

XIAOLU SU
ARCHITECTURAL PROJECTS

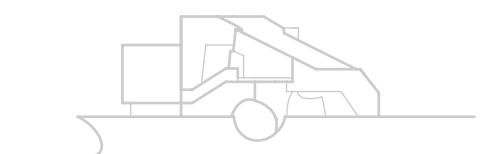


PROJECTS

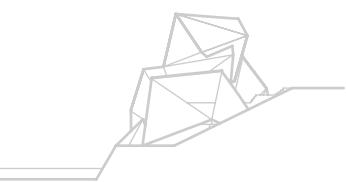
MEDICAL LIBRARY
OF CASE WESTERN RESERVE UNIVERSITY



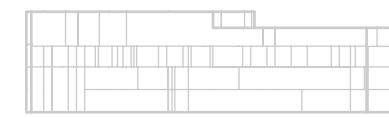
DPAC THEATER
DANCE & PERFORMANCE ART CENTER



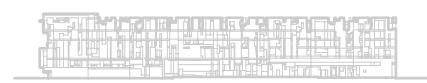
RETREAT HOUSE
AT PLATEAU BY STEEP HILLSIDE



ATHLETIC CLUB
CLIMATE STUDIES



ARETHA HIGH SCHOOL
OF VISUAL AND PERFORMING ARTS

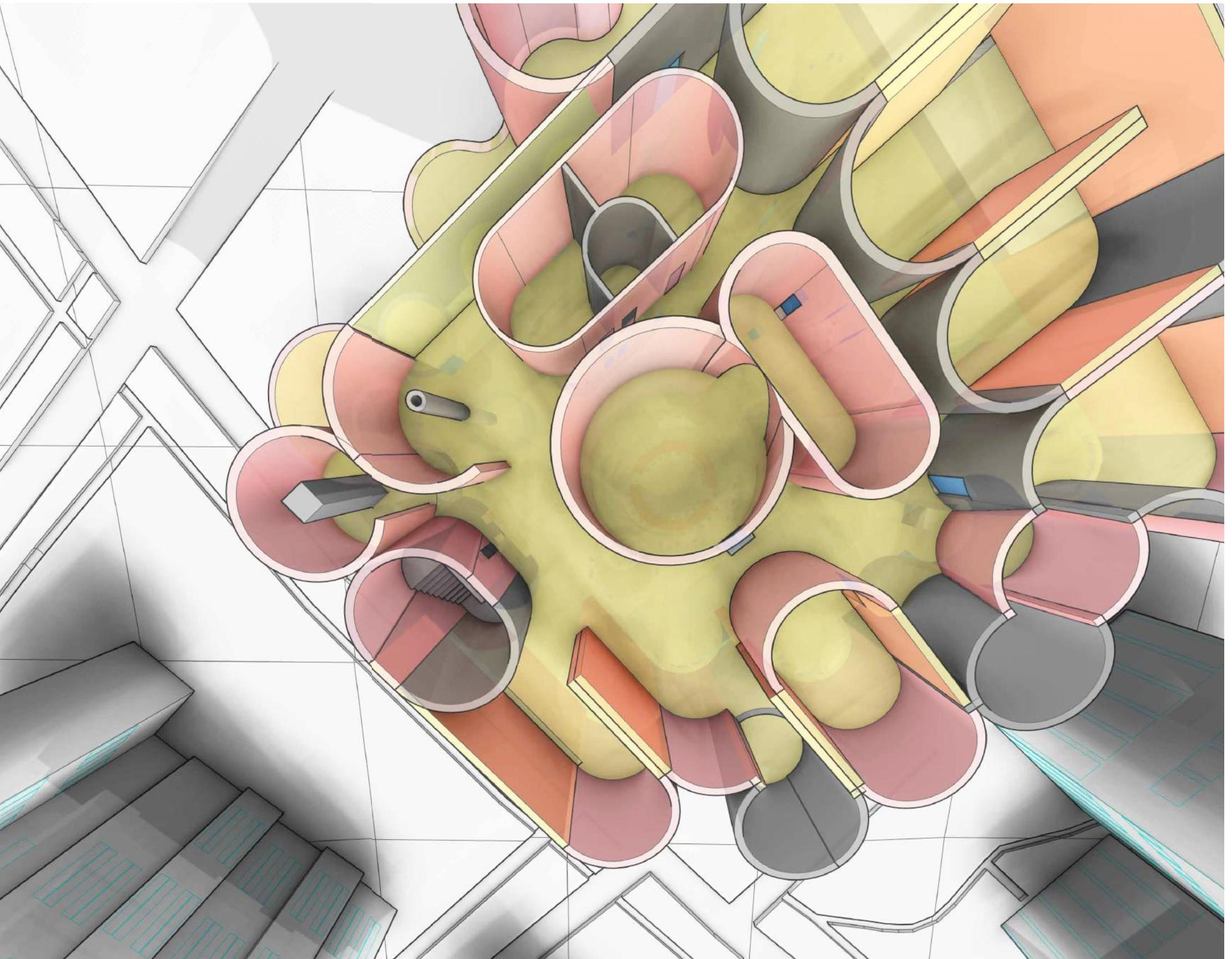


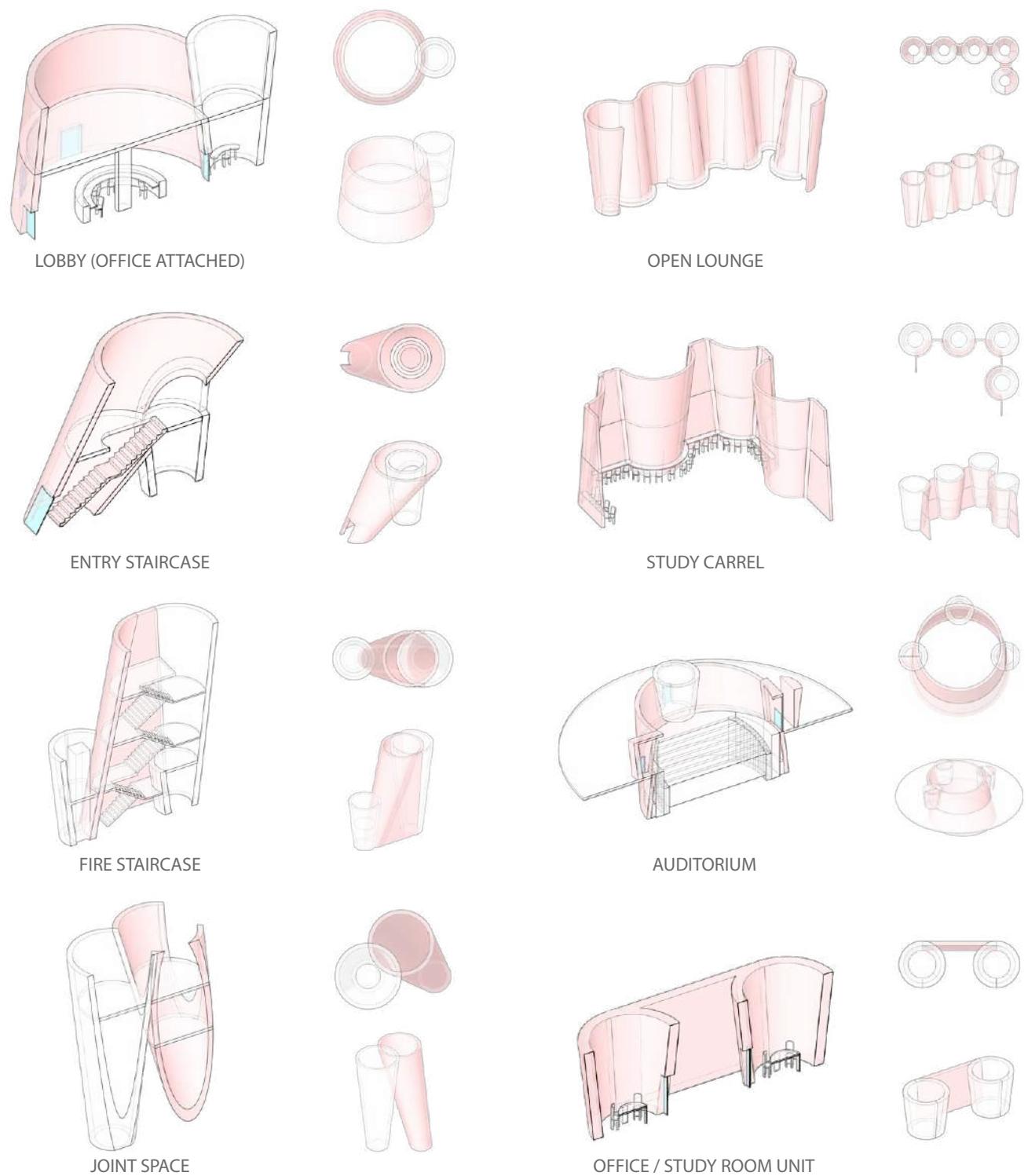
CASE WESTERN RESERVE UNIVERSITY MEDICAL LIBRARY

The library is to serve the Medical School as well as researchers in allied departments such as allied health, biomedical engineering, and basic science. The library should be able to accommodate spaces for both storage of books as well as function as a small museum to showcase collections of antique medical inventions and discoveries.

The design for medical library aims to provide an ideal environment for students, faculty, researchers, and visitors and to foster creativity and variety in exhibitions and programs. The library will provide a variety of different kinds of places to study: large tables will be provided for collaborative work, quiet study carrels for individual work, group study rooms with digital equipment, computer labs, a cafe, places for interactive learning and facilities for team projects. Additionally, the library will serve as an extension of classroom space in the university, housing a number of classrooms meeting rooms, and an auditorium.

Program wise, the project is suitable to be designed with a grid of upside-down cones, given the programs would require the upper levels to accommodate more larger public spaces for media or book shelving, while the lower levels are mostly sparsely with small, individual offices or study rooms, except the huge auditorium. In another word, the small rooms on the ground level allow the heaviest amount of circulation and expansive view of the interior spatial condition, while the crowded large rooms on top level can provide sufficient square footages for book shelving and control noises by limiting random circulation. Structural wise, the lower part of the reversed cone is true indication of thick wall structure, while the top parts of the cone can be composed with partial structure and partial non-structural elements like book shelves.

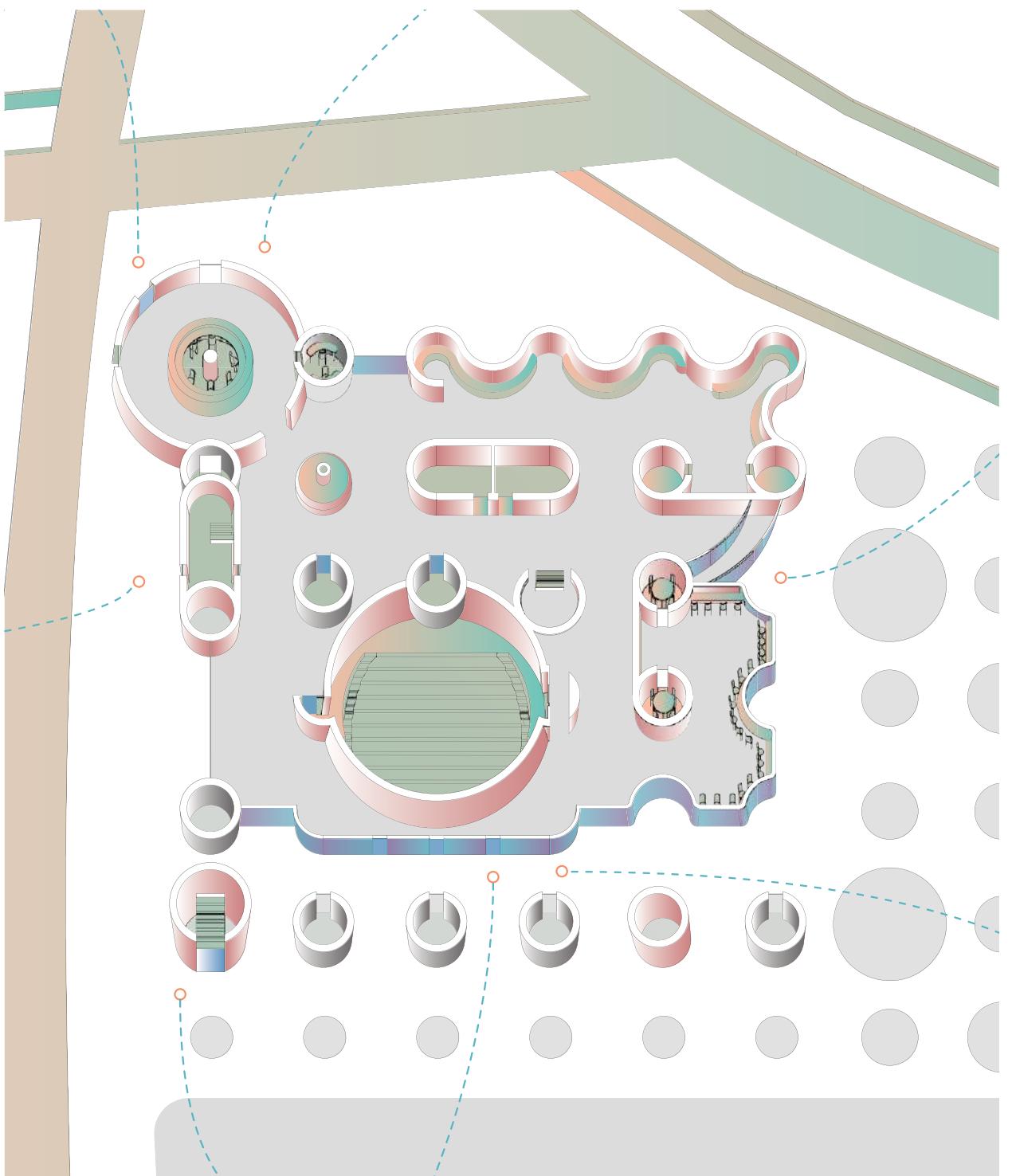




Different forms of cones are determined by programs but also serve as directory of circulations for visitors. Wide walls imply linked cones; they indicate large public space. Similar individual cones are easily recognized as duplicate small units for office or private room.

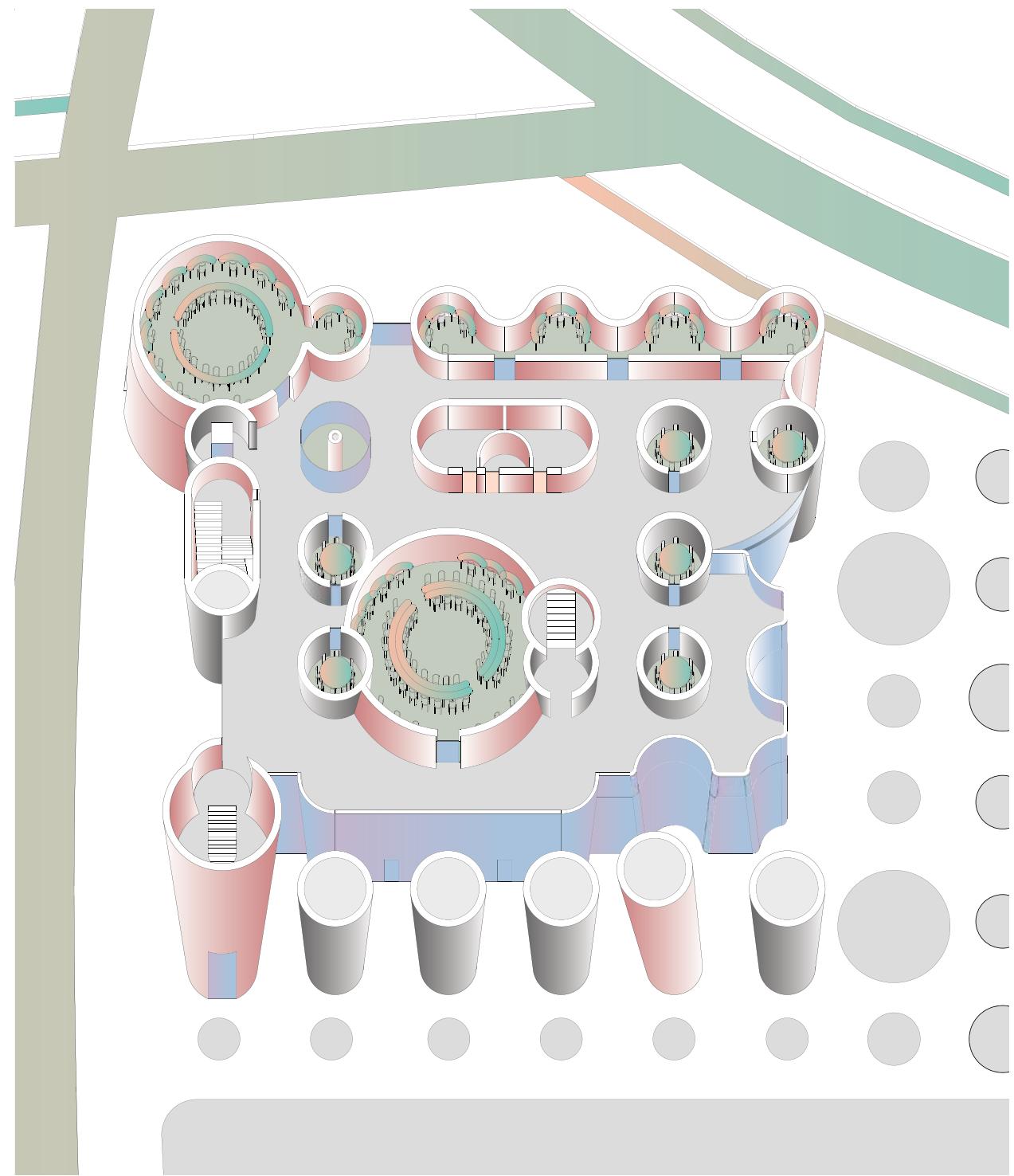


Structurally, the lower part of the reversed cone is true indication of thick wall structure, while the top parts of the cone can be composed with partial structure and partial non-structural elements like book shelves.



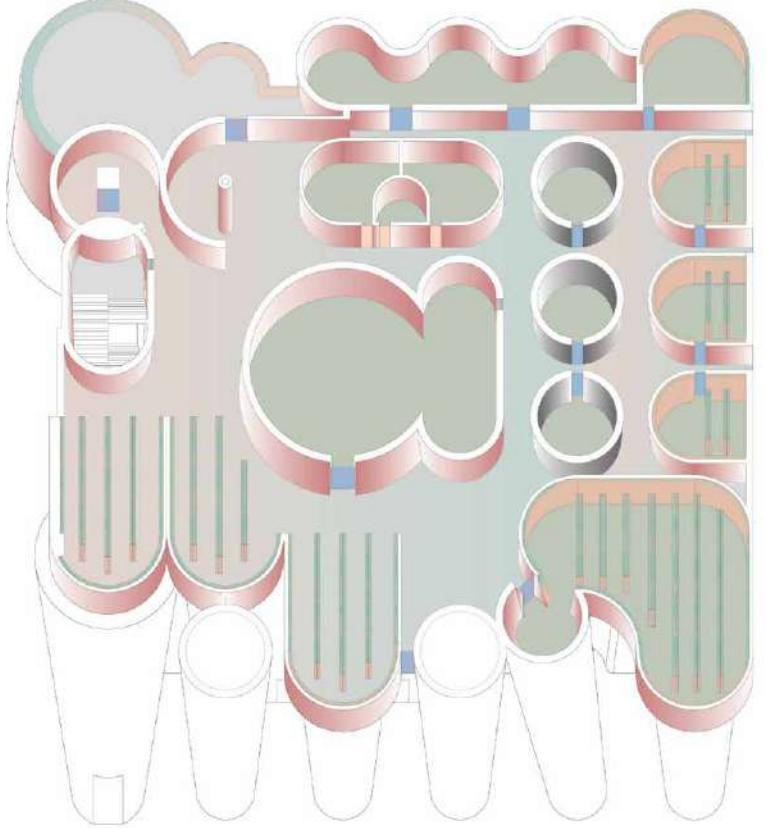
1st floor

Program wise, the upper levels need to accommodate more larger public spaces for media or book shelving, while the lower levels are mostly sparsely with small, individual offices or study rooms, except the huge auditorium. The small rooms on the ground level allow the heaviest amount of circulation, while the crowded large rooms on top level can provide sufficient square footages for book shelving and control noises by limiting random circulation.



2nd floor

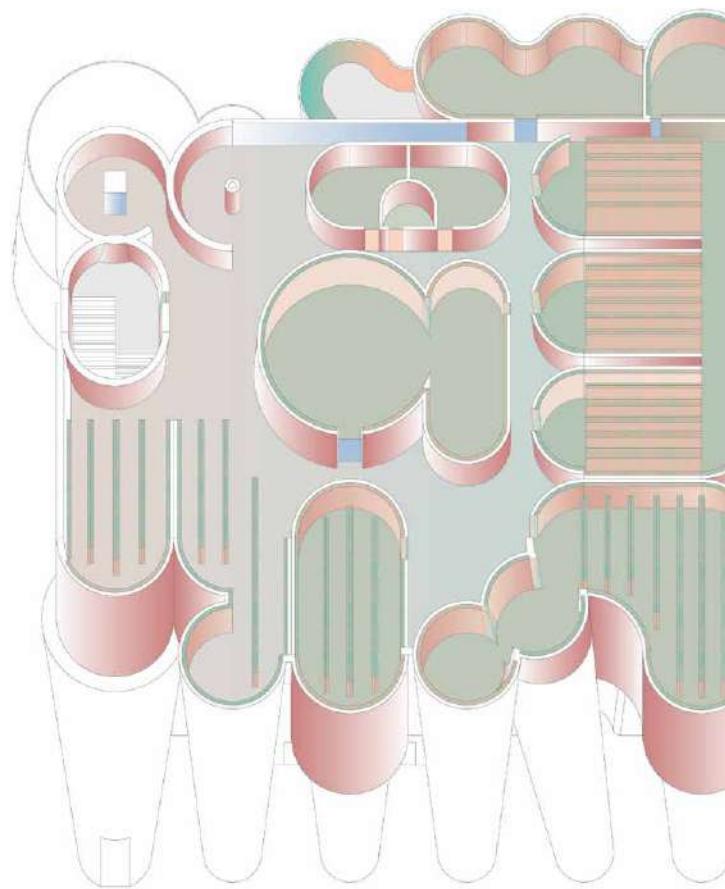
Structural wise, the lower part of the reversed cone is true indication of thick wall structure, while the top parts of the cone can be composed with partial structure and partial non-structural elements like book shelves. However, visitors in the space wouldn't easily feel the structural change.



Plans show the grid of 36 reverse cones, and the pattern plays with graphic deception by creating iterations of cone or cone-ish shapes.

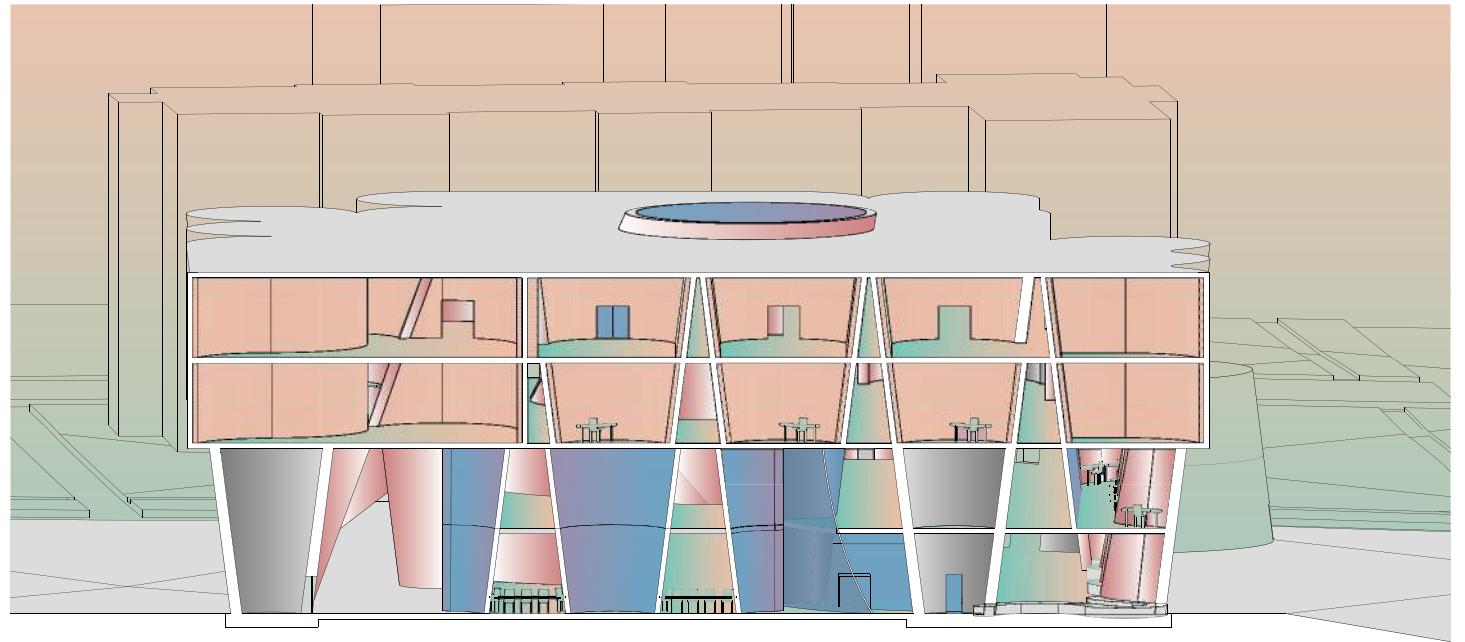
Plans and sections show whole walls of book shelves, whose thickness compensates for the reduced thickness of walls to preserve impression of tall, thick walls.

3rd floor

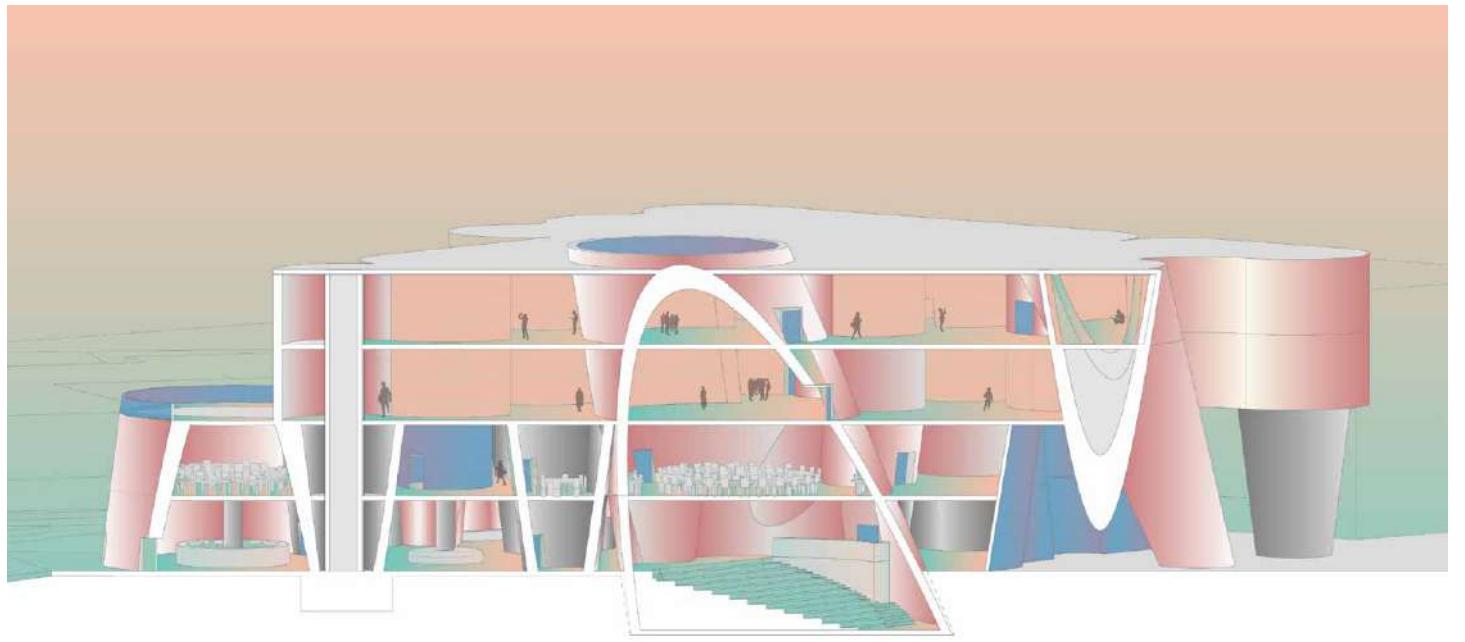


4th floor

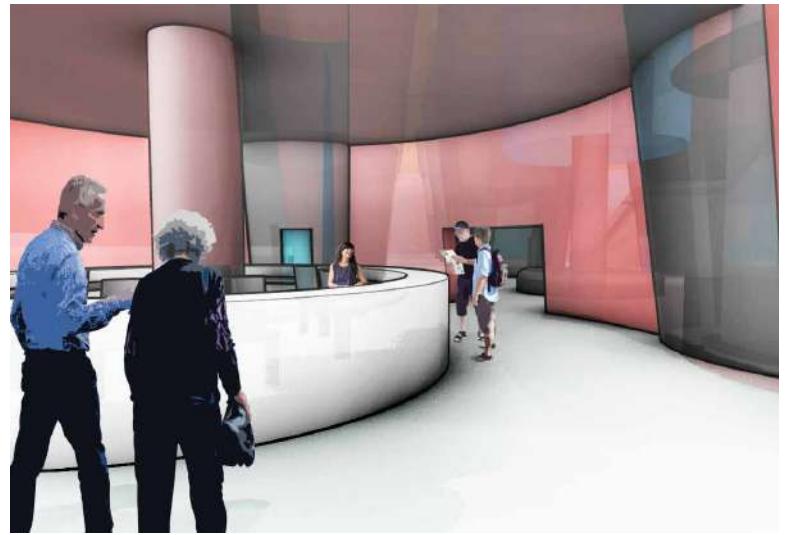




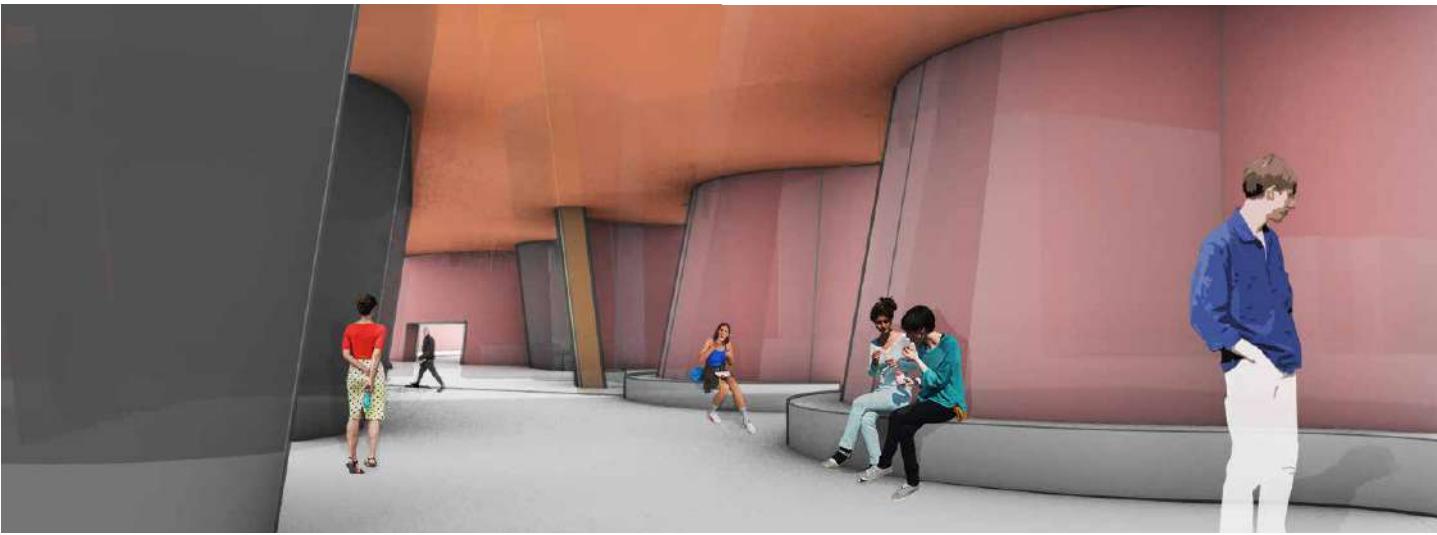
While the floor plans use a grid of evolving circles to create various spacial experience for public and private use, this section also unveils the unconventional “somewhat” reverse cone-array that tell difference stories of each space. And the “somewhat” cone-array is the metaphor of evolution in human generations. Each generation creates their own history, which is carried by library, whose duty is to preserve knowledge and indoctrinate the future generations.



The relations among the massings become apparent in this section. Small cones vs. large cones, narrow corridors vs. wide floors, a big trunk of space that doesn't reach the full building height vs. another big trunk of space that is lifted off the ground. All of these contrasts share the purpose of providing unique spatial conditions for library users and leaving symbolic impression that implies the direction of circulations.



Lobby



Open Lounge



Study Carrel

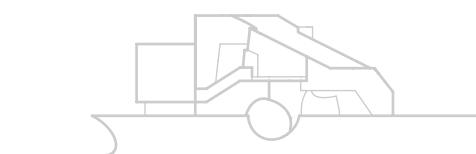
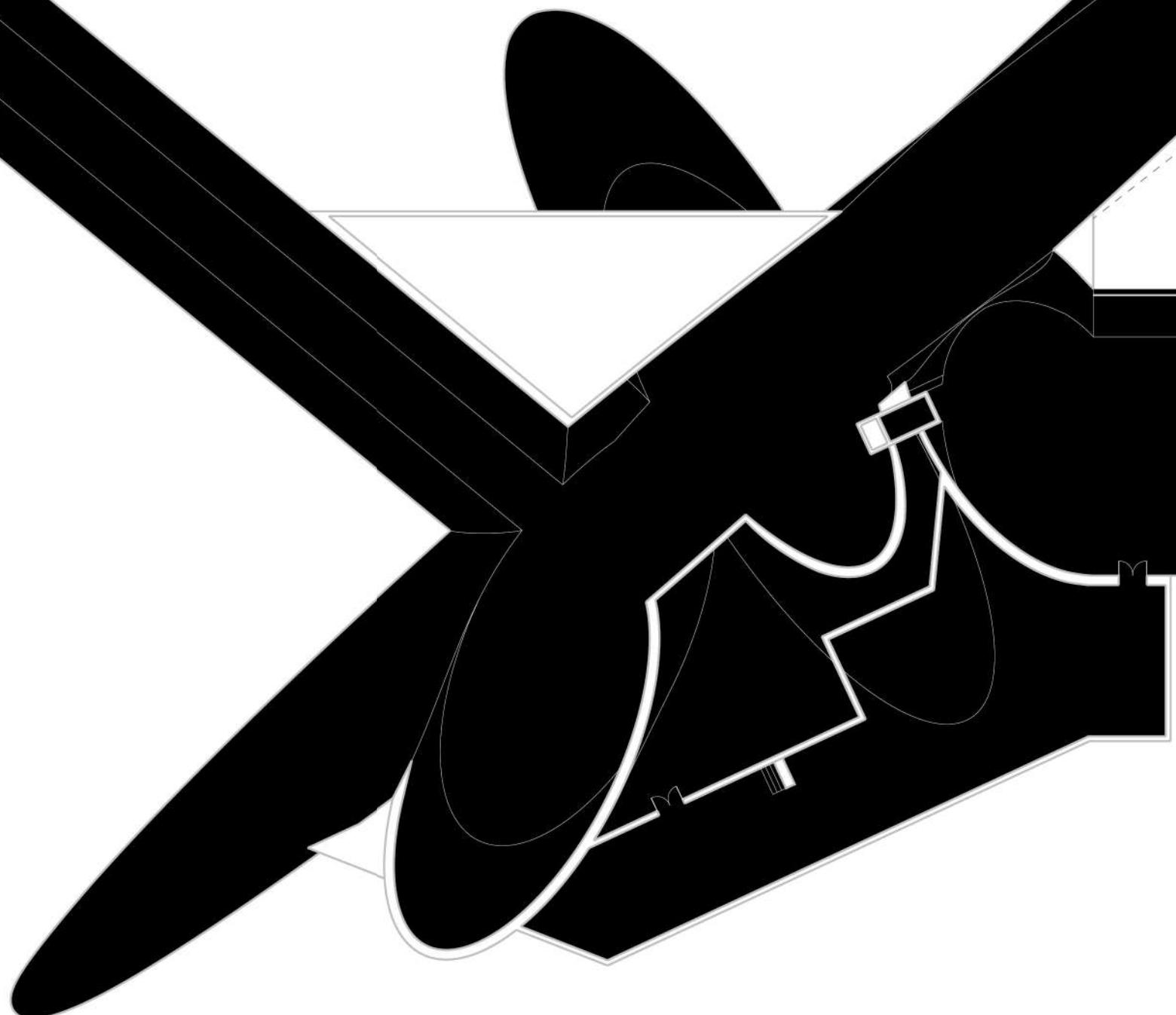


DANCE AND PERFORMANCE ART CENTER

Spring 17 | Instructor: Jonathan Rieke

The DPAC challenges the idea of traditional configuration of spaces pertaining to theaters, such as arts display or performance spaces. In this project, there are three major auditorium spaces, from small, middle, to large, or experimental to formal, specifically, targetting to adjust the distance between the audience and the performers. While in a formal setting, the performers are far away from the audience, in an experiemtal setting, the distance between the audience and artists can be within several feet. In another word, the spacial conditions can strengthen different types of performances by activating or deactivate the role of audience.

For the location of the project, the site is situated in a city square, where subway system is developed, providing the urban site with efficient underground circulations, as well as shopping streets prospering in the channels unergound. Therefore, the first impression of the theater might not be the outlook; instead, the visitors might receive the reverse experience of understadning the spacial conditions, picking up the hints from the interior, seeing the exterior appearance at the very last moments of their trips. In the lower level, the underground channels all come to a joint, some from the lower level of other buildings, some from means of transportation like subway. The joint is where the theater originates.



Underground configuration as first imppression to visitors due t underground transportation system



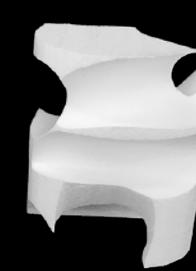
dichotomy
boolean overlap in
x-,z-axis



trichotomy
boolean overlap in
x-,y-axis



layer vs. unity
circular vs. rectangular



solid vs. void
solid as structure



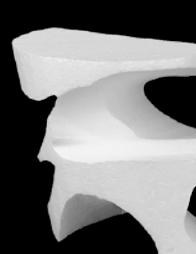
multiple overlap
boolean in x-,y-,z-axis



partition
circulation and zones



soliv vs. void
solid as both mass and
structure



boolean from edge vs.
boolean from center



reverse boolean
creates angular solid edge



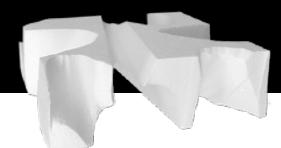
mirror boolean
linear structure vs. robust



mirror boolean
along y-axis



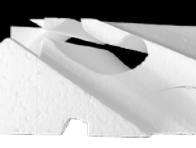
multiple boolean
zones connected in plans
and sections



sloped void
overlap in y-,z-axis



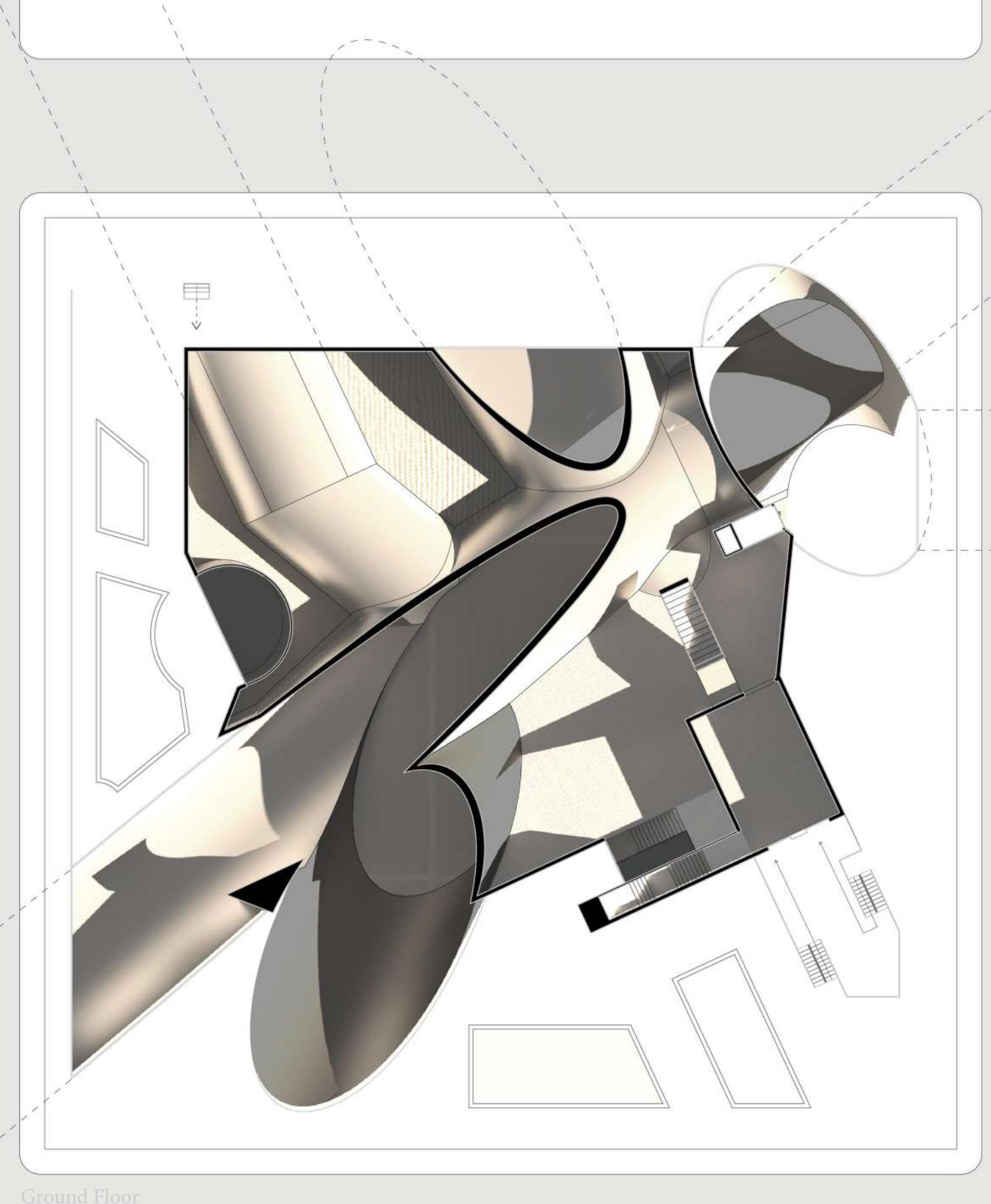
overlapped boolean
and various boolean scales

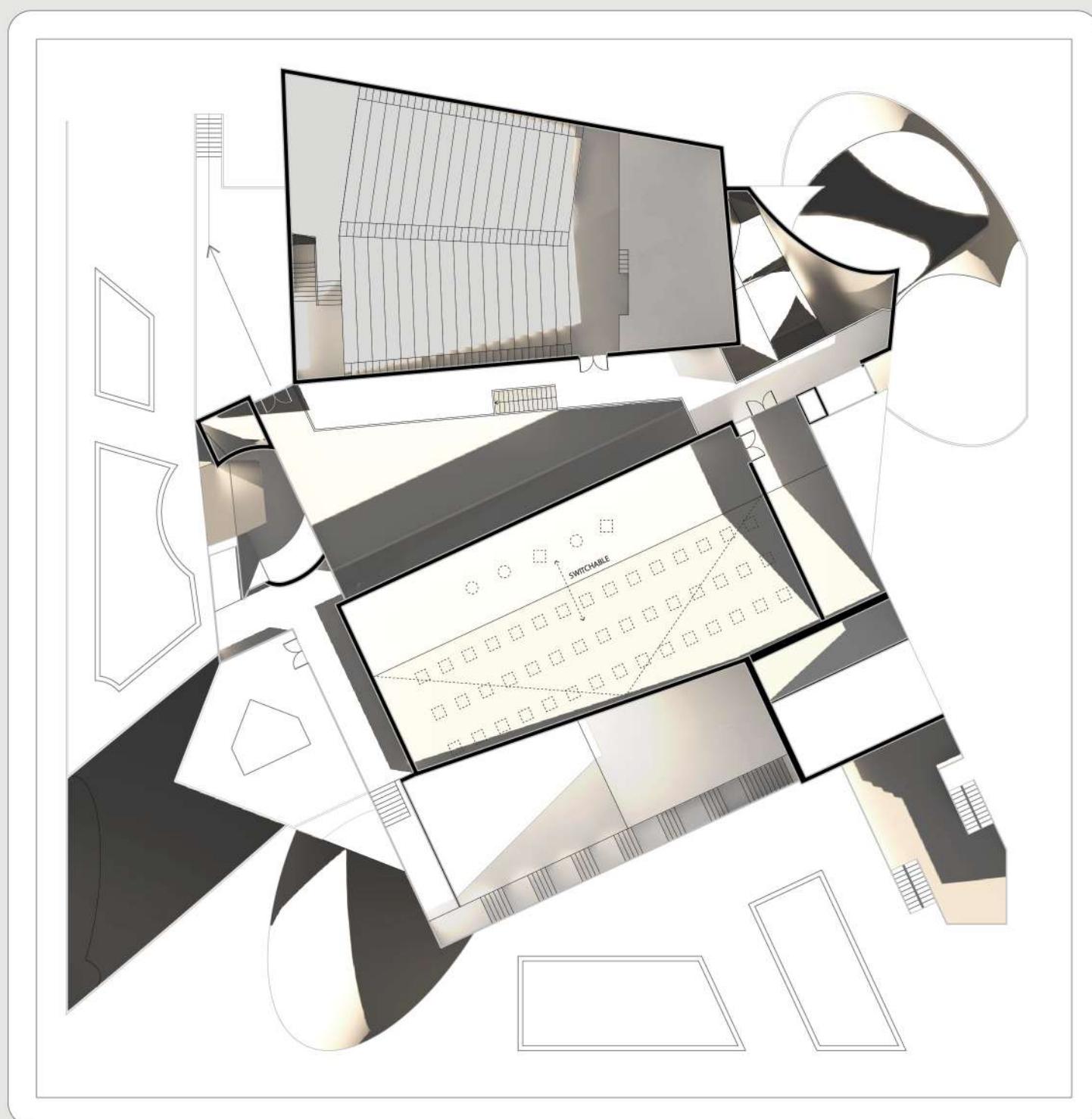


solid vs. void
sloped vs. level orientation

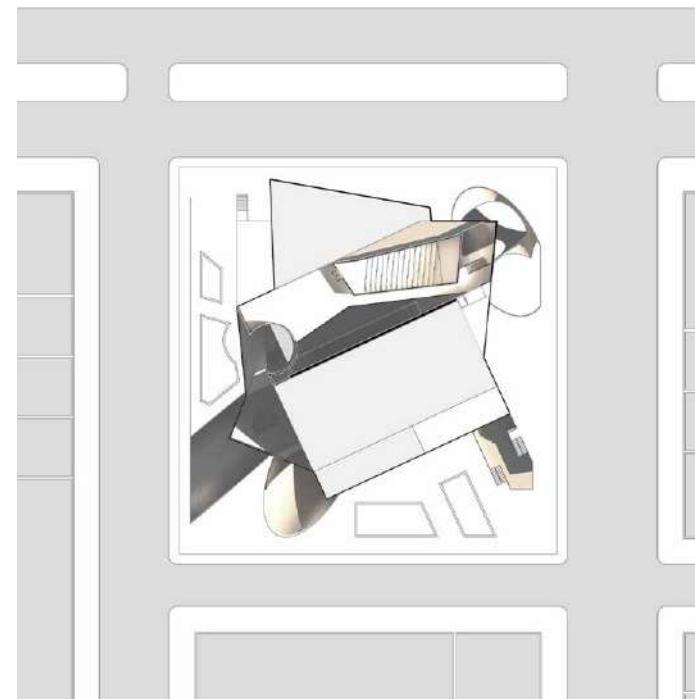


boolean create thin linear
opening





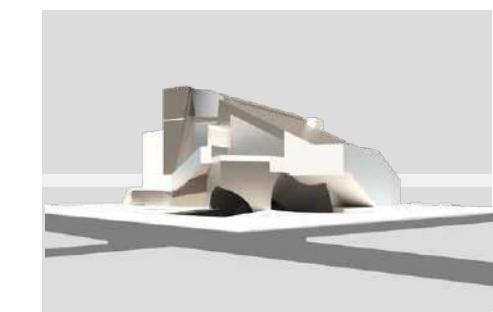
Second Floor



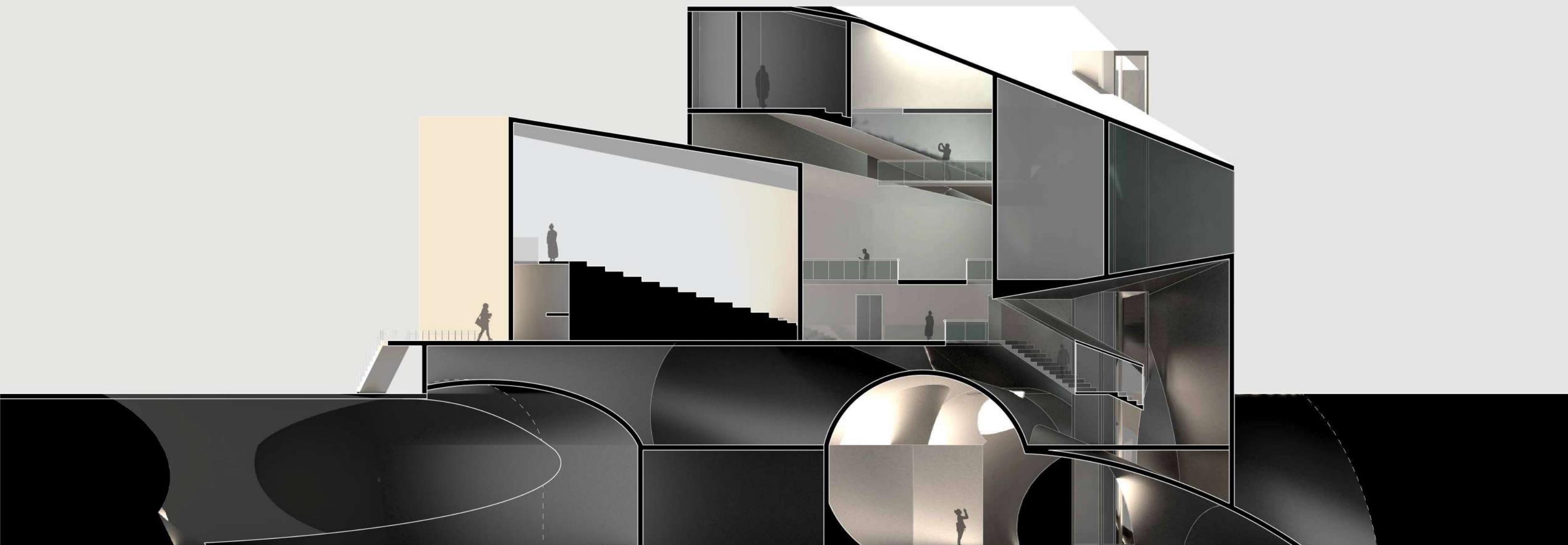
Third Floor

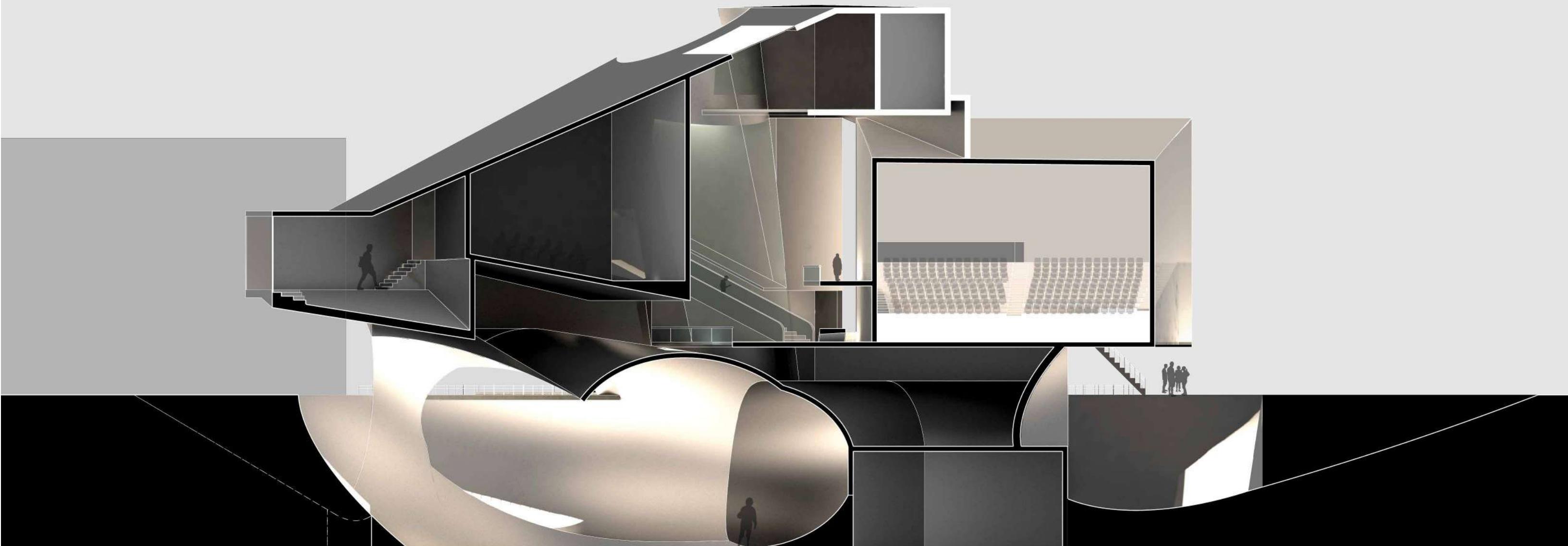


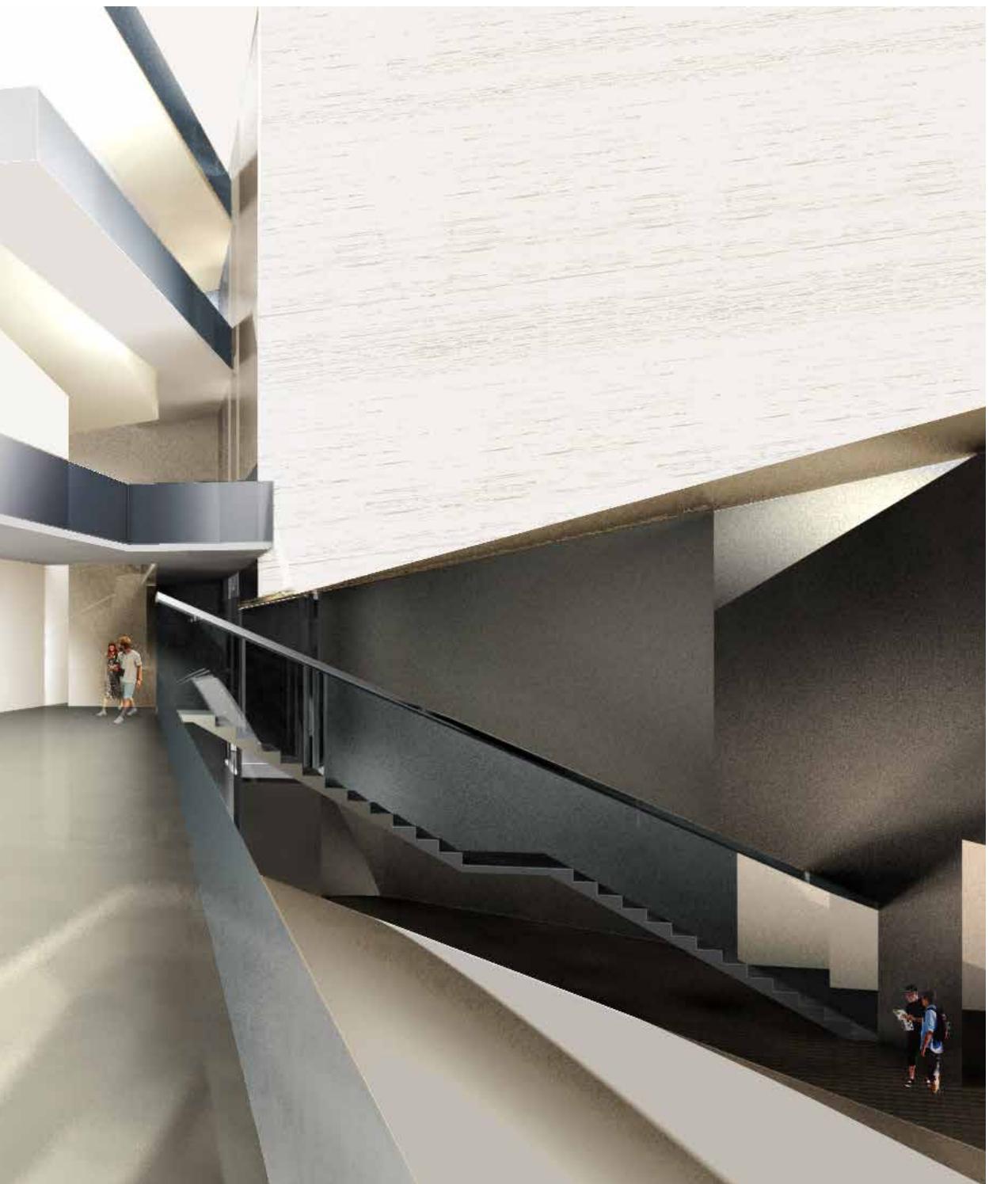
Overall Massing



The Dance and Performance Art Center is designed to be accessible from both existing underground space, for instance, the subway terminations, and the open surface of the city square. The project also experiments on exploring different performance rooms, from small to large, from fixed performers-to-audience relation to reversible performer and audience positions.







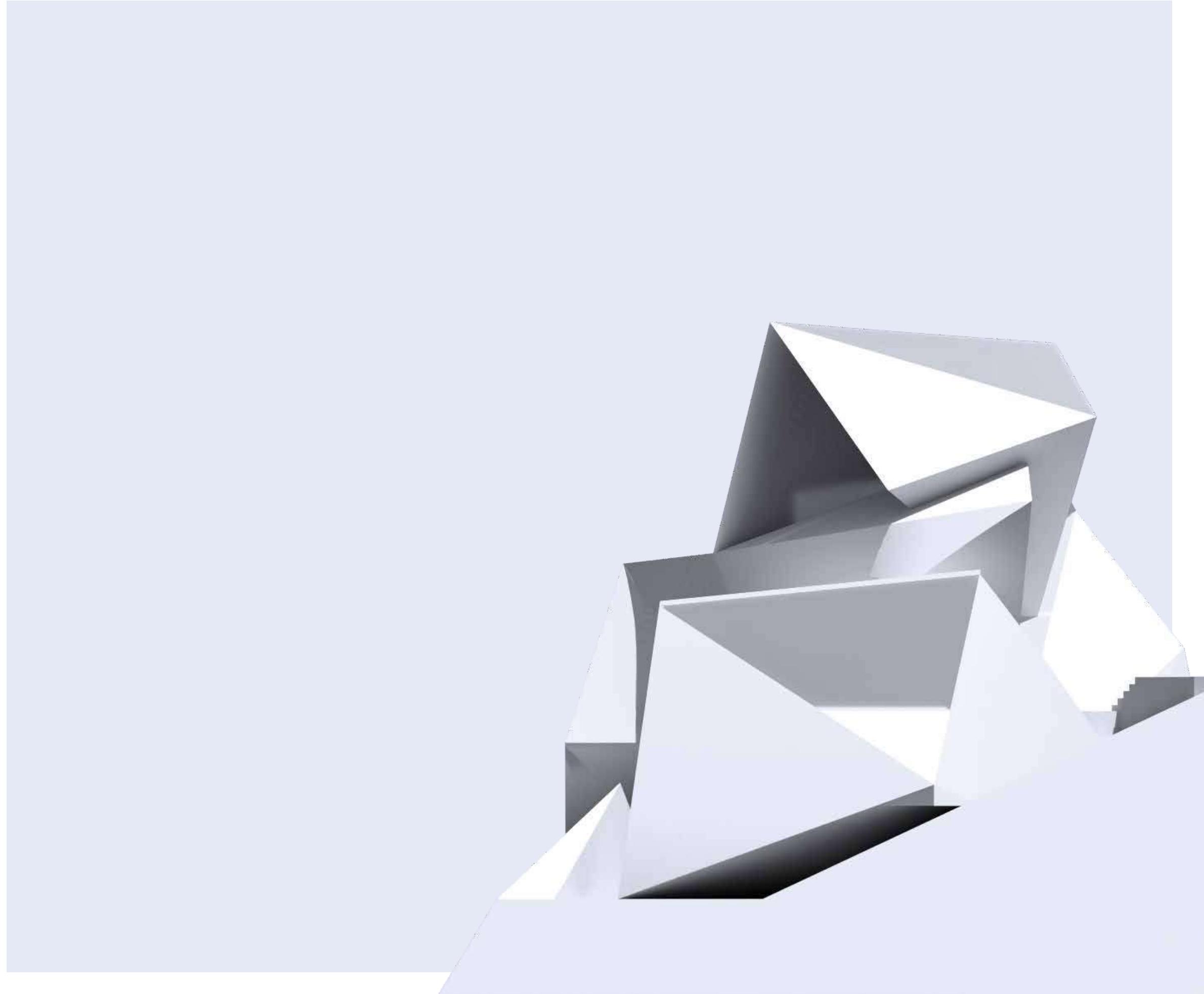
RETREAT HOUSE AT HILLSIDE

Autumn 17 | Instructor: Brian Polgar

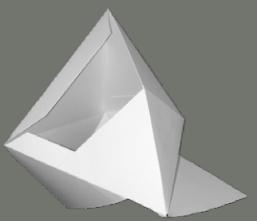
The retreat house is located at a plateau by hillside. The massing is generated by repetition, rotation, and embedment of the same module. The module is a paper folded shape that implies different spatial conditions in sections and plans. And different orientations can provide unique spatial conditions for certain uses.

The re-orientation of shape aims to create multiple facades for the retreat house, which welcomes the owners from different kinds of entry, such as a cave entry from river, a seemingly formal entry from second level of the house, and another hidden entry from beach/plateau which is also the true formal entry into the lifted first level of the house.

The retreat house also use hierarchy of rooms to assign spaces to each level. While the lower level is used for public use, such as dining, living, or playing, the top levels are used for the private bedrooms. Even though there are relatively more glazings on lower levels, the master bedroom, for example, also receive plenty of soft and indirect light.



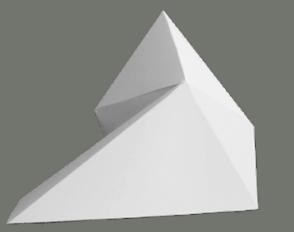
(section)



(section)



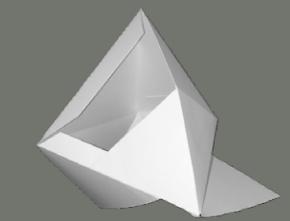
(section)



(plan)



Module



tall pointed ceiling, large window, provides shaded walkway below the floor



private spaces protected by enclosure, and strong hold on ground

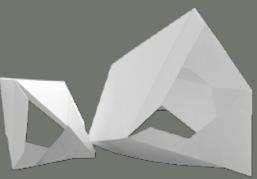


sloped walls as cantilever that creates shaded outdoor space for activities



entry "scopes" owners in low space that immediately heightens and enlarges

Repeat
Rotate
Embed



different scales for needs of different uses of spaces



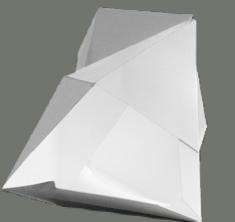
(left to right) transitions from extremely public to public to less public



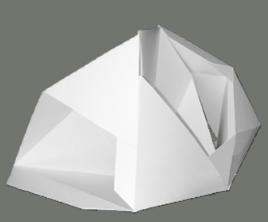
highest room with highest hierarchy, with glazing for light or views of sky



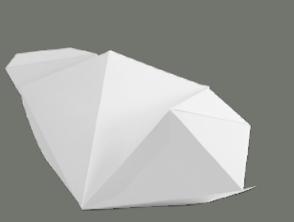
massing uses embedment of identical elements differ in orientations



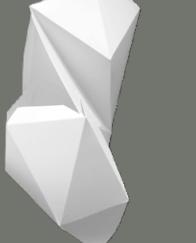
top vs. bottom private vs. public enclosed vs. exposed



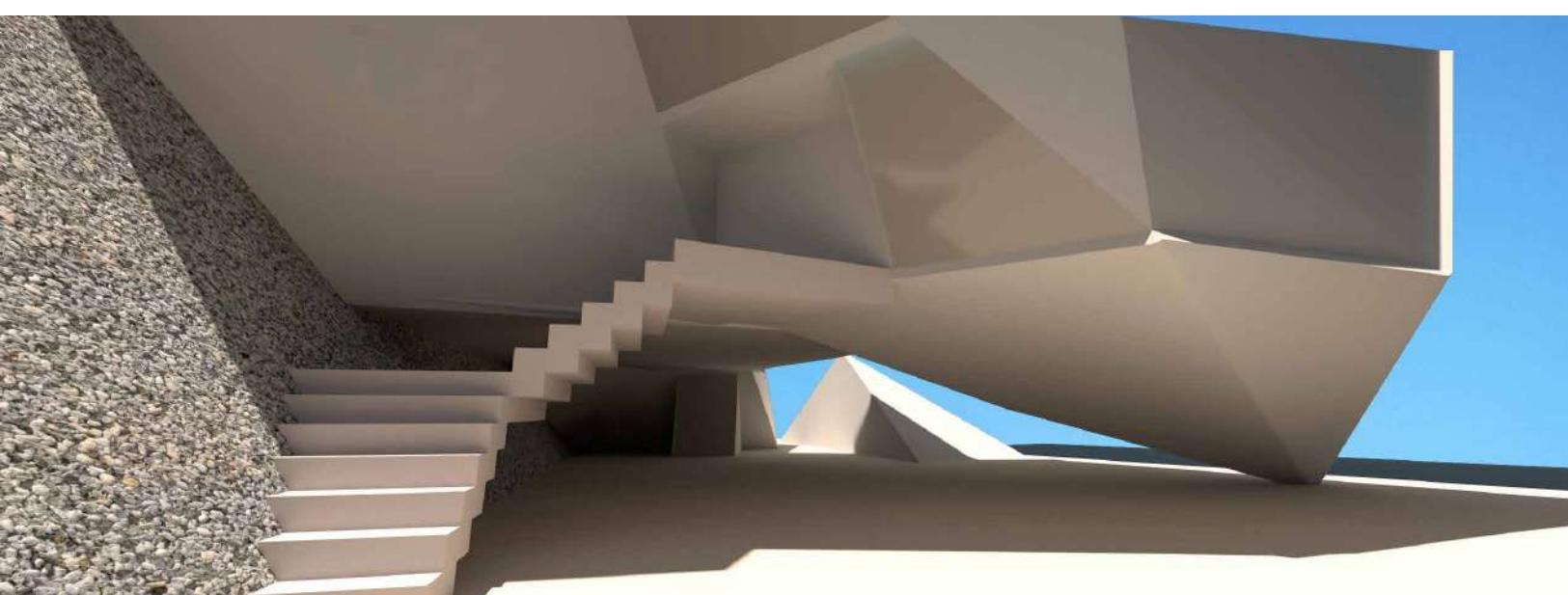
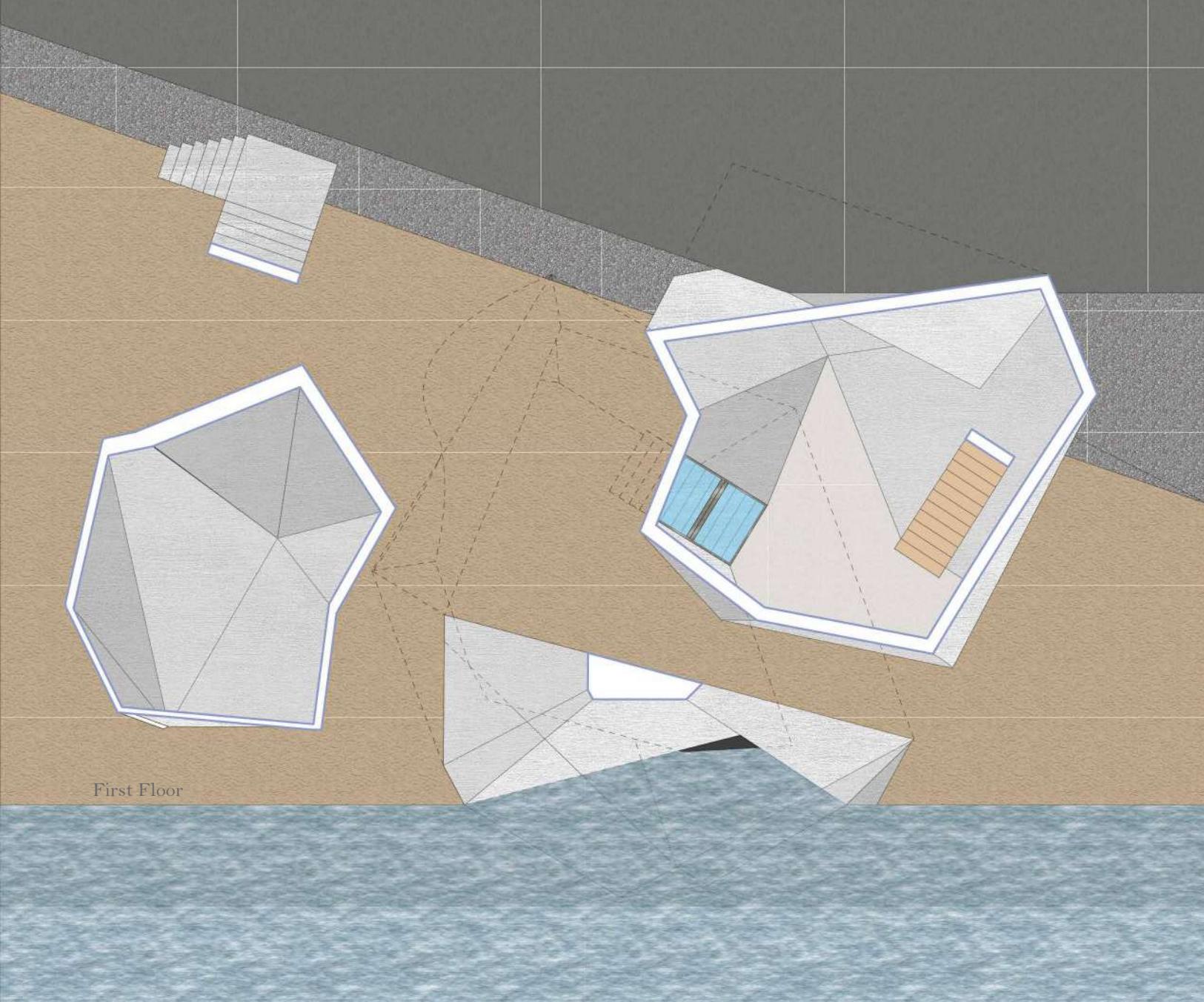
embedding creates partitions between spaces and new configurations

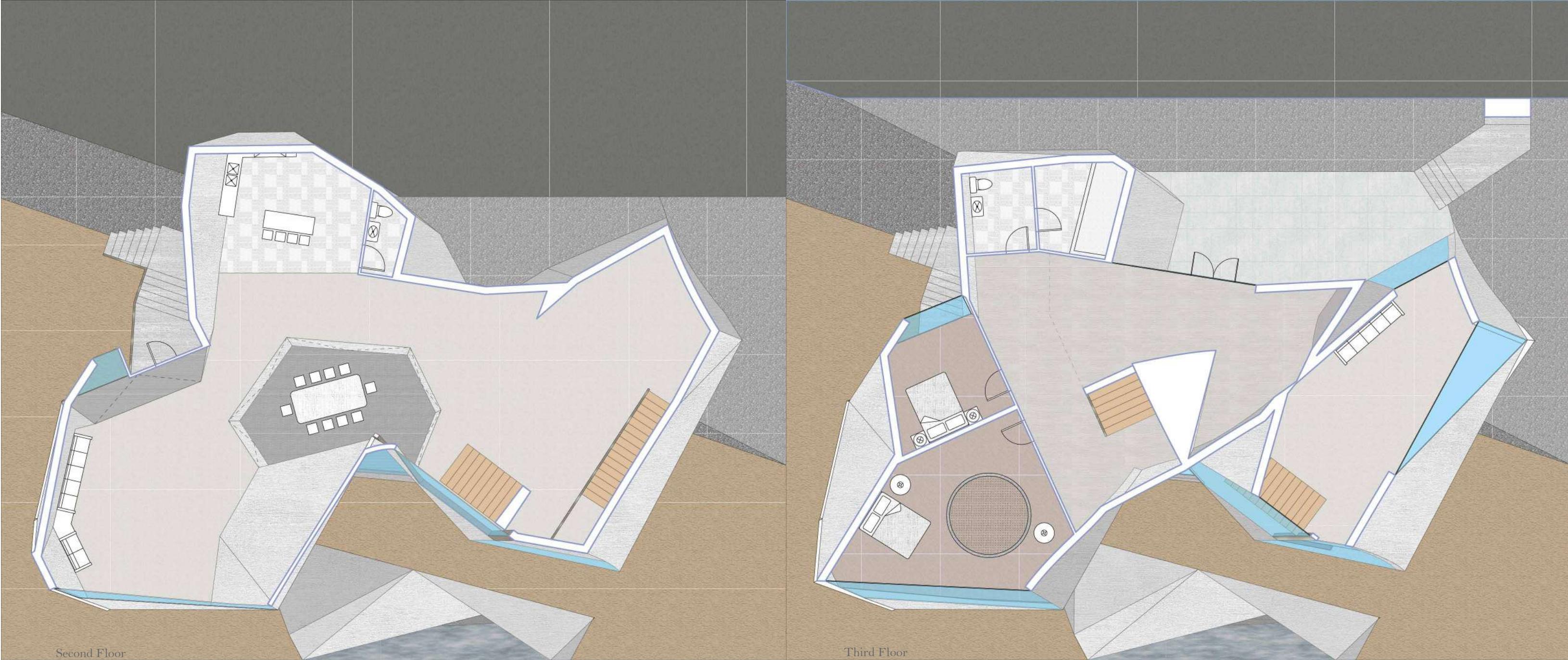


solid vs. void vs. solid relation between spaces implied by massing



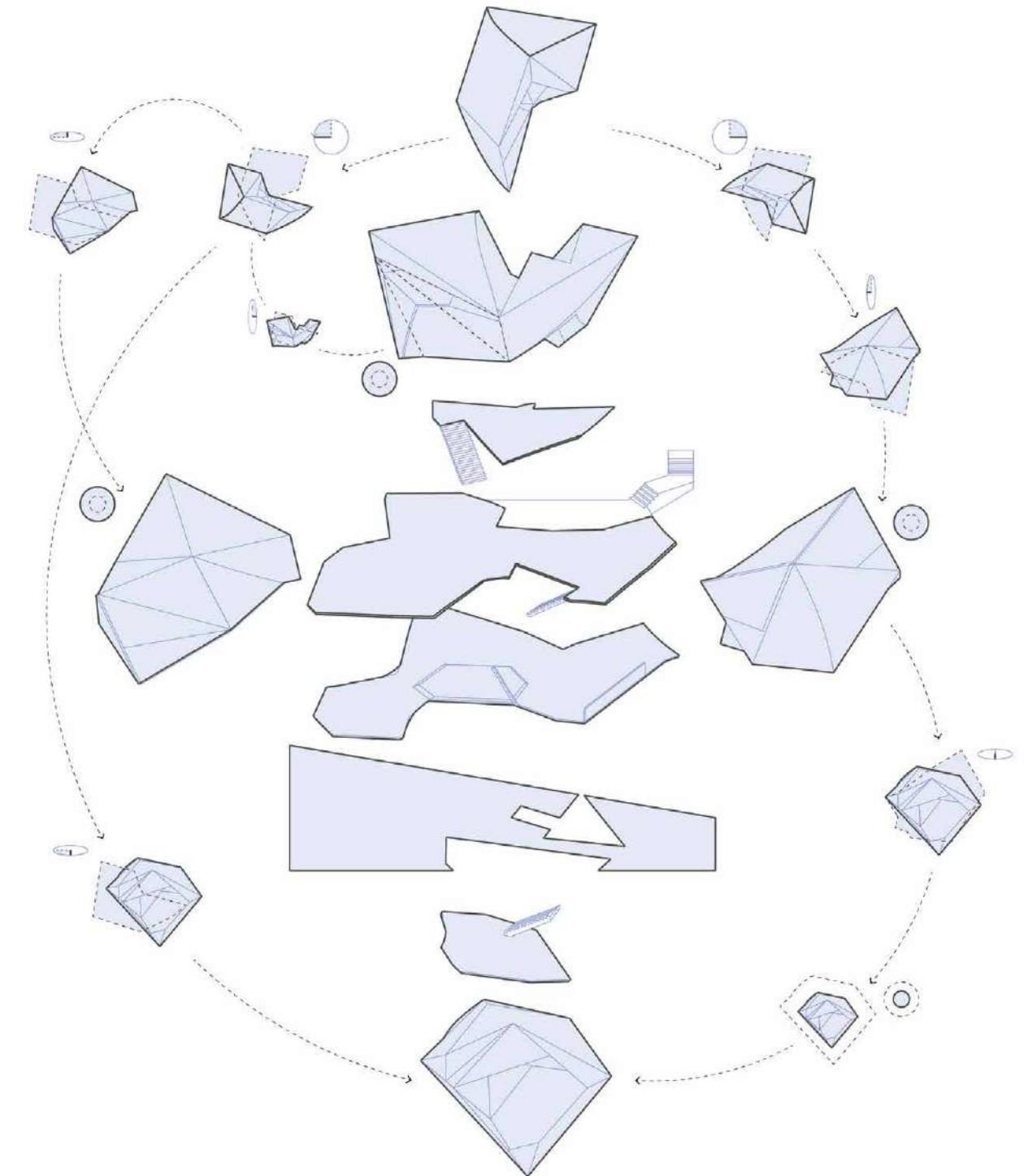
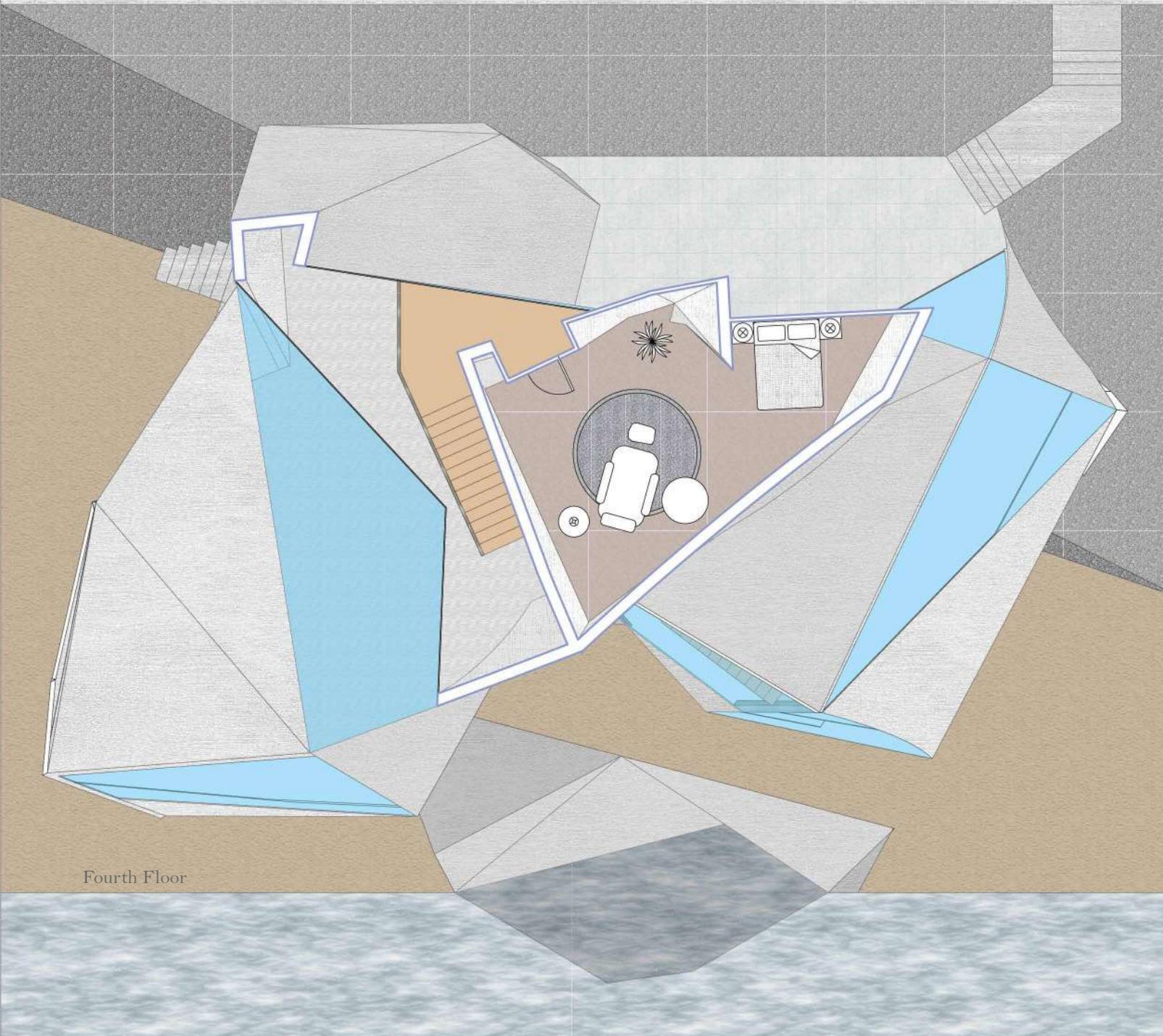
multiple facades for views and informal nature of the retreat house



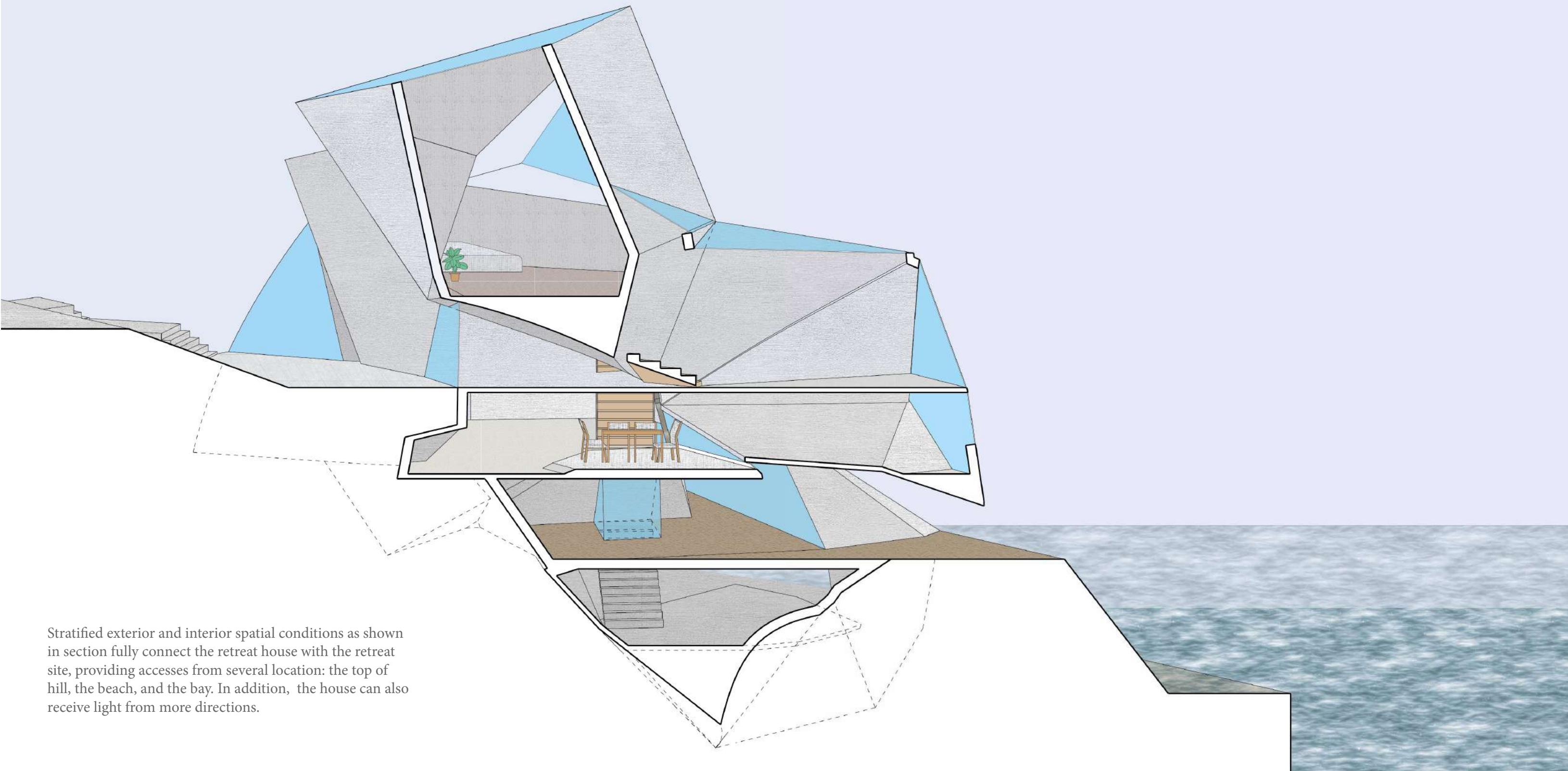


Second Floor

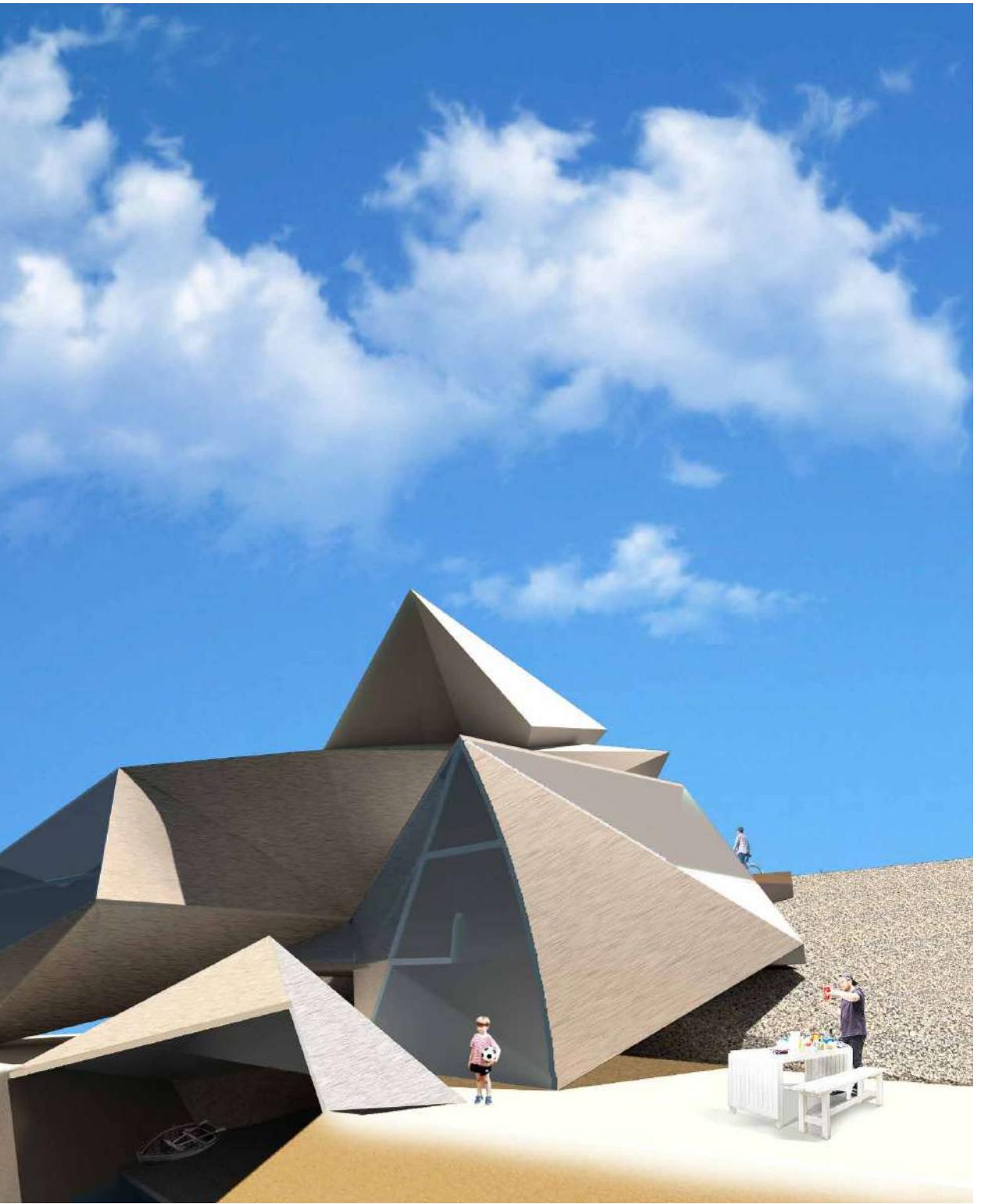
Third Floor



The massing of this project comes from one simple modular form. Through a series of transformation as shown in the diagram above, such as rotation along x-, y-, or z- axis and scaling, the retreat house derives its various functions as new shapes or orientations are created. Small module form can be joined with the large one, or becomes a private space like bedroom or bathroom, while the large public space like dining room, living room, or other available space can be semi-separated the ramining surface of the small modular form.



Stratified exterior and interior spatial conditions as shown in section fully connect the retreat house with the retreat site, providing accesses from several location: the top of hill, the beach, and the bay. In addition, the house can also receive light from more directions.



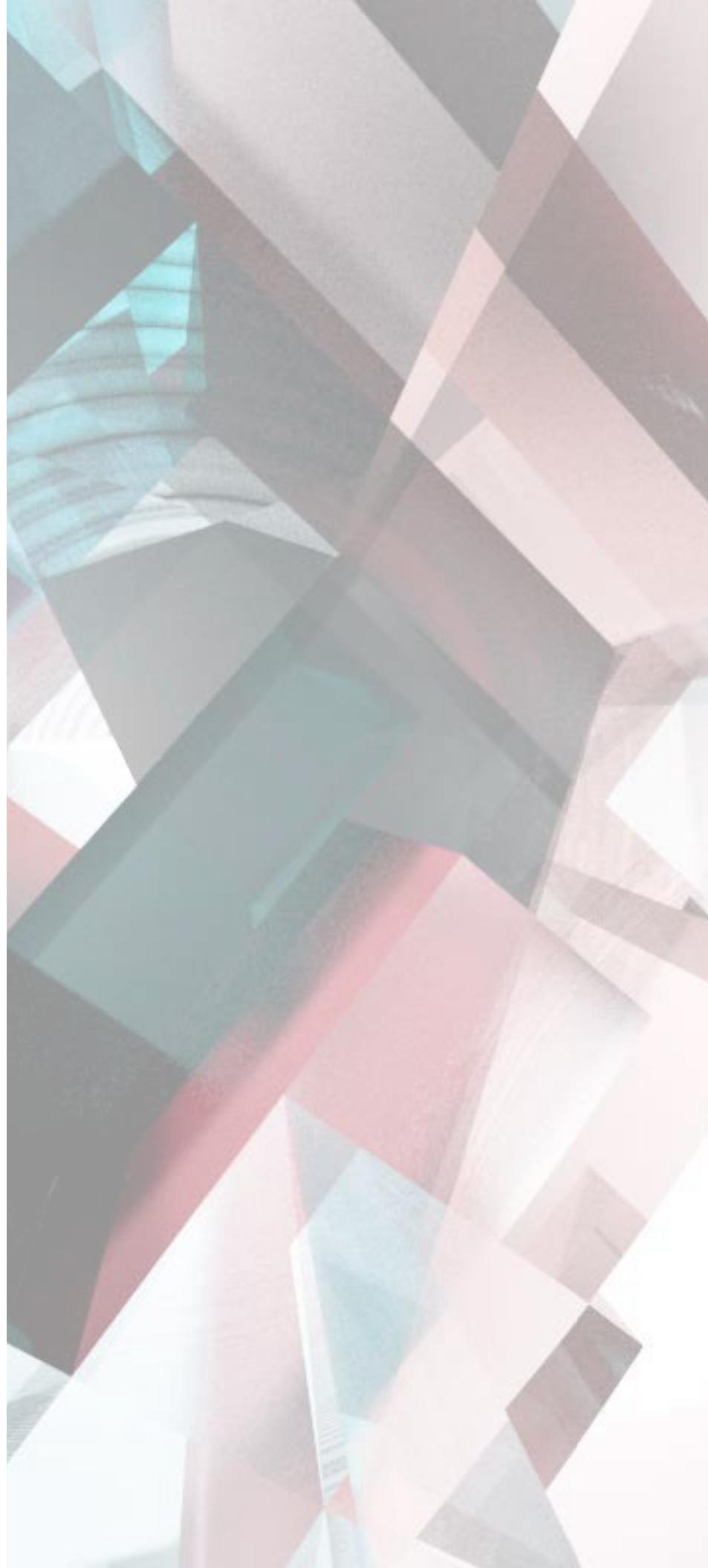
DOWNTON ATHLETIC CLUB

Team project with Joe DeRicco | Spring 18 | Instructor: Andrew Cruse

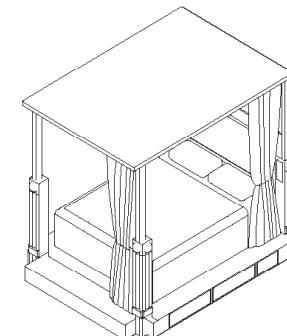
The Athletic Club is designed in the corner of the crossing of West Lane Avenue and North High Street. The building shape got the concaving curves (except the shared wall with the adjacent building) from the site. It symbolizes the tension created by four corners.

Climates are abstract but crucial for architectural spaces. Climates involve temperature, humidity, lighting, air flow, and so on. For this project, a directory of scales is created as guideline because climates are in close relation to the scale of spaces, and the scale is usually a reflection of privacy of programs. Small space types like bedroom or tea house are relatively private, but they can be more flexible in climates due to personal preferences, while large space types like planetarium, and swimming pool are comparatively public, and they have certain requirements as of how the climates should be controlled. Medium spaces are those that linger between the former ones.

Climates seem to be a difficulty to be resolved in an architecture, but they can also be turned into opportunities for designs. Climates should not only be reflected in programs and privacy, they should also be indicated graphically, and eventually, structurally and aesthetically on the building as shown in further development of this project.



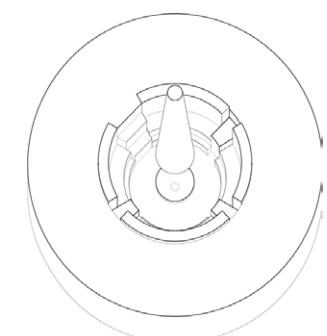
SMALL



4-Poster Bed

Temp: 65-68 °F
Humidity: 45-55 %
Lighting: low
Materials: wood, fabrics

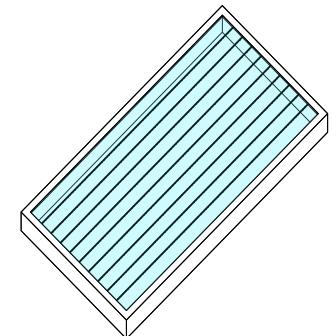
MEDIUM



Conversation Pit

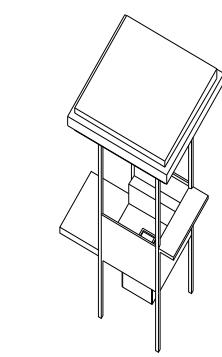
Temp: 77-86 °F
Humidity: 10-20 %
Lighting: mild
Materials: stone, concrete, leather

LARGE



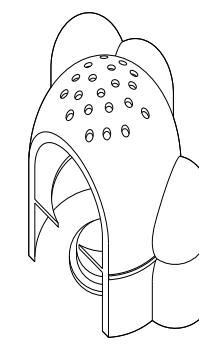
Swimming Pool

Temp: 77-82 °F
Humidity: 35-60 %
Lighting: mild - high
Materials: concrete, water



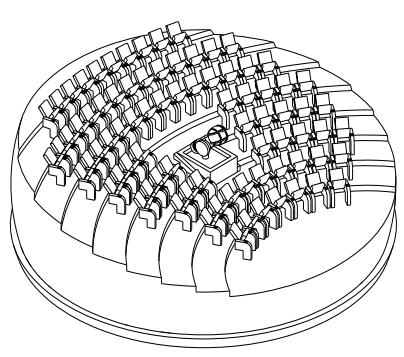
Tea House

Temp: 75-82 °F
Humidity: 56-80 %
Lighting: High
Materials: stone, wood



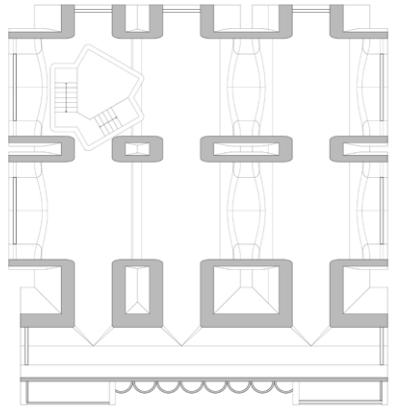
Hammam

Temp: 77-122 °F
Humidity: 95-100 %
Lighting: high
Materials: stone, concrete, water



Planetarium

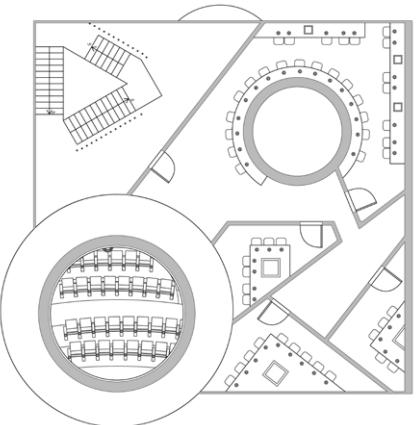
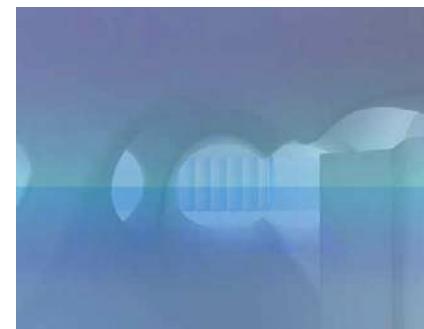
Temp: 66-68 °F
Humidity: 70 %
Lighting: low
Materials: concrete, plastic, fabrics



(Top Level)
Swimming pool

Temperature: Cool
Humidity: High
Function: Public

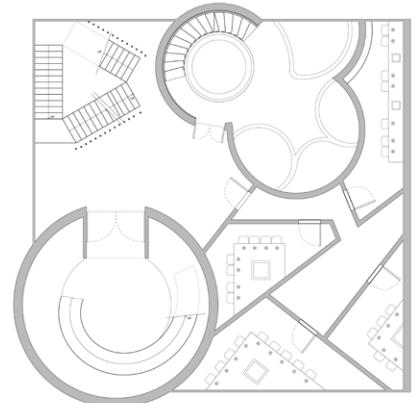
Organized



(3rd Level)
Planetarium, Tea House

Temperature: Warm
Humidity: Mild
Function: Public - Private

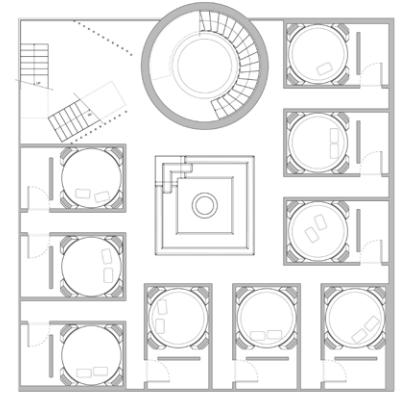
Arbitrary



(2nd Level)
Hammam, Tea house

Temperature: Warm - hot
Humidity: Mild - high
Function: Public - private

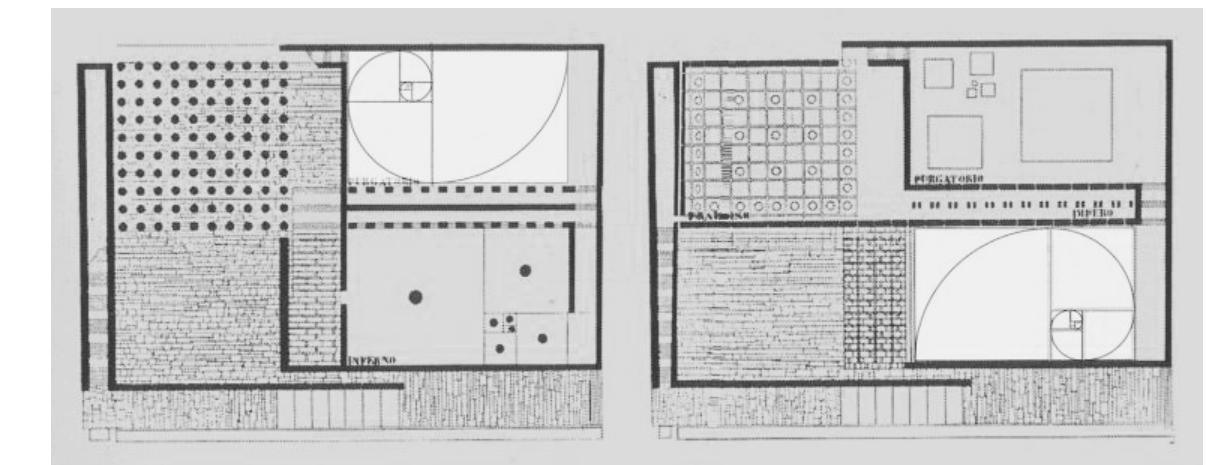
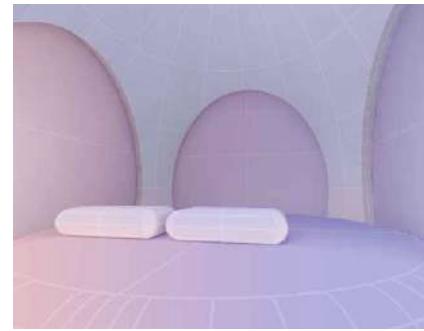
Arbitrary



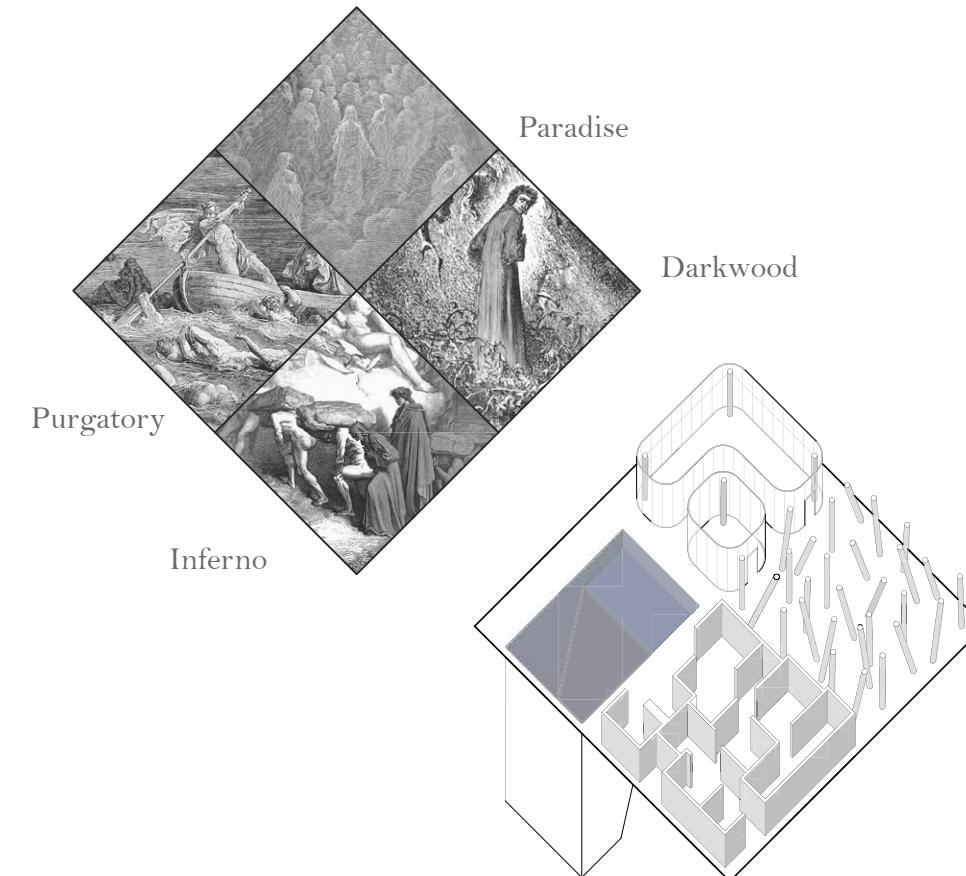
(Ground Level)
Lodging, Conversation pit

Temperature: Warm
Humidity: Low
Function: Private (public)

Organized



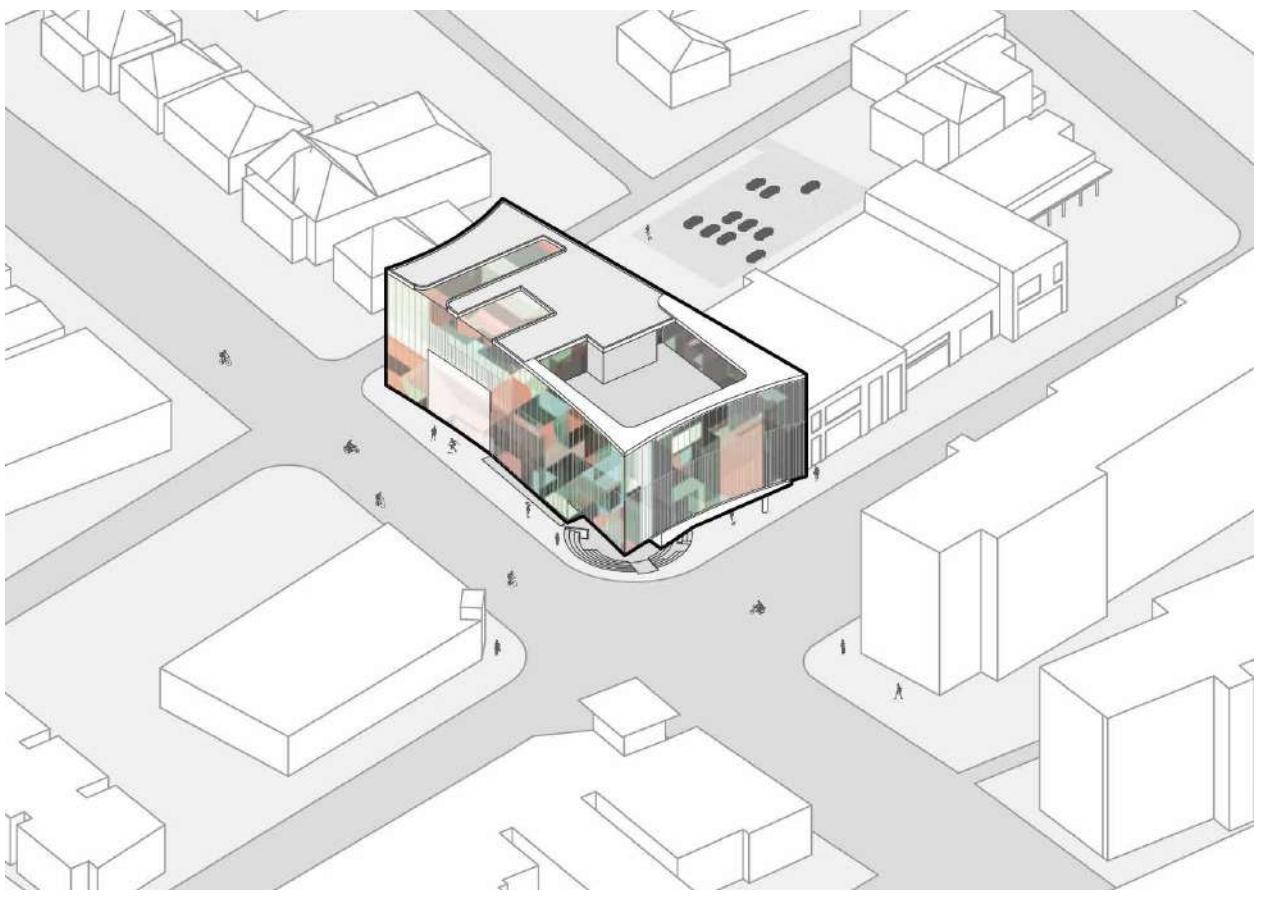
Plans of Danteum by Giuseppe Terragni



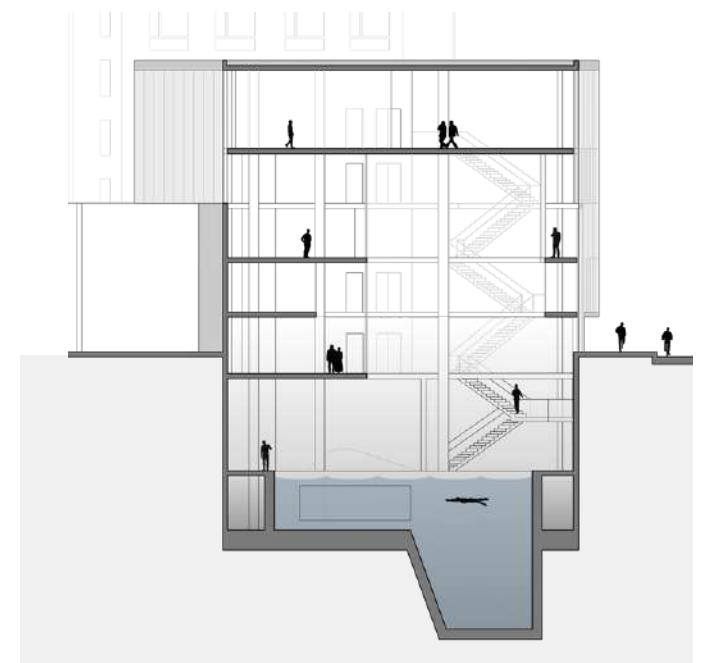
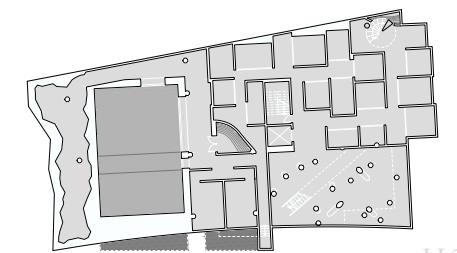
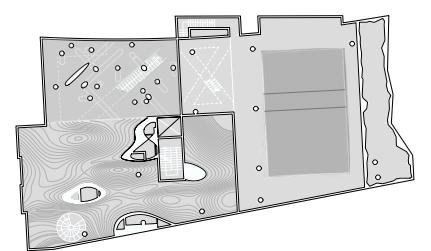
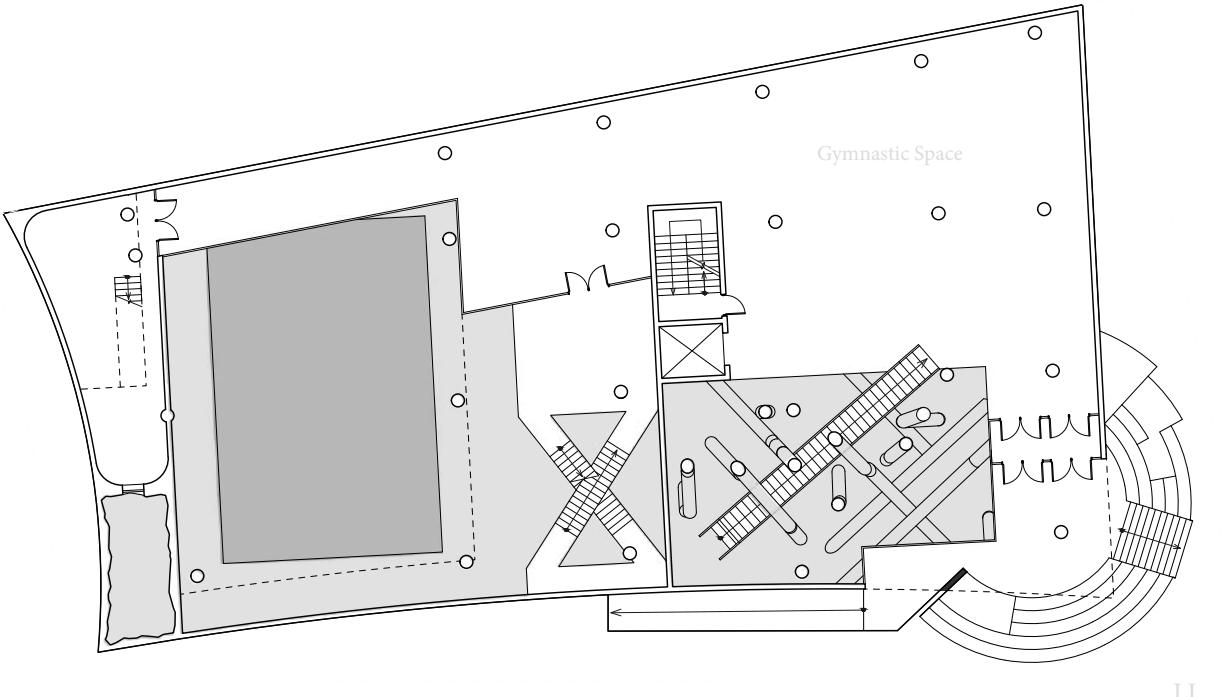
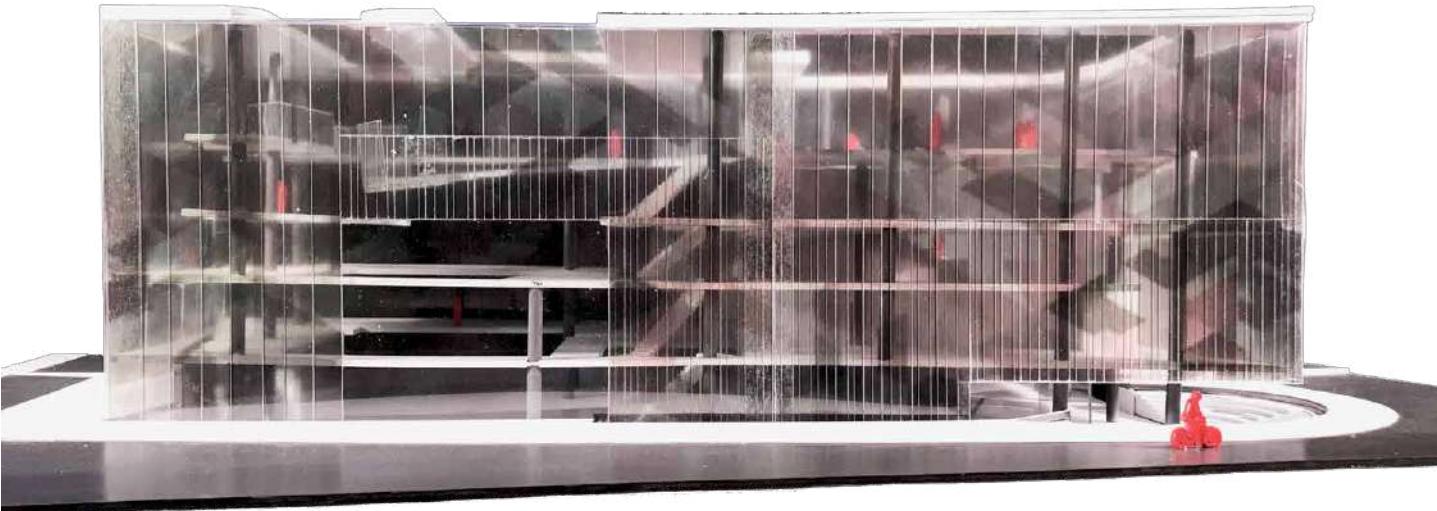
The athletic club combines the inspiration from climates and Giuseppe Terragni's Danteum. To structurally visualize Darkwood, Inferno, Purgatory, and Paradise, the project follows the diagram of different spatial conditions regarding each type of climate. Here, the four types of spaces are assigned with the following climates and structure:

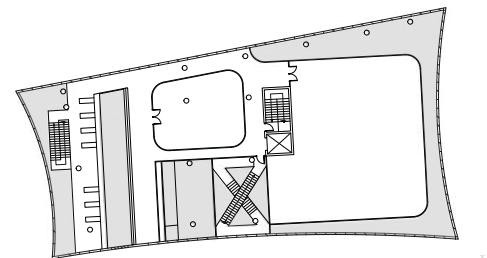
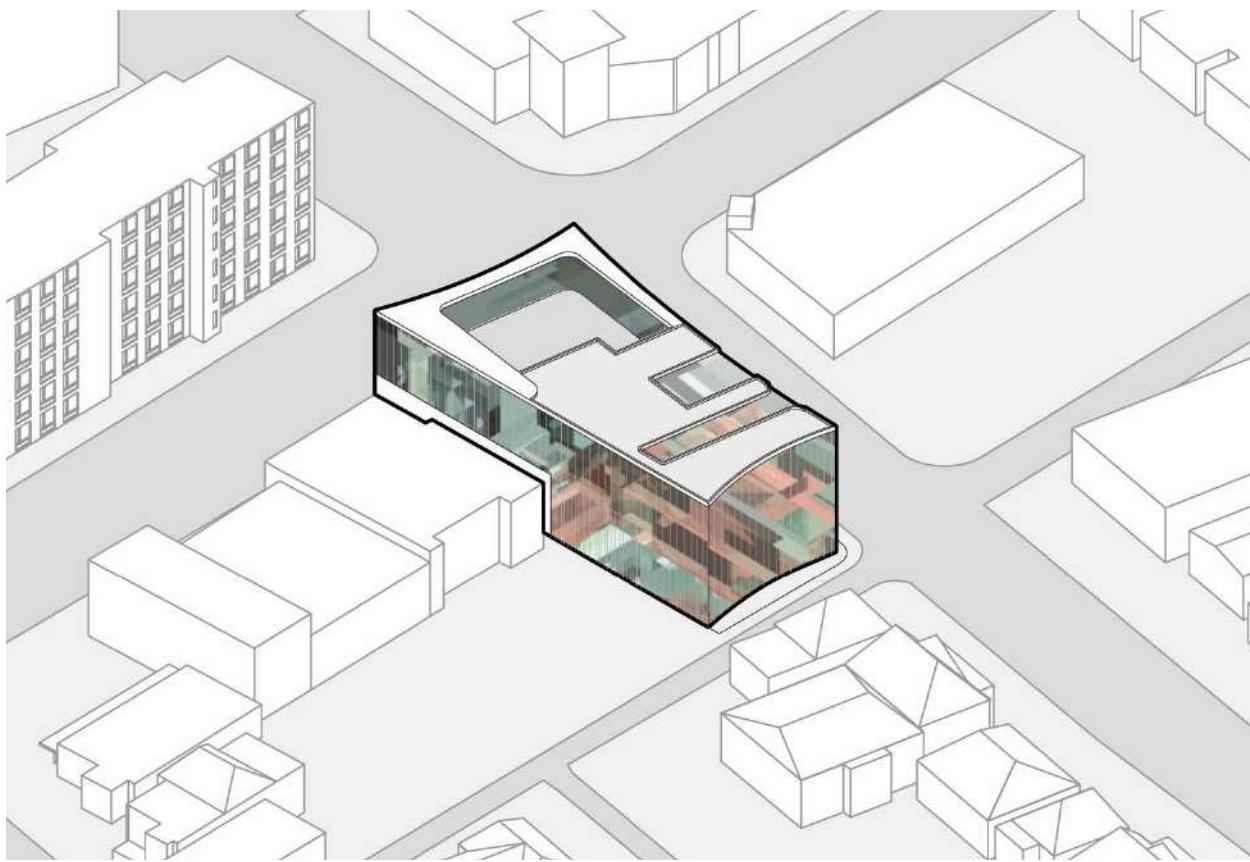
Purgatory -- warm (humid), bright, none (swimming pool, large open public)
Inferno -- hot, dark, imperfect joints (hot sauna)

Paradise -- cool, very bright, rounded joints (concert, yoga rooms, gallery, library)
Darkwood -- chill, dim light, unstable (resting, reception)



Climate is unstable, similar to glass reflections; the massings are composed of glass cubes; different colors of glass cubes signify different ranges of temperature. Although only four kinds of climates have been used, the resulting effects of those climates can generate new gradient climates. It can also be anticipated that there is no clear edges among reflections or real climates.





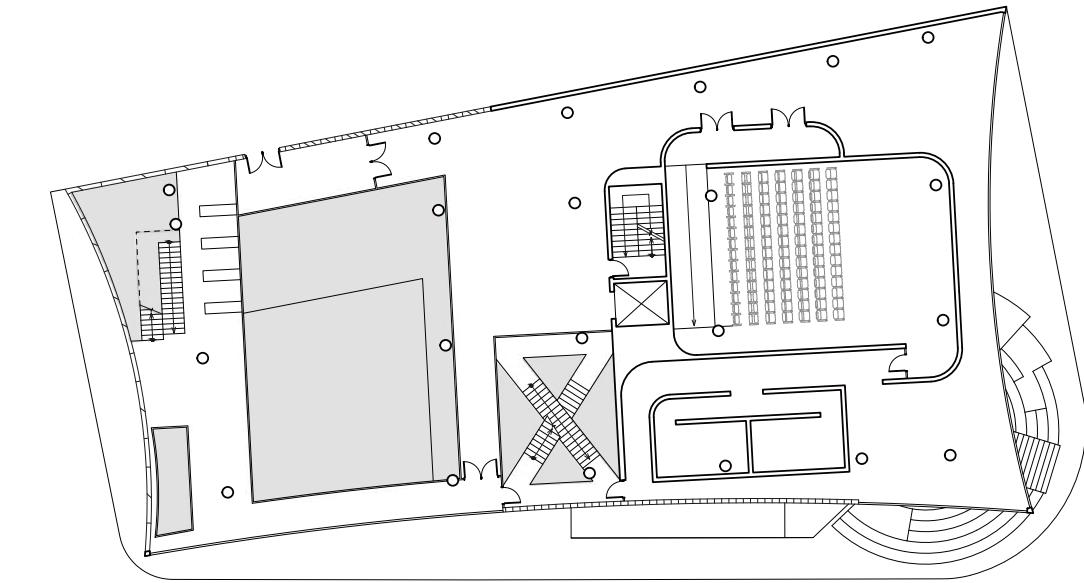
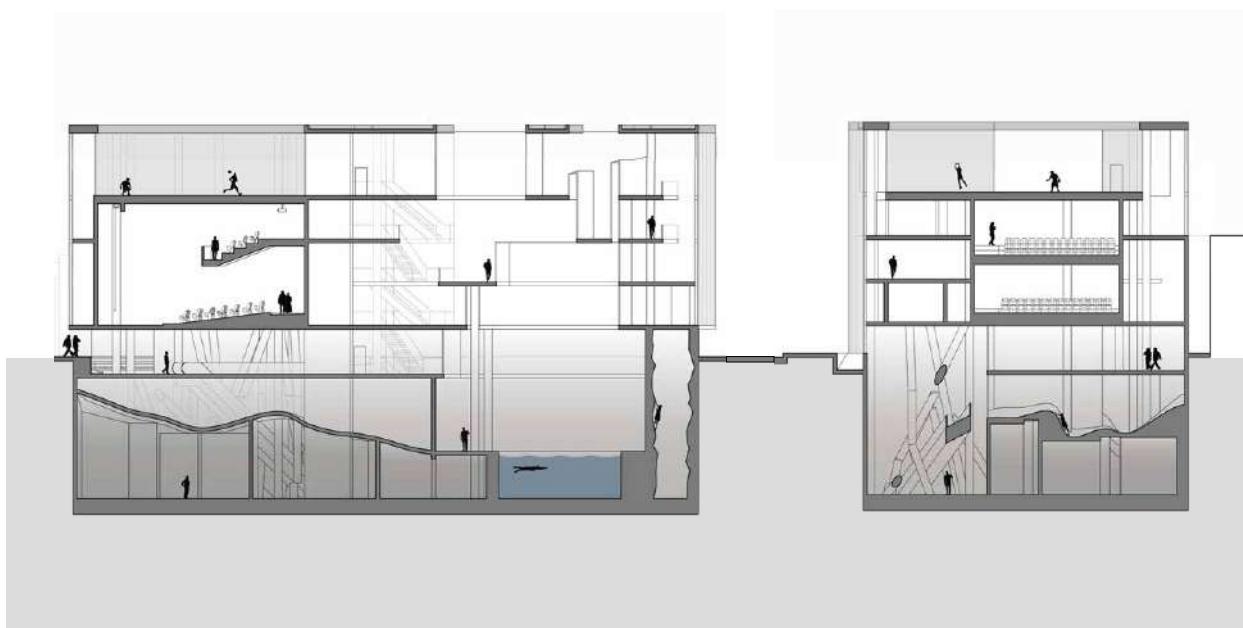
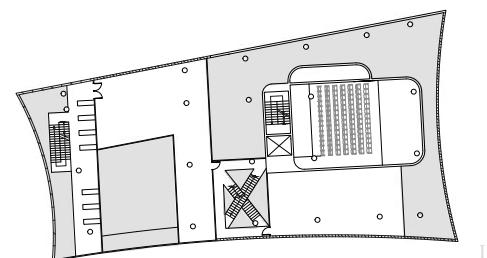
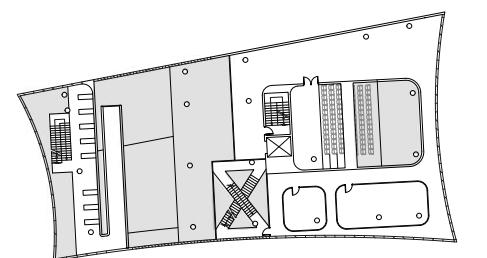
The project also reverse the comfortability of those four climates:

Darkwood - Open lounge
Discomfort? True. Unstable and dark spaces.

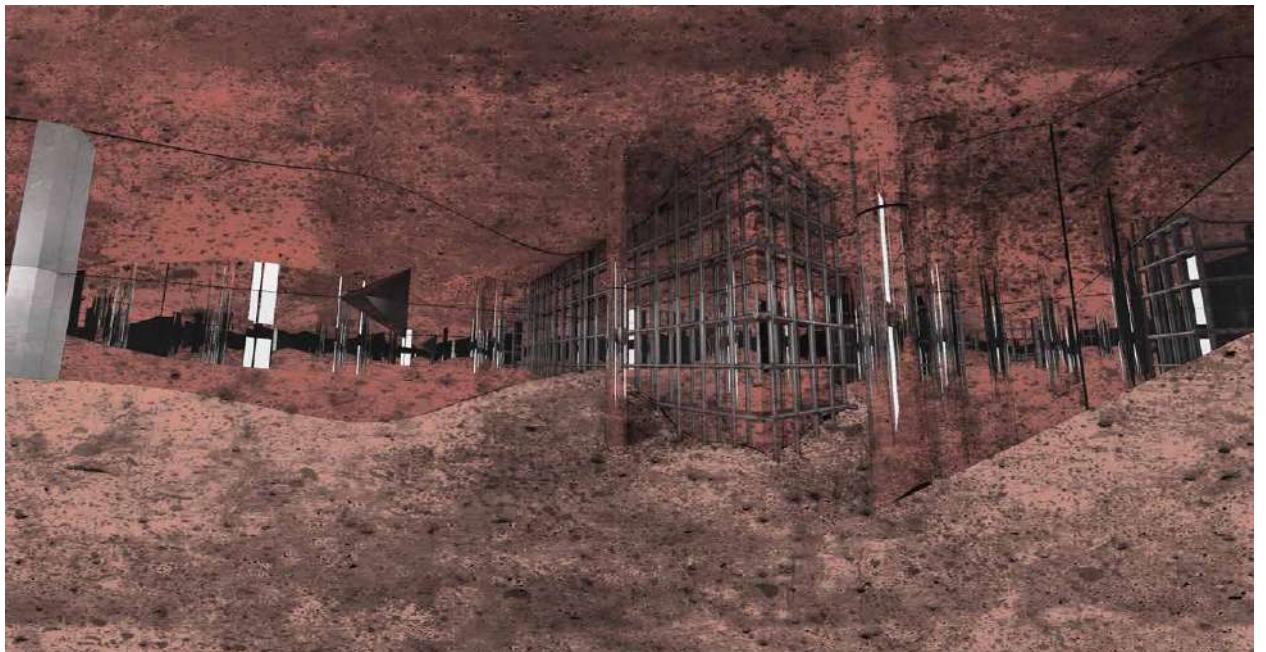
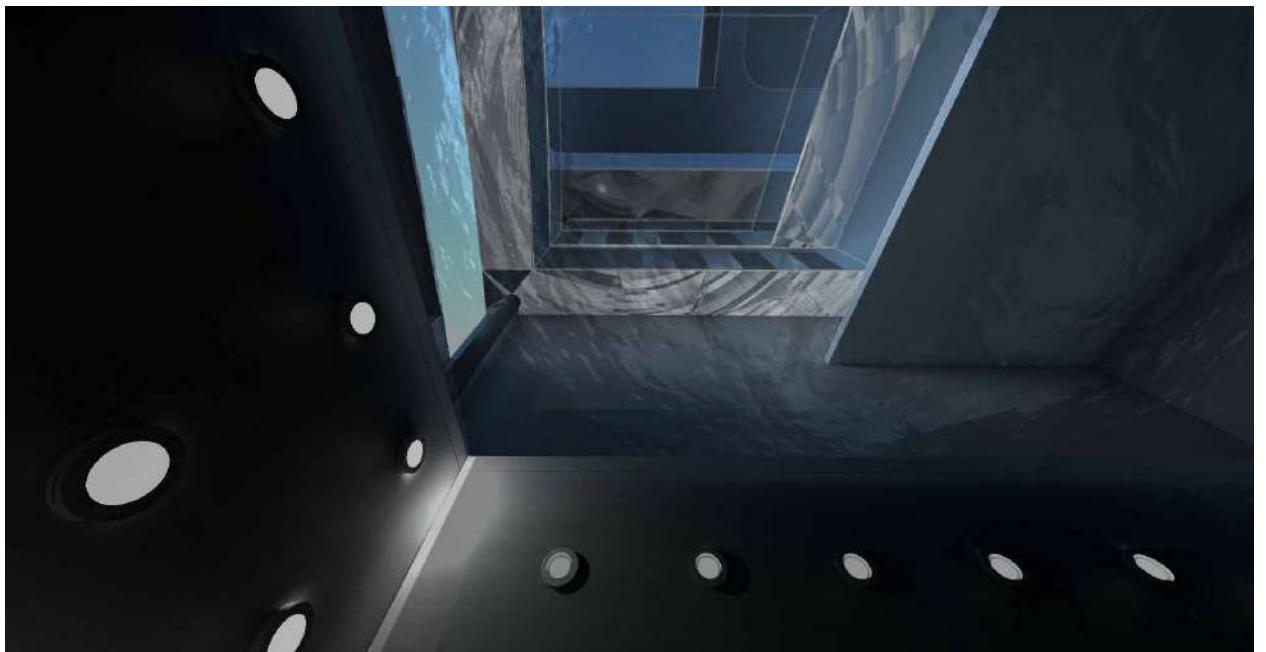
Inferno - saunas
Discomfort? Partially false. Individual rooms provide privacy, which is comfortable. Public sauna room with artificial terrace, comfortable as seating.

Purgatory - swimming pool and deep diving
Comfort? Partially false. Swimming pool with high ceiling receives lights but also attentions. The feeling of being supervised is discomfort.

Paradise - cinema, library, yoga
Comfort? True. These spaces provide both physical and mental relaxations, with favored climates for most.



L1

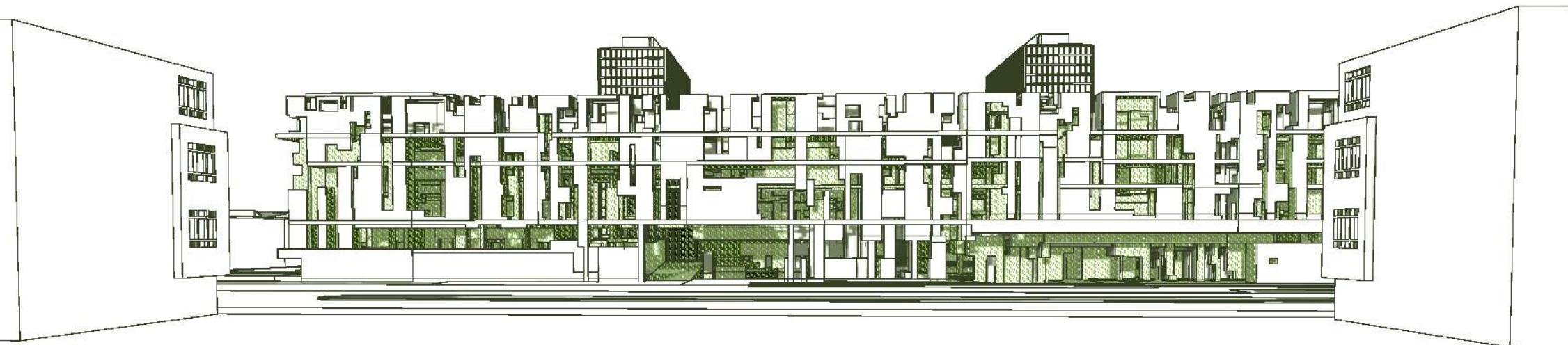


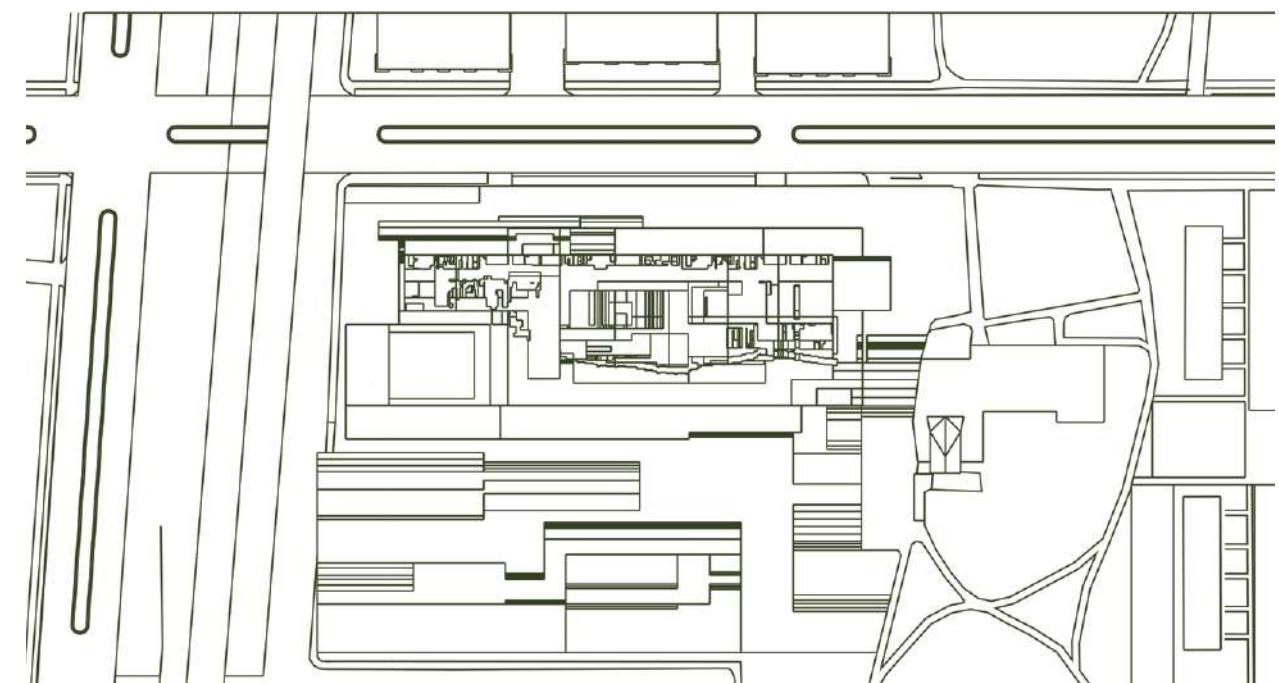
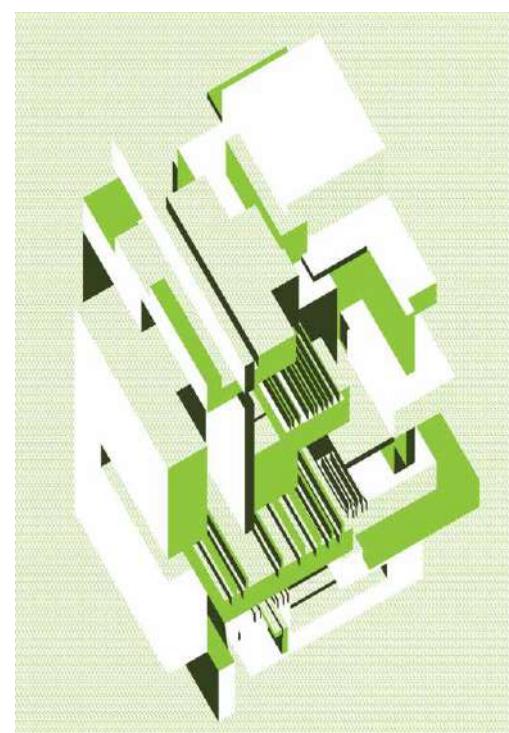
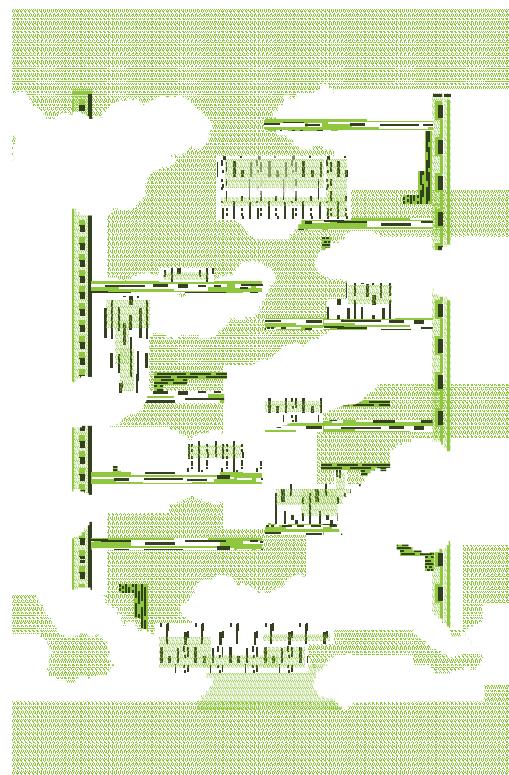
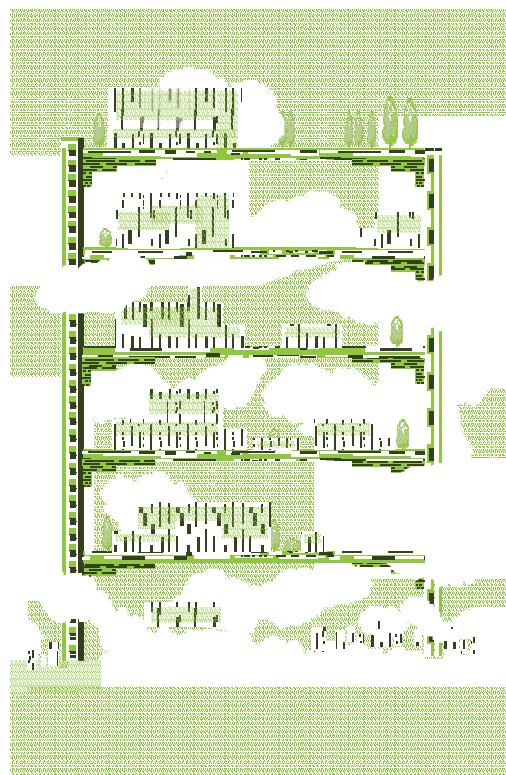
ARETHA FRANKLIN HIGH SCHOOL

Gu Competition | Autumn 18 | Instructor: Stephen Turk

The Athletic Club is designed in the corner of the crossing of West Lane Avenue and North High Street. The building shape got the concaving curves (except the shared wall with the adjacent building) from the site. It symbolizes the tension created by four corners.

Climates are abstract but crucial for architectural spaces. Climates involve temperature, humidity, lighting, air flow, and so on. For this project, a directory of scales is created as guideline because climates are in close relation to the scale of spaces, and the scale is usually a reflection of privacy of programs. Small space types like bedroom or tea house are relatively private, but they can be more flexible in climates due to personal preferences, while large space types like planetarium, and swimming pool are comparatively public, and they have certain requirements as of how the climates should be controlled. Medium spaces are those that linger between the former ones.





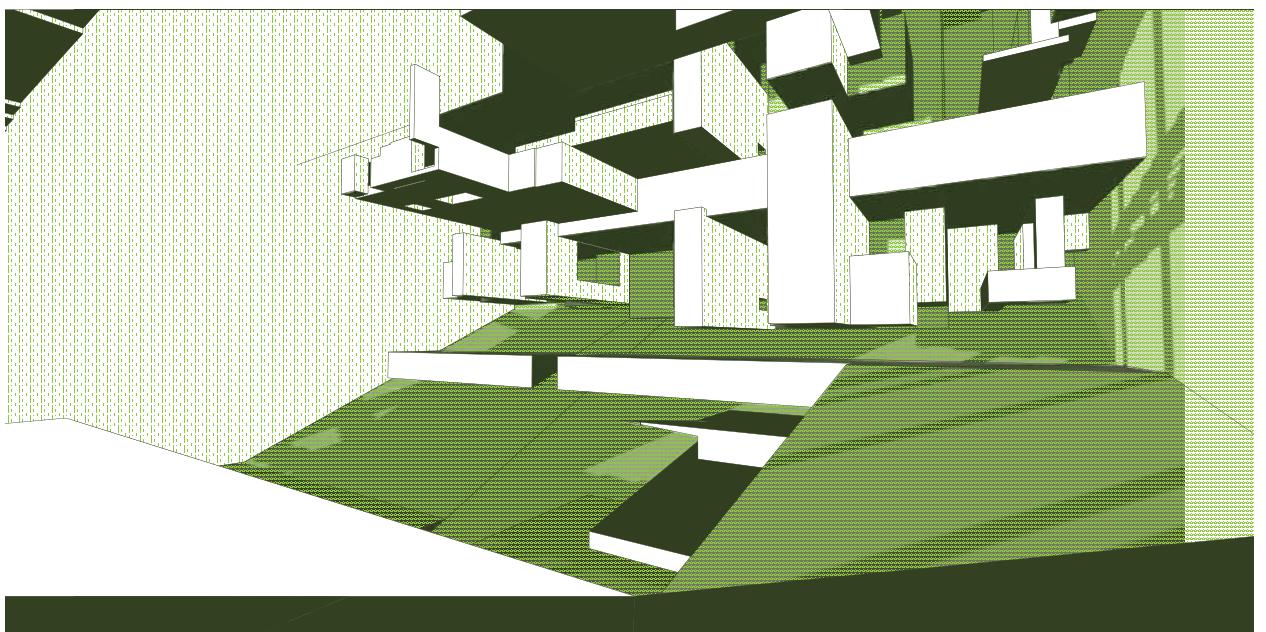
The syncopatedly pixelated long facade responds to the urban site, while the opposite side of the facade mimics the patterns of clouds to merge into the



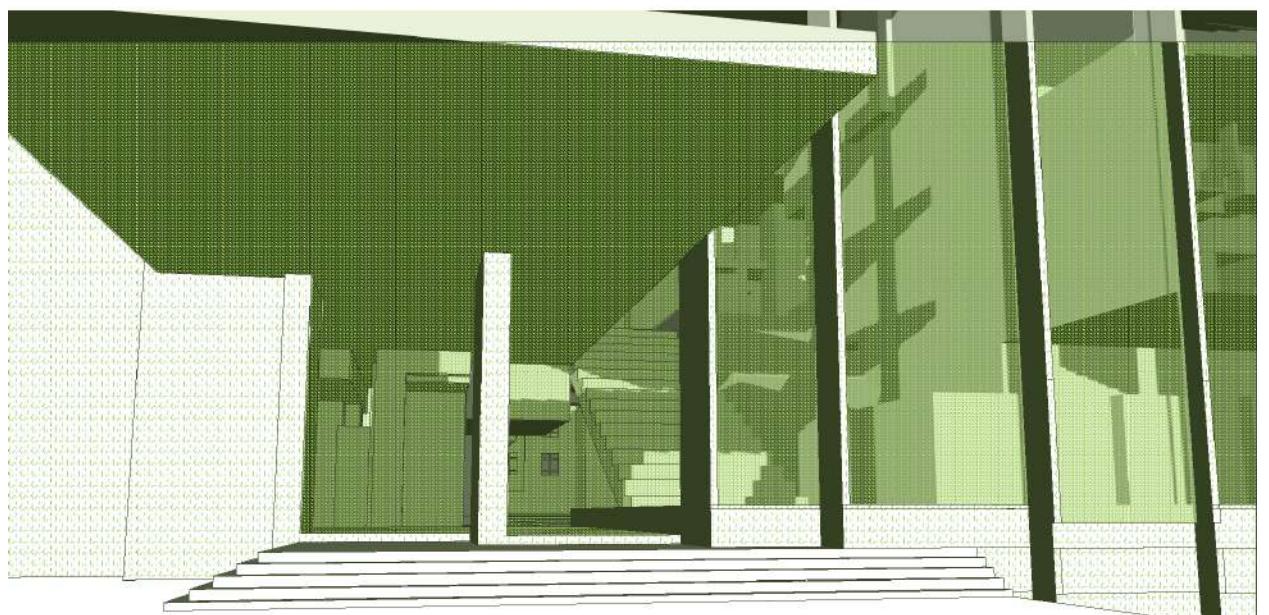




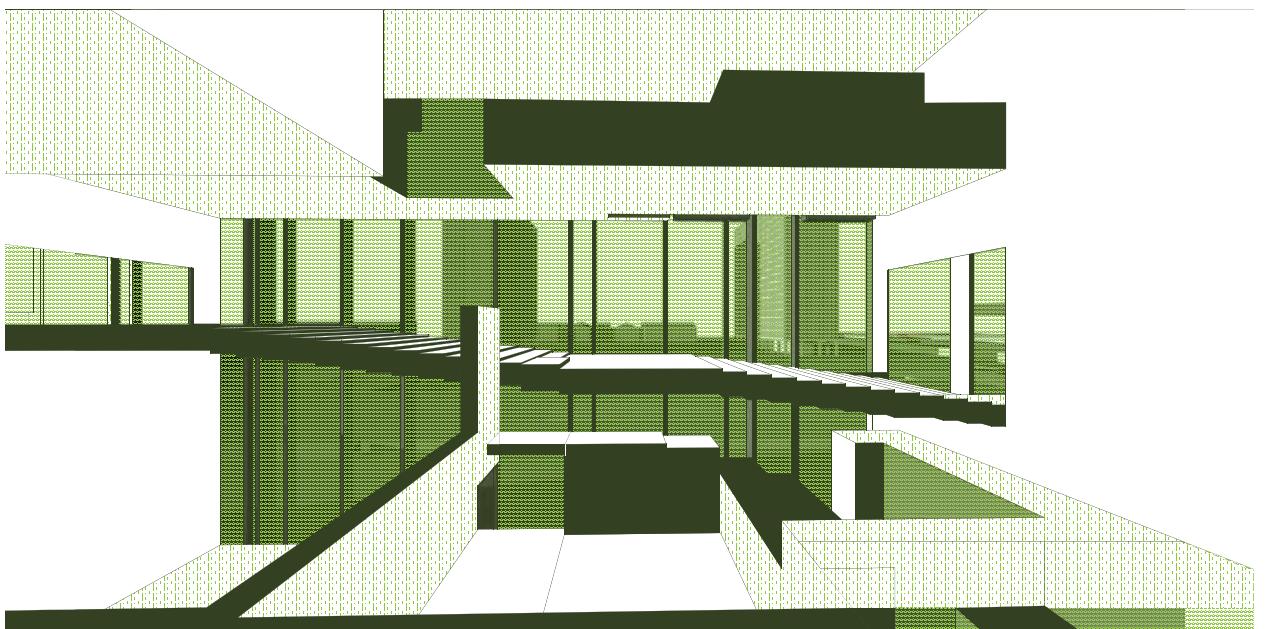
Entry from urban side



Auditorium - glazing as background of stage



Entry from landscape



Auditorium - multiple sections of seatings



SITE SKETCHES

Study Abroad | Summer 17 | Instructor: Jacqueline Gargus

This study abroad class was one of the most inspiring classes I have taken. Not only did I enjoy the aura in the cities where the world-famous architecture were constructed, I was glad to gain full experience within the architecture itself, the artworks by those brilliant architects.

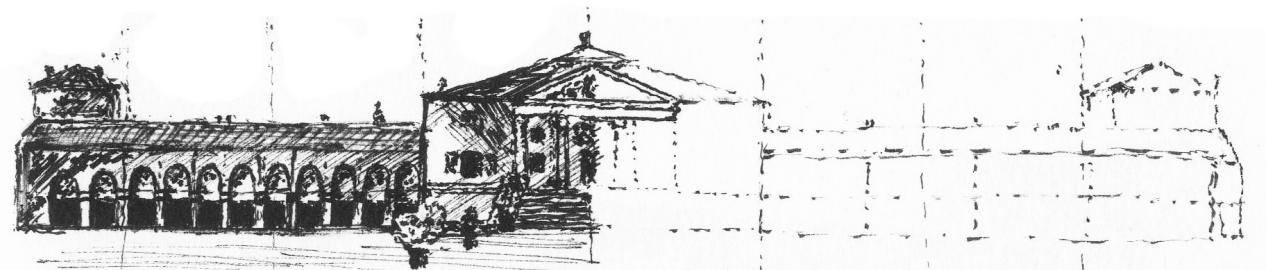
Through the hand sketches, with the challenge of limited time and tools, I tried my best endeavor to understand form, light, circulation, building-site relation, and so on.



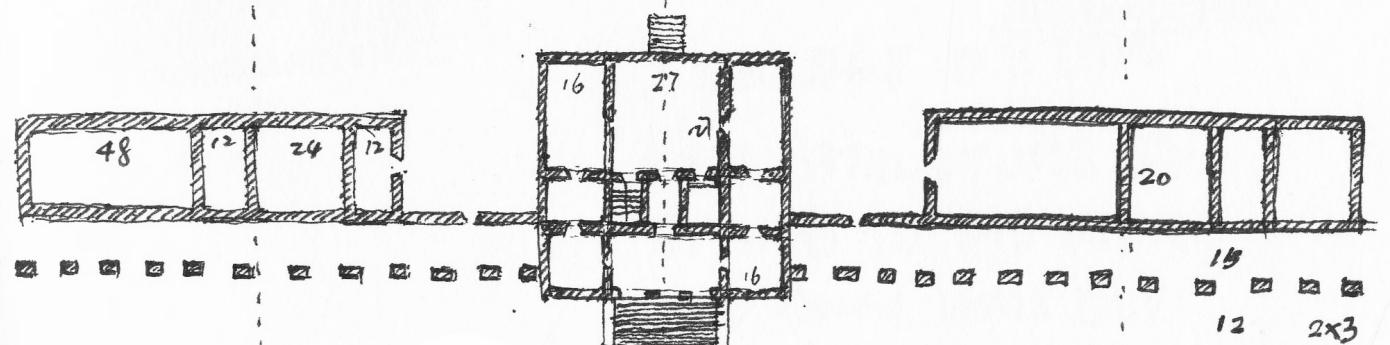
ELEVATION



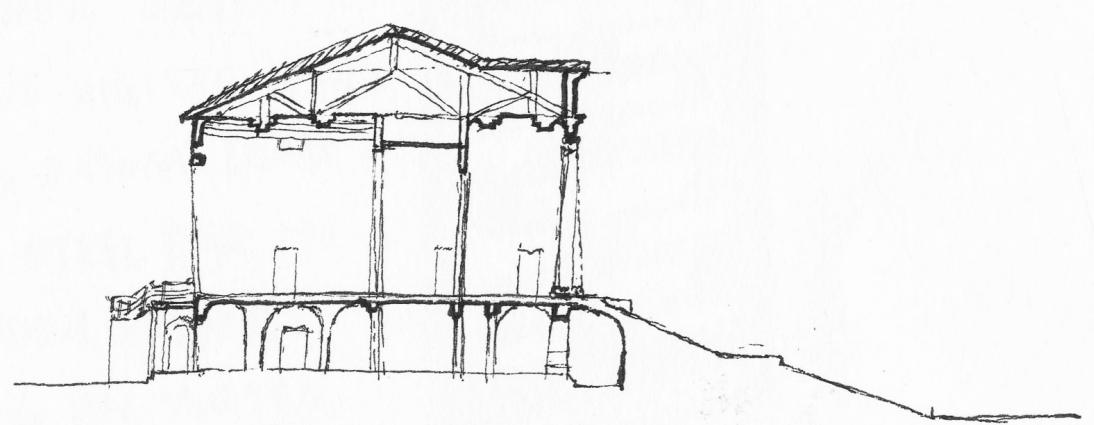
FACADE



Extreme Symmetry



16 x 16
12 x 16
16 x 27



VILLA EMO

ANDREA PALLADIO . FANZOLA . 1559

VISITED MAY

