JUSTIN CHIOVITTI

Architectural Designer

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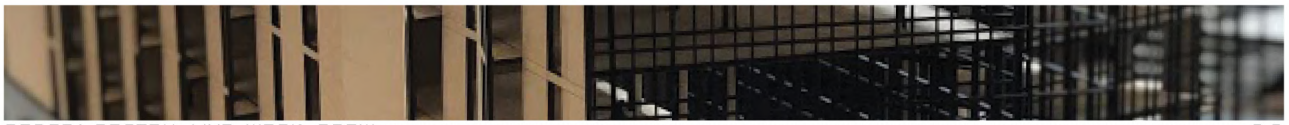

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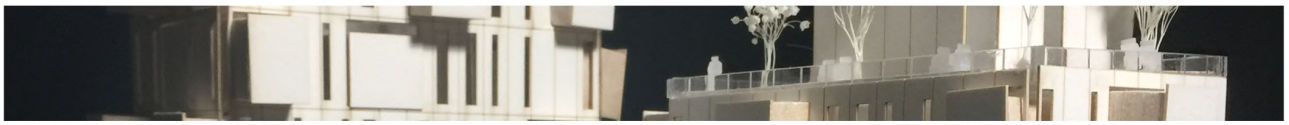
INSTRUCTOR: MICHAEL LEBLANC
SEMESTER: SPRING 2019



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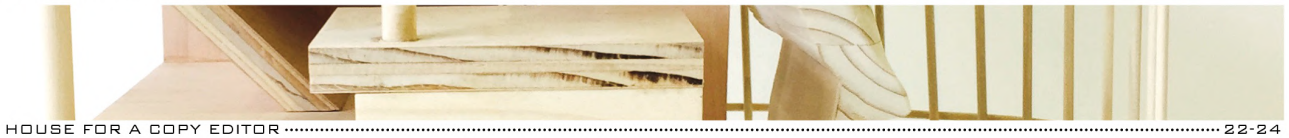

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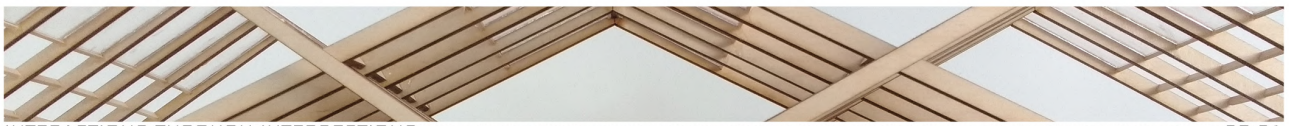

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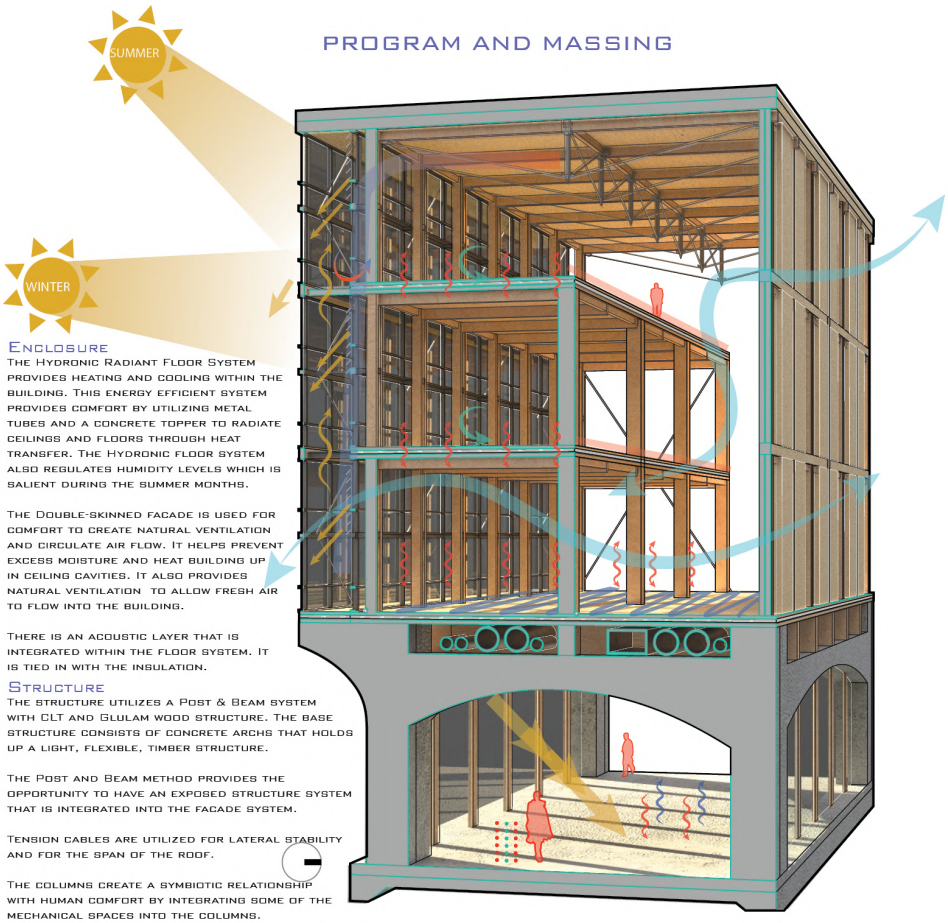
BODEGA BOSTON, stems from a design that intends to create a living, breathing structure that can span and contract as the site and environment evolves. The mechanical system acts as the organs and the facade as skin that would reinforce all of these systems functioning together. Sustainability is vital to this design, and it intends to create a harmony between the environment and the systems that we incorporate to create an energy-savings building that can be utilized for various life-cycles. The space is intended to be a mix-use building that would support clientele and multiple programs. As the demand for food is rising, there is a need to serve the growing population. This culinary arts school serves to educate people about urban farming and how to integrate these farming practices into our culture and urban fabric. Individuals can enroll in class to learn the art of growing produce and sustaining. These urban farm strategies serve to meet the demand of food in the greater Boston area without outsourcing from thousands of miles away. This will be one of many hubs that will educate individuals on self-sustaining farming within the city and to make a local impact on the community and bridge the socioeconomic divide within the various communities so that everyone will have access to healthy food. This would begin the cities goal at achieving a grass roots effort in trying to bring back sutaible food sourcing. This site would bring job growth and a community standard of building practices that would expand across the city over time.

PROGRAM AND MASSING



Enclosure

The Hydronic Radiant Floor System provides heating and cooling within the building. This energy efficient system provides comfort by utilizing metal tubes and a concrete topper to radiate ceilings and floors through heat transfer. The Hydronic floor system also regulates humidity levels which is salient during the summer months.

The Double-skinned facade is used for comfort to create natural ventilation and circulate air flow. It helps prevent excess moisture and heat building up in ceiling cavities. It also provides natural ventilation to allow fresh air to flow into the building.

There is an acoustic layer that is integrated within the floor system. It is tied in with the insulation.

Structure

The structure utilizes a Post & Beam system with CLT and Glulam wood structure. The base structure consists of concrete archs that holds up a light, flexible, timber structure.

The Post and Beam method provides the opportunity to have an exposed structure system that is integrated into the facade system.

Tension cables are utilized for lateral stability and for the span of the roof.

The columns create a symbiotic relationship with human comfort by integrating some of the mechanical spaces into the columns.

Comfort

The Hydronic Radiant Floor System provides heating and cooling within the building. This energy efficient system provides comfort by utilizing metal tubes and a concrete topper to radiate ceilings and floors through heat transfer. The Hydronic floor system also regulates humidity levels which is salient during the summer months.

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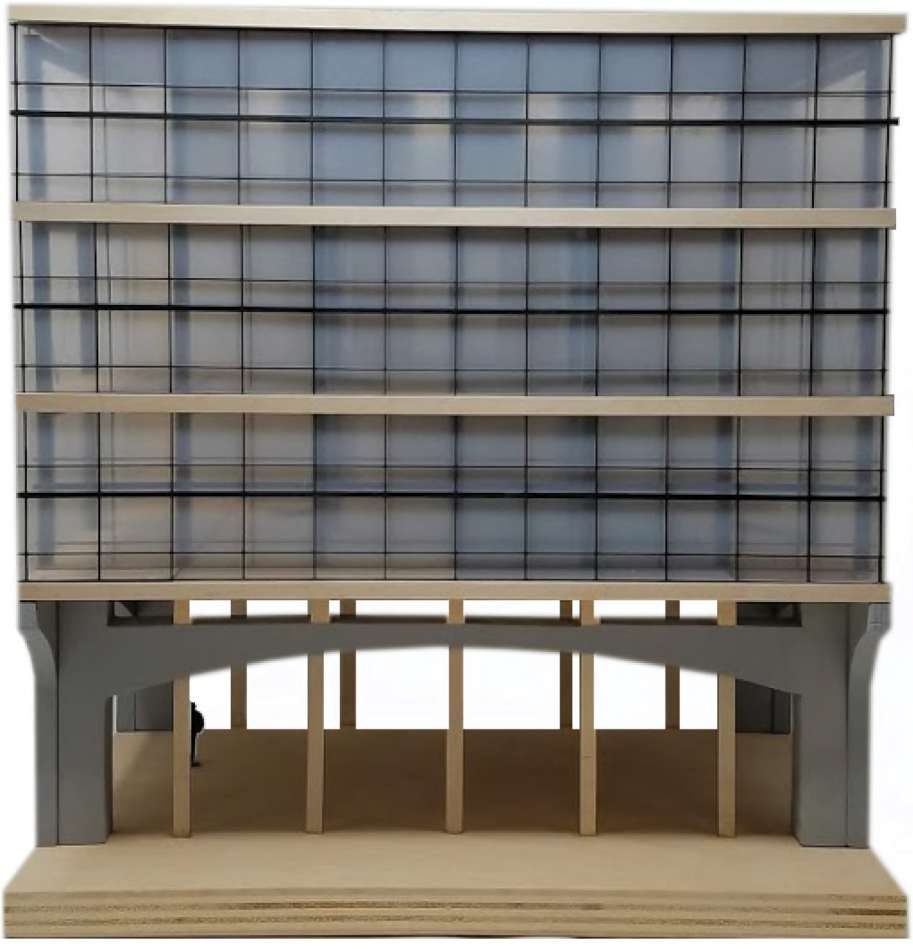
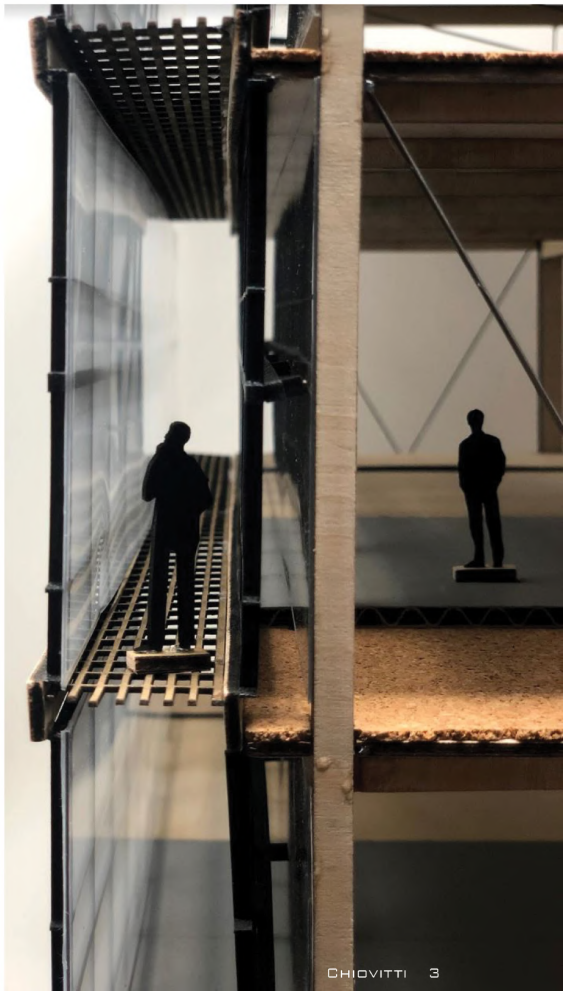
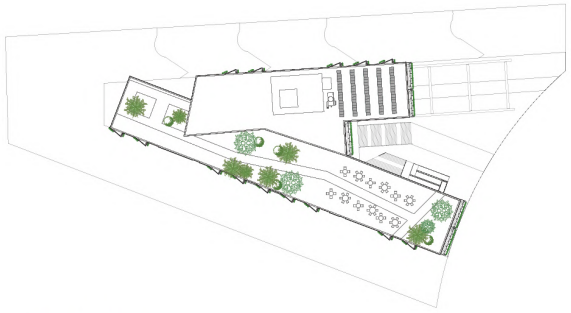


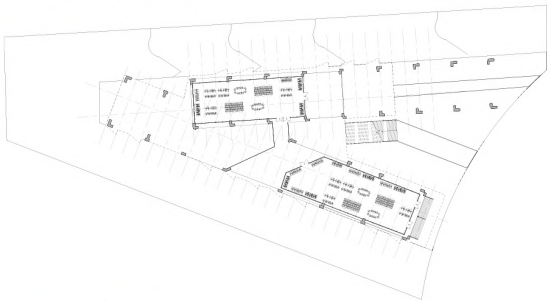




Roof Plan

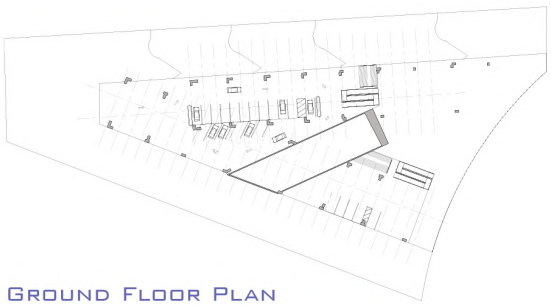
1st Floor Plan

3rd and 5th Floor plan



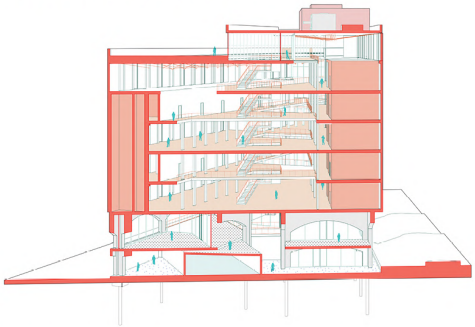
Retail Floor Plan

2nd and 4th Floor Plan

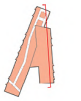


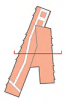
Ground Floor Plan

Section A: Longituninal Section

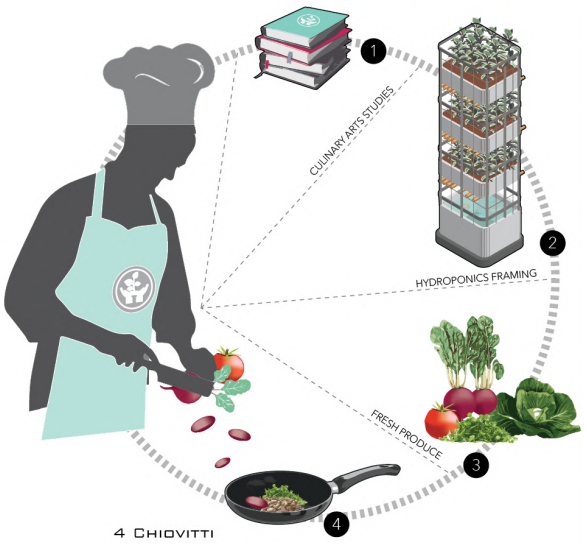


Section B: Cross Section

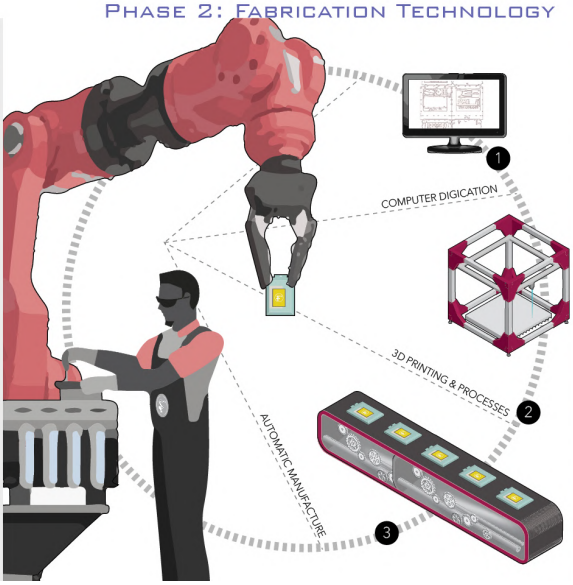


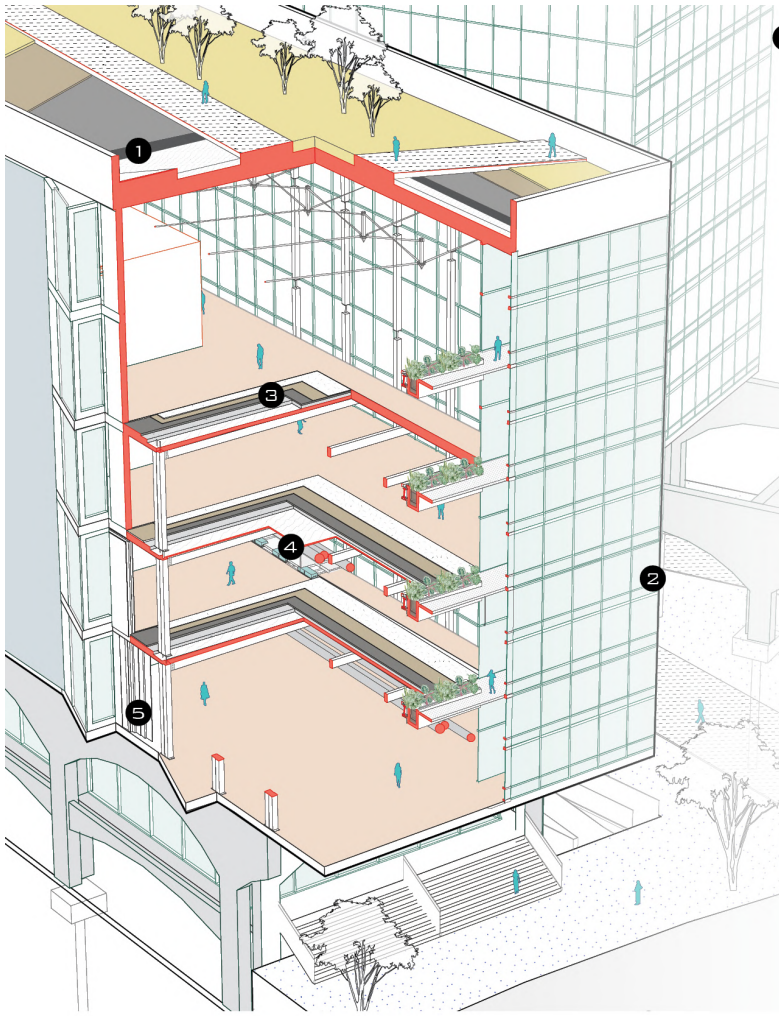


Phase 1: Sustainable Farming

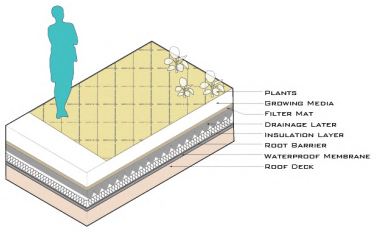


Phase 2: Fabrication Technology

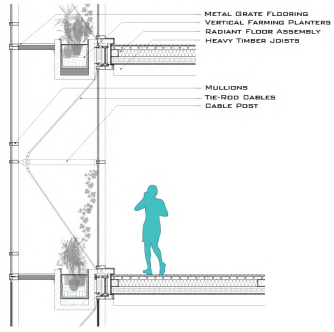




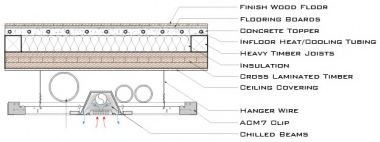
1 Green Roof Assembly



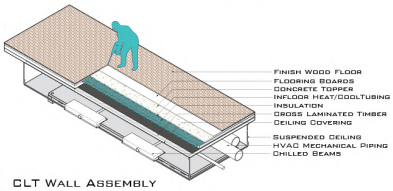
2 Double Skinned Wall Assembly



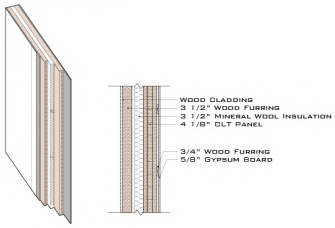
3 CLT Floor Assembly

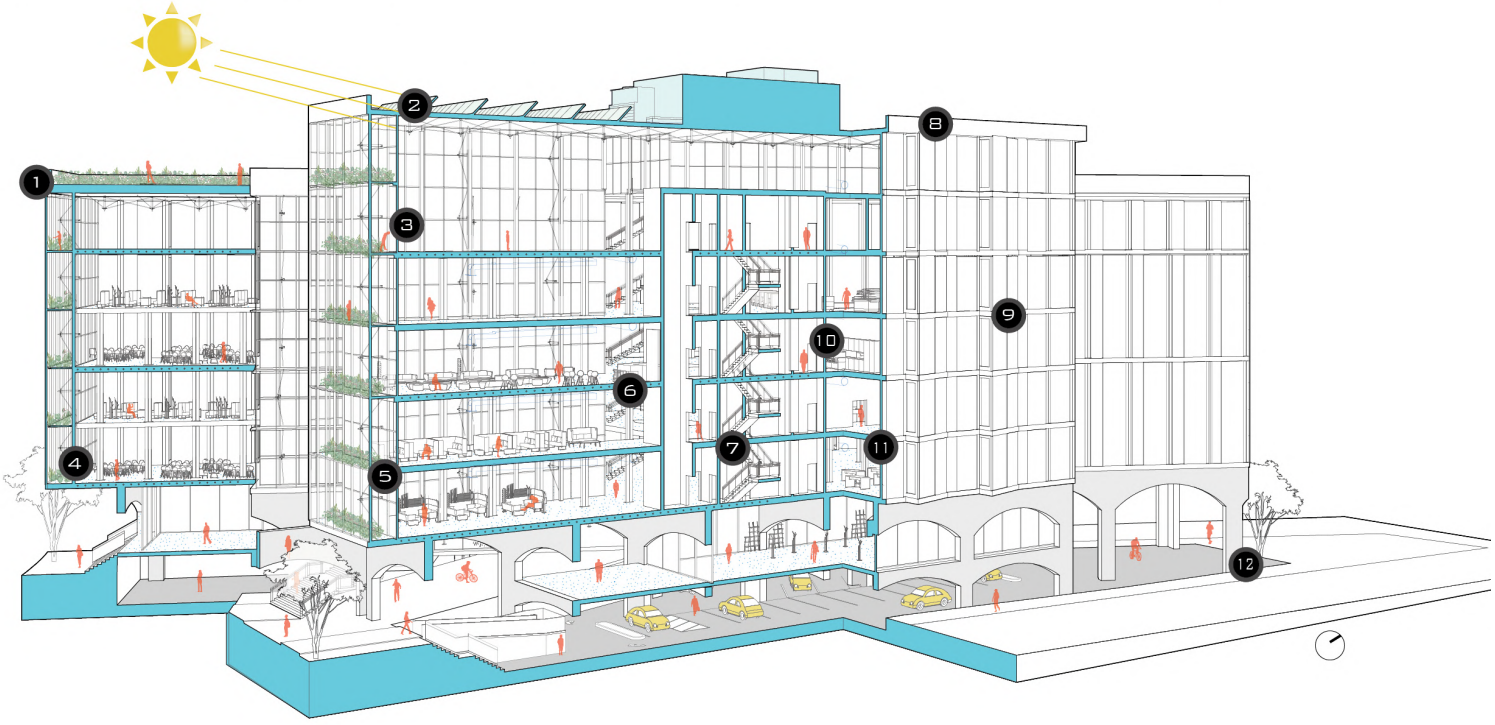


4 Radiant Heating Floor & Chilled Beams

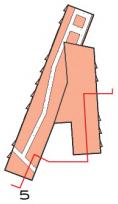


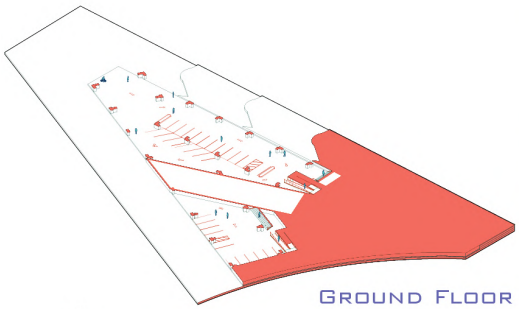
5 CLT Wall Assembly



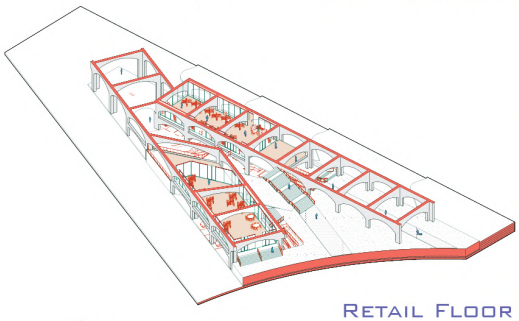


1. **Roof Garden**
   used for rain water collection and provides irregation for living wall facades
2. **Photovoltaics Solar Panels**
   collect energy from the sun to source electricity for the building.
3. **Urban Farming Facade System**
   living wall facade that optimizes the south facade for vertical framing
4. **Program**
   Culinary Art school that functions to teach Boston residents how to grow their own food.
5. **Double Skinned Facade**
   serves as a green house for plantings and provides adequate shading from the sun.
6. **Radiant Flooring**
   zoned to transfer heat by thermal radiation which reduce air temperature stratification and heat loss in ceilings.
7. **Chilled Beams**
   incorporating an air duct and nozzle blowers that provide ventilation air, which helps draw the warm room air up through the heat exchange coils
8. **Mechanical System**
   located on roof and includes ground floor, cooling tower, generators, chilling plant
9. **Saw-tooth Windows**
   orient West and East facade south to provide planting opportunities
10. **Ventilation System**
    Air ventilation system for Kitchen and growing spaces, which can adapt into future fabrication lab.
11. **CLT Wall System**
    Insulated timber wall panel
12. **Concrete Arches**
    Robust structure that provides flexibility various loads

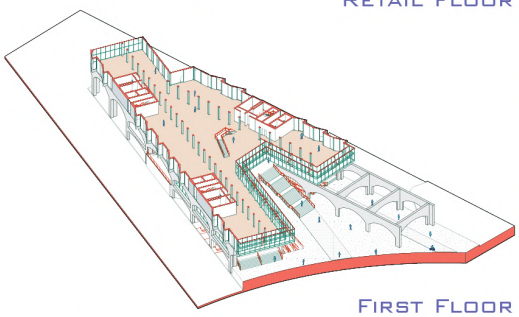




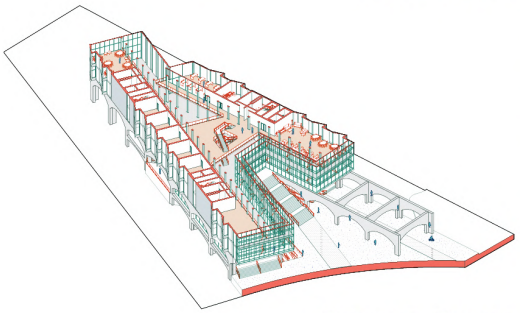
Ground Floor



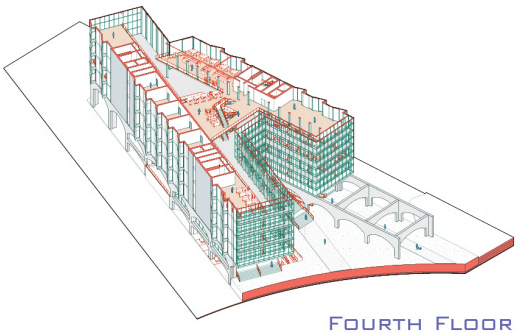
Retail Floor



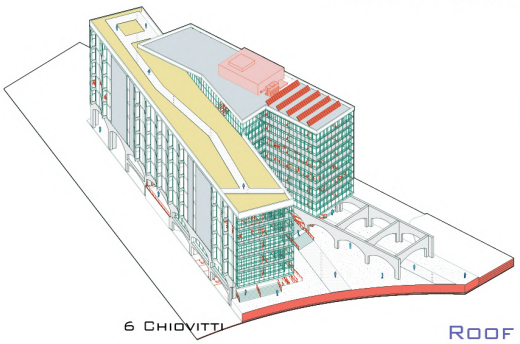
First Floor



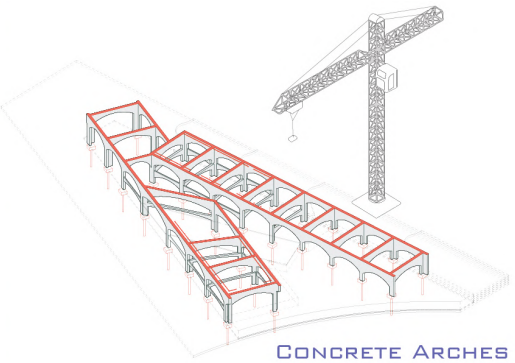
Second Floor



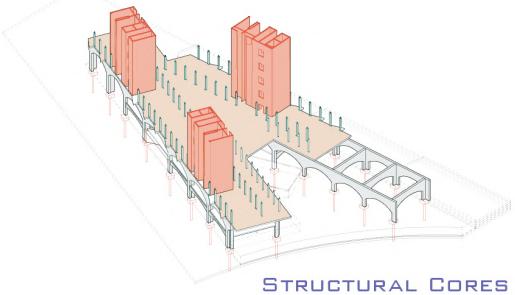
Fourth Floor



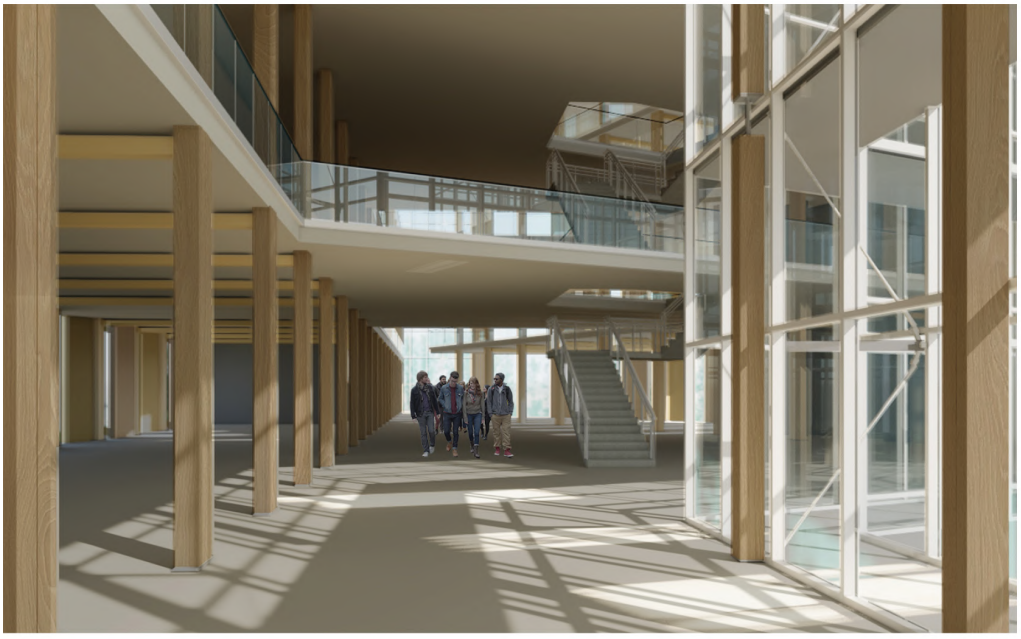
Roof

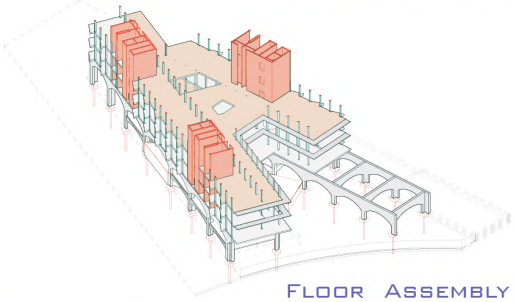


Concrete Arches

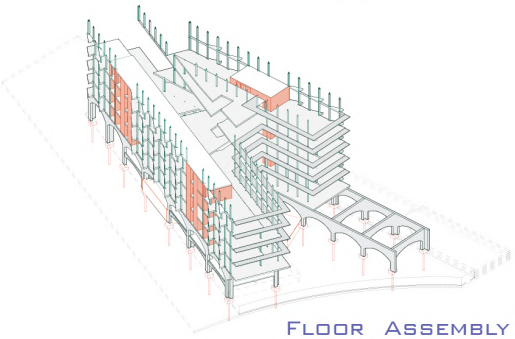


Structural Cores





Floor Assembly



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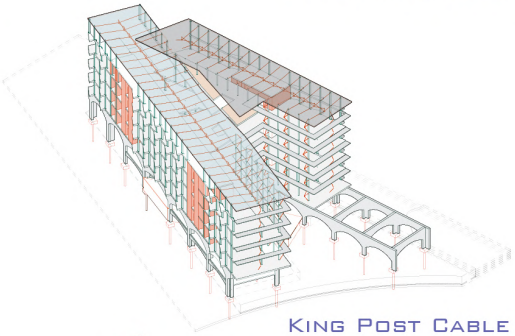
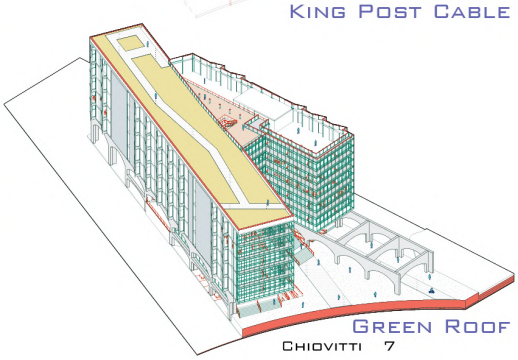
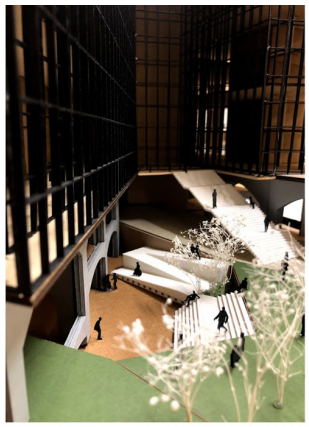
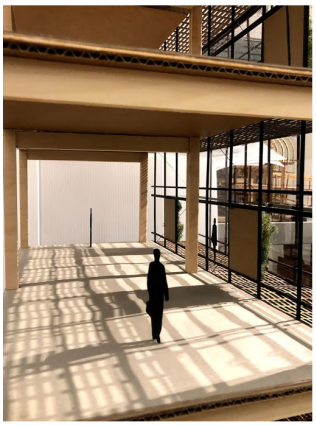
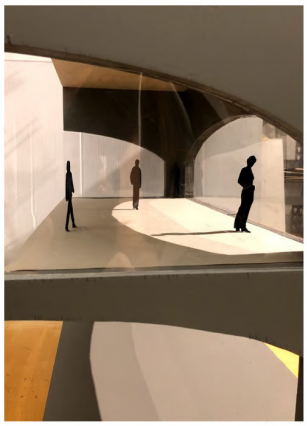


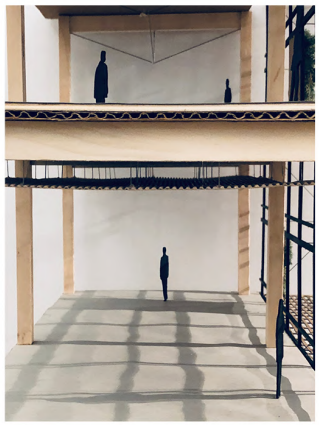
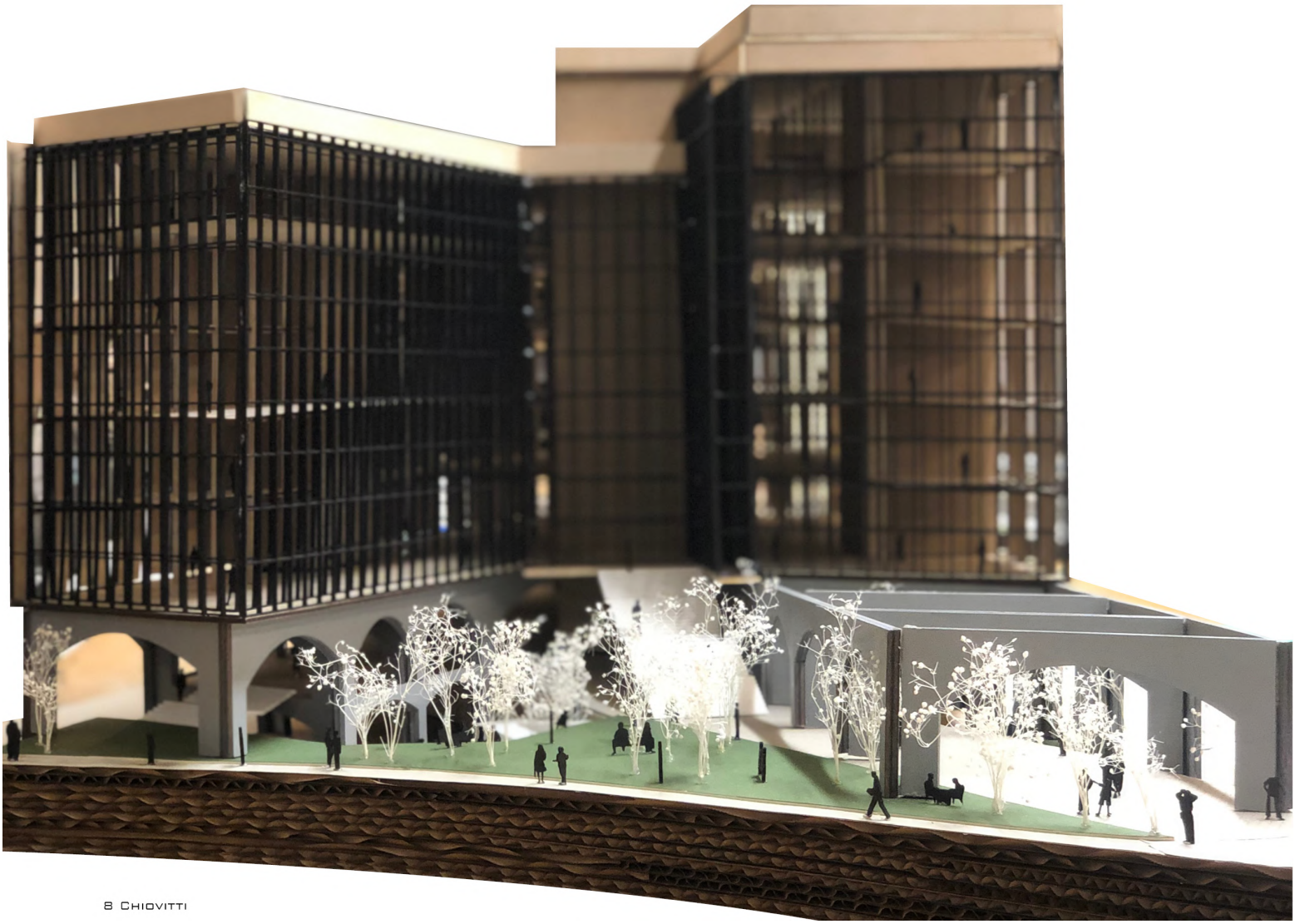
King Post Cable

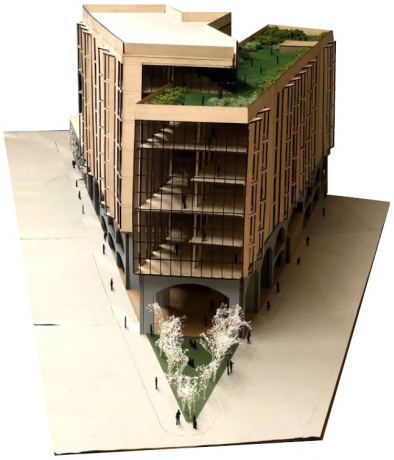


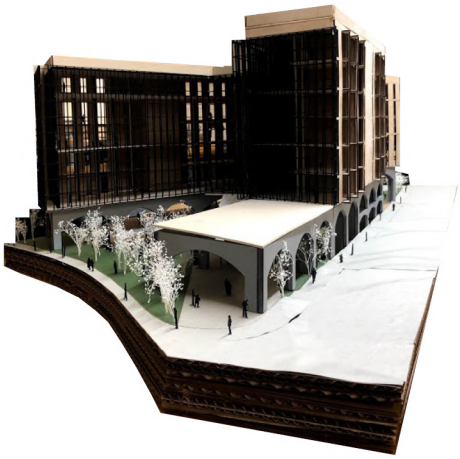
Green Roof

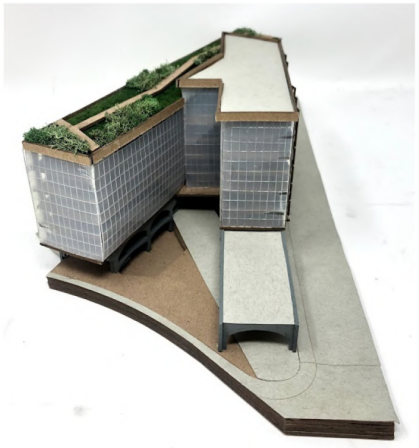




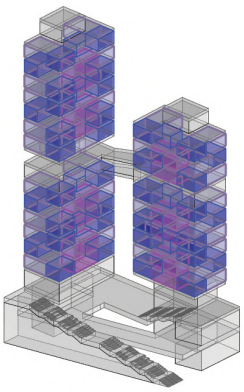




TRANSFORMER FOCUSES ON DEVELOPING WAYS TO MAKE THE LIVES OF MEDICAL COMMUNITY MEMBERS EASIER. WITH THE USE OF KINETIC ARCHITECTURE, THE BUILDING CREATES A LIVING SPACE WHICH CAN BE EXPANDED AND COMPACTED AT THE RESIDENCE DESIRE. A RESIDENT CAN COMPACT THEIR APARTMENT WHEN THEY LEAVE FOR THE DAY AND THEN EXPAND UPON THEIR RETURN. FROM THE OUTSIDE PEOPLE CAN SEE THE BUILDING COME TO LIFE WHEN RESIDENTS ARE USING THE SPACES. THE BUILDING GIVES BACK TO THE COMMUNITY BY BUILDING UP INSTEAD OF OUT. THE FIRST FLOOR CONTAINS A LARGE FLEXIBLE MARKET AREA AND PUBLIC PARK ON THE SECOND FLOOR. THIS ALSO ALLOWS CONVENIENCE FOR THE RESIDENTS WHO DO NOT HAVE THE TIME TO RUN A LOT OF ERRANDS.

MEDICAL COMMUNITY DAILY ROUTINE

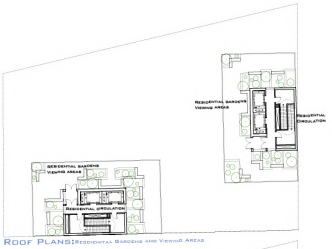
THE LIFE OF MEMBERS OF THE MEDICAL COMMUNITY INVOLVES LONG HOURS AND DIFFICULT TASKS THROUGH THE DAY. DEPENDING ON THE INDIVIDUALS STANDINGS THE TASKS OF THE DAILY WORK DAY CHANGES. MEMBERS OF THE MEDICAL COMMUNITY NEED TO BE ABLE TO CARING, UNDERSTANDING, NON-JUDGMENTAL AND HAS A STRONG ABILITY TO EMPATHIZE WITH PATIENTS FROM ALL WALKS OF LIFE. HAVE THE ABILITY TO DEAL WITH THE SICK AND INJURED AND THEIR FAMILIES ON A DAILY BASIS, AND THEY NEED TO BE ABLE TO SHOW THEM THAT THEY TRULY CARE ABOUT THEIR SITUATIONS.

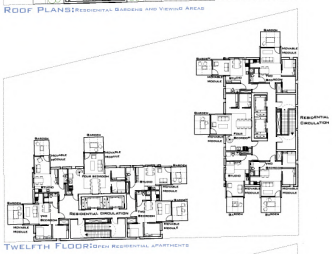


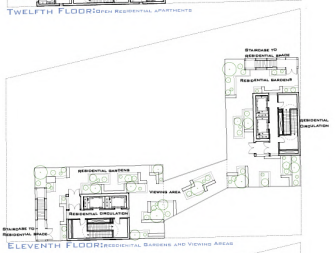
RESIDENTIAL CONFIGURATION

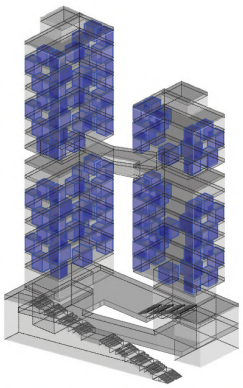
THE THREE TYPES OF APARTMENT ARE ARRANGED AND SHIFTED EACH LEVEL TO ALLOW NO OVER HANGS OF THE MOVABLE MODULES. THE CORNERS ALSO SHIFT ORIENTATION AND THE OPENING DIRECTION.

- ONE BEDROOM
- TWO BEDROOM
- FOUR BEDROOM
- BUILDING MASS
- FLOORS


ROOF PLANS|RESIDENTIAL GARDENS AND VIEWING AREAS


TWELFTH FLOOR|OPEN RESIDENTIAL APARTMENTS

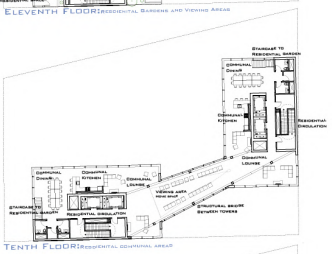

ELEVENTH FLOOR|RESIDENTIAL GARDENS AND VIEWING AREAS

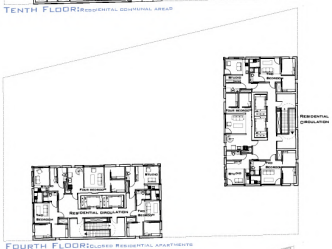


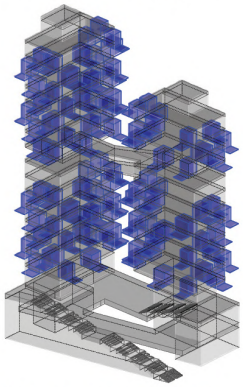
CLOSED TOWER UNITS

DIAGRAM SHOWING THE TOWERS IN "CLOSED MODE" TO HIGHLIGHT THE TOWERS TRANSFORMATION PROCESS.

MODULES FLOORS BUILDING MASS


TENTH FLOOR|RESIDENTIAL COMMUNAL AREAS

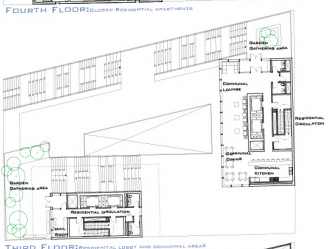

FOURTH FLOOR|CLOSED RESIDENTIAL APARTMENTS

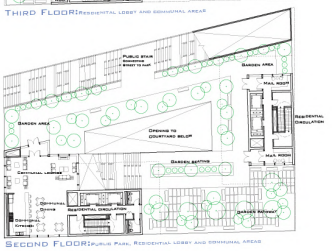


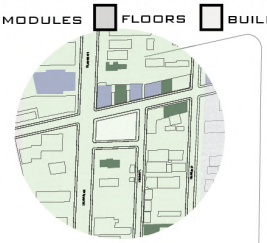
OPEN TOWER UNITS

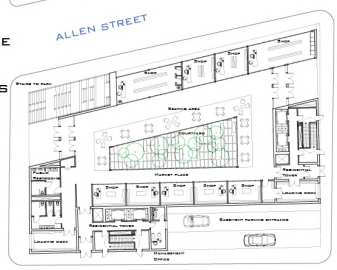
DIAGRAM SHOWING THE TOWERS IN "OPEN MODE" TO SHOWCASE THE TRANSFORMATIVE NATURE THE BUILDINGS GO THROUGH.

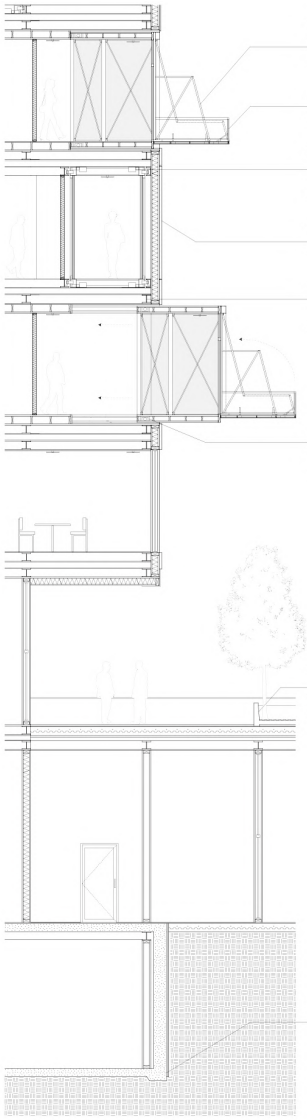
MODULES FLOORS BUILDING MASS

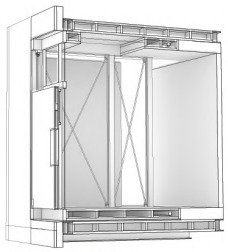

THIRD FLOOR|RESIDENTIAL LOBBY AND COMMUNAL AREAS


SECOND FLOOR|PUBLIC PARK, RESIDENTIAL LOBBY AND COMMUNAL AREAS



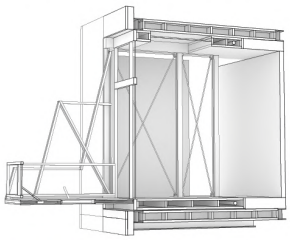






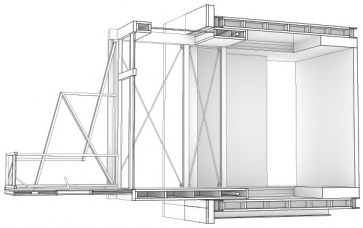
MACHINE CLOSED

WITH THE BALCONY AND SLIDE OUT BOTH CLOSED, ALLOWS THE INDIVIDUAL TO SAVE ON UTILITY EXPENSES WHEN NOT HOME OR HAVE LITTLE TO NO COMPANY VISITING.



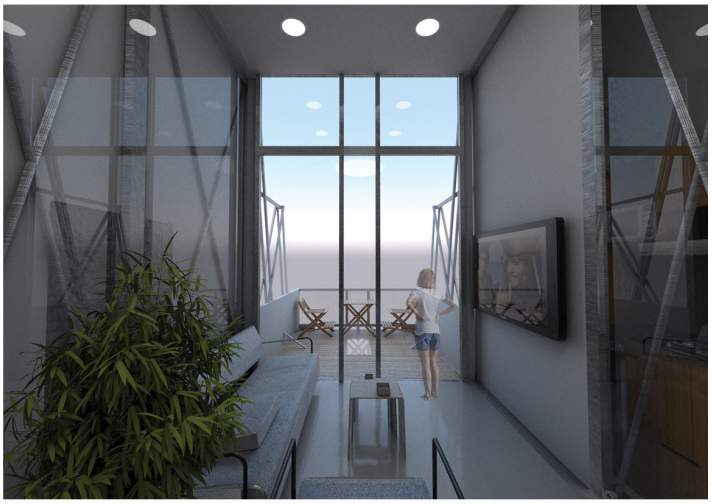
MACHINE HALF OPEN

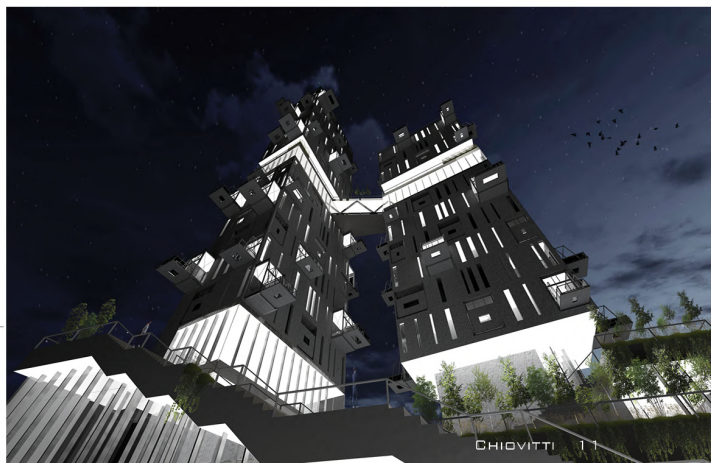
THE BALCONY DROPPED DOWN AND SLIDE OUT CLOSED, ALLOWS THE INDIVIDUAL TO HAVE THE ABILITY TO EXPERIENCE THE OUTDOORS FROM THE COMFORT OF THEIR APARTMENT.

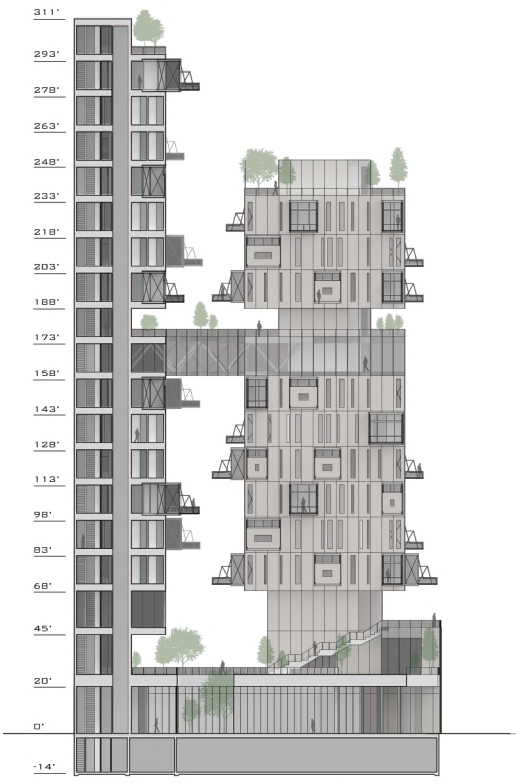


MACHINE OPEN

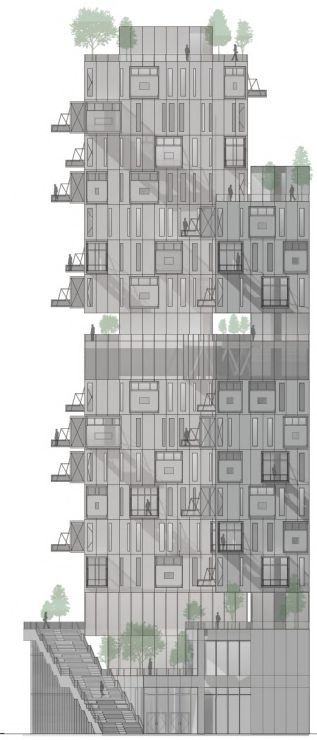
With the Balcony and slide out both open, the individual can now create more space to create comfortable living conditions when guest are over.



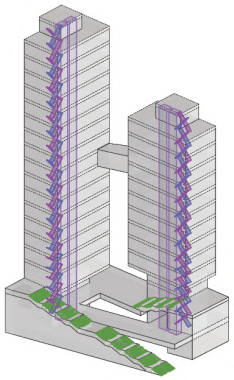




EAST-WEST SECTION



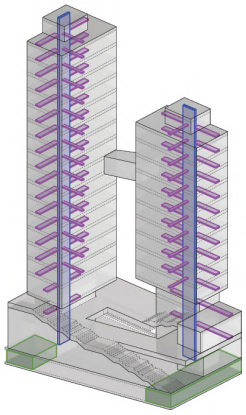
WEST ELEVATION



CIRCULATION

THE MAIN CIRCULATION AND EGRESS OCCURS IN THE TOWERS CORE, INCLUDING TWO ELEVATORS AND TWO SCISSOR STAIRS. THE TOWERS CAN BE ACCESS THROUGH THE MARKET PLACE AND THE STREET. THE MARKET PLACE HAS A LARGE INNER SIDEWALK WHICH FOLLOWS THE STREET AXIS. THE PUBLIC GREEN STAIR SPACE HAS A GRAND STAIR WHICH CONNECTS THE SPACE TO THE STREET AND THE PUBLIC.

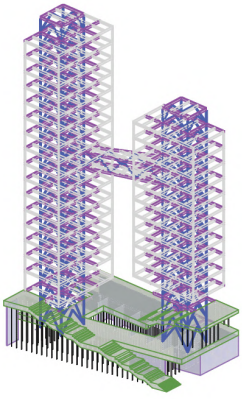
- SCISSOR STAIR 1
- SCISSOR STAIR 2
- GREEN STAIRS
- BUILDING MASS
- ELEVATOR CORES



MECHANICAL

THE INTEGRATION OF THE SERVICES BEGINS IN THE BASEMENT WITH THE MECHANICAL PLANT ROOMS. THESE MECHANICAL PLANT ROOMS THEN DISTRIBUTE SERVICES THROUGH THE CORE OF EACH TOWER. THE VERTICAL SHAFTS ARE LOCATED WITH THE CORE, THEN ON EACH FLOOR HORIZONTAL SHAFTS CARRIES THE SERVICES TO EACH UNIT.

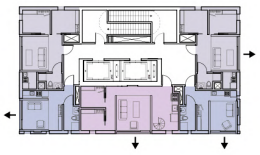
- VERTICAL SHAFTS
- HORIZONTAL SHAFTS
- MECHANICAL ROOMS
- VERTICAL SHAFTS
- FLOORS

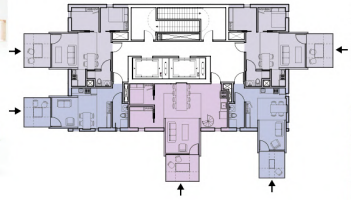


STRUCTURAL

THE STRUCTURE OF THE TOWERS IS DEVELOPED WITH A TRUSS CORE SUPPORTING REINFORCED CONCRETE FLOORS,ADDITIONAL STABILITY IS POSSIBLE THROUGH THE CONNECTING BRIDGE BETWEEN THE TOWERS. THE PUBLIC AND GREEN SPACE IS DEVELOPED THROUGH THE USE OF GREEN ROOFING TECHNIQUES AND SUPPORTED THROUGH SHEAR WALLS AND COLUMNS.

- STEEL TRUSS
- PRIMARY SUPPORT
- GREEN ROOF SYSTEM
- SECONDARY SUPPORT
- FLOORS

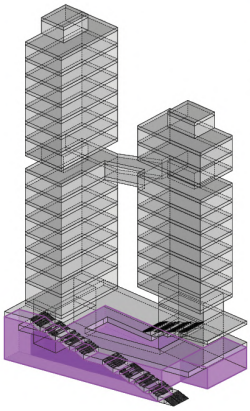




MOVEMENT PLANS

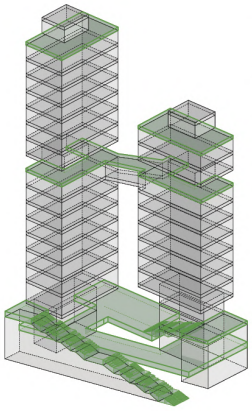
Each apartment type has different reasons for movement, but all units allow passive heating and summer breezes. The living modules allow the resident a view of the area and the starry night sky. Collapsible garden spaces allow the residents to have individual or private outdoor space. The movement within the apartments have social benefits through expanding the space for others and providing a formal dining setting. Studio apartment also have to be open to allow the space to transform into a bedroom through a murphy bed.

- ONE BEDROOM
- TWO BEDROOM
- FOUR BEDROOM



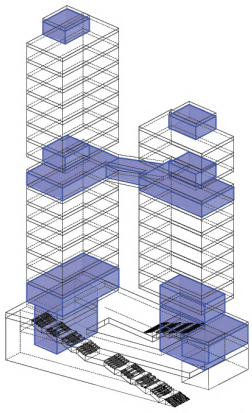
PUBLIC SPACE

The ground floor consists of a large flexible market place, which is open to the public and residents. This space provides convenience for the residents and space for local businesses to flourish.



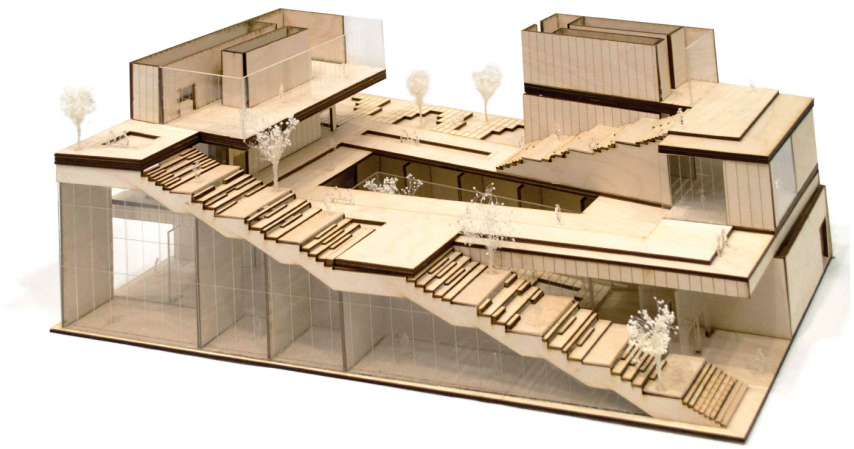
GREEN SPACE

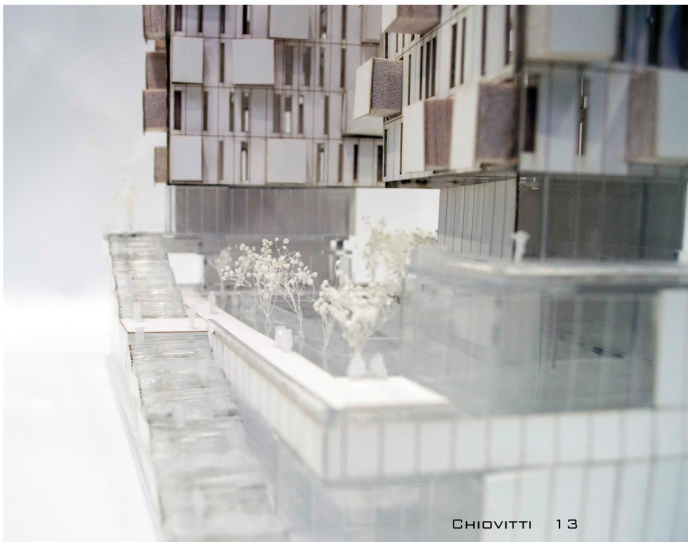
The Green areas consist of a large public park for residents and the community which is connected to the street by a green interactive stair. There are also private green areas for residents located on the structural bridge and the roofs.



COMMUNAL SPACE

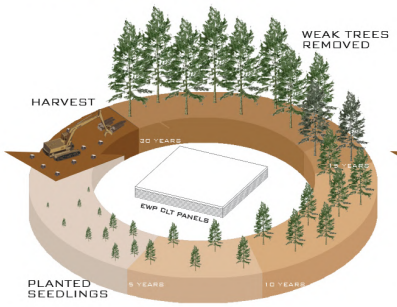
Communal areas provide entrances from the streets and green spaces. The residents have access to large communal lounges, viewing areas, kitchen and dining spaces, which are very flexible.



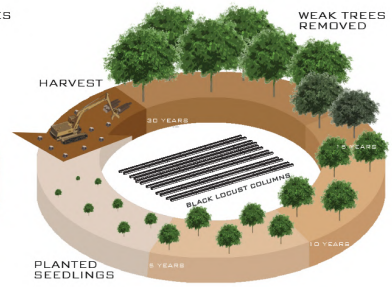


WOOD URBANISM'S 40 BERKELEY, A REDEVELOPED BOSTON PUBLIC HOUSING PROJECT LOCATED IN THE SOUTH END IS A PROJECT THAT ACTS AS A CATALYST FOR SUSTAINABLE URBAN DEVELOPMENT. BY ANALYZING DIFFERENT TREE LIFE CYCLES AND THIER EFFECTS ON WOOD CONSTRUCTION HERE IN BOSTON THE PROJECT WAS ABLE TO TAKE ROOT ORGANICALLY ALONGSIDE THE SURROUNDING URBAN CONTEXT. THROUGH THE USE OF CLT PANELS AND GLULAMINATED COLUMNS AND BEAMS INTERLOCKING WITH ONE ANOTHER A TIMBER BUILDING WAS FORMED. THIS DESIGN OF A MIXED USED HYBRID WOOD BUILDING FEATURING BOTH COMMERCIAL AND RESIDENTIAL UNITS ALLOWS FOR A MORE DIVERSE WAY OF LIVING WHILE ALSO ACTIVATING THE SITE AT DIFFERENT TIMES THROUGHOUT THE DAY AND YEAR BASED ON PROGRAMMATIC NEEDS. THE BUILDING UTILIZES THE EXISTING BUILDINGS FOOTPRINT WHILE THEN EXPANDING OUTWARD AND UPWARD. THE ADDITIONS WERE DONE IN SUCH A WAY TO CAPITALIZE ON BOTH THE THERMAL AND WIND CONDITIONS FOUND ON SITE TO CREATE A SUSTAINABLE BUILDING MODEL.

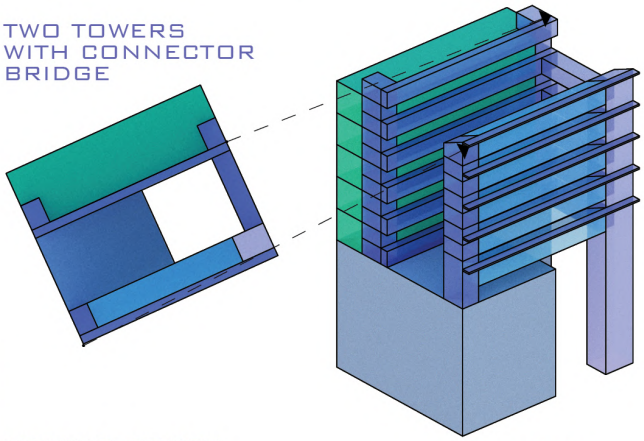
EASTERN WHITE PINE HARVEST CYCLE



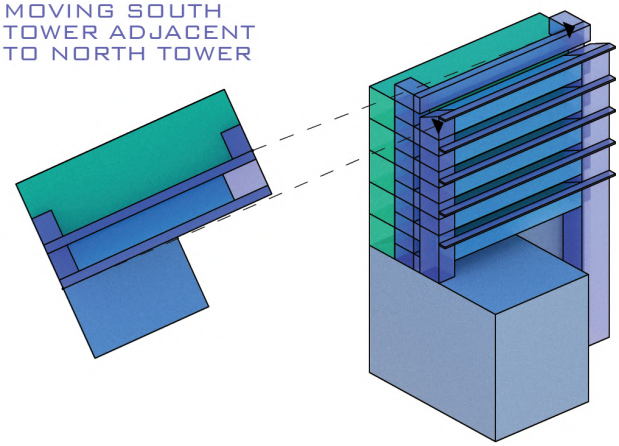
BLACK LOCUST HARVEST CYCLE



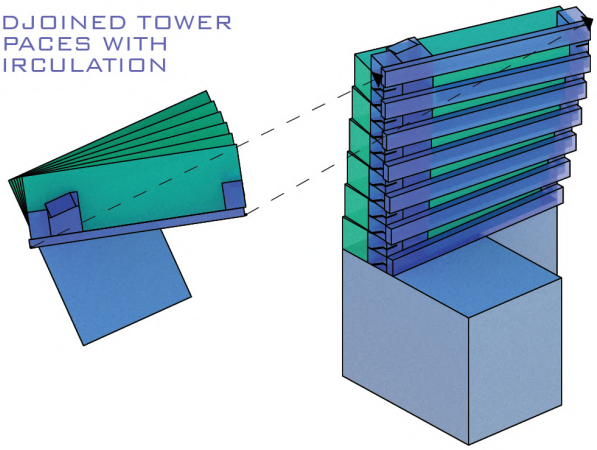
TWO TOWERS WITH CONNECTOR BRIDGE

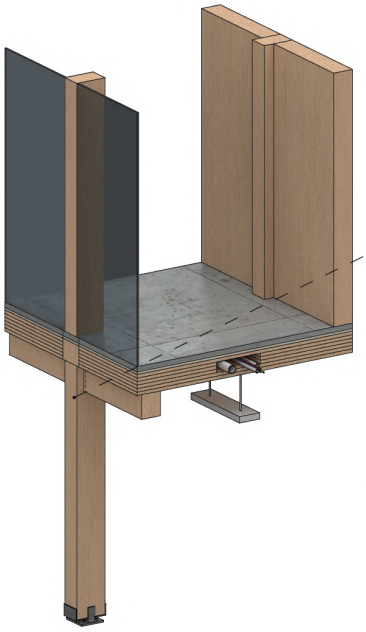


MOVING SOUTH TOWER ADJACENT TO NORTH TOWER

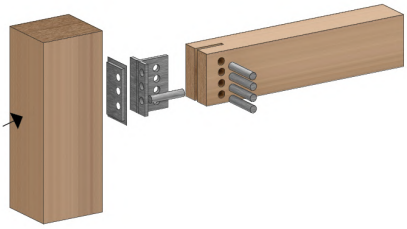


ADJOINED TOWER SPACES WITH CIRCULATION





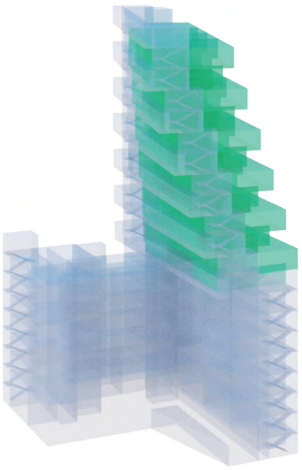
CONSTRUCTION ASSEMBLY



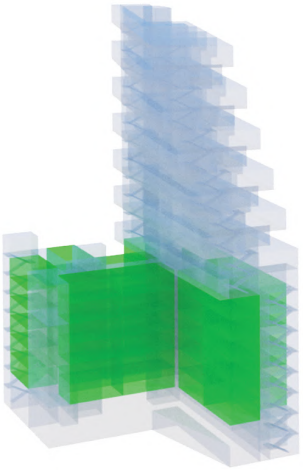
PROGRAM AND MASSING

The existing building now features both studio and loft apartments while the new additions both features 1-2 bedroom double story units. The circulation and double height/ skipping of floors allows for both sun to hit the buildings glazing during the winter months while also protecting/shading the glazing during the summer months. this design also blocks the strong cold winter north western wind while capitalizing on the strong summer south western wind for passive cooling comfort.

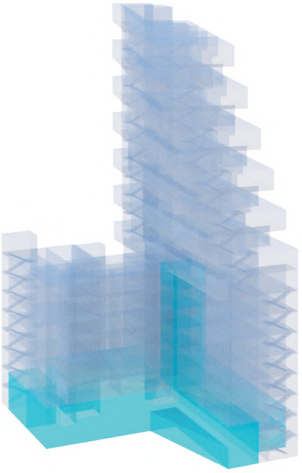
1-2 BEDROOM APARTMENTS



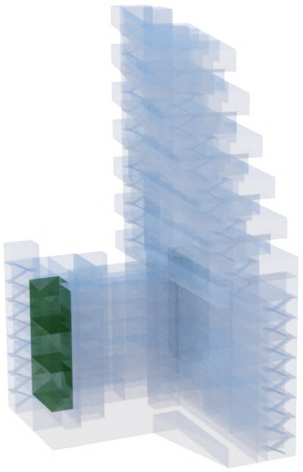
STUDIO APARTMENTS



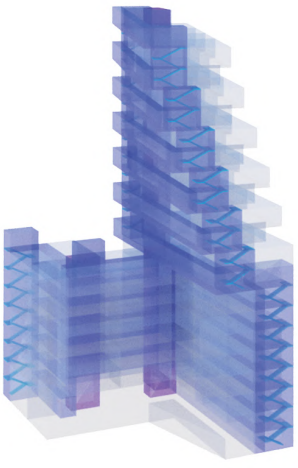
COMMUNITY SPACES



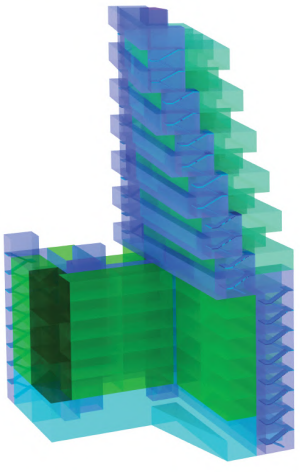
LOFT APARTMENTS



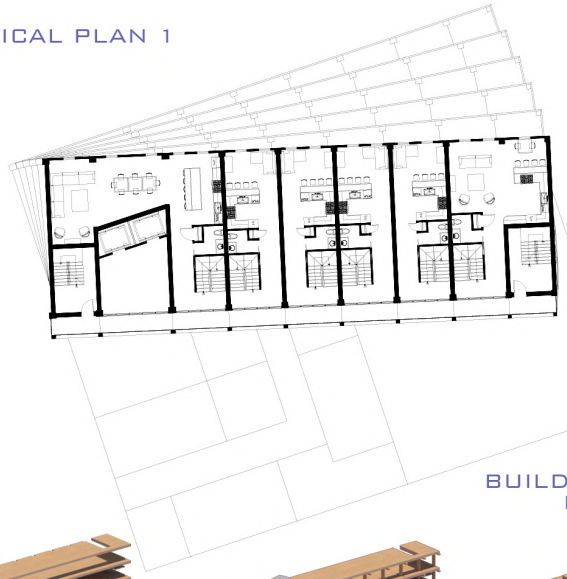
CIRCULATION & EGRESS



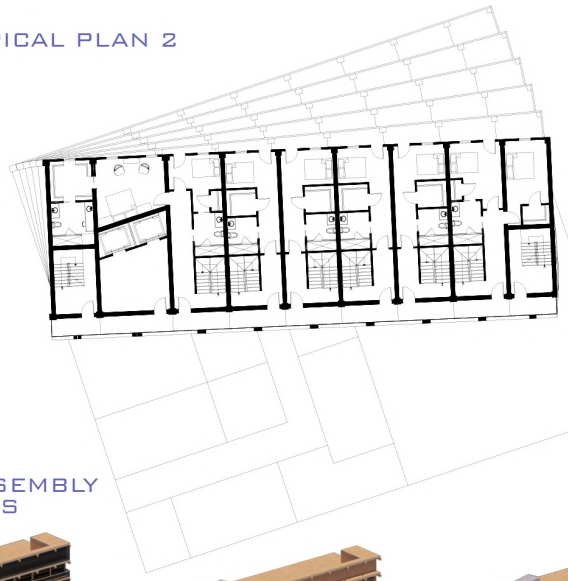
BUILDING MASSING



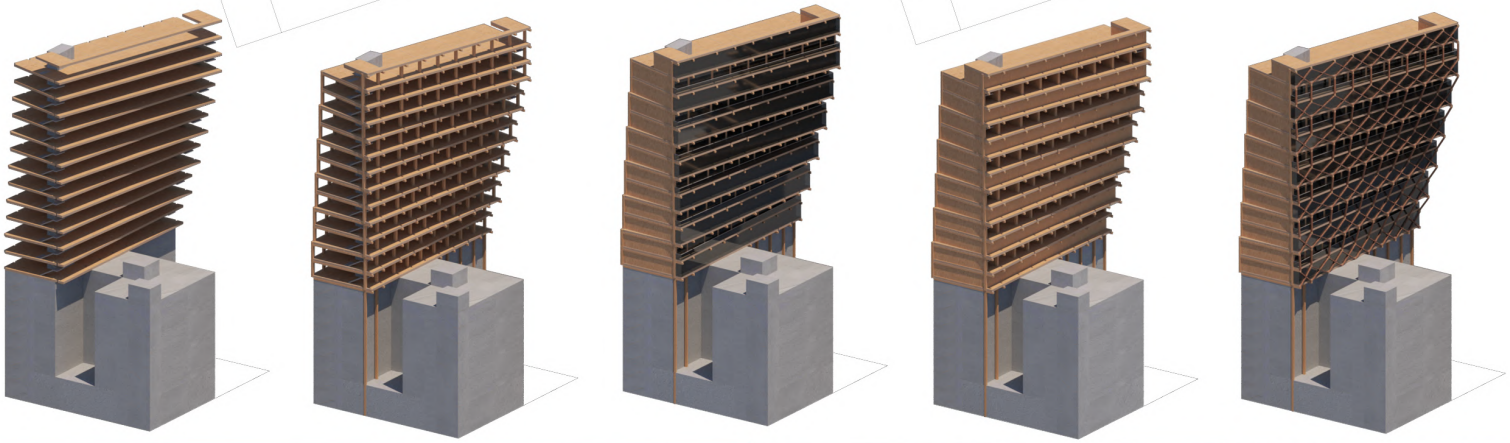
TYPICAL PLAN 1

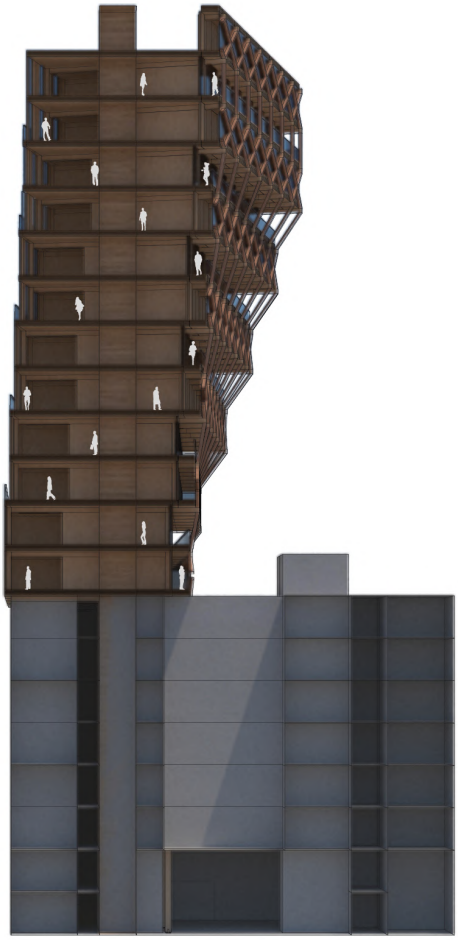


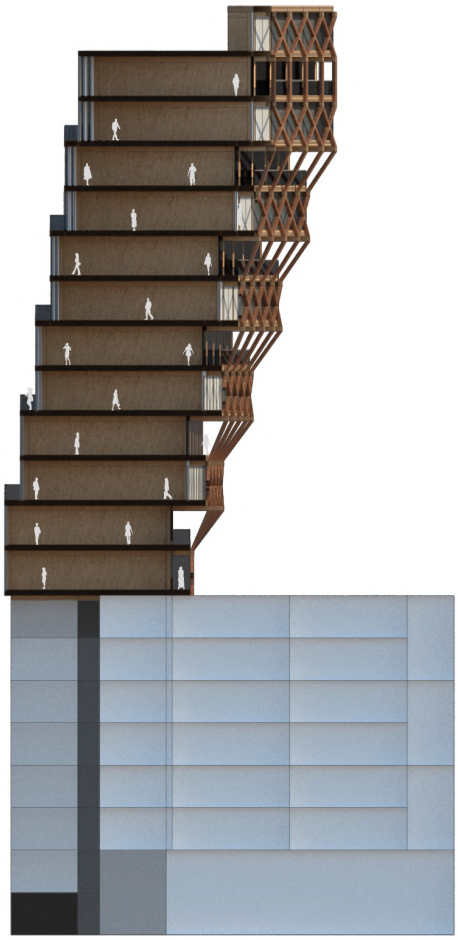
TYPICAL PLAN 2



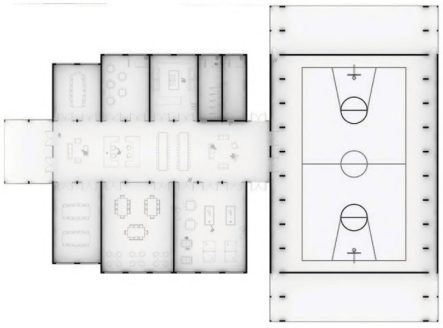
BUILDING ASSEMBLY PROCESS

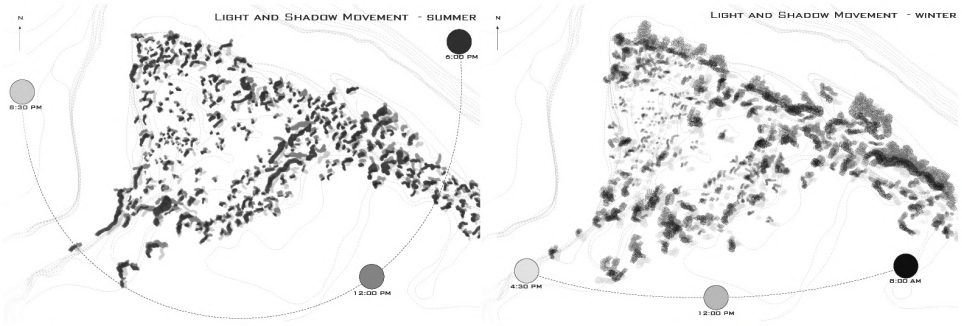


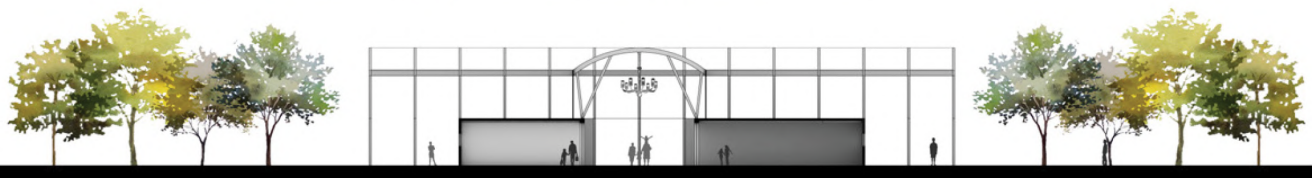




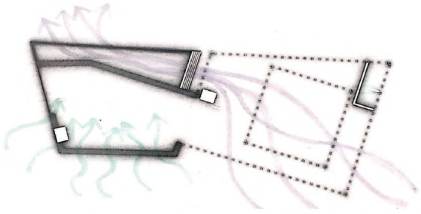
SENECA BLUFFS BOYS & GIRLS CLUB'S CONCEPT REVOLVES AROUND THE ELEMENT OF LIGHT AND ITS INTERACTION WITH HUMANISTIC EMOTIONS, WHILE EXPERIENCING THE SPACE AND THE NATURE ON THE HEAVILY FORESTED SITE OF SENECA BLUFFS. LIGHT CAN BE CONSIDERED TO BE MANY THINGS, BUT MOST CAN SHARE THE VIEW THAT LIGHT: DEFINES ZONES AND CREATES BOUNDARIES, EXPANDS AND ACCENTUATES SPACE IN ROOMS, AND LASTLY CREATE LINKS AND DELINEATE ONE AREA FROM ANOTHER. WITH ALL OF THESE IDEAS IN MIND THE FORMATION OF PROGRAM FOR THE BOYS AND GIRLS CLUB AT SENECA BLUFFS COMES INTO PLAY WITH REGARDS TO THE CREATION OF A DAY LIGHTING GRADIENT THAT DEVELOPS AROUND SEVERAL LIGHTING CONDITIONS BASED OFF OF PREEXISTING SOLAR SITE CONDITIONS. THIS DESIGN ALSO ALLOWS THE SITE TO BE INTEGRATED INTO THE INDOOR AND OUTDOOR PROGRAMS FOR CHILDHOOD ACTIVITIES.





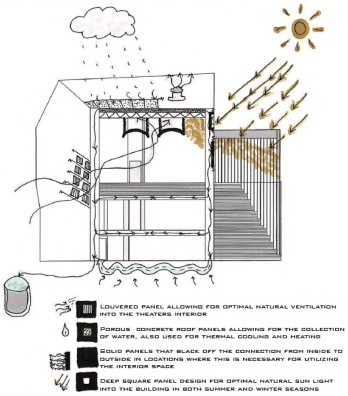


DUAL POROSITY'S CONCEPT IS EXPRESSED THROUGH SMALL OPENINGS AND PASSAGES THAT ALLOW ELEMENTS TO PASS THROUGH. THIS COMPLEXITY LEADS TO AN ARCHITECTURE BEING DRIVEN BY ITS INTERIOR AND ITS CONNECTION TO THE CITY'S PUBLIC SPACES. POROUS MORPHOLOGY WOULD HAVE POSITIVE EFFECTS AT AN URBAN AND BUILDING SCALE: BETTER AIR AND LIGHT CIRCULATION,BETTER ACCESSIBILITY AND VISIBILITY AT AN URBAN SCALE,AND BETTER COMMUNICATION BETWEEN INTERIOR AND EXTERIOR AT A BUILDING SCALE. THE DESIGN INCORPORATES ACTIVE AND PASSIVE BUILDING SYSTEMS, INCLUDING PHOTOVOLTAICS, SUN-SHADING SCREENS, RAINWATER COLLECTION, AND AN EVAPORATIVE COOLING SYSTEM. PANELS OF THE FACADE CAN ALSO BE OPENED TO ALLOW PATRONS OR PERFORMERS TO ENTER INTO THE AUDITORIUM OR STAGE DIRECTLY FROM THE OUTSIDE OF THEM.



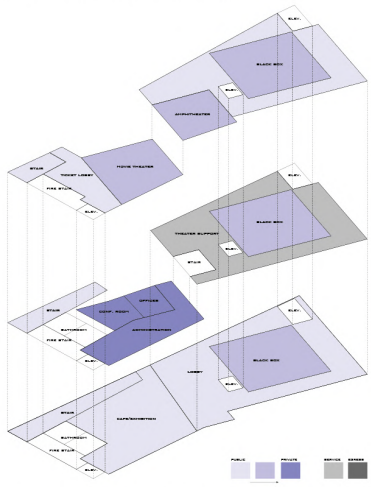
POROSITY'S FUNCTIONALITY IS ASSOCIATED WITH CIRCULATION AND FILTRATION WITH RESPECT TO THE EXTERNAL ENVIRONMENT. PURPLE SHOWING HUMAN CIRCULATION AND GREEN SHOWING AIR MOVEMENT THROUGH THE STRUCTURE/FACADE.

PROJECTION THEATER SPACE SYSTEMS:

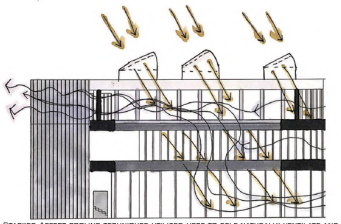


BLACK BOX THEATER SPACE SYSTEMS:

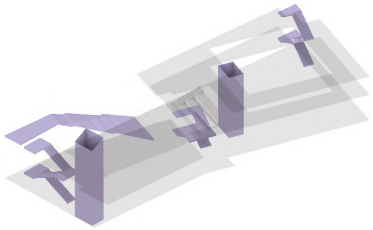
EXPLODED PROGRAM AXON DIAGRAM:

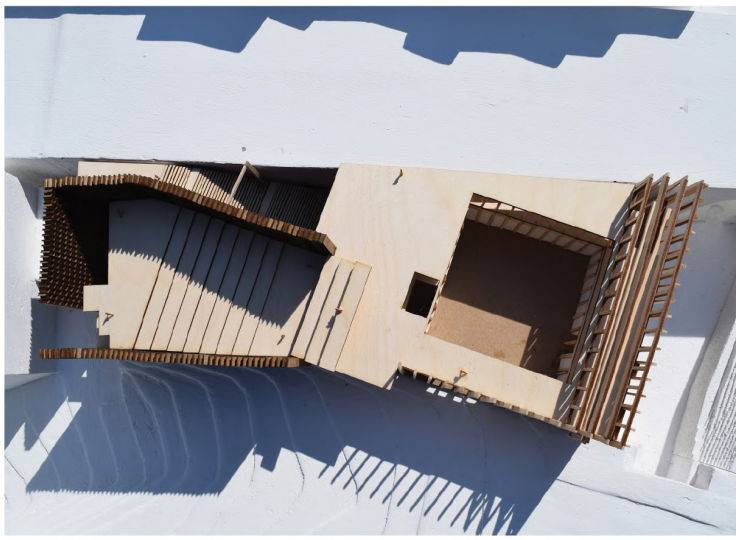


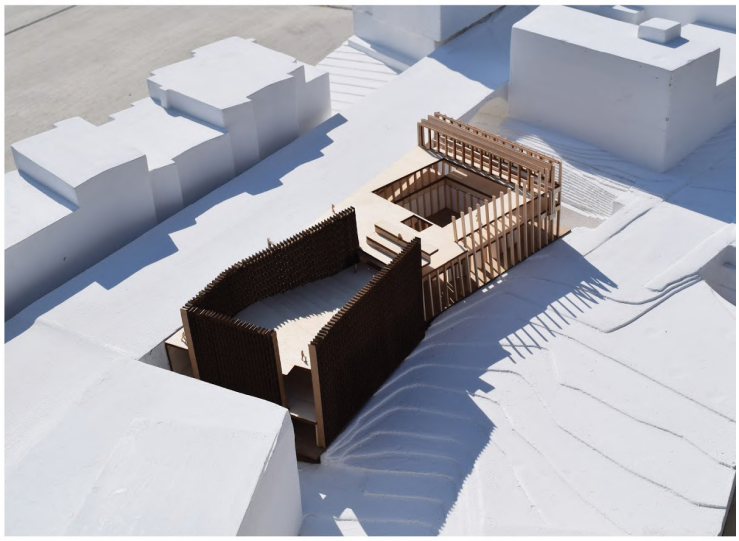
EGRESS AND CIRCULATION AXON DIAGRAM:

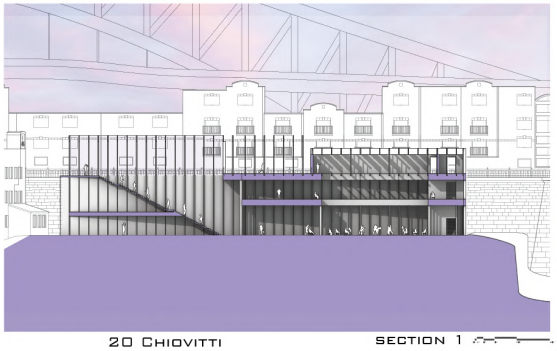


STACKED AFFECT COOLING TECHNIQUES UTILIZED HERE TO SELF NATURALLY VENTILATE AND COOL THE BLACK BOX THEATER AND ITS NEARBY THEATER SUPPORT SPACES WITH THE AIR MOVING FROM THE SWINGING PANELS EXTERIOR AND INTERIOR ENVELOPE AND THEN RISING TO THE TOP OF THE CEILING WHERE IT IS THEN PUSHED OUT TOWARDS THE SIDES OF THE WALLS AND BACK TO THE OUTDOORS.









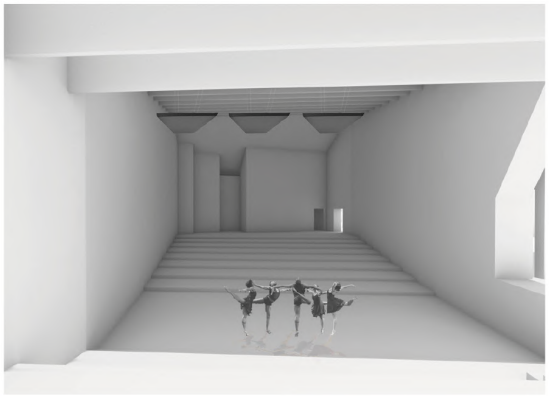
SECTION 1

SECTION 2

SECTION 3

Lobby Space Looking towards Black Box Theater

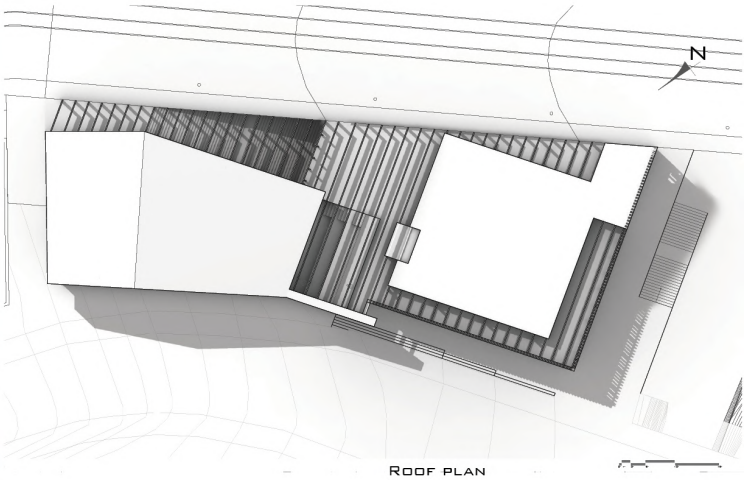
View Of Ground Floor of Black Box Theater from Mezzanine level



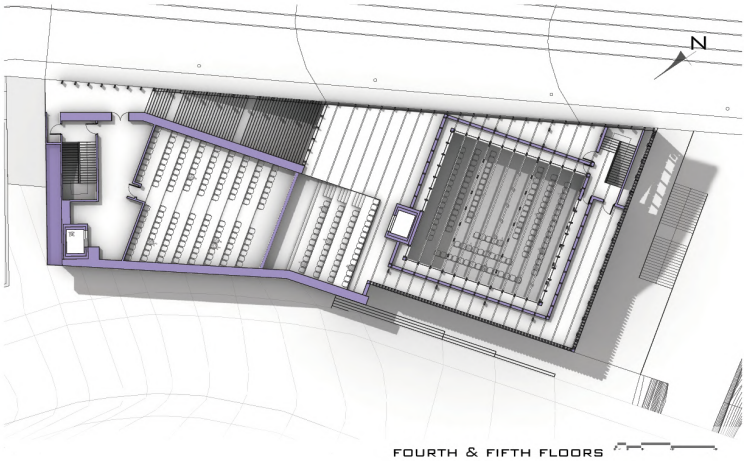
View Of Ground Floor of Black Box Theater from Mezzanine level

front corner facade exterior render highlighting the porous nature of the design

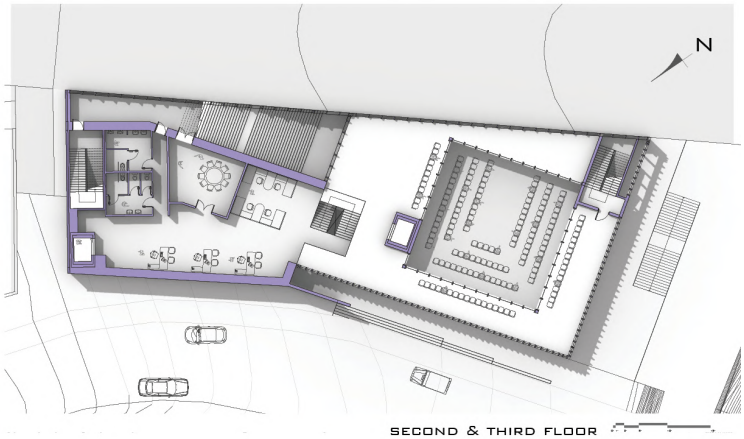
section 4



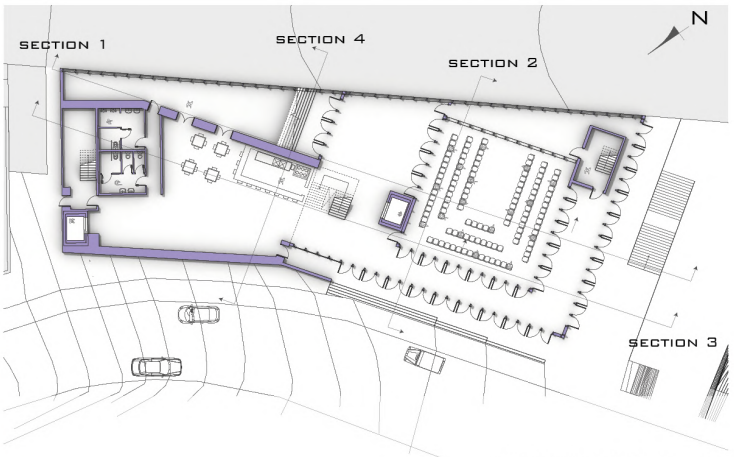
Roof plan



fourth & fifth floors

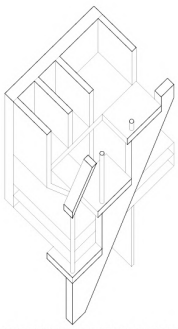


second & third floor



first floor

HOUSE FOR A COPY EDITOR: THE START OF THIS PROJECT BEGAN WITH BEING ASSIGNED AN ARCHITECTURAL ARCHETYPE OF STAIRS, AND THEN HAVING TO VISIT THE FARGO HOUSE IN BUFFALO, NY TO LOCATE A FRAGMENT IN WHICH THIS GIVEN ARCHETYPE WOULD BE CLEARLY VISIBLE THROUGHOUT THE CHOSEN MASS. THIS MULTI- STEP PROJECT FOCUSED ON THE SPACE AND COMPONENT ELEMENTS OF A CHOSEN FRAGMENT WHICH WOULD BE CHANGED THROUGH MULTIPLE TRANSFORMATIONS AND COMBINATIONS WITH COLLABORATION WITH OTHER STUDENTS FRAGMENTS. AFTER CHOOSING A ONE FOOT CUBIC FRAGMENT, THE OBJECTIVE WAS WITH A PARTNER CUT AND PASTE FIFTY PERCENT OF YOUR OWN WORK WITH THAT OF YOUR PARTNERS TO COME UP WITH A LAYERED AXON THAT WOULD ALLOW BOTH DRAWINGS TO HAVE ITEMS OF INTEREST AND SPACIAL ZONES. AFTER INTRODUCING NEW LINE WORK, THUS REPAIRING THE "CUT UP" DRAWING, RENDERING THE COLLAGED AXON BECAME THE NEXT STEP, ALLOWING THE VIEWER TO DIFFERENTIATE THE DIFFERENT SPATIAL ZONES WITHIN THE DRAWING. THE NEXT STEP WAS TO MATERIALIZE THE THREE-DIMENSIONAL SPACE OF THE AXONOMETRIC DRAWING, BY CREATING A WELL EXECUTED WOODEN MODEL THAT FITS IN A ONE FOOT CUBIC VOLUME.



AXON DRAWING OF FRAGMENT

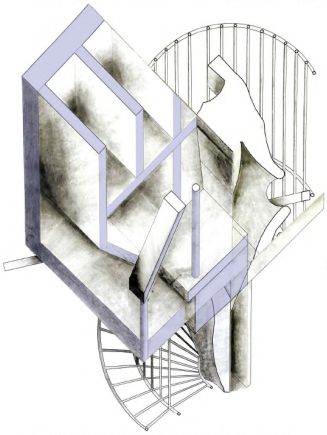
HOUSE SAMPLE OF STAIRS

WOODED MODEL: ARTIFACT

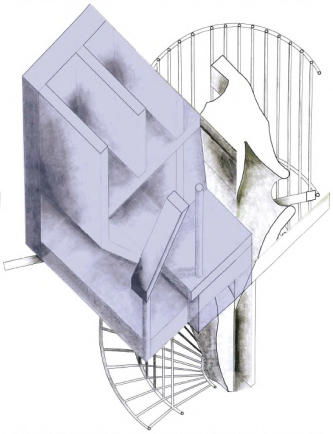
FRONT ELEVATION

BACK ELEVATION

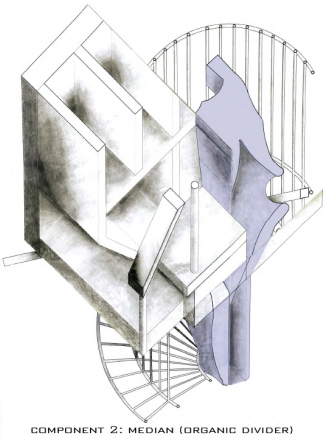
MODEL DIAGRAMS DEPICTING MAJOR SPATIAL ZONES AND COMPONENTS



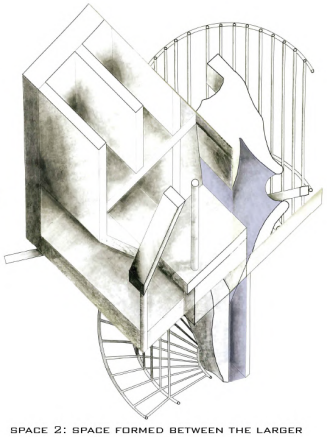
COMPONENT 1: CELLULAR COMPARTMENTS



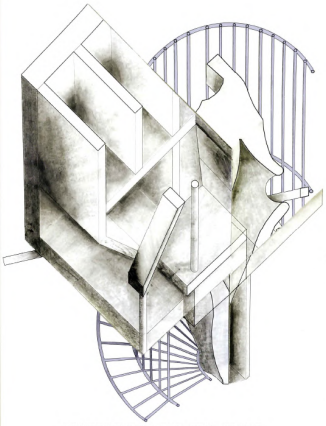
SPACE 1: INORGANIC SPACE FORMED BY CELLULAR WALLS AND FLOORS ALLOWING FOR SPACES WITHIN SPACES



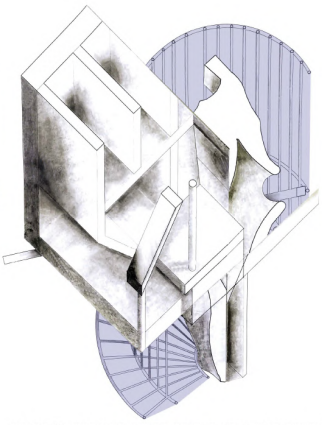
COMPONENT 2: MEDIAN (ORGANIC DIVIDER)



SPACE 2: SPACE FORMED BETWEEN THE LARGER PRIMARY SPACES THAT ACTS AS A MEDIAN BETWEEN EACH SPACE, WITH THE SPACE HAVING BOTH OPEN AND CLOSED QUALITIES TO IT

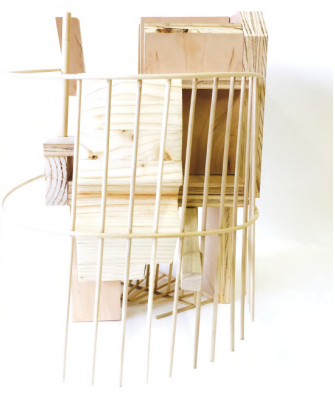


COMPONENT 3: SKELETAL FRAME



SPACE 3: ORGANIC SPACE FEATURING A TWO STORY OPENNESS QUALITY, WITH IT BEING ENCLOSED BY A SKELETAL WALL WRAPPING AROUND THE ENTIRE CYLINDRICAL SPACE

RIGHT ELEVATION



LEFT ELEVATION

THIS PHASE OF THE PROJECT FOCUSED ON TRANSFORMING THE FINAL FOAM MODEL ITERATION, CONSTRUCTED FROM THE PREVIOUS EXERCISE/PHASE, INTO A SITE MEASURING 16' WIDE, BY 20' DEEP, BY 32' TALL, BY COMMITTING THE ACTIONS OF CUTTING AND RECOMPOSING THE EXISTING MODEL. THIS MODEL WOULD BE THEN TRANSFORMED TO BE ABLE TO FIT WITHIN THE NEW SITE BOUNDARIES AS WELL AS BEING REDESIGNED TO FIT THE NEWLY ACQUIRED PROGRAM OF BEING A HOUSE FOR AN IN HOUSE COPY EDITOR, WHICH FEATURES AN EXPANSIVE LIBRARY AND READING ROOM. THE NEXT STEP OF THE PROCESS WAS TO CREATE A FINAL FOAM ITERATION MODEL FOR THIS PHASE WHICH WAS THUS CREATED BY MAKING A SINGLE VERTICAL CUT THROUGH THE SKELETAL FRAME AND SHIFTING/ROTATING IT TO THE TOP OF THE MODEL, IN ORDER TO CREATE A GLASS LIKE ROOF TOP READING LOUNGE FOR THE COPY EDITOR TO ENJOY. THE FINAL PHASE OF THE PROJECT WAS TO CONSTRUCT A FINAL WOODEN HOUSE MODEL, WHICH WOULD SHARE THE SAME CONCEPTS FROM THE FOAM HOUSE MODEL; WHILE ALSO IMPLEMENTING A PATH OF CIRCULATION WHICH FOLLOWS THE SAME CONTOUR OF THE MODELS FORM WITH IT WINDING ALONG THE CIRCULAR FRAME AND WEAVING IT IN AND OUT OF THE CELLULAR LIBRARY SPACE TILL IT REACHES THE ROOF TOP READING LOUNGE.

HAND RENDERED PLAN DRAWINGS OF A COPY EDITORS RESIDENCE, DRAWN AT 1/2" = 1' SCALE, SHOWING THE LIBRARY AND BOOK STORAGE SPACES ON THE 2ND AND 3RD FLOORS

WOODED MODEL: COPY EDITOR

FRONT ELEVATION

BACK ELEVATION

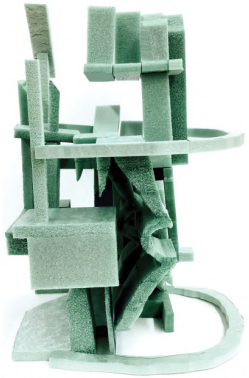
LEFT ELEVATION

RIGHT ELEVATION

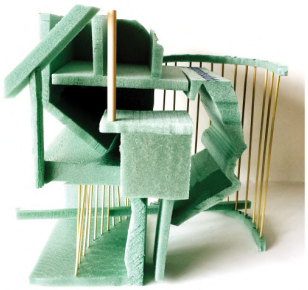
STUDY MODEL 1: COPY, PASTE, SHIFT OF THE SKELETAL FRAME

STUDY MODEL 1: SINGLE VERTICAL CUT & PLACING OF CUT PORTION TO THE TOP OF THE MASS, THUS ALLOWING FOR AN EXPANSIVE READING ROOM.

STUDY MODEL 2: COPY & SHIFT OF THE SKELETAL FRAME AND PLANAR CORNER MASS

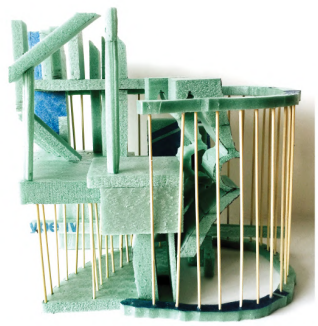


STUDY MODEL 2: SINGLE VERTICAL CUT & PLACING OF CUT PORTION ROTATED ON ITS SIDE, & THEN PLACED ON TOP OF THE MASS, THUS ALLOWING FOR THE SEPARATION FOR BOTH PRIVATE AND PUBLIC SPACE.



STUDY MODEL 3: COPY, PASTE, SHIFT OF ORGANIC MEDIUM (WALL)

STUDY MODEL 3: SINGLE VERTICAL CUT & PLACING OF CUT PORTION ONTO THE OPPOSITE SIDE OF THE MASS, THUS ALLOWING FOR AN ATRIUM LIKE SPACE TO FILTER LIGHT THROUGH THE ENTIRE HOUSE.

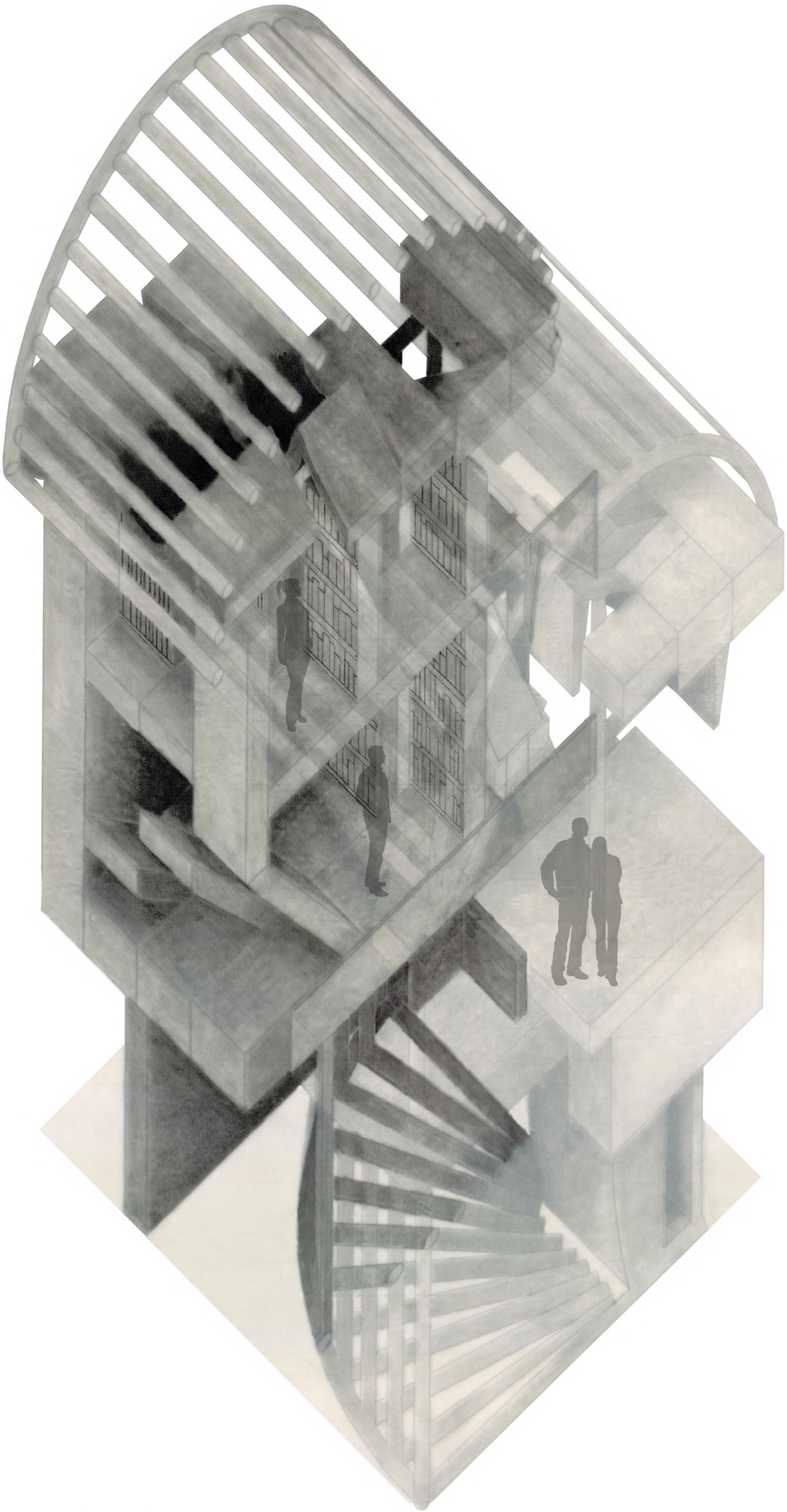


FINAL FOAM MODEL SHOWING THE ENHANCED SPATIAL QUALITIES THROUGH THE ACTION OF MAKING FOUR EVENLY SPACED HORIZONTAL CUTS THROUGH THE ENTIRE MODEL AND THEN SHIFTING EACH CUT ONE INCH TO THE LEFT. THIS SIMPLE YET EFFECTIVE ACTION OF CUTTING AND SHIFTING ALLOWED FOR THE BETTER DEFINITION OF THE MODELS SPATIAL ZONES.

STUDY MODEL 4: SINGLE VERTICAL CUT & PLACING OF CUT PORTION TO THE TOP OF THE MASS, THUS ALLOWING FOR THE CREATION OF A ROOF TOP READING SPACE.

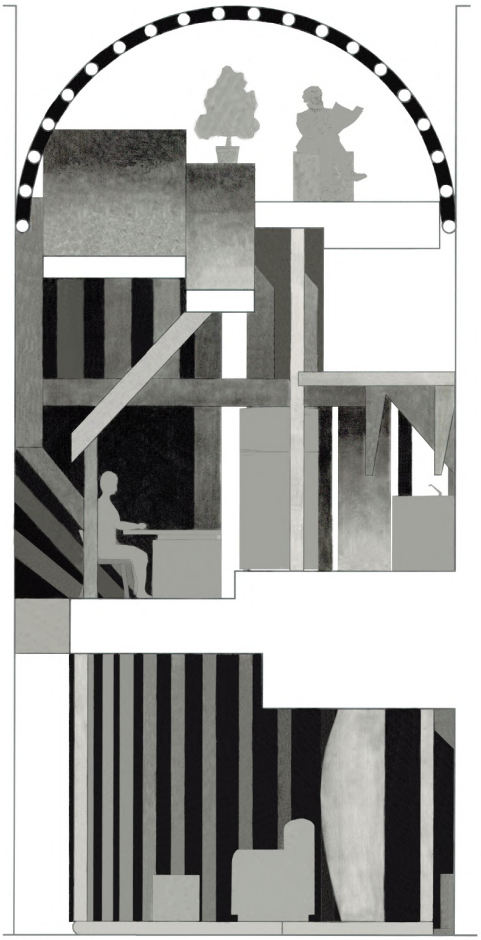
TRANSPARENT SENSATIONAL AXON HAND DRAWING:

COPY EDITORS HOME: DRAWN AT 45* 45*, 1/2"=1' SCALE



RENDERED SECTION CUT DRAWING:

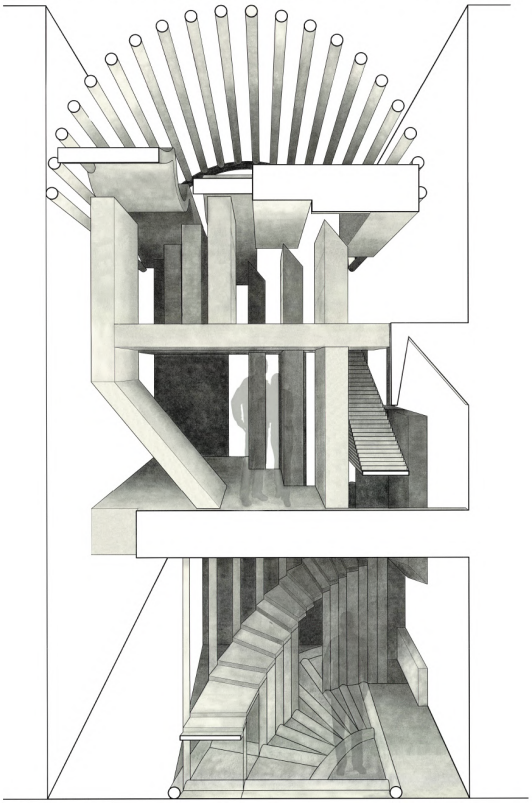
COPY EDITORS RESIDENCE, DRAWN AT 1/2"=1' SCALE



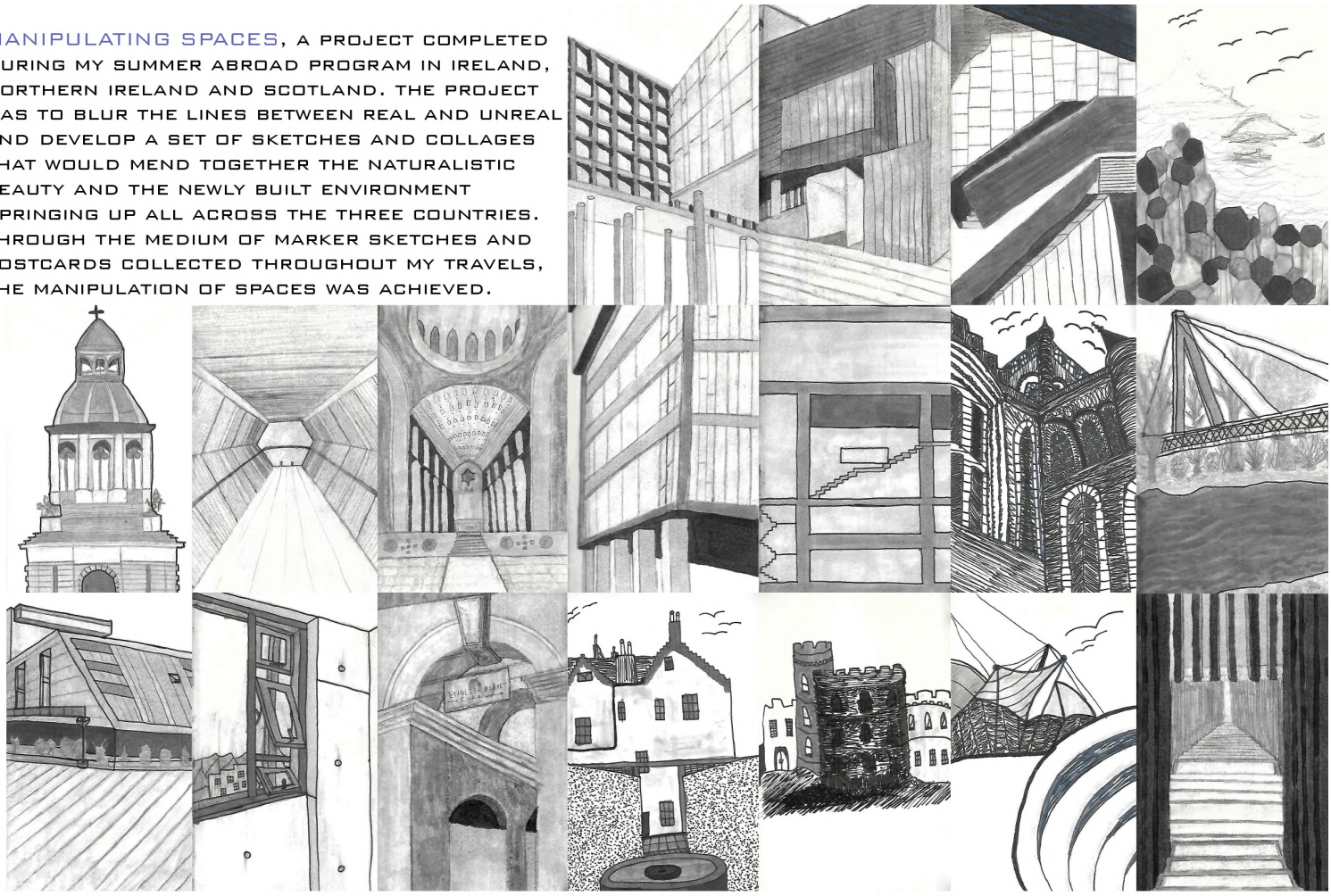
THIS DRAWING IS SHOWING THE PROGRAMS OF THE HOUSE WITH THE LIVING ROOM ON THE BOTTOM FLOOR, AND THE KITCHEN DINING ROOM COMBINATION SPACE ON THE 2ND FLOOR.

SECTIONAL PERSPECTIVE DRAWING:

COPY EDITORS RESIDENCE, DRAWN AT 3/4"=1' SCALE AT 1 PT.

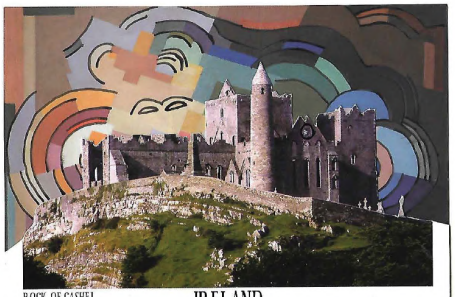


MANIPULATING SPACES, A PROJECT COMPLETED DURING MY SUMMER ABROAD PROGRAM IN IRELAND, NORTHERN IRELAND AND SCOTLAND. THE PROJECT WAS TO BLUR THE LINES BETWEEN REAL AND UNREAL AND DEVELOP A SET OF SKETCHES AND COLLAGES THAT WOULD MEND TOGETHER THE NATURALISTIC BEAUTY AND THE NEWLY BUILT ENVIRONMENT SPRINGING UP ALL ACROSS THE THREE COUNTRIES. THROUGH THE MEDIUM OF MARKER SKETCHES AND POSTCARDS COLLECTED THROUGHOUT MY TRAVELS, THE MANIPULATION OF SPACES WAS ACHIEVED.



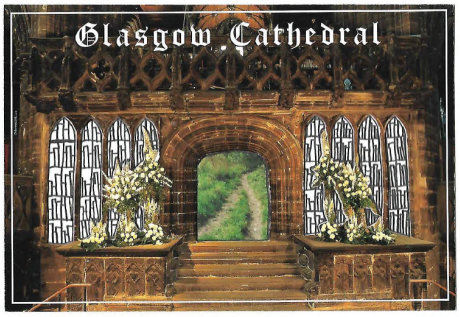
CORK CITY, IRELAND

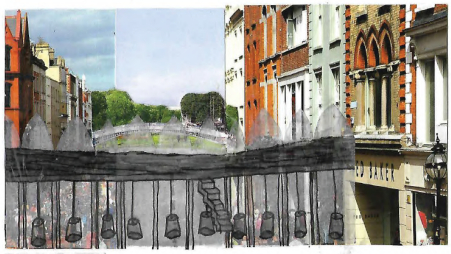
Cork City



ROCK OF CASHEL

IRELAND

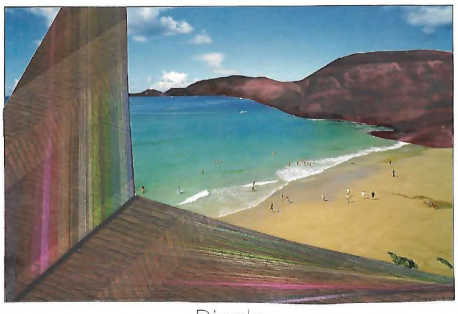




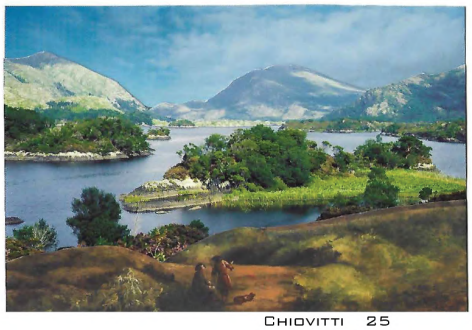
DUBLIN CITY

GRAFTON STREET

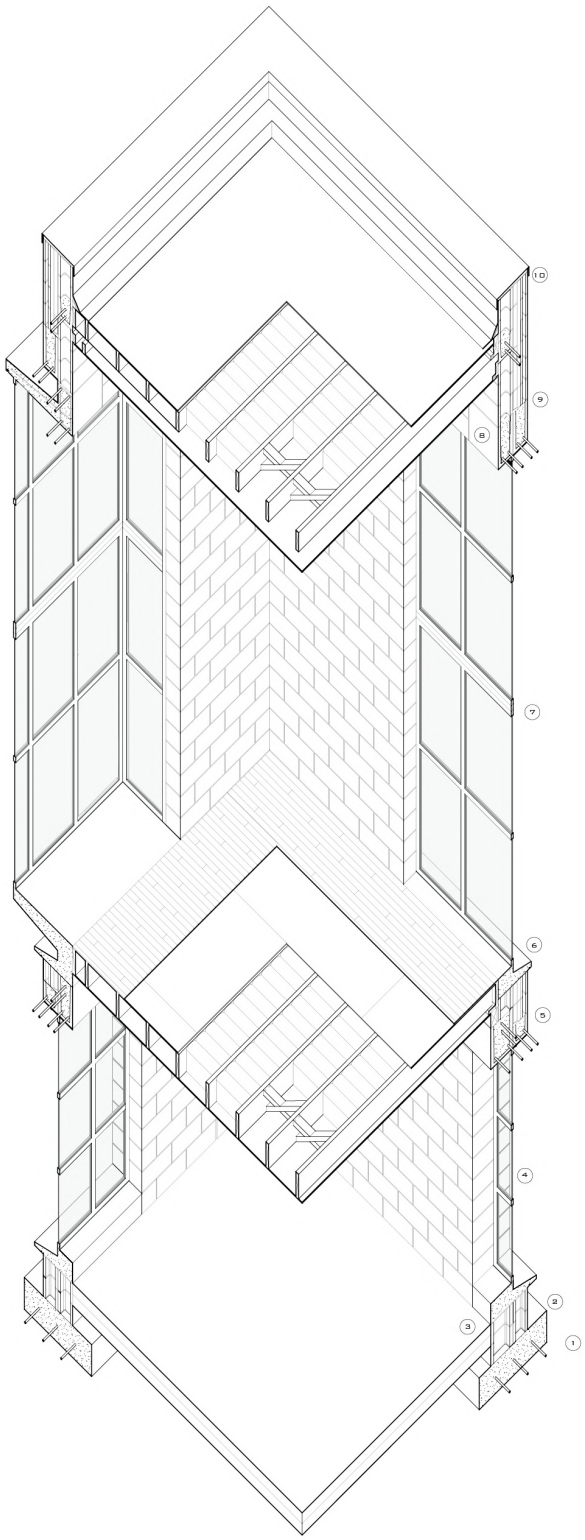
KYLEMORE ABBEY



Dingle



JUSTIN CHIOVITTI
ANNA DREWITZ
RIFAH KHAN
MELISSA SOTELO



1) FOOTERS FOR PERIMETER FOUNDATION
36 INCH BY 12 INCH DEEP CONCRETE
REINFORCED WITH 3 #5 BARS

2) UNDERGROUND WALL SECTIONS
8 INCH CMU BLOCKS ATOP PERIMETER FOOTERS

3) SLAB FLOOR
REINFORCED FLOOR SLAB 4 INCHES DEEP WITH 4 INCH VAPOR BARRIER

4) GROUND FLOOR WALL
CAST CONCRETE SILL FLUSH ON INTERIOR WITH ANGLED EXTERIOR
ALUMINUM WINDOW CASING ENCLOSING WINDOW
5/8 INCH GLASS WINDOW PANE
STEEL CASING CENTERED BETWEEN 8 AND 16 INCH CMU BOND BEAM
8 AND 16 INCH CMU BOND BEAMS REINFORCED WITH #5 BAR
THROUGH WALL FLASHING APPLIED UNDER 8 INCH BY 4 CMU BLOCK
2 INCH THICK RIGID INSULATION ATTACHED TO EXTERIOR FACE OF BOND BEAM
2 INCH AIR SPACE
WEEP HOLES 32 INCHES O.C.

5) GROUND FLOOR CEILING FINSIHED
5/8 INCH GYPSUM BOARD
2 BY 4 JOISTS 16 INCHES O.C. RUNNING NORTH TO SOUTH
JOISTS TIED INTO 2 BY 6 BOLTED TO CMU BLOCKS ALONG WALL 48 INCHES ON CENTER

6) FIRST FLOOR FINISHED
2 BY 10 INCH FLOOR JOISTS RUNNING NORTH TO SOUTH
RIDGE BOARD ATTACHED TO CONCRETE SLAB ALONG WALL
$\frac{3}{4}$ INCH SHEATHING ON TOP OF JOISTS
$\frac{3}{4}$ INCH FLOORING ON TOP OF SHEATHING

7) FIRST FLOOR WINDOW
CAST CONCRETE SILL FLUSH WITH INTERIOR WALL EXTRUDED OUT 2 FEET 6 INCHES
STEEL SASH ENCLOSING WINDOW PANES 2 FOOT BY 4 FOOT
CONCRETE SILL AND BUILD IN 16 INCH BOND BEAM

8) FIRST FLOOR WALL
2 COURSES OF 8 INCH CMU ON EXTERIOR
16 INCH BOND BEAM REINFORCED WITH #5 BARS
3 COURSES OF 8 INCH ON INTERIOR
8 INCH BOND BEAM ON INTERIOR WALL
THROUGH WALL FLASHING APPLIED UNDER 8 BY 4 INCH CMU BLOCK
2 INCH THICK RIGID INSULATION ATTACHED TO EXTERIOR FACE OF 8 INCH CMU BLOCK
WIRE TIES CONNECTING INTERIOR AND EXTERIOR WALLS EVERY 2 COURSES.

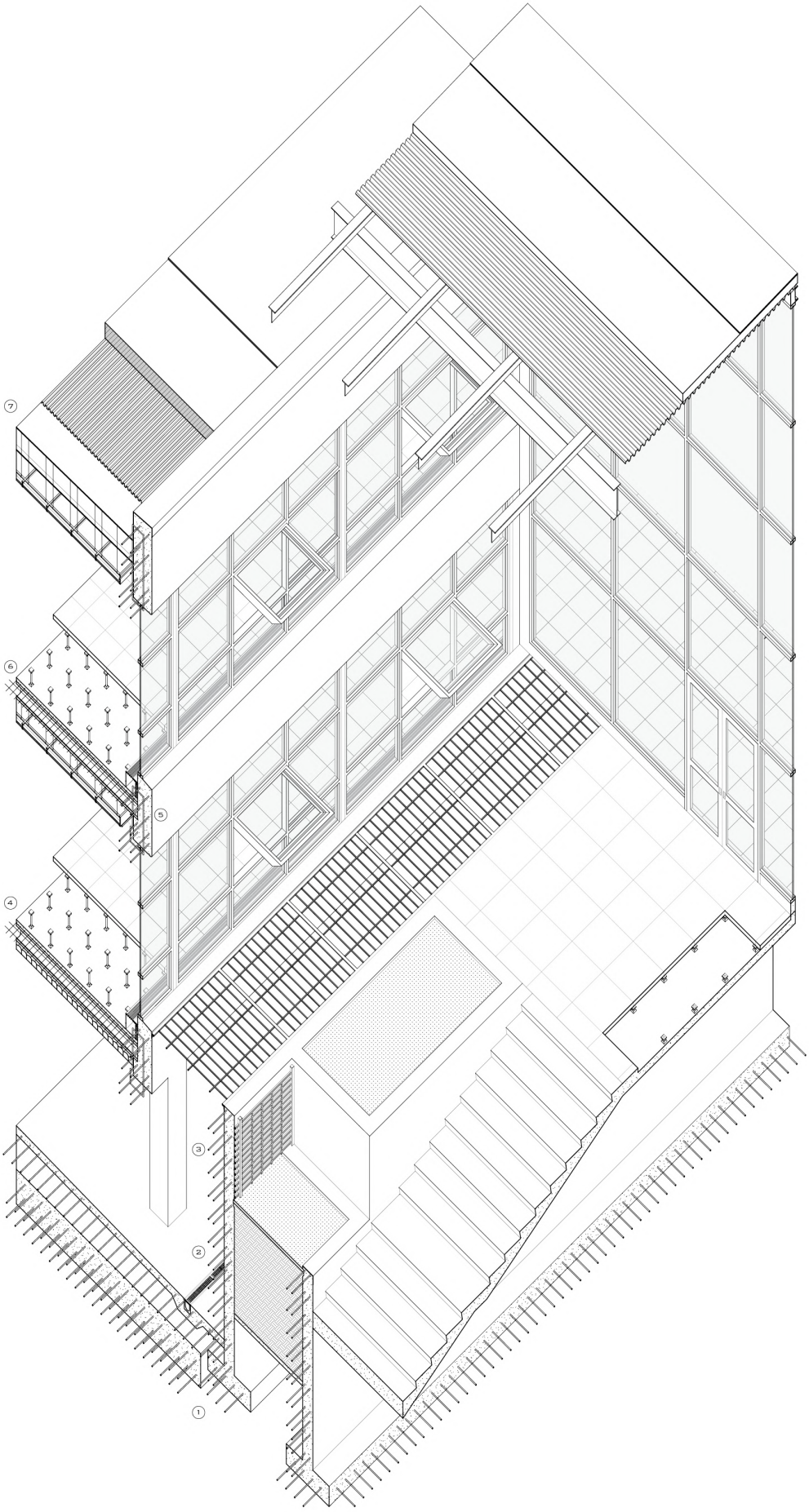
9) SECOND FLOOR CEILING CONSTRUCTION
5/8 INCH GYPSUM BOARD
2 BY 4 INCH JOIST 16 INCHES O.C. RUNNING NORTH TO SOUTH
2 BY 6 RIGID BEAM ATTACHED TO CMU BLOCKS VIA CONCRETE SCREWS
2 BY 2 INCH BLOCKING
BATT INSULATION COVERING ENTIRE CEILING CONSTRUCTION

10) ROOF
2 INCH BY 8 RAFTERS 16 INCHES O.C. ATTACHED TO 2 BY 6 BEAMS
ABOVE 8 INCH BOND BEAM
2 BY 6 INCH RAFTER ATTACHED TO BOND BEAM BY ¾ INCH BOLTS
BUILT UP ROOF ON 5/8 INCH PLY WOOD DECK SECURED TO RAFTERS
EDGE FLASHING COVERING EXTENDED WALLS AND CONTINUING ONTO BUILT UP ROOF

KISTAP COUNTY
ADMINISTRATIVE BUILDING

MILLER / HULL PARTNERSHIP

JUSTIN CHIOVITTI
ANNA DREWITZ
RIFAH KHAN
MELISSA SOTELO



1. Footings, Columns, and Beams:

   24" Thick Footing, begins at ground floor walls
   18" Thick Footing, begins at exterior planter walls
   W 16 x 26 steel beams at 7'-3" o.c.

2. Ground Floor:

   Reinforced concrete slab, sloped 1'4" per foot
   Vapor barrier
   Trench drain

3. External Walls #2: Planters

   Mulch in planter
   Concrete retaining wall with cast-in reveal
   Grate type #1
   Termination bar and sealant for rubberized mem-
   -brane
   Lap filter fabric
   Drainage mat
   Waterproofing per assembly with drainage mat,
   where occurs, terminate waterproofing at top of
   reveal

4. First Floor:

   Vinyl faced R-21 batt insulation
   Precast concrete planks, typical
   2-1/2" topping slab
   R-10 rigid insulation at perimeter
   Raised floor system with finish
   Continuous aluminum grille

5. External Walls #1: Building

   14" thick cast in place concrete, exposed and
   Sealed on both sides
   Aluminum store front system
   At roof:
   Metal flashing
   Monolithic membrane
   Elastometric reinforcing at all corners, typical
   coping type-1

6. Second Floor:

   Gypsum white board soffit, painted
   Metal trim at perimeter, typical
   Main tee
   Acoustic tile
   Compression strut connect to structure above
   Top clip with mechanical fastener to strut
   Precast concrete planks, typical
   2-1/2" topping slab
   R-10 rigid insulation at perimeter
   Raised floor system with finish
   Continuous aluminum grille

7. Roof:

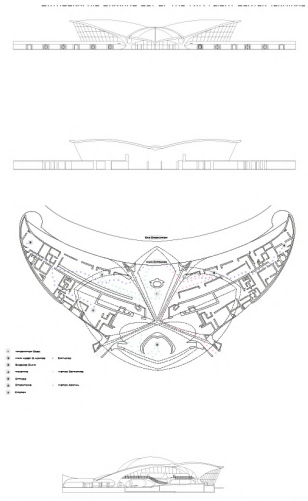
   Gypsum white board Soffit, painted
   Metal trim at perimeter, typical
   Main tee
   Acoustic tile
   Compression strut connect to structure above
   Top clip with mechanical fastener to strut
   Metal deck
   R-21 insulation (2 layers, staggered joints)
   Adhered 3/4" perlite
   Modified bitumen roofing

UNITY TERMINAL (MOVEMENT THROUGH FORM):

this project began with the precedent of the TWA Flight Center (Terminal) by Eero Saarinen, located at JFK airport in New York, and having to study the ins and outs of the structure, touching upon the history of the buildings construction and the materials used. The concepts from which were taken from the precedent analysis to be further studied and experimented with were the strong ideas of movement through form, with regards to the way people circulate through the building by following the curves of the structural concrete sculpture, all around them and the fact that all the aesthetics mimic the curves of the sweeping concrete curved walls and ceilings above. Also the form and material of which would carry through with this project came from the ideas of creating spaces that have tall sweeping ceiling structures. Following this idea the materials of glulam and glass were chosen as the most suitable building materials that would make the most sense in moving forward into the design and building phase of the semester. With these central ideas in mind, moving forward and taking these ideas and performing different studies with regards to modeling different framed spaces constructed at different scales, allowed for the intuition that would aid to finalizing my final concept and model. After receiving the details of the site and the program of the building project, I had begun to start implementing my design (system) to be able to morph into being able to fit to these listed requirements, thus becoming the sole objective of the remainder of the semester. With the program and site revolving around the idea of industry, my over arching theme the building would take on would be an interpreting center focusing on the evolution of transportation. With this idea in mind the building began to take on the feeling of being like a transportation terminal which ultimately fits into the concept of the program, the site, and even the early on precedent analysis study.

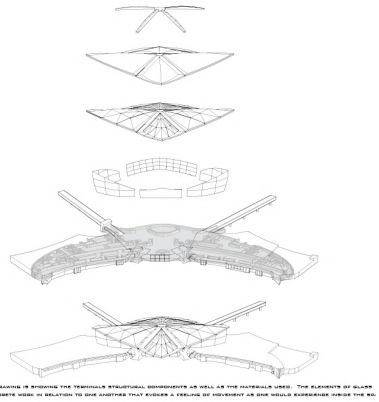
phase 1: Precedent studies

orthographic drawing set of the twa flight center



The TWA terminal designed by Eero Saarinen, located at JFK International Airport acted as the precedent study for this semesters project, with taking the aspects of the terminals sweeping curved ceilings and wall elements, as the inspiration behind the movement through form concept that would be further explored in multiple model, and drawing studies.

exploded axonometric drawing of the twa flight center

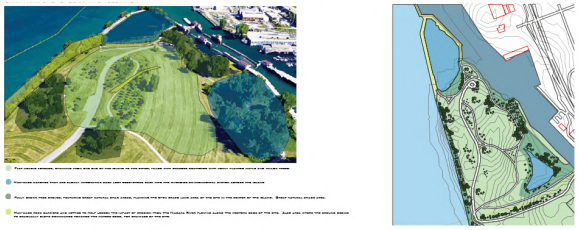


This drawing is showing the terminals structural components as well as the materials used. The elements of glass & concrete work in relation to one another that evokes a feeling of movement as one would experience inside the bu

phase 2: Site circulation & access

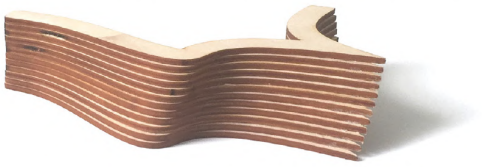
site circulation diagram showing how the site connects to nearby points of interest

unity park: site topography & site plan



phase 3: envelope and structure

This phase focused on the finalization of choosing a material and structural component based off of the precedent analysis and further researching and implementing both in the process of model making.



Study model 1: Exploring the idea of movement through curved walls.

Study model 2: Exploring the idea of developing a curved framing system that would construct a roof system.

Study model 3: Top view showing the characteristics of compression and expansion between the individual glulam frames, as well as an elevation view showing the separation between the frames and the contours of the curved frames.

Study model 4: Overhead view showing the experiments of orienting the frames in different patterns, thus exploring different elements of the structuring of the frames with regards to the overall feeling one would feel entering underneath this frames; as well as an elevation view highlighting the roof contours and movement of arches.

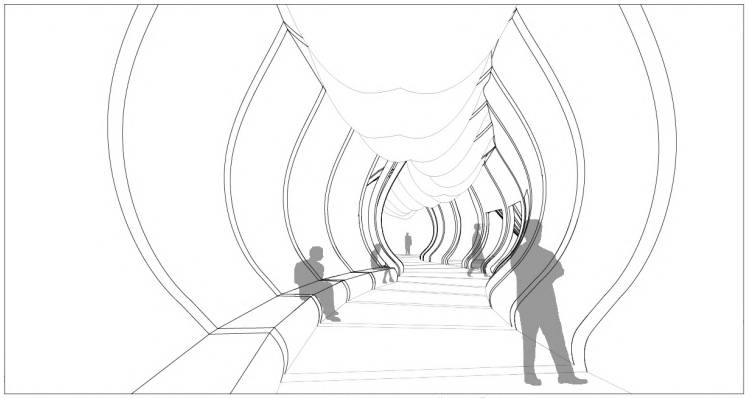
Study Model 5: Top view, highlighting the tunnelling aspect of the overall concept of movement through form between the separated frames. as well as an axon view highlighting the changing of the exterior shell frame versus the keeping of the same interior shell frame, and how both interact with one another.

Study model 6: Top view showing, the experimentation of cutting out the structural frames to achieve different spacial zones, with some opening up towards the outside, as well as the front elevation view showing the openness of the cut frames with the frames adjoining to one another on one end.

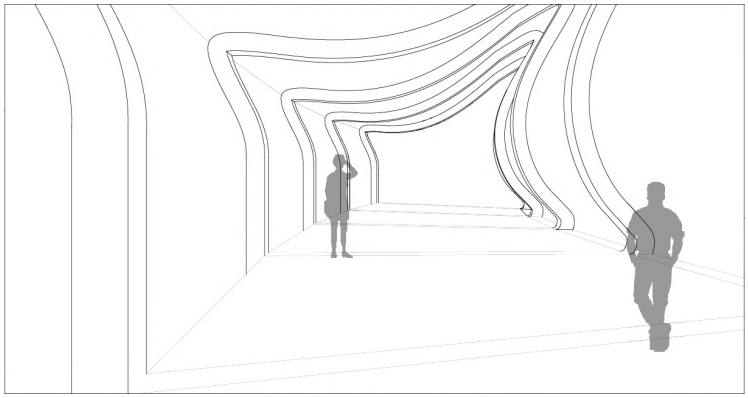
Phase 4: Architectural Synthesis:

Study model 7: Model showing further experimentation with the glulam structural frames and plastic infill between two adjoining frames, allowed for this current iteration that played with the sense of balance and symmetry and the creation of distinct zones for compression and open areas in the framing system; as well as highlighting the three spatial zones inside the model.

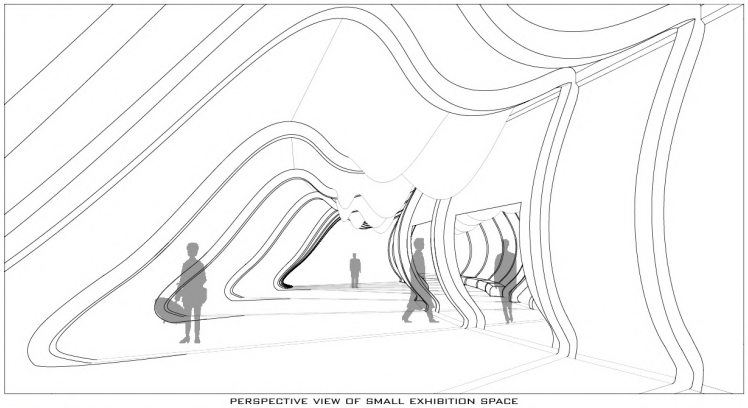
Study model 8: finalizing the overall concepts & tectonic structural system, showing the overall idea that the structural frame can be manipulated & fit to any size spaced desired; as well as showing the inner workings of the model, highlighting the circulation path formed from the pulling down of some of the structural frames to enclose a path for pedestrians to travel upon.



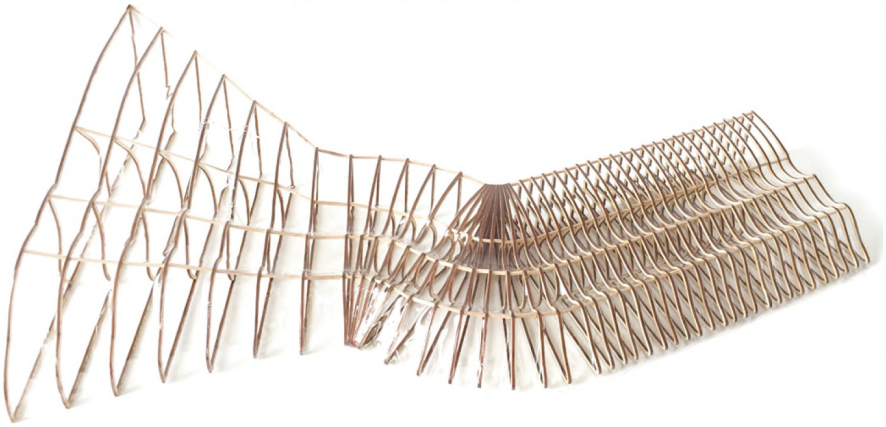
PERSPECTIVE VIEW OF CIRCULATION "SPINE" SPACE



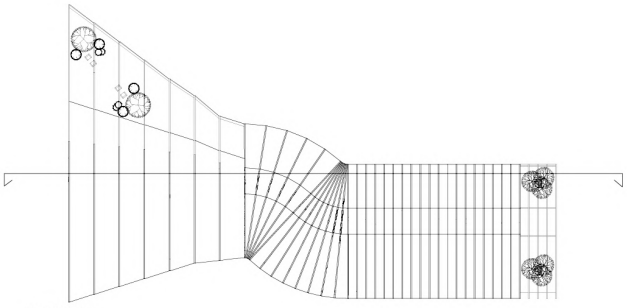
PERSPECTIVE VIEW OF MEDIUM SIZED EXHIBITION SPACE



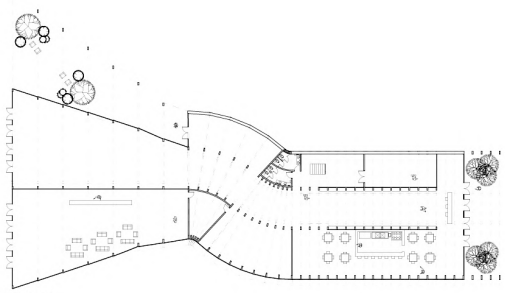
PERSPECTIVE VIEW OF SMALL EXHIBITION SPACE



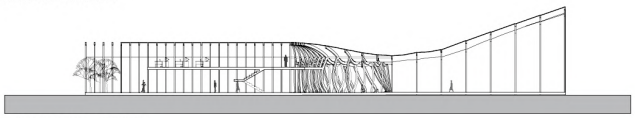
FINAL MODEL SHOWING THE STRUCTURAL GLULAM FRAMES INTEGRATED WITH THE PLASTIC INFILL, MORPHING WITH THE DIFFERENT SIZED SPACES AND PROGRAMS OF THE INTERPRETIVE CENTER FOR THE HISTORY OF TRANSPORTATION AS WELL AS SHOWING THE MORPHING OF THE GLULAM FRAMES FROM THE SMALLER EXHIBITION SPACE TO THE LARGE EVENT EXHIBITION SPACE.



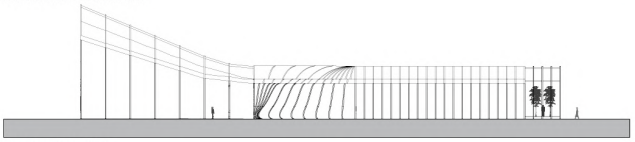
ROOF PLAN



FIRST FLOOR PLAN

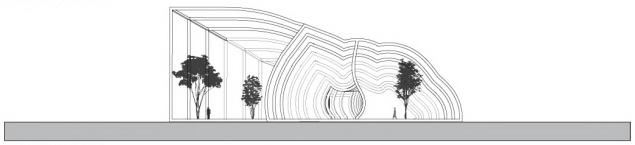


LONGITUDINAL SECTION

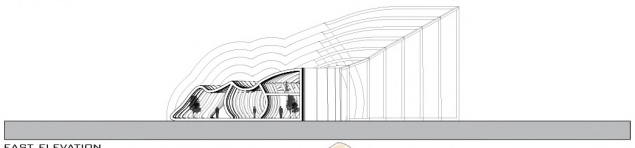


SOUTH ELEVATION

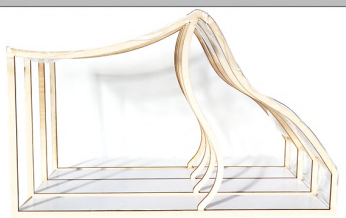
NORTH ELEVATION



WEST ELEVATION

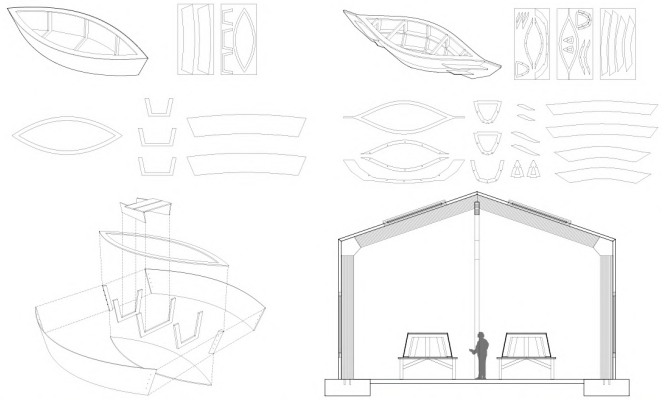


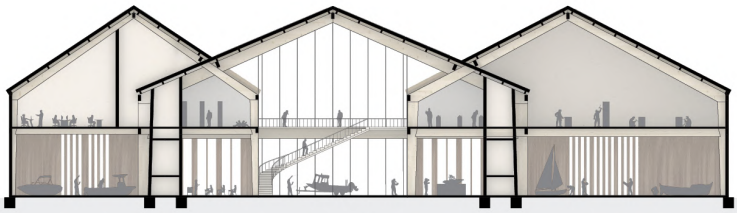
EAST ELEVATION



1/4" STUDY MODELS

INTERACTIONS THROUGH INTERSECTIONS is a design for the Buffalo Maritime Center, that revolves around the initial concept derived from the construction of a studio wide full scale boat build; which focused heavily on the idea of minimalism with respect to constructing the boat out of two pieces of plywood as well as making the boat as light as possible in order to accommodate our studio skipper. This fully developed into becoming a concept of grouping similar public and private programs together and then using the motion of intersecting to create interactions between the solely public and solely private areas when the related volumes of spaces interest with one another. The three types of volumes being created are the private construction area, the public construction area, the public administrative area, the private administrative area, and solely public area and then intersecting them to create Primary and secondary spaces fitting the programmatic needs of the center. The use of an open framed glulam structural system allows for tall, open, unobstructed spaces which make the space perfect for large scale build projects.



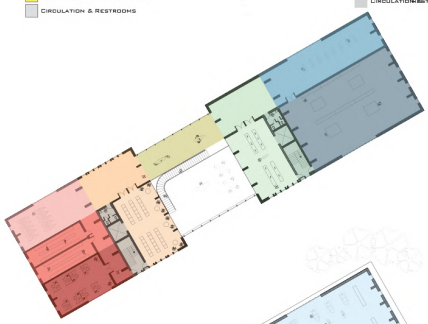


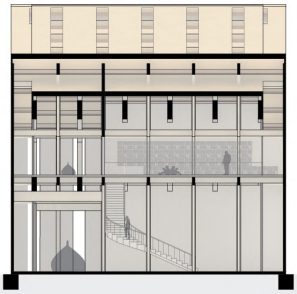
Second Floor Program:

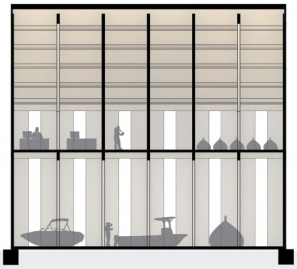
- Administrative Volume
  - Director's & Office Space
  - Locker Rooms
  - Small Boat Storage
  - Library & Conference
- Construction Volume
  - Museum & Model Shop
  - Small Construction
  - Metal & Bronze Shop
- Public Volume
  - Small Boat Moving Corridor
  - Circulation & Restrooms

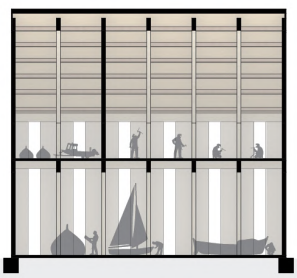
First Floor Program:

- Administrative Volume
  - Large Boat Storage
  - Boat Rental
  - Lecture & Drafting
- Construction Volume
  - Gallery & Display
  - Boat Building Shop + Milling & Lumber
- Public Volume
  - Large Boat Moving Corridor
  - Atrium
  - Circulation & Restrooms

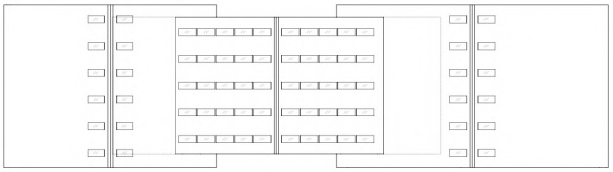




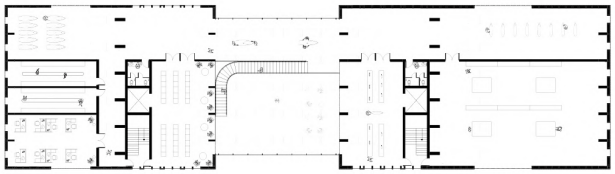




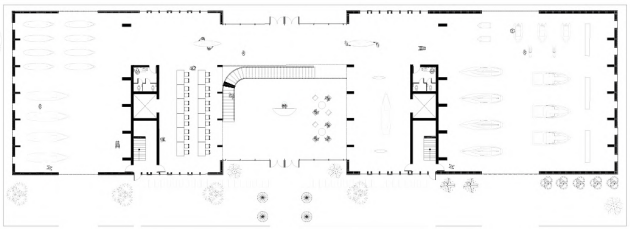
ROOF PLAN



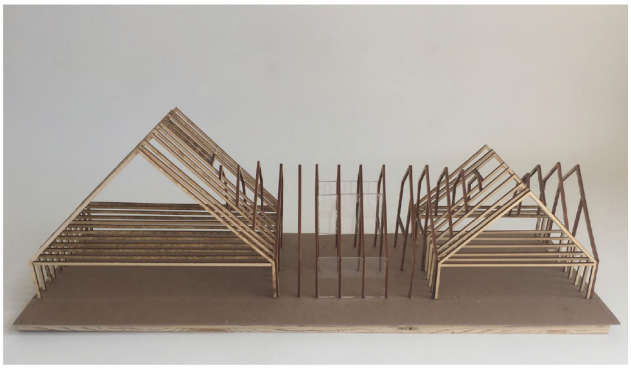
SECOND FLOOR PLAN



FIRST FLOOR PLAN



MODEL PROGRESSION



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