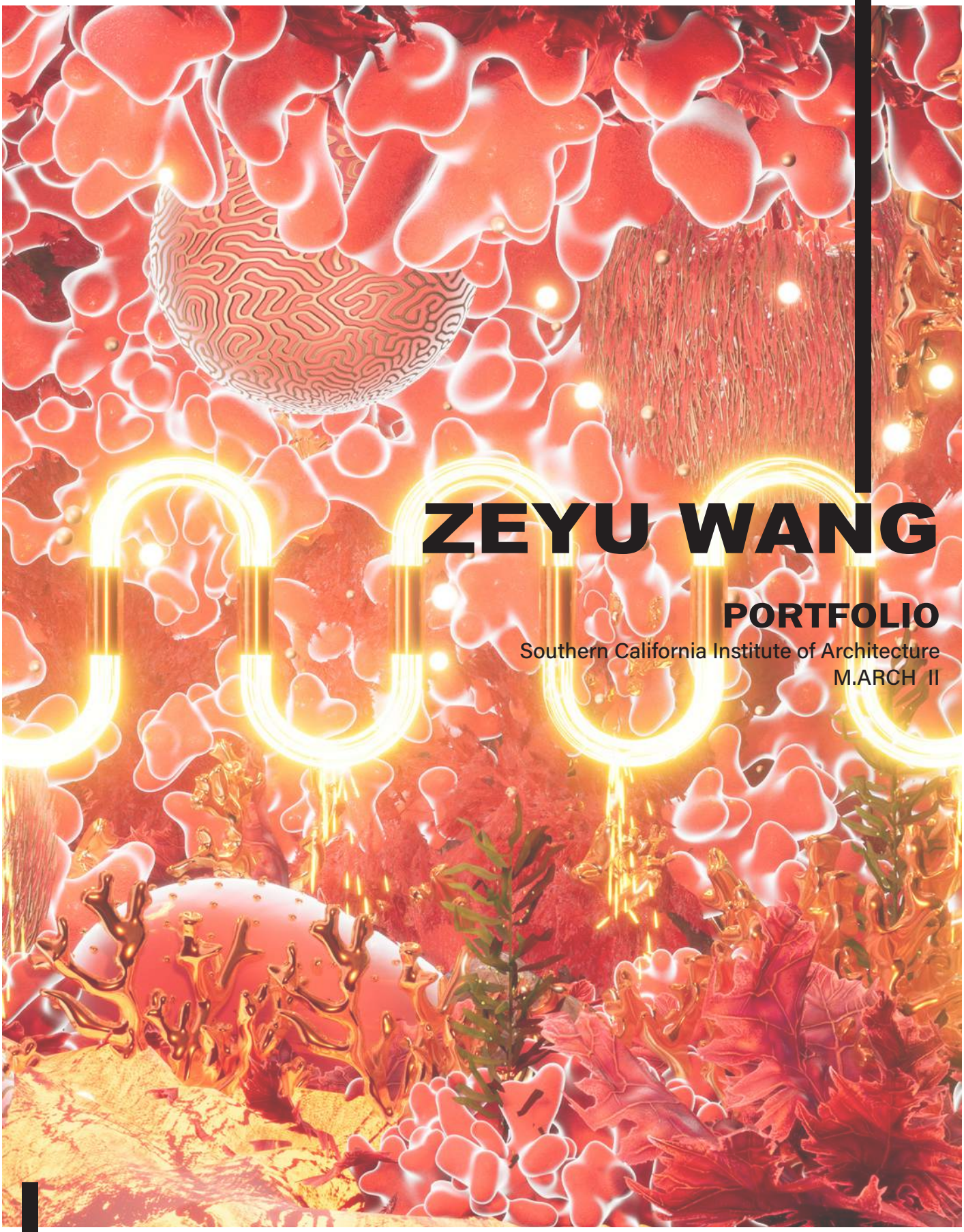

ZEYU WANG

PORTFOLIO

Southern California Institute of Architecture
M.ARCH II

2021-2022

ZEYU WANG

CONTACT INFOMATION

ZEYU WANG
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2022
SOUTHERN CALIFORNIA INSTITUTE OF ARCHITECTURE

STATEMENT

Zeyu Wang is a developing architect currently advancing his graduate studies as a M. Arch 2 student at the Southern California Institute of Architecture.

Prior to joining SCI-Arc, he plays a crucial role in the developing of the government-based architecture firm HYSZ, where he worked as a Project Designer in the design department of the firm. Discovered more potential for architectural study in his work career. A year later, he graduated from the University of Wuhan university of science and technology at China where he earned a Bachelors of Architecture.

With a little over seven years in the academia and the professional field, he sees his time at SCI-Arc as the ideal opportunity to develop his career both as a passionate individual that believes in the discipline of architecture while having the opportunity to have an influence in the built environment. He sees himself practicing architecture at a professional level, while always keeping a foot towards the academia.

TABLE OF CONTENTS

01

Towards An Imperfect Union

COURSE: *VERTICAL STUDIO: FALL 2022*
INSTRUTOR: *JENNY WU*
PARTNER: *HUNT MATTHEW*
SOFTWARE: *RHINO/ CINEMA 4D*

Geometric primitives are the basic shapes we all know and recognize. They are simple three-dimensional forms such as cubes, spheres, cylinders, and cones. One of the fundamental powers of the primitive is the way our brain instantly recognizes its geometric character, even when the form is not perfectly defined.

In addition to its formal qualities, we have also been interested in articulating methods of assembly, specifically the operations necessary in connecting and attaching parts in place. We like to imagine that building elements while sliding, rotating, and clicking into place, may leave traces of their assembly onto the architecture itself. we design an “imperfect” geometric primitive, like a cube, sphere, cylinder, or cone, made from interlocking parts. we focus on a primary assembly operation with a secondary process for connection. For example, each element of our cube would use the operation of sliding and a pin connection in order to assemble it into place. Based on these parameters, we can explore the range of formal, spatial, and material possibilities that this might enable.on the complexity of manmade systems.

AI IMAGES

SET 1.A

PROMPT: realistic 3d cube, gundam armor, assymetry, in the style of morphosis

SET 1.B

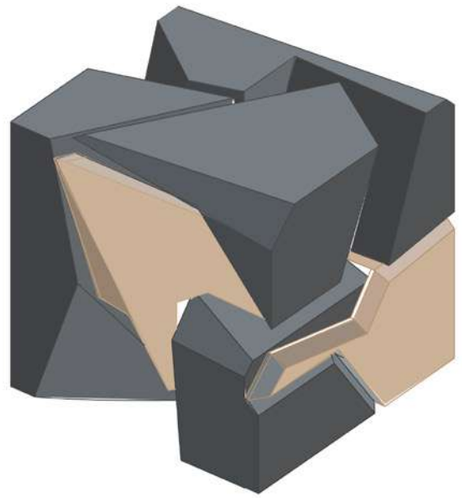
PROMPT: realistic 3d cube, gundam armor, assymetry, in the style of isamu noguchi

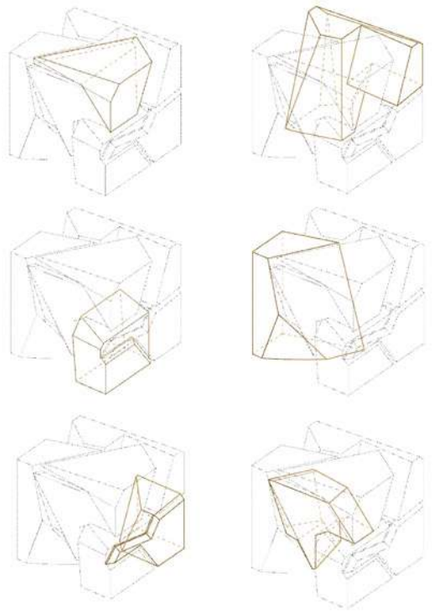
SET 1.C

PROMPT: realistic 3d cube, gundam armor, assymetry, wood and marble, in the style of isamu noguchi

First, we use midjourney to find some basic geometry. We give AI many keywords such as realistic 3d cube, gundam armor, assymetry, wood and marble, in the style of isamu noguchi, etc.

Then we choose a shape that we think has the most potential for assembly and we like the most among all the pictures generated by AI to make a digital model and think about the number of blocks it may generate and its assembly method





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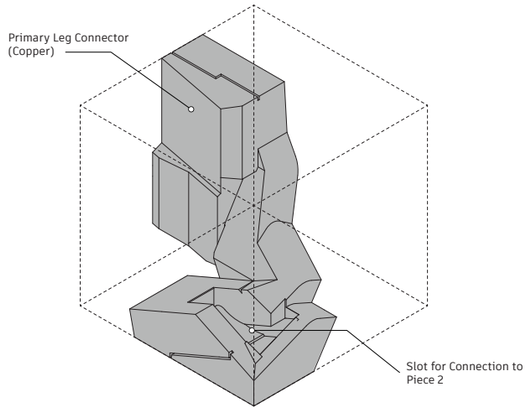

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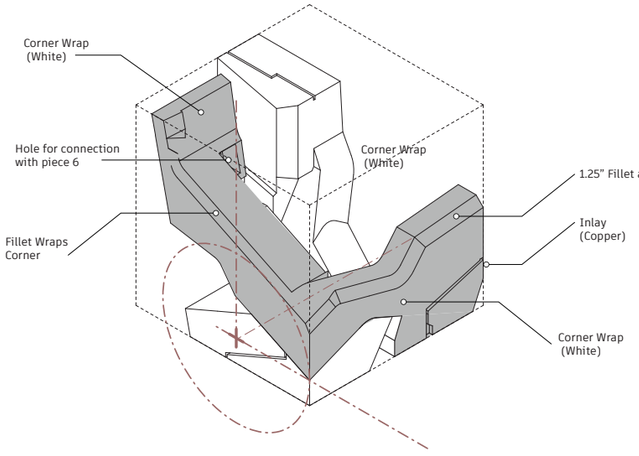
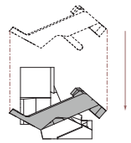
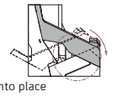


2.a
Insert from above



2.b
Slide back in Groove

2.c
Rotate into place



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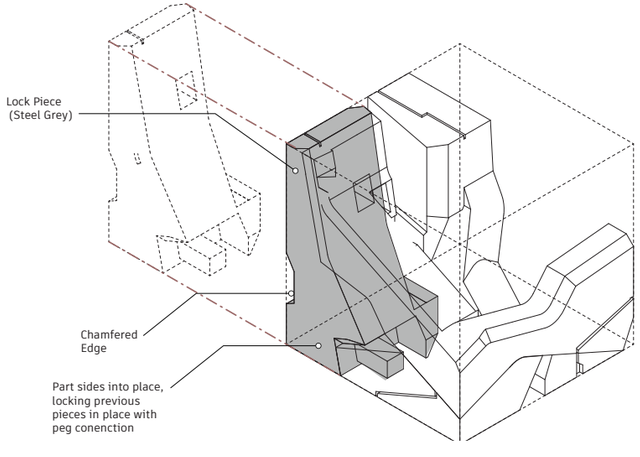
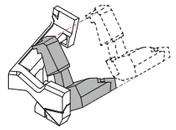
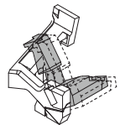


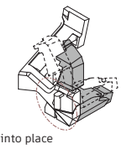
4.a
Connector Peg inserts into
slot in Piece 2 from back



4.b
Peg slides down in Groove



4.c
Piece rotates into place



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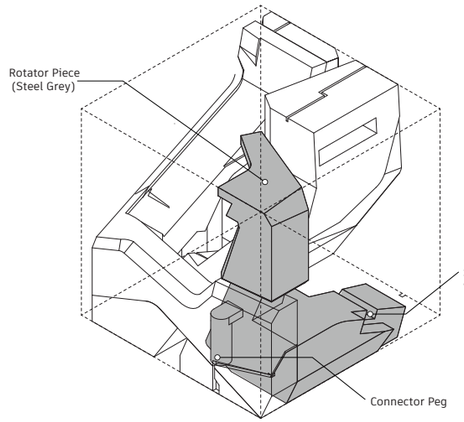

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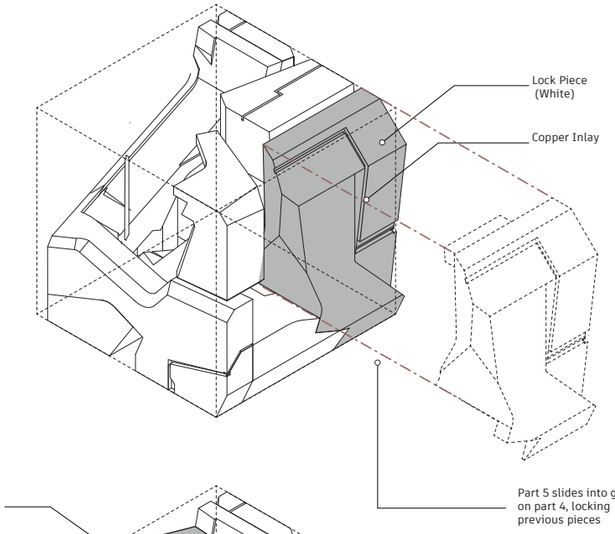

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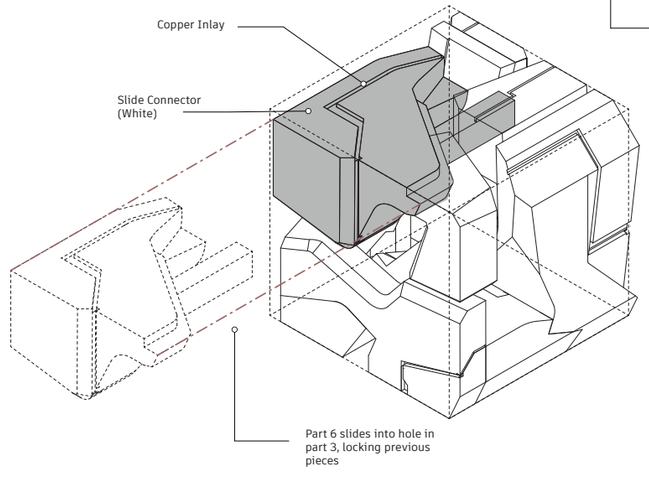
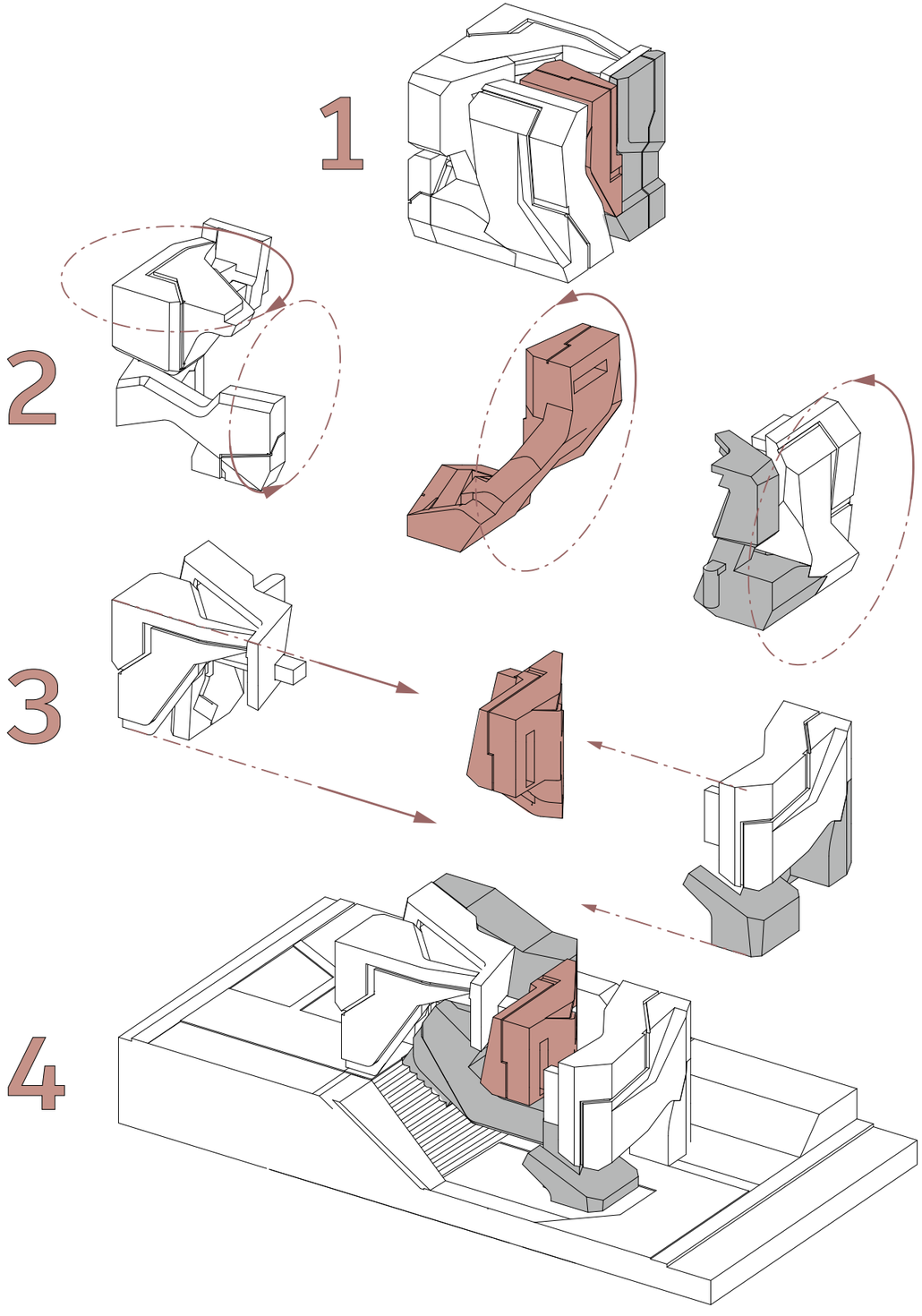
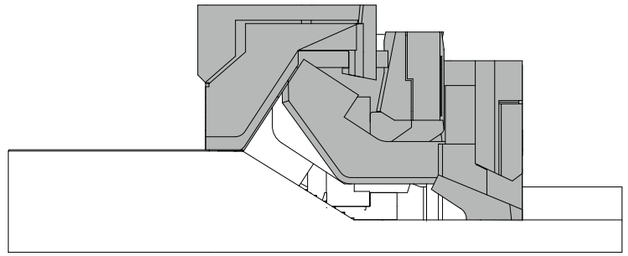
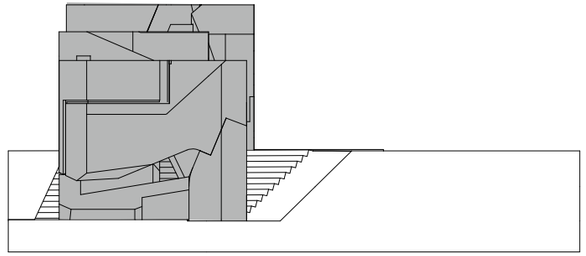


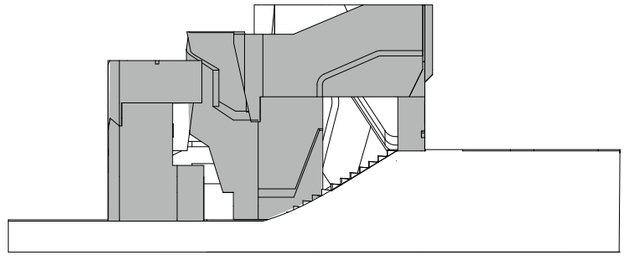




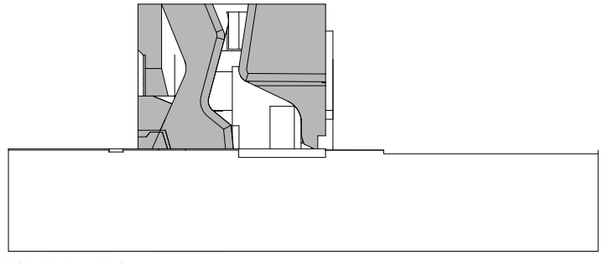
SOUTH ELEVATION



EAST ELEVATION

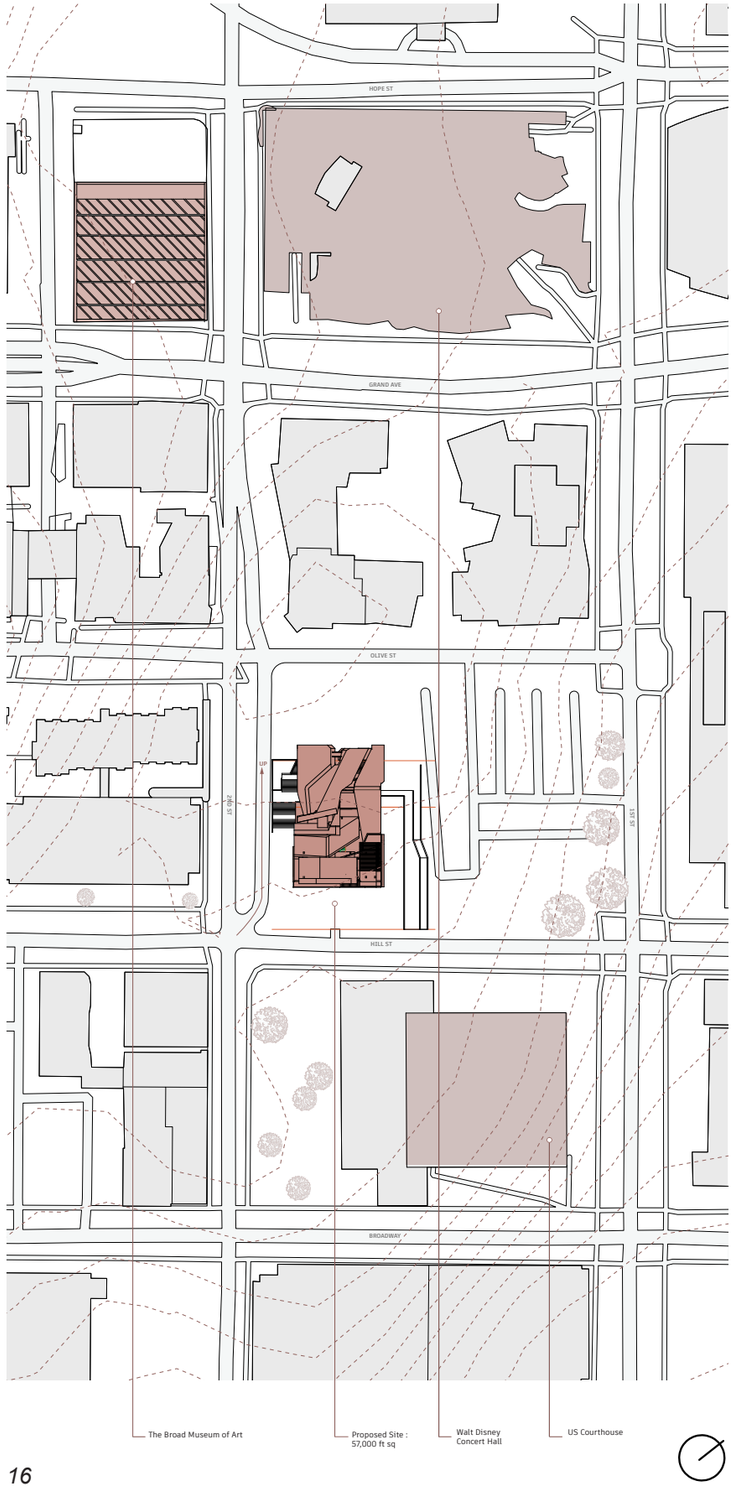


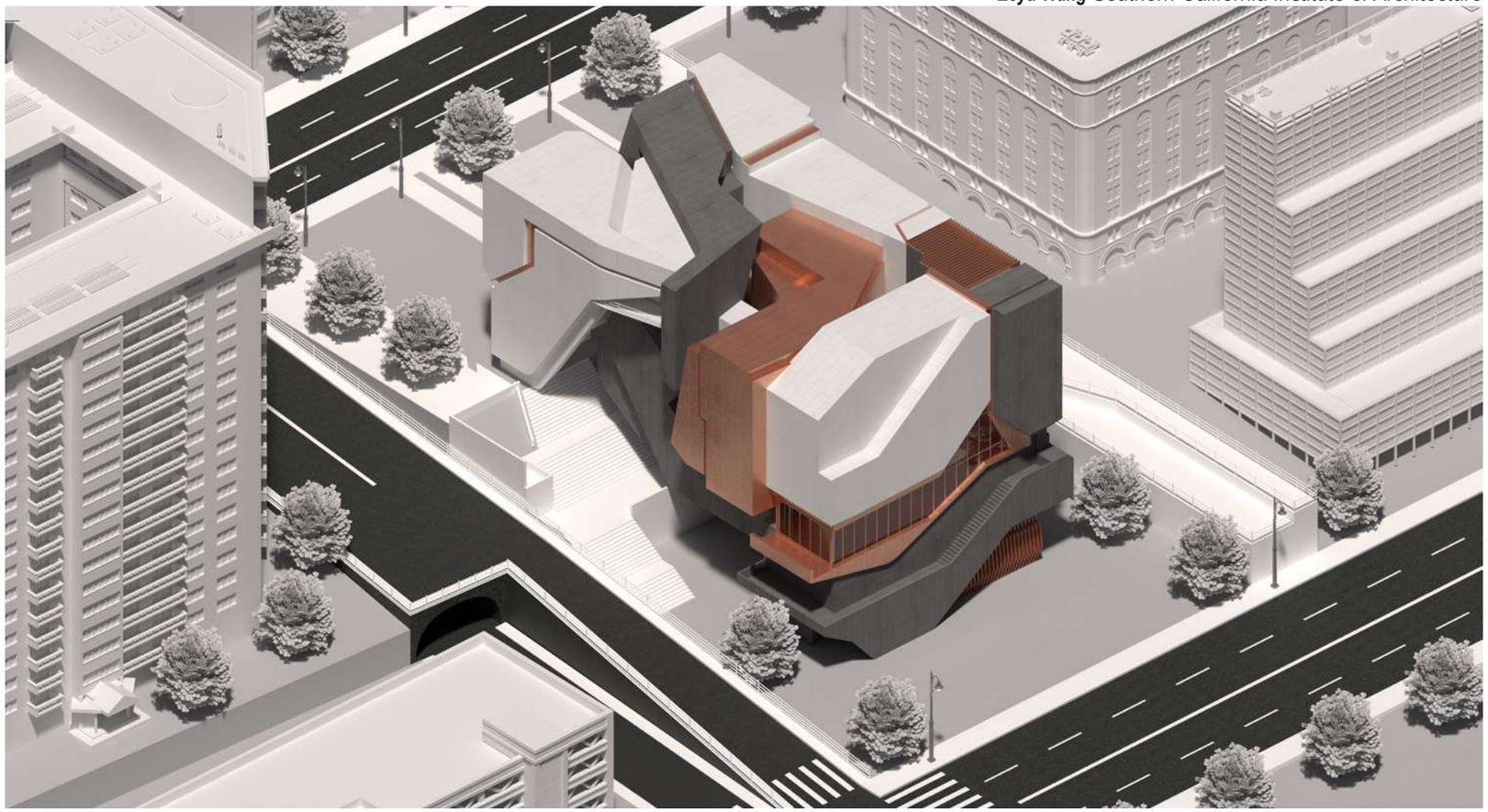
NORTH ELEVATION

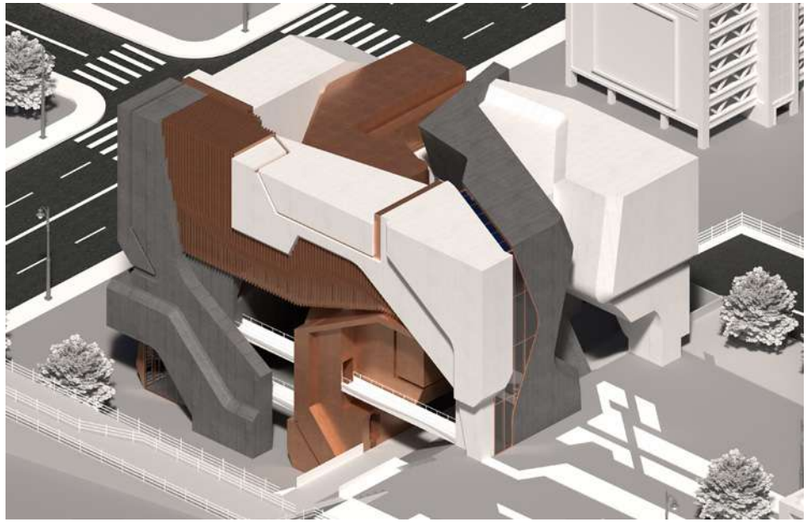


WEST ELEVATION

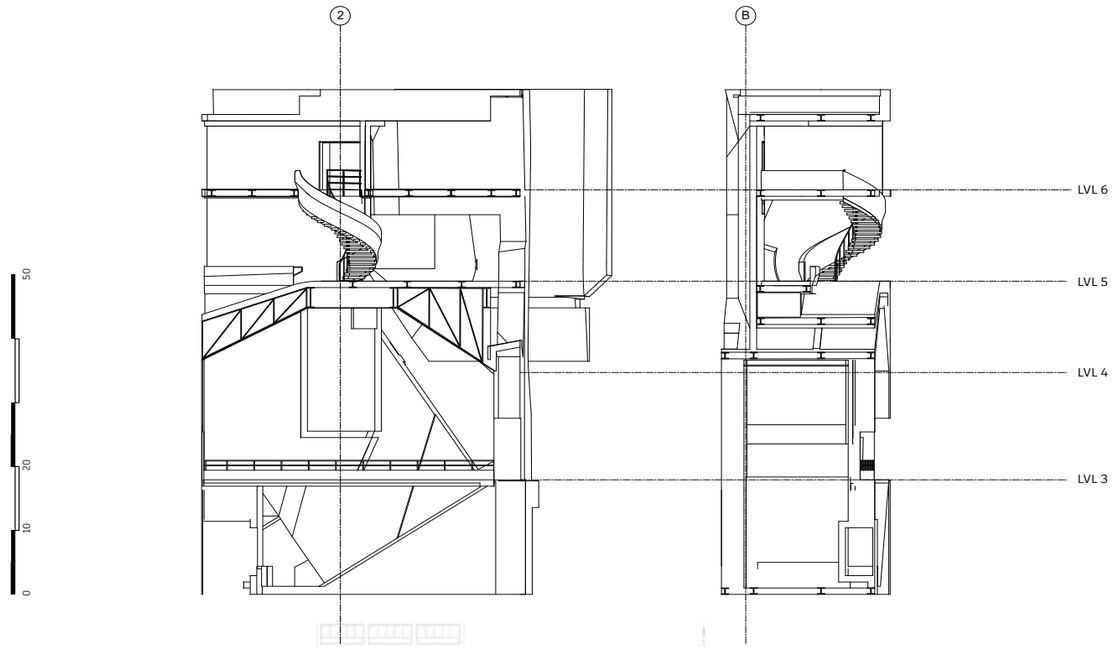
After assembling the union we tried to turn this puzzle into a building. We are trying to find the most suitable massing on the site.







The building is located at 137 S Hill St in LA, and there are two landmark buildings, Walt Disney Concert Hall and The Broad, in the north of the building. The area of proposed site is about 57,000 ft sq. Because the base is located in the downtown of LA, adjacent to the two major cultural centers of tWalt Disney Concert Hall and The Broad. We tried to build an open art center on this site.



STAIRCASE DETAIL
SCALE : 1" = 1/2"

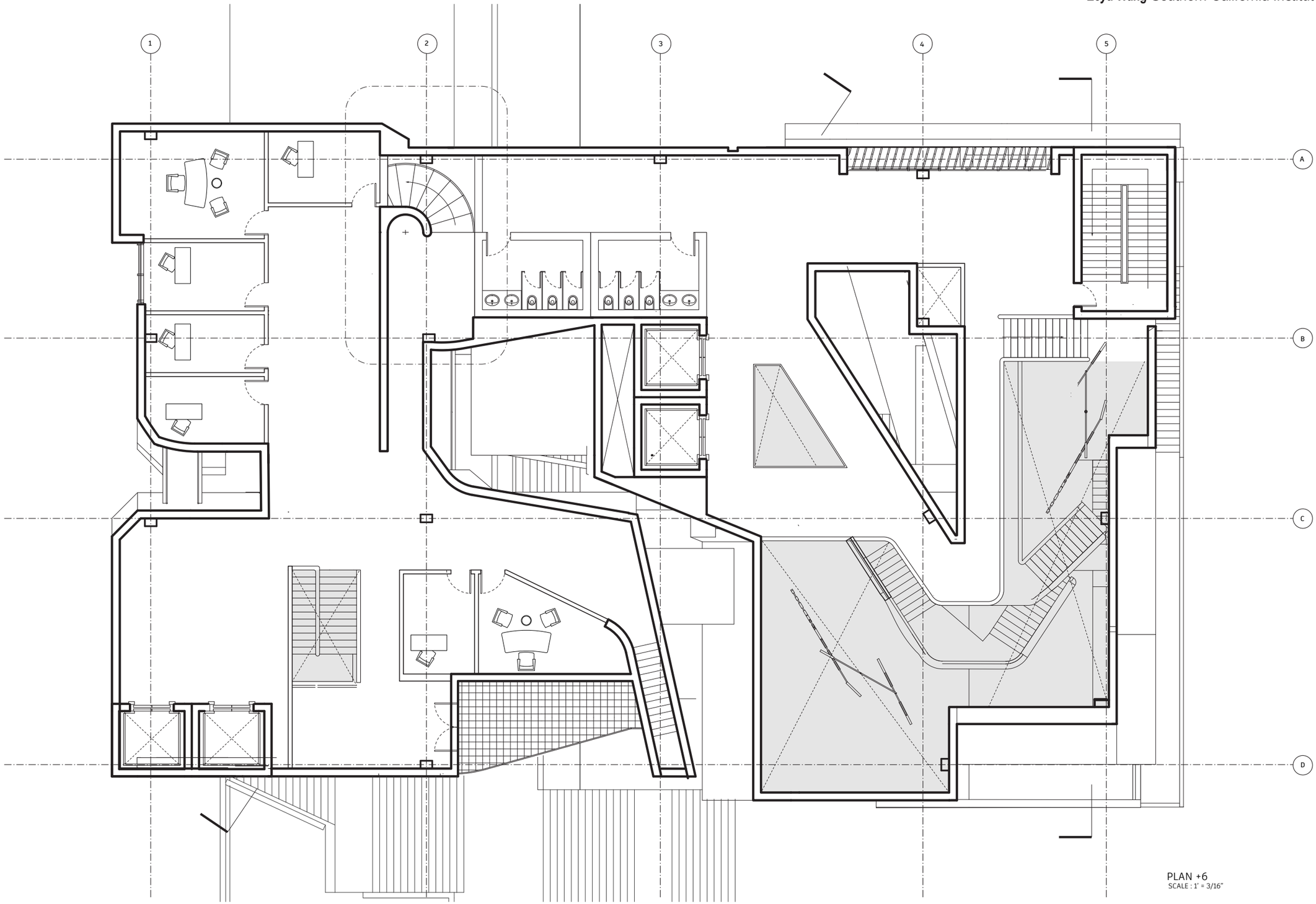
Because our terrain is on a sloping land, the west and east sides of the terrain are flat land leading to the main street. Therefore, the main entrance of our building is placed on the east and west sides. The middle part is a ramp, so we need to use the terrain to make many changes in the height difference of the building to ensure the unobstructed space at the bottom. Also trying to keep our internal structure connected while placing our puzzle pieces on top of the terrain.

SOUTH ELEVATION

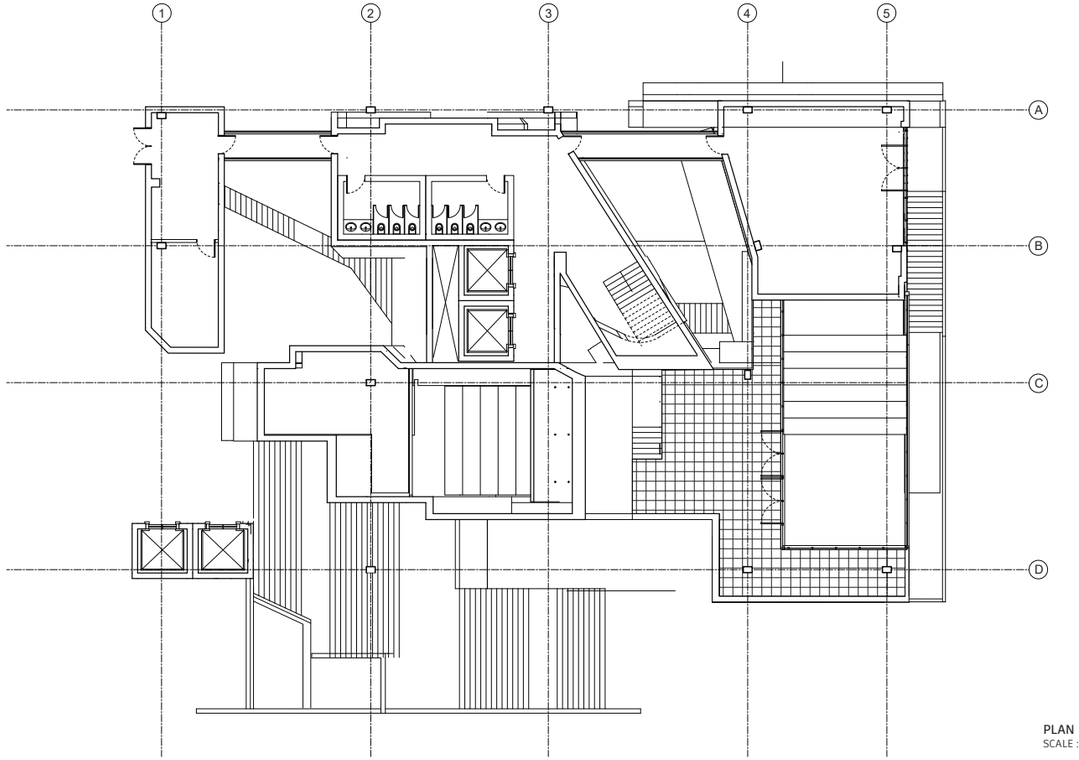
EAST ELEVATION

NORTH ELEVATION

WEST ELEVATION

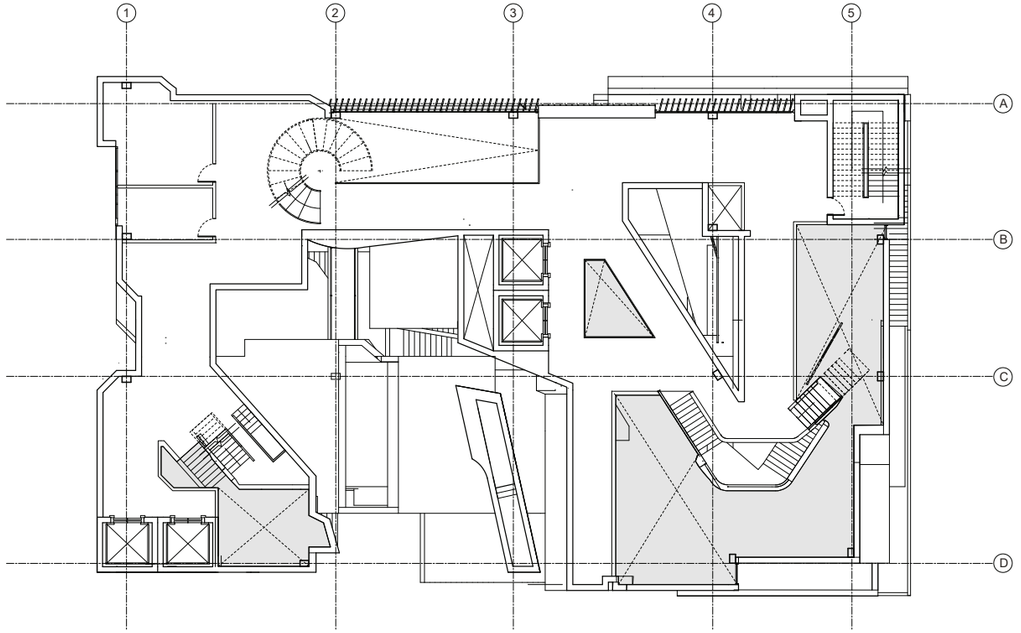


PLAN +6
SCALE : 1' = 3/16"



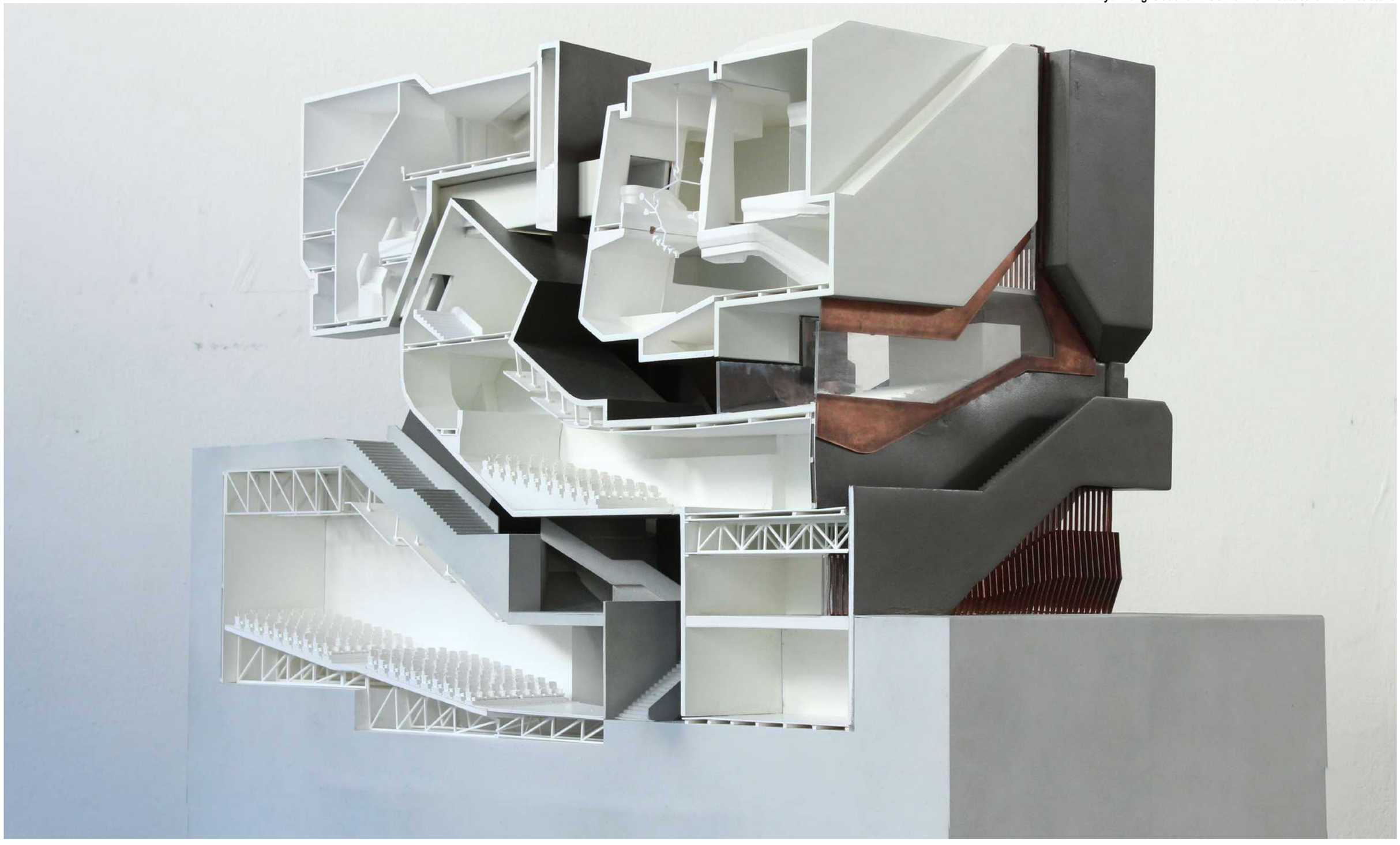
PLAN +3
SCALE : 1" = 3/32"

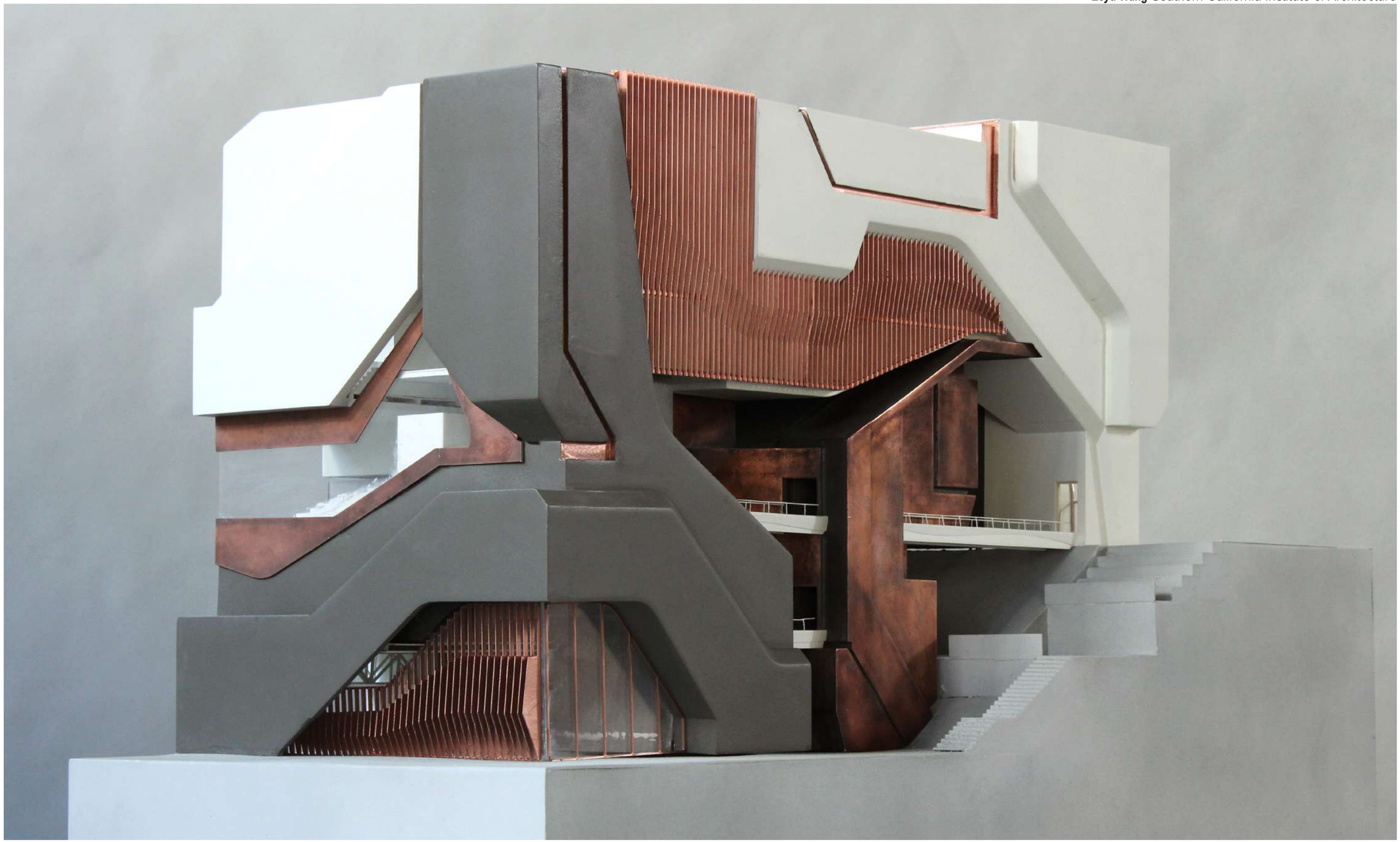
This part is the ground plan. Two cores are set up in the southwest and central parts of the site. In addition, there is a small theater in the center of the site, providing a venue for visitors to perform activities.

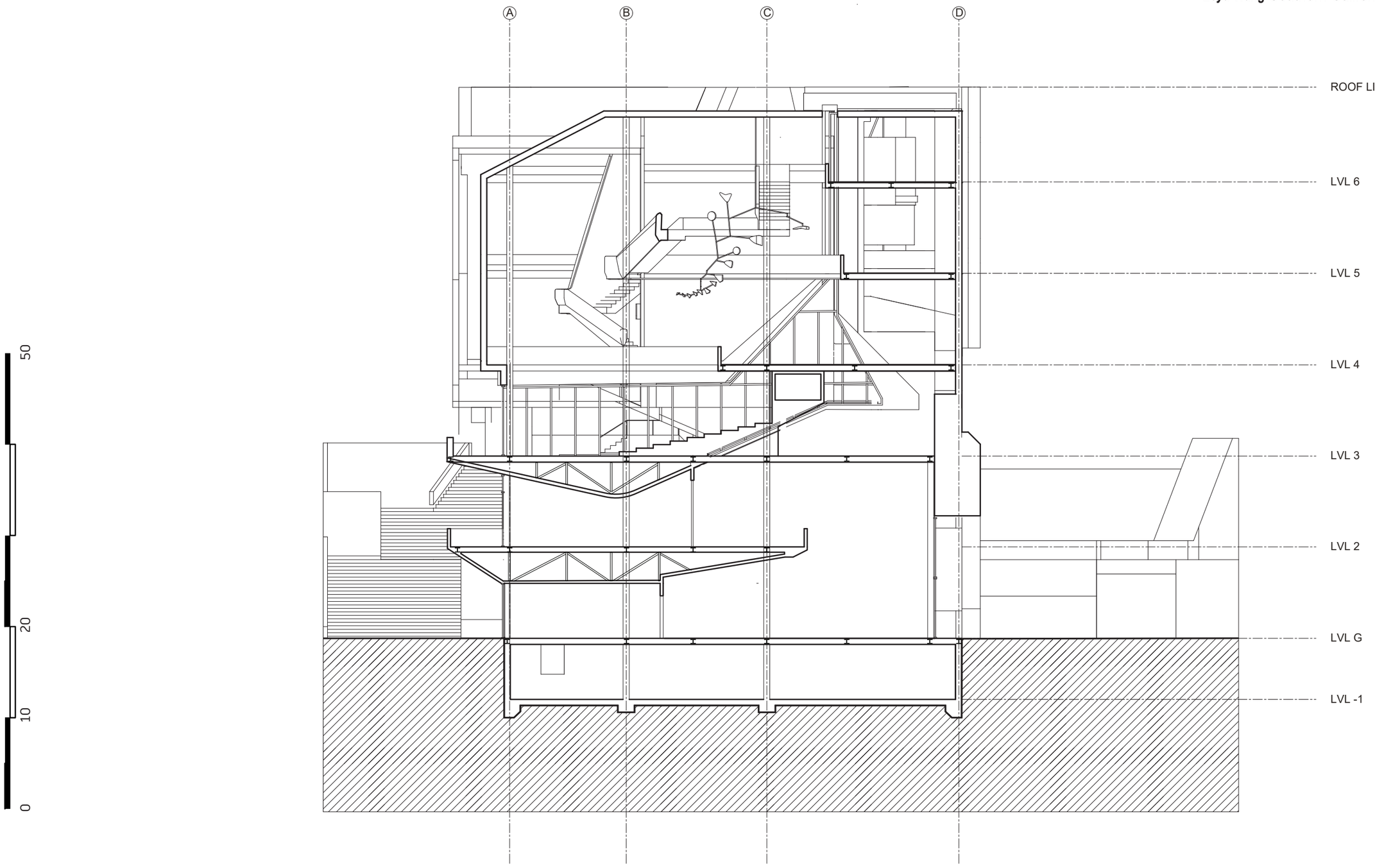


PLAN +5
SCALE : 1" = 3/32"

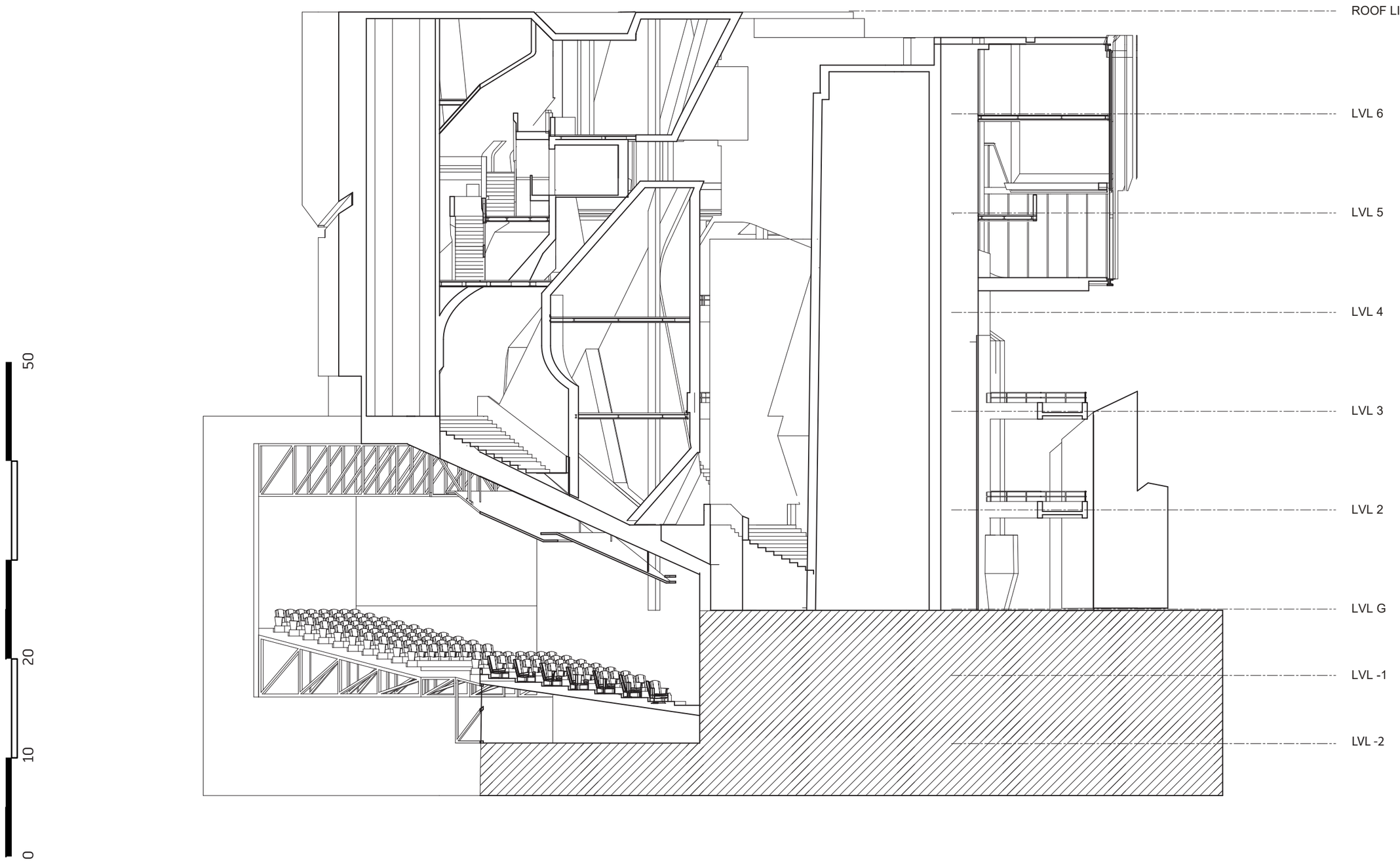
This part is the exhibition space with a semi-open space with a height of 30feet. This part of the area has many paths leading to other areas to achieve the circulation of the interior space



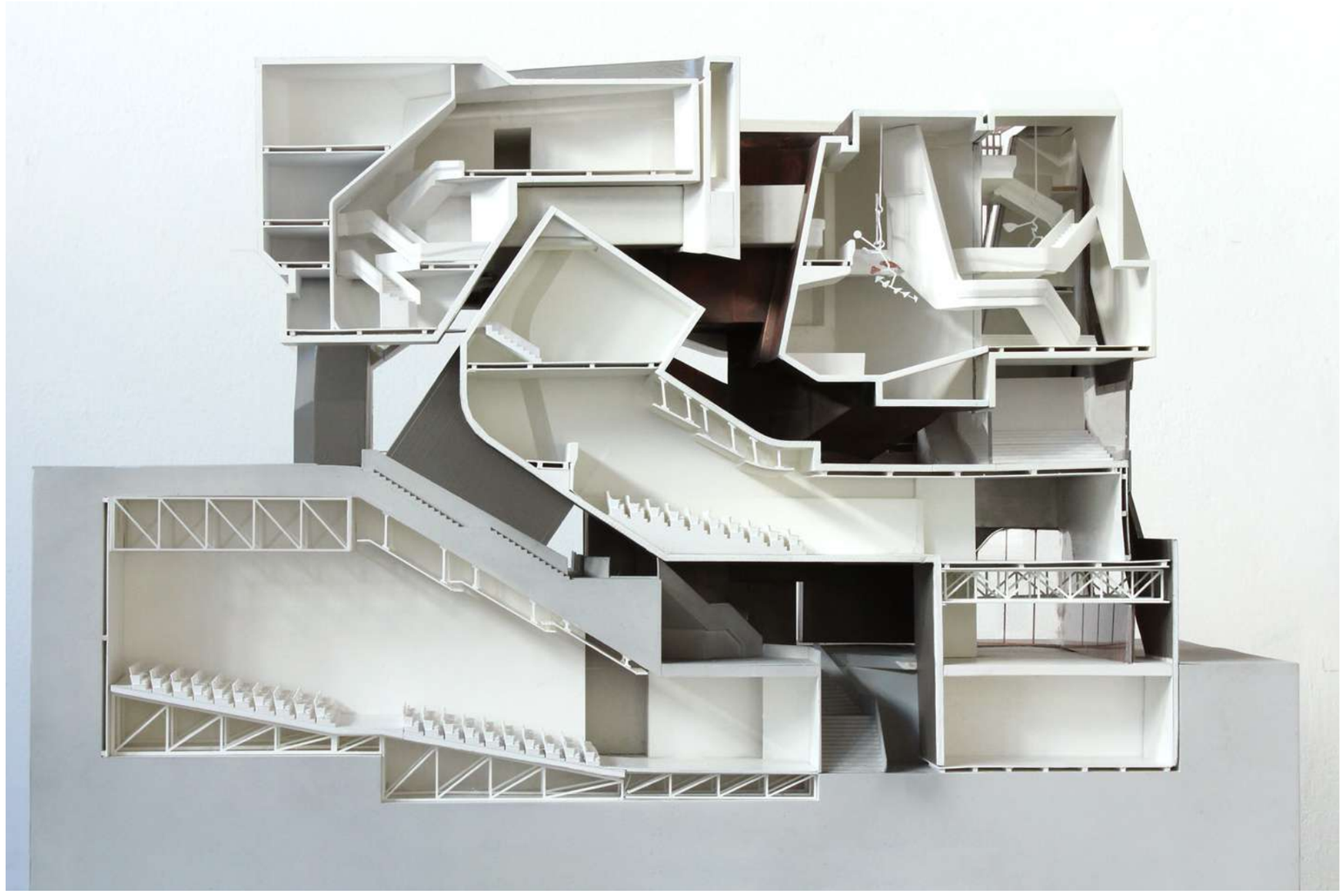


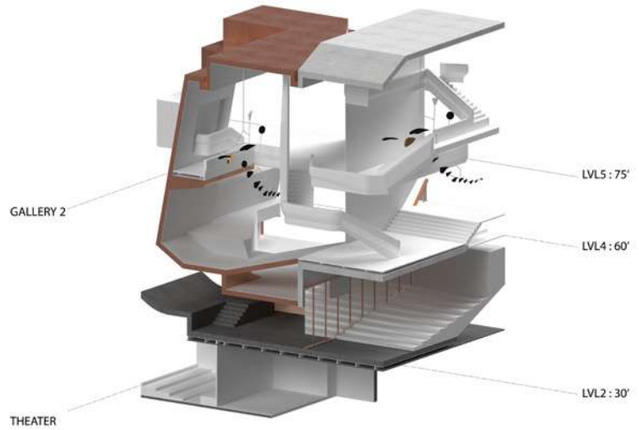


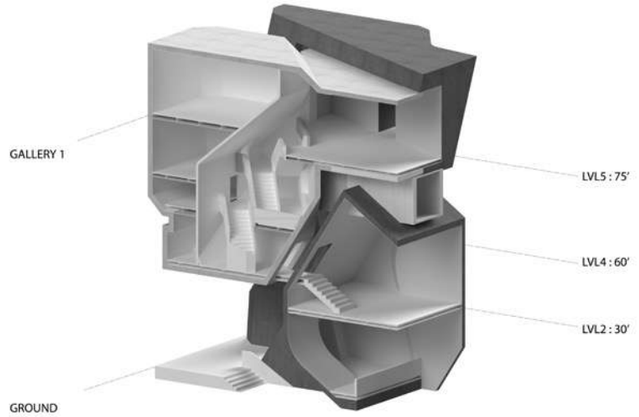
SECTION A-1'
SCALE : 1' = 3/32"

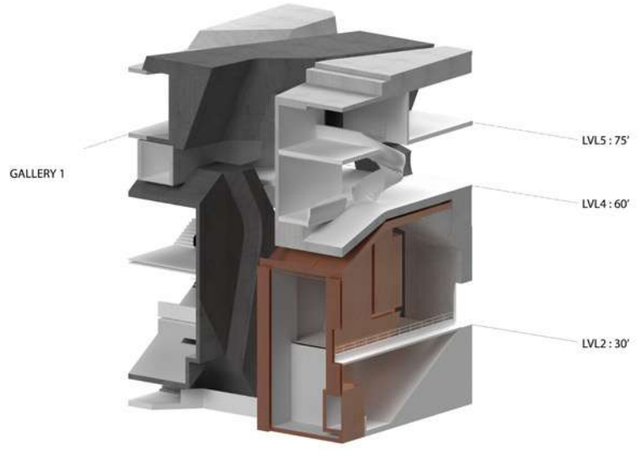


SECTION A-1'
SCALE : 1' = 3/32"

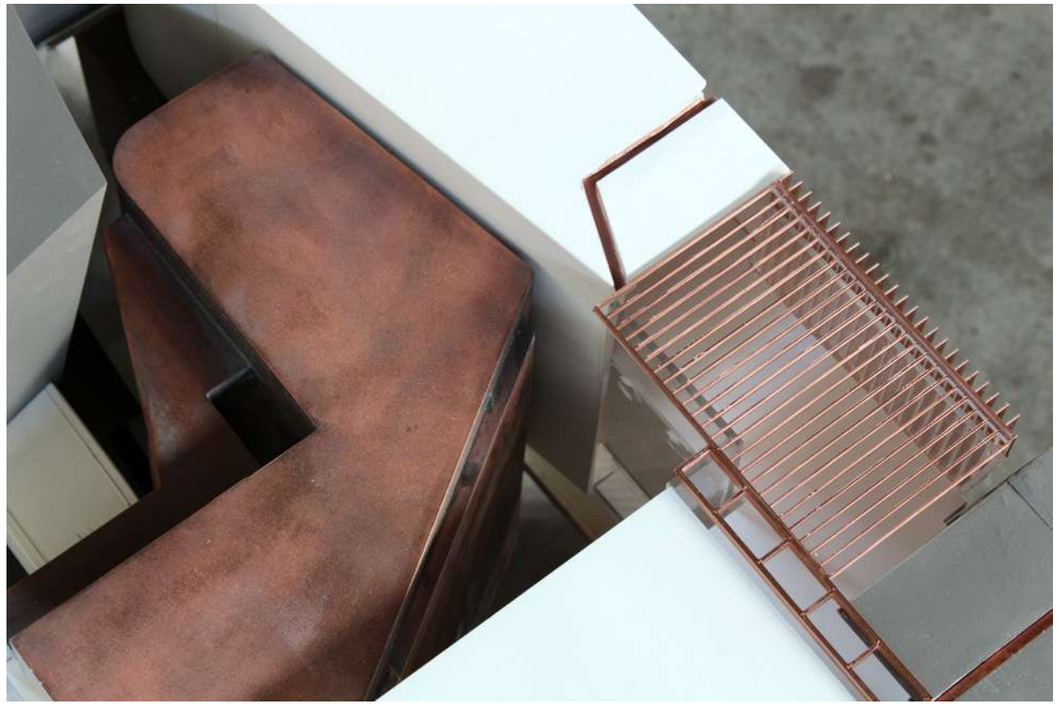








We try to incorporate the concept of union puzzle into our architecture. We try to make all the pieces in the building into a connected union. In the puzzle, wrap is our main concept, which is reflected in the building through continuous circulation. We hope this museum is an open and accessible space



02

(W)Rapper Building 2.0

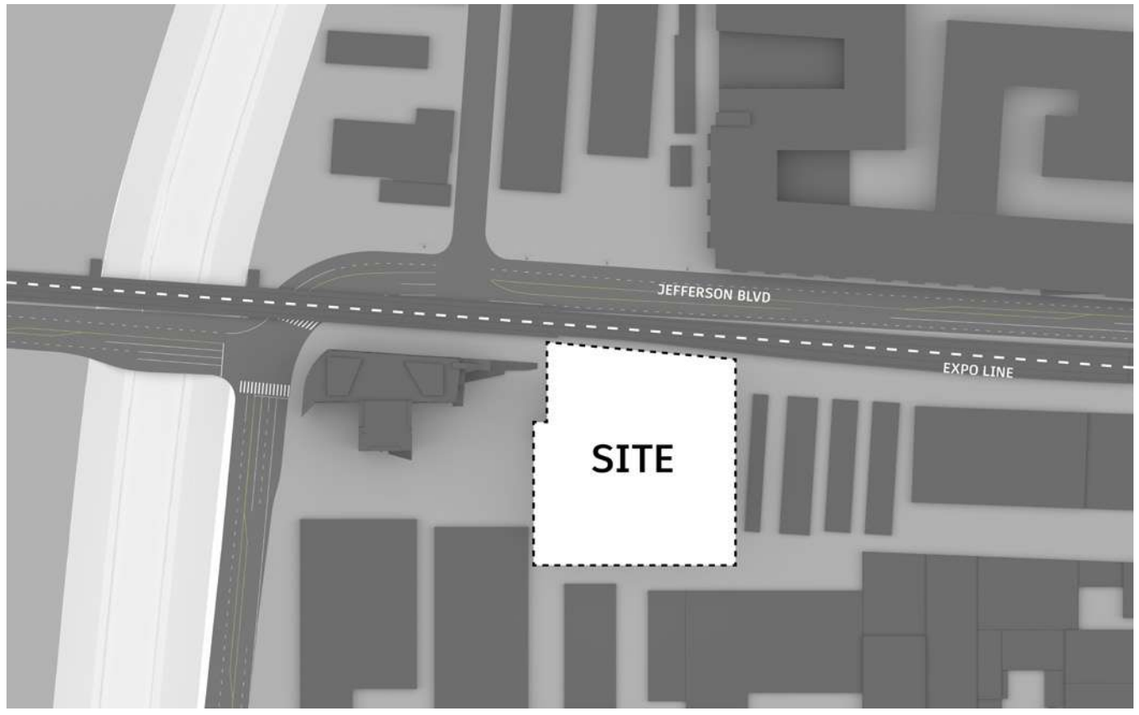
COURSE: *VERTICAL STUDIO: SPRING 2023*
INSTRUTOR: *ERIC OWEN MOSS*
SOFTWARE: *RHINO/ CINEMA 4D*

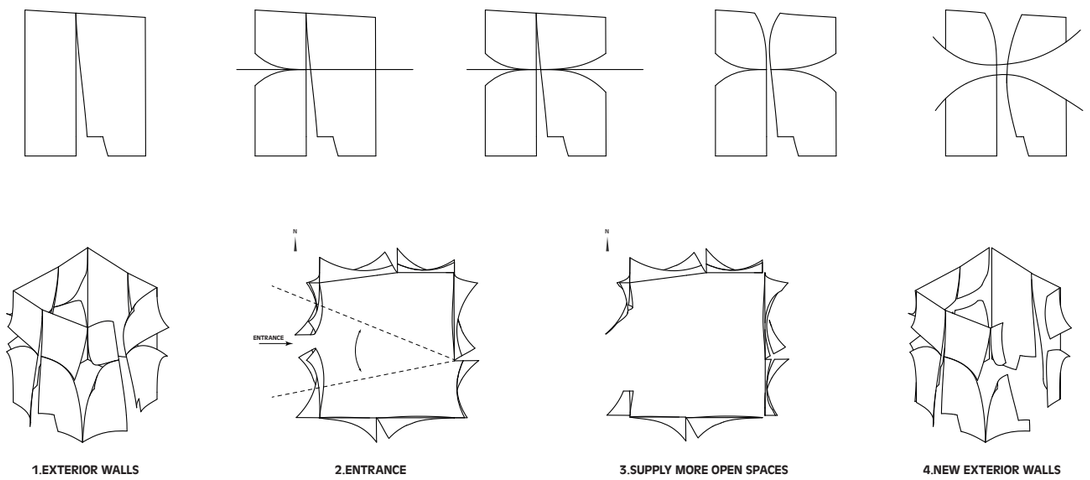
Covid has left us needing clarification about office space's nature, purpose, and enduring value. One argument goes that the collaborative spirit of a company or institute is necessitated, facilitated, furthered, and encouraged by the physical presence of personnel in a space shared by co-workers.

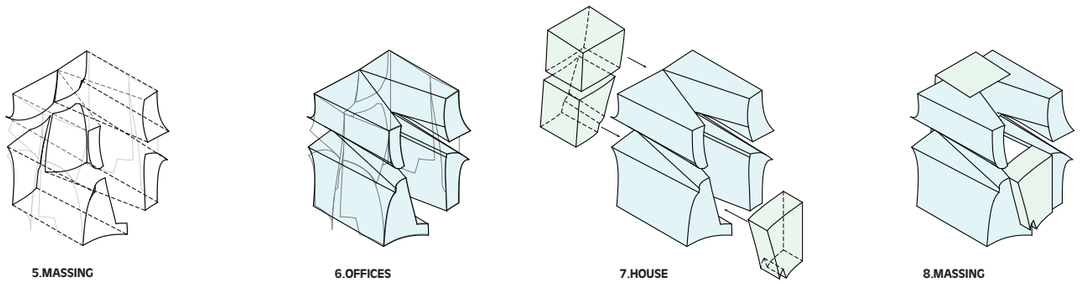
The project assignment is to design an office/housing project accompanied by a plausible case for the conceptual use decision: either entirely an office; or entirely a housing project; a hybrid office/housing project, or an office that converts to housing; how?; or housing that converts of office, how?; or a project that could become a first office, then housing, then again office, and so on...; and finally, offer the developer two distinct conceptual options, and make a plausible case for each.

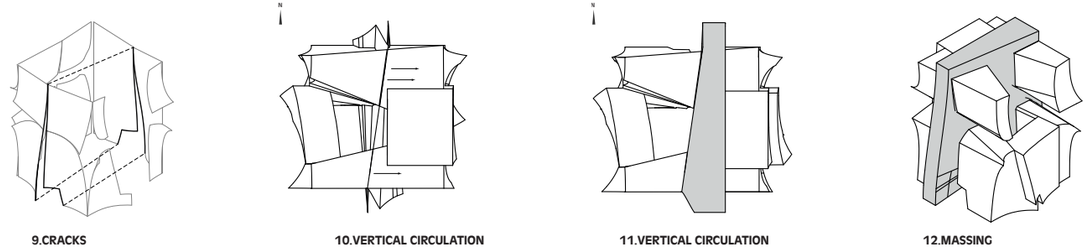
Directly to the east of the (W)rapper Office Tower site is an area long designated for a second office building, Wrapper 2.

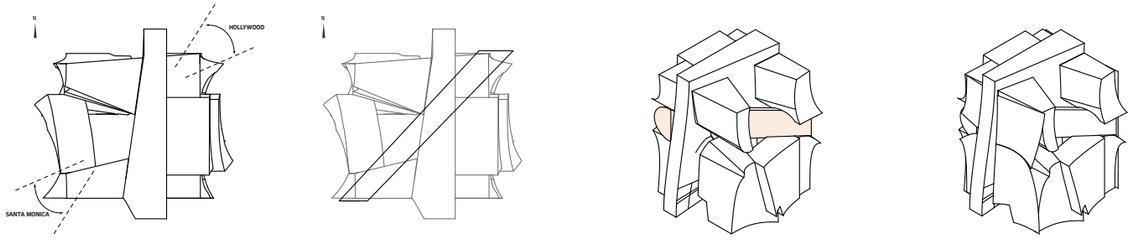
That project currently approved as an office building is sited between the original Wrapper to the west and, on the southwest corner of the la Cienega/Jefferson site, directly to the east, a newly approved housing project and a new office building.

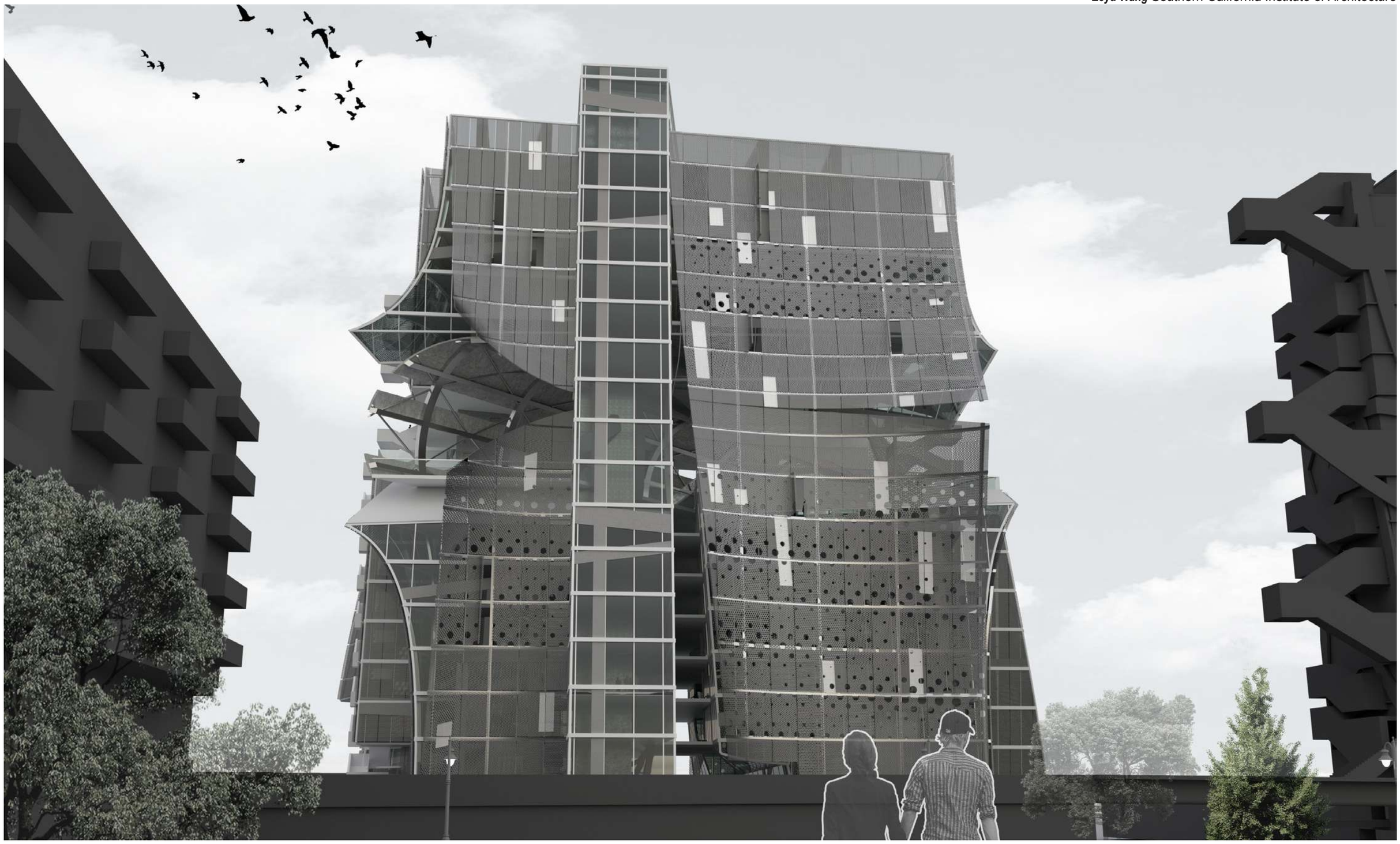


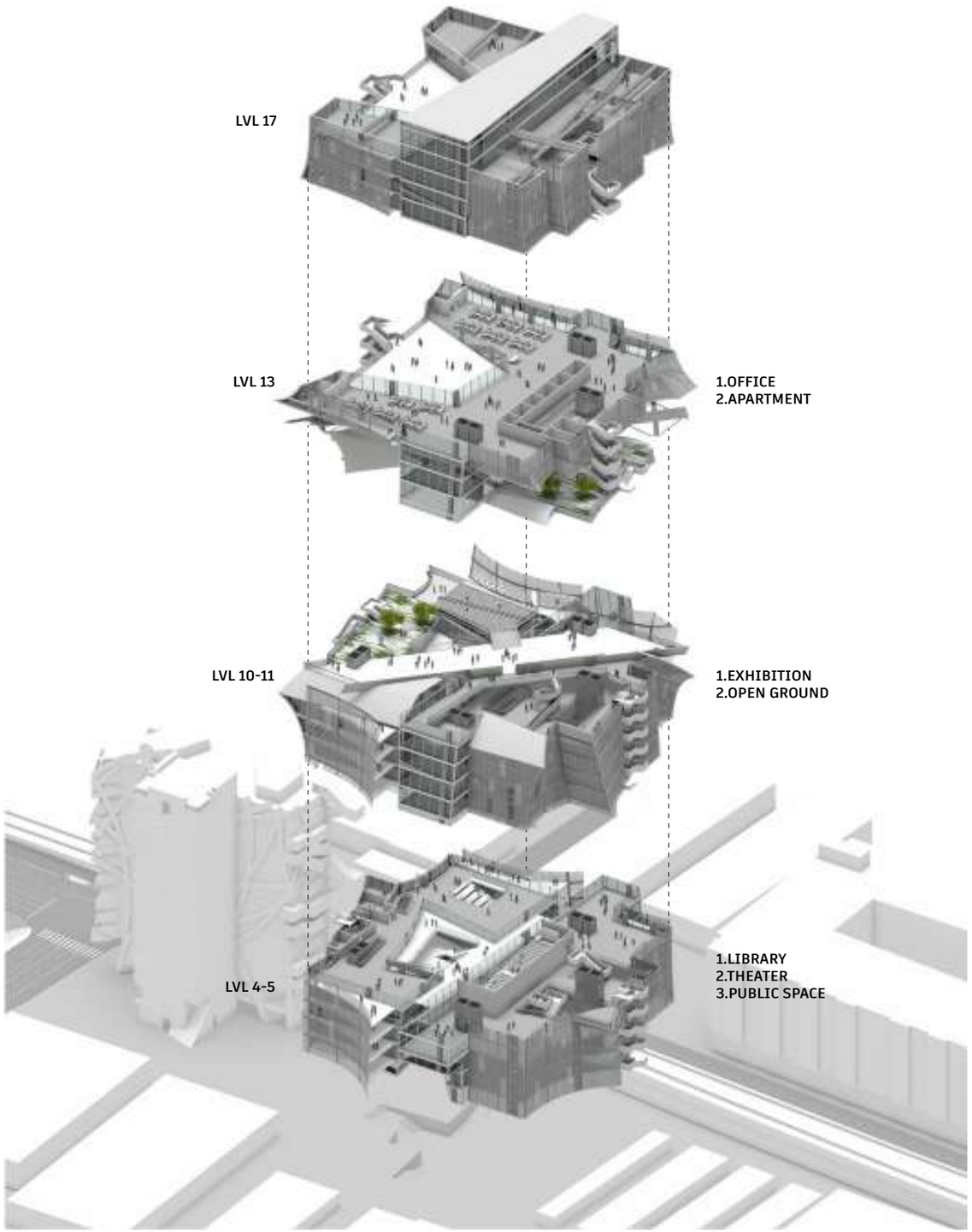


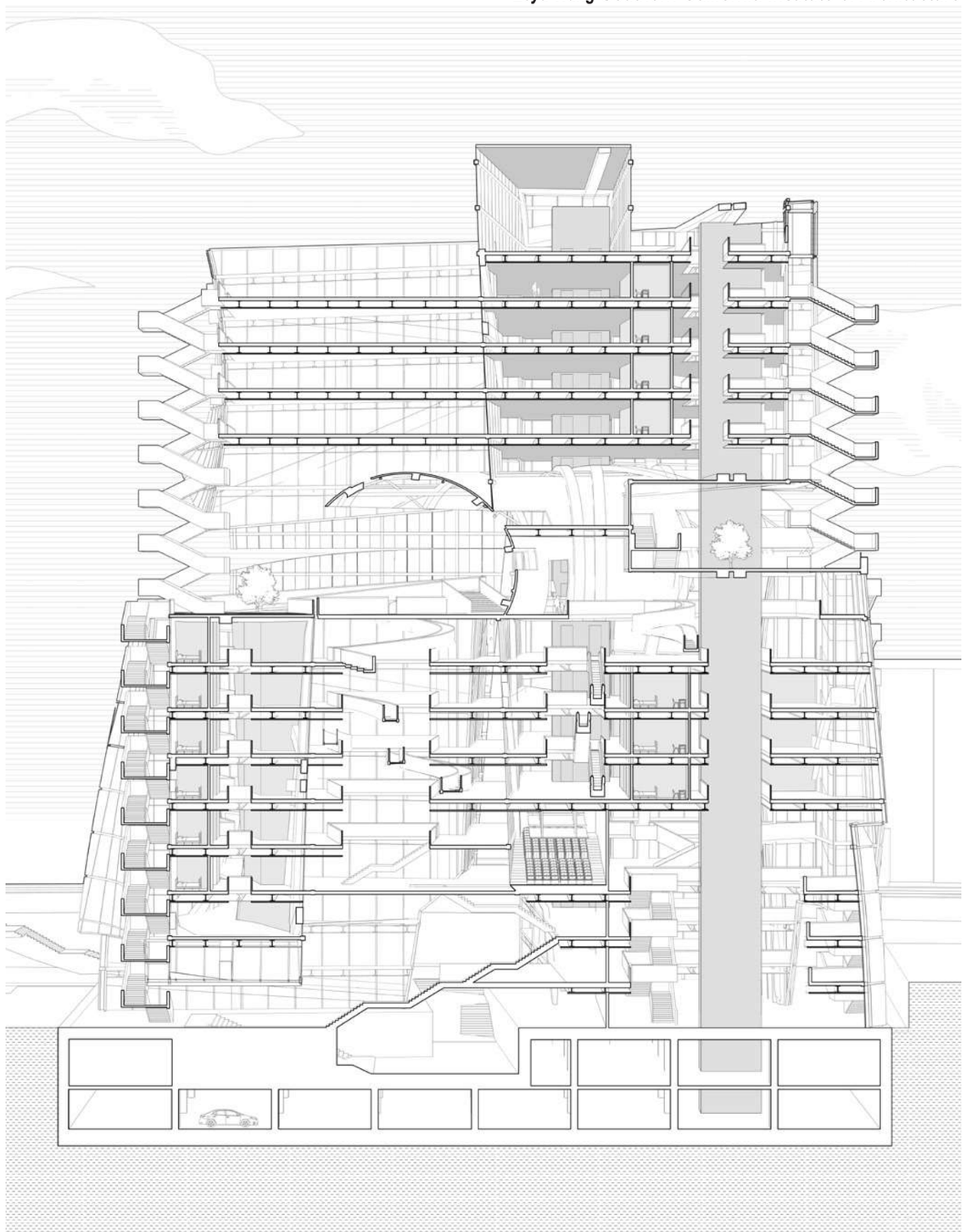


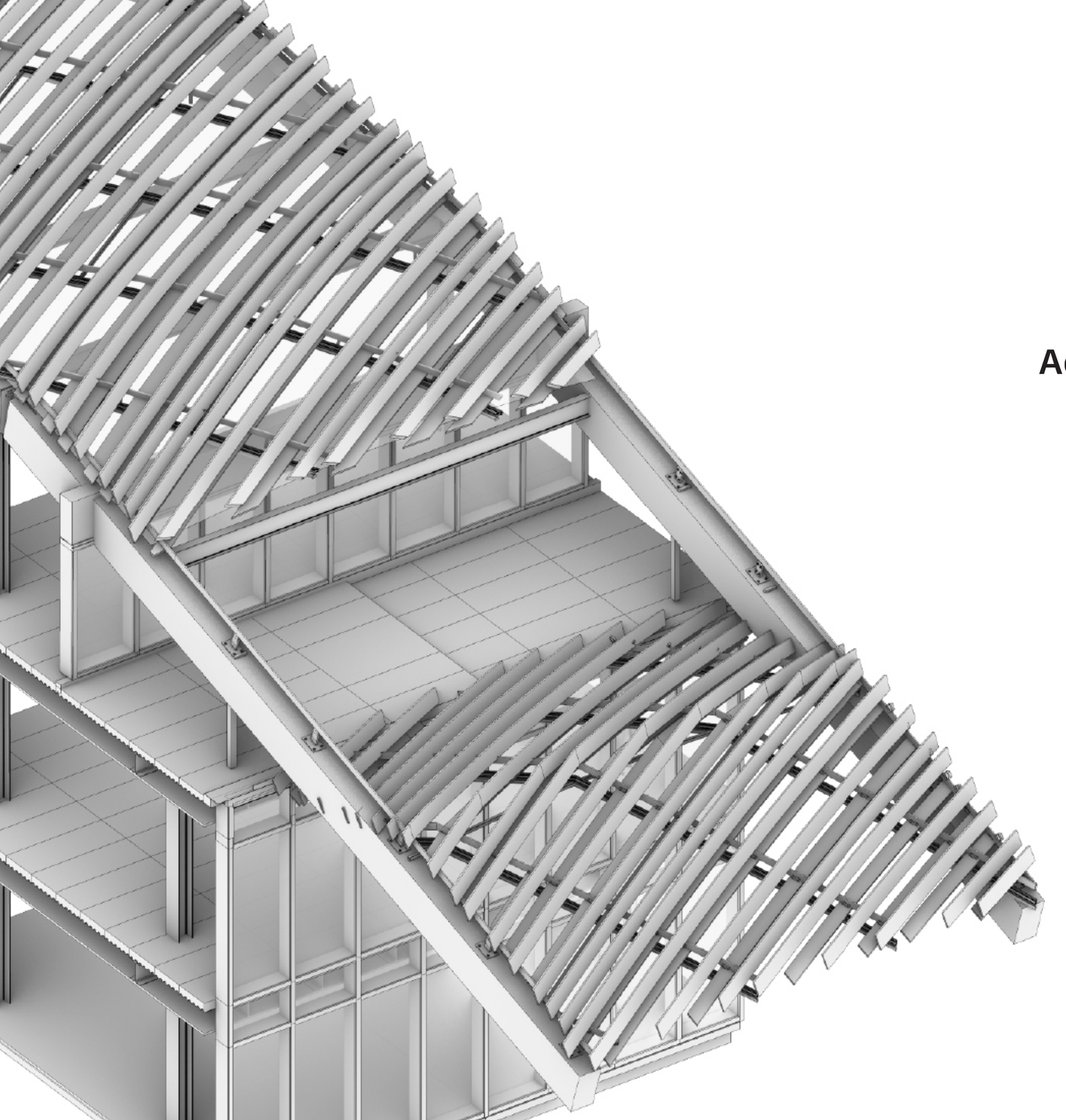







LVL 17
LVL 13
1.OFFICE
2.APARTMENT
LVL 10-11
1.EXHIBITION
2.OPEN GROUND
LVL 4-5
1.LIBRARY
2.THEATER
3.PUBLIC SPACE





03

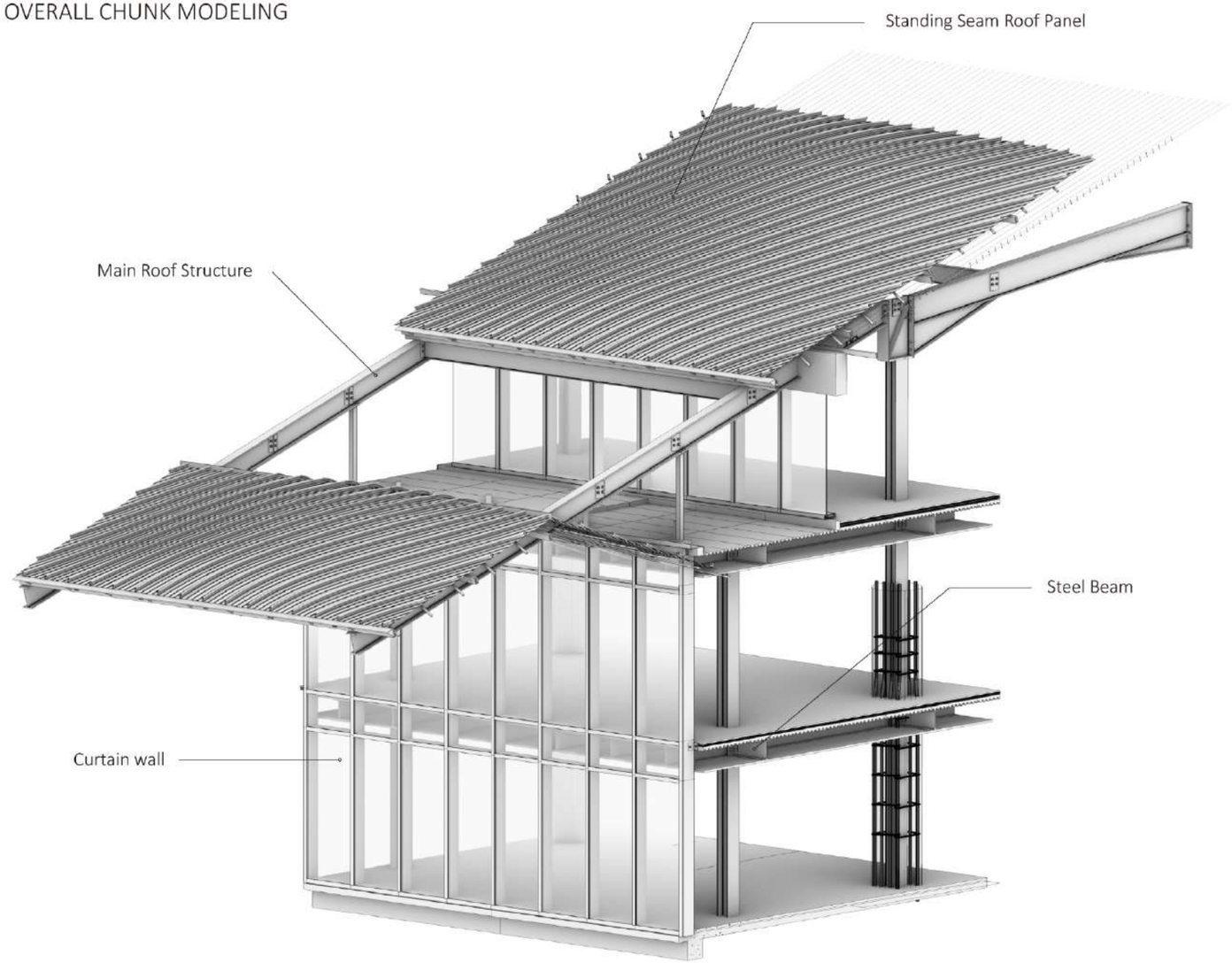
Advanced materials and Tectonics

COURSE: *AS 3200 Advanced Materials and Tectonics*
INSTRUTOR: *Randy/Dayen*
PARTNER: *Sijia Li/ Suyue Jin/ Hanna Park*
SOFTWARE: *RHINO/AI/PS*

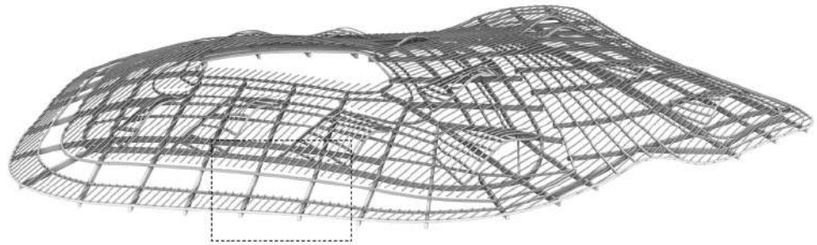
Using Cal Poly Student Services Building as a vehicle to analyze and document the anatomy the tectonics of the sub-systems of the precedent and subsequently to Transform the Façade of the precedent.

Consider the multiple layers of construction that exist between the exterior surface of the Façade and the Structoral Skeleton that supports the Façade.

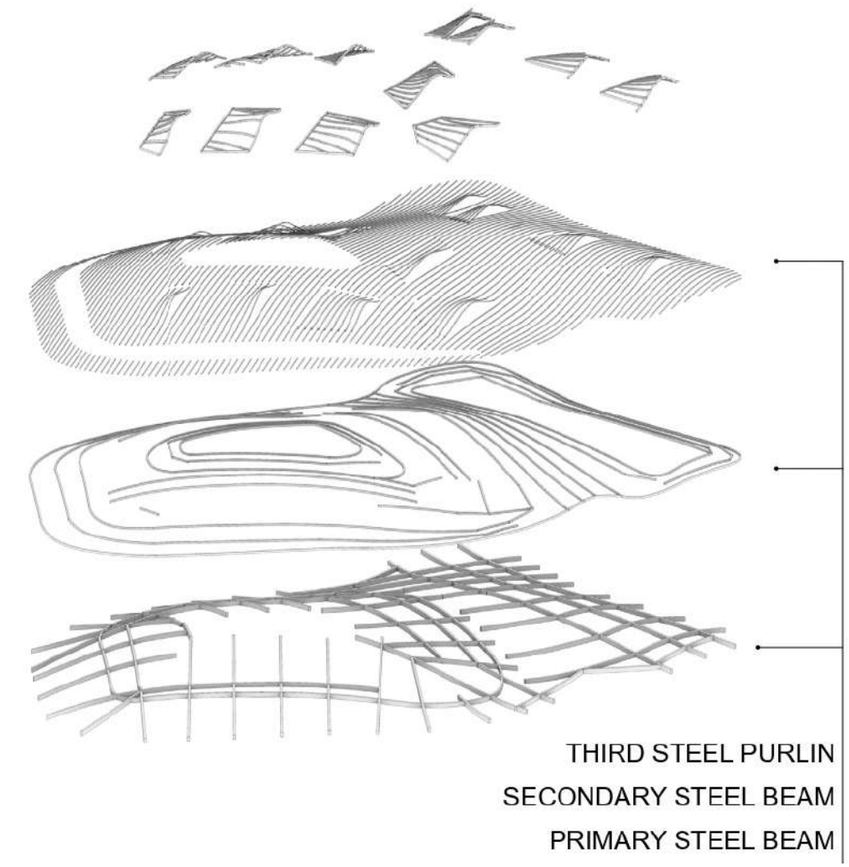
OVERALL CHUNK MODELING

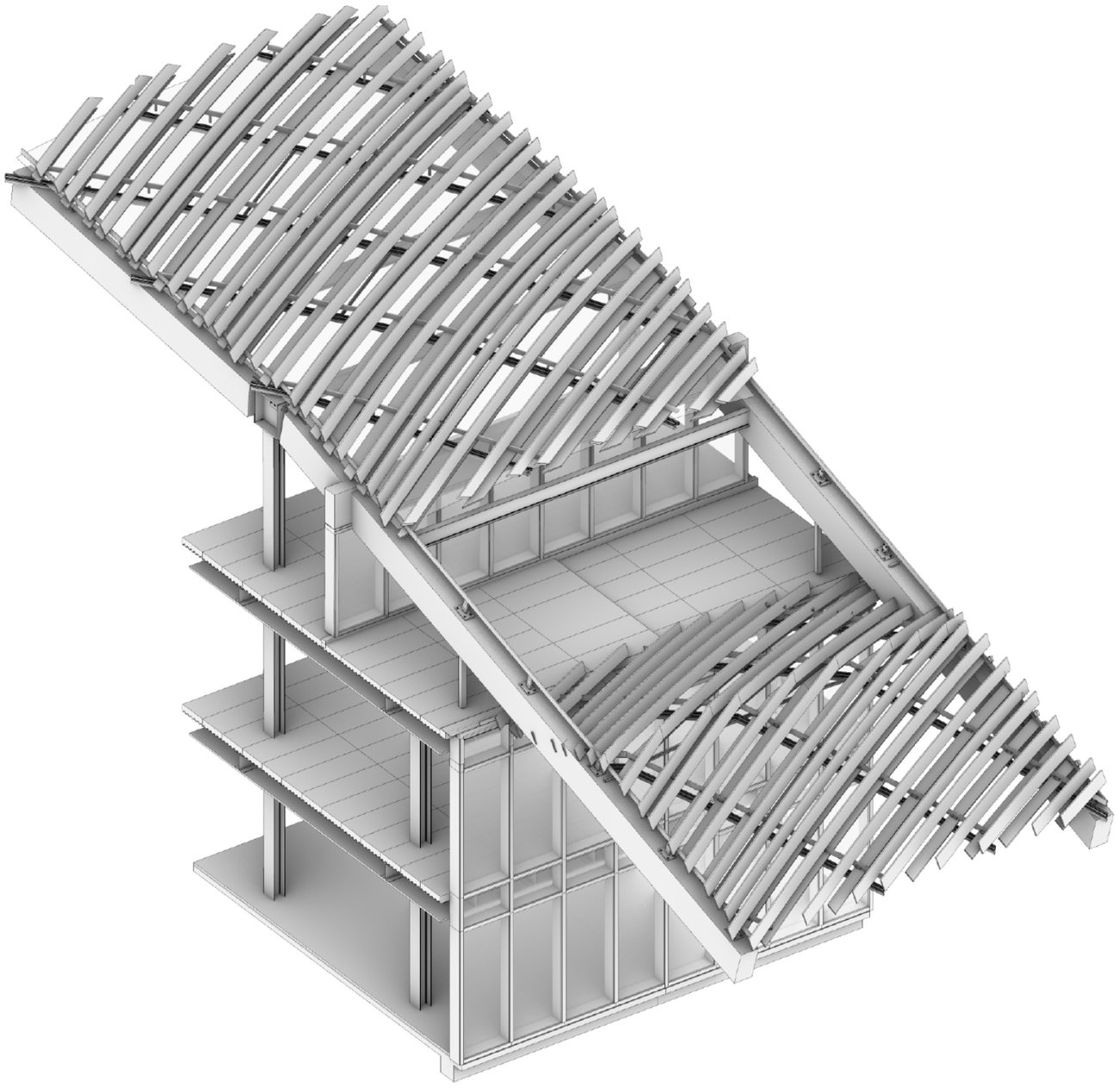


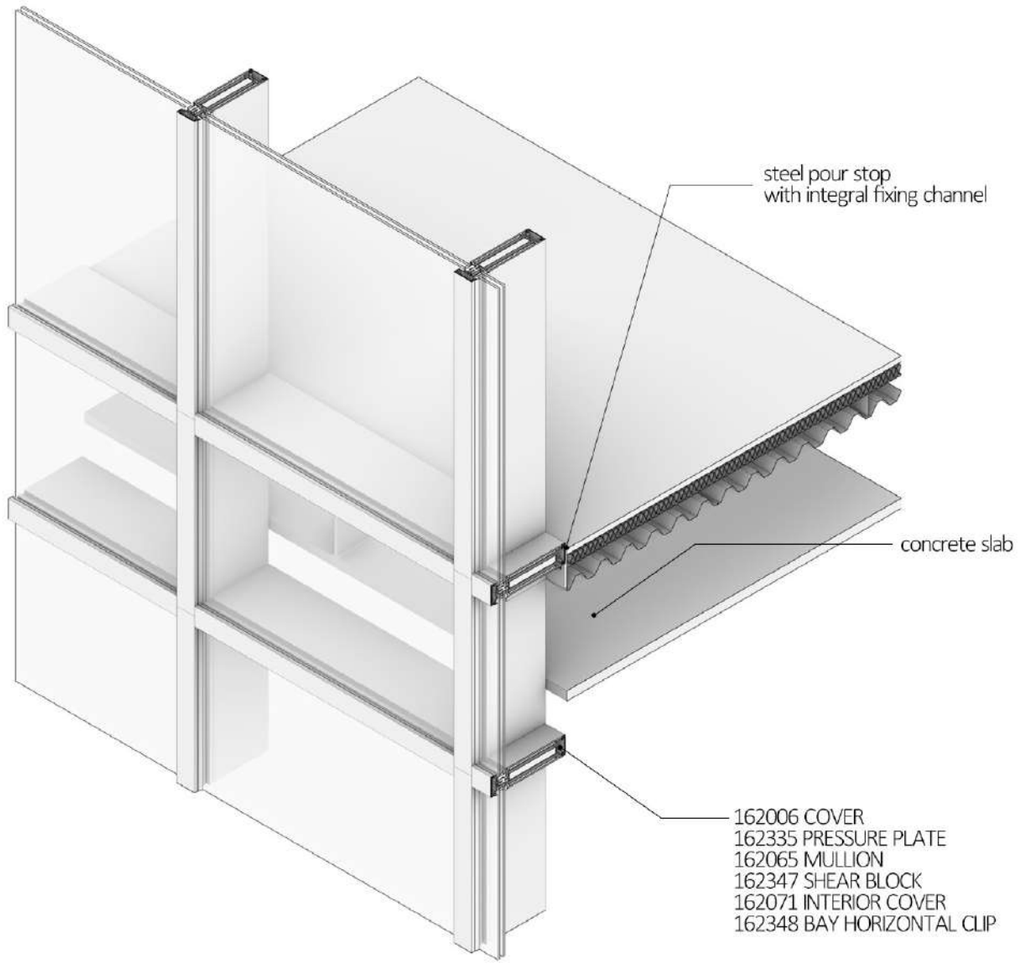
OVERALL ROOF STRUCTURE



OVERALL ROOF PROGRESS WITH LAYERS







Most of the original facade of the Caltech Student Services Building adopts the structure of a glass curtain wall. We tried to refer to Kengo Kuma's darling and Frank Gehry's Louis Vuitton building in this renovation. The main load-bearing structures of these two works are wooden structures. The structural part of our project is mainly steel structure, and the wooden structure is mainly to make the overall structure lighter and consider appearance.

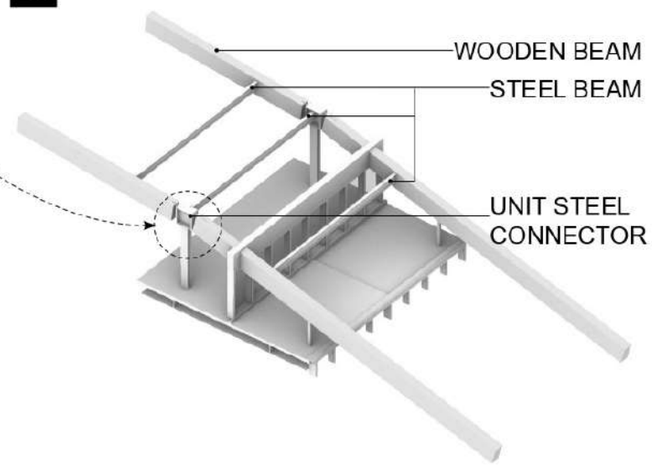
LAYER WORK OF ROOF

MODEL DETAIL - INSIDE VIEW

MODEL DETAIL - PERSPECTIVE VIEW

MODEL DETAIL - BIRDS VIEW

B1



FIRST + SECOND LAYER (ORIGINAL)

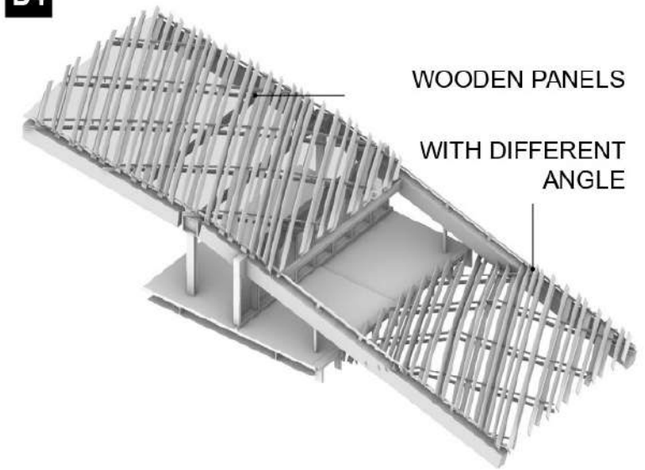
B2

+ THIRD LAYER

B3

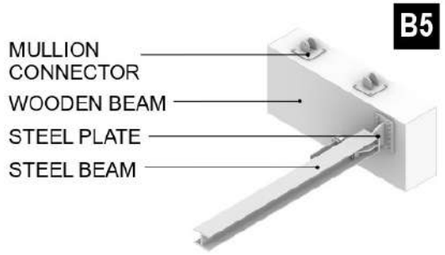
+FORTH LAYER

B4



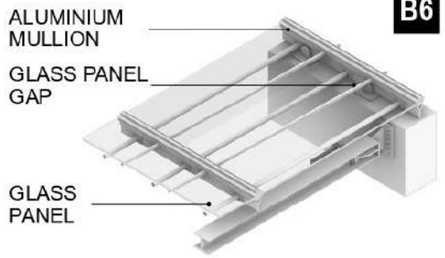
+ FIFTH LAYER

B5



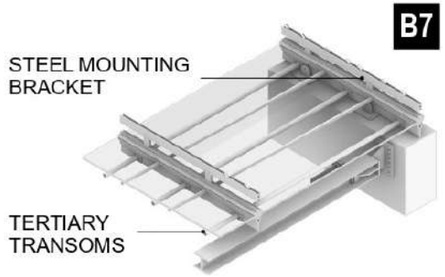
FIRST + SECOND LAYER (ORIGINAL

B6



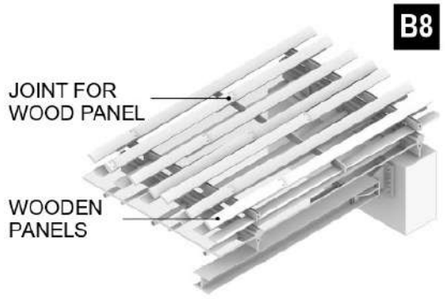
+ THIRD LAYER

B7



+FORTH LAYER

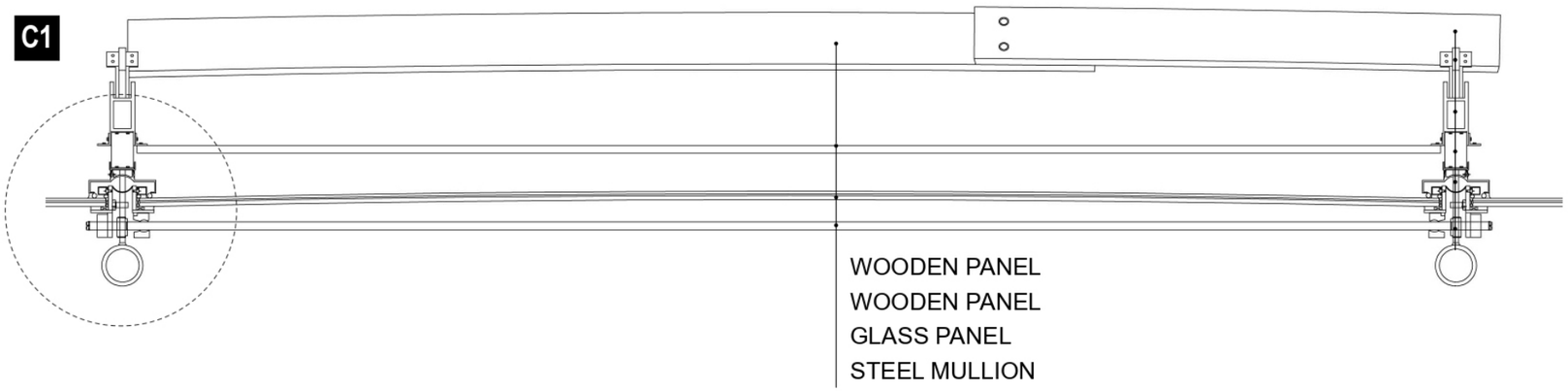
B8



+ FIFTH LAYER

DETAIL OF ROOF SECTION

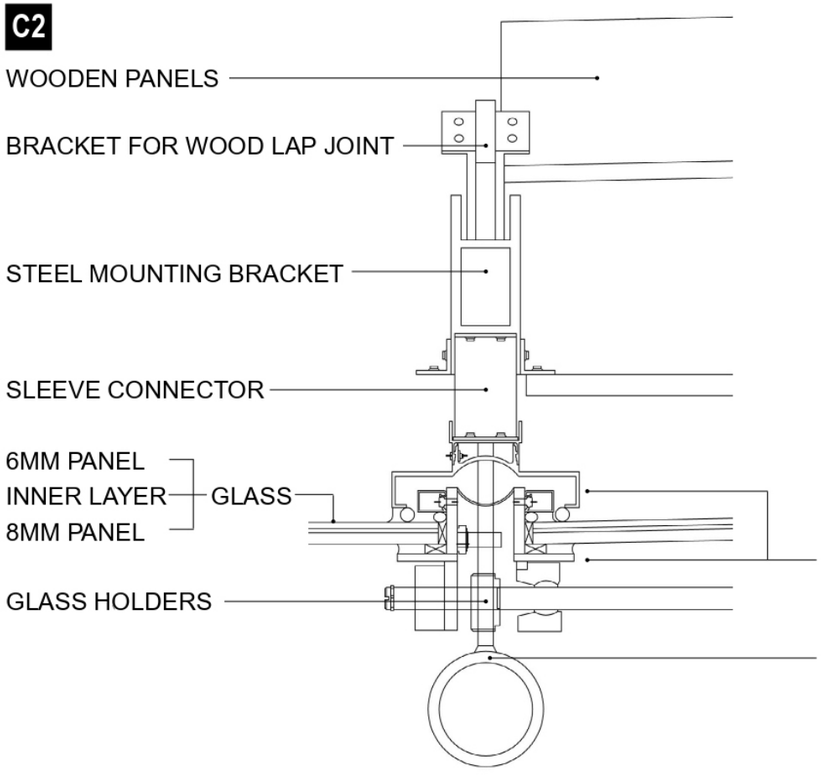
C1



The structural curtain wall has been turned into a wooden structure to support the entire glass. Numerous anchor points and supporting racks are placed at the joints for the overall structural load-bearing design. The sliding rails on the glass are provided, and a connecting element between the wooden rib and the steel element is designed.

SAILS GLASS PANEL CONNECTION

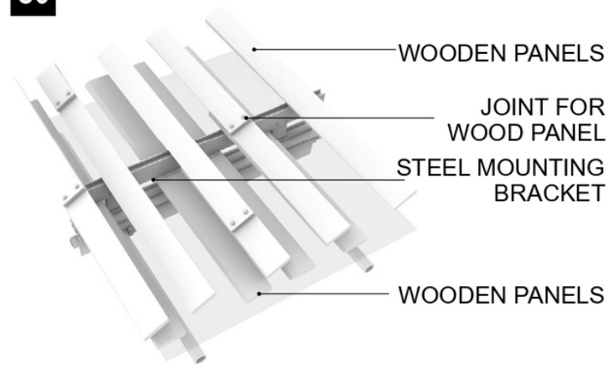
C2



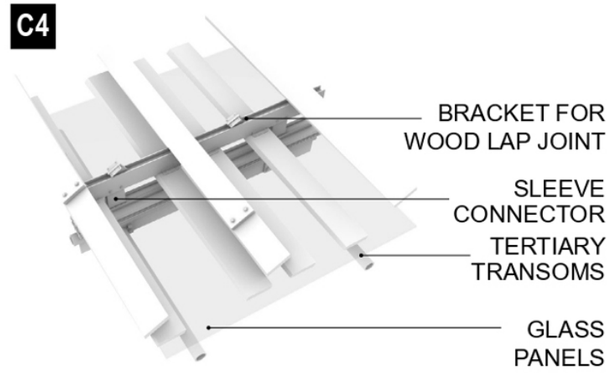
The figure on the left is a cross-sectional view of the connecting member, from which it can be seen that there are wooden panels, a bracket for a wood lap joint, a steel mounting bracket and other components. These parts are mainly connected to the wooden structure and glass. There are also components such as glass, glass holder, and sleeper connector. These components are mainly connected to the glass part, making the whole structure more reasonable.

The figure on the right is mainly a bird's-eye view of the updated component, showing the complete picture of the entire component. The whole design is mainly from the steel structure of the original components to the overall structure of the steel structure and the wood structure. While shading treatment can make more changes in the outer skin to make it more creative.

C3

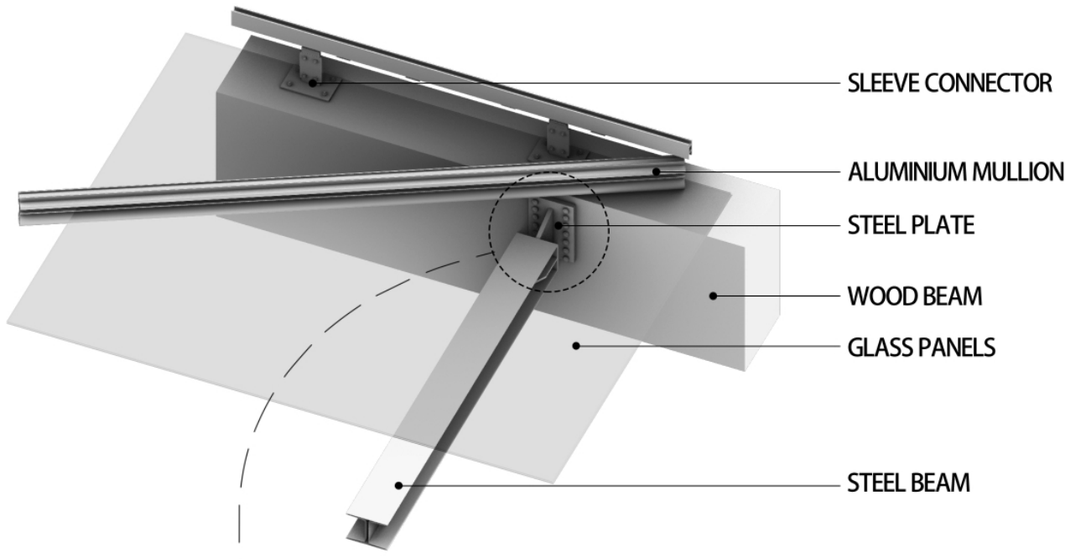


C4



BEAM CONNECTION

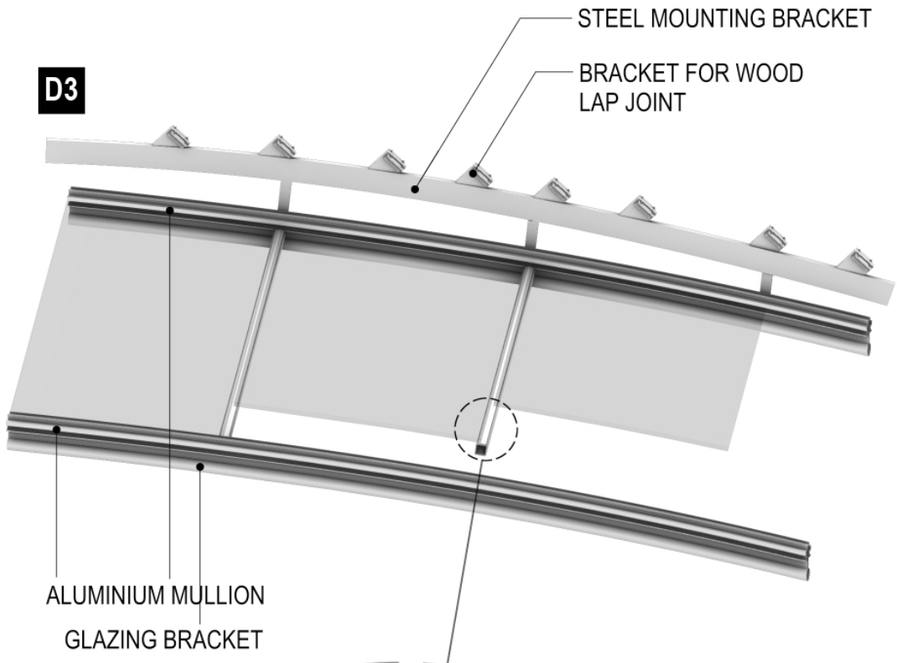
D1



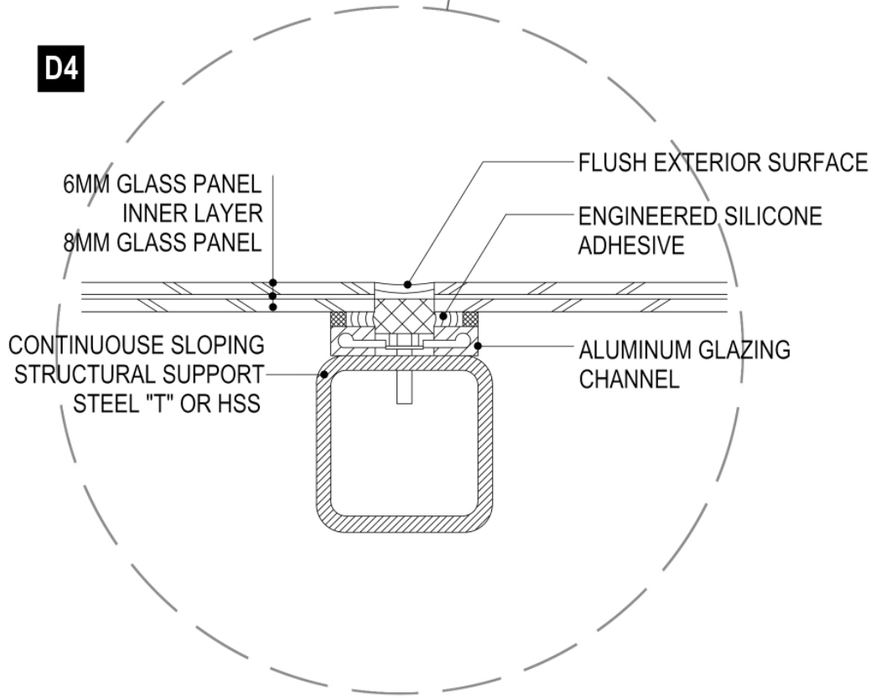
D2

GLASS PANEL GAP STRUCTURE

D3



D4



04

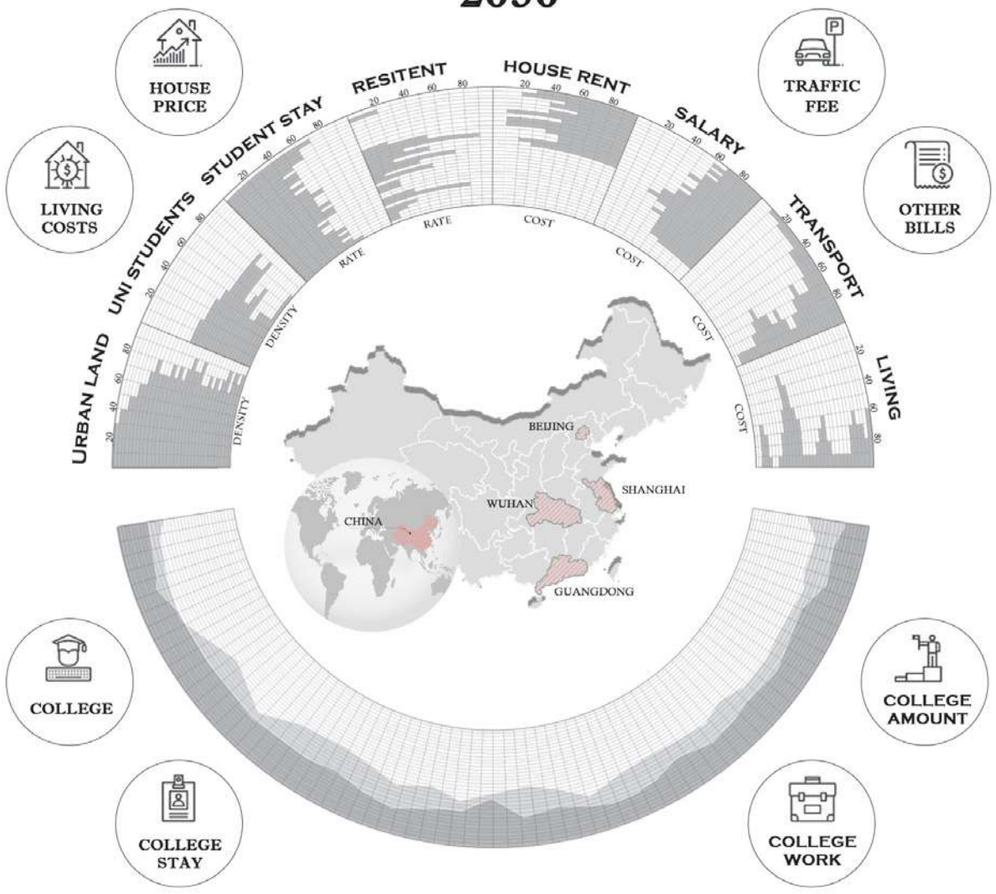
Box Of AD HOC

COURSE: *NEW-STYLE COMMUNITY*
INSTRUTOR: *LU ZHANG*
INDIVIDUAL WORK
SOFTWARE: *RHINO/ ILLUSTRATOR/ PHOTOSHOP*

With rapid population growth, China's population will reach its maximum peak in 2050. In addition, with the high degree of urbanization, the living space in the city will become less and less, and the rent will become more and more expensive. Young people who have just graduated will gradually be forced to leave the city because they cannot pay the rent. So this project aims to propose an apartment suitable for young people just graduated taking this situation into consideration.

The building aims to integrate young people's work and life so that they don't have to waste a lot of time on commuting. In addition, the building has horizontal slide rails, unit buildings can be assembled into multiple units. Also, There are many vertical steel frames so that the entire building can grow vertically.

PREDICTION 2050



POPULATION GROWTH RATE AND PROPORTION OF COLLEGES STUDENTS IN 2020-2050

1700
(PERSON/SQ km)

China's population will peak in 2050

The increasing population will cause a series of social problems

The map of social population growth

As the population has peaked,the number of young people has increased

A growing urban working population means an increased demand for housing

A growing urban working population means an increased demand for housing

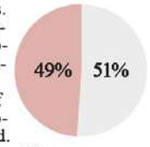
Urban housing price forecast from 2020 to 2050

But young people cannot afford the high rent

Chart of rent and its geographical location

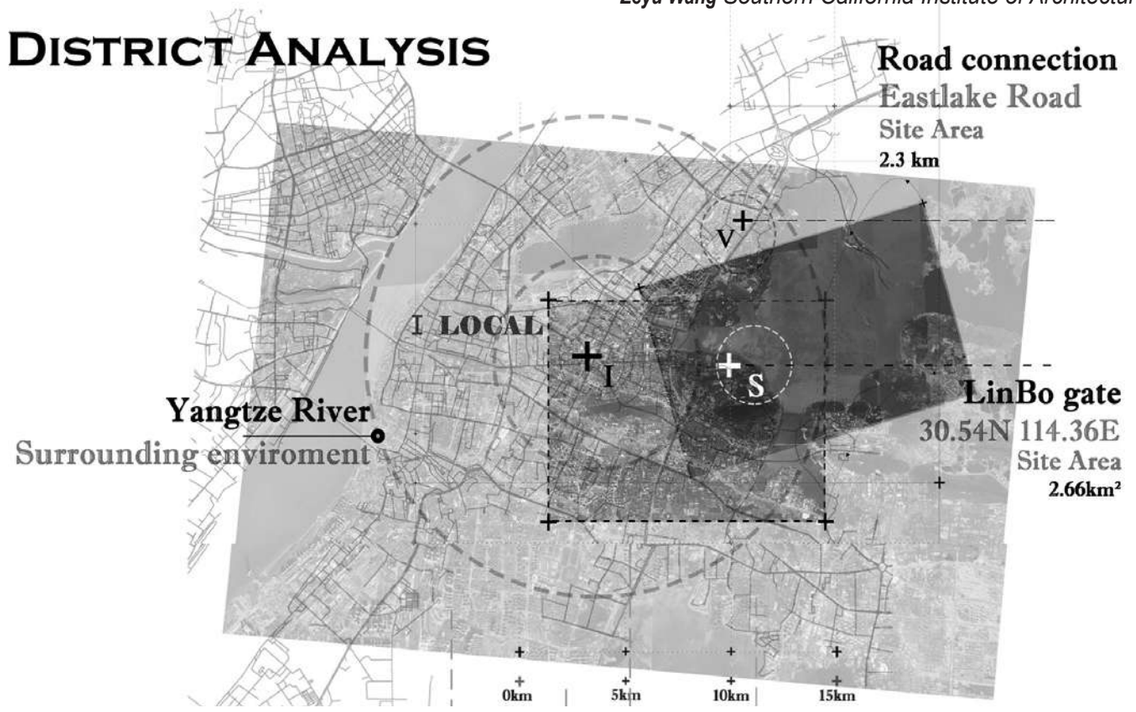
Choosing an out-of-the-way house means more commuting time

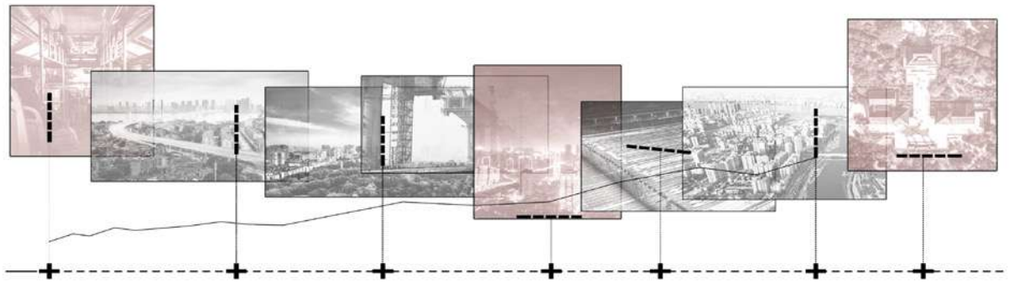
Among urban residents, 60% of young people who graduated or started their own businesses chose to live in rented houses. 30% of young people could afford a down payment on a house, while the rest of the loans are slowly being repaid. Only 10% of young people have their own homes without paying rent.

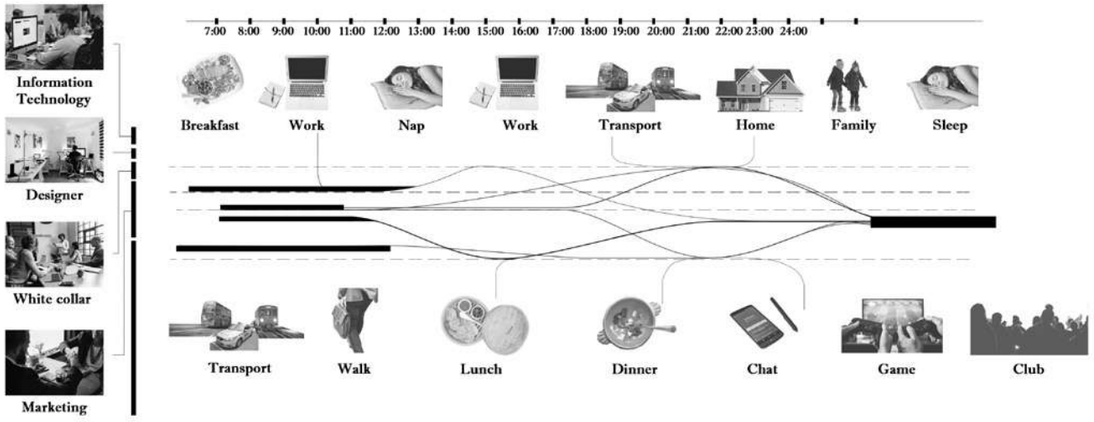


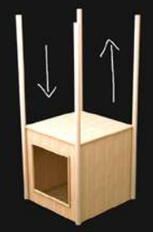
Young person make up the total number of people in this city

DISTRICT ANALYSIS



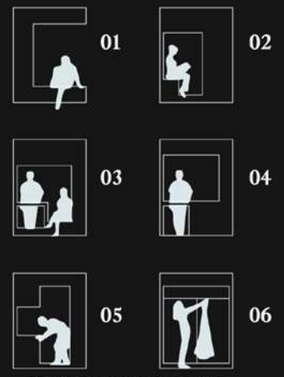






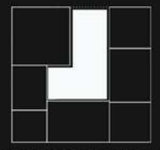
Each Cube is movable

The part of the void is the public space

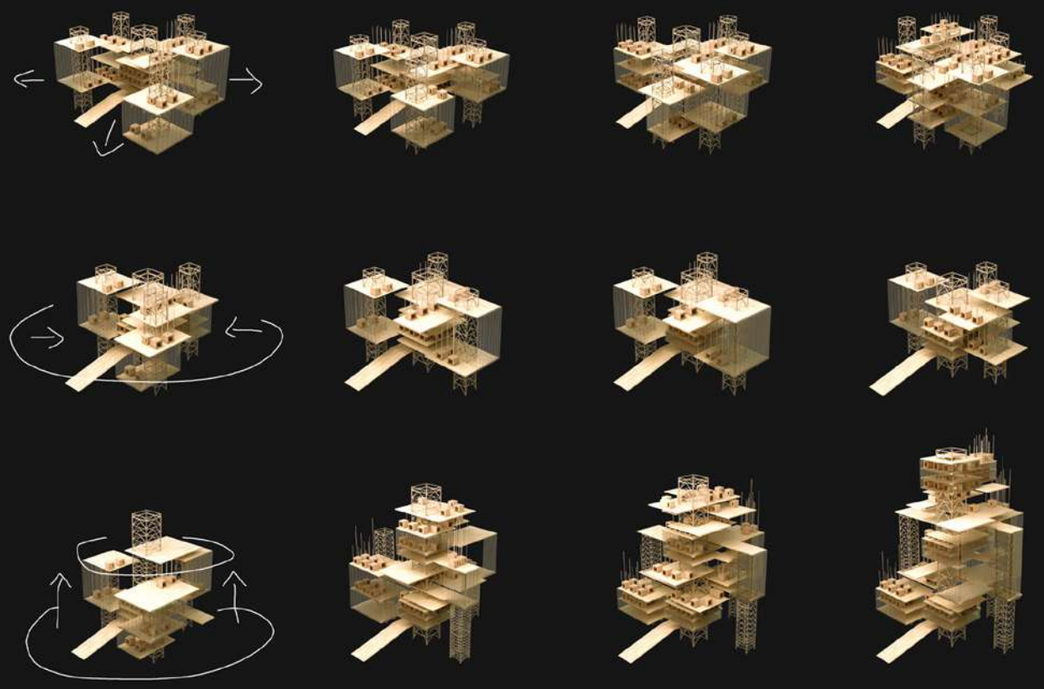


This can increase the connection between cubes

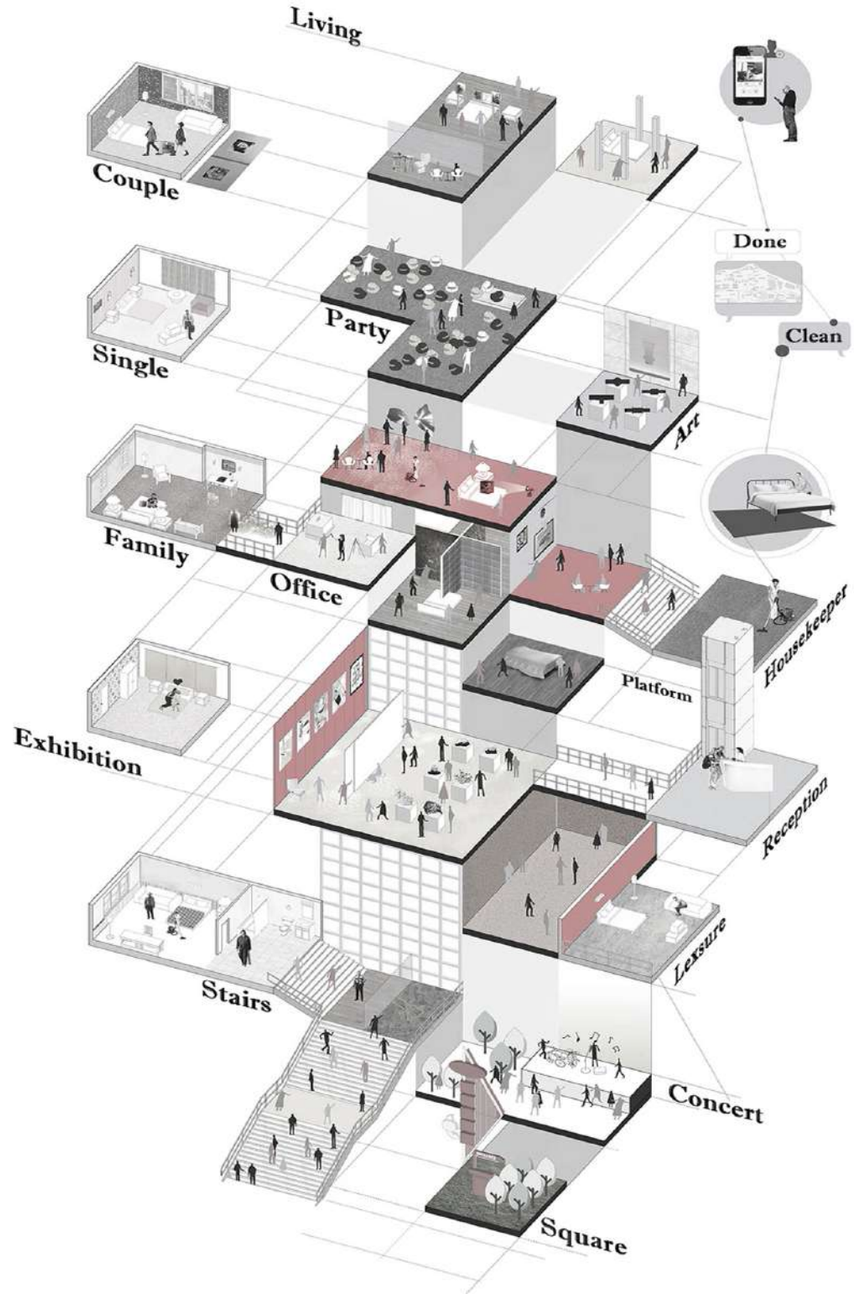
2-3 cubes can be put together



Cubes can also form larger functional facilities



The main body of the building consists of four parts-frame, floor, curtain wall and residential box. The generation logic is based on the growing frame, the floor and curtain wall are organized reasonably, and the residential boxes are effectively put into them in a spatially connected manner.



The building aims to integrate young people's work and life so that they don't have to waste a lot of time on commuting. In addition, the building should be able to provide recreational facilities and a butler system for house cleaning so that young people could have more time for creativity and rest.

05

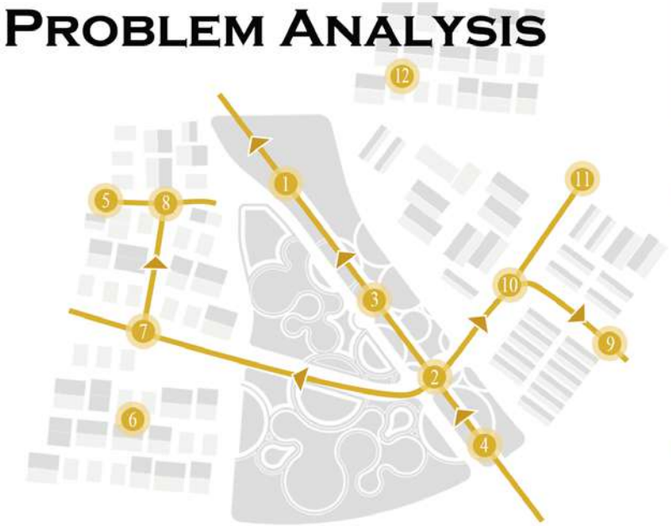
Derive From Crack

COURSE: *URBAN RENOVATING DESIGN*
INSTRUTOR: *LU ZHANG*
INDIVIDUAL WORK
SOFTWARE: *RHINO/ ILLUSTRATOR/ PHOTOSHOP*

With the high degree of urbanization, some old building facilities have given rise to many urban gray spaces. Because these spaces are not fully utilized, many urban problems arise, such as crime and so on. The site of this design is to select an urban grey space and activate it, so as to solve urban problems.

The site is located near Hanyang Iron Works Industrial Park in Hanyang District, Wuhan City, Hubei Province. Its north for the industrial park, south for a large wetland park. The site is a bridge hole under the railroad tracks, and many problems arise because it is not be activated.

PROBLEM ANALYSIS

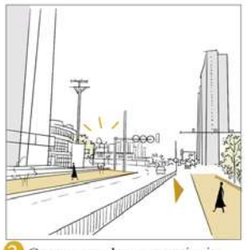


CRITICAL MAP

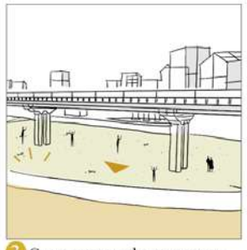
STREET VIEW

ECOLOGY

1 Insufficient green space rate



2 Green space has no continuity

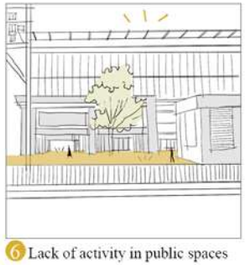


3 Green space under gray space is not used

4 The ecological space is separated from the surrounding environment

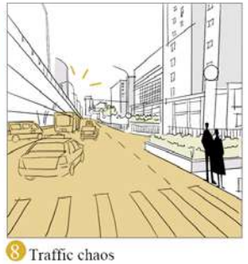
LIVE

5 Streets lack vitality



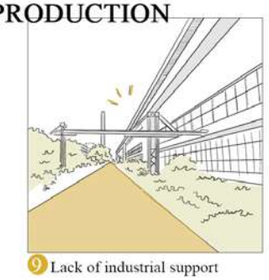
6 Lack of activity in public spaces

7 Lack of service facilities

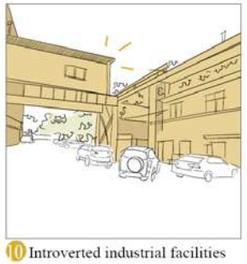


8 Traffic chaos

PRODUCTION



9 Lack of industrial support

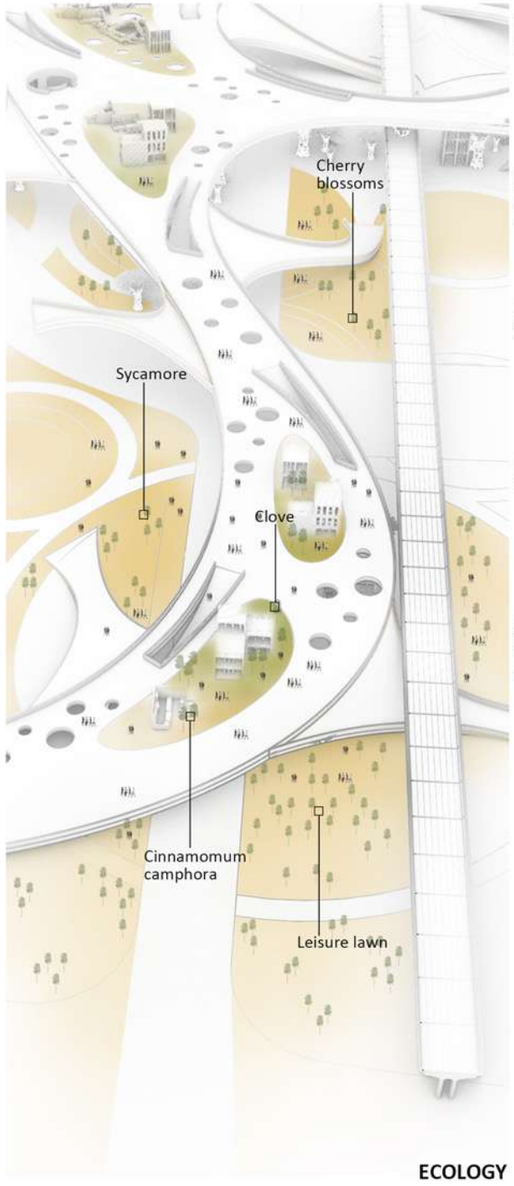


10 Introverted industrial facilities

11 Industrial space is not attractive

12 Lack of living space

The site is located next to an abandoned railway track. The whole design divides this area into three parts, and the three loops correspond to: ecology, life, and production. Hope to use these industries to reactivate this gray area.

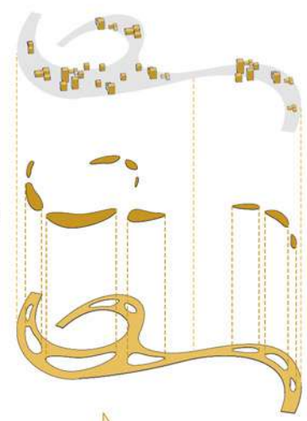


ECOLOGY

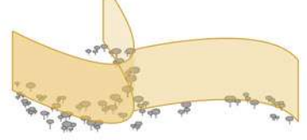
BUILDINGS
Production& Live

GREEN SPACE
Local Plants
Interrelated with ground

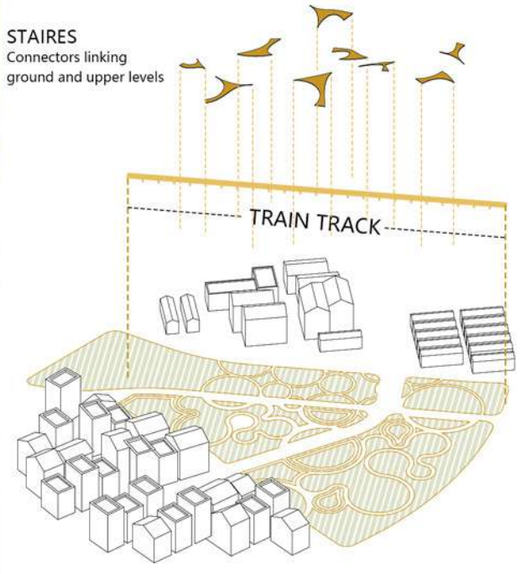
MAIN
Container of activities

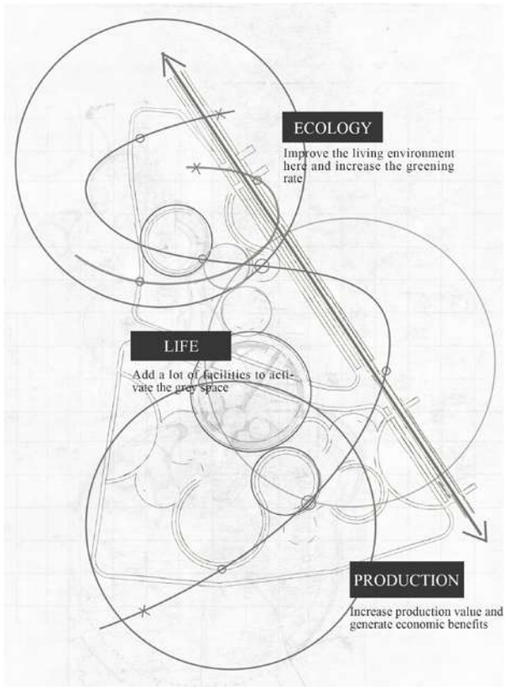


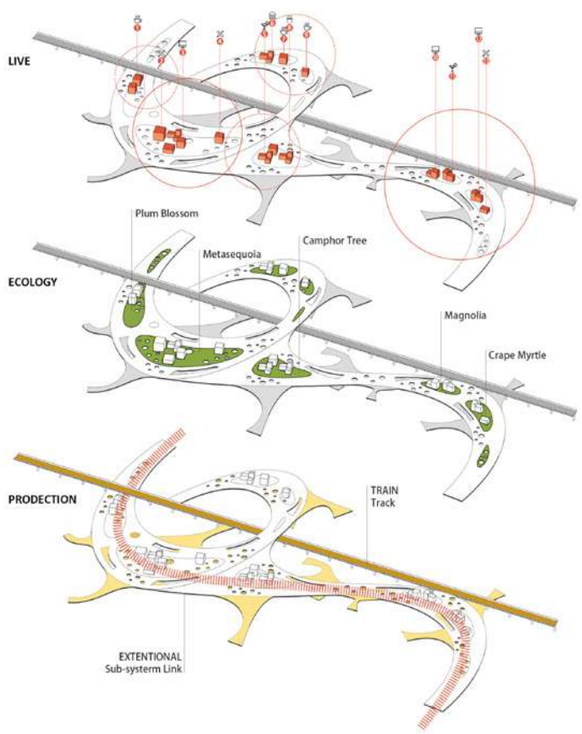
COLUMNS
Tree structure



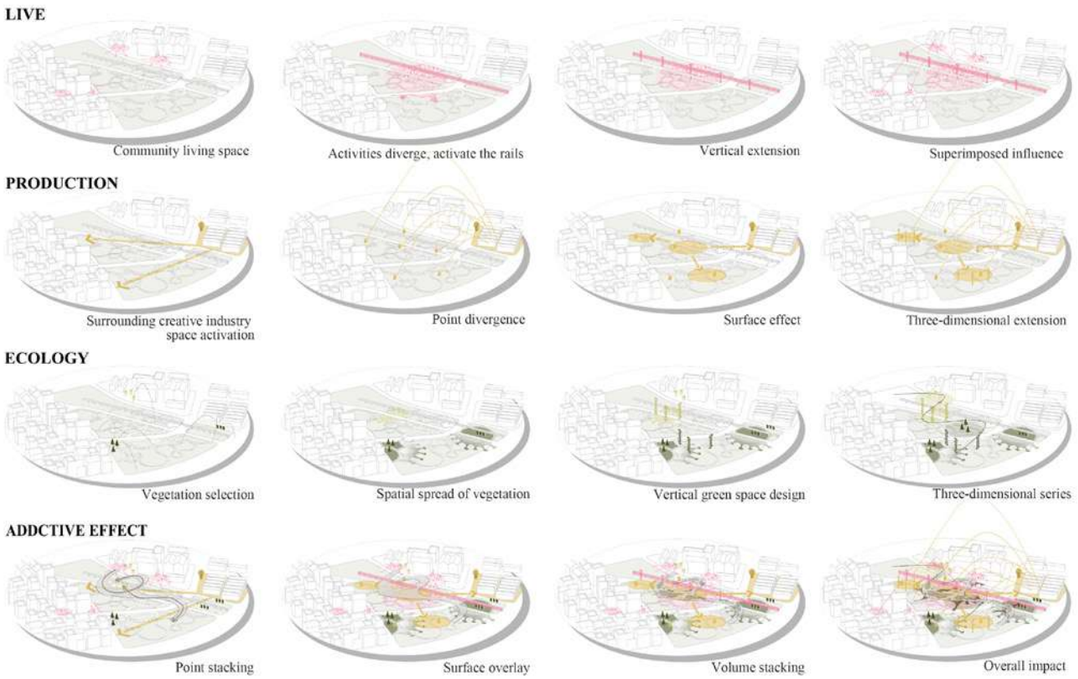
STAIRES
Connectors linking ground and upper levels

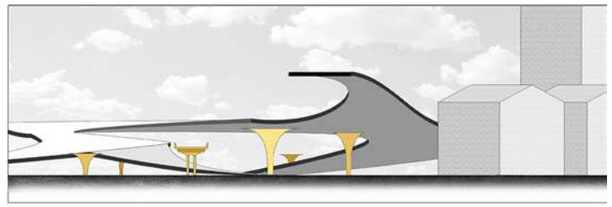




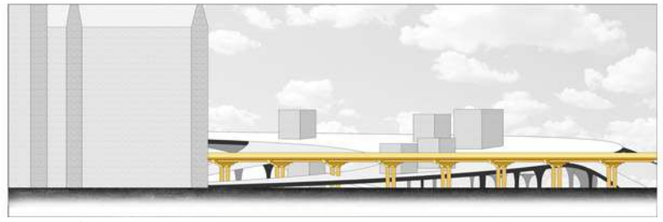


Format Distribution



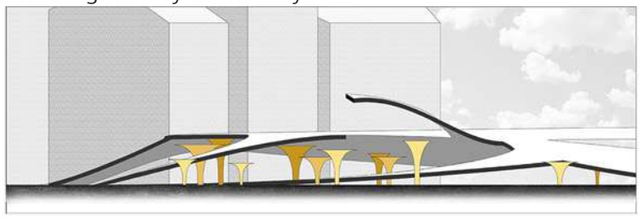


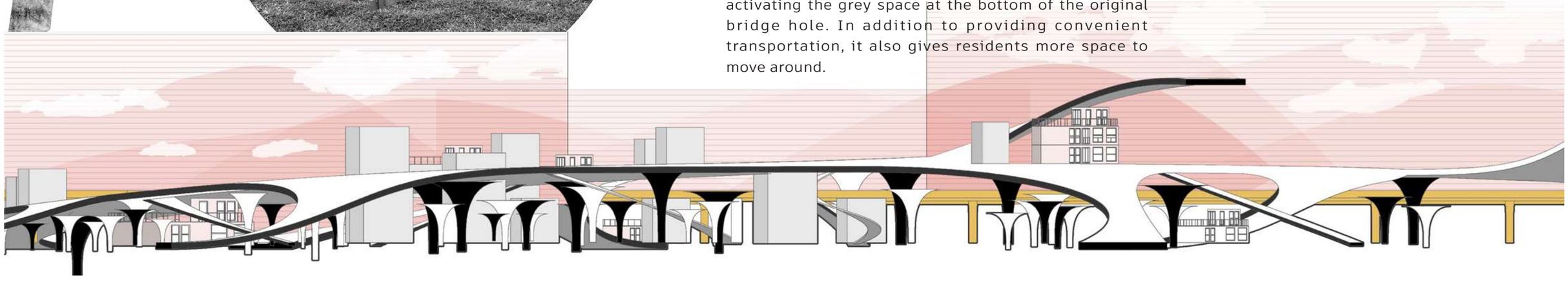
Part of the Eco Zone:
The Eco Zone features a number of green architectural circles that echo the wetland park in the south and provide residents with a space close to nature.

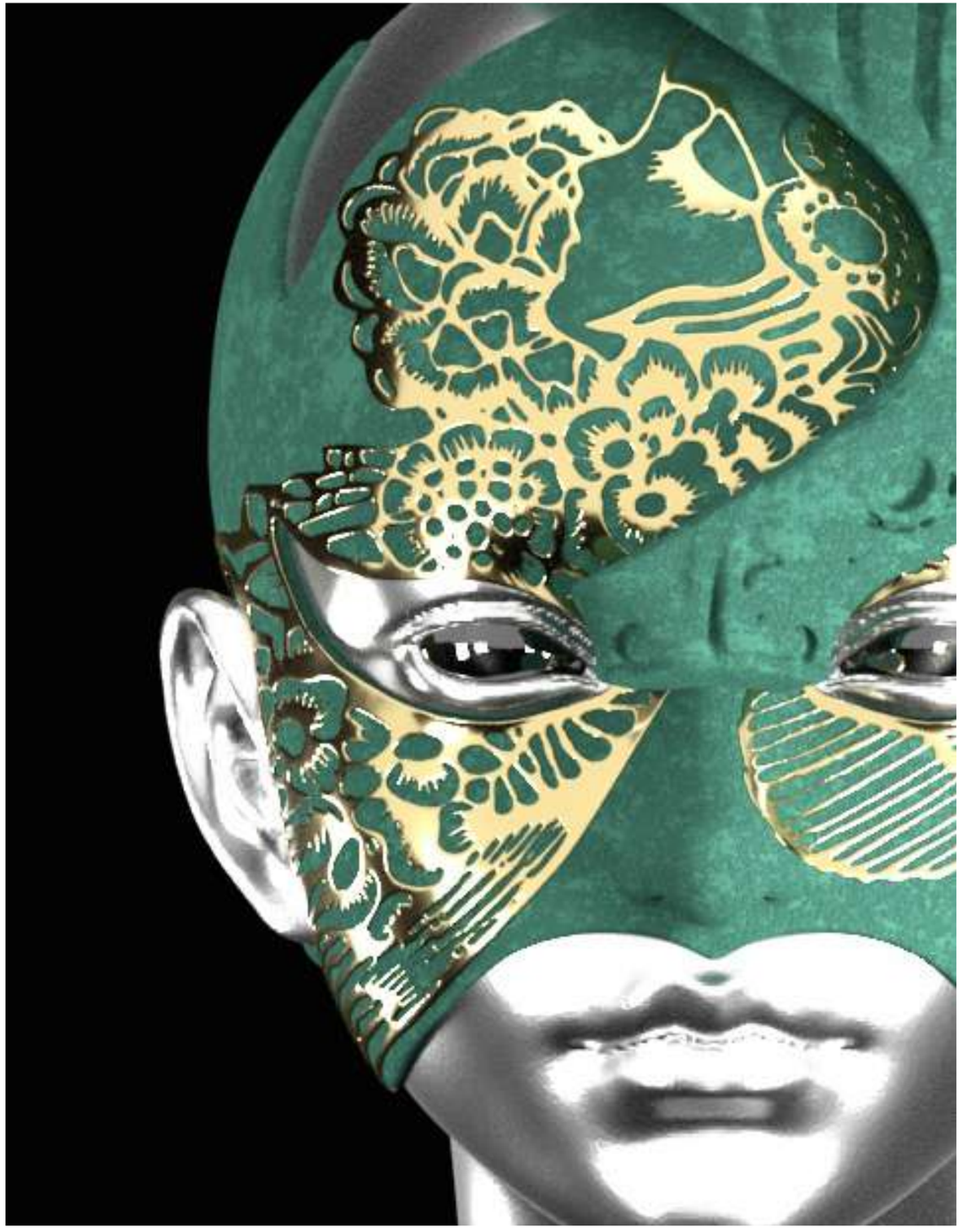


Part of the living area:
Connecting the north and south sides of the bridge, activating the grey space at the bottom of the original bridge hole. In addition to providing convenient transportation, it also gives residents more space to move around.

Part of the production area:
Many commercial blocks are added to the connecting bridge body here, enhancing the economic benefits of the facility. While attracting more visitors to activate the gray space, it can be promoted as a landmark building facility in the city.





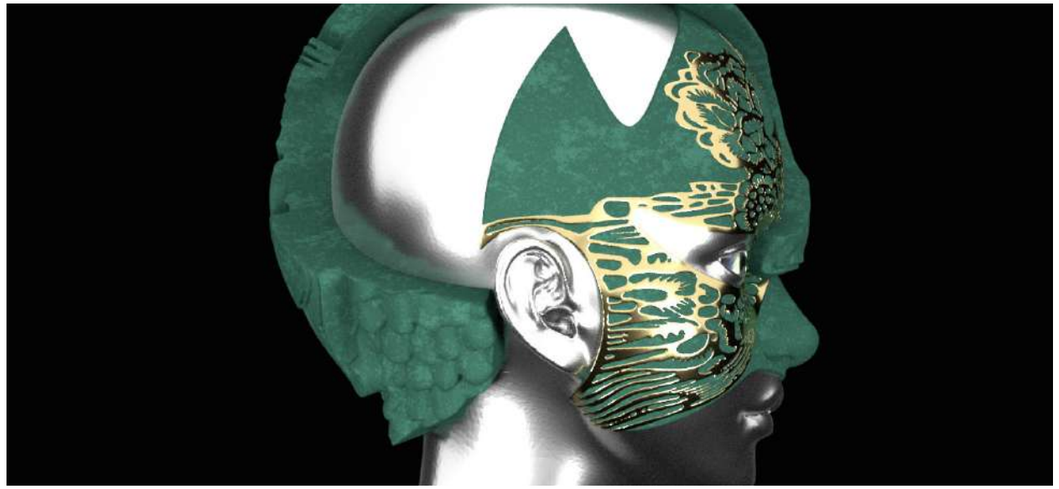


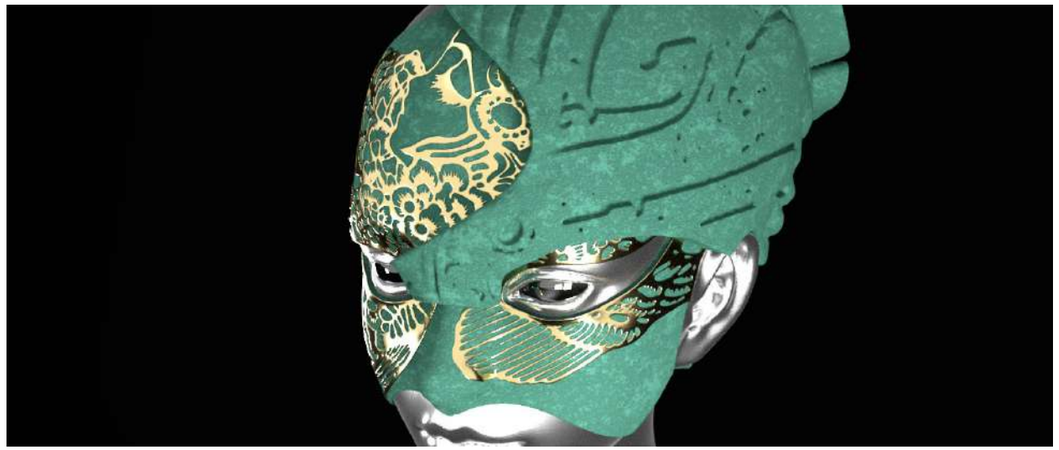
06

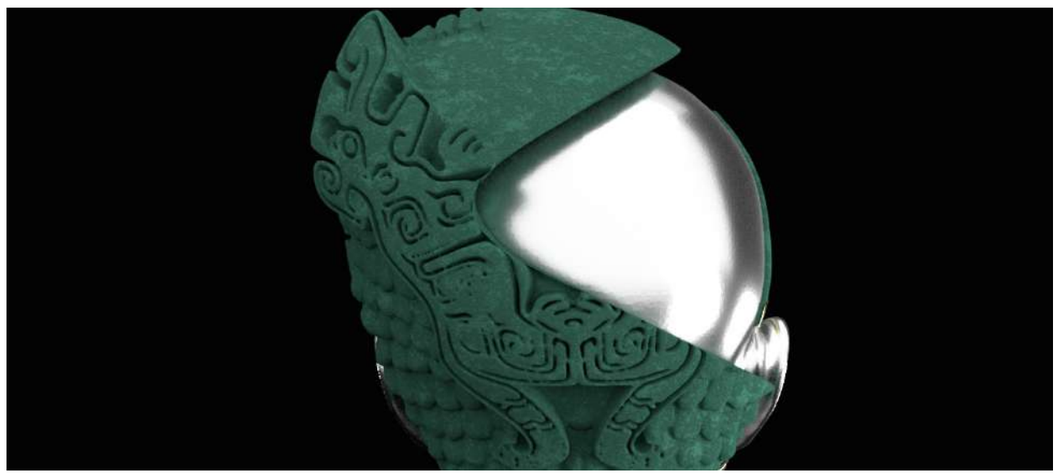
VOL.1 Mulan

COURSE: *VS 4200 Visual Studies I*
INSTRUTOR: *WILLIAM VIRGIL*
PARTNER: *SOOKIE*
SOFTWARE: *ZBURSH/CINEMA4D*

The project is to make a mask; we all wear various masks to play different roles in our lives.The ancient Chinese story of Mulan inspires this project. She was a woman, and in ancient China, all adult men were required to join the army during wars. Her father was very old and was also required to join the army. After knowing this, she dressed herself up as a man to join the army and won a lot of military exploits. This mask represents gender equality and the concept that women can be better than men.





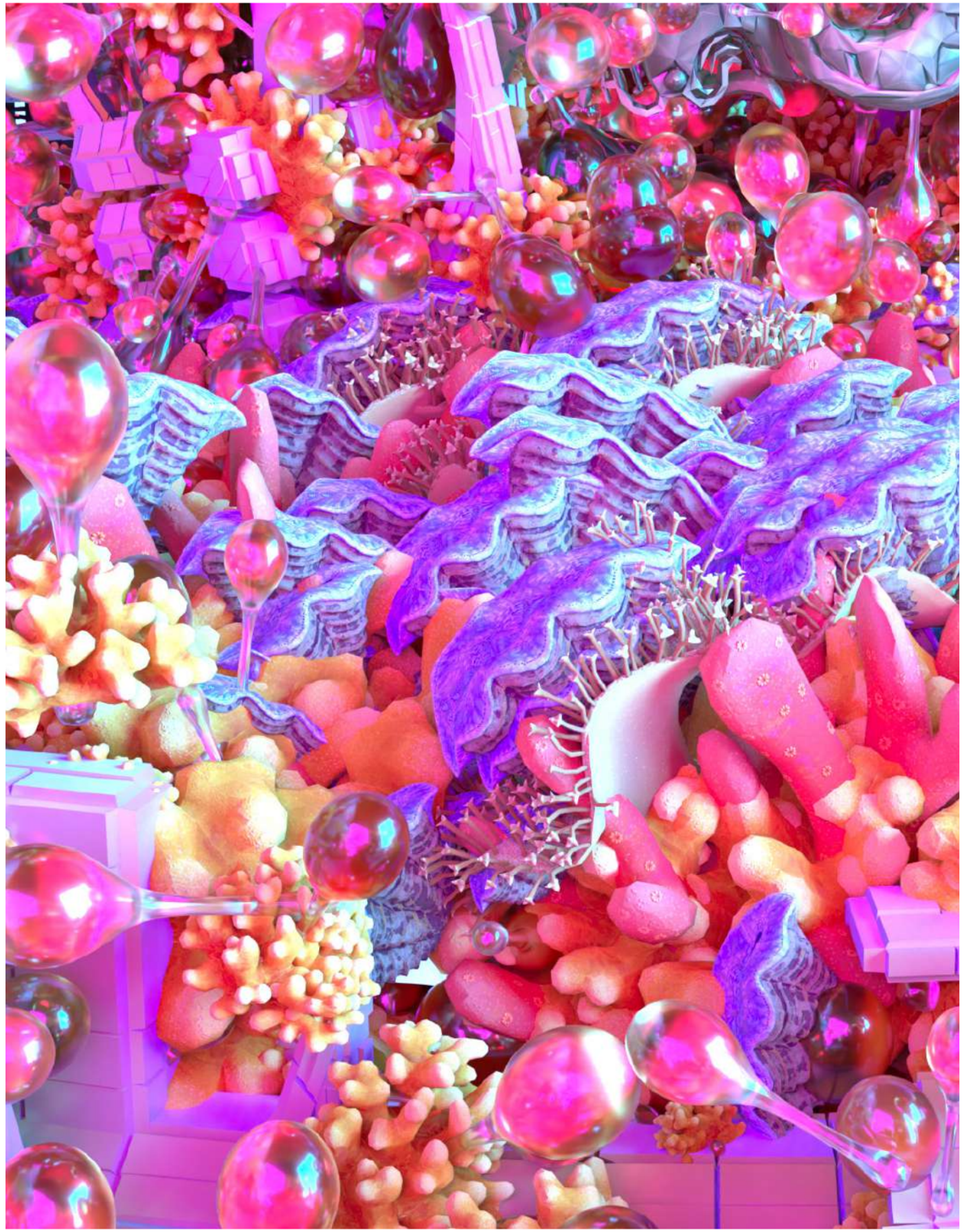


CHINESE JADE

The material part of the mask is made of Chinese jade. The design of the outer part is based on the style of ancient warrior helmets. It represents Mulan's identity as a warrior in the eyes of outsiders.

EMBROIDERY

The inside of the mask features traditional Chinese embroidery patterns that usually represent women. It means a woman under the mask, representing Mulan's true identity.



06

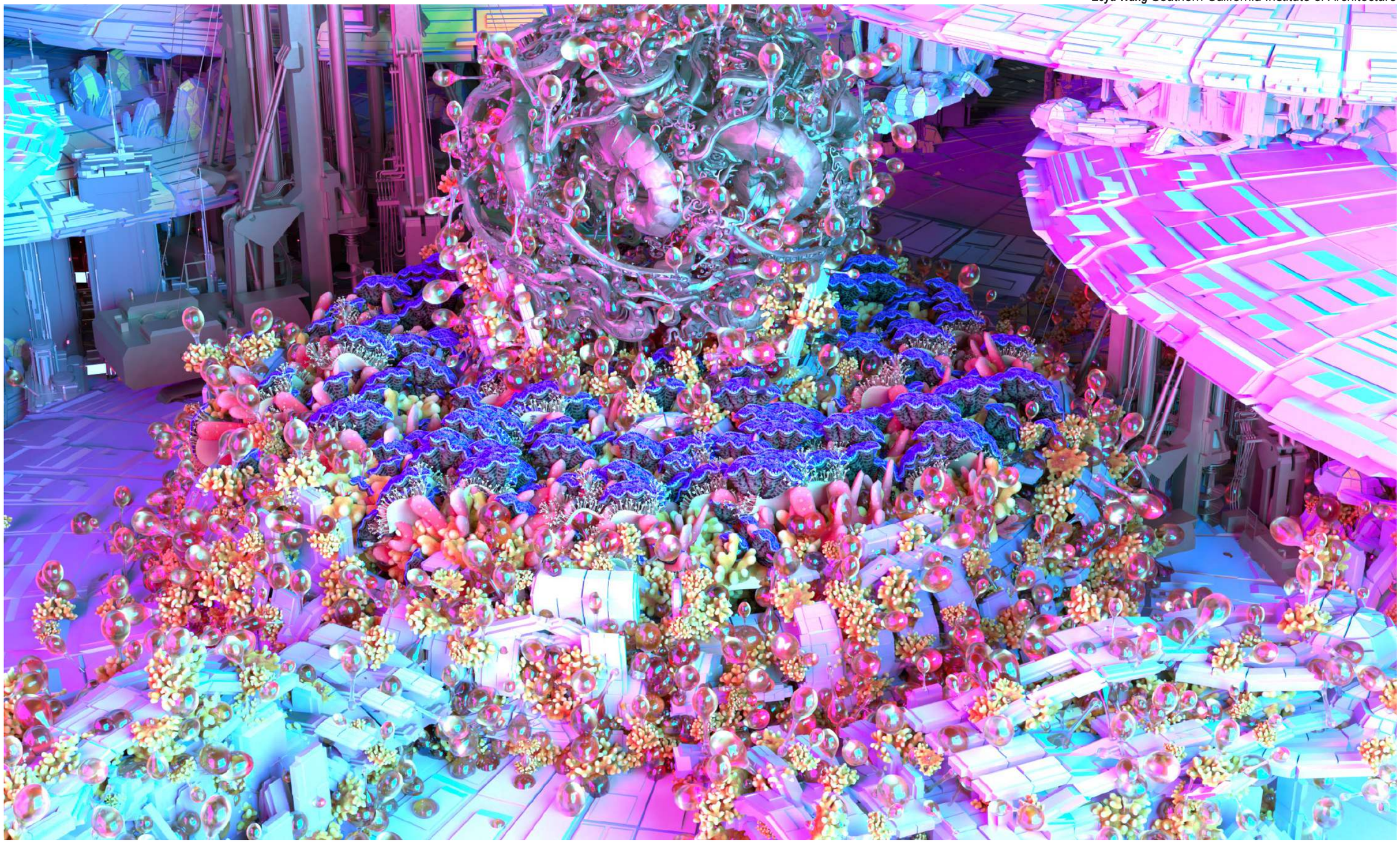
VOL.2 CHAOTIC HYPERSPACE

COURSE: *VS 4200 Visual Studies I*
INSTRUTOR: *KUMARAN PARTHIBAN*
PARTNER: *SOOKIE*
SOFTWARE: *ZBURSH/CINEMA4D*

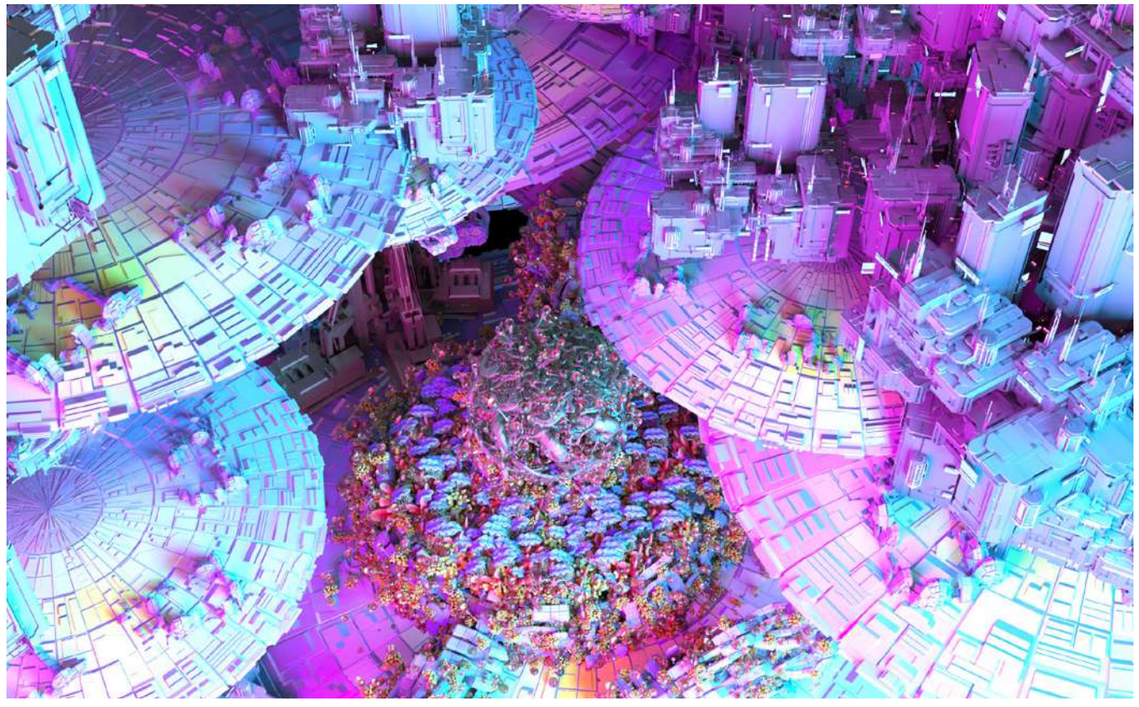
It is a chaotic world where the ancient Chinese times staggered to modern times. It is a chaotic space where floating cities and bustling nature coexist.

It was initially a colony where humans migrated to outer space. However, for some reason, the humans here left. All carbon-based creatures have disappeared on a planet in this universe, leaving only traces of human existence: a large number of buildings and installations.

It is a floating utopia, a chaotic hyperspace, a distant future in which humans disappear.

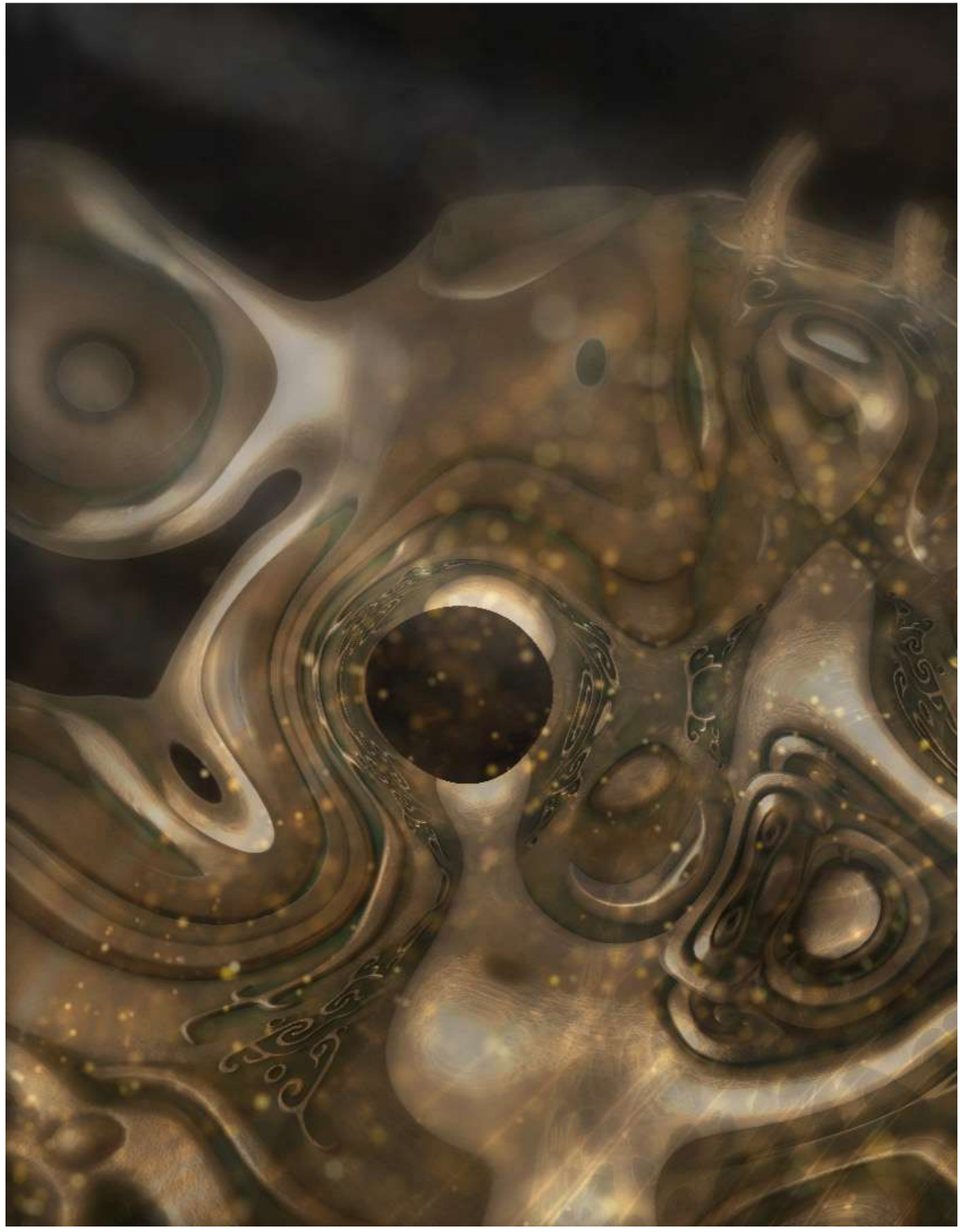


LEFT :
TOP VIEW 1
RIGHT :
ELEVATION VIEW 1



NON-HUMAN BEINGS

All the buildings in the model that represent human technology are in a desolate state in the space without human presence, but the vegetation coverage endows them with different architectural meanings. Architecture can not only serve human beings, but also serve various non-human beings.

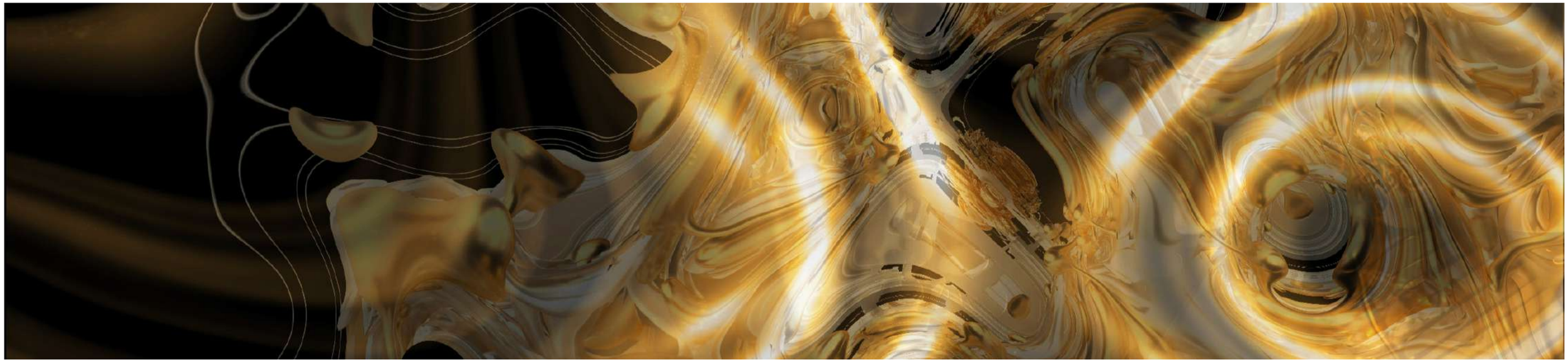


06

VOL.3 PLATINUM

COURSE: *VS 4200 Visual Studies I*
INSTRUTOR: *KUMARAN PARTHIBAN*
PARTNER: *SOOKIE*
SOFTWARE: *ZBURSH/CINEMA4D*

Derived from masks, this project aims to study visual differences. Exploring a variety of projects in the visual arts,Noble and gorgeous gold is not just a colour but also a value, orientation and taste, exuding a subtle glow. The colour of platinum is pure but easy to wear, so the rare, pure and eternal quality of platinum represents pure and eternal. On this basis, the primary language of the building is added to make the flow into a flowing material. Beautiful things are always fleeting, and this theme also calls us to cherish the beautiful years, affirm and value our value. Everyone's life should be as gorgeous as platinum.



Against the black background, the flowing platinum embellishments make the picture have a harmony of stillness and movement.

07

NATURAL

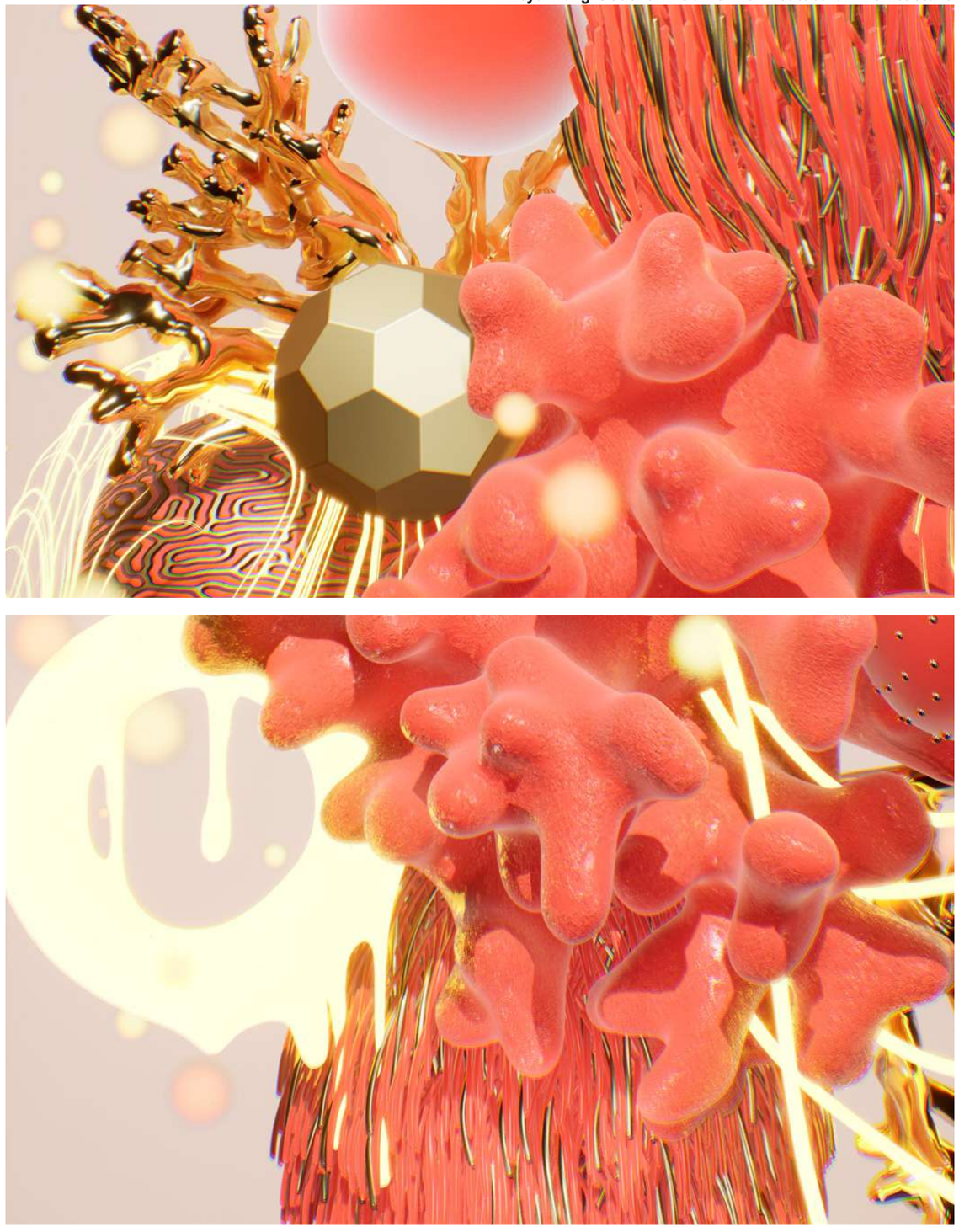
COURSE: *VS VISUAL STUDIES II M2*
INSTRUTOR: *CADIOLI ANDREA*
SOFTWARE: *UNREAL4/AFTEREFFECT*

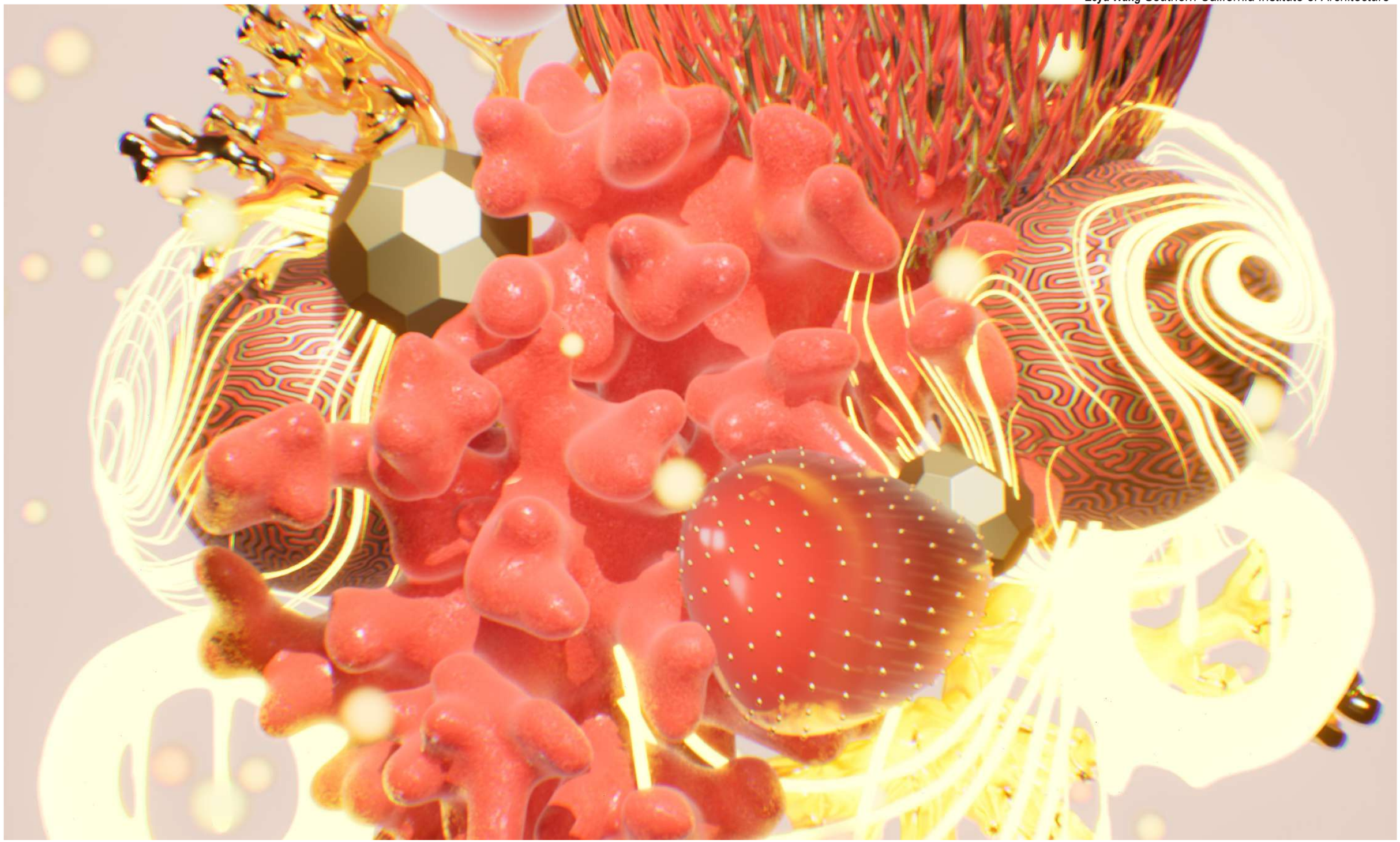
The dark red magma spewed out in the rolling black smoke, and the loud rumbling sound was pressed to the surrounding layers. The burning red rocks were pushed high into the sky and galloped down, leaving thousands of fiery red scratches in the air of the smoke screen.

This is really a wonderful and rare undersea forest, all tall woody plants grow, and the clumps of small trees stretch straight to the ocean. No technique, no veins, like an iron rod. Among the various shrubs, as tall as a temperate forest, grow colorful corals with vivid flowers.This project placed empty vitrines in reef systems which have previously been tampered with by humans, like the Bikini Atoll and the Fukushima disaster reef. The vitrines will—eventually—be removed for observation on the complexity of manmade systems.

VOL.1

Zeyu Wang-*Southern California Institute of Architecture*



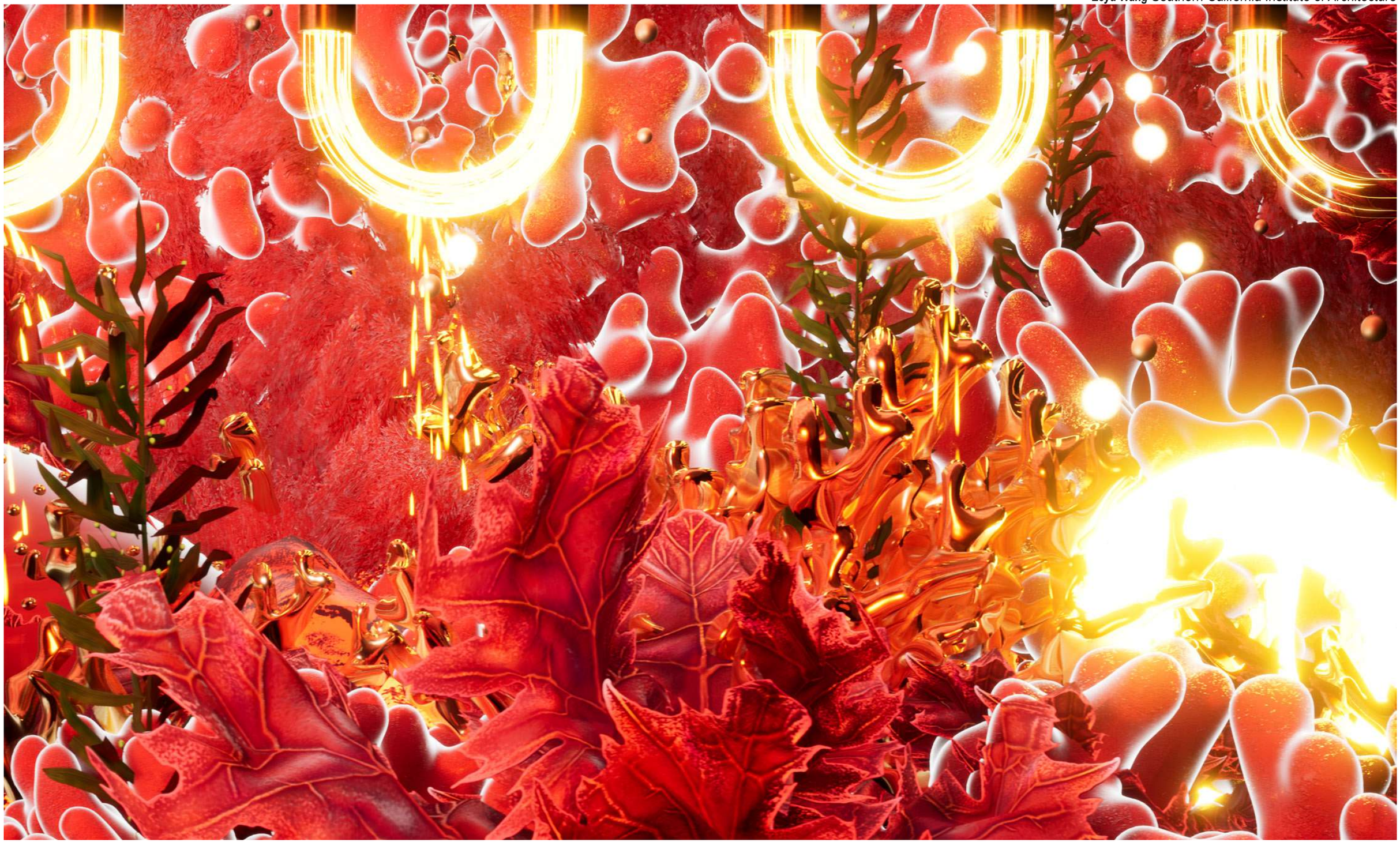


VOL.2

Zeyu Wang-*Southern California Institute of Architecture*

Focused on mutation, adaption, destabilizing humankind as the chief architect of the world out there. The pandemic epoch is deeply distressing and has highlighted once again the human body as a holobiontic system—the host and everything living in and around it.

Blending this diverse areas of expertise, idiosyncratic sculptures, installations, and drawings challenge conventional systems of classification, suggesting a worldview that strives to dislocate humans from their assumed position of centrality and superiority as knowers and actors in the world. We will find it difficult to deny the post-human world this project has built inside neat little containers, which are for now, contained. In improbable receptacles. All are complicated, beyond the understanding of human consciousness and cultural production, in a perpetual decomposition and recomposition. This new world order, seems to suggest, is hurtling faster towards reads reality than we are perhaps prepared for.



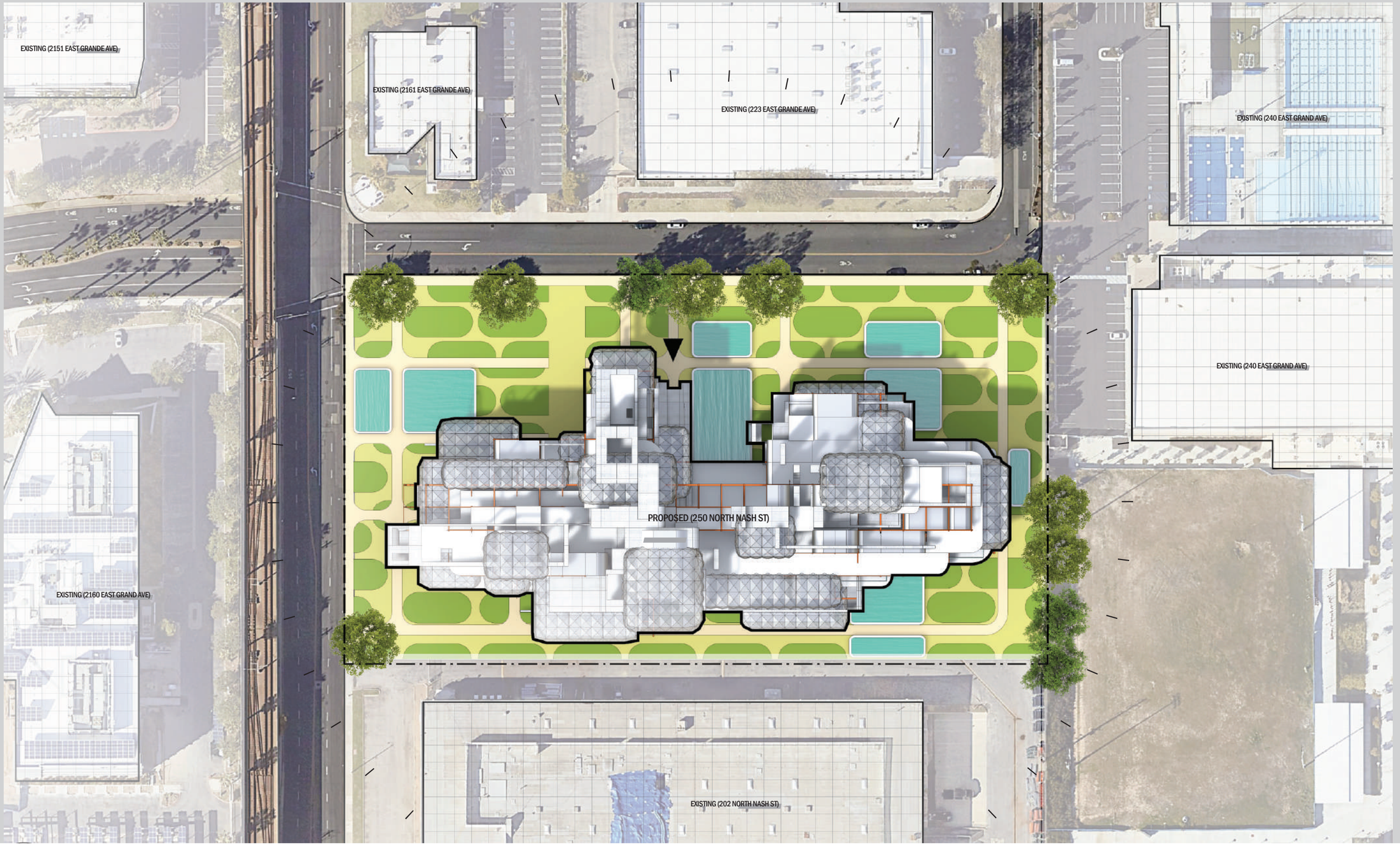
08

MIRCOALGAE RESEARCH FACILITY

COURSE: *AS DESIGN DOC GR*
INSTRUTOR: *ZACHARY BURNS*
SOFTWARE: *RHINO/ CINEMA 4D*

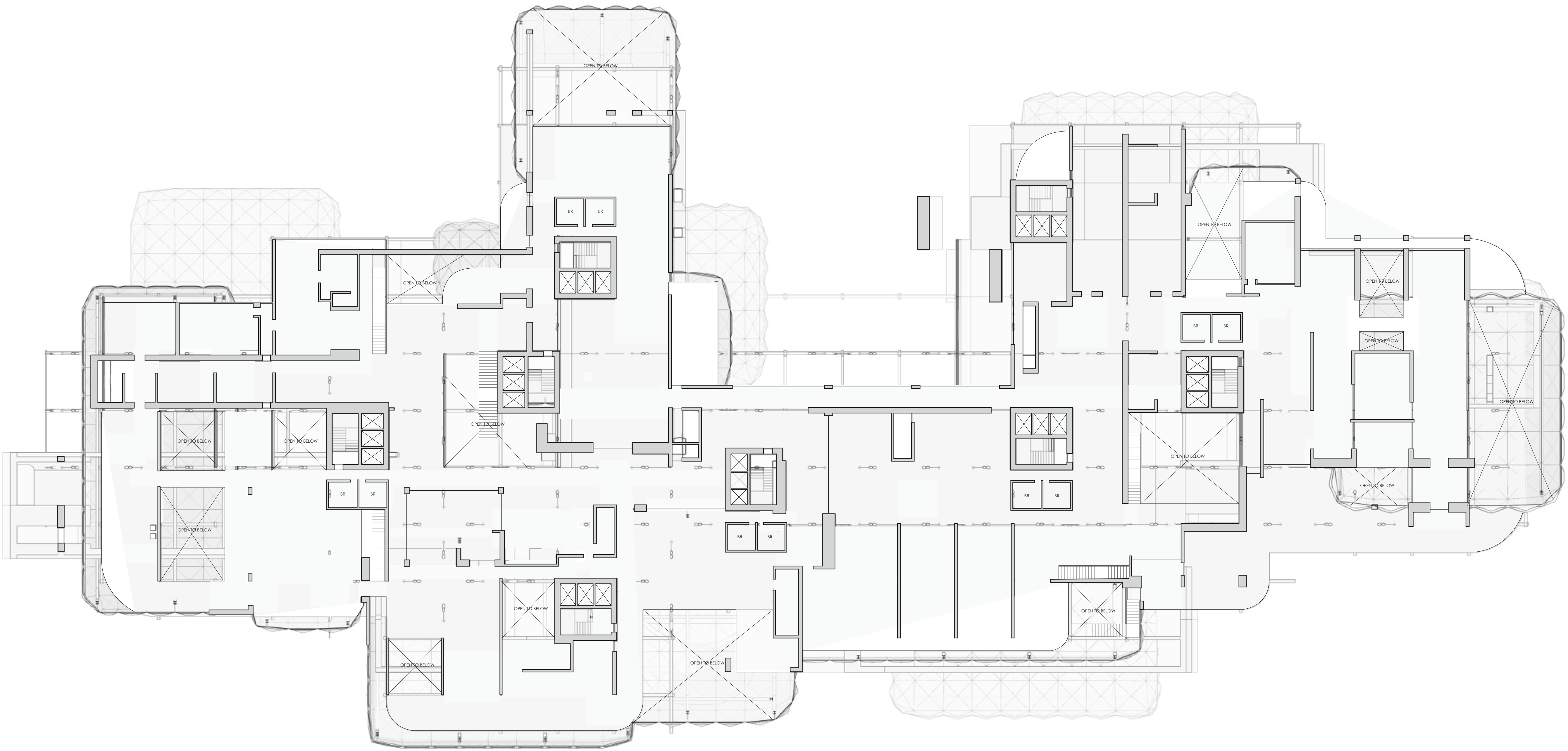
The project of this course is deepened based on the studio project in 2GBX.

The project is a laboratory for generating energy supply with algae. This course is all about turning this project into a visual, buildable architectural doc. For example, all the plans, sections, elevations; foundation structure and construction process; the structure of the floor; the ventilation and drainage power supply system of the entire building; the structure and details of the glass curtain wall; a series of drawings such as fire exits and fire compartments . There are also animations to explain the construction process in all details.

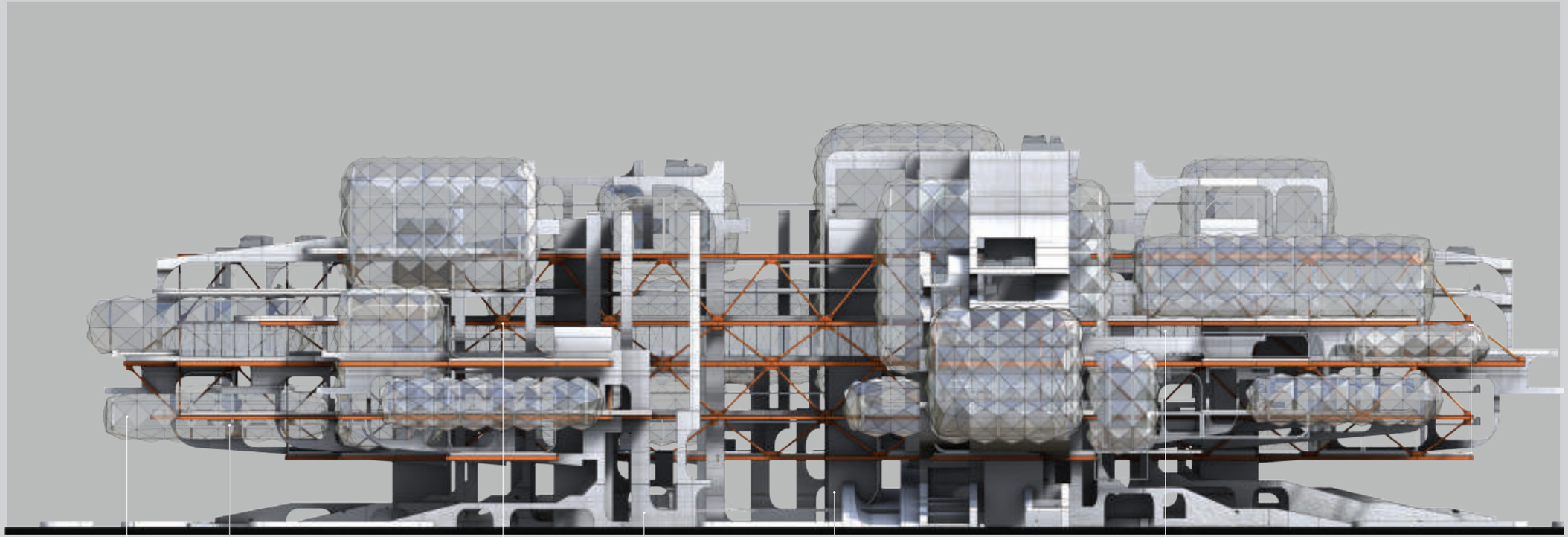

EXISTING (2151 EAST GRANDE AVE)
EXISTING (2161 EAST GRANDE AVE)
EXISTING (223 EAST GRANDE AVE)
EXISTING (240 EAST GRAND AVE)
EXISTING (240 EAST GRAND AVE)
PROPOSED (250 NORTH NASH ST)
EXISTING (2160 EAST GRAND AVE)
EXISTING (202 NORTH NASH ST)

1

TYPICAL PLA



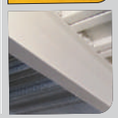
1 NORTH ELEVATION WITH MATERIALS SELECTION



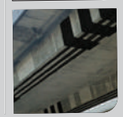
ALUMINUM MULLIONS

LOW-E COATED TRIPLE GLAZING

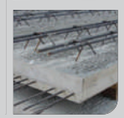
STEEL TRUSS INTUMESCENT COATING ORANGE FINISH



CONCRETE SLAB WITH CARBON FIBRE RIENFORCEMENT



PRECAST CONCRETE BLOCK WITH STEEL RIENFORCEMENT



LOW-E COATED DOUBLE GLAZING WITH STEEL MULLION

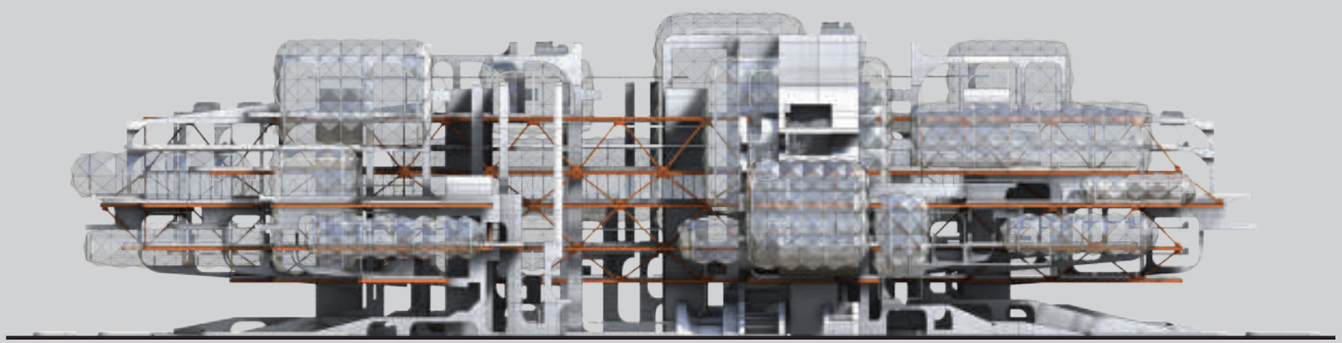
MULLIONS REDUCE EMBODIED ENERGY

To save on embodied energy costs, mixed material mullions are used throughout the structure. Mullions in places where weight is at a premium, such as the end of canitlevers, are made of ultra-leightweight extruded aluminum. Mullions in places where they are easily structurally supported are made of leightweight, low density steel.

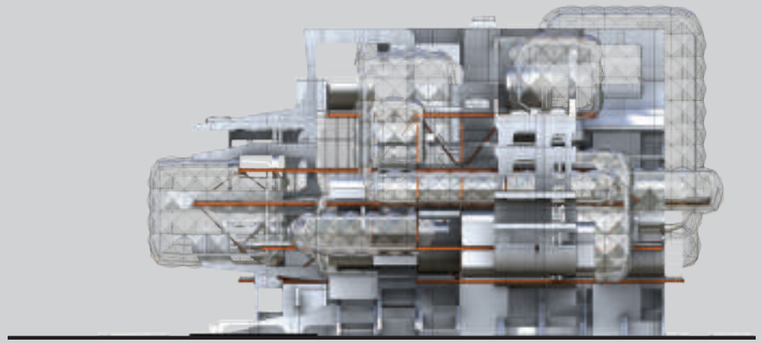
EXPOSED STEEL WITH INTUMESCENT COATING

Intumescent paint is a reactive coating which swells as a result of heat exposure, thus increasing in volume and decreasing in density. Specifically, an intumescent paint is a coating that reacts to heat by swelling in a controlled manner to many times its original thickness, producing a carbonaceous char formed by a large number of small bubbles that act as an insulating layer to protect the substrate.

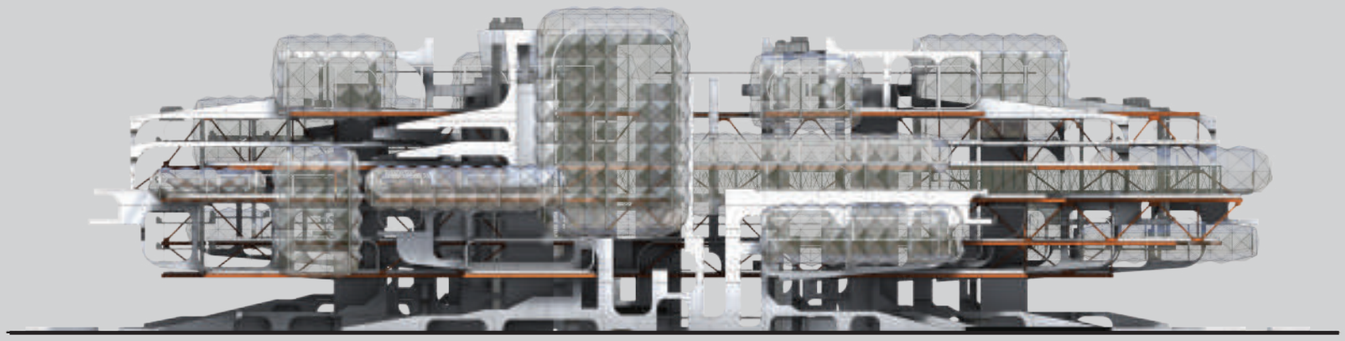
1 NORTH ELEVATION



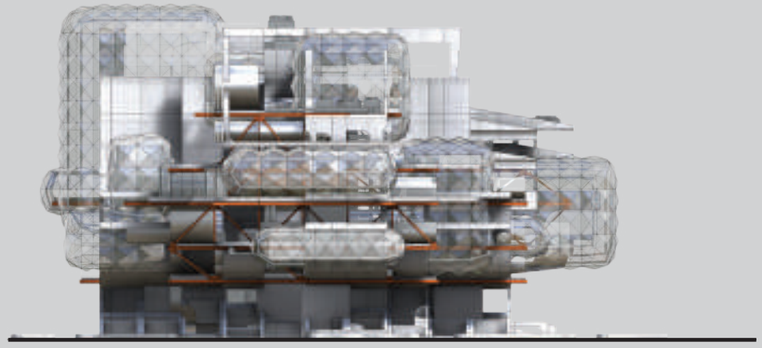
2 WEST ELEVATION



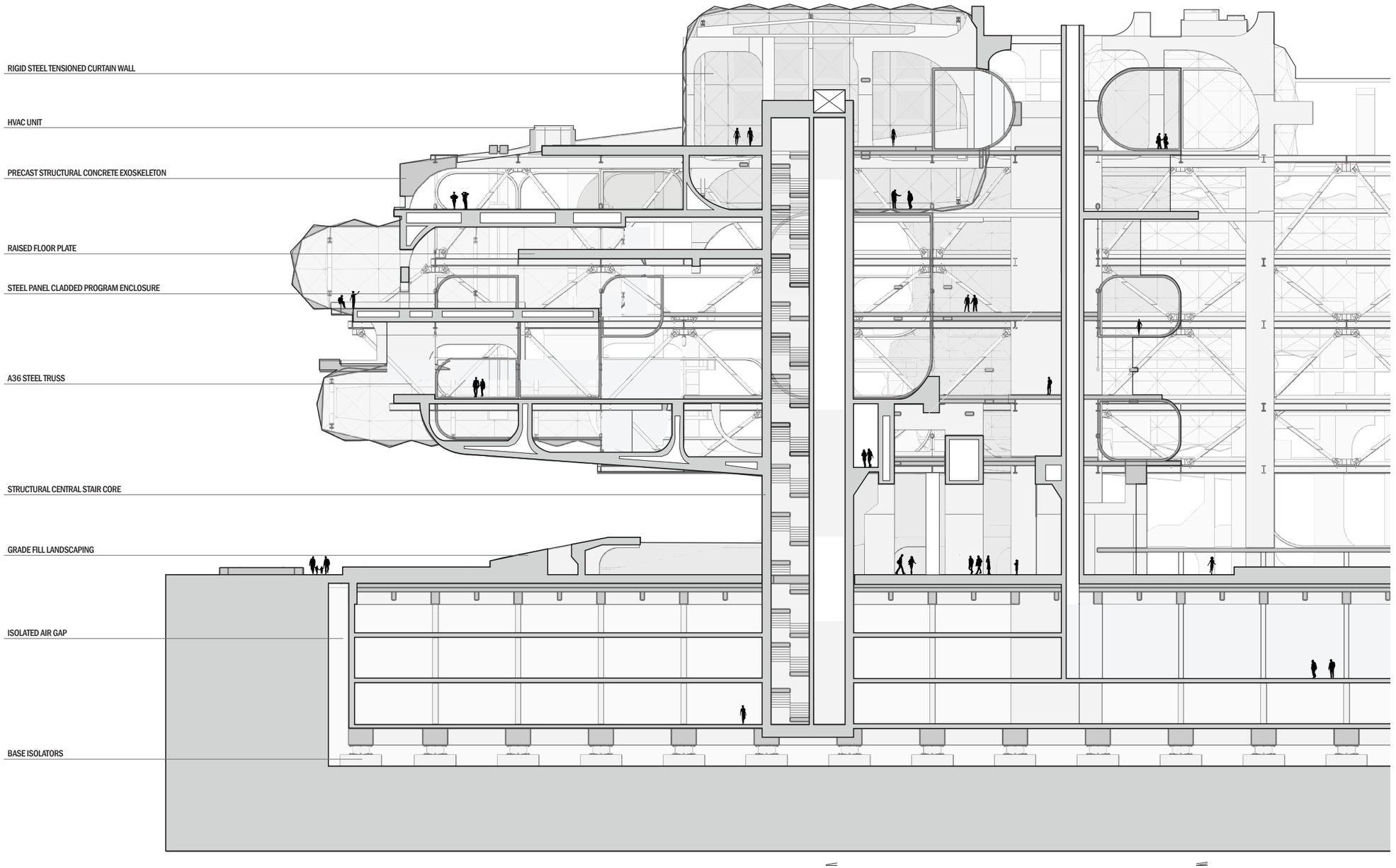
3 SOUTH ELEVATION



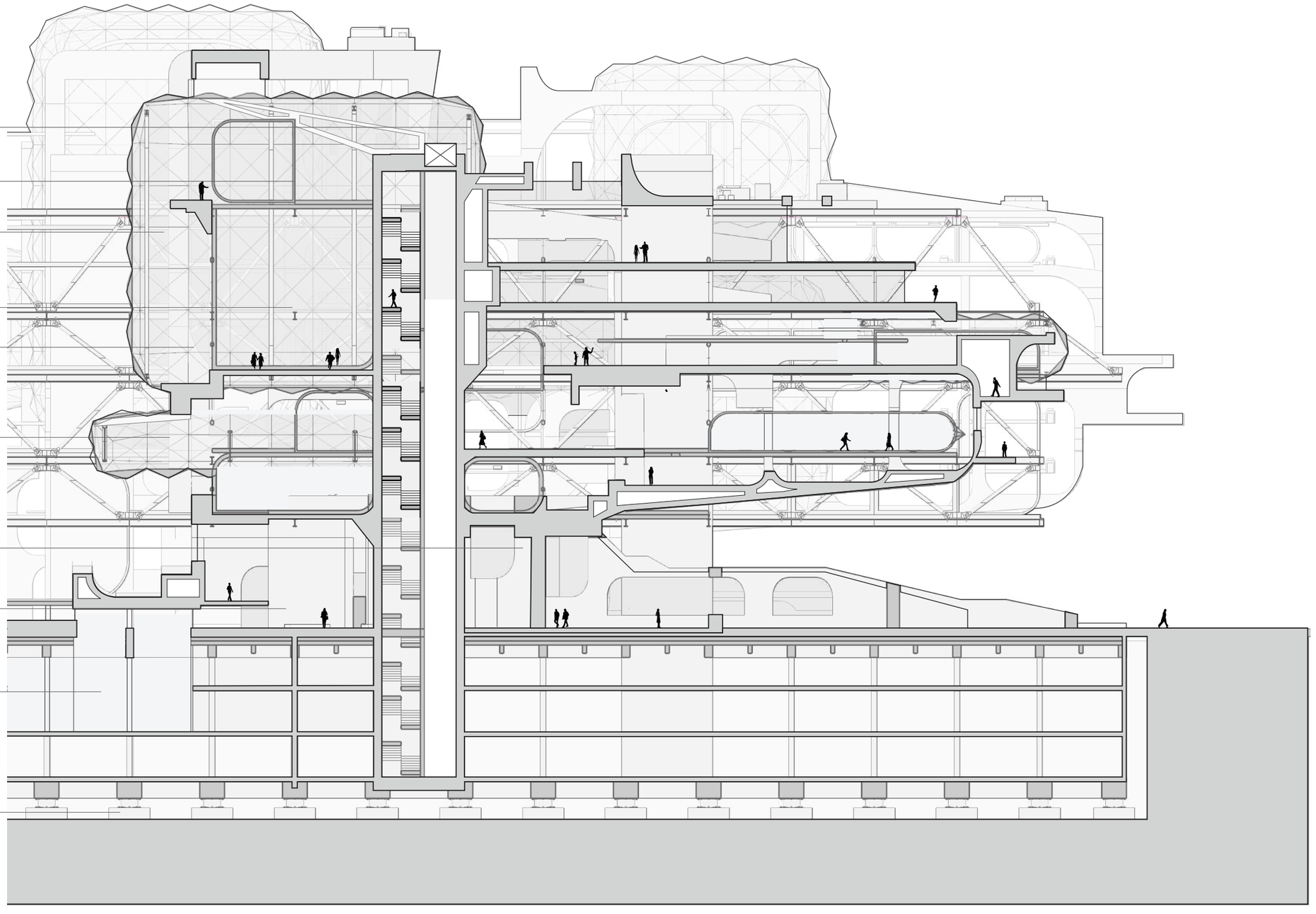
4 EAST ELEVATION



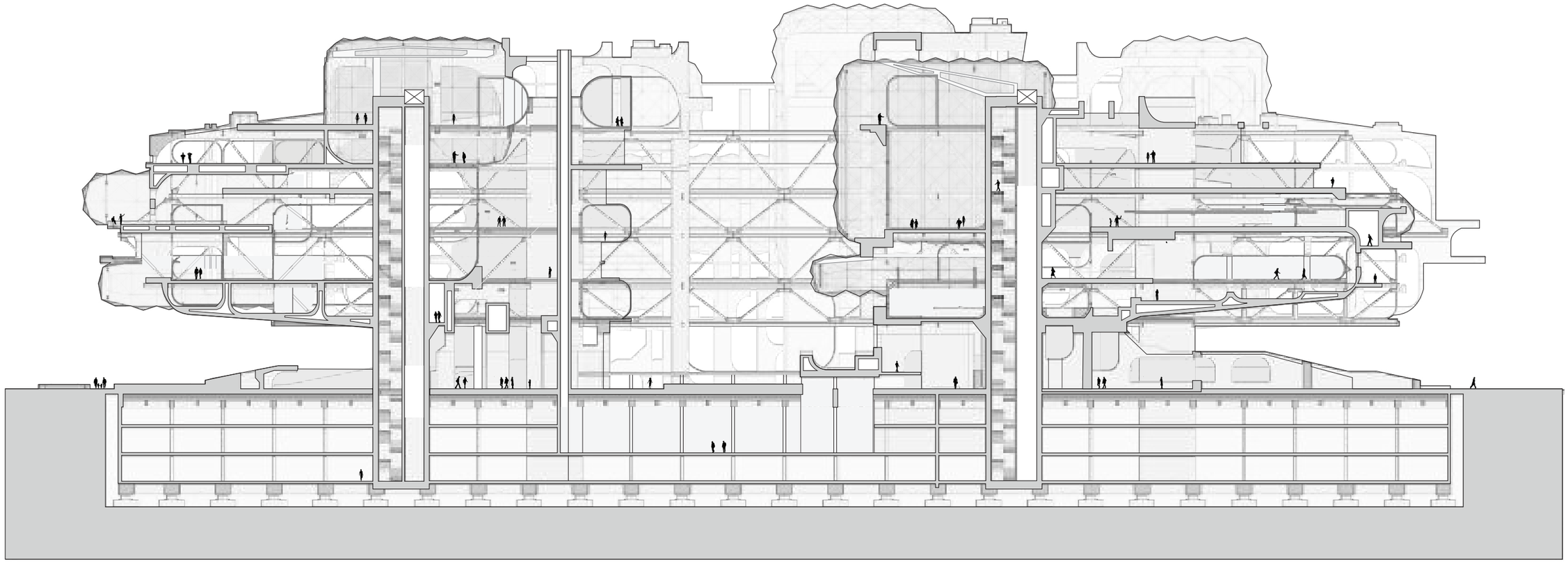
1


RIGID STEEL TENSIONED CURTAIN WALL
HVAC UNIT
PRECAST STRUCTURAL CONCRETE EXOSKELETON
RAISED FLOOR PLATE
STEEL PANEL CLADDED PROGRAM ENCLOSURE
A36 STEEL TRUSS
STRUCTURAL CENTRAL STAIR CORE
GRADE FILL LANDSCAPING
ISOLATED AIR GAP
BASE ISOLATORS

1 PARTIAL SECTION B LOOKING SOUTH



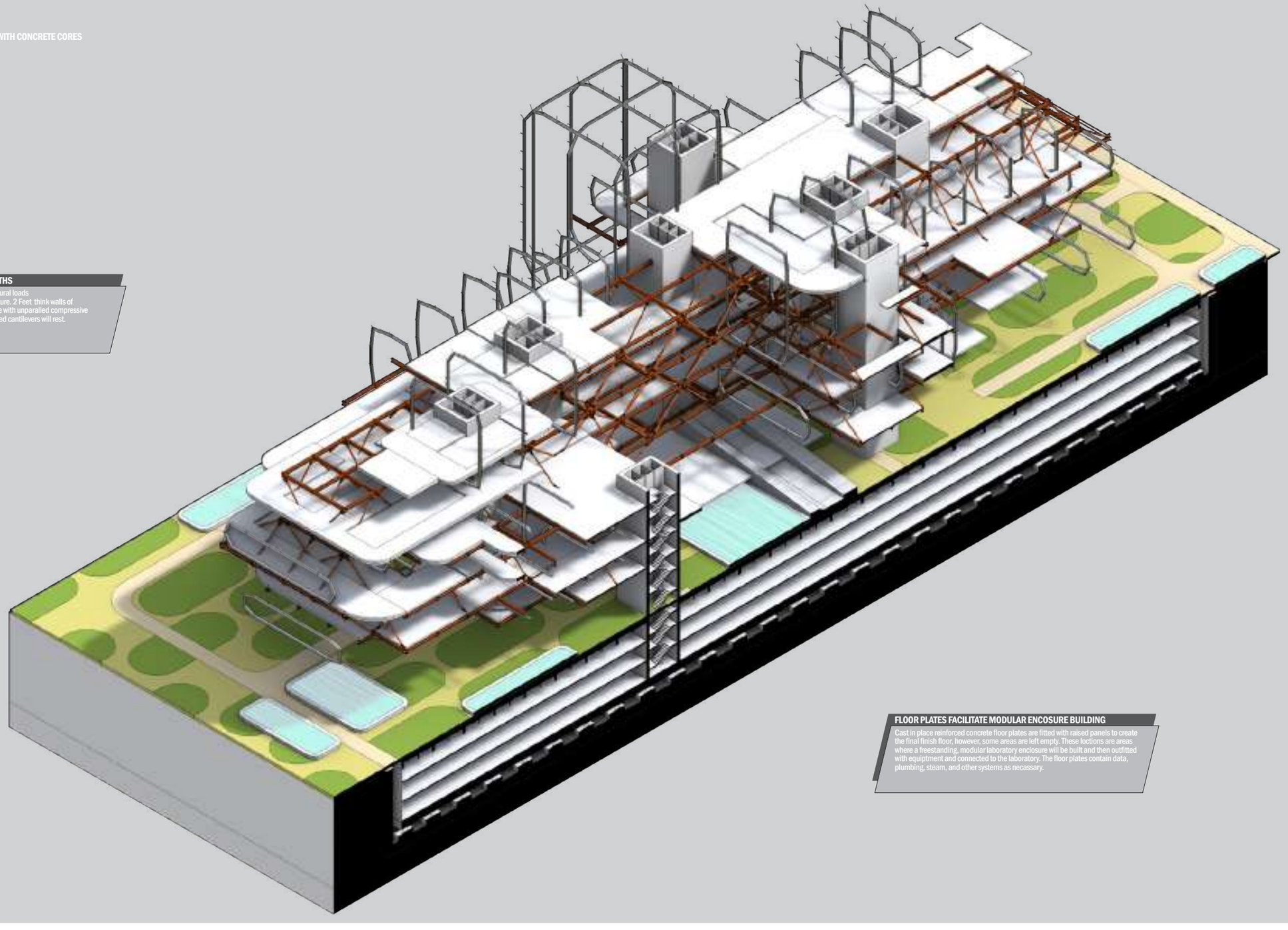
1 FULL BUILDING SECTION LOOKING SOUTH



1 MAIN STRUCTURAL GRID TRUSS WITH CONCRETE CORES

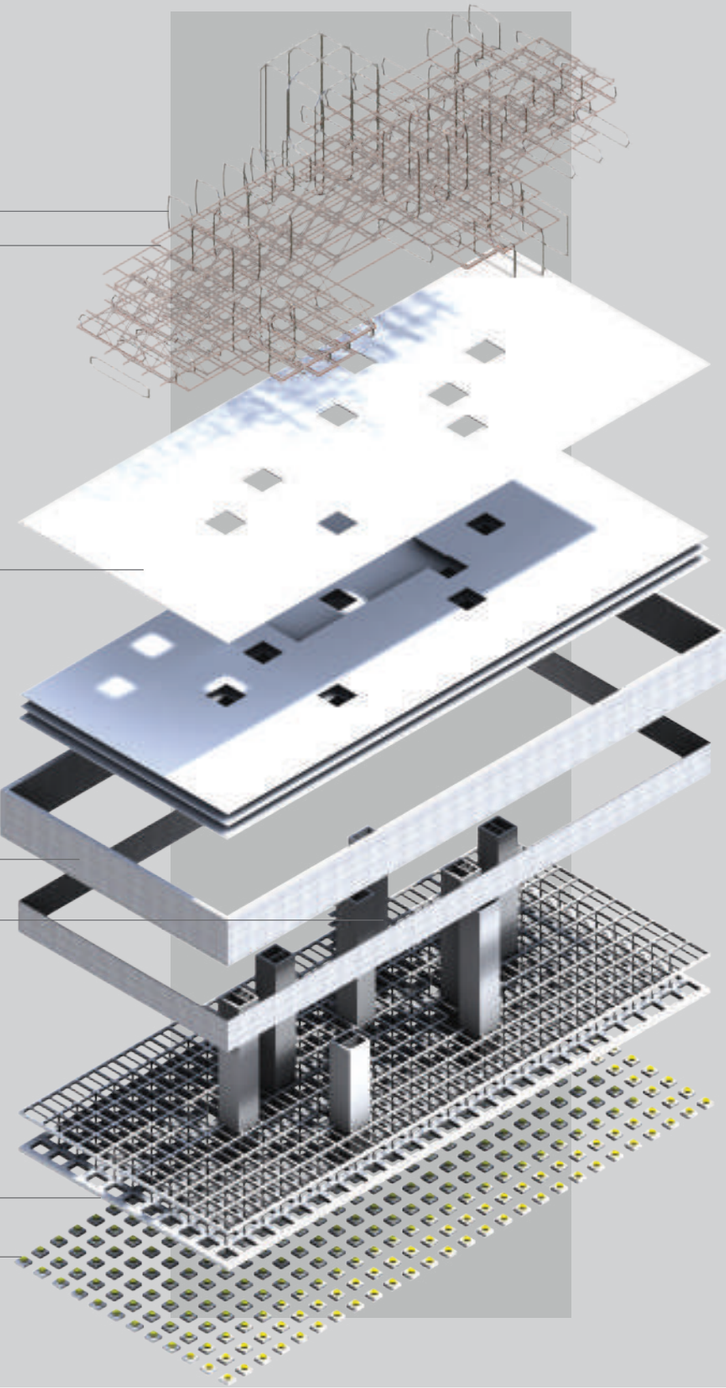
MAIN CONCRETE CORES WITH EGRESS PATHS

Concrete cores create the main method that structural loads (as well as inhabitants) move throughout the structure. 2 Feet think walls of Carbon-fiber reinforced concrete create a solid core with unparalled compressive strength, from which the great weight of the balanced cantilevers will rest.



FLOOR PLATES FACILITATE MODULAR ENCOSURE BUILDING

Cast in place reinforced concrete floor plates are fitted with raised panels to create the final finish floor, however, some areas are left empty. These loctions are areas where a freestanding, modular laboratory enclosure will be built and then outfitted with equiptment and connected to the laboratory. The floor plates contain data, plumbing, steam, and other systems as necassary.



5 STEEL FRAME

SECONDARY STEEL FRAME (FOR CURTAIN GLAZING)

PRIMARY STEEL FRAME

4 BASEMENT FLOORPLATES

CONCRETE ON METAL DECK

3 RETAINING WALLS

OUTER WALL

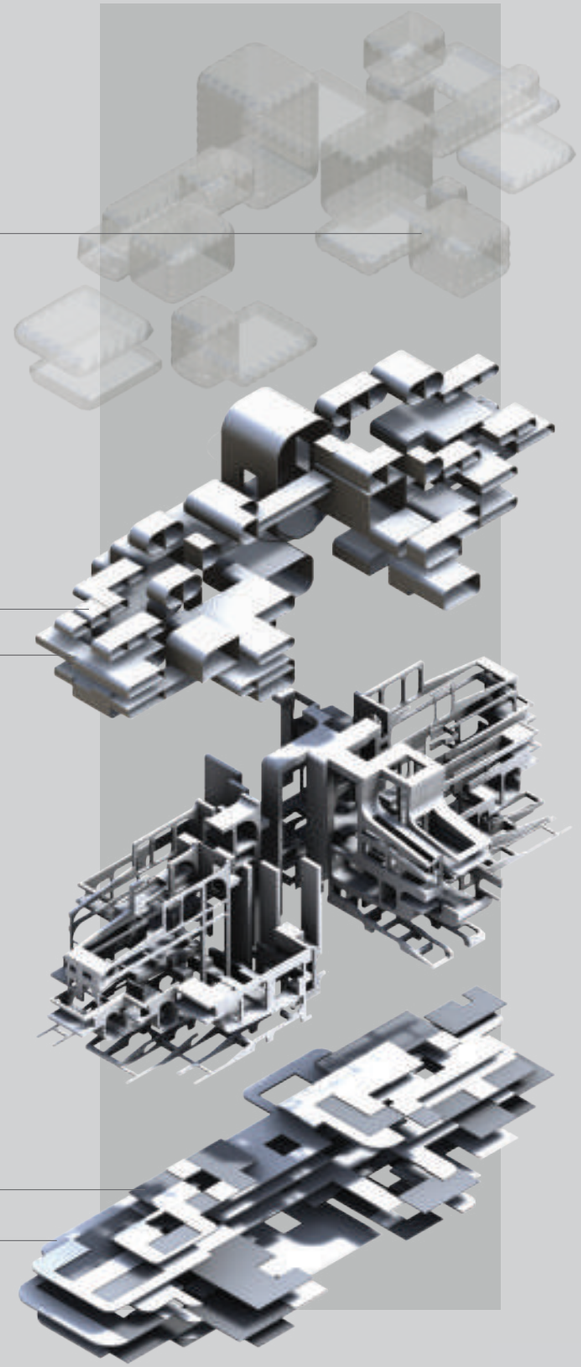
INNER WALL

2 VERTICAL CONCRETE CORES

1 FOUNDATIONS

REINFORCRED CONCRETE BASEMENT

BASE ISOLATORS



9 GLAZING SYSTEM

GLAZING ENCLOSURES

8 LABORATORY ENCLOSURES

MODULAR STRUCTURAL PANELS

ALUMINUM FINISH

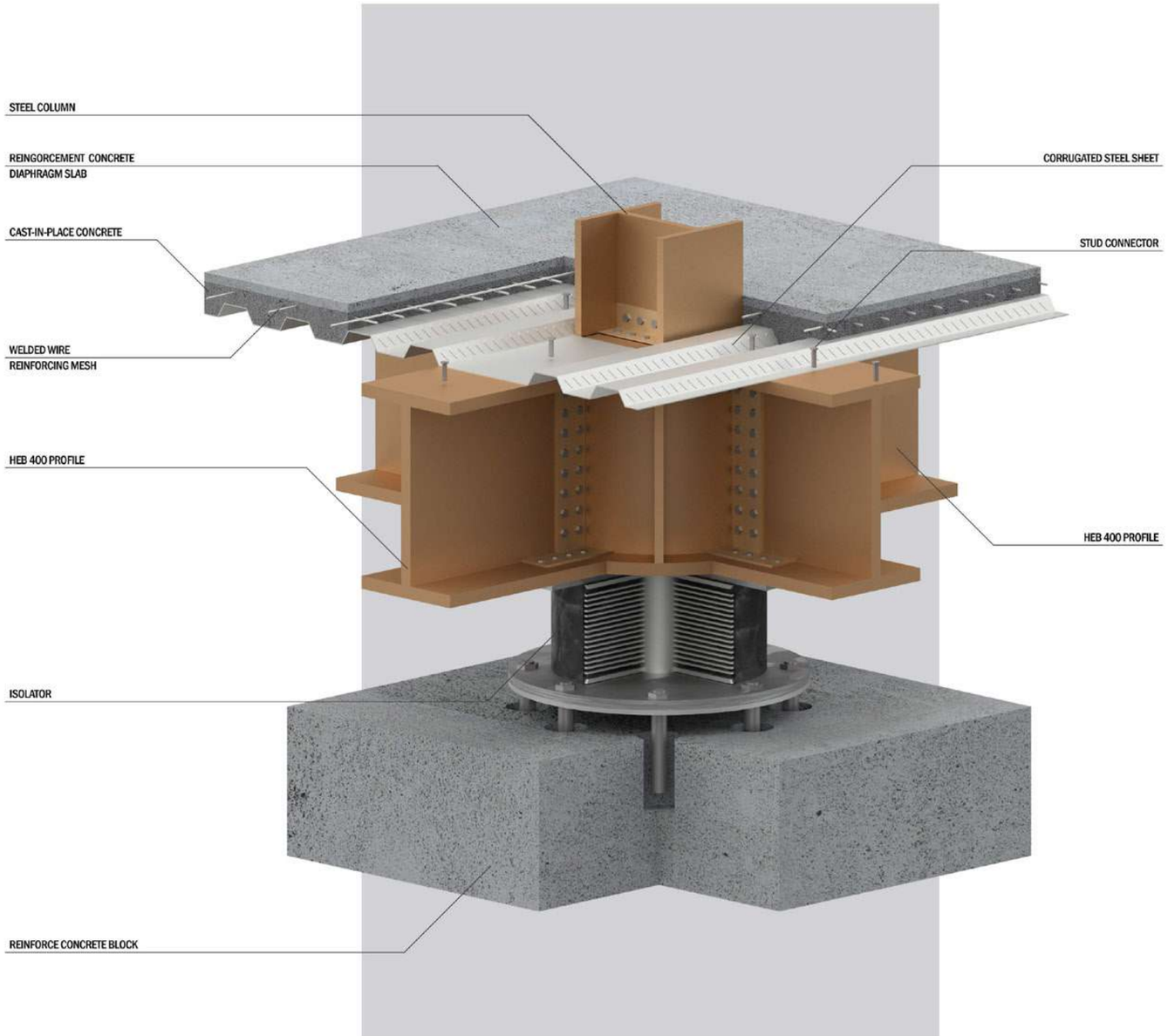
7 CONCRETE EXOSKELETON

6 FLOOR PLATES

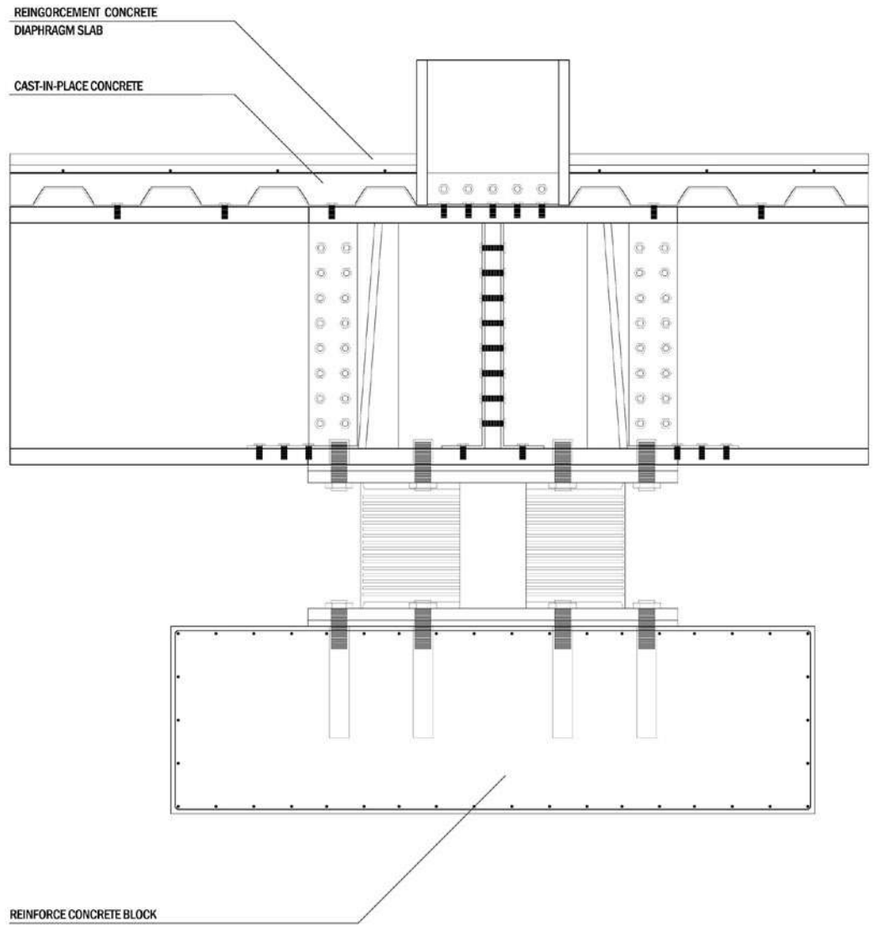
CONCRETE ON METAL DECK

RAISED FLOOR PANELS

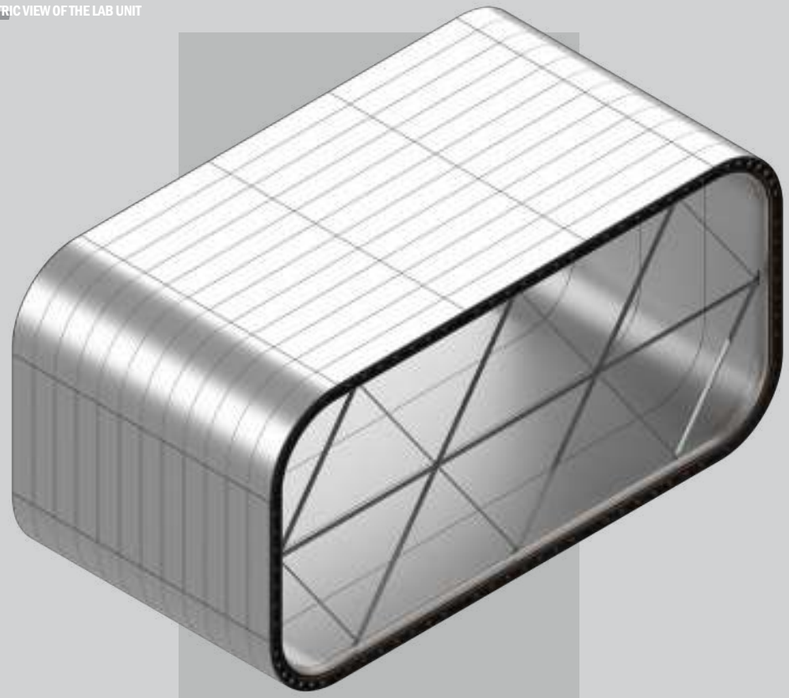
1 BASE ISOLATOR ISOMETRIC



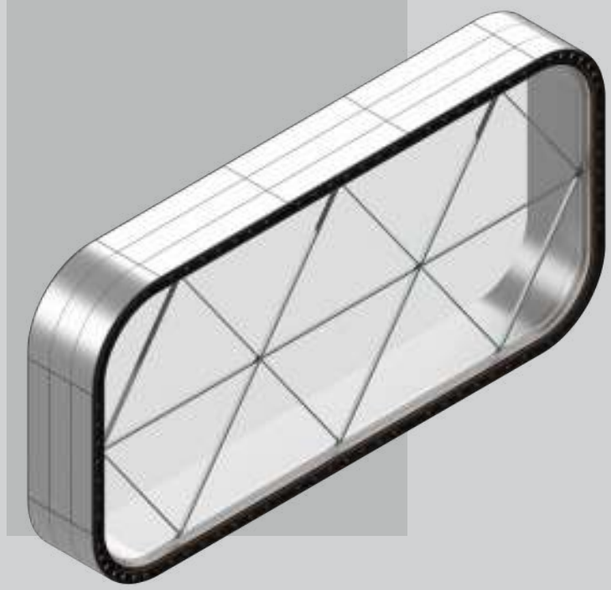
2 BASE ISOLATOR DETAIL



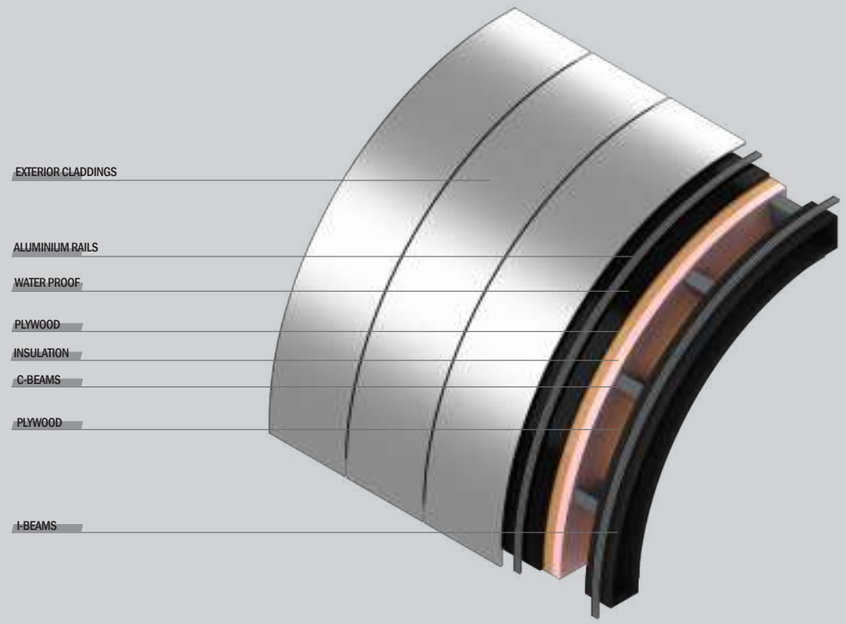
1 AXONOMETRIC VIEW OF THE LAB UNIT



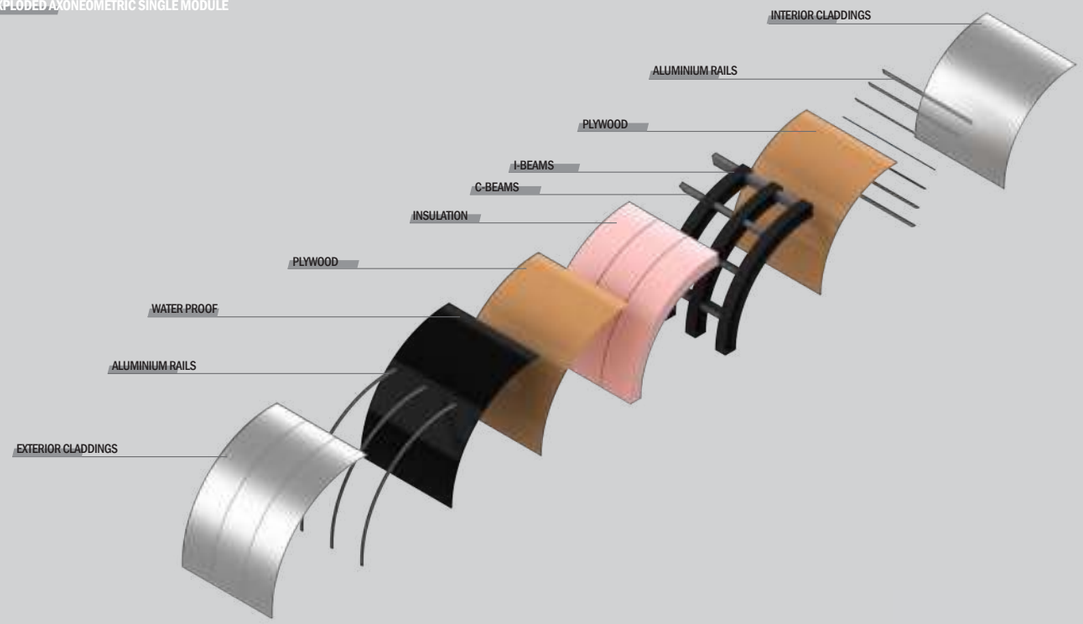
2 AXONOMETRIC VIEW OF ONE MODULAR COMPOUND



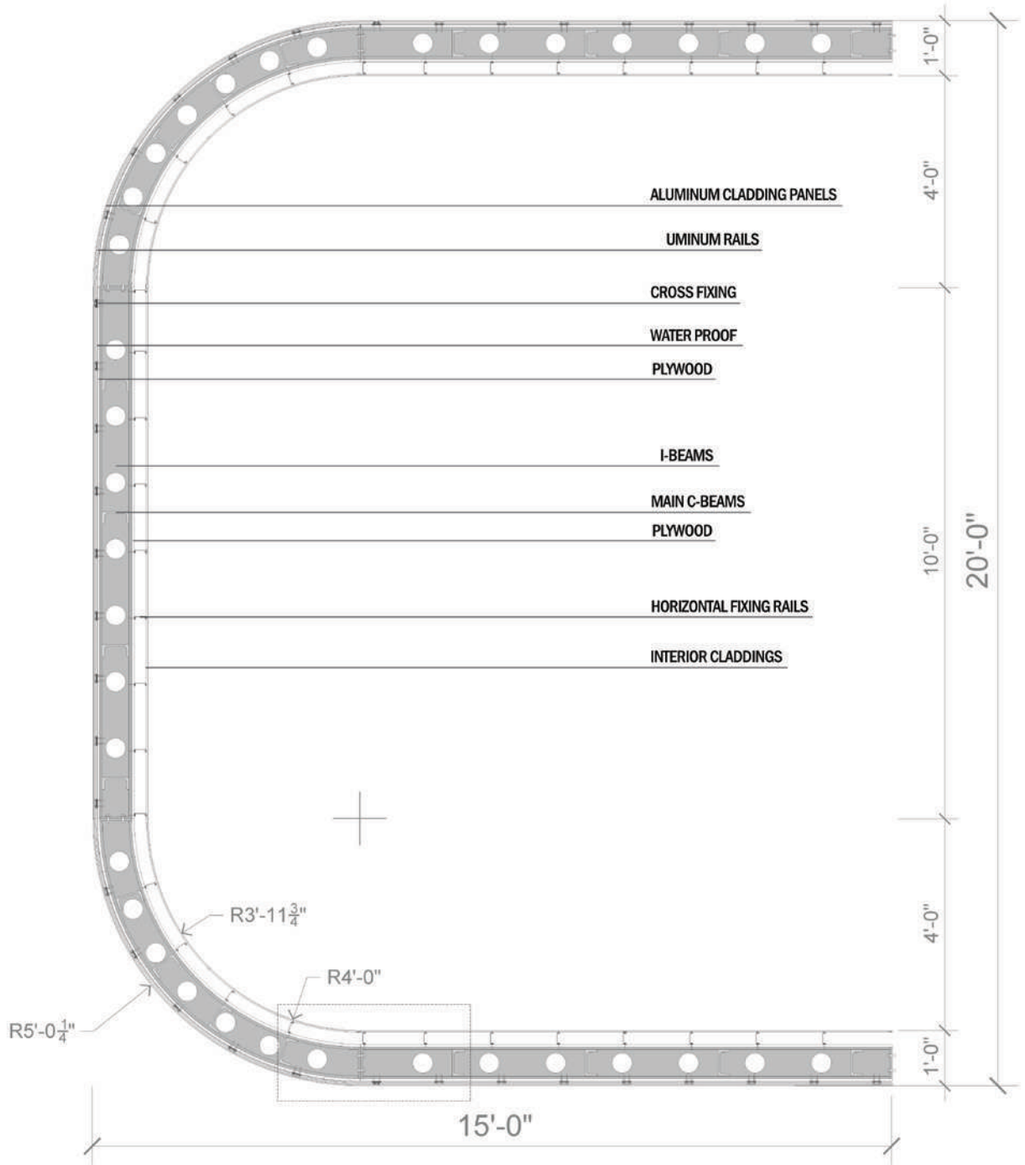
3 AXONOMETRIC VIEW OF ONE BASIC MODULE



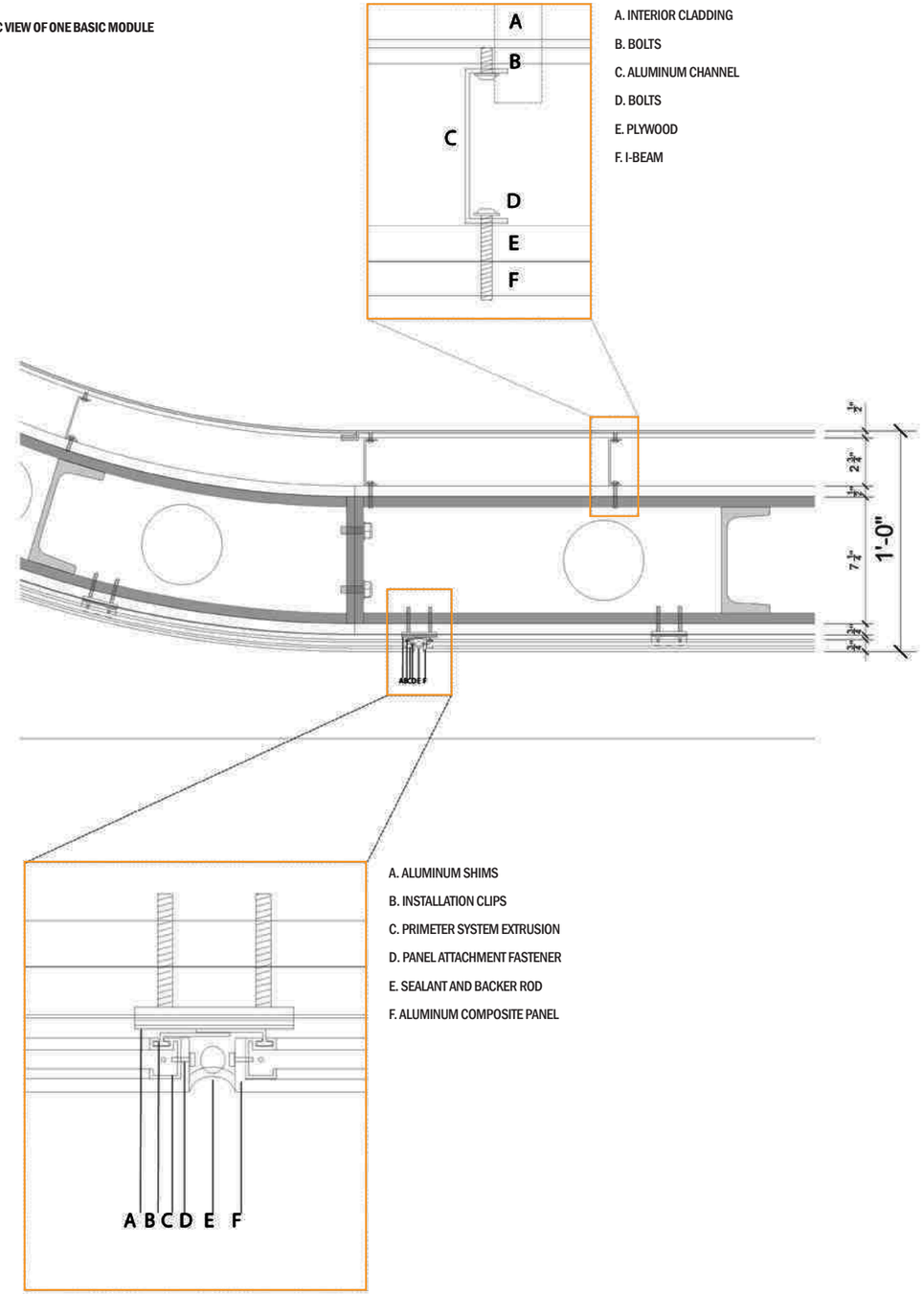
4 EXPLODED AXONEOMETRIC SINGLE MODULE



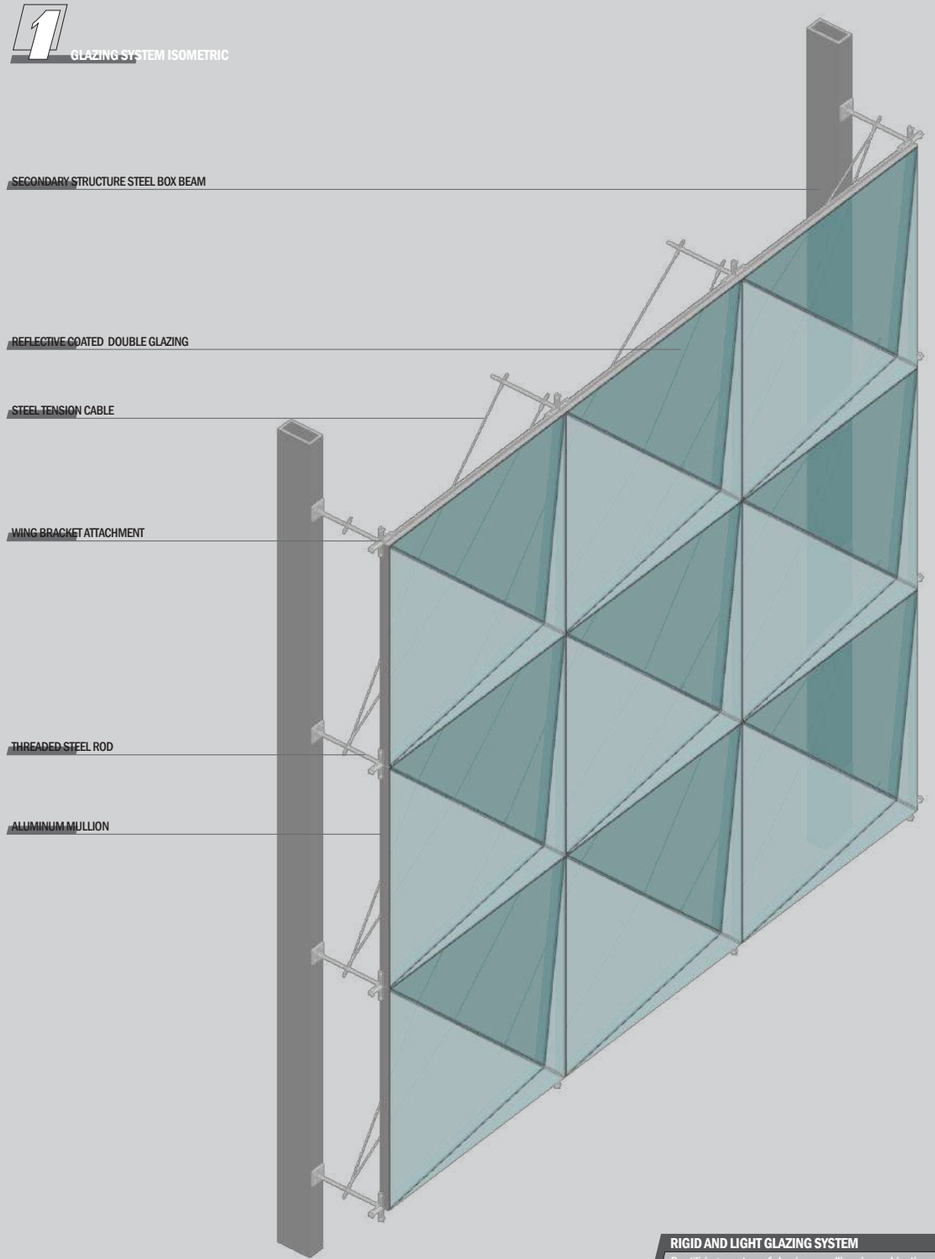
1 AXONOMETRIC VIEW OF THE LAB UNIT



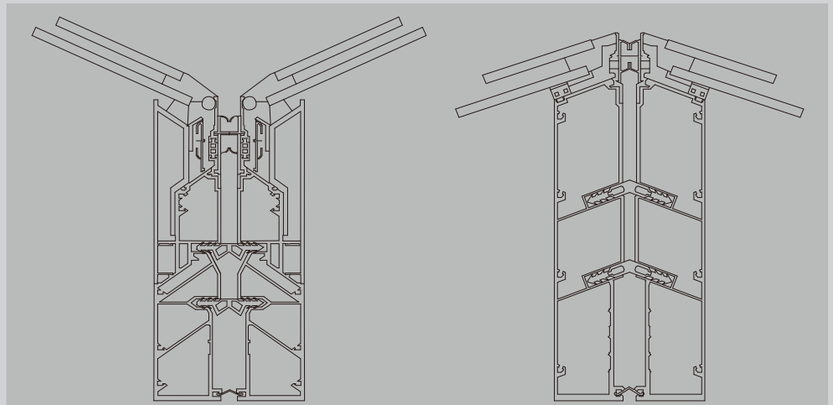
2 AXONOMETRIC VIEW OF ONE BASIC MODULE



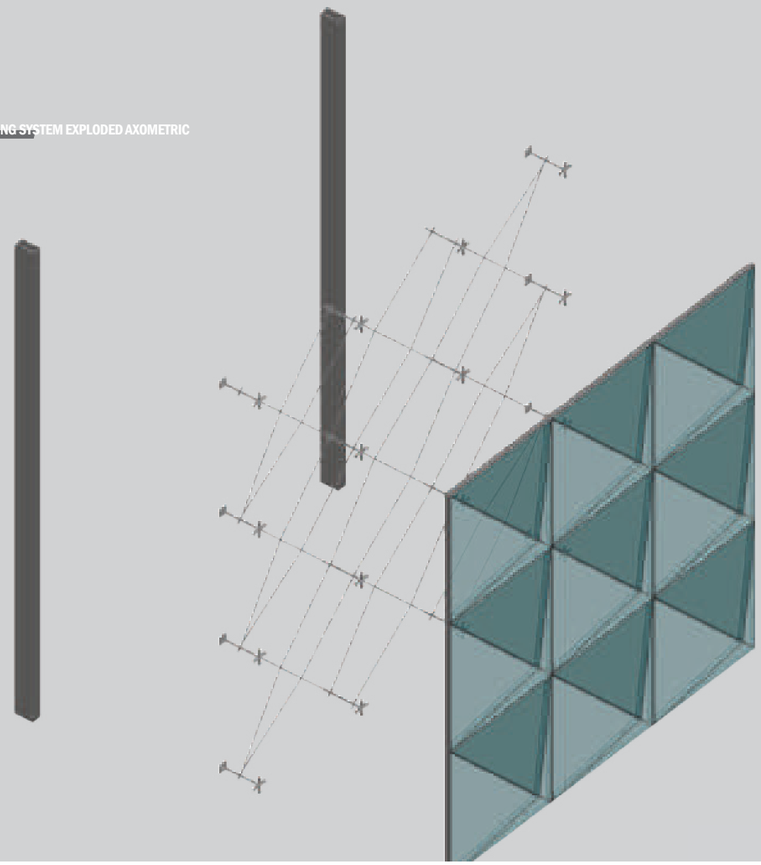
1 GLAZING SYSTEM ISOMETRIC



2 GLAZING SYSTEM MULLION DETAIL



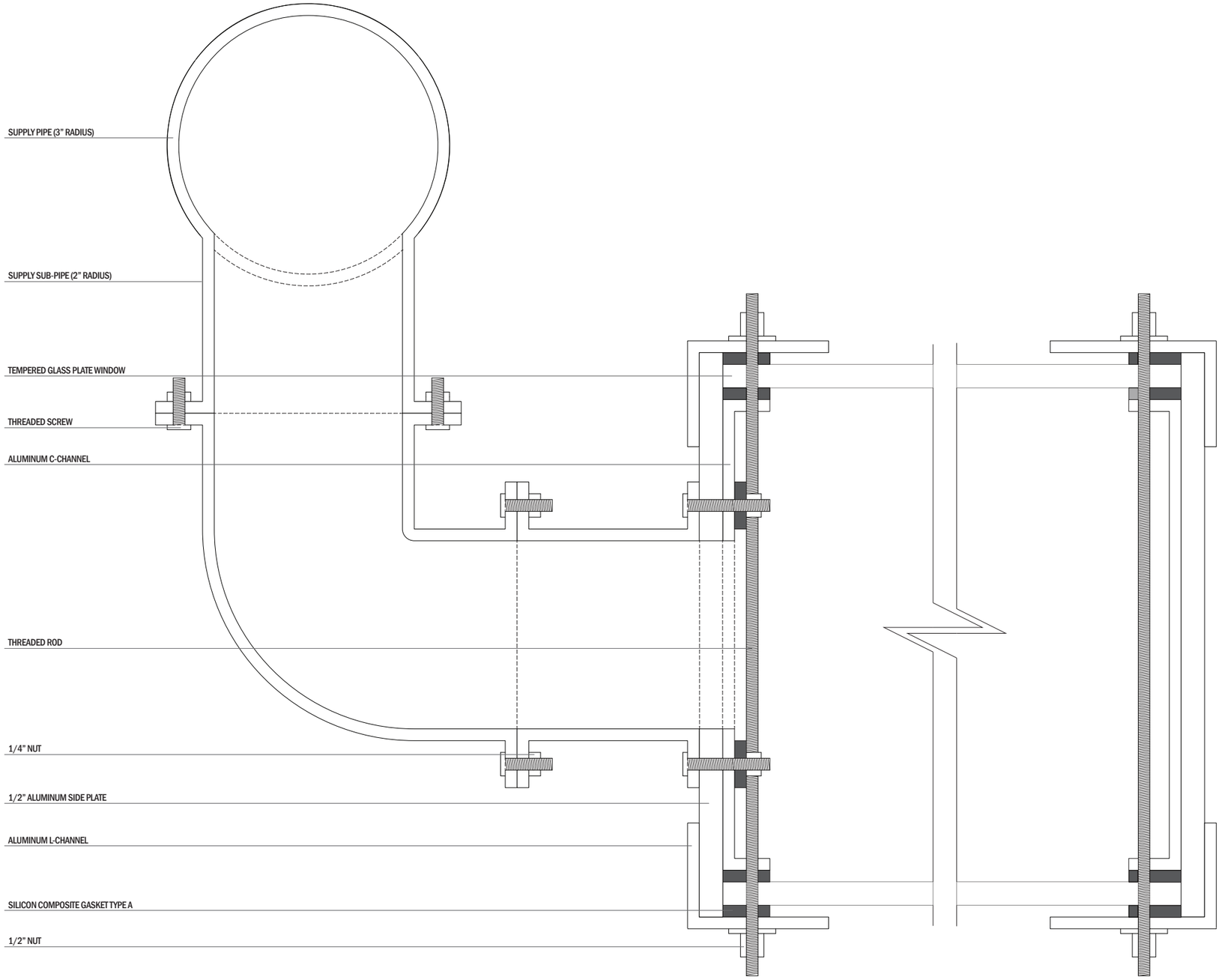
3 GLAZING SYSTEM EXPLODED AXOMETRIC



RIGID AND LIGHT GLAZING SYSTEM

By utilizing a system of aluminum mullions in combination with a tensioned steel cable network, the glazing system acheives a high level of strength, rigidity, and saves weight. The weight saved by this system drastically decreases the size of structural members, resulting in a more envorinmentally friendly project. The glazing is strong enough to supprt the algae system panels, creating the outermost layer of the structure.

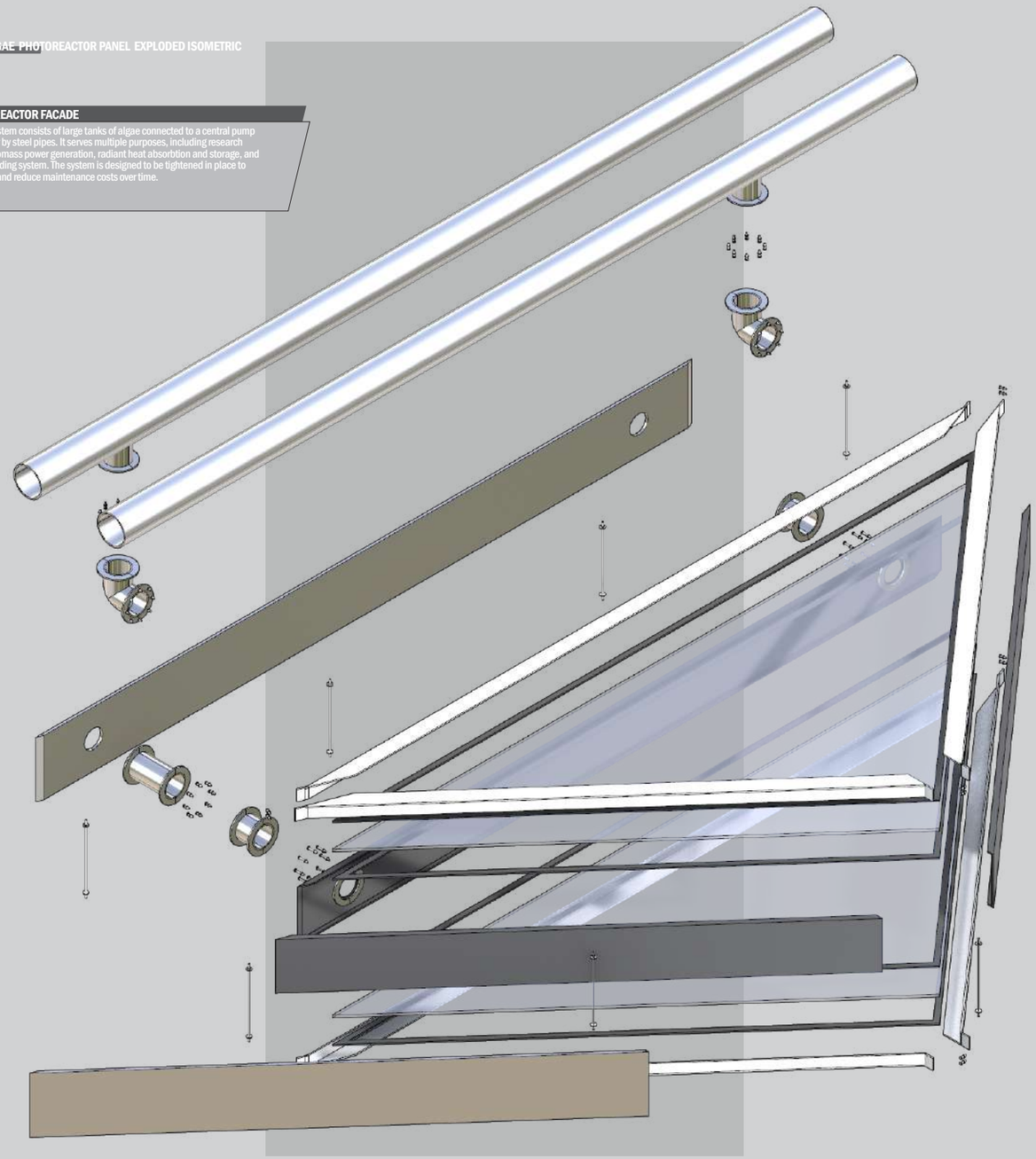
1 ALGAE SYSTEM DETAIL



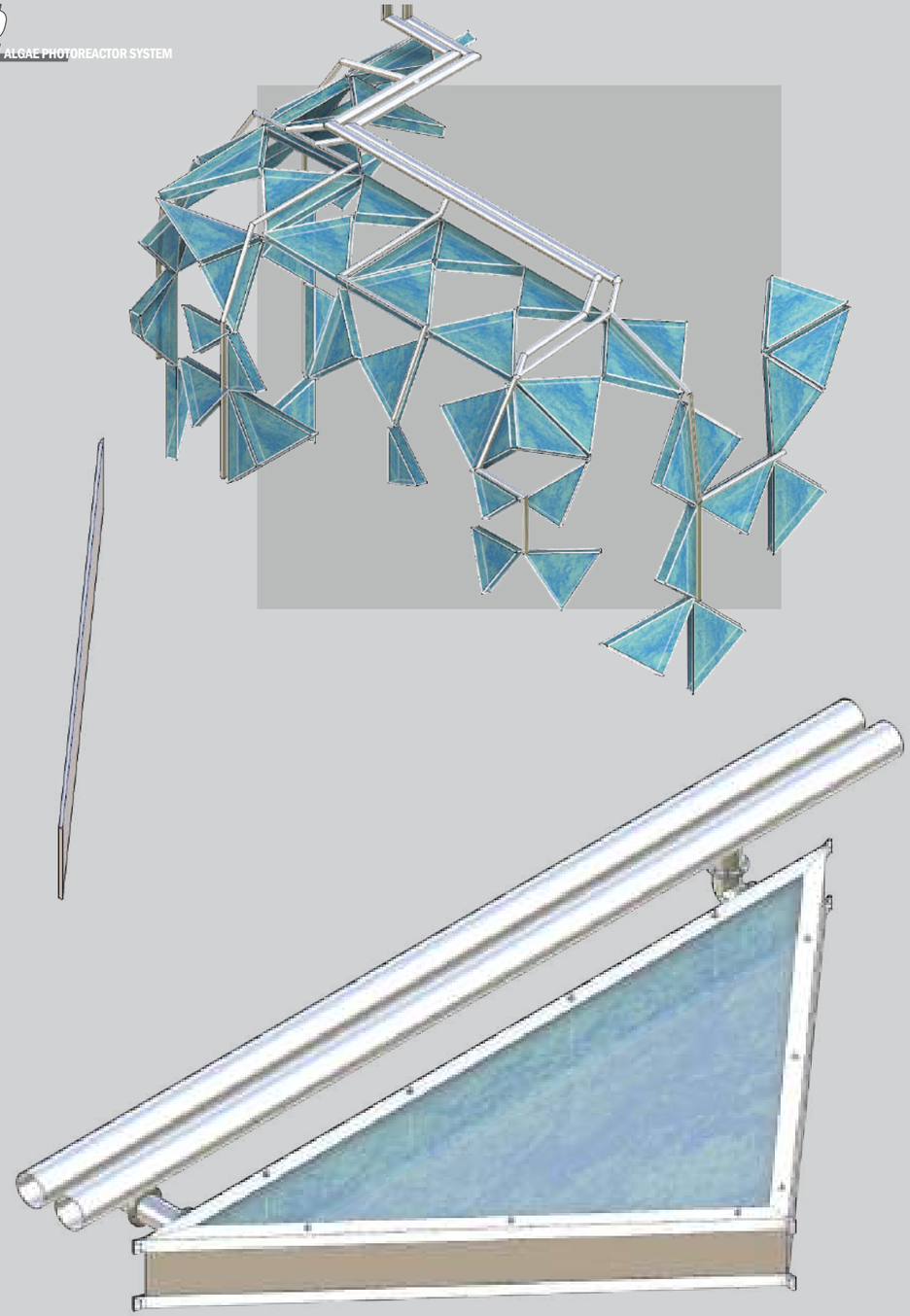
1 ALGAE PHOTOREACTOR PANEL EXPLODED ISOMETRIC

ALGAE BIOREACTOR FACADE

This facade system consists of large tanks of algae connected to a central pump and bioreactor by steel pipes. It serves multiple purposes, including research incubation, biomass power generation, radiant heat absorbtion and storage, and adaptable shading system. The system is designed to be tightened in place to prevent leaks and reduce maintenance costs over time.



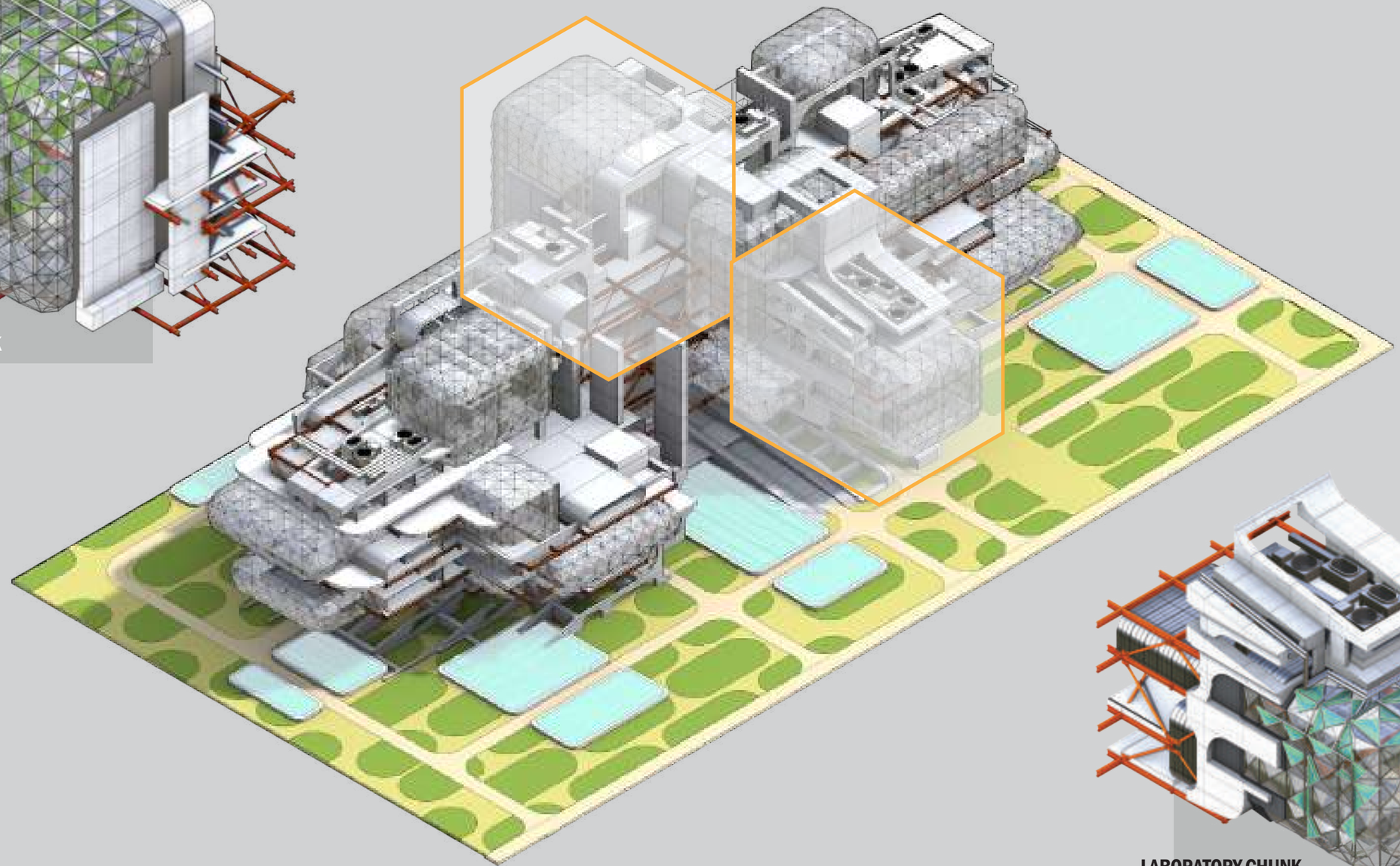
2 ALGAE PHOTOREACTOR SYSTEM



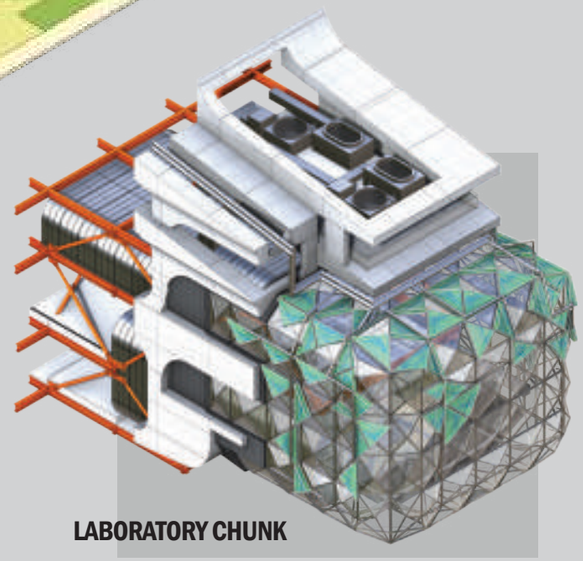
1 ASSEMBLY CHUNK

ASSEMBLY CHUNK

2 CHUNK SELECTION ISOMETRIC

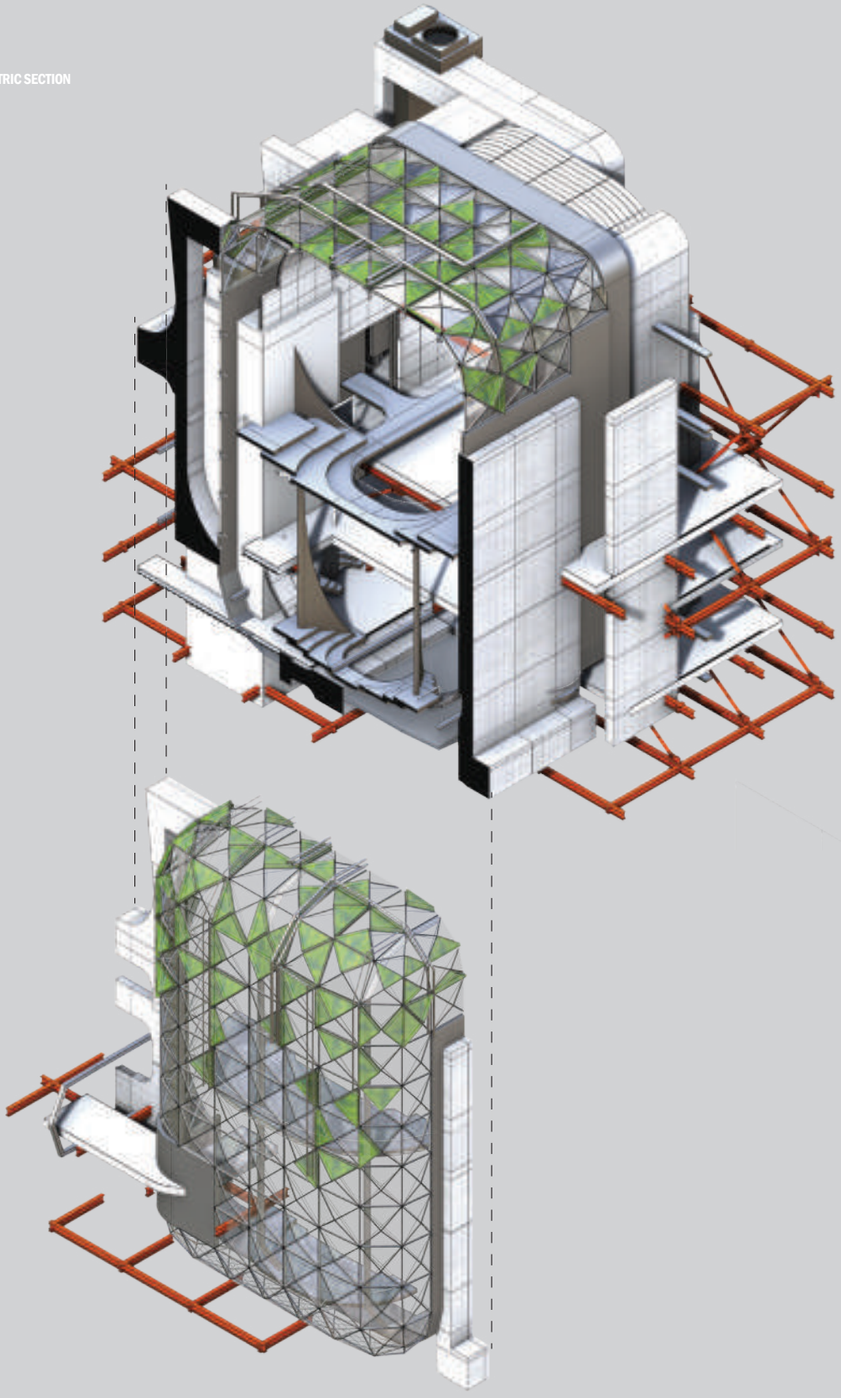


3 LABORATORY CHUNK

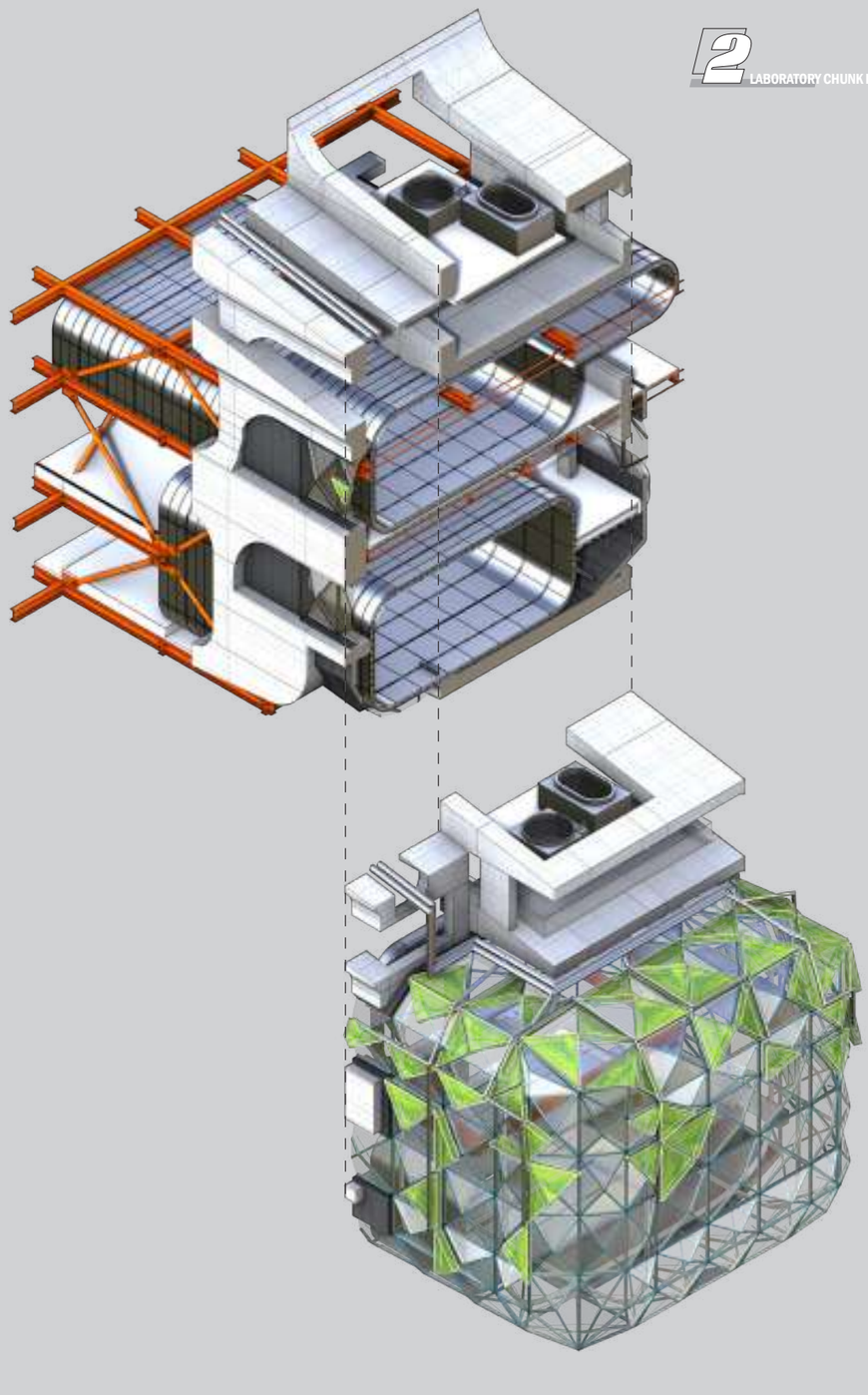


LABORATORY CHUNK

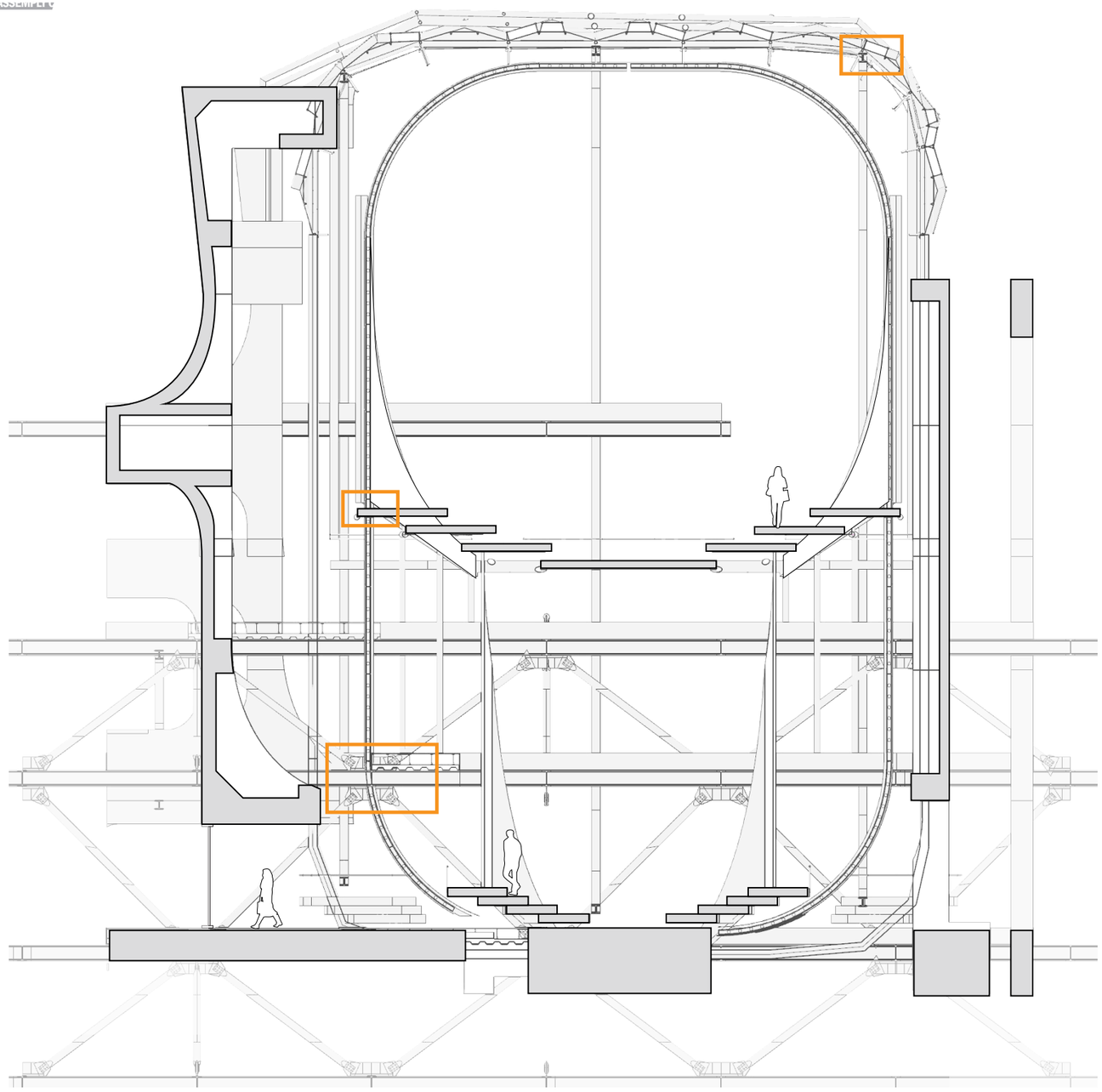
1 ASSEMPLY CHUNK ISOMETRIC SECTION

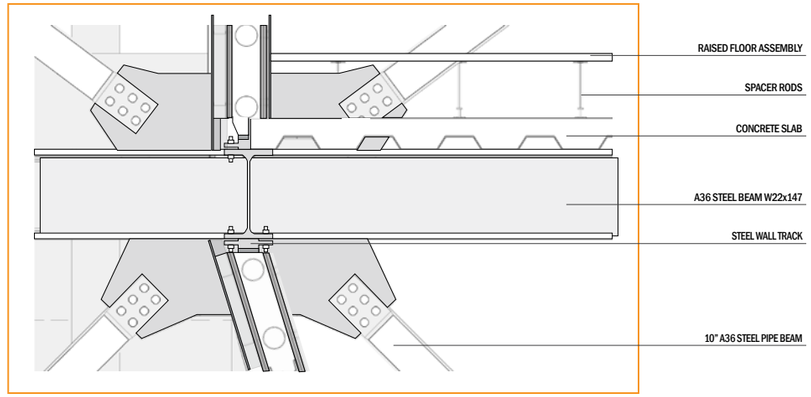


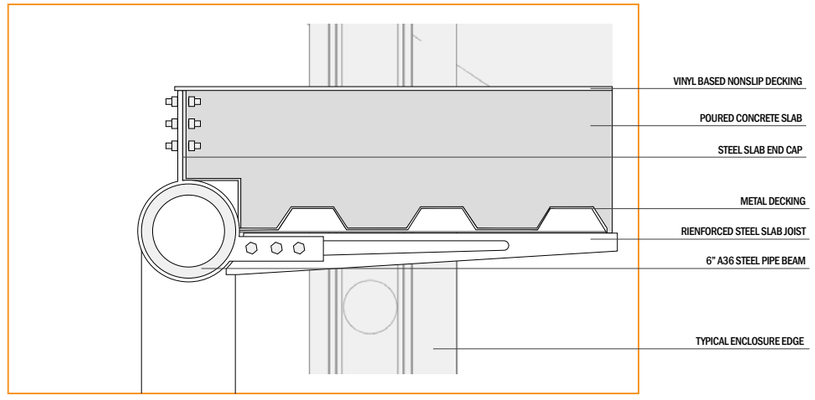
2 LABORATORY CHUNK ISOMETRIC SECTION

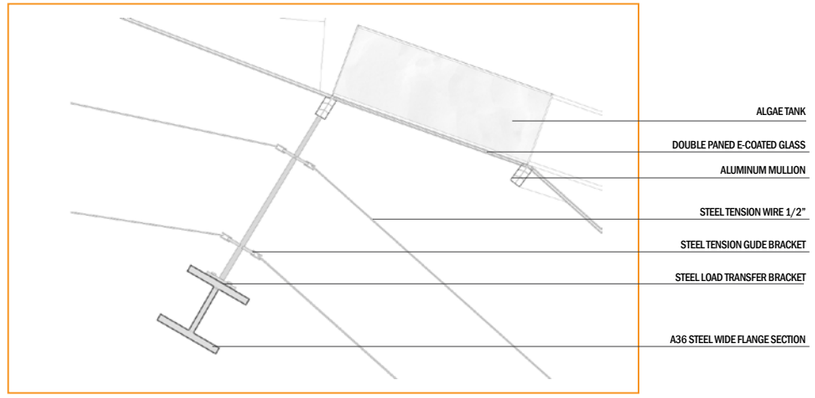


1 ASSEMBLY

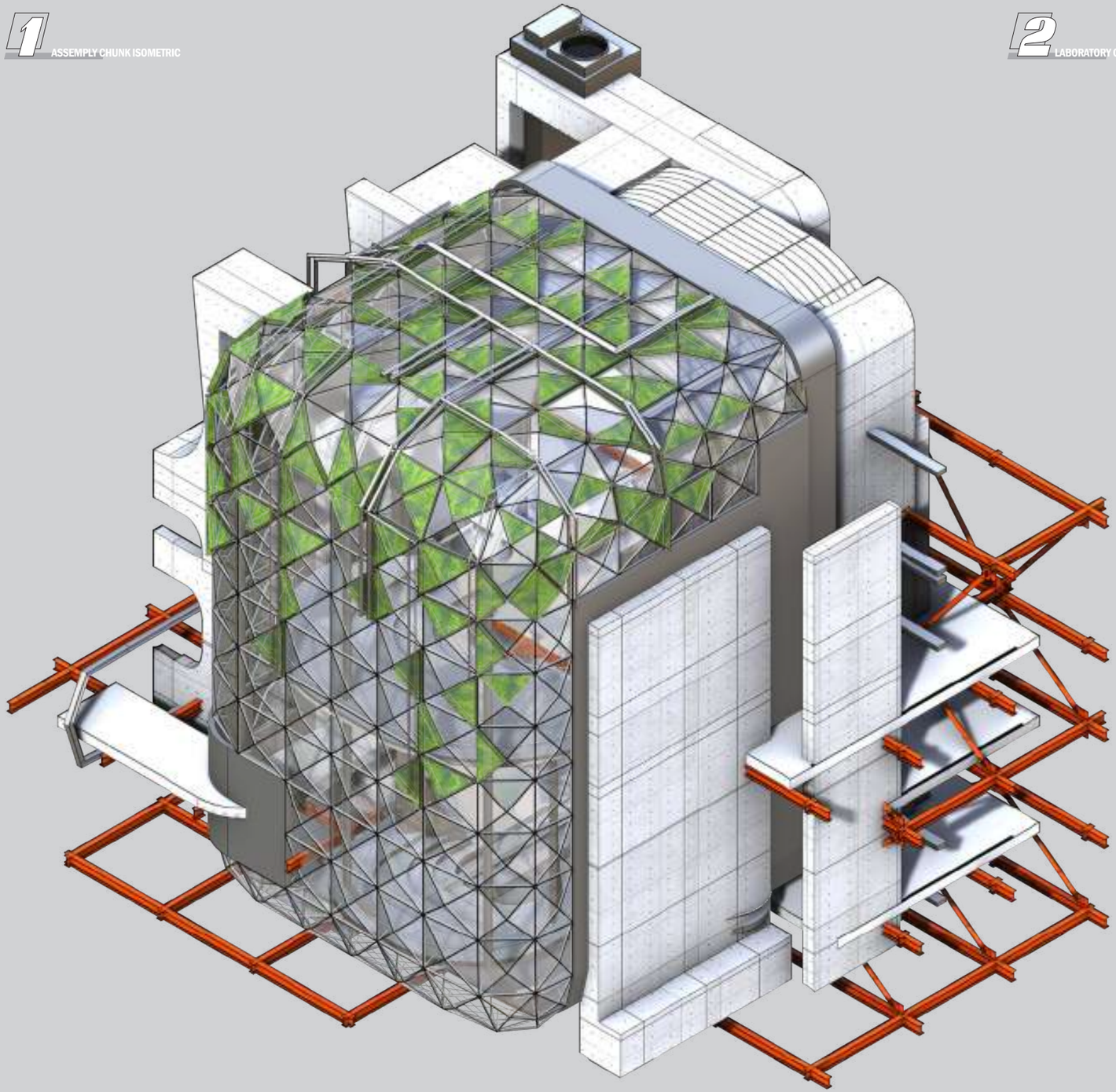



RAISED FLOOR ASSEMBLY
SPACER RODS
CONCRETE SLAB
A36 STEEL BEAM W22x147
STEEL WALL TRACK
10" A36 STEEL PIPE BEAM

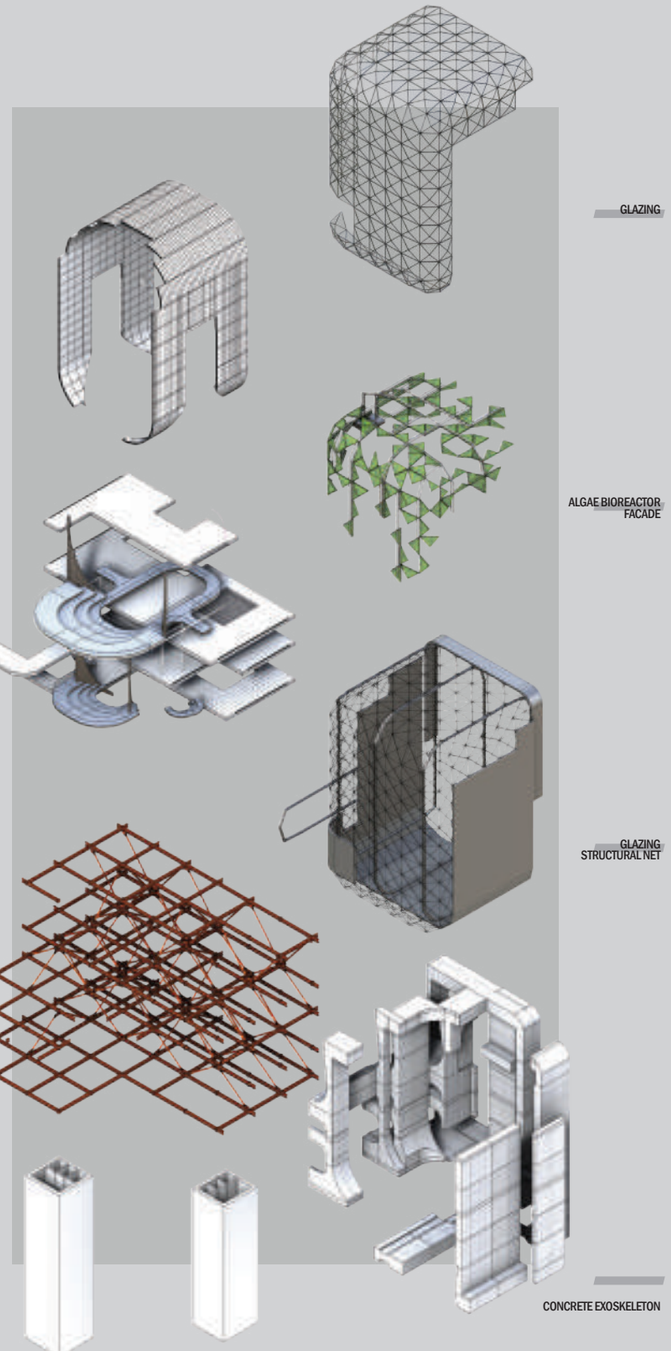

VINYL BASED NONSLIP DECKING
POURED CONCRETE SLAB
STEEL SLAB END CAP
METAL DECKING
RIENFORCED STEEL SLAB JOIST
6" A36 STEEL PIPE BEAM
TYPICAL ENCLOSURE EDGE
ENCLOSURE ASSEMBLY
SEE ABOVE


ALGAE TANK
DOUBLE PANED E-COATED GLASS
ALUMINUM MULLION
STEEL TENSION WIRE 1/2"
STEEL TENSION GUDE BRACKET
STEEL LOAD TRANSFER BRACKET
A36 STEEL WIDE FLANGE SECTION

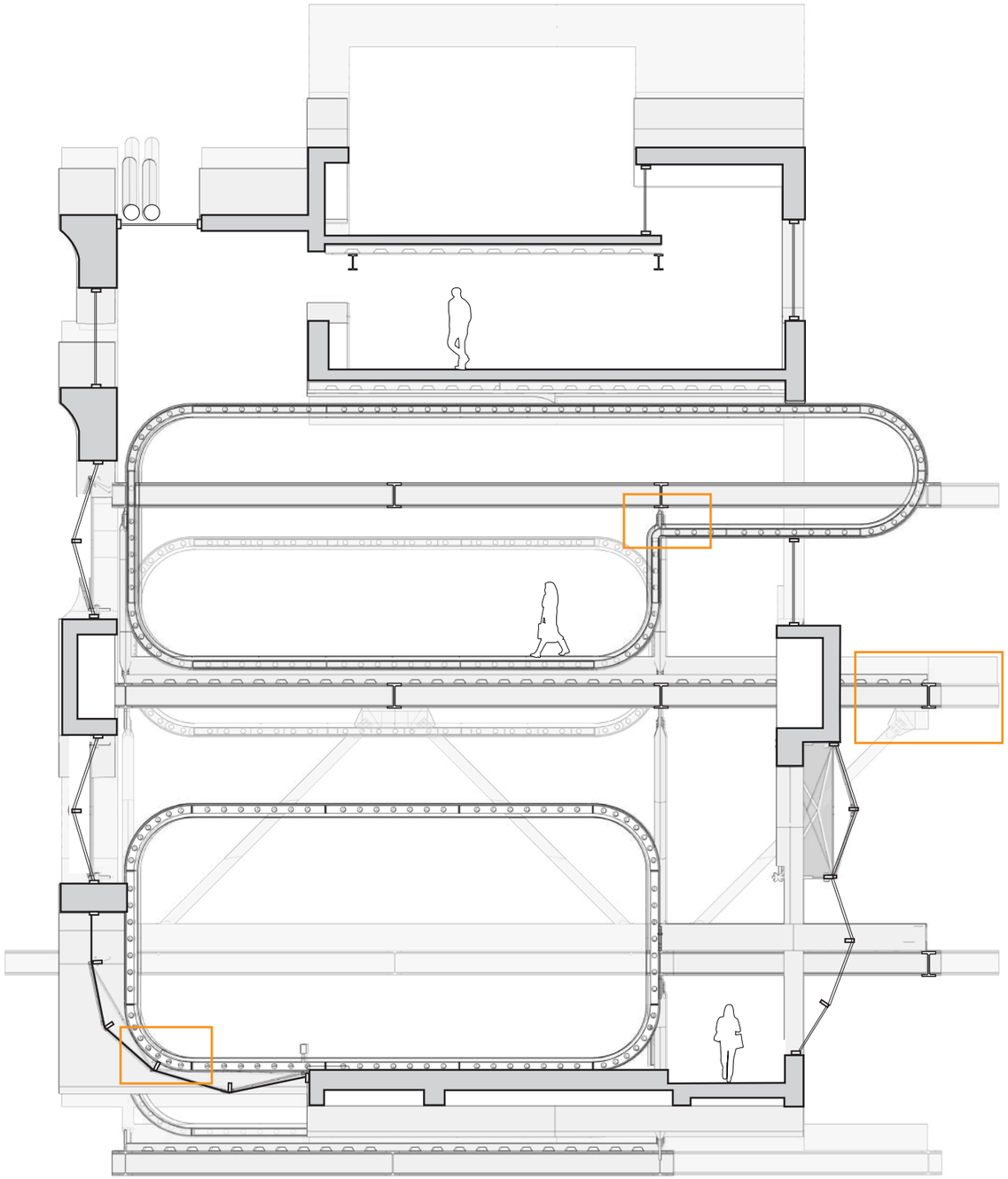
1 ASSEMPLY CHUNK ISOMETRIC

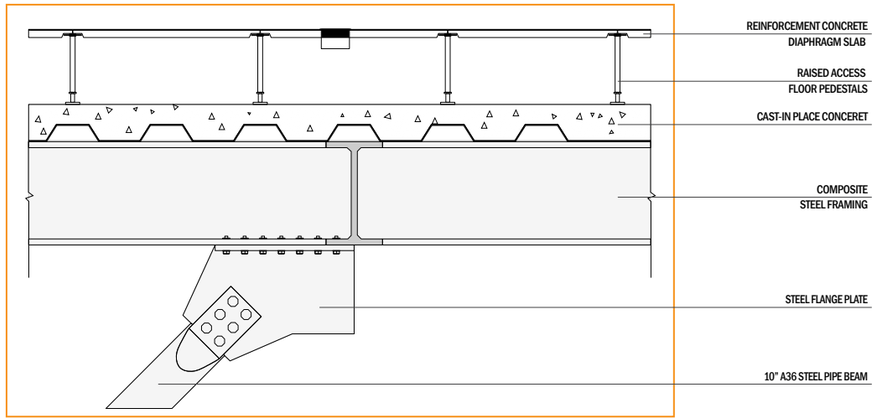


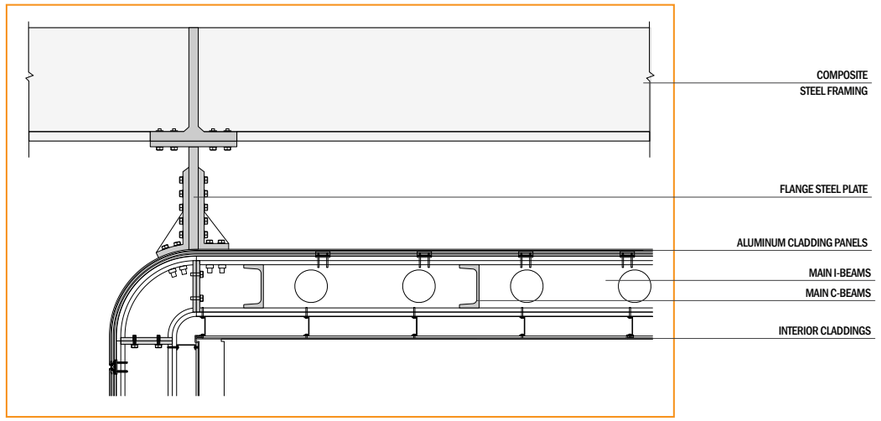
2 LABORATORY CHUNK EXPLODED ISOMEETRIC

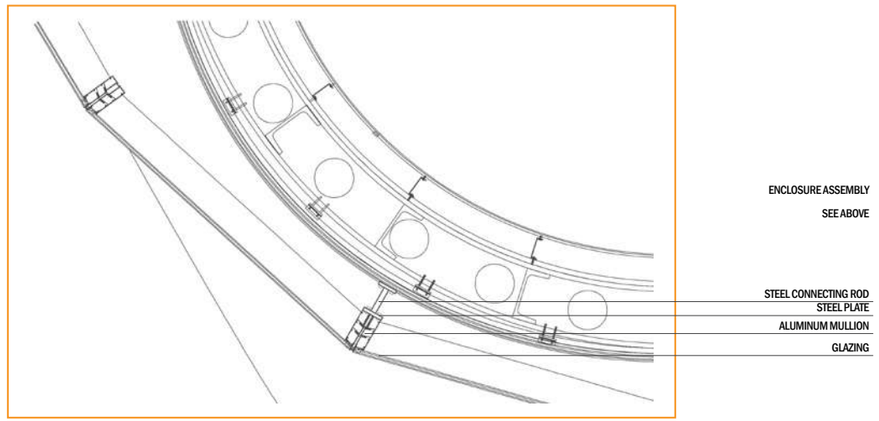


ASSEMBLY

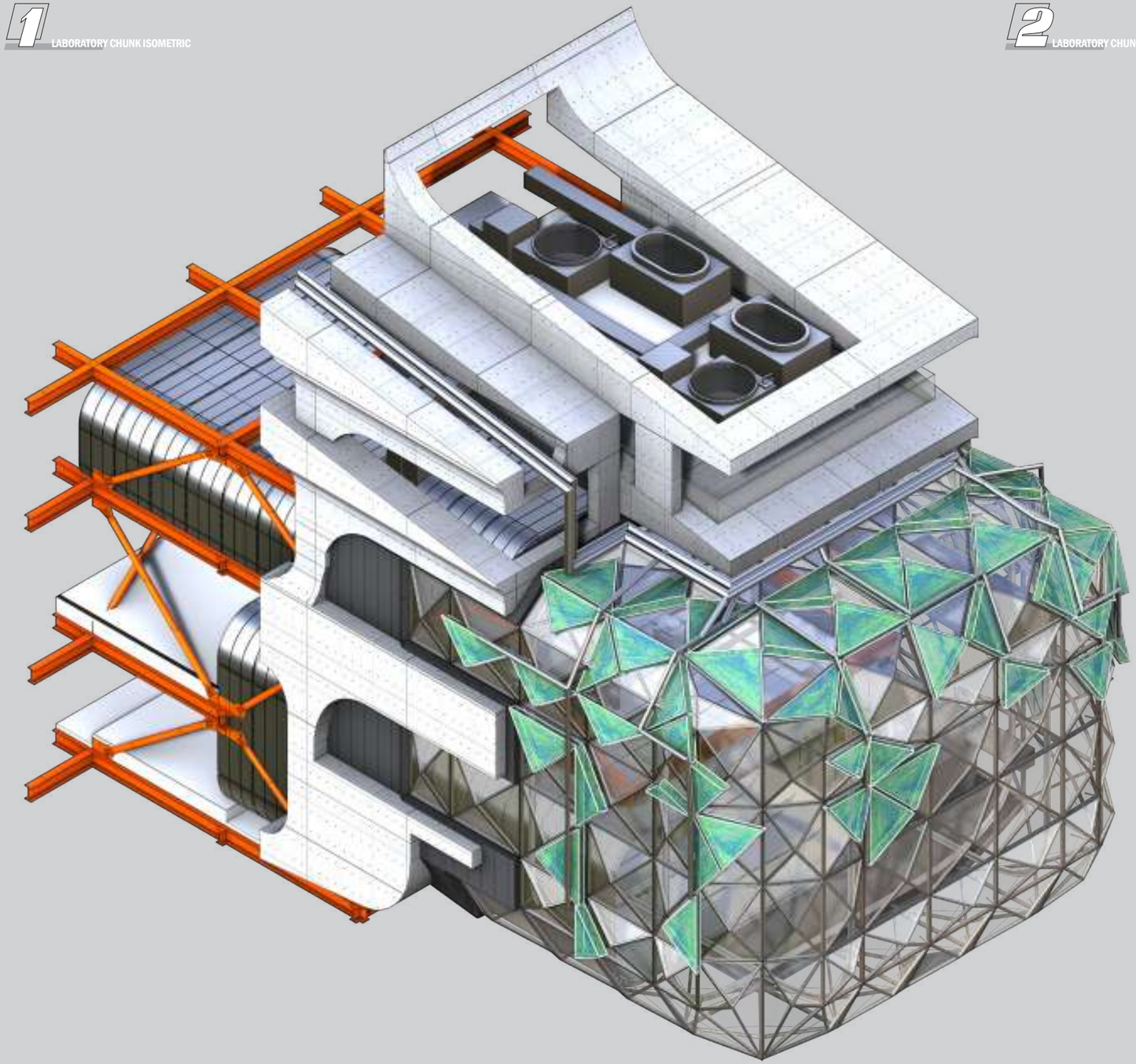



REINFORCEMENT CONCRETE
DIAPHRAGM SLAB
RAISED ACCESS
FLOOR PEDESTALS
CAST-IN PLACE CONCERET
COMPOSITE
STEEL FRAMING
STEEL FLANGE PLATE
10" A36 STEEL PIPE BEAM

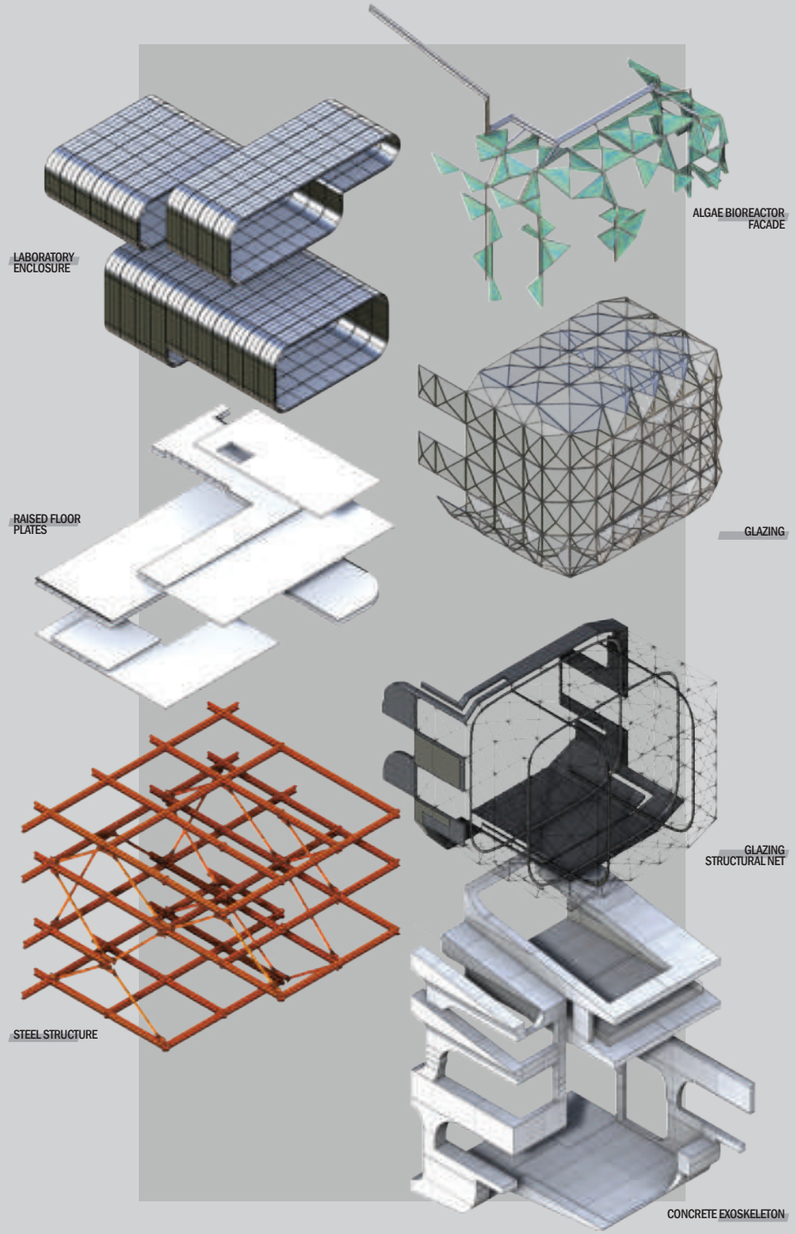

COMPOSITE
STEEL FRAMING
FLANGE STEEL PLATE
ALUMINUM CLADDING PANELS
MAIN I-BEAMS
MAIN C-BEAMS
INTERIOR CLADDINGS


ENCLOSURE ASSEMBLY
SEE ABOVE
STEEL CONNECTING ROD
STEEL PLATE
ALUMINUM MULLION
GLAZING

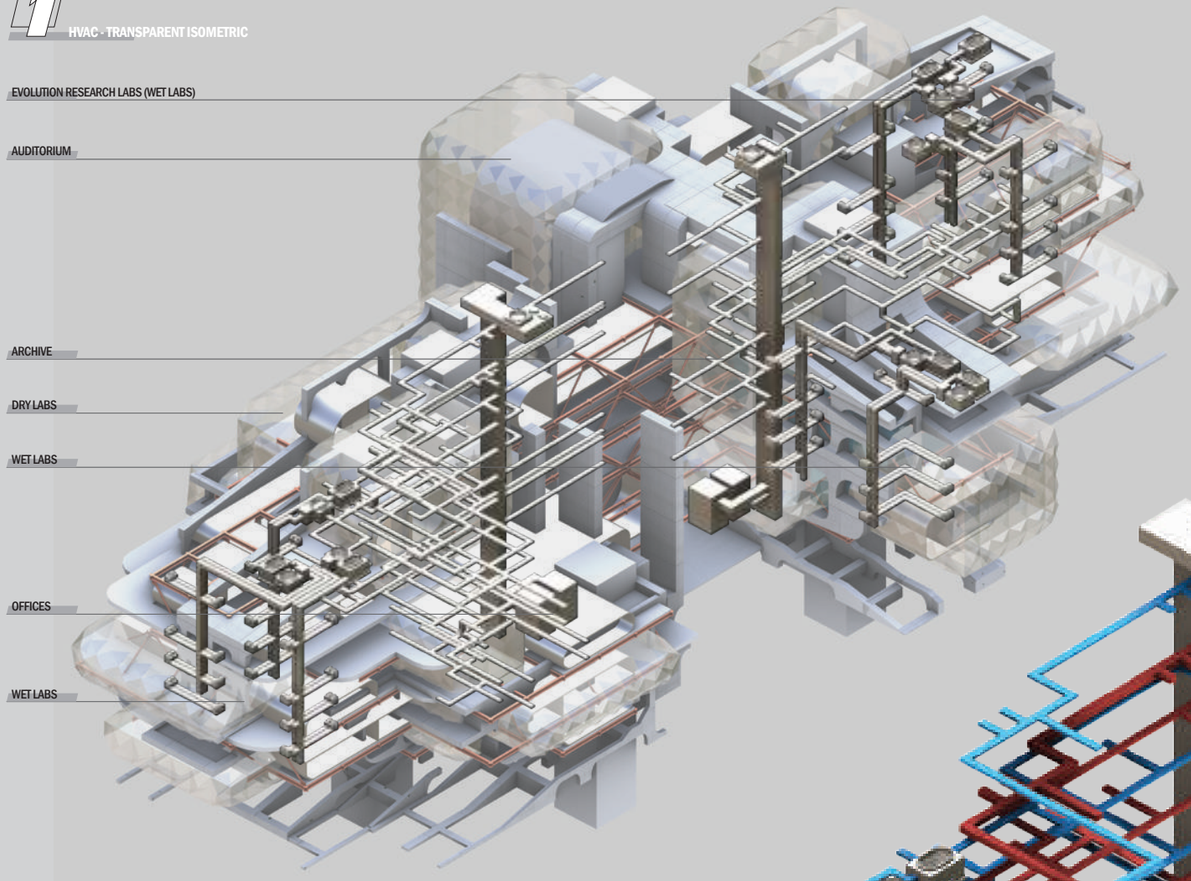
1 LABORATORY CHUNK ISOMETRIC



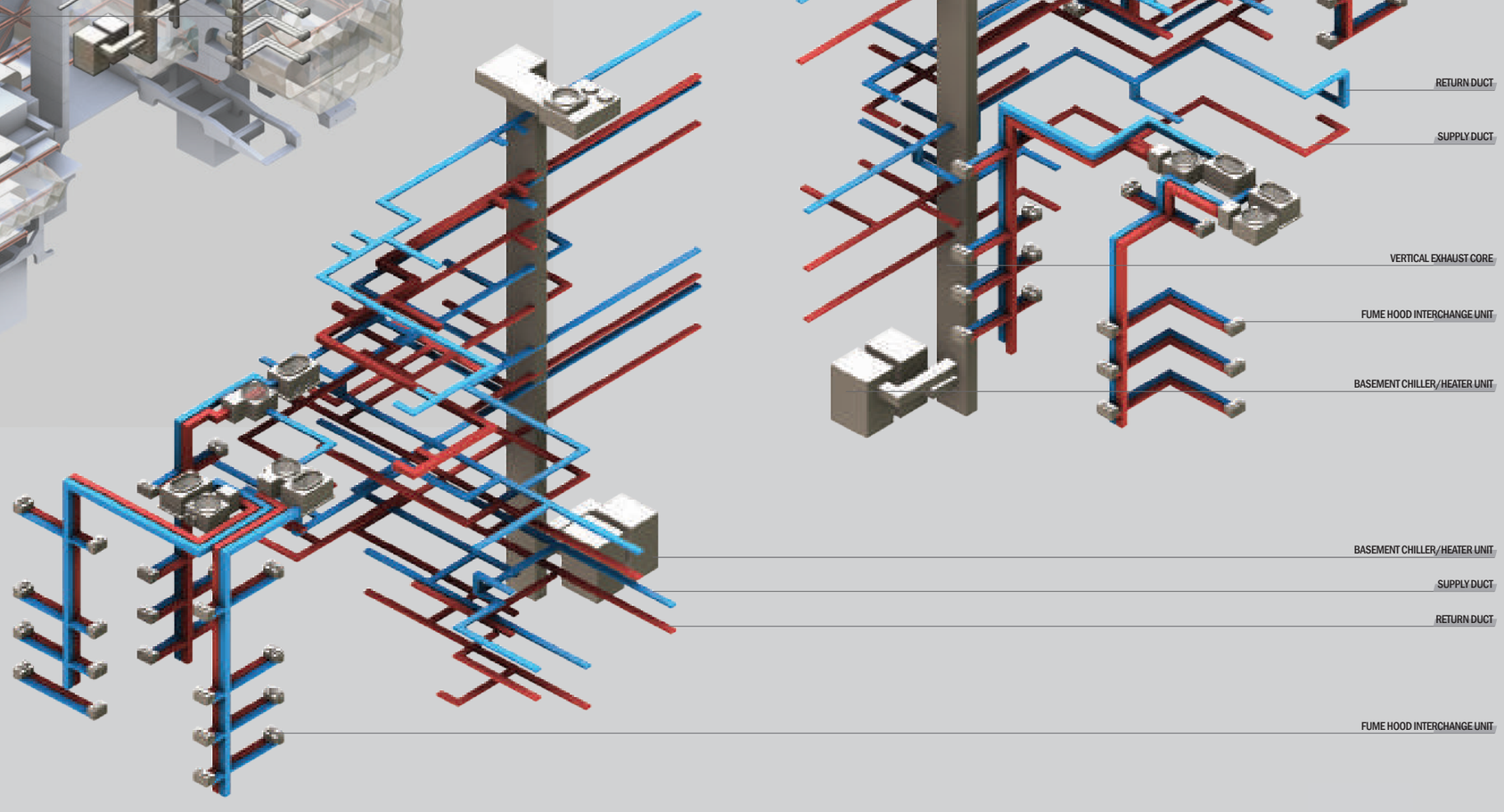
2 LABORATORY CHUNK EXPLODED ISOMEETRIC



1 HVAC - TRANSPARENT ISOMETRIC



2 HVAC: DETAILED ISOMETRIC

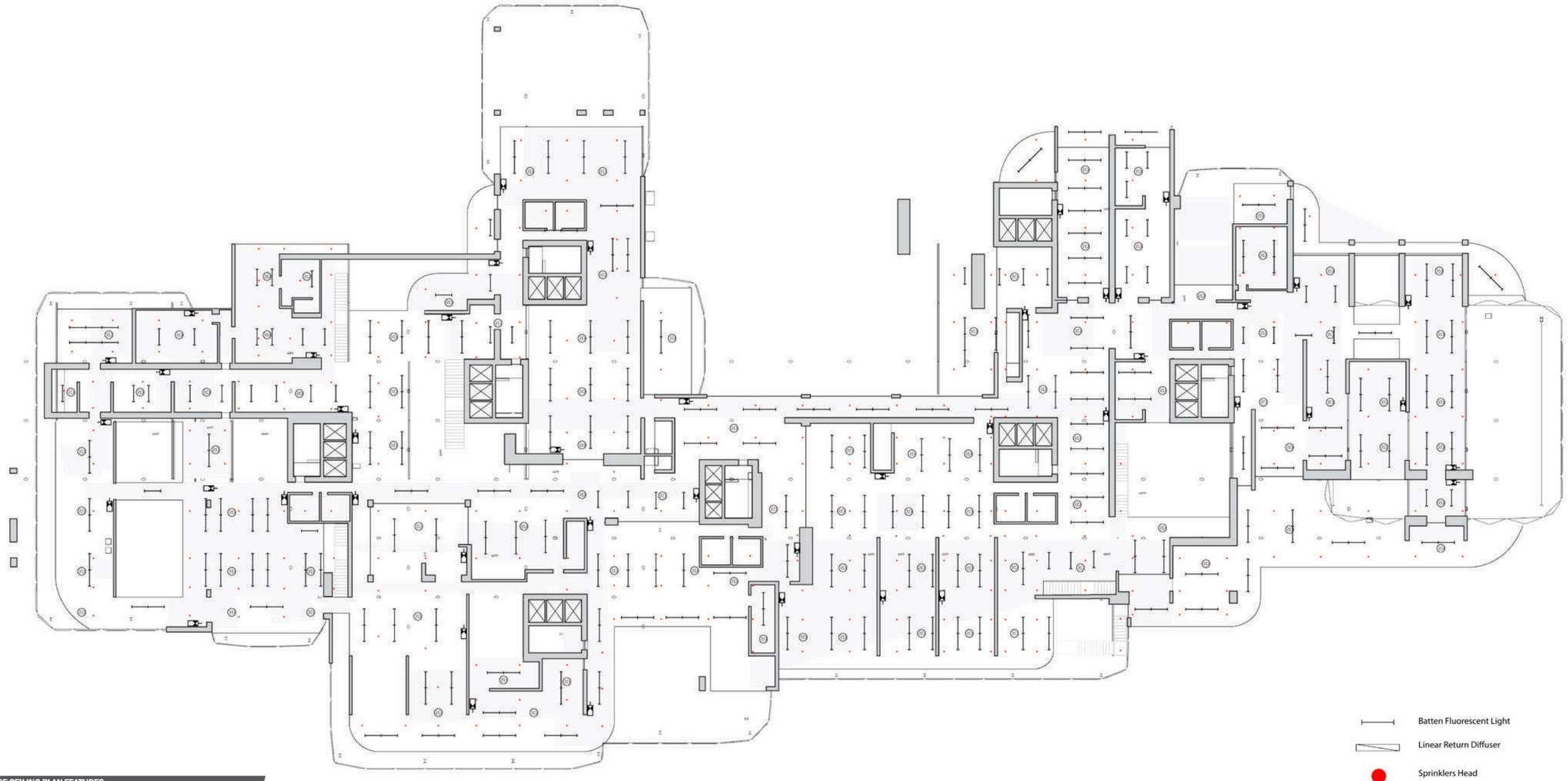


CENTRAL AIR CONTROL FOR DRY LABS AND OFFICES

The central area of the building consists of office, conference rooms, cafes, meeting spaces, common areas, corridors, dry labs, and auditoriums. To meet low energy goals, this area is heated and cooled by a a set of 4 large, high efficiency units located in the basement, beneath the lobby. The supply ducts are located in the raised floor, allowing efficient heating of the building when passive heating systems are not sufficient on cloudy days.

INDEPENDANTLY CONTROLLED WET LAB VENTILATION

Due to the presence and handling of potentially biological and chemical hazards, the labs in the wings of the building require seperate, more specialized ventilation systems. These systems are designed to give optimum airflow so that hazardous fumes can exit the fume hoods and lab interiors as quickly as possible, while also keeping the labs at independantly controllable comfortable temperature year round with a combination heating and cooling system.



Batten Fluorescent Light

Linear Return Diffuser

Sprinklers Head

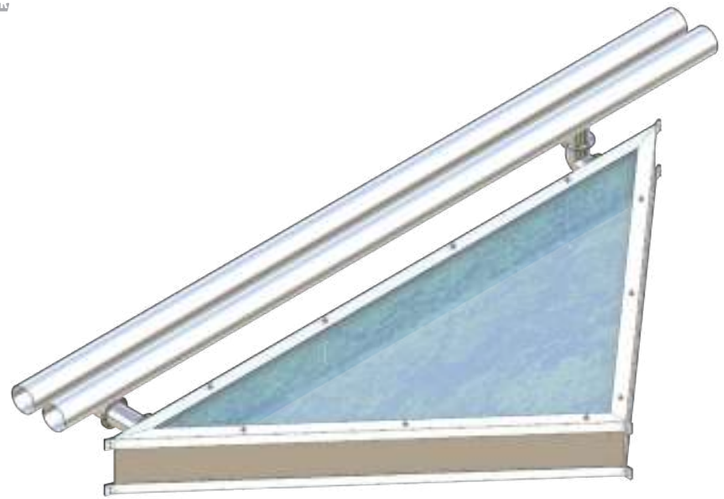
Emergency Signal

Smoke Detector and Alarm

REVERSE CEILING PLAN FEATURES

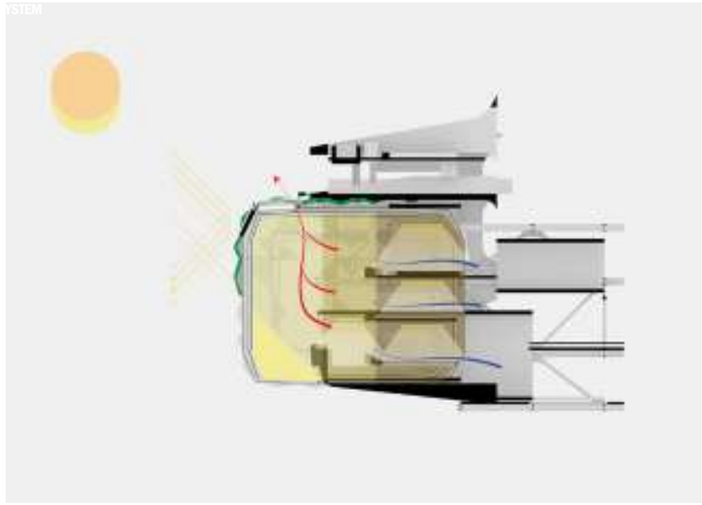
The lighting scheme consits of an array of effiecient, independantly color tunable LED lights rated for upwards of 10 years of continous lumination. The reverse ceiling plan alse features a sprinkler system with continous coverage of the entire floor area of the building. Data and laboratory equiptment is stored in the raised floor, limiting the clutter on the ceiling of the building and eliminating the need for a drop ceiling.

1 ELABORATION



3 PHOTOREAC

YSTEM



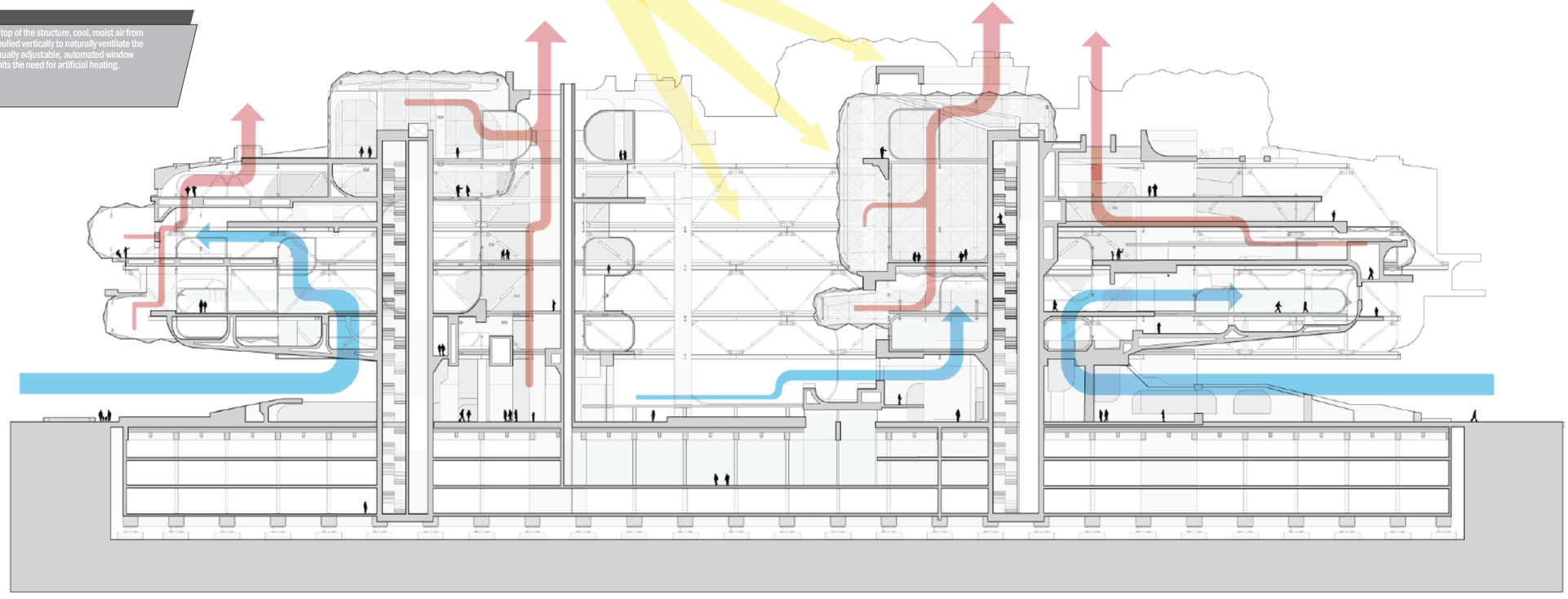
ALGAE PANEL ACTS AS ACTIVE SHADE SYSTEM

On bright sunny days, the microorganisms in the water multiply to raise the opacity of the panel, turning it a murky green. Not only is natural green light proven to positively affect mood and productivity, but the algae is then recirculated into a biomass reactor to provide energy for building cooling and heating needs, further limiting the active carbon footprint of the building.

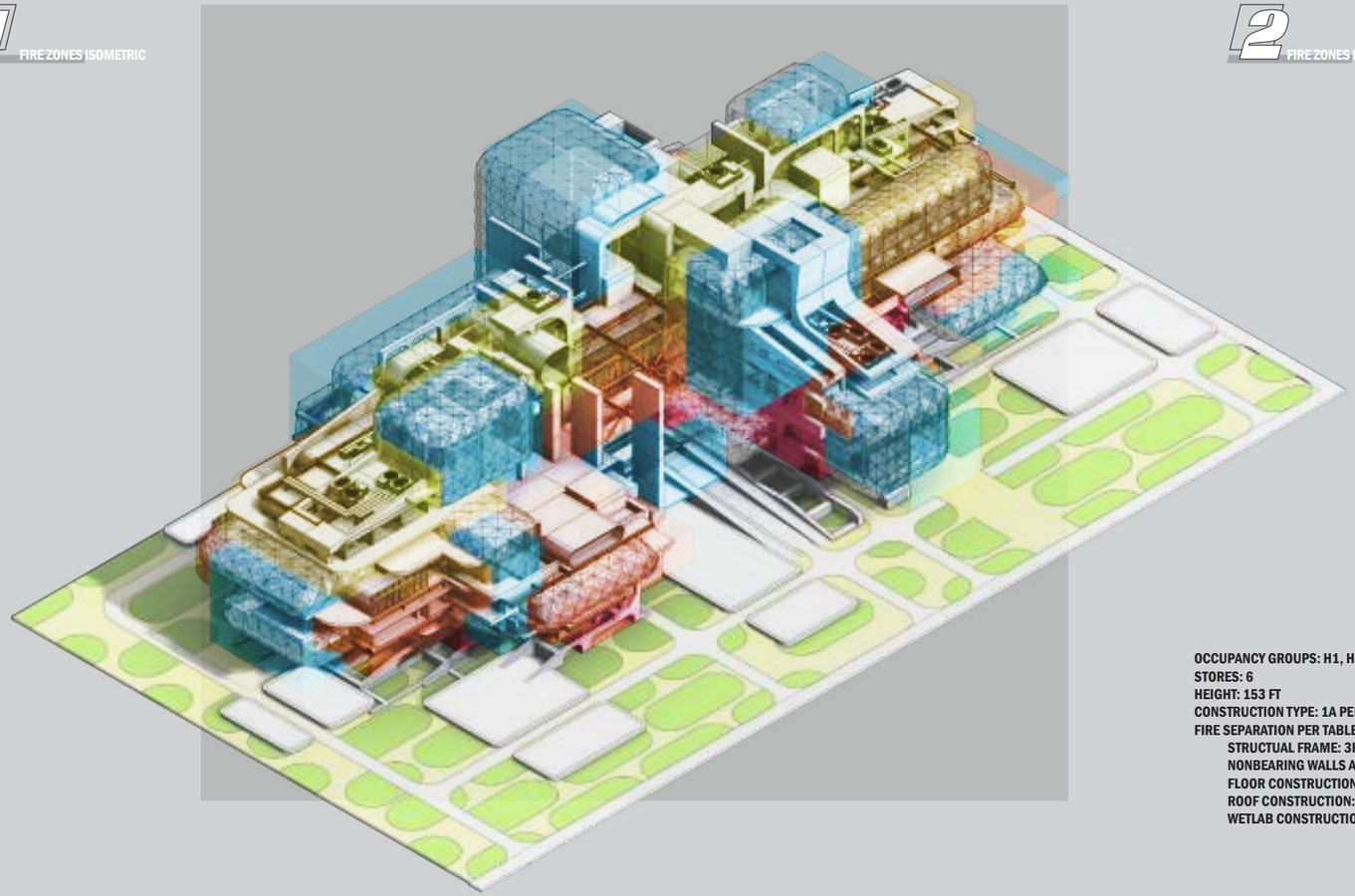
2 NATURAL VE

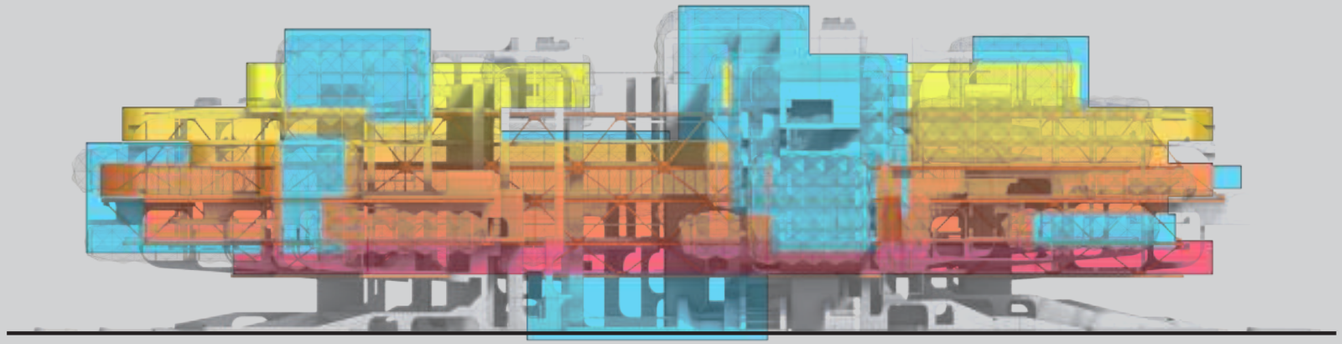
PASSIVE AIR CIRCULATION

As hot air rises and is expelled from the top of the structure, cool, moist air from the cantilevered spaces underneath is pulled vertically to naturally ventilate the rooms. This action is modulated by manually adjustable, automated window openings in the glazing. This system limits the need for artificial heating.

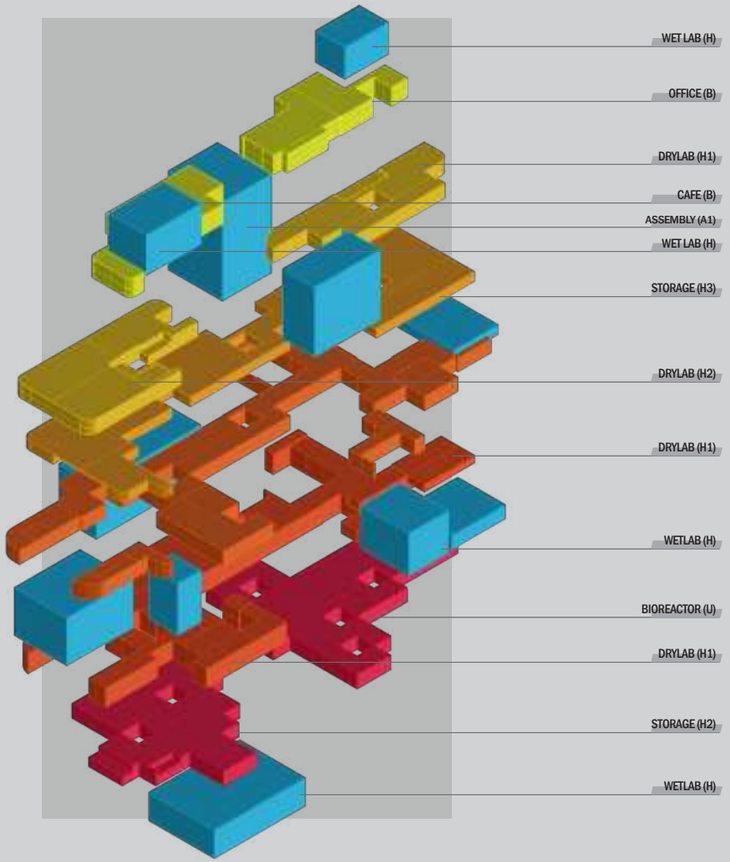


1 FIRE ZONES ISOMETRIC

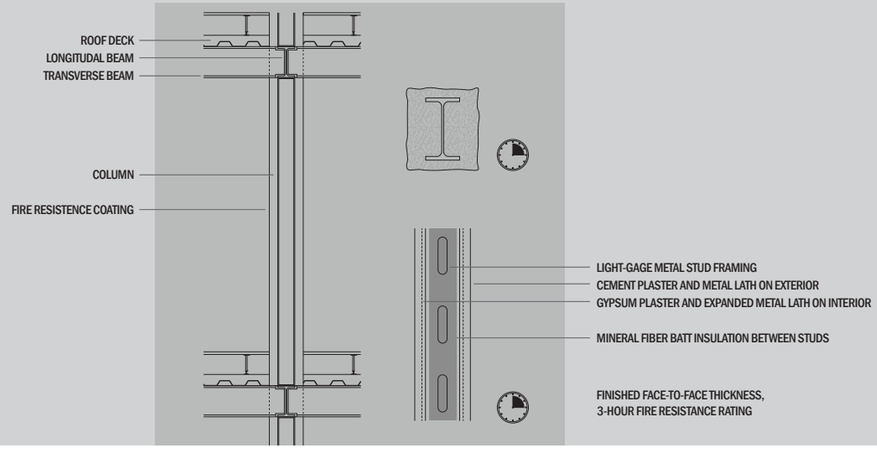




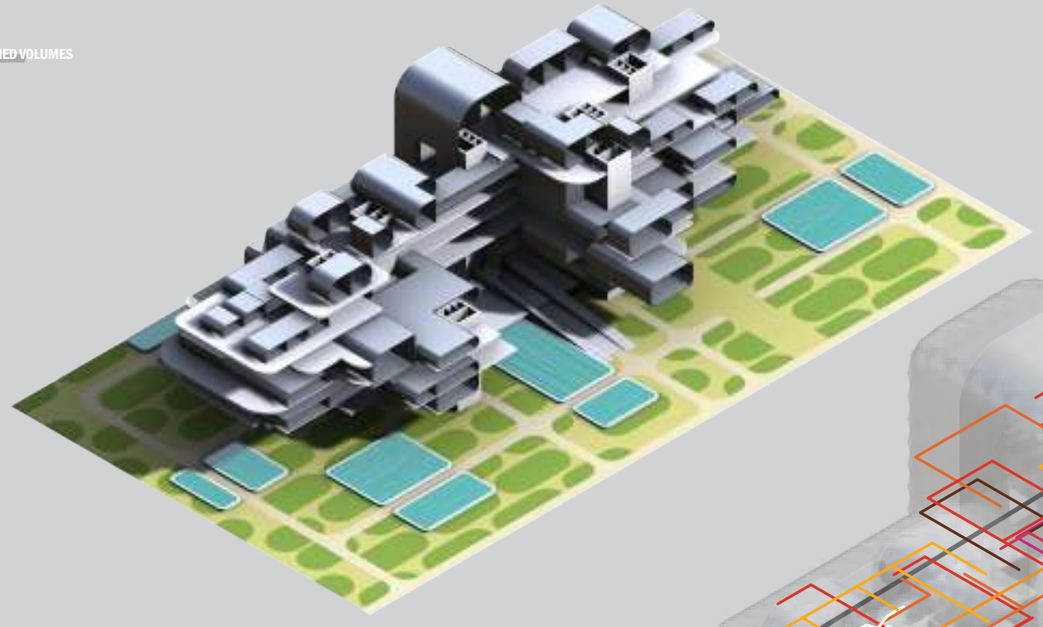
2 FIRE ZONES EXPLODED ISOMETRIC



OCCUPANCY GROUPS: H1, H2, H3, A1, B, U
STORES: 6
HEIGHT: 153 FT
CONSTRUCTION TYPE: 1A PER TABLE 503
FIRE SEPARATION PER TABLE 601:
- **STRUCTUAL FRAME: 3Hrs**
- **NONBEARING WALLS AND PARTITIONS: 0Hrs**
- **FLOOR CONSTRUCTION: 2Hrs**
- **ROOF CONSTRUCTION: 1.5Hrs**
- **WETLAB CONSTRUCTION: 3Hrs**

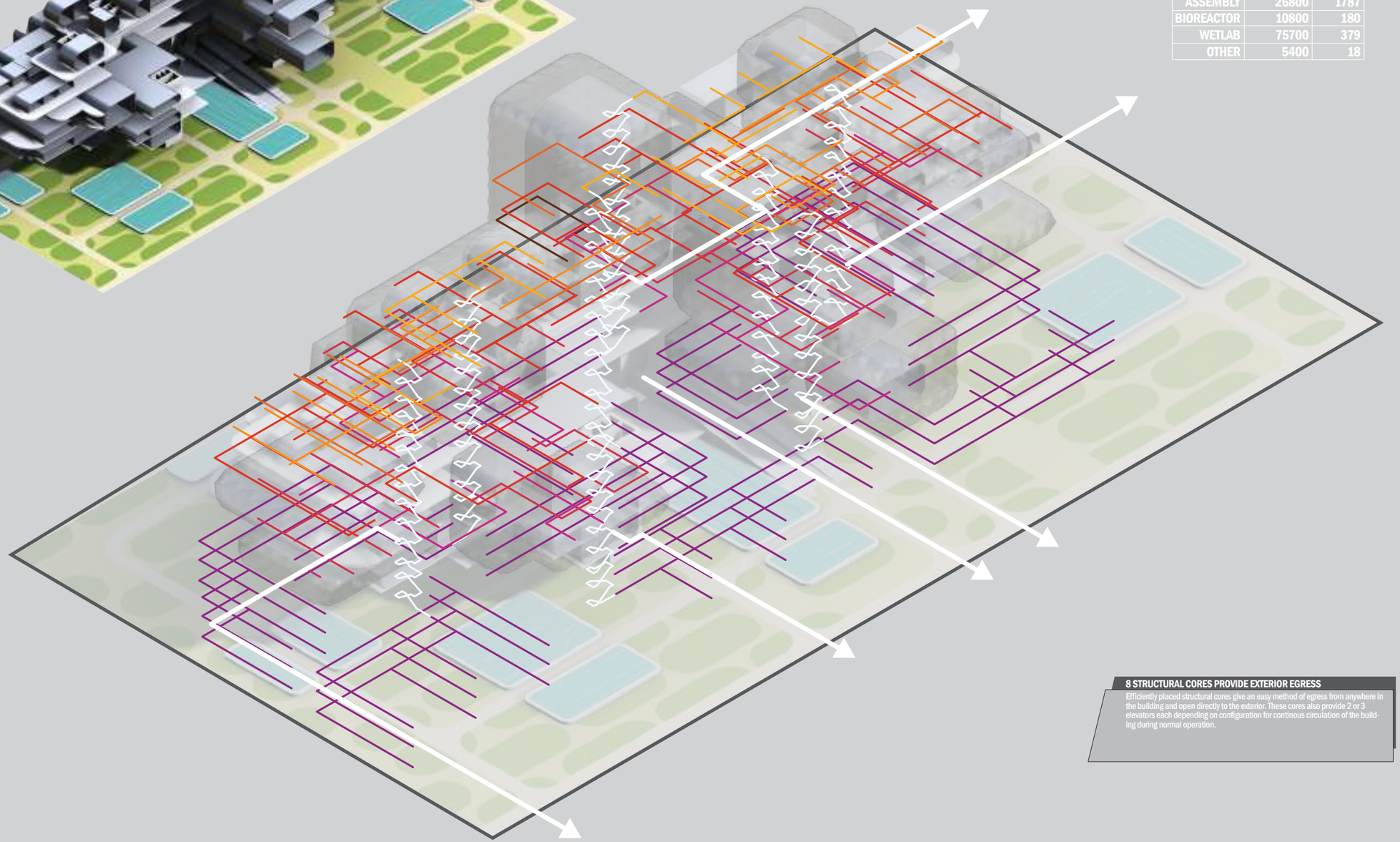


1 OCCUPIED VOLUMES



	FT2	MAX PEOPLE
OFFICE	6400	64
CAFE	4400	22
DRYLAB	61700	309
STORAGE	15300	31
ASSEMBLY	26800	1787
BIOREACTOR	10800	180
WETLAB	75700	379
OTHER	5400	18

2 EGRESS ROUTES



- SEVENTH FLOOR
- SIXTH FLOOR
- FIFTH FLOOR
- FOURTH FLOOR
- THIRD FLOOR
- SECOND FLOOR
- FIRST FLOOR STAIR CORES AND EXITS
- BASEMENT

8 STRUCTURAL CORES PROVIDE EXTERIOR EGRESS

Efficiently placed structural cores give an easy method of egress from anywhere in the building and open directly to the exterior. These cores also provide 2 or 3 elevators each depending on configuration for continous circulation of the building during normal operation.