



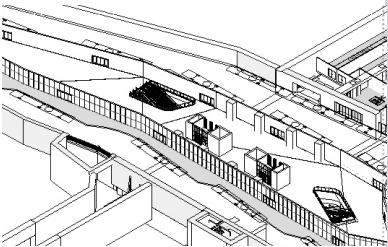
# @carolineRoss

## Architectural Design Portfolio

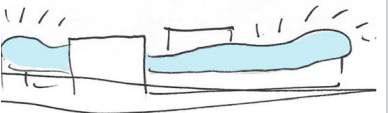
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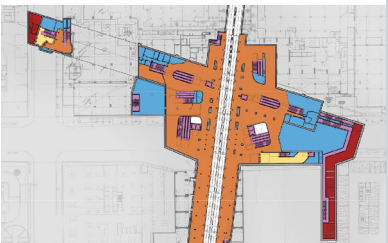
Depicting a Transit Station  
Through Graphic Representation



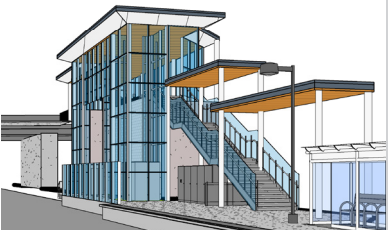
Iterative Design:  
the Roof of a Transit Station in a Trench



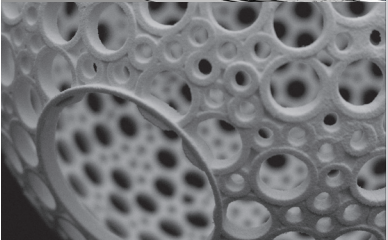
Transfer Subway Station Expansion



Preliminary LRT Station Design



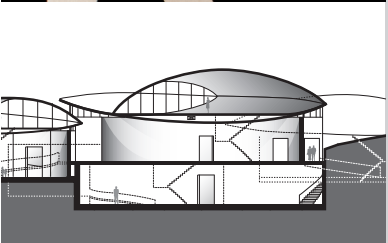
Computational Design:  
Surface Discretization



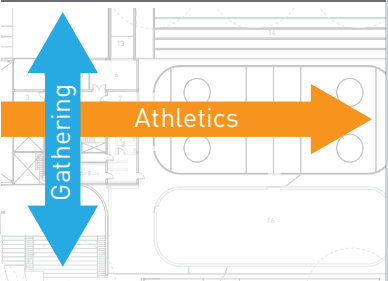
Furniture Design



Museum Design



Community Centre Design



Disclaimer

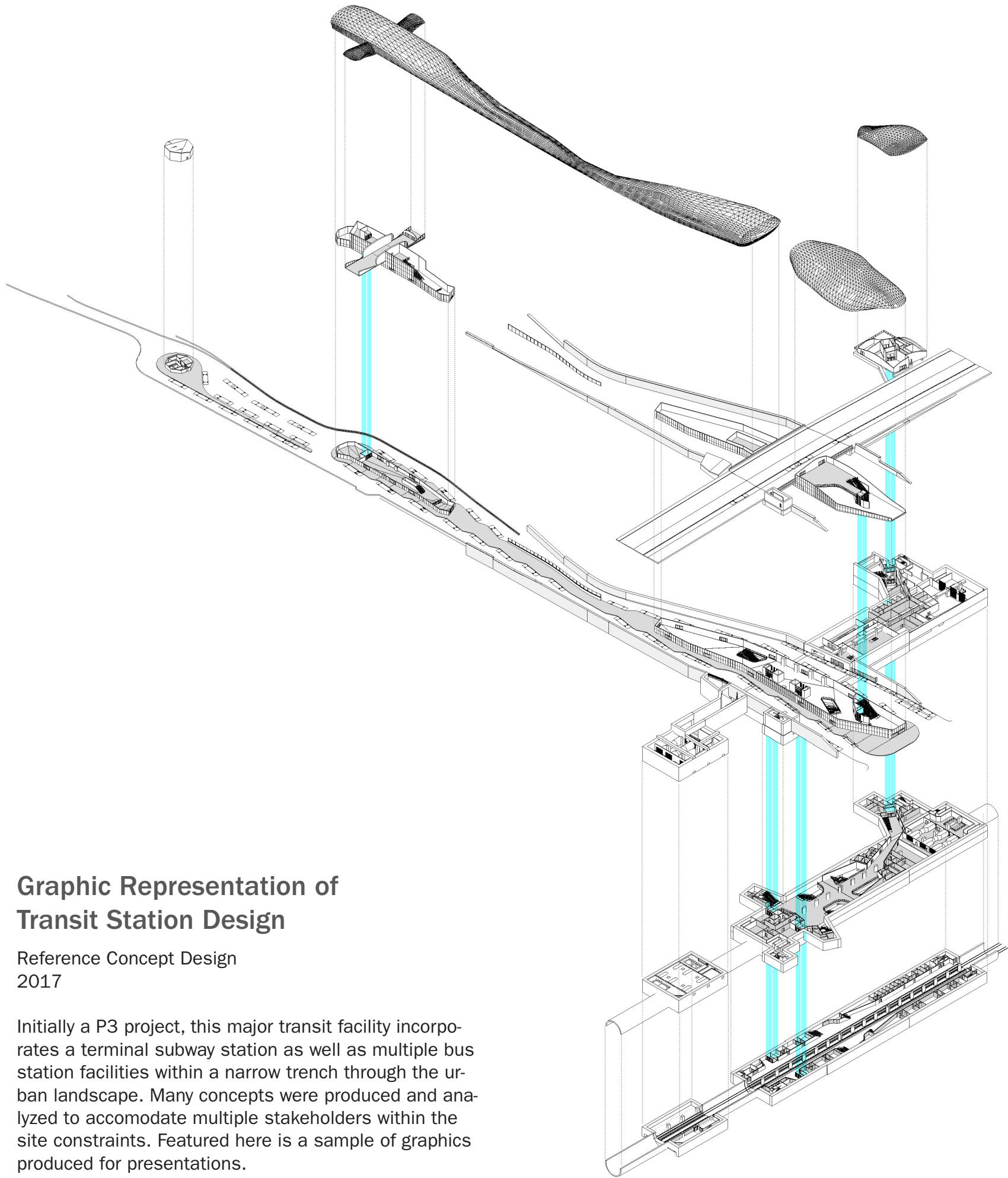
Identifying details have been changed to protect the confidentiality of projects in process.



# Graphic Representation of Transit Station Design

Reference Concept Design  
2017

Initially a P3 project, this major transit facility incorporates a terminal subway station as well as multiple bus station facilities within a narrow trench through the urban landscape. Many concepts were produced and analyzed to accomodate multiple stakeholders within the site constraints. Featured here is a sample of graphics produced for presentations.



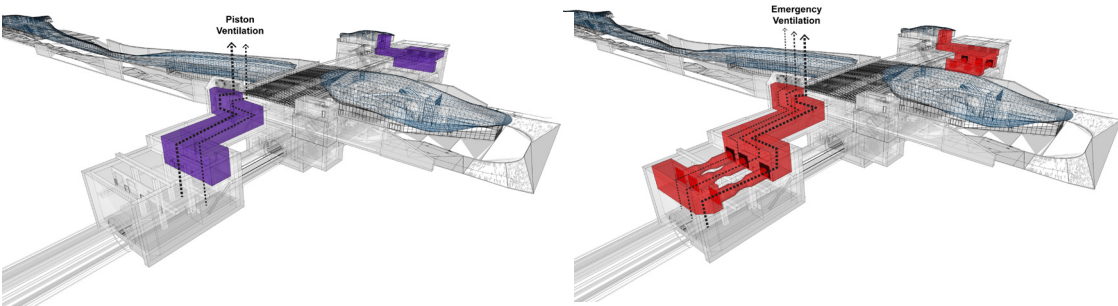
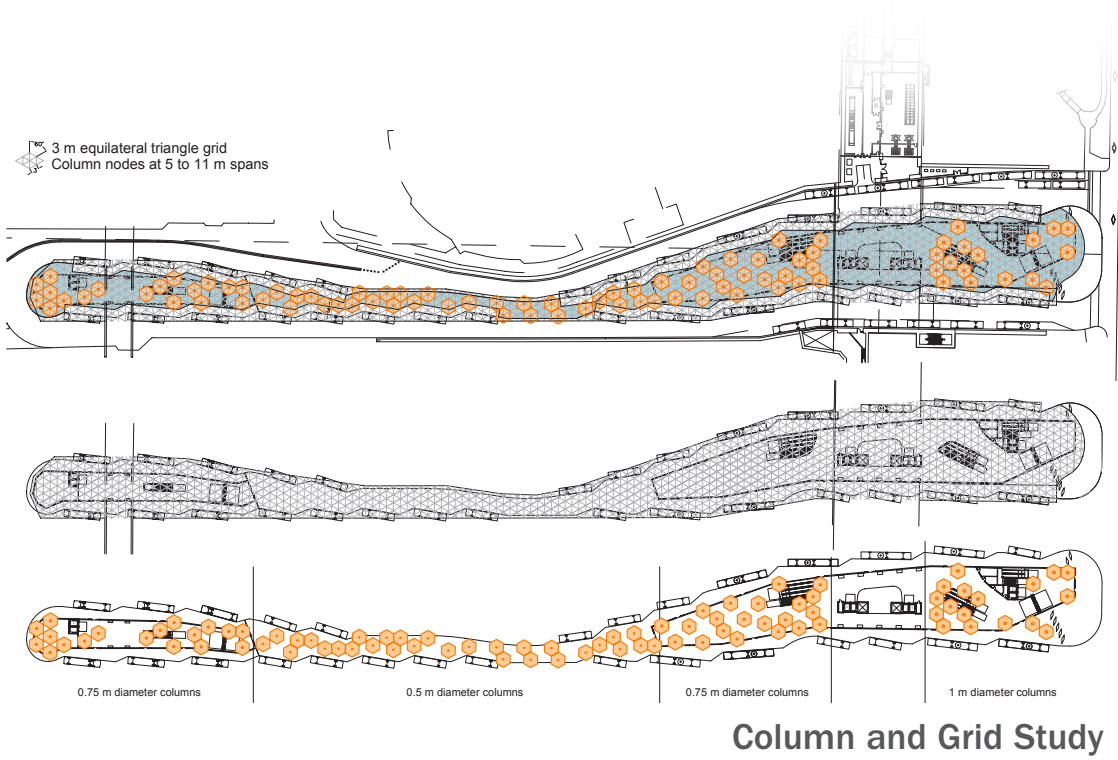
ROOF LEVEL

STREET LEVEL  
+5.7 m

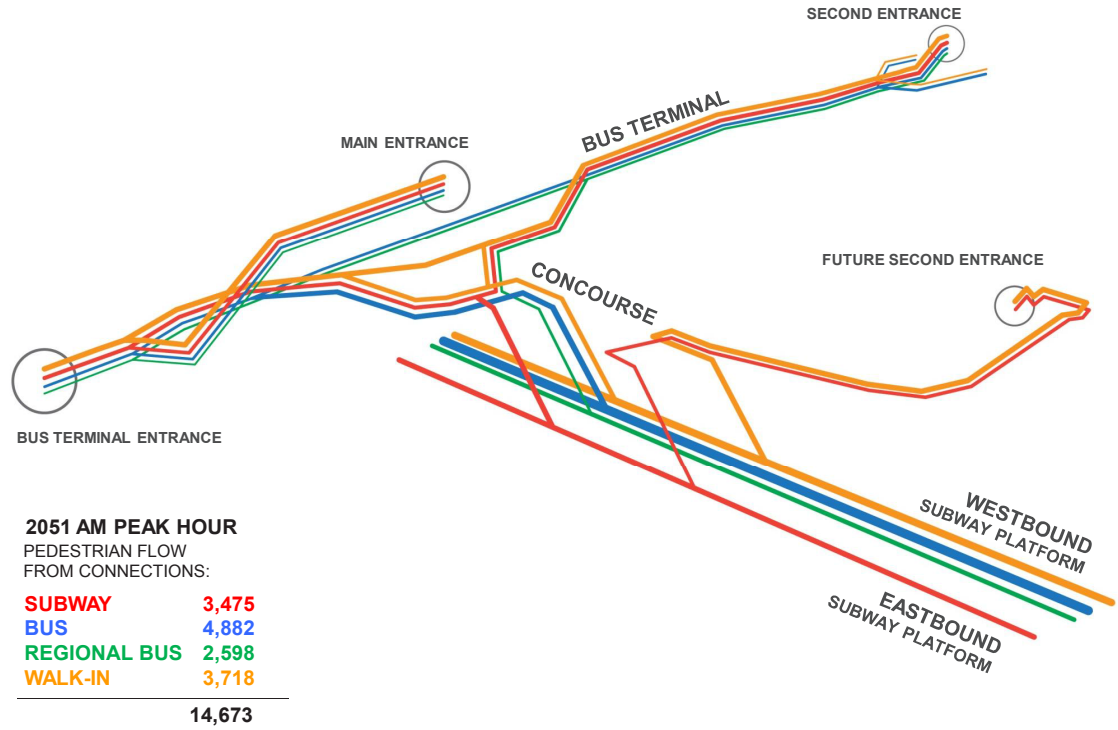
BUS LEVEL  
+0.0 m

CONCOURSE LEVEL  
-12.5 m

PLATFORM LEVEL  
-19.1 m



Tunnel Ventilation Systems





# The Iterative Process: Designing the Roof of a Transit Station in a Trench

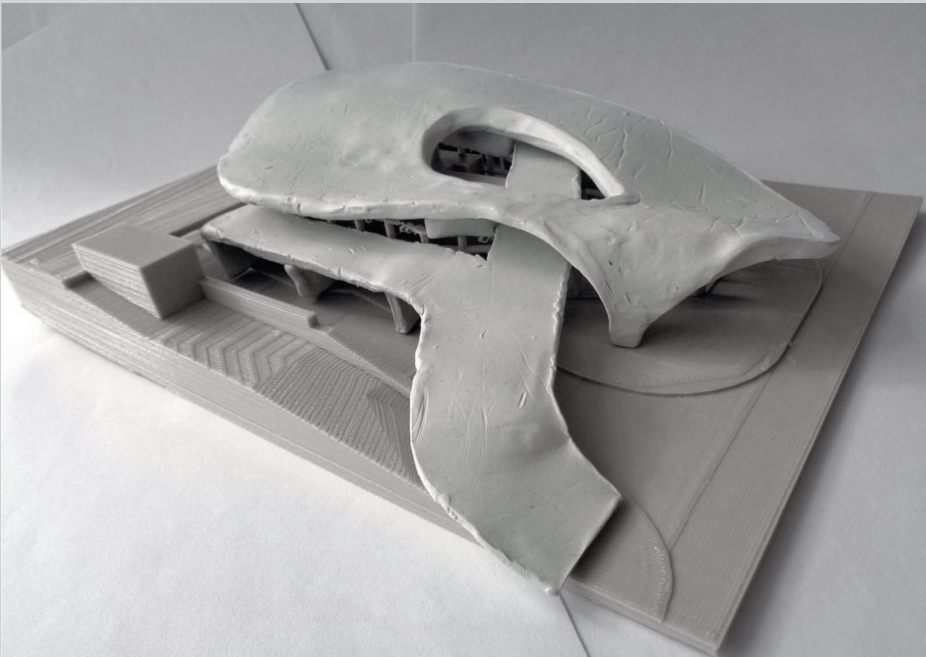
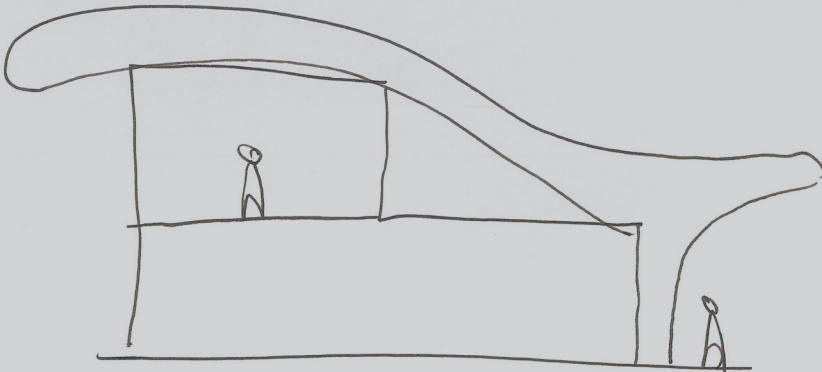
Preliminary Design  
2017-2018

Iterative design of the building roof and bus canopy for a major transit facility incorporating multiple bus station facilities within a narrow trench through the urban landscape.

The site constraints and stakeholder requirements combined to present a challenging and complex set of criteria including:

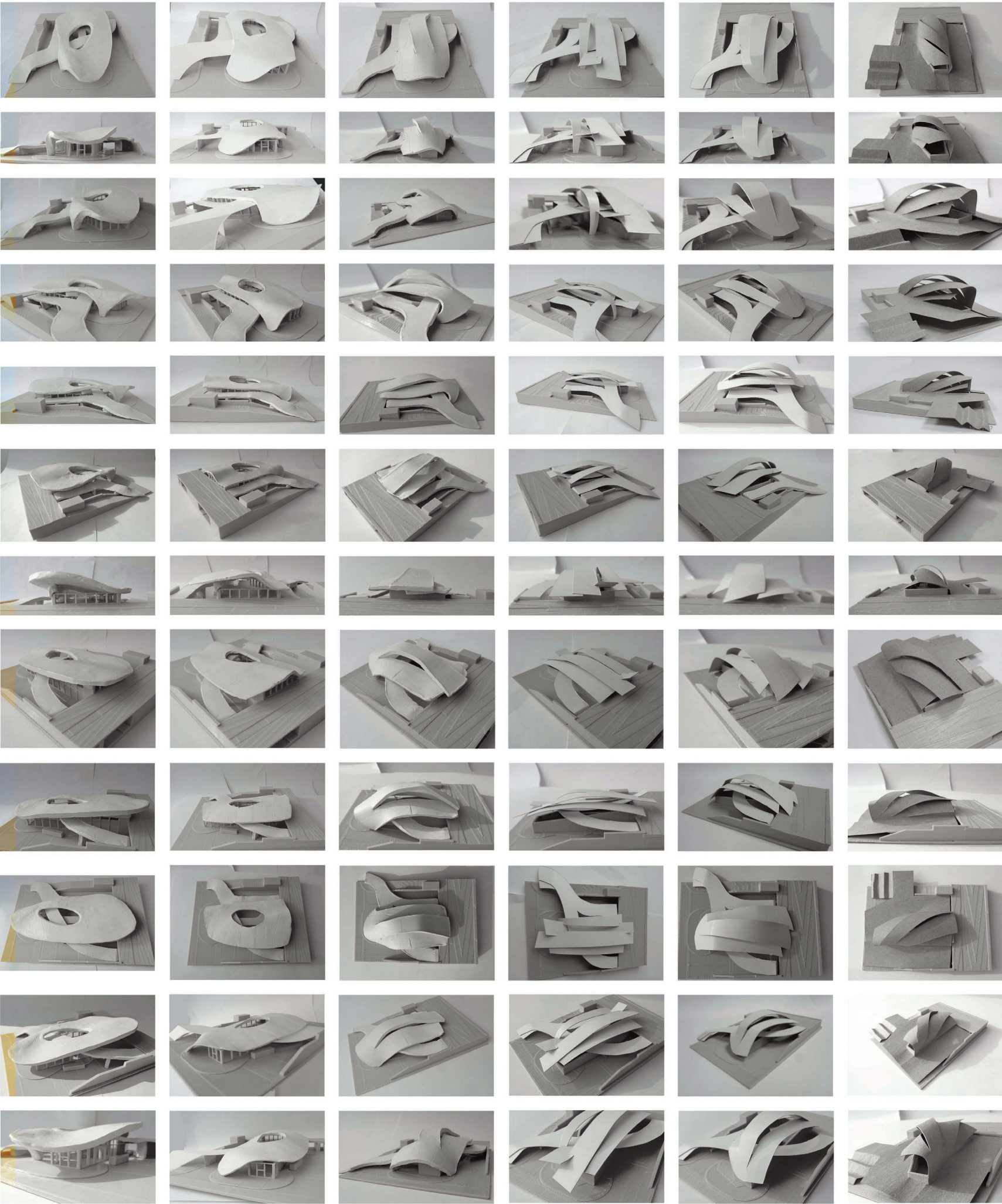
- 1. Multiple cuts through the roof: a vehicular bridge, 2 pedestrian bridges, as well as a large pedestrian deck spanning 2 levels and making multiple connections.
- 2. Channel light into the space and down to a subway station further below grade.
- 3. A roof that spans 30 meters at the widest point and a canopy spanning 5 meters at a narrow pinch point of the platform.

Models: cardstock and plasticine on plastic 3D printed base



Entrance Building  
Option A: Organic Pavilions

Entrance Building  
Iterative Studies



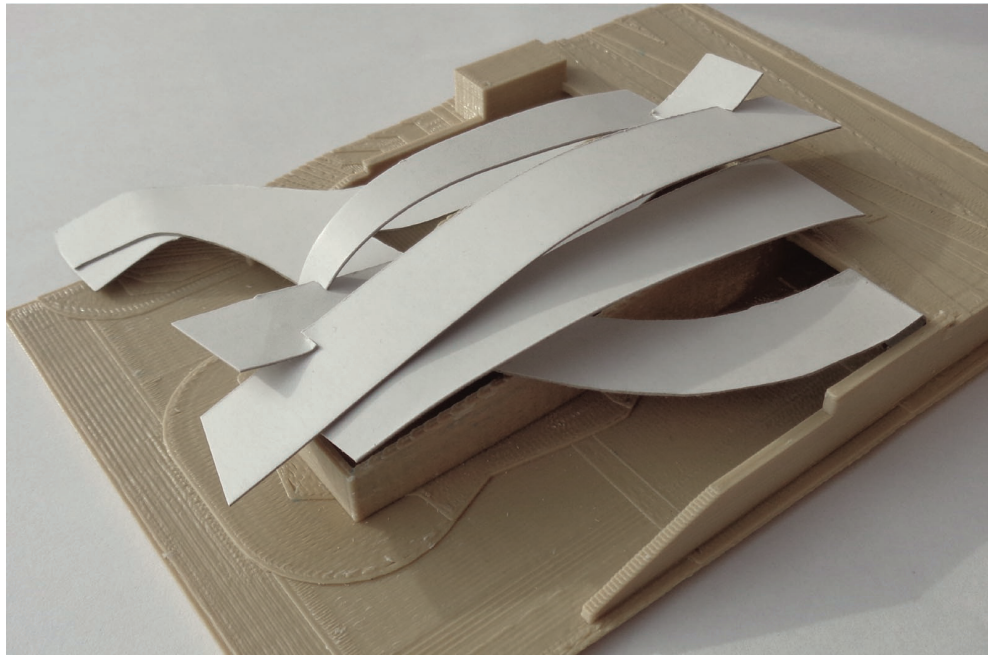
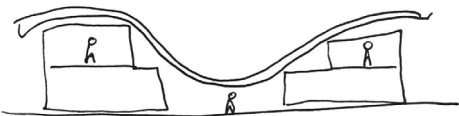




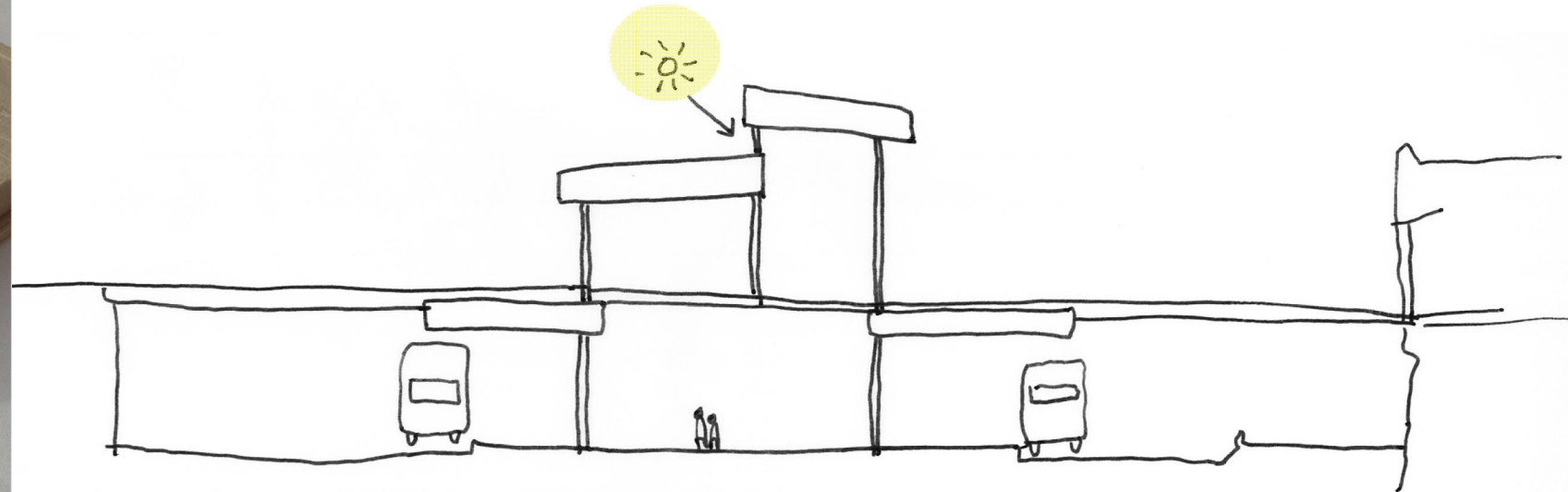
SINUS WAVE CREATES  
CLERESTORY WINDOWS.



THICK THIN THICK

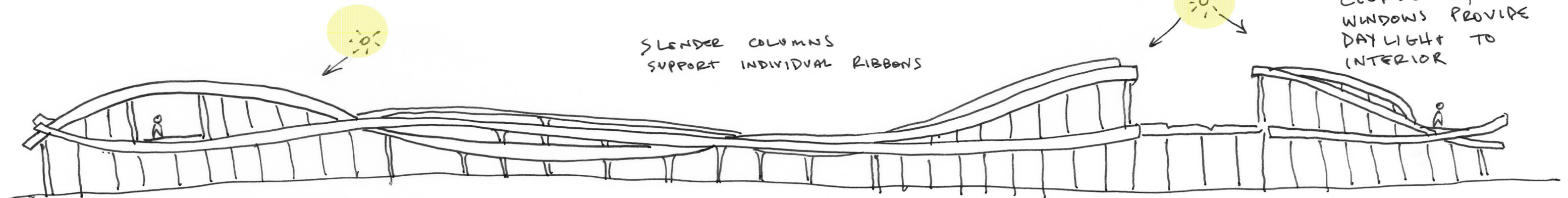


Entrance Building



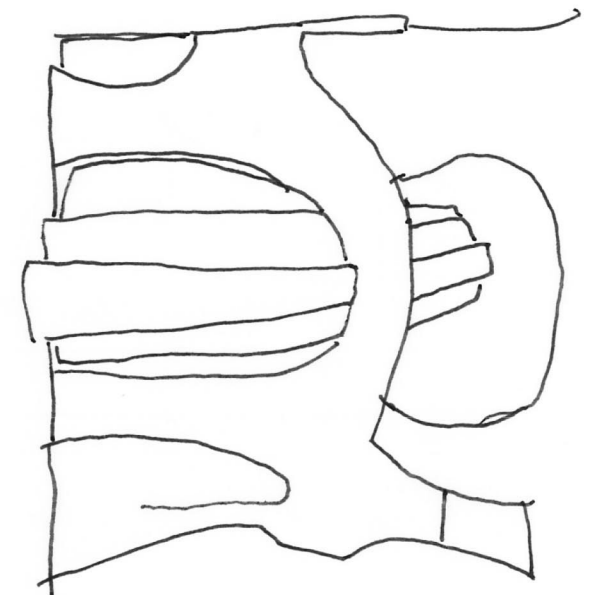
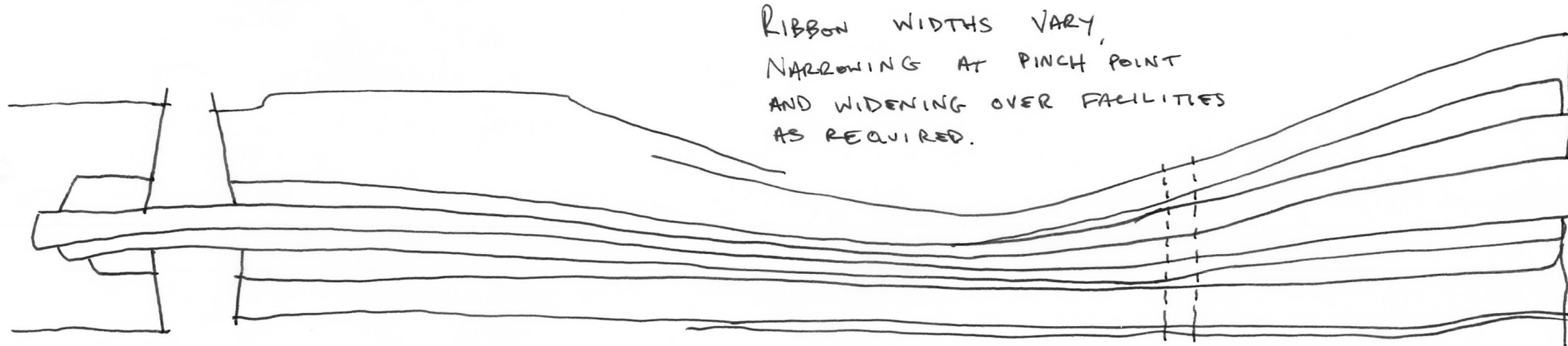
Section Through Pedestrian Bridge

SLENDER COLUMNS  
SUPPORT INDIVIDUAL RIBBONS



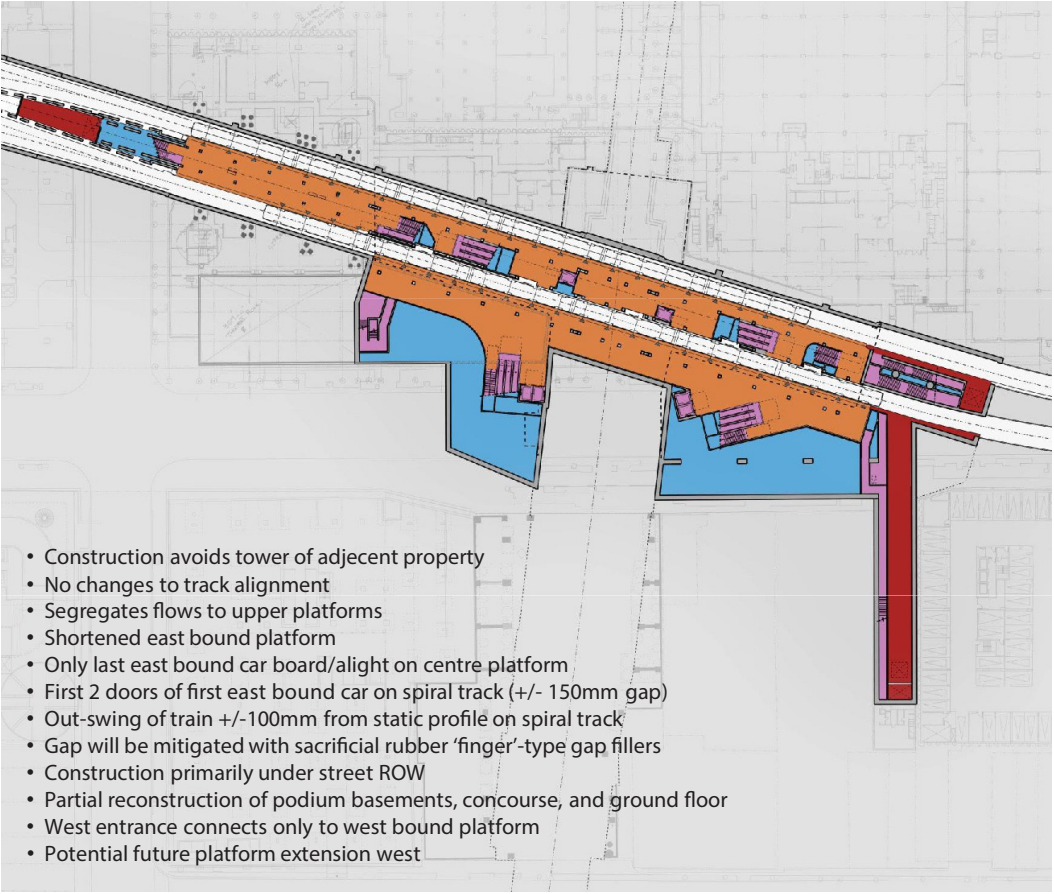
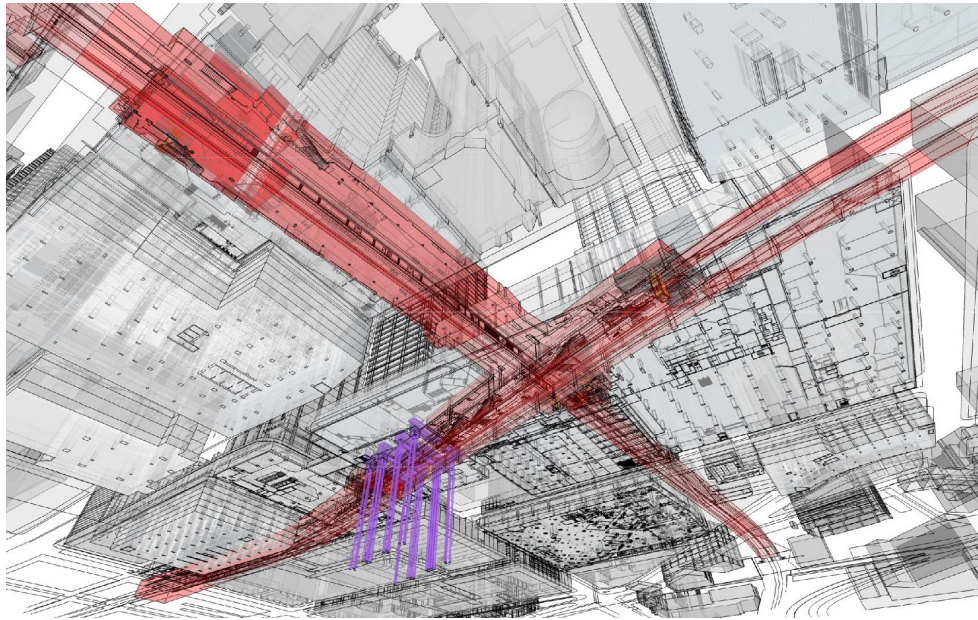
CLERESTORY  
WINDOWS PROVIDE  
DAYLIGHT TO  
INTERIOR

RIBBON WIDTHS VARY,  
NARROWING AT PINCH POINT  
AND WIDENING OVER FACILITIES  
AS REQUIRED.

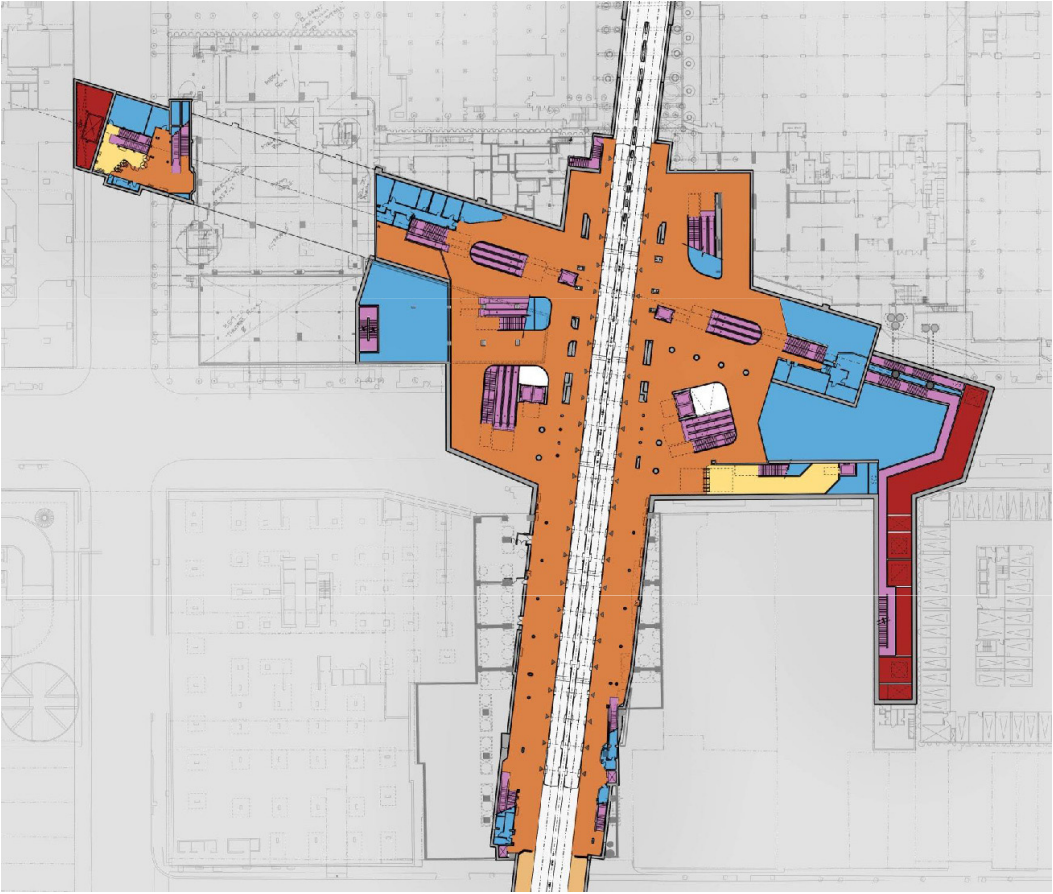


Option B: Undulating Planks





Line 2 Platform



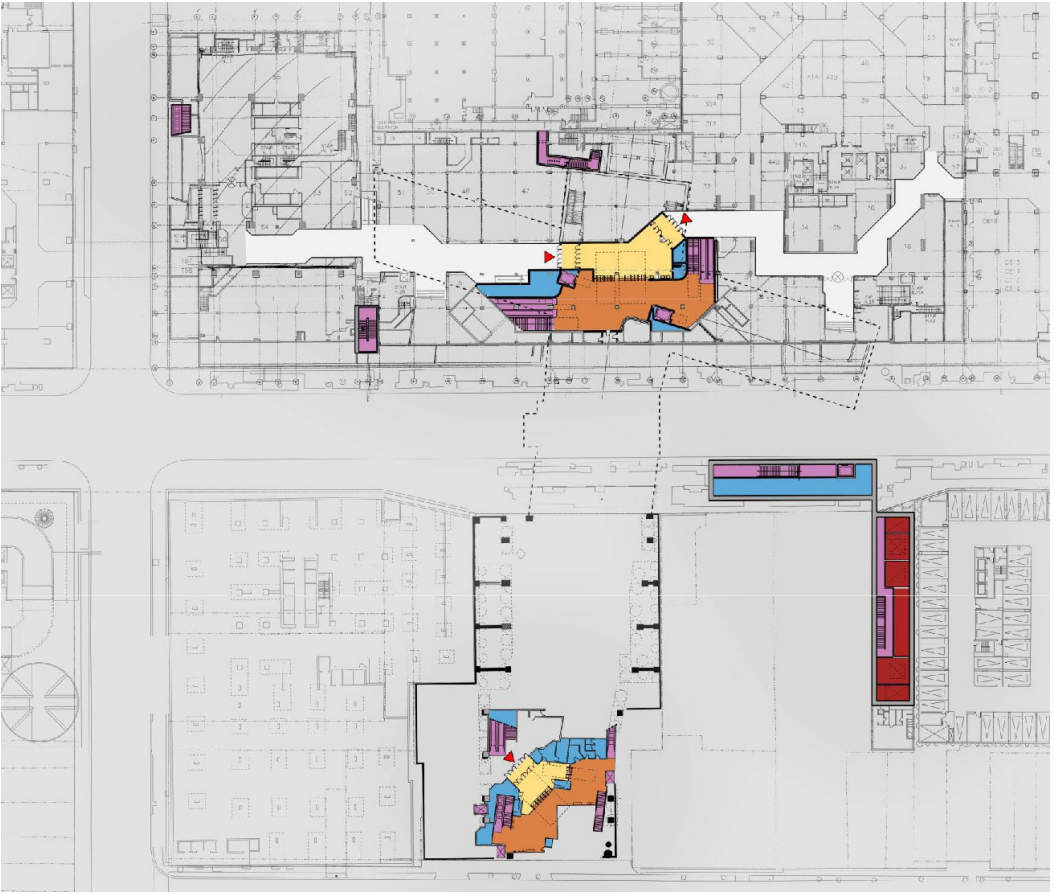
Line 1 Platform

# Reimagining a Major Interchange Subway Station in the Urban Core

Reference Concept Design  
2017

The expansion of an underground major transfer subway station to increase capacity to accomodate extreme future growth predictions.

Working collaboratively to assist on the project included 3D modelling several station options and adjacent buildings to visually comprehend complex site relationships and station constraints. Frequent presentations required an accelerated workflow providing layout and content creation including graphic images and diagrams.



Concourse



Street

Typical Presentation Plans of a Potential Station Option

- FARE UNPAID
- FARE PAID
- PROTECTED ROUTE
- SERVICE SPACE
- VERTICAL CIRCULATION
- TUNNEL VENTILATION



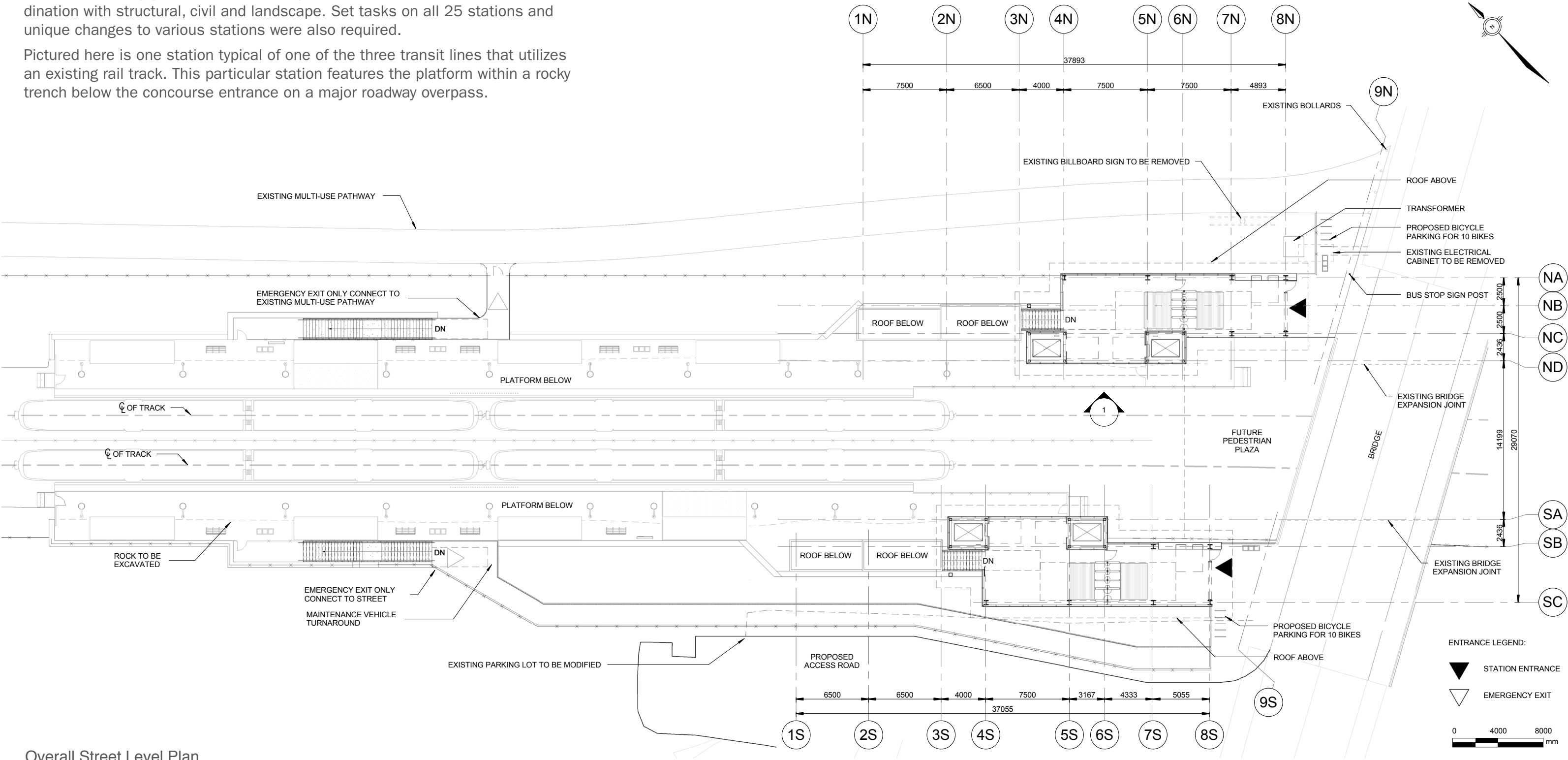
# LRT Transit Station Design

Preliminary Design  
2016

Preliminary design and PSOS development for phase 2 of a P3 project consisting of 3 linked transit lines containing 25 stations comprising an LRT transit system for a major Canadian city.

On this project I provided 95% of the modelling and drawing set up in Revit for 3 stations including geolocation, modelling, sheet set up, annotations, and coordination with structural, civil and landscape. Set tasks on all 25 stations and unique changes to various stations were also required.

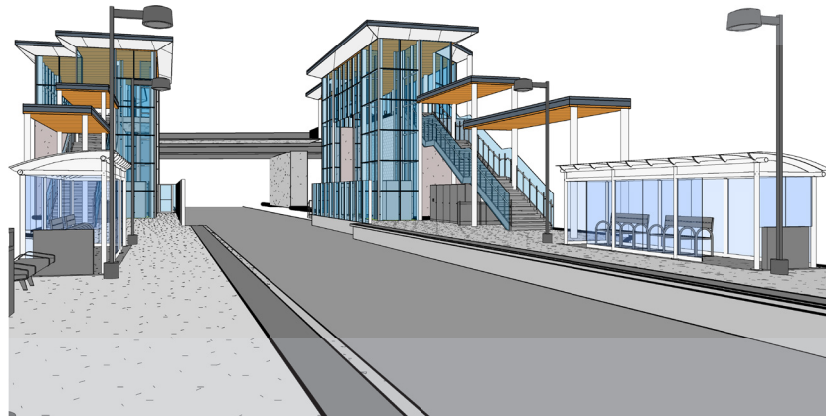
Pictured here is one station typical of one of the three transit lines that utilizes an existing rail track. This particular station features the platform within a rocky trench below the concourse entrance on a major roadway overpass.



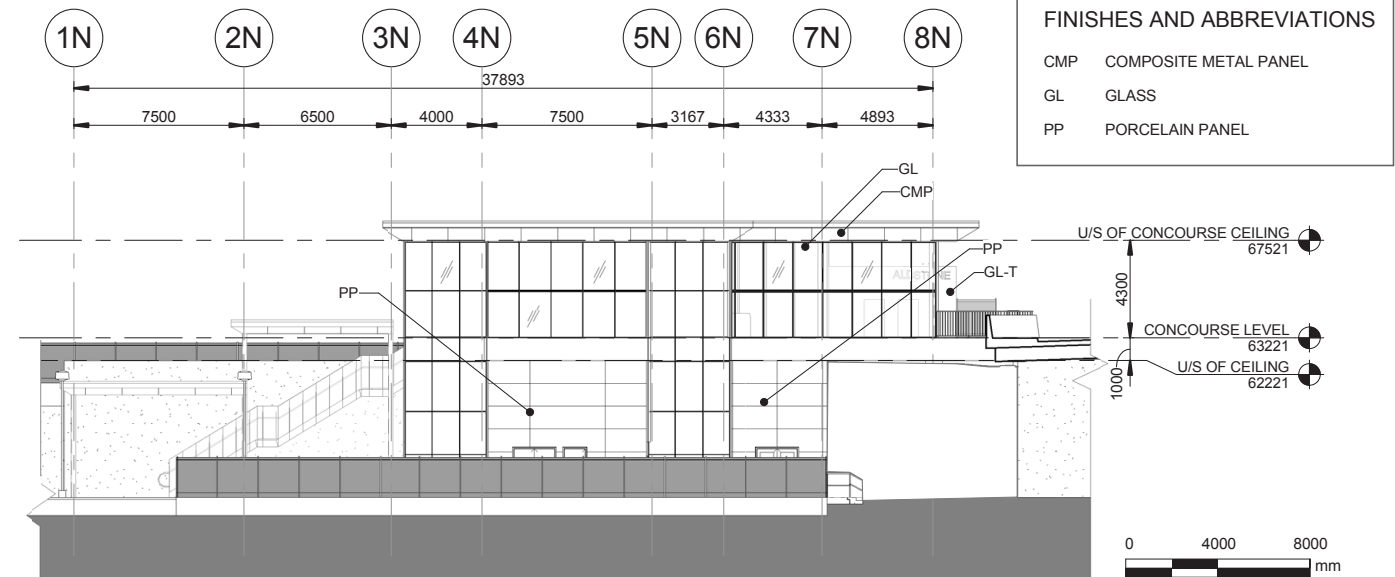
Overall Street Level Plan



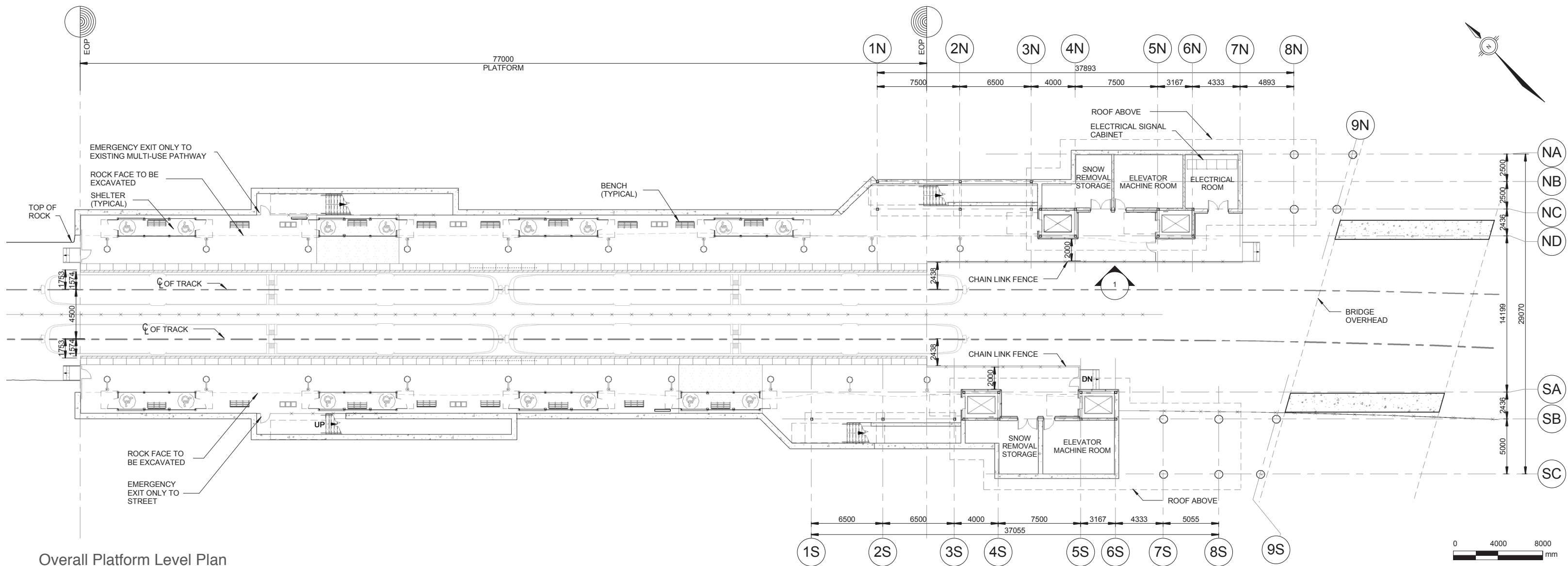
East Concourse Station Entrance



North Perspective from East Platform



East Concourse Overall Building Elevation 1 - West



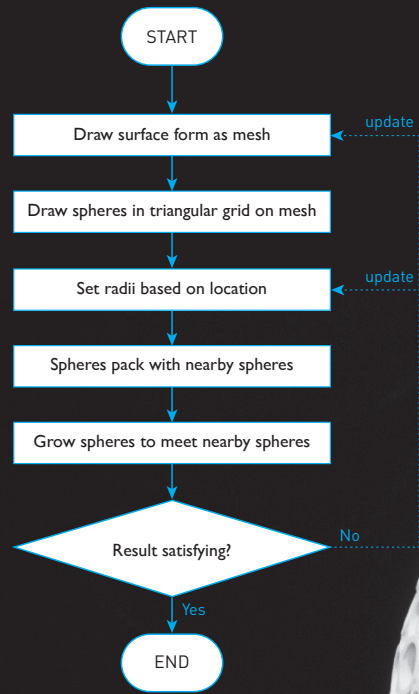
Overall Platform Level Plan



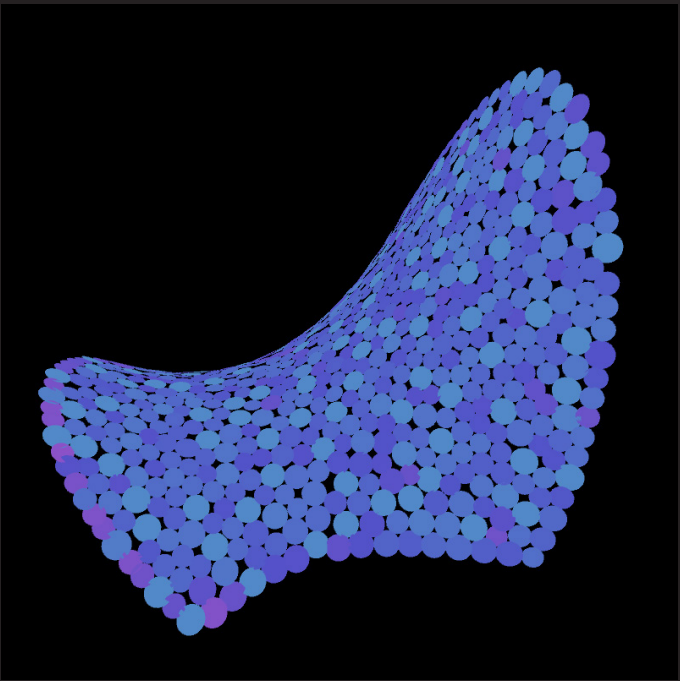
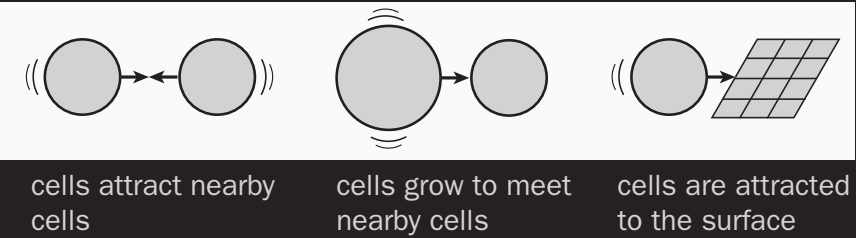
# Diatom Domes: Cellular Discretization on a Shell

Computational Design  
2014

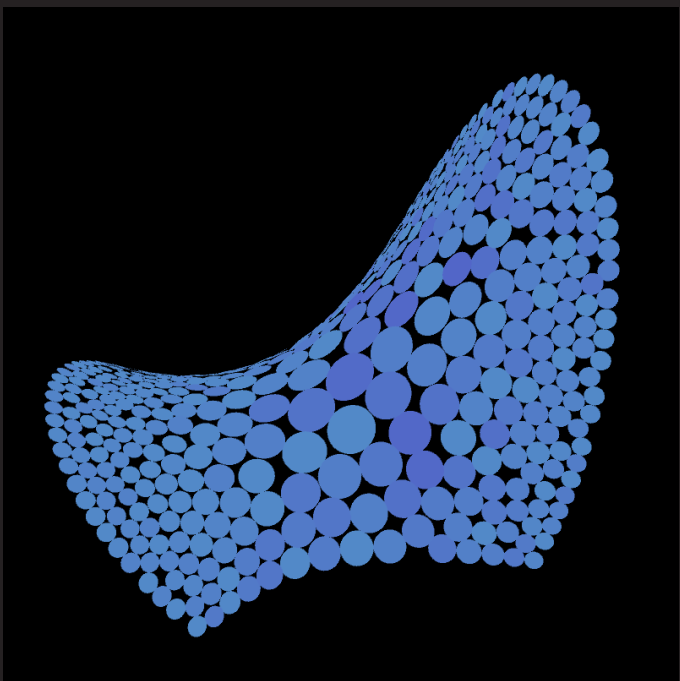
Biomimetic algorithmic dome design inspired by the morphology of unicellular organisms. The rationalization of a freeform surface discretization of cells using hand-coded algorithms to produce a porous, lightweight shell structure.



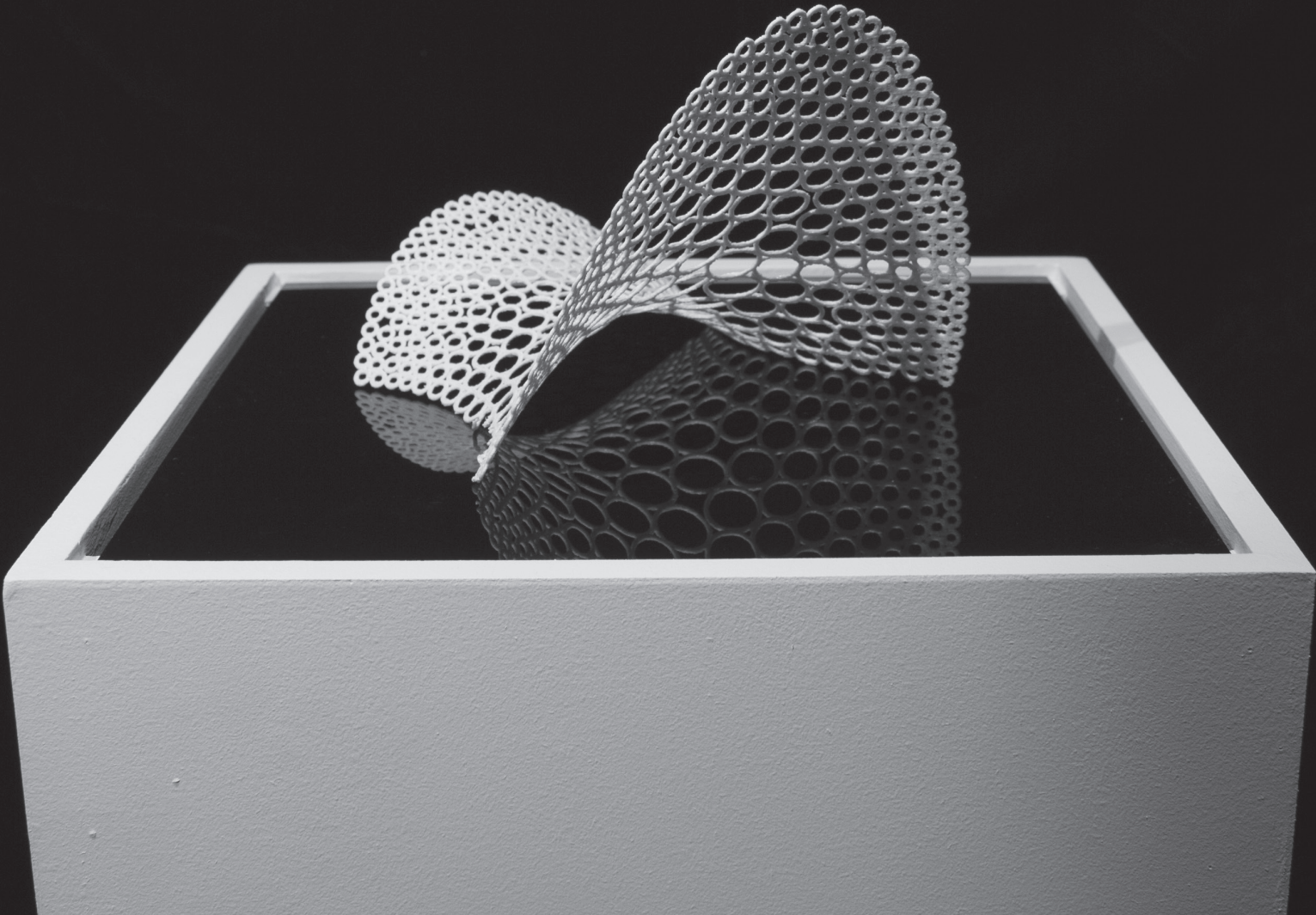
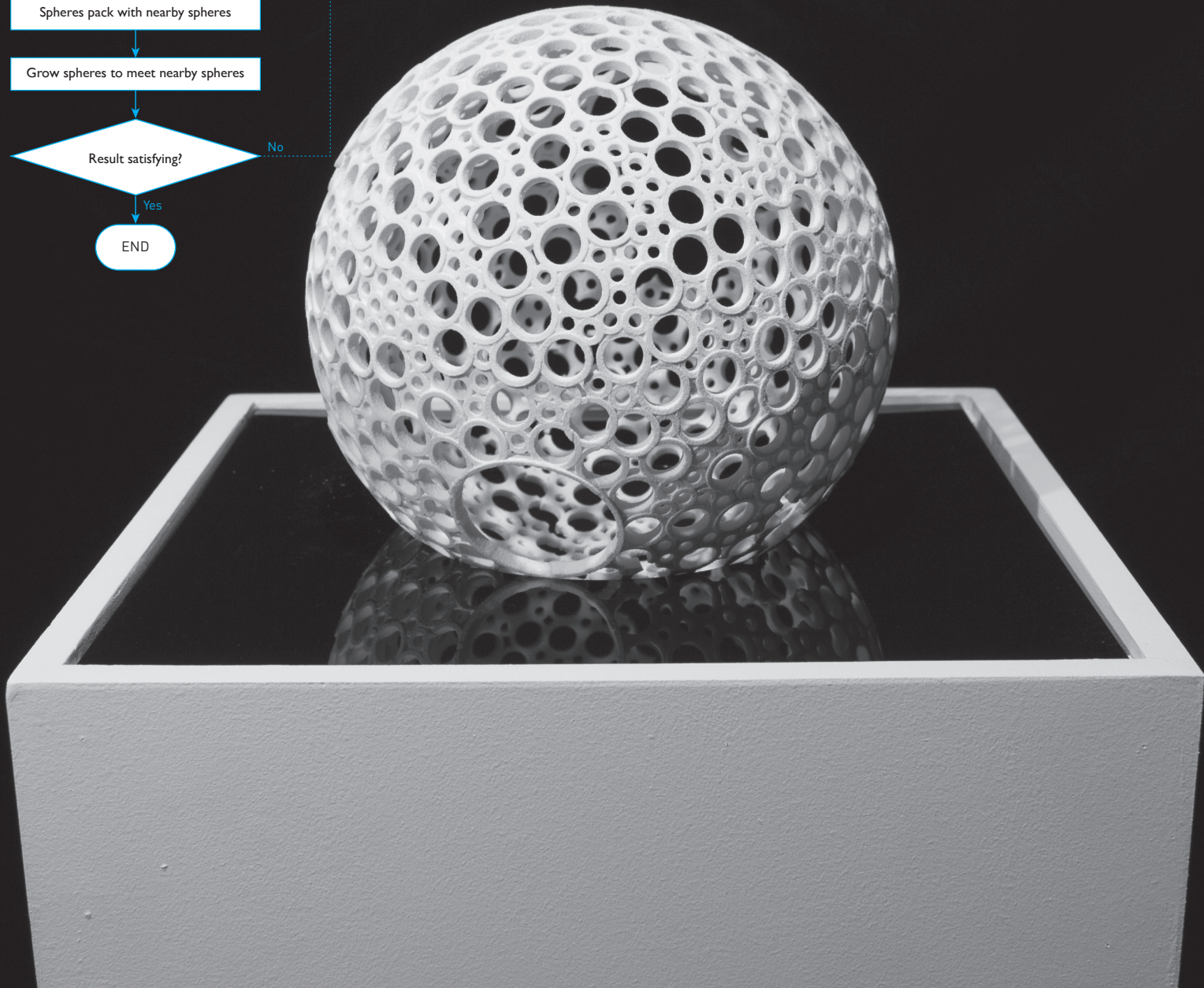
## Algorithmic Process



Variable Radius



Center Weighted Radius





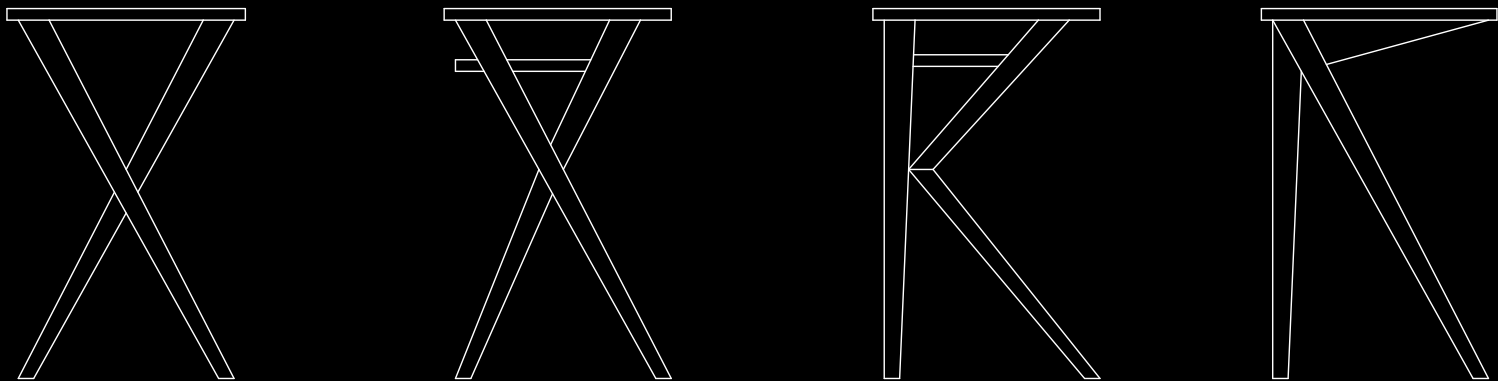
# Alpha Table

Furniture Design  
2012

Furniture designed to be fabricated out of planar material. Several prototypes were constructed and improved upon to achieve the final design. This plywood table is perfect for eating dinner or working on a laptop at the couch.



Iteration Profiles

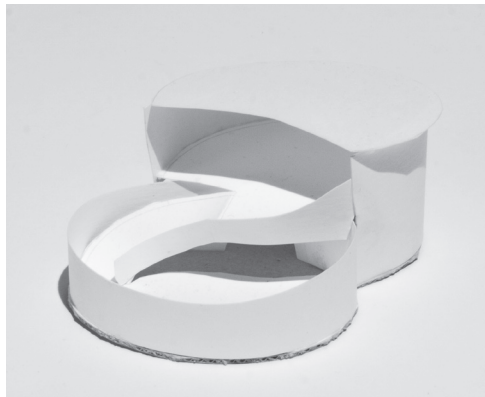




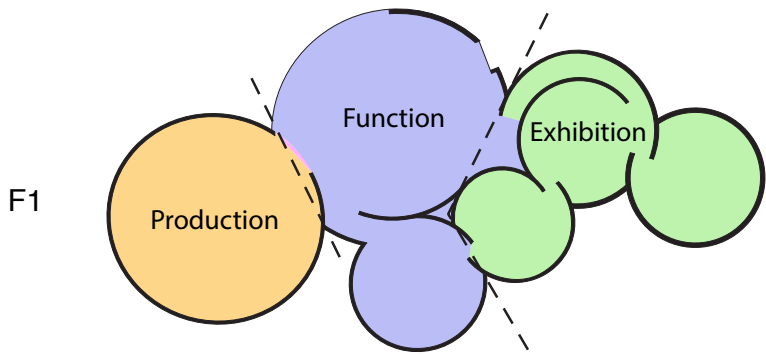
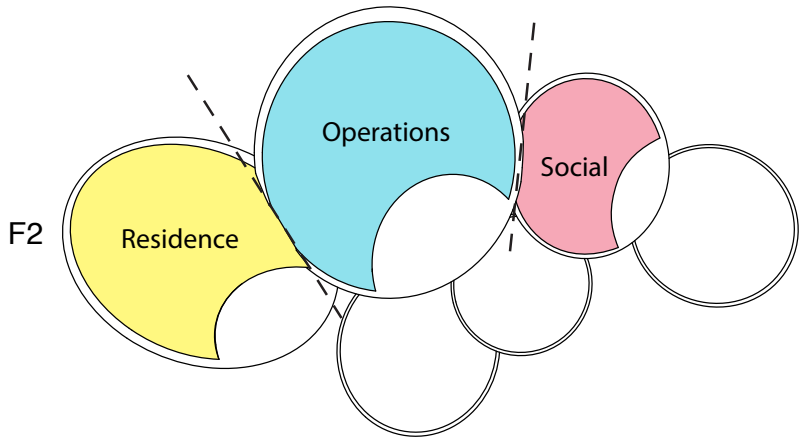
# Choucair Museum

Sculpture and painting galleries  
2012

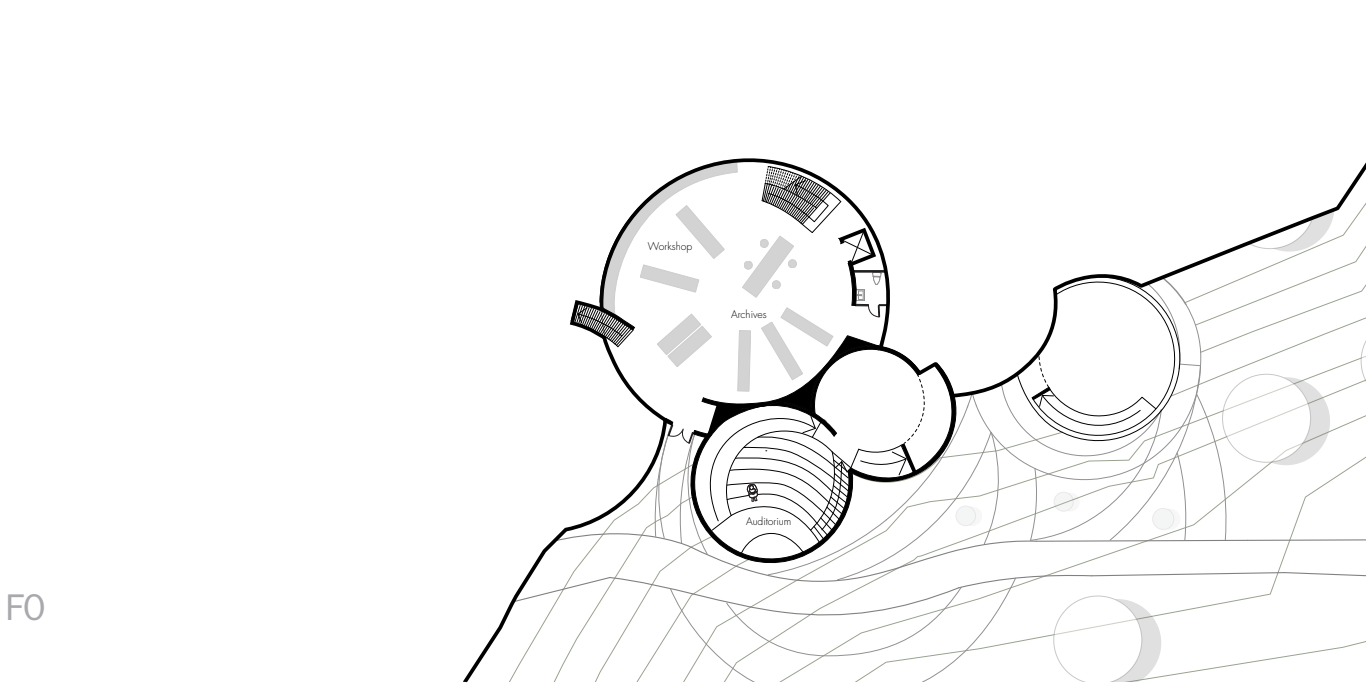
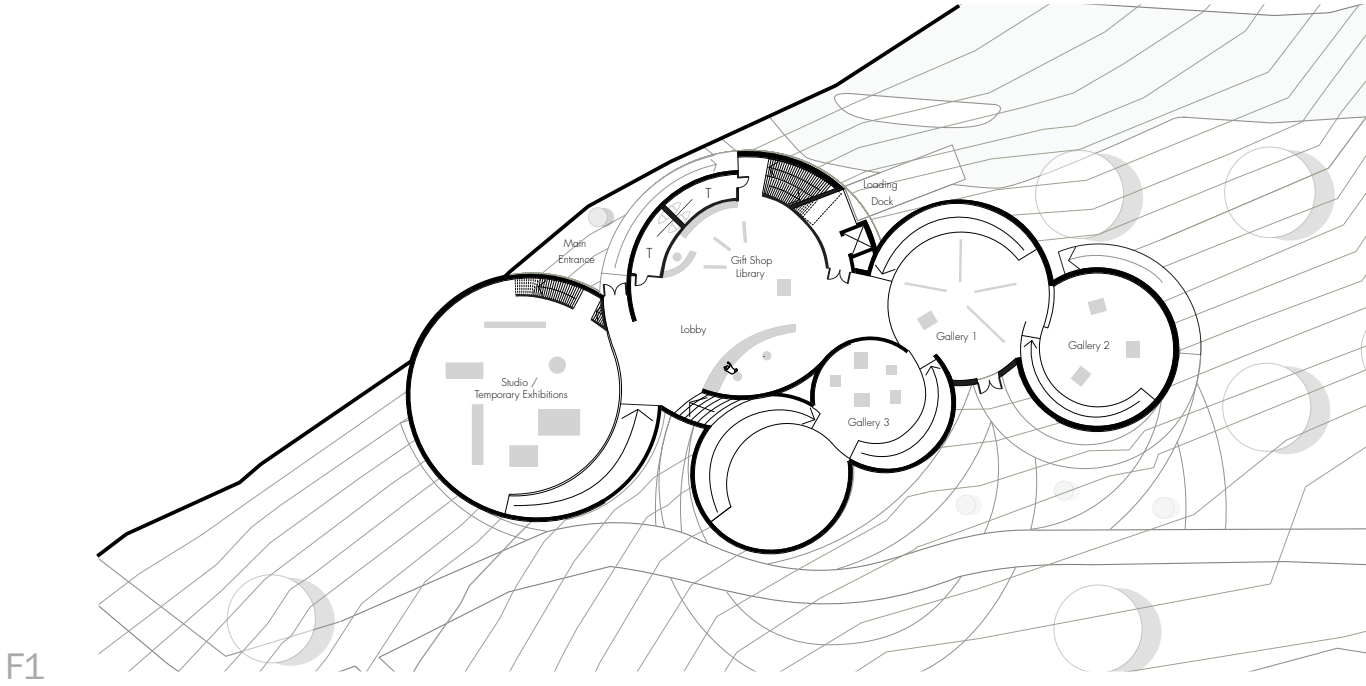
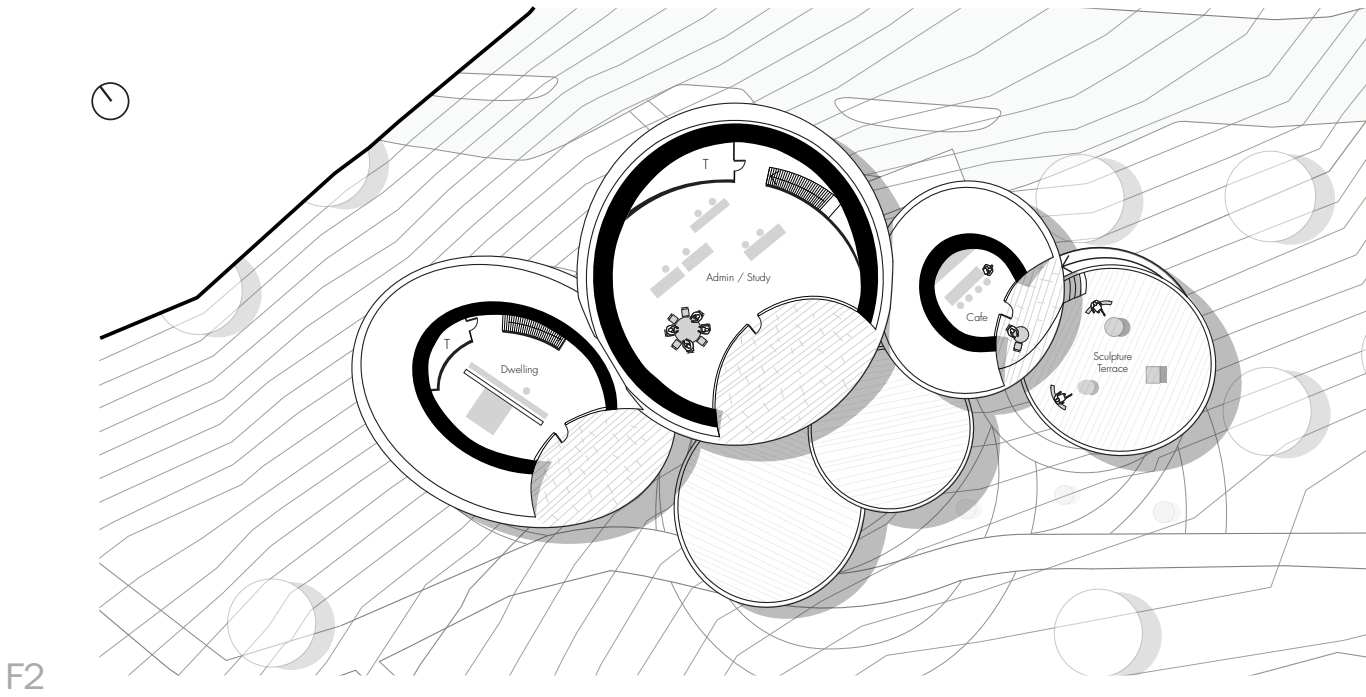
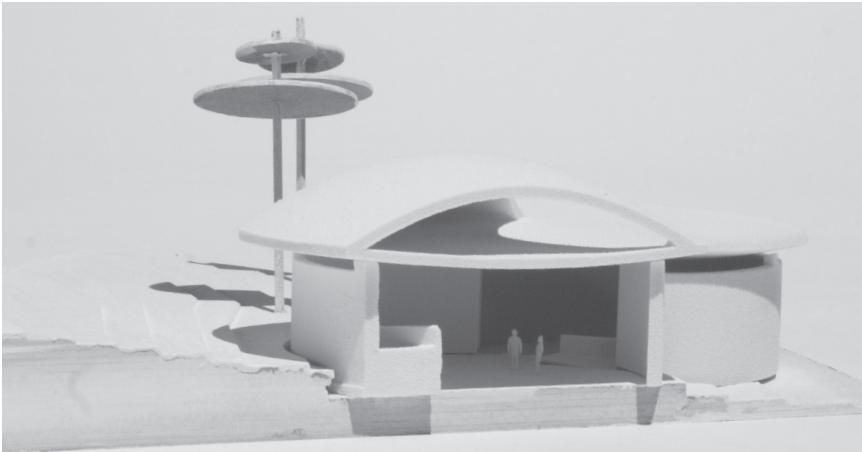
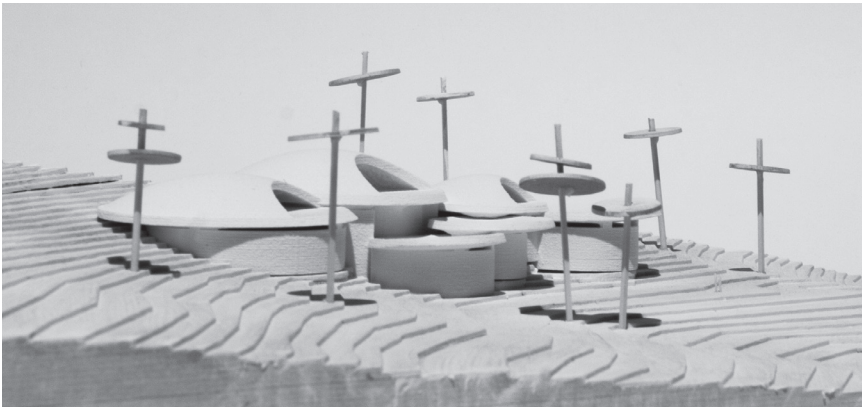
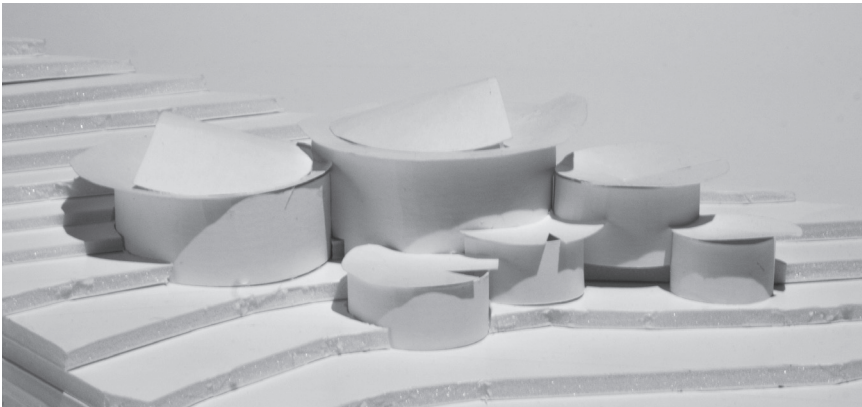
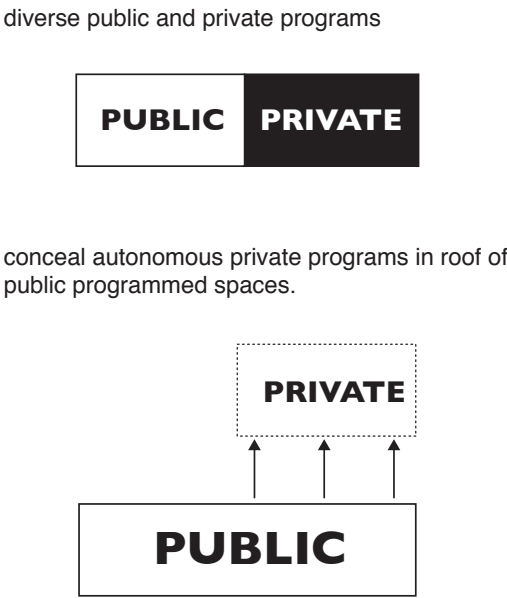
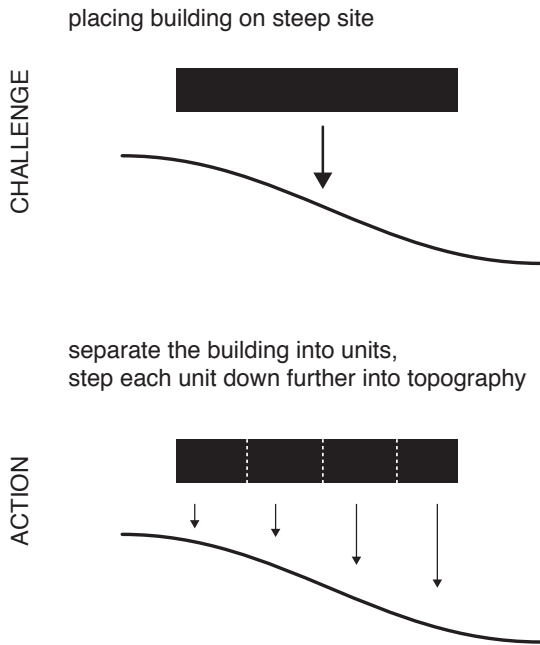
A museum on a hillside outside of Beirut provides a home for the art collection of Saloua Raouda Choucair, a Lebanese painter and sculptor. She was the first abstract artist in her country. The artist's collection was analyzed and several interviews with the daughter of the artist were conducted as part of the research for this studio project.



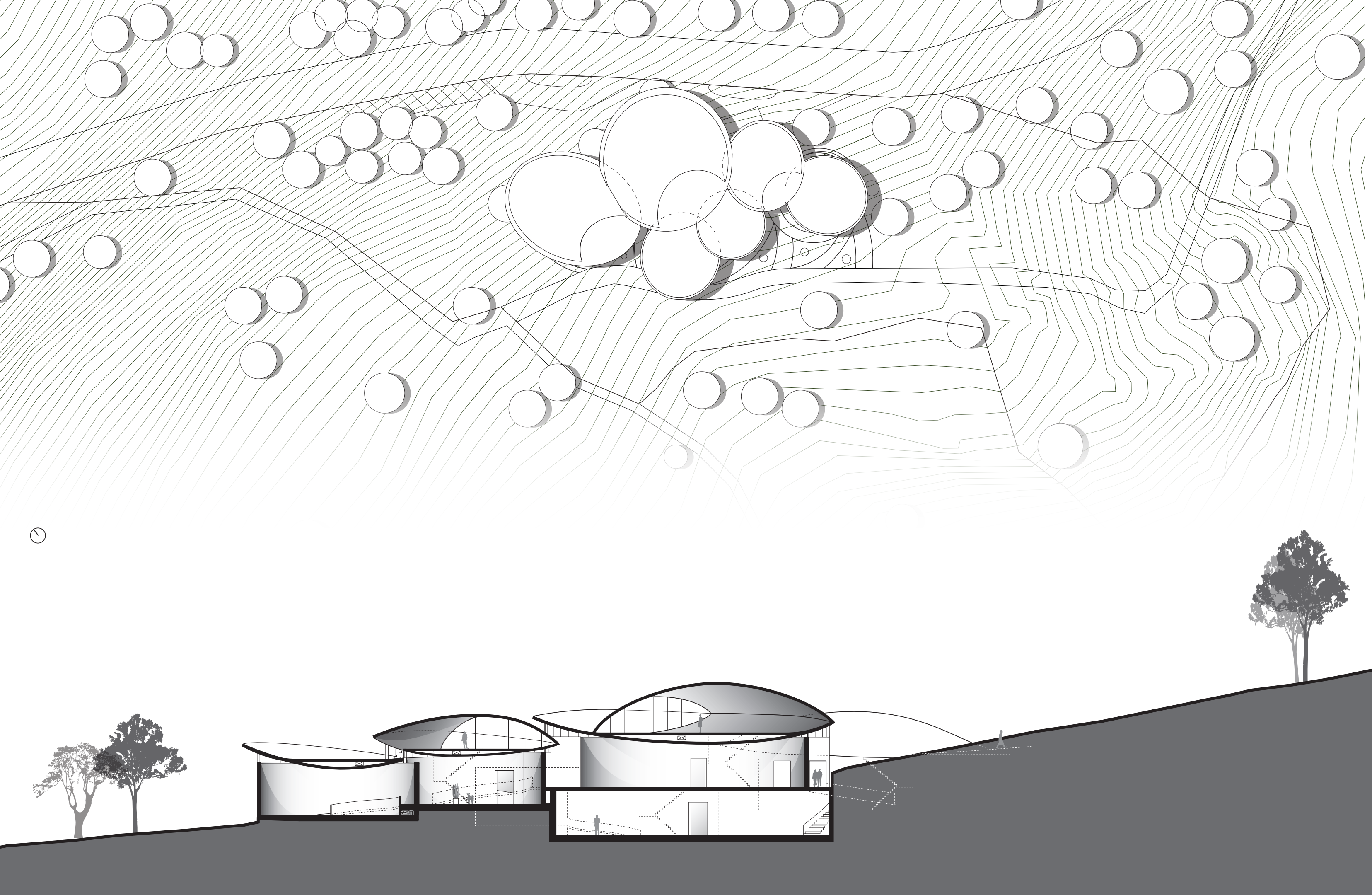
Concept Model



Distribution of Program



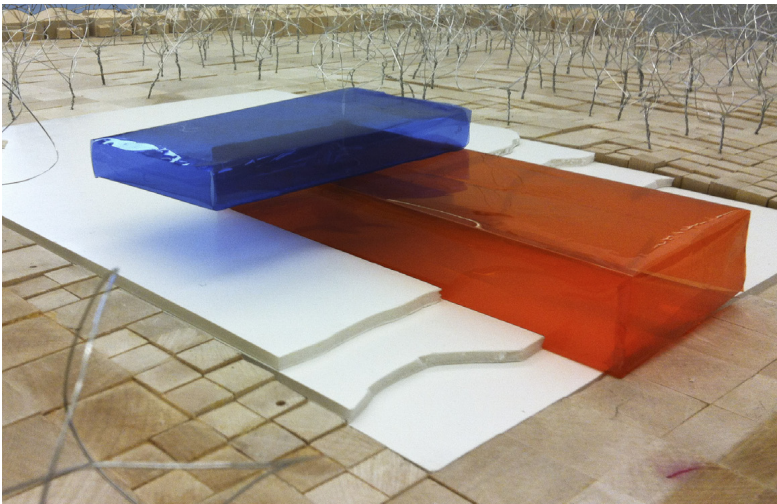
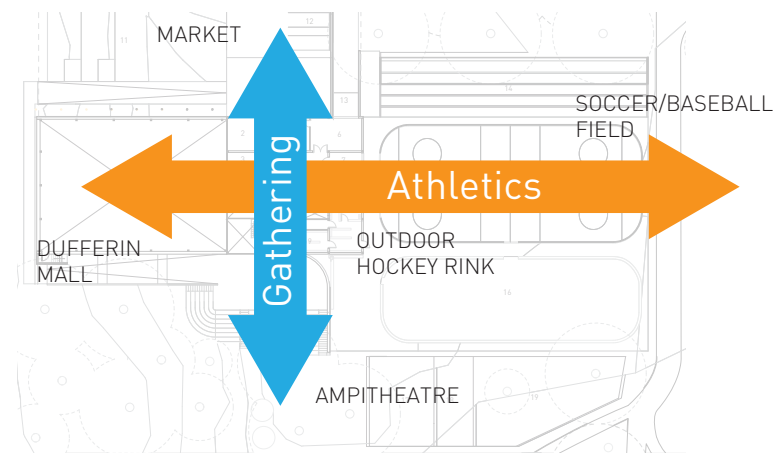




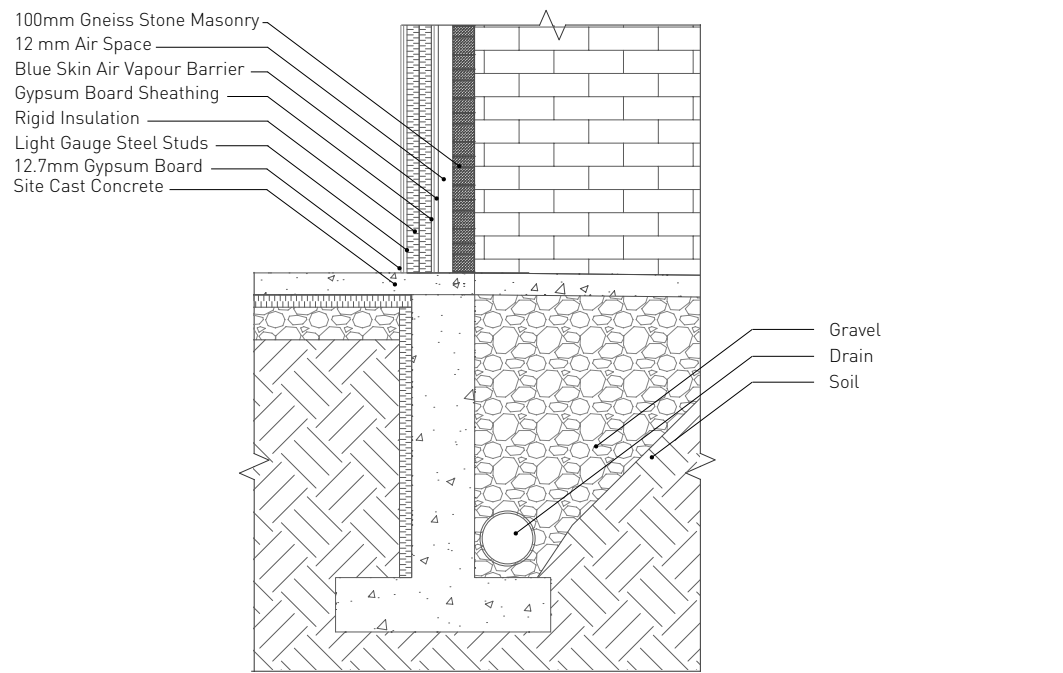
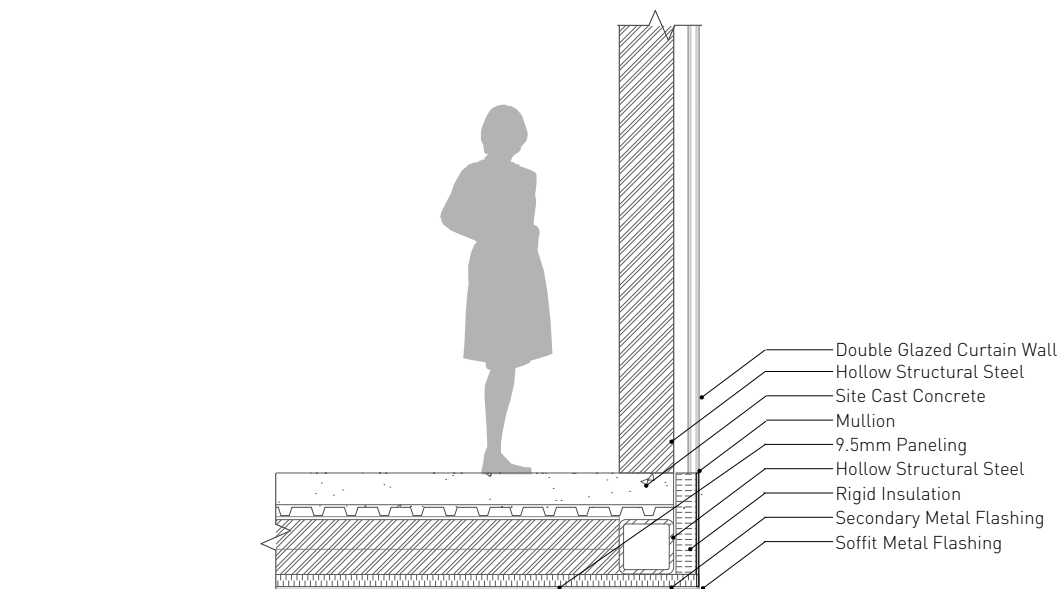
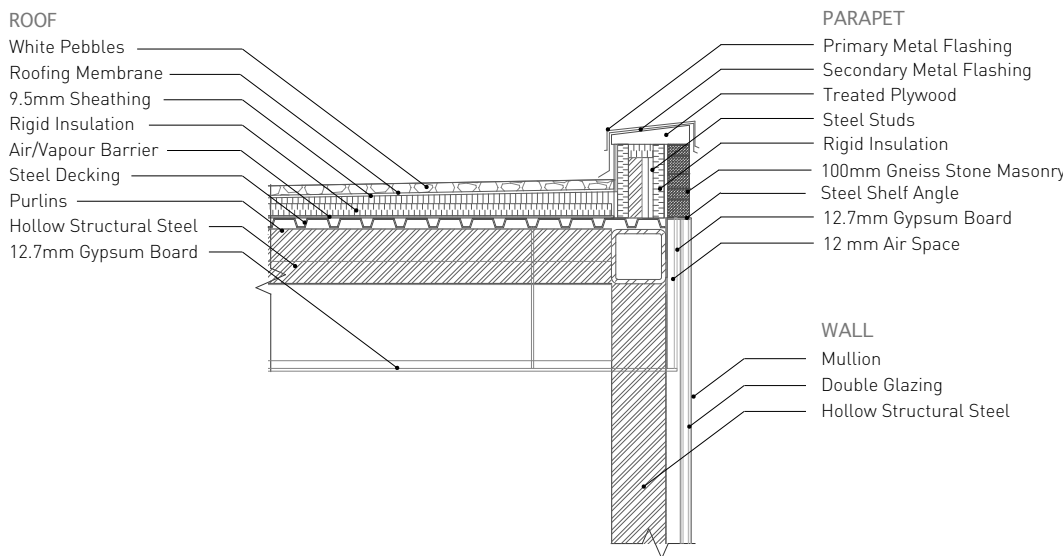
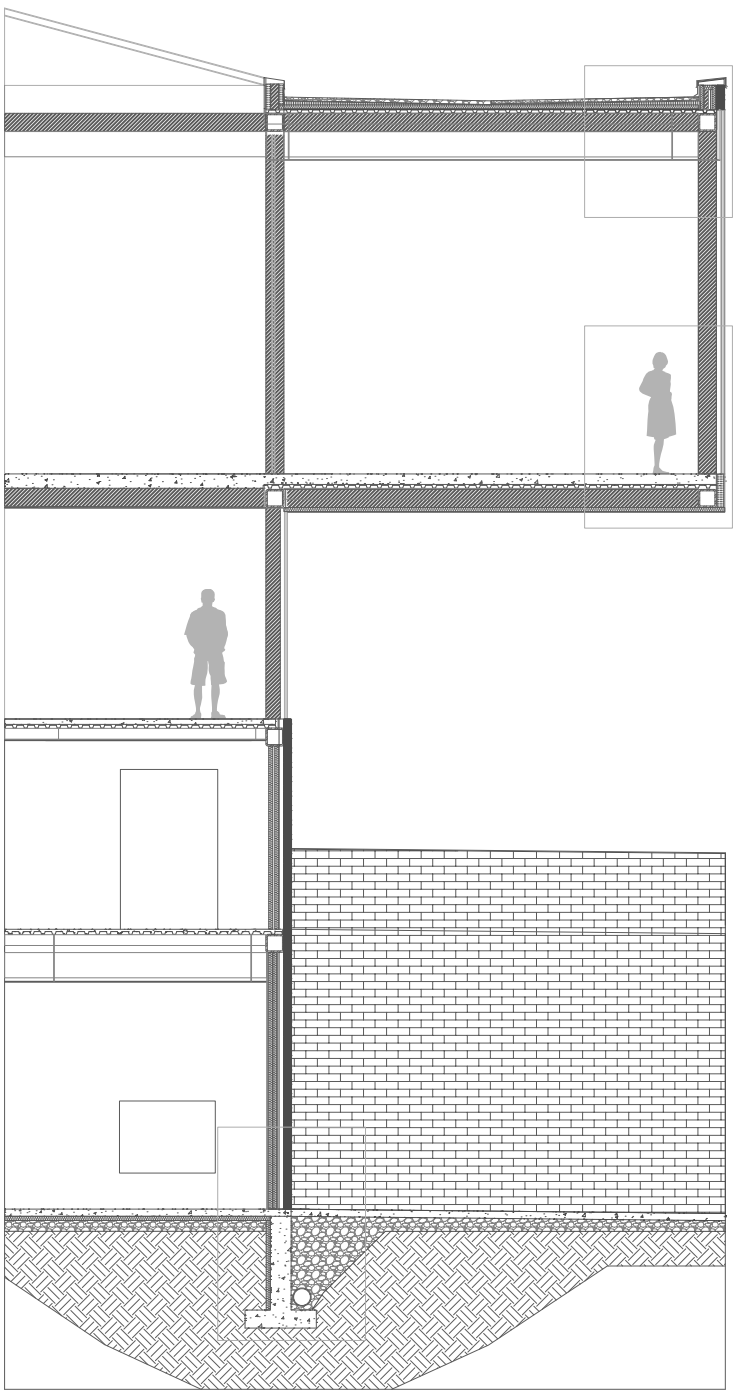
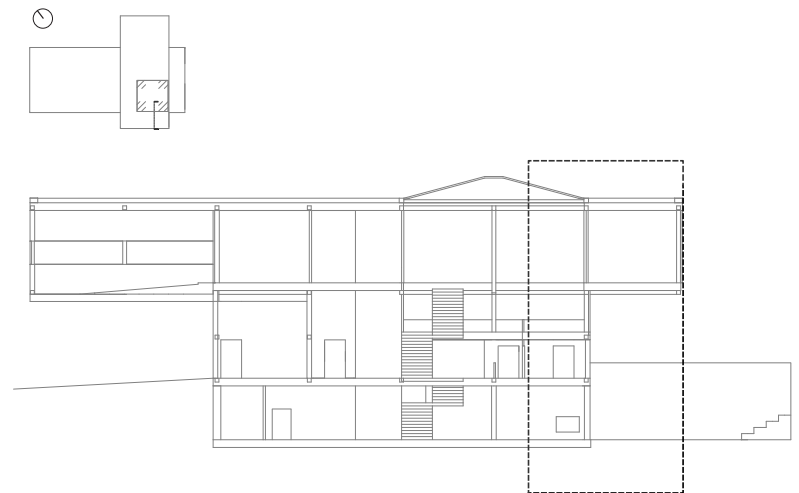
# Connecting A Community Hub

A community centre at the edge of a park  
Studio Collaboration with John Bautista  
2012

Placed between a bustling urban environment and forested parkland, the community centre creates a threshold between contrasting conditions. Contained in one volume, the interior programs are stacked to allow for a small footprint. The scheme utilizes complimentary functions arranged along dual axes, with athletics running east to west and social programs aligned north to south. This organizational layout draws connections between exterior and interior programs.



Concept Model

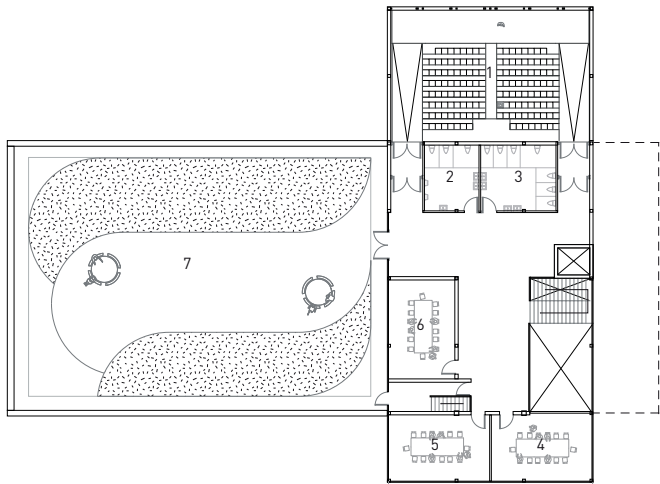




Floor Plans

F2

- 1 Auditorium
- 2 Male Washroom
- 3 Female Washroom
- 4 Meeting Room 1
- 5 Meeting Room 2
- 6 Meeting Room 3
- 7 Traversable Green Roof

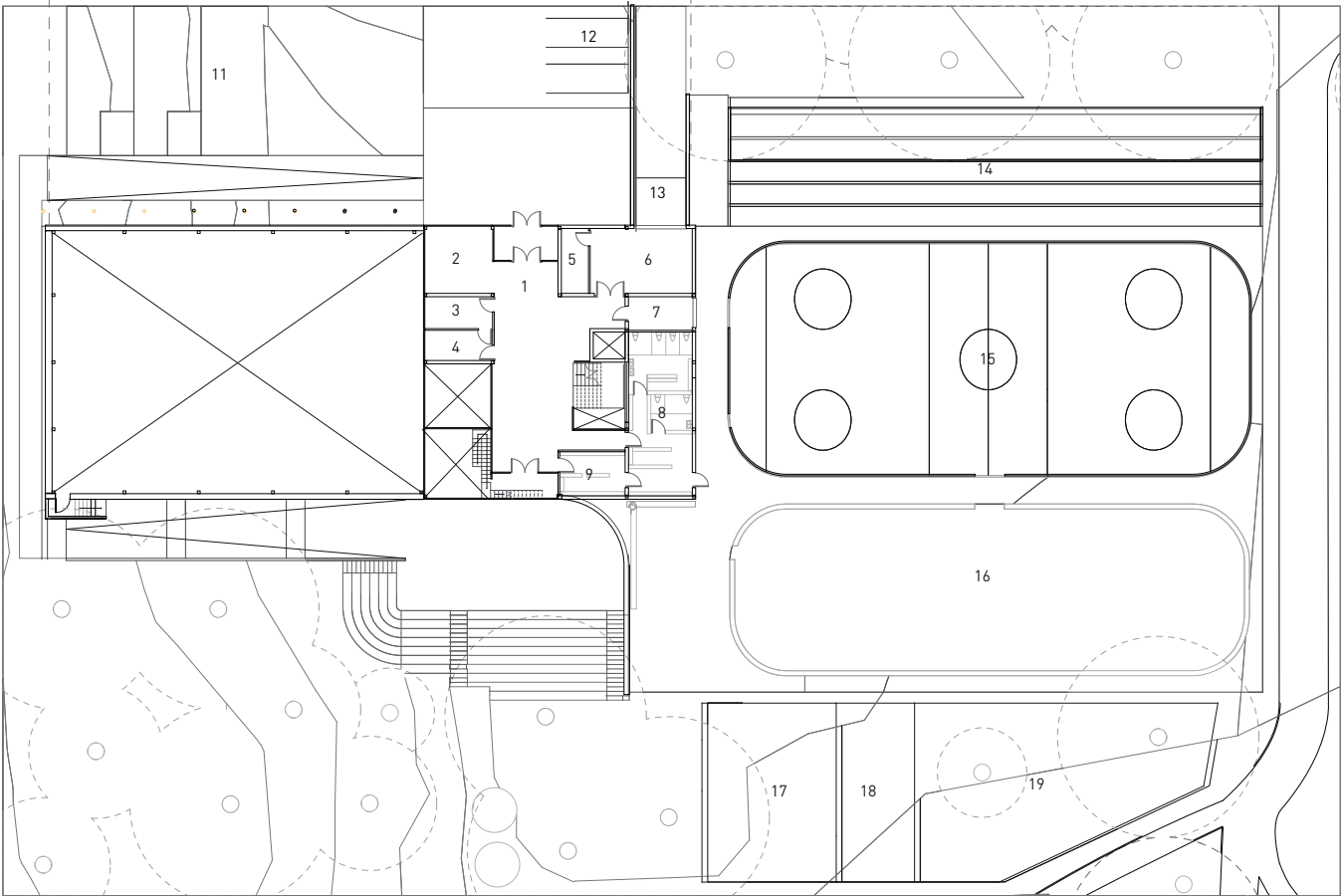


F1

- 1 Foyer
- 2 Cafe
- 3 Manager's Office
- 4 Instructor/First Aid
- 5 Farmers Market Storage
- 6 Shipping/Receiving
- 7 Zamboni Garage
- 8 Skate Change Room
- 9 Family Change Room

EXTERIOR

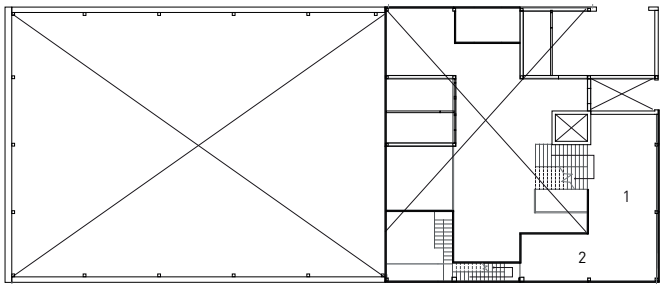
- 11 Farmers Market
- 12 Accessible Parking
- 13 Loading Dock
- 14 Spectator Seating
- 15 Hockey Rink
- 16 Leisure Skate
- 17 Playground
- 18 Splash Pad
- 19 Recreation



F1.5

MEZZANINE

- 1 Observation Deck
- 2 Lounge



F0

- 1 Gymnasium
- 2 Equipment Storage
- 3 Male Change Room
- 4 Female Change Room
- 5 Community Kitchen
- 6 Pizza Oven
- 7 Janitor's Office
- 8 Electrical/Mechanical
- 9 Outdoor Ampitheatre

