



Portfolio

Michelle Liu
2023

Michelle Liu

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Education

University of Toronto, Master of Architecture

AUG. 2021 TO APR. 2024

University of Toronto, Honours Architectural Studies

SEP. 2016 TO JUN. 2020

B.A. Arch, Distinction
Architectural Design Specialist
Urban Studies Minor

Skills

Languages

English (Native)
Cantonese (Fluent, Speaking)

CAD

Rhino3D, SketchUp, Vectorworks

Tools

Illustrator, Figma, InDesign,
Photoshop, Premiere Pro,
Processing, Grasshopper,
Revit, ArcGIS, Microsoft Office

Development

HTML/CSS

Model Experience

3D printing (FDM & Binder Jet),
Laser cutting, Woodshop

Achievements

McMaster Design League
UI/UX Designathon 2020

Gangtou Competition 2020
Q-Village Gangtou Design

Qwiklabs Quest
Google Cloud Essentials

LululemonxDaniels 2019
Meditation Pavilion Build

CTBUH Competition 2018
Tall Building Design

Interests

Community Involvement
UI/UX Design
Film Photography
Gardening

Work Experience

Steven Fong Architect, Architecture Student

MAY. 2022 TO PRESENT

Prepared IFC and shop drawings for multiple residential/commercial projects.

Maintained construction and permit drawings, documents, and records for past and current projects; performed other duties as assigned.

Crestfallen, Barista

MAY. 2022 TO SEP. 2022

Prepared and served coffee, tea, and alcohol orders per customer requests; operated using Square POS system.

Kept equipment operating by following operating instructions, troubleshooted breakdowns, and maintained inventory/supplies.

JAJ Flooring, Digital Designer

AUG. 2021 TO SEP. 2021

Created PDF catalogue of hundreds of inventory items for client reference and marketing purposes.

Designed website interface with Wordpress publishing in transition to incorporate an e-commerce storefront to the business.

University of Toronto Faculty of Architecture, IT Plotter Specialist

OCT. 2019 TO APR. 2020

Student support staff specialized in large-format prints in addition to maintaining the computer labs, assigned office copiers, and supply stock with little direct supervision.

Maintained an efficient working environment during times of high demand by providing thorough problem resolution for students and faculty staff.

University of Toronto Advancement, Student Telefundraiser

JUL. 2017 TO AUG. 2018

Initiated outbound phone calls to donors and alumni according to a designated funds schedule and generated awareness of the university's resources.

Raised thousands of dollars for scholarships, bursaries, and subsidiary funds while abiding by a strict privacy policy.

Community Involvement

On Canada Project, Design Associate

NOV. 2020 TO AUG. 2021

Google DSC, University of Toronto Scarborough, Lead Graphic Designer

SEP. 2019 TO APR. 2020

cafe059, University of Toronto Faculty of Architecture, Barista + Cashier

SEP. 2019 TO MAR. 2020

Maker Society, University of Toronto Scarborough, Director of Design

SEP. 2017 TO SEP. 2019

DA Mentorship, University of Toronto Faculty of Architecture, Mentee / Mentor

SEP. 2016 TO APR. 2017 / SEP. 2019 TO APR. 2020 / SEP. 2021 TO APR. 2022

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01. Autonomous Housing Pods

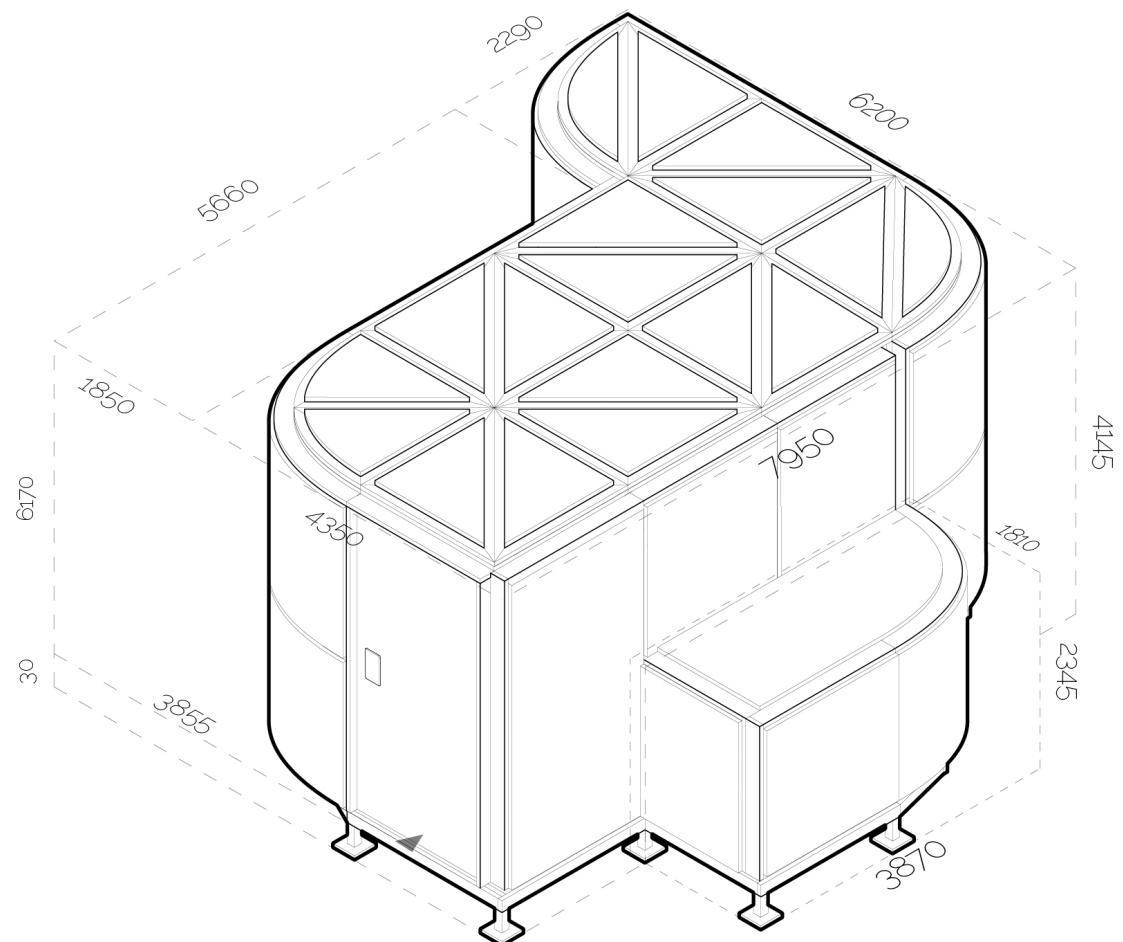
Course: ARC480 - Advanced Topics in the Technology of Architecture
Instructor: Tom Bessai

Case Study: Car-Boat-Bike

The pod is designed to be deployable, optimized, and autonomous – fundamental qualities chosen after intensive precedent research on automobiles, boats, and bicycles. The final pod design borrows fabrication methods from each precedent category whilst maintaining qualities of a deployable pod meant for any flat terrain.

The pod geometry was initially created as a series of boxes that was then inputted to Galapagos, a Grasshopper plug-in that takes a geometry and optimizes the form by maximizing volume with the least surface area. The Galapagos output geometry rendered curvy throughout, lending the final form as a mediation of the input boxes and curvy output geometry. This structure is then explored using frames to actualize the geometry; the final form has potential to duplicate, expand, and aggregate.

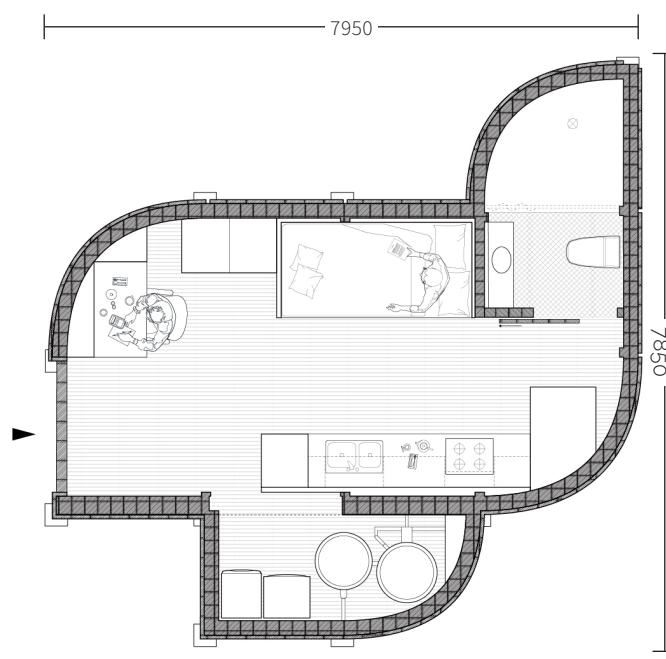
Collaborators: Christian Paez Diaz, Reem Khalifeh, Jo-Lynn Yen, Mina Yip, Pengfei Zhao



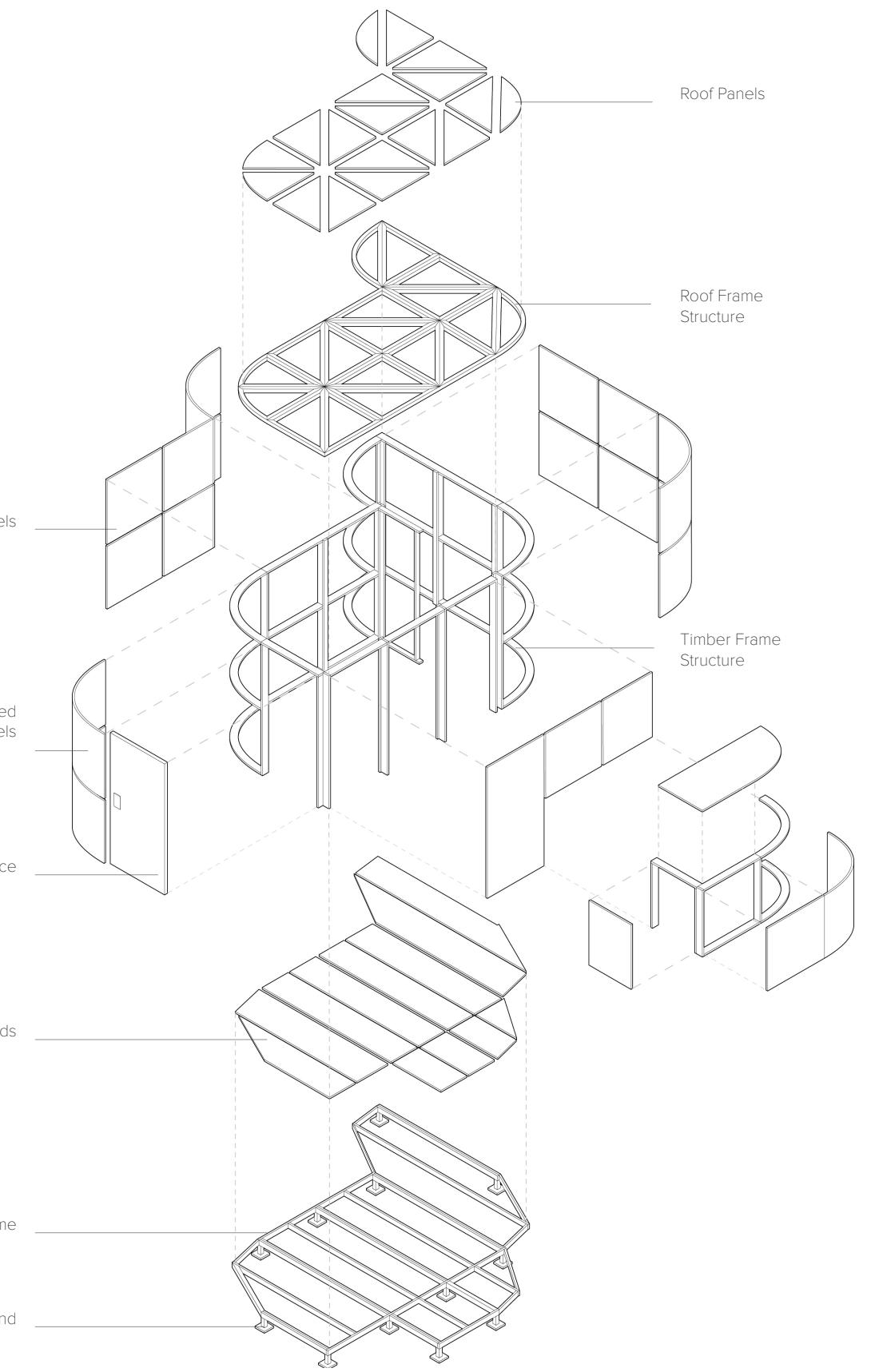
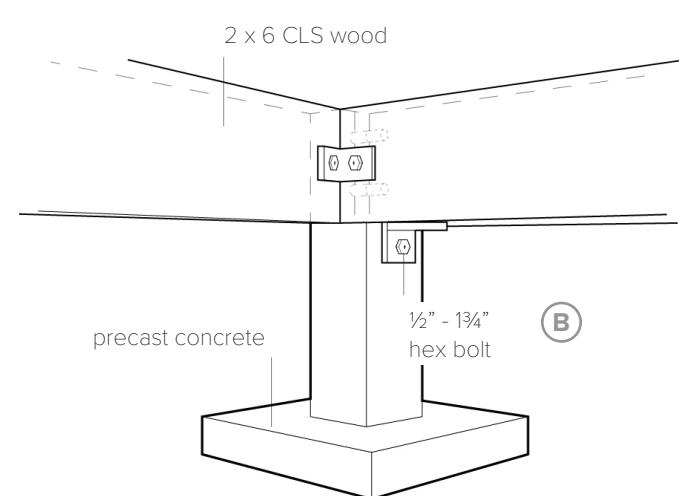
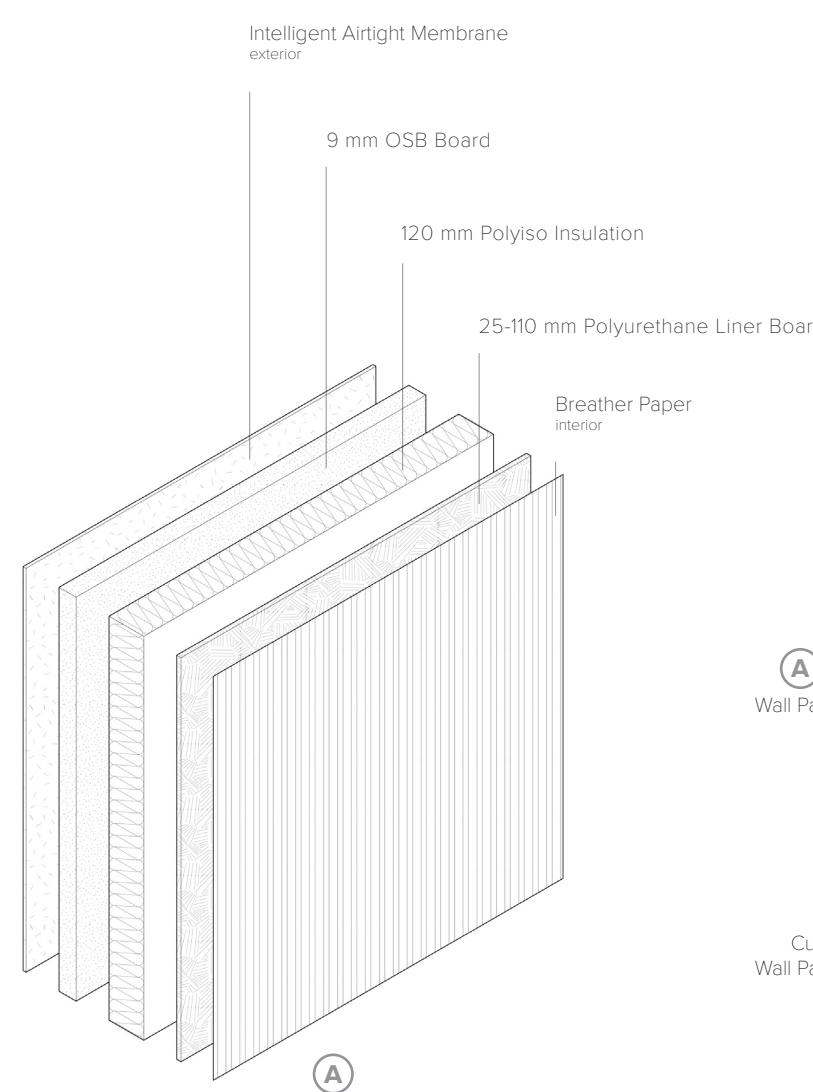
Final Pod Design



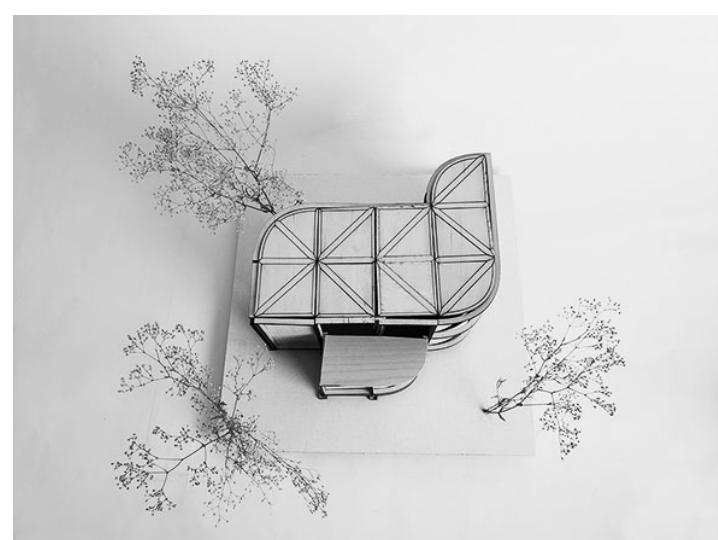
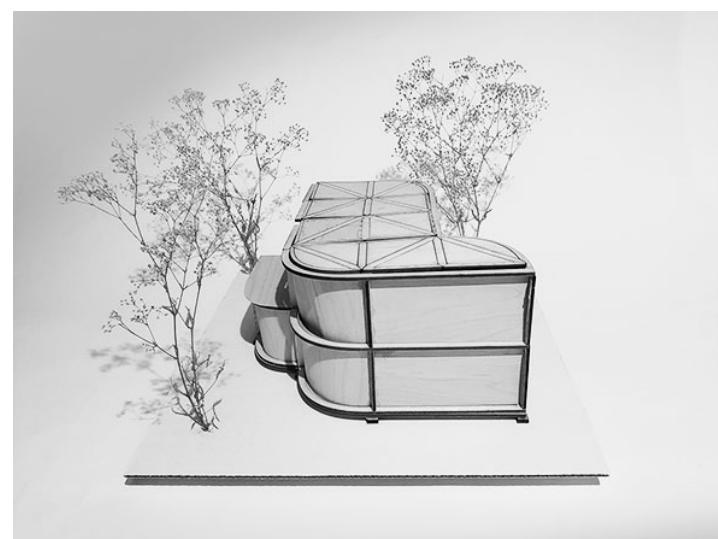
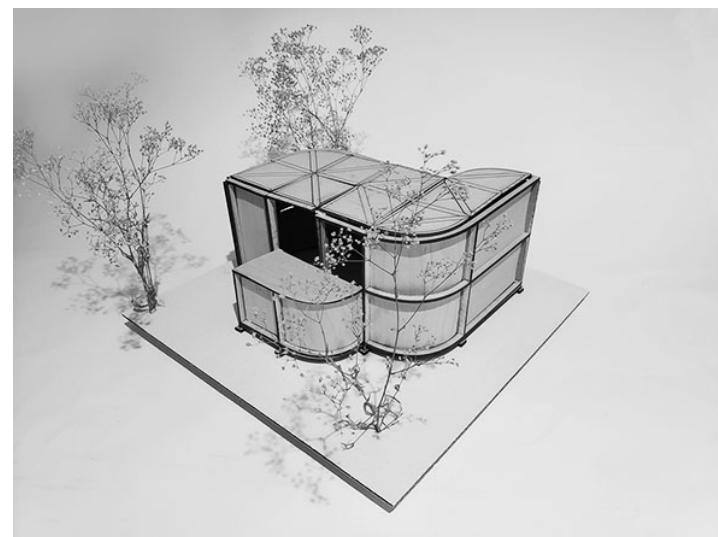
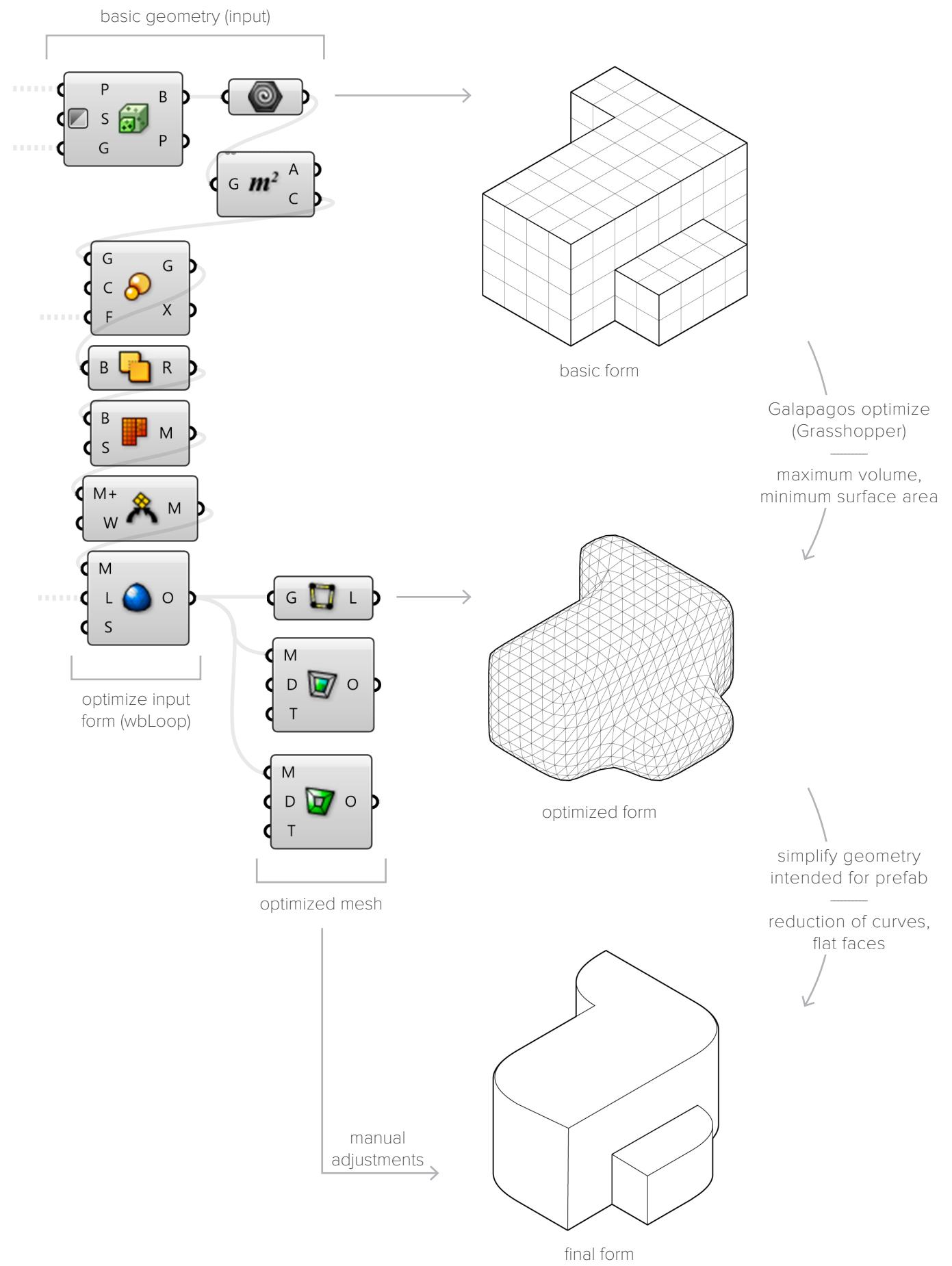
Sample Site Plan



Pod Plan



Exploded Construction Axonometric



1:50 Model

03. Urban Interface: Particle Net

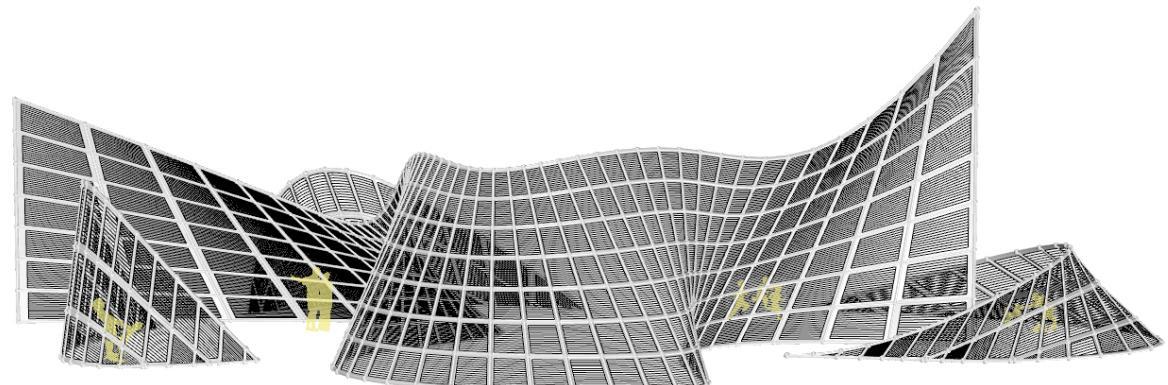
Course: ARC480 - Advanced Topics in the Technology of Architecture
Instructor: Simon Rabyniuk

Research Topic: Wind of 120 Days

The natural phenomenon called 'Wind of 120 Days' takes place annually between May and September in East and Southeast regions of the Iranian Plateau, demonstrating winds that range between 30 - 110 km/h. The proposal was made in effort to encourage local interaction by use of a sand particle net installation.

Sand storms in the region are exacerbated by the phenomena's high speed winds, producing the most persistent strong near-surface winds on Earth, and inevitably causing hardship to the inhabitants of the Iranian Plateau. The particle net encourages residents to embrace the environment by creating a localized area of protection. The particle net in its scale is a modern solution to protect local inhabitants, meant for any site in the region.

Collaborators: Eunice Cheung, Terence Lo, Derrick Wong, Cecilia Wu

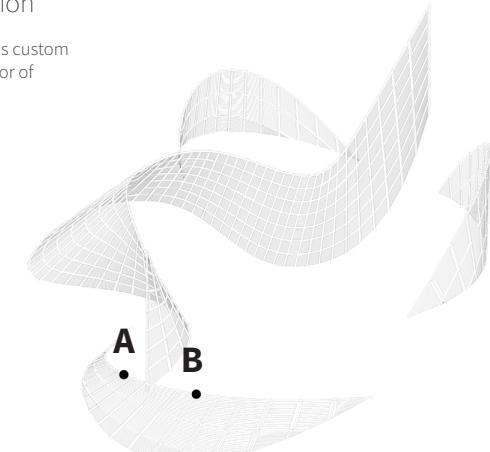
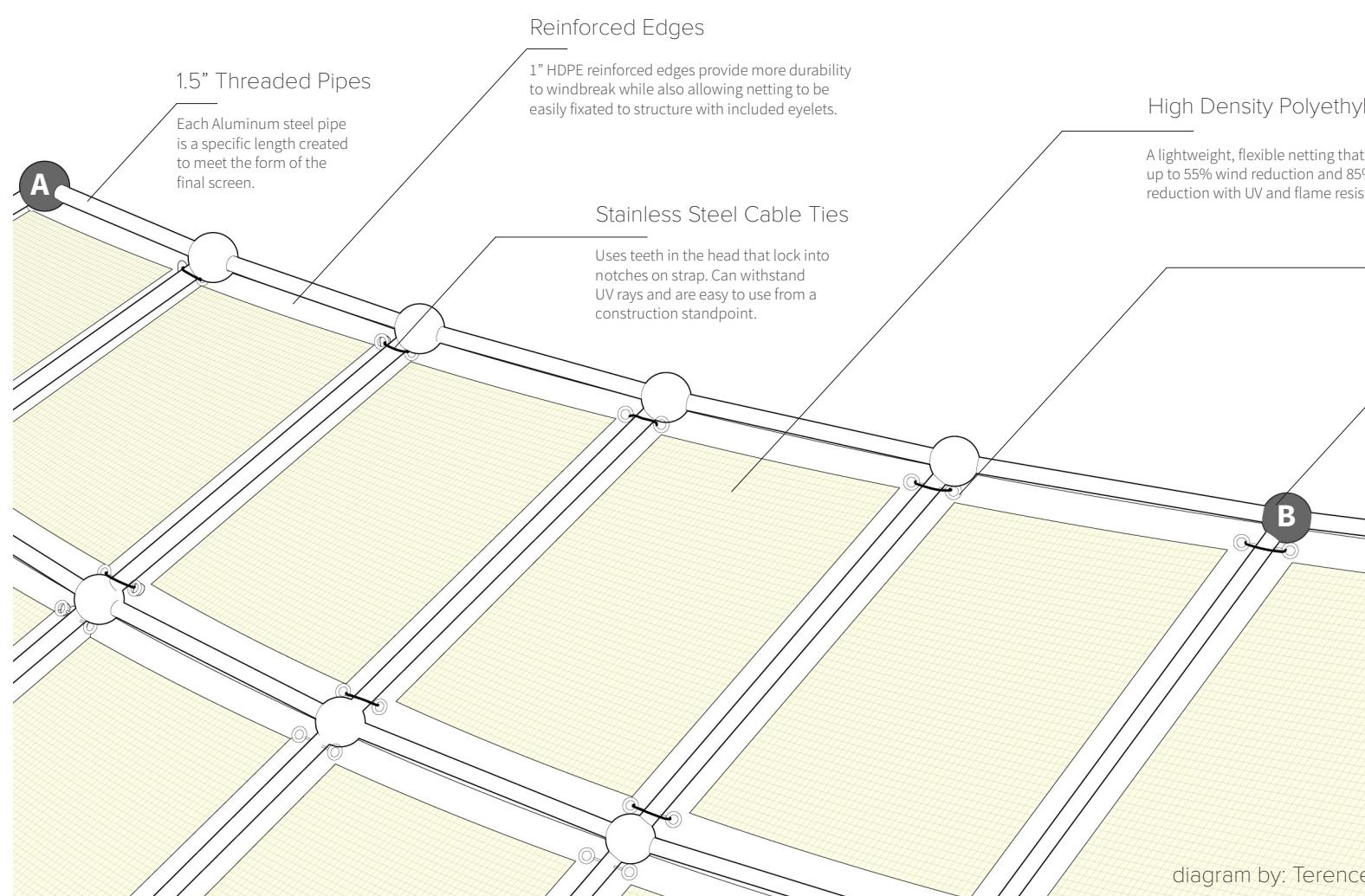
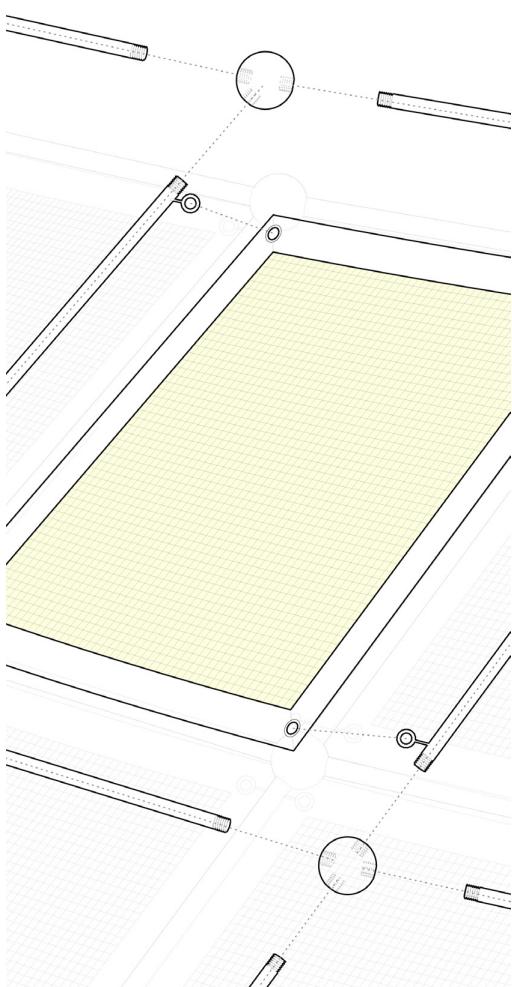
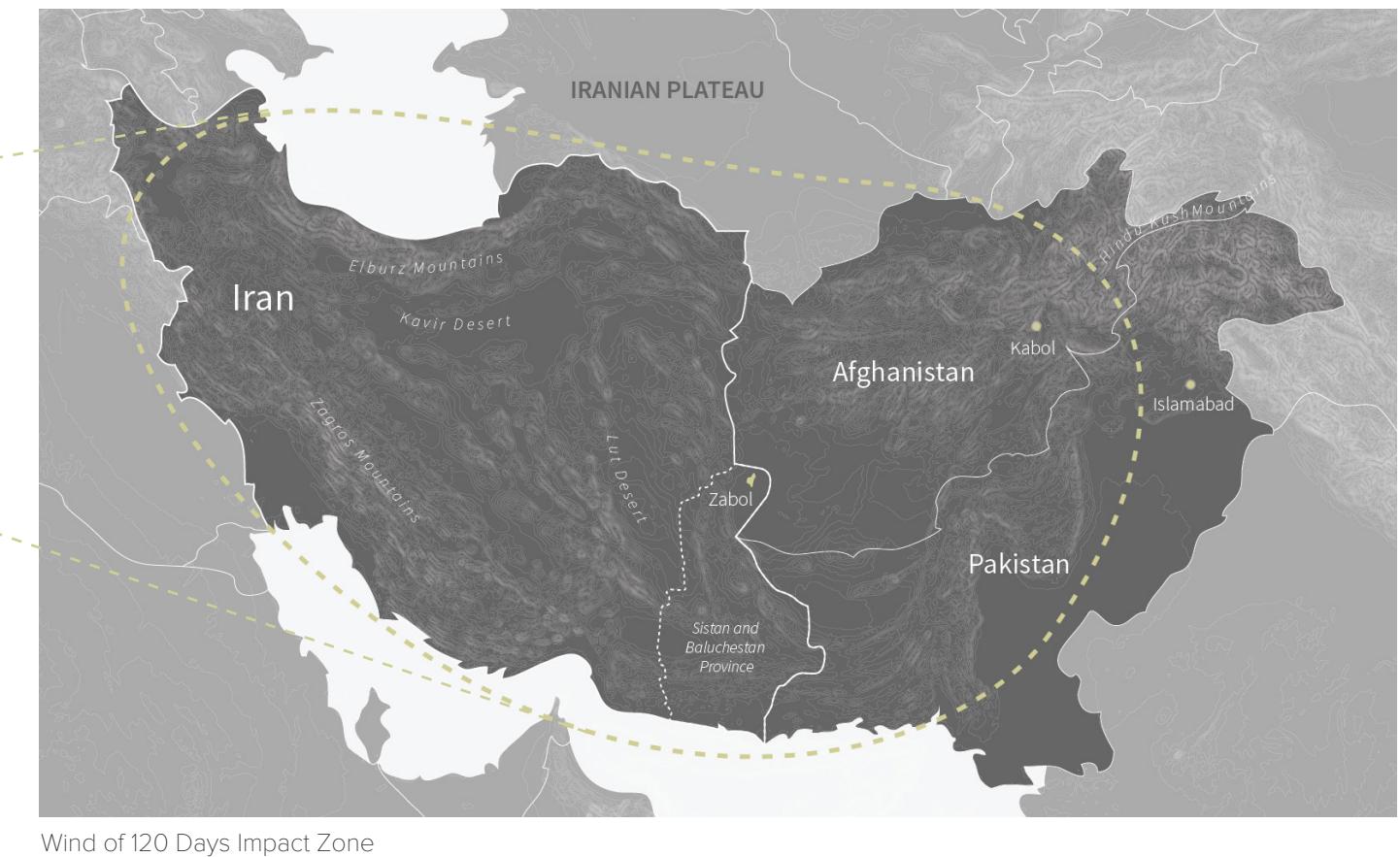
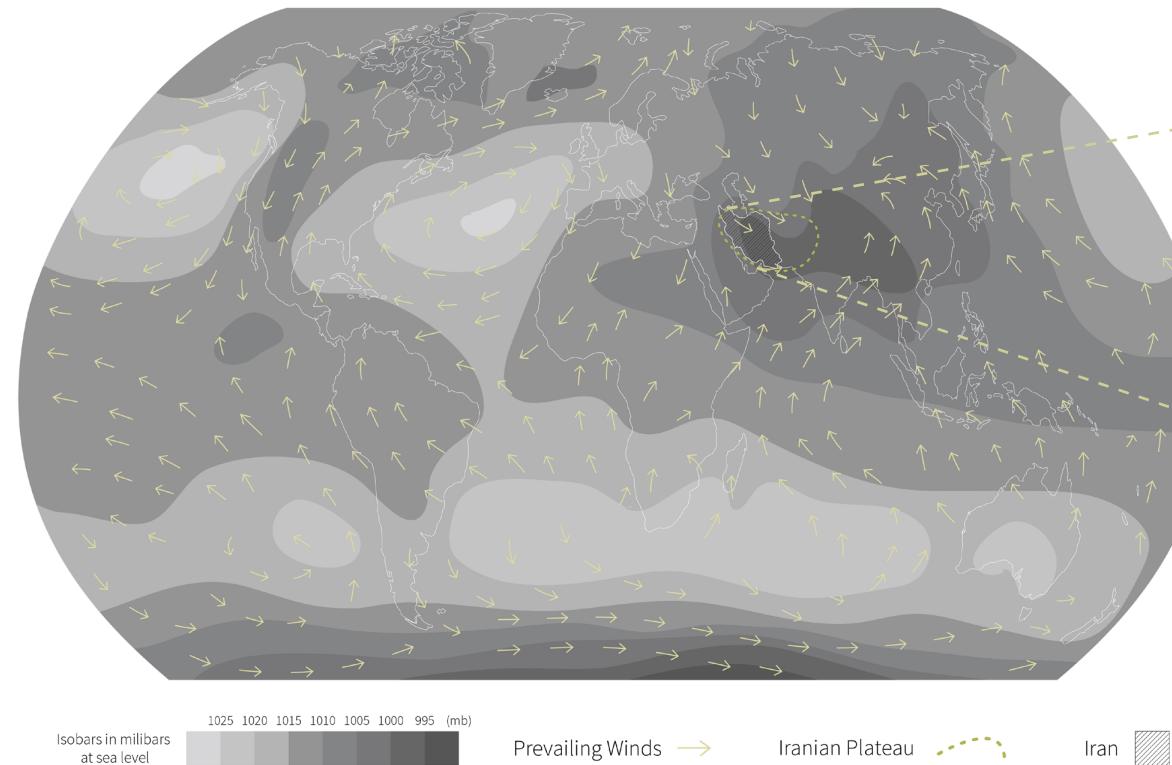


Particle Net



collage by: Cecilia Wu

Collage - Particle Net in Central Mosque Site



Particle Net Axonometric

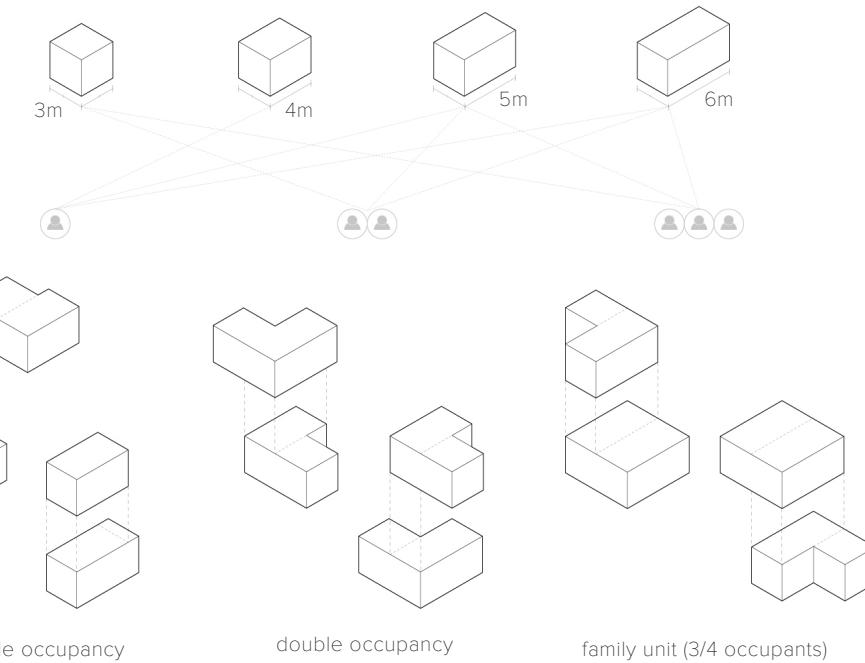
Particle Net - Material Diagram

Particle Net - Exploded Connections

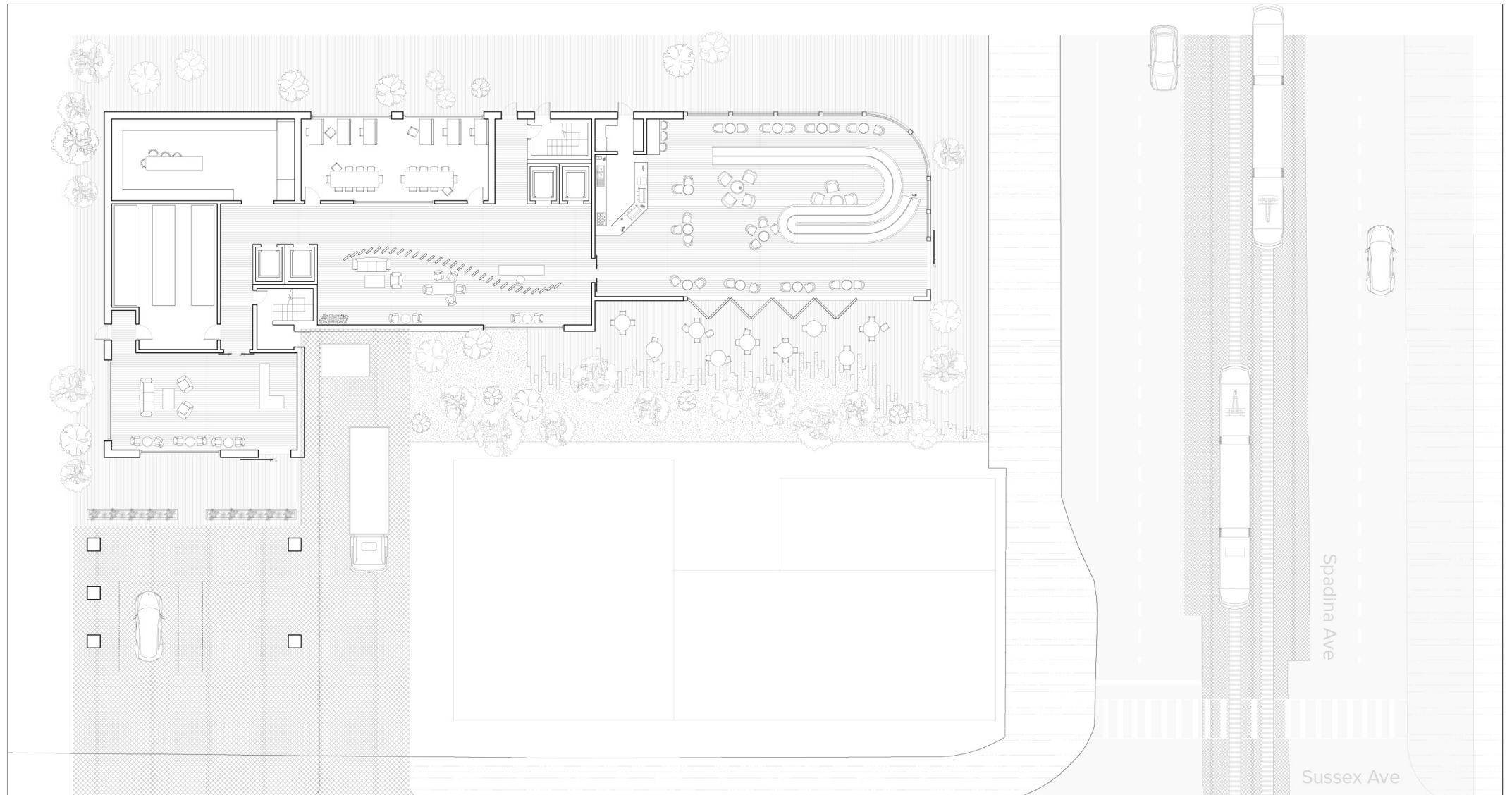
04. BlockA

Course: ARC362 - Architecture Studio IV
 Instructor: Victor Perez-Amado

Block A is a residential tower catered to students and students with families. The units are organized as compact blocks, where every floor is a different layout because of the various stacking techniques of the block units. The various units stack and aggregate to create unique corridor conditions – this excess space is then converted to storage and communal areas. Each residential floor has several of these spaces that range from study rooms to play zones for children - these common spaces are meant to embrace the diverse needs of the residents.

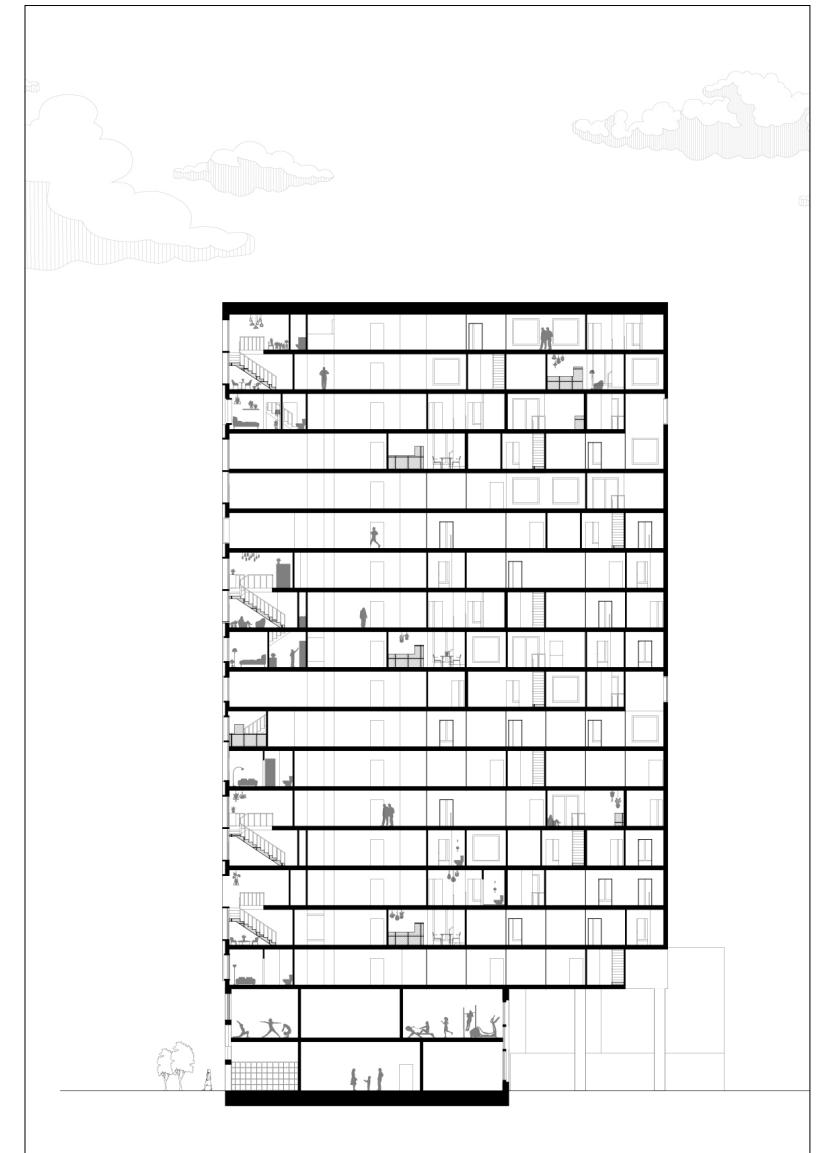


BlockA Axonometric



Site Plan ① 1 5 10 Meters

Location: Harbord Village Neighborhood in Toronto, Ontario



West Section



15th Floor Plan



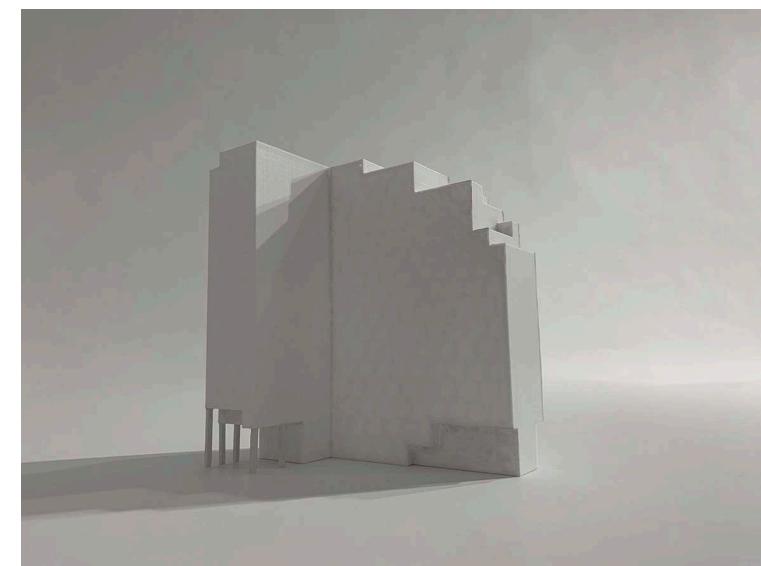
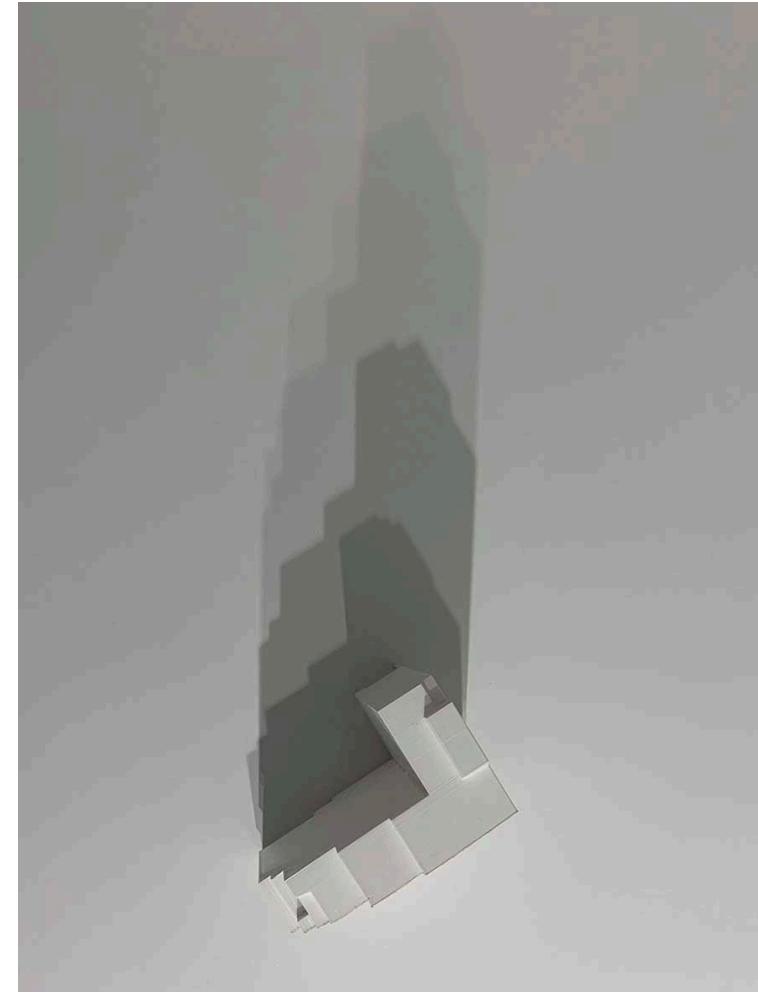
Unit Floor Plan



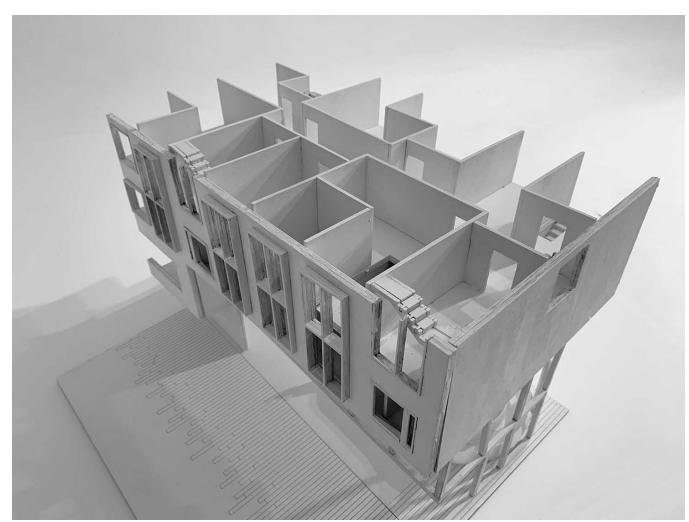
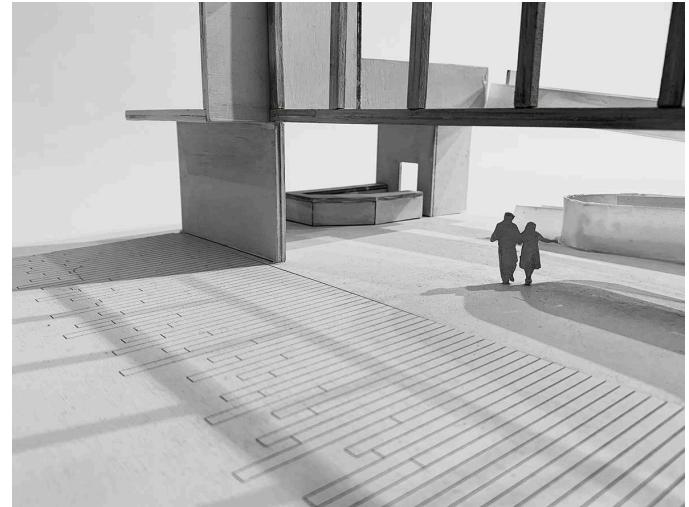
Exterior Collage - Main Entrance



Interior Collage - Common Area



1:100 Massing Model



1:50 Sectional Model - Main Entrance

05. Church of Community

Course: ARC1041 - Building Science I
Instructor: Ted Kesik

Historically, churches have been used as common spaces to practice religion and bring communities together into a single shared space. However, physical church attendance has declined over the years, leaving existing church buildings to become highly underutilized and sometimes even abandoned. The chosen site, Headford United Church, is an abandoned church located in Richmond Hill, Ontario, an affluent suburb within the GTA. Considering its locale, the church is repurposed and reintroduced as a place of gathering that is catered towards the surrounding community. This project introduces an urban garden, a sanitation facility, a workshop/tool share centre, and a communal kitchen that will bridge the gap between the different demographics that exist. Individuals of all age cohorts, from children to the elderly, will be able to make use of the various communal programs within the building. These programs are necessary to create affordable community-based initiatives for the public to have access to shared spaces, tools, and food. Most importantly, they aim to promote inclusivity by attracting people from different socio-economic backgrounds. The communal spaces allow for all generations to work and learn together, forming a partnership and support system within the community. The proposed new typologies within this project can be replicated and adapted to other underutilized or abandoned buildings and serve as a precedent for future projects of similar size.

Collaborators: Jessica Babe, Amelia Chung, Larissa Ho, Rachel Sau

1.0 Urban Garden



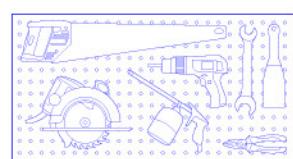
Accessible raised garden beds

In the suburban context, churches have plenty of green space and open land around the building. This space has the potential to transform into a garden that can increase community food access. Surplus crops can be sold for profit, therefore enabling a sustainable food system. This concept has been done by the Church of Our Saviour in Toronto and Christian Food Movement in the United States.

2.0 Tool Sharing & Workshop



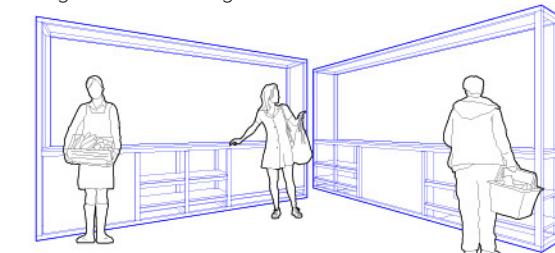
The Home Depot



Toronto Tool Library

Tool share and workshop is a space that encourages the exchange of knowledge, workshop facilities, and tool lending services. The Toronto Tool Library is a membership-based business for tool lending and workshop space meant for hobbyists. Commercial enterprises such as The Home Depot provide similar services, for larger tools geared towards professionals and businesses.

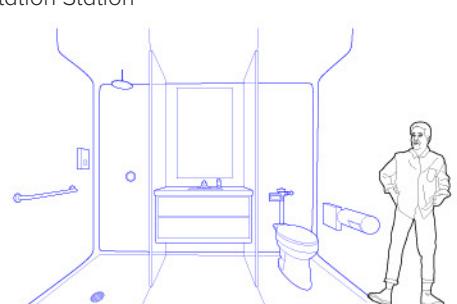
3.0 Community Kitchen Facility



Community kitchen design by mani Harikrishna Ravuri

The kitchen is oftentimes referred to as the heart of a home, a place for gathering, a place for people to feel comforted, nurtured, and healed. Community kitchens is a concept that has been done in cities across North America, although catered to entrepreneurs and experimental food enthusiasts; these kitchens are usually for rent or membership based. Kitchen24 in Toronto is catered towards businesses who are looking to grow, so the space also acts as a development space with other like minded groups. The kitchen is sometimes used to cook meals for the vulnerable populations, proving its ability to adapt to various needs.

4.0 Sanitation Station

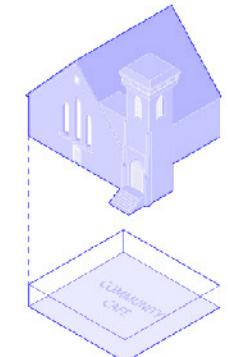


StudioAC mobile shower facility design

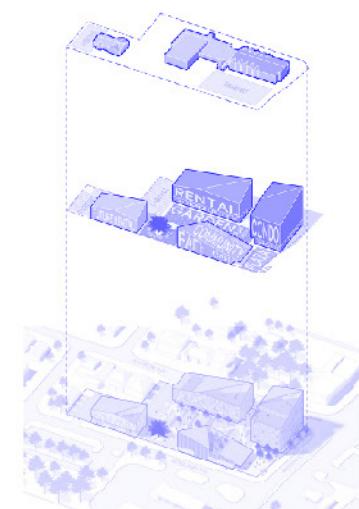
Proper sanitation is integral to one's health and dignity. Having access to adequate facilities is necessary to promote proper sanitation. The WASH Project led by the Catholic Church provides sanitation facilities in underdeveloped regions across the globe. StudioAC proposed a mobile sanitation station to address the lack of proper facilities in Toronto, where the design of the facilities is rooted in safety in its choice of material.

How Have Other Churches Adapted?

1.0 St. John's Anglican Church
Chapleau, ON

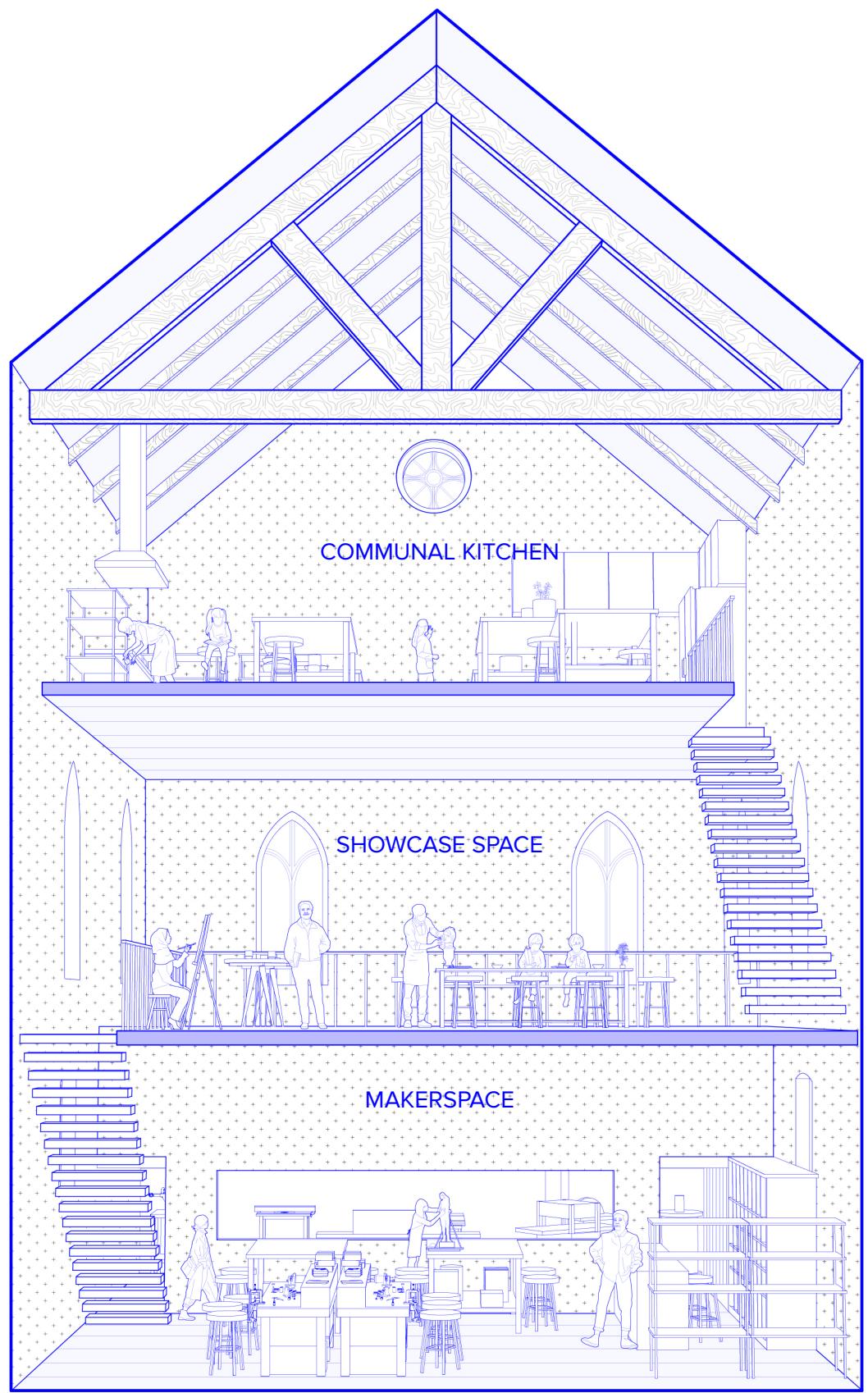


2.0 St. Julian of Norwich Church
Ottawa, ON

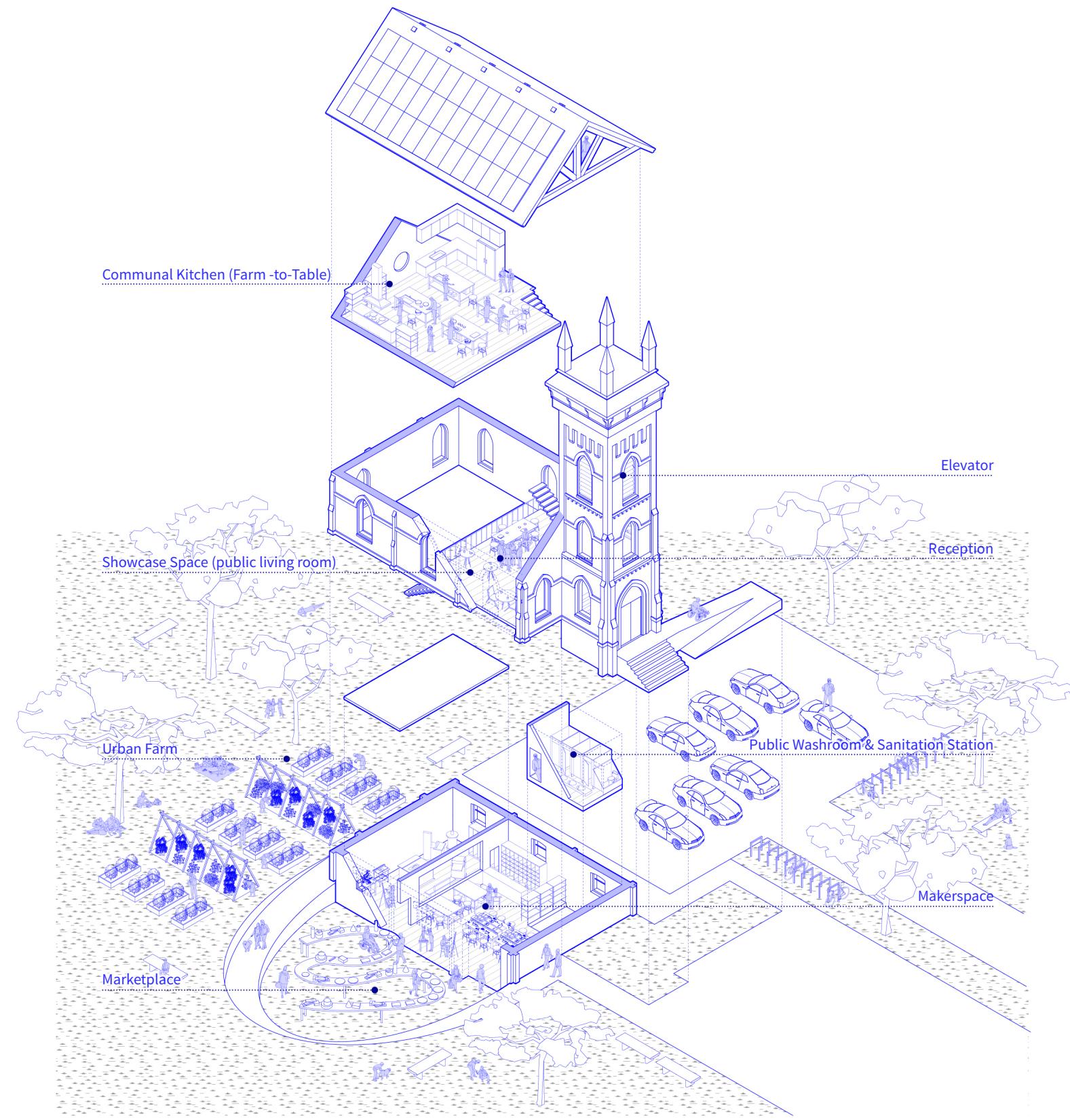


3.0 Cecil Community Centre
Toronto, ON





Interior Perspective



Exploded Program Diagram

06. Daniels x Lululemon

Course: ARC399 - Research Opportunity: Daniels x Lululemon

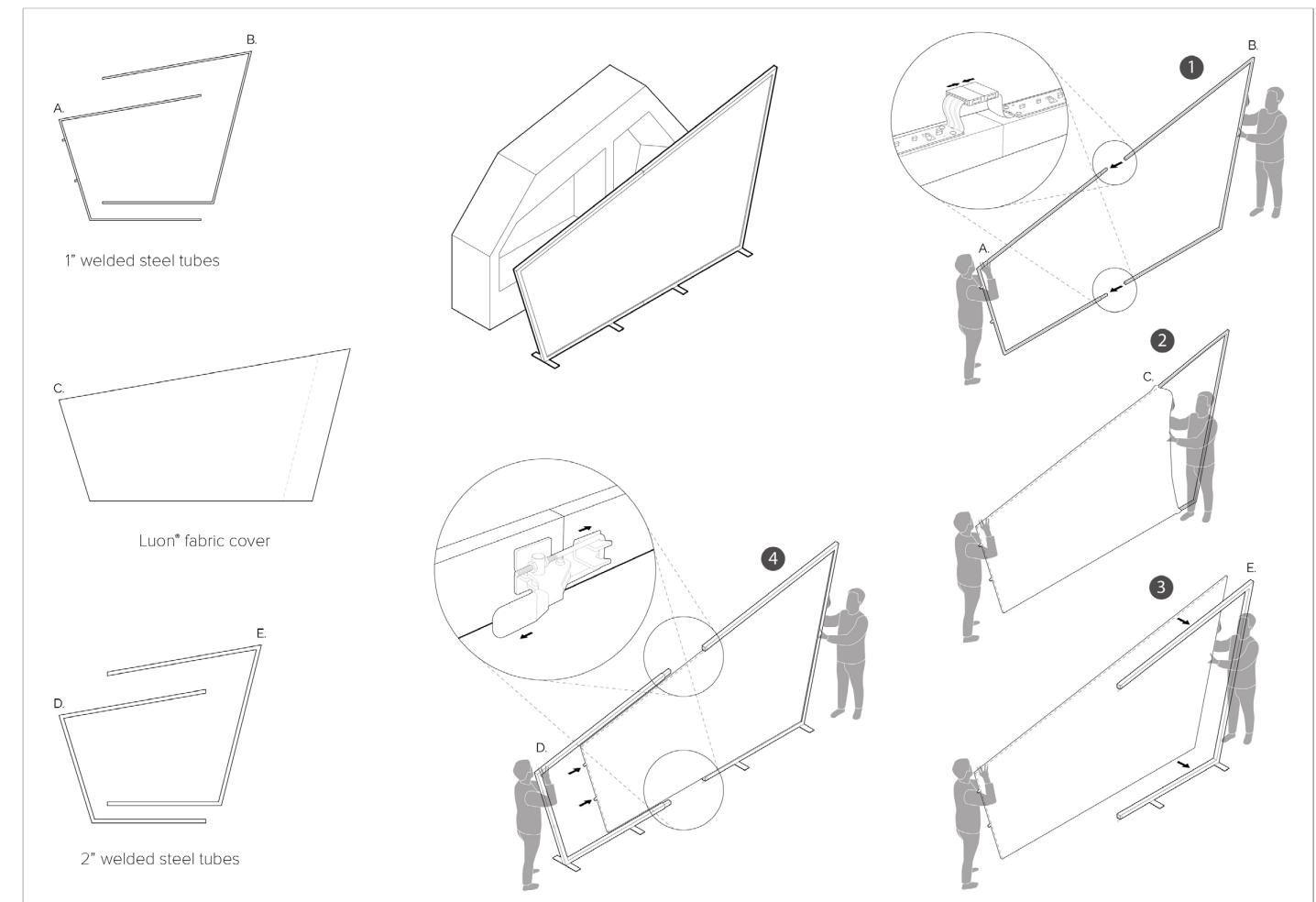
Instructor: Jay Pooley

A two week collaborative project between a small group of students and Lululemon to build a meditation pavilion. The pavilion is meant for a range of environments from busy streets to local parks allowing passerby to interact with it. The screen addition to the pavilion is meant to isolate users temporarily from their surrounding environment.

Collaborators: Ghalia Alchibani Alnahlawi, Filipe Costa, Sara Ghorban Pour, Gianlorenzo Giannone, Evan Guan, John Juodis, Chloe Lauder, Susel Naranjo Vega, Yalda Safar Ali, Sumaiya Sheikh, Maria Angela Viaje, Derrick Wong, Jue Wu



Model Photos



Frame Assembly Instructions

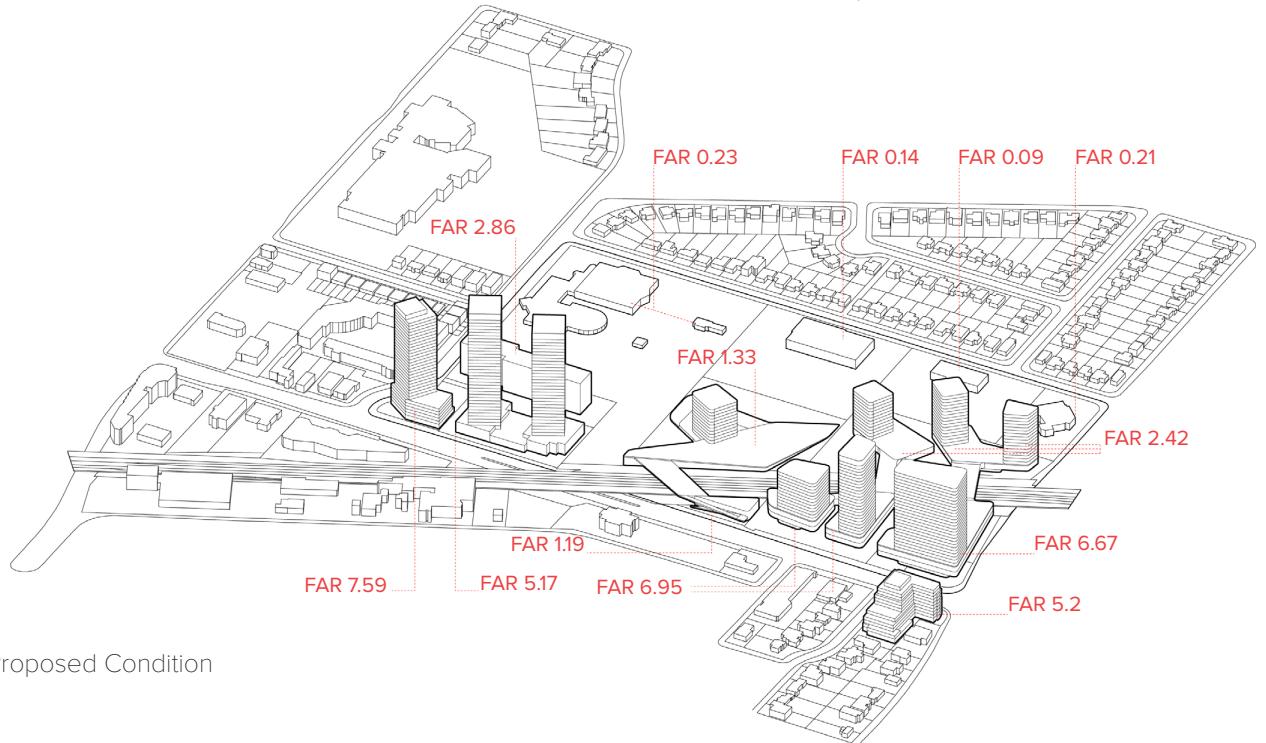
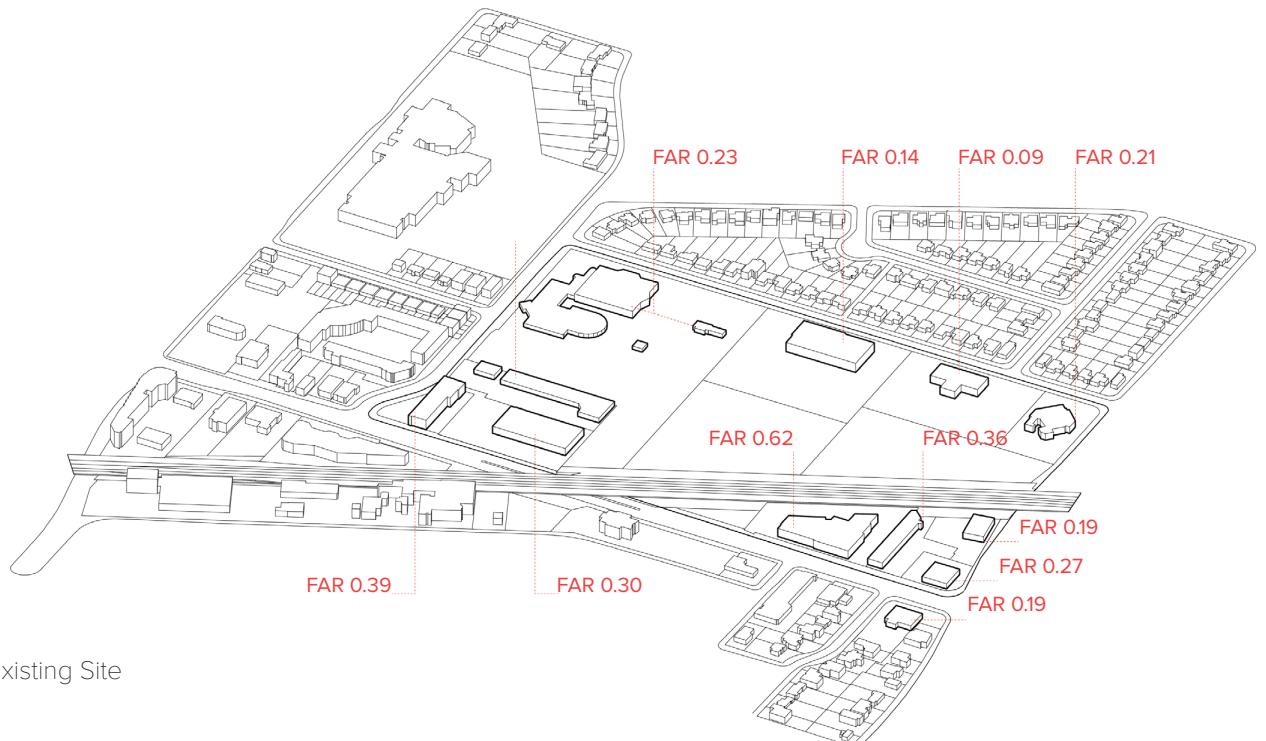
07. Grounds in Flux

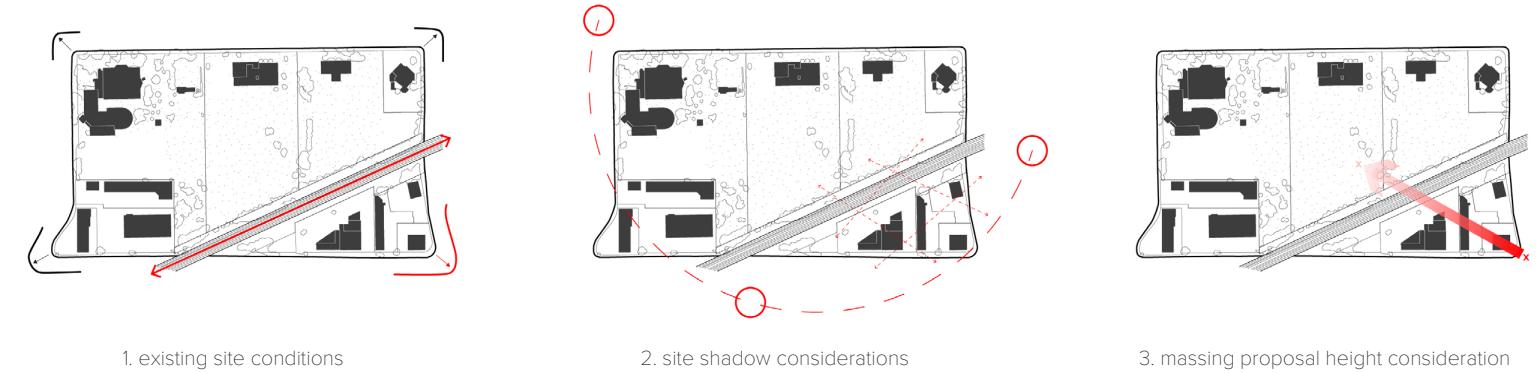
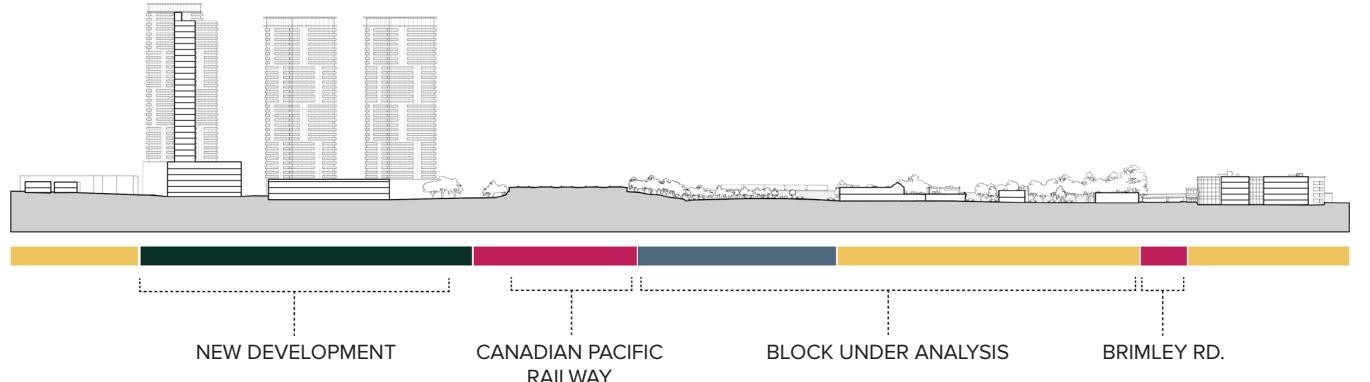
Course: ARC1013 - Design Studio III

Instructor: Roberto Damiani

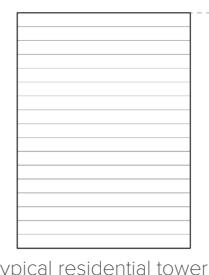
Grounds in Flux is a community hub with purpose-built rentals in the core of Scarborough, Toronto at the intersection of Brimley Rd and Sheppard Ave E. In the past few years, the single-family neighbourhood has experienced population growth while many are still left in unacceptable or unaffordable housing, calling for a need in increased density. Its close proximity to community resources, public transit, and its locale at the edge of an employment zone positions it as an ideal location for a new residential and community hub. The site remains detached as a train rail bifurcates the block, isolating the commercial street corner from the institutions just North of the rail. In order to bridge the North and South, elevated podiums stretch across the rail as means for circulation; the massings can be understood as three parts: ground floor for commercial and institutional uses, elevated podium for commercial activity, and rental towers above. With inclusionary zoning, the rental towers are able to increase density and increase affordable housing by consolidating affordable units on the lower levels, and connecting each floor through shared amenity spaces.

Collaborators: Emilie Tamlik

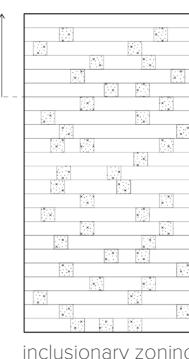




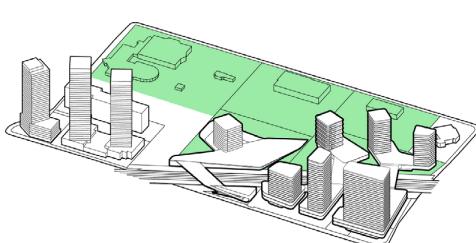
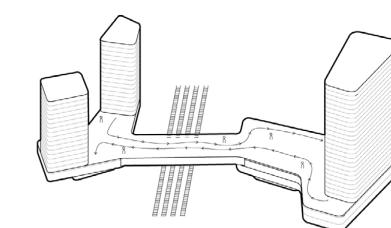
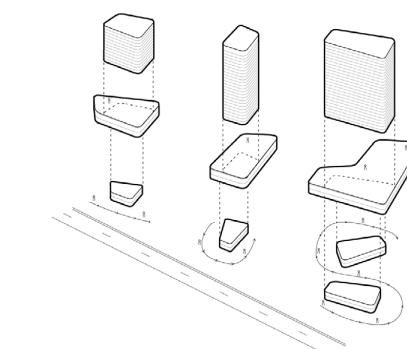
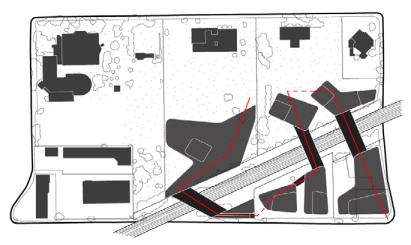
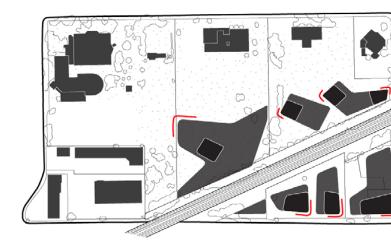
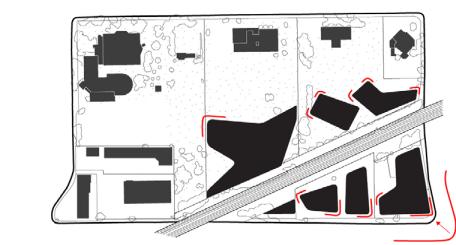
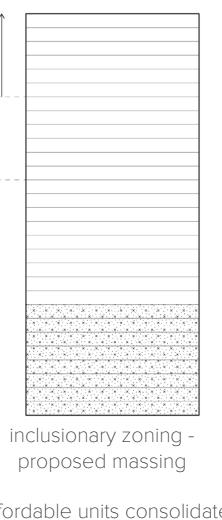
FAR 2.0
0% affordable housing

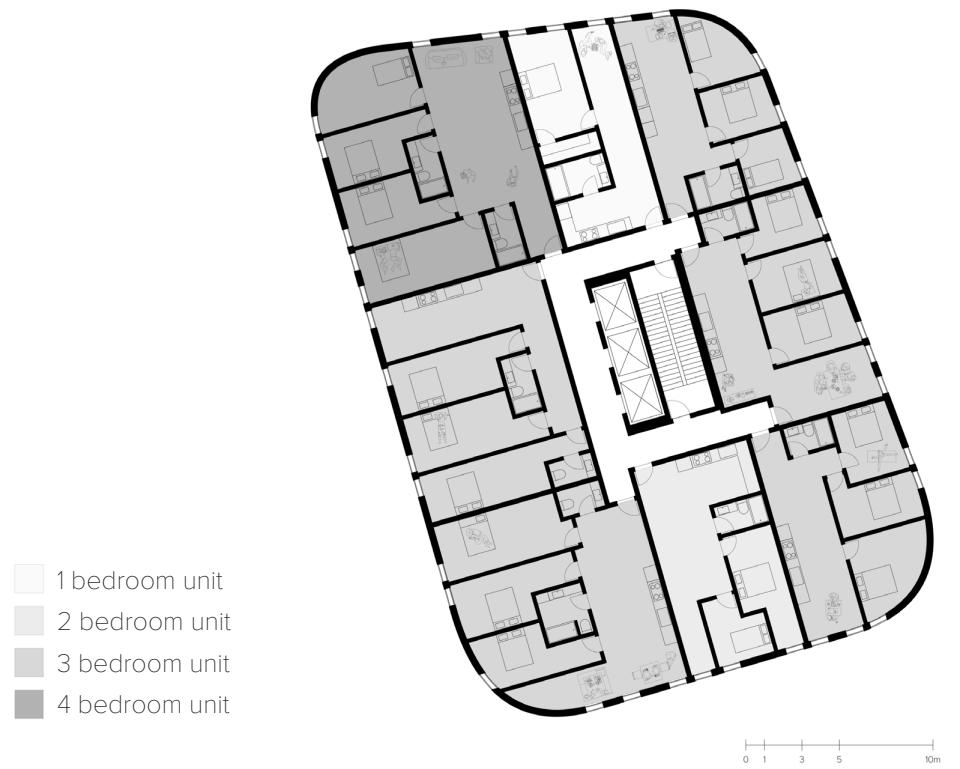


FAR 4.0
10-20% affordable housing

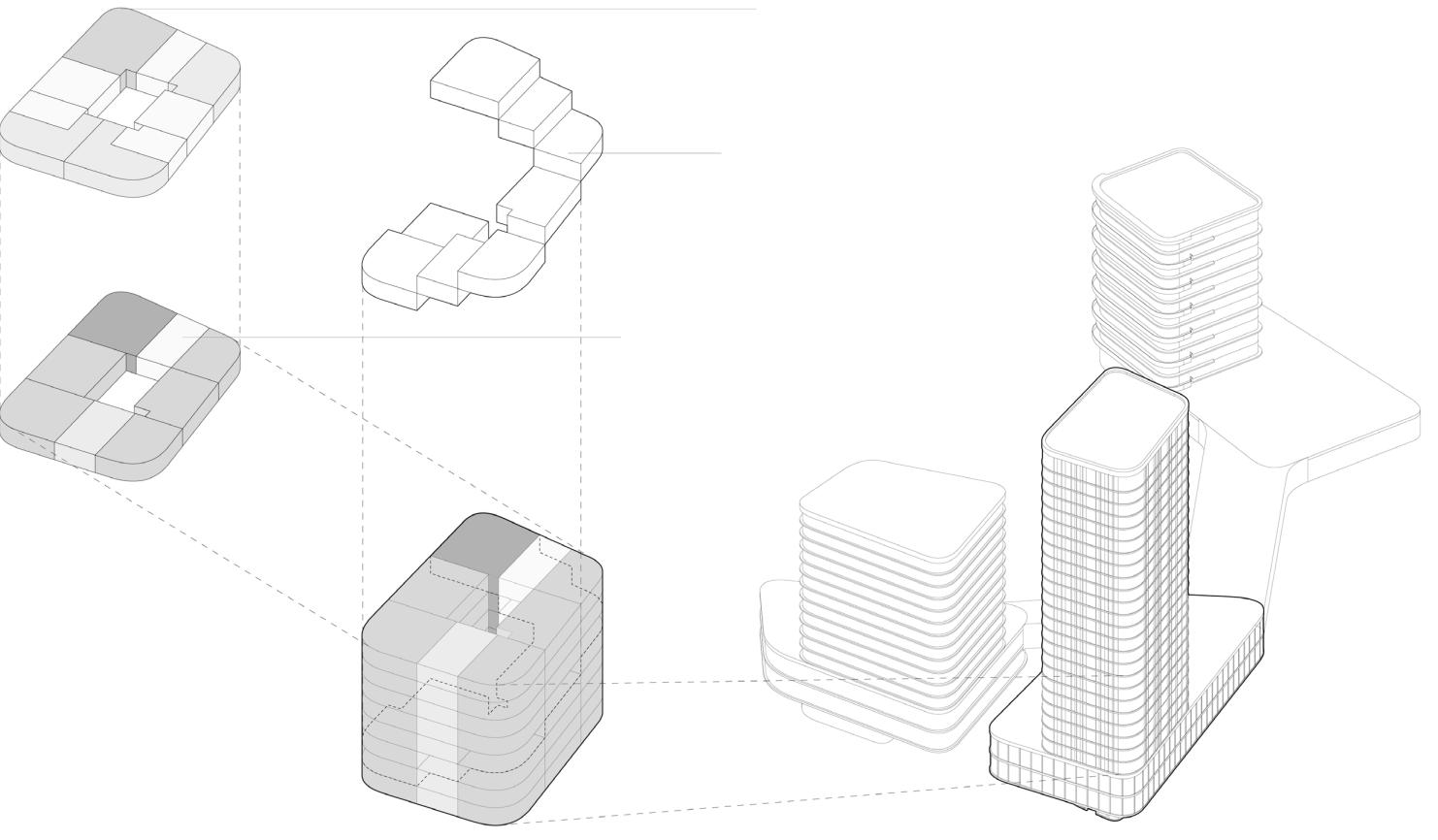


FAR 6.0
30% affordable housing

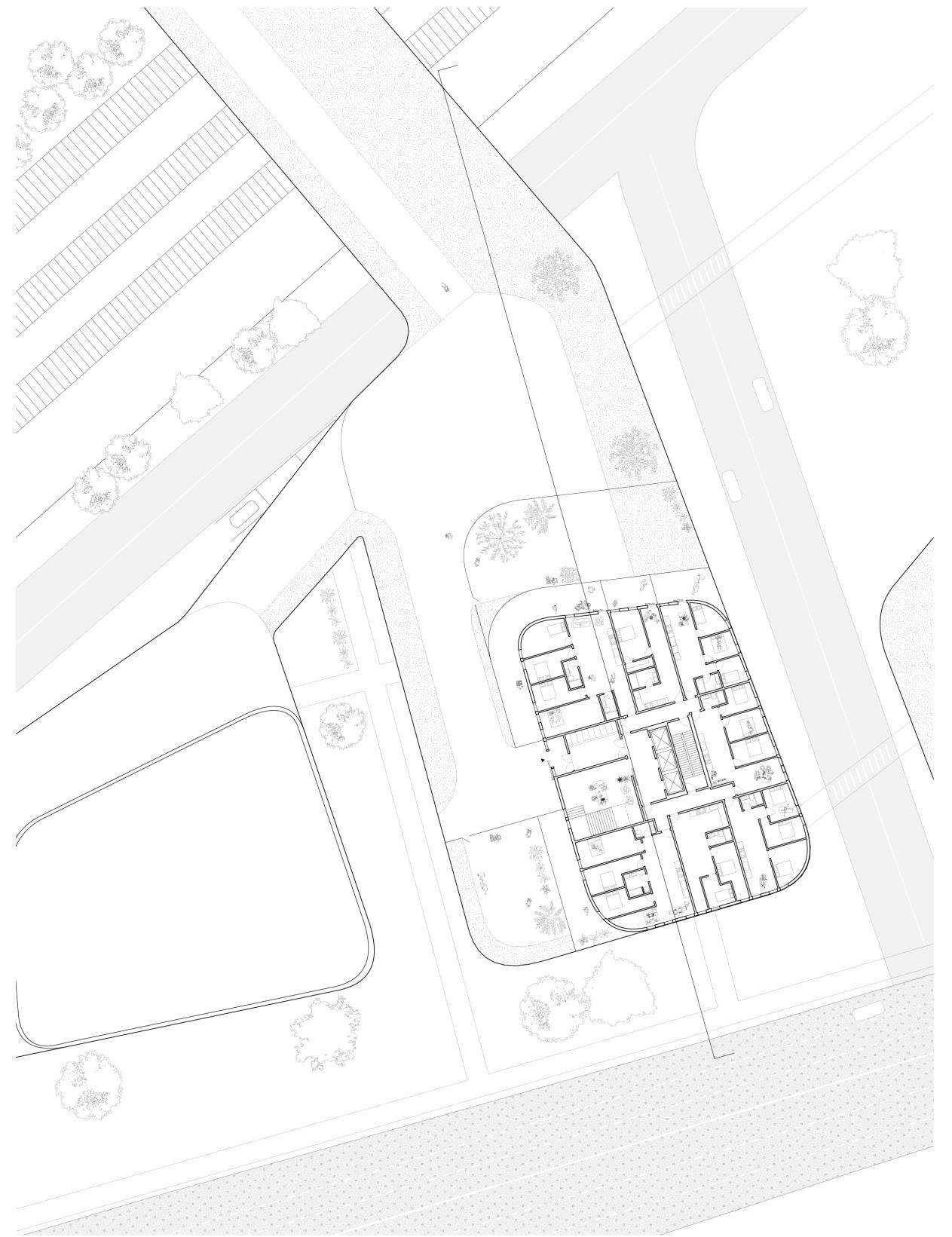




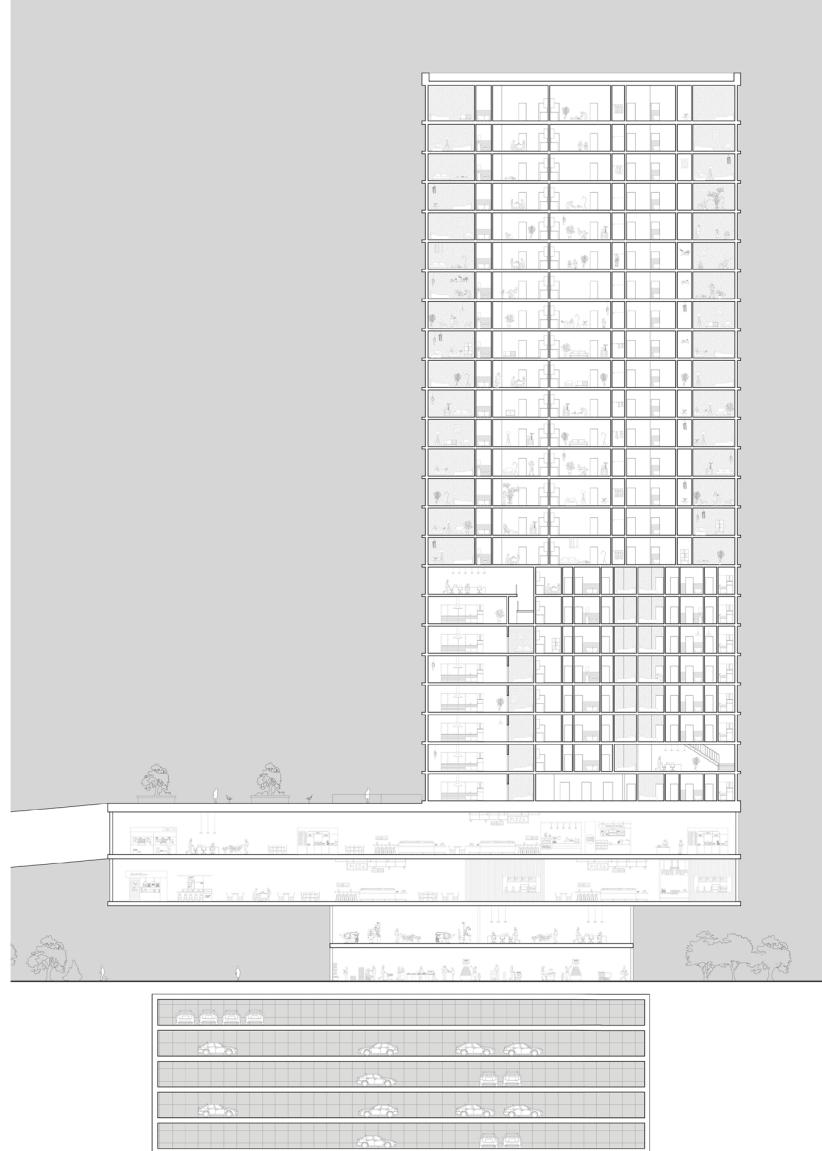
Affordable Rental Plan



Unit Stack Diagram



First Floor Residential



North-South Section



Sheppard Ave. Streetfront Collage

thank you ☺