



Adapting Lifestyle: The Dwelling

Alana Christine Thurmond

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requirements for the degree of

Master of Architecture
In
Architecture

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Paul Emmons
David Lever

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Abstract:

With over half the world living in cities there is a need for designing city housing. The DC Office of Planning did a survey on housing that shows a high percentage of 1 to 2-bedroom apartments and shows a lower percentage of 3 to 4-bedroom apartments. Is there a way to design with different housing typologies to accommodate different needs?

Mix-use housing and rowhouses are two different housing typologies. Both of these housing typologies are in the fabric of Washington DC. For my thesis I sought out if mix-use housing along with rowhouses could be combined into a design to accommodate people's changing needs in housing.

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General Audience Abstract:

In Washington D.C. apartments can be found in each district but the majority of apartments that are designed are one to two bedroom. The intent of this design is to create apartments next to rowhouses. The design is to provide different housing styles to fit within people's lifespan needs.

The lifespan needs can change over time so by designing a variety of housing options a person could live within one design without moving to find a living condition to fit their needs. An example of how people's needs change over time could be a young couple who grows their family. The addition of children or pets require extra space and additional bedrooms. Once the kids grow up and move out that extra room can become office space or a guest room. If there is a design that can accommodate a variety number of bedrooms then there is no need to move outside the city and leave a community where a family built their life around.

Dedication:

This book is dedicated to my son. You have instilled in me the importance of hard work and perseverance. Also, to my family who have been so supportive through everything and provide their unconditional love.

Acknowledgements:

Completing my Masters in Architecture would not have been possible without the help of my committee members. I would like to give a special thanks to Susan, Paul and David. You have all planted a seed for pushing my boundaries in the studies of Architecture.

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Discovery : Housing typologies

There are many different types of housing typologies. The range is from single detached homes to high-density mix-use buildings. The article, *The most popular type of home in every major American city, charted* by Emily Badger and Chris Ingraham stated:

“The detached, single-family home is the most common style of housing in America but is rare in Washington, D.C. Only about one in 10 homes inside the District is designed this way, with a private front door to the city, maybe a yard in the back, some buffer space keeping the neighbors at bay. Windows all the way around!”

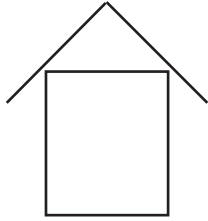
“Instead, we live differently here: with meager lawns (if we have any at all), common stoops, shared walls (or ceilings), and echoes of our neighbors’ dubious TV choices.”

“On the following page figure 1 chart is based on the diagrams of the Noun Project by Emily Badger and Christopher Ingraham. The District is a city of rowhouses and apartments, which makes the feel of the place — and your housing options here — significantly different from what you’d find in New York or Chicago or Kansas City.”

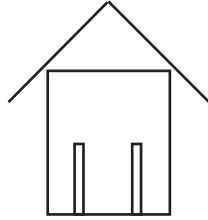
“A quarter of all housing in DC is in rowhouses. One-third, as of 2014, was in large apartment buildings of 20 units or more, a share that will no doubt grow as new apartments emerge downtown and in Southeast.”¹

1. Badger, Emily and Ingraham, Christopher. *The most popular type of home in every major American city, charted*. The Washington Post Web Sep. 21 2015

https://www.washingtonpost.com/news/wonk/wp/2015/09/21/the-most-popular-type-of-home-in-every-major-american-city-chart-ed/?utm_term=.47127609ff6c



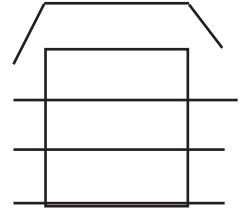
Single Home



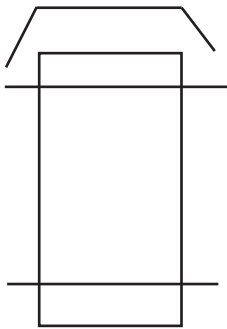
Two Unit Home

25% of housing in DC

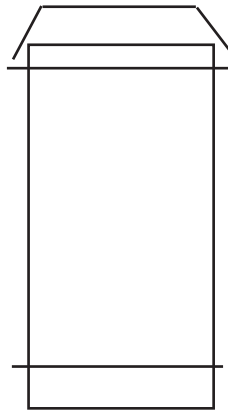
Single household Rowhouses



3 or 4 Units



5 - 9 Units



10 -19 Units

About 33% of housing in in DC

20 or more

Figure 1

Discovery : Housing typologies

“The house can adjust in a way to adjoin, stack or duplicating units. The unit by itself is considered to have its own access and land. When individual housing starts to pair with a collective of houses such as row-houses or stacked units it begins to start to be a higher density of housing typology.”

“A couple of examples of block typologies can be in the form of C-shaped, T-shaped, or L shaped. Figure 2 is based on diagrams by Maja Bâldea and Cristian Dumitrescu in *High-Density Forms in Contemporary Architecture*. Compared to the house the block increases in density. Density of the block can include number of units within the building, the scale or size. Block typologies are considered to be mid-rise ranging from 3 to 5 stories. Keeping it relatively low in height will make it more comfortable for walkability.”²

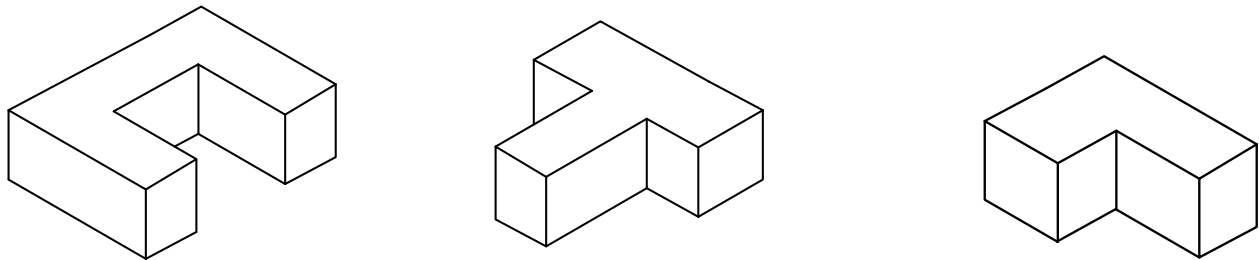


Figure 2

Site Selection :

I started researching site selection and since there is a high demand for housing in cities, what better place to look at than in our own backyard Washington DC. A neighborhood called NOMA, North of Massachusetts Avenue, was a place to design different housing typologies due to zoning. I wanted a site significant to the city but able to allow for high density housing. The intersection of New York Avenue and North Capitol Street is a true gateway to the city. The image on the next page shows its neighboring context.

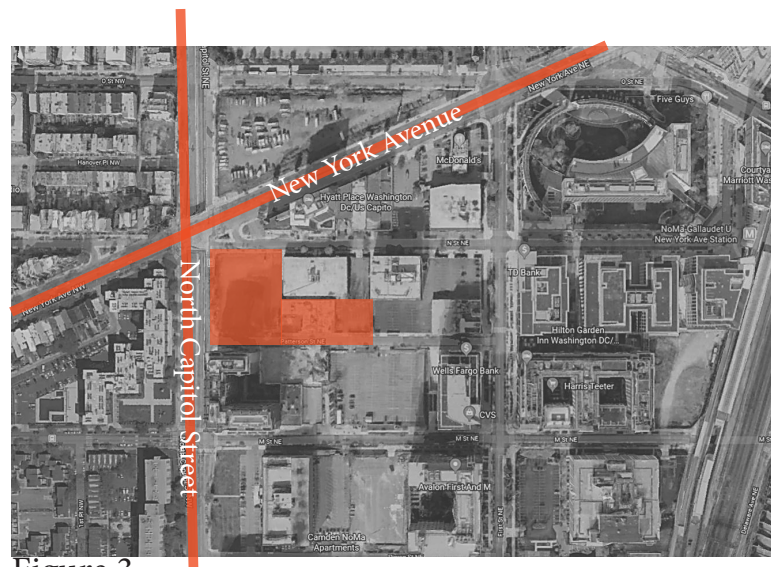
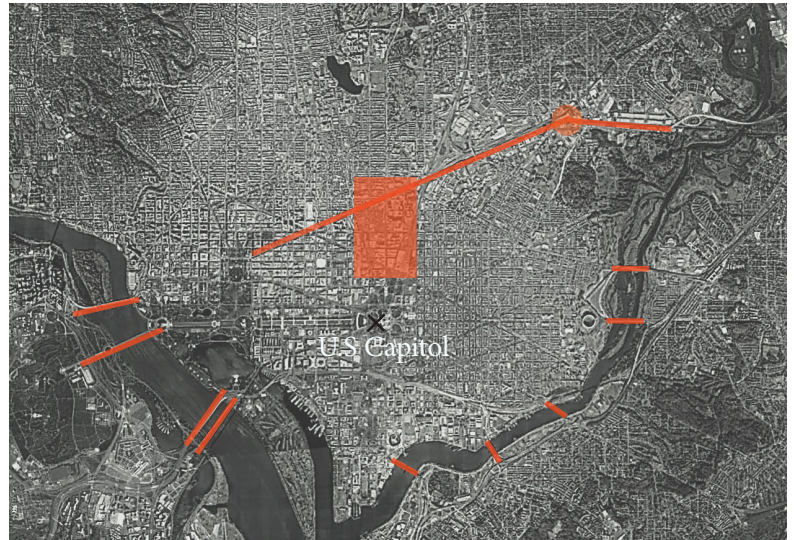


Figure 3

Rowhouses

High-Density Housing

TRANSPORTATION - NoMa-Gal-
laudet U New York Ave Station &
Union Station

EDUCATION -
Dunbar Highschool and Gonzaga High
School

GROCERY STORE -
Harris Teeter

PARKS -
Lower Sentate Park & National
Mall

HEALTHCARE -
Kaiser Permanente Capital Hill Medical
Center

FIRE DEPARTMENT -
Washington DC Fire & EMS Station



Sketches of Neighboring housing typologies



View from N Street looking towards the site



View from North Capitol Street looking towards the site

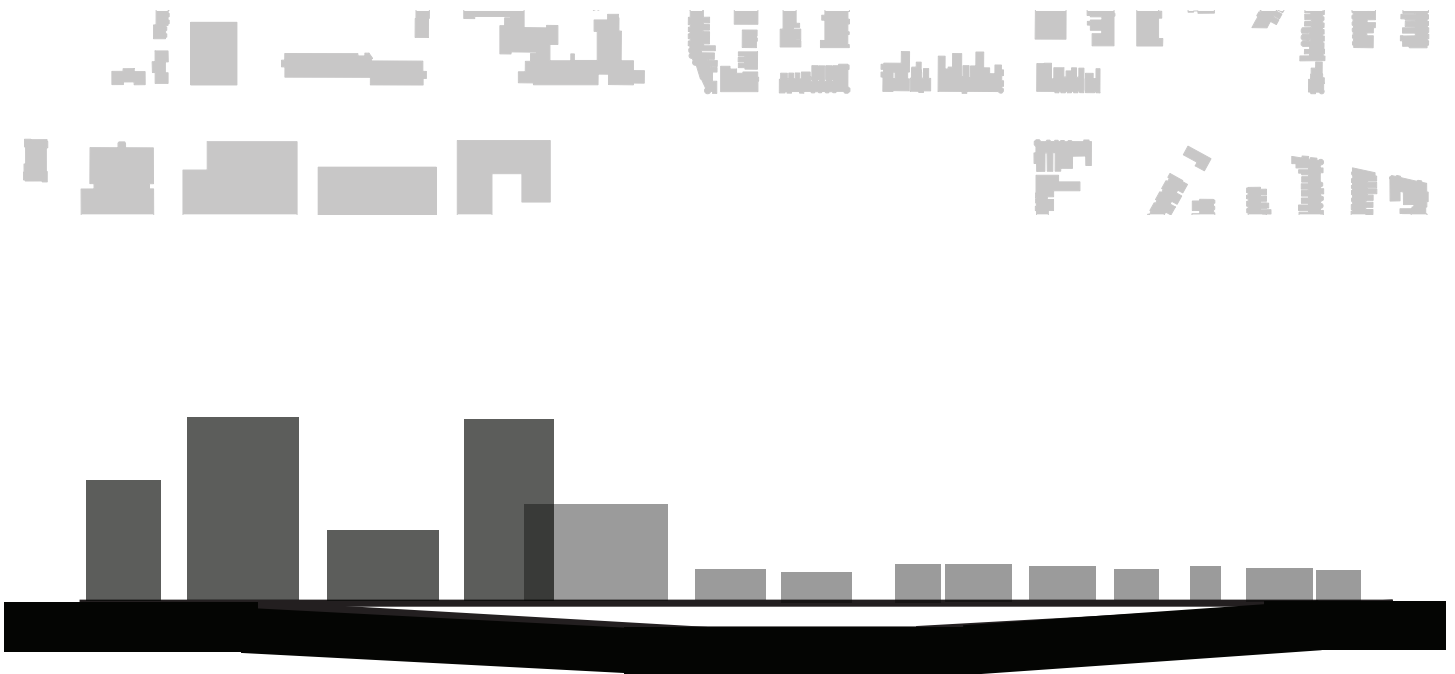
Figure Ground Study:

In NOMA, the figure-ground diagram below shows the different types of housing typologies in the surrounding neighborhoods. There is a selection of rowhouses and also mix-use high-rise residential complexes within a three block radius. There are also some other building types in the image below such as office buildings.



Figure Ground Study:

The different variations of rowhouses and high-rise buildings adds a height contrast within the city. The image below is a hypothetical section diagram to depict the different height variation within the surrounding neighborhood.



Precedent Study

Gables Old Town North - Hord Coplan Macht
525 Montgomery St, Alexandria, VA 22314

The Washington metropolitan area has several examples of developments with a mix of rowhouses and flats. For example, there is a project called Gables Old Town North. The project was designed by Hord Coplan Macht and completed construction in 2019. The project has street level rowhouses with the utilization of their roof as outside space for tenants living in the apartment complex. This precedent study is a mid-rise apartment complex attached with rowhomes.

Number of Apartments : 232

Number of Floors: 6

Retail Space : 50,942 sf



Figure 4

Precedent Study

The Deizen - Hord Coplan Macht
2827 Telek Place, Alexandria, VA 22314

The Deizen was designed next to a series of rowhouses. The Deizen is a high-rise residential complex which is located next to a 3-story rowhouses neighborhood with surrounding greenspace. In this project the rowhouses do not need to be attached next to the apartments but arranging them in a way to become part of a neighborhood community. The project is scheduled for completion by spring 2020.

Number of Apartments :336

Number of Floors: 23



Figure 5

Precedent Study

Foundry Lofts - SK & I

301 Tingey St SE, Washington, DC 20003

This apartment complex is located in Washington DC. These apartments have ground floor entrance to the individual flats while being connected to the apartments above. Each individual tenant on the ground floor has their own entrance while having a private outdoor patio.

Number of Apartments : 177

Number of Floors: 6

Retail Space : 10,000 sf

Residential Space: 185,000 sf



Figure 6

Precedent Study

Westlight Condos - TEN Arquitectos
1110 23rd St NW, Washington, DC 20037

The Westlight Condos have 71 condos in Washington DC with a library below. Although this building doesn't have rowhouses the design has a unique facade design. The facade walls cantilever over the floor below, which creates this unique design of the facade. The building was constructed in 2017.

Number of Condos : 71

Number of Floors: 10

Residential Space: 300,000 sf

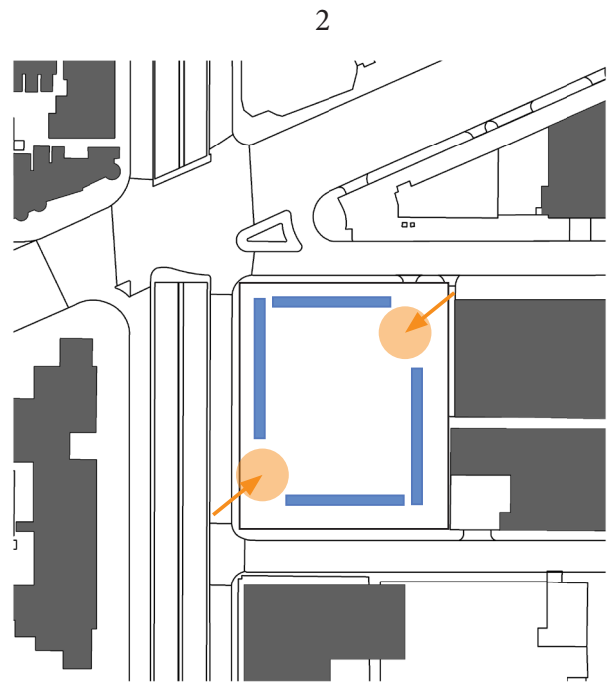
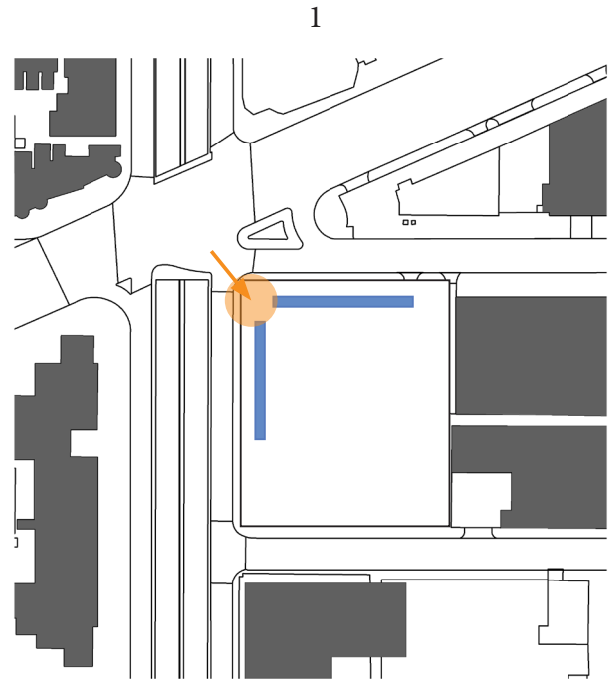


Figure 7

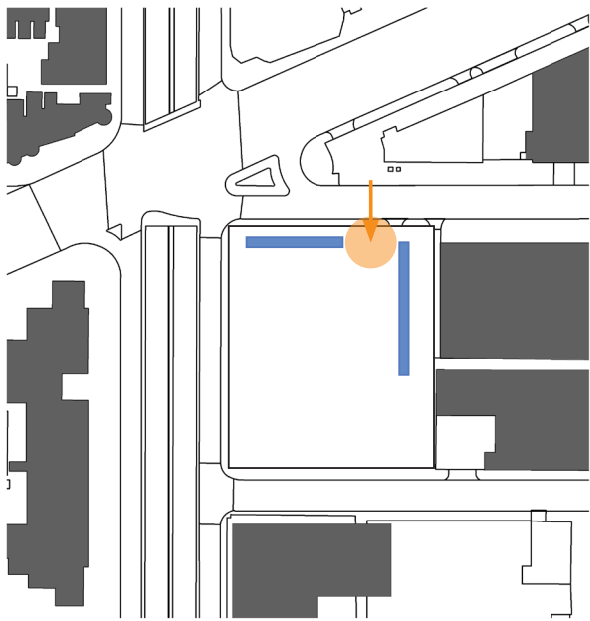
Approach Concept

Since the site is located off of a major intersection of New York Avenue and North Capitol Street the approach to the building is important.. Julia Robinson in *Complex Housing* explained the importance of approach and entrance. It can become a social space for dense housing projects.

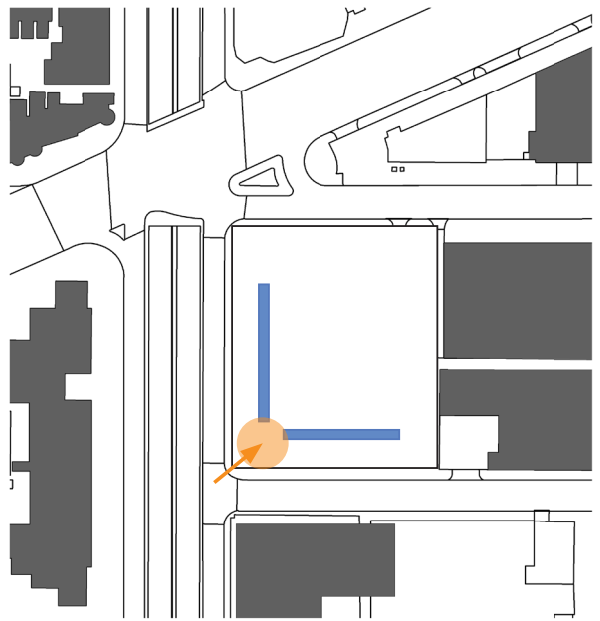
Study diagram 6 shows that an entrance off of North Capitol Street and creating a divide with the existing building creates an alley way that connects both the apartments and future rowhouses .The combination of multiple access points can accomplish outside public space while creating these social spaces as mentioned in *Complex Housing*.



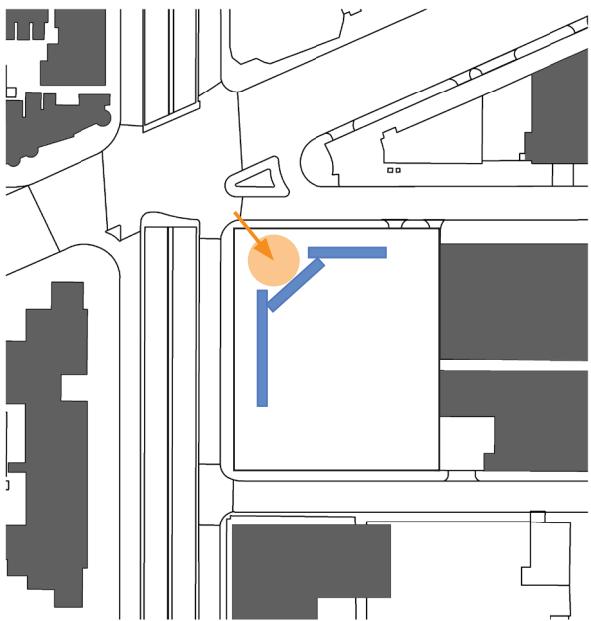
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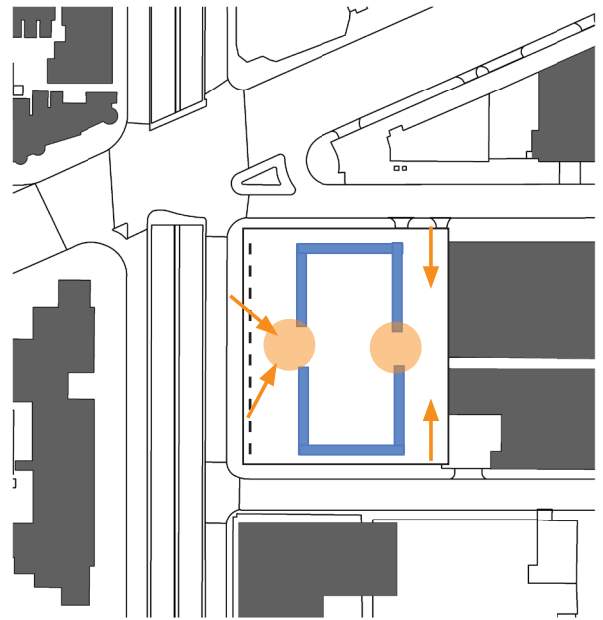
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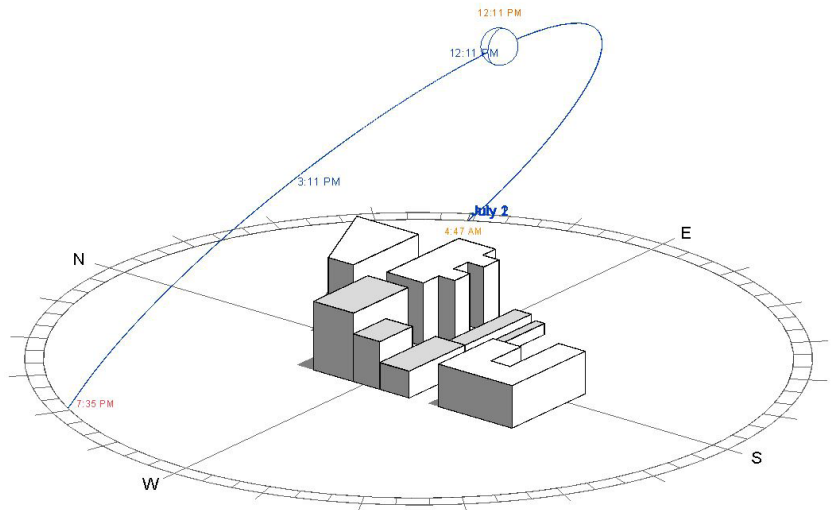


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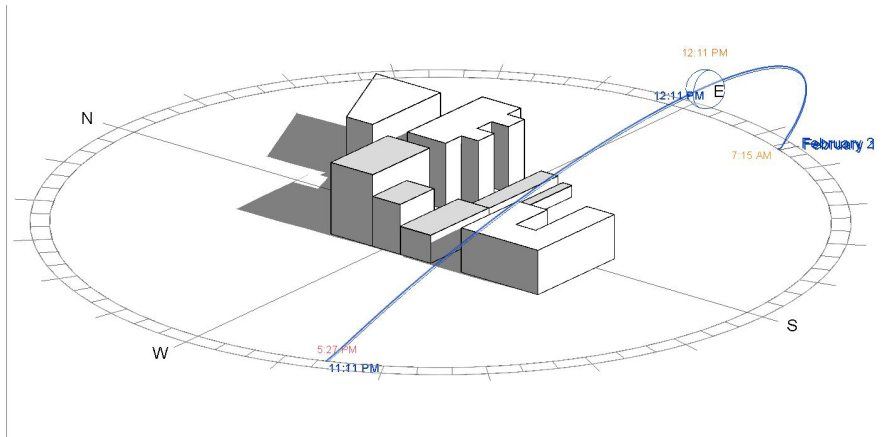


Concept

With the height juxtaposition, natural lighting and air circulation can be well executed based on the neighboring height difference. The concept is to keep the rowhouses low and adjacent to the high-rise apartments to create natural light and air circulation in the alley way.



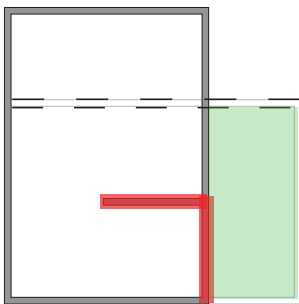
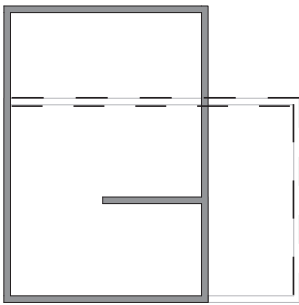
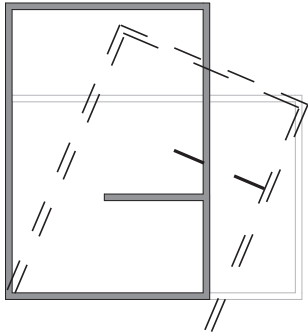
Summer



Winter

Concept

The shifting of apartment configuration will allow the apartments above to use the roof below as outdoor balcony space. By utilizing the 90-degree pivot it can create a generous balcony size for the tenants living in a city environment.





Site Plan:

The site is located at the major intersection of North Capitol Street and New York Avenue. The design for the apartments utilizes the roof for tenant amenities such as roof gardens, green roofs and a pool deck.

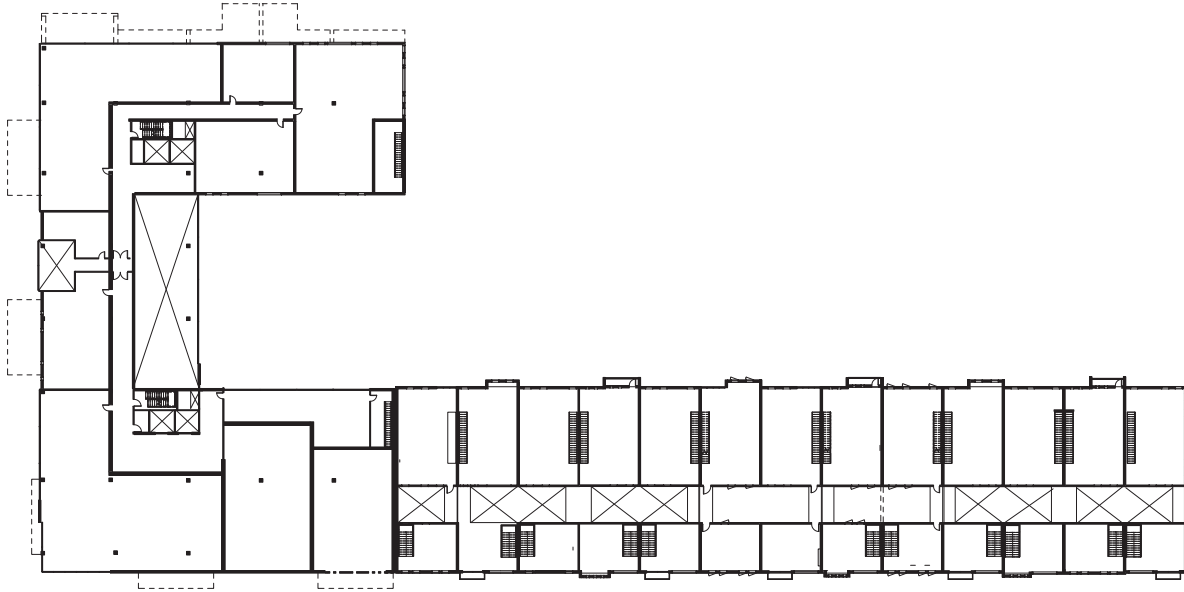
Ground Floor Plan



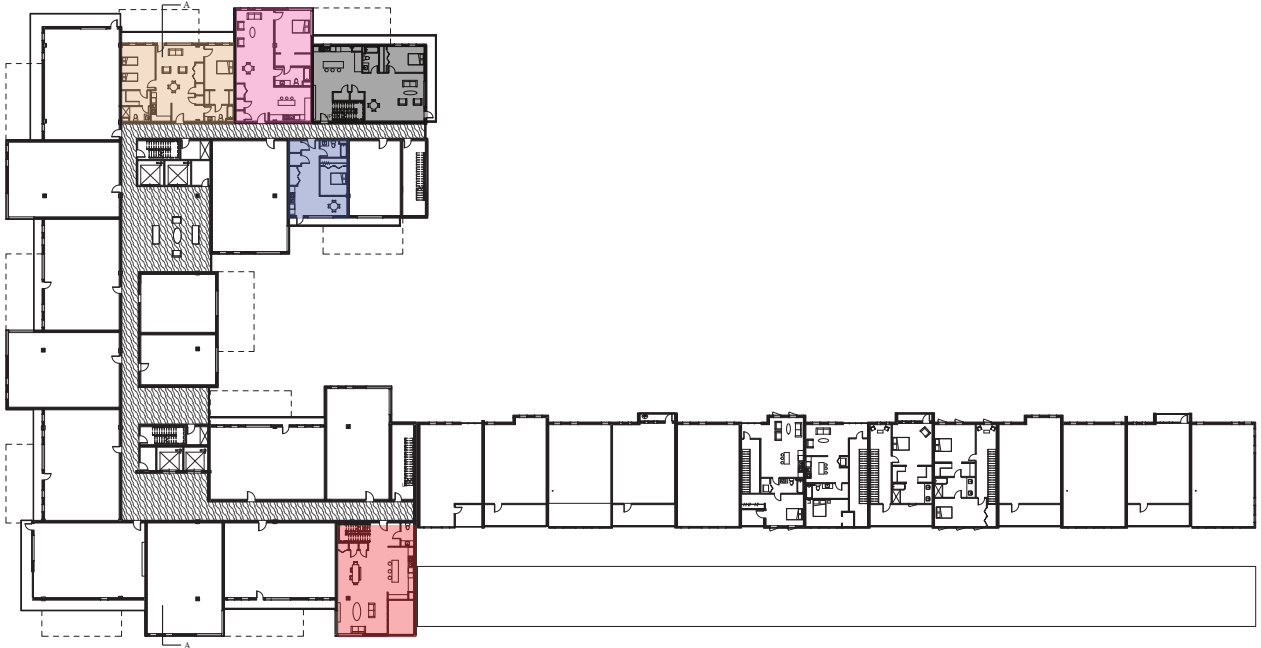
Ground Floor

There is an entrance at North Capitol Street and the courtyard to enter the apartment lobby. The ground floor has retail spaces located on North Capitol Street. While the interior mews serves as entrance to both rowhouses and apartment it also faces the existing building courtyards and becomes a social space for the neighborhood. The existing building is a 12 story mix-use building holding 346 apartment units. The ground floor has 5,000 sq ft. of retail space.

Second Floor Plan



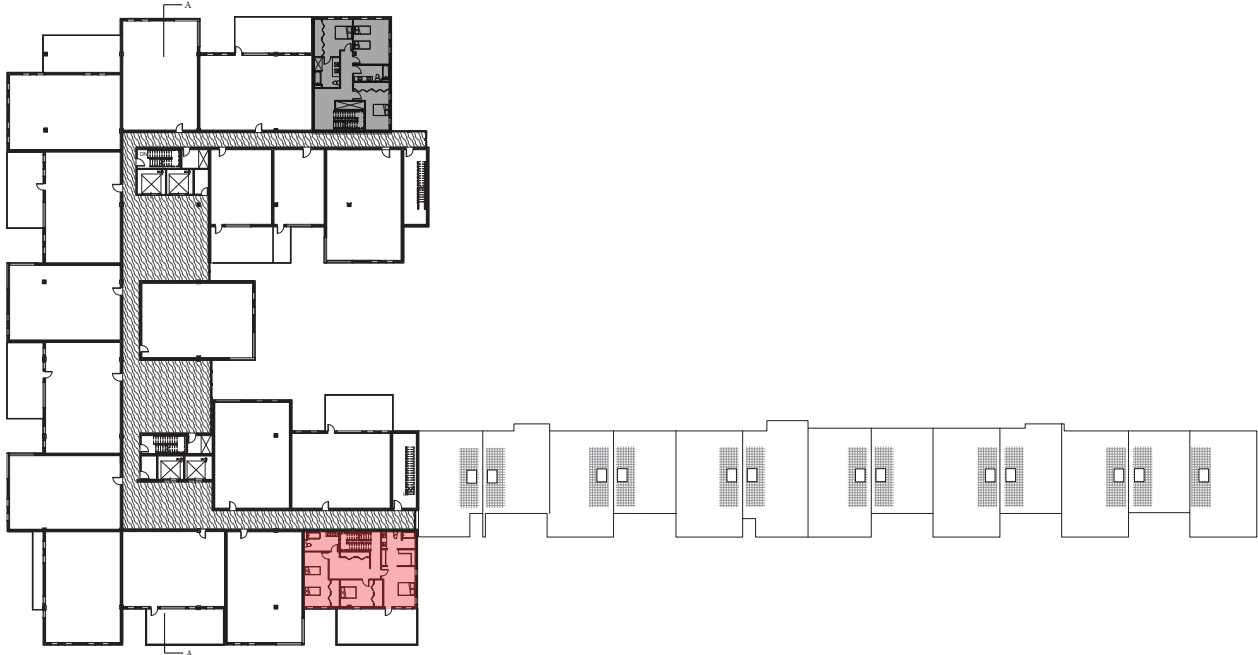
Third Floor Plan



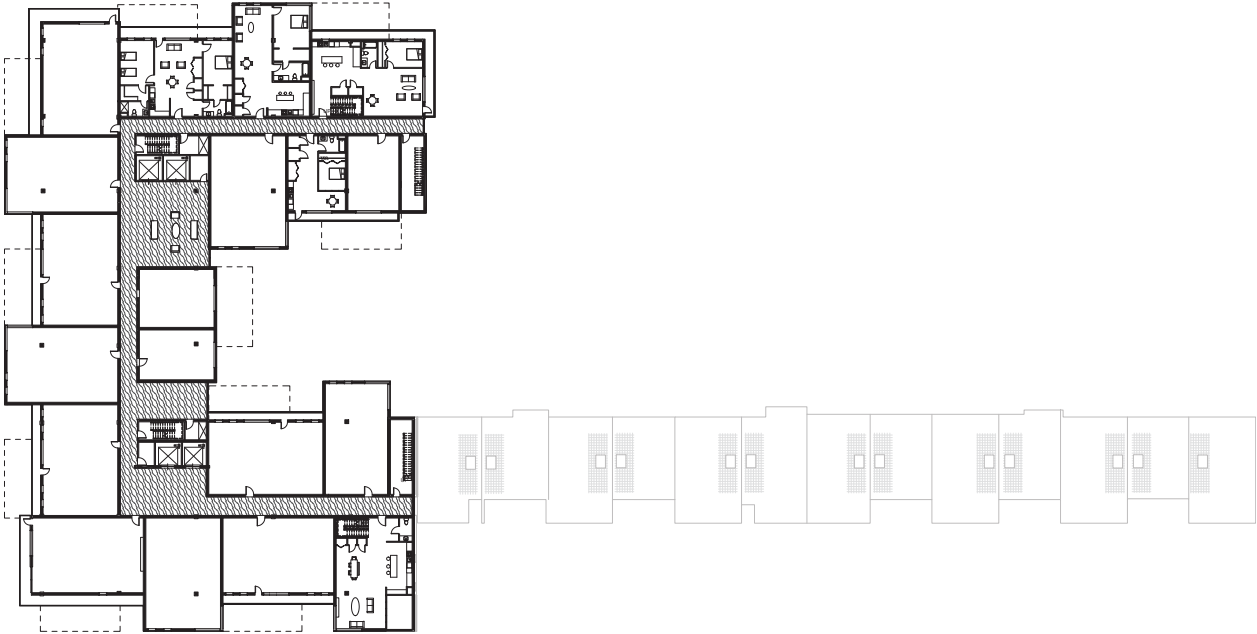
Typical Floors

The apartments start on the third floor and rotate 90 degrees on the 4th floor. This 90 degree pivot happens on every floor and creates a bold exterior facade as well.

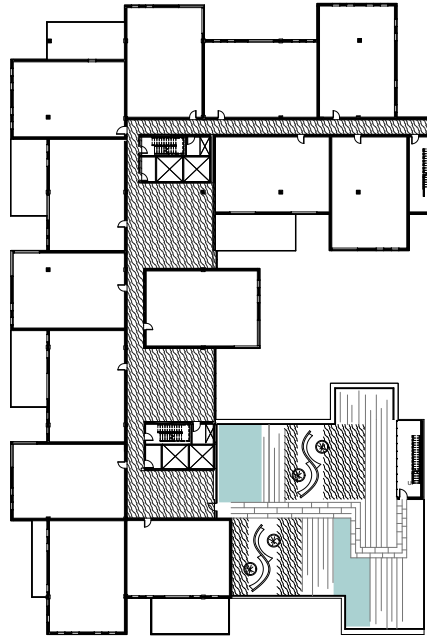
Fourth Floor Plan



Fifth floorFloor Plan

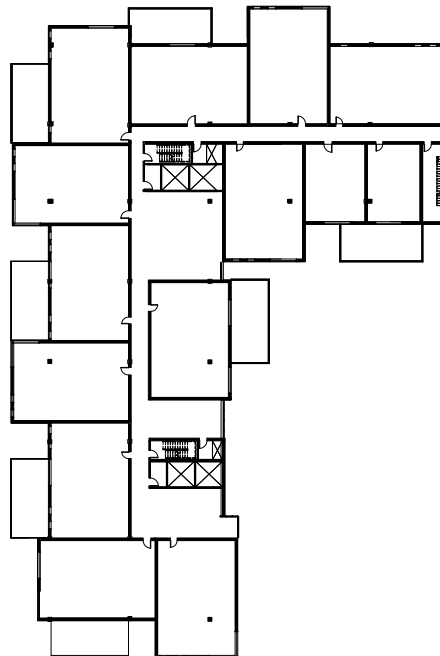


Sixth Floor Plan

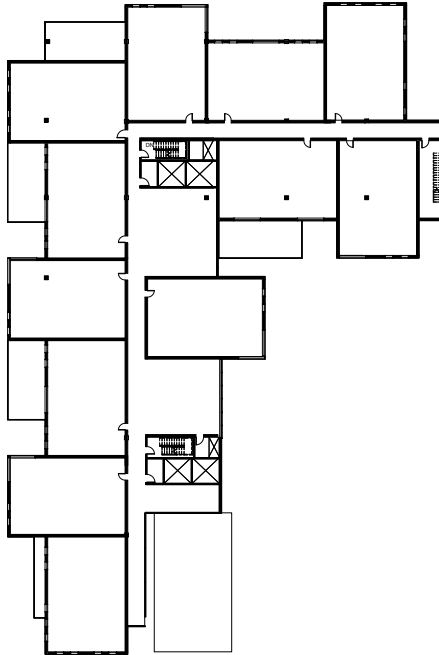


On the sixth floor there is a roof garden for the tenants.

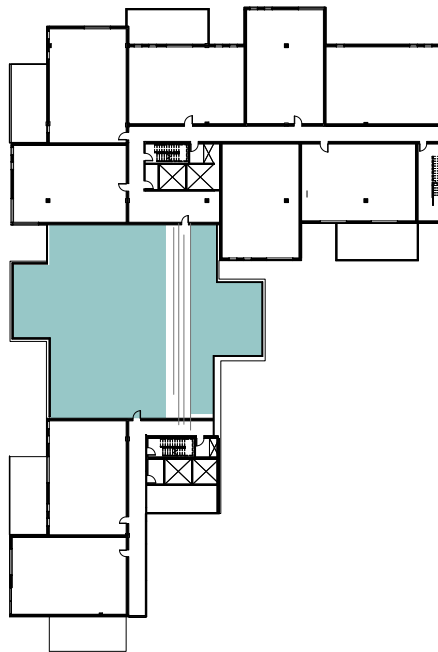
Seventh Floor Plan



Eighth Floor Plan

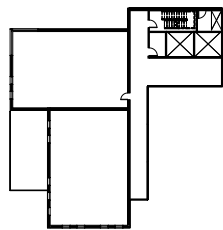
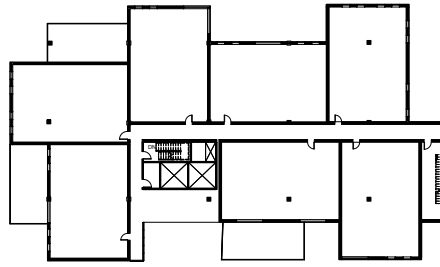


Ninth Floor Plan

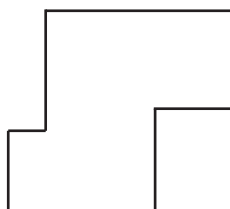
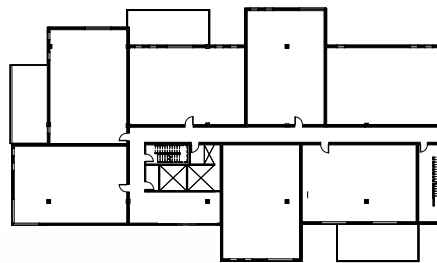


On the ninth floor there is a green roof with a pathway to get to the other side of the building.

Tenth Floor Plan

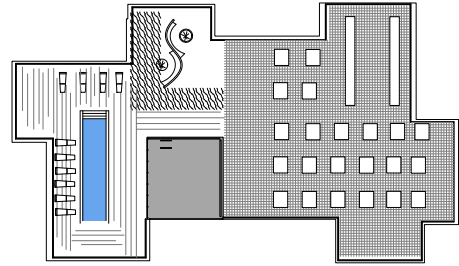
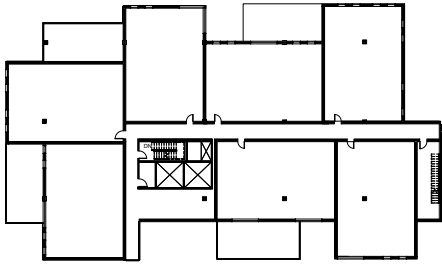


Eleventh Floor Plan

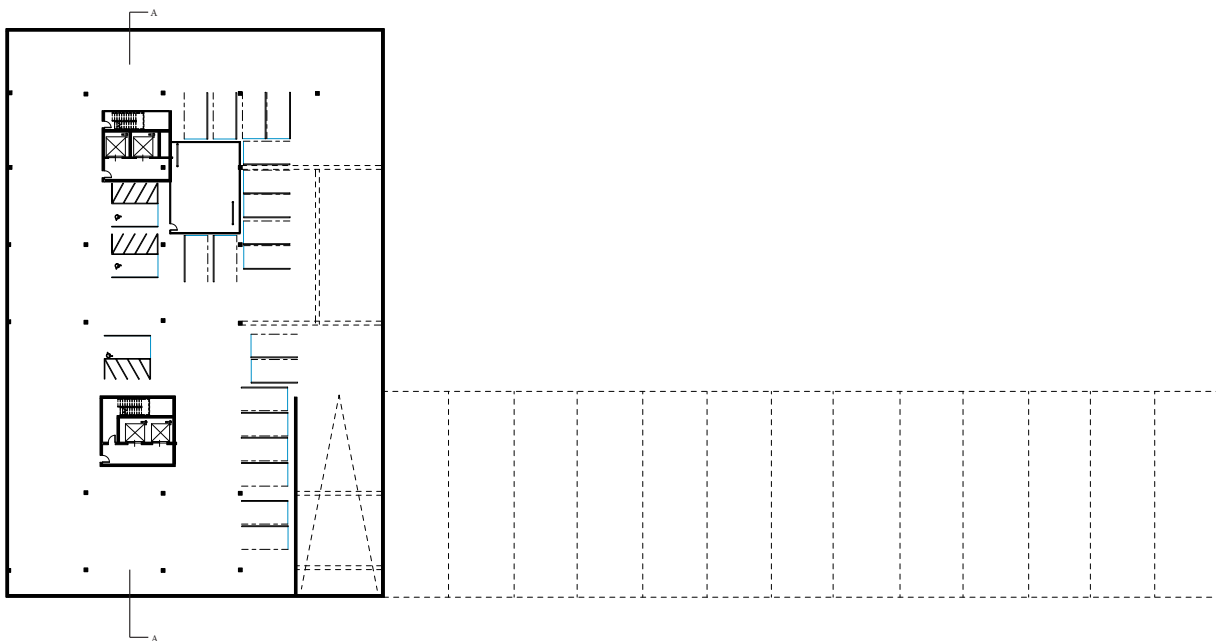


Twelfth Floor Plan

Pool Deck



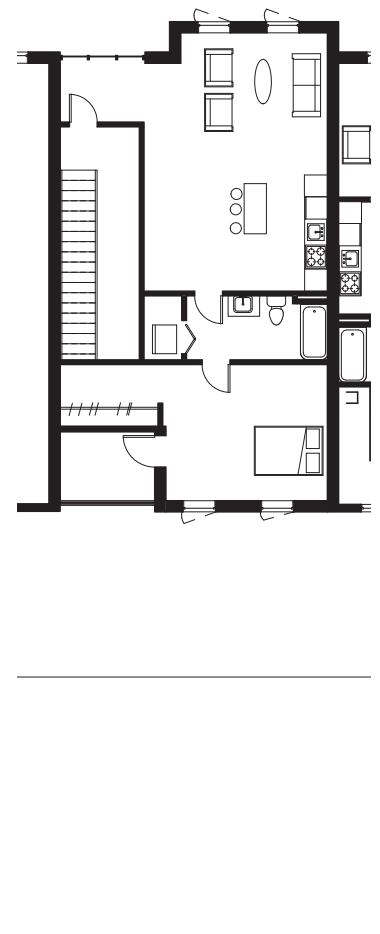
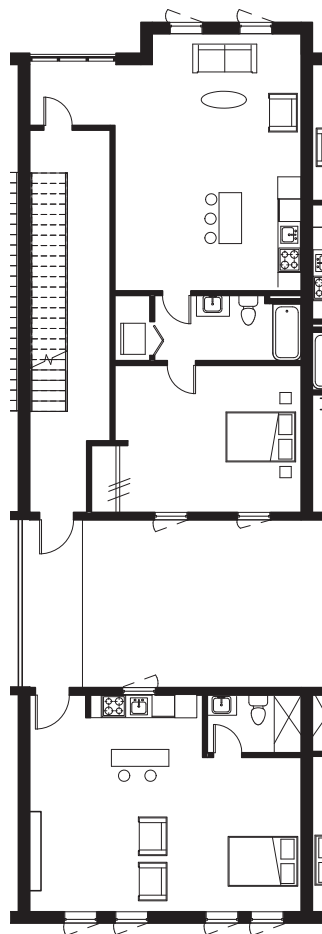
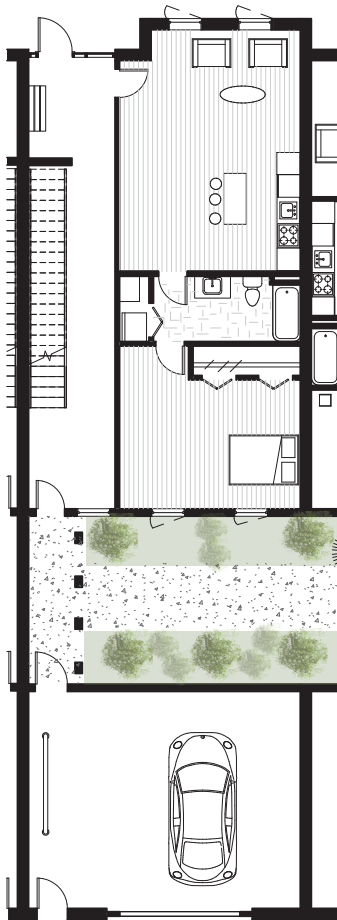
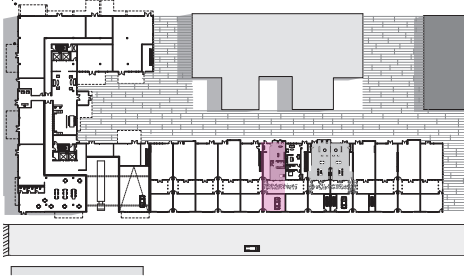
Basement Floor Plan



Rowhouses



Version 1

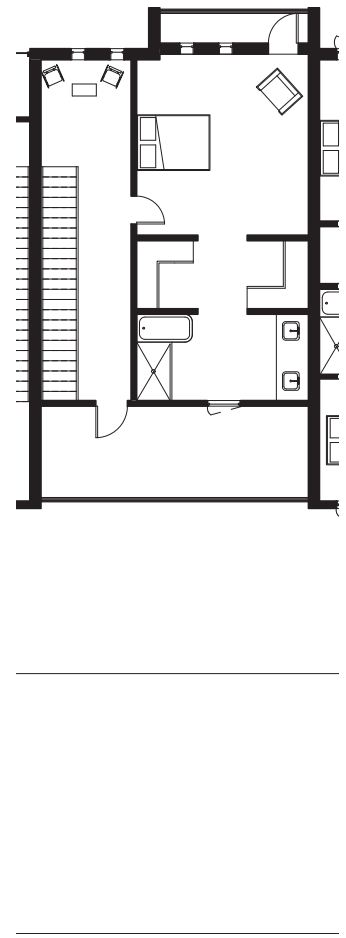
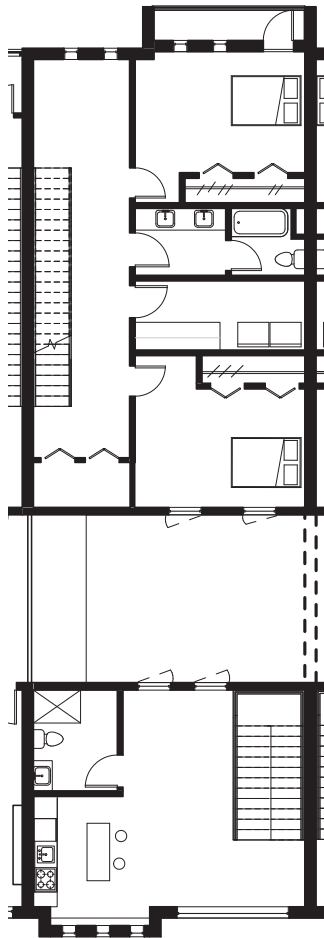
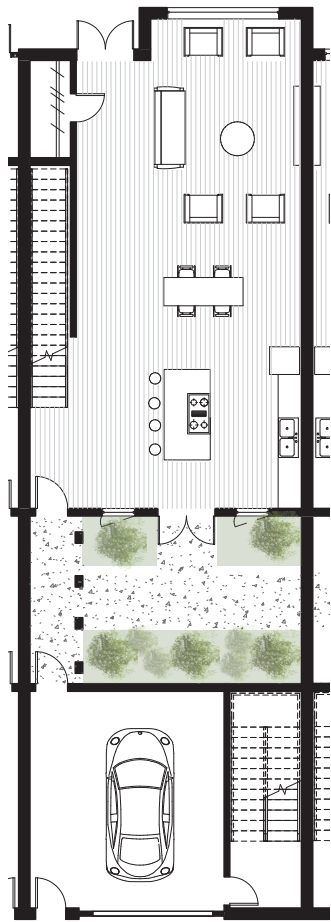
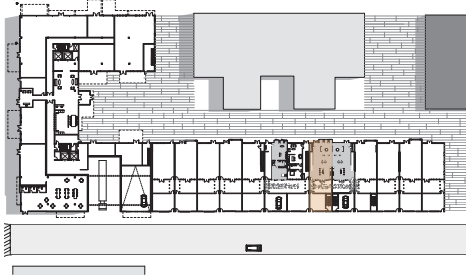
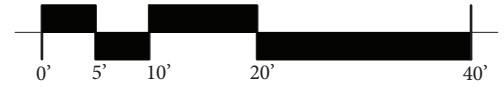


Flats:

Rowhouses can become very adaptable over time and have different functions. This version of the rowhouse shows that it can become flats. Each tenant has their own space fully equipped with kitchen, full bath and laundry.

Rowhouses

Version 2

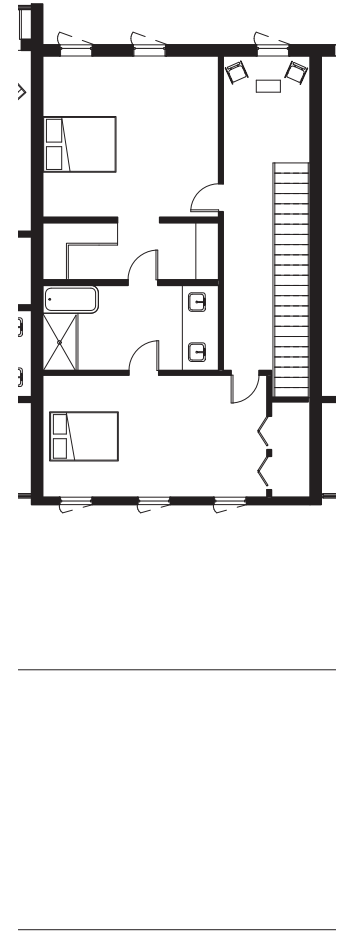
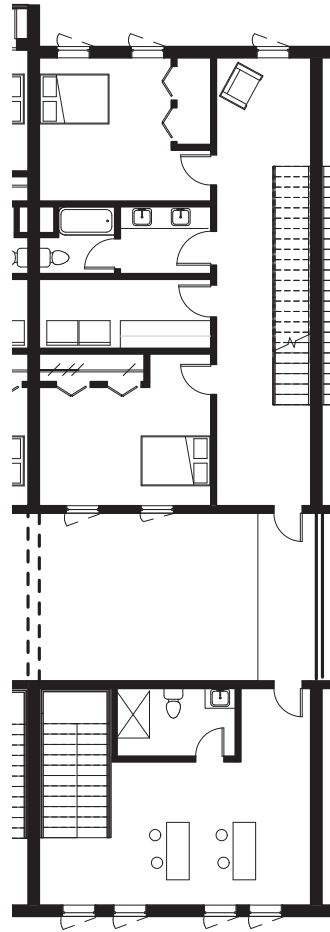
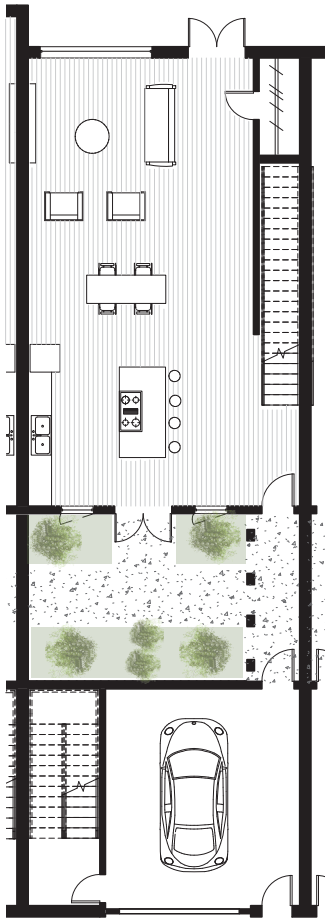
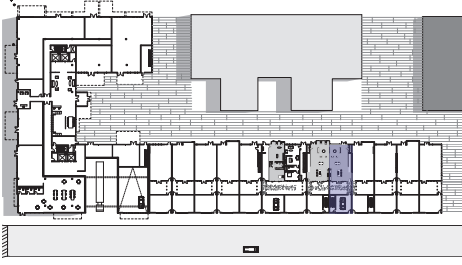


3 Bedroom plus Studio

This version of the rowhouse is what a 3 bedroom and a separate studio space above the garage could be. On the top floor the master bedroom has access to an outdoor roof patio.

Rowhouses

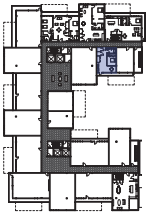
Version 3



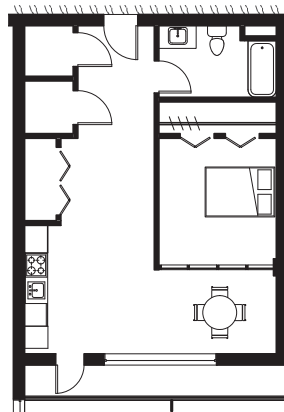
4 Bedroom plus Studio

The last version of the rowhouse shows a 4-bedroom option with direct access to the studio space.

Apartments

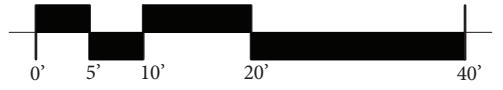


Floor Plan Key

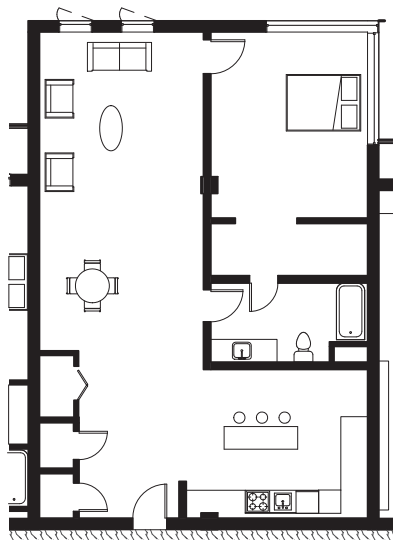


Studio Unit:

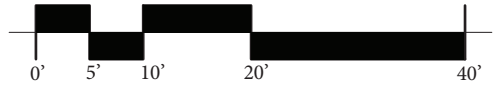
The Studio unit is 570 sq ft. The glass wall is intended to open and close to create privacy for the bedroom.



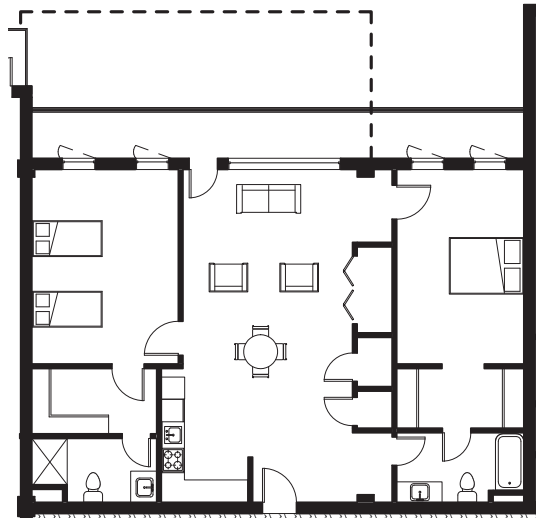
Floor Plan Key



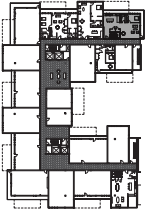
One Bedroom
1,200 sq ft



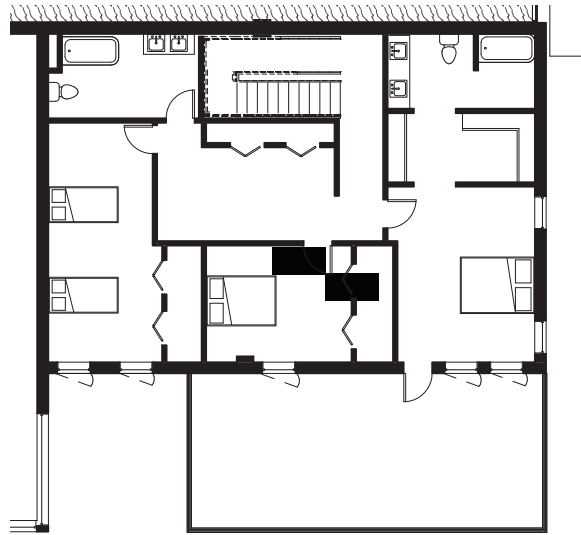
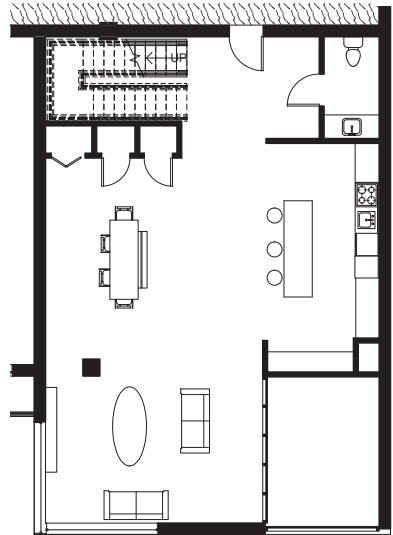
Floor Plan Key



Two Bedroom
1,200 sq ft

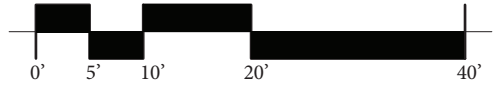


Floor Plan Key

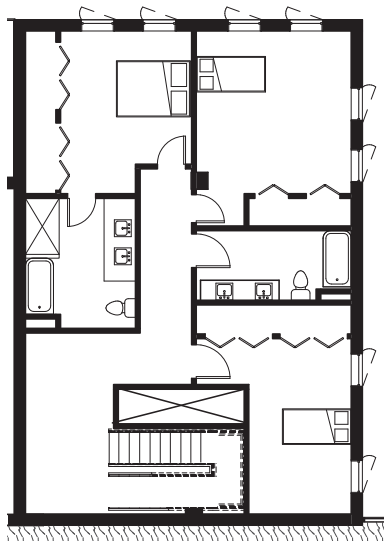
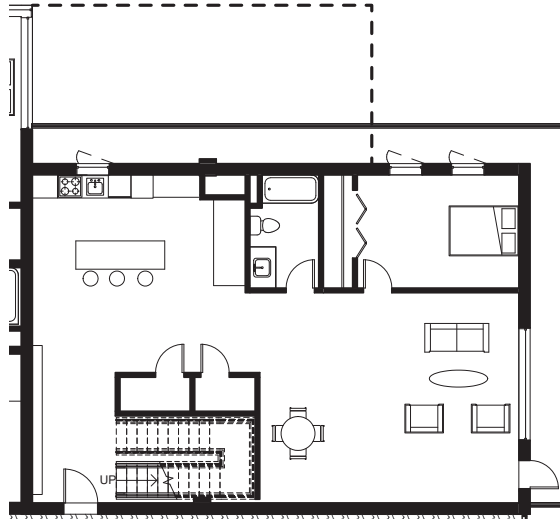


Three Bedroom
2,400 sq ft

Three bedroom apartments are two stories with bedrooms on the upper floor and shared communal space such as the kitchen, living and dining on the bottom floor.



Floor Plan Key



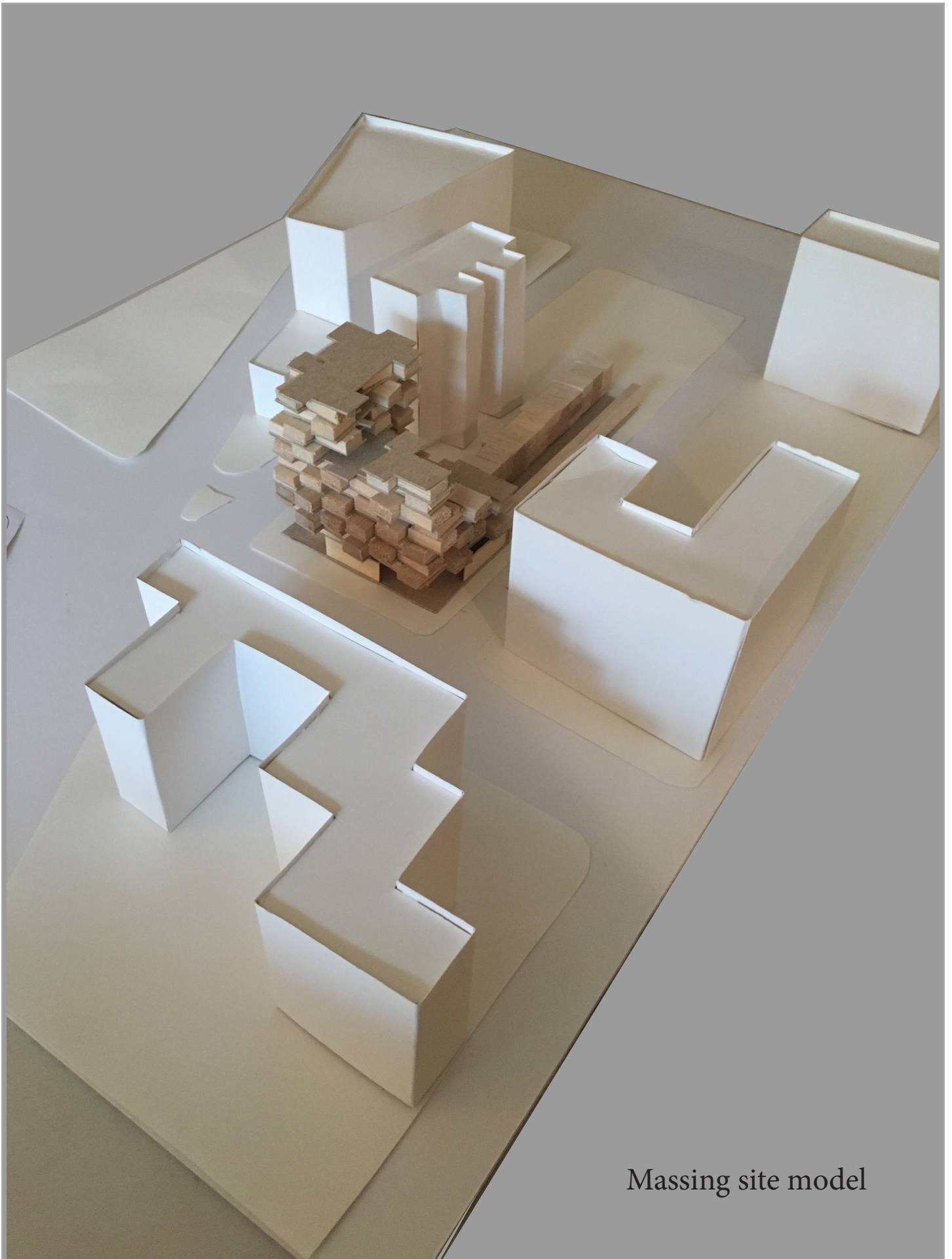
Four Bedroom
2,400 sq ft

Four bedroom apartments are two stories with bedrooms on the upper floor and lower floor. It was important to give each bedroom natural lighting which is why 3 and 4 bedroom units are located at the corners of the buildings.



North Elevation/Section

The north elevation shows each rowhouses having their entrance from the courtyard / alley. The apartment complex shares this courtyard/ alley with the rowhouses. The roofs step down in elevation so the contrast between apartments and rowhouses are a smooth transition. The following page shows a site model to further clarify the building mass.



Massing site model



Massing model of building



West Elevation

The West elevation shows the ground floor as mix-use off the busy street of North Capitol Street and the apartment units above. The pivot of the 90 degree is also expressed in the exterior facade.



South Elevation

The design is intended to be the longest elevation of rowhouses because of the southern sun.



Rendering of courtyard / alley



Key Plan

Section A

This section cuts through the two main cores of the building. The buildings have different heights so the two main cores serve as circulation for stairs and elevators. See key plan for location of section cut



Section B

This section perspective cuts through the southern facade. The drawing shows the different heights of the roofs that step down and the height difference compared to the rowhouses. See key plan for location of section cut



Exterior rendering down North Capitol Street



Rendering showing exterior balconies and cantilevered units



Rendering of retail facade and cantilevered units



Rendering of Unit Balcony

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Figure 1: Lebreton, Martin and Shlain, Arther. *The Noun Project*. Sep. 21,2015 U.S Census Bureau, American Community Survey.

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Figure 2: Bâldea, Maja and Dumitrescu, Cristian. *High-Density Forms in Contemporary Architecture*. Published online December 15 2013.

<https://www.researchgate.net/publication/259642232_High-Density_Forms_in_Contemporary_Architecture>

Figure 3: Map of DC. Google maps service

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Figure 4: Hord Coplan Macht. *Gables Old Town North - 530 First Street*.

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Figure 5: Hord Coplan Macht, *Eisenhower Avenue - The Denizen*.

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Figure 6 : SK+ I, *Foundry Lofts Washington DC*.

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Figure 7: Ten Arquitectos, *West End Square 37*.

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