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New Zealand Qualifications Authority

Scholarship 2023

Design and Visual Communication 93602

**OUTSTANDING SCHOLARSHIP
EXEMPLAR**

THE CAUSTICS HOUSE

LEVEL 3



RESEARCH ANALYSIS



Ties in elements of traditional Japanese architecture:
wooden flooring + functional/aesthetic garden spaces



walls/windows with this cross design. Not much functional purpose but I enjoy the aesthetic.

Very much nature incorporated design conscious.



I like the idea of nature playing a functional & aesthetic role



Use of wood for an "unfurnished" look. No paint + texturing.

Sloped roofs — Shingles are stacked on top of one another to create the layered effect sought after in many contemporary designs.



Traditional

Tatami Mats

Traditionally made with Rice straw to form the Core.



Inner courtyard with walls facing in on other sides. could be a location for gathering and recreational use, perfect for a multi-generational family functional & aesthetic



- DESIGNER STUDY -

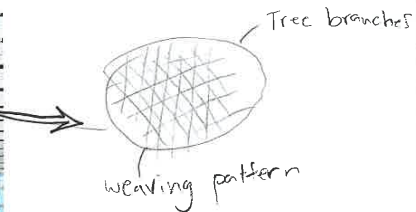


Zaha Hadid was an Iraqi-British artist and designer recognised as a major figure in architecture of the late 20th and early 21st centuries.

Her work is heavily inspired by forms found naturally within nature. The movements of waves, light and flora all play subtle large roles within her work.



Shapes layered on top of each other



weaving pattern



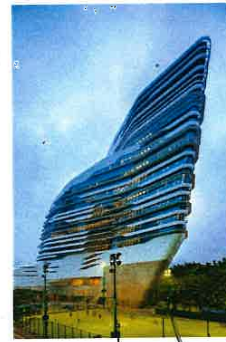
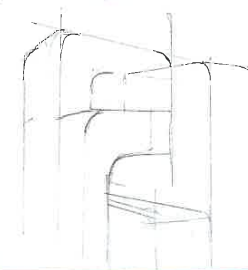
Snake like motion

Resembles a current-wave

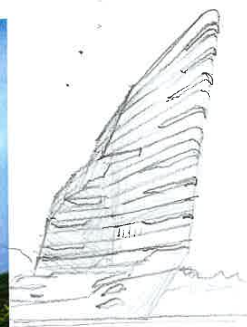


waterfall?

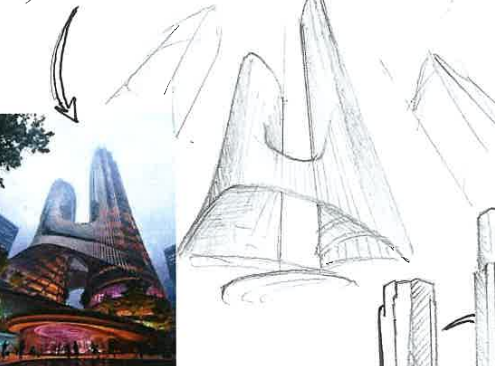
Rounded corners (no sharp edges)



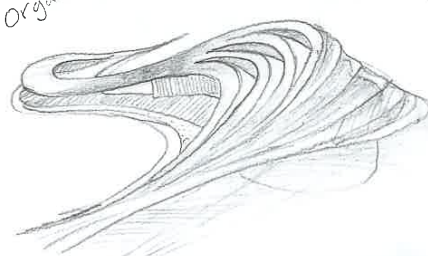
Rock like formation
Stacked stories



Big concrete formation = dominance



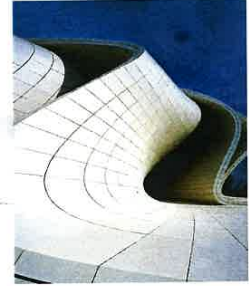
Organic curves



flowing wavelike shape



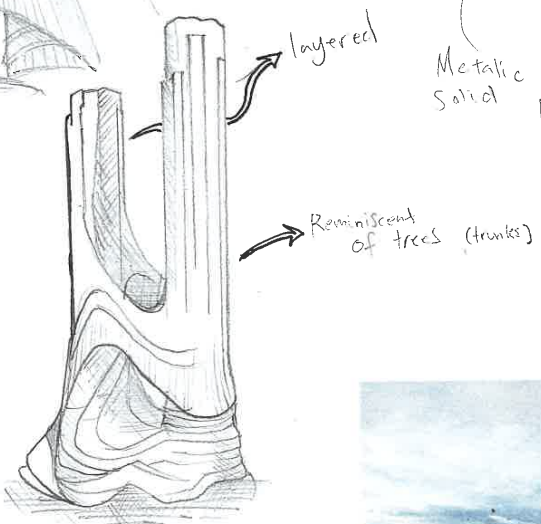
Metallic and solid but wavy



organic



Modern & unique



layered

Reminiscent of trees (trunks)

Tree trunk looking structure again



tiered buildings

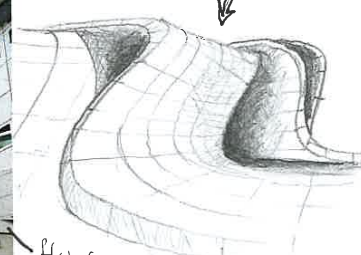
Tree canopy



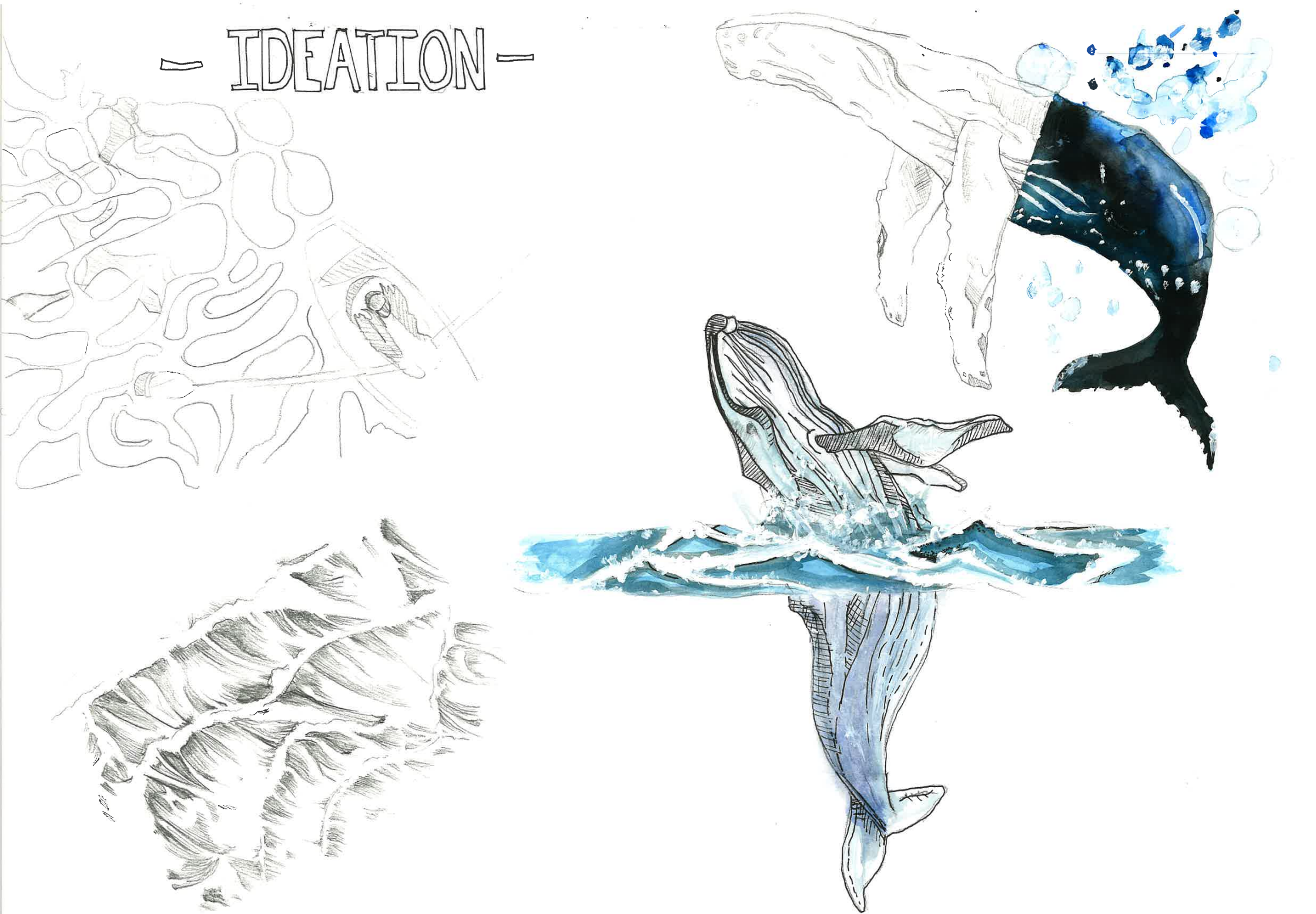
stacked

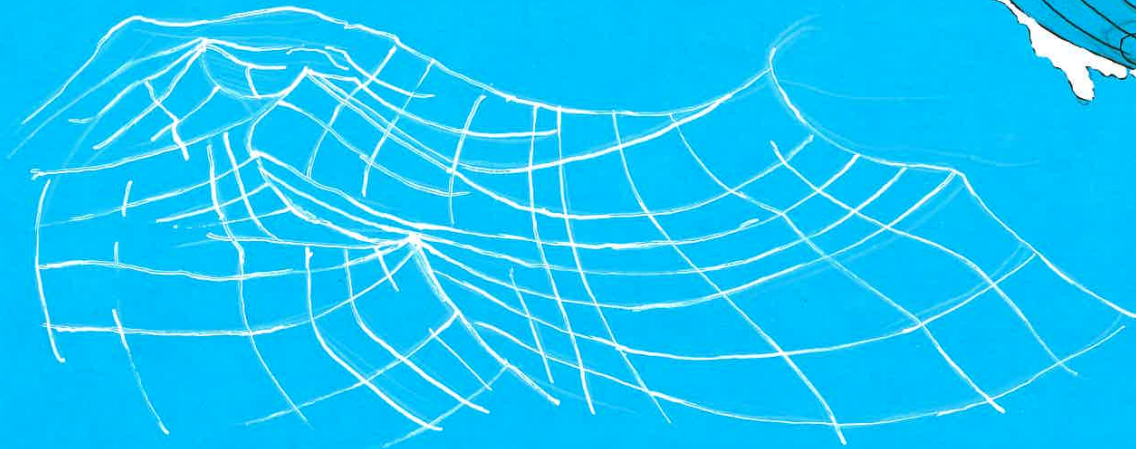
flares

wavy design



- IDEATION -

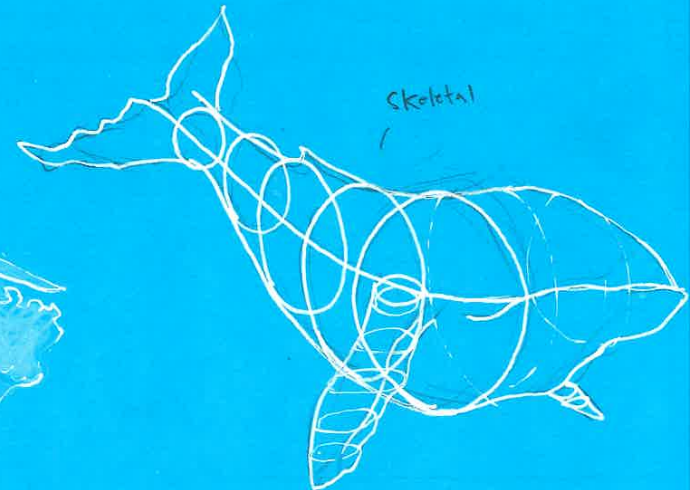




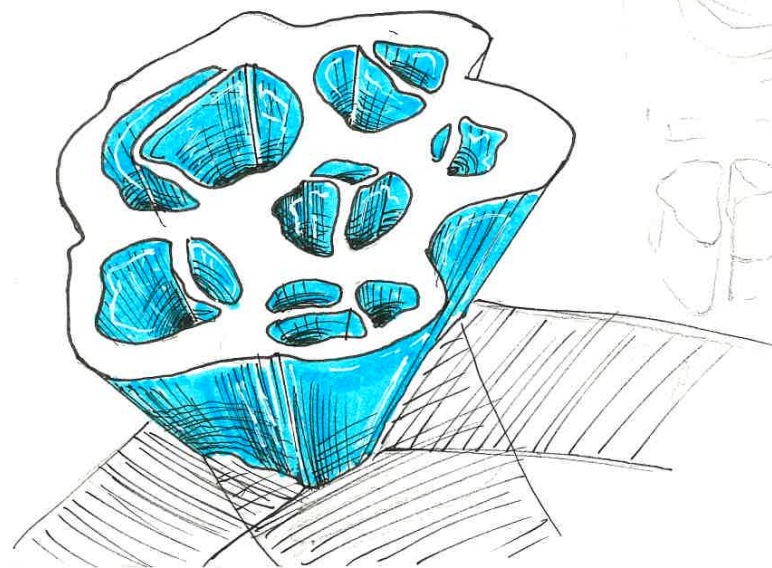
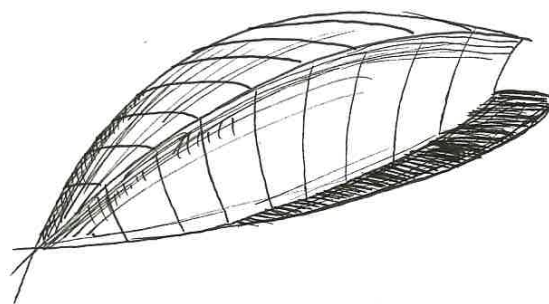
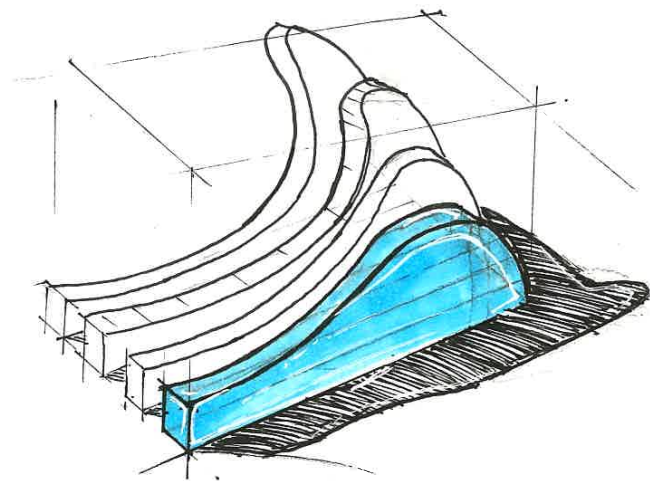
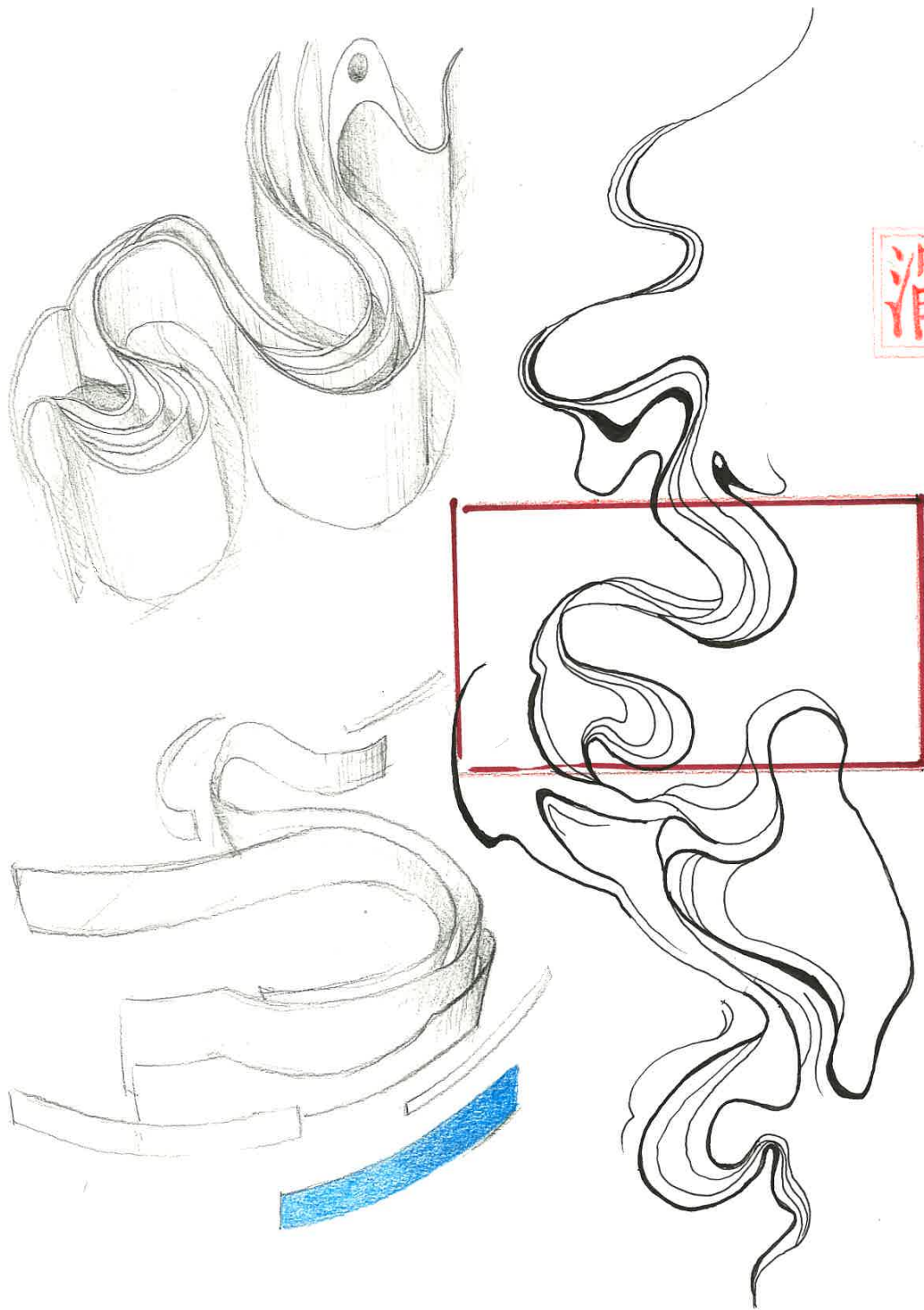
Wave Skeleton
Mesh

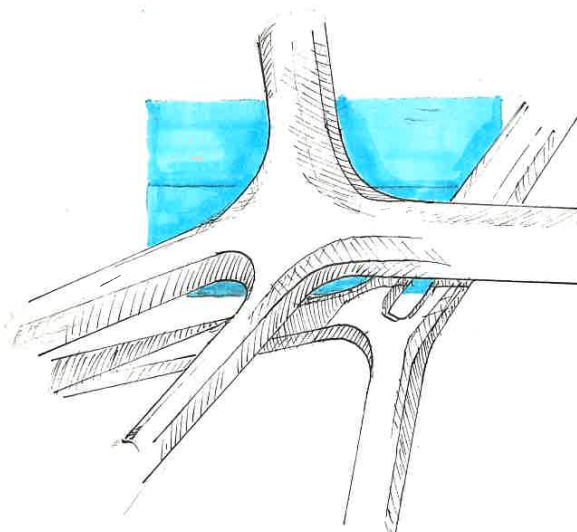
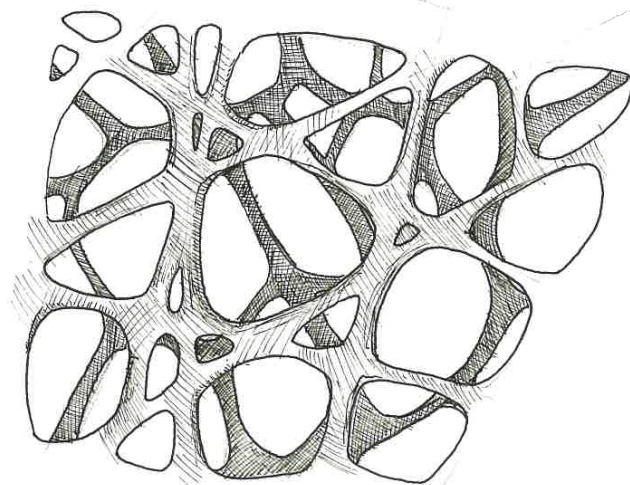
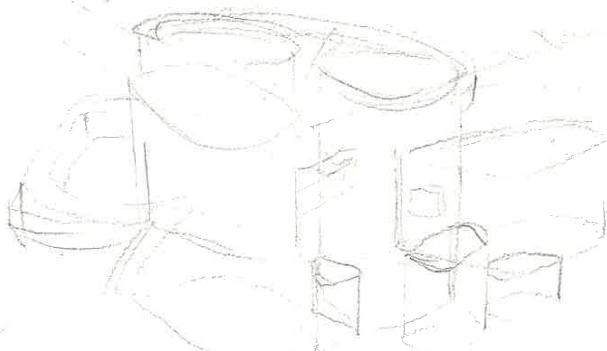
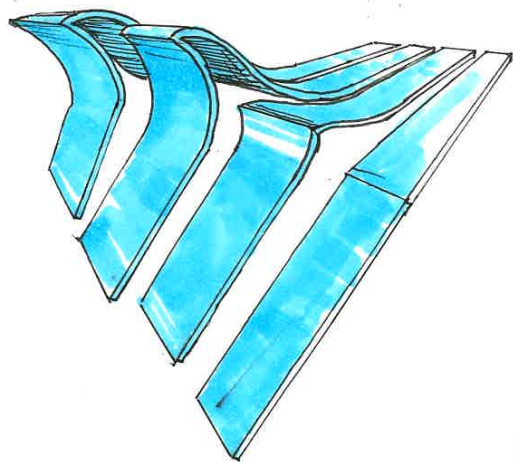
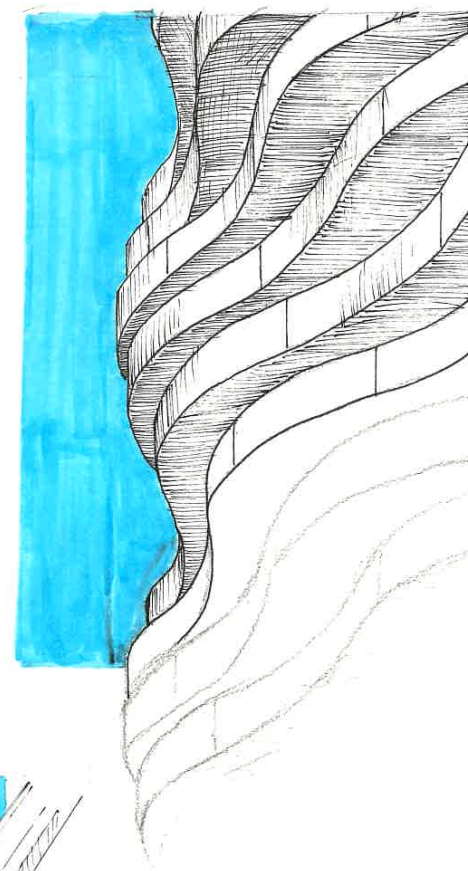
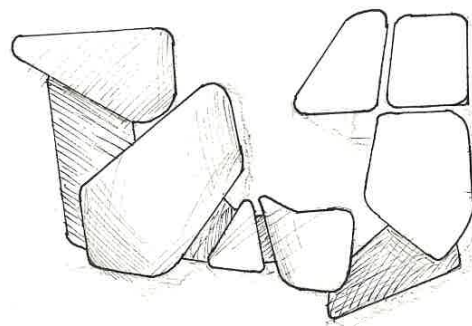
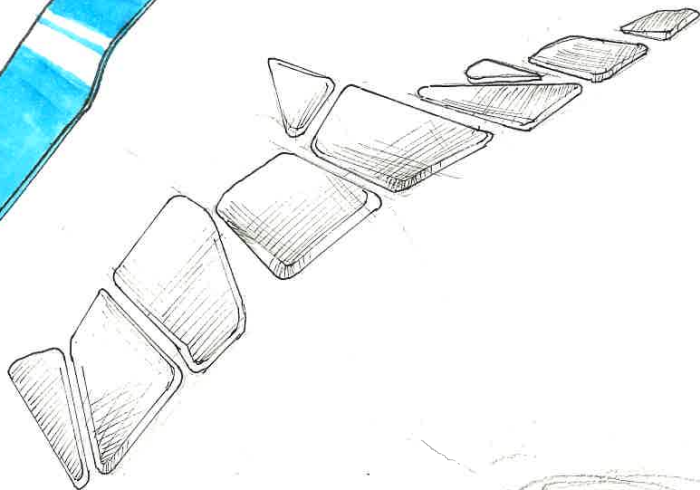
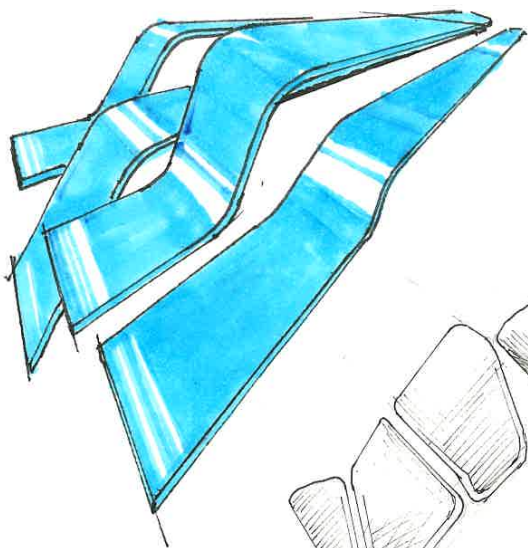


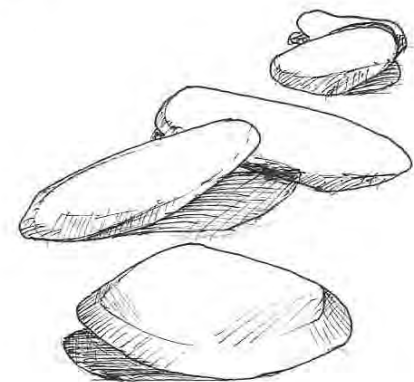
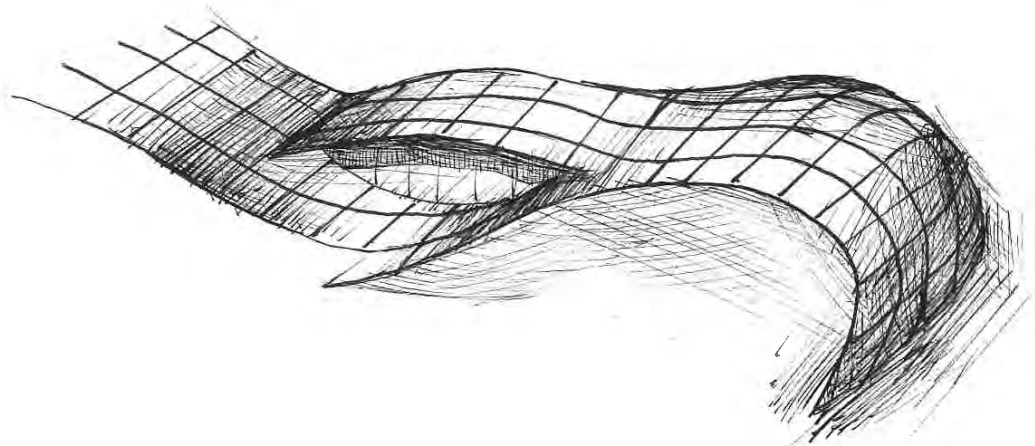
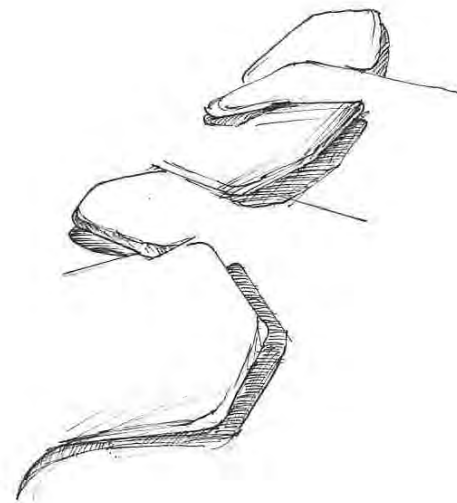
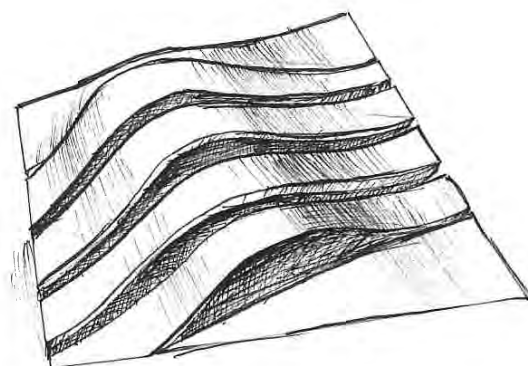
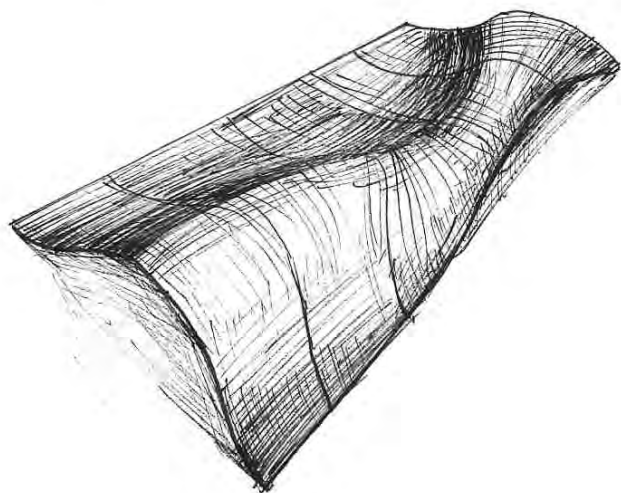
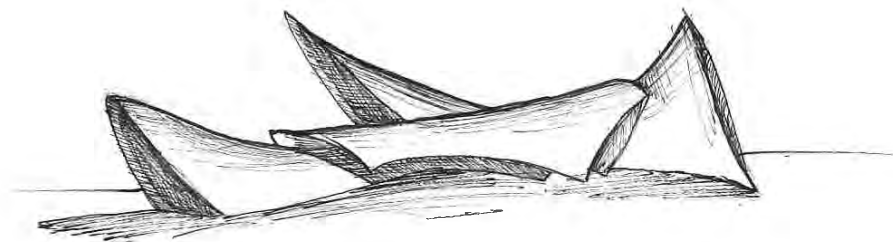
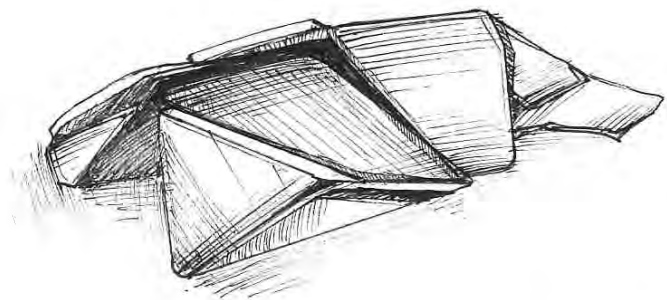
Whale diving
into ocean

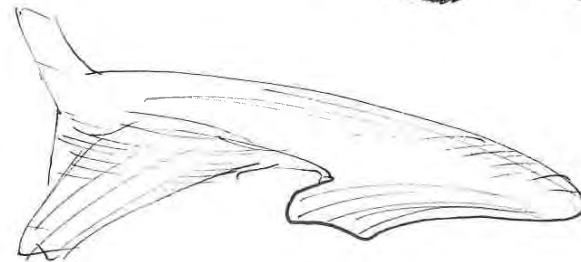
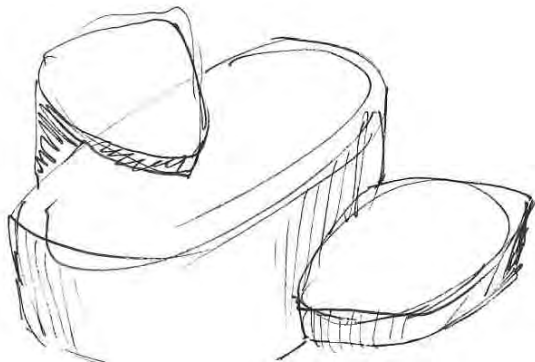
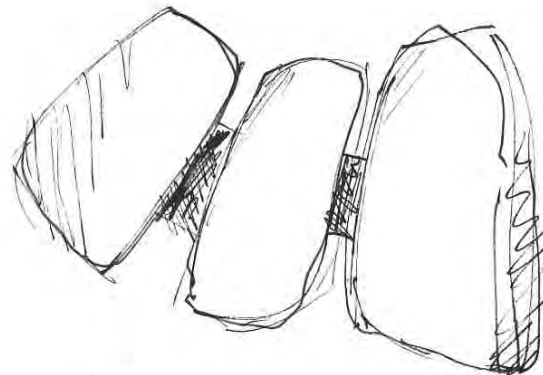
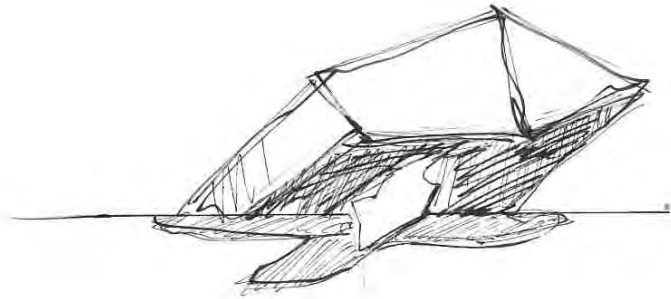
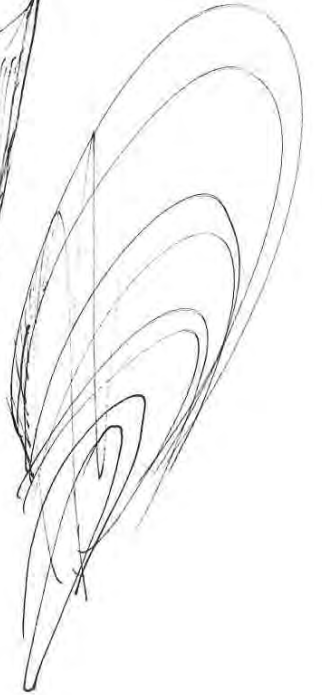
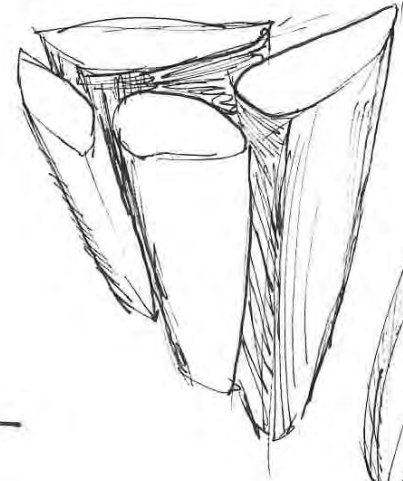
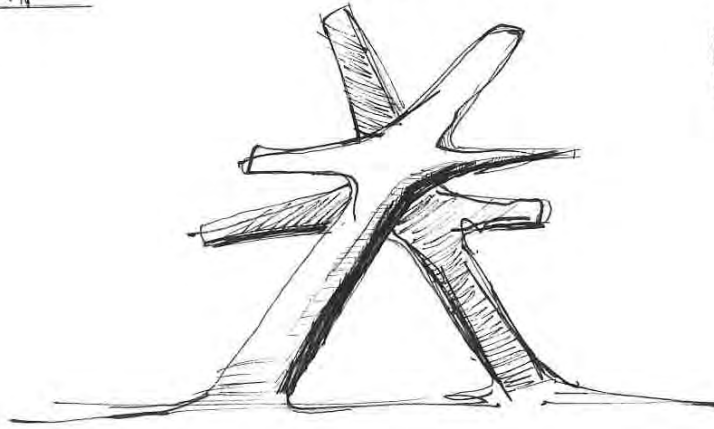
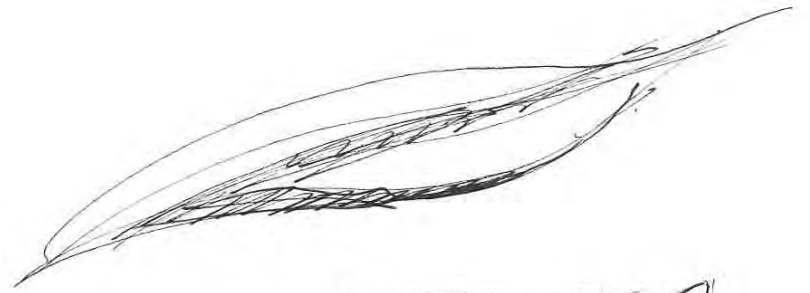
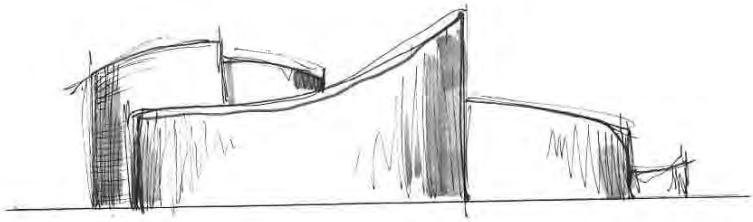


Skeletal

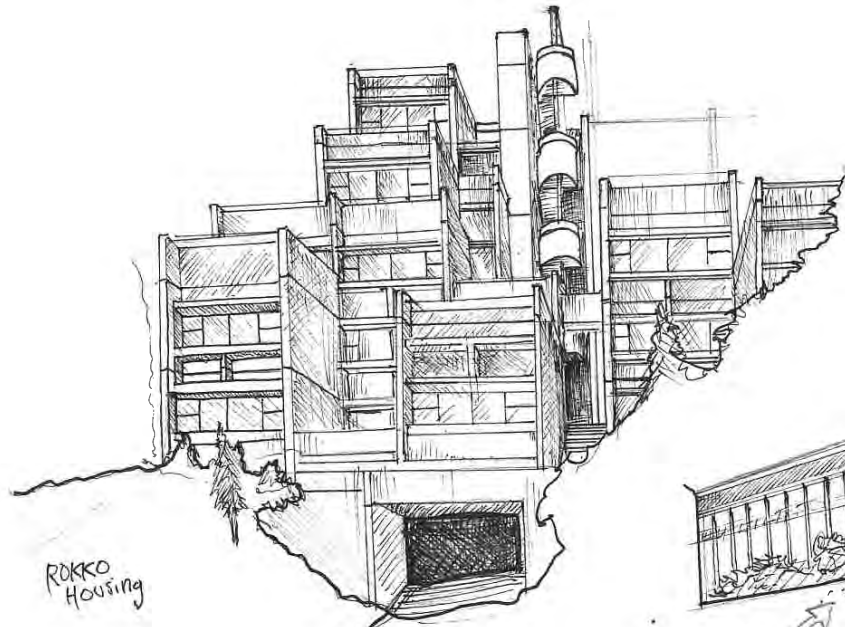




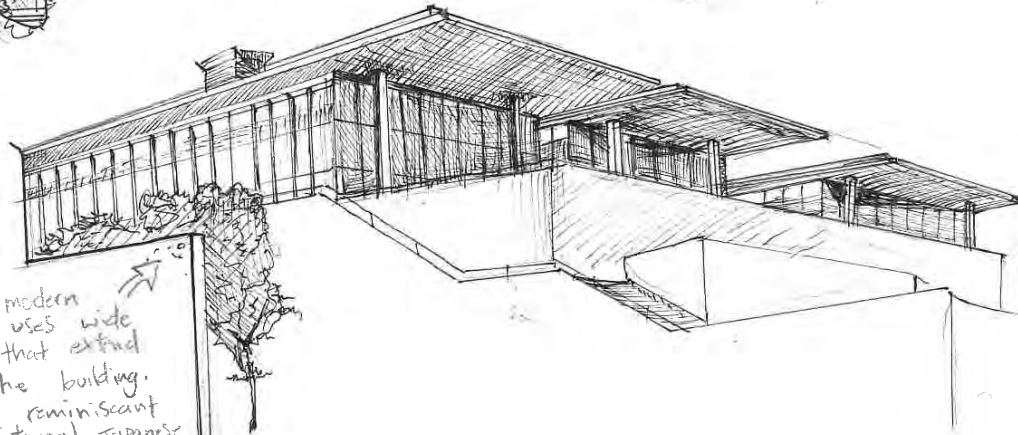




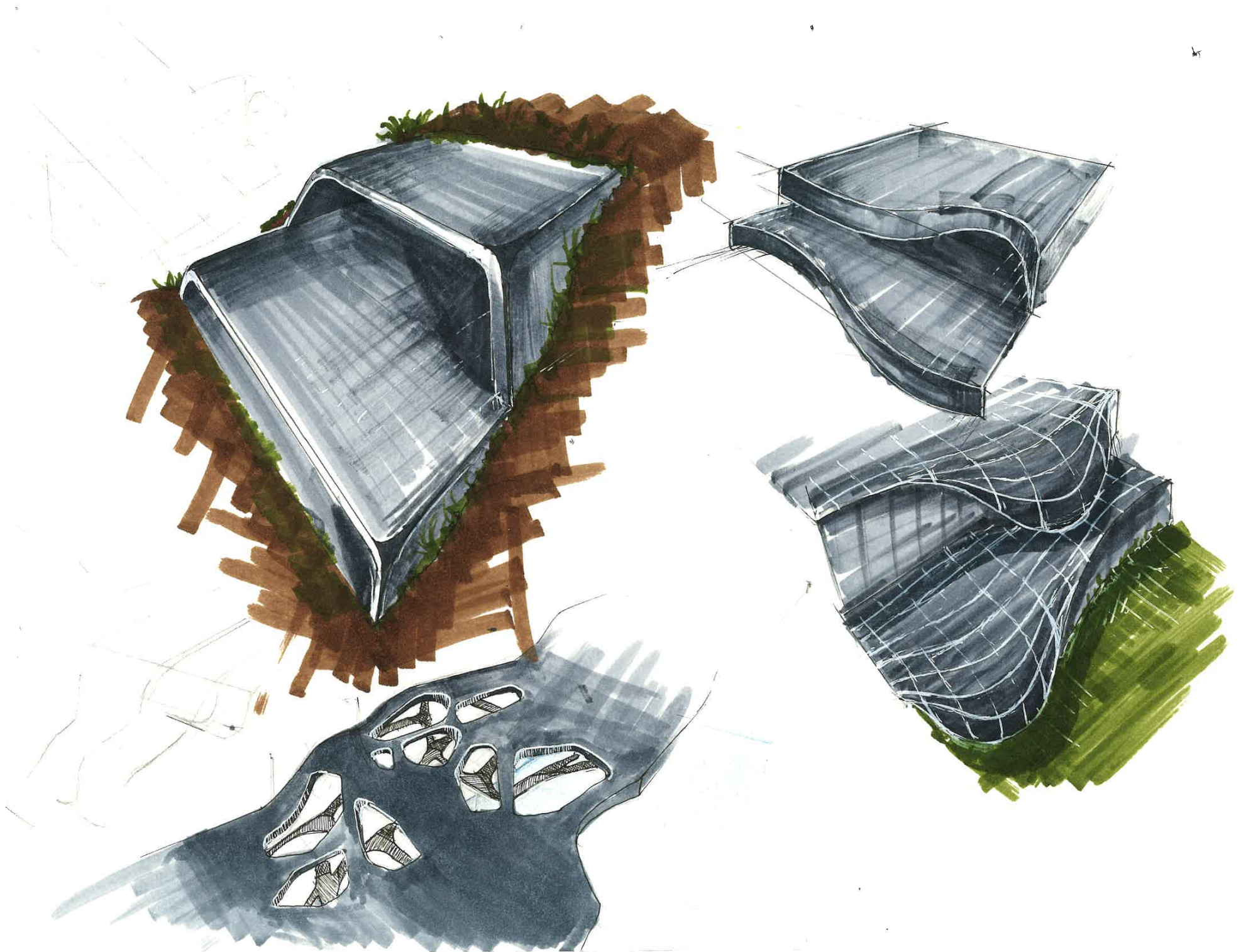
JAPANESE ARCHITECTURE

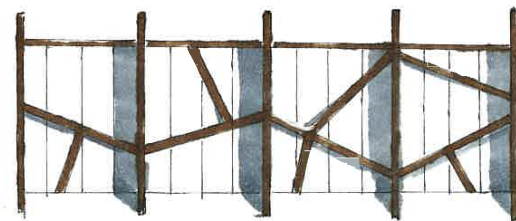
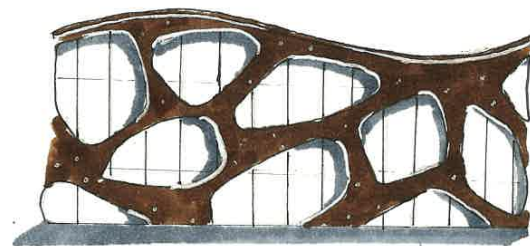
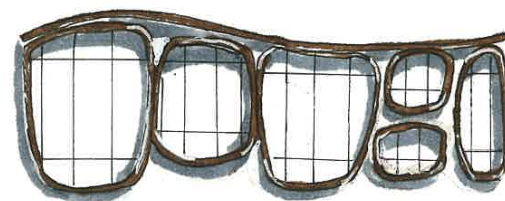
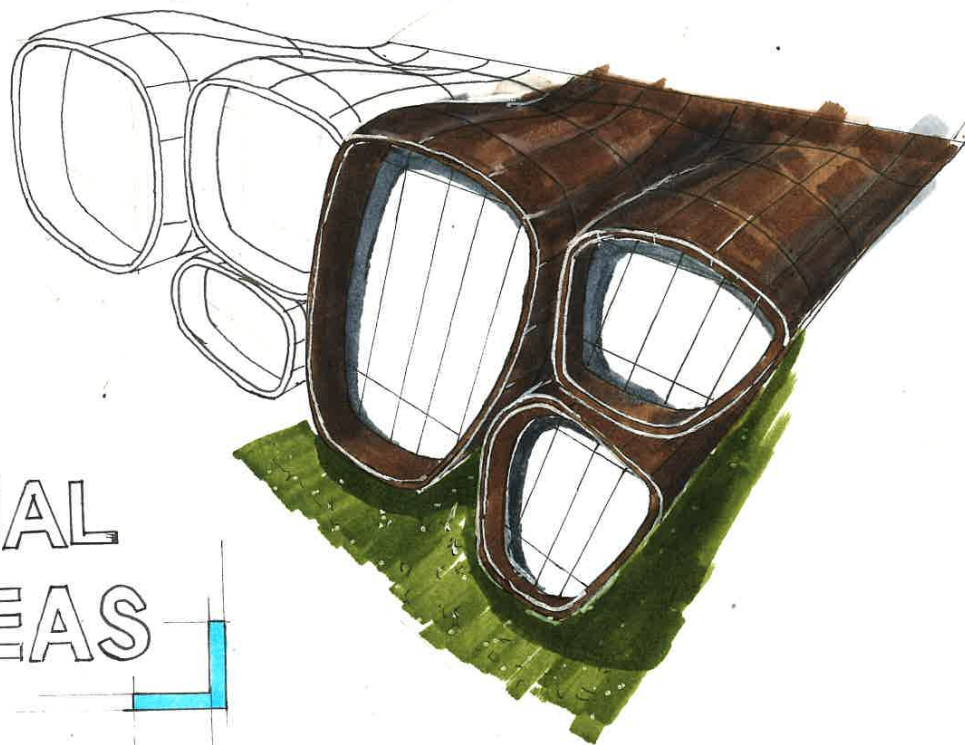
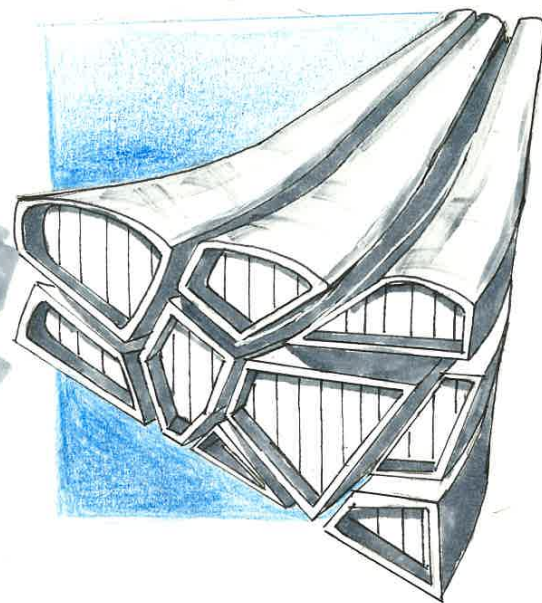
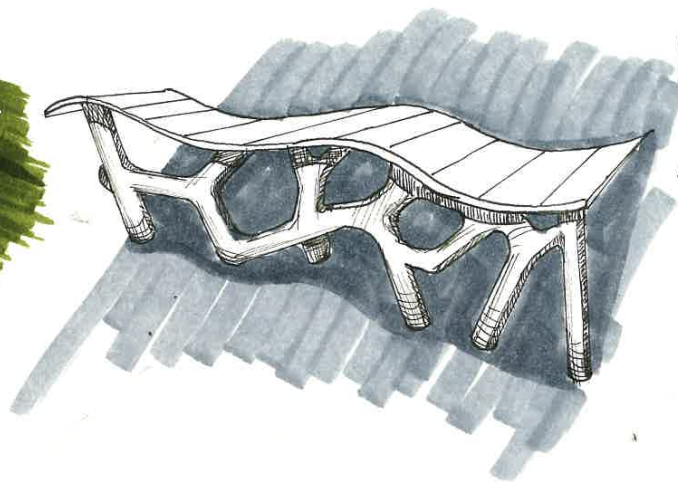


This modern design uses wide roofs that extend over the building. This is reminiscent of traditional Japanese structures.



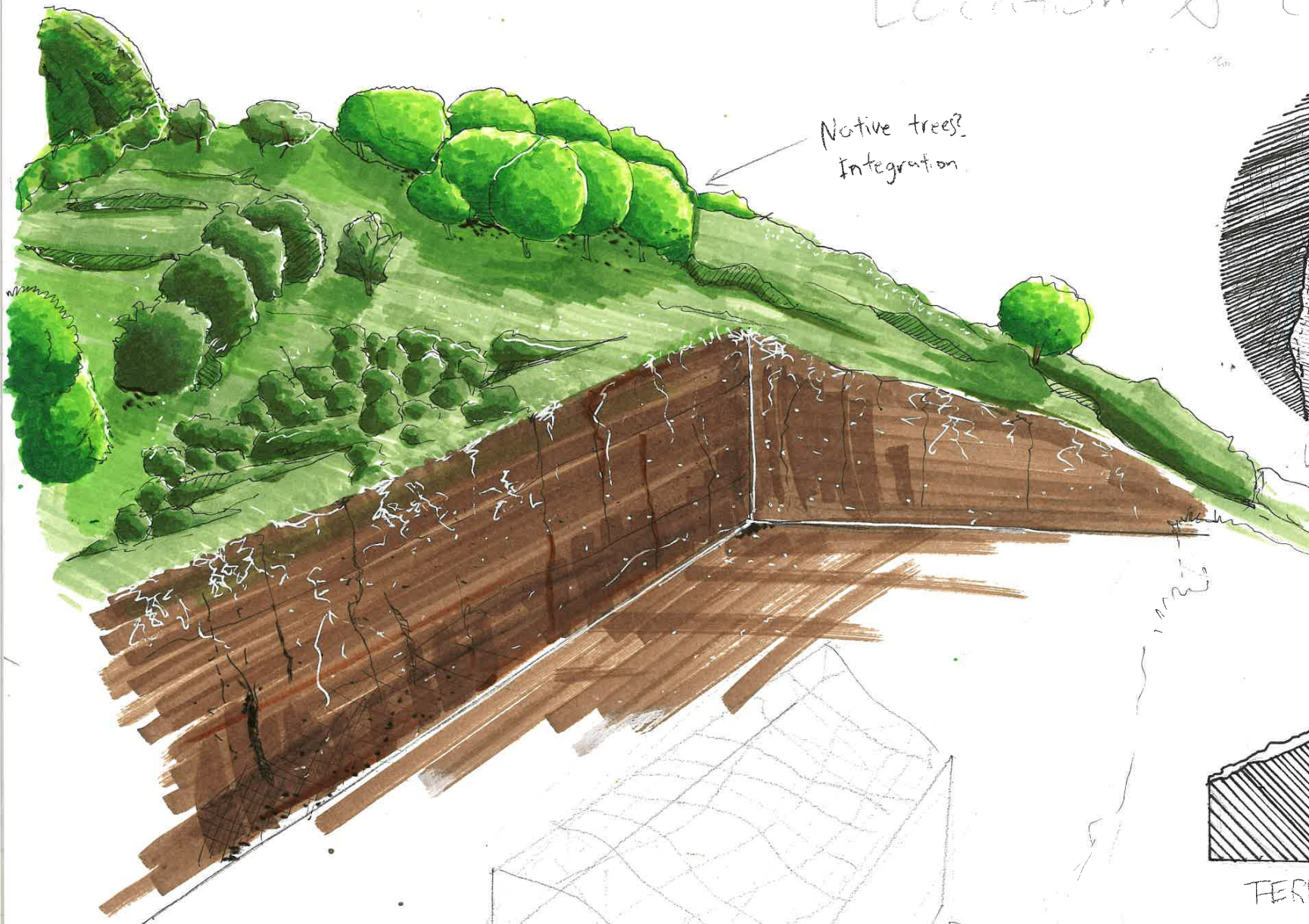
TRADITIONAL JAPANESE HOUSE



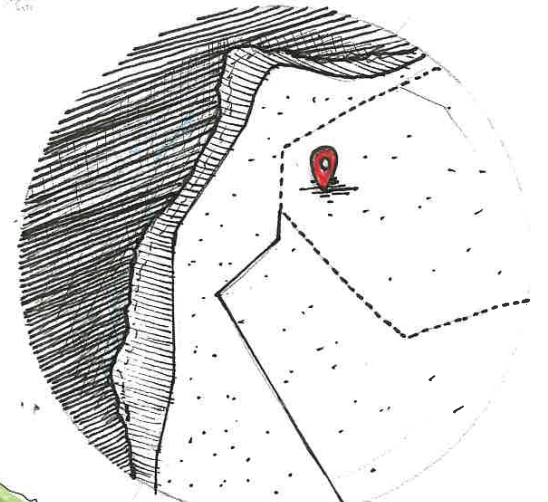


INITIAL
IDEAS

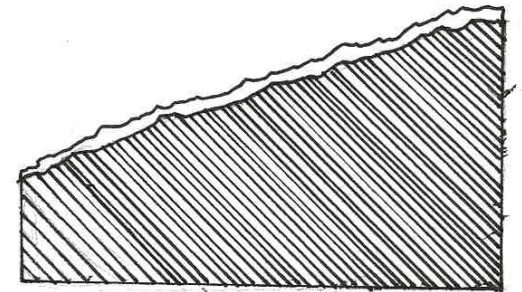
Location & Context



Native trees?
Integration



Located on the west side
of Waiheke island, this
prime location right off
Alan Murray lane features
a sloped hillside directly
overlooking the ocean.



TERRAIN ELEVATION

Linking flowing
and calm wave
motions in a
design context

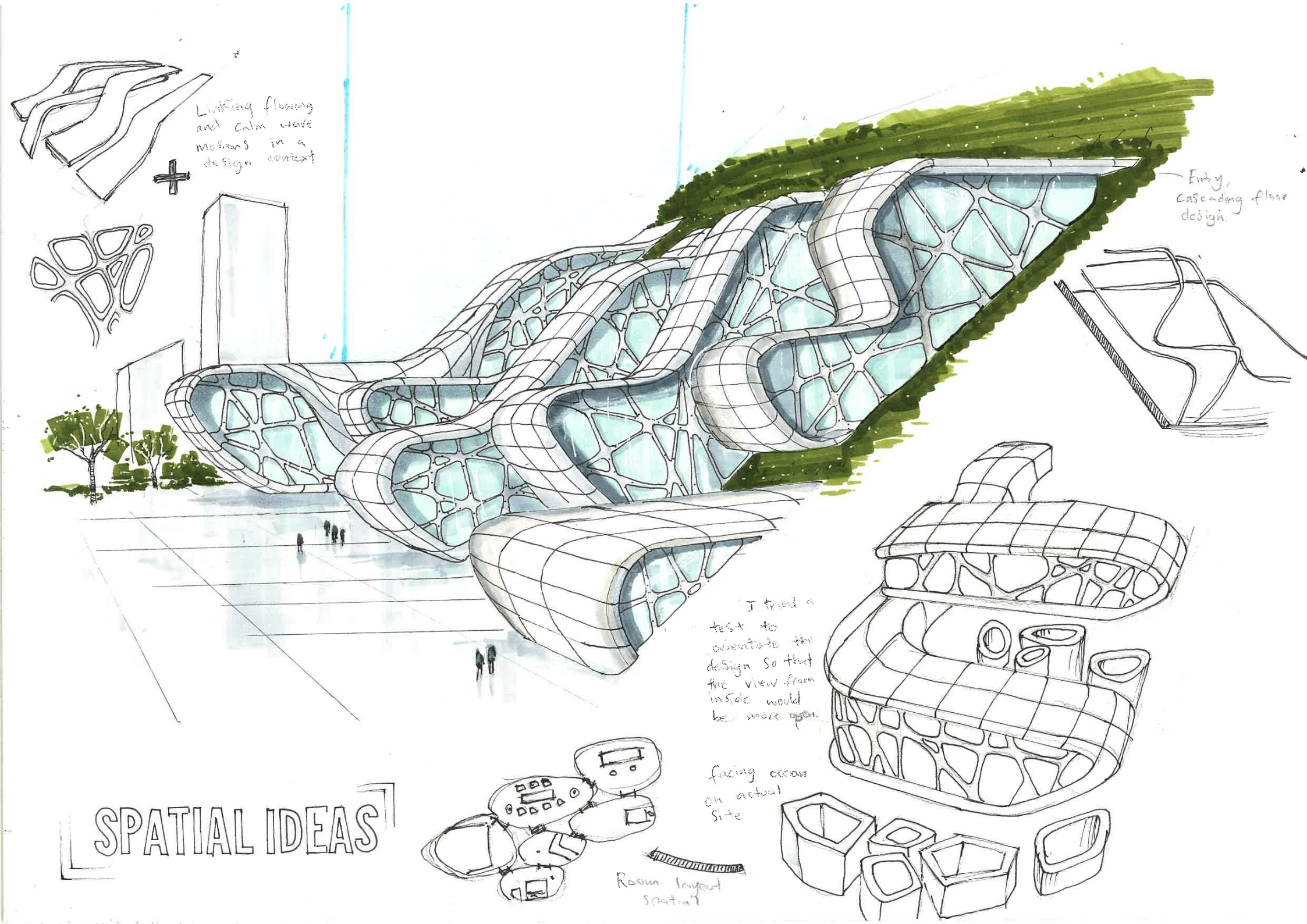
Entry,
cascading floor
design.

I tried a
test to
orientate the
design so that
the view from
inside would
be more open.

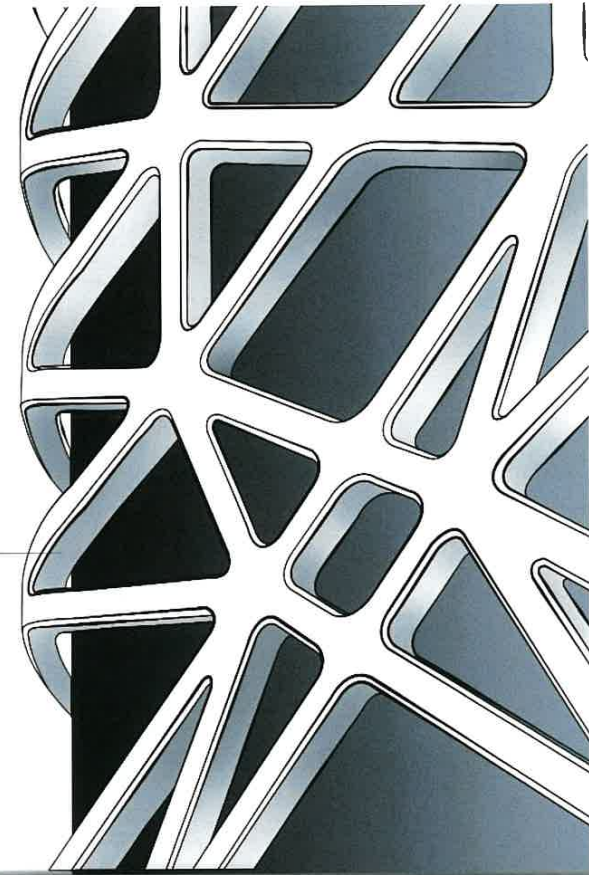
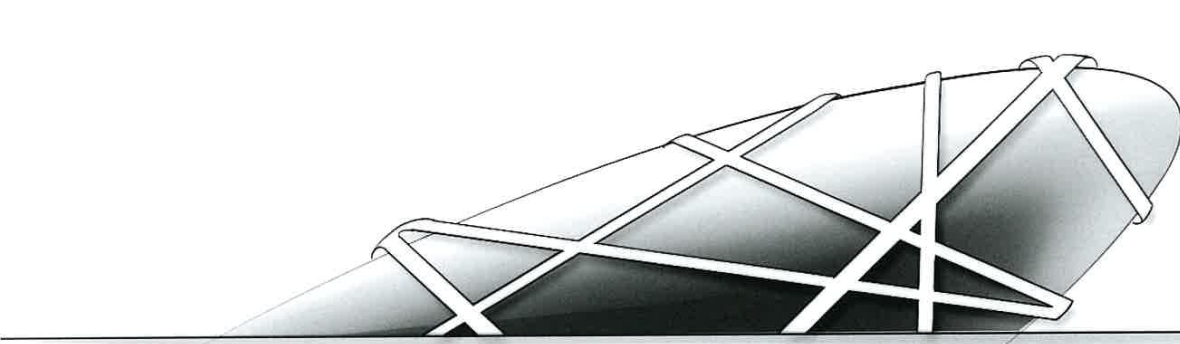
facing ocean
on actual
site

Room layout
spatial

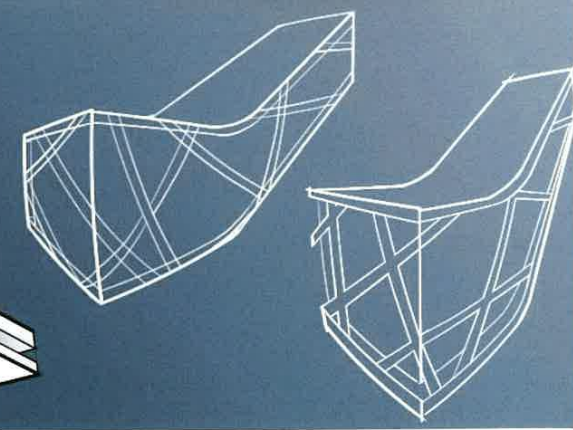
SPATIAL IDEAS

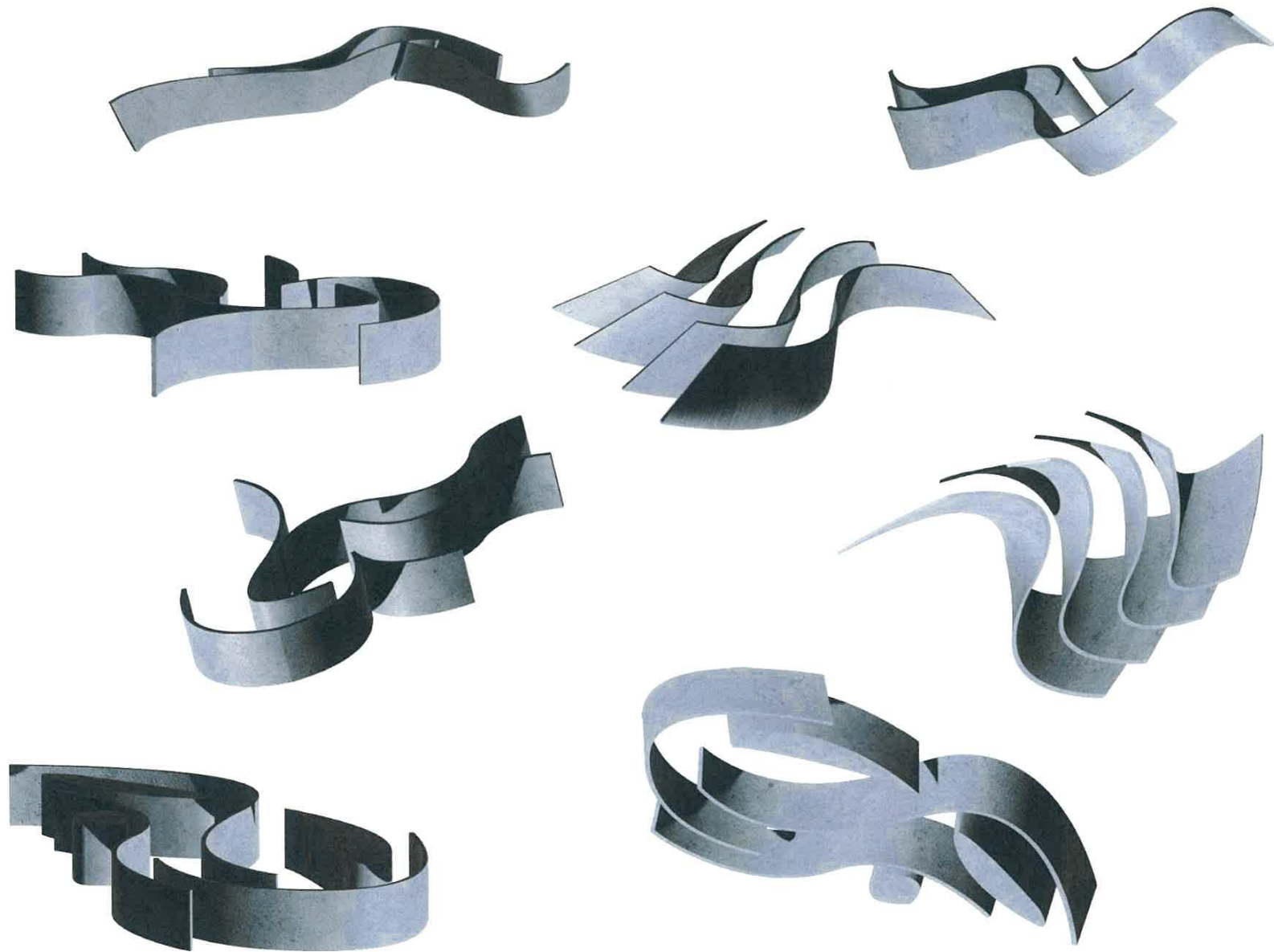




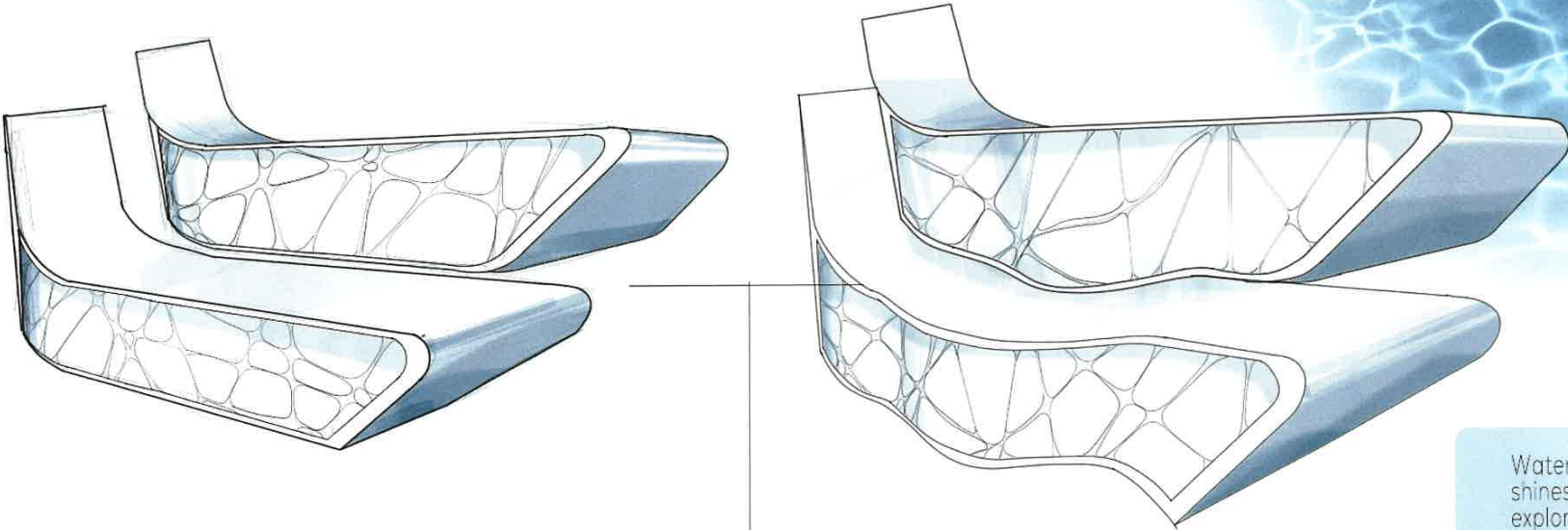


WRAP AROUND OBJECTS?





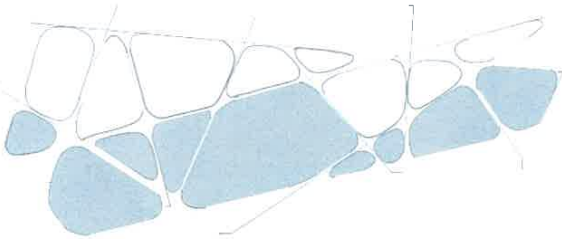
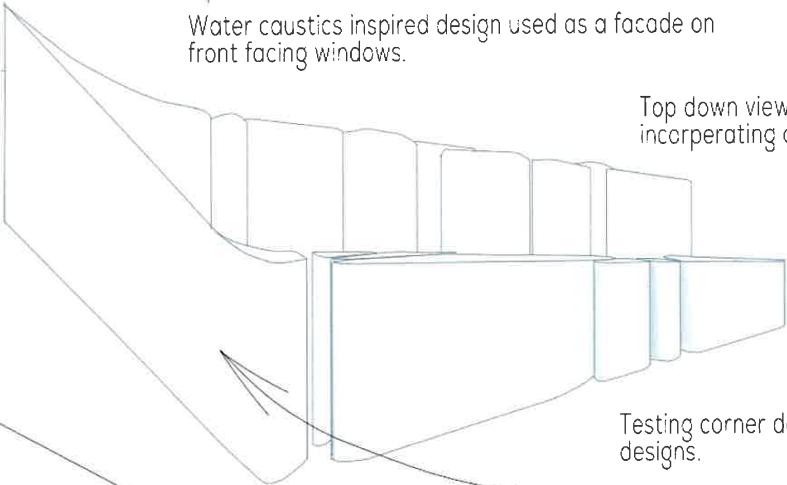
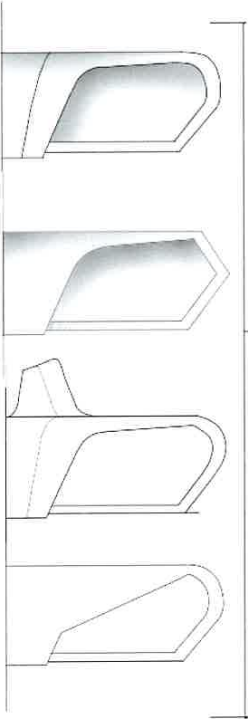
In this page I am exploring the use of 3D software to create interesting shapes that are inspired by the ideation and resolving process. Using these 3D tools allowed me to create shapes that could inspire or resemble buildings. I will most likely be pulling out ideas from these developments further down in the design process.



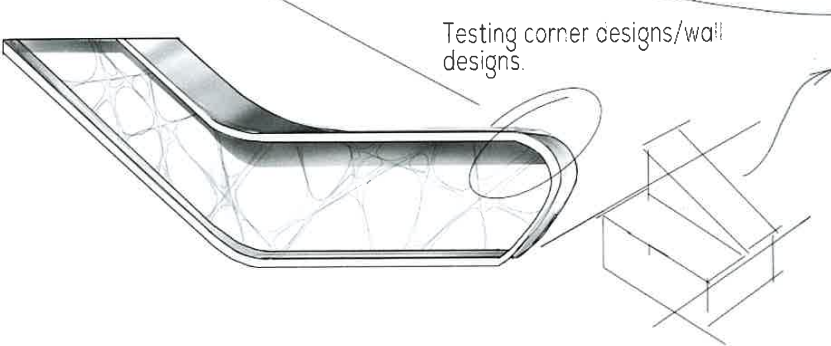
Water caustics are commonly formed when light shines through waves on a body of water. I have explored this movement idea in my design process and am using it to direct the creative direction of the current design iterations.

Water caustics inspired design used as a facade on front facing windows.

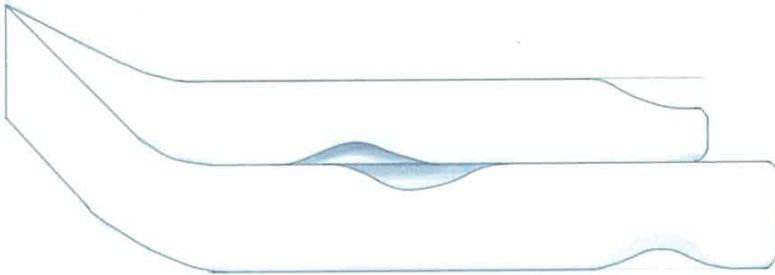
Top down view of what this may look like, incorporating characteristics of water movement.

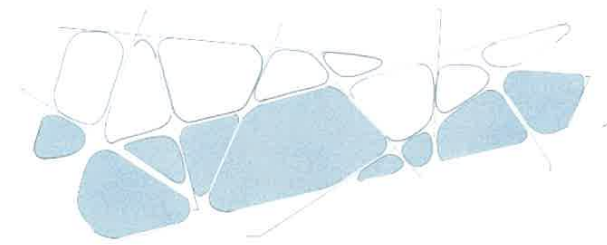
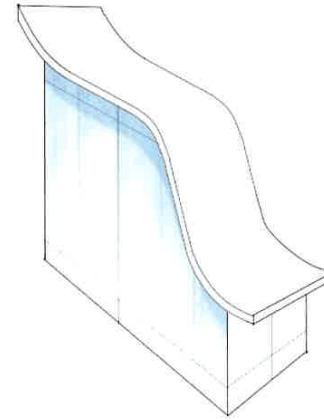
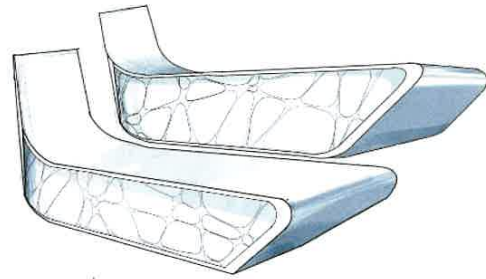


Testing corner designs/wall designs.



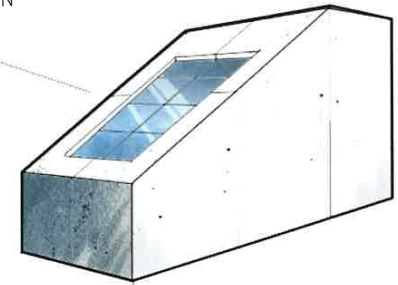
Testing corner designs/wall designs.



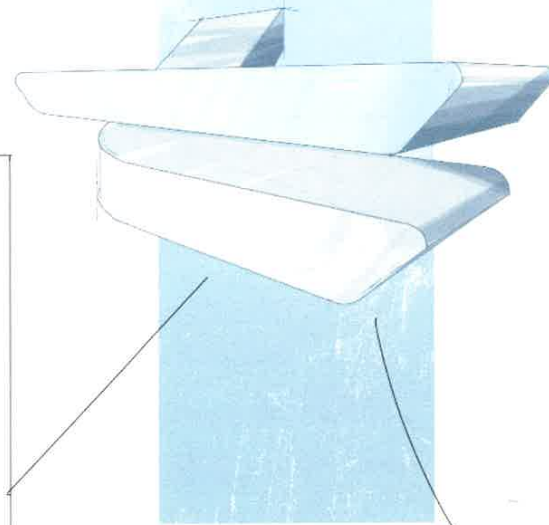


Exploring different functions and designs for the highlighted space.

OPENING/WINDOW OPTION



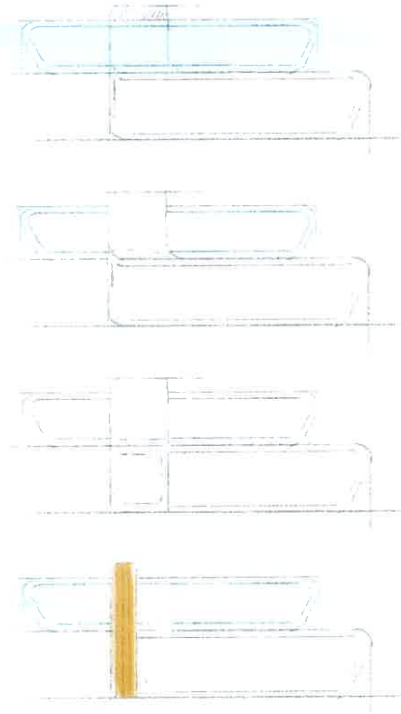
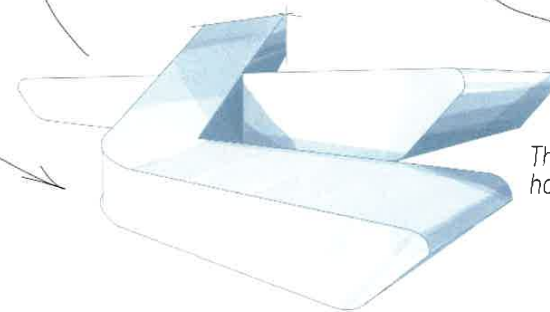
The highlighted shape by going through this design process has now become its own distinct shape and will probably function separately from other sections.

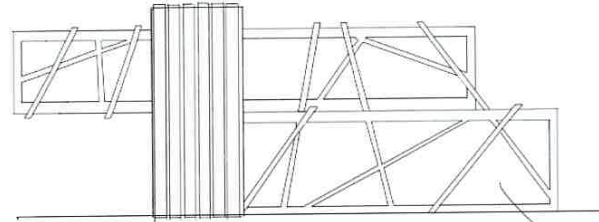
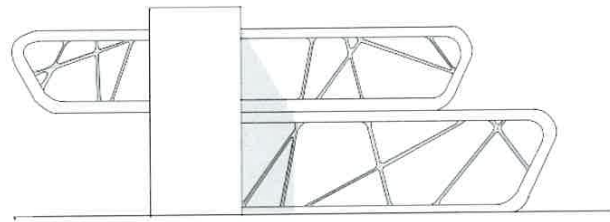


For simplicity purposes, I have developed the design in this page without the front facing facade which will be incorporated back into later iterations of the design.

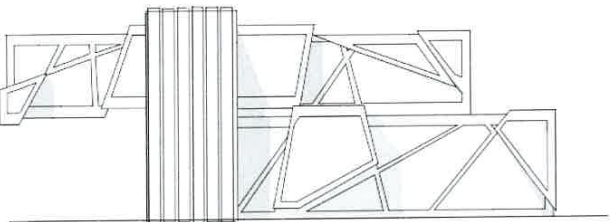
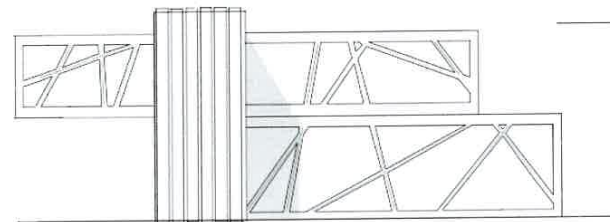
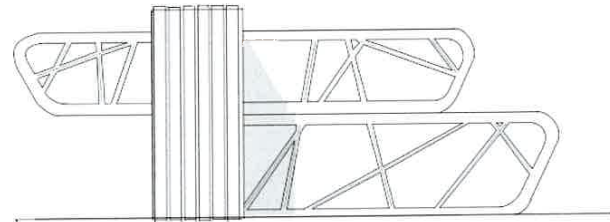
On the left I am exploring spacial positioning in regards to the different spaces in my design so far. I am exploring the orientation and layering of shapes in order to achieve an end result that is more practical and functions like a home/intended purpose.

This space could potentially house a hallway or serve as a transitional space.



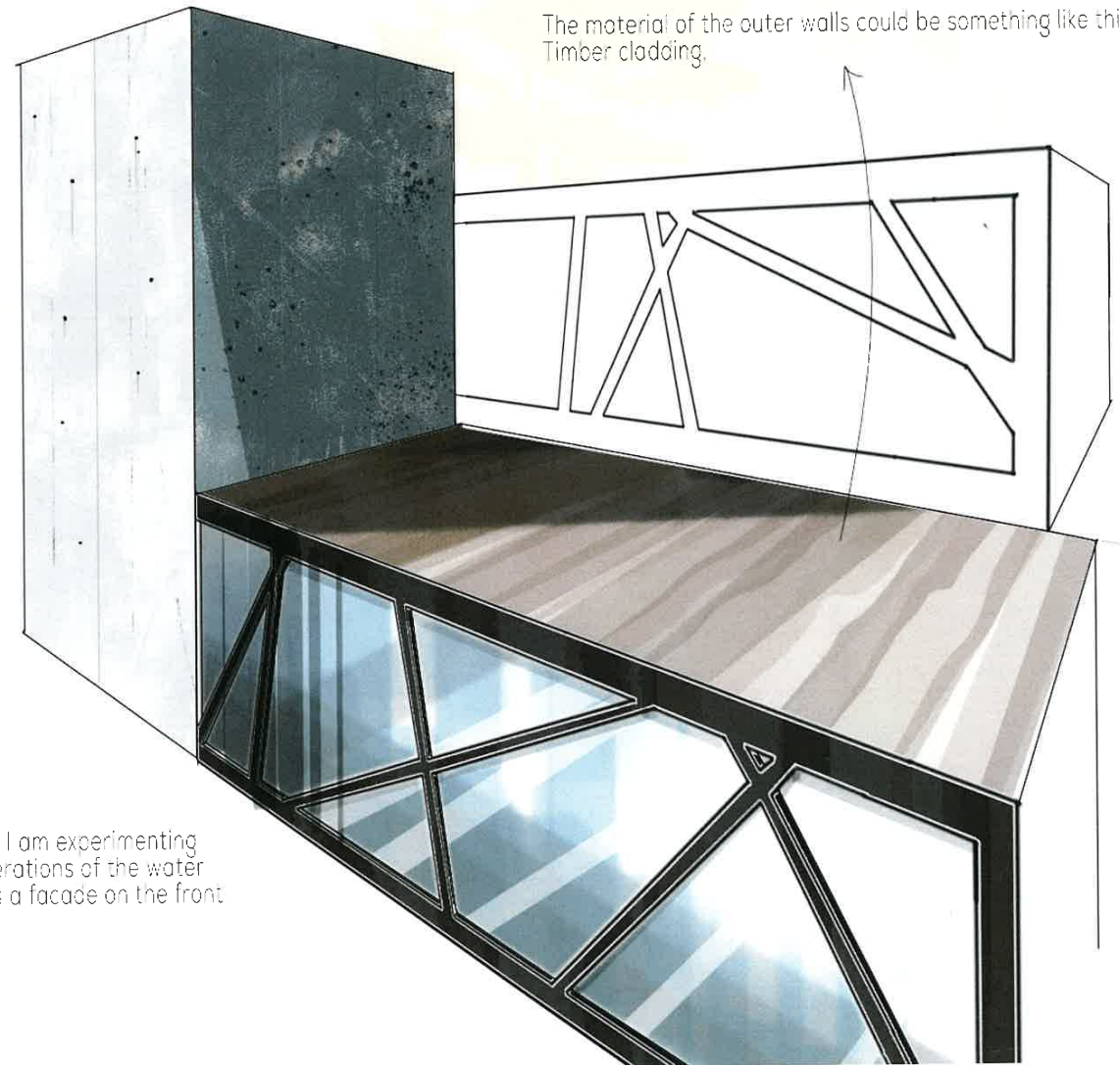


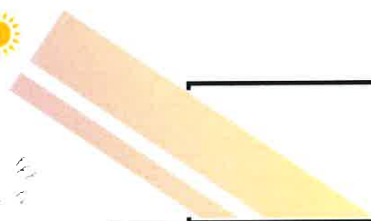
Things I need to consider:
How does the facade affect the view looking out the window?
How can it serve as both a functional and aesthetic aspect of the design?



In these designs I am experimenting with different iterations of the water caustics form as a facade on the front facing windows.

The material of the outer walls could be something like this: Timber cladding.

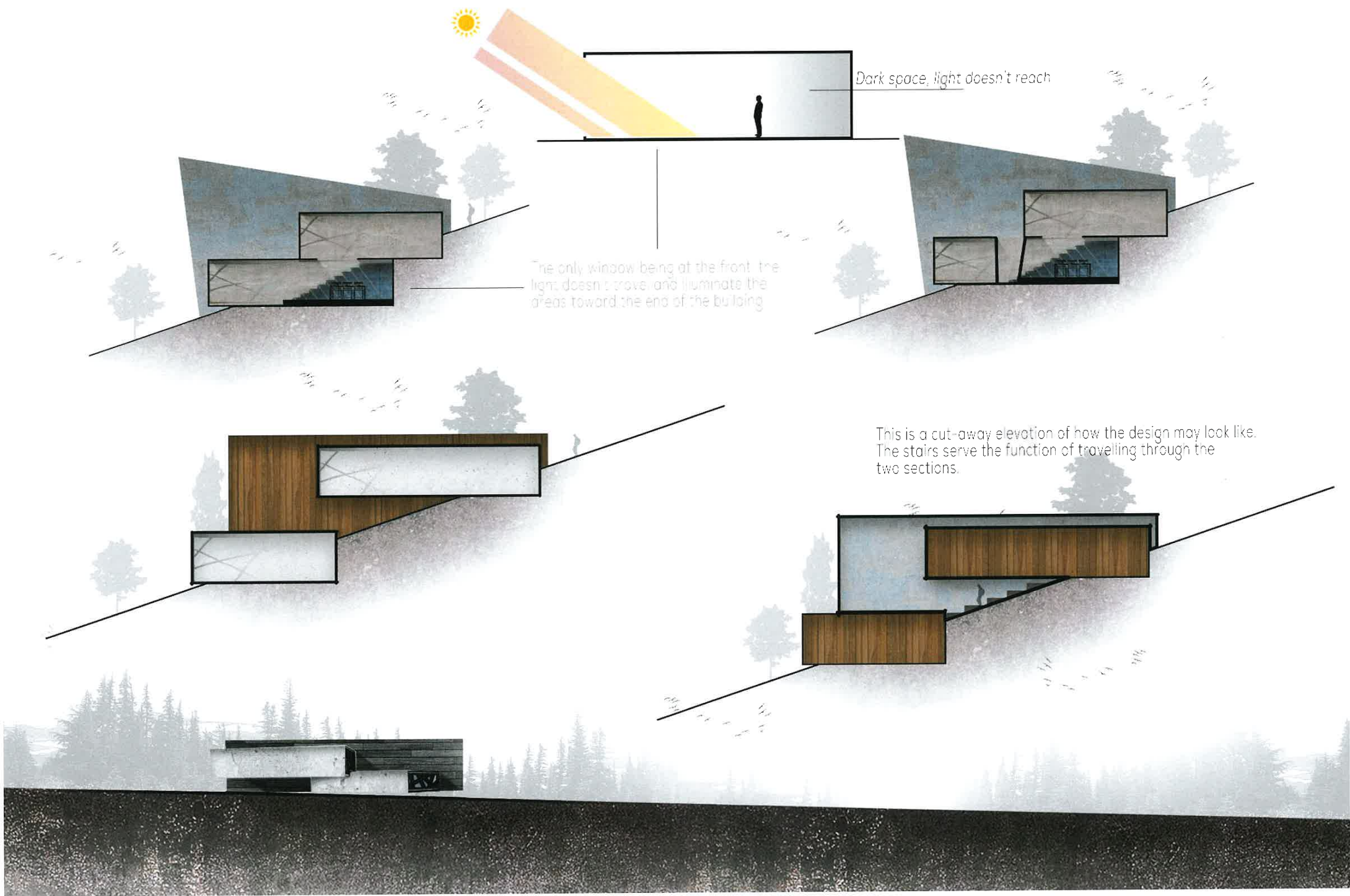




Dark space, light doesn't reach

The only window being at the front, the light doesn't move and illuminate the areas toward the end of the building

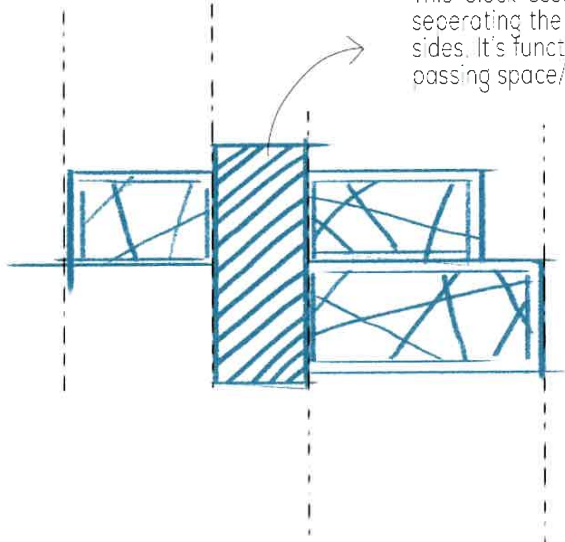
This is a cut-away elevation of how the design may look like. The stairs serve the function of travelling through the two sections.



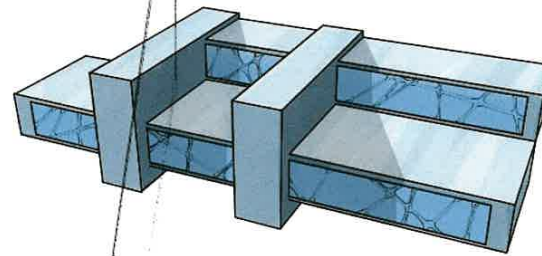
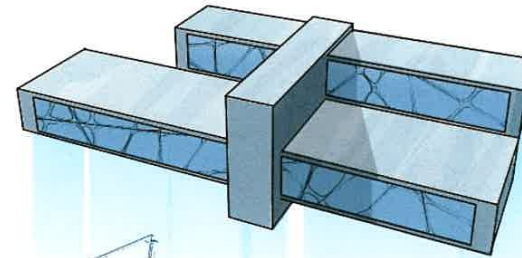
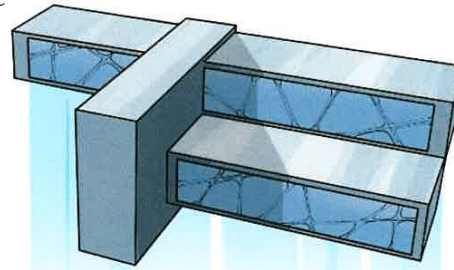


POTENTIAL OUTHOUSE/SEPERATED SECTION?

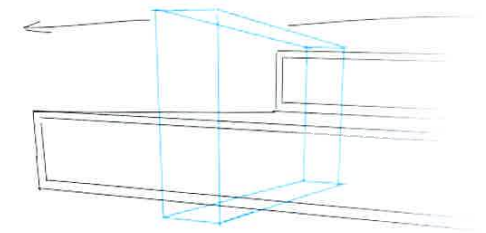
This 'block' essentially serves as a divider, separating the house into two seperate sides. It's functionality will be that of a passing space/hallway.



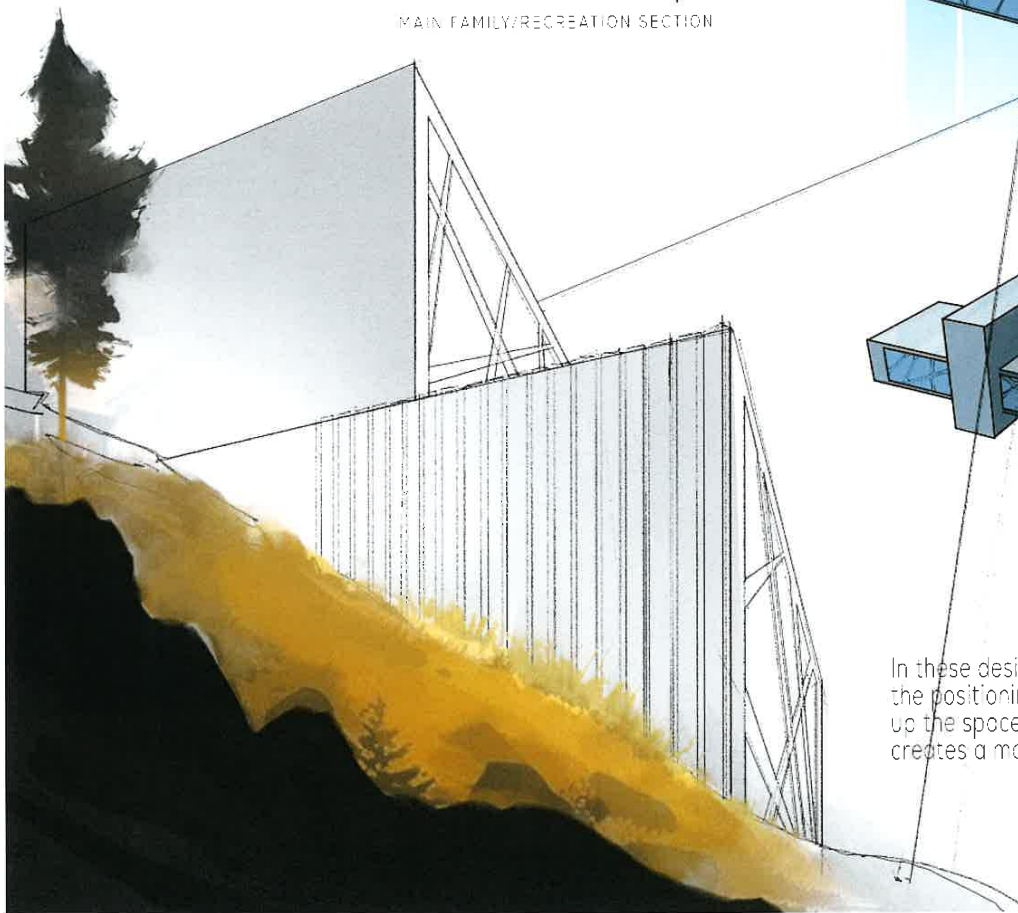
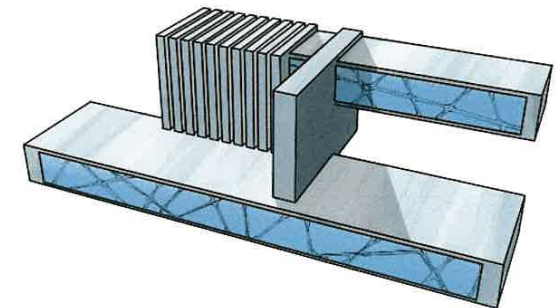
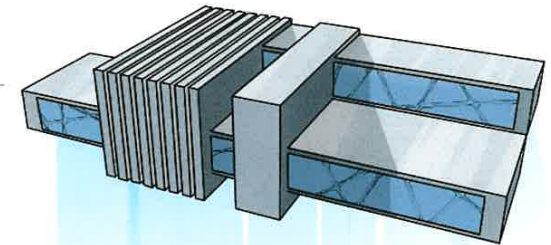
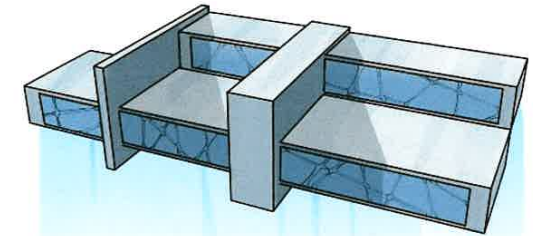
MAIN FAMILY/RECREATION SECTION

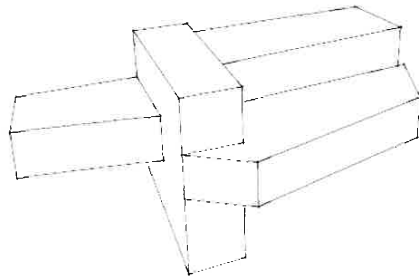
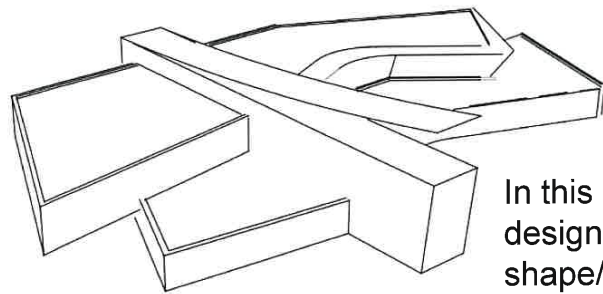
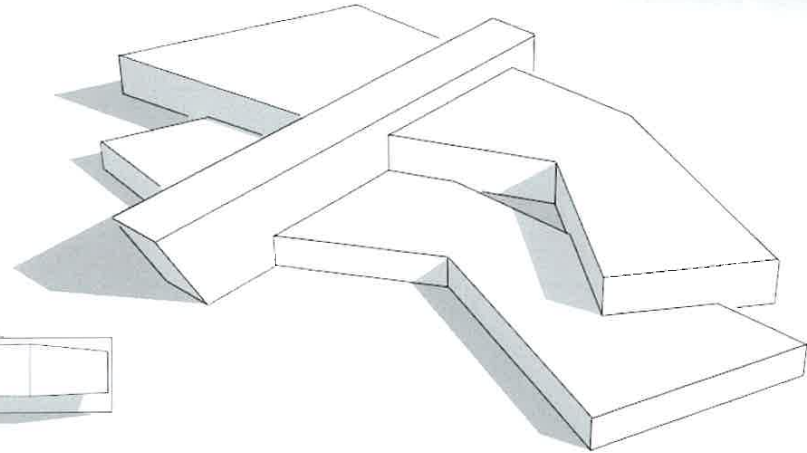
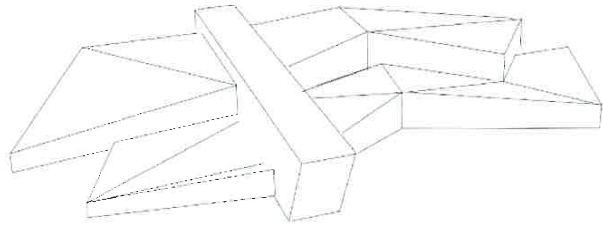
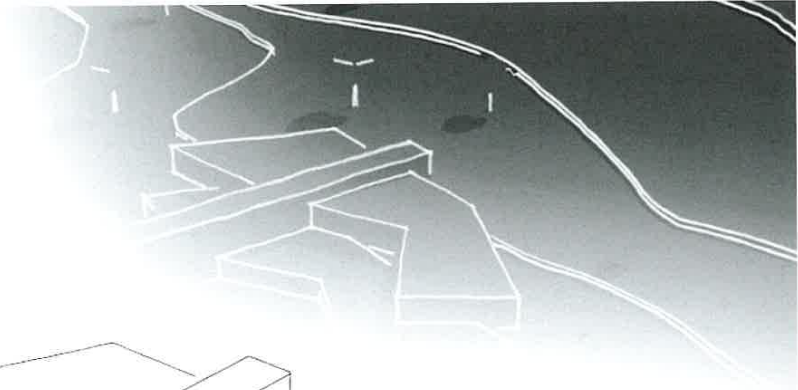
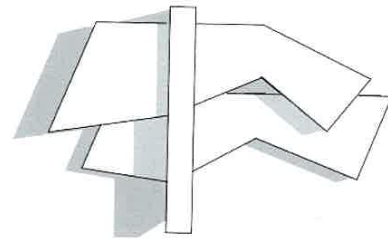
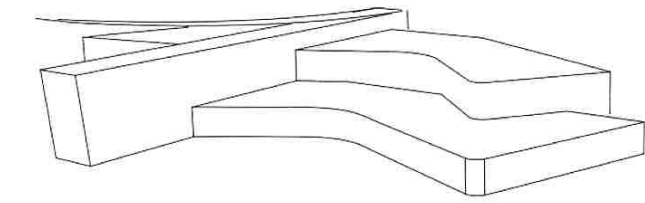


In these design iterations I am experimenting with the positioning and use of the 'block' in order to break up the space and make it more dynamic. This also creates a more aesthetically engaging design.

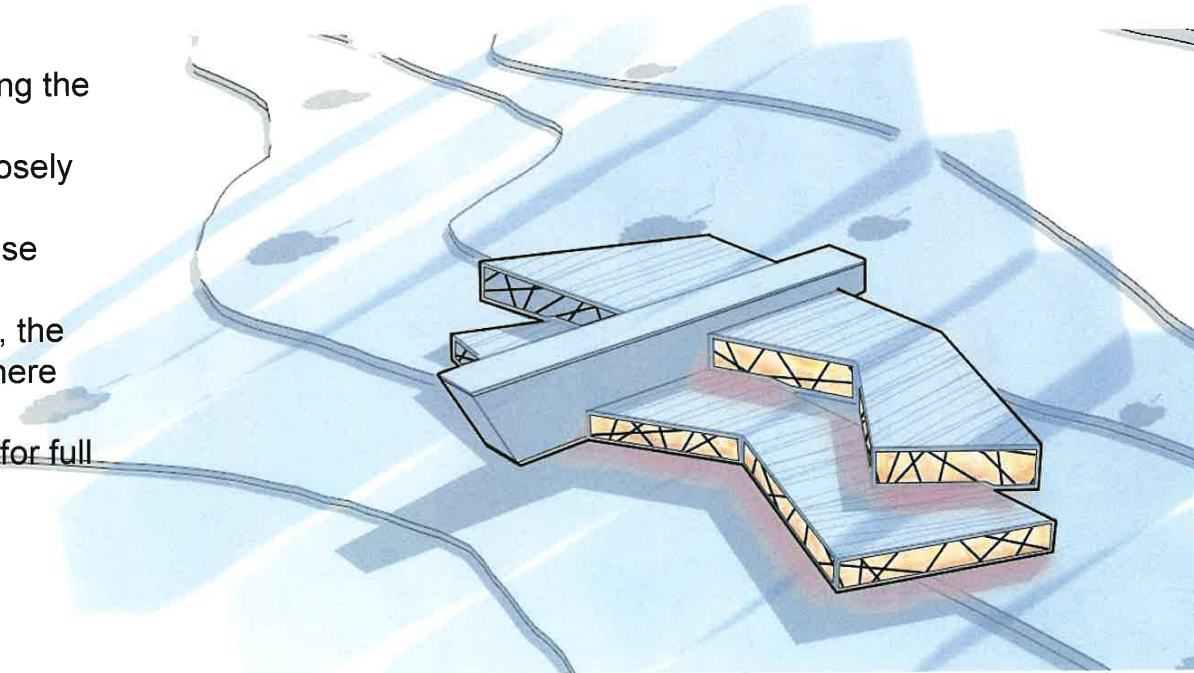


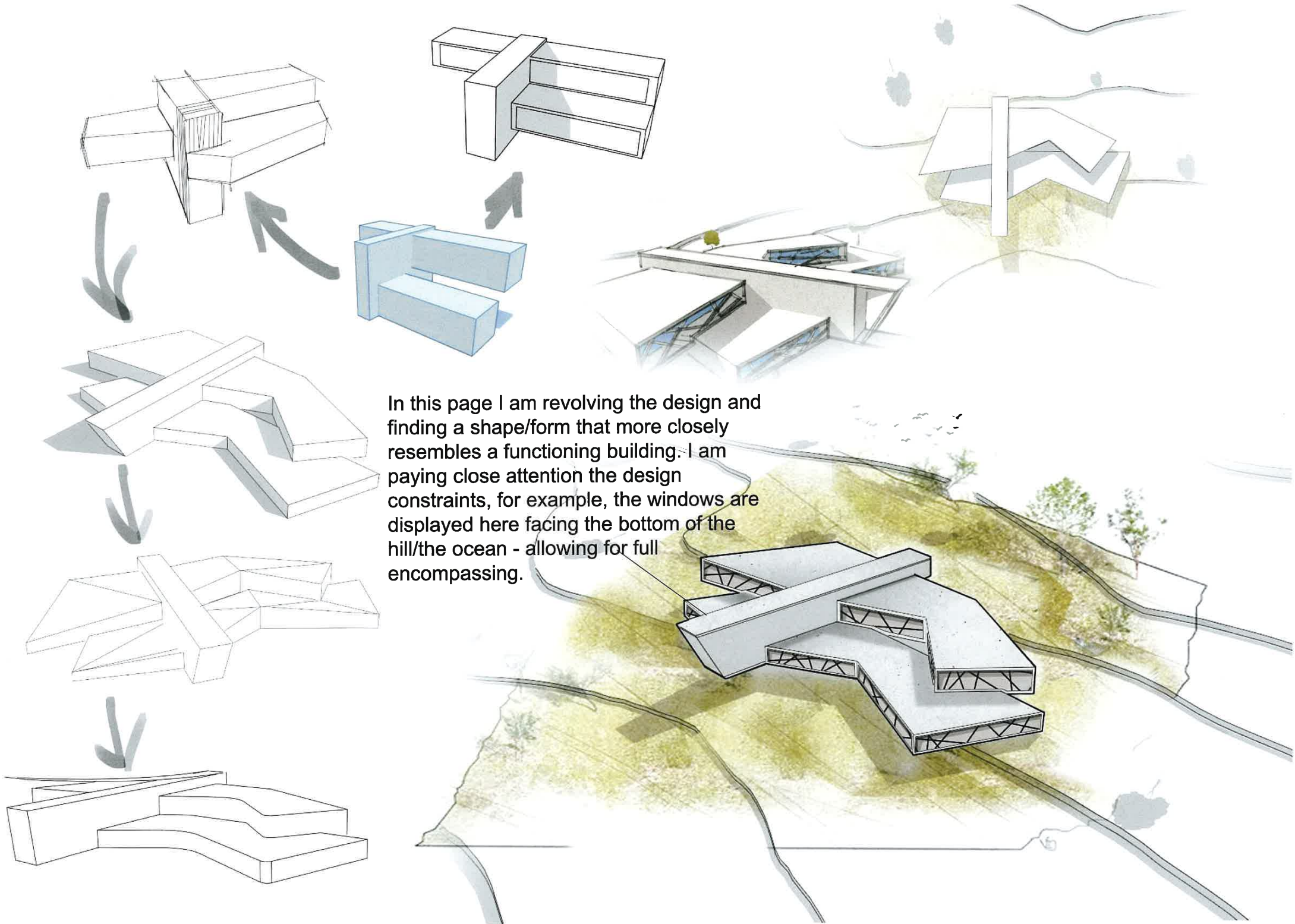
Moving and manipulating block along this axis.





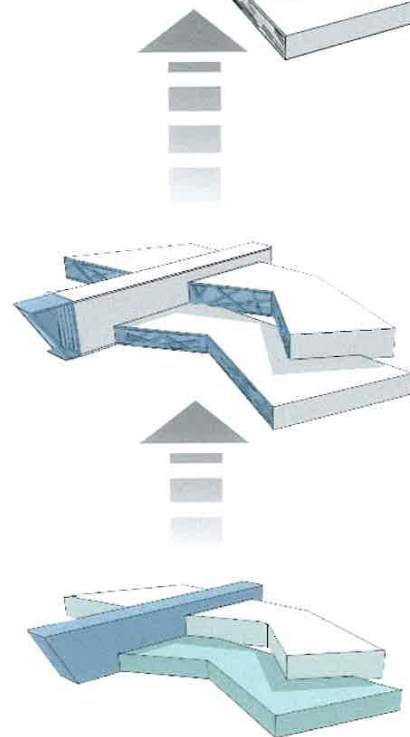
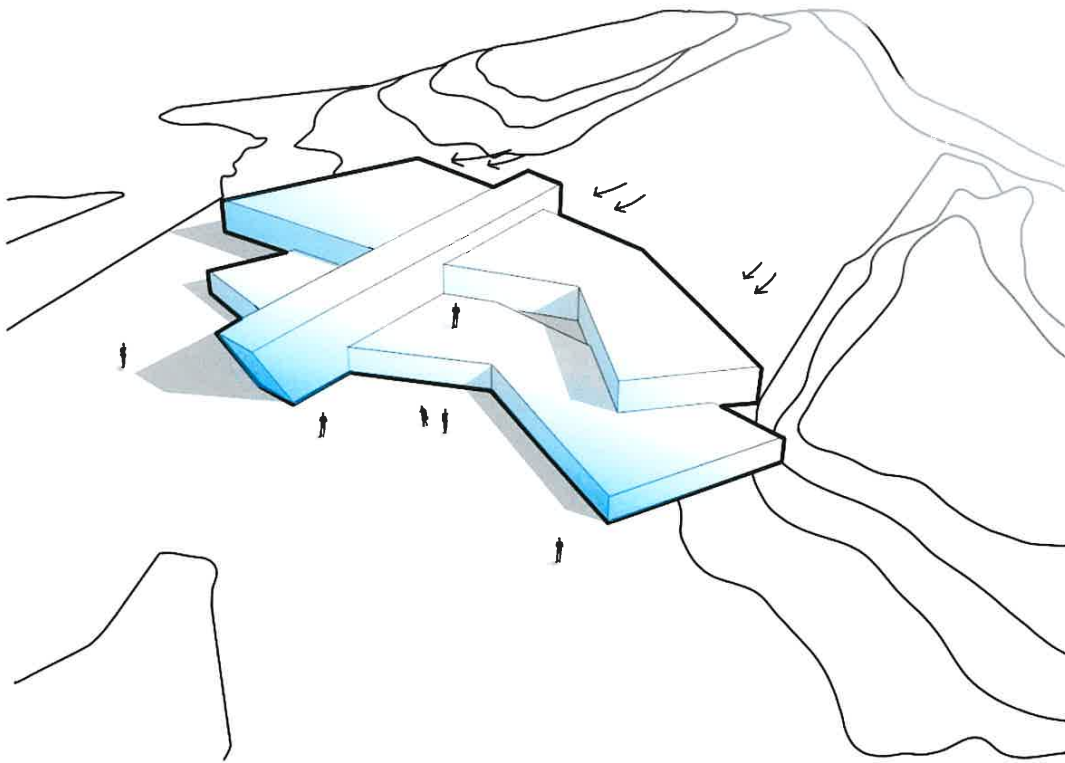
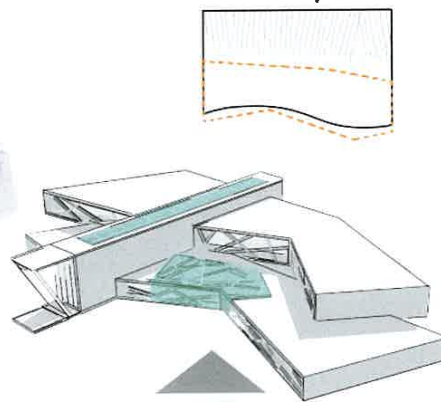
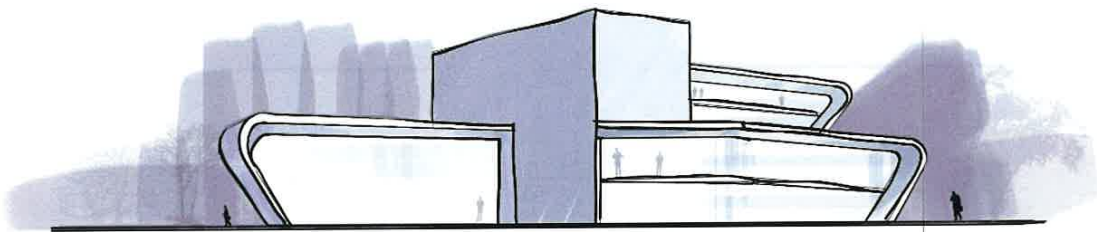
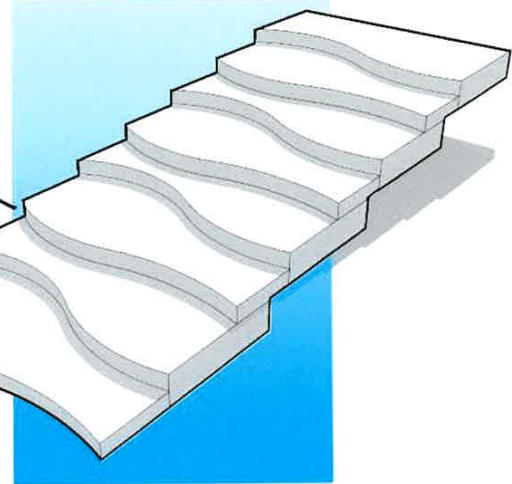
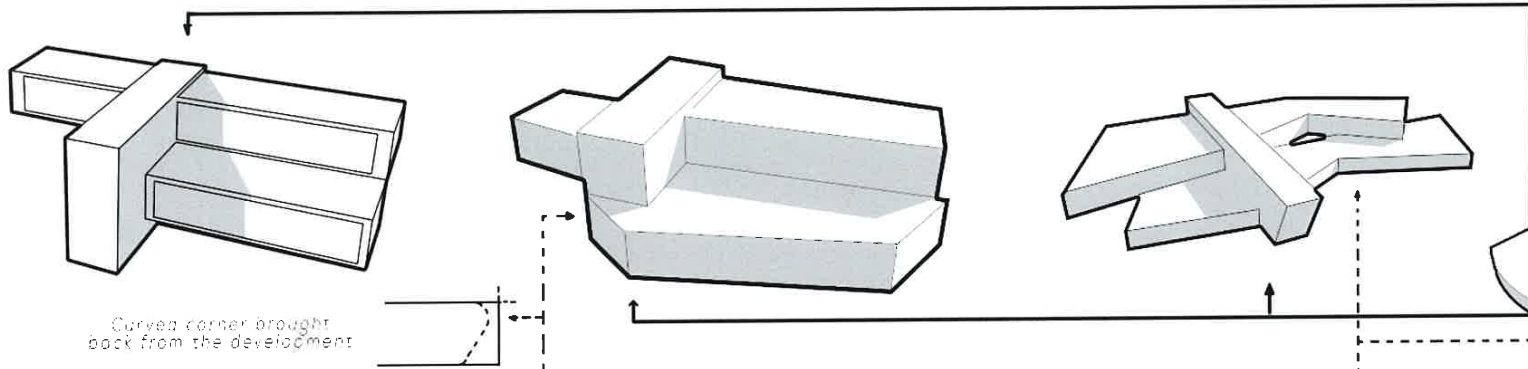
In this page I am revolving the design and finding a shape/form that more closely resembles a functioning building. I am paying close attention the design constraints, for example, the windows are displayed here facing the bottom of the hill/the ocean - allowing for full encompassing.

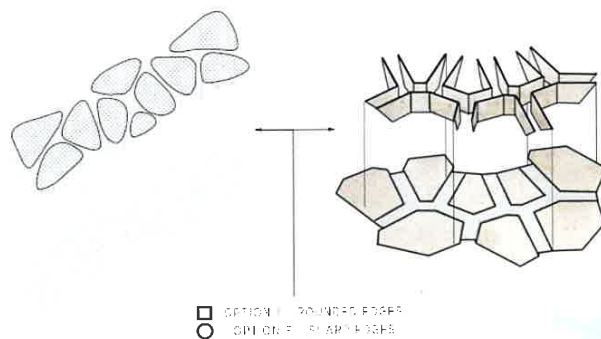
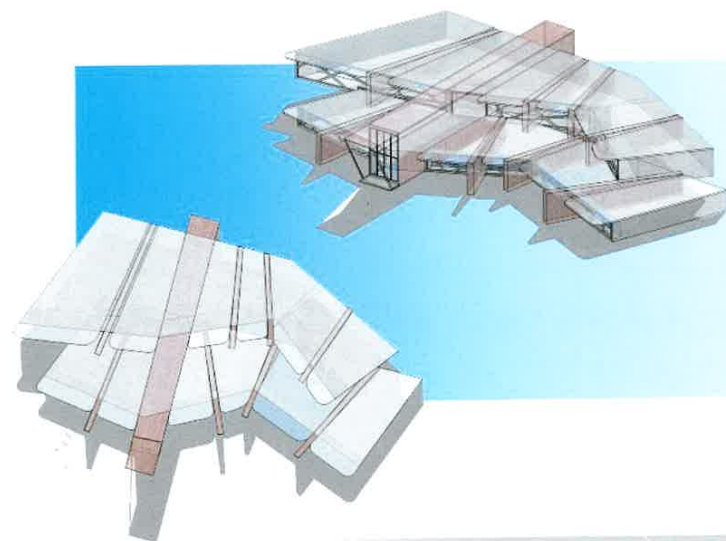
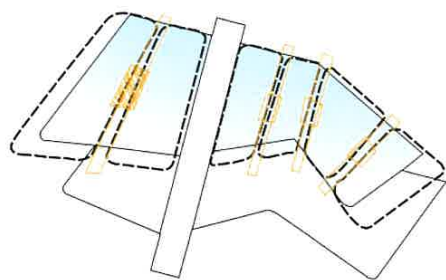





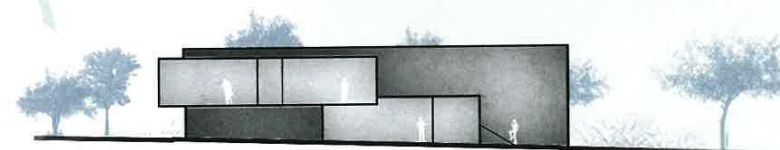
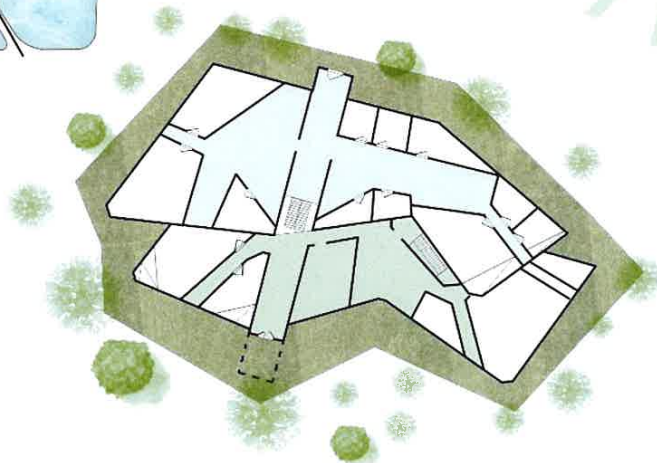
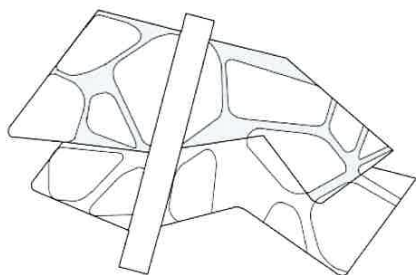
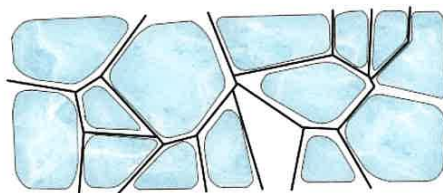
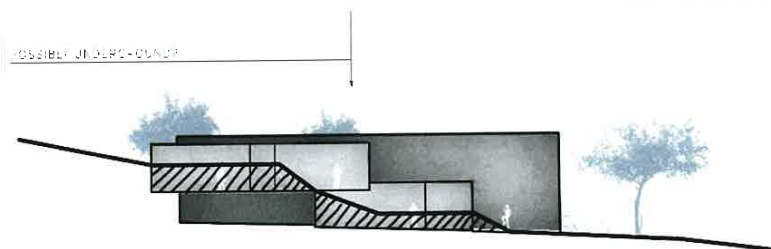
In this page I am revolving the design and finding a shape/form that more closely resembles a functioning building. I am paying close attention the design constraints, for example, the windows are displayed here facing the bottom of the hill/the ocean - allowing for full encompassing.

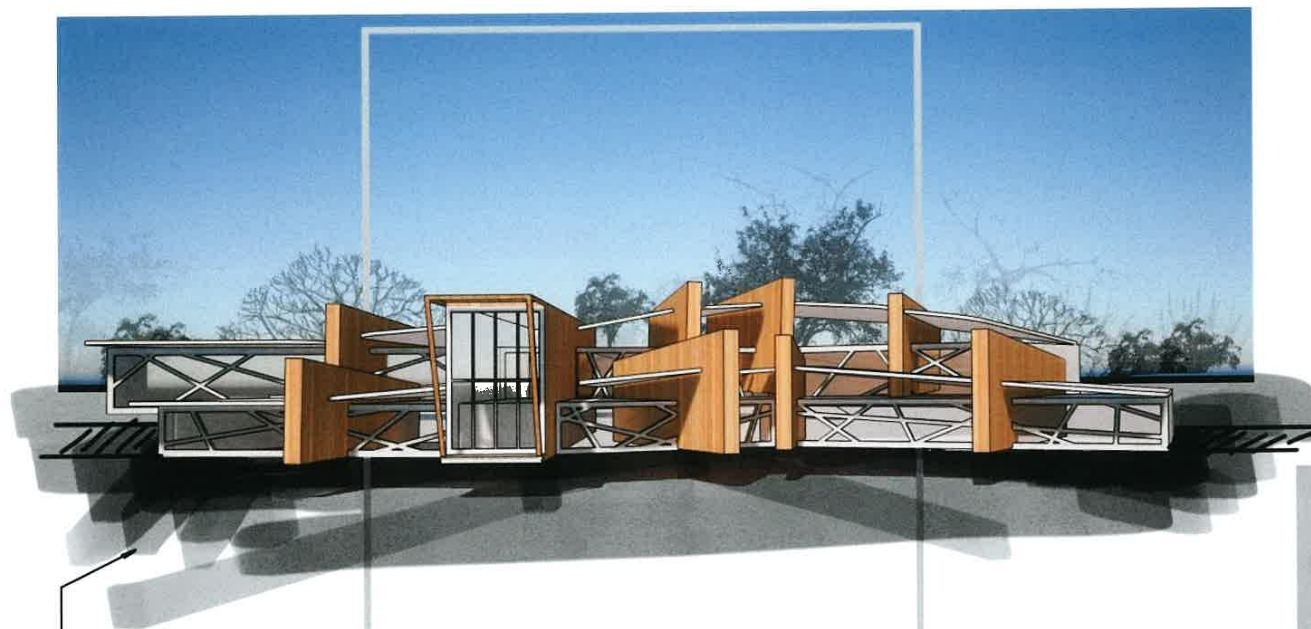
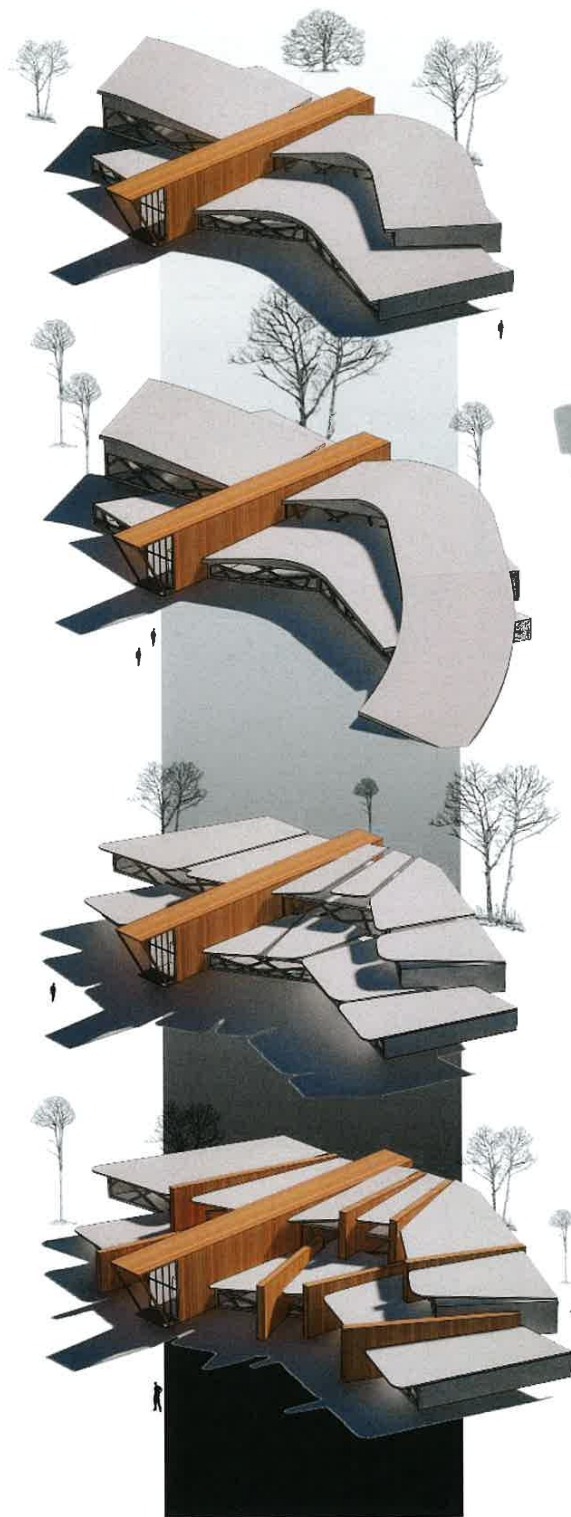






SPECIAL AREAS - MULTIPURPOSE
COULD BE DIVIDED INTO SMALLER SECTIONS USING
TEMPORARY WALLS

 POSSIBLE JUDICIAL COUNCIL



APPROX SCALE

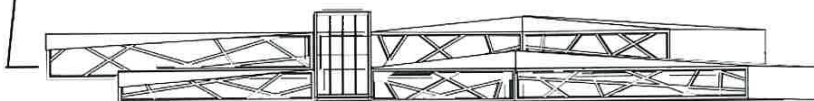
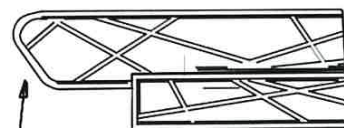


INSIDE VIEW

WALL



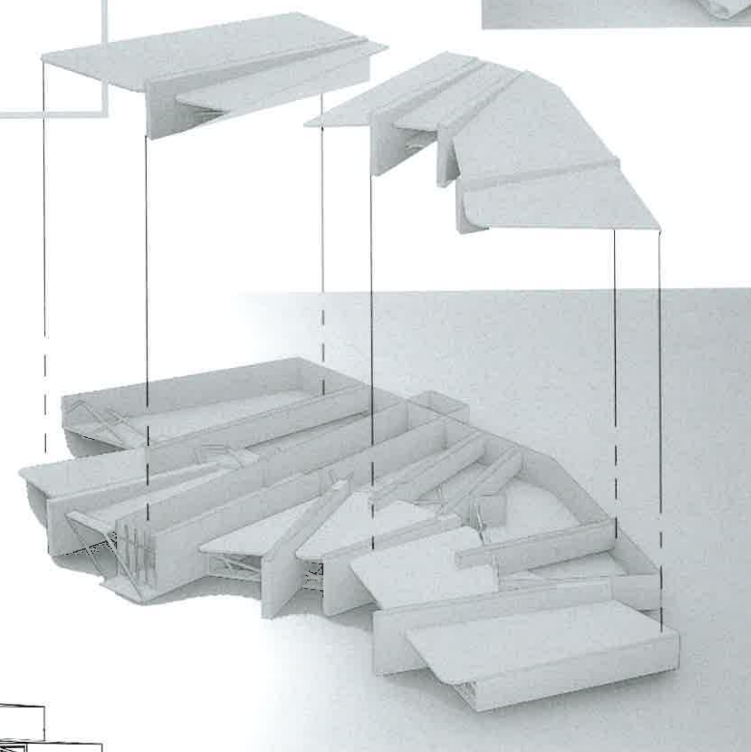
POSSIBILITY OF RE-INTRODUCING
THIS CURVED DESIGN FROM EARLIER
VARIATIONS:



WHAT DOES THE WINDOW SEE?

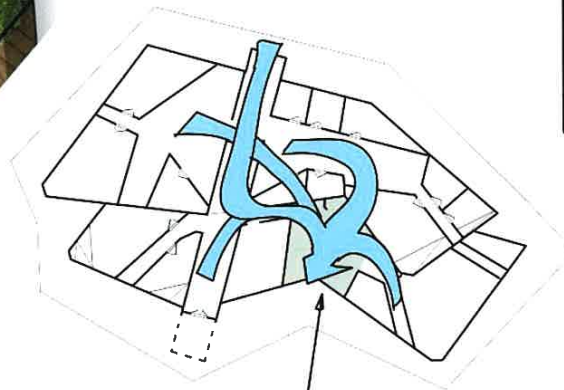
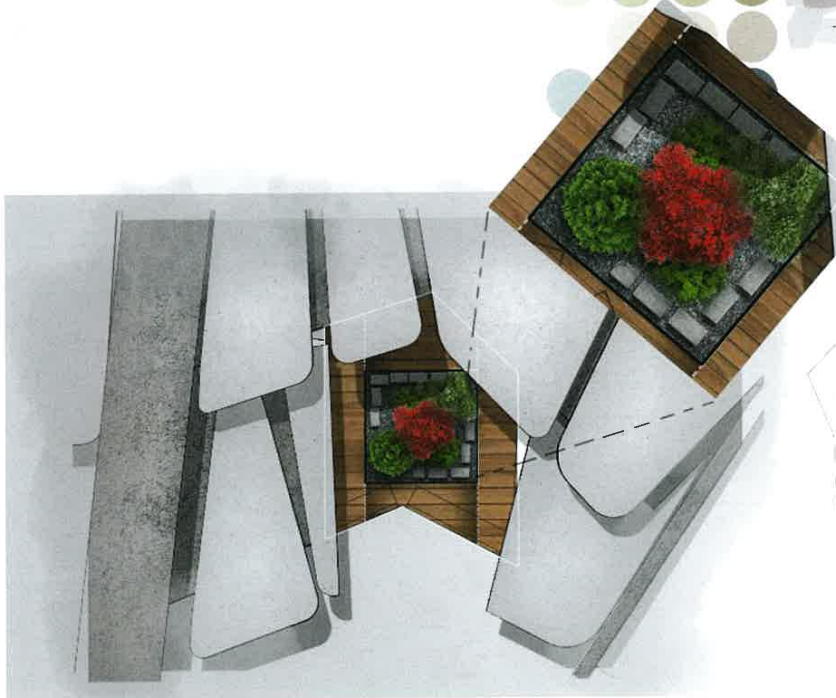
SCENERY

BEACH ACCESS

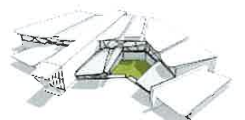
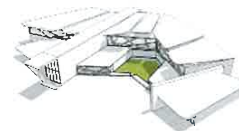
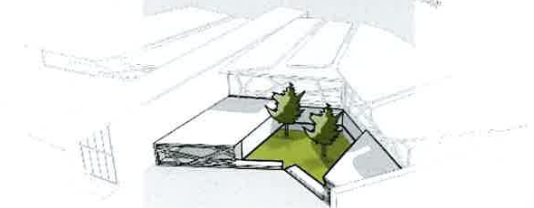
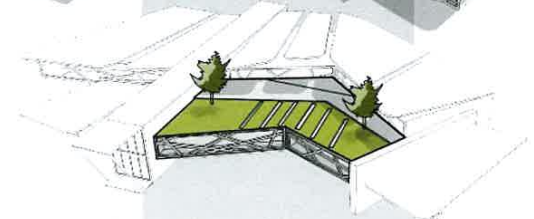
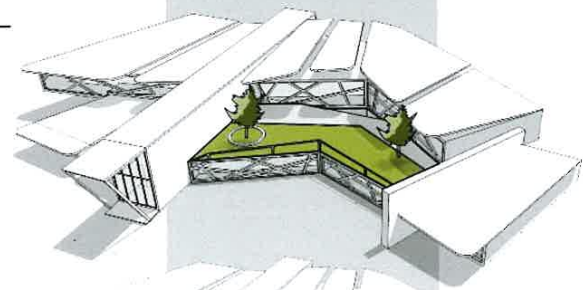


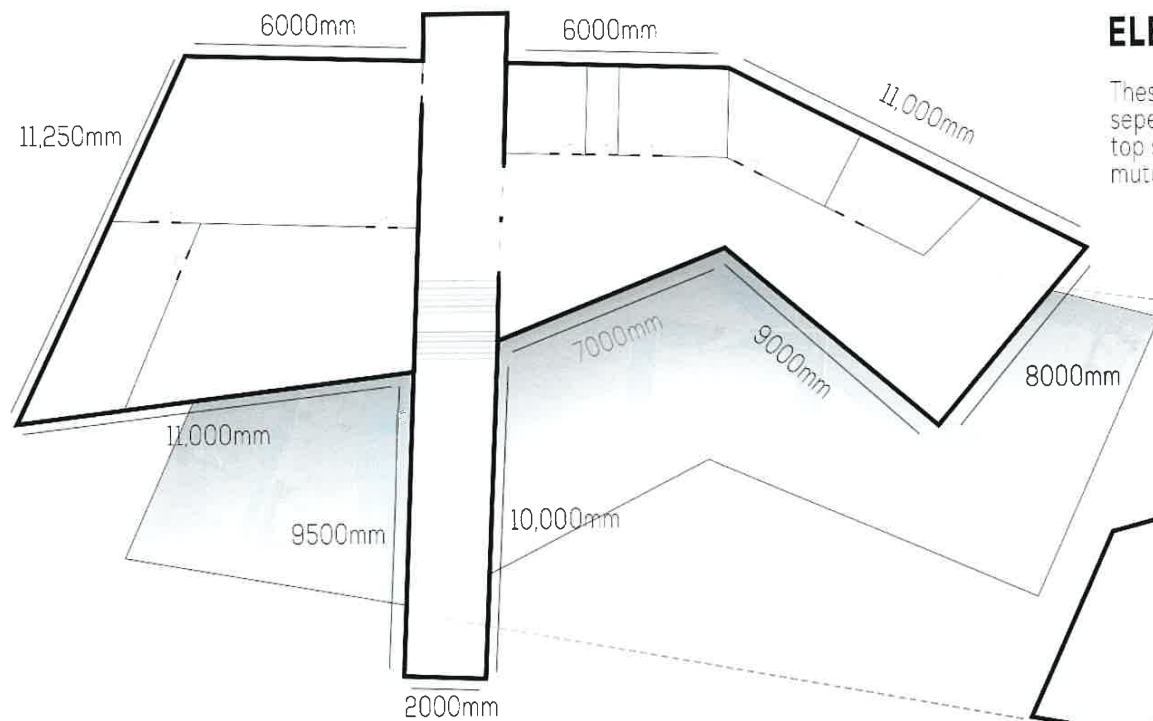


TRADITIONAL JAPANESE
INSPIRED INNER
COURTYARD



ACCESSIBLE FROM EVERYWHERE
- CENTRAL LOCATION IN HOME

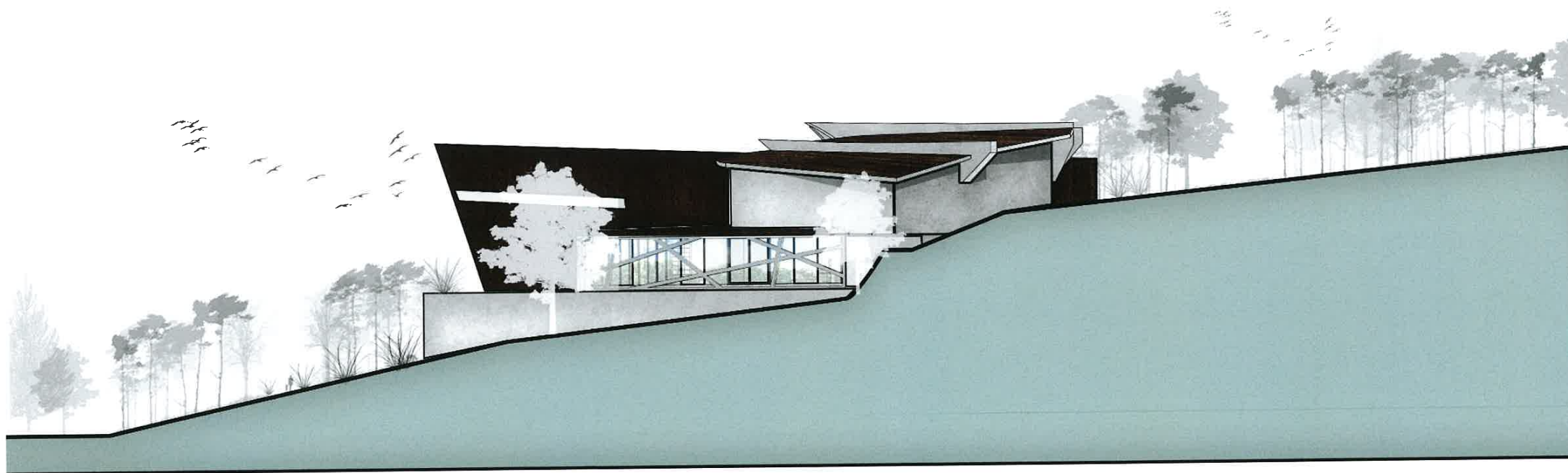




ELEVATION & FLOOR PLAN/MEASUREMENTS

These top view sections show the two different spaces and how they might function separately from one another. Ideally, one generation of a family would use the top section/floor while another would use the bottom story/section. It is also mutually beneficial for both families to share some spaces and interact.

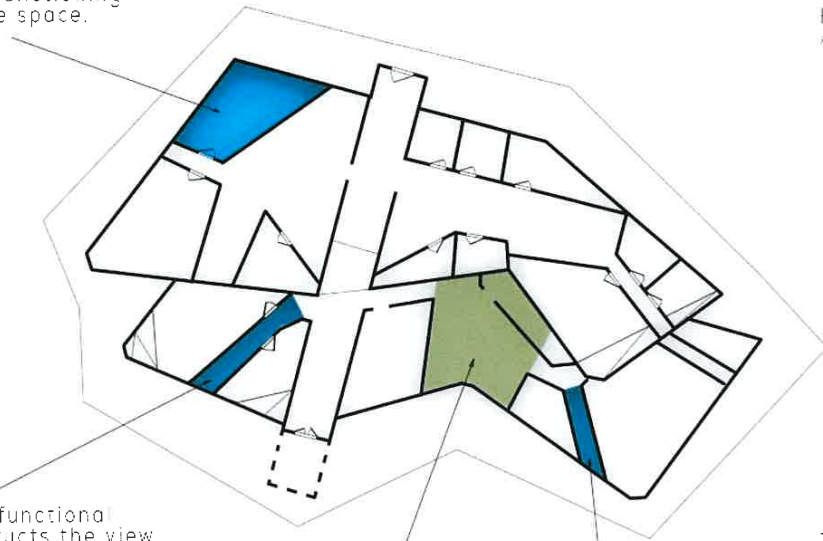
These measurements are only a rough estimate meant to indicate the approximate scale of the building and site.



RETHINKING THE SPACIAL LAYOUT

This seperated garage layout is not neccesary and only creates more walls where not needed - this could act as a single functioning garage space.

CURRENT SPACE FLOOR PLAN



Another non-functional hallway that obstructs the view
This space could be used instead to help make the area feel more spacious

Current indoor/outdoor fusion courtyard area

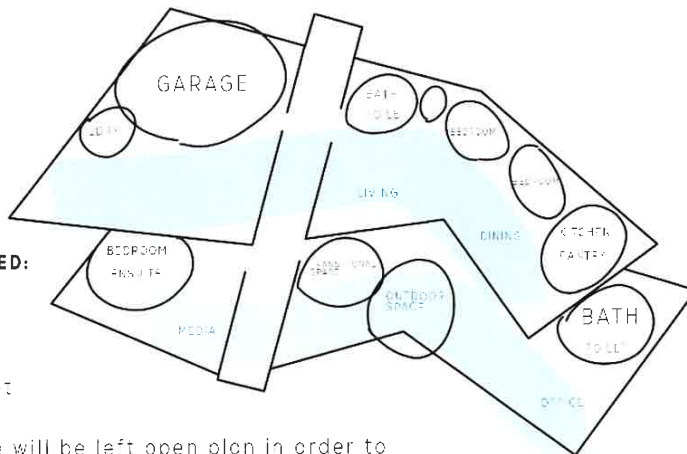
Hallway not neccesary/ doesn't contribute to the functionality of the design

SPACES NEEDED FOR A MULTI GENERATIONAL HOME:

Living room
Dining room
Family room
Kitchen
Pantry
Garage
Media room
Bathrooms/toilet spaces
Bedrooms
Laundry
Storage
Closets/wardrobe
Office

THESE SPACES WILL BE COUPLED:

Kitchen + Pantry
Bedroom - ensuite
Bedroom - wic
Laundry + garage
Possibly bathroom + toilet



The spaces in blue will be left open plan in order to maximise the presence of the view

THINGS TO CONSIDER

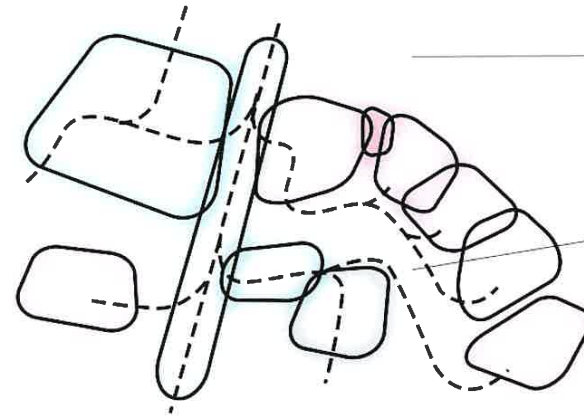
Sense of flow & functionality

How will each space serve its purpose for each of the family members?

Will the spaces be shared between the generations of the family or kept seperate?

How will the spaces allow maximum emphasis on the view overlooking the ocean?

Are the spaces accessible for people with various needs (e.g. wheelchairs, short stairs)

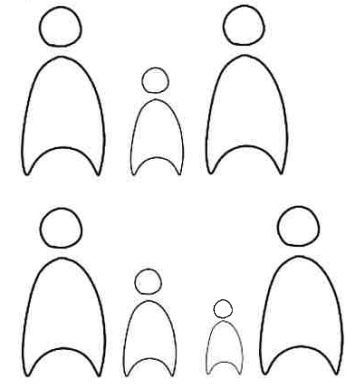
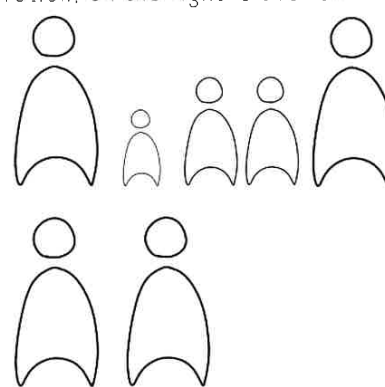


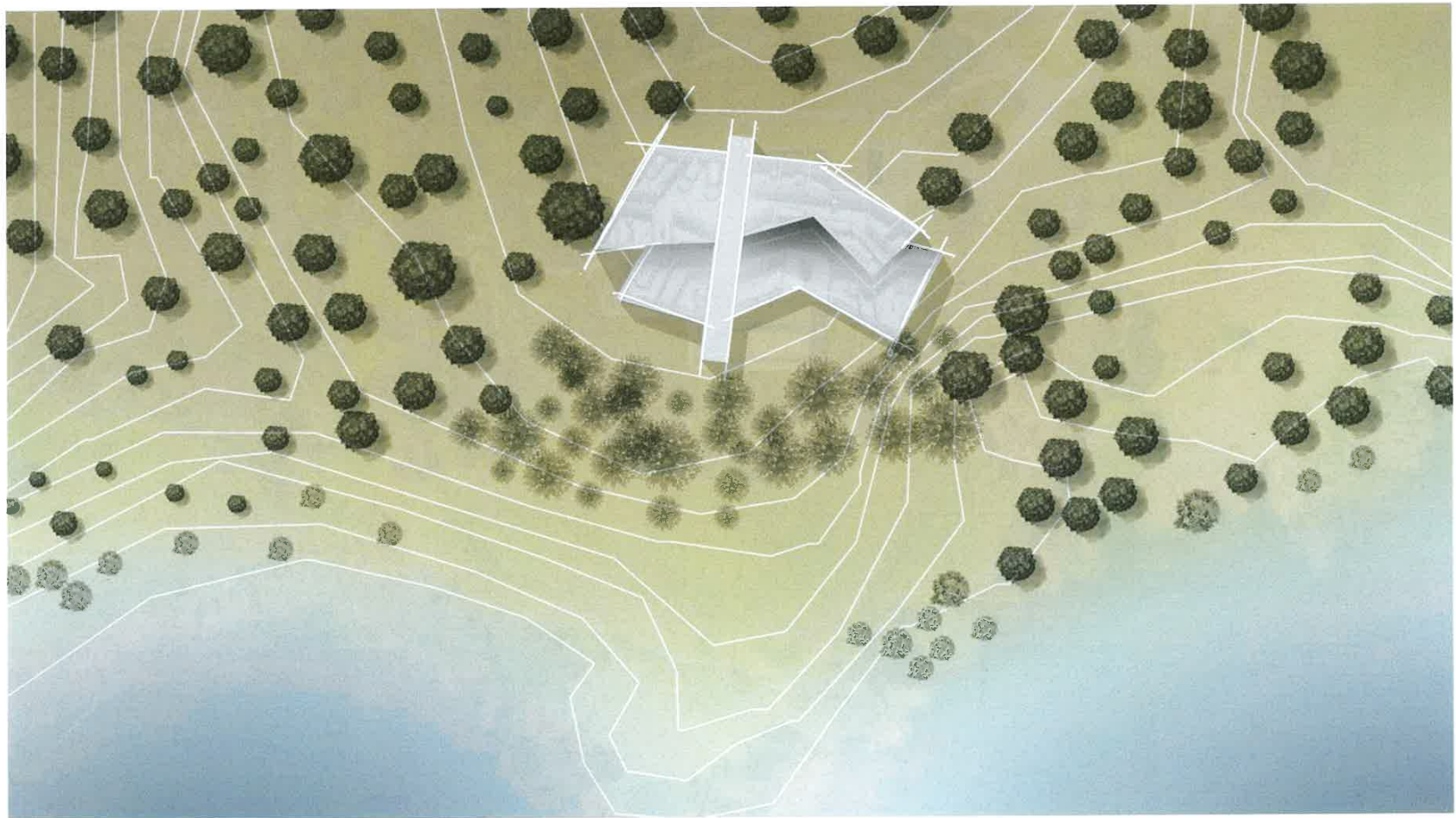
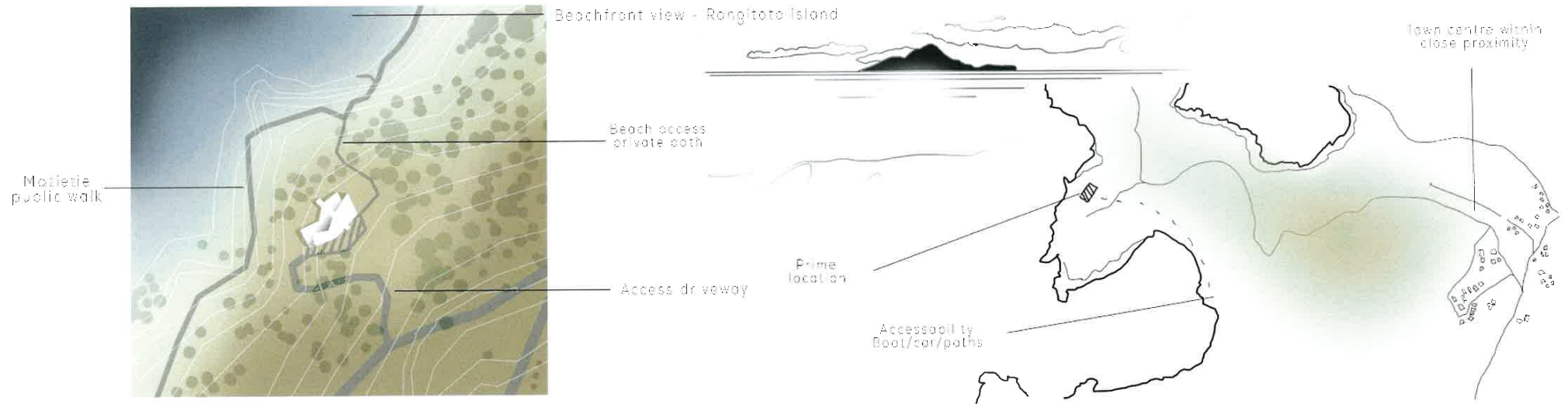
The flow of people in my building will share distinct similarities with the flow of water, the motion that the building is inspired by.



HYPOTHETICAL MULTI GENERATIONAL FAMILY OCCUPYING HOME:

To an extent the floor plan needs to work with a variety of multi generational family structures as demonstrated by the figures below. On the left is a scenario of a family of 5 plus the older generation, on the right is two families of similar size.

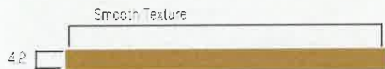




Cedar Plank Flooring



Light Oak Flooring



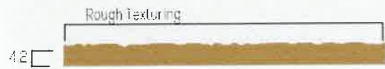
Dark Oak Flooring



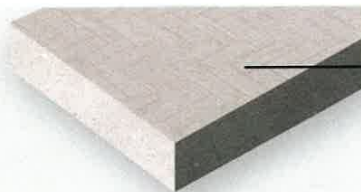
Marble Tiles



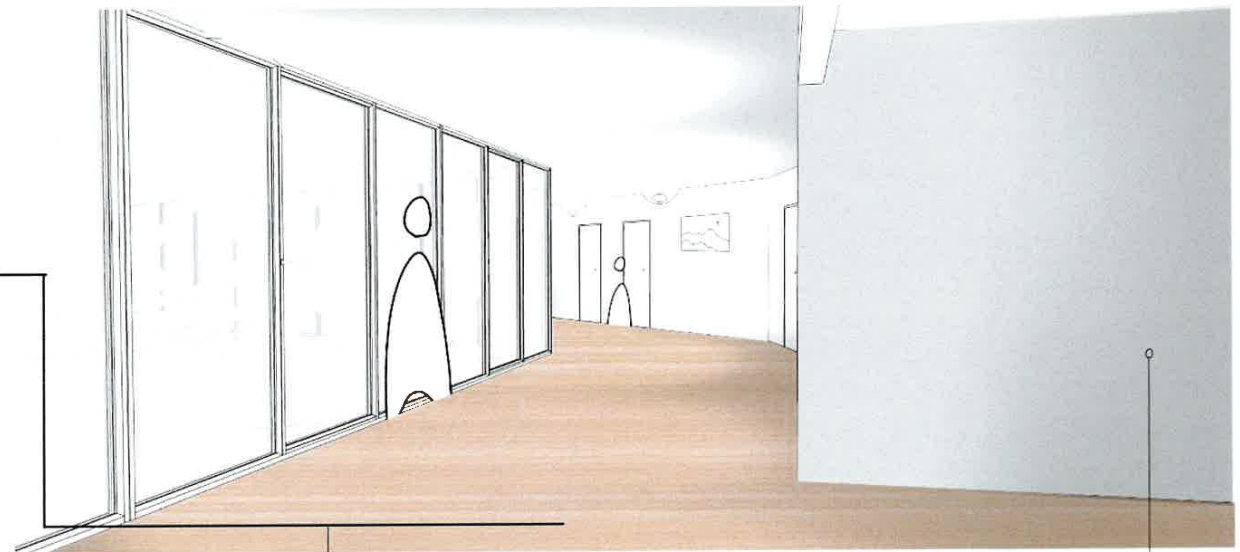
Organic Material Flooring



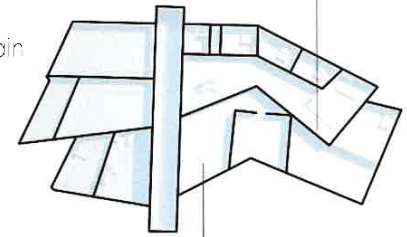
Tatami Mats



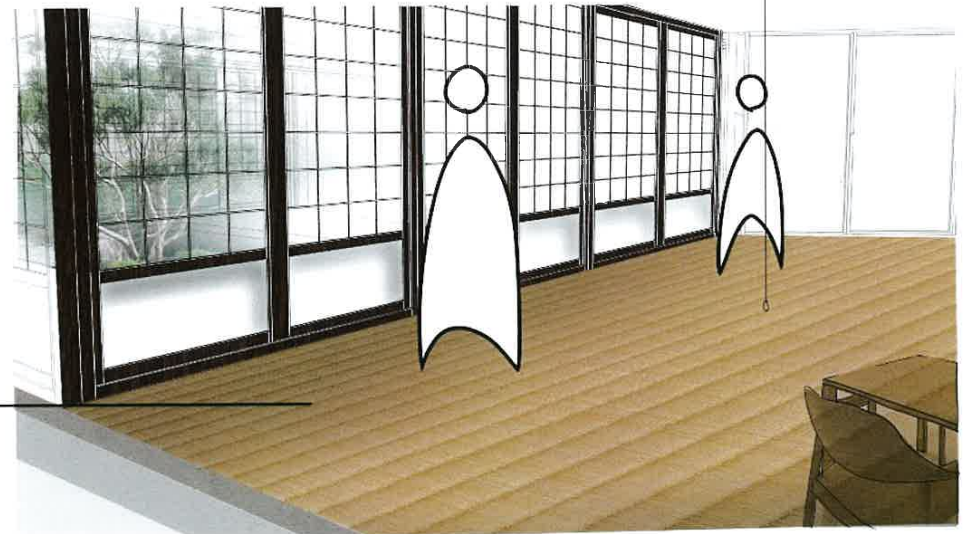
Textures Stone Tiles



The floor on the upper and lower levels will use light oak flooring. The matches the pallette and the overall aesthetic while helping to maintain a light and neutral tone.

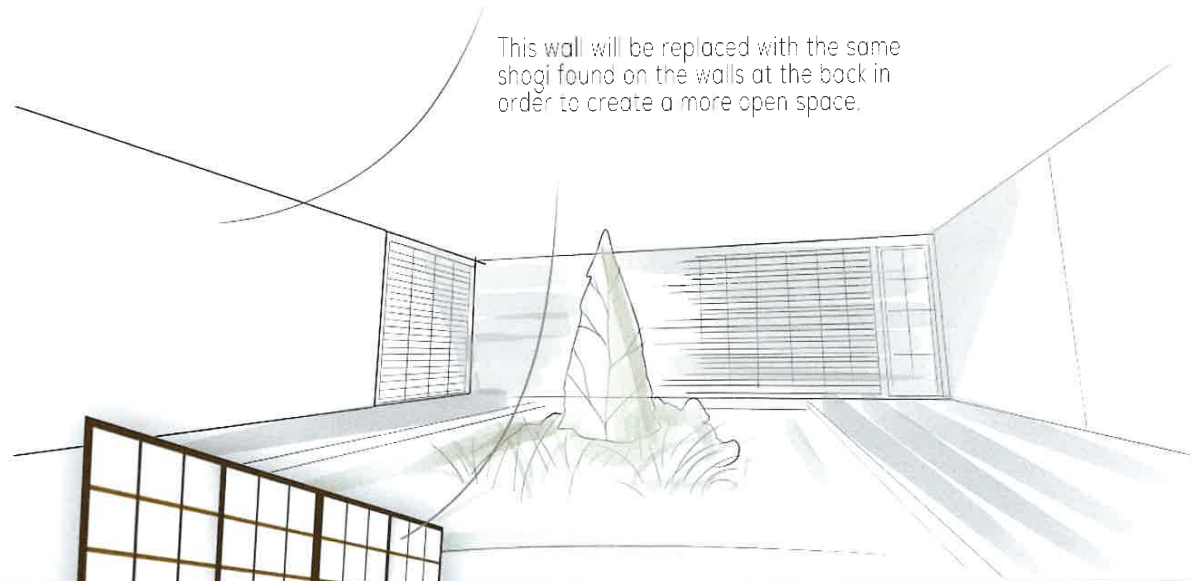


The Tatami mats will be used in these sections of the house around the indoor/outdoor garden as demonstrated in order to stay within the boundaries of the Japanese aesthetic. Tatami mats are also more durable and easier to clean than regular flooring, making the perfect composition for the space leading directly into the outdoors as people may enter the house over the tatami mats with dirty shoes or feet.

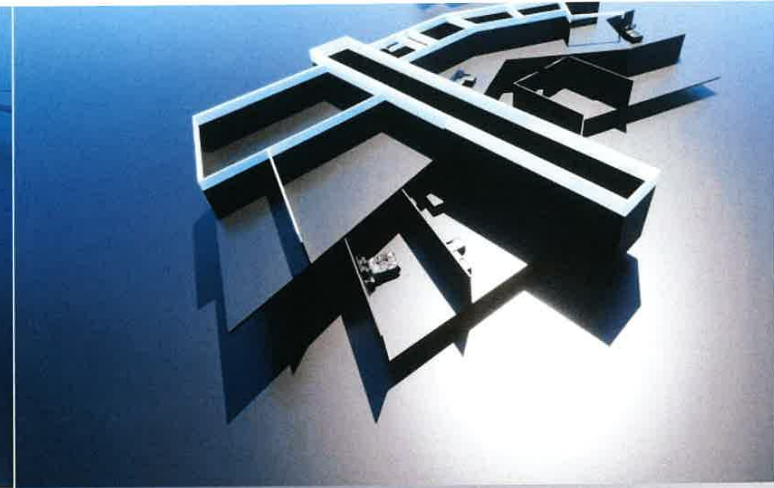
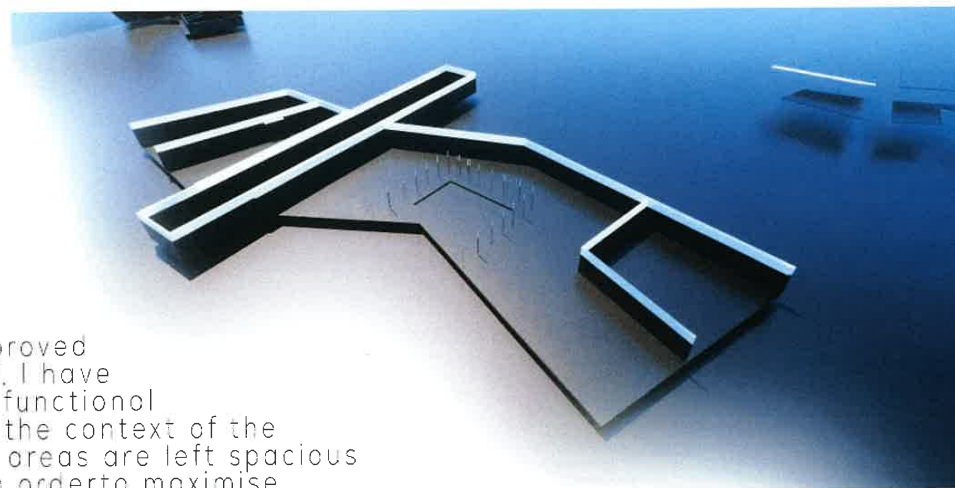


This wall here is out of place, it obstructs the surrounding room's view into the inner courtyard and doesn't contribute to the sense of openness I was hoping to create with this space.

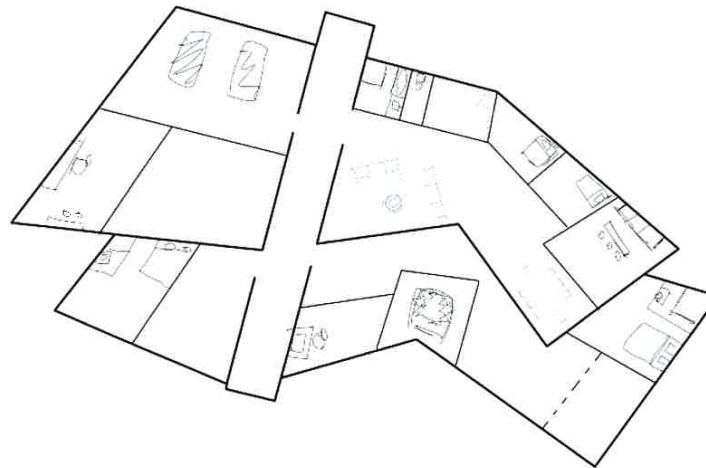
This wall will be replaced with the same shoji found on the walls at the back in order to create a more open space.



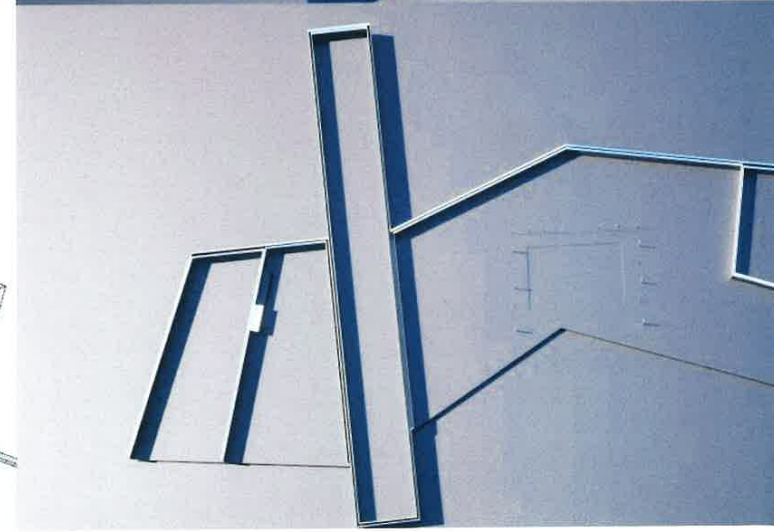
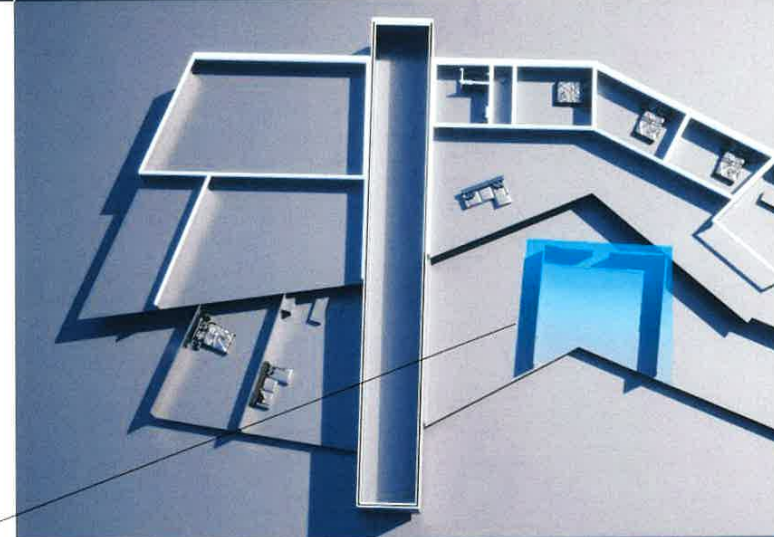
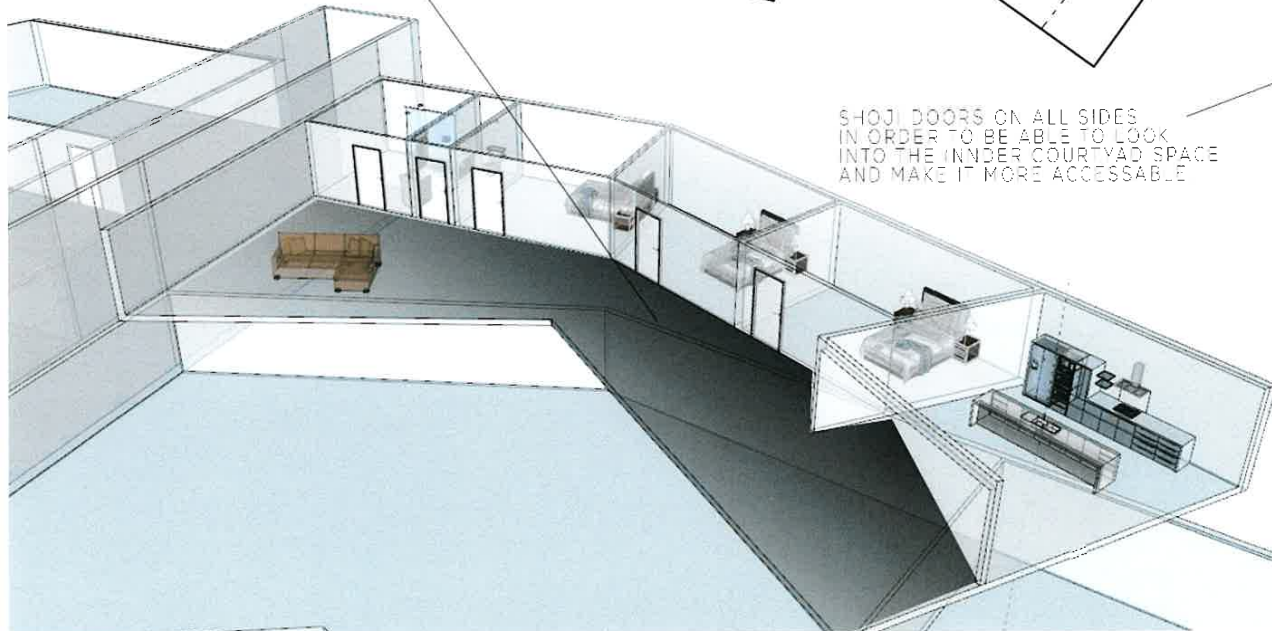
In these this improved floor plan layout, I have made the space functional while working in the context of the design. The front areas are left spacious and open plan in order to maximise the view

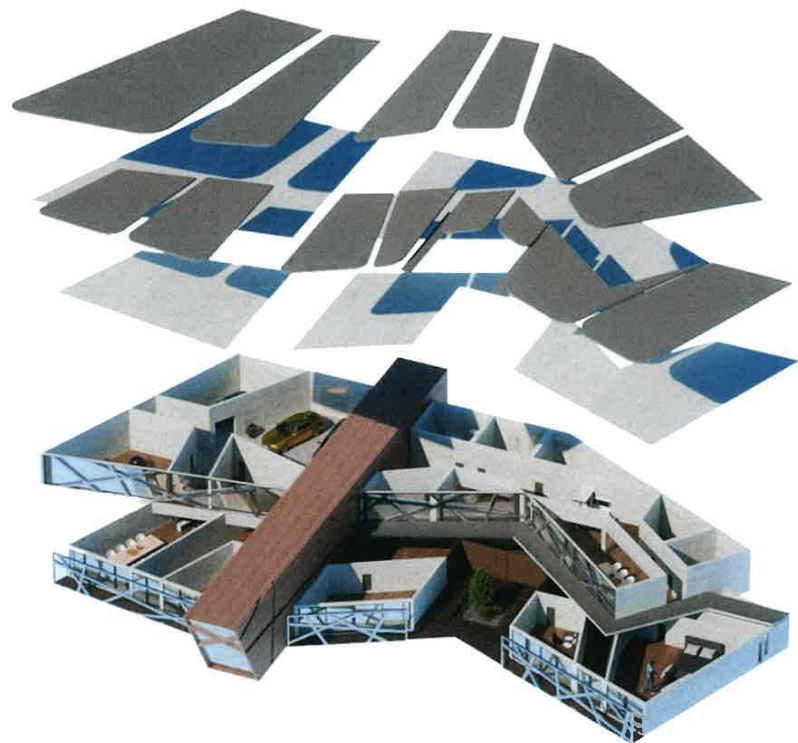


OPEN PLAN FLOOR
IN FRONT OF WINDOWS



SHOJI DOORS ON ALL SIDES
IN ORDER TO BE ABLE TO LOOK
INTO THE INNER COURTYARD SPACE
AND MAKE IT MORE ACCESSABLE





MATERIAL SELECTION:

CHARRED TIMBER



IN USE:



CEDAR TIMBER CLADDING



IN USE:



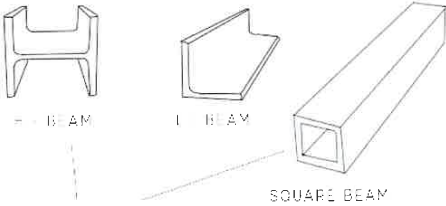
CONCRETE TIMBER CLADDING



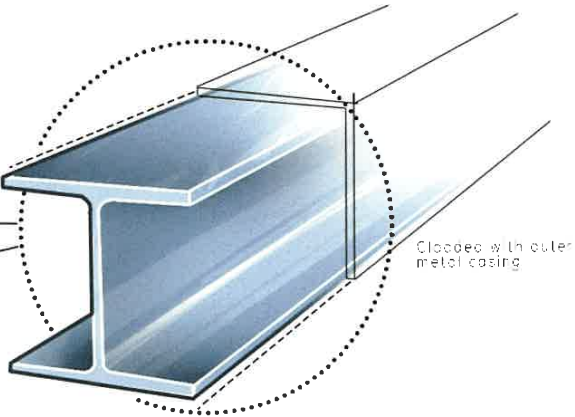
IN USE:



POTENTIAL OPTIONS:



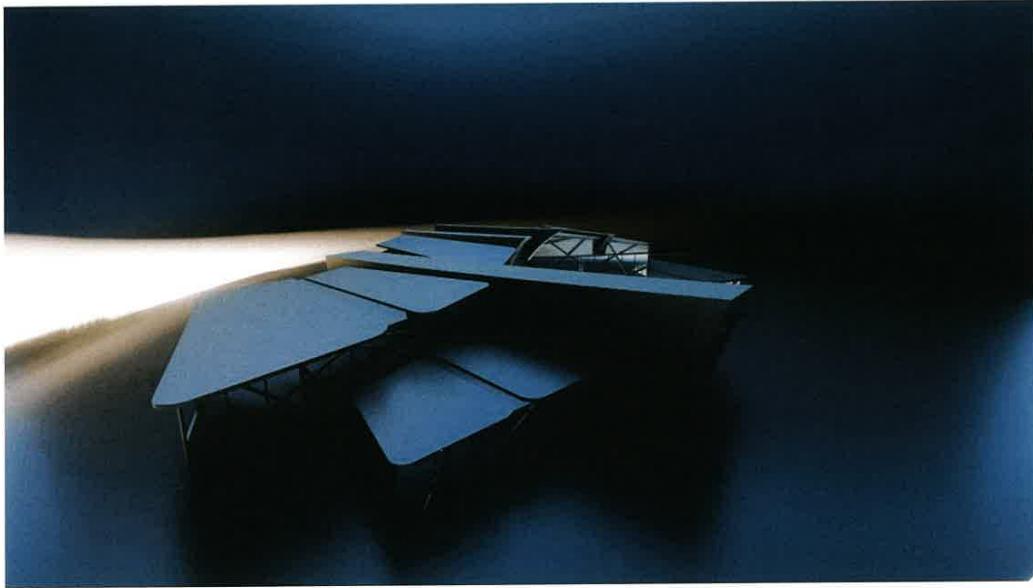
The H-beam and square beam could be combined to create a clad beam for the water facade



Clad with outer metal casing

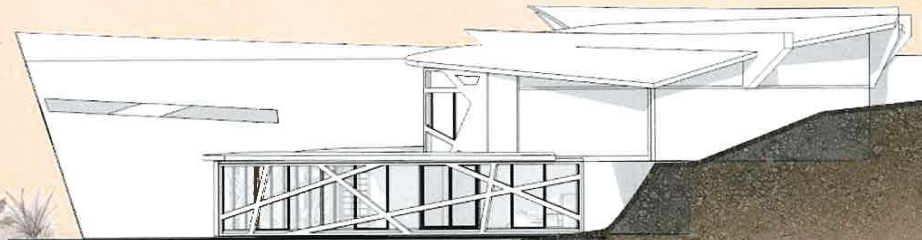
The windows are triple glazed and extend from floor to ceiling in order to allow people looking out to take as much of view in as possible.



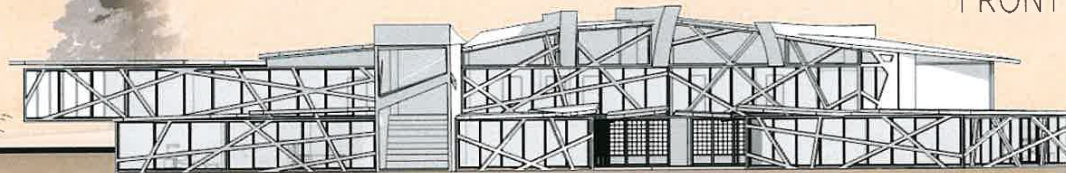


FINAL ELEVATIONS ALL ANGLES

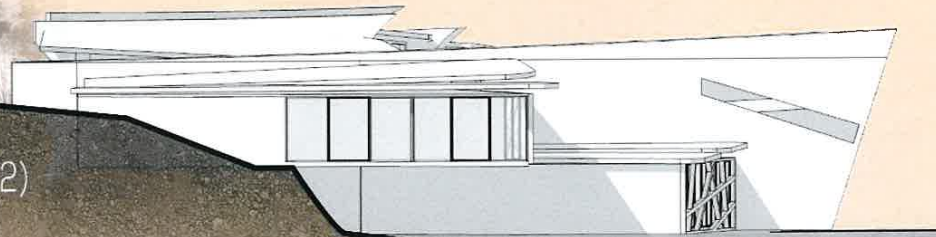
SIDE VIEW



FRONT VIEW

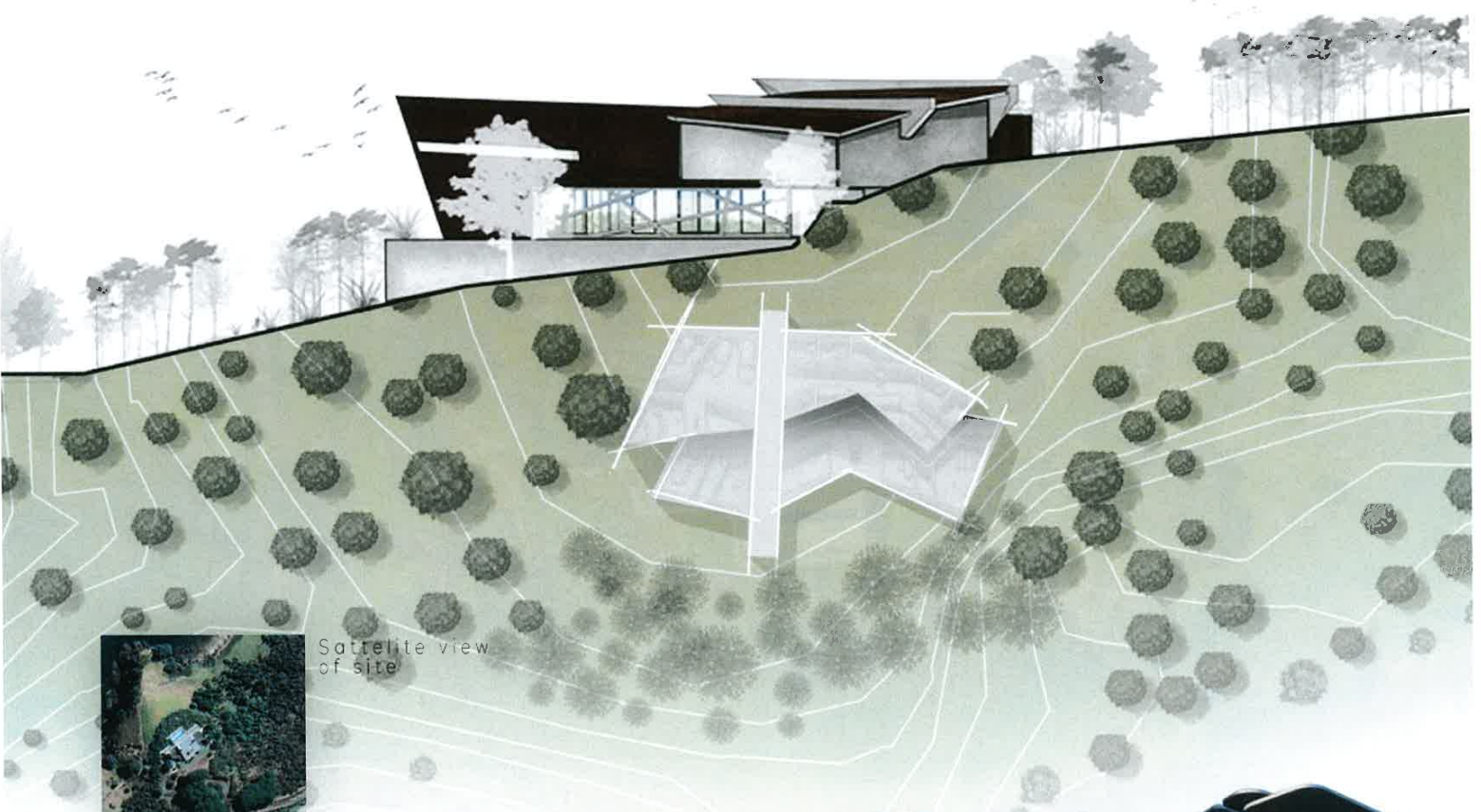


SIDE VIEW (2)



BACK VIEW



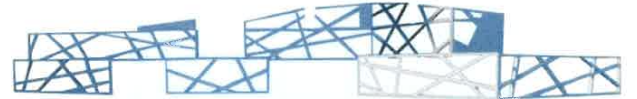


Satellite view of site

MULTI GENERATIONAL HOME - COUSTICS HOUSE

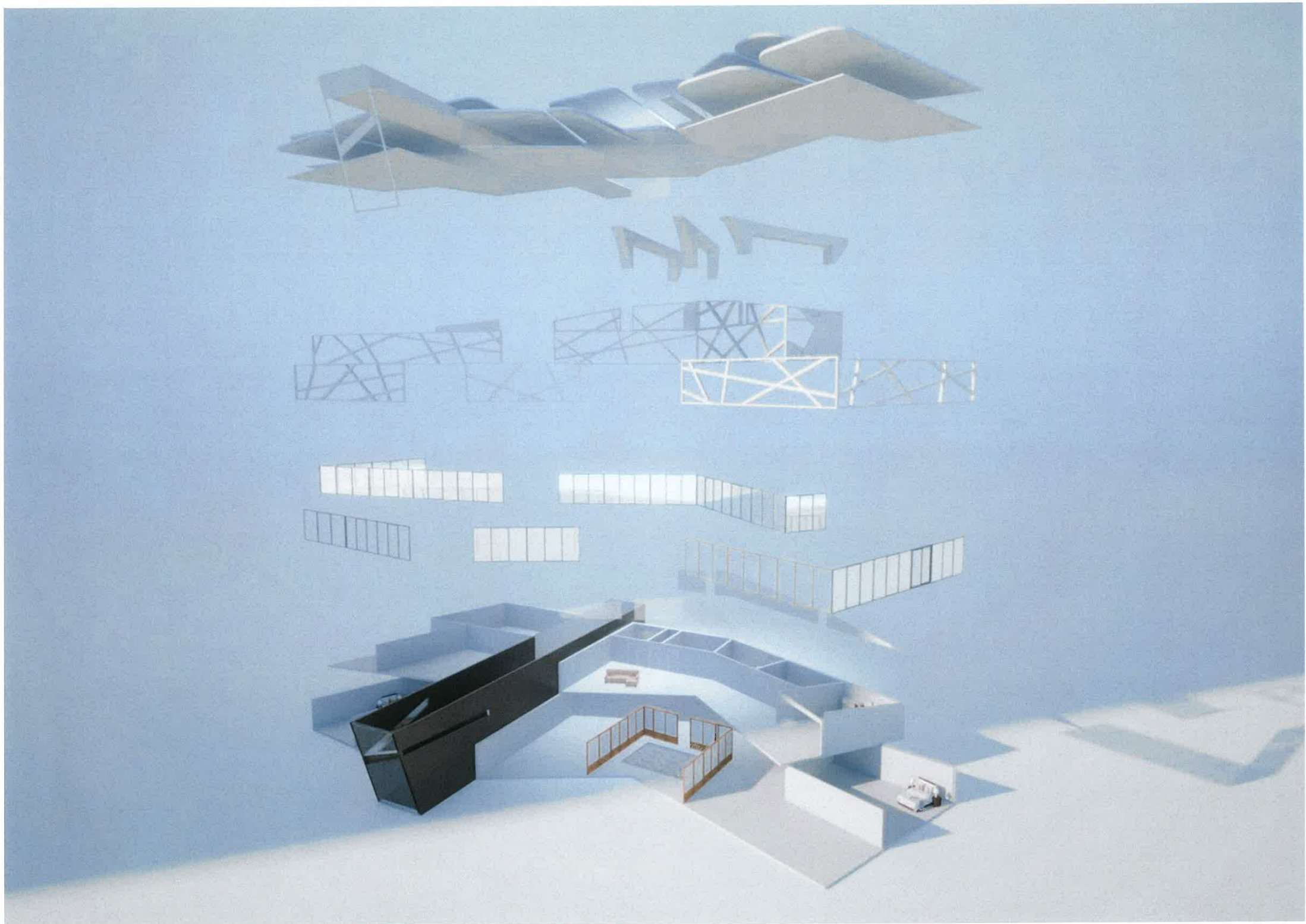
My multi - generational home design features a metal facade inspired by the natural motion and shape water takes and is placed in front of the windows facing the view of the ocean. This design language provides a connection between the environment and the home by using the coastline that is a prominent feature of the location as a direct inspiration for the design direction and process.

The home also features two separate livable areas that can function independently from one another, with the aim of sustaining a multi-generational family, but is also connected to each other through the shared use of some spaces such as the inner courtyard inspired by traditional Japanese architecture. Some of the opportunities and constraints I have encountered throughout my design process include the sloping nature of the terrain I had to work around and the way in which the space would function. This is probably what challenged me the most - knowing what spaces are necessary and



Interior Kitchen area



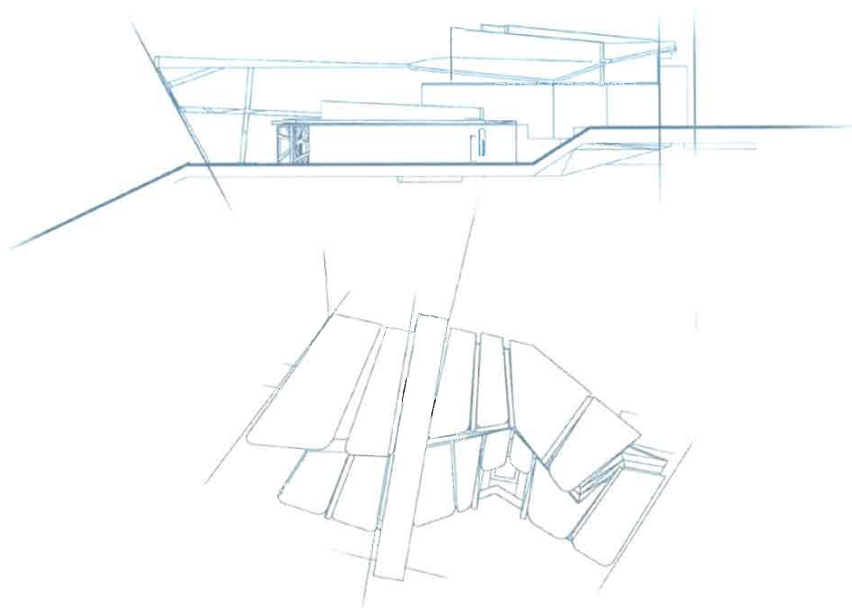




THE CAUSTICS HOUSE

"THE CAUSTICS HOUSE" REPRESENTS A VISIONARY ARCHITECTURAL CONCEPT THAT SEAMLESSLY MERGES INNOVATIVE DESIGN WITH THE FUNDAMENTAL PRINCIPLES OF SUSTAINABLE LIVING. THIS REMARKABLE DWELLING REDEFINES THE BOUNDARIES OF RESIDENTIAL ARCHITECTURE, BOASTING A CUTTING-EDGE, ENVIRONMENTALLY CONSCIOUS APPROACH.

THE HOUSE'S CORE CONCEPT REVOLVES AROUND HARNESSING NATURAL LIGHT AND OPTIMIZING ITS DISTRIBUTION THROUGH THE CLEVER USE OF REFLECTIVE AND REFRACTIVE MATERIALS, KNOWN AS 'CAUSTICS,' TO CREATE MESMERIZING AND EVER-CHANGING PATTERNS OF ILLUMINATION. WITH ITS OPEN SPACES, HARMONIOUS INTEGRATION WITH NATURE, AND A COMMITMENT TO ENERGY EFFICIENCY, "THE CAUSTICS HOUSE" SERVES AS A BEACON OF INSPIRATION FOR SUSTAINABLE AND AESTHETICALLY CAPTIVATING LIVING SPACES.



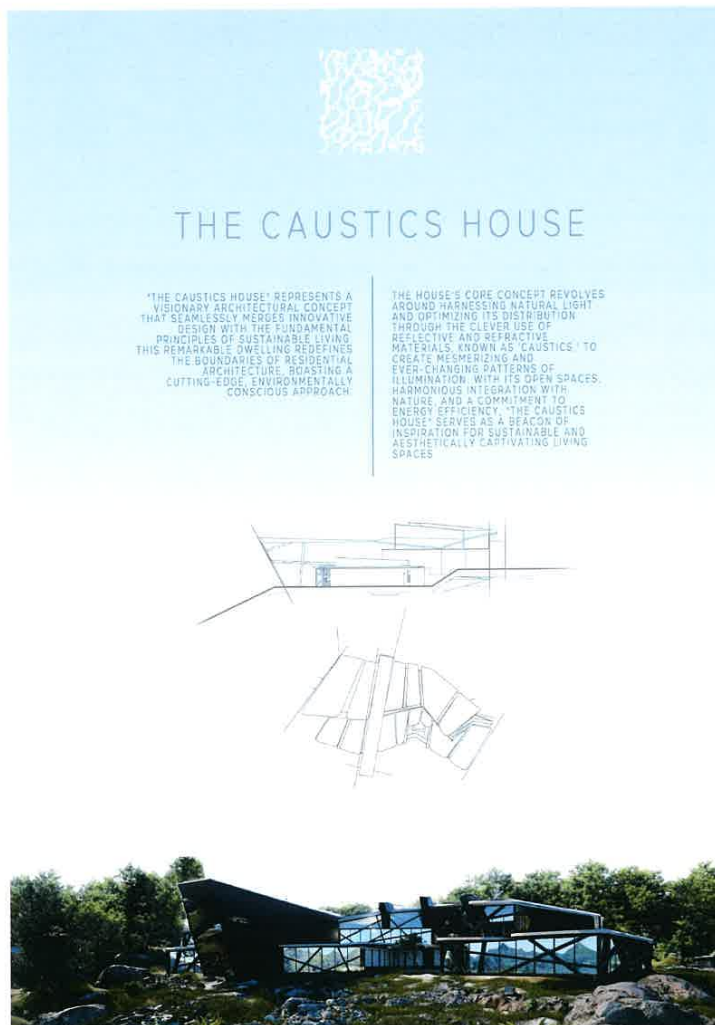


My multi-generational home design features a metal facade inspired by the natural motion and shape of water and a place, a row of the windows facing the front of the ocean. This design language provides a connection between the environment and the home by using the coastline that is a prominent feature of the location as a direct inspiration for the design direction and process.

the home also features two separate livable areas that can function independently from one another. In the aim of sustaining a multi-generational family, but is also connected to each other through a series of stairs used to connect the inner courtyard inspired by traditional Japanese architecture. Some of the opportunities and constraints I have encountered throughout my design process include the design of natural light and ventilation, creating a design in which the space would function. This is probably what I challenged me the most - ensuring what spaces are necessary and

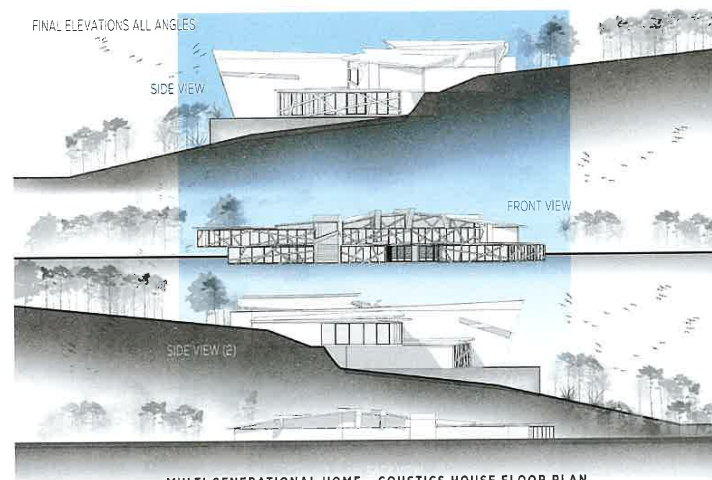
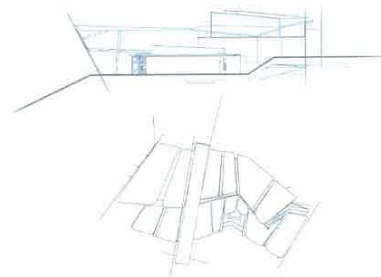


inferior
Kitchen used



"THE CAUSTICS HOUSE" REPRESENTS A
VISIONARY ARCHITECTURAL CONCEPT
THAT SEAMLESSLY MERGES INNOVATIVE
DESIGN WITH THE FUNDAMENTAL
PRINCIPLES OF SUSTAINABLE LIVING.
THIS REMARKABLE DWELLING REDEFINES
THE BOUNDARIES OF RESIDENTIAL
ARCHITECTURE, HOASTING A
CUTTING-EDGE, ENVIRONMENTALLY
CONSCIOUS APPROACH.

THE HOUSE'S CORE CONCEPT REVOLVES AROUND HARNESSING NATURAL LIGHT AND OPTIMIZING ITS DISTRIBUTION THROUGH THE CLEVER USE OF REFRACTIVE AND REFRACTIVE MATERIALS, KNOWN AS 'CAUSTICS,' TO CREATE MESMERIZING AND EVER-CHANGING PATTERNS OF ILLUMINATION. WITH ITS OPEN SPACES, HARMONIOUS INTEGRATION WITH NATURE, AND A COMMITMENT TO ENERGY EFFICIENCY, 'THE CAUSTICS HOUSE' SERVES AS A BEACON OF INSPIRATION FOR SUSTAINABLE AND AESTHETICALLY CAPTIVATING LIVING SPACES.

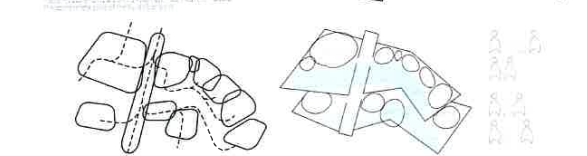


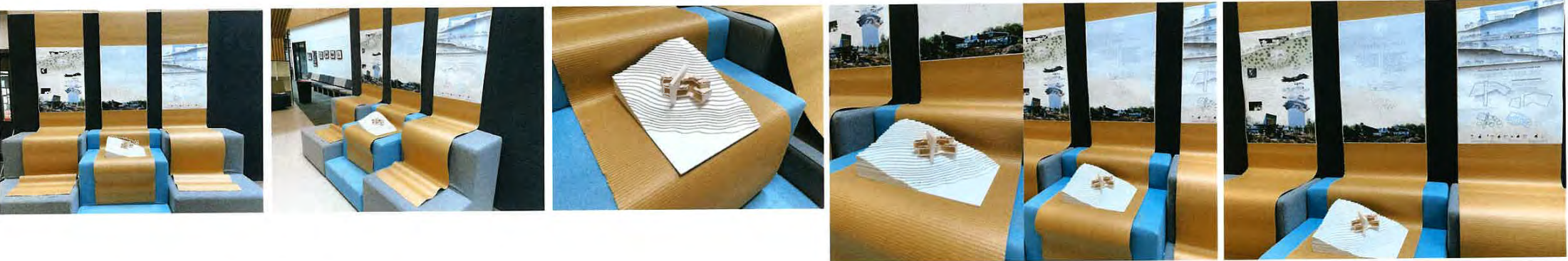
Flexible, spacious and refined. This multi-generational home features a two floor layout plan that can function individually or together, creating a harmonious living experience for all those within its walls.

ELEVATION & FLOOR PLAN/MEASUREMENTS

1. ELEVATION: The sculpture is composed of two main parts: a vertical rectangular column and a horizontal rectangular base. The column is 100 cm high and 100 cm wide. The base is 100 cm high and 100 cm wide. The total height of the sculpture is 200 cm. The base is divided into two sections: a central rectangular section and two side sections. The central section is 100 cm wide and 100 cm high. The side sections are 100 cm wide and 100 cm high. The total width of the base is 200 cm. The sculpture is made of metal and is painted black.

2. FLOOR PLAN: The floor plan shows the layout of the sculpture. The central rectangular section is 100 cm wide and 100 cm high. The side sections are 100 cm wide and 100 cm high. The total width of the base is 200 cm. The sculpture is made of metal and is painted black.





DESIGN EXHIBIT, THE CAUSTICS HOUSE



THE CAUSTICS HOUSE

2023





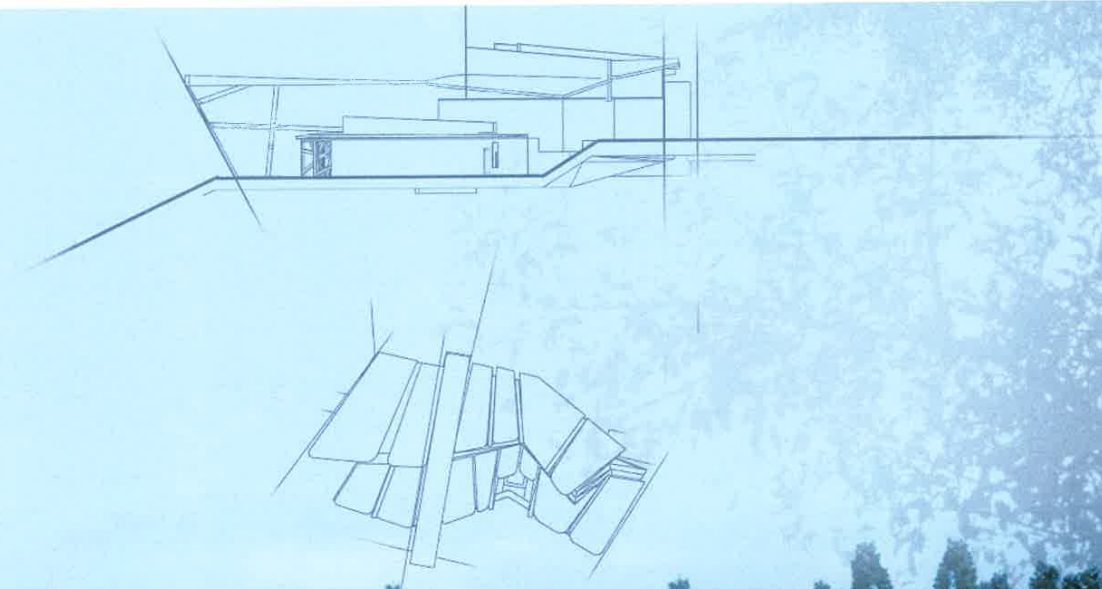


THE CAUSTICS HOUSE



FINAL EVALUATION

My multi - generational home design features a metal facade inspired by the natural motion and shape water takes and is placed in front of the windows facing the view of the ocean. This design language provides a connection between the environment and the home by using the coastline that is a prominent feature of the location as a direct inspiration for the design direction and process. The home also features two separate livable areas that can function independently from one another, with the aim of sustaining a multi-generational family, but is also connected to each other through the shared use of some spaces such as the inner courtyard inspired by traditional Japanese architecture. Some of the opportunities and constraints I have encountered throughout my design process include the sloping nature of the terrain I had to work around and the way in which the space would function. This is probably what challenged me the most - knowing what spaces are necessary and what spaces are not within a multi generational home.





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Outstanding Scholarship

Subject: Design and Visual Communication

Standard: 93602

Total score: 19

Score	Marker commentary
06	<p>Design ideation</p> <p>The ideas in this submission draw on several influences that work well together. The concept of caustics and the shimmering distortions created by sunlight in water is the dominant influence and is revisited often throughout the project. The distorted and flowing deconstructivist forms of Zaha Hadid's work is also an influence as is the site itself. The quality of the ideas increases throughout this project as the continued exploration and experimentation leads to an increasingly complex and interesting design.</p>
06	<p>Design practice</p> <p>The design thinking in this submission is strongly tied to its context. The location and site for the house is always at the forefront of the designer's mind and continuously influences ideas and decisions. The project shows intentional thinking in the way it weaves together a range of influences to create a building that is well integrated into its site. The design practice focuses on the big ideas and exploring how the parts work together as a whole. Visual techniques help to explore and refine the design as it continuously evolves and increases in complexity. People are lightly considered throughout the project. The outcome demonstrates the use of intentional thinking to create a complex and interesting building.</p>
07	<p>Visual communication</p> <p>The visual communication of the narrative is a strength of this submission. A range of sophisticated techniques have been used to convey the thinking embodied within the design practice. A range of sketching and digital techniques have been used to express the development of ideas. The visuals help to show how the thinking weaves together exterior form, interior space, and site considerations. A range of viewpoints and rendering styles have been used masterfully to give a convincing portrayal of the design ideas and outcome. Each page of the submission is interesting, purposeful and has a well-balanced layout that enhances the communication of thinking.</p>