



LEARNING IN 1:1 SCALE

ELDMØLLA
BUILDING A SAUNA IN VANG

AAR 4623 TOPOLOGY, TYPOLOGY AND TECTONICS
NTNU FACULTY OF ARCHITECTURE AND FINE ART

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NTNU
Norwegian University of
Science and Technology

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INTRODUCTION

This book is a presentation of the designing and constructing 'Eldmølla', a sauna situated in Vang in the Valdres region of Norway. The designers and craftsmen for the job were 18 architect students from the Norwegian University of Science and Technology in Trondheim. The construction process took place within two weeks in May 2017.

The project is located in the region of Valdres in eastern Norway. The area stretches over the mountains towards the West coast, with Vang as its westernmost municipality. The area has strong ties to traditions within music, artisan craft and building culture.

THE COURSE

Designing and constructing 'Eldmølla' is a part of the spring semester course, AAR4623 – Topology, Typology and Tectonics. It is initiated and taught by the Department of Architecture and Technology at the Faculty of Architecture and Design at NTNU.

The use of 1:1 building projects is a pedagogic tool that enables the students to test their project from design to a finished building. Learning by doing with full-size building makes it possible to apply

theoretical knowledge to creative expertise. After this learning process it is possible to start the explorative work of the subsequent project on a higher level.

The main subject for the 2017 course was to develop a strategy and design different proposals for agricultural tourism for Leirhol farm in Vang. 'Eldmølla' is built up on the summer farm of the main farm and is located at the edge of a water stream along a public trail. The trail connects to a larger network of paths up to Jotunheimen mountain area and down to the King's Road over Filefjell, a 100 km long continuous cultural heritage path. The sauna is intended as a place to use for both tourist, locals and the workers of the farm. It is privately owned by Leirhol farm and the users give a small contribution for the cost of firewood for using the facilities.

Working with real people, materials and problems gives the students a challenge and the knowledge that a project involves a number of contributors with different roles and knowledge. Communicating ideas and negotiation about different solutions is an important part of the practice of architecture.



The course aims to develop a tectonic and sitespecific approach to architecture. It is about a basic understanding of architecture and about the global environment and social challenges of our time. The intention is to strengthen the professional skills of the architects, in order to respond the needs of the society today.

The course investigates the meaning of using local resources in architecture. The question might seem controversial in a time when architecture seems to be concerned of the use of materials from all over the globe. Often you see that the construction industry exclusively use materials produced elsewhere than the area they build in, even though local production of current building materials exists. The choices are often tied to economics but also because of too little information about the resources that exist in the area. The utilization of local materials and local labor in Norway is weak-ened, as imported materials and foreign labor has competitive prices. In Norway, bricks are imported from Belgium, wood from Lithuania and Siberia, steel from Germany, glass from France etc. It seems like the main part of industrialized building industry today is so concerned to operate in a global context, risking to overlook values in the near

surroundings. The course will discuss how global and local understanding can enrich one other in a dualistic relationship – the meaning of ‘the local in the global and the global in the local’ .

PARTNERS

Eldmølla the project is founded by three parts and interaction between each of them:

A: VANG

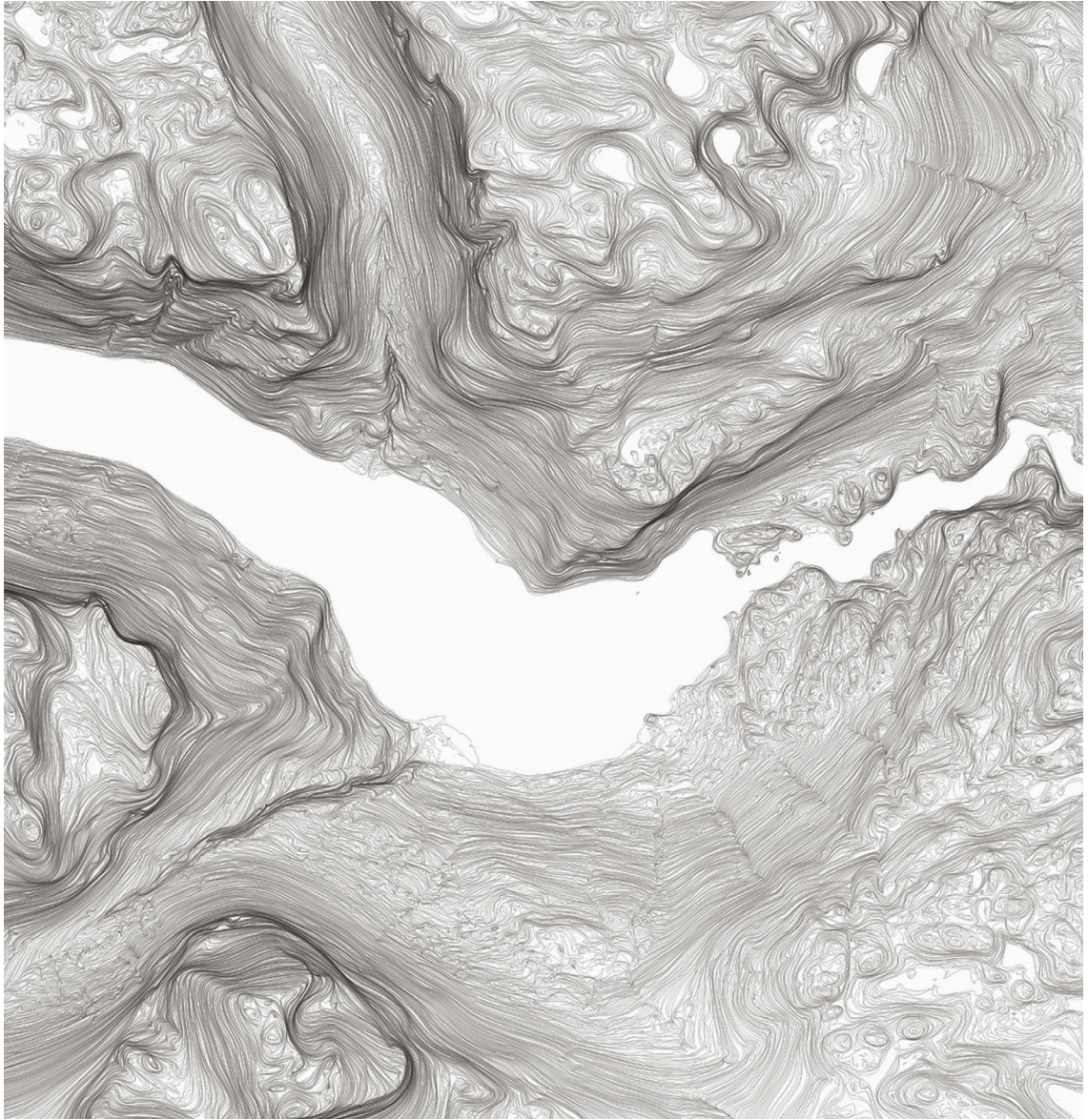
Local partners: The local Development Organization Innovangsjon SA, Vang Municipality, Knut Lerhol and Knut Kristin Venås of Lerhol farm.

B: INDUSTRY

Local partners is Kvismo Sag, a sawmill delivering local spruce and Leirhol farm with its own private mobile sawmill that delivered aspen wood from the farm for the sauna interior.

C: NTNU

NTNU – Department of Architecture and Design.





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VANG

VANG IN VALDRES / THE SITE

VANG IN VALDRES

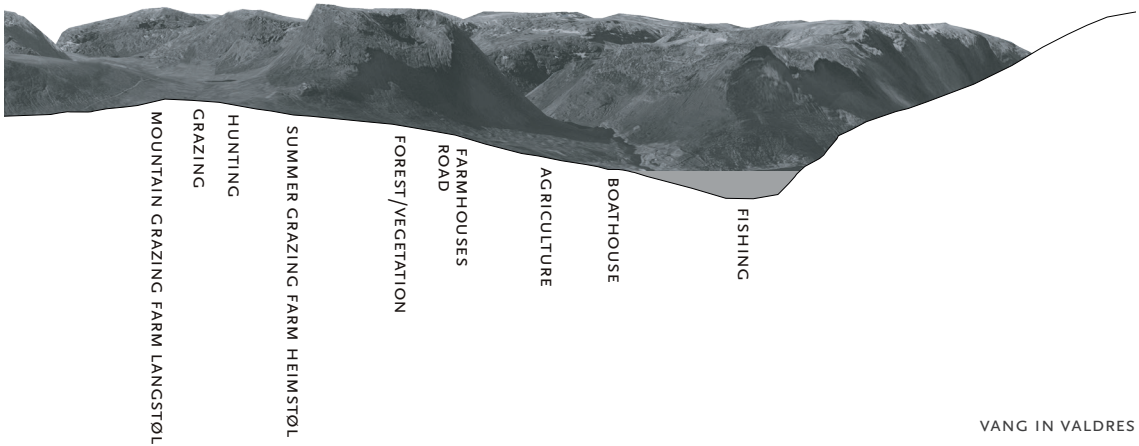
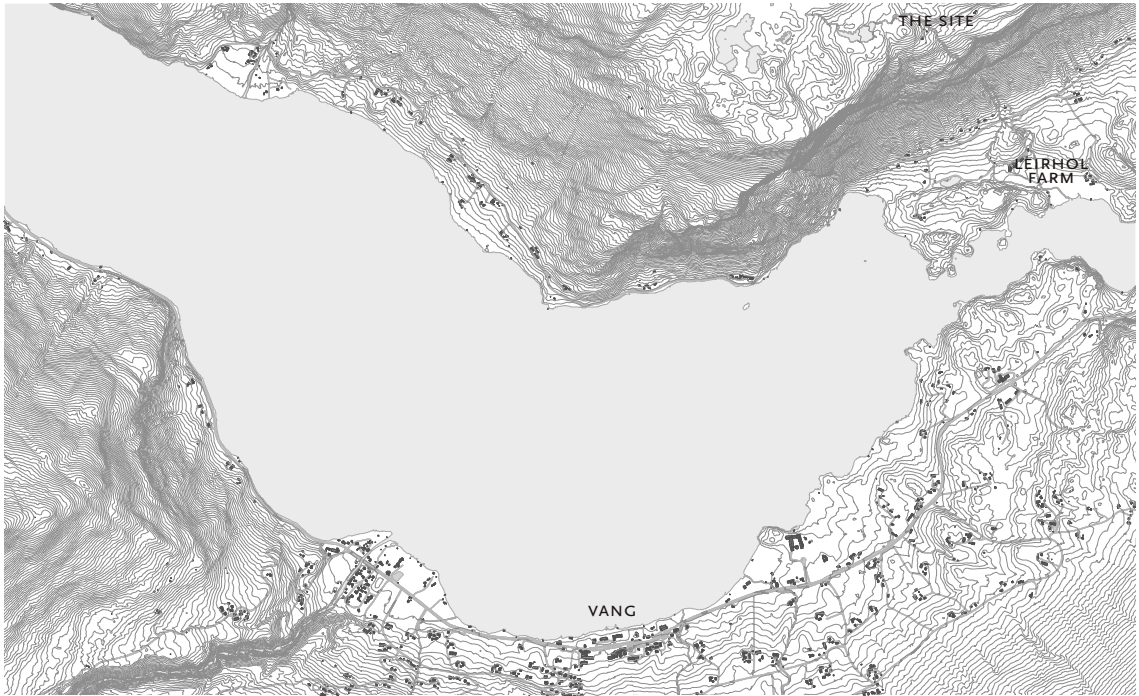
Vang, municipality in Oppdal, is a part of Valdres, the region in the Southern Norway. It is located approximately midway between Oslo and Bergen, where the typical eastern agricultural landscape and inland climate merges with the dramatic mountain scenery of western Norway. With its current population of 1600 people, Vang was established in 1831 and was named after the old farm (vangr means 'field' or 'meadow').

Due to its rich natural heritage, close location to Jotunheimen national park, lowlands, rolling hills and dramatic mountains and fjords, fishing lakes and perfect conditions for the different types of outdoors activities, Vang has always been an attractive tourism destination. In the late 18th century King road has been established and has always been among the most important Norwegian routes, which gave an access to Vang over the mountains on the horse carriage. Since then Vang became an attractive point for the upper society class and the foreign tourists. Picturesque landscapes, climate change while travelling through

the mountains – from dry to wet and from cold to mild temperatures – those many inspiring special features make Vang a sort of an unique place creating a breathtaking experience for the visitor.

Vang is also known for its own culture and history: local folklore including the legend of the knight, old traditional farm buildings and boathouses, stave church, ancient ruins and even a grave of a roman soldier can be found there.

Farming in Vang has always been the major economic driving force of the area. Due to that, territory has been divided into a number of farms by the parcels stretching from the Vangmjøsa lake up to the mountains, by that each farm has its own access to the different natural sources that can be found in Vang. Trails in between the farms were often used as a transportation routes. These parcel division stripes characterise property lines division in Vang and is a traditional part of its culture landscape.



THE SITE

The Leirhol farm is located in the beautiful mountains of Vang. It is divided into the winter farm which is close to the lake and the summer farm that is up in the mountains, which is the site of our sauna. This position offers a magnificent open view of Valdres.

A few meters below the summer farm, on the edge of the cliff, the sauna is hanging above an amazing waterfall. The water is running from the top of the mountain to the lake, creating a huge and very steep waterfall a little further away from our site.

Several hiking trails are coming by the site and lead to the sauna. These tracks are an easy access by walk during the summer. During the winter, you can reach it by cross country skies or even by ice climbing the frozen waterfall.

We had the opportunity to work with a very impressive and wonderful site and are very grateful for it.





COMPETITION

FIRST STAGE / SECOND STAGE

FIRST STAGE

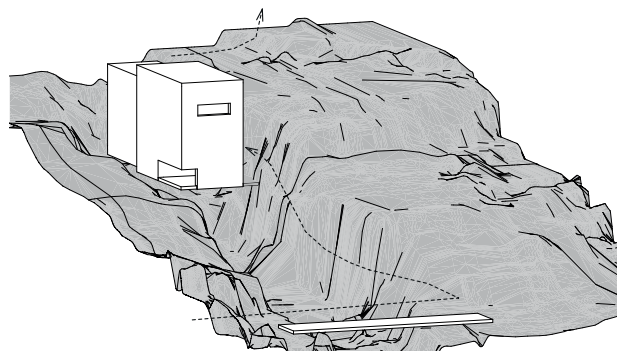
The class was divided in six groups of three to design a concept that would be developed in a second stage. The premise which each group had to work with, was meant to be divided in two categories, public and private. The private part consisted in a bath house with a private inner part with a heat source. It should have the possibility to be locked and it should be no bigger than 10 m² in a closed volume. The public part consisted of a bridge over the water stream in order to facilitate the connection to the existing trail. It should also provide a fireplace with places to sit down and a dry storage of fire wood.

“An idea is salvation by imagination.”

— FRANK LLOYD WRIGHT, ARCHITECT

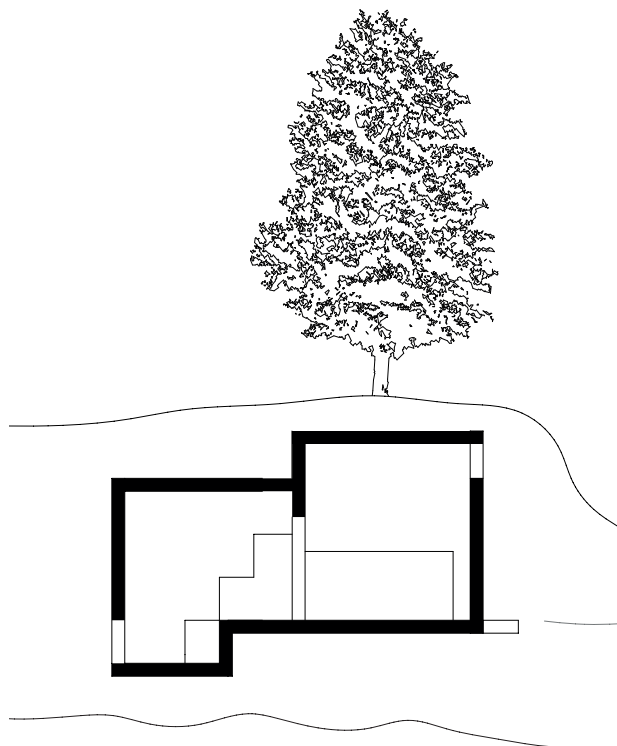


ANA BAÍA
FELIKS ULVÅEN ISAKSEN
PIERRE-LOUIS PASSARD



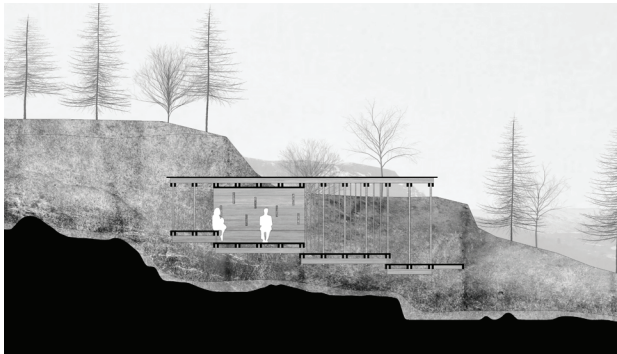
GROUP 1

The proposed structure sits inside the crack in the stone, with structural attachments to the higher side of the stone. This proposal emphasises the approach to the structure, and the tensions in the site landscape, the crack in the rock and the water. The approach is from the lower point of the site, climbing upwards along the stream, stepping into the building, climbing into the building and coming to a stop within the sauna, enjoying the focused sight and sound of the water.





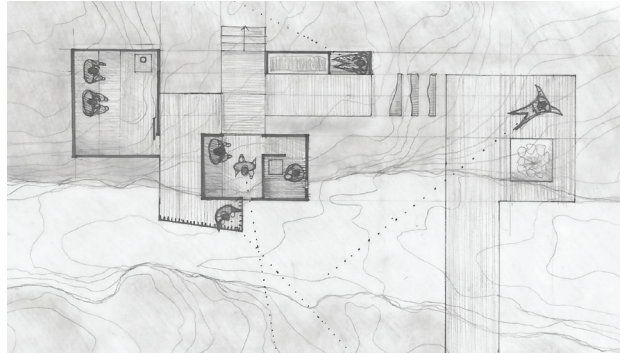
AGATHE LEDOUX
THUY NGUYEN
BENEDIKT PROFANTER
Chosen for further development



GROUP 2

Going between the rocks, the sauna becomes part of the waterfall and of the river which are connected to the farm. It is inspired from the floating wood method that was used to do in the river near to Knut's farm. The building is made of a sequence of uses that you experiment in this order: the bridge, the view point, the changing room, the sauna, and a natural bath. All these different types of use are solved in one building and are separated between them by a step.

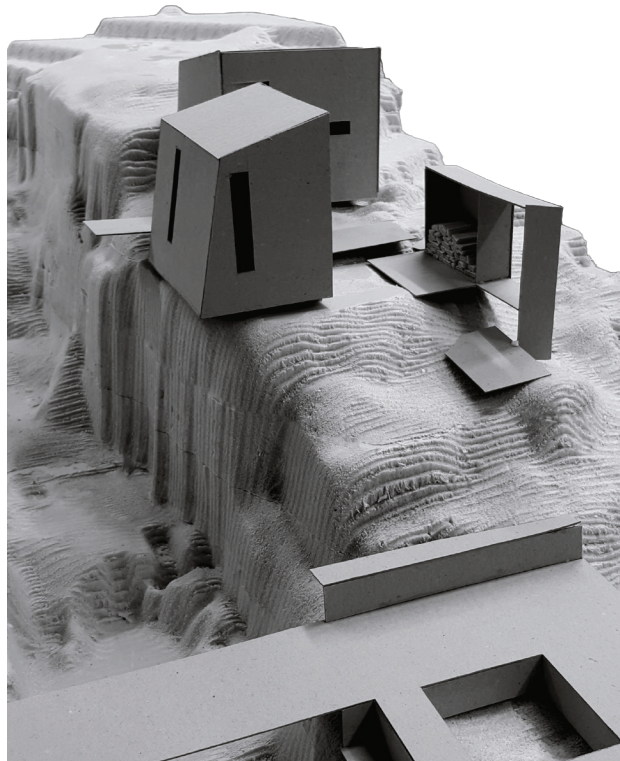
ROGER ESCORIHUELA
ADRIENNE MICHELS
KRISTINN PÁLSSON

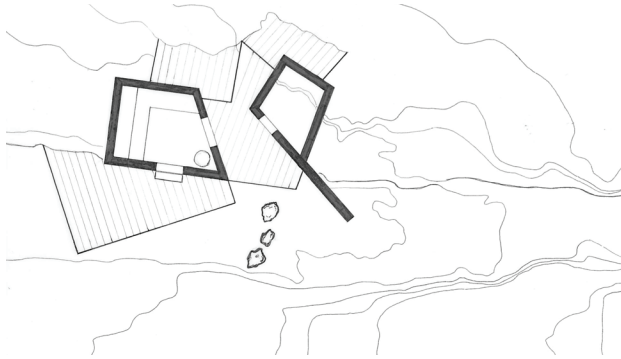


GROUP 3

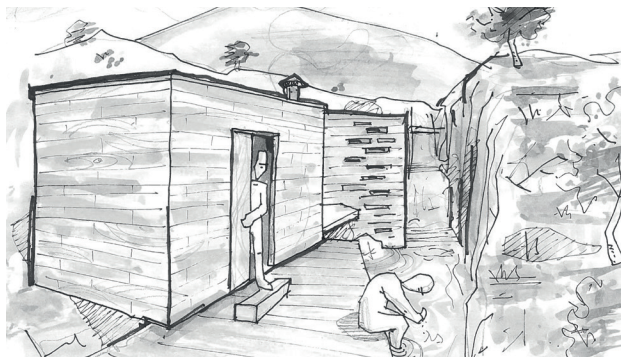
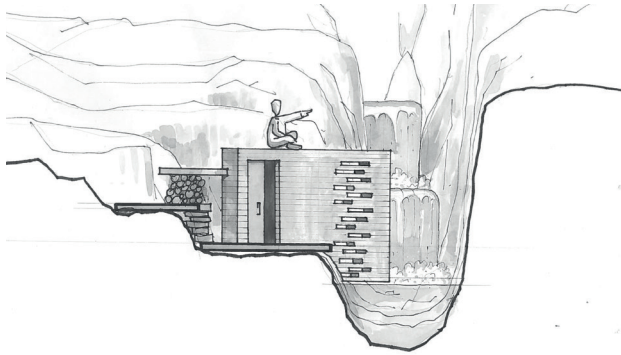
The design is thought to be a cluster of constructions and elements that all have their individual functions. Where the area plan resembles a small farm with buildings that enclose the space and shelter for weather and wind. The bridge is down below with a gathering spot but the sauna itself is a sanctuary on top of the rock.

Masses are like chunky rocks, growing out of the cliff. They either wrap around stones or overhang on the cliff and then transform into platforms and steps that help hikers get around.





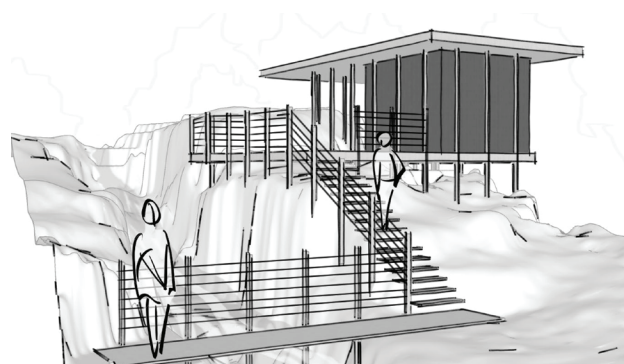
JULIE ALLÉMANN
 QUENTIN DESVEAUX
 SEBASTIÀ MERCADAL
 Chosen for further development



GROUP 4

This bathhouse is placed underneath, on the right side of the river. It's shape is made of variable angles that respond the corner of the cliff. Main idea was to keep the main rock untouched and to communicate with it. The building is made of horizontal elements including a wooden terrace over the river, that enable the passing to the other side.

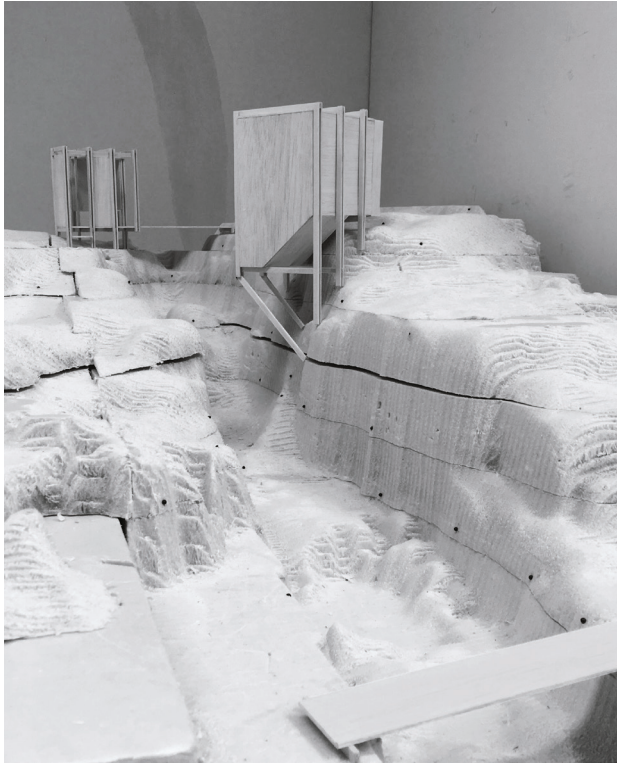
LOUIS MENY
PEDRO SIMÕES
NINNI WESTERHOLM



GROUP 5

This sauna, located on a rock, is the articulation point between the trail and the program of the 'badstue'. Its goal is to offer equal qualities to outside and inside spaces. Two platforms, one above and another below the sauna, connect the construction to the site. Additionally, the flat surfaces provide the users with nice viewing spots, a place to rest and make a fire, but also a space to prepare for sauna and cool down during bathing. Furthermore, the sauna has a direct connection to the water by a bridge located at the lowest point of the rock. The simple geometry of the volume is an easy starting point for further development and integration into the landscape.

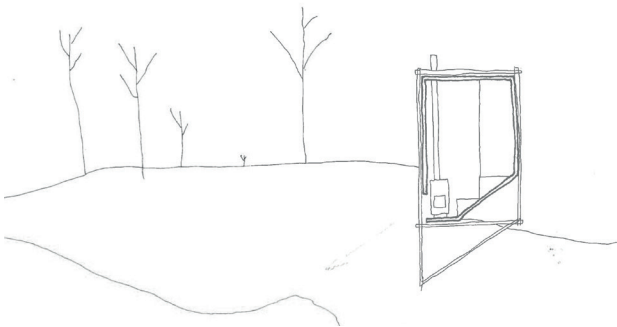




RAHEL HAAS
ANASTASIIA IGNATOVA
BENOÎT PERRIER
Chosen for further development

GROUP 6

Three elements – sauna, changing room and a bridge – are placed along the river and create a dynamic relationship between the summer farm and the hiking path. A minimalistic bridge allows the hikers to cross the river. The sauna is an eye-catcher standing on the rocks with the focus on the water stream. At the top, in a quiet and more hidden area a bath allows the connection to the water and the summer farm. The main construction is made of wooden frames.



SECOND STAGE

After one week of work, the concepts were presented and three out of six were selected to be developed during the second stage.

Concept 2 (Agathe, Benedikt, Thu)

Concept 4 (Julie, Sebastià, Quentin)

Concept 6 (Anastasiia, Benoît, Rahel)

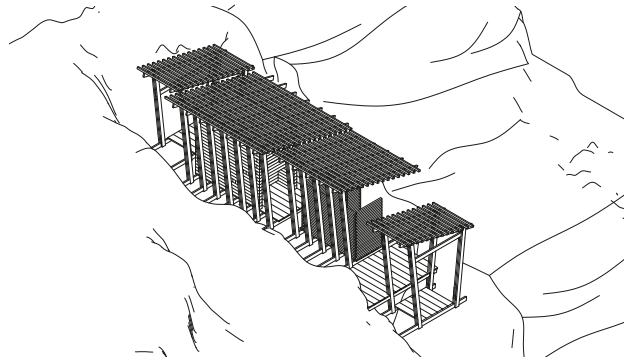
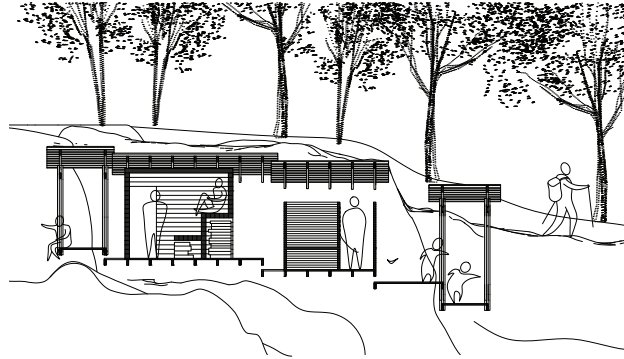
In order to avoid any feeling of ownership over a concept the groups were split and reorganized to work with the selected ones. Two groups were going to develop the same concept so at the end of this phase six new concepts emerged but only one would be chosen to be fully developed and built.

“Recognizing the need is the primary condition for design.”

— CHARLES EAMES, ARCHITECT



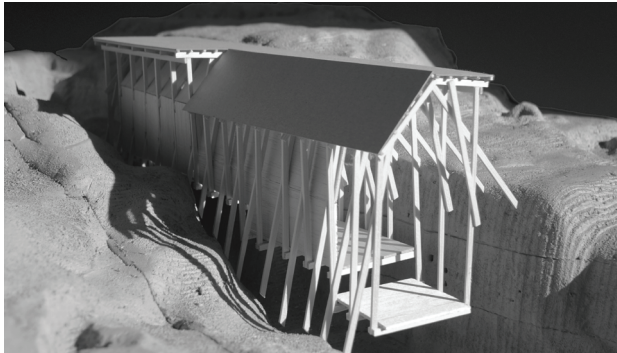
QUENTIN DESVEAUX
ANA BAÍA
ROGER ESCORIHUELA



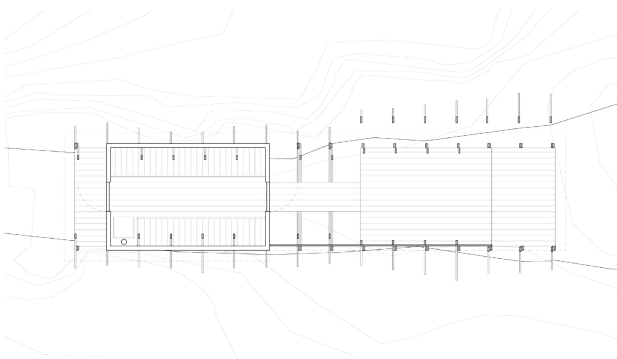
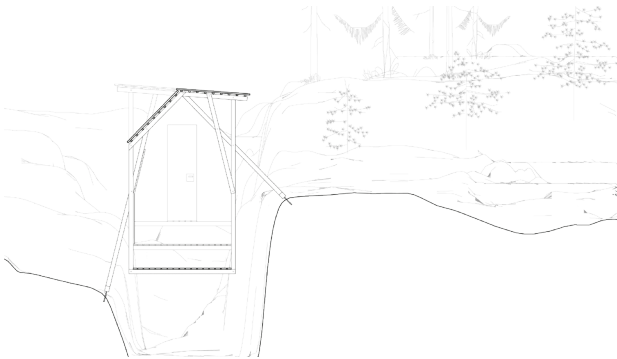
GROUP A

This concept wants to translate the natural steps generated by the rocks. The building is placed between the cliff just above the water stream. Several frames fixed in the stone compose the architecture. All along those frames few platforms are following the level of the water. In this progression an order is created, from the public bridge to the private sauna.





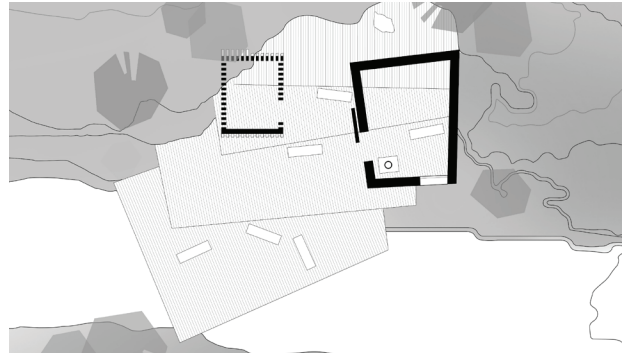
BENOÎT PERRIER
LOUIS MENY
ADRIENNE MICHELS



GROUP B

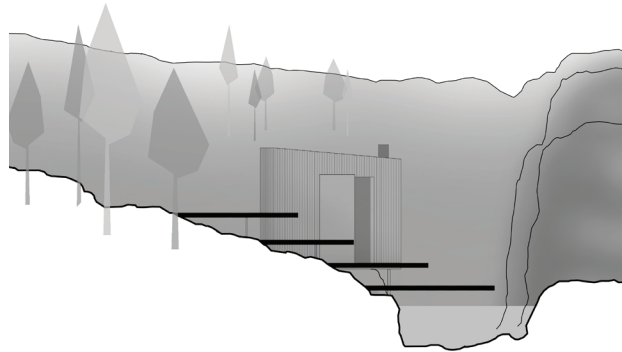
The fundamental idea of the proposal was to foreground and intensify the major principles. The main focus was placed on improving the sequencing of the framework, the heights and the insertion into the waterfall. Furthermore the sequential arrangement and the access have changed. The connection to the cliff and the statics has been solved by the various frame dimensions. Different light situations and atmosphere are given to the interior spaces through varying framework and roof shaping.

ANASTASIIA IGNATOVA
PIERRE-LOUIS PASSARD
KRISTINN PÁLSSON

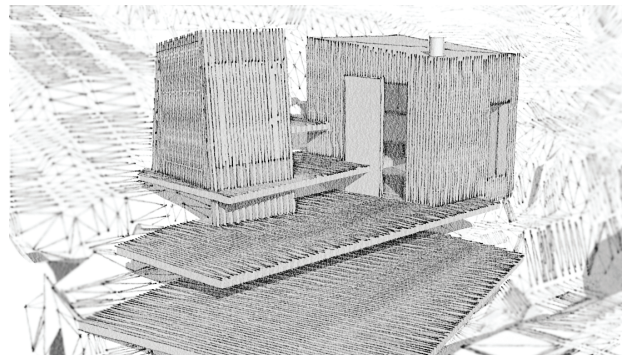


GROUP C

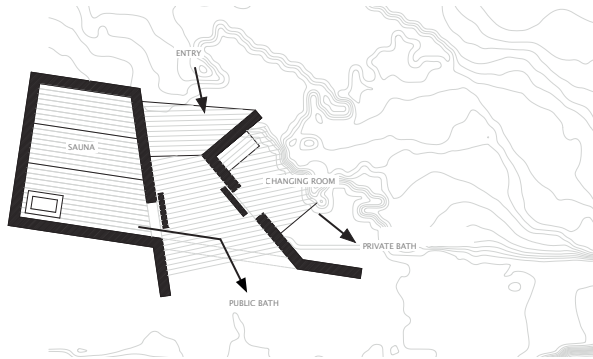
The design proposal consists of is a building complex in a close connection with the cliff and the water, volumes are 'growing' out of the terrain with a trail passing between two separate functional elements.



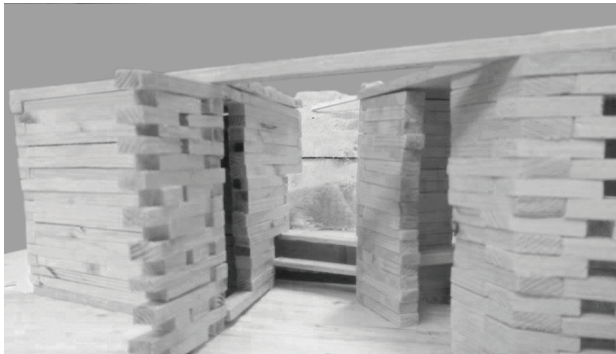
The structure of the several platforms is arranged to overlap each other and stick into the buildings. They then work as stairs and benches on the inside and outside, and offer a wide area for bathing and resting. Bottom terrace level also works as a bridge crossing the river.



Lack of the exact rocks measurements and level heights kept our proposal being yet very abstract.



RAHEL HAAS
 THUY NGUYEN
 PEDRO SIMÕES



GROUP D

The angle of the sauna was changed and the shape of the concept was more simplified. The public bath, the changing room with a private bath and the entrance were more defined. Thus, the changing room with the private bath becomes part of the the rock formation and allows a nice view inside the waterfall. Moreover, massive wood elements were used to create a compact building.

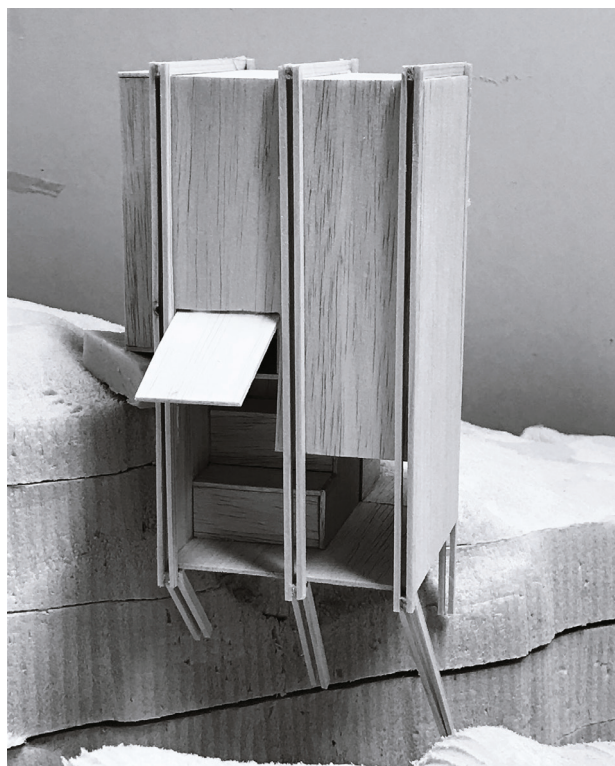
JULIE ALLÉMANN
FELIKS ULVÅEN ISAKSEN
BENEDIKT PROFANTER

Chosen project



GROUP E

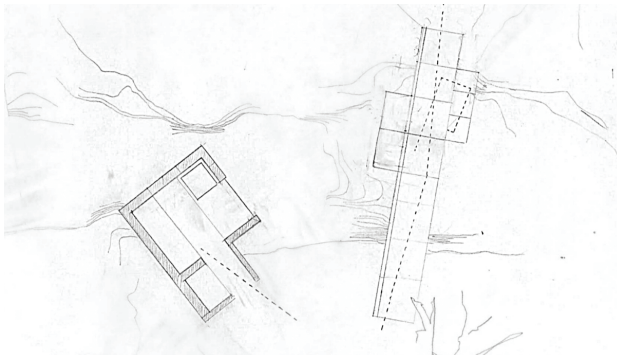
This alteration on the original design retains the core concepts, where the structure is supported by slender frames and legs, hanging over the edge of the rock. The sauna is located at the top of the structure, with the changing room at the first floor, with openings facing towards the water, and with possibilities to reach the water through the use of a ladder or steps attached to the rock face. The bridge is separate from the volume, placed higher up on the site.





SEBASTIÀ MERCADAL
AGATHE LEDOUX
NINNI WESTERHOLM

GROUP F



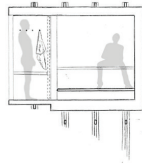
This proposal consist of two elements: a sauna with a small changing room, and a bridge with a bathing place. Splitting the uses in two separate structures creates a circulation around the waterfall, both horizontal and vertical. The sauna is efficient, compact, and made out of massive wood, which is a response to the massive rock it lays on. Placing the massive wood block within thin frames creates an interesting contrast between the two structures but also attaches the building to the cliff in a very light way. The sauna partly hangs off the cliff and has a visual connection from within the sauna to the water below. The multifunctional bridge next to the sauna works not only for crossing the river, but also as a bathing place. Between the cliffs, the top part of the bridge and the water is a sheltered place where you can hang your clothes and take a bath or just enjoy the proximity to the water.



Sauna
Short section plan
1:50



Sauna
Floor plan
1:50



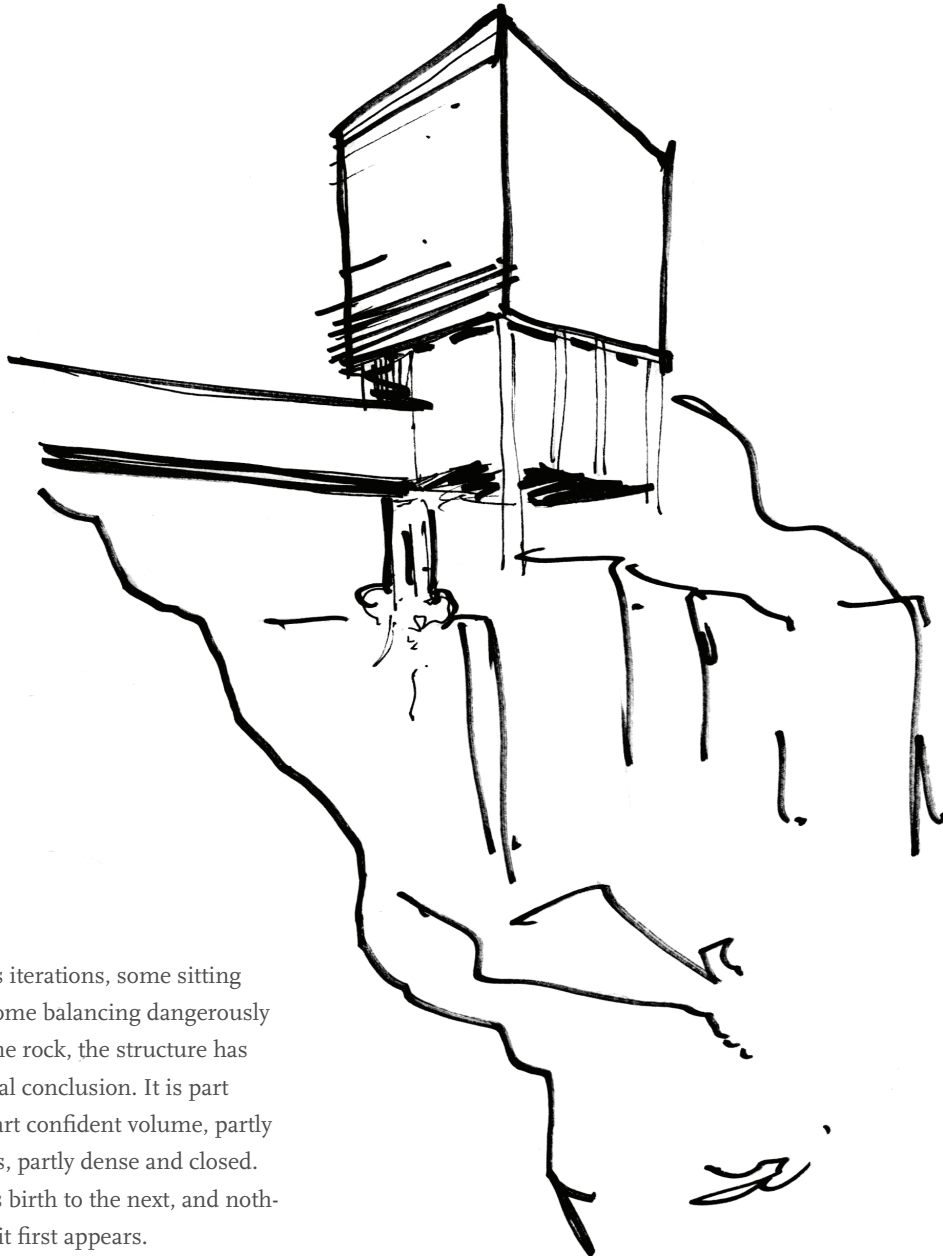
Sauna
Long section plan
1:50



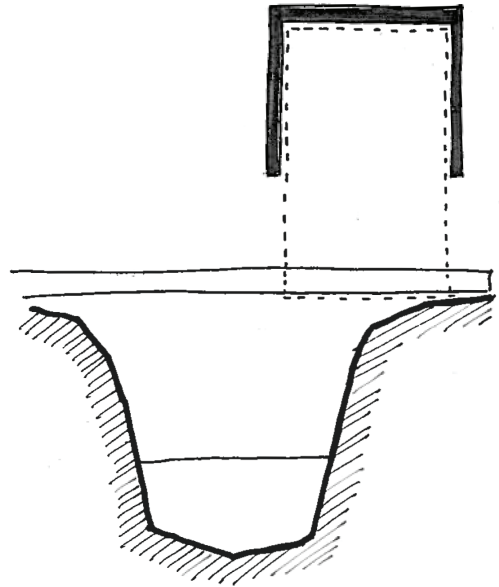
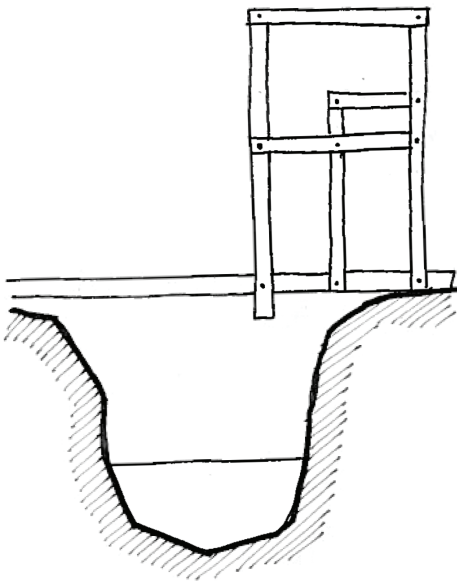
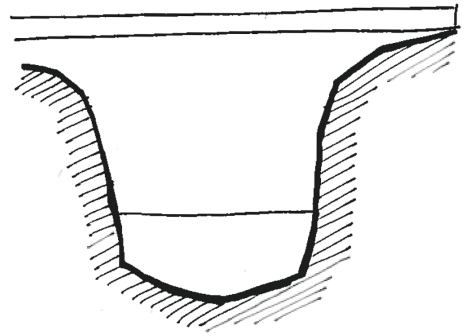
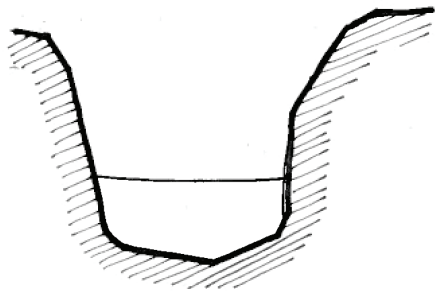
PLANNING

CONCEPT / PROCESS / DRAWINGS

CONCEPT

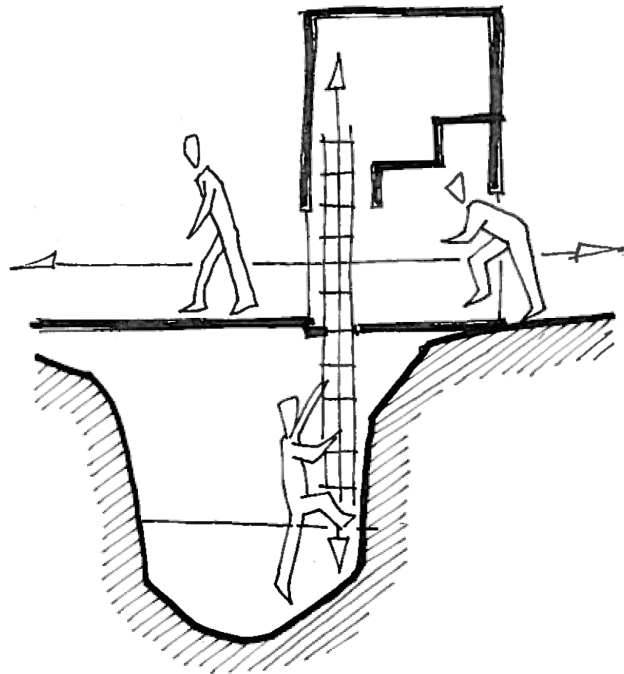


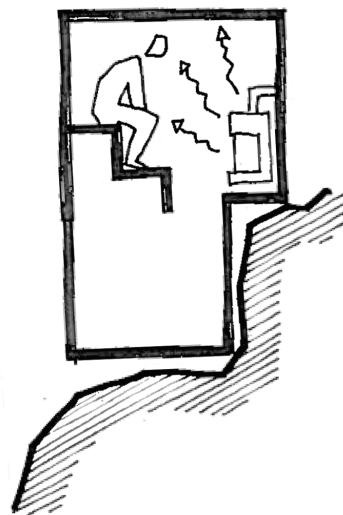
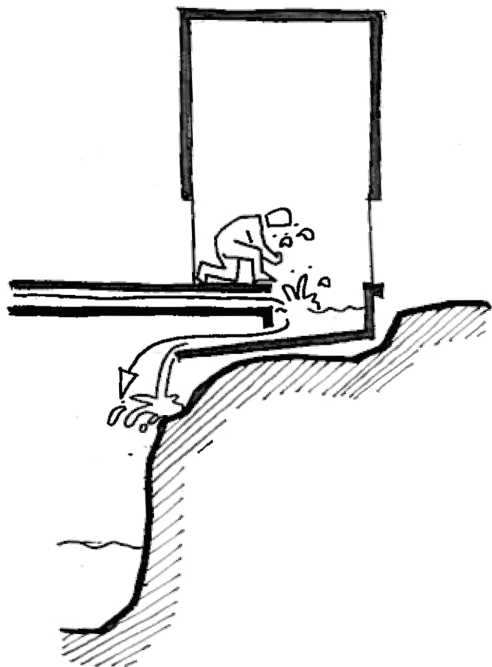
Through various iterations, some sitting confidentially, some balancing dangerously on the edge of the rock, the structure has reached its logical conclusion. It is part balancing act, part confident volume, partly open and porous, partly dense and closed. One action gives birth to the next, and nothing is exactly as it first appears.



The conceptual heart of the building is the placement of the sauna at the top of the structure, giving the most important program the most impressive placement, allowing the sauna to heat up as the warm air rises to the top. Everything else grows out from this first unexpected action; the expression of the structure as a heavy volume supported by thin frames, giving the impression of a balancing act acknowledging the water and the views, the tallness and openness of the surrounding landscape. The rising hot air opens the first floor to the elements, the floor structure and frames are open, allowing the air to freely circulate and this first entry into the building to be an intermediate space – not outdoors, not indoors – before proceeding upwards, into the darker, hotter and more enclosed sauna.

Secondarily comes the bridge, integrating with the structure as it crosses the stream like a thick line, providing water that collects in a basin from the waterfall on the opposite side of the stream into the building.





KVERNHUS

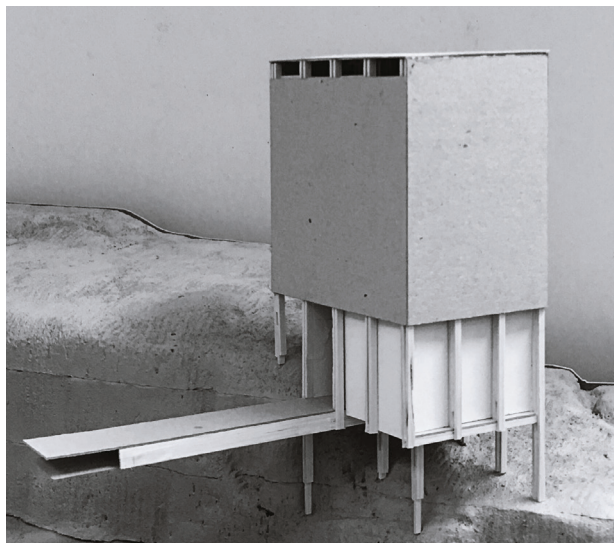
Kvernhus is a small milling-house for grains, placed adjacent to rivers or streams often with an arm reaching into the stream, channeling water inside the structure to drive the mill mechanism. This is a traditional typology in Valdres and the surrounding areas. They were first invented in the middle-ages, and in the more remote agricultural areas of Norway, were still in use until the 1950s.

The sauna project references this typology in its relationship with the water rushing past. The bridge connecting the two sides of the stream carries water inside the Sauna in a similar fashion to the old mills, but rather than turn grains into flour, the water gathers in a small basin allowing for the user to wash or refresh themselves in the dry, warm and comfortable space of the sauna – or as we call it – Eldmølla; The Firemill.

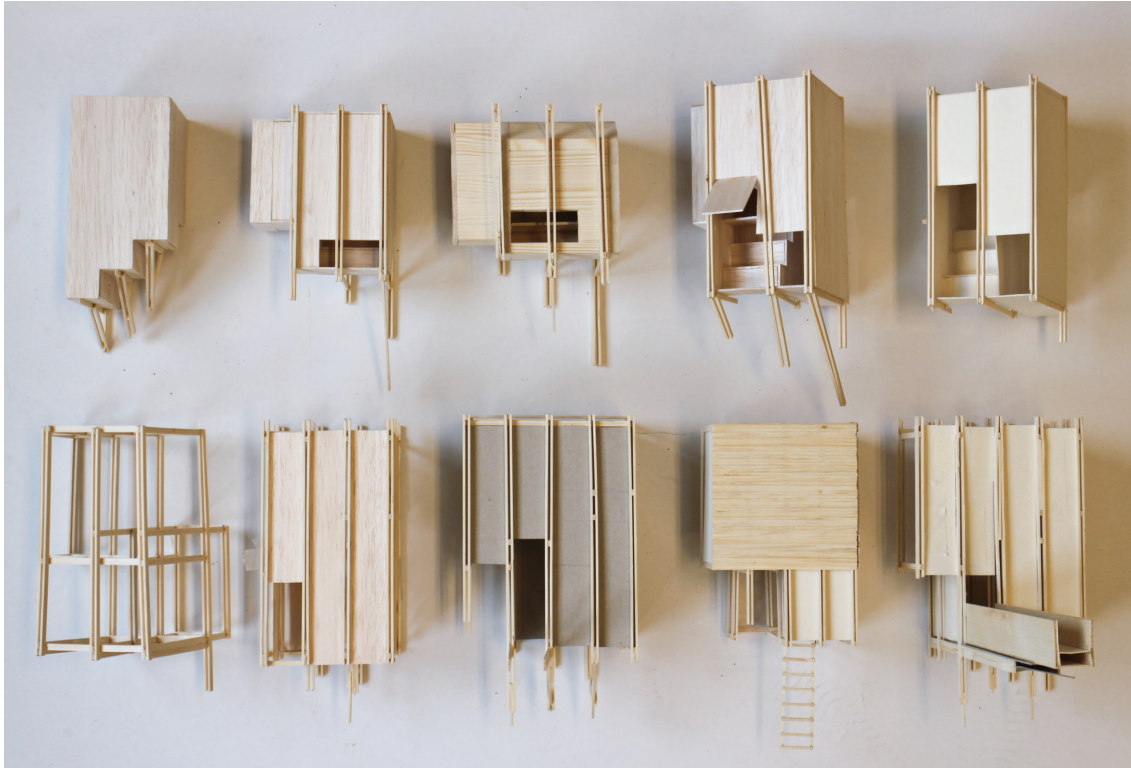


PROCESS

The selected design from the final round of the competition was that of group E. The project is based on the design from first competition stage; group 6. The key values and concepts of the project that lead to its selection as the final design proposal was its ease of maintenance during the winter, the reference to the local typology of “Kvernhus”, the small volume, the possibility of separating the volume into public and private, its “landmark” qualities and the perceived possibility to construct in the limited two-week timeframe. However, it was decided that the structure should be altered to accommodate the bridge as part of the main structure, and to establish a stronger link between the three key elements of the water, the bridge and the sauna. At this point in the process it was important for the project for a final decision to be made, and for work towards the final construction.





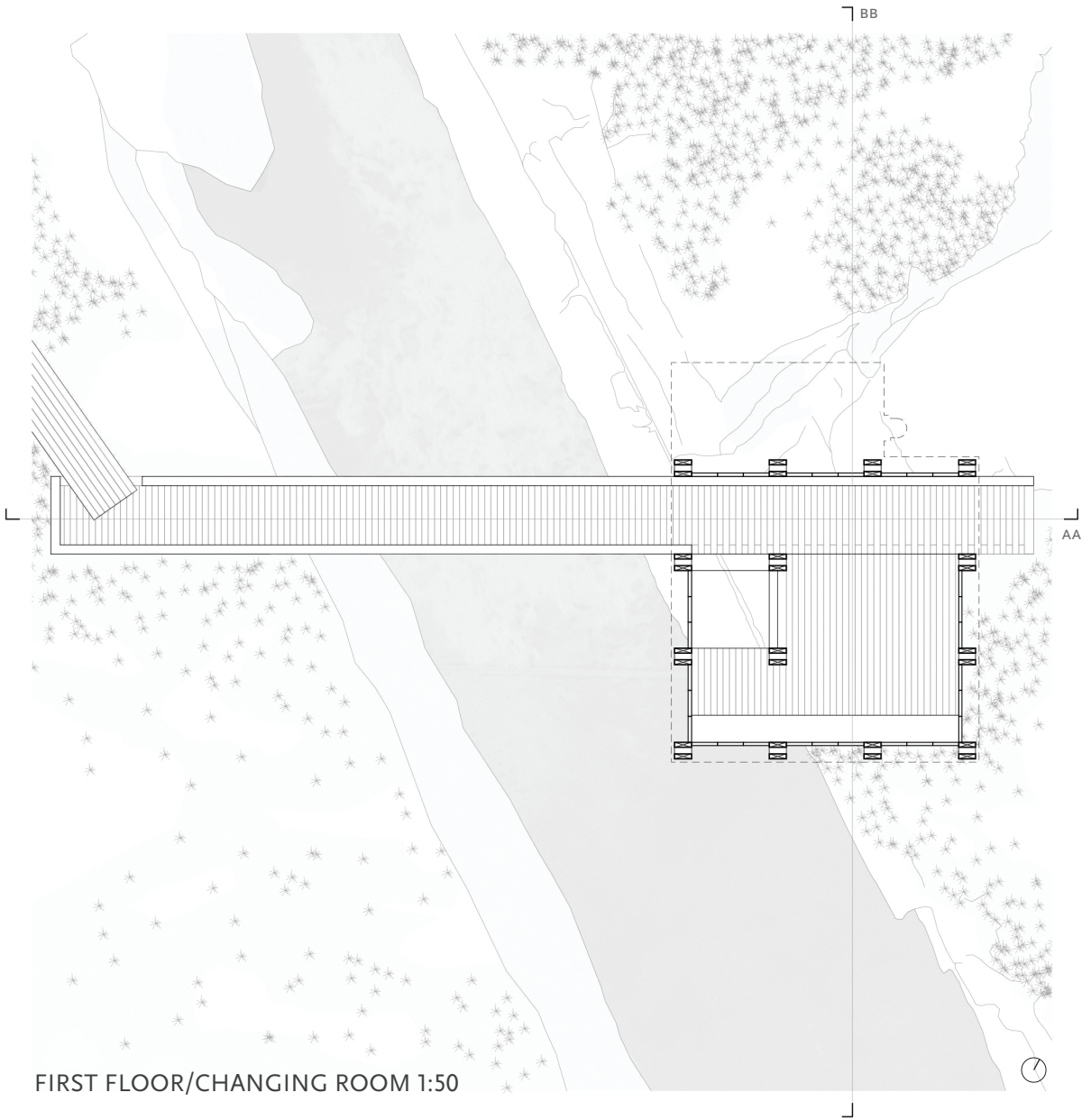


“Making a decision isn’t about knowing every potential consequence. It’s about knowing what you want and chasing a path that takes you in that direction.”

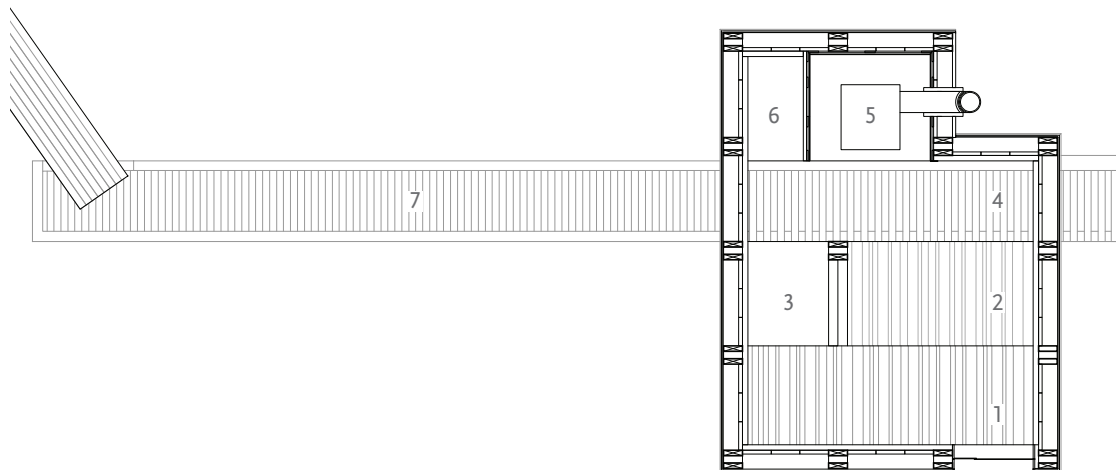
— MALINDA LO, AUTHOR



DRAWINGS

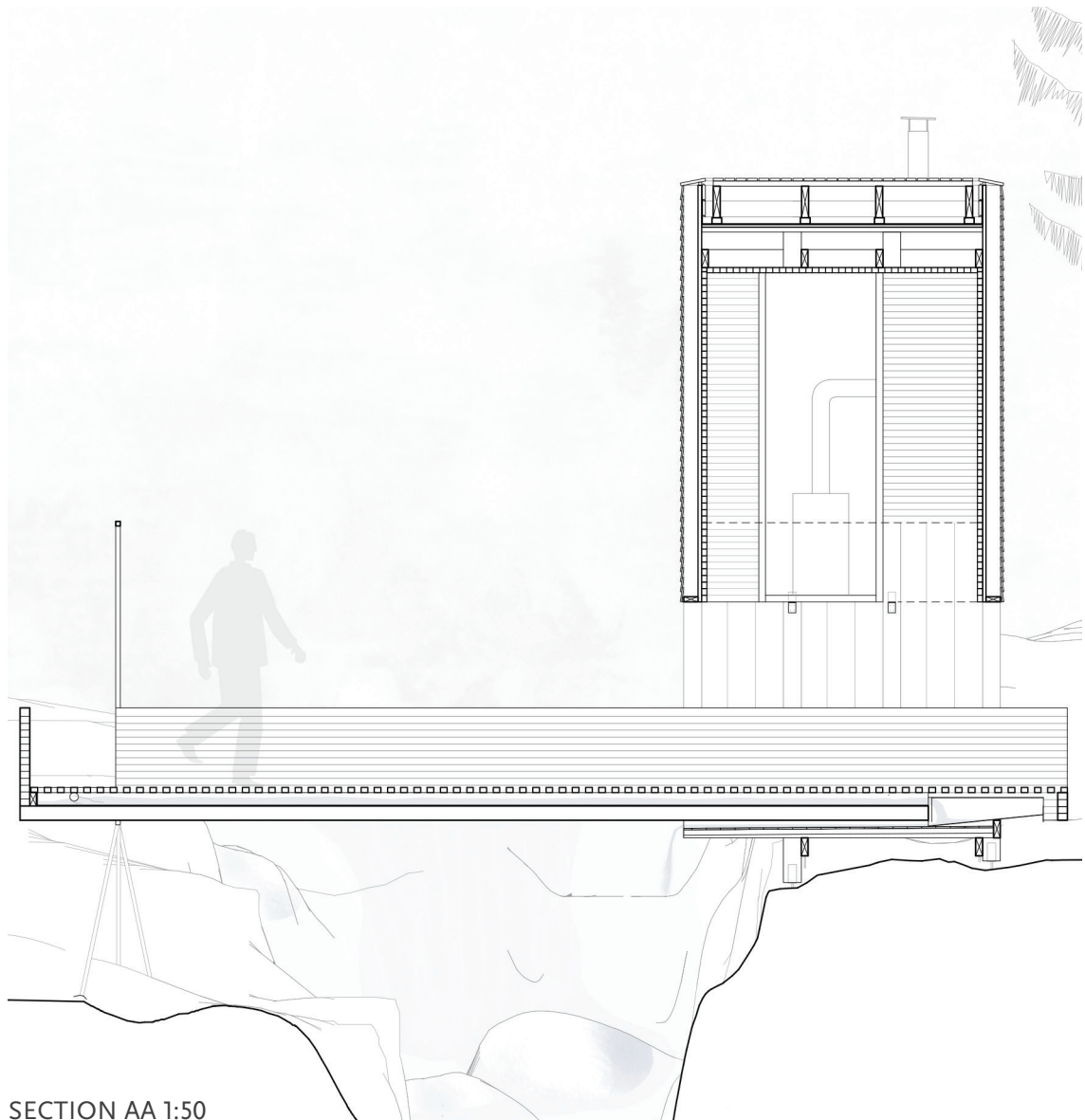


FIRST FLOOR/CHANGING ROOM 1:50

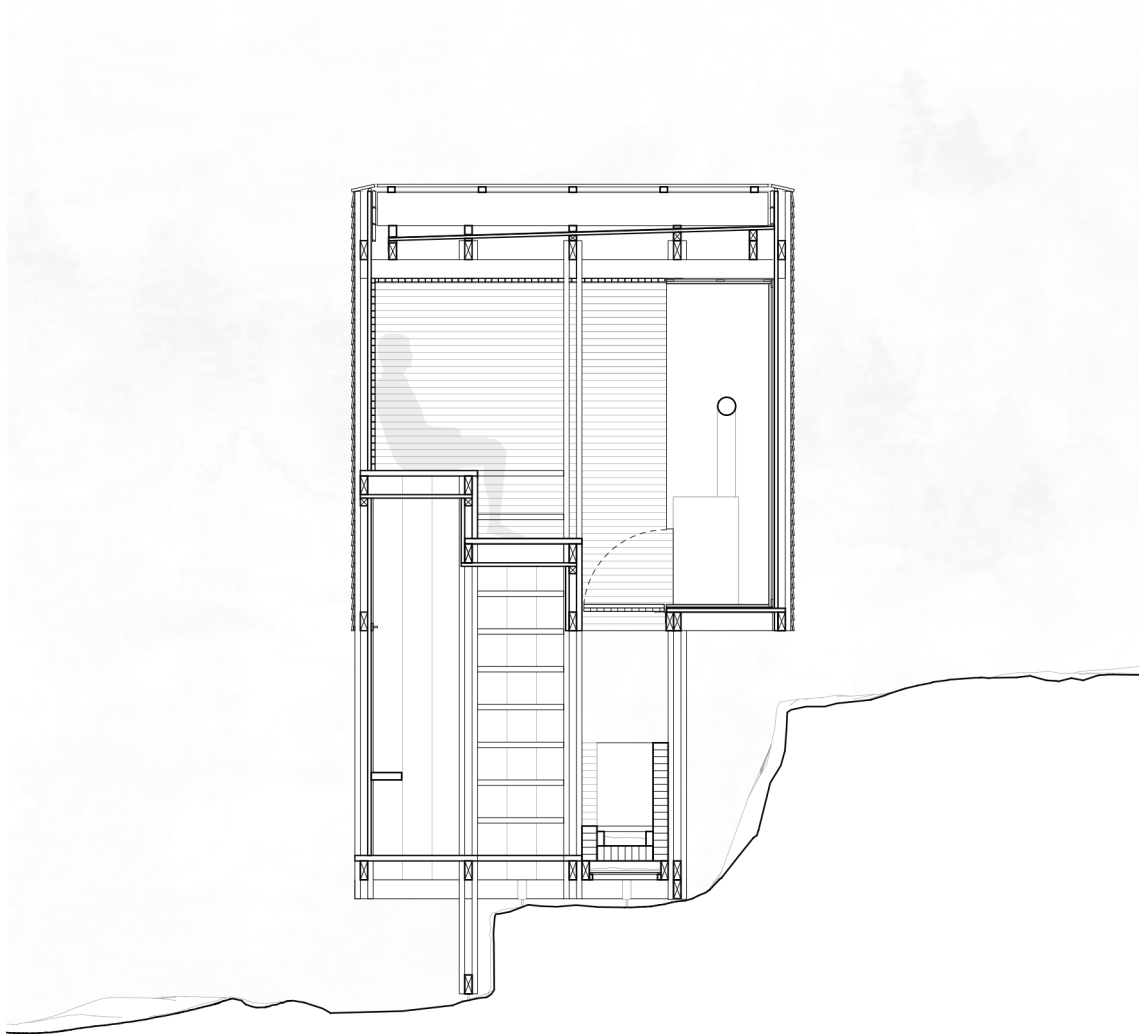


1. WINDOW/VENTILATION
2. BENCHES
3. ACCESS TO THE WATER
4. SINK
5. STOVE
6. WOOD STORAGE
7. WATER BRIDGE

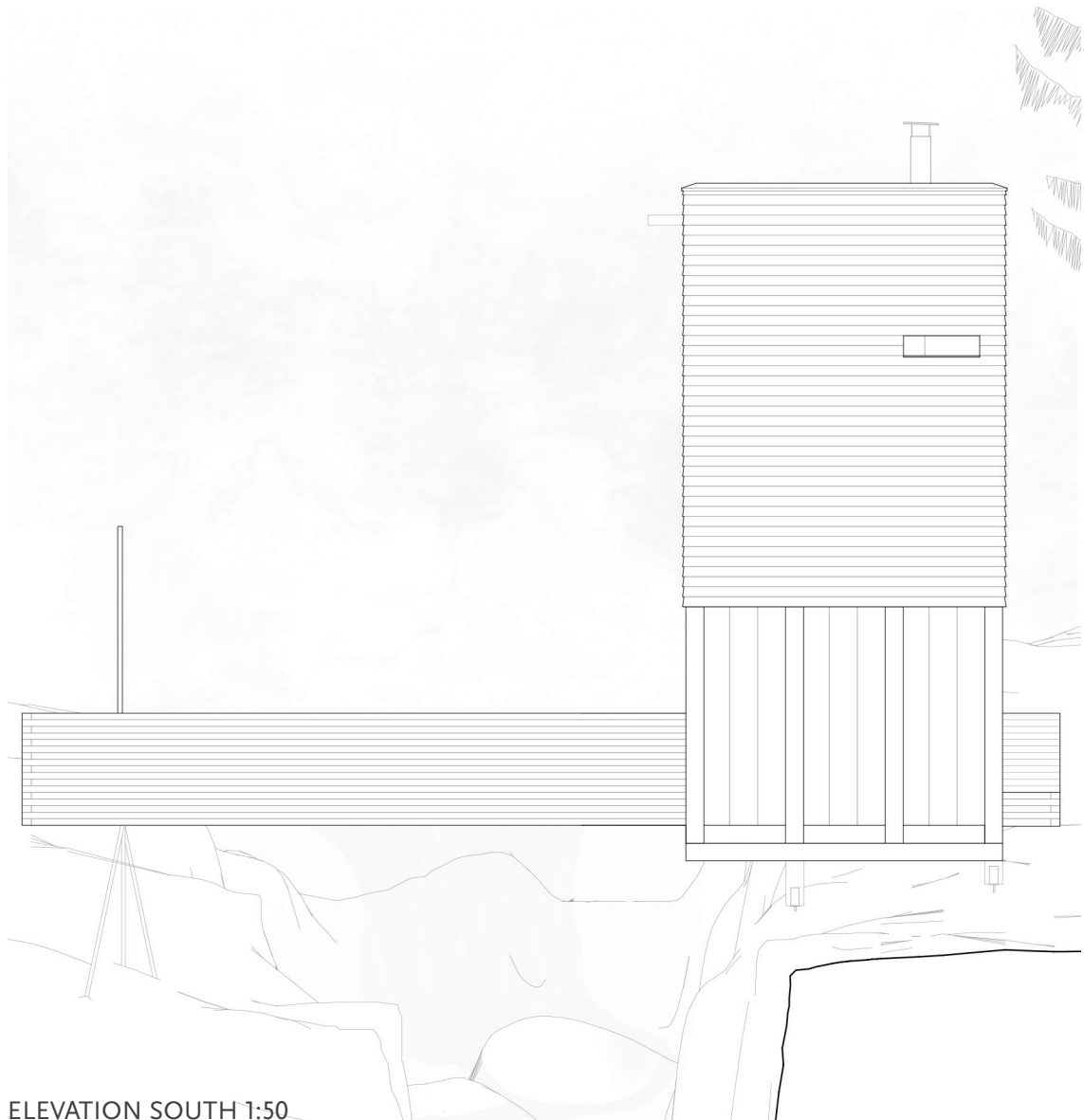
SECOND FLOOR/SAUNA 1:50



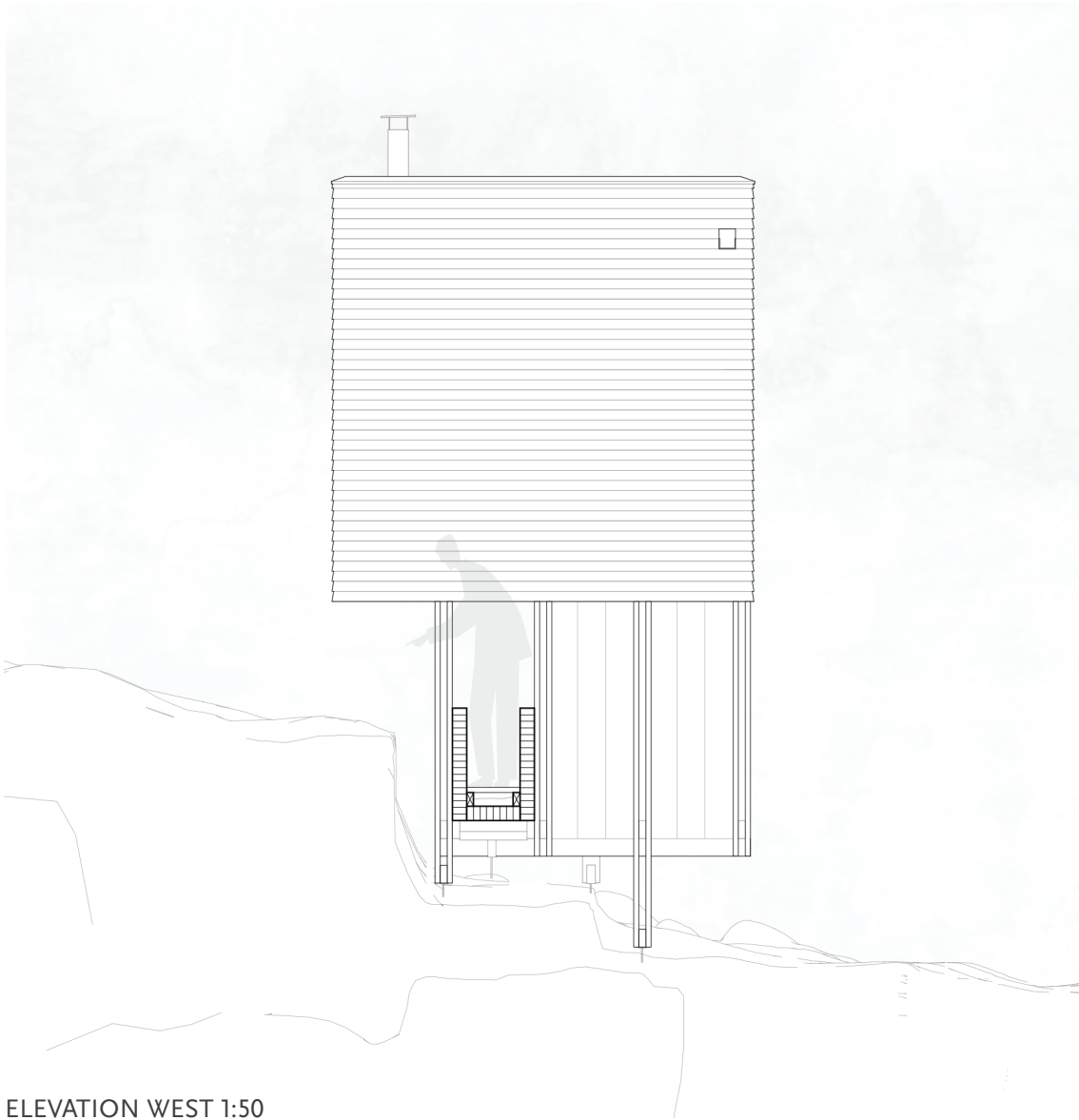
SECTION AA 1:50



SECTION BB 1:50



ELEVATION SOUTH 1:50



ELEVATION WEST 1:50



CONSTRUCTION

SITE WORK / BUILDING PHASES /
FOUNDATION / BRIDGE / WATER /
FRAMES / INTERIOR / CLADDING / ROOF

SITE WORK

Our building site, Leirholstølen, is a private summer farm which is located up in the mountains and can be seen as a remote location that requires at least 10 minutes drive uphill from the nearest traffic road. During two weeks of construction process, we have experienced a very different weather conditions, which made us getting used to a high variety of Vangs climate change; from a very high humid, rainy and snowy days to the summer heat within just two weeks of May.

As per arrival, we started preparing site for the building process. In order to adaptate our project to the real building site we had to begin by cleaning the cliff rocks from the soil and vegetation layer and measuring the difference from what our expectations were. We have faced some differences between

the expected height levels that we used when modelling the sauna and the real rock measurements. After the day one we managed to find out the preferable foundation connection spots and marked them on the rocks. Using some temporary helping constructions we defined preferable location of the sauna frames and columns settlement. A very sharp corner of the cliff has been removed manually and by using a stone grinder machine.

Our project went through some minor changes in order to be built. For example, the bridge as it was designed initially, would not meet the opposite side of the waterfall, so we have decided to create a secondary, lighter part of the bridge, that would touch the rock on the desired level, supported by the steel columns in the meeting 'joint'.







BUILDING PHASES

FOUNDATION

As the cliff rocks were cleaned and the foundation placement spots were defined, we have prepared to drill the holes for the steel connection elements called strong ties. According to the plan we had to settle seven strong ties to support the sauna frames and four ties to settle the bridge. In addition to that, we had to drill three more holes to settle the steel columns supporting the bridge 'joint' on the opposite side of the river, and two more holes for the very end of the bridge. Those holes were drilled and later the ties were settled in and all fixed with epoxide, which has taken at least 24 hours to get stiff.

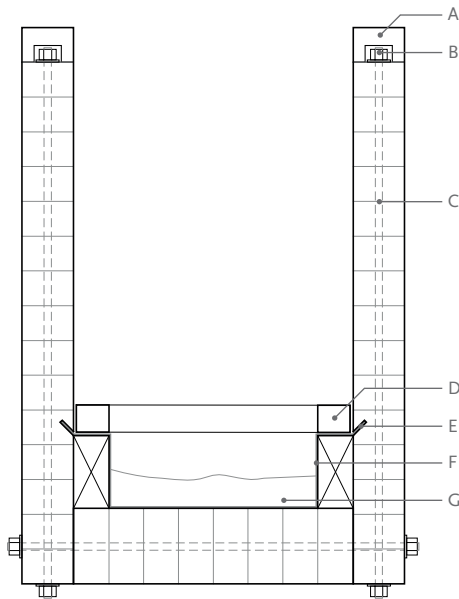
The following procedures were executed during three stages, each steel tie has been leveled in accordance to the building construction needs. Steel columns, that were manually customized in their length by steel grinder machine and later welded in the connection points, afterwards covered with anti-rust oil.





“We will see on site”

– AUGUST SCHMIDT



- A. LOG COVERING BOLTS
- B. HIDDEN BOLT
- C. AXIS
- D. DUCKBOARDS/FLOOR
- E. DRIPPING EDGE
- F. WATERPROOF LAYER
- G. WATER

BRIDGE

The bridge is made of massive wood. The elements – the two floors and the two arms – of the bridge were fabricated separately inside the summer farm, in the cows milking room.

A small group drilled, screwed and bolted the beams together.

Each piece is very heavy and is carried one by one to the site by most of the students.

Some provisionary beams took the weight of the bridge during the placement. The arms were bolted to the floor directly on the water. The angles are made of finger joints. The secondary bridge came afterwards; it is supported by the first bridge and another foundation. The floor is covered by a waterproof layer, there is a gap for the stream covered by another wooden floor.



“Do you have a 25 bit?”

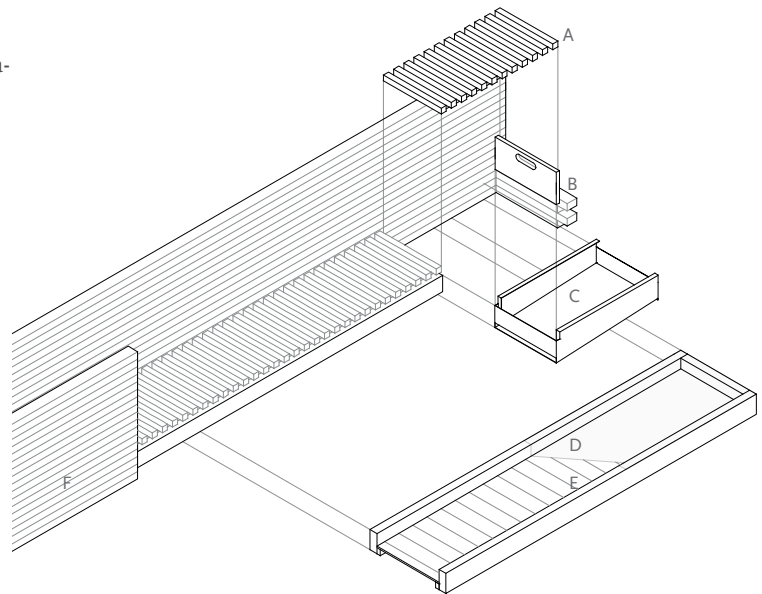
— EVERYONE ON SITE





WATER

The water is a natural element that connects the building with the place. In order to have it inside the building we raised the level of the water with a small dam built with rocks, and created a small water pool. With a water pipe hidden underneath the smaller bridge, the water gets transported to the main bridge, making its presence visible all the way thanks to the opening on the wooden floor of it. A sink located at the end of the path creates the possibility of having fresh water running through the building. The water is then returned to the main stream, following an opening in the bottom of the sink, making it possible for the more courageous visitors to enjoy a bath underneath the sauna, thus completing the movement of the water.

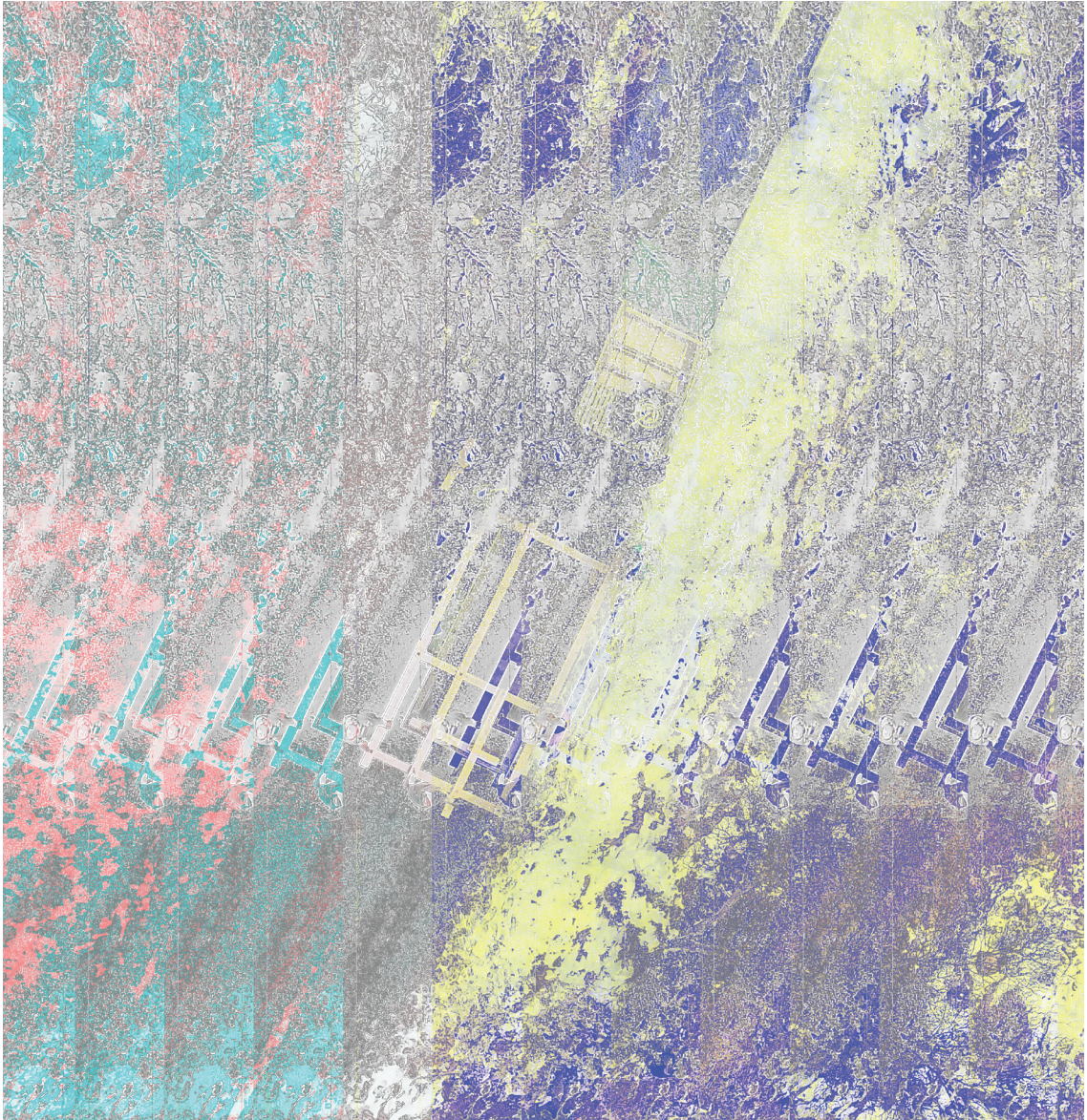


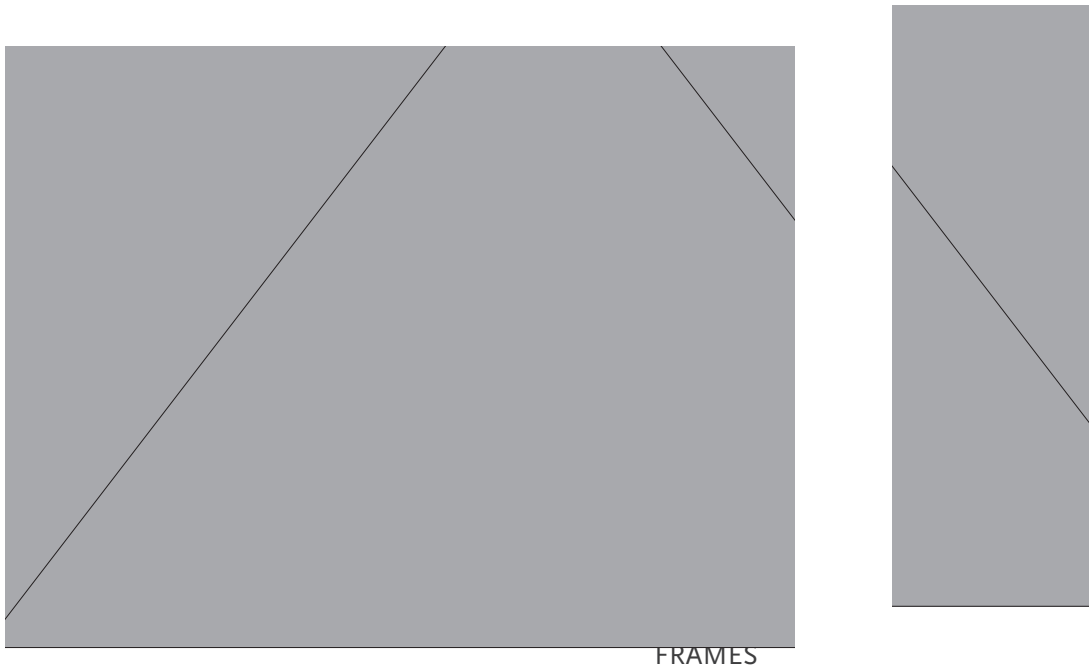
- A. REMOVABLE FLOOR
- B. SHUTTER
- C. SINK
- D. WATERPROOF LAYER
- E. EVACUATION CANAL (3° SLOPE)
- F. BRIDGE (3° SLOPE)











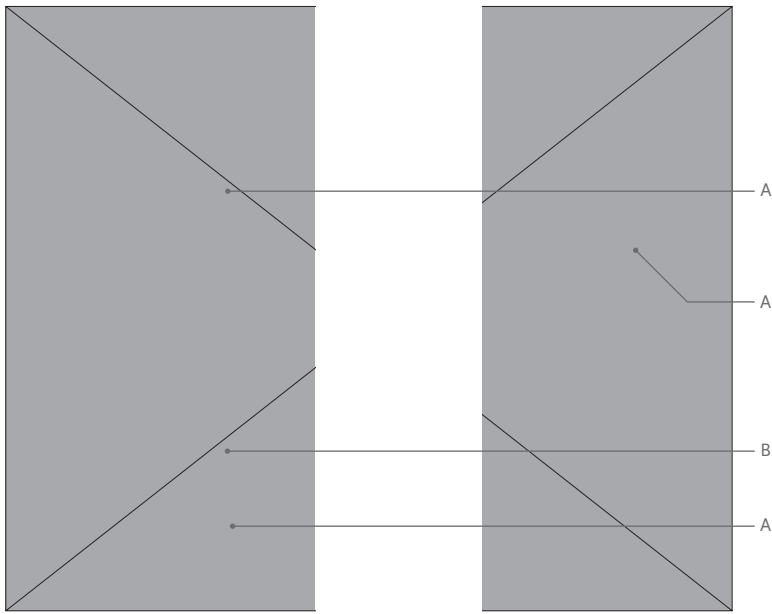
The frames that support the building were constructed on the flat surface of a tractor trailer at the summer farm and transported by a team of students down to the site. The large frame units are bolted together, and bulldogs and nails prevent the joints from twisting out of position, keeping the structure stiff and secure. In order to accommodate the nuts and bolt-heads, avoiding conflict with other building elements in assembly, part of the material was chiseled away, taking great care to not weaken the joints in the process.











SAUNA WINDOW
 A. FINISHED WOOD TRIM
 B. SLIDING PIECE

INTERIOR

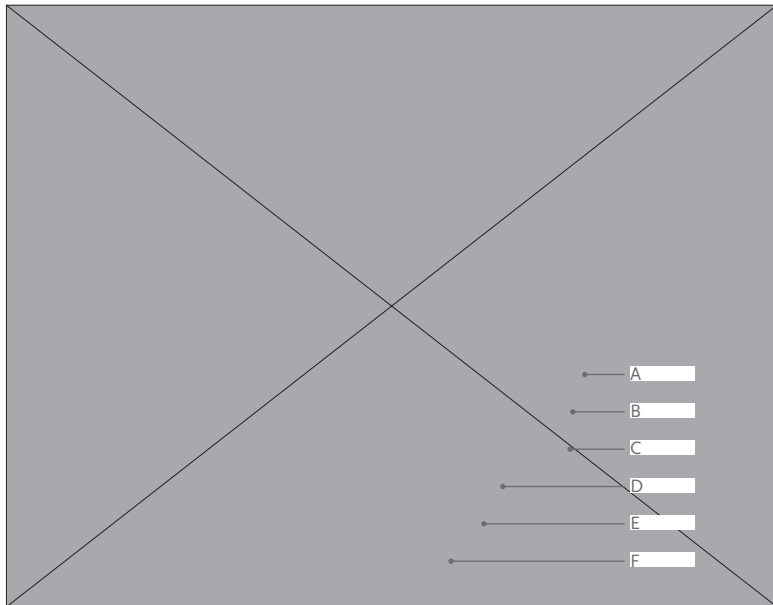
The inside of the sauna is clad in aspen. The walls are covered with horizontal boards of uniform thickness, and the benches with boards of varying thicknesses which provides variation from the highly regular cladding patterns in the sauna as a whole. At the lowest level of the benches there is a removable floor. Keeping the floor open makes for easier crossing of the bridge through the structure, while closing it increases the efficiency of the sauna.

The niche that houses the oven is clad with plasterboard and metal plates to protect the wooden construction from the heat. A small compartment allows for storage of firewood. The changing room is partially exposed to the elements, with broad, vertical boards inbetween the frame structure. The floor structure and the gaps in the frames are open to the air, providing a connection with the surrounding landscape and the rushing water below.



CLADDING

The exterior of the sauna is split on two. The lower part is closed by the means of long, vertical boards that fit in between the frame structure, allowing air and light in from the gap in the frames themselves. The part of the structure that holds the sauna itself is clad in three layers, an interior cladding, the vertical boards seen on the first floor, and a square-edge weather-board cladding. These three layers adds insulation through material thicknesses, in addition to giving an expression of the hierarchy and function of the structure.



- A. OUTSIDE CLADDING
- B. SUPPORT CLADDING
- C. WINDBREAK
- D. INSIDE CLADDING
- E. SAUNA CLADDING
- F. BENCH CLADDING



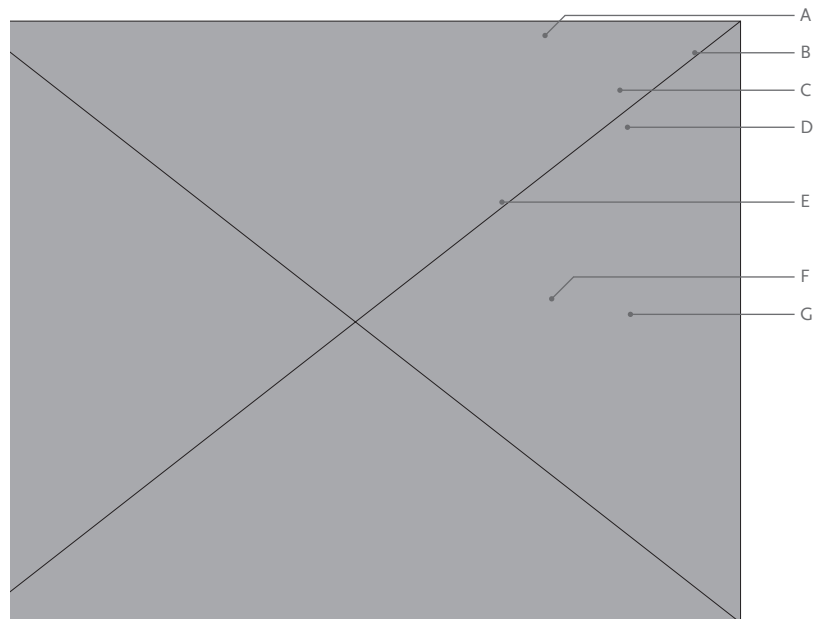


ROOF

Being a full volume, the roof ends the building without creating a hollow because of an acroterion. The hat of the building seems to be full thanks to an outside cladding that cover the real roof, the one on which the rain can flow. The water can go through this roofing to reach the operative roof, but not the snow so it doesn't blocked the gutter.

Under this flat cladding, we created a slope just above the frame in order to make the water flowing down to the waterfall. The gutter is out of the building for a dozen of centimeters so the water doesn't flow on the facade but goes directly to the river. It creates an other interaction with water, responding to the different ones we created in the bridge and the sauna.

- A. DUCKBOARDS
- B. WOOD FINISH
- C. CLADDING
- D. WINDBREAK
- E. REMOVABLE STRUCTURE
- F. WATERPROOF LAYER
- G. GUTTER





Bouboubouuuuuu po po

– PILOU PASSARD, TUBA PLAYER





ELDMØLLA

FINISHED SAUNA PICTURES



































APPENDIX

REFLECTION / PROJECT PARTICIPANTS /
SOURCES / BOOK EDITORS / SPONSORS

IT WORKS

“Build a spectacular sauna on the edge of a cliff at 922 m a.s.l, slightly hanging over a waterfall.”

It did not start that way.

It started with the cooperation of NTNU, Innovangsjon and the local people.

It started with the site and the wish to do something different. It started with learning how to ski, coming to the mountain in February in snow and wind. Sketching, thinking and freezing at the site.

Later back in Trondheim, carving the idea. The idea got direction. Drawing, planning, projecting. Building models.

The inspiration were the old water mills. It is hard to break traditions, maybe even harder to interpret them. Easier to step on toes. In my opinion this building takes no hostages. Not in modern architecture, nor in the old traditions. It works. It found the edge were modern and old meet.

Fire, integrated waterfall, a bridge floating over the waterfall, a portal to nice views and

beautiful trails. To a sauna experience like nowhere else... But it was a long way there.

You got to experience all four seasons. Shoveling snow and ice, digging frozen dirt again and again, working on the 17th of May, not parading but standing in a milking booth or on a tractor trailer putting elements together, carrying them to the site. Literaly working on the edge.

It took skilled teachers, finding solutions, adapting, thinking, cooperating, wood-working, metal-working.
Changing a site to something much more.

Some days the only possible transportation to the site was a Land Rover with snow-chains. God bless the Land Rover!

We have been lucky to get to know you. The group of students this year was truly the perfect group for the build. You are dedicated, passionated, hard working, positive and with a lot of knowledge.

You are “hel ved”

— KNUT LERDAL AND
KRISTIN VENÅS, OWNERS



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SPONSORS



Vang Kommune



Kvismo Sag



The use of 1:1 building with wood is an important educational tool at the Faculty of Architecture and Fine Art, NTNU in Trondheim. By designing and developing the students achieve competence in materials, collaboration and workmanship. Such skills are important for architects who want to create innovative wooden architecture.

This booklet presents such a process. During the spring of 2017, 4th and 5th year architect-students developed and built a wood sauna for Leirhol farm in Vang in Valdres.

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