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Density: an Additive Process

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Density

An Additive Process

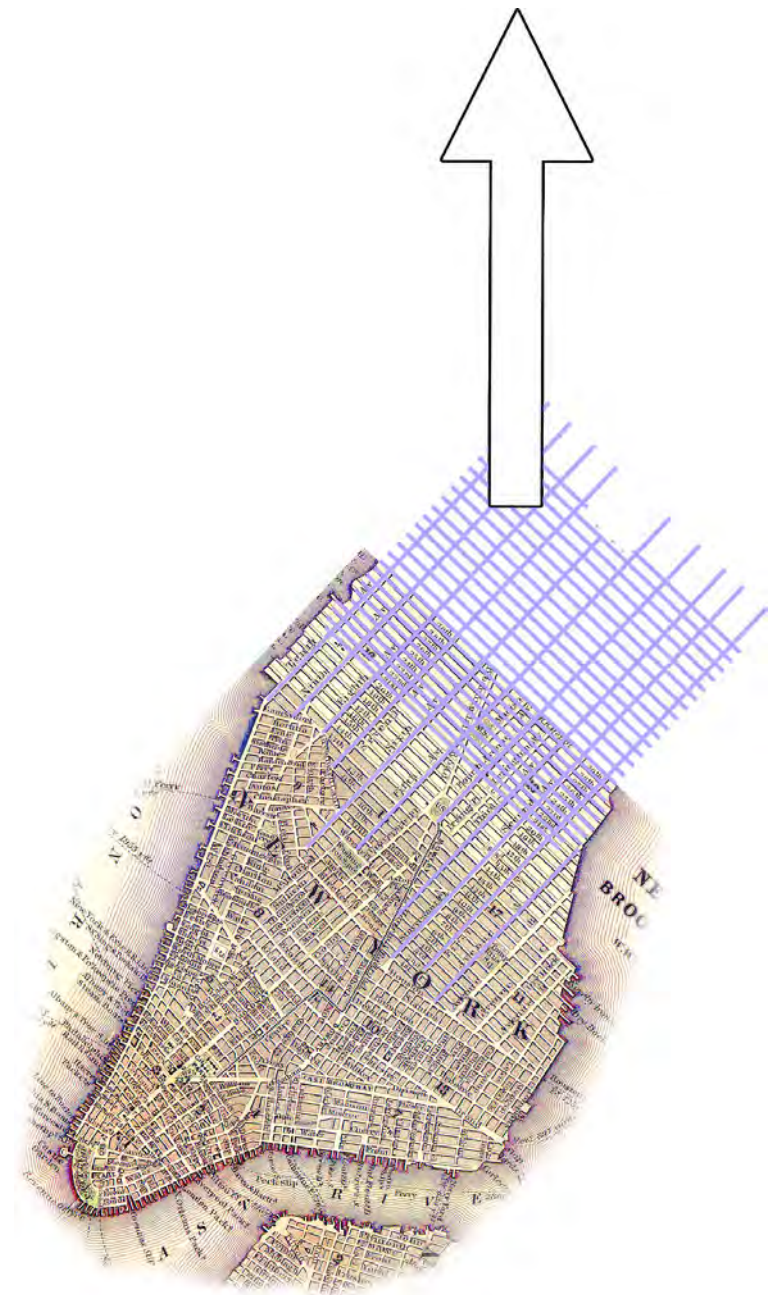
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December 2009

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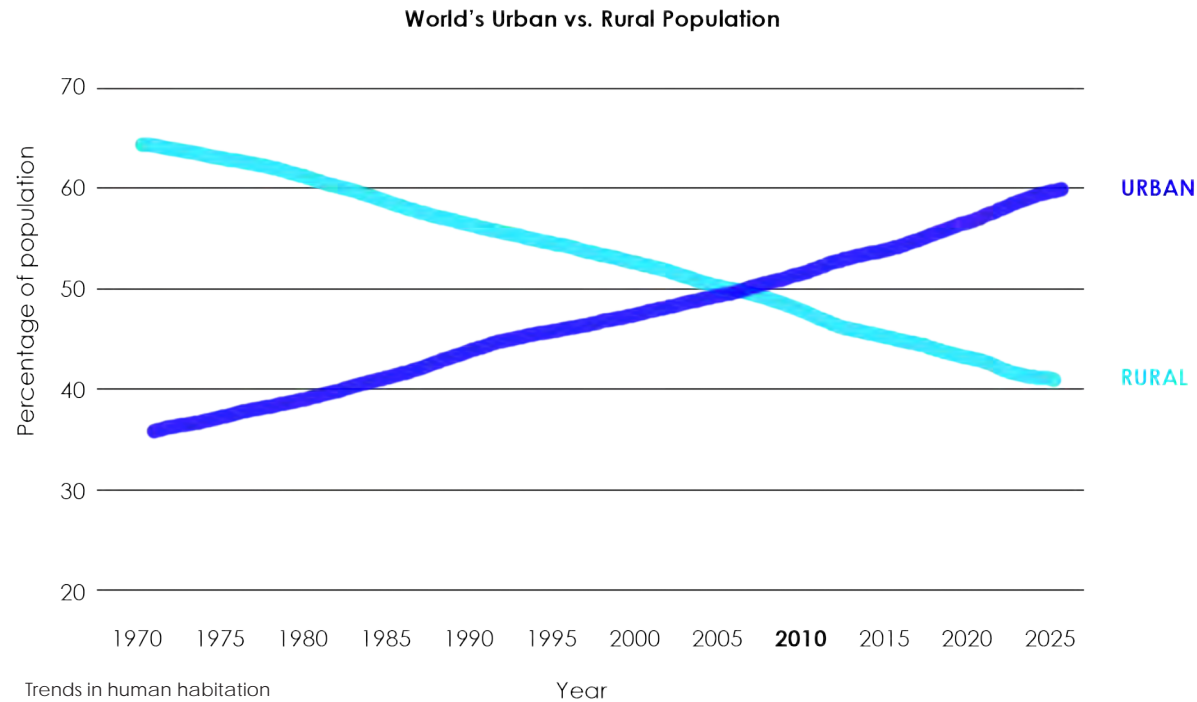
Provocative Architecture

Architecture is largely about meeting needs with sensible solutions, but architecture that serves change, progress, or discussion must be provocative. Architecture that successfully meets needs is good, but so what? Maybe it is boring. Architecture should get people excited, should communicate something to people. Clear, vibrant, opinionated messages necessitate response. Buildings that are provocative require almost everyone to form an opinion – either for or against, either strong or weak – and to discuss and get involved in it. The typical “good” architecture that we study does not communicate to the masses. The subtleties of plan, parti, and structural rhythm are not easily communicated, even to other architects. Messages that can be boldly communicated are simply more interesting to more people. These messages must be communicated visually; buildings that achieve this are those that look exotic or unfamiliar. This does not disallow architectural excellence, however, as “architecture” and the visual image of the building are separate. The visual image is what communicates most clearly, like a billboard that cannot be avoided, and gets people talking about architecture, about what the building means, what might be in it, and how the world is changing if this is what gets build. This visual communication is simply clearer than the stuffy architectural communication of the olden days (perhaps including the present). Visual communication and the architectural excellence can exist in parallel, communicating to the two different audiences.



Strategy for vertical growth, analogous to gridded street system
Figure 01

Project Statement



This project is about embracing the global transition from primarily rural life to primarily urban life. The project is looking for a way to organize the inevitable vertical growth that will need to occur in major cities such as New York.

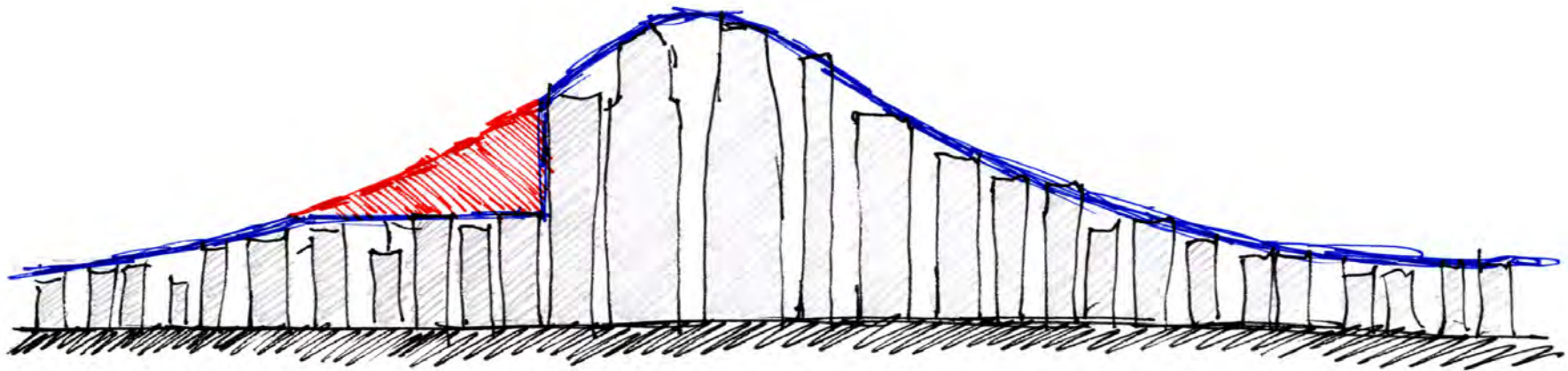
There are three main goals in doing this:

- Preserve most of the existing urban fabric, as it defines the city's character.

- Promote an additive process, since organic addition has made the city what it is.

- Develop a strategy, rather than a prescriptive framework, for dealing with the additive vertical expansion.

The project is therefore about three dimensional urban planning.

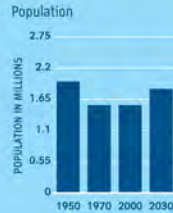


A void in the bell curve of a city's density
Figure 03

Manhattan

Manhattan's population peaked in 1910, when its 2.33 million residents were piled into tiny apartments with extended relatives, creating densities in the range of 600 to 800 persons per acre. Today, even the most crowded high-rise blocks can claim densities at just one-half that level. As a result, while Manhattan may experience the second-highest growth rate of any borough through 2030, its 1.83 million residents in 2030 will fall far short of its record high. A significant portion of that growth will come from residents over 65, who will increase by nearly 60%.

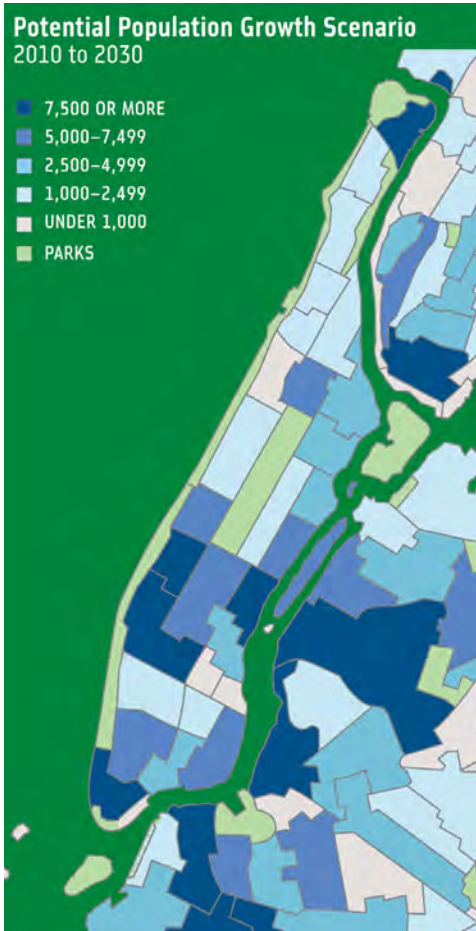
YEAR	POPULATION	% CHANGE	MEDIAN AGE	% UNDER 18	% OVER 65
1950	1.96 MIL	-	37	19.7	8.7
1970	1.54 MIL	-21.5	35	21.7	14.0
2000	1.54 MIL	-0.1	36	17.2	12.2
2030	1.83 MIL	18.8	40	15.2	16.1



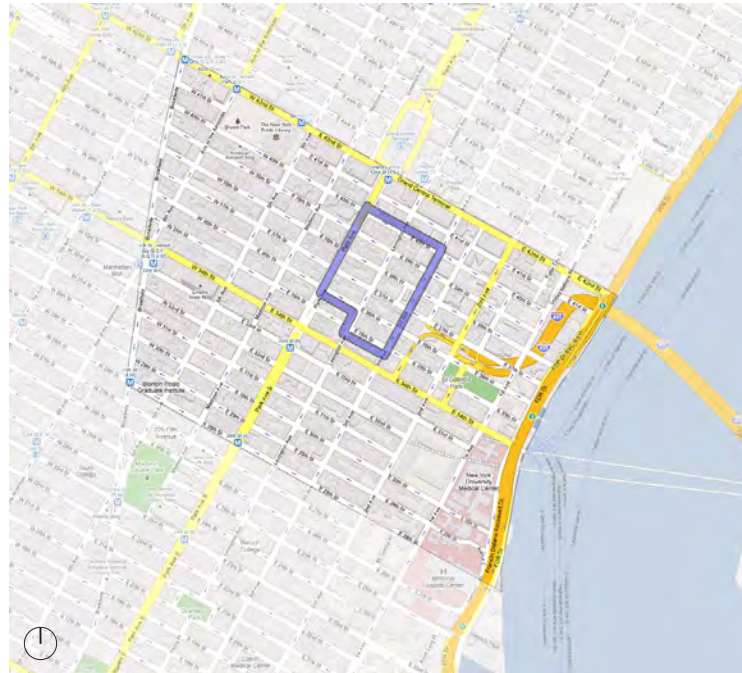
Population trends in Manhattan
Figure 04 ³

Potential Population Growth Scenario 2010 to 2030

- 7,500 OR MORE
- 5,000-7,499
- 2,500-4,999
- 1,000-2,499
- UNDER 1,000
- PARKS



Expected growth in Manhattan
Figure 05 ⁴



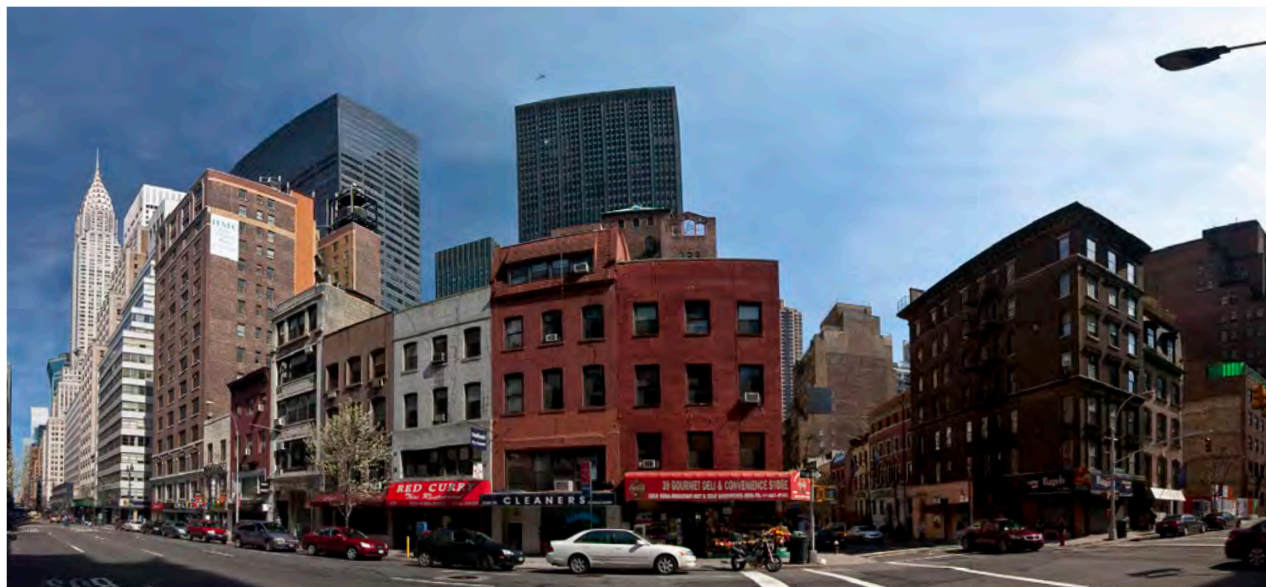
Murray Hill neighborhood, Manhattan, and project site in blue
Figure 06 ⁵

Site

From 2000 to 2030, New York City expects a population growth of 18.8%, translating to 265,000 new housing units, as well as offices, retail etc.² The project seeks to fill a void in the overall averaged density of the city, represented by this bell curve [Figure 03]. This void can be found in Murray Hill, a neighborhood southeast of Midtown that is expected to have particularly large growth between now and 2030. [Figure 05] The tall buildings of Midtown gradually dissipate in all directions, but a particularly sharp drop off can be seen in these 9 blocks of Murray Hill. [Figure 06] The project is about filling this void, increasing density while preserving most of what is already there.



View of Murray Hill with project site in red
Figure 07 ¹⁰



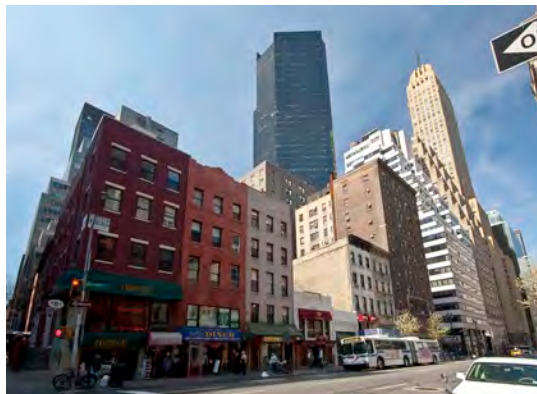
Lexington Avenue looking east
Figure 08

Site

Although it is not yet an attraction itself, Murray Hill is right at the periphery of the Midtown activity, and if predicted growth figures are correct, it will likely become part of the Midtown energy. PlaNYC expects Murray Hill to be one of the most rapidly growing neighborhoods in the next 20 years, meaning that this next phase of development will be very important to the long-term future of the neighborhood.⁶ The site is 9 blocks in central Murray Hill, just outside of Midtown. [Figure 09] The three avenues that pass through are Park, Lexington, and 3rd. Park Ave is known for its large glass corporate buildings, and the street life is not very pedestrian.⁷ Lexington Ave is quite commercial, with offices, hotels, and apartments above.⁸ Third Ave is a major north-bound thoroughfare with a fairly commercial street level.⁹ Generally, the avenues house larger, newer buildings, while the cross streets have smaller, older buildings.



Project site
Figure 09 ¹¹



39th and Lexington looking northwest
Figure 10

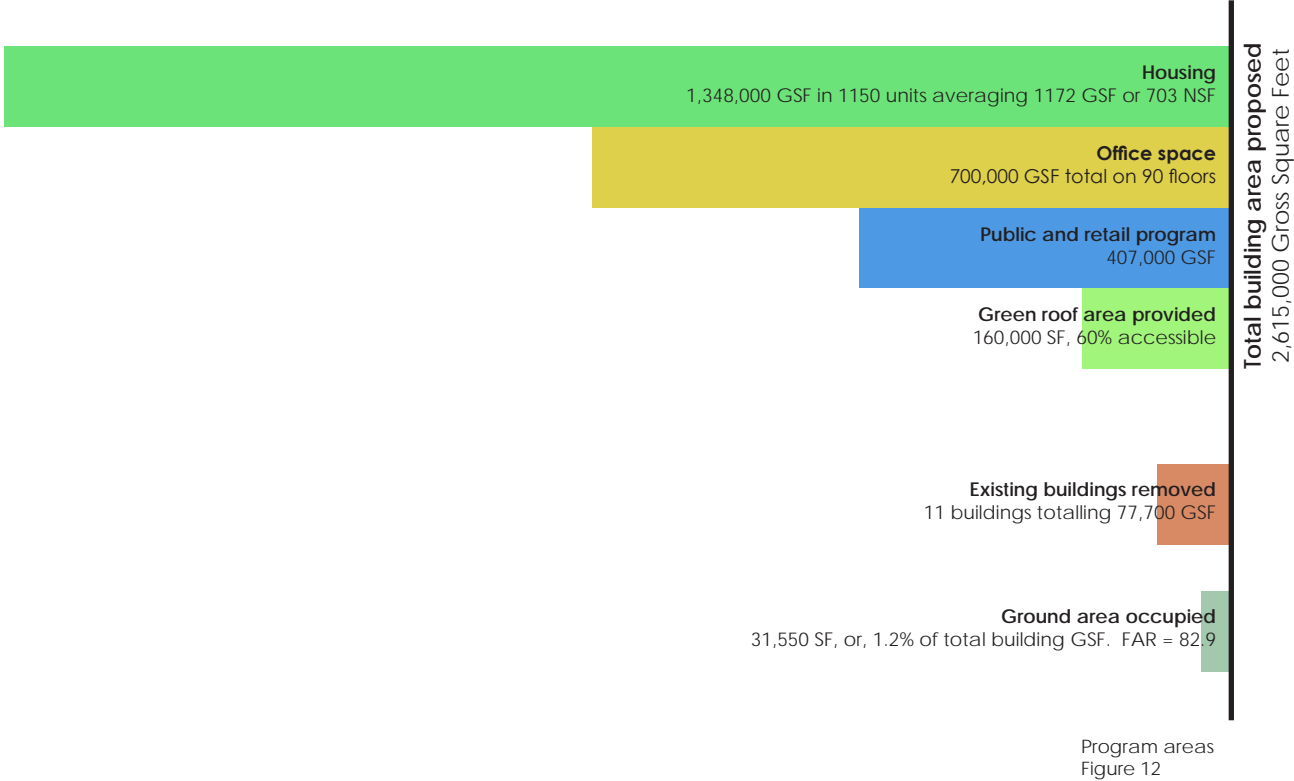


40th looking northwest
Figure 11

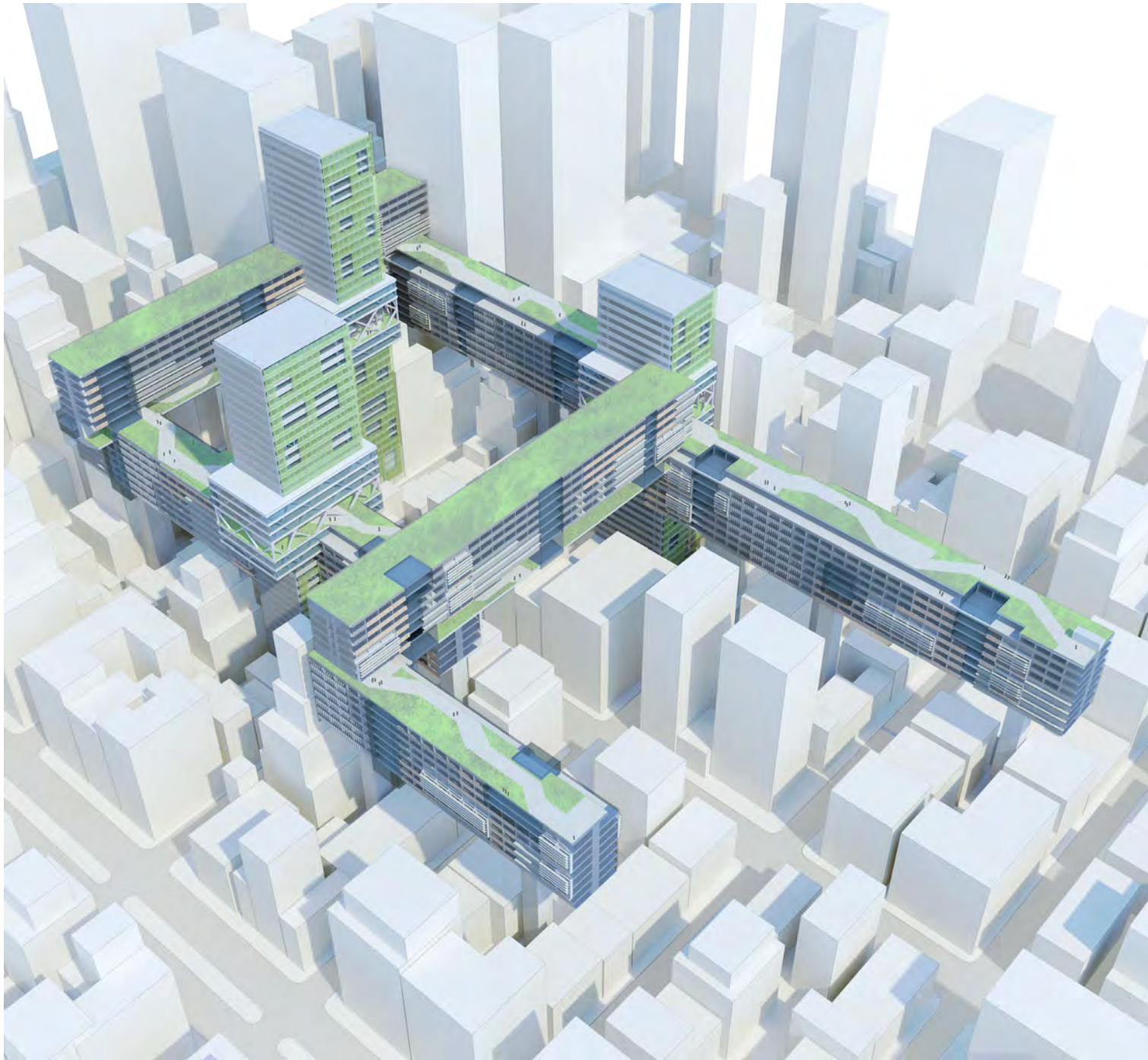


37th looking north
Figure 12

Program



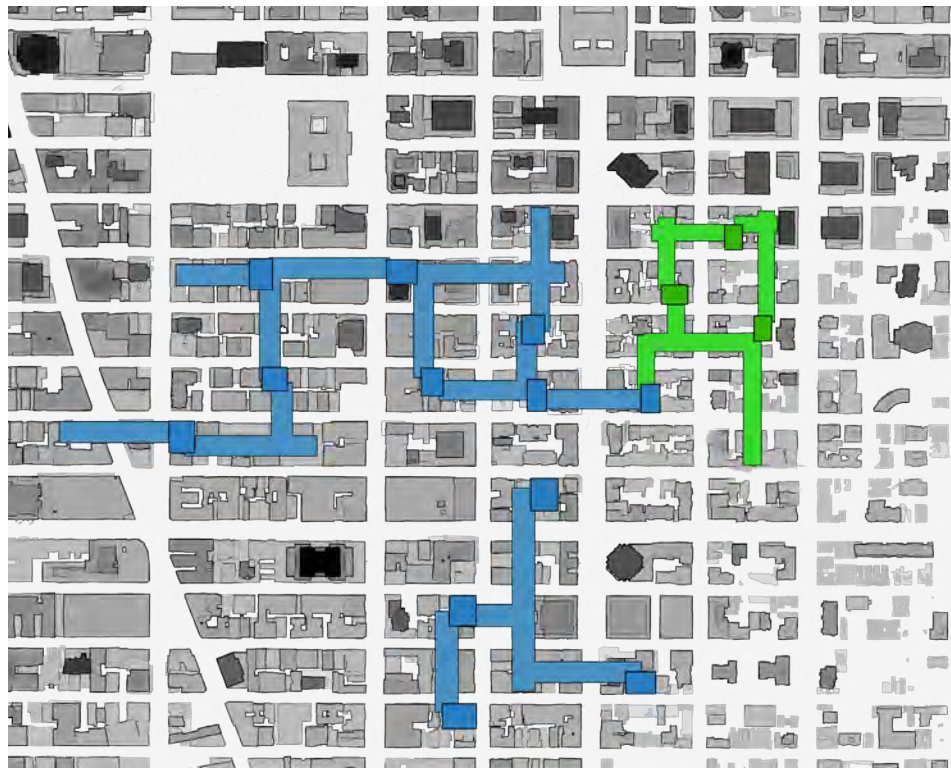
The design incorporates all the major program elements required in a city: housing, office, public space, retail, and green space. The total building area created is 2.6 million gross square feet. To make this possible, roughly 78,000 GSF of existing building was removed. Typically older, less-valuable buildings were chosen. 31,550 square feet of ground area was occupied, achieving a Floor Area Ratio of 82.9.



Overall view looking northeast
Figure 13

An Additive Process

URBAN SCALE



Potential additive growth
Figure 14

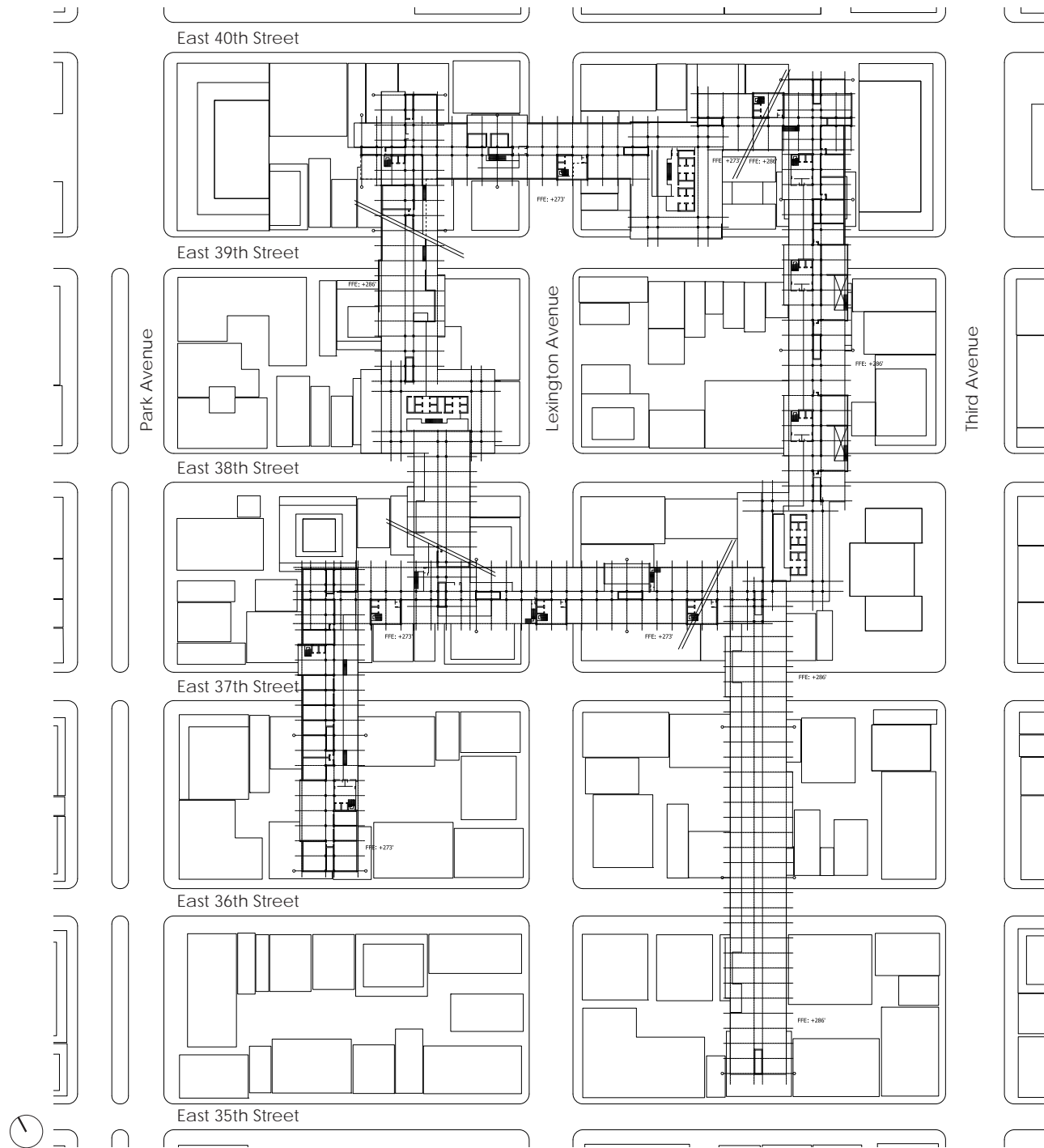
The character of the city is based on the buildings that make it up. This project proposes an alternative to knocking down existing buildings, important to the strength of the city, and replacing them with new, larger buildings. [Figures 15 & 16] To accommodate necessary densification, this proposal is an additive system that increases density while preserving much of what already exists. It is a system for growth that could organically expand over time. [Figure 14]



3,000,000 GSF in typical growth pattern
Figure 15



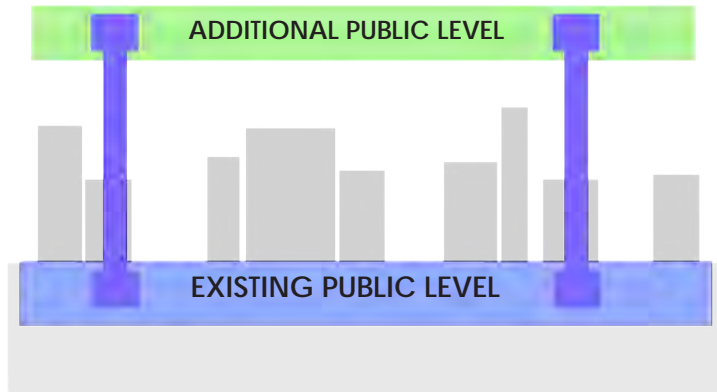
3,000,000 GSF in proposed growth pattern
Figure 16



Composite plan of continuous public levels Scale: 1" = 200'
Figure 17

Elevated Level

URBAN SCALE



Parallel public levels
Figure 18



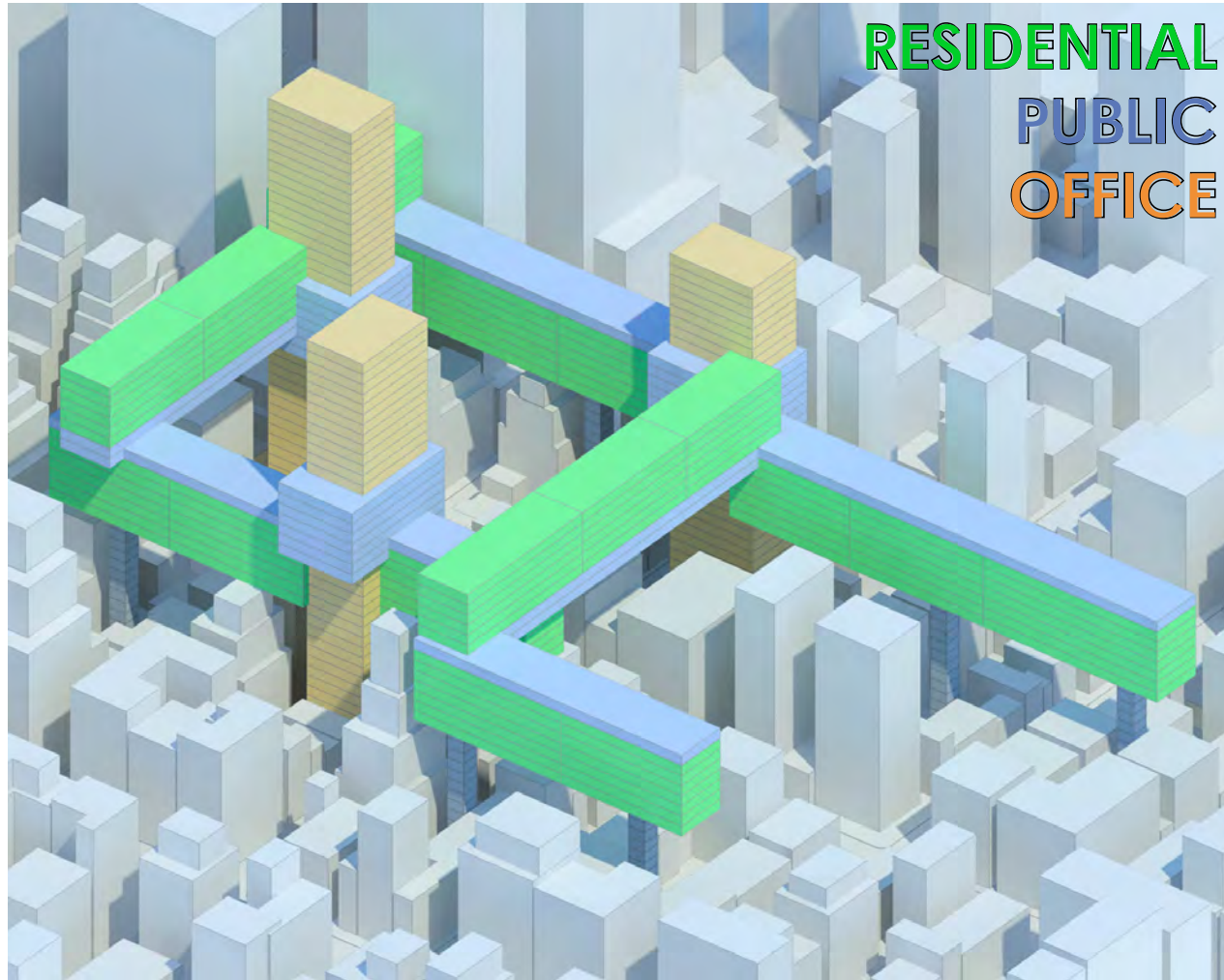
Parallel public levels
Figure 19

The design proposes an elevated public level that exists in parallel with the existing ground level. [Figure 18] The new level serves as a car-free, slower-paced pedestrian level with continuous, linear gardens throughout. [Figure 19] It also provides access to various public program elements, as well as neighborhoods of residences. As the additive system expands, the elevated level could become an important connection through the city, as the underground systems already have.



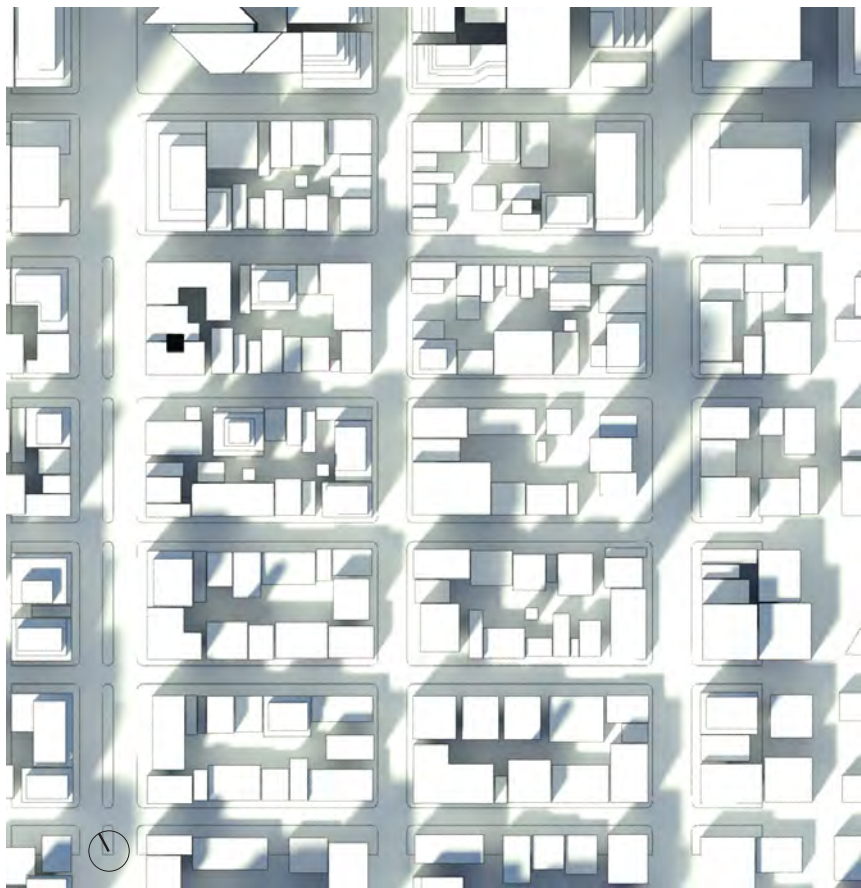
Photo composite of North Tower from Lexington Ave
Figure 20

Overall Program INTERVENTION SCALE

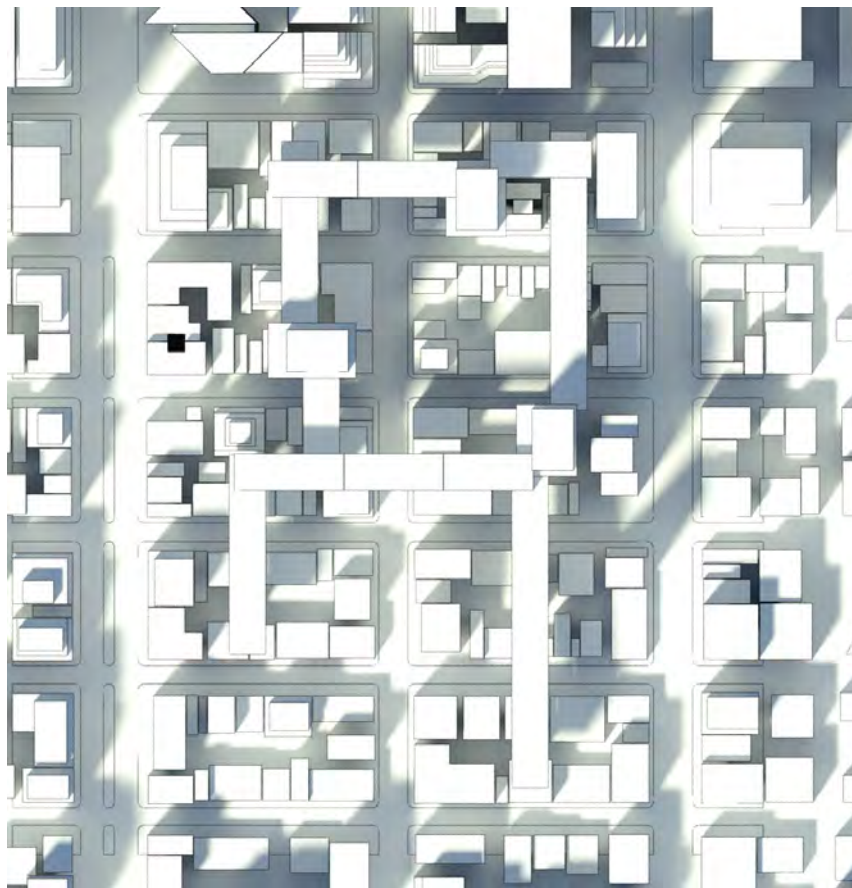


The scheme consists of a series of three towers connected by horizontal bars. [Figure 21] Each tower includes office space and a nexus of public program. The bars consist of housing and a sequence of public spaces.

Overall program distribution
Figure 21



Sun study before intervention - May 5th, 2:30 p.m.
Figure 22



Sun study after intervention - May 5th, 2:30 p.m.
Figure 23



Overall model Scale: 1" = 80'
Figure 24



Public Sequence

INTERVENTION SCALE

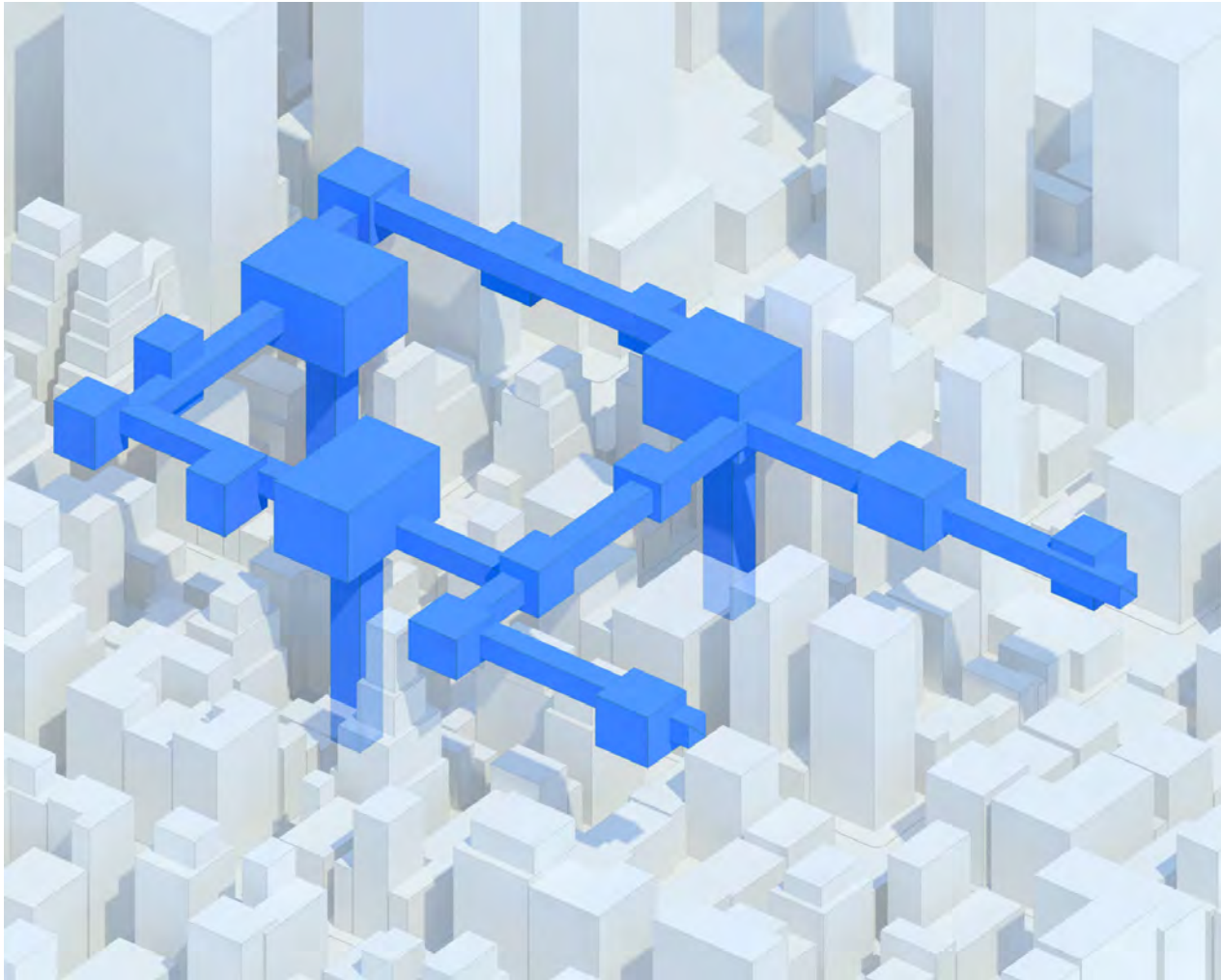
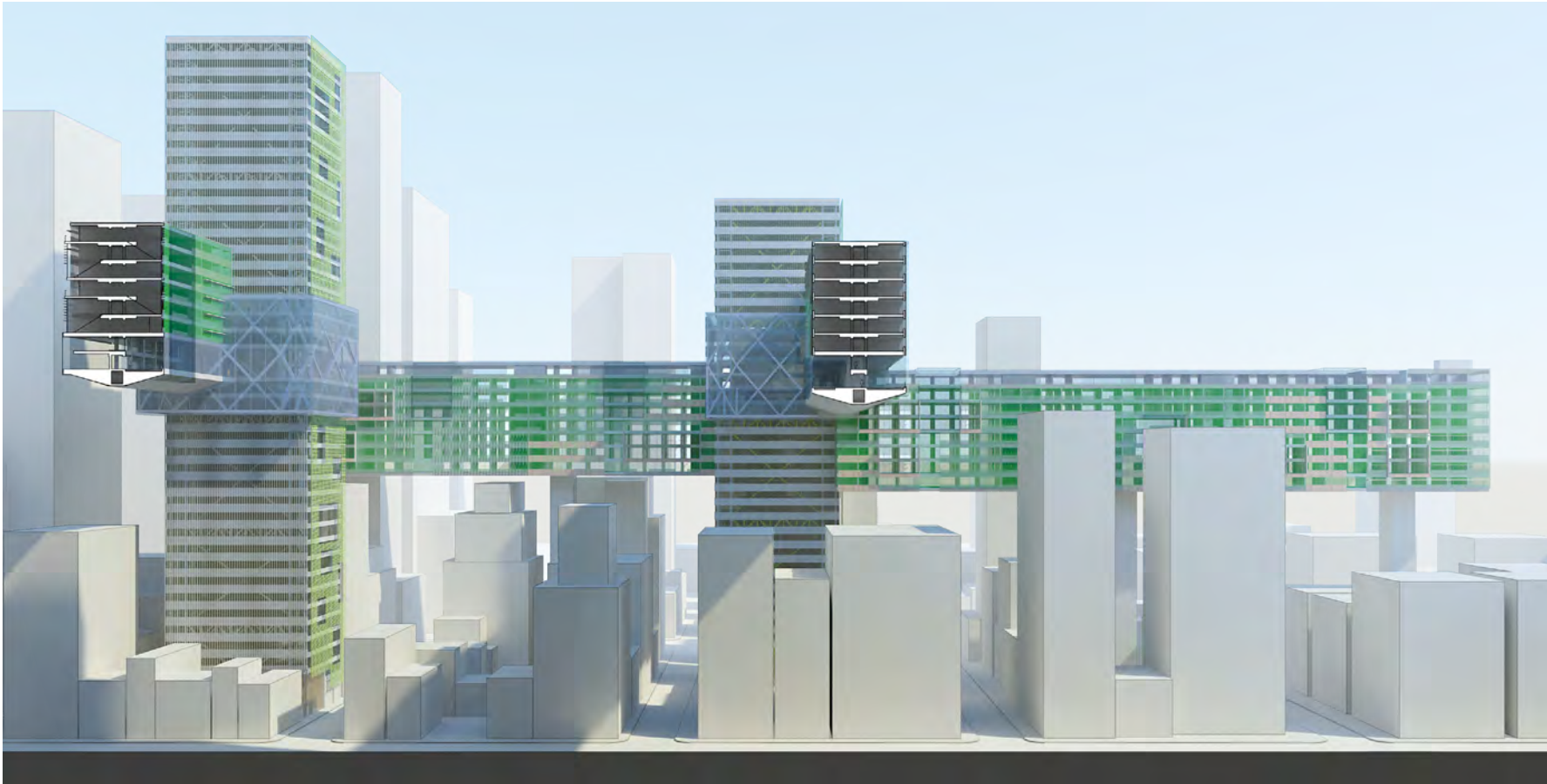
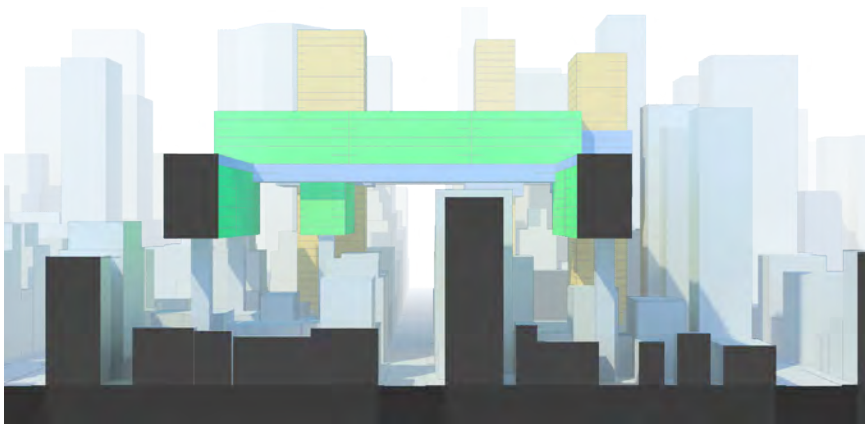


Diagram of elevated public sequence
Figure 25

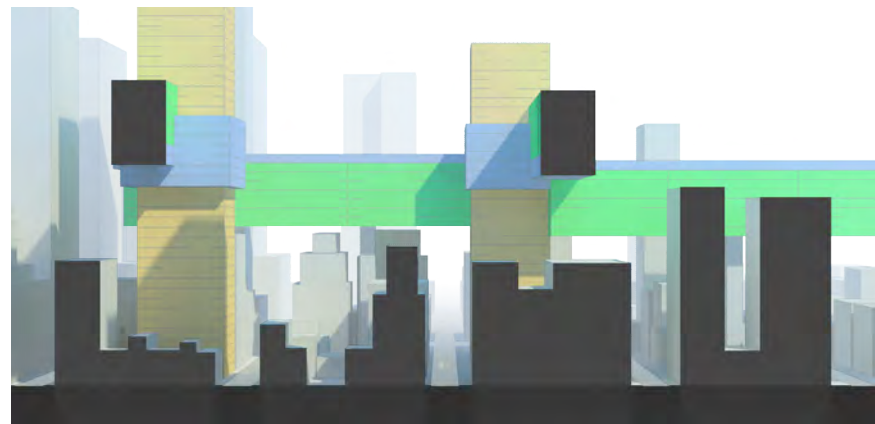
The nexuses are linked by a public sequence passing along the tops and bottoms of horizontal bars of housing. The nexuses form the major nodes of the public sequence and smaller, varied pieces of program are dispersed along the route. [Figure 25] Separate elevators within the towers make a direct connection between the ground level and the elevated level. The program space is private, but the sequence itself is a public amenity, becoming infrastructure through the continued additive process.



Section along Lexington Ave looking east Scale: 1" = 120'
Figure 26



Diagrammatic section cut east-west
Figure 27



Diagrammatic section cut north-south
Figure 28

Bar Heights

INTERVENTION SCALE



36th and Lexington looking northwest
Figure 29



Lexington looking north
Figure 30



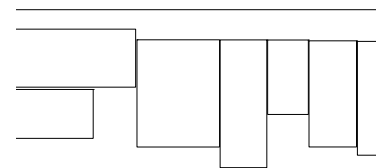
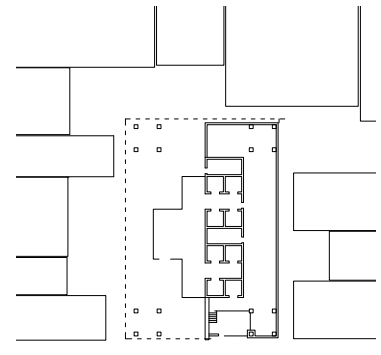
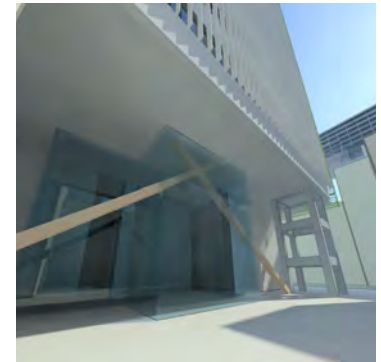
37th looking east
Figure 31

North-south bars are lower, largely concealed from view from the avenues. [Figure 27] Due to their orientation, they cast fast-moving shadows that have a minimal impact on the ground below. They are roughly 180' above street level and support the public sequence along their upper levels.

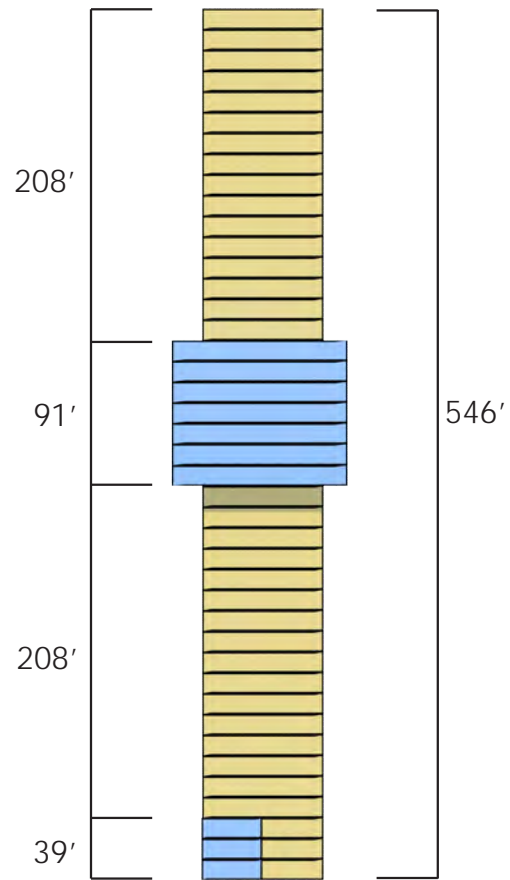
East-west bars are higher, reducing the visual impact on the major avenues. [Figure 30] Their added height reduces the effect of the slow-moving shadows. They are roughly 260' above street level and carry the public sequence along their lower levels.



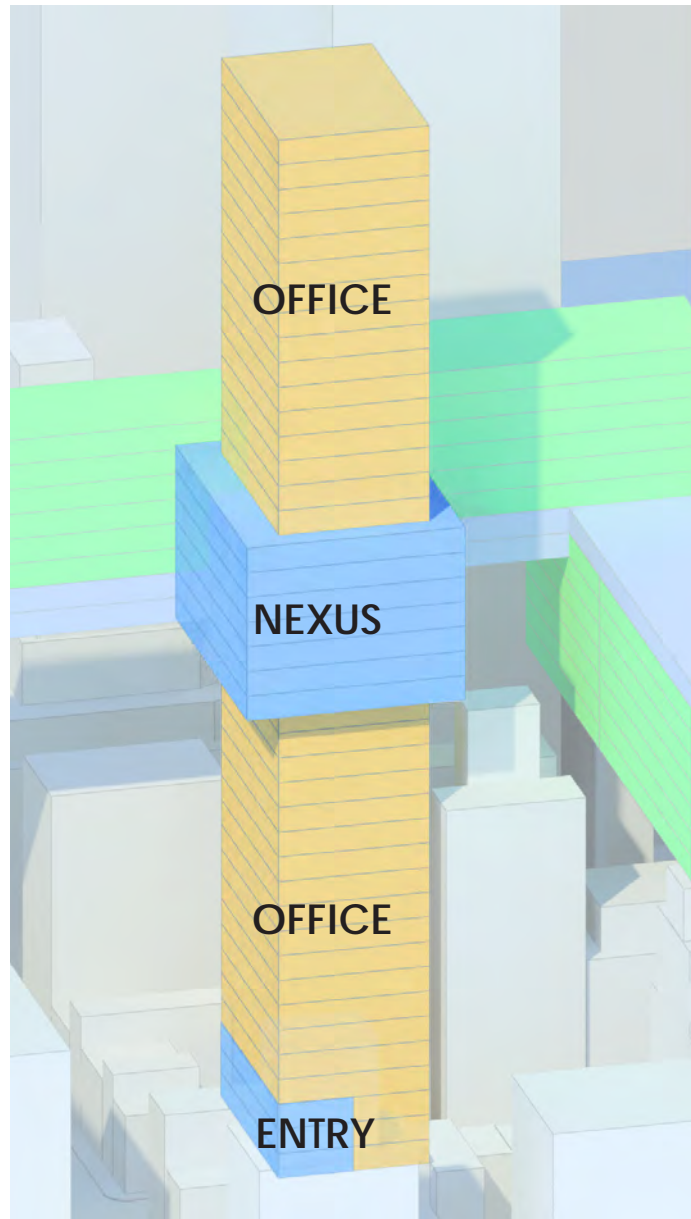
View of north tower looking northeast
Figure 32



Perspectives and plan of tower entry
Figure 33



Tower dimensions
Figure 34



Tower program organization
Figure 35

Tower Program TOWER SCALE

The north tower is 42 stories tall, with 3 floors of ground level lobby, 16 floors of office, 7 floors of public nexus, and another 16 floors of office. The entry is on an east-west street and brings the occupant through the structural system and into a glass lobby. [Figure 33]



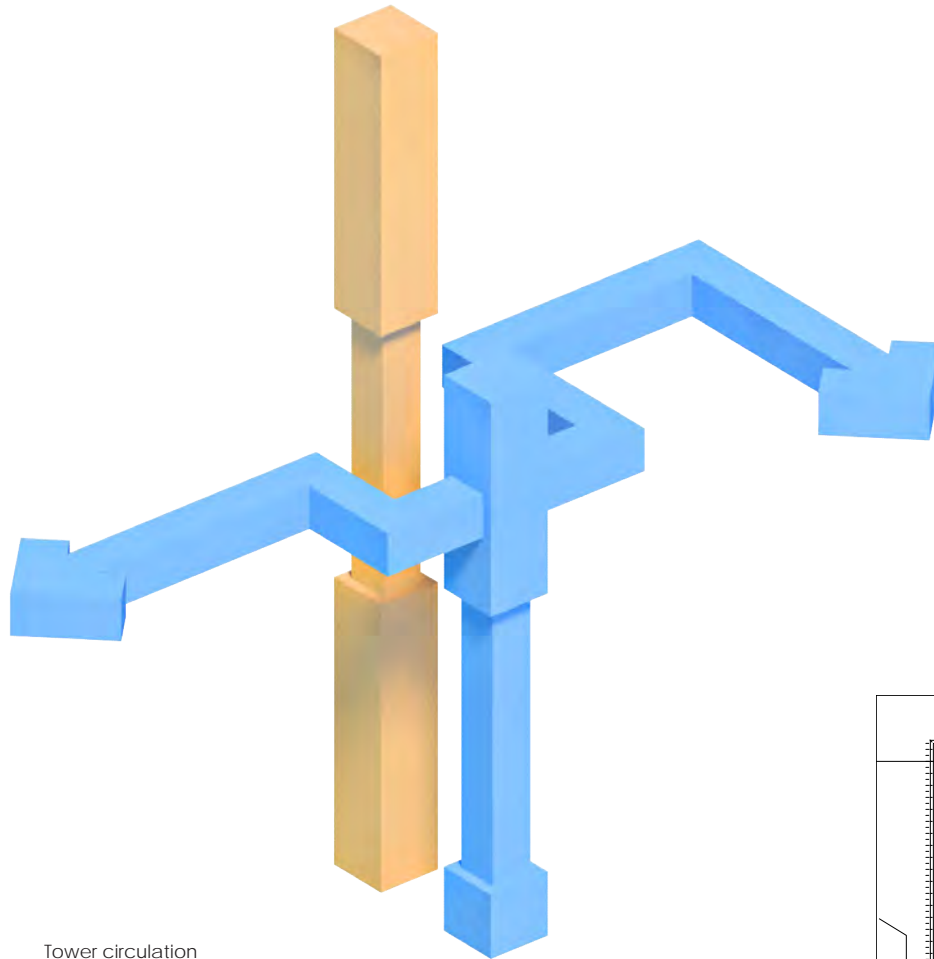
Photo composite of North Tower from Lexington Ave
Figure 36



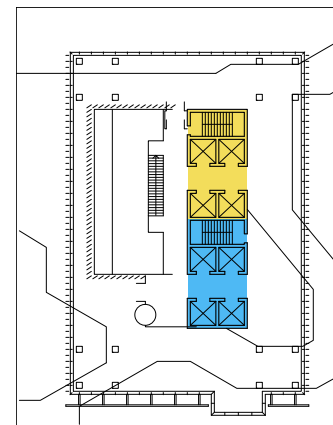
Tower model Scale: 1" = 32'
Figure 37

Tower Circulation

TOWER SCALE

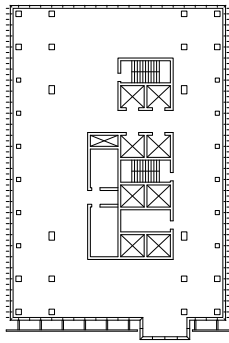


Tower circulation
Figure 38

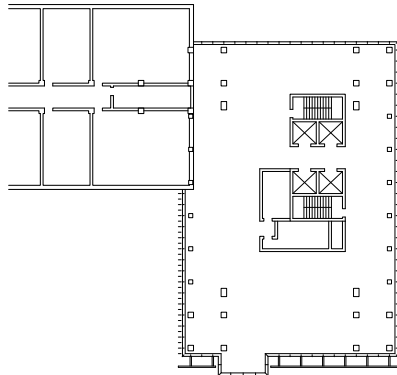


Tower cores
Figure 39

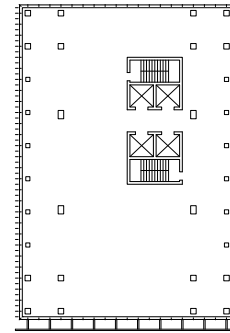
Two parallel circulation cores pass through the building. [Figure 39] One core serves the offices that make up the majority of the tower. The other core serves as a direct connection between the ground and the public nexus. [Figure 38] Access to residences is available through the public sequence, which is accessed from the nexus.



F.F.E: 143'
Typical office plan below nexus



F.F.E: 351'
Tower plan immediately above
nexus. Intersection with east-
west housing bar.

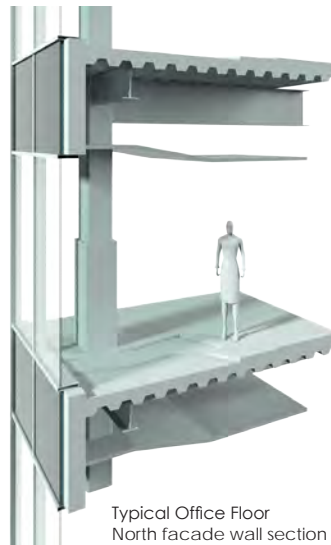


F.F.E: 403'
Typical upper office plan

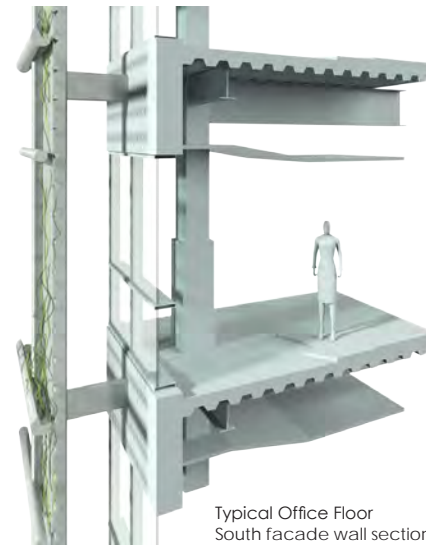
Tower plans Scale: 1" = 64'
Figure 40



Typical Office Floor
East/West facades wall section



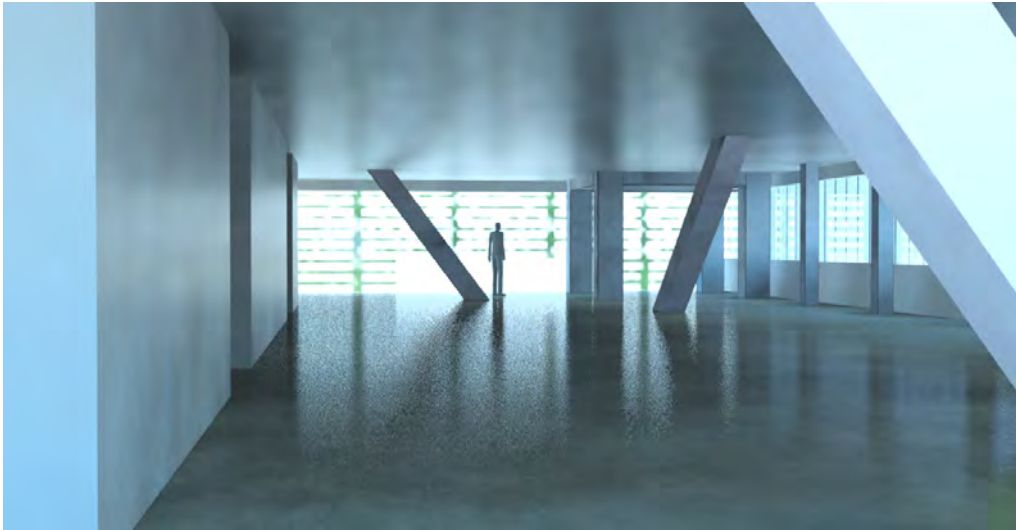
Typical Office Floor
North facade wall section



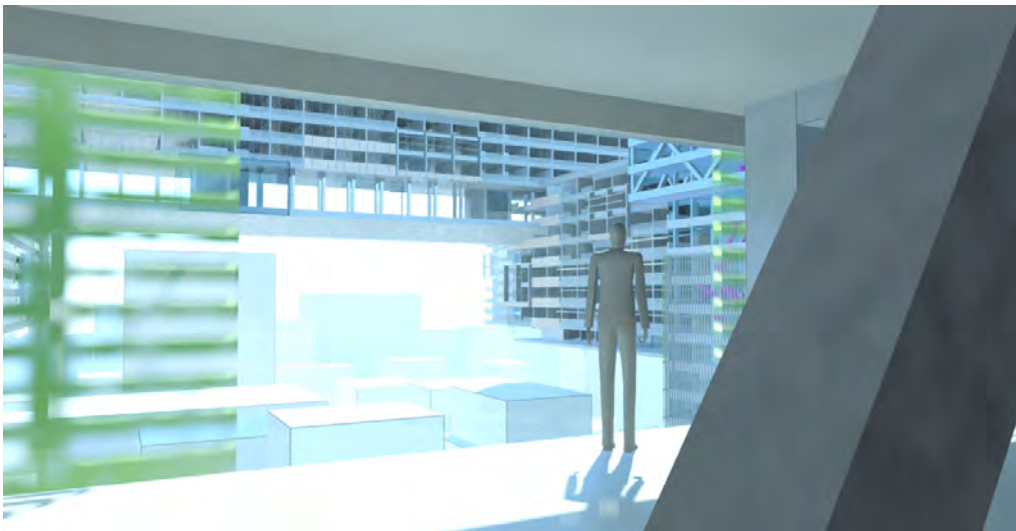
Typical Office Floor
South facade wall section

Tower wall assembly details
Figure 41

Office TOWER SCALE

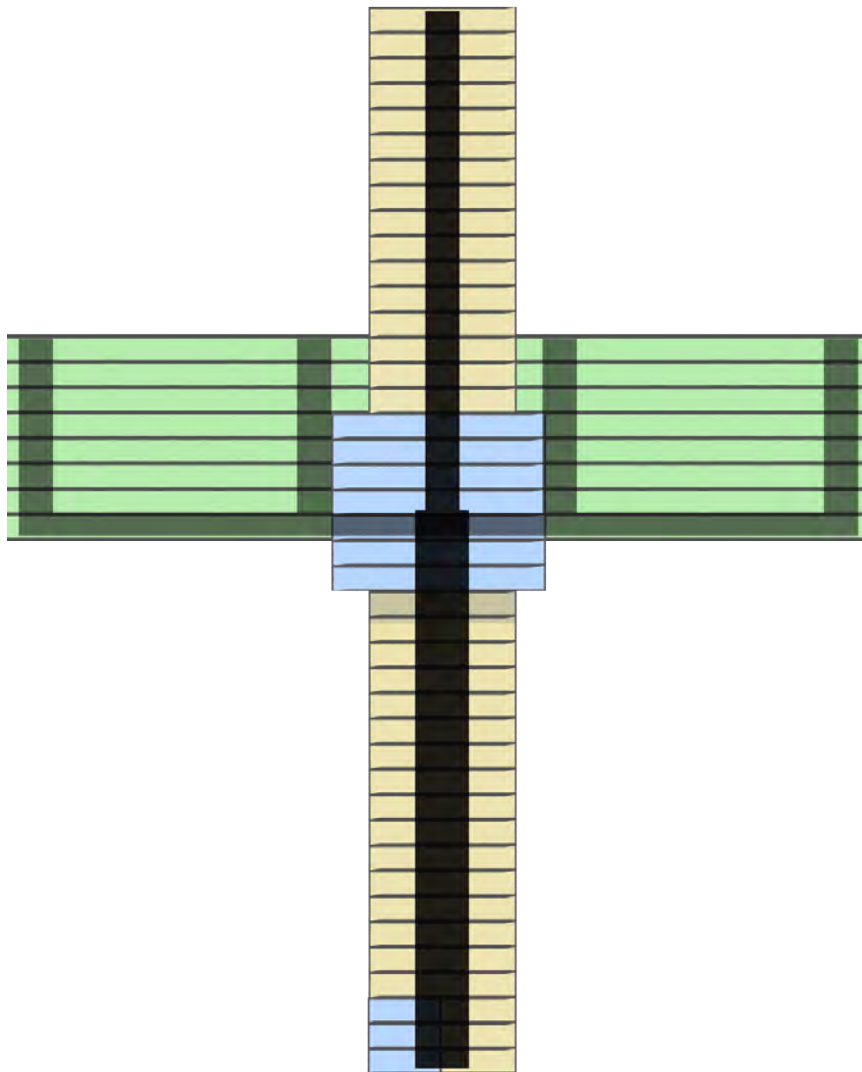


Perspective of typical office floor
Figure 42

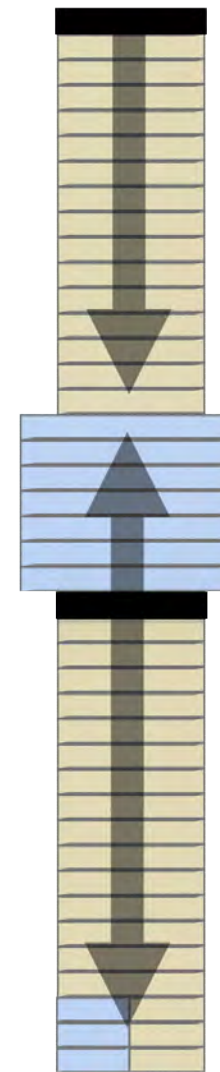


Perspective out from office floor
Figure 43

The office is a relatively timid reinterpretation of the context (Miesian glass boxes) in which the building is located. The office ties the building to its place, but presents some ideas regarding a more environmentally-considered approach. Each facade of the glass box is treated to respond to solar orientation [Figure 41], and the structural scheme is presented as part of the character of the building.



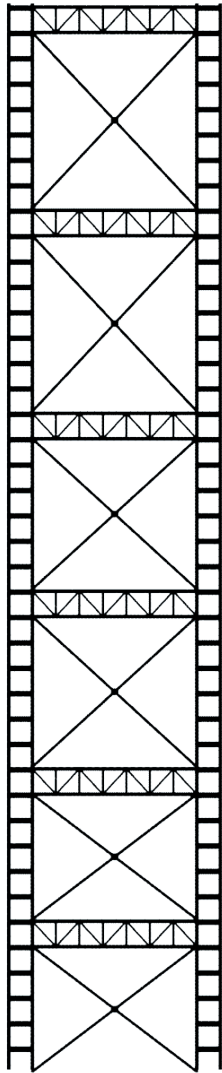
Egress diagram
Figure 44



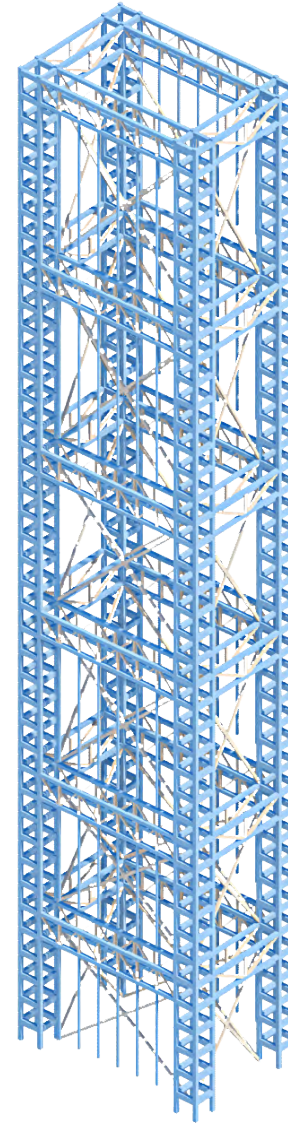
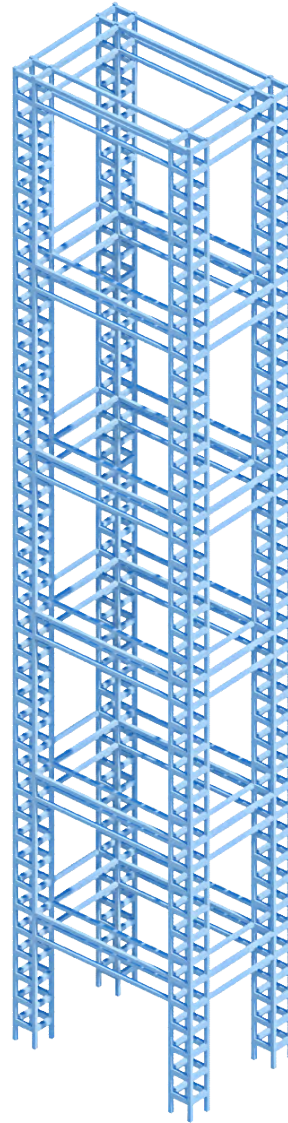
Tower mechanical diagram
Figure 45

Structure, Mechanical, Egress

TOWER SCALE



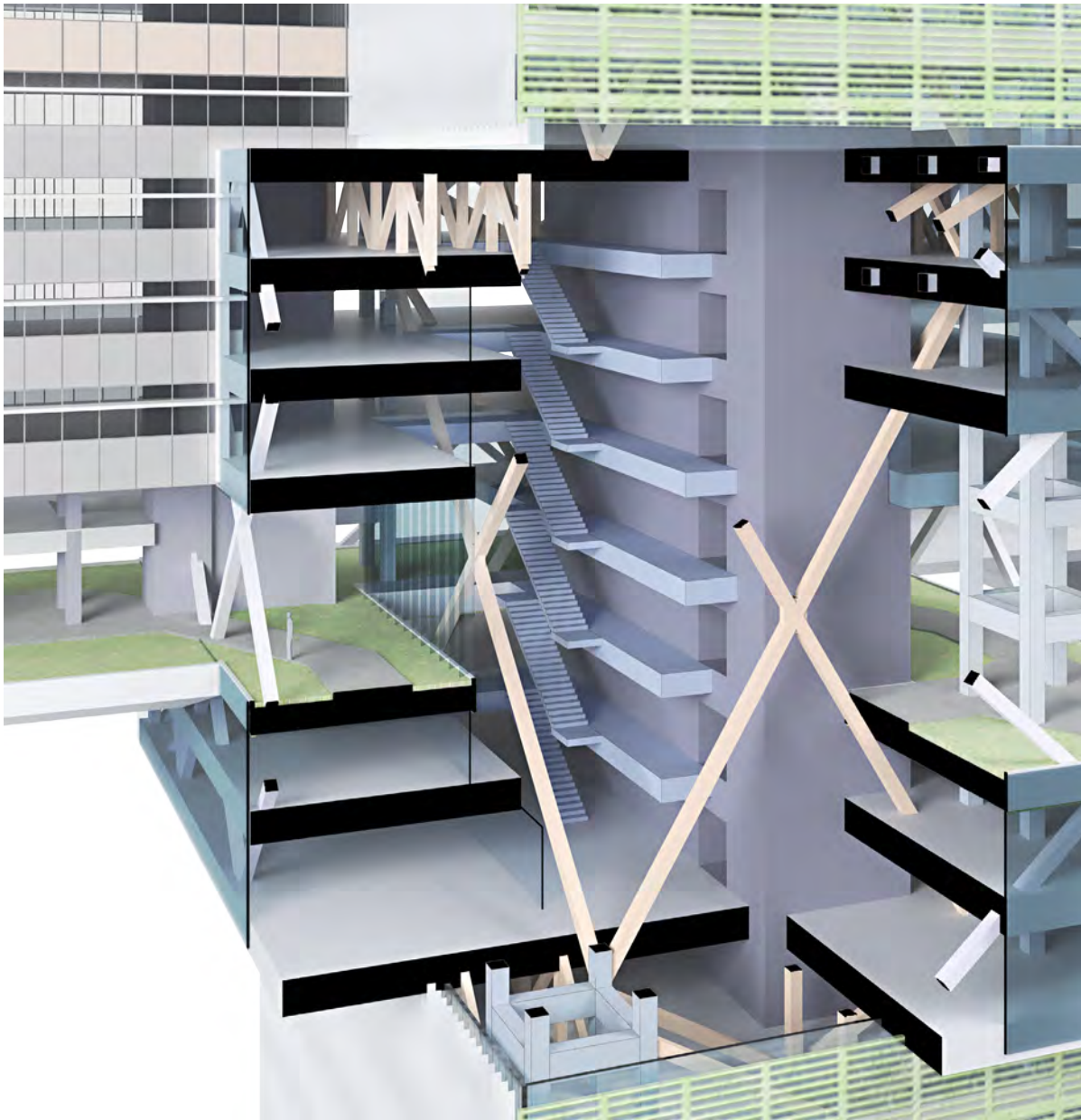
Tower structure
Figure 46



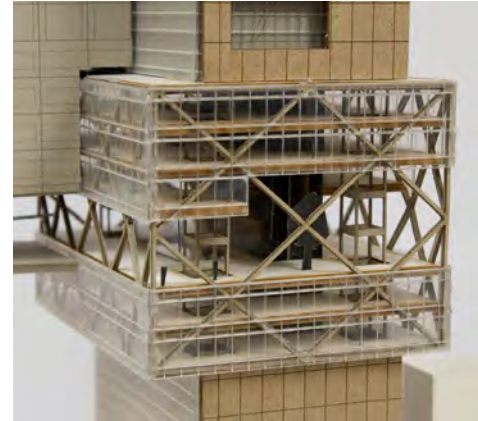
The tower's structure consists of four masts in the far corners of the office floors. They are made up of four columns, 12' on center, and are fully-occupiable. The tower is subdivided into six units, each with storey-deep trusses at the top, supporting hanging columns along the long edges. Simple beams span from these columns to the tower's core. Each of these six segments is braced by a large X along the four edges. [Figure 46]

The tower has two mechanical floors, each occupying one of the major structural levels. [Figure 45]

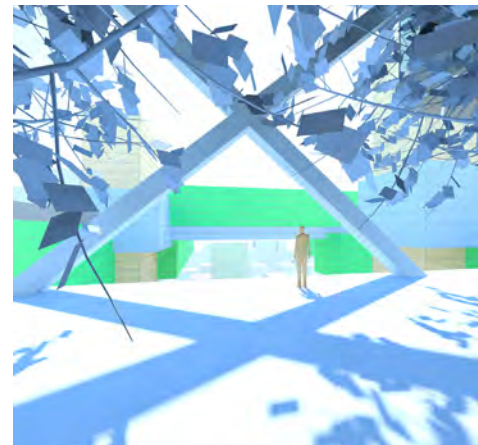
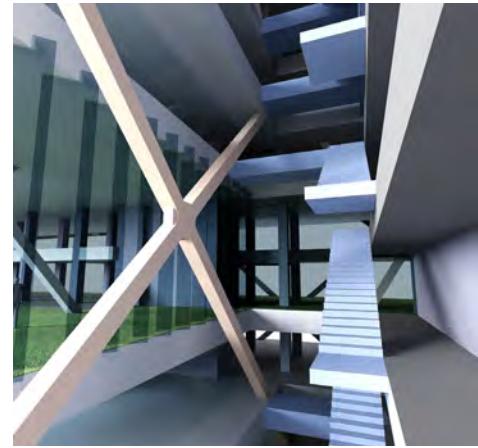
Tower egress is simply within the building core. The nexus level gathers egress corridors running along the bottom of each horizontal housing bar, sending occupants to the ground through the tower. [Figure 44]



Cutaway perspective of Nexus
Figure 47

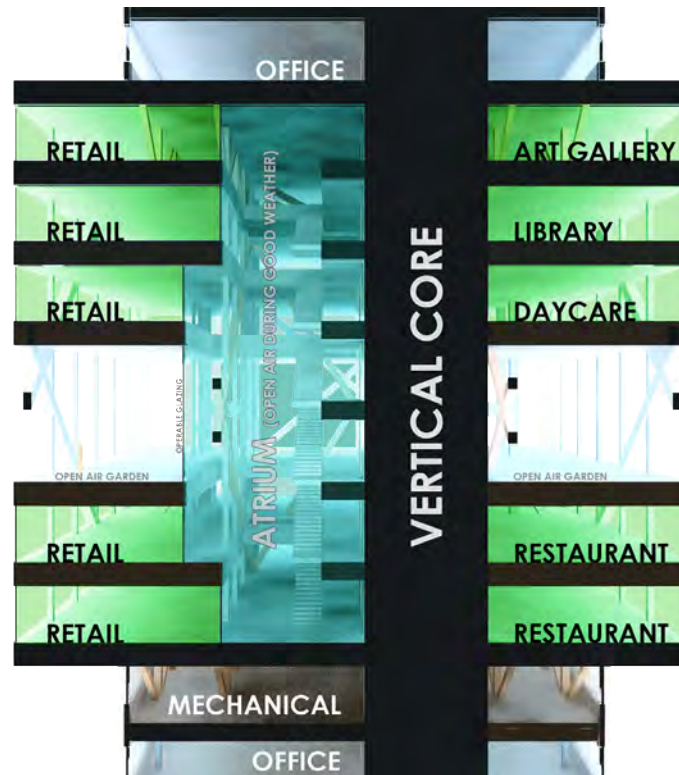


Detail of tower model
Figure 48



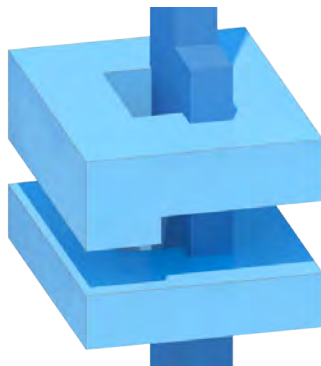
Perspective of Nexus atrium and view out from
open-air garden level
Figure 49

Nexus Program NEXUS SCALE

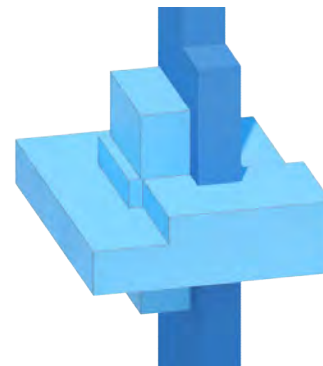


Nexus program
Figure 50

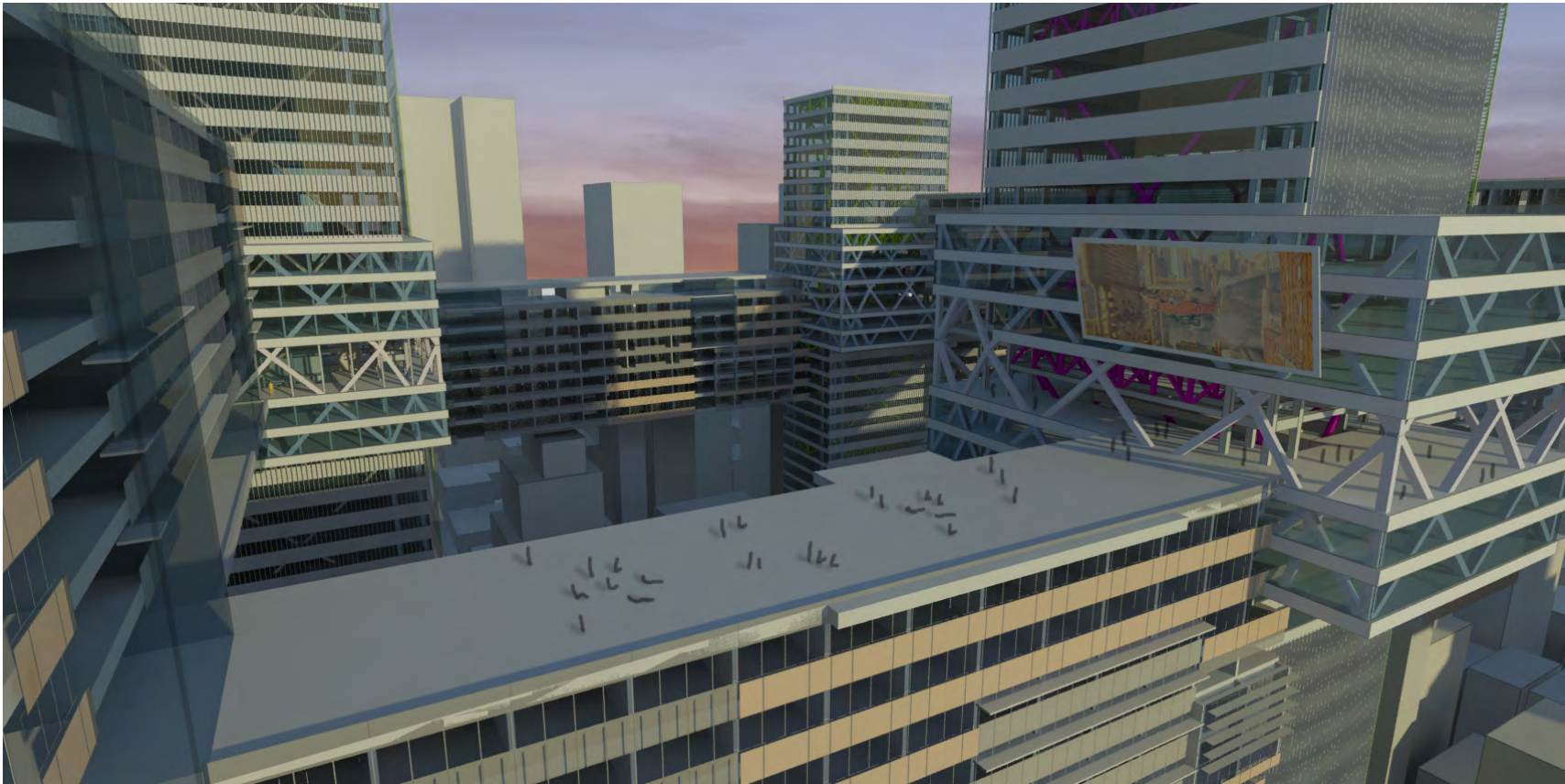
The nexus includes a wide variety of public program elements, accessible to residents of the housing bars, occupants of the office space, and the general public. The program is varied and adaptable, including retail, restaurant, day care, gallery, garden, etc. [Figure 50] The spaces of the nexus are organized around a vertical atrium passing through all 7 floors. [Figure 52]



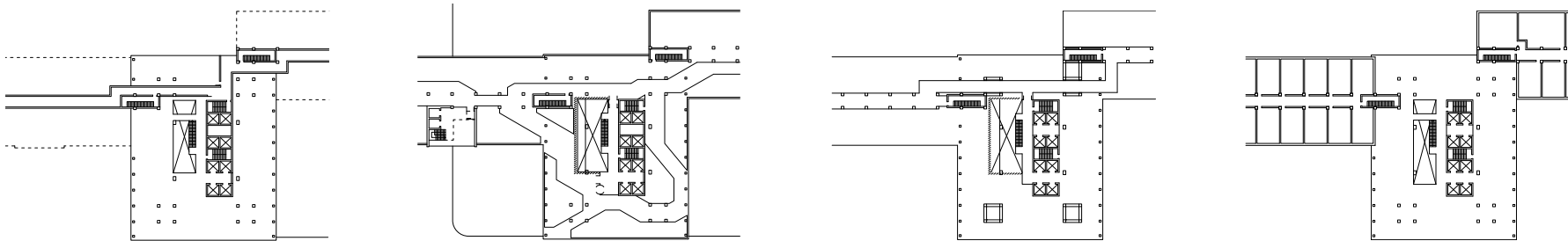
Nexus solid
Figure 51



Nexus void
Figure 52



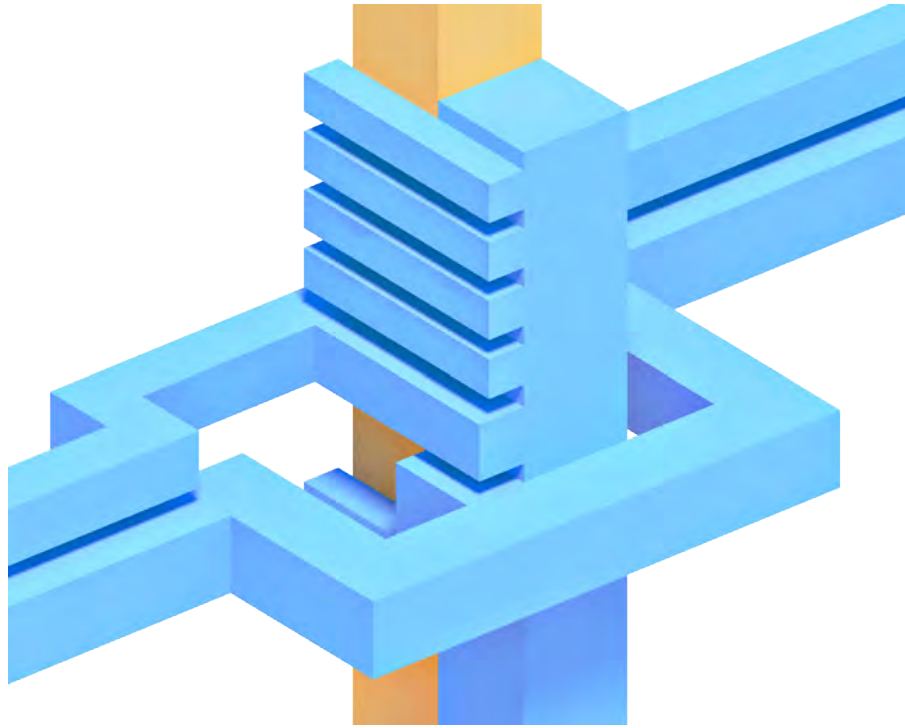
Watching a film from the rooftop garden
Figure 53



Plans of Nexus levels 2, 3, 4 and 5
Figure 54

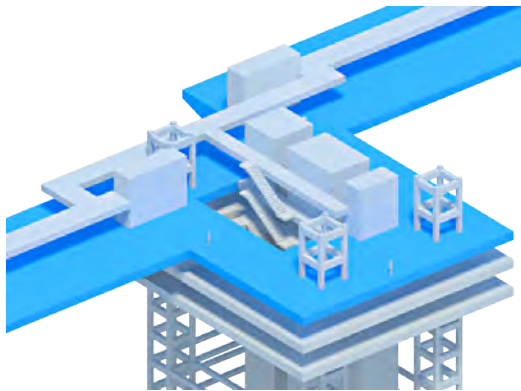
Nexus Organization

NEXUS SCALE

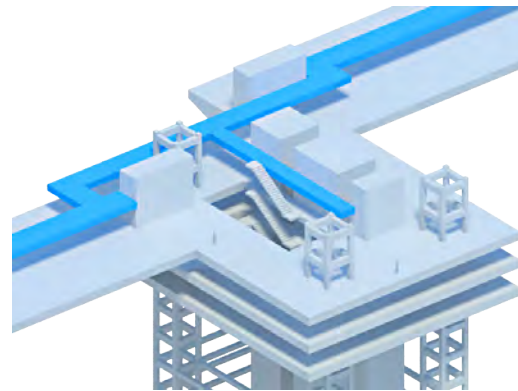


Nexus circulation
Figure 55

The 3rd floor is the primary public floor, occupied by an open-air garden. [Figure 56] This level is part of the continuous garden sequence passing throughout the complex. In good weather, operable glass panels allow the atrium to open to the air on the garden level. The 4th floor provides access to the enclosed public sequence that follows a similar path to the garden, but provides shelter from the elements. [Figure 57]



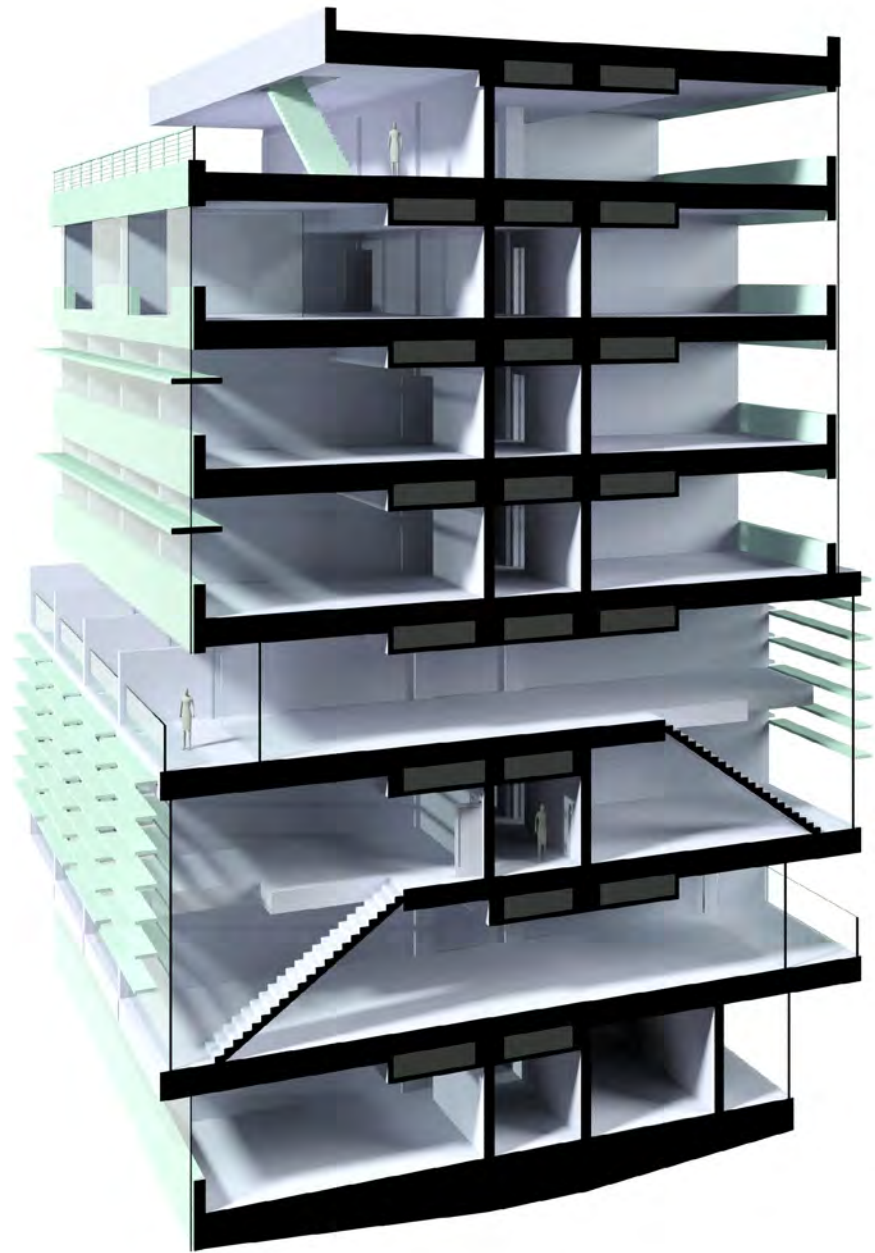
3rd floor of Nexus
Figure 56



4th floor of Nexus
Figure 57

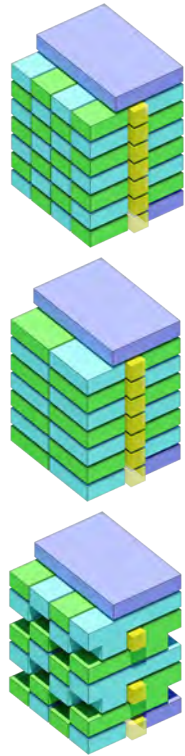


Section perspective through semi-private core of housing bar
Figure 58

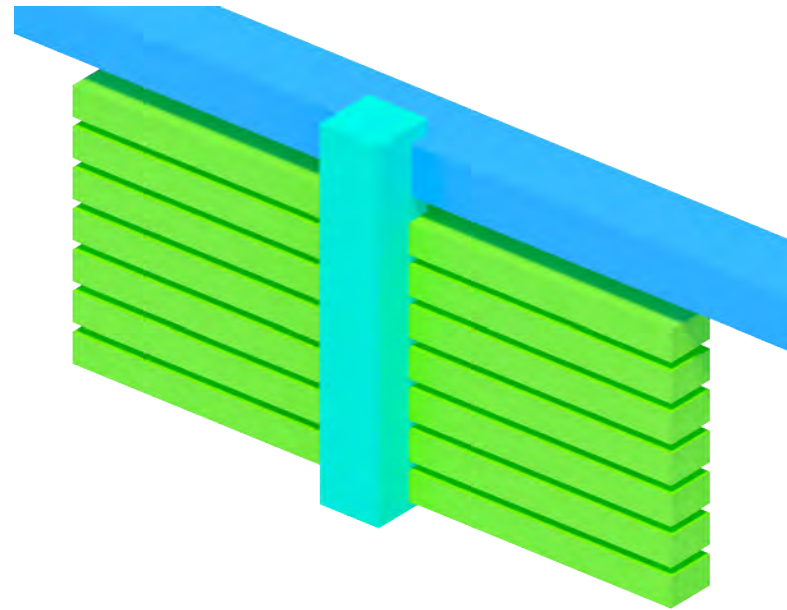


Section perspective through housing units
Figure 59

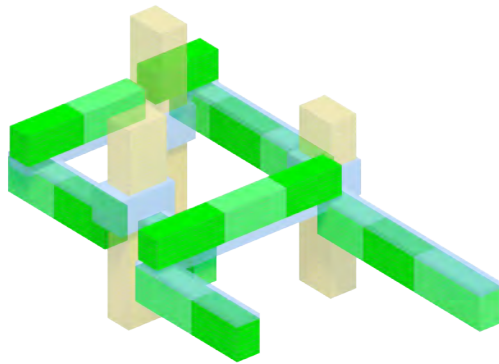
Neighborhood Public/Private HOUSING SCALE



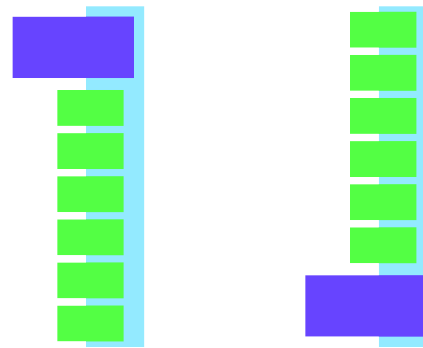
Unit configuration options
Figure 60



Public/Private diagram
Figure 61

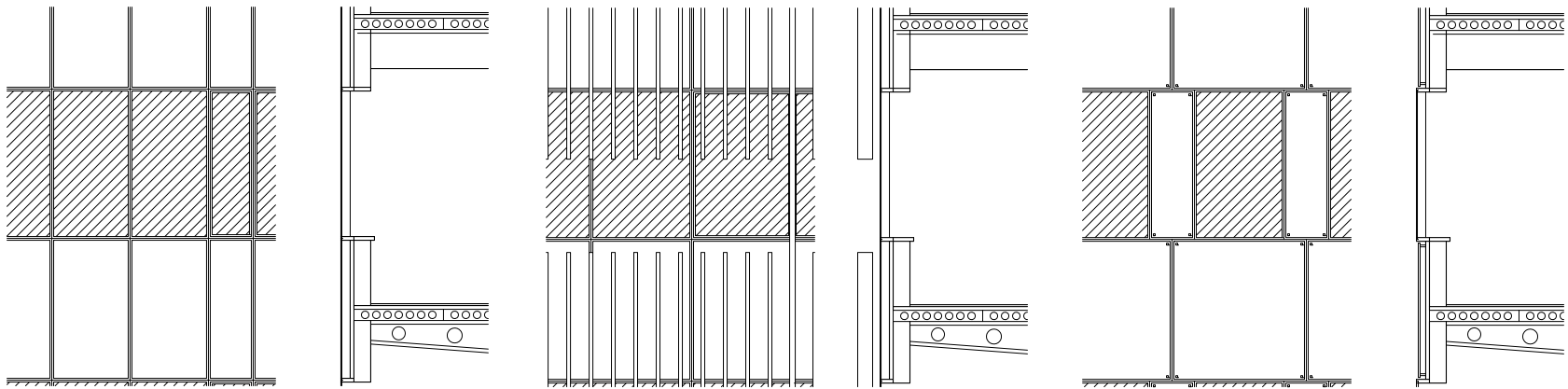


Division of bars into neighborhoods
Figure 62

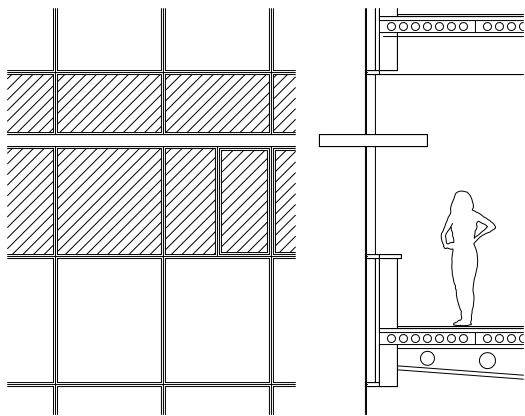


Public/Private sequence in N/S housing bars [left]
Figure 63 and E/W housing bars [right]

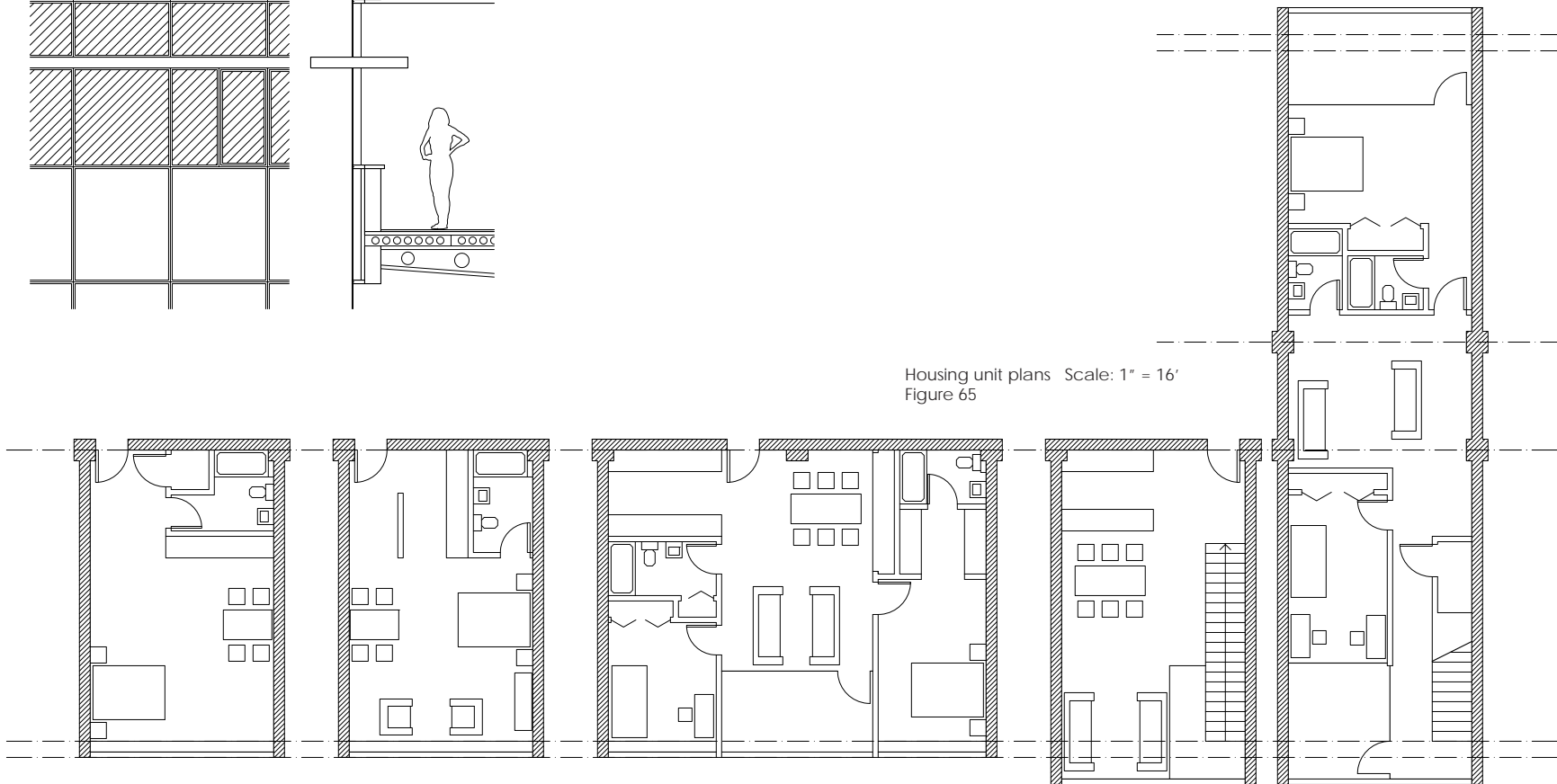
The housing bars are subdivided into neighborhoods of 80-120 units. [Figure 62] Each is organized around a semi-private core of circulation and shared community space. [Figure 61] This core is accessed directly from the continuous public sequence that passes throughout the complex, analogous to the existing model of the city where an apartment building is a collection of private units organized within a semi-private building accessed from the fully-public street. In north-south bars, the public sequence passes along the top. In east-west bars, the public sequence passes along the bottom. [Figure 63]



Housing bar cladding details Scale: 1" = 8'
Figure 64



Housing unit plans Scale: 1" = 16'
Figure 65

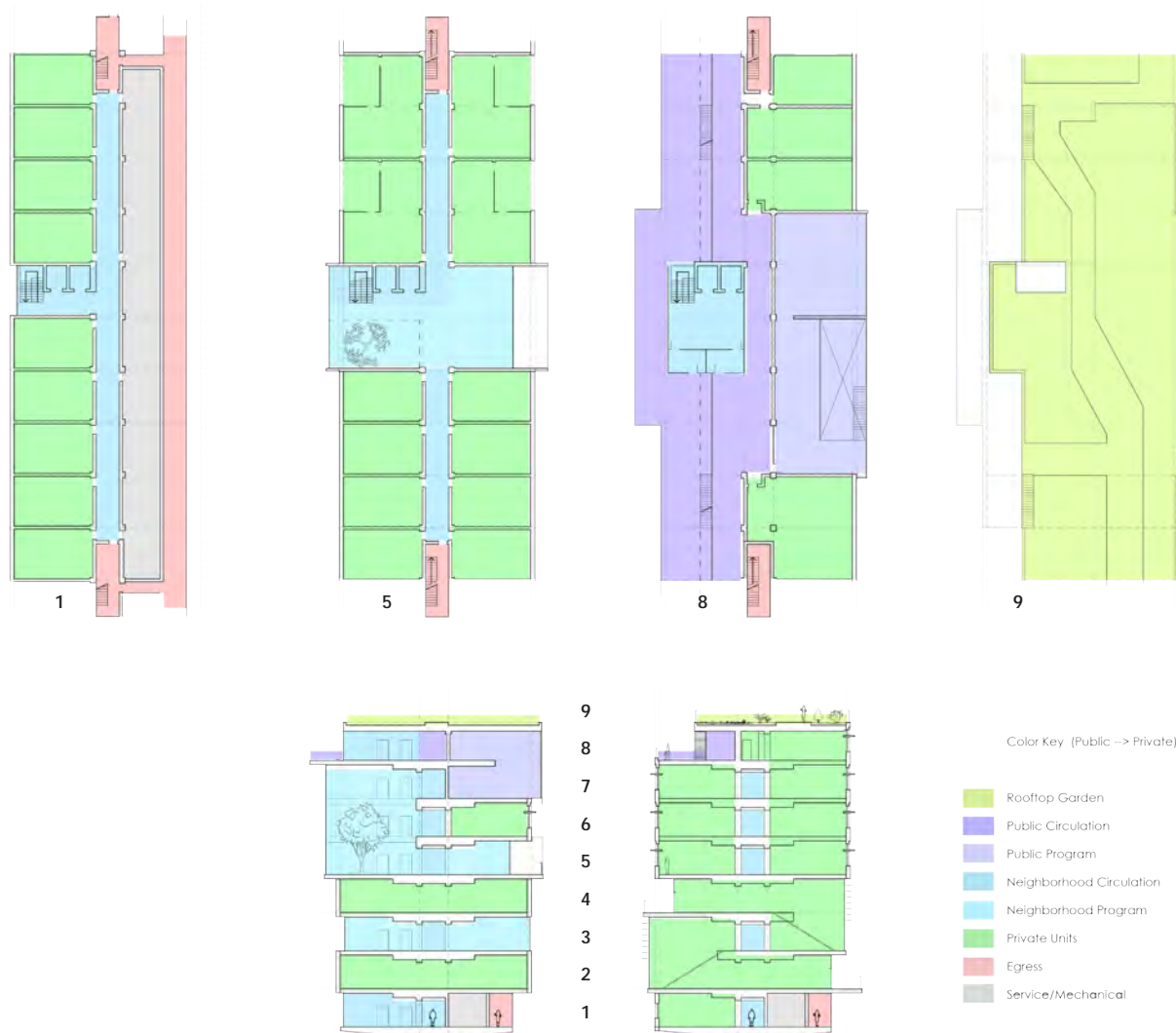


Housing Design

HOUSING SCALE

These drawings [Figure 66] describe a typical neighborhood in a North-South housing bar. It occupies ten structural bays of 18' each. The whole roof level is part of the linear garden sequence, 53' wide. The level below carries both the open-air and enclosed pedestrian routes. From these, residents of this neighborhood can enter the vertical circulation and public spaces that are shared by these residents. At most levels, a corridor passes through the structural truss at the center. In some cases, L-shaped units only require a corridor on every third floor. At each end of the corridors, fire stairs bring occupants to an egress corridor along the bottom of the bar, bringing them to the nearest ground connection.

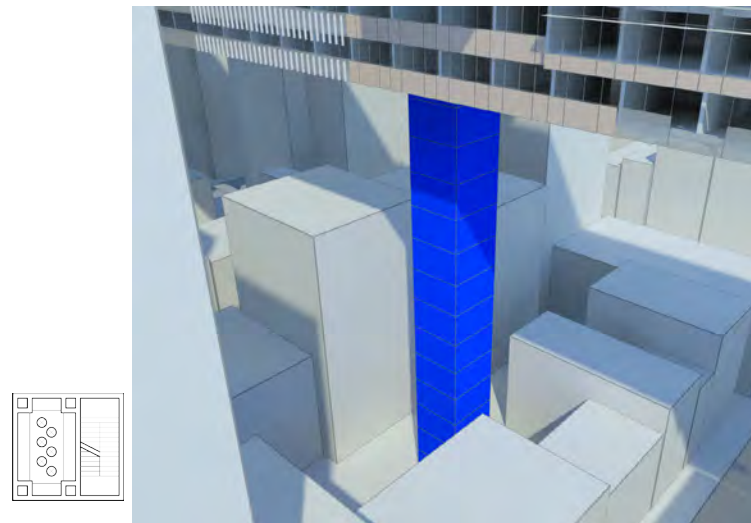
The unit plans [Figure 65] show one-, two-, and three-bay units. Partition walls are not required to fall on structural lines because the cantilevering structural system has no vertical connections outside the main truss.



Neighborhood plans and sections Scale: 1" = 64'
Figure 66



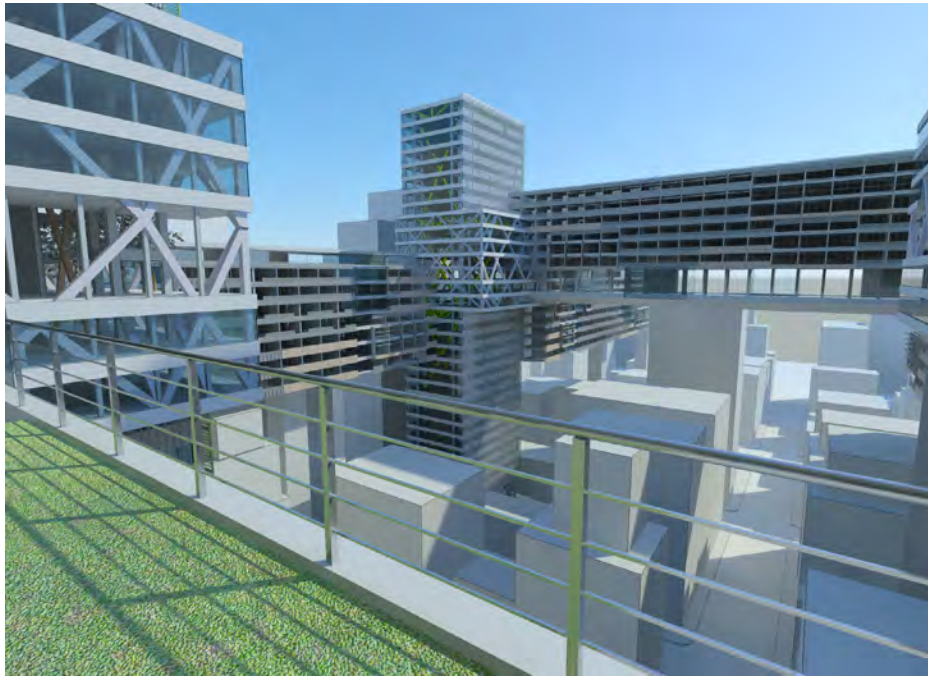
Section perspective of rooftop garden sequence
Figure 67



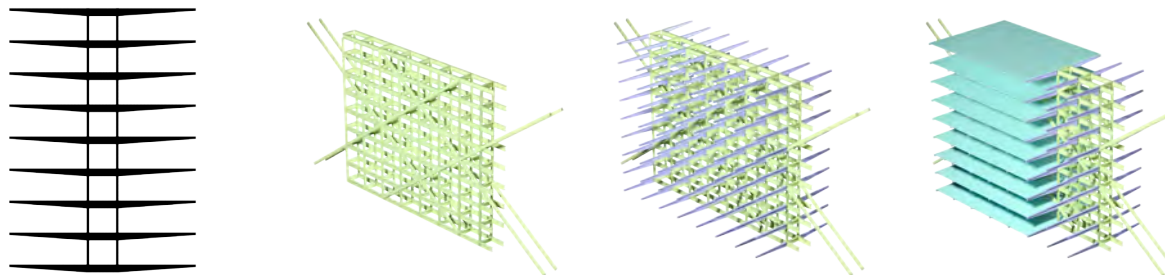
Perspective and plan of structural support tower
Figure 68

Garden Sequence, Etc

HOUSING SCALE



View from elevated garden level
Figure 69



Structure of housing bar
Figure 70

The sectional perspective [Figure 67] shows the experience and construction of the rooftop garden sequence that follows along the north-south bars. The upper level shows the linear garden, while the level below shows both the open-air and enclosed pedestrian circulation systems. To the left [Figure 69] we can see the experience of occupying the garden sequence that passes along the bottom of the east-west bars, giving us a unique view over Lexington Avenue.

The structure of the horizontal bars [Figure 70] consists of a main truss down the middle with a modular system of beams cantilevering from it. These cantilevered beams support hollow-core concrete planks, providing an occupiable floor surface. The bars are supported at intermediate points by structural towers carrying egress and utilities. [Figure 68]

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5. Adapted from Google Maps information - <http://maps.google.com/>
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7. Wikipedia entry, "Park Avenue" - http://en.wikipedia.org/wiki/Park_Avenue
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10. Adapted from Google Earth information - <http://earth.google.com/>
11. Adapted from Google Maps information - <http://maps.google.com/>

Conclusion

The proposed scheme is a highly conceptual idea whose purpose is to encourage us to rethink the basic strategy of the urban plan. It is not meant to be a practical, buildable solution, nor any kind of prediction of the future. Its intent is to provoke critical thought. The process of design has been very successful in inspiring me to rethink architecture and urbanism at the larger scale, and for that I am very happy. It has been the best summary of my architectural education that I could have hoped for.

Appendix A

Initial Thesis Proposal

Preface

The organization of the city is synonymous with the organization of our society. The city is an organic collection of contributions by many people at many times, each reacting to a certain unique set of conditions. The resulting richness of the city is a catalogue of human experience that makes us who we are. Every era must make a contribution to ensure that we know who we are and where we have been.

The city assures us that we are a primitive biological organism, scrambling to make our lives better through what we call life, resulting in the ant-hill we call home. Developments in architecture bring us closer to our goals of survival and reproduction.

Architecture is a transient activity. No solution is correct for more than a fleeting instant because there are often counter arguments, and because changing social conditions change the needs of architecture. The best we can do is respond to a given set of conditions with one possible solution, adding this decision to the pool of history. Often, responses are formulated in relation to previous architectural choices. The combination of the past, present, and implied future architectural states works towards the base of architectural knowledge that has been the running thread among humans for thousands of years.

With few correct answers, our goal as architects must be to ask questions. Improvement comes from revision. Revision comes from self-critique. We must critique ourselves at all levels. The right questions will generate new ideas about better ways to live on this planet. Controversy yields discussion which yields progress. Our task is to inspire discussion.

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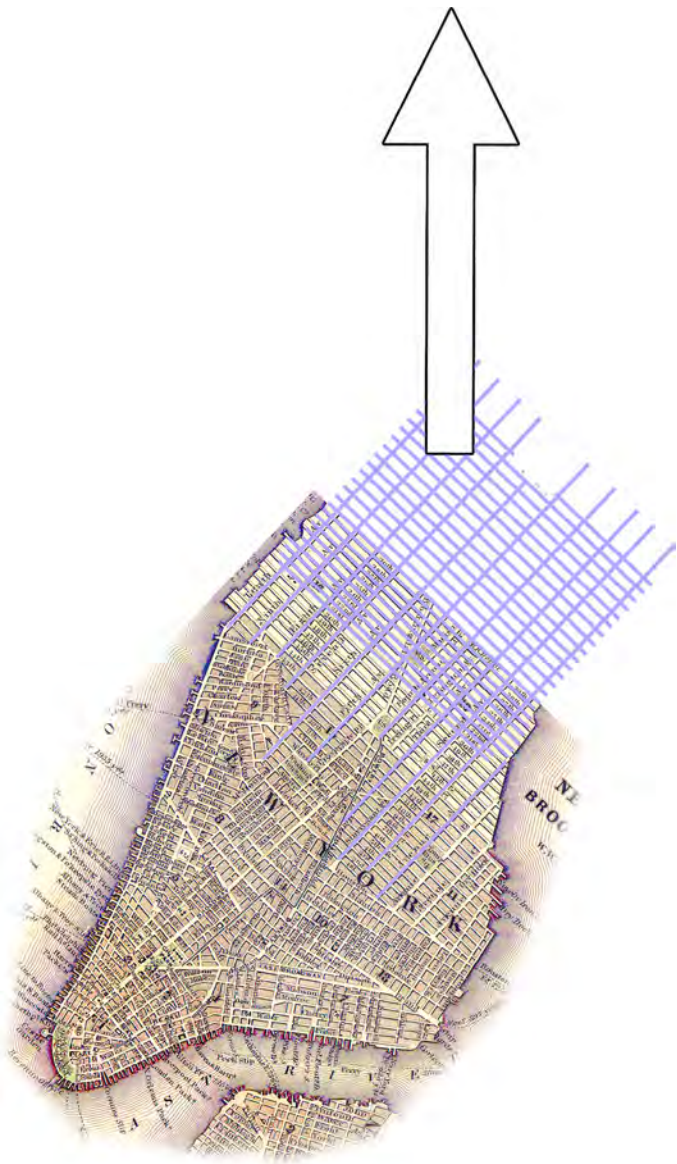
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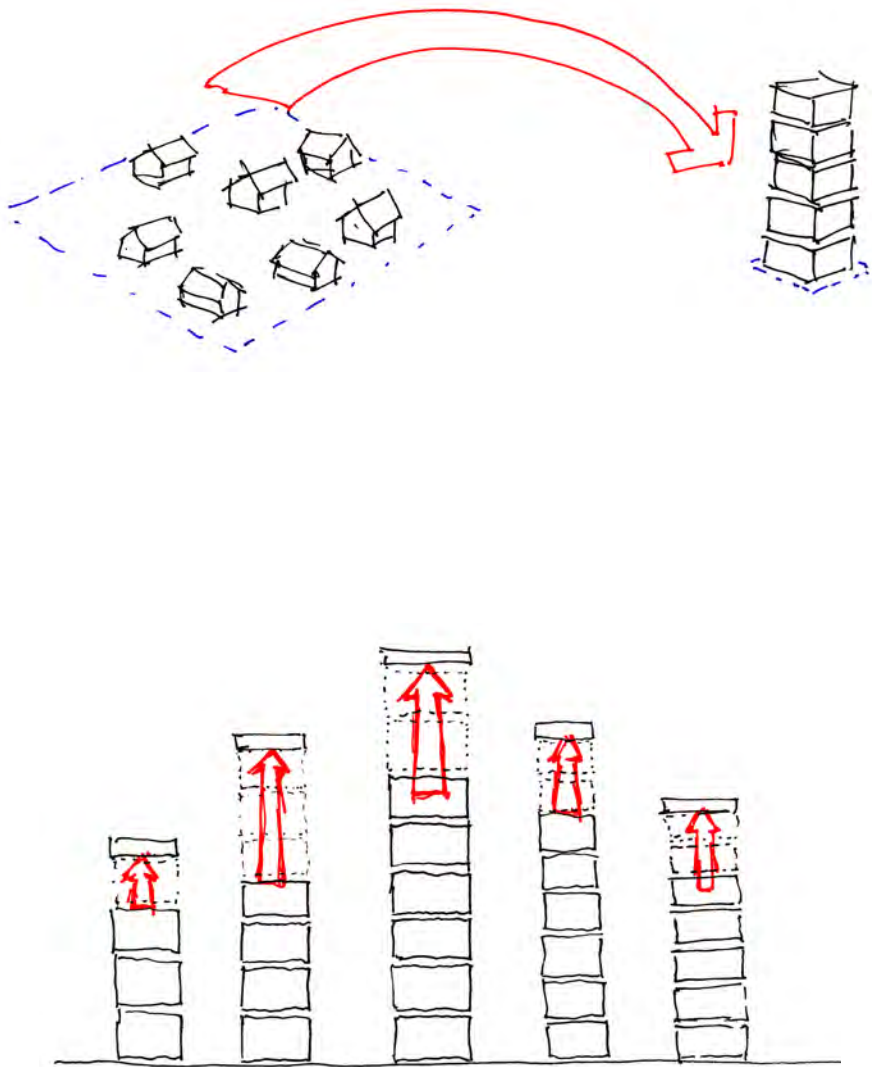
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Introduction

We are at a unique point in history; in the near future, the world will shift from primarily rural to primarily urban, a distribution never seen before. In 2006, 7.4% of the world's population inhabited 1% of the earth's land.¹ Although new cities are forming, the primary result of this population shift is the growth of existing cities. This growth occurs both horizontally and vertically. The result is an ongoing densification of the city; it is almost inevitable, and attempting to fight it would be futile. It is a change that must be embraced so that positive outcomes are realized.

This thesis is going to explore the issue of densification. The main goal is to support this transition to the ever-denser city and to explore ways in which we can maintain, or possibly enhance, its livability. This project is about three dimensional urban planning. In 1811 the City of New York established the gridded street system across the undeveloped land of Manhattan as a way to manage future horizontal growth.² This project seeks to develop a system to manage future vertical growth.



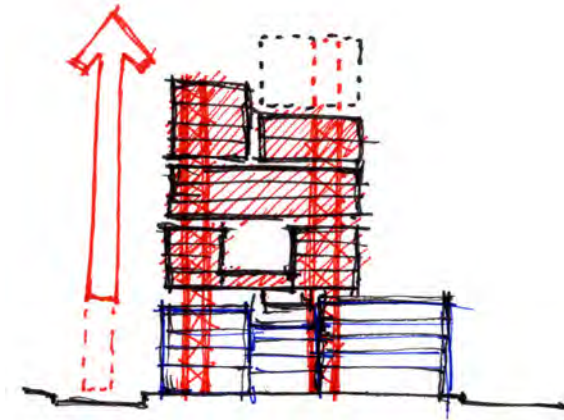
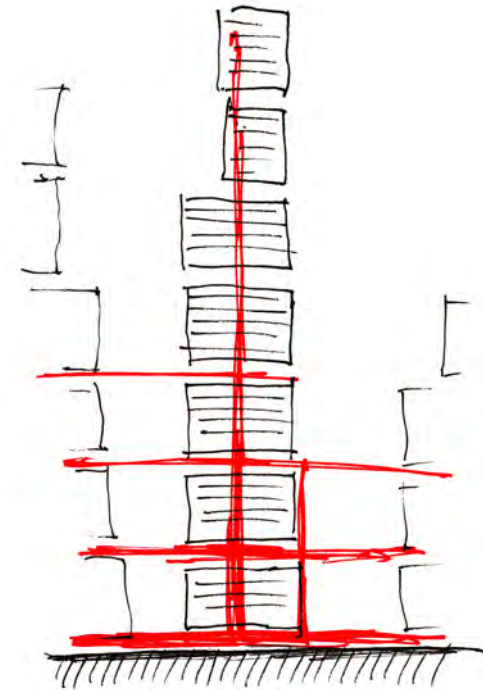
Project Statement

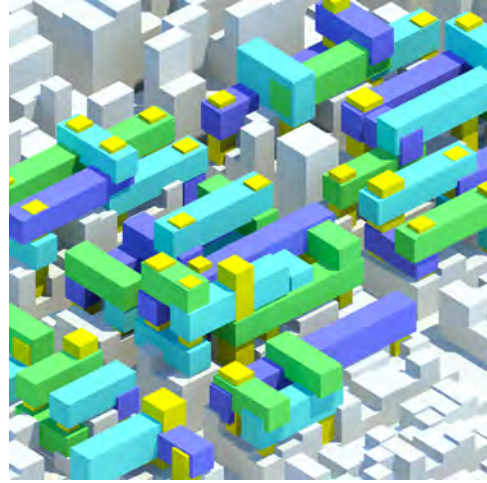
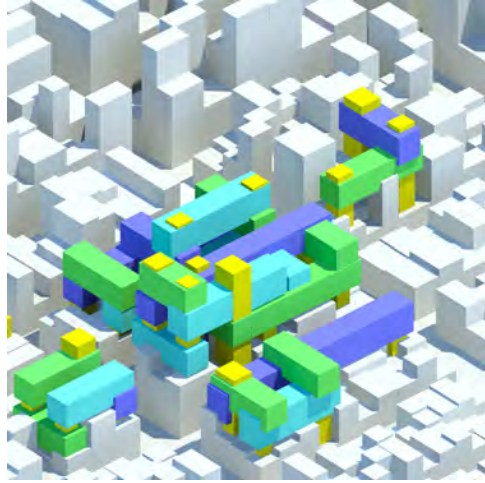
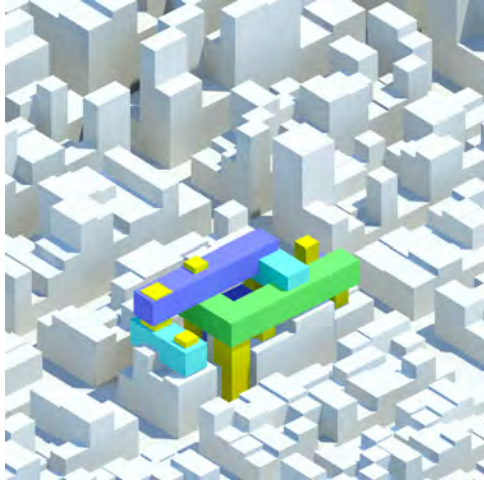
This project will explore a new way to live in the city, as part of a move towards a high-density urban future. It will look at multiple scales: the city, the street, and the building, and will consider new urban forms and organizations. The project will begin as a series of prototypical urban high rises, reconsidered in a number of ways. The relationship between buildings will become more integrated. Rather than the city being a straight extrusion from a single plane, it will become a three-dimensionally-connected network. Buildings don't need to be individual units, but should be parts of an overall fabric, an organic collection that makes up the city.

The building prototype will support a future increase in density. As opposed to the current model of tearing down a building to replace it with a larger one, the building will be vertically expandable. The initial height will be a factor of land value at the time of construction. As urban density increases, driving up the land value, the building will support vertical additions. The building will act as an additive system, preserving the existing fabric and physically adding to it, because the richness of the city comes from its additive nature - it is a collection of input from many people and many time periods. This system will plan for the future addition by having expandable structural, mechanical, and transportation systems. This will contribute to the organic additive nature of the city, as well as preserving the resources already invested in the existing structures.

The variety of the program will contribute to a richness of urban activity. The availability of certain program dispersed through the city, rather than clumped into groups, will allow more pedestrian activity, reducing load on transport infrastructure. However, the building will certainly not become a single introverted microcosm that users never need to leave.

The building(s) will be a potentially generative study on the future of the city and a possible approach to the ongoing densification. The framework of the program and organization will be intended for any growing metropolis, adaptable to the specific site. For this initial study, though, the building(s) will be sited in the center of New York City, due to its global significance and the availability of information.





Project Scope

The project is about planning a new way to live in the city. To appropriately explore this idea, the project will develop a complete system for future growth that could be spread throughout the city (any city). Due to the scale, the system will be explored in a diagrammatic way only.

To explore some of the specifics of the system, a large segment, including samples of all program types, will be explored architecturally. This will be a major intersection area, designed from ground to roof. It will include a major public space, elevated levels, and a major public vertical circulation system.

Additionally, a significant programmatic piece will be designed in deep architectural detail to fully understand the implications that the new urban organization will have on architecture.

Finally, the project will diagrammatically study the extremes to understand how it could generate future forms. It will include analysis of how the proposed system of growth could look in 50, 100, or 1,000 years.

Site - Manhattan

Rem Koolhaas calls Manhattan the modern city par excellence, built simply under the pressure of the economy, subjected to forces of unbridled capitalism.³ This understanding of the city as an organic agglomeration driven by many human forces embodies what I believe a city should be. Prescriptive, idealized, utopian concepts of cities seem to contradict many of the realities that make cities amazing collections of culture, history, and human liveliness. This thesis will support the idea of organic urban growth, and New York City is an ideal place for this to occur.

Manhattan was occupied by Dutch settlers and purchased from the native residents in 1626. In 1664 New Netherland, as the Dutch called it, was conquered by the British. Population of Manhattan began at the southern tip, in the area now known as Downtown. In 1811, expecting future growth, the city created a street grid system that would dictate the organization of all future growth on the island.⁴ This grid is now a major feature of the city.

New York is the densest city in the United States with an estimated population of 8.3 million people in 305 square miles.⁴ The New York Metropolitan area is second largest and 114th densest in the world with a population of 17.8 million in an area of 8,600 square kilometers, at a density of 2,050 people per square kilometer.⁵ Manhattan is one of New York City's five boroughs; with a population of 1.6 million in an area of 22.96 square miles, it is the densest county in the U.S.⁴

Manhattan is fairly linear and roughly symmetrical around the north-south midline. Along this line, Manhattan can be roughly divided into downtown, midtown, and uptown. The points of highest density occur in downtown and midtown. (Figure 1) A general look at the section of a dense city suggests that building height follows a bell curve. Like a field of sunflowers fighting for light, growing taller in the center and shorter at the periphery, the city's towers peak at an idealized center, the point towards which everyone wants to move, thus increasing land value and building height.



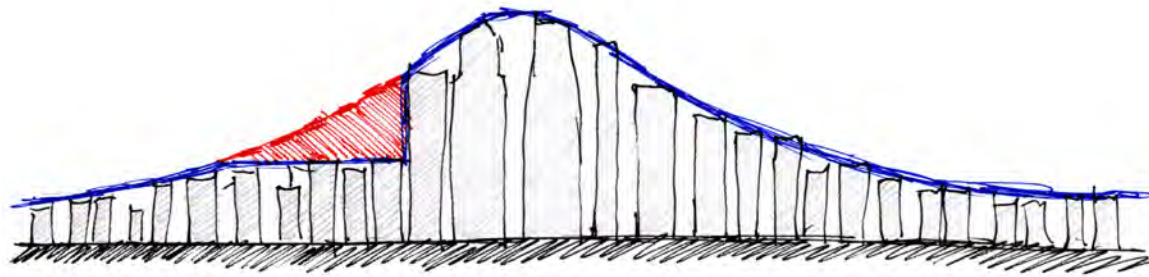


Figure 1



Site - Future Growth

In 2007 the City of New York issued PlaNYC, a document describing some of New York's history, the present state of the city, and, most importantly, a plan to reach a variety of sustainable urban goals by the year 2030. Since its founding, the City has gone through phases of rapid growth, super high density, population recession, and all sorts of political and cultural happenings.

The City has successfully recovered from the 1970's loss of 800,000 residents due to crime and quality of life. This upward momentum has inspired growth, and PlaNYC is about developing the city and its growth in a sustainable, livable way. The prediction is that Manhattan's year 2000 population of 1.54 million will reach 1.83 million by 2030, a substantial 18.8% growth. In the total five boroughs of New York, this growth will yield a population of over 9 million. By 2030, the employment force will grow 750,000, requiring 60 million square feet of new office space. To accommodate the residents, the City will require 265,000 new housing units.⁶

In seeking a site for this project about accommodating future density, I sought a part of Manhattan that seems ready for growth. The very peak of the two dense areas are already built quite densely, however the peripheries of these two areas have potential. Figure 1 shows that areas significantly below the bell curve appear ripe for development.

One such area exists in the Murray Hill neighborhood, just southeast of the densest part of midtown Manhattan. Between downtown and midtown is a broad field of relatively low buildings, slowly ramping up to each of the two densest areas. In this particular part of Murray Hill, the low fabric pushes slightly into the tall buildings of midtown. In one instance, a 45+ story office tower sits across the street from a single-storey bagel shop. Figure 3. Figure 2 from PlaNYC describes expected areas of growth, confirming the potential of Murray Hill.

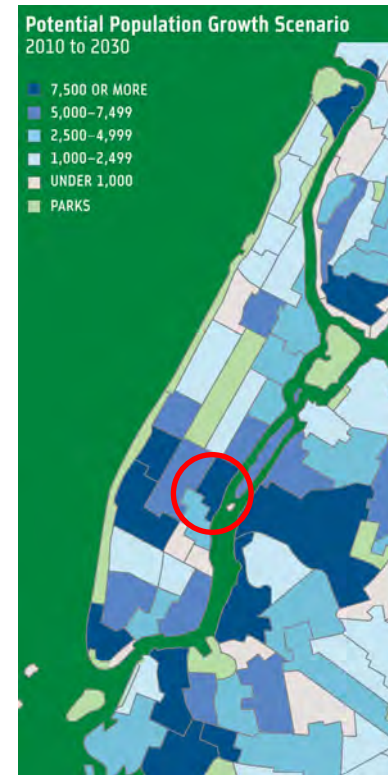


Figure 2⁶

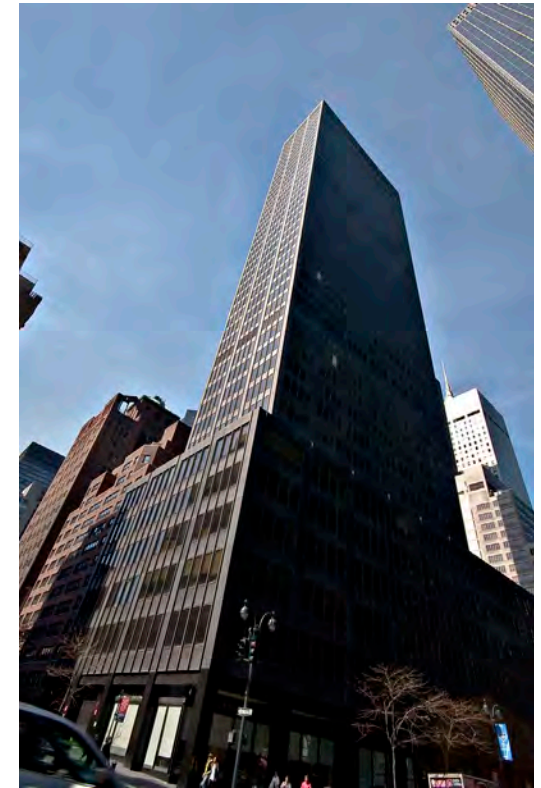
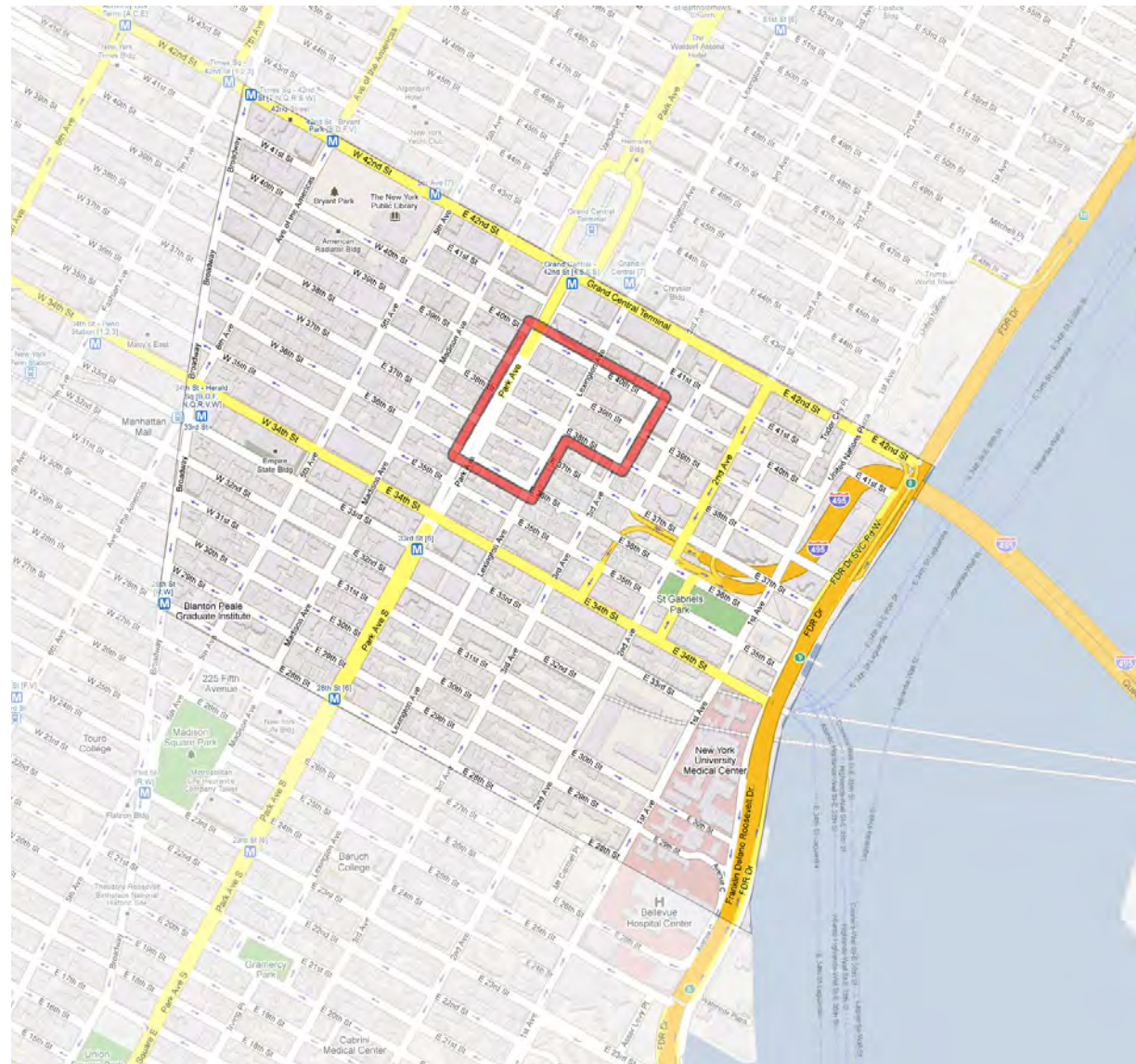
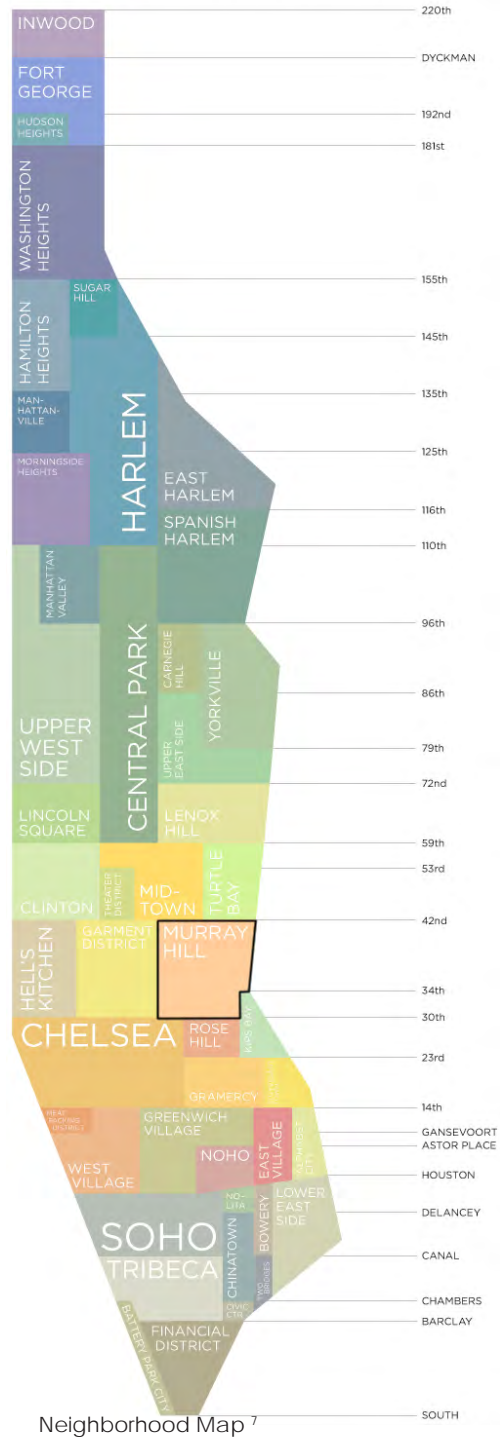


Figure 3

THE NEIGHBORHOODS OF MANHATTAN



Google Maps

Site - Murray Hill

In the 19th century, Murray Hill was considered uptown, flanked to the north by primarily farmland, and was a fairly desirable place of residence. In the 20th century it was home to many wealthy older residents, a relatively quiet neighborhood of low density, considering its proximity to midtown Manhattan. In the late 1990s, Murray Hill saw an influx of young New York professionals, accompanied by an increase in property value, however still lower than other fashionable New York neighborhoods.⁸

The neighborhood is just southeast of Midtown. Although it is not yet an attraction itself, Murray Hill is right at the periphery of the action, and if predicted growth figures are correct, it will likely become part of the Midtown energy. PlanNYC expects Murray Hill to be one of the most rapidly growing Manhattan neighborhoods in the next 20 years⁶, meaning that this next phase of development could be very important to the long-term future of the neighborhood, establishing character and qualities beyond the nearly suburban character as a jumping off point to Midtown.



Google Maps



Google Earth



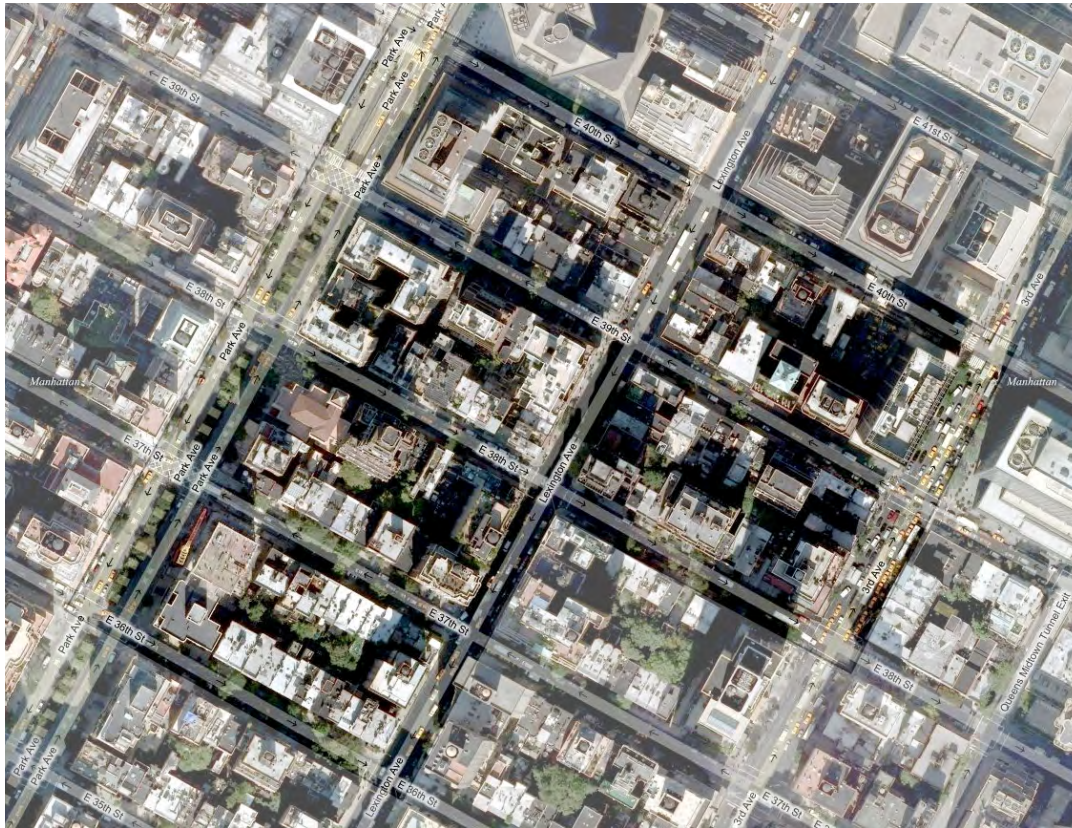
Photo 1 - Park Ave looking east



Photo 2 - Lexington Ave looking northwest



Photo 3 - 37th looking west



Google Maps



Photo 4 - 36th looking northeast



Photo 5 - 3rd Ave looking west

Site

The specific site is 6 city blocks in northern Murray Hill, just outside of Midtown. The three avenues that pass through the site are Park Ave, Lexington Ave, and 3rd Ave. In this area, Park Ave is known for its large glass corporate buildings. Traffic is two-way, and street level is not very pedestrian. Lexington Ave is quite commercial, with offices, hotels, and apartments above. Traffic is south-bound only. Third Ave is a major north-bound thoroughfare. It is commercial at the ground level, and houses some fairly modern, valuable buildings.

Some buildings seem quite valuable, others seem run-down and not worth preserving. Generally, the avenues house larger, newer buildings (photos 1,8), where the cross streets have smaller, less valuable buildings, often 4-6 story row houses (photos 3,4). Some smaller buildings and a few open lots will provide good locations for vertical connections to the new high-rise (photos 2,9).



Photo 6 - 39th & Lexington looking east



Photo 7 - 40th looking southeast



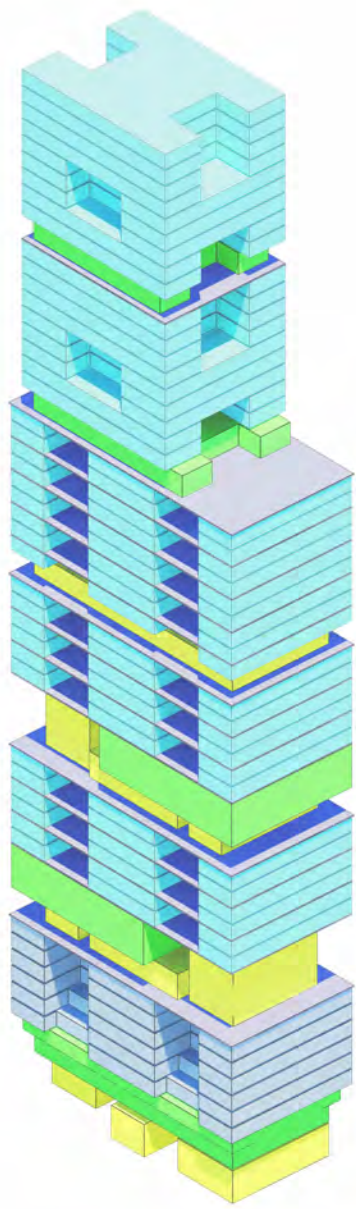
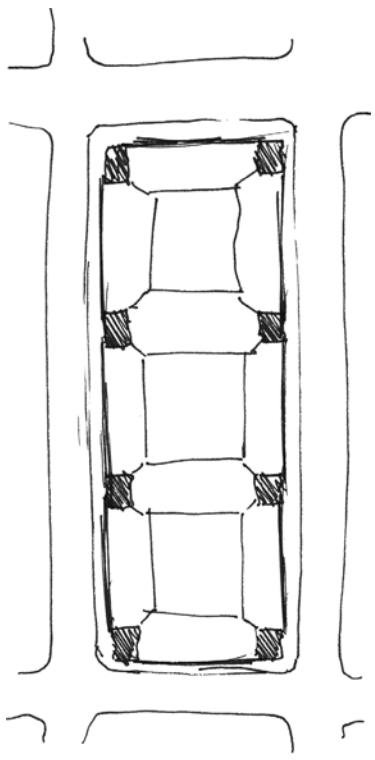
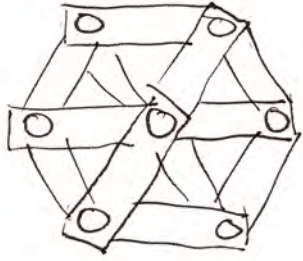
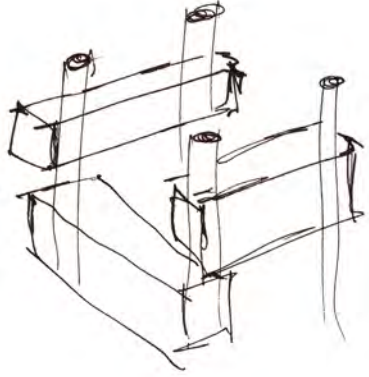
Photo 8 - 3rd Ave looking northwest



Photo 9 - Lexington Ave looking east



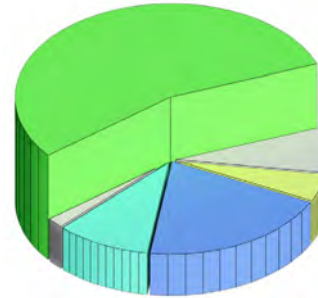
Photo 10 - 39th & Lexington looking south



Program Outline & Areas

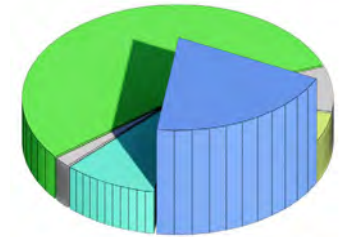
55% Housing

Housing is one of the major factors that could affect the quality of city life. In the densification of cities, an increase in residences is perhaps the most immediate need. A full range of unit types will be incorporated.



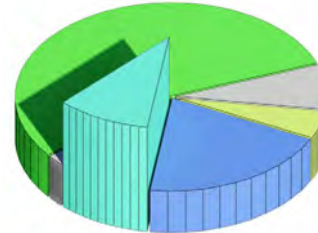
20% Commercial / Office

A major part of city life is work, thus the prototypical urban building should accommodate office space. Occupants of the buildings need not necessarily work in the offices of their own building, but the possibility of doing so allows a further reduction in transportation.



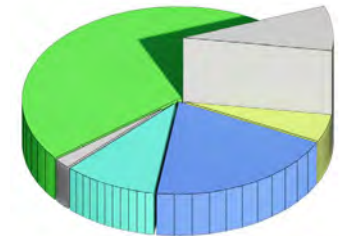
10% Public-oriented program

Schools, libraries, museums, cinemas, etc must all be considered as part of the fabric of the city. The in-depth architectural component, described in Project Scope, will be a public library of 100,000 square feet.



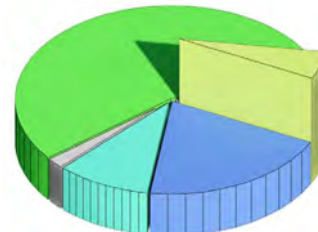
8% Retail

Retail space is an important part of the urban fabric. Its distribution throughout the city is part of what creates a rich network of people and movement.



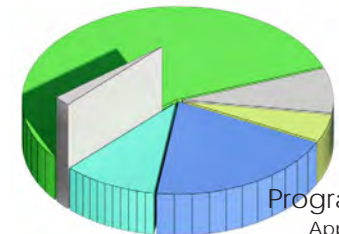
5% Open public space

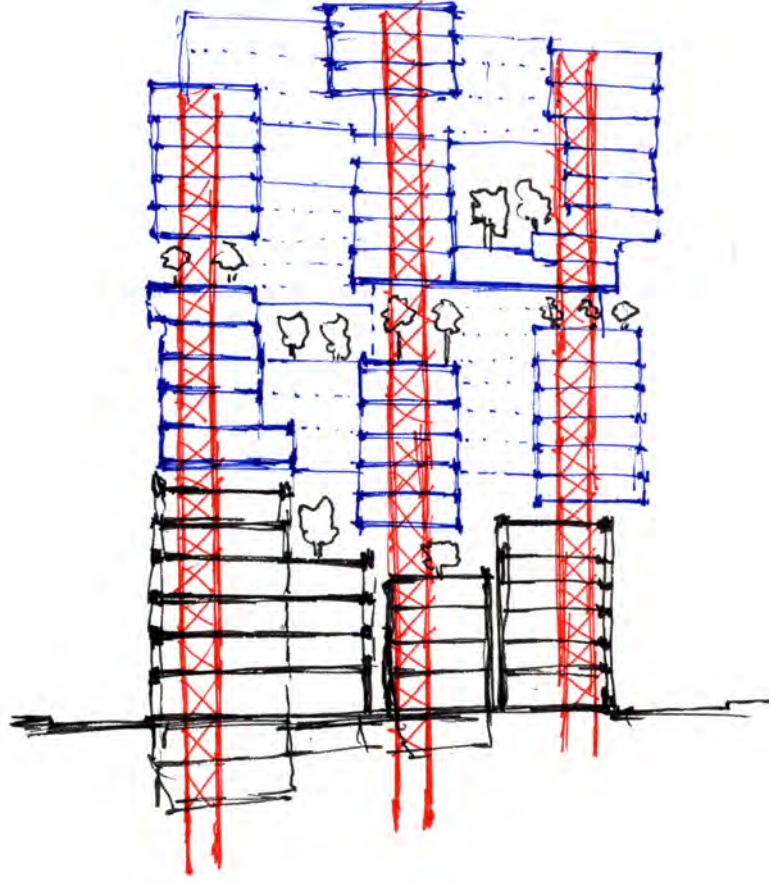
Space open to the street, accessible to anyone. A free space, not oriented around retail space or anyone's profit, but simply as an amenity available to all. It could be a retreat from the busy street, a small green space, or a new dual-purpose space of pedestrian transportation and stationary activity.



2% Parking

This project proposes that the urban future will have a greatly reduced number of cars. In the meantime, parking must be accommodated, but will attempt to wean society off of individually-owned cars.





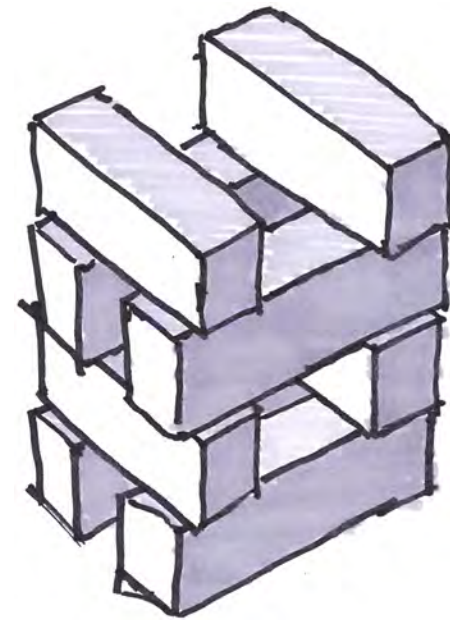
Program Organization Criteria

Density is sustainable. The city increases the efficiency of transportation and other infrastructure. The project will promote pedestrian and mass transit to the point of discouraging cars in the downtown. We should attempt to pack more people in the relatively small area of the city, reducing the urban sprawl that has covered so much of the world. To do this, we must make the city as attractive as possible. The city must offer potential for what people want in their suburban homes: individuality, open space, and retreat.

One option is to create self-contained environments in which people can live, work, educate, shop, and socialize within a specified group. However, it seems that people want the freedom to work and shop where they choose, which perhaps creates the richness of the city.

The composition of the proposed communities needs to be decided. Is segregation of residents appropriate? Some criteria that often lead to divisions are wealth, occupation, family size, race, or religion. Does it make sense to create communities to house particular groups like this? Does it make the people happier, or would they rather be intermingled? Does it even have to be decided by the architect? Can the architect even fight the divisions created by social, economic, and political forces?

Part of the vertically expandable organization will be elevated public levels. Currently the street is a rushed, noisy, dangerous environment for pedestrians. The City of New York feels that its current sidewalks are only a place of transit that cannot be fully enjoyed as a public space.⁶ I propose creating elevated public spaces throughout the city that have dual functions of both pedestrian travel and shared public leisure, while also occupying building setbacks that bring light to the lower city levels. These levels can also promote use of the bicycle, allowing motility over larger distances. The levels will not replace the existing street level, but will be a slower-paced, less commercial space - a real public amenity that the dense future city will need. In instances where density becomes high enough, the elevated levels will support retail, truly becoming an elevated street. In this case, the free public space could move up another tier.



Architectural Themes

The project will question the present form of the city (all cities, not just NYC). First this will require an understanding of the city's fundamental organization now and in the past. Then it will explore what changes may be necessary to adapt to the rapid changes going on in the world.

The approach will not be through the design of a new, ideal city with no historical context. The city is a highly organic collection of ideas contributed by many individuals and many time periods, each as solutions to particular circumstances. No one person or generation should directly control too much of a city – architecture has few correct answers, and an incorrect answer should not be applied too broadly or rapidly. Instead, the project will seek to inspire a broad change by success on the scale of a single project; it will be a seed for growth, the base of a framework which, if worthy, could influence architecture overall.

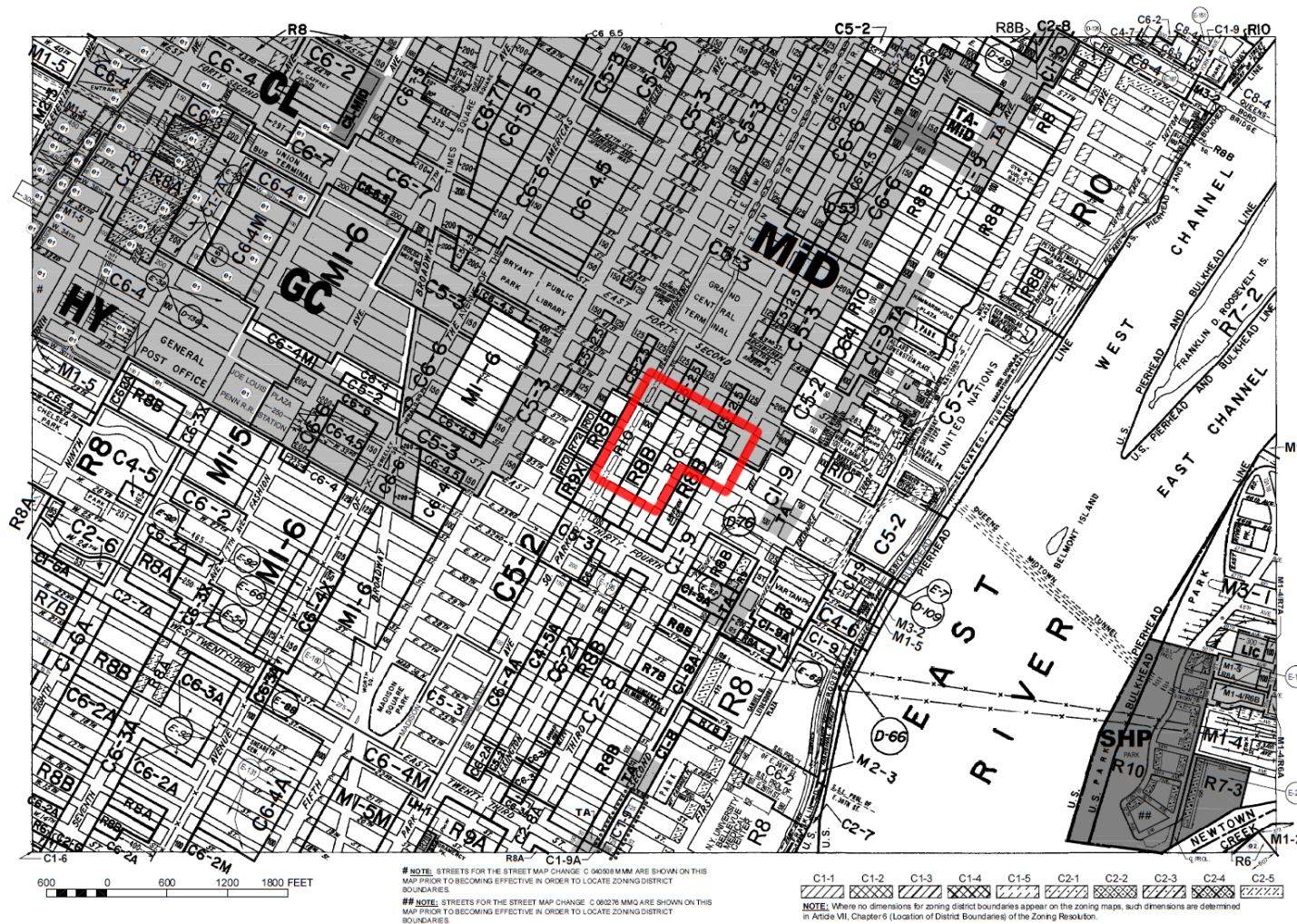
The single most important aspect of a building is its ability to meet the needs and desires of the user. Any desire of the architect, any artistic intent, and any relation to trends in architecture, must come afterwards. The field of programming should be approached thoughtfully, collecting valid information about needs and wants. The simple facts should just be a starting point, though. The architect's interpretation of the needs should be the beginning of the design process. This also should allow for the architect to question the program, and perhaps think of a new way of using space; progress in the field of architecture must come from questioning the fundamentals.

Architecture is largely about meeting needs with sensible solutions, but architecture that serves change, progress, or discussion must be provocative. Architecture should get people excited and should communicate something to people. Architecture works almost like advertising – clear, vibrant, opinionated messages get people to respond somehow. Buildings that are provocative require almost everyone to form an opinion and to discuss it and get involved in it. The typical “good” architecture that we architects study does not seem to resonate with the masses. The

subtleties of plan, sustainability, and structural rhythm are not easily communicated, even to other architects. Visually exciting buildings communicate to a larger audience. This certainly does not discourage architectural excellence, but in a way the “architecture” and the visual image of the building are separate. The visual image gets people talking about architecture, about what the building means, what might be in it, and how the world is changing if this is the sort of thing that gets built. Additionally, to really communicate to users, architecture’s manifestation should practice purity of its generative ideas.

The architecture that we now practice is a very advanced form (created through economic specialization, a large base of knowledge, a history of built form) of our basic need to shelter ourselves from the weather. At some point, the history of building began by individual people making structures to enclose themselves – we used to make our own environment to fit our own needs. We now hire people to make buildings, to make decisions about the environment in which we are going to live, with little of our own involvement. We talk sometimes about how a building’s user must be able to control and customize their own environment – it is a basic human need, and denying it makes people uncomfortable. Maybe this can be taken to a new level, though, in which architecture is not defined by the architect; only the frame work is defined, but the form and organization are defined entirely by the users becoming a new medium for the expression of the race.

Sustainability is a major concern at all levels and scales of this project. This project will seek to find more fundamentally sustainable solutions to all problems, rather than just slight adaptations of the way we presently do things. For example, east-west oriented bars of program 60 feet deep will maximize the availability of natural lighting, while also being relatively easy to shade from direct sunlight. To counter the diminishing returns of very tall buildings, the collection of buildings making up the city may become structurally connected as one, bracing each other and limiting structural redundancy. Repetition of building elements will also reduce energy and time needed to produce buildings.



ZONING MAP

THE NEW YORK CITY PLANNING COMMISSION

Major Zoning Classifications:
 The number(s) and/or letter(s) that follows on **R**, **C** or **M** District designation indicates use, bulk and other controls as described in the text of the Zoning Resolution.

R – RESIDENTIAL DISTRICT
C – COMMERCIAL DISTRICT
M – MANUFACTURING DISTRICT

◻ AREA(S) REZONED

EFFECTIVE DATE(S) OF REZONING:
 2-11-2009 C 070137 ZMM

◻ SPECIAL PURPOSE DISTRICT
 The letter(s) within the shaded area designates the special purpose district as described in the text of the Zoning Resolution.

◻ D – RESTRICTIVE DECLARATION
 ◻ E – CITY ENVIRONMENTAL QUALITY REVIEW DECLARATION

◻ 01 – REFERS TO BLOCKS WITH LOTS SUBJECT TO CEQR DESIGNATION E-137.
 ◻ 02 – REFERS TO BLOCKS WITH LOTS SUBJECT TO CEQR DESIGNATION E-138.
 SEE Z.R. APPENDICES (CEQR DECLARATIONS) FOR LIST OF AFFECTED BLOCK AND LOTS.

ZONING MAP 8d

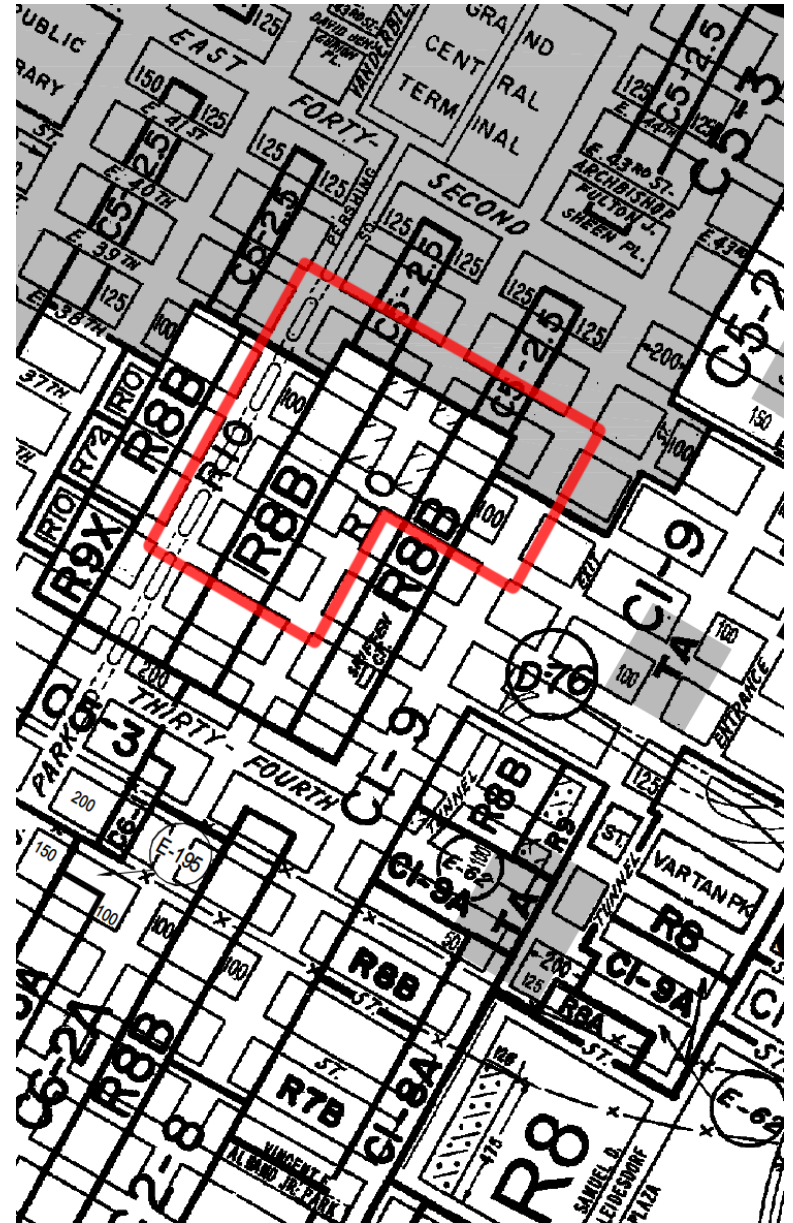
Map 8d, NYC Department of City Planning - http://www.nyc.gov/html/dcp/html/zone/zh_zmactable.shtml

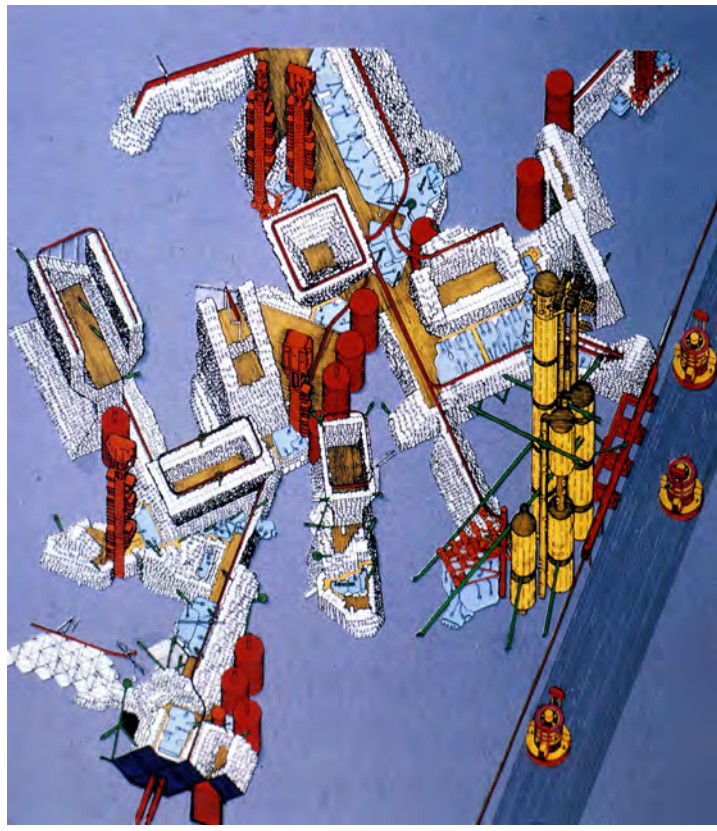
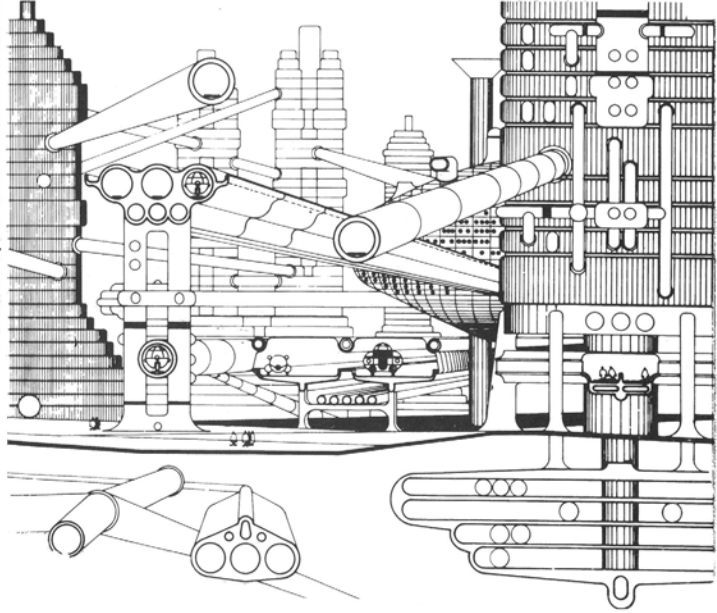
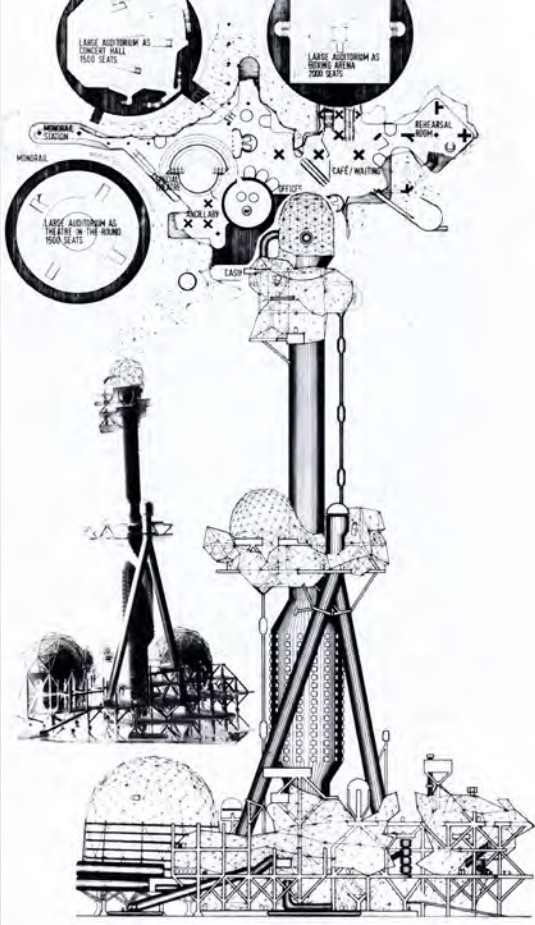
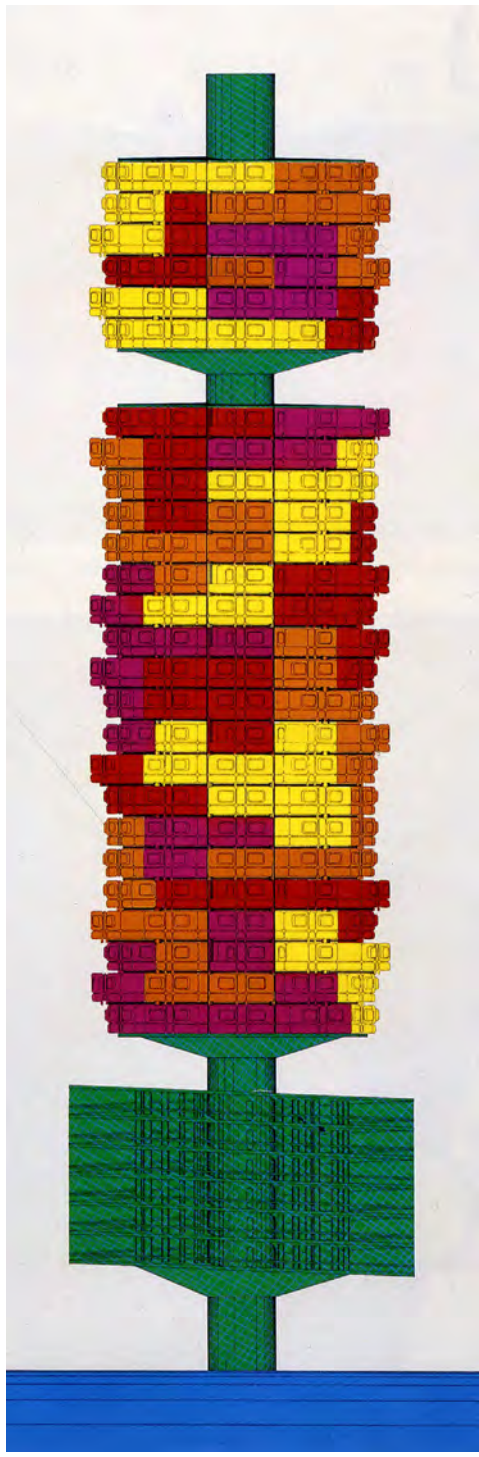
Regulatory Environment Analysis

Zoning is the city's primary tool in shaping its growth, form, and programmatic organization. New York City has always been a pioneer in the relatively young concept of zoning. Beginning in the late 1800s, technological and economic advancements spawned rapid vertical growth in the city, bringing forth concerns about natural light and other basic wellness issues. The first Zoning Resolution, enacted in 1916, designed to control building height and mass, while also organizing the various building types of the city.⁹

The specific site shows a strong example of how zoning drives the form of the city. The site was chosen because it is an instance of relatively low-rise buildings immediately meeting relatively high-rise buildings, suggesting a potential for growth. The maps show the line of transition from low to high is the boundary of the Midtown zoning district, at which point zoning changes from Residential to Commercial, combined with a reduction in FAR restrictions. The C5-2.5 and C5-3 zones correspond to base FARs of 12 and 15, whereas R8B and R10 correspond to maximum building heights of 75' and 210'. Also of note is the change in zoning in the east-west axis, by which buildings are generally taller on avenues and shorter on streets, promoting a "desirable future density pattern." ¹⁰

This project is operating at a large and theoretical scale, attempting to redefine the city. For this reason, it is not going to adhere to the Zoning Resolution, but rather propose new ways to organize the city and allow more natural economic and cultural forces to regulate the growth of the city.





Archigram

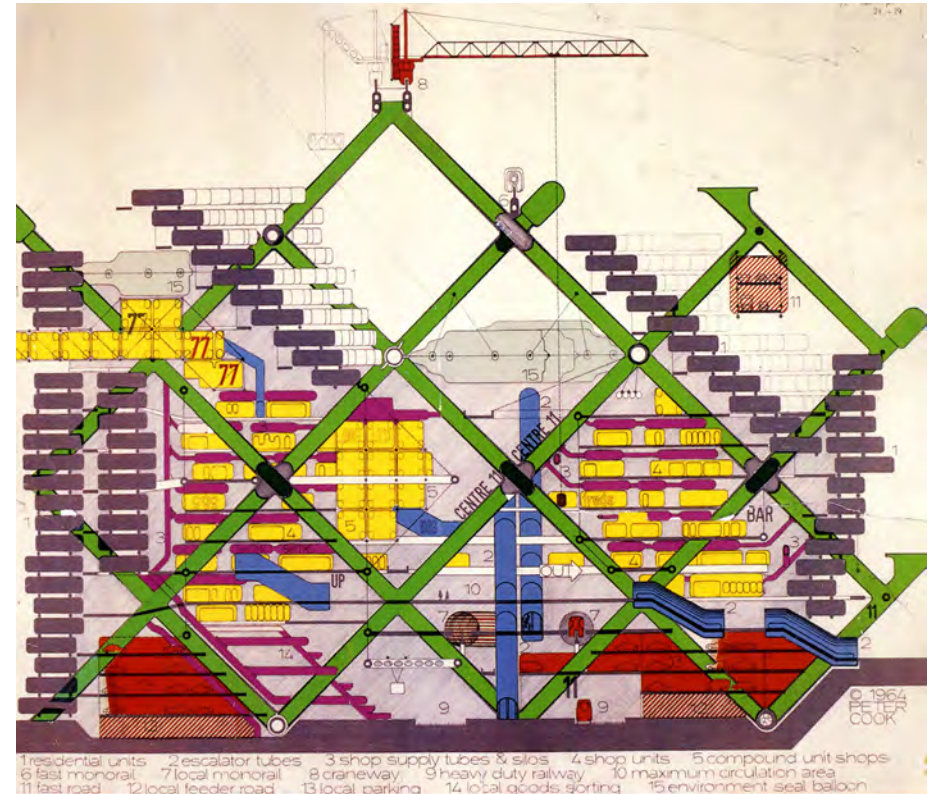
Archigram was a group of critical young architectural thinkers who came together in the 1960s in London for a series of discussions, design ideas, and, ultimately, a publication also named Archigram. A major topic of their critique was the city, or in fact, the urban way of life, beyond just the scope of architecture, but encompassing all aspects of society.

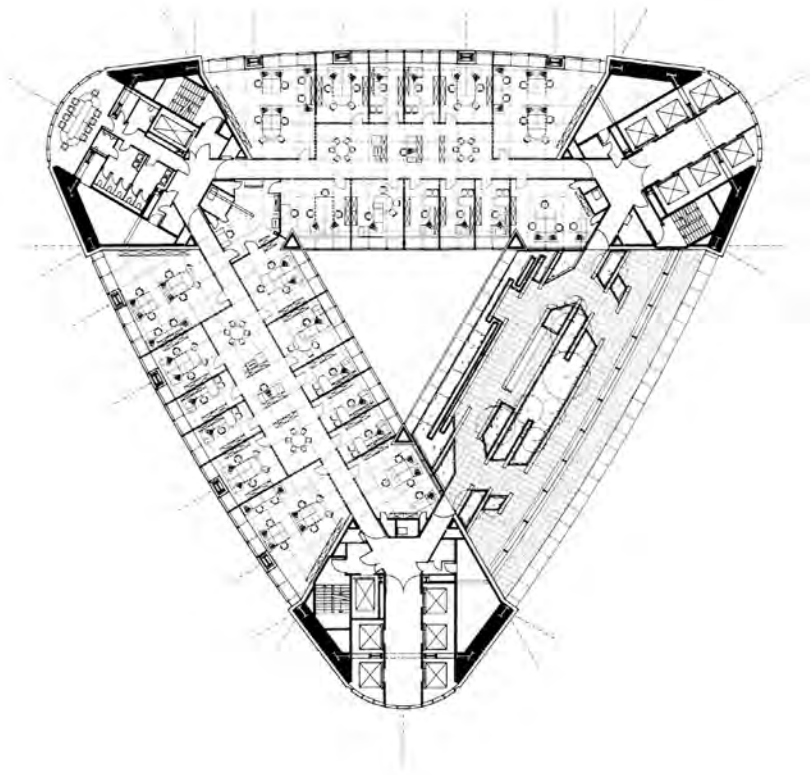
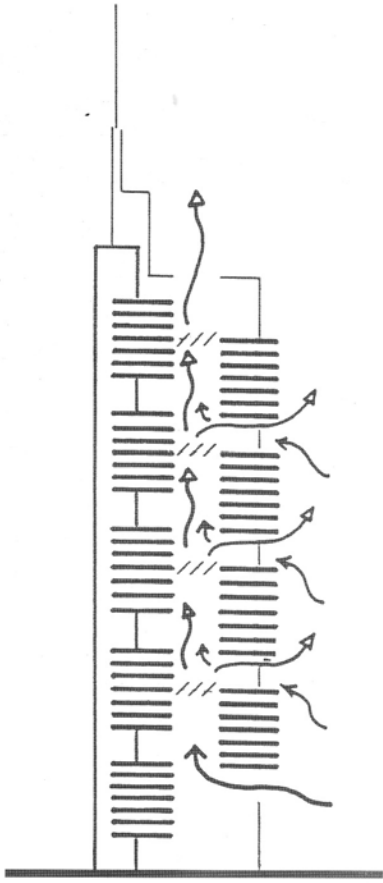
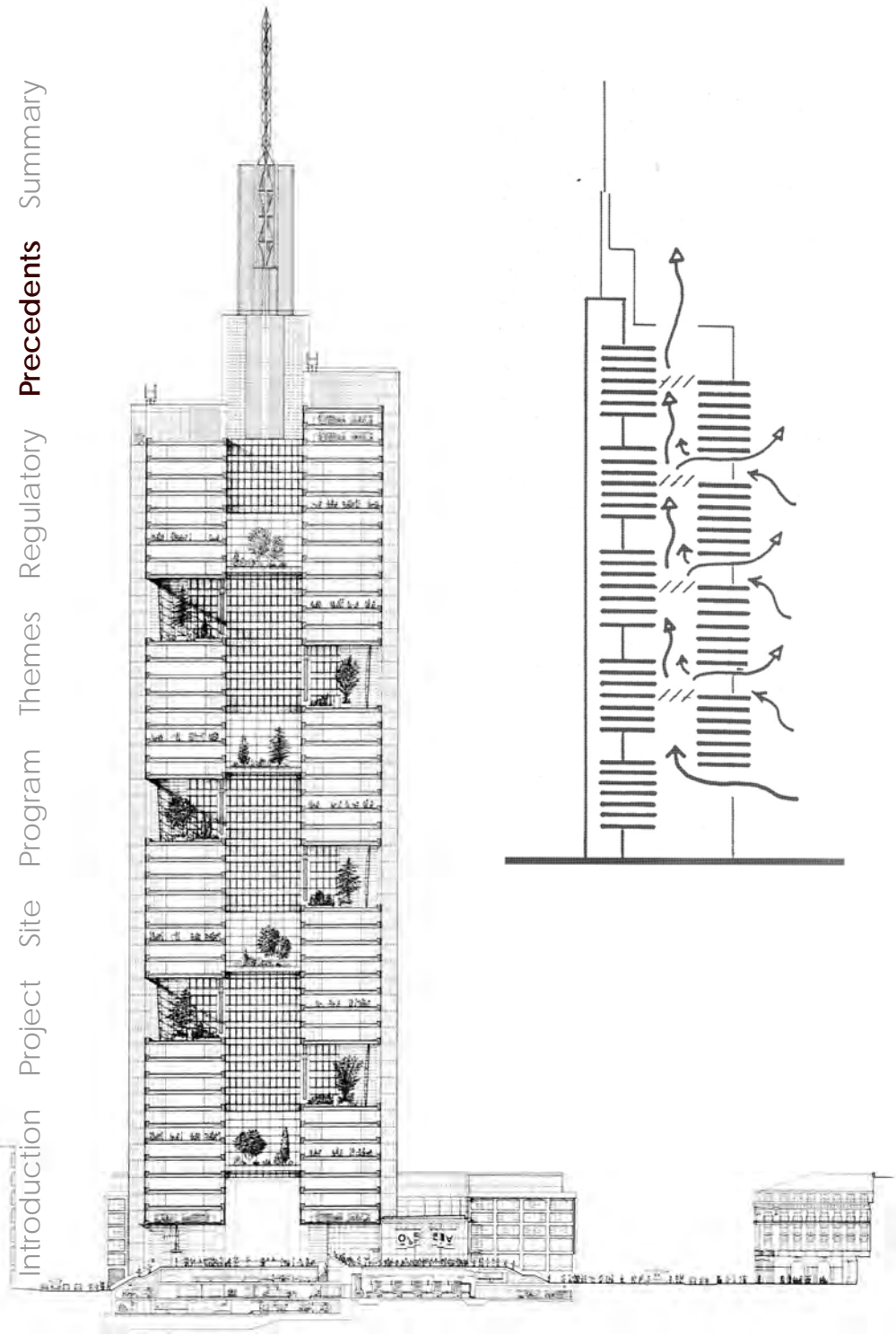
"Cities should generate, reflect, and activate life, their structure organized to precipitate life and movement." The city, to Archigram, is essentially the center of human activity, trends, thought, and advancement. Their mood is frantic, always dynamic. Temporariness can be considered bad, but it's perhaps the life of the city, the source of dynamism and pulsation. The change should be reflected in the environment.¹¹

The present city is a clustering of unique elements, each free standing, but becoming so physically close that they have lost definition as single elements and become a single fabric. A logical jump would be to develop the city as a single building.

Archigram is also critical of the current city, citing New York as archaic in its organization, multi-level components connected only by two horizontal planes (roads and subways). They proposed more thorough connections, particularly utilizing the diagonal.

The surrounding images were included in Archigram publications, and illustrate some of the group's ideas about future urbanism. One repeating feature is an organizing structure with exchangeable units.





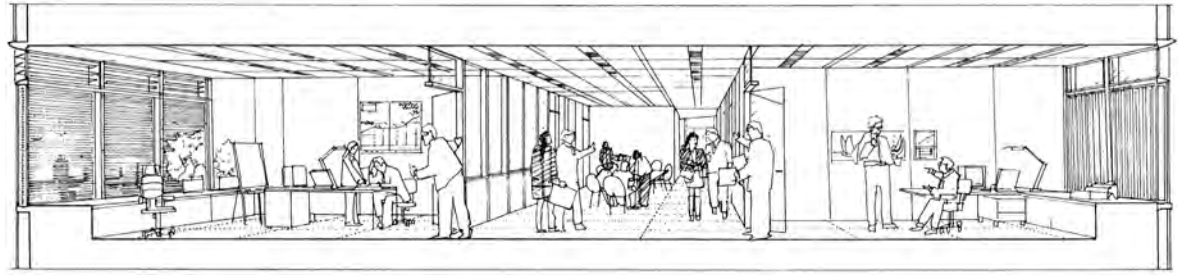
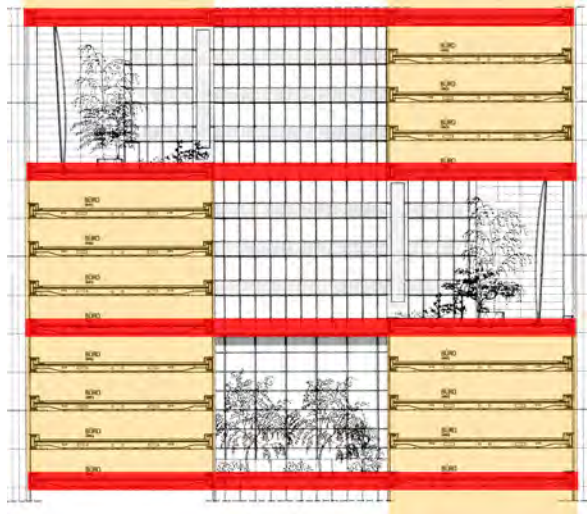
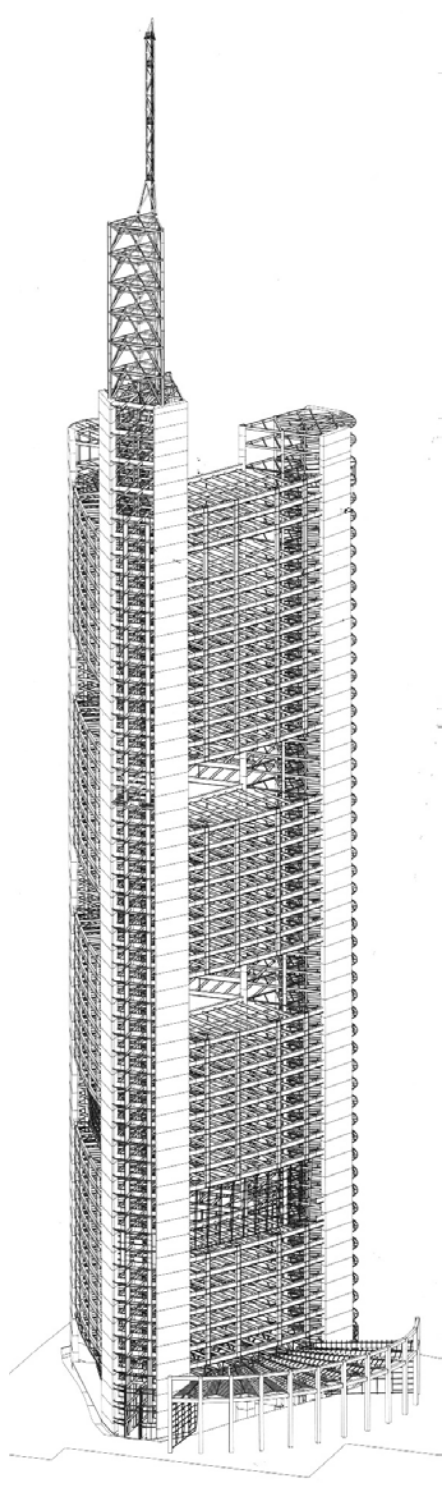
Commerzbank, Frankfurt

Norman Foster

The Commerzbank office tower was the tallest building in Europe on its 1997 completion date. Beyond just its height of 850 feet, the building is revolutionary in its organization and connection of office spaces to the outdoors. Its design and construction was a massive research effort at the forefront of sustainable design of large towers. An emphasis on natural light and natural ventilation, combined with outdoor views and uplifting spaces, drove the form and detailing of the entire project. The total usable square footage is around 753,000, with about 8,300 square feet on each open office floor.

To incorporate nature and views into the building, Foster's team grouped offices into 8-story segments, spaced to allow garden spaces in between. The garden spaces spiral upwards through the building around a central atrium, continuous through the building's core, although split by horizontal glass partitions into 4 segments. The spiraling gardens allow most office workers to have a view of the outside with the atrium as the foreground, the garden as the midground, and the city as the background. This connection to nature appears critical in the success of future urban designs.



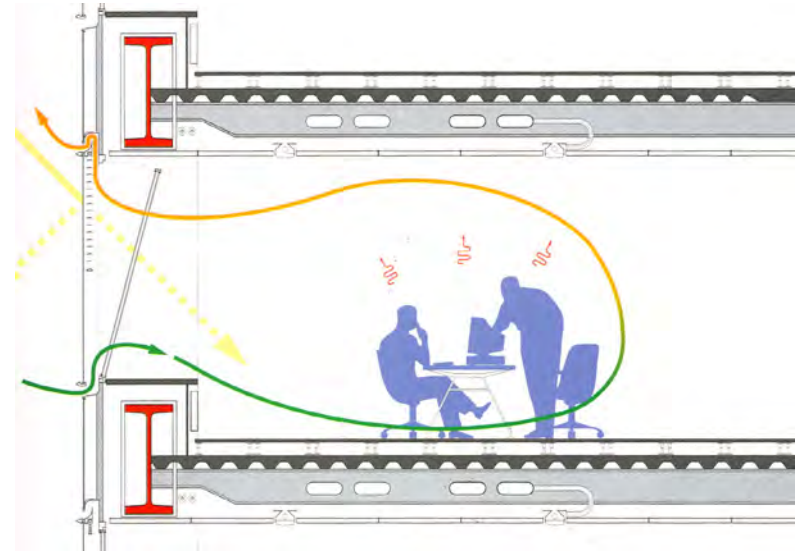


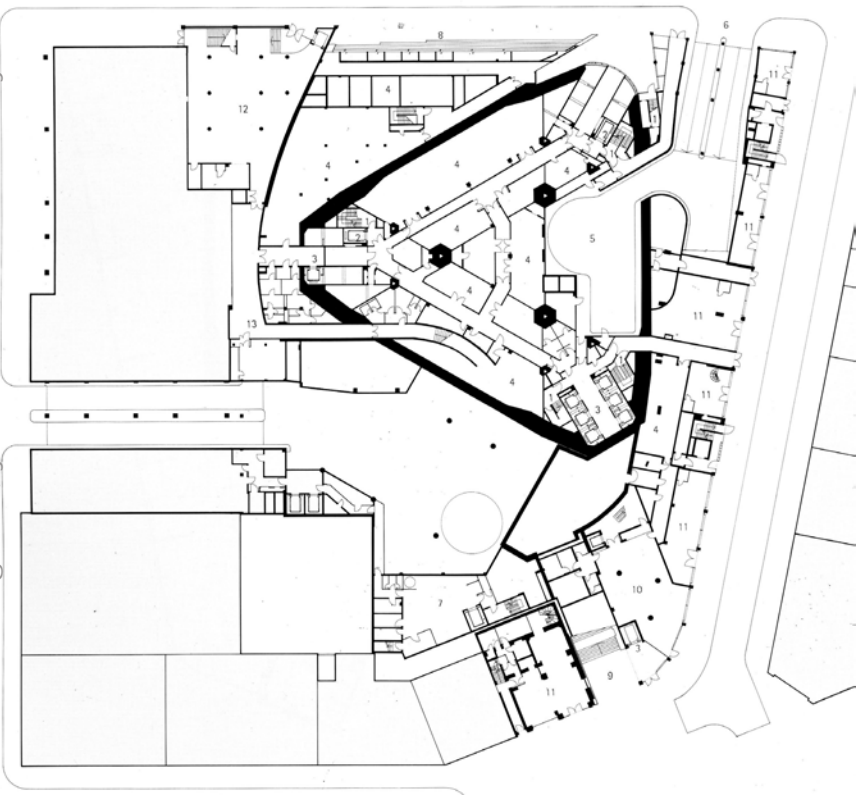
Commerzbank, Frankfurt

Norman Foster

The 8-story groups span between three corner towers, focusing the structural concerns at the absolute perimeter of the building. Additionally, the three towers provide a triangulated geometry, resisting torque through the building's height. Every fourth floor is continuous (no garden) acting as a stiffening diaphragm.

The three corner towers house the building's six major columns, as well as vertical services, bathrooms, etc. The structure of the office blocks spanning between the towers is a simple, repetitive steel vierendeel truss, with simple steel beams spanning to create the floor slabs. The depth of the office bars is around 60 feet, an efficient depth for penetration of natural light. Floor to floor height is around 12' 6" with relatively minimal floor thickness. The overall tube-like structure of the building is very efficient, while also supporting many of the other architectural intentions.





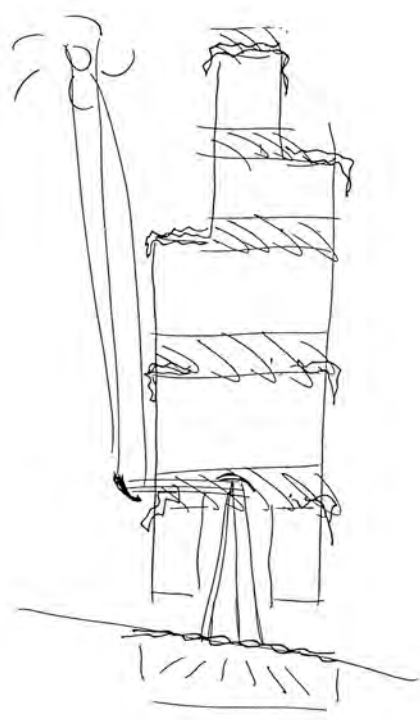
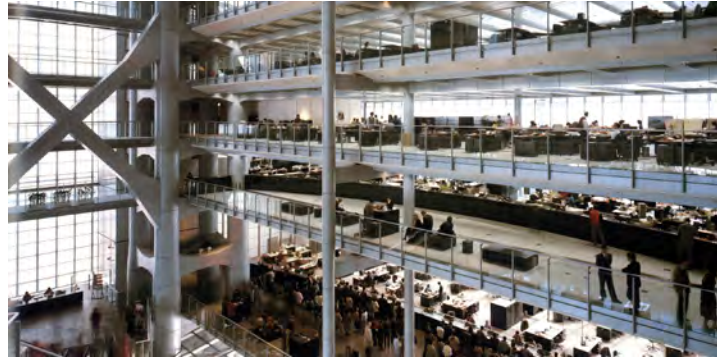
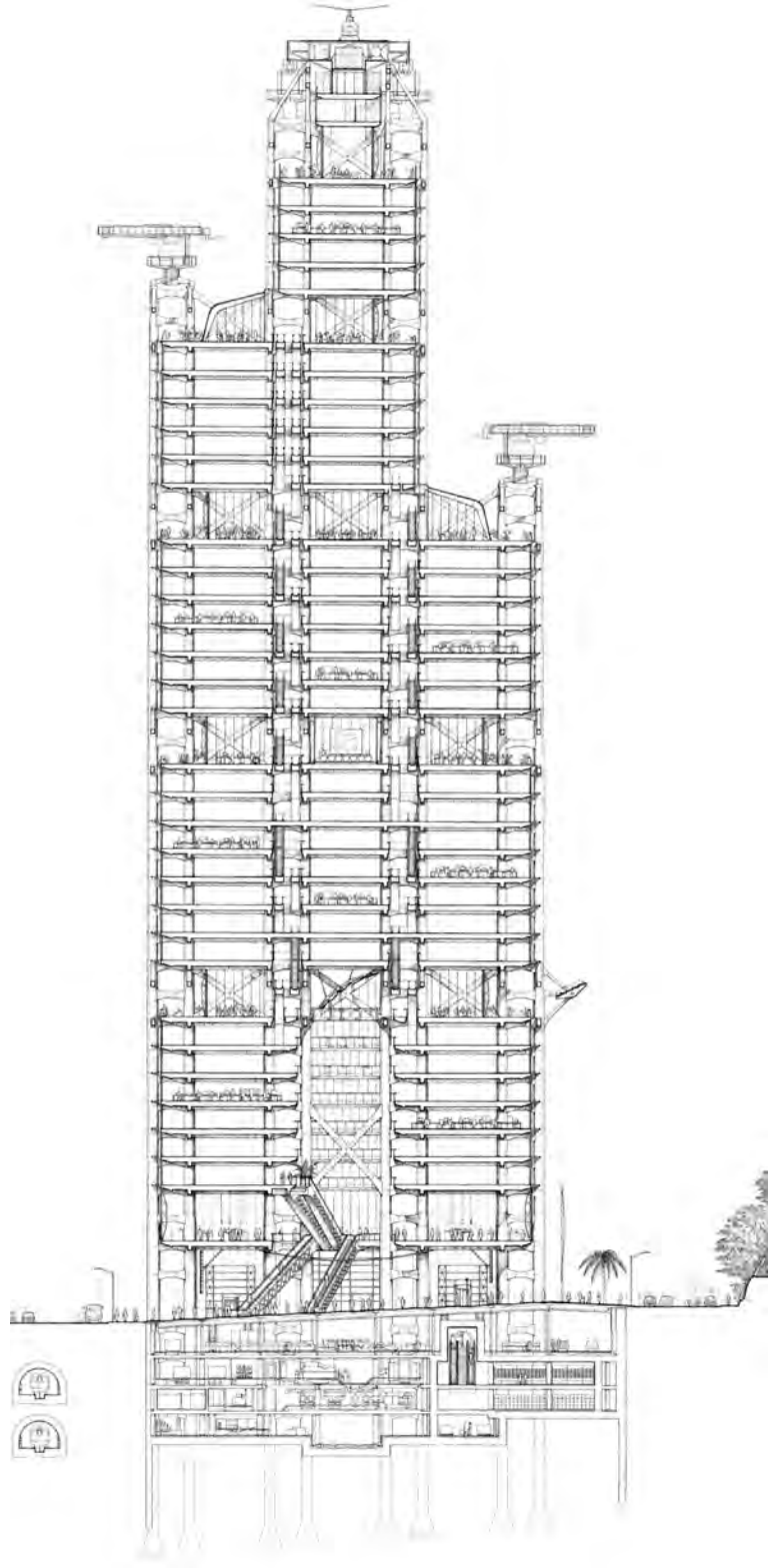
Commerzbank, Frankfurt

Norman Foster

The building's relationship to the city is successful because of the program distributed around the base, creating a street atmosphere not possible with a single large extrusion. The building meets the street with an architecture and scale more typical of the context, while creating an inner courtyard and plinth that acts as the base of the tower.

The building is an amazing distillation of many ideas about the future of tall buildings and, although expensive to construct, is an excellent example of user-oriented and sustainable design.¹²

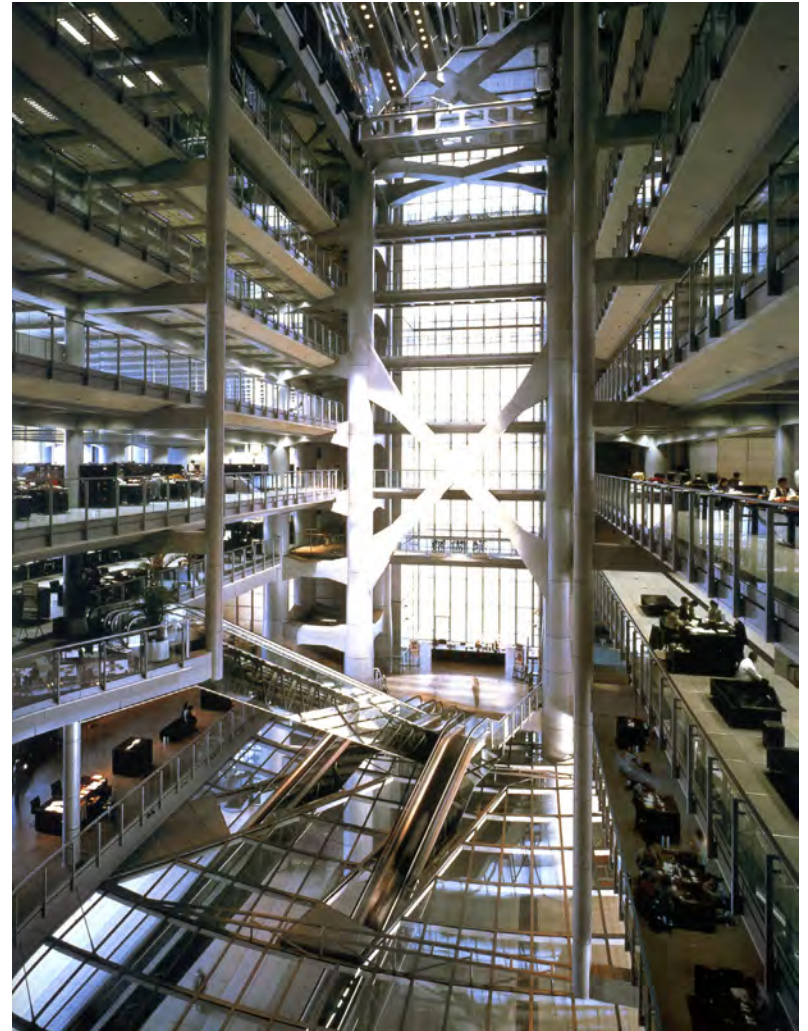


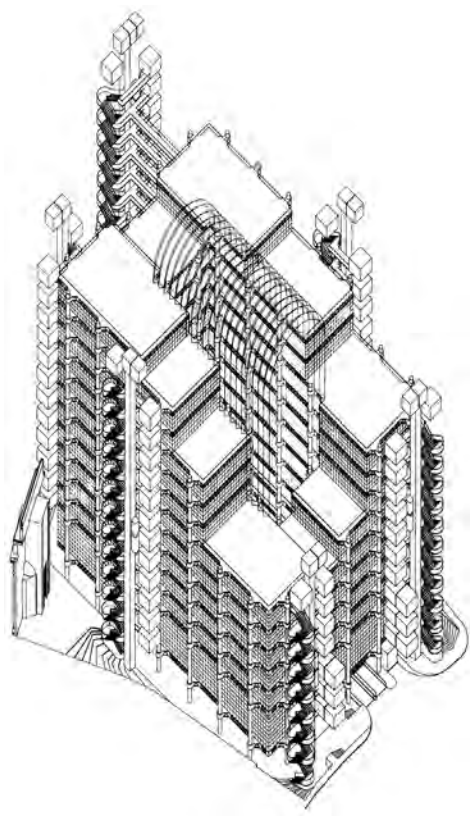
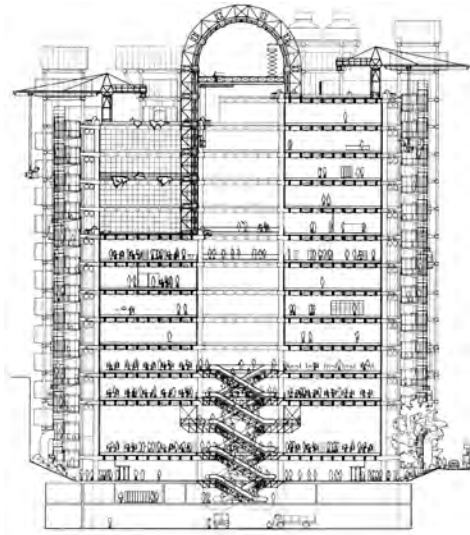
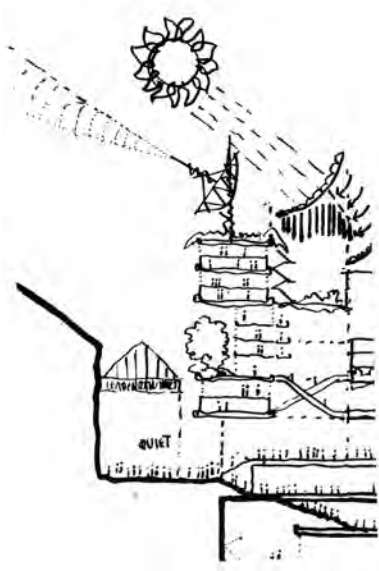
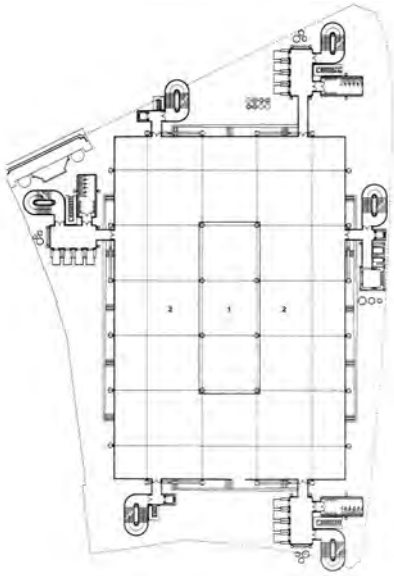
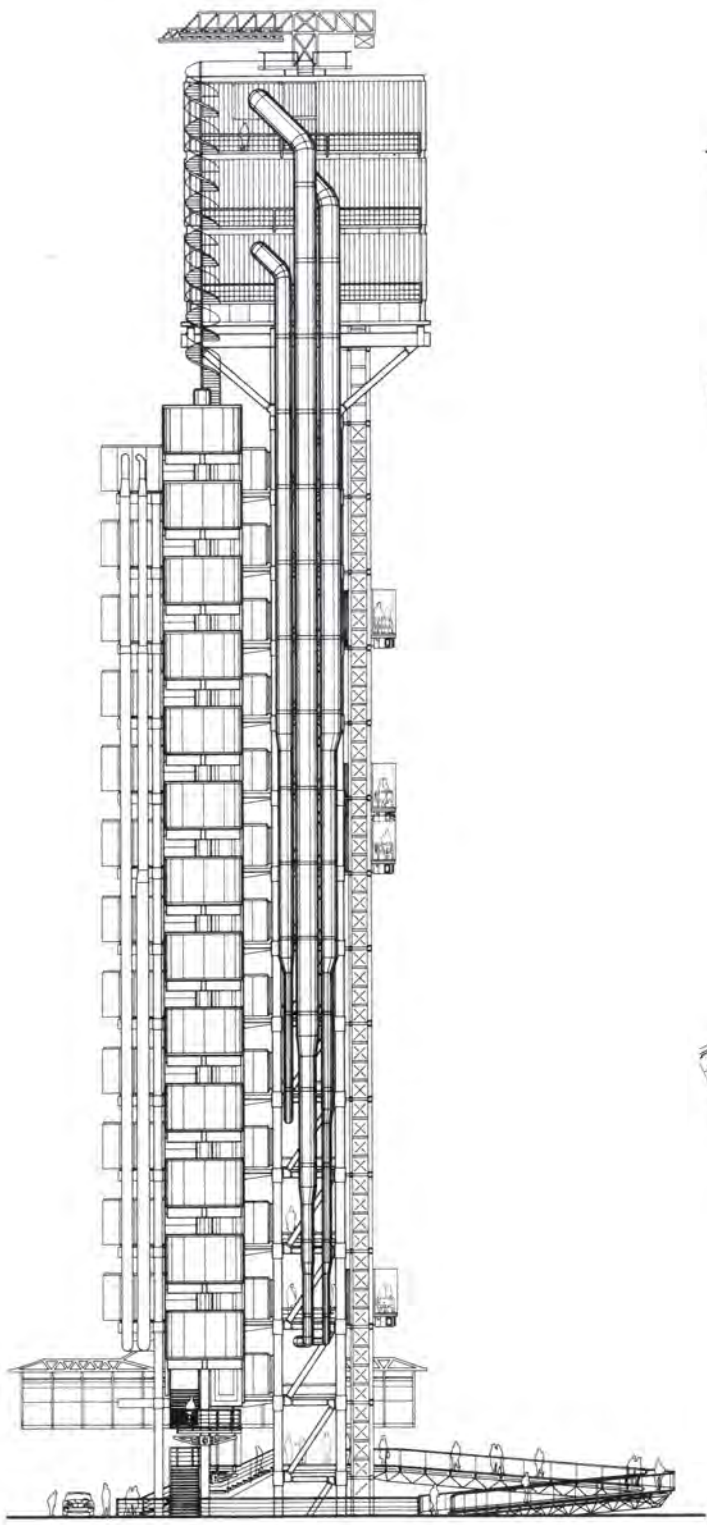


Hongkong and Shanghai Bank

Norman Foster

The HSBC is another innovative office tower by British high-tech architect Norman Foster. 590 feet tall, completed in 1985, the tower's form is driven by structural logic, repetitive construction, natural light, and a futuristic aesthetic. The ground level is an open plaza, with the glass underbelly of the main 7-story atrium giving way to two main escalators. The atrium, and eventually the plaza level, is lit by an enormous sun-collection device on the southern facade.¹³

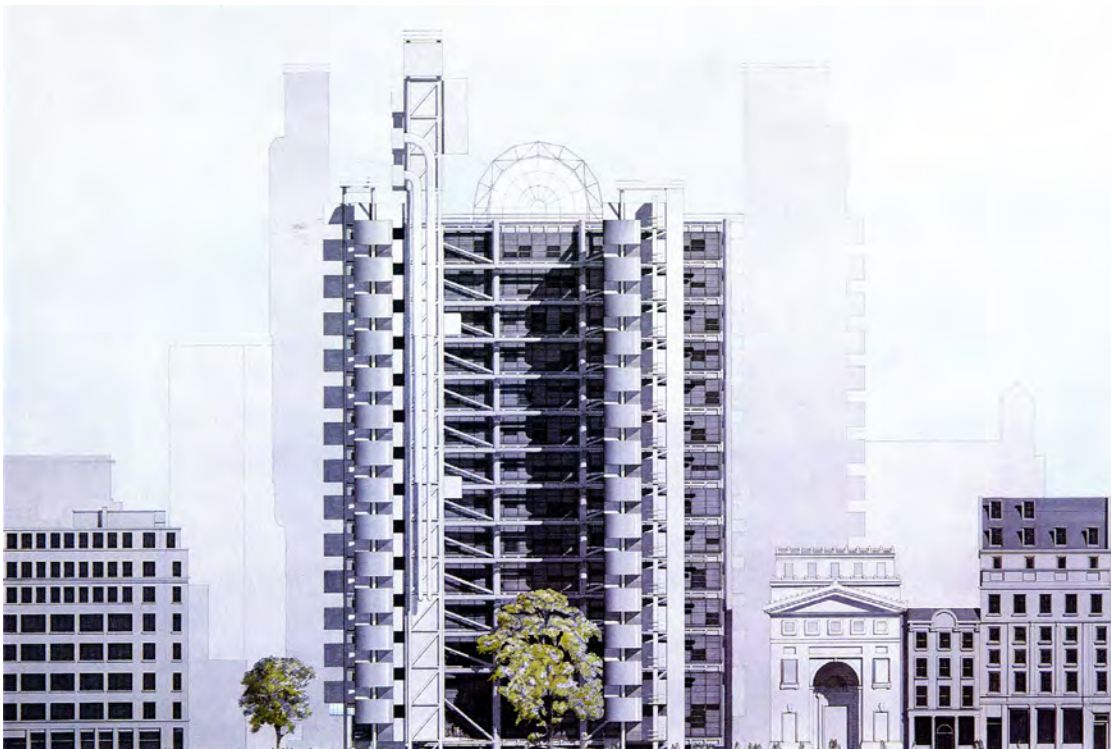


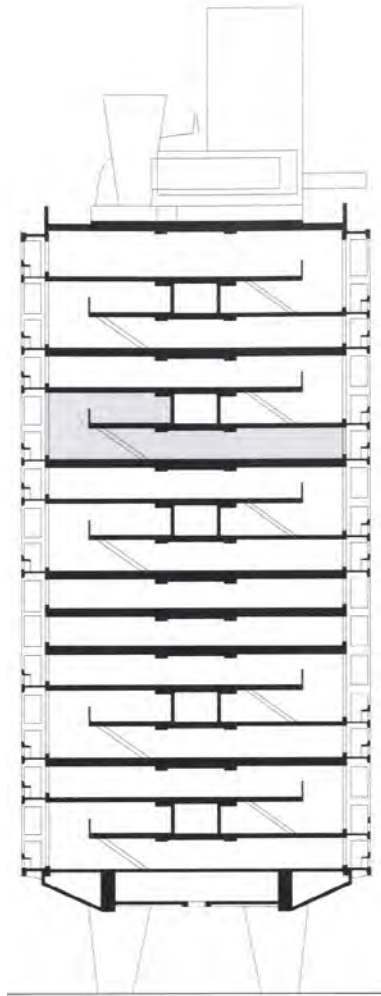


Lloyd's of London

Richard Rogers

Along similar lines as Foster's towers, Rogers developed the Lloyd's as another British high-tech office building, completed in 1986. The organization is essentially a rectangular tower with central atrium, surrounded by service towers that give the building its character. The towers feature exposed services, repetitive pre-fabricated elements, and stainless steel cladding.¹⁴

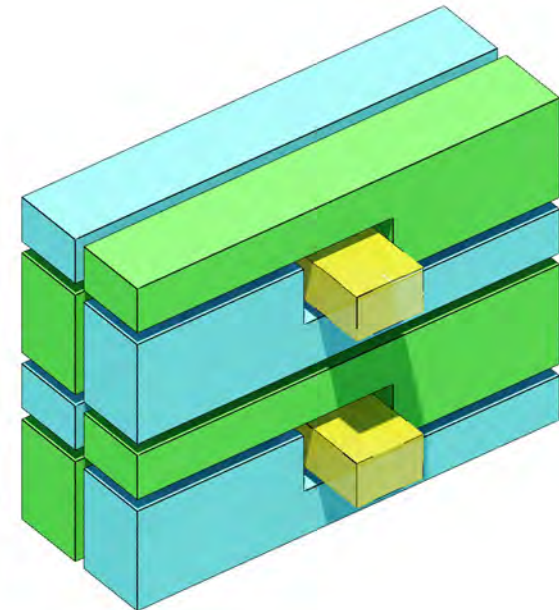
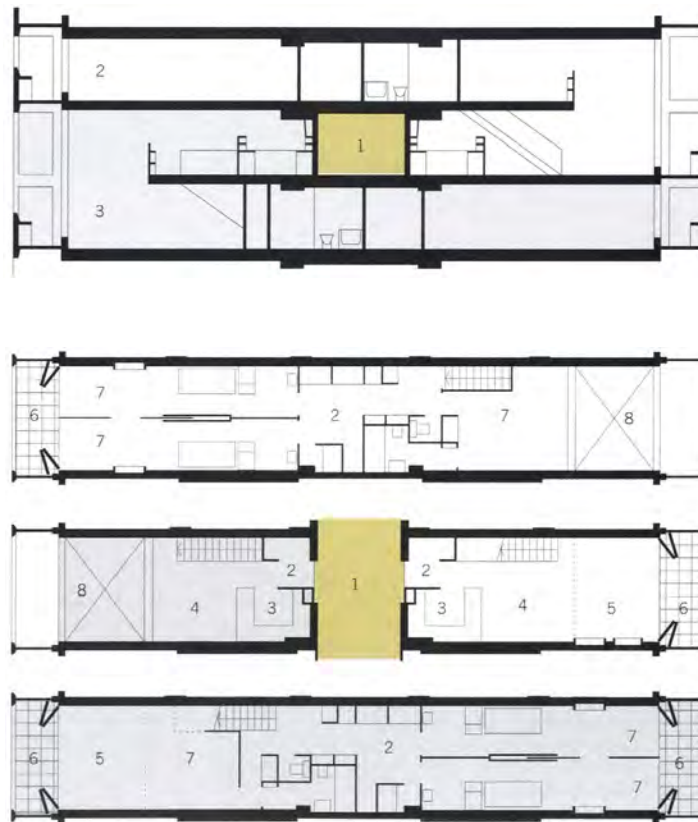




Unite d'Habitation, Marseilles, France

Le Corbusier

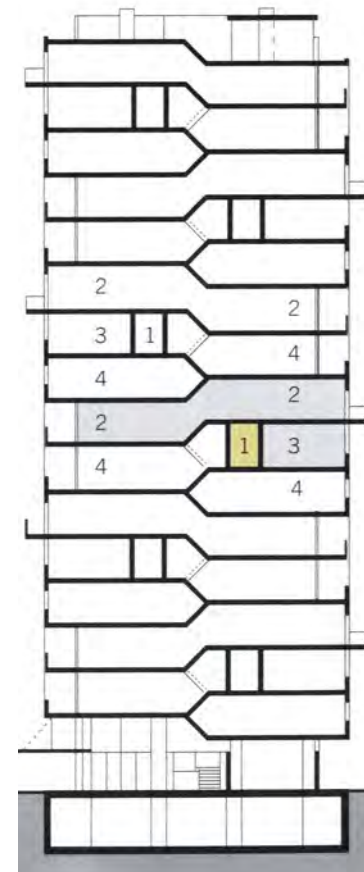
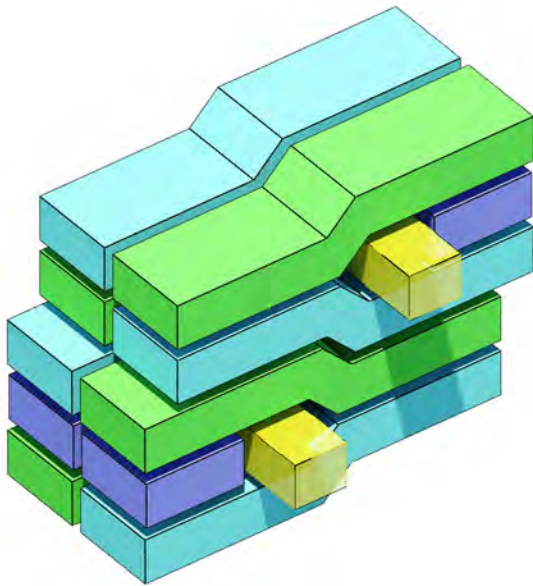
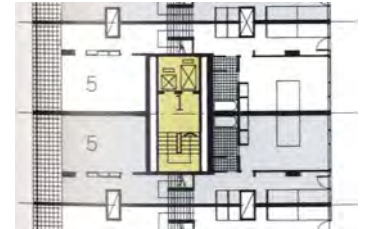
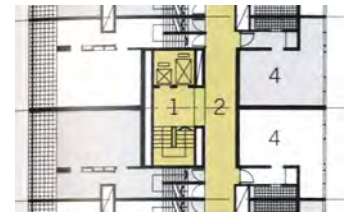
The Unite is a block of housing built in 1952 as one of the final iterations of Le Corbusier's studies of housing. The organization of the units is revolutionary and is one example of possible strategies of dealing with high-density housing. The main unit type exists in a sectional L-shape, allowing access corridors to exist only every third floor. The access corridor suffers in quality and natural light, but the arrangement could be valuable for future low-cost housing.¹⁵

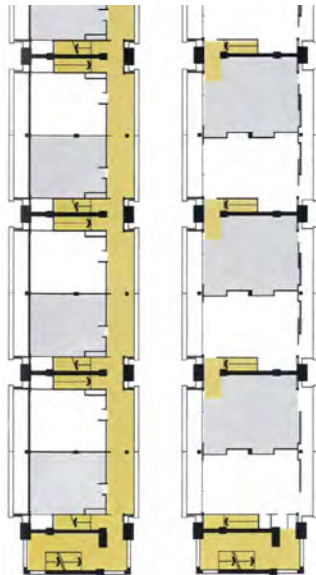
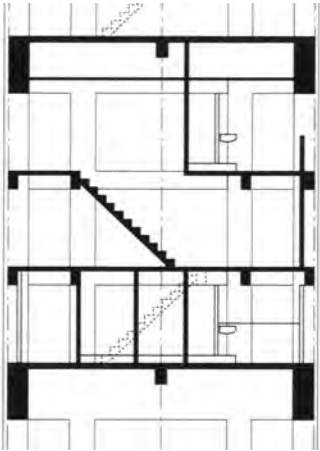


Hansaviertel Tower, Berlin

Van den Broek en Bakema

This tower has a unit organization that is a variation of the highly-influential Unite d'Habitation. A corridor exists every 2.5 floors, with two split-level units wrapped around it in section, and a smaller single-floor unit sitting between the two. This arrangement offers two window walls to each large unit (915 sq. ft.) and one window wall, as well as level entry, to each small unit (360 sq. ft.)¹⁵

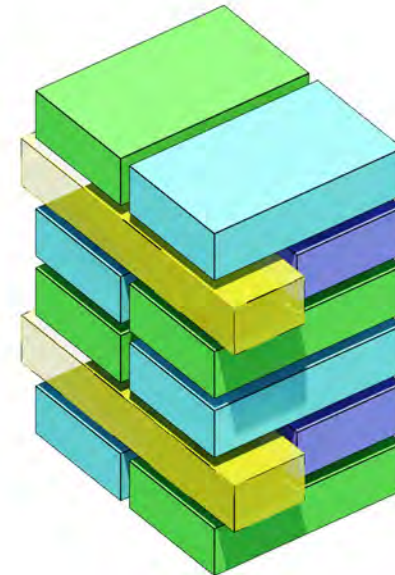




Harumi Apartments, Tokyo, Japan

Kunio Maekawa

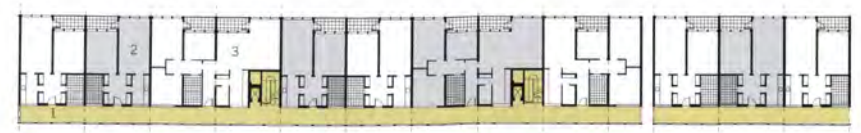
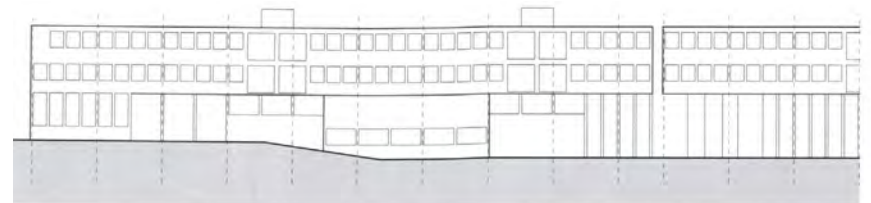
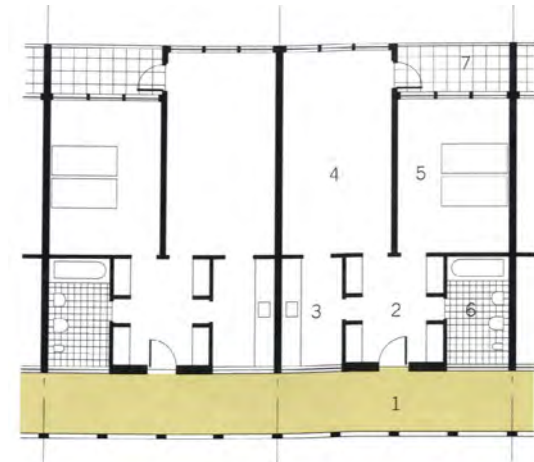
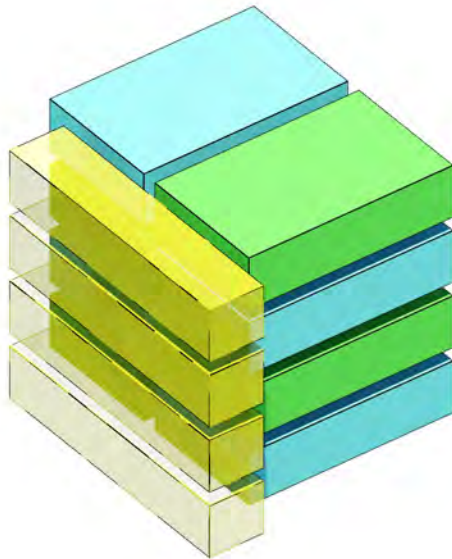
Driven by economics and efficiency, the Harumi apartments achieved a hallway every third floor, similar to Le Corbusier's Unite. In this case, the corridor exists at the building's edge, acting more like a single-loaded street than a tight, dark double-loaded corridor. From the street level, there is direct access to some units, stairs up to pairs of other units, and stairs down to pairs of the rest of the units.¹⁵



Gallaratese Housing, Milan

Aldo Rossi

This bar of housing, completed in 1974, was one solution to a housing crunch in Italy, and was a re-defining of some significant housing principles. In contrast to tall towers standing alone, this long continuous bar was part of a low-rise medium/high density complex. The organization is simply a continuous single-loaded walkway with highly repetitive units accessing it directly.¹⁵

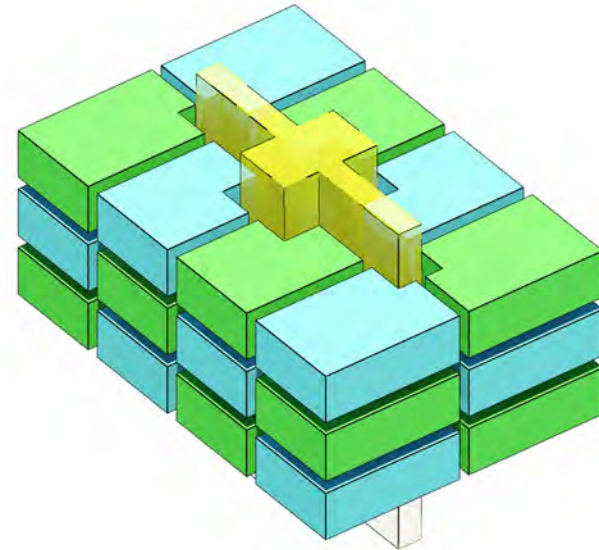
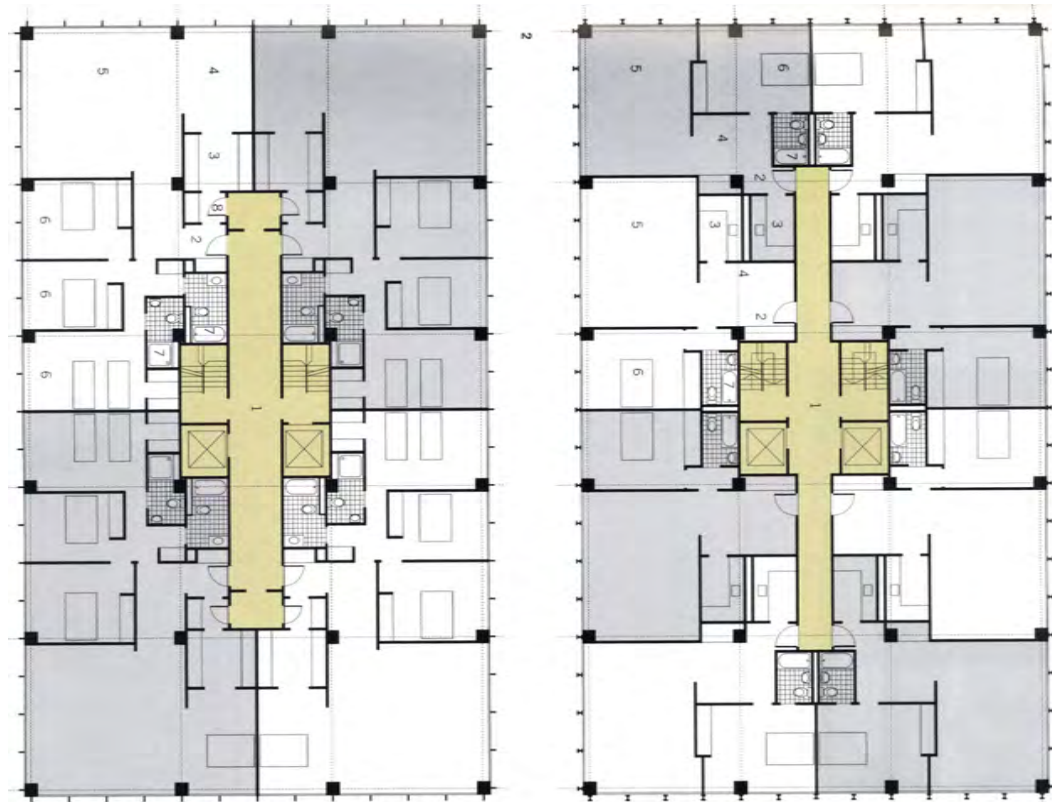




860-880 Lake Shore Drive, Chicago

Mies van der Rohe

These towers of 1951 were considered a stunning example of International Modernism. They are a pristine arrangement of steel and glass, ultra-repetitive, free of restrictions of site, solar orientation, or interior bearing walls. The organization is a continuous vertical core in the center with units arranged around the periphery, accessed by a simple double-loaded corridor.¹⁵

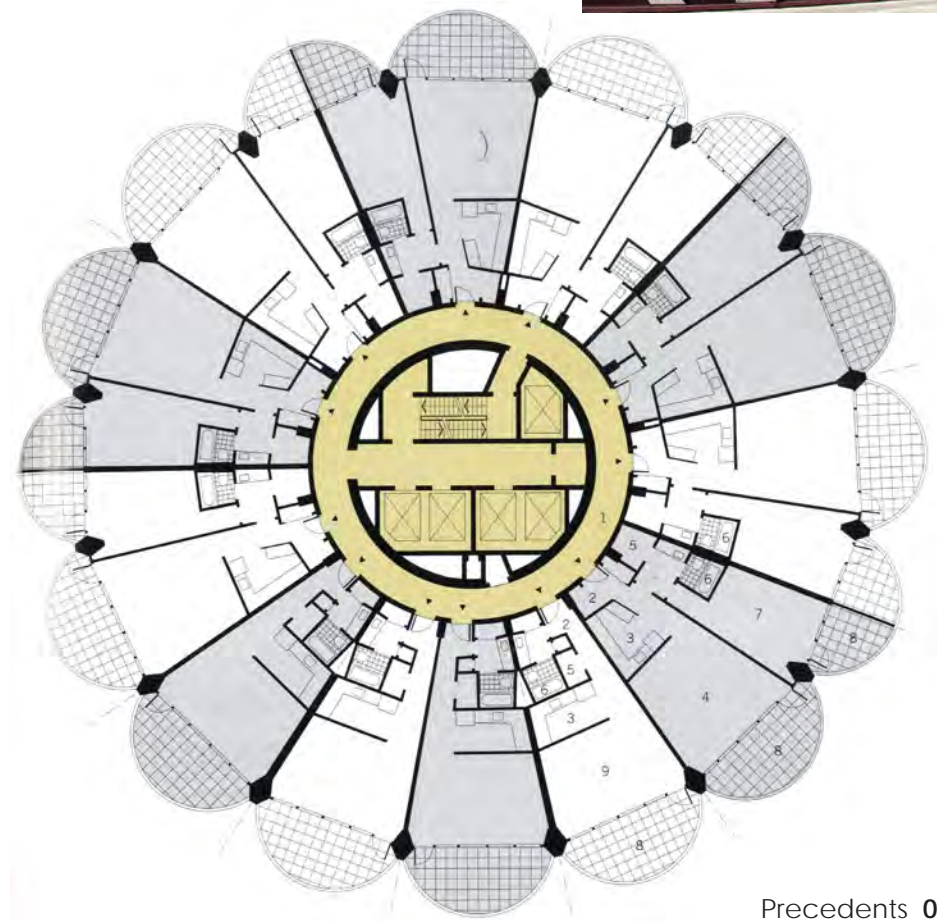
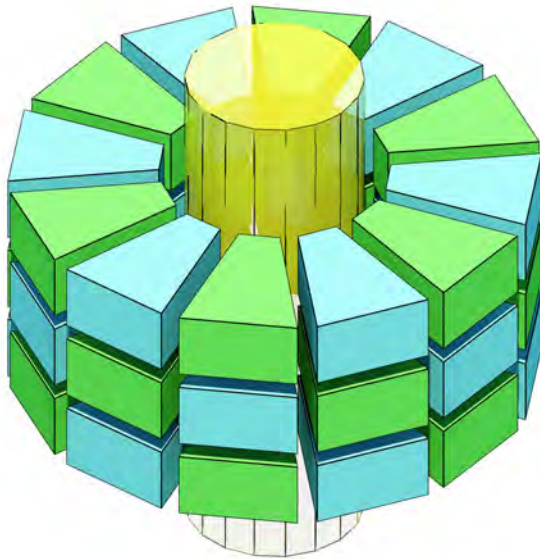


Marina City, Chicago

Bertrand Goldberg

The Marina City complex, completed in 1964, includes two towers and a plinth. The program encompasses a broad range of elements, attempting to integrate the varied program that zoning has typically separated.

The two towers incorporate parking on the lower levels of the cylindrical form, with housing above. The organization is simply a structural, service, and circulation core with units radiating out. Although circular, the units are extremely repetitive, allowing much easier construction.¹⁵



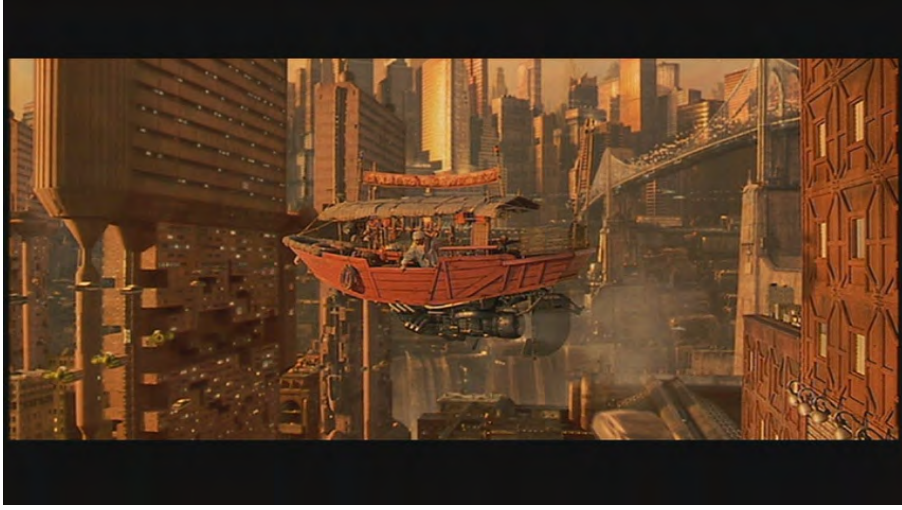
Minneapolis Skyway

The Minneapolis Skyway system is an informal collection of elevated walkways and bridges connecting 69 city blocks with over 5 miles of enclosed spaces. They connect business offices, commercial spaces, parking, convention centers, and other urban amenities. They developed as protection from the harsh conditions of both winter and summer in the Minnesota climate, allowing businessmen, clients, and visitors to travel around the downtown in comfort and in the same attire throughout.

The Skyway is a series of individual elements, each built by different businesses, meaning there is no over arching organization or set of standards. The system grew in a very organic fashion, yielding inconsistencies and problems, but a character that is generated as responses to many particular conditions, much like a freely-growing city. Some problems include irregular hours of operation, poor signage, and a confusing organization.

The Skyway exists on the 2nd and 3rd floors of various buildings and is the largest system of its type in the world. Its organic growth supports its success, and such a system may be adaptable to other major cities.¹⁶





Visions of the Futures

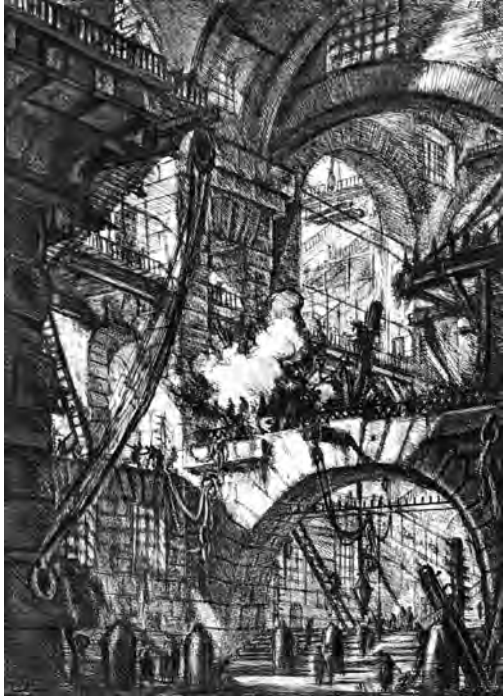
Artists' visions of the future urban environment provide valuable insight into possibilities and ideas conceived by a variety of creative minds. On the left, Luc Besson's film "The Fifth Element" describes an idea of New York City in 2300. ^{17, 18}



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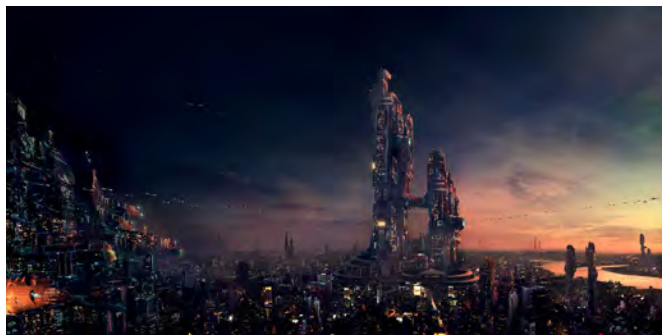
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Summary

Introduction

This thesis is going to explore the issue of densification. The main goal is to support this transition to the ever-denser city and to explore ways in which we can maintain, or possibly enhance, its livability. It seeks to develop a system to manage future vertical growth.

Project

Rather than the city being a straight extrusion from a single plane, it will become a three-dimensionally-connected network. The building will act as an additive system, preserving the existing fabric and physically adding to it, because the richness of the city comes from its additive nature.

Scope

The study will include the urban scale at a diagrammatic level, the programmatic scale at greater detail, and a specific programmatic element at a fully architectural scale.

Program

The program will encompass almost everything necessary in a city.

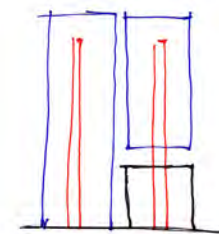
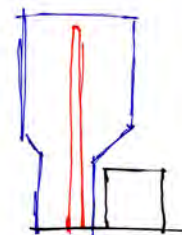
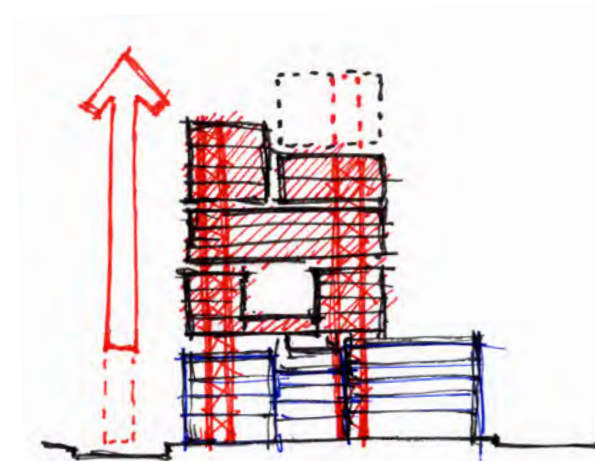
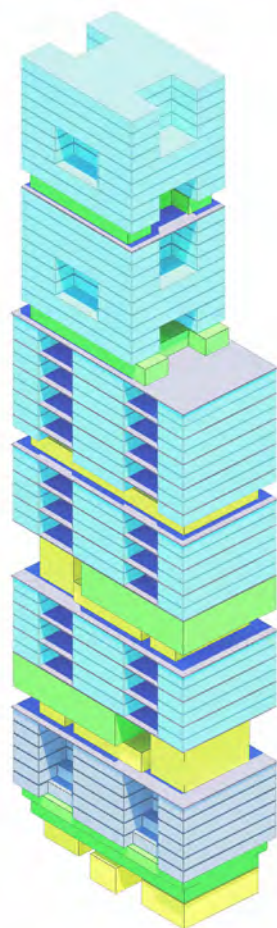
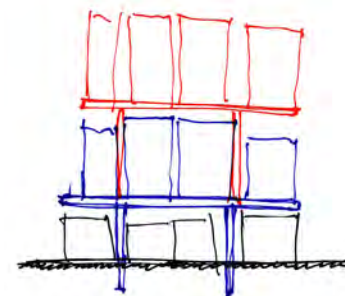
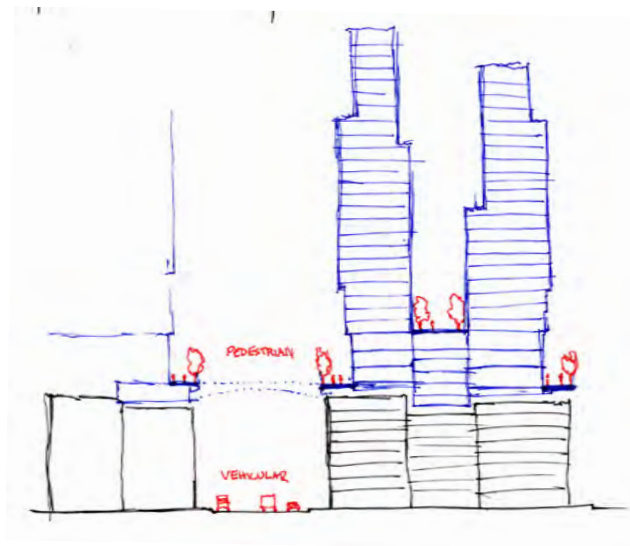
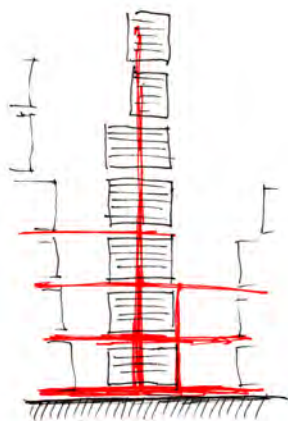
- 55% Housing
- 20% Commercial / Office
- 10% Public-oriented program
- 8% Retail
- 5% Open public space
- 2% Parking

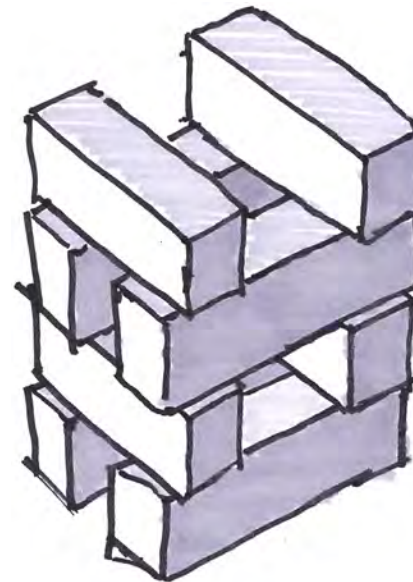
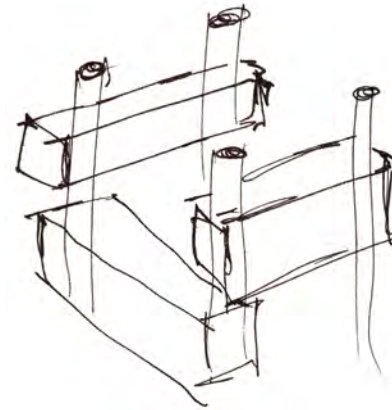
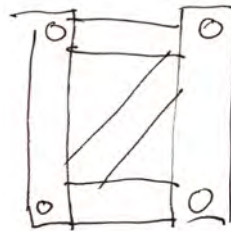
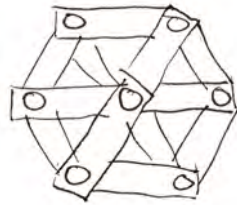
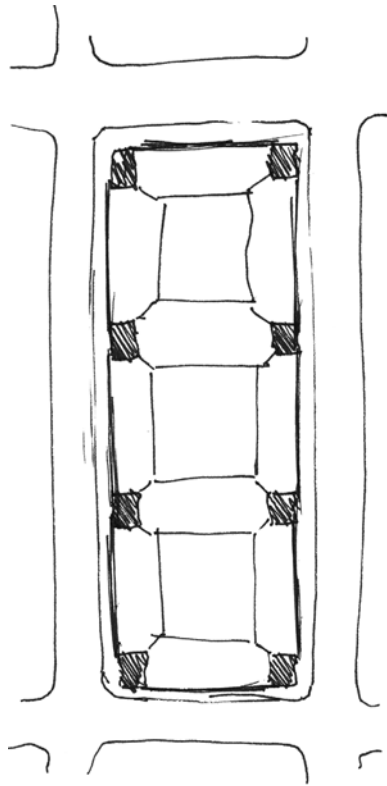
Site

The project will exist in Murray Hill, a neighborhood of Manhattan that is predicted to grow in the next 20 years. It will operate within 6 blocks, much of which will be preserved.

Appendix B

Design Process





These images were created in the Project Proposal phase. Despite being focused on presenting a problem to later be solved, the proposal phase was really the beginning of the design process. All I knew at this time was that I wanted to find a new form for the city. It would likely be tall, would include a full range of program elements, and would be vertically expandable. At first I imagined layered towers supporting multiple pedestrian levels and connections to neighboring buildings. I then explored other ways in which the city could grow vertically. Towards the end, I began to settle on the idea of horizontal bars, stacked and porous, supported by vertical towers of some kind.

Main goals for thesis

Accommodate future growth while preserving evidence of history
past present and future

Public life

Unlimited modularity of new house in new structural system

Not developing a specific building, but more like a party for vertical urbanism. Alternate to present.

Explore growth over time - plan for the present, but also near future, just as city grid did

Develop strategy for dealing with natural light

Seed for growth, with possible extrapolation towards future

Not an overarching physical framework, but overarching strategy for dealing with growth

The goal is to fill gaps in the 3d urban fabric

Span between blocks in NS direction

• Because 200' is too small for major development, it's mostly mid-rise

Establish bases at longways midline & 1st block

Option A - Opportunistic - towers built wherever possible, but span between
towers wherever it works, filling in with mid-rise

Option B - Rigid - towers' position set on each block, base heights established

Primary goals

Accommodate vertical growth of the city while promoting an additive process that preserves existing conditions.

The city is the physical manifestation of years of history created by humans. It is an organic collection of individual elements that comes together to form our home.

Develop a strategy, rather than a prescriptive framework, for dealing with the additive vertical expansion.

This strategy will be expressed through specifically designed elements, but will present a possible system for thinking about the problem. If successful, the idea would catch on and, through natural forces, become the city's organization.

Secondary goals

Promote community living by slightly reducing private spaces and slightly increasing public spaces.

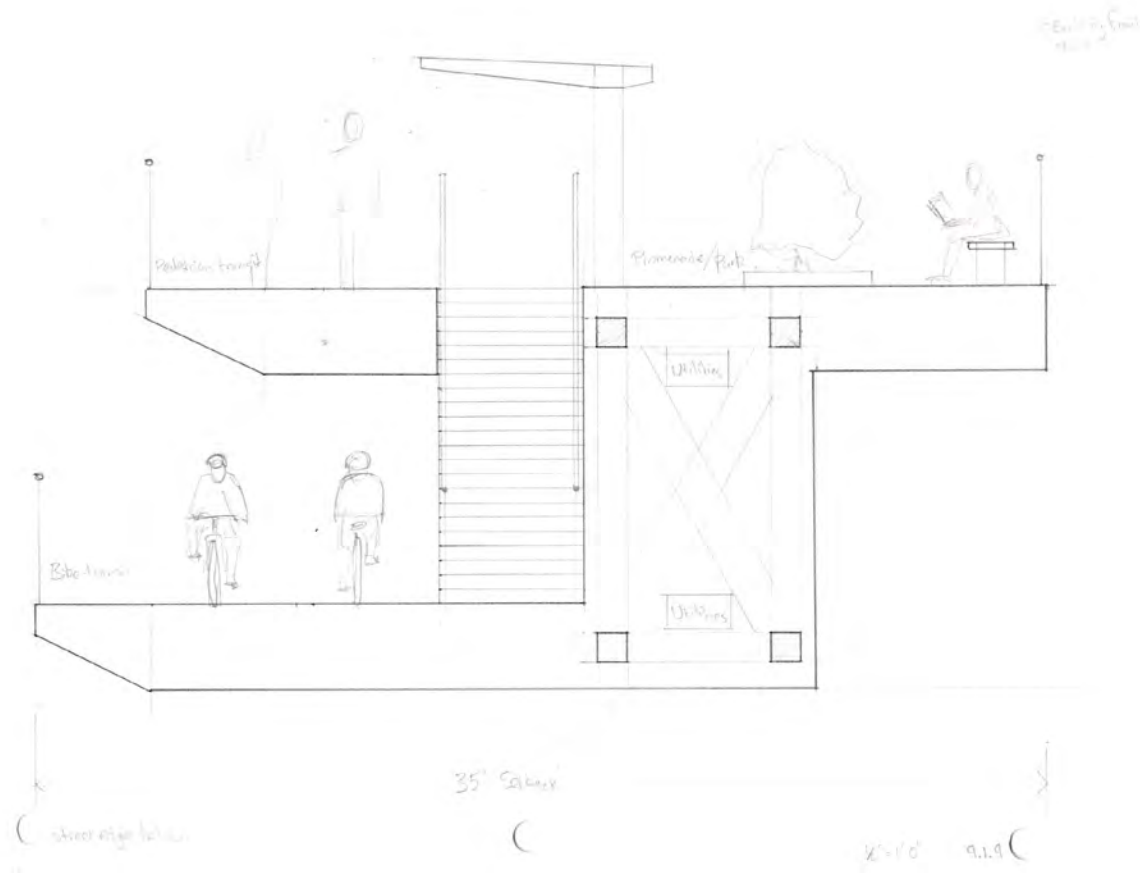
Towards a sustainable future, shared facilities reduce resources expended and space occupied, while also bringing people closer together.

Provide raised public levels that initially act as park space, but that, when density supports it, can become raised street levels.

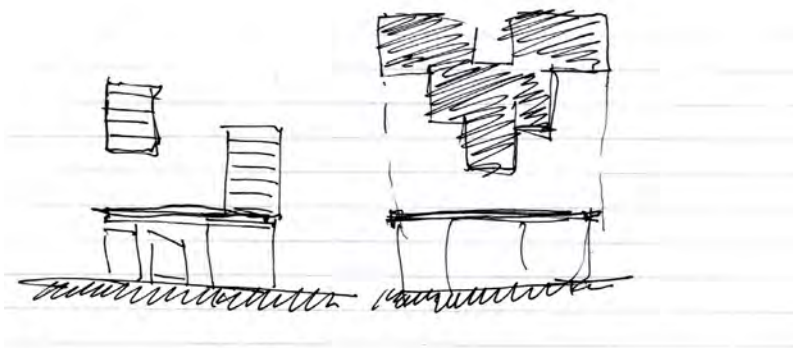
PlaNYC states that Manhattan's sidewalks currently only support transit, and limit the use of sidewalks as public spaces. The scheme will create dual-purpose public promenade spaces/pedestrian transit routes.

Accommodate the individual expression of each contributor to the additive process.

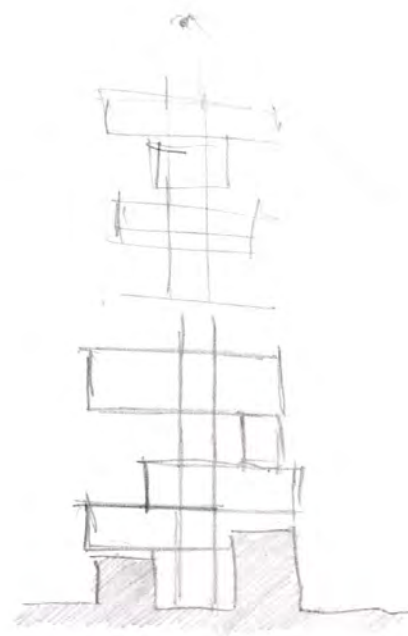
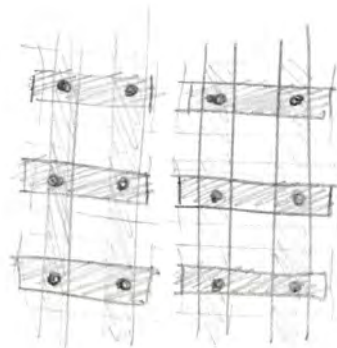
This system of growth will be a framework in the same sense as the city's street grid system. Within that grid unit, however, the architect is given great freedom. This system will do the same.



To begin the Design Studio, I set about establishing clear goals to ensure that I would stay on track. The primary goals were general enough that they would not limit the project, but rather maintain a strong conceptual basis for my solution. The secondary goals were less fundamental ideas, based mostly on earlier writings about architectural intents. Not all were realized. To actually begin designing, I spent some time thinking about the experiential scale, as shown by this sketch of an elevated walkway and garden system. The project would mostly be about the large scale, but would also need some resolution of the human scale.



Needs to start as a smaller intervention - a small seed



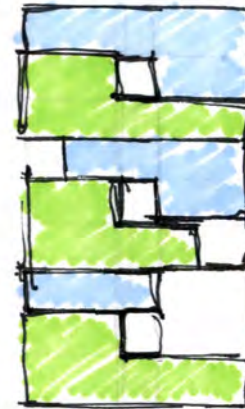
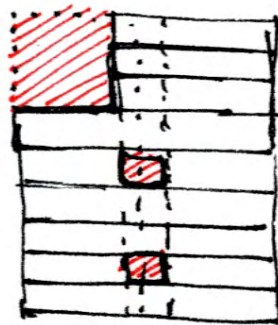
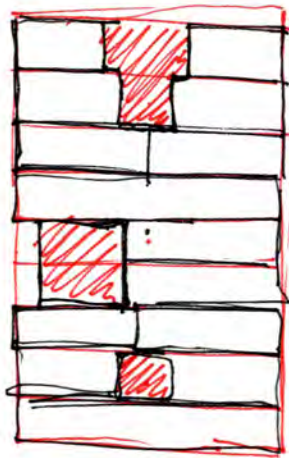
Horizontally biased vs Vertically biased

— Towers that support bars

— Bars supported by towers

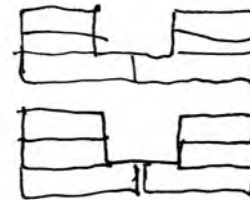
Interaction of 3 elements

- Parks/path/elevated street
- Bars of program
- Vertical connections



Use newhouse typologies off main street
'jogging track' / ways to get somewhere
exercise stops on path

rethink 4a

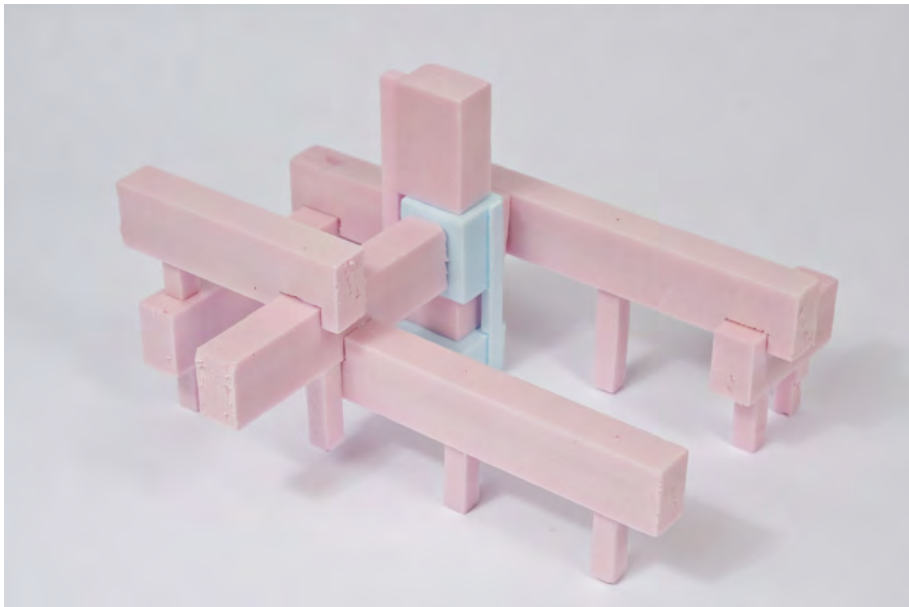
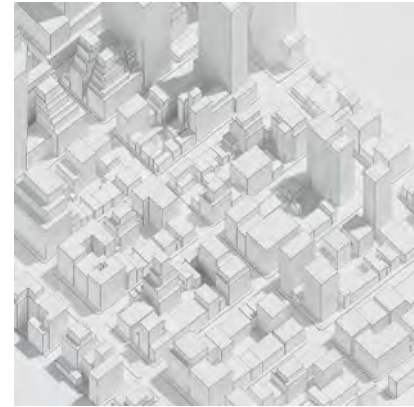


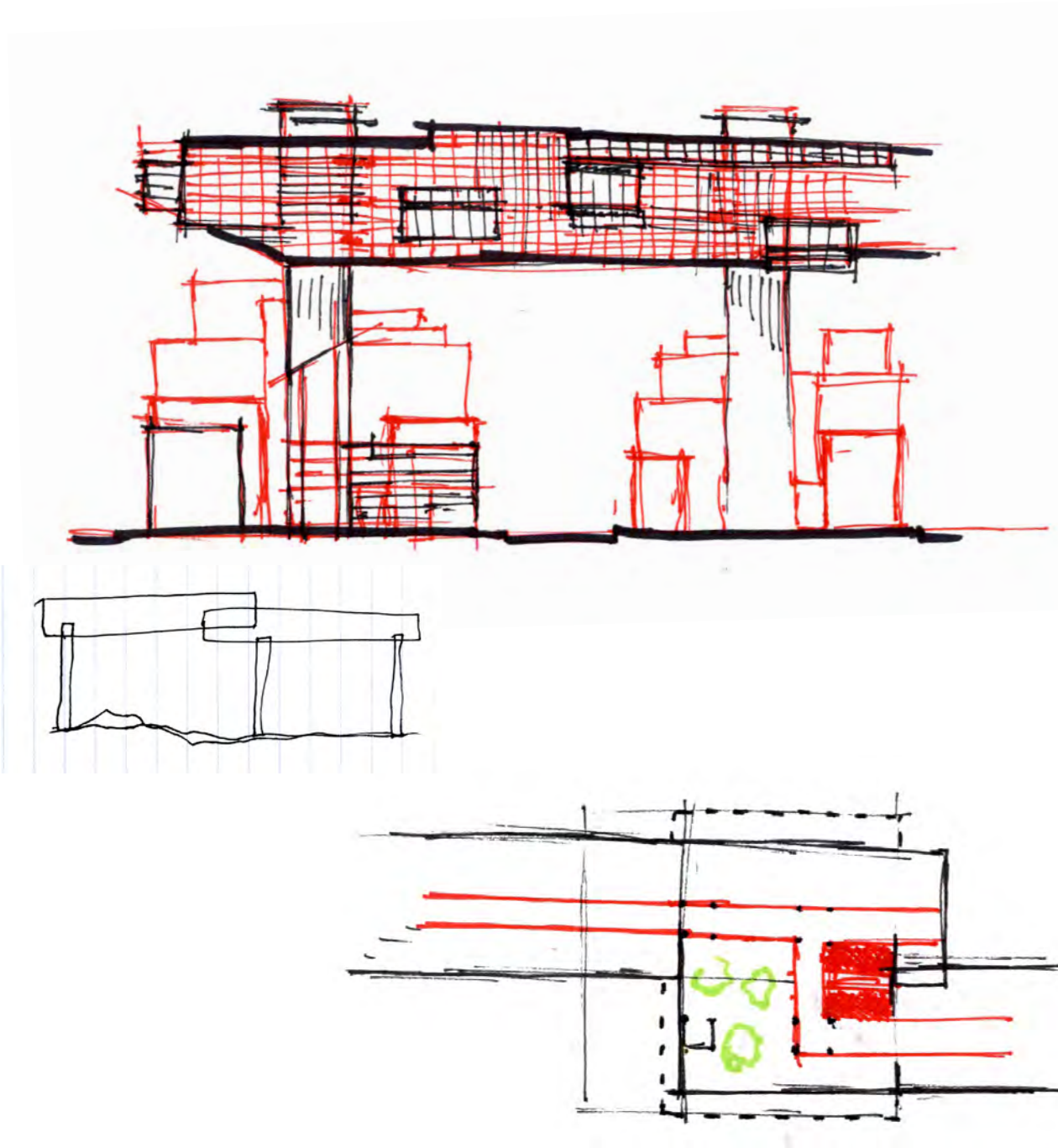
At the largest scale, I began looking for overall strategies to add to the city with consideration for the previously stated goals. Issues of sunlight became challenging immediately. I did not want the scheme to loom over the streets and cast ominous shadows, but a certain amount of density was needed. The first modeled scheme was a strict series of bars, each including the full range of program, that fell on a specific grid overlaid over the city. Where possible, the bars would exist. Where blocked, they would not exist. I also began to look sectionally at the bars, studying how circulation and program arrangement may work.

Towers as connective element, main anchor to ground so it's not just floating



Where does the public space occur?
Maybe the center of each neighborhood is a porous tower that the bars feed into.





It soon became clear that a major connection to the ground would be necessary. From this realization came a scheme in which horizontal bars radiated out from a single tower. This tower would provide both a circulation and programmatic connection to the existing urban fabric. It would be the interface between the new and the old. I began to look at the character of the bars more, and also took a first look at the point of intersection between bars and tower.

Heavy retail shops at ground floor

Upper central area

Mix program

Some public amenities mixed w/ neighborhood center

Amenities for bars

- Small green spaces
- Lounges

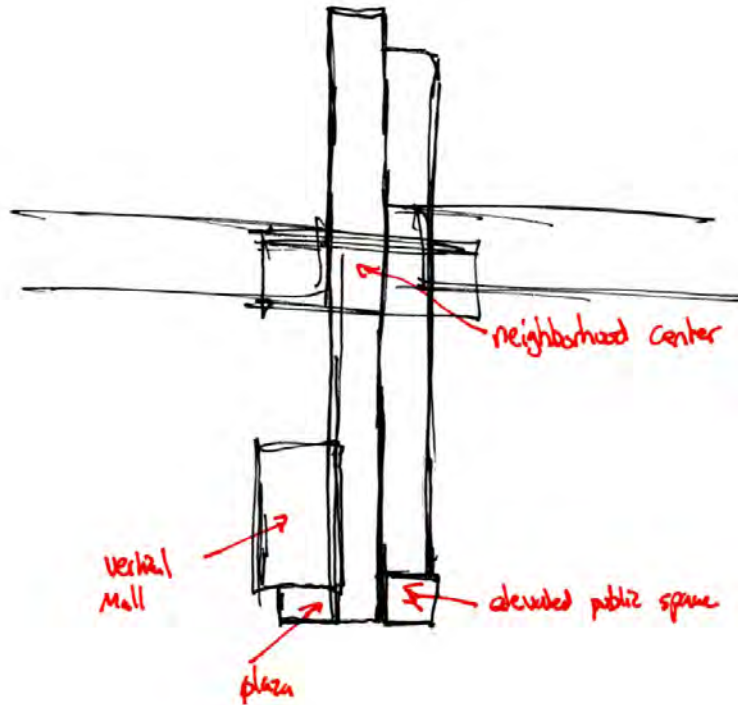
Hotel?

3 wrapping bldgs.
Green space
Public space
Pavilion space

Amenities for intersection of bars

Public

- Reading room
- Spa/health club
- Cafe
- Library (slow paced)
- Daycare
- Restaurant
- Contemporary art institute

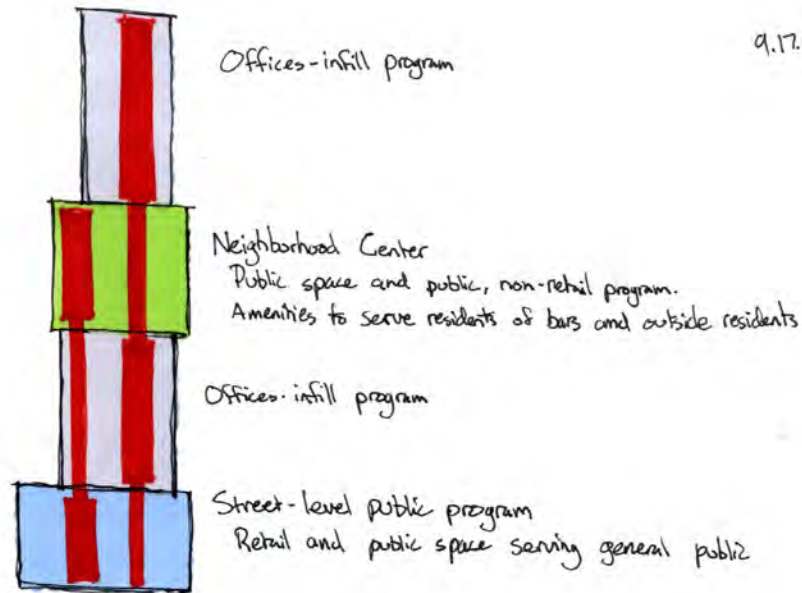


Qualities of Nexus

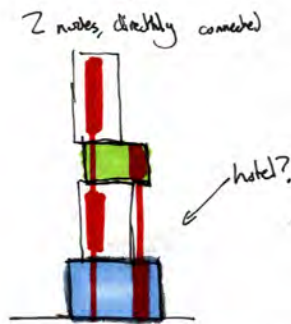
Bars push in and dissolve
Public space, free of ownership
Clearly defined in opposition
to office program
Multiple scales of public place
Direct outdoor connection to
bar-top green spaces
Character that relates to bars,
Contrasts to office,
Variety of form
Transparency, layering

hierarchy of public space

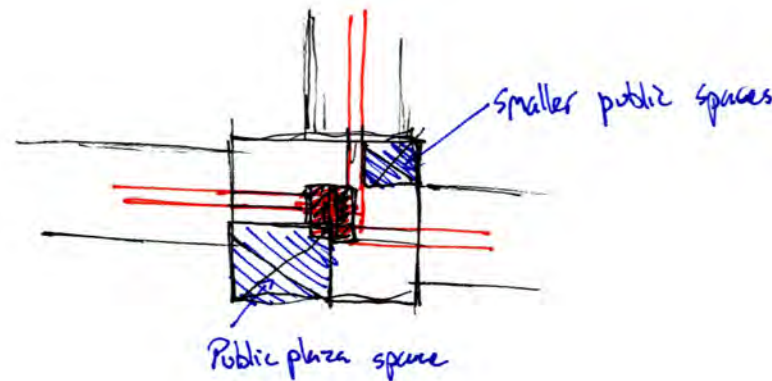
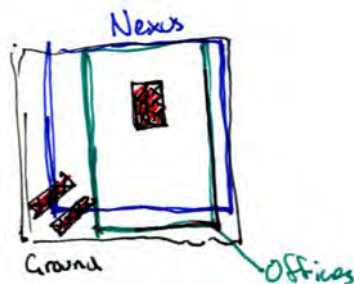
1. Street level / first 8 floors
2. neighborhood center; connection of bars
3. small spaces within bars

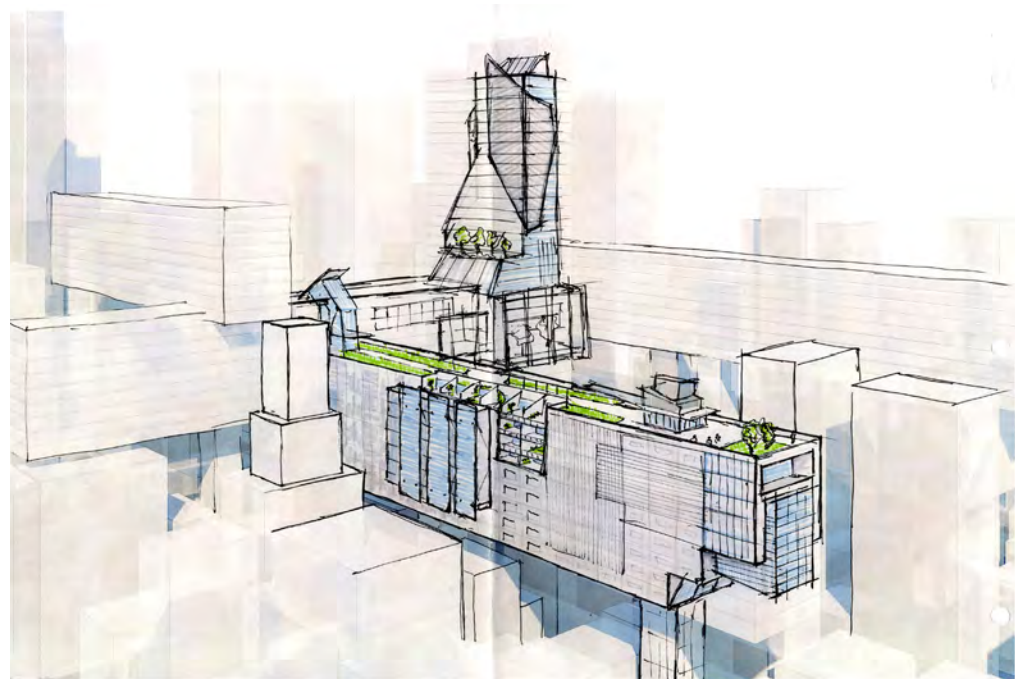
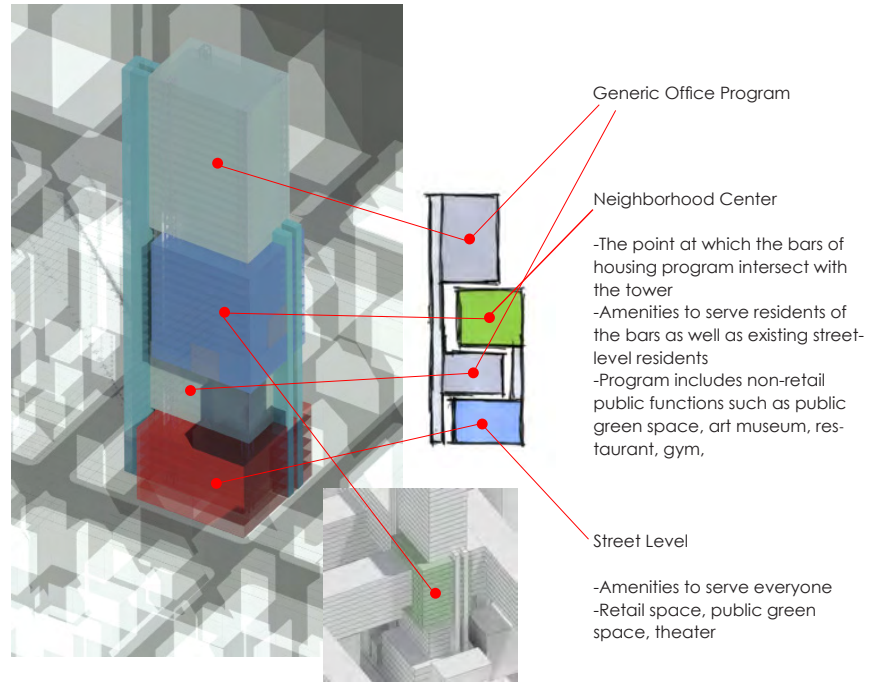
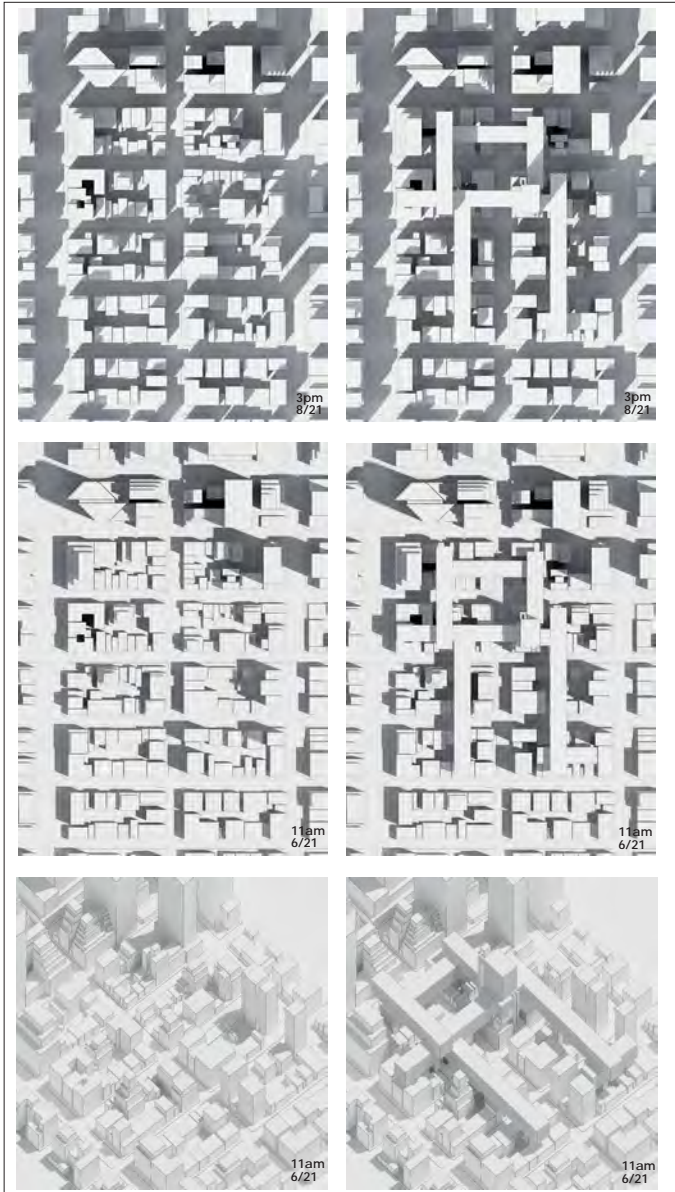


9.17.9



Once the scheme included a tower, the programmatic distribution became more clear. The bars would primarily be filled with housing. The tower would be filled with office and public spaces. Two separate groups of public spaces exist. At the ground level were public and retail elements intended more for the use of the existing ground-level residents. Mid-way up the tower was another group, here titled the neighborhood center, that sat at the intersection of the bars and the tower. This block contained public and retail that was intended for use by residents of both the new structure and the existing neighborhood. The rest of the tower was made up of office program that had a separate system of access.

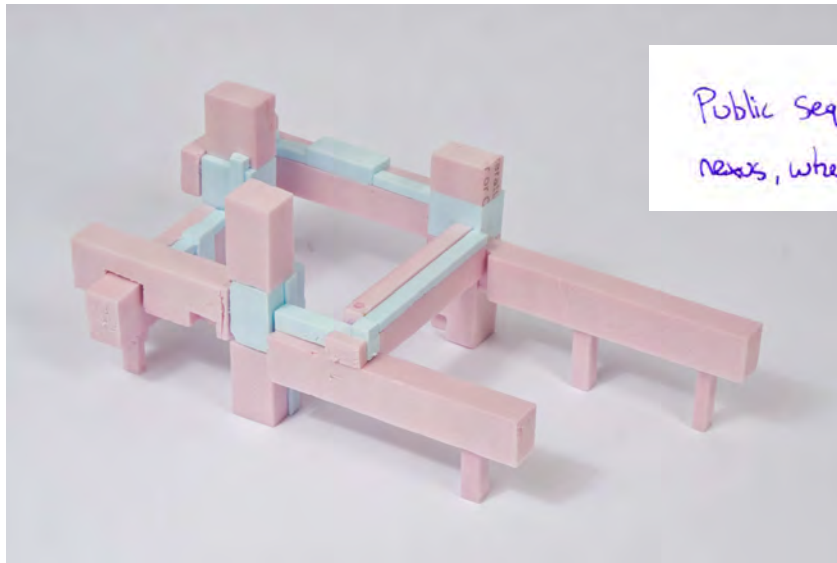




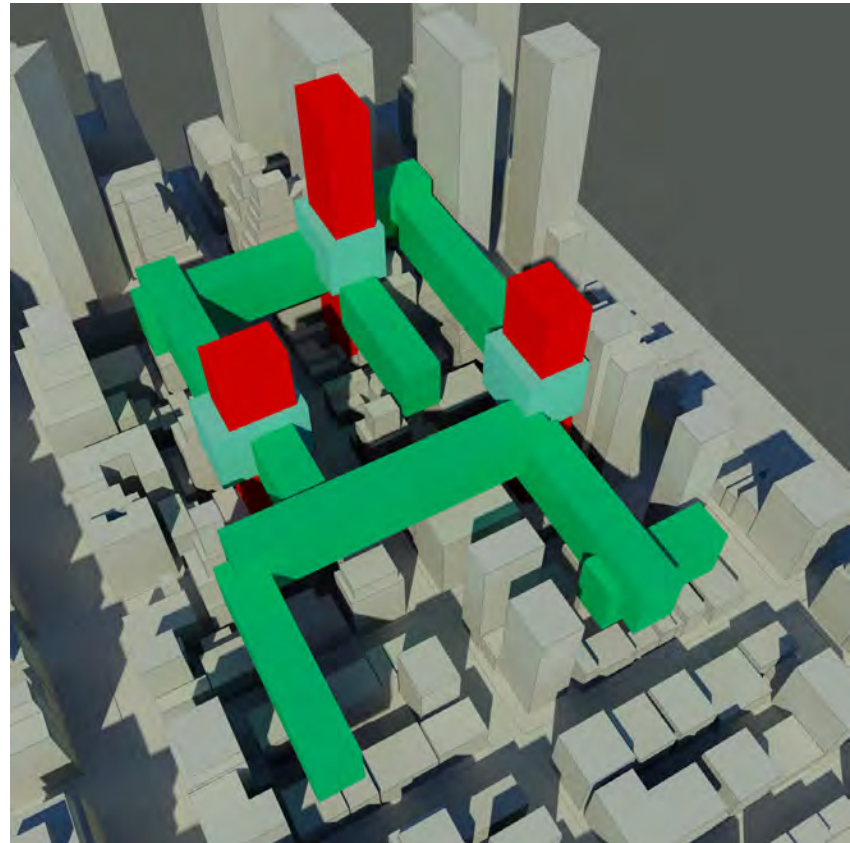
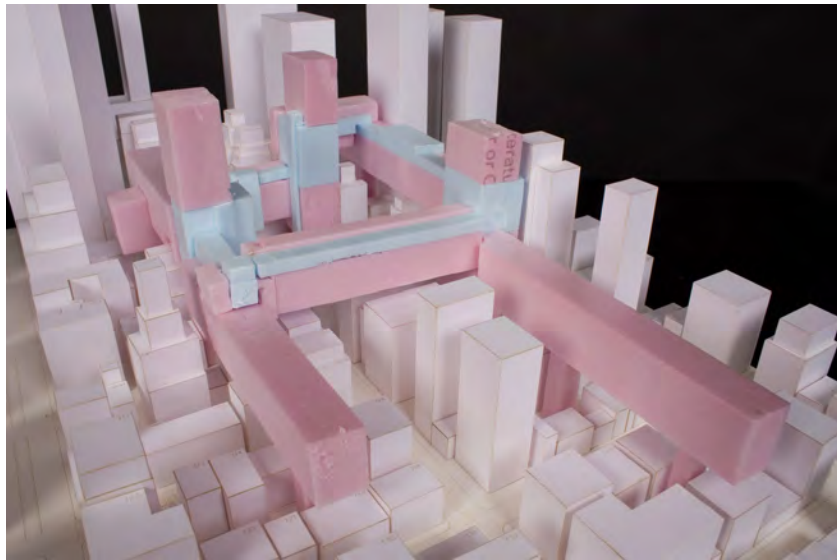


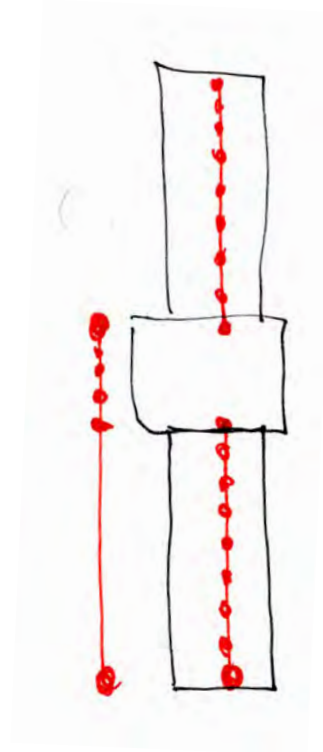
These are the images presented at the first design review of the semester. The perspectives begin to show some of the character that I had in mind. At this point the idea of a public sequence was not well resolved, and circulation within the bars was unclear. The most significant criticism during the review was that there was little possibility of a sequence, and little reason for the public to enter, because only one node existed.



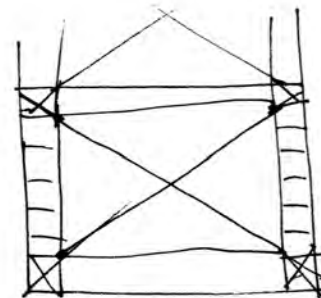
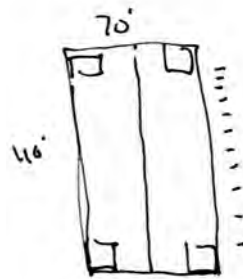
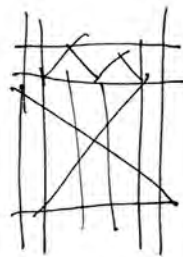
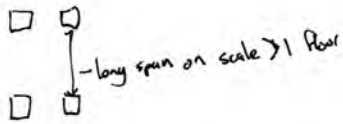
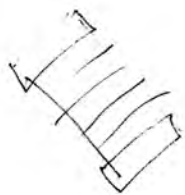


Public Sequence is a band that is continuous around rooftops and passes through
 nooks, where it can be jumped onto





After analyzing the criticism from the first review, I clarified the idea of a public sequence running throughout. The addition of two more towers allowed a clear public sequence to emerge in the form of nodes (towers) with linear connections (bars). This led to the simplification of the towers into simple office space with a single public node, falling at the intersection of bars and tower. At this point I began to develop a structural strategy and simplified circulation diagram for the tower.

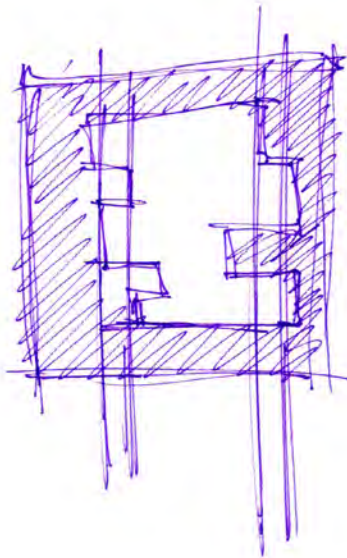


Nexus is the public forum - needs to be a single cohesive space off of which everything is accessed

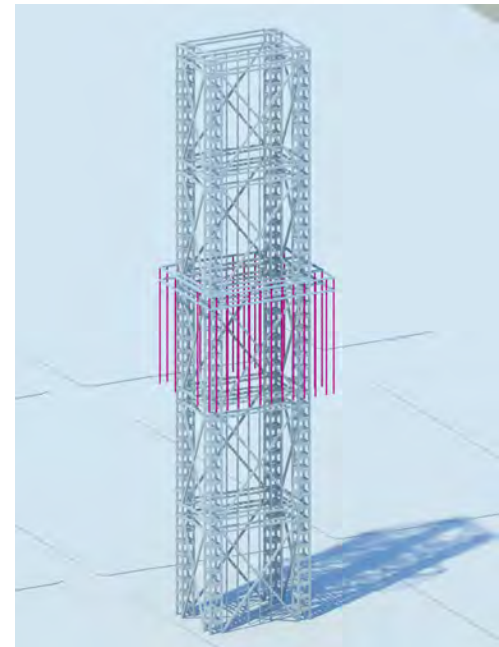
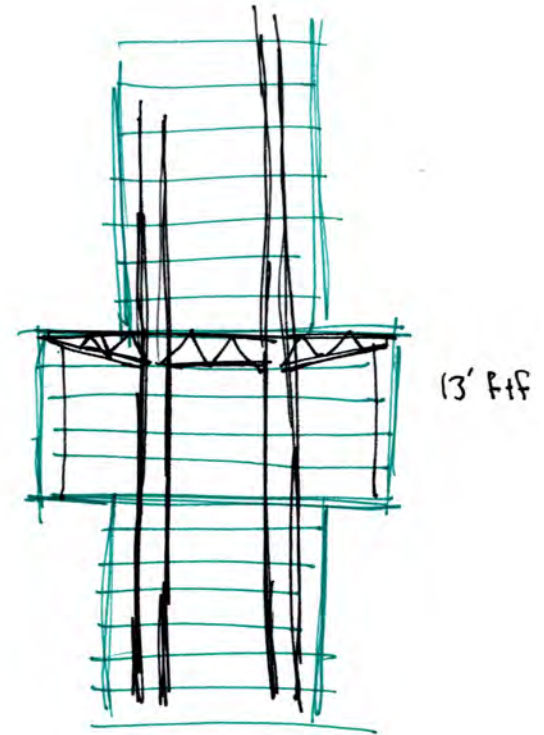
South facade uses deciduous trees as sun shading, with 100% operable glass behind
Top 1-2 floors can be structure from which other floors hang

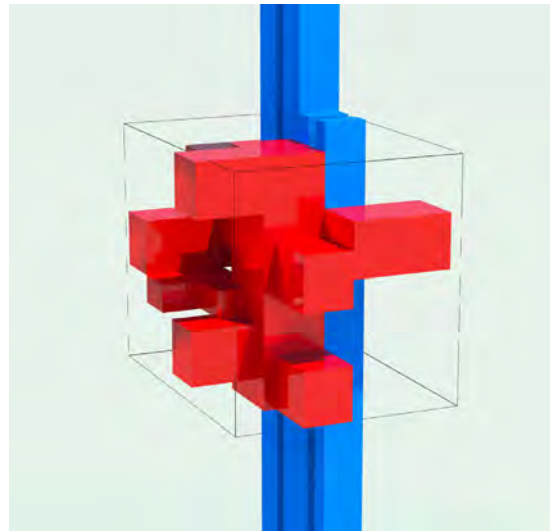
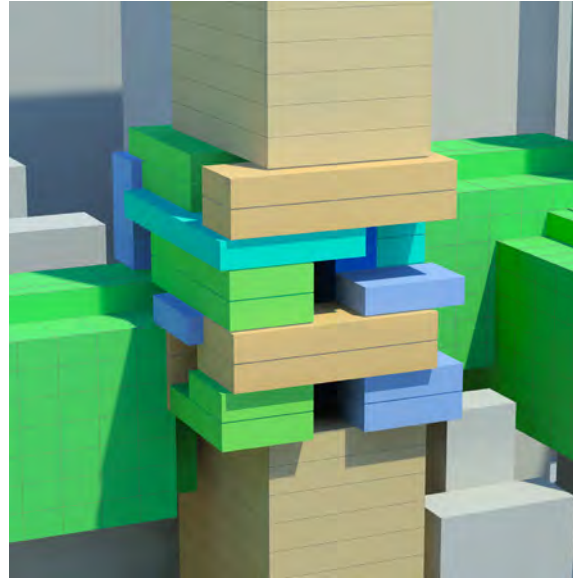
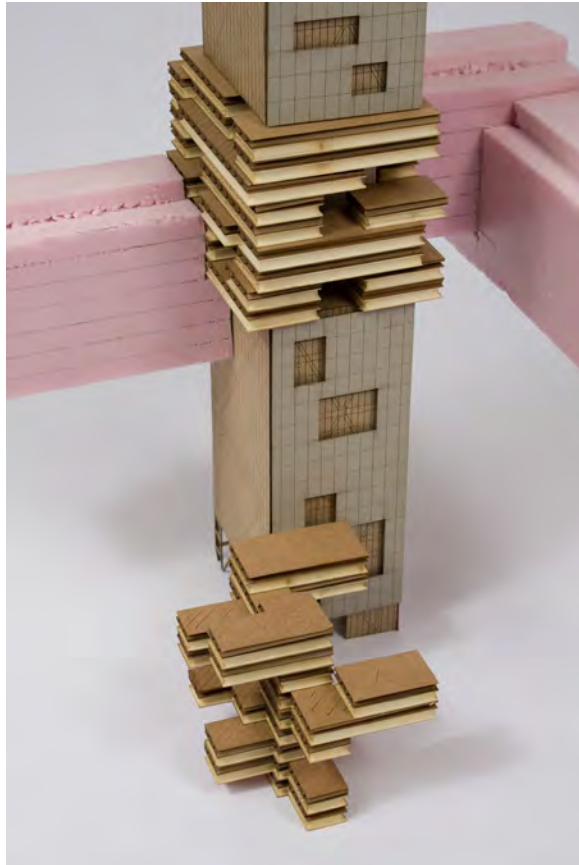
Has to be organized around central space, a core, perhaps on corner, so everything can be seen from one place, like vertical mall, but green space. Open to air when appropriate. Seems more like public space than mall.

Offices should look fairly uniform - the background
Nexus should look wild and exciting - the object

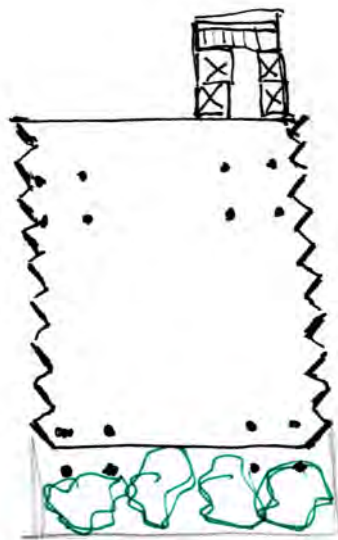
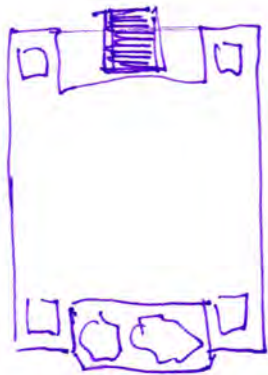


Program
Night club
Restaurant
Retail
ICA
Daycare



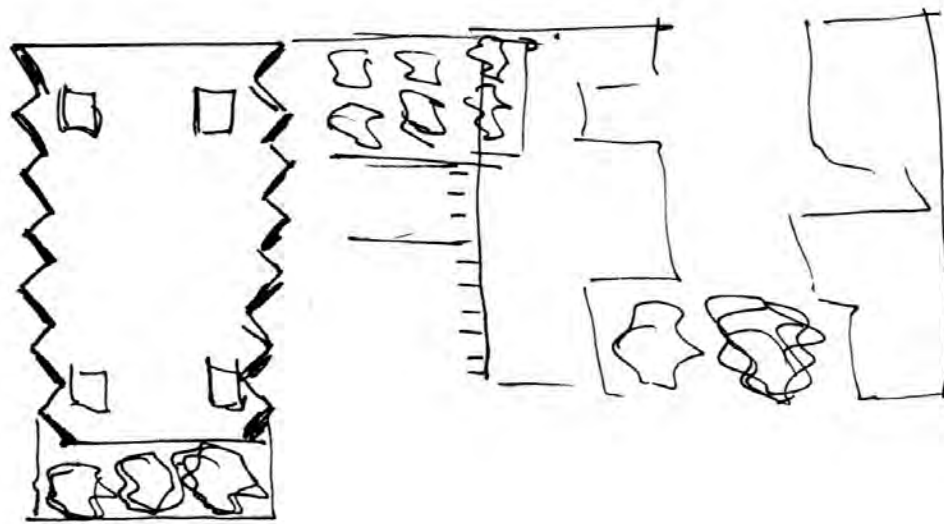


At this point, the neighborhood center, or Nexus, became the focus of design. I intended to resolve it to a moderate degree, but not as clearly as the housing scale. I set some guidelines for the nexus, most notably that it would be organized around a central space, analogous to a public square on the ground level. I also began thinking about the specific pieces of program that it would house, and an early idea of structure.



← Could just be green screen trellise stuff

Office tower does not seek to depart too radically from the context, grounding the building in its place. It does, though, reinterpret its neighbors with some environmental concern

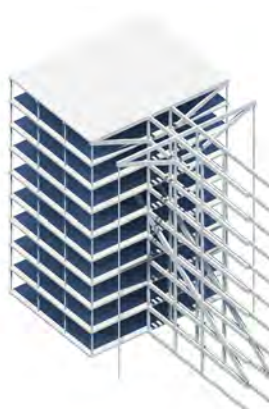
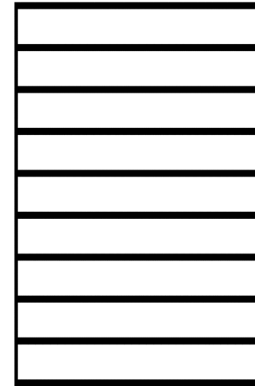
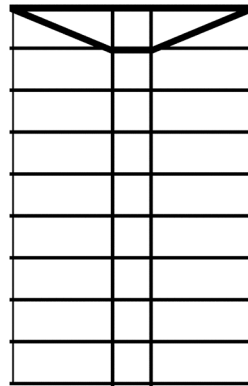
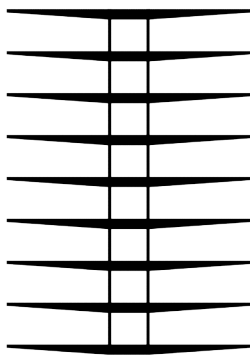
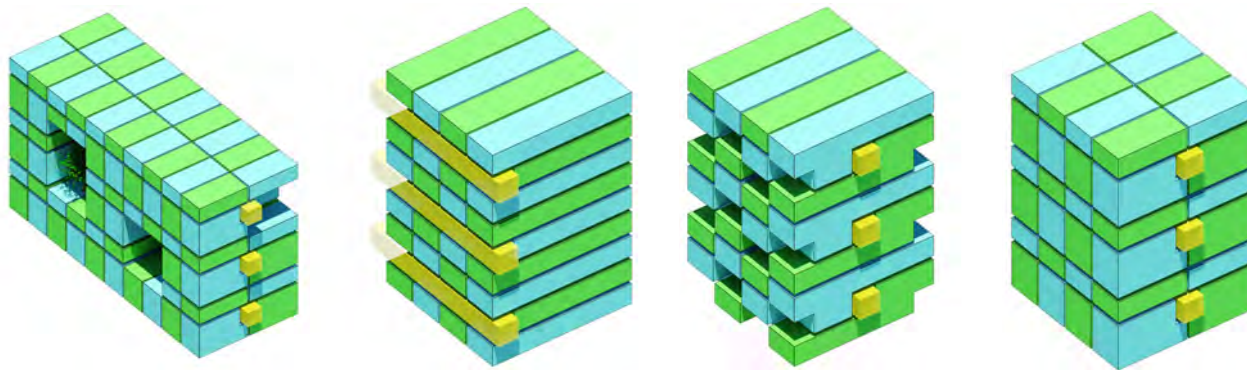


South needs shade

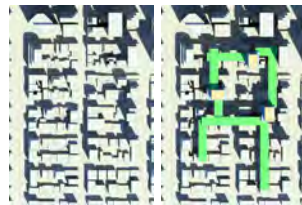
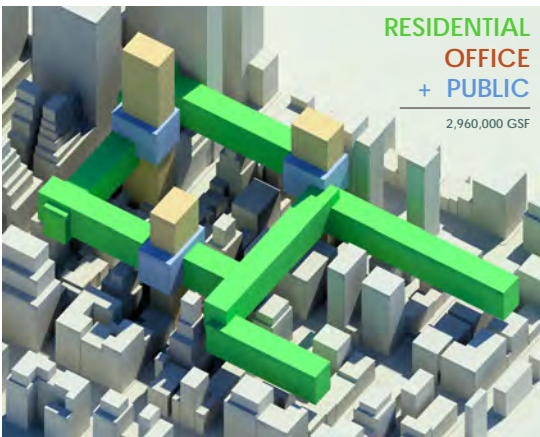
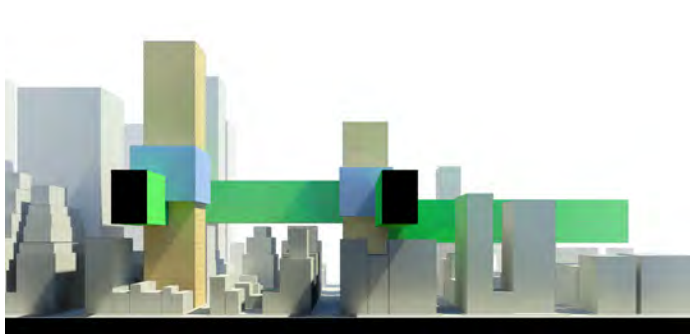
North needs glass

E/W need opacity
or north-facing light collectors

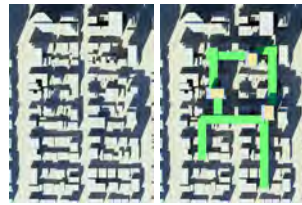
Upper office
connected through news



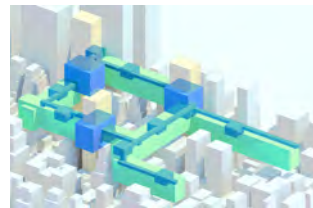
Next I took a first pass at designing the office space, which would occupy the entire tower except for the nexus. In general, it would be a mild reinterpretation of the typical office space, but would have unique facades based on solar orientation. I also looked at several options for the arrangement of units within the housing bars, as well as choosing a structural system from a few options. The chosen structure, seen on the left, would include a large truss down the middle with cantilevering beams to support the floors. It would have an 18' horizontal meter and 13' floor-to-floor height.



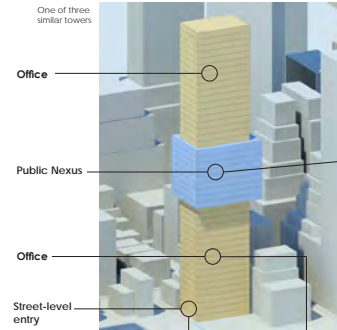
August 21 - Morning - Before/After



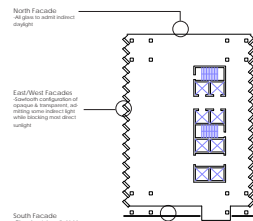
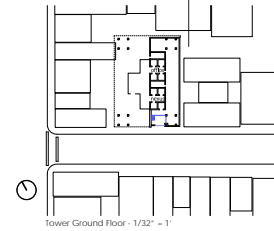
August 21 - Afternoon - Before/After



Elevated Public Sequence



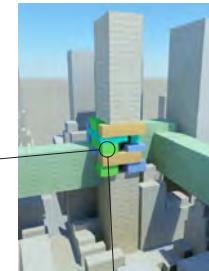
The office office is a relatively timid reinterpretation of the context (Mexican glass boxes) in which the building is located. The office ties the building to its place, but presents some ideas regarding a more environmentally-considered approach. Each facade of the glass box is treated to respond to solar orientation, and the structural scheme is presented as part of the character of the building.



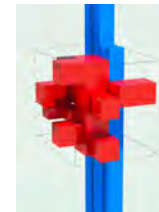
Typical Office Plan - 1/16" = 1"



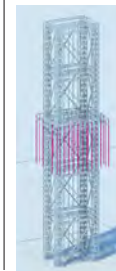
Office Plan of Intersection with housing - 1/32" = 1"



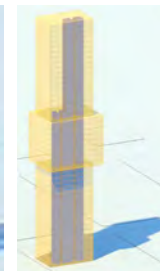
Form of Public Nexus



Void through Nexus



Tower structure



Tower core

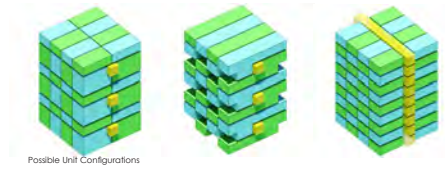
Public Nexus
Program includes amenities available to the general public as well as residents of this complex. Program includes:

- Retail
- Restaurant
- Night club
- Library
- Daycare
- Small grocery store
- Public non-commercial space

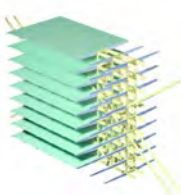
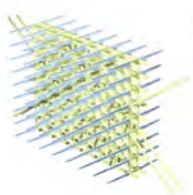
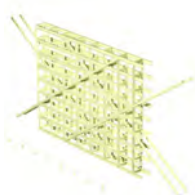
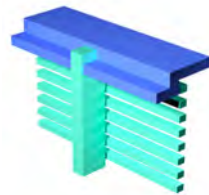
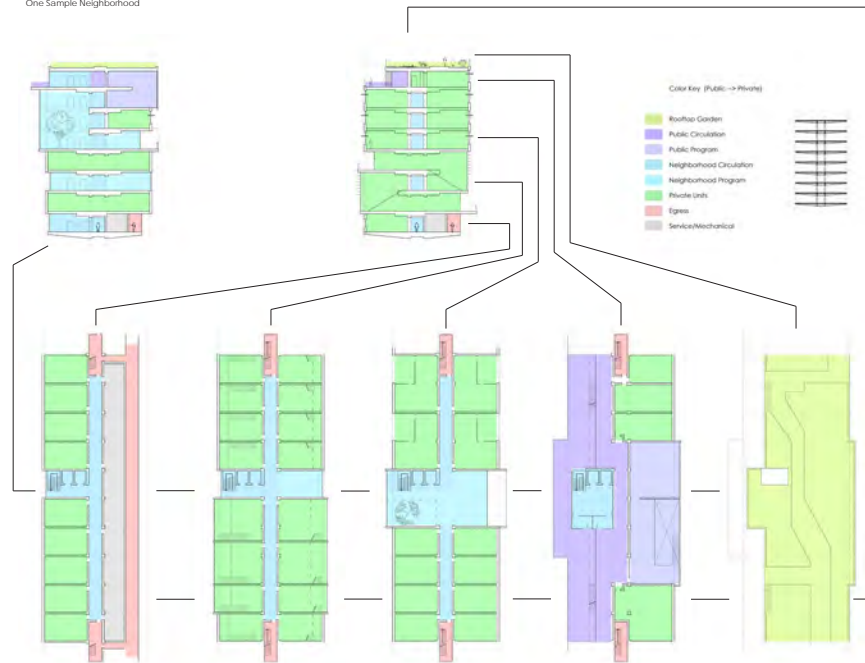




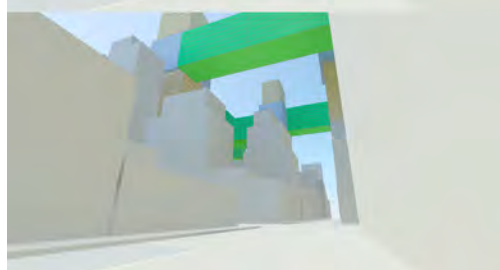
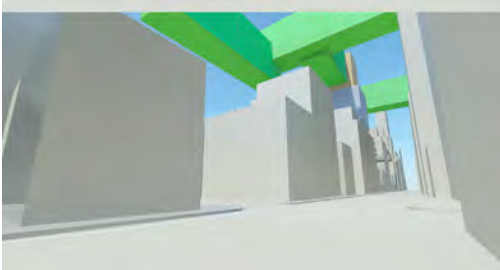
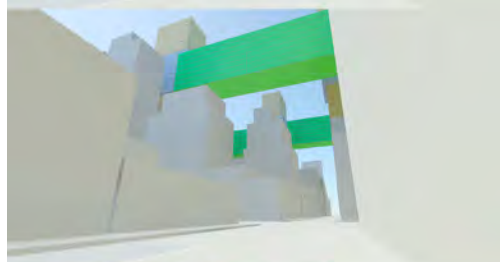
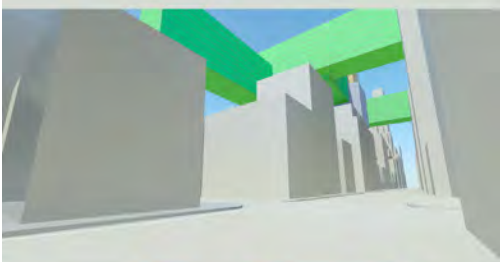
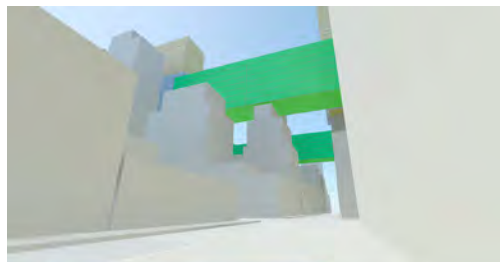
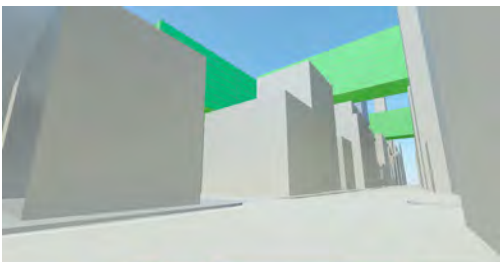
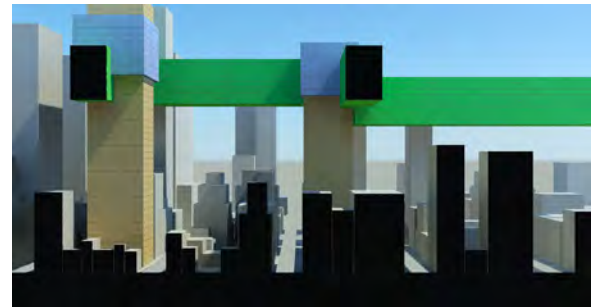
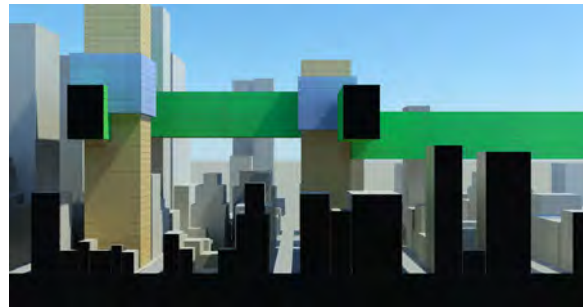
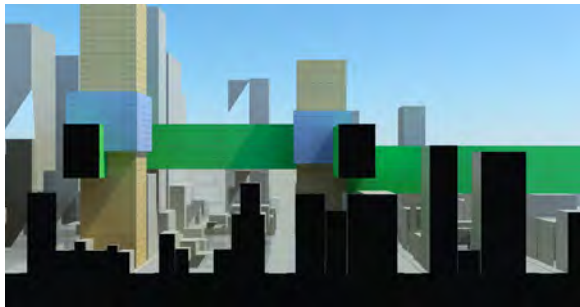
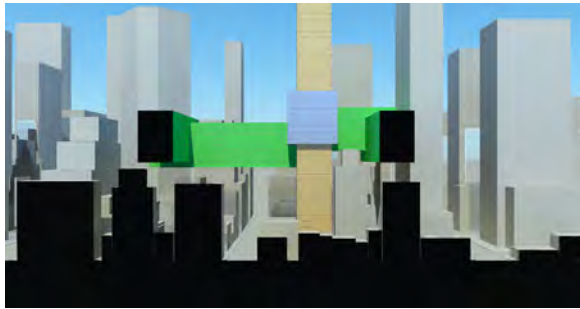
One Sample Neighborhood



Possible Unit Configurations



These boards were presented at the second design review and represent the updated resolution of the three-tower scheme. In addition, I had divided the housing bars up into neighborhoods of roughly 150'-220', each accessed from the public sequence passing throughout the complex. The most significant points of criticism asked how the bar heights were chosen, what the differentiation between E/W and N/S bars was, what the character of the public sequence was, and the clarity of the nexus' organization.



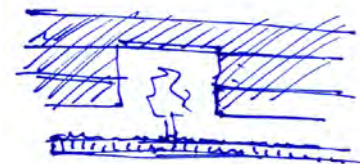
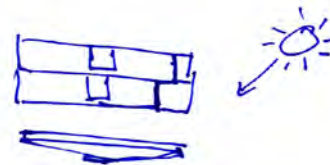
10/30/9 Crit

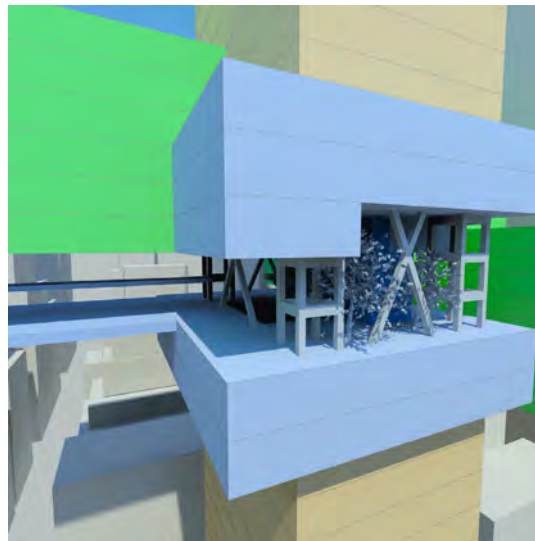
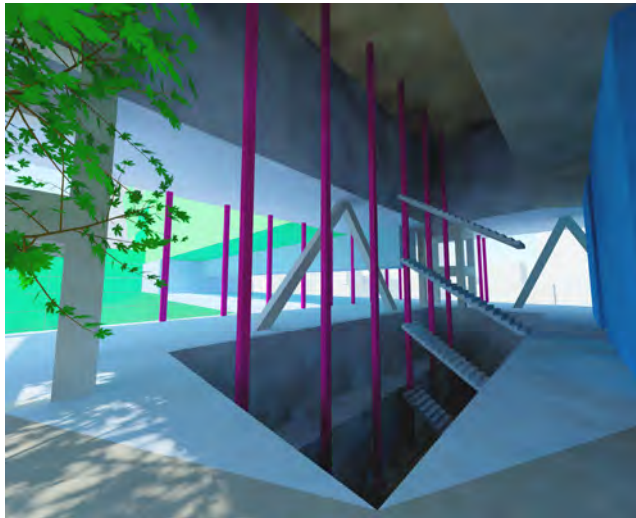
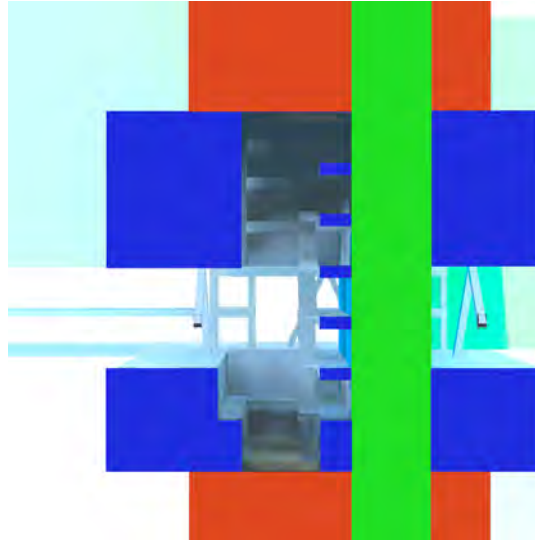
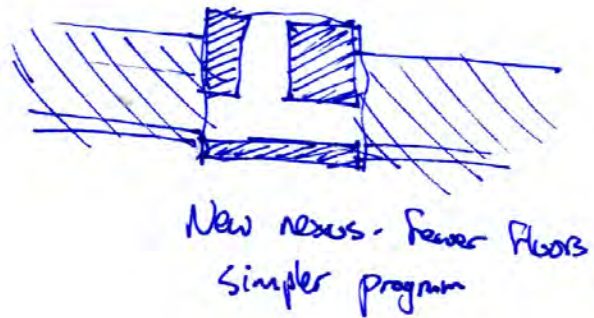
E/W bars - lower for morning sun - only visible from minor streets

N/S bars - higher for starker shadows, less visually obtrusive on major streets

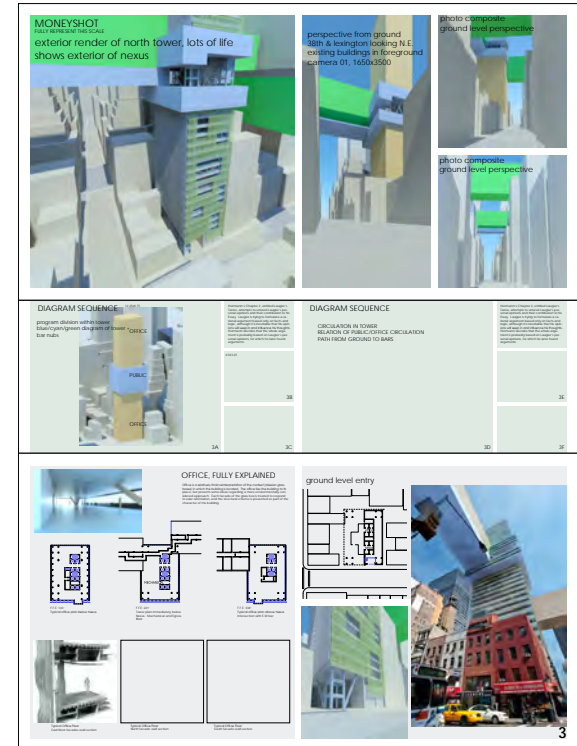
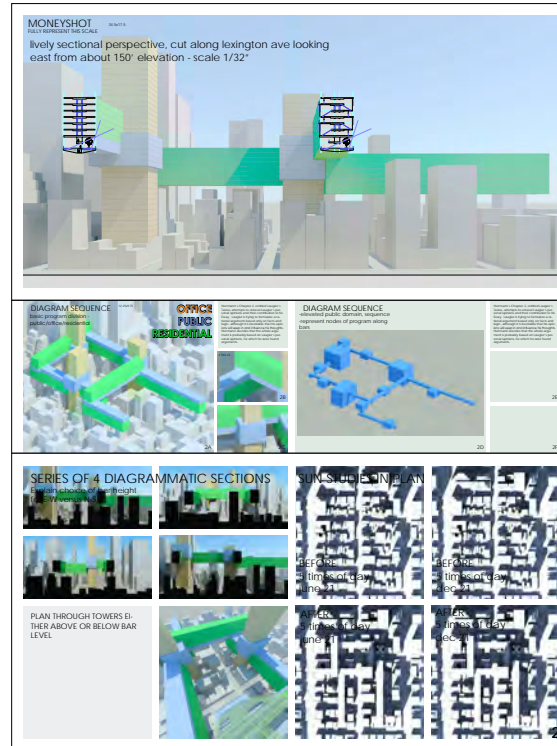
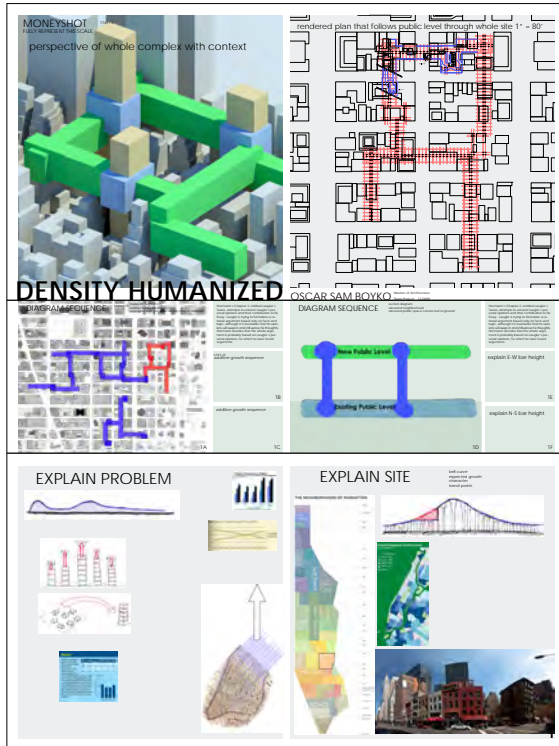
Public sequence happens on bottom of E/W bars

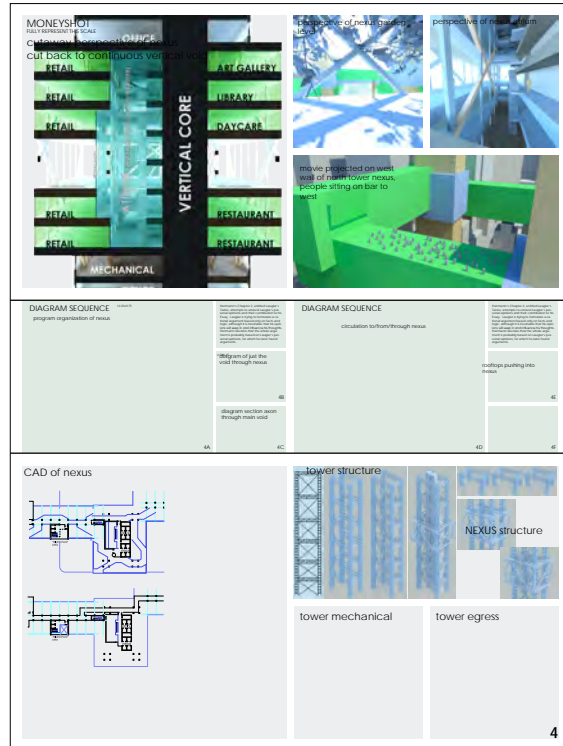
Double mechanical up, give some storage to units



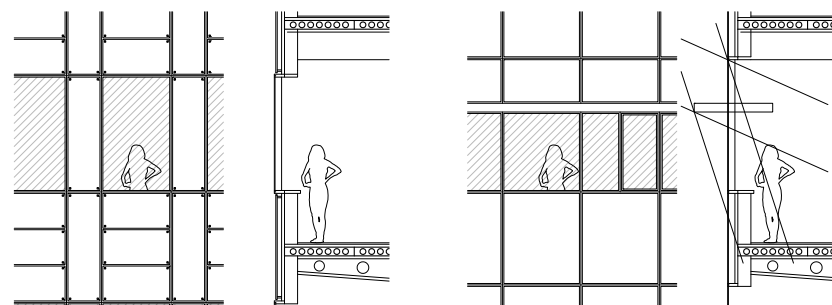
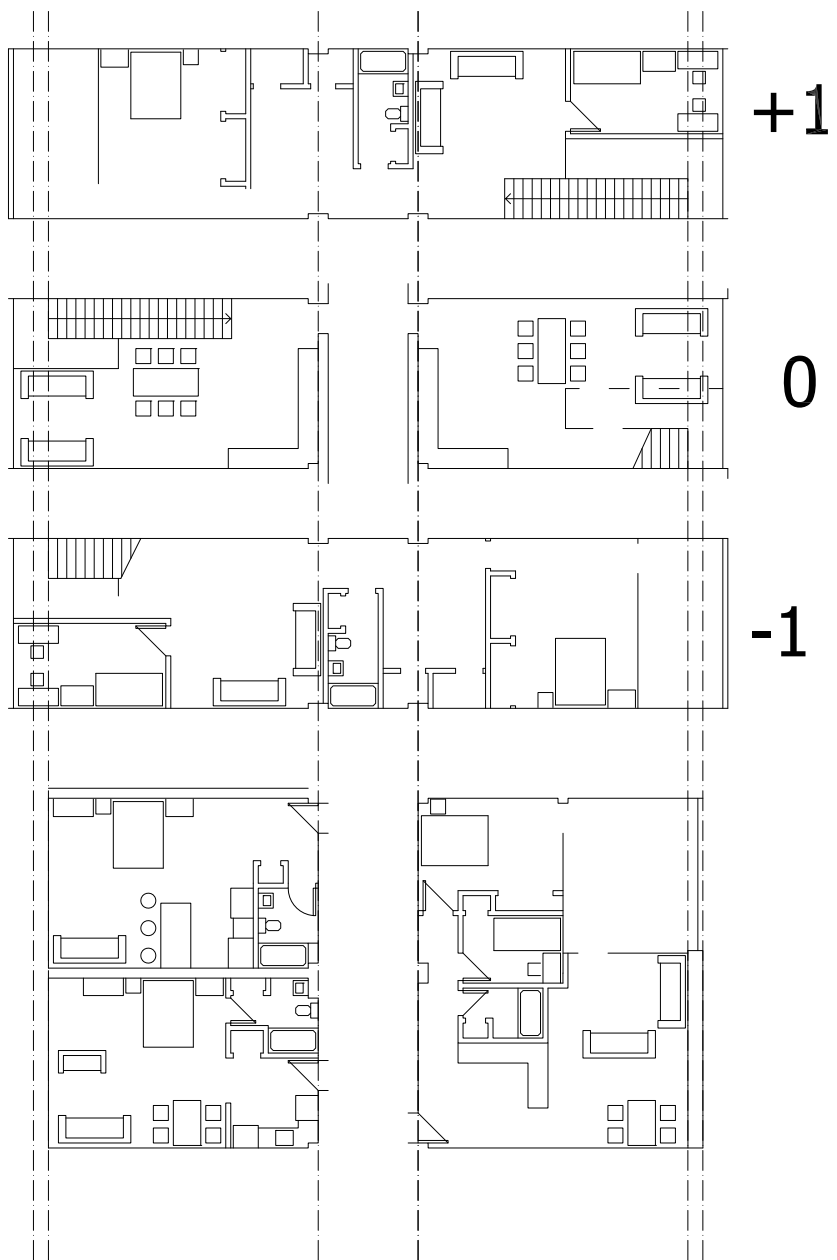


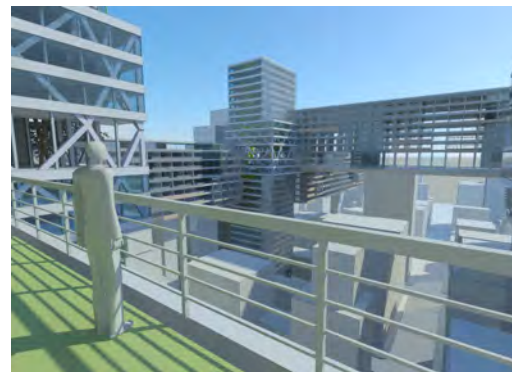
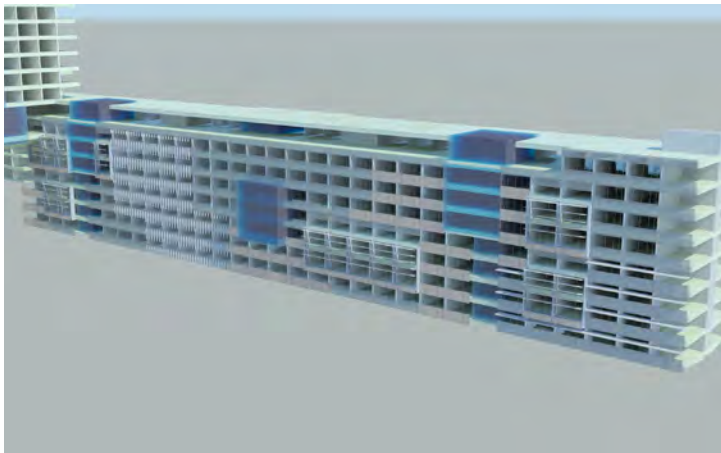
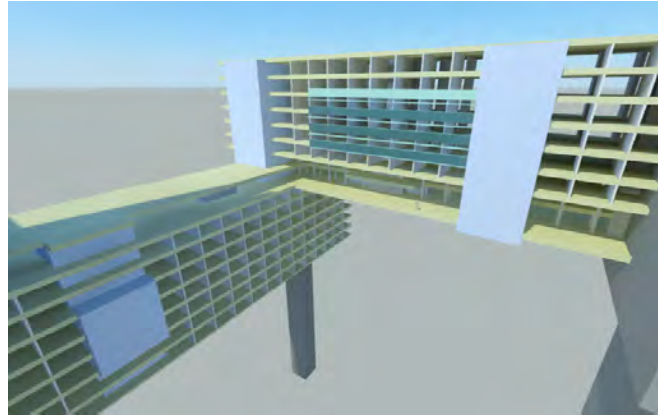
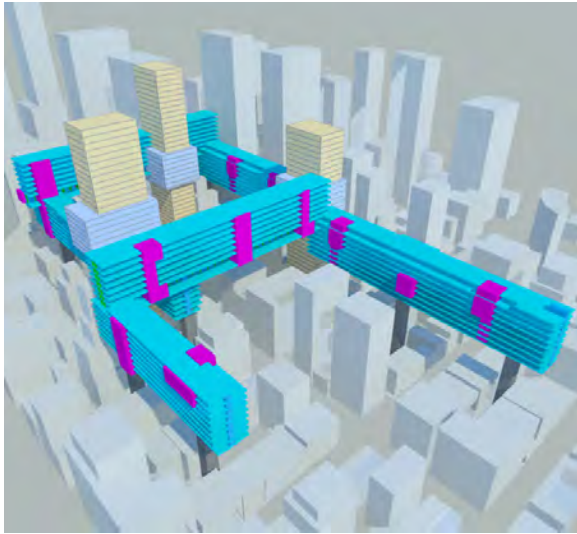
To determine and justify the heights of the bars I did a systematic analysis of several different heights. The conclusion was that N/S bars would be lower to conceal them from view from the avenues, while also taking advantage of the faster-moving shadows. The E/W bars would be higher to feel less obtrusive to the avenues while also reducing the effect of the slower-moving shadows. In order to maintain the whole public sequence within a smaller range of floors, I moved it to the bottom of the E/W bars and the top of the N/S bars. It also became appropriate to redesign the nexus with a simpler organization, now with an open-air public level and a single vertical atrium organizing the program.



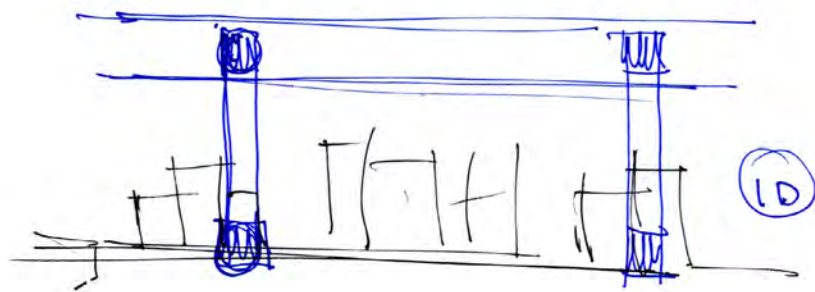
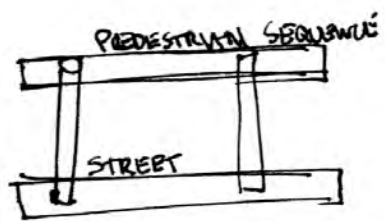
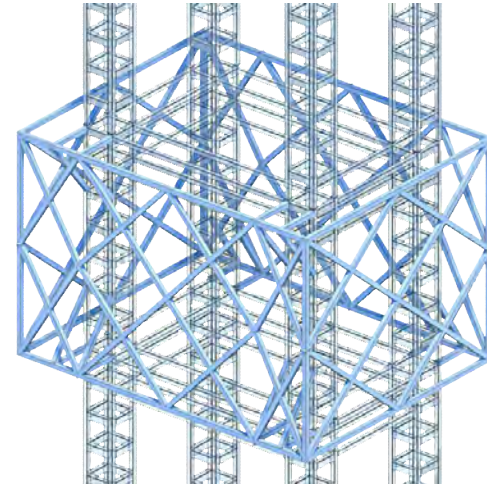
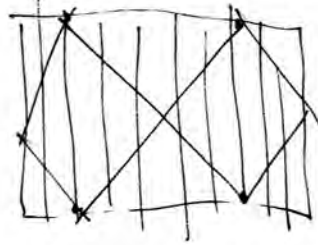
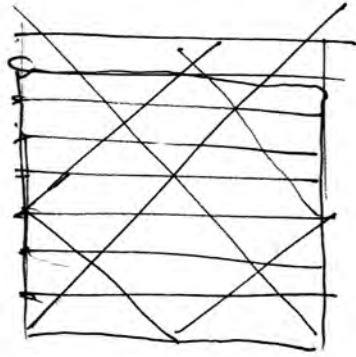


These are the five boards used for the gate review. They show the final page layout to be used, although many spaces are blank. The feedback was supportive, although I was asked to work more on the unit scale while also finishing my resolution of the overall project.





Nearing the end of the design phase, I spent roughly a week doing several iterations of unit plans, cladding details for the housing, and organizations of program within the bars. I began completing an overall digital model of the complex in order to finally communicate much of what was only in my head.



Density: an additive

Dec. 10, 2009

Housing - same scale as city block?

thought about alot, setting up problems and knocking them down.

diagrams are georgian se.

Density in policy planning approach.
what are ~~alternatives~~ alternatives?

Scheme 1: demolish and build up.

Scheme 2: New Jersey? TOD.

→ why do we need to build in NYC?

→ building @ higher densities in other cities. infrastructure is overloaded in NYC.

NYC is low density compared to Hong Kong etc.

o simultaneous experiences, street level then above.

o pretending that building footprints don't make buildings below/adjacent uninhabitable.

Cohen - pay for shadow rights -

→ Back to scheme one - demolish and build up.

why did you choose to treat the arch. singularity? more dynamism in the arch. less about the singularity of the idea.

- Had you

- Great project - Corbin is sold - look @ it as a master plan not a piece of architecture.

- perspectives convince (scale) that it works.
- not oppressive, envision w. diff. skins etc. futuristic in a good way.

- green screens, diagram for how to clad.

- image of construction, build like a bridge w. cranes.

- value character but arch. that you're creating - no sense of street.

~~value~~ saving community but what you're building does not.

- High line - tourists - what would happen here.

- Added certain kinds of public program along public walkway.

- tipping point to reasonable density that public policy would suggest densify other spaces.

- point at which density is bad?

- ground level bldgs. can slide up into tower, good, hybrid architecture.

- Paris

- Toronto: preserved neighborhoods - good stuff occurred along waterfront.

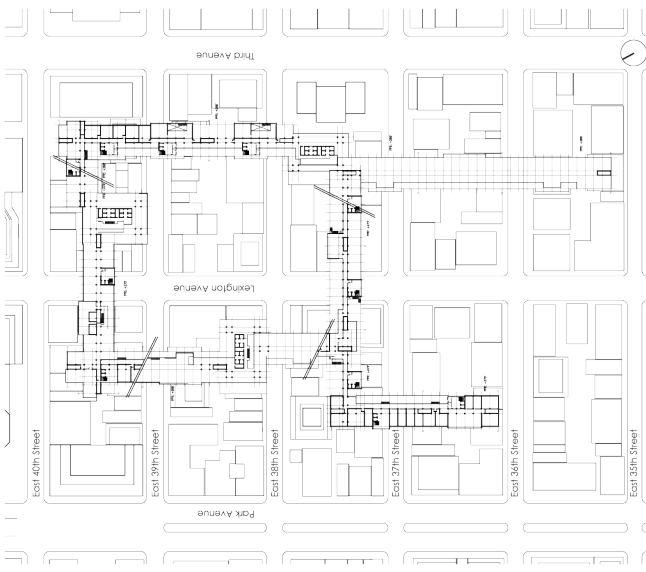
The nexus received further resolution, including an updated structural system and a more refined understanding of its organization. A significant amount of time was then spent refining the final presentation. The diagram sequence would be very important in explaining the project in a logical way, so each diagram went through a design process.

Responses to the project in the final review were overall very positive. Notes taken during the review can be seen here. The critics appreciated much of what had been accomplished, although with a project this diagrammatic, there were still many questions that could be explored in the future.

Appendix C

Final Documentation

URBANS SCALE 1



Elevated Level

Site

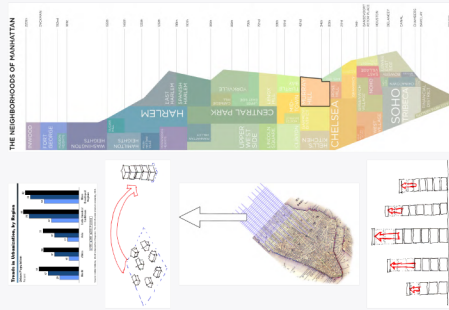
From 2000 to 2030, New York City expects a growth of 18.8% translating into 265,000 new housing units, as well as offices, retail etc. Murray Hill is a neighborhood southeast of Midtown, and is expected to have particularly large growth between now and 2030. The project seeks to fill a void in the overall averaged density of the city, as represented by this bell curve. The tall buildings of Midtown gradually disintegrate in all directions, but a particularly sharp drop off can be seen in these blocks of Murray Hill. The project is about filling this void, increasing density to preserve most of what is already there.

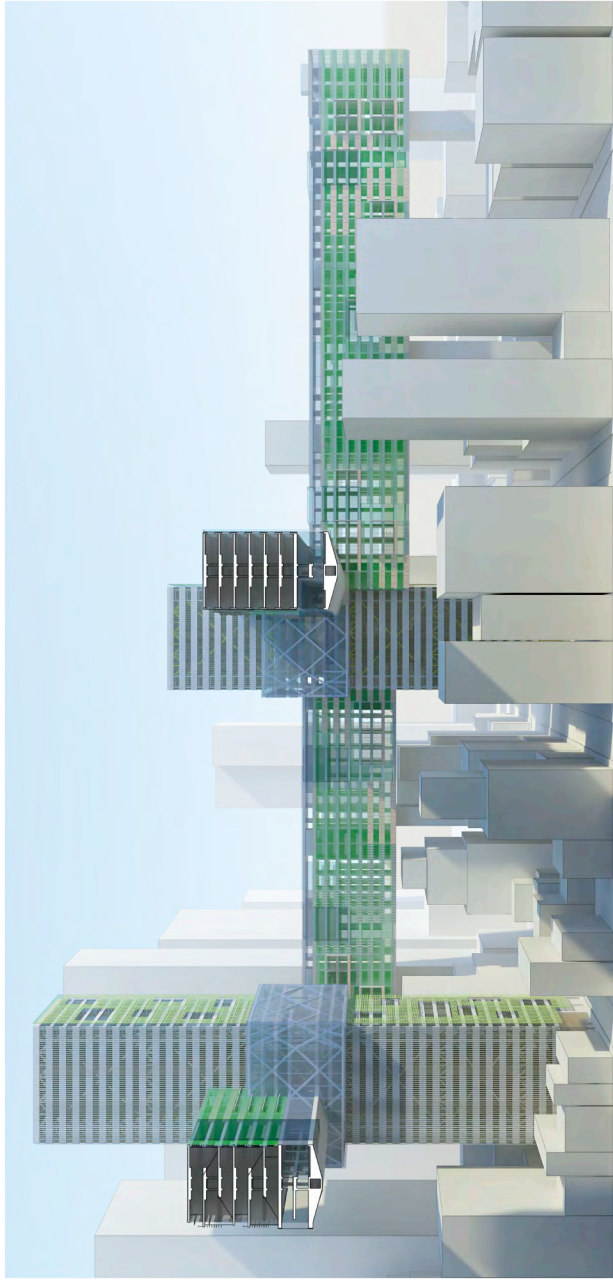
The project seeks to fill a void in the overall averaged density of the city, as presented by this bell curve. The tall buildings of Midtown gradually dissipate in all directions, but a particularly sharp drop off can be seen in these blocks of Murray Hill. The project is intended to fill this void, increasing density while preserving most of what is already there.

Overall averaged density of the city, represented by this bell curve. The tall buildings of Midtown gradually dissipate in all directions, but a particularly sharp drop off can be seen in these blocks of Murray Hill. The project is about filling this void, increasing density while preserving most of what is already there.

te in all directions, but a particular sharp drop off can be seen in these blocks of Murray Hill. The project is about filling this void, increasing density while to preserving most of what is already there.

out filling this void, increasing density while to preserving most of what is already there.





Section cut along Lexington Avenue looking east 1/32" = 1'-0"

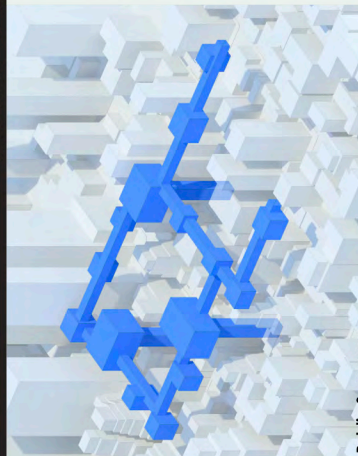
INTERVENTION SCALE 2

RESIDENTIAL PUBLIC OFFICE

The historic core of a series of three houses connected by horizontal bars. Each house is a different height and width, creating a public program. The bars connect the houses and create a public program. The bars are higher, reducing the impact of the houses and creating a public program. The bars are higher, reducing the impact of the houses and creating a public program.

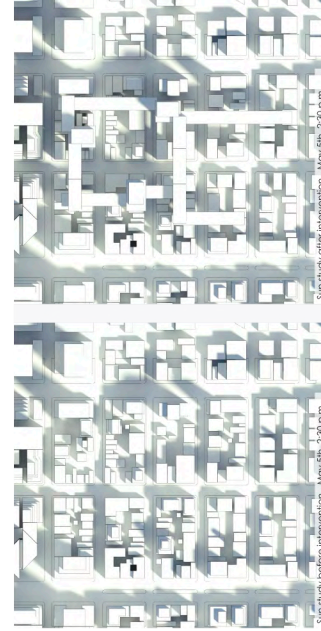
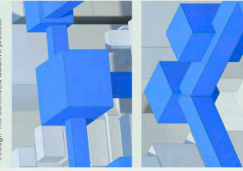


Overall Program



Public Sequence

The houses are linked by a public sequence passing along the top and bottom of the houses. The houses are linked by a public sequence passing along the top and bottom of the houses. The houses are linked by a public sequence passing along the top and bottom of the houses.



Sanctuary building intervention - May 5th, 2:30 pm.

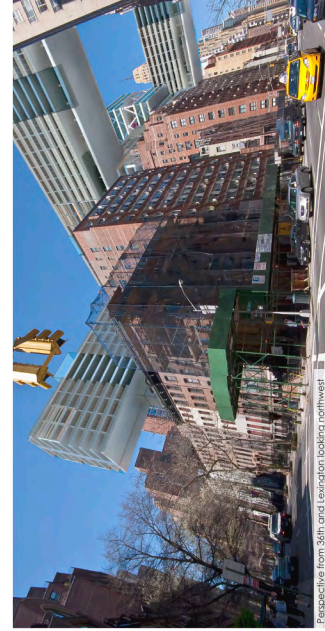
Sanctuary building intervention - May 5th, 2:30 pm.



Section cutting through east-west bars



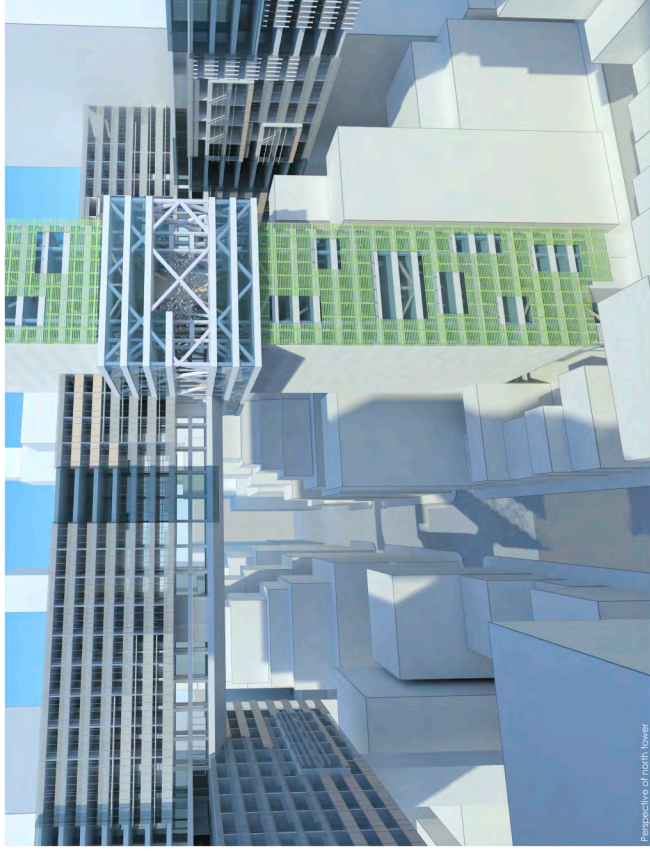
Section cutting through north-south bars



Perspective from 34th and Lexington looking northwest



Perspective from 35th and Lexington looking northeast

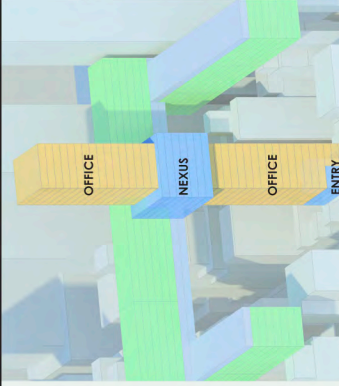


Perspective of north tower



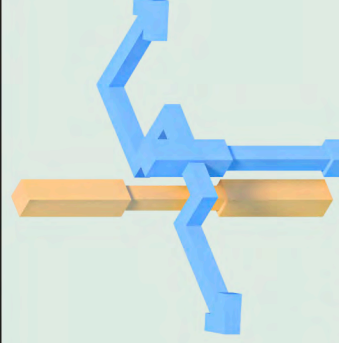
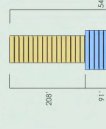
Perspective from street looking east

TOWER SCALE 3



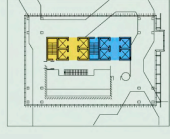
Tower Program

The north tower is a 40-story building with 3 floors of ground level lobby, 18 floors of office, 7 floors of nexus, and 1 floor of entry. The tower is an on-street building with a glass facade. The tower is a 40-story building with 3 floors of ground level lobby, 18 floors of office, 7 floors of nexus, and 1 floor of entry. The tower is an on-street building with a glass facade. The tower is a 40-story building with 3 floors of ground level lobby, 18 floors of office, 7 floors of nexus, and 1 floor of entry. The tower is an on-street building with a glass facade.



Tower Circulation

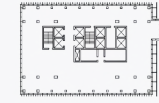
The tower circulation covers the entire building. One core serves the office, the other core serves the nexus, and the other core serves the entry. The tower is an on-street building with a glass facade. The tower is a 40-story building with 3 floors of ground level lobby, 18 floors of office, 7 floors of nexus, and 1 floor of entry. The tower is an on-street building with a glass facade.



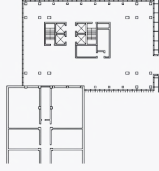
Typical office interior



View out from office



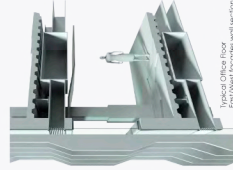
F.F. E. 1-40
Typical office plan below nexus



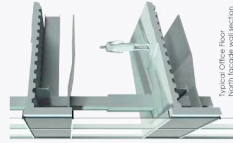
F.F. E. 30-39
Tower plan immediately above west housing bar



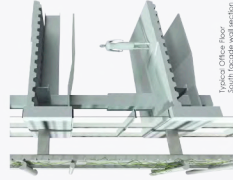
F.F. E. 40-49
Typical upper office plan



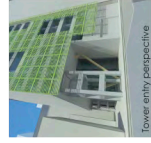
Typical Office floor
East-west facade wall section



Typical Office floor
North facade wall section



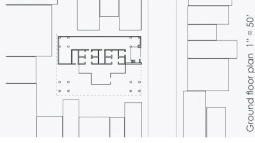
Typical Office floor
South facade wall section



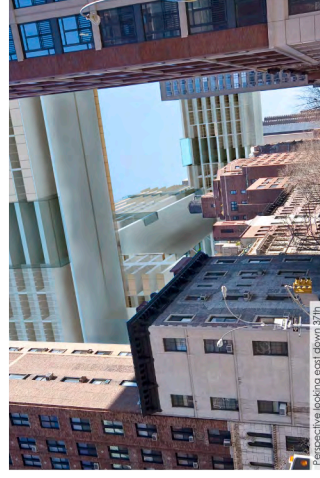
Tower entry perspective



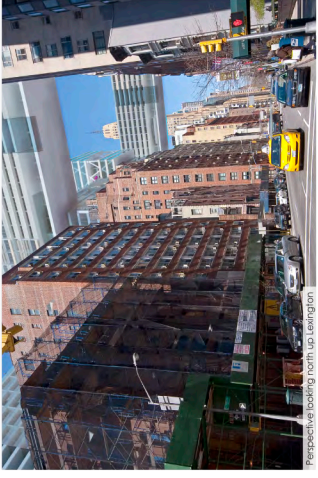
Tower entry perspective



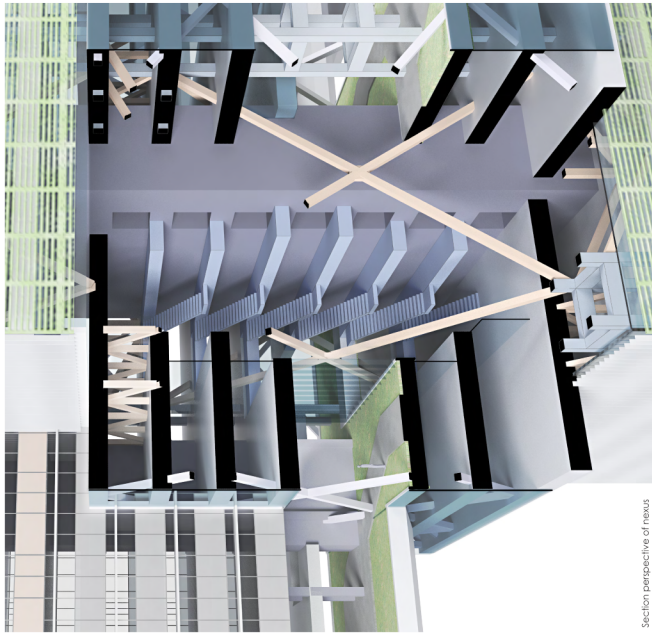
Ground floor plan 1" = 50'



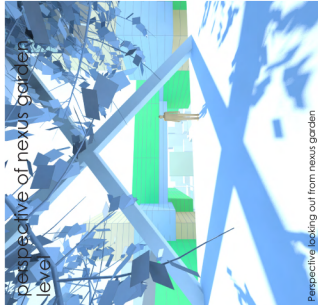
Perspective looking east down 5th



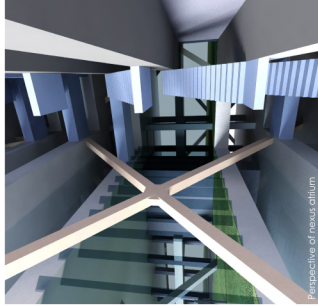
Perspective looking north up Lexington



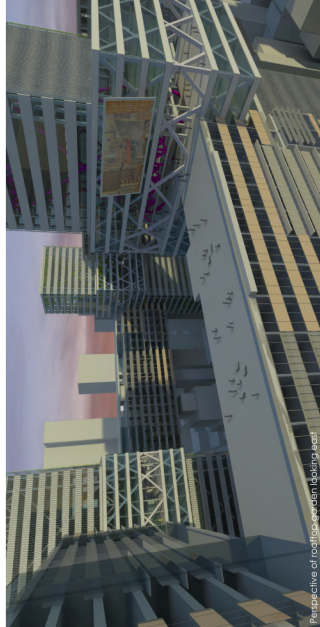
Section perspective of nexus



Perspective of nexus garden level

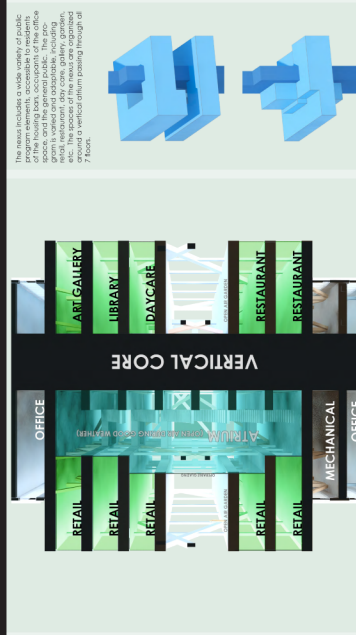


Perspective of nexus atrium



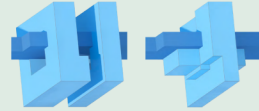
Perspective of rooftop garden & building level

NEXUS SCALE 4

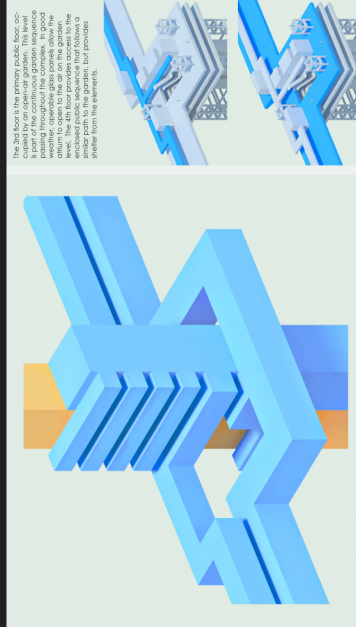


Nexus Program

The Nexus includes a wide variety of public program elements, accessible to residents, visitors, and the general public. The program includes retail, daycare, gallery, garden, office, and mechanical spaces. The program is designed to be a flexible, adaptable, and a specific program through 7 floors.

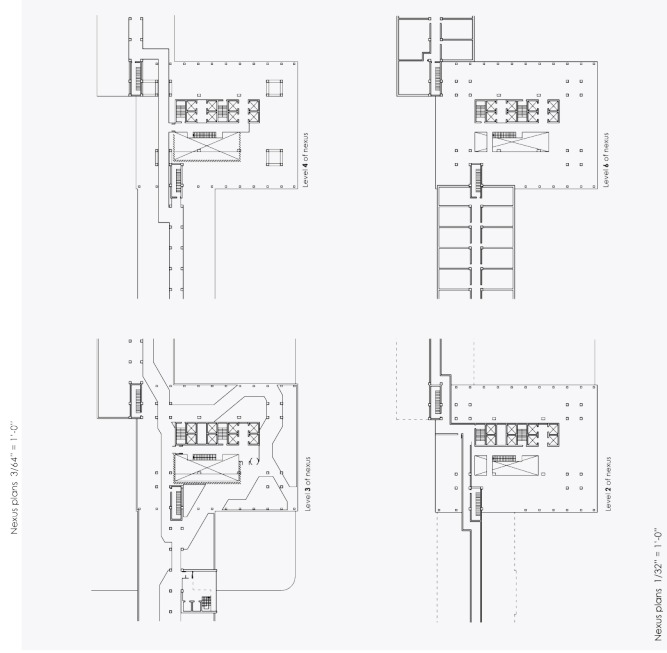


Nexus Circulation

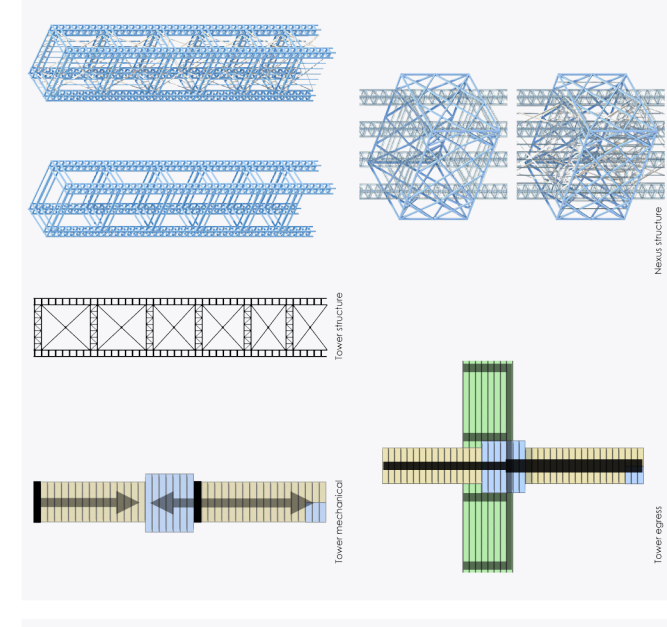


The 3rd floor is the primary public floor, occupied by an open-air garden. This level is designed to be a flexible, adaptable, and a specific program through 7 floors. The program includes retail, daycare, gallery, garden, office, and mechanical spaces. The program is designed to be a flexible, adaptable, and a specific program through 7 floors.

Nexus plans 3/64" = 1'-0"

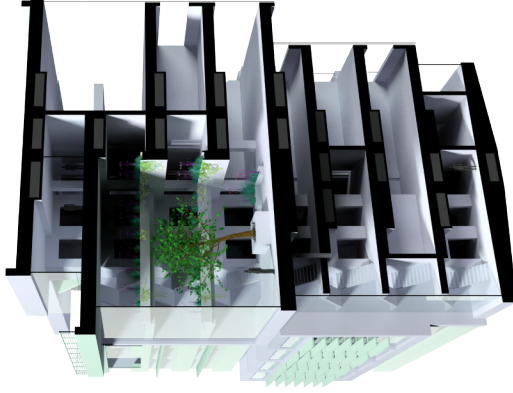


Nexus plans 3/64" = 1'-0"

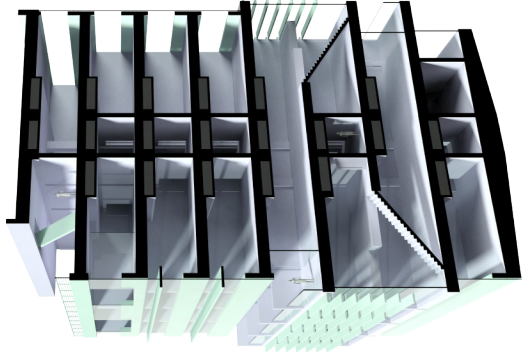


Nexus structure

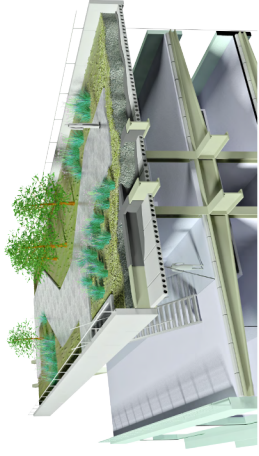
Tower egress



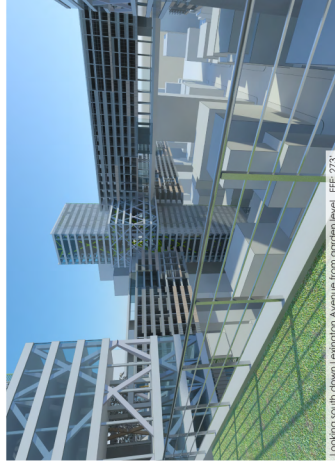
Section Perspective through neighborhood public spaces



Section Perspective through housing units



Section Perspective of Rooftop Garden Sequence

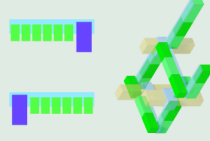


Looking south down Lexington Avenue from garden level. FFE: 273'

down Lexington Avenue from garden level. HE: 27'3".

Total building area proposed
2,615,000 Gross Square Feet

The housing bars are subdivided into neighborhoods of 80-120 units. Each is organized around a semi-private core of circulation and shared community space. This core is accessed directly from the continuous public sequence that passes throughout the complex, analogous to the existing model of the city where an apartment building is a collection of private units organized within a semi-private building accessed within the public-public street. In north-south bars, the public sequence passes along the top. In east-west bars, the public sequence passes along the bottom.



Ground area occupied
31,550 SF, or 1.2% of total building GSF. FAR = 82.9

Existing buildings removed
11 buildings totalling 77,700 GSF

Green roof area provided
160,000 SF, 60% accessible

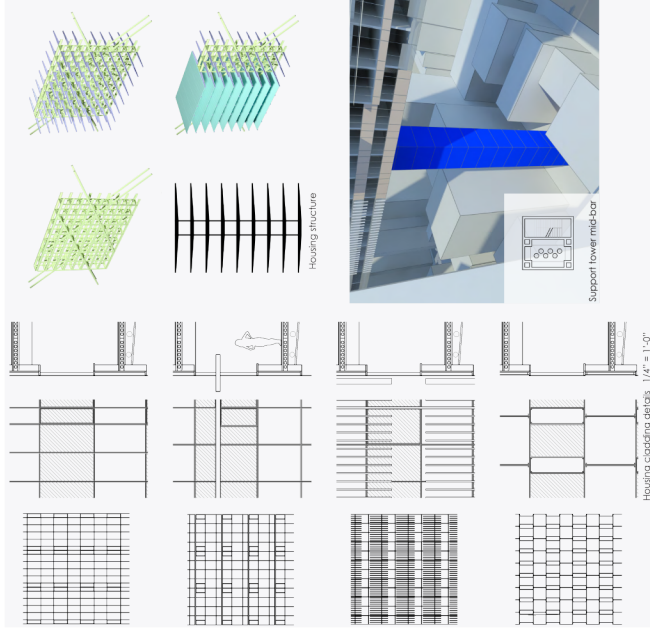
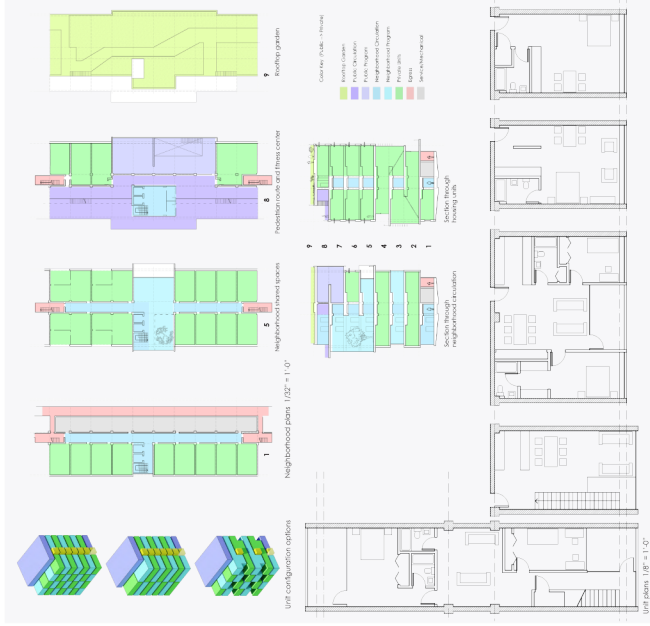
Public and retail program
407,000 GSF

Office space
700 000 GSF total on 90 floors

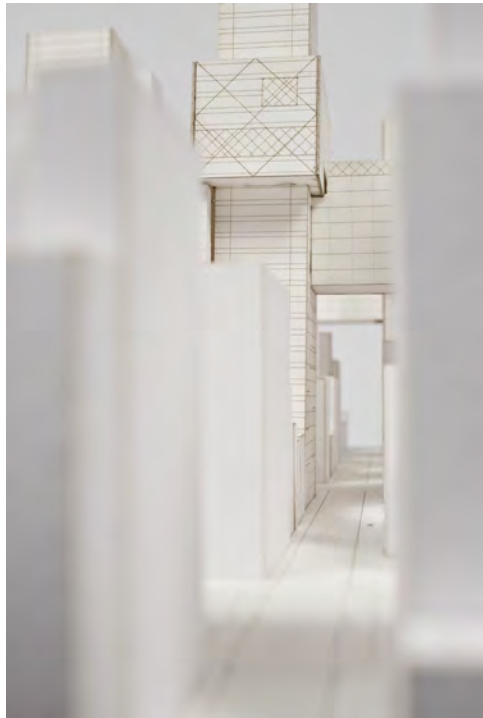
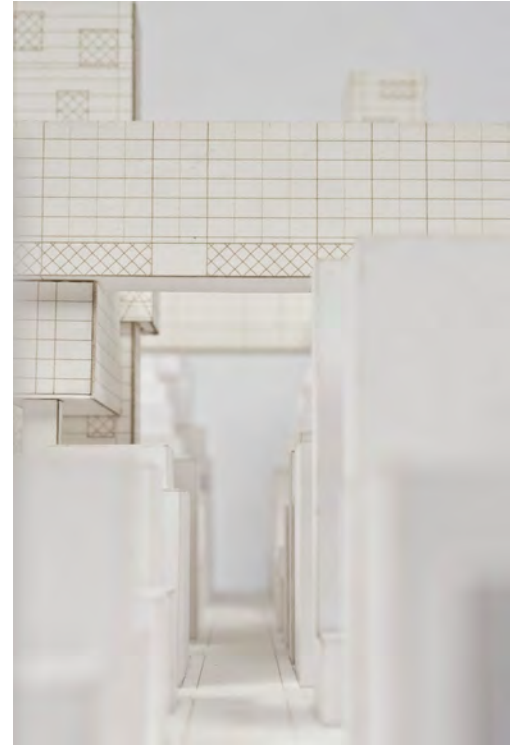
Housing
1 248 000 CSE in 1150 units available 1170 CSE x 703 MSE

Neighborhood Public/Private

Conclusion

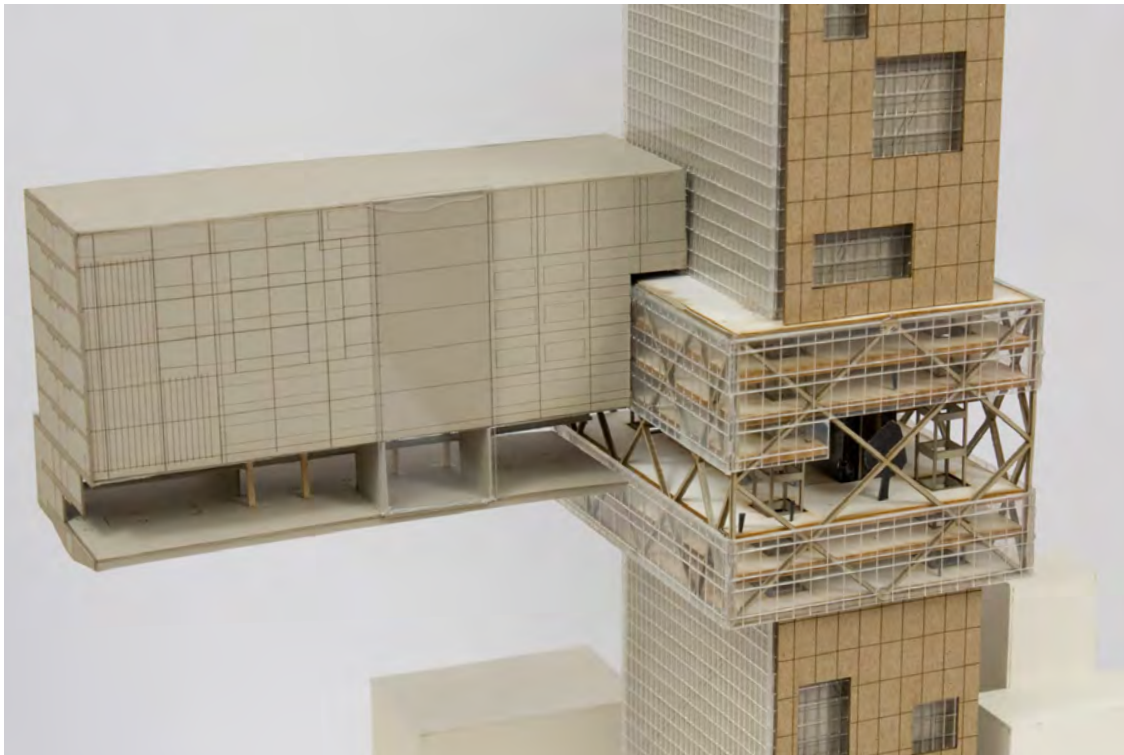
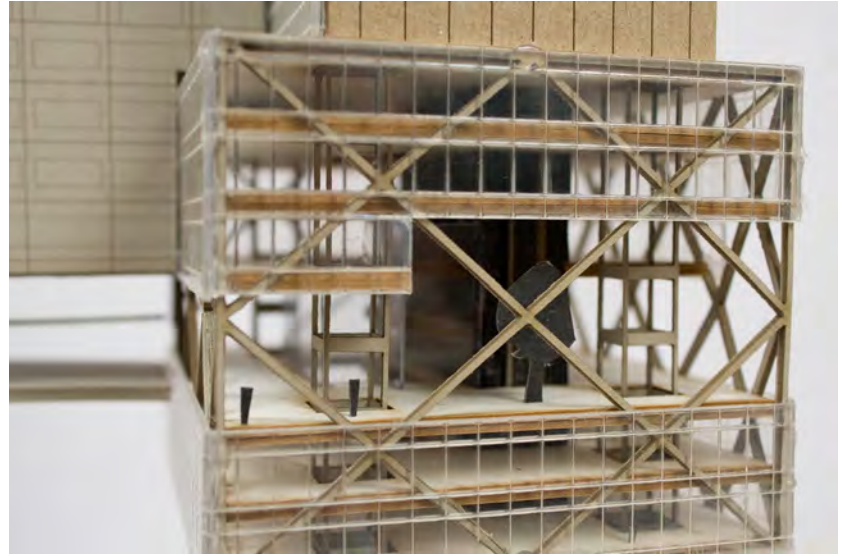
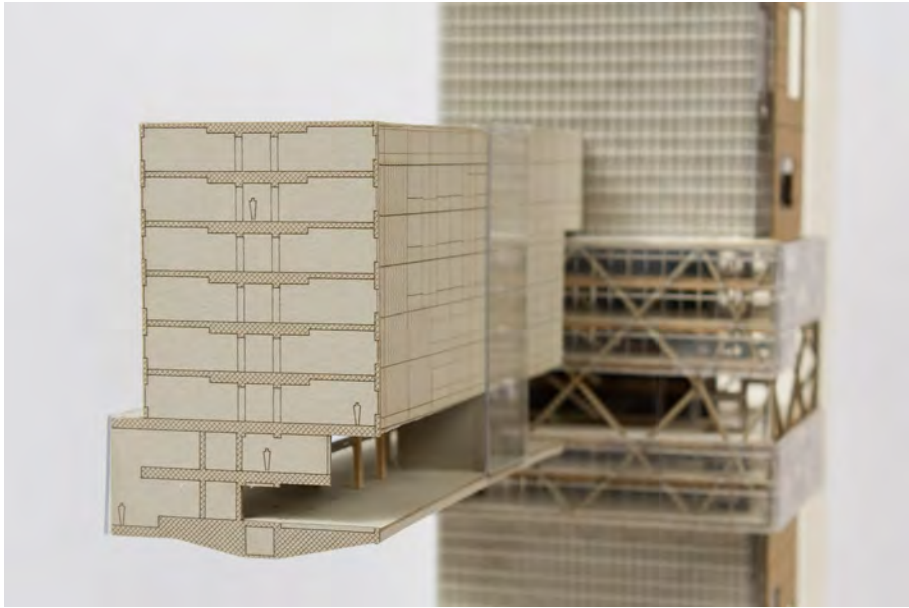








Overall model at 1" = 80'
Appendix C 135





North tower model at $1/32" = 1'-0"$
Appendix C 137





Density: An Additive Process

Oscar Sam Boyko

Submitted in fulfillment of the requirements for the Masters of Architecture degree

Roger Williams University, School of Architecture, Art, and Historic Preservation

December 2009

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