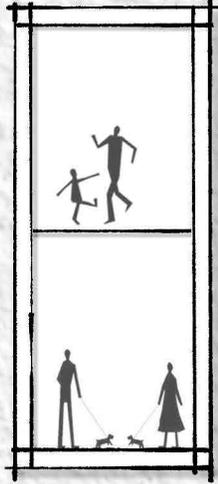


Would you ma...



Good.....



# Urban Gallery

- for better human relationship

Good  
Morning!



# Urban Gallery I Wonkyu Lee

Thesis submitted to the faculty of the Virginia Polytechnic Institute and State University

in partial fulfillment of the requirement for the degree of

Master of Architecture

in

Architecture

Marcia F. Feuerstein, chair

Paul Emmons

Markus Breitschmid

May 10th, 2016

Alexandria, VA

Apartment, Human relationship, Gallery, Wall, New York



## Urban Gallery I Abstract

Since the dawn of high-rise buildings, human relationships have been limited by the floors. Compared to the pre-industrialized era where residential streets fostered community socialization, it is safe to say our relationships are constrained to the physical boundaries that surround us. Especially large cities such as New York, Chicago, Tokyo and Hong Kong, citizens lack compassion towards each other, treating neighbors as strangers.

The fundamental problem of this phenomenon originates from the stacked floor arrangements that divide people. I believe it's not people's choices to be indifferent to each other; our built environment induces this behavior. The solution is to integrate a new concept of vertical plazas to the design of high-rise buildings. This social space provides citizens not only multiple paths of movement, but also the chances to interact with people outside of the boundary that vertical floors create.

This thesis explores the possibilities of the architecture as a contributor of better human relationships.

## General Audience Abstract

In a metropolis like New York City where high-rise buildings prevail, there has been an issue about human relationships compared to other small cities. With the development of the technology that comforts people's lives, people, instead of coming out to the plazas or squares to share the news and information, use the Internet at home.

Architecture is a great tool to solve this phenomenon. By thoughtfully arranging the locations of stairs, corridors, and other spaces, it can guide people's movements and eventually influence certain behaviors at certain spaces.

This thesis explores the possibilities of the architecture as a contributor of better human relationships in a densely populated area of New York City.

## Acknowledgements

To my family,

Thank you for your enduring and unconditional support and love. You are the reason why I'm here and why I enjoy doing what I'm doing everyday.

To my committee members and faculty members at the WAAC,

Marcia, I really don't know how to express my gratitude for everything you've done me. You were the most influential person in my WAAC life. Thank you for being a great mentor for two years.

Paul, your words sometimes gave me harsh moments. But, I might not be satisfied with my project without those. I truly appreciate your opinions and those small sticky notes you gave me. Thank you.

Markus, I've always enjoyed and appreciated your refreshing ideas and suggestions. I hope I was helpful as your TA.

Jaan, you were, are, and will be the inspiration itself for me.

Susan, I've always admired your visions towards urbanism. Thank you for sharing your thoughts.

Henry, I will always remember your humors and the great support.

Jodi, you were always like my older sister. Thank you for helping me get comfortable with this environment.

Nela, you were my savior on the most important day of life so far. Thank you for your warm-hearted kindness.

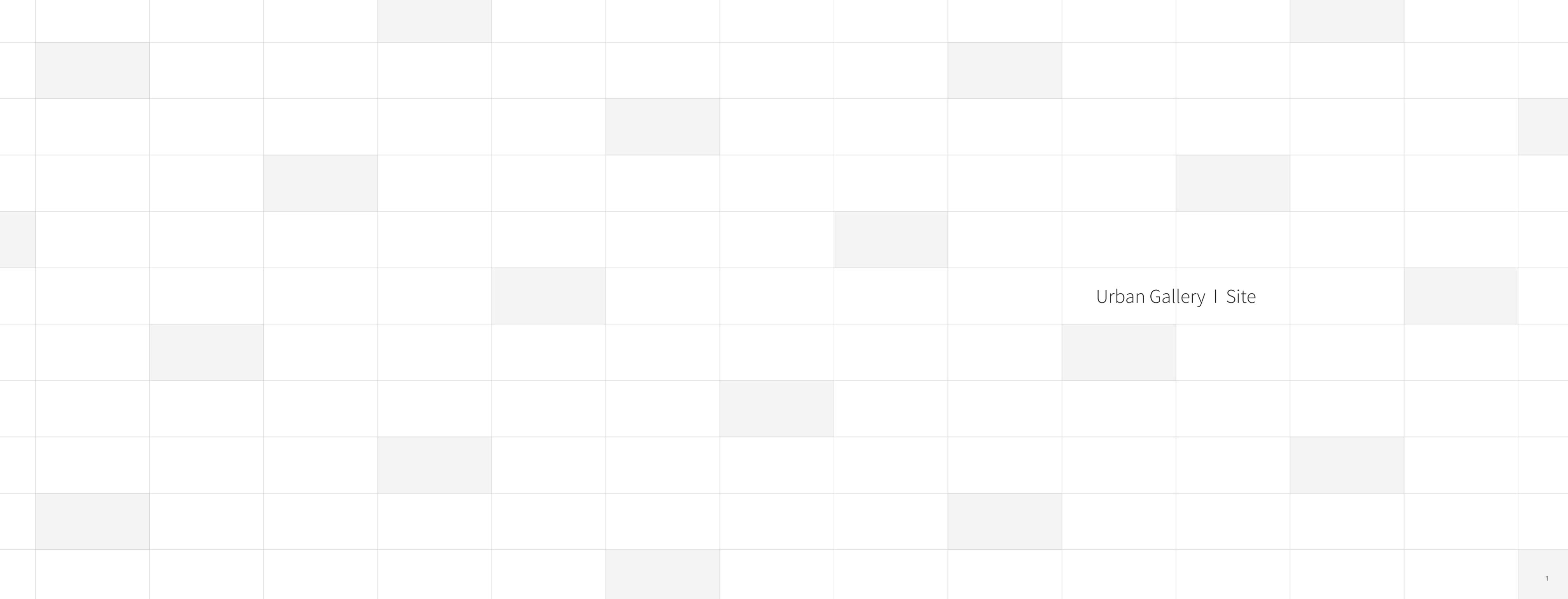
Dr. Lever, thank you for your beloved urbanism classes. Your classes were always my favorites.

To all my friends at the WAAC,

My friends, Zach, Jeff, William, Ken, Arnold, Ian, Yaminah, Manting, Thibaut, Tommy, Laura, Kiruthika, Volodymyr, Dan I will always miss you guys. Hope to see you soon!

## Urban Gallery I Table of Contents

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Urban Gallery I Site

## Site - West Chelsea, Manhattan, Hudson River, High Line

With the elevated Hudson River Railroad constructed between 10th and 11th Avenue in 18xx, Chelsea's industrialization attracted immigrants from many countries to work in local factories. A strong cultural legacy combined with an affordable real estate market aided the area's recent transition into the artistic center of New York, with over 200 art galleries.

The neighborhood is primarily residential, with a mix of apartments, city-housing projects, and row-houses. While many of the historic factories remain industrial, many now function as restaurants, retail stores, and art galleries.

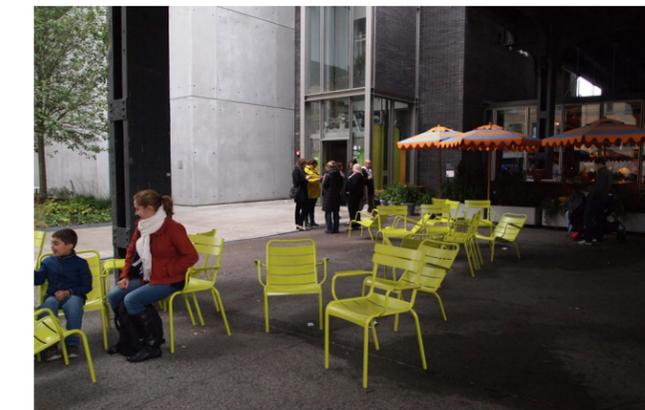
In 2009, the elevated Hudson River Railroad became re-purposed as the High Line Park that runs from Gansevoort Street, through Chelsea, to 34th Street. The project site is located close to the High Line's "Urban Theater," where benches provide the opportunity for people sit and look down the street. Combined with current open situation, people mostly sit on the benches or lean against the guard rails and enjoy the view of Hudson River.



Current use of the project site - parking



Chelsea market surroundings

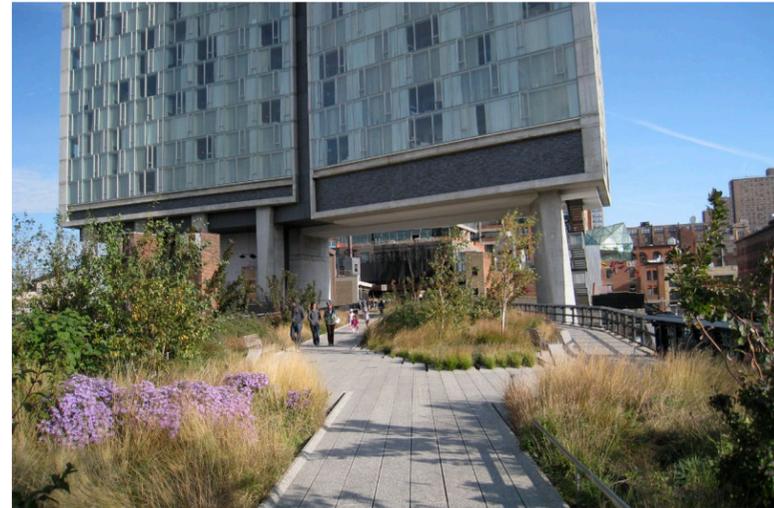


Whitney museum entrance

## Places for Interactions at the High Line



Chelsea market passage



A hotel with open rooms for communication



Urban theater I



Urban theater II

The High Line tries to communicate or interact with people in various ways.

## Limit of the High Line

The High Line, however, has a clear disadvantage which is from its linear structure. The mystery of this great park is that despite all the efforts by architects and artists to create more interactions for people to communicate, it doesn't give people opportunities to stop and stay in one place. Instead, the design has people continuously move along the path and pass through the design. There are few places to stop and rest.

With over 10,000 visitors on weekdays and twice more on the weekends, the High Line gets too crowded for people to stay at a place and enjoy the landscape.

For architecture to interact with these crowds, a large space such as a square or a plaza where people can actually stay and enjoy the open view towards the river had to be considered.



Project site on weekends



The High Line on weekends

## High Line Adjacency Controls

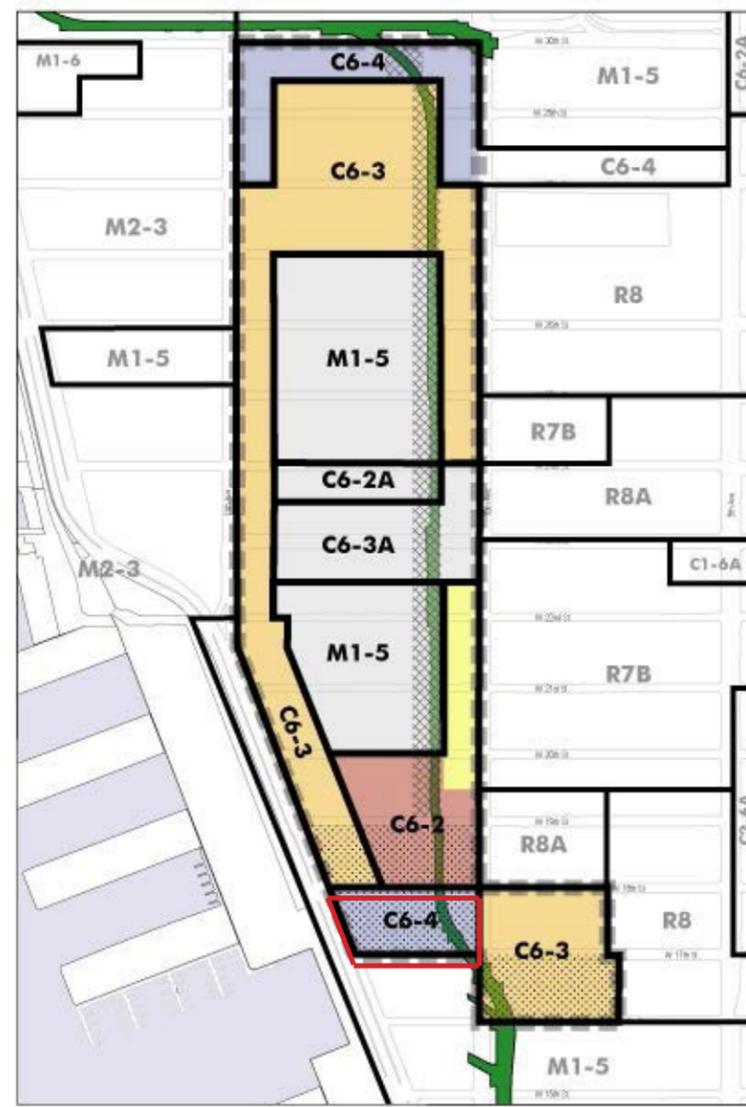
C6-4 area<sup>1</sup>

Mixed-use Area (Residential, Commercial)

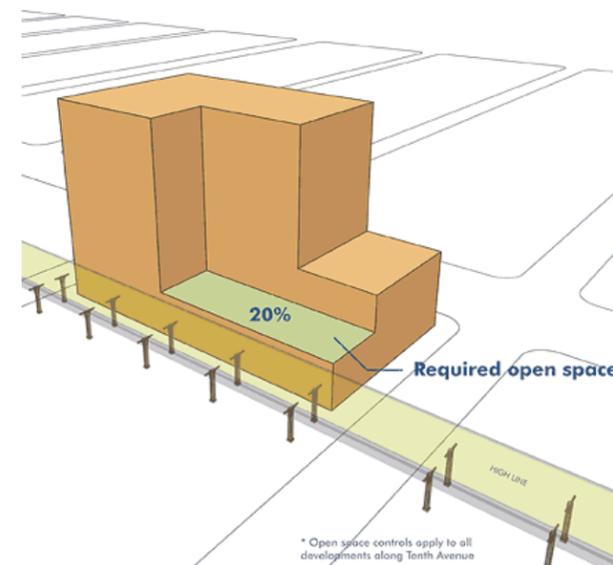
Coverage : 0.8 Max, F.A.R : 10.0 Max, No height limit

No direct access is allowed from High Line park to adjacent buildings

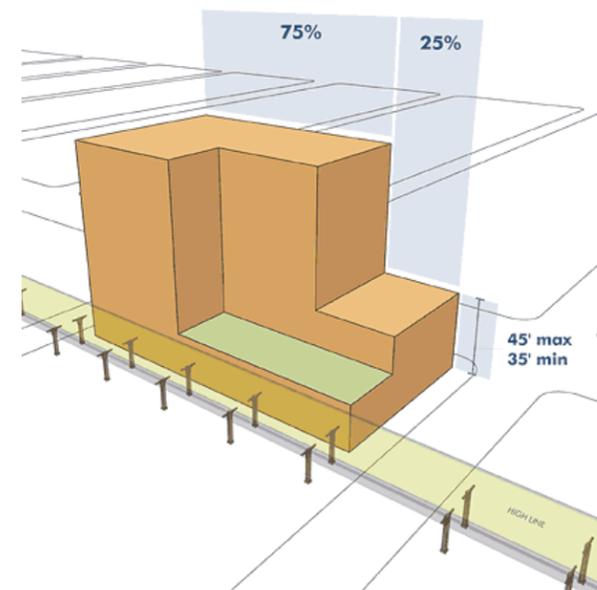
Special floor area controls would apply to the C6-4 site located between West 17th and West 18th Streets. The base FAR of area would be 7.5 and up to 10.0 FAR with the modified Housing bonus. Tower-on-a-base forms would be permitted. Higher densities within the C6-4 areas would provide an appropriate transition to the high density commercial development planned within the Hudson Yards area to the north.



**SPECIAL WEST CHELSEA DISTRICT**



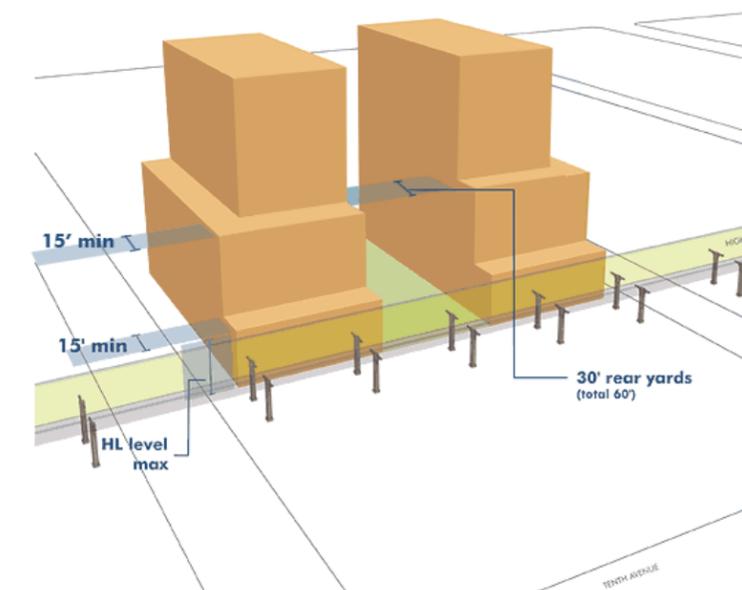
Open space requirement



Elevation design guideline

The Design guideline by High Line Adjacency Controls propose that all the buildings interact with the High Line by having an open space minimum 20% of the building footprint and having an open portion of the building so that the opening could work as a view corridor towards the river.

It also suggests rear yards and setback regulation for possible connection with the park.



Site plan and set back guideline



Land use - auto-related and vacant

100 500

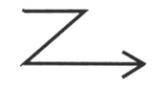


Illustrative projected build out under approved Special West Chelsea District controls

For efficient use of the site considering the high population density of Manhattan, the city suggests two high-rise towers with a podium space that connects both towers.



Building Use



- Site
- Gallery
- Residential (APT, Hotels)
- Office
- Shops
- Education
- Religious
- Others (Manufacturing, Storage)
- Highline Park

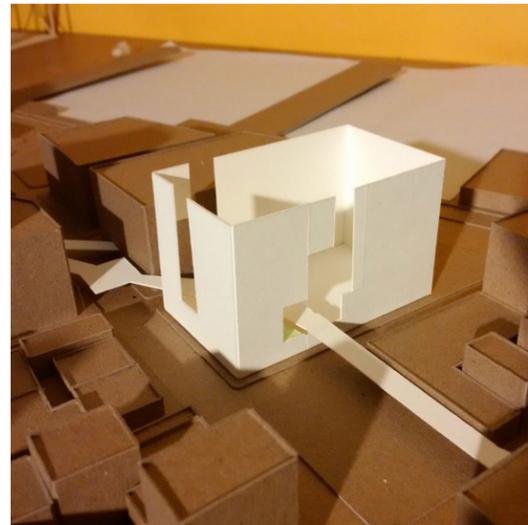
Urban Gallery I Concept - relationships

## Site and the High Line park - enclosed space for interaction

The High Line is one of the few places in New York city where people actively try to create relationships. Regardless of the 'High Line Adjacency Controls' that forces all the buildings along the park to have open spaces that are similar to the High Line level, none of them try to interact with pedestrians.

For architecture to interact with people, the design needs to let people on the High Line experience the entire space.

A rectangular box without a roof not only fulfills the requirement by the building codes, but also adds square-like environment to the linear High Line. Instead of walking the High Line, sitting on the High Line or enjoying the High Line will exist at this unique place.

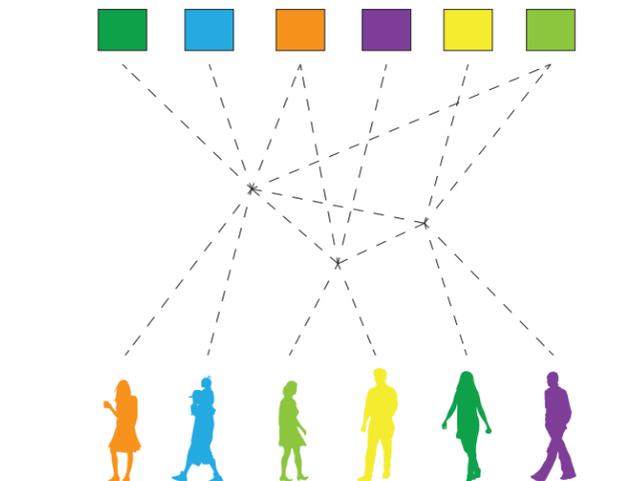
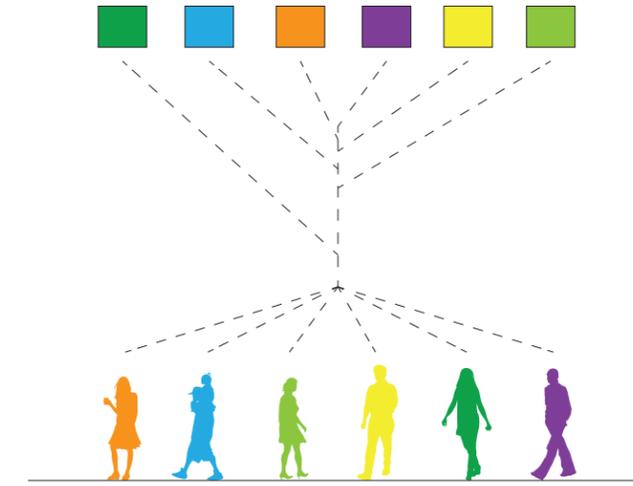


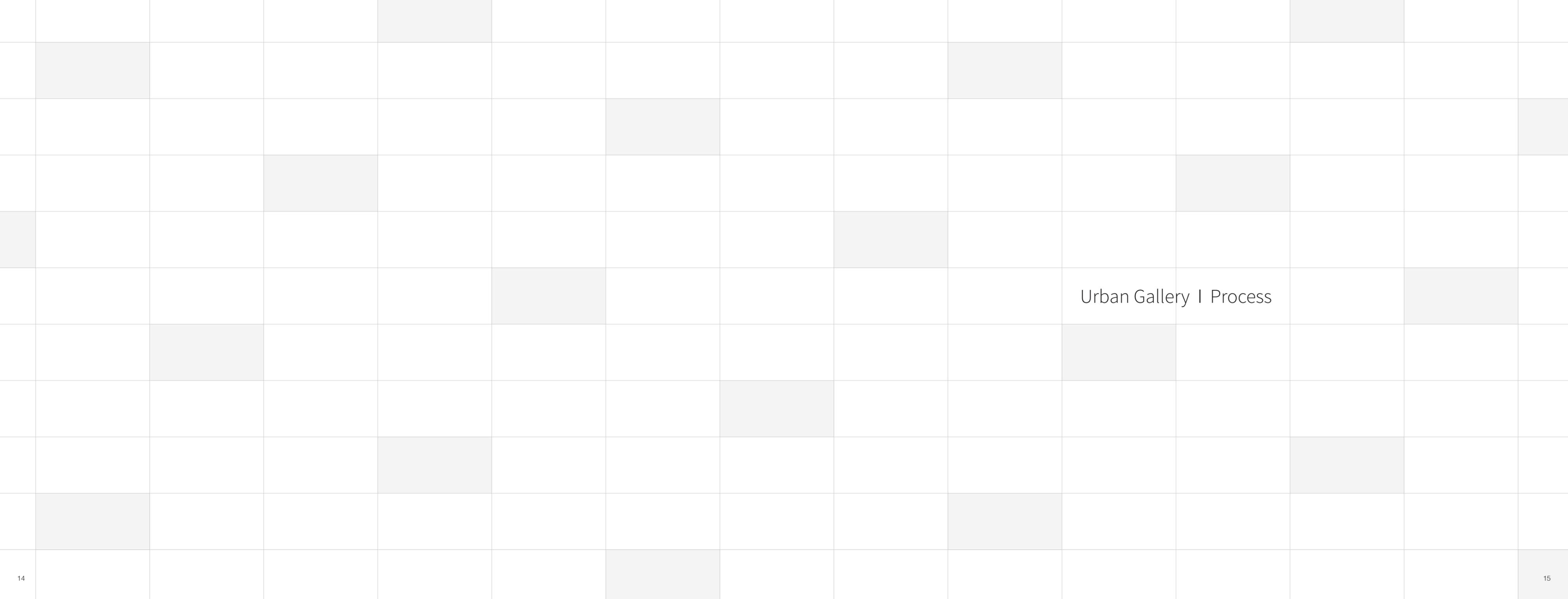
## Among the residents - freedom of movement

Floors and elevators limit people's vertical movements which result in dividing people by floors. To promote vertical interactions and tear down the invisible borders among the floors, walkable stairs or ramps become essential elements for the design as in Guggenheim Museum in Manhattan.

Multiple stairs that allow multiple ways to access other floors, and sharing spaces such as community kitchen, library, gym will promote vertical movement if located at the right places.

This will create the vertical plaza condition where people move around and make interactions with variety of people regardless of which floor you live in.





Urban Gallery I Process

## # 1. Two walls

Keywords : Open view, Enclosed space

To keep the concept 'enclosed space for interaction' and provide the view of Hudson river to the people on the High Line, two parallel walls were designed instead of a closed box.

The two residential "walls" create a "gate" or "threshold" conditions for the people who pass through and between the two walls. Places to sit, rest, and talk between the two "walls" provide opportunities to view onto and enjoy onto the Hudson river and all the activity both on and along the river.



## # 2. Urban gallery

Keywords : Interaction, Cantilever units

What can I do to improve human relationships in Manhattan?  
Chelsea is a famous place for young artists and galleries.  
High Line park tries to keep itself as a place where people can enjoy the cityscape with rectangular wood frames located along.

What if residential units become the exhibitions hanging onto the walls like pictures on the walls of a gallery?



### # 3. Order of organization

Keywords : View corridor, Hidden geometry

Due to the presence of the Chelsea Pier, a 3 story sports center blocks the view of the river from the site. The red diagonal line created a line of sight and view corridor from High Line Park, through the project, toward the river.

The diagonal created a limit that limited the size and length of the cantilever units, influencing the organization of the exterior spaces (between the two residential walls) as well.



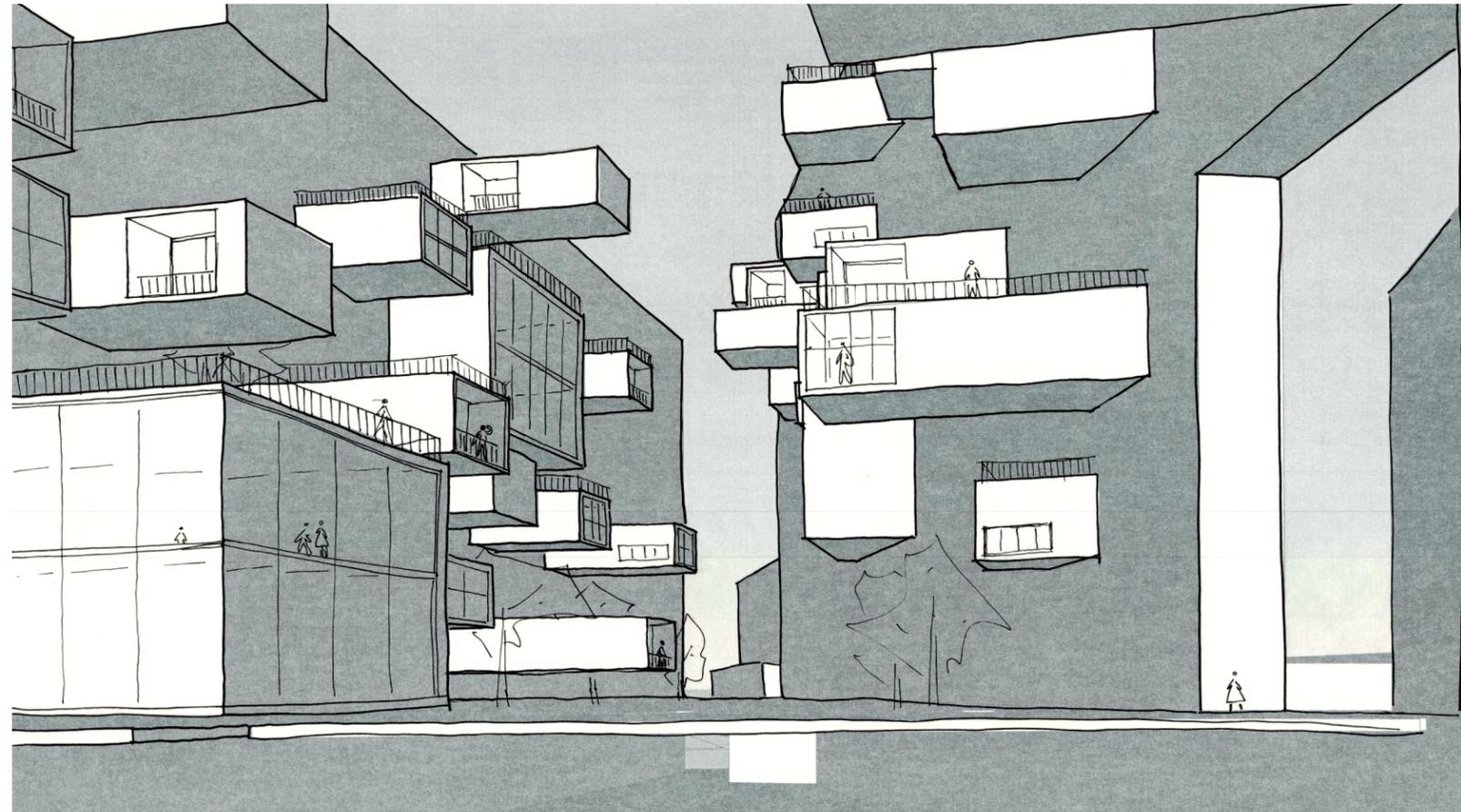
### # 4. Conceptual site plan

1. Sharing lifestyles, getting to know your neighbors.
2. Enclosed space by the two gates from the walls .
3. Preserving the view through the cantilever units.
4. Extension of the High Line to promote interactions.
5. The diagonal limited the site design.

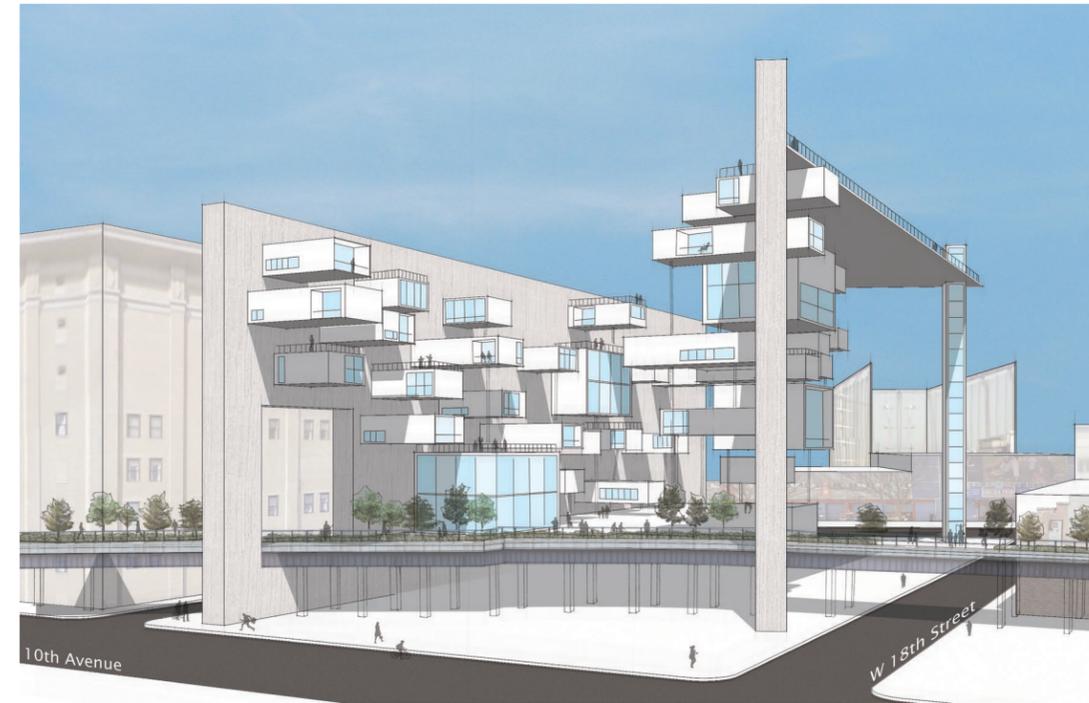


## # 5. Idea sketches

An idea sketch using the diagonal as a "wall" to explore the potential of two different triangle zones, one as enclosed residential zone and the other as public zone open towards the river.



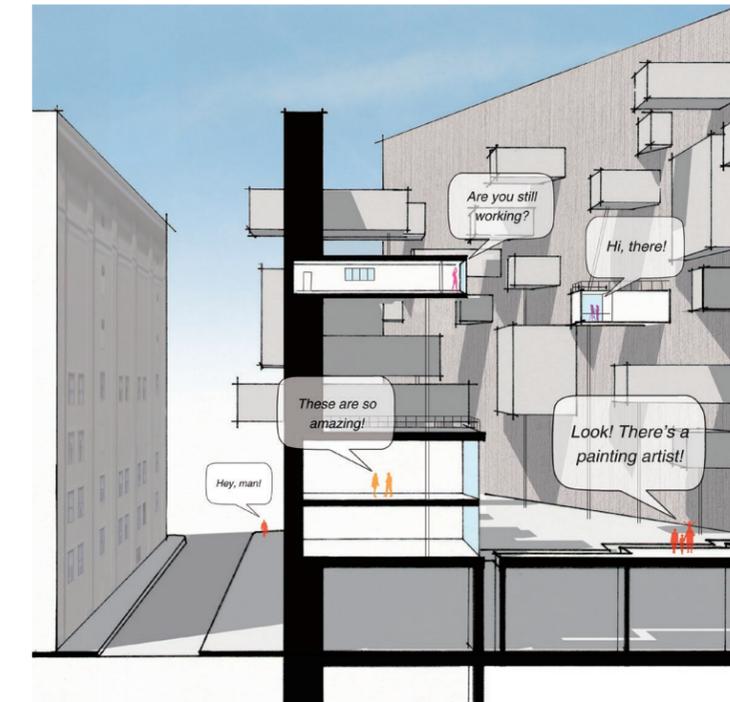
From 10th Ave. looking towards Hudson river



From 10th Ave. looking perpendicular to the North wall

The limit of this design is that where the walls meet is too narrow that no units can be placed. For more units and efficient use of the project site, it was considered better to use the diagonal as a hidden geometry that helps organizing the units and plans.

The residential zone, open to the High Line gets narrower towards the river. The public zone, open towards the river, has a sky lounge that provides the view of the river over the Chelsea Pier's tall fence.



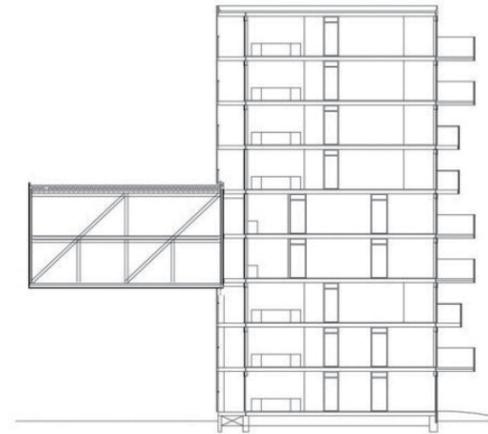
Section perspective explaining possible happenings

## # 6. Structure

Keywords : steel truss, counterweight  
building depth

There are two things required to support the cantilevers; Steel truss that keeps a unit tight, and either counterweight or proper depth of the building that balances the weight of cantilevers.

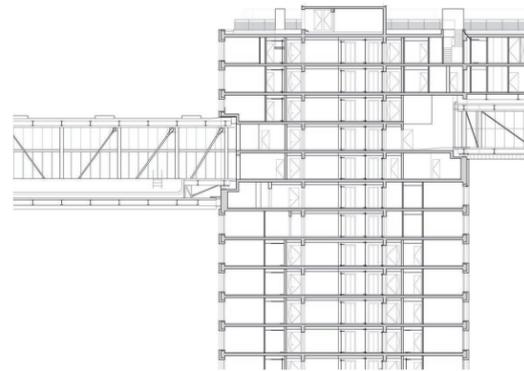
For the Urban Gallery project, exterior stairs were proposed so that they can counterweight, distribute the weight, provide freedom of movement, and function as means of egress.



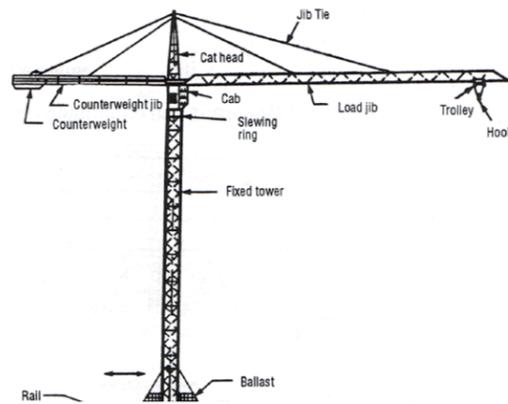
MVRDV, Wozoco housing



Weiss/Manfredi, Singh center for nanotechnology



Steven Holl, Linked Hybrid

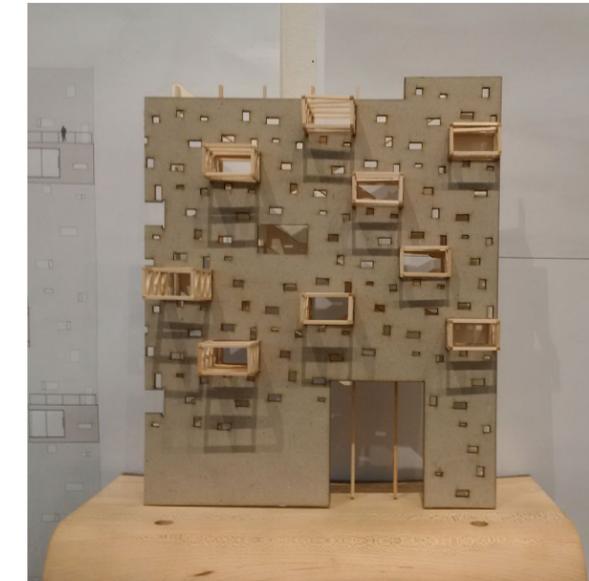


Tower crane basic structure

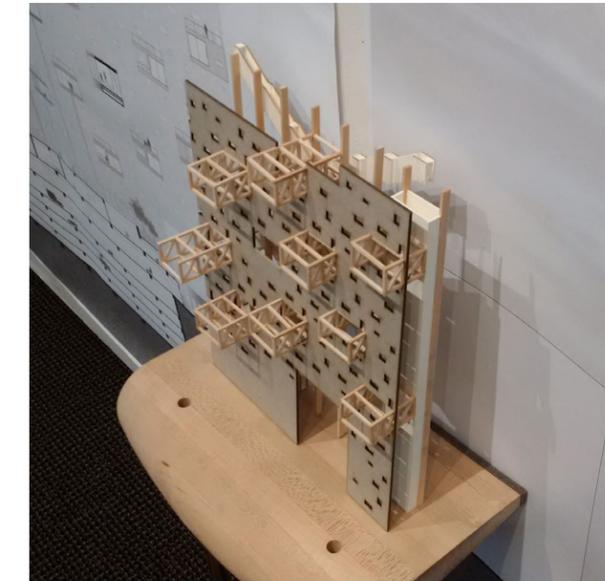
## Structural model images

Cantilevered units pass through the wall and are connected to the columns that are located along the corridor facing the streets. The wall functions as the 'tower' part of the tower crane structure which balances the weight of the cantilever at the middle.

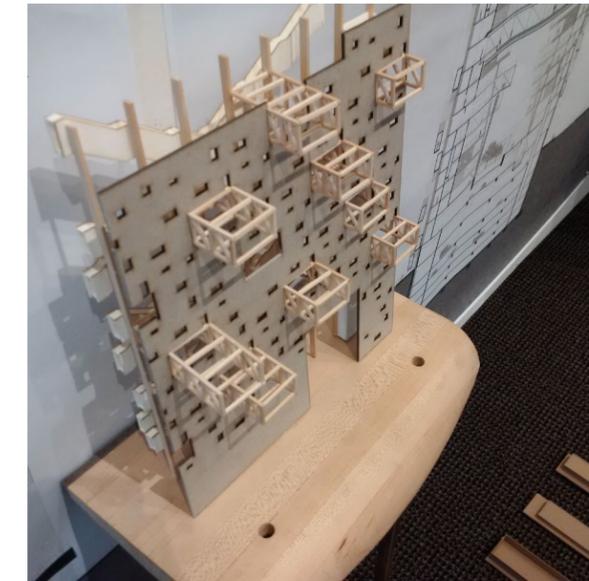
Exterior stairs, located on the other side of the wall, sit on the beams that extend from the cantilevered units to counterweight.



Elevation of the north wall



Cantilevered units to the staircase (core structure)



8 Exterior stairs holding the structure



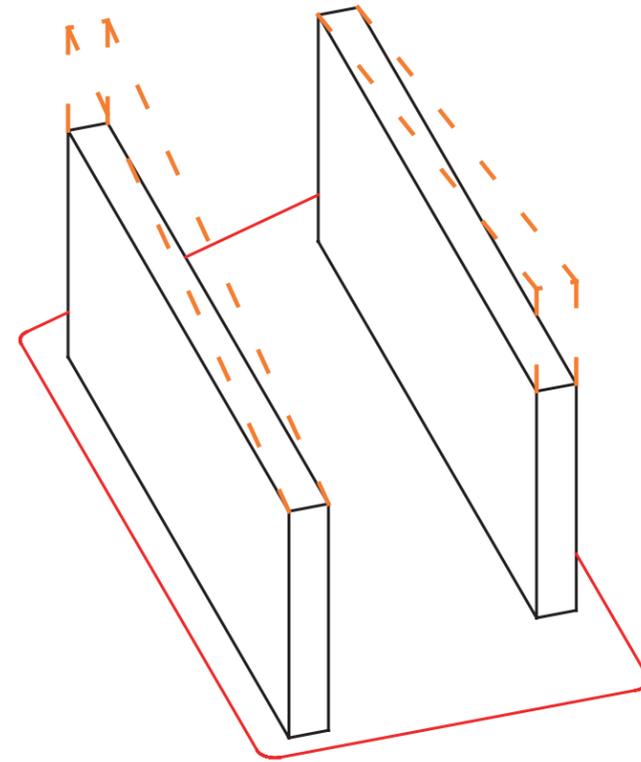
Exterior stairs as counterweight

## # 7. Differentiation of two walls

Keywords : City and the river, Height

To provide unique identities to each wall using locational advantage, the two walls have one end elevated than the other end by 2 floor-height.

By lowering the east end of the south wall, the 3rd floor garden space and lower part of the north wall have more exposure to souther sunlight. This was important in the design because .....

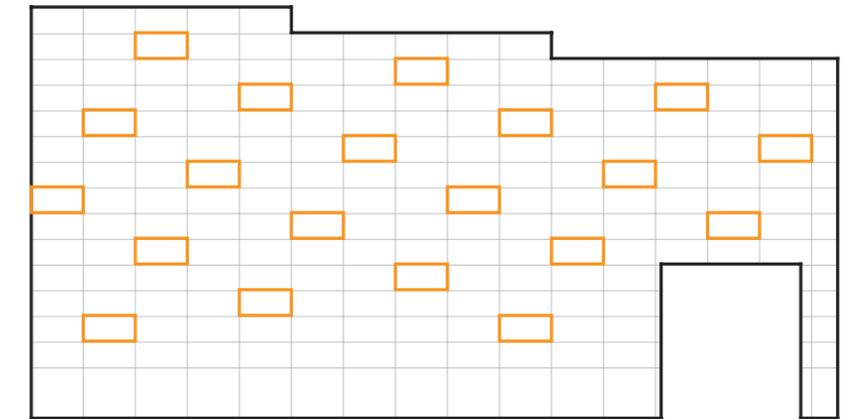


## # 8. Pattern of organization

Keywords : Pattern, Structure

The Units must be scattered throughout the wall structure due to the nature of the cantilever structure. Hence the cantilever units are apart from each other, with exterior stairs acting as counterweights for the cantilevered units.

By flipping this pattern and applying to the other wall, only one unit can be overlapped, connecting the two walls to each other.

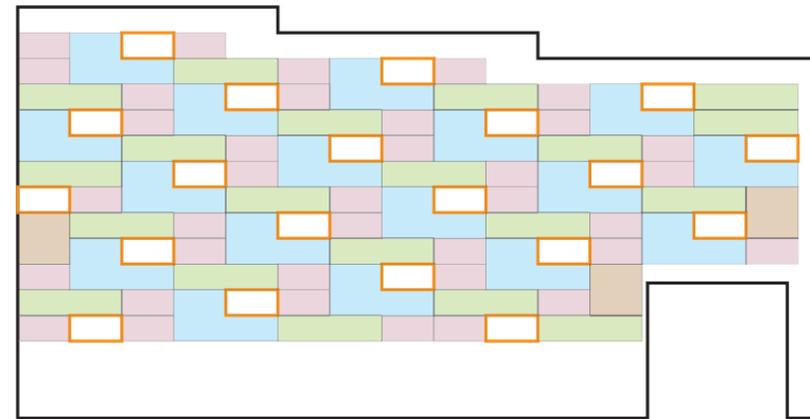


## # 9. Unit composition

Keywords : 4 different unit types

Studio, 1bedroom, 2bedroom units are positioned inside the walls. 2 studio units with one of each types forms a group and is positioned the way the cantilevers are organized.

Studio types are located on the east of every cantilever units so that those can get direct sunlights.



## # 10. Elevation design

Keywords : Window patterns

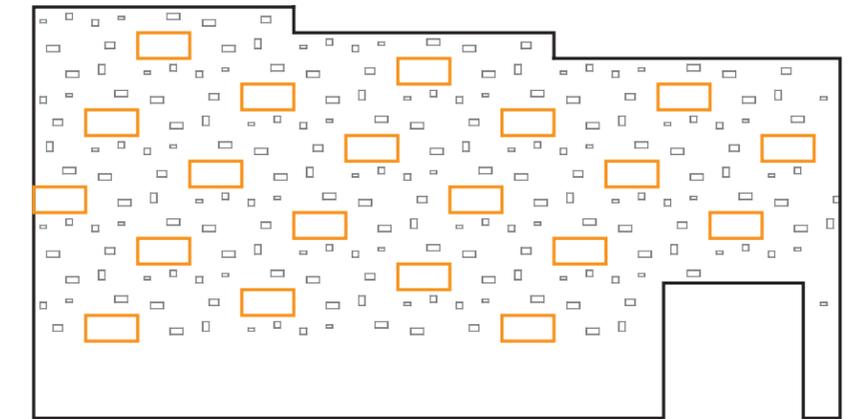
To maximize the amount of sunlight for each unit, but to keep it as a wall;

A studio unit has 1 large window

A 1 bedroom unit has 1 small and 1 large window.

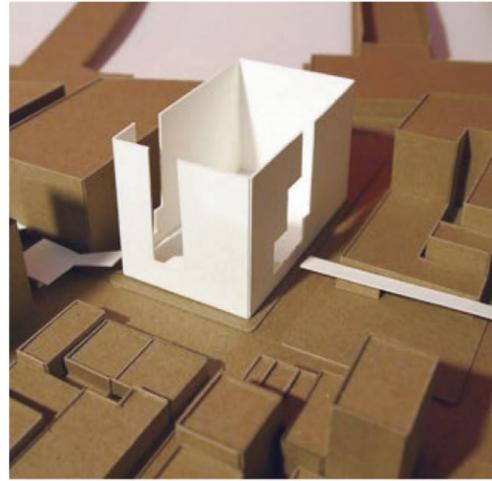
A 2 bedroom unit has 2 small and 2 large windows.

Living spaces of every cantilever unit are fully exposed so that the residents can interact with pedestrians walking along the High Line park.

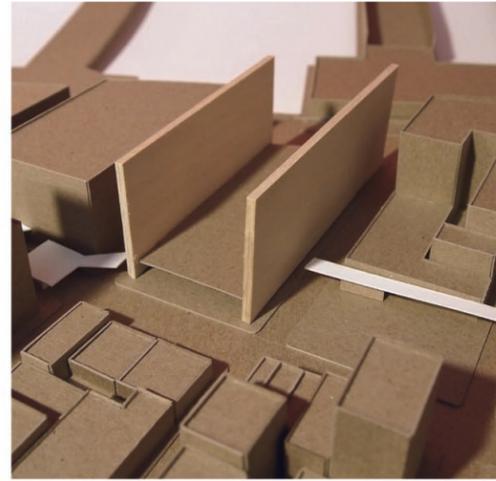


# # 11. Process models

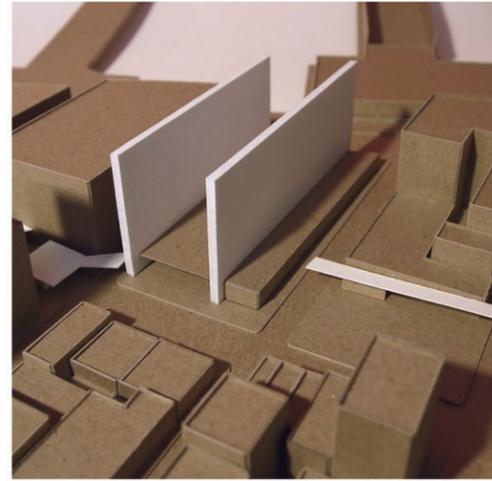
Sketchy models used to explore design ideas to match the context and to experiment with spatial ideas.



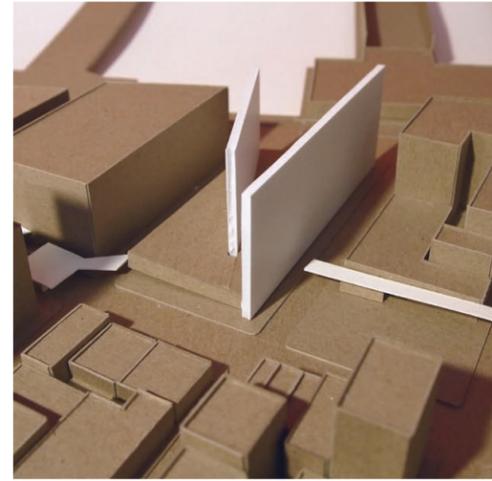
Enclosed



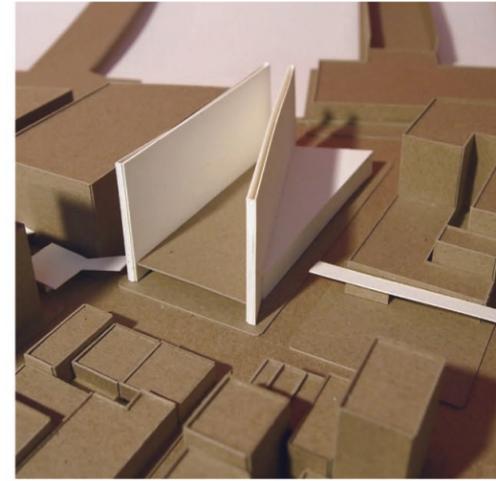
Two walls



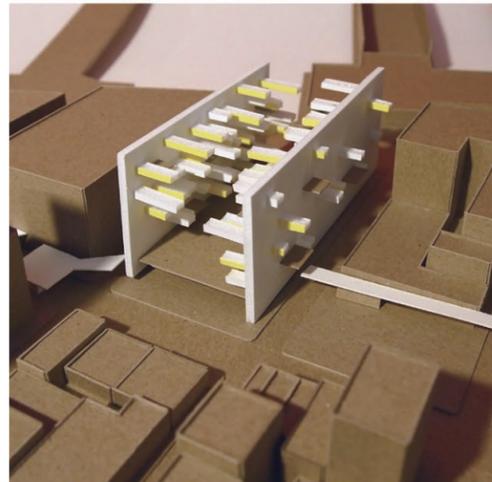
Shifted wall



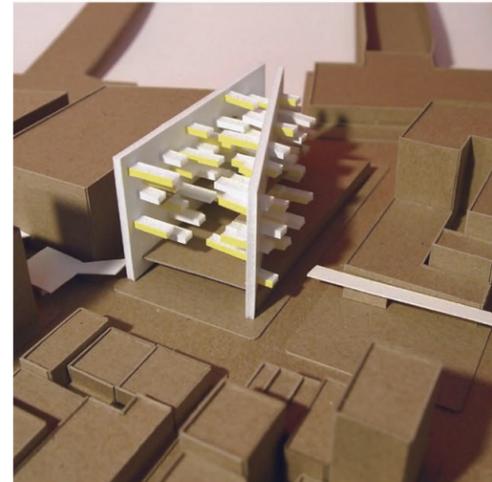
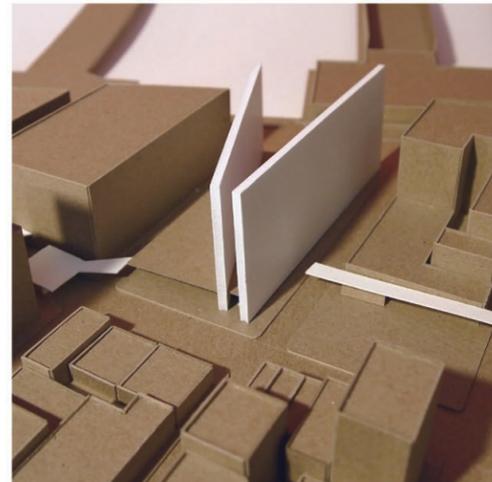
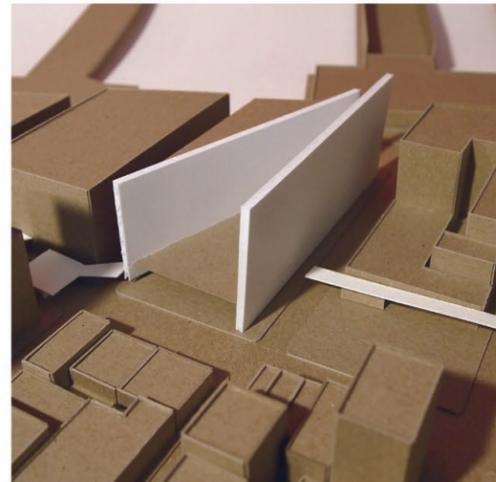
Two walls + Diagonal line 1



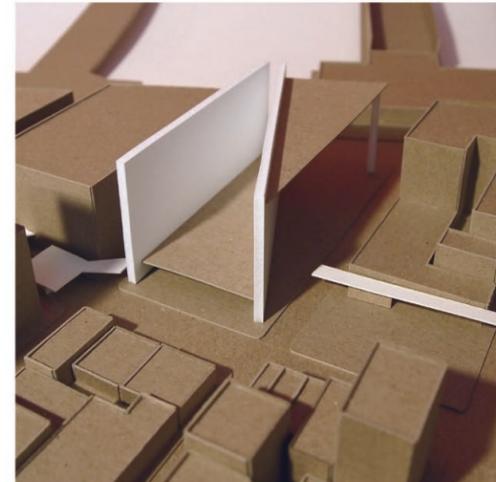
Wider gap



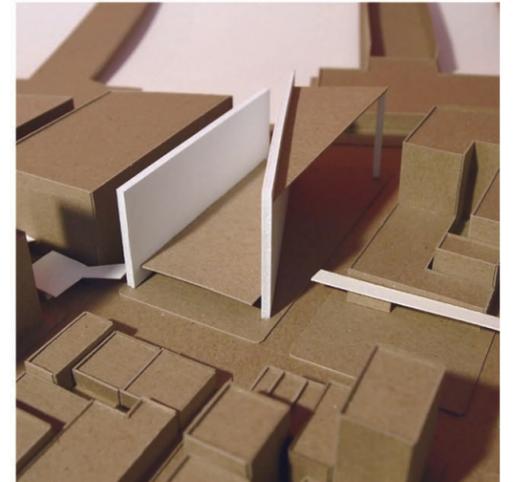
Two walls + Units



Two walls + Diagonal line 2 + Units



(Two walls + Diagonal line 2) + Skylounge



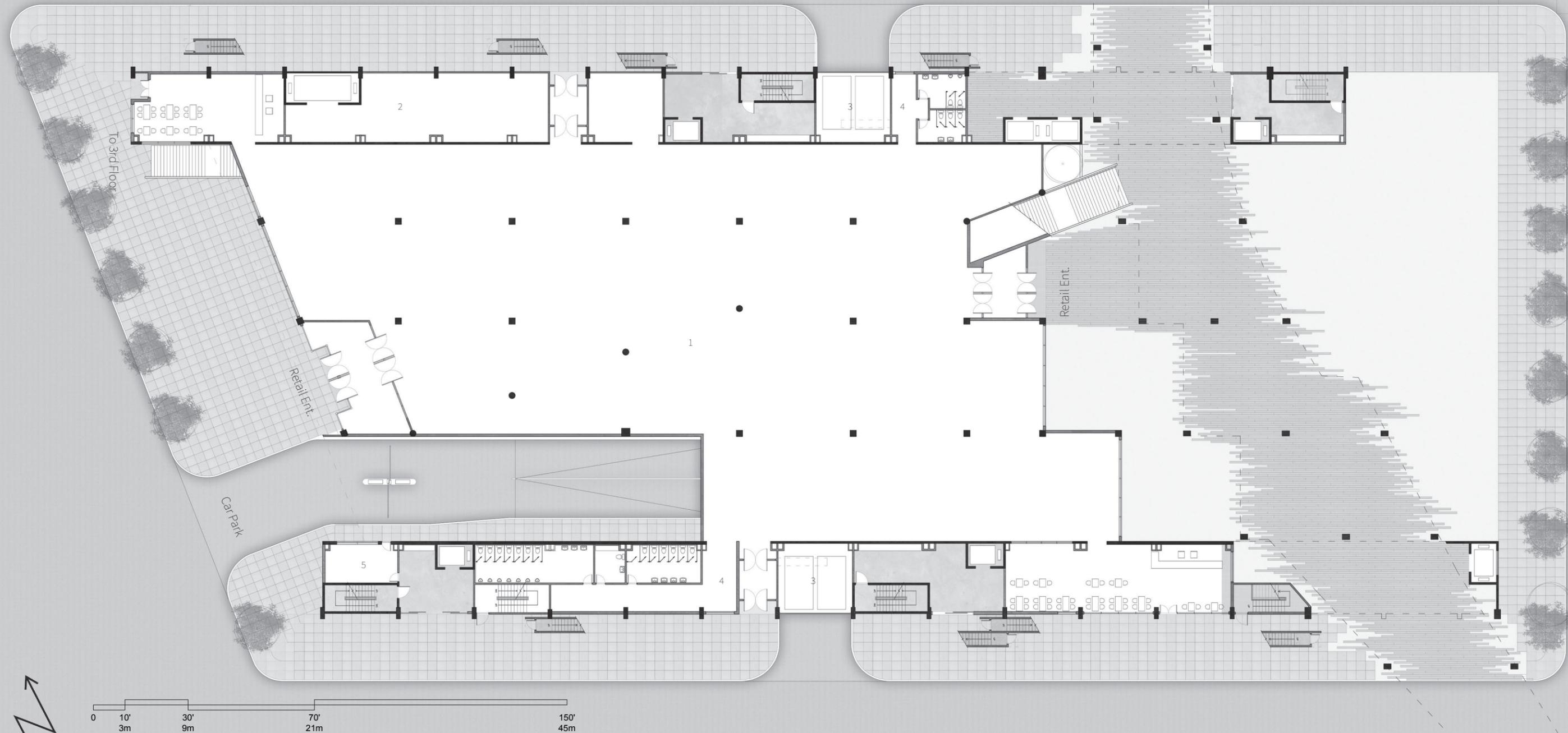
Urban Gallery | Presentation



## Site Plan

- West Chelsea area

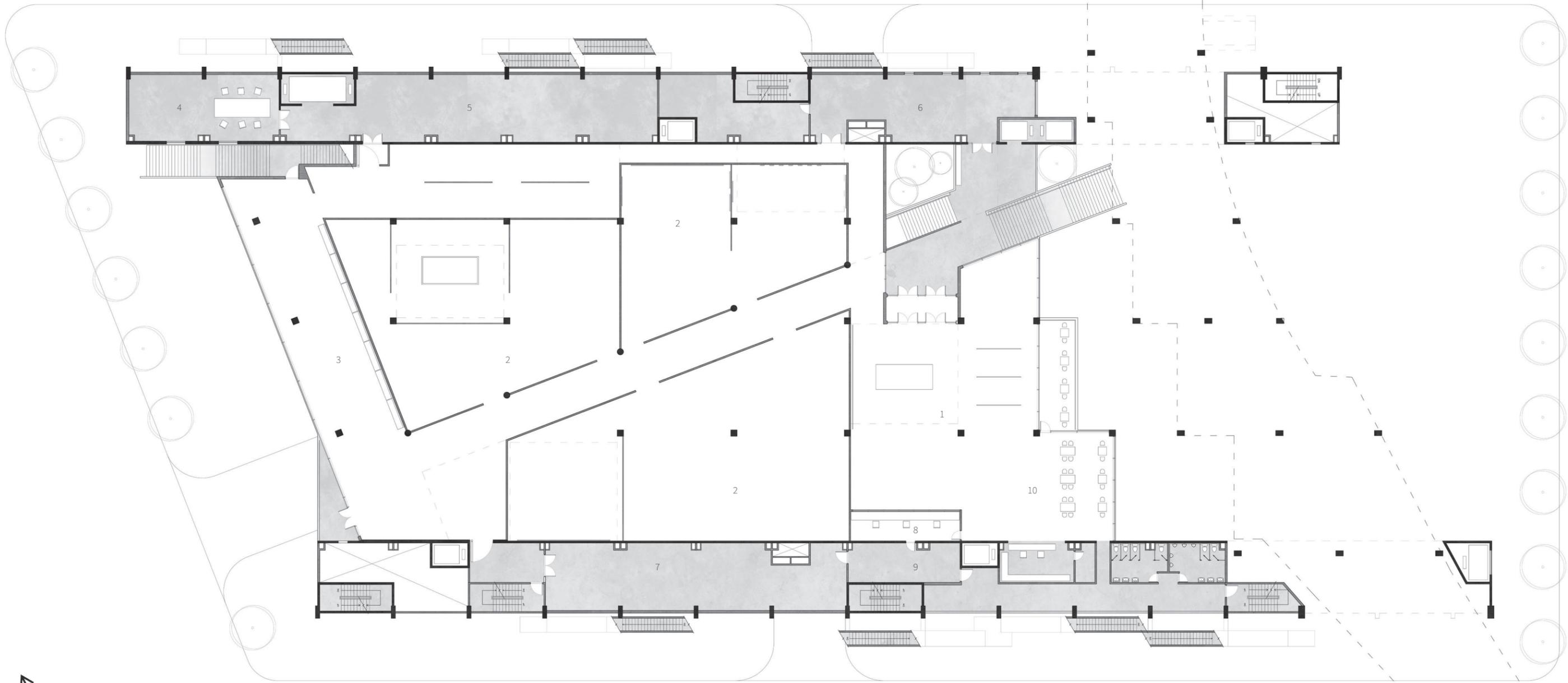
- 1. Highline Park
- 2. Chelsea Market
- 3. Chelsea Piers
- 4. Clement Clarke Moore Park
- 5. The High Line Hotel
- 6. Gallery, Exhibitions



## Ground Floor Plan

- Retail Store

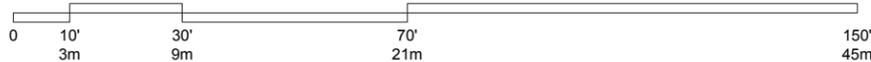
- 1. Retail Store
- 2. Storage
- 3. Garbage Dumpsters
- 4. Restroom
- 5. Security Check
- 6. Public Elevator to 15th Floor



## 2nd Floor Plan

- Museum

- 1. Lobby
- 2. Exhibition
- 3. Observatory Space
- 4. Studio
- 5. Storage
- 6. Gift Shop
- 7. Utility Room
- 8. Ticket Office
- 9. Management Office
- 10. Cafe





### 3rd Floor Plan

- Public Garden

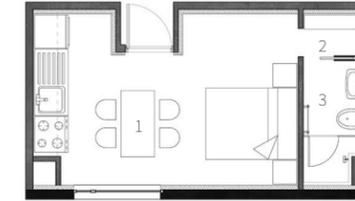
- 1. Public Garden
- 2. Utility Space
- 3. Apartment Lobby
- 4. Public Elevator
- 5. Glass Pavilions
- 6. Highline Park

## Unit Plans

The design of the units were designed to provide the residents with open, spacious, light-filled homes. This included considering ceiling heights of units to both 10' and 8'. This height, according to Joan Meyers-Levy affects how people think and act. As Joan Meyers-Levy writes

"When a person is in a space with a 10-foot ceiling, they will tend to think more freely, more abstractly," said Meyers-Levy. "They might process more abstract connections between objects in a room, whereas a person in a room with an 8-foot ceiling will be more likely to focus on specifics."<sup>1</sup>

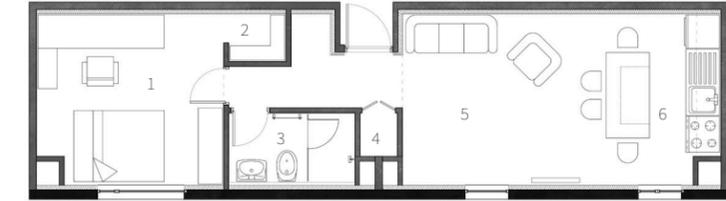
Sharing spaces such as entrance, kitchen, dining spaces have 8-foot ceiling heights. Bedrooms and livingrooms have 10-foot ceiling heights to provide residents rooms for imaginations



### STUDIO TYPE

13 x 24 = 312 sqft

1. Kitchen + Dining + Living
2. Closet
3. Bathroom



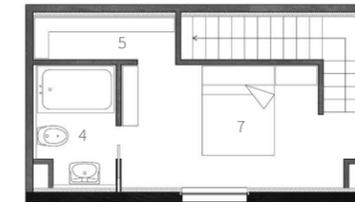
### 1 BEDROOM UNIT

13 x 48 = 624 sqft

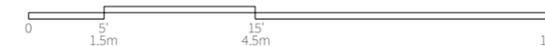
1. Bedroom
2. Closet
3. Bathroom
4. Storage
5. Living Space
6. Kitchen + Dining

### 2 BEDROOM UNIT

(13 x 24) + (13 x 48) = 936 sqft



1. Kitchen + Dining
2. Living Space
3. Storage
4. Bathroom
5. Closet
6. Master Bedroom
7. Bedroom

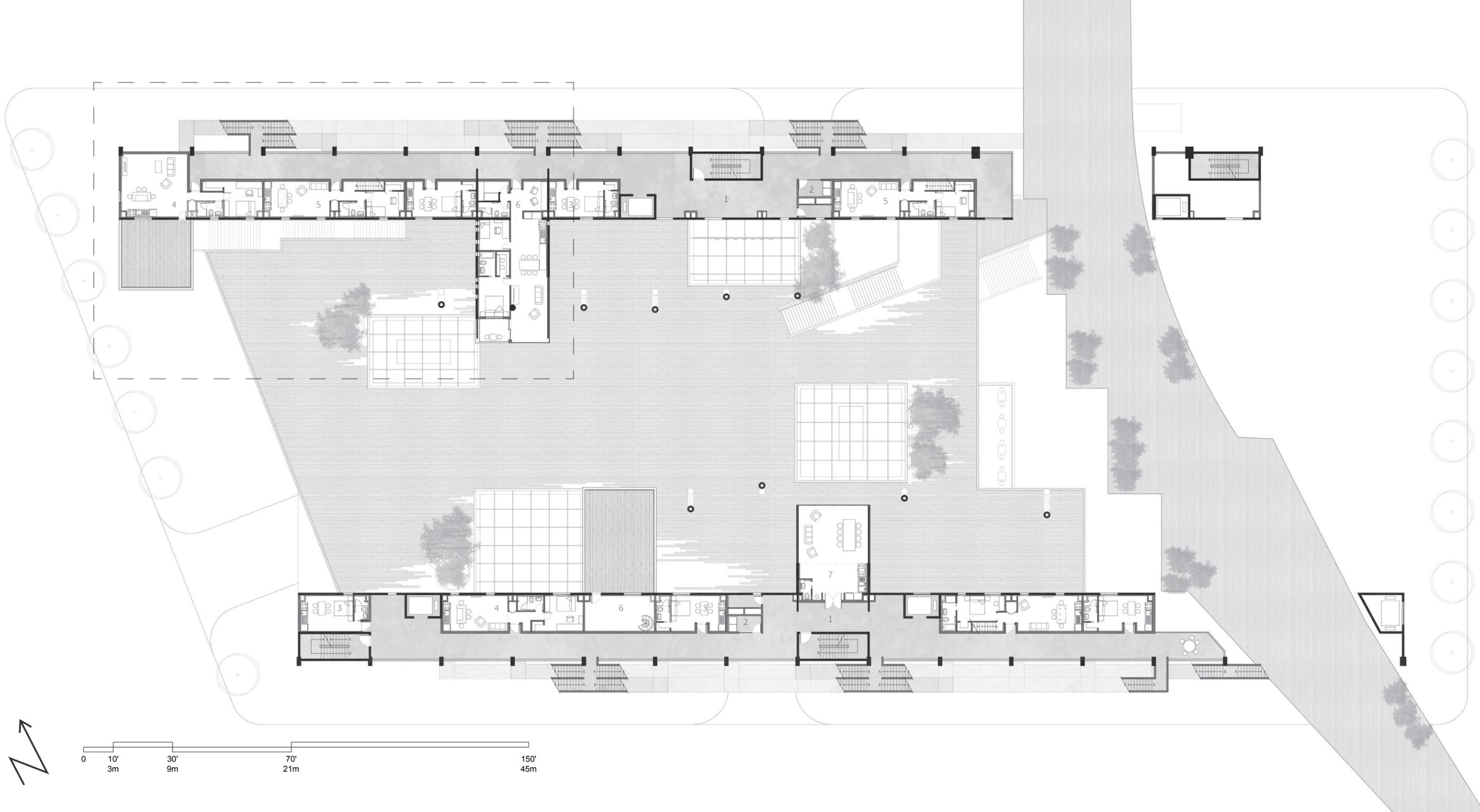


### SPECIAL UNITS

600 ~ 1320 sq ft



1. Kitchen + Dining
2. Living Space
3. Master Bedroom
4. Master Bathroom
5. Closet
6. Bedroom
7. Bathroom
8. Laundry
9. Den
10. Terrace

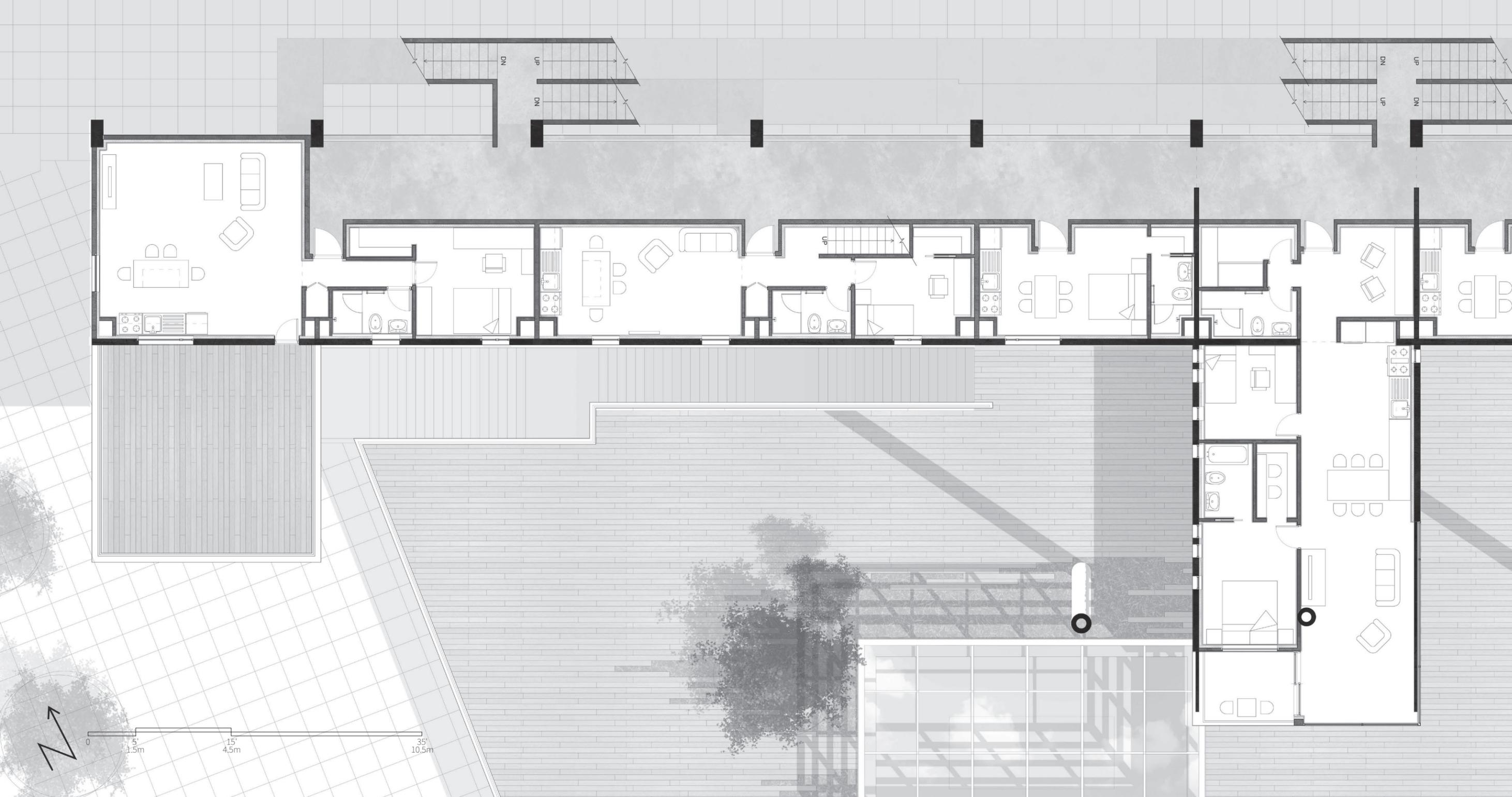


## 5th Floor Plan

- Apartment

- 1. Lobby
- 2. Public Laundry
- 3. Studio Unit
- 4. 1 Bedroom Unit
- 5. 2 Bedroom unit
- 6. Special Unit
- 7. Community Kitchen

Cantilevered units located in front of rectangular staircases are used as sharing spaces such as community kitchen and library to create more interactions among residents.



## 5th Floor Detail Plan

The drawing on the left is an enlarged 5th floor plan showing how the unit modules are put together along the corridor based on the unit composition diagram in 'Urban gallery I process' section.

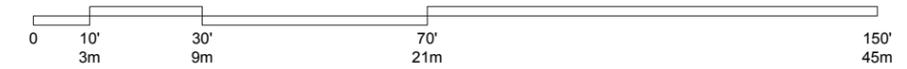
Regardless of the modules, corner units have unique plans in regards to the maximum travel distance to the egress stairs.

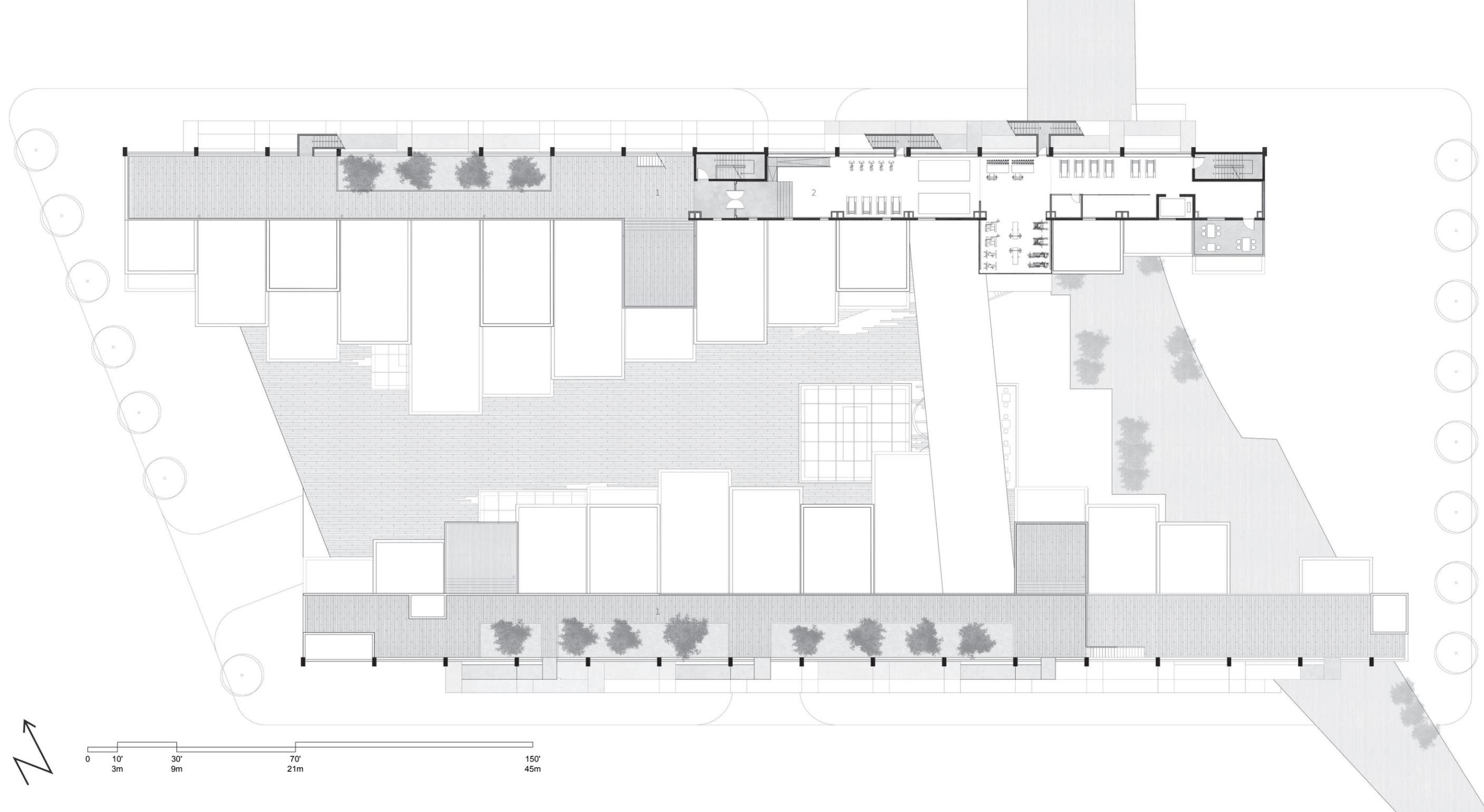


## 6th Floor Plan

- Apartment

- 1. Lobby
- 2. Public Laundry
- 3. Studio Unit
- 4. 1 Bedroom Unit
- 5. 2 Bedroom unit
- 6. Special Unit
- 7. Public Terrace



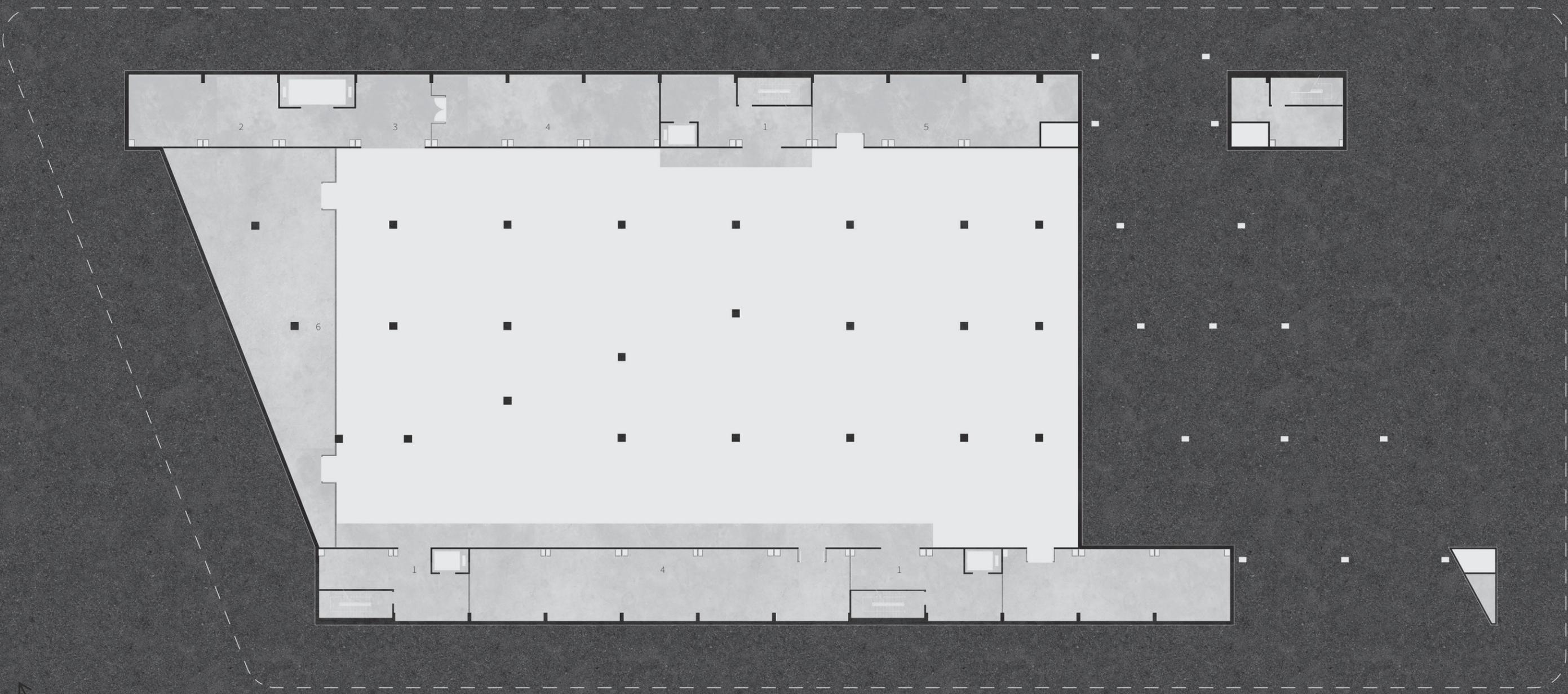


## 15th Floor Plan

- Roof garden, Gym

- 1. Rooftop Garden
- 2. Gym
- 3. Lounge
- 4. Management office

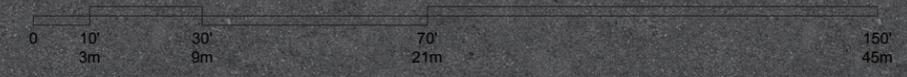
15th, 16th floor of the north wall and 14th, 15th floor of the south wall are filled with public programs such as gym, restaurant, cafe in relation to the roof garden space.

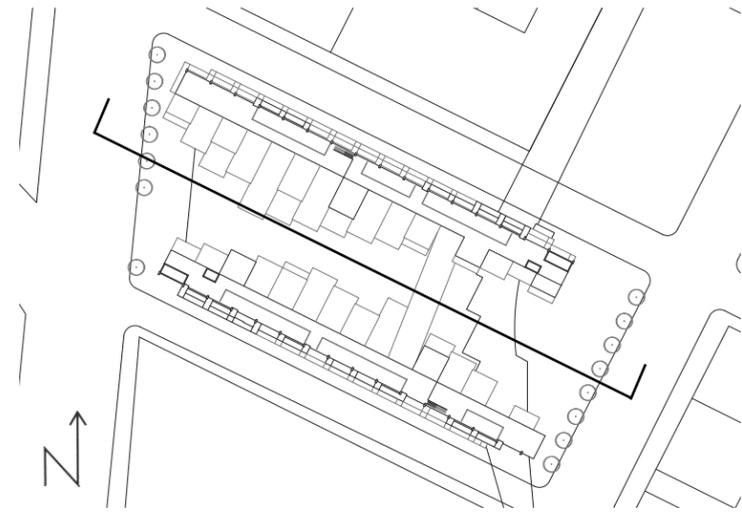


## Basement Floor Plan

- Loading deck, Parking

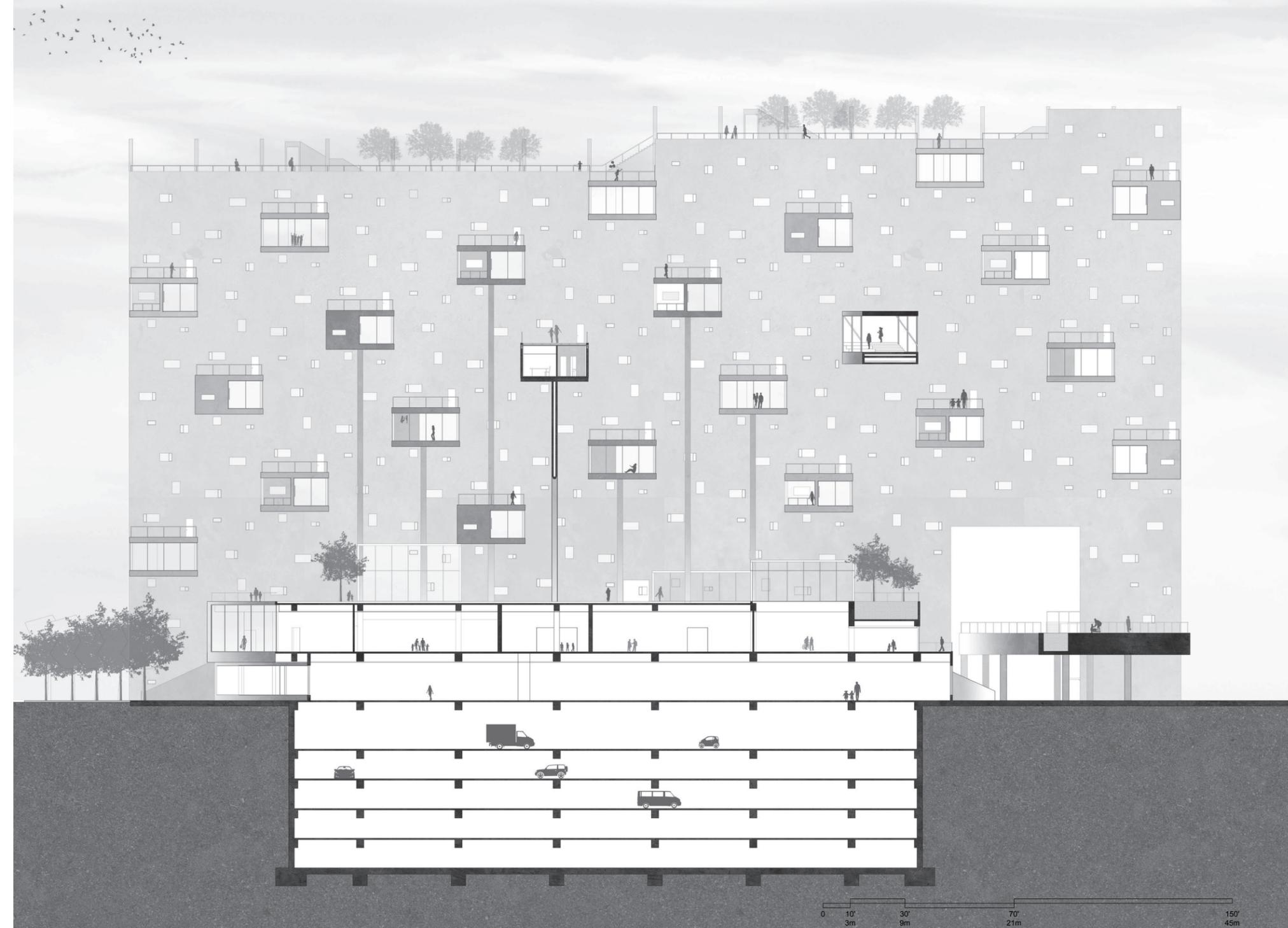
- 1. Apartment Lobby
- 2. Storage
- 3. Loading Deck
- 4. Electrical Room
- 5. Mechanical Room
- 6. Utility Room

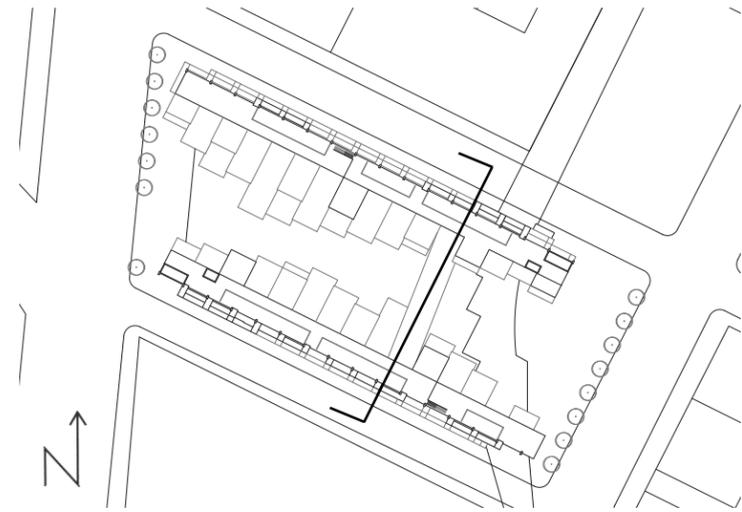




### W - E Section Elevation

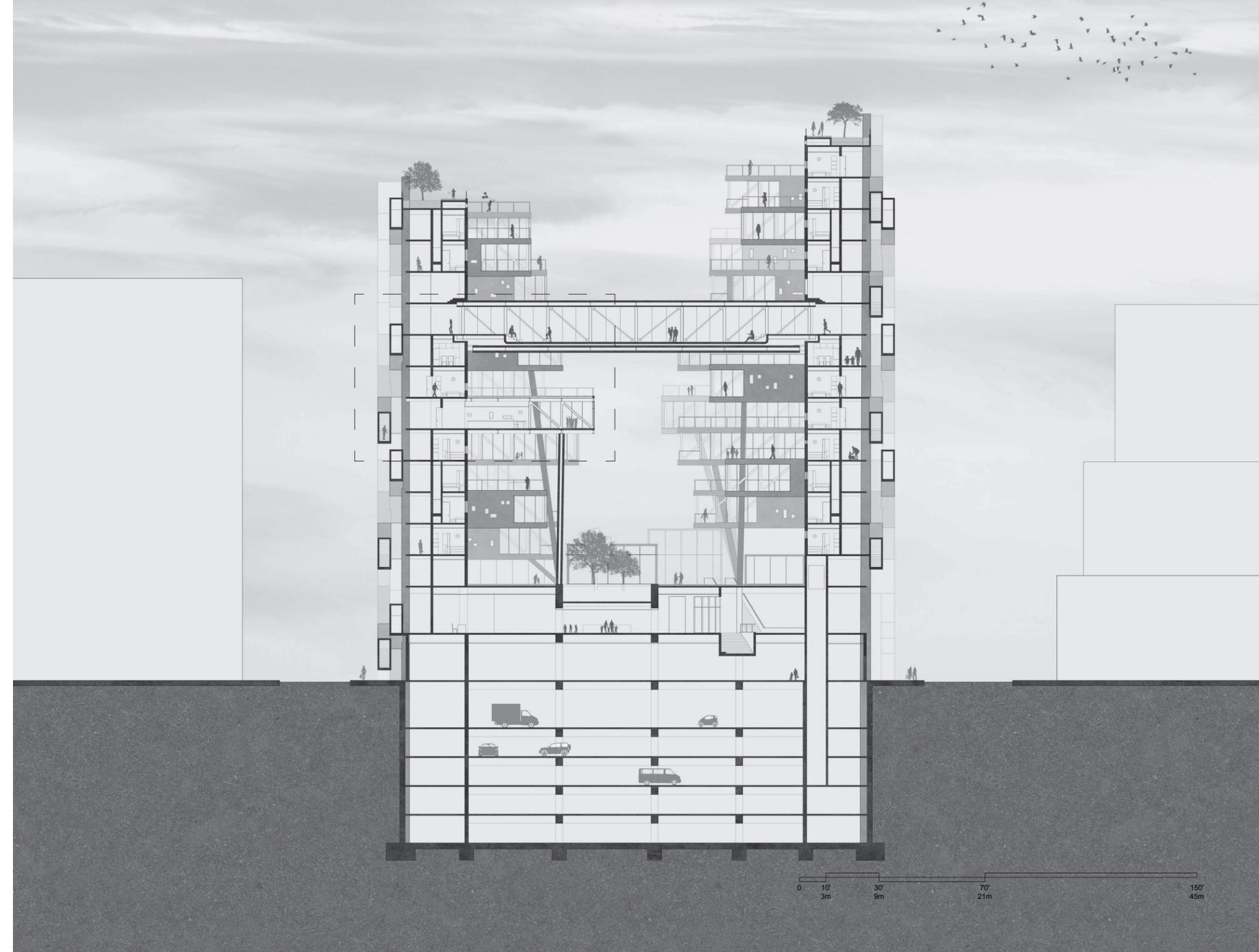
3rd floor public garden space is located above the High Line park where people can get glimpses of the museum space and its exhibitions through the glass pavilions.

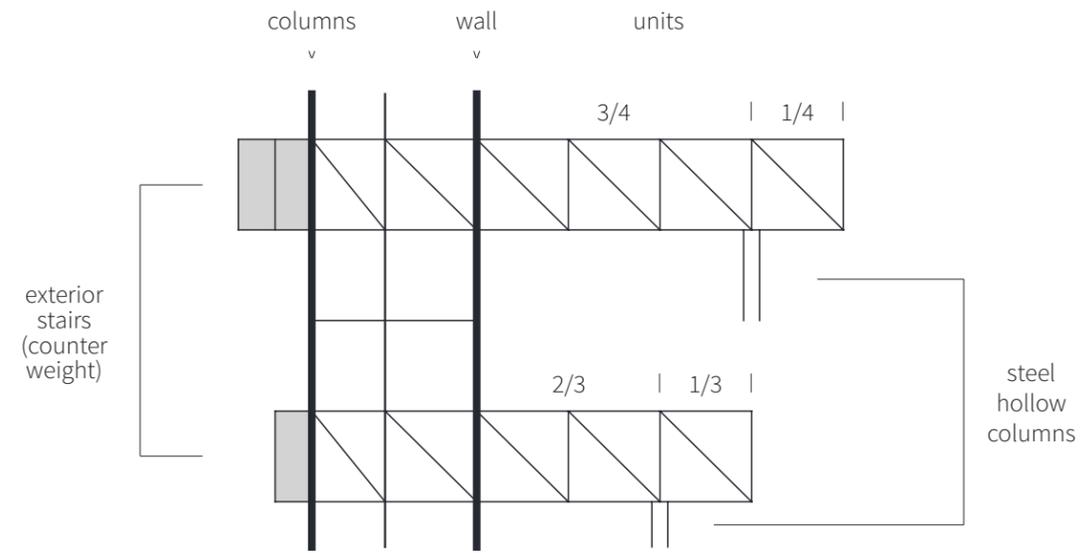




### N - S Section Elevation

Columns from the cantilever units that stretch out longer than the depth of the walls form a gate towards the Hudson river like picture frames on the High Line park.

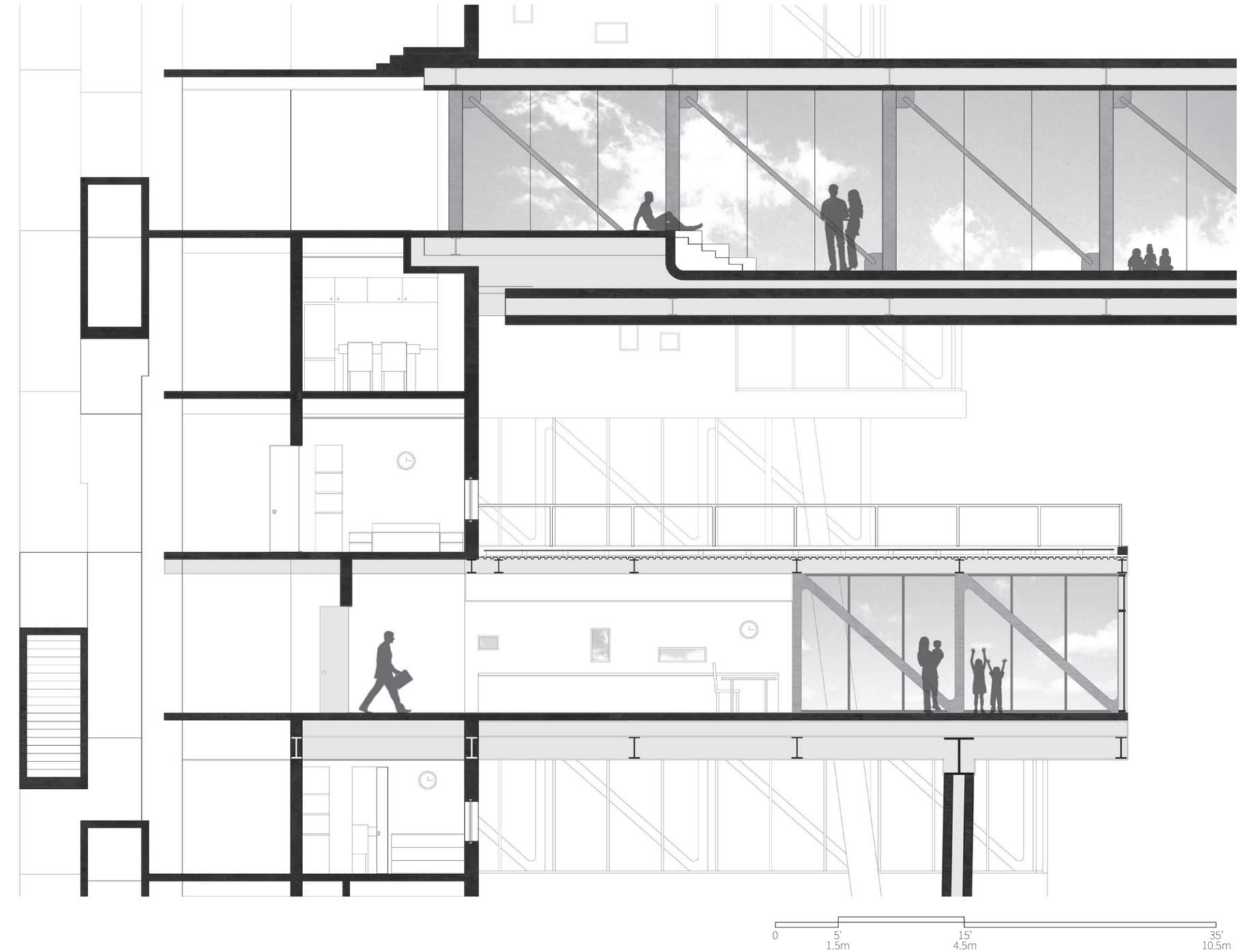


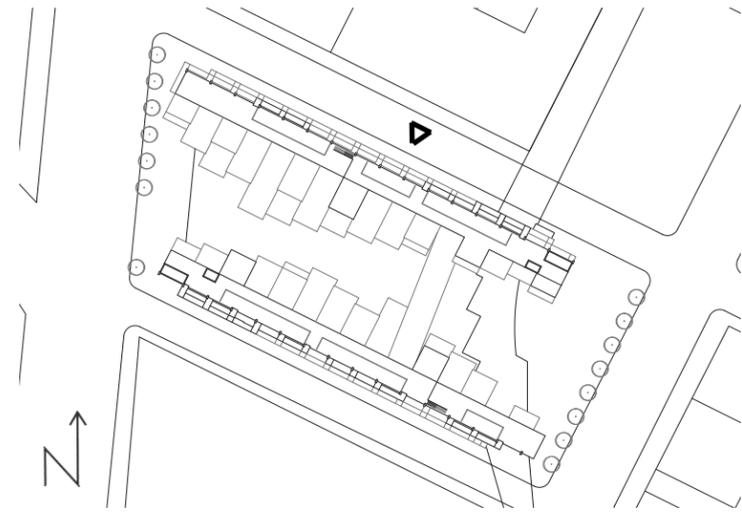


### Detail Section of a Unit

6 units from the 'north wall' and 5 units from the 'south wall' that require additional structural support have steel hollow columns located at 1/4 or 1/3 point from the unit edges.

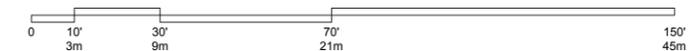
Those columns sit onto the transfer beams of the 2nd floor museum space.

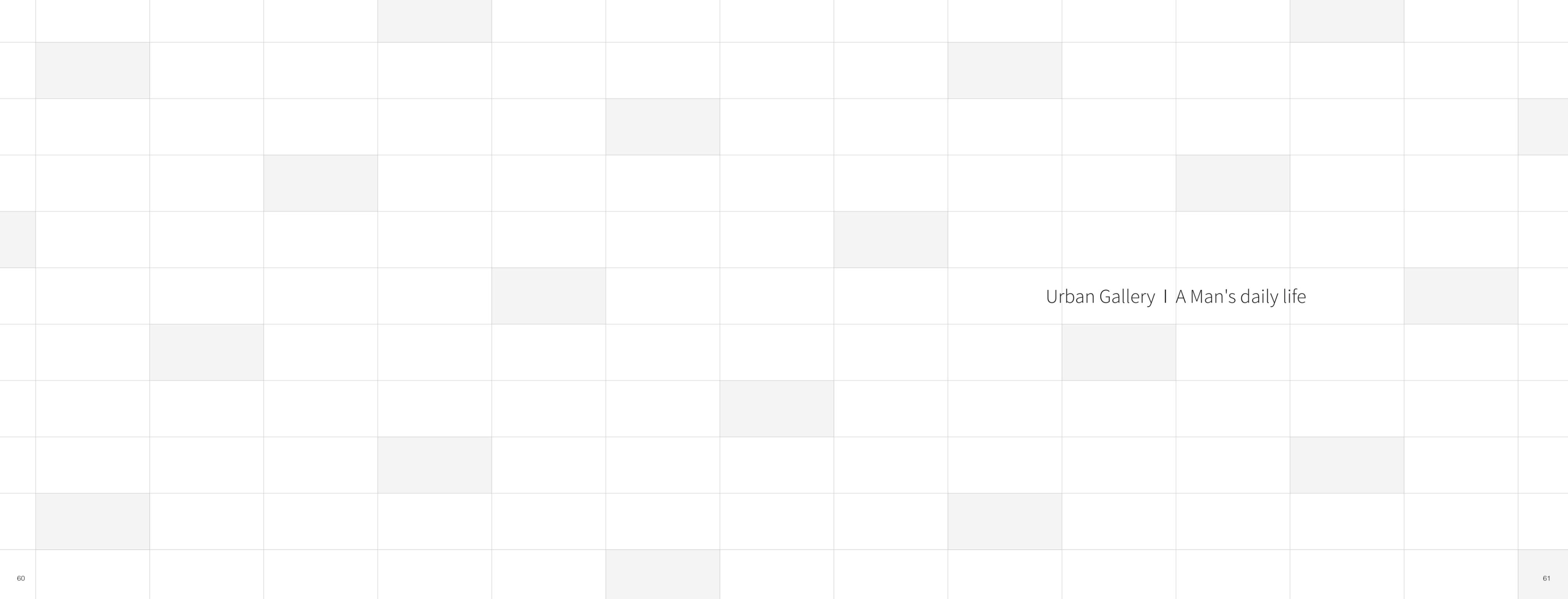




### North(exterior) Elevation

Locations for exterior stairs were determined based on the egress code for the corner units and locations for the cantilever units so that the stairs can counter-weight.



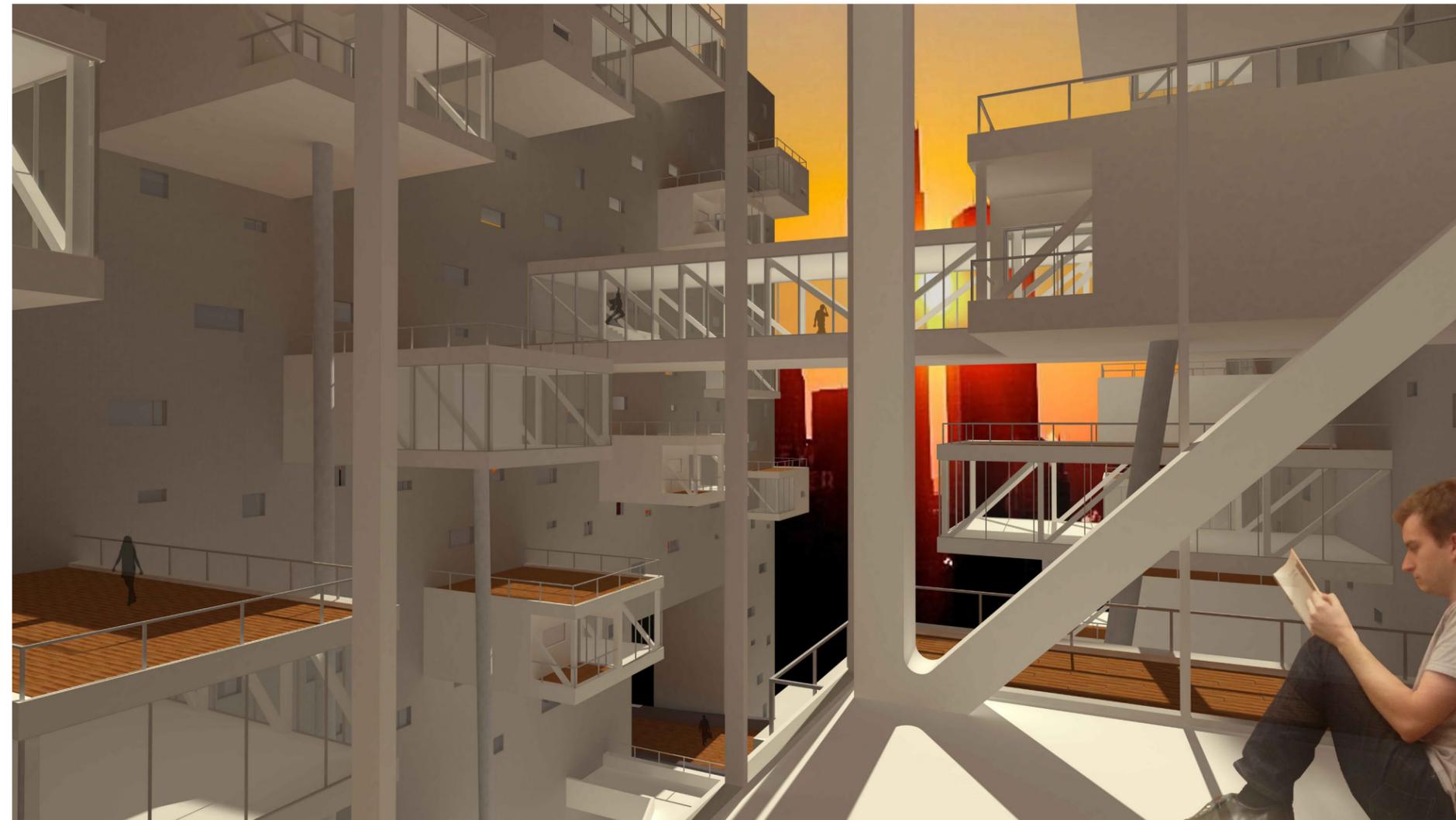


Urban Gallery | A Man's daily life

Hi...



Hi!



Scene # 1. 7 AM, Waking up in the eastern sunlight  
(From southwest corner unit towards Highline park)



Scene # 2. 1 PM, Strolling Highline park after lunch  
(From Highline park towards Hudson River)



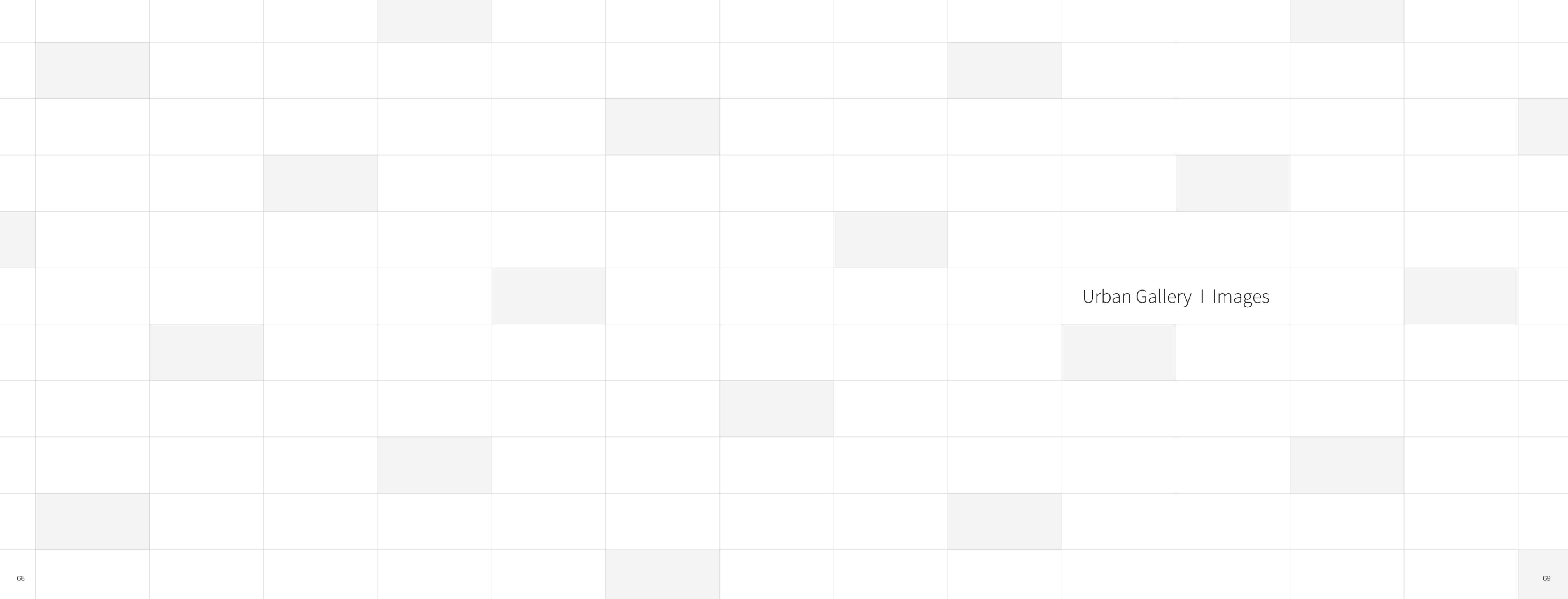
Scene # 3. 4 PM, Introducing exhibitions and events of the gallery to visitors  
(At the entrance of 2nd floor gallery)



Scene # 4. 7 PM, Enjoying the sunset at the rooftop garden  
(From the north wall rooftop terrace towards New Jersey)

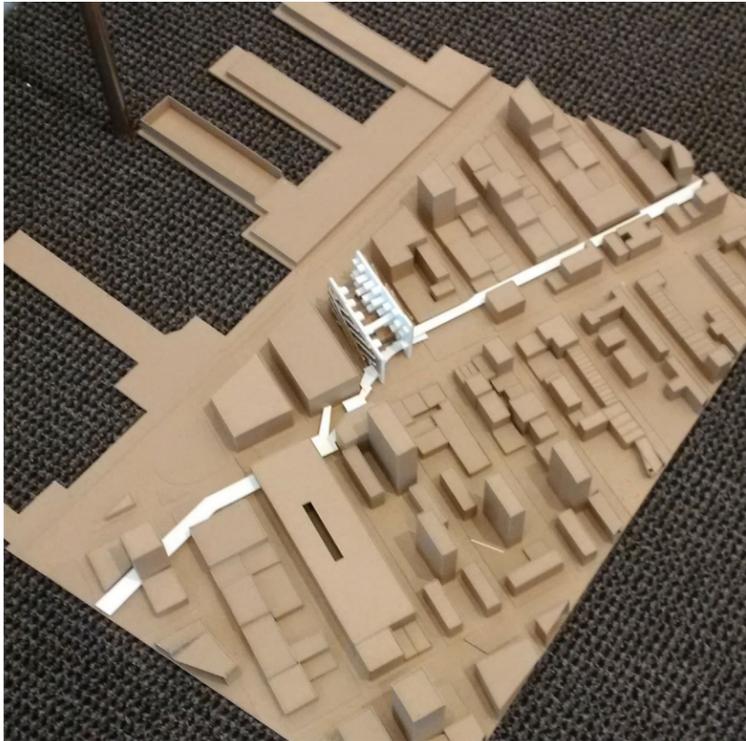
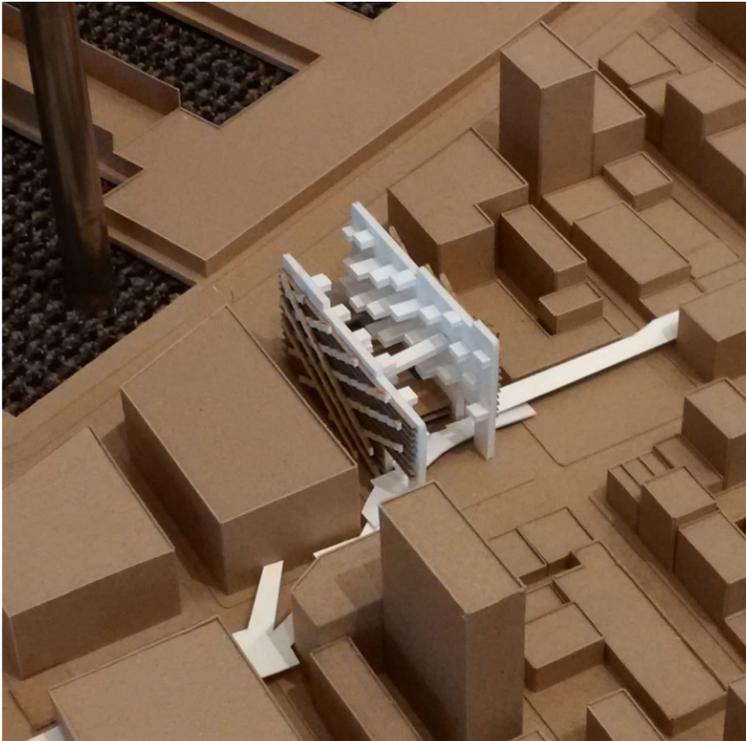
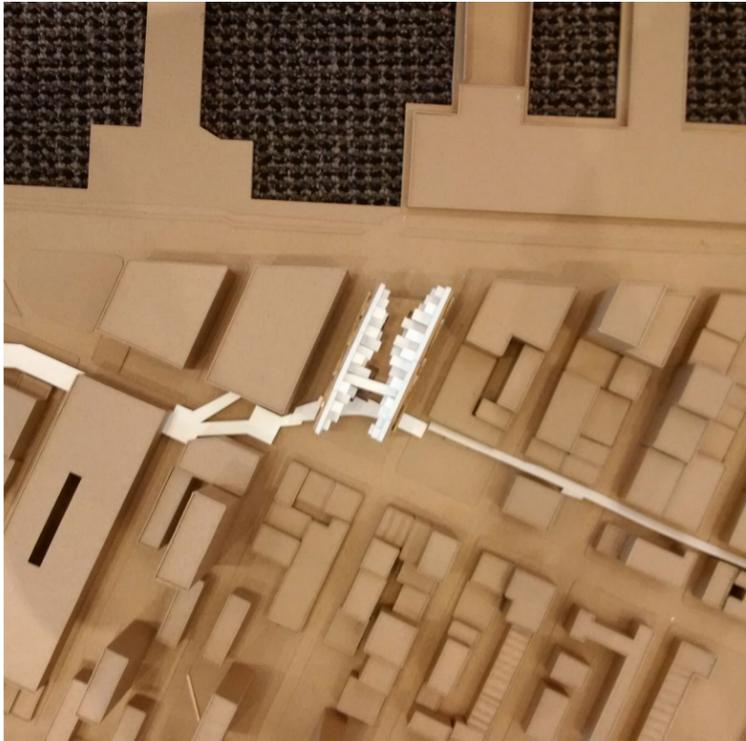
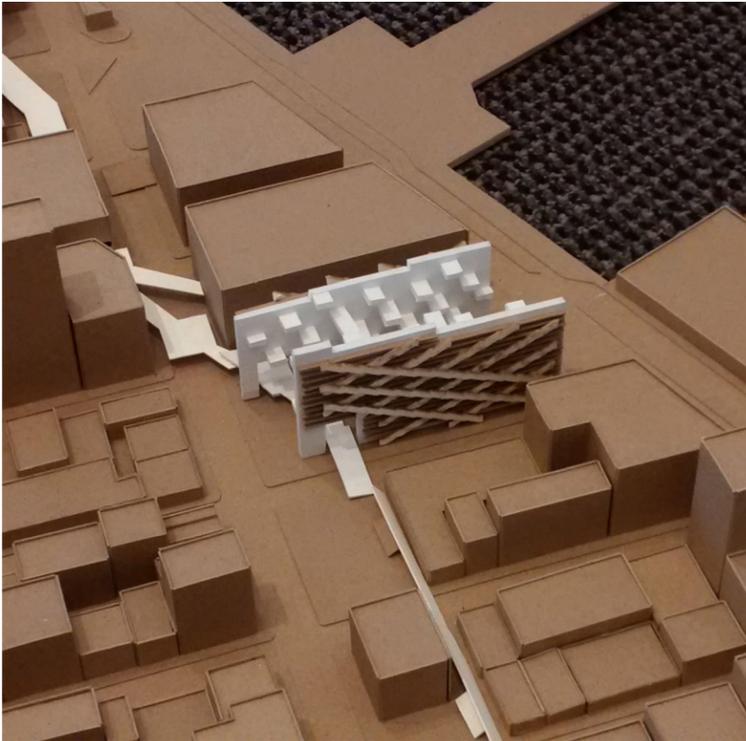


Scene # 5. 10 PM, Back from the work, communicating with his neighbors  
(From southwest corner unit towards Highline park)



Urban Gallery I Images

Final Models Images



Defense Images



## References

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## Image credit

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