LOUIS AMADEUS ARTEAGA



ARCHITECT + COMPUTATIONAL DESIGNER

Computational architecture / Parametric workflows
Facade systems / BIM interoperability / Visualization

NEW YORK / COLOMBIA

amadeusarteaga.webflow.io



Existing envelope / project reference image

SHA James

Computational Facade Retrofit

Type: Professional / Design development
Practice: Cycle Architecture + Planning
Location: Syracuse, New York
Date: 2026
Role: Computational analysis, parametric facade workflows and BIM coordination

A measured approach to upgrading an existing housing envelope. My work connects point-cloud evidence, facade geometry and panel-layout controls to support the design and coordination of a new cladding system.



Proposed envelope / architectural visualization. Project design by Cycle Architecture + Planning.

Reading the Existing Building

From dense survey evidence to a coherent facade reference model.

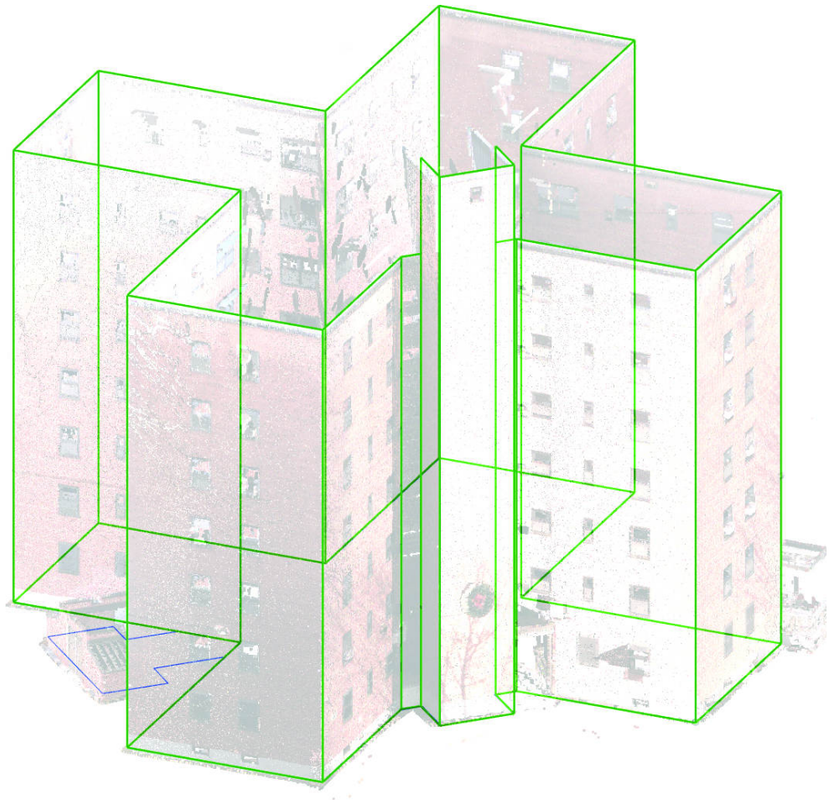
14.8M
survey points

17
facade faces



01 / Survey point cloud and detected facade boundaries

The point cloud records the existing envelope. Reconstructing its main faces turns dense survey information into geometry that can be compared, measured and coordinated.



02 / Reconstructed facade reference geometry

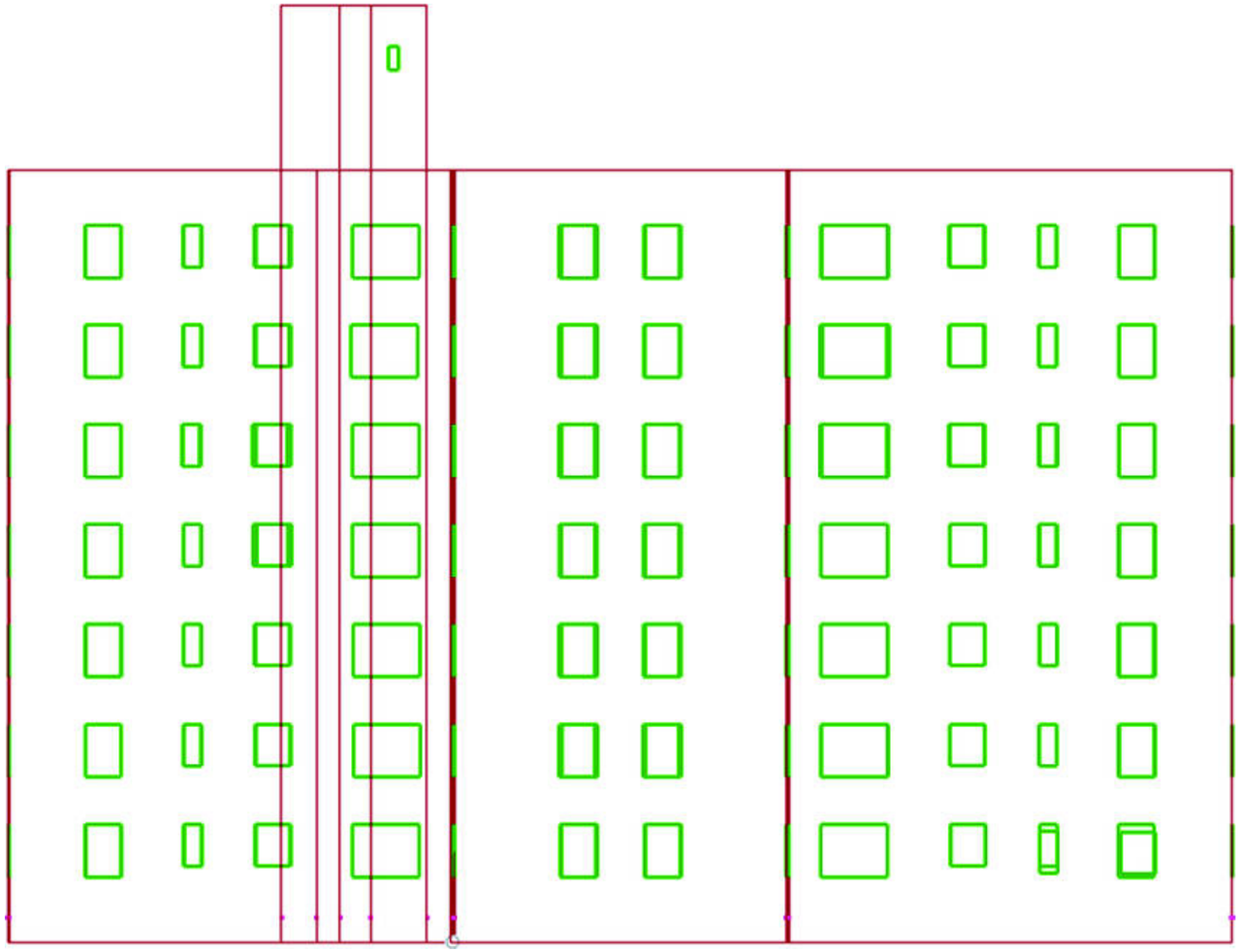
One geometric reference

Local facade frames organize the survey into consistent faces and shared boundaries. This reference supports the opening measurements and panel studies that follow.

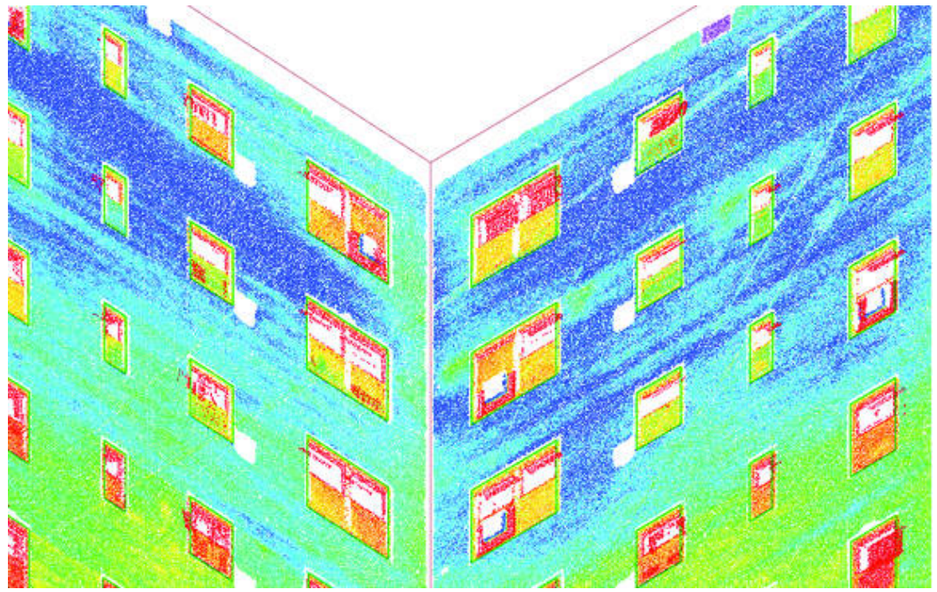
Analysis dataset documented in September 2026.

From Window Measurements to Panel Logic

Measured edges, repeated dimensions and alignment establish a reliable opening set.



Reconstructed openings / repeated widths, heights and head alignments



Local point-cloud evidence around window boundaries

262
openings

154
four measured borders

4 + 2
repeated / unique

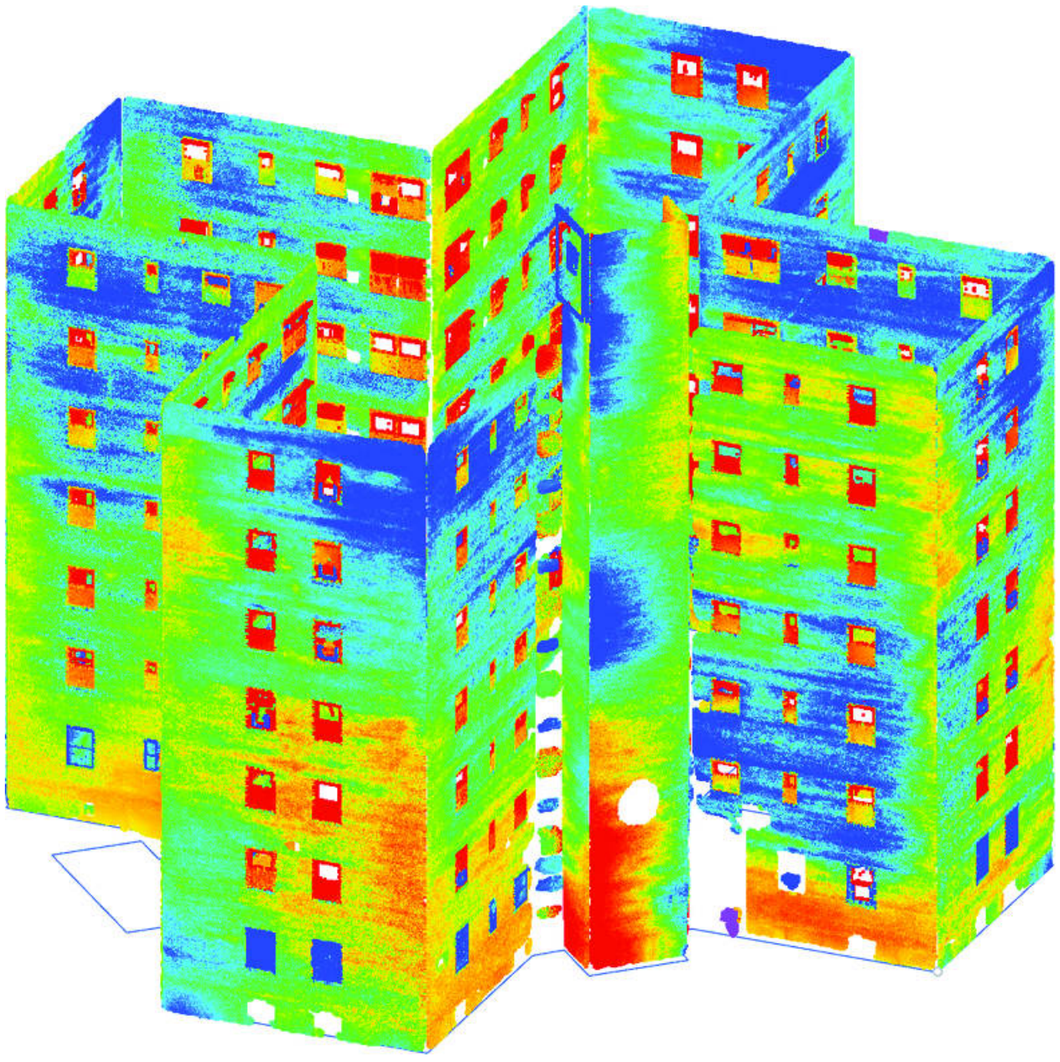
Opening sizes and positions inform panel edges, joints and corner conditions. Family grouping provides a consistent reference across all facade faces.

Measure, compare, coordinate

Strong four-sided measurements establish representative widths and heights. Four repeated families organize 260 windows; two unique cases remain separate. Weaker cases can be checked against repeated dimensions and alignment while remaining distinguishable from directly measured geometry.

Making Wall Variation Visible

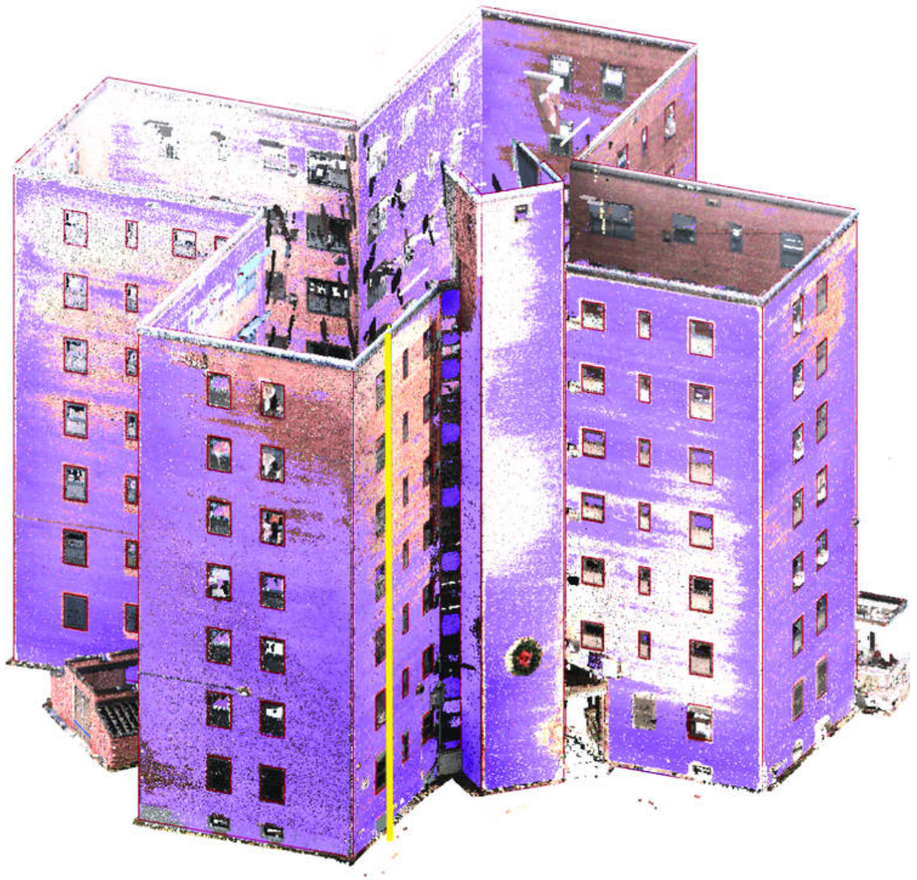
Depth and tolerance studies reveal where the existing envelope requires attention.



Full depth reading / relative wall position

Proud / exterior

Recessed / inward



Tolerance exceedance

The second map isolates wall zones beyond the working tolerance. Openings and accessories are handled separately, helping focus review on the wall condition that affects the cladding interface.

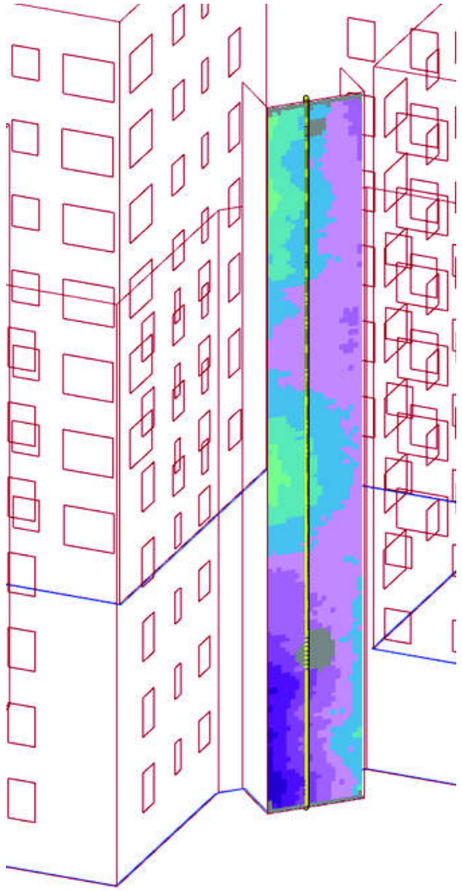
Purple: wall depth beyond the selected limit.
White / gray: unmeasured, excluded or unhighlighted conditions.
Diagnostic output; values depend on the selected facade and controls.

From Analysis to a Design Decision

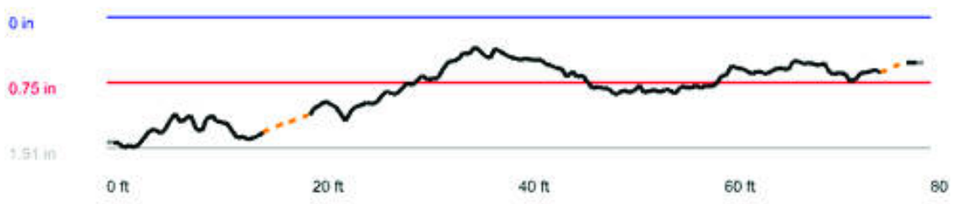
Local sections test how a panel system can accommodate an uneven substrate.

Facade P15

Depth intervals
at the selected
wall strip



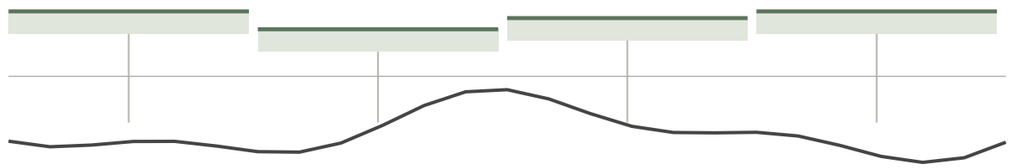
Depth-band study / selected facade



Measured profile / source analysis. Depth is graphically exaggerated.

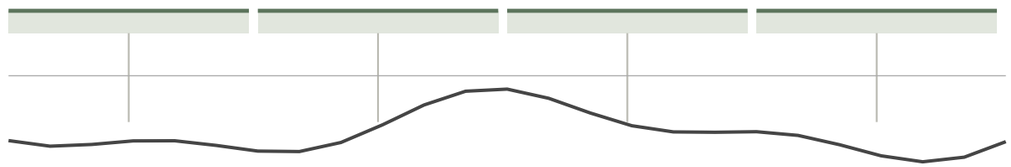
Two response strategies

The same measured wall can inform alternative responses: distribute adjustment across panel joints, or retain a continuous exterior plane and absorb variation through local leveling.



A / Distributed adjustment

Panel positions adapt locally. Joint transitions become an explicit design and coordination question.



B / Continuous plane + local leveling

A flat exterior face transfers wall variation into the supporting buildup behind the system.

Response diagrams are conceptual. Final joint and assembly limits require project coordination.

Controlling the Panel Layout

Parametric relationships organize openings, joints, corners and material zones.



Current Rhino / Grasshopper panelizer preview

A reusable set of controls

The panelizer exposes design controls for panel widths, corner conditions and joint articulation. The visual output makes the consequences of those choices legible across the facade.

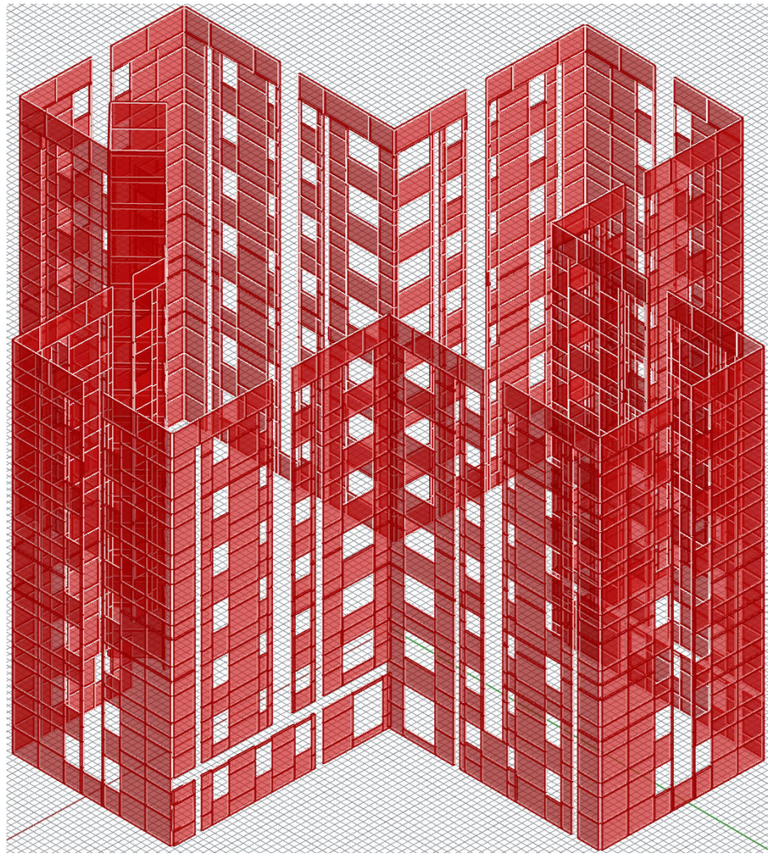
The measured-envelope analysis provides a basis for subsequent panel-by-panel checks. That connection is presented as ongoing development.



Proposed facade / architectural visualization. Project design: Cycle Architecture + Planning.

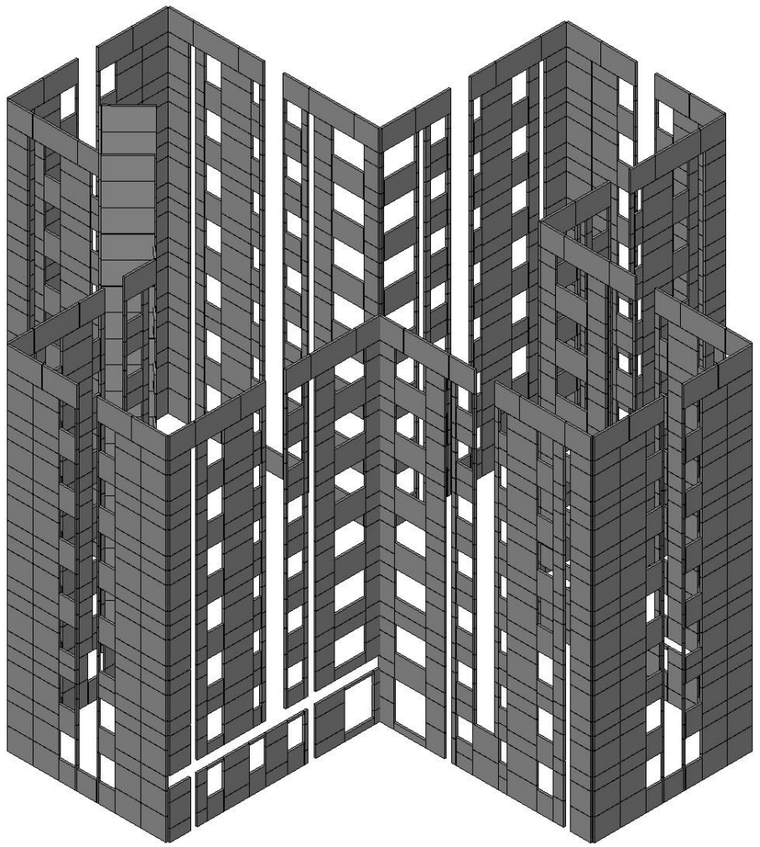
From Parametric Panels to Revit

A shared panel logic connects geometric design and BIM representation.



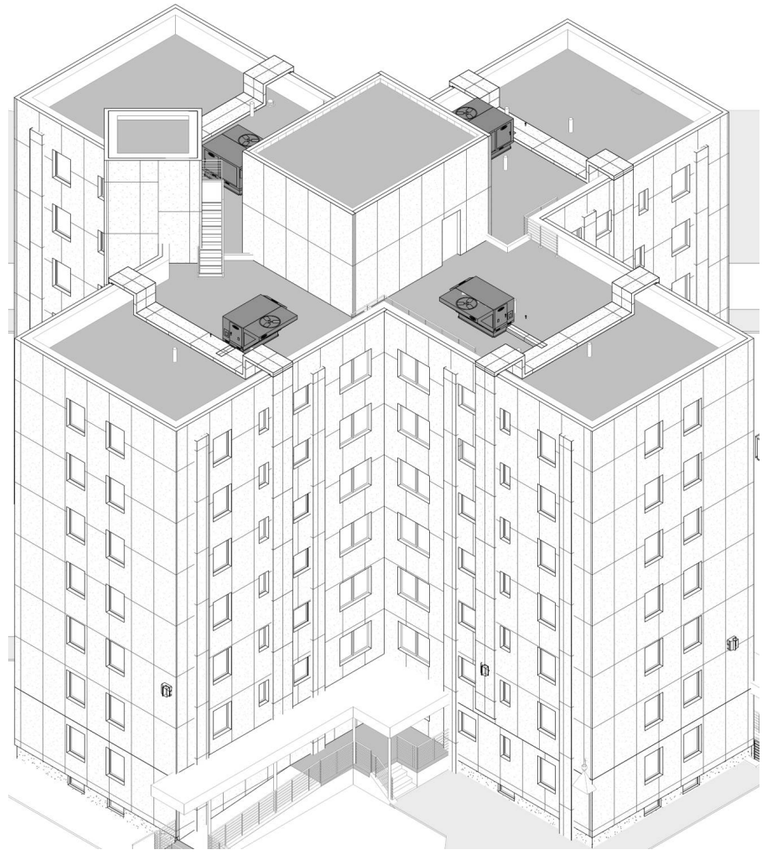
01 Parametric geometry

Rhino + Grasshopper organize panel geometry, openings and the facade layout.



02 Revit panel assembly

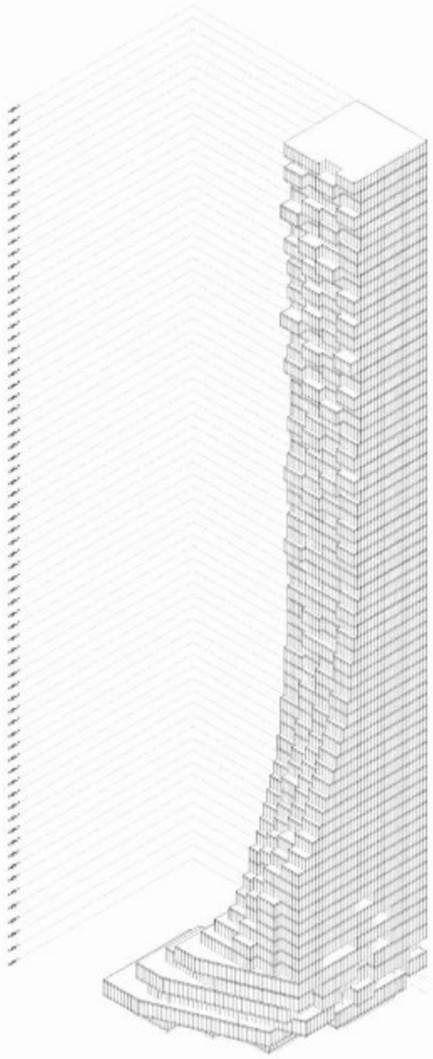
The transfer definition organizes panel types and assigns width and height parameters in Revit.



03 Architectural context

The complete architectural model places the facade study within the building and its surrounding elements.

Personal contribution: computational workflows and BIM coordination. Project design: Cycle Architecture + Planning.

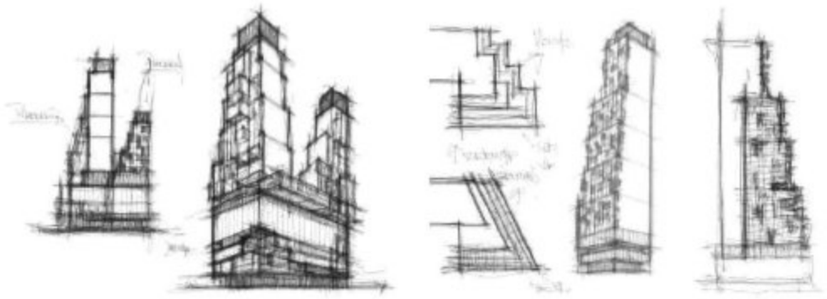




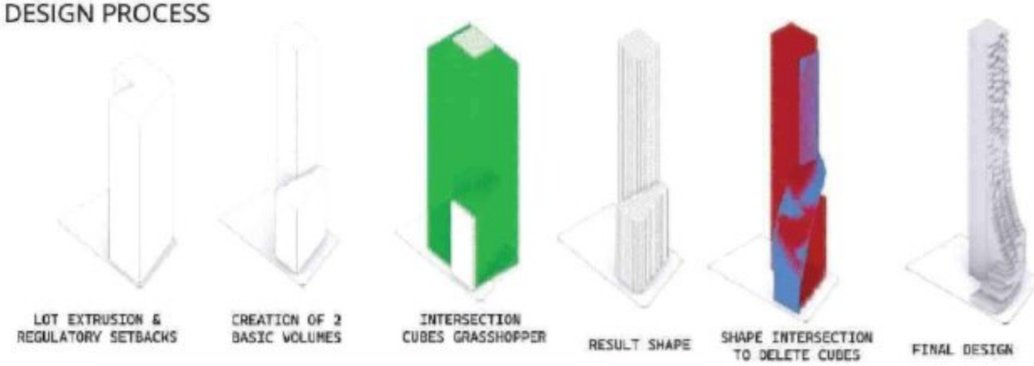
Re Thinking BIM

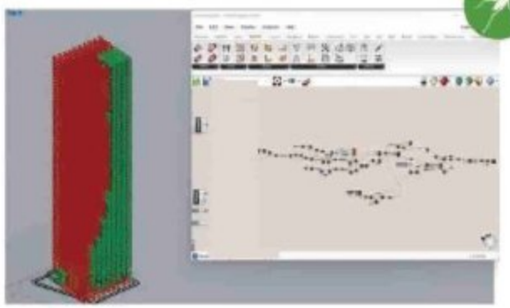
Pixelated Spaces
Type: Academic
Professors: Joseph A. Brennan
Date: Fall 2024
Collab: Sofia Hernandez and Sebastian Dominguez

INITIAL SKETCHES



DESIGN PROCESS





GRASSHOPPER

Through Grasshopper, the initial form of the building was defined, allowing for the parametric generation of all components, including slabs, columns, walls, and windows. This process enabled iterative explorations of different design approaches, optimizing spatial and structural relationships.



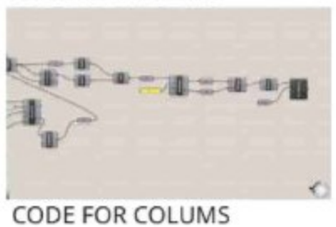
Revit not only facilitates the transfer of parametric models but also enables dynamic interaction with Revit's family system. Once the model is fully integrated, elements like the façade can be adjusted directly within Revit, allowing for design modifications that respond to technical, aesthetic, or performance requirements while preserving parametric control.



CODE FOR WALLS



CODE FOR FLOORS

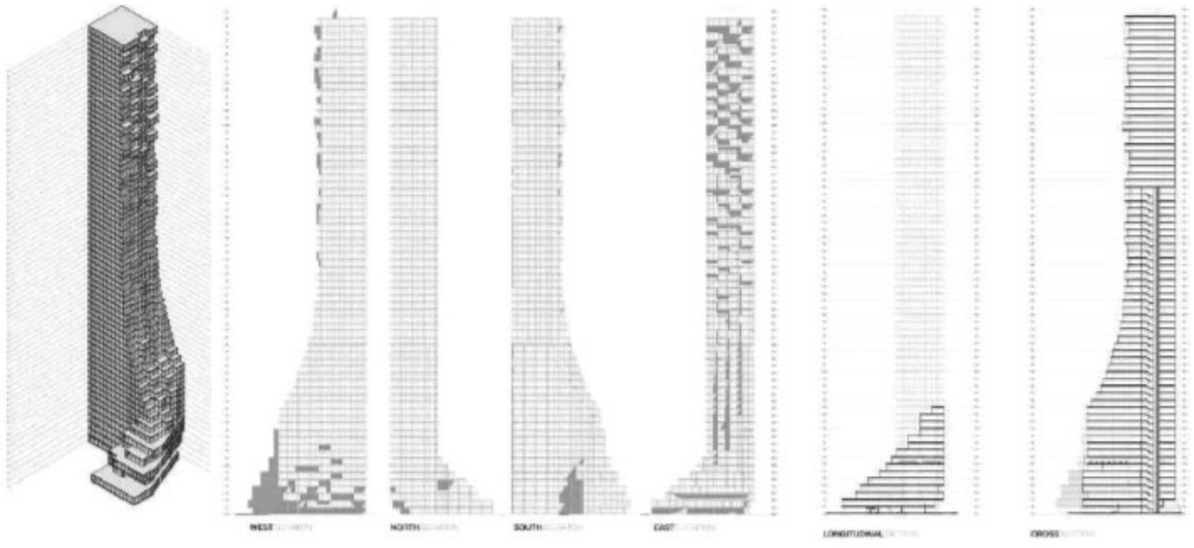


CODE FOR COLUMS



RHINO INSIDE REVIT

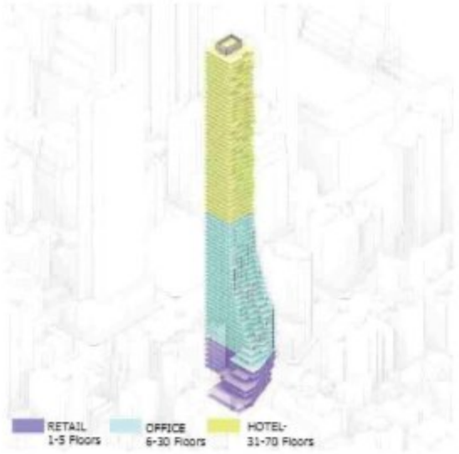
Rhino.Inside Revit enables the seamless integration of Rhino and Grasshopper models into the Revit environment, bridging the gap between parametric design and architectural documentation. This technology allows for a more constructible representation of the project while maintaining design flexibility through iterative explorations using Revit's family system.



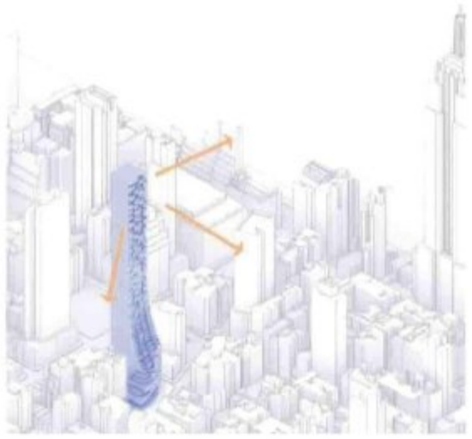
In traditional architectural practice, space is often a fixed entity—designed, built, and inhabited without much room for evolution once it is complete. However, with the advent of digital tools and parametric design, architecture is no longer limited by static forms or predefined solutions. Instead, spaces can be reimagined and reconfigured according to the shifting demands of its users. Dynamic Form brings to life the potential for architecture to evolve, much like the way a living organism adapts and responds to its environment.

By incorporating real-time data and flexible parametric models, Dynamic Form creates an architecture that is responsive, efficient, and ever-changing. This project questions the rigidity of traditional architectural methods and embraces a vision of spaces that can mutate and transform in response to their environment, their users, and even the passage of time. In doing so, it introduces a new paradigm of adaptive architecture that not only meets the needs of today but is capable of evolving to meet the challenges of tomorrow.

This project goes beyond just form-making: it explores the relationship between design, technology, and construction, examining how digital design can be seamlessly integrated with building systems to create more sustainable, responsive, and efficient spaces. The use of parametric design allows for the creation of dynamic forms that can change in real-time, optimizing energy efficiency, spatial organization, and user comfort.



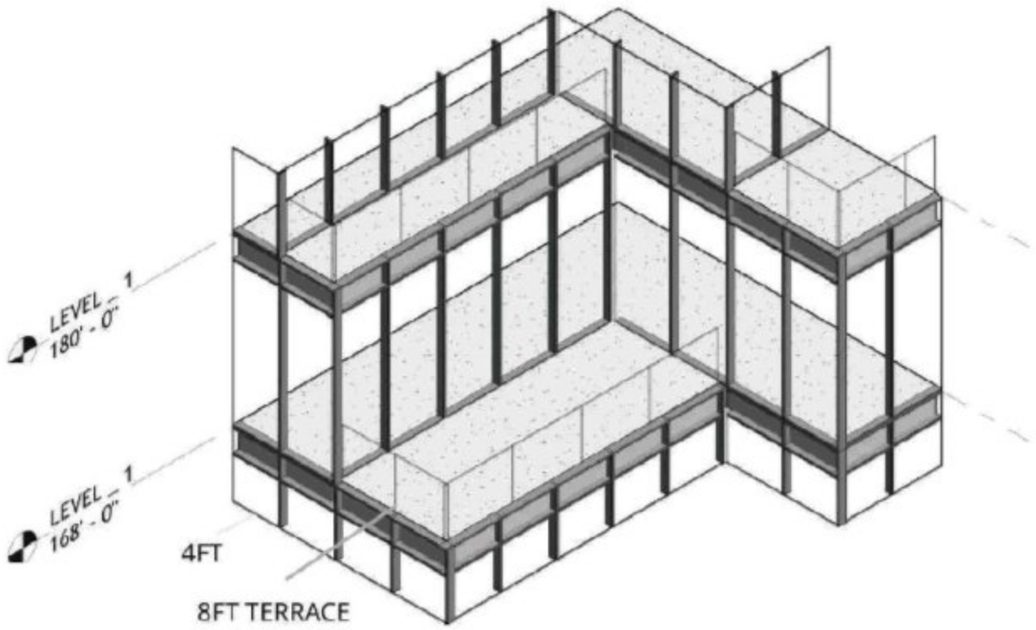
SEPARATION OF USES



MODULES TOWARDS VISUALS



SITE PLAN



MODULAR DESIGN IN CURTIN WALL
WITH 4 FT WINDOW MODULE

The design intention was to create a pixelated pattern on the façade, enhancing the spatial richness of the upper floors where the residential units are located. This pattern not only provides a dynamic visual experience but also frames incredible views of the iconic **New York City skyline**. The play of light and shadow across the façade adds depth to the building while offering residents a unique connection to the ever-changing urban landscape of New York, a city defined by its contrast of dense structures and expansive vistas.



FLOOR PLAN

PASSIVE EXHALIST

PASSIVE VENTILATION

HVAC RETURN

HVAC SUPPLY



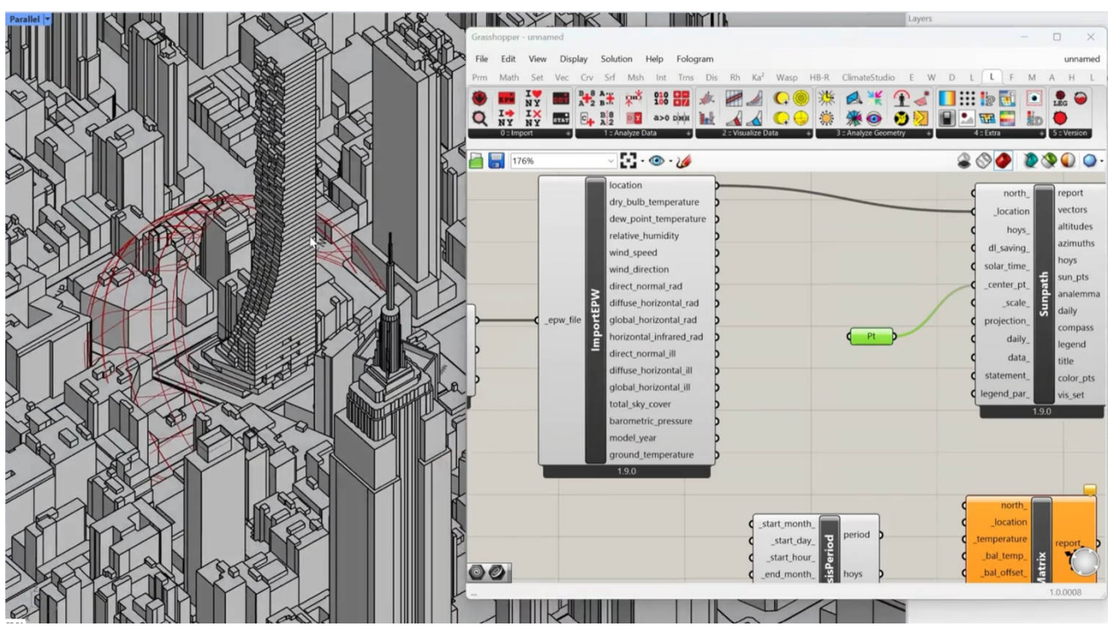
FACADE DETAIL










Grasshopper - unnamed
File Edit View Display Solution Help Fologram
unnamed
location
dry_bulb_temperature
dew_point_temperature
relative_humidity
wind_speed
wind_direction
direct_normal_rad
diffuse_horizontal_rad
global_horizontal_rad
horizontal_infrared_rad
direct_normal_ill
diffuse_horizontal_ill
global_horizontal_ill
total_sky_cover
barometric_pressure
model_year
ground_temperature
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legend_par_
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vectors
altitudes
azimuths
hoys
sun_pts
analemma
daily
compass
legend
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color_pts
vis_set
Sunpath
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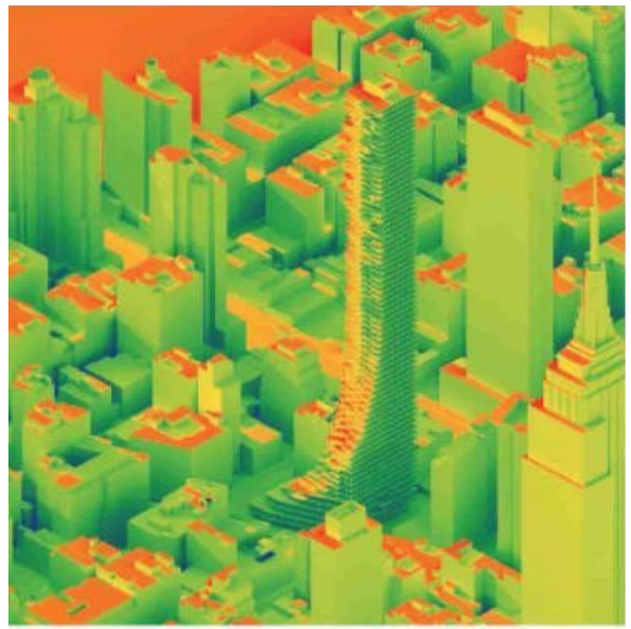
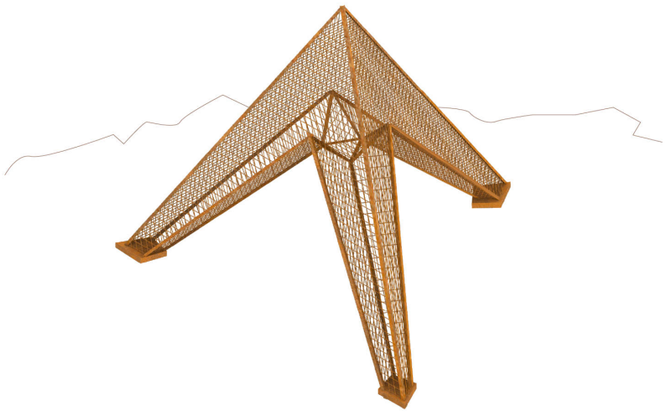




Arch of Becoming

Stone by Stone, We Build It Together

Type: Design competition / Pavilion proposal
MOA Design and Build | Second Place
Location: Arches National Park, Utah
Date: Spring 2025
Collaboration: Sofia Hernandez
Tools: Rhino, Grasshopper, Twinmotion

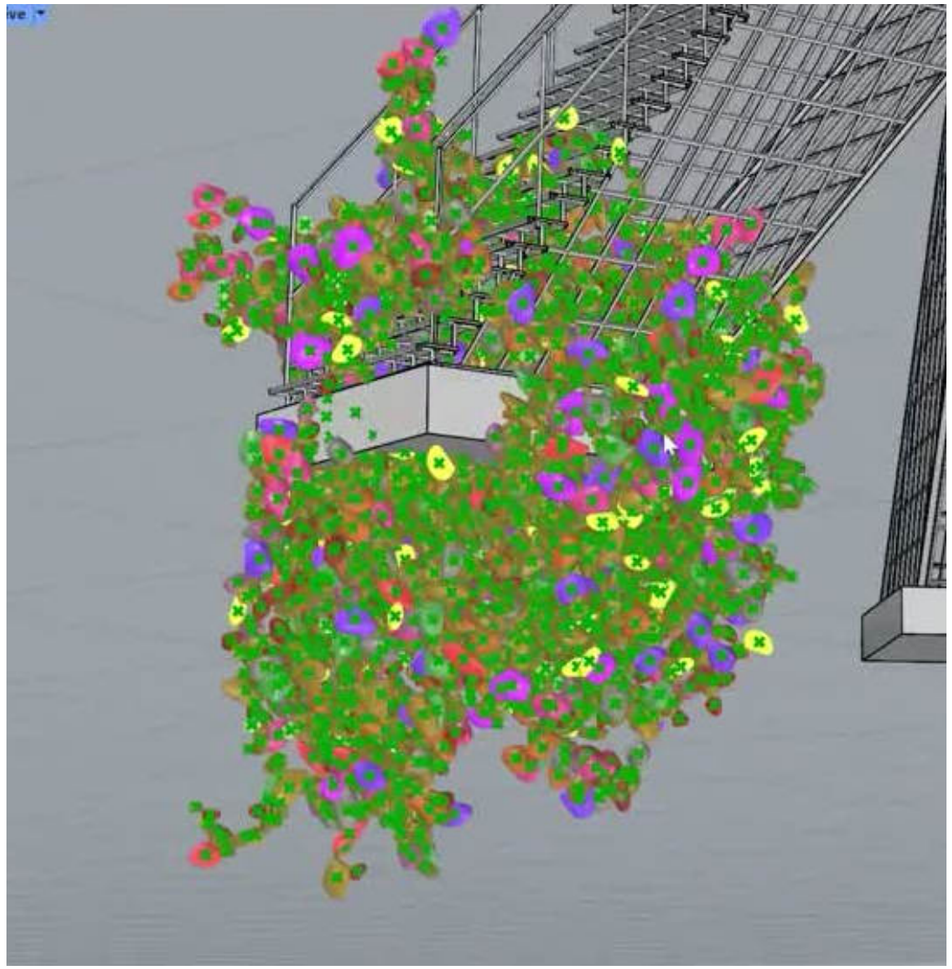
A tetrahedral frame reinterprets the arch as an open process of accumulation. Stone-filled mesh faces turn a simple geometry into a changing place for gathering, participation and encounter with the landscape.



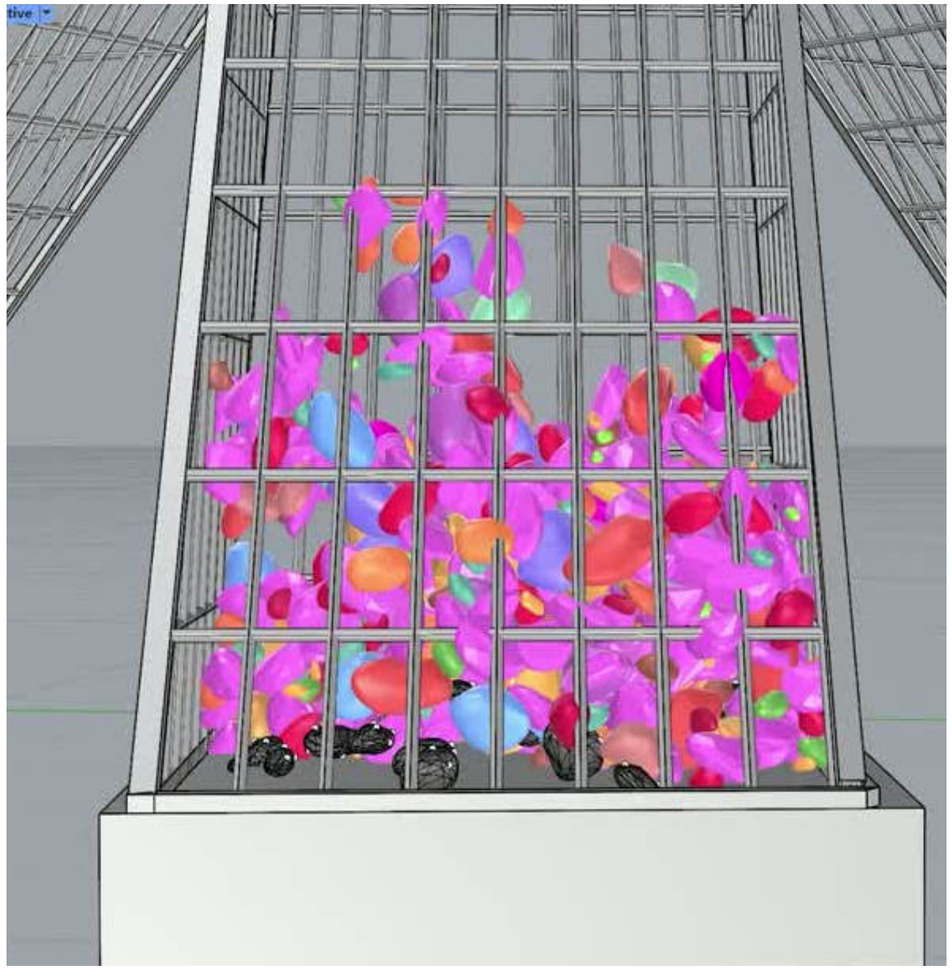
Competition proposal / architectural visualization

Designing an Evolving Infill

Computational studies connect irregular stones to a defined architectural volume.



01 / Generated geometry and spatial filtering in Rhino



02 / Accumulation study within the mesh enclosure

Generate

Build a field of varied stone geometries.

Filter

Test pieces against the enclosing volume.

Accumulate

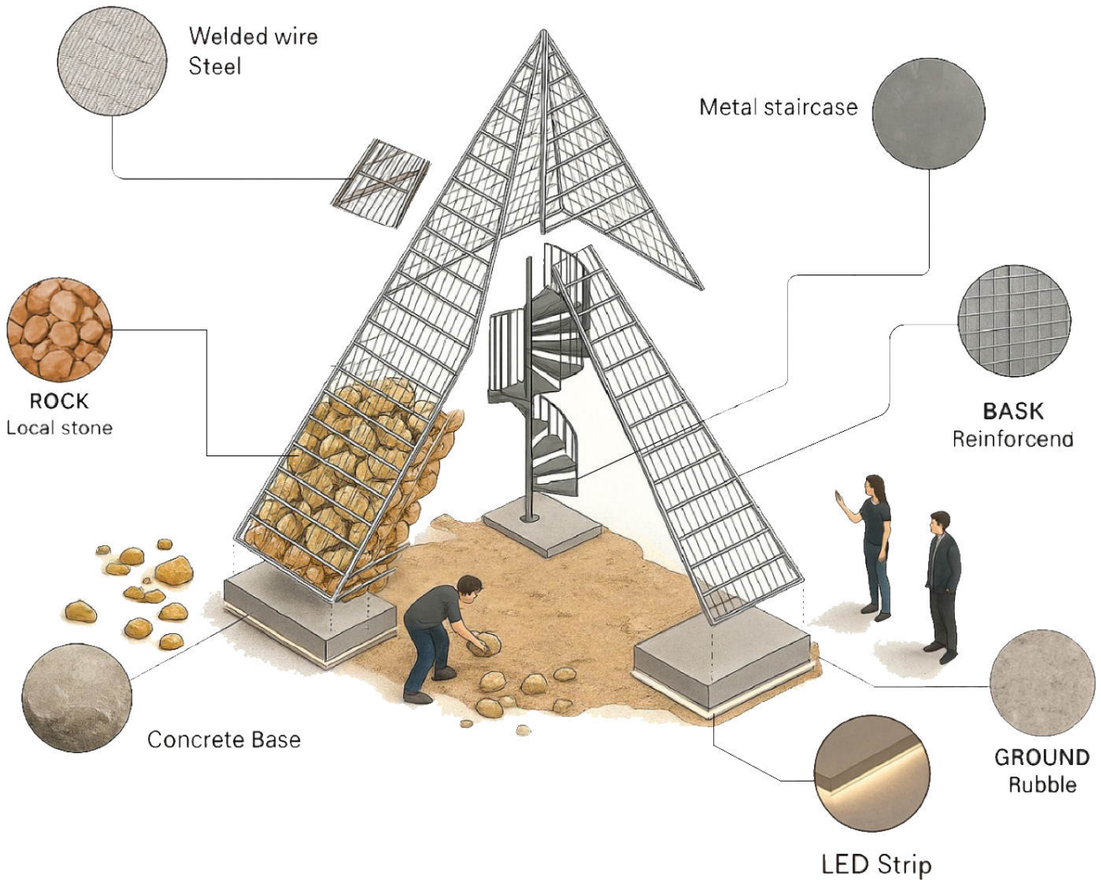
Study progressive infill and the changing visual density.

The Grasshopper studies translate the idea of collective growth into a controllable geometric process. Varied pieces are generated, checked against a boundary and assembled into an evolving infill. The model makes the relationship between individual stones, voids and the pavilion envelope visible.

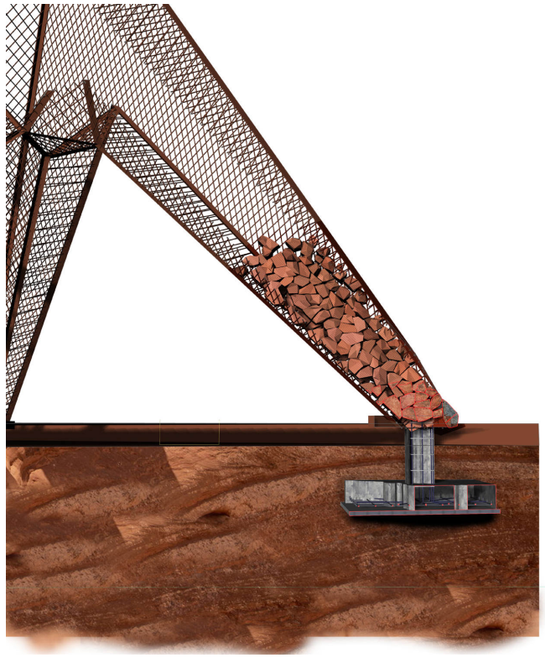
Grasshopper accumulation study.
Colors distinguish generated geometry groups.

A Frame for Collective Construction

A repeatable enclosure accommodates irregular material and incremental participation.



01 / Exploded assembly and material palette



02 / Infill and foundation concept





03 / Model and participation studies

Geometry becomes a material system

A steel frame and mesh enclosure establish the pavilion's limits. Stones occupy the space between the faces, while the central stair and gathering area give the installation a human scale. The proposal connects digital studies with assembly, material character and participation.



Hamptons Residence

Kitchen + living interiors

Type: Professional / Interior redesign
Client: 101 Holdings
Location: The Hamptons, New York
Stage: Design proposal
Author: Louis Amadeus Arteaga
Scope: Design, drawings and visualization

A residential redesign brings the kitchen, dining and adjoining living areas into a consistent material language. Light-toned cabinetry, veined surfaces and integrated storage reinterpret the existing interior.



Proposed interior / kitchen, dining and integrated cabinetry

A connected domestic interior

The proposal combines spatial planning with the design of islands, storage and finishes. Drawings establish the arrangement and circulation; visual studies communicate the intended atmosphere.

From Existing Interior to Design Proposal

Spatial planning, fitted cabinetry and material continuity shape the redesign.



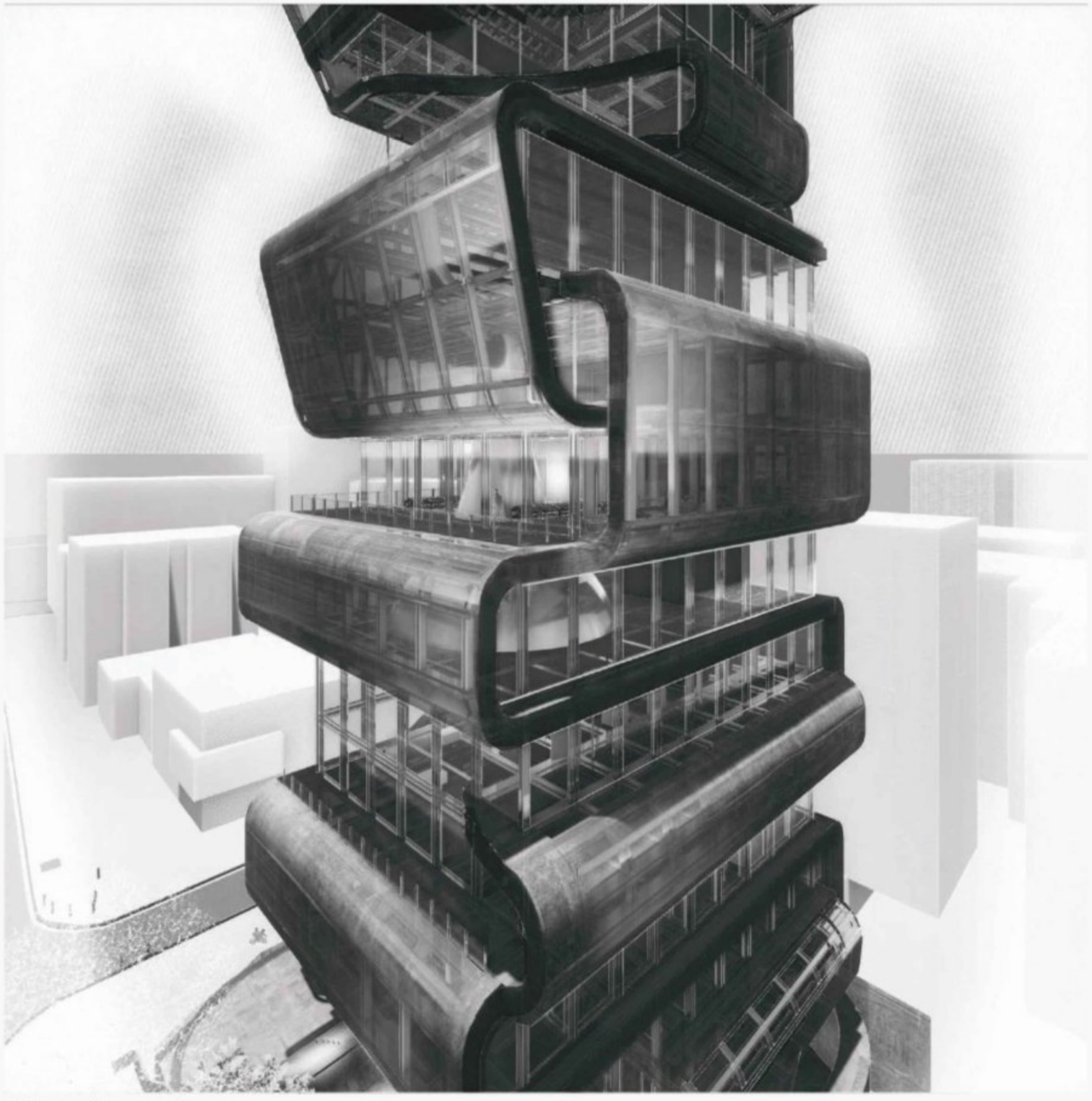
01 / Proposed floor plan: furniture, equipment and circulation dimensions. Reduced for portfolio presentation.



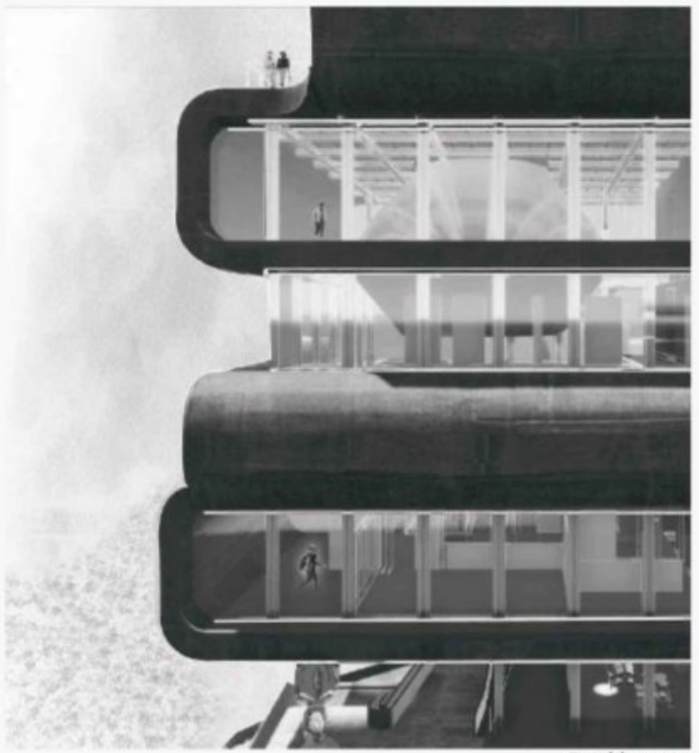
02 / Existing kitchen



03 / Proposed kitchen: cabinetry, island and surface finishes



Exterior view with transparencies.



Outside zoom

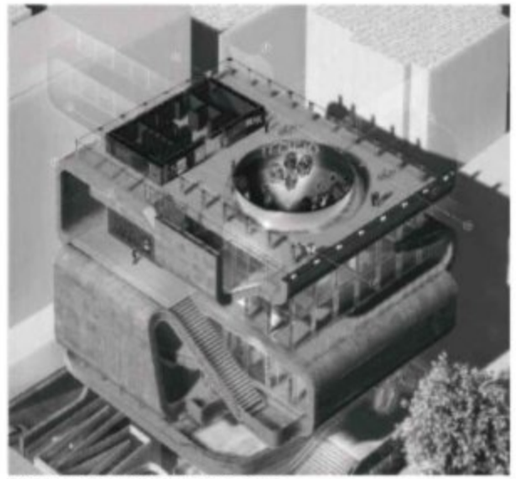
Bogotá, the vibrant capital of Colombia, is a melting pot of indigenous, Afro-descendant, mestizo, and foreign cultures. Odeon Center, born from this diversity, is a cultural hub embracing music as a universal language. Its unique, folded design symbolizes fusion, offering spaces for exhibitions, workshops, and concerts. Beyond its physicality, the center promotes social integration, incorporating local art to celebrate Bogotá's cultural richness, becoming an iconic landmark that unites diverse communities.

Odeon Center in Bogotá is a cultural nexus where music bridges diverse cultures. Its distinctive folded design signifies fusion, housing spaces for exhibitions, workshops, and concerts. Beyond aesthetics, the center integrates local art, becoming an iconic landmark that fosters social cohesion, uniting Bogotá's diverse communities.

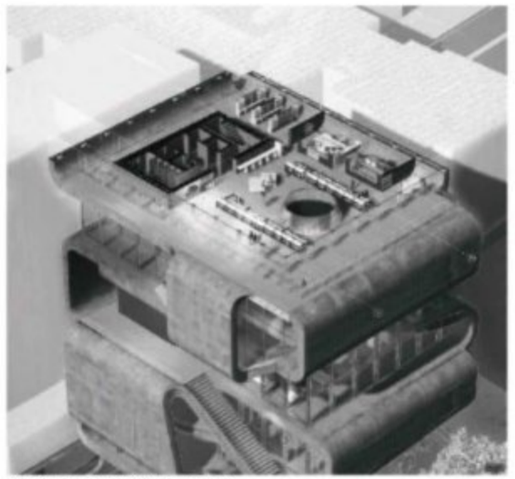
Odeon Center

Type: Academic
Course: Integrative Project
Professors: Claudio Rossi - Daniela Atencio
Date: Spring 2021
Collab: Sofia Hernandez

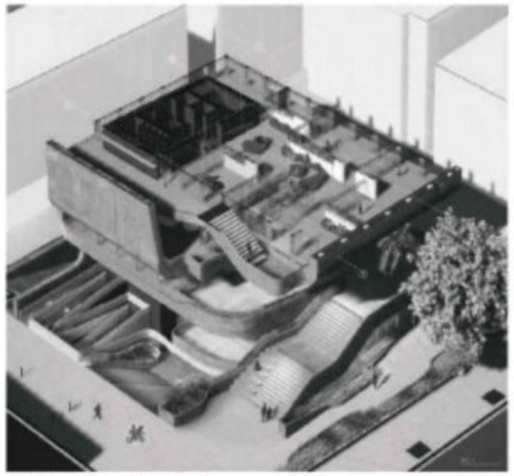
Longitudinal Section.



Experimental antiheater floor plan.



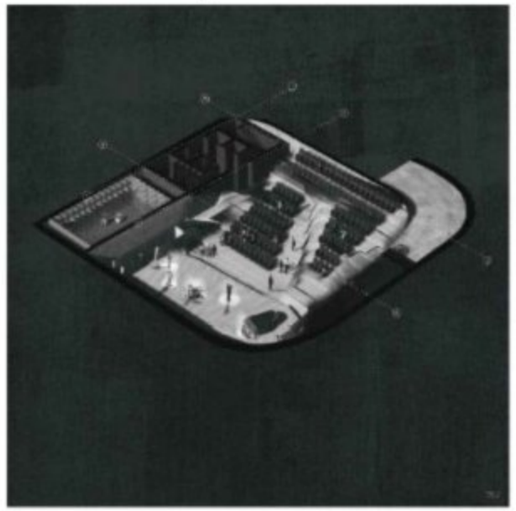
Ninth axonometric foor plan.



Fourth axonometric foor plan.



Fifth axonometric foor plan.

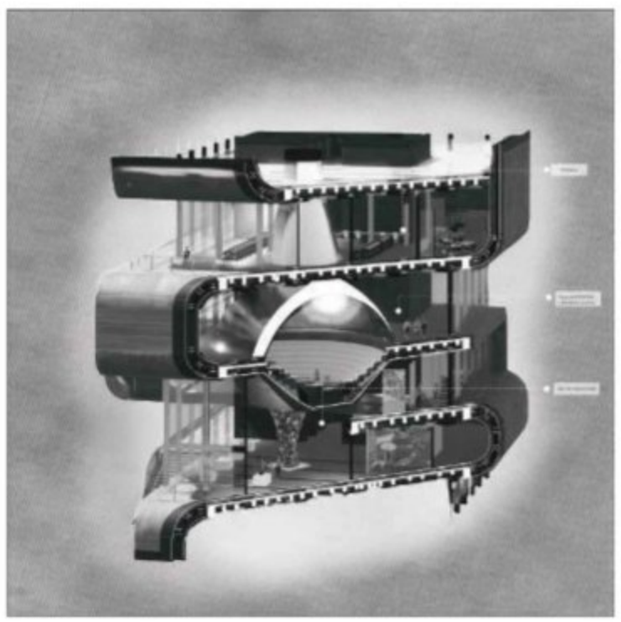


Auditorium axonometric foor plan.

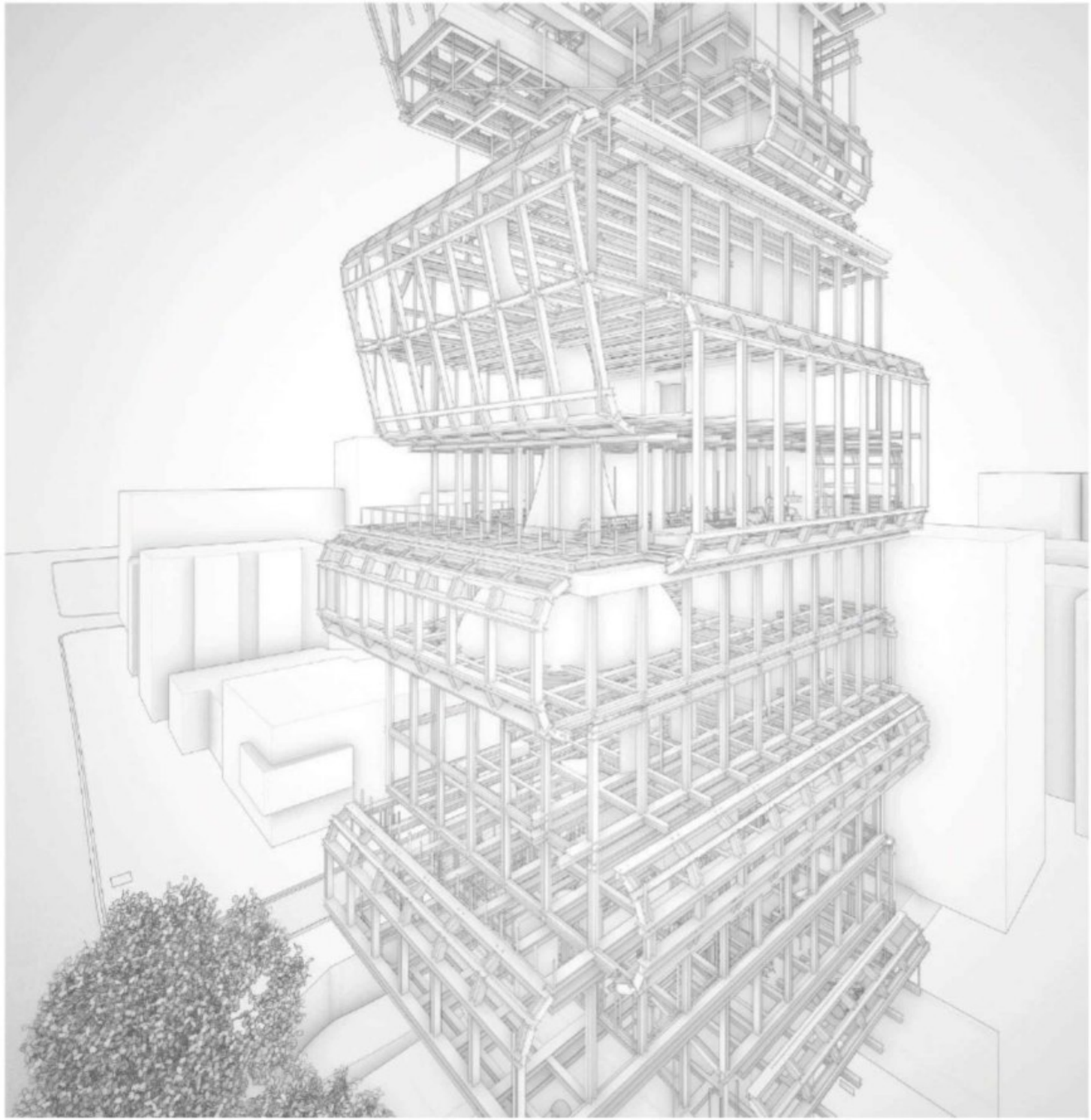


Second axonometric foor plan.

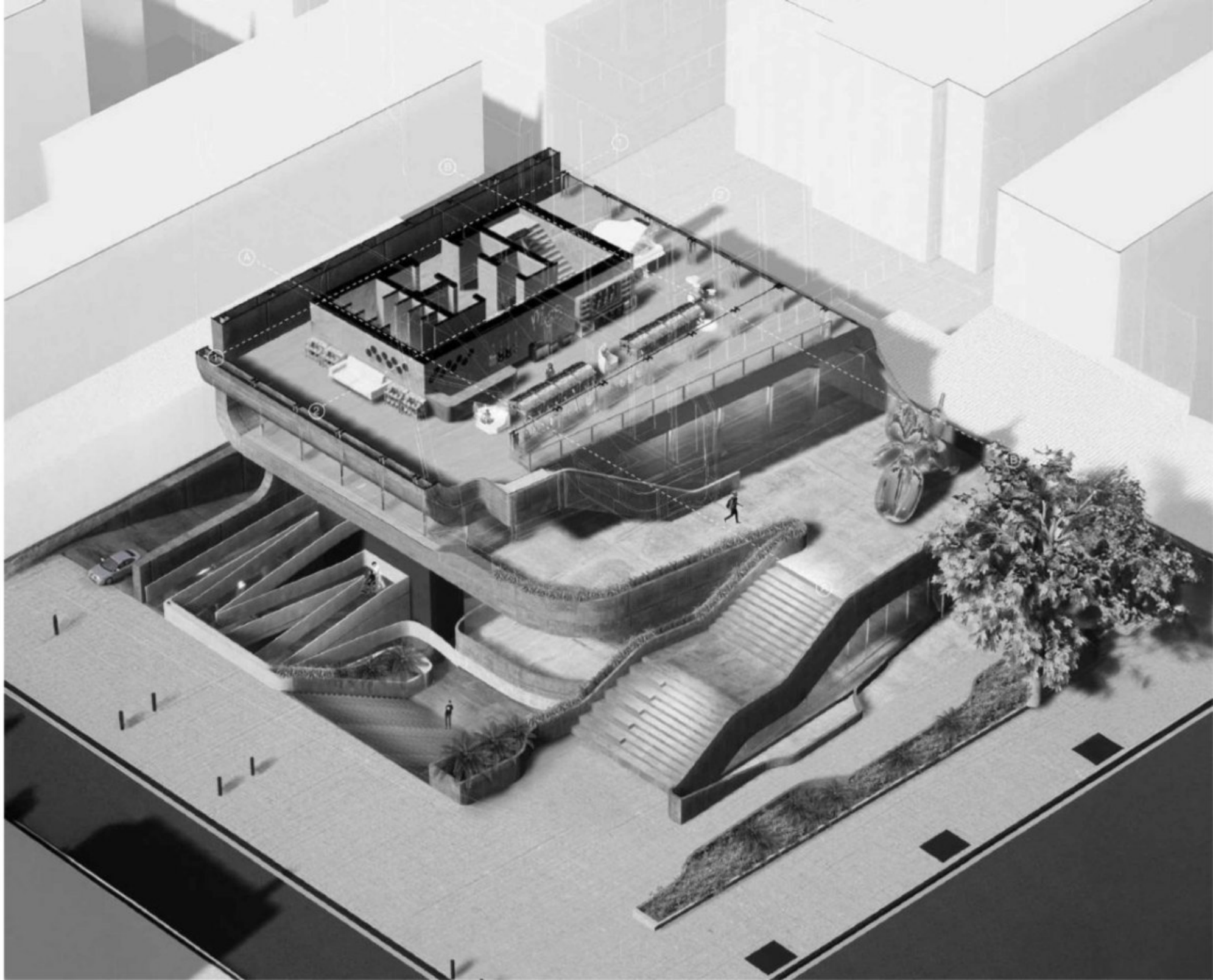


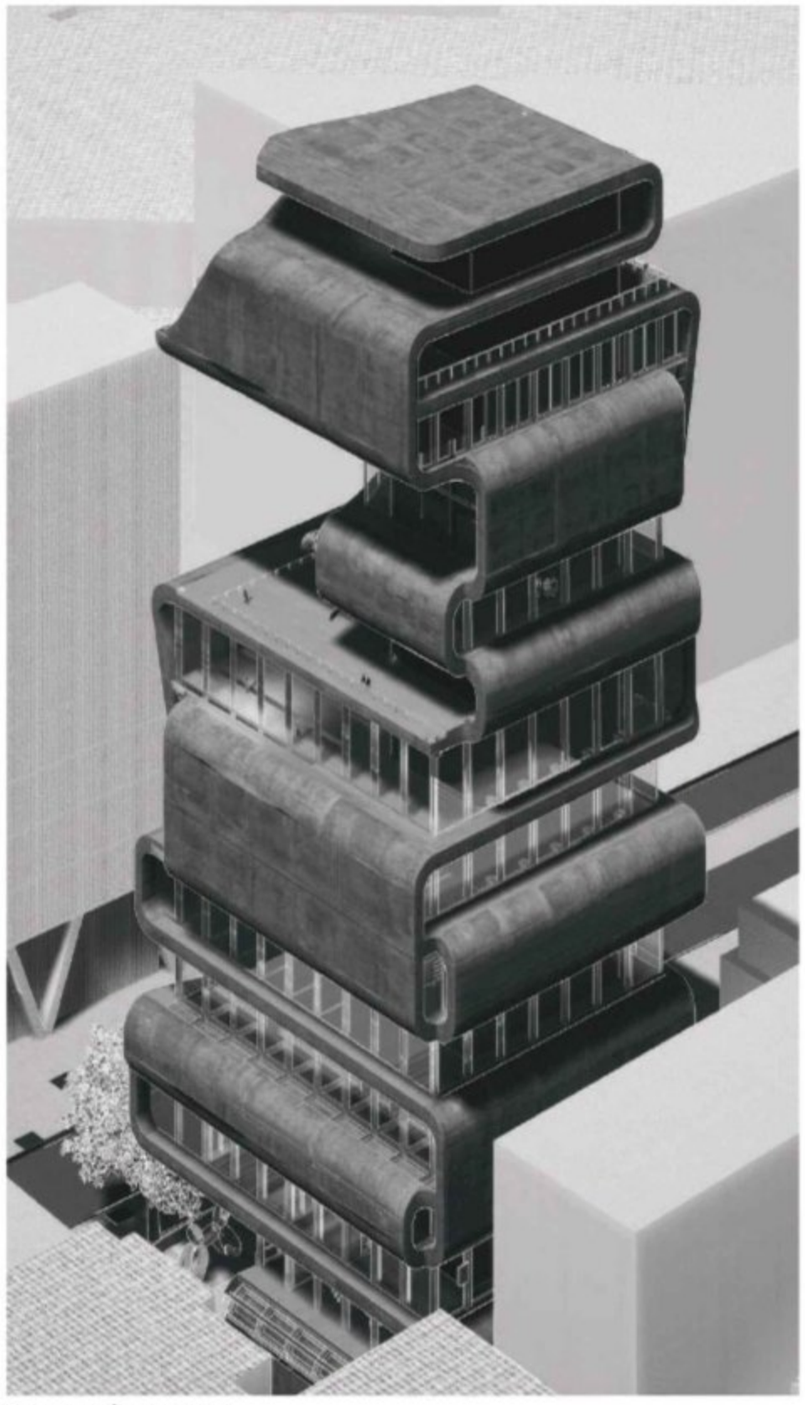


The project explores the interplay between structure and perception through a combined system of metal and concrete panels. This hidden structural framework is responsible for creating the illusion of a folding form that grows and ascends toward the sky, as if it required no visible support. The architecture blurs the boundaries between mass and weightlessness, making the folding form appear self-sustaining. At its core, the project houses a central space where sound is free to travel, transforming the entire building into a resonating instrument that amplifies and enhances the auditory experience, allowing music to shape the spatial atmosphere.

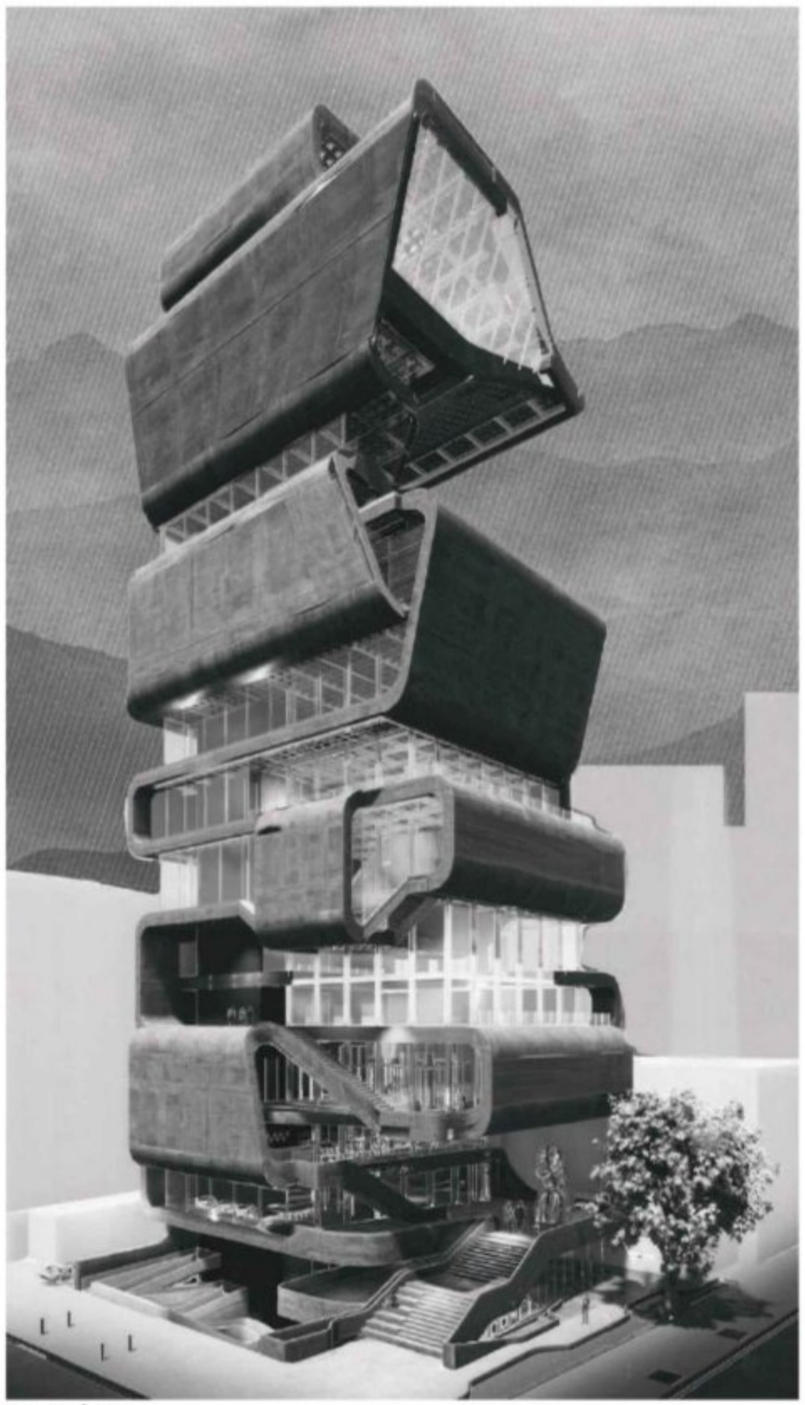


The project is guided by a clear intention: to dissolve the boundaries between architecture and ground, allowing the building to appear as though it emerges naturally from the earth. Rather than being an object placed onto the site, it is conceived as an extension of the landscape, where flowing forms and topographic gestures anchor the structure to its context. This organic fusion with the terrain goes beyond aesthetics—it reinforces a narrative of belonging, continuity, and respect for place. The architecture is thus perceived not as an imposition, but as a mass sculpted from within the site itself, growing outward as part of the land.

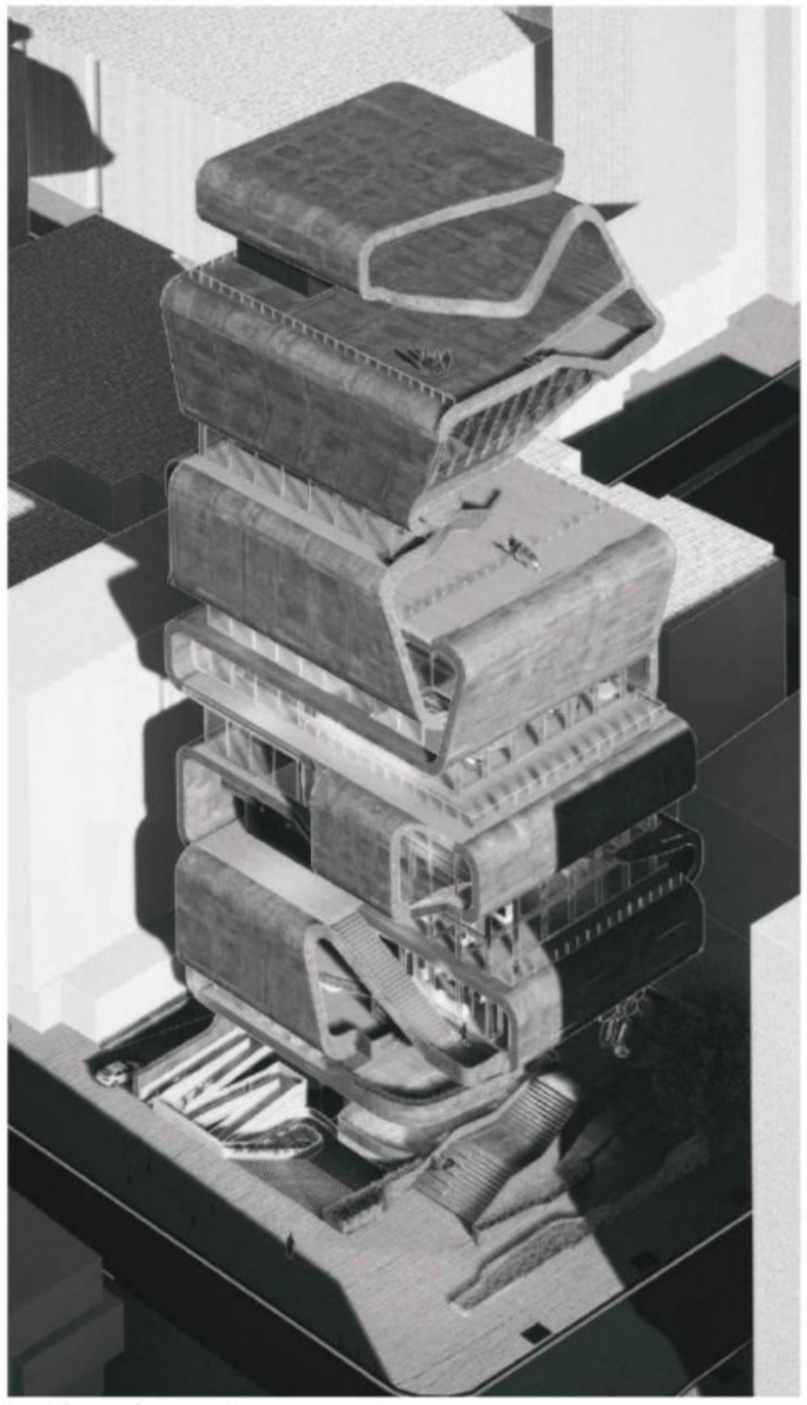




Rear general axonometry.



Perspective.

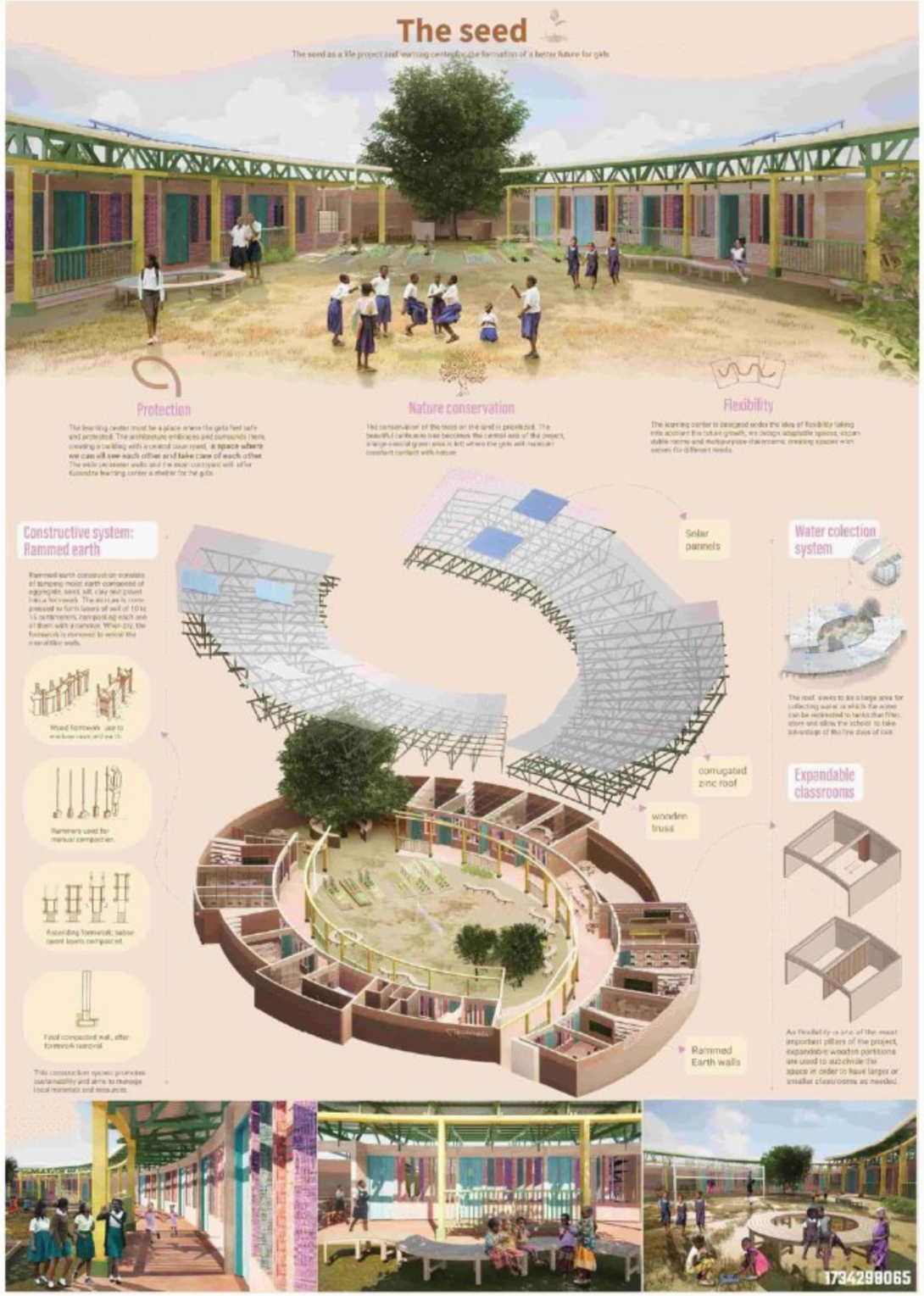


Frontal general axonometry



The Seed Learning Center

Type: Competition
Date: Spring 2022
For: Archstorming Kurandza Learning Center
Collab: Sofia Hernandez


The seed
The seed as a life project and learning center for the formation of a better future for girls
Protection
The learning center must be a place where the girls feel safe and protected. The architecture embraces and surrounds them, creating a building with a central courtyard, a space where we can all see each other and take care of each other. The wide perimeter walls and the main courtyard will offer Kuraendra learning center a shelter for the girls.
Nature conservation
The conservation of the trees on the land is prioritized. The beautiful canhueiro tree becomes the central axis of the project, a large central green area is left where the girls will maintain constant contact with nature.
Flexibility
The learning center is designed under the idea of flexibility taking into account the future growth, we design adaptable spaces, vacant double rooms and multipurpose classrooms, creating spaces with serves for different needs.
Constructive system: Rammed earth
Rammed earth construction consists of tamping moist earth composed of aggregate, sand, silt, clay and gravel into a formwork. The mixture is compressed to form layers of soil of 10 to 15 centimeters, compacting each one of them with a rammer. When dry, the formwork is removed to reveal the monolithic walls.
Wood formwork use to enclose room and earth
Rammers used for manual compaction.
Ascending formwork; subsequent layers compacted
Final compacted wall, after formwork removal
This construction system promotes sustainability and aims to manage local materials and resources.
Solar pannels
Water colection system
The roof seeks to be a large area for collecting water in which the water can be redirected to tanks that filter, store and allow the school to take advantage of the fine days of rain
corrugated zinc roof
wooden truss
Expandable classrooms
Rammed Earth walls
As flexibility is one of the most important pillars of the project, expandable wooden partitions are used to subdivide the space in order to have larger or smaller classrooms as needed.
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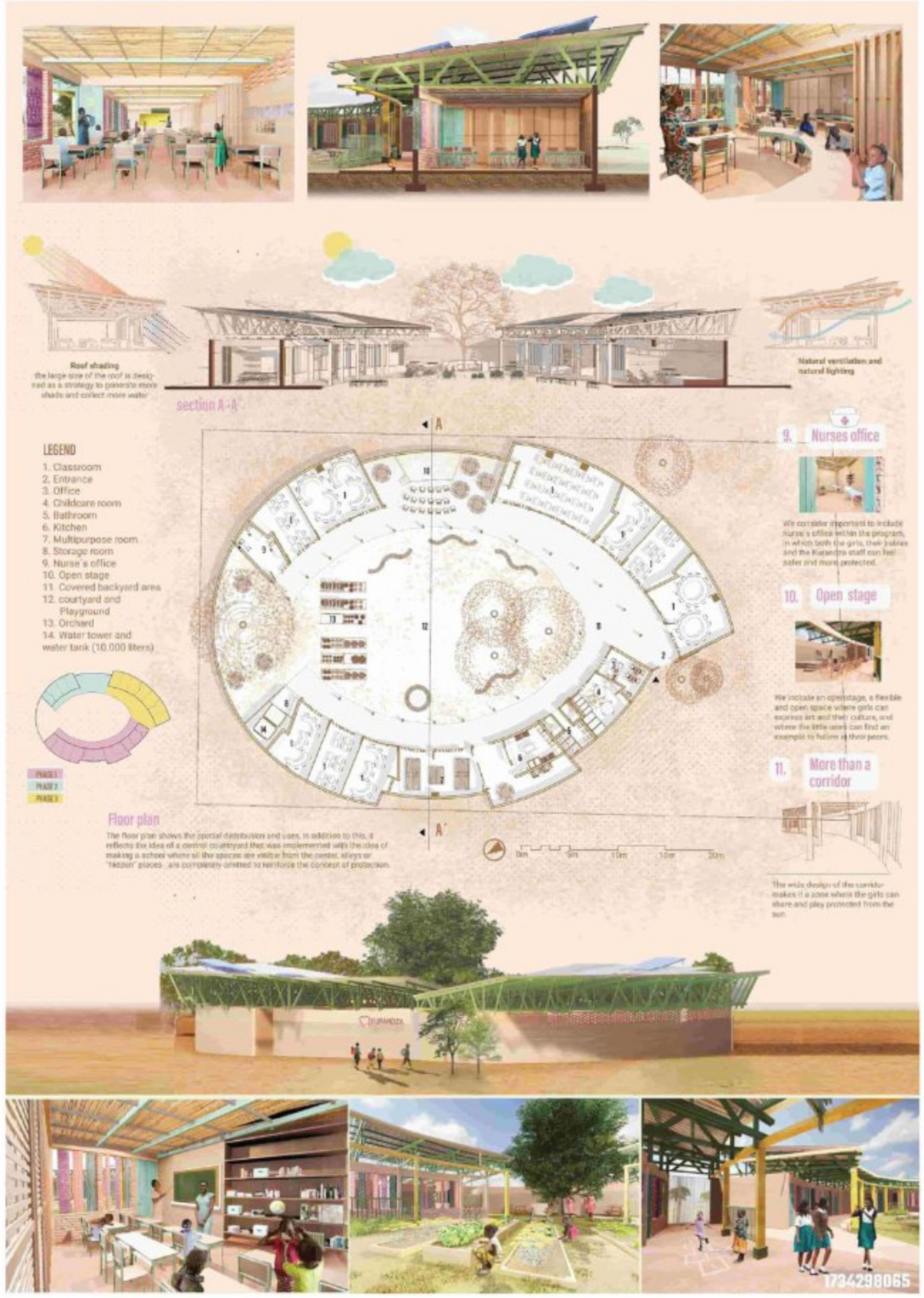
Roof shading
the large size of the roof is designed as a strategy to generate more shade and collect more water
section A-A'
Natural ventilation and natural lighting
LEGEND
1. Classroom
2. Entrance
3. Office
4. Childcare room
5. Bathroom
6. Kitchen
7. Multipurpose room
8. Storage room
9. Nurse's office
10. Open stage
11. Covered backyard area
12. courtyard and Playground
13. Orchard
14. Water tower and water tank (10.000 liters)
PHASE 1
PHASE 2
PHASE 3
A
A'
Floor plan
The floor plan shows the spatial distribution and uses, in addition to this, it reflects the idea of a central courtyard that was implemented with the idea of making a school where all the spaces are visible from the center, alleys or "hidden" places, are completely omitted to reinforce the concept of protection.
9. Nurses office
We consider important to include nurse's office within the program, in which both the girls, their babies and the Kuraendra staff can feel safer and more protected.
10. Open stage
We include an open stage, a flexible and open space where girls can express art and their culture, and where the little ones can find an example to follow in their peers.
11. More than a corridor
The wide design of the corridor makes it a zone where the girls can share and play protected from the sun.
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"The Seed Learning Center" is an architectural proposal inspired by safeguarding seeds for optimal growth, with a primary focus on providing a secure and nurturing environment for the development of Mozambique girls. The design centers around three key principles: protection, flexibility, and joy.

Ensuring visibility and security, the center adopts a cloistered layout, intentionally visible from any vantage point, fostering an environment where girls can actively look out for one another. This design not only enhances safety but also symbolizes the girls' collective ability to protect and support each other within the learning center. Nature conservation is a top priority, featuring a central green area and preserved trees, while flexibility is seamlessly integrated for future growth through adaptable and multipurpose spaces.

Joy remains central to the design, cultivating a happy and healthy environment. Spacious, illuminated classrooms, vibrant colors, outdoor areas, and a garden promote emotional well-being. The overarching goal is to fortify the girls' sense of belonging, ensuring their continued presence and growth, inspired by the resilience of the Canhueiro tree. This architectural approach not only provides physical protection but also emphasizes the strength and support derived from the collective bond among the girls themselves.



Diagram: Shelter and views.



Classroom section.



Exterior corridor



Interior view: Expanded classroom.





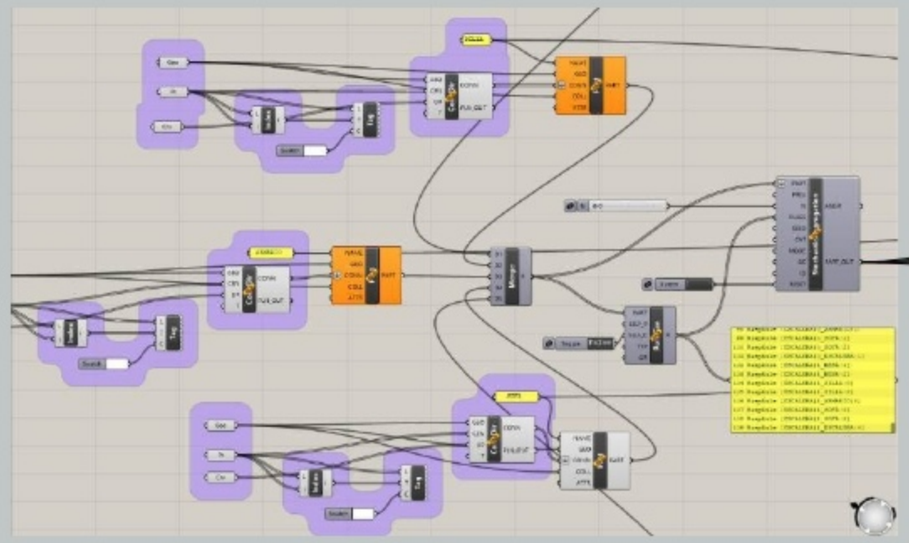
The Urban Mutation Factory

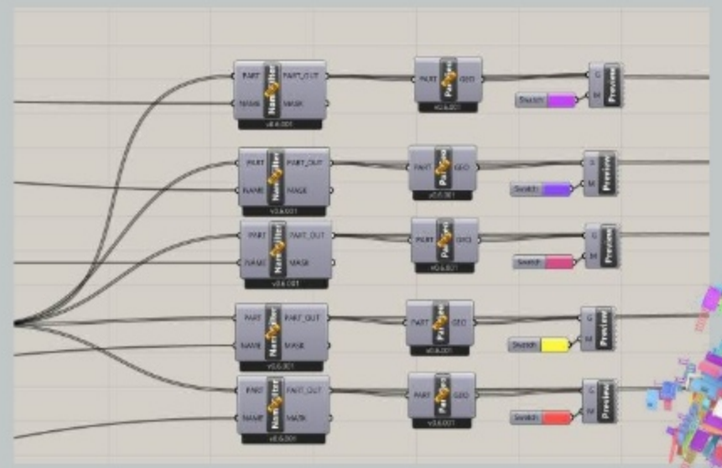
Type: Academic
Course: Reverse Logistics
Professors: Cyrus Penarroyo
Date: Fall 2024

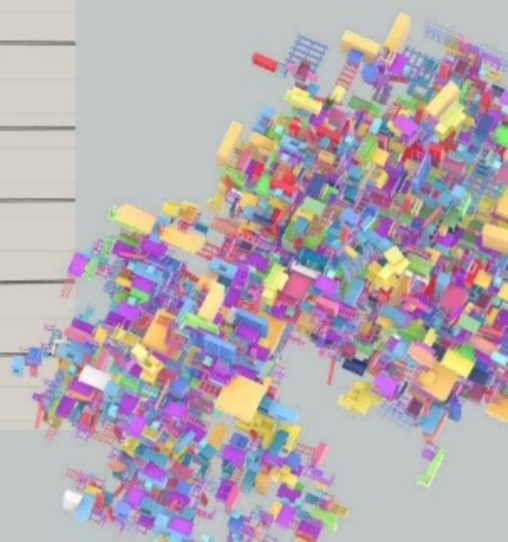










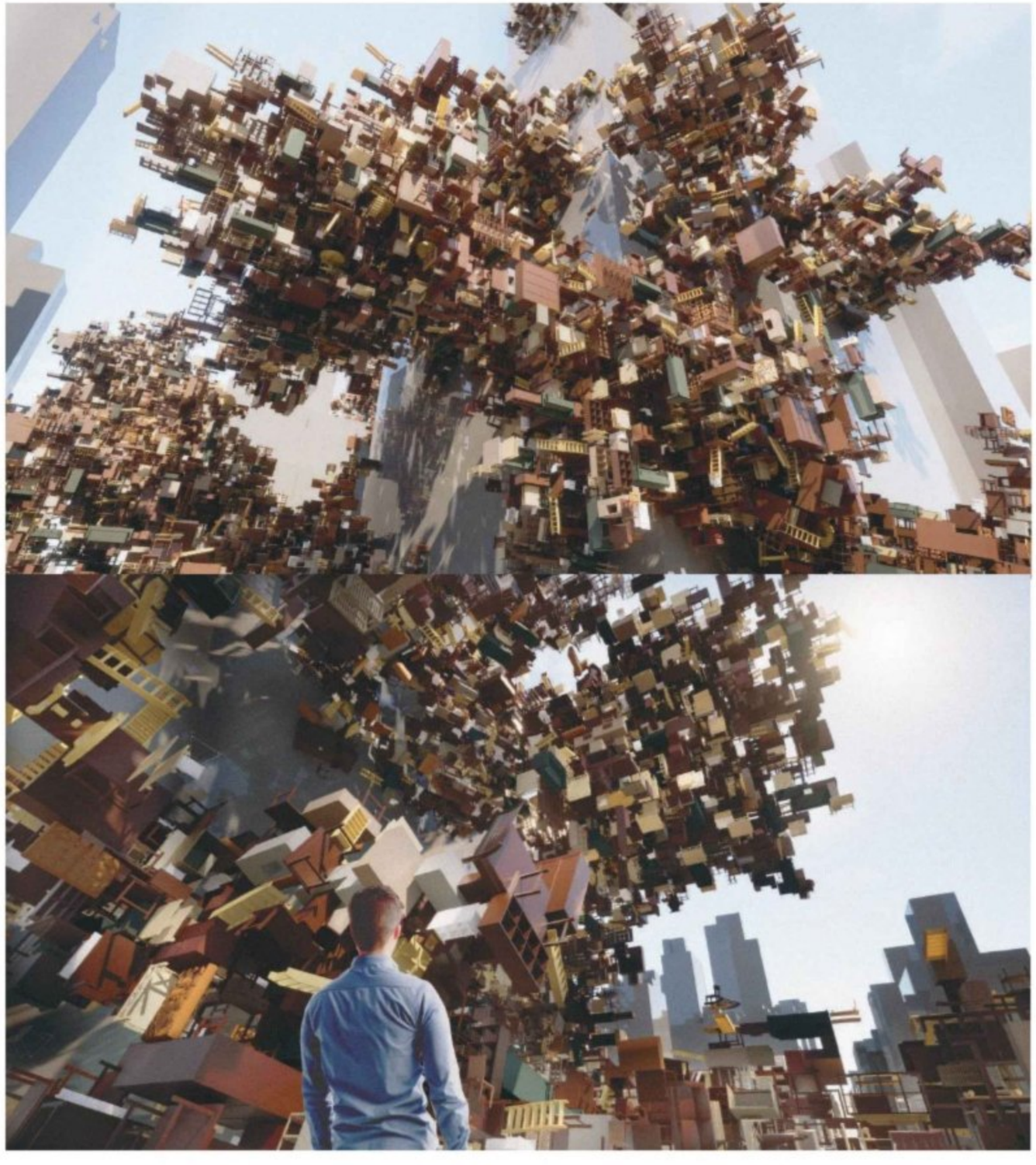


Using a custom Grasshopper model, discarded furniture is clustered and spatially analyzed to uncover potential patterns of assembly. The system explores combinatory logics, testing how fragments of urban waste can fit together, adapt, and be reinvented into architectural structures. This generative process transforms data into design, proposing a new language of construction born from excess.



Imagine a future where cities become dynamic systems capable of digesting their own consumption. Instead of discarding the remnants of consumer culture, urban environments would absorb, reorganize, and reincorporate these materials into their fabric. This speculative vision positions discarded furniture and objects as the seeds of transformation—a virus that begins in buildings and spreads through the city, reshaping its spaces and structures.
In fact, this virus already exists today, growing relentlessly in landfills. These hidden infrastructures of consumerism are deliberately concealed to obscure the consequences of our wasteful habits. By bringing this process into the open, we aim to reframe consumption not as an endpoint but as a cycle the city itself can manage and transform. It is both a call to confront the realities of waste and an invitation to embrace these overlooked materials as integral components of our urban future.







This pushes boundaries and invites us to reimagine the Post Office as a community center as well as a space of movement, and transformation, diy of furniture and houseware. In this sense Returned and abandoned furniture and garments arrive, are processed, and serve the local community before being reintroduced into the city as new artifacts.

From this, we architecturally propose a building that reflects the true scale of the problem, one that does not hide but instead exposes the volume—the tons that are typically buried in landfills.
While preserving much of the original building, we propose a new structure that anchors and supports this massive accumulation of discarded furniture.









In addition to housewares, we also incorporate the return of clothing. Considering the large supply of textiles, we aim to reuse and transform curtains into a performative device. Unlike IKEA's fictional showroom curtains, ours unveil real spaces for community use. These spaces can host diverse activities.

There are workshop spaces where individuals can transform their furniture, areas for designing creations for the city, showrooms displaying these creations for the community' s enjoyment, and residences for artists.



MARKET