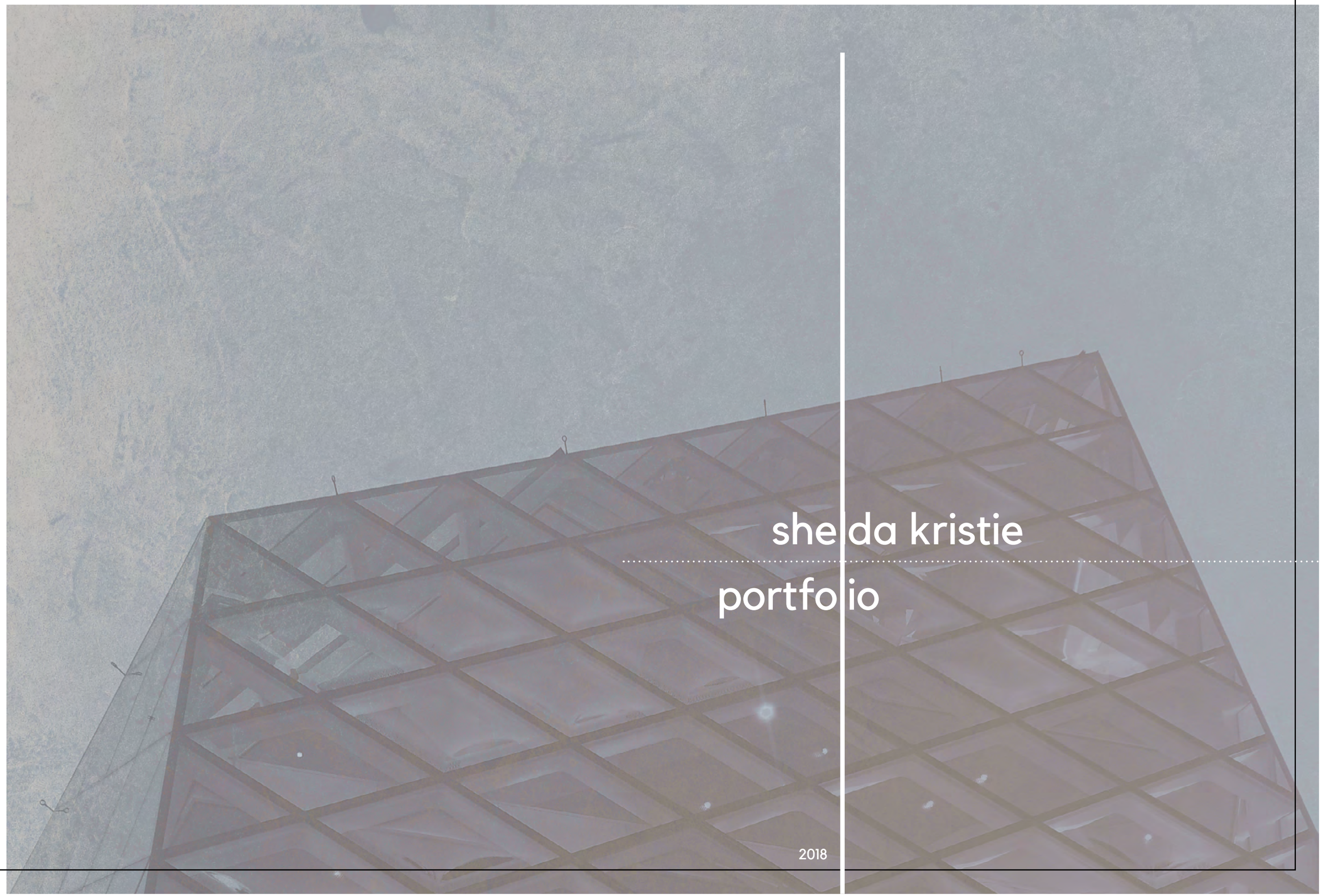

she da kristie

portfolio

2018

Bachelor of Architectural Studies
Bachelor of Computational Design (Distinction)

“I want to keep on learning until the day I take my last breath!” said my 10 year old self.

I’ve always loved learning new things and fortunately picking up new skills comes hand in hand. After I finished my bachelor degree in Architecture, working taught me that there is a gap between architecture and efficiency. This is when I learned that Computational Design would bridge this gap. I jumped on the opportunity to learn Computational Design in a year and in a year I finished it.

hi

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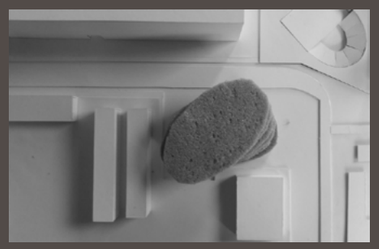
index

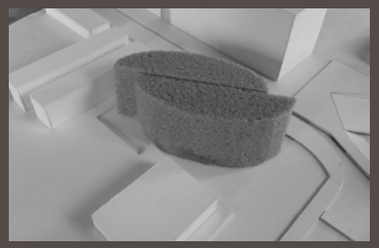
Ellipsis

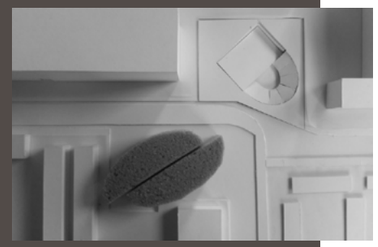
This final architecture studio requires a hotel, alumni space and light rail stop to be design in conjunction with the introduction of the new light rail at UNSW's Gate 9.

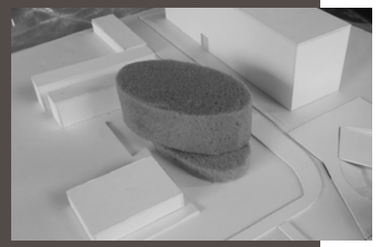
Massing design was quickly built in SketchUp and later, detailed drawings and renders were made using Revit. The renders were then enhanced using a combination of Photoshop and Illustrator. The site model was handmade and quick iterations of the design was explored using laser cutters.

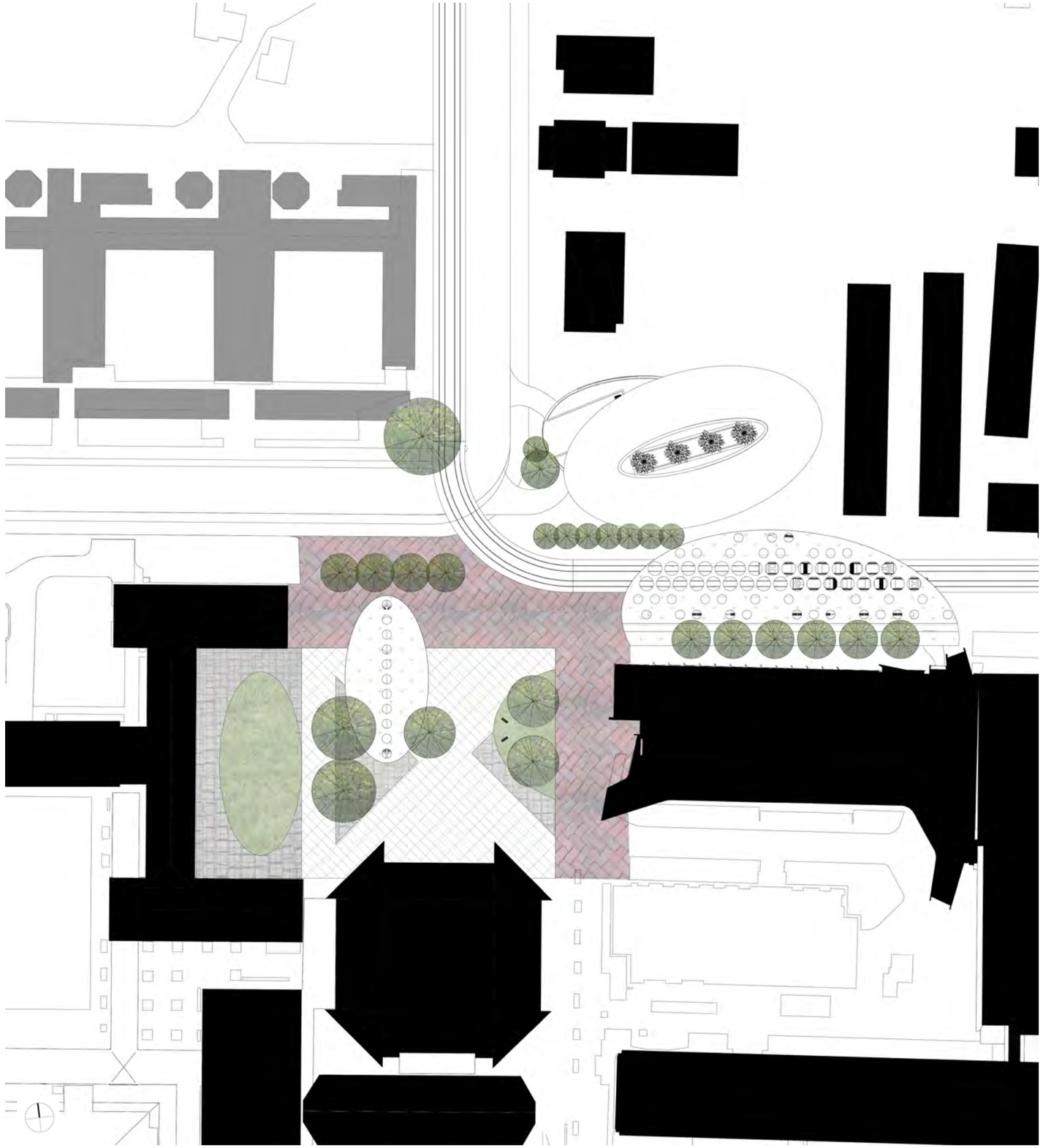
LEFT: Render of the hotel with the carved out green balconies and the Light Rail stop.



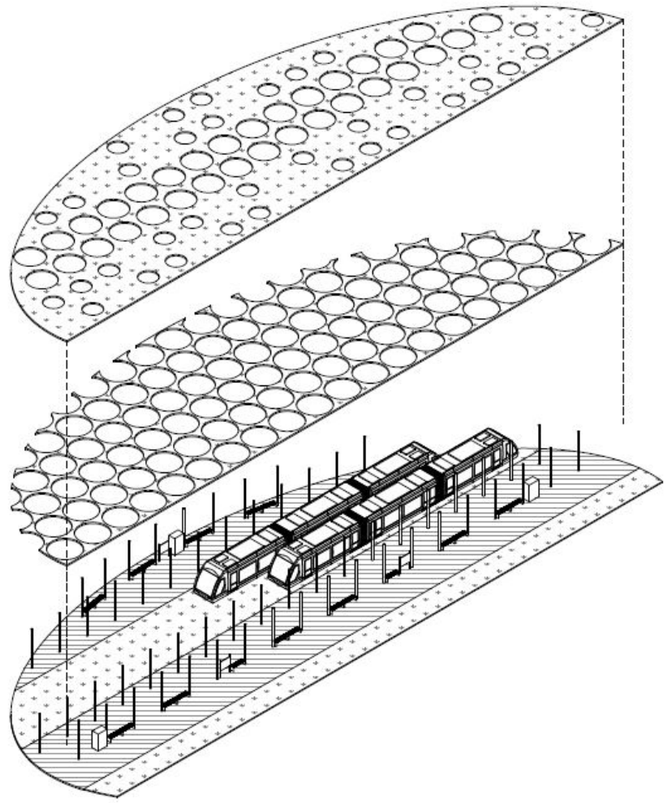




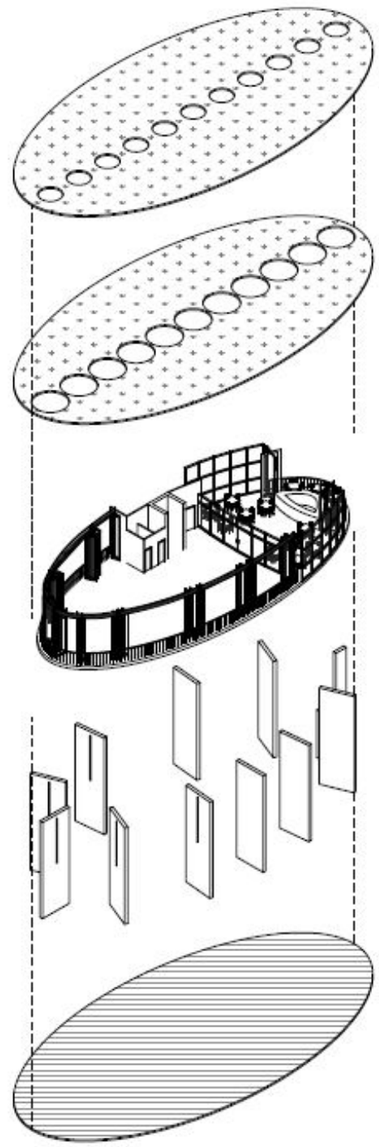




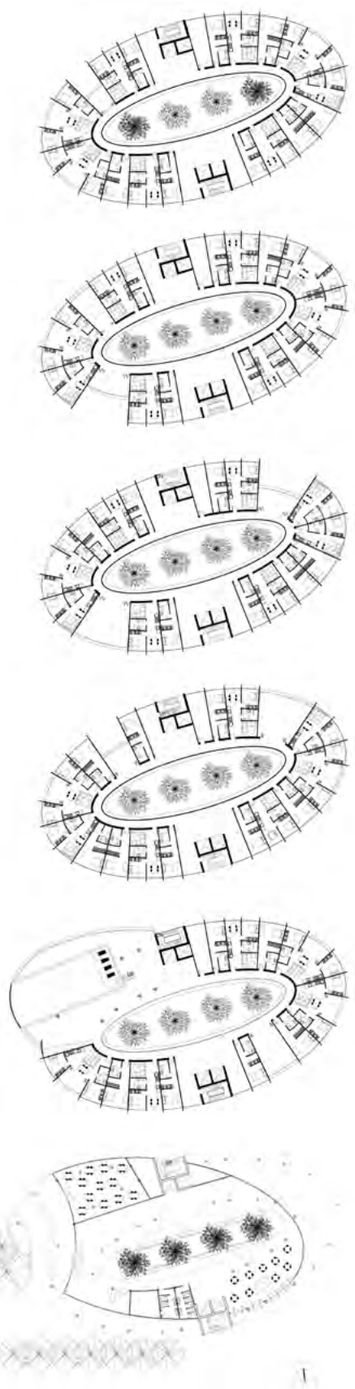
TOP: Massing models exploring the building in the site.
RIGHT: A site plan of the hotel, alumni space, and rail stop.



TOP: A render of the light rail stop beside the hotel.
RIGHT: An exploded axonometric of he light rail showing the different layers to the roof.

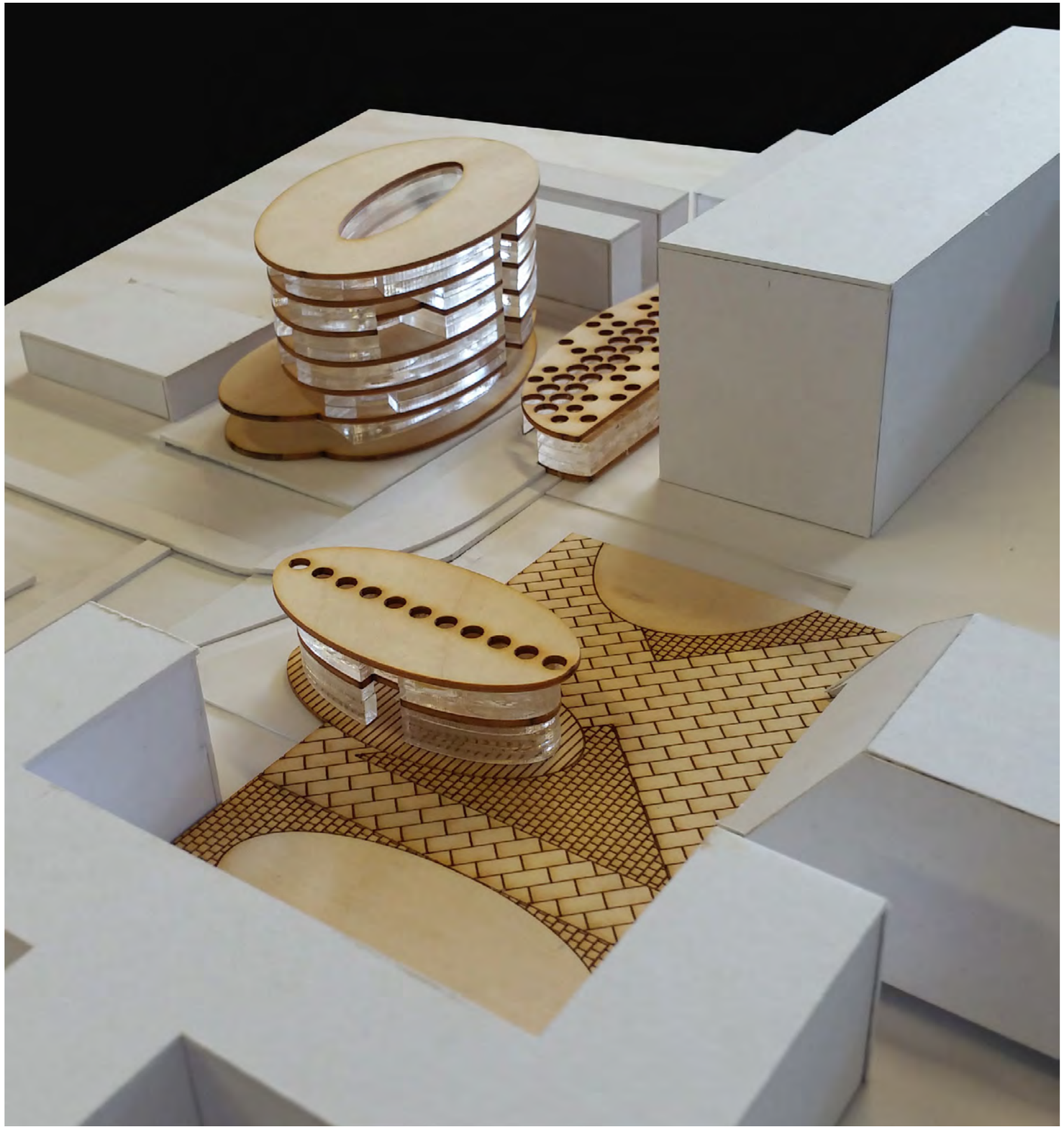


TOP: A render of the Alumni Space with the cafe facing the Randwick Racecourse.
RIGHT: An exploded axonometric drawing showing the different roof layers similar to the rail stop and columns that also act as a vertical louvre.



RIGHT: The plan of the hotel with a void in the centre to allow sunlight and open balconies to allow air circulation.

RIGHT: View of the hotel's interior looking at the green void and the reception area.
LEFT: Exterior view of the hotel from Wansey Road.

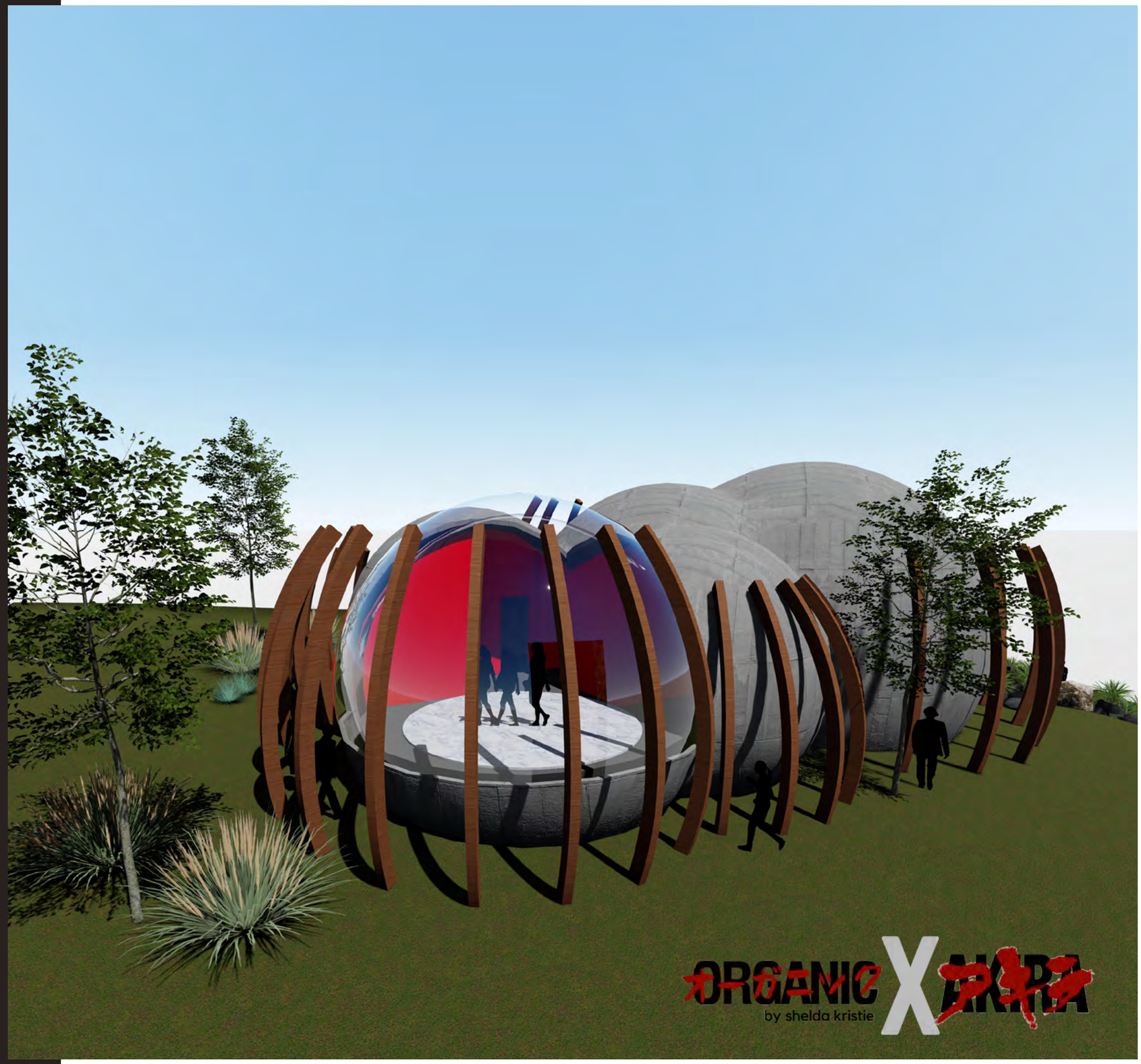


RIGHT: A photograph of the handmade site model and the laser cut buildings.

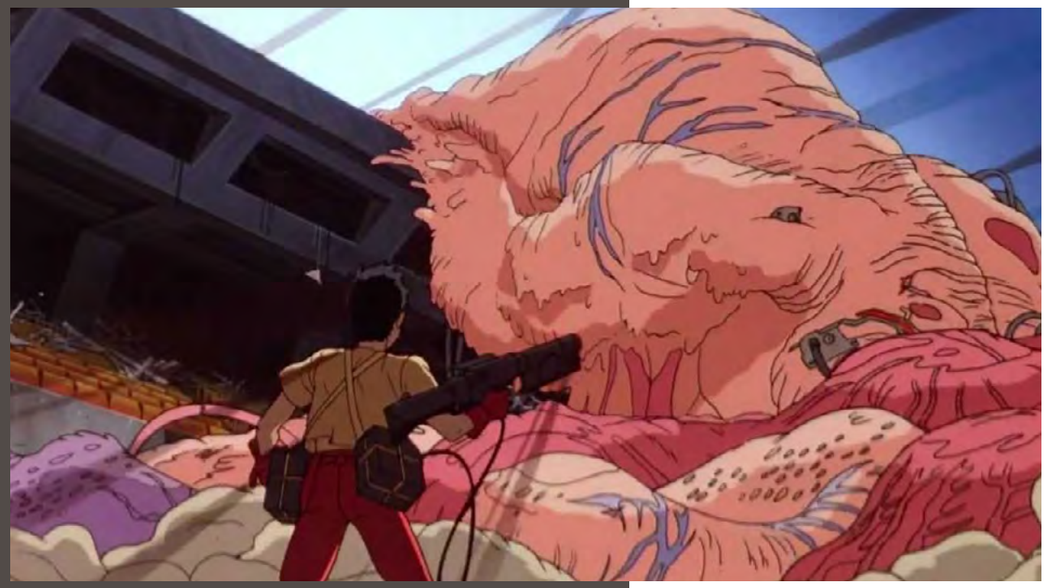
Organic X Akira

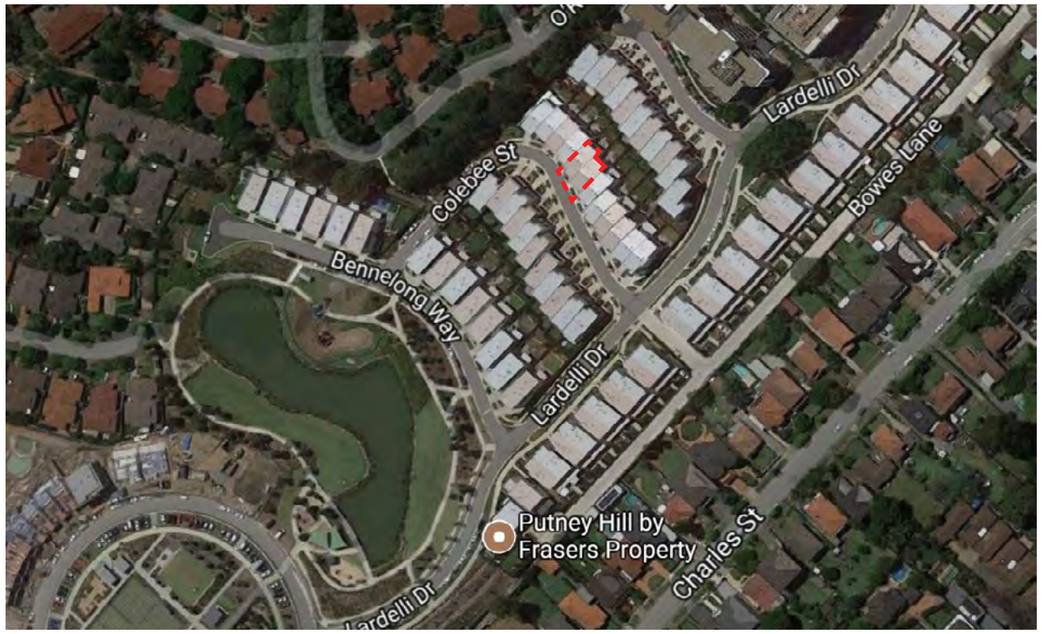
Organic explores the clashing of the anime Akira with traditional architecture. The project requires the site to be turned into a cinema space and a residential space. The residential space is designed for a writer that requires a indoor and exterior writing space along with a master bedroom and a guest bedroom. Organic was initially a cinema that was located on the same site in Lot 25, Colebee Street, Ryde that is then transformed into a residential building. Both iteration of the design is inspired by the organic nature of the antagonist's mutation. This is then translated into the bubbly shaped shell roof of the cinema and the residential space.

Both the cinema and residential building is designed through scripting in Grasshopper and the section and plans are then edited in Revit and Photoshop. Renders are created in Lumion that would allow walk-through with elements that are moving.



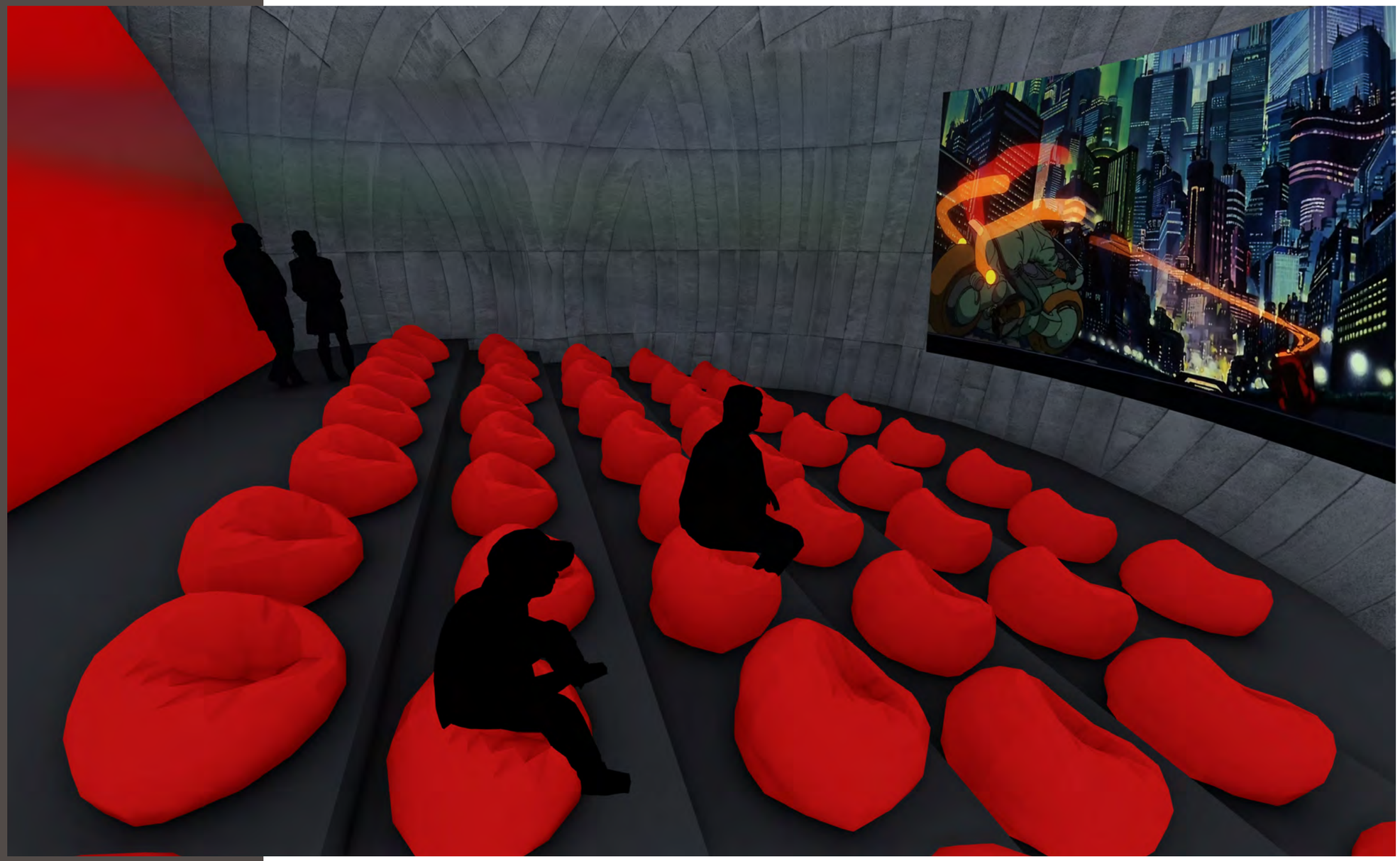
RIGHT: A render of the cinema that shows the play of lights through the rib-like louvres coming out of the ground.



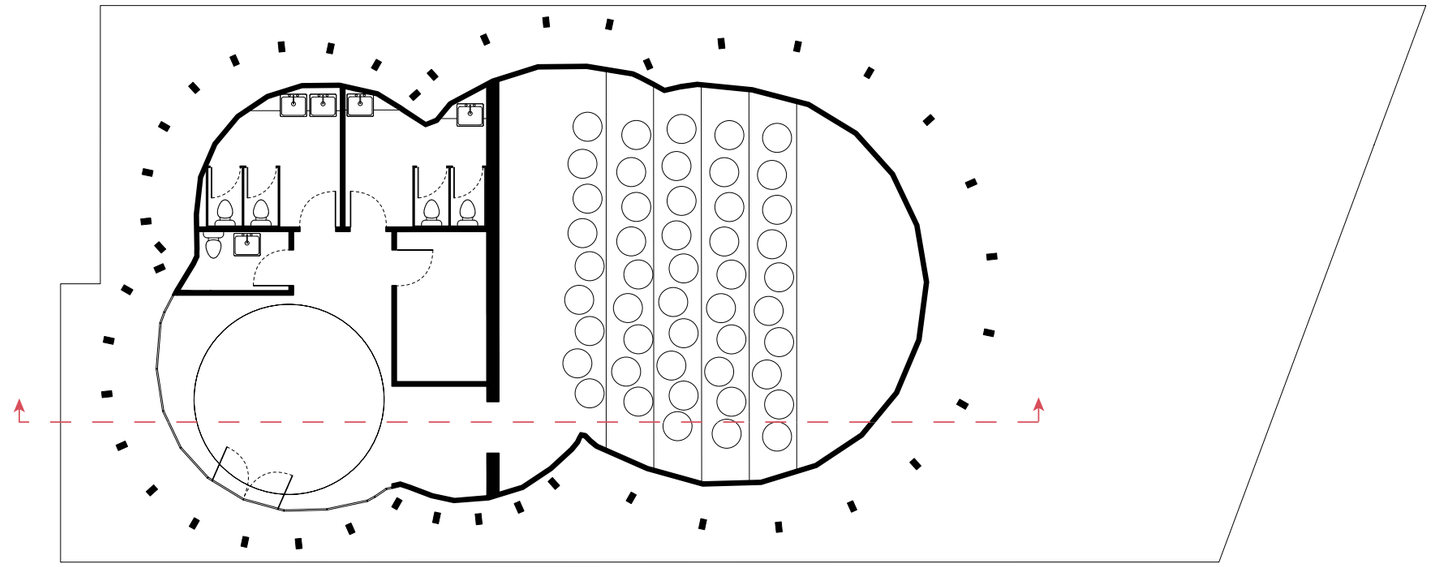


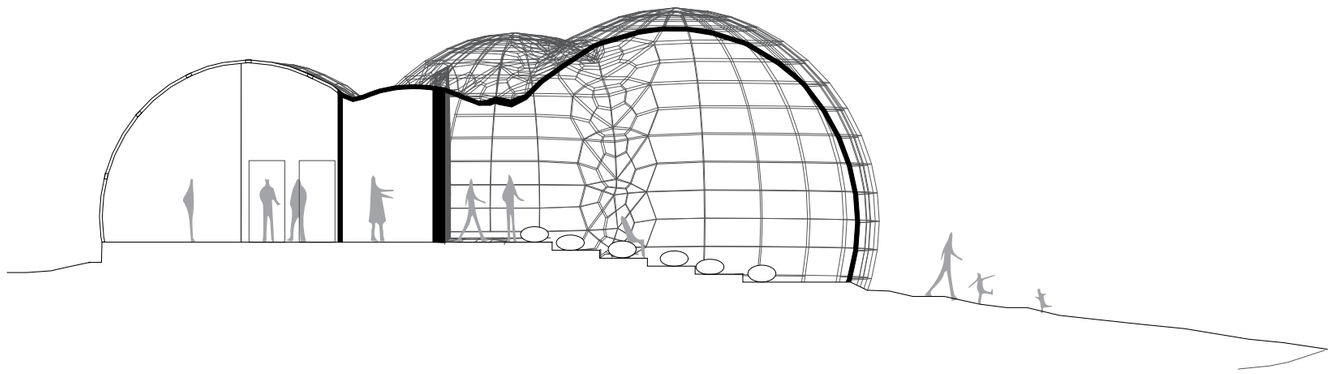
TOP: Screenshots from the Akira showing the organic mutation in the anime.
BOTTOM LEFT: A moss bed that resembles the organic shape of the anime.
BOTTOM RIGHT; Lot 25, Colebee Street, Ryde, NSW 2112.

CINEMA シネマ



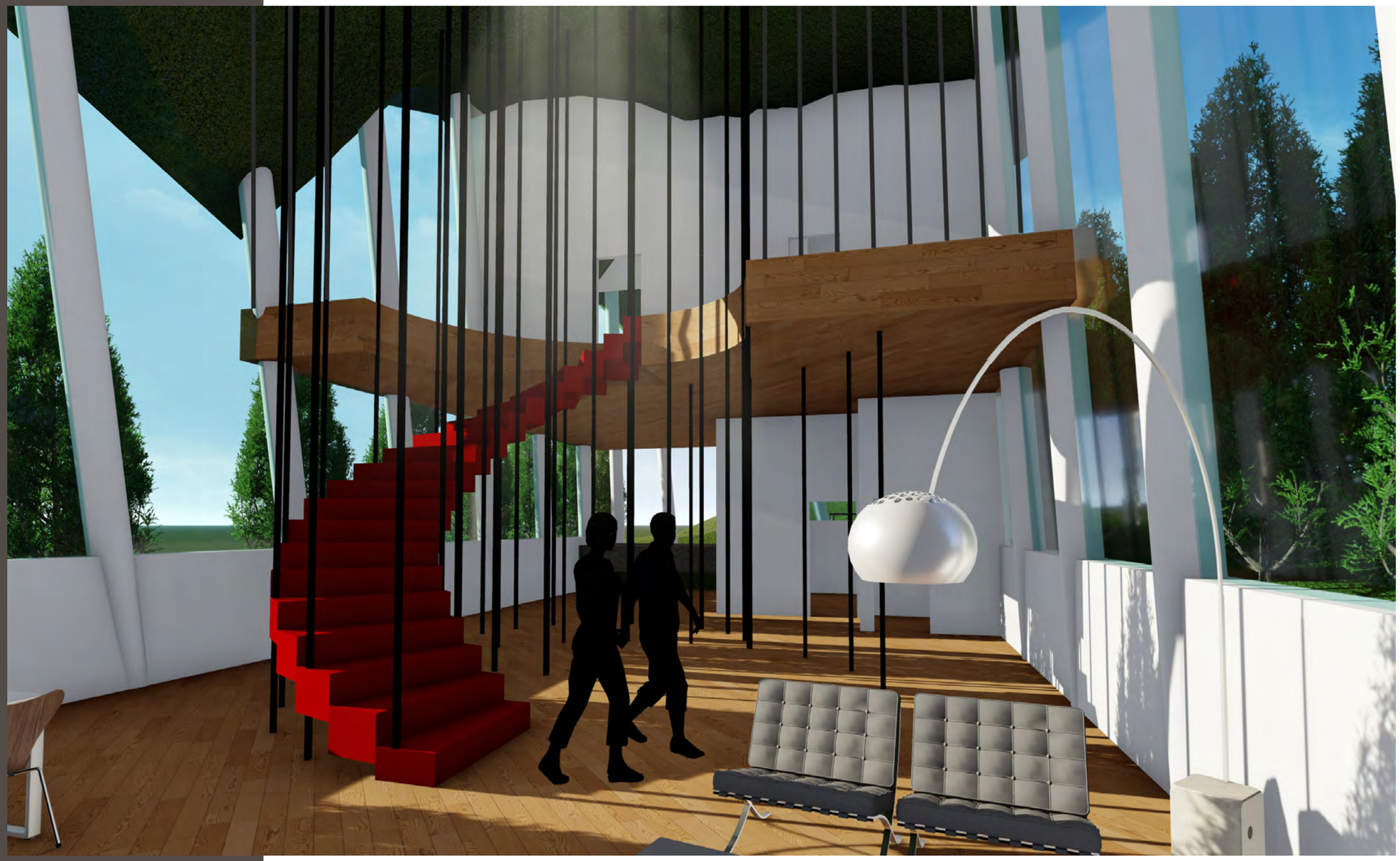
RIGHT: Interior view of the cinema with bean bags that resembles red blood cells.



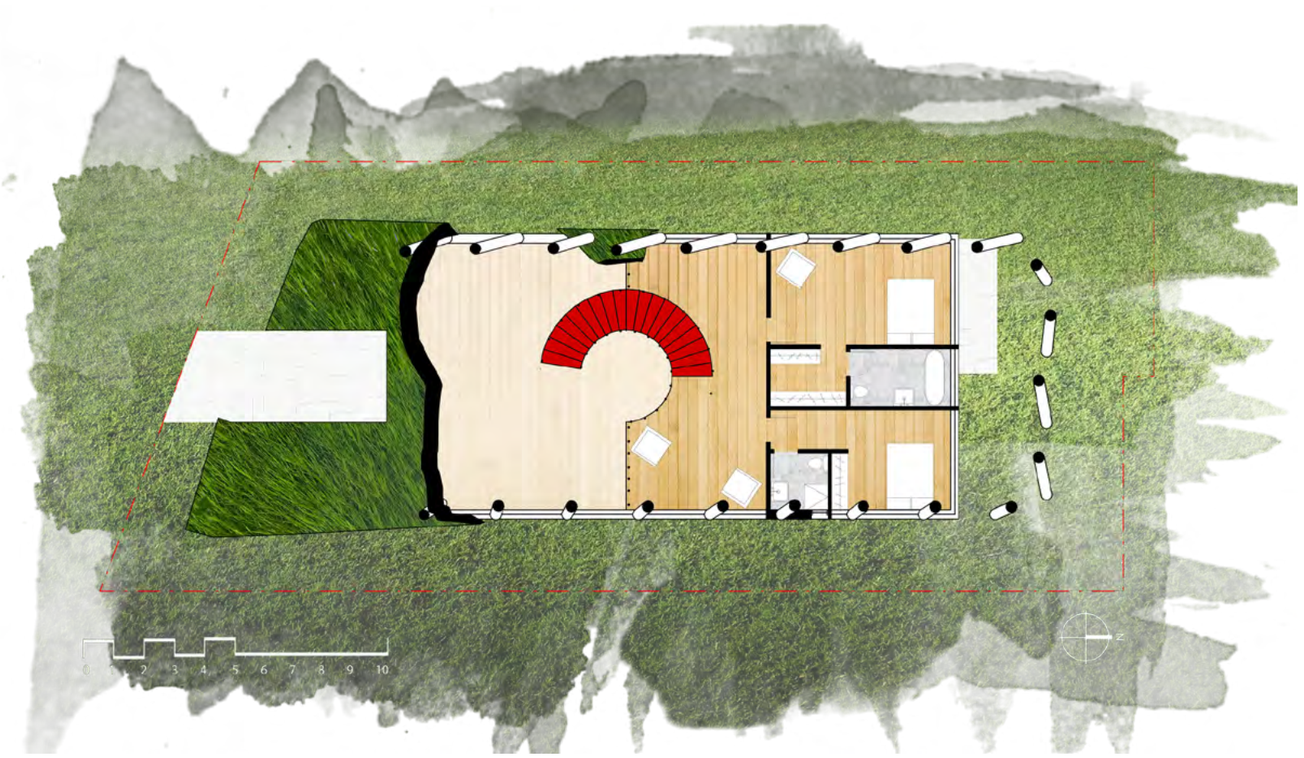


TOP: Plan view of the cinema.
BOTTOM: Section through the cinema.

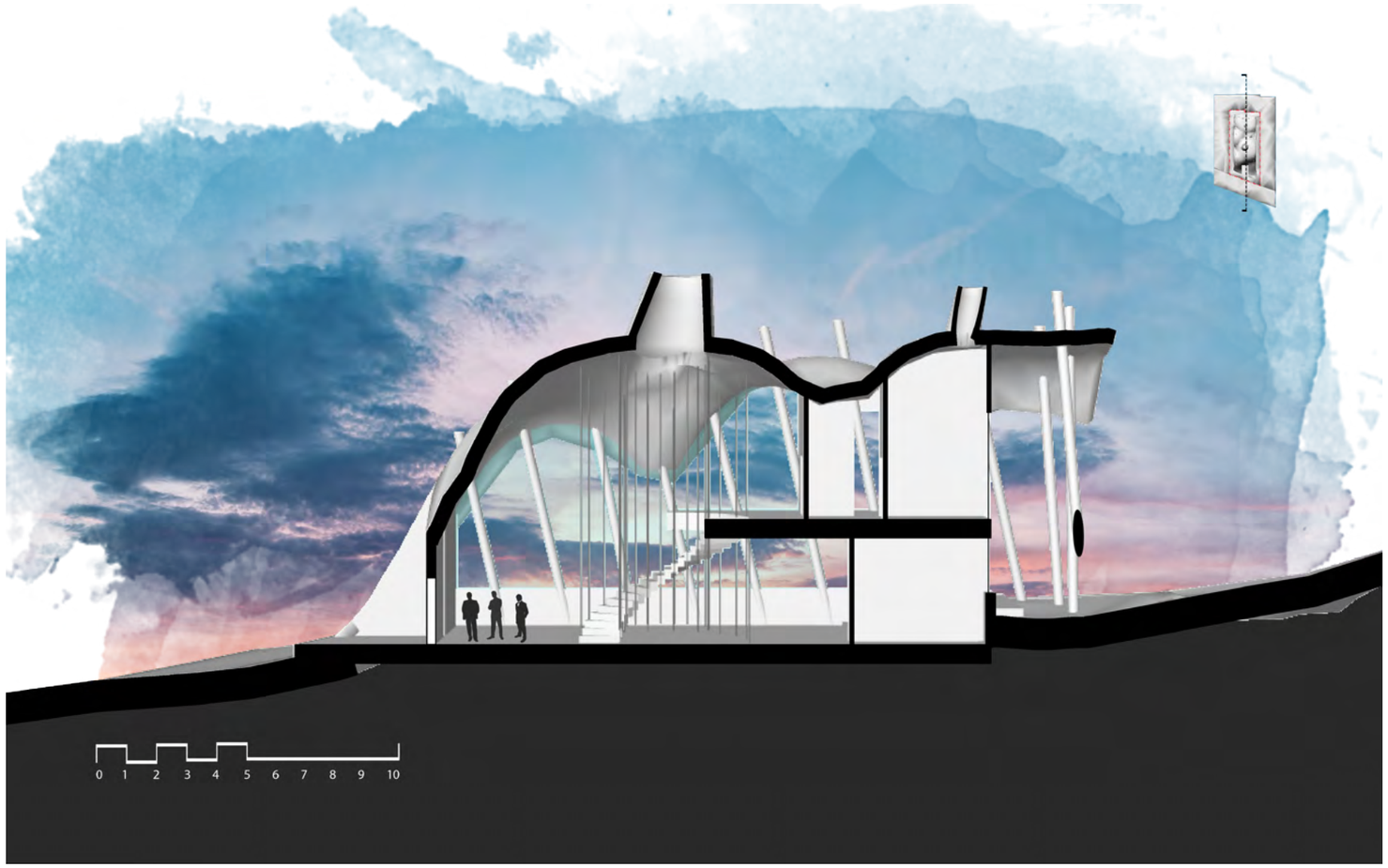
RESIDENTIAL



LEFT: Interior shot of the stairs that is located directly below the main skylight.



TOP: Ground level plan.
BOTTOM: Level 1 plan.



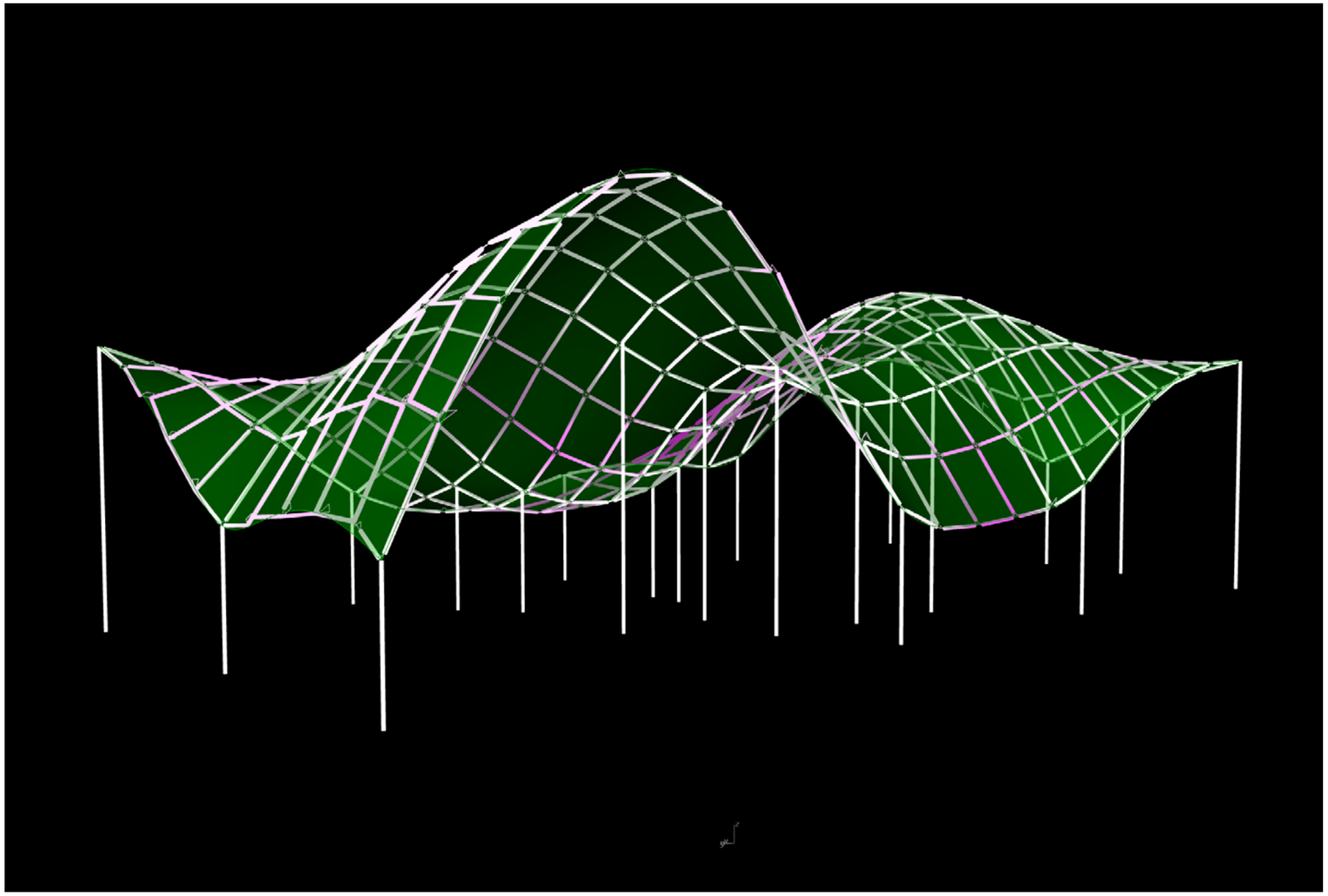
RIGHT: Section cut showing the light wells that represents the ventricles of an organ.

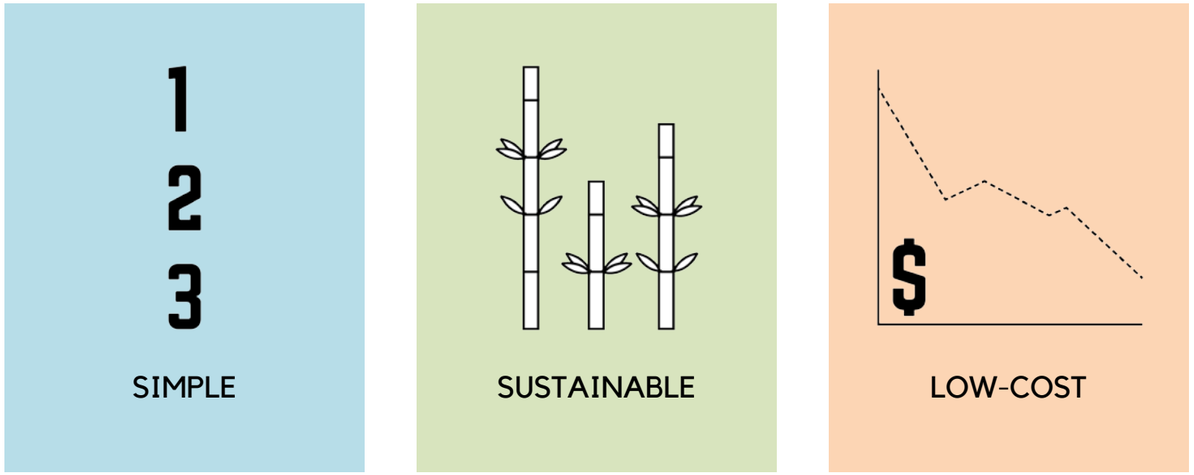
TOP: View of the exterior writing space.
BOTTOM: Side view of the residential space with the roof seemingly one with the ground. The columns represent rib cages sticking through the organic-shaped roof.

Bamboo Formwork for Thin Shell Concrete Structure

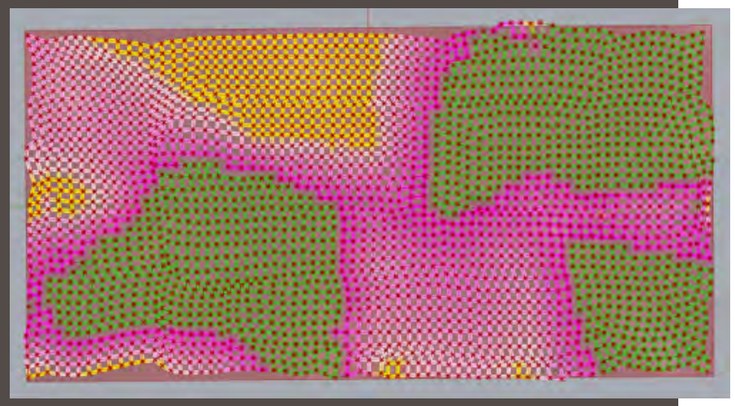
A bachelor thesis that aims to find an alternative thin concrete shell structure formwork that is simple, sustainable, and low-cost. In collaboration with Kingsley Castillo's research on optimising rainwater pooling and flow of a Thin Shell Concrete Structure (TSCS), a case study where the TSCS is brought to South East Asia (SEA) to help with flooding is the basis of this research. A few problems arise when building a complex TSCS in SEA, namely the transportation of materials and the available local skills. This research is aimed to answer the question of how TSCS formwork can be simplified so that local skills could construct one, while keeping the material sustainable and low-cost.

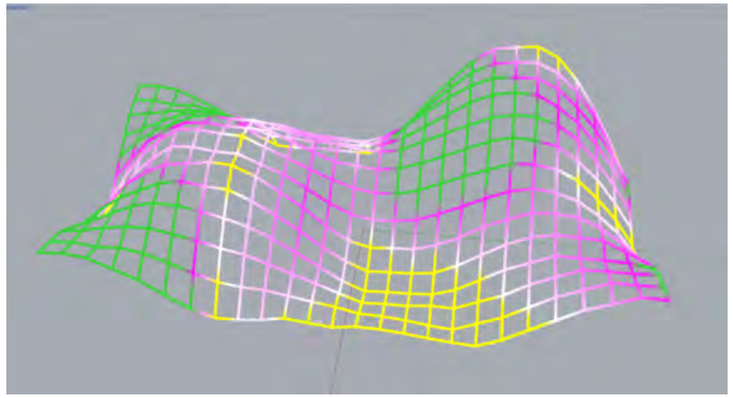
This thesis uses artificial intelligent optimisation through a Grasshopper script and uses digital fabrication in the making of the 1:10 prototype using a 2D CNC wire bender.

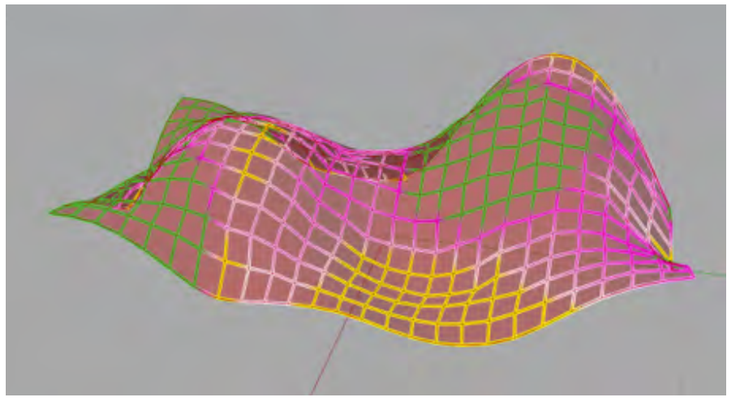


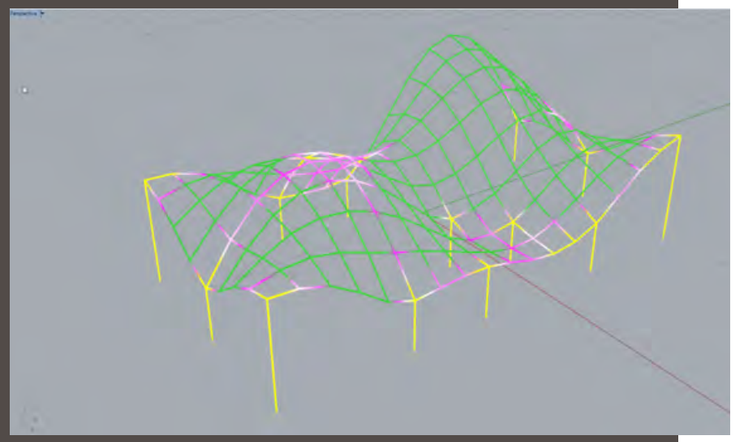


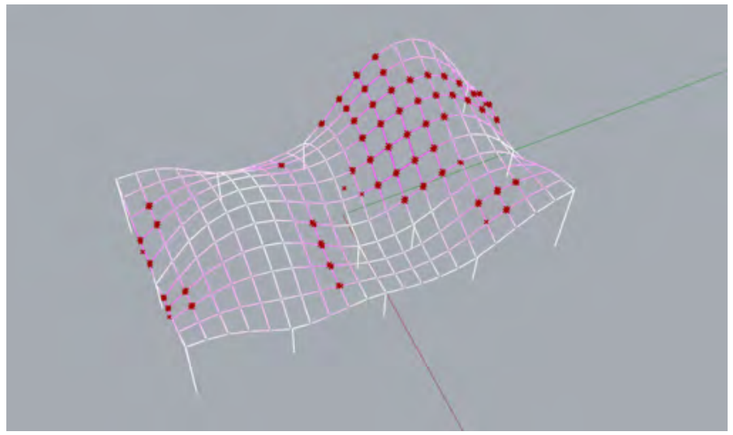
TOP RIGHT: Final calculated bamboo formwork superimposed with the original surface in green.
BOTTOM RIGHT: The three main goals researched in the thesis.

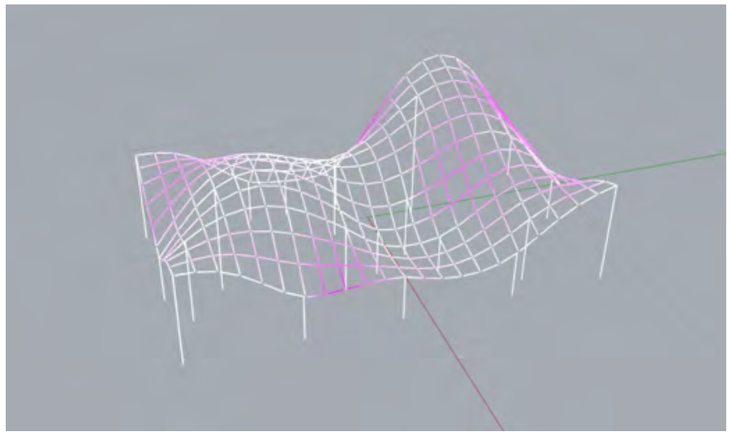




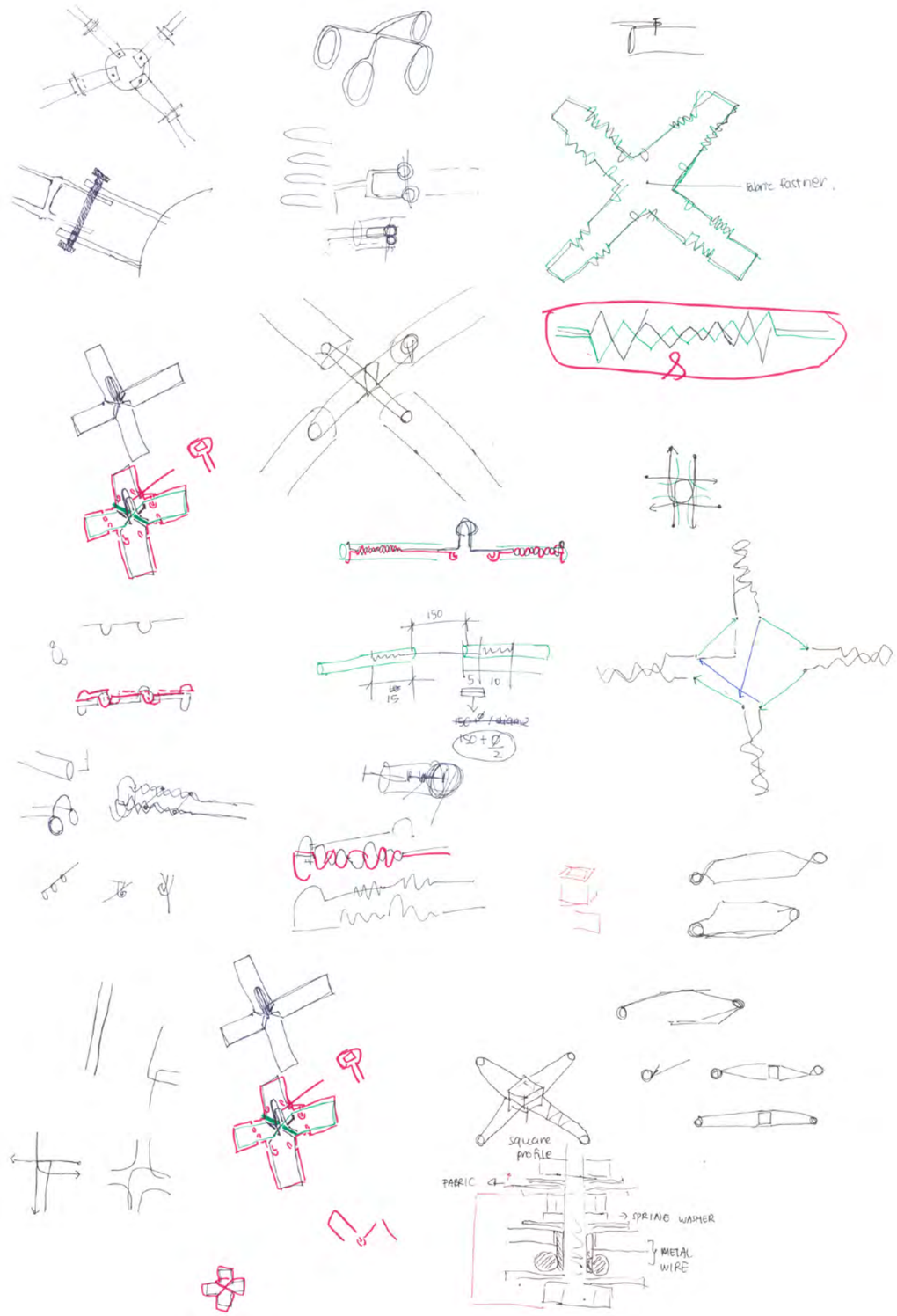




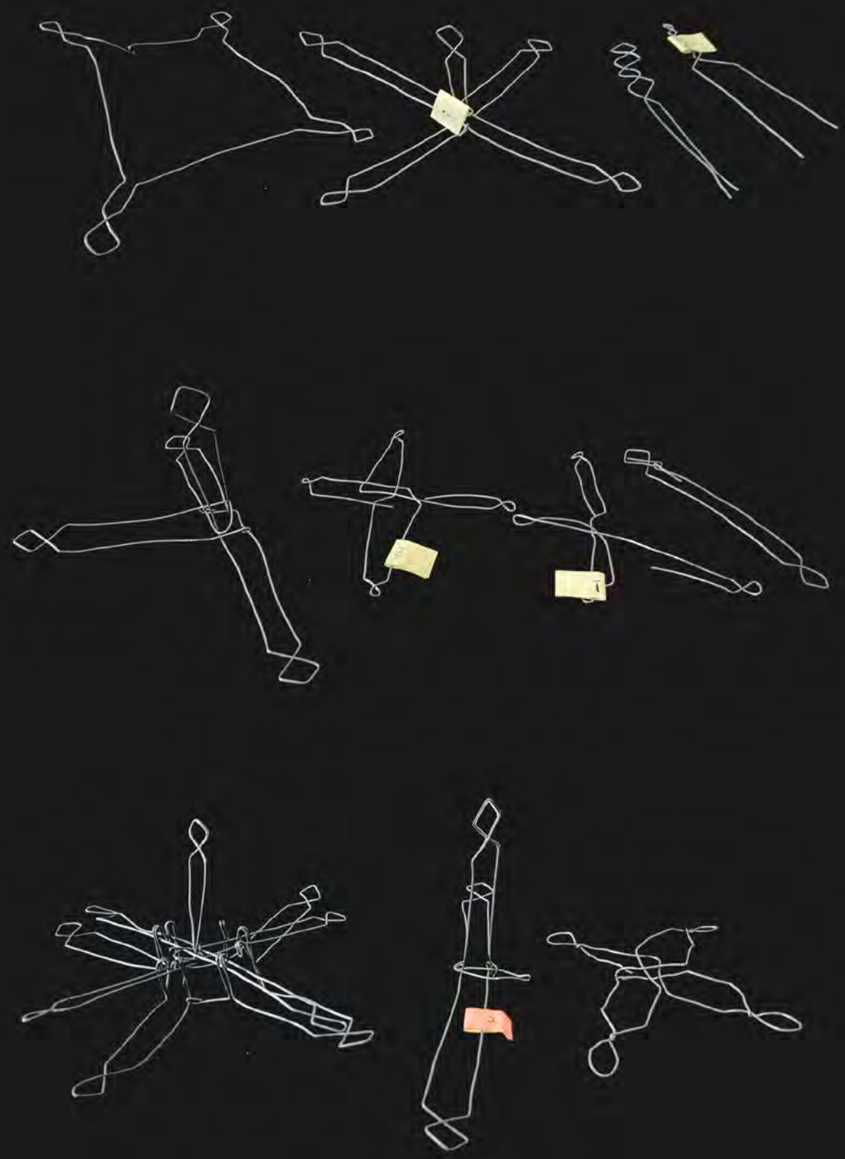




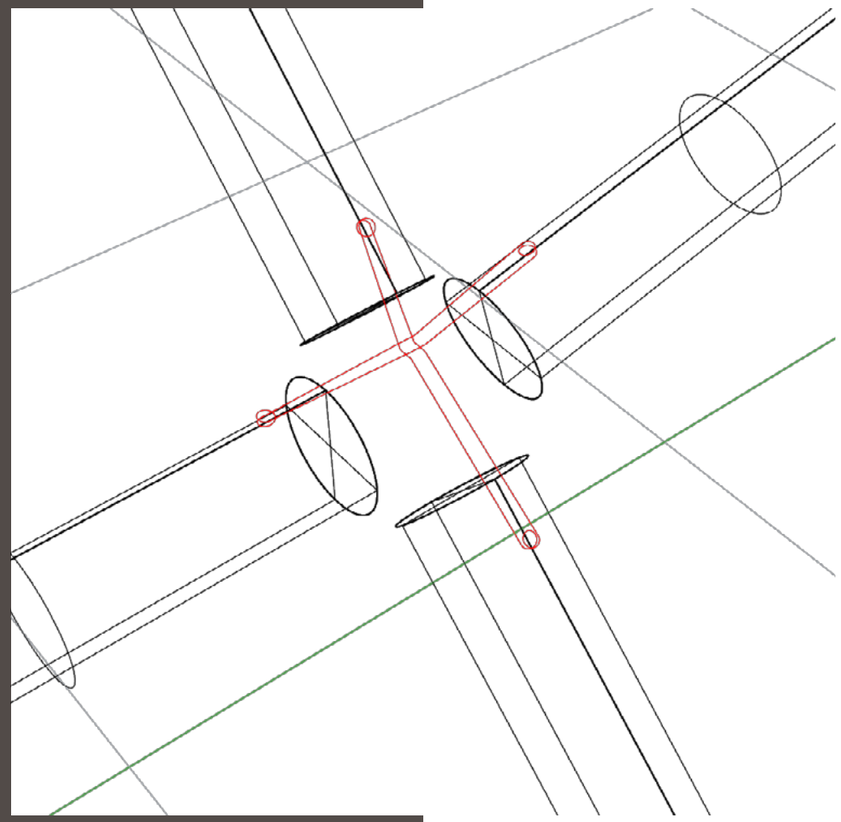
ABOVE (LEFT TO RIGHT): Grasshopper, Karamba and Kangaroo analysis done on the surface to achieve the optimal form work that is structurally sound.

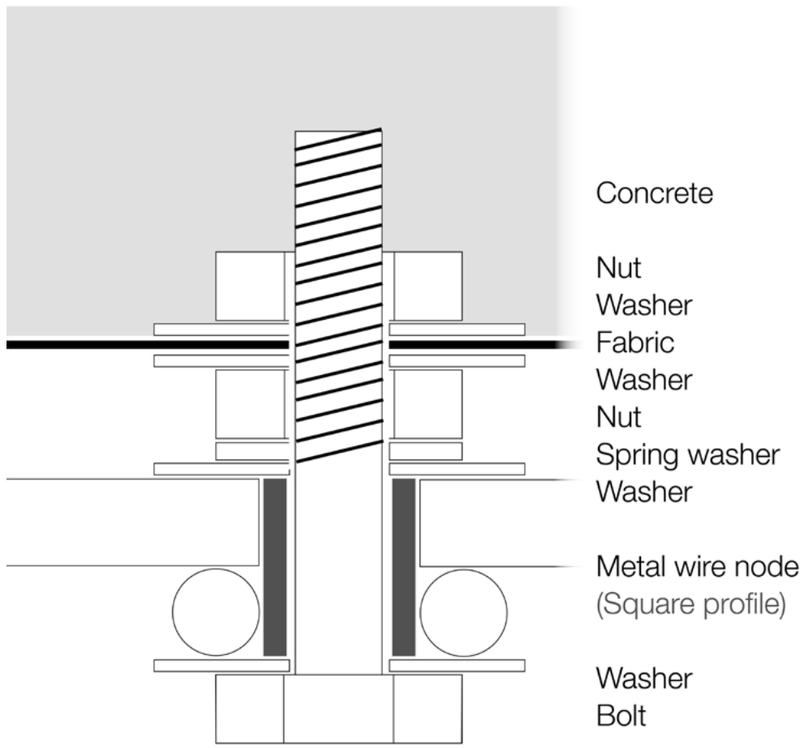


RIGHT: Quick sketches to understand how the 3D CNC wire bended nodes will look like.

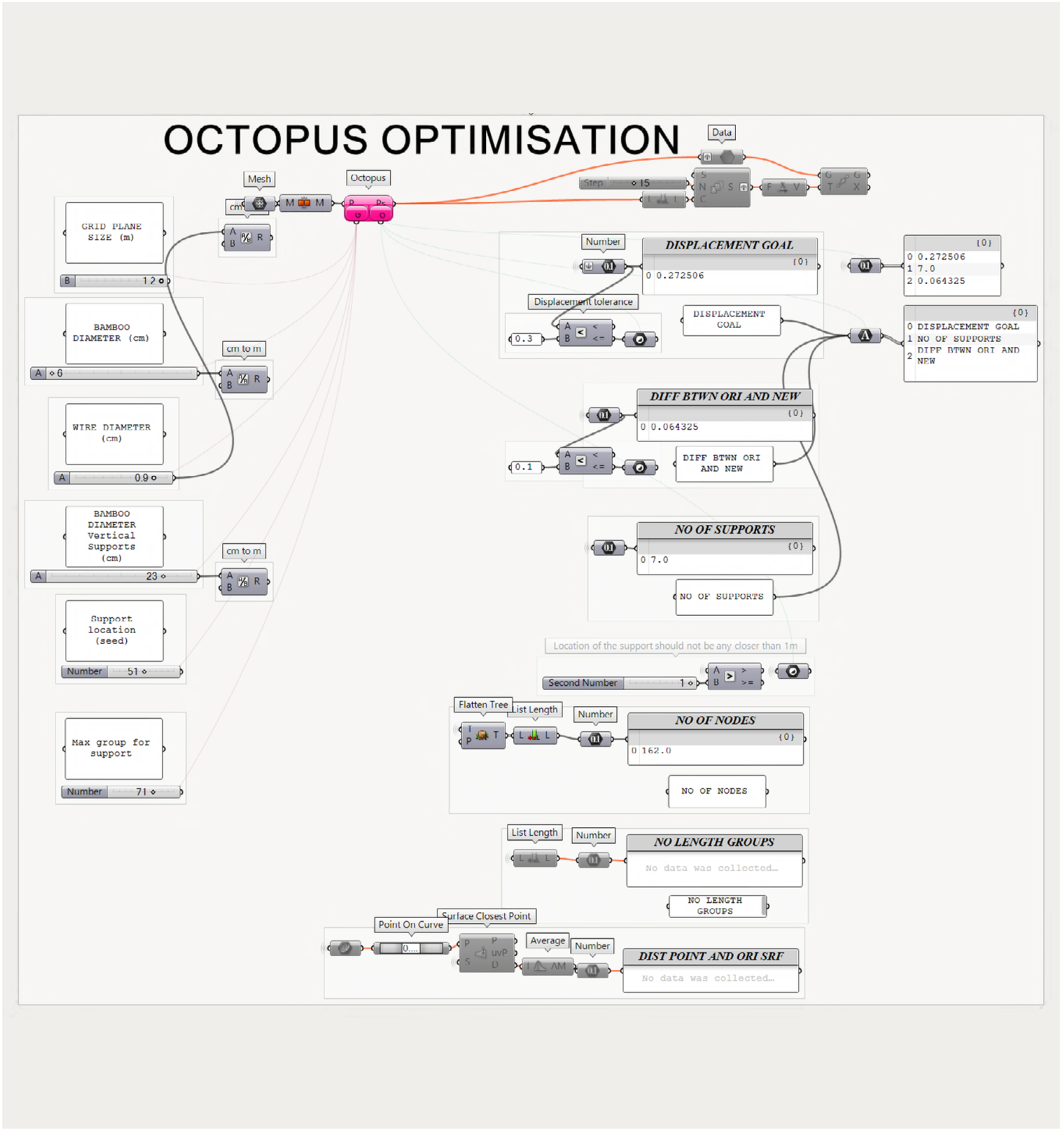


RIGHT: Quick hand made model exploring the shape before it could be scripted in Grasshopper.





LEFT: Final shape of the node.
RIGHT: The assembly diagram.



RIGHT: A quick look at the parameters and goals that Octopus uses to run through all the parameters to come up with the final structure.

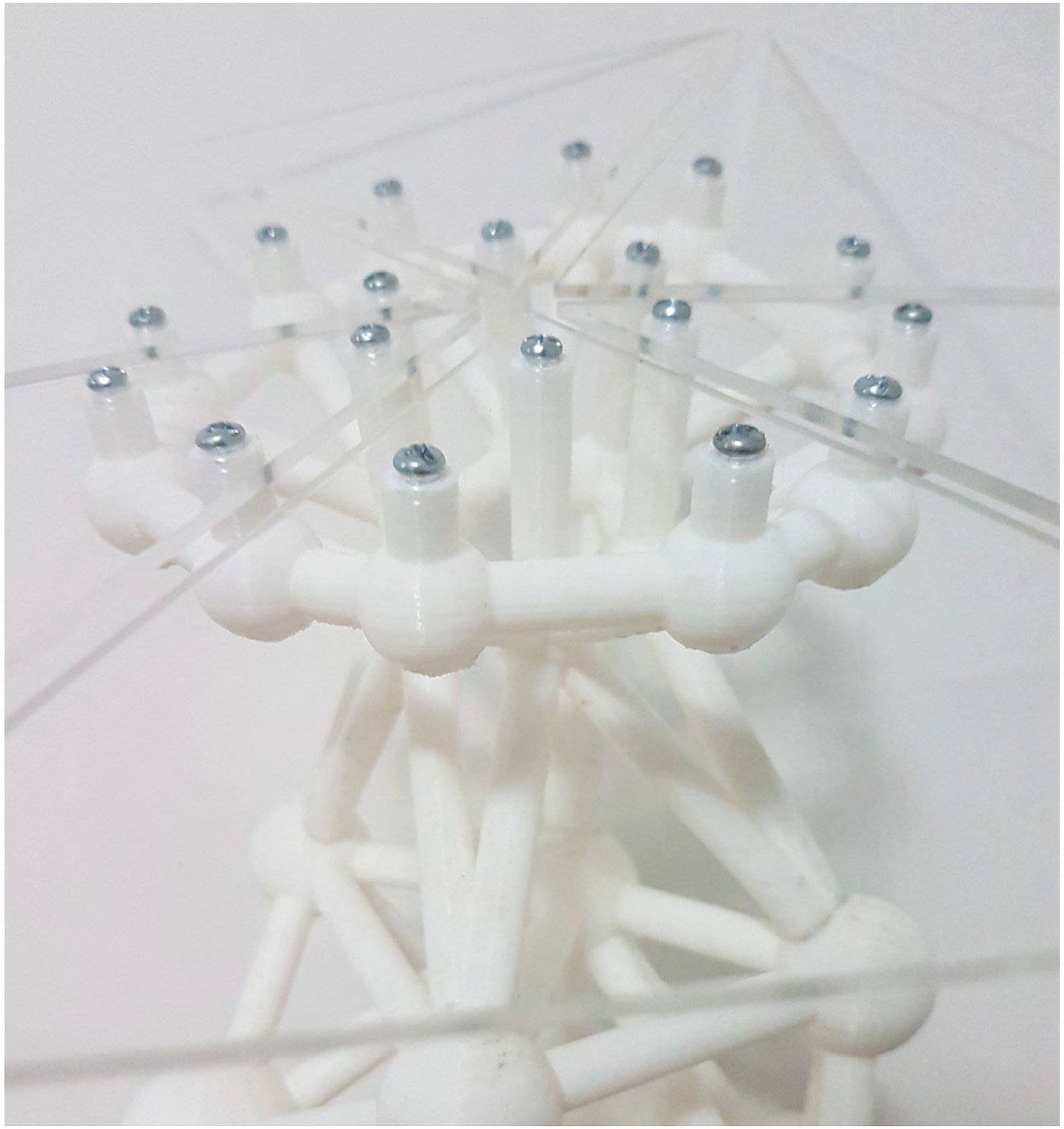
TOP: Using a 2D wire bender to create the nodes for the prototype
TOP RIGHT: Assembling the X and Y-axis with pre-cut bamboo and connecting them to the nodes.
BOTTOM RIGHT: Assembling the X an Y-axis together.

TOP: Final look of the prototype.

Parametric Spider Joint

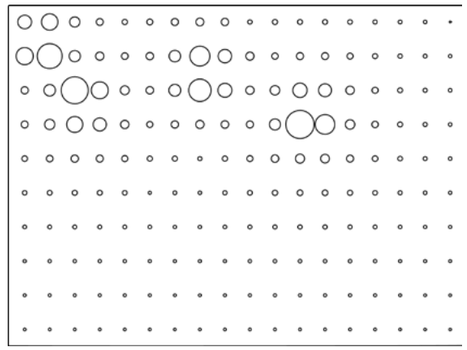
This project explores a new take on traditional spider joint. Inspired by Atomium in Brussels, this exercise combines the knowledge of scripting in Grasshopper, laser cutting the panels, 3D printing the structure, and simple assembling logic.

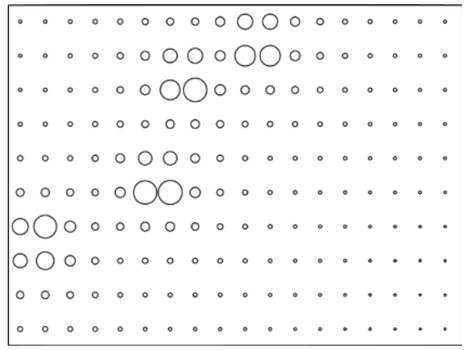
LEFT: The overall look of the parametric spider joint.
RIGHT: A close up of the screws, laser cut acrylic and the 3D printed nodes.

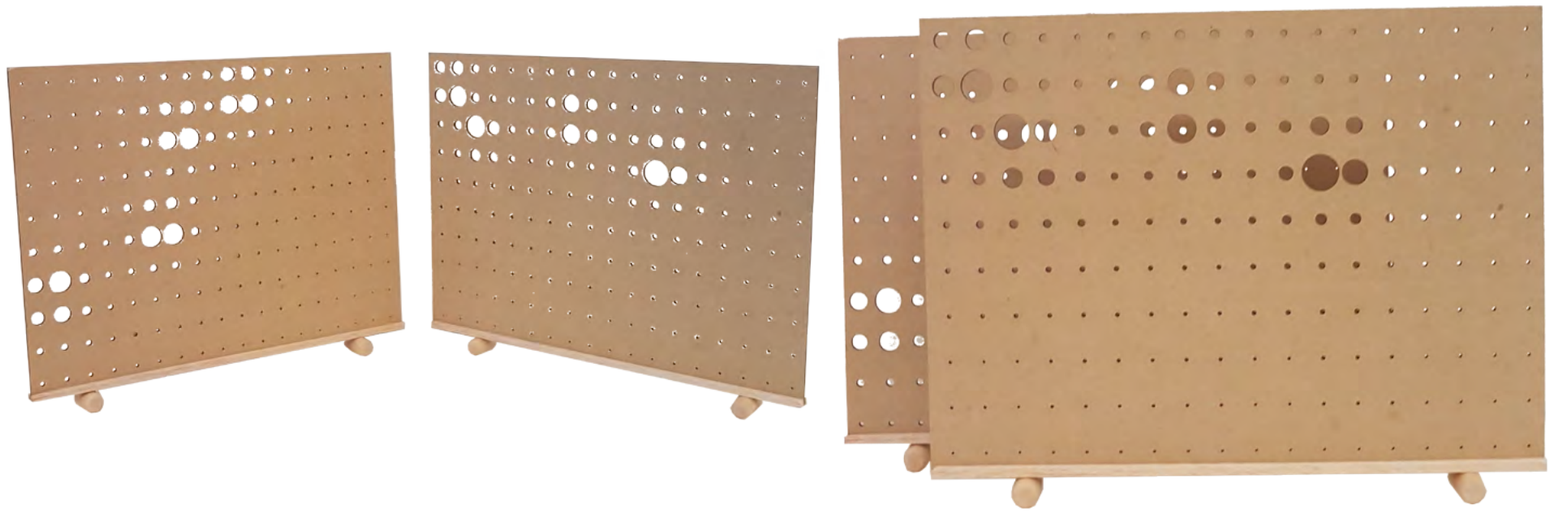


Chau Chak Wing Sound Barrier

This project is based on the Chau Chak Wing's facade by Frank Ghery. The holes of the movable sound barrier are generated by the facade's protruding bricks. The information is then translated into anchor points, where the closer a hole is to the protruding bricks, the bigger the holes will be.







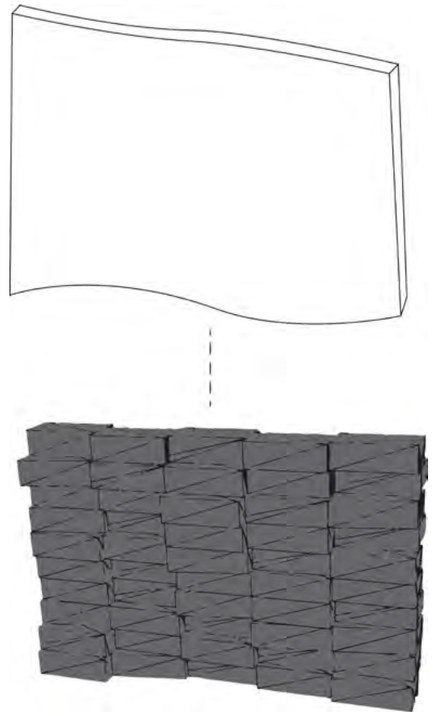
TOP FOUR IMAGES: Showing the protruding bricks that is translated to attractor points that determines the size of the holes.
BOTTOM TWO IMAGES: The laser cut cardboard model that shows that the two sound barrier still allows visibility from either sider of the barrier.

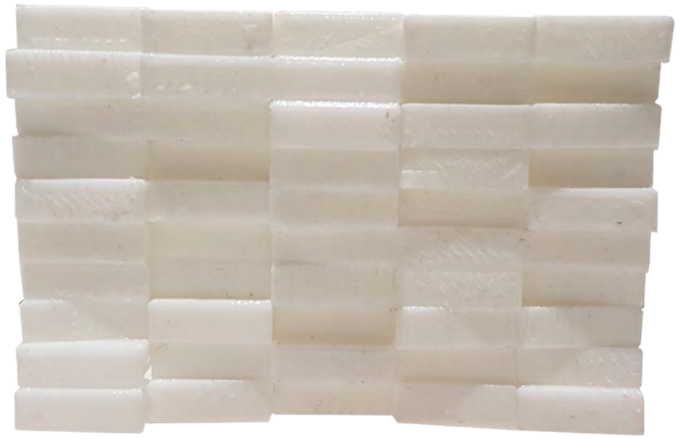
Recursive Facade

In this project drawing is no longer a process, instead coding or changing variables generate a design. At first, the Chau Chak Wing's facade looks to be a high-tech parametric due to its complex curvilinear form. Despite its appearance, it is still a drawn facade with no input from a computer driven algorithm to develop its iterations.

Parametric Wall experiments using the existing facade and four types of bricks to develop a algorithmic design based on a recursive code. Articles by Bob Sheil and Fabian Scheurer, "Transgression from Drawing to Making" and "Materialising Complexity" respectively, discuss the progression of drawing to coding which is no longer a passive input-output method but one which uses codes or algorithms in a generative process. Sheil describes drawing as no longer involving a pen and paper, but rather the user dictating to a computer where a line should be and how it should look.

```python
"""Returning Frank Ghery's facade."""
# from PIL import Image
import os


CWD = os.getcwd()


def frank(source="frgh", guard=5):
    """Recursively replace letters acording to the rules."""

    def apply_rules(letter):
        """Retrun the substitutions."""
        if letter == "f":
            return "fgh"
        elif letter == "r":
            return "ghr"
        elif letter == "g":
            return "fg"
        elif letter == "h":
            return "rh"
        else:
            return letter

    parts = list(source)
    result = map(apply_rules, parts)
    frank_string = "".join(result)
    print(frank_string)
    guard -= 1
    if guard > 0:
        return frank(frank_string, guard)
    else:
        return frank_string
```



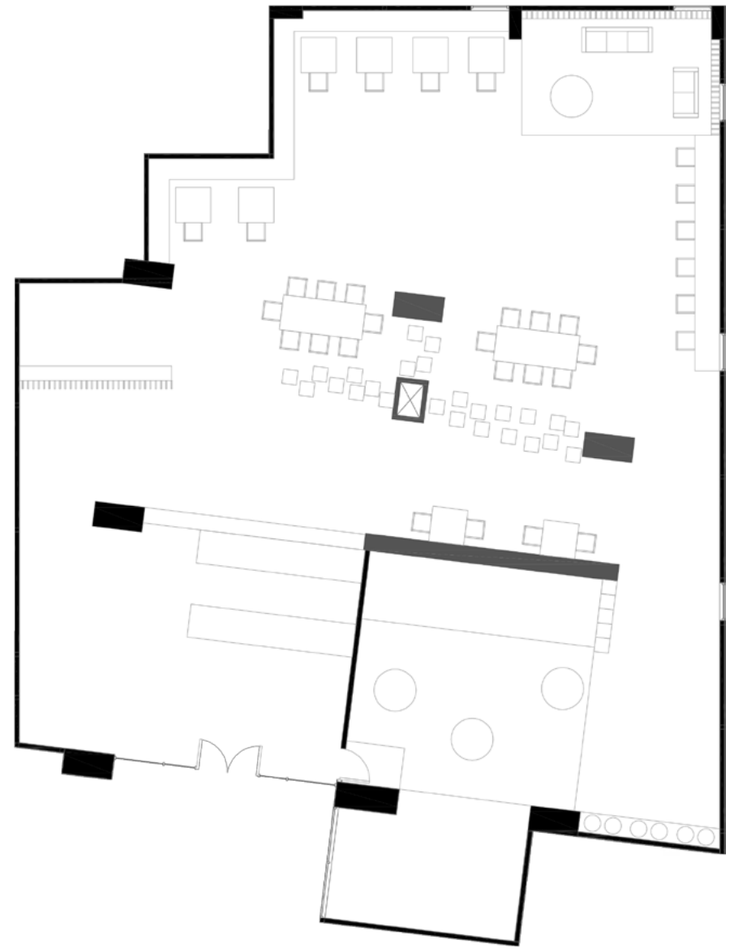


TOP LEFT: Python recursive code.
TOP RIGHT: Grasshopper model of the original facade with the new facade designed by the recursive code.
BOTTOM IMAGES: 3D printed model that shows that the facade's curve is no longer visible due to the code shuffling the order of the bricks.

CALICOFFICE

Calicoffice is a co-working space that is located in TreePark City Serpoing, Indonesia. To attract casual customers, the space also doubles as a cat cafe serving coffee and light snacks that does not require a full kitchen. With this is mind, the co-working space is divided into five spaces: a casual cafe area, a meeting space, a semi-lounge space, a play area, and a safe-zone for the cats.

Plans were made in AutoCAD and a 3D model was later rendered in SketchUp.



LEFT: View of the entrance to the co-working space.
TOP RIGHT: SketchUp model of the interior of the co-working space.
BOTTOM RIGHT: The plan of the co-working space made using Autocad.

Other Interests

I appreciate that I have started TRAVELING at a young age and learned the vernacular architecture of each city. I later learned PHOTOGRAPHY to immortalise my adventures. My off time is spent on creating new projects, including MODEL MAKING and PLANTS related.

Model Making

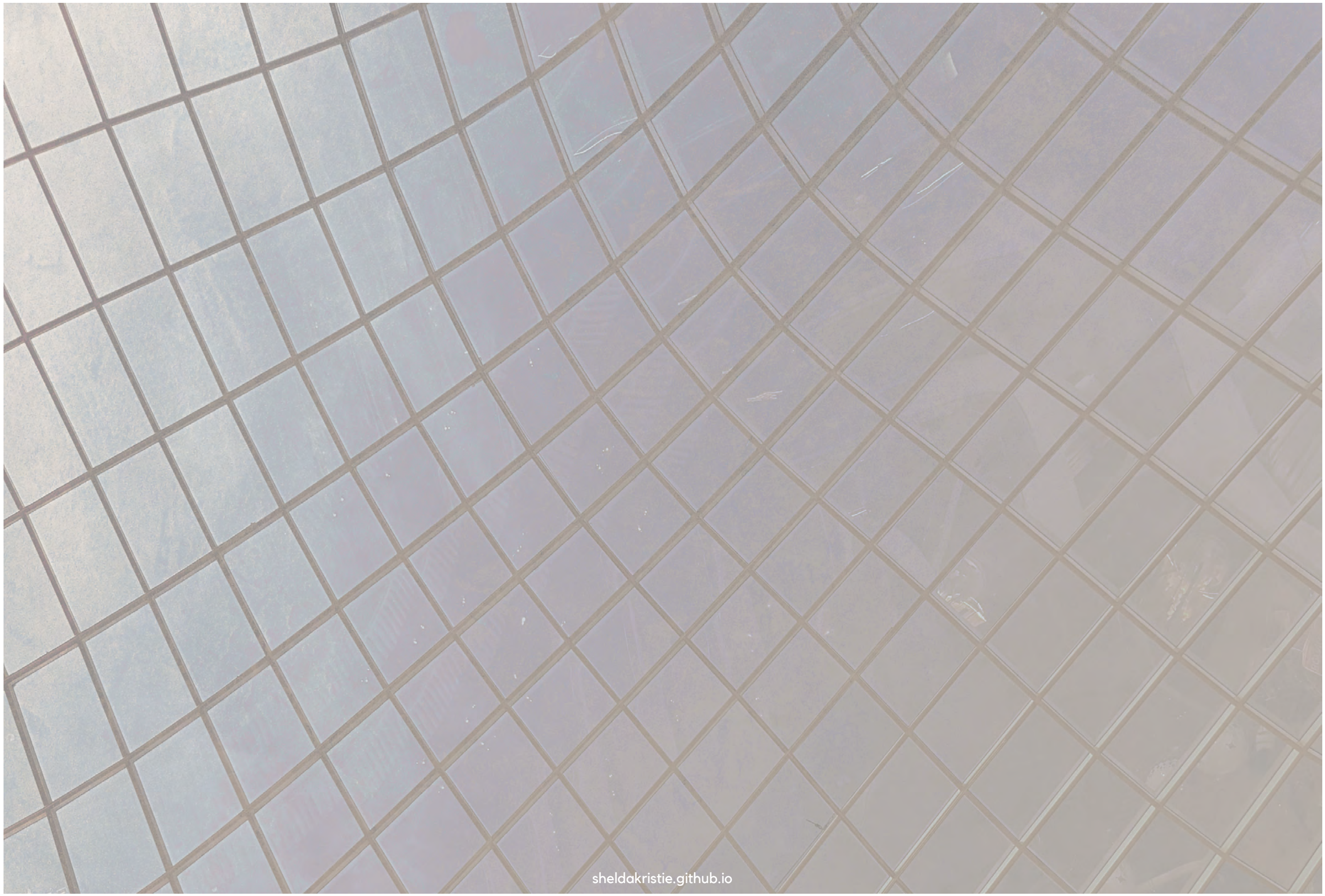
LEFT: Render of the hotel and the light rail stop.

Photography

LEFT: Render of the hotel and the light rail stop.

Concrete Pot and plant Arrangements

LEFT: Render of the hotel and the light rail stop.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