

SKETCHBOOK

Appendix

Heathrow Expansion
New TX5 terminal-
LANDSCAPE-PODS

2020

Rutger Hooftman

FLIGHT OF IMAGINATION

Third space concept for the new TX5 terminal:

LANDSCAPE-PODS

Faculty of GROSS. MAX.

HAN University of Applied Sciences

HAN Univeristy of Applied Sciences

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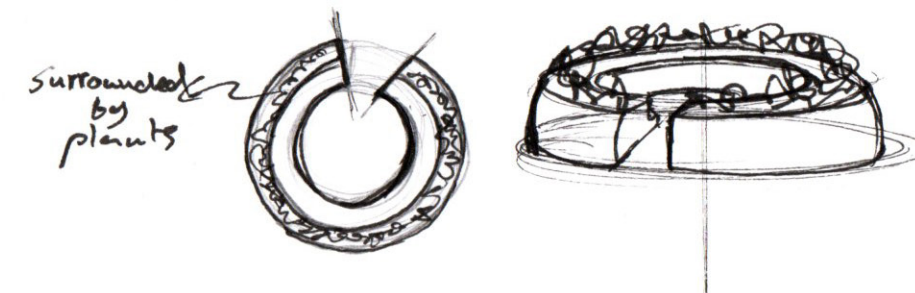
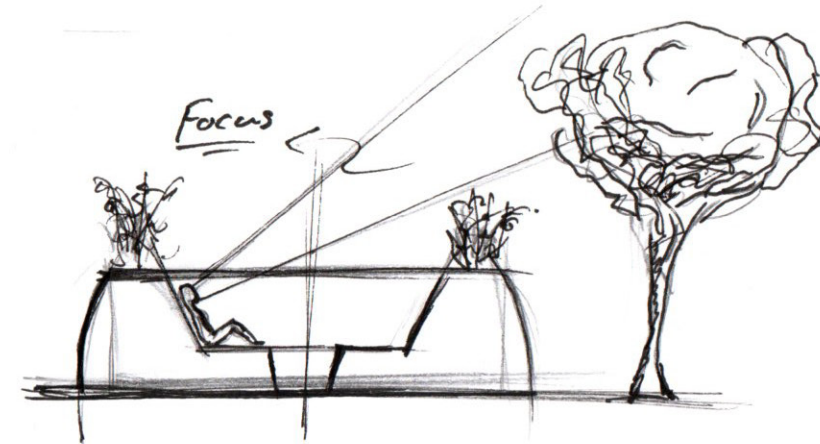
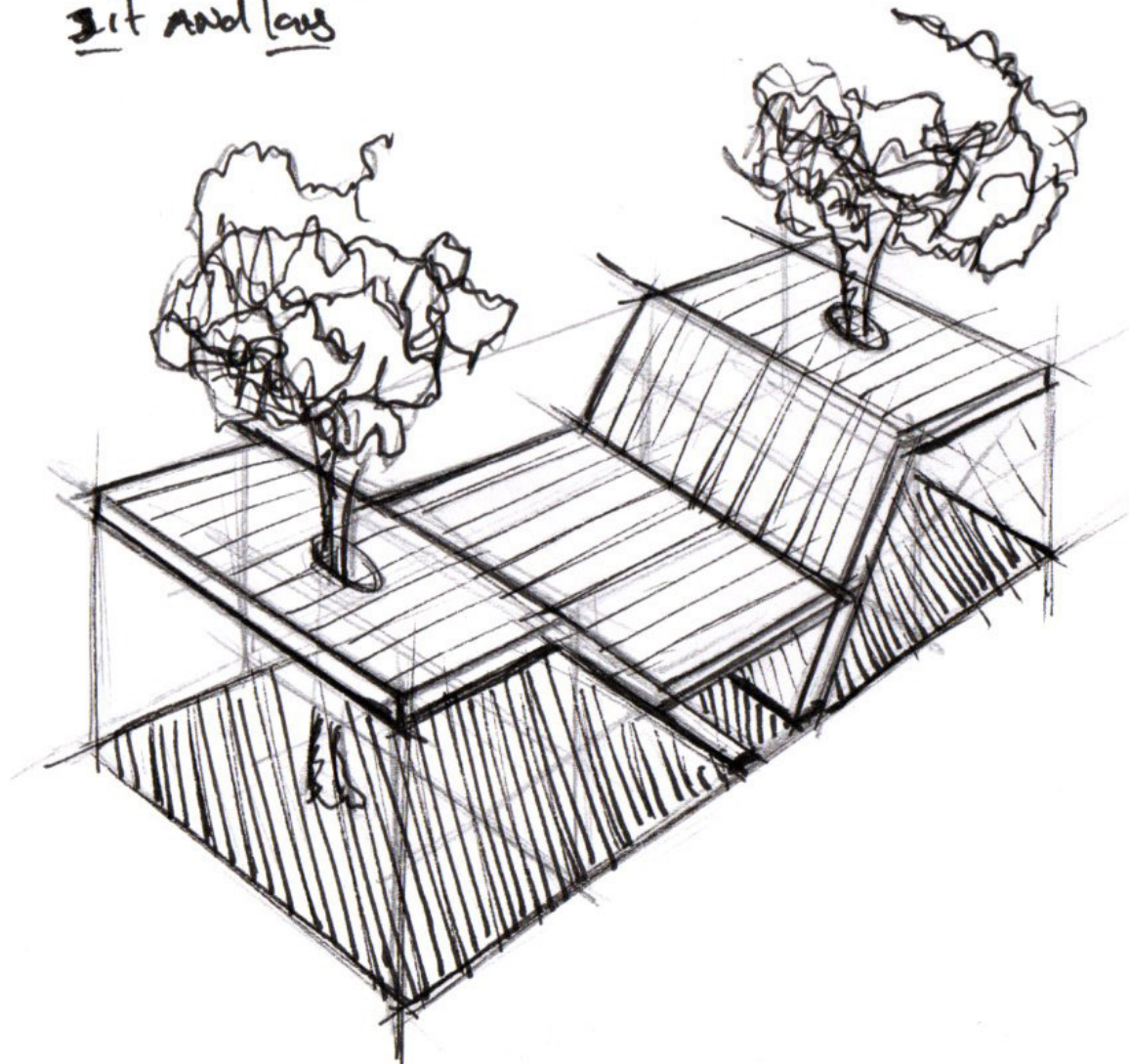
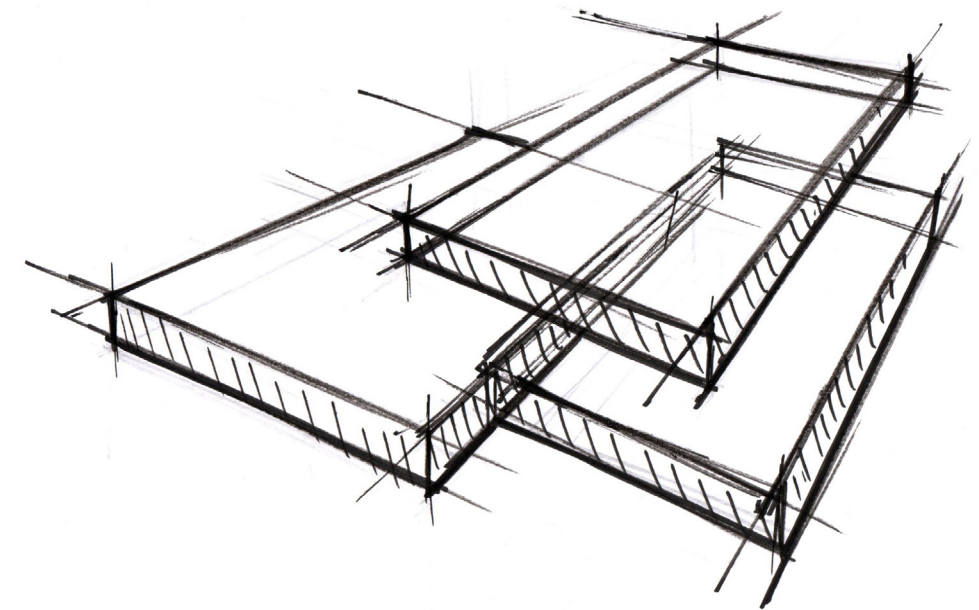
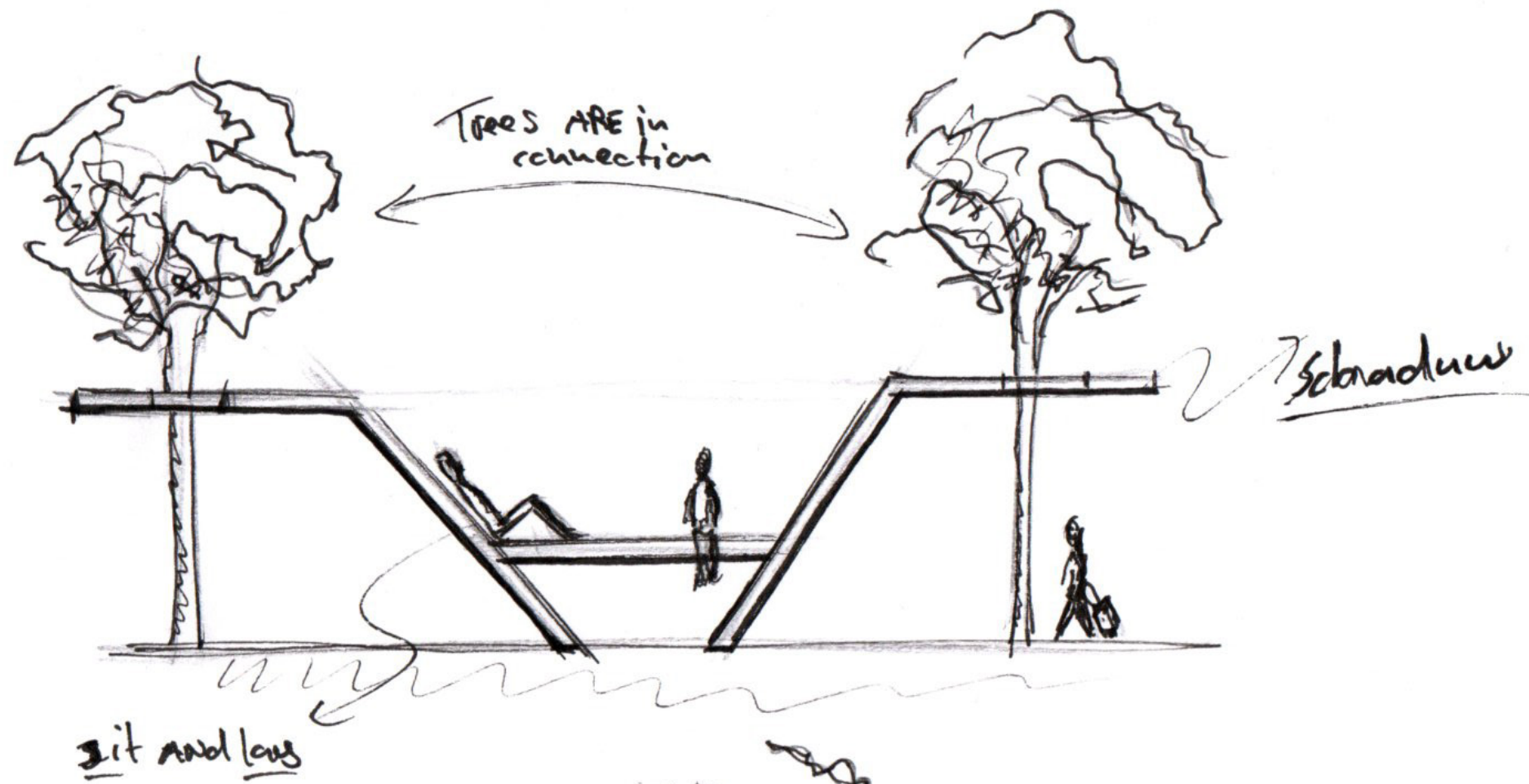
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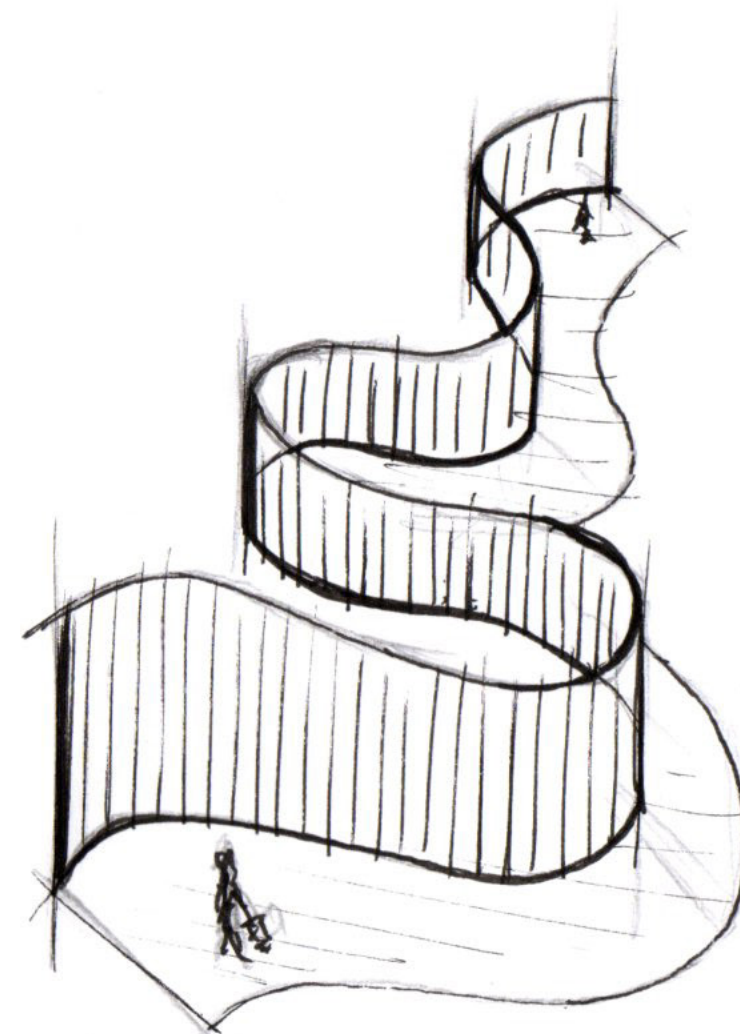
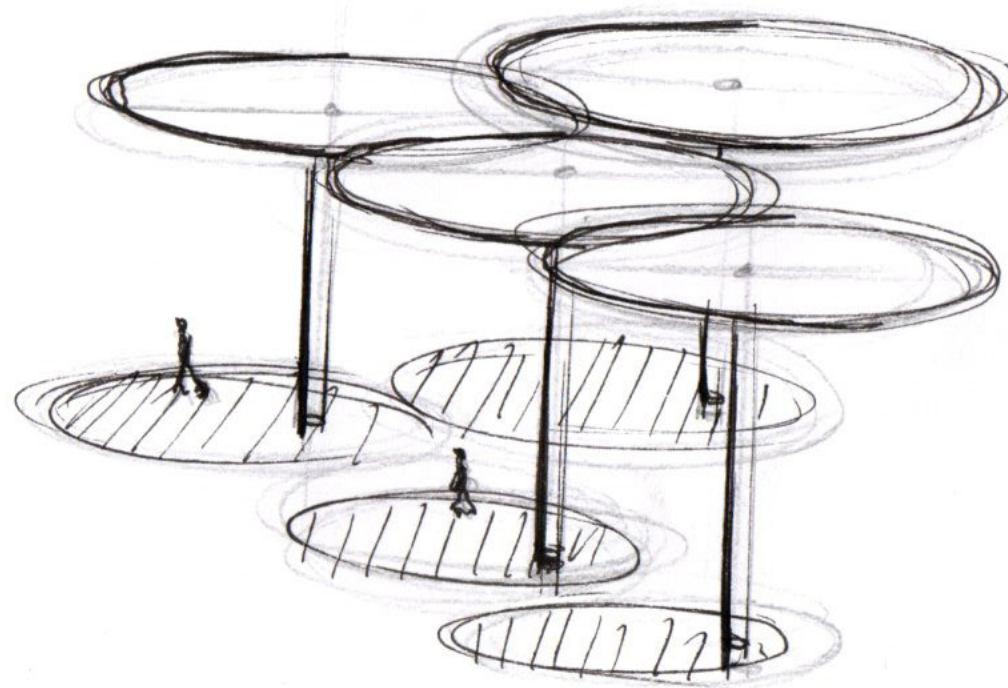
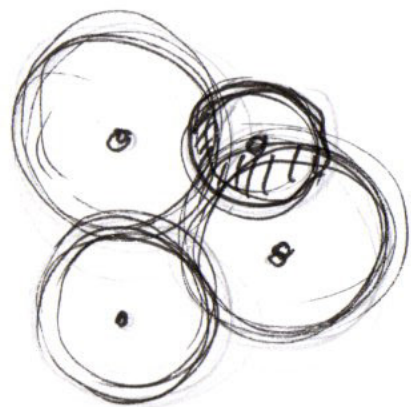
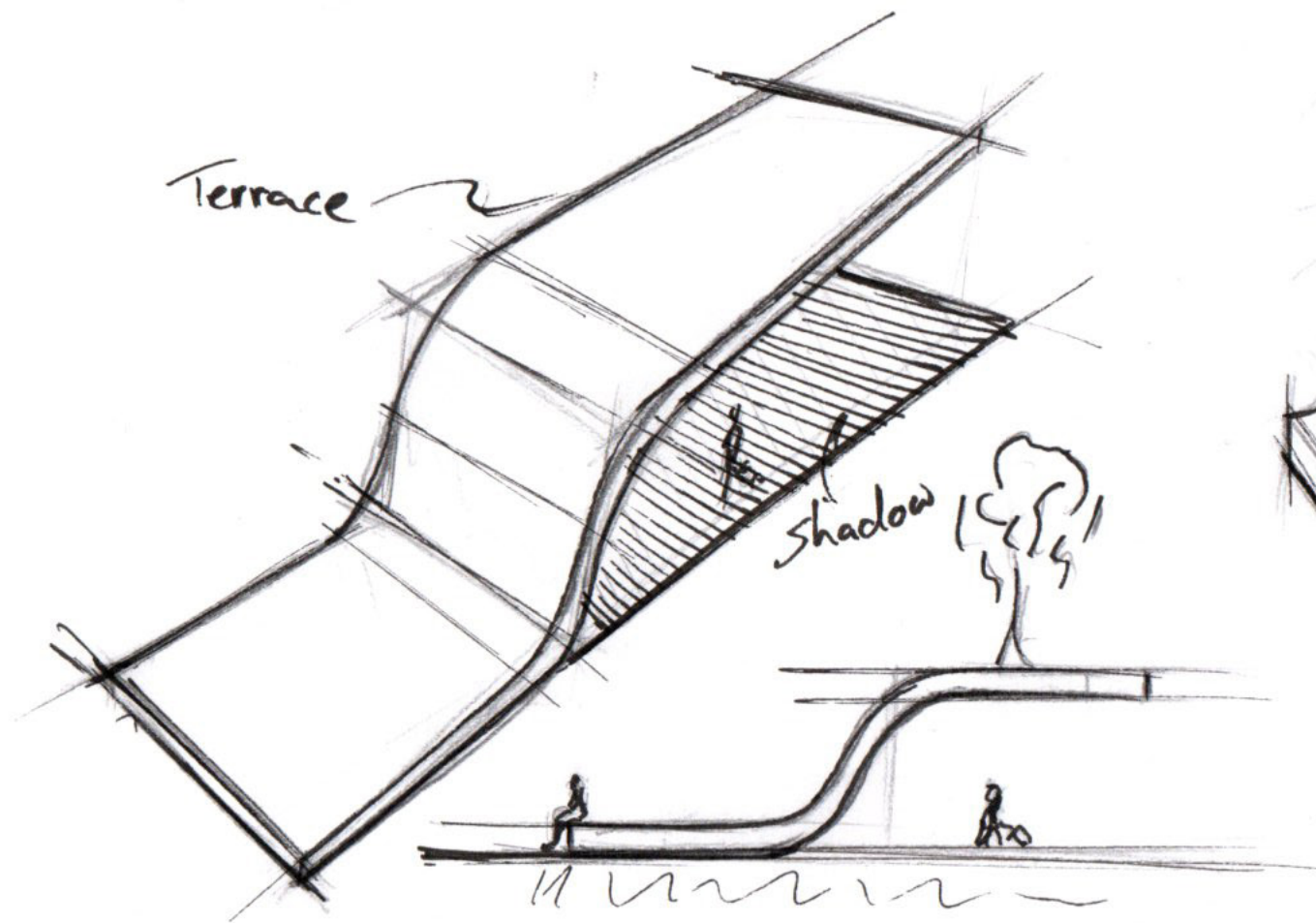
Sketchbook 1 - Product

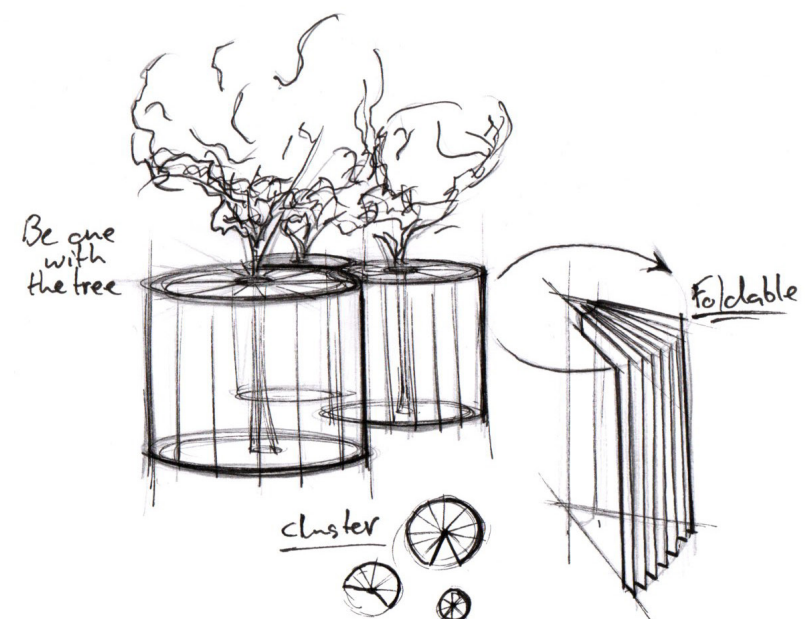
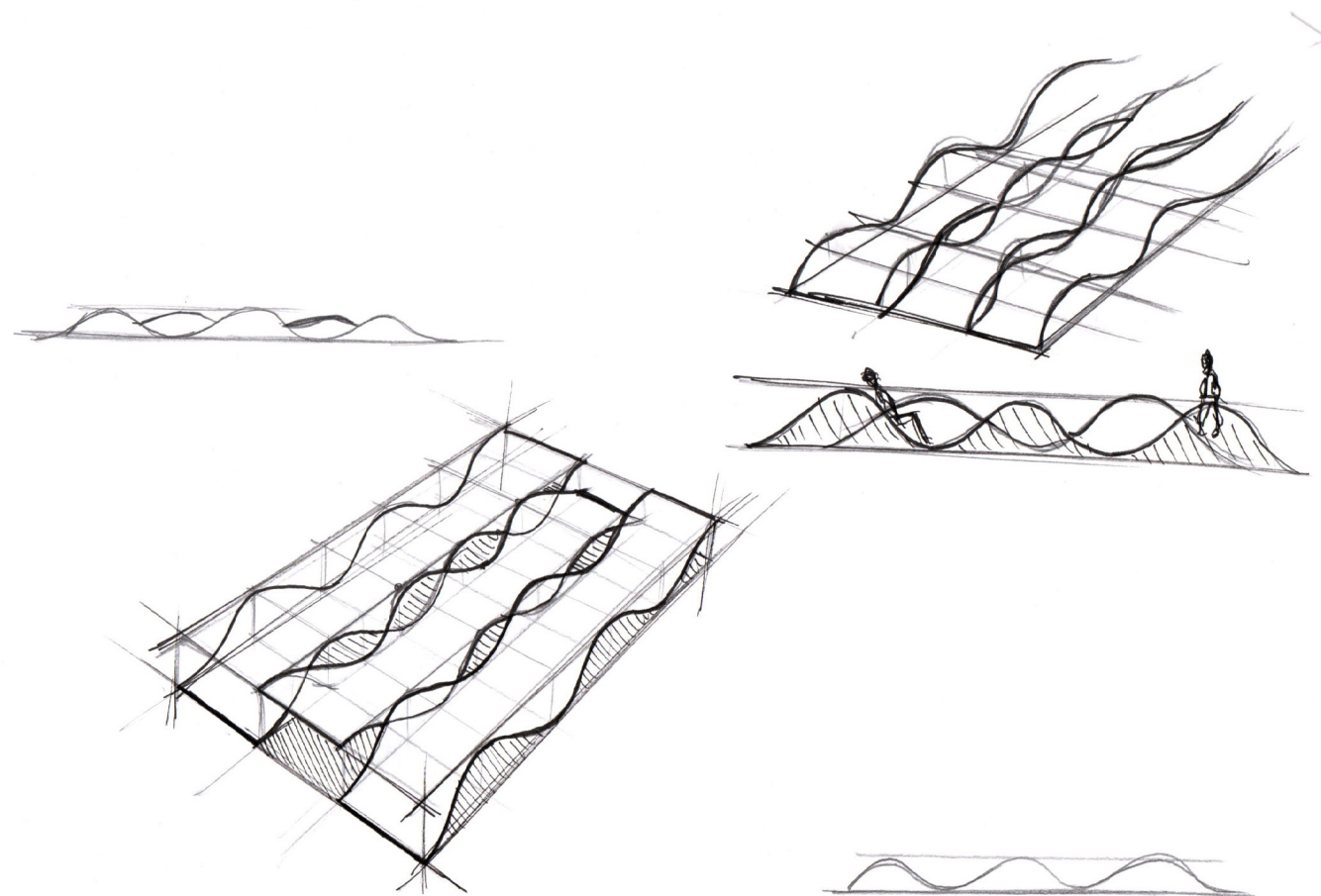
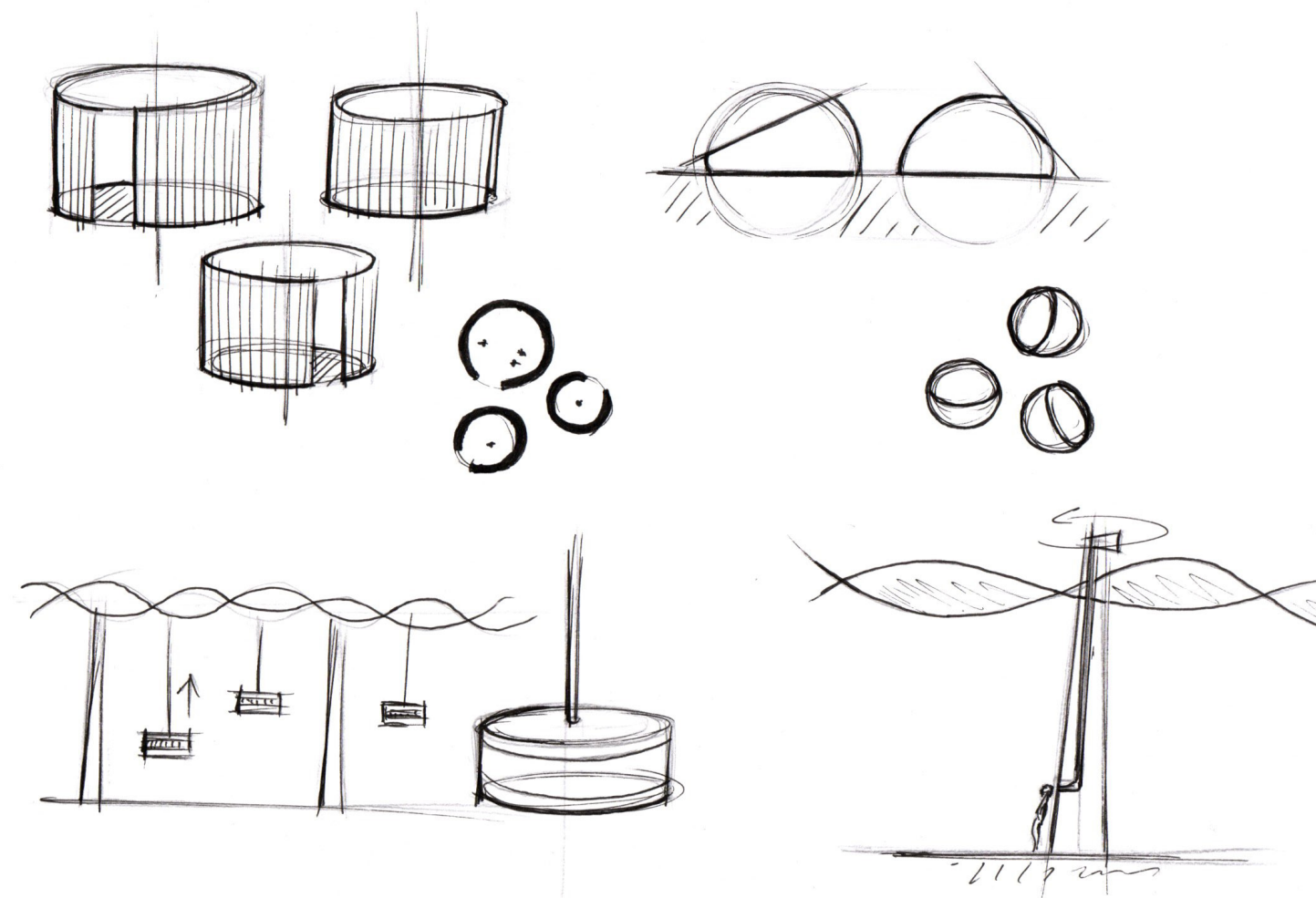
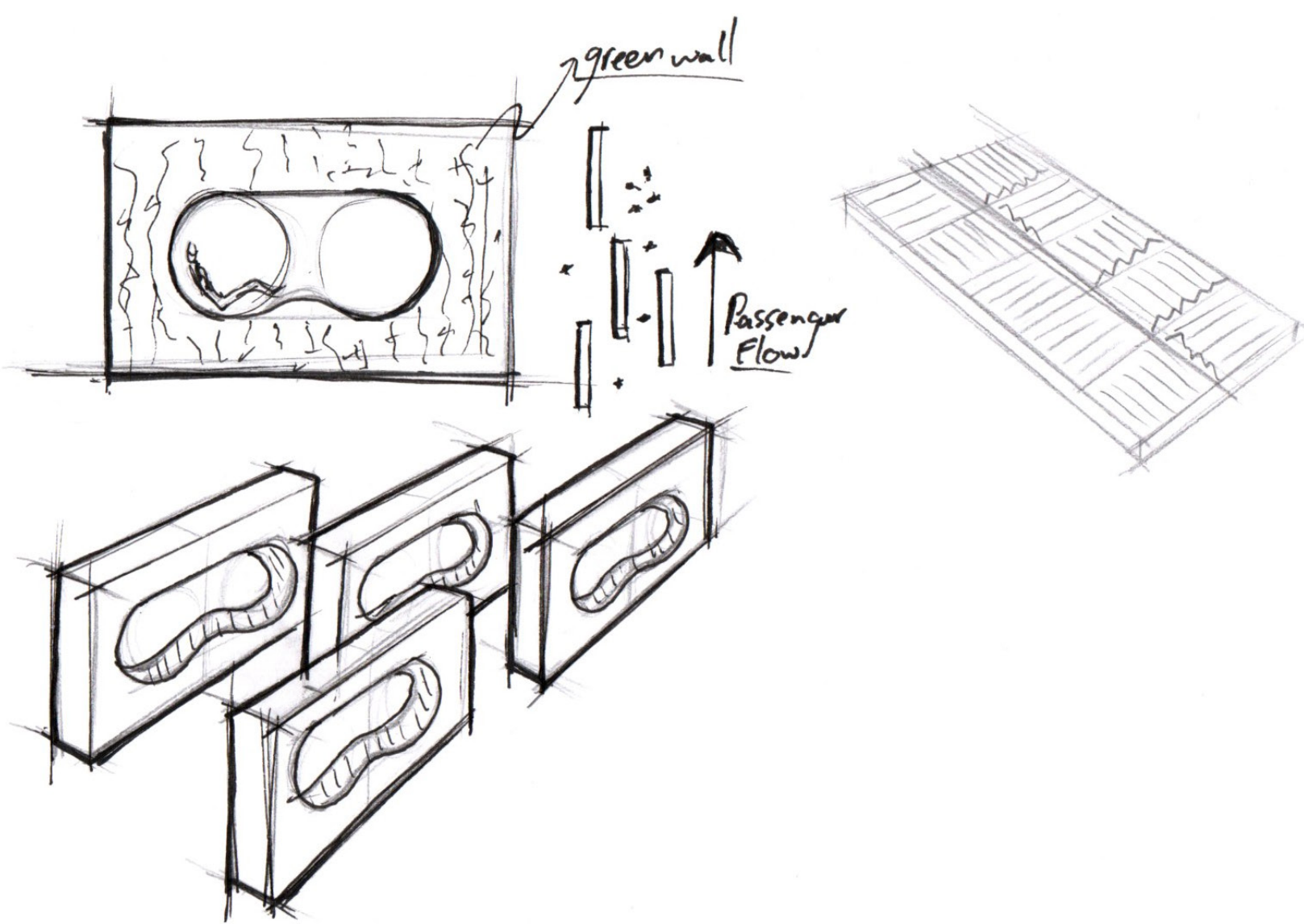
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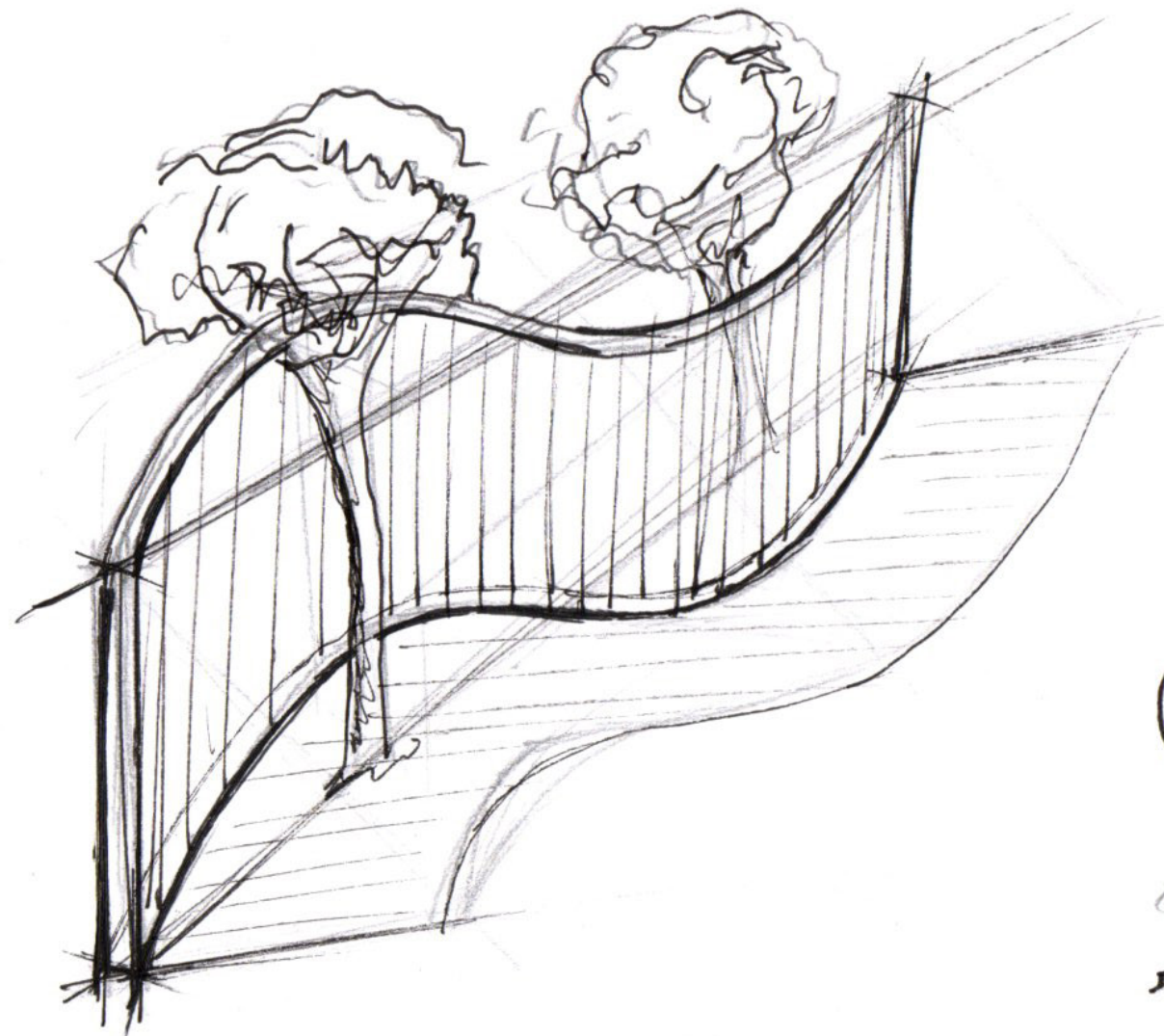
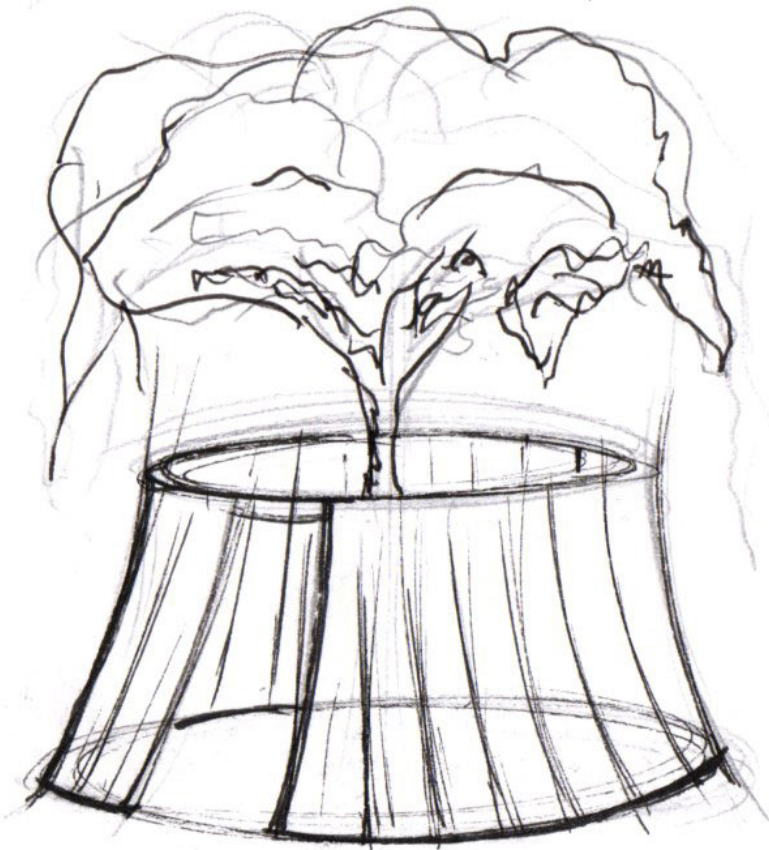
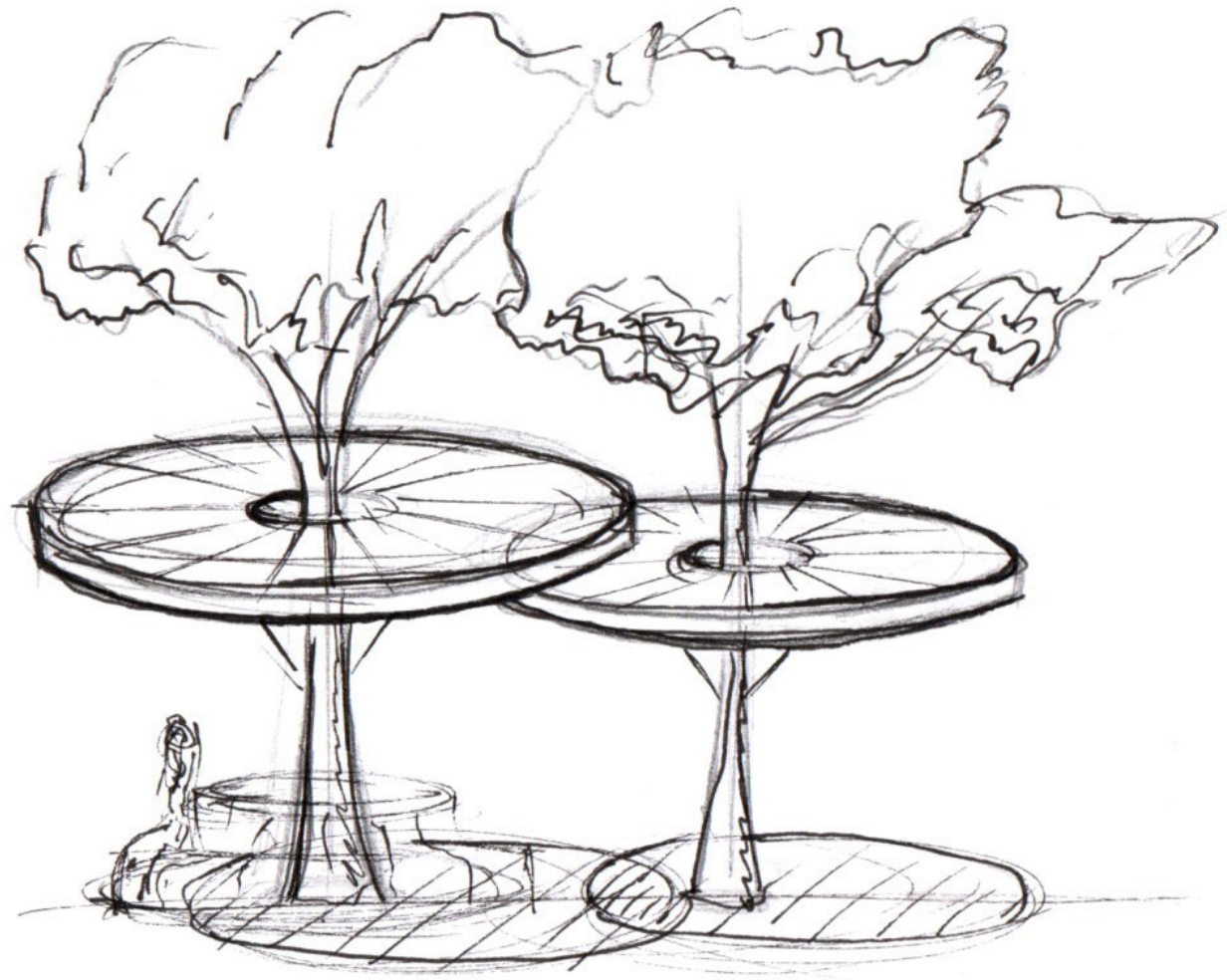
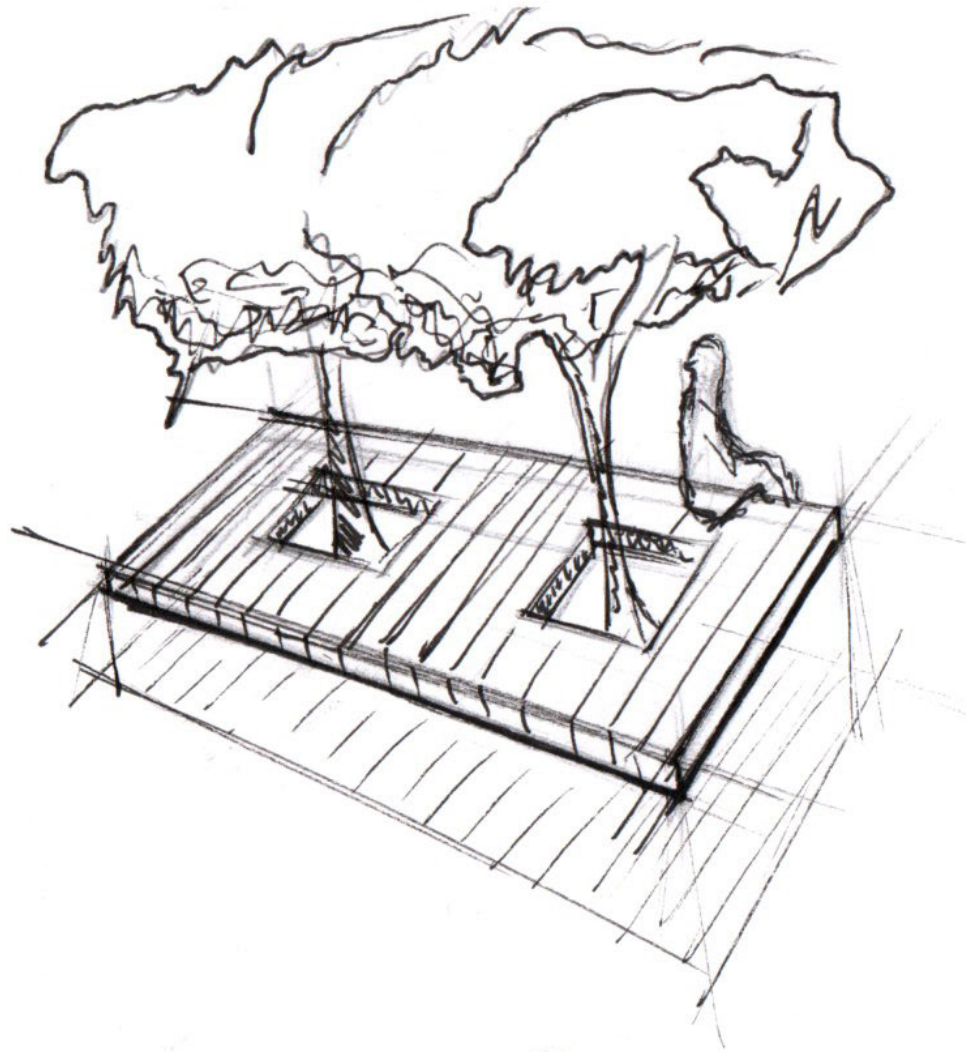
Heathrow Expansion
New TX5 terminal-
LANDSCAPE-PODS

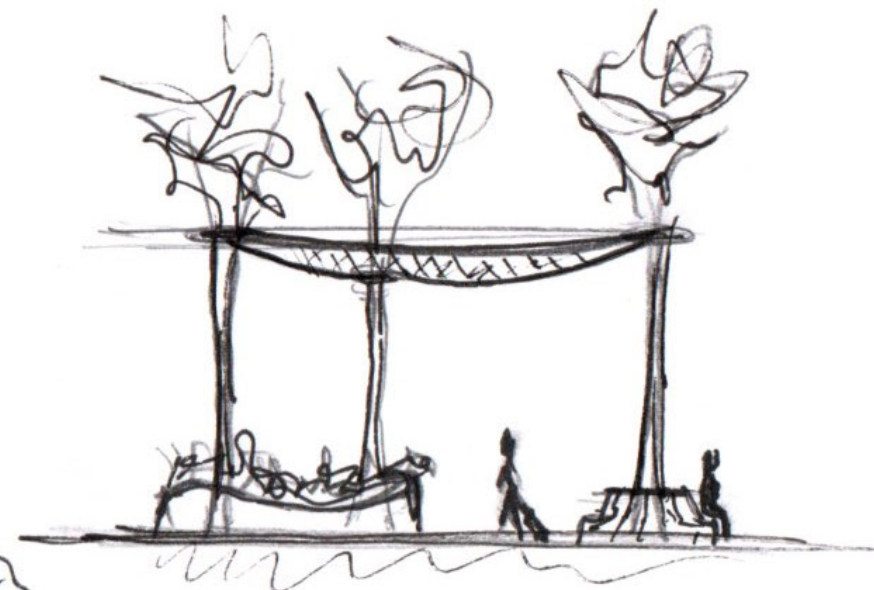
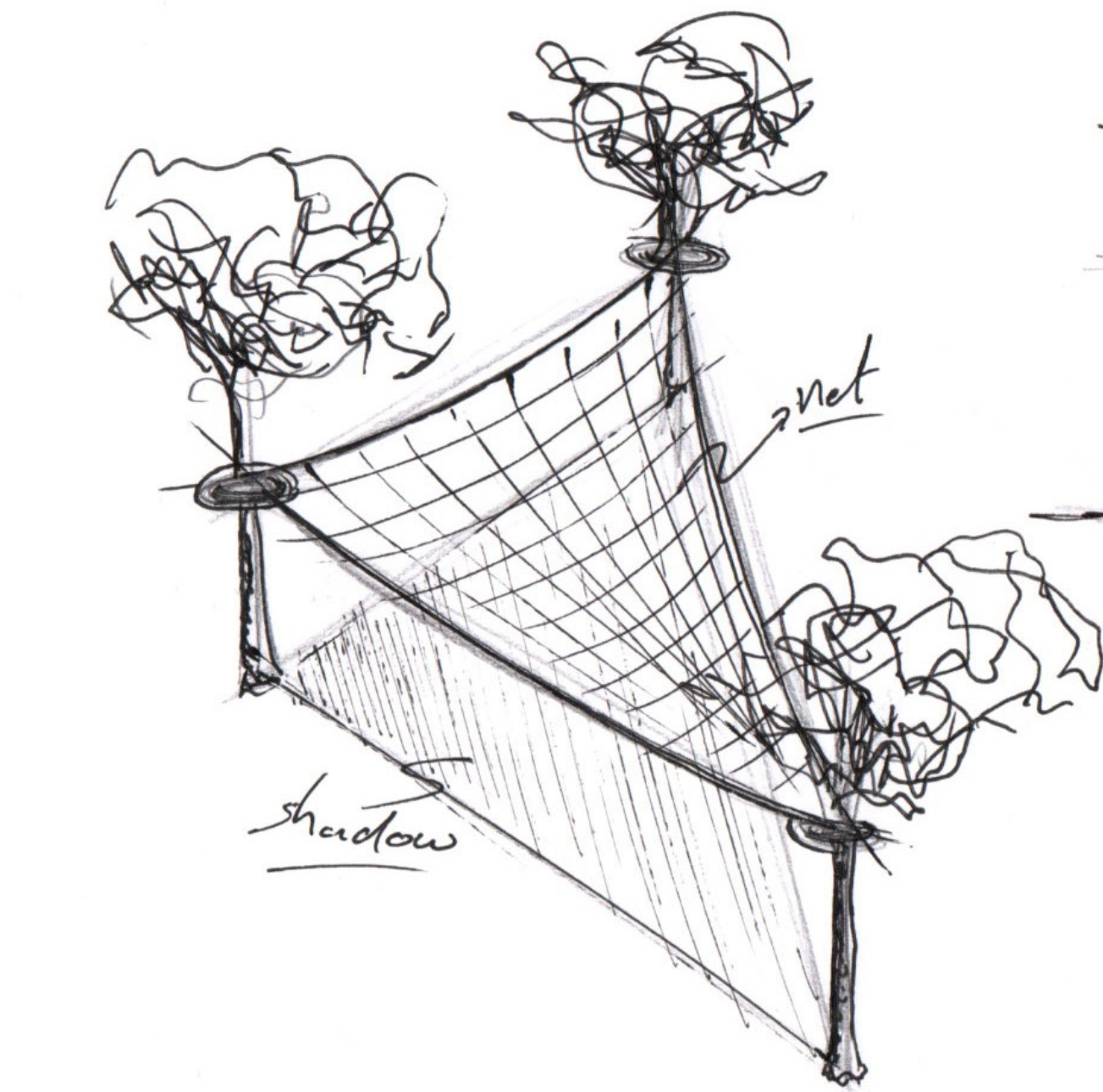
This sketchbook shows the sketches made during the first Phase of Ideation.
Many of these sketches are already included in the main report, but these are unedited.
What might give a different perspective to the process.



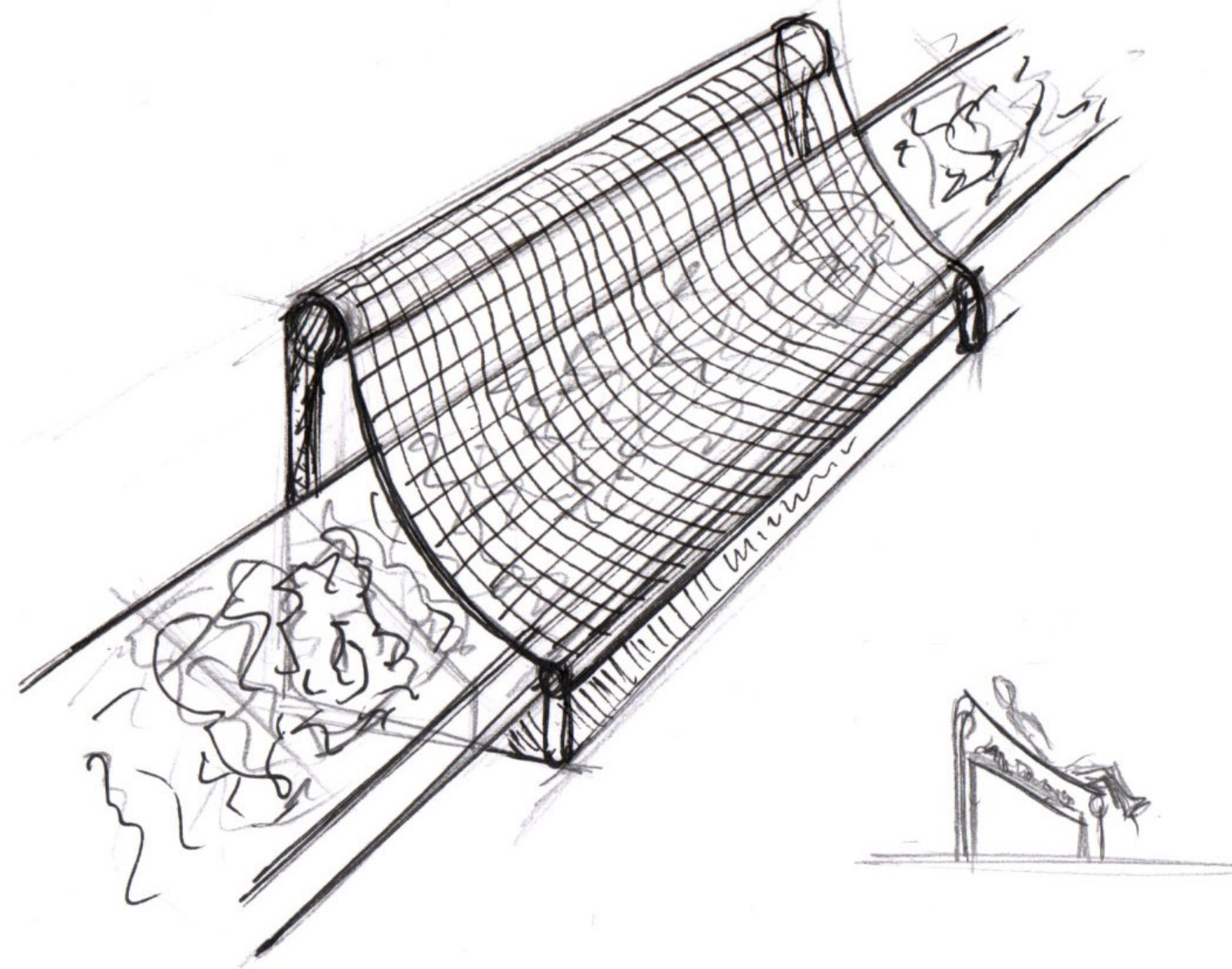
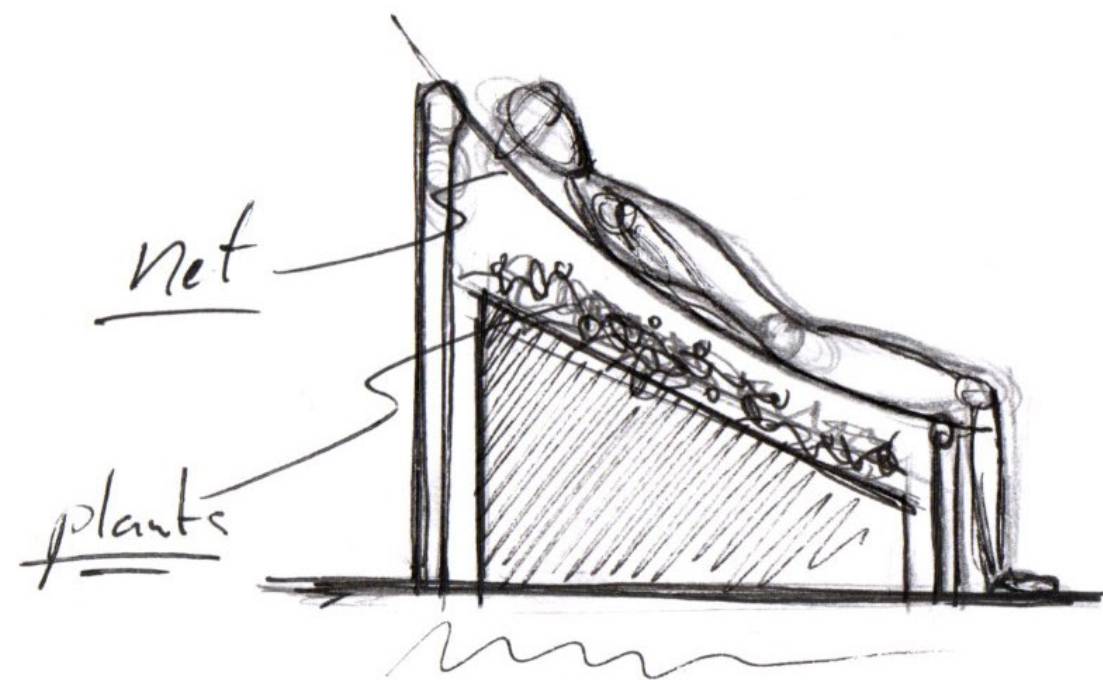




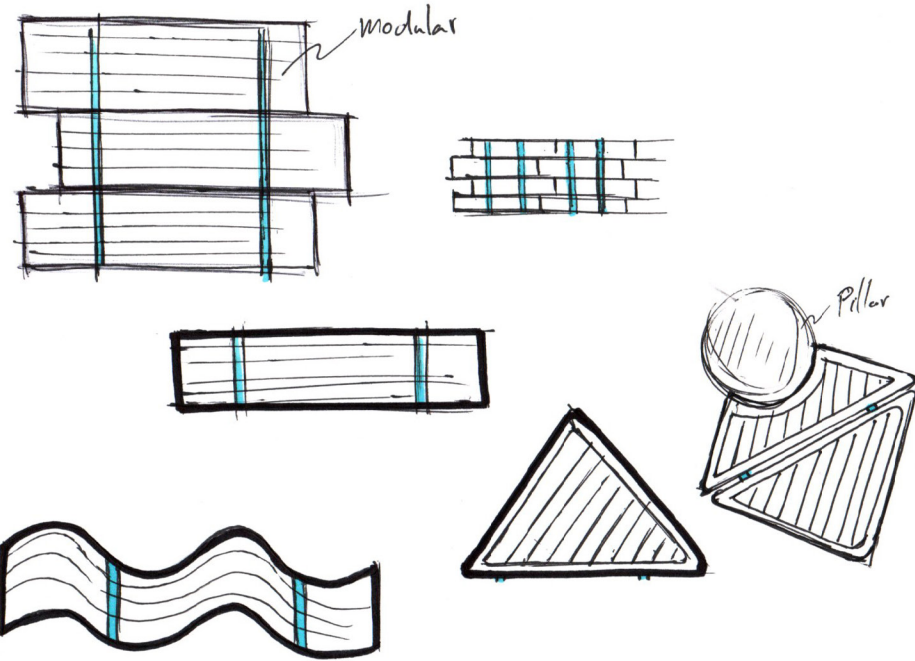




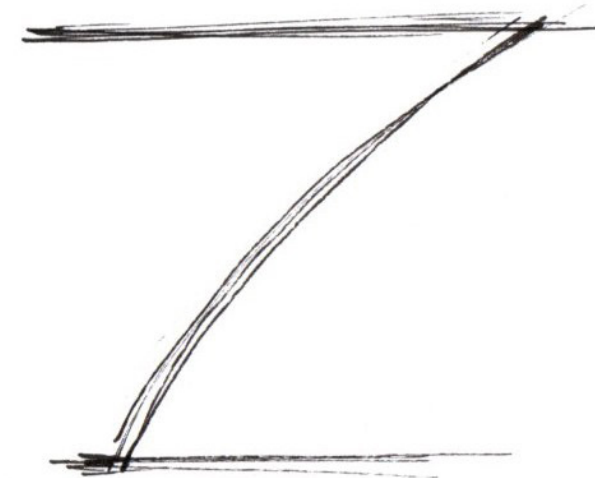
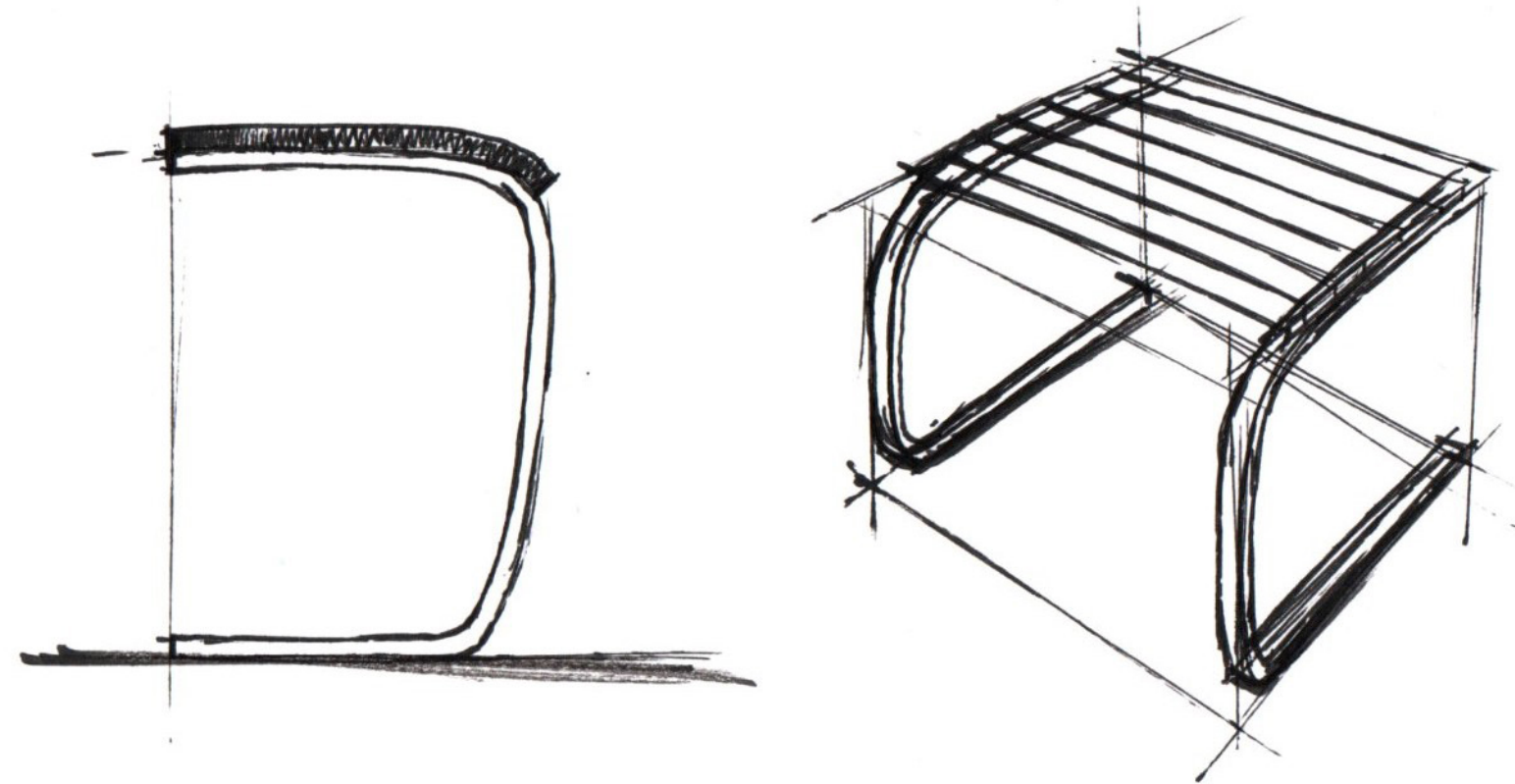
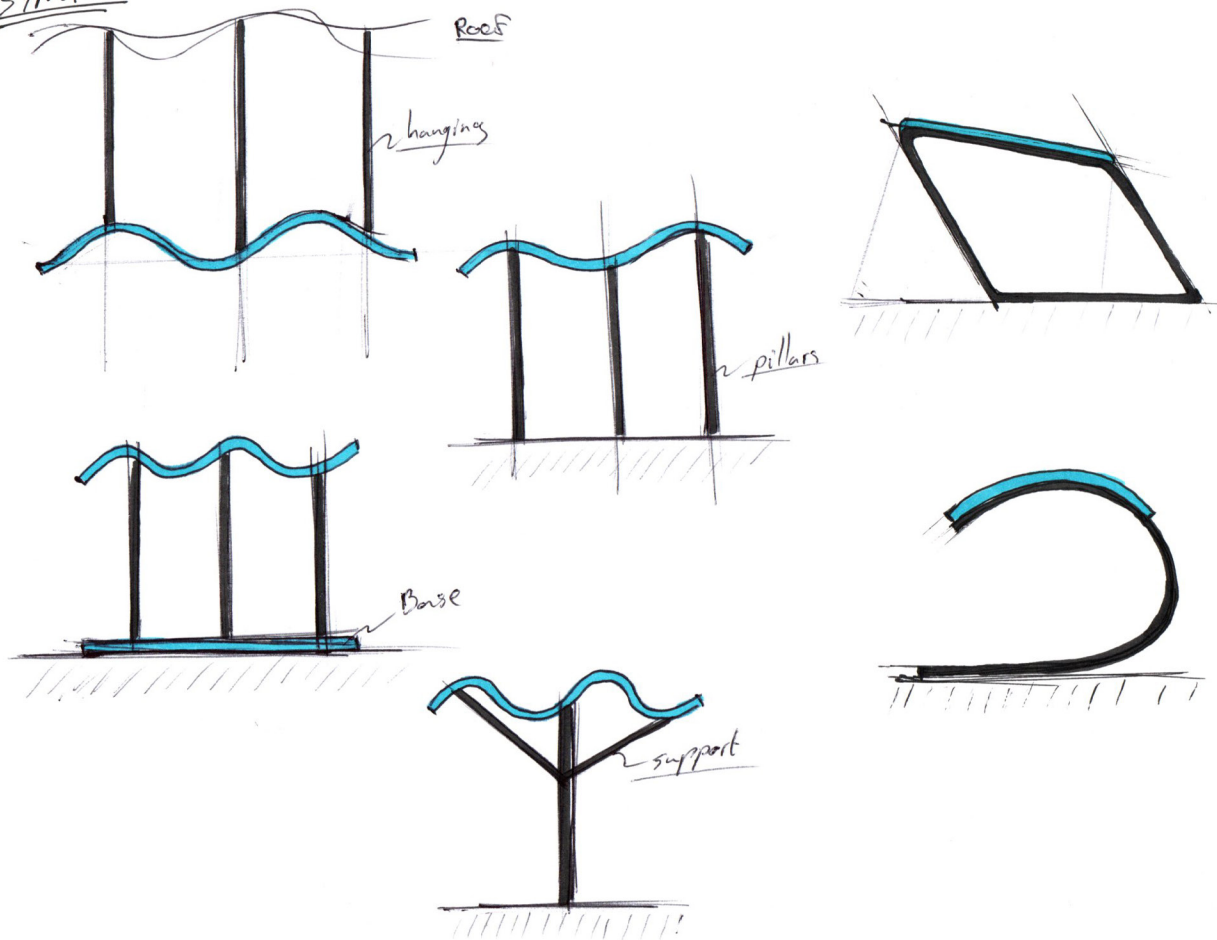
Trees become
POPS

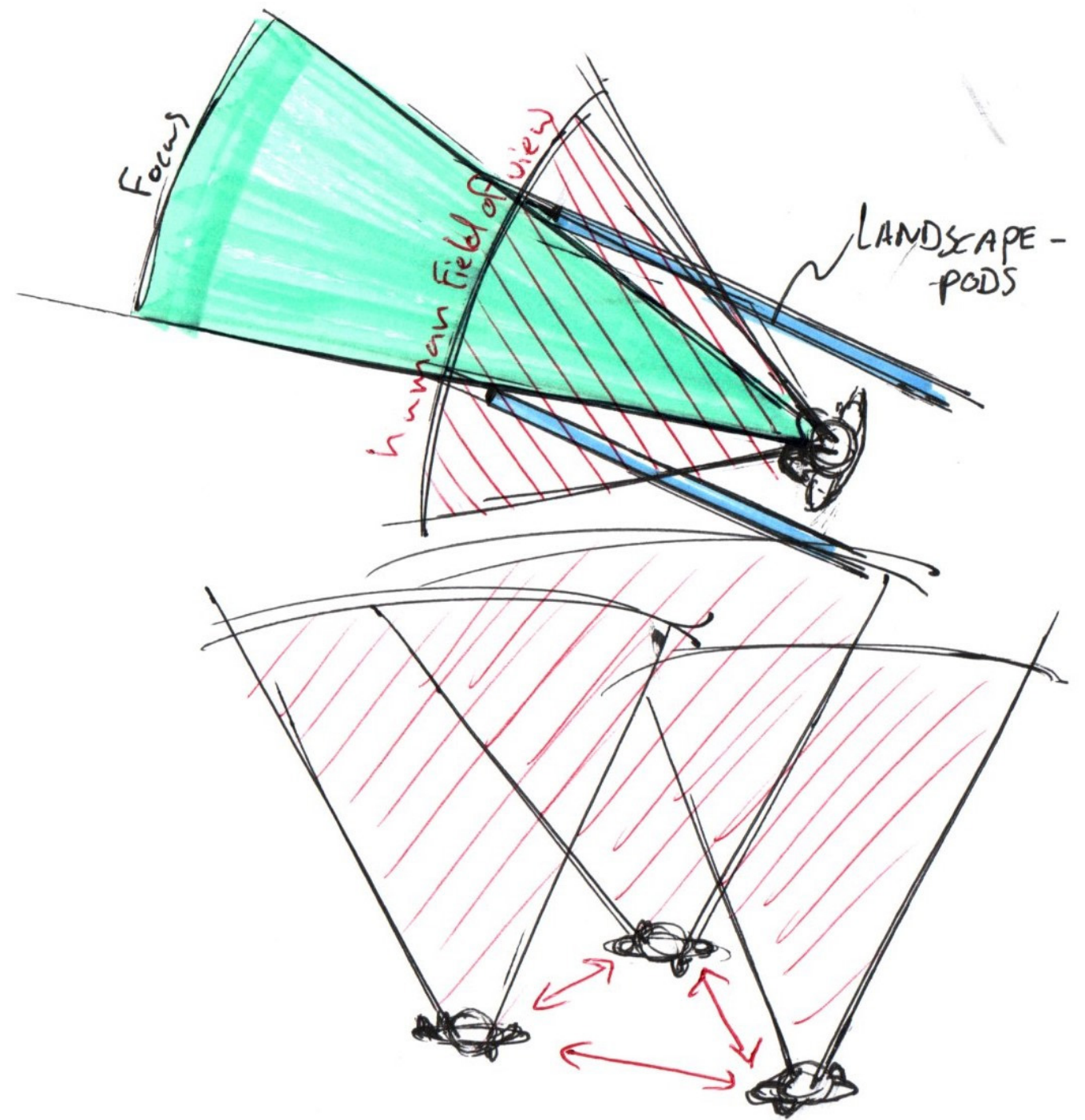
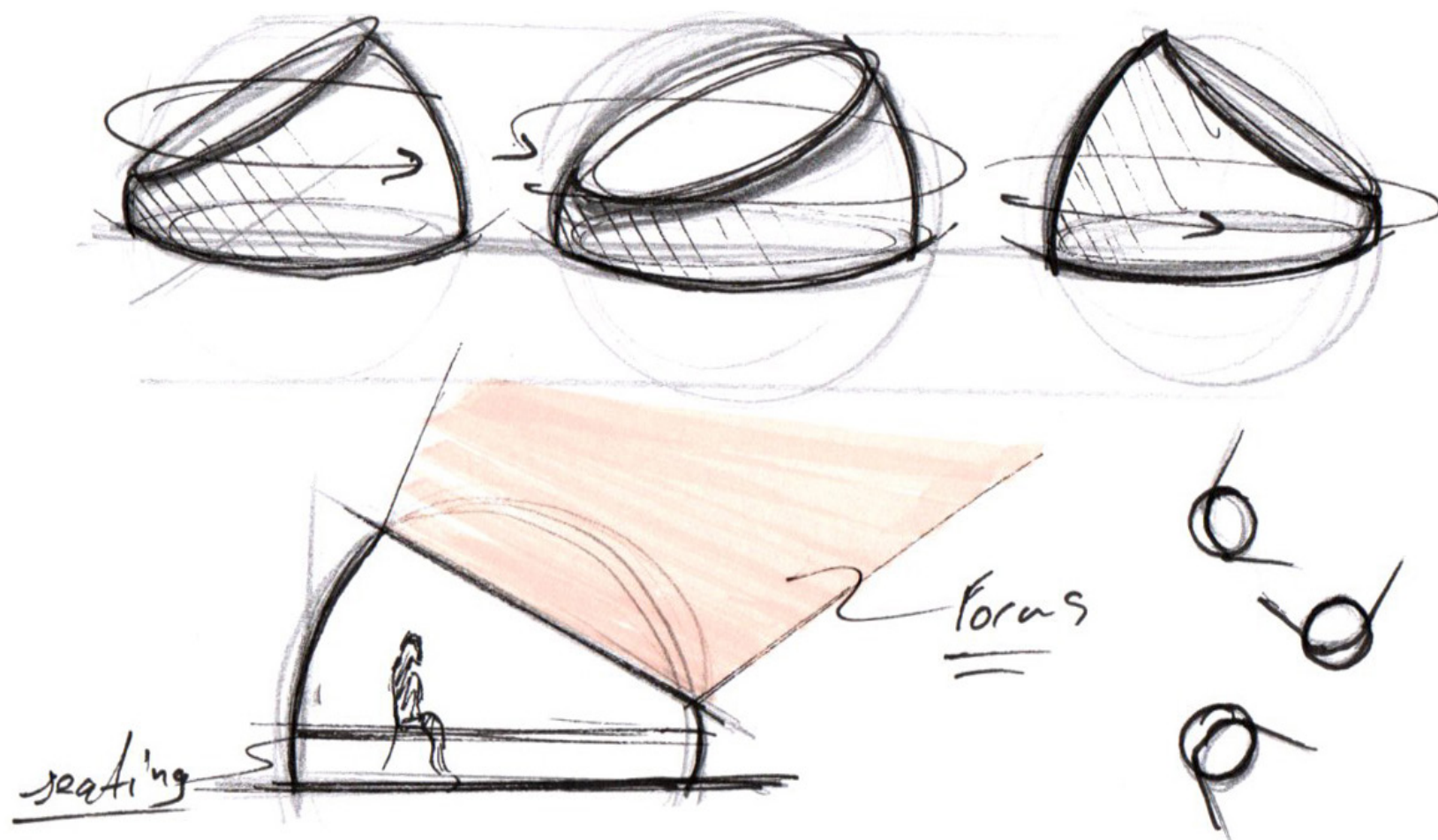


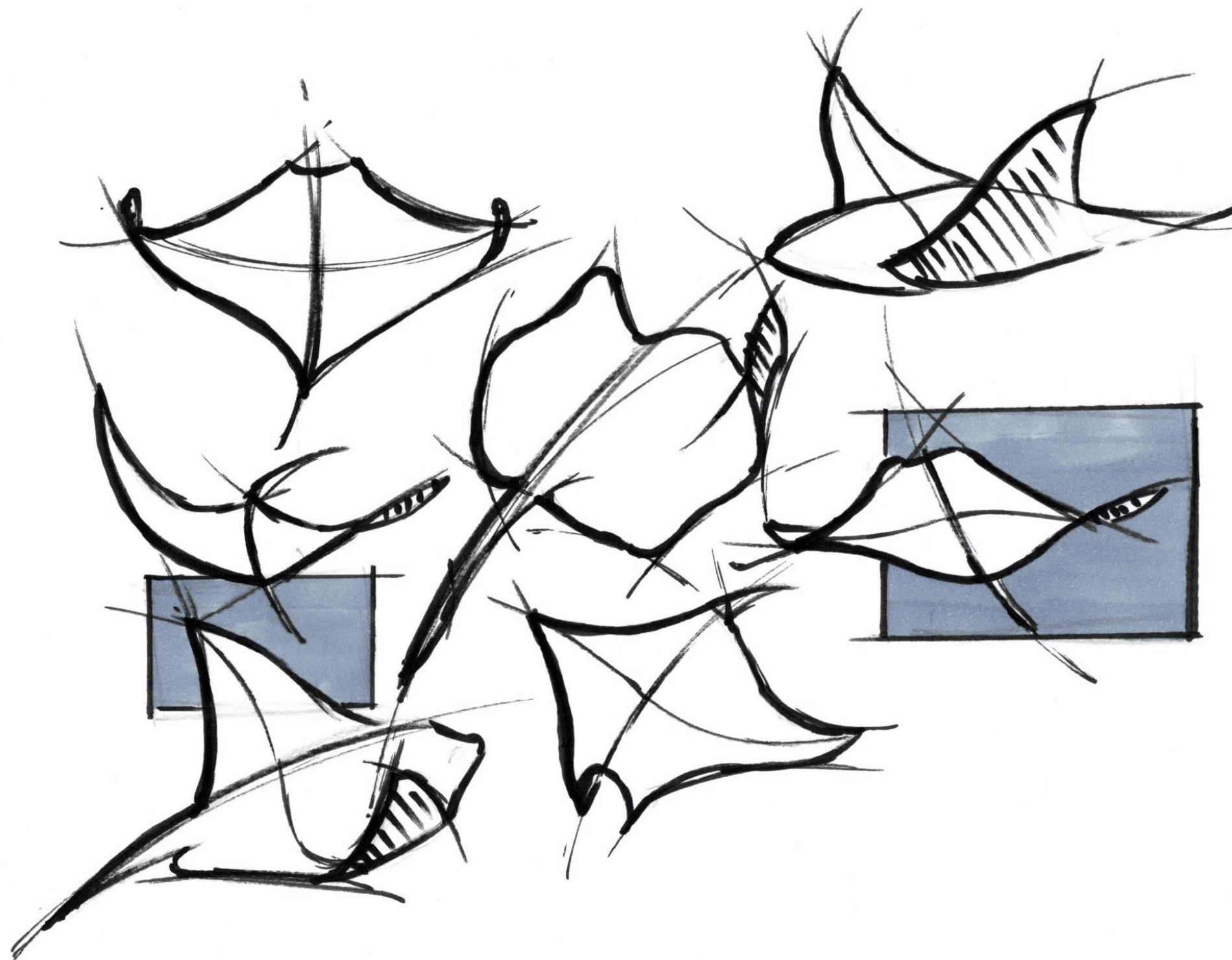
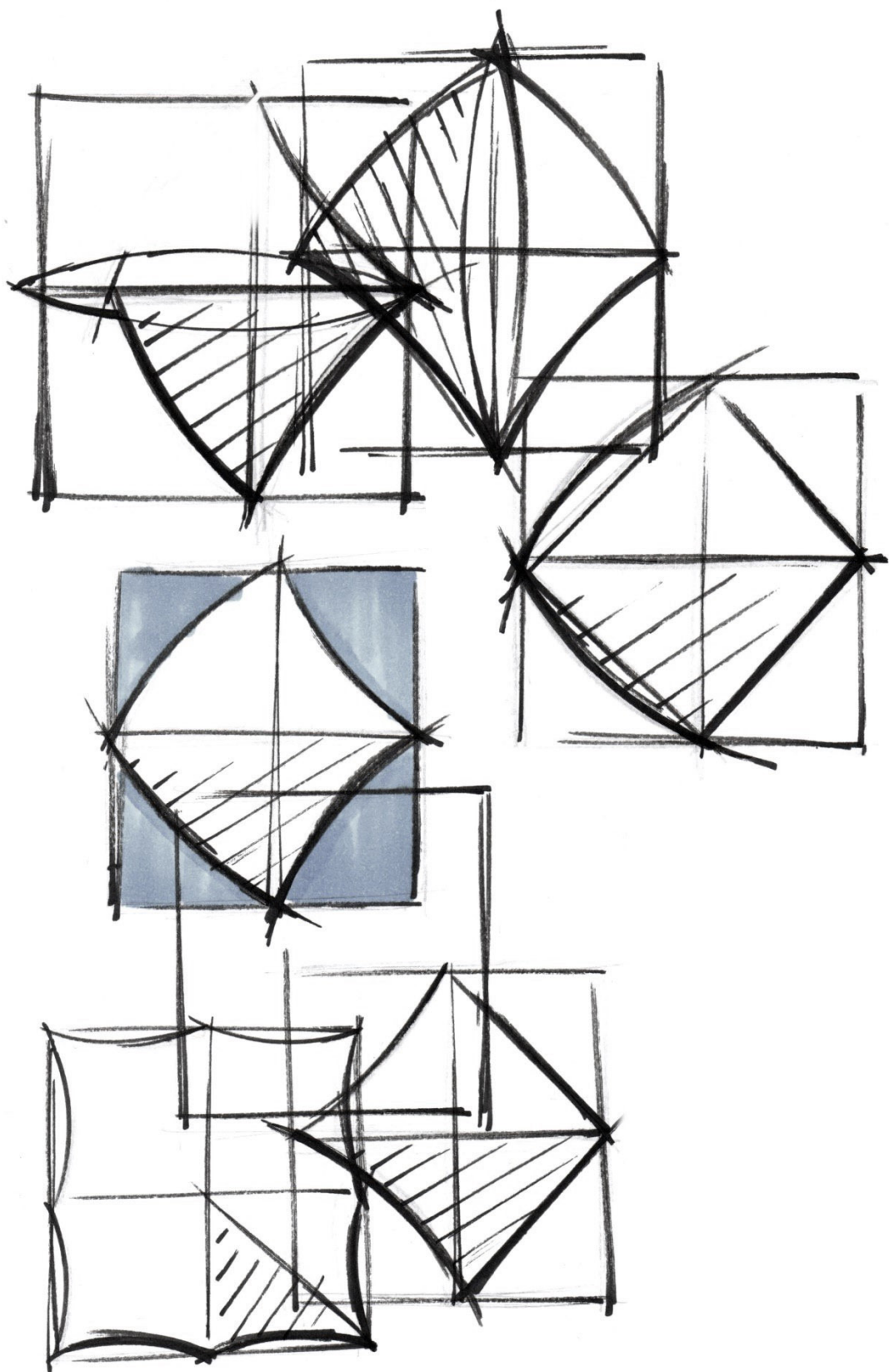
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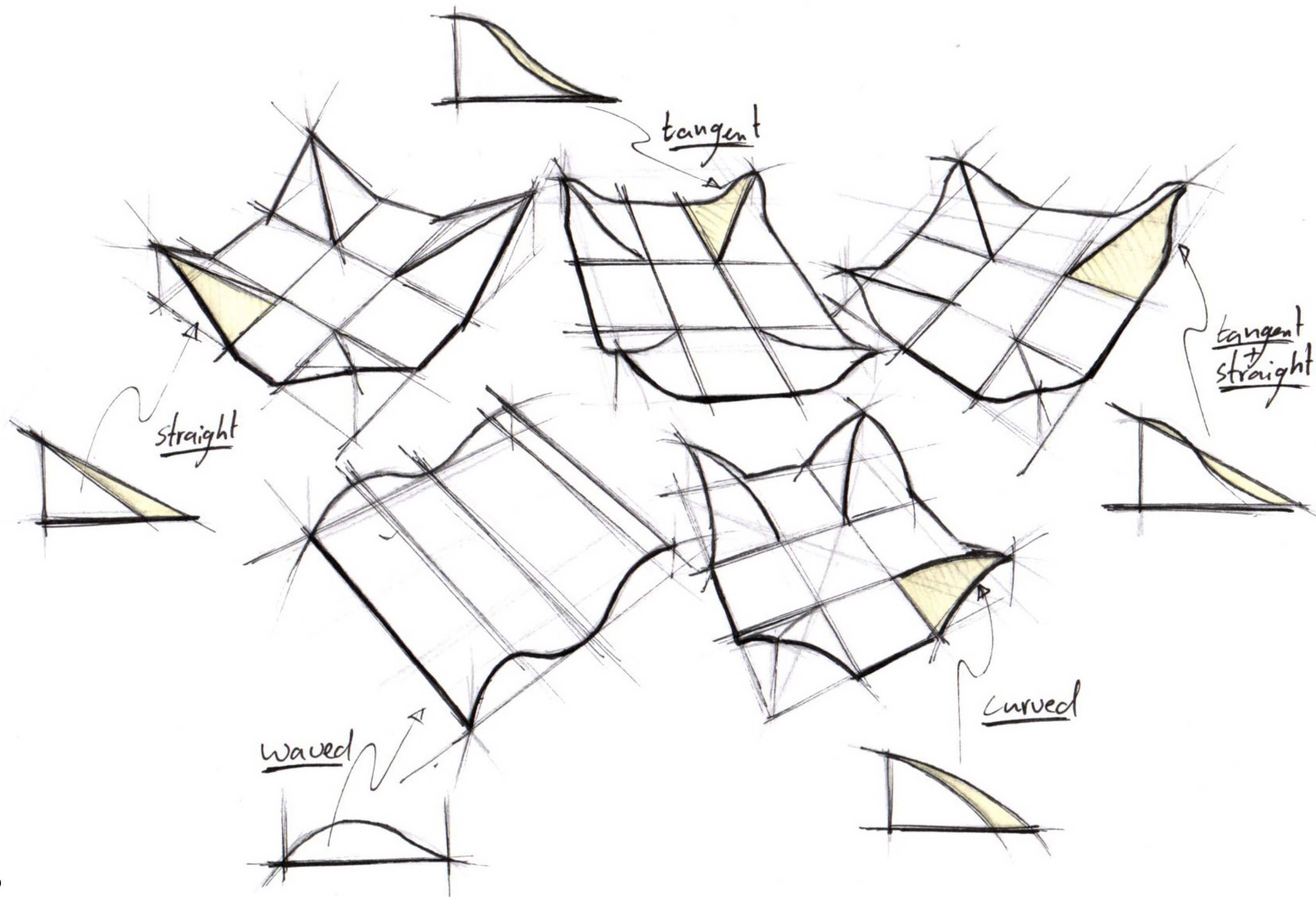


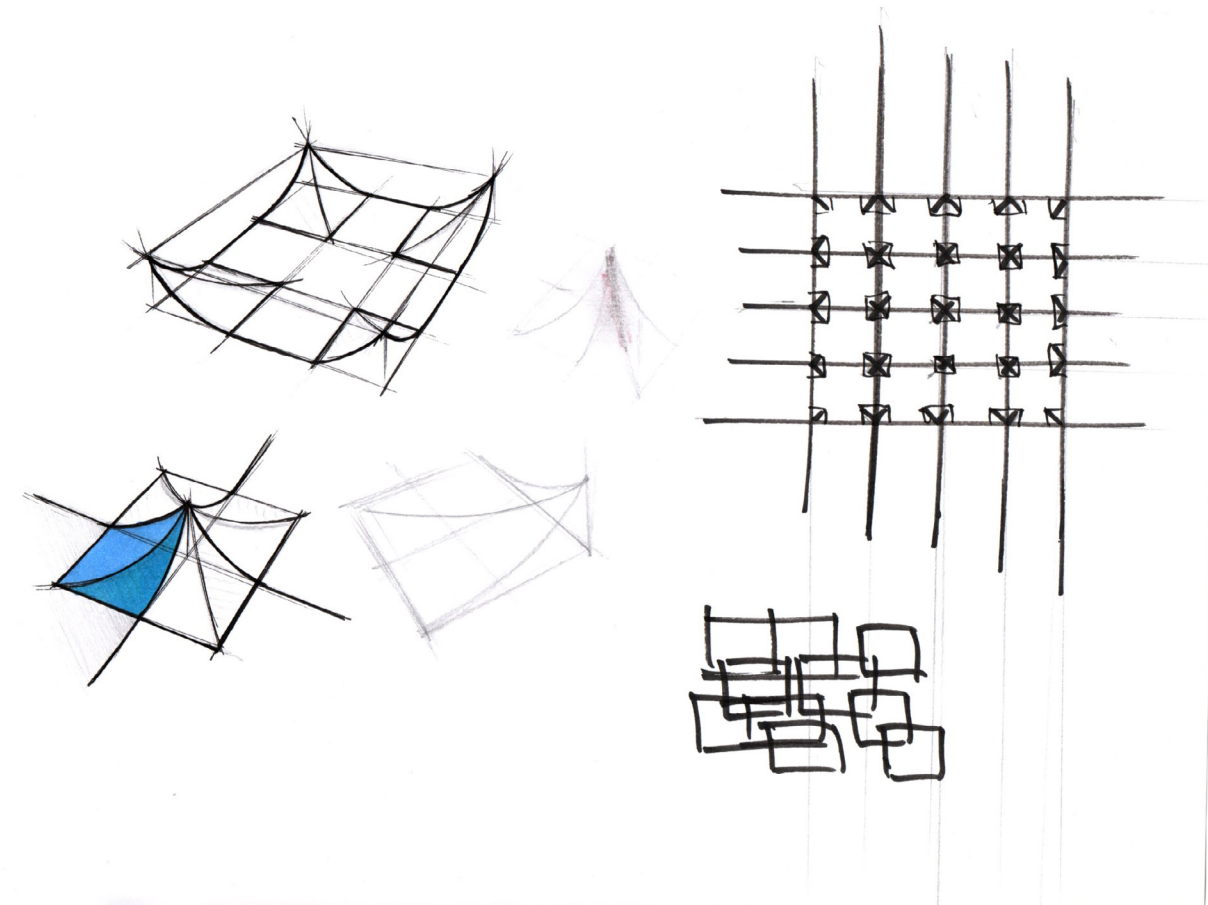
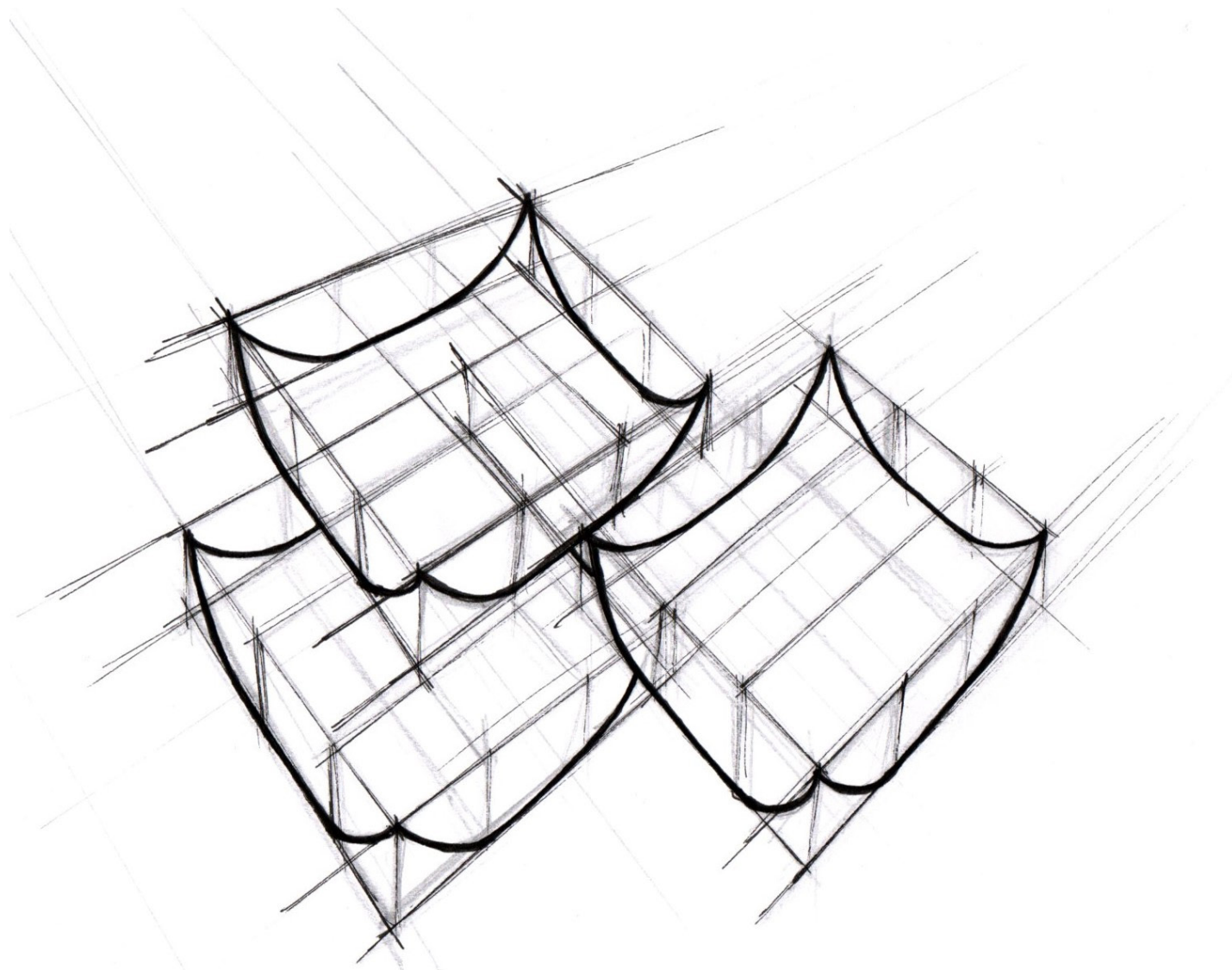
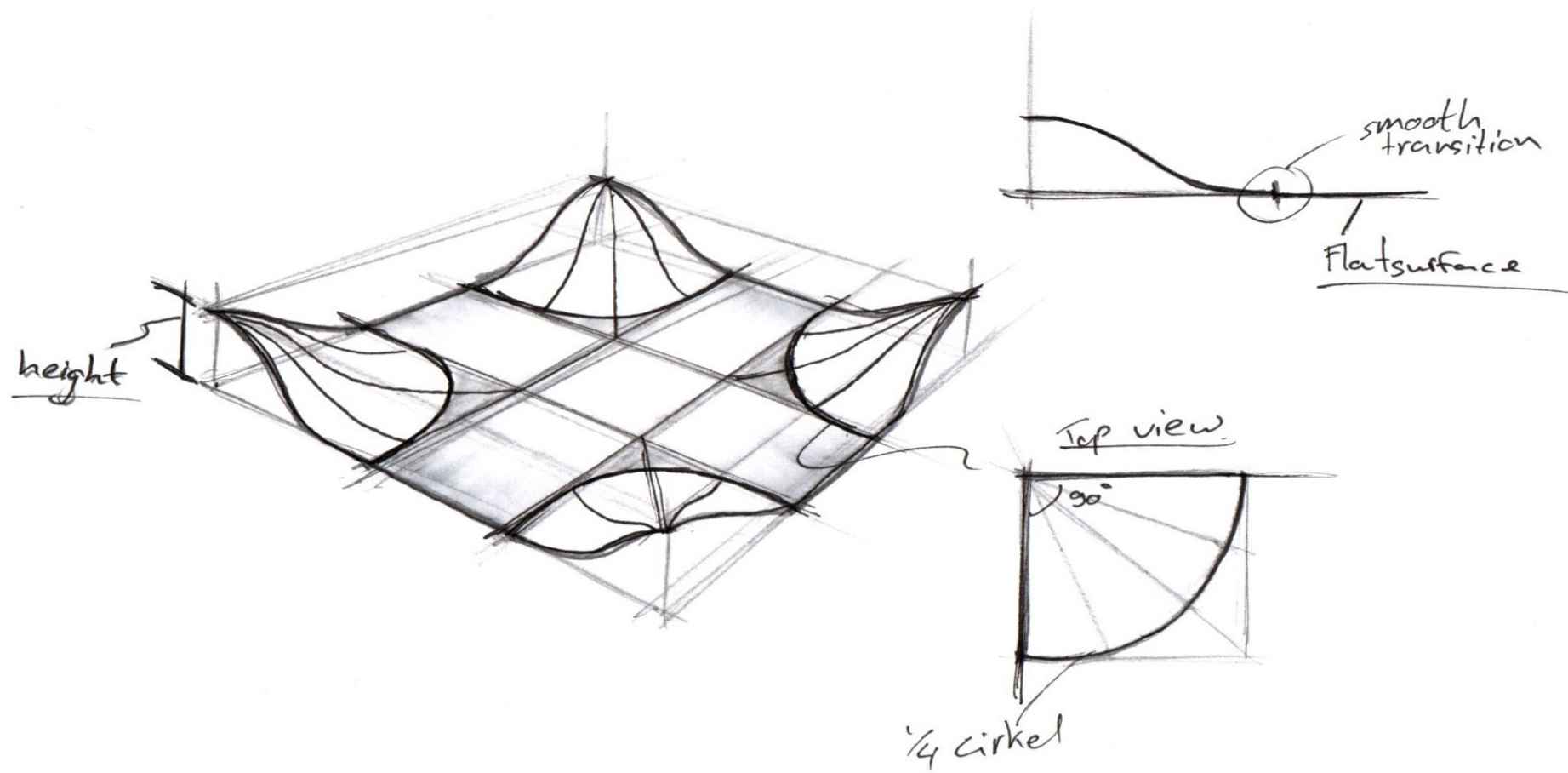
Structure

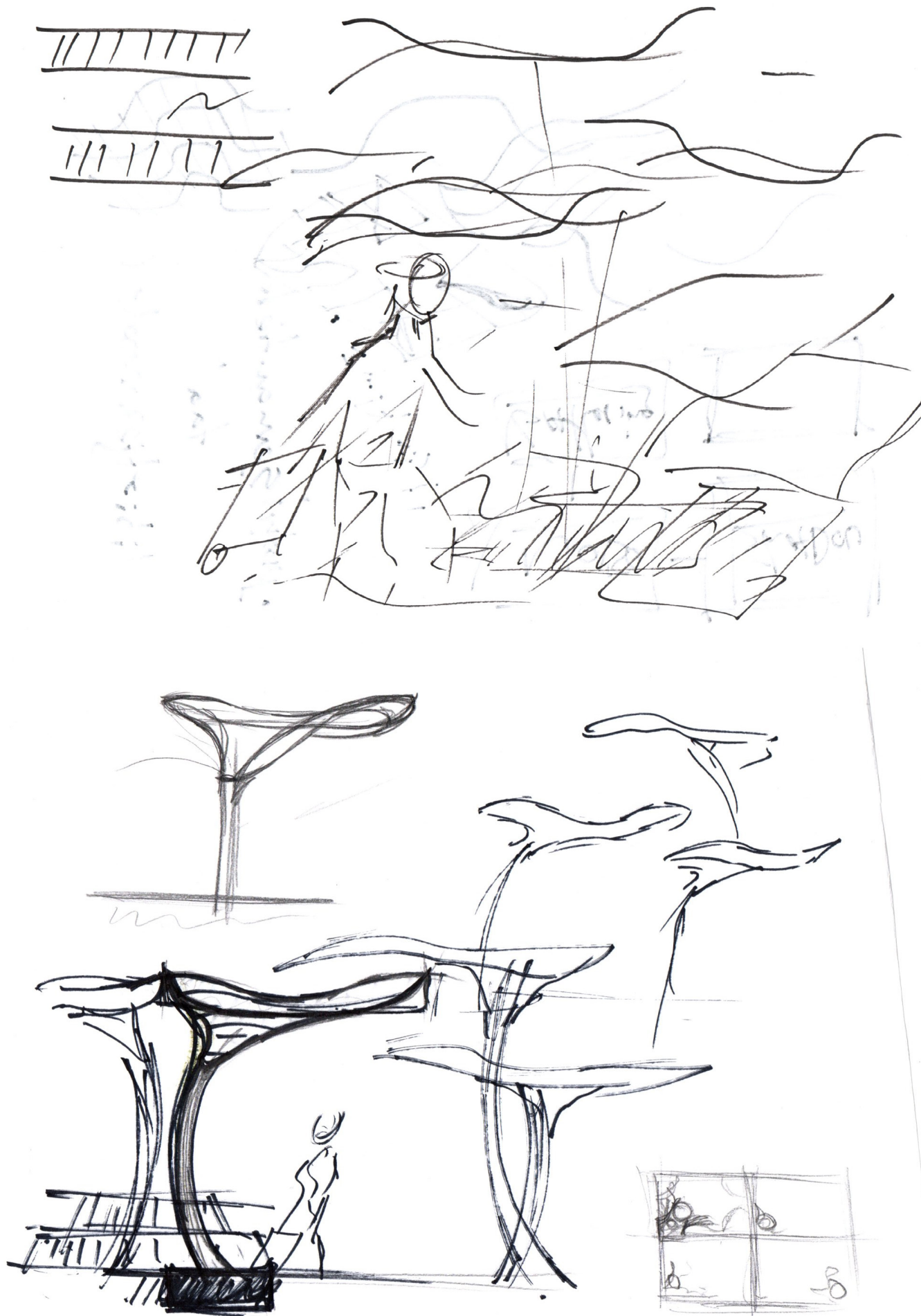




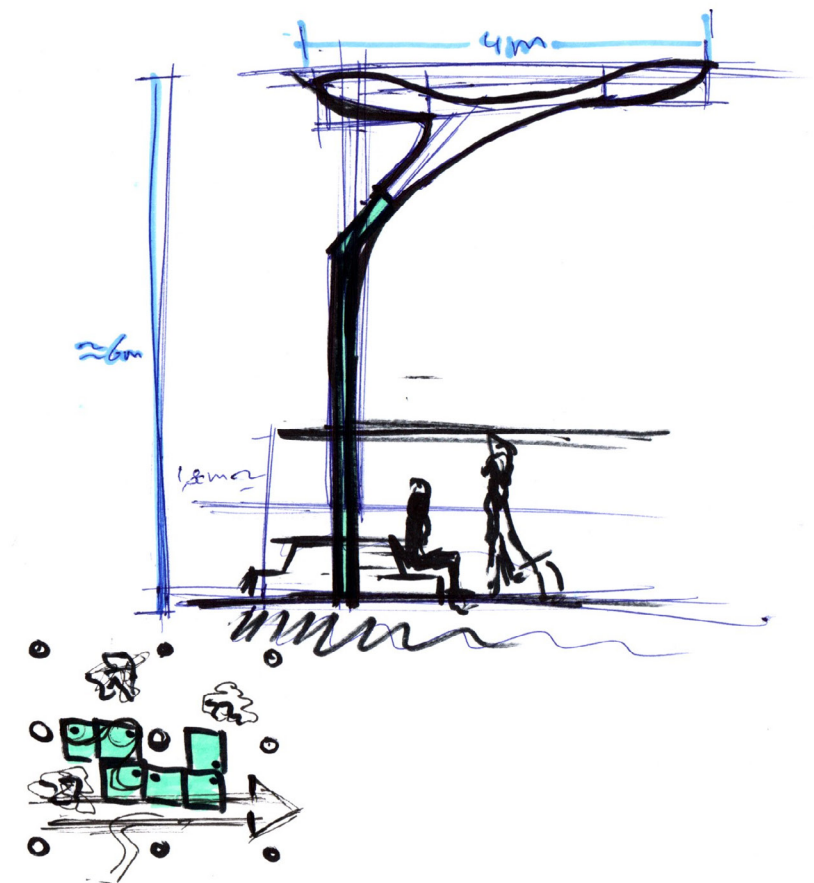
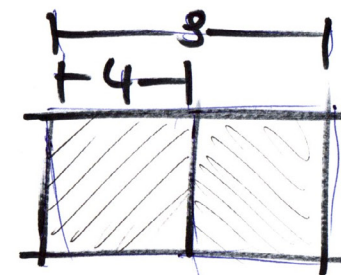
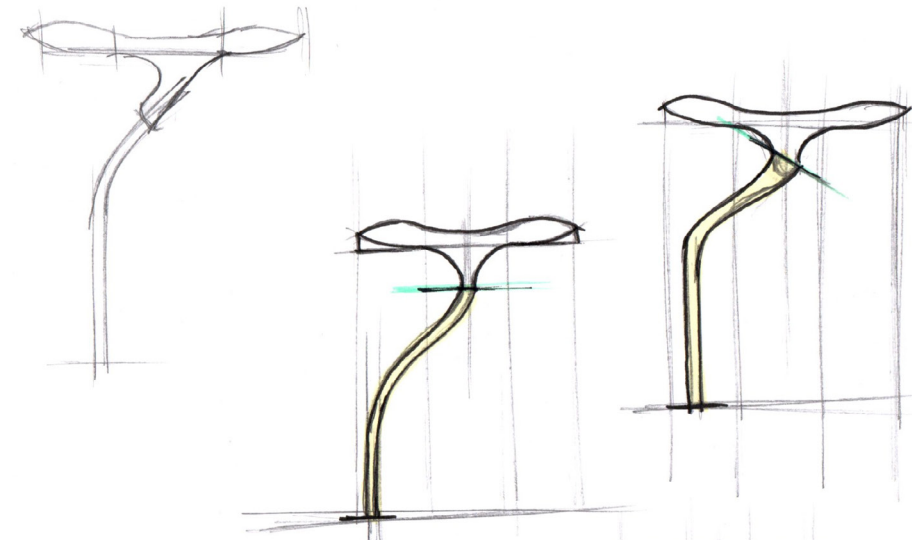
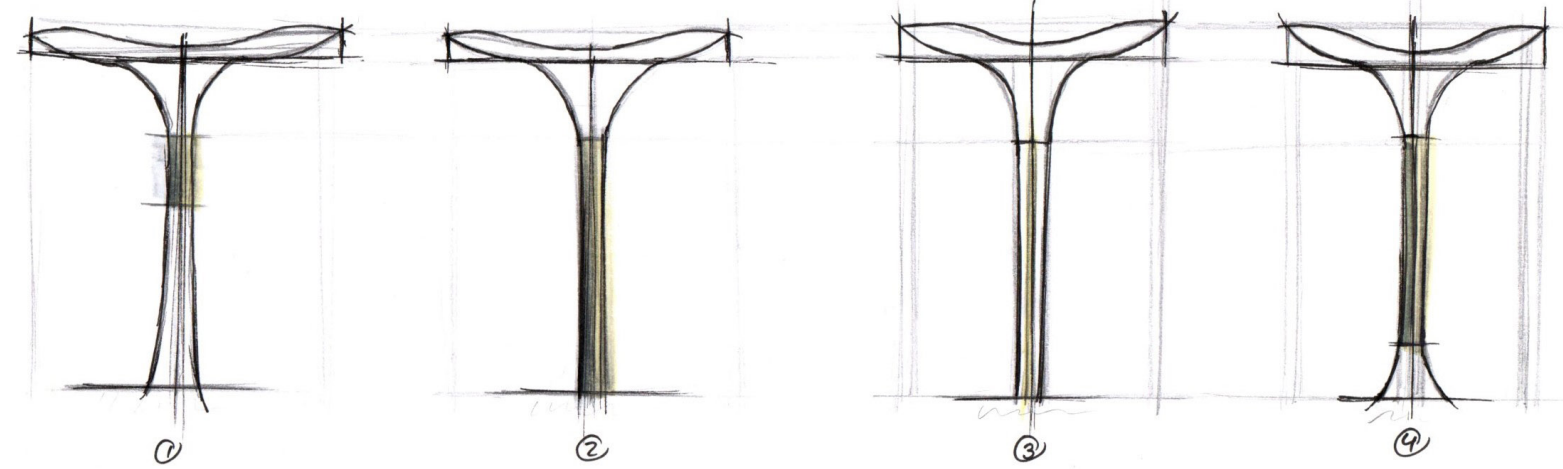


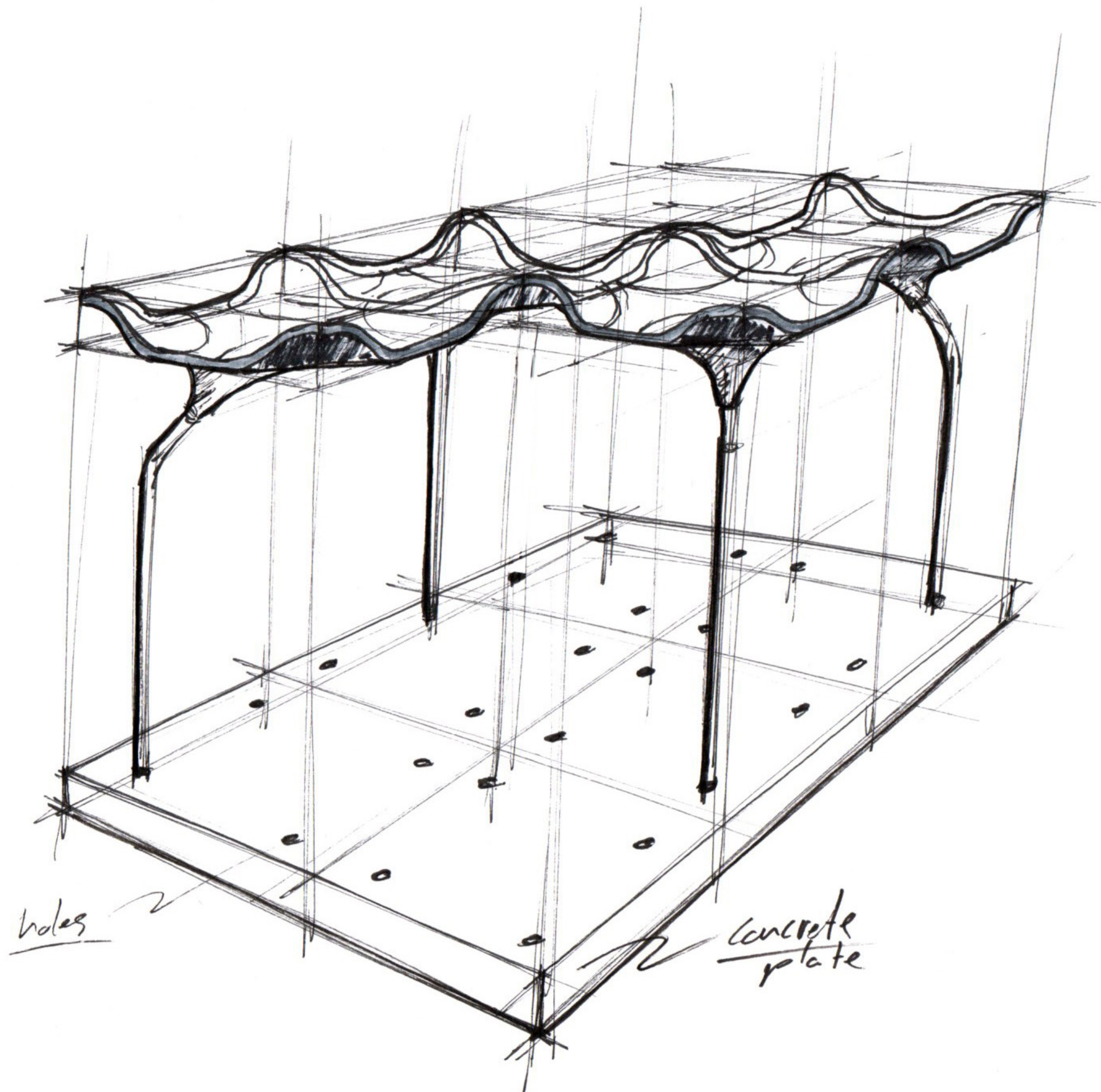






Modern vs Nature
clarity





holes

concrete
plate

Sketchbook 2 - Form study

Appendix

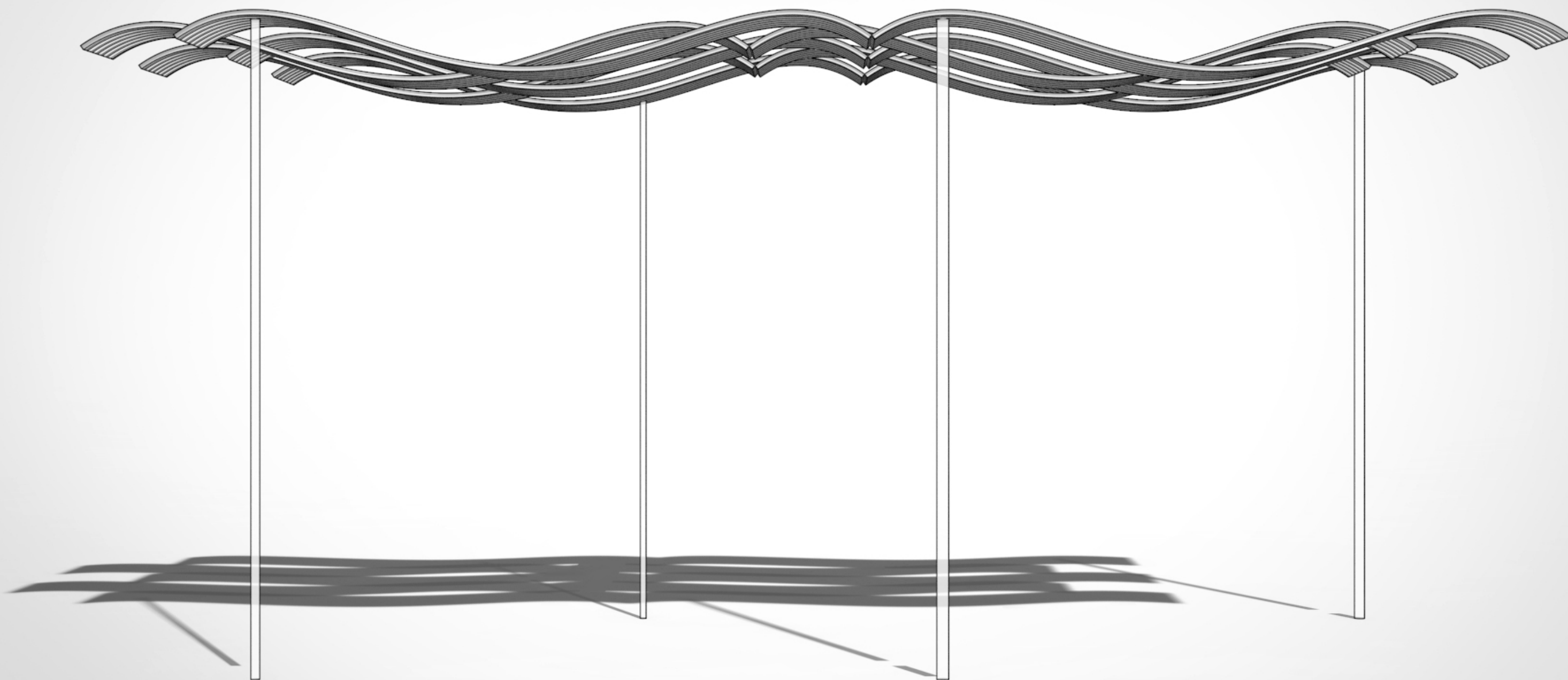
Heathrow Expansion
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LANDSCAPE-PODS

This sketchbook shows a chronological summary of the canopy designs before the final concept was chosen. Some visuals are assisted by images that gave inspiration on that certain moment of designing.

In some visuals the concepts are placed in the context of a airport or combined with green. This is to test the relation between the canopy and the green elements that will be present in the terminal. The visuals are digital and therefor the sketchbook can also be seen as a kind of booklet.

- Content:
- CHAPTER 1 - Rapid Canopy Concepts
 - CHAPTER 2 - Biophilic Concept
 - CHAPTER 3 - Concepts meet function
 - CHAPTER 4 - Generating Concepts









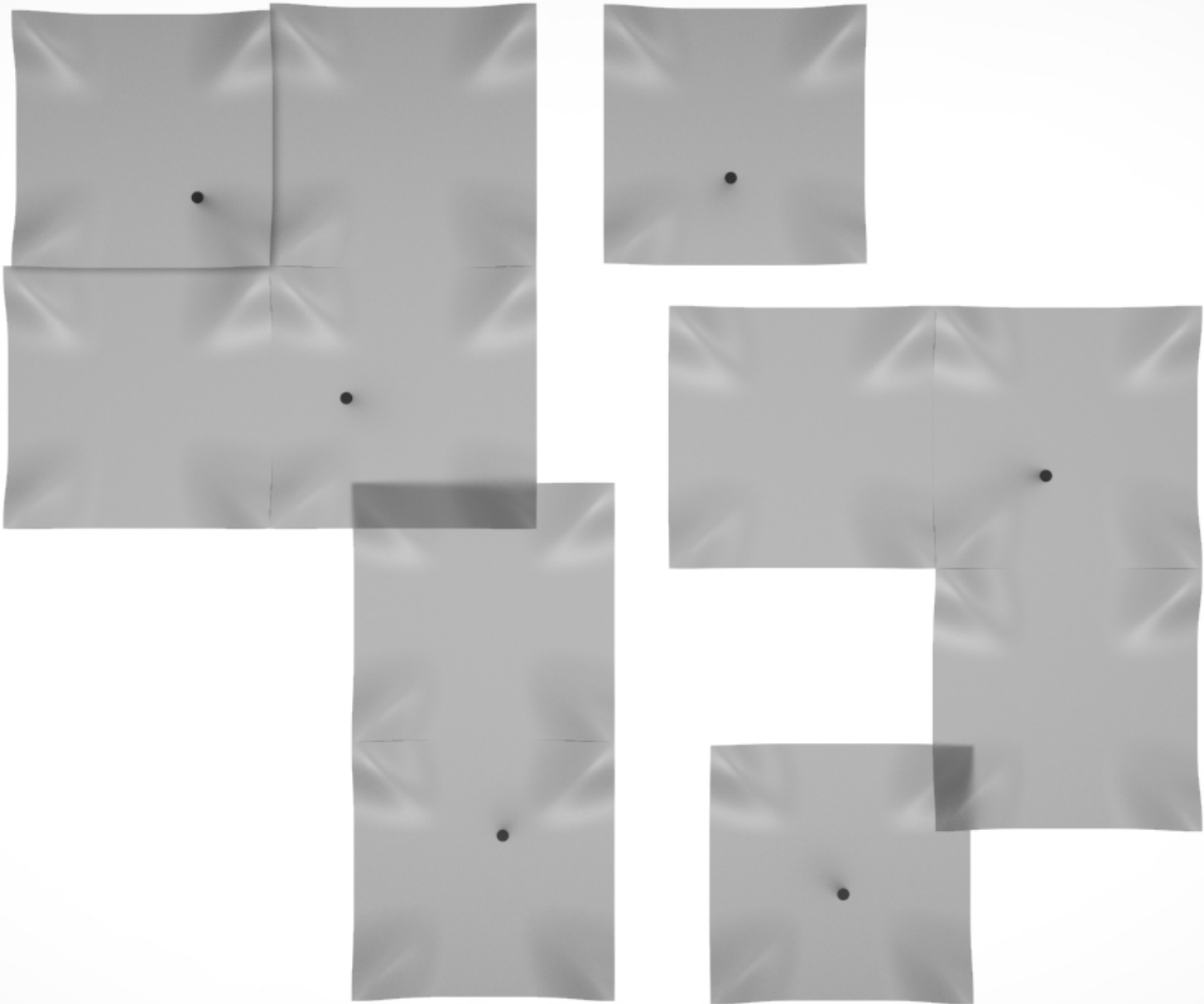
CO₂

+ SOUND ABSORBING
Noise reducing

BREATHE

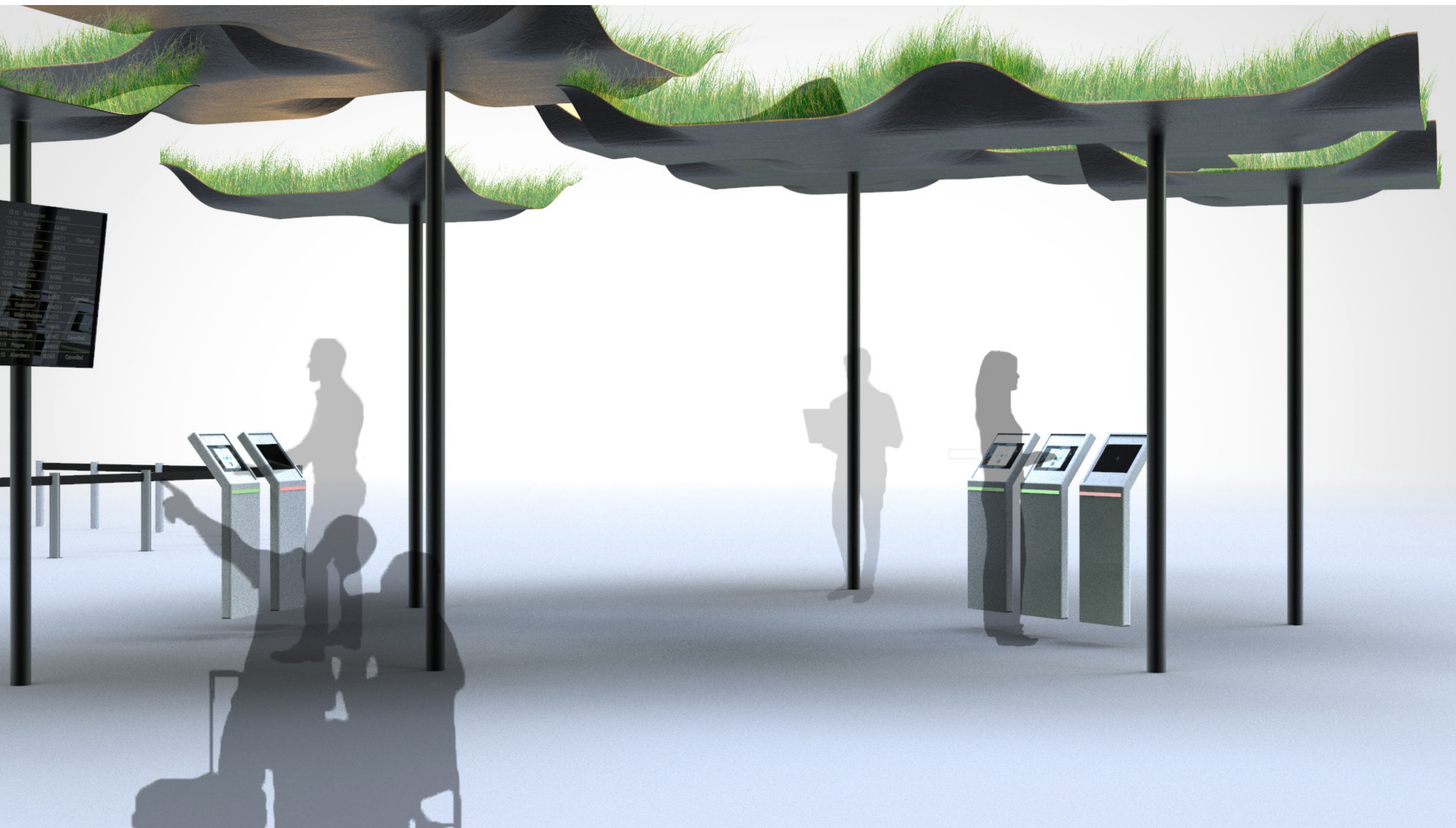
+ O₂

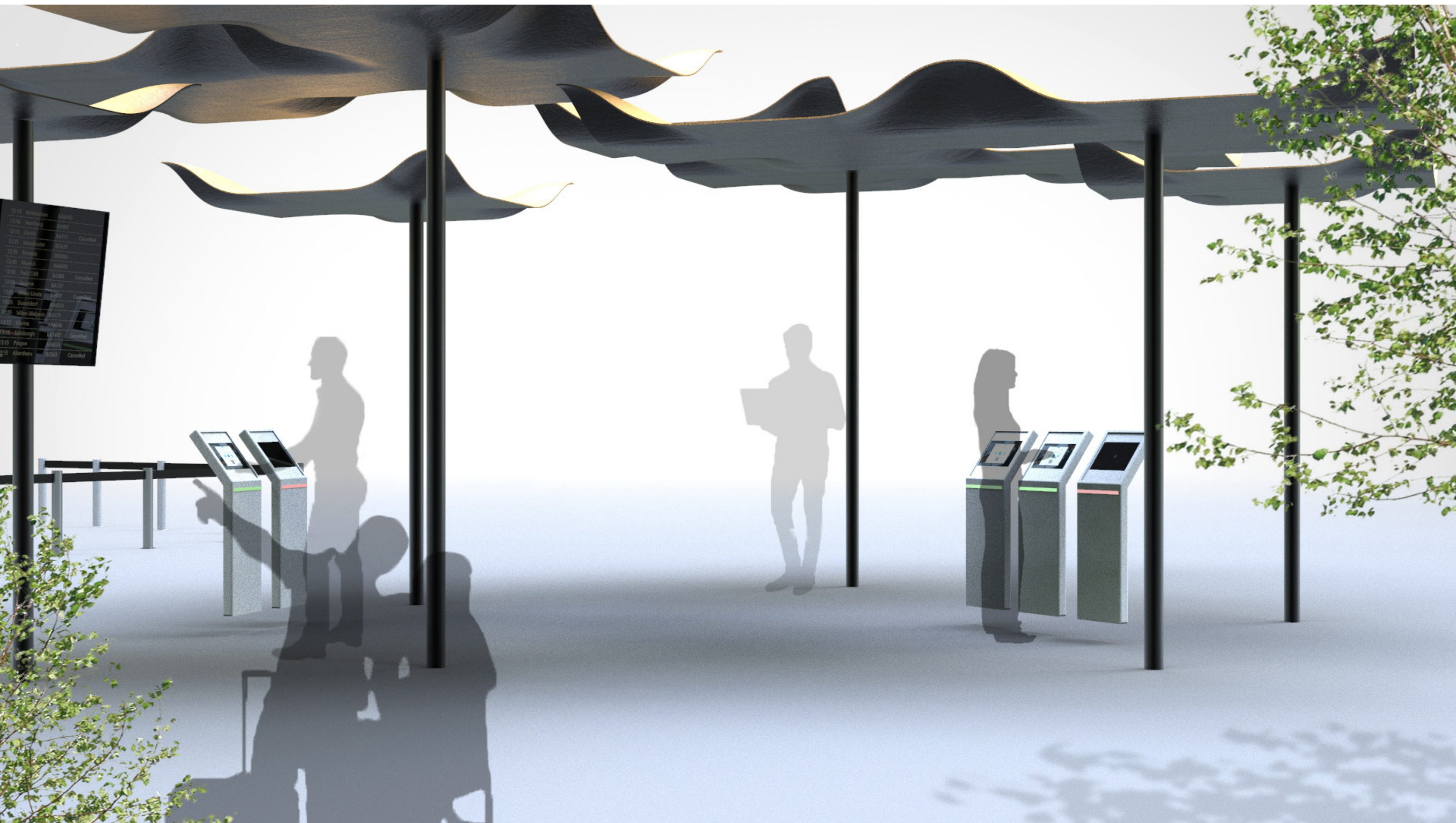
+ SHADOW
Work-space













CHAPTER 3 - Generating Concepts

On this point of the process it was mainly about the shape of the canopy roof and not about the way it is supported or how it will act on the follow stressors.

- Sound
- Light
- Wayfinding

The Canopy concept is discussed with GROSS. MAX and the negative points are hightled and new objectives and approaches are formulated:

1. Sound

- The canopies do not specifically act on the stressor sound.

Objective: Creating a canopy roof with an acoustic property.

1. Approach: Environmental sound/noise is a complex physical phenomenon, especially in this case and cannot simply be determined or influenced in the desired way without being specialized in Acoustic engineering. It aroused the interest to the possibilities within the catogory timber and its acoustic properties in general. The acoustic properties of timber in comparising to other material is not exceptionally good and in therefor in many cases combined with a absorptive material like filt, so to give the canopies an acoustic property without adding materials the trick lays more in the way the timber is shaped and therefor reflecting sound, this can be done in many ways. Not a direct priority in this phase of concept development.

2. Light

- The Sunlight is fully blocked by the canopy roof top. This means the sun can only be seen from a distance and not by standing under it.

Objective: Creating a transparent canopy roof that creates shadow.

Approach: Creating a transparant canopy can be done by litterarly using thin transparant layers of wood or by creating open areas in the surface. Open areas in this case are more plausible considering the objective of making the piece more 3D instead of thin, this will be discussed on the next page.

3. Wayfinding

- The columns block the “passenger flow” and is easy to bump into, which can be dangerous and annoying. Also it shows a lack flexiblity, which goes against the flexible system of the Third space concept.

Objective: Supporting the Canopy Roof element without disrupting the passenger flow or flexibility.

- The scale of product is a bit to small, given the height ratio of the terminal.

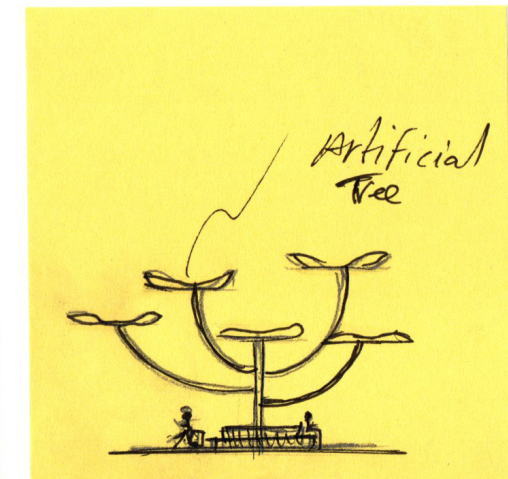
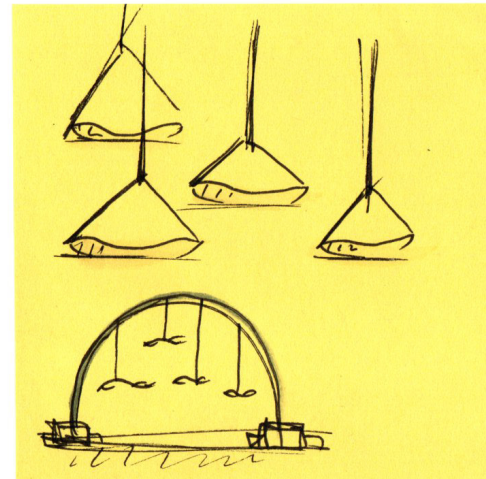
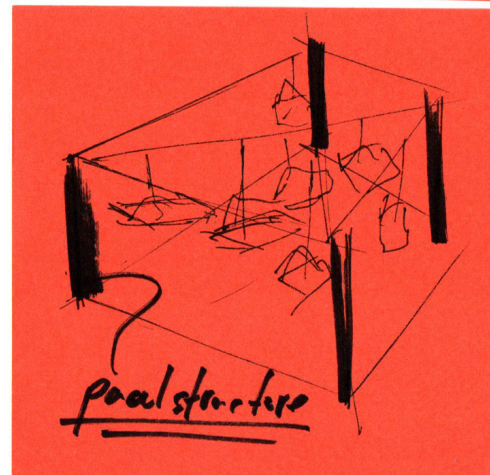
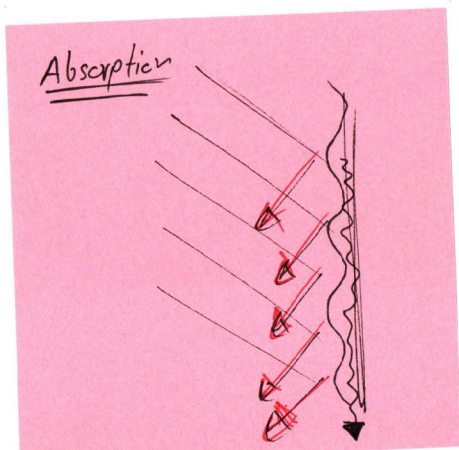
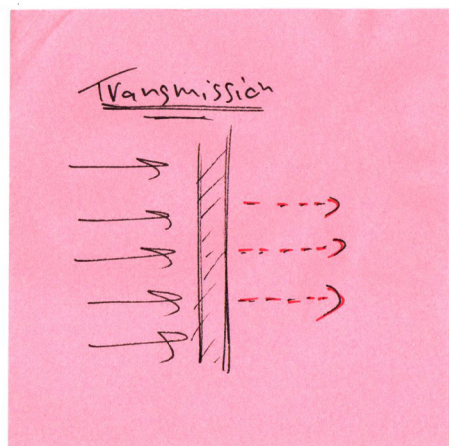
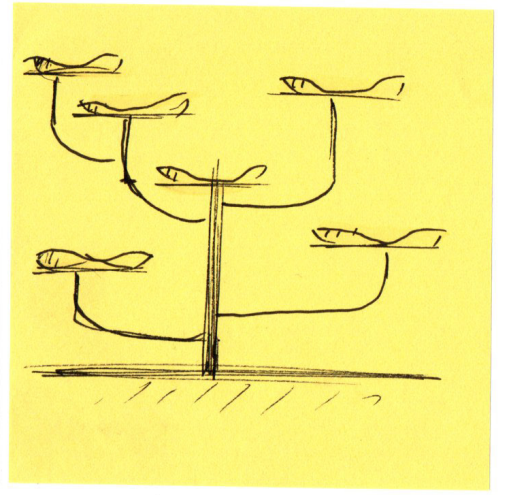
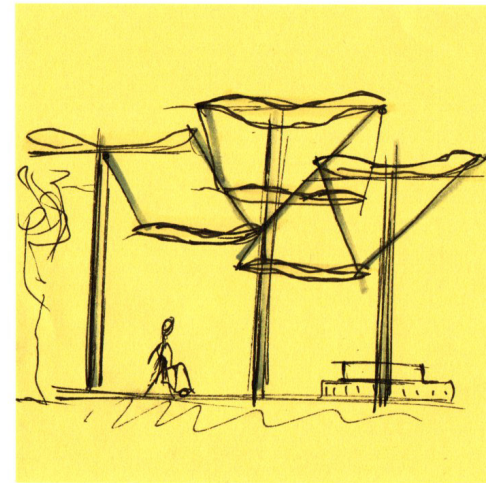
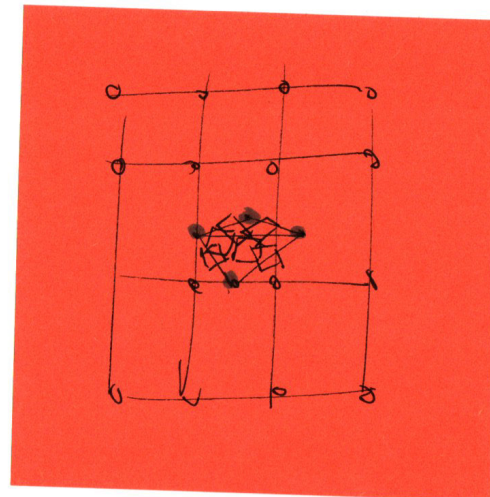
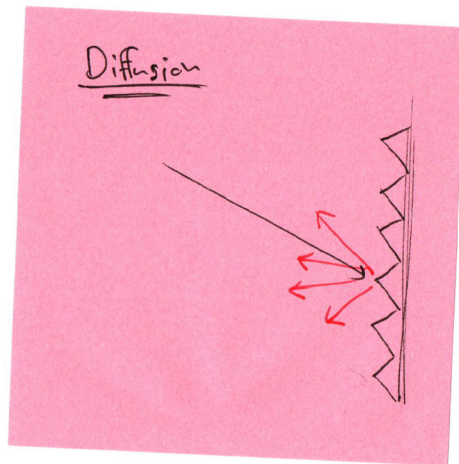
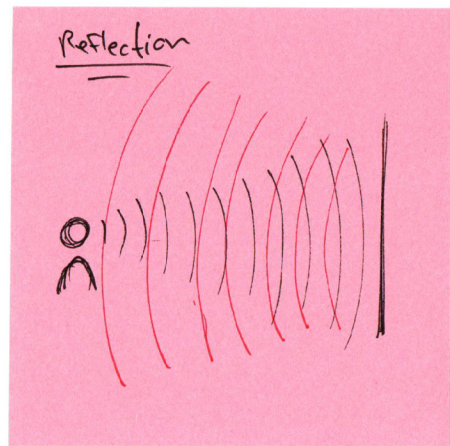
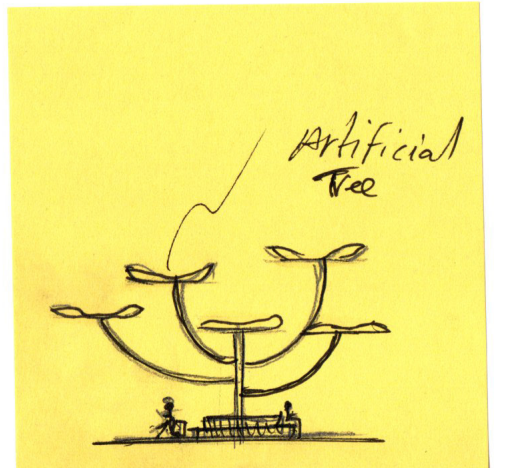
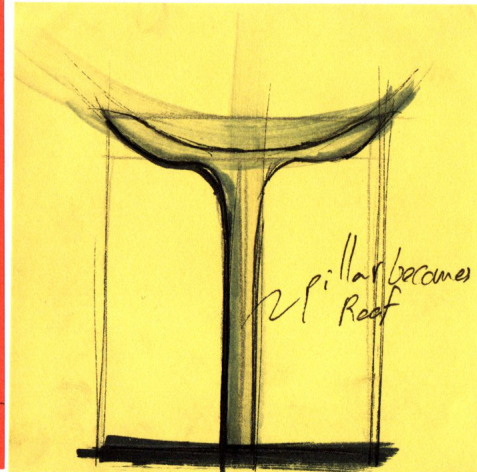
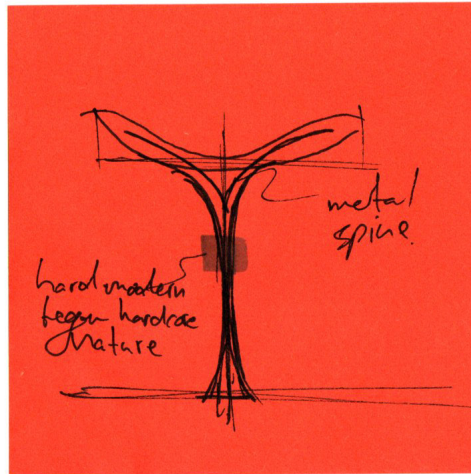
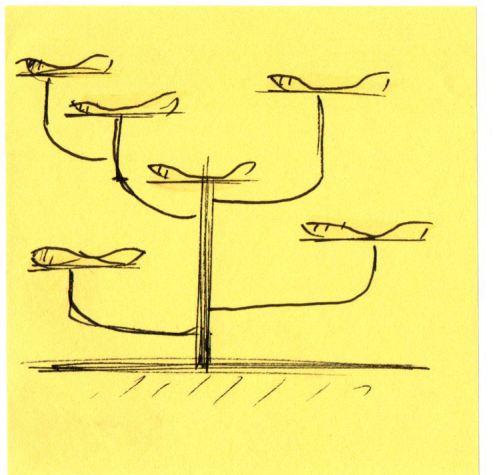
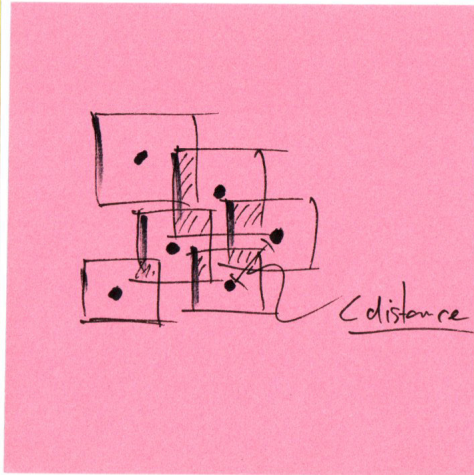
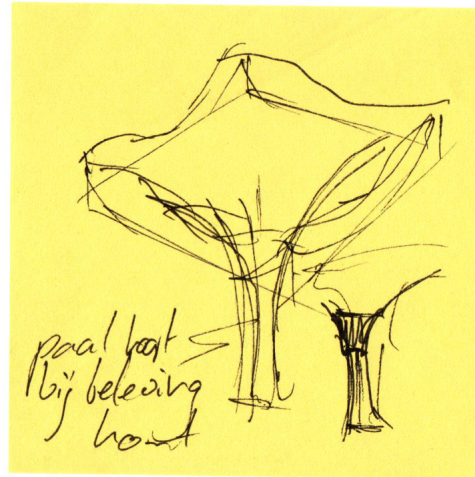
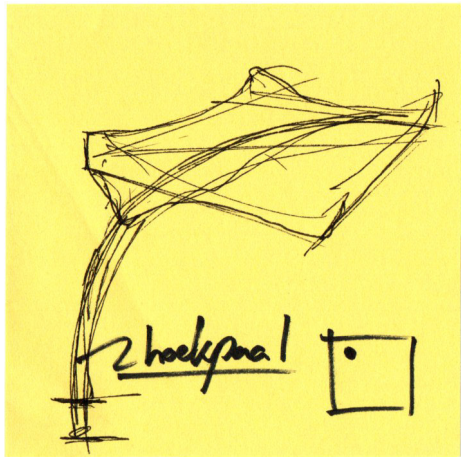
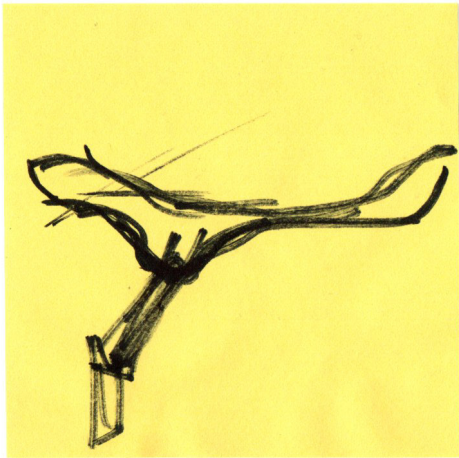
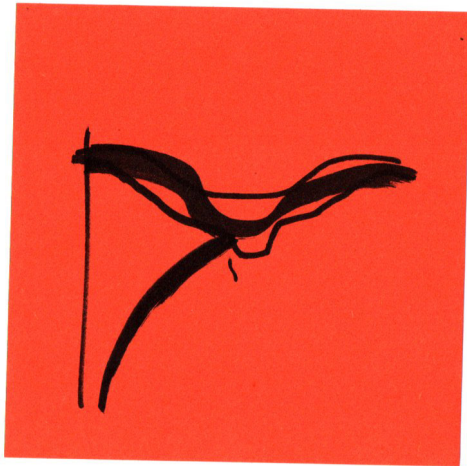
Objective: Scaleup the dimentions.

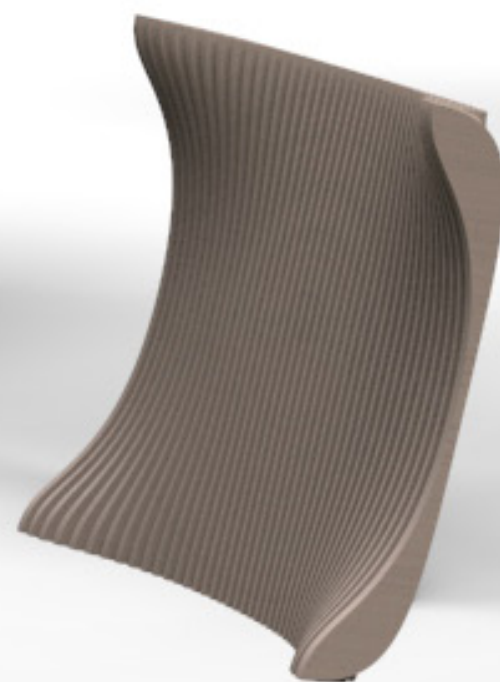
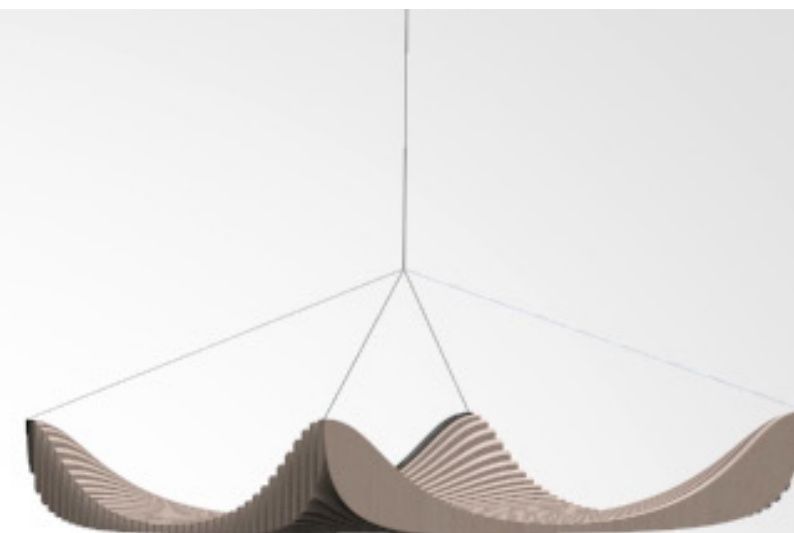
Approach: By replacing the column for a different support element or changing the shape of the column and the place of connecting with the roof. The support system can therefor function as something that

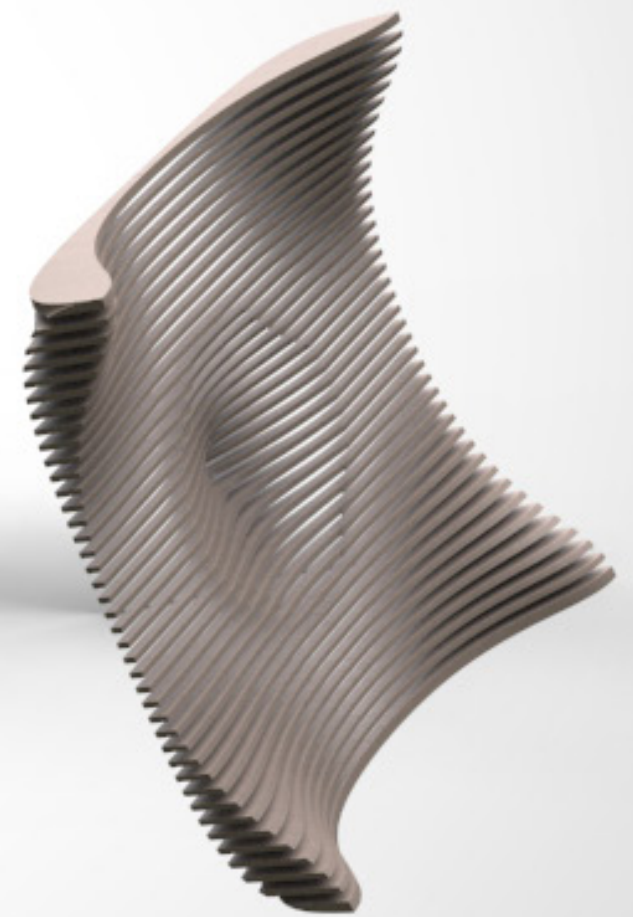
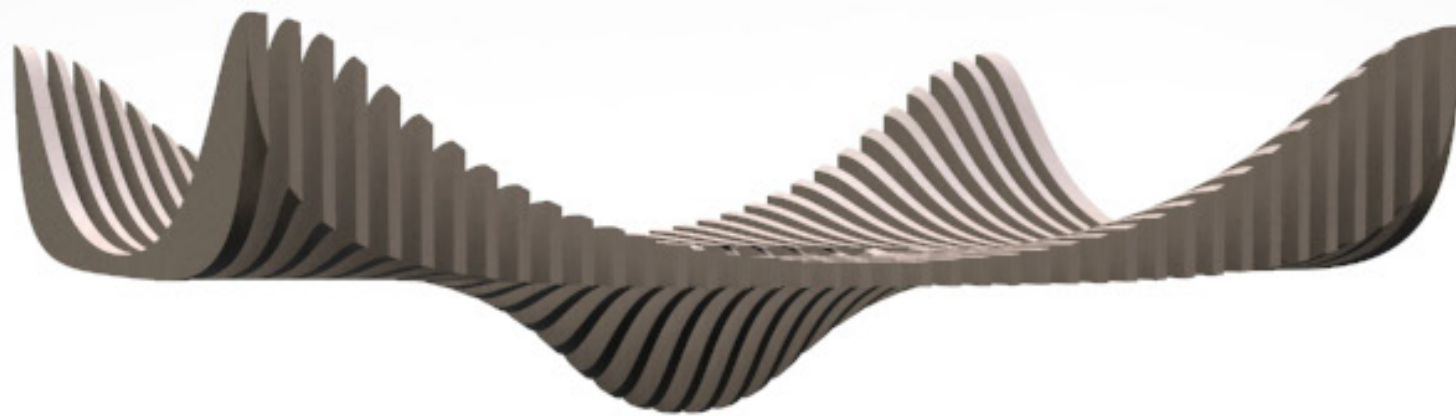
Scale

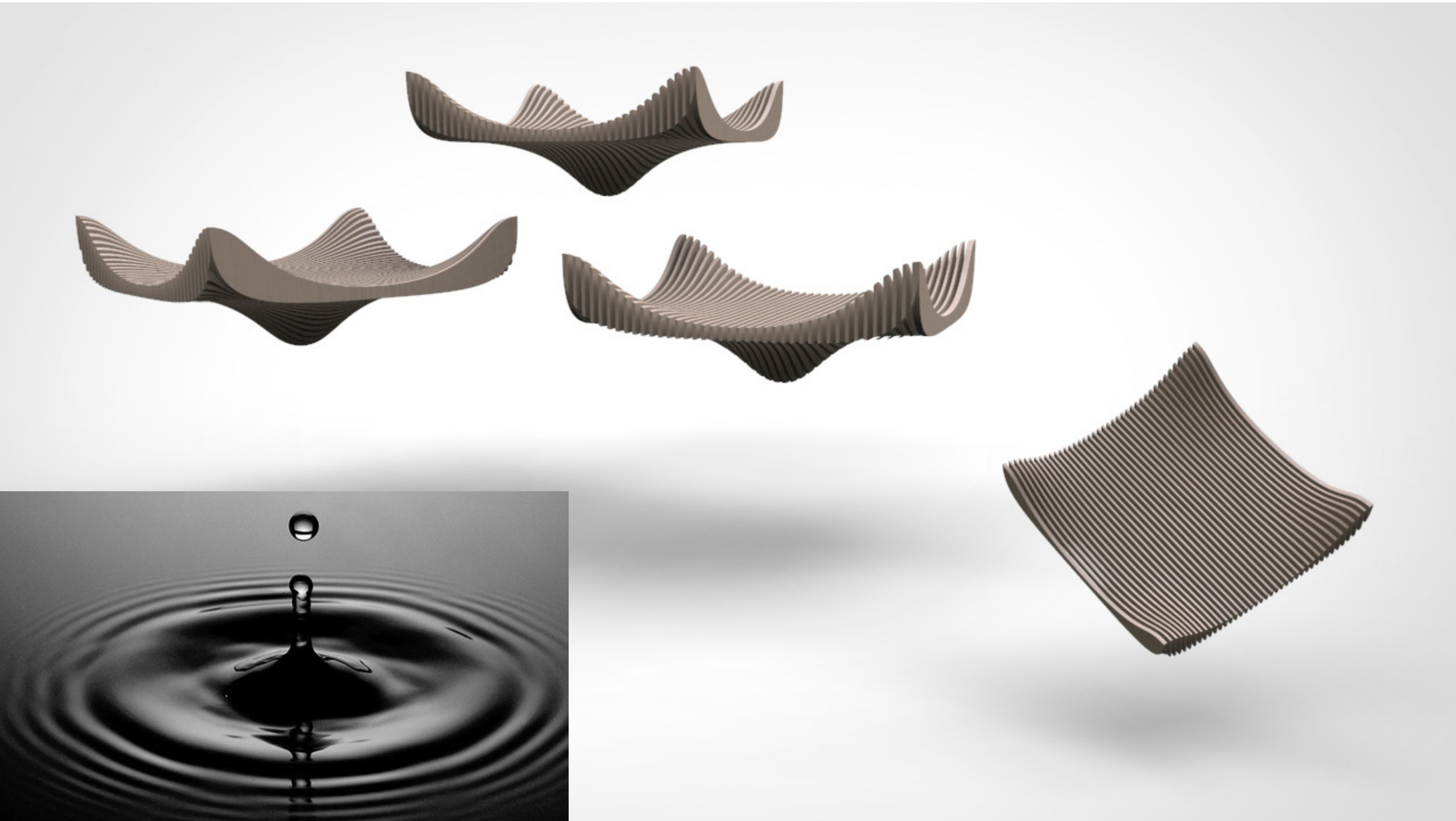
Objective: Transfer the canopy to a more 3-dimensional shape.

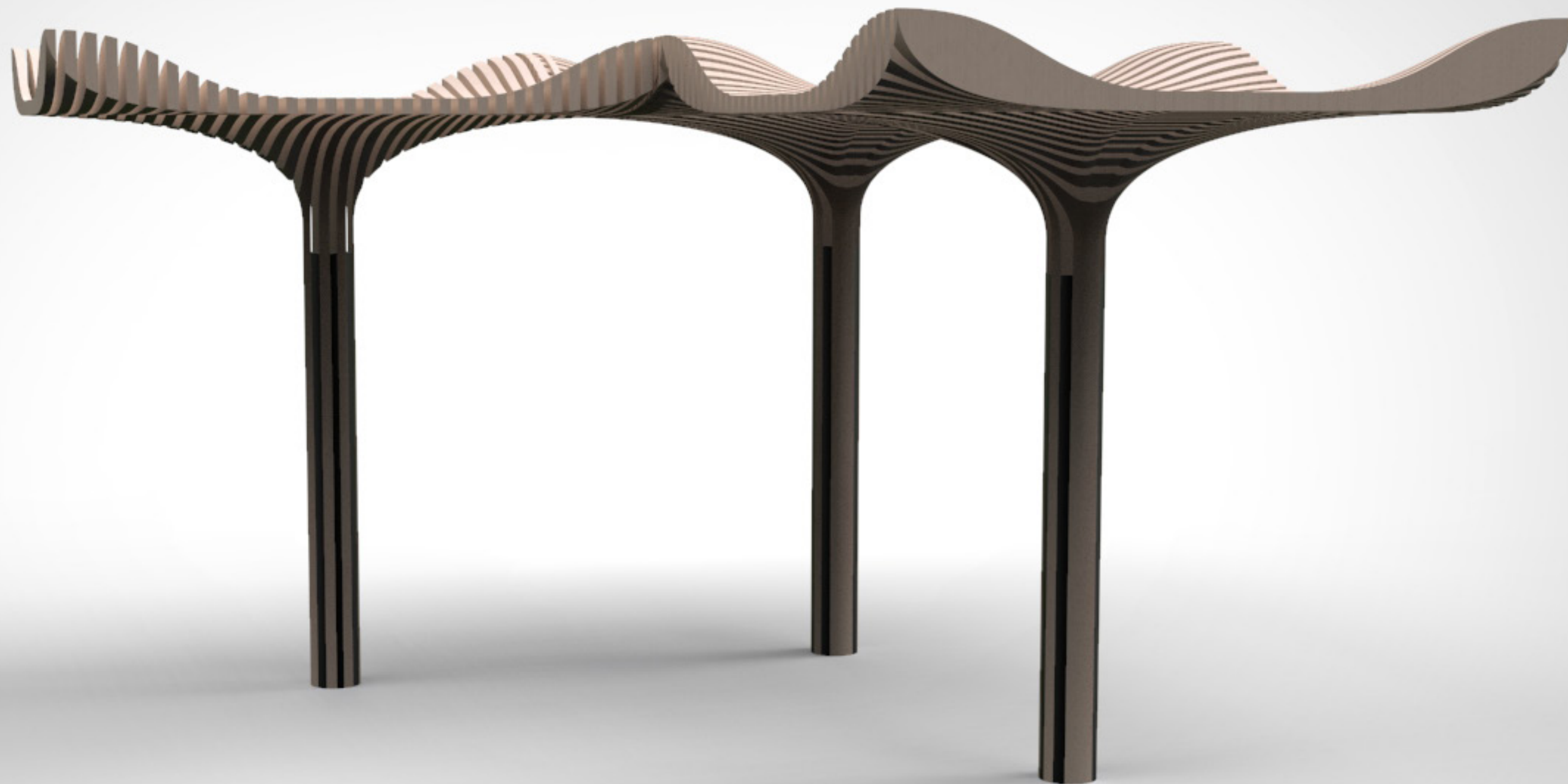
Approach: The aim of designing the final concept is to try to take all these three ingredients into account and find the right balance between them, which also means one of the properties can be more pronounced than the others. This can be managed by not losing the previous design freezes and filtering the right elements.

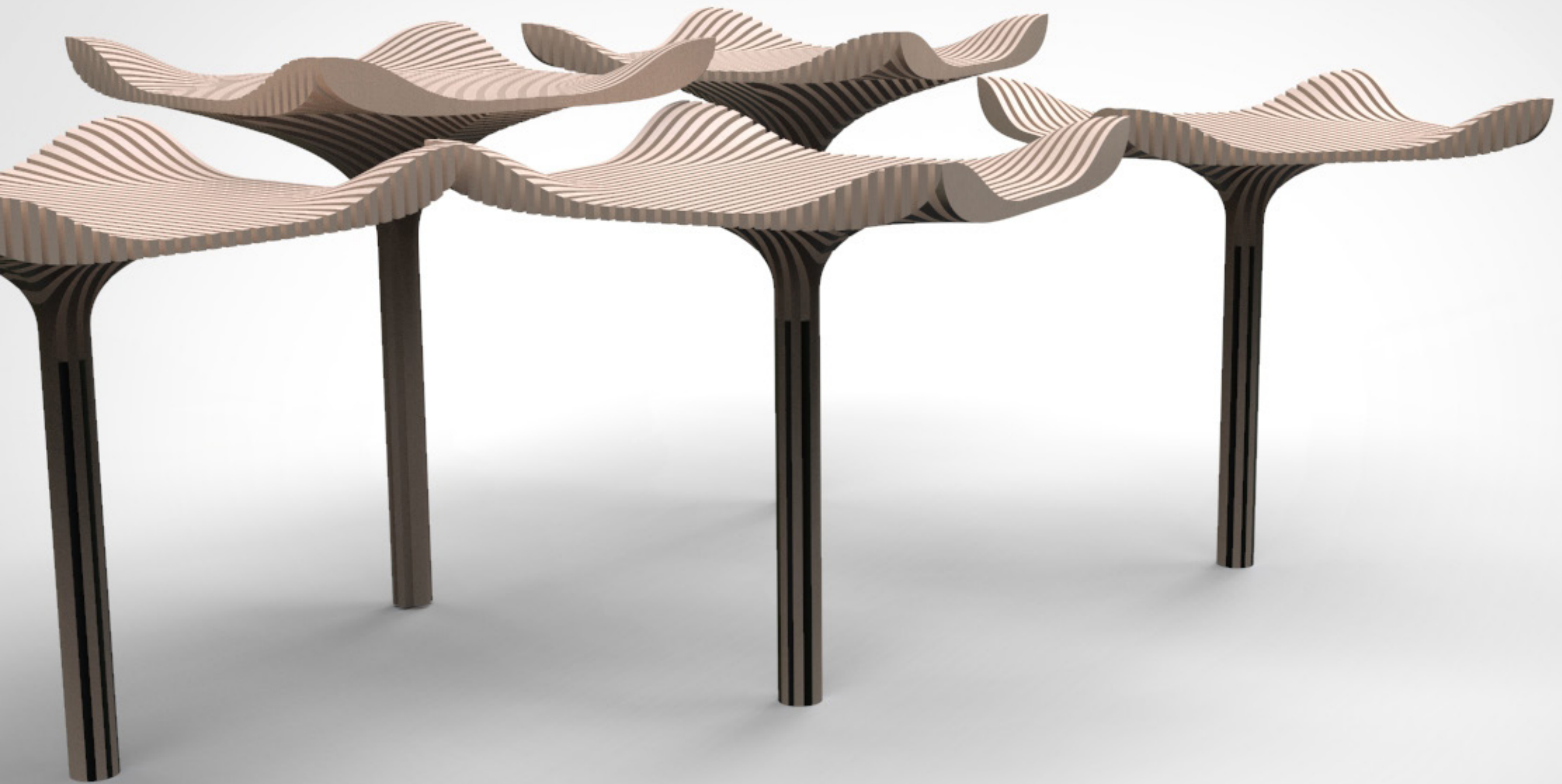


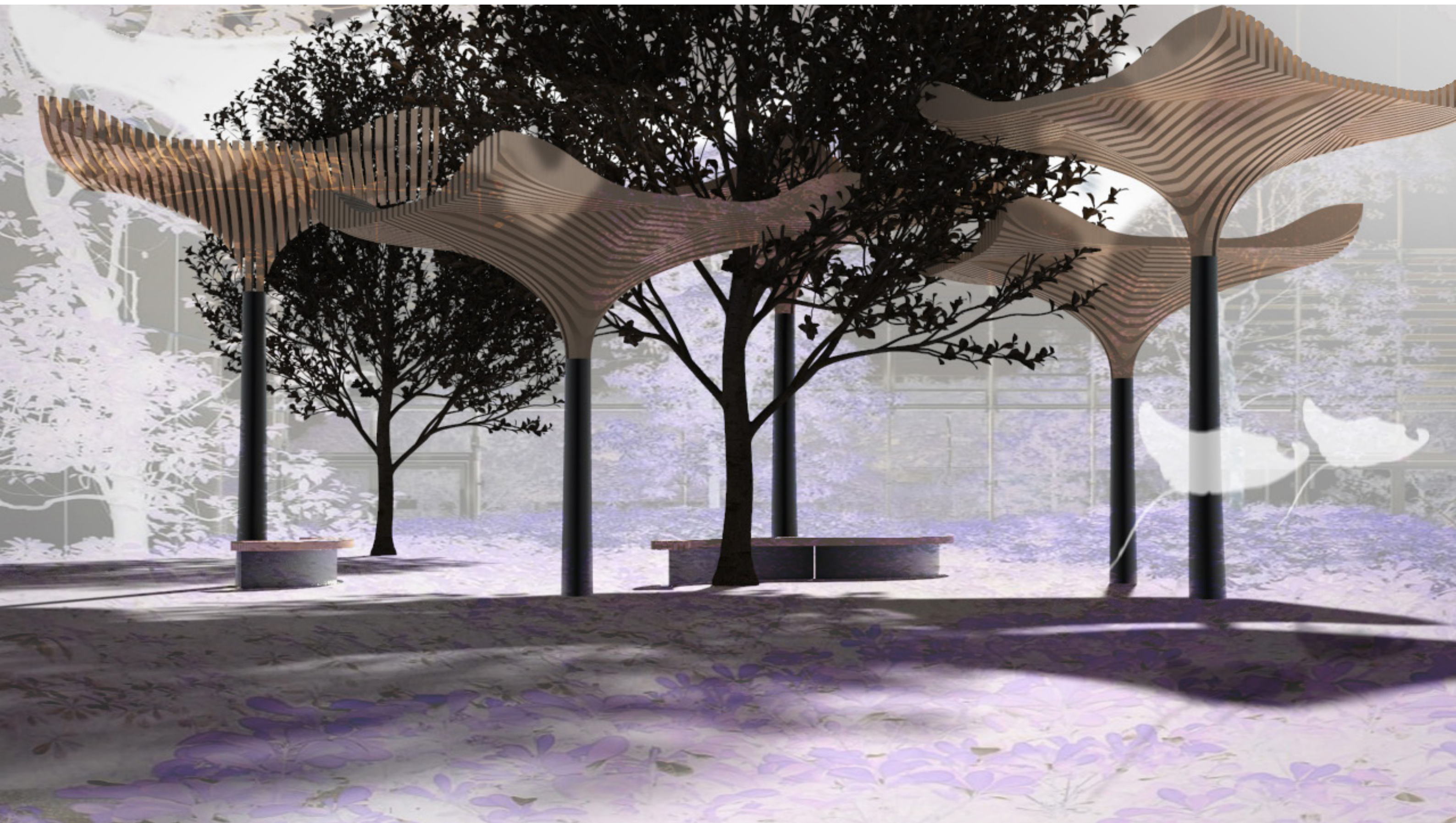




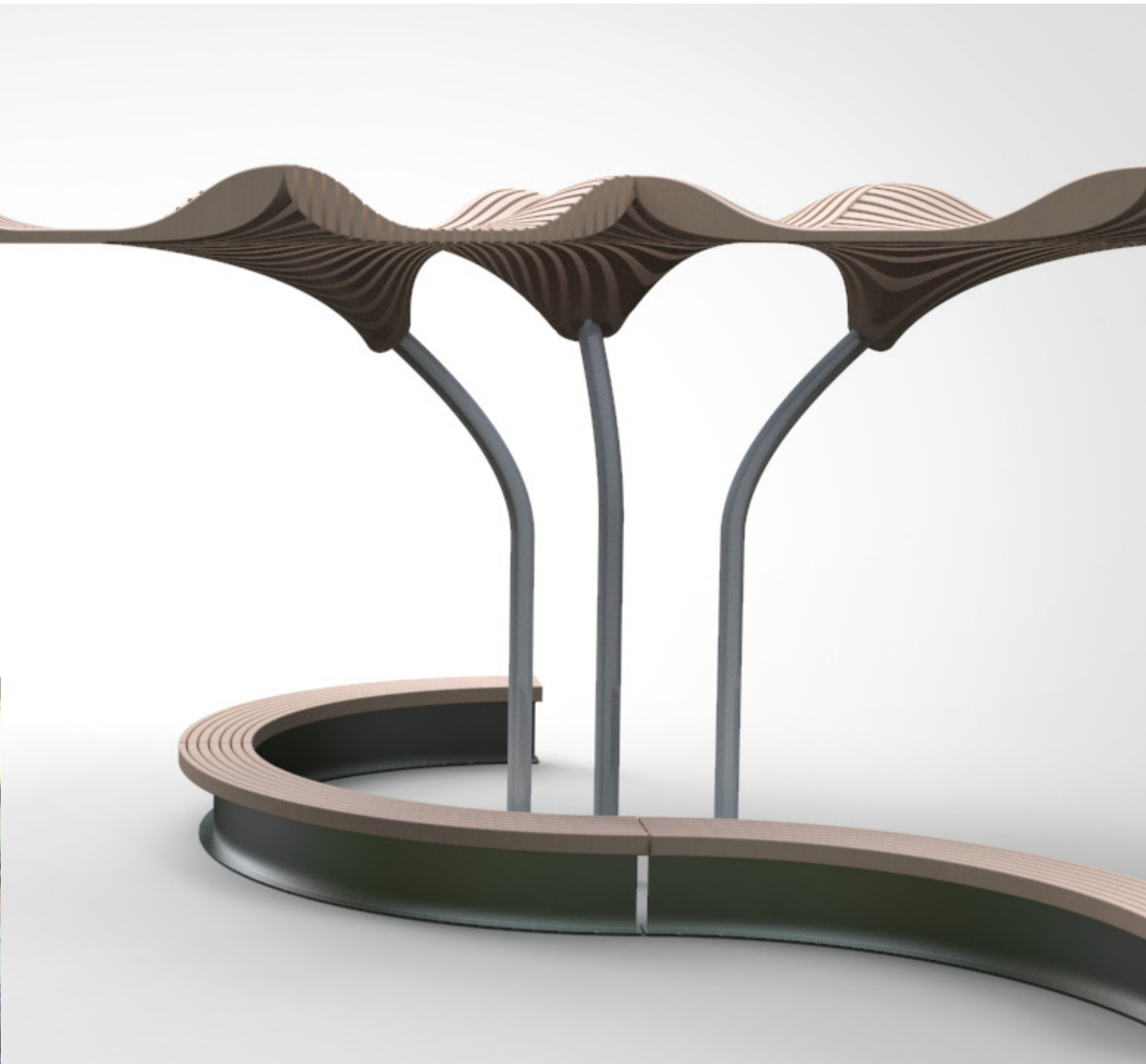


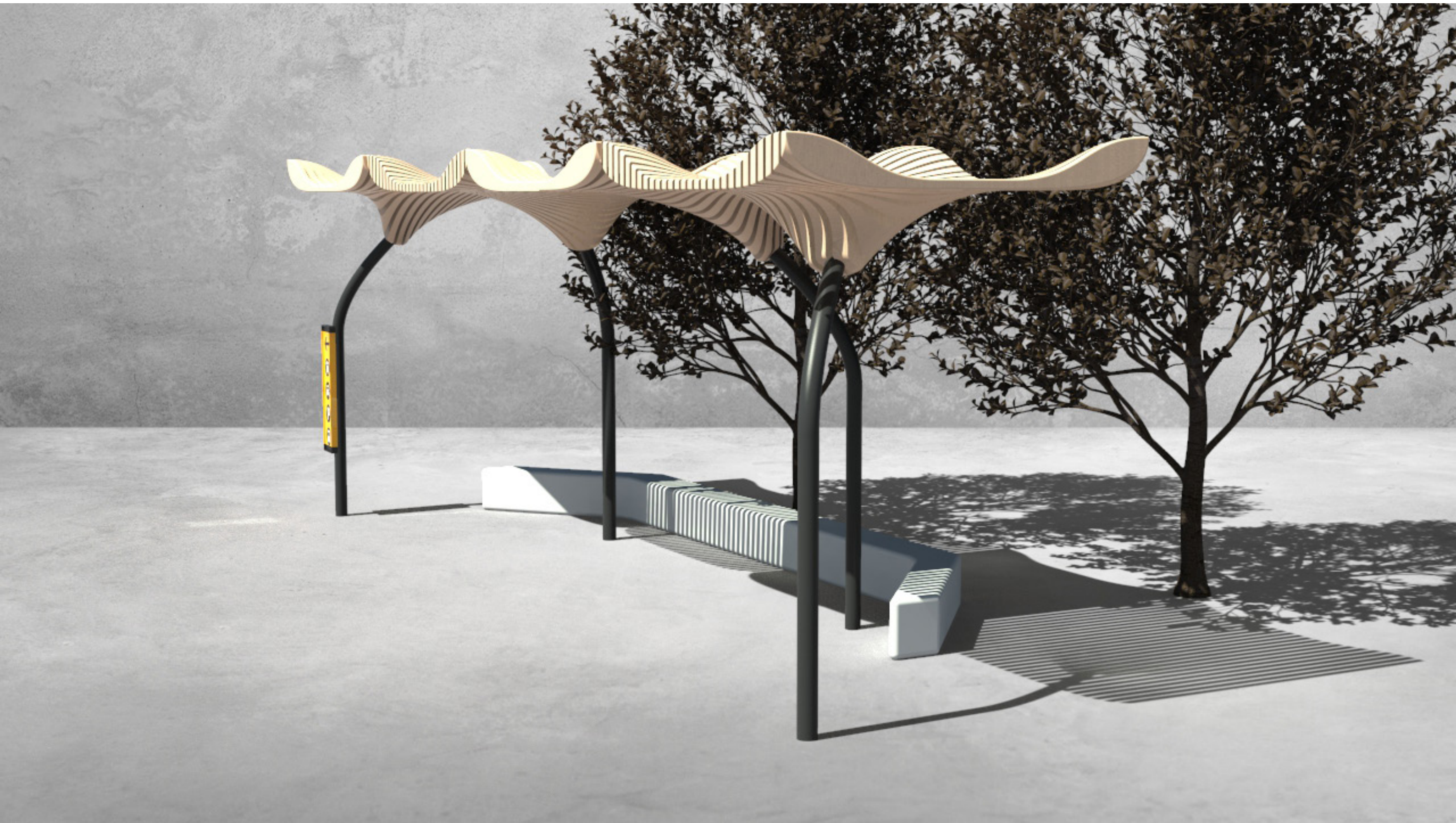


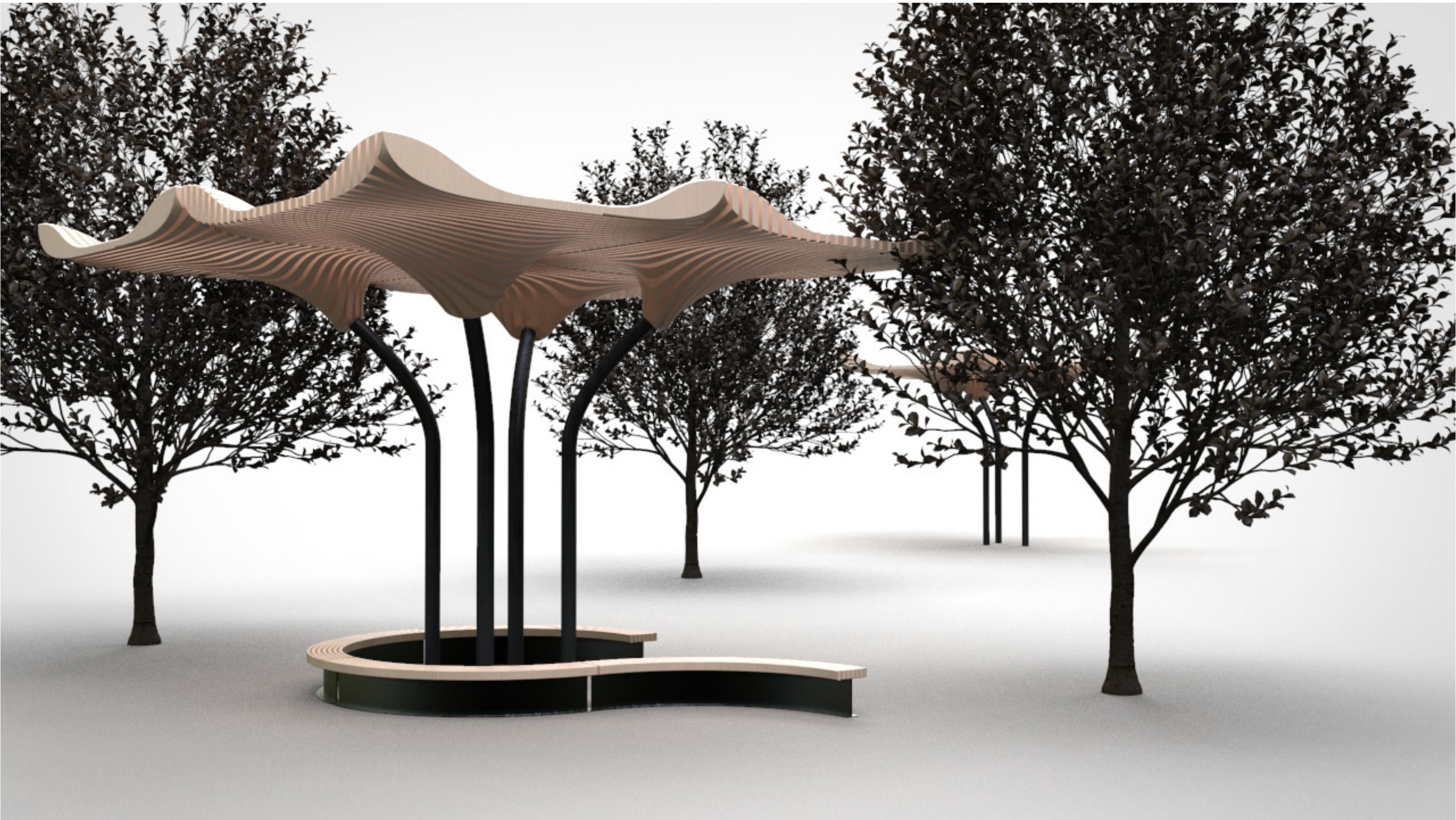


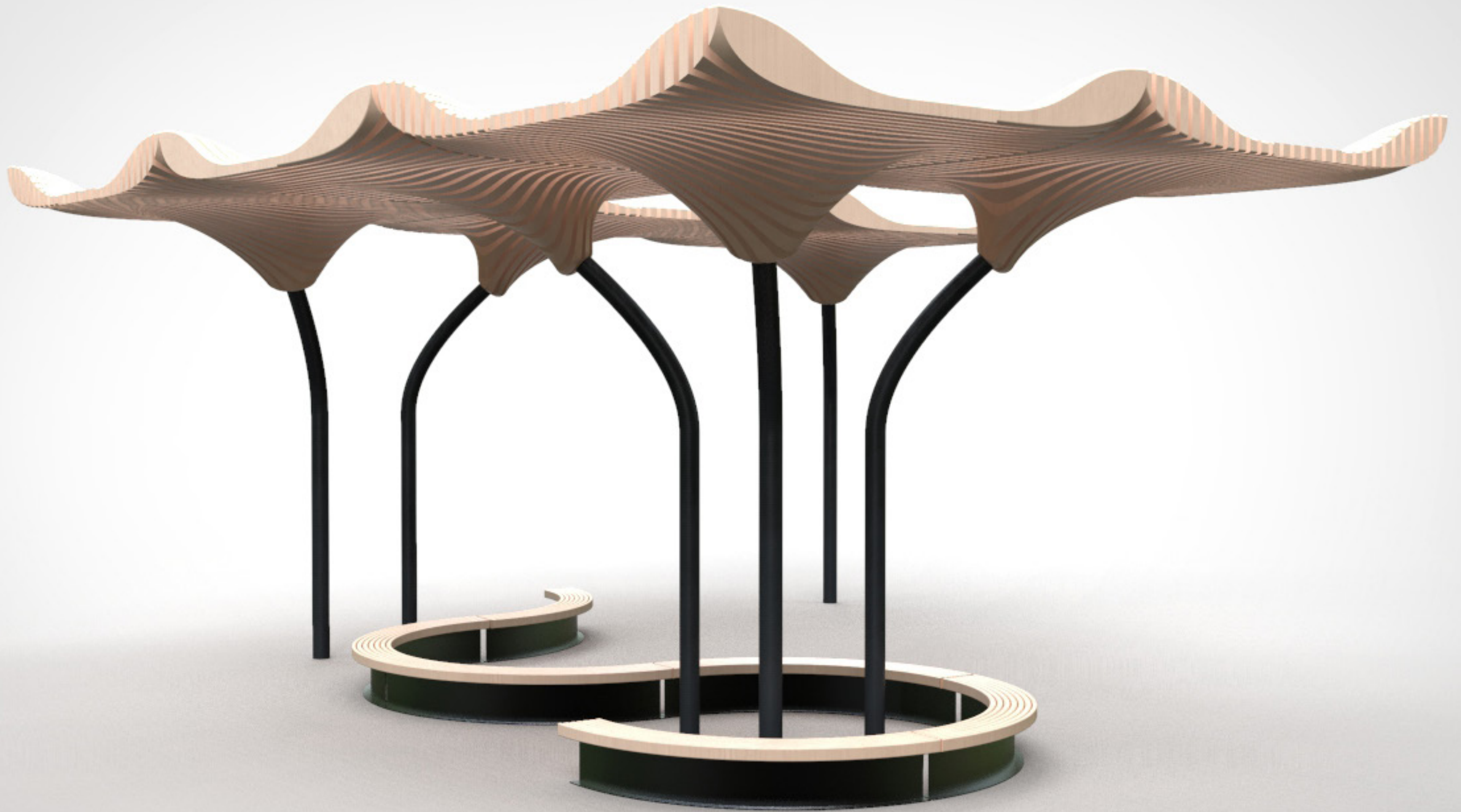


CONCEPT 1

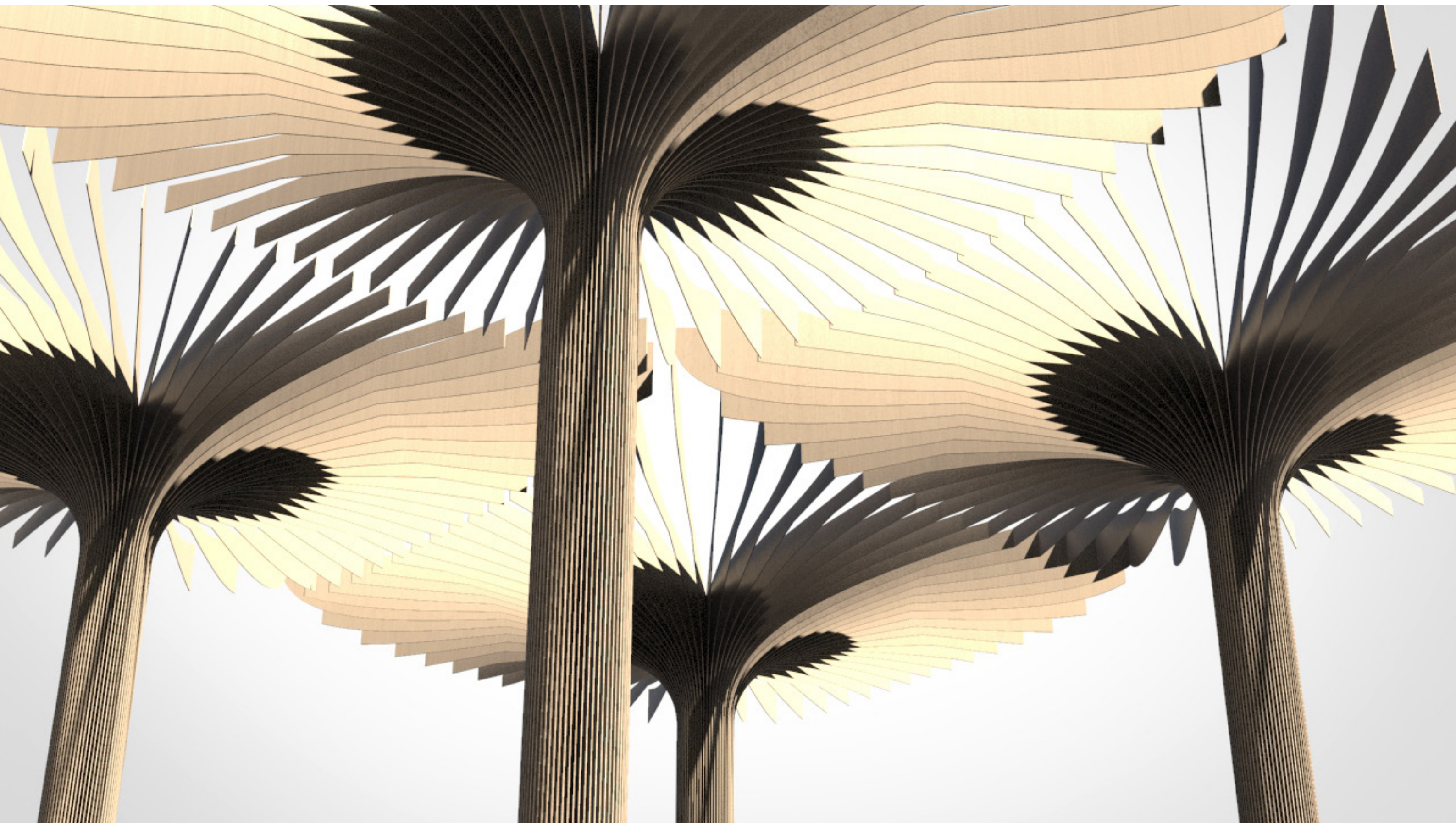


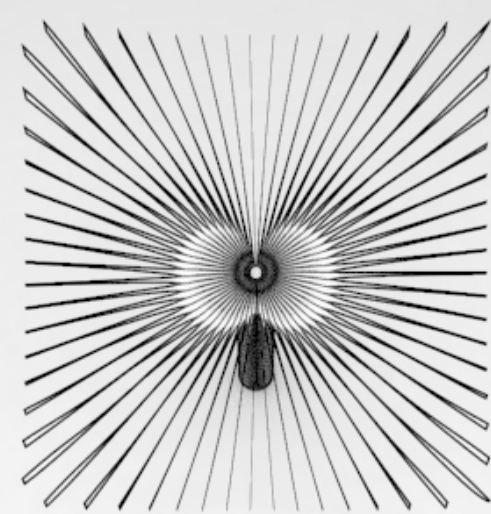


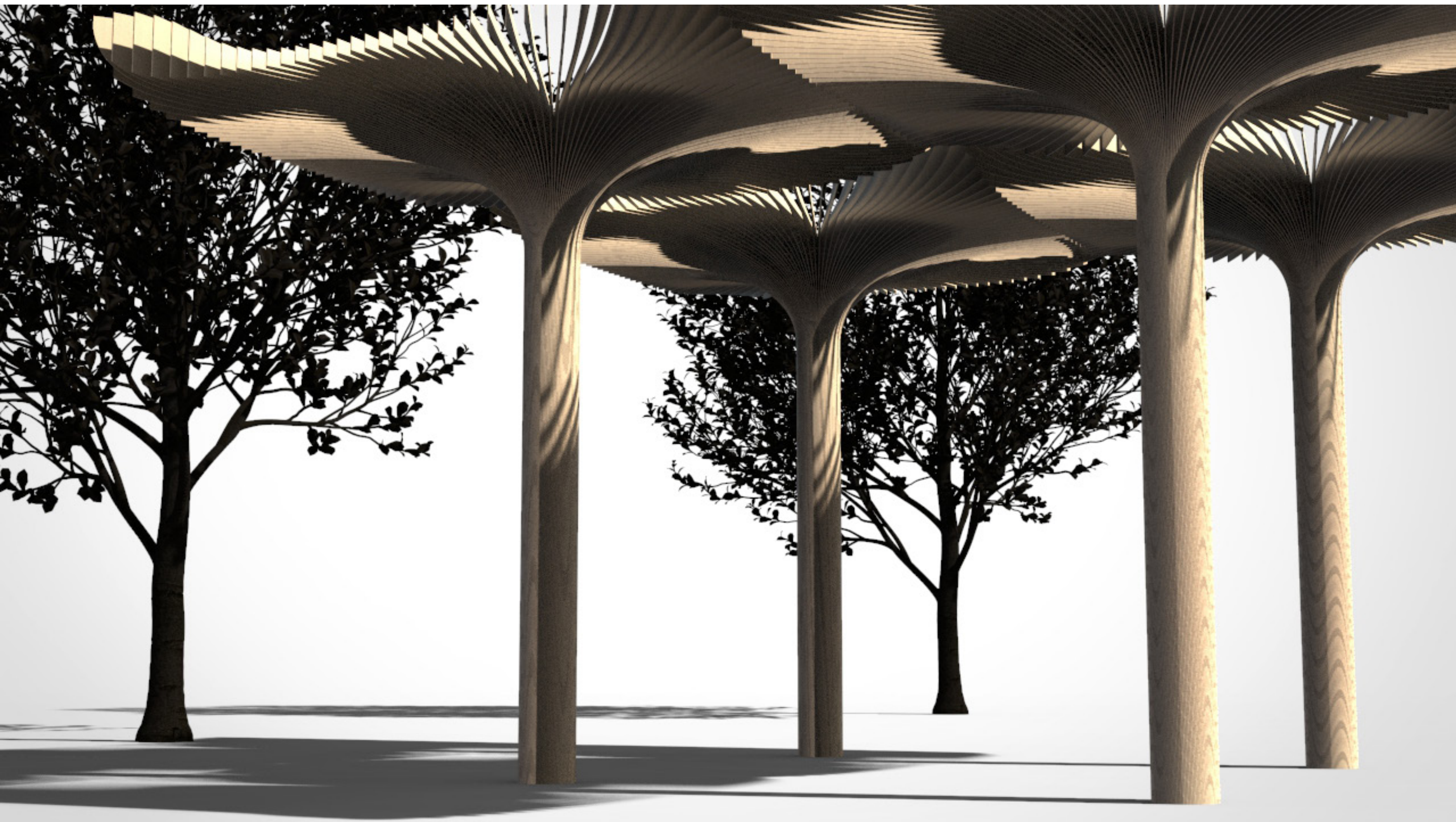


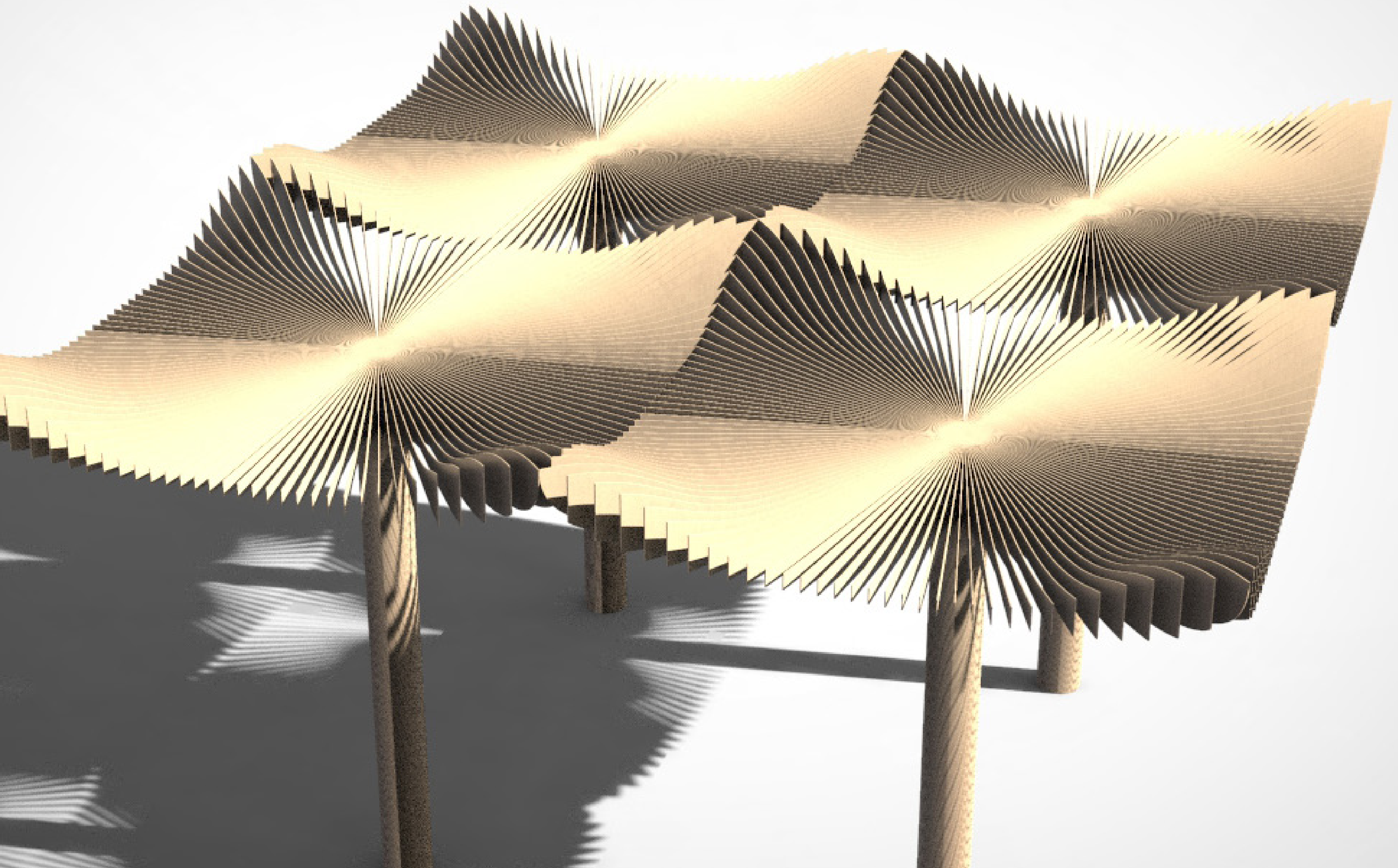


CONCEPT 2



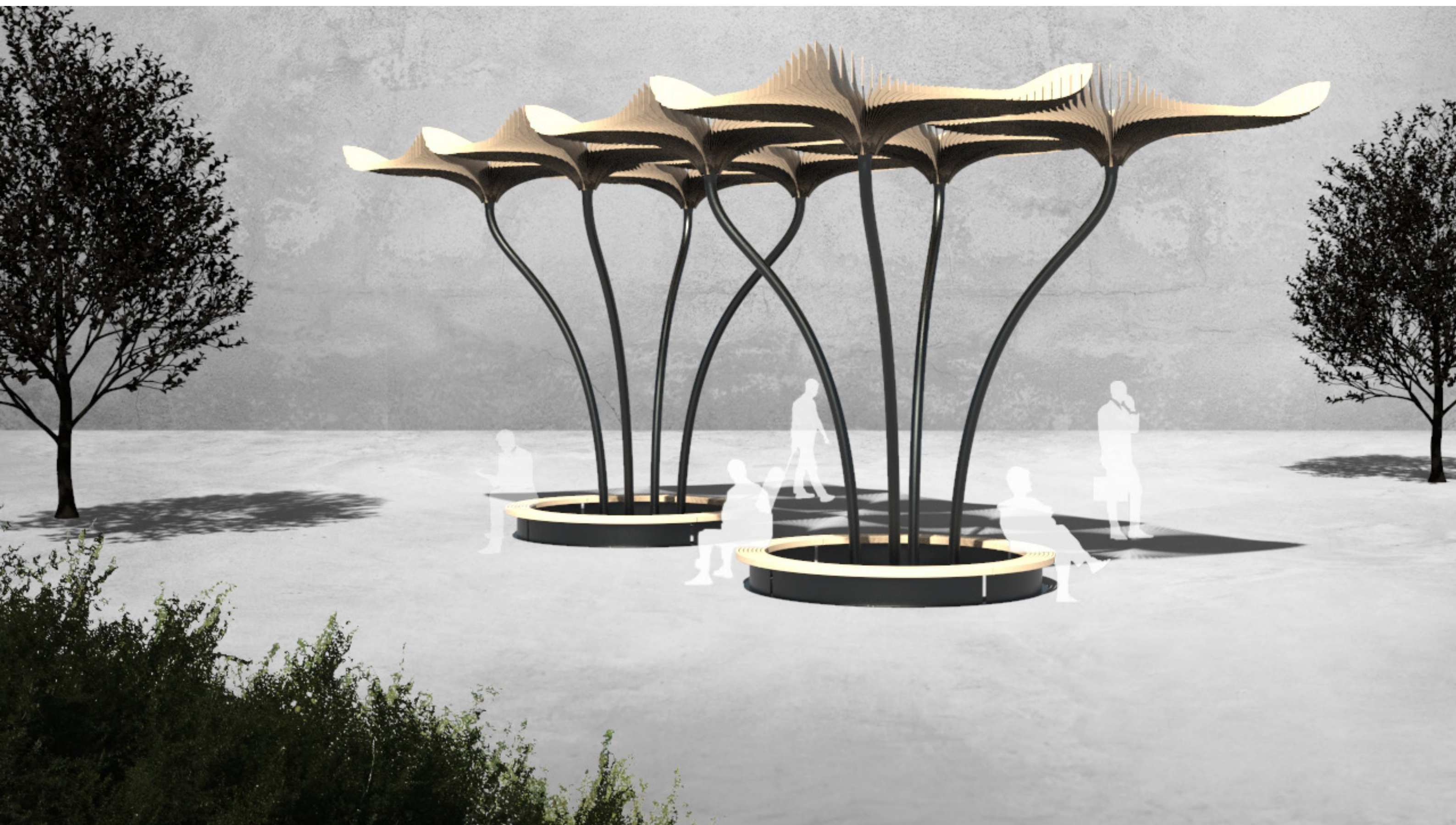


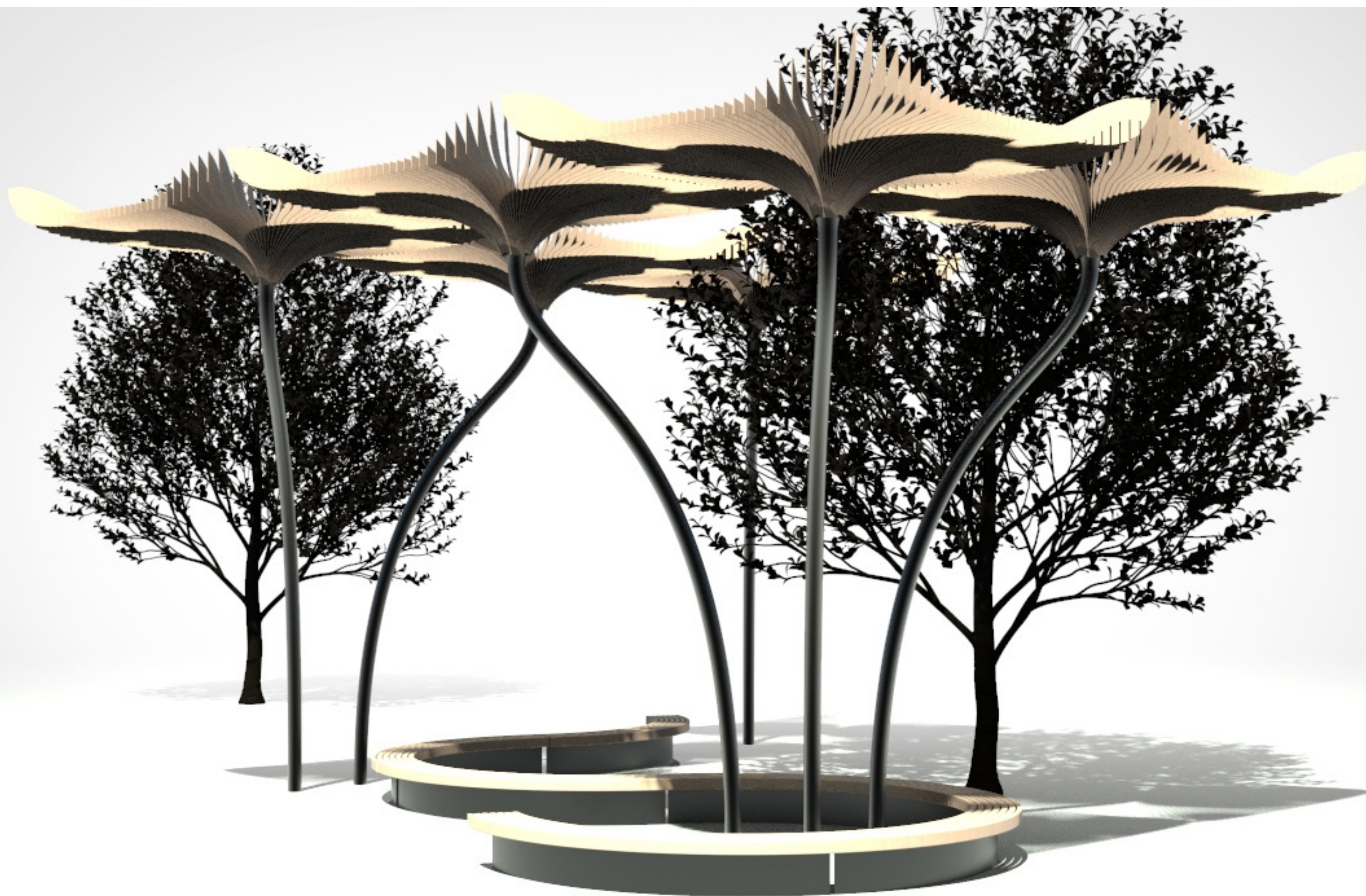




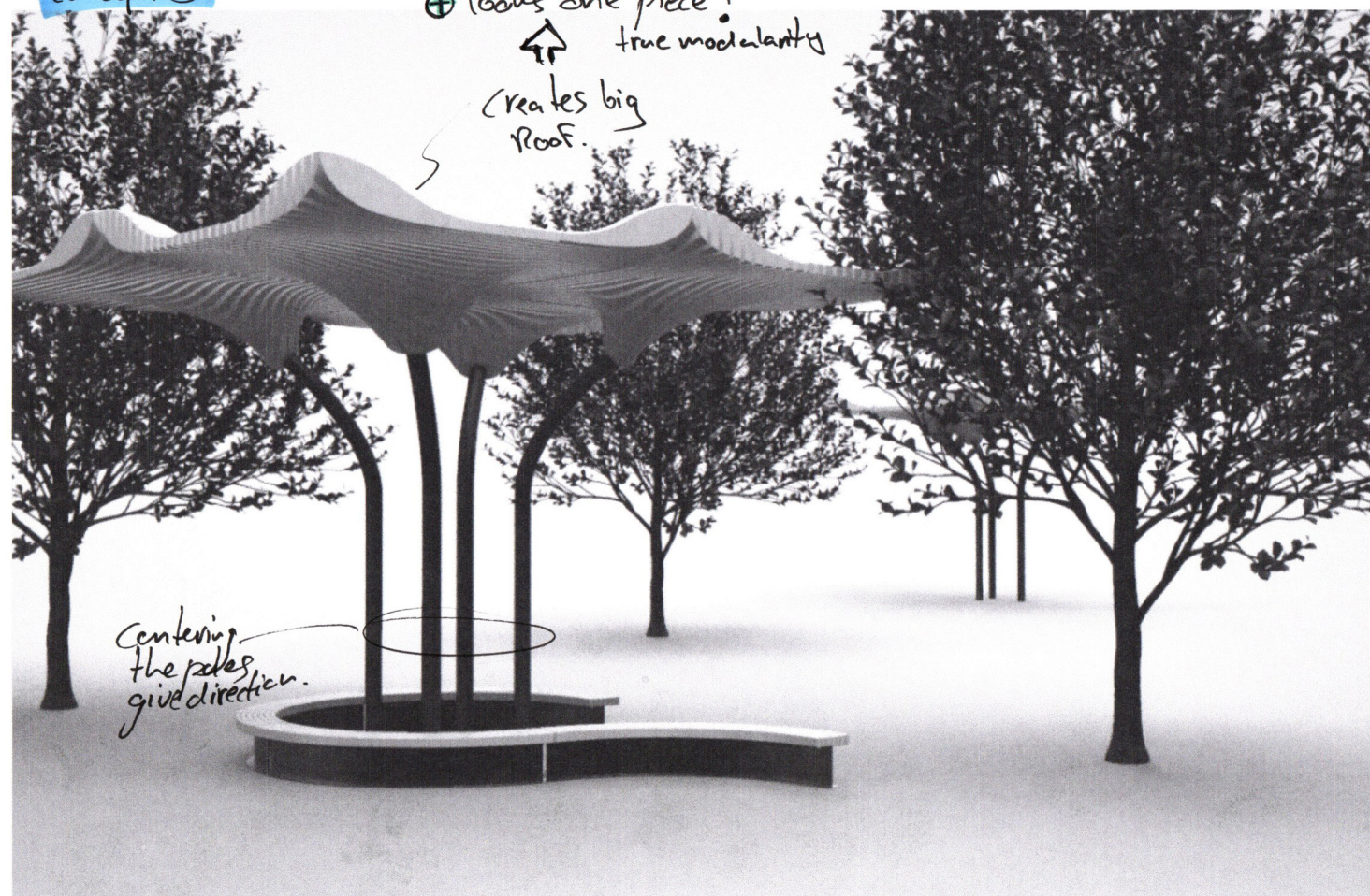




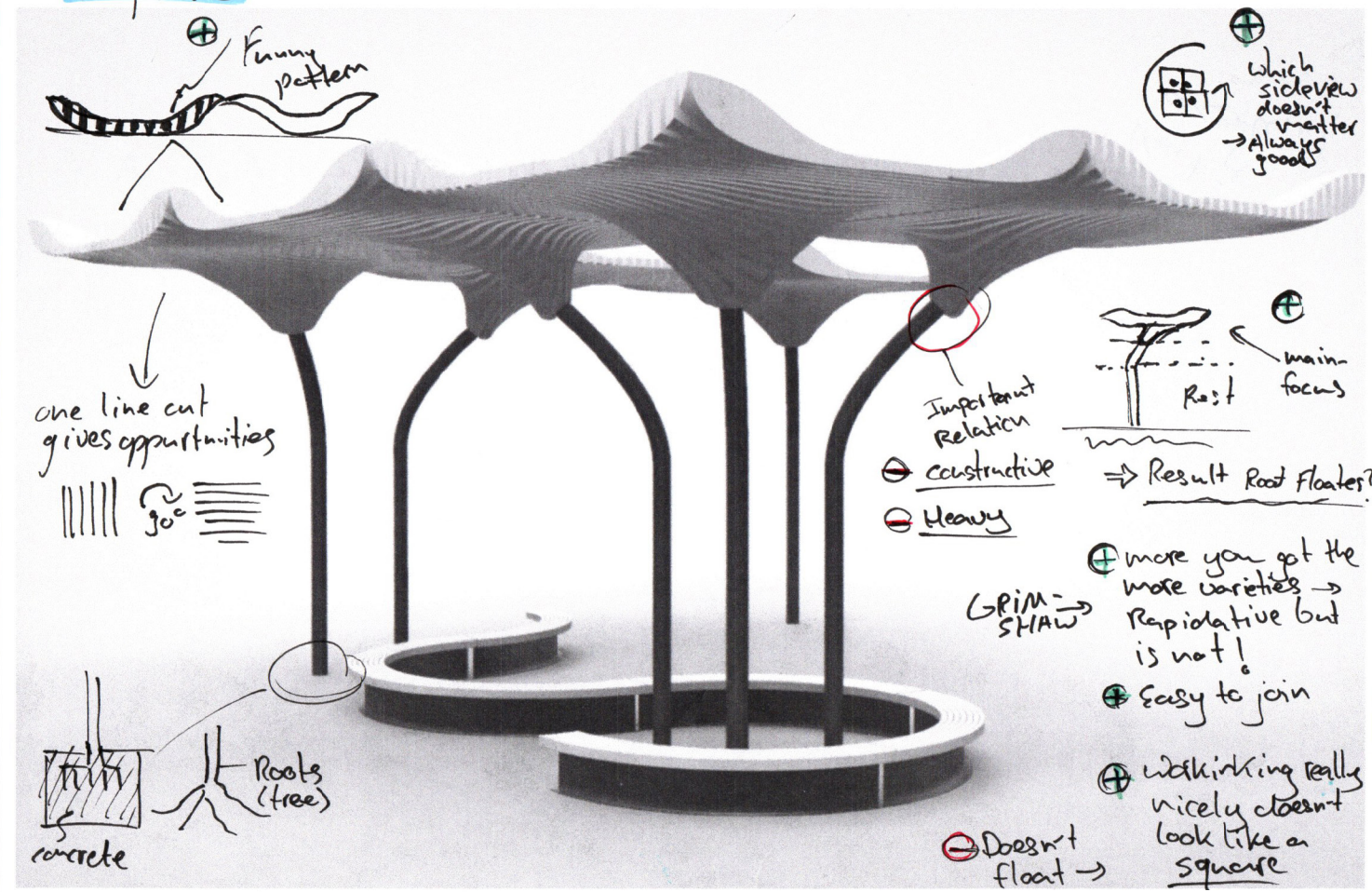




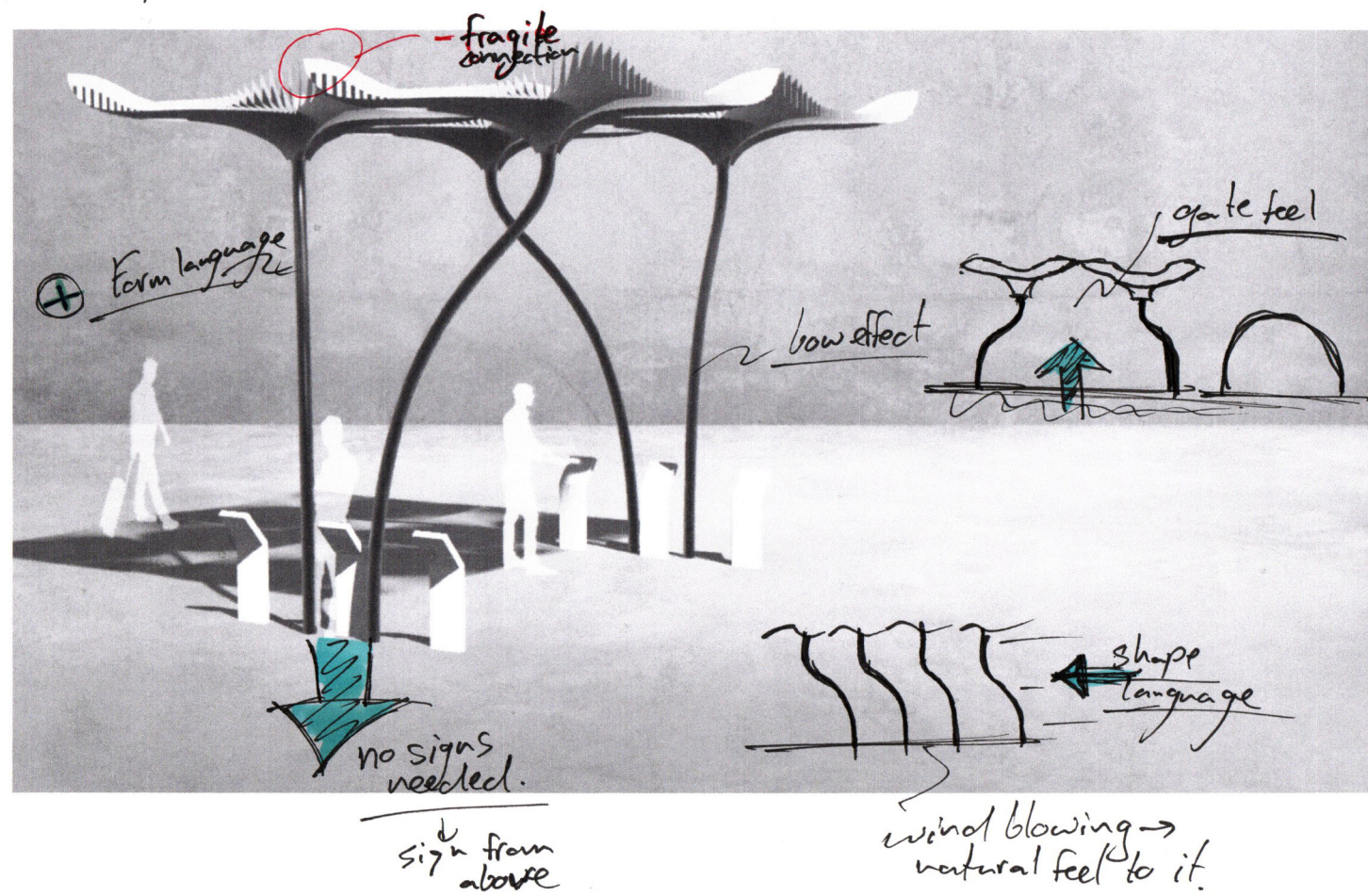
Concept 2



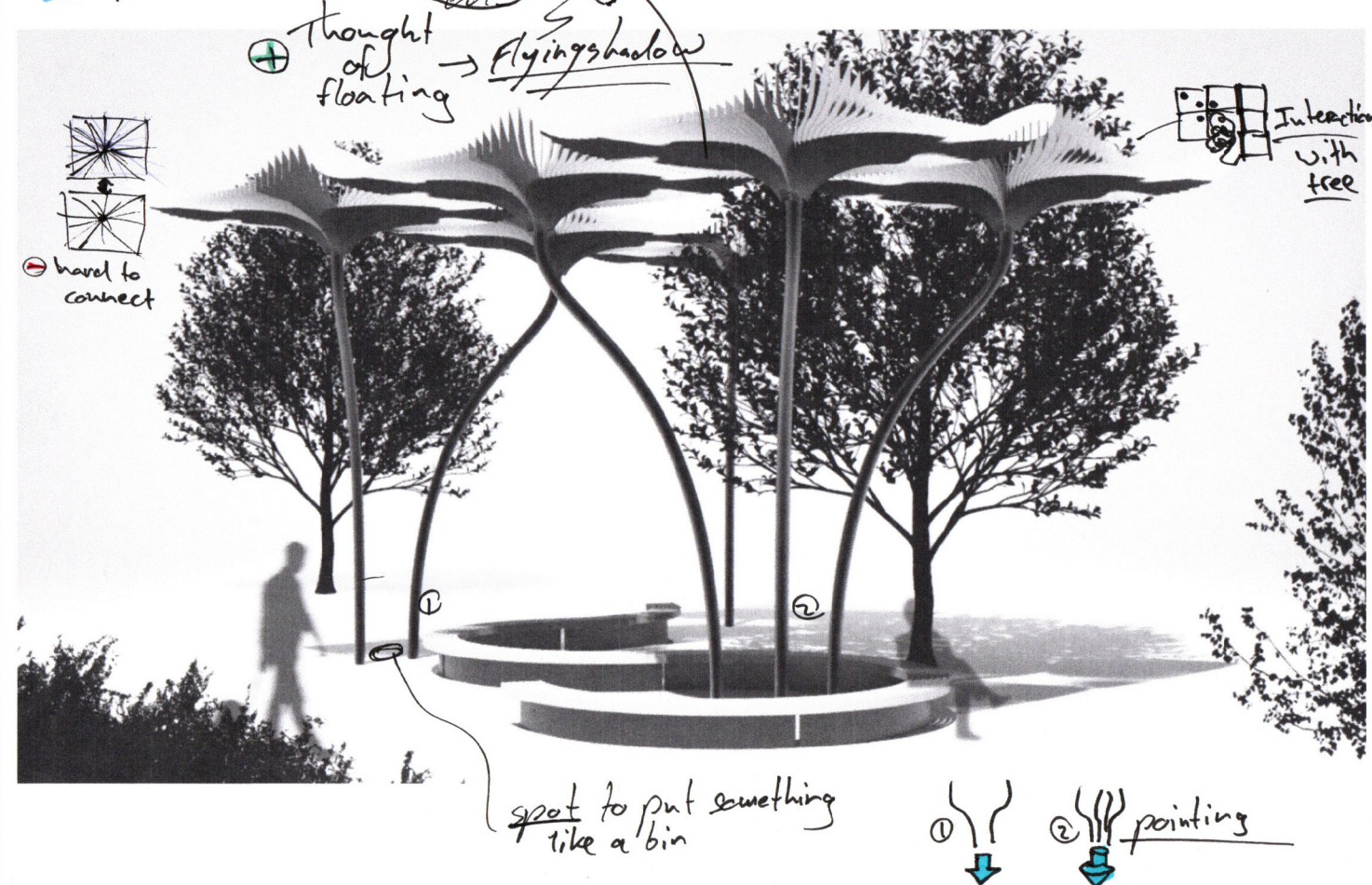
Concept 2.1



Concept 1.1



Concept 1.3



RESULT CONCEPTS

The three most promising based on the opinion of GROSS. MAX. were numbered and discussed below.

One thing they all have in common is that the roof is supported by a column and not suspended from the ceiling, this is decided because of a couple reasons:

- When the canopy hangs it looks more like a piece of indoor furniture which is in contradiction to the open space feel.
- It creates the opportunity to use this product outside.

The different elements between the concepts are:

- The shape and position of the column
- How the transition between the column and the roof
- How the slabs are positioned and shaped

Together with GROSS. MAX. these concepts are compared and judges on the most dominant Pro’s and Con’s

Concept 1

Pro’s + Good balance point, easy to handle + Easy to connect to the column, because the gabs between the slabs meet de column straight. + Because the roof canopy is symmetric the slabs can be mirrored, more production efficient.	Con’s - The columns block the passenger flow, because the column cannot put near each other - The canopies look to static - The canopies can only put in the same grid when clustering, no variations.
--	--

Concept 2

Pro’s + Concept looks different from every angle + The different canopy roofs connect good to each other, without any big gabs. + The columns can be centered and have many variations.	Con’s -The column has not the same direction as the slabs, which is hard to fix
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Concept 3

Pro + Elegant, Organic + Interesting wayfinding, clear form language + Beautiful shadow pattern	Con’s - Roof gabs are to big, to much light going trough - Canopy Roof is hard to connect to other Canopies - Fragile slabs, because it has a maximum thickness because the circle pattern has a limit of slabs.
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Sketchbook 3 -Technical

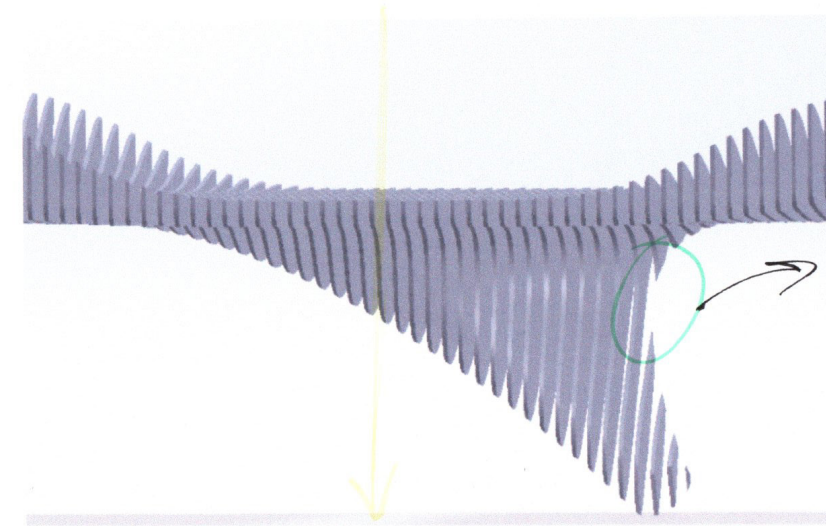
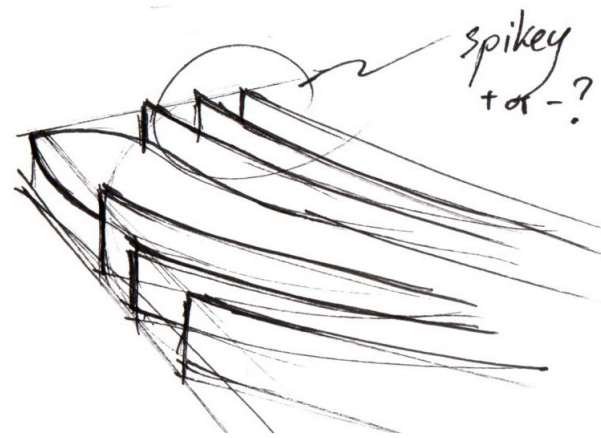
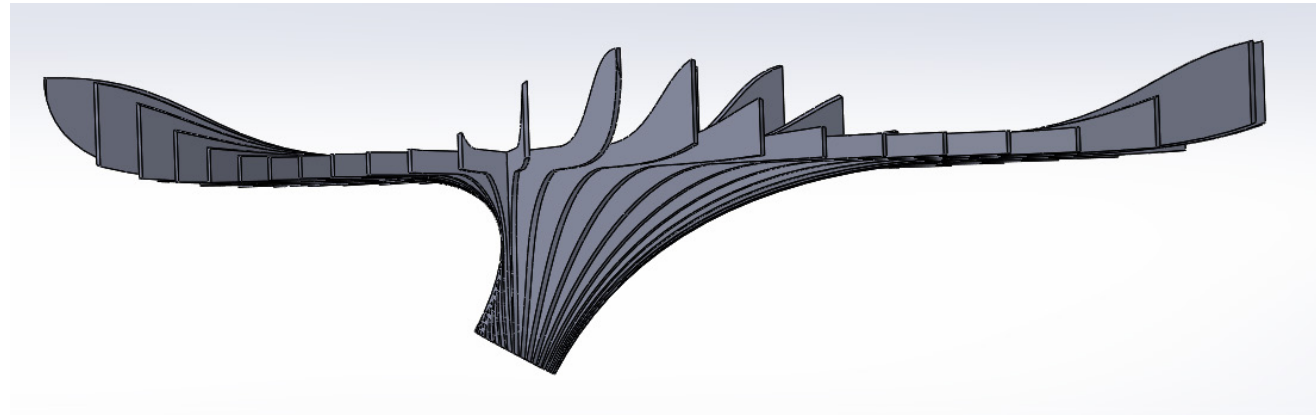
Appendix

Heathrow Expansion
New TX5 terminal-
LANDSCAPE-PODS

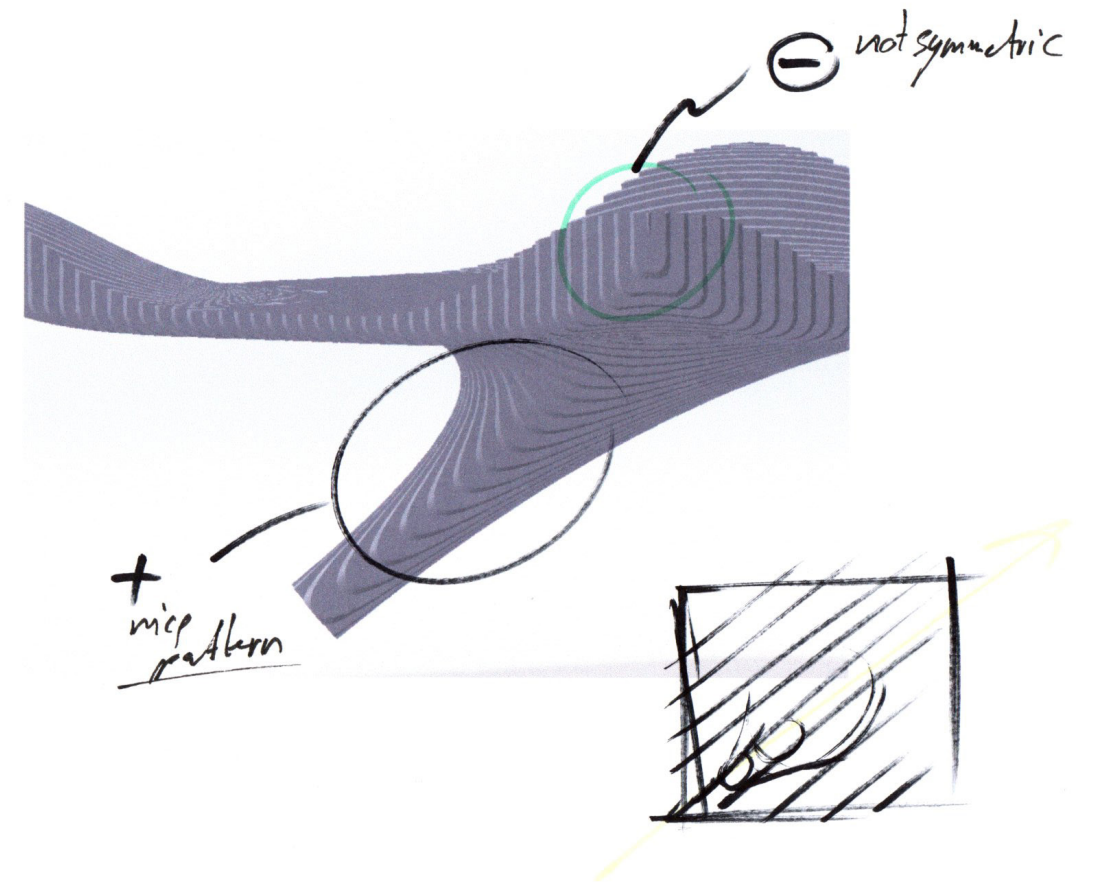
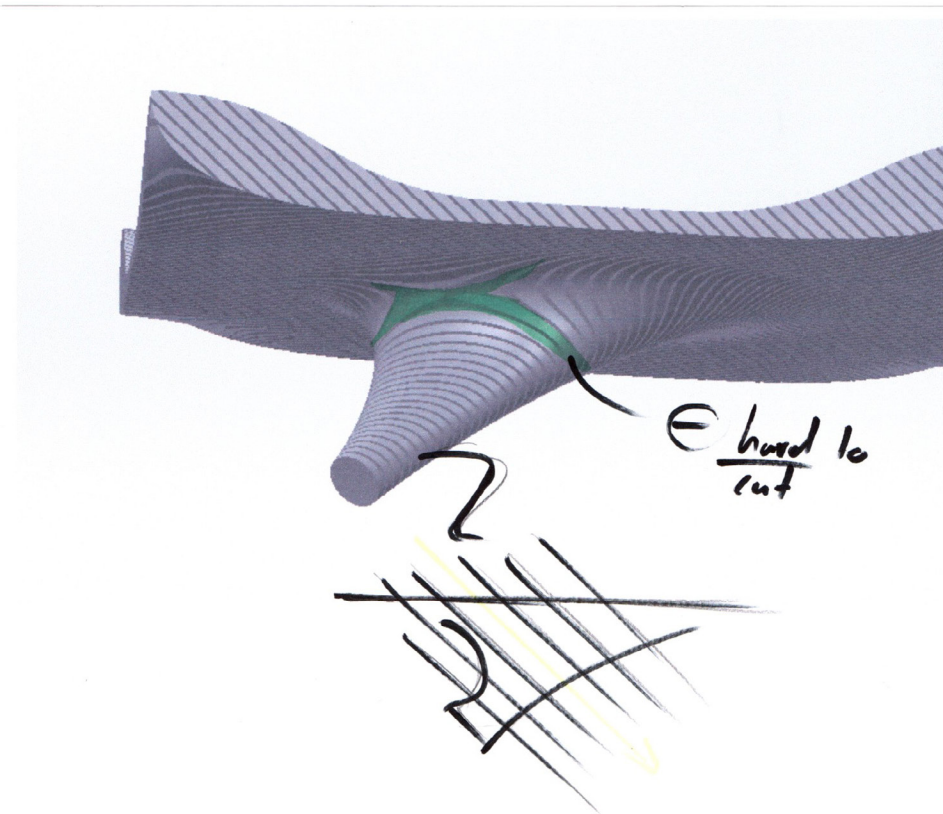
This Sketchbook highlights the main technical issues that are tackled during this thesis. The sketches contain notes and reference/inspiration pictures without any extra description. Additional information to why certain steps are taken can be found in the appendix: Minutes of Meetings. The images are shown in the same way they were used during the thesis. Take in mind these images are a combination between digital 3D and hand sketching due the form difficulty.

Content:

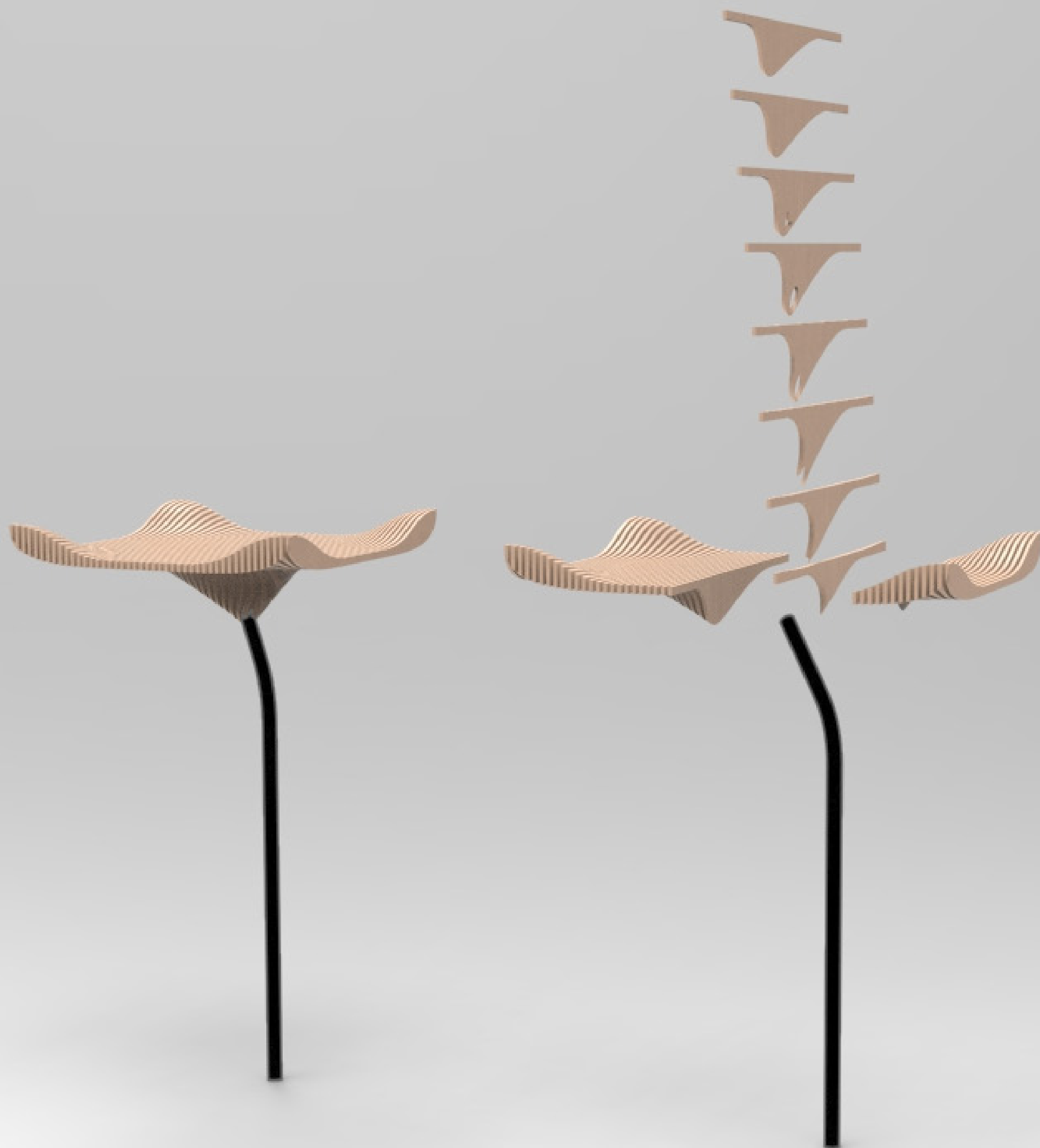
- Technical Sketches – Direction of Ribs
- Technical Sketches – Column-Roof Fixing
- Technical Sketches – Supporting the ribs/slabs

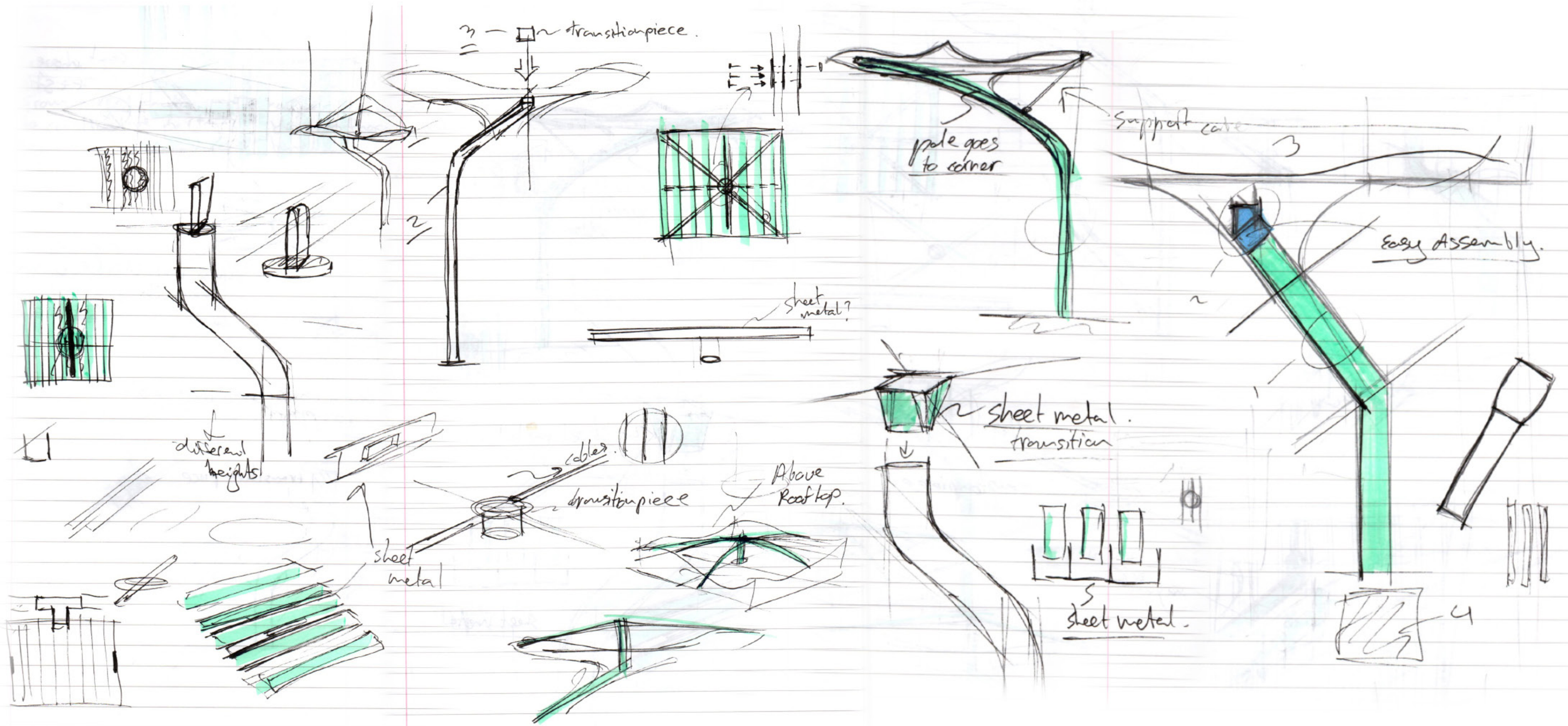


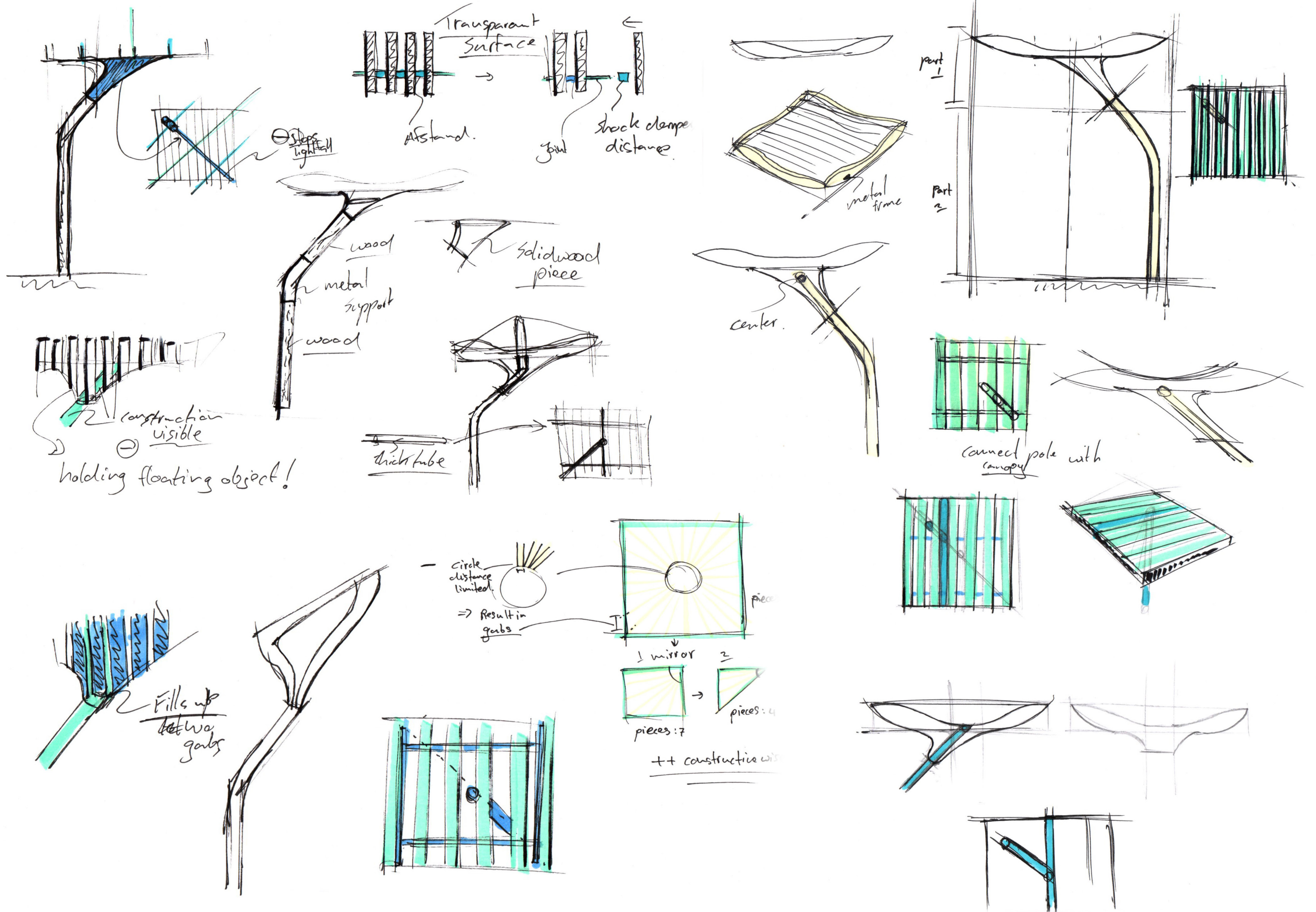
How to avoid this?!

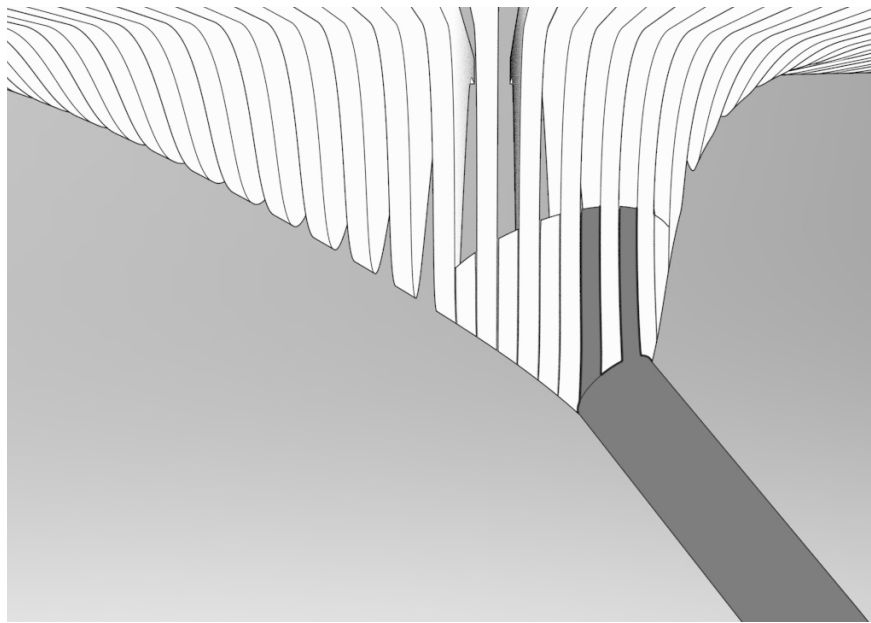


+ nice pattern

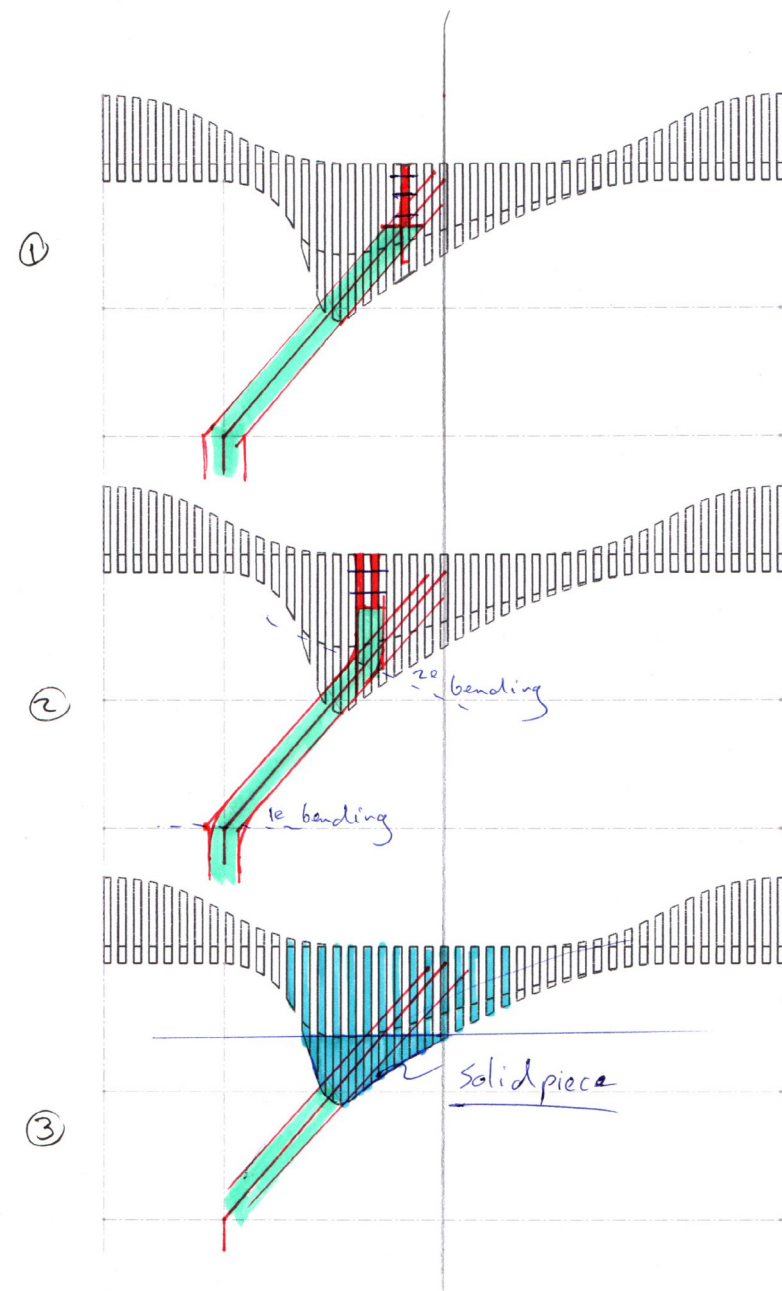
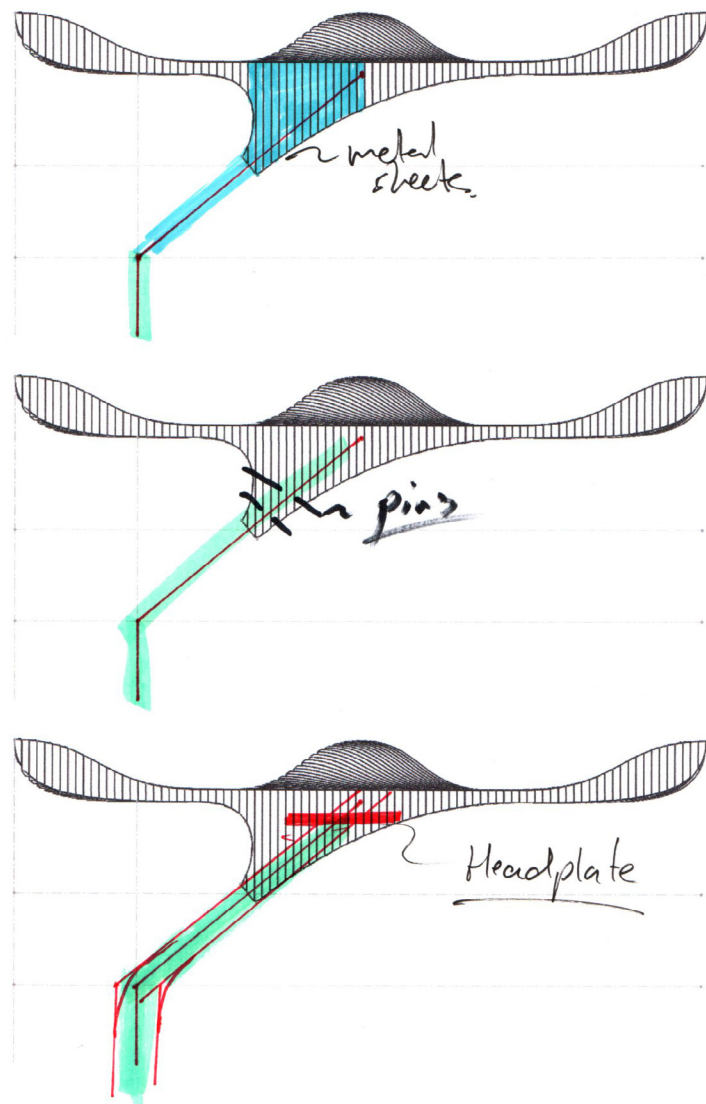




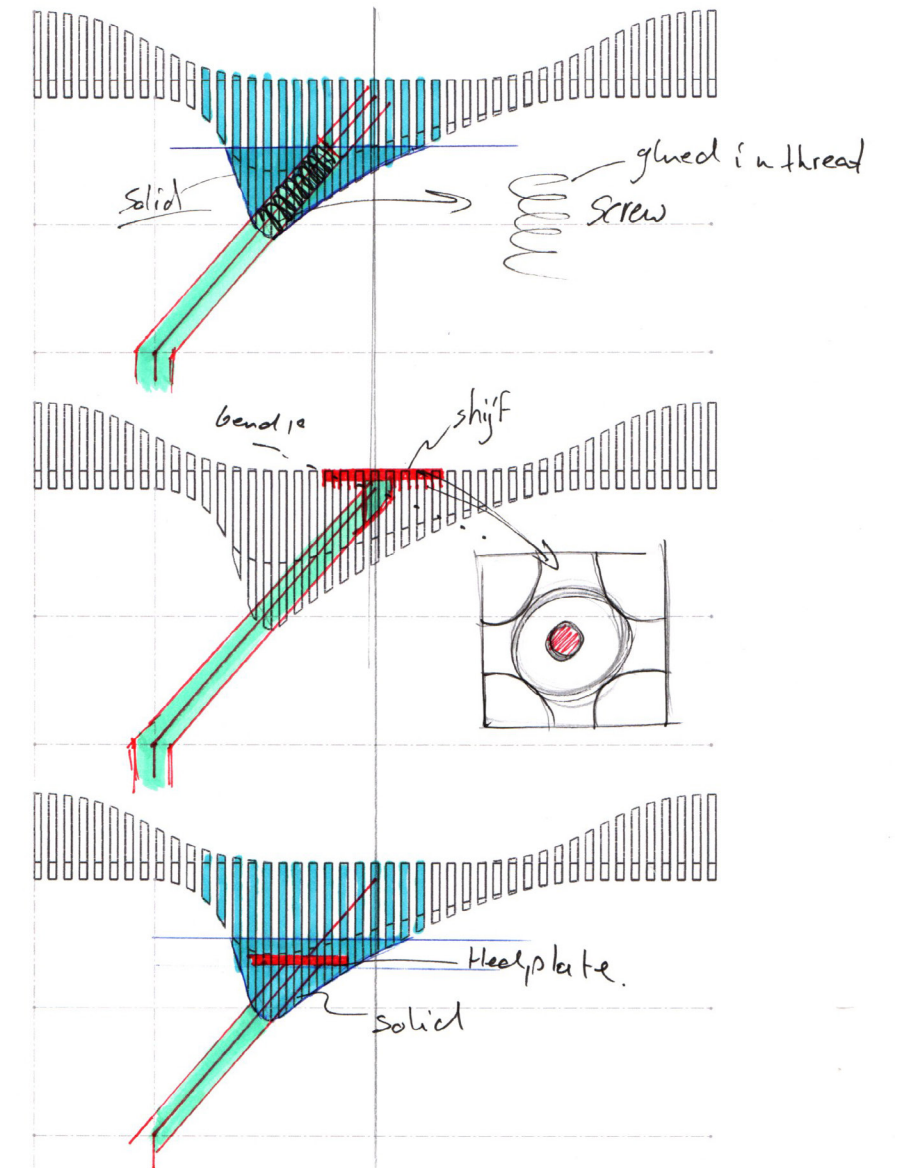


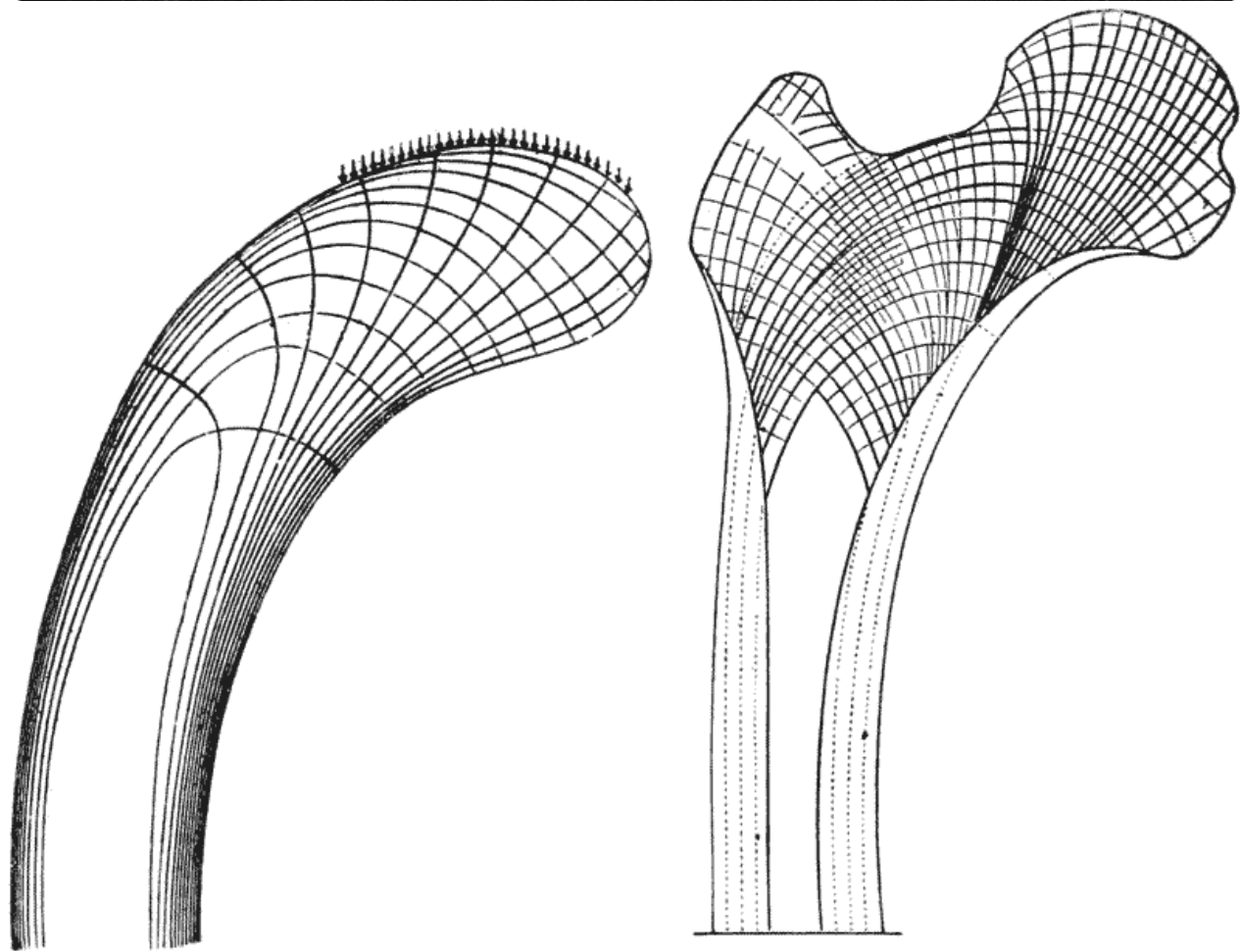
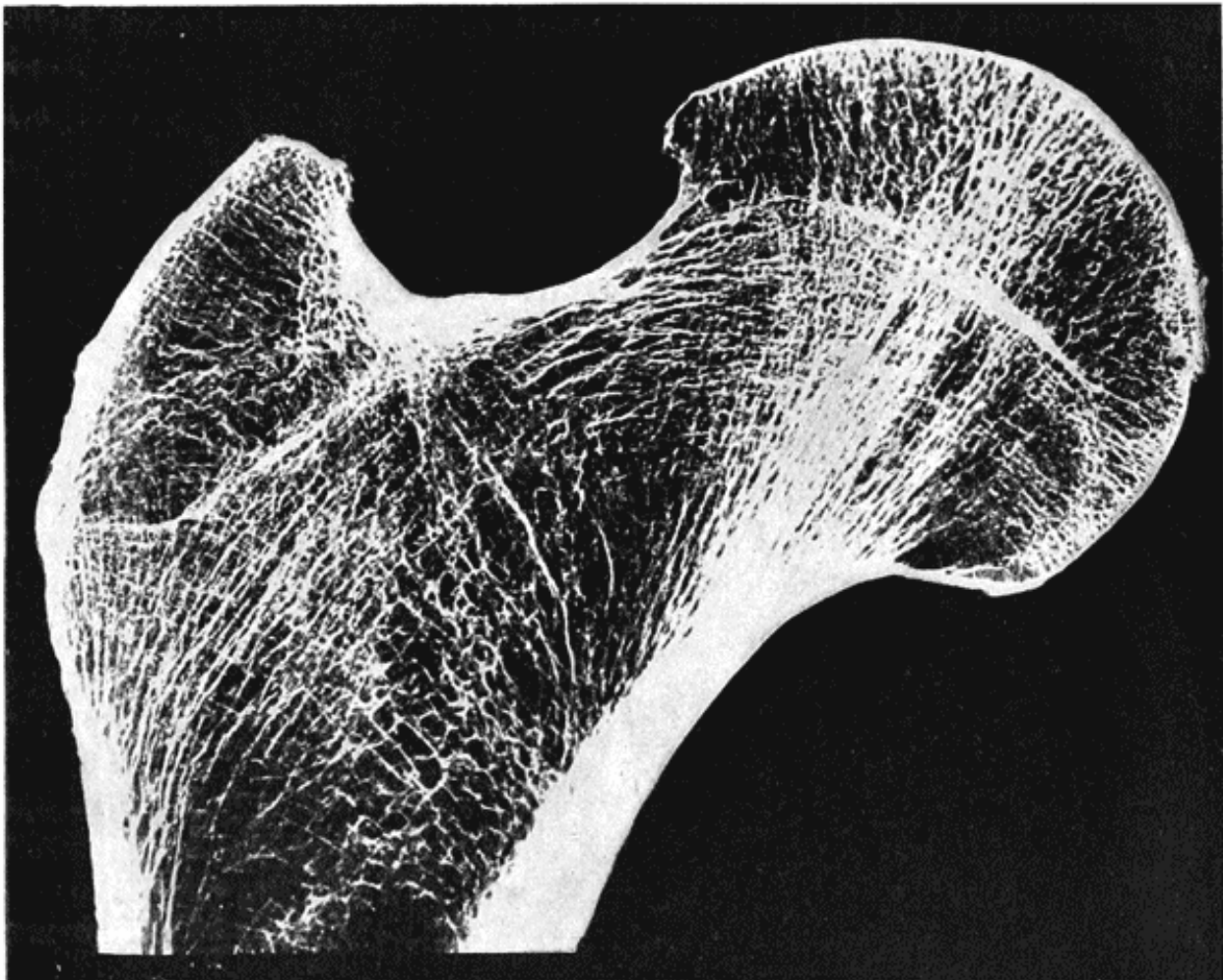
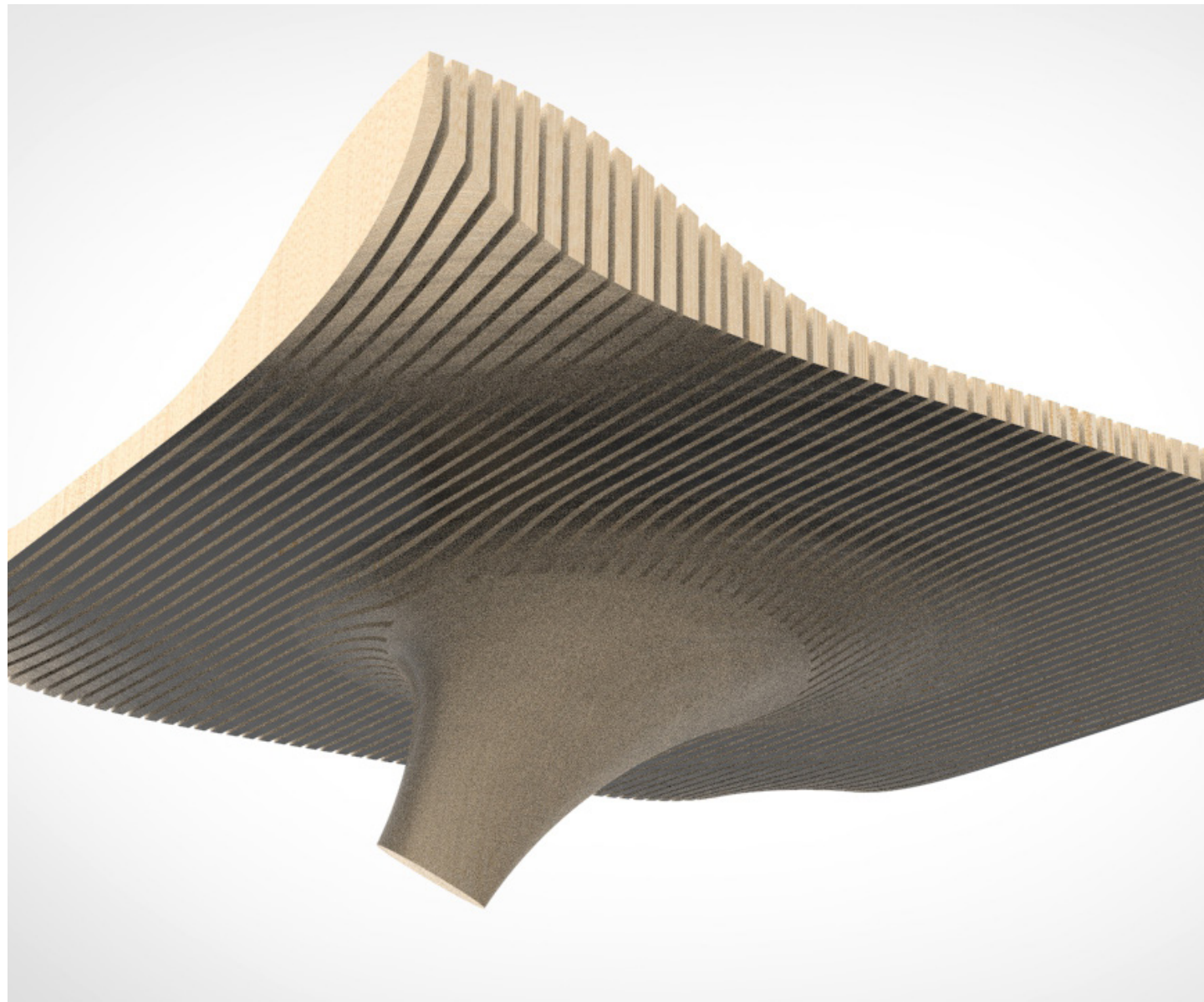


connection solid piece.

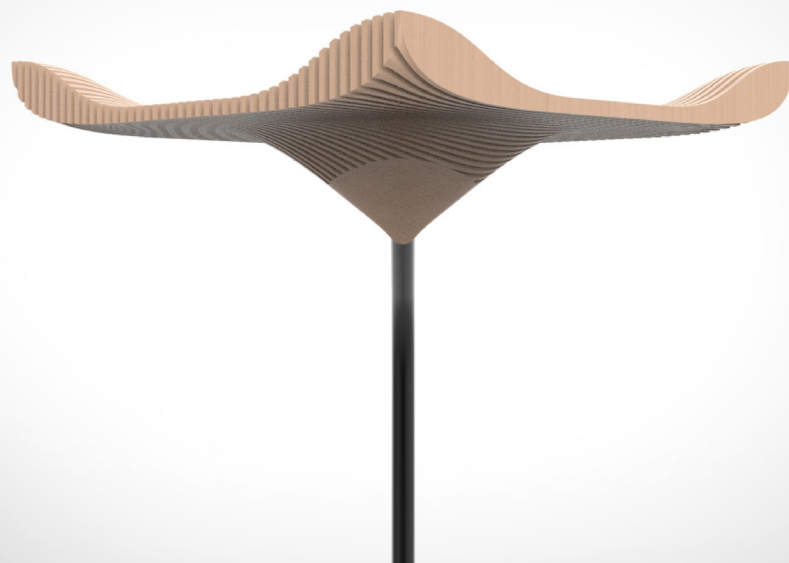
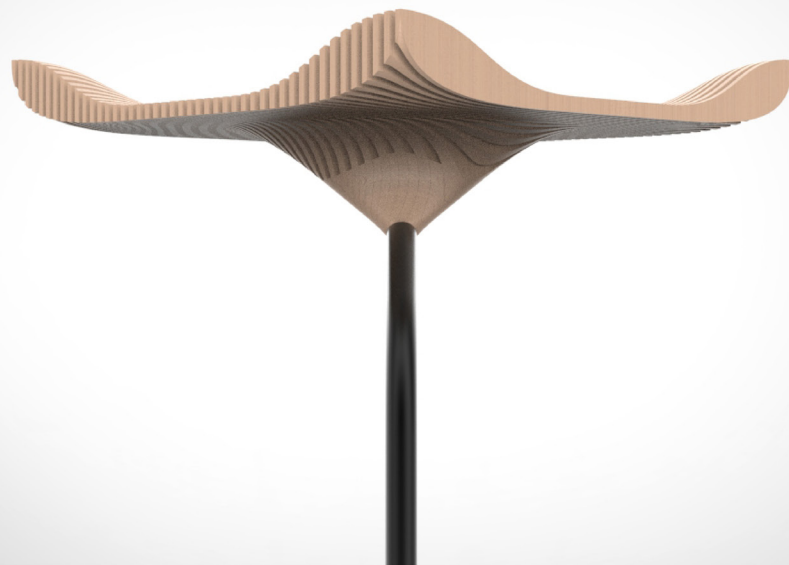
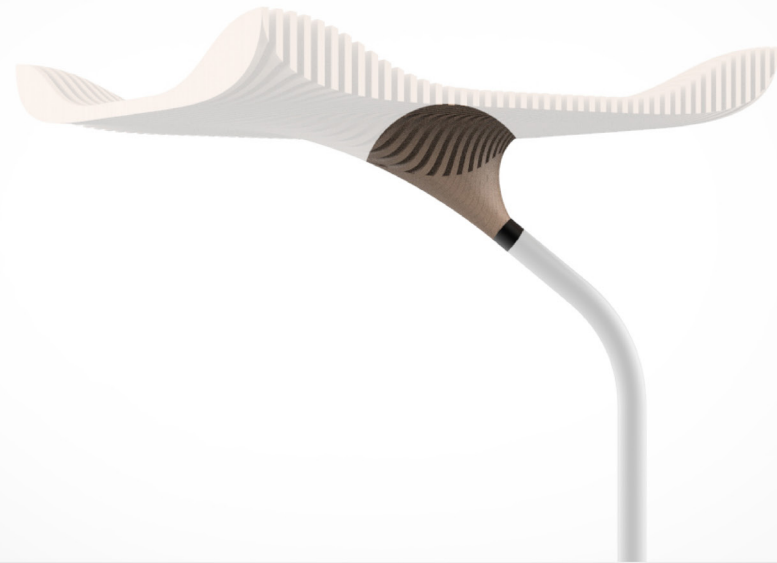


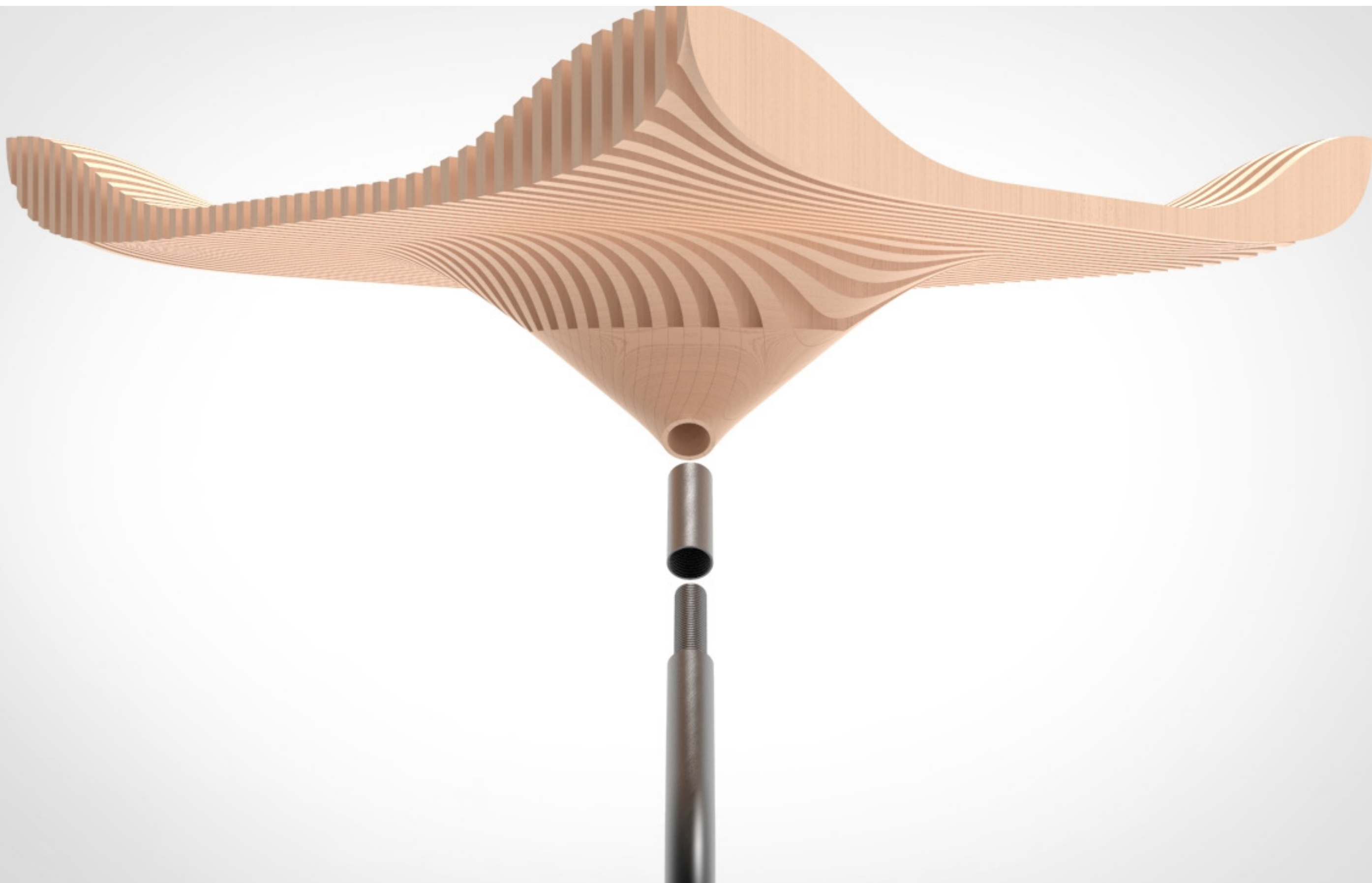
Connecting pillar - Roof.

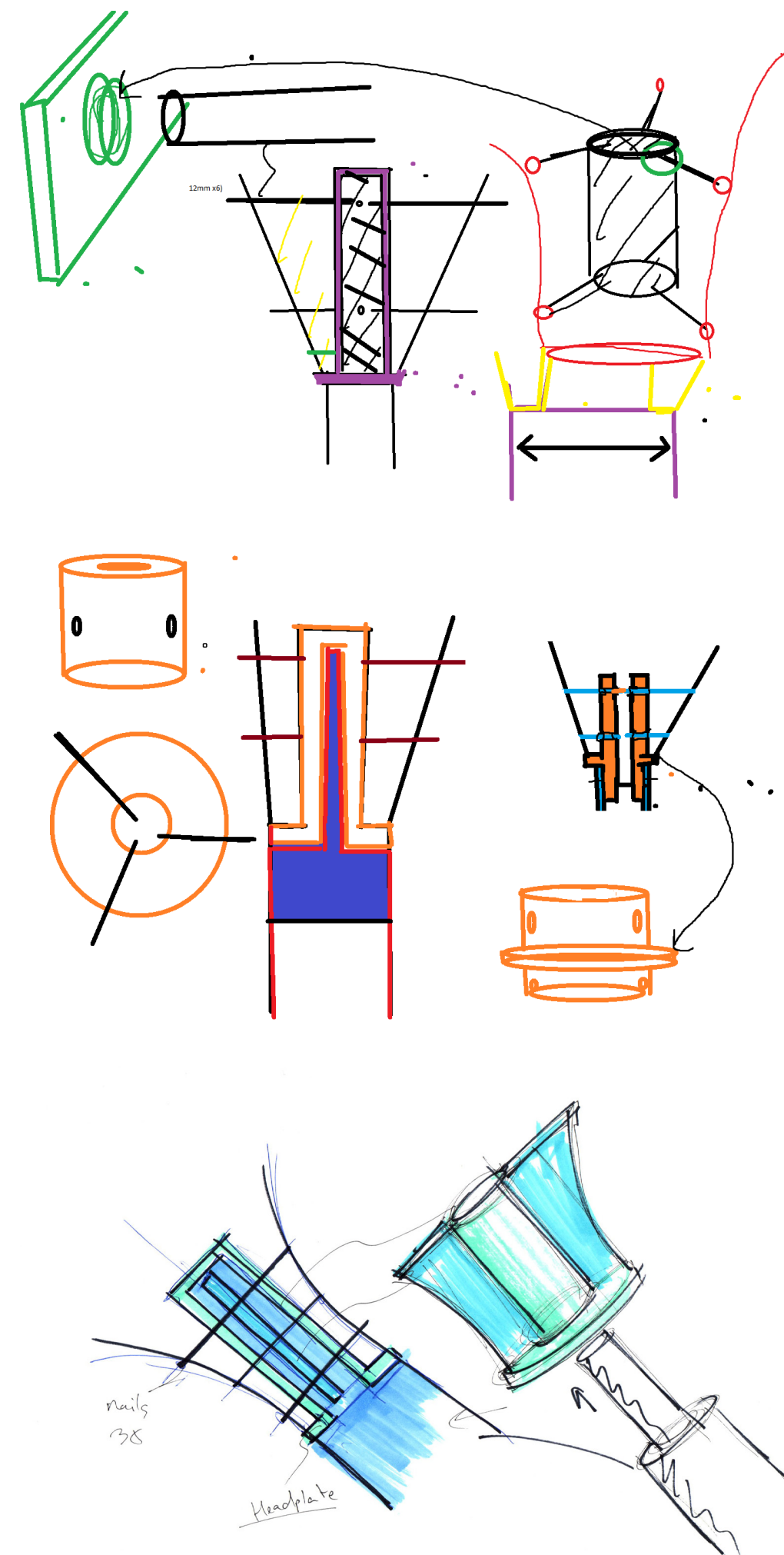
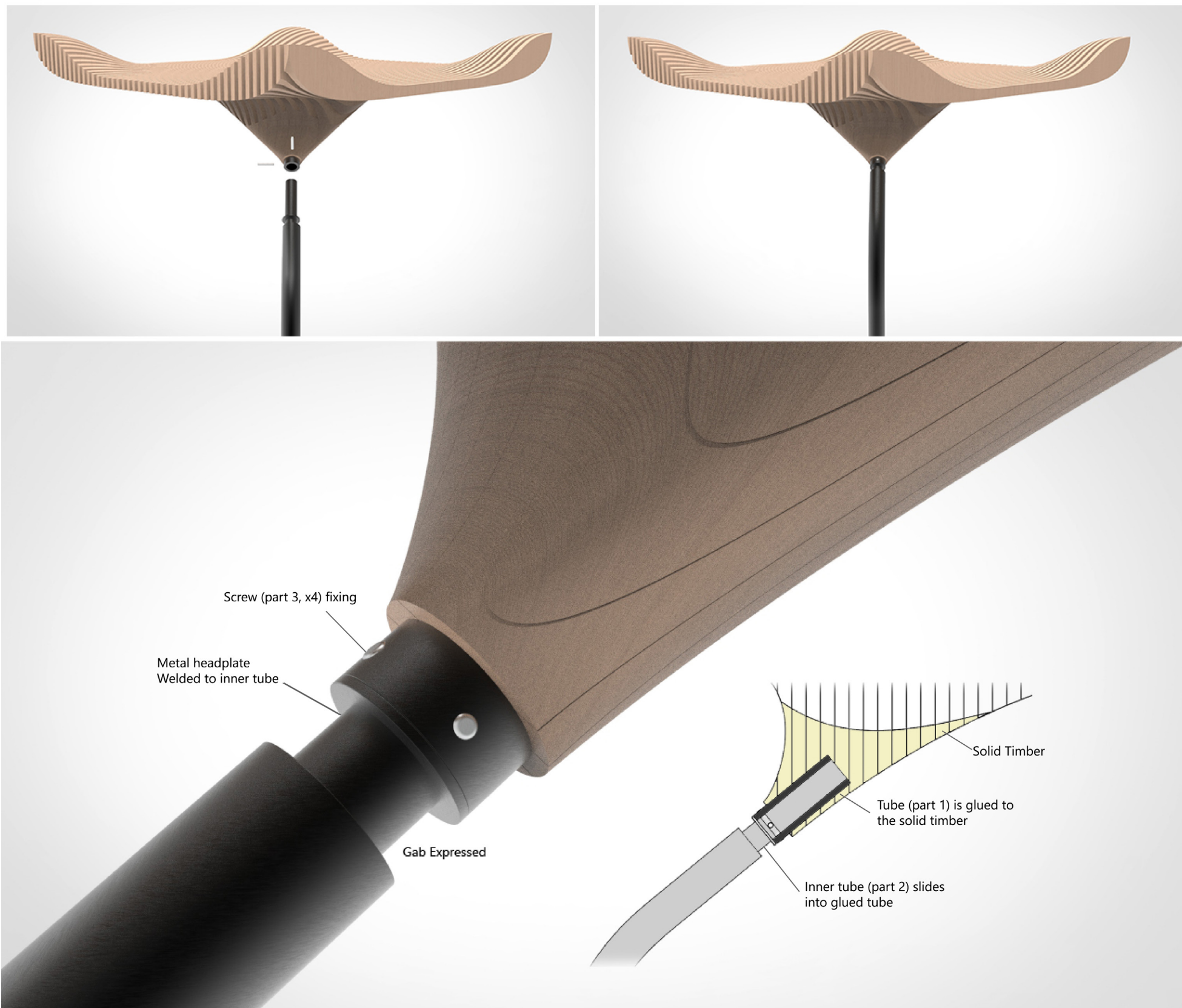




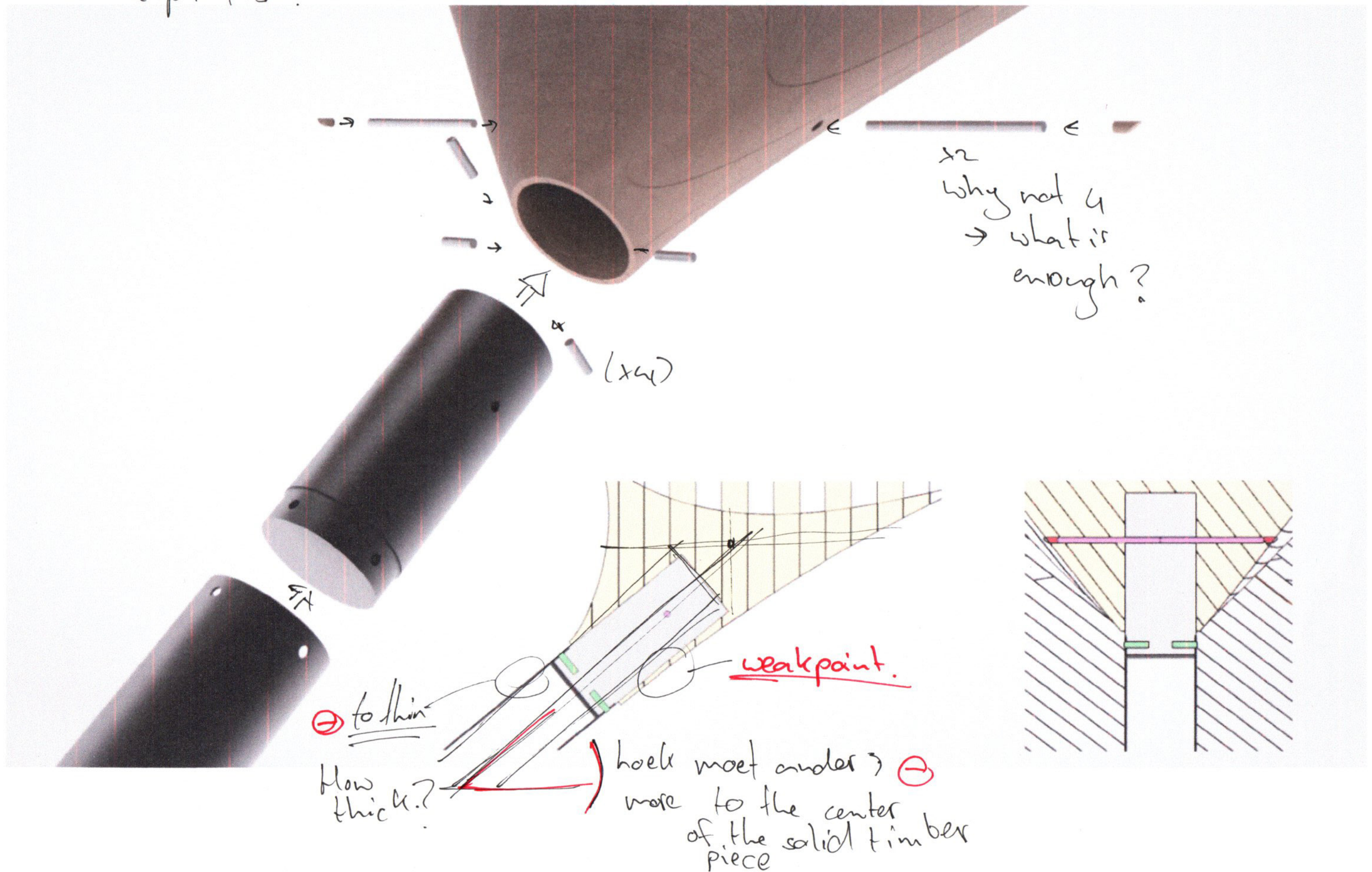
Transition point convert to organic shape

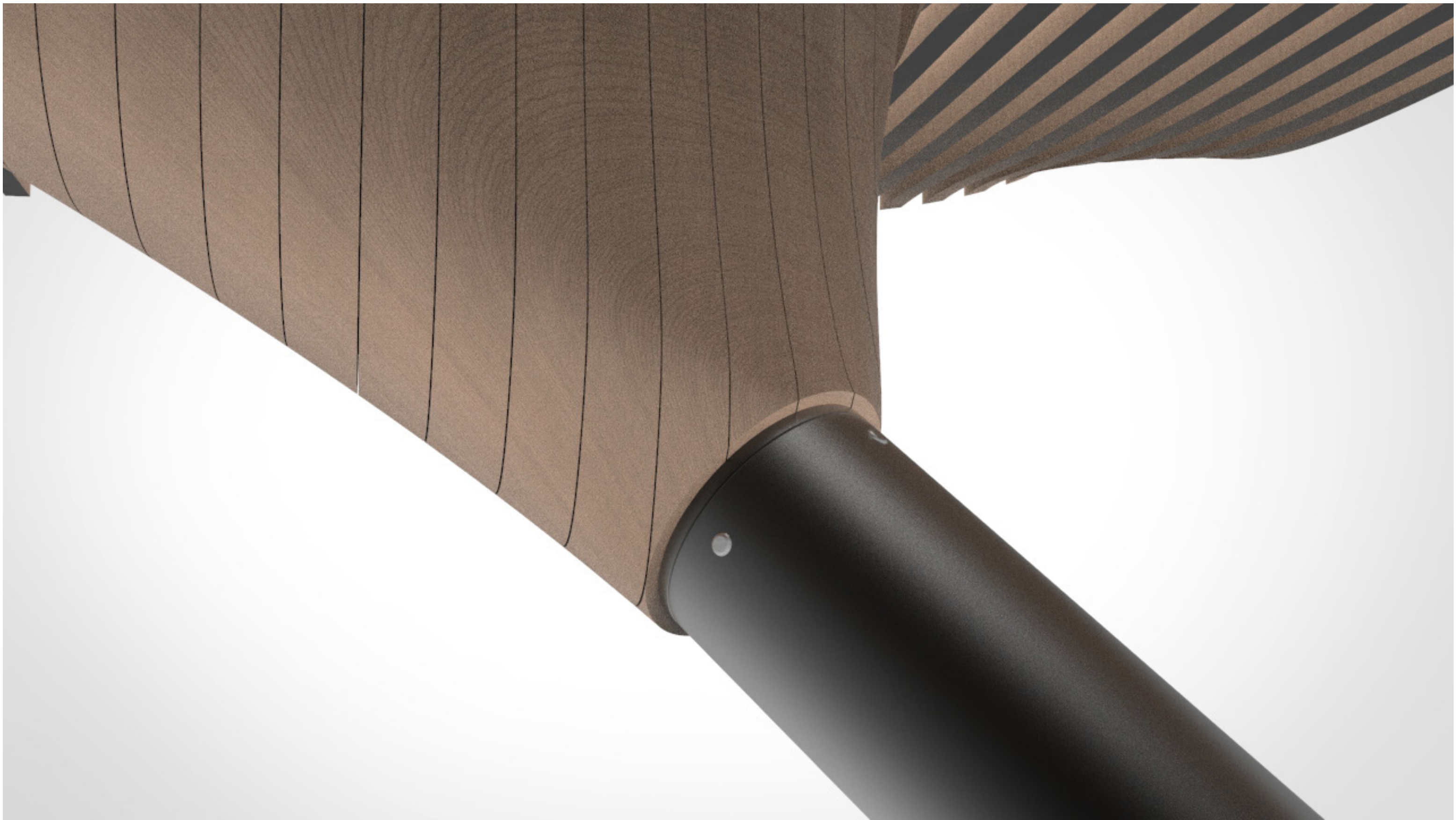


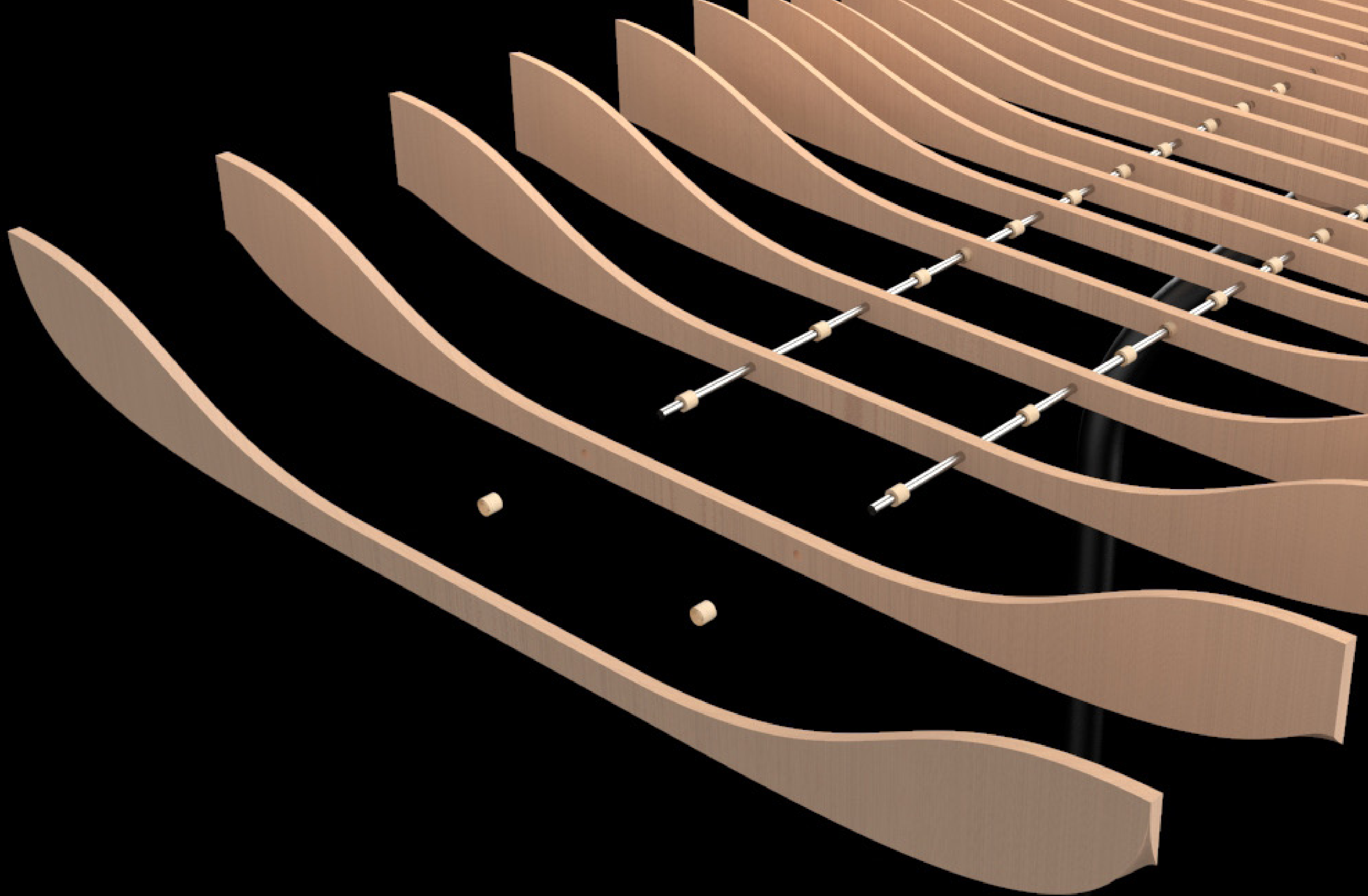


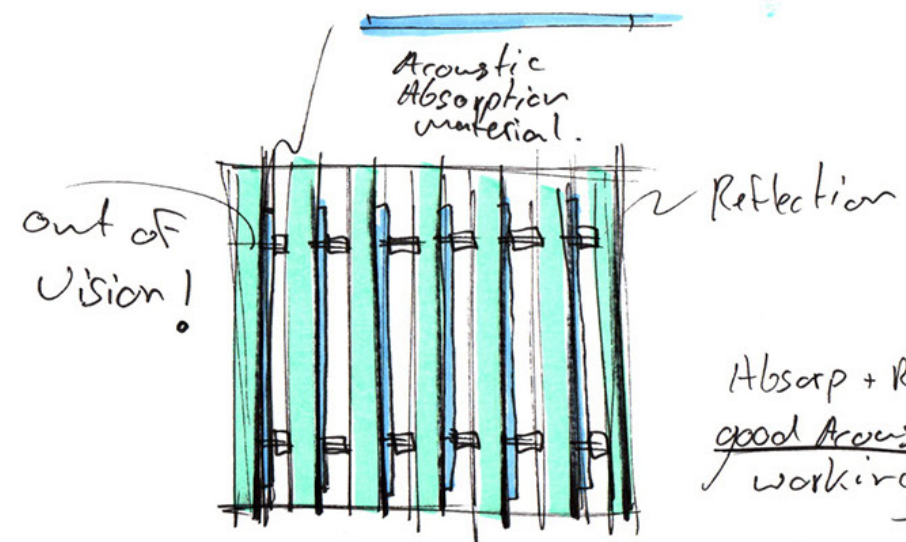
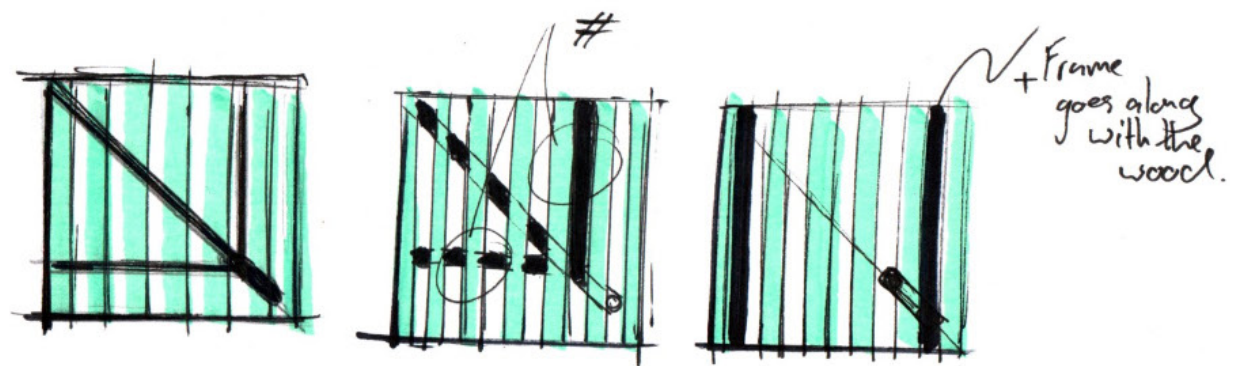


concept test.

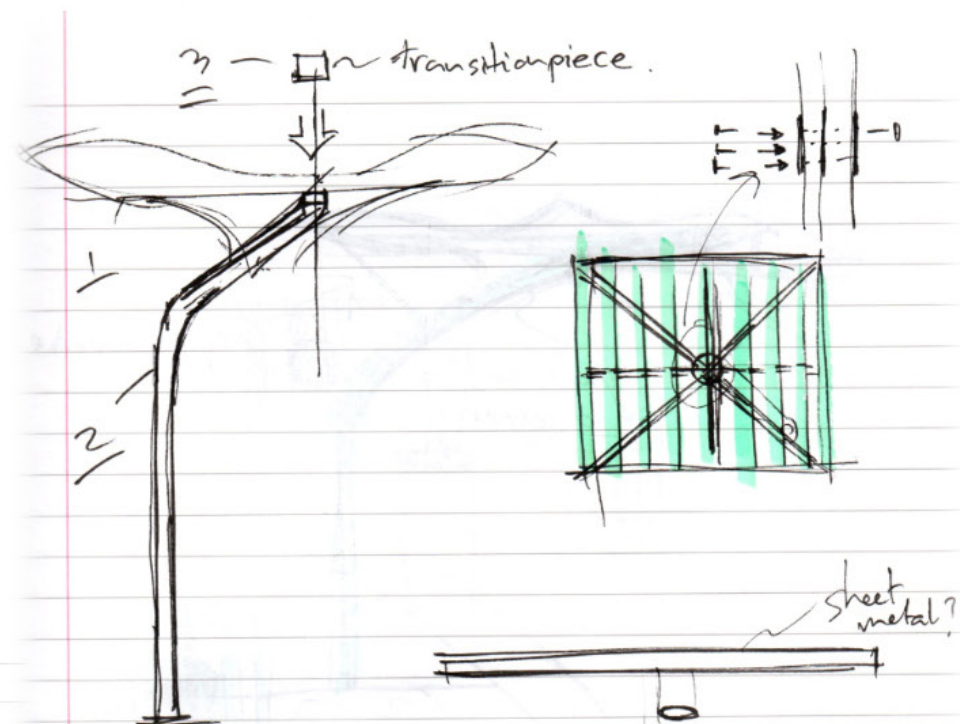
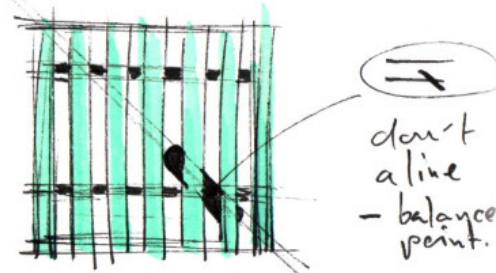
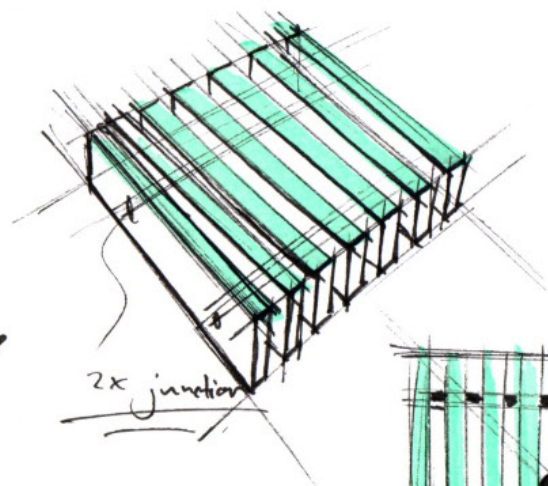
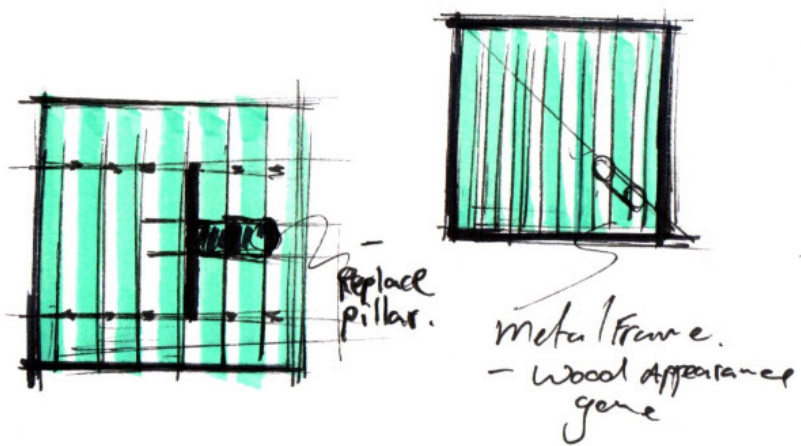




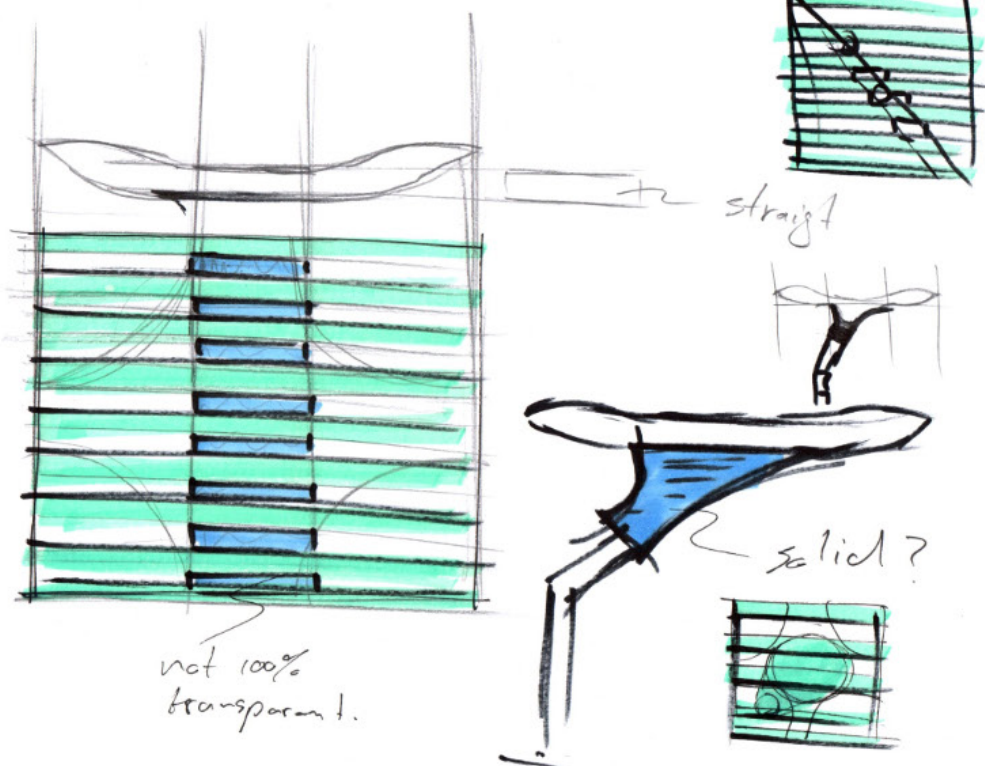
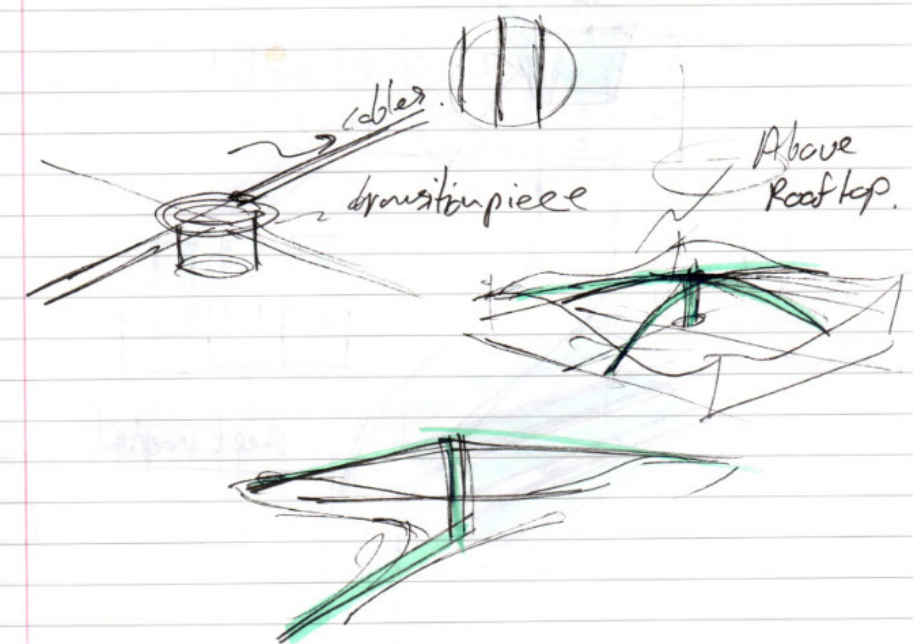
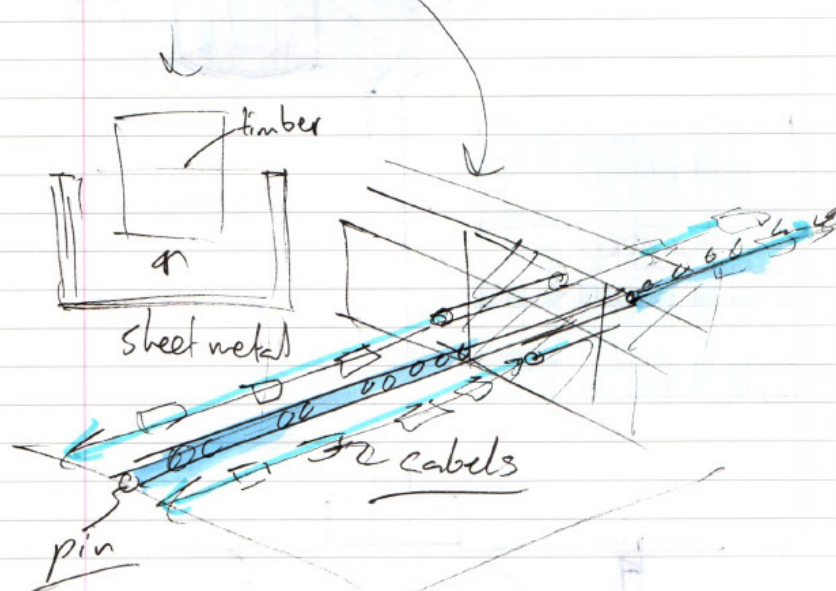
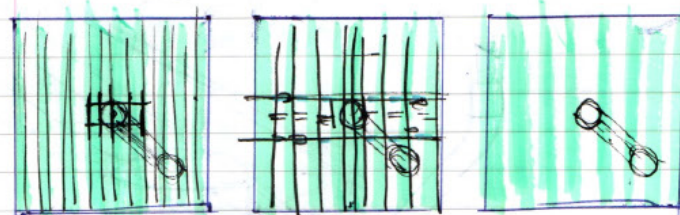




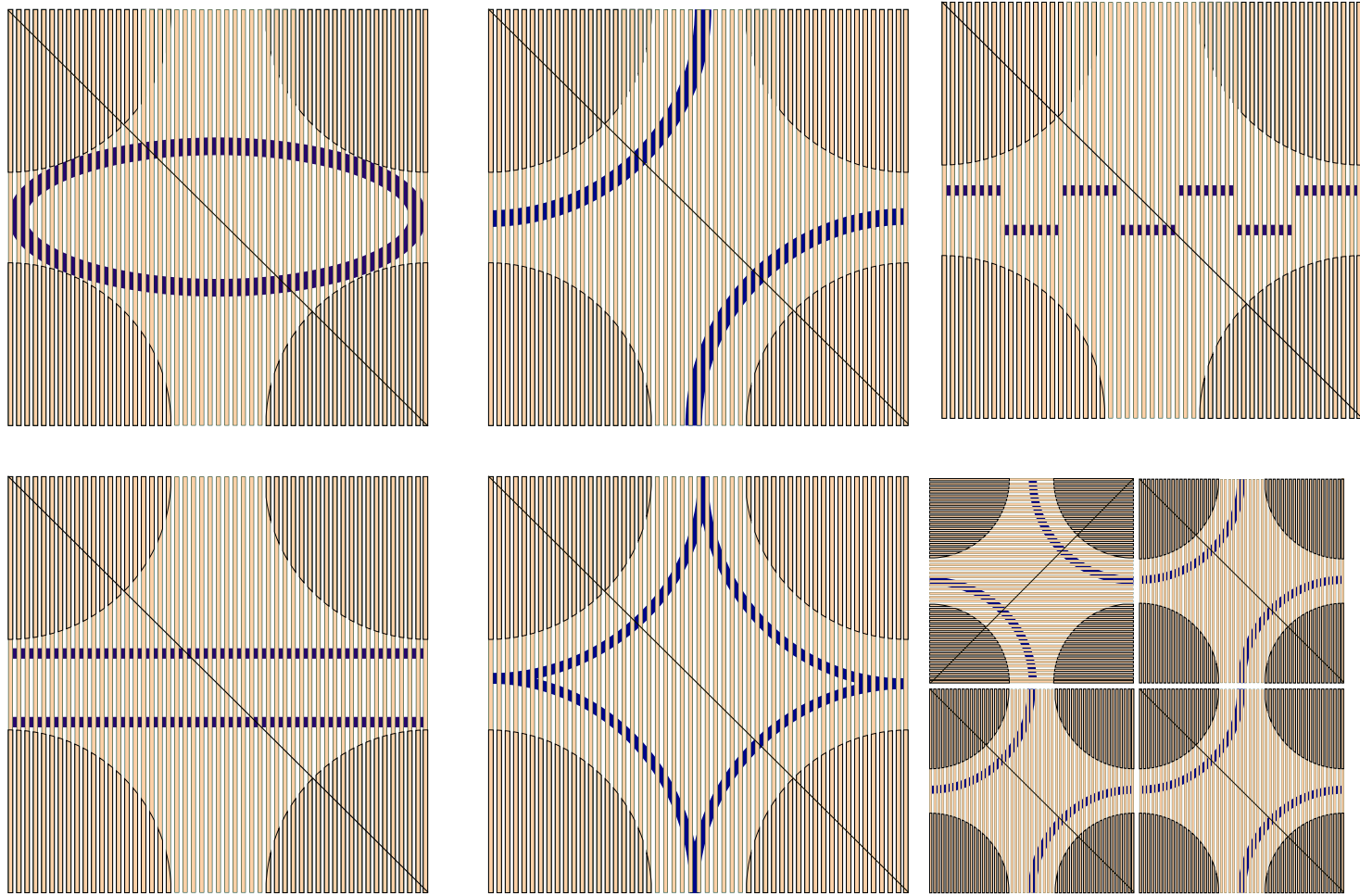
Absorp + Reflec =
good Acoustic
working.



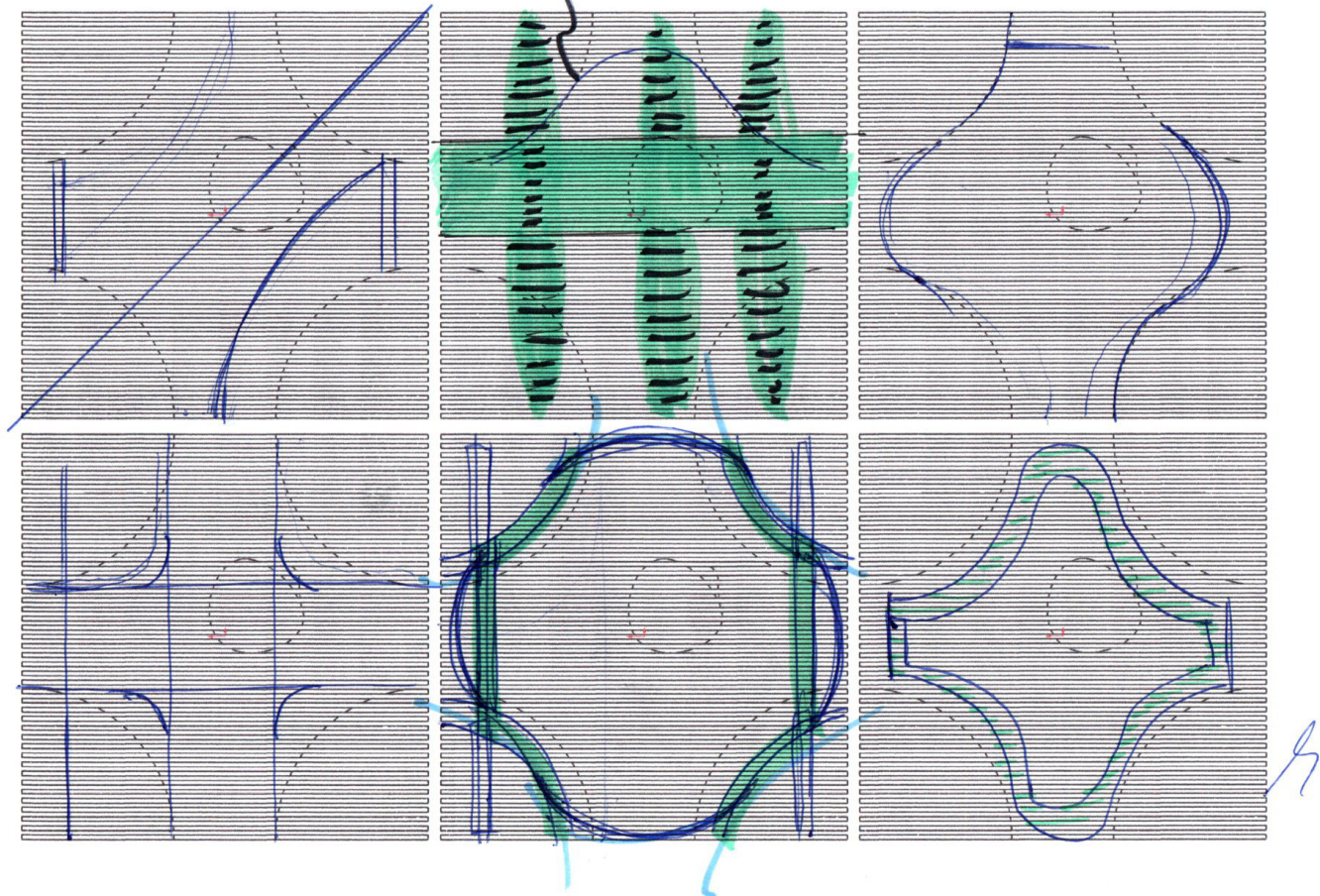
① Top view



not 100%
transparent!



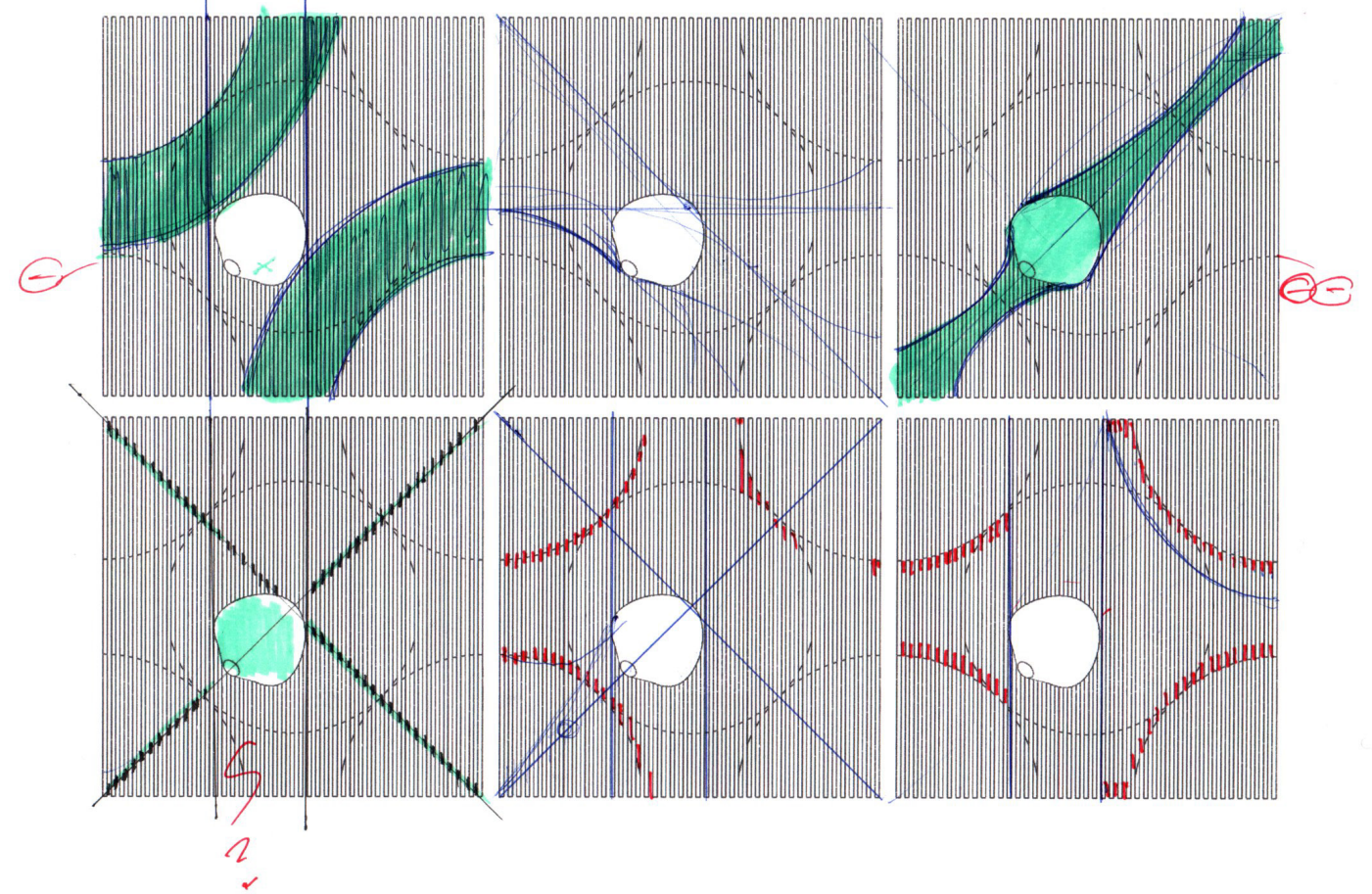
Connecting the Ribs together.



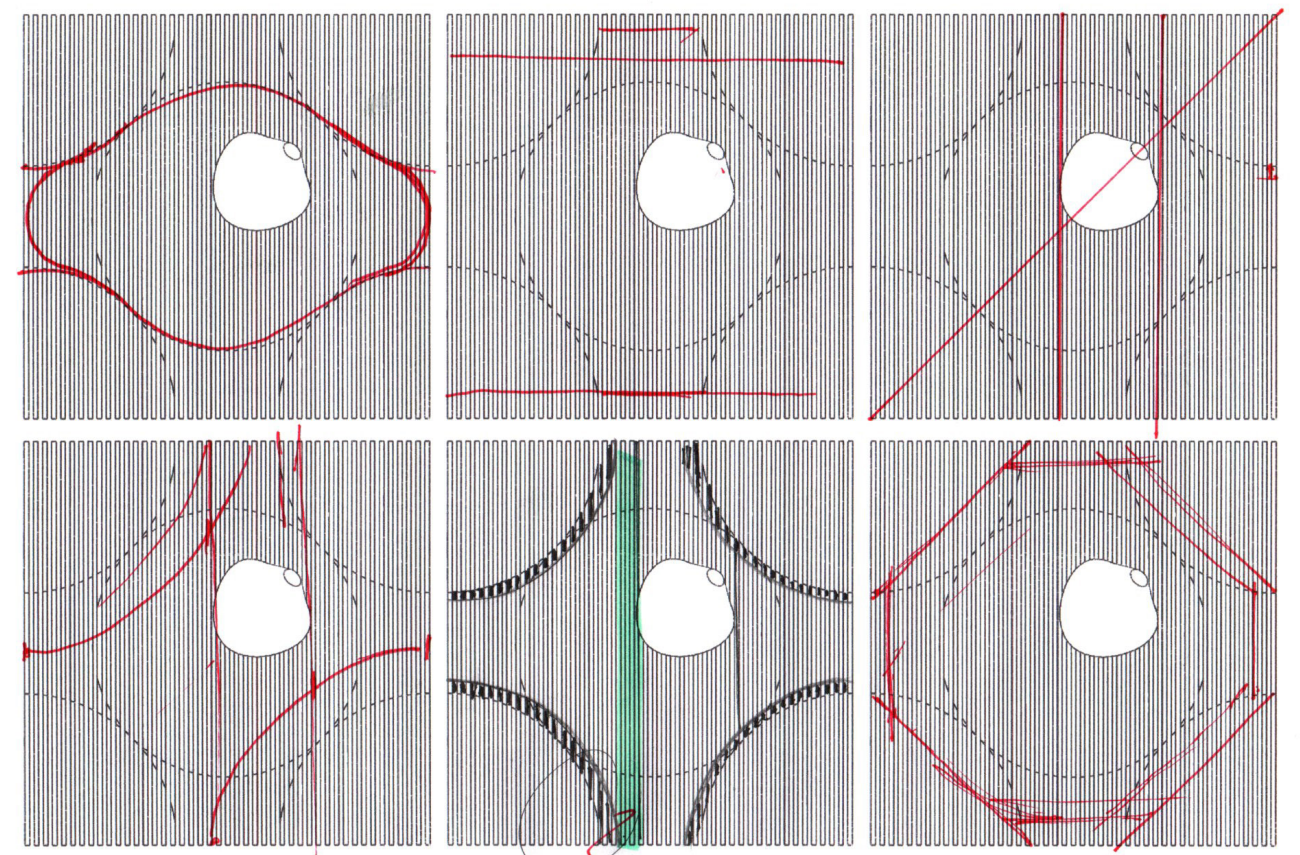
Connecting the Ribs together.

Strengthen the structure

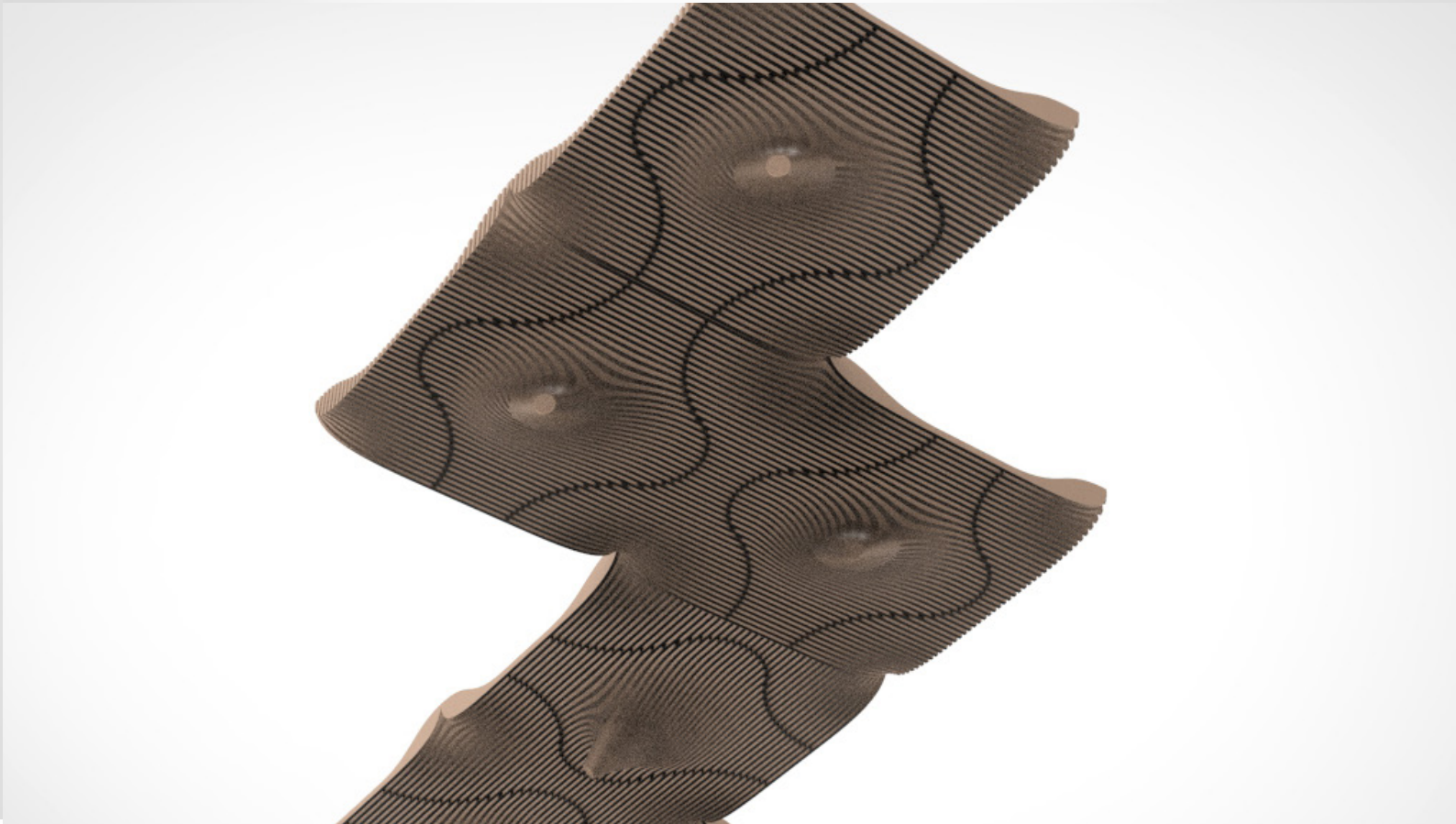
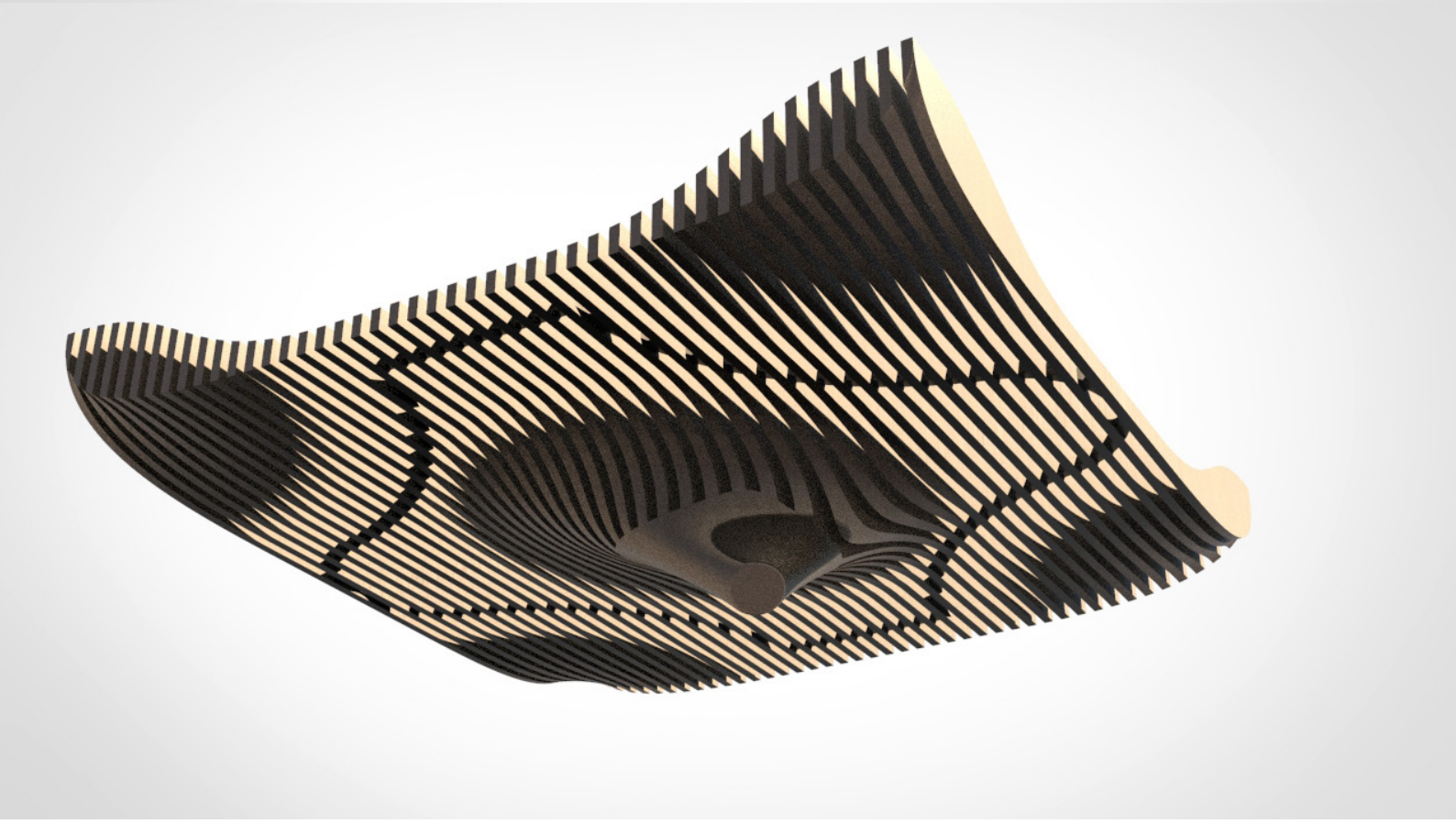
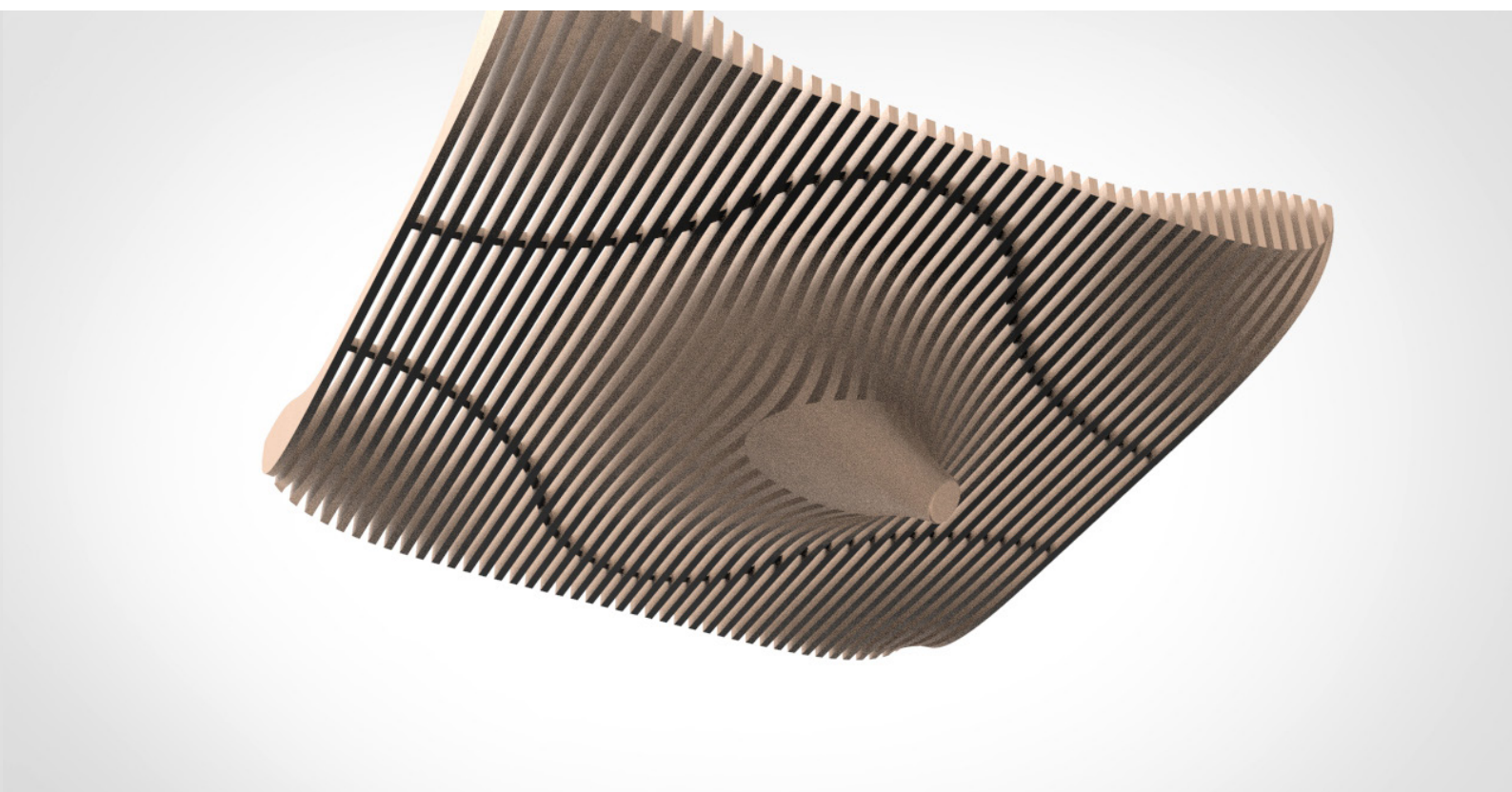
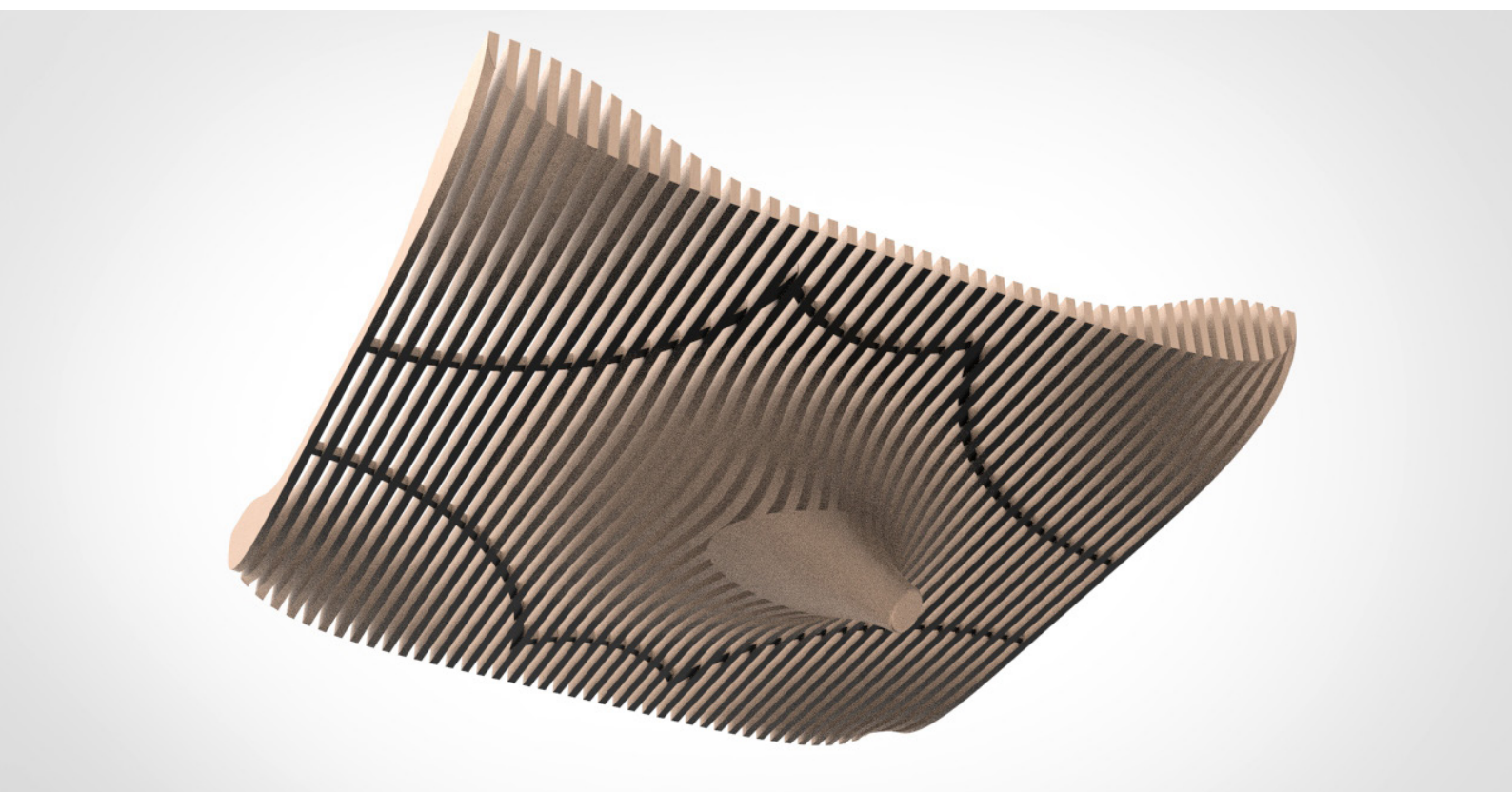
minimal - subtle → as possible

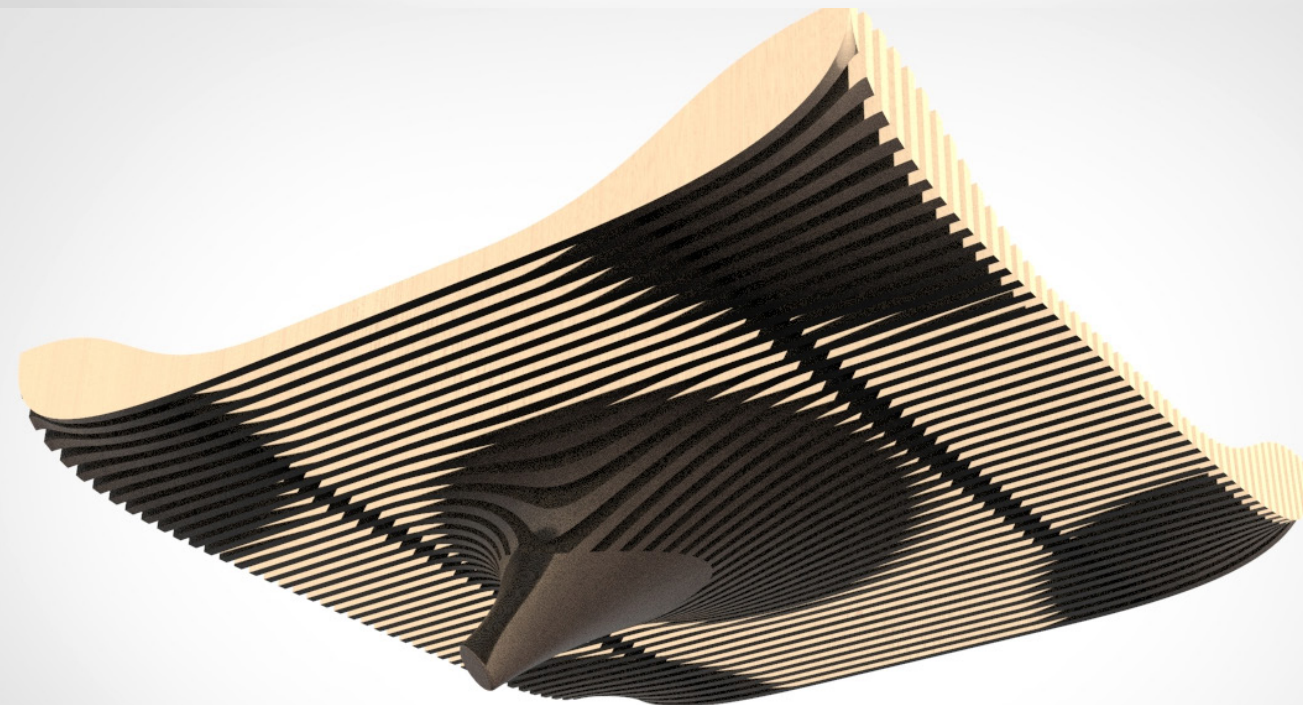
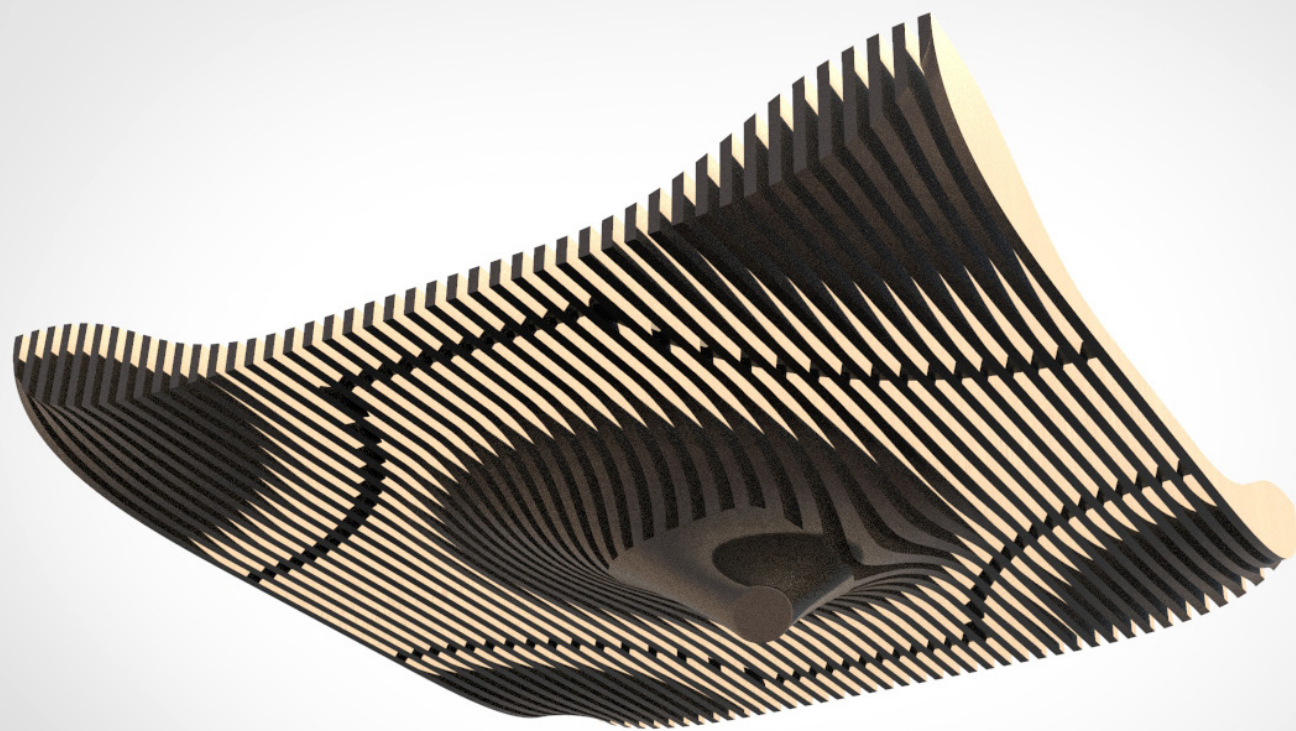
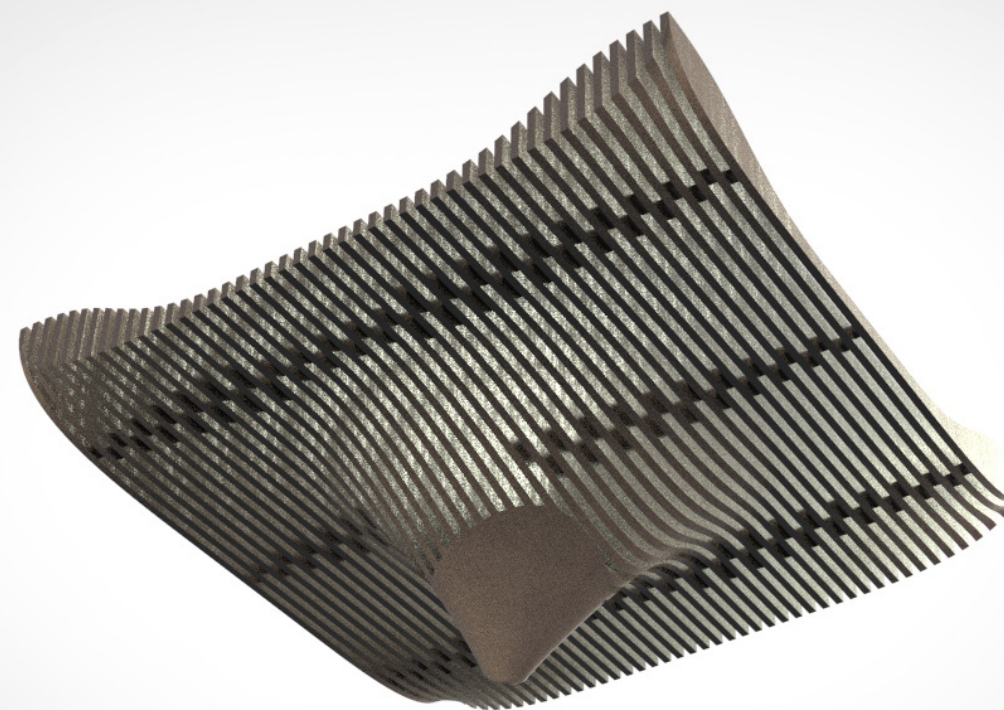
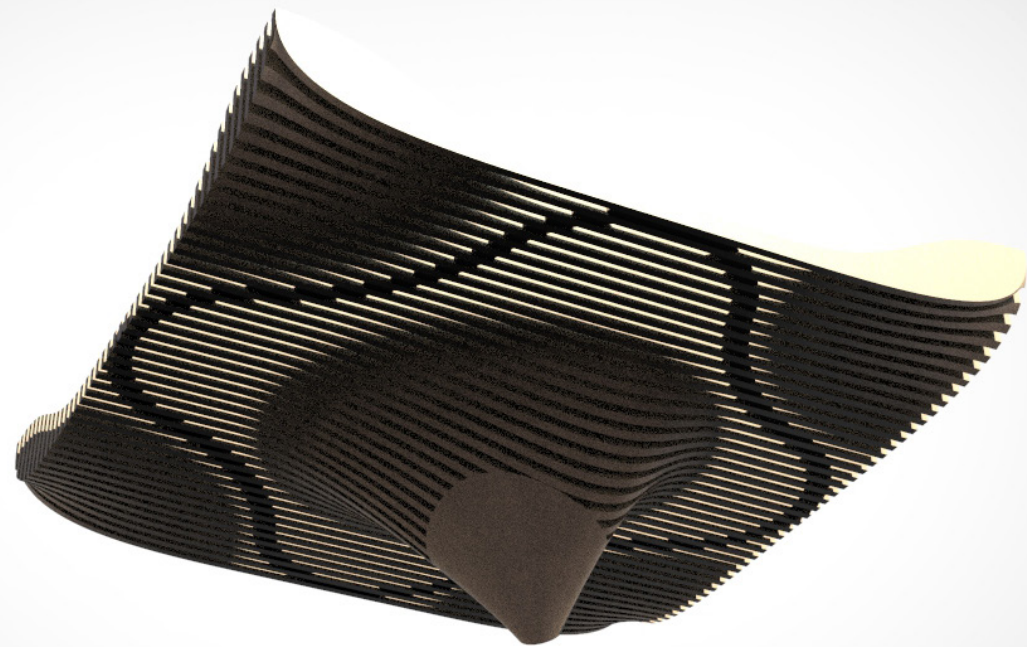


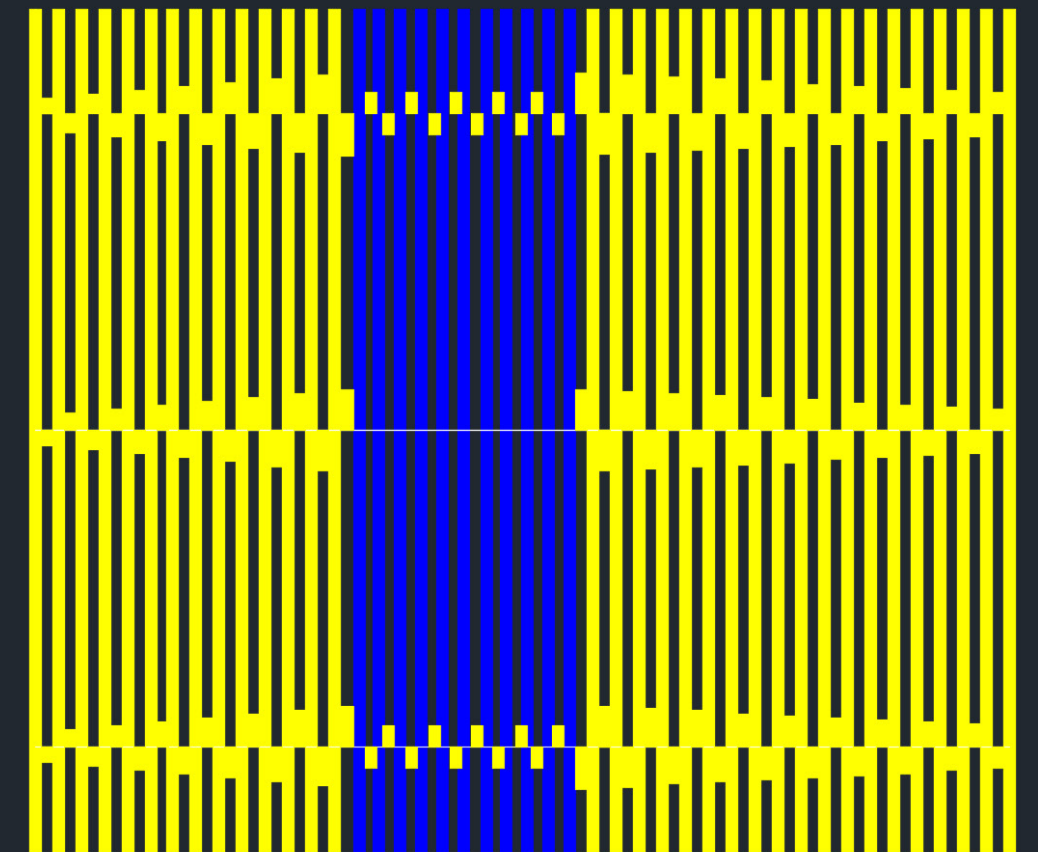
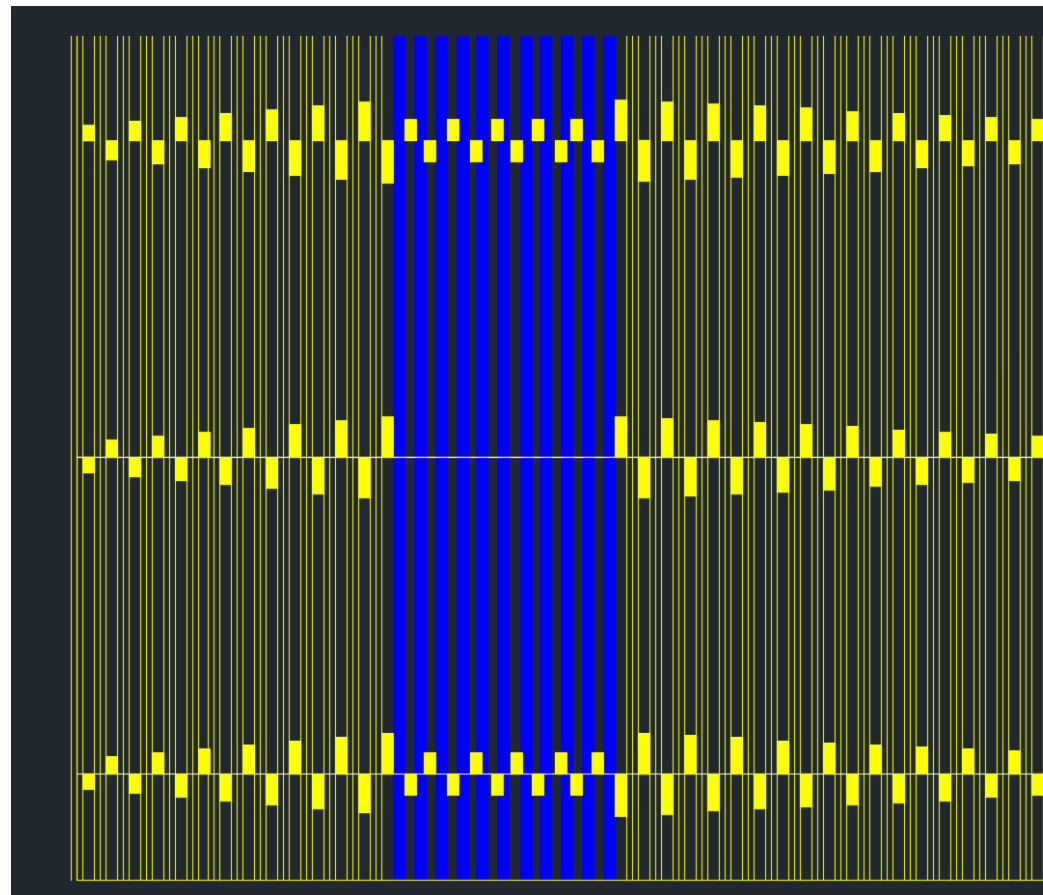
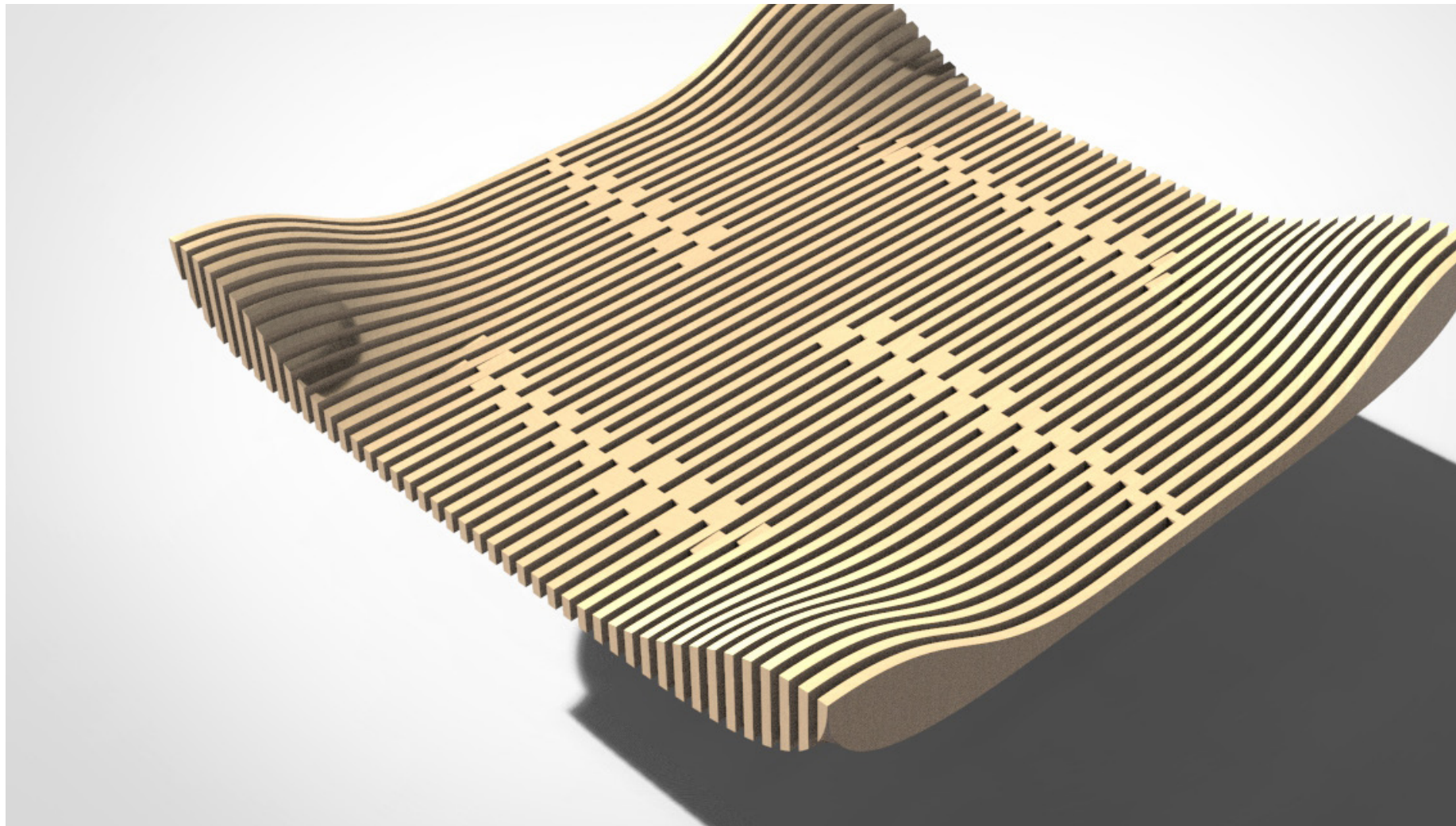
connecting the Ribs together.



floating it grows









2020

Rutger Hooftman

FLIGHT OF IMAGINATION

Third space concept for the new TX5 terminal:
LANDSCAPE-PODS

Faculty of GROSS. MAX.
HAN University of Applied Sciences
HAN Univeristy of Applied Sciences