

SHIHUA XUAN

PORTFOLIO

SELECTED WORK
2019-2026

PROFESSIONAL WORK SAMPLE

327 Mixed Use/8324 Mary Ave Apartment/10715 Interlake Apartment GC Squared (USA) Inc	4-17
3010 Avalon Apartment/TCGC Single-Family Studio 19 Architects	18-21
Kirkland Single-Family/Yarrow Point Addition/ Facade Design 5ft2 Studio Architects	22-26

ACADEMIC WORK

1. When Water Comes Gowanus Canal, Brooklyn, New York City	28-33
2. Inside Out Tech Garden, Syracuse, New York	34-39
3. Expo 67 Playground Expo 67, Montreal, Canada	40-44

SUPPLEMENT

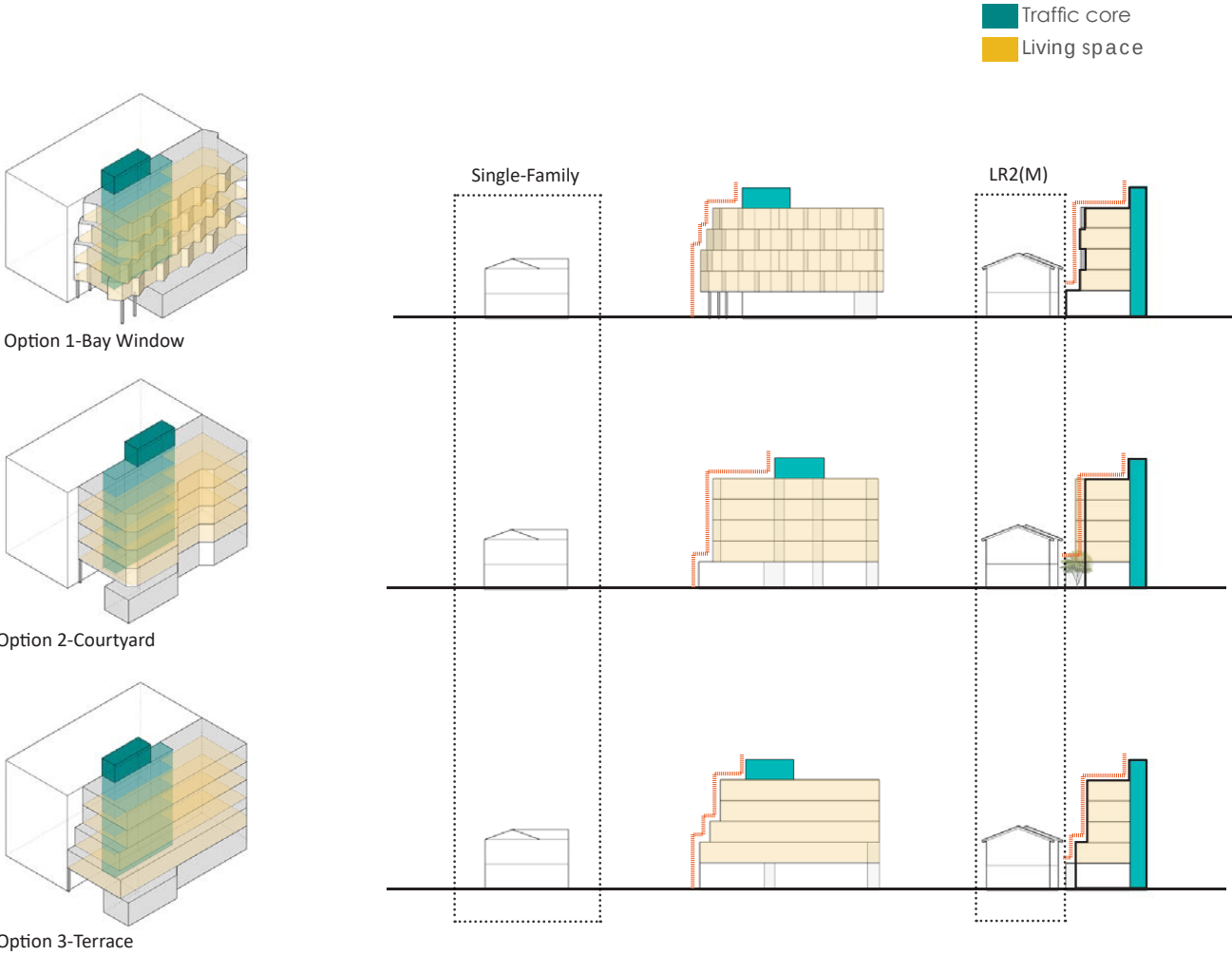
Lily's Pad/Mapping Gowanus/Architecture vs. Media/Sketch	46-49
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327 Mixed Use

Typology: Mixed Use
Project Location: Seattle
Time: 2019 to 2021
Software: Revit, Sketchup, Enscape, Illustrator, Photoshop, Indesign

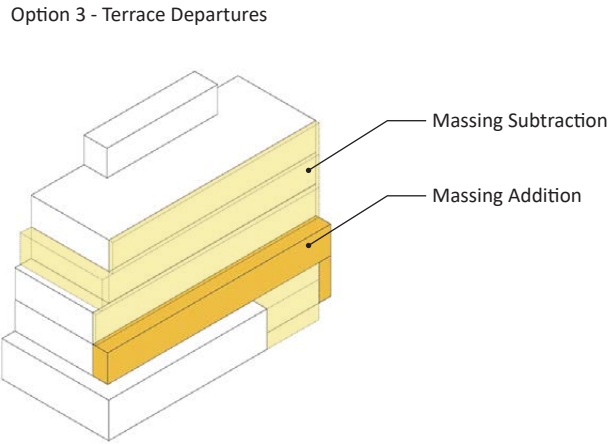
Situated in the joint of three different zonings near Greenwood in Seattle, this project plans to demolish the existing single-family residence and to construct a 5-story mixed-use development. To increase the livability of the neighborhood and create vibrant activities, commercial use of food and drink is planned on the ground level. Upper levels propose 14 units of small to medium sized apartments, which helps to bring more residences to the urban area and to synergize with the city's vision to improve and maintain a living and affordable city. This project fulfills Mandatory Housing Affordability and Green Building Standard.

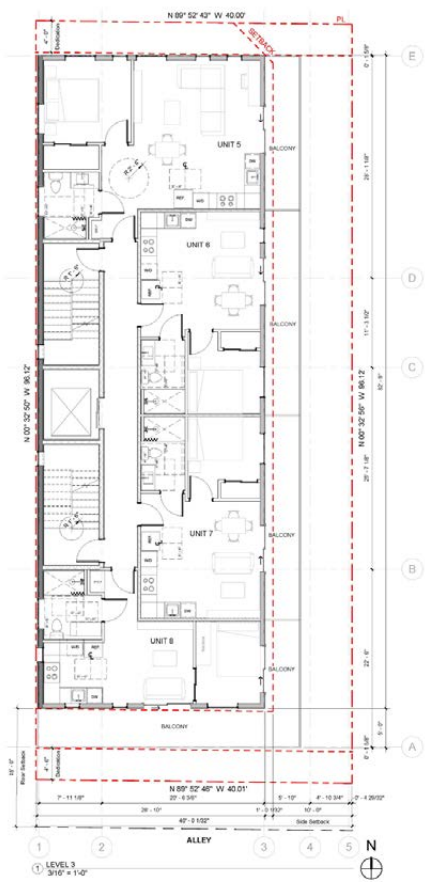
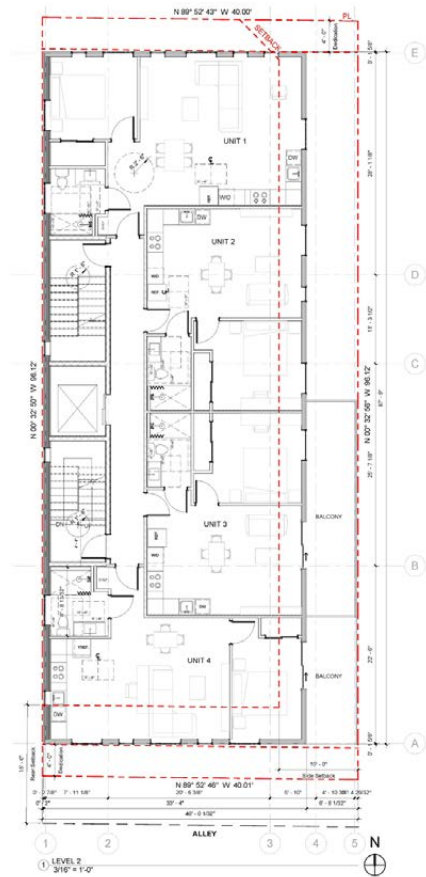
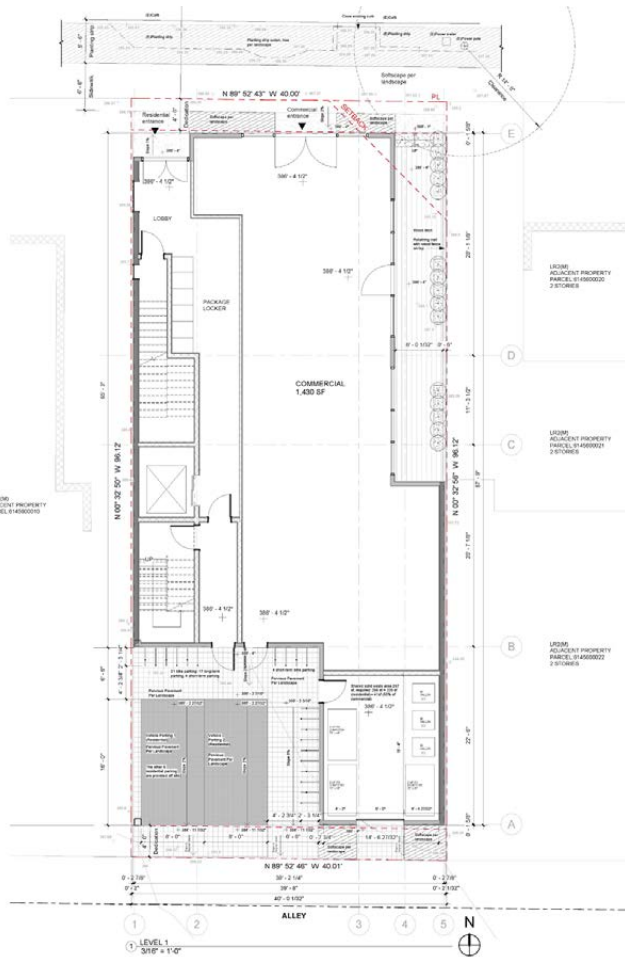
I worked on the project from the beginning to late schematic design phase. To kick-start the project, I participated in meetings with the client and pre-application meeting with city to collect and maintain requirements. In schematic design phase, I was the key architectural designer who worked on city process of neighborhood outreach, design review package preparation, massing studies, zoning compliance, and SD set.



Three massing options were studied for each's pros and cons. The overall design consideration was to plan traffic core and bathrooms at west on zero lot line, so that units facing south and east gain the light and air. Considering both zoning and the ease of construction, option 3 was chosen eventually.

After putting together, northeast corner of the zoning massing has an awkward bevel that can't be used efficiently. Also, some portions of the shape can be adjusted to create a succinct form and give relief to the adjacent neighbor. At design review stage, departures were proposed, and city accepted as a better design approach.



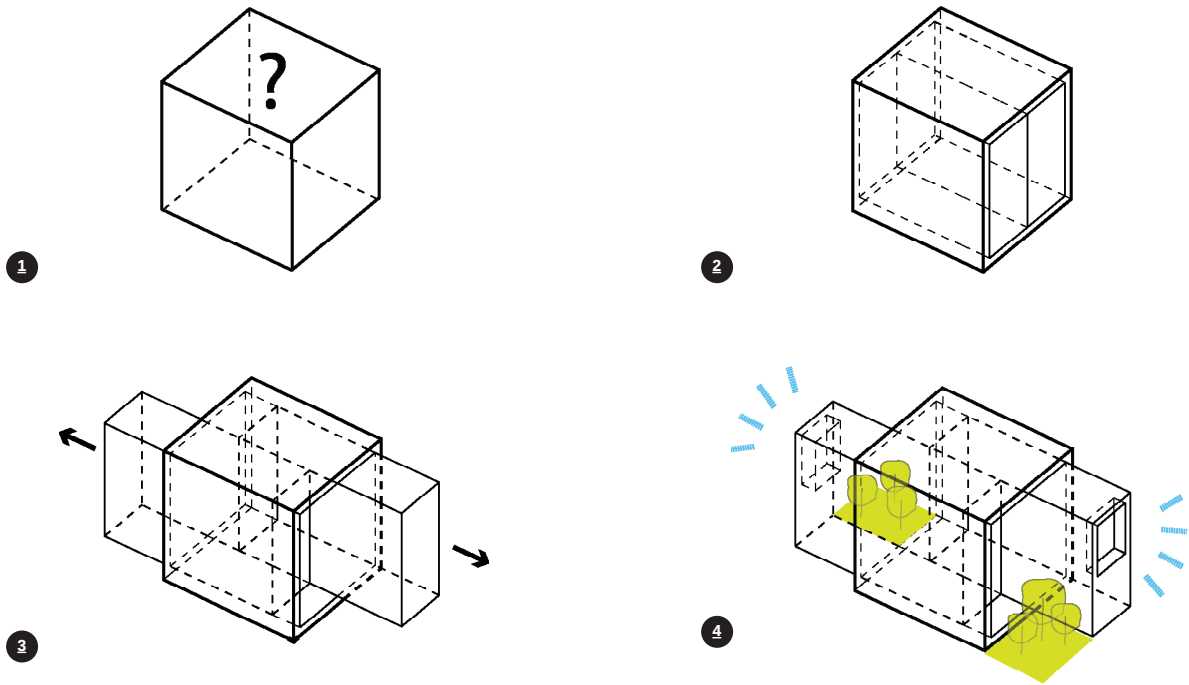


8324 Mary Ave Apartment

Typology: Multi-family
Project Location: Seattle
Time: 2020 to 2021
Software: Revit, Sketchup, Enscape, Illustrator, Photoshop, Indesign

The Mary Ave project is a new apartment design for 16 units with 3-story above grade and 1-story below grade. It's within a community that numbers of townhouses and apartments are newly constructed and coming into use. As part of this fast-developing area, the project aims to respect the current residential scale while responding to future context by applying contemporary design language and materials.

I joined the project at the beginning of the concept design phase as a architectural designer and worked all the way through to the end of construction drawings. The proposed split-box idea is adopted by the design team and further developed. During the later phases, I worked closely with the design lead to develop design schemes and produce SD, DD, and CD set. My responsibilities also included communication with city, correspondence and coordination with all consultants and the clients to make sure the project on track and our design intentions are carried out across all aspects of the project.



What can we have by a box?

The design concept of this proposed project starts from questioning the variations of a single box. Responding to codes and the site scale, the box is split and divided into two volumes wrapped by a shell. By sliding forwards and backwards, the two solid volumes give each other space to breathe. Thus there are semi-courtyards of green landscape for units and giving opportunities to look far and enjoy everyone's own great time.



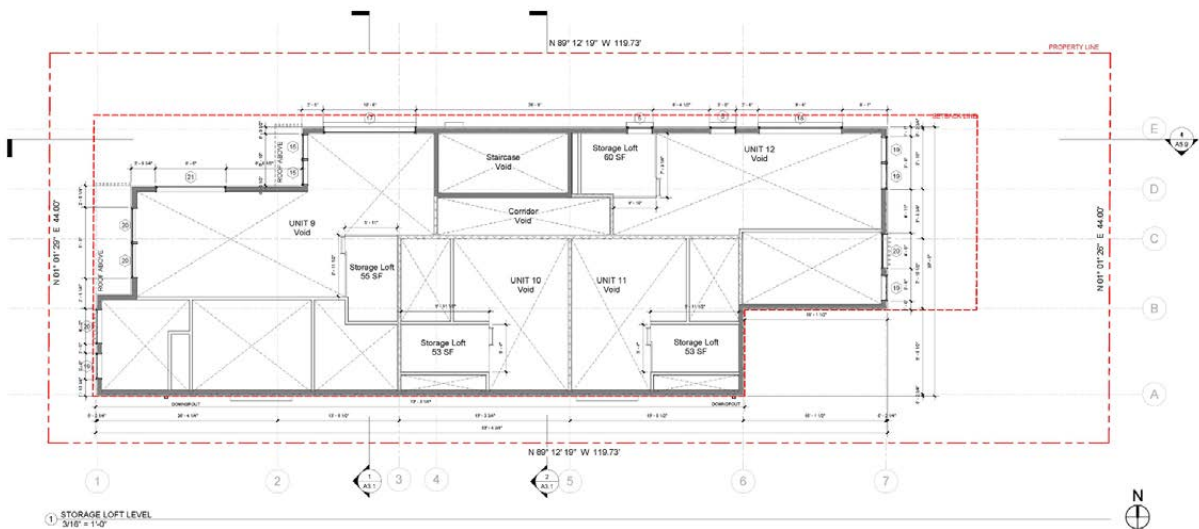
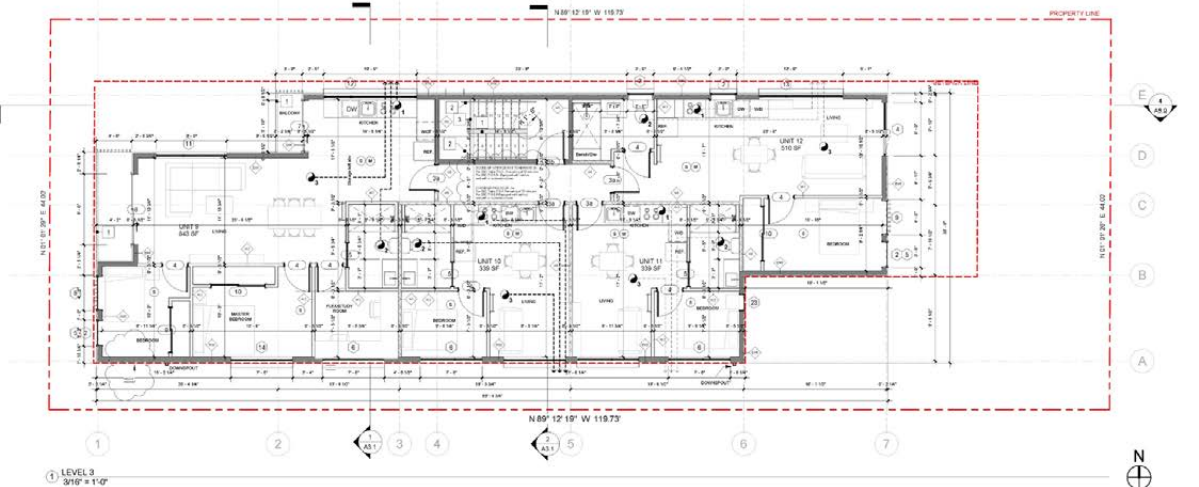
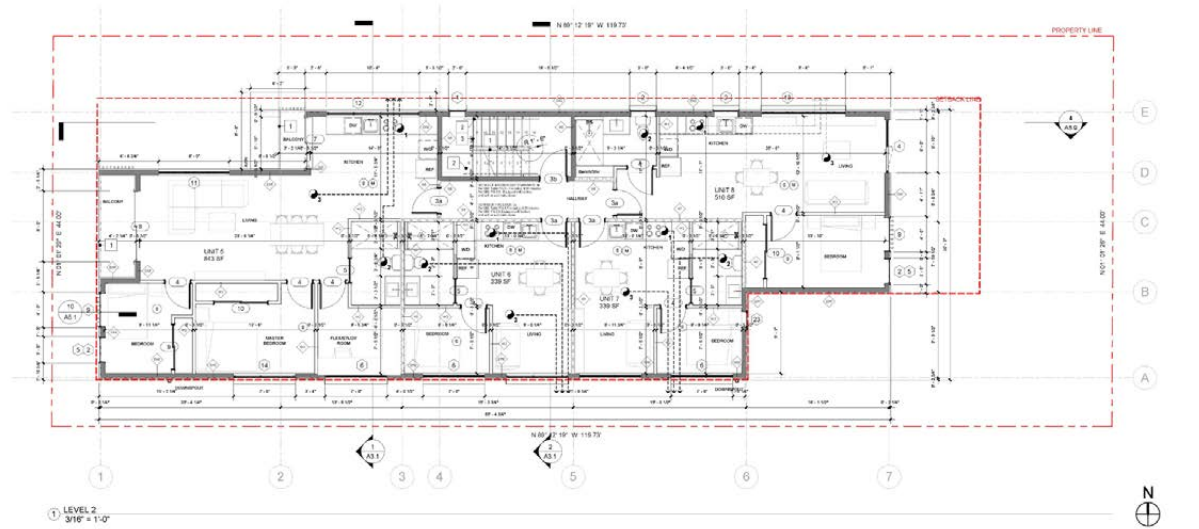
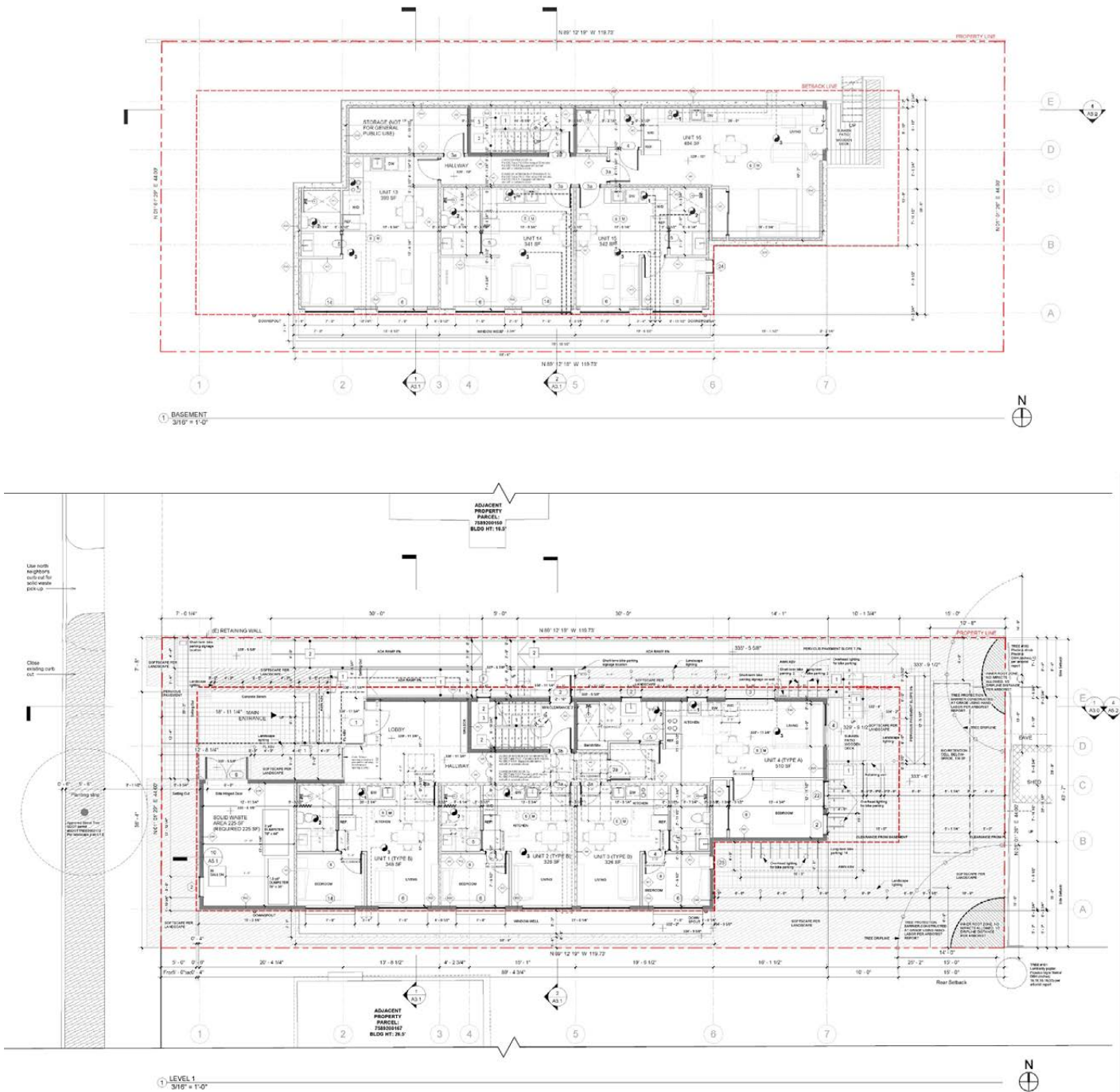
Front "void"



Rear "void"

Design process

The project underwent several iterations due to inputs from clients, city, and consultants. Although the design concept was appreciated, the use efficiency of the plan layout was questioned by the client and there were zoning and ADA challenges. To provide solutions, design details were considered carefully to accommodate overall units, ADA requirements, bicycle parking, amenity space, and landscape design.





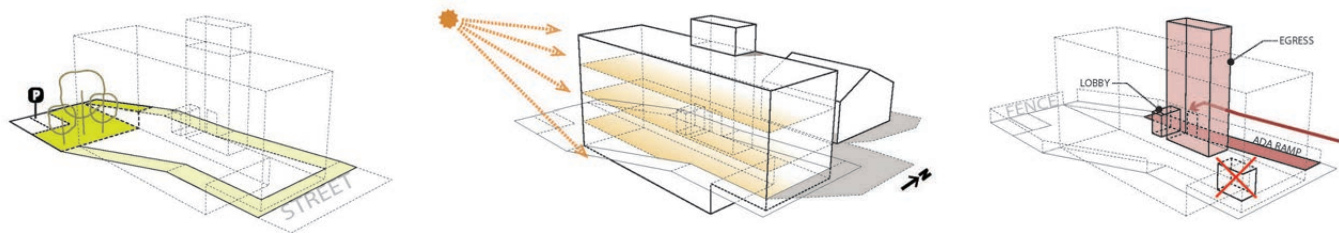
10715 Interlake Apartment

Typology: Multi-family
Project Location: Seattle
Time: 2019 to 2021
Software: Revit, Sketchup, Enscape, Illustrator, Photoshop, Indesign

Located in north Seattle, it is an apartment of 11 units with 3-story above grade and 1-story below grade. To introduce this relatively larger scale development into the neighborhood after zoning changes, this project needs to find a balance between the urbanization process and the current context. The project objectives include bringing in contemporary design language while minimizing the disruption to existing residences and helping to set a tone for future developments in the area.

For this project, I worked as the key architectural designer from schematic design to the end of construction documents. After the neighborhood outreach, comments from neighbors were collected and evaluated. Working with the project architect closely, I studied city Design Guidelines and reflected on the project design. For further phases, I prepared the design review packages of analysis, models, and visualization. I also worked on SD and CD set to complete permitting process.

Seattle Design Guidelines



1. A. POSITIONING OF THE BUILDING BLOCK

Being the first apartment project in the community, the positioning of the apartment responds to protecting the current sunlight and privacy needs of the neighbors. Meanwhile, it responds to the future context by establishing future street wall.

1. B. PARKING & AMENITY SPACE

Placing the building in the front provides additional parking space for people who need them. Such placement also forms a private landscaped rear yard and secured environment for tenants. The basement unit which is accessible from the rear yard at grade becomes a special unit which is embraced by landscape. The wholeness of the amenity space allows larger deciduous trees to be planted as compared to fragmented smaller amenity space.

2. SOUTHERN SUNLIGHT EFFECT

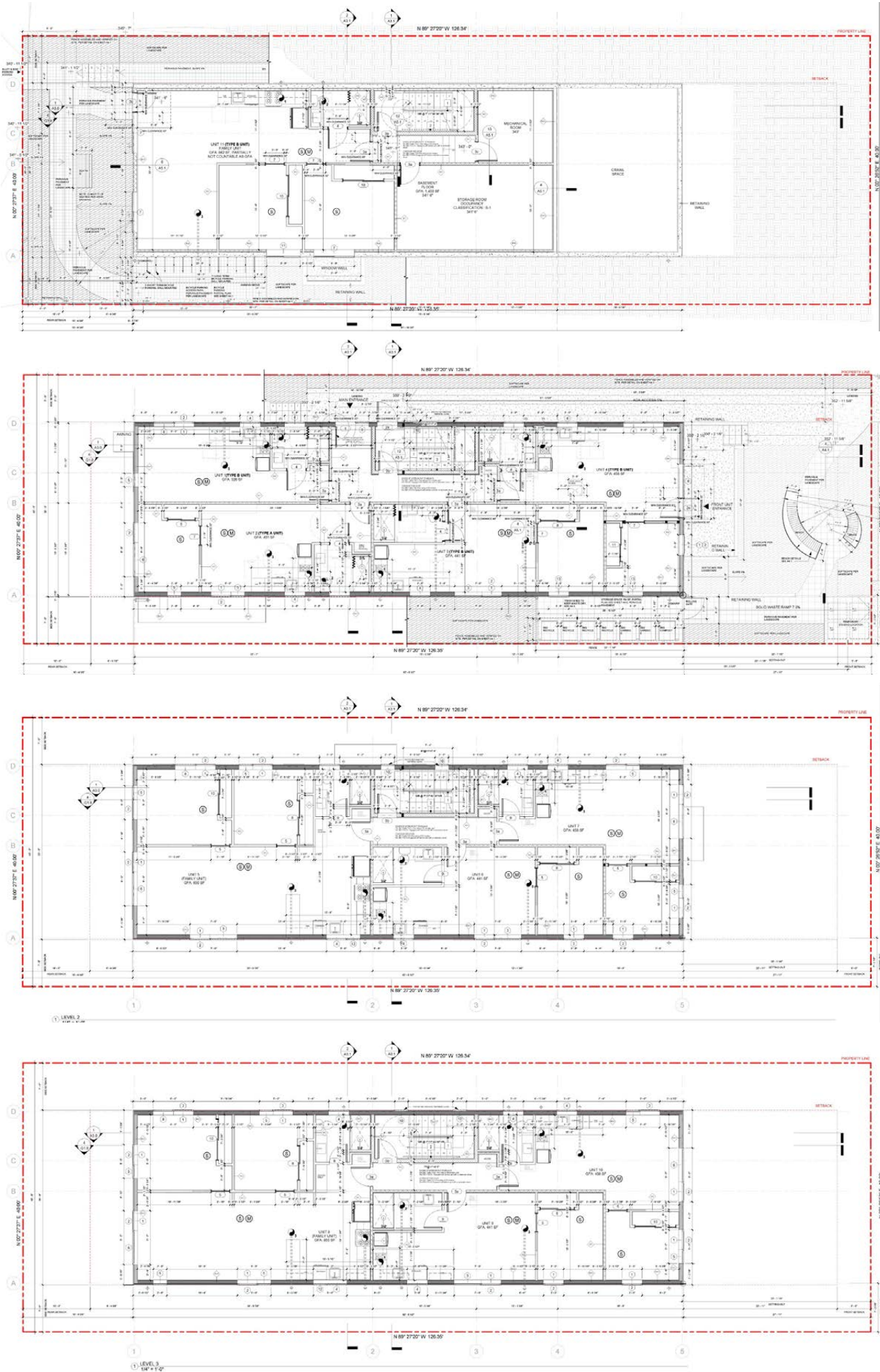
The egress stair tower is placed on the north in order to maximize southern frontage for every apartment unit. Natural light and heat gain are ensured for every unit. This also minimizes shadow impact to the adjacent northern site who need them and protect the privacy of the rear yard of the neighbors.

3. A. ACCESSIBILITY

In order to fulfill the ADA requirement, lobby and entrance are placed at the middle of the apartment, rather than at the front corner. Additional signage and low walls help to identify the position of the entrance for both residents and visitors.

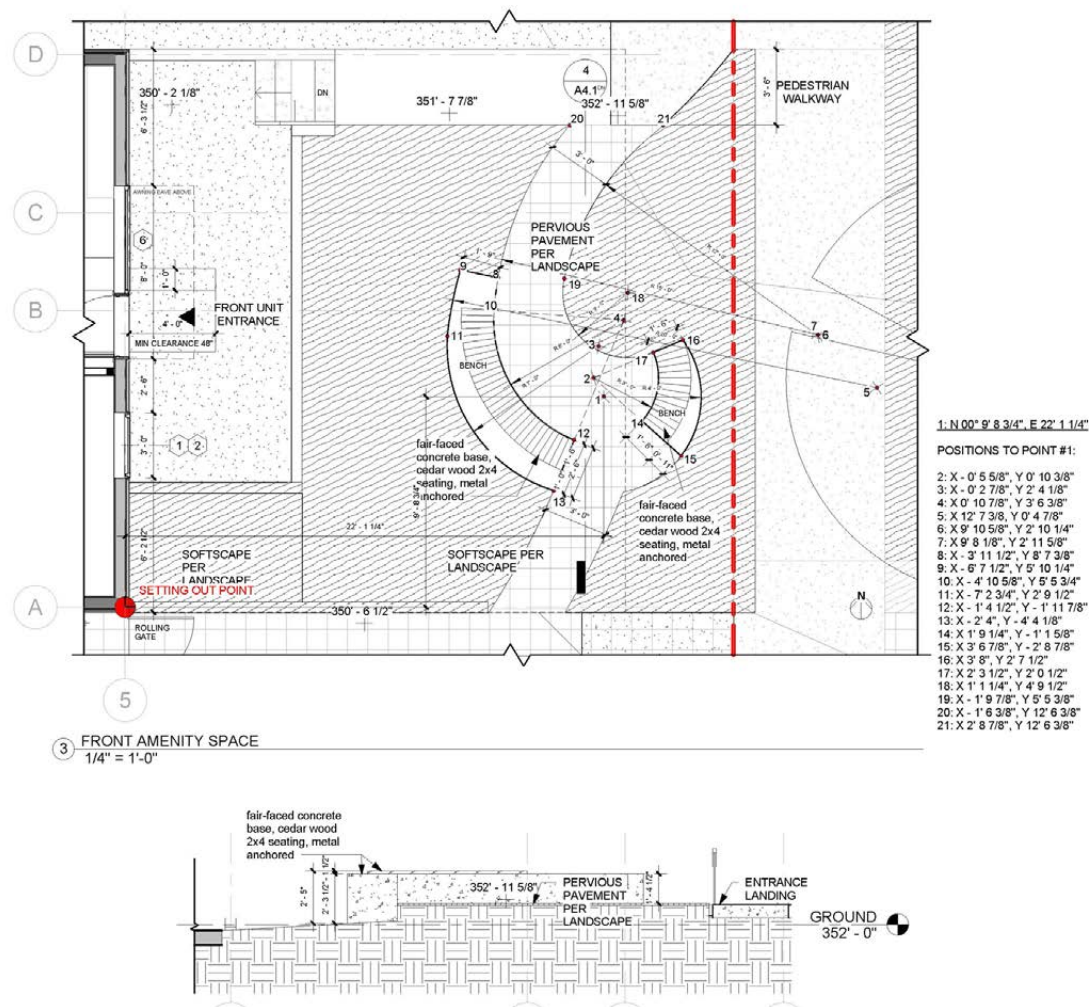
3. B. PUBLIC WALKWAY is proposed to improve public pedestrian accessibility & safety.

3. C. SECURITY OF THE PROPERTY is ensured by fences & landscape barrier.



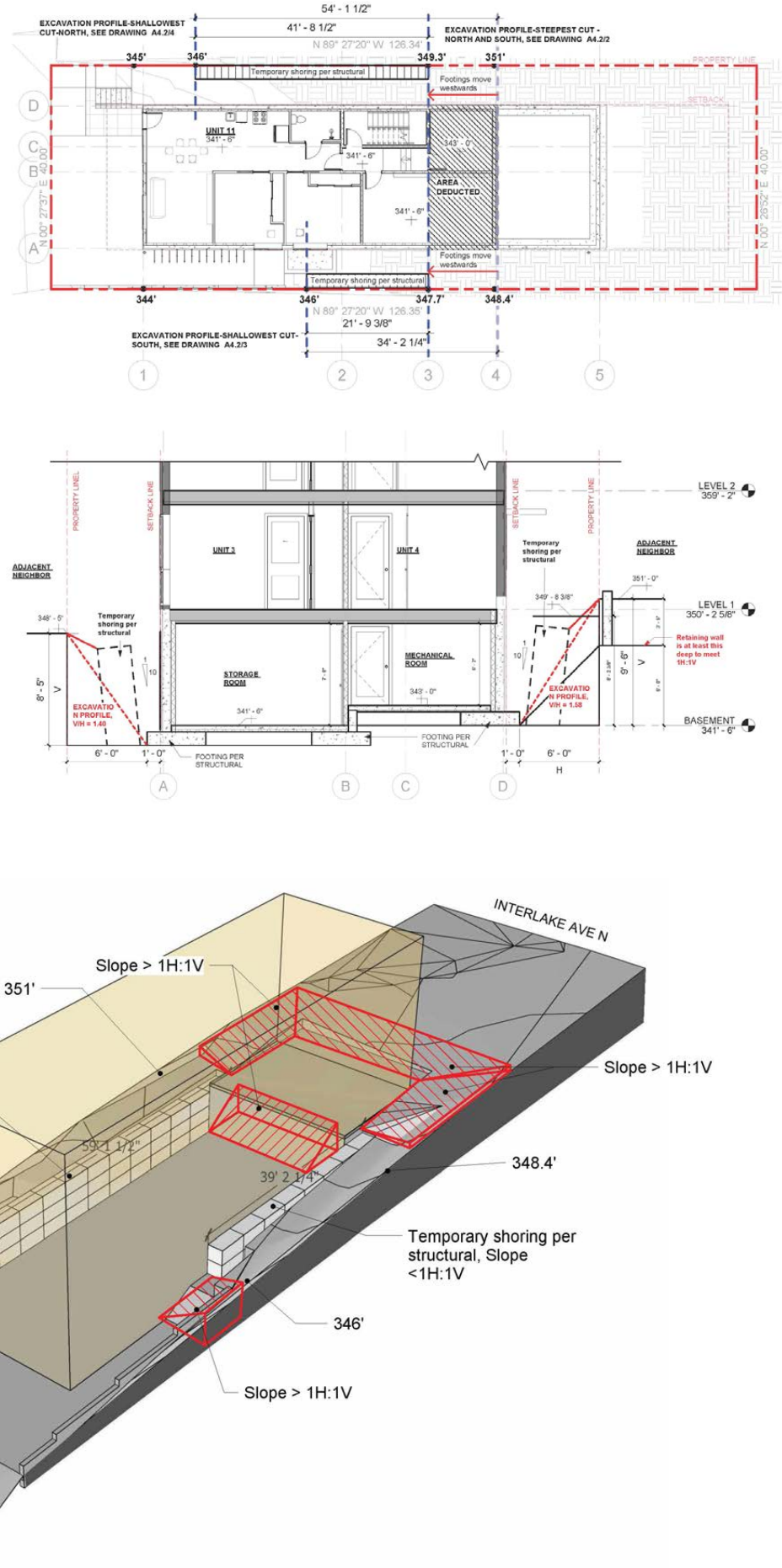
Front Landscape Design

Outdoor amenity space is planned at the front to share with the neighborhood. It's well organized by employing purposeful green vegetations and functional uses to create an inviting and dynamic atmosphere.



Excavation Shoring Study

Concerned about the impact for adjacent sites' soil stability during construction, I helped to study the slopes on site and coordinated with geotechnical and structural engineers to provide solutions.



3010 Avalon Apartment

Typology: Multi-family
Project Location: Seattle
Time: 2022
Software: Revit, AutoCAD, Sketchup

This apartment project is located near west Seattle and comprises 8 levels. It is providing 87 units of studio and Small Efficiency Dwelling Units (SEDU). A residential lobby at street level and a roof top outdoor amenity area are planned.

I joined the project during design development phase as the project designer. I helped to transform existing drawings from AutoCAD to Revit and proposed facade design. During the drafting, I also worked on zoning code checks and diagrams of Mandatory Housing Affordability, Street-level development standards, Floor area ratio, Structure width and depth limits.



TCGC Single-Family

Typology: Single-family New Built
Project Location: Kirkland
Time: 2022
Software: AutoCAD, Sketchup

This Single-family design is one of the 10 single-family houses in a group at the south of Seattle. And it is one of the 2 featured houses. The design of this house prefers a relatively traditional style with grandeur touches.

I joined the project in schematic design phase while the design team was exploring options. I worked closely with the project architect to study window and door openings, exterior materials of stone and siding panels, and revise plan layouts accordingly. I also worked on the models and presentation materials, which received great feedback from the clients.

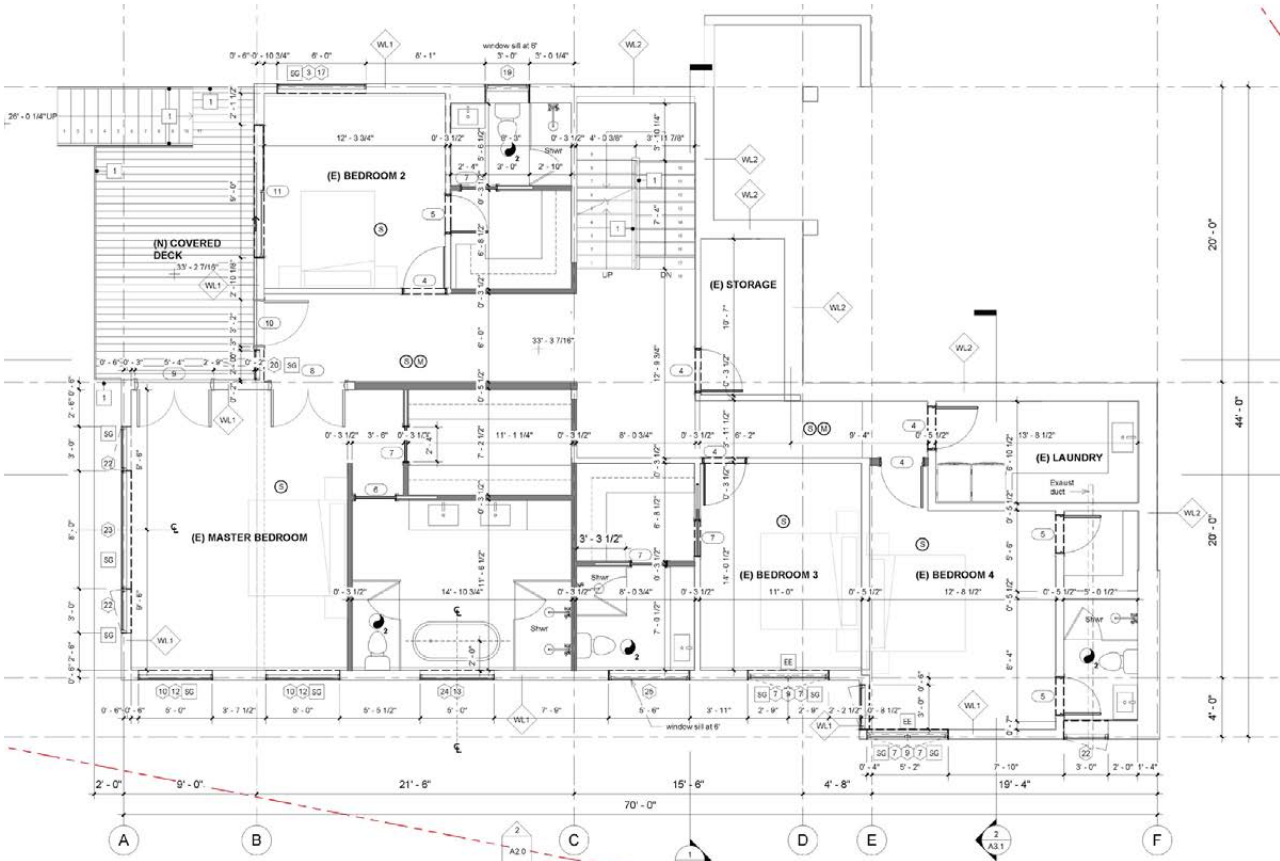
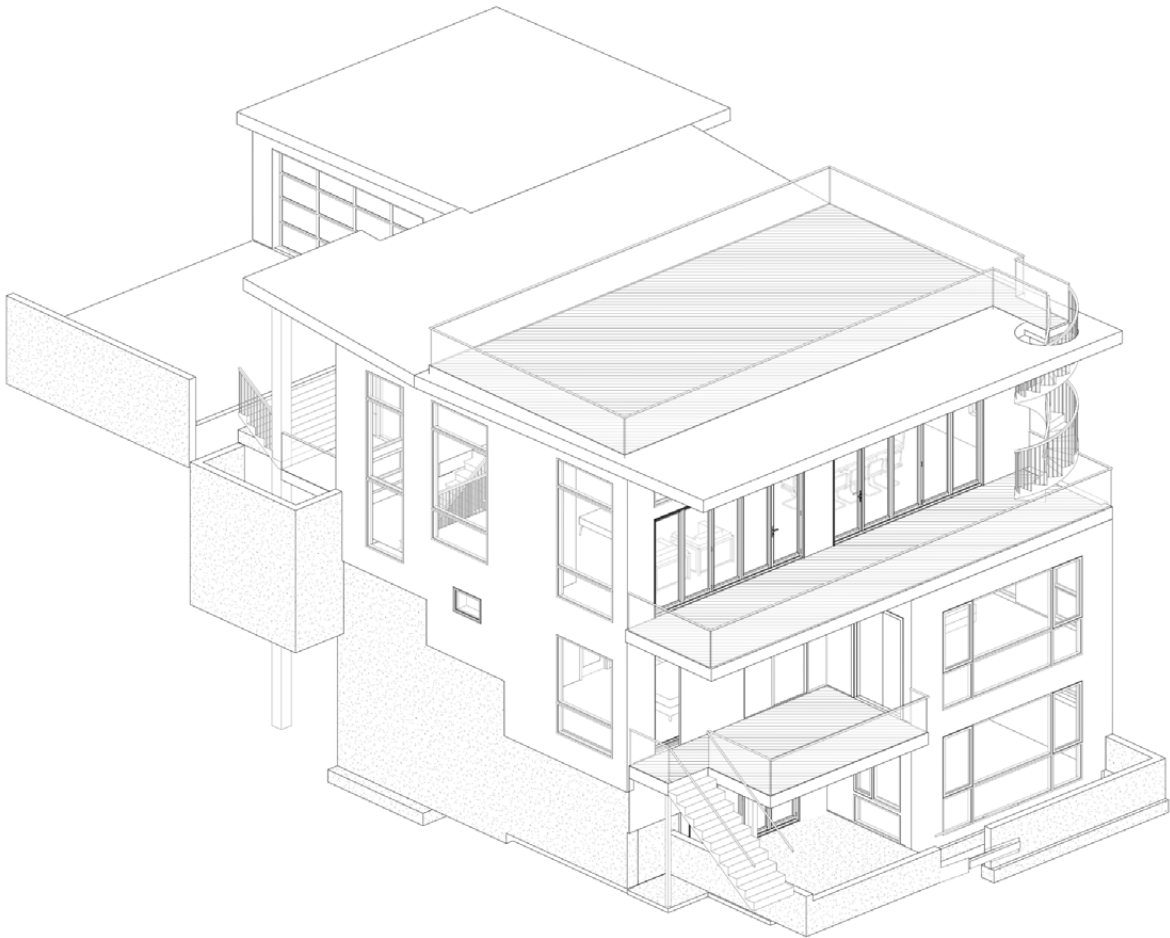


Kirkland Single-family

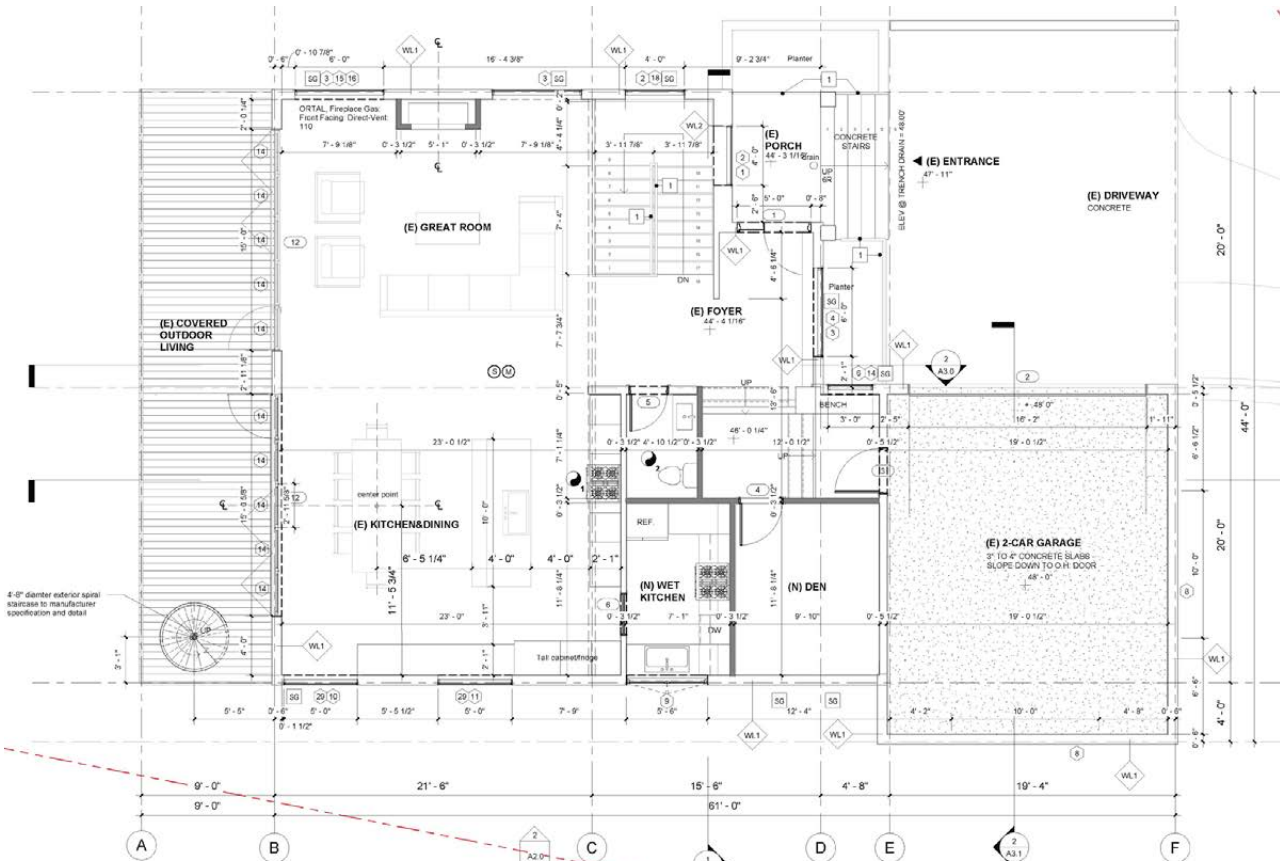
Typology: Single-family Remodel
Project Location: Kirkland
Time: 2023
Software: Revit

Located in Kirkland WA, the existing house permit expires when the basement slab just completed. While applying permit again, special problems have been found that walls were created for inefficient use and new programmatic designations are needed. New spiral staircase and roof deck are also added for the lake view.

I worked on the project at the beginning until permit issuance. During this time, I worked with project architect to evaluate and revise existing layout, coordinated with the structural engineer, prepared client presentation materials, and followed up on city application process.



1 0. Lower Floor-Proposed
1/4" = 1'-0"



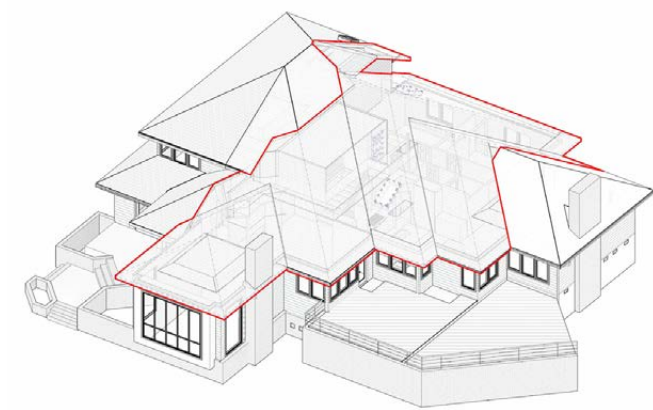
1 2. Main Floor-Proposed
1/4" = 1'-0"

Yarrow Point Addition

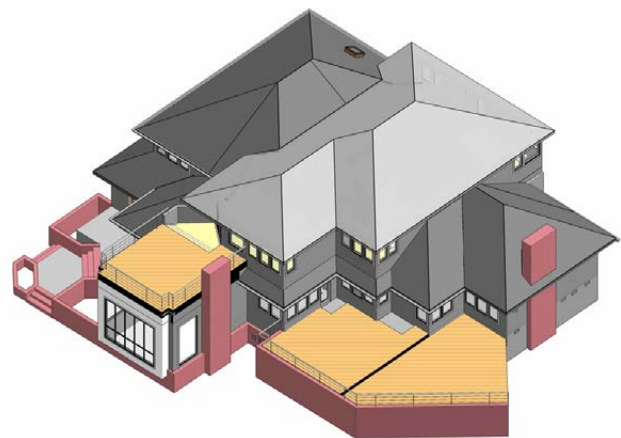
Typology: Single-family Remodel
Project Location: Yarrow Point
Time: 2023
Software: Revit

This small remodel project is located at Yarrow Point WA and needs to add around 1,200 sf on the second level. The house has a complex roof design and needs to minimize the impact on existing structure and space when adding new square footages.

I worked on the project from the beginning until permit completion. Working closely with the project architect, I studied zoning code and ensured compliance, attended site visits, analyzed existing condition with 3D models, put together drawings and completed submittals.



Exsiting roof



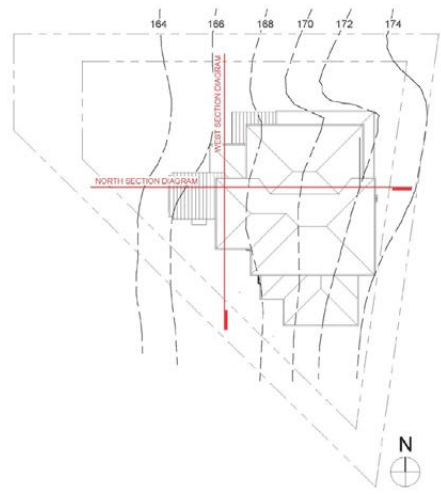
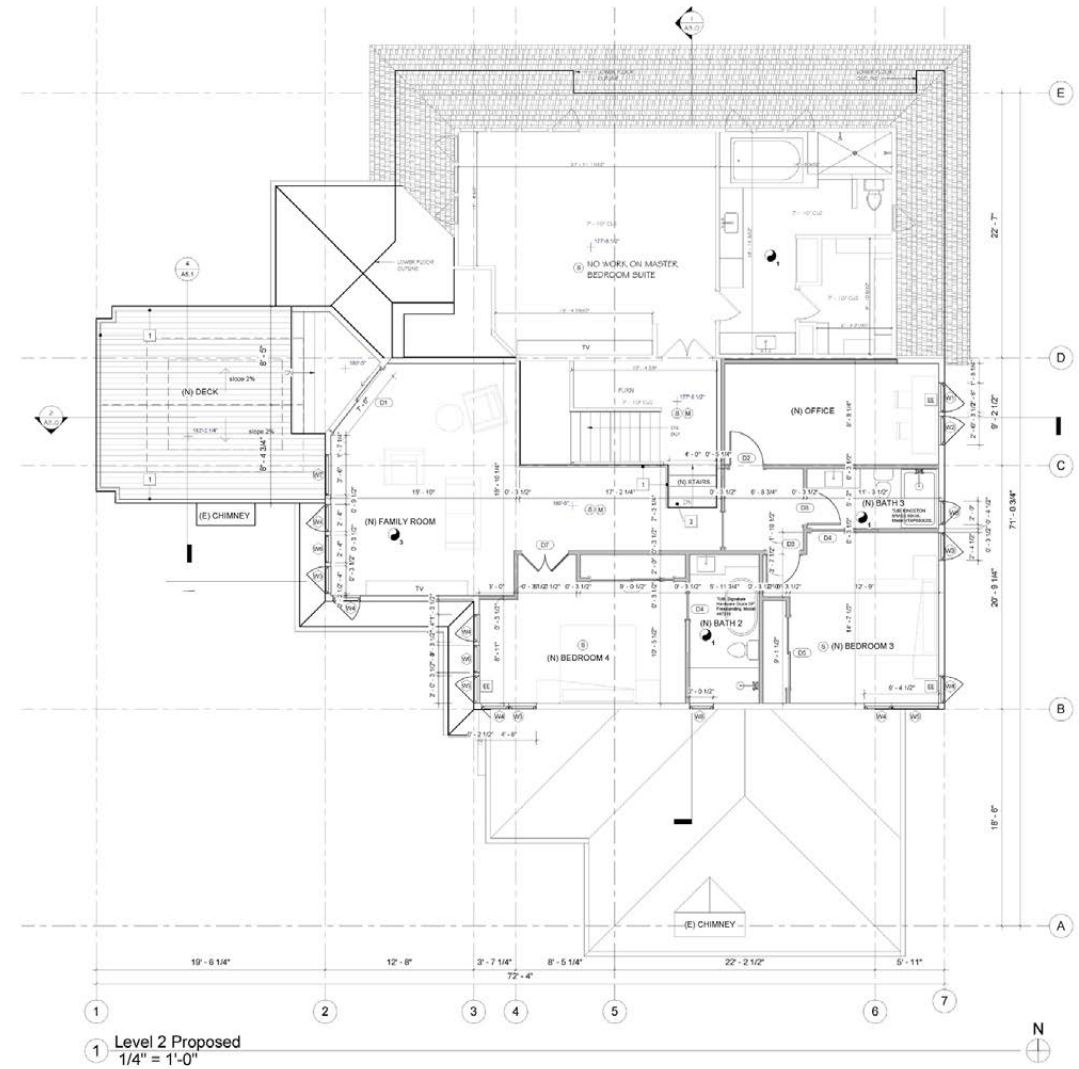
Addition roof



Addition front view



Addition rear view



Facade Design

While as the key project designer on several projects, I assisted other projects shortly per requests, included but not limiting to tasks like facade designs. I proposed the ideas, built in 3d to visualize, communicate with other designers, and ideas were adopted for these townhouse and modern single-family projects.



Academic Work



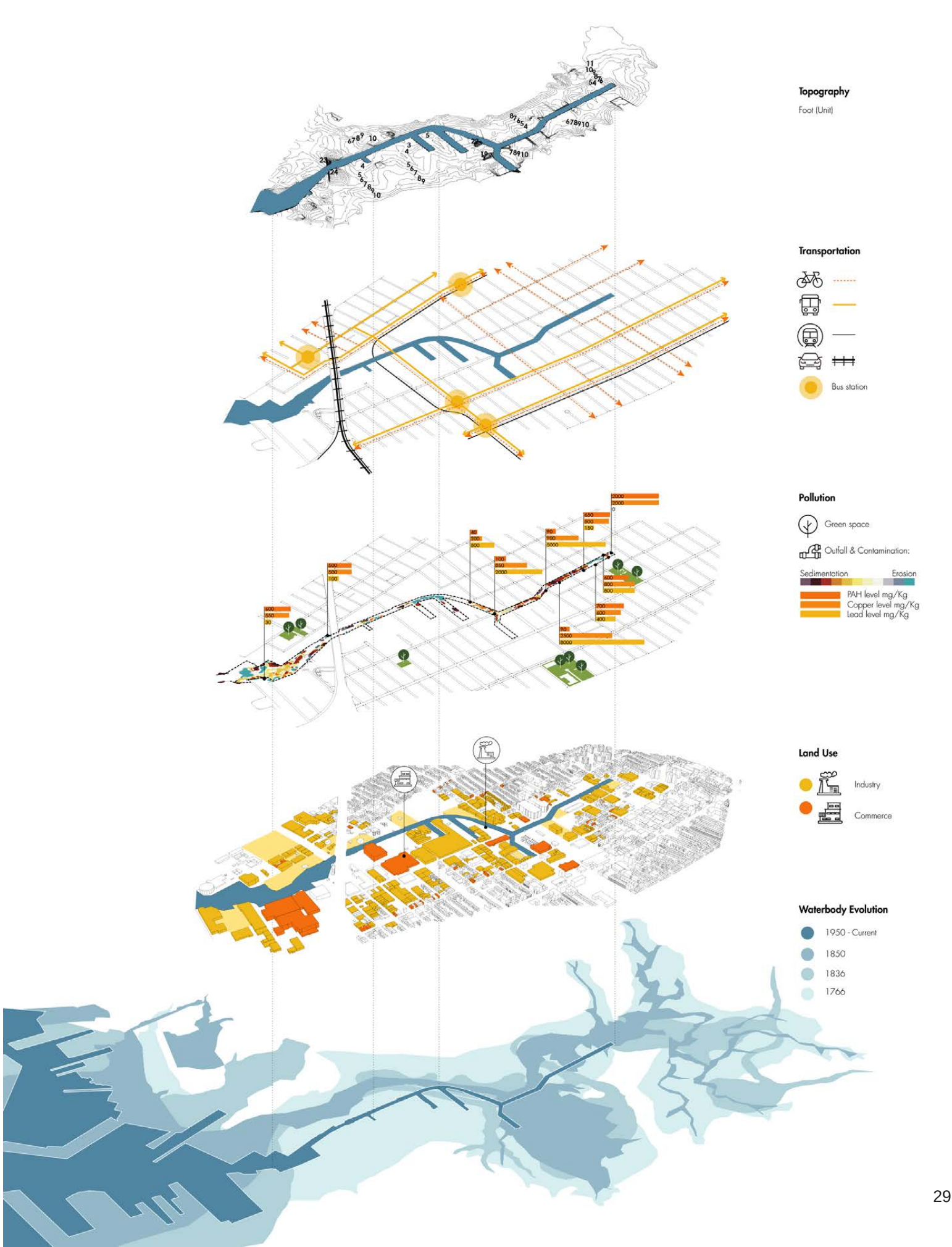


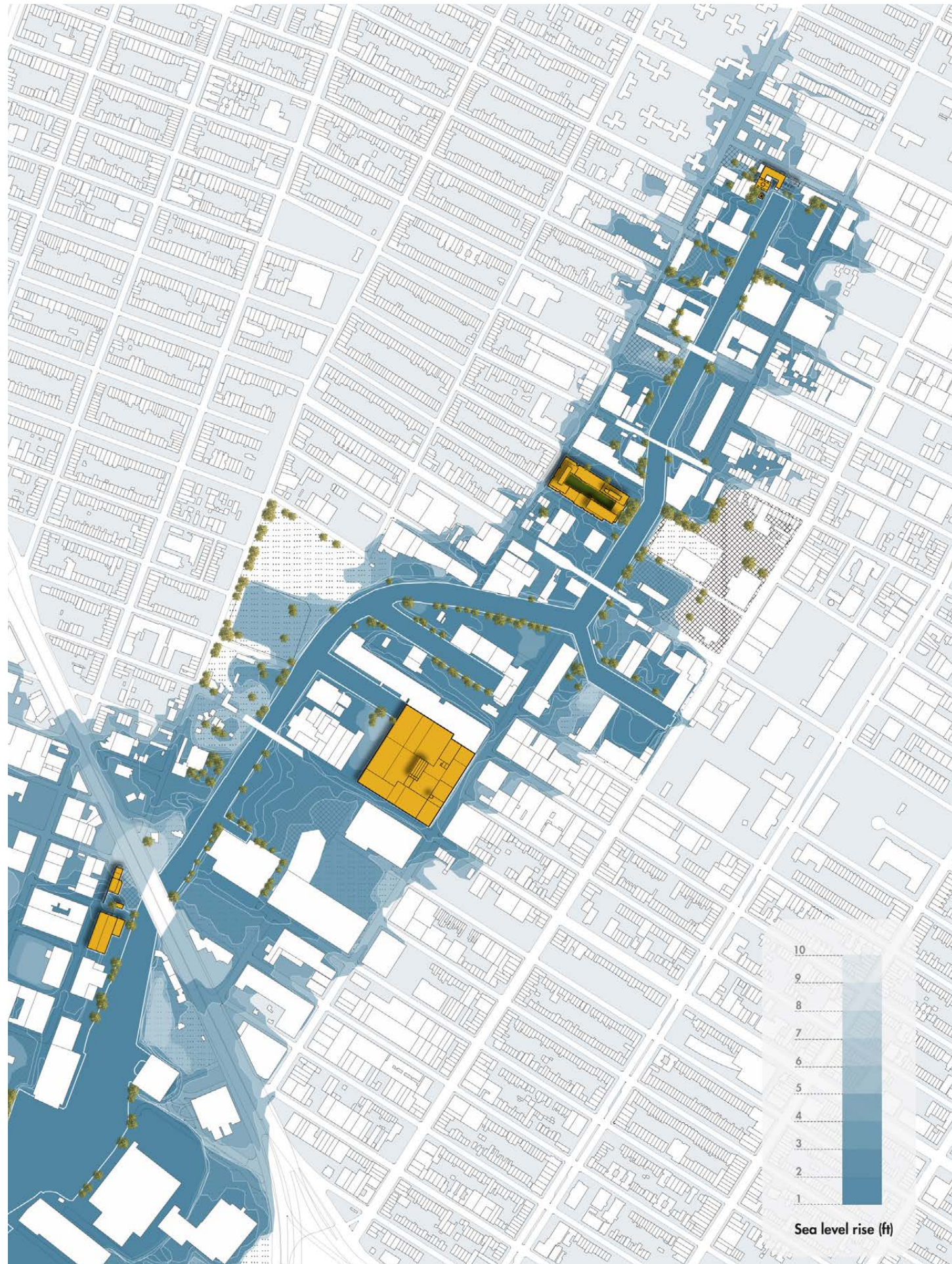
1. When Water Comes

Architecture and the City
In the Context of Climate Change
Spring, 2017

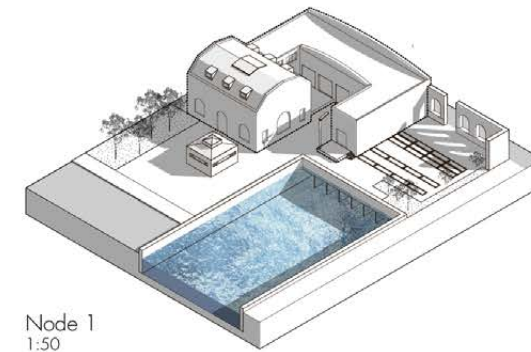
Human Activity has become a dominant disruptive source of change on a planetary scale that biologist Eugene Stoermer coined the term “Anthropocene” to describe our current planetary epoch. One of the results is the inevitable trend of sea rise. Questions following, what does it mean to practice architecture in the Anthropocene Age, or, what is the agency of architecture in the context of climate change?

As the site of this practice, Gowanus Canal neighborhood of Brooklyn, NY which was built in the 19th century, is tied directly to the economic, environmental and hydrological fate of New York city and its harbor. It will be closely examined and imaging the answer for the question, what will happen when the land is “eaten” by sea?

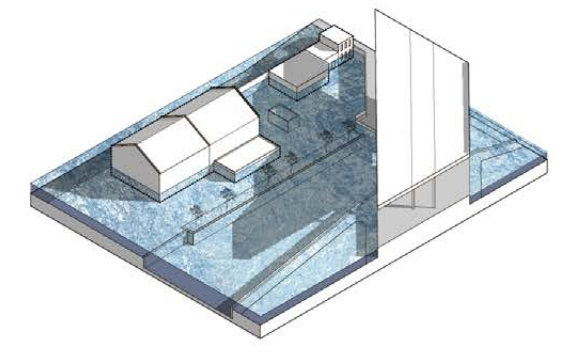
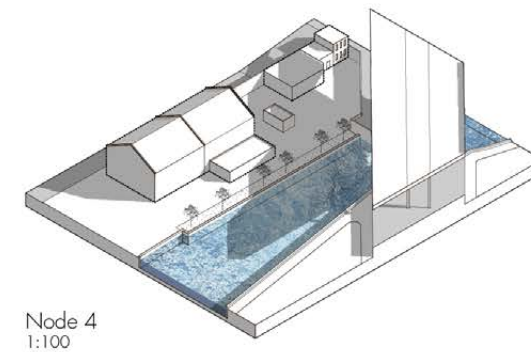
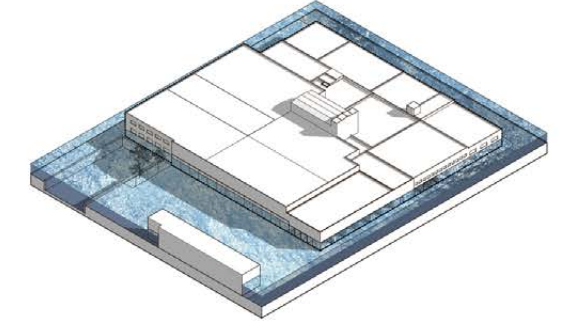
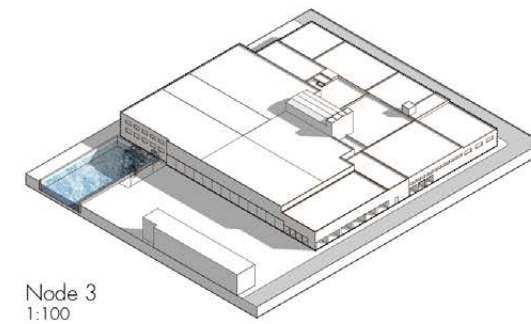
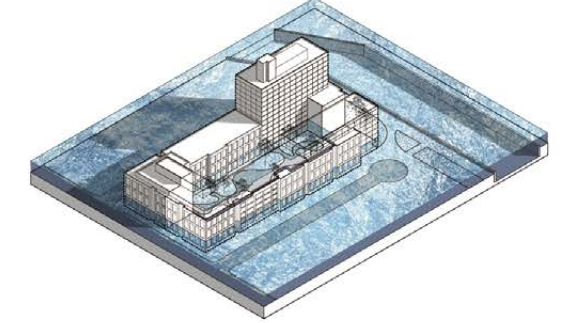
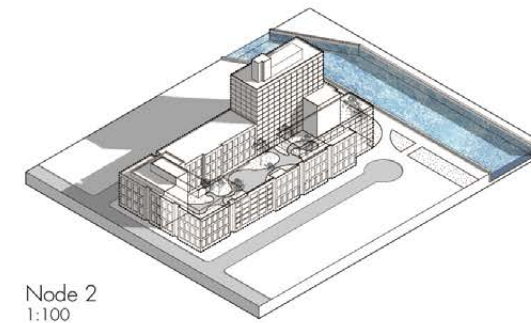
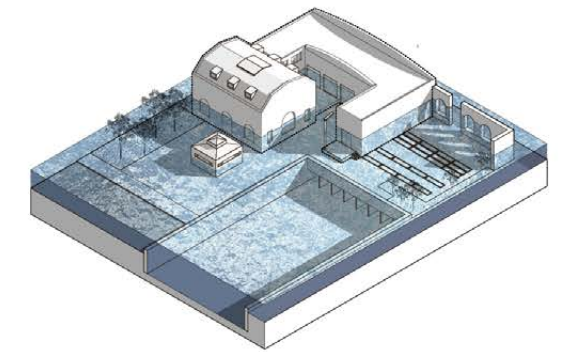




Existing condition



Existing condition
flooded



The abandon lot is transformed into vertical exit, connecting two levels of the highway.

The enclosed and massive space of mixed use opens up with landscape for community gathering.

The residence building is lifted. The ground is brought in a lively playground.

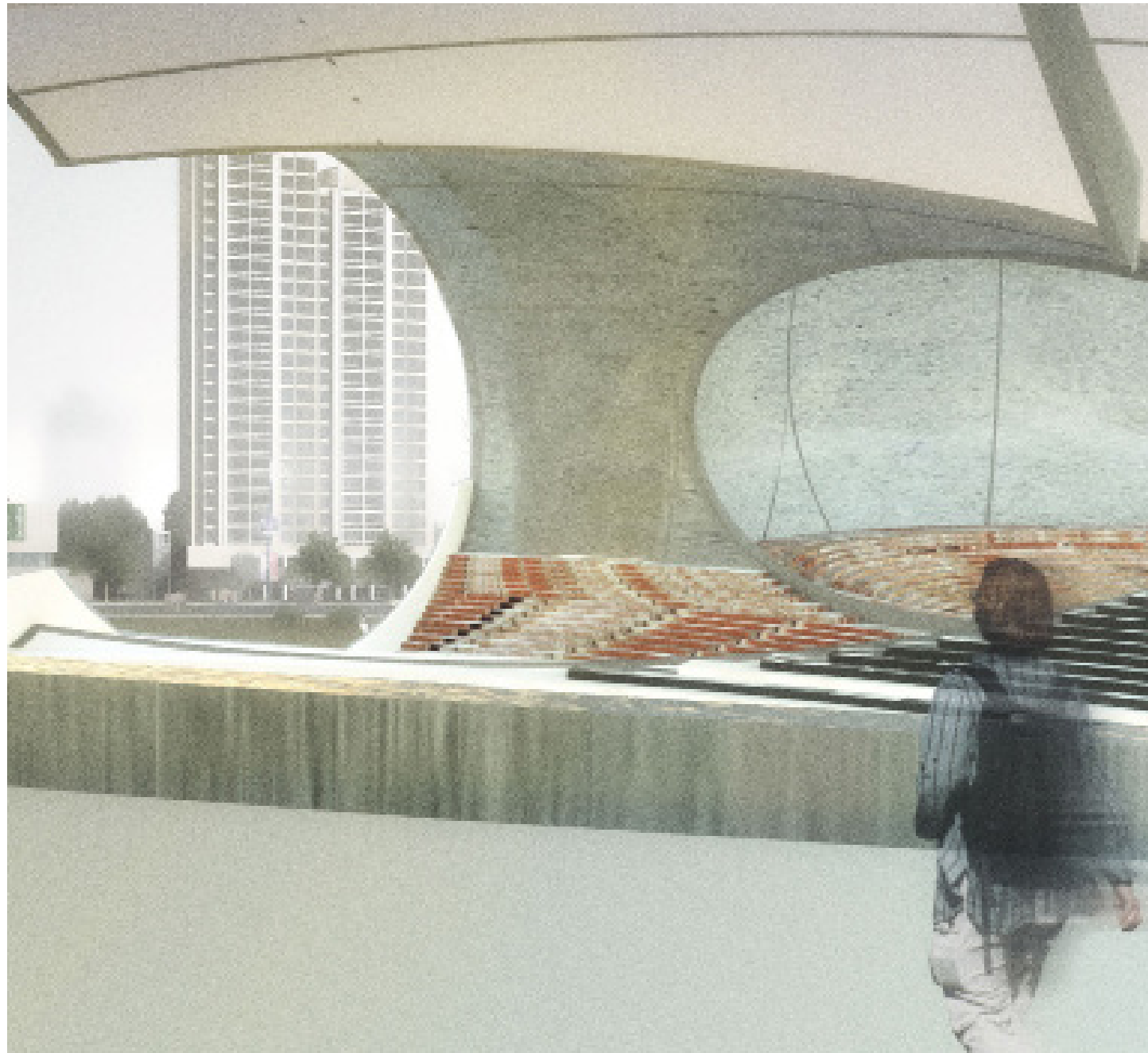
The HVAC plant and its work space are added a well-lit green house and roof garden.

When water comes, it provides possibility for a new kind of transportation: boat, and serves as launch spot.

When water comes, it transforms into garden and urban farm, providing greenery and local food.

When water comes, it is filled up and becomes a park of swimming, diving, and sliding.

When water comes, the greenhouse adapts into working space while the lower level is assigned for mechanics.



2. Inside Out

Design, Digital Technologies and the City
From Image to Building
Fall, 2018

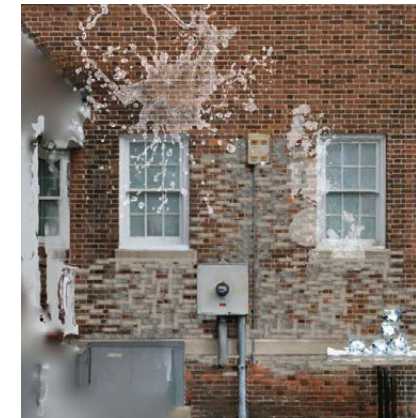
What is the impact of contemporary technologies on the development of our cities? What is the future of building and construction and how does it have impact on the way we design? From 3D Printing and robotics, to scanning, to BIM and mass customization, technology is playing a critical role in transforming the way in which the built environment of our cities is designed, constructed, and occupied.

This project asks critical questions of the role of technology in how we design and construct a building; questioning what can and should be done to achieve aesthetic, experiential, and thought-provoking architecture.

1. Photogrammetry



2. "Composite" effect



3. Experiment

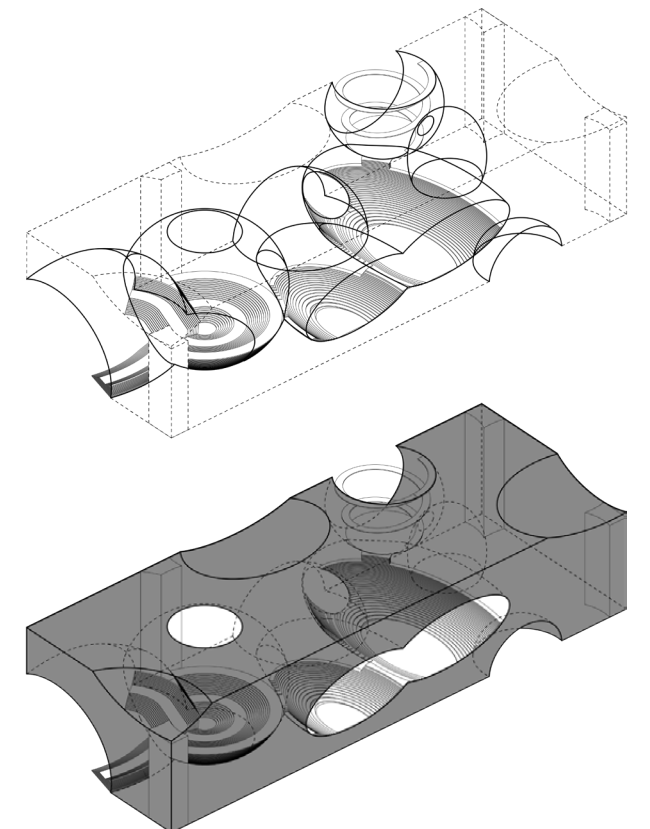


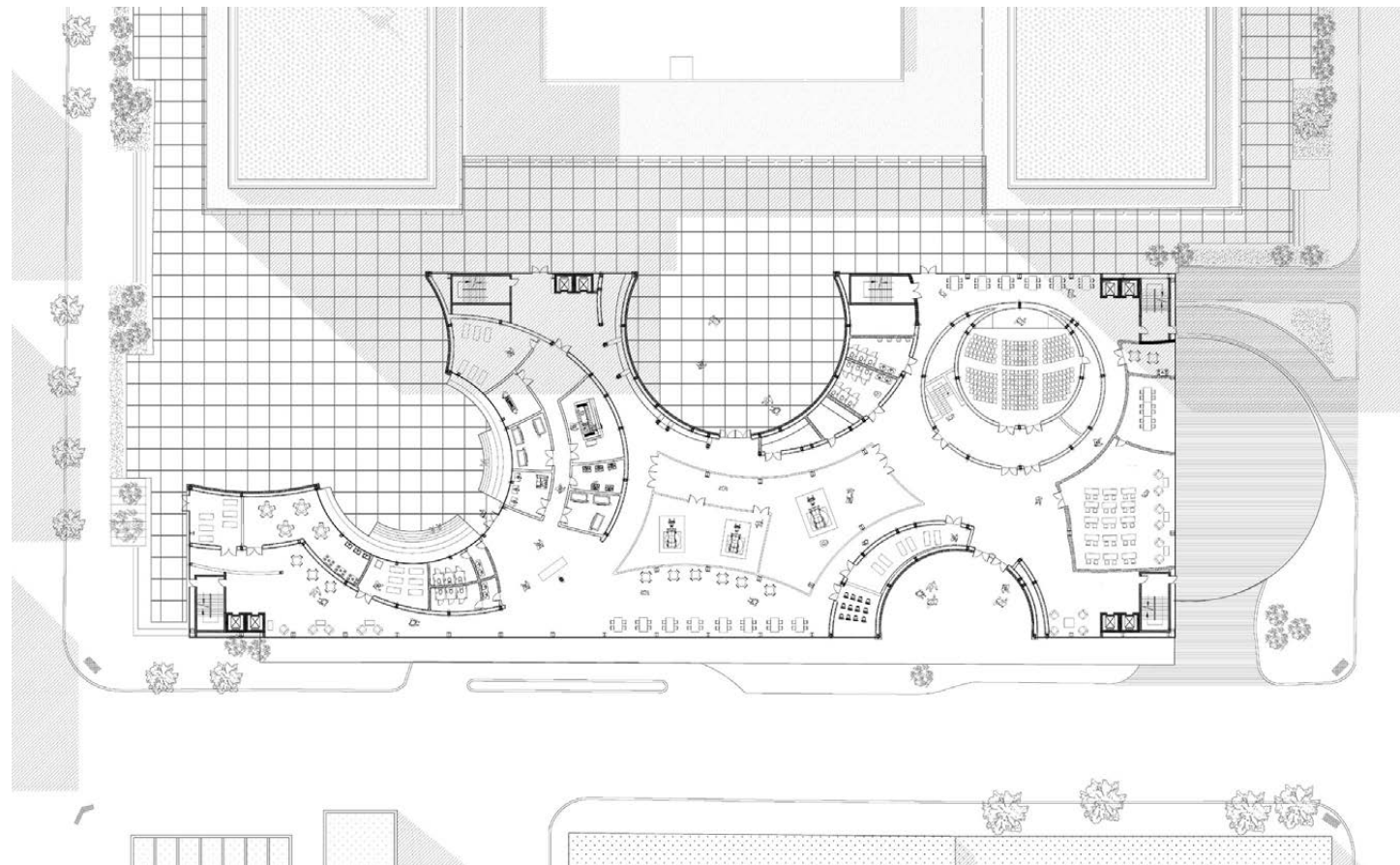
To start, an ordinary façade is documented by the act of photogrammetry. Different materials of brick, metal, and glass on it are composited and transform with the impact from environment elements of sun, wind, and rain. This façade includes at least two layers - the interaction of different materials and the interlacement of different physical states. The contradict and superimposed outcomes are varying and unexpected in multifold connections.

Further experimenting, three kinds of materials are chosen - concrete, wax, water. Water as ice was formed first and being solid at the beginning, concrete and wax were poured later separately in the state of fluid to join with ice. After the process, concrete and wax were cured and cool off, while water melted and flowed away. This process allows not only the exchanging shapes of different materials, but also the states between them.

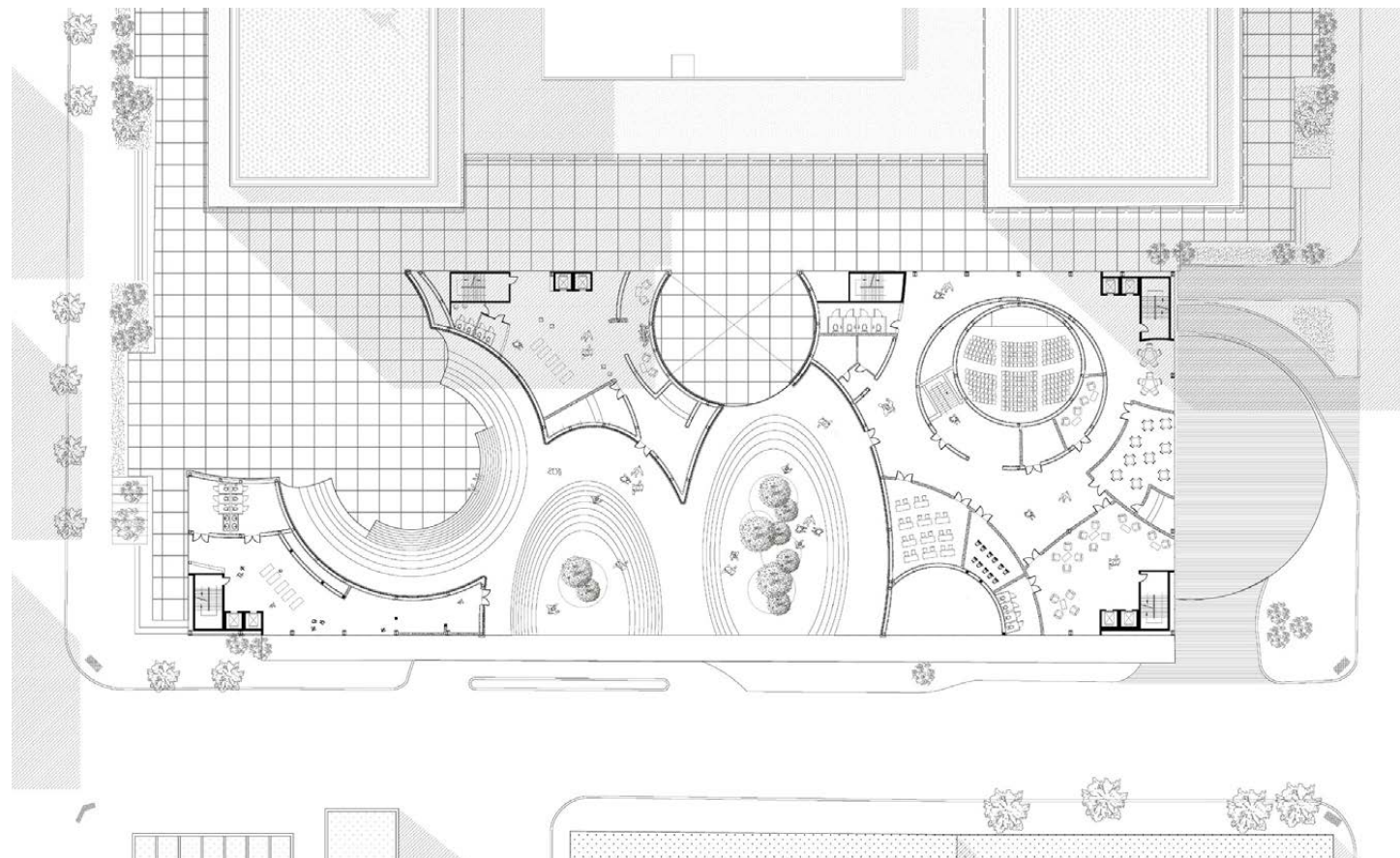
To apply the tested idea of material experiment, the project proposal is that, solid as the interior that is carved out by a continuous void as outside both from ground level to roof top and from back to front. The outside space is introduced into and incorporated with interior landscape through Inside Out.

4. Design concept - Inside Out

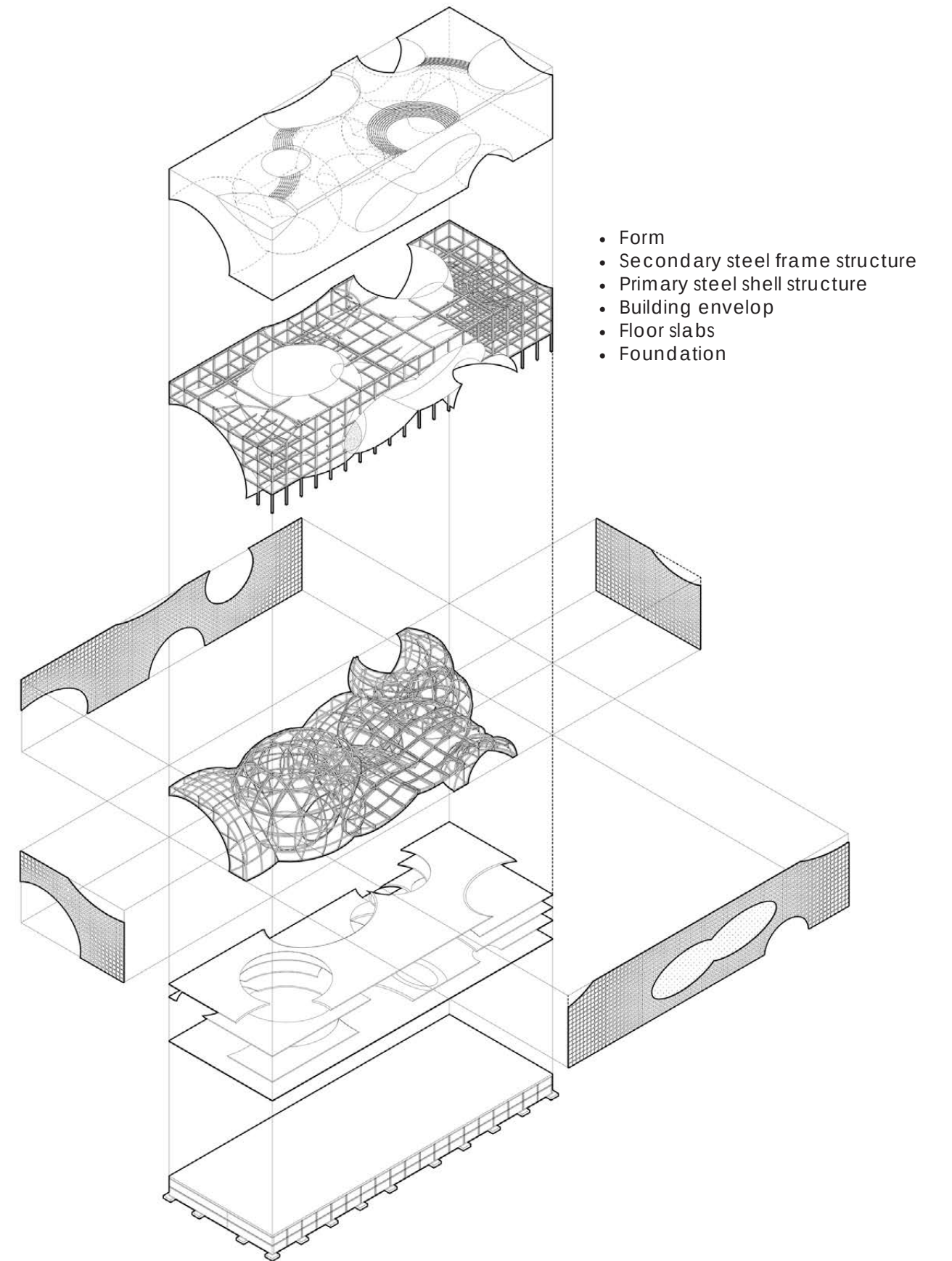




Level 1 Plan

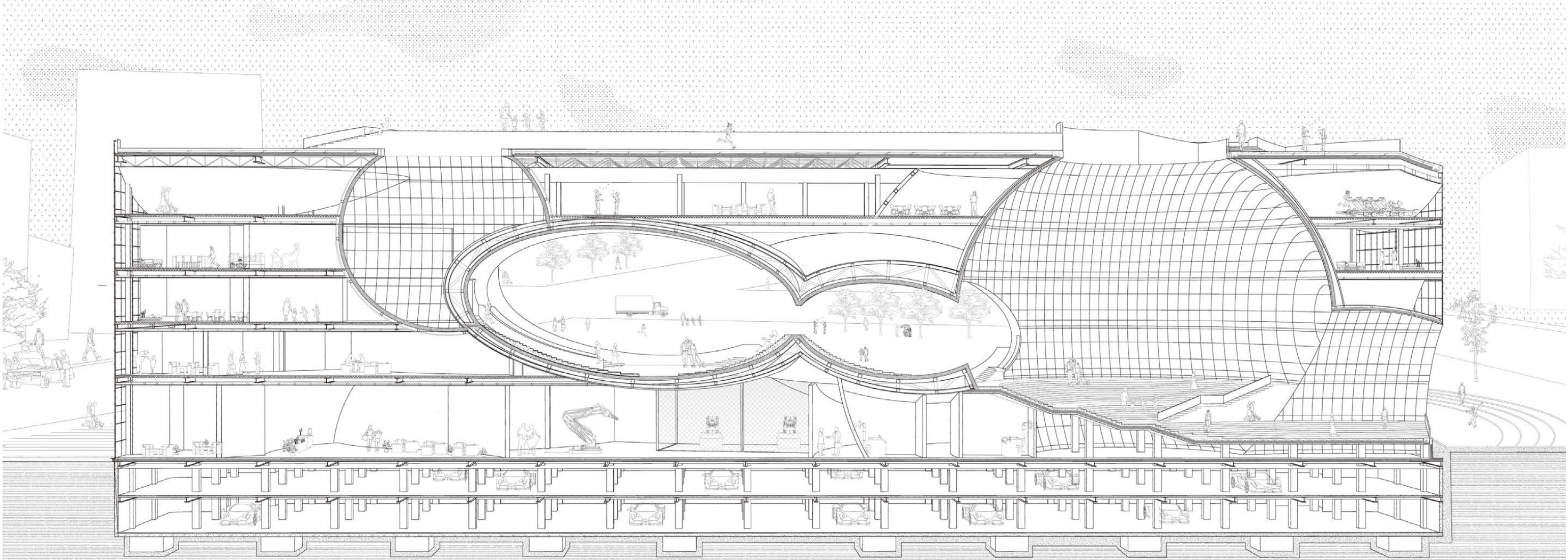


Level 2 Plan



SITE

The existing Tech Garden in downtown Syracuse is the site of the project. It is the region's growing business technology incubator, offers programs, resources, grants, start-up investments, coaching mentorship, and management expertise in light of the regions decline in factories and manufacturing. The Tech Garden promotes collaborative space for entrepreneurs to come together, share resources, and discuss ideas.





3. Expo 67 Playground

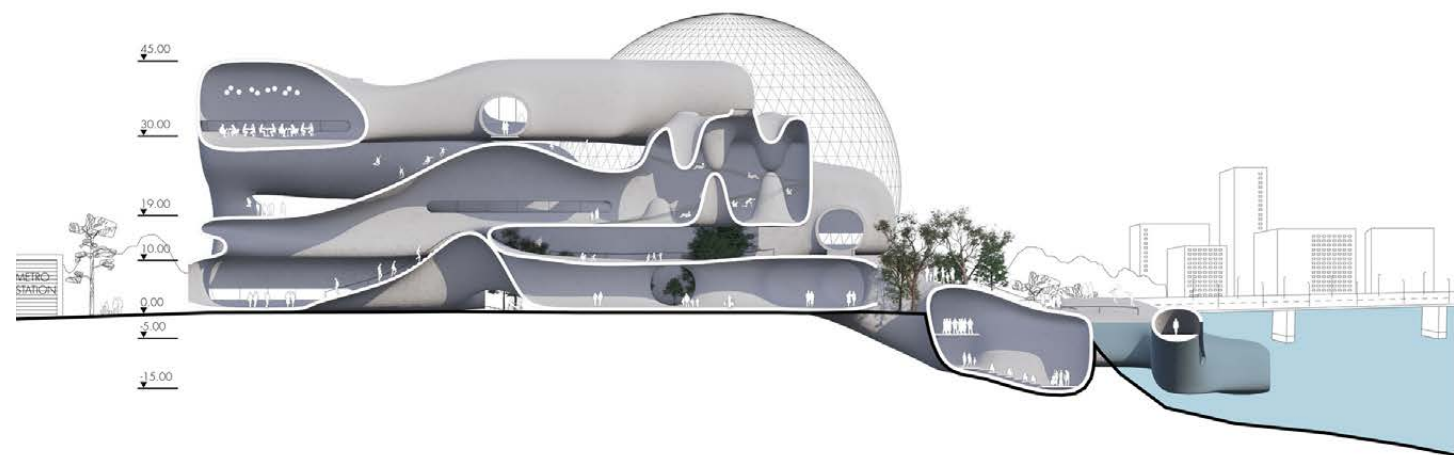
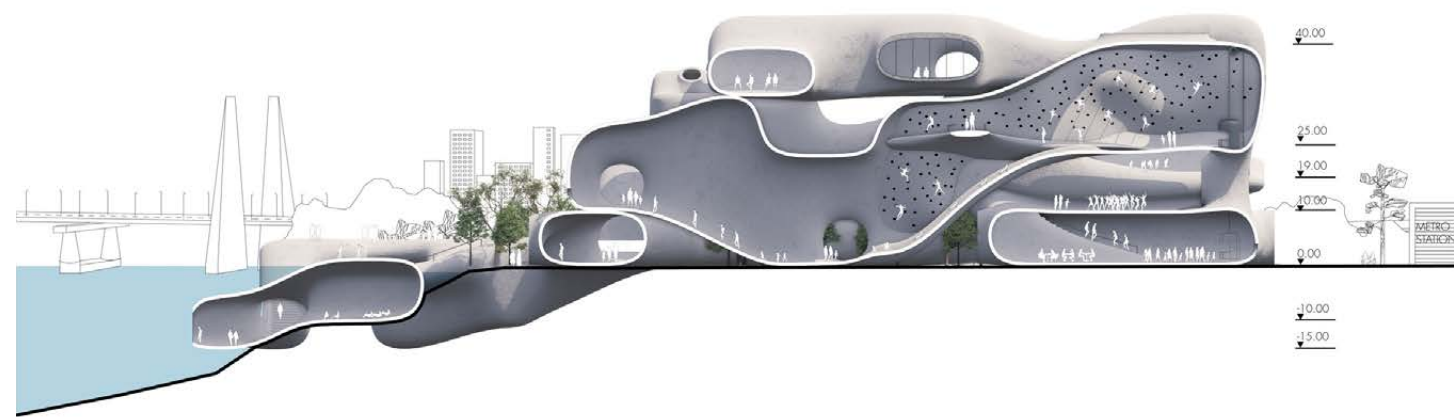
Interior Urbanism
Atrium Design of Post-Fordism
Spring, 2018

Urban architecture, when intensified with a composite of programs and activities, and involuted from the exteriority of The City, becomes a miniaturization of urban space, or, Interior Urbanism. The search of the project begins at the confluence of culture, commerce and technology, to investigate and articulate the latent design consequences of Post-Fordism, through the tools of computational design and fabrication, the aim of which being to articulate a contemporary expression

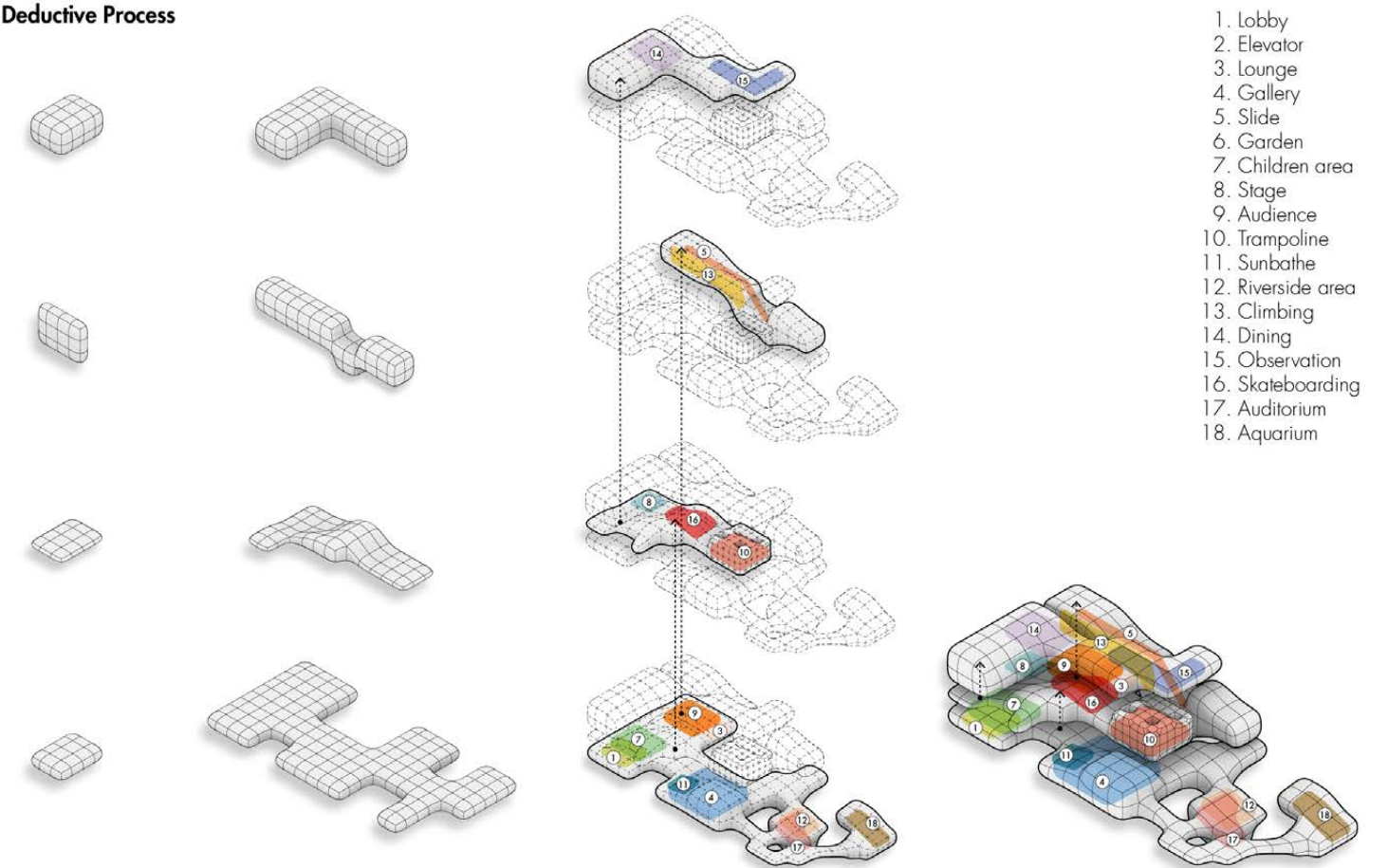
of heterogeneity.

As the site of this practice, Expo 67 in Montreal was striking for its global culture impact. However, even though a series of events were held and intended to bring back its past glory, it's lost nowadays. To provide as one of the possibilities, the design is using parametric languages to propose an urban playground for new generations and echoing the modernity in 1960s.

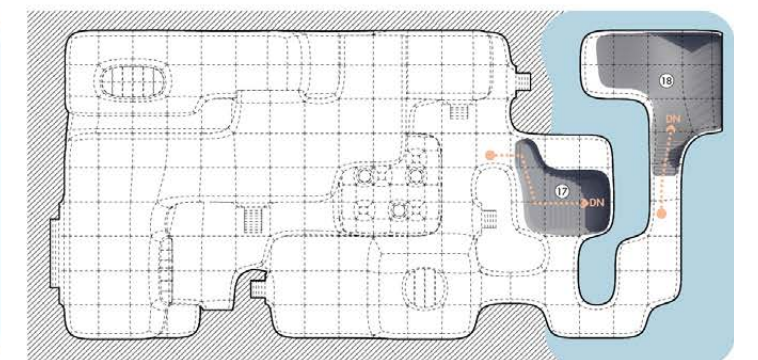
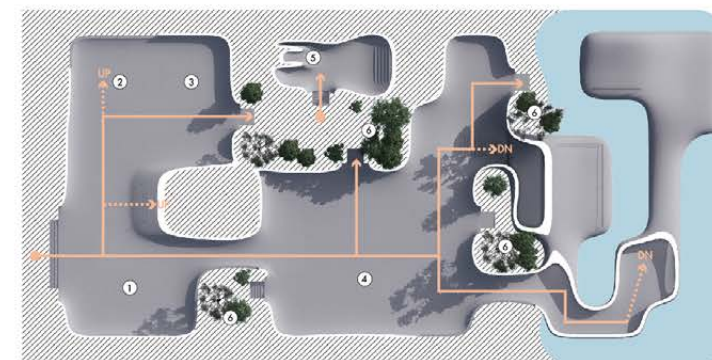
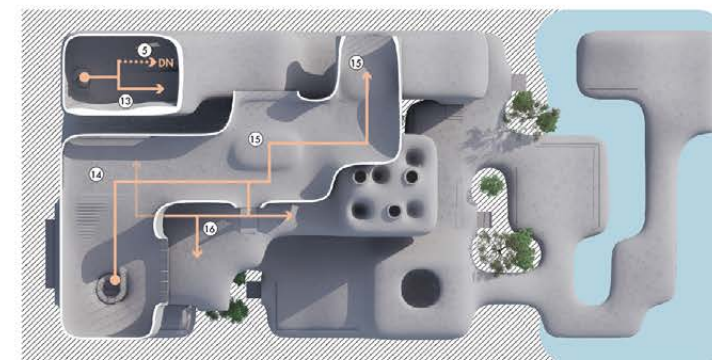




Deductive Process



Circulation Analysis



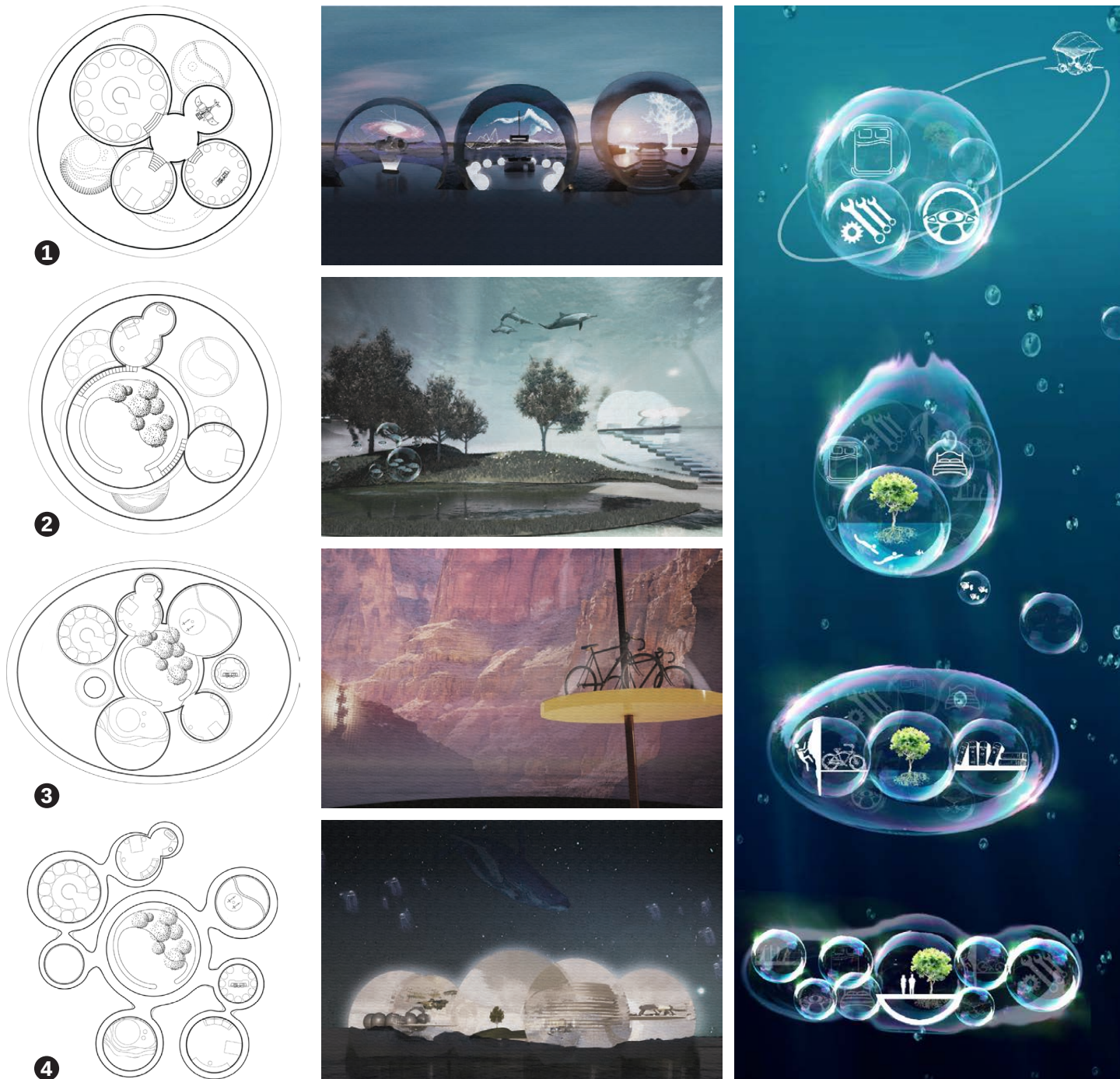


SUPPLEMENT

Lily's Pad

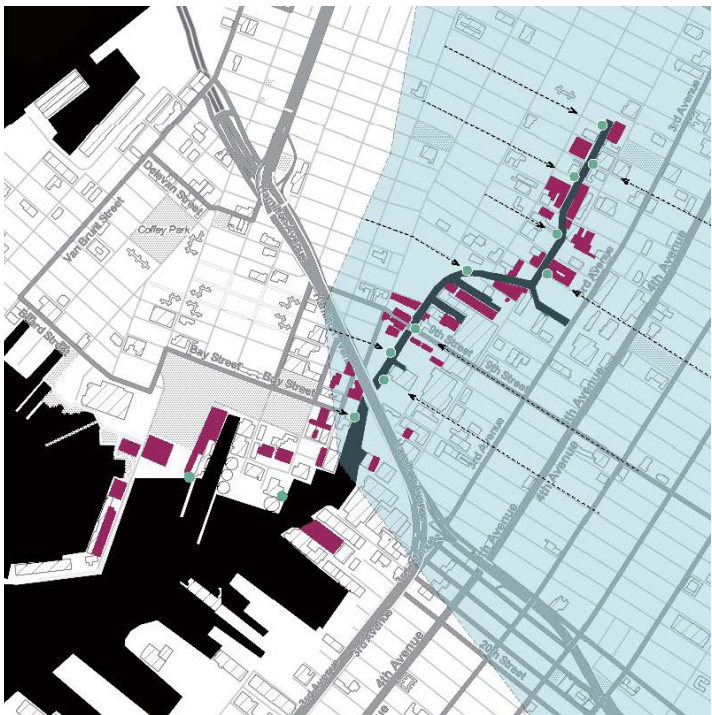
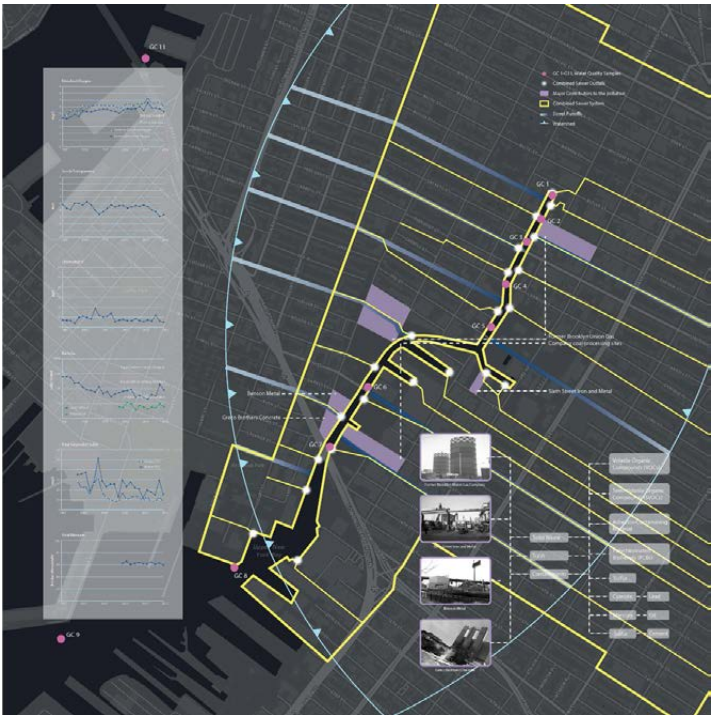
Impending Certainties
Hypothetical Futures of Architecture
Fall, 2017

Lily's Pad is an apparatus that maintains Lily's romantic and humanistic past, and technological and artificial intelligent reality for her living needs. A travel period of this apparatus starts from water surface to underwater world. The apparatus exists in a way that water is the dynamic space division and the scale of each bubble changes responding to surrounding physical environments.

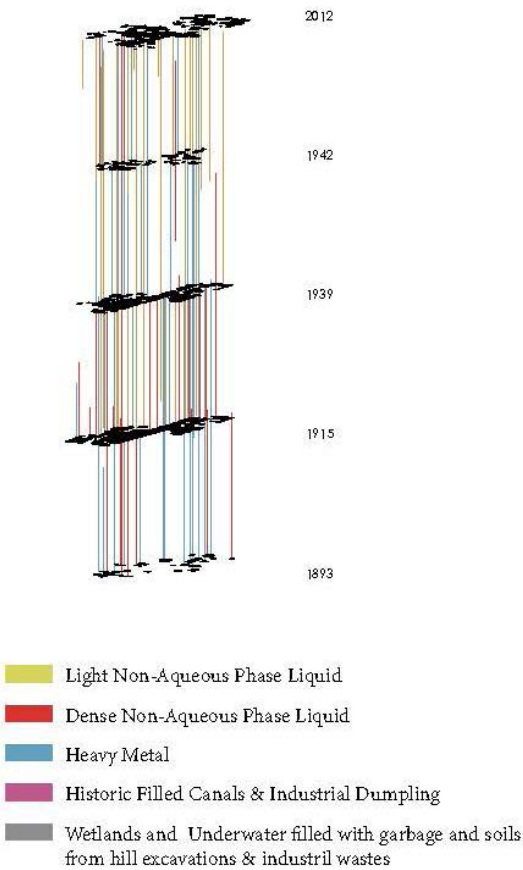


Mapping Gowanus

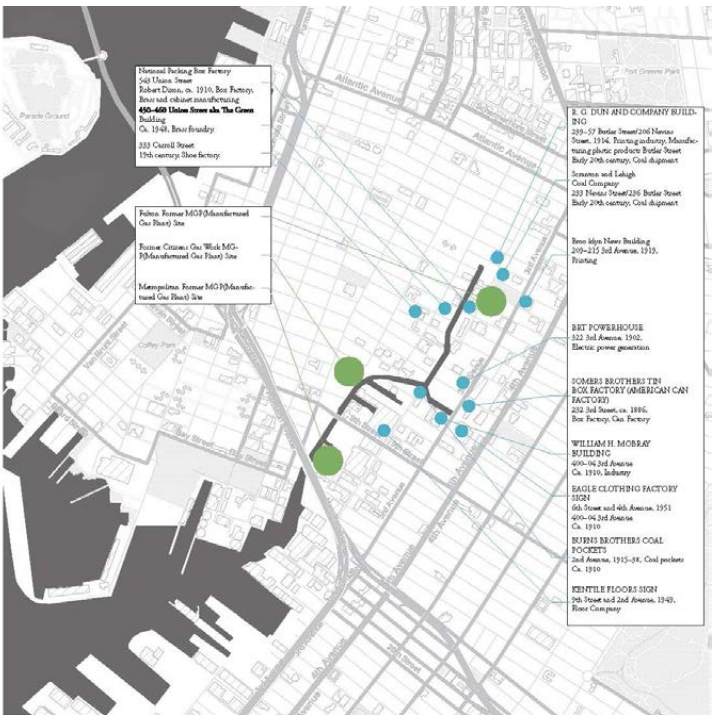
Research was conducted to map the current pollution of Gowanus Canal in Brooklyn, NY as a practice. After diligently searching and analyzing historical data, the results show that industry development is a major contributing factor. The lands of Gowanus Canal are a mixture of trash and soil, filled with dumping waste. Water washes contaminants into the canal without treatments and the quantities of microorganisms show the poor quality of canal water.



Historic Landfill & Industry Pollution



Resource:
Chemical History of Gowanus, (Public Laboratory, 2012)



Architecture vs. Media

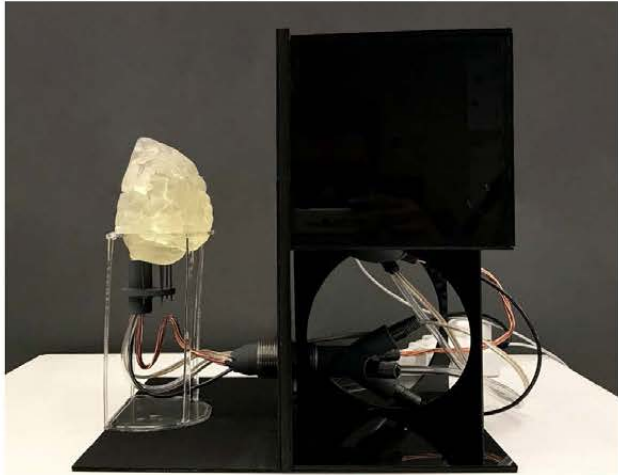
Movie GHOST IN THE SHELL was studied due to its multi-layered narrative. Diving deep into the context of cyberpunk, the relationship between the main character and the world she is in, and physical components and soul, are interpreted and visualized by technologies.

GHOST IN THE SHELL

SHELL

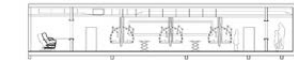


GHOST



1 MAJOR'S HOME

Major, who is the Main Character in the movie, is a fully cyborg and cybernetic organism. Every part of her body is replaced by mechanic body except her brain. The blooming flat acts as a bed; a charger is hanging in the room nearby; there is no television or dining space, but an



2 DOCTOR'S TREATMENT ROOM

It is a bright open space with three beds, robot arms, and 3D printing device on the top of the room. It is very unlike current hospitals which are covered with doctors, nurses, and equipment. The doctor operates surgeries and inspections mostly in this room on her own. There is no screen in the room since the doctor has a Cyber Eye, which can directly connect to computer.



3 SECTION 9 MEETING ROOM & INTERROGATION ROOM

The meeting room is clean and cold with a big hologram in the middle of the space only. There is the similar situation in the interrogation room, where the Section 9 members have advantages of interrogating criminals without getting in the room physically.



4 HANKA'S COURTYARD

The room is at the top of Hanka Robot Corporation's office building. It is very unusual because it is a Japanese courtyard where a half cyborg is living in. It has an opening at the ceiling allowing rain and skylight to come in. It emphasizes the diversity and complexity of programs in Cyber-Punk world.



5 MOM'S HOME

The home is ordinary in high density cities like Hong Kong or Tokyo. It is small, homely, sunny but in order, and had a tokonoma-like space with a tiny temple in it.

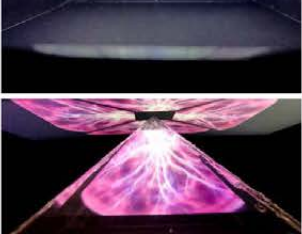
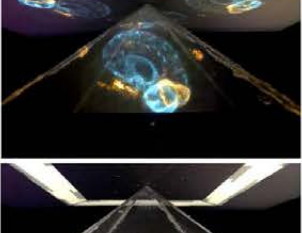
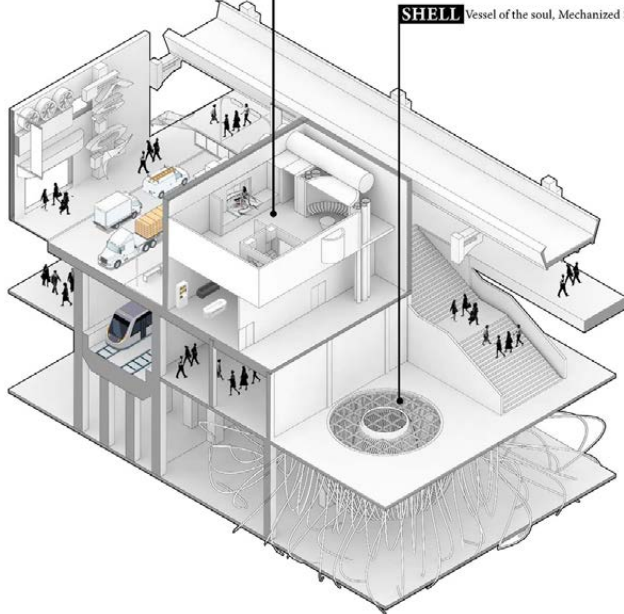


6 UNDERWORLD

Individuals in this room are those who lost self-consciousness; they are shells without ghosts. The underworld is contradicting to Major's room. Though both rooms are cold and inhuman, the underworld has its unique and brutal distinct. It is full of wires connecting brains of each person and ending up in the middle with light coming from the top. The space is always dark; darkness occupies most of the space.

GHOST Soul, Mind, Memory, Emotion -- Humanity

SHELL Vessel of the soul, Mechanized Skin, Hard disk -- Body



Sketch

