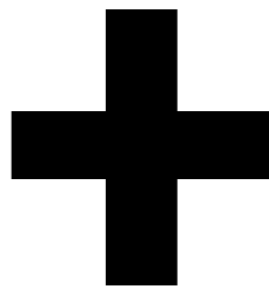
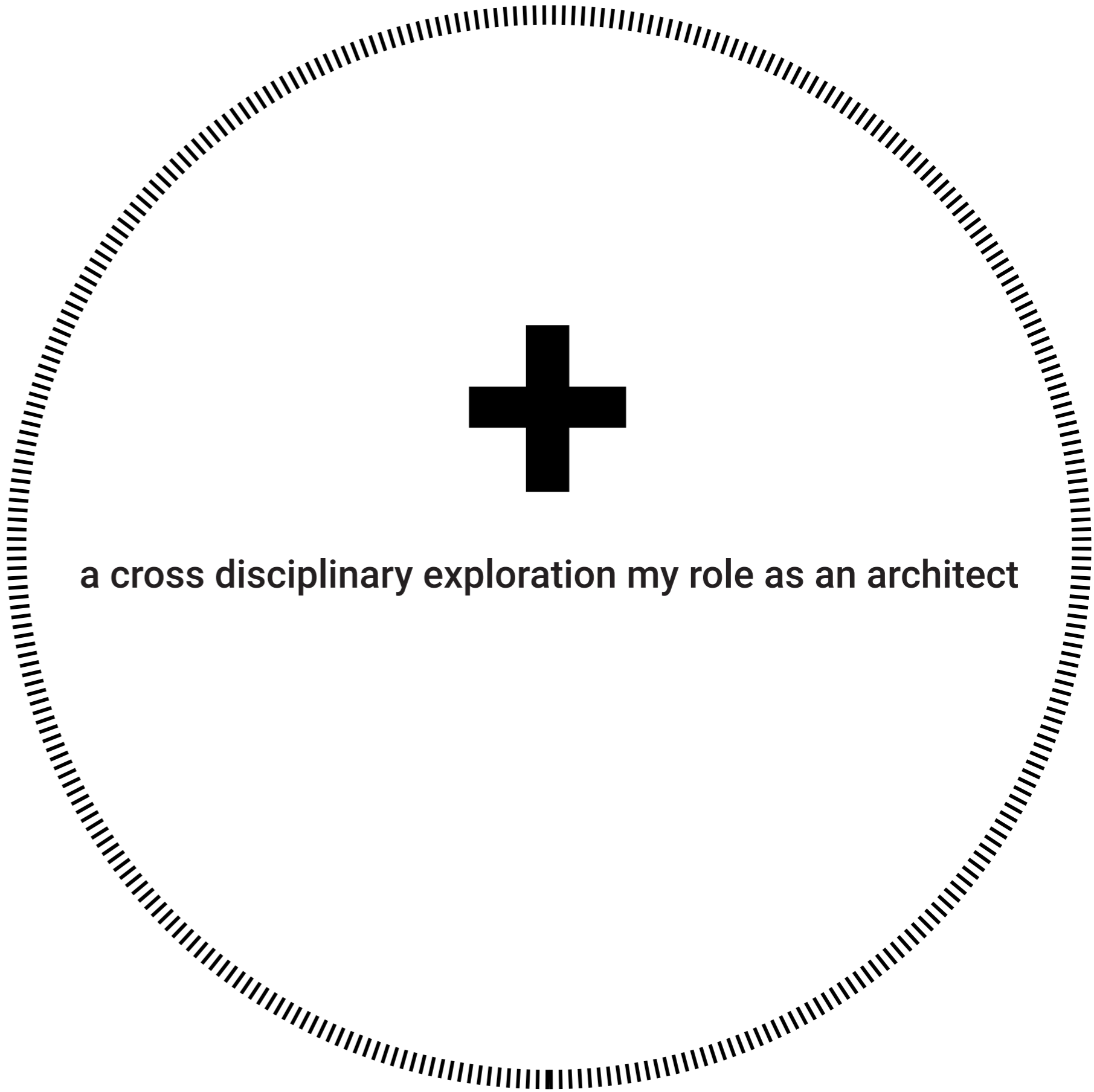


SARAH ABOUEL- KHAIR

a cross disciplinary exploration

of my role as an architect

architect and



a cross disciplinary exploration my role as an architect

Entanglements.

My 5 years of training as an architectural engineer in Cairo constructed the frame from which I saw my profession, and my 1 year in GSAPP allowed me to de-construct it and realize that perhaps there is no frame. Architects do not build in vacuum, they build within an entangled network of social, political, economic and sociological contexts that are in constant dialogue.

My work in GSAPP embodies that dialogue. The constant re-examination of where the architect's role ends and other begins.

The collection of work in this portfolio demonstrates the constant negotiations between the *architect and*. The many hats I learned to wear during my year. Exploring architecture through conservation and adaptive reuse, through activism and agency, through real estate development, through photography and story-telling; and coming out with an understanding that the boundaries of architecture are not as solid as I once thought they were.

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ARCHITECT + CONSERVATOR

Houston Bottling a design incubator in the former Coca-Cola bottling plant

Wonne Icx - Advanced VI (SPRING 2022)

The title of our project is Houston Bottling, an arts and design incubator in the former Houston Coca-Cola Bottling Plant. Just like we selectively removed Coca-Cola from the name, throughout the project we made design moves with the same spirit; cutting out spaces while preserving their memory.

The original 1950's Coca-Cola bottling plant is a building that was studied for years to follow for disrupting loading and handling systems; pioneering a new standard for industrial efficiency.

Designed around a then novel concept of a "Drive-Thru Building", the first of its kind innovation allows up to 75 trucks to simultaneously be loaded and unloaded by conveyer belts with minimal intervention, saving around 44 thousand manual case handlings a day. The original street facing façade was a local spectacle. With large sheets of glass overlooking the bottling machinery, passersby got a glimpse of the industrial feat of "cleaning and filling" 1200 bottles a minute!

Overtime, the original 1950s plan became muddled as more storage, warehouses and production lines were added; growing into a messy accumulation of structures and sheds.

Our design challenge was to convert this historic factory into an arts and design incubator. Our philosophy for the incubator is that mostly what emerging artists and designers need is space. And for the most part, the space that exists here already is perfectly suited to reuse, with minimal intervention.

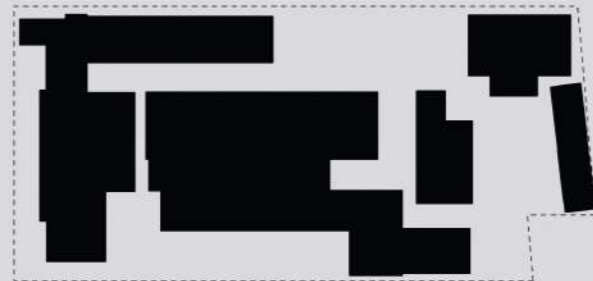
Across the project, our adaptive reuse strategy is both simple and contradictory. We work with and against the building, keeping parts while completely wiping out others. In other moments, we faithfully recreate historic facades that have been lost.



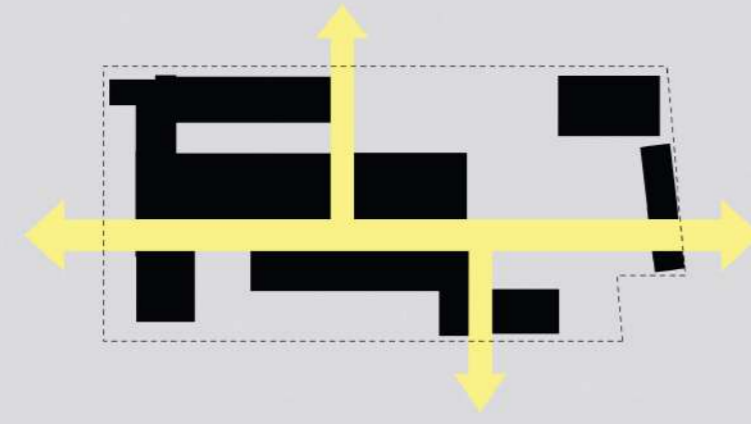
PAST
Original design heralded for innovative planning & efficiency



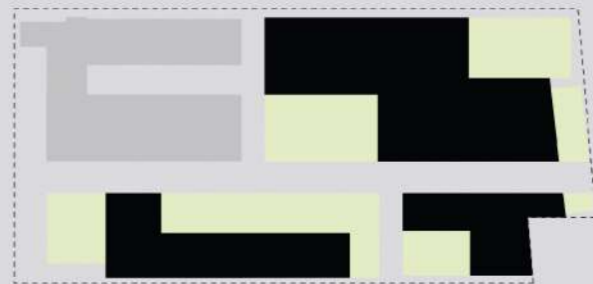
PRESENT
Accumulation of shed structures and eventual obsolescence



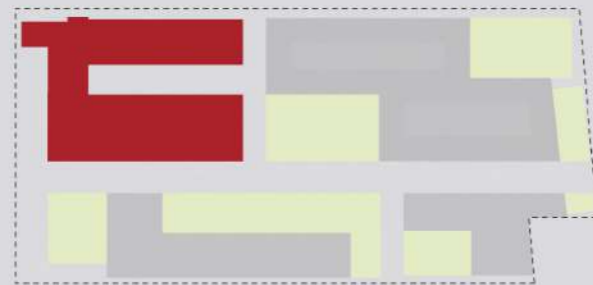
CUT
Create new pedestrian axes through site



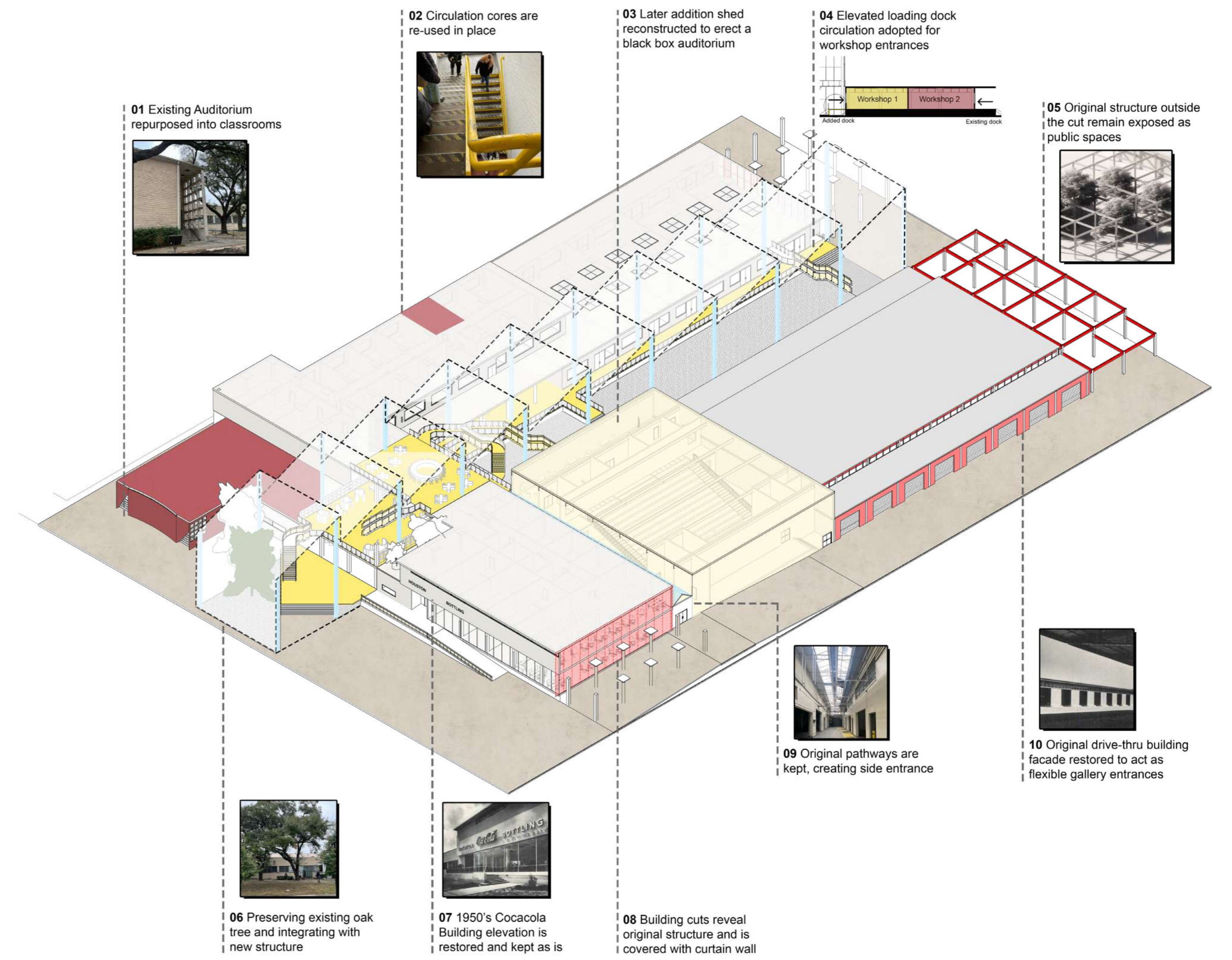
INVERT
Develop existing open space & uncover sheds to create new landscape

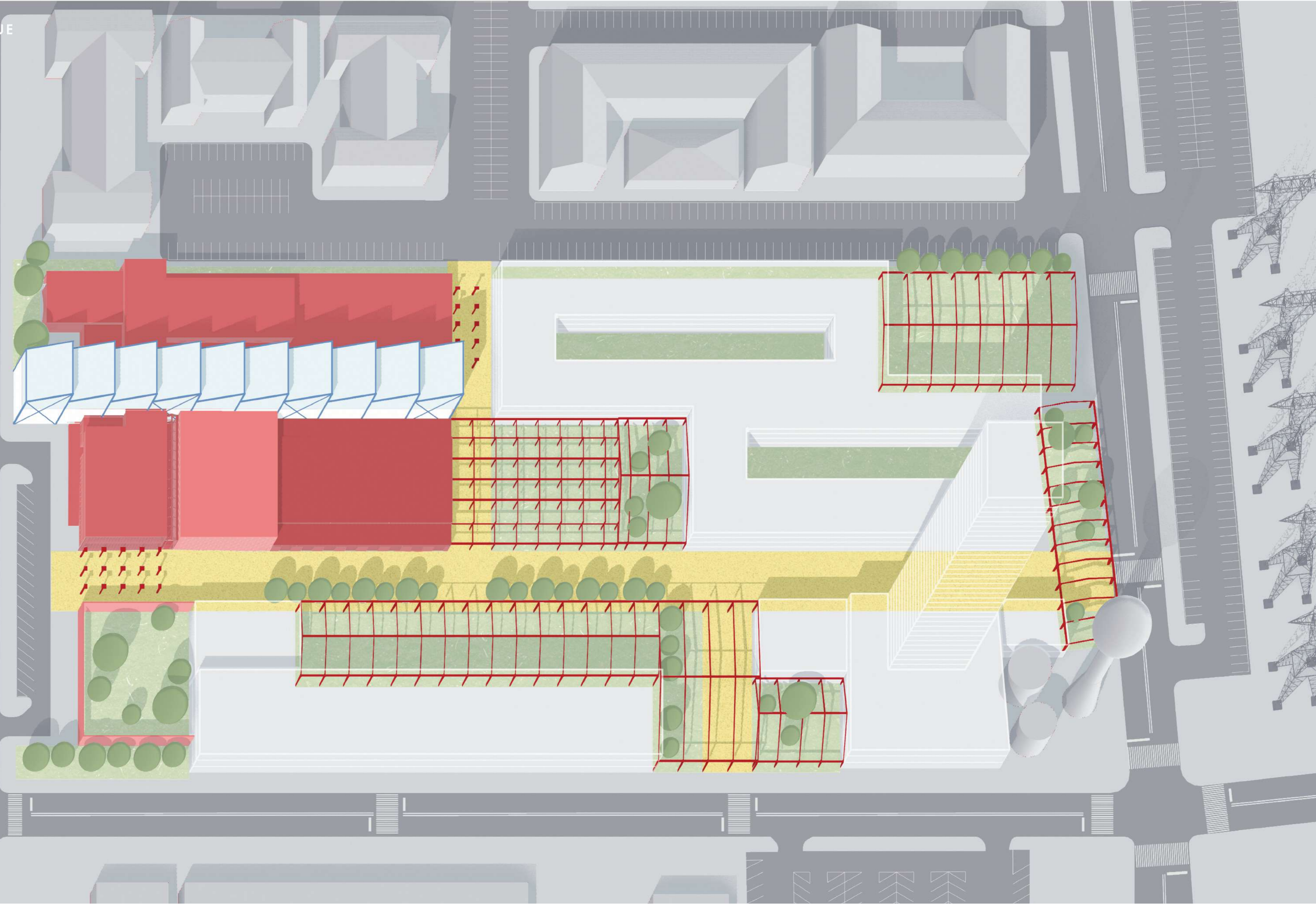


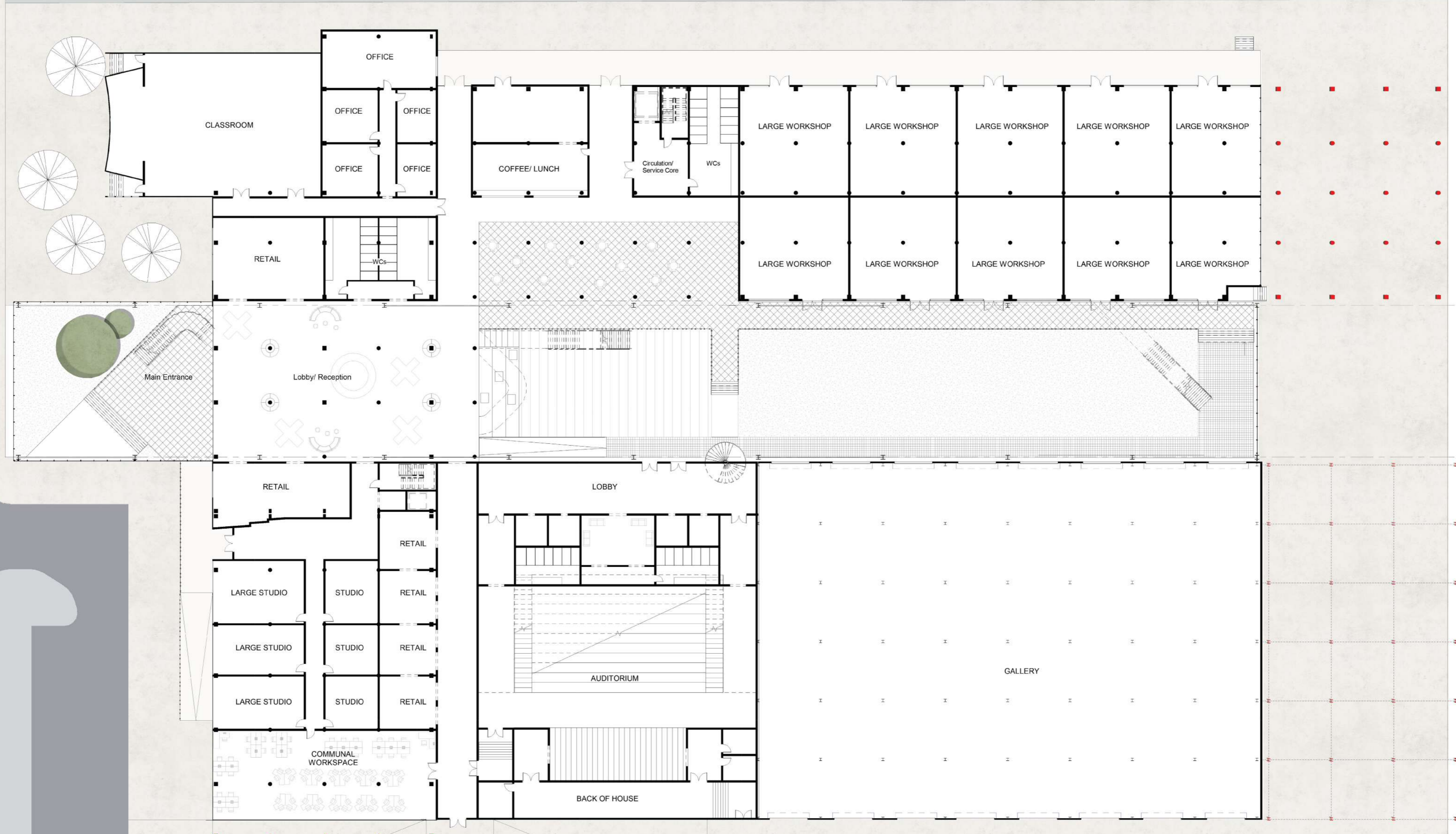
CONCENTRATE
100,000 sf Incubator program fits within the SW quadrant of site



CONNECT
Build new sawtooth shed to unite incubator buildings as a 'difficult whole'

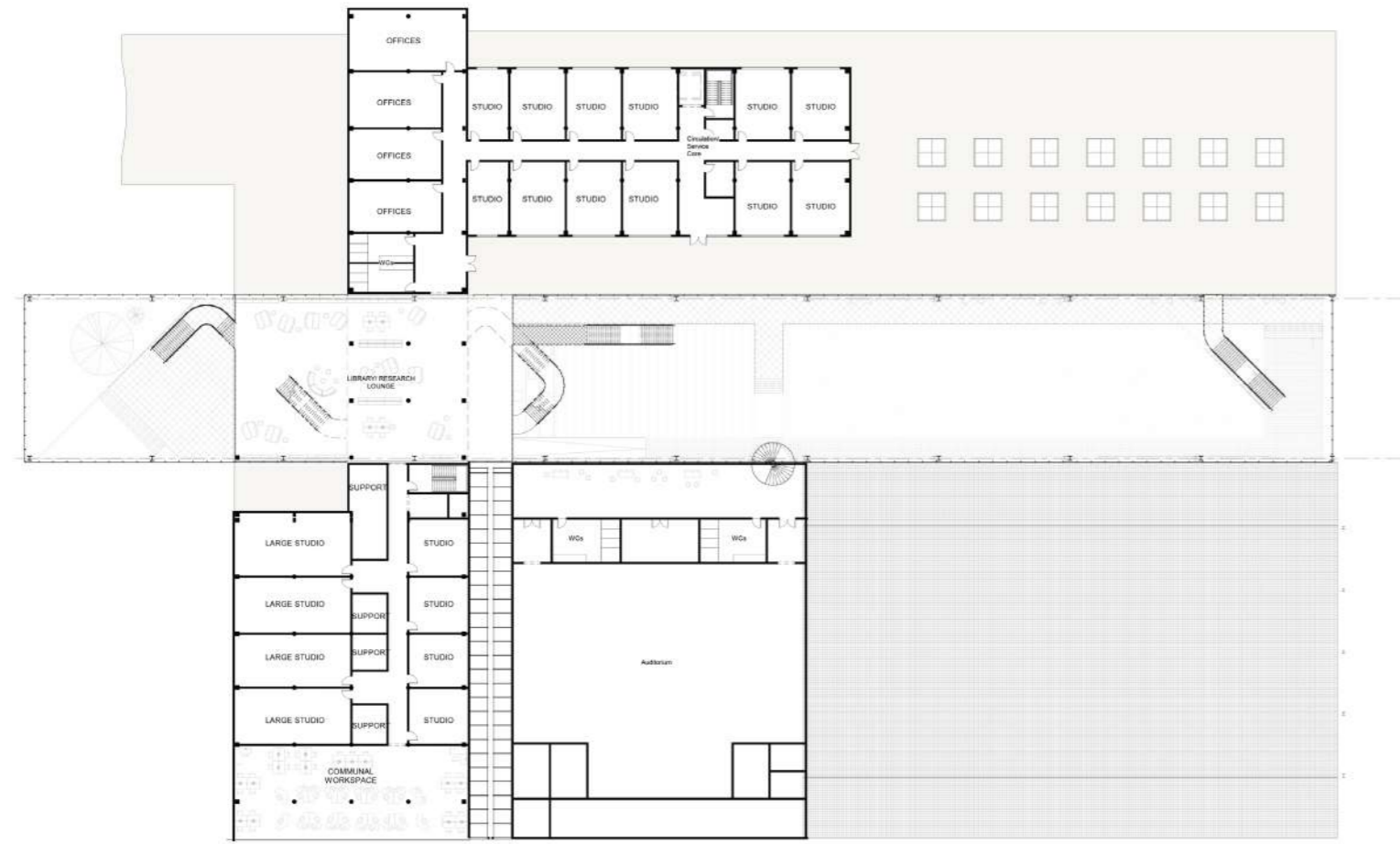




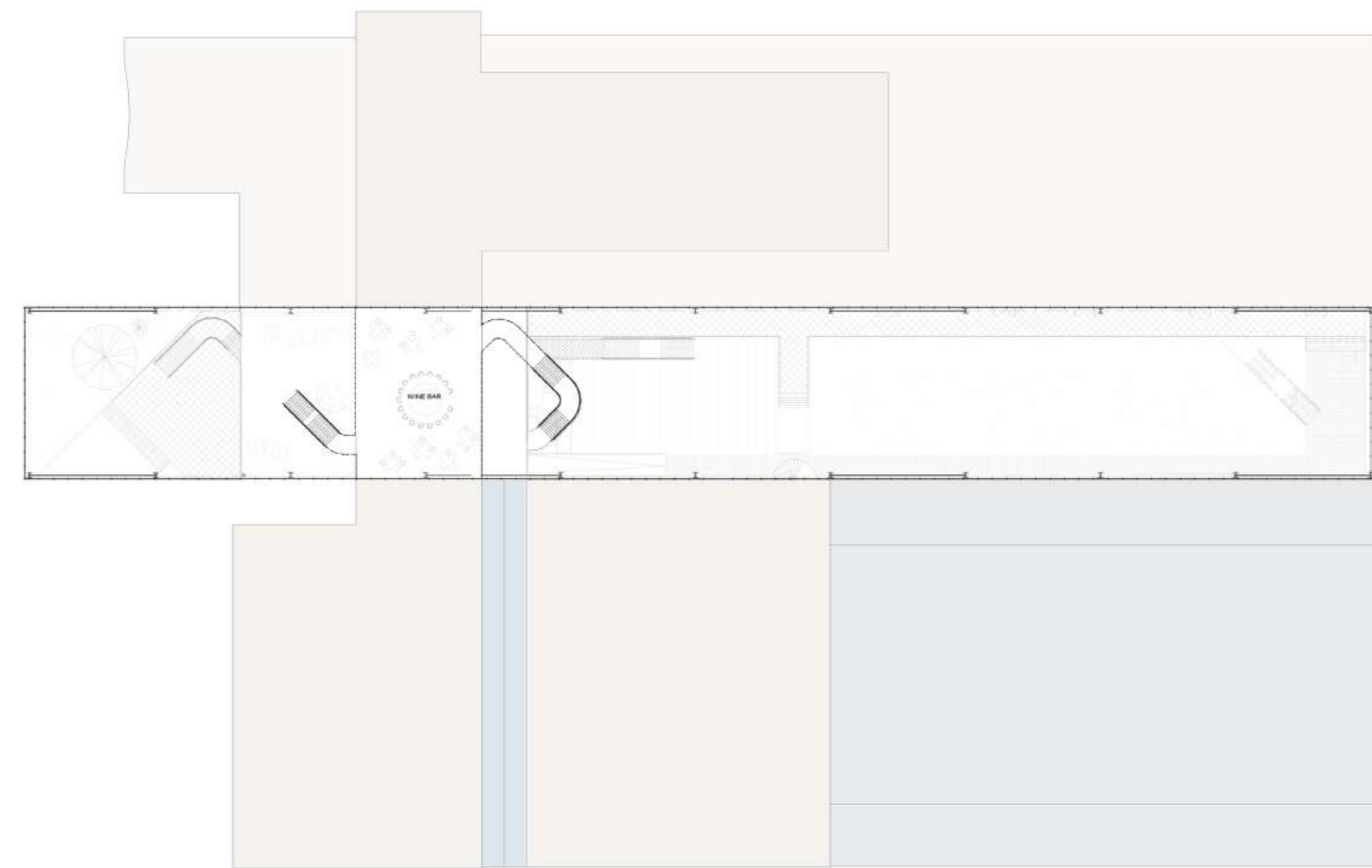


Bissonnet Street

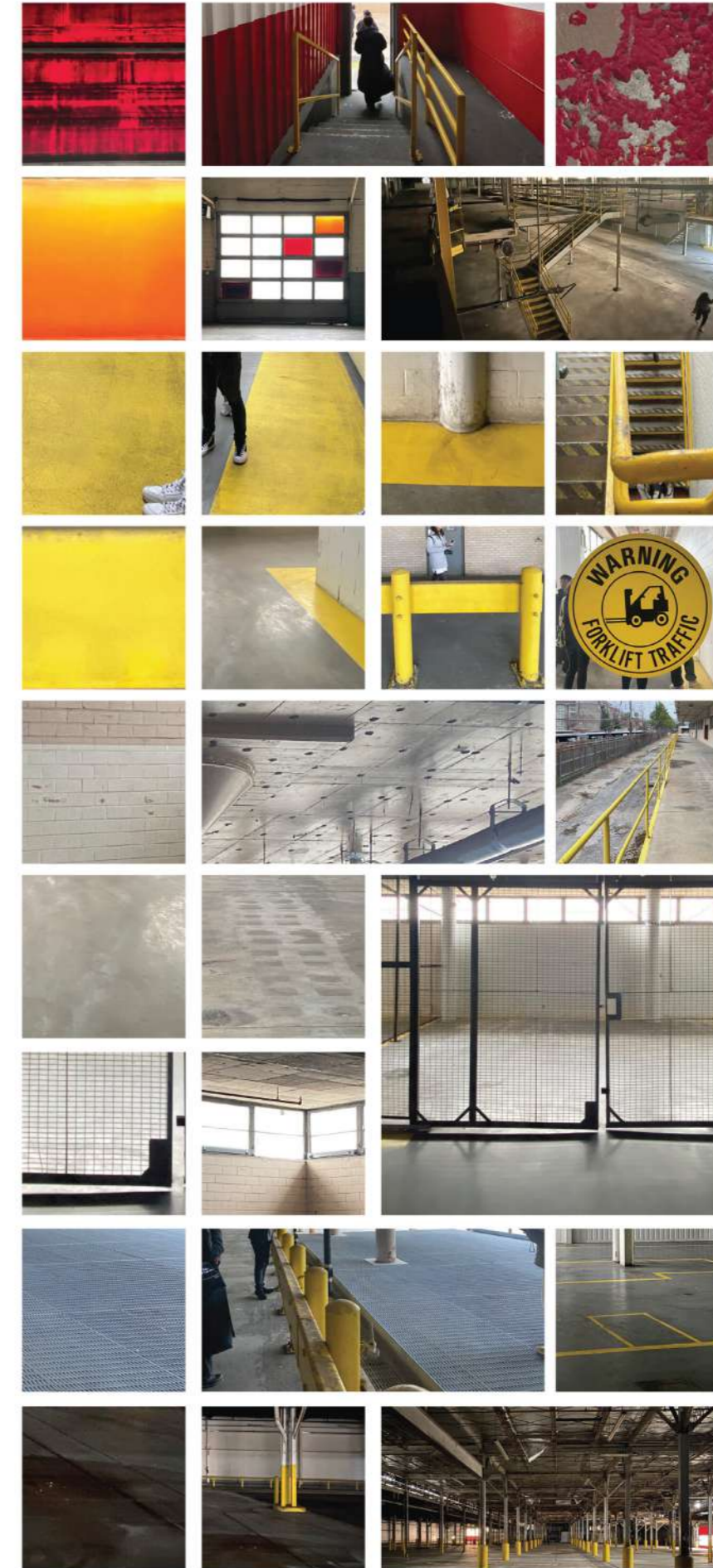
LEVEL 2 PLAN



LEVEL 3 PLAN



MATERIAL /
COLOR STUDY

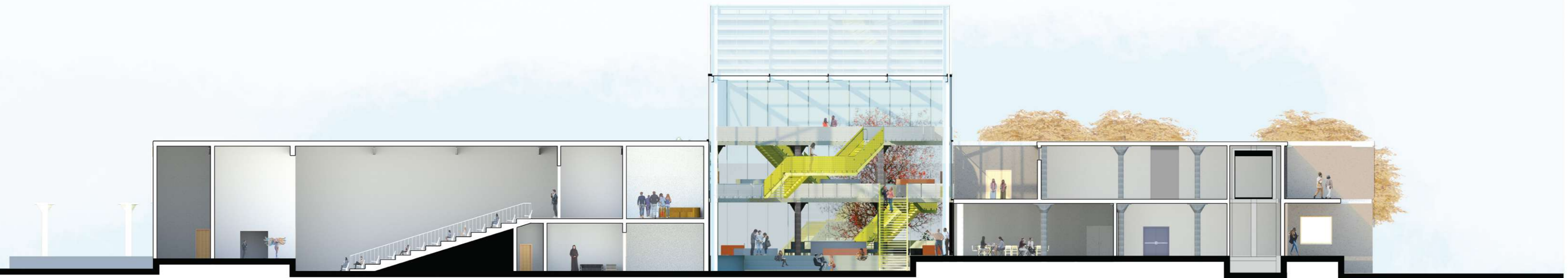




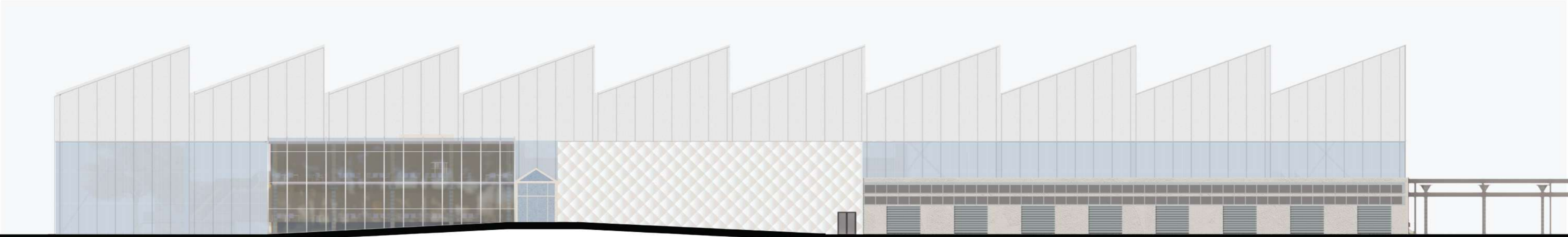
N-S SECTION



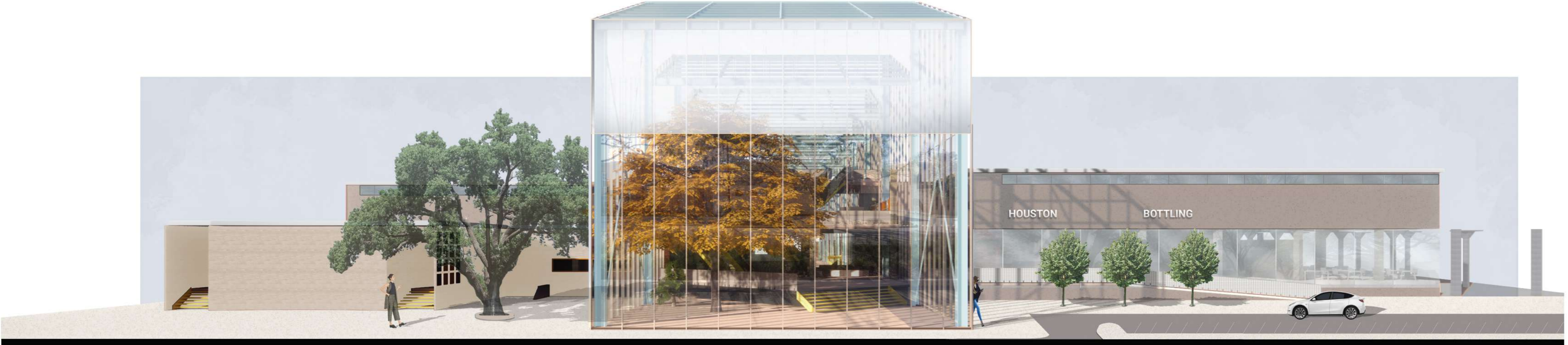
E-W SECTION



EAST ELEVATION



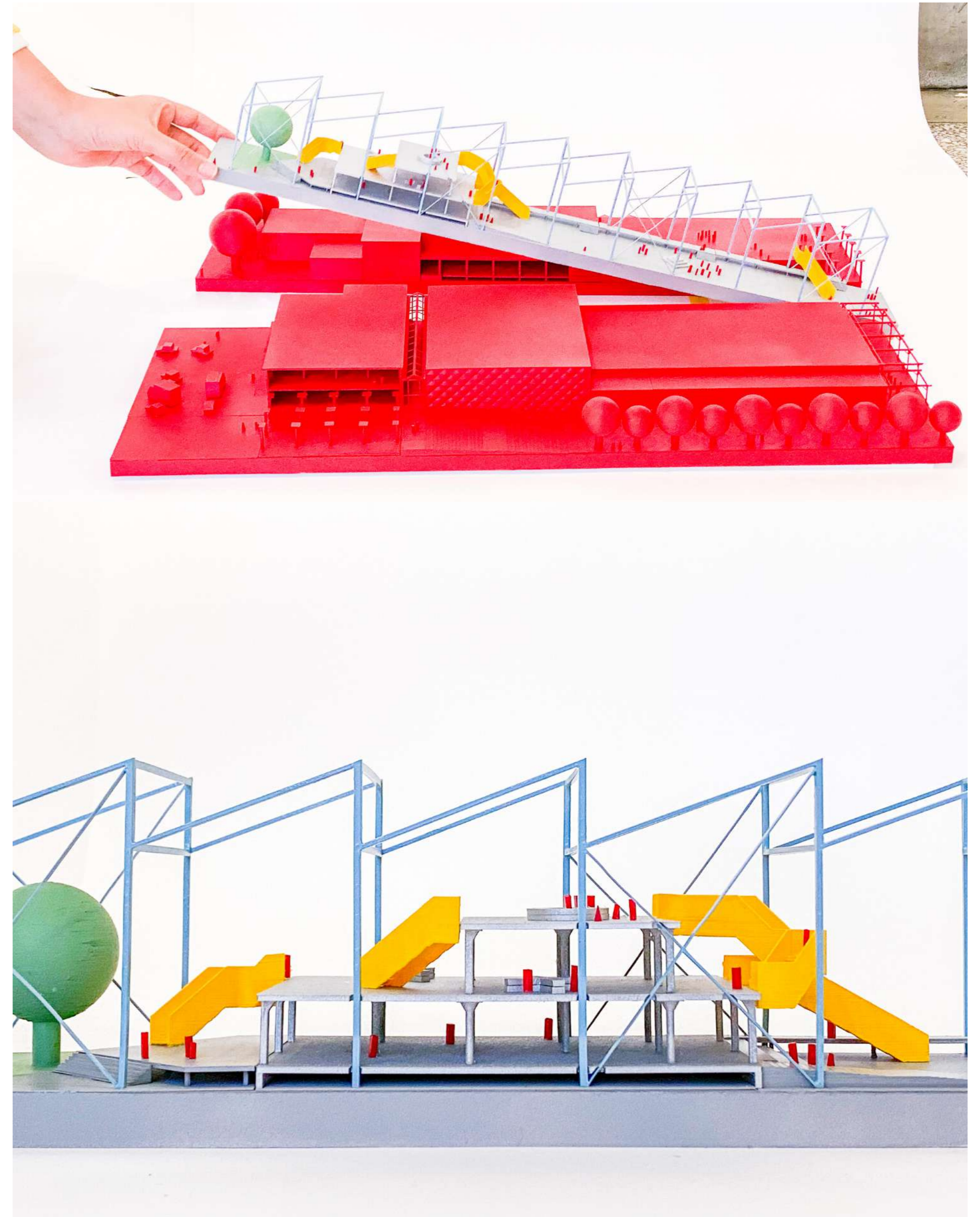
SOUTH ELEVATION
PERSPECTIVE



Houston Bottling
looks both **forward**
and backward,

creating a new Arts
space for the city
while retaining the
memory of what was
here before.





ARCHITECT + MEDIATOR

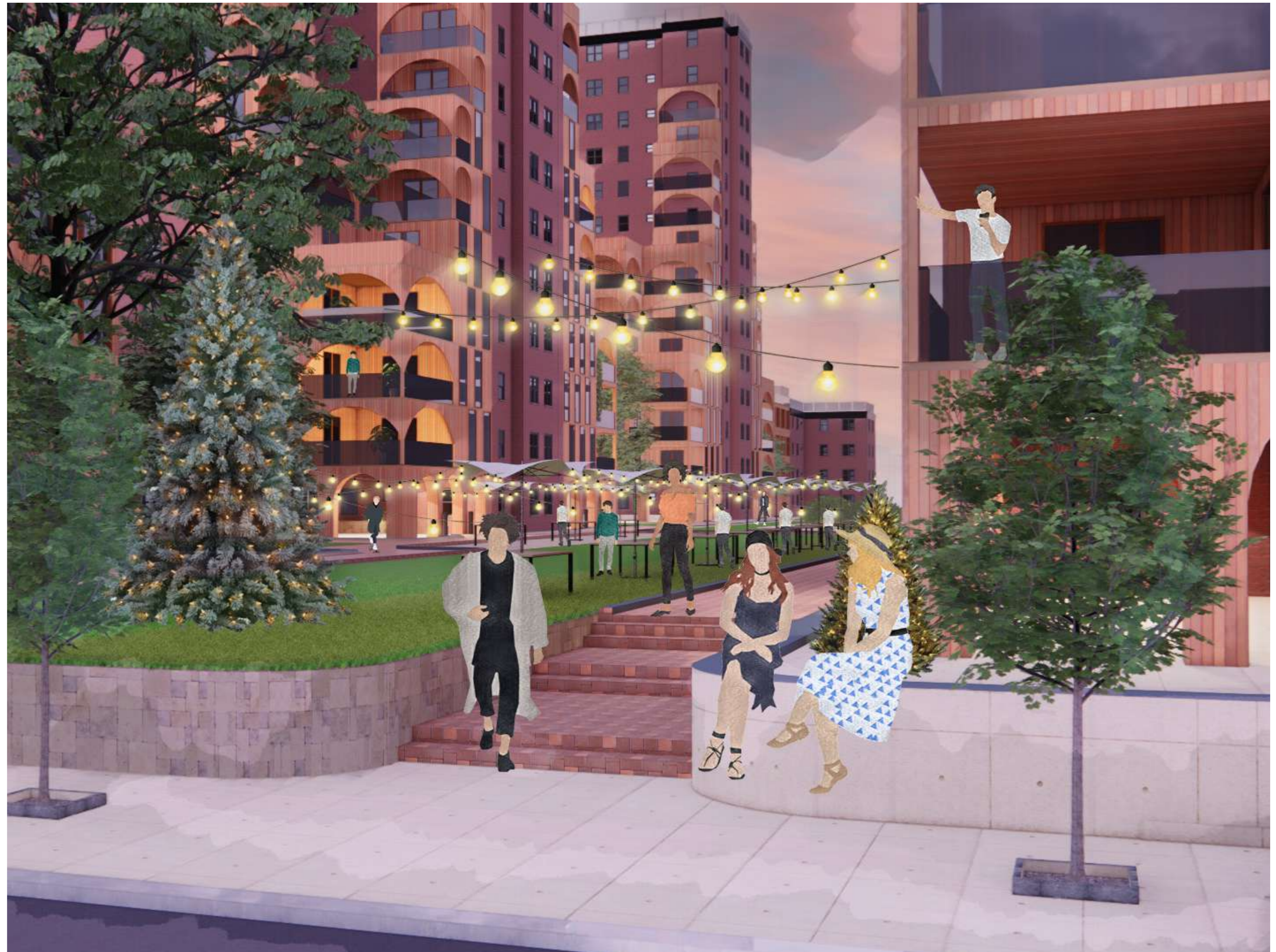
My Gowanus

Adapting NYCHA housing for community building and inclusion

Stephen Burks - Advanced V (FALL 2021)

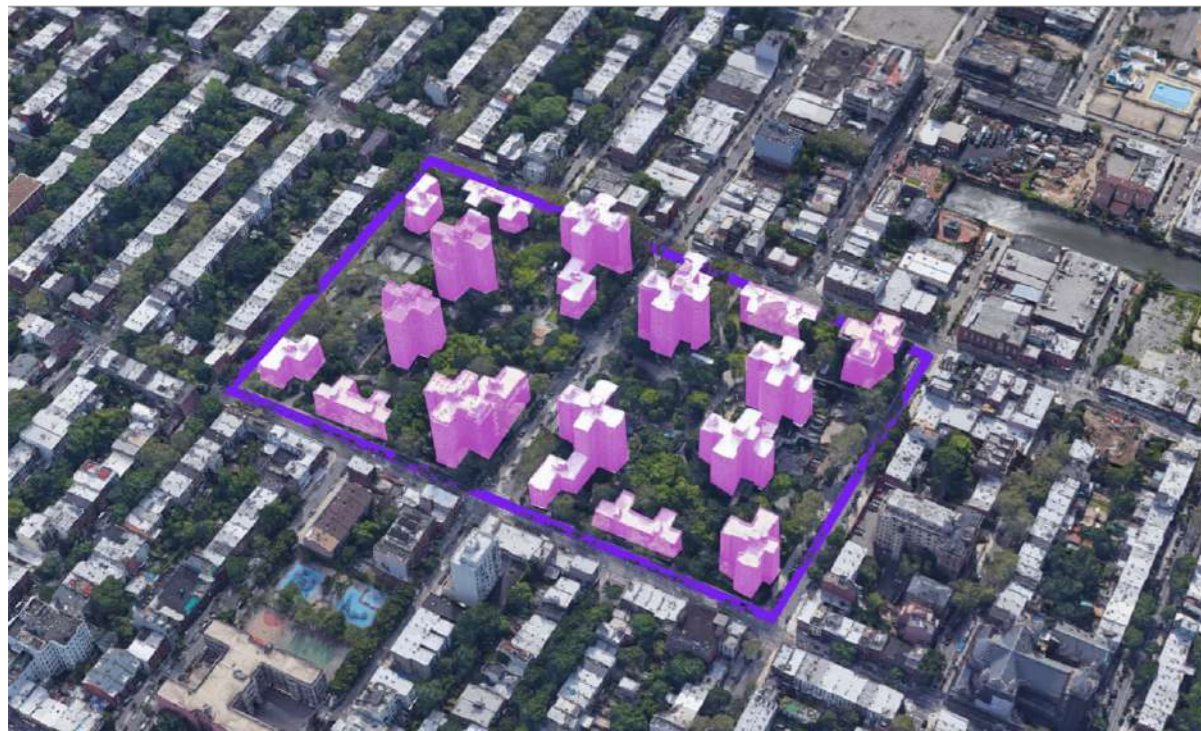
Being human is being part of a collective. The evolution of human from the age of hunters and gatherers to our information age has robbed us from some of our humanity, moving away from small-knit communities to urbanization and mass cities. Taking a deep dive into NYCHA's Gowanus houses, you witness the effects on urban isolation with low safety and high crime rates. Collective Efficacy, a study in John Jay's School of Criminal Justice explains, is when a community builds trust and act as one body towards their common interest. "When they build collective efficacy, even without other changes, crime drops."

Building and strengthening the community is the foundation where ownership, empathy and trust emerge. Tackling this through NYCHA's to Gowanus houses, this project will explore ways in communal architecture can lead to emotional ownership, resulting in a safe and vibrant community. Gowanus housing project will be tactically redesigned through the four lenses of communal architecture: spaces of gathering, spontaneous interaction, spaces of activity, permeability of spaces.





URBAN ISOLATION



ARCHITECTURAL ISOLATION



Being isolated both on the urban and architectural levels, the residents of Gowanus are not given a sense of ownership over where they live, or community with who they live with.



Unnecessary fencing of all facilities, and police presence



Entries that look like prison cells

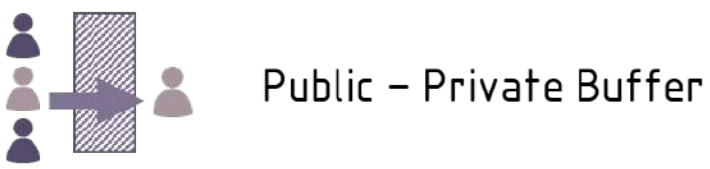


Signage that indicates unfriendly relationship with management



No freedom to enjoy the simplest pleasures

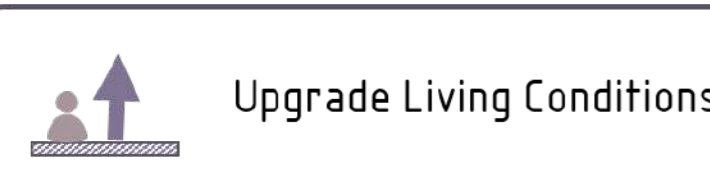
Develop Emotional Ownership



Public - Private Buffer

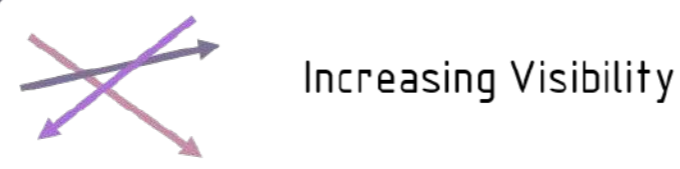
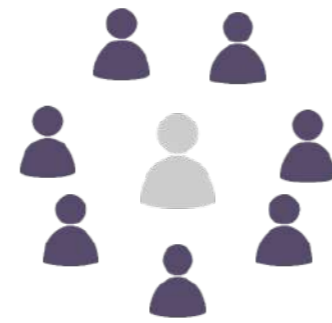


Living Outside and Inside



Upgrade Living Conditions

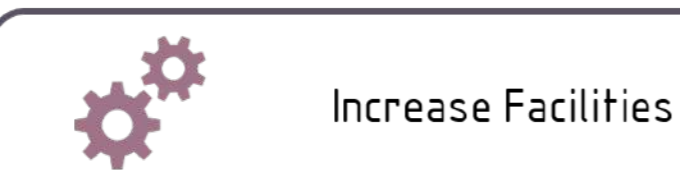
Build A Strong Community



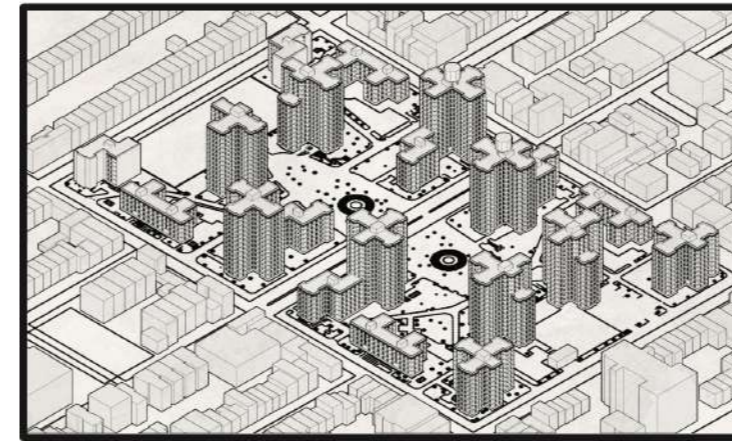
Increasing Visibility



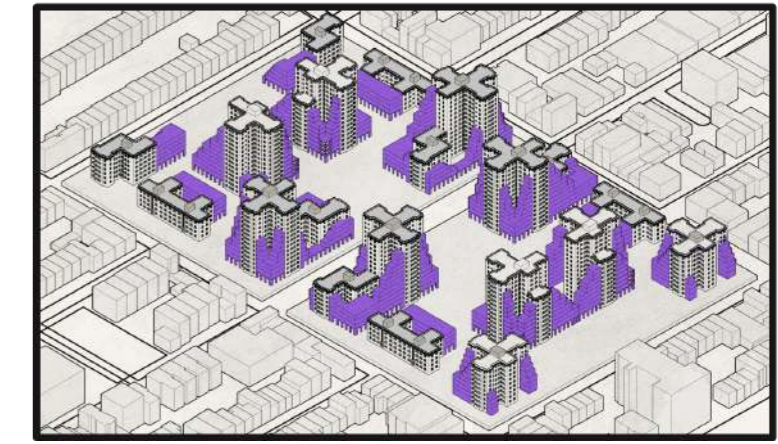
Spaces of Gathering



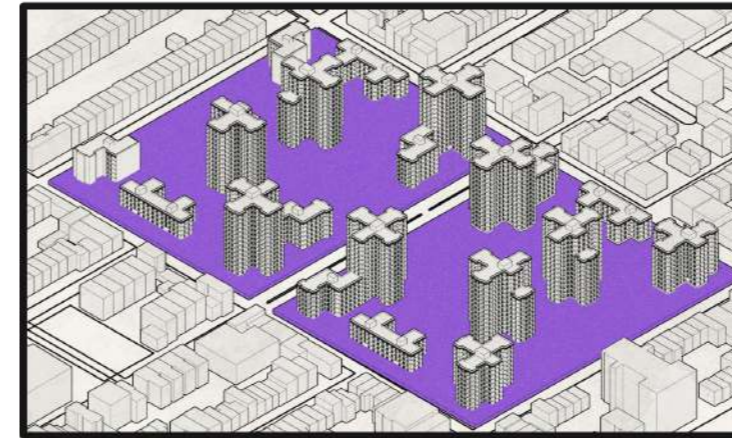
Increase Facilities



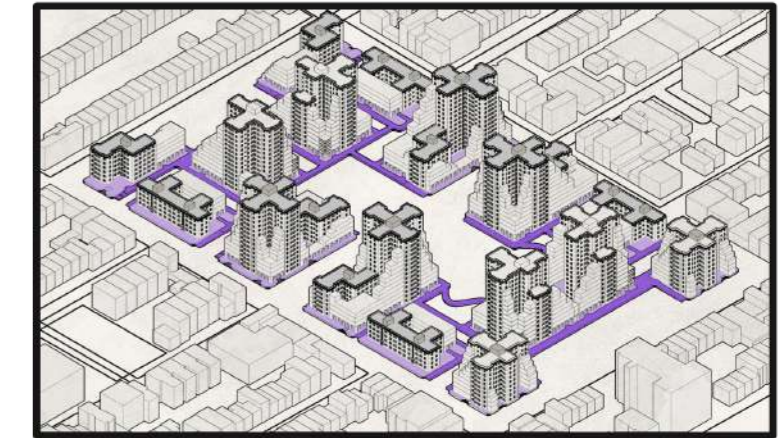
00
Existing Site



03
Terraces
and arched
entrances



01
Elevate
site to first
floor



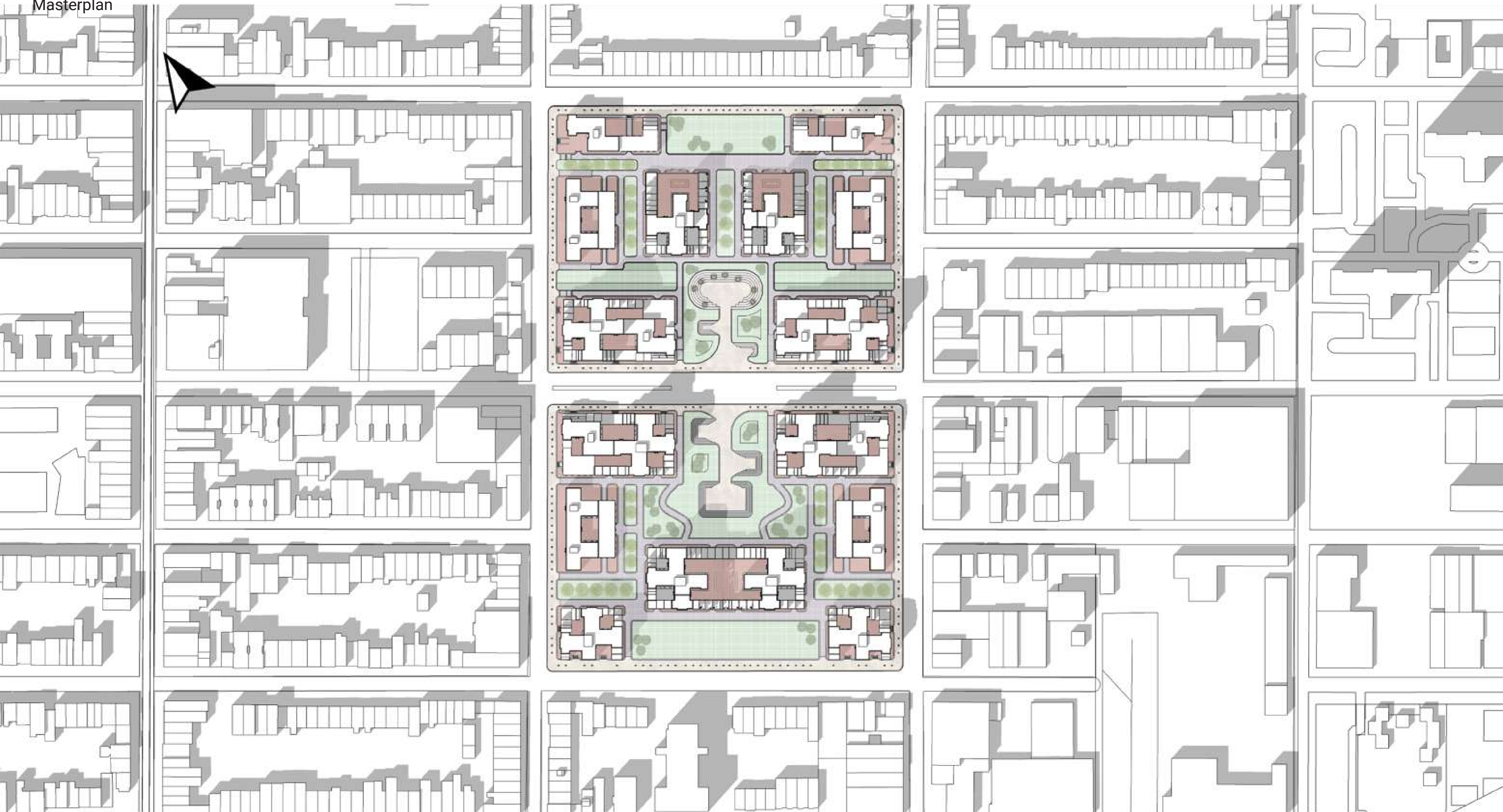
04
Entrances,
pathways
and
street-wall



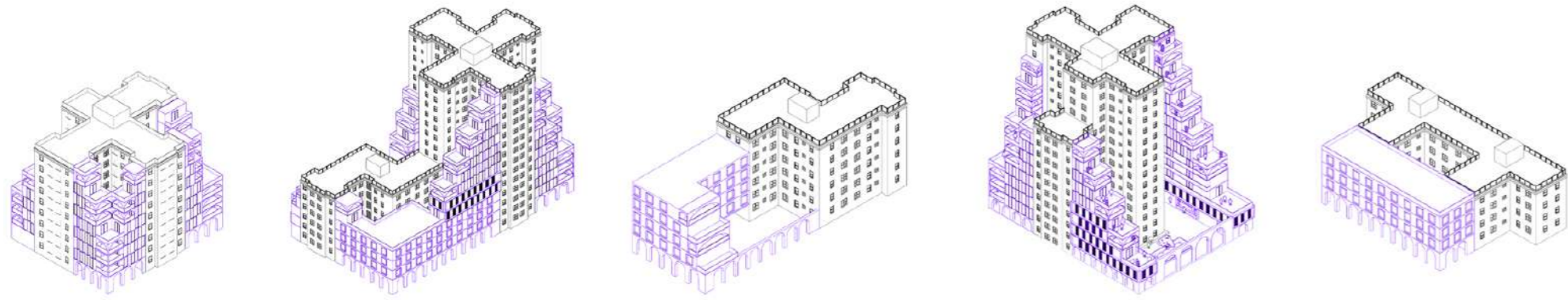
02
Add
Courtyards



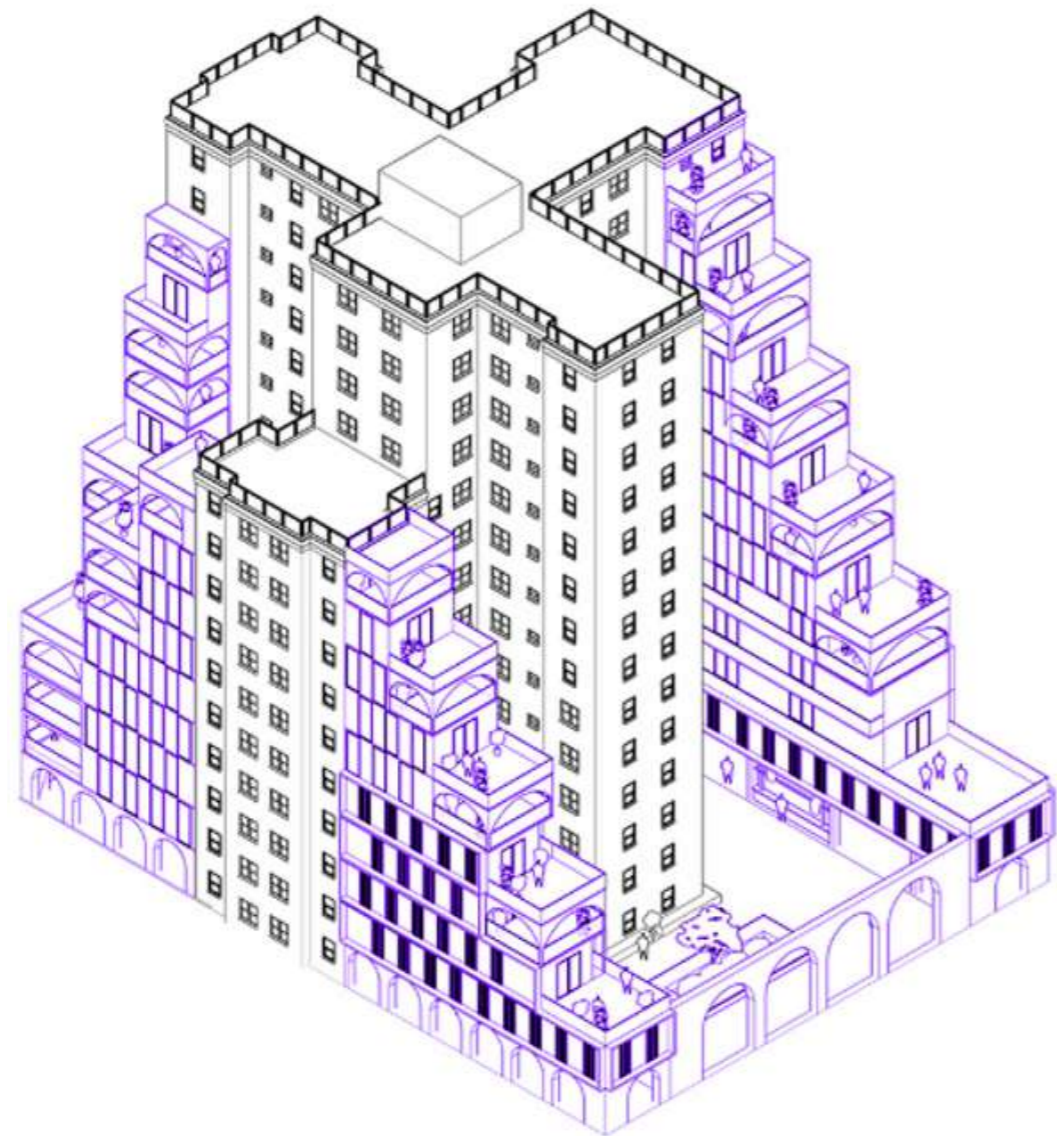
05
Central
Piazza and
greenspace



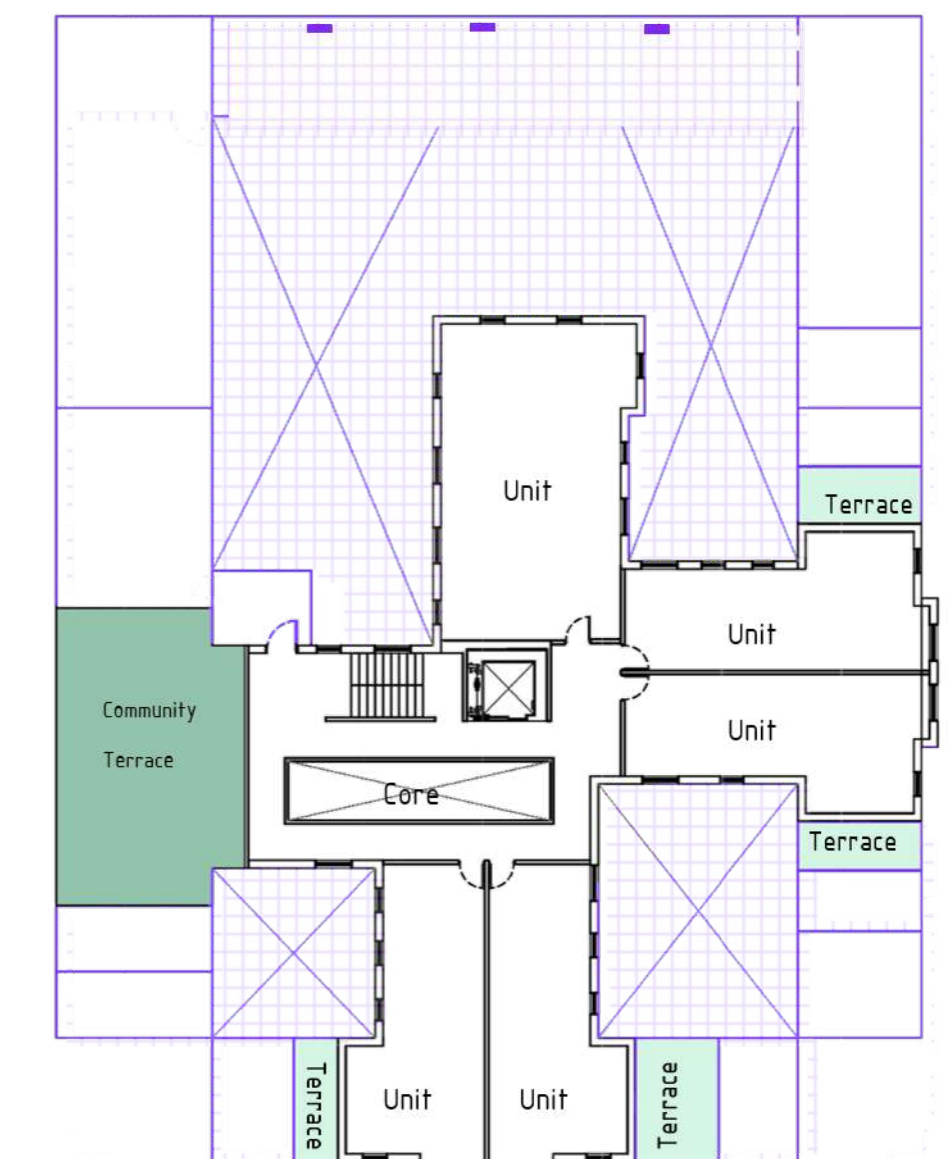
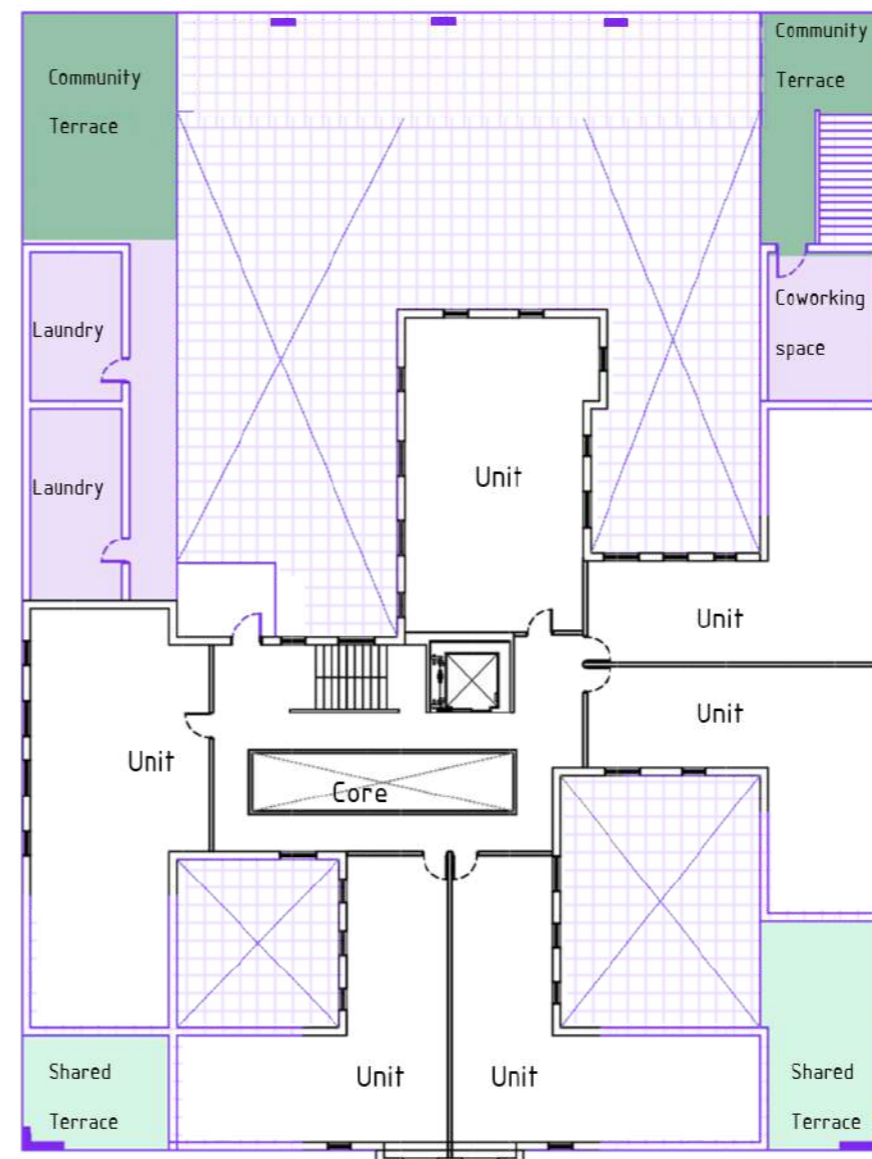
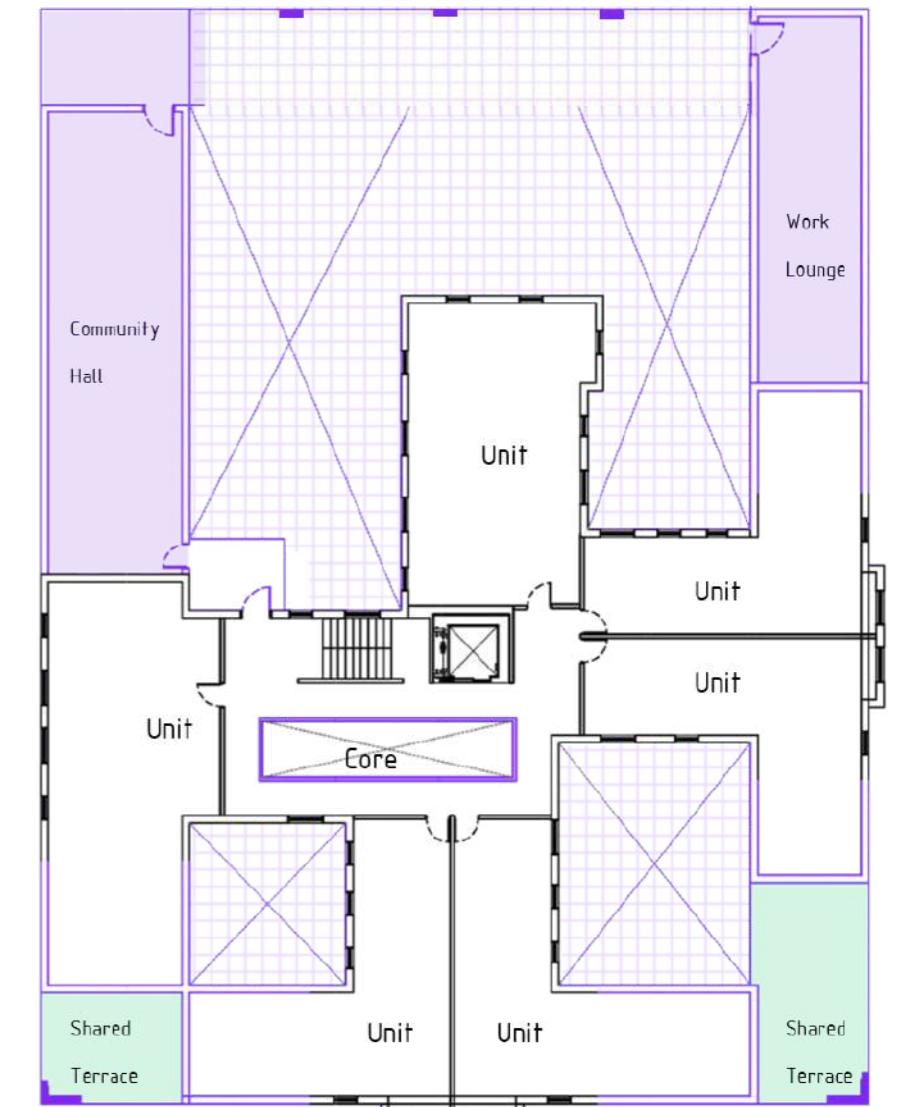
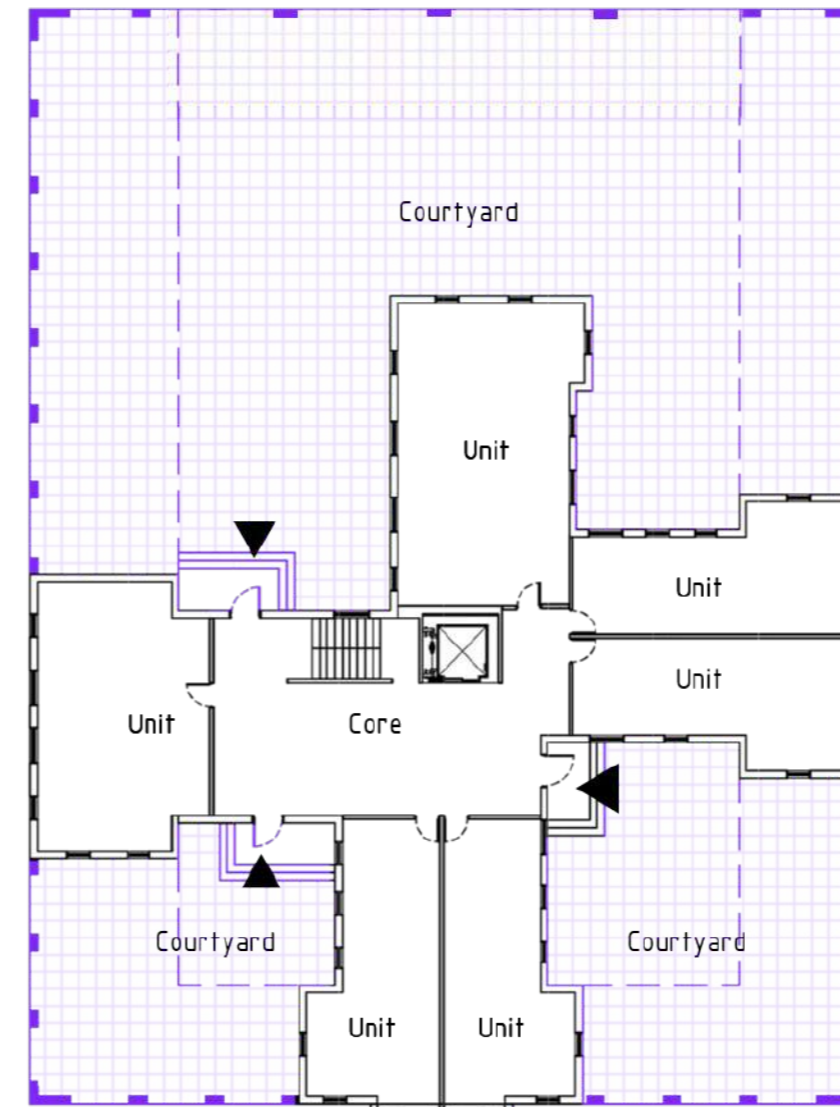
Unit Strategy/ Visual Dictionary



<p>Extra Housing Wood Cladding and square windows</p>	<p>Community Areas Glass glazing and wood louvers</p>	<p>Housing Extensions Wood cladding and long windows</p>	<p>Balconies Arched brick with wood cladding</p>



Type Plans



Hoyt St. Elevation

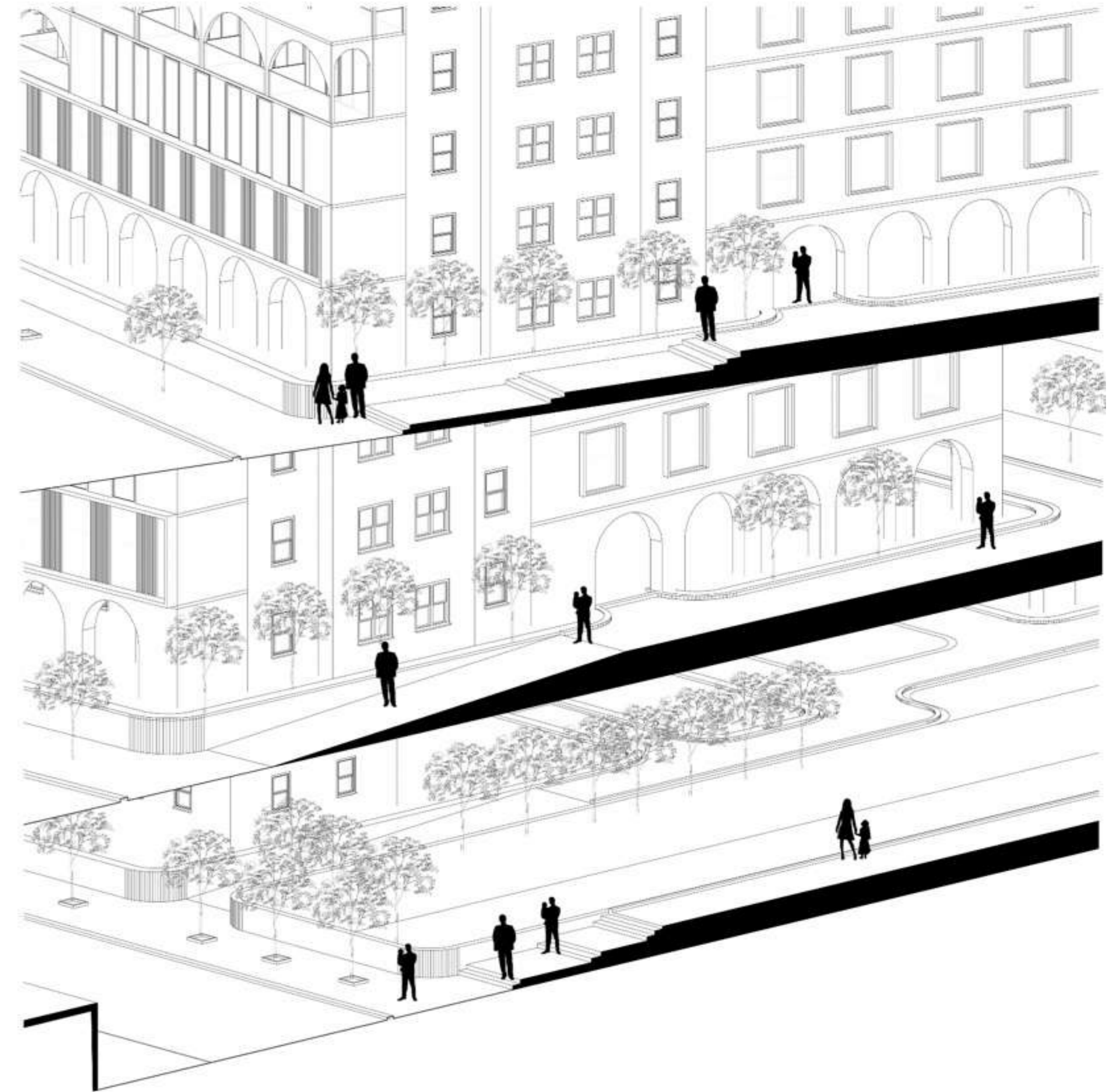
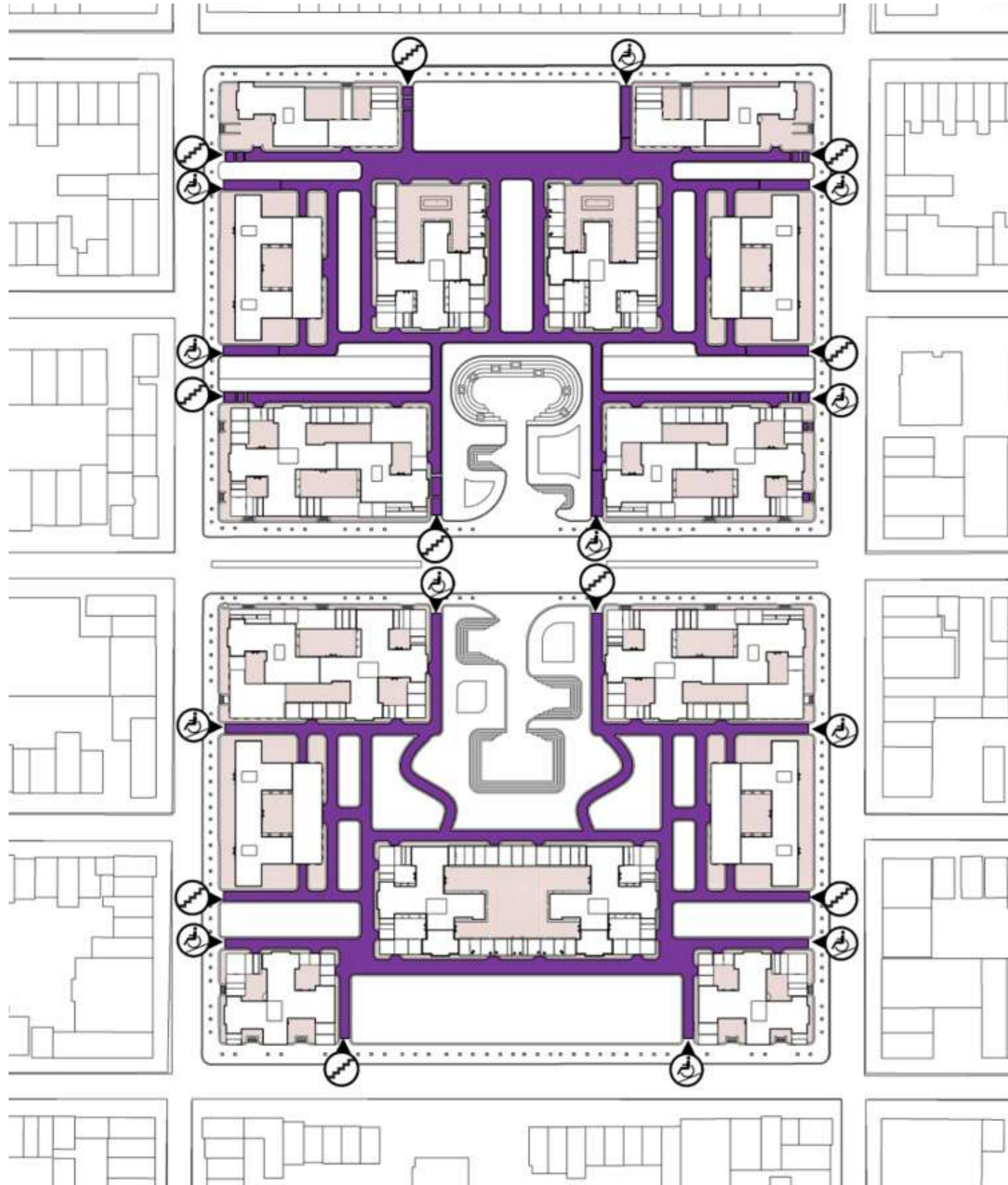




Baltic St. Elevation



Site Entry/ Circulation





ARCHITECT + ACTIVIST

Coup d' Social Designing a street for social justice

Bernard Tschumi - Advanced VI (FALL 2020)

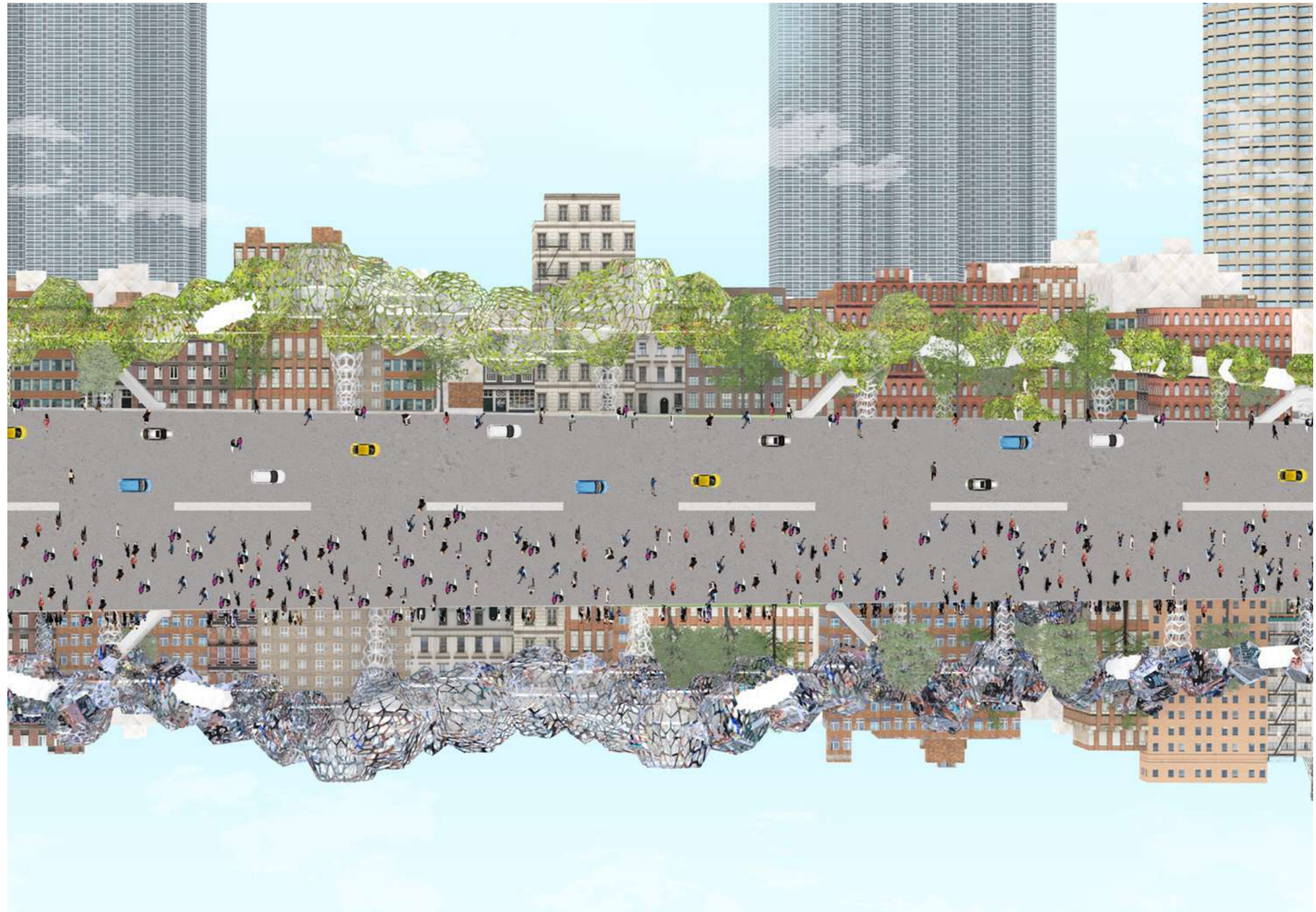
Our prompt was to design a street for social justice, but we started with an investigation to examine if justice was the appropriate word. Equality is when everyone benefits from the same support, equity is giving everyone the support they need like universities do with affirmative action to combat years of inequality, and justice is eliminating the root causes.

Which brought us to our main question: what is the role of justice on the street? The street is already equal, everyone has access to the same things. We wanted to design an intervention that worked in reverse to provide equity, a space for women, the non-whites, the disabled the marginalized. And together with the tension between them they provide an ecosystem for justice.

We planned our intervention within stages: firstly attract the users to our building through our dynamic LED facade what is fully controlled by the people through cell phones. Secondly, once they're in, we take them through a process of shattering their limiting beliefs, advocating and educating and supporting through reversing the outside social hierarchies, then finally during times of protest the structure transforms into an operations center for the movement.

Our program is twofold, during daily use we take the people on a journey of reversing the outside hierarchies through 4 phases. Realization where when they enter the building they are empowered through the exclusion of the non-marginalized. Education, through book clubs, lectures, reading cafes. Behavior where they get to meet and interact with other people who affirm their new found beliefs, and finally support is where they can start lobbying, expressing and eventually mobilizing.

When it's time to protest, the structure goes on lockdown and transforms into an operations center for media management, press communications and lobbying efforts.





NO JUSTICE
NO PEACE

DEMILITARIZE
THE POLICE

SAY HIS NAME
GEORGE FLOYD

NO JUSTICE
NO PEACE

UNITY IS
POWER

NO JUSTICE
NO PEACE

GEORGE FLOYD

What is social justice? Equality - Equity - Justice

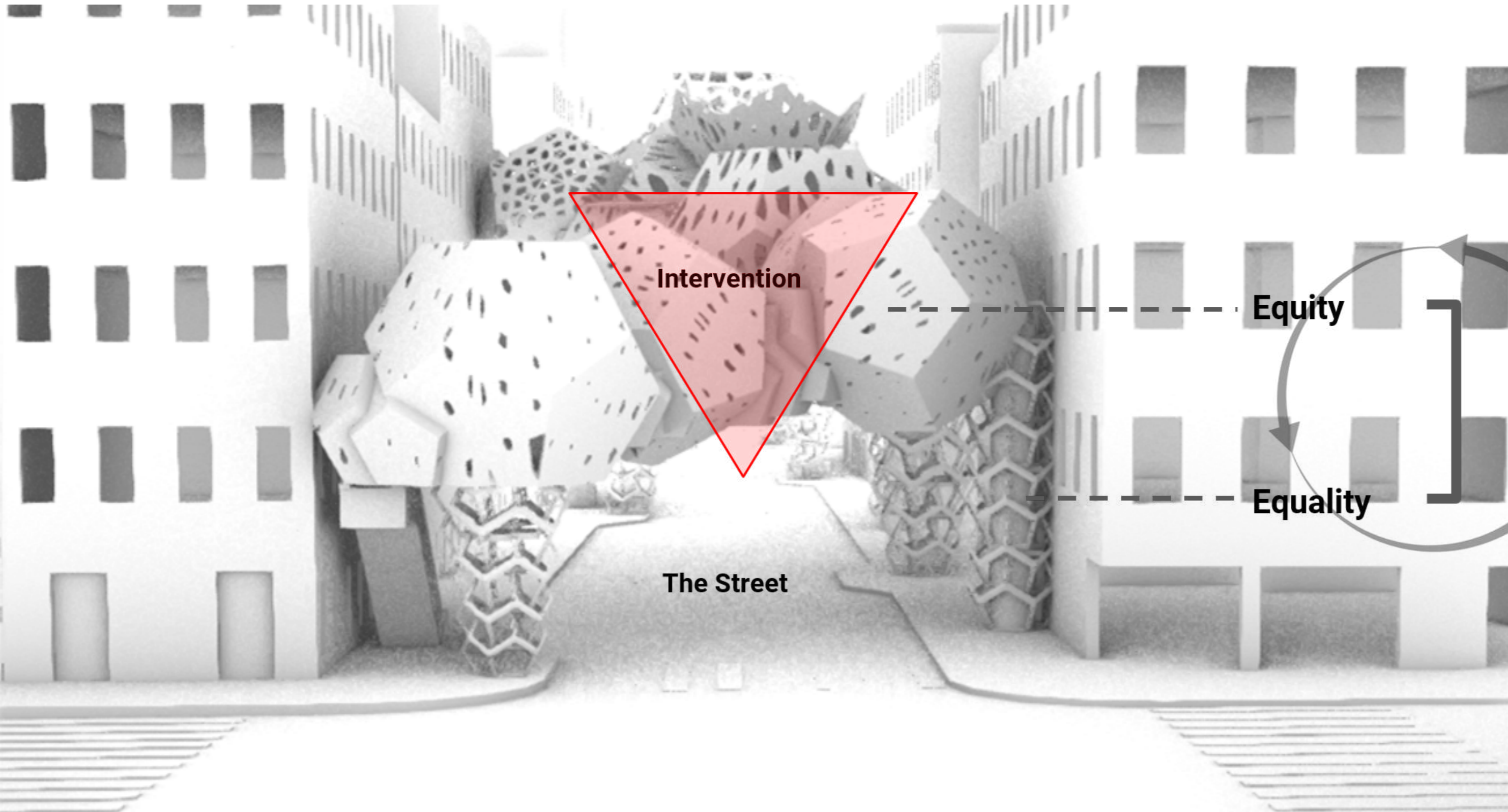


The assumption is that **everyone benefits from the same supports**. This is equal treatment.

Everyone gets the supports they need (This is the concept of "affirmative action"), thus producing equity.

All 3 can see the game without supports or accommodations because **the cause(s) of the inequity was addressed**. The systemic barrier has been removed.

What is the role of the street in Justice ?



Living organism **with a skin that talks on behalf of it**



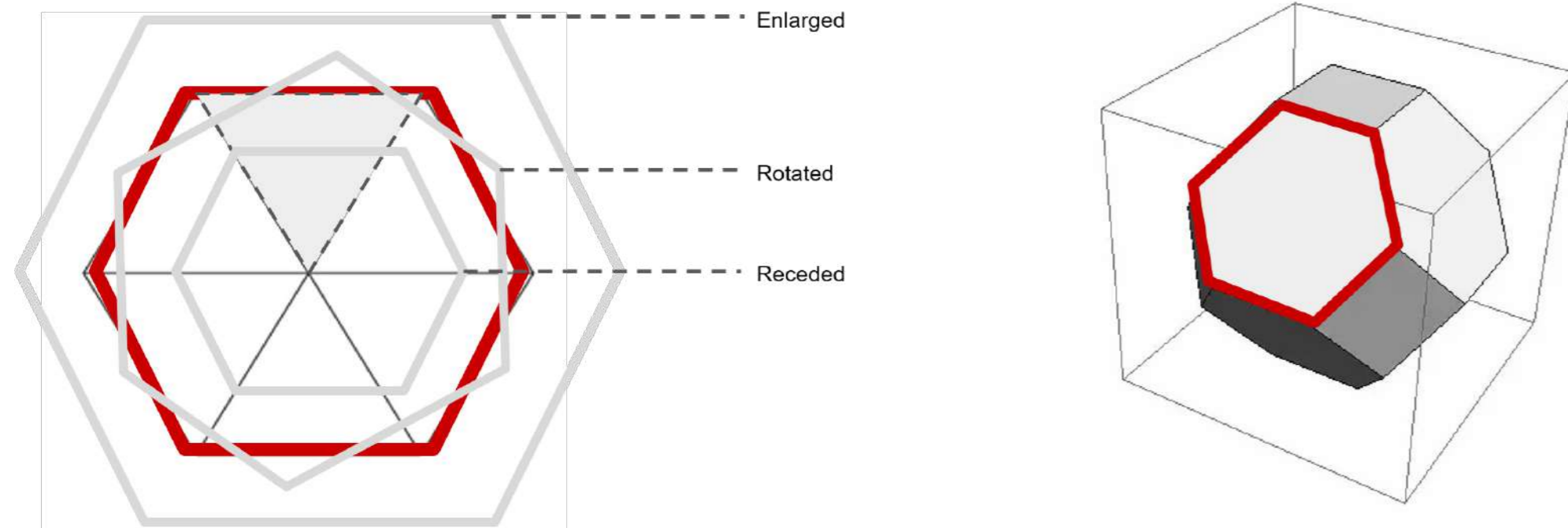
Through tackling the limiting beliefs with **reversing the social hierarchies**



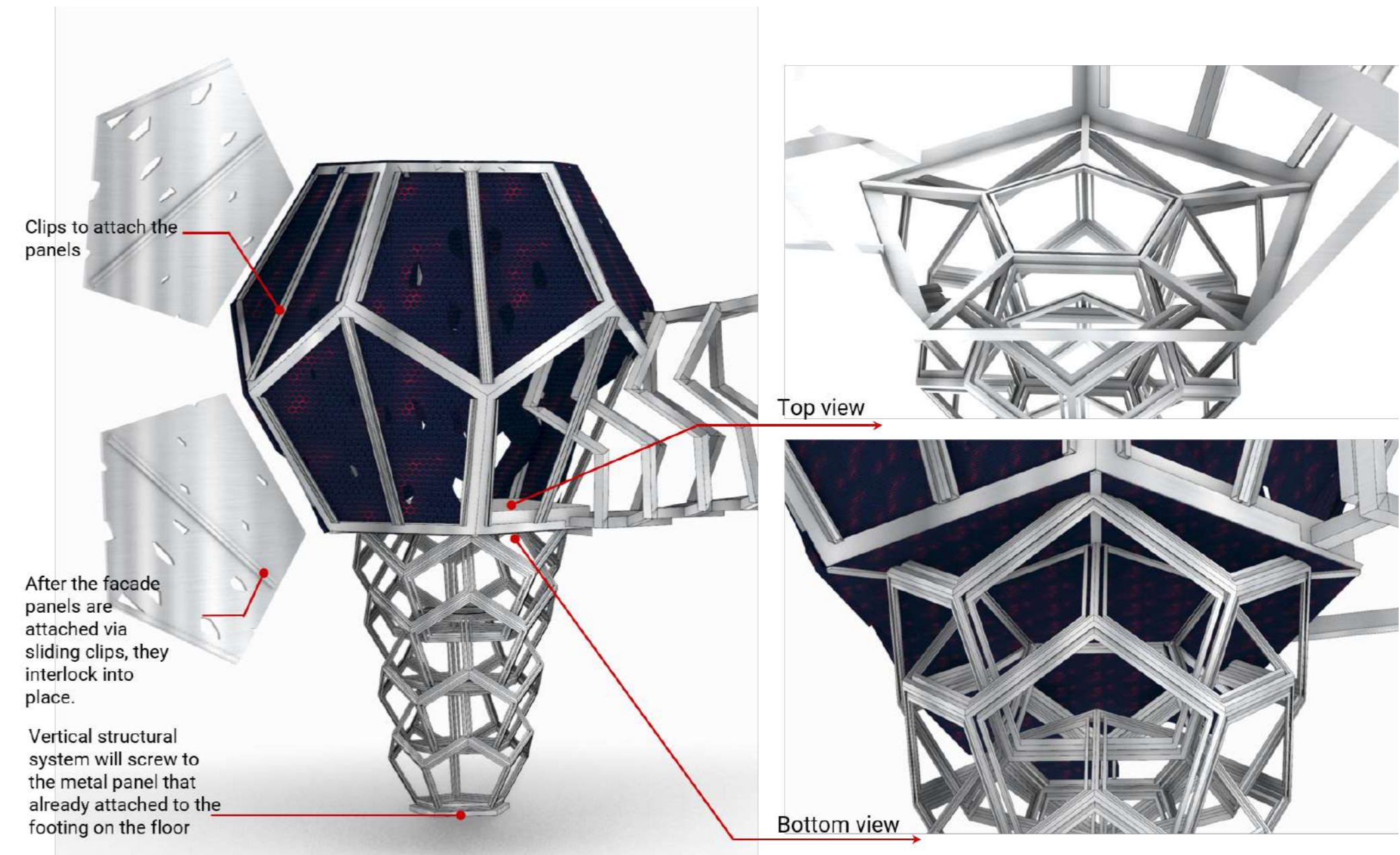
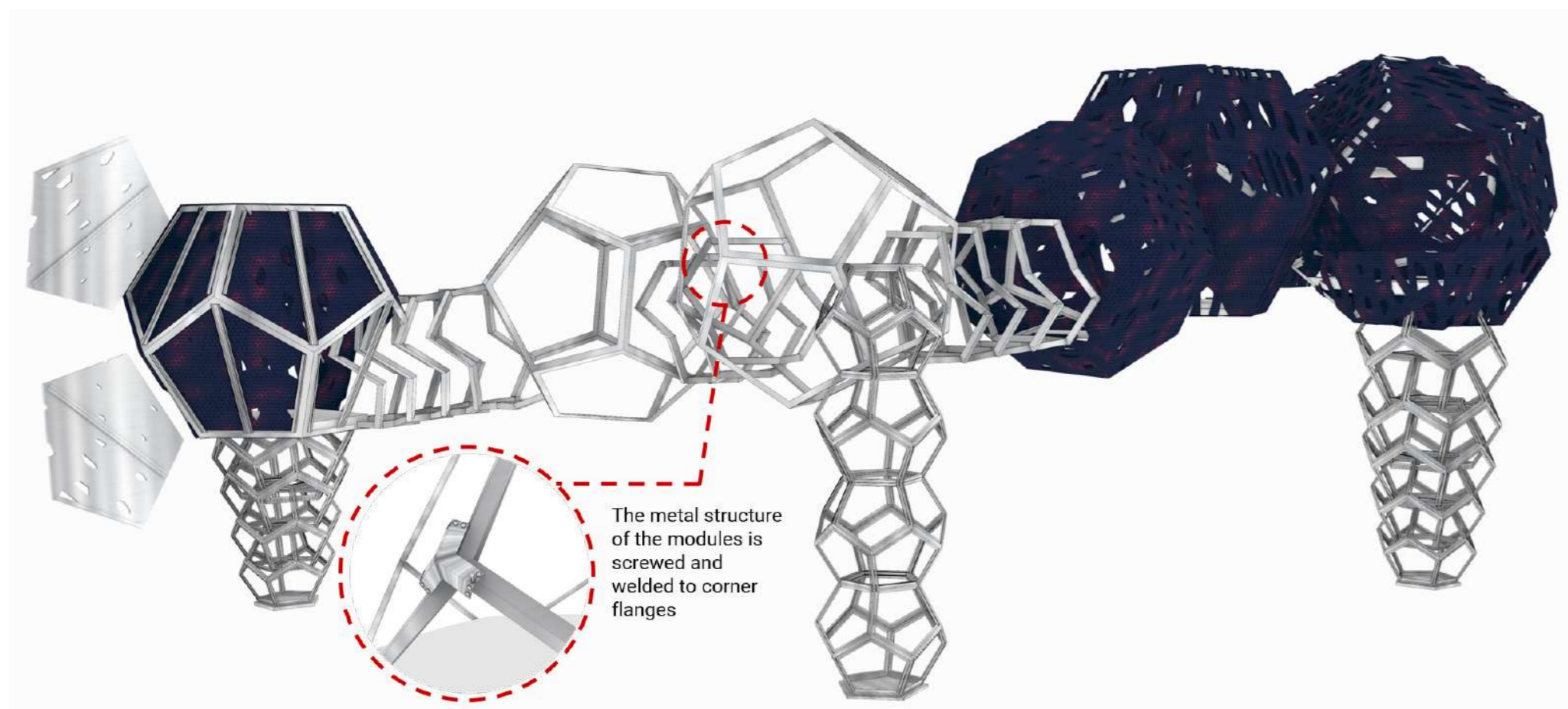
Organism transforms into **operations center for organized protests**

Module/ Structure

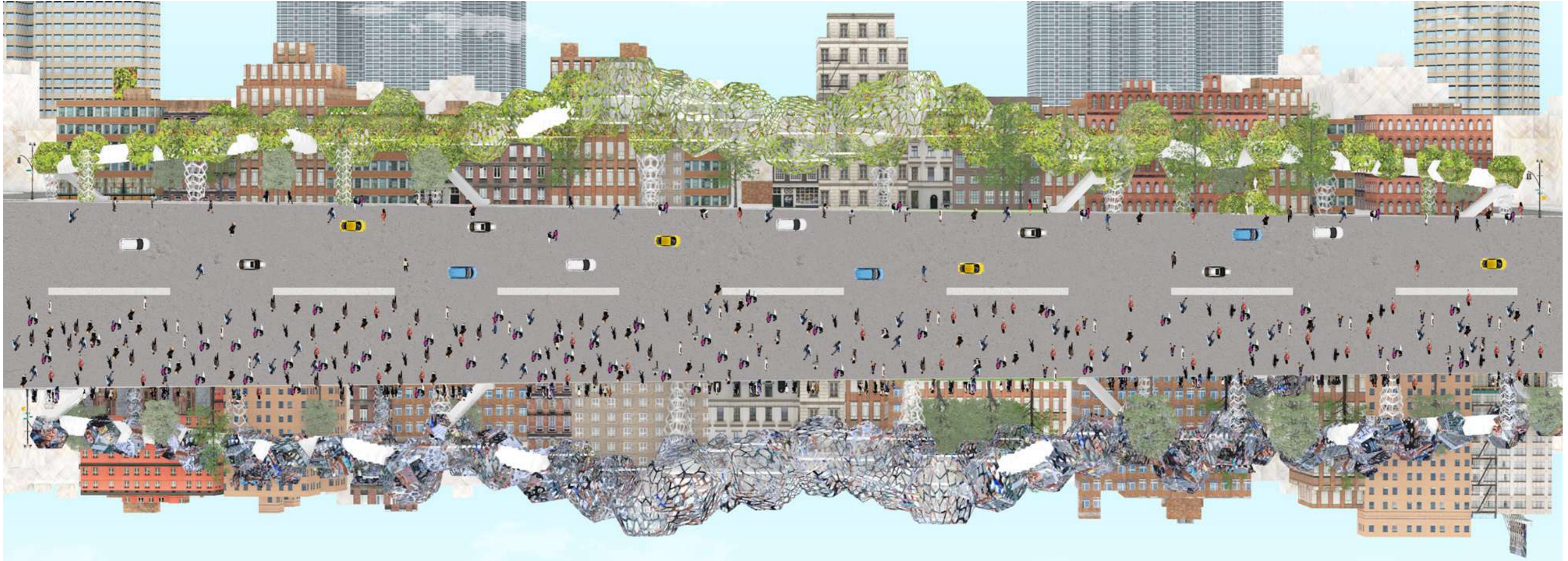
Our module started with a reversed triangle and then extrapolated. We decided to volumize it rather than extend it to defy the linearity of the street. Each module's size, aperture, and materiality evolves throughout the structure. The facades and some interior walls are interactive, showing images and video.



The structure of our building is made of stainless steel, with individual modules being screwed and welded together. Modules support the weight of the entire system via columns, which are placed every 80'. Outside portions of the building clip together.



Program: Daily vs Protest Mode



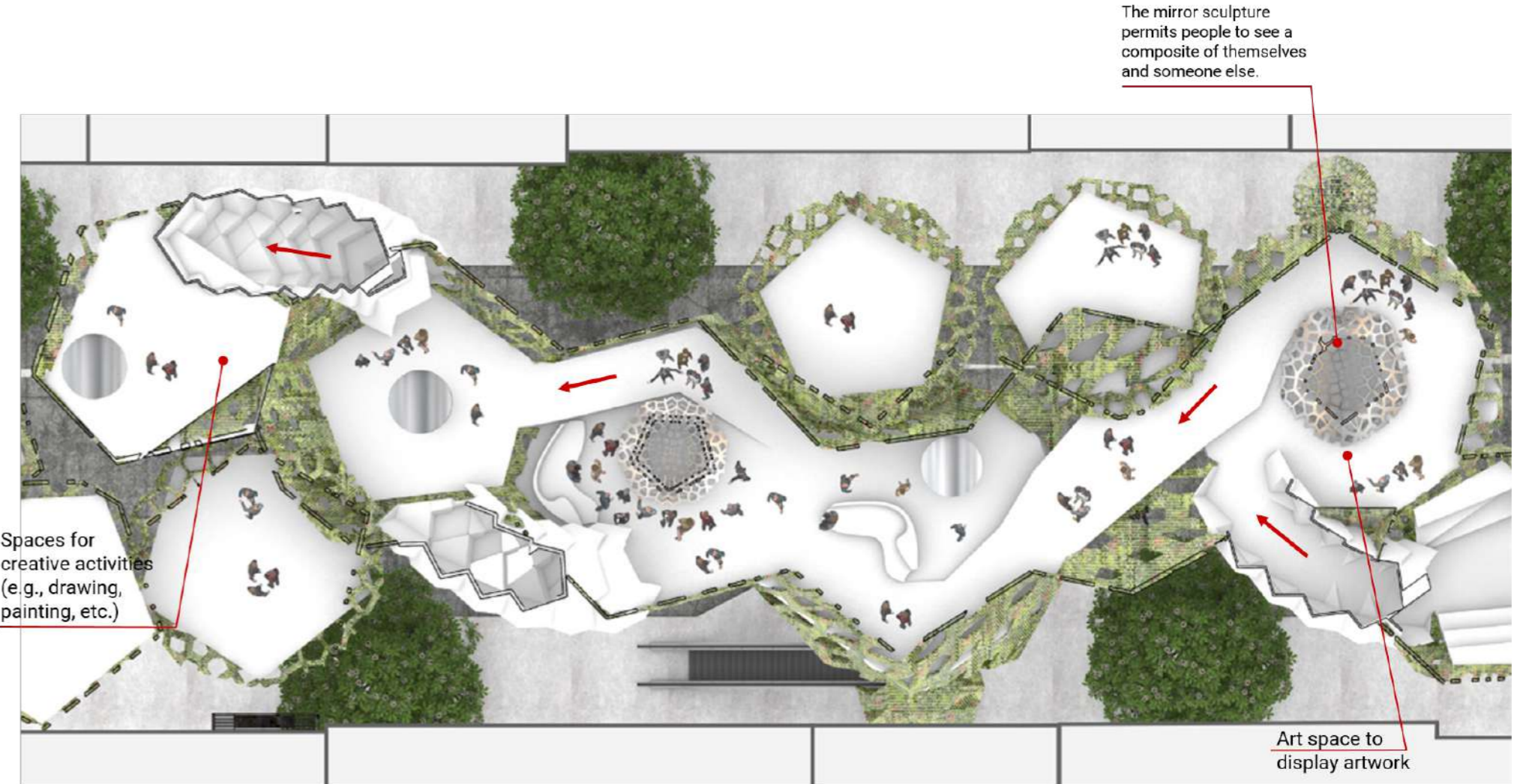
Operation: **Protest**



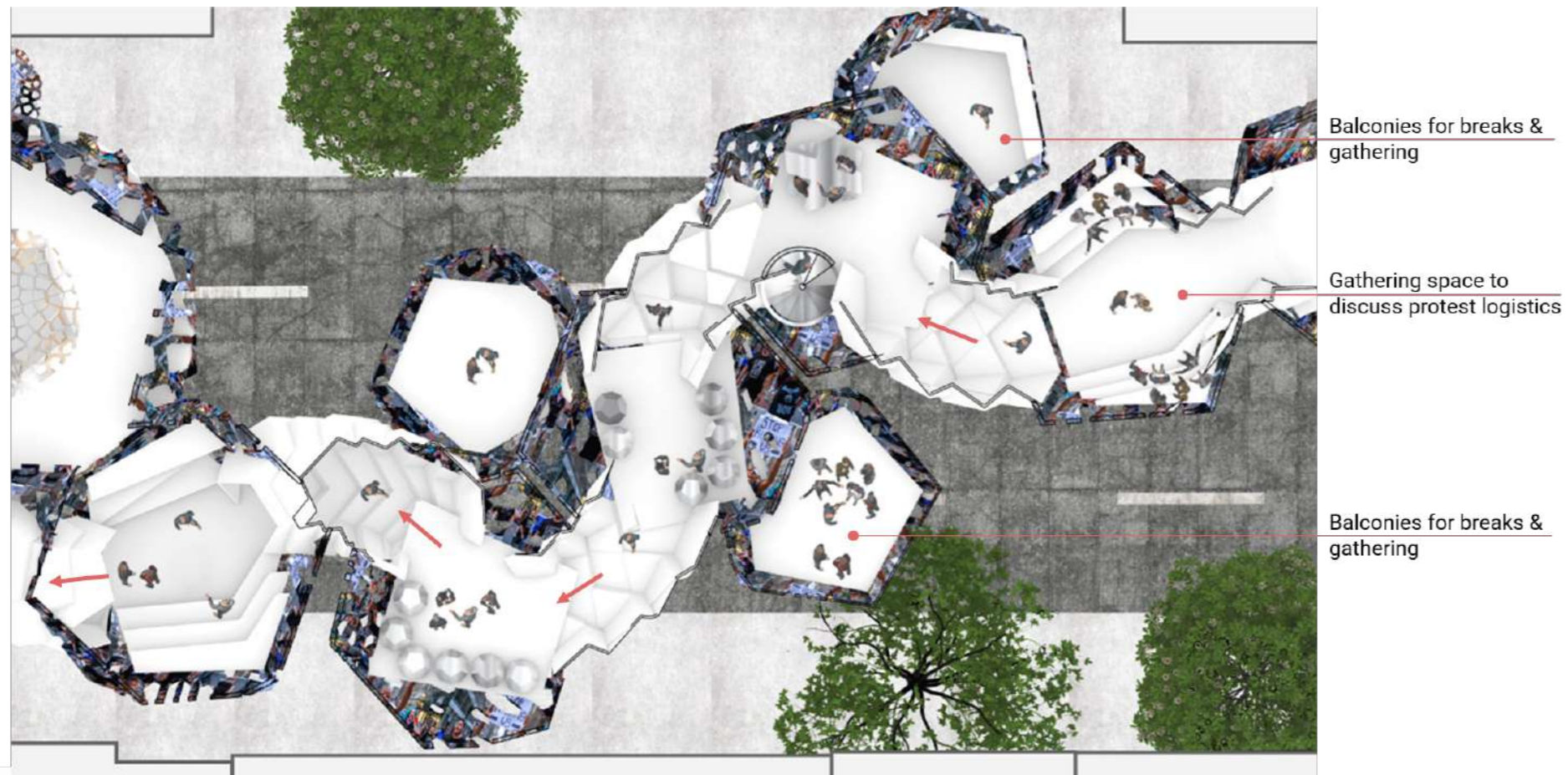
Plans



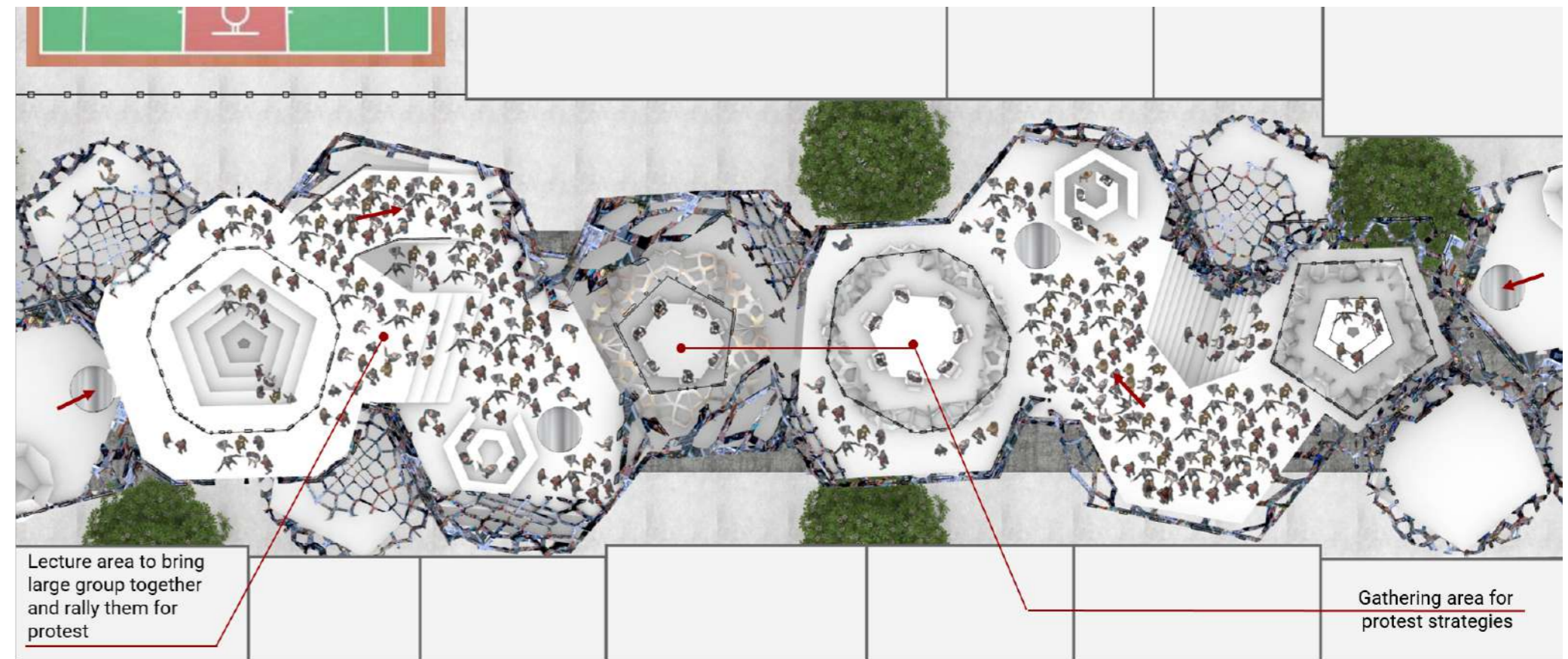
Key Plan



Key Plan



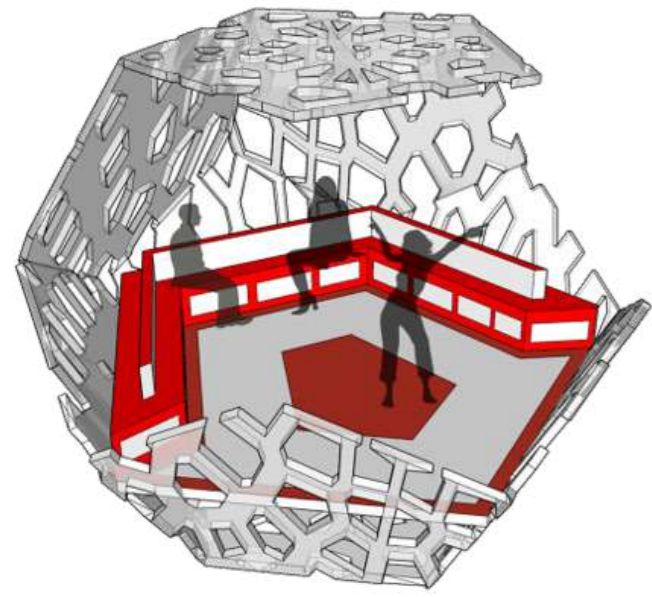
Key Plan



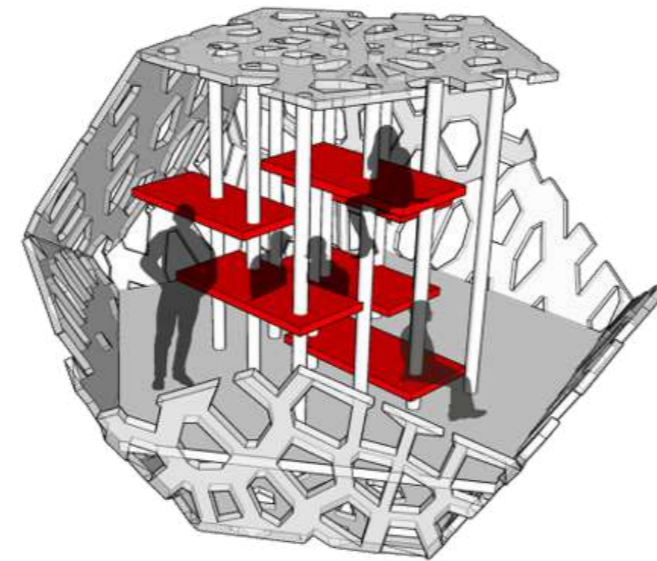
Key Plan



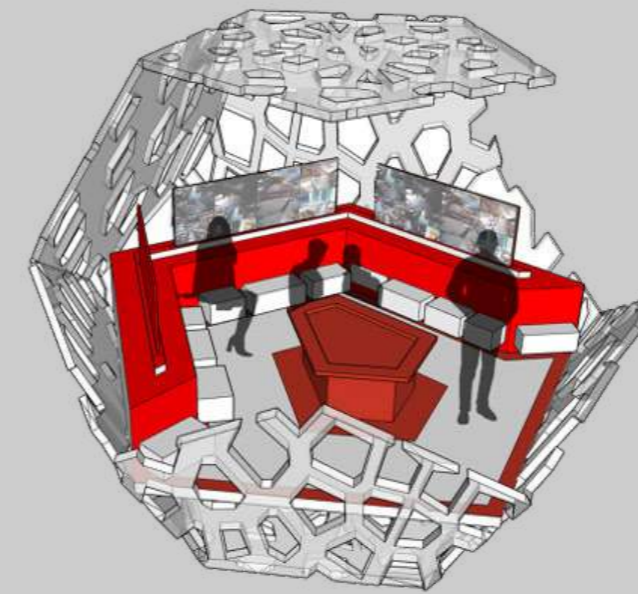
Module interactive furniture



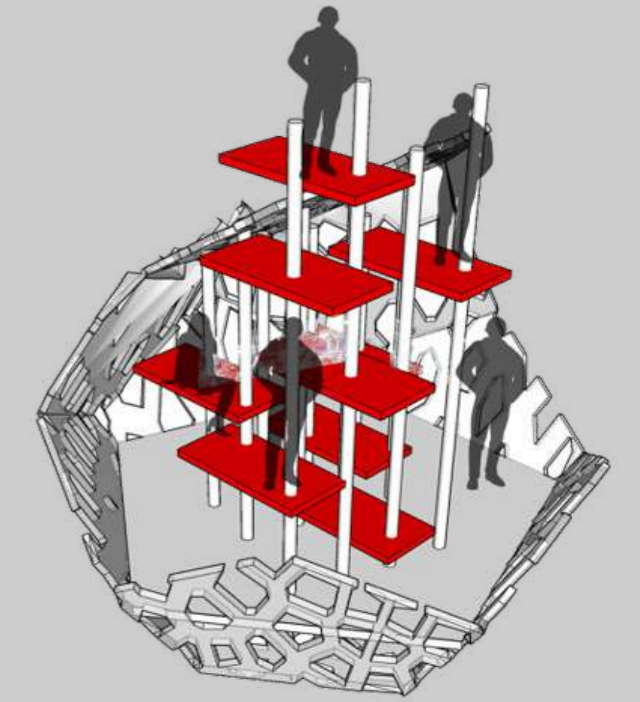
Benches designed to foster social interaction



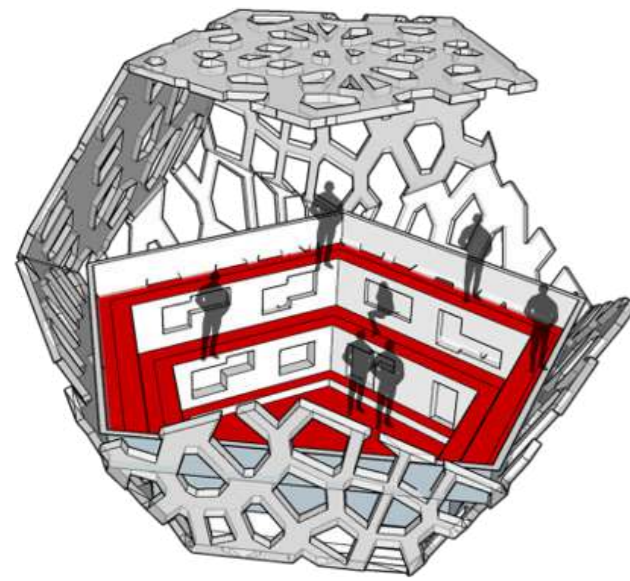
Adult jungle gym for interactive social setting



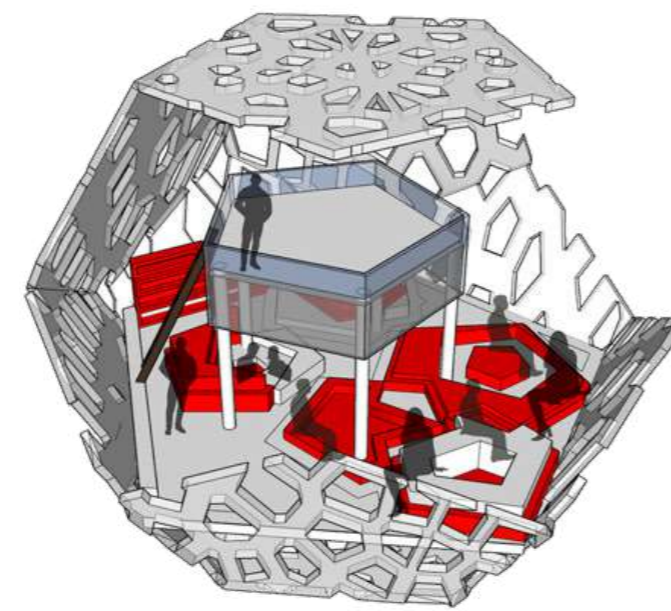
Bench Rises to be table and screens emerge



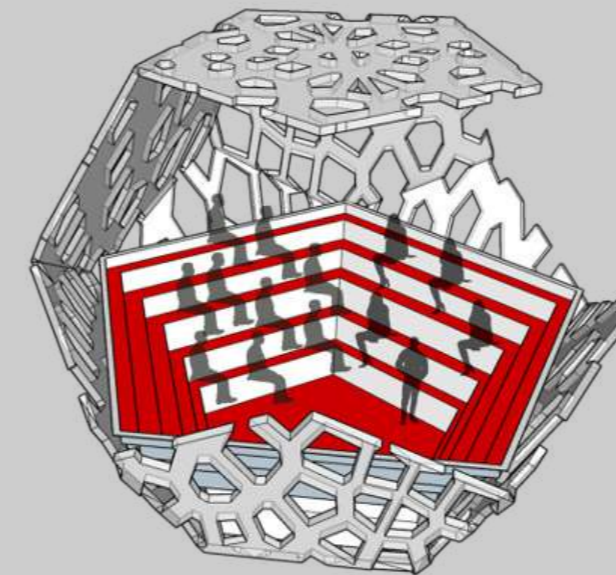
Poles extend to become an observatory deck for protest monitoring



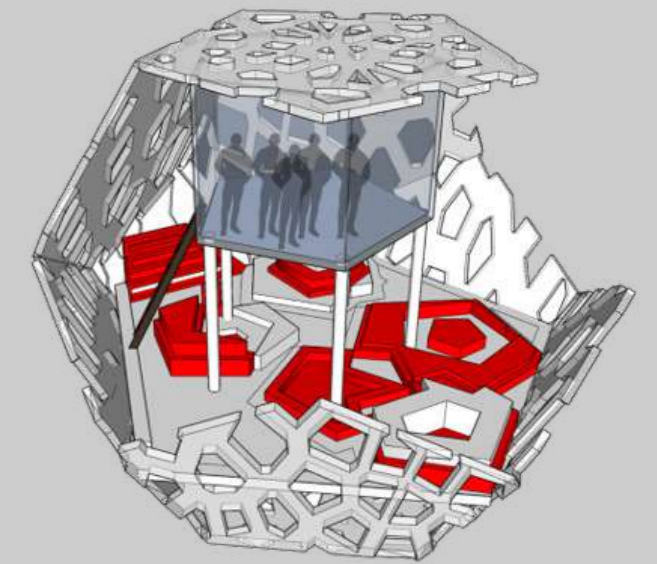
Art and social exhibit space



Mezzanine for shows and lectures



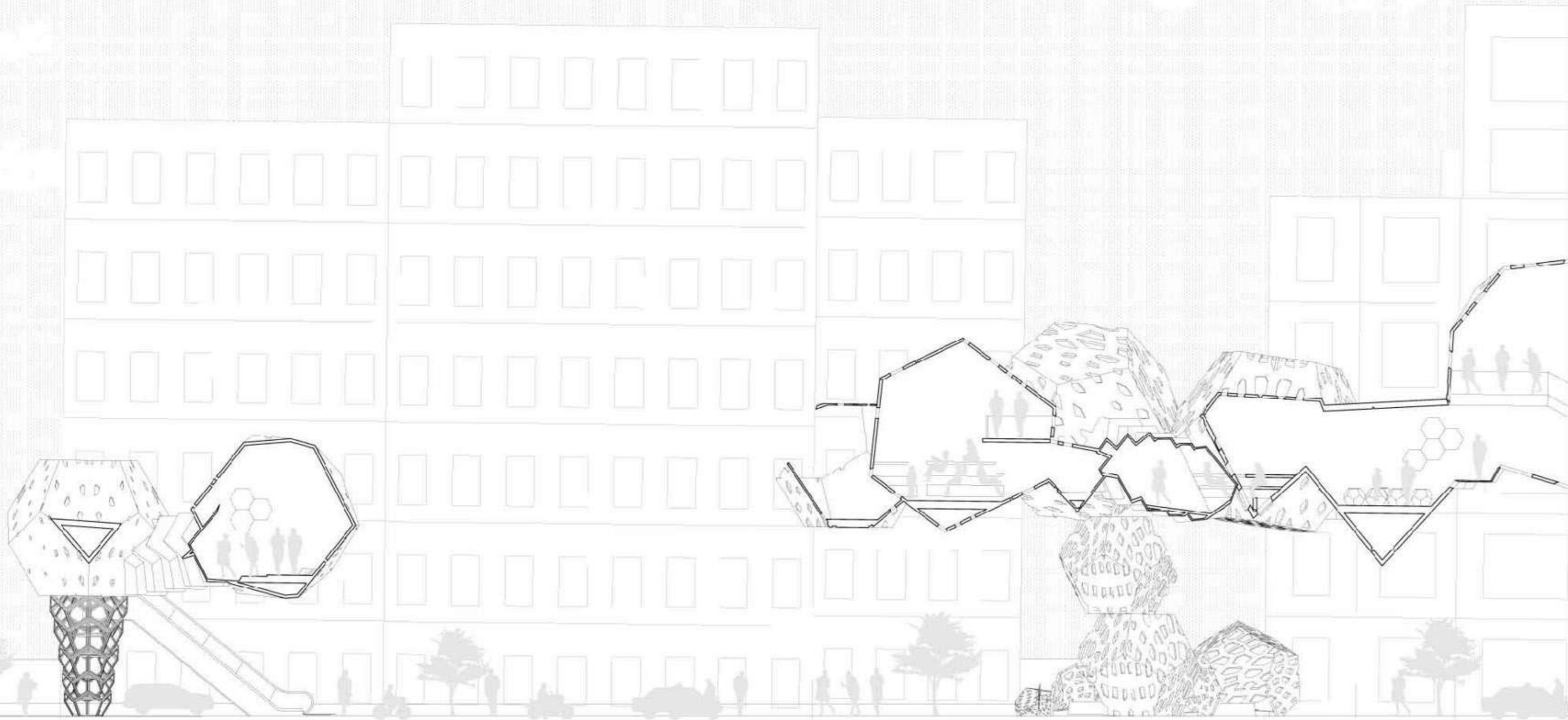
Becomes a lobbying arena



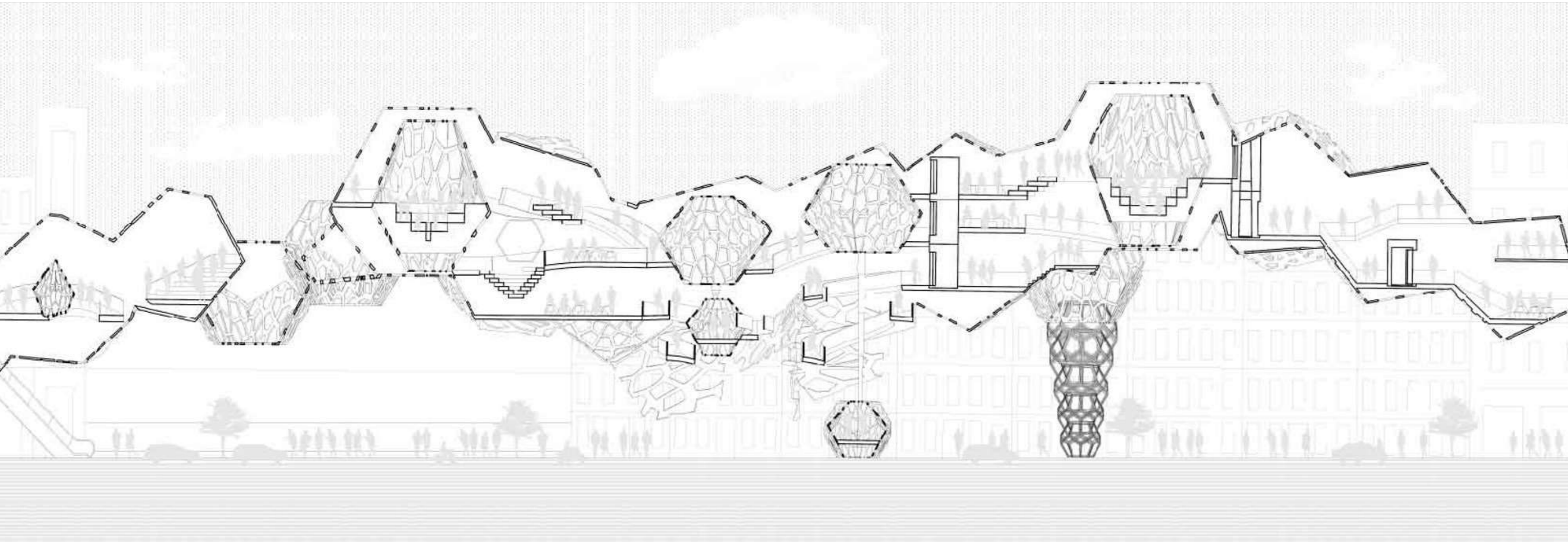
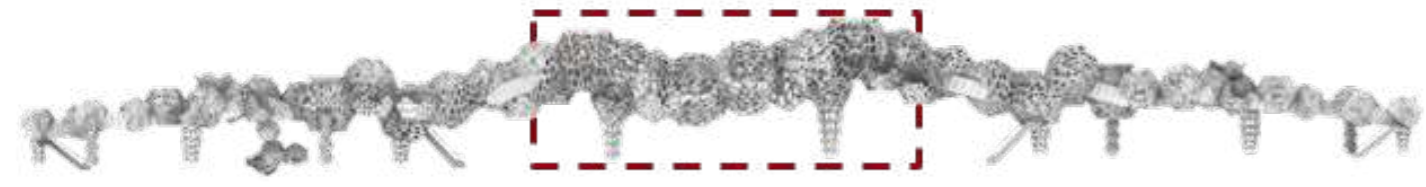
Operations center for top priority protest communication



Sections



Sections





ARCHITECT + THINKER

Between Stability and Freedom: Define Your Utopia

A commentary on Seoul City Machine by Liam Young

Andres Jaques - Transscalarities (FALL 2020)

In this imaginative story telling piece, we witness the future city from perspective of architect and futurist Liam Young. A dystopia of sort, where machine replaces man in an AI urban operating system that now runs the city of Seoul is portrayed in a 2-minute thought provoking video. Drones, flying cars, autonomous machines, all of our imaginative predictions of the future viewed with a dull "Big Brother" lens and narrated by an AI generated script. Although Young's speculative piece is well informed with an extrapolation of current day technology, can it be argued that there could be a counter extrapolation where technology advances humanity rather than taking over it? Tackling the premise that the narrative was built on, one should/may ask whether the average citizen trust a politician or a machine to run their city?

A rational first thought would be to choose the human, because we can relate to humans and trust them- while a machine is an alien system. The alien nature is amplified in Young's video when the city machine declares, "I am older than a newborn baby but younger than the universe" (Young 2019, 00:48) thus contrasting it's timelessness with bound human timing making it hard for humans to empathize and relate to it. But a human comes with their own sets of biases, potential corruptions, and ulterior motives; while a machine is a transparent programed system that can be designed to fulfill collective needs. While one cannot review the motives of a politician, a machine is traceable and programmable and within the right bounds and regulations it has potential to implement a just system. During an interview Young stated, "I'd trust an AI to govern my city much more than I'd trust an idiot politician who is only interested in their reelection and their wealth" (Young 2020), thus denoting a potentially successful urban system.

Which brings us to the subsequent argument: freedom or stability? An urban operating system is a bounding one, where individuals within the urban environment would have to sacrifice some of their freedom to achieve collective stability as emphasized in Young's video with framing shots that position humans as subservient to the technology. Alternatively, if one chooses their absolute freedom, they risk their stability and might even lead to chaos as portrayed in the award-winning movie The Purge (DeMonaco 2013) when havoc wreaks in the 12 hours of anarchy. Leading to an age-old controversy of achieving utopia: do we reach it by having absolute freedom or having a stable life that meets our needs and desires. A city run by programmable machines works for the collective harmony and stability naturally sacrifices parts of our human will, but whether this is a frightening situation or a convenient one is a matter of subjectivity. Young's disembodied urban operating system comes with the promise of stability, but with the hovering drones and heavy surveillance, it becomes obvious that freedom is not included in the package. Machines and technology are key players in imagining the future, and while Young's movie depicts the dystopian exploration, it should be up to the reader to decide their own utopia. A transparent system running your city with stability ensured or a human running your city with the promise of freedom?



ARCHITECT + DEVELOPER

The Step Up

A development proposal for a student housing complex on the Upper West Side

Eran Chen - Design by Development (FALL 2021)

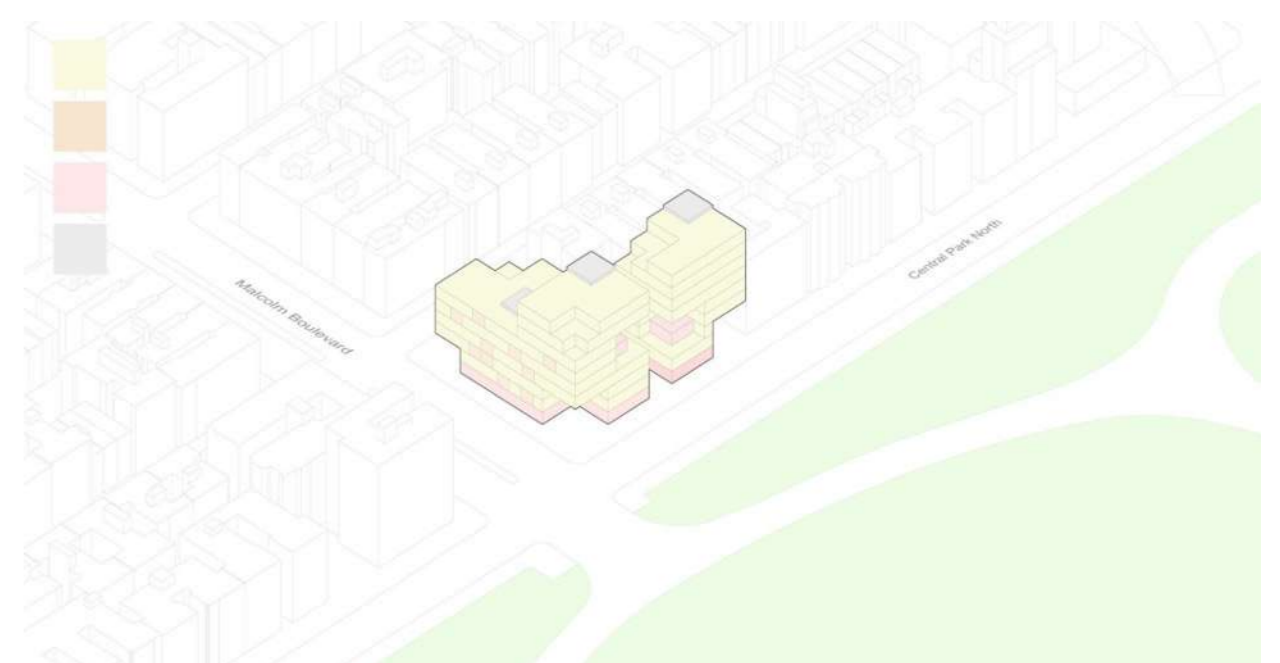
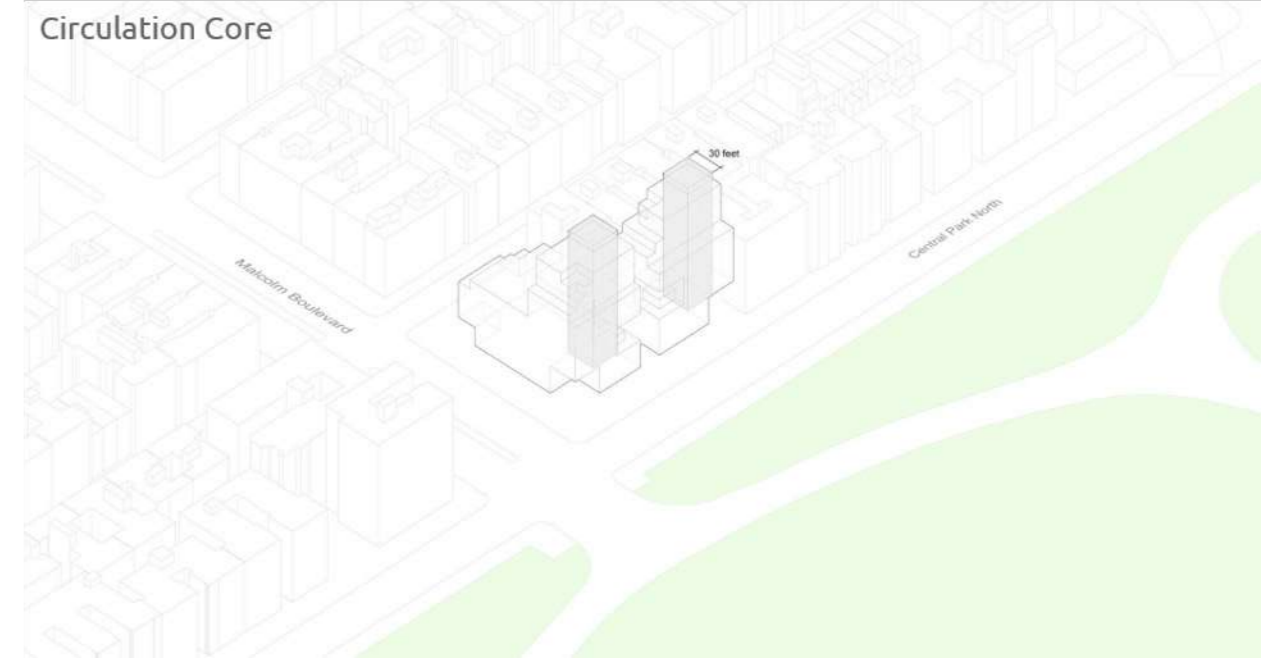
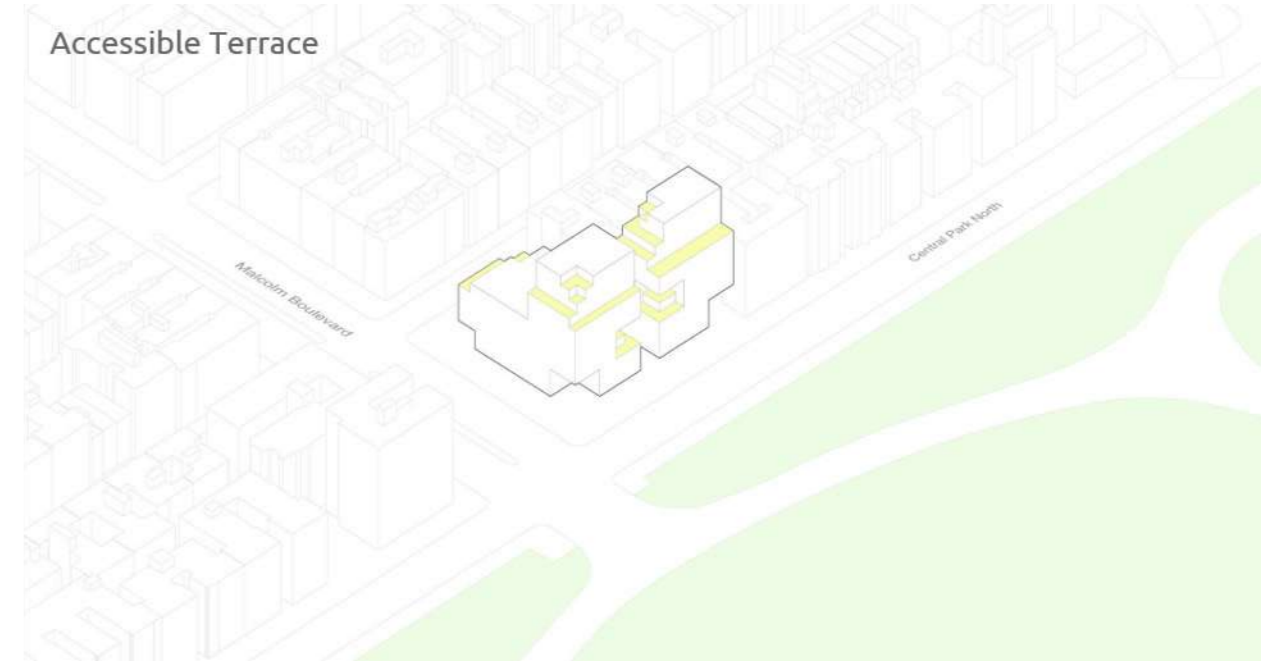
Within a group of 4, two architects and 2 real estate developers, we were prompted to pick a site and create a full development proposal for it. The proposal should include site research, product type, massing, branding and marketing, and financials.

My role was spread between the different tasks as I worked on the site research, massing, marketing, and branding.

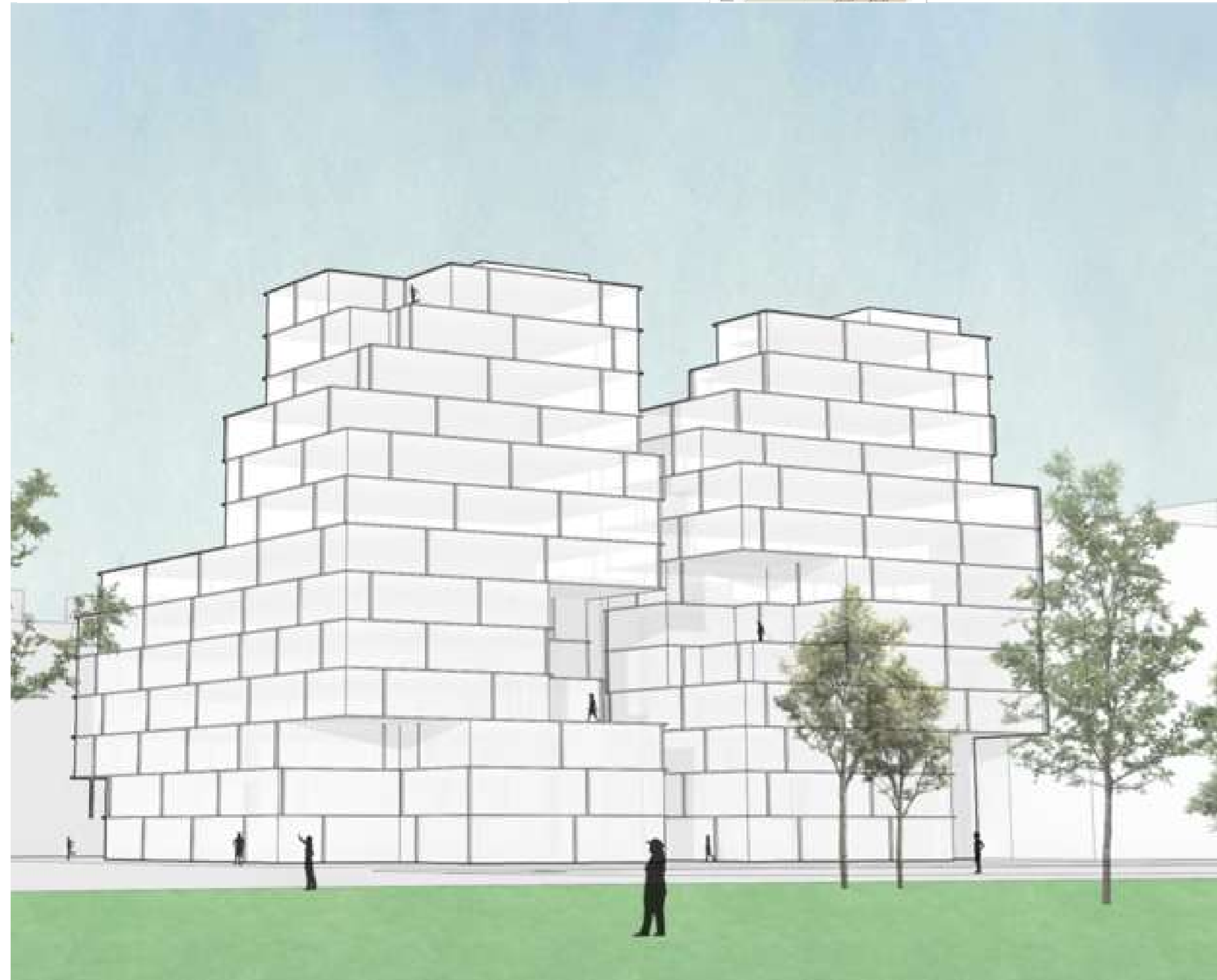
We chose a site by Central Park north, a very youthful area on the edge of Harlem. We then proposed small unit student/ youth housing and prepared a comprehensive design proposal for it.



Massing



Schematic Plans



Marketing and branding



INCOME/EXPENSE		
Market Rate Rent	\$65	PSF
Affordable Residential Rent	\$30	PSF
Commercial NNN Rent	\$0	PSF
Parking Rent	\$0	per space per month

Affordable/Low Income SF Percentage	25%
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Gross Market Rate	\$6,257,687
Market Vacancy Assumption	5%
Market Vacancy Loss	-\$312,884
Effective Market Income	\$5,944,802
Gross Affordable/Low Income	\$962,721
Low Income/Affordable Vacancy Assumption	5%
Affordable/Low Vacancy Loss	-\$48,136
Effective Affordable/Low Income	\$914,585
Effective Residential Income	\$6,859,387

Gross Commercial Income	\$0
Commercial Vacancy Assumption	0%
Commercial Vacancy Loss	\$0
Effective Commercial Income	\$0

Gross Parking Income	\$0
Parking Vacancy Assumption	5%
Parking Vacancy Loss	\$0
Effective Parking Income	\$0

Total Effective Income	\$6,859,387		
OpEx/Unit/Month	\$994	per unit	30%
Tax Abatement?	Y	Y/N	
Real Estate Taxes	\$129,722.00	2%	of total income
Total Operating Budget	\$2,187,538	\$11,929	per unit

CASH FLOW

	Stabilized Year							
	1	2	3	4	5	6	7	8
Assumed Growth	3%							
Market Rate Effective Income	\$ 5,944,802	\$ 6,123,146	\$ 6,306,841	\$ 6,496,046	\$ 6,690,927	\$ 6,891,655	\$ 7,098,405	\$ 7,311,357
Affordable Effective Income	\$ 914,585	\$ 932,877	\$ 951,534	\$ 970,565	\$ 989,976	\$ 1,009,776	\$ 1,029,971	\$ 1,050,571
Commercial Effective Income	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Parking Effective Income	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Total Income	\$ 6,859,387	\$ 7,056,023	\$ 7,258,375	\$ 7,466,611	\$ 7,680,903	\$ 7,901,431	\$ 8,128,376	\$ 8,361,927
Operations and Maintenance	\$ (2,187,538)	\$ (2,253,164)	\$ (2,320,759)	\$ (2,390,382)	\$ (2,462,093)	\$ (2,535,956)	\$ (2,612,035)	\$ (2,690,396)
Real Estate Taxes	\$ (129,722)	\$ (129,722)	\$ (129,722)	\$ (129,722)	\$ (129,722)	\$ (129,722)	\$ (129,722)	\$ (129,722)
Total Operating Expenses	\$ (2,317,260)	\$ (2,382,886)	\$ (2,450,481)	\$ (2,520,104)	\$ (2,591,815)	\$ (2,665,678)	\$ (2,741,757)	\$ (2,820,118)
NOI	\$ 4,542,127	\$ 4,673,137	\$ 4,807,894	\$ 4,946,507	\$ 5,089,088	\$ 5,235,752	\$ 5,386,619	\$ 5,541,809
Senior Debt Service	\$ (3,893,207)	\$ (3,893,207)	\$ (3,893,207)	\$ (3,893,207)	\$ (3,893,207)	\$ (3,893,207)	\$ (3,893,207)	\$ (3,893,207)
Subordinate Debt Service	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Total Debt Service	\$ (3,893,207)	\$ (3,893,207)	\$ (3,893,207)	\$ (3,893,207)	\$ (3,893,207)	\$ (3,893,207)	\$ (3,893,207)	\$ (3,893,207)
Debt Coverage	1.17	1.20	1.23	1.27	1.31	1.34	1.38	
Net Cash Flow	\$ 648,920	\$ 779,930	\$ 914,687	\$ 1,053,300	\$ 1,195,881	\$ 1,342,545	\$ 1,493,412	

BUILDING PROGRAM

Rehab or New Construction	New Construction
As of Right Above Grade GSF	160,849
Planned Development	
Above Grade Residential GSF	156,540
Commercial SF	-
Cellar SF	-
Total Buildable SF	156,540
Efficiency	82%
Residential Net SF	128,363
Units	183
Parking Requirement	0%
Parking Spaces	0
Taxes and Approvals	
ULURP Required?	N
Additional Pre-Development Period	24

per unit
Y/N
months

DEVELOPMENT BUDGET

	Amount		
Land Acquisition	\$600	psf	\$15,171,000
Building 1 Acquisition (vacant)	\$0	psf	\$0
Building 2 Acquisition (occupied)	\$371	psf	\$19,110,000
Demolition Cost	\$70.00	psf	\$6,092,610
Total Acquisition Basis			\$40,373,610
Above Grade Residential GSF	\$475	psf	\$74,356,500
Commercial SF	\$0	psf	\$0
Cellar SF	\$0	psf	\$0
Parking	\$0	per space	\$0
Total GC Contract			\$74,356,500
Contingency	5%	of contract	\$3,717,825
Total Hard Cost			\$78,074,325
Base Soft Costs	30%	of hard costs	\$23,422,298
Additional Soft Costs (ULURP, etc)			
Total Soft Costs			\$23,422,298
Required Reserves	\$0	per unit	\$0
Total Development Cost			\$141,870,233
TDC per unit			\$773,660

DEBT SIZING

Net Operating Income	\$4,671,849	
Debt Service Coverage Ratio	1.2	
Debt Service at DSCR	\$3,893,207	
Loan to Cost	70%	
LTC Max	\$99,309,163	
Interest Rate	3.25%	
Loan Term	7	
Amortization Term	30	
Supportable Debt	\$74,547,152	
Bond Debt?	N	Y/N
Loan Amount	\$74,547,152	
Annual Senior Debt Service	\$3,893,207	
Balloon?	Y	
End of Term Balloon	\$63,006,743	
Subordinate Debt?	N	Y/N
Factored into Senior Debt Sizing?	N	Y/N
Maximum Subsidy Per Affordable Unit		
Subsidy Required	\$0	
Subsidy Per Affordable Unit Requested	\$0	
Subordinate Loan Term		
Subordinate Loan Interest Rate		
Subordinate Debt Service	\$0	
Total Annual Debt Service	\$3,893,207	

FINANCING SOURCES

	Percent of Total
Senior Mortgage	\$74,547,152 53%
Subordinate Mortgage	\$0 0%
Tax Credit Equity	\$0 0%
GP Equity	\$21,280,535 15%
LP Equity	\$46,042,546 32%
Total Sources	\$141,870,233 100%

FINANCIAL RETURN

Stabilized Year 1	
Return on Cost	3.2%
Cash on Cash	3.0%
Stabilized Year 8	
NOI	\$5,541,809
Cap Rate	4.50%
Capitalization Value	\$123,150,000
Senior Mortgage Balance	\$63,006,743
Subordinate Mortgage Balance	\$0
Terminal Value Estimate	\$60,143,257
Est. Pre-Tax IRR at Terminal	12.9%

ARCHITECT + STORYTELLER

Sanctuary

Telling a story in pairs for 3, an empty sanctuary in Marco Islands

Michael Vahrenwald- Architectural Photography (FALL 2021)

I've always been fascinated with social media grids. How 3 squares have become a format of storytelling and expression. In this class, I tackled this format to tell stories of spaces through visuals only, allowing the three independent but cohesive squares to form a larger narrative. The project selected is my favorite one of 6 we had to shoot, edit and present in class.









