

S K I R T O F R E V E R S A L



## Rerversing roles

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This book was produced by students taking part in the "Skirt" course included in the Circular Studio concept of NTNU's architecture program (AAR4690 Sirkulærstudio - Materialer). Olle Björkebaum, Clara Dutemple and Carla Roda Ferrús were supervised by Tordis Berstrand and Aleksandra Raonic during the development of this project

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«Skirt project »

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This book is about how we approached and expressed the term «skirt» although there are many ways of defining it, we present our vision and the process that enabled us to produce our project.



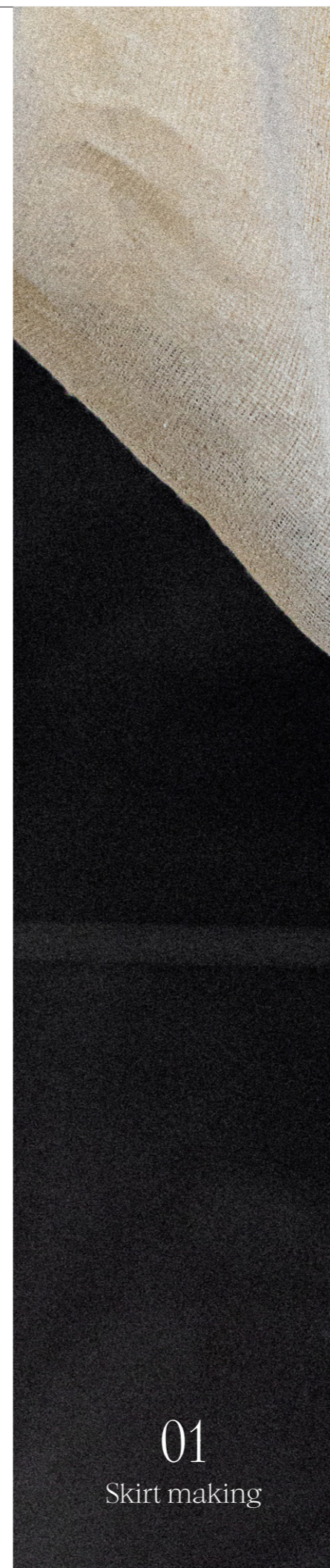
The book is divided into 3 different parts.

**01 Skirt making** will focus on our first steps, reflections and the whole process of creating this work. Beginning with the discovery of Hannah Ryggen, her world and followed by the days spent in the textile lab and the wood workshop; testing, experimenting and, later on, producing.

**02 Skirt outcome** concentrates on a project designed to be temporary, following the idea of “architecture as an event”. It becomes a performance, where our bodies engage with the structure and activate the space. We’re taking a second look at our architecture, seeing how it is also defined by measurements, assembly stages, etc.

**03 Skirt future** is about how the project has been created through circular and sustainable thinking where giving it a second life is essential. We’ll show different ways to reuse the work, whether as how it is today, at other scales, or through the reuse of its concept.

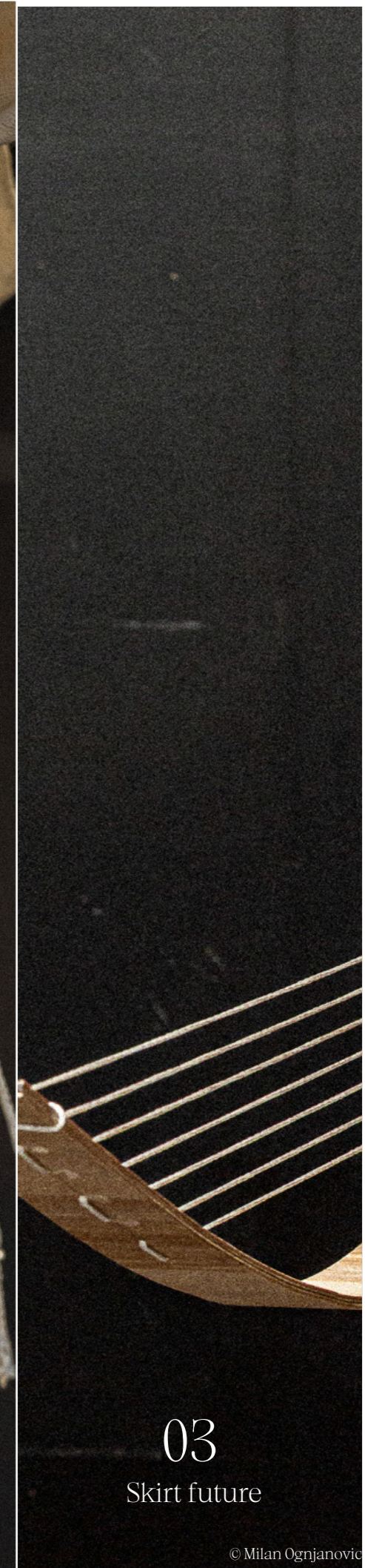
This course provided a new approach to architecture, which is often taught from a traditional perspective. It proposes a more feminist and sustainable approach; looking at architecture as a more people-centred practice, investigating the sensibility of materials and conducting experimentation.



01  
Skirt making



02  
Skirt outcome



03  
Skirt future

# Interview

What « skirt » means for you ?

**Olle**

At first I didn't get it but... now I guess it has something to do with feminism, or something feminine. It's about textile and... I don't know when you as a kid were running away from something, maybe you would hide under the skirt of your mum.

**Clara**

Yeah. I think at the beginning for me "skirt" was also referring to that. Looking at it now, it feels also like flying textile as when you wear one. Nowadays, this term of skirt is really reflected by modern projects. Because today, the word skirt, can reflect the modern ones (...) but also the ones in the earlier ages with this structure underneath the textile (...), just following the shape of the wood. So it's kind of you can have it tense, you can have it loose and make the wind and the rain shape it.

**Olle**

Now it's like the Marilyn Monroe skirt. (Laughs)

**Carla**

I mean, I personally feel that at the beginning I also didn't understand what skirt meant. But I guess, after all the weeks and experimentation, now I can understand that it's about more than just textile. It's also about feminism and about the skirt is shaped and how you work to shape it.

**Olle**

I want to try wearing a skirt now...

What are your reasearch points of departure ? What about this name : « skirt of reversal » ?

**Clara**

I feel like the title skirt of reversal is really related to our point of departure. At first, we had this idea of reversing the loom. It became something when exploring how the transition between the pieces of wood could be, if the threads would be able to shape the woods having a shape not possible with another material.

**Olle**

Sort of like what you said about it before: usually it's the wood shaping the skirts, but now is the textile what shapes the wood. I was also thinking about (...) how now it's a discussion about what holds and what is being held. If we look at the loom, it is the wood stretching the wires and holding the whole thing, making it to tapestry. But in our skirt, it's that the threads holds the wood together, then the wood holds the fabric roof and and it's like... Interplay in a way.

**Carla**

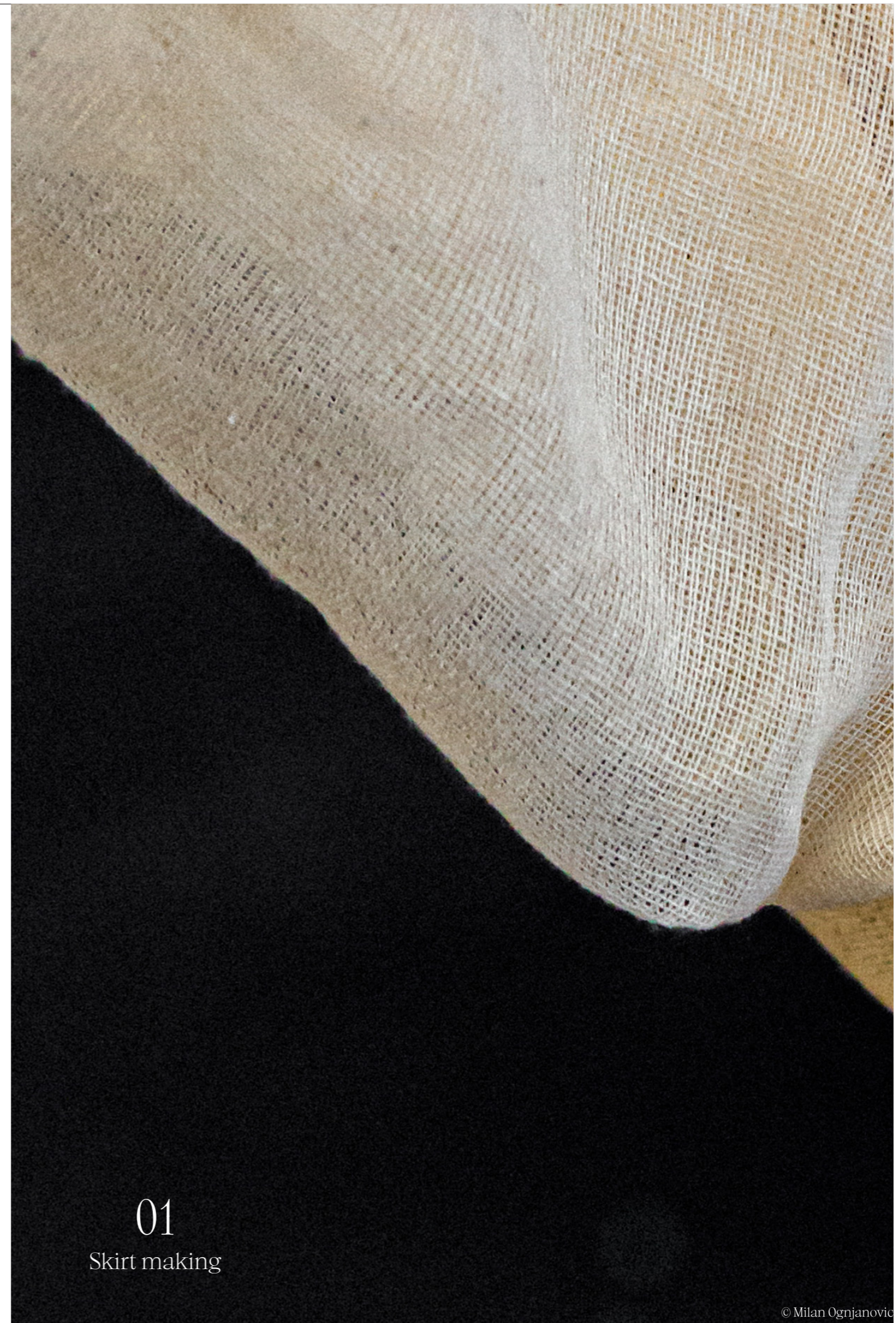
The starting point, I believe was (...) changing the use of the materials. For me it all started when we talked about reversing the loom.

**Olle**

Materials could be seen as gender coded, like wood being traditionally crafted by men and textile was more seen as women home labour. Wood: strong, hard - man; textile: flexible, weak - women. This later evolved as one of our main ideas. It goes back to the whole thing about reversal but it's also reversing how you see the material. What it's actually strong ? Because now the wood is bending to the will of the textile.

**Carla**

Yes, that's it, now we are afraid that the wood is going to break not the threats or the textile...



01  
Skirt making

# Hannah Ryggen

What about her ?



Hannah Ryggen, "En fri", Tapestry 1948  
This is one of her tapestries that inspired us

Hannah Ryggen remains one of the most distinct and influential Nordic artists of the 20th century. We discovered her world and felt very connected to her during our work.

She was a strong, important textile figure that dedicated her life to her work. Weaving was her way to express her ideas, showcasing stories of oppression and liberation that the affected people all over the world could not tell themselves. She didn't follow any patterns, she just explored new techniques and had fun playing with textile and colours. Her approach inspired our process of experimentation and creation, helping us to appreciate the beauty of manual work, something that has gotten increasingly lost in modern times.

## Hanna Ryggen

Before discovering her world at first hand, we were immersed in the story of Hannah Ryggen. We all felt very connected to her during our work.

## Skirts project

Our skirt is about reversing the properties of the materials we used, in this case the wood and the textile. Changing its usual uses by making the soft and ropes be the ones that keep the wood.

## Political remarks

She dedicated her life to her work. Weaving was her way to express her ideas, and she wove stories of oppression and liberation that the affected people could not tell themselves.

## Triennale

The Hannah Ryggen Triennale showcases her bold, woven tapestries, blending political commentary, artistic expression, and resistance to war, injustice, and oppression with striking visual and emotional impact.

## Carnival

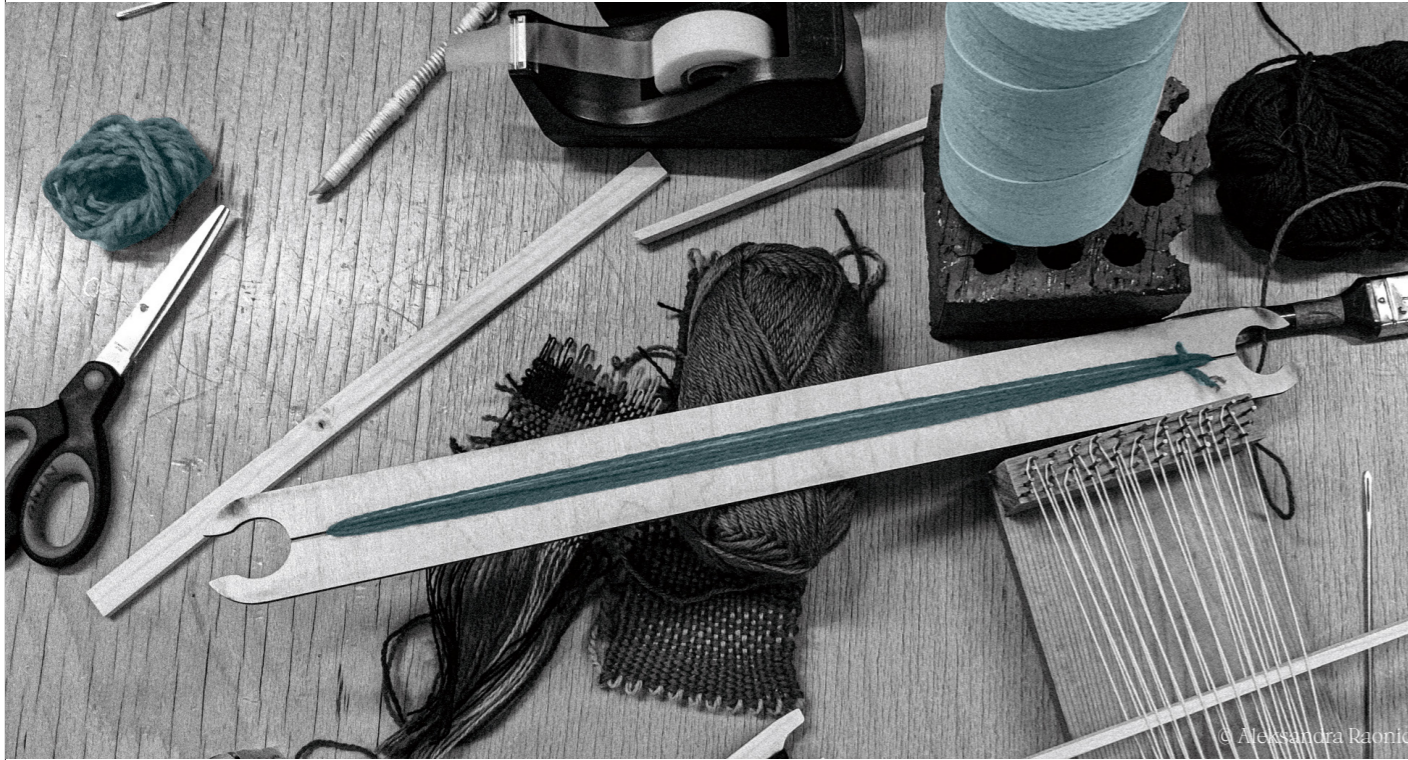
At the performance trees will create spaces in between and around it by pulling threads and bending the branches where the fabric is attached. There are 3 trees and in each one there's different ways of interact with them with our body.



Collage timeline showing key dates and images from our work up to the performance



## Sensitivity of handwork



Week 1: Workshop textile

### 1 - Discovery of fabrics, threads, ...

During the first week, we were experimenting individually, just trying things out on our own. We were taught different patterns, each one with its own strengths and disadvantages. We first began our experiments with the looms, machines, threads and textile that the textile lab offered.

At first it felt simple, but soon we discovered this process of weaving took longer and was more difficult than we expected. We learned how to change the wires, treat the edges, control the tension and to finish a tapestry.

Although all of it, it was really nice spending time on the textile lab weaving, experimenting with colours, materials and patterns. It was all trial and error and various questions came to our minds. I should've done it like this... How do I end this? Let's try another pattern...

That week really inspired our skirt: controlling and maintaining the tension give us a hint at how our future project could eventually work, conceptually but also physically.

Loom - Weaving loom - Sewing machine - Shuttle - Shed stick - Tension - Threads

### 2 - Discovery of softness, wool, ...

During the second week the rhythm changed, it was more about group work. Some of us loved carding wool as we found it really satisfying. It was interesting that we weren't focused on achieving a final result or a finished design; we were just making, exploring and playing with the materials. The repetitiveness of hand weaving helped us understand the process more deeply.

Working with wool felt essential, not just because of the importance of the material itself in our project, but because it was an important part of Hannah Ryggen's practice. It was like going back to her time, into her world.

Hand spinner - Carder - Hand - Dirty wool - Wool - Felting



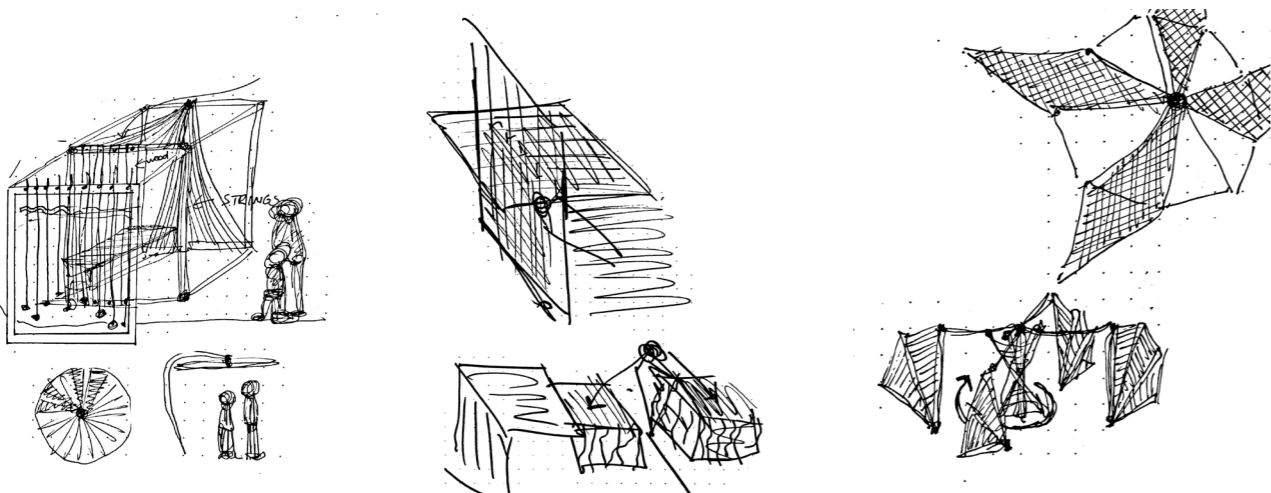
Week 2: Workshop wool

## Exploration of the skirt shape

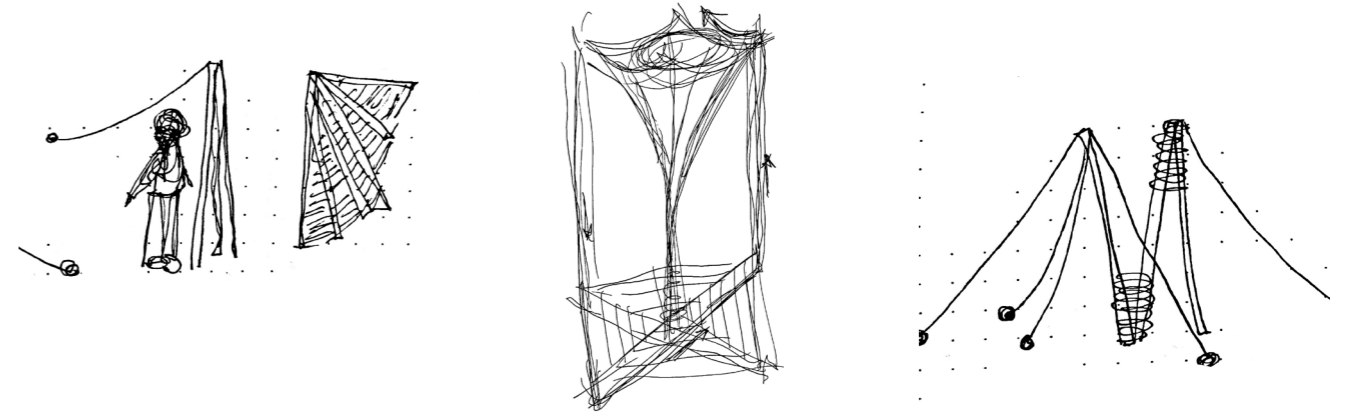


We started thinking about how we could link the work of Hannah Ryggen with our thoughts and translate our ideas into a structure, into our skirt. It started with redefining material hierarchy.

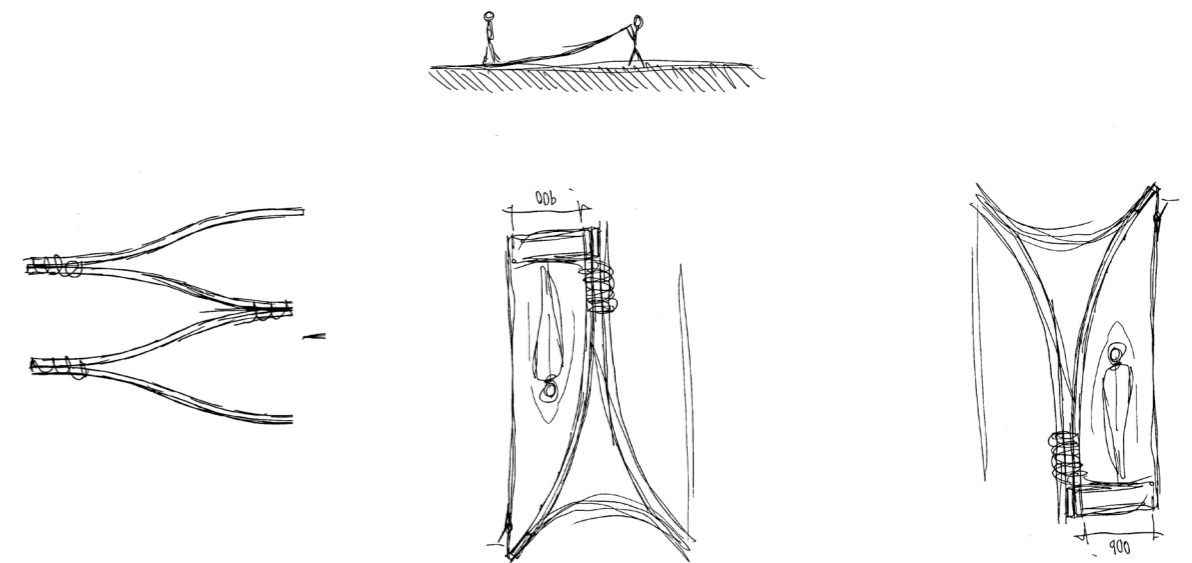
There was the circle, the gigantic loom, the table. As we can observe in the drawings we began placing people around the structure; investigating how they could interact with it.



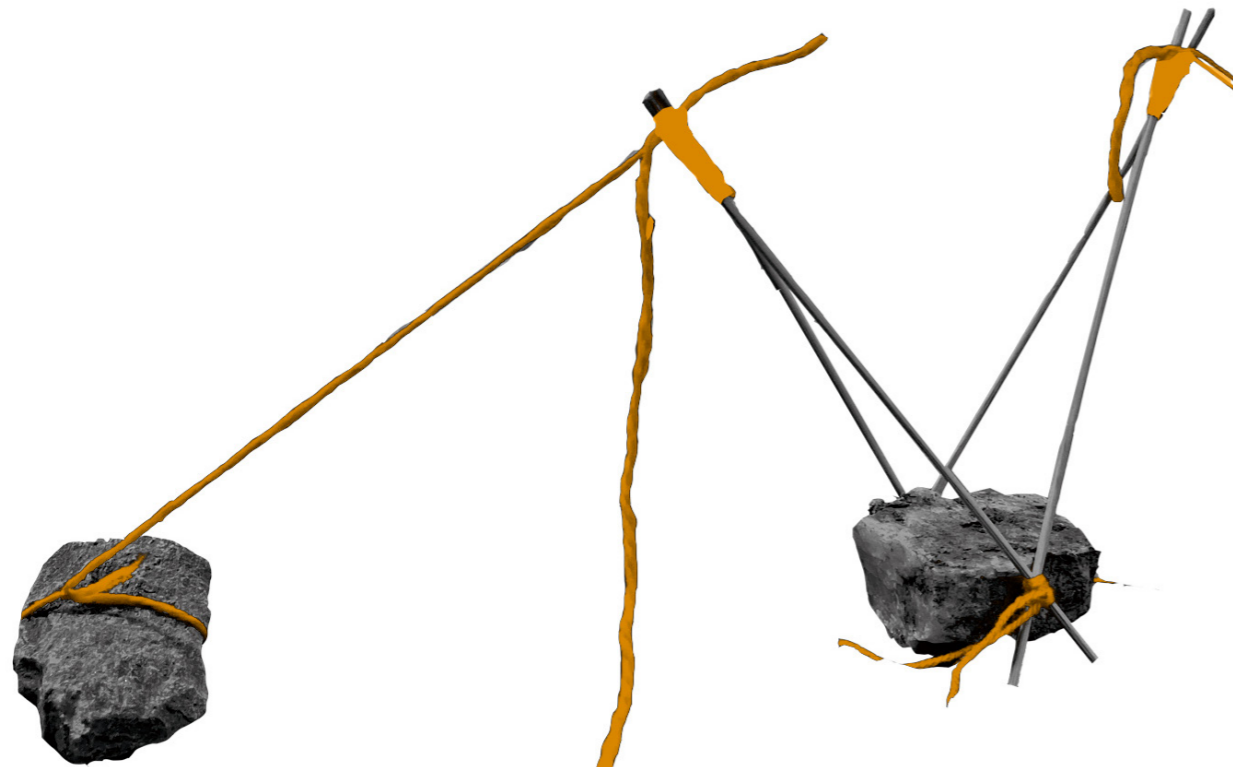
## A skirt into a tree



These dummies were a starting point for working with wood in flexion. It was really elegant to see that the thread connections were controlling the curve of the wood and opened up new possibilities for bending. We could also see that the soft material became the straight one and the stiff one became curved. We began to play with reversing the direction of the figure: upwards, downwards, like a skirt or like a tree...



## Sensitivity of handwork



Model 1:10

### 1 - Threads in tension

As said before, the first weeks in the textile lab were crucial for the development of our initial ideas. Working with threads, weaving and soft materials gave us a new way of thinking about structure. It was all about learning to control or release tension depending on the result we wanted to achieve. That simple idea of how to keep something tight or let it go, ended up becoming the starting point for our own project.

When we first started making 1:10 models in the Formlab, we already had some ideas of what we wanted to test:

Could it be possible to tie pieces of wood together using only threads? How much could the wood bend before breaking? Would the structure hold if we didn't use screws or nails?

We started by lacing wooden sticks together, trying different knots, thread thickness and materials. We noticed that when the sticks were not being tensed by us, the threads lost their strength, stopped holding the wood and moved it out of place. So, at this point we began adding different elements (rocks), in between the sticks to tense them and by doing that tensing also the threads.

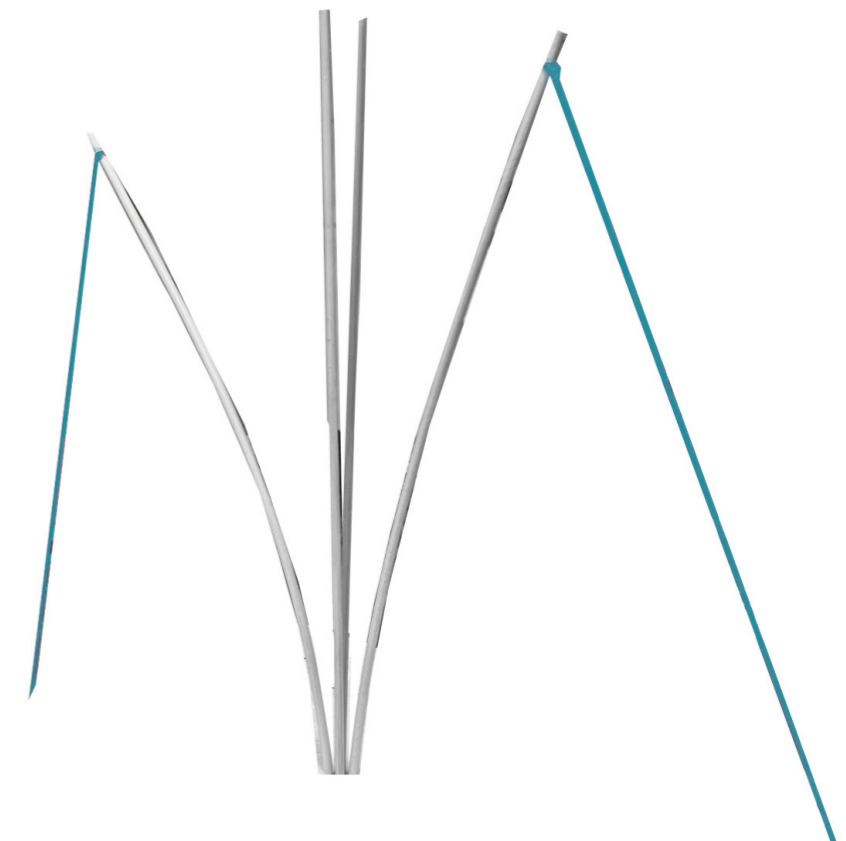
### 2 - Wood in flexion

At this point, we were just focused on testing how flexible the wood could be. We weren't following any plan, it was more about trying and experimenting. We bent, twisted, pulled... to see if the material would resist or if it would break.

Here it's where our final project really started to take shape. While playing with the flexibility of the wood we noticed that when we connected several sticks.

at one single point, like in a base, and tied threads on the free ends, all the structure gained flexibility and stability. It felt like something we could actually experiment with in a bigger scale.

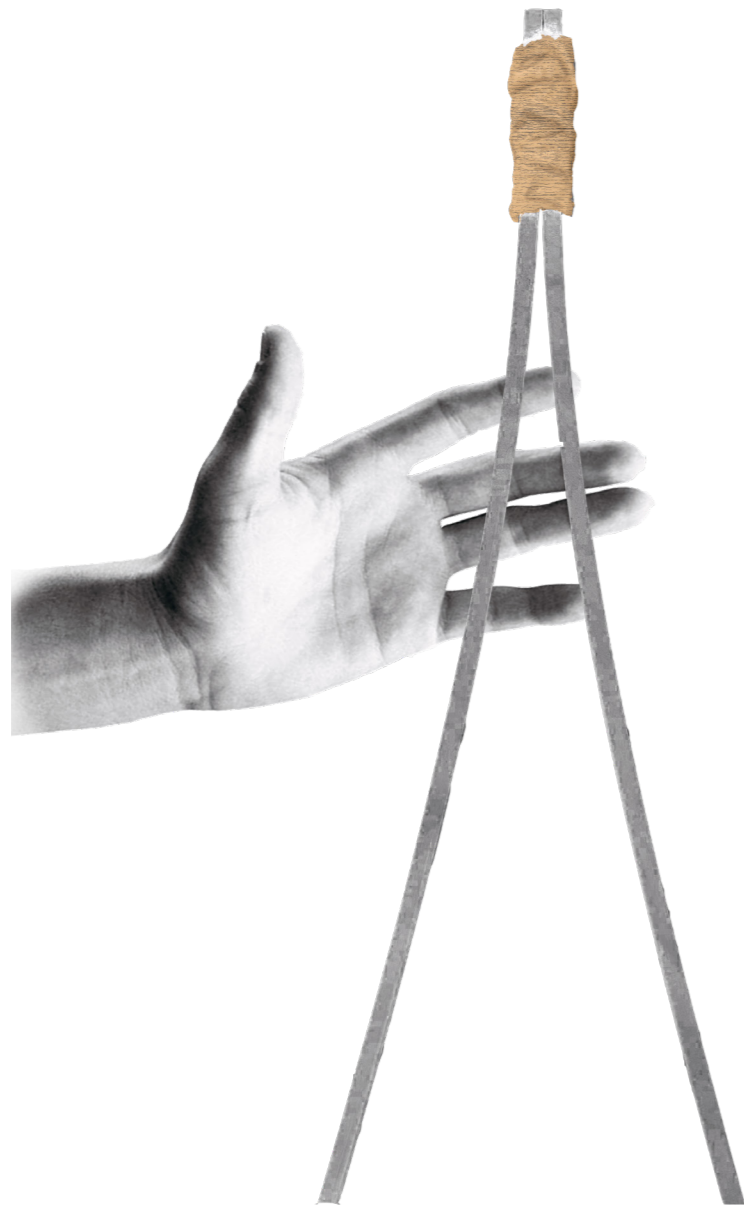
We tested different ways of tying the threads, for example connecting them to the ground or to other elements. The idea we felt like we could actually work with was when we tied the ends of two sticks directly to each other. That gave the structure a balance, both literally and also visually.



Model 1:10

## 1:10 scale : Exploration

The process consisted of testing different reactions of the wood at 1:10 scale. This helped us to see the behaviour of the wood when connecting it with threads. Nevertheless, it started to be difficult to know if the methods we used would work in bigger scales.



Model 1:10 realised in formlab

## 1:1 scale: Experimentation

We focused on testing different types of wood as well as dimensions. We also tested the flexibility of all the materials we had and ways of stitching pieces of wood together. It was also about exploring how the wood and structures interacted with the human body.

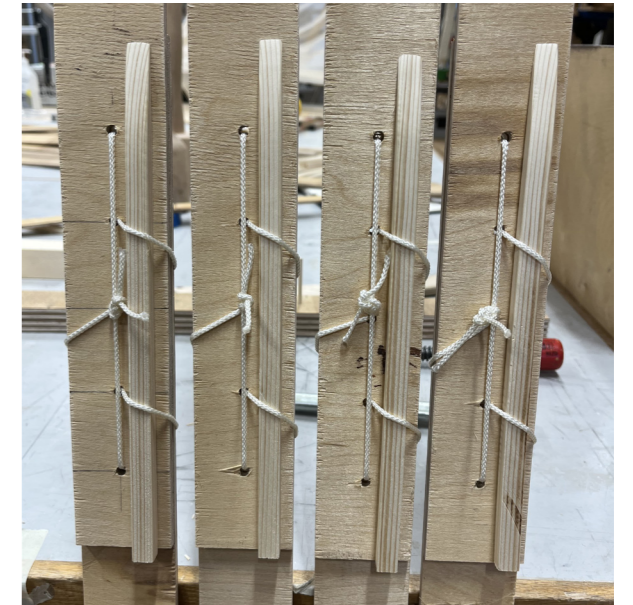
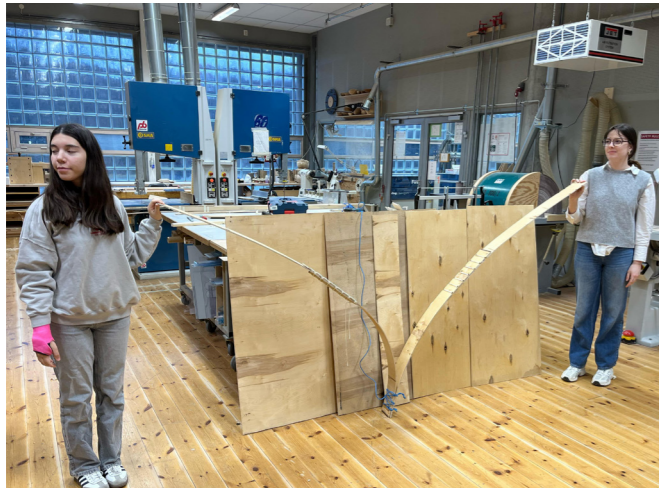


Structure 1:1 realised in workshop

## Working in the workshop

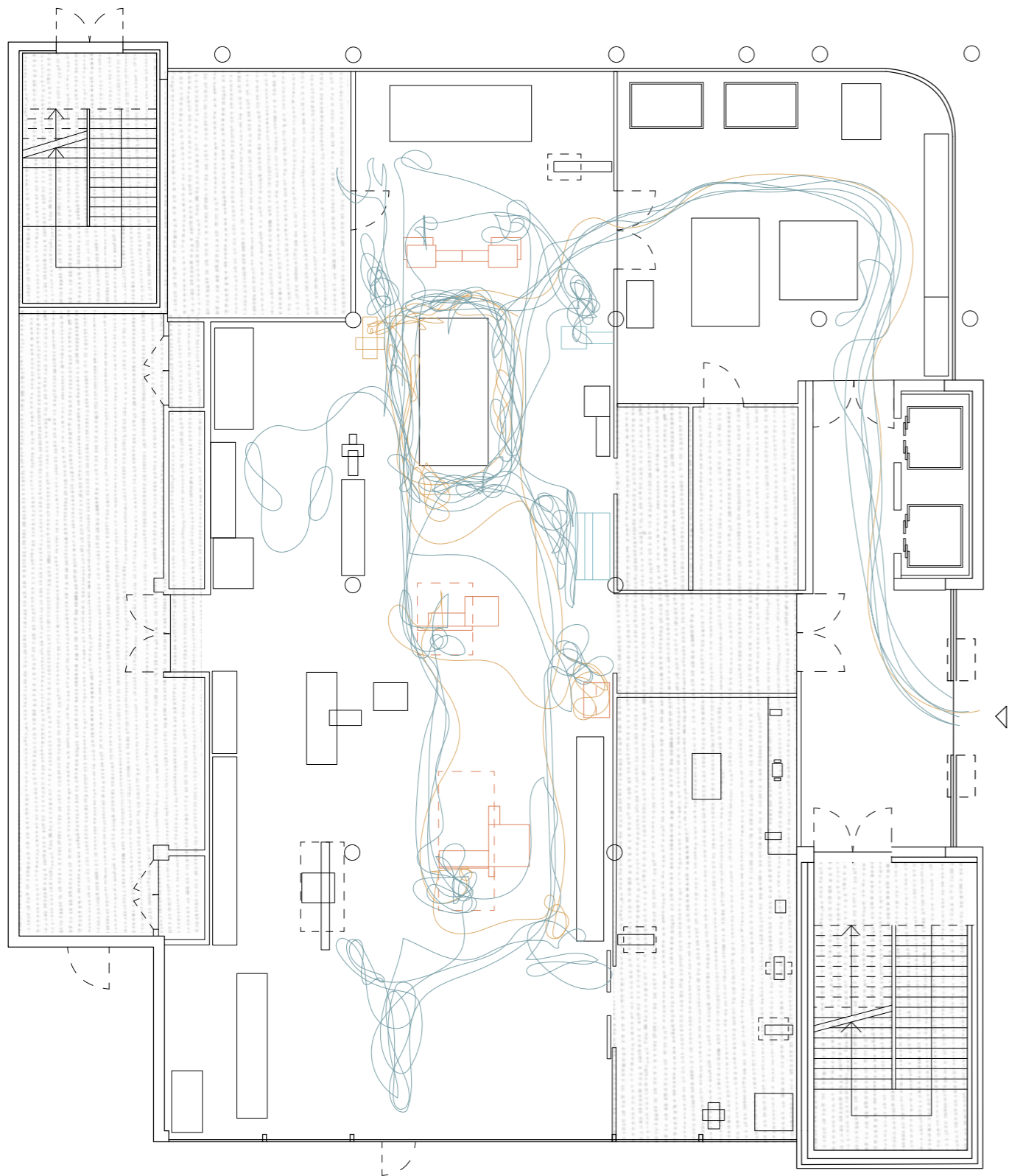


In the workshop, we began our explorations in full scale. The material we had first imagined to use as the bendable parts of our structure turned out to break easily. Instead, we found some old pieces of plywood that we cut up in the right dimensions. We tested different configurations and ways to interact with the material. What shapes could it achieve? How could it be joined? How could it interact with our bodies?

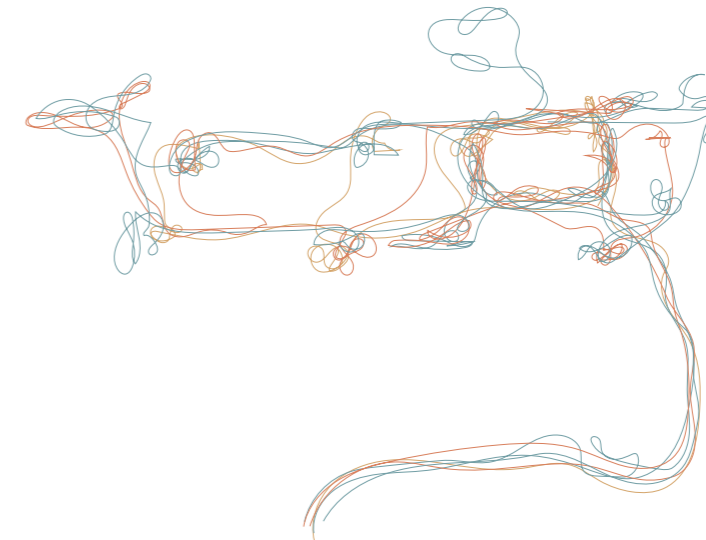


The process shaped the final product. For example, when we realized that drilling holes through two pieces of wood and connecting them with wire wasn't sufficient to achieve rigidity, we pushed in a wedge-shaped dowel between the wire and the wood. Thus, the wire was tensed and suddenly the joint became incredibly stable. It wasn't planned or designed, it just happened through trial and error, but it came to be the way we joined the entire structure.





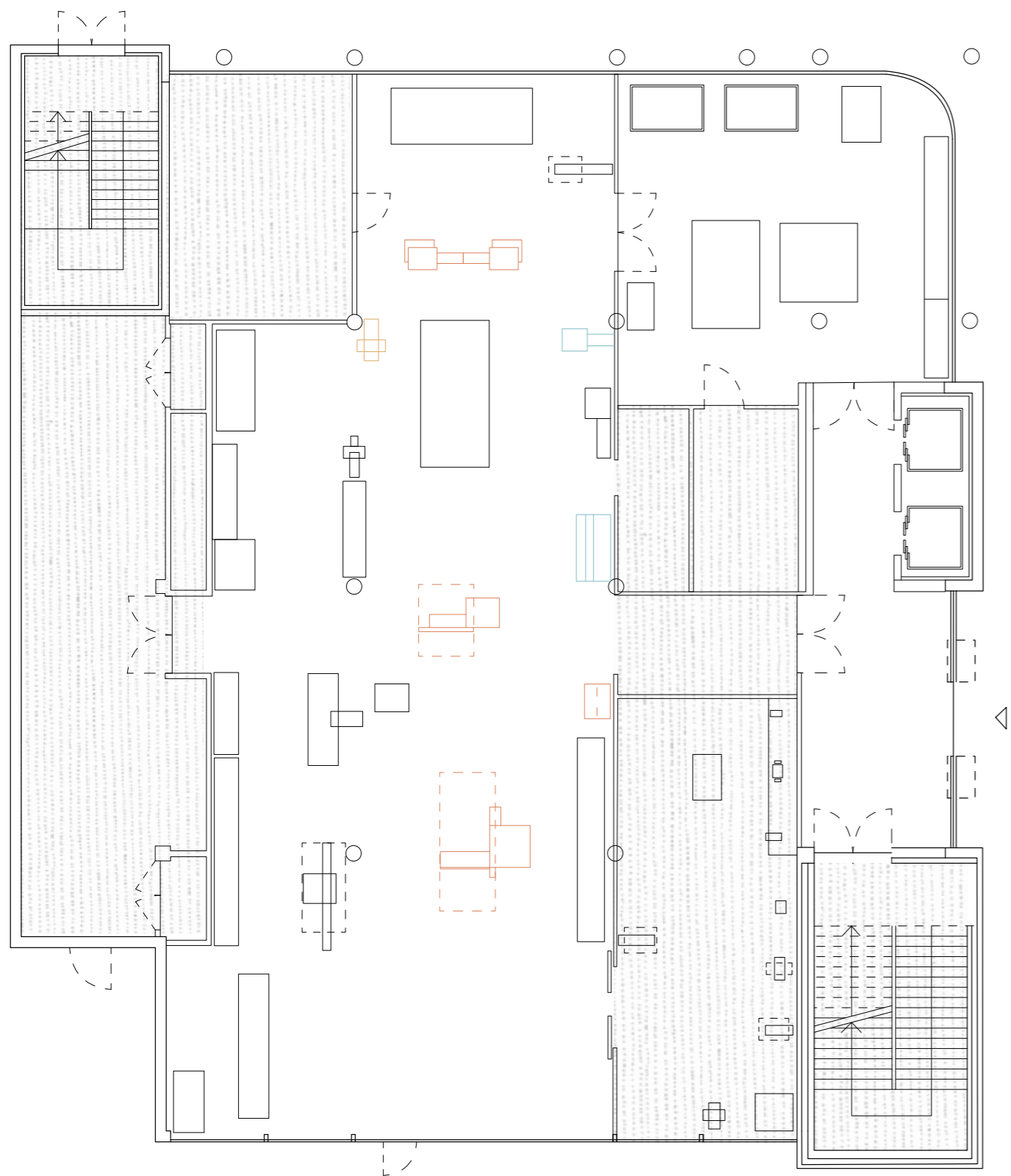
## A workshop in motion



The full-scale models of our project were built in the wood workshop, seen on the plan to the left. It was where all the experimentation and first steps took place, and also where the excitement that led to the realization of the work was born. The comings and goings of the workshop, the days sometimes long and full of doubt, led to everything falling into place.

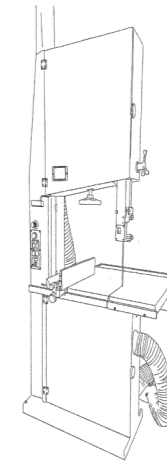
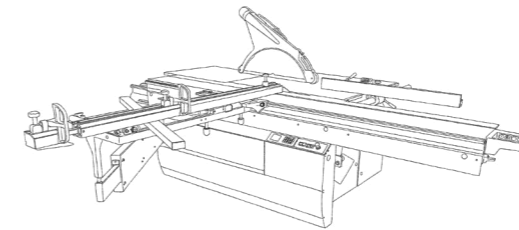
The organization and dimensions of the space shaped our creativity and influenced our experiments: The availability of materials impacted our design choices. But above all, they defined the final dimensions and scale of our skirt.





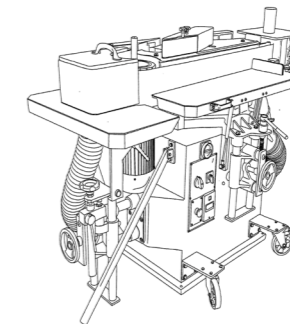
## 1- Sawing the timber

We used three different saws throughout the project, due to the variation of required cuts. Depending on the dimensions and direction of each cut, it was essential to switch between machines to ensure precision and efficiency. Sawing was one of the very first steps in our process—and it became a recurring action throughout the entire construction phase.



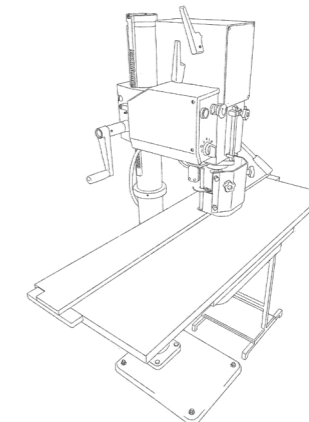
## 2- Sanding the edges

Although we aimed to preserve the reclaimed wood as close to its original state as possible, some elements had to be sanded. This was necessary both to avoid splinters and to soften sharp edges for safety reasons. We tried to sand it without compromising the material's raw and authentic character.



## 3- Drilling the holes

The drilling of holes through the wood became essential for joining the entire structure. It opened up many solutions for material interaction between wood and wire. We experimented with different hole sizes, depending on the drill bits available in the workshop. We tested various placements, positioning the holes closer or further from the edges, adjusting and refining until we found what worked best. It could take on many forms depending on precision, spacing, and scale.



## 4- Assembling everything

It was on the large table in the wood workshop that everything came together. There, we assembled the wooden pieces with wire. Clamps were used both between the wooden pieces and between our structure and the table itself. The table became a meeting point for collaborative decisions regarding assembly and adjustments.

## Working in the textilelab

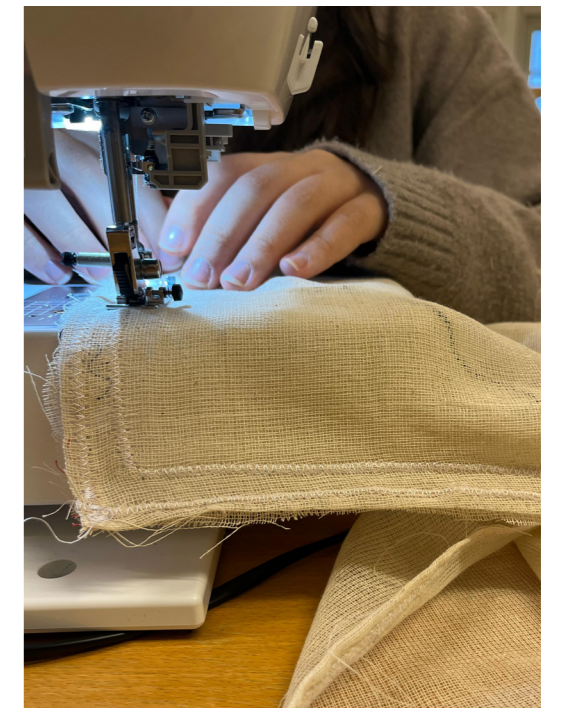


The fabric chosen for the roofs of the trees was a conscious decision. We needed something light enough to be held without any problems. This material worked perfectly for that. Another decisive reason was simply the fact that there was enough of it to cover all three trees.

Even though we had a lot of fabric, it was still necessary to join two pieces of fabric together in order to cover the roof of the two largest trees. For this, we used a grey zigzag stitch. We also decided to use a zigzag stitching for the finishing edges, but in this case we wanted to use colours inspired by Hannah Ryggen's tapestries, especially the ones that influenced us the most. The colours chosen were blue, yellow and red.



Finally, we had to figure out how to attach the covers to the trees. We decided to sew small pieces of fabric in each corner, creating a kind of pocket, so the fabric could hold onto the branches and stay in place.

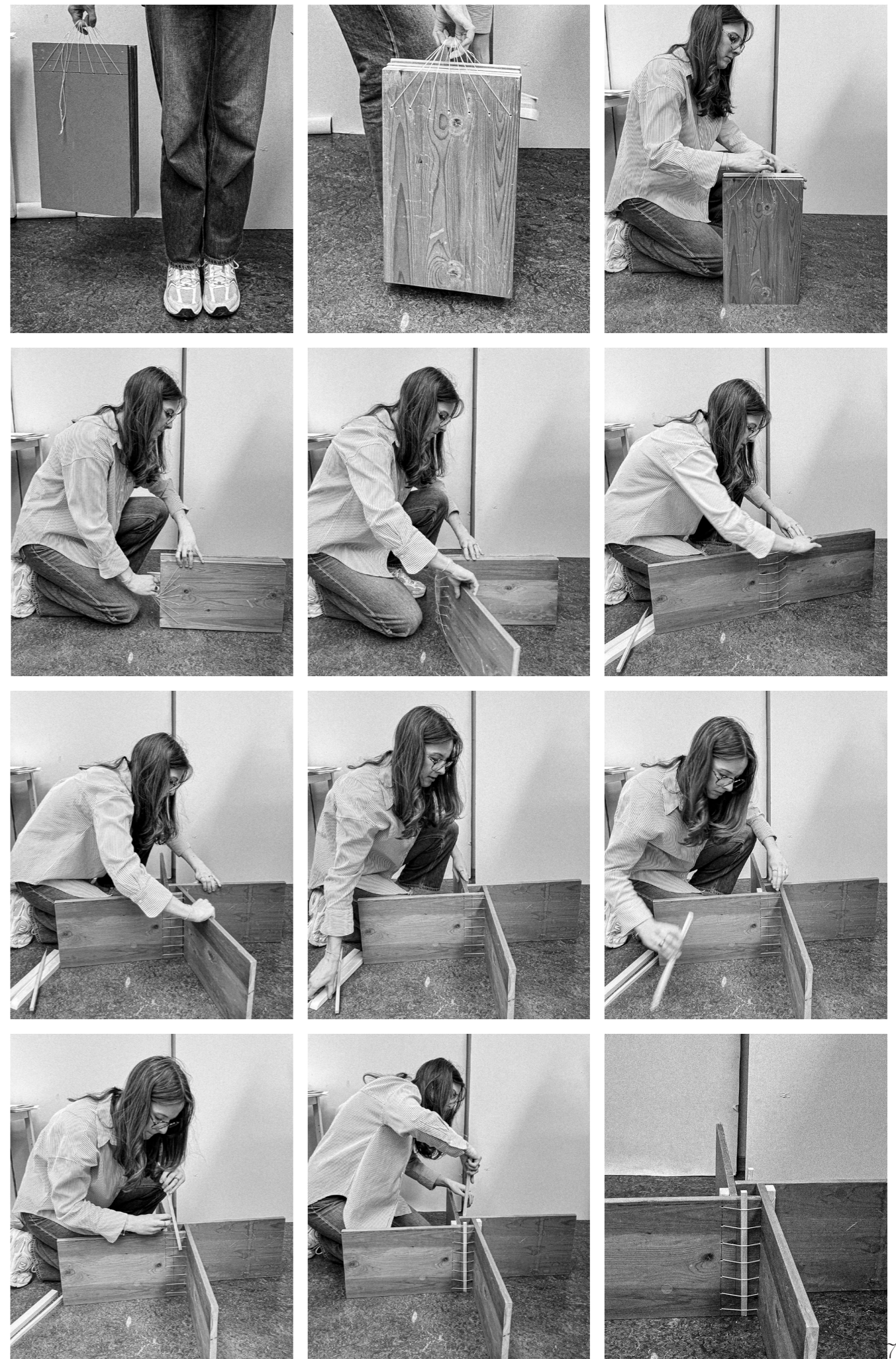


# Experimental practice

This project was a test in experimental practice. Letting go of the digital methods that has come to define contemporary architectural work, we instead used our hands and our bodies to guide us through this process. The initial concept, Skirt of Reversal, was defined early. This marked our desire to reverse common perceptions of materiality, where textile is considered to be something weak and wood is considered to be something strong.

Further, we wanted to reverse what holds and what is being held. For example, textile is often held up by a harder material. We, on the other hand, wanted to see if the wood could bend and twist according to the will of the textile. By making textile the main structural protagonist of our structure, we wish to shine a light on the often unrecognized female labour that through centuries has held the world together.

Caring, repairing and working with soft materials has throughout history not been considered real work, but without it the world would undoubtedly have collapsed.



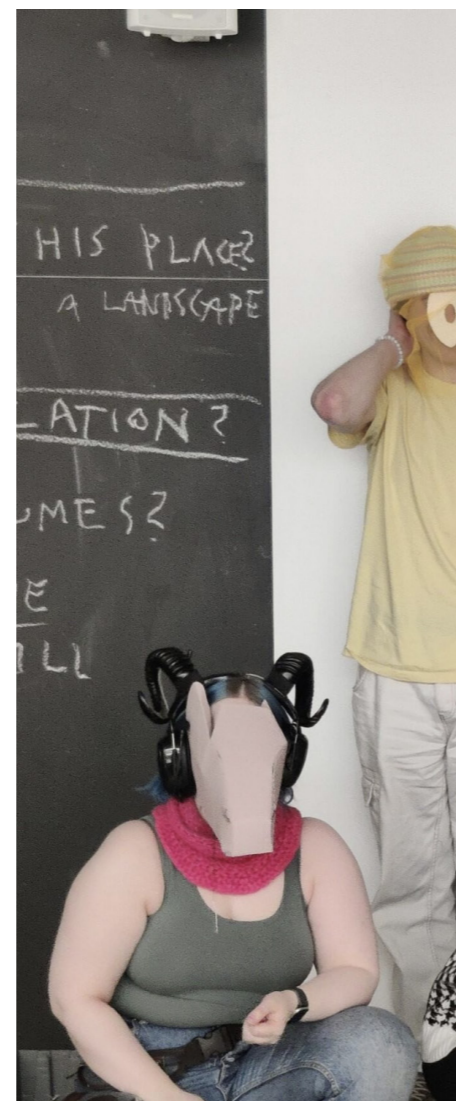
## Masks as part of the performance

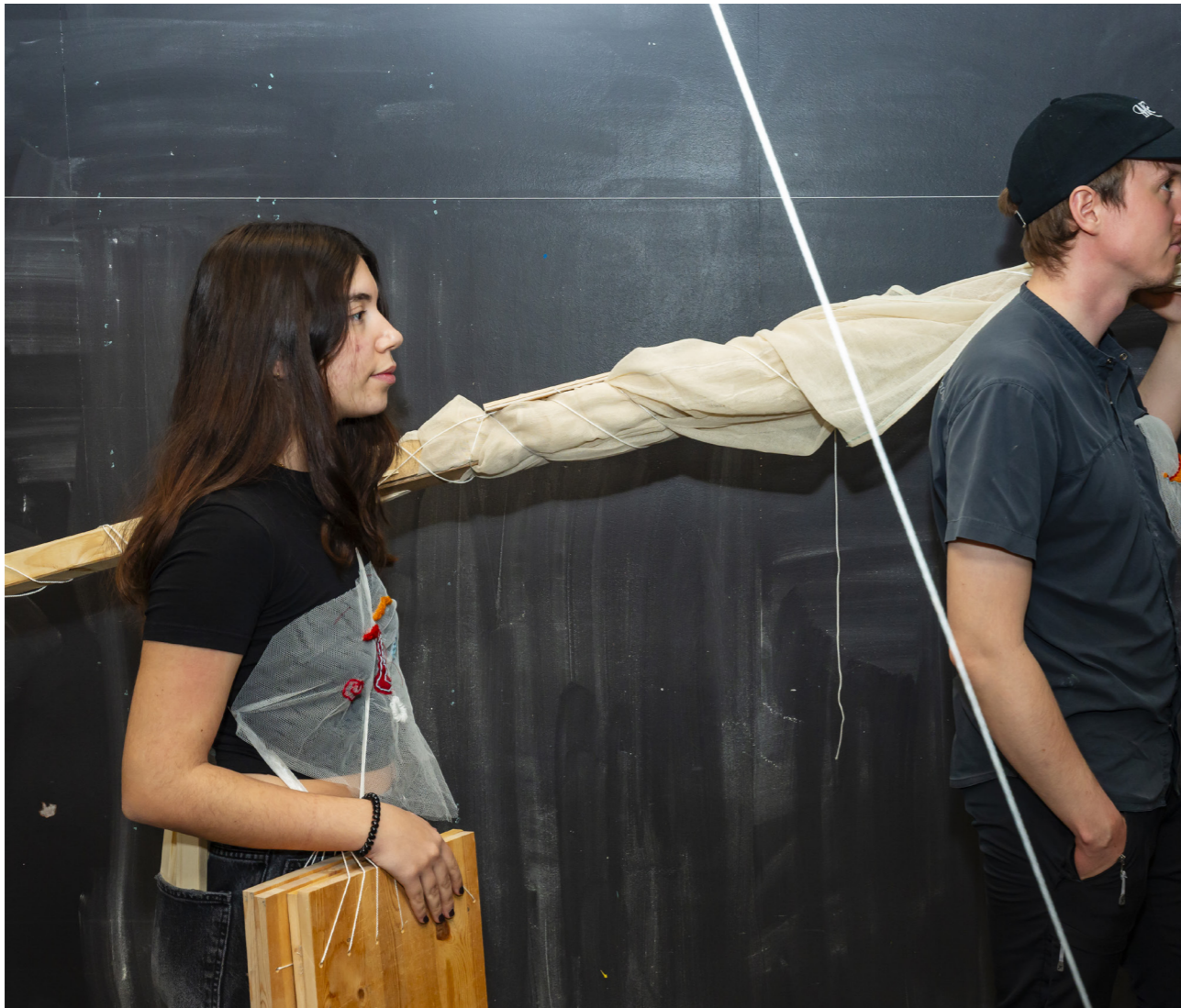
Does wearing a mask express something, or does it hide our emotions?

This question was at the heart of one of our explorations. Historically, masks have been used to exaggerate facial expressions or amplify identity and roles in theatrical performance. In our case, we interpreted the mask as a symbol of dual identity and expressive layering, using a deliberately transparent fabric.

The result was a subtle superposition: our real faces remained partially visible beneath the sewn fabric mask, blending presence and absence, concealment and expression.

This approach also allowed us to be perceived as a unified trio of performers by the outside audience, while each of us found our own way to express personality—or to hide behind the fabric, if only for a moment





## Performance rehearsal



This first event was about sharing our works with each other. Showing the other groups our final results and how we imagined the body could interact with the skirt and how the performance would be done. But the most important part of this performance was realising how we would transport all the different elements during the carnival.

We were also wearing our masks, which became an effective way to show the audience which group was related to each skirt.

# Interview

What is your process like and how it is related to architecture as an event ?

## Carla

Ok, I feel that at first, we didn't understand what the performance was about. Did we have to actually perform or was it about people engaging with our project? Because of that, we started experimenting in the workshop how the participants and their bodies could interact with the skirt. We started to stitch some planks together, sit and play with them and observe how they could rest on different parts of our bodies.

## Clara

Yeah. It was also very interesting to start working with the first tree, since it led us to establish how we wanted to approach the performance. We didn't want to simply repeat three times the same concept; we wanted to experiment with other ways to bend the wood (...) so we ended up creating other experiences and forms of interaction while also studying different ways the elements could be performed and interacted with one another.

## Olle

But what is performance in architecture, really ? This is a question I've been battling with a bit lately. For example, If you just move through a space or open a door, could it be considered performing? If you open a closed door, you alter the space, you make it possible to see somewhere else or into another room; you change the room through movement and interactions, but is it a performance or is that just opening a door? Like, where are the limits ? Is it just an act or a performance ? How far do you have to go for it to be a performance?

## Clara

I feel the act becomes a performance when you define a time frame. Of course, it's necessary to interact with the architecture, but if you set a time, there it turns into a performance. For example, in our act, I think there were 2 parts. At the beginning, it was all more staged. The first 30 minutes consisted of us preparing and setting everything up. After that, the second part: was more focused on the interaction between the audience and the skirts. It was more spontaneous since it was not organized by us, but it still felt like a performance.

What are the components of your skirt ?

## Clara

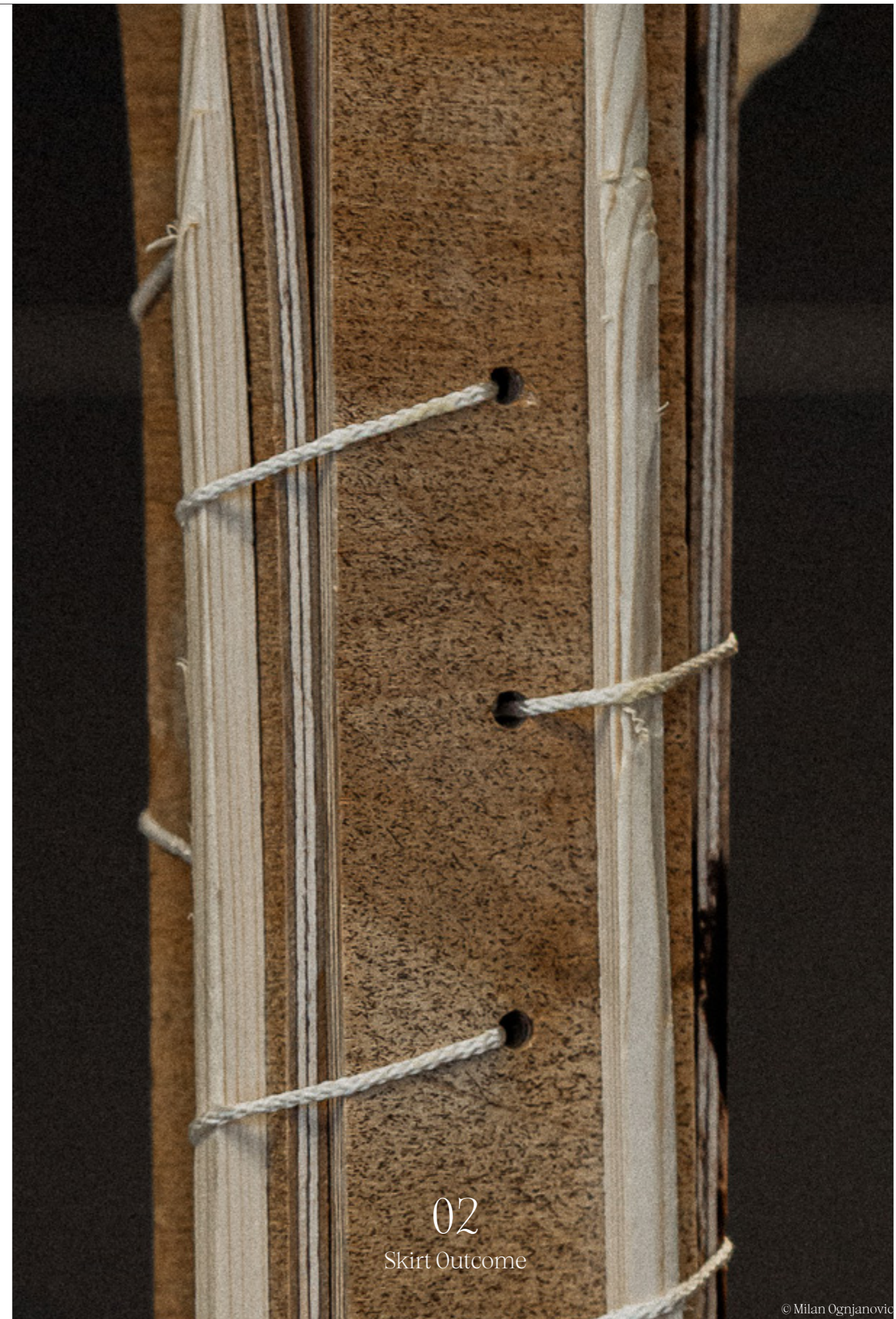
Usually in architecture you're given materials like steel or other hard materials to link elements together. Working on this small scale made us think: OK, maybe we can try to just use threads (...) since it allowed us to experiment more freely. The concept actually worked super well, so we just kept pushing it further and further.

## Carla

It was also crucial for our project to think how the different parts of the skirt could be recycled and reused. We considered it was important to not use any adhesives like glue for exemple.

## Olle

Not having screws also makes the whole thing very visually clean. It's easy to identify all the components and understand how it was assembled.

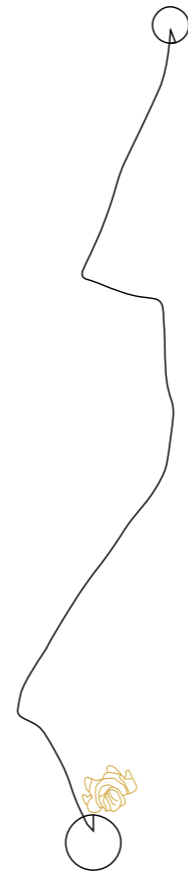


02  
Skirt Outcome

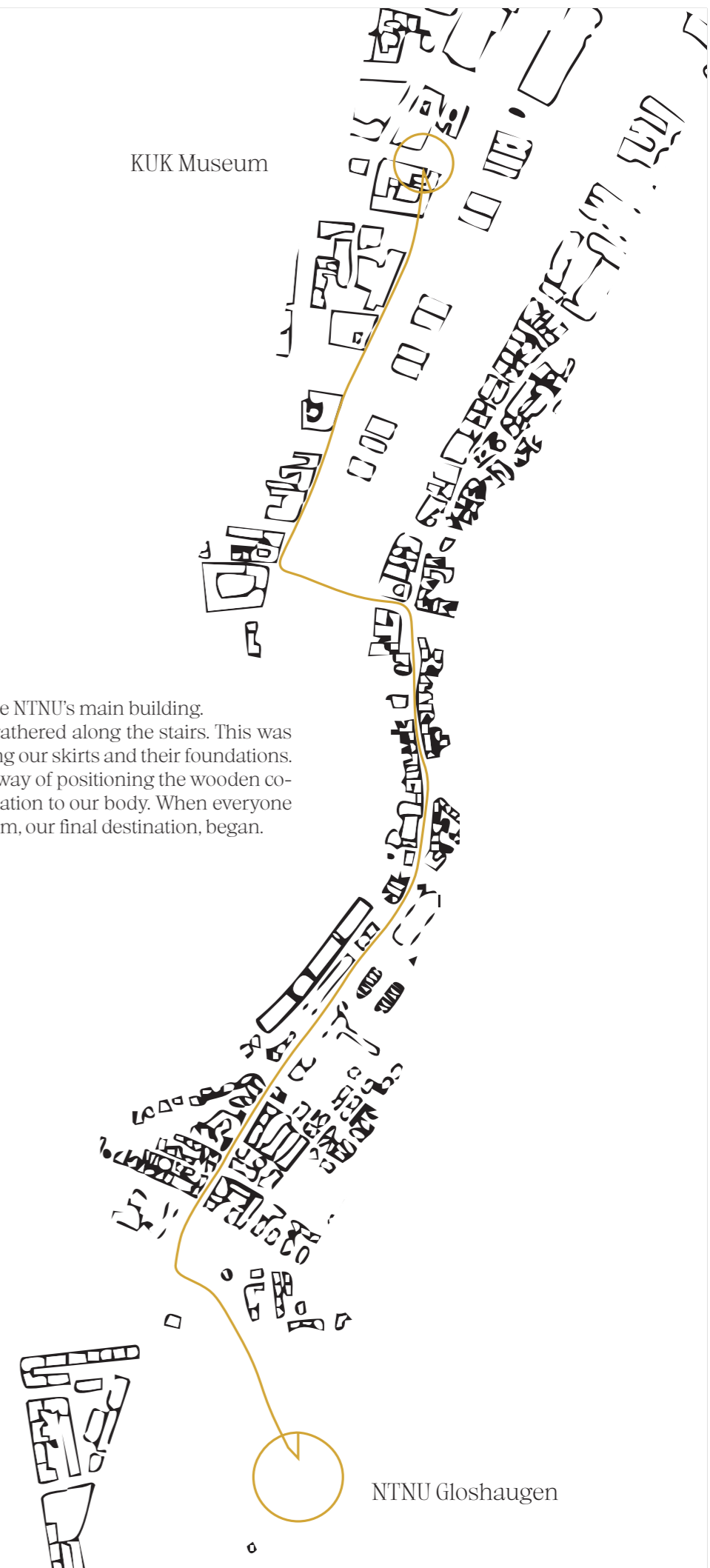
# Carnival



© Milan Oghjanovic



The carnival started at the NTNU's main building. Dressing all in black, the group gathered along the stairs. This was the very first time we were wearing our skirts and their foundations. Each one of us adopted our own way of positioning the wooden column in a comfortable way in relation to our body. When everyone was ready, the walk to the museum, our final destination, began.

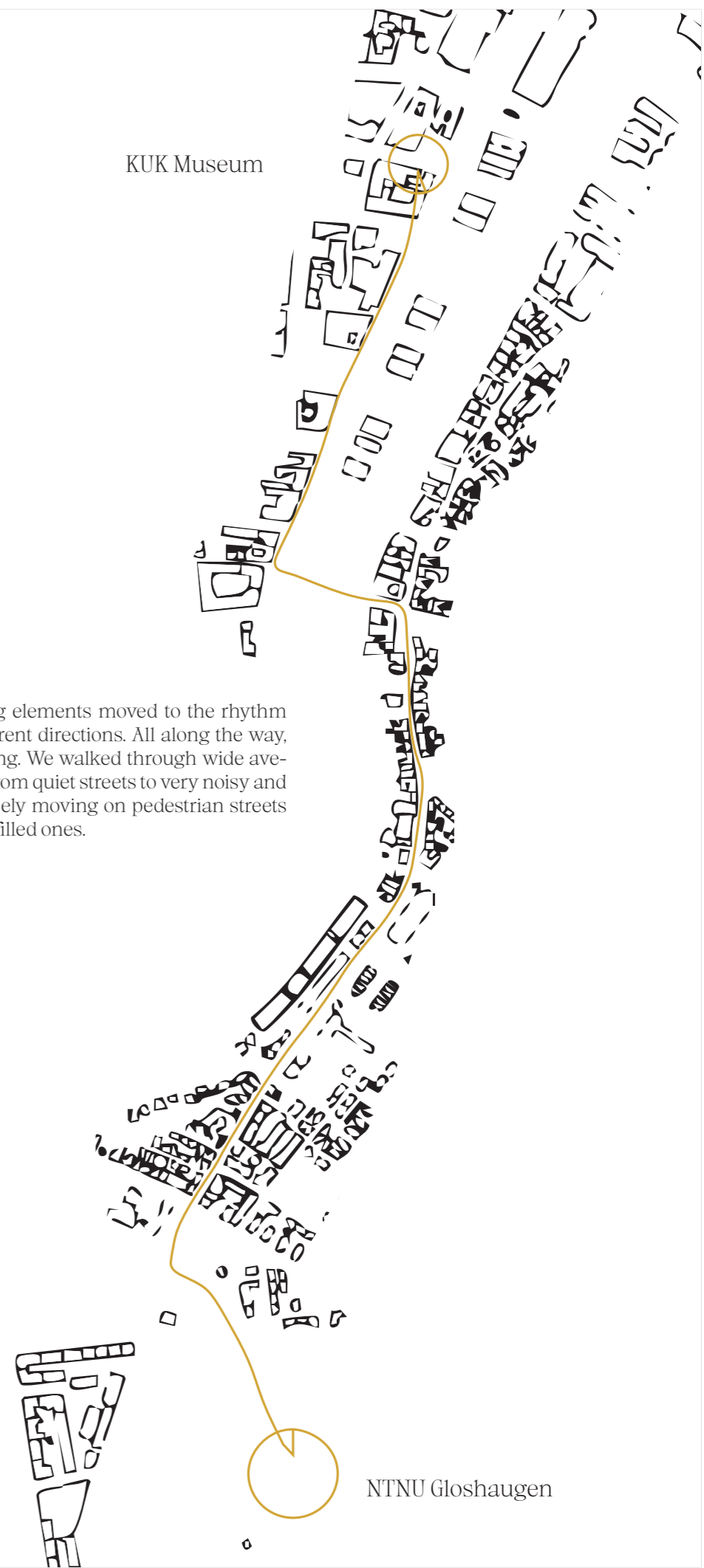




© Milan Ogrjanovic



The hooked and hanging elements moved to the rhythm of our footsteps, swaying in different directions. All along the way, the space around us kept changing. We walked through wide avenues and narrow streets. Moved from quiet streets to very noisy and crowded ones. Changing from freely moving on pedestrian streets to paying careful attention on carfilled ones.





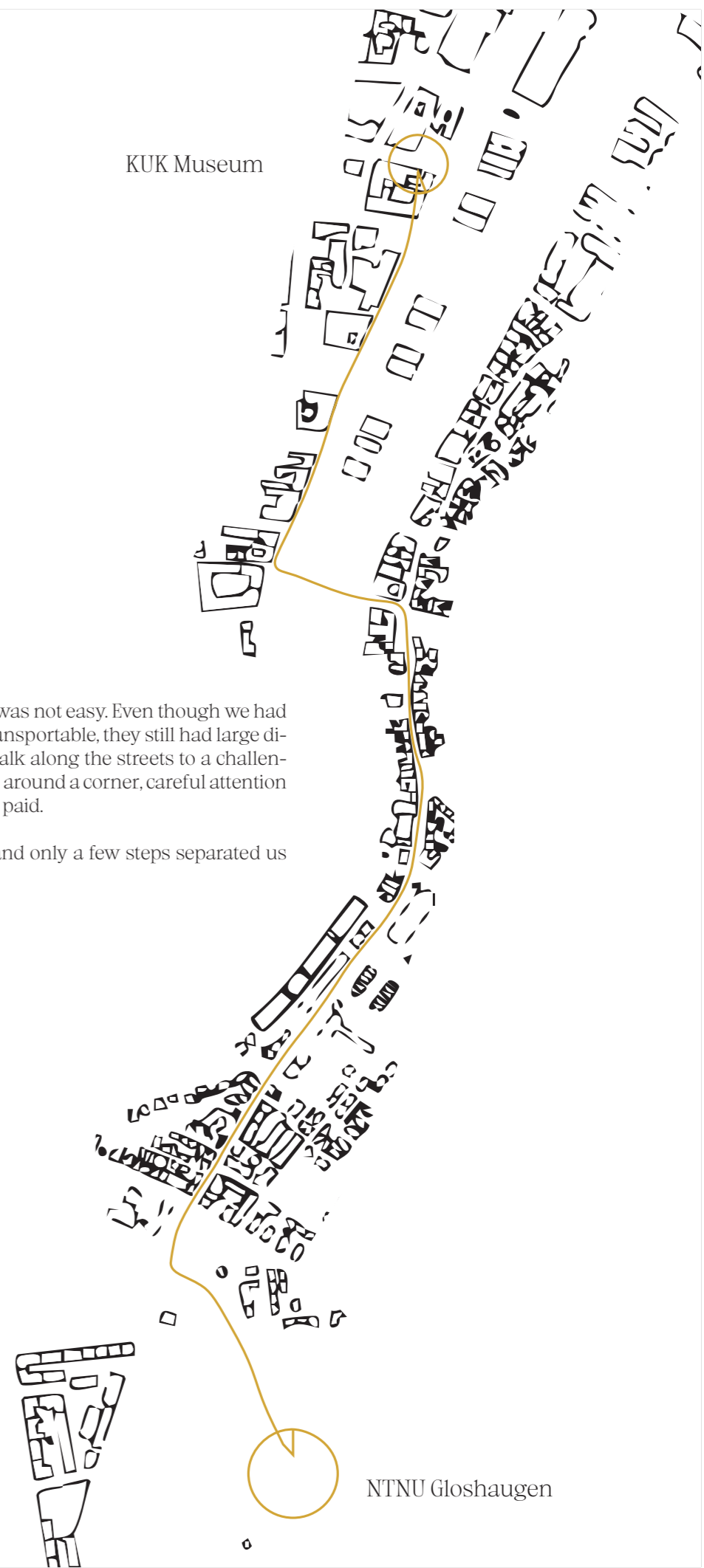
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KUK Museum

Strolling down the street was not easy. Even though we had designed our architecture to be transportable, they still had large dimensions transforming a easy walk along the streets to a challenging one. When it was time to turn around a corner, careful attention of our surroundings needed to be paid.

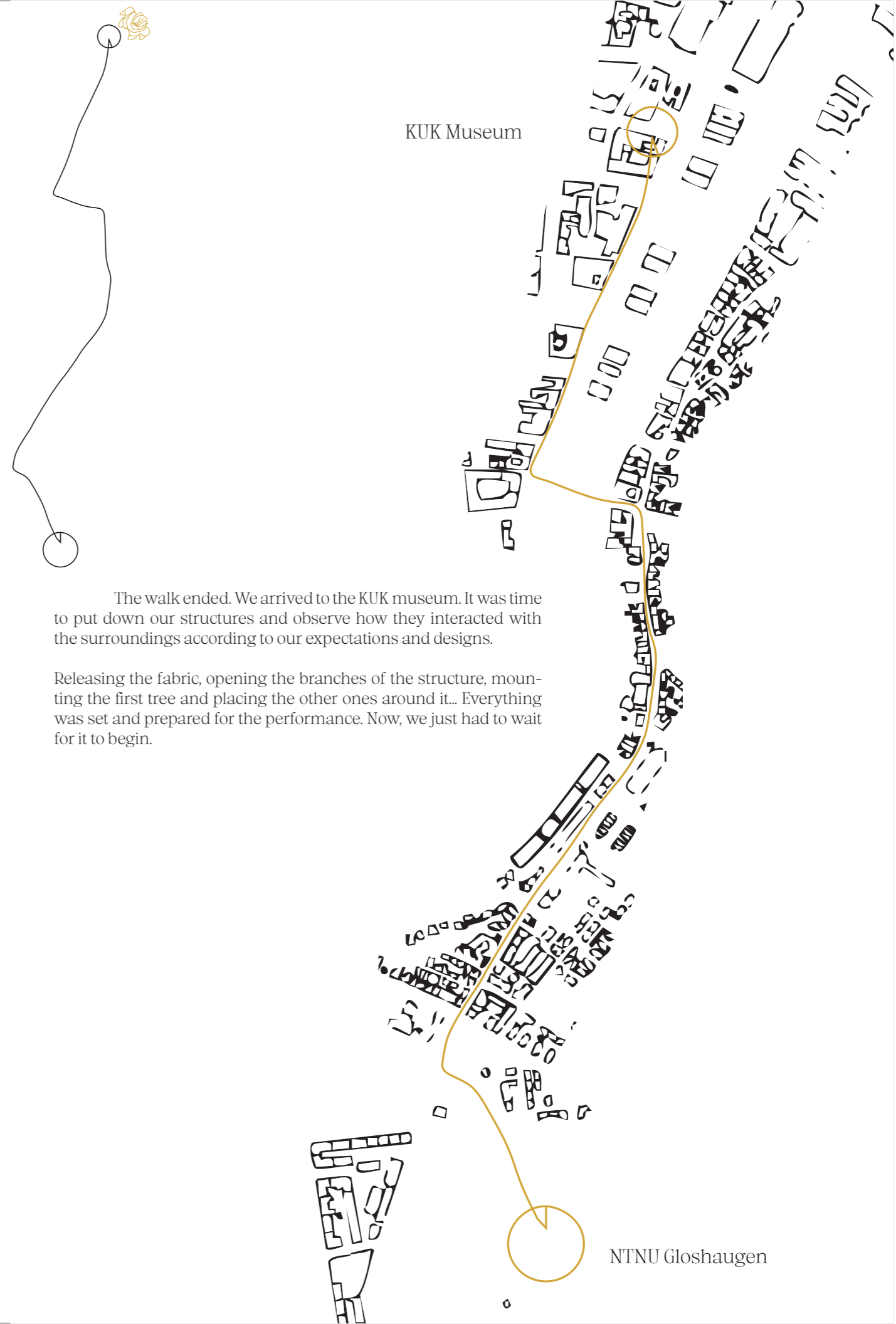
We had now crossed the bridge and only a few steps separated us from our destination.



NTNU Gloschaugen



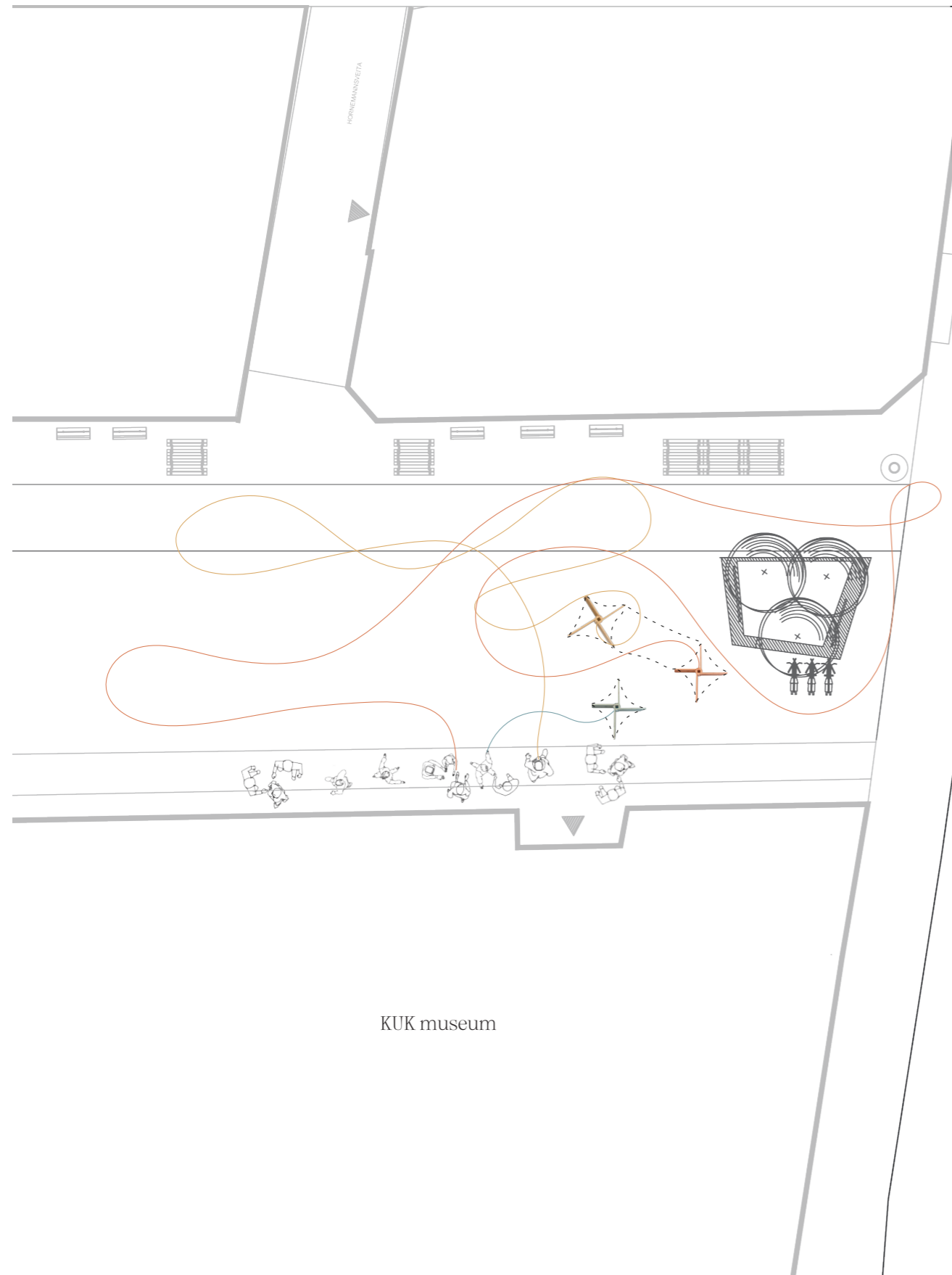
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The walk ended. We arrived to the KUK museum. It was time to put down our structures and observe how they interacted with the surroundings according to our expectations and designs.

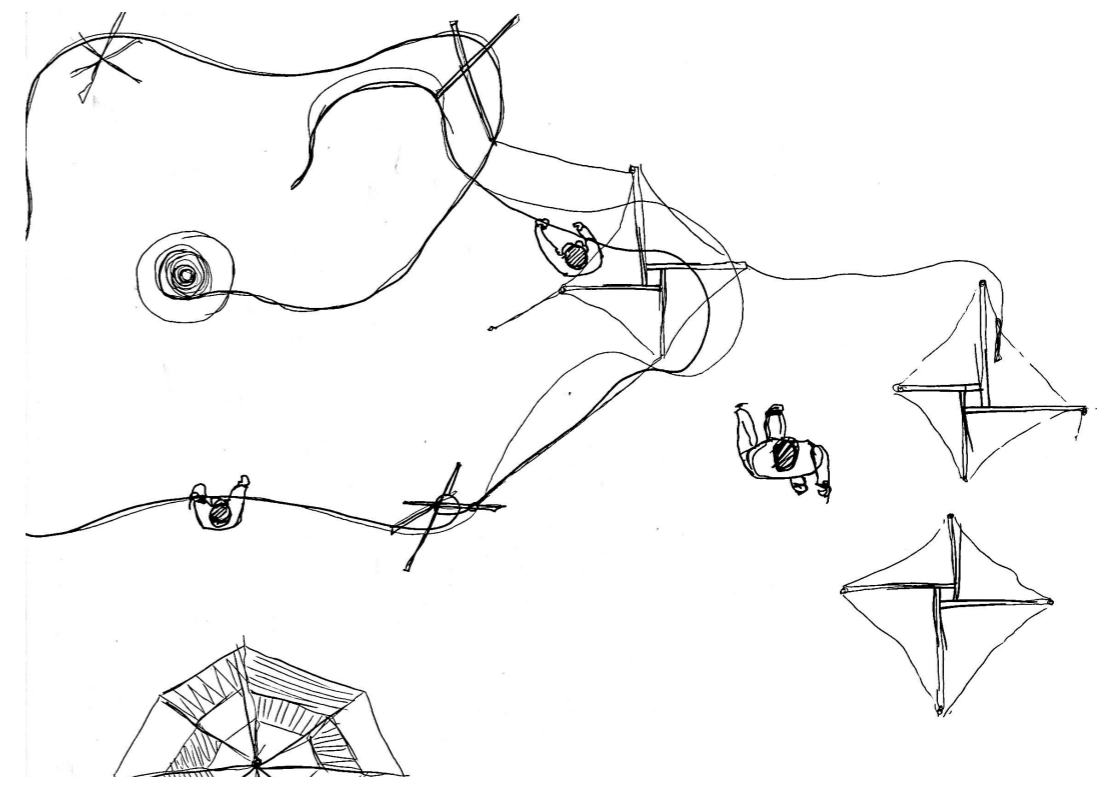
Releasing the fabric, opening the branches of the structure, mounting the first tree and placing the other ones around it.. Everything was set and prepared for the performance. Now, we just had to wait for it to begin.

NTNU Gloschaugen

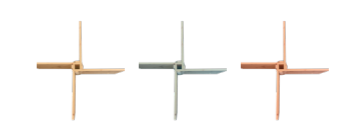


KUK museum

## Performing architecture in space



Before the performance began only one "tree" was standing in place, the other two columns lying on its base. In this moment we started our walk through the space, picking up, one by one, the two remaining foundations placed around the square. We carried our foundations in their belts, and the performance began...

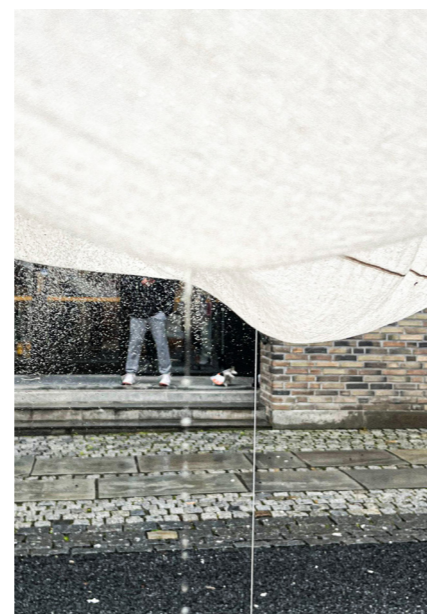


The concept of conceiving architecture as an event meant designing the structure with the place where it would be later performed in mind. This approach also invited us to rethink architecture, seeing it not just as a static form, but as something with movement.

Each group had its own interpretation of "skirt", but the works remain connected through the materials used and their organization in space. It was also our movements and the relations we made during the performance that brought the "skirts" to life.



## 1 hour of performance



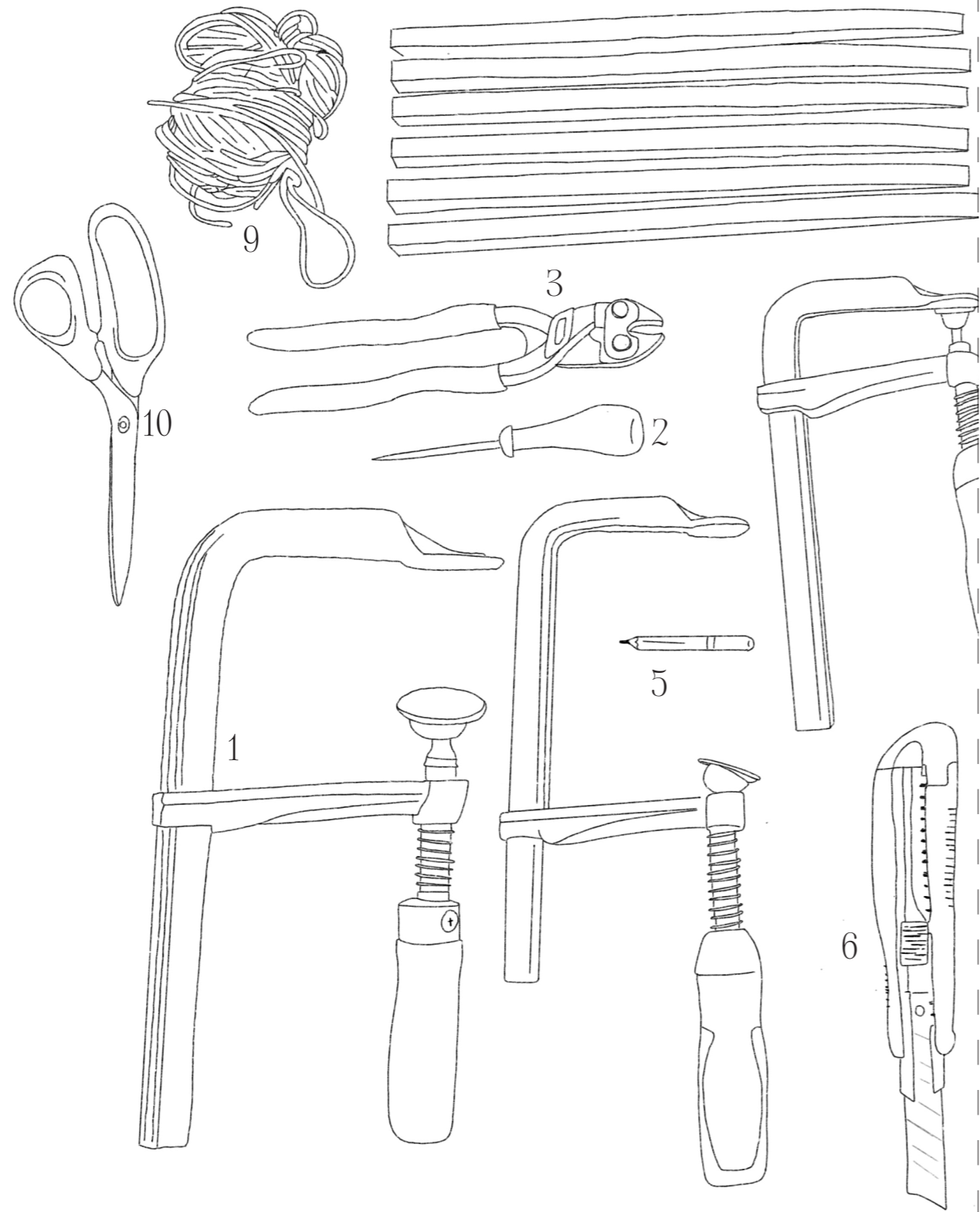
The audience was waiting with anticipation. "What are they doing?" "Has it already started?" "Oh look! The structure is already being raised". Meanwhile, Clara, Olle and Carla were focused on assembling their project. "It's starting to rain a lot" "Will the people play with the projects despite the rain?" These were some of the thoughts the group had.

30 minutes later...

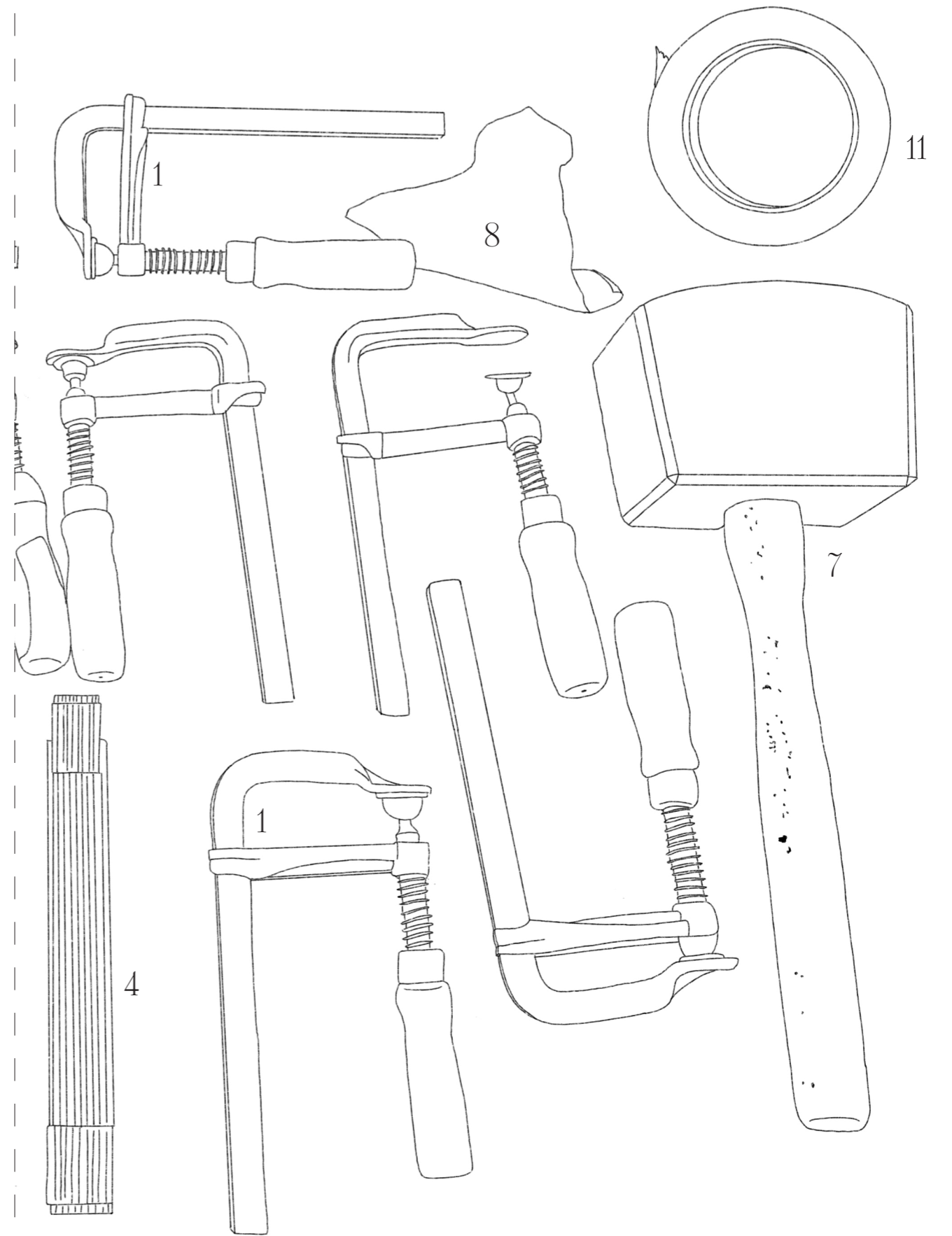
The skirt was completely raised and ready to be played with, but... would the people know what to do? Once the three group members left the main stage, the people slowly entered the stage. The second part of the performance had begun. Now it was time for the audience to interact with the skirts and experience them through their bodies.

The performance had been a complete success! The rain made it more difficult but still, people had a great time, and the structures held themselves together as much as they could.

# Tool Box

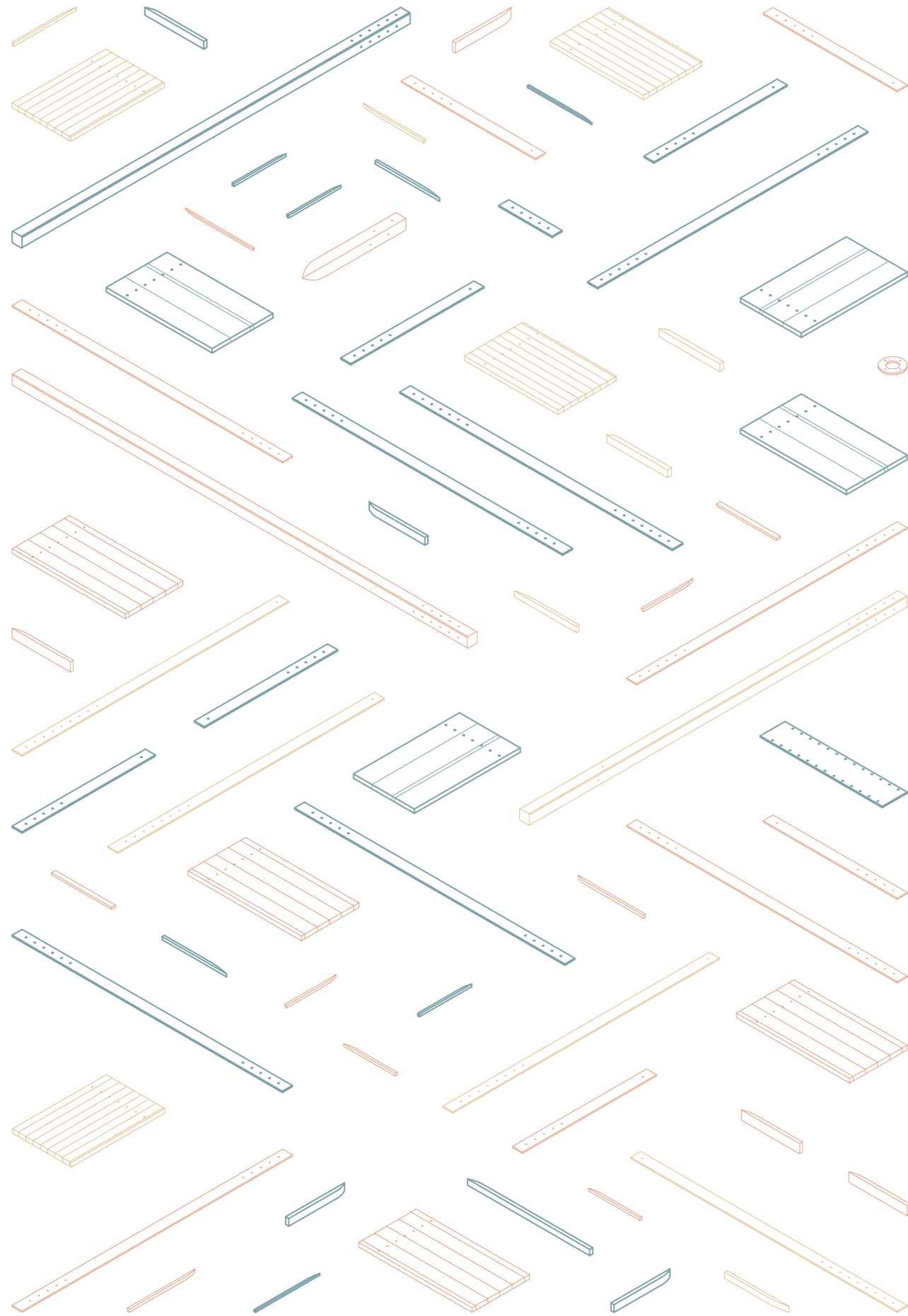


1 - Clamps    2- Hand-held screwdriver    3- Wire cutters    4- Measuring stick    5- Pencil

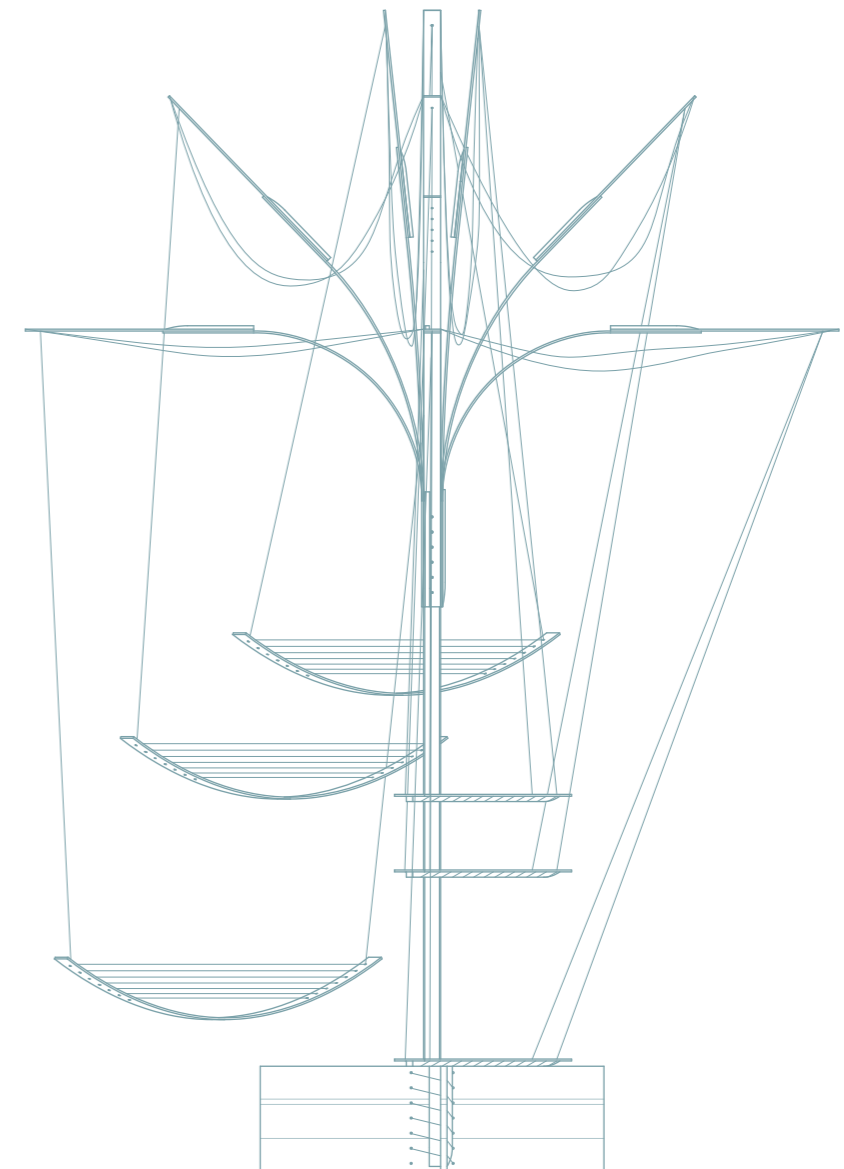


6- Cutter    7- Wooden hammer    8- Sand paper    9-Thread, Rope    10- Cisors    11- Tape

# Components



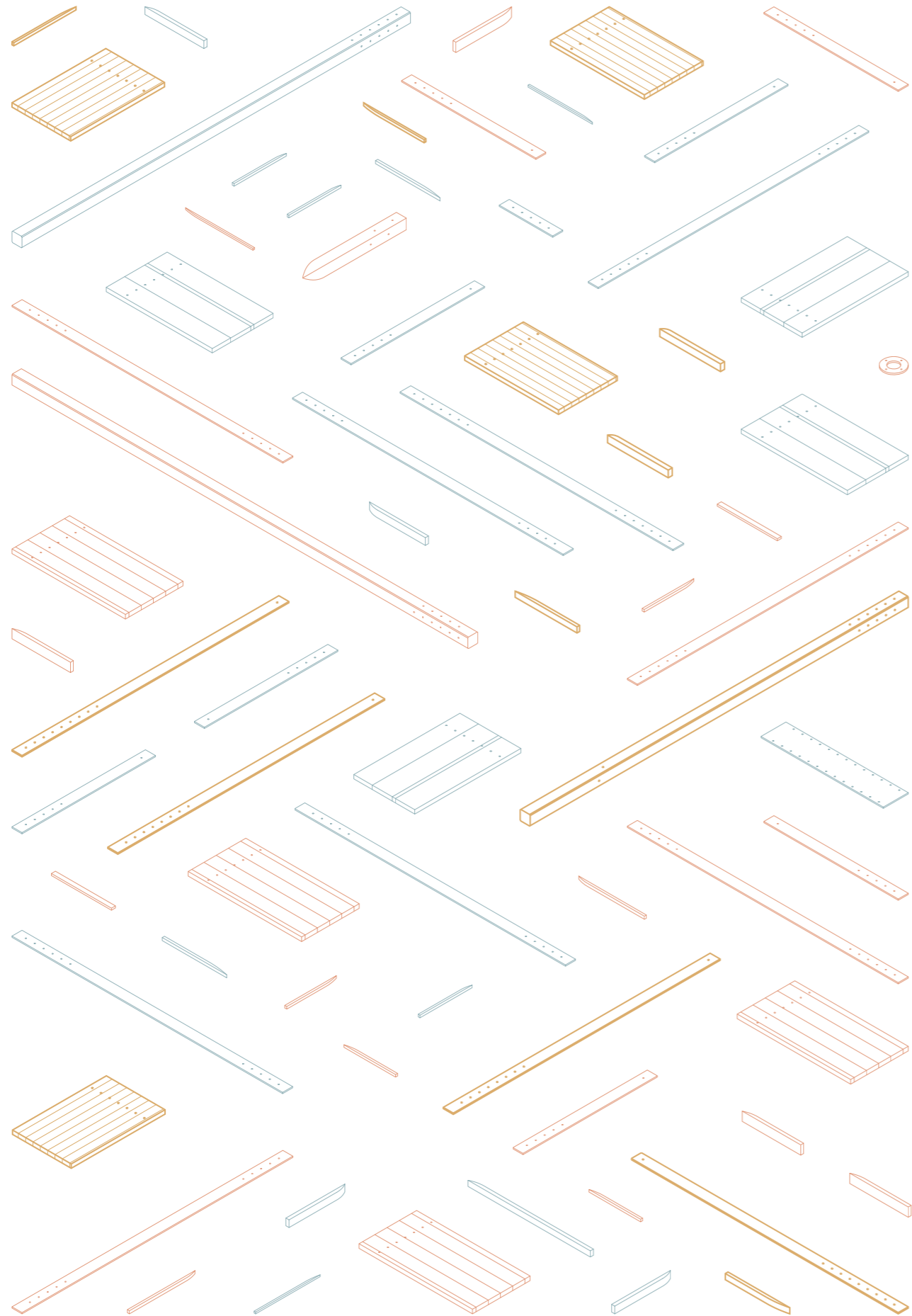
# The swing skirt



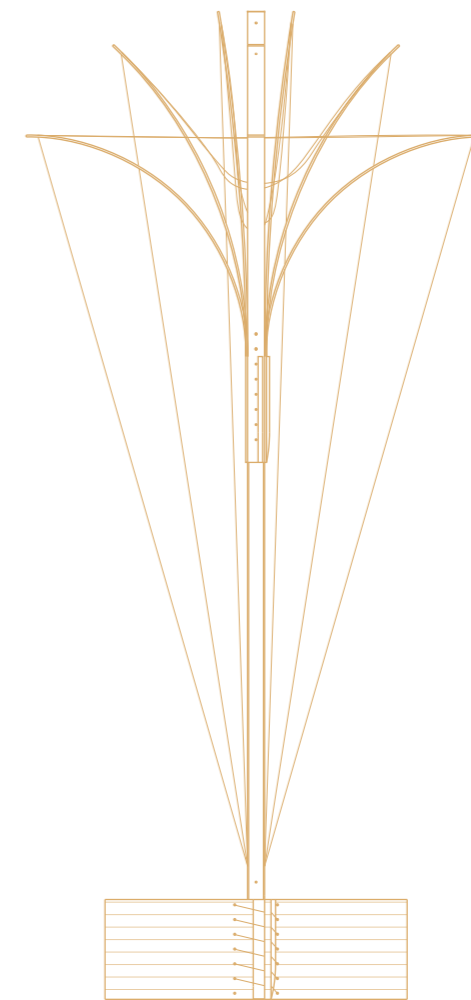
Skirt 1  
1:20



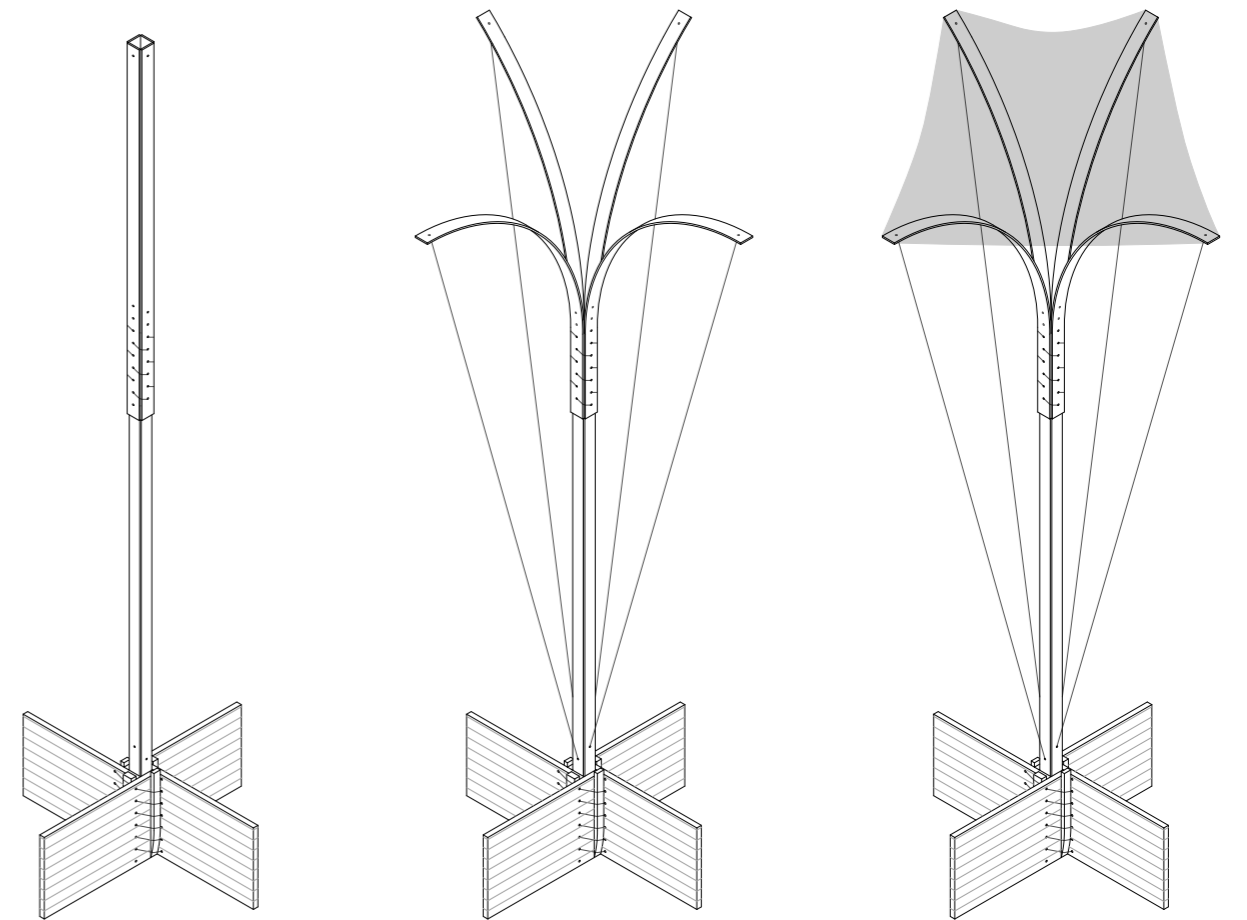
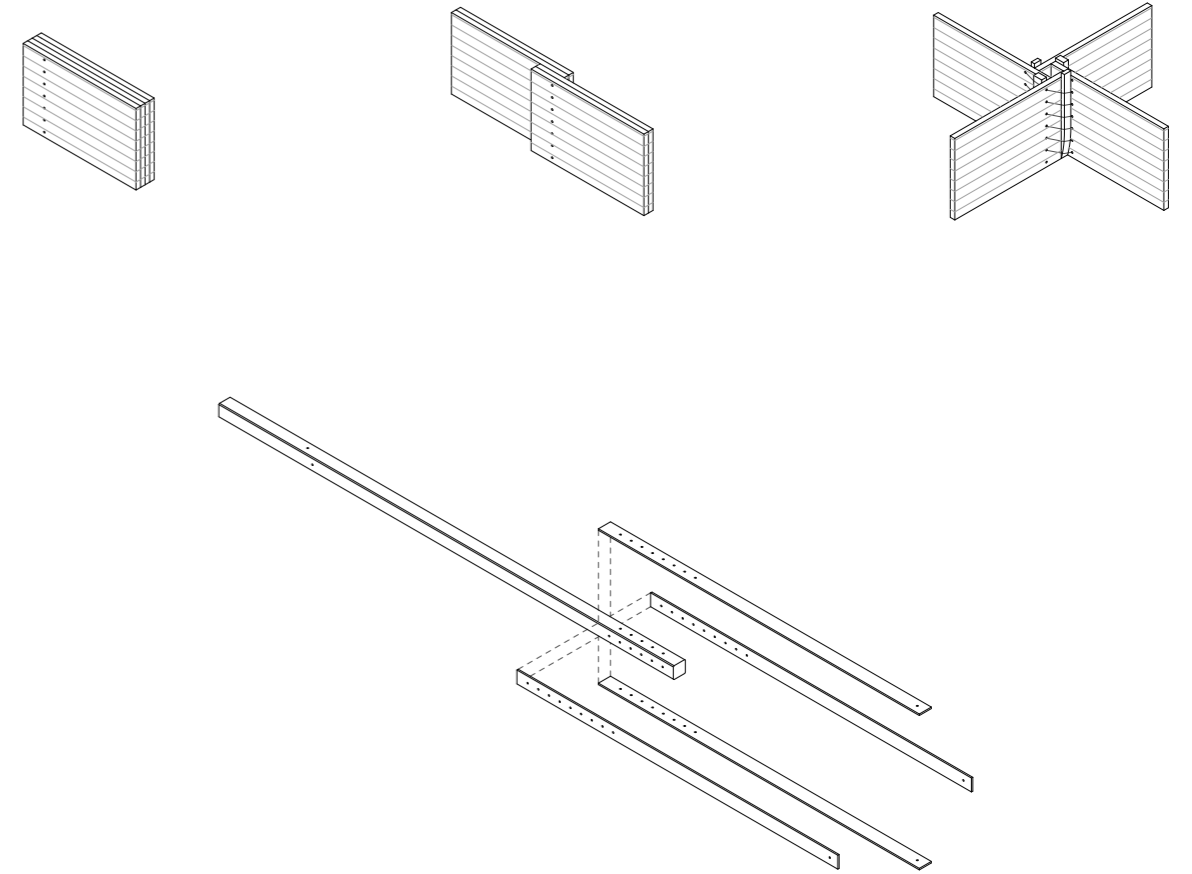
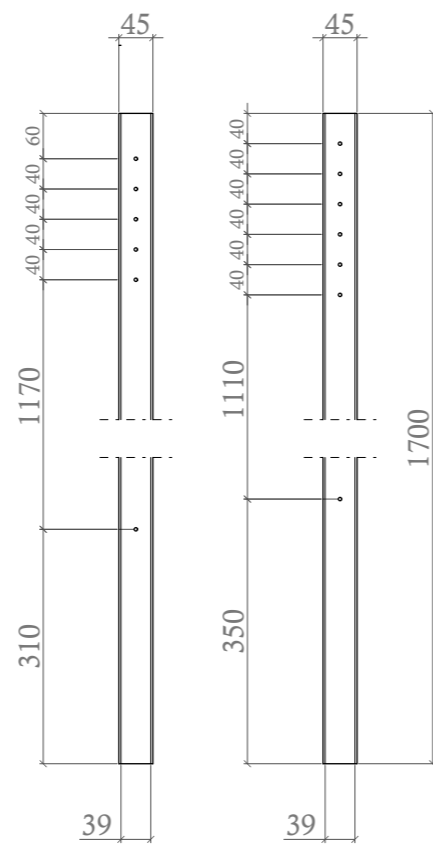
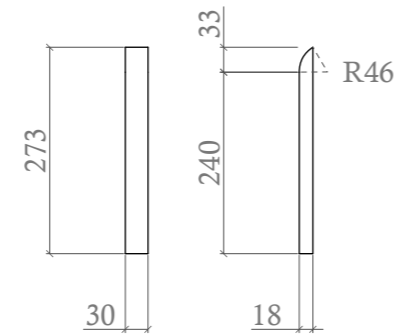
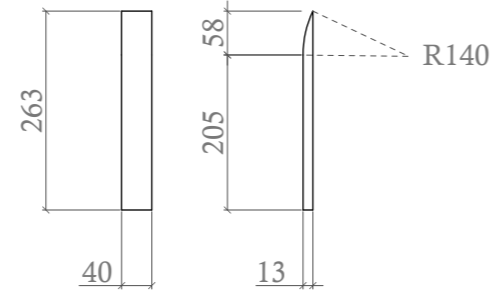
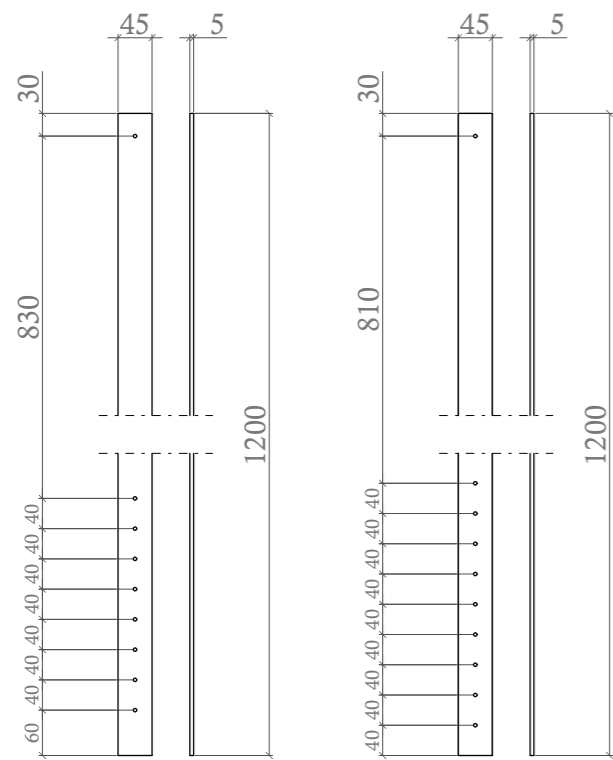
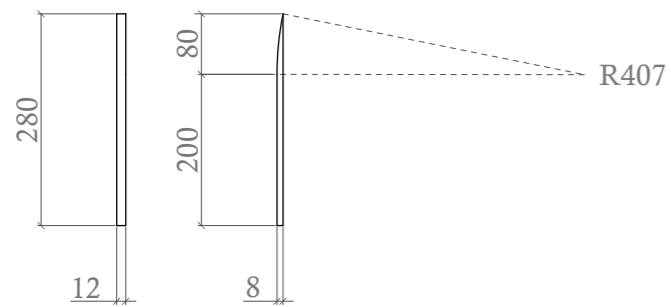
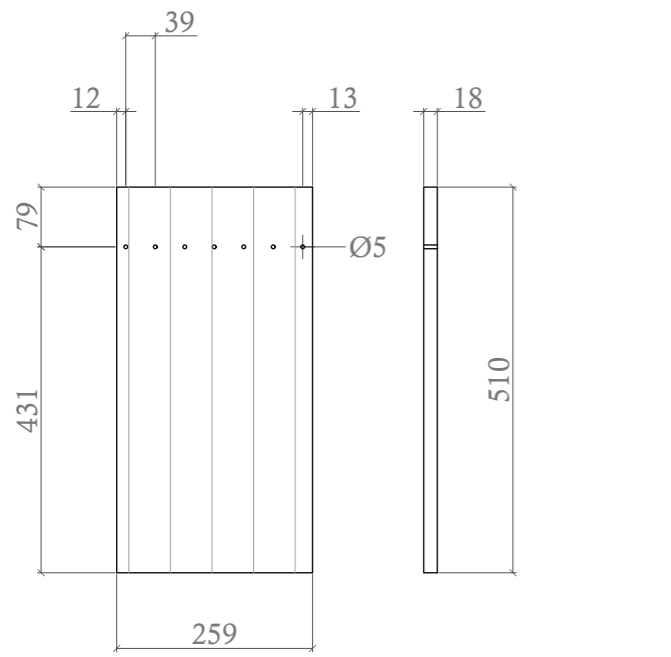
# Components



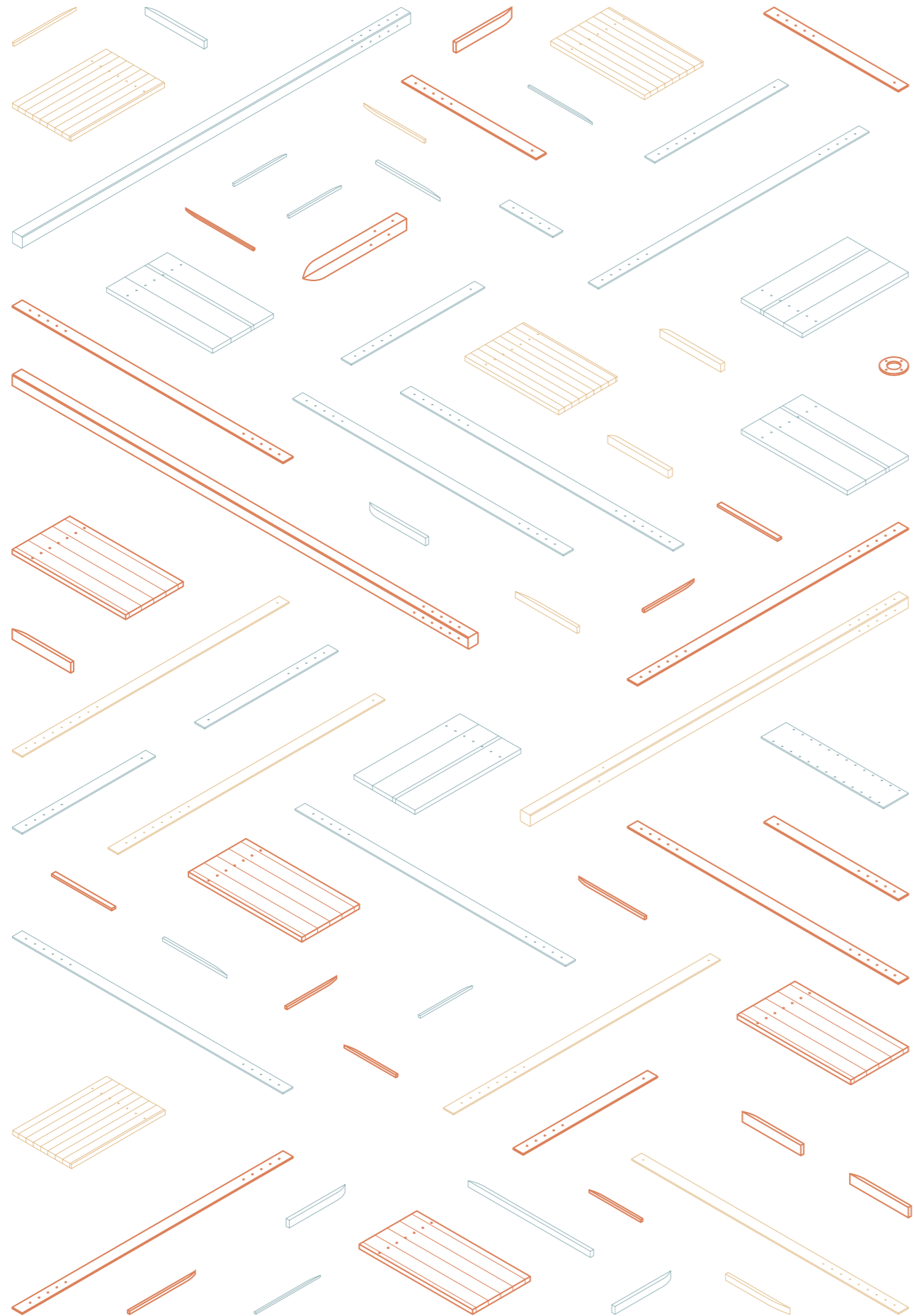
# The connection skirt



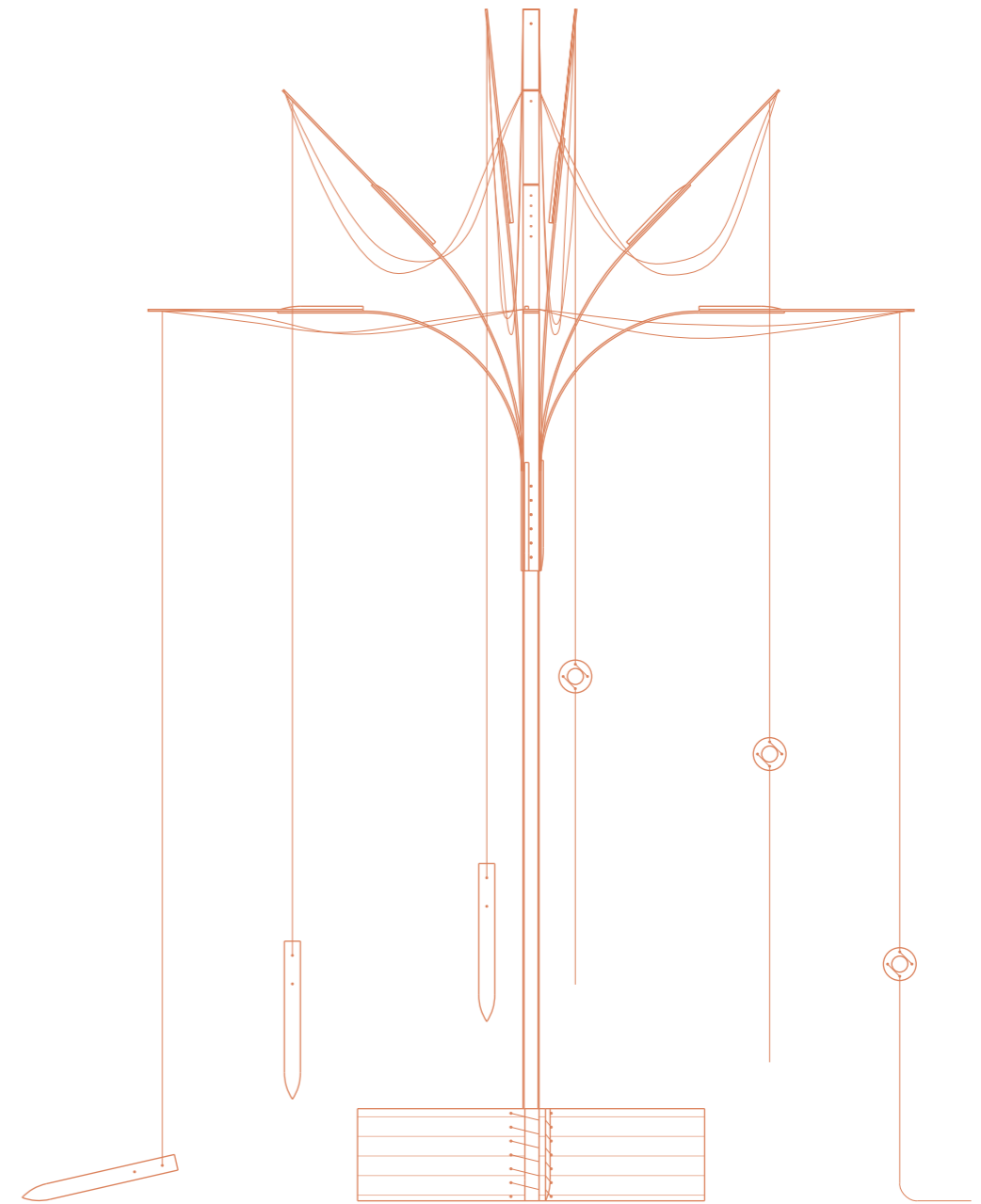
Skirt 1  
1:20



# Components



# The hanging skirt



Skirt 3  
1:20



# Interview

Did the performance went as you expected it ?

**Olle**

OK. I can just say one word and that is the weather.

**Carla**

We all expected a very sunny day, not wind and everything, but it ended up being a really, really rainy day. We were worried about the wood expanding or if the textile would bend the wood too much. Like, if the rain would be too heavy for the textile. But at the end, I think it was very interesting to see how our project was transformed by the rain. We didn't expect this, because the textile is really, really, thin and you can see through it, but still the water was contained inside of it. You go could go under it and it was like a roof. Like a kind of umbrella.

**Clara**

It also added a texture to the textile to have all this water drips. And sometimes when you moved the textile, it was just dropping water very straight and looked like a string also next to the threads around. So it was nice to see it. As you said, we chose this fabric (...) for the shadow it can create and we really thought the water would just go through it. Even if no one was interacting, the branches were going down and down just by themselves. I feel like the wood could bend more with the water than we tested in the studio.

**Carla**

Another thing we didn't expect was the scale because we were used to see here in the studio. It was always touching the ceiling, but when we took it outside and put it on the square, we could see that it was actually pretty small.

**Clara**

Even during the walk we had these long trees and it was not easy to walk in the city and not hurt anyone. But when it was standing and in the middle of this big space, we realised it could have been taller.

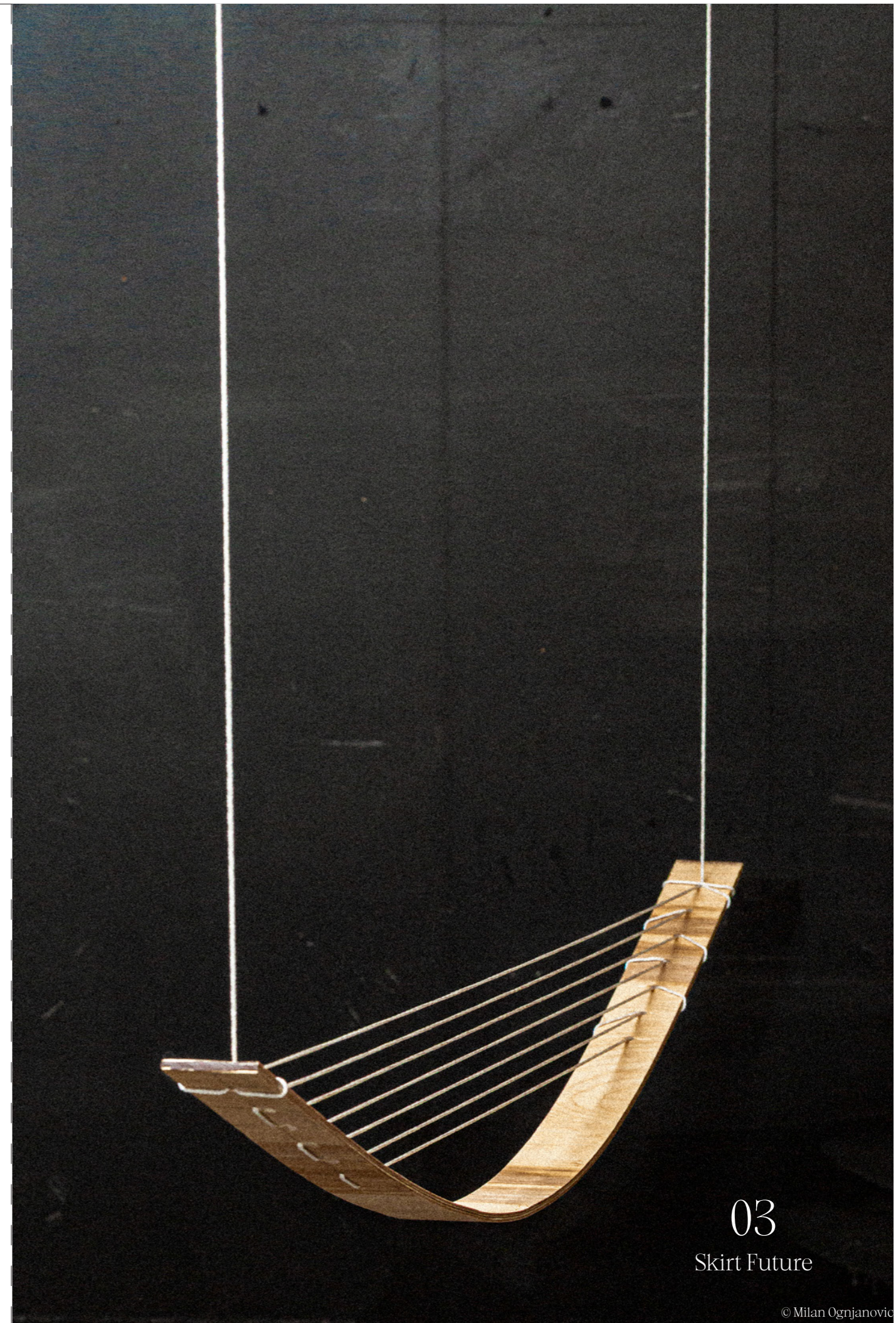
**Olle**

I'm trying to think how we could have done it bigger... We had to choose between easy transportation and lightness and so on. But also if we would have fully considered the scale of the site, it's like a huge building next to it. We would have had to make it like a flag pole-high. If we could have transported it in parts and bounded it together on the site, like many, many of these pieces put together, maybe. But it's like, how would we have risen it up? I think we could have made it bigger if it was to be there for a longer time.

But also, just going back to the weather. The interactions from a public we hoped for and expected just didn't happen. It's like no one goes outside when it's « shitty » weather. It's just a fact and had the event been extended for like longer periods so there could have been changes in weather, we could have seen how it would have acted in different weathers and also seen if more people had dared to come to use it when it was sunny or sit under the shade or something. So, we got to see how it performed in the rainy context. And, beautiful as it was, it didn't create much interaction because no one was out.

One more thing, you touched upon it a bit with regarding the assemblage. We can just pick it apart into parts. And it's made by reused material. But what is circularity?

To be continued...





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## Interview

How your skirt of reversal is addressing circularity ?

### Clara

There is of course the materials to be reused but also the concepts and the methods. But I feel like also nobody wants to destroy what they have done for this semester. So it's also finding a way to reuse it. That's also why in the book we tried to put it in different situation and see also if it just stay in the studio, above this couch, if people like to sit under it or anything. The fact that you also see the marks of the usage of the materials and not try to make it as beautiful as it can be. I feel like showing reuse materials is also helping people to get to know more about it and like actually (...) reuse doesn't mean broken wood or anything. It can still have good state.

### Carla

As Olle said before, you can actually see how this is like sewn together. So it also can help people to think like : i could use this way of putting it together to do something by myself. I think the project also shows a way to reuse not the materials or the concept, but also the way we put everything together.

### Clara

Yeah, that you can change how things usually are assembled together in architecture. You can also find another way to assemble, only with the things you find and it doesn't have to be two pieces of wood with screws in between. You can always find a more sustainable path.

### Olle

It's also interesting what you say about the materials are left in their original state, mostly. So you have some parts of the bases are painted. You can see almost like mold stains on some of the plywood of the branches. But still the shape and the forms are very beautiful. And also like you can create something beautiful out of something « ugly ». That means, like even if you see a material that doesn't look good, it can still become something nice. Just that knowledge is maybe one thing we can carry with us after this project.

### Carla

I really enjoyed this part of thinking about other uses that this structure could have even like thinking about bigger scales or really, really small scales is fun. At the beginning, we didn't think about it, but now we start to see what it could become. For exemple, it could be an instrument or something like that. And it's really cool to see how it is adaptable.

### Clara

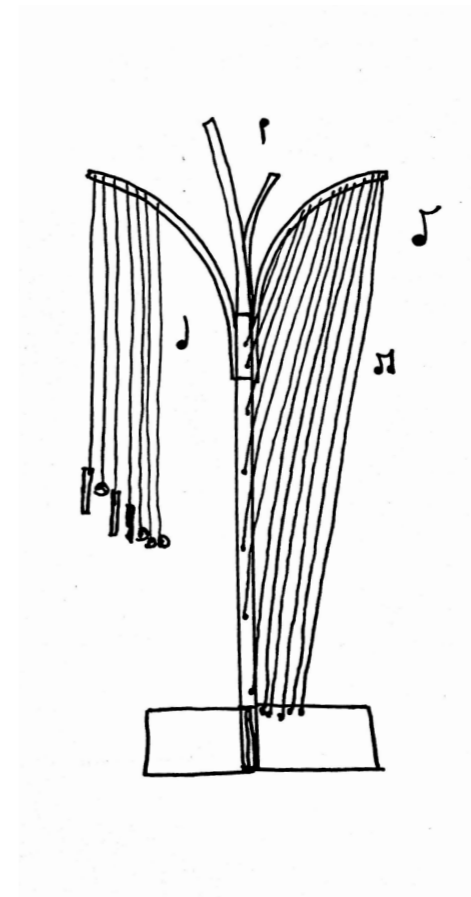
Yeah, I was also surprised in the way to see after the performance, that actually, this project is related to so many shapes. Like there are lots of projects I saw after, related to it. Even if we just use the concept or use the shape in a bigger scale, with maybe different joints and everything, or with just one part of it, you can always link it to something. But yeah, it's nice to see that, there is always things to take from more « artistic » or like conceptual things to push further.

### Olle

Yeah. You have an idea what circularity is about, using reused materials and that's kind of it. But as we can see, like when you talked about speculating in what else it could be or if we shift the scale or just look at what could this joint become... Our way of joining, could that join other things as well? Could it be a way of joining wood in other situations? It's also like, you can recycle a way of thinking into other scales or whatever. And I guess maybe that's also a part of a circular practice.



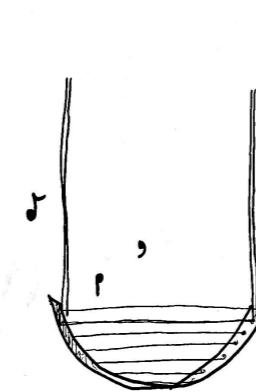
## Skirt of reversal as an instrument



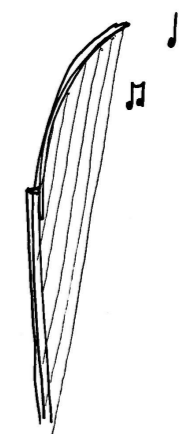
As we considered the skirt future, we quickly came up with the idea of a musical instrument. In fact, the strings that stretched from one end of our skirt to the pole refer directly to a harp. It's like a symphony between the melody of the harp and the movement of the bending wood, the rippling textile and the moving bodies. We can imagine ourselves dancing to this music concert, with a whole band playing on stage.

**Skirt of reversal** is composed like a stringed instrument. The wood stretches the strings to create different tones and harmonies.

**Skirt of reversal** as an element that transmits emotions both visually and sonically to an audience.



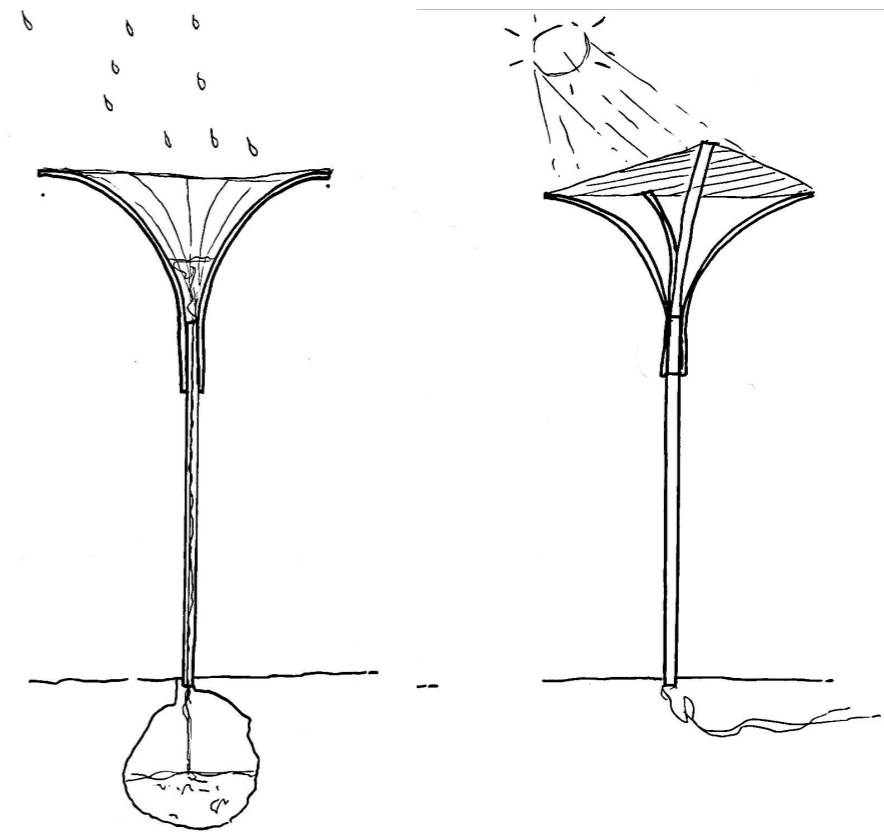
The guitar



The harp



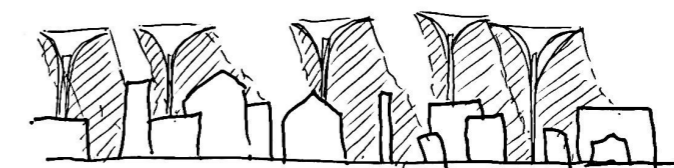
## Skirt of reversal as a sun-protector, water-collector



Circularity also means thinking about our near and far future. The question we all face: What will our cities be like in 100 years' time? How hot will it be? How rainy will it be? We thought about the city of the future, and how our skirt could help protecting life. When none of these weather events occur, the skirts retract to their original form, as punctual elements in the city.

**Skirt of reversal** as a rain collector, opening when heavy rain falls to store and redistribute water afterwards, preventing flooding. Collecting this water would allow it to be distributed in times of drought.

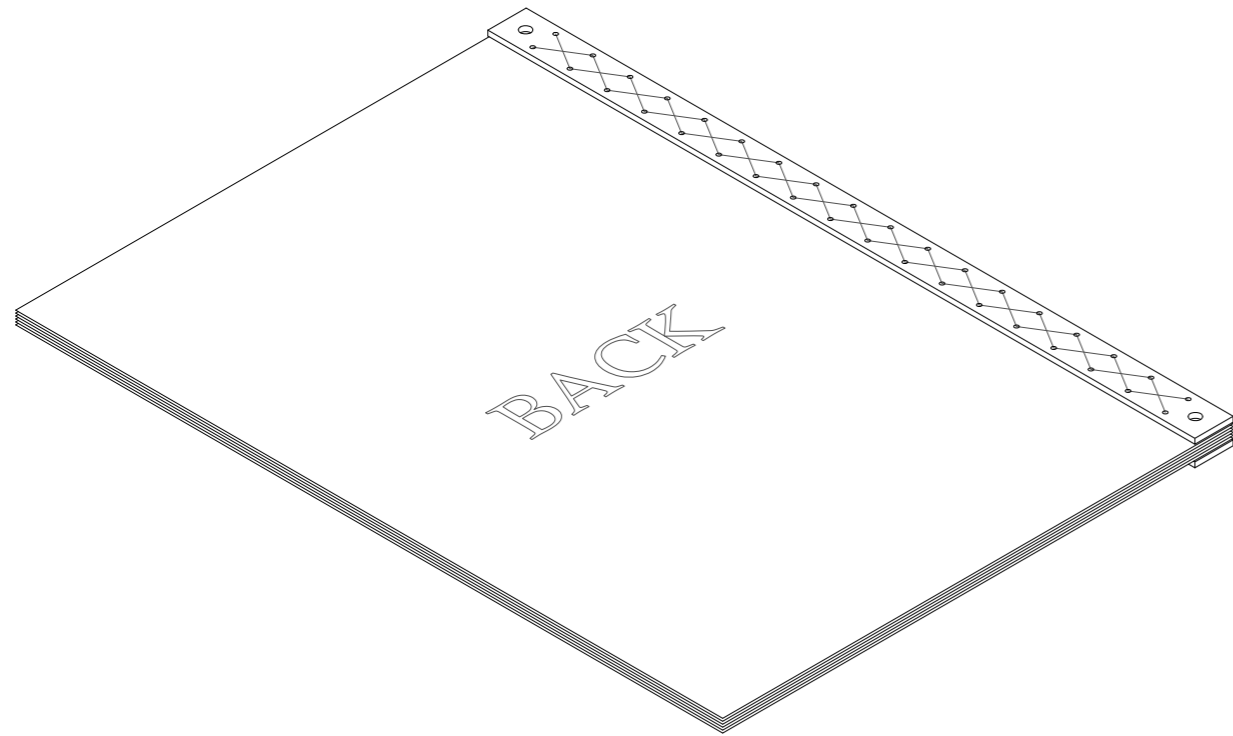
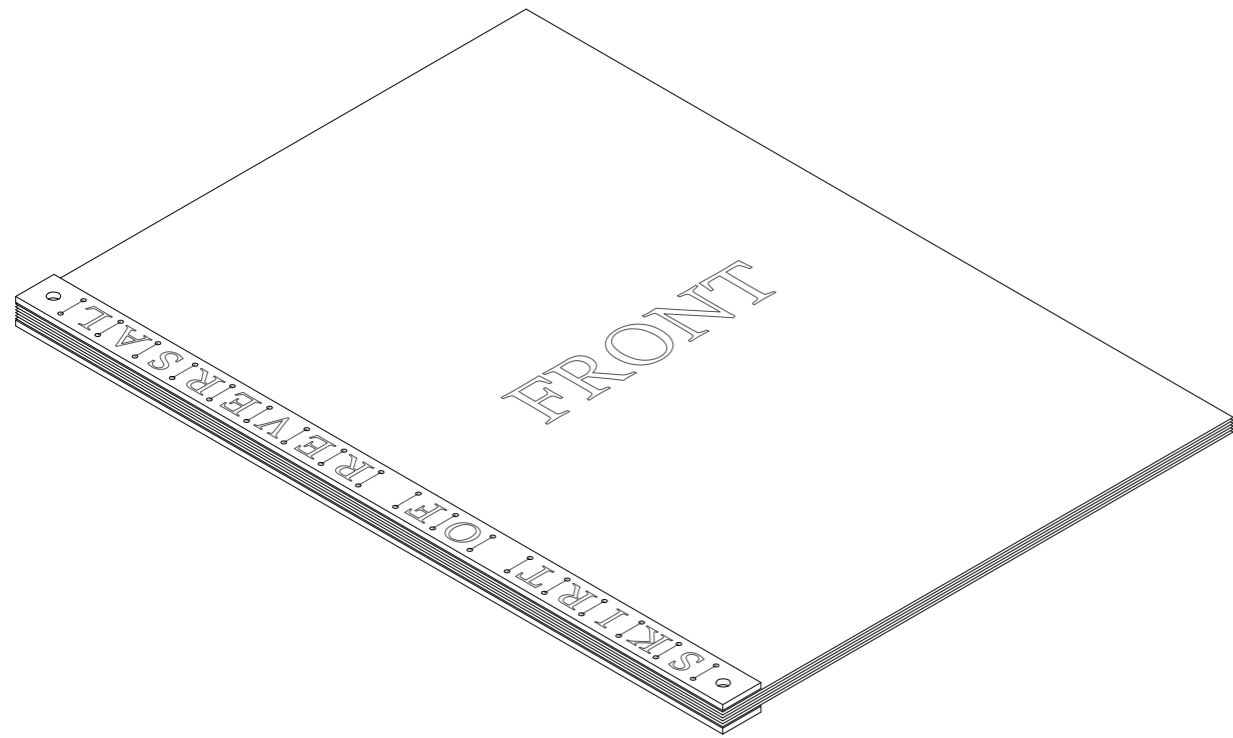
**Skirt of reversal** as a sun protector, when temperatures exceed 40°, to refresh the cities below while capturing the sun's rays and transforming them into energy.



Active

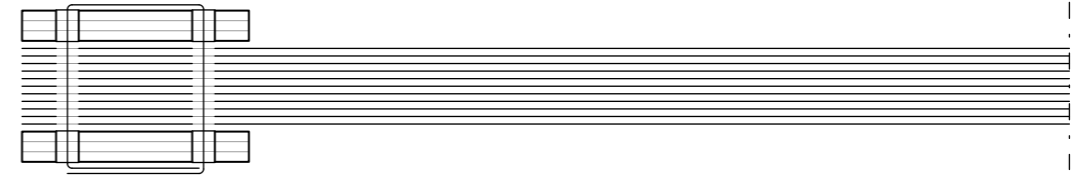


Non-activate



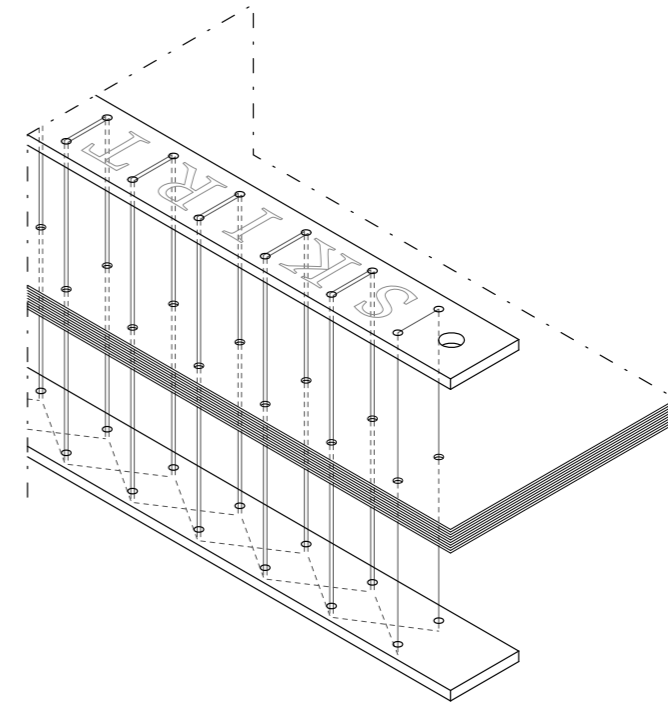
Concept reused in the conception of our book

· SKIRT OF REVERSAL ·



Our concept was to use no adhesives or metal elements like screws or nails. This led us to work on connections made only by holes in the material, where a single continuous thread is inserted and joined at the end by a knot. Inspired by the structure of a corset, we developed this technique when constructing our skirts. In this later stage of the project, we transformed it into a way of joining pages in a book. This book, to be exact.

This way of joining materials can be a source of inspiration for architecture as well. Although we only applied it on a small scale, we hope to keep these “unconventional” joints in mind for our future projects. We don't want to lose what we learned, but instead reuse it in architecture as well as in everyday life.



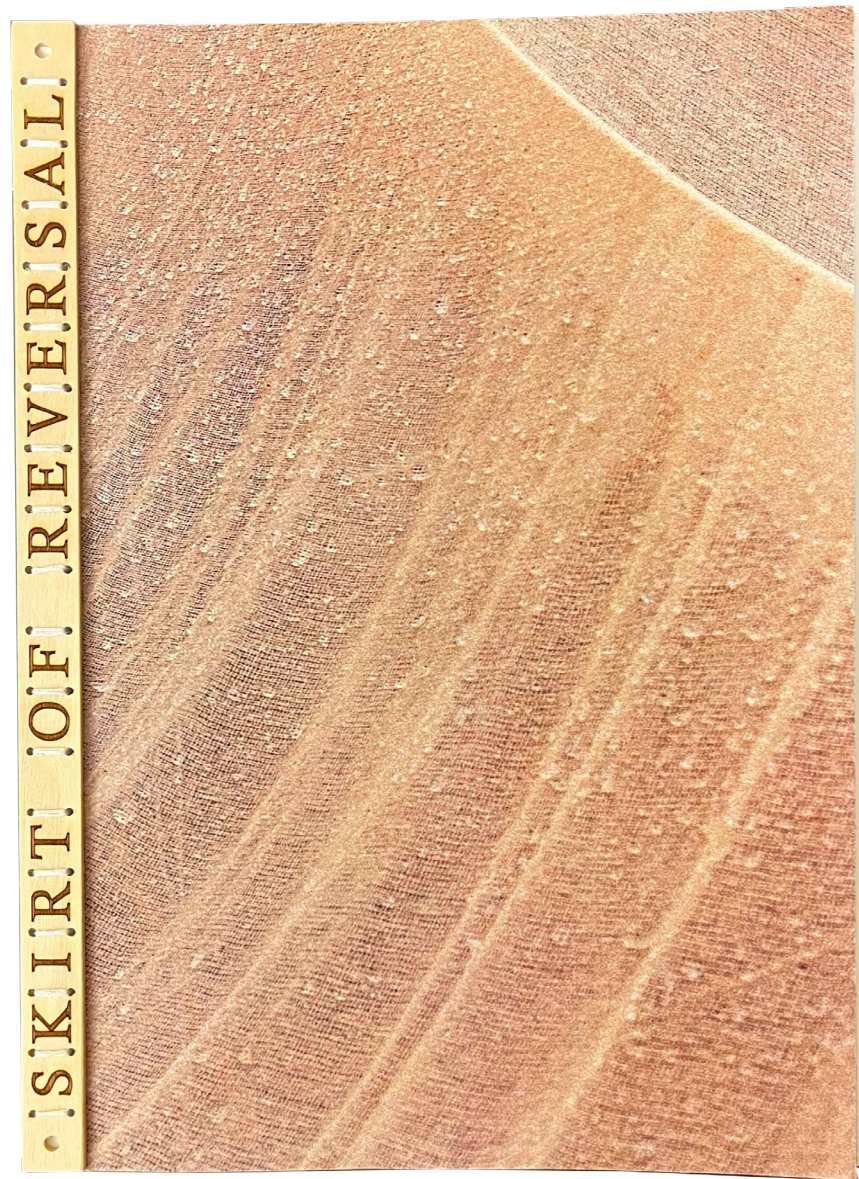
1 - After printing your A4 sheets (possible with any type of sheet), align them, one on top of the other. Place your laser-cut wooden sticks at both ends, one above and one below, aligned with the left edge of your sheets.

2- Use clamps or tape to hold them together and place them correctly on the drill table. Drill your pre-drawn slots on the wood pieces. The holes should be larger than the string you'll be using next.

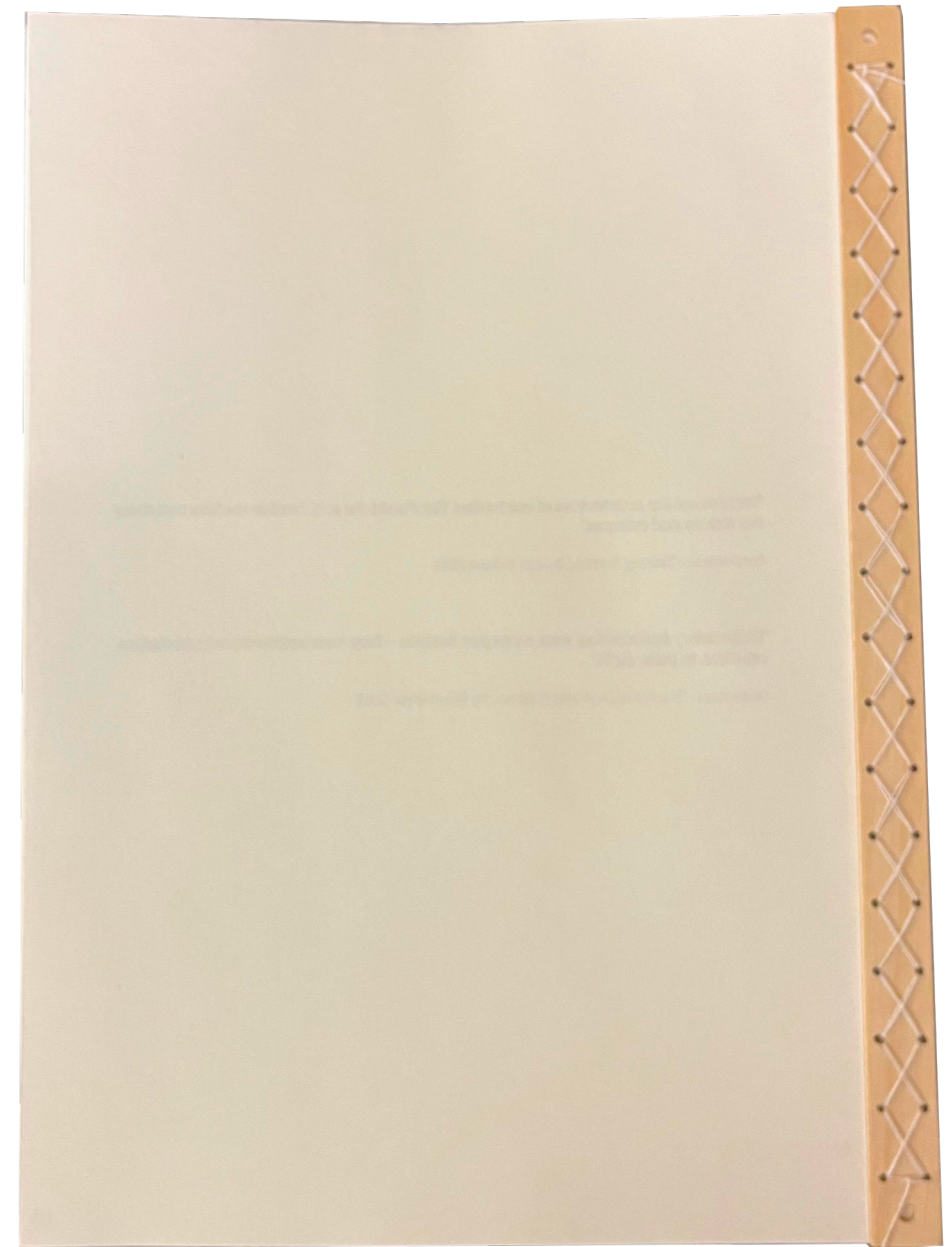
3 - Keep the clamps or tape even after you've drilled the holes (important for the next step) and place the whole thing on a table where you're comfortable, leaving the drilled part empty.

4- Grab your string and thread it through a needle. Start tucking the string into the holes, starting with one end (top or bottom) and alternating top/bottom, side to side. When you've tied everything together, tie a knot and cut your rope.

Final aesthetic of the book



Front



Back



A second life on campus...



Our skirt was built with the idea of architecture as an event, but why not give it another life afterwards? It's fascinating to see the transformation it can have. We talked about disassembling it or projecting in a far future, but why not just give them a life as they are today, at the Gloshaugen campus. The Hovedbygningen building, with its majestic hall and high ceilings is one of the places we put our work in. Surrounded by strong elements such as massive stairs and corridors, our skirt finds in this place.

**Skirt of reversal** laid in front of the building's entrance like a second skin, creating an in-between space. The wind blows across the textile as people rush into the hall.

**Skirt of reversal** as a revealing element of space. By placing the skirts at the center of the room's architecture, everything comes to life: people stop, walk around them, wonder at their presence.



## A third life on campus...

This shape of a tree and the shade created by the textile can also be enjoyed outdoors. Step out of Sentralbygg and see our skirt blend into the trees and the hustle and bustle of the students all around. Lay on the grass under the structures and take this opportunity to enjoy your time and the outdoors. It's also a way of adding new elements to the usual outdoor furniture, focusing on the space it gives.

**Skirt of reversal** like a breath of freedom on campus, like an eye-catching element that changes the thoughts of the students immersed in it.

**Skirt of reversal** to highlight an unoccupied space, an invitation to sit down in this fast-paced environment.



## Relation to nature



At the end of our performance, the fabric was soaked through by the rain. We hung it over the legs of the chairs, which themselves had been turned upside down on the table. It was there that we were struck by a resemblance to the way plants are covered for the winter in Oslo gardens. This unexpected visual echo brought a poetic

layer to the installation: the reused fabric, already marked by time and use, seemed to take on a protective function, just like the covers used to shield dormant plants from the harsh Nordic winter. The second-hand textile hinted at something tender, seasonal, and cyclical: preservation, transformation.

## Relation to architectural work

Bending wood was our idea for this skirt. During a trip to Bergen and a visit to its architecture school, we discovered a different approach to a similar architectural form. Certainly created from a different brief, these students chose to deploy their columns with thicker wooden planks; supe-

-rimposing one on top of the other to support greater loads. Metal parts were also used to join them together. Nevertheless, in their structure; they lose the notion of skirt and textile, but it's still interesting to look at another way to achieve a similar shape.





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## A first reflection...

Hannah Ryggen didn't follow the traditional rules of art. She didn't use conventional materials or methods. Instead, she used wool and thread to tell powerful stories about war, injustice and oppression. What made her work so revolutionary is that she did this through weaving, usually seen as «women's work». But she managed to prove that something soft and handmade could be just as powerful as any painting in a museum.

This idea really resonated with us when developing our skirt, we were very inspired by her idea of giving power to the soft. From the beginning, we wanted to challenge the usual view of the materials: that the wood is strong and rigid, and textile is soft and weak.

So we asked ourselves: what if we reversed their use? What if the threads, usually secondary, become the element holding everything together? That's exactly what we did. Our skirt is supported by threads sewing the wooden pieces into a strong and very stable structure.

Like Ryggen, we didn't follow traditional architectural methods. Instead, we experimented with handwork, imperfections and materials that are not usually used in architecture. Our project became some kind of feminist statement, fighting against material hierarchies, but also the rigidity of architecture traditionally made by and for male.

## ...a second reflection...

Shedding light on feminist architecture by first understanding it and then attempting to express it – that is what this project has brought me.

This perspective challenges the norms and conventional standards of architecture by emphasizing emotions, perceptions, and paying particular attention during the design process. It means overturning traditional teaching methods by engaging with materials and space through our sensitivity, long before drawing a single black line on a blank page.

We would never have reached this final result, we would never have understood the theme of the «skirt,» without immersing ourselves in the world of influential figures such as Hannah Ryggen, without the indispensable help of Edit during our first encounter with textiles, without the days spent in the workshop working with wood...

Bringing feminist architecture into the light also means highlighting the work of women, often forgotten, especially by the organization of the Triennale, to which we all contributed and through which we wanted to honor the memory of these remarkable and inspiring artists. Shedding light on feminist architecture shows that this approach is not reserved for women; rather, it is about thinking inclusively, equitably, and feeling responsible for different needs.

Through the creation of our three skirts, all based on the same structure, with different uses, our skirts contribute to this inclusivity, allowing us to observe the most appropriate interactions for the users. They show that architecture can be interpreted in various ways and appreciated for different reasons.

The role of feminism is increasingly present in architectural discussions, to the point of questioning even historic buildings. A question posed by architect Iris Handschin in May 2024 caught my attention:

“How can we create a shared space of freedom and dismantle hierarchical structures that manifest both in private and public spaces?” She explores this through the study of a 1740s textile factory renovation, highlighting how the rise of textile factories coincided with men earning enough to support a household, pushing women into the workforce. She stated, “What makes public space is not necessarily the built environment, but the bodies that meet within it,” and also, “Public space can be a place of confinement just as much as a space of emancipation for women.”

These are precisely the two aspects we worked on during this project – emphasizing both the work around textiles and the role they play in public space.





© Clara Dutemple

...a third reflection.

This was, to me, an interesting approach to architecture in general. First and foremost, we were challenged by not thinking of architecture as an end result, something that often takes the form of a house or a building. Nor were we to consider any type of programme or typology. Instead, we were tasked with creating a structure that emerged from a rigid process. By freeing ourselves from the shackles of architecture as an end result, we felt freedom to experiment and create without the pressure of “failing”. However, by challenging the common perception of architecture, one could sometimes feel lost. Are we creating architecture? Is this architecture? What is architecture?

Another interesting aspect in this project was to think of architecture not as something permanent, but instead as something temporary. The task was to create architecture that would stand on the selected site for one hour. Compared to the average lifespan of buildings, one hour is of course nothing.

A building that stands for 100, 200 or even 300 years may seem like a building that has lived a long life. However, if this is compared to the history of humanity or even the history of our planet, 300 years is also just a blink of an eye. Everything is relevant. In this course, we would live through the birth, life and afterlife of our project. Because of this, we had to consider how to assemble, use, disassemble and reuse the structure we created.

However, most architects work on projects where they will only witness the birth and use of it, but not the afterlife. By not seeing the entire life-cycle of a project, the architect may design with material combinations or joining methods that make disassembly or reuse impossible. Further, if the spaces are designed to not consider changes in the future, the architecture may become obsolete quickly. To acknowledge this, the impact of time in architecture, is just as essential as acknowledging materiality, space or movement as key elements of architecture.

**"Textiles are the architecture of our bodies. They build the soft, flexible shelters that carry our stories and cultures."**

Conference - Talking Textiles, Design Indaba (2015)

**"Embroidery and knitting were never just hobbies – they were architecture in miniature, rebellion in plain sight."**

Craftivism - The Art of Craft and Activism by Betsy Greer (2014)