

MSAAD, Columbia GSAPP I 2025

'Parts for Possibilities and Possibilities of Parts' encapsulates the design ethos I cultivated and evolved during my time at Columbia GSAPP. Across studios, seminars, and workshops, I explored how architecture can be assembled and reassembled—how fragments, systems, and interventions converge to address complexity in form, function, and context.

At Columbia, the idea of the "part" became more than a material or spatial unit—it became a conceptual tool. Through projects ranging from ecological metabolism in buildings to adaptive reuse strategies and generative design interfaces, I investigated how individual elements—structural, biological, or digital—hold the potential to activate broader spatial, social, and environmental narratives.

By bringing these parts into dialogue, I began developing systems that are flexible, layered, and responsive—designs that evolve over time and engage with real-world needs. This portfolio reflects that process: a collection of explorations where the relationship between parts and wholes becomes a site of possibility. At times, individual elements come together to form a larger spatial or conceptual whole; at others, the broader framework shapes how those parts are understood, arranged, or transformed. It marks a journey of thinking critically, designing attentively, and continuously questioning how architecture can adapt, evolve, and empower.

As I move forward, I carry the tools of inquiry, iteration, and imagination—refined through the provocations, urgencies, and dialogues that shaped my time at Columbia GSAPP. Here, I learned to see architecture not merely as the making of form, but as a platform for critical engagement—a way to navigate between the micro and the macro, the human and the more-than-human, the material and the immaterial. I remain committed to exploring architecture as a dynamic cultural practice—one that synthesizes design, technology, and environmental intelligence to address the urgencies of our time, while remaining open to speculative futures still waiting to unfold.

## **Metabolic Constructs**

Designs that perform, digest, circulate — where architecture becomes a living system.

#### **Adaptive Frameworks**

Interventions that respond to time, climate, and context—reworking what exists and anticipating what's

**Threading Thresholds** 

07

The Living Kin 01
Metabolic Polykatoikia
GSAPP

Recreation Center and Park
GSAPP

Carbon Footprint

Carbon impacts

**GSAPP** 

GSAPP

The BioBash Parade Urban Interventions GSAPP

# Acts of Assembly

Projects focused on building, prototyping, and assembling material systems—tangible expressions of design and collaborative process.

The Cloud Inflatable Installation GSAPP

18

Vertical Commons 21
BIM Project
GSAPP

### Frames of Reflection

Speculative essays and theoretical explorations that question architecture's role in larger cultural, social, and environmental contexts.

Arguments 24
Xu Tian Tian
GSAPP

Transcalarities 26
Parque Biblioteca España

Advanced Studio 6

Lydia Kallipoliti

Athens, Greece

## The Living Kin: Making with Peels, Soil, and Care in the Polykatoikia

This project transforms the polykatoikia-a dense, stacked housing typology common in Athens-into a self-regulating system that treats food waste as an architectural resource. Instead of viewing domestic waste as something to be discarded, the design reframes it as a driver of shared infrastructure, environmental cycles, and sensory experience.

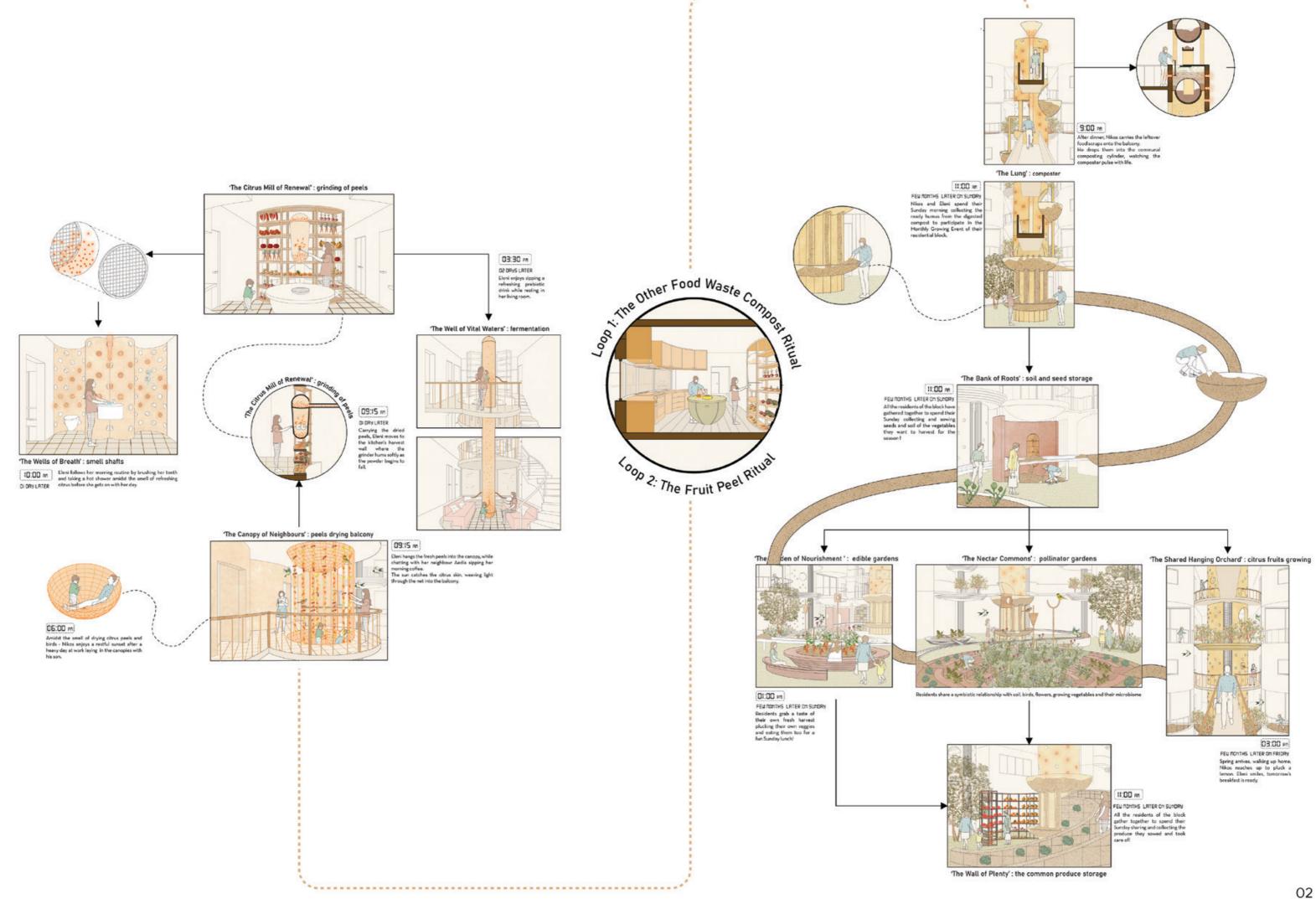
The proposal introduces a series of spatial modifications to the typical apartment unit and shared balconies, enabling food waste to circulate, transform, and add value. Kitchen counters become sorting points: edible scraps travel into a translucent vertical composting shaft shared between buildings, while citrus peels-due to their high fragrance and acidity-follow a distinct metabolic sequence. They are dried on communal balconies, ground within kitchen wall units, and fermented via vertical flues embedded in the building's core.

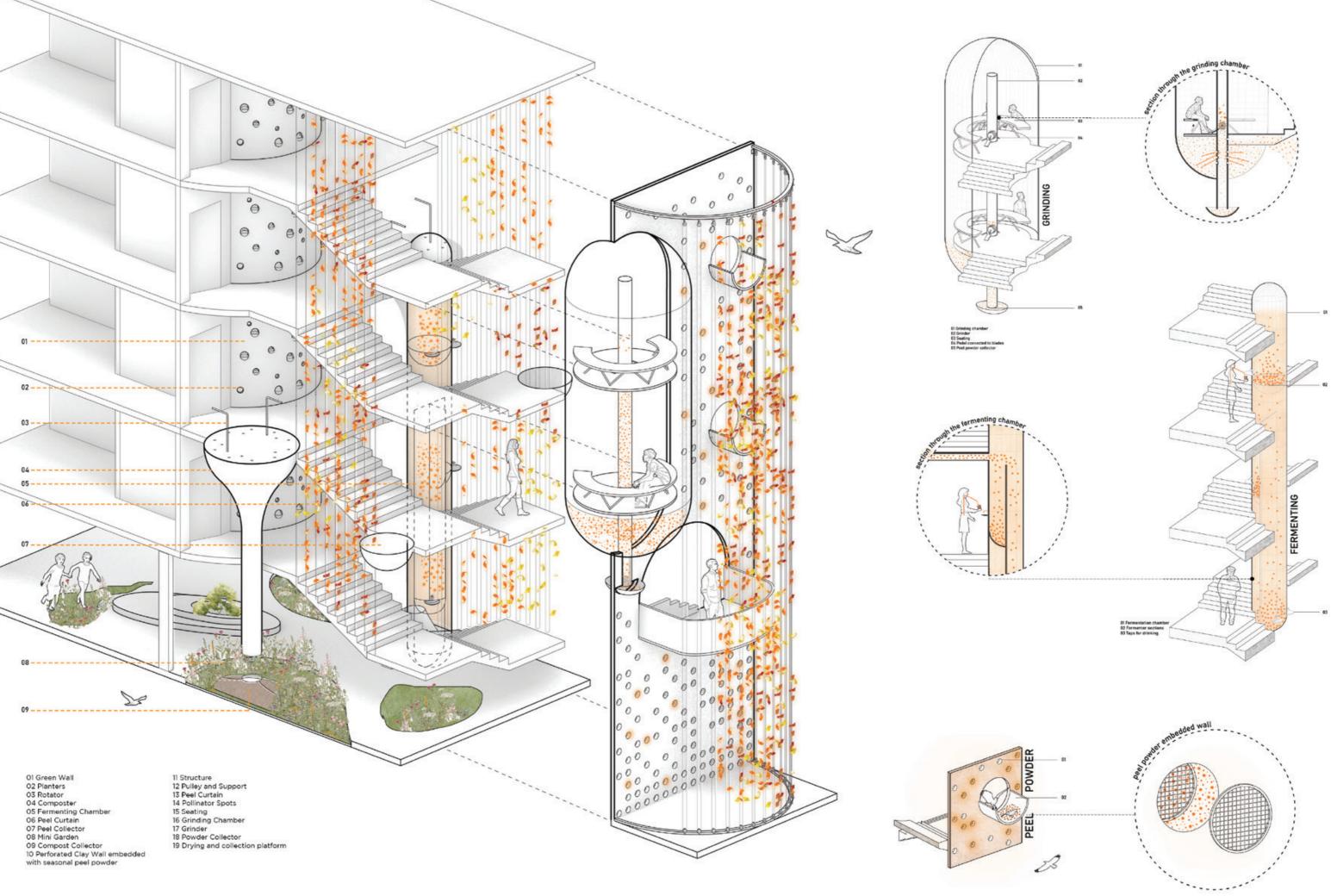
Vertical scent shafts carry fermented citrus aromas into shared spaces, adding an olfactory dimension to the architecture. Washrooms connect to light wells lined with citrus peel powder, which neutralizes odors and disperses subtle fragrance. Balconies support growing herbs, drying peels, and engaging residents with the building's metabolism, blending comfort, atmosphere, and collective care.

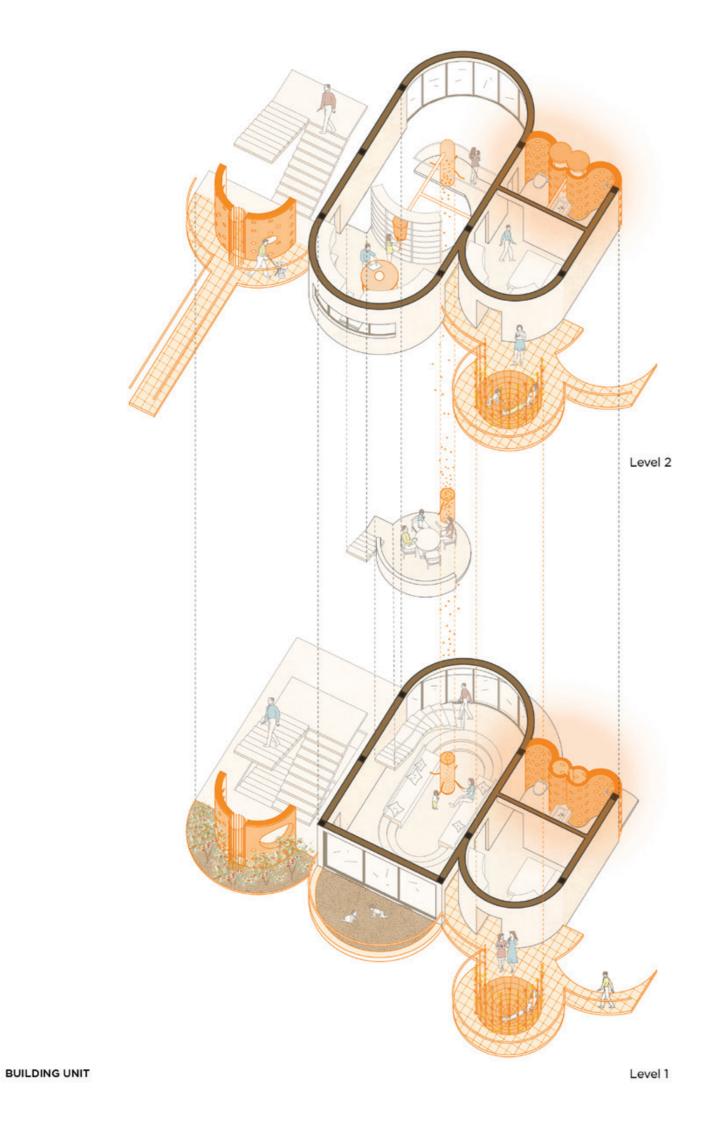
At the urban scale, the courtyard becomes a productive soil commons. Compost from the lung nourishes gardens, pollinator habitats, seed libraries, and shared growing zones. Planters lift soil back to balconies, completing the nutrient cycle and tying everyday routines to environmental renewal. This reimagined polykatoikia turns waste into value and architecture into a living system of regeneration.

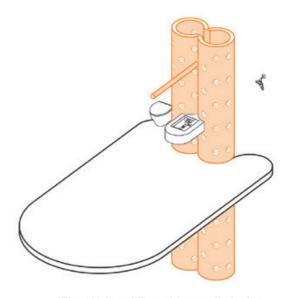
Softwares used: Autocad, Rhino, Enscape, Photoshop, Illustrator, InDesign



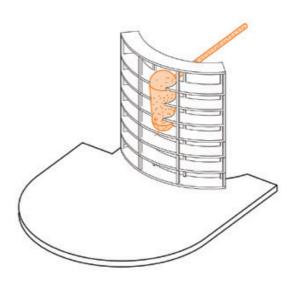




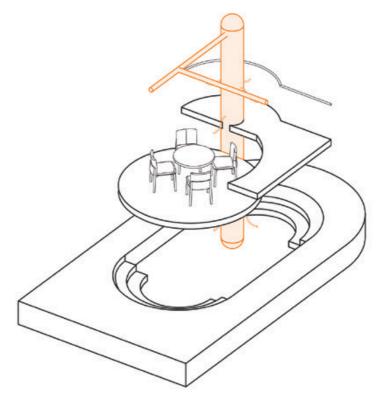




'The Wells of Breath' : smell shafts



'The Citrus Mill of Renewal' : grinding of peels

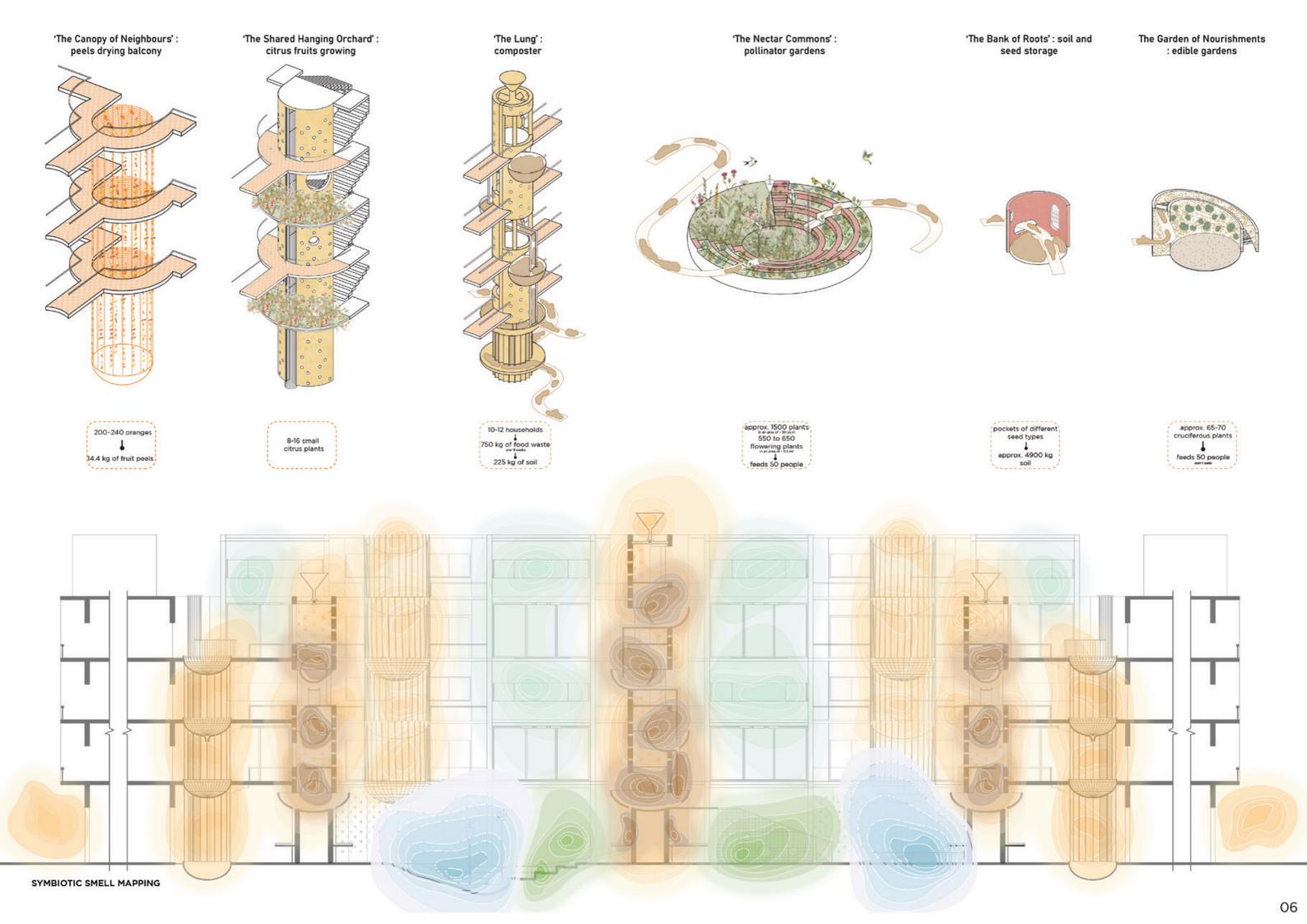




2 liters

4 people (1 x 500 ml cups a day)





Advanced Studio 5

Studio Critic Phu Hoang Brooklyn

Collaborative

## Threading Thresholds- Migrating Climates in **Immigrant Cities**

Our project reimagines the recreation center, pool, and park in Sunset Park as an integrated, intergenerational hub that reflects the natural dynamics of community care. Drawing inspiration from the neighborhood's informal networks-where children play under the watchful eyes of elders and families share responsibilities—we dissolve the barriers created by current design, which isolates programs and limits interaction.

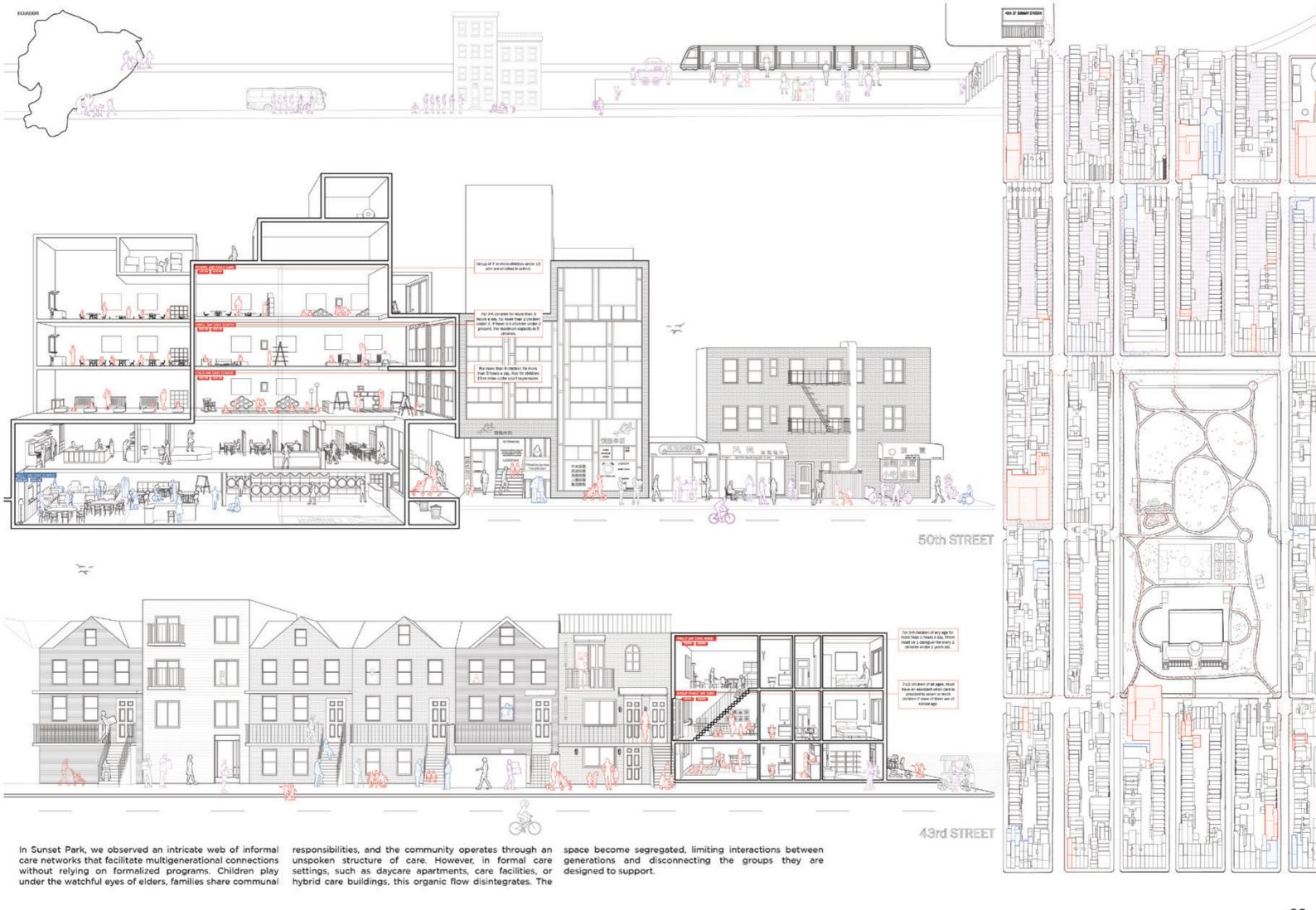
Through the concept of thresholds, we activate and connect spaces, fostering moments of engagement and exchange. Elements like stoops, terraces, balconies, and bridges create seamless transitions between formal and informal care structures. Strategic "cuts" within the recreation center and park integrate these elements, encouraging multigenerational connections while opening pathways for interaction.

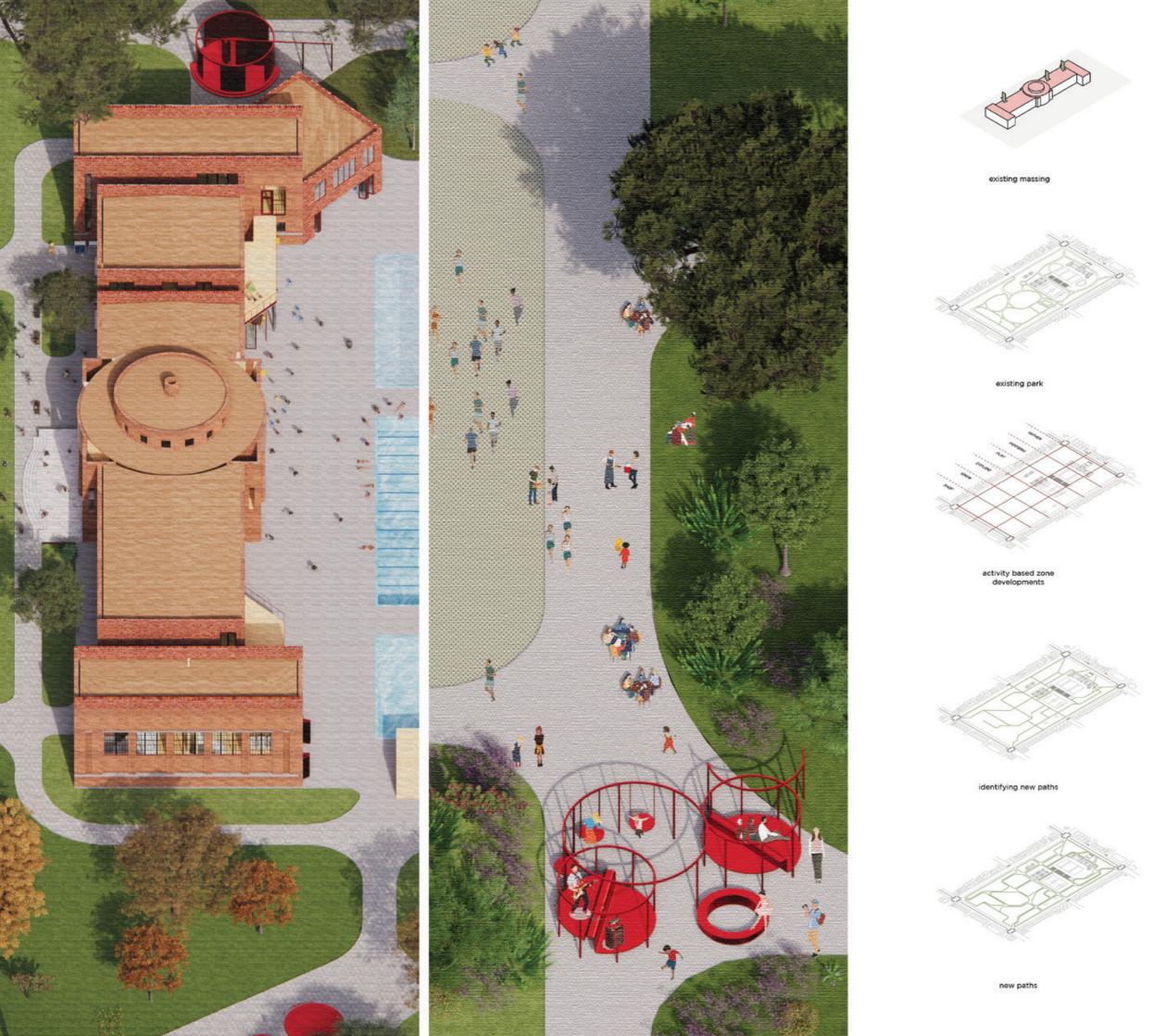
The park itself becomes a living landscape of diverse interventions designed to cater to the community's varying needs throughout the year. Modular, seasonal elements-such as shaded seating areas for summer, wind-protected gathering spaces for winter, and flexible activity zones for spring and fall-adapt to different climates and uses. These interventions blend seamlessly with the park's natural environment, preserving tree roots and green spaces while activating underutilized areas.

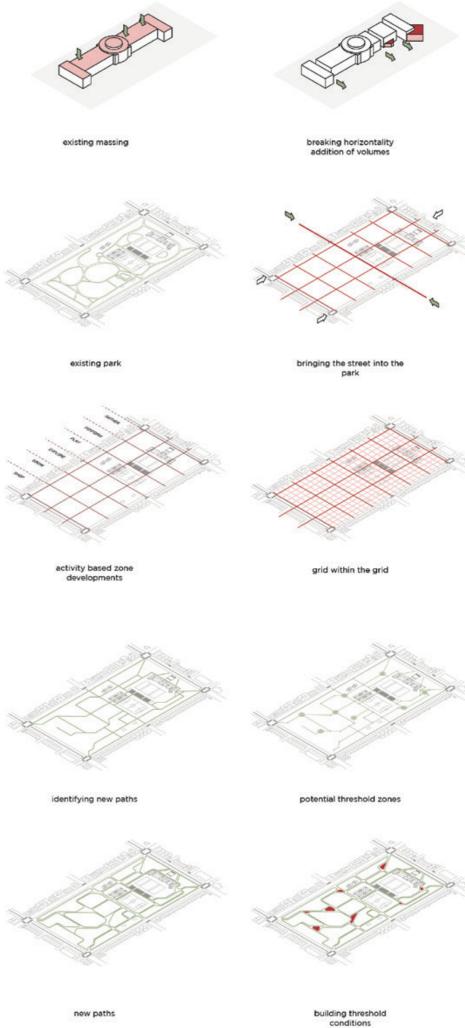
The pool is reimagined as a climate-adaptive feature. Ventilation strategies, integrated with the spatial design, foster natural airflow throughout the spaces, enhancing the user experience while also promoting environmental sustainability. Through this design, we aim to restore and strengthen the interconnectedness that defines Sunset Park's social fabric.

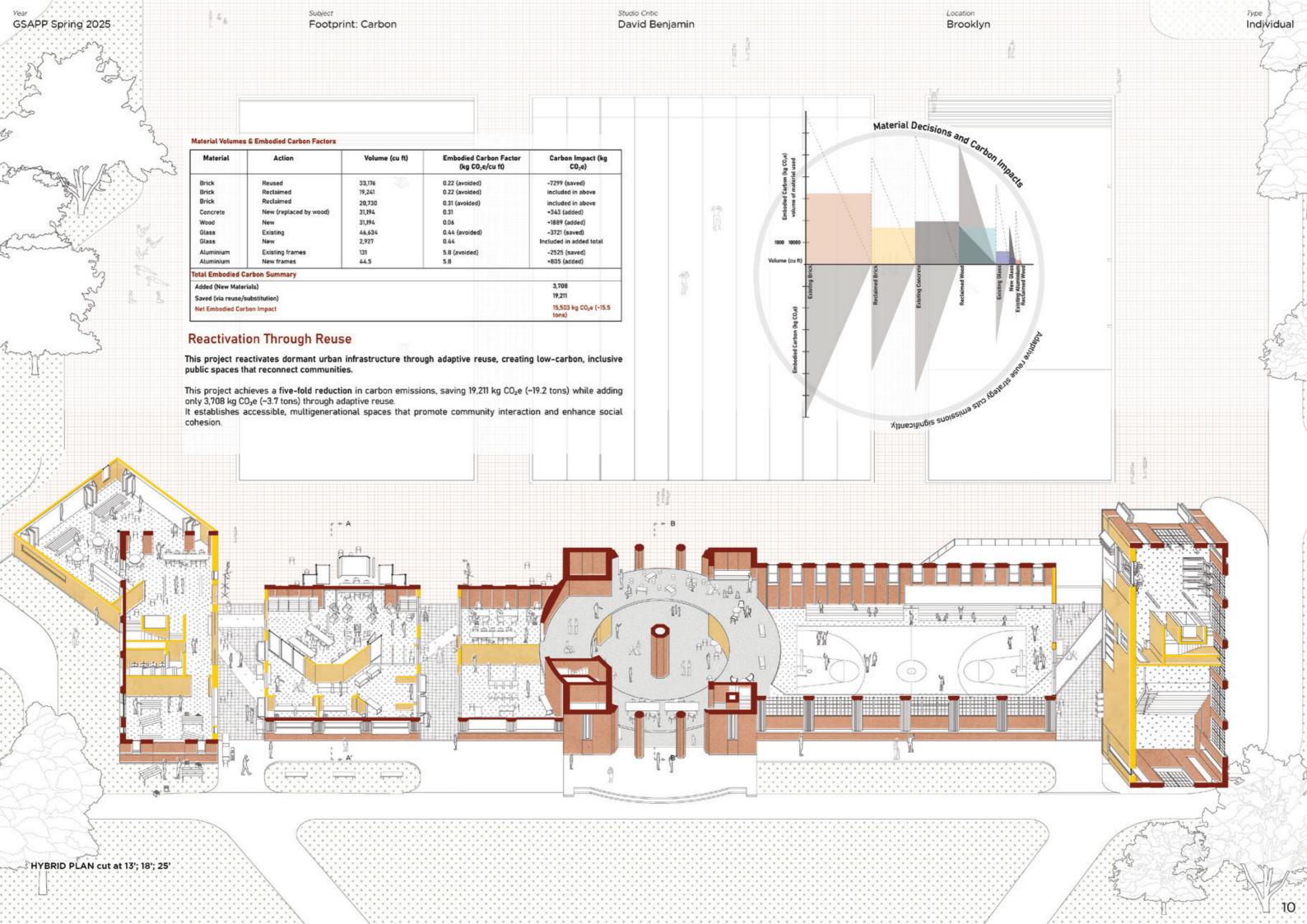
Softwares used: Autocad, Rhino, Enscape, Photoshop, Illustrator, InDesign



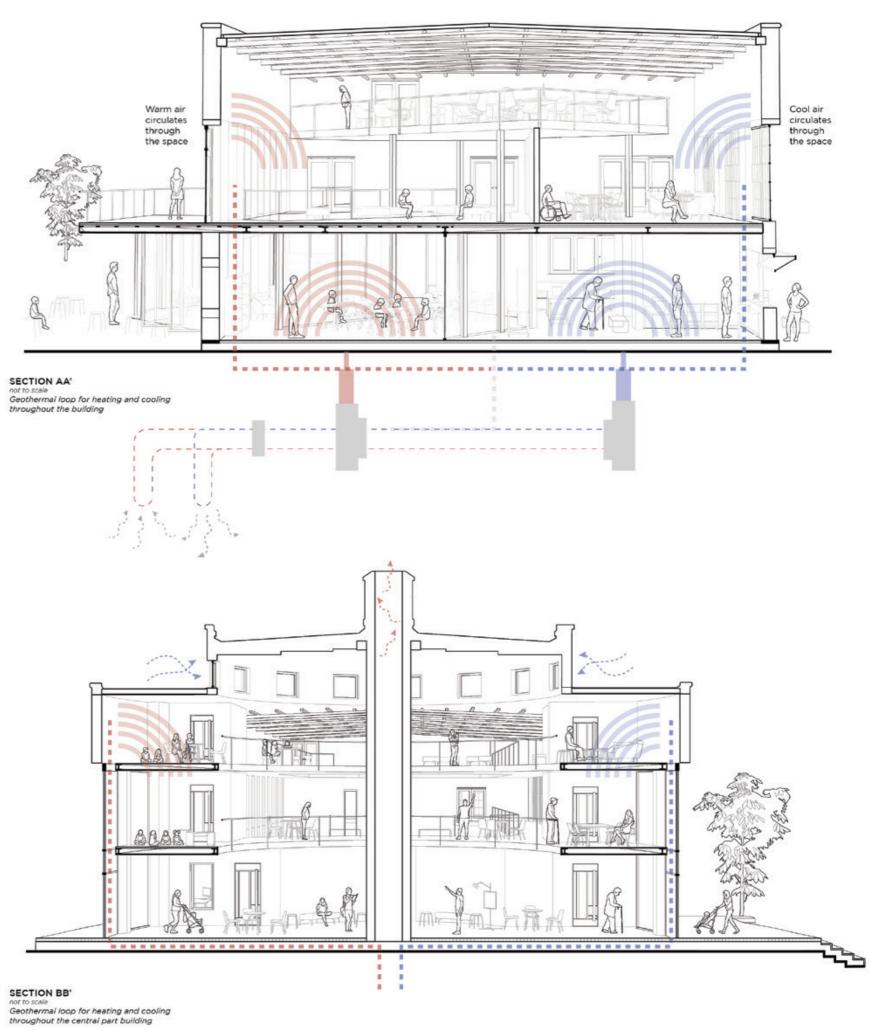














Advanced Studio

Uriel Fogue

Flatbush, Brooklyn

Individual

#### The BioBash Parade- Sexy Apocalypse

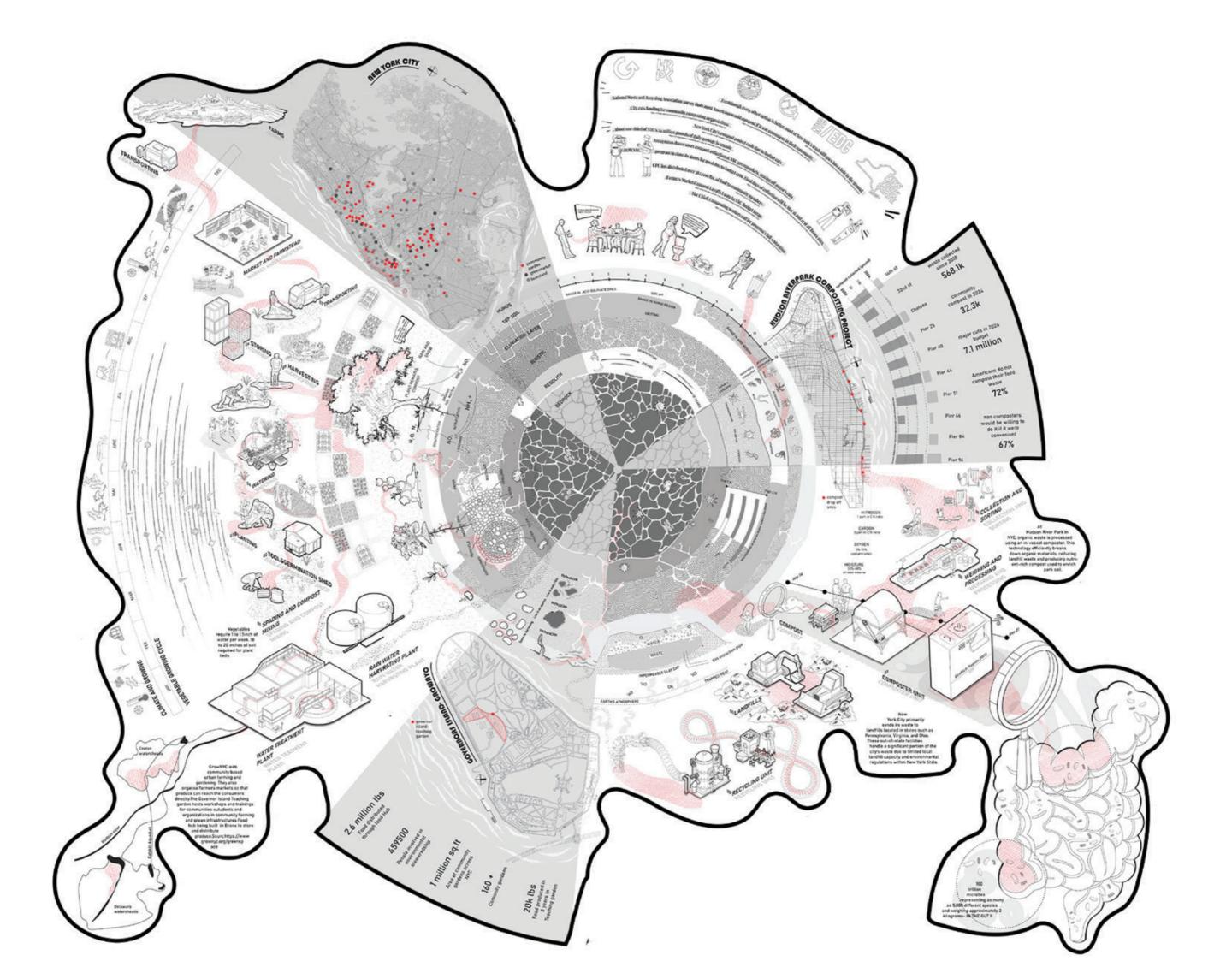
In an ecological world where soil is vital for growth and decomposition, our soil-centric cosmogram highlights these processes through key New York locations: Governors Island, symbolizing growth, and Hudson River Park, focusing on composting. In New York City, one-third of the 24 million pounds of daily waste is organic, primarily processed by government-funded programs. However, composting facilities face significant budget cuts, threatening their sustainability.

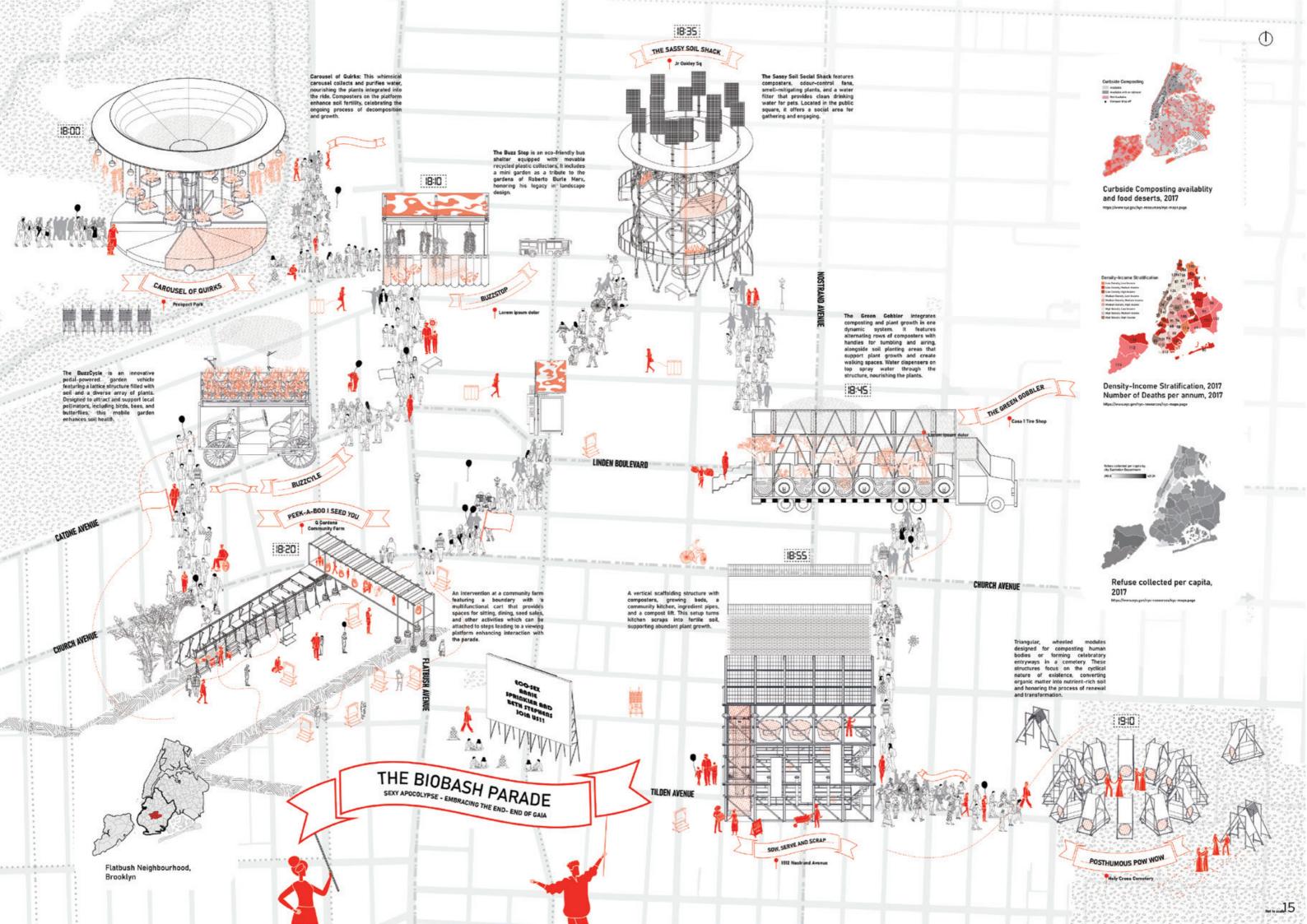
This proposal celebrates the full-circle processes of growth and decay, transforming ends into new beginnings. The project features a parade in Flatbush, Brooklyn, from Prospect Park to Holy Cross Cemetery, showcasing eight architectural devices on various scales-architectural, furniture. facades/boundaries-integrated into the city's infrastructure. Each device emphasizes ecological processes, public engagement, and the cyclic nature of life.

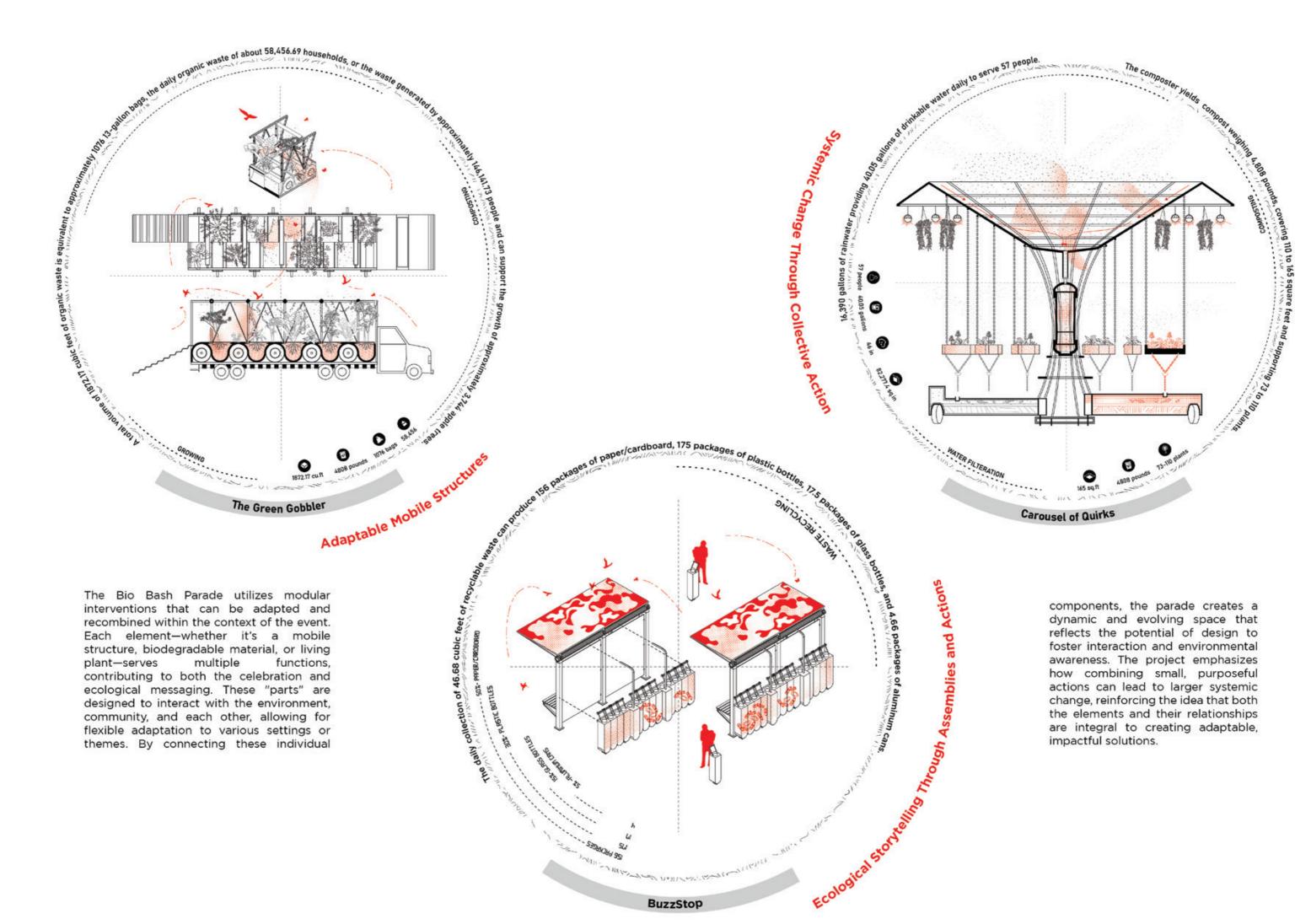
This project fosters a new culture of ecological knowledge sharing, breaking down barriers between experts and the public. It promotes a balanced relationship with nature, viewing soil as a living entity and celebrating its transformative potential. Join me in the BioBashParade to embrace the cyclical nature of life and the shared ecological purpose.

Softwares used: Autocad, SketchUp, Rhino, Photoshop, Illustrator, InDesign

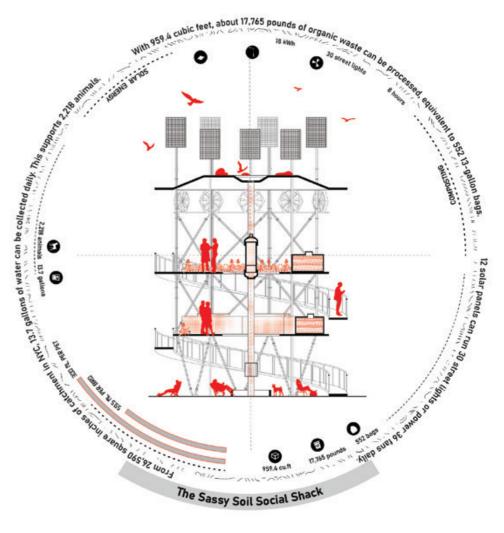


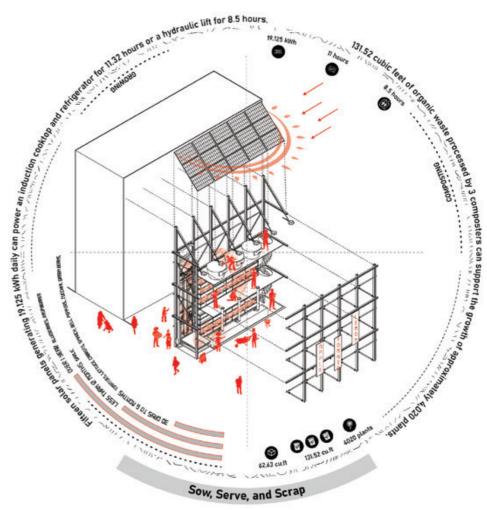












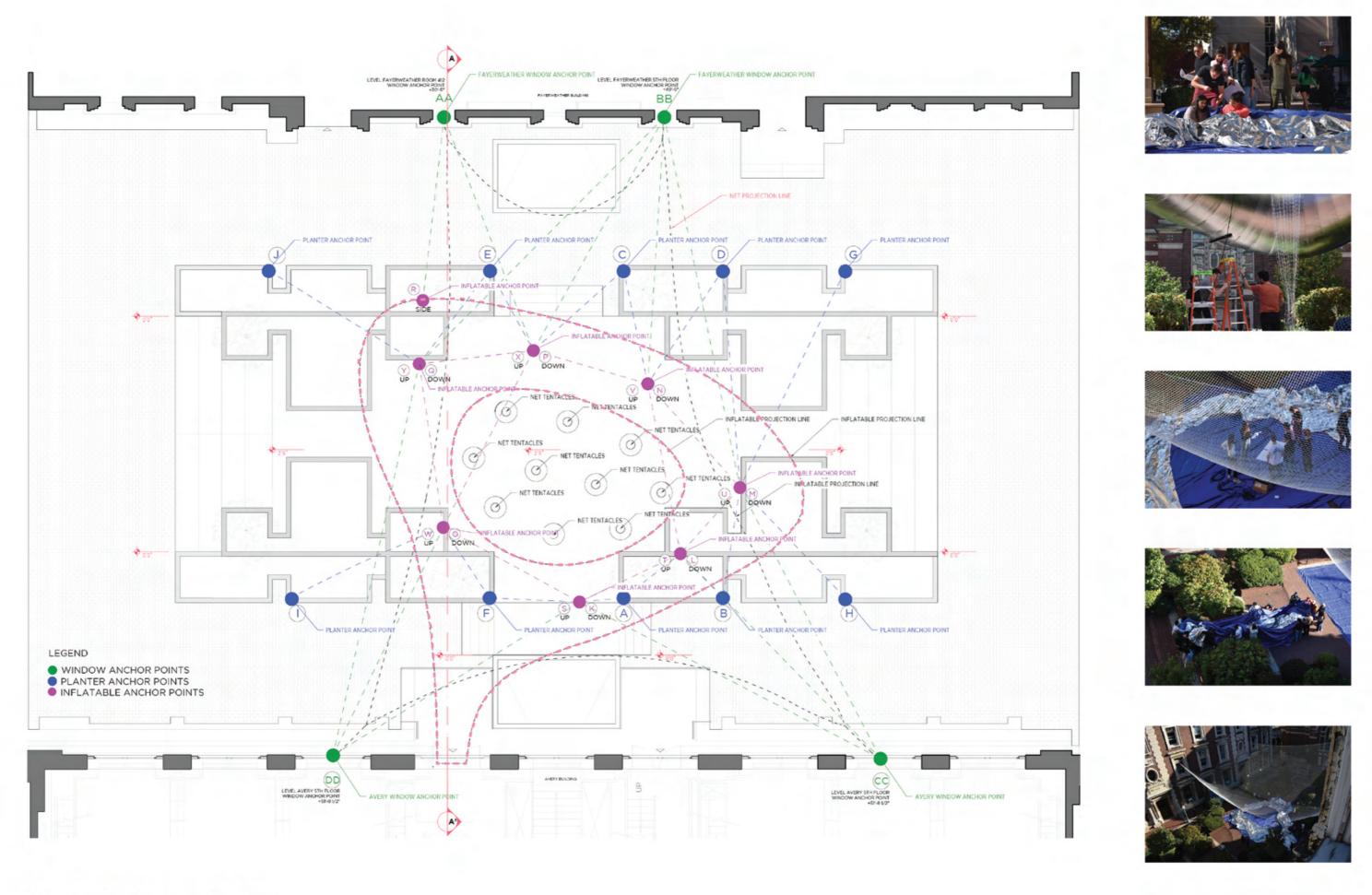
#### 'The Cloud': The Outside-In Project

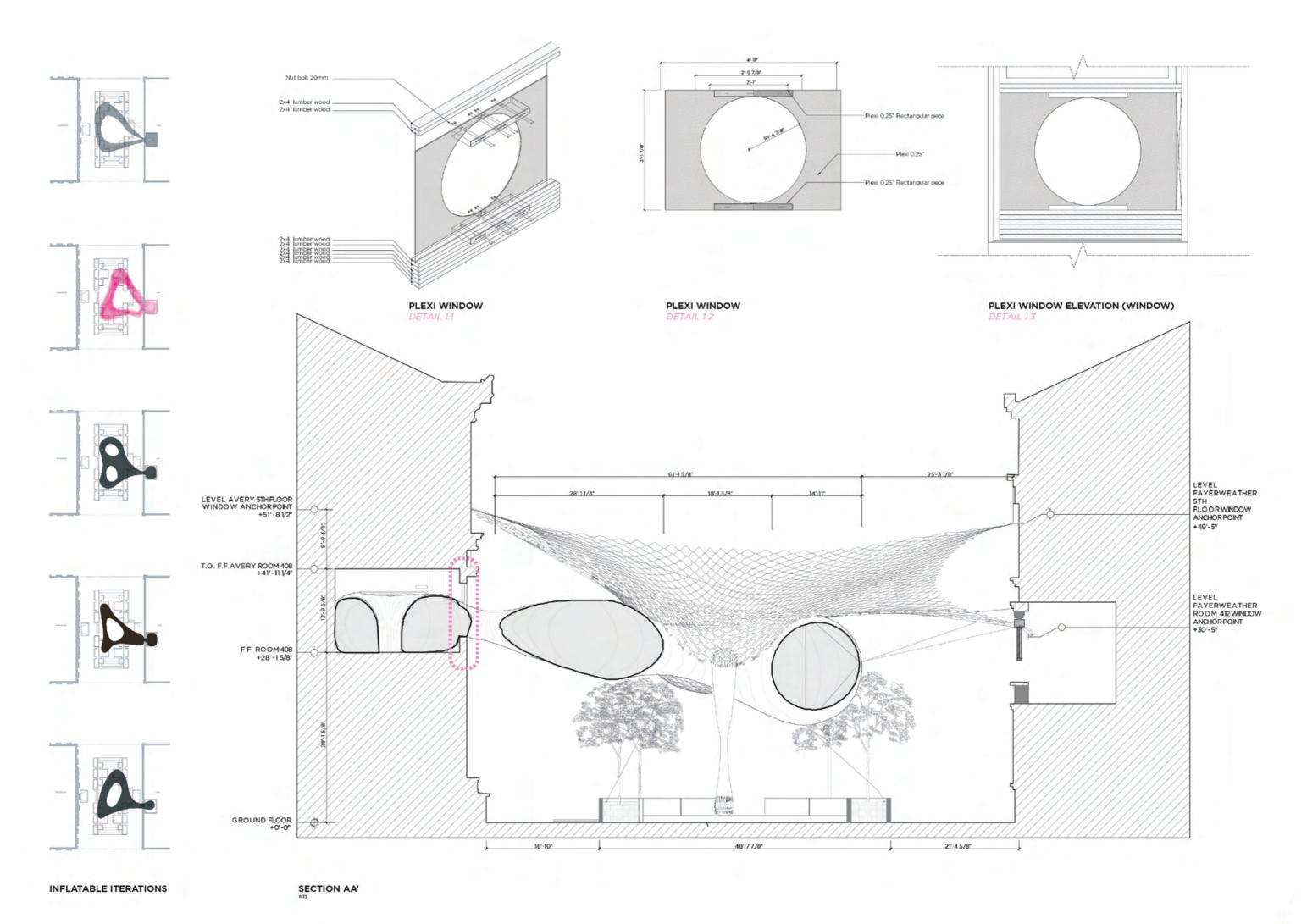
The Outside In Project- design seminar brought Avery Plaza to life with Cloud, a 20-meter-wide inflatable pavilion that symbolized the overflow of ideas from Avery Hall. Suspended above the plaza, it blurred the line between inside and outside, inviting interaction and sparking creativity. A net stretched over the inflatable connected visitors, creating a flexible, engaging space and fostering a dynamic connection between Avery Hall and the plaza below. Powered by four electric blowers, Cloud expanded from the classroom window, transforming the site into a venue for community engagement.

This collaborative project demonstrated students' expertise in design-build, teamwork, and problem-solving, while turning the plaza into a memorable, thought-provoking space. I contributed as part of the structural and drawing team, as well as the execution on-site team, helping bring the pavilion to life. Featured during GSAPP's Open House on October 21, 2024, Cloud remained open until October 30, hosting events that brought together the Columbia and GSAPP communities. The project exemplifies the power of collaboration, creativity, and technical innovation in architecture.

Softwares used: Autocad, Rhino, Grasshopper , Illustrator, Photoshop, InDesign







Rethinking BIM

Joseph Brennan

Manhattan

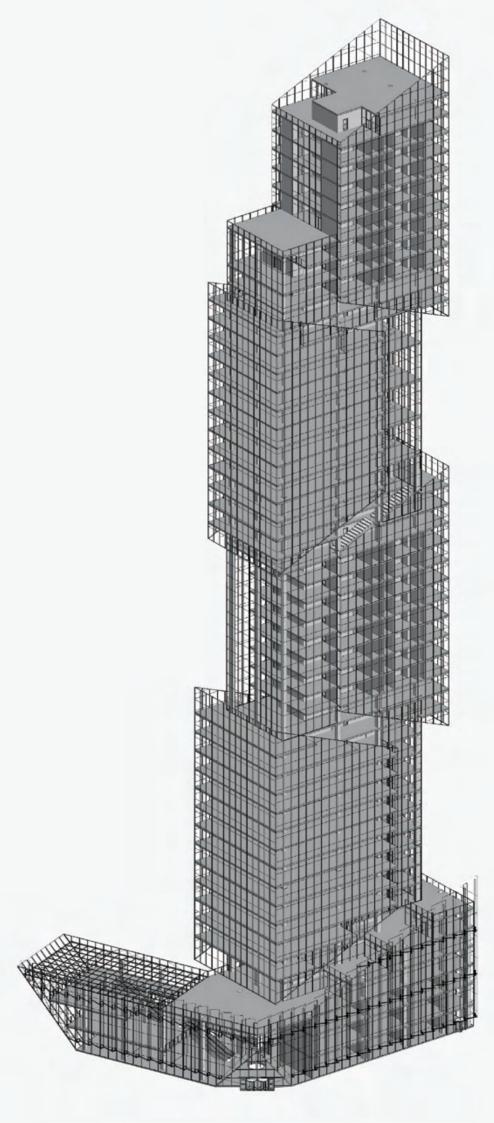
Collaborative

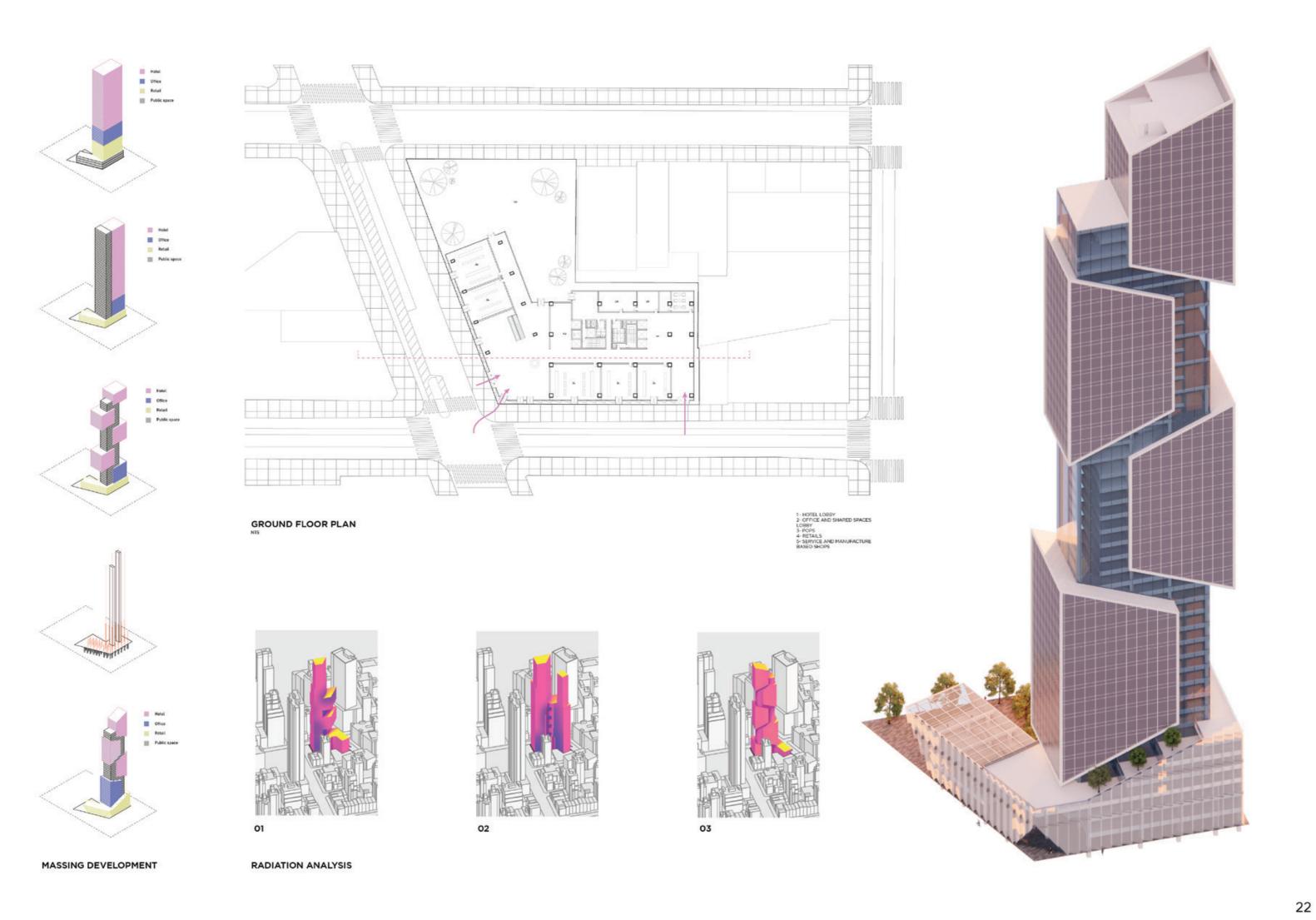
### **Vertical Commons**

Vertical Commons is a mixed-use building that elevates communal functions to higher levels, reimagining traditional ground-level public spaces. This vertical concept creates an "urban rooftop" experience, encouraging interaction among diverse users. Public areas like informal meeting zones, exhibitions, and recreational spaces are located above ground level to promote engagement and accessibility. The program includes retail spaces at the lower levels, offices in the middle, and hotel accommodations at the top. Each level offers privacy while maintaining fluid connections between them. The building's zigzagging form optimizes views and incorporates outdoor spaces for each program. Public areas are enclosed by transparent curtain walls, enhancing openness, while private office and hotel spaces feature gradient glass facades to regulate light and privacy. This approach balances functionality and aesthetics, fostering a dynamic, inclusive environment.

BIM streamlined the design process, allowing precise modeling of spatial and structural elements. Grasshopper created dynamic facade patterns, resulting in transparent surfaces for public spaces and gradient glass for private areas, achieving both aesthetic coherence and functional

Softwares used: Autocad, Autocad, Rhino, Grasshopper, Revit, Collaborative Cloud, Enscape, Illustrator ,Photoshop, Indesign



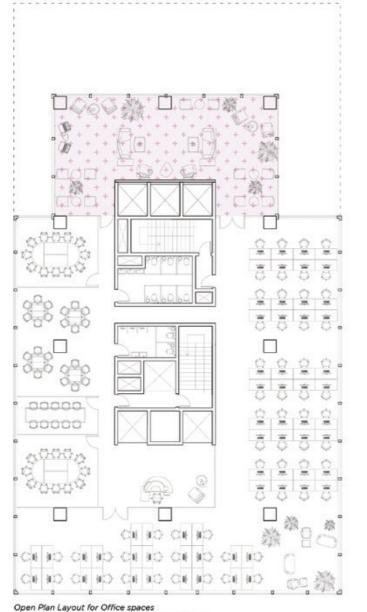


ROOF 616' · 0" L51

592' - 0"

# FLOOR PLAN LEVEL 12- OFFICE

area - 5550 sq.ft; shared spaces area - 1252 sq.ft



# FLOOR PLAN LEVEL 42- HOTEL

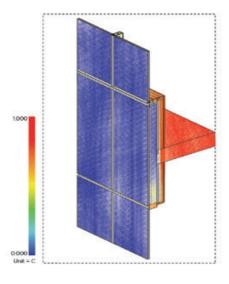
11 Rooms - 3 Typologies area - 4195 sq.ft ; shared spaces area - 1190 sq.ft



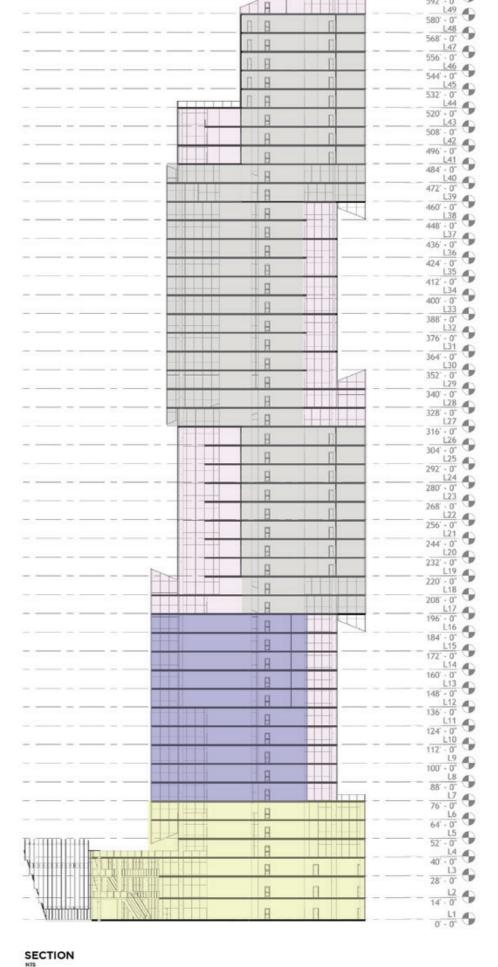
Typical unitized curtain wall spandrel with insulated metal backpan

Steel stud wall

Panel



Thermal simulation for Spandrel



### Small Changes, Big Futures: Architectural Acupuncture in Action

As architects, we often navigate the intricate balance between immediate interventions and long term projects, especially in the case of conservation and management of cultural heritage and environment. Xu Tian Tian's work on Meizhou Island exemplifies this balance through her "architectural acupuncture" approach. By making small, precise interventions that respect and enhance the island's cultural and ecological context, Xu's project offers a compelling model for how architecture can address both immediate needs and long-term sustainability.

Meizhou Island, located off the south-eastern coast of China, is a place where rich cultural traditions, including religious pilgrimages and traditional farming techniques, coexist with modern pressures from economic tourism and development. This fragile balance presents significant challenges for preserving the island's heritage while adapting to contemporary demands. Xu Tian Tian's project, "Into the Island," explores these challenges by identifying the island's essential elements and pressure points, focusing on interventions that respond to both cultural and ecological contexts.

Xu's "architectural acupuncture" approach involves a series of small, targeted interventions that align with the island's natural rhythms and cultural practices. Developed in close dialogue with local villagers, fisher folk, and marine biology experts, these interventions are not just physical structures but are deeply integrated into the daily life of the island. For example, Xu's use

of local materials and designs that harmonize with the island's tidal movements ensures that the interventions are sustainable and sensitive to the environment.

A key focus of Xu's work is the revitalization of traditional crafts and industries, integrating them into the modern economy through education and tourism. These thoughtful interventions provide immediate economic benefits to the local community while enhancing the island's appeal as a cultural tourism destination, laying the groundwork for long-term sustainability.

One of the most significant challenges in a project like Meizhou Island is managing the diverse interests of various stakeholders. including local residents, tourists, and industries such as aquaculture. These groups often have conflicting needs and priorities. For instance, while tourism can provide economic opportunities, it can also strain local resources and disrupt traditional practices. Xu addresses these by aligning tensions her interventions with the island's natural cycles and local rhythms, thereby mitigating potential conflicts between traditional and modern methods.

For example, Xu's design accommodates techniques by ensuring that they function within the island's natural tidal patterns. Additionally, her project includes strategies for managing peak tourist seasons and scheduling off-peak periods for community activities. This thoughtful planning ensures that tourism does not overshadow local practices, helping to balance

the needs of different stakeholder groups without compromising the island's cultural and ecological integrity.

If one thinks about Xu TianTian's work on Meizhou Island, it is possible to see that the matter of the scale of intervention now versus the scale of intervention in the future is not only a practical question but a metaphysical one. This shows that architecture can act as a catalyst and can contribute the improvement and clarification of the natural potential of a location rather than introducing new and alien forms. This way it remembers the history, fulfils present requirements and looks into the future that is sustainable and integrates the built environment with the natural environment.

Xu also emphasizes the issues of tactfulness and flexibility as the crucial aspects of the architectural profession. Thus, the everyday problem-solving of the inhabitants has inspired Xu to generate a series of interventions that are both functional and romantic. This case study is rich in lessons on how architecture can facilitate or moderate social, cultural and environmental processes and relations in similar projects in other parts of the world.

Thus, in the case of Meizhou Island, Xu Tian Tian captures the tension between the short-term and the long-term decisions that architects have to make. Her "architectural acupuncture" strategy proves that minor changes can respond to significant problems and create the basis for ambitious objectives.



#### Yoshiharu Tsukamoto

'Behaviour emerges in Between'

Architecture acts as a mediator between different behaviors. How can architects effectively and considerably balance these within their designs without manipulating or imposing behaviors on users or the environment?

Architects can use participatory design methods, ethnographic research and iterative prototyping to balance these influences in their designs. By closely interacting with users and communities, architects can create spaces that harmonize with natural behaviors without limitations.

Each behavior carries within it specific timescales and rhythms. How can architects ensure that their projects can withstand evolving behaviors and environmental changes? Should behaviors guide design or should the design guide behaviors?

The "Window Behaviorology" idea put forth by Professor Tsukamoto shows how design can adapt to shifting environmental factors and behavioral patterns.

Designing with modularity, adaptability, and resilience in mind, allows spaces to evolve with seasonal changes, shifting habits, and generational shifts.

#### **Emanuele Coccia**

'Architecture of Intimacy and Identity'

How does accepting fluid identities challenge traditional social norms and help create more diverse societies? Can this acceptance change existing power structures and make societies more inclusive?

Fashion is fluid in nature that highlights the past, present, and future's relationship. It reflects on history, which it then reinterprets today and projects into tomorrow.

How can fashion designers and brands ensure their collections reflect the diverse experiences and identities of their audience, such as race, gender, and income level? What challenges and opportunities come with creating fashion for all?

Fluid identities, which allow individuals to escape from rigid labels and stereotypes, fundamentally challenge traditional social norms. This, in turn, creates an environment where people can express themselves more freely and promote inclusivity without being locked into certain roles based on their gender, race or social class.

#### Susan Schuppli

'Just Ice'

How do you suggest we diverge potential practices of sustainability from a capitalistic approach to prevent them from becoming forms of capital gain?

In the presentation Mark Carey and Karine Gagné's excerpts show that most of the current literature on climate change and glaciers is based on scientific rationality, leaving out human and ecological elements.

In her lecture, Susan stressed that it is crucial to involve the local people including indigenous communities who have been living in these ecosystems for generations to comprehend the social aspect of the problem.

It is important to address the issues of social justice in the context of sustainability and make sure that the concept does not remain a privilege of the elite but becomes an opportunity for the underprivileged.

How do you ensure that the use of data technologies for analyzing landscapes similar to Svalbard is ethical, unbiased, accurate, and accessible? In what ways can you guarantee the balance between these technologies with the need to protect its delicate ecosystem?

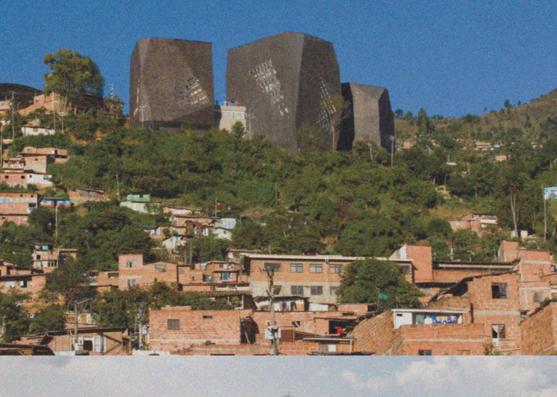
Carey and Gagné's ideas stress the need for getting out of the technoscientific vision when it comes to such territories as Svalbard. During her lecture, Susan stressed that it is crucial to build effective ethical standards that would focus on the principles of transparency, accountability, and inclusiveness, so that data technologies are ethical, fair, accurate, and available to everyone.

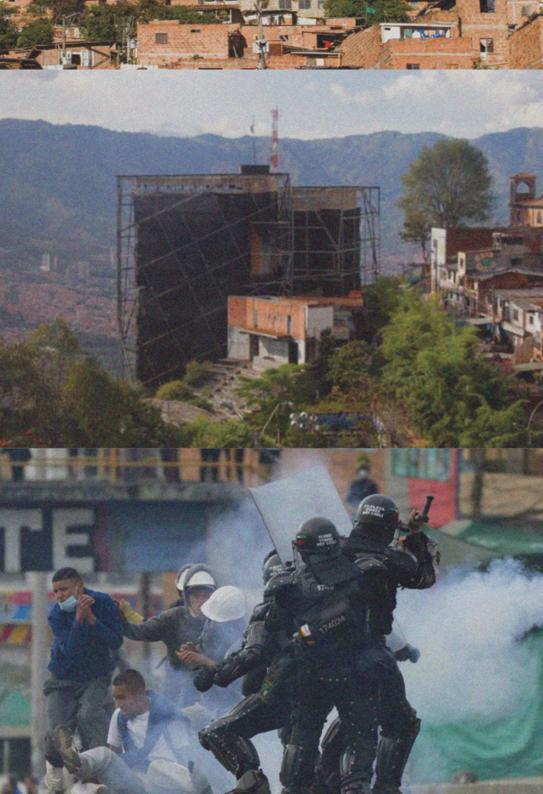
#### Stéphanie Bru & Alexandre Theriot

(Hyper)comfort

Given the notion that comfort is often achieved through hidden systems, do you think making these 'black box' systems visible would detract from the perceived comfort of a space, or could it provide a deeper appreciation of the building's functionality?

How does exposing infrastructural elements influence a building's design flexibility and adaptability over time, and how does this approach compare to using concealed systems in terms of durability and lifespan?





Transcalar Activism: Architecture as a Force of Change

How can architecture function as a political tool of intervention and transformation in urban spaces?

2007. Giancarlo Mazzanti designed Parque Biblioteca España, transformative architectural project in Medellin Colombia. This essay addresses the project's impact across three scalesterritorial, political and bodilyexploring how architecture acts as a catalyst for socio-political change and addresses critical urban issues. Parque Biblioteca España is crucial in Medellin's urban regeneration, particularly in the Santo Domingo savio neighbourhood. As a part of the PUI and social urbanism initiative, it aims to decentralize cultural and educational services, from affluent areas to marginalized communities. The strategic location near the Metro Cable Line K station enhances accessibility, fostering social and economic integration among neighbourhoods like Popular and Villa Hermosa. This integration improves connectivity between neighbourhoods and providing access to important infrastructure such as health centres and recreational spaces.

The library serves as a territorial anchor, promoting cohesion and mitigating socio-spatial inequalities across Medellín. By offering a safe and welcoming public space, it bridges the gap between isolated communities and the broader urban fabric, contributing significantly to the city's efforts to create a more equitable and inclusive society. The Urbanism Social program established by Mayor Sergio Fajardo in 2004 emphasizes upgrading informal settlements through projects like Parque Biblioteca España, aiming to transform these areas into vibrant parts of the city.

Medellin's violent past, especially with the impact of Pablo Escobar's cartel, prepared the ground for major municipal reforms. Medellin's administrations have addressed poverty, inequality, and violence through highly visible urban measures since the late 1990s. The city prioritized education and public infrastructure under Mayor Sergio Fajardo. At first, the locals opposed Parque Biblioteca España because of their longstanding distrust of government initiatives. But after a period of community long involvement, support grew, signifying the city's dedication to social iustice and reform. Collaboration between local government, outside institutions like the Inter-American Development Bank (IDB), and community groups was necessary for the library's development, demonstrating the intricate relationship between activism and alliances.

The project faced structural issues due to budget constraints. The decision to use local materials and labour aimed to cut costs and boost local employment, highlighting the government's commitment to community involvement. However, led to concerns about workmanship and long-term durability, causing delays and increasing maintenance needs. These challenges exposed the limitations of budget allocations and planning, sparking debates on the sustainability and effectiveness such high-profile interventions.

On the microscopic scale, Parque Biblioteca España significantly enhances daily human experiences.

human-centered design incorporates spaces ranging from private study areas to communal event halls, to accommodate a variety of activities. The children's section, equipped with interactive installations and child-friendly furniture. promotes education. Large windows and skylights maximize natural light, creating a bright, inviting atmosphere. while natural ventilation ensures good air quality. The exterior's locally sourced black stone offers a tactile experience, encouraging physical interaction. The distinctive architectural forms and textured exploration. pathways invite fostering a deeper connection between individuals and the space, reinforcing the library's role as a vital communal asset.

Biblioteca Parque España exemplifies the transformative potential of architecture across multiple scales. It addresses territorial challenges by revitalizing marginalized areas, engages in complex political dynamics active through community involvement and governmental support, and enhances human experiences through thoughtful, human-centered design. This multiscale impact highlights how architectural strategic interventions can act as powerful political tools for socio-economic change. By fostering social cohesion and creating inclusive public spaces, the project strategic demonstrates how architectural interventions can contribute to broader efforts to create more equitable and sustainable urban environments.