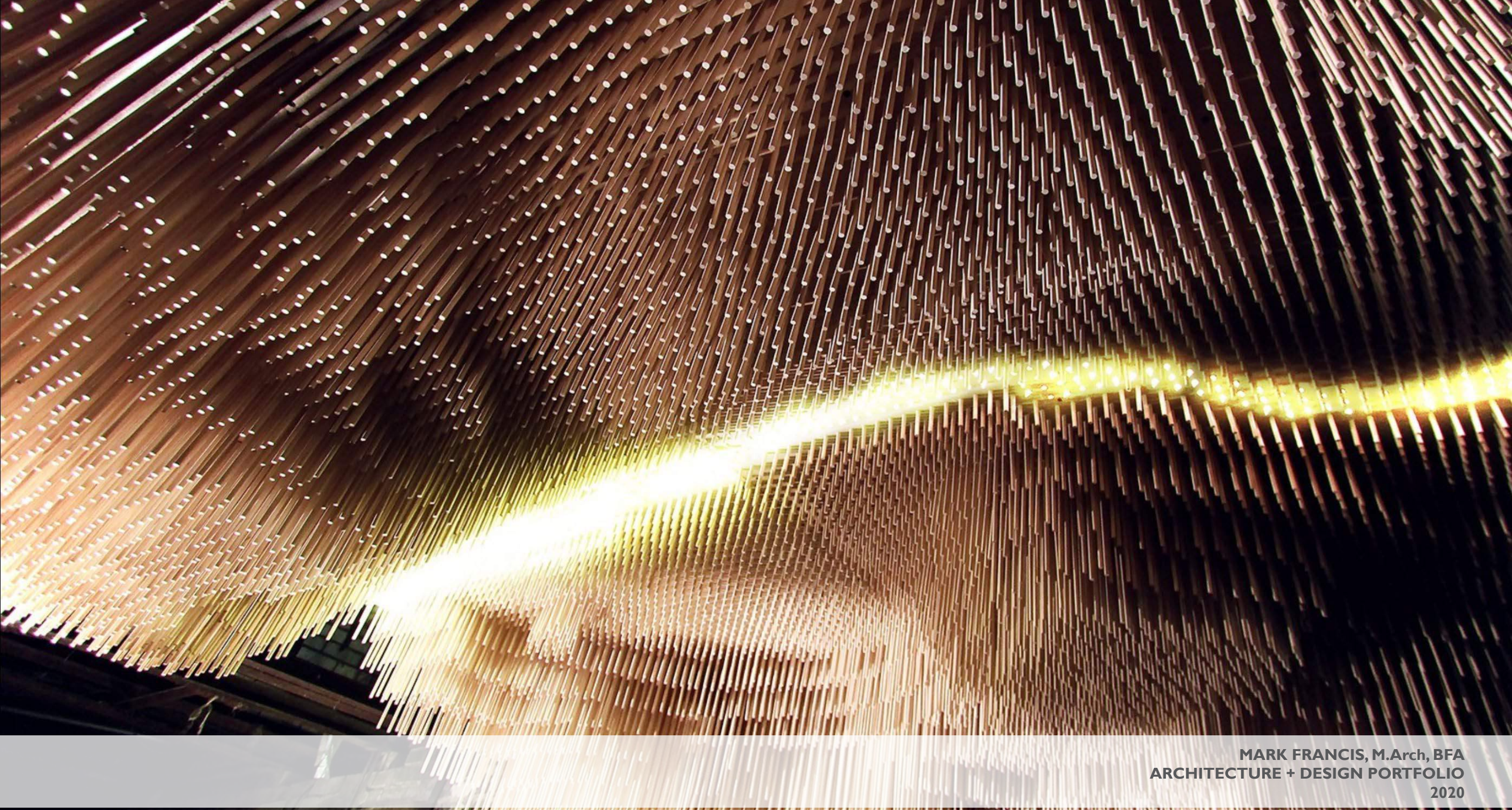


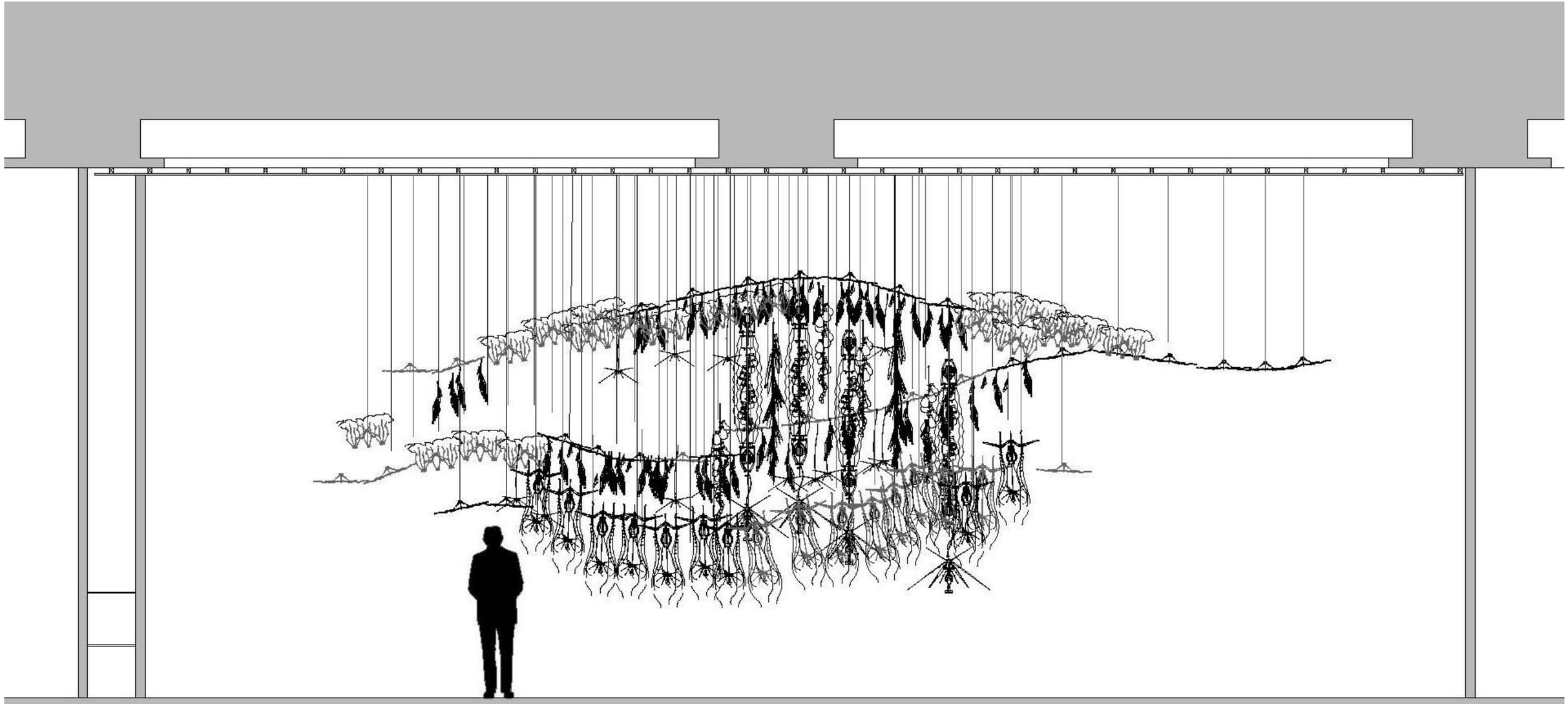
MARK FRANCIS, M.Arch, BFA
ARCHITECTURE + DESIGN PORTFOLIO
2020

RADIANT SOIL

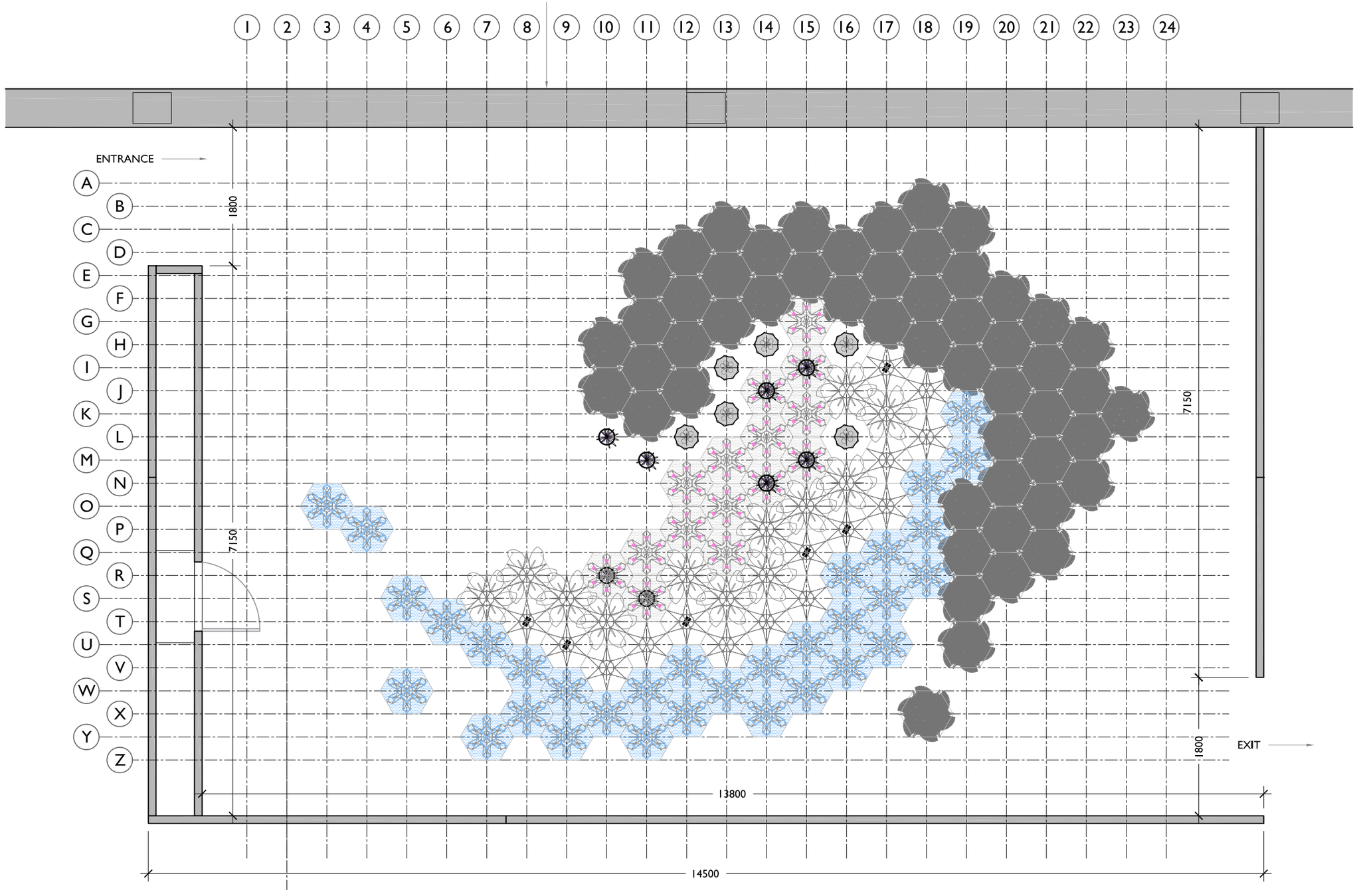
PBAI/LASG 2018, DEAGEON, SOUTH KOREA

Role: Installation Lead

Radiant Soil was a four month-long immersive installation at the Daegeon Museum of Art for the 2018 Daegeon Biennale. A reworking of a similar project of the same name from 2015 in Paris, Radiant Soil consisted of a dense core of light columns, SMA actuators, IR sensors, and glass chains encircled by swirling clouds of Sargasso and feather ghosts. The first major non-sphere installation during my tenure at PBAI, this project achieved strong interactive



A section-elevation through Radiant Soil, showing its overall swirling, elliptical form, and its relationship to the viewer. The following page features the corresponding project plan with swirling swathes of Sargasso, ghosts, breathing pores, and light columns.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ENTRANCE
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Y
Z
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7150
7150
1800
EXIT
13800
14500

MArch. THESIS PROJECT

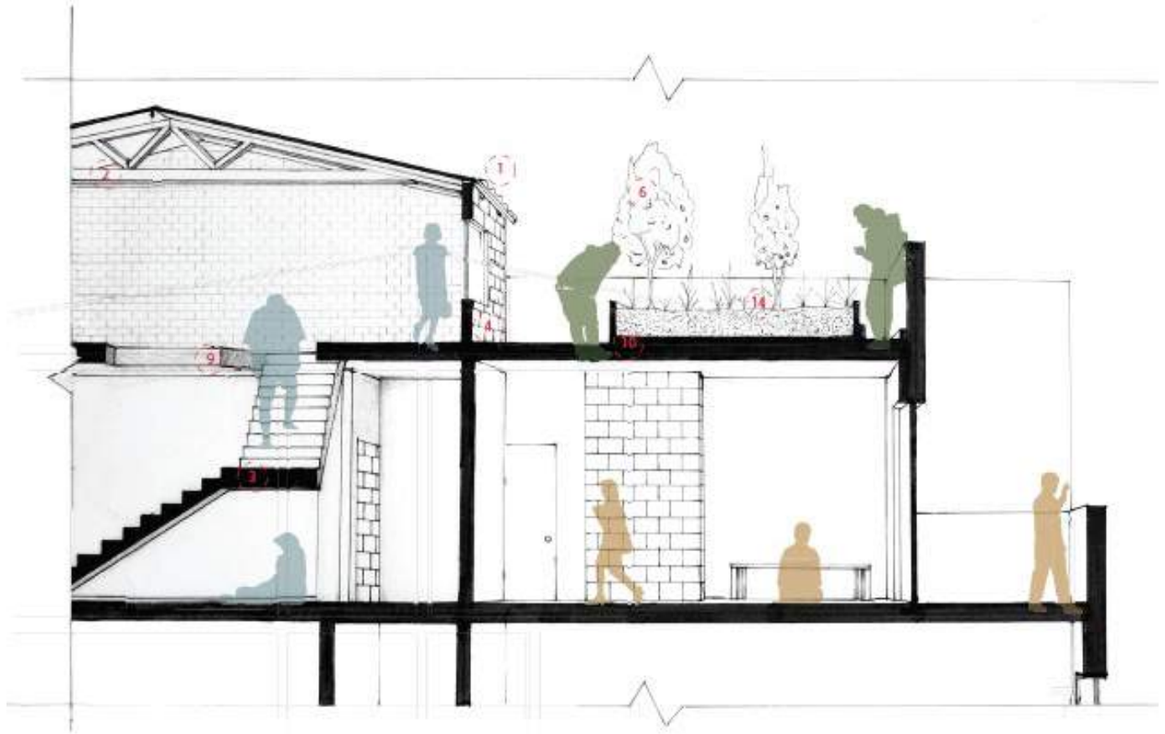
UNIVERSITY OF BRITISH COLUMBIA

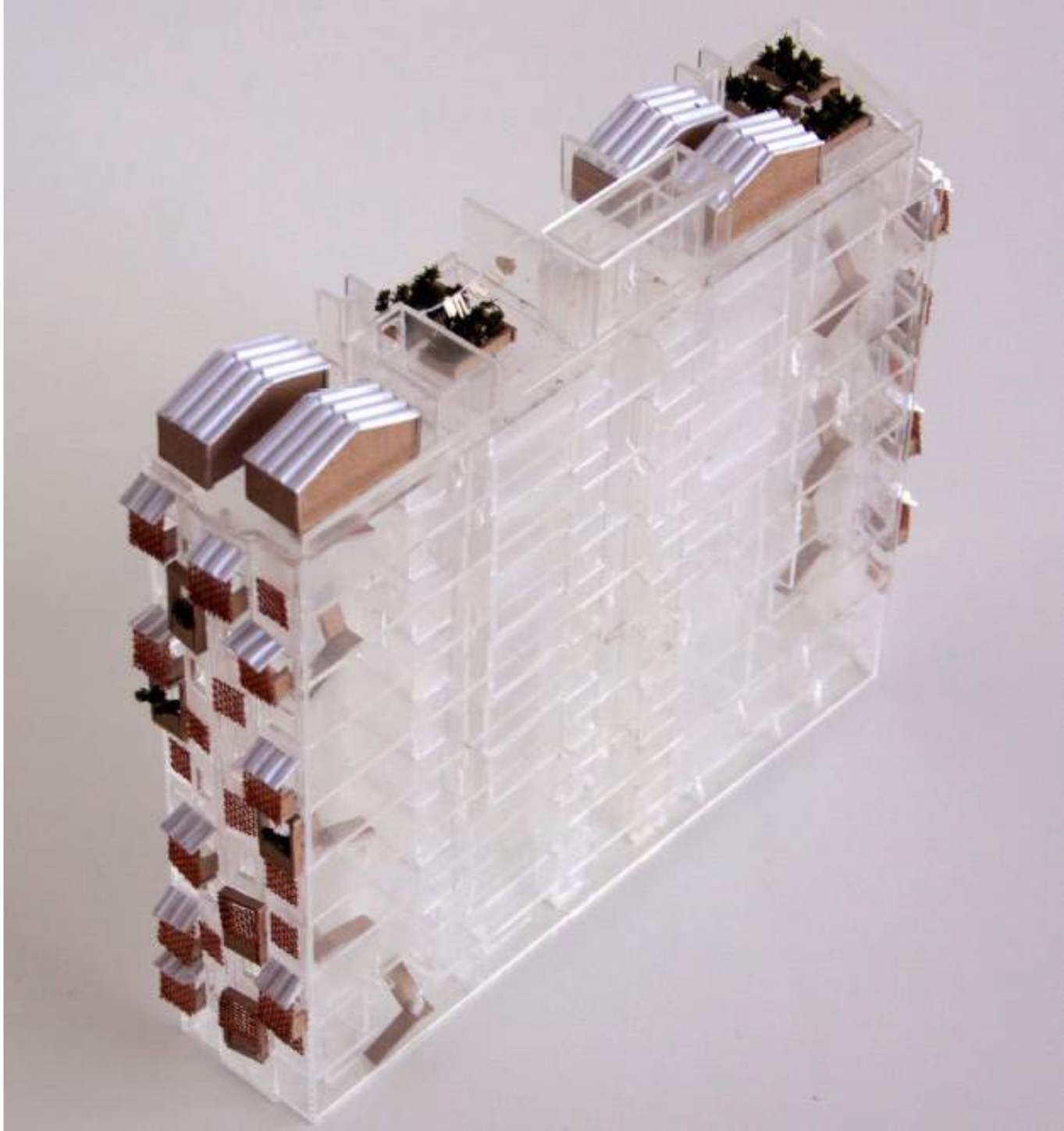
April 2014, Vancouver, British Columbia

Illegal Architecutre, Informal Urbanism

My M.Arch thesis, situated in Rio de Janeiro, Brazil, facilitates the remediation of an abandoned building in the downtown core through a collaboration between an “illegal architect” and a low-income squatting community. Previous page: a key map of the area and more detailed mapping exercise showing the programming of every individual building in the vecinity. Current page: a full projectbuilding section. As a speculative visualization, several possible sections were shown over the course of 15 years, changing according to family growth, wealth and material acquisition.

Right: A 1:200 scale model of the project site. Clear acrylic was used to represent the existing concrete structure, while opaque materials such as chip bord were used to represent the informal additions.
Below: A typical residential floors at year 15. The last page shows the roof with “favela” type housing additions and a vegetable garden.

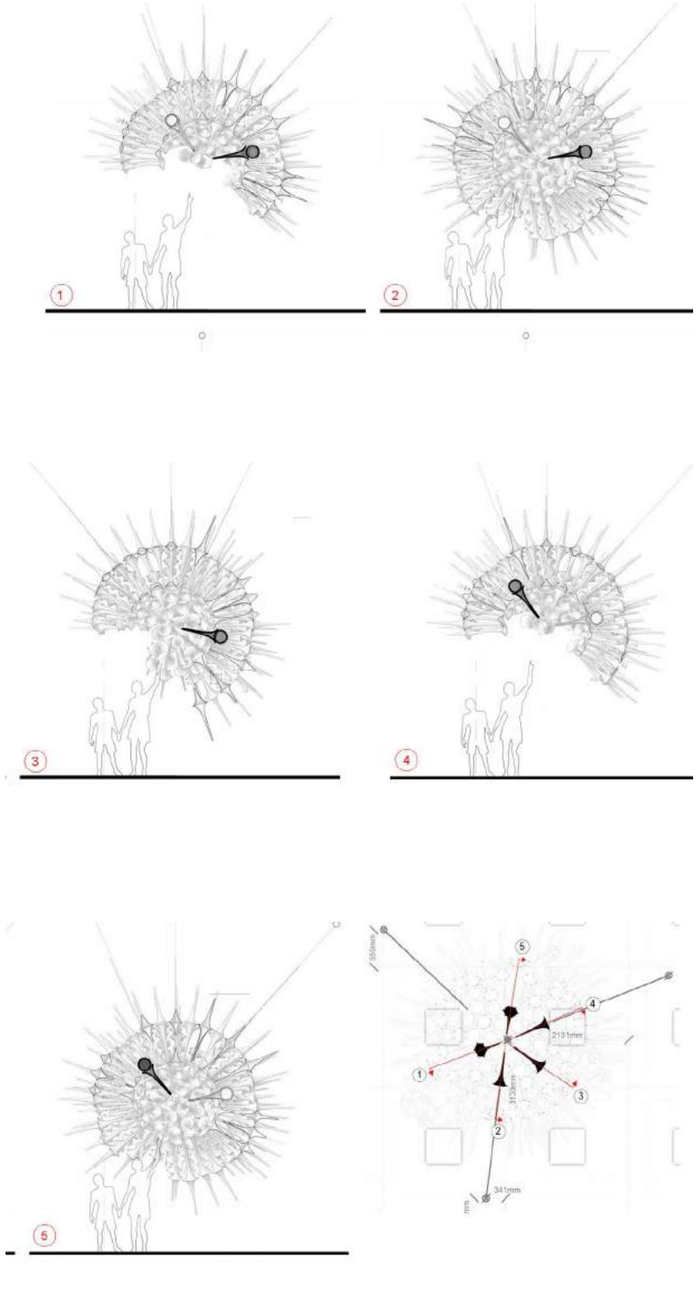




FUTURIUM: NOOSPHERE 2.0

PBAI/LASG 2019, BERLIN, GERMANY
Role: Project Lead & Installation Director

Noosphere 2.0 is an advanced iteration of same installation shown at the ROM in 2018. Featuring only the spherical portion of the sculpture, plus some parasitic spherical appendages, this highly interactive installation is housed in the children's "laboratory" area of the museum and features more advanced sensory and actuator networks.


1
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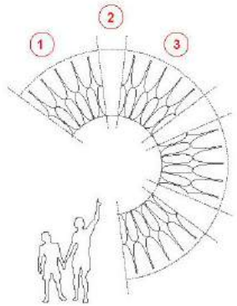
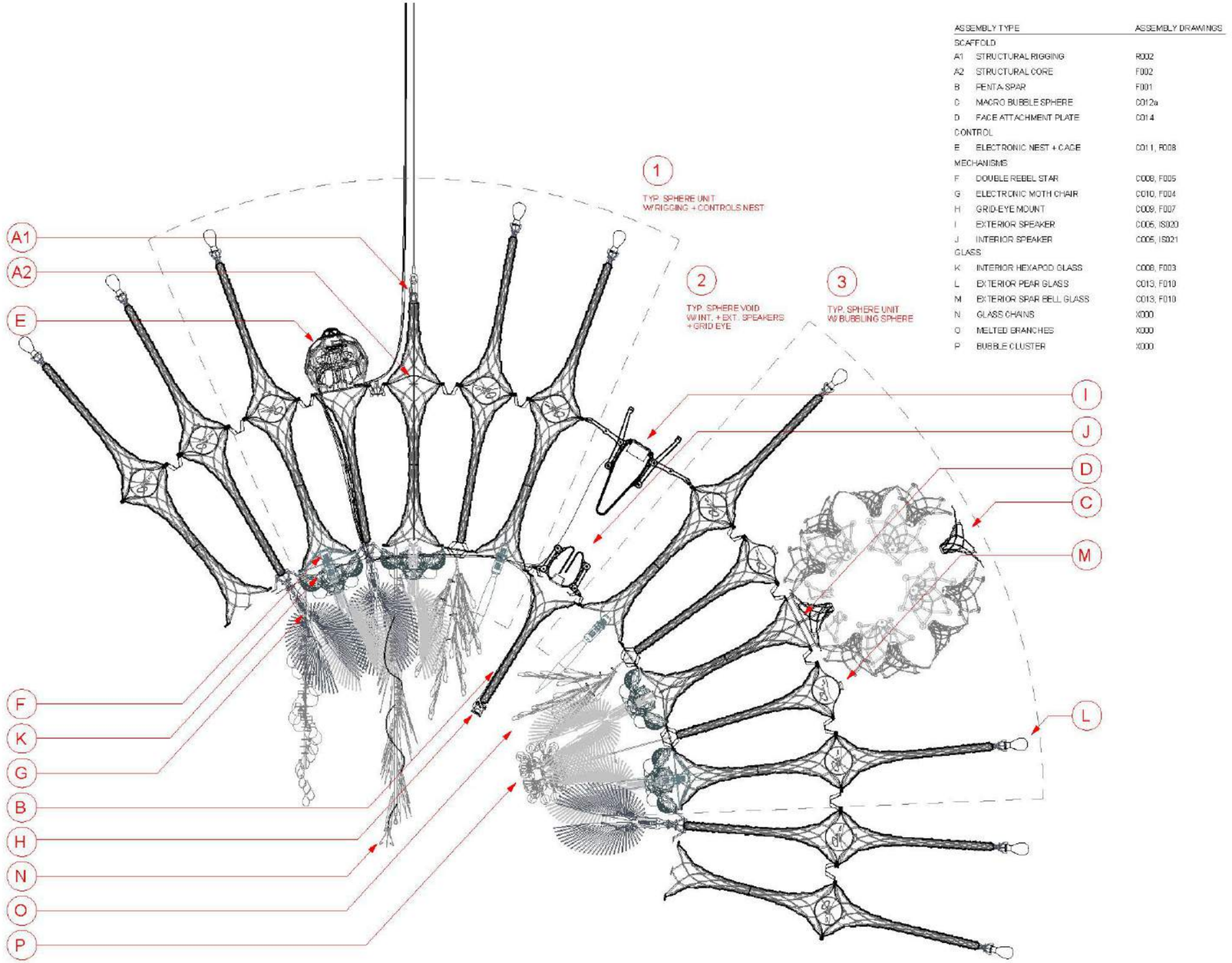
5
Underside of Reinforced Concrete Ceiling/Floorplate
6313
Sculpture's umbilical including power, communication, and dante (sound)
5162
Top Extents of Sculpture
4536
Top Extents of Core Sphere
Remove canvas panel on wall.
2920
Centre of Sphere
Bottom Extents of Core Sphere
1255
Bottom Extents of Sculpture
617
0000
Top of Finished Floor
2182
2102
2303
2
3
4
5

Key Legend





ASSEMBLY TYPE		ASSEMBLY DRAWINGS
SCAFFOLD		
A1	STRUCTURAL RIGGING	R002
A2	STRUCTURAL CORE	F002
B	PENTA-SPAR	F001
C	MACRO BUBBLE SPHERE	C012a
D	FACE ATTACHMENT PLATE	C014
CONTROL		
E	ELECTRONIC NEST + CAGE	C011, F008
MECHANISMS		
F	DOUBLE REBEL STAR	C008, F005
G	ELECTRONIC MOTH CHAIR	C010, F004
H	GRID-EYE MOUNT	C009, F007
I	EXTERIOR SPEAKER	C005, IS020
J	INTERIOR SPEAKER	C005, IS021
GLASS		
K	INTERIOR HEXAPOD GLASS	C008, F003
L	EXTERIOR PEAR GLASS	C013, F010
M	EXTERIOR SPAR BELL GLASS	C013, F010
N	GLASS CHAINS	X000
O	MELTED BRANCHES	X000
P	BUBBLE CLUSTER	X000

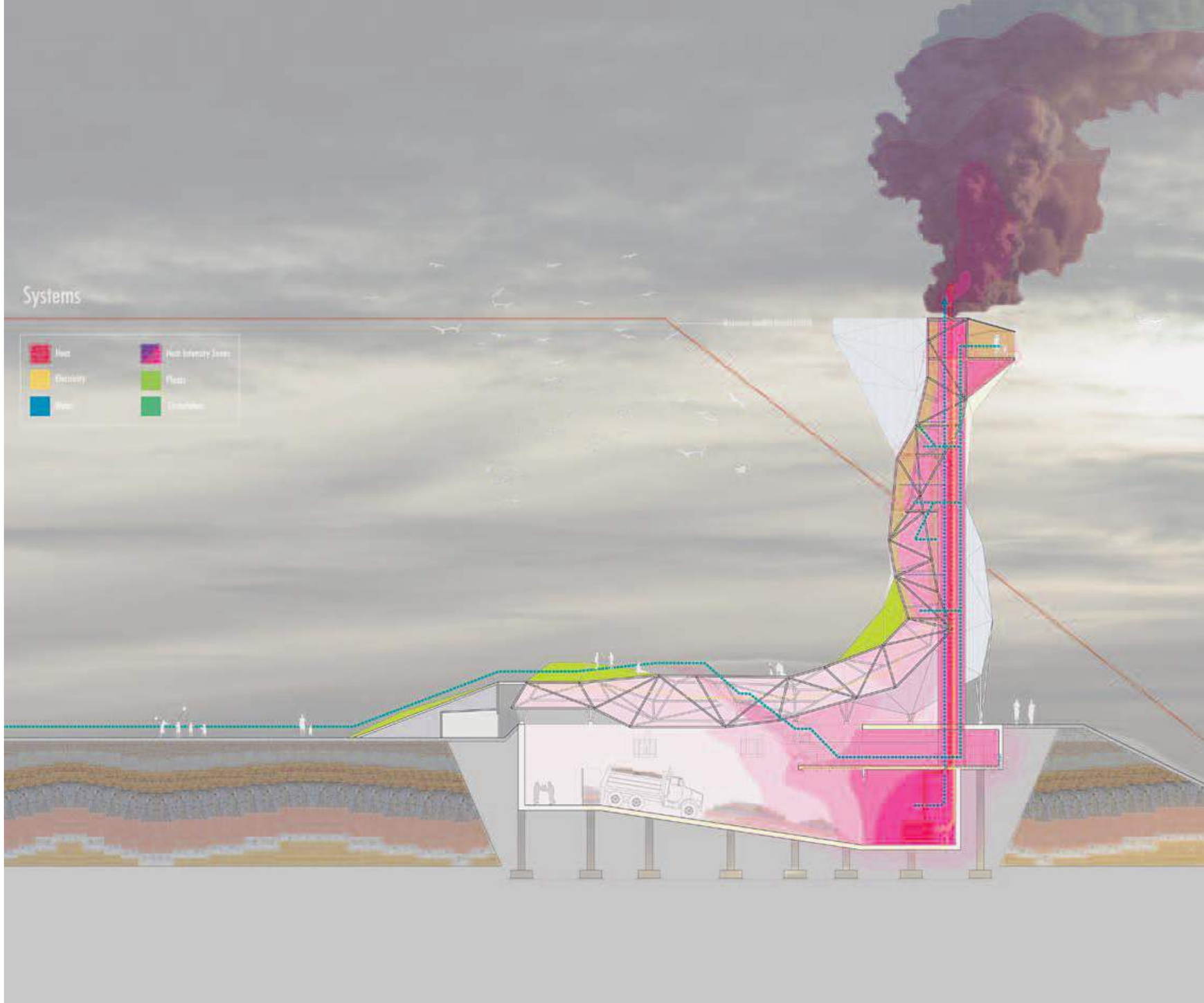
A section-lexicon of every electronic, structural, and decorative condition contained in the sculpture. This type of drawing is typical of the studio and extremely important for organizing the assembly typologies of each project.

MArch. STUDIO PROJECT

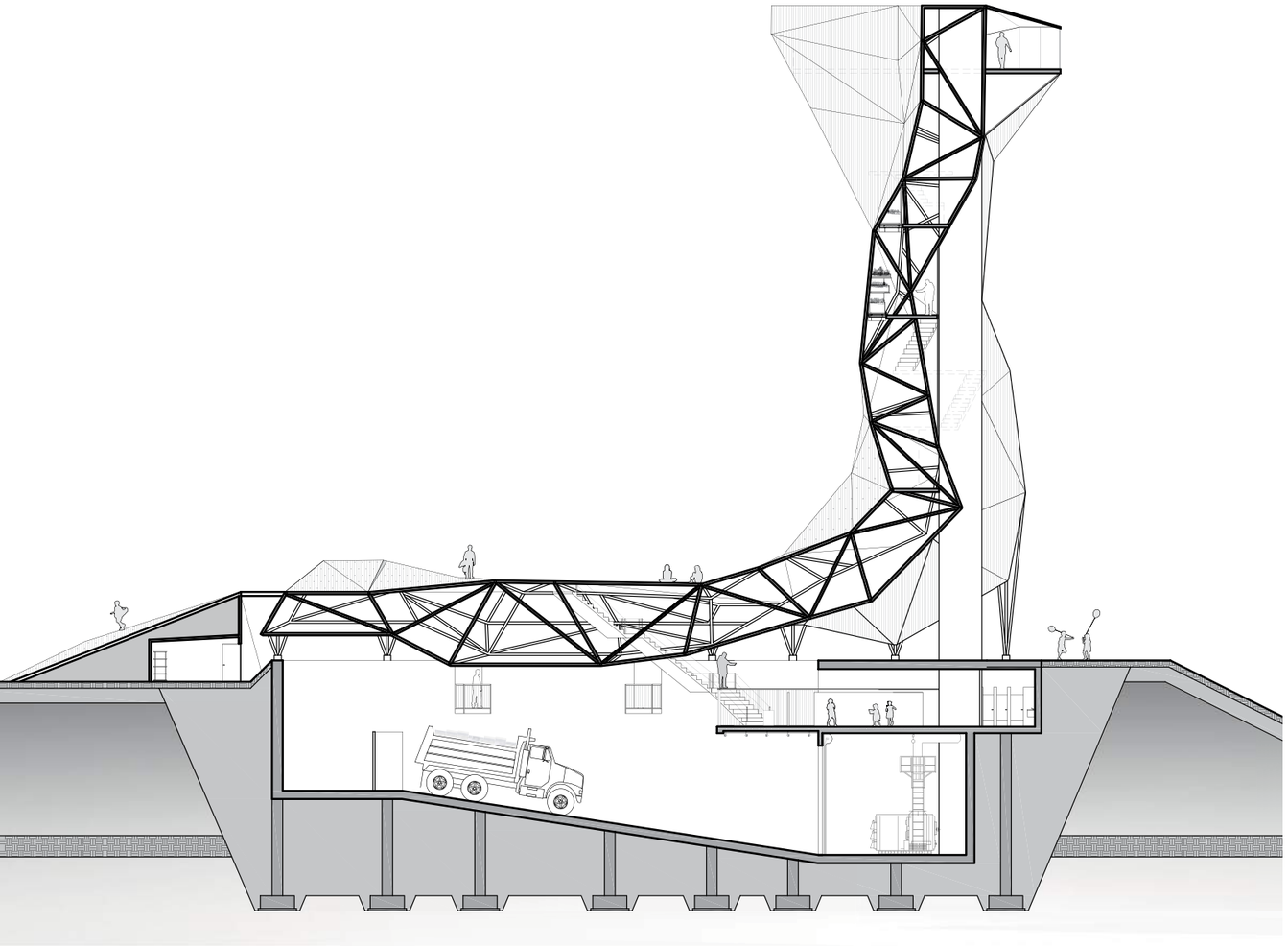
UNIVERSITY OF BRITISH COLUMBIA

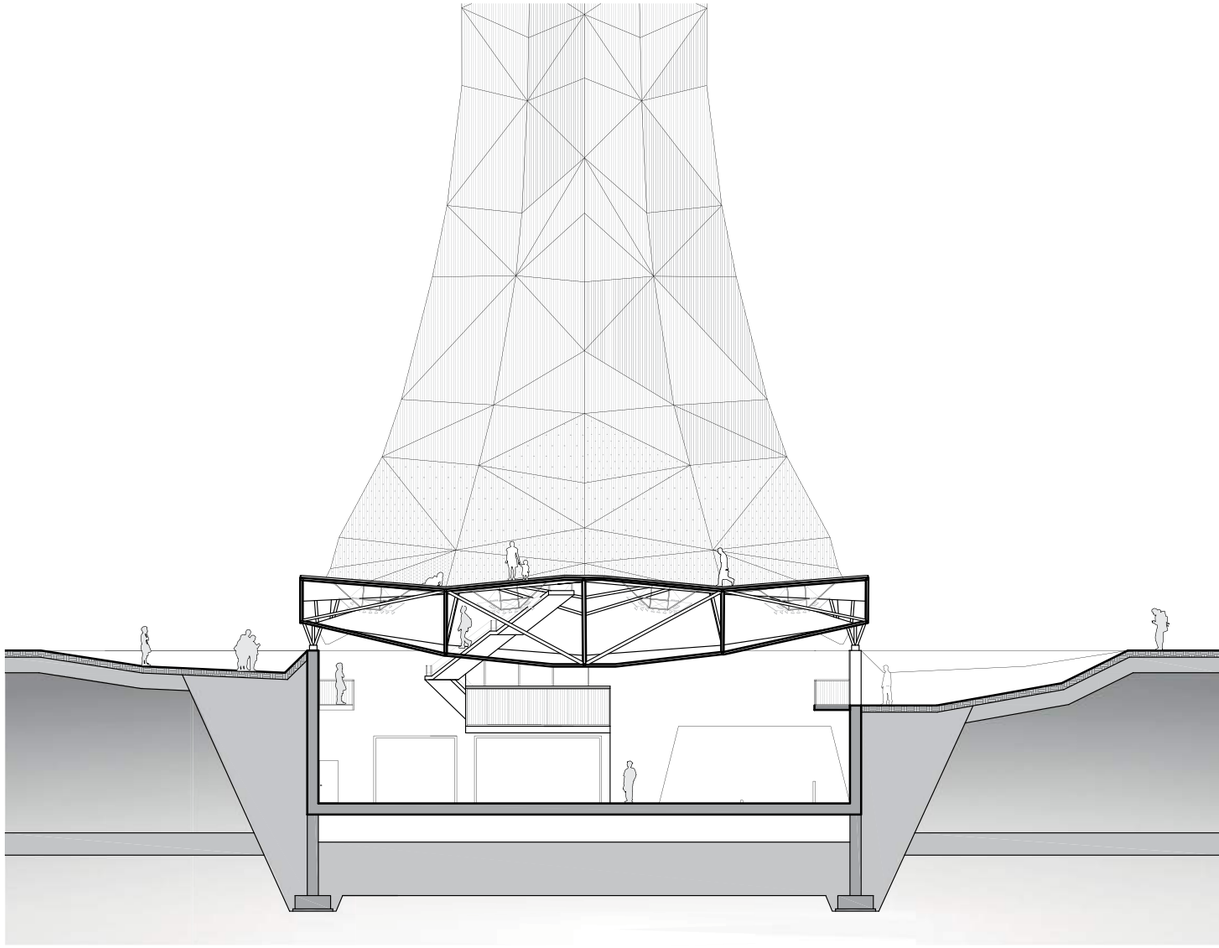
April 2013, Vancouver, British Columbia

Role: Co-Designer, team of two

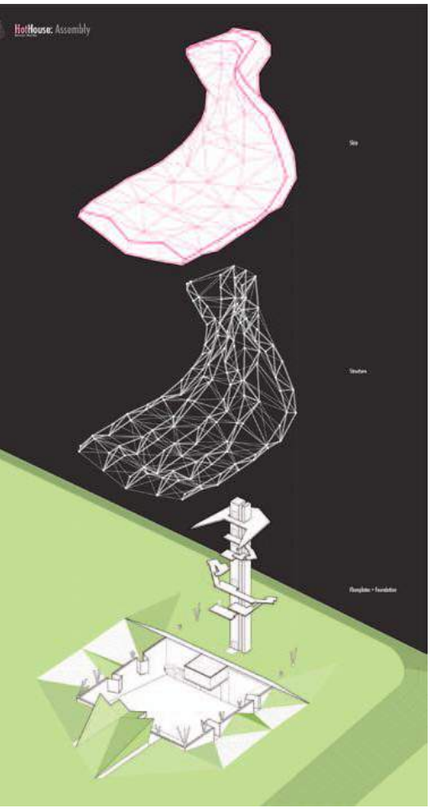


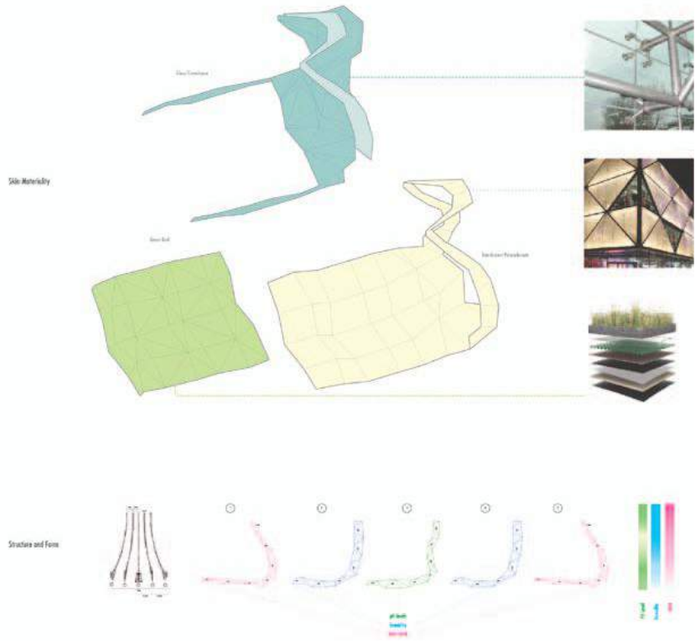
As part of the comprehensive studio teams of two were tasked with designing an interpretive center for the Burns Bog landfill south of Vancouver, upon its closing in 2045. Our scheme took the idea of the anthropocene and built a mine and incinerator into the interpretive center that also heats a vertical greenhouse in the observation deck's tower. Built to the height of the tallest existing waste mound (the red line), the top of the observation deck would be re-minder of the extent to which humanity had piled garbage in this location, long after the mate-rials and methane gas have been depleted, erasing the landfill in the process.

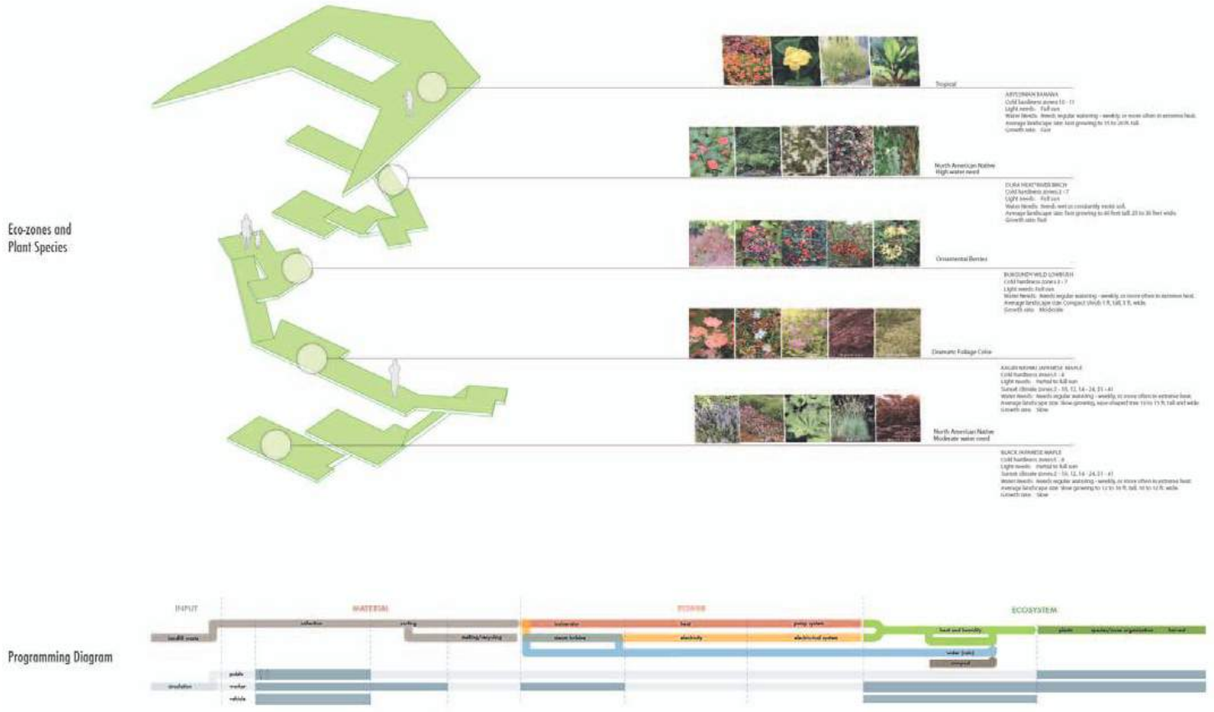




Two section drawings show the long and short axis of the building. The excavated area below the space-frame structure is accessible to trucks via an underground ramp and is the location where mined waste is dropped off to be sorted and incinerated. The visitors must pass over this area in order access the green house and observation deck beyond. The following page features the main project rendering, using Rhino and Photoshop.







On the left, the two exploded axonometric diagrams show the space-frame structure of the "incinerator-greenhouse", and how the five versions of truss give the structure its undulating shape. The undulation is inspired by the different soil, water, and temperature conditions particular to each climate zone of the greenhouse. To the right, the specific climate zones are shown, with tropical at the top due to the rising heat, and the variety of edible plants in each zone pictured. The produce harvested from the greenhouse would then be served in the observation deck.

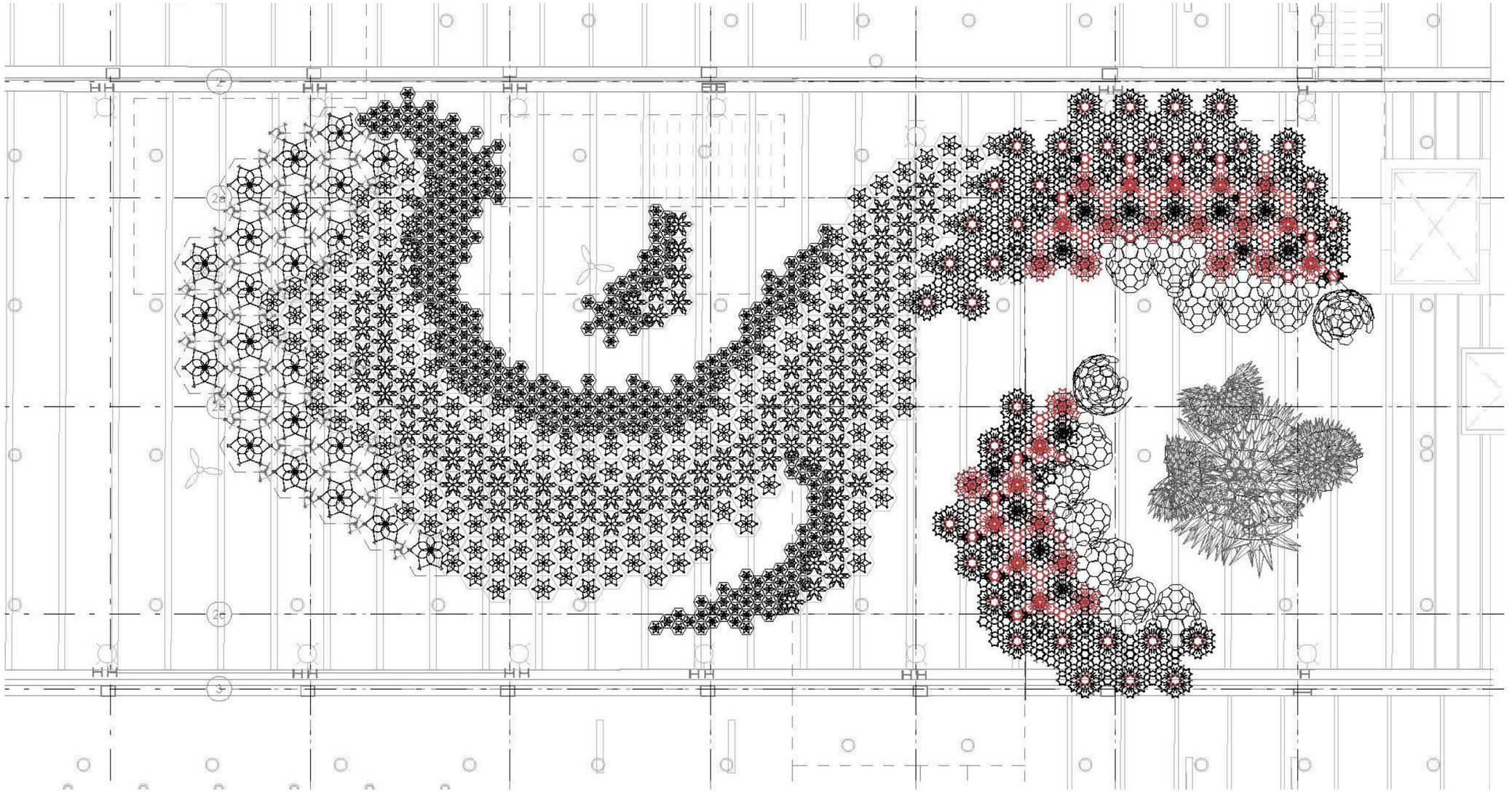
MEANDER

AT THE GASLIGHT DISTRICT

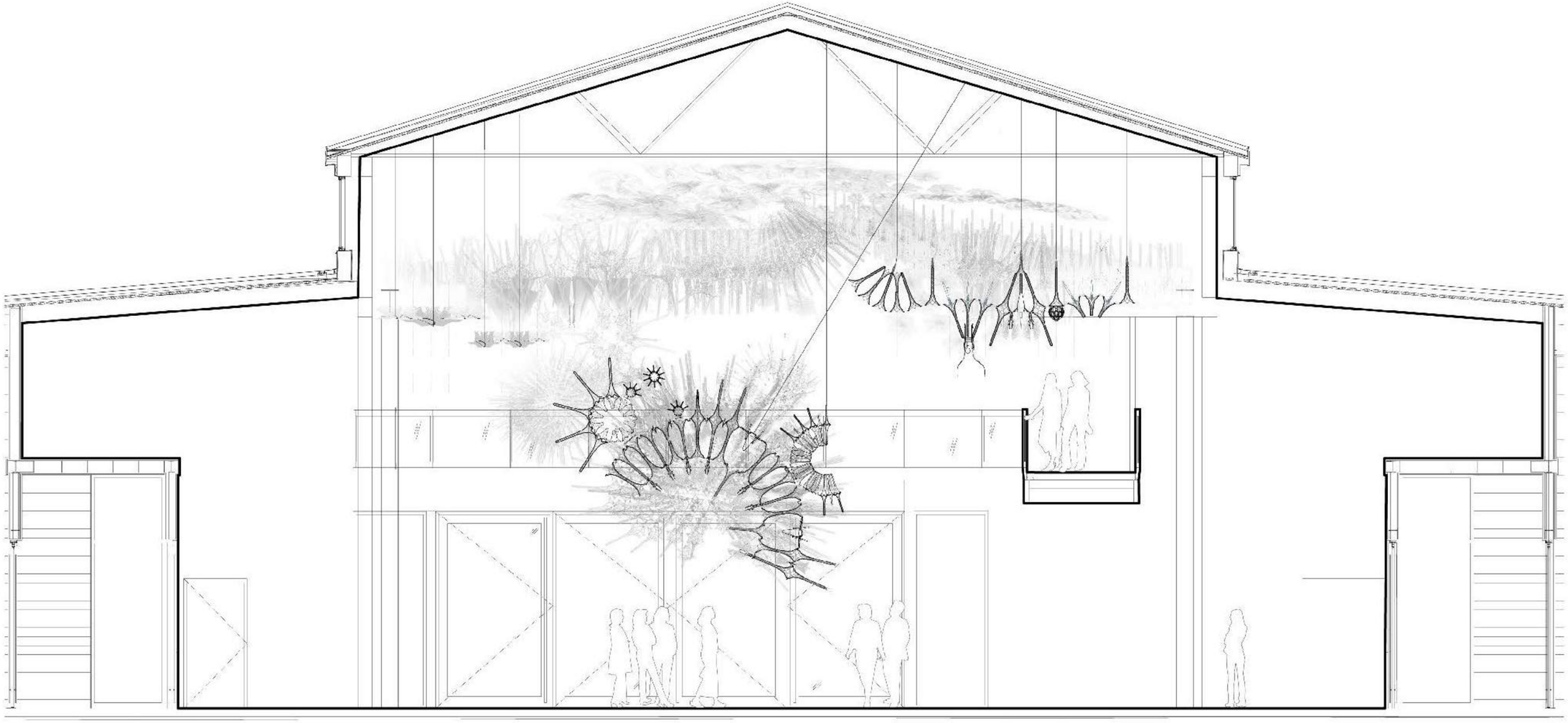
PBAI/LASG 2020, CAMBRIDGE, ONTARIO

Role: Installation Director

Meander is the largest PBAI project to date, and is comprised of the logical conclusion to mul-tiple streams of geometric and interactive research over the years. Situated on the banks of the Grand River, the sculpture takes real-time flow data from the Grand River Conservation Authority and displays it as a background of sounds, motion, and light in the interactive event space environment.



The project masterplan for Meander here shows the three main areas: Grotto (large sphere cluster), River (dense surrounding area), and Cloud, all situated within the Tapestry Hall event space.



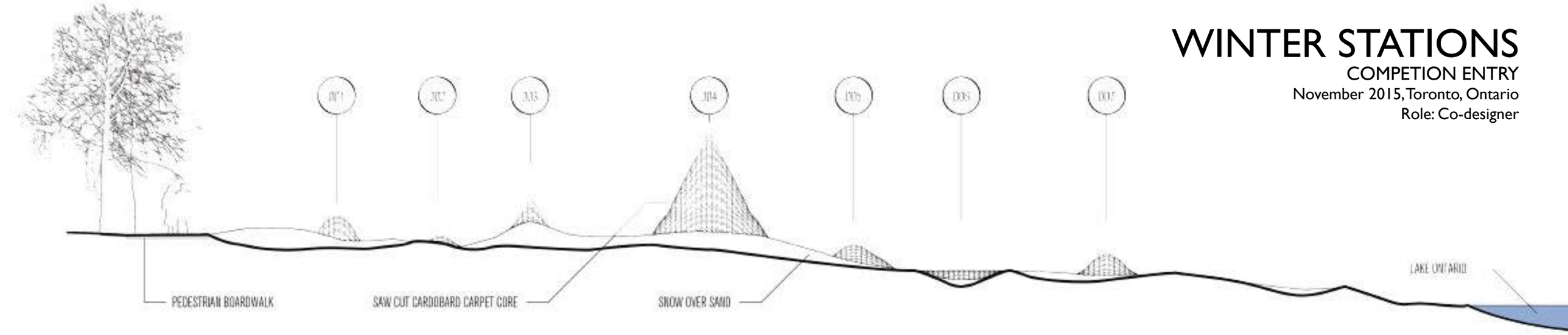
Project North-South section showing the relationships of all major installation areas to each other at varying levels, with interactive interfaces on both the ground and mezzanine levels. As viewers traverse the space at different levels they experience hundreds of different versions of the sculpture, with no single vantage point capturing the entire work.

WINTER STATIONS

COMPETION ENTRY

November 2015, Toronto, Ontario

Role: Co-designer

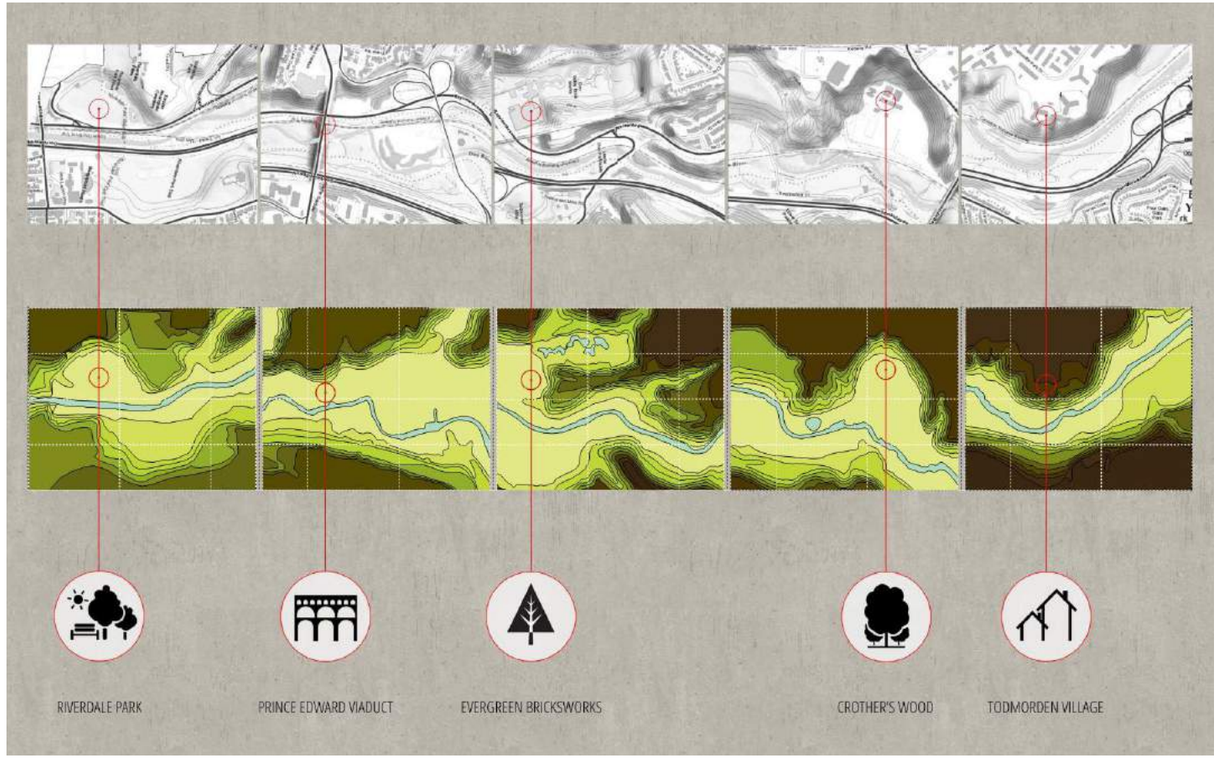


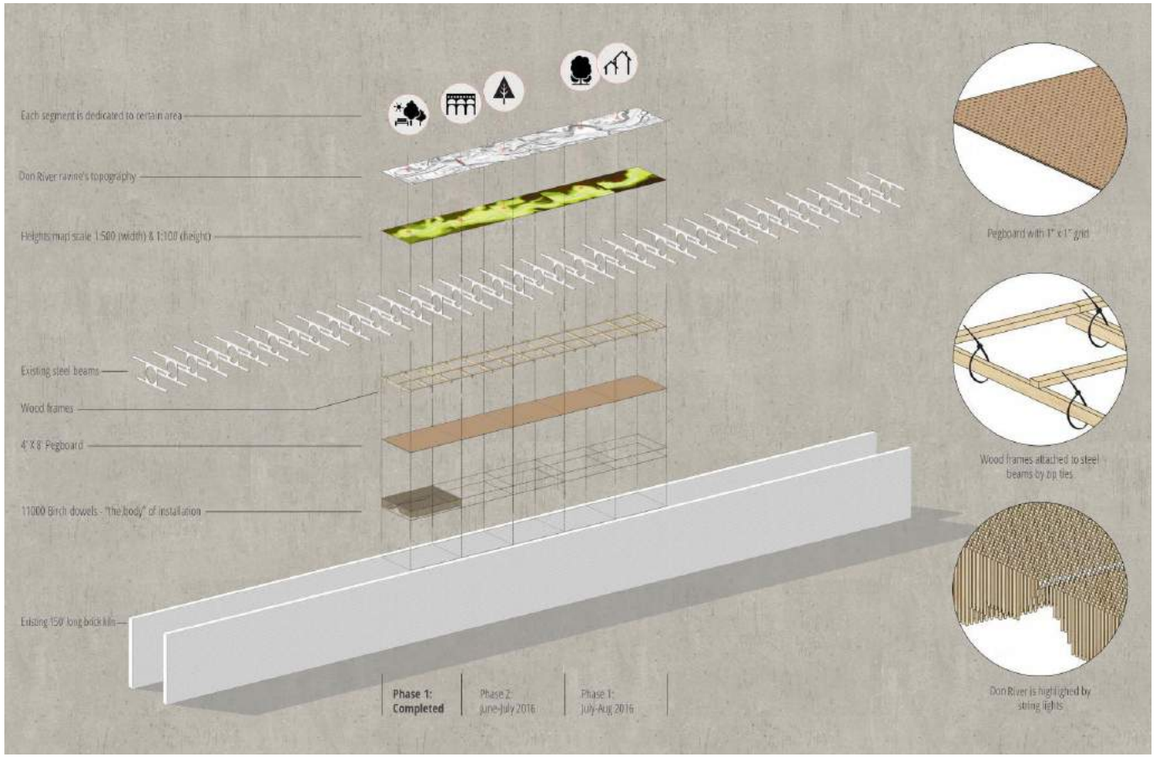
INVERTED VALLEYS SERIES

EVERGREEN BRICK WORKS & DESIGN TO. FESTIVAL

INTERSPATIAL 2016/2020, TORONTO, ONTARIO

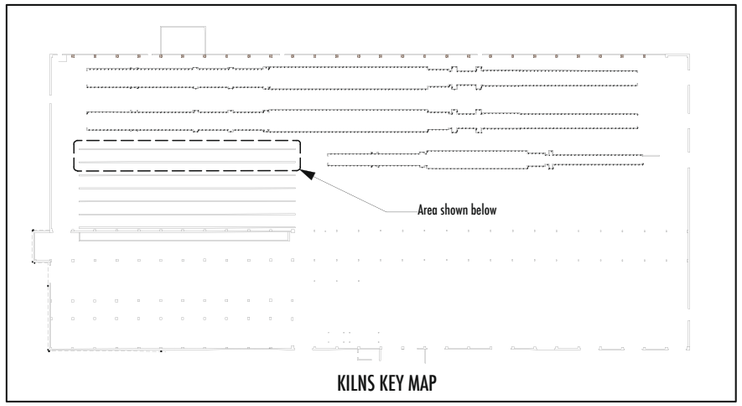
Role: Co-Designer & Installation Director



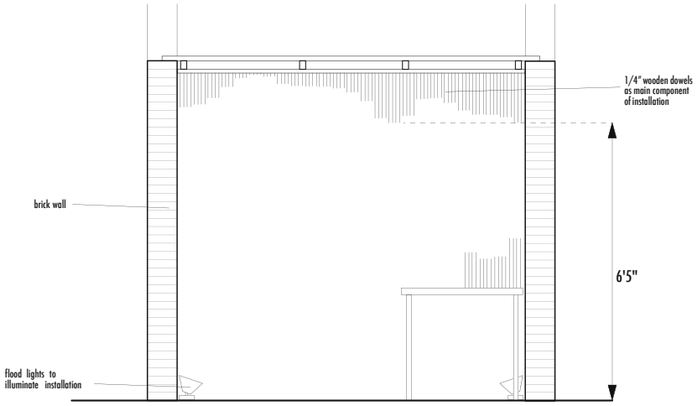


Inverted Valleys was a six-month long installation in 2016 at the Evergreen Brick Works in Toronto. The two infographics above show how the topographical data of the Don River Valley was used to layout a grid of 11,000 quarter inch diameter dowels of varying lengths, with elevations exaggerated by a factor of five relative to the x and y axis, for dramatic emphasis. The river course is represent with a string of LEDs emerging through the peg board, with the whole installation hovering 8' above the narrow kiln corridor. On the right, an exploded axo shows the assembly of all these layers and the orientation of the five sections as they originally intended.

CONCEPT DRAWINGS FOR INVERTED VALLEYS

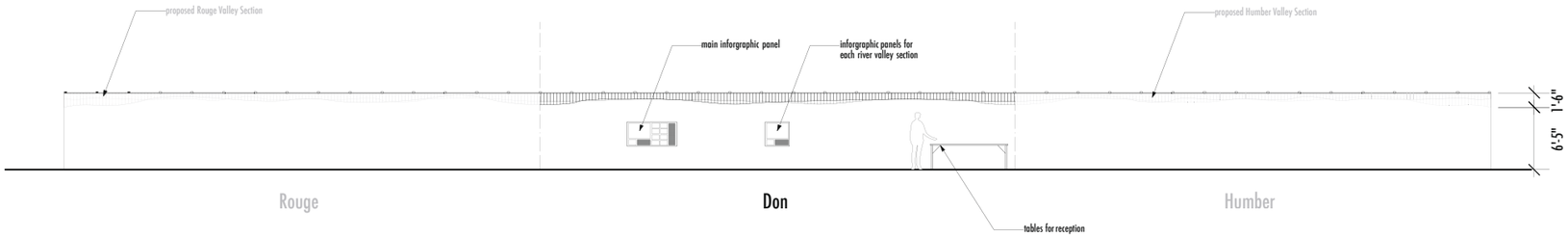


KILNS KEY MAP

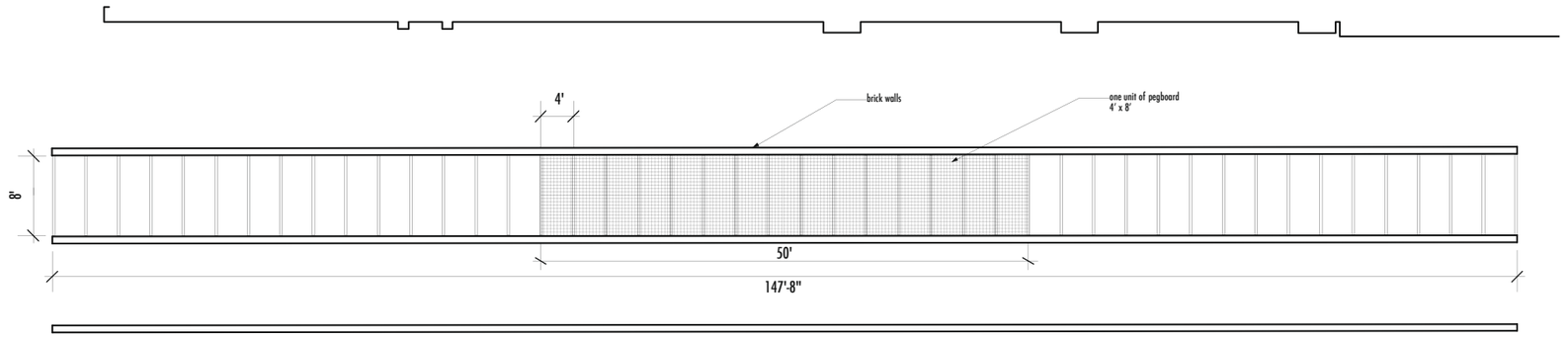


SHORT SECTION 1:40

LONG SECTION 1:150



REFLECTED CEILING PLAN 1:150



URBAN NOMAD FOOD CART

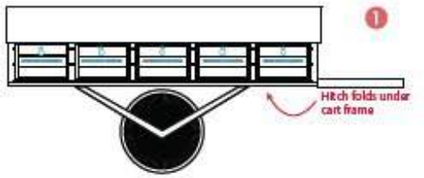
OUTSIDER SPATIAL

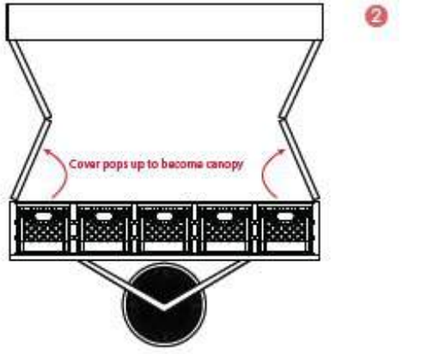
Suhaib Bhatti, Josimar Dominguez, Mark Francis, Andrew Winters

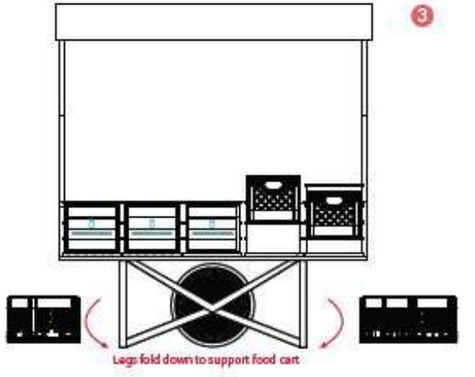
Our night market food cart design is based on the concept of an "urban nomad", and the utilitarian and material realities that it implies. Thus, our guiding principles were to use entirely recycled materials; have a compact and efficient design; incorporate multi-functional elements; and for it to be easily deployable.

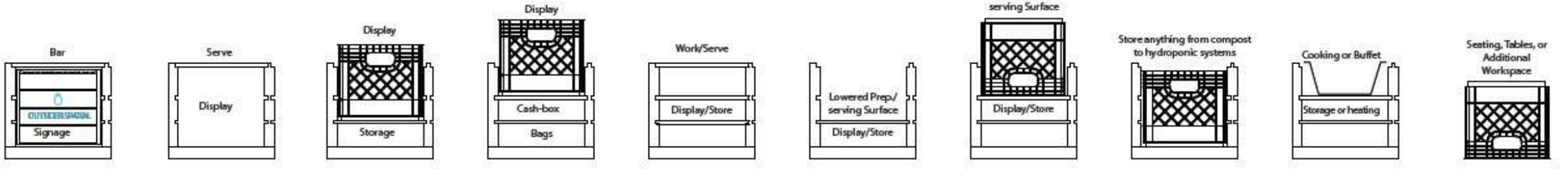
As a main feature, our cart is composed of modular storage units made from reused milk crates, nested inside a wooden frame. These crates can be arranged to form a continuous counter top, display signage, store food items or tools, be raised to varying heights, used to serve food directly (i.e. ice cream, buffet, etc.), be used as seating or tables when placed on the ground, or even store living plants as a kind of "mobile farm". The counter tops and modular crate units are completely separate from each other, so when the crates are used as tables or seats the counter top remains totally intact. The entire frame is also composed of wood from shipping crates, completing the material economy theme of our design.

Additionally, our design incorporates a collapsible canopy of stretched and painted canvas, a central wheel for mobility and a hitch used for attachment to a bicycle. When stationary, four collapsible legs are engaged to keep the cart in place. With all that said, our Urban Nomad food cart will not only fulfill all the requirements of the night market, but will enjoy a long and varied life after the fact.









URBAN NOMAD FOOD CART

OUTSIDER SPATIAL

Suhaib Bhatti, Josimar Dominguez, Mark Francis, Andrew Winters

EXPLODED AXONOMETRIC ASSEMBLY

stretched, painted canvas canopy

wires for hanging food, utensils, pans, etc.

hinged, collapsible canopy frame

adjustable counter top panels

seat with signage that fit on top of the milk crates

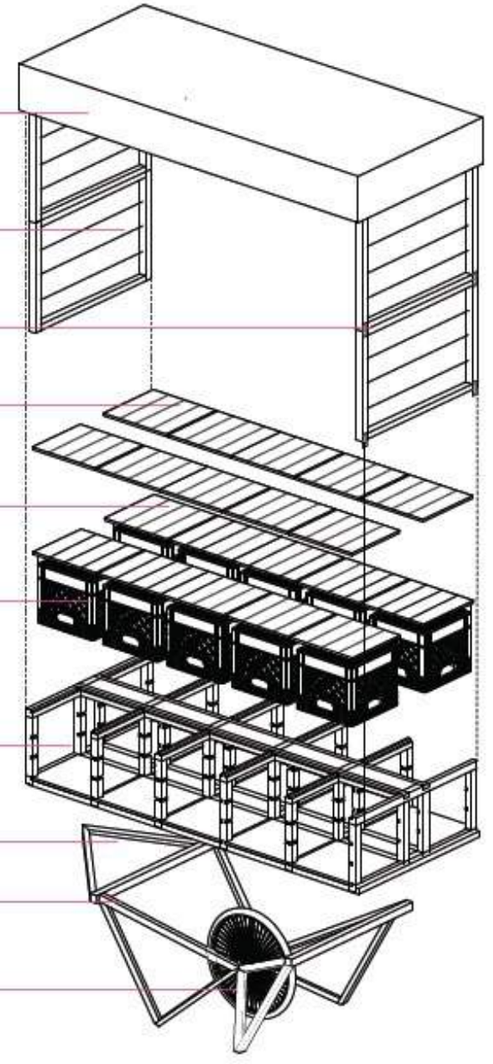
upcycled milk crates that may be used for seating, additional workspace, display baskets, compost/recycle boxes, etc.

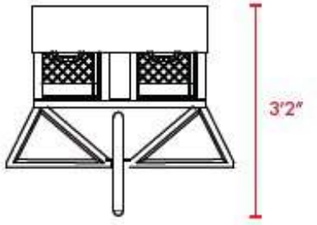
main cart frame with adjustable shelving made of recylced palettes and salvaged wood

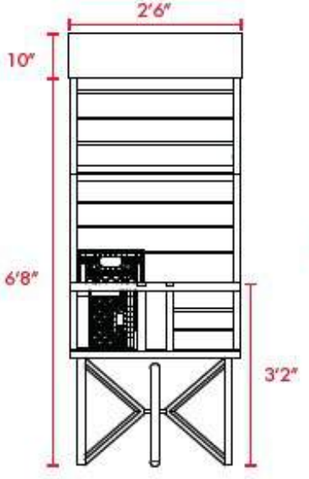
hitch for bike

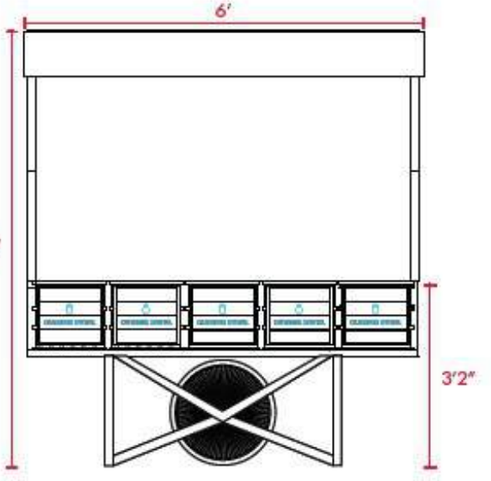
collapsible triangular legs

one upcycled bike wheel for easy transportation and to maximize material efficiency









KENSINGTON MARKET
CITY SECTION

ARCHITECTURE FOR HUMANITY
May 2015, Toronto Ontario
Hand Drawing