

Vertical Cities: An approach to life above 700ft in Urban Environments
of the Future

A Thesis

Submitted to the

Faculty of Miami University

In partial fulfillment of

The requirements for the degree of

Master of Architecture

Department of Architecture and Interior Design

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2019

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Urban Housing: A cities approach to quality of life within the dense urban environments of the future.

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ABSTRACT

Over the past few decades the population has grown exponentially on a global level; this growth is not temporary, it is set to continue for years to come. Due to this unprecedented global population growth, many aspects of everyday life, specifically with relation to housing, have been and will continue to be altered to fit the growing needs of society. This densification of the city of the future can create diminished open space and increase background and static activity, which in turn will create the opposite of a healthy living environment. Using illustrated case studies on Pier 2, Dubai Nhabitat, and the Kowloon Walled City, cities and housing along with mental and physical health problems associated with vertically dense living will be explored. With these explorations this paper will propose ideas for the future of housing within vertically dense urban living environments.

INTRODUCTION

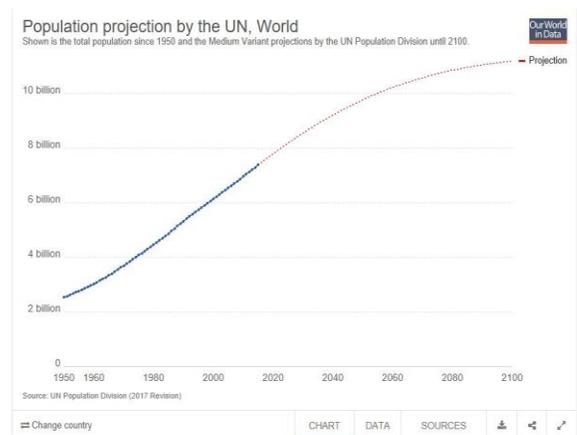
Dense urban environments offer many amenities to those that occupy them, from proximity to workplaces and stores, to entertainment venues and social activities. These dense urban environments that compose a city are places where young people flock to, where the elderly have nested, and where strong-historic communities are formed. With the undeniable increase in population, cities will continually increase in density, challenging the standard for what currently exists and works.

The purpose of this paper is to address the densification of cities with respect to housing and healthy living environments. Through primary research and the use of case studies, an understanding of what characteristics need to be modified so that healthy living environments are created for the future will be established. Alongside this research on healthy environments, the causes behind density and

the impact urban density has on people will be addressed with consideration to how development in the future can correlate the need for housing with the characteristics necessary to promote positive mental and physical health within the built environment.

POPULATION

Currently there are 7.6 billion people living on earth. By the year 2050 more than 9.7 billion people are set to exist.¹ This increase in population will not only put a stress on the planet, but a stress on cities, and their ability to house people in healthy environments that foster community relation and interaction.



World Population Projection by the United Nations²

Population growth, similar to many other factors such as available land, farmable land, and resource extraction, plays a major role in the development of architecture, cities, communities and subsequently has an effect on the livelihoods of the people who benefit from this housing and interaction. The interaction between population size and the way in which the built environment is

¹ Roser, Max. "Future Population Growth."

² Roser, Max. "Future Population Growth."

developed will only become more vital in the years to come. Currently fifty-four percent of the 7.6 billion people live in cities or urban areas. By 2050 it is projected that at least sixty-six percent of the population will move into denser cities and urban areas.³ Due to the expansion of population - and the subsequent move inward to cities, population density is what will eventually define communities, lifestyles, cities and housing.

Currently, the way cities are developed and expanded isn't undesirable. However, the way in which cities will be adapted to house the increasing population will end up shattering the perceived harmony that has existed in city expansion and development. At this point in time, "half of the world's 7.6 billion people live on just one percent of the available land,"⁴ and though there are clusters of people spread out amongst open land, the new trend in migration is that of people moving away from isolation and suburbs and back into the city.

This migration exacerbates density problems in already overcrowded cities such as London or New York City. Since these cities no longer have the ability to move outward, they must build upward to meet the demand; and in cities, just like individual buildings, housing is the single most important factor affecting quality of life. Traditionally London and New York City are deemed cities on a global scale and they accomplish many unique individual feats; such as transportation, park space, and the establishment of community. However, could they survive in an environment that threatens the longevity of what currently exists, and threatens to destroy it through overcrowding, while still providing a living environment that is conducive to positive mental and physical health?

THE IMPORTANCE OF PLACE AND RELATIONSHIPS

Historically tall buildings and skyscrapers are clustered around specific areas of a city, primarily the business district, the lower

³ "World's Population Increasingly Urban with More than Half Living in Urban Areas | UN DESA Department of Economic and Social Affairs."

⁴ Stacy Liberatore. "Where the World Lives: Map Shows Half the Planets Population Lives on Just 1% of Its Land."

income areas, or the city center. The cluster of these buildings dictates the space and the environment surrounding them; however, with the population expanding, and the influx of people into the city, this might not be the case much longer.

Current proposals, such as Dubai Nhabitat and Pier 2, put into play tall buildings spread throughout the city not just limited to the business district for office and commercial use, but around the city for housing, commercial, and community interaction. This move of tall buildings away from business or commercial districts and outwards towards the entirety of the city is set to create an environment of intermingled height and density, which throws into question the quality of life that will be created when this happens.

Dr. Nancy Wells, an Environmental Psychologist and Professor at Cornell University, has spent her career studying people's relationship with the built and natural environment, with a focus on residential environments. In her research she looked at the profound effects the built environment has on public health and how the decisions city planners make influence neighborhoods, housing, and parks.

Dr. Wells has also argued that having nature close to home protects the psychological well-being of children and adults and that having nature around the home boosts cognitive function and can improve recovery time from illness.⁵ Dr. Wells research further explores the ability of accessible green space to foster social interaction and thereby promote socialization. Stating that green space accessibility, even if only visual, has beneficial effects on people.

Also included in the study is high-rise housing, which Dr. Wells has noted can be associated with psychological stress, and social isolation, because it removes people from a place where there is a notion of scale and relationship to ground and other humans. In short, they lose their relationship to the rest of the world and isolate the occupants in a place that often has no true connection to anything other than the built environment.

⁵ Wells, Nancy. "How Natural and Built Environments Impact Human Health."

As discussed earlier, the projected population increase implies that at some point, high-rise buildings are going to become a necessity in housing since cities like New York have nowhere to expand, and the infrastructure in cities like London would be overloaded should they continue to expand outward. While Dr. Wells does note the existence of negative effects of high-rise living, those effects do not outweigh the growing need for dense urban housing.

Accepting a society that relies on tall buildings to sustain function and space will lead to cities in which the intermingling of height and density dictate the fabric of the city. This then begs the question of how buildings, and housing, will foster environments in the future in which quality of life, both mentally and physically, will be placed at the forefront of design. Should the approach to housing within a dense city be ineffective, the quality of life for people will suffer; they will struggle to form relationships with their city and community and will be at a greater risk for both physical and mental health issues.

URBAN DENSITY AND THE IMPLICATIONS ON QUALITY OF LIFE

As Dr. Wells discussed in her research, there are many individual aspects that go into the creation of environments that promote positive mental and physical health. This notion expands into the concept of density, specifically within a city environment. As populations grow and density increases, it has the propensity to negatively impact the mentality of communities that have been, and will continue to be, established in city and urban environments.

Rachel Kaplan, Professor of Environment and Behavior in the School of Natural Resources and Environment and the School of Psychology at the University of Michigan, has spent years researching how the negative impacts of density in urban areas can be combated. Part of the problem with urban density is the fact that important relationships are lost due to these over-populated or over-crowded areas and people have trouble placing themselves within their own environment. Through her extensive research on urban density and its effects on residents, Kaplan has concluded, similarly to Dr. Wells' study on people's

relationships with tall built environments, that "the presence of nearby nature was important to neighborhood satisfaction in a broader sense"⁶ and that through views and access to nature, an occupant's sense of well-being and satisfaction with or within their neighborhood is increased.

Much as Dr. Wells and Dr. Kaplan, William Sullivan found correlations in his study on theoretical cluster housing developments that alluded to the fact that "people displayed higher preference for developments that had distinctive housing clusters, many trees, and strong connections to nature."⁷ This design, while difficult to incorporate into cities, is achievable, especially given the fact that access to nature or natural areas can alleviate any undesirable or negative impacts created due to density or verticality within a city. Through the incorporation of green spaces both at ground level and vertically throughout a city, relationships with nature can be fostered, and in doing so distinctive housing can be established with the use of the same methods that are used to implement the added nature.

In addition to the correlation between nature and the psychological health of people urban environments, nature also can influence people's perception of space. Research conducted by Gary Evans, Susan Saegert and Rebecca Harris proves that "bordering shared nature areas or green buffers with access to large shared nature areas from within the subdivision was related to greater satisfaction with nearby opportunities."⁸ This in turn means that access to nature, especially in environments that would normally lack such a relationship, has the potential to impact the psychological health of people from the standpoint that with a relationship to nature at some point during their daily activities, people

⁶ Kaplan, Rachel. "The Nature of the View from Home." *Environment and Behavior* 33, no. 4 (2001): 507-42. doi:10.1177/00139160121973115.

⁷ Sullivan, William. "Cluster Housing at the Rural-Urban Fringe: The search for adequate and satisfying places to live."

⁸ Evans, Gary W., Susan Saegert, and Rebecca Harris. "Residential Density and Psychological Health among Children in Low-Income Families." *Environment and Behavior* 33, no. 2 (2001): 165-80. doi:10.1177/00139160121972936.

become more content with other opportunities and events surrounding them.

GROUND LEVEL

Oxford Street in London is by far one of the most populated streets in the city for residents and tourists alike. It is home to souvenir shops, boutiques, high end retail and traditional offices. On any given day walking down either side of the street there are people, wandering, window shopping, scurrying to work, going about their daily lives.

What makes this street so unique however, is that even with the hustle and bustle of the daily grind, it doesn't feel stressful. The street layout is designed so that people feel catered to and welcome. The sidewalks are wide to accommodate the masses, but at the same time appropriately sized so that at down times one is not drowning in the void where people normally move (Figure 1).

The vertical components complement the sidewalks, encompassing the ground conditions with the standard four story facades that dip and jut to the rhythm of the street. Amongst these facades, sprinkled throughout the sidewalks, are trees. They provide a relief to the rigidity of the building creating a psychological relief within the solidity of the urban fabric.

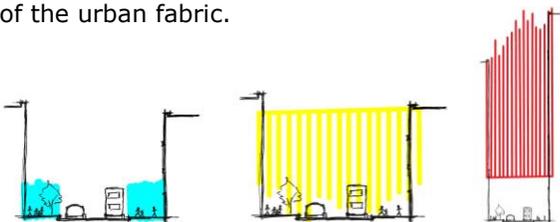


Figure 1

Figure 2

Figure 3

When this psychological relief is not implemented with the use of trees, the buildings are cut away. Community squares appear, molded into the fabric of the existing environment, sometimes using an actual public square, but most time through the integration of void, – and provide relief from verticality and the creation of public space that creates pause.

This is how London succeeds; it grounds the people within the environment, it produces an environment that caters to human scale and

human experience. However, what happens in 2050 when the vertical density of the city is changed? When the human scale (Figure 2) that has succeeded thus far turns into monumental scale (Figure 3) out of necessity? When people no longer feel comforted by the physicality of their environment but engulfed and over-powered by the sheer verticality of the city?

CASE STUDIES

New cities are constantly emerging, but the existing ones, like London, won't be left behind. The following case studies have been selected for their ability to address the questions posed in London as well as housing on a dense scale, primarily focusing on their ability to promote quality of life through the integration of greenspace, their ability to foster community relationships, as well as their ability to tackle vertical density in a manner that puts the livelihood of the occupants and the community first.

PIER 2 BY HUMPHRY'S + PARTNERS

This project is a mixed-use development proposed for New York City. It revolves around transportation, automation and housing, incorporating aspects from every domain into the primary functions of the building. Under the site sits a hyperloop station; above ground there are platforms for drone and helicopter landings. Along with the transportation advances accounted for in the project, the proposal features fully automated shopping and restaurant venues throughout its height.



Pier 2 Proposal by Humphry's + Partners⁹

⁹ "The Future of Housing: Drones, Automation and Co-Habitation." ArchDaily. February 28, 2018. Accessed March 15, 2018.

The way in which Humphry's + Partners has chosen to construct housing within this project does much to improve the accessibility of green space for the people that occupy the building. As seen in Figure 4, as well as in the rendering above, Humphrey's + Partners makes an active choice to incorporate nature into the construct of the building. Creating housing that at its boundaries is composed of balconies or vertical gardens that wind up all sides of the two towers.

Along with the immense detail that went into creating a living environment that catered to the psychological health of the people, this project also takes into consideration proximity and access to amenities such as restaurants, spas, and stores amongst other things. As seen in Figure 5, amenities and community space are spread out throughout the verticality of the proposal. Food stores and shopping are located at ground level while other amenities such as restaurants and leisure businesses are located higher up within the building.

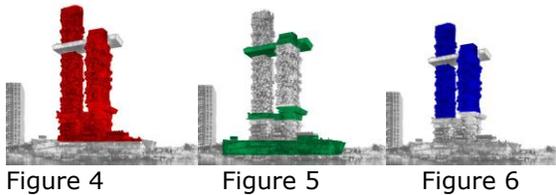


Figure 4

Figure 5

Figure 6

The approach to housing in this project is also unique in how the firm approaches the establishment of community environments. Aiding the fact that they chose to incorporate nature to some degree in each apartment, Humphry's + Partners chose to use a co-housing approach to living, in which people are paired with flatmates in apartments that have separate rooms but share spaces such as kitchens, living rooms, game rooms, and amenities such as gyms. This along with every other characteristic discussed makes for a unique living experience in which community and psychology are addressed.

KOWLOON WALLED CITY

Historically listed as an ancient Chinese fort, this city was developed on the border of China

<https://www.archdaily.com/889498/the-future-of-housing-drones-automation-and-co-habitation>.

and Hong Kong. Over time the fort developed into a walled city and eventually became known as one of the most densely populated places on earth, with over fifty thousand people. The city itself is an agglomeration of rooms and spaces, all connected through alleyways that at most only five feet wide.

While there are regulated utilities such as plumbing, water, and electricity, there are no windows except for the rooms on the outside of the city. Inside the narrow alleyways, plumbing pipes and electrical wiring line the walls, floors and ceiling. Despite the undesirable conditions, the lack of windows, and the lack of relation to nature the city became a popular area to live and work, especially for the working class.

Kowloon Walled City ¹⁰

In the 1980's the city became notorious for brothels, casinos, cocaine parlors and opium dens amongst other things. As time passed the area became slightly less dangerous, leading to more legitimate/legal business opportunities. Due to the fact that the city was located on the border of China and Hong Kong, neither government wanted to claim it and take care of the underlying issues, which allowed for businesses and factories to be established without license. This made the city a popular place for people from Hong Kong and China to go because they could get services such as a dentist, or purchase specialty meats at much lower prices.

¹⁰ <http://projects.wsj.com/kwc/#chapter=intro>

While this might serve as an unconventional case study due to the fact that it takes urban density to the extreme and was eventually demolished, it serves as a prime example of how communities can be created in the most unique places, as well as how access to nature can be created in incredibly tight and compact spaces.



Figure 7

Figure 8

Figure 9

Given the fact that this project expanded on top of itself as time passed, access to nature presumably would have only been possible on the rooftops of the structures. However, “balconies” or holes in the wall were carved so that residents had access to fresh air and the community around them, and this occurred not only in the residences that occupied the exterior walls, but the ones located on the interior as well as seen in Figure 7. These “balconies” also contributed to the circulation of the spaces that were created within the building.

As seen in Figure 8 the circulation of the space is very cramped and confined alongside the housing conditions. Because there was no official architect or designer that supervised the construction of the space, the majority of buildings were erected on top of each other as they were needed, creating the city’s famous narrow corridors. In addition to this, because spaces were constructed ad-hoc (or haphazardly), there were not many areas of vertical circulation that continued from ground to roof.

Due to the sporadic development of the city, housing within was often found to be chaotic. Rooms were constructed vertically as more people moved in to the city shown in Figure 9. At its peak there was an average of only 40-square feet per person living in the city. Housing was often limited to only one or two rooms; if the occupant also ran a business out of their home it might be bigger, but even then, the space was scarce and small.

Despite its success in establishing a functioning community within a highly dense area, the governments of China and Hong Kong decided in 1992 to demolish the city. Aside from the fact that the density in this construction led to elicit activity, much can be learned from the way it developed.

DUBAI NHABITAT

This project is a mixed-use proposal for the heart of Dubai, in the middle of its high rise business district. At ground level, the project proposes design concepts that are geared towards making it as walkable and as human friendly as possible. The base of the building opens up for urban use at its lower levels as well as incorporating greenspace into the rear of the building connecting its occupants with the existing dense pedestrian network.

Dubai Nhabitat ¹¹

The building itself is composed of modules that can be expanded or contracted according to the needs that the program creates, including different vistas with different angles and private gardens¹². Overall the project has over 300 hotel rooms and 450 residential units and serves as a good example of density and how a city such as Dubai tackles vertical density and housing along with an established relationship to nature.

¹¹ <http://www.architectmagazine.com/project-gallery/dubai-nhabitat>

¹² “Dubai Nhabitat.” *Architectmagazine.com*, www.architectmagazine.com/project-gallery/dubai-nhabitat.

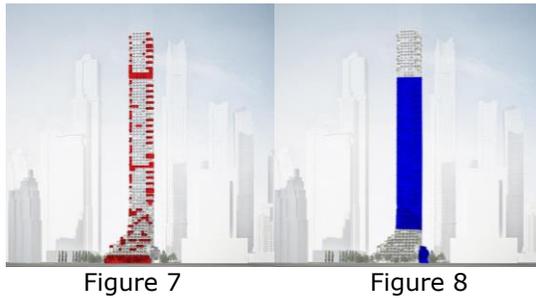


Figure 7

Figure 8

The organization of the space is optimized to incorporate human scale and reference to nature at most every level. Figure 11 demonstrates the dispersion of residential units throughout the building, and when compared with Figure 10, it is evident that all residents will have at least a view of nature within their units - something that Dr. Wells, and Ms. Kaplan identified as best for the mental well-being of the occupants. This, coupled with the design characteristics at ground level, makes the Dubai Nhabitat a good case study when considering the future of housing within a city.

CASE STUDY ENVIRONMENTS

Of the two case studies presented, all three are a result of unique environments. Pier 2 and Dubai Nhabitat pose responses to a multitude of issues ranging from technology and transportation to community engagement, however, at ground level they all exhibit different characteristic and qualities.

Pier 2's approach to the site is very human-centric. Lined with trees and public spaces, the entrance to the buildings very much relates to and is defined by the human experience. At street level, the design is done in a manner that eliminates the monumental feel of the structures that soar into the air just beyond the perimeter. This, coupled with the integration of nature throughout the facade of the building, promotes spaces that alleviate psychological stress and promote community engagement.

Similarly, Dubai Nhabitat's approach seeks to humanize tall buildings. The modularity of the structure allows for respite areas that begin on street level and continue up into the soaring height of the structure. While the community engagement part of this building is somewhat lacking, the architects incorporate walkability and nature so as to promote a better quality of

life for the people that reside and work in the area.

REIMAGINED GROUND

Ground or street level plays a vital role in the integration of people within their built environment. The case studies and the research presented above touch on the effects that density will have on the city. These effects will run rampant should vertical density and quality of life not be addressed.

Instead of overpowering and subduing residents, as was seen in the Kowloon Walled City, cities of the future will need to establish a means of controlling housing for the increased population while still promoting positive living environments. This creation of a positive and beneficial living environment starts at the same point in every single city, on the ground. The encompassing and welcoming feeling that is seen in London today should exist in 2050, even with the increased populations.

This leads to the discussion of how the city is adapted to house the population. As with most issues, the easiest way seems to be to build a new -to start from scratch and develop modern cities into something unseen or unheard of before. However, this approach, while easiest, has issues, not least of which would be the cost of doing so and the destruction of long-established communities. Destroying and building anew eliminates the importance of place and has the potential to create a city in which no one relates or feels at home, since all historical, personal and cultural context has been removed.

Oxford Street serves as a prime example. With the historical context, and the established community feeling alongside the connection to nature and building on a human scale, Oxford Street is the epitome of everything that needs to be preserved within a city, even with the thought of mass population density looming overhead. To tear down and build anew would be a great disservice to the community and the culture. However, developing a method of housing that coincides with the existing conditions, while still addressing all of the concerns and conditions established within the research, will set the city and the communities that compose it up to succeed.



Projects like Pocket of Active Resistance by architect Stephane Malka¹³ shown above are posing ideas that with the right adaptation can be implemented into cities like London to preserve the historical context and existing community, while simultaneously providing housing for the influx of people moving into the city.

CONCLUSION

As argued previously, with the projected population expansion, housing and the quality of life it provides for, the future will have a significant impact on the people that inhabit it. With the common conception of building up based on available land and access to research, housing and many other aspects of cities will continue to grow in height instead of sprawling outward. This, while best for the environment, poses the problem of the impact(s) it can have on the lives of the people.

In building upward, specifically with housing, environments are created that are not conducive to positive/beneficial living. Thus, the purpose of this paper was to analyze ways in which housing and living environments can be designed to accommodate the density required by the future while also providing

¹³ Parasitic Guerrilla Architecture Hijacks the Arche De La Défense
Bridgette Meinhold -
<https://inhabitat.com/parasitic-guerrilla-architecture-hijacks-the-arche-de-la-defense/>

environments in which people thrive mentally and physically.

It is still unclear what the future of the city will hold. However, when it comes to housing in dense, vertical environments, it is clear that future cities will need to be composed of community spaces, respite spaces, and spaces in which people have views or access to nature.

When walking down the street in the future, just like in London, the ground will cater to human scale and the needs of the community by creating an environment in which people feel comforted, not constricted, by their surroundings. The tall buildings that alter the present urban fabric will play to the existing conditions and not create the feeling of repression that too-often accompanies the monumental scale. Of course, research shows that the best way to combat the negative effects of monumental scale are through the integration of nature; however, the facades and the spaces of new monumental buildings will have to incorporate psychological reliefs as well. Nature will only provide a certain level of relief; it is up to the rest of the building's design to anchor the occupants, to provide them with relationships to ground, to the site and to the people around them.

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FIGURES

Figure 1 – Authors Original Drawing

Figure 2 – Authors Original Drawing

Figure 3 – Authors Original Drawing

Figure 4 – "The Future of Housing: Drones, Automation and Co-Habitation." ArchDaily. February 28, 2018. Accessed March 15, 2018. (with added authors notation)

Figure 5 – "The Future of Housing: Drones, Automation and Co-Habitation." ArchDaily. February 28, 2018. Accessed March 15, 2018. (with added authors notation)

Figure 6 – "The Future of Housing: Drones, Automation and Co-Habitation." ArchDaily. February 28, 2018. Accessed March 15, 2018. (with added authors notation)

Figure 7 – Routely, Nick. "This Facinating City Within Hong Kong Was Lawless for Decades." Visual Capitalist. September 09, 2017. Accessed April 25th, 2018 (with added authors notation)

Figure 8 – Routely, Nick. "This Facinating City Within Hong Kong Was Lawless for Decades." Visual Capitalist. September 09, 2017. Accessed April 25th, 2018 (with added authors notation)

Figure 9 – Routely, Nick. "This Facinating City Within Hong Kong Was Lawless for Decades." Visual Capitalist.

September 09, 2017. Accessed April 25th, 2018 (with added authors notation)

Figure 10 - "Dubai Nhabitat."

Architectmagazine.com

www.architectmagazine.com/project-gallery/dubai-nhabitat. (with added authors notation)

Figure 11 - "Dubai Nhabitat."

Architectmagazine.com

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Identification of Place in Super Tall Buildings of the 21st Century.

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ABSTRACT

Over the past 100 years the world has evolved rapidly, new technologies and methodologies have emerged that have unequivocally changed the course of humanity. The purpose of this paper is to look at these changes with relation to super tall buildings – and how the advancement of these structures has inherently altered the way people live, interact, and identify place and propose changes to the conceptualization of super tall buildings so that they become places suitable for the highest quality of life. This will be done using various sources including academic papers, theoretical texts and analysis of field specific research documents on life in the 21st century. These resources will serve to create an argument for the relevance of promoting identification of place within modern super tall construction.

INTRODUCTION

With the advancement of modern technology and construction methods the construction of the urban fabric has changed drastically within the past century. With these advancements a new building typology emerged. The super tall building.¹ This typology initially came to emergence in in 1930 with the completion of the Chrysler Building in New York City, since then the “competition” to build the world’s tallest building has skyrocketed from there. According to a study done by the Council on Tall Buildings and Urban Habitat in 2016 there were already more than 100 buildings that had reached super tall status that year alone with more currently under construction or reaching construction stages.² While this feat of building taller was greeted with praise and celebration by most – it has also been greeted with criticism along the lines of deterioration of city values and elimination of historicism within the city. When building to heights that often exceed 1,000ft tall new problems emerge that

have never had to have been addressed before.

Ground conditions are known, they have been studied, developed, modified and reconstructed to fit the vastly changing needs of the people that occupy and interact within the place for centuries. However, when buildings started expanding upward – the conditions became unknown. There were no preexisting understandings of how people interact and live 1,000ft or greater up in the air therefore every aspect of design was made upon assumptions of what life might be like in these supertall buildings. These assumptions while accurate for most cases left out a key experience that is vital to everyday life and the health of occupants, the identification of place. A topic that will be discussed further into this paper – the identification of place can have drastic impacts on the livelihood of the people, and should it not exist can have immense negative effects not only on an individual but on a community.

Due to the vast impact the identification of place can have to the environment in which people interact with the question has to be asked; How can super tall buildings of the present and future be designed for functionality as required but also provide a sense of place and belonging for the individual and community as a need to thrive?

EMERGENCE AND RELEVANCE

Why super tall buildings? They are becoming an issue on a global scale. Most every country in the world is currently dealing with a population and density issue. While there are many ways to handle this issue there are two typical solutions – build tall, or sprawl. The later of the two being historically prominent within every country and every city. As a city starts to develop and expand in density people

often strived for experiences away from the chaos, noise, and undesirable habits that the city inspired. Thus, resulting in sprawl, creating communities just outside the city for the wealthy, the nature loving and those who desired a quieter life.

Areas of small manageable populations could handle and maintain sprawl to a certain extent, however with the vast population increases over the past century alone, what were once small communities outside of cities have flourished into dense low-rise cities. These "low-rise" cities or suburbs emulate most every aspect of a city core or major city. However, unlike the super dense city core or major city, these vast areas of urban sprawl offer people the experiences of yards, expanses of neighborhoods, and freedom to move.

They provide access to major cities if needed, and house most all the amenities that would be found in a dense urban environment. While desirable, these sprawl cities and suburbs on a global scale are limiting the worlds ability to sustain life through deforestation, the elimination of space to farm, to build, and to extract resources.

Sprawl, should it continue, poses the problem of over developing the planet where people or governments are no longer able to produce enough food or resources to sustain a population. As a result, city planners, urban designers alike have been pushing the notion that building upward not outward is one of the best options. The notion being that "denser, more compact cities achieve higher levels of productivity, greater housing affordability, better health outcomes and less traffic congestion"³ and as a result outweigh the supposed affects of sprawl while also alleviating the drain of massive land use.

While the environmental impact and supposed benefits of building up outweigh sprawl to a substantial extent, there are still inherent issues that need to be addressed as society approaches an era where the super tall becomes the standard solution to density and land use issues; while the true negative effects could only be seen 15-20 years after construction as people start to actively live and commit their lives to existence within these structures.

BUILDING TALL THROUGH SUSTAINABLE METHODS

The notion for stopping sprawl and building upwards not outwards stems from a sustainability standpoint; while entirely relevant to the future on a global scale super tall building constructed solely for sustainability still lack the vital elements to promote identification and relationship to place. The Dynamic Tower by David Fisher is doing just that. The 1,375ft tall tower is set to include 80 individually rotating storeys, terrace-mounted solar panels and 79 horizontal wind turbines amongst other sustainable methods.⁴ However, aside from these methods, nothing is being done to conquer the second issue at hand. Identification of Place.



Dynamic Architecture Group⁵

The tower, while providing a 360-degree view of Dubai affords no effort toward elements that could anchor the occupants within the space. Instead they are left with 360-degree views of monumental proportion while everything else that surrounds them is presented at micro scale due to the immense heights that the building reaches. Thus, promoting sustainability, and technology over that of quality of life, identification and relationship to place. This is not to say that one should always take precedence over the other, they should always go hand and hand when designing. Especially when constructing buildings set to last lifetimes, however, should there be a situation where only one can be at the forefront of the design – it should be identification and relationship to place. Sustainable methods can be added after the fact, turning a shell or preexisting space, especially when reliant on structural constraints becomes much harder to do after the fact and for that reason should be considered a priority within all design.

CITIES IN THE VERTICAL AGE

Well before the notion that building up would sustain the world's population, people have been designing and building super tall buildings in dense urban areas. Originally these buildings were a result of a technological advancement in building material, process, construction and a push for more sustainable construction across the globe. With this advancement, cities have begun to be dominated by super tall buildings.⁶ As technology and construction are ever improving and becoming more innovative, so will the buildings that compose the city.

These super tall buildings, instead of just being for show - or to house business like they were originally intended to do, will begin to play a more vital role. Technology will always play a superficial or structural role in a building but now more than ever, the purpose of a building and how it forms relationships with the surrounding context and community will play an even greater role in determining the type of environment and the type of city that is created. While not always thought of in design, particularly with relation to large scale design, the identification of place plays an integral role within the built environment and the urban fabric.

THE SUPER TALL BUILDING ON A GLOBAL SCALE

As noted, the notion of super tall buildings is not new in any sense in most 2nd and 1st world countries. For years as technology has developed governments and cities have competed for the crown of worlds tallest building, most innovative structure, etc. In 2017 alone over 60 cities were completing construction of buildings 200m or taller. This statistic alone proves the validity for the issue of identification/sense of place within tall/super tall buildings.

It is not only a solution to sprawl that brings forth the desire for super tall buildings, but the need and desire to become the city and the country that holds the title of "world's tallest building is here," a competition which is driven deep into human nature. Despite sprawl, despite the title, super tall buildings are going to continue to be built, technological

improvements will ensure that. The issue at hand is acknowledging the fact that these buildings and their effects are unknown and with that unknown are creating and promoting an environment with entirely new characteristics on macro and micro scales that are vastly different than what has been known before - to approach this type of design, one that has spread across the world and is fueled by notoriety and poise, blind and unaccepting of the possible consequences would be irresponsible and unethical. Designers, countries and governments have a moral obligation to create and understand environments that they expect to place people within, if not most will end up with situations like Pruitt Igoe in Missouri in 1954 on a massive, regional and global scale.

DETERMINING FACTORS AND THE IMPORTANCE OF PLACE

Currently most super tall buildings, skyscrapers and high-rises are clustered around specific areas of a city, be it the business district, the lower income areas, or the city center. The cluster of tall buildings and skyscrapers dictates the space and the environment. With an ever-increasing population, as well as a trend of migration into cities and city centers the buildings of the future will no longer just be limited to spaces such as business districts, low income housing, or city centers, but instead a constant within the confines or the fabric of the city.

Composing a city, or a building isn't just important based on aesthetics or transportation functionality. It determines how people interact and engage in their environment, it helps or hinders people's ability to socialize and form community, as well as their ability to identify place and find meaning in their lives - a crucial element in people's ability to thrive as well as a city's ability to survive amidst constant changes and modifications.

Dr. Nancy Wells is an environmental psychologist and Professor at Cornell University has spent a good portion of her career studying people's relationship to the built and natural environment focusing on residential environments such as housing and neighborhoods. In her research she looked at

the profound affects the built environment has on public health, and identification of place and how the decisions designers make when planning a city influence neighborhoods, housing, and parks.

Primarily she looked at how a relationship with nature impacts people; establishing that having nature close to home protects the psychological well-being of children and adults and having nature around the home boosts cognitive function and can improve recovery time from illness.⁷ Dr. Wells research also explores the ability of accessible green space to foster social interaction and thereby promote socialization. Stating that accessibility to green spaces - even if only visual- has beneficial effects on people. Based on Dr. Wells' findings in the study, a city similar in characteristics to the super tall building would be best suited for mental health.

However, also included in the study is high-rise housing, which Dr. Wells has noted can be associated with psychological stress, and social isolation something which is of key importance as super tall structures emerge as a normal occurrence within cities around the globe. Dr. Wells notes that by removing people from a place where there is a notion of scale and relationship to ground and other humans, they are losing relation to the rest of the world and isolating the occupants in a place that often has no true relationship to anything other than the built environment.

As discussed earlier, the decision to promote building upwards instead of sprawl has meant that the trend to build supertall will continue resulting in the negative environmental affects discussed in Dr. Wells' findings. While the negative effects of high-rise living are prominent - those affects cannot outweigh the need for dense urban housing that will eventually grow upwards.

Given the information from Dr. Wells study - designers can begin to gain insight into what will counter some of the negatives that come with high-rise housing. With the knowledge that greenspaces and accessibility to nature, be tactile or visual, promotes better quality of life through the identification of place - designers can begin to develop solutions for density and population that place a relationship with nature at the forefront of the design.

URBAN DENSITY AND THE IMPLICATIONS OF IDENTIFICATION OF PLACE

As Dr. Wells discussed in her research, there are many individual aspects that go into the creation of environments that promote positive mental and physical health. This notion expands into the concept of density, specifically within a city environment. As populations grow and density increases, it has the propensity to negatively impact the mentality of communities that have been, and will continue to be, established in city and urban environments.

Rachel Kaplan, Professor of Environment and Behavior in the School of Natural Resources and Environment and the School of Psychology at the University of Michigan, has spent years researching how the negative impacts of density in urban areas can be combated. Part of the problem with urban density is the fact that important relationships are lost due to these over-populated or over-crowded areas and people have trouble placing themselves within their own environment. Through her extensive research on urban density and its effects on residents, Kaplan has concluded, similarly to Dr. Wells' study on people's relationships with tall built environments, that "the presence of nearby nature was important to neighborhood satisfaction in a broader sense"⁸ and that through views and access to nature, an occupant's sense of well-being and satisfaction with or within their neighborhood is increased.

Much as Dr. Wells and Dr. Kaplan, William Sullivan found correlations in his study on theoretical cluster housing developments that alluded to the fact that "people displayed higher preference for developments that had distinctive housing clusters, many trees, and strong connections to nature."⁹ This design, while difficult to incorporate into cities, is achievable, especially given the fact that access to nature or natural areas can alleviate any undesirable or negative impacts created due to density or verticality within a city. Through the incorporation of green spaces both at ground level and vertically throughout a city, relationships with nature can be fostered, and in doing so distinctive housing can be established with the use of the same methods that are used to implement the added nature.

IS GREENSPACE ENOUGH TO ANCHOR OCCUPANTS WITHIN SUPER TALL STRUCTURES?

As shown in the research provided, contrary to redesigning and renovating existing super tall structures to promote identification and relationship to place, Greenspace is the next best thing as it helps to provide scale and allude to the relationship with nature "above the clouds." However, is that truly enough to promote high quality of life and identification of place within these buildings? The EDITT tower designed by TR Hamzah and Ken Yeang attempts to do just that.



EDITT Tower; Ecological Design In The Tropics.

This tower while primarily of sustainable intent incorporates greenspace heavily into the design as a means of "increasing its location's bio-diversity and rehabilitate the local ecosystem,"¹⁰ also serves as an example of how greenspace can be used to anchor buildings and people. The greenspace while providing bio-diversity also brings in a relationship to ground and surrounding through the integration of local, natural resources and species as they begin to occupy and create habitats within the "artificial natural environment." Is this enough though? To only provide identification and relations through the exterior of a space? Or do further elements need to be provided throughout the entirety of the space so that no matter where an occupant is within the space, they feel included in site, culture, and people. Not everyone is going to have access or ease of access to the perimeter of the structure so to put the only anchoring elements solely within the confines of the façade quite frankly isn't enough to consider this structure one in which technology, human

scale, spatial factors and culture are integrated homogenously into one building.

IDENTIFICATION OF PLACE "ABOVE THE CLOUDS"

As discussed in the previous sections, there are a wide variety of issues that emerge when building and expecting people to live and function "above the clouds," despite these issues it is of environmental importance to continue this practice. It provides sustainable measures with regards to conservation of land as well as a distribution of resources which will inherently benefit those in the future.

What does life look like above the clouds? In many cities where super tall buildings are being constructed life above the clouds is much different than at ground level. In China for example, more than 76 super tall buildings. Life within those buildings is vastly different than life on the ground for many reasons. The first being that the housing within these towers is often for the super wealthy creating segregation between the people, and the second is the fact that the climatic conditions are so different 1000ft above the street level that different experiences start to be had.

At 1,000-1,500ft up in the air the weather changes vastly due to its unhindered exposure to natural elements such as sun, wind, and rain. Thus, the people living within these super tall buildings experience weather on an extreme scale. However, the difference in weather patterns isn't the only difference between living in a super tall building vs living at ground level. The types of interactions between people and community also change. Within a super tall building the relationship to the rest of the city is vastly different. Where someone in a 10 storey building can look out their window and relate to street level and other buildings due to scalar proximity; someone on the 210th floor of a super tall building is not afforded the same experience. Instead when they glance out the window, they see the city at miniature scale, there are no trees, people, cars or other building that anchor them to the city below thus creating a disassociation with the city itself, as well as creating a space where the identification and relationship to place is non-existent or immensely hard to conjure up.

Should people within these super tall constructions be in proximity of other super tall structures, the identification and relationship to place is somewhat easier to find. However, the fact is that they will still look out the window onto another building – made of refined metal, 3” glass, and often covered in adaptations to handle the strong wind and solar conditions. All of which are vital to the structural integrity of the building and all of which are limited to materiality’s that instead of being regional or alluding to the vernacular of the area are imported and mass produced due to their strength and durability.

RELATIONSHIP BETWEEN SUPER TALL BUILDINGS AND PLACE

When the complex and elaborate work of architects, urban designers, landscape designers and planners are assembled to create the confines of a city and all that goes inside, certain aspects of the city get left behind due to the intricate level of detail that is required to promote a sense of place. As Bernard Hunt noted in a keynote speech by Hunt of HTA Architects,¹¹ “We are good at putting up buildings, but we are bad at making places,” as designers thrown into the world of fast production and creation what often gets left behind are the most important parts of the design. How people interact, relate and identify within our creations – this lack of relation within creations is exemplified when placed into super tall buildings; the occupants are no longer able to associate with the origins of the world around them be it on a macro or micro scale the relationship is lost due to tremendously different scalar and material relationships present within super tall buildings.

Contributing factors to the lack of relationship and identification of place within the super tall buildings are the fact that human scale, spatial factors, and cultural association are often lost in the height of the building. Scale specifically plays an integral role with this disassociation of place with many occupants having nothing surrounding the structure that anchors them back to the city, they are monumental compared to that of their surroundings. Similarly, on the interior of the building the occupants, while understanding they are in a

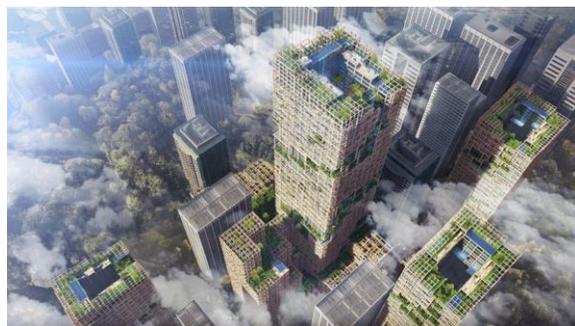
super tall structure are often confined to the height of a traditional floorplate being compressed more so than released through the entirety of their experience within the building.

Spatial factors also play a role with identification of place and go along with the notion of inflexible or stagnant floorplates. When the spatial qualities do not change or adapt when moving through the height of a super tall building the experience and emotion felt by the occupant remains static as well.

Lastly is cultural association, with many modern buildings the materiality and originality within the design of the building lies in the fastest production and construction methods. What is lost is the regionalism, the culturalism and the vernacular of the area. Throughout history culture and community have been defined by materiality, building context and anchoring within the region, however with the advancement of technology and the push to create structures fast and economically the vernacular, the regionalism and the culture are lost in the passing. More often than not giving way to steel, orthogonal grids and curtainwalls due to efficiency and cost.

IDENTIFICATION OF PLACE WITHIN SUPER TALL PROPOSALS

While the majority of super tall structures take on the notion of steel, orthogonal grids and curtain walls without relation to vernacular, regionalism, and the culture, there are some exceptions to the standard. Recently the Japanese company Sumitomo Forestry has proposed a 1,148ft tall timber tower to be built in Tokyo.



Japanese company Sumitomo Forestry is building the W350 tower in Tokyo, set to be the world’s tallest timber structure.¹²

The proposal does keep with the orthogonal grid, however unlike western cultures this grid relates back to traditional Japanese culture following the tradition and organization derived from the Tatami mat. Similar to the spatial organization of the building, the materiality of the space also relates back to traditional Japanese roots, highlighting the use of natural materials and joinery that emerged early in Japanese construction that emphasized the material quality of wood. Cultural association is further anchored through the interior of the structure where each modular element reciprocated the tactile feel of shoji screens.

This project alone, along with others like proves that super tall buildings can be constructed to promote identification and relation to place, the only difference between it and its counter parts is cost, and production time. It is projected that this structure will "cost almost double that of a conventional high-rise building constructed with current technology."¹³ Nonetheless, if the only difference is truly the financials, who is a government or a designer to say that a lower bottom line for a project is of higher importance than the quality of life for the people that are to occupy and interact within the space?

THE FUTURE OF THE SUPER TALL – WHAT NEEDS TO BE DONE TO ENSURE THE IDENTIFICATION OF PLACE WITHIN THESE STRUCTURES

Identification of place stems from people's ability to relate themselves and their surroundings to what they know and trust. It helps to anchor people in unknown or uncharted territory – by providing characteristics similar to what most people relate to and understand through the use of human scale, spatial factors, and cultural association an identification of place can be formed on an individual level thus allowing for this unknown or uncharted territory to become familiar.

Part of the biggest issues with the super tall structures is that at a certain point in their extrusion they become too tall – that is they stop relating to things below them because at the heights everything below becomes spectacles or dots of existence not people, cars, or busses but little moving dots that give

no context to the surrounding. Similarly, should an occupant choose to look forward instead of down atop the perch of the upper floors of a super tall building there is nothing to relate to other than open air, clouds and maybe one or two other super tall – of which only the rough, rigid façade is discernable.

Both characteristics are what relate back to Dr. Wells, Ms. Kaplan, and Mr. Sullivan's research – the negative effects of living high above ground level, and both of which can be helped through the inclusion of the findings through all three studies. However, that isn't to say that simply by incorporating greenspace and community parks within these super tall buildings is to solve all the issues that have arisen within these constructions.

There is another level which must be attained to promote the identification of place within the super tall environment. Incorporating natural elements helps in that all people will relate one way or another to green environments but this alone will not create a space in which the identification and relation to place are prominent. This level connects the person on a more spiritual level to their new surroundings above the clouds.

To do this is not a one and done answer – this is where vernacular, and regionalism come to play within the super tall structures. Most super tall constructions aside from strong site conditions such as wind management can fit to any site, location, or region because they are designed for function over form. To get to this deeper level of connection, of identification these buildings need to address the regionalist condition and build to the characteristics that anchor people within their own region.

CONCLUSION

As with increasing population predictions, super tall buildings are set to become a constant across the globe in the coming century. While their engineering and architectural feats wow the world today, the impacts within a city and a community are yet to be fully understood, more importantly there is an obvious disconnect between elements that promote identification and relationship to place within these super tall structures. On a global scale the number of super tall structures is increasing yearly, increasing the number of

environments that lack the attributes to promote the ability to thrive within the built environment. The construction of these environments should it continue without addressing human scale, spatial factors, and cultural association will lead to adverse effects on the physical and mental health of the people within.

Since super tall buildings have just recently become a form of housing designers and governments have yet to fully understand the impact. However, with the scientific evidence provided in this paper that shows what happens to the mentality of people without specific environmental conditions it can be concluded that the way in which super tall buildings are proposed, constructed, and maintained, they will eventually lead to a global health crisis in the years to come.

Endnotes

¹ The super tall. To be considered a super tall structure the overall height of the building must amass 950ft tall.

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⁴ Bisaria, Anjali. "Dubai Is Now Building A Rotating Skyscraper Where Every Apartment Will Spin Individually." *Indiatimes.com*. February 19, 2017. <https://www.indiatimes.com/news/world/dubai-is-now-building-a-rotating-skyscraper-where-every-apartment-will-spin-individually-271832.html>

⁵ Bisaria, Anjali. "Dubai Is Now Building A Rotating Skyscraper Where Every Apartment Will Spin Individually." *Indiatimes.com*. February 19, 2017. <https://www.indiatimes.com/news/world/dubai-is-now-building-a-rotating-skyscraper-where-every-apartment-will-spin-individually-271832.html>

⁶Ali, M. M. "Sustainable Urban Life in Skyscraper Cities of the 21st Century."

⁷Wells, Nancy. "How Natural and Built Environments Impact Human Health."

⁸ Kaplan, Rachel. "The Nature of the View from Home." *Environment and Behavior* 33, no. 4 (2001):507-42. doi:10.1177/00139160121973115.

⁹ Sullivan, William. "Cluster Housing at the Rural-Urban Fringe: The search for adequate and satisfying places to live."

¹⁰ Yoneda, Yuka. "Singapore's Ecological EDITT Tower." *Inhabitat Green Design Innovation Architecture Green Buildings*. October 15, 2008. <https://inhabitat.com/editt-tower-by-trhamzah-and-yeang/>

¹¹ Hunt, B. (2001) A keynote speech by Hunt of HTA Architects Ltd, 22 February 2001, <http://www.sustainable-placemaking.org/about.htm>.

¹² Marsh, Jenni. "Tokyo to Build World's Tallest Timber Tower." *CNN*. February 20, 2018. <https://www.cnn.com/style/article/wooden-skyscrapers-timber-trend-catching-fire-duplicate-2/index.html>

¹³ Ravenscroft, Tom. "World's Tallest Timber Tower Proposed for Tokyo." *Dezeen*. March 06, 2018. <https://www.dezeen.com/2018/02/19/sumitomo-forestry-w350-worlds-tallest-wooden-skyscraper-conceptual-architecture-tokyo-japan/>

INITIAL THESIS IDEAS

As noted in the thesis paper, this specific project aims at providing intellectual solutions to the current and future issue of increasing population and decreasing land mass. Throughout the thesis process and the writing of the paper the common conception was that skyscrapers or super tall structures were the solution. Many countries are adapting this mantra with the construction and competition for the world's tallest building, however as noted previously what actually happens within these structures long term is unknown and leans towards the realm of disassociation and mental illness. Therefore, an alternative measure is to be approached.

The solution, or the method of solving this impending crisis takes aim at continuing the build upwards into the clouds while simultaneously providing an environment in which people can relate and interact with the same characteristics that they currently experience at ground level. Approaching this task and design as a continuation of the city in vertical fashion has been deemed the most beneficial approach and therefore has led to the ideation and design that follows.

LOCATION



London



Los Angeles



New York City

In dealing with a thesis based on population increase and density, the location of the area of focus was quite important and could validate or break the entire project. Initially three sites were chosen as areas of focus. New York City, London, and Los Angeles, all of which have high populations, sprawl, and increasing density as more and more people fluctuate into the city. In looking in-depth at each city they all appeared to have the appropriate requirements.

London, the most historic of them all has a centuries long standing for sprawl instead of dealing with increased density thus making it a prime example for a city that could use a new methodology for how to handle expansion. However, due to historic guidelines and century of sprawl the existing infrastructure is composed of low rise 3-6 storey buildings and a few higher rise buildings in-between. This made it hard to justify placing a series of skyscrapers or anything else of that height within the confines of the city.

Los Angeles is of similar characteristics to London, it too is a city of immense sprawl and could use modern ideations for how to maintain quality of life within the city while accommodating population and density. However, the same fault exists in LA, in that the entirety of the city is very low rise often consisting of 3 stories or smaller. This meant that the potential solution could not, should not ethically be something as tall as the initial thesis proposed and therefore should not be selected if the initial thesis ideas are to be followed.

New York City has some characteristics to that of London and Los Angeles however unlike the previous two, any future expansion is set to the confines of the island of Manhattan or Long Island making it a prime specimen for the exploration as the only way to maintain current growth rates is to build upwards. Along with the need to sustain growth through upward expansion the city offers an already developed vertical environment in which to explore relationships and development.

THREE SITES



NEW YORK



MANHATTAN



THE THREE SITES



5TH AVENUE AND 53RD ST.
MANHATTAN, NY



BROADWAY AND 40TH ST.
NEW YORK, NY

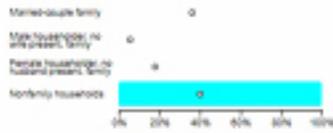


10TH AVENUE AND 25TH ST.
HUDSON YARDS, NY

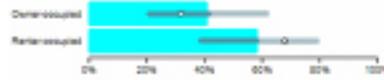
THREE SITES

BROADWAY

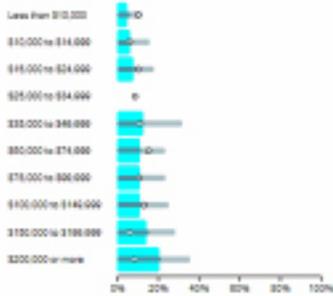
Percent Distribution of Household Types



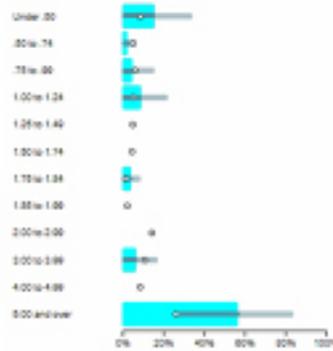
Percent Distribution of Housing Tenure



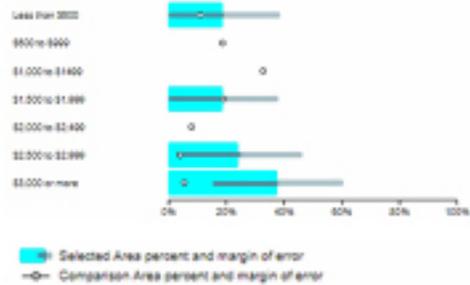
Percent Distribution of Household Income



Percent Distribution of Population by Ratio of Income to Poverty Level

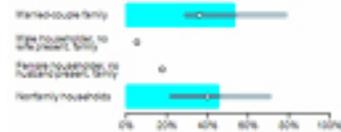


Percent Distribution of Renter-occupied Households by Gross Rent

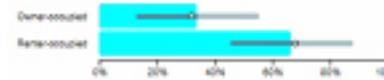


5TH AVENUE

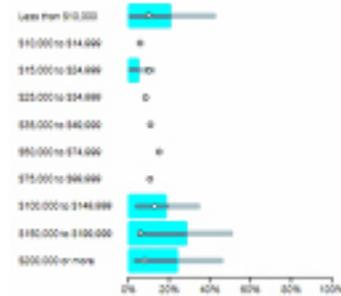
Percent Distribution of Household Types



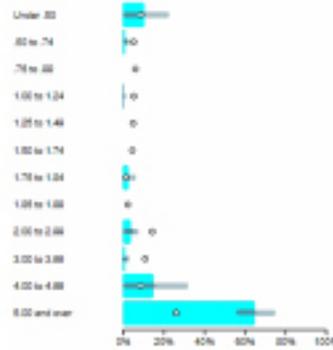
Percent Distribution of Housing Tenure



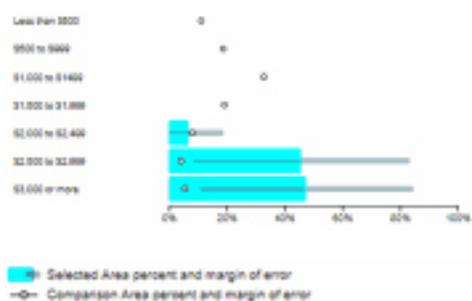
Percent Distribution of Household Income



Percent Distribution of Population by Ratio of Income to Poverty Level

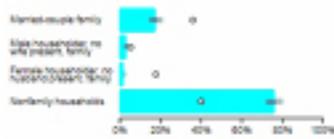


Percent Distribution of Renter-occupied Households by Gross Rent

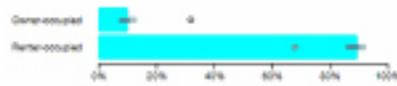


10TH AVENUE

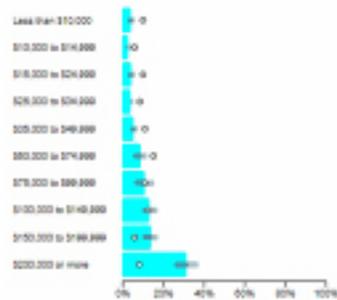
Percent Distribution of Household Types



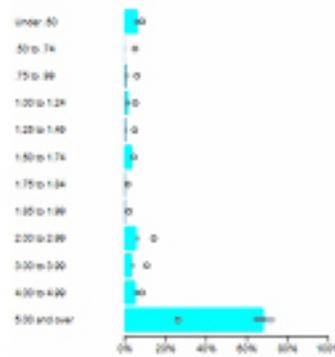
Percent Distribution of Housing Tenure



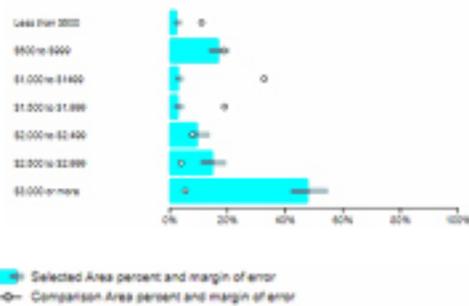
Percent Distribution of Household Income



Percent Distribution of Population by Ratio of Income to Poverty Level



Percent Distribution of Renter-occupied Households by Gross Rent



Each of the three sites were picked based on the surrounding context, each one exhibits differentiating elements which make them sought after for the purpose of this thesis.

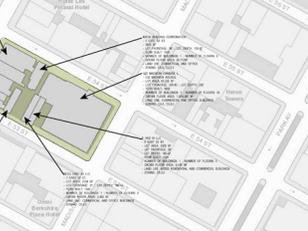
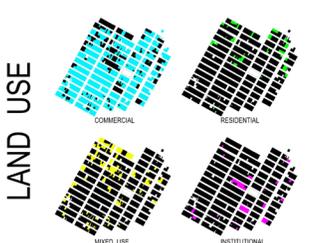
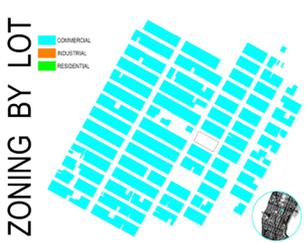
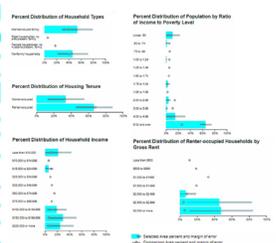
Broadway is booming with people and development. Often seen as a cultural hub of New York City it could make a dynamic and motivating setting to develop the thesis idea further.

5th Avenue is most sought after for shopping, tourism and commercial expansion, the development and revenue that is created within this location is prime to economically support whatever idea manifests as the thesis topic is explored and elaborated on further down the line.

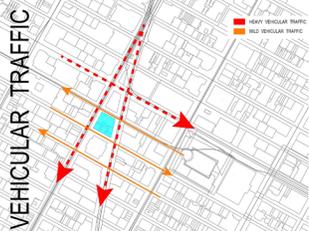
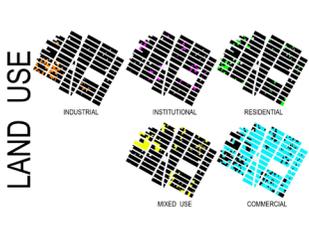
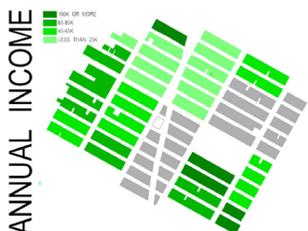
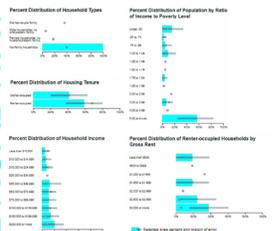
10th Avenue is at the center of New York City's construction boom. Just blocks south from the new Hudson Yards location this site serves to provide a place in which the new development can be analyzed, understood and modified to promote quality of life, anchoring, and sense of place within the new vertical environments.

THREE SITES EXPLORED AT DEPTH

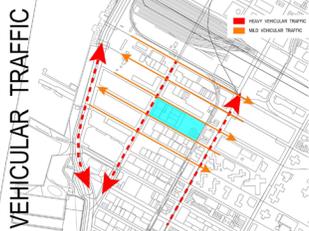
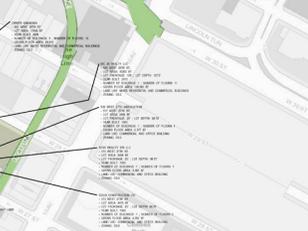
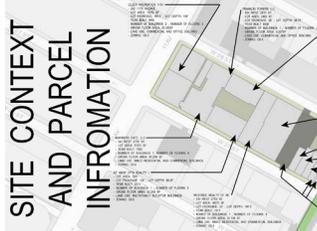
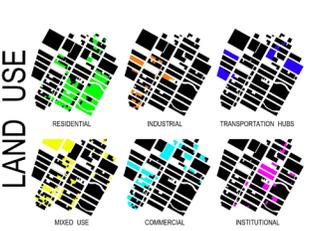
5TH AVENUE

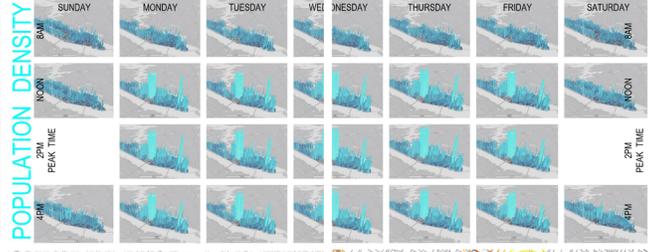
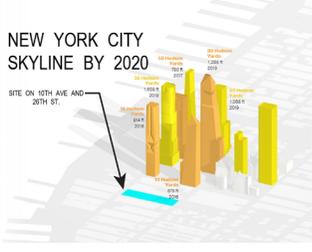


BROADWAY



10TH AVENUE



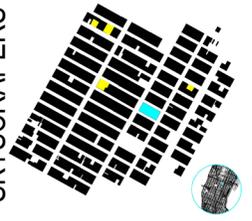


SITE 1
5TH AVE AND 53RD ST, MANHATTAN NY

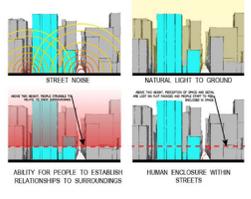
SUBWAY ENTRANCES



PROXIMITY TO SKYSCRAPERS



5TH AVENUE



5TH AVENUE

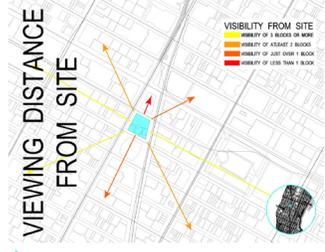
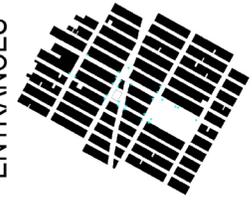


5TH AVENUE



SITE 2
BROADWAY AND 40TH ST, NEW YORK NY

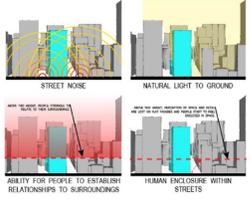
SUBWAY ENTRANCES



PROXIMITY TO SKYSCRAPERS



BROADWAY



BROADWAY

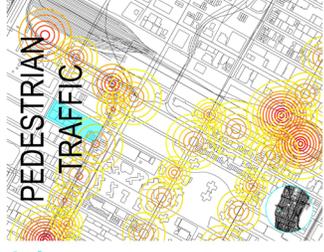
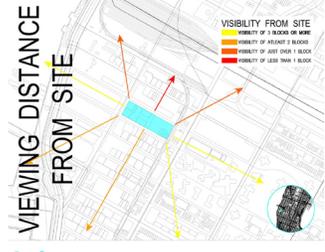


BROADWAY



SITE 3
10TH AVENUE AND 20TH ST, HOUSON YARDS NY

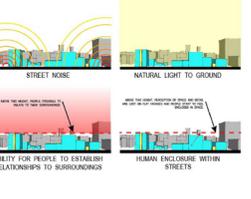
SUBWAY ENTRANCES



PROXIMITY TO SKYSCRAPERS



10TH AVENUE



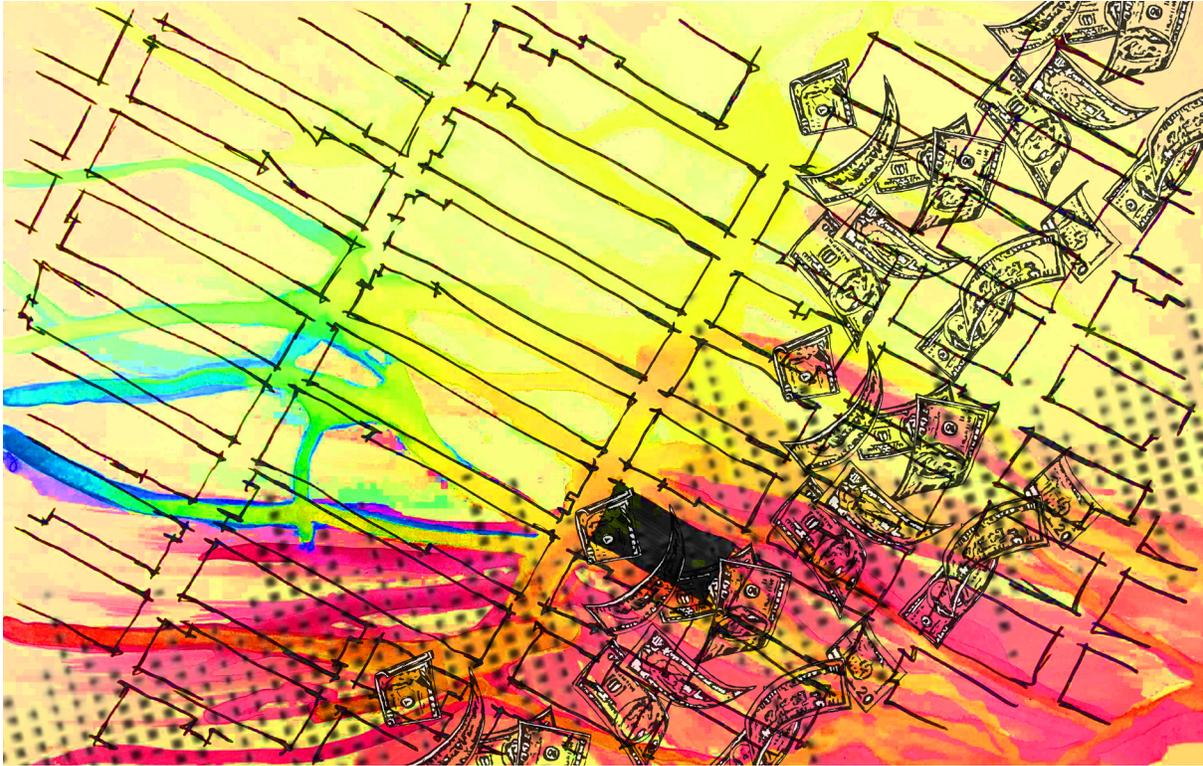
10TH AVENUE



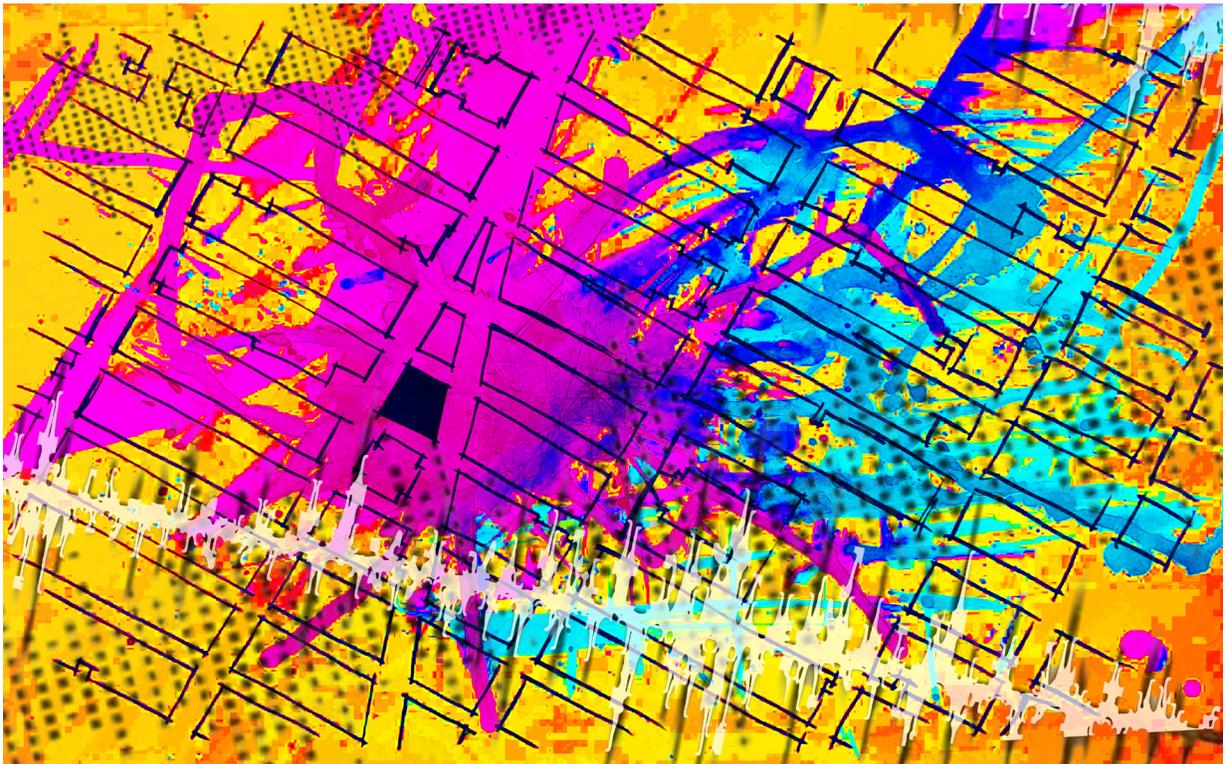
10TH AVENUE



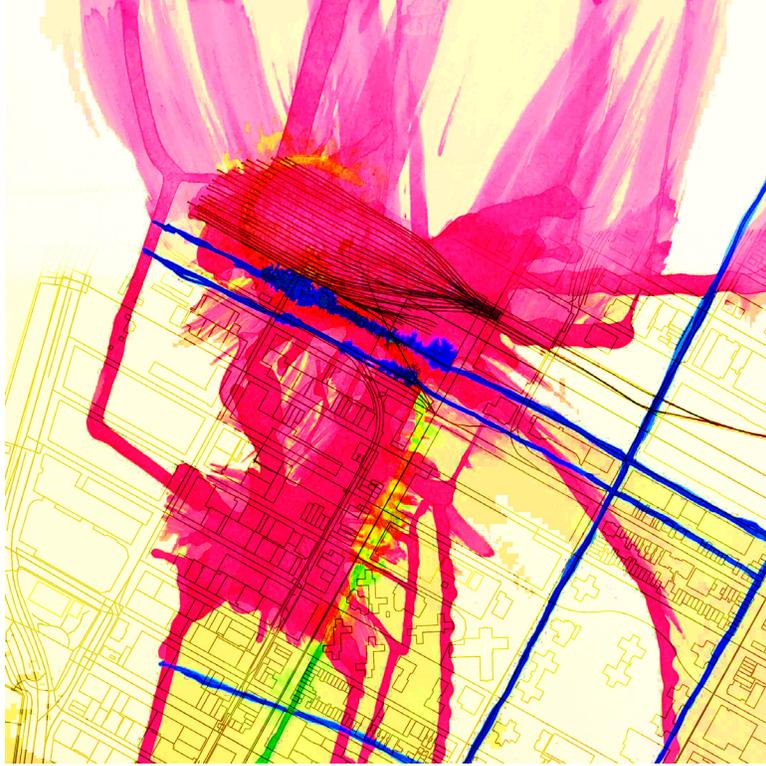
THREE SITES EXPLORED AT DEPTH: COLLAGE



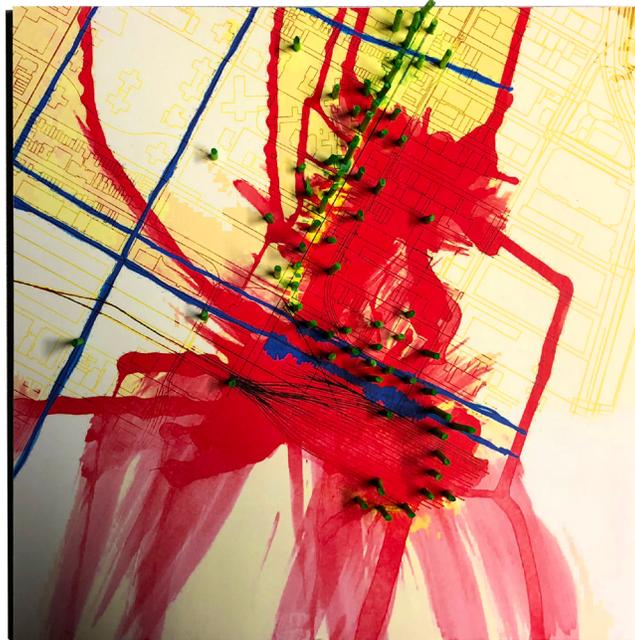
5th Avenue



Broadway



10th Avenue A

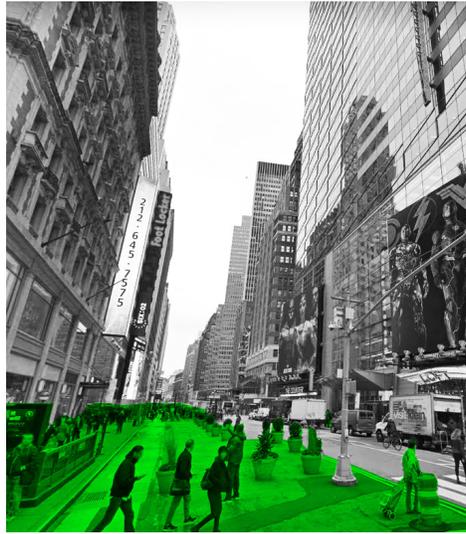


10th Avenue B

PRELIMINARY SITE DIAGRAMMING



Office



Pedestrian Priority Areas



Retail



Street View Base



Advertising 1



Advertising 2



Above Ground Public Transport



Dumpster Diving Locations

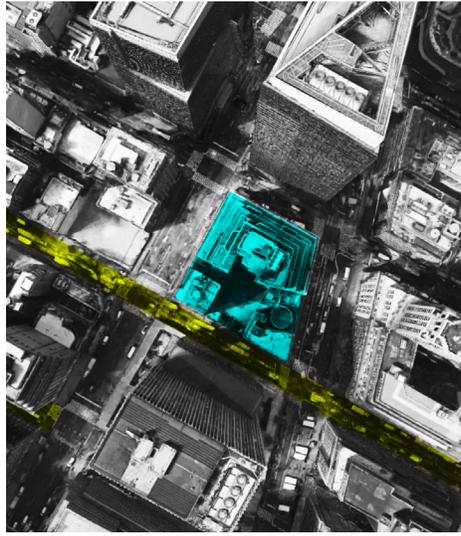


Important Roads

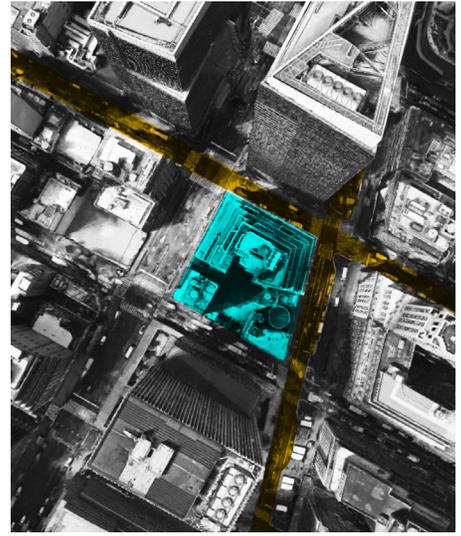
The summer site analysis work was focused primarily on establishing a final site for the project. Over the course of the summer, three sites within the confines of New York City were priced and explored over a wide variety of criteria diagrammed below.



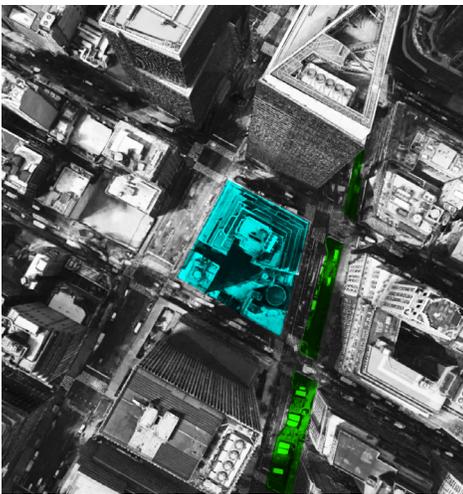
Heavy Vehicular Traffic



Light Vehicular Traffic



Moderate Vehicular Traffic



Pedestrian Priority Sidewalk



Noise Surrounding Site



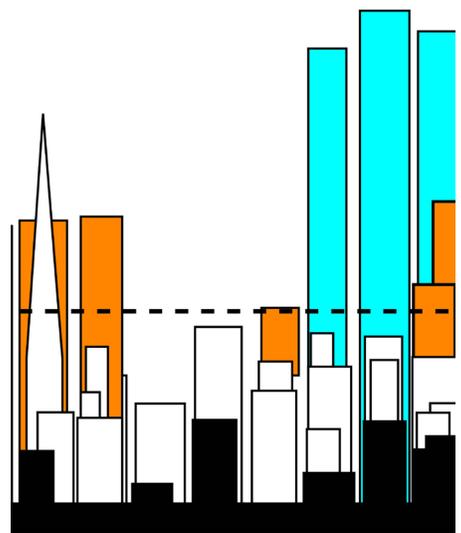
Surrounding Uses



Subway Entrances



NYC Schools



City Sketch Diagram

CASE STUDIES

VALDRADE TOWER

THE VALDRADE TOWER WAS CHOSEN FOR ITS ABILITY TO INTRODUCE PUBLIC SPACE INTO THE DESIGN AND INTEGRATE IT AT MANY DIFFERENT LEVELS. ALONGSIDE THE WEBLIKE STRUCTURES THAT SPAN STREETS TO CREATE ACCESSIBLE PUBLIC SPACE, THE FACADES OF THE PROPOSED BUILDINGS CALL FOR THE INCORPORATION OF GREENSPACE WITHIN - WHILE THEIR INTENT IS SPECIFICALLY FOR THE SUSTAINABILITY OF THE BUILDING, IT LEANS TOWARDS THE THESIS TOPIC OF GROUNDING PEOPLE WITHIN HIGH LIVING/WORKING ENVIRONMENT.S



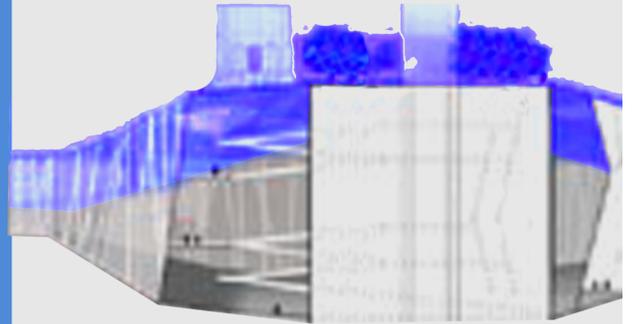
INTEGRATION OF PUBLIC SPACE



BUILDING REFLECTION ABOVE EXISTING



ELEVATED GREEN CORRIDOR



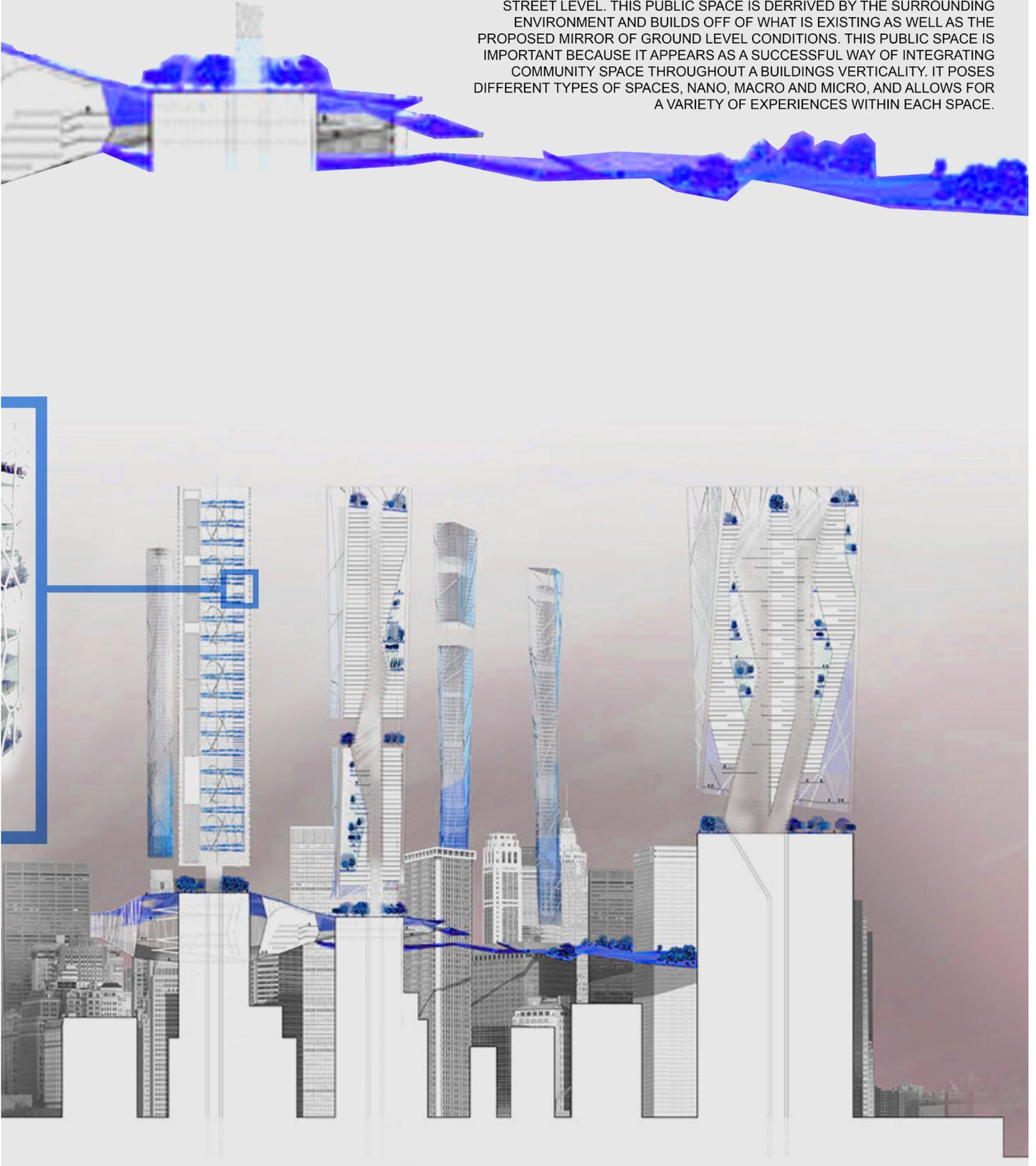
FACADE DETAIL

THE PROPOSED DUAL FACADE SYSTEM TO BE APPLIED TO ALL OF THE BUILDINGS NOT ONLY CREATES IDEAL SUSTAINABILITY CONDITIONS - BUT ALSO INCORPORATES NATURE THROUGHOUT THE ENTIRETY OF THE COMPLEX. THIS INCORPORATION WILL HELP TO ANCHOR THE PEOPLE THAT OCCUPY THE BUILDING, HELPING TO CURVE THE NEGATIVE PSYCHOLOGICAL IMPACTS ASSOCIATED WITH LIVING SO FAR ABOVE GROUND LEVEL, AND THE FACT THAT THE GREEN SPACES INCORPORATED IN THE FACADES ARE ACCESSIBLE TO THE OCCUPANTS ONLY FURTHERS THIS NOTION.



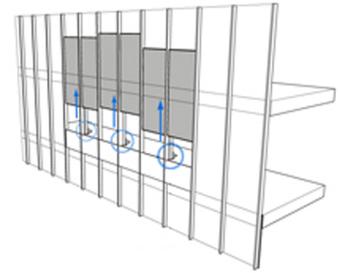
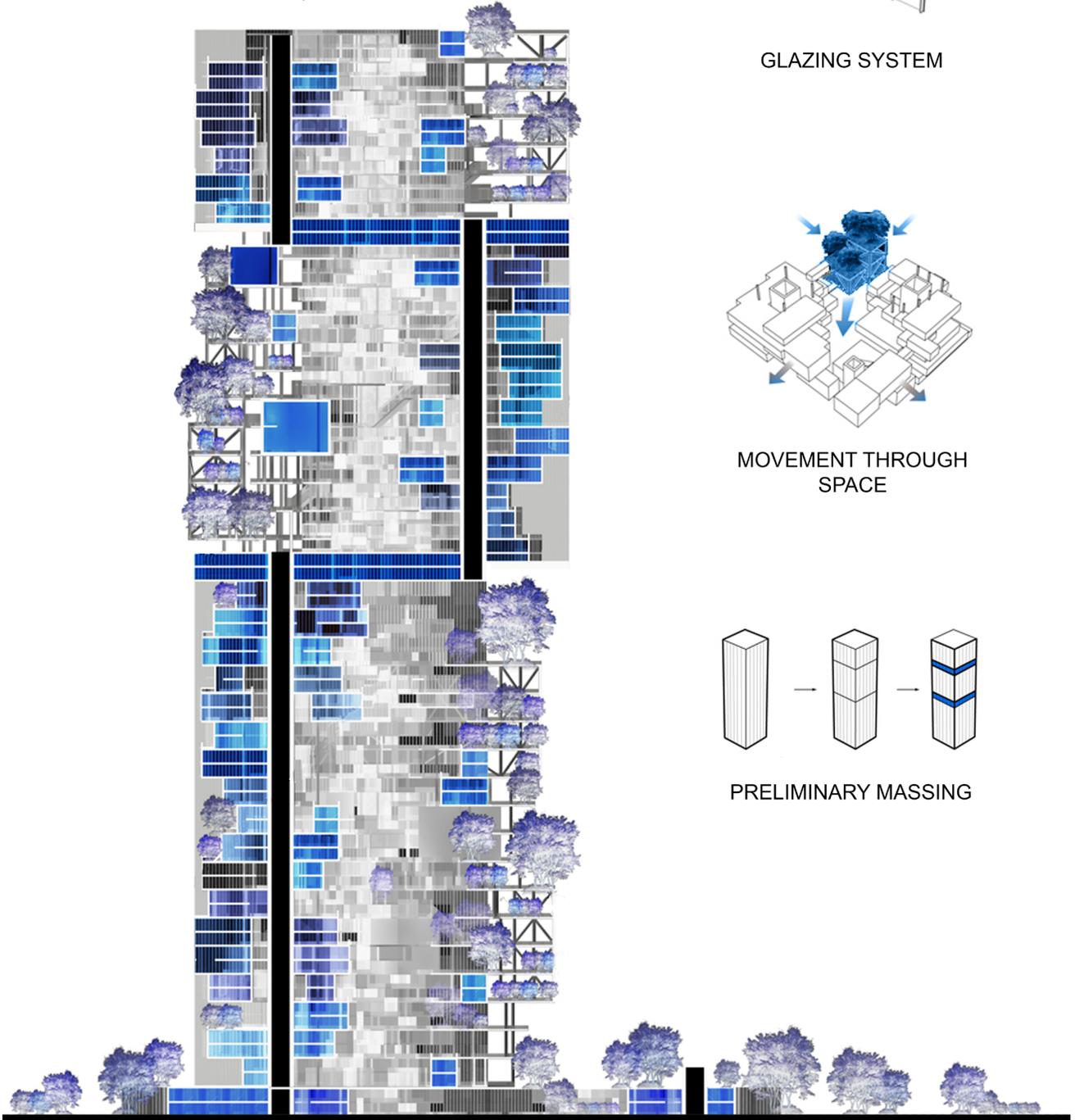
INTEGRATION OF PUBLIC

THE PUBLIC SPACE IN THIS DESIGN OCCURS AT VARYING POINTS IN THE DESIGN. THE PRIMARY FOCUS FOR THIS STUDY HOWEVER IS THE WEB LIKE SYSTEM THAT SPANS SEVERAL BLOCKS ELEVATED IN THE AIR ABOVE STREET LEVEL. THIS PUBLIC SPACE IS DERRIVED BY THE SURROUNDING ENVIRONMENT AND BUILDS OFF OF WHAT IS EXISTING AS WELL AS THE PROPOSED MIRROR OF GROUND LEVEL CONDITIONS. THIS PUBLIC SPACE IS IMPORTANT BECAUSE IT APPEARS AS A SUCCESSFUL WAY OF INTEGRATING COMMUNITY SPACE THROUGHOUT A BUILDINGS VERTICALITY. IT POSES DIFFERENT TYPES OF SPACES, NANO, MACRO AND MICRO, AND ALLOWS FOR A VARIETY OF EXPERIENCES WITHIN EACH SPACE.

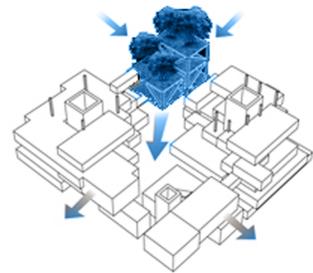


FORMLESS TOWER

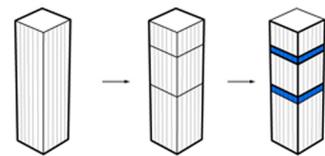
The Formless Tower is a design proposal submitted to the Evolo Skyscraper Competition. The design focuses on the interaction between programs and the transformation of the building volume according to its relationship with the inhabitants, the city and the natural landscape.



GLAZING SYSTEM



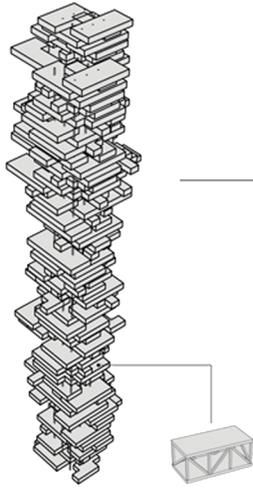
MOVEMENT THROUGH
SPACE



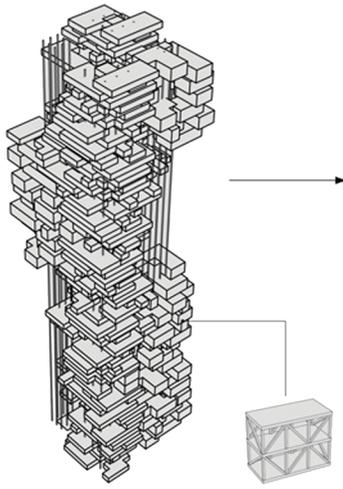
PRELIMINARY MASSING

FORM FINDING

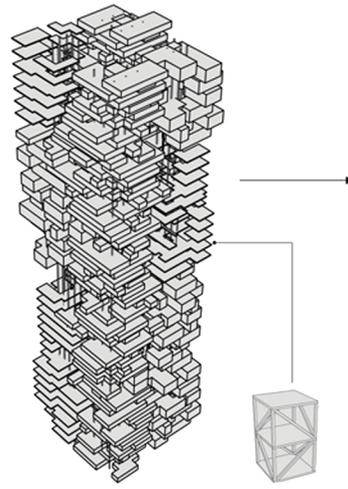
The form of this building was derived from assumptions made about location of elements such as stores, auditoriums, offices and residences. This assumption allowed for a program to be developed that accommodated the desired functions while creating voids for secondary functions to occur in.



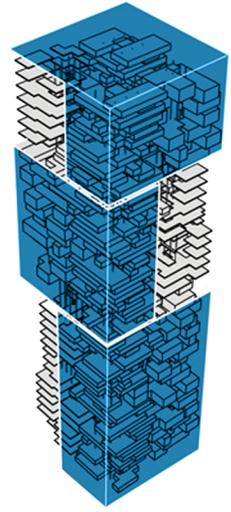
1 STORY UNIT CLUSTERS



ADD DUPLEX UNIT CLUSTERS



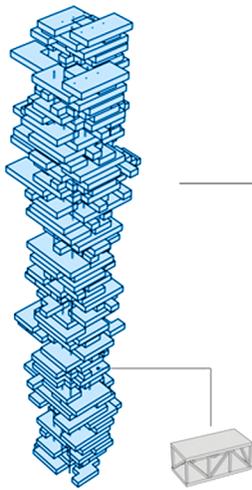
ADD BOTANICAL GARDENS



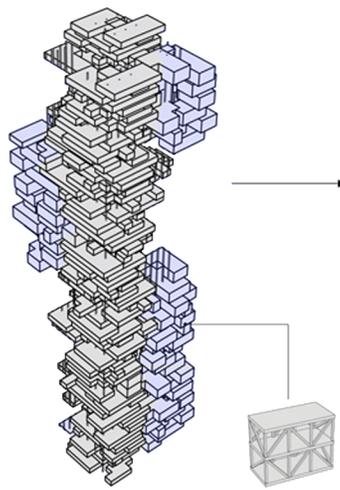
GENERIC CUBE SKIN

SPATIAL ORGANIZATION

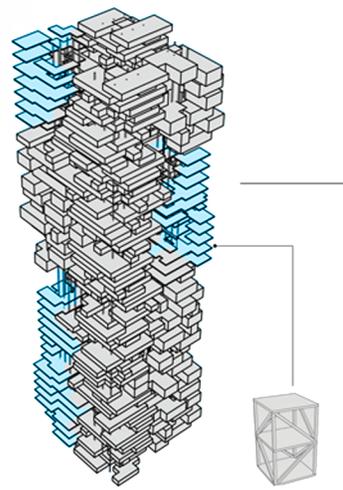
As with most buildings, this one revolved around a core that had pieces added and subtracted from it. With this pieced together core, spaces of varying scale and size were added around the core creating areas of varying functions. These primary areas when compiled together to create a whole then allowed for secondary areas to be created - spaces that subsequently served as respite places for the building.



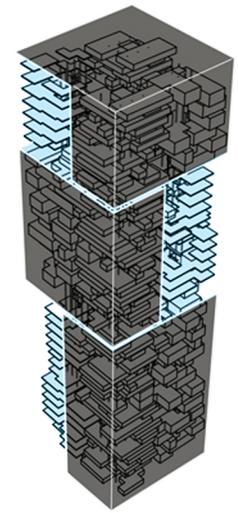
BUILDING CORE



SMALL INTIMATE SPACES



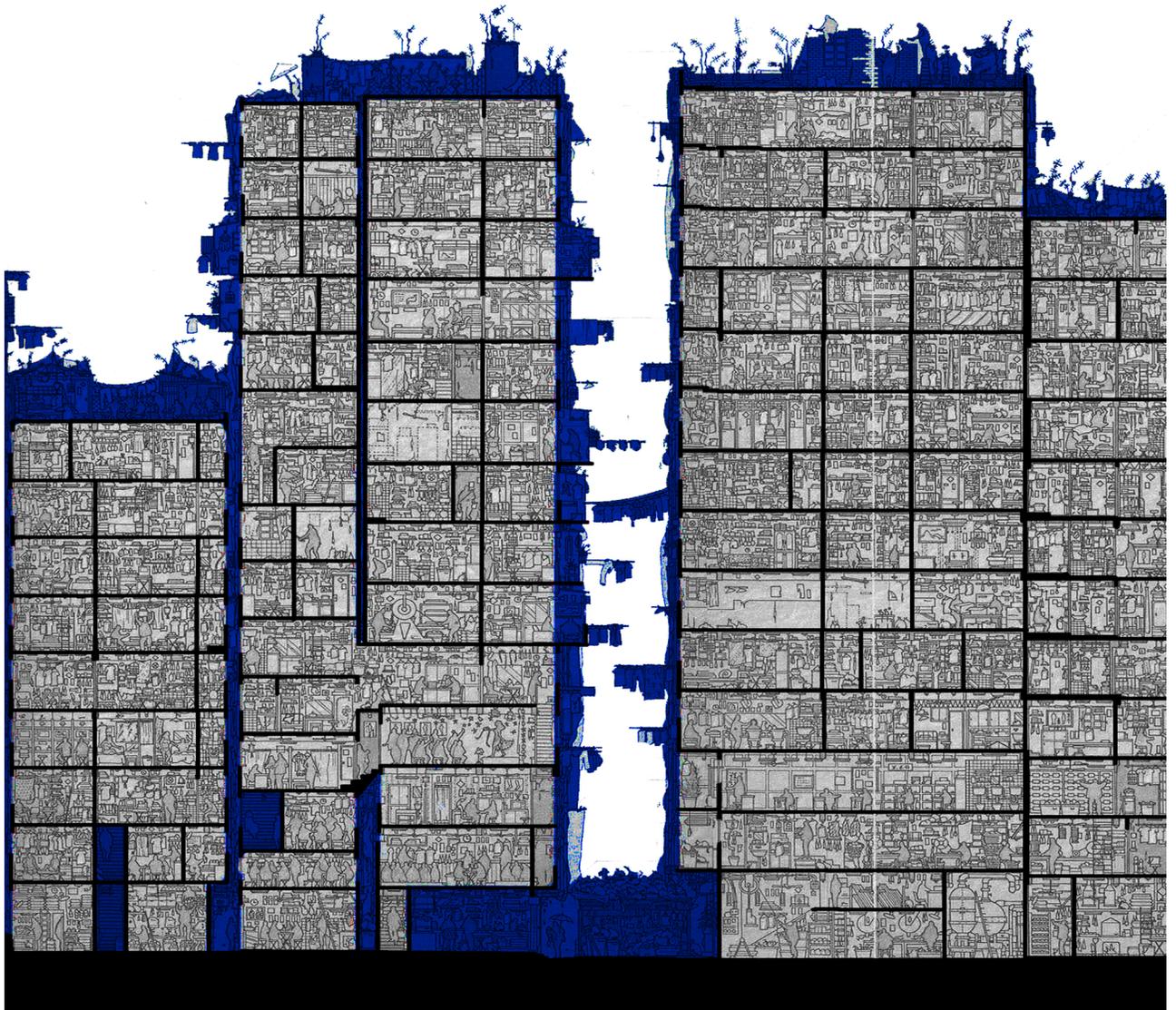
LARGE PUBLIC SPACES

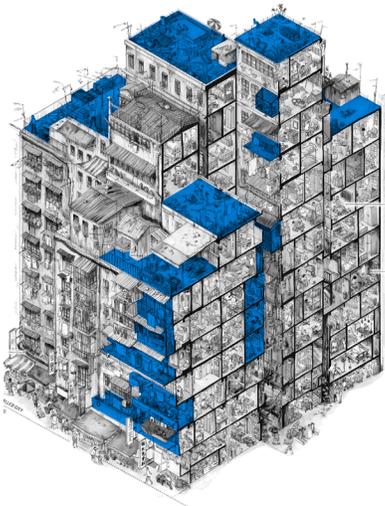


PUBLIC GREEN SPACE

KOWLOON WALLED CITY

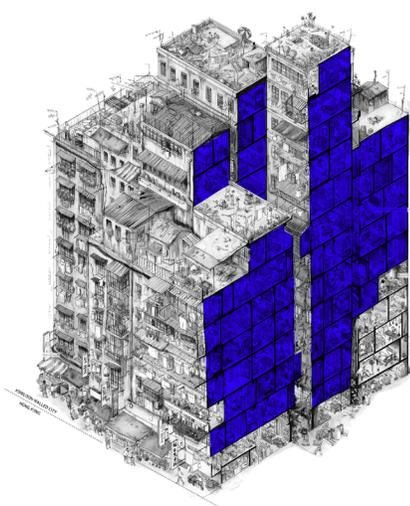
WHILE THE WALLED CITY NO LONGER EXISTS, IT IS STILL A VALUABLE CASE STUDY TO EXPLORE. THROUGH THE WAY IN WHICH IT WAS CONSTRUCTED, THE WALLED CITY OFFERS INSIGHTS INTO HOW PEOPLE DEVELOP(ED) SPACES WHEN LEFT TO THEIR OWN ACCORD. EVEN THOUGH THIS STRUCTURE DOES NOT ATTAIN HIGHTS DISCUSSED ABOUT IN THE THESIS QUESTION - IT HITS DENSITY ON A MASSIVE SCALE AND WHAT IN FACT HAPPENS TO CONDITIONS AND COMMUNITY SPACES WHEN THE ENVIRONMENT GETS BUILT UP DRAMATICALLY.





ACCESS TO OUTSIDE

WITH SUCH A DENSE ENVIRONMENT, ACCESS TO NATURE AND OUTSIDE COMES TO QUESTION WITH THIS CONSTRUCTION. WHILE THERE ARE WINDOWS AND LARGE OPENINGS TO LET AIR INTO THE SPACES, VERY FEW POINTS OF ENTRY/ACCESS EXIST FOR CONNECTING WITH NATURE.



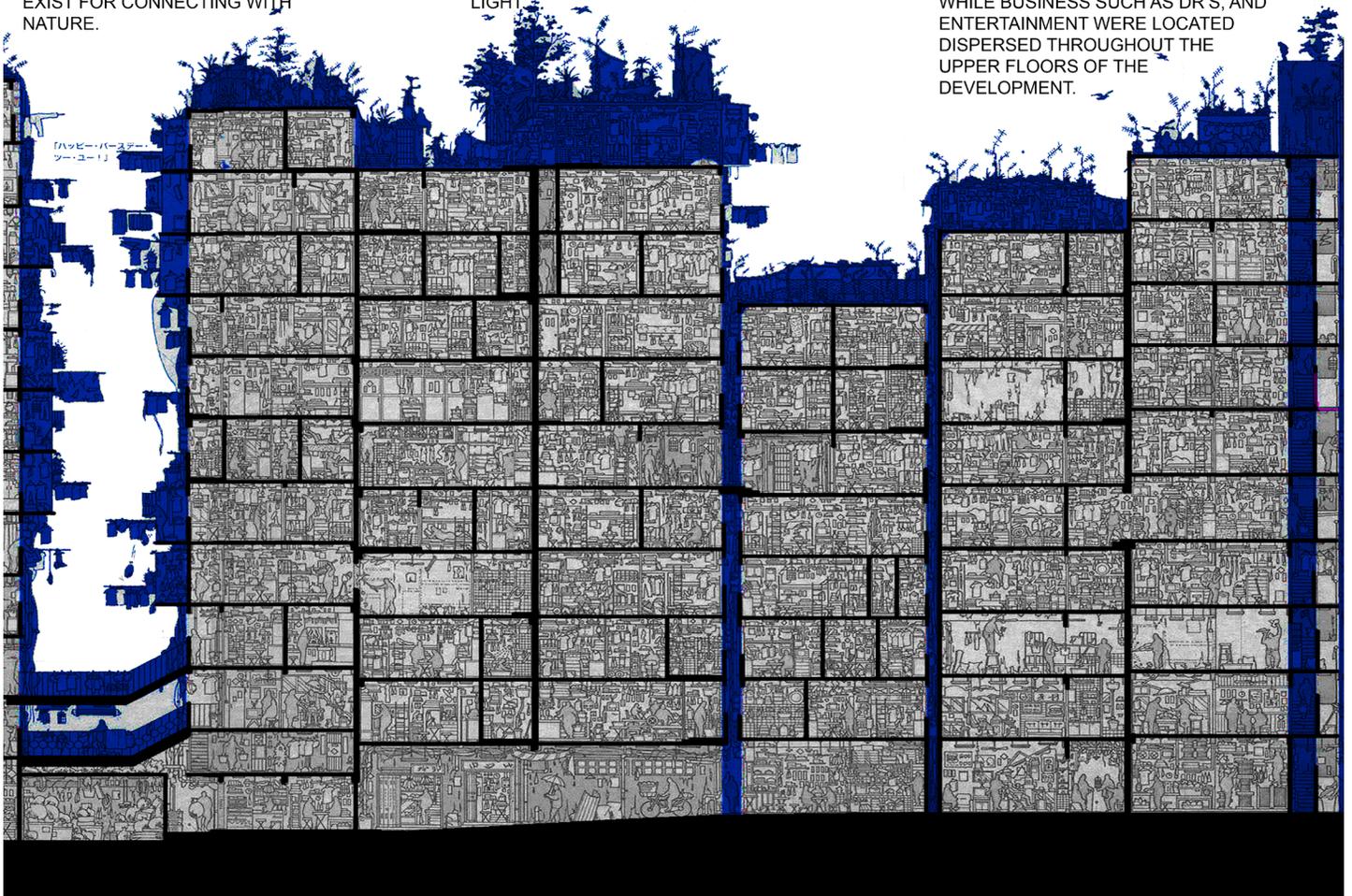
HOUSING

DISPITE THE FACT THAT THIS DEVELOPMENT WAS CREATED FOR BUISNESSES TO ESCAPE LAWS IN HONG KONG AND CHINA, IT WAS FULL OF RESIDENTIAL SPACES. THESE SPACES WERE OFTEN QUITE CRAMPT AND DEVOID OF NATURAL LIGHT.



COMMERCIAL / RETAIL

COMMERCIAL SPACES WERE OFTEN LOCATED ON THE GROUND LEVEL OF THE DEVELOPMENT, SOME SECONDARY SERVICES SUCH AS FACTORIES AND MANUFACTURING AREAS RESIDED ON THE FLOORS JUST ABOVE THE GROUND FLOOR. WHILE BUSINESS SUCH AS DR'S, AND ENTERTAINMENT WERE LOCATED DISPERSED THROUGHOUT THE UPPER FLOORS OF THE DEVELOPMENT.

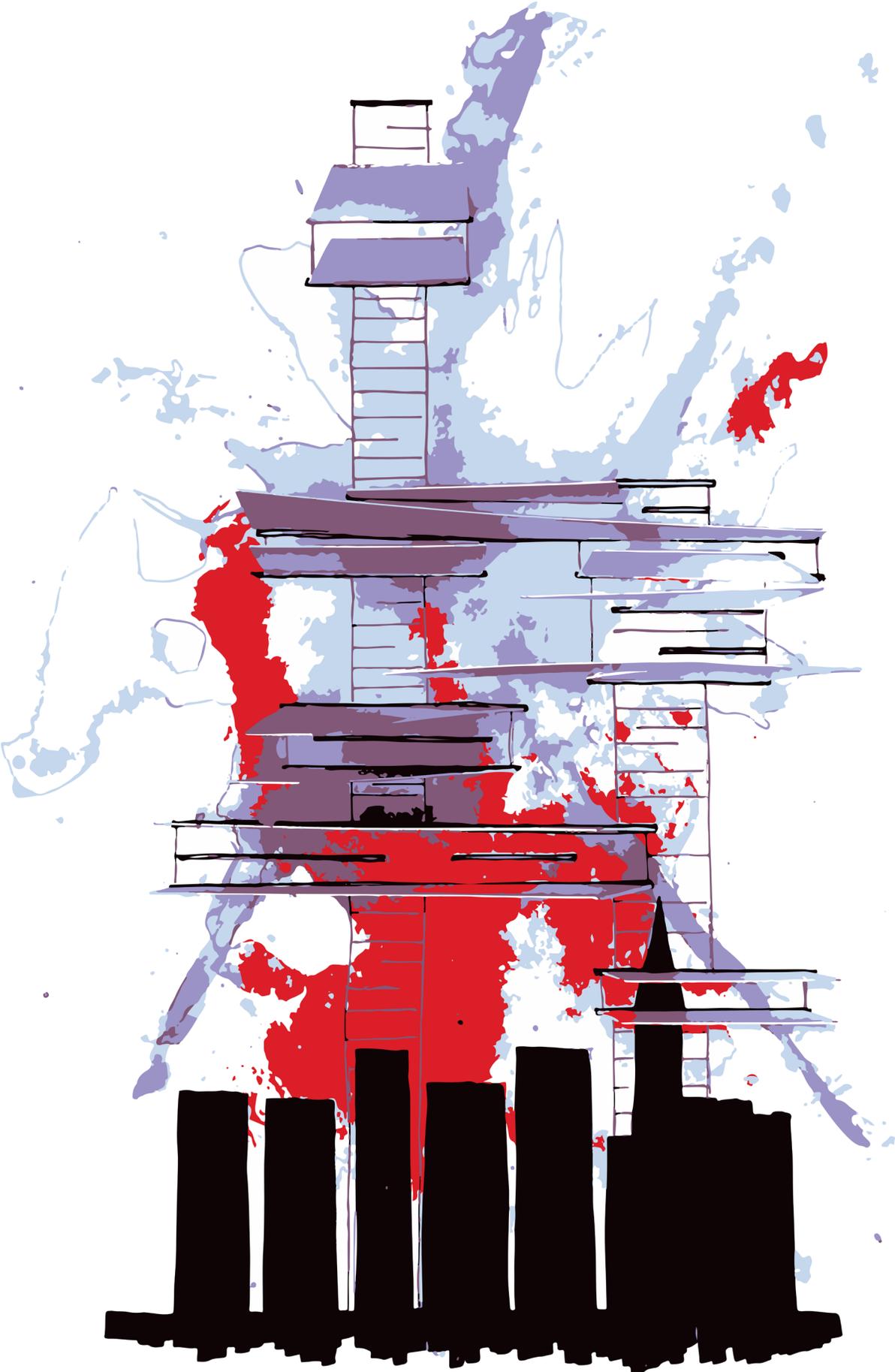


CONCEPT IDEATION





CONCEPT IDEATION

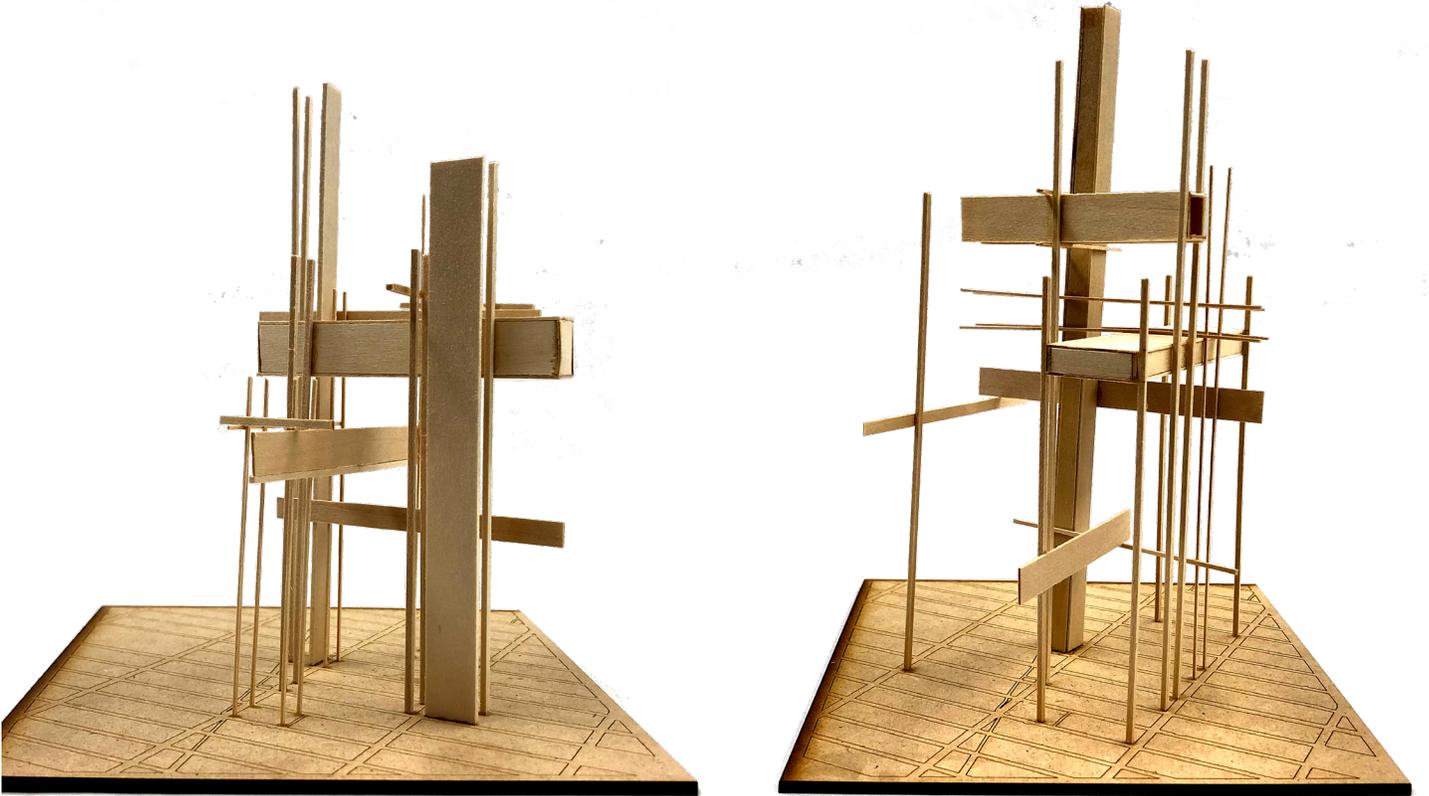


The preceding 3 images show the process behind ideating a solution to population, density, vertical expansion, and city relationships. With most proposals for population increase the notion is to build a single skyscraper however is that to be the only possible solution?

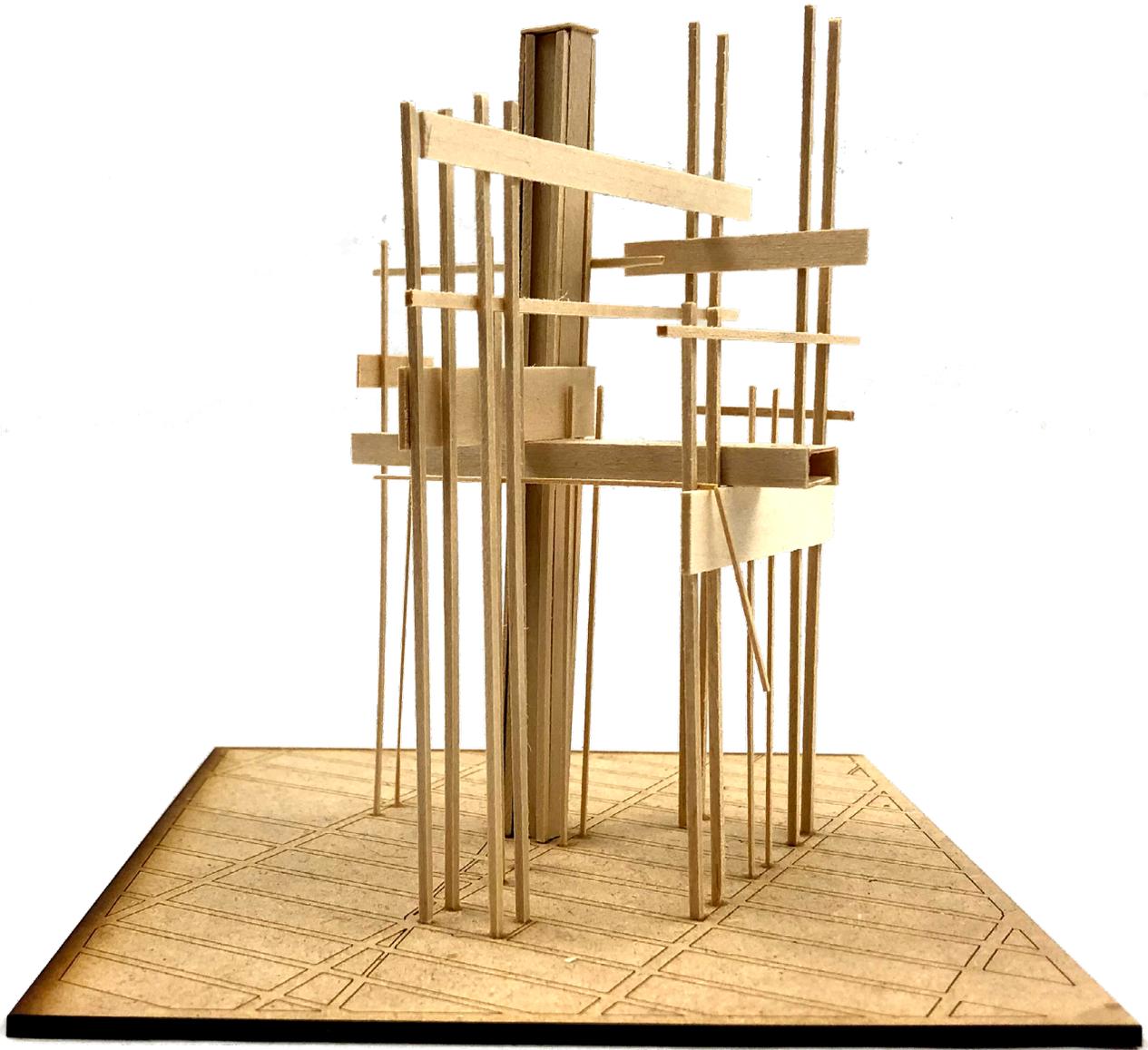
These drawings and model show the thought process behind creating something other than a super tall super slender skyscraper. What is to happen if we make a series of interconnecting buildings elevated above the existing city? How are people to relate and interact within these spaces? How does it benefit or hinder the livelihood of the people?

All of these questions are attempted with these initial drawings and serve as background information and inspiration for the design process to come.

DESIGN EXPLORATION



Like most projects, 3D exploration was key to determine spatial criteria and effects on existing conditions. These models were initially developed to explore vertical expansion and were later adapted upon based on critical feedback provided by the committee.



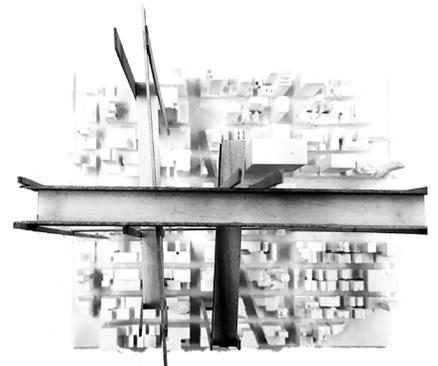
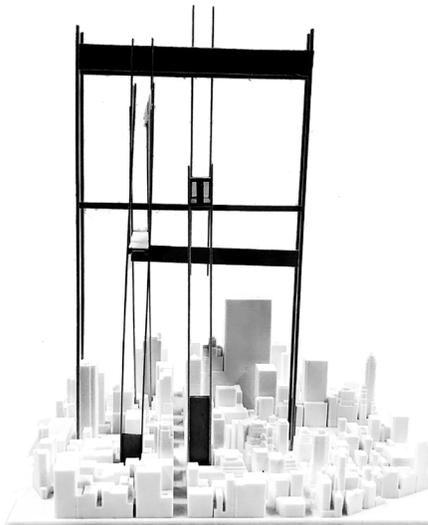
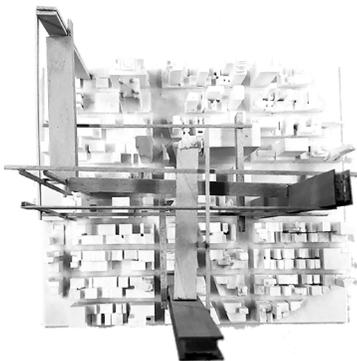
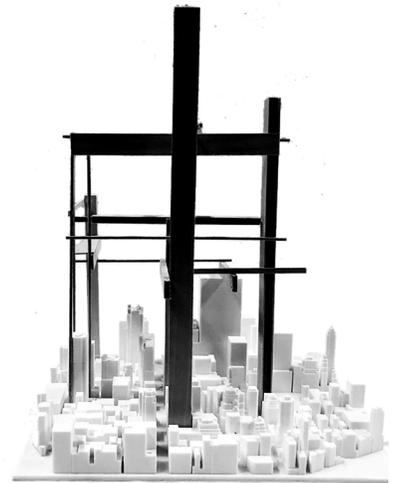
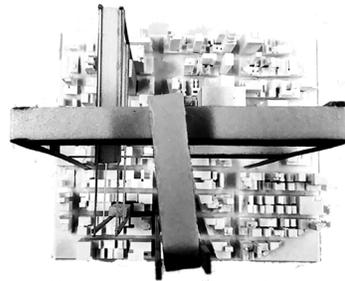
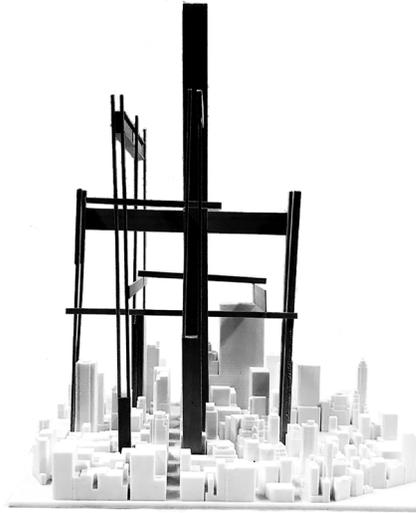
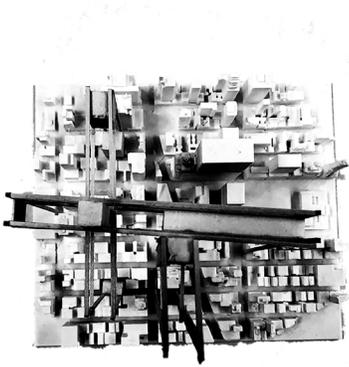
DESIGN EXPLORATION

The model studies show on the previous page led to the design revelation that an urban scaffolding of sorts could be constructed over the city to provide the necessary infrastructure needed to support the increased demand placed on the city of New York. After this revelation more site analysis was conducted on the Broadway site to see how if this idea was to be elaborated on more would affect the existing urban fabric of the city.

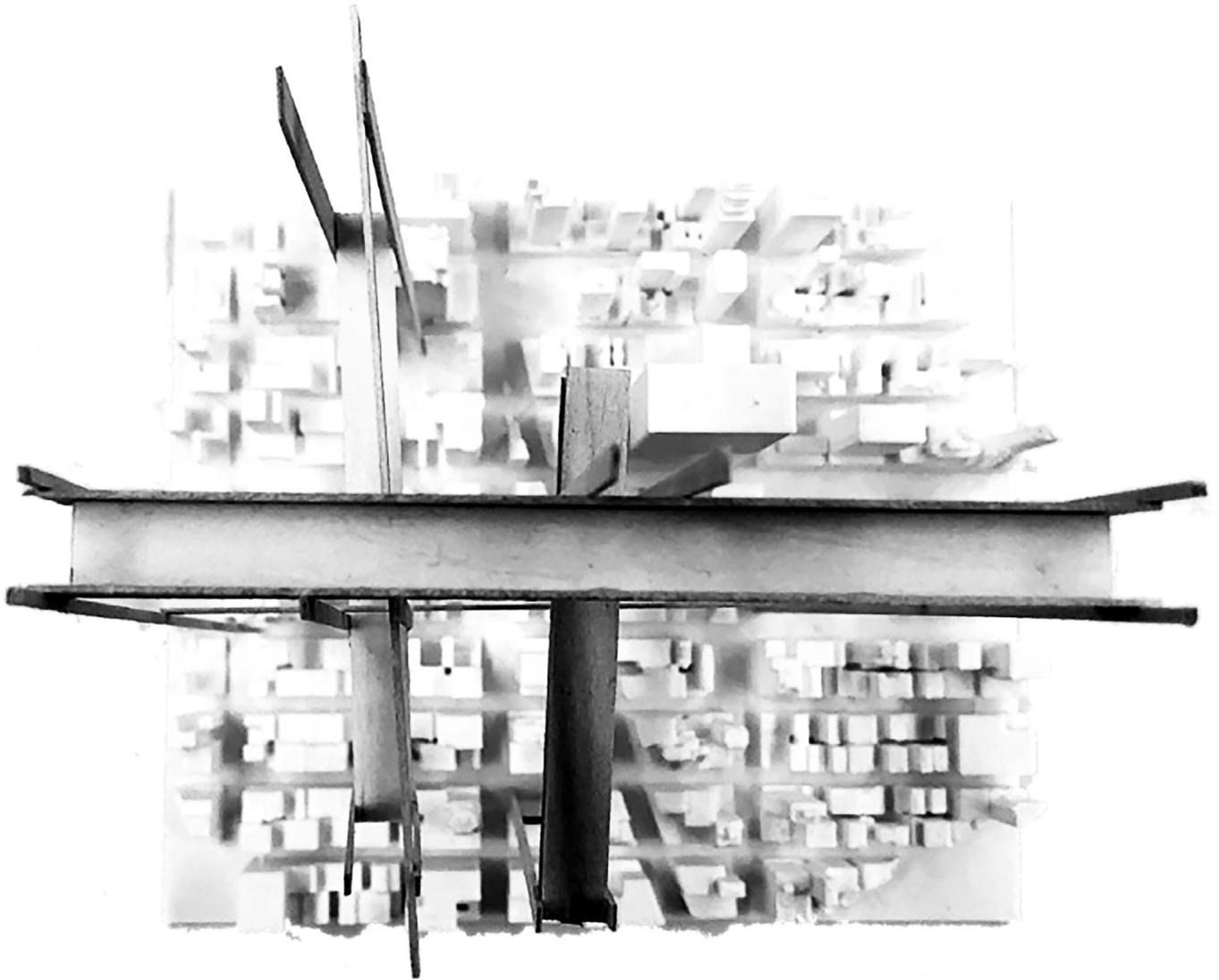
In doing so, the impact of this new scaffolding was analyzed. Looking particularly at building modifications, pedestrian infrastructural impact, as well as building impact. What would have to be affected or modified so that this could work and should this be completed would the outcome be beneficial or would it be a repeat of existing attempts to promote population growth.



DESIGN EXPLORATION

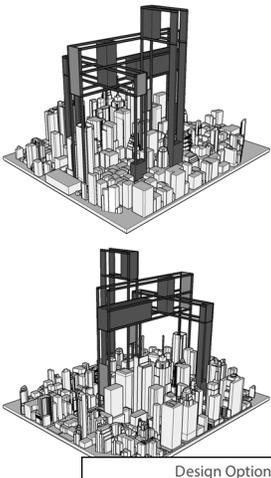
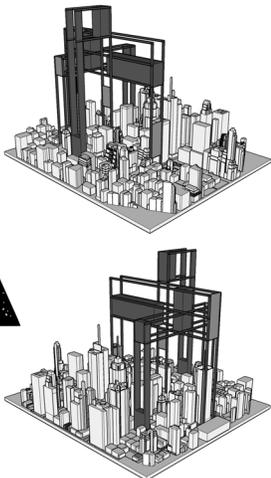


As with the previous models shown, these were developed based on feedback provided by the thesis committee. A uniform base was created so that site context could begin to be a deciding factor in the strategic moves created within each design. Furthermore, each design was more organized and methodical than previous looking at specific elements such as hierarchy, order, datum lines and buildable area.

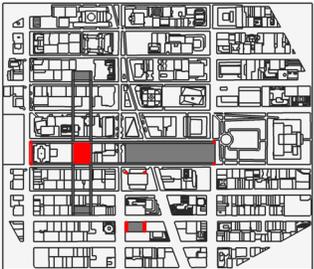


INITIAL PROPOSALS

A

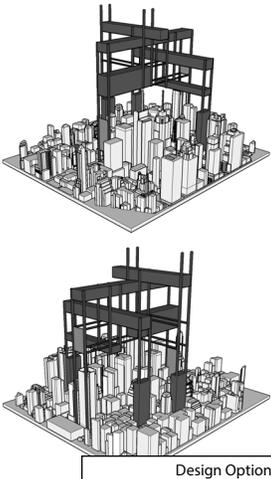
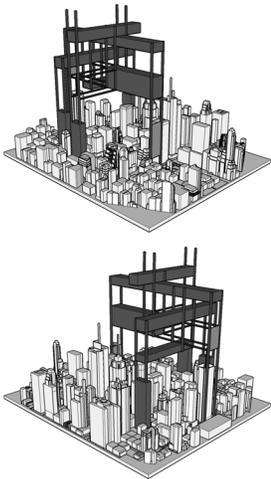


Design Option A

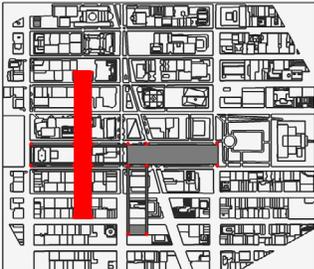


Design Option A Plan Cut

B

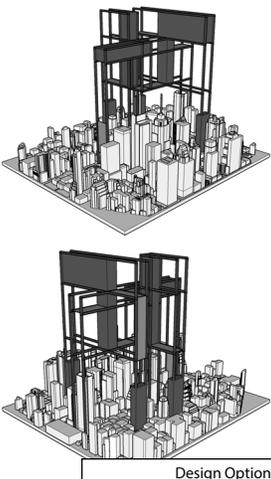
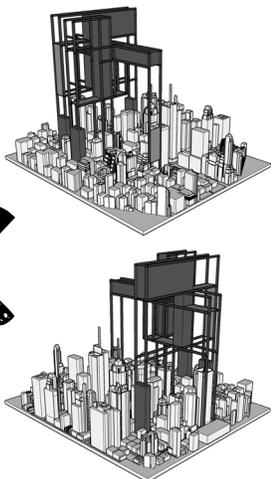


Design Option B

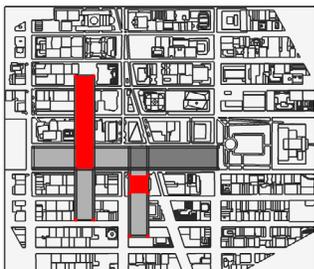


Design Option B Plan Cut

C

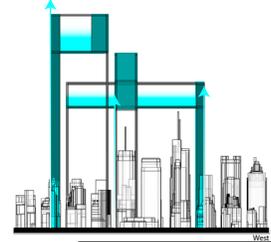
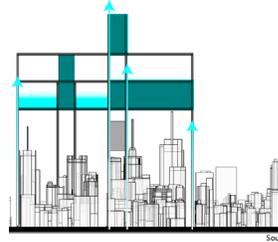
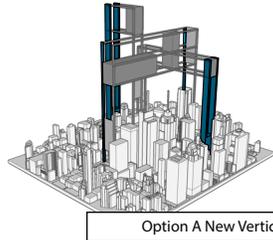
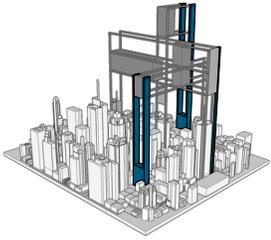
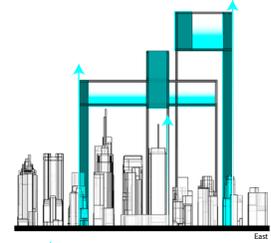
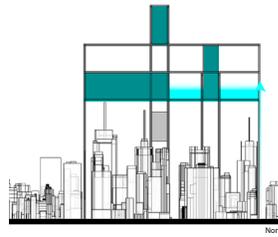
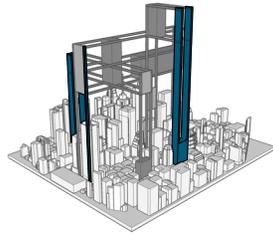
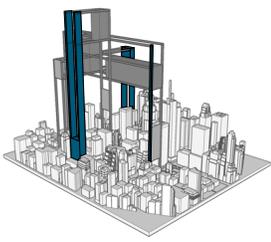


Design Option C



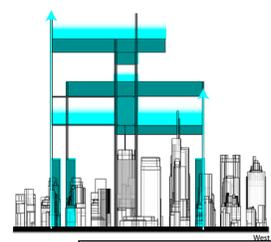
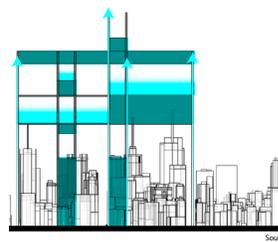
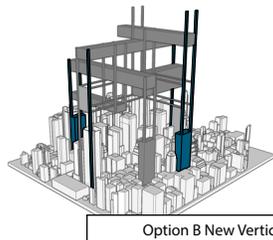
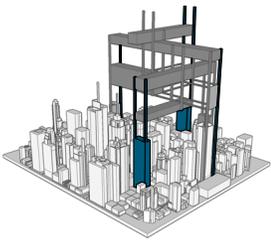
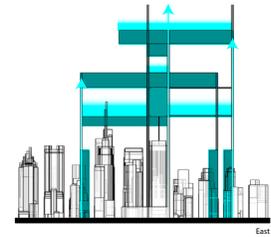
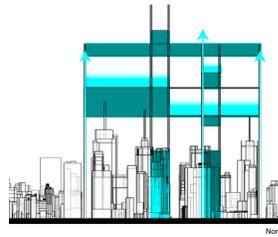
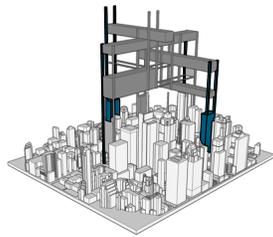
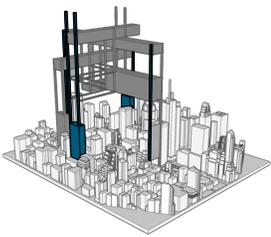
Design Option C Plan Cut

To build off of the various model explorations, three design options were created to then explore further. These designs were conglomerations of all the previous study models and scratch diagrams and aimed at tackling verticality, horizontality, and outdoor space respectively.



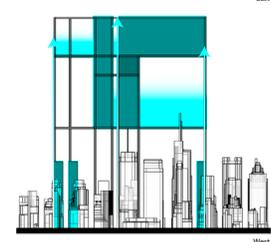
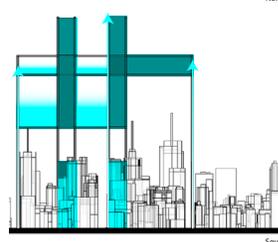
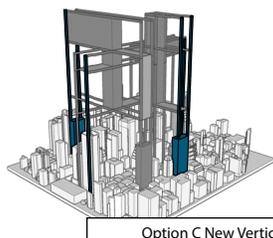
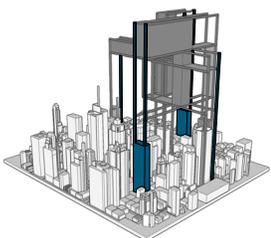
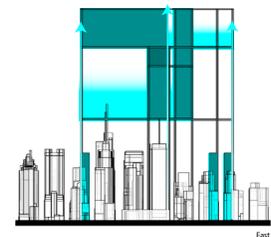
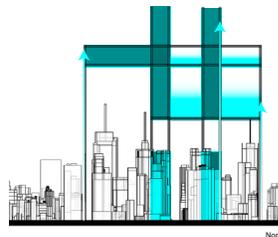
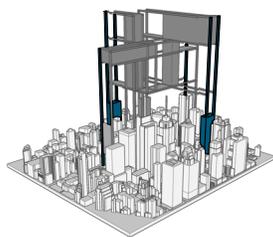
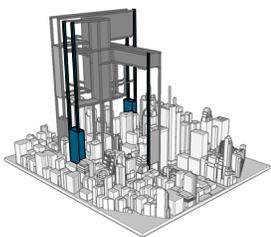
Option A New Vertical Cores

A: Occupiable Space + Vertical Transp



Option B New Vertical Cores

B: Occupiable Space + Vertical Transp



Option C New Vertical Cores

C: Occupiable Space + Vertical Transp

INITIAL IDEAS

Thus far many ideas have been explored for how to solve population and density within New York City, Midtown Manhattan to be specific. Instead of creating a system of interconnected skyscrapers it has been decided to challenge with the task of elevating the city above what is existing thus alleviating the need for sprawl, demolition of existing buildings, and deterioration of the current city climate and culture.

KEY POINTS OF IMPROVEMENT

Ground Connections:

How is this urban scaffolding going to connect to the ground? What type of condition is going to be created and what is it going to do to the existing environment, culture, and aesthetic of the city?

ROI (Return on Investment):

If the urban scaffolding is to continue and progress throughout the thesis how is it going to support the ROI? The amount of money needed to construct this type of scaffolding is going to be astounding, how can enough meat be added to it that it justifies the construction despite the beneficial outcome that it is providing to the city?

Air Rights:

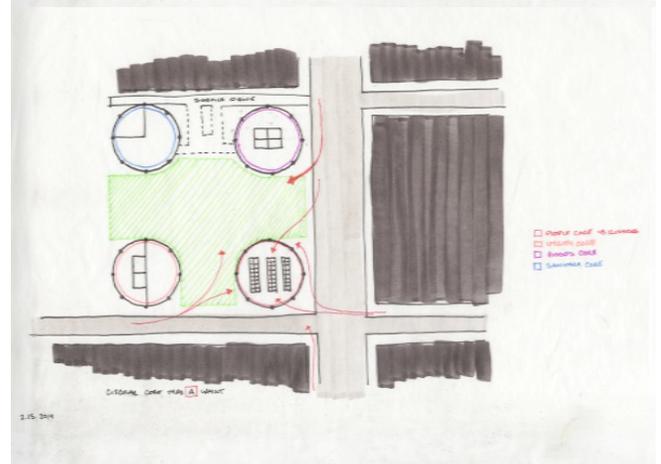
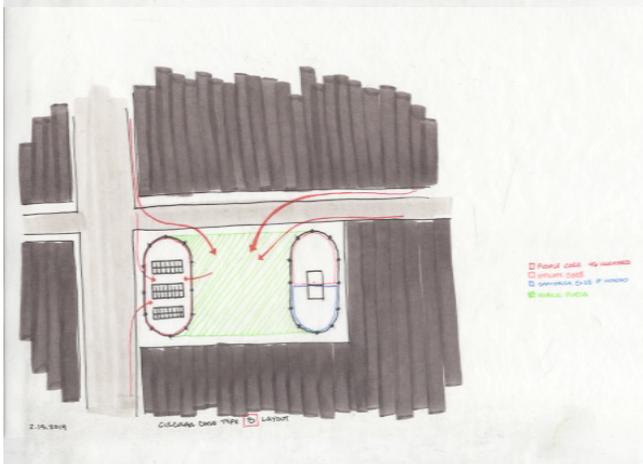
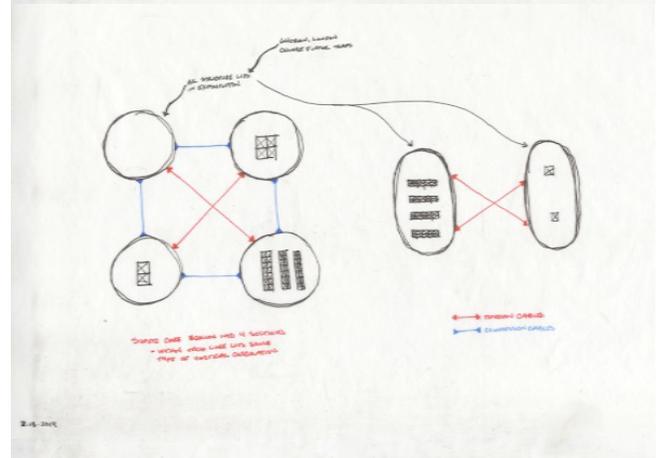
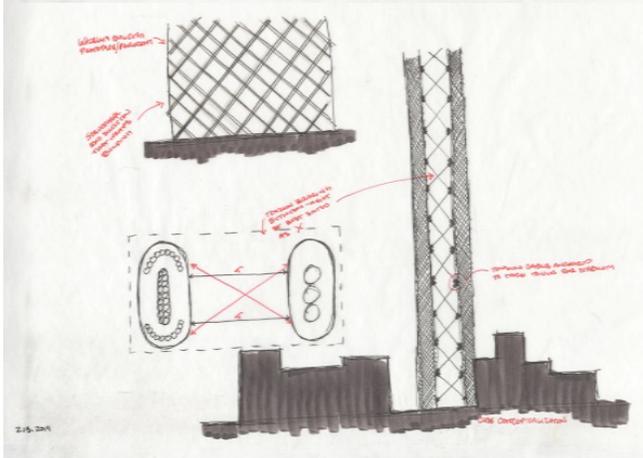
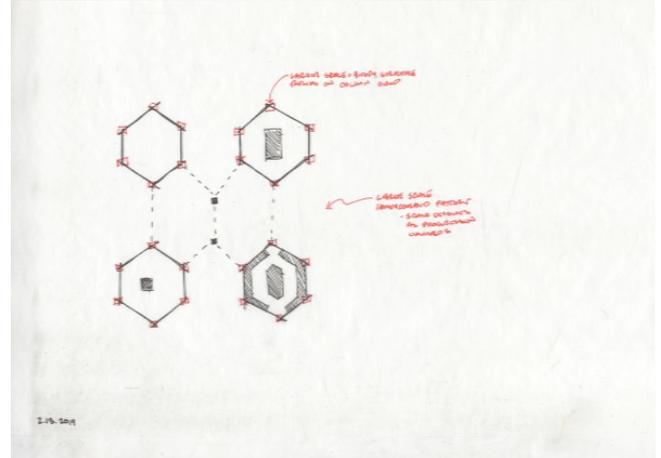
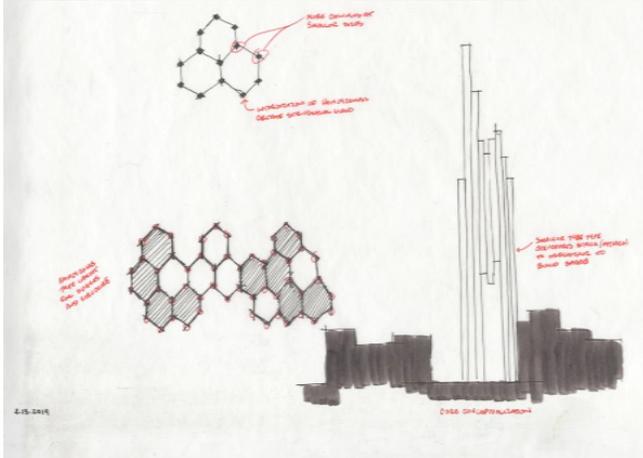
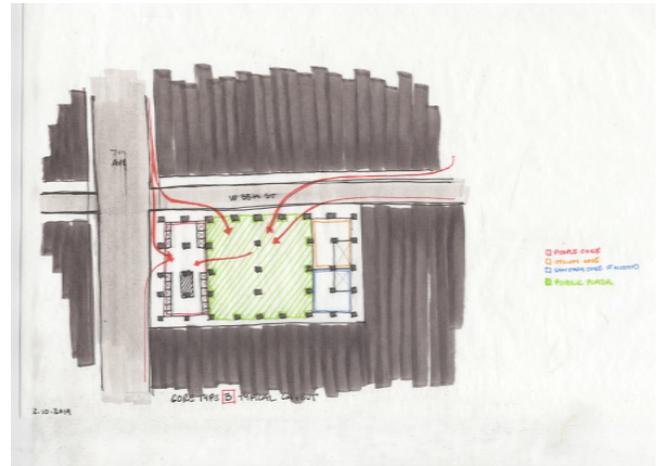
Are there jurisdictional or governmental changes that are going to have to be made in order for this to develop further as a proposal? If so, what assumptions are going to need to be made in order for this project to progress and become somewhat tangible?

Transportation:

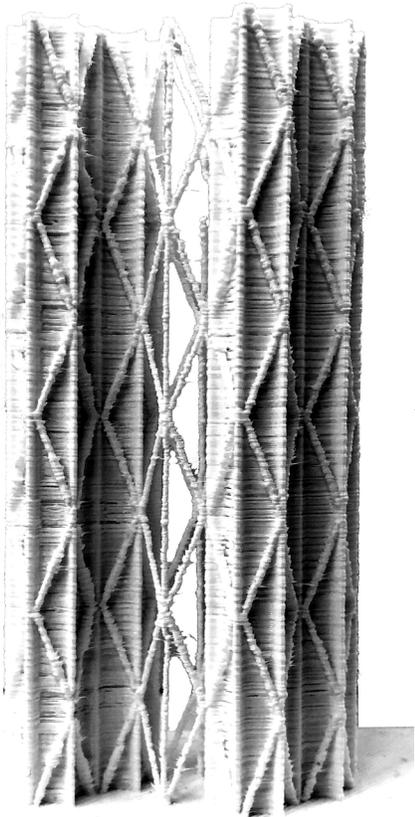
New York City is already congested traffic wise, should this be constructed what are the impacts on the transportation system? How do people move from ground to mass, and from mass to mass? What are real life examples of how to move people within and around a structure like this?

DESIGN PROCESS: HOW TO BUILD A CITY?

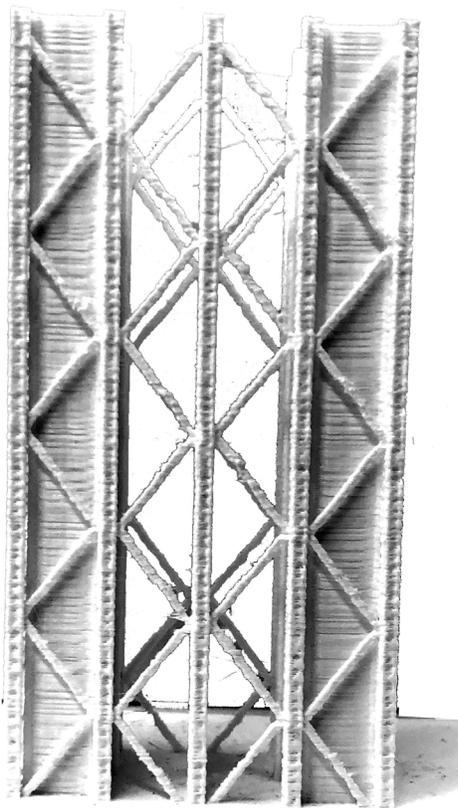
To start off, how ground connections worked was analyzed. The thought behind this was that in creating powerful attractors at ground level it would help validate the proposed solution of a city 1000ft up in the air. Initially an orthogonal structural grid was used to gain an understanding of structure and mass. From the orthogonal structure, hexagons and circles were then explored as potential solutions to the ground connector as well as potential modules for massing. As shown in the following diagrams, plan, section, and axons were used to ideate.



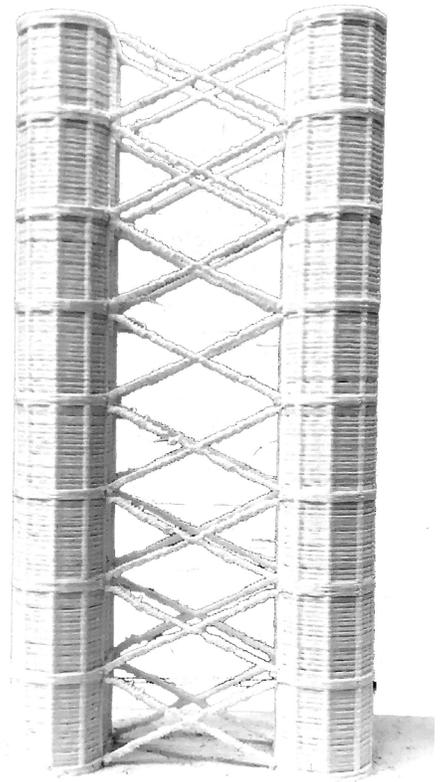
3D PRINTED CORE AND MASS STUDIES



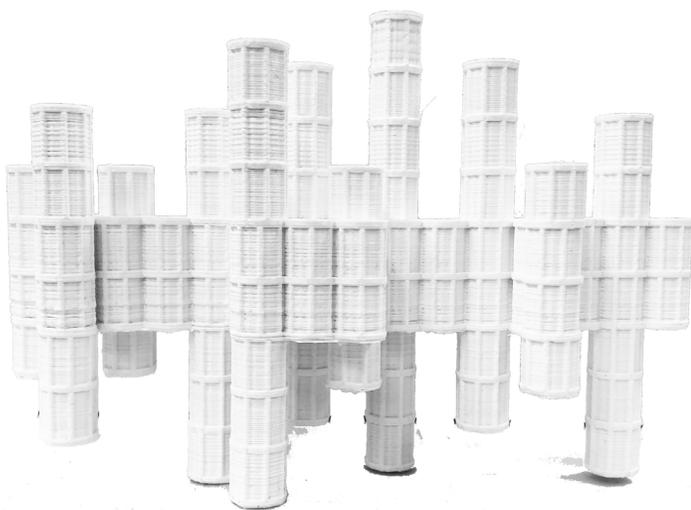
Hexagonal Core



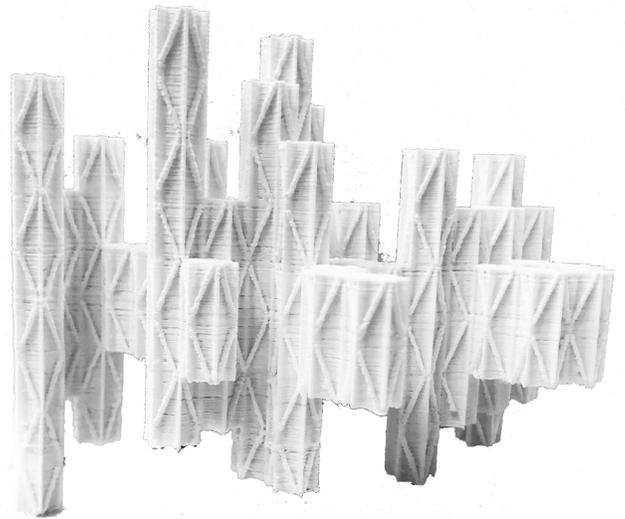
Orthogonal Core



Circular Core



Circular Mass



Hexagonal Mass

DESIGN PROCESS: MODULAR PLANS?

After exploring different variants on cores and shapes the hexagonal core and module idea was chosen to expand upon for the development of the thesis concept. To begin with this exploration studies on other skyscrapers such as the Burj Khalifa were analyzed to understand structural conception. Once a basic understanding of how super tall structures used buttressing and arch construction to create support, plans were then composed on a small - under developed scale to see the potential opportunities that could arise.

With preliminary plans set up, the relationship to ground was reexamined to understand how the proposed plans impacted ground level. What came from this study was the notion of triangulation - and that while anything is typically possible when floating above the city, in order to preserve the ground conditions triangulation has to be used to promote structural integrity.

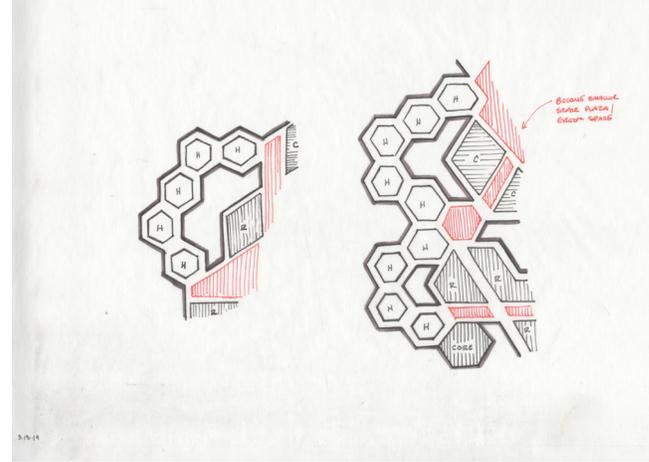
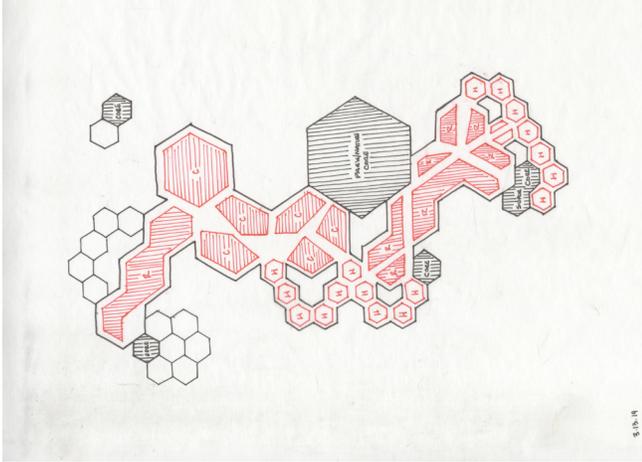
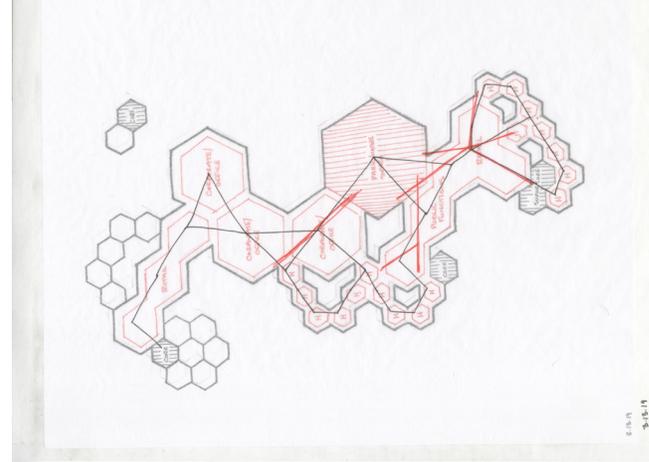
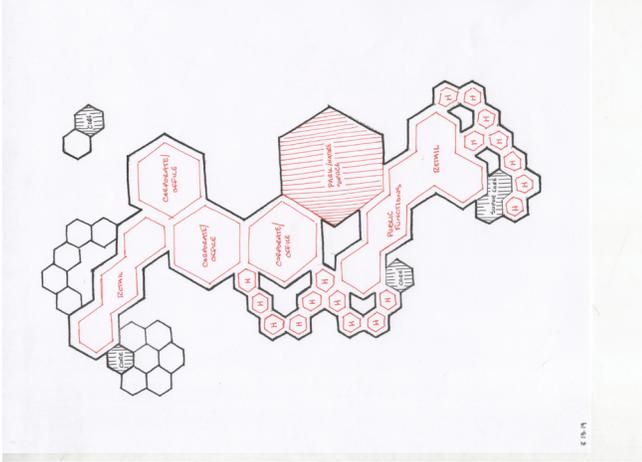
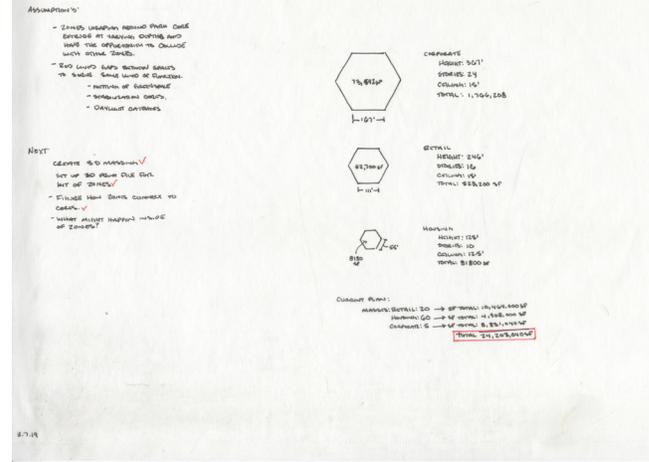
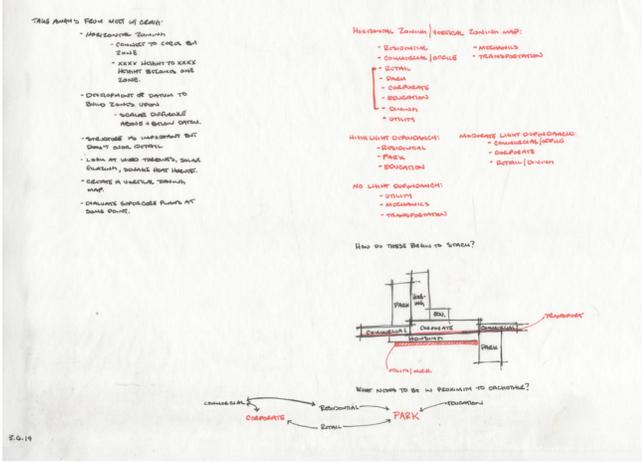
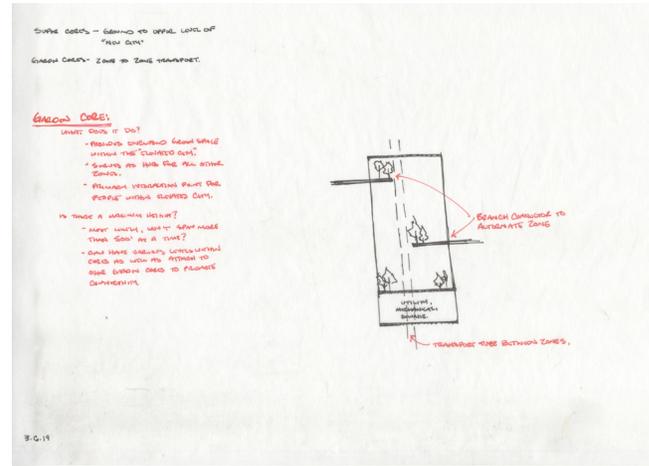
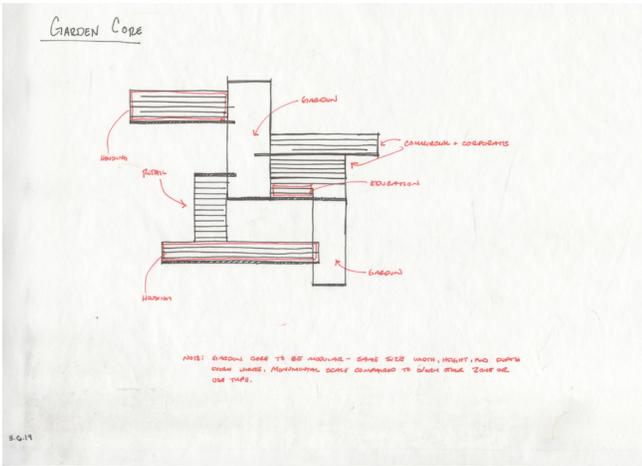
DESIGN PROCESS: MODULE SIZES?

Following the continuation of site analysis to promote triangulation within Midtown Manhattan, further focus was placed on developing the massing modules. With the understanding that hexagons are easier to modulate and triangulate than squares or circles they were explored in-depth.

Starting off with 4 different module sizes for 4 different functions - variations on plans were developed. The largest of the modules is to be the nature core/mass aimed at providing park and public space within the elevated city. The middle two sized masses were initially corporate and commercial masses however throughout the development they were merged into one medium sized mass to house the both. Lastly the smallest of the modules is the housing mass, this is intended to replicate the tight nit communities that have developed at ground level.

With these masses developed and initial plans realized further analysis was conducted to create a hi-erarchy or ordering system for the expansion and connections of the modules. As shown on the dia-grams to the right it was determined that because of the profound effect of nature on the psyche of people that would serve as the "hub" of the elevated city, from that outwards housing, and corpo-rate/retail are added based on need. From this outward expansion vertical cores would be added to connect the elevated masses to the city below.

DESIGN PROCESS: PLAN DEVELOPMENT?

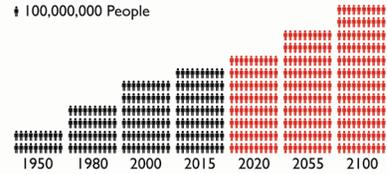


FINAL PRESENTATION DOCUMENTS

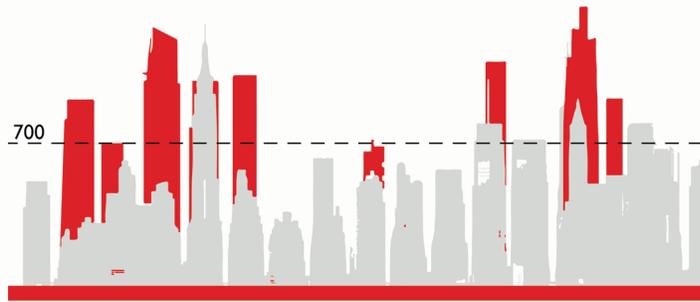
After the course of all of the previous studies, sketchup and lumion models were created and used for final presentaion of the thesis concept. The end result is a series of masses that are composed 1200ft above street level of Manhattan.

VERTICAL CITIES: AN APPROACH TO LIFE ABOVE 700ft IN URBAN ENVIRONMENTS OF THE FUTURE.

Over the past 100 years the world has evolved rapidly, new technologies and methodologies have emerged that have unequivocally changed the course of humanity. The purpose of this paper is to look at these changes in relation to super-tall buildings – and how the advancement of these structures has inherently altered the way people live, interact, and identify place and propose conceptual changes to super-tall buildings so that they become places suitable for the highest quality of life. This will be done using various sources including academic papers, theoretical texts and analysis of field specific research documents on life in the 21st century. These resources will serve to create an argument for the relevance of promoting identification of place within modern super tall construction.

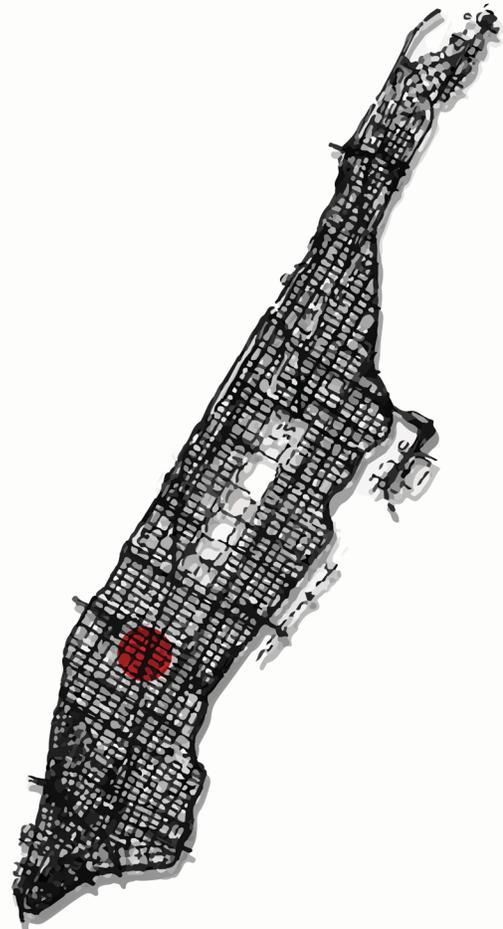
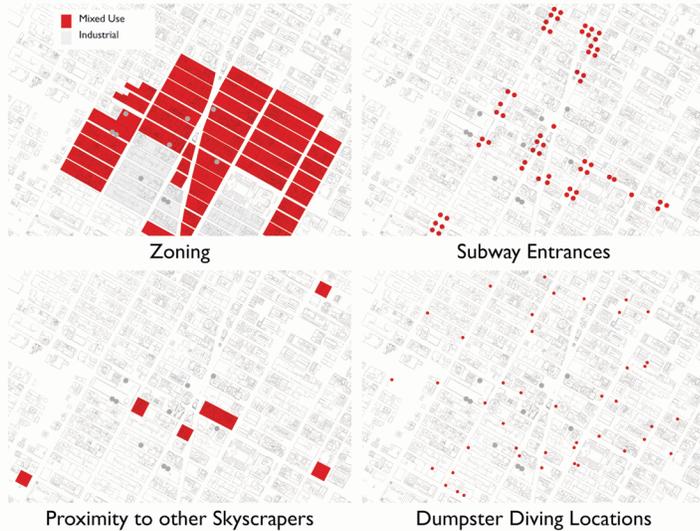


There are 7.6 billion people in this world, 54% live in Cities or Urban Areas. By 2050 this number is set to increase to 66% of 10 billion people.



NEW YORK CITY

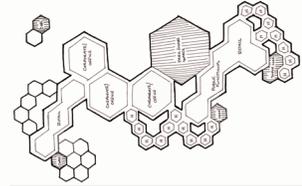
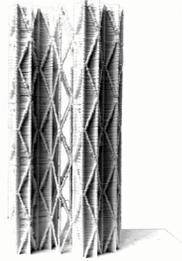
New York City is just one of many cities set to have large population increases in the future. As a city confined to the boundaries of the island of Manhattan, it will be presented with problems on how to accommodate the large influx of people moving into cities over the next 100 years. Due to its limited sprawl area as well as its existing building and population density it serves as a prime area of exploration as the issue of population and increased density start to be explored through this thesis.



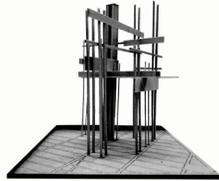
CONCEPT IDEATION



PROCESS WORK: MASSING, CORE AND PLAN DESIGN ANALYSIS



Massing Development

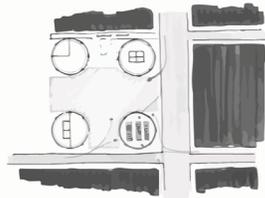


Preliminary PProcess Model

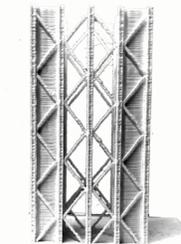
Core Development



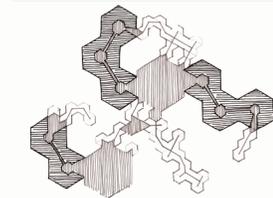
Massing Development



Core Mass Analysis



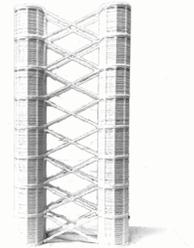
Core Development



Massing Development



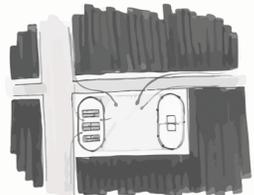
Core Mass Analysis



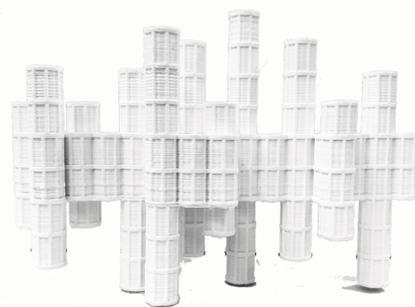
Core Development



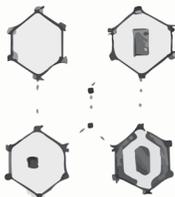
Sectional Ideation



Core Mass Analysis



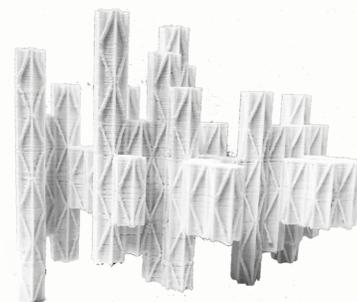
Mass Development



Core Mass Analysis



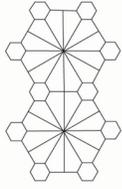
Plan Exploration



Mass Development

Process Models

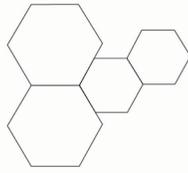
MODULE DEVELOPMENT



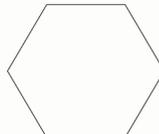
Shape



Assembly



Scale and Connection



Nature



Mixed Use



Housing



Circulation



MODULES

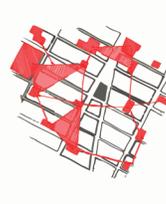
SITE PLANNING



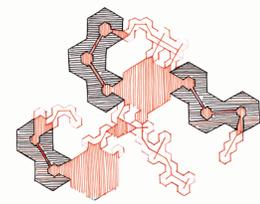
Modified Ground Lots



Impact from Vertical Cores



Triangulation

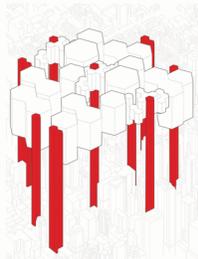


Massing Development

MASSING ANALYSIS



Mass Proposal



Vertical Cores



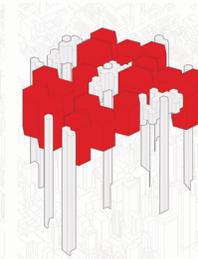
Mixed Use



Nature



Housing



Public Right-of-way

SOLAR STUDIES



January



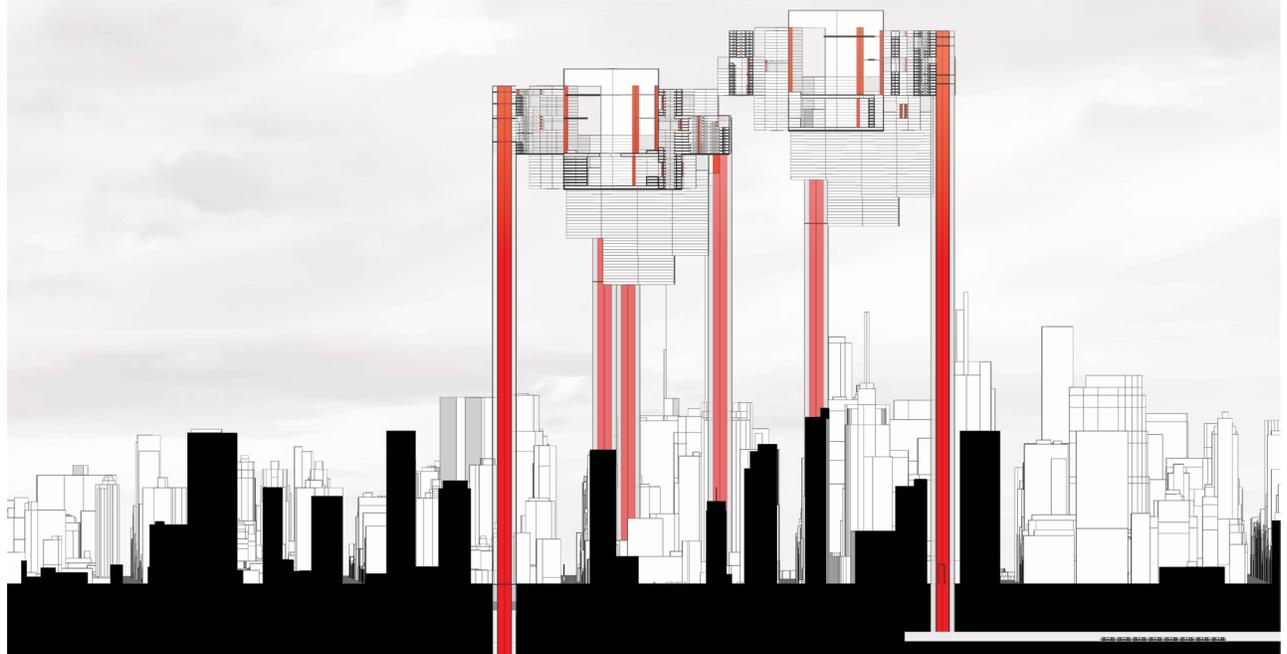
March



June

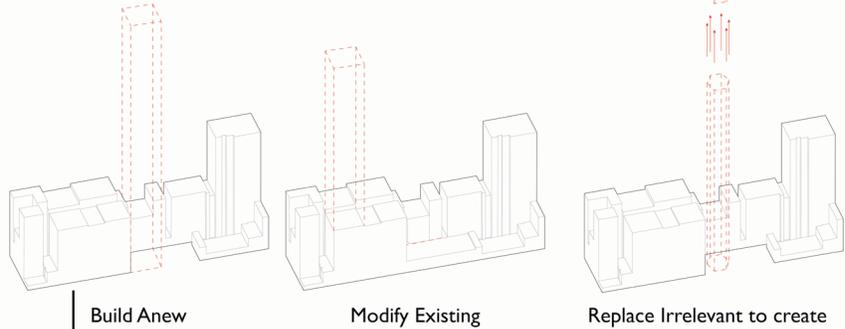


September



VERTICAL CORES

GROUND CONNECTION IDEATION

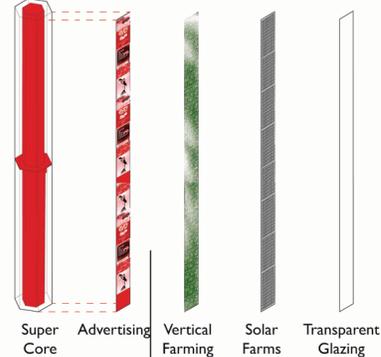


Build Anew

Modify Existing

Replace Irrelevant to create

CLADDING VARIANTS



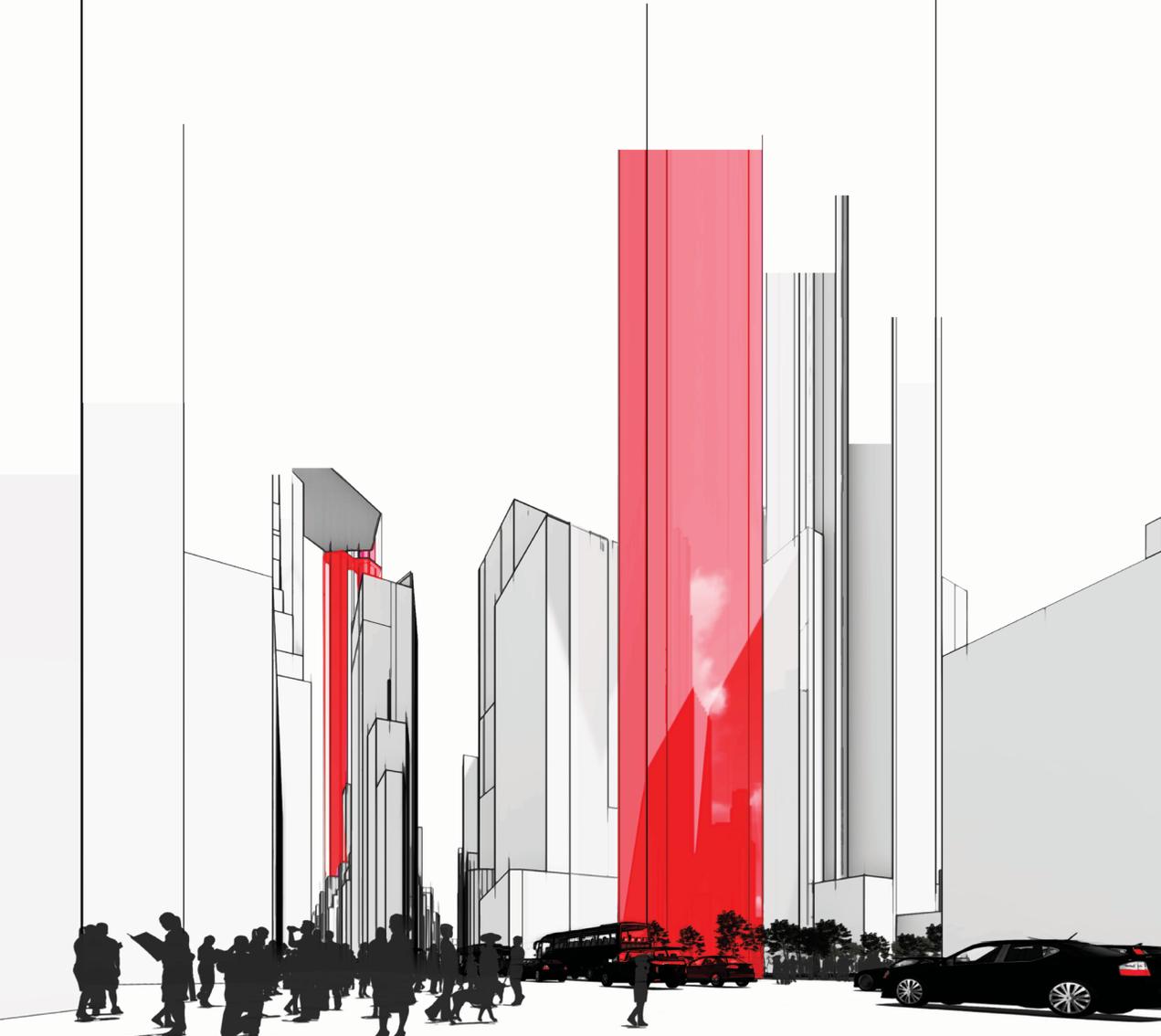
Super Core

Advertising

Vertical Farming

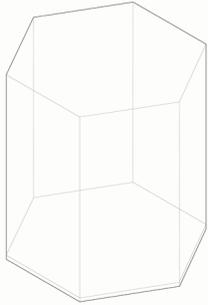
Solar Farms

Transparent Glazing

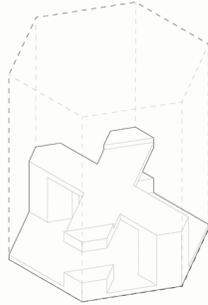


NATURE ZONE

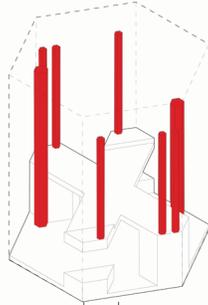
INTERIOR FORMATION



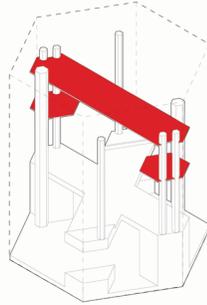
Standard Module



Connectors to Adjacent



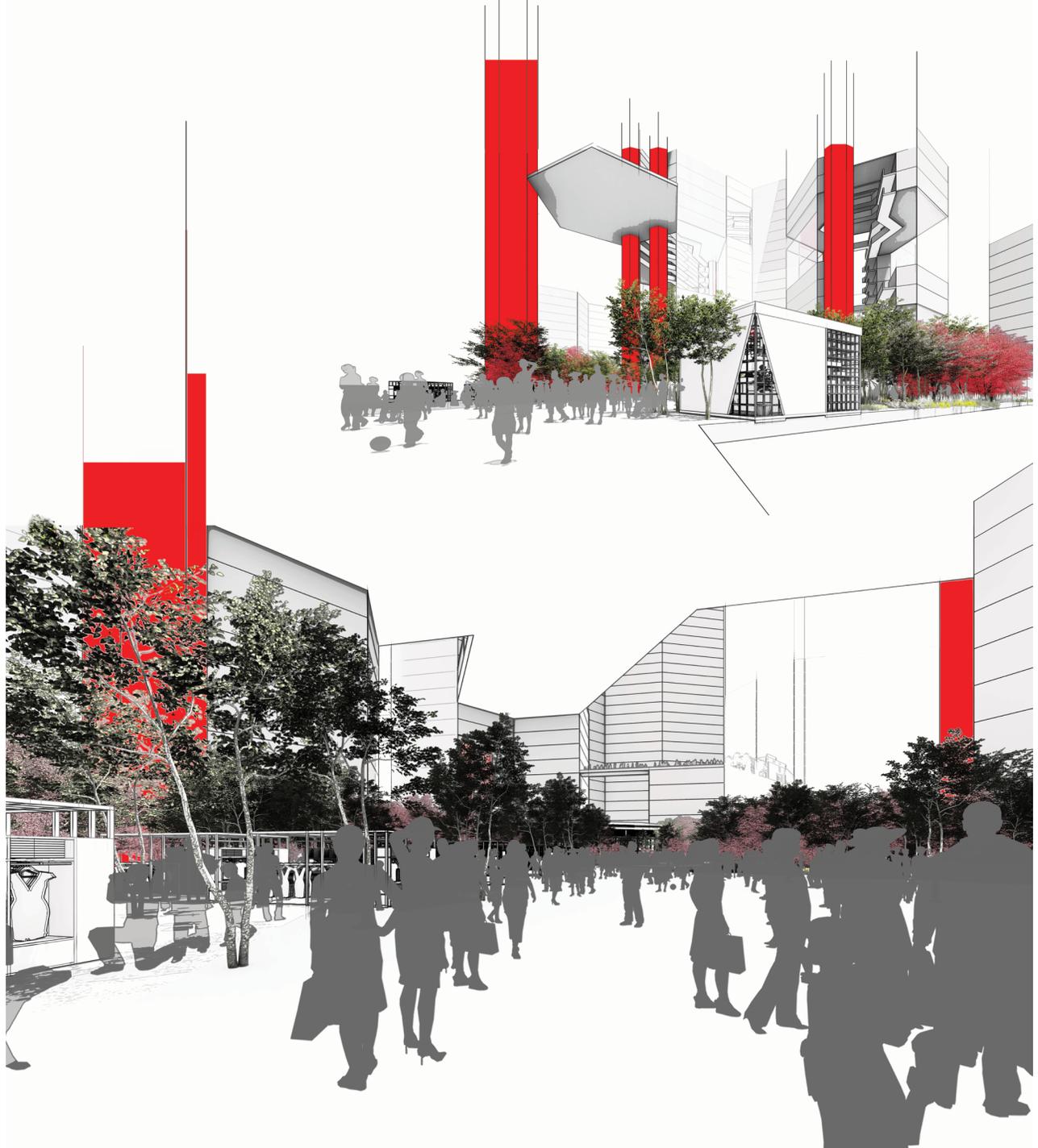
Vertical Circulation



Vertical Floor Variation



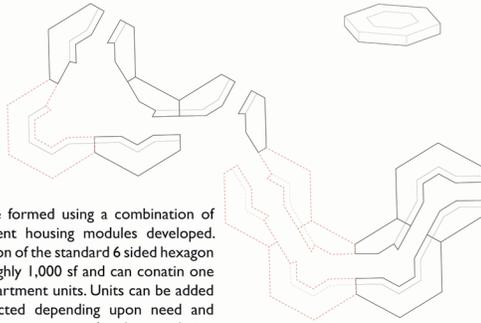
Useable Floor Plates



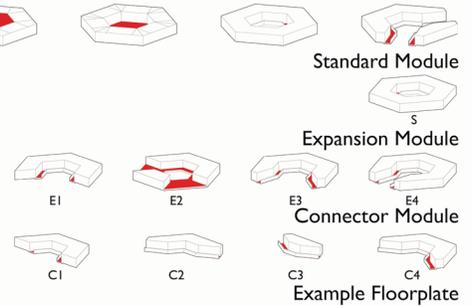
HOUSING ZONE

PLAN ASSEMBLY

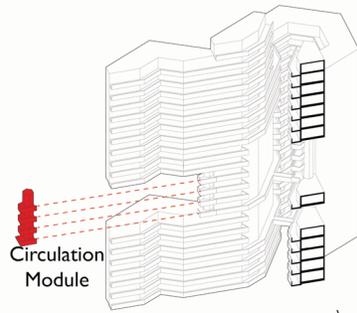
Floors are formed using a combination of the different housing modules developed. Each section of the standard 6 sided hexagon totals roughly 1,000 sf and can contain one to two apartment units. Units can be added or subtracted depending upon need and expansion requirements for the population of the city. Units shown in red demonstrate how this addition and subtraction connect to existing modules.



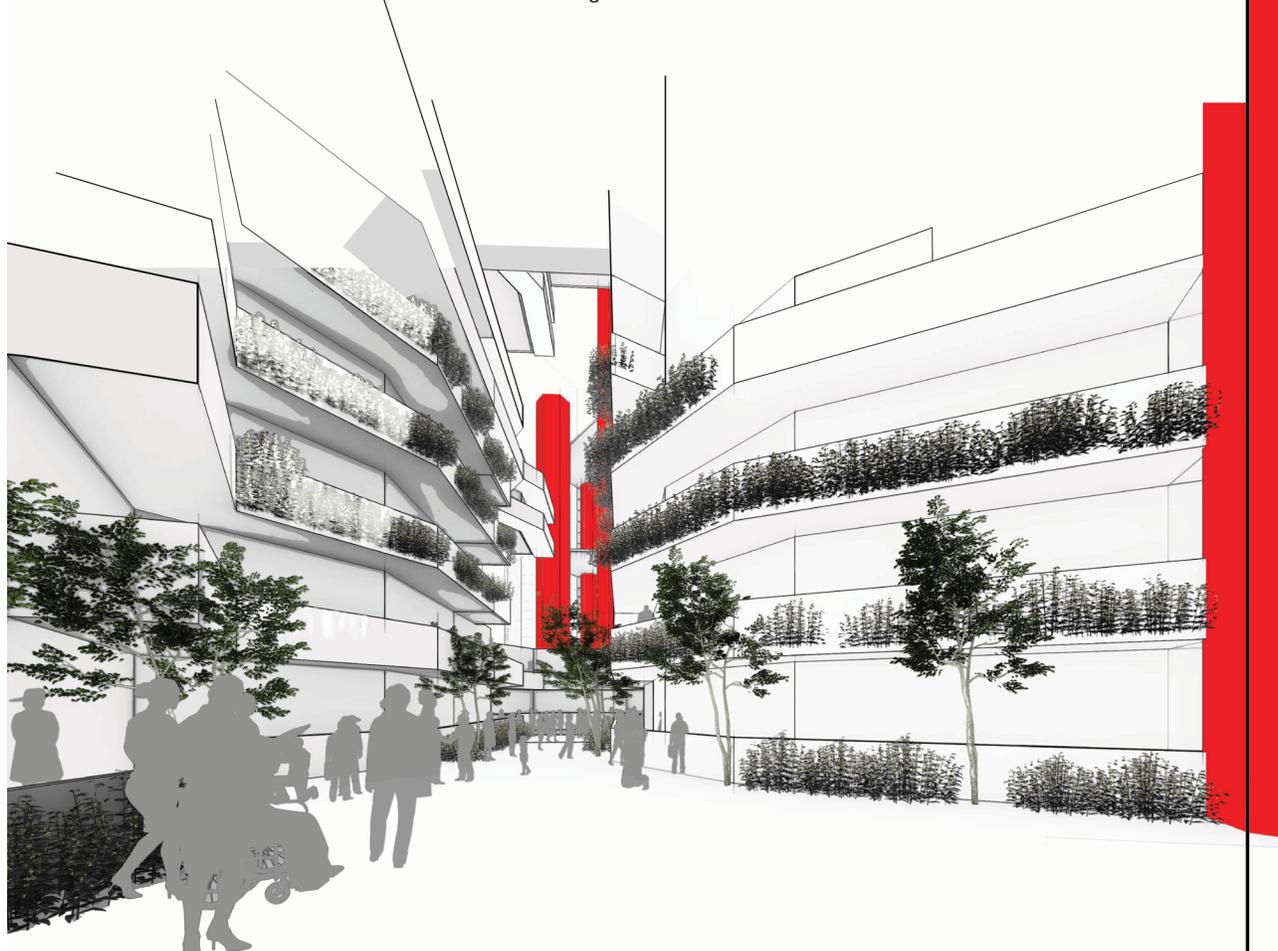
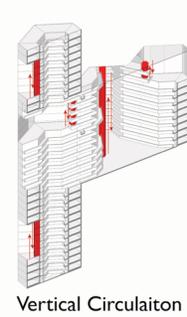
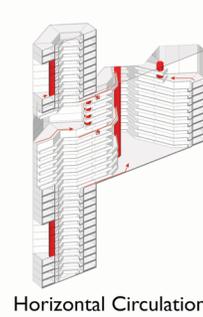
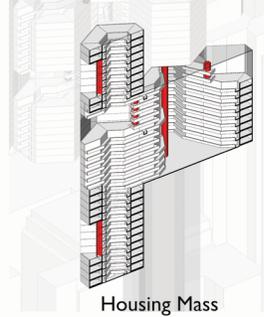
FORM AND MODULATION



FORM DEVELOPMENT

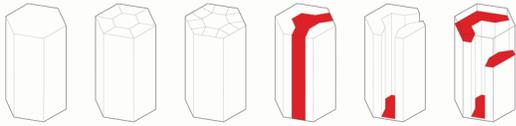


CIRCULATION WITHIN MASS

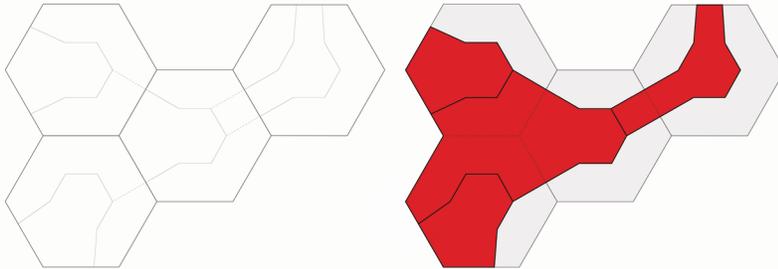


MIXED USE ZONE

FORM



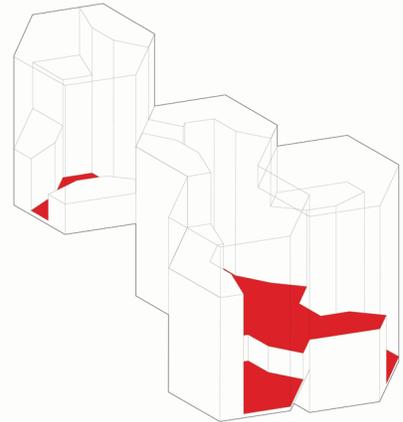
PLAN ASSEMBLY



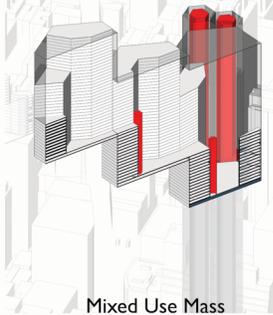
Plan Composition based on Modules

Layered Public Plazas

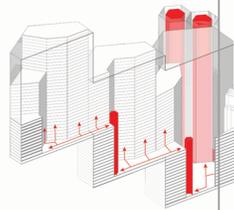
MODULE FORMATION



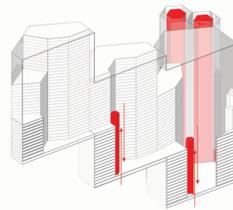
CIRCULATION WITHIN MASS



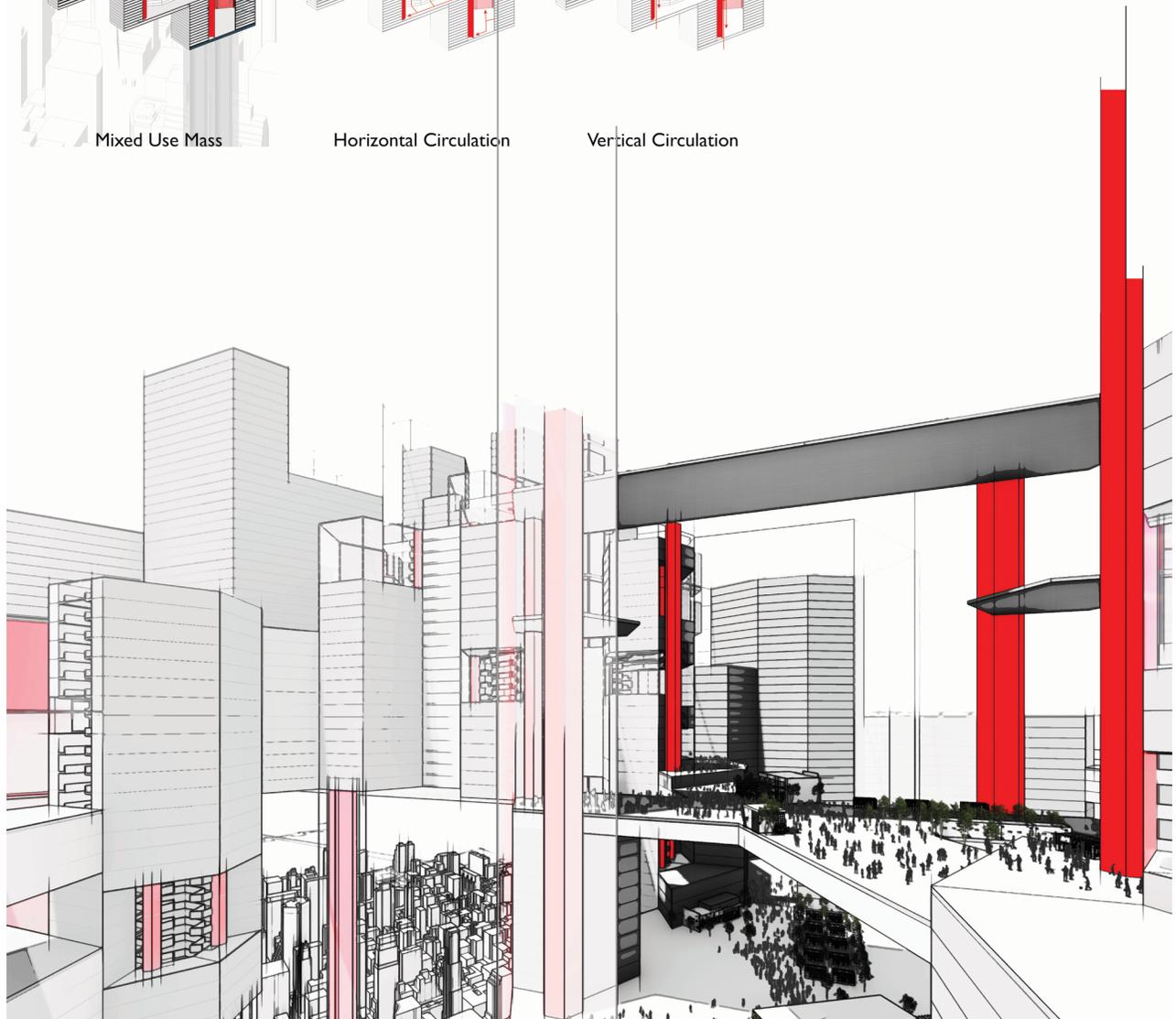
Mixed Use Mass

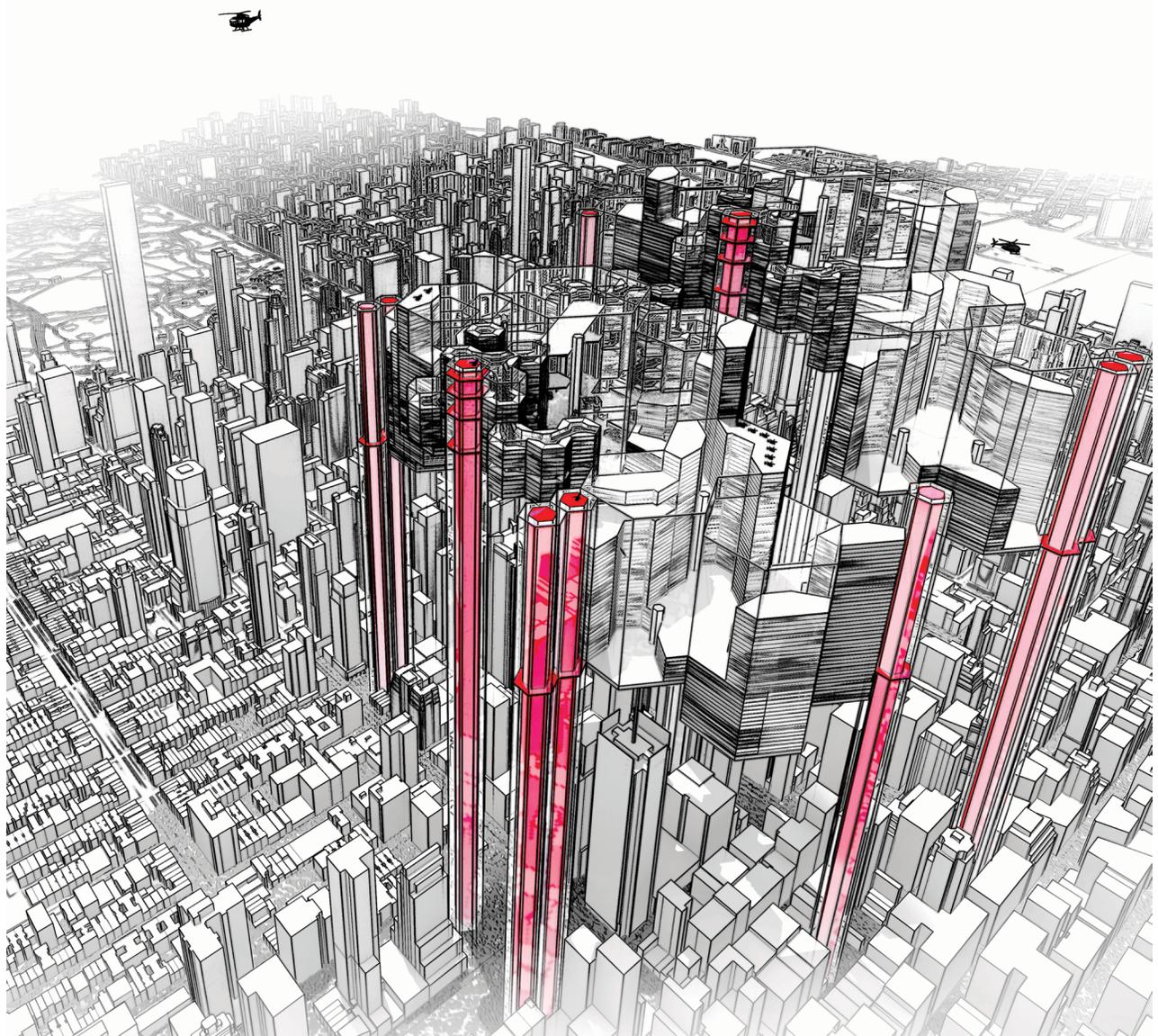


Horizontal Circulation



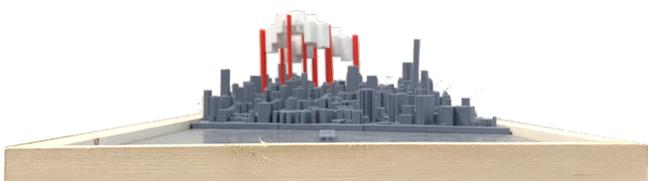
Vertical Circulation





FINAL MODEL

The final model was 3d printed over the course of 3 weeks and took around 300 hours to print. and is approximately 11" deep, 55" wide and 8" tall.



ADDITIONAL RENDERINGS NOT ON BOARDS

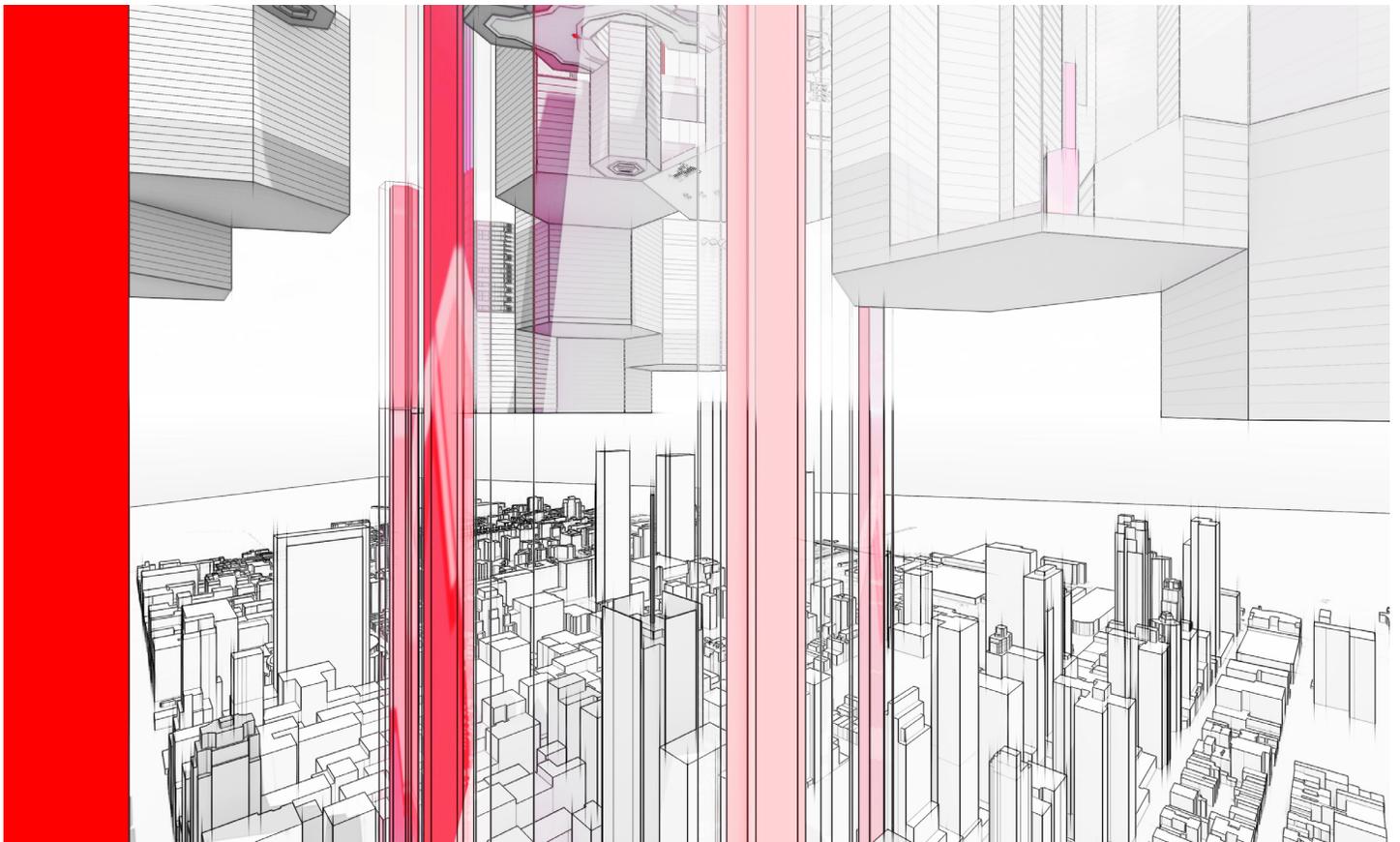
One of the preliminary presentation ideas consisted of still shots that composed a walkthrough of the spaces created. As a result there are quite a few excess renderings that were not used in the final presentation boards. Displayed on the following pages these images give the viewer a better understanding of the spatial experience occupants and visitors would observe moving through the masses created.



Aerial of Elevated Public Plaza



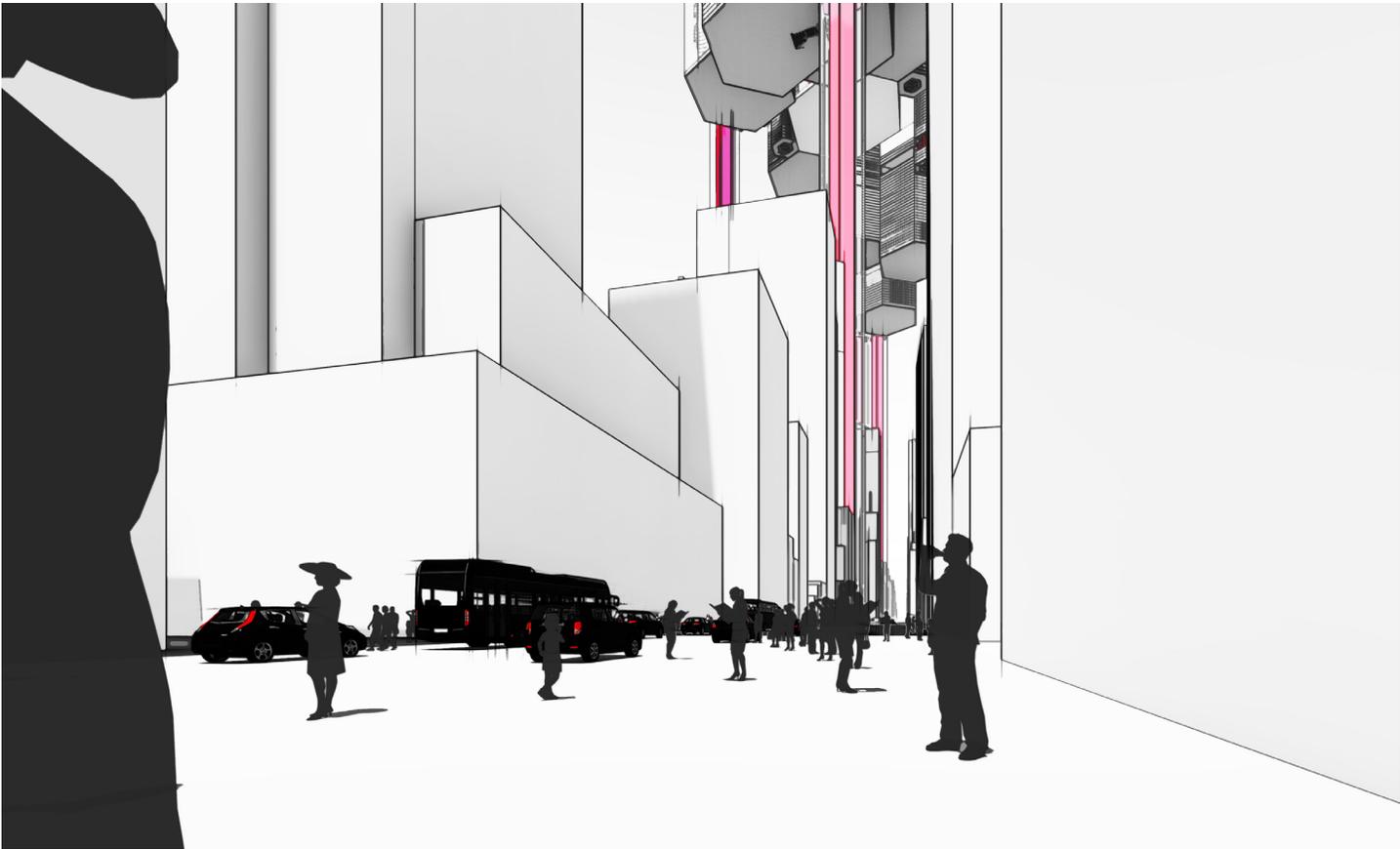
View of Public Plaza



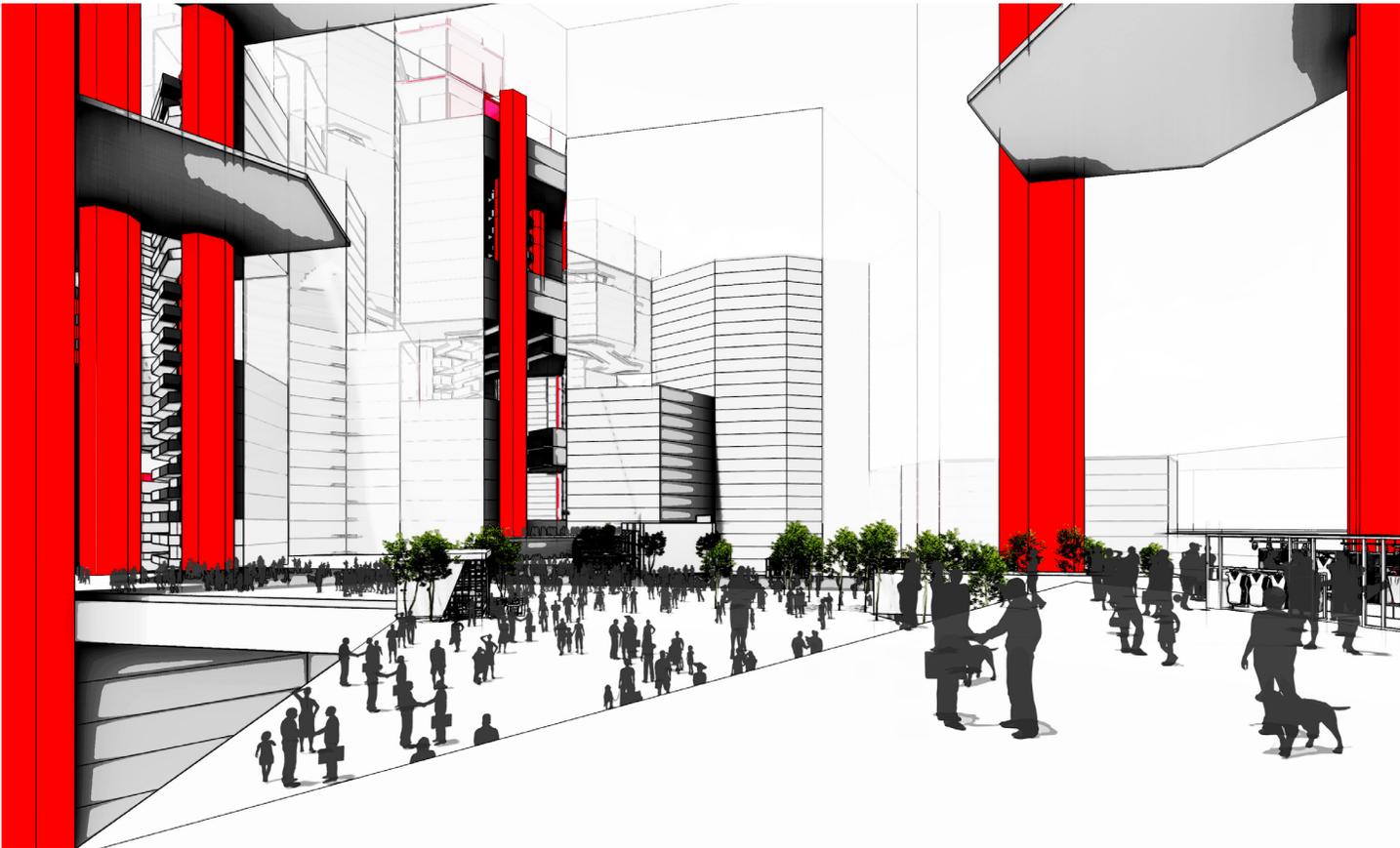
Snapshot of Vertical Transportation Experience



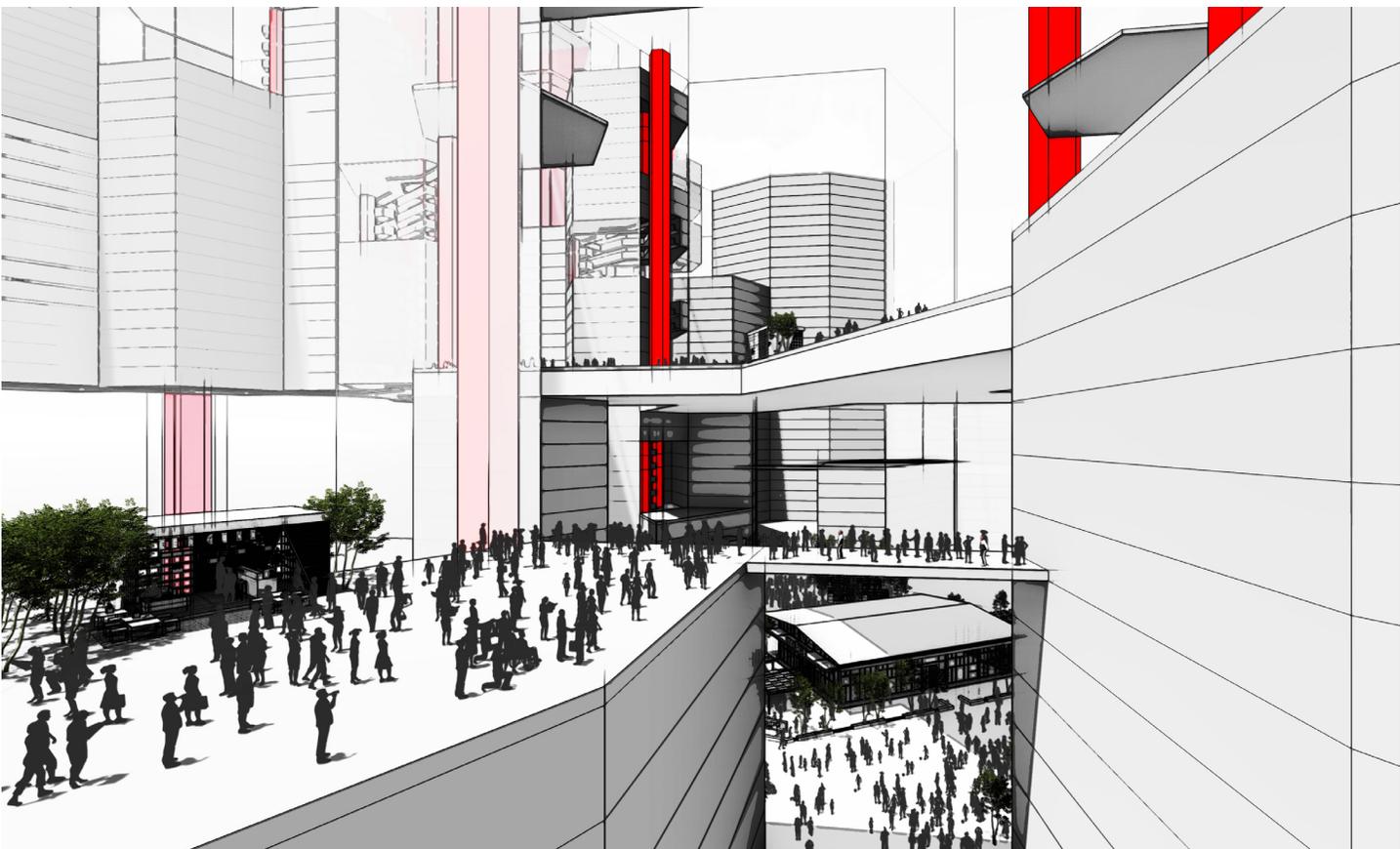
Ground Level Vertical Core Connection



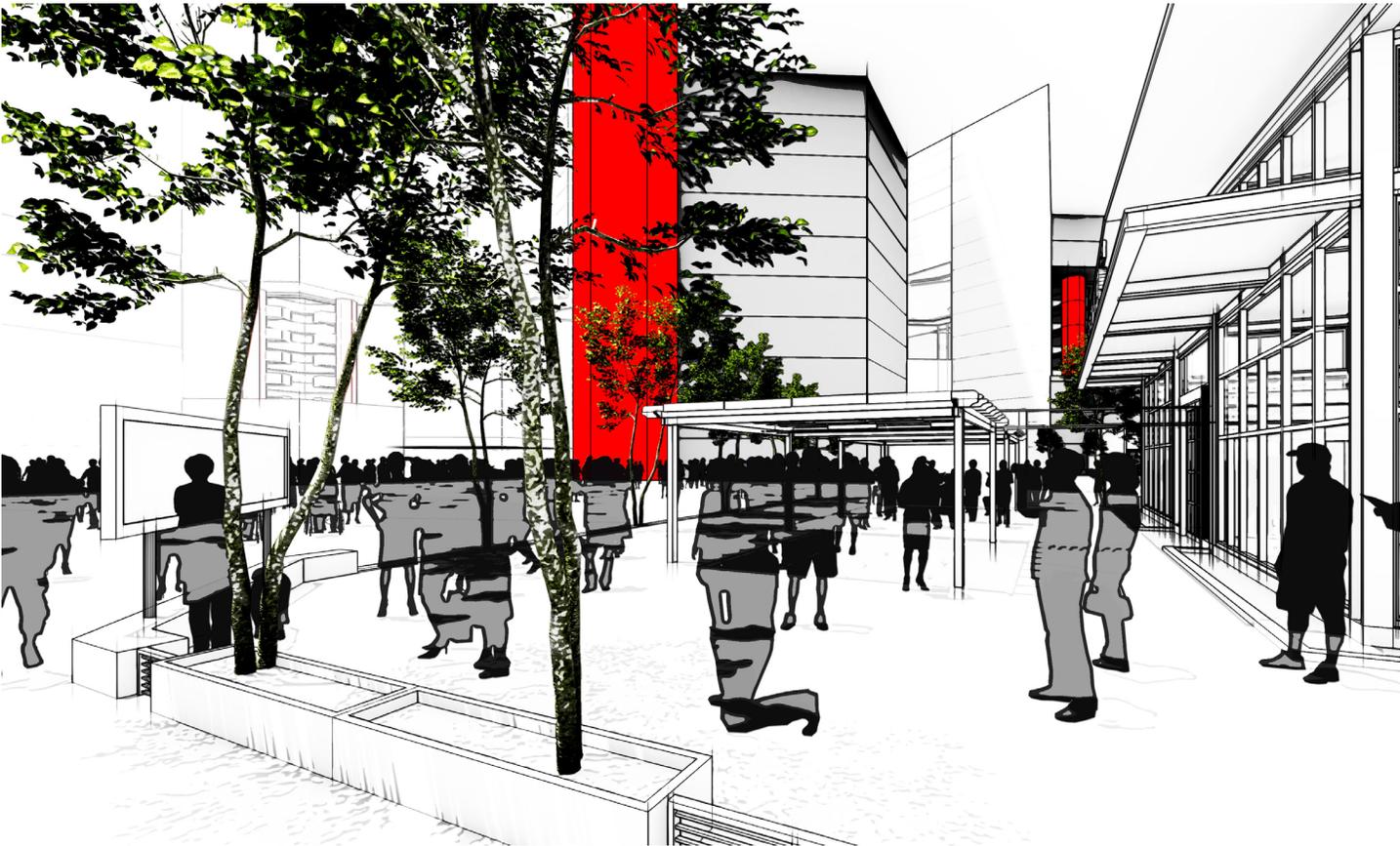
View of Mass from Broadway



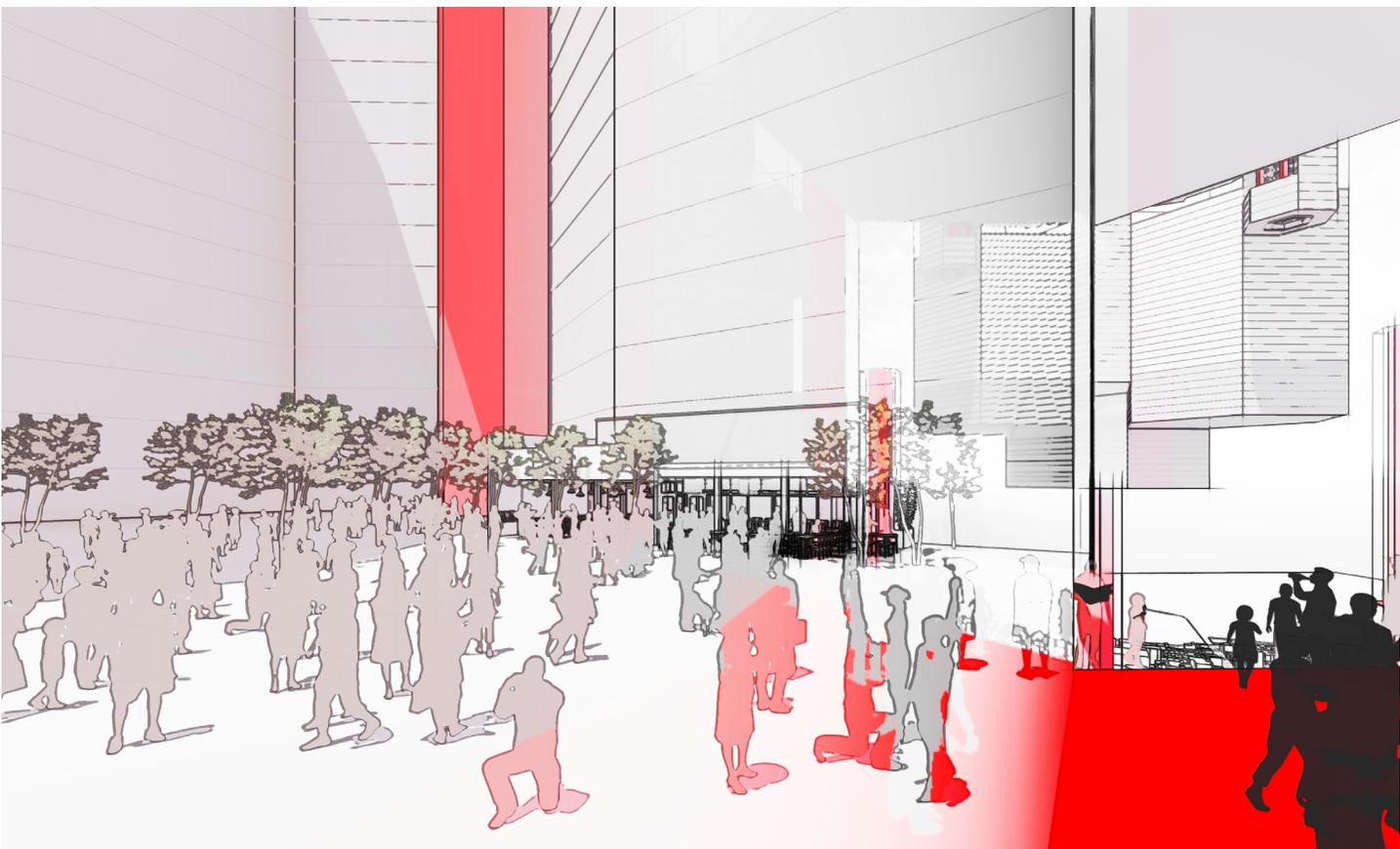
View of Public Plaza



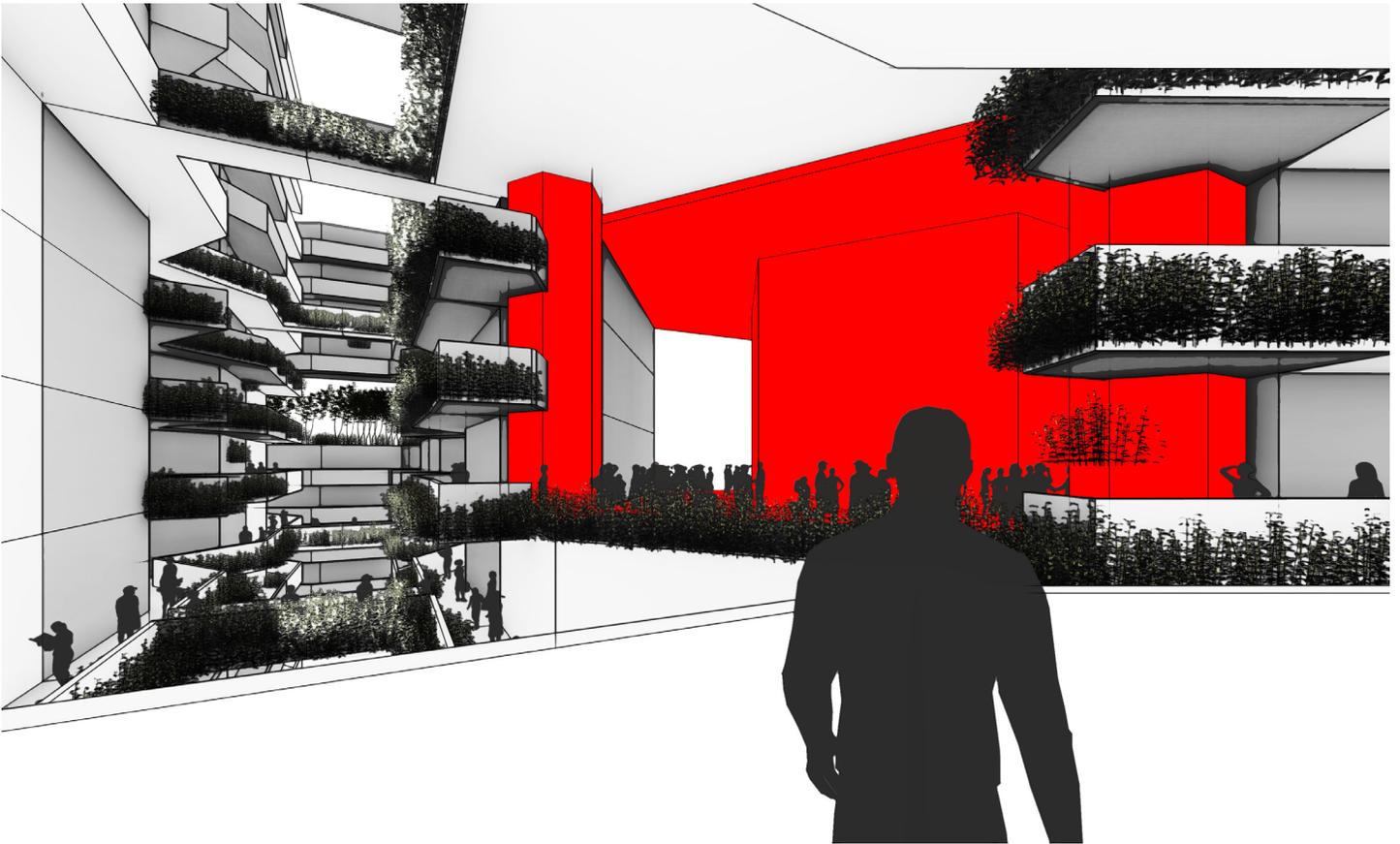
View of Public Plaza Experience from Mixed Use Mass



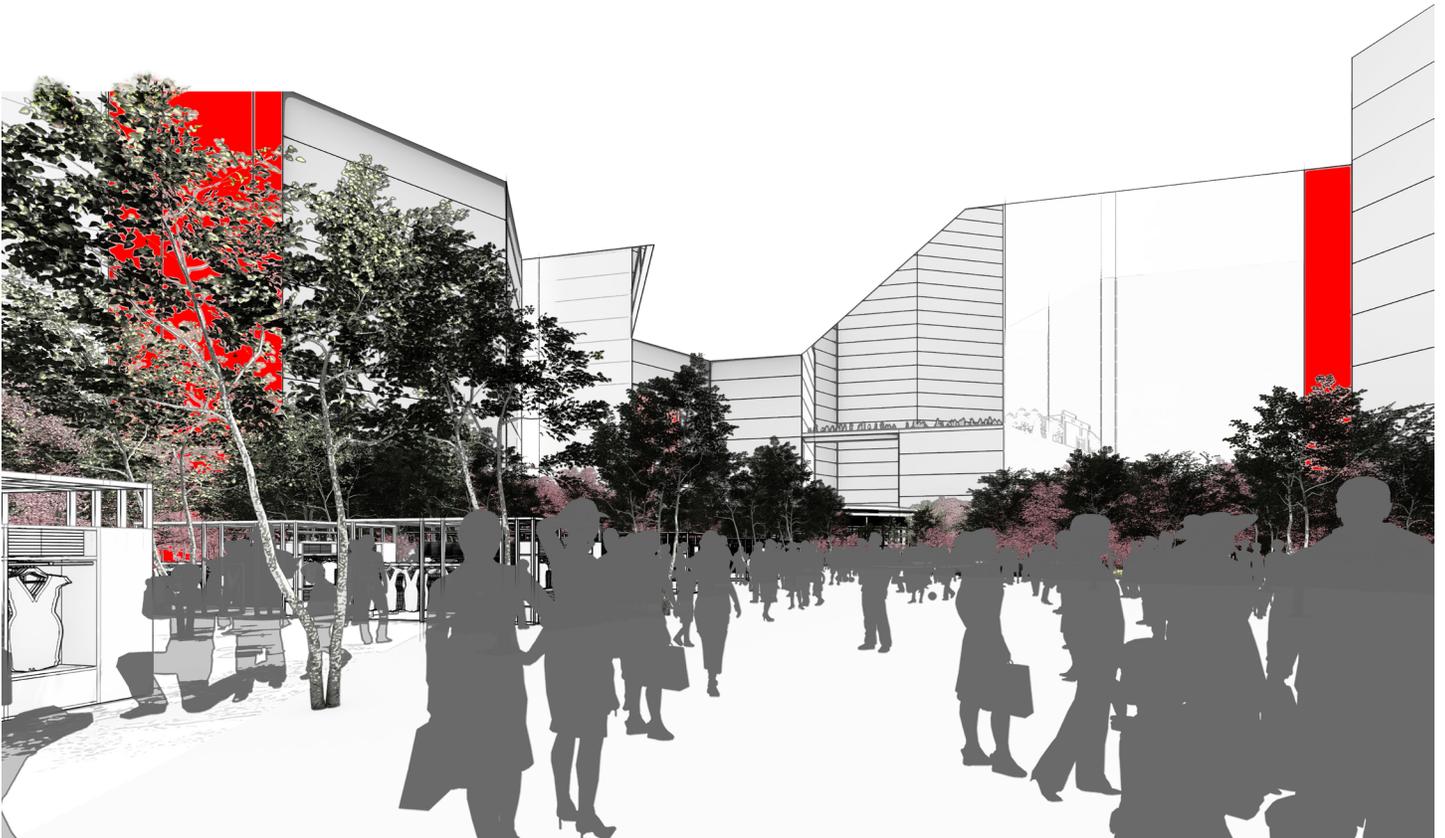
View of Public Plaza



Connector between Vertical Core and Mixed Use Mass



Housing Circulation Experience



Public Plaza Experience

Thesis Addendum

RACHEL CUSACK

Miami University

CONCEPT

As presented in the two previous papers, the original concept for a solution to population and density increase within a city often revolved around skyscrapers. Initially this idea seemed as the only option as it already exists in many forms and functions however, in looking at the big picture a decision had to be made on whether or not to stick with what is known or to go beyond that and assume a "suspension of disbelief" in order to create a "visionary" design that presented out of the box solutions.

In the end the decision was made to create a project that presented out of the ordinary solutions to population, density, community, and city life. Most people only do a thesis once so the notion that it wouldn't be just "some library fully detailed" was motivating and inspiring to create something completely out of bounds from the conceptual norm.

BUILDING

With the decision to create something other than a skyscraper to solve issues related to population, density, community and city life the next problem was how to integrate the papers written with the design. The primary focus of the thesis is to figure out how to cope with life in super tall structures, however with the decision not to do a single skyscraper the task then came to be how to integrate the decision made with all the research and passion behind the thesis question initially posed.

Throughout several ideations shown in the following pages, concepts were explored for how to combine the two issues described. The first idea was to create a series of interconnecting skyscrapers that were scattered across the city however that created

problems with transportation, circulation and crime. Most cities with skywalks or similar features as what would be used to connect the multiple skyscraper ideas, deal with crime and delinquency within the spaces and as a result issue a curfew within them or close them completely to hinder the negative impacts. Due to this information, it was decided that this option did not best suit a city like New York.

The thesis focuses around promoting community, integration and anchoring people to their environment. This cannot be done if the solution implemented is known to promote crime and as a result have frequent closures to manage the crime.

After understanding that interconnected buildings were not feasible through skywalks or similar designs, the next leap in concept was to create structures in which large floor plates connected the vertical moves. While providing more useable area to build, interact, and collaborate upon it prompted another issue, sunlight. In building super tall structures shadows then descend upon the city, understandably this will become a problem eventually. However, creating skyscrapers and then connecting them through elevated planes diminished sunlight to the point where the ground condition becomes reminiscent of that in a SiFy movies. Dark, dirty and dangerous to those who chose to travel.

In expanding upon this option with concern for sunlight reaching the street level multiple scrap models were made to understand the relationship between height, mass, and shadow development. Doing so allowed for the conclusion to be made that building above a specific datum line, gaps within the mass and ensuring that the entirety of the mass was slender would allow for sufficient sunlight to reach street level. After doing these studies the

thesis changed to promote life above 1000ft. Where the initial statement of life above 700ft referred to living and working in singular skyscrapers this new height alluded to the notion of the creation or extension of the city 1000ft plus above the street.

PRESENTATION

The thesis was presented as a conceptualization and proposal for handling population and density increase within the city of New York over the next 100+ years.

Primary points of the presentation were as follows:

1. It is assumed that sticking with population projections for the next 100 years New York City will be overcome with people. In this growth the city will have sprawled to its limits within the island of Manhattan and are now tasked with providing a solution to population increase without hindering the spirit, community and essence of the historic city.
2. This proposal seeks to provide a solution to need for buildable area using an elevated city system. In doing so, buildings such as parking garages, non-historic sites under 5 stories or current vacant lots become fair game to developers to construct an urban scaffolding suitable to constructing an elevated city.
3. Modulation played a key role in the development of the final proposal. The intention being that as the city expands and the need for more housing, mixed use space or other areas arises additions can be made to the phase 1 and phase 2 masses.
4. Ground connections were key to the development and success of the implementation. It is not the intention of the design to neglect or isolate the existing city, but rather incorporate it and extend it upwards into the air.

Ground connectors are placed at strategic locations and at points even connect with the existing subway system to promote integration with the city at street or subterranean level.

5. To anchor the people within their new elevated environment nature plays a big role in the composition of spaces as does sunlight. Both are present factors in each mass added and drive to connect and help people relate to one another and the city below.
6. Adaptability. This thesis is flexible in that it can adapt to the needs of the city. It addresses nature, mixed use and housing, however in the future should another use or zone type be more beneficial this design of modulation and connectors allows for other functions to easily fit within the massing proposed.

RECEPTION

Overall the reception of the proposal was very mixed. Andres Mignucci appreciated the design steps taken to propose a theoretical design concept. He along with the other jurors agreed that further development into systems and technical components needed to be incorporated or pursued to validate the proposal.

Of the systems and technical developments to be made, solar harnessing, structure, sewage, and technological assumptions needed to be idealized and presented to make the project more realistic.

Of the negative receptions, Mr. Hansford suggested that it was a monstrosity that did not belong in any city. As an alternative to the proposal he suggested removing the mass from the physical model and placing the entire proposal in the Hudson River. Other criticisms from Professor Sanabria focused on gentrification and who would come to reside within the spaces. Stating that it becomes yet another hub for billionaires similar to Dubai however this one is 1000ft in the air.

MOVING FORWARD

The feedback provided on systems and technology are understood and acknowledged and, in the future, will be improved upon. Given the time restriction for the university not every aspect could be developed or thought out completely and it is very much the intention to further develop the concept in the future to make it more realistic and feasible.

With regards to the notion of cost, occupants and the other criticisms presented those will be analyzed further to see what potential solutions could be. However given that it is a theoretical thesis the assumption is made that should this ever be considered for a real project the convening government would have to acknowledge that the cost was most beneficial for the greater good of the people and of the city.
