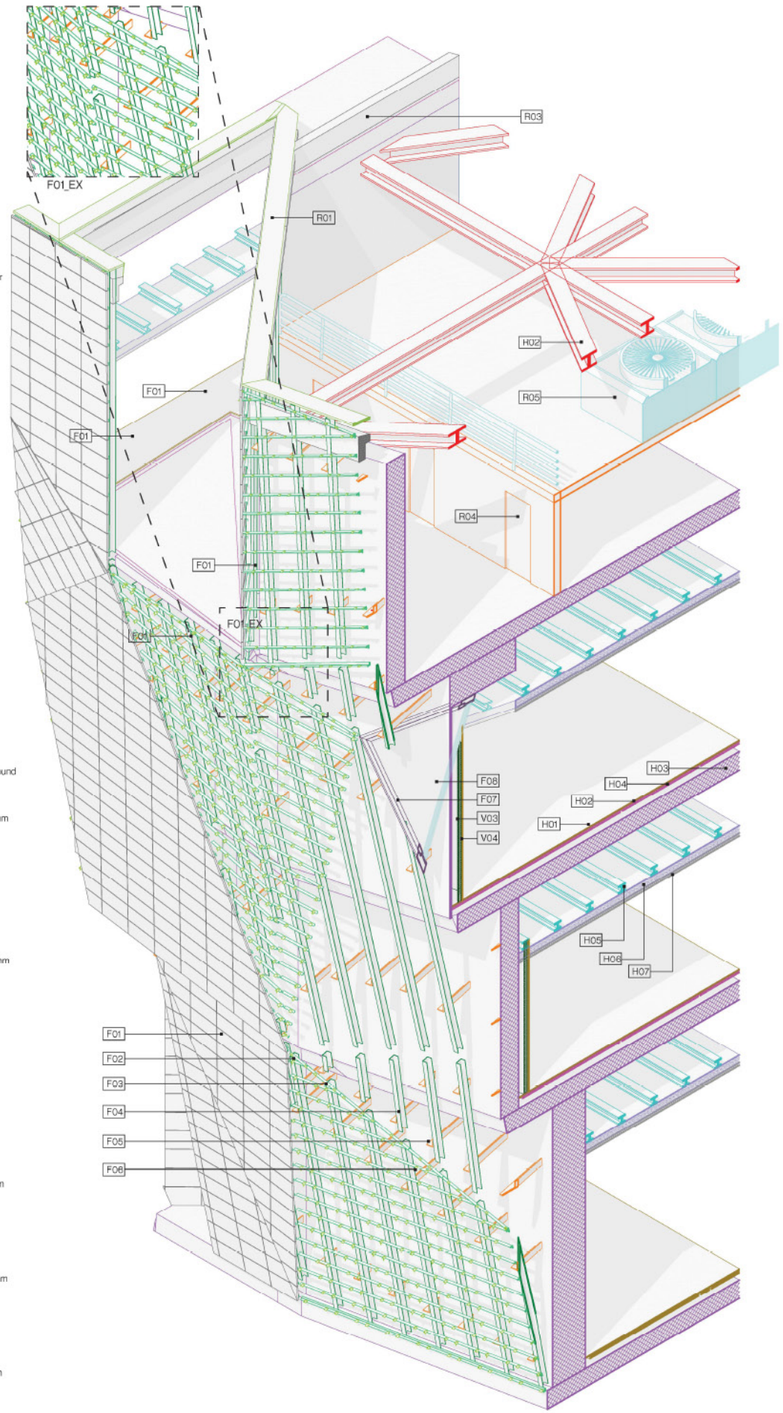
H04 FIBERGLASS BOARDS
Fiberglass Sub-floor? - 50 mm
R = 3.5 / GWP = 3.4 kg CO-eq/m²

H05 HEA200 STEEL BEAMS
Wide Flange Steel Ceiling Support - 200x200 mm
R = 0.03 / GWP = 2.6 kg CO-eq/kg

H06 PUF-HFC PANELS
Sub-Ceiling - 200 mm
R = 6.0 / GWP = 1,430 kg CO-eq/m²

H07 ALUMINUM (L) PANELS
Aluminum Panelized Ceiling Finish - 200X90 mm
R = 0.003 / GWP = 9.3 kg CO-eq/kg

A6 - EXISTING STRUCTURE | AXONOMETRIC



In an effort to reduce the Global Warming Potential in the conception of this project, originally designed by Kengo Kuma and Associates, we approached each system through replacement. Replacing reinforced concrete walls with stone masonry construction, steel secondary structure for cedar timbers, EPS foam insulation for bundled reeds and cork paneling, concrete floor slabs for dowel laminated timbers, and black granite cladding for charred Shou Sugi Ban. Each of these moves, while aesthetically achieving a similar, but distinct, effect, drives down the GWP for each of the layered systems to drop the total from 2,585,338 kg CO-eq to 51,164 kg CO-eq, about a 98% reduction in CO2 impact.

EXISTING STRUCTURE | GWP BREAKDOWN

By Unit:

Gypsum Board GWP @ 13 mm = 1.4 – 2.7 kg CO-eq/m²
EPS Rigid Insulation GWP @ 100mm= 7.5 kg CO-eq/m²
Reinforced Concrete GWP = 350 kg CO-eq per m³
Galvanized Steel Frame GWP = 2.6 kg CO-eq/kg
Black Granite GWP @ 7cm= 22 kg CO-eq/m²

By Volume Total:

Gypsum Board @ 1464 m² = 2928 kg CO-eq
EPS Rigid Insulation @ 1464 m² = 10980 kg CO-eq
Reinforced Concrete @ 6216 m³ = 2175600 kg CO-eq
Galvanized Steel Frame System @ 108944 kg = 283254 kg CO-eq
Black Granite @ 4208 m² = 92576 kg CO-eq

TOTAL EXISTING GWP = 2,565,338 kg CO-eq

PROPOSED STRUCTURE | GWP BREAKDOWN

By Unit:

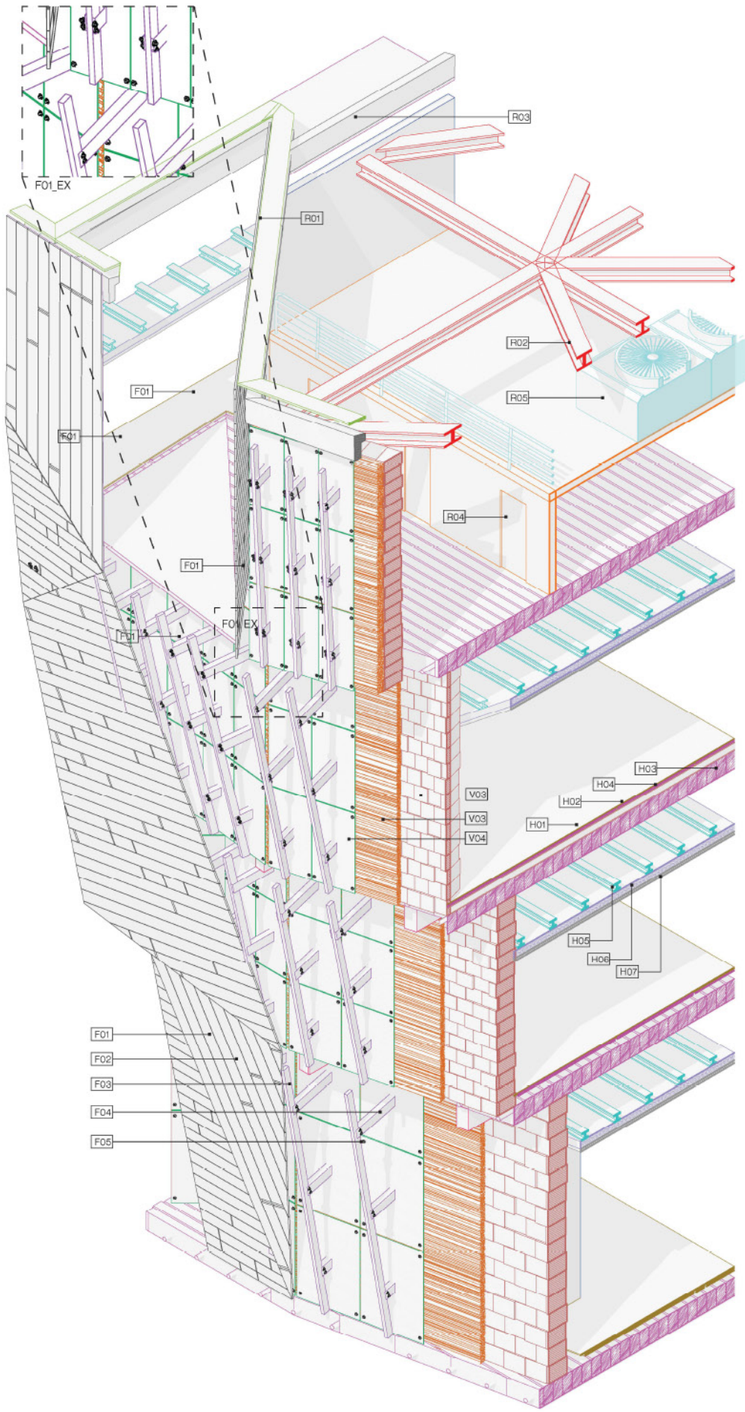
Stone GWP @ 600mm = 5 kg CO-eq/m²
Reed Insulation GWP @ 160mm = -1 kg CO-eq/m²
Cork Panel GWP @ 40mm = 4.8 kg CO-eq per m²
Cedar Frame GWP = 1.8 kg CO-eq/kg
Shou Sugi Ban @ 40mm = 1.5 kg CO-eq/m²

By Volume Total:

Stone @ 2240 m² = 11200 kg CO-eq
Reed Insulation @ 2240 m² = -2240 kg CO-eq
Cork Panel @ 2240 m³ = 10752 kg CO-eq
Cedar Frame @ 14800 kg = 26640 kg CO-eq
Shou Sugi Ban @ 3208 m² = 4812 kg CO-eq

TOTAL PROPOSED GWP = 51,164 kg CO-eq

A7- PROPOSED STRUCTURE | AXONOMETRIC



PROPOSED STRUCTURE | GWP + R VALUE

ROOF SYSTEM

R01 ALUMINUM PROFILE C-02
Extruded Aluminum - 400X50 mm
R = 0.003 / GWP = 3.3 kg CO-eq/kg

R02 HEA400 STEEL BEAM
Wide Flange Galvanized Steel - 400X380 mm
R = 0.03 / GWP = 2.6 kg CO-eq/kg

R03 ALUMINUM PROFILE S-01
Aluminum L profile - 7x7mm | thickness 2mm
R = 0.003 / GWP = 3.3 kg CO-eq/kg

R04 ROOF MACHINERY
Air Handler @ 136,000 CMH
R = N/A / GWP = N/A

R05 HVAC UNIT
Evaporator Units
R = N/A/ GWP = N/A

R06 ROOF ASSEMBLY
80mm Cork Panel, Geotextile Mat,
6mm Tar Paper
R = 3.6 / GWP = 6 kg CO-eq/m²

FACADE

F01 CHARRED WOOD PANELS
Shou Sugi Ban - 2000x200x40 mm
R = 1.25 / GWP = 1.5 kg CO-eq/m²

F02 CEDAR BEAMS 01
40mm x 40mm
R = 1.35 / GWP = 1.8 kg CO-eq/kg

F03 CEDAR BEAMS 02
250mm x 180mm
R = 1.35 / GWP = 1.8 kg CO-eq/kg

F05 BOLTS T-02
Stainless Steel Hex Bolt t10
R = 0.03 / GWP = 2.6 kg CO-eq/ kg

F06 ALUMINUM W-FRAME
NSG Triple Pane Aluminum Assembly
U = 0.3 / GWP = 51 kg CO-eq/m²

F07 GLASS PANEL
NSG Triple Pane Plate Glass, Silicone Sealant
U = 0.3 / GWP = 51 kg CO-eq/m²

VERTICAL STRUCTURE

V01 TIMBER COLUMNS
Stacked and Steel Bolted Cedar Timbers -
1000X1000mm
R = 1.25 / GWP = 1.8 kg CO-eq/m²

V02 STONE BLOCKS WALL
Repurposed Large Block Masonry Stone From
Aging Fortifications - 600 mm Average
R = 0.08 / GWP = 5 kg CO-eq/m²

V03 REED INSULATION BLOCKS
Wire Bound Reed Blocks - 140 mm
R = 2.4 / GWP = -1 kg CO-eq/m²

V04 CORK PANELS
Polyurethane Waterproofing Application,
Insulating Cork Panels 800X500x40mm
R = 3.6 / GWP = 4.8 kg CO-eq/m²

HORIZONTAL STRUCTURE

H01 WOOD FLOOR
Hardwood Poplar Floor Finish 15 mm
R = 1.0 / GWP = 3 kg CO-eq/m²

H02 STRUCTURAL PLYWOOD
Sub-floor and Structural Diaphragm 30 mm
R = 1.1 / GWP = 1 kg CO-eq/m²

H03 DLT PANEL
Dowel Laminated Structural Graded Spruce-
Pine-Fir - 500 mm
R = 1.25 / GWP = 1.8 kg CO-eq/m²

H04 GLUELAM BEAM 01
Cross-Span Glue Laminated Timber Beam -
300x600mm
R = 1.25 / GWP = 0.48 kg CO-eq/ kg

H05 GLUELAM BEAM 02
Cross-Span Glue Laminated Timber Beam -
300x600mm
R = 1.25 / GWP = 0.48 kg CO-eq/ kg

H06 CORK PANELS
Insulating Cork Panels 800X500x40mm
R = 3.6 / GWP = 4.8 kg CO-eq/kg

H07 ALUMINUM (L) PANELS
Aluminum Panelized Ceiling Finish - 200X90 mm
R = 0.003 / GWP = 9.3 kg CO-eq/kg

Attachment Systems and U-Values of Existing vs. Proposed

A8 - EXISTING STRUCTURE | R VALUE

The existing enclosure is formed by irregular triangular facets clad in rectangular black granite tiles mounted to a galvanized-steel armature. The stone—identified as Black Fantasy granite and sourced from China—is supported by steel members that cantilever from the underlying concrete walls. Because these concrete walls are comparatively orthogonal in plan, the offset between the granite surface and the primary structure varies significantly, resulting in substantial fluctuations in the length and geometry of the supporting steel elements.

FACADE

F01 STONE TILES
Black granite stone tiles 800x500x70mm

F02 STEEL PLATE
Bolted Galvanized Steel Plate 35x35mm t6

F03 STEEL PROFILE L-01
Bolted Galvanized L-profile 65x65mm t6

F04 STEEL PROFILE C-01
Galvanized C-Channel 200x100mm t6

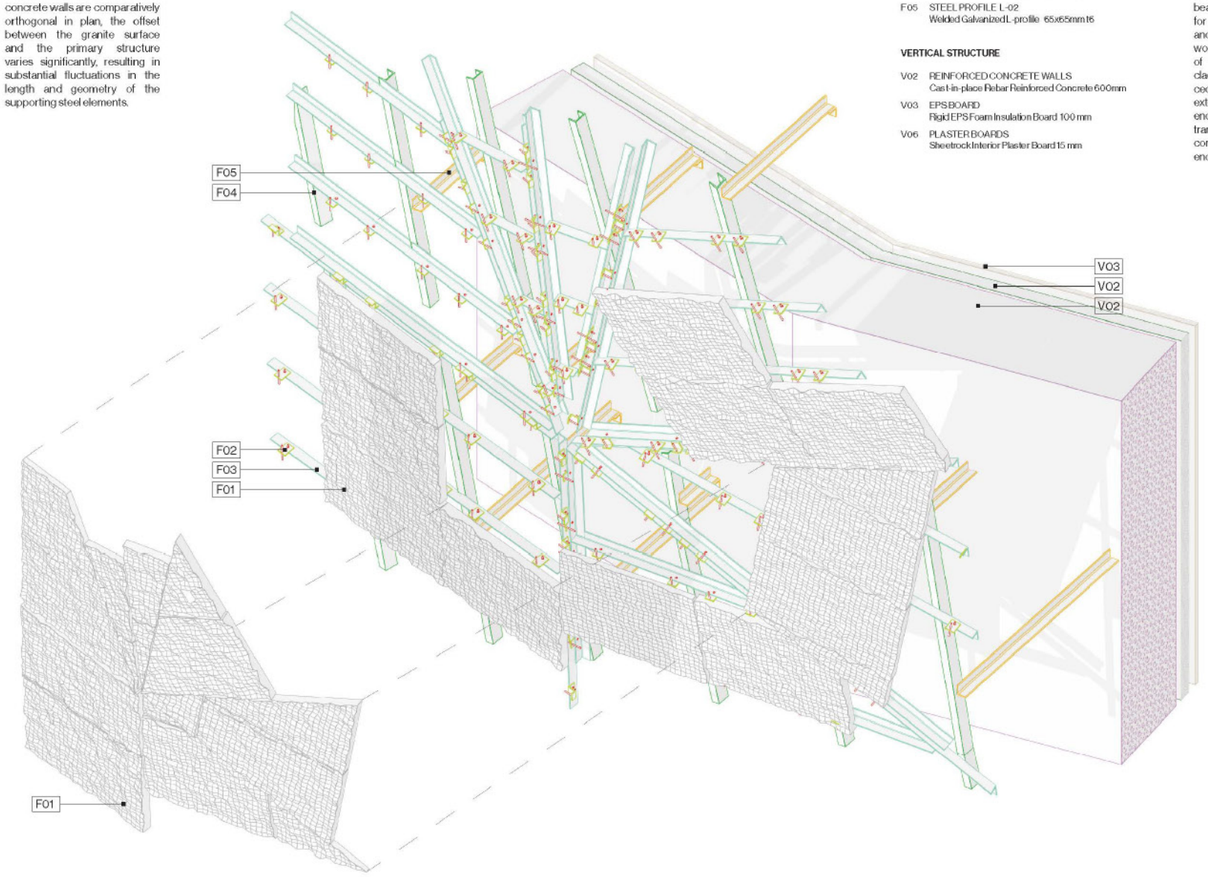
F05 STEEL PROFILE L-02
Welded Galvanized L-profile 65x65mm t6

VERTICAL STRUCTURE

V02 REINFORCED CONCRETE WALLS
Cast-in-place Rebar Reinforced Concrete 600mm

V03 EPS BOARD
Rigid EPS Foam Insulation Board 100 mm

V06 PLASTER BOARDS
Sheetrock Interior Plaster Board 15 mm



EXISTING R-VALUE BREAKDOWN

Material	R-Value / inch	Thickness	R-Value
Assembly 1			
Gypsum Board	0.45	0.39 in	0.18
EPS Rigid Insulation	4.00	3.94 in	15.76
Concrete	0.08	19.69in	1.58
Air Gap	-	11.02 in	≈1.00
Galvanized Steel Frame	-	-	-
Black Granite	0.08	2.76 in	0.22
			R-Value 18.74

Material	R-Value / inch	Thickness	Description
Assembly 2			
Glazing (double glazed)	-	0.94 in	≈2.00
			R-Value 2.00

A9 - PROPOSED STRUCTURE | R VALUE

In our proposed system, the enclosure is restructured around a denser network of lateral supporting members anchored to a cedar frame. The cross-sections of the frame elements have been increased (from 2.5"x2.5" in the original angle steel members to between 2"x4" and 6"x10" in the proposed wood beam equivalents) to account for the different structural and material behaviors of wood relative to steel. Instead of the original black granite cladding, we employ charred cedar (shou sugi ban) as the exterior finish. Behind this cedar enclosure, the wall assembly transitions to a stone-masonry construction, with reed insulation enclosed with cork panels.

FACADE

F01 CHARRED WOOD PANELS
Shou Sugi Ban

F02 CEDAR BEAMS 01
40mm x 40mm

F03 CEDAR BEAMS 02
250mm x 180mm

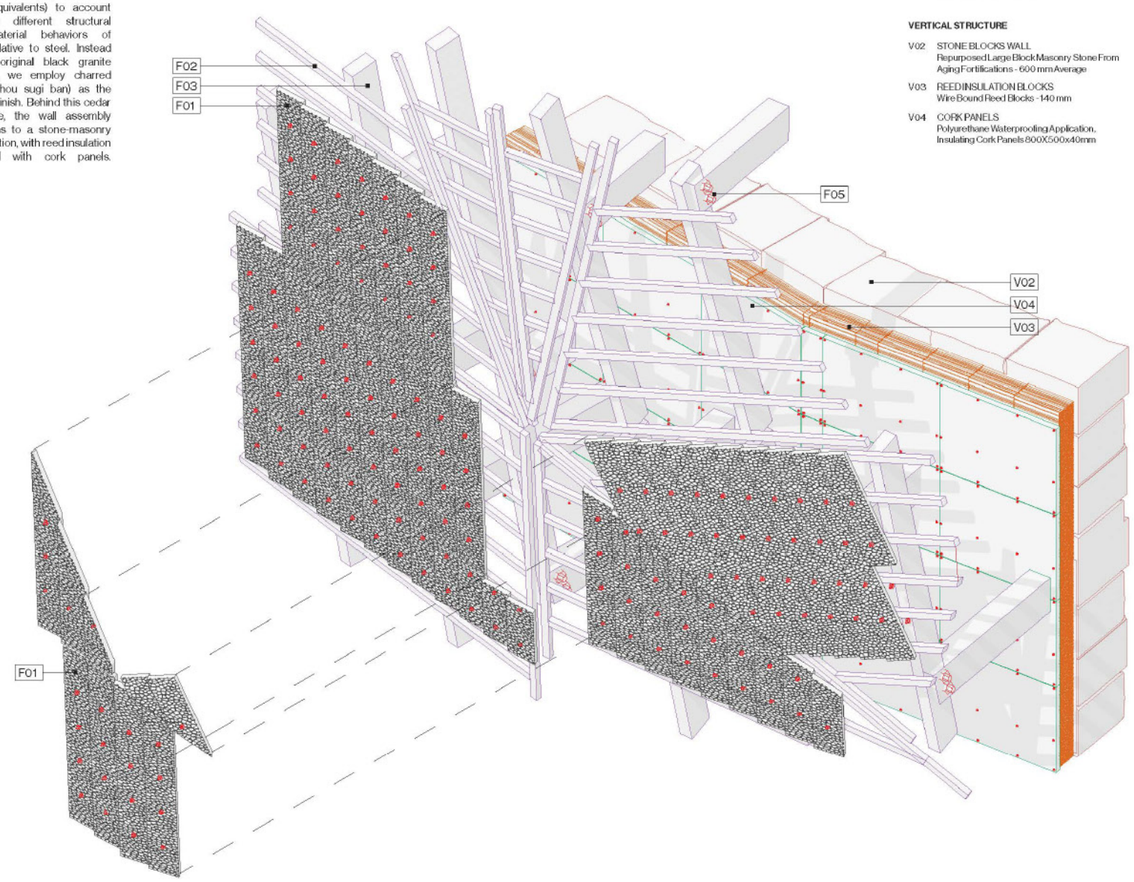
F05 BOLTS T-02
Stainless Steel Hex Bolt t10

VERTICAL STRUCTURE

V02 STONE BLOCKS WALL
Repurposed Large Block Masonry Stone From Aging Fortifications - 600 mm Average

V03 REED INSULATION BLOCKS
Wire Bound Reed Blocks - 140 mm

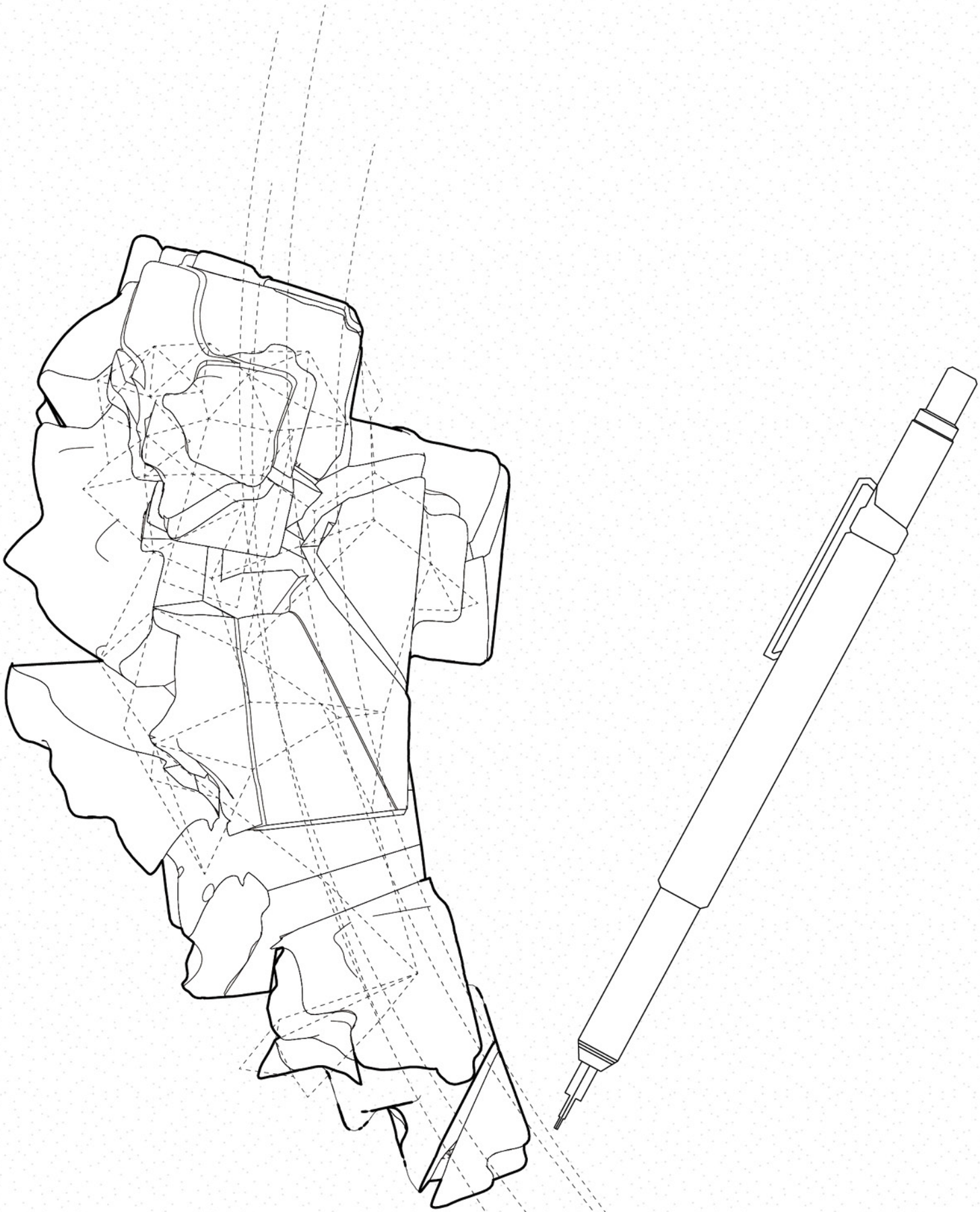
V04 CORK PANELS
Polyurethane Waterproofing Application. Insulating Cork Panels 800X500x40mm



PROPOSED R-VALUE BREAKDOWN

Material	R-Value / inch	Thickness	Description
Assembly 1			
Stone	0.08	19.70 in	1.58
Reed Insulation	2.40	6.30 in	15.12
Cork Panels	3.60	1.57 in	5.65
Air Gap	-	11.02 in	≈1.00
Cedar Frame	-	-	-
Shou Sugi Ban	1.25	1.57 in	1.96
			R-Value 25.31

Material	R-Value / inch	Thickness	Description
Assembly 2			
Glazing (triple glazed)	-	1.57 in	≈6.00
			R-Value 6.00



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