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tola  
oniyangi**

*architecture & urbanism*

Master of Architecture

Master of Science in Urban Planning August 2016 - May 2020

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## design

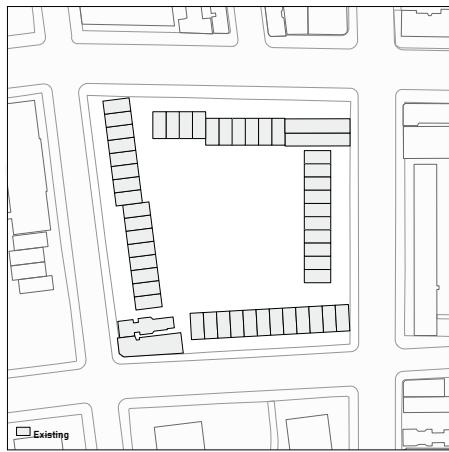
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## research

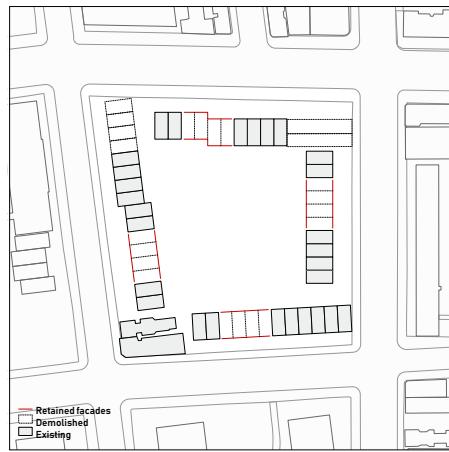
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design

## 1. EXISTING BUILDINGS



## 2. DEMOLITION



## 3. HOUSING TYPOLOGY: TOWNHOUSE



## 4. HOUSING TYPOLOGY: TOWER



## 5. CONNECTION: INTERSTITIAL SPACES

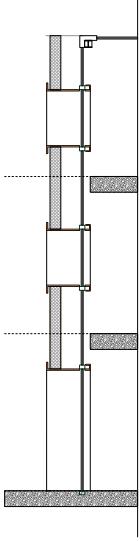


# *preserved traces, interstitial spaces*

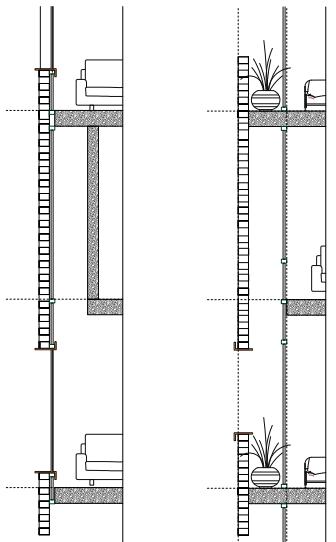
## **How can a housing development maintains traces of existing social, urban and environmental site conditions?**

This housing project explores ways to extend the current social and historic fabric in the Bronx site to a new housing typology. It integrates the existing townhouse typology, building materiality, and urban scale with a new tower and townhouse typology. Conditions of interstitial spaces, expressions of light and greenery through facade details, interior courtyards, and stripping of windows and roofs in some cases feature in the intersections between existing and proposed buildings. Some current residents' retrofitting of the existing housing to serve both housing and commercial purposes, such as daycares, is respected in the proposed housing block where office and communal work spaces are a prominent feature. This interaction between old and new site conditions generates a dynamic housing block that interfaces with questions of preservation, minimalism and materiality.

Fall 2018. Core III: Housing - Critic: Gabriela Etcheveray. In collaboration with Sara Al-Mutlaq.



**Existing Facades:** Floor plates are pulled back from the preserved brick walls, and glass walls or railings are added in to generate light and air while maintaining the character of the existing housing stock



**New Facades:** Conditions where brick wall is punched through and/or floor plates are pulled back to allow light and air and enable a dynamic relationship between facade, structure and space



Ground floor plan showing landscaping and relationship between office and residential spaces, as well as moments where preservation of elements, such as 9

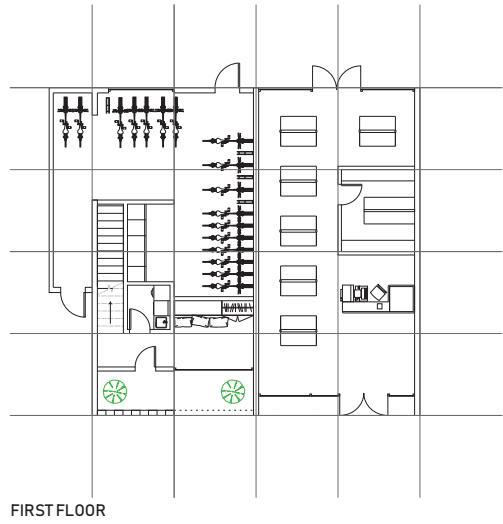


SECOND FLOOR PLAN

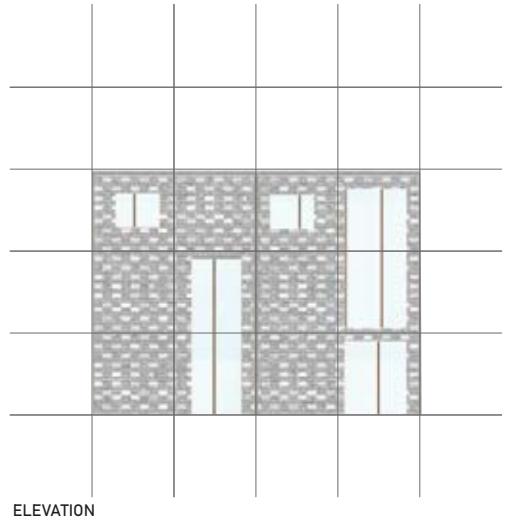


THIRD FLOOR PLAN

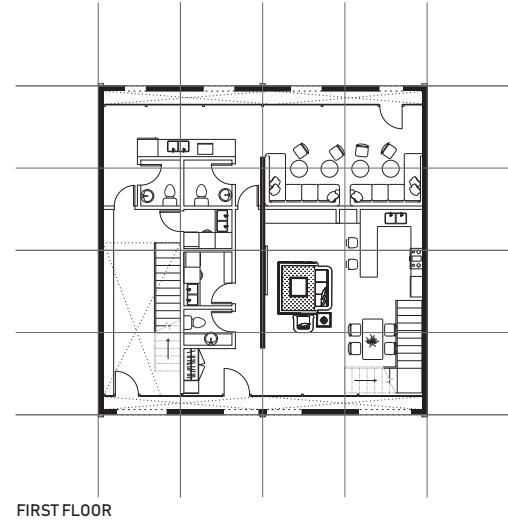




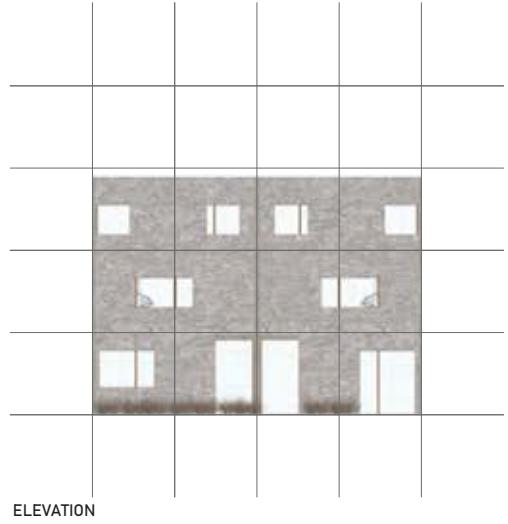
FIRST FLOOR



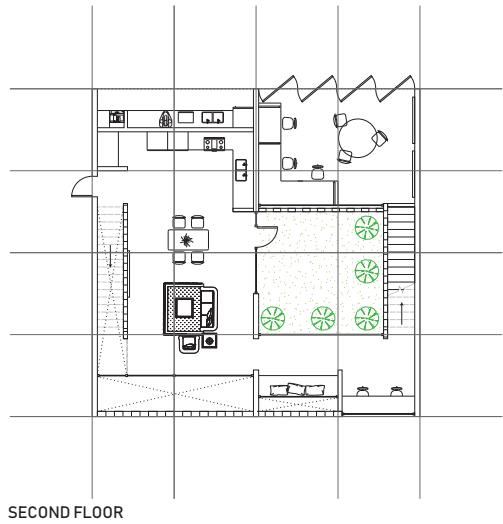
ELEVATION



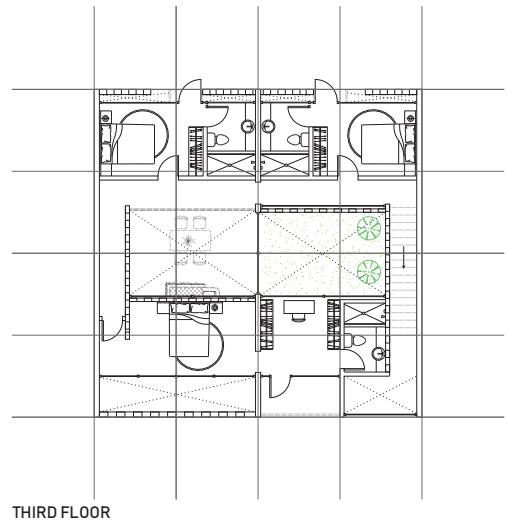
FIRST FLOOR



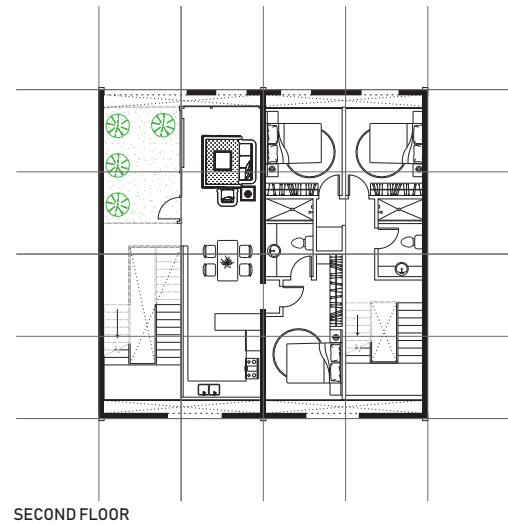
ELEVATION



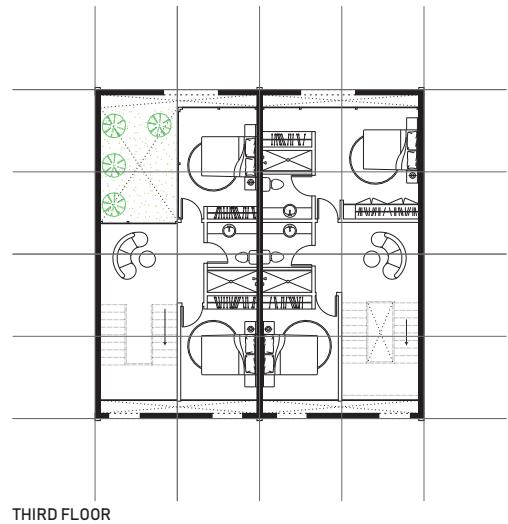
SECOND FLOOR



THIRD FLOOR



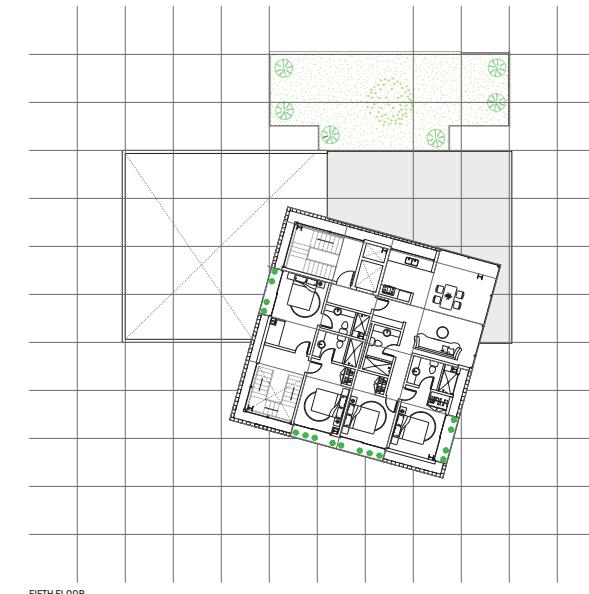
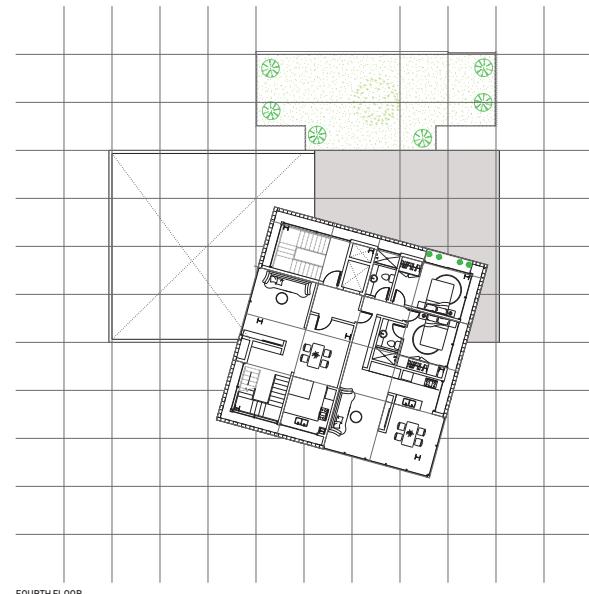
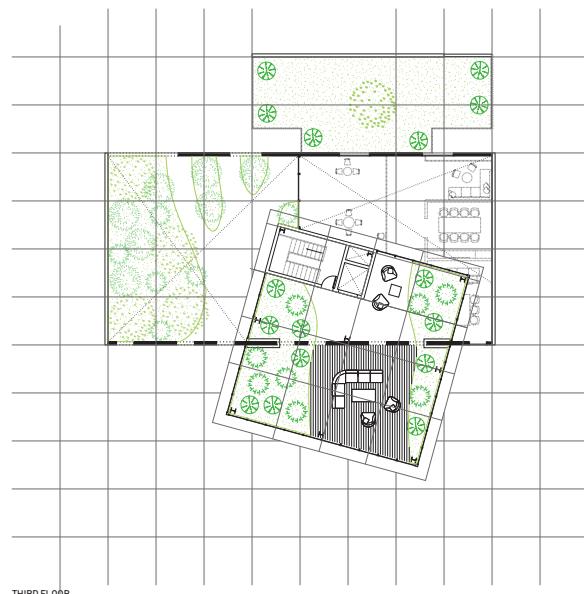
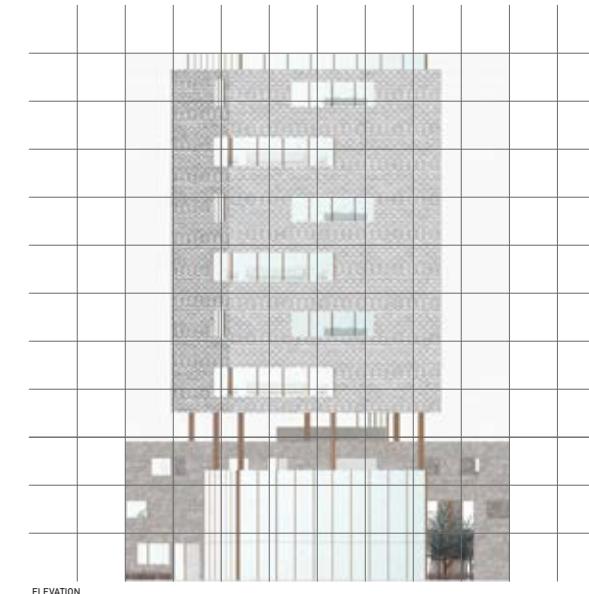
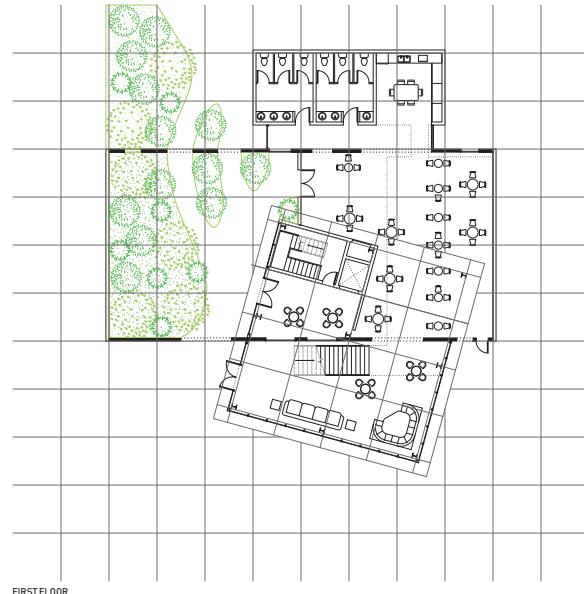
SECOND FLOOR



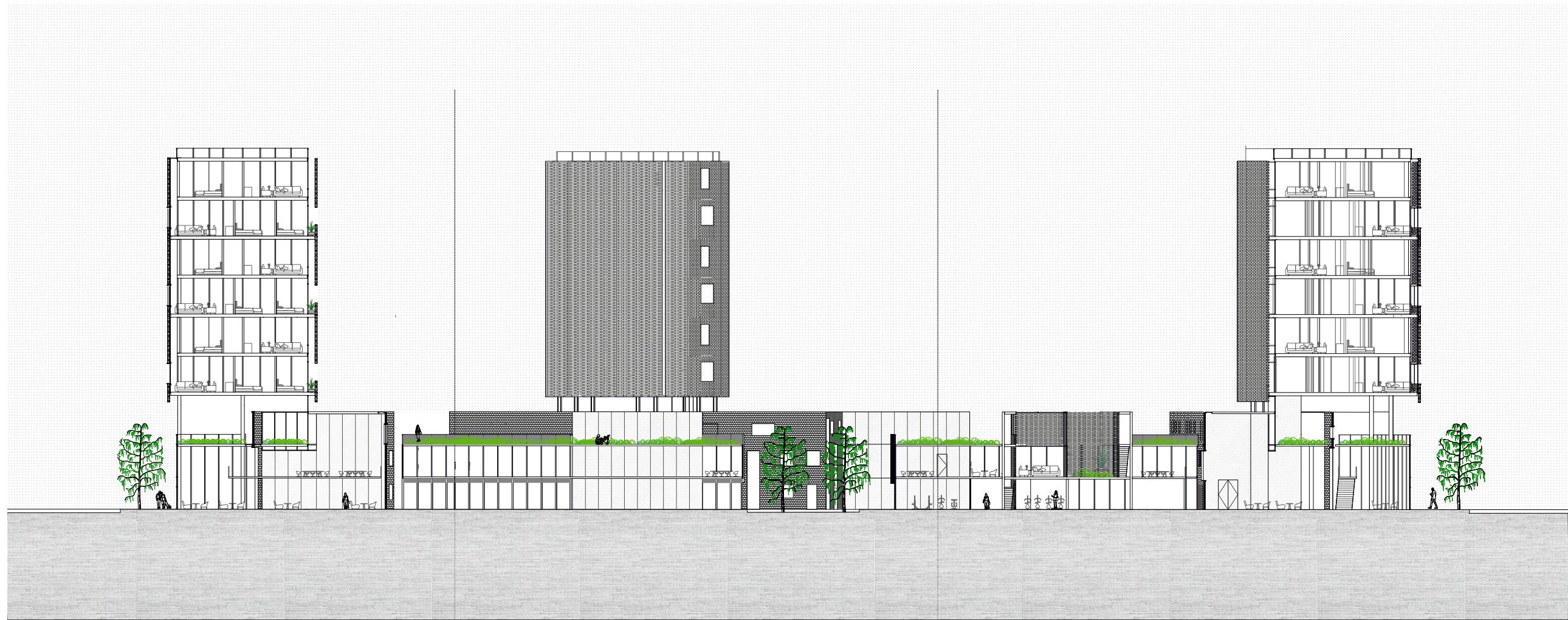
THIRD FLOOR

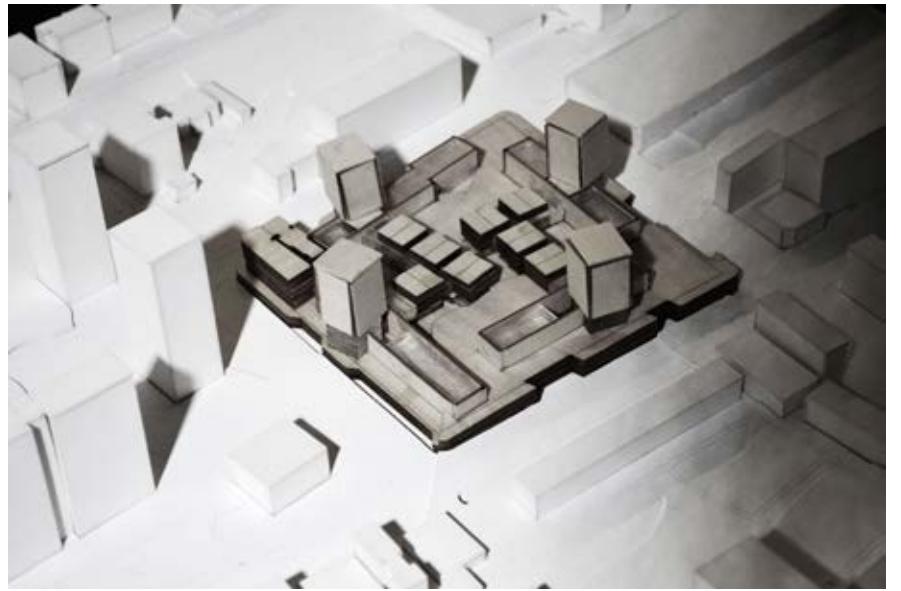
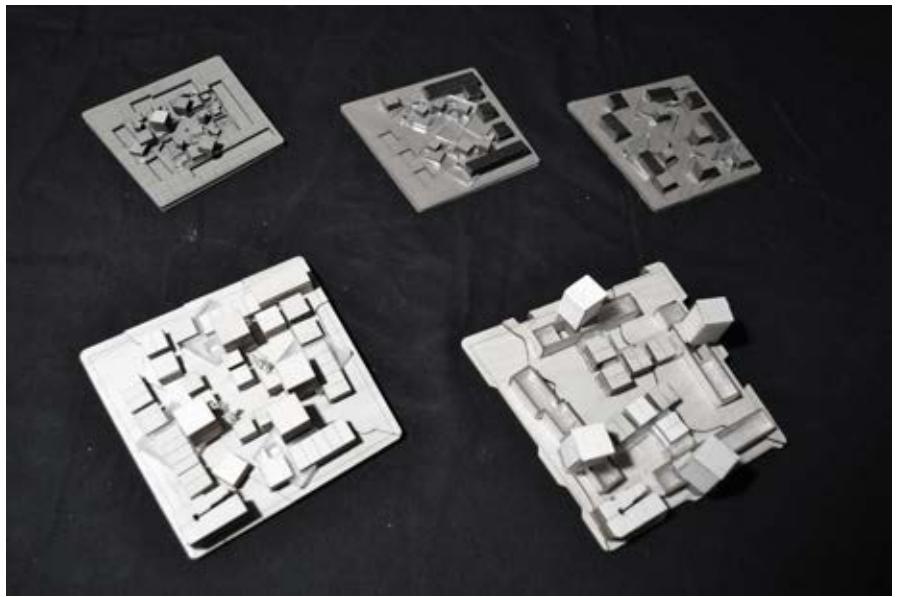
New Townhouse with communal and commercial spaces on the ground floor, and duplex apartments with interior courtyards from the second floor. This typology features co-working spaces that are accessible from outside the units, andand balconies overlooking verandas.

Old townhouse with interior courtyards and triplex three-and four-bedroom apartments. Ground floor is also apportioned for a co-working space that is accessible from units. This typology maximizes the space available in existing townhouses while bringing more shared spaces and greenery into and around the houses.



Tower typology contains communal spaces on the lower floors and duplex apartments on the upper floors. It features perforations of the brick wall and interstitial spaces where exterior and interior are blended together, as well as an excavated lobby space containing bare walls from existing buildings.





Study model evolution above, model in site below



Sectional model of tower intersecting with existing townhouse 21

# *immersion library: analysis of an urban condition*

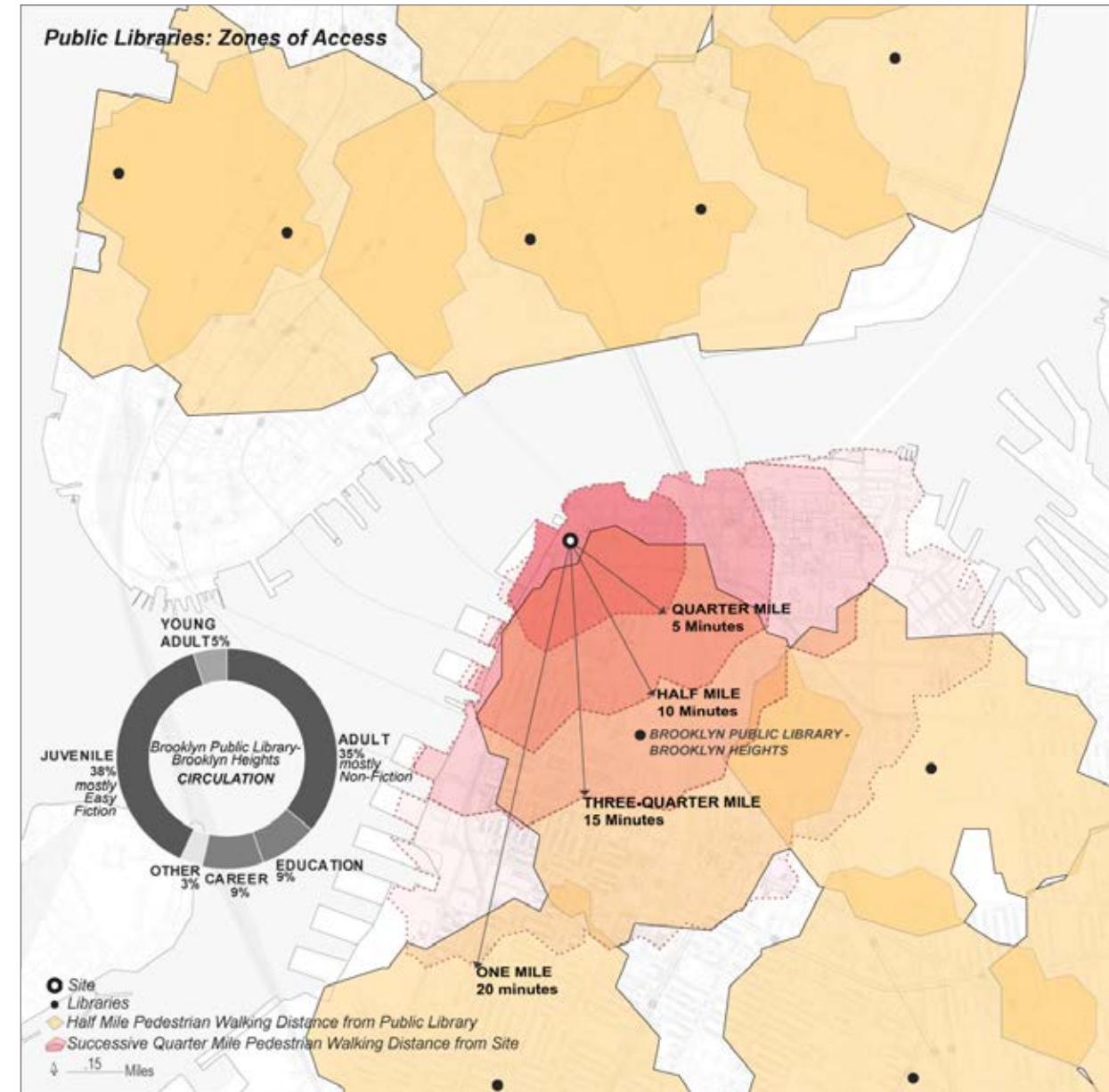
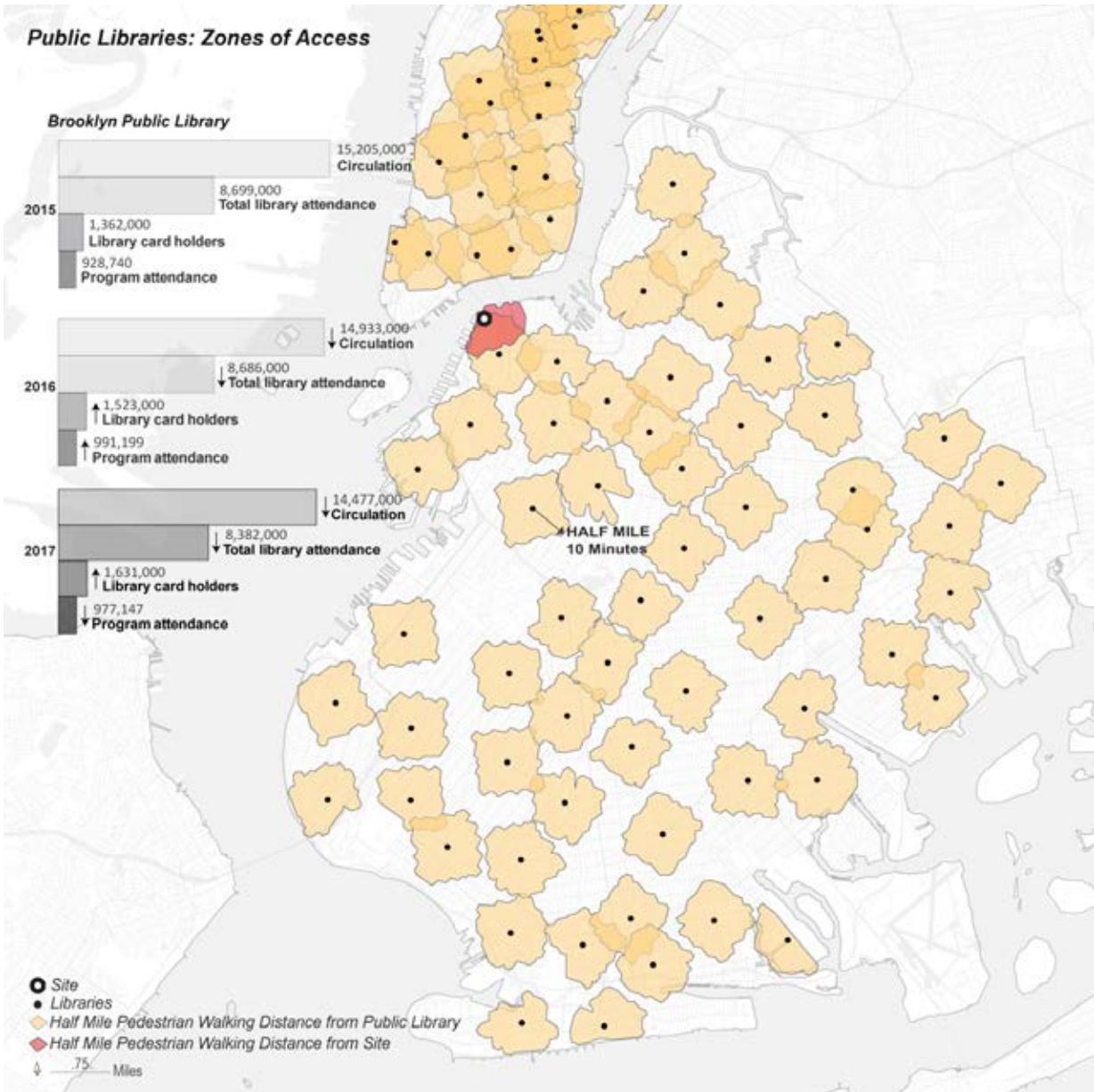
*Extending Open Space from Waterfront to Interior*

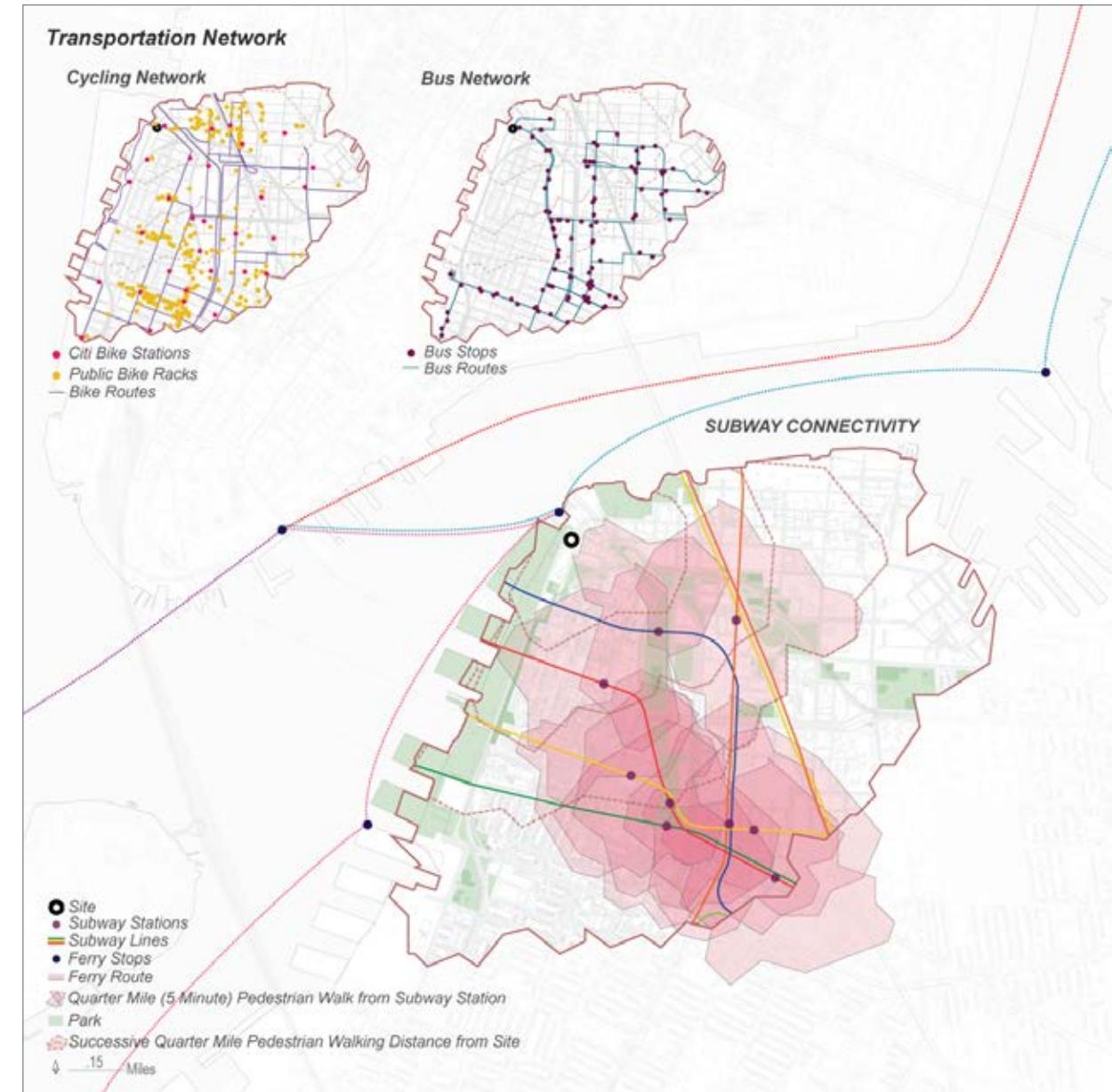
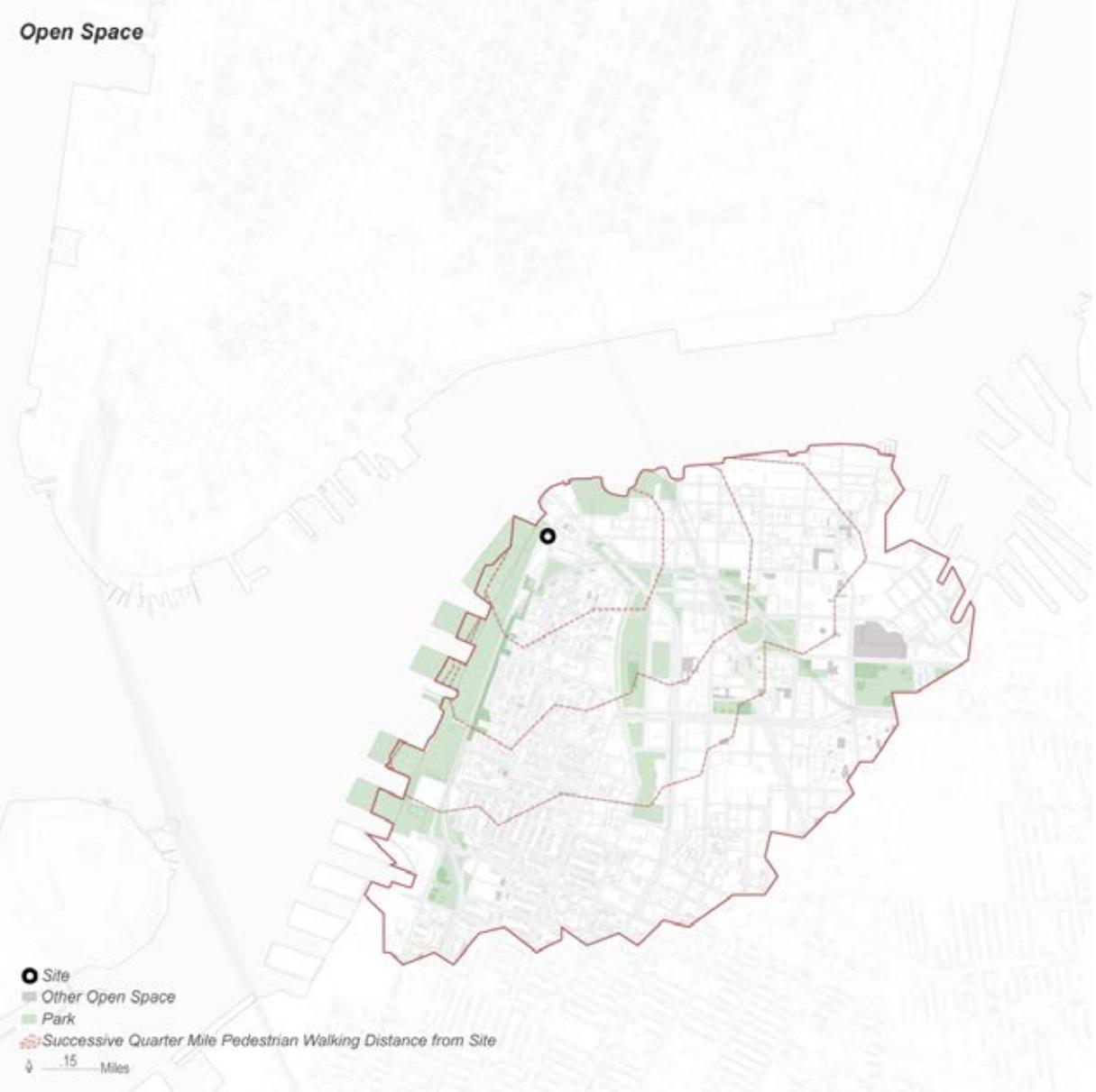


## **How can one determine a project's likely user demographics given its location?**

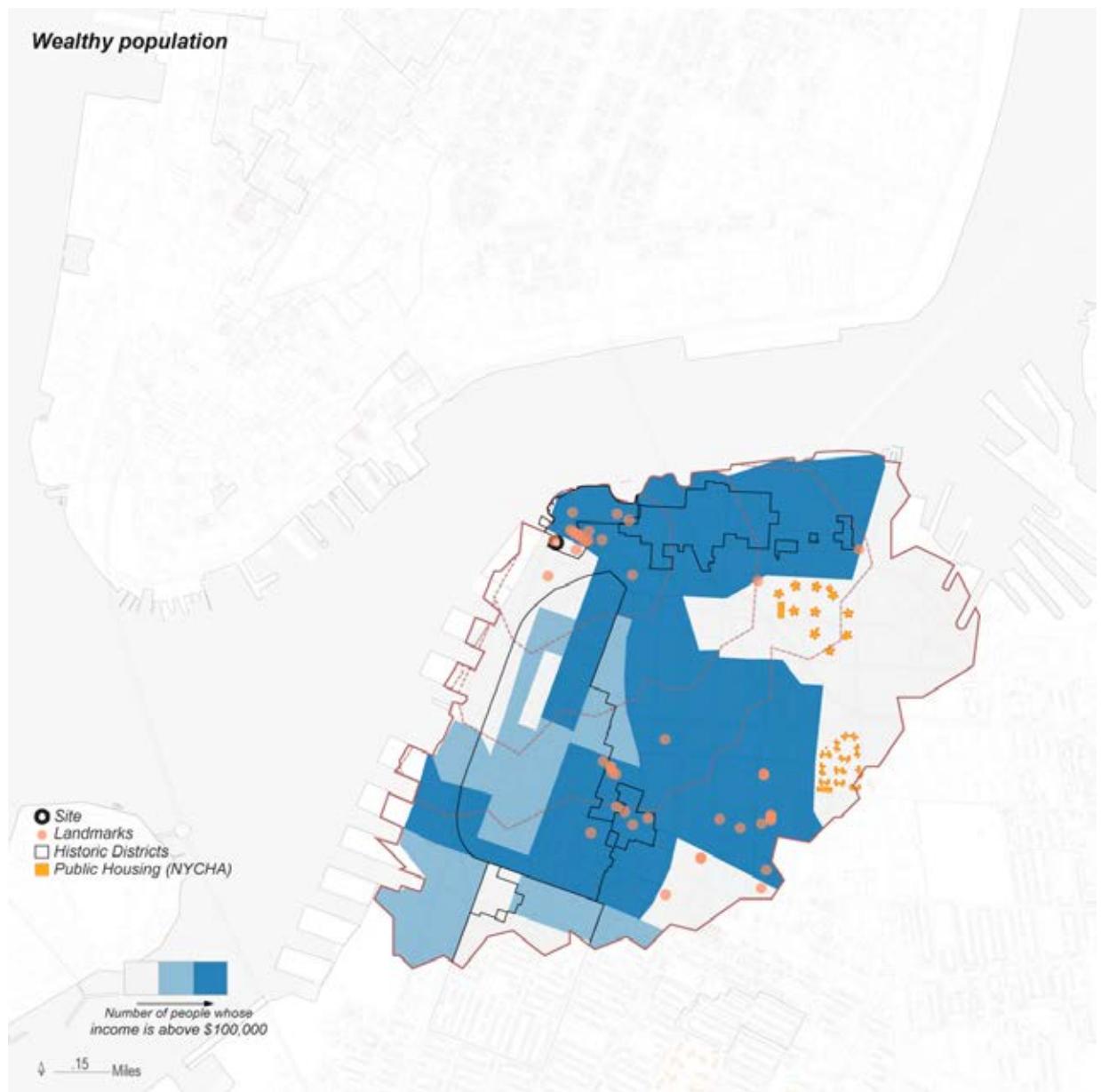
This library project emerges from a rigorous exploration of its immediate context in Dumbo, Brooklyn. Questions delving into the Brooklyn and Manhattan public library systems establish a main frame of understanding. Access emerges as a main factor in determining who would likely use the library, and a series of demographic questions at four levels of access guide this analysis. Questions of accessibility through transportation options, character of the neighborhood, library locations, wealth, and commute time of residents within a successive quarter-mile (approximately 5 minute) to one mile (approximately 20 minute) walking distance along pedestrian streets make up this research. The analysis of Dumbo's urban condition led to conclusions about the population the library would serve that were integral to the design process.

Spring 2018. Core II. Critic: Gordon Kipping.

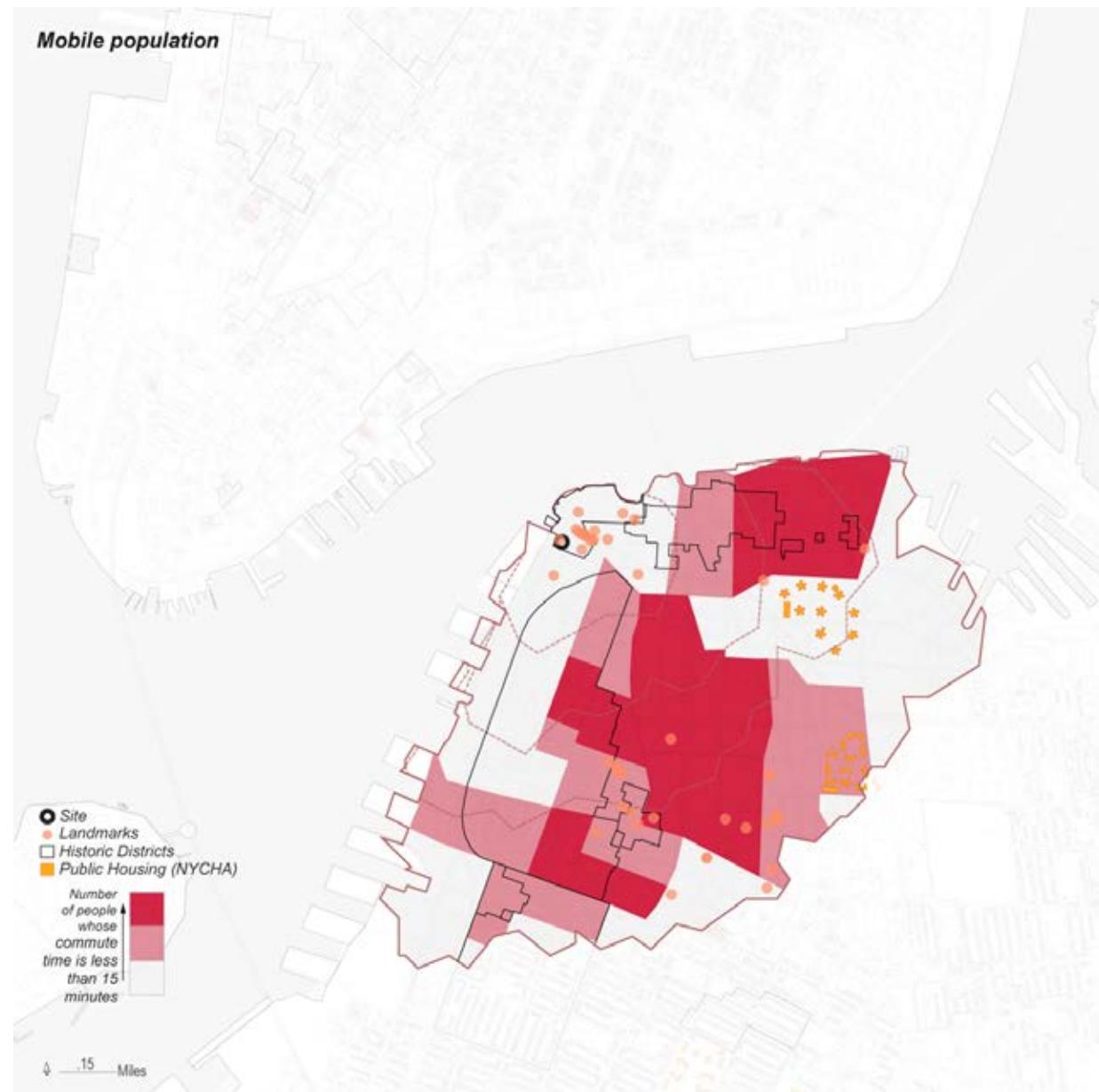




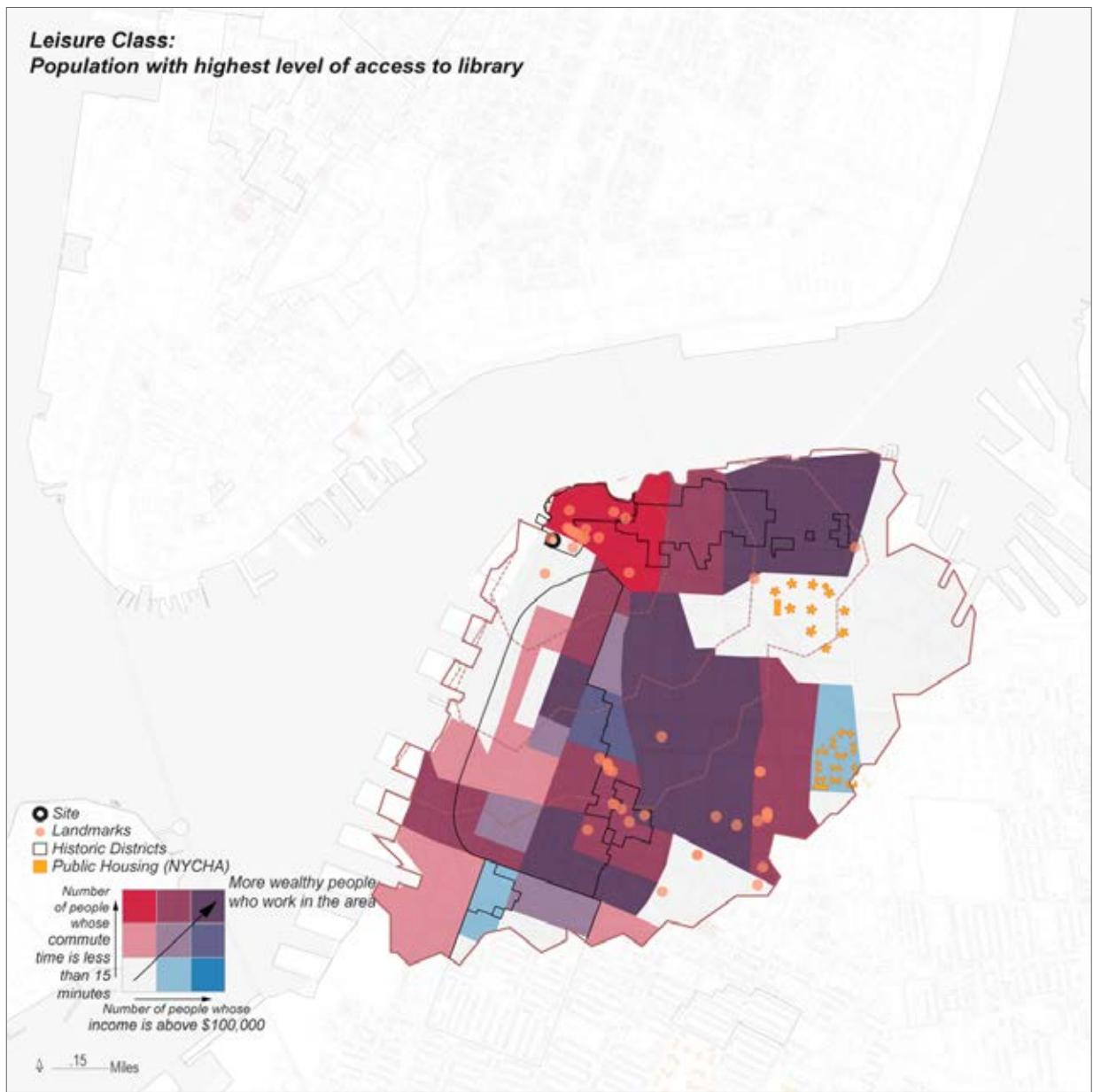
**Wealthy population**



**Mobile population**

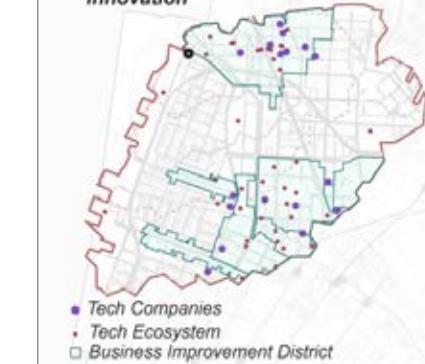


**Leisure Class:**  
Population with highest level of access to library

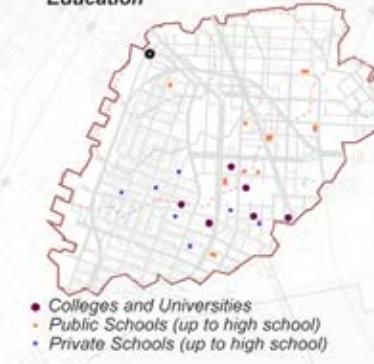


**Character of the Area**

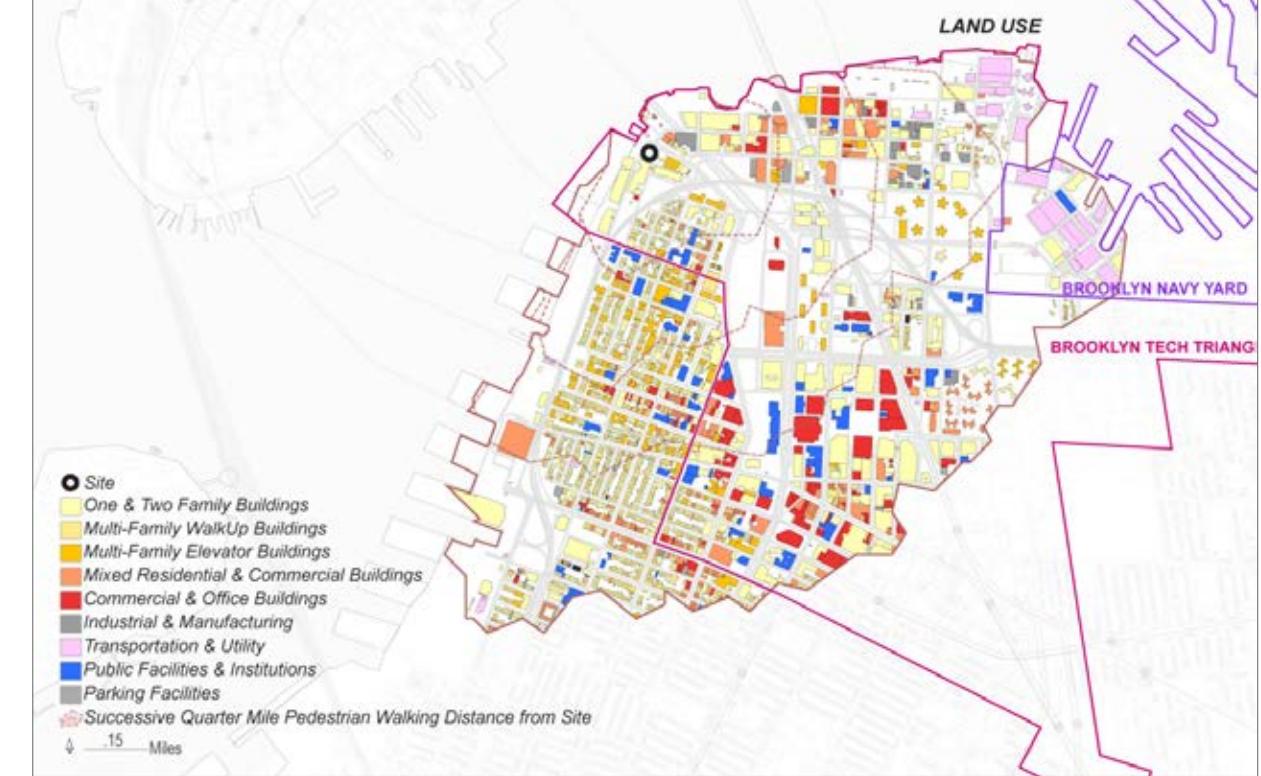
**Innovation**

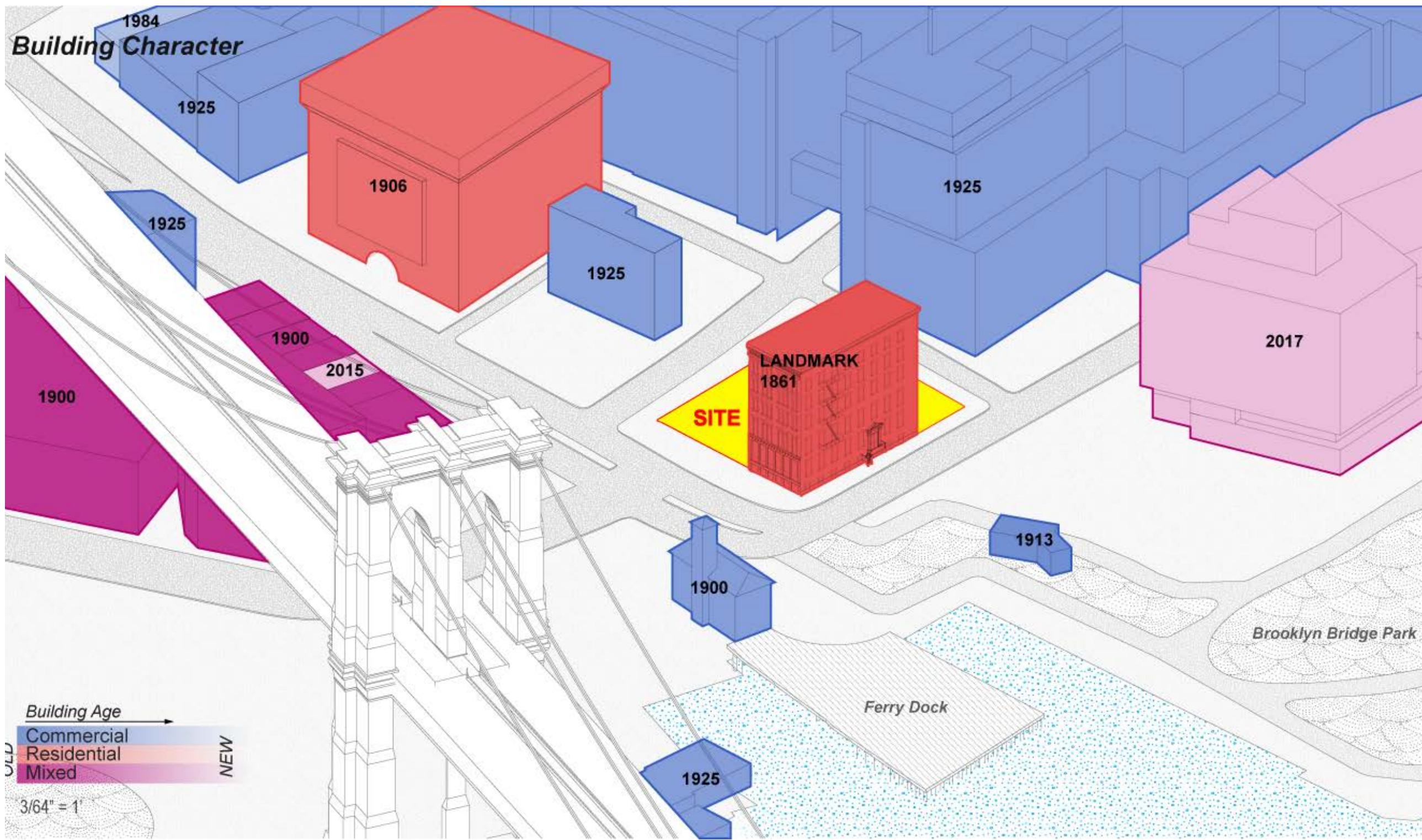


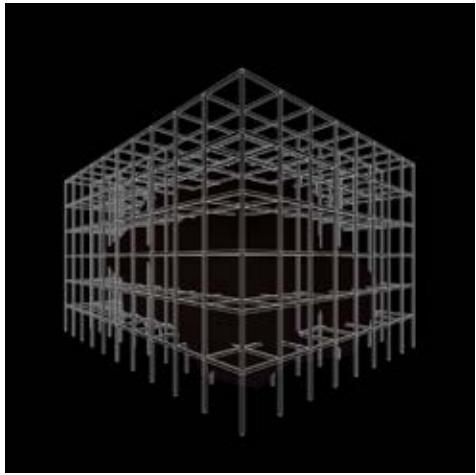
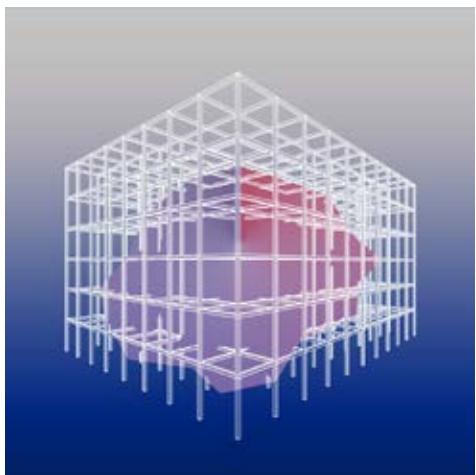
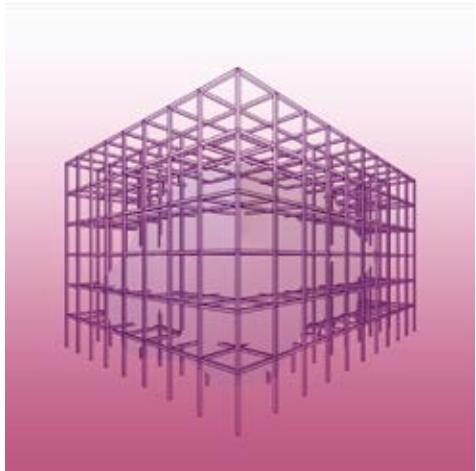
**Education**



**LAND USE**



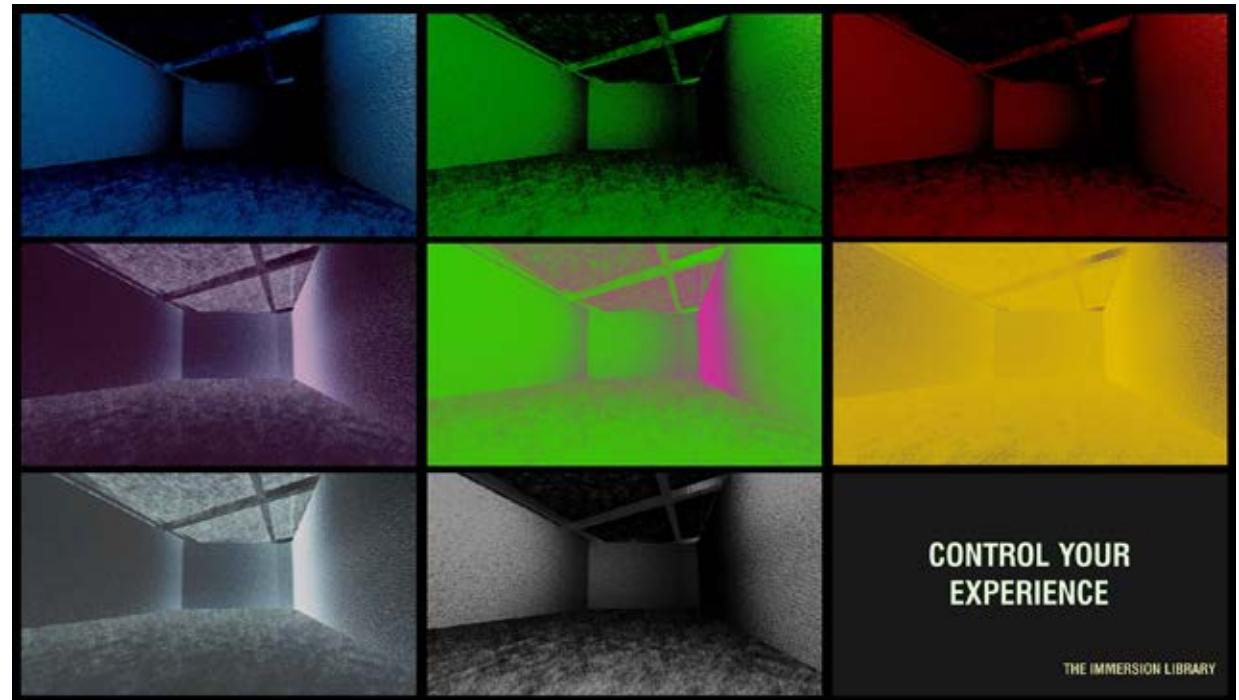




## What does it mean to express structure externally and generate openness through material and form?

This library project grapples with two main ideas: that systems of moving through space can be generative, and that tactility can influence access. Programs specific to Dumbo's transient tech and tourist population as well as its more permanent student population connect the building to its context. The experience of approaching the library, with its juxtaposition of a malleable and translucent inner volume and a solid steel structure, opens it up to patrons and passersby alike. The interior, which is almost entirely devoid of steel beams, features many mixing spaces between related programs. Finally, the intermediary moments within which people can walk over the exterior steel columns reconcile this inside/outside dichotomy.

Spring 2018. Core II. Critic: Gordon Kipping and Architectural Drawing and Representation II. Critic: Dan Taeyoung.

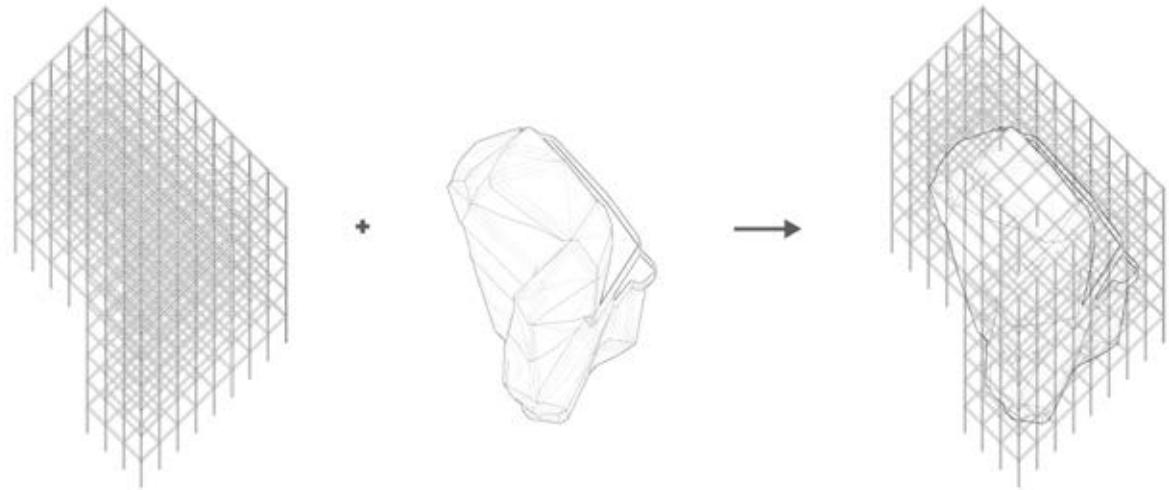


**CONTROL YOUR  
EXPERIENCE**

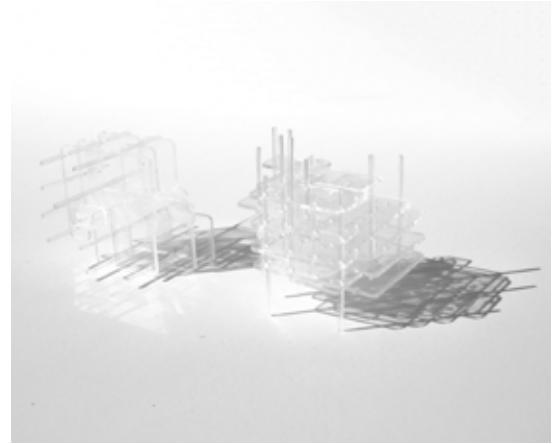
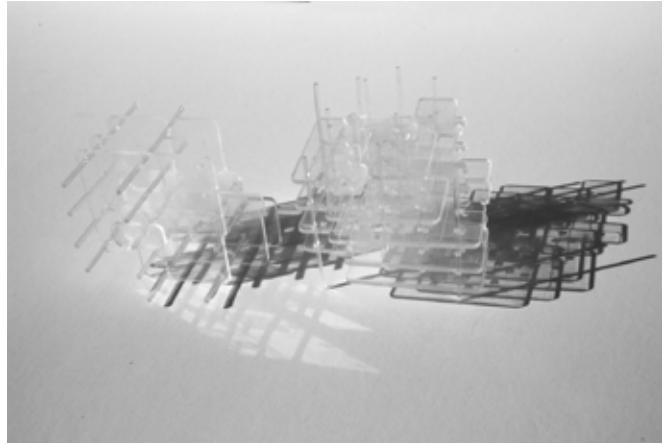
THE IMMERSION LIBRARY



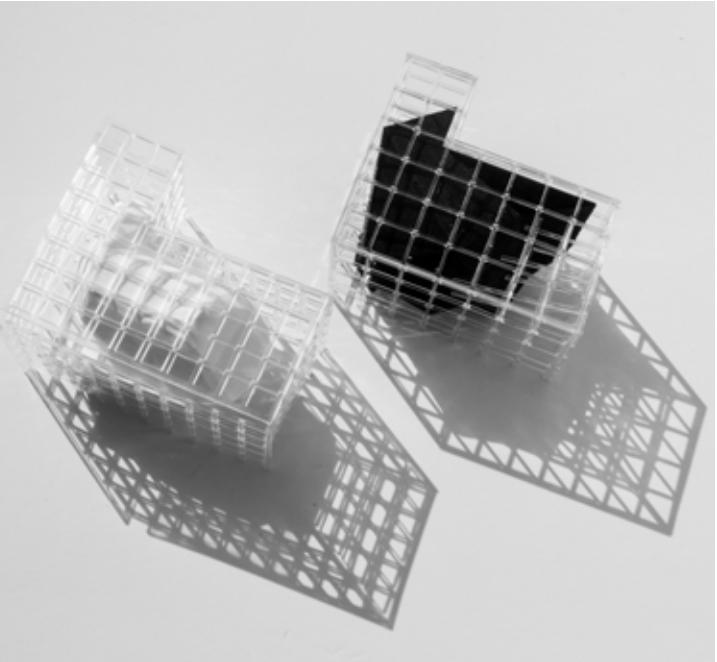
Study models exploring tectonic and experiential approaches to the library



Structural composition of library

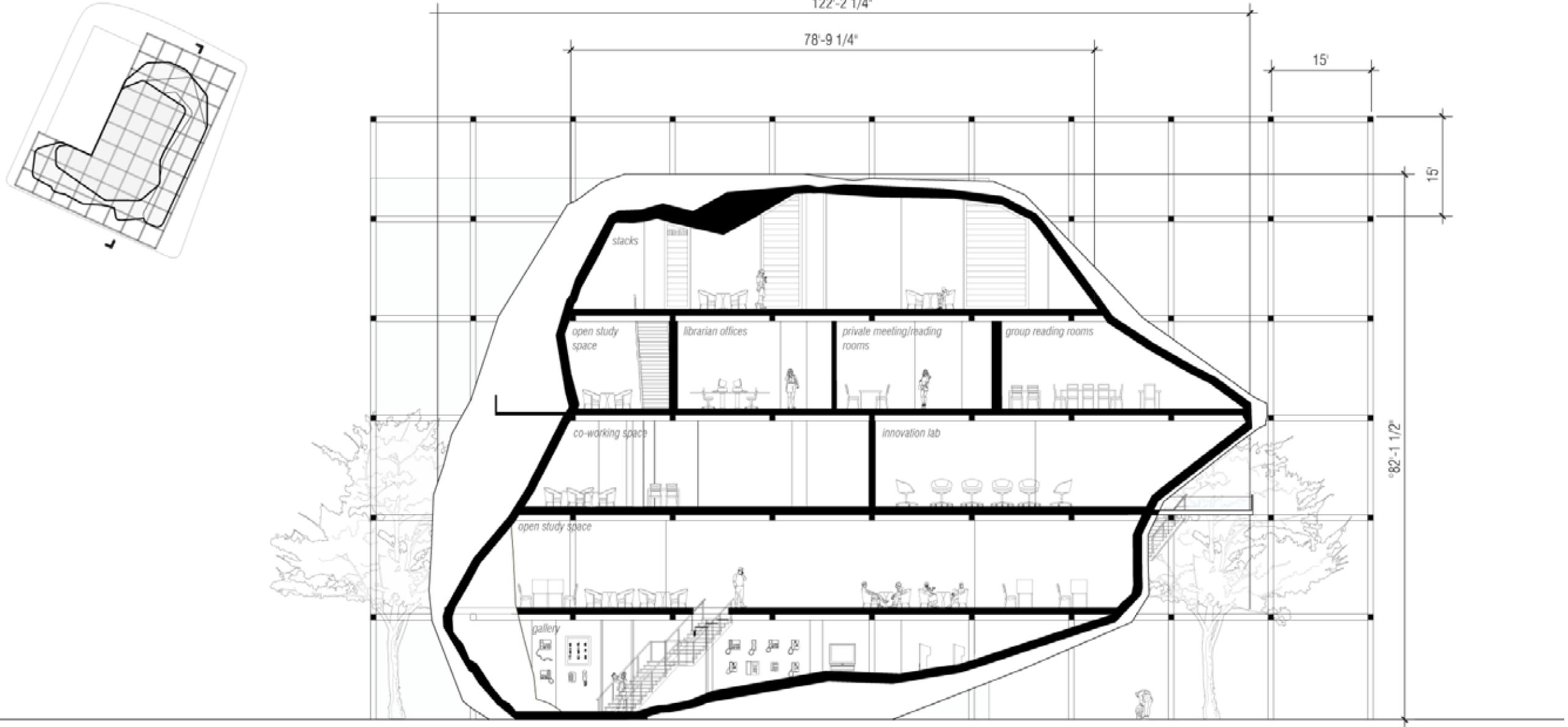


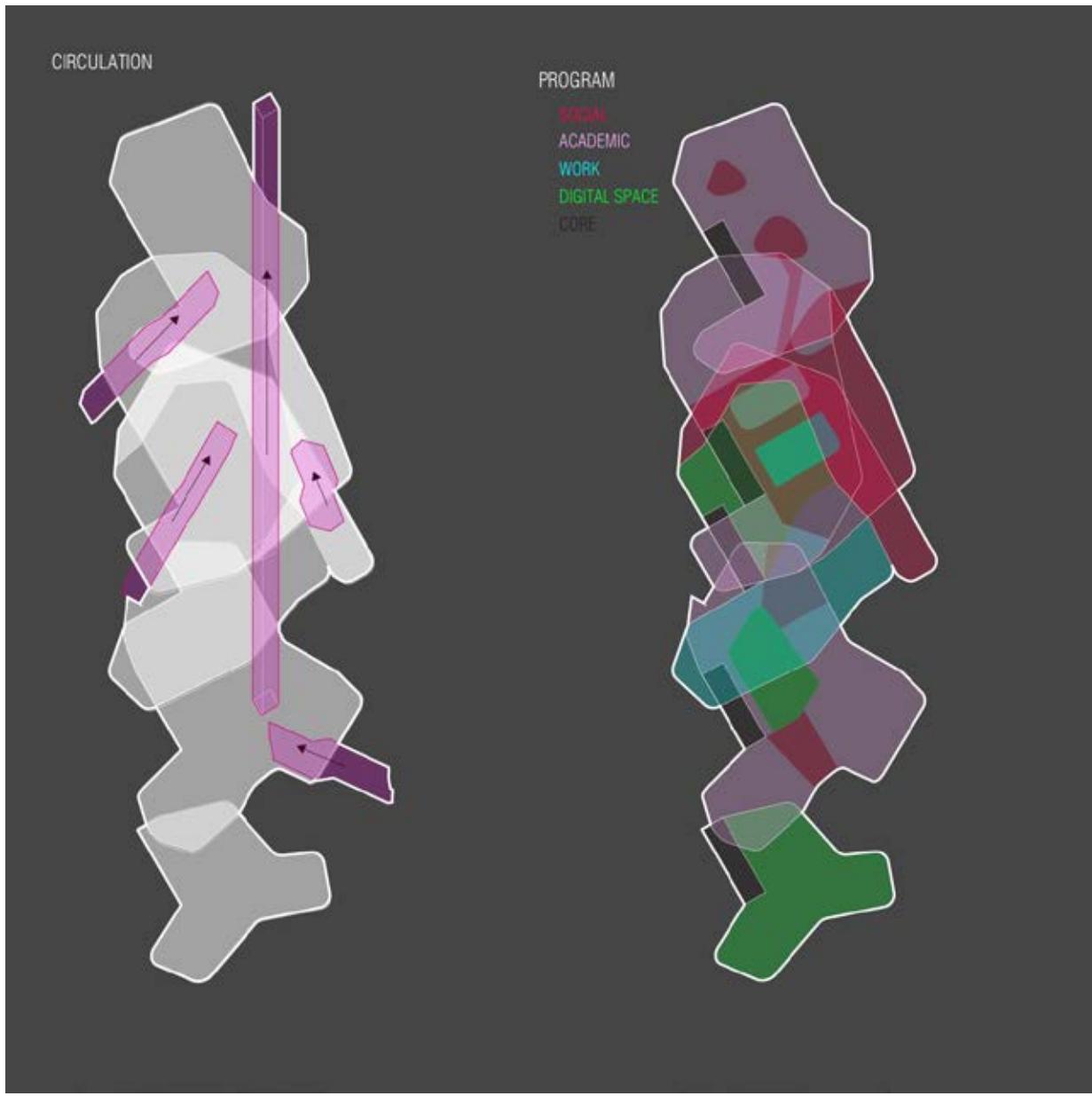
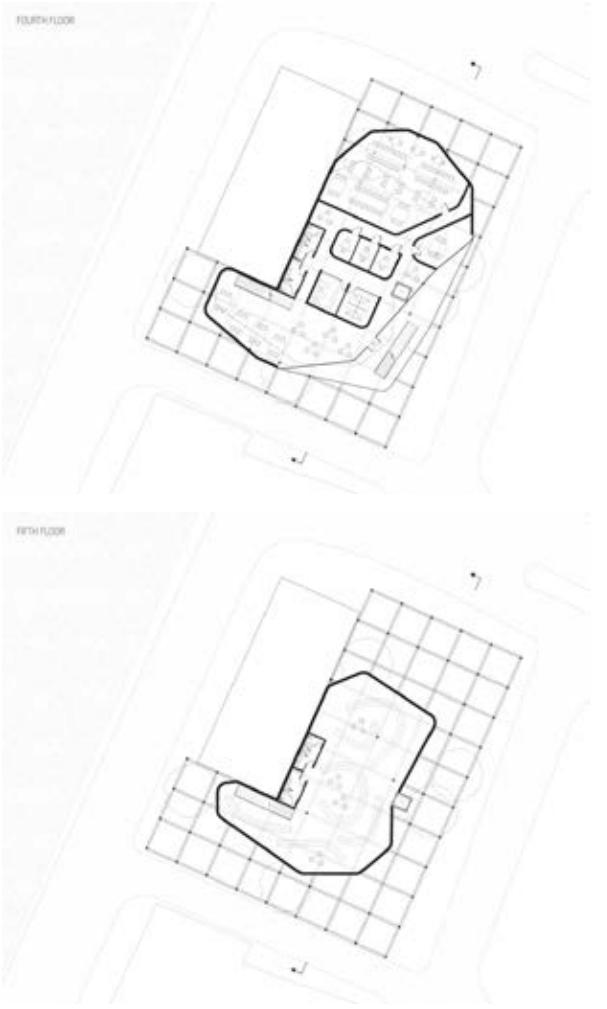
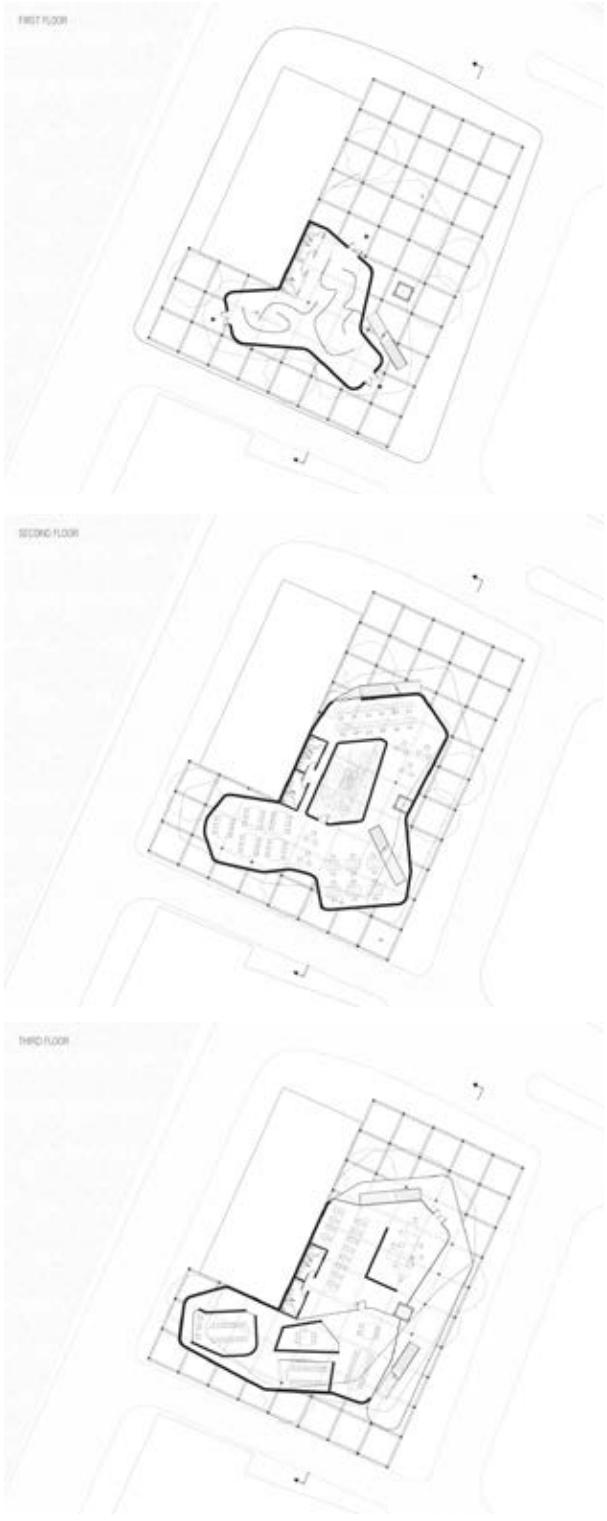
Exploring programmatic relationships through plates successively depicting plans and sections



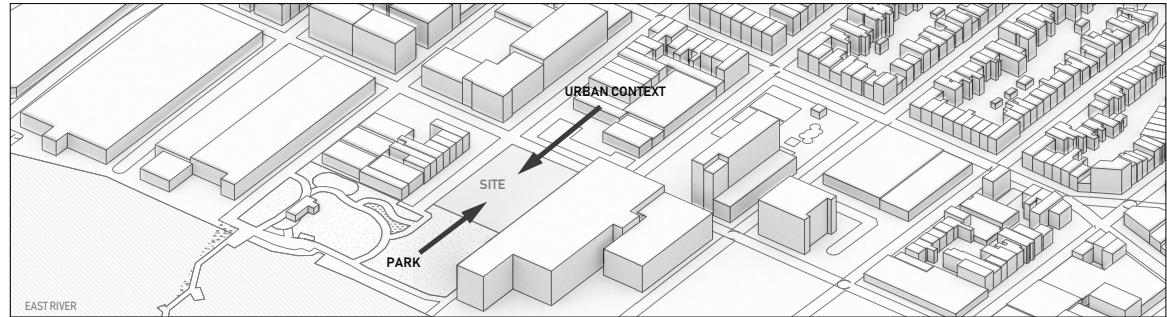
Final massing (left) and sectional (right) model showing relationship between exterior structural grid, interior form, and tectonics

Final massing (left) and sectional (right) model showing relationship between exterior structural grid, interior form, and tectonics

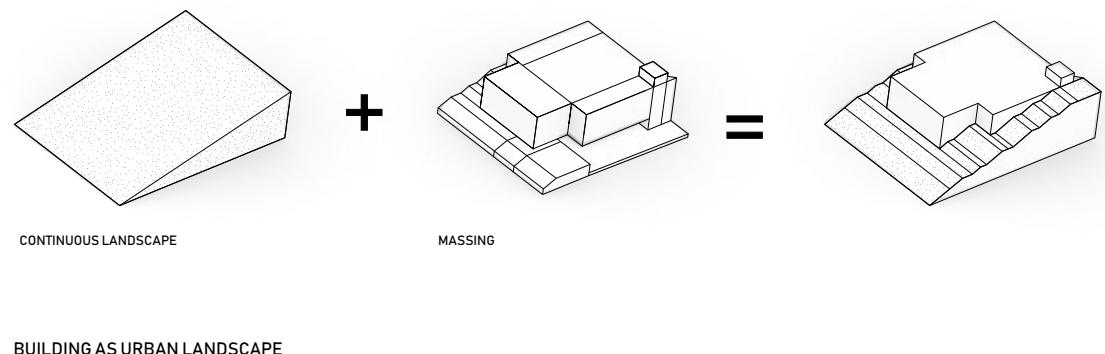




# *City, Theatre, Park*



SITE BETWEEN NATURE AND URBAN CONDITION



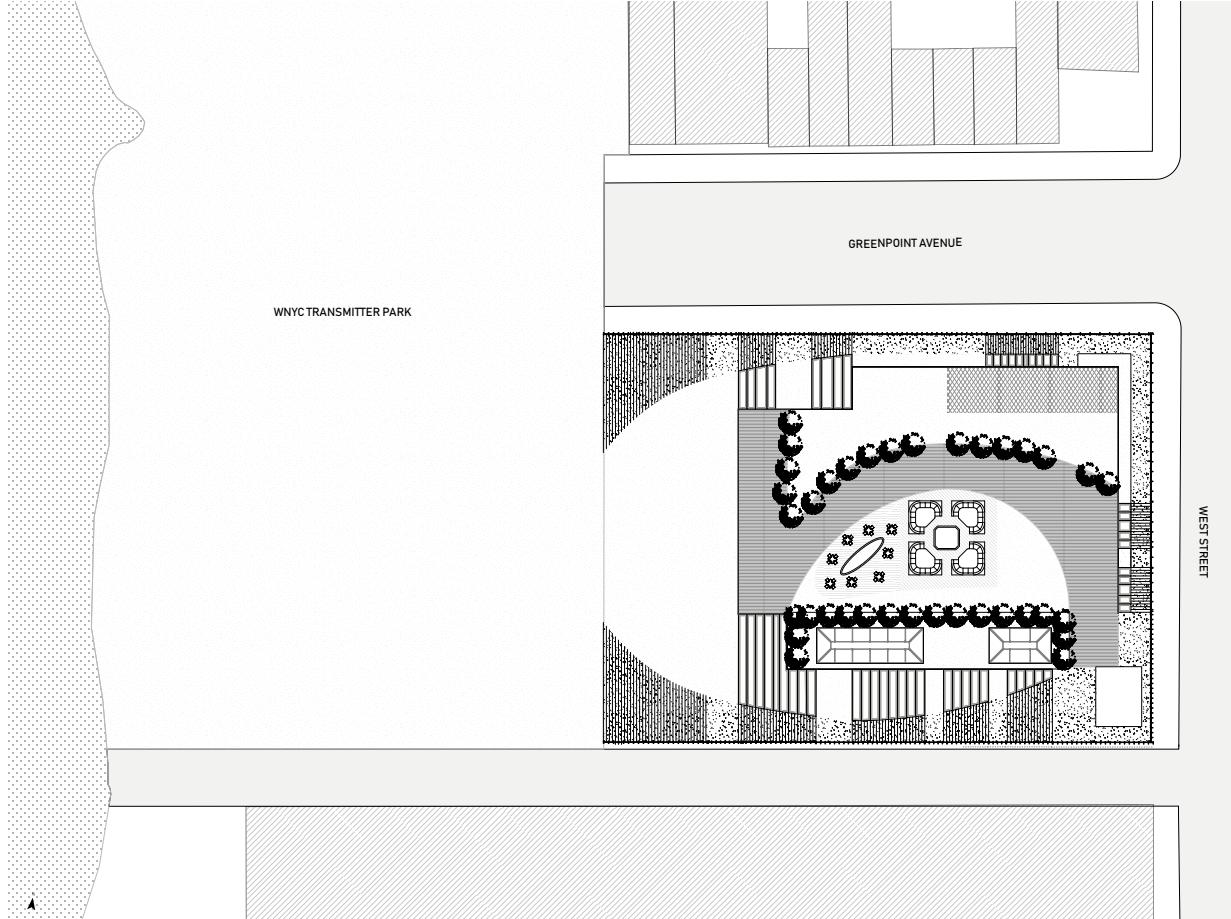
**What does it mean for a theatre to straddle the threshold between a natural landscape and an urban condition?**

This redevelopment and expansion of a Greenpoint theatre approaches it primarily from a technical perspective. The site context gives credence to the concept to integrate the sloping terrain of the park, which descends into the river, with the hard edge and scale of the warehouse buildings towards the north. Decisions such as louvers controlling light entering the building depending on the orientation, green walls on the interior and throughout the accessible sloping roof, and an operable glass partition between the theatre and the park opposite it take into account a relationship between people, nature, and art. The building's schematic documents, design documents and construction documents include mapped elevations, roadmaps with typical and atypical details, structural plans and cross sections, reflected ceiling plans, floor plans, structural details, and wall sections among other things.

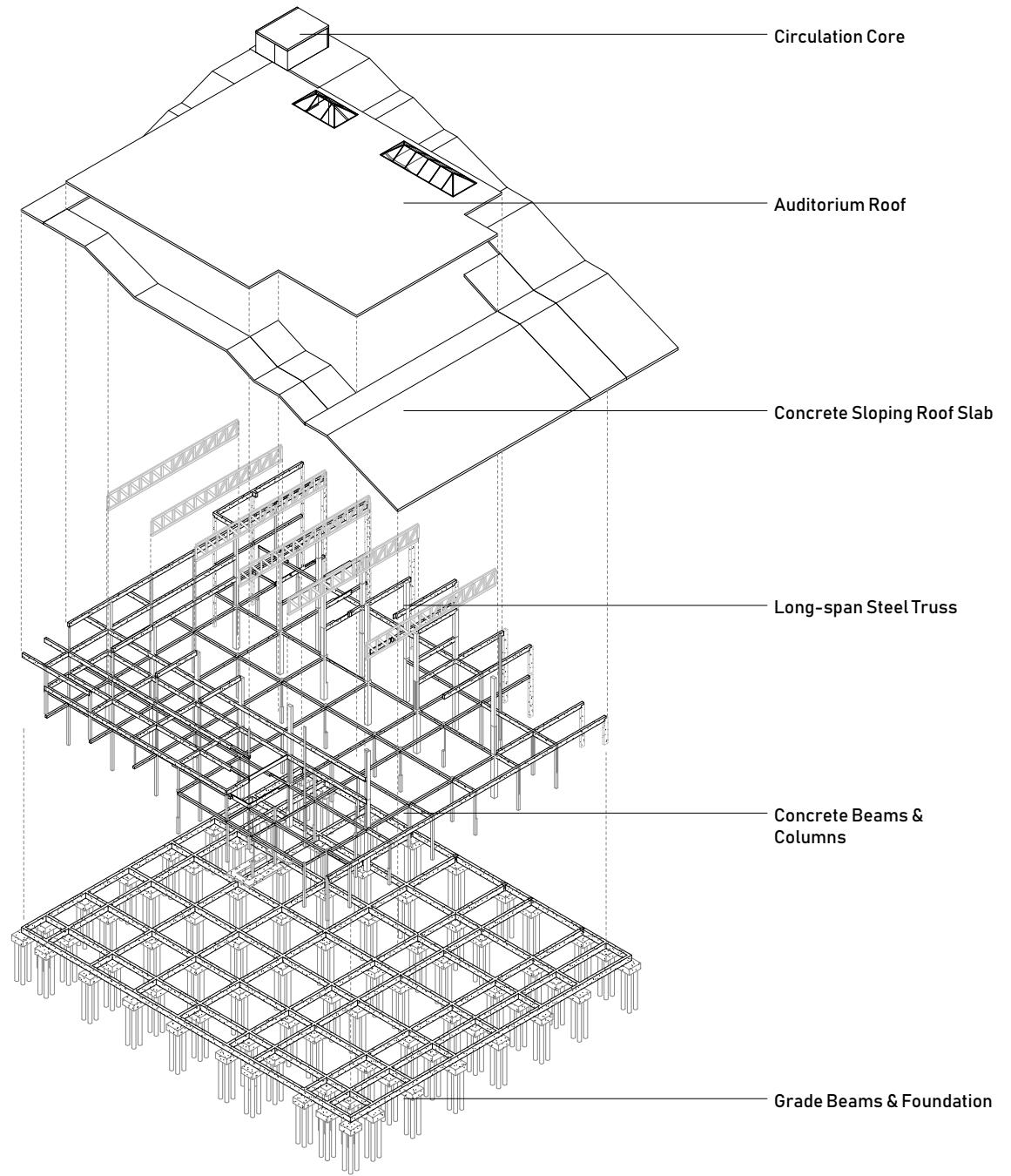
Fall 2018. Architectural Technology IV: Building Systems Integration.  
Professor: Sarrah Khan. In collaboration with Anna Creatura, Cris Liu and Yang Qi.



Site context

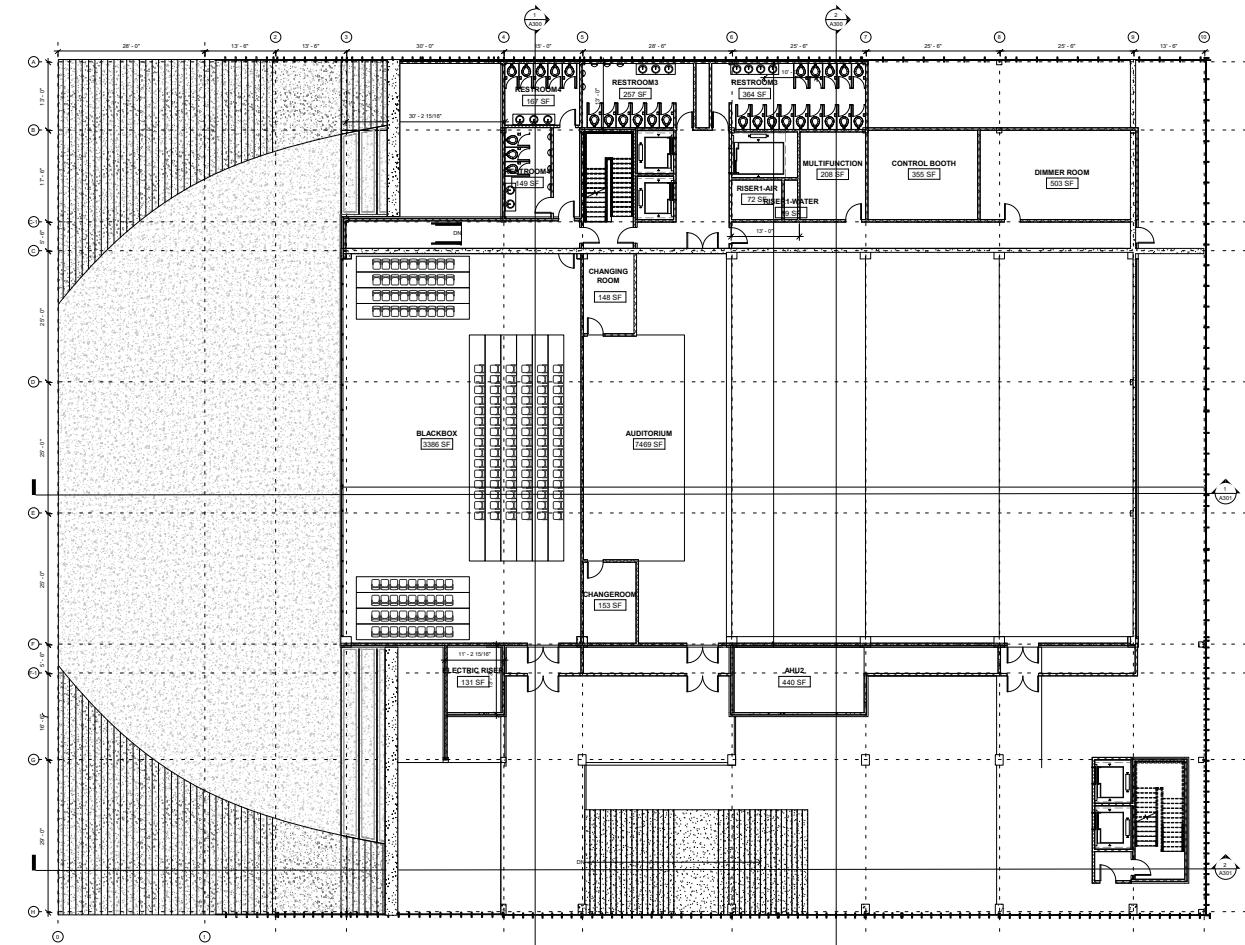
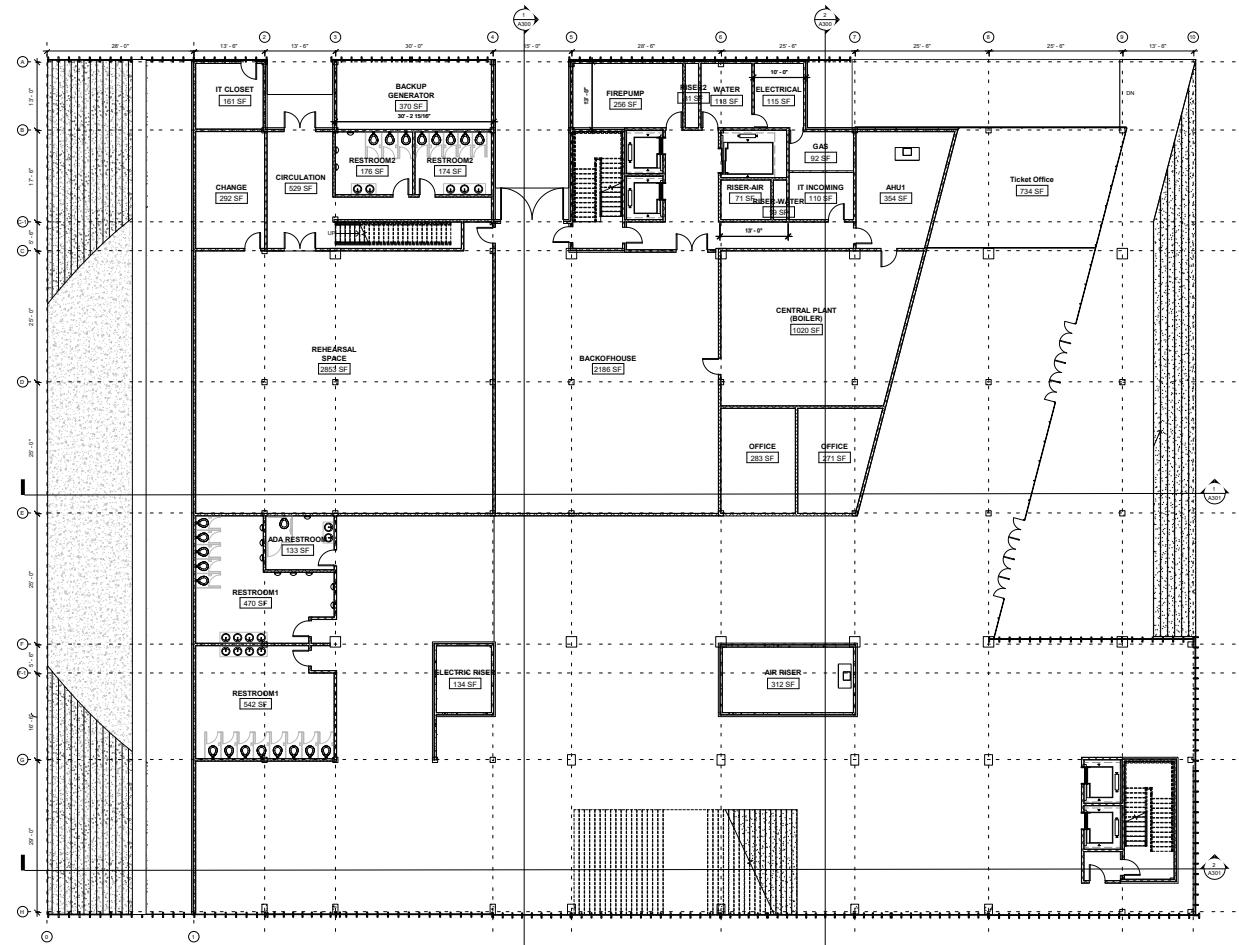


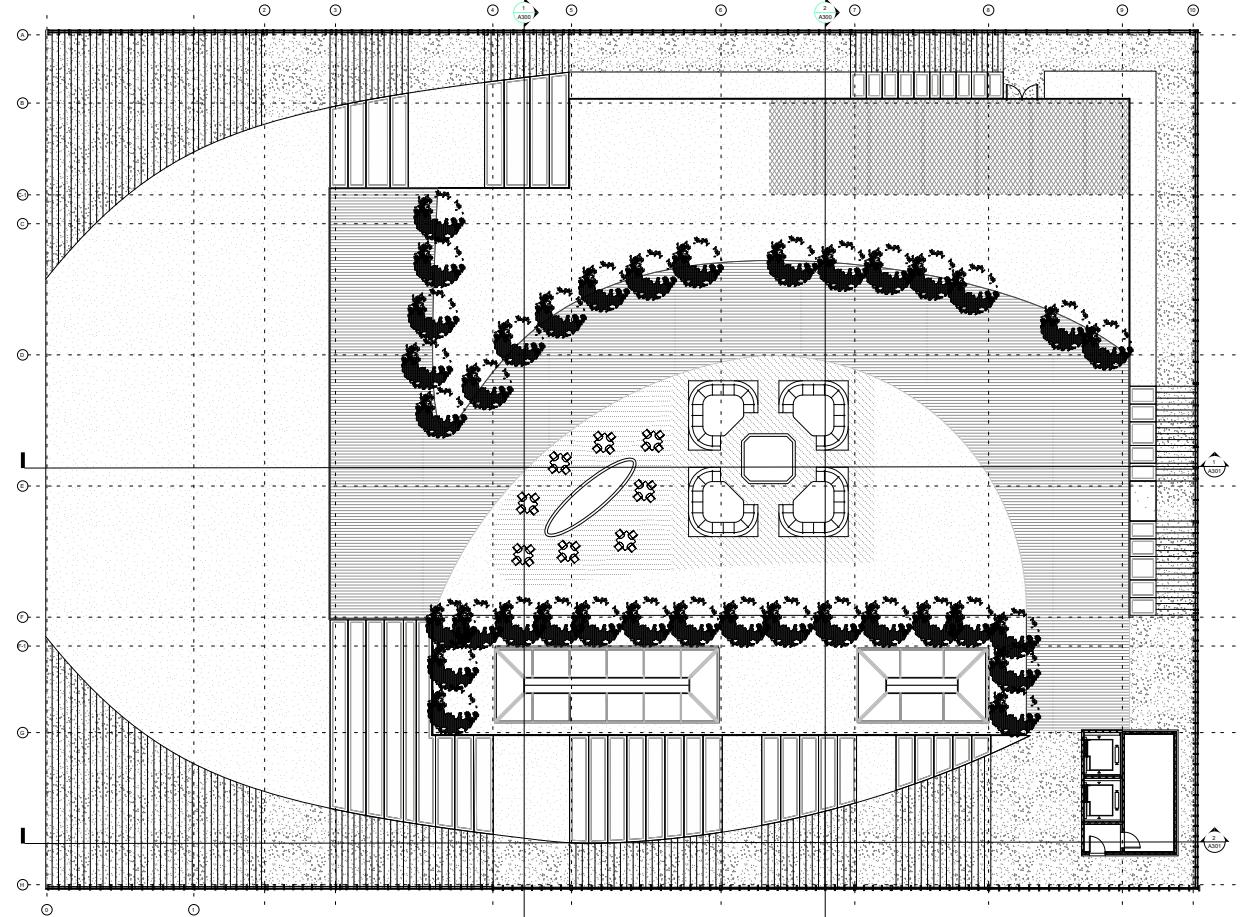
SSite plan showing roof circulation, greenery and seating 45



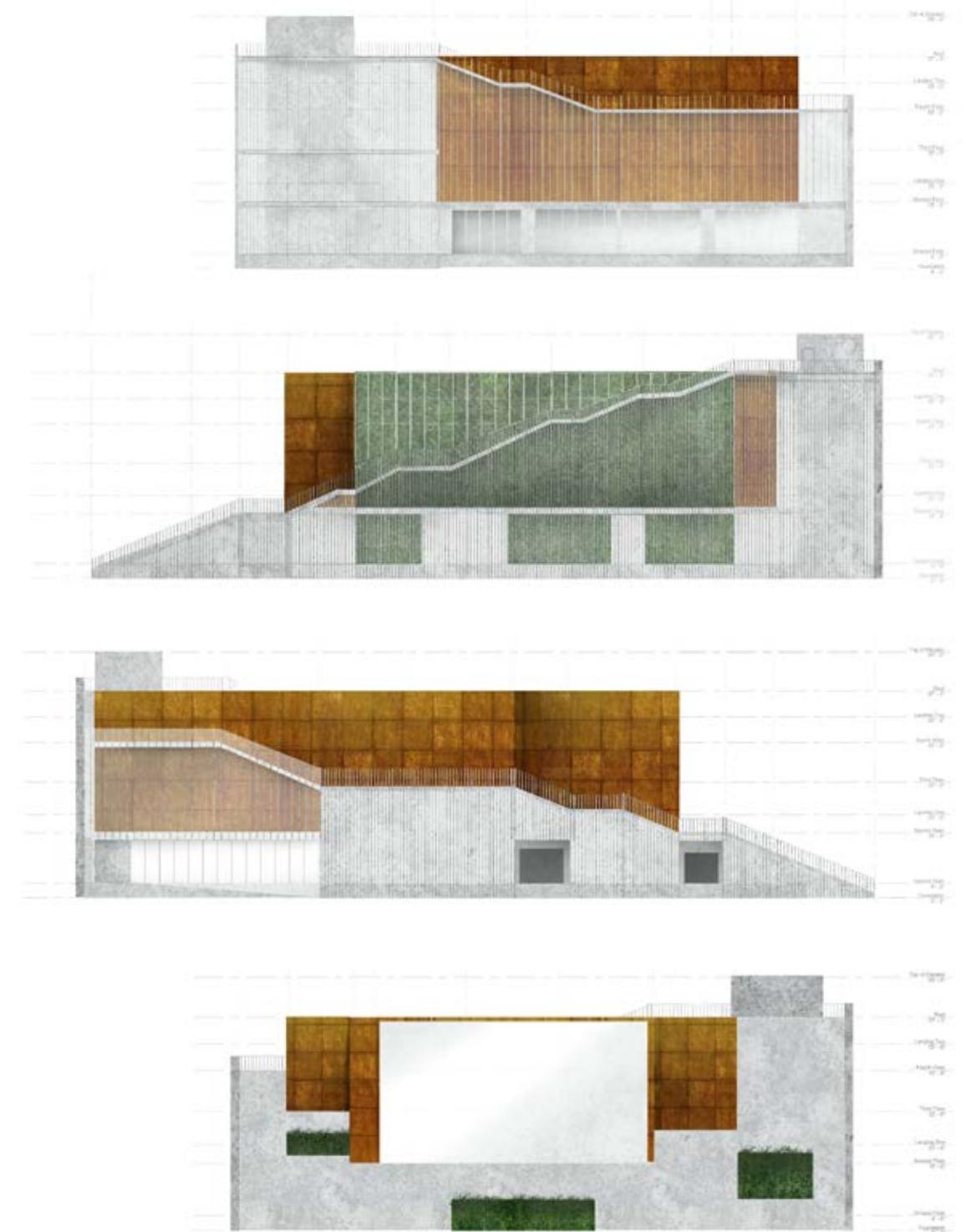
Interior renderings showing open interior space and distribution of light and greenery

Structural exploded axonometric drawing 47

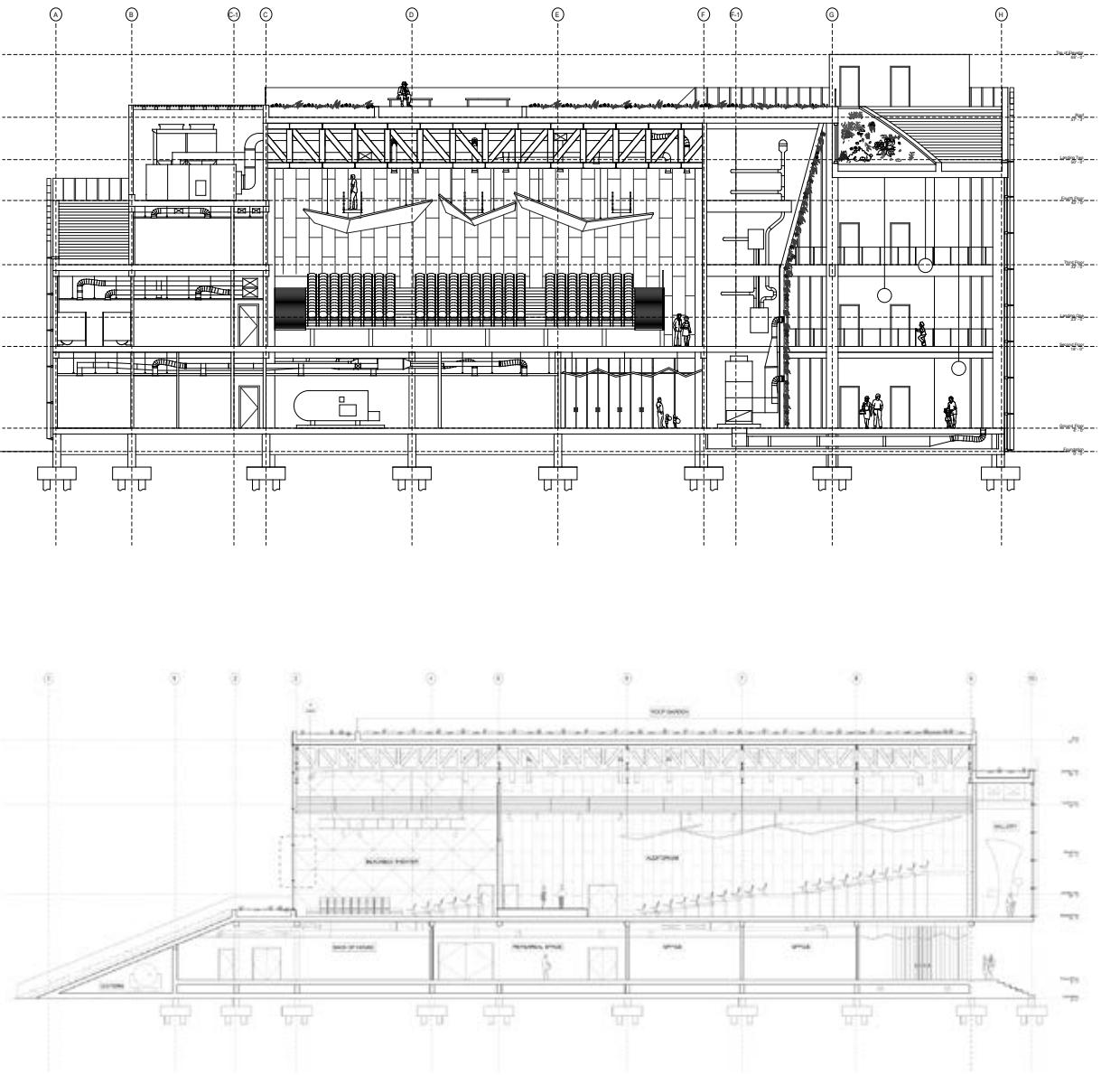




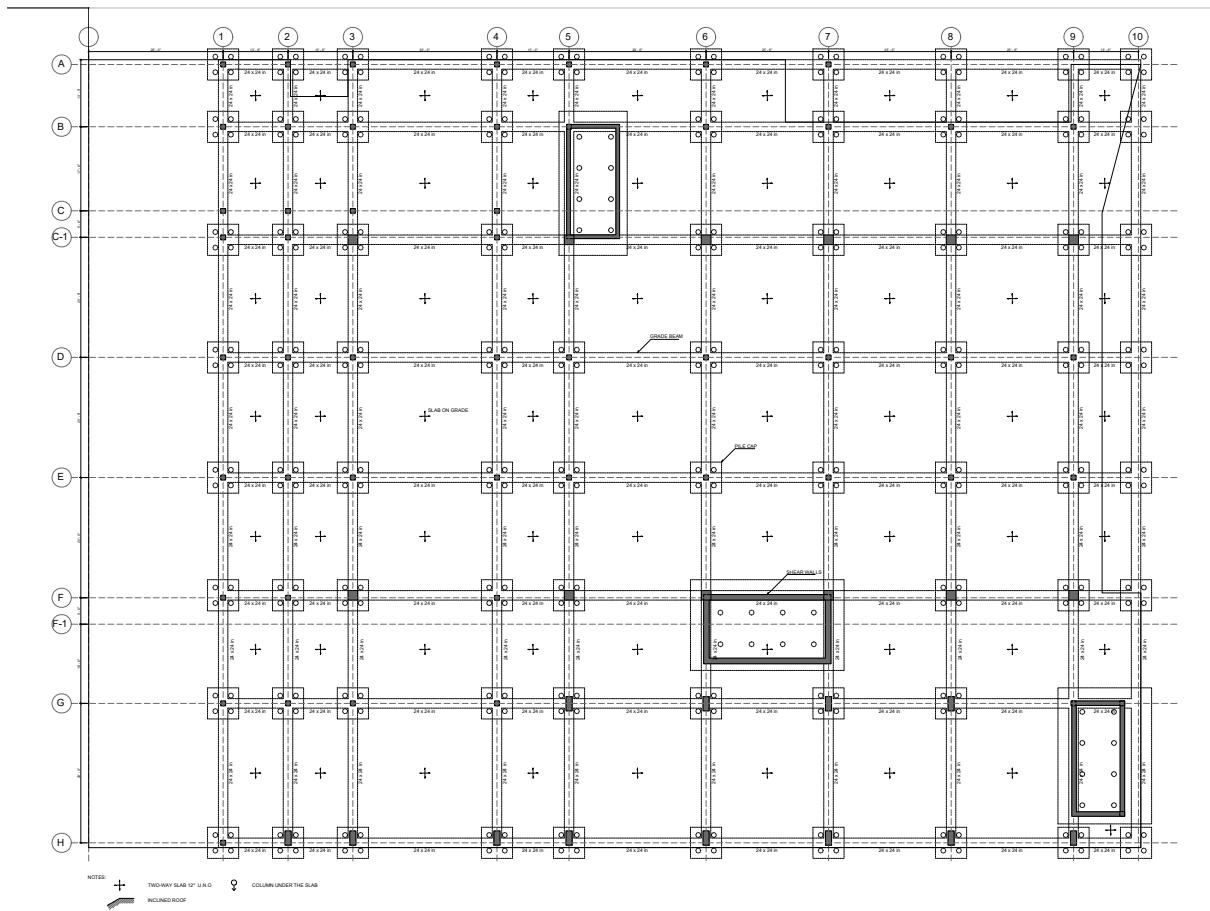
Roof plan



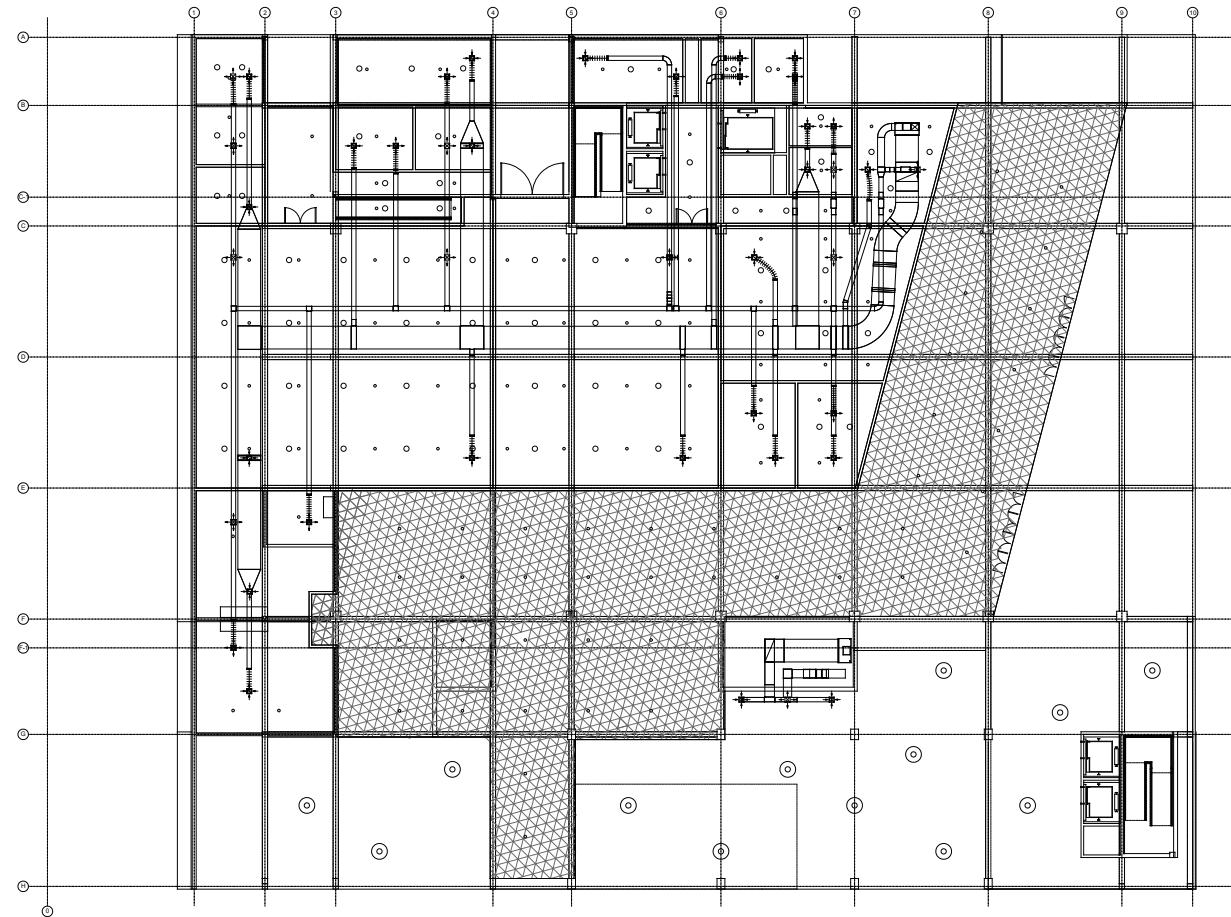
Mapped elevations of the west, south, north and east facades showing material choices



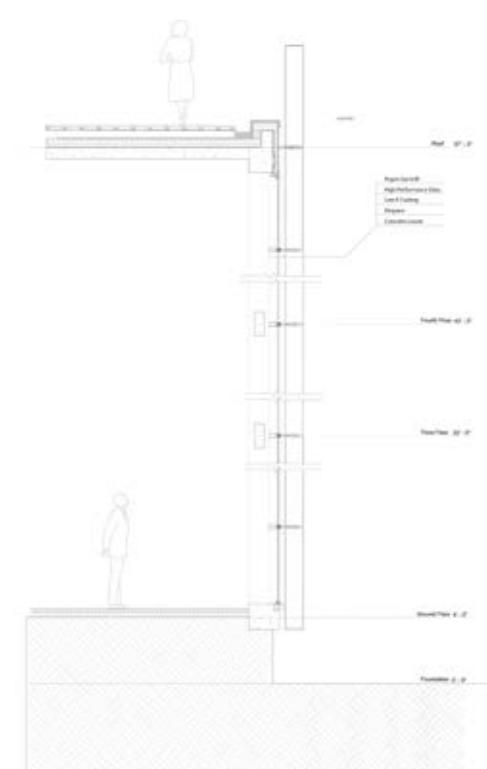
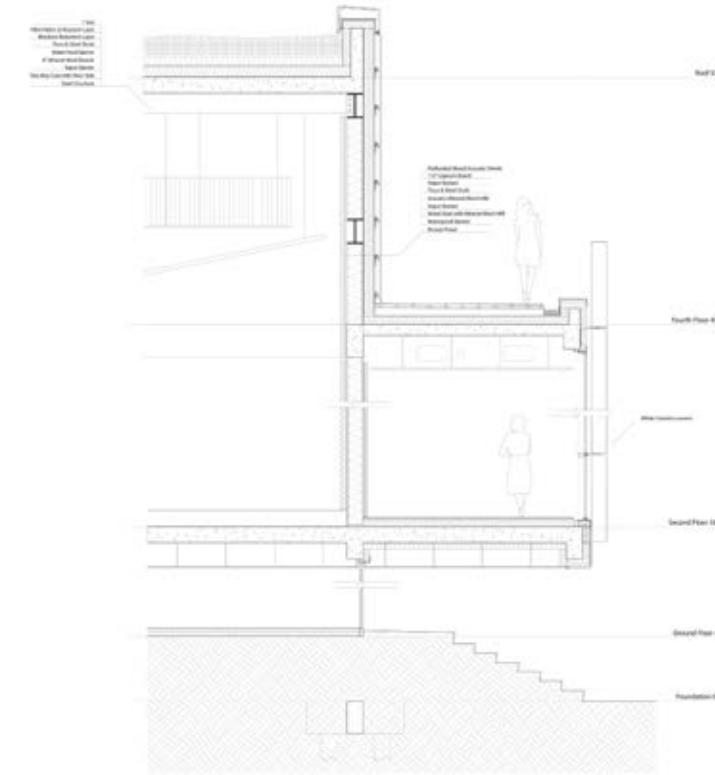
Section looking east (top) and south (bottom) showing interiors of the place

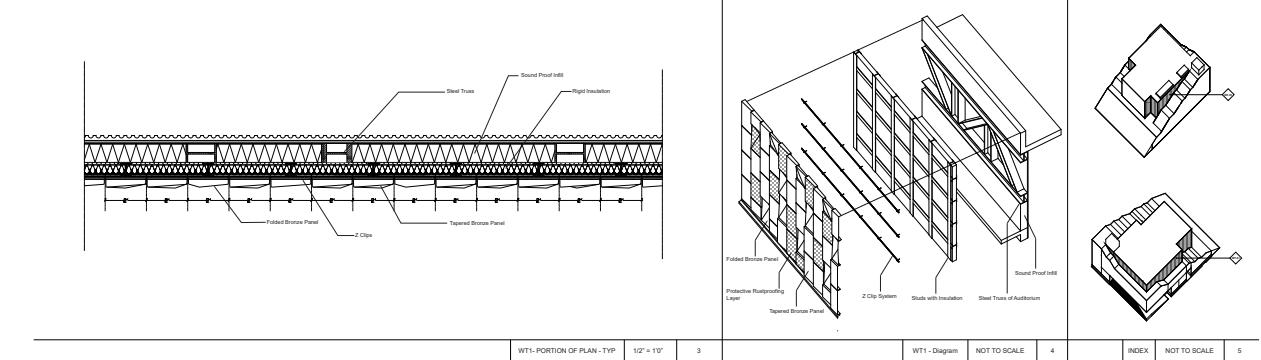
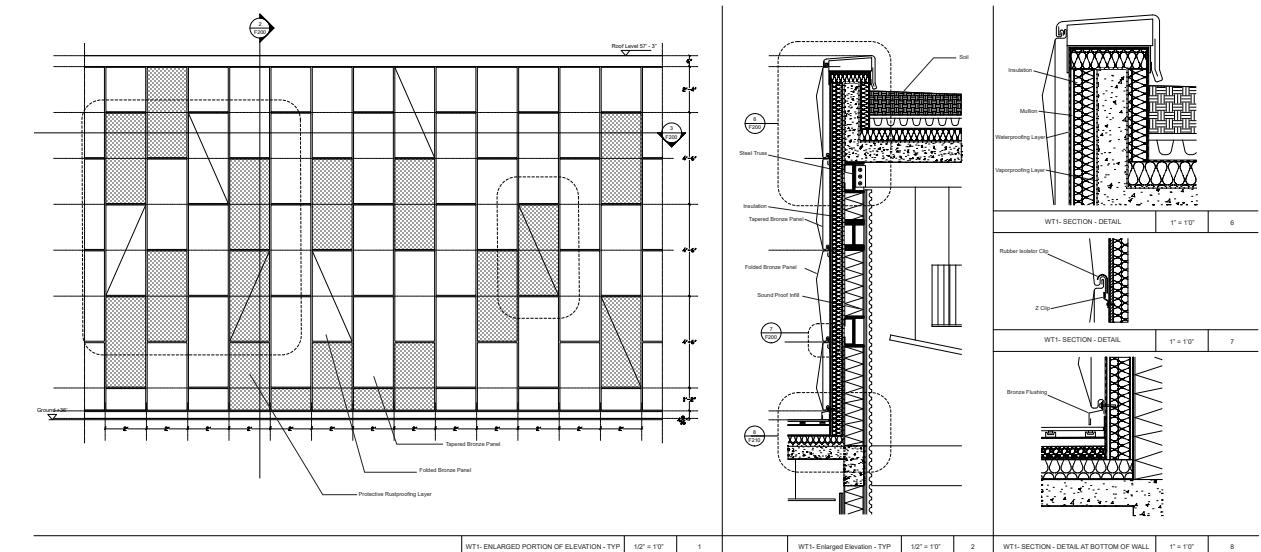
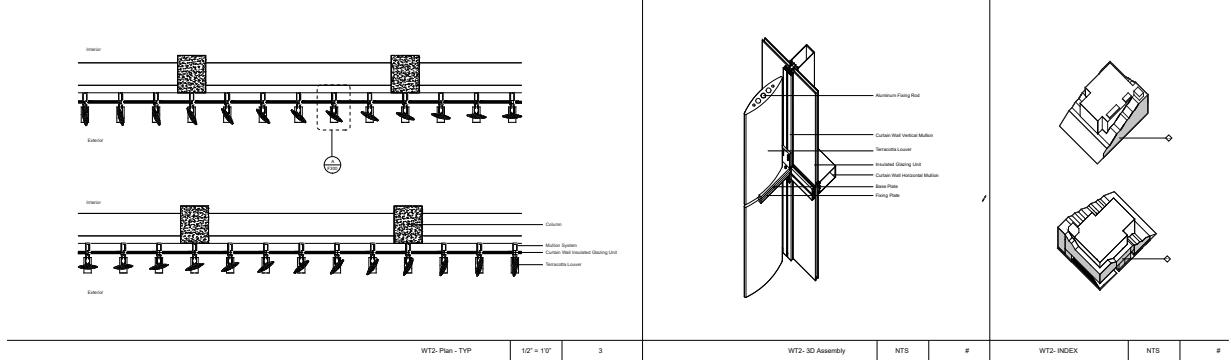
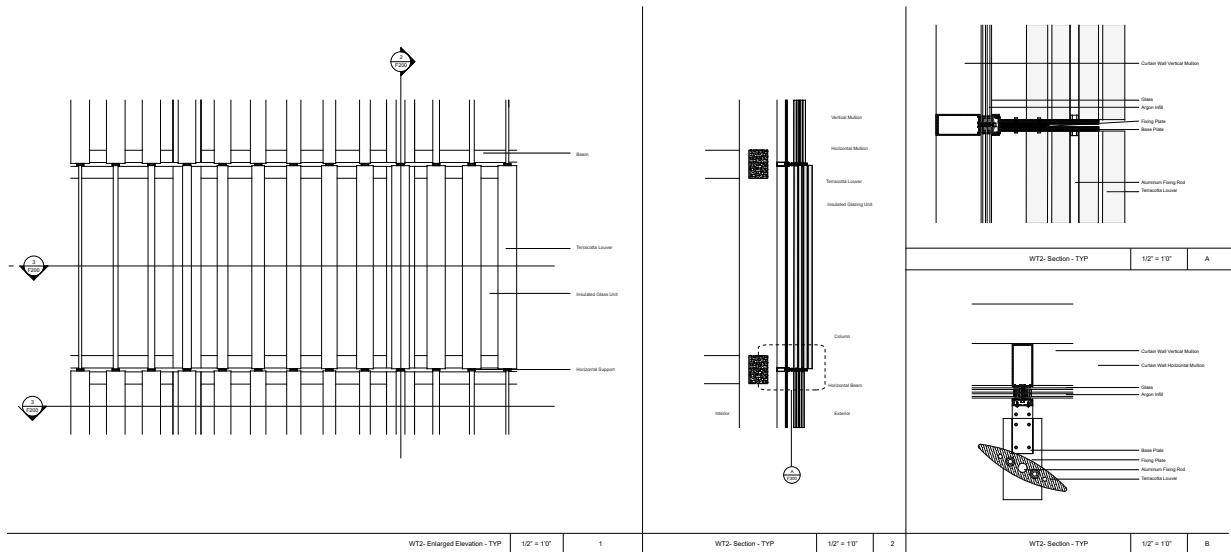


Structural plan of ground floor 53



Reflected ceiling plan of ground floor





# hydro-habitat



Pool interior and openings to other spaces

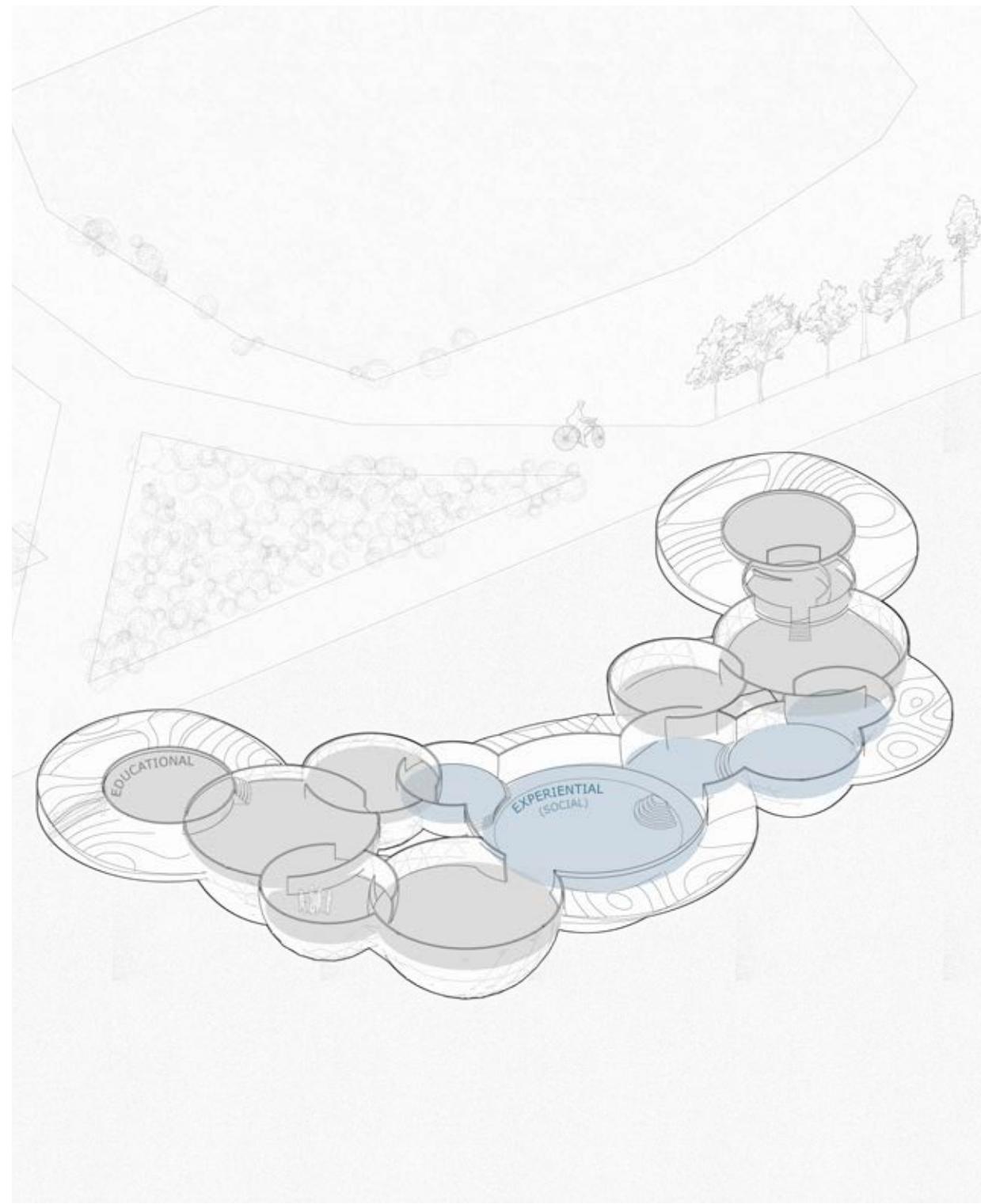
**Can architecture generate a stronger, more tangible relationship between people and water?**

The hydro-habitat treats water as both a living resource and a landscape that flows in and around it. It reexamines the existing relationship of Manhattan's eastern edge to the river bordering it and breaks down the separation between land and water. It consists of three main cores: social, educational and experiential. Educational spaces about pollution and water transform into a pool fully immersed in the East River as one moves into the project. This pool's walls filter water directly from the river, and along with a series of contours that lead out from the project, open it up to the water. The hydro-habitat is both pragmatic in its function of filtering water and sublime in the way it produces a sense of wonder about water.

Fall 2017. Core I. Critic: Tei Carpenter.

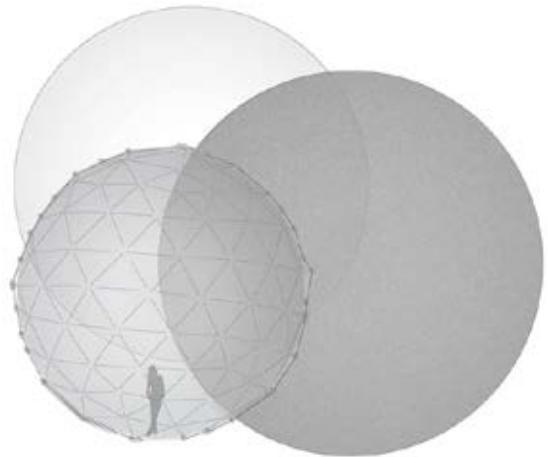


Site plan showing the hydro-habitat in context at 1/128" = 1', and analyzing the East River's pollution

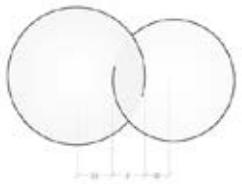


Isometric drawing showing circulation and program at 1/32" = 1' 61

TYPOLGY



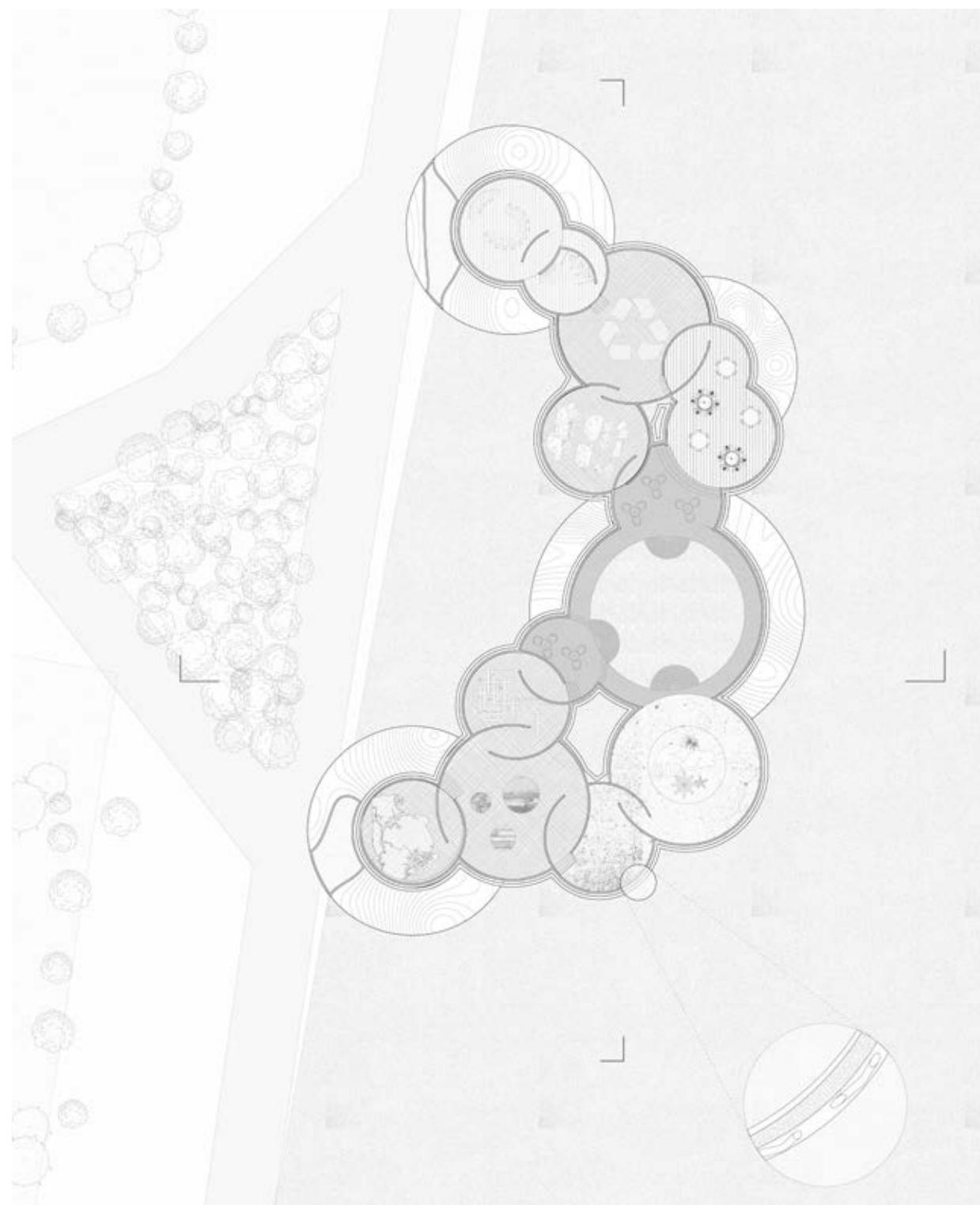
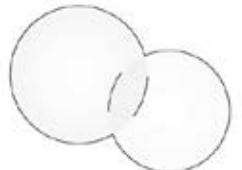
INTERSECTION



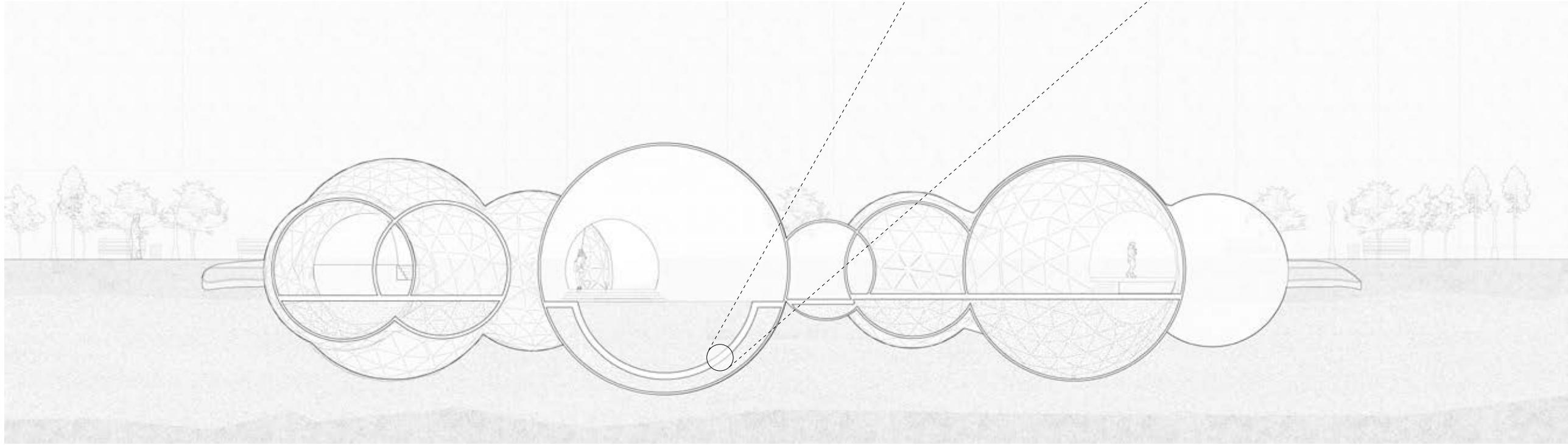
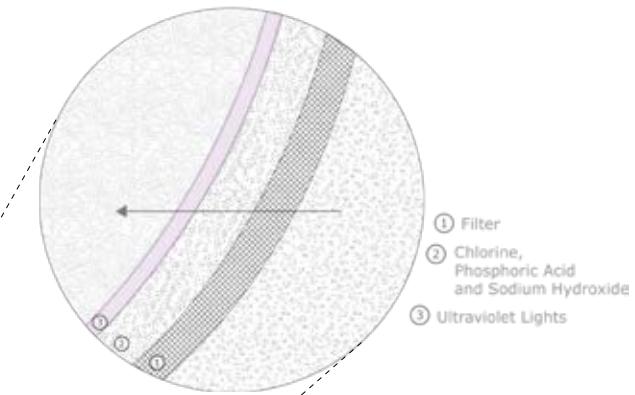
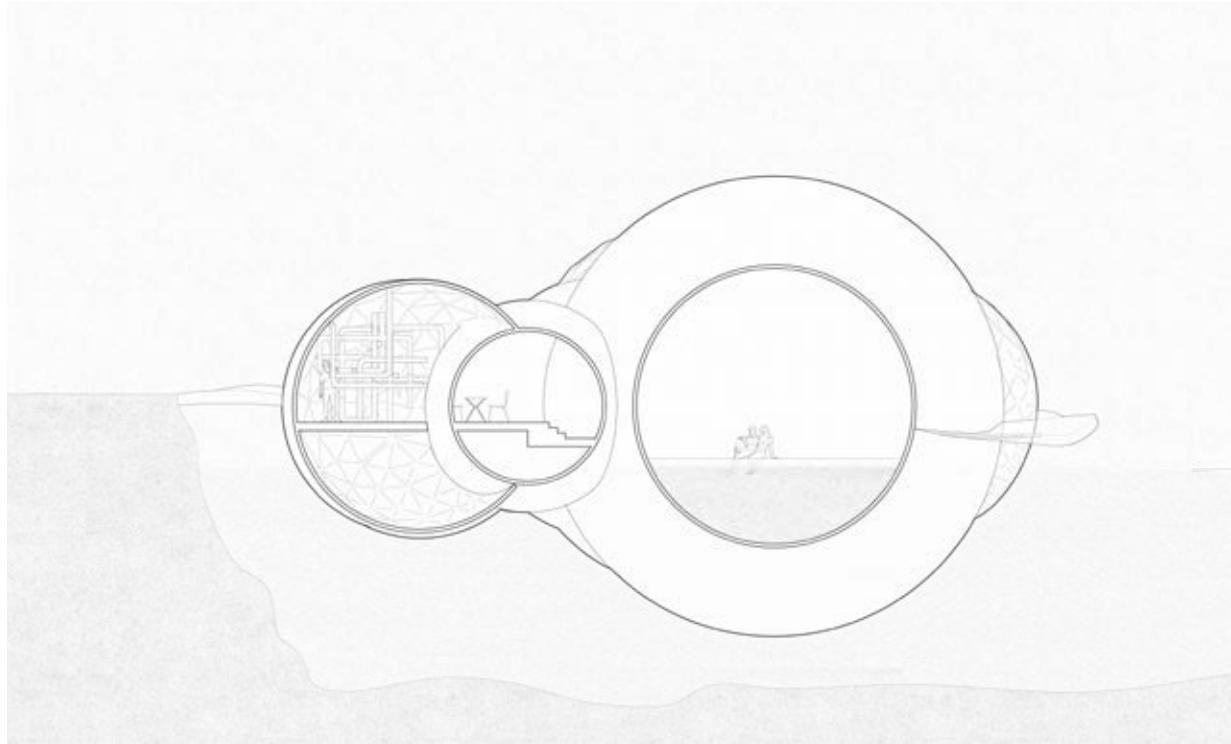
UNION



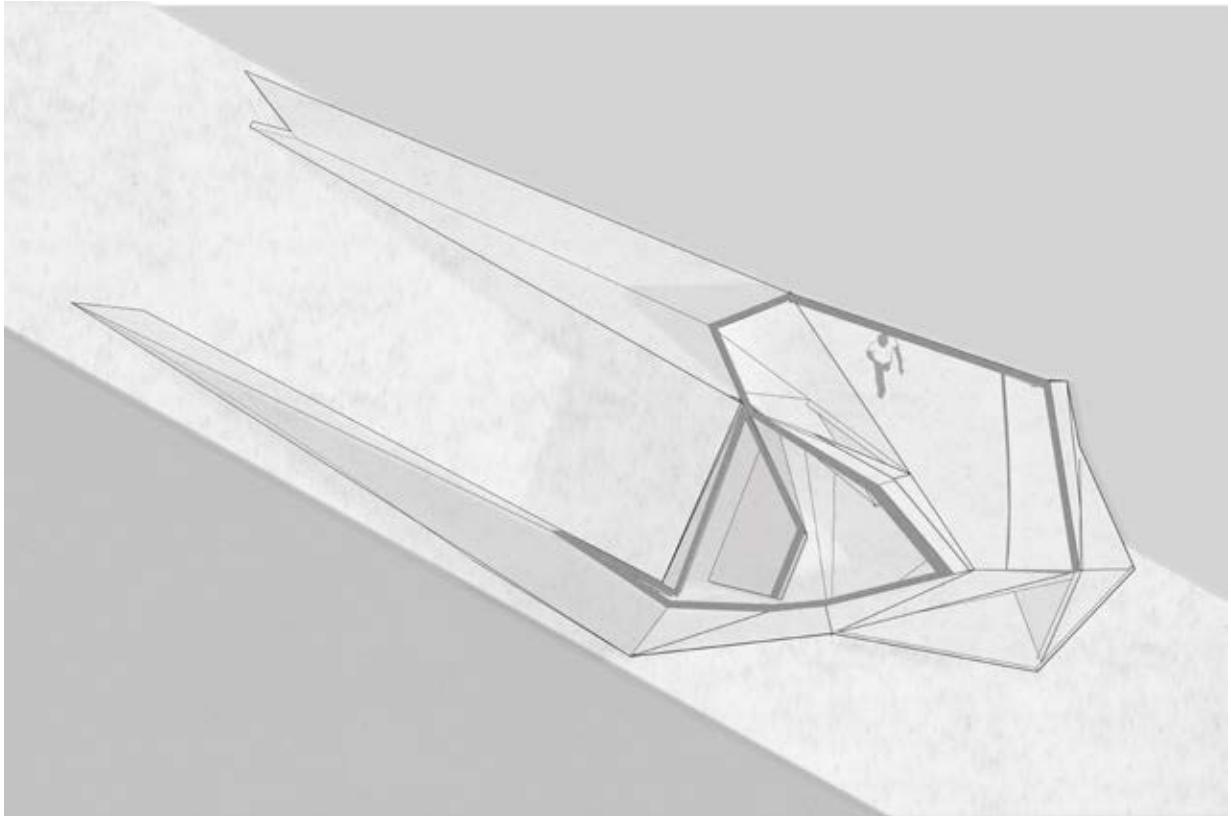
SUBTRACTION



Bubble combinations and typologies



## *processional planes*



Plan showing three distinct spaces and circulation created from folding planes

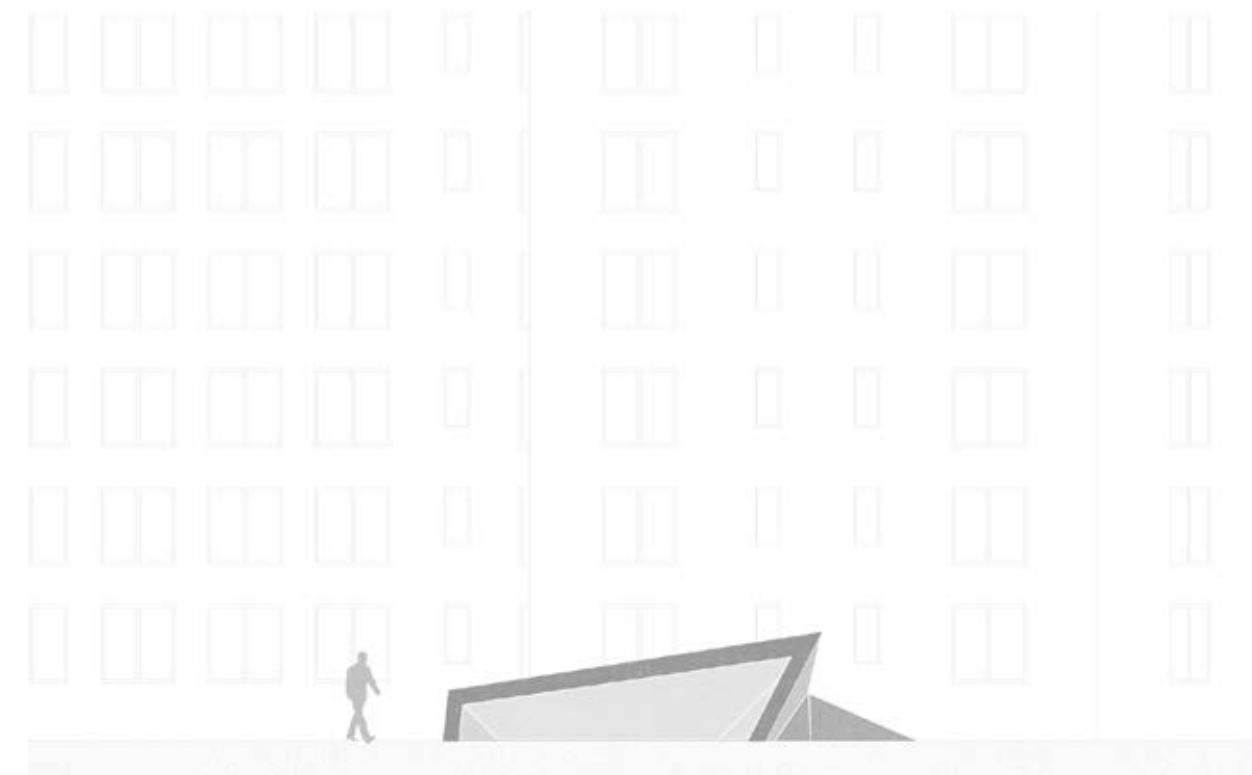
**Can light and the absence of it, as well as directionality of planes create distinct spaces with particular qualities?**

Moving through the project is akin to going through a maze and discovering unexpected spaces. The formal language of folding planes and peeling away layers generates apertures for light and movement. The ground plane transforms to become the roof and then the wall. Modulation of this system creates some narrow and bright spaces, and some wide and dark spaces. The dark spaces begin from ground level and lead into the bright spaces close to the subway. Only through the bright spaces can you proceed to the subway platforms. It has a minimal shape above-ground that hints at what is to come, and a complex shape below ground.

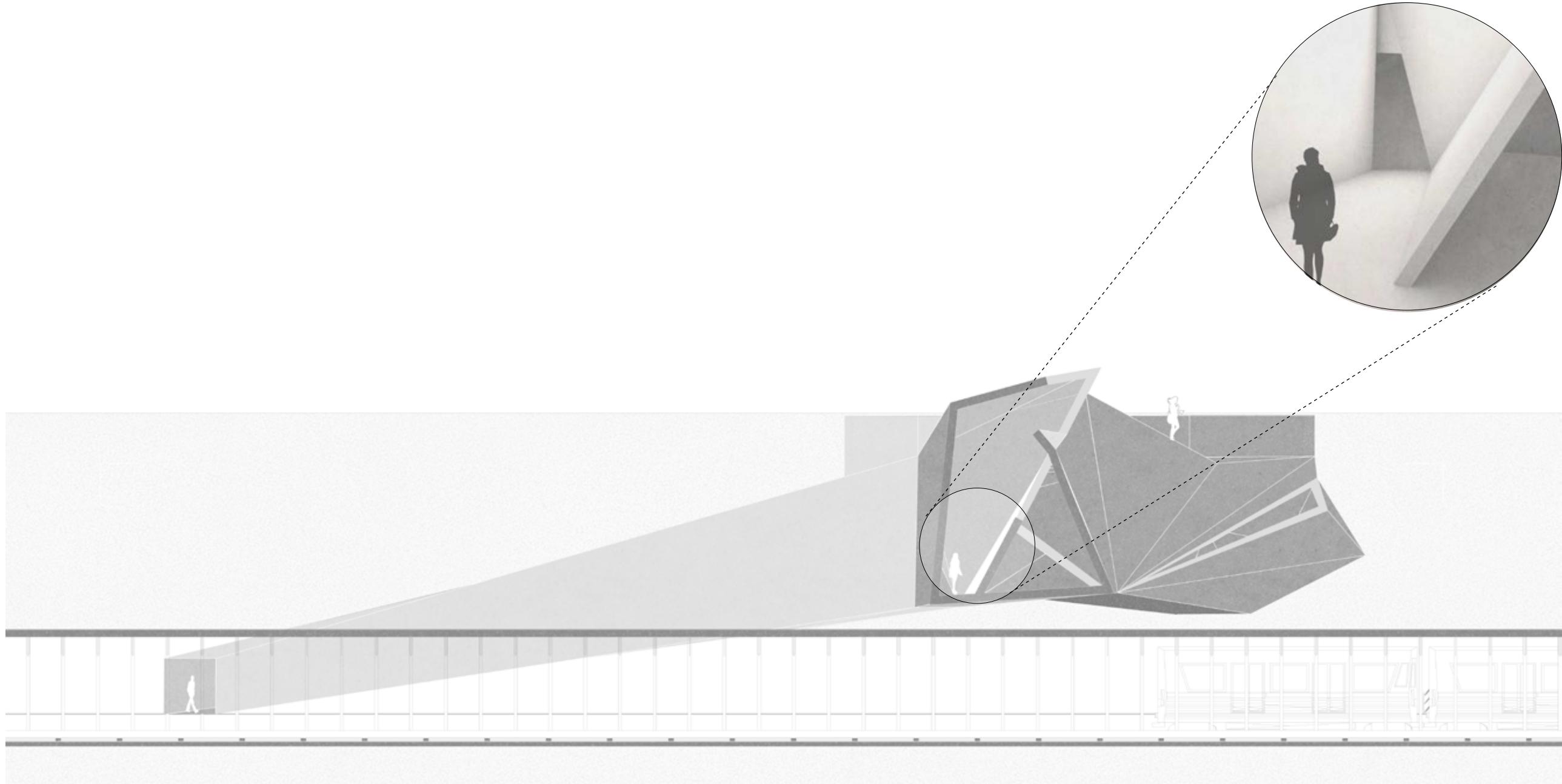
Fall 2017. Core I. Critic: Tei Carpenter.

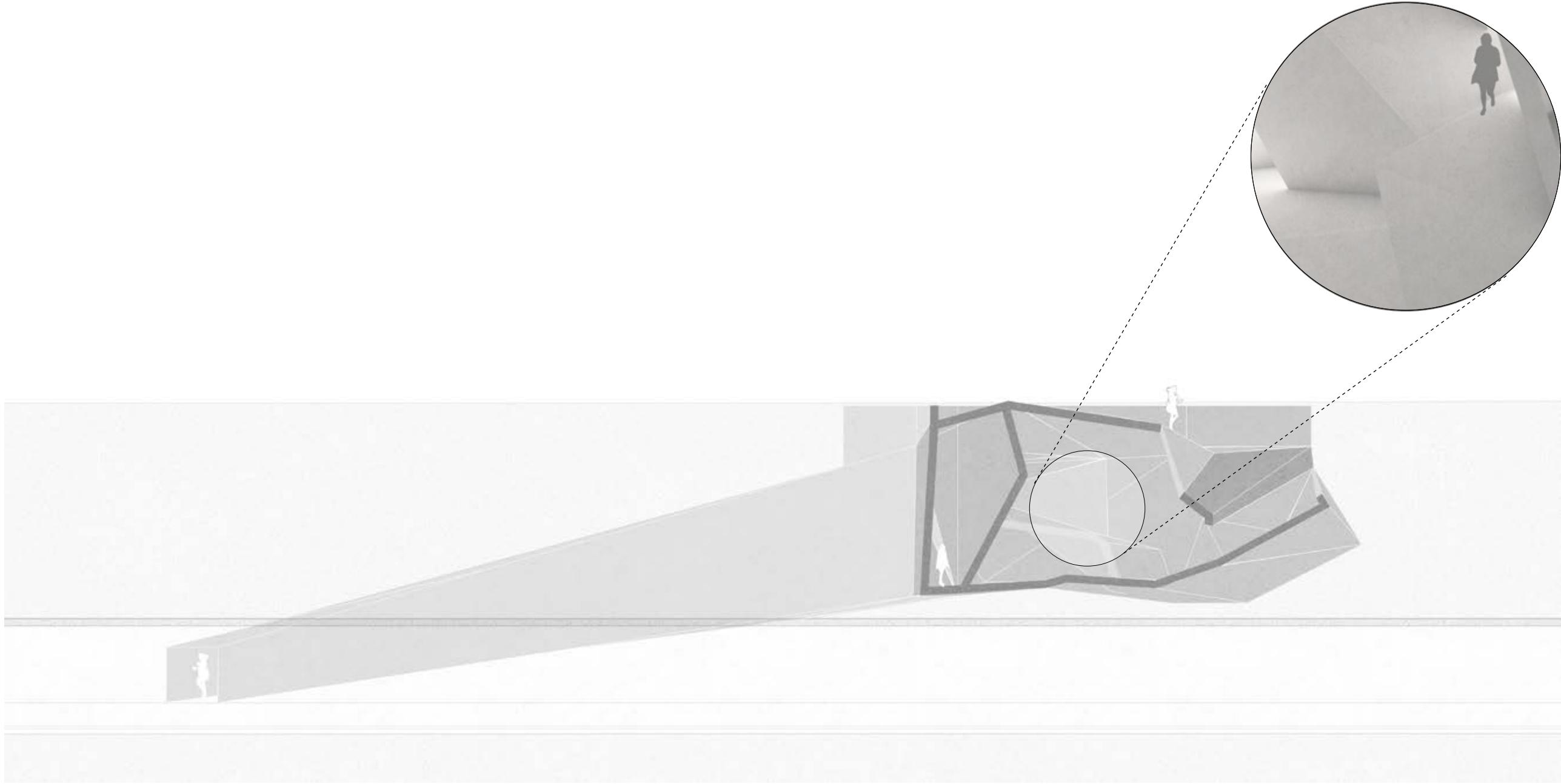


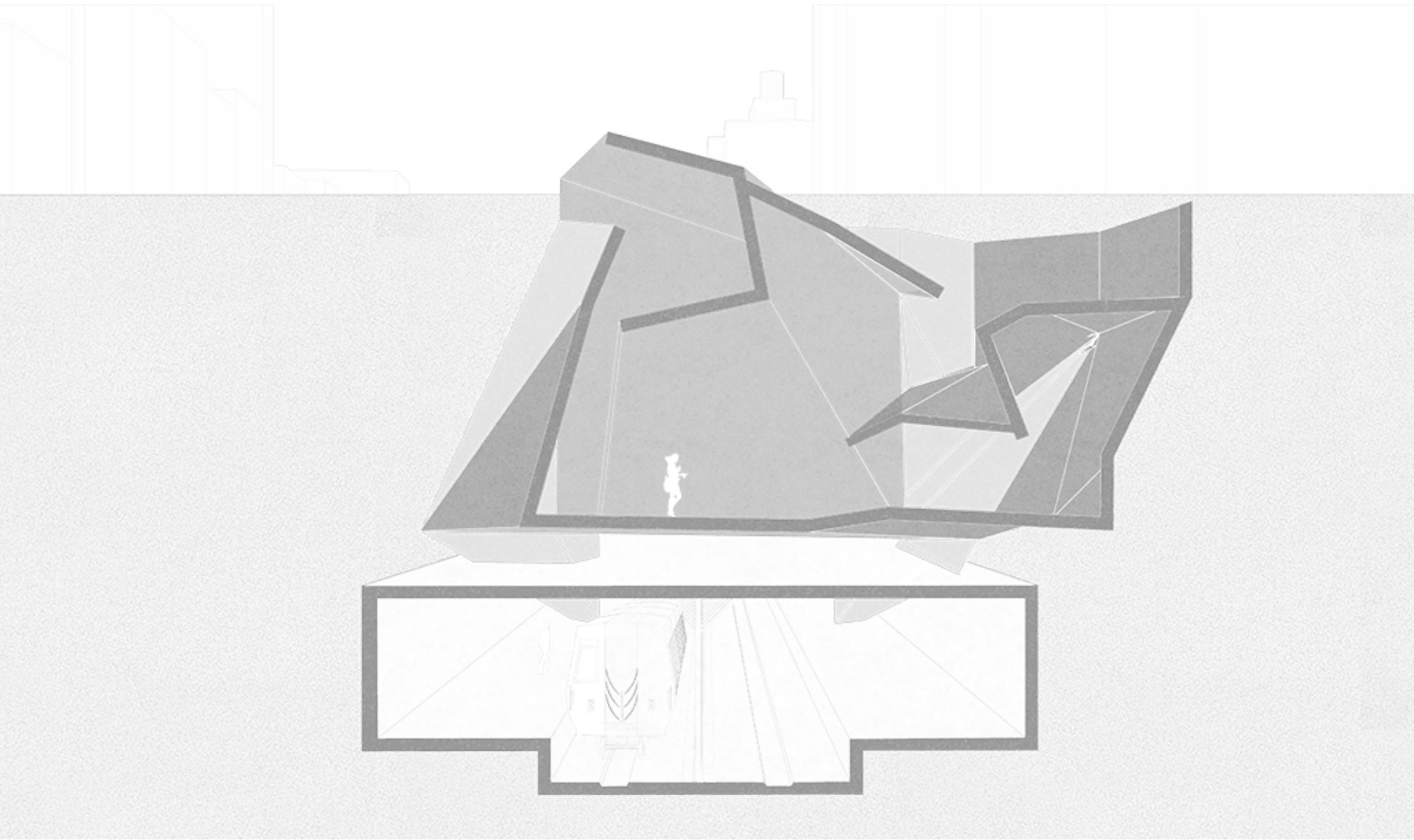
Structure in context

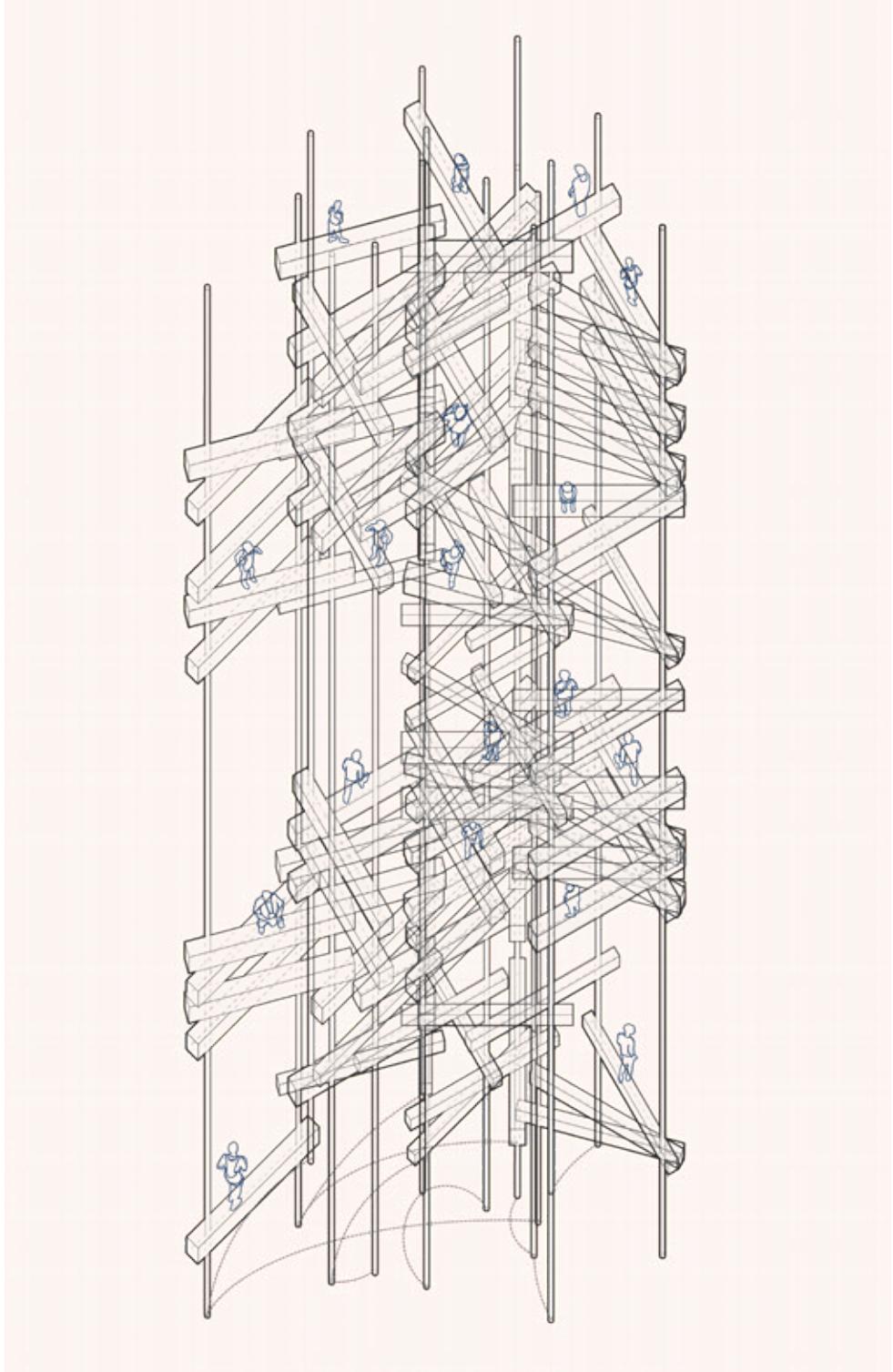


Minimal structure above ground 69







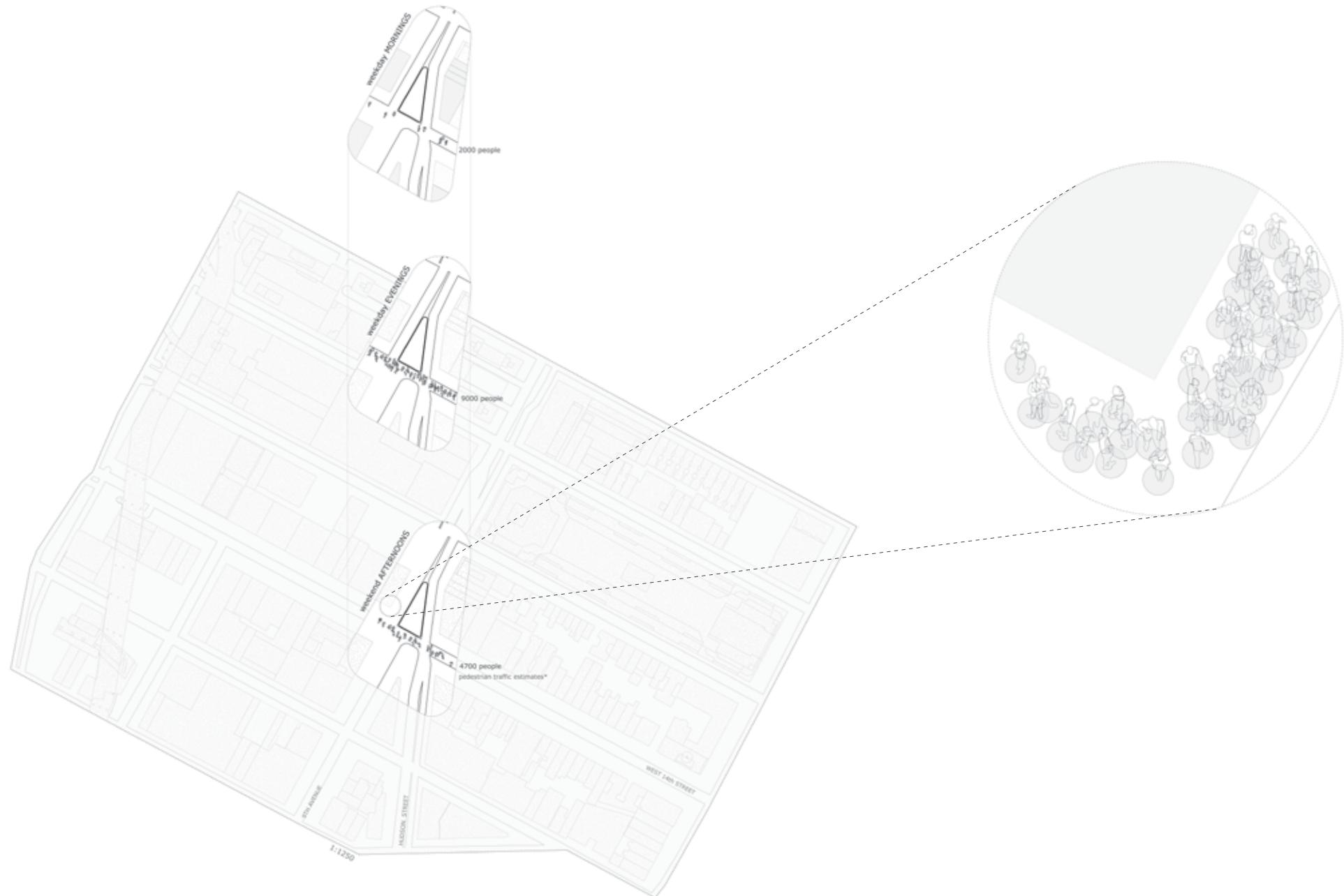


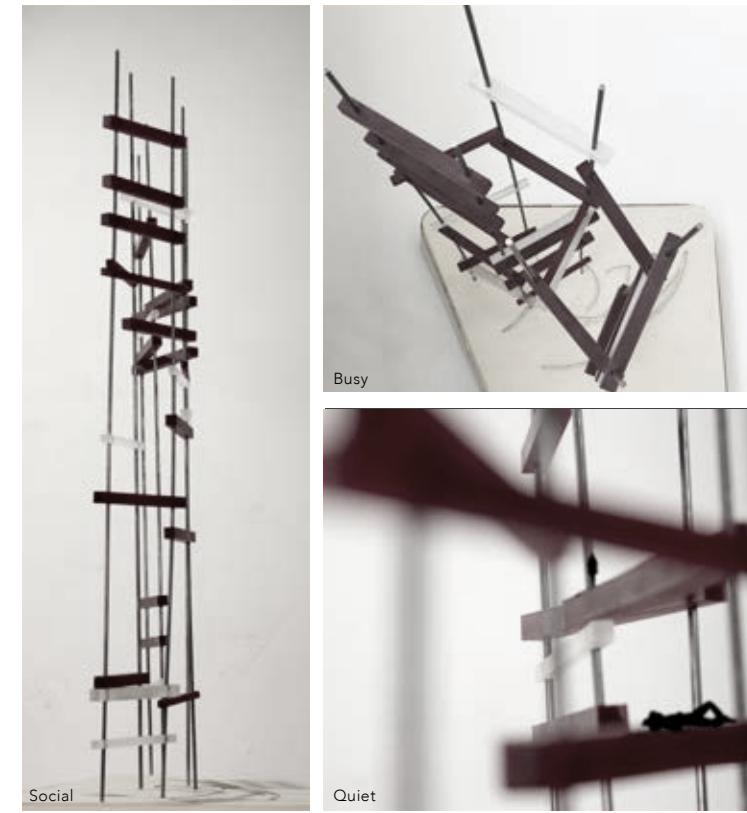
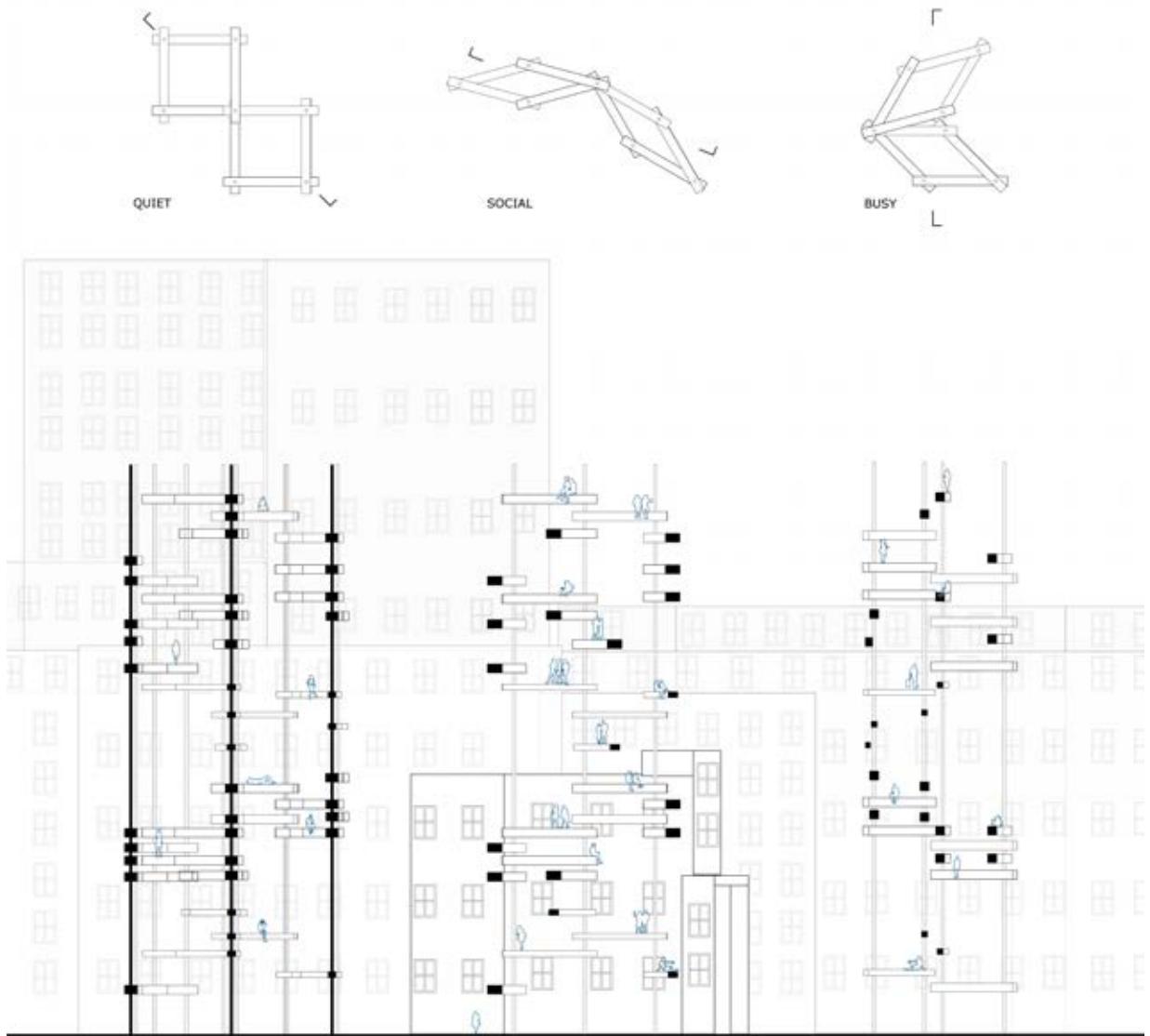
## deconstructed jenga

**How do bodies traverse space, and how does the movement of time complicate this?**

This conglomeration of surfaces and volumes responds to both the density of people and activity level over time. At quiet times, the intervention would rotate and shift such that the platforms would form enclosed and isolated spaces suitable for introspection and repose. At social times, the platforms would intersect to form a collapsed space suitable for group configurations. Finally, at busy times, the intervention would expand to create a combination of free spaces and individual configurations.

*Fall 2017. Core I. Critic: Tei Carpenter.*





research

# citi bike accessibility

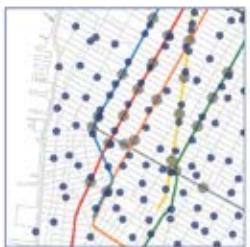


**How accessible is New York City's Citi Bike network? Who benefits from it? Does accessibility change based on different proximity metrics?**

This report evaluates the Citibike network's accessibility to New York City residents based on two different proximity metrics. The first is a service area from half a mile from Citi Bike stations, and the second is accessibility via subway stations thirty minutes away from those Citi Bike stations. It also looks at areas which have no access at all. Analyzing Citi Bike as a bi-modal transportation option illustrates that the system is rather robust, but is not accessible equally across age and race. Minority populations are less likely to have access to Citi Bike than white populations. Younger populations are also more likely to have access, but this is on par with New York City's relatively young population.

*Spring 2017. Introduction to Geographic Information Systems.  
Taught by Leah Meisterlin. In collaboration with Joan Zhang.*

## Network Analysis



● Citi Bike station  
 ● Subway station  
 — Pedestrian street  
 — Subway line

If I want to travel using both Citi Bike and the subway, how convenient is that?



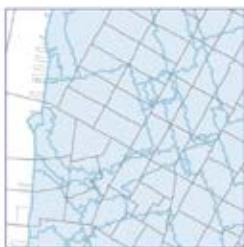
If I dock my Citi Bike, how far do I have to walk to the nearest subway station?



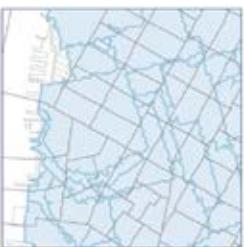
If I park my Citi Bike at any station, which subway stations can I walk to at a comfortable distance? How far can I travel along that subway line in thirty minutes?



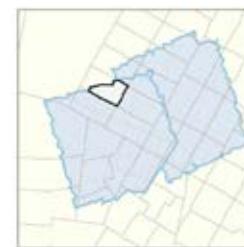
## Demographic Analysis



Half-mile service area from Citi Bike stations



New York City census tracts



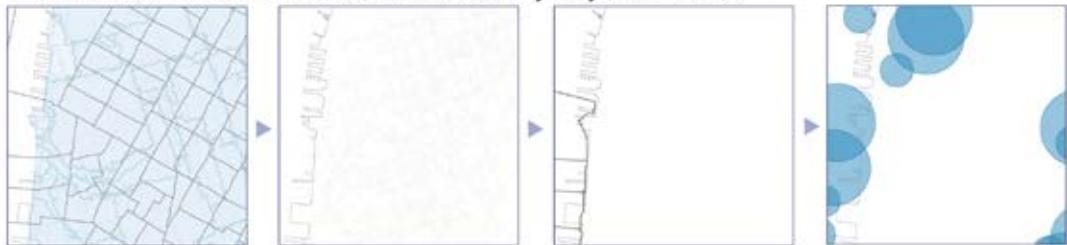
If I have immediate access to Citi Bike stations, what are my likely characteristics?



What if I have indirect access via subway stations?

REPEAT FOR ACCESSIBLE SUBWAY SERVICE AREA

If I have no access to Citi Bike stations, what would be my likely characteristics?



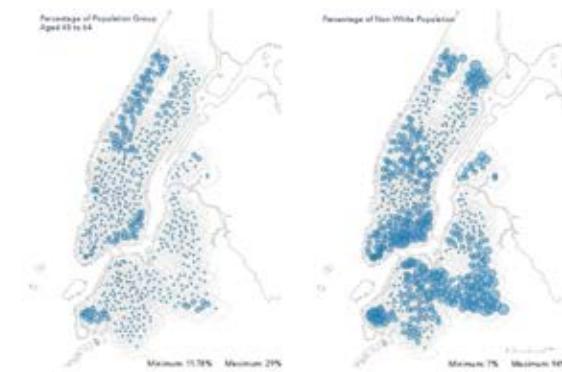
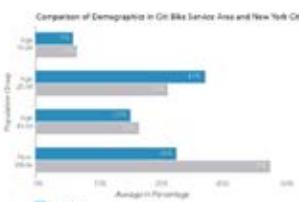
## Findings: Demographics

The four maps below show age and racial demographics in areas with immediate access to the Citi Bike network. Each blue dot represents the range of percentage of certain population group in the corresponding service area.

The age group with the largest population in the Citi Bike service area was people aged 25 to 44 years old with a 47% share of the population. Interestingly, the average of the 10 to 24 year old population was on par with the city-wide average, while the 45 to 64 year old population had a slightly larger

average. The 25 to 44 year old population had a slightly lower average than that of New York City.

Here, the average non-white population was 24%. This is comparatively lower than the city-wide average of 56.7%. This non-white population was concentrated in Manhattan's Chinatown and two Bridges neighborhoods, as well as Brooklyn's Crown Heights and Bedford neighborhoods. Neighborhoods further upstate in Manhattan had a significantly lower proportion of the non-white population.



## Findings: Accessibility

The Citi Bike service area spans from midtown Manhattan to northwest Brooklyn and the southern tip of Queens in Long Island City. This is unsurprising, and correlates to the distribution of Citi Bike locations in New York City.

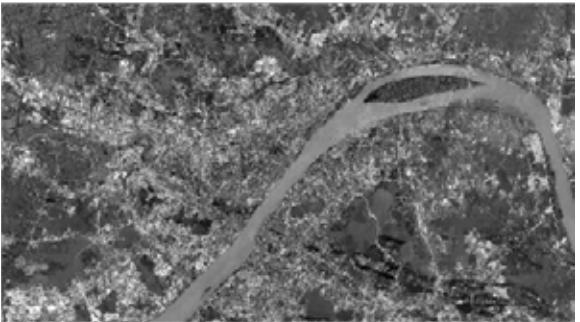
The walking distance from Citi Bike stations to subway stations varied by location. Walking distances increased towards the western and eastern parts of Manhattan and Brooklyn. This pattern was reflected in the distribution of subway stations, and a strong correlation was evident. The areas with the least walking distance from Citi Bike stations to their nearest subway stations generally had the most subway stations. The maximum walking distance was about 1.4 miles, almost a mile further than the comfortable walking distance previously decided upon. The minimum walking distance, on the other hand, was 15 feet. The average was about 0.3 miles, which was less than the comfortable walking distance. The large range of walking distances from Citi Bike stations to subway stations indicates that the level of access from Citi Bike stations is not uniform across New York City, and the fact that some Citi Bike stations had no subway stations close to them in the service area supports this notion.

When the subway was factored in, however, accessibility to the Citi Bike network increased. The service area of Citi Bike stations contained part or all of each subway line. 39% of subway stations were within the Citi Bike service area, while a much increased 89% of New York City's subway stations were accessible from those subway stations.

**THE CITI BIKE NETWORK**  
615 Citi Bike stations are located in Manhattan, Brooklyn and Queens. The service area of Citi Bike stations was made using a half-mile distance along pedestrian streets.



# *predicting urban sprawl*



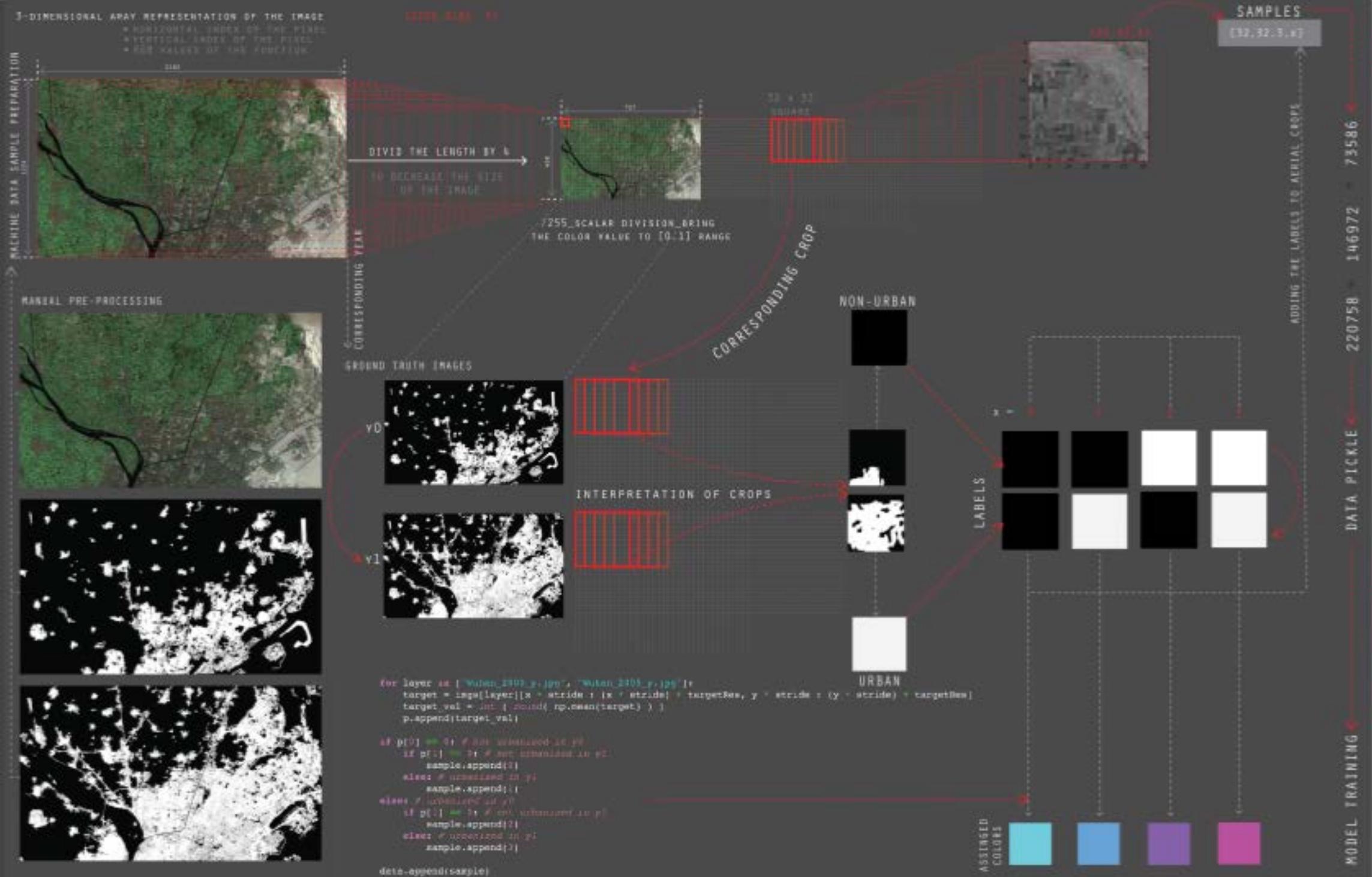
**Can a machine learning model be trained  
to predict the expansion of cities?**

In this project, a model was fed historic images of three cities using Python in order to predict future trends in urbanization. Once it learned to categorize built and unbuilt areas of said cities, it could categorize them and identify their trajectories over time. Applying this logic to future projections of urban change, the model was thus able to predict future sprawl.

[View Project.](#)

Fall 2016. Data Mining the City - taught by Danil Nagy. In collaboration with Marwah Garib, Vrinda Sharma and Kun Qian.

# Data Processing

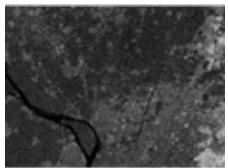


 Predicted Urbanization

 Predicted Ruralization

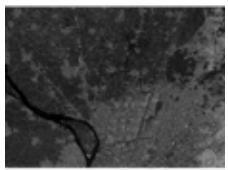
Cairo, Egypt

Existing



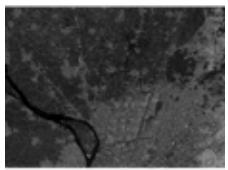
2000

Prediction



2005

Prediction



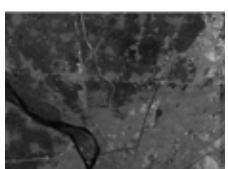
2010

Prediction



2015

Prediction



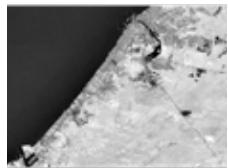
2020

Prediction



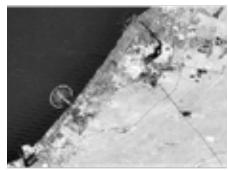
Dubai, UAE

Existing



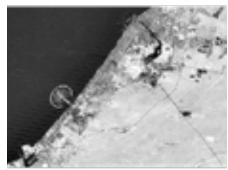
2000

Prediction



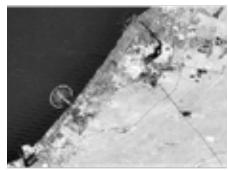
2005

Prediction



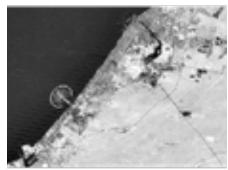
2010

Prediction



2015

Prediction



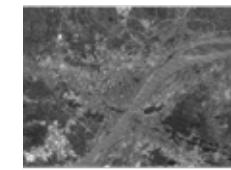
Wuhan, China

Existing



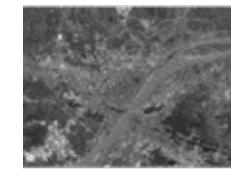
2000

Prediction



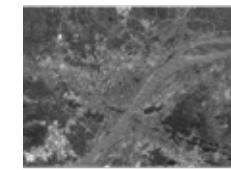
2005

Prediction



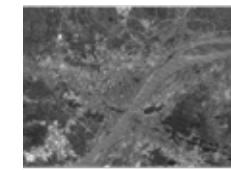
2010

Prediction

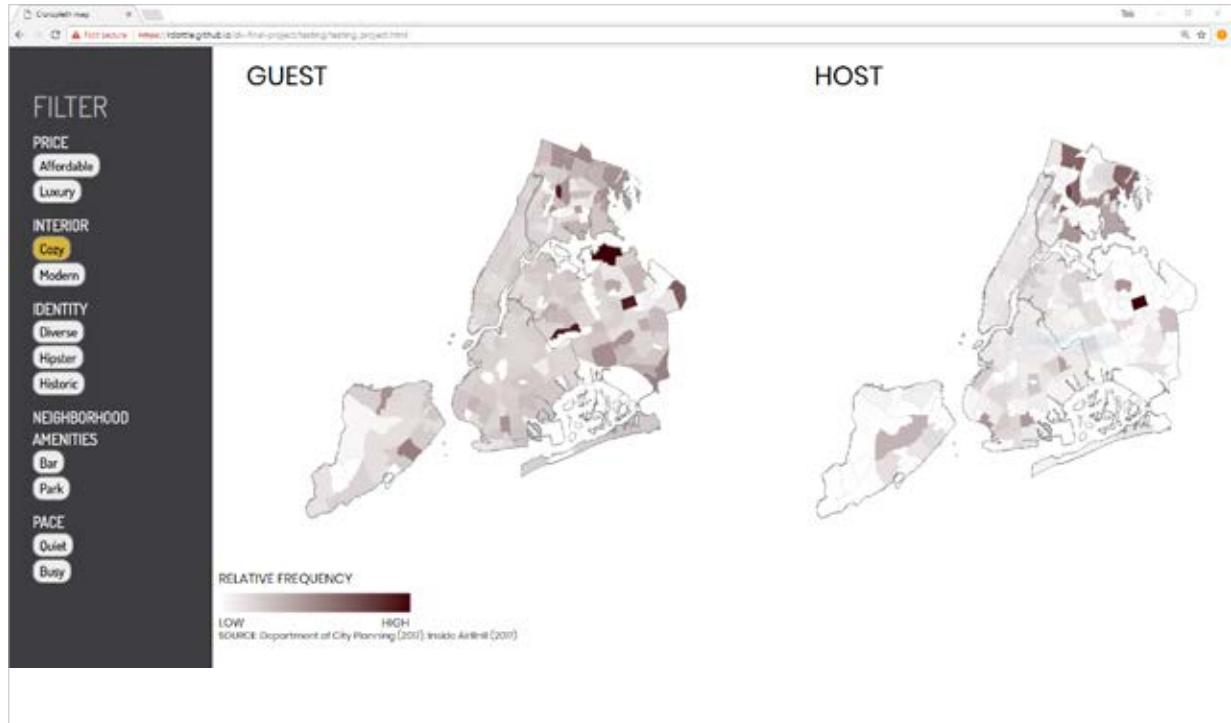


2015

Prediction



# airbnb analysis



**How do Airbnb's active users, i.e. those who write listings and leave reviews, conceive of New York City's neighborhoods?**

This project visualizes Airbnb text data and looks at New York City neighborhood identity through the lens of Airbnb guest reviews and host listings. Word frequencies and correlations paint a picture of Airbnb use and neighborhood perceptions in New York City through interactive maps and word associations.

[View Project.](#)

*Spring 2017. Data Visualization for Architecture, Urbanism and the Humanities. Taught by Juan Saldarriaga. In collaboration with Rachael Dottle, Eric Wong, Clara Dykstra, and Andreea Seusan.*



## AirBnB Analysis

## Neighborhood Identity in New York City

This project aims to test how Arribas can create a narrative about neighbourhood identity and how this identity differs across neighbourhoods and between Arribas hosts and guests. The themes being explored are:

- more [Affordable, Luxury]  
interior [Cozy, Modern]  
identity [Diverse, Unique, Minimal]  
neighborhood orientation [Calm, Peace]  
Price [Quiet, Busy]

We aim using these clusters of words to see how hosts in different neighbourhoods market themselves, whether their guests agree with their descriptions and to identify patterns that support or defy neighbourhood stereotypes.



## DATA

We are using NYC Airbnb data from [inside Airbnb](#), "an independent, non-commercial set of tools and data that allows you to explore how Airbnb is really being used in cities around the world" ([inside Airbnb](#)).

- The stats utilize public information compiled from the Airbnb web-site including the availability calendar for 365 days in the future, and the average cost for each listing. Data is cleaned, standardised and aggregated.
  - Neighborhood names for each listing are compiled by Arribis. Arribis suggests that street names are small and do not affect the statistics.
  - Neighborhood names for each listing are compiled by comparing the listing's geographic coordinates with a city's definition of neighborhoods. Street-level neighborhood names are not used because of their inaccuracy.

You will also see a comprehensive list of best descriptions and client reviews. A lot of supplementary materials are listed below.

# PROCESS & CODING

We used text analysis of the cabin-host listing descriptions and guest reviews. Specifically, we used topic modeling to create clusters of similar words ([1] environment = green, restaurants, cabin; nature = green, space, open) and analyzed these topics in accordance with their prominence across neighborhoods.

In order to provide the user of this website with a normative instead of just an exploratory analysis of a data set, we analyzed the data first to find the topics that are frequently used in some entries but not in others, and the topics that either involve hot and guest within a same neighbourhood or the particular topics and the words from which they are composed will depend on the results of this exploratory analysis. We were particularly interested in seeing what kind of hot and guest perceptions of a neighbourhood officer and how.

The website aims to build a narrative and guide the user through the data story. The interactive piece will allow users to explore the neighbourhoods and topics that most interest them.

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We were interested in comparing the difference in the perceived character of neighborhoods in New York, by comparing the way neighborhoods are described and presented in listings and reviews. We have developed a basic text mining program, to extract features from our listing and review datasets. Some features we are focusing on are word frequency, connectors, which can be compared spatially and between listings and reviews. We've also applied topic modeling methods to develop and compare topics across the two texts regarding how neighborhoods are described, experienced and perceived.

## CODING

```
library(tidyverse)
library(wordcloud)
library(dplyr)
library(topicmodels)
library(tm)
library(Rgraphviz)
library(ggplot2)
library(grid)
library(readr)
library(rgraphter)
library(wesanderson)
library(ggforce)
library(cluster)
library(foc)
```

```

x <- revlist_by_nb_NB_group_by_itname()
x_1 <- split(x, Xintcode)

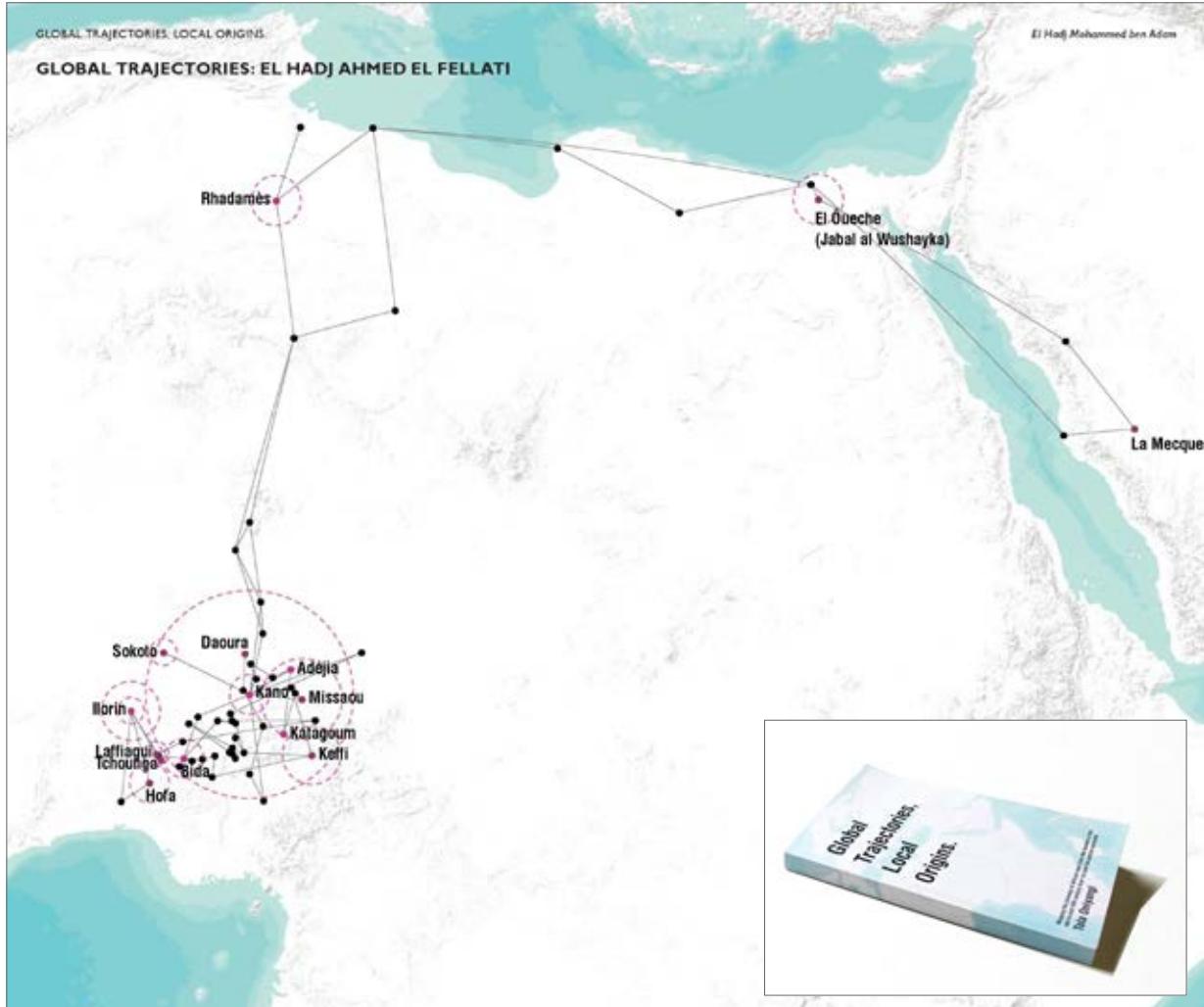
listenv(x_1, envir = globalEnv)

docsum <- Corpus::VectorSource(ListingsSummary)$V1[1]
# x <- revlist_by_nb_NB_group_by_itname(), NB: no namespaces here!, NB: no namespaces here!, NB:
# x <- revlist_by_nb_NB_group_by_itname(), NB: no namespaces here!, NB: no namespaces here!, NB:

```

```
Testtext <- Tagify(x_1, droplevels.data.frame)
wordall <- Tagify(Testtext, "[", "summary")
corpus <- corpus(VectorSource(wordall), readercontrol = list(language = "en"))
```

# global trajectories: local origins



**How can we study the relationship between precolonial Africa and the world through the people themselves?**

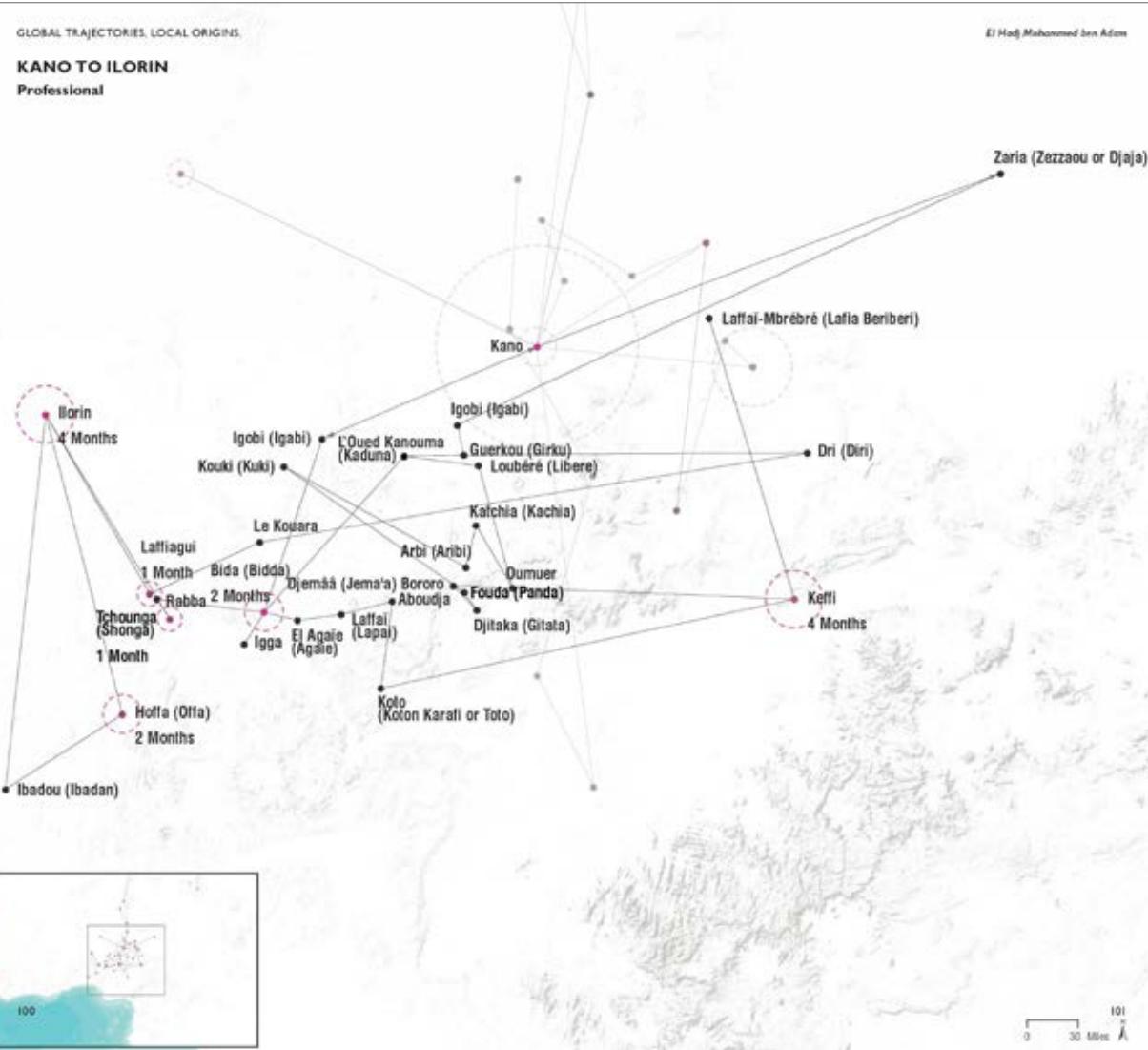
This mapping and aggregation project explores how (West) Africans interacted with the world from an African perspective using data gleaned from autobiographical and biographical accounts. Numbering 154 pages, the book presents the journeys undertaken by four men from what is now northern Nigeria on three scales. It presents an overall view of travel, zooms into specific journeys and trajectories, and finally, zooms into principal points along this journey. The final layer incorporates the personal experiences of the subjects by including direct quotes describing their journeys and destinations.

Fall 2015. Independent Research. Supervised by Ralph Ghoche.

GLOBAL TRAJECTORIES, LOCAL ORIGINS

**KANO TO ILORIN**

Professional

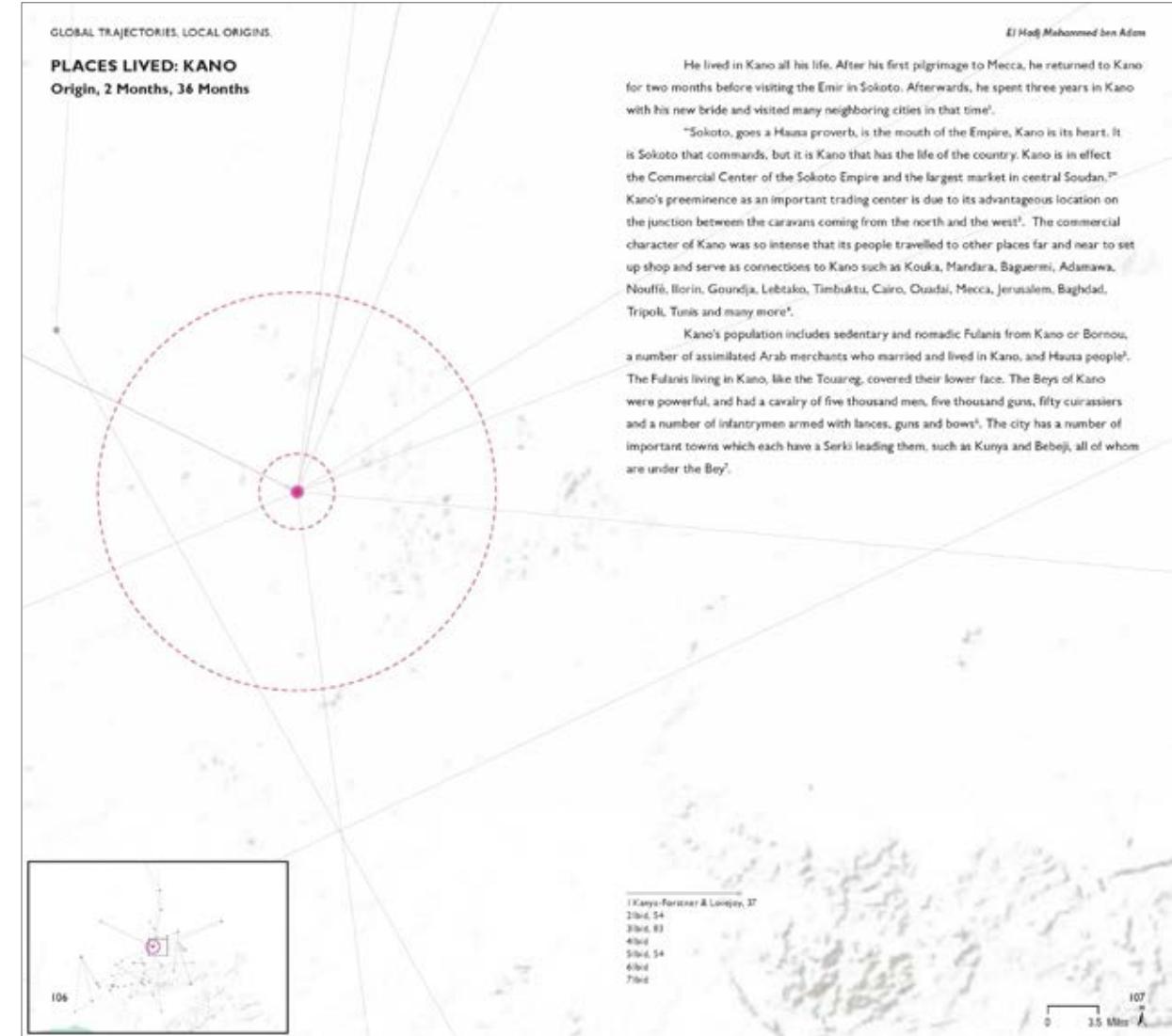


El Hadj Mohammed ben Adam

GLOBAL TRAJECTORIES, LOCAL ORIGINS

**PLACES LIVED: KANO**

Origin, 2 Months, 36 Months



El Hadj Mohammed ben Adam

He lived in Kano all his life. After his first pilgrimage to Mecca, he returned to Kano for two months before visiting the Emir in Sokoto. Afterwards, he spent three years in Kano with his new bride and visited many neighboring cities in that time<sup>1</sup>.

"Sokoto, goes a Hausa proverb, is the mouth of the Empire, Kano is its heart, it is Sokoto that commands, but it is Kano that has the life of the country. Kano is in effect the Commercial Center of the Sokoto Empire and the largest market in central Sudan."<sup>2</sup> Kano's preminence as an important trading center is due to its advantageous location on the junction between the caravans coming from the north and the west<sup>3</sup>. The commercial character of Kano was so intense that its people travelled to other places far and near to set up shop and serve as connections to Kano such as Kouka, Mandara, Baguirmi, Adamawa, Nourifi, Ilorin, Goundja, Lebako, Timbuktu, Cairo, Ouidah, Mecca, Jerusalem, Baghdad, Tripoli, Tunis and many more<sup>4</sup>.

Kano's population includes sedentary and nomadic Fulanis from Kano or Bornou, a number of assimilated Arab merchants who married and lived in Kano, and Hausa people<sup>5</sup>. The Fulanis living in Kano, like the Touareg, covered their lower face. The Beys of Kano were powerful, and had a cavalry of five thousand men, five thousand guns, fifty cuirassiers and a number of infantrymen armed with lances, guns and bows<sup>6</sup>. The city has a number of important towns which each have a Serki leading them, such as Kunya and Bebeji, all of whom are under the Bey<sup>7</sup>.

<sup>1</sup> Kenya-Farmer & Lovrijen, 37  
2 Ibid, 54  
3 Ibid, 83  
4 Ibid  
5 Ibid, 54  
6 Ibid  
7 Ibid

# mapping the “vibe”: the Flatbush story

**How can we measure a neighborhood's “vibe” and communicate it to a certain demographic?**

This video mapping project is tailored to prospective college students through a fun graphic sensibility, light-hearted questions and a peppy musical score. The study area's suitability for an ideal college neighborhood was explored using a checklist of important qualities prospective students look for in neighborhoods. Field work and data from various city and national agencies was used.

[View Project.](#)

Fall 2015. *DataScapes and the Informal City*. Taught by Leah Meisterlin. In collaboration with Joud Al Shdaifat and Kamay Jin.



But where can I grab a cheap bite?



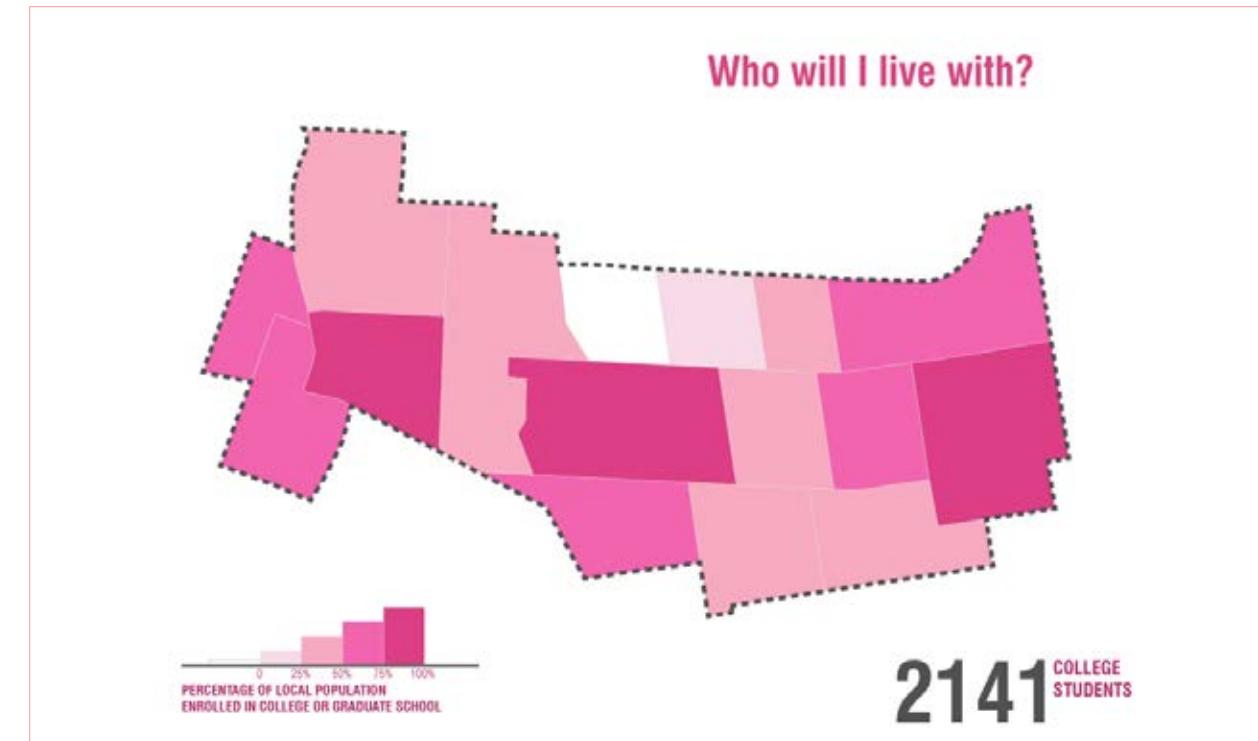
What about wining & dining options?



And what if I'm a **night owl**?



Who will I live with?



The adventure starts in  
New York

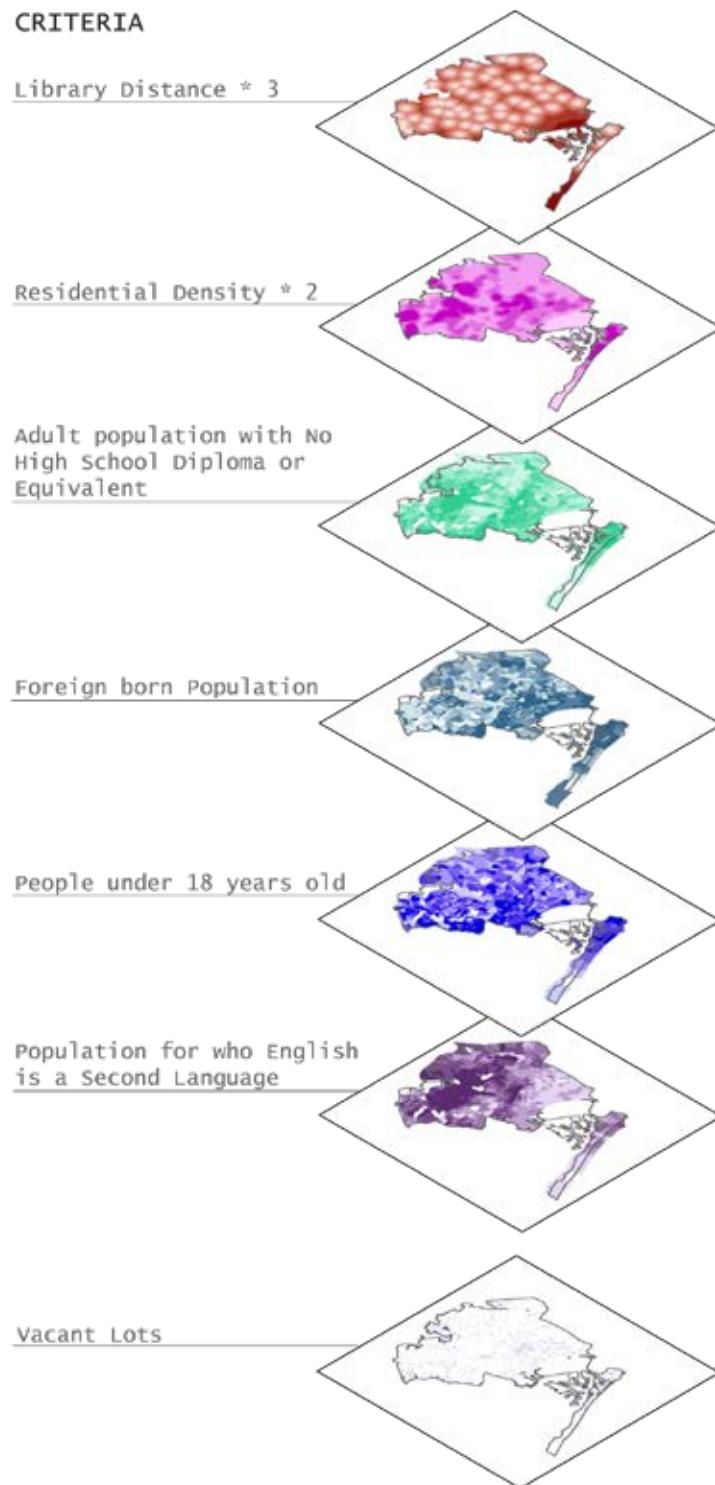
MUST HAVES

- CONNECTIVITY
- TRANSPORT WITHIN NEIGHBORHOOD
- ENERGETIC NEIGHBORHOOD
- AGE DIVERSITY
- WINING AND DINING
- OPTIONS PRICE
- TIME
- DELIVERY

An area with 7 colleges



## CRITERIA



## siting libraries

**Can the Queens Library System decide where to locate the next library based on demographic and locational factors?**

A multi-criteria decision analysis using several weighted factors determined locations for new libraries in the Queens Public Library system. Factors, including distance from other libraries, English proficiency, age, origin and level of education, were combined with vacant lots in Queens to generate possible lots for new library sites. From this, three possible locations which were highly suitable for a Queens Public Library were generated.

*Spring 2017. Introduction to Geographic Information Systems.  
Taught by Leah Meisterlin.*

