

An aerial photograph of a rugged coastline. The left side of the image shows dark, jagged rock formations with patches of white foam from waves. The right side shows a lighter, more textured area, possibly a beach or a different type of rock, with white foam from waves crashing against it. The overall scene is dynamic and captures the raw power of the ocean.

Stone Cold Bath

- Reviving memories worth remembering.

Chalmers School of Architecture, ACE
Master's programme MPARC
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Master thesis project
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Matter Space Structure
Supervisor: Naima Callenberg
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Title : Stone Cold Bath
- *Reviving memories worth remembering.*

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This project deals with historical and personal memories. Without all the ones I have interviewed that have shared their experiences and valuable knowledge, the project would never reach such a personal depth.

I would like to thank the association *Hunnebostrands bildarkiv* and *Hunnebostrands Samhällsförening* for all the photos and documentation that I have published in this booklet. It has been an honour to meet the three enthusiasts Kjell, Siv and Ulla who have shared all stories from the past which gave the clearer picture of how Hunnebostrand have developed over the years. Thank you for the hospitality and the passionate involvement.

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Abstract

Bathing on the west coast is not a walk in the park. To climb and crawl on sharp stones makes one realize that we are only flesh and blood. If you are not careful enough, a hot and peaceful summer day will end up in 18 stitches at the hospital. That’s my experience of bathing in the archipelago and it differs far from the conventional bathing facility. It is a physical test which cuts deep traces in our bodies and memories.

Outdoor bathing in Bohuslän emerged already in the late 1800s, while the stone industry made great influence in world history. The granite with its durability was a perfect material for outdoor environments. Thus, the stone was increasingly demanded in large parts of Europe and South America.

Soon the concrete’s and the asphalts competitiveness as road construction materials forced many quarries to shut down. Today these areas reminds us of a time that made great wounds in nature. The remnants from the stone masons can be read in the crushed granite and rocky walls that extend along the beaches and islands of Bohuslän.

Not least in Hunnebostrand. There the old quarry has become a sculpture park. The stone is the only material that remains at the site. But besides the open air landscape, the stone masons spent many working hours in temporary wooden sheds. Whereby meetings between wooden constructions and stone elements will be a focus in the design.

With this project, I want to convey Hunnebostrand’s own cultural history together with my own memories as a summer guest. Therefore, the project is an outdoor cold bath in a fictional landscape that physically informs the atmosphere of a quarry. The architecture serves as a historical mediator which reincarnates forgotten crafts and knowledge. It opens up a discussion about how museums and bathing facilities can act and look like.

I turn to those who want to relive the memories that are stored in Hunnebostrand. But also to the ones who want to learn more about the extinct knowledge and underlying spirit of Bohuslän.

Thesis question: How can architecture speak about memory?

Studio: Matter Space Structure
Supervisor: Naima Callenberg
Examiner: Morten Lund



Figure 2, The Quarry.

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Figure 3, Norra Grötö 2.

I. Student background

My journey as an architecture student started on a 18 hour long train ride from Gothenburg up to Luleå where I was supposed to study industrial design and engineering. It was a refreshing experience where new interests and relationships were born. But after 3 years at Luleå University of Technology that included a change over to the program *architecture and civil engineering*, I realized that my technical interests was not as dedicated in comparison to the aesthetic. I wanted to end up in a profession that puts more effort on spatial configurations and their combination of matter rather than looking deeper into how constructions, technical systems and logistics could be solved. Although it doesn't mean that I have no interest in the technical solutions. I understand that the technical and aesthetic values always are in constant interaction and motion and that If you take control over the relevant technical aspects within your delimitations, you take control over your design.

After 3 years in Luleå and a stopover in Gothenburg I switched over to the architectural program in Umeå where I finished the second year. Then I went on to Chalmers after a successful result in the national admission test for applying students.

With a bachelor's degree at Chalmers I hade one year as a trainee at two different architectural offices - one in Gothenburg and one in Stockholm. During that period I realized the difference between working in a larger and a smaller firm, that consulted different types of clients. It was a journey from large-scale projects, with efficient and general solutions, to small private projects with tailor-made solutions and a higher responsibility for the architect , who sometimes worked both as an architect and engineer. There the architect had to know more about *the whole*.

I have become increasingly curious about *the whole*. A successful *whole* is based on relevant choices in detailing. This is something that has been reflected in this degree project where I have applied a deeper knowledge on to a concrete end result.

Introduction

From *Hästedalen*, an old quarry's loading area, stones were shipped all over the globe, which made great influence in the world history. Although the quarry did not survive, Hästedalen in Hunnebostrand is still a well-used bathing area. This is a story of a place that has experienced both life and death; through seasons that is coming and going, dead soldiers who have flown ashore during the World War II, the damaged wood that have been in constant exchange and violent interventions in nature that made traces and scars in the landscape. But it is also a story about the inhabitants of Hunnebostrand and their collective experiences.

When entering the main content of this booklet the context of Hunnebostrand is presented. It tells about my own experiences as a summer guest in the area. But mainly about how the settled seniors have experienced Hunnebostrand's transition from being a rumbling industry to a one-sided holiday resort with few opportunities for the younger residents to develop. It contains a photographic presentation, memoirs, interviews, historical reviews and current topics that have been debated between the residents of Hunnebostrand. The combination of these materials leads on to the conclusion that the stone and bathing culture was of great importance for Hunnebostrand's society. This introduces the purpose of the thesis, namely to convey these values and memories through a combination of a cold bathhouse and a stone exhibition.

Further the third chapter gives an in-depth understanding of how the granite is processed as well as the internal and international influence it have had. Historical events, that made impact all over the world, are being presented and the stone industries and skills that still remains are mapped out in order to begin to investigate how the stone could be used further in a contemporary cold bath. Chapter III also contains interviews with quarry workers, stone masons and artists who all have years of experience working with the granite. After a glimpse into history and the stone's relevance in the project, the quarry's processes, the stonemason's techniques, and the artist's way of joining different elements are the ones that follows.

The fourth section presents Sweden's and Hunnebostrand's way of outdoor bathing. It starts with a recap in history and ends in a presentation of my own study trips along southern parts of Sweden where I have experienced old and new well-known cold baths. There are photos, interviews and stories told in this part as well.

The insights in how Hunnebostrand as a stone industry and seaside resort affected the people who live there, how the crafts are being replaced by industrial methods and how our 100 year old way of bathing still affects us today made impact on the projects discourse. It is introduced in the booklets fifth chapter. Here the thesis question is presented which is; *How can architecture speak about memory?* These parts of the discourse is a topic which Mari Lending and Peter Zumthor also discusses in the book "*A Feeling of History*", where Peter Zumthor describes the conventional view of how history is conveyed through abstract facts and texts in museums that does not create *memorable*, emotionally strong experiences.

The discourse also discusses which parts of the conventional methods of bathing that could be explored even further. Namely how there is a lack of bodily exploration in the conventional cold bath houses when compared to the experience of bathing in the archipelago. The distance that the user has from the "*phenomenon*" through conventional bathing and exhibitions are also a part of the discussion as well as how these problems are dealt with through a couple of examples, such as Herzog & de Meurons "*Schaulager*" from 2003, Robert Smithsons and Michael Heizers installations by the landart movements during the 60s and 70s and the *Termas Geométricas Hot Springs Complex* by the architects *German del Sol* from 2009. There is also a discussion about the importance of engaging all senses through the architecture which is evident in Juhani Pallasmaa's book *The Eyes of The Skin* (1996).

The discourse ends up in the idea of *the fragile body against the immortal landscape*, which becomes the read thread for the concept of the project.

Thereby chapter VII introduces parts of the design process that moulded a double cross-shaped plan which rests on a crumbled landscape. Here the project is presented in its entirety by illustrations, models, exploded sketches and drawings. These show how the matter and the plan layout creates a bath that challenges the fragile wood and the naked warm body against a robust, surface-processed and immortal granite. The project is a projection of the people that experienced the growth of Hunnebostrand, the memories of a craft and a bathing culture that has given long-lasting traces and wounds in nature.

The conclusion is that many memories have a strong connection to the traces and scars in a landscape affected by man. That there are many methods of processing the stone that still works very well today. The stone can possibly challenge its position of being the basic foundation and cladding with many benefits in the climate of Bohuslän. There are also many ways of using the precision of industrial sawn stone that not yet have been discovered in architecture. This also applies to the assemblage and tolerance in stone architecture. Although it is known that the stone is a heavy and hard material to work with; the immortal durability compared to wood is a fact. These features should be enhanced, not least when working with bath architecture.

The reflection discusses how much of the material stone that really got into the project and if the same result could be achieved through less means and material combinations. Could it be even more filtered and refined? How few funds would have been sufficient enough to reach a result that serves as a successful comment on the discourse. It also tells how the project has proven to have a less conventional view on how memories can be conveyed through architecture. Where there are many projects that convey memories by mirroring and favouring the architects own experiences rather than conveying general public experiences and simple things such as old crafts and knowledge.

Method

The project’s method is based on varying ways of collecting data. The preliminary research includes interviews, site visits, workshops, photo studies and presentation of relevant texts such as historical documentation from local associations and other cultural-historical books. The interviews gave specific and personal experience that then was translated into illustrations and delimitations in the project. This made it easier to sketch believable ideas. Some sketches and illustrations were included as a basis for discussion during interviews in order to support final decisions with previously tested methods, including measures for stone blocks and strategies in joining stone elements (p. 42-43). The knowledge that was gained provided the conditions for designing a building kit for the cold bathhouse. This underwent iterative processes through different types of media such as sketches (p.77-79) and 3d modelling. The building system and its link to the concept were introduced during mid-term in order to be able to dive deeper into details and small-scale solutions that would affect a whole. Initially, some spatial sketches were performed in model (p.74-75).

Delimitations

The geographical boundaries are within the area of Hästedalen and its neighbouring topography; like the landscape model on page 98. The project does not analyze how the bathhouse’s plan and location could affect Hunnebostrand’s society in general. There is also no discussion of how the project could be implemented in regards to the political issues, regulations and other bureaucratic processes that a new building undergoes in its building process. No financial calculations are included in the presentation for the project. The project’s focus is on how details, surface treatments and processes of refining stone in relation to the wood as a counter part could mould a cold bath house in its *conceptual entirety*. The dimensions presented on pages 40-41 are general measures that have been discussed with the stone workers who were interviewed. Other issues about how the cold bath house would be operated, by whom, on what opening hours, gender separation and exact water supply etc. are also irrelevant to the format of the discourse.



Figure 4, Arrival.

II. Hunnebostrand

Hunnebostrand is a coastal resort in northern Bohuslän, Västra Götaland. This old stone industry and fishing village belong to the municipality of Sotenäs. The number of inhabitants was measured by 2070 in the year of 2017 (Statistiska Centalbyrån, 2018).

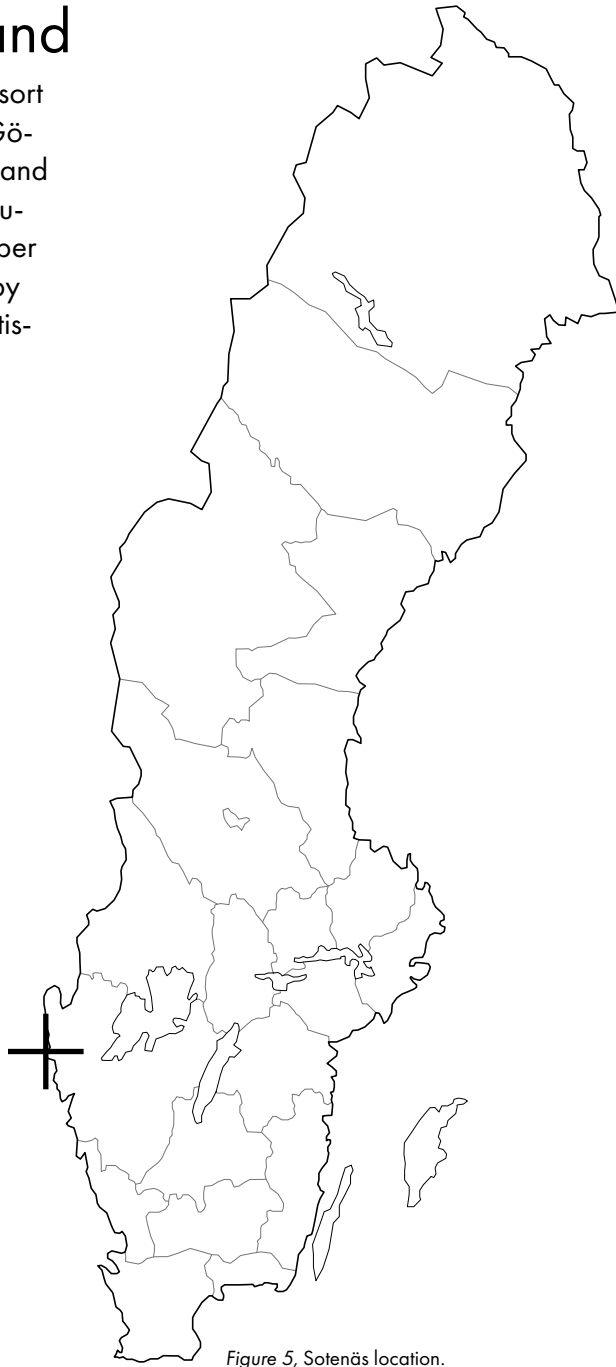


Figure 5, Sotenäs location.



Figure 6, Sotenäs.

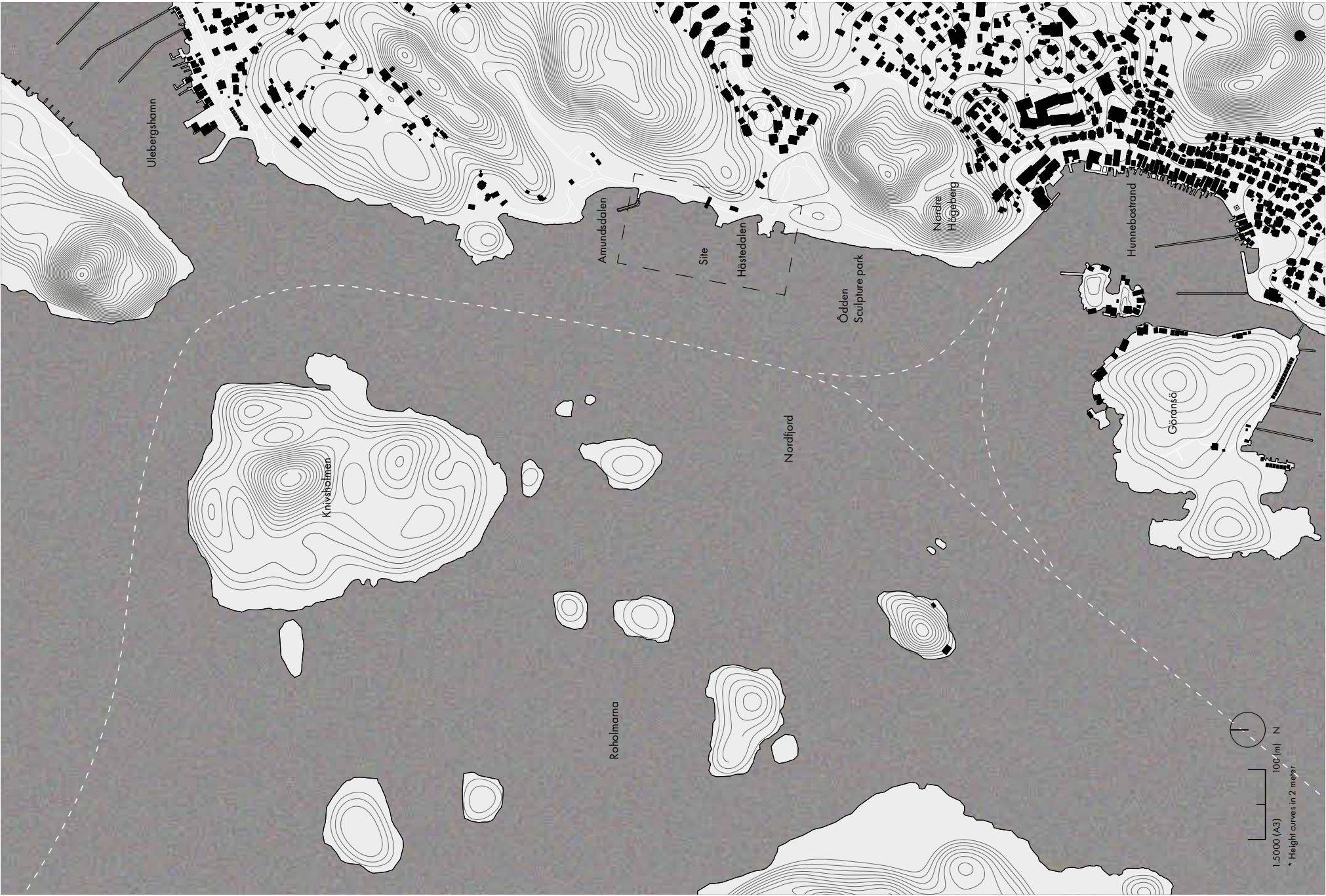


Figure 7, Map of Hunnebostrand (a).

On August the 8th in the year of 2000 my parents bought a summer house in Hunnebostrand. Before then, we had visited the resort on a regular basis during holidays in winter and a couple of weeks during the summers where we stayed in various rented houses. My dad and his three siblings grew up here in the summer after my grandmother had stayed there as a child. It is a place that has been a second home for several generations.

For me Hunnebostrand is a sanctuary, like for so many other seasonal guests. It is a distant place that treats time in a different manner. The noise, speed, punctuality and commerce of the city are far away in this holiday paradise. Here, activities take place on nature's conditions. If you have patience and luck, you will have a fish on the hook or a tailwind in the sail.

The bare cliffs and the islands in the archipelago has created many places to explore and experience. If you travel to Bohuslän, you intend to get an exchange with the sea in somehow. Most of the memories I have from Hunnebostrand has to do with the water; the taste of sea salt or the feeling of it in between the fingers; how the seaweed smells and sounds when it dances with the waves; the long breath you take when jumping off a cliff. The relationship with the water and lack of clothes will make you feel the environments features in a different way, such as the grass and the small insects that fly by. You have a closer contact with nature. It is a sense of ease. This is where I learned to run in between the tight back yards and fences; jump between the crushed industrial granite on the islands; climb on high mountains and swim underneath the surface. Hunnebostrand is a place where I have challenged my physics.



Figure 8, Norra Grötö 3.

Memoir

The short silence ends up in a clonk and a splash. Applause and cheers are heard from the little stands. The common experience of the audience is an inner and deep trance for the one who jumped that is now below the surface. Ten meters is not only a trial in height, but also in timing, depth and lung capacity.

Everything and nothing happens at the same time during a sunny summer day at Hästedalen. Someone is taking a nap in the sun whilst another one tricks a crab into a bucket. The first dip in the ocean is the last dip for the other. All ages and crowds gather under the sun. We are acting as equals wearing only swim clothes and no longer care about flashy items, but acrobatics, speed and play - on how to strain the body. Yet, exploring the body above and below the surface requires as much caution as improvisation. The contact with a parent is as important as contact with a child.

The boats are growling out on the lane while the water ripples towards the quayside and the old dance court. There are shout outs from both humans and seagulls. In the best possible scenario Hästedalen is a playful site for 10 weeks out of 52. The long silence ends up in a clonk and a splash.

July 25, 2018

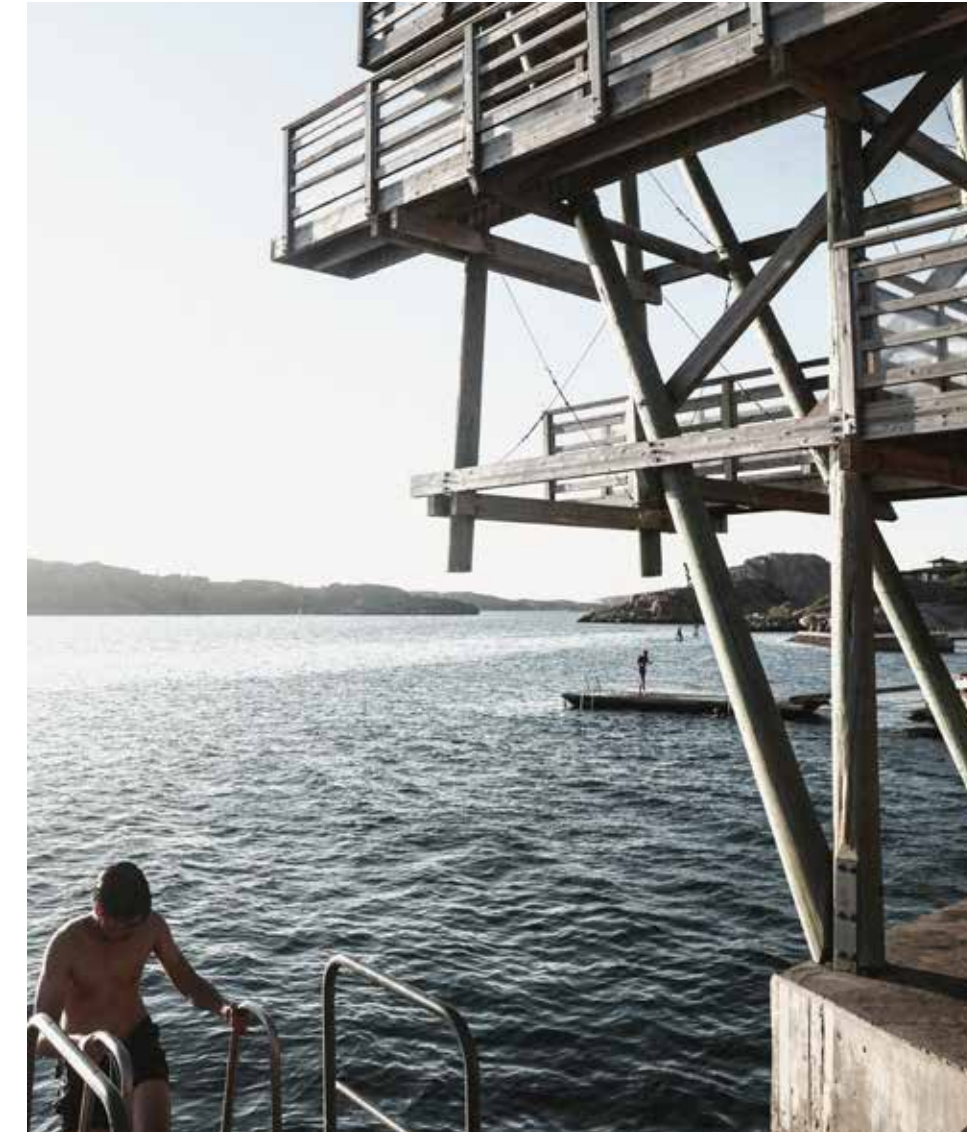


Figure 9, Hästedalen 1.

On the northern headland of Hunnebostrand, called *Ödden*, lies the memories of Strömmans old quarry. The site of the quarry's loading place is located in the area called *Hästedalen* (see figure 18 on page 32). Hästedalen consists of two valleys which have been named Hästedalen (south) and Amundsdalen (north) (Turemark, Andersson, Åkesson och Eklund, 2011, p. 87). At the seafront between these two valleys there has been a seaside bath with both sandy beaches and bathing bridges since the beginning of the 20th century. Over the years, the features have varied and during the 1930s Hästedalen had its heydays. At that time there was a swimming open air stadium suited for outdoor competitions with jump towers, trampolines and tracks. It was thanks to the association of *Hunnebostrands Simsällskap* (HSS) that the site had grown in popularity, size and functions. Because in several years, the association had an employee who taught both locals and summer guests how to swim. Swimming and jumping competitions were organised and there was also a dance court that attracted many people. Especially when the events combined sports and music concerts. At some events there were up to 1000 visitors. The swim school was active all the way in to the 1990s (Turemark, Andersson, Åkesson och Eklund, 2011, p. 94).

Lüttense, one of the active stone company's based in northern Ramsvik, exported large amounts of granite during early 1900s. This stone took the road through Hästedalen for transshipment to larger vessels. Lüttense also had a quarry in *Skalberget* and during the 1920s a large order was made by a South American state. However, this stone was never shipped due to a revolution that broke loose in the state. The order was never exported and some of the stones was then used for building up the swimming stadium at Hästedalen (Turemark, Andersson, Åkesson och Eklund, 2011, p. 94).

The jumping tower on site has undergone several repairs and rebuilding over the years. Lastly, there were four architectural students from Chalmers who were behind the design (Bertilsson, 2007).



Figure 10, Hästedalen in the 1930s (Hunnebostrands bildarkiv). By permission .



Figure 11, Remains of Hästedalen Swim Stadium, 2018.



Figure 12, Hästedalen 2, 2018.

A few years after the sculpture park where born on the headland right next to Nordre Högeberg (see map on page 13), opportunities for increased tourism through spectacular architecture where discussed amongst stakeholders ("Vildmarksarkitekt på tal för Stenens hus", 2016). With the sculptor Pål Svensson in the lead the ideal association *Kultur På Udden* hired Todd Saunders to come up with a proposal for a new culture centre called *Stenens Hus*. This project should be a *destination with international luminosity* (stenenshus.se, 2018). It is a cultural building that will convey the history of the stone industry through exhibition halls, a seminar room, restaurant and shop. On the 29th of May in 2018 the proposal was presented to involve citizens and the response was various. Many opposed the proposal and now the municipality is discussing an architectural competition. Pål Svensson claims that this is a building that everyone can use throughout the whole year ("Öppnar upp för arkitekttävling kring Stenens hus", 2018). Among the municipal employees, many are positive about the idea of Stenens Hus and Carl Forsberg, presented as a cultural secretary in the article, mentions that *there is a strong commitment among those involved but that it is also important to listen to the local people* ("Öppnar upp för arkitekttävling kring Stenens hus", 2018).

The association that works for the society and the local people is called *Hunnebostrands Samhällsförening* and it exists to create a Hunnebostrand to be truly proud of (hunnebostrand.org). Through them, there are transparent dialogues with the community residents and visitors. Their goal is to *develop and protect the Hunnebostrand community*. As early as 2014, the association submitted the idea of a cold bathhouse at Hästedalen's bathing area in Hunnebostrand. The Sotenäs municipality's technical management welcomed the idea, but there was never space for it in a future budget ("Kallbadhus får vänta", 2014).

* There has also been certain involvements from Chalmers regarding Stenens Hus. In the year of 2013 students in the program Architecture and engineering came up with ideas on how this new information and culture center (Stenens Hus) could be placed and shaped (Chalmers, 2013).

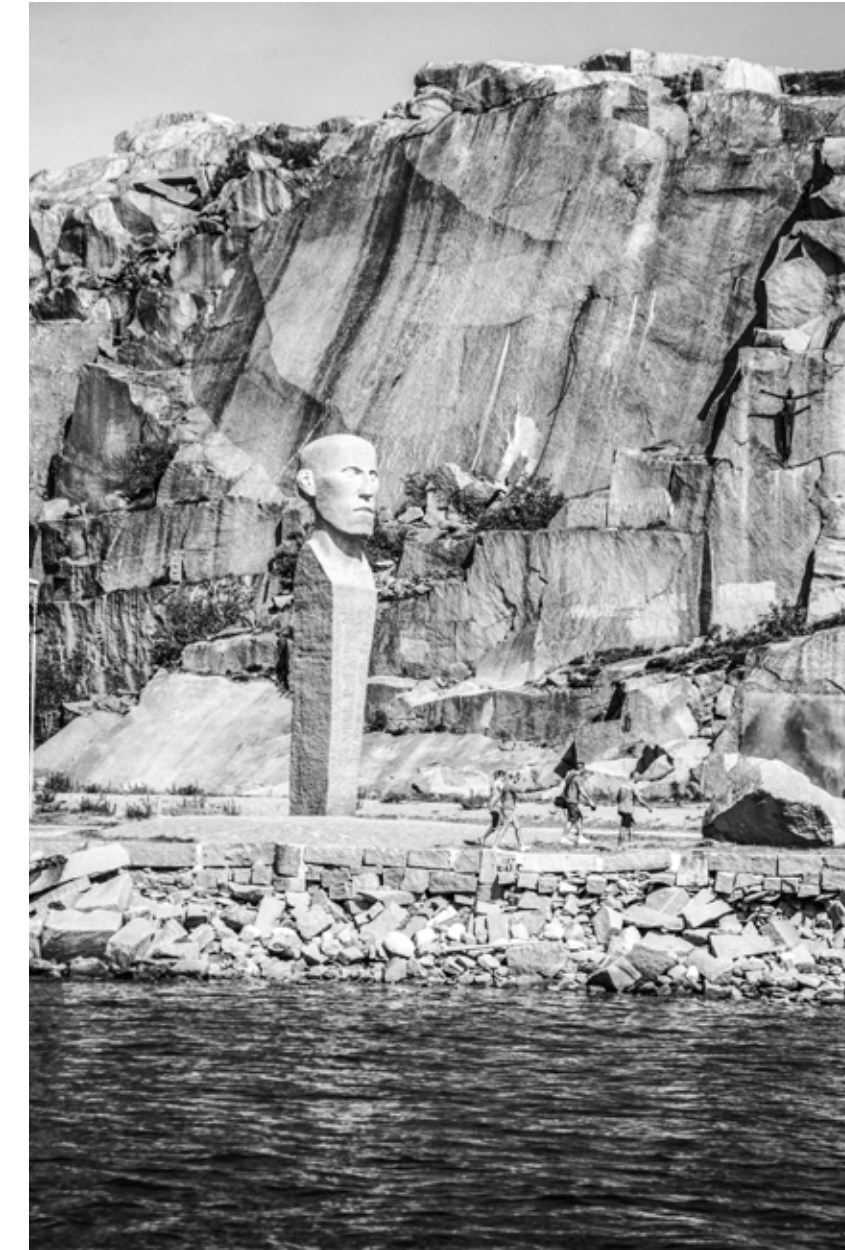


Figure 13, Ödden Sculpture Park (a).

On Friday 24th of August I met Ulla Turemark, Siv Trulsson and Kjell Andersson at the harbor office in Hunnebostrand. It is located on the southern quayside. The harbor office was Kjell's workplace back when he worked as a harbor master of the village. Now he lives as a retiree but has not yet stopped dealing with issues regarding the harbor and Hunnebostrand's community development. Together with Siv and eight other members he is on the board of the association *Hunnebostrands Samhällsförening* (Hunnebostrands samhällsförening, 2016).

Ulla Turemark is involved in the non-profit association *Bildarkivet Hunnebostrand*, which conveys the city's cultural history through archived images and texts from committed citizens. Their space is located in the central quayside, which hosts exhibitions with different themes annually. Both Ulla and Kjell were involved in the writing of the book *Hunnebostrands hamn: En dokumentation om framväxt och förändring. Hunnebostrand (2011)*.

We settled down in the small yellow cottage which contains a reception desk and workplace for the hosts of the port area. When boat guests are having questions regarding the boat dock like charges they visit this space and hopefully someone will answer their questions. This time I came up with the questions. But neither about fees nor permits for boats, but rather about growing up in Hunnebostrand and about what impact Hästedalen and the stone industry had on the ones who lived there during the mid 20th century.

I start by asking about Hästedalen as a bathing resort in the early 20th century and Ulla answers: *"There were Swedish champions swimming in this 50-meter long open air swim track. And that was not so common back then"*. Kjell agrees and mentions that Arne Borg, who once beat 32 world record in swimming, also visited the swimming open air stadium in Hästedalen as it was back then. It was a reconstruction of Hunnebostrand's first quay site that was built in Hästedalen in 1884, explains Ulla. The businessman Wolff who started the construction in order to serve the quarry made sure that Hunnebostrand got its first boat dock. *"He had come from Germany, to Borgholm, to Blekinge and then he came here"*.

I explain the thoughts behind my master thesis and its role in the discussion about *Stenens hus*. I tell the group that the project will be presented as a critical response to the sketches introduced by Todd Saunders and Pål Svensson. Namely, it should act as a cold bathhouse, but also offer the opportunity to mediate the stone through exhibitions and architectural expression. Kjell answers that he thinks the idea seems exciting; *"These cold bathhouses have been on everyone's lips and people often ask us in the association (Siv nods in the background). But neither has there been any financial opportunities. However, you may have to integrate more of the 'Stenens Hus' into the project, in the name itself. I think it makes it easier to get it done and engage more stakeholders. So this feature about having stone as a part of your design doesn't drown in the cold bathhouse."*

Furthermore I draw attention towards the office's neighboring facility, the so-called *Badhuset*. Today, it is a sanitation facility for boat guests providing showers, toilets and a sauna on the upper floor and a restaurant at the bottom. But once upon a time the whole house was an advanced bathing facility with pools and tubs which Ulla confirms; *"I bathed there as a child. They took water from the lake and they used this seaweed which i thought where disgusting"*. Kjell continues to explain how different types of bathing on a smaller scale emerged in Hunnebostrand in the early 1900s; *"Back then there was a sauna plant on Göransö (see map page 13). It was an old wood-fired plant which was bought from Hamburgsund in order to modernise in 1917. It became functional and there was a rowing man who transported people out there during fridays and saturdays. They also employed a man who were responsible for the heating by fire. It went on to 1935 when the new bathing facility 'Badhuset' was built to replace the plant on Göransö. It contained different sorts of tubs along with a 2 by 4 meter basin, which today is covered but constitutes the floor of the sauna. 'Badhuset' became a sanitation facility at the beginning of the 80's. Because then more and more people had their own tubs at home"*.



Figure 14, Stone masons at Skälberget, 1939 (Nordiska Museet, 2014). By permission.

Ulla mentions that there was a bathing association in the village with many members who regularly paid money and that schoolchildren were paid for their baths through the association Röda Korset; *“Every Saturday the boys where washed and I think the girls had to go on Fridays. You had to hand in a small form with a red cross on it in order to be scrubbed by one of those sponges until you cried in pain”.*

Since a large part of my project deals with the experience and memories of Hunnebostrand as a bathing and stone industry, I felt I had to ask questions of a more personal nature. I asked the group how it has been to grow up in a town like Hunnebostrand and how it has characterised their perception of life. Kjell starts talking about a *small scale that was huge*; *“There were three to four schools at that time and one felt cared for and important in the small community of Hunnebostrand. In the larger cities, man is small. There is no space for the individual. What takes place and space are the major facilities and infrastructures. But where we grew up, you were seen and you had close contact with your friends. Thereby you were careful and showed respect for other fellow human beings. You would never disturb anyone unnecessarily. So when we settled out with the whole family in the archipelago by our rowing boats, it could be a disaster if we saw some other folks who disembarked in a bay we had aimed for. Then we just had to paddle on. The small, quiet streets in the village made it possible for you to move as you pleased. After school, we ran down to the southern quay and played football. There we witnessed the long row of stone masons that passed by after working hours. It never seemed to end. I think they were 400 employees at the quarries in Hunnebostrand at that time”.*

The first thing Ulla mentions about her memories of Hunnebostrand is her relation to the sea and the mountains; *“As soon as I step into the kitchen for breakfast, I have to go to the window to get a glimpse of what goes on down at the harbor. I have a continuous dialogue with the sea. When we where young we ran around and even went skiing in between the crushings at the old quarries. We weren’t aware of the risks. We ran after and teased the big horses who carried the stone up on land completely unaware of the dangerous huge loads on the wagons. Sadly, there was a worker who had died*

of these stones that had fallen down from the wagon”. Ulla also tells about the shift between the different seasons and how the homes were transformed into guest houses during the peak seasons of the summer; *“When the summer guests came to Hunnebostrand we moved into the basement of our homes to accommodate the wealthy folks from Stockholm. They paid well. Some close friends told us they had the king’s counselor as a tenant. It was a status thing bragging about who choose your house”.*

Siv agrees and says that it was so fun when the summer guests arrived, then new friends appeared. The process of how the locals rented out their dwellings transformed over the years; *“At first, the locals moved down in the basement and rented their regular housings. Then after the houses got better and better standards the locals rented out their basements. And lastly, as I think it is now, the summer residents rents out their own summer houses”.*

When having the contemporary Hunnebostrand in mind, and many other smaller resorts in Sweden, we continue to discuss the country’s development. We talk about welfare and equity. How we develop a stronger individual capital and get more accessible technology that also increases the speed of everything we are up to. Kjell tells that; *“Once, when you arrived as a bathing guest in Hunnebostrand in the summer, you planned to spend your whole vacation at the same spot. This meant that, after a couple of weeks you experienced a different pace. But today there are more opportunities to experience more places. A simple flight takes us to the other side of the globe if we so wish. We strive to have as many stretched tentacles as possible and that most people today choose to move to big cities because that’s where you’ll find the opportunities for development. There is a lack of attractive jobs for young people in a town like Hunnebostrand. That’s not easy. In the summer when we, the old gang, sit there on the bench some summer guests will pass by and say “so nice to sit here on the bench, this is the genuine Bohuslän”, and maybe thats true. I usually respond to that by saying; “in four or five years, you’ll probably be greeted by us, and then we’ll have a nice hedge at ‘Nordens Ark’, because we may be as endangered as the animals they keep there”. The old genuine Bohusläning. There is something in it”.* I laugh and agree.



Figure 15. Siv, Kjell and Ulla at Hästedalen.

Why and what?

With the history of Hästedalen and the quarries in mind, I understand the value of communicating the cultural memories of the site. But the question is whether it is enough to add a building that only allows the user to behold these memories statically? We experience space not only through our eyes. To me there are more memories worth reviving and there through new ways of designing spaces for exhibition could be discovered. Many memories are regenerated by a smell, a temperature or a sound. Why not integrate the rocky and static expressions of the stone industry with the social excitement and experience that came with the bathing history? It could create more features for more people.

Thus, my master thesis project will be a critical response to the ideas presented in Hunnebostrand on the 29th of May in 2018 and thereby hopefully evoke new ideas on how the conventional bath and museum can look like. I will work out a proposal for a cold bath house with exhibition opportunities. **It will be placed on the same spot as the remains of the open air stadium (page 19, figures 10-11 and map on backside of booklet).**

Instead of letting a small group of sculptors and municipal employees come up with the idea of an internationally recognised culture centre of Hästedalen, someone should look at society's internal desires and memories that can be worth reviving. Namely the sea and the simple things; The remains of our ancestors and the beautiful idea of an immortal landscape.

After talking to some residents in the area, there is still a big interest in a cold bath house as a proposal. This would extend the possibility of experiencing the archipelago through a bodily experience.



Figure 16, Hästedalen 3.

III. The Stone

Bohuslän has not only contributed to a beautiful archipelago that provides opportunities for fishing, boat trips and bathing. It has also played an important role in the history of stone industry. The first quarry arose at Bohus-Malmö outside Sotenäset, and at the beginning, stones were delivered for finer works suited for canals, quays and bridges (Hunnebostrands bildarkiv, 2015, p. 34). They were ordered by the canal- and railway builder Nils Ericson. He had discovered the granite to be useful in his work. But in the years of the industrialism at the end of the 19th century, the granite as paving stone became increasingly sought after. Countries like Germany, Denmark, England and Argentina were major customers around the beginning of the 20th century (Schänberg, 1963, p. 25).

Thereby a strong reliance on exports took place which shook the market dramatically during the two world wars where many customers were in conflicts. However, Germany made great orders during World War II since Hitler where planning on having great monumental buildings erected in his "third reich". The stone was ordered and paid during the war, but some were never retrieved because of Germany's capitulation. The goods were thus auctioned to new customers who bought the stone for a second time (Turemark, Andersson, Åkesson och Eklund, 2011, p. 85). Remains of these stones can be found on different locations in Hunnebostrand.

Some of the stone that had been delivered to Hitler was seized by the Russians. In the Treptow Park of ancient East Berlin there's a monument that symbolises the conquest of the Russians in Berlin in 1945 and the fallen soldiers in the red army during World War II (Hunnebostrands bildarkiv, 2015, p. 46). Monuments and some housing projects in the former Soviet Union were built out of granite from Bohuslän during the post-war period. There was a monument in Warszawa in 1948 called "The heroes of the ghetto" in memory of the struggle of the Jewish freedom fighters (Hunnebostrands bildarkiv, 2015, p. 47).

The large exports of granite as road building material decreased after it had been replaced by new uses of concrete and asphalt during the post-war period. This was one of the reasons why the larger quarries in Bohuslän closed down. Otto Strömman's quarry (est. 1863) on Skälberget in Hunnebostrand was one of them. The granite turned out to be a trend-sensitive material. The few quarries that managed to survive where those who could niche themselves and thereby take smaller orders on detailed work like tombstones and facade cladding (vart tog stenen vägen?, p.7).

The stone industry was Hunnebostrand's most important industry for a century ever since the founding of Strömman's in 1863 (Hunnebostrands bildarkiv, 2015, p. 6). The surrounding mountains in the old fishing village of Hunnebostrand had previously been a perfect protection against storms. In addition, when granite became a highly regarded raw material, the location of the mountains near the sea was a benefit in terms of logistics when stone was transported by sea.

Today there are major traces left of what was once a quarry around Nordre Högeberg in Hunnebostrand. The ideal association *Hunnebostrands Bildarkiv* tells about how these old remainings appears as *big wounds in nature* (Hunnebostrands bildarkiv, 2015, p. 7). Parts of the northern headlands in Hunnebostrand where Strömman's quarry were situated is today a well-used promenade and sculpture park, established in the year of 2011. It is a collaboration between the municipality, various artists and the ideal association Kultur på udden (<http://www.uddenskulptur.se>).

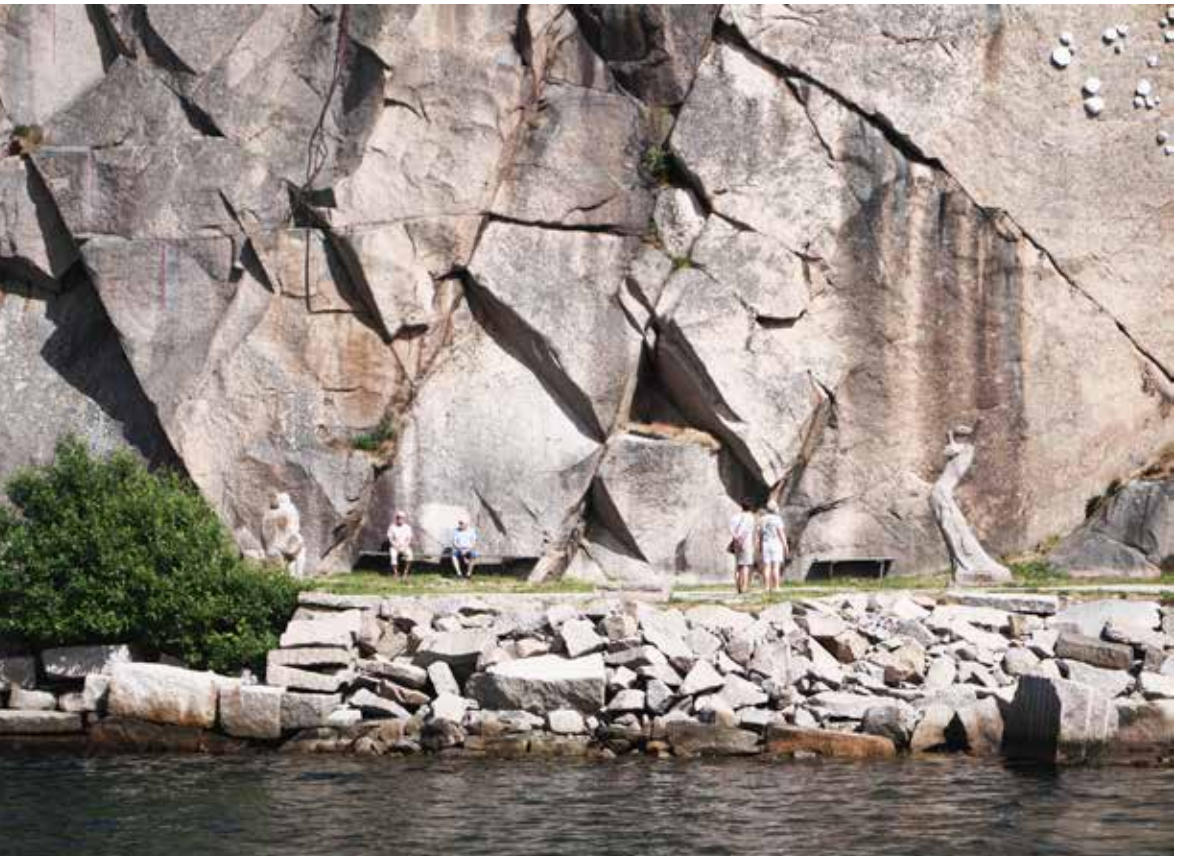


Figure 17, Ödden Sculpture Park (b).



Figure 18, Hästedalen, 1930s (Hunnebostrands Bildarkiv). By permission.



Figure 19, Amundsdalen right next to Hästedalen (Hunnebostrands Bildarkiv). By permission.



Figure 20, working shed in Lahälla, Hunnebostrand (Hunnebostrands Bildarkiv). By permission.

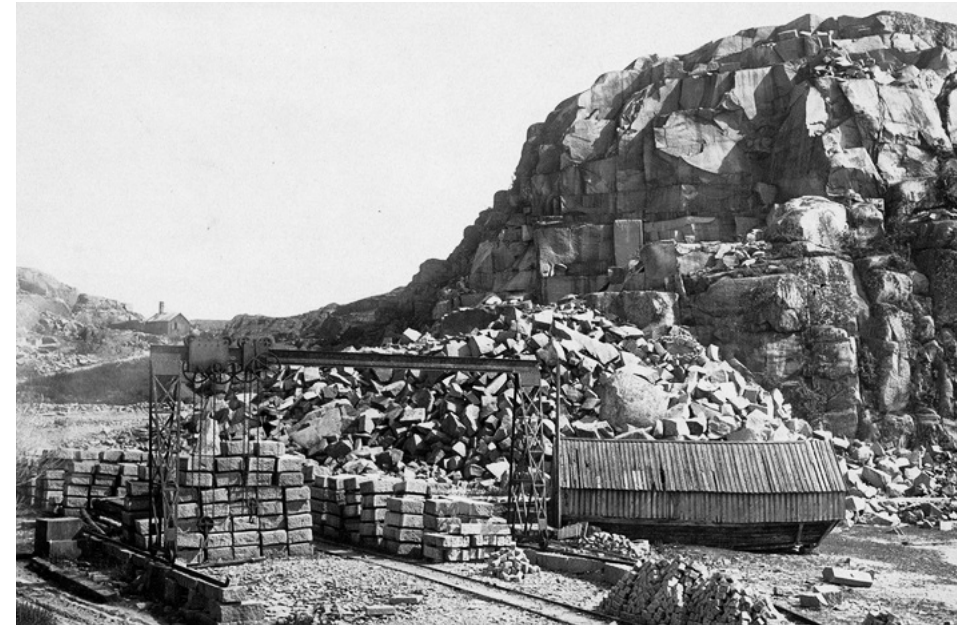


Figure 21, The quarry in Hästedalen and Nordre Högeberg (Hunnebostrands Bildarkiv). By permission.



Figure 22, shoreline in Bovallstrand.



Figure 23, groyne in Bovallstrand.



Figure 24, remainings at the old quarry in hästedalen 1.



Figure 25, remainings at the old quarry in hästedalen 2.

The crust of the earth's most common rock is granite (Wærn, R. Lindell, P. Page 5, 2011). Therefore, the rock has had a decisive role in history. As a mediator of ancient messages through tombs and rune stones, it has proved to be unique in its degree of durability. In other words, the material has proven to be suitable for storing physical memories. Thus, the history of Hunnebostrand as a stone industry is not the only reason why the stone should be included in the architectural design of my project.

The stone has often been included as a leading element in memorial works. In the previous pages we are told about how the stone from Bohuslän made strong marks in history and traveled the world to convey profits and losses during the years gone by. Statues and memorials therefore usually carry politically engraved and symbolically subconscious messages.

"When the really long architectural history is to be written, stone monuments and ruins are the only proofs we have left. No other building material has the same historical dimensions. They appear in the material of geological age, in the history of architecture and in the history of quarrying. Every stone has its own trace in a quarry." (Wærn, R. Lindell, P. Page 5, 2011)

What Wærn and Lindell discusses is the immortal nature of the stone, which can be interpreted as the opposite of the life of the wood. The contrast between aging and durability has a strong link with the project's theme of memories. Because memories in the end are just fragments of the whole truth. The details and conditions one remember from a certain event are the ones that were specifically important to oneself; What remains in the muscle memory and the soul.

"...Buildings of this technological era usually deliberately aim at ageless perfection, and they do not incorporate the dimension of time, or the unavoidable and mentally significant process of ageing. This fear of the traces of wear and age is related to our fear of death." (Pallasmaa, 2012, page 34)

Hästedalen is a place with memories about life and death. After interviewing Siv, Ulla and Kjell (previous pages 24-27) who grew up in Hunnebostrand, I have heard stories of dead German and Norwegian soldiers who flooded ashore in Hästedalen after they had fallen right outside the coast. On the other hand, Hästedalen has been in favour of the social entertainment with varying public events and competitions. Thus, the varied memories of good and evil, the young and the old, the living and the dead, also can be used in the design of my project.

I want to show how material is aging and not aging through my project. These contrasts are highlighted using materials with different resistance to moisture, such as stone and wood. In this way, the materiality of the project relates to how the physical impact on various bathhouses has taken place for hundreds of years in Bohuslän. In the end, it's only the stone that can testify of a historical place. The human relation to wood has to do with how wood ages at the same rate as ourselves. We are able to help and maintain it; take care of it and see it die. The stone is therethrough classified as a more spiritual and supernatural building material that survives several generations and overcomes biological deaths. The stone is the reflection of the story that repeats itself.

What differentiates the physical matter from the psychological memory is the degradation process of these phenomenas. Because when memory runs short, our minds can decide to fill in does gaps with imagined material.



Figure 26, Lysekil Cold Bathhouse.

III. a. the quarry



Figure 27, Hallindens Granit AB.

The quarry + interview 2

Stone Cold Bath |

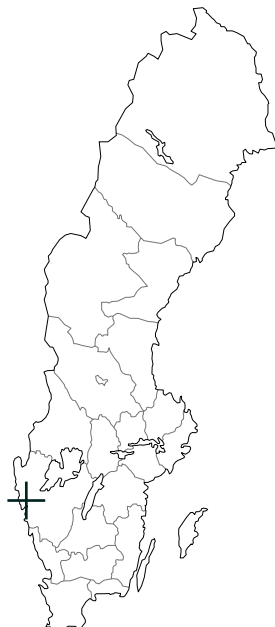


Figure 28, Quarry location.

The quarry in Hallinden, which is currently used by Hallindens Granit AB, has had various actors over the years. Today, the company is owned by Tage, Johan and Jörgen Lundgren, who are the descendants of the founder Bror Lundgren. He opened the first quarry Tossene in 1946.

The man I meet is Jan Lindell and he works at the sales department for the company. He tells us that the quarry we walk upon, SKARSTAD röd bohus, has been owned by Hallindens Granit AB



Figure 30, Blasted and sawn levels.



Figure 31, Quarry worker.



Figure 32, Quarry waste (a).

since the 1980s. It has been Jan's workplace since 2010. Their main aim is to break out larger blocks of stone, which are shipped further for finer processing around the world; mainly in Europe. The stone goes to industries that manufacture stone for outdoor environments and countertops, but they also have customers as local sculptors and artists where Pål Svensson is one of them. A campus which is called *Konstnärernas Kollektivverkstad (KKV)* in Gerlesborg, north of Bovallstrand is also a well known customer.



Figure 29, Jan Lindell.

III. b. the block



Figure 33, The Quarry.
The block

Hallinden's biggest sales in Sweden are stone for the urban environment, such as paving stones and gravity walls. Many of those who order that type of stones order a finished product and therefore Hallinden Granit AB acquired their own block saws so they easily can cut out discs directly. The most common dimensions for squares and public places are 8, 10 and 12 cm. Jan tells that the dimensions of the blocks vary depending on the market; Poland is a customer who orders stone for gravestones. The dimensions

usually stay within 2 by 1 meter (fig. 40, scene 9). In Italy, on the other hand, they make a lot of thinner dimensions which they saw from bigger blocks in order to optimise the saw's capacity. Those blocks usually measure 3 meter by 1.90 by 1.90. I am immediately curious if there is any limitation on how large a massive block can be in order to deliver it. He explains that they delivered blocks to the Dodekalitten, which is a monumental art work consisting of several different monu-

mental busts in Denmark. One of these sculptures was also part of Hunnebostrand's sculpture park in 2018 (fig. 13, p. 23). The three blocks that were transported to Denmark were pieces that weighed around 90 tons. Those blocks had dimensions of 15 meters by 2 by 2 meters. We step around on the terraces of the rocky mountain that they have deliberately shaped as a big staircase. Working in that way allows them to go deeper, stepwise down into the mountain (page

42). To excavate the large blocks from the mountain, they use a wire saw that is pulled through the rock after it has passed through narrow tunnel made of drill and a solder (fig. 35). The big machinery that draws the chewing wire moves on rails as the wire passes through the mountain in order to keep it stretched. Two parallel sides are sawn in the vertical direction and then one on the underside. The last, fourth side is ejected by drilling and blasting so that the



Figure 34. Pile of earth protecting block.

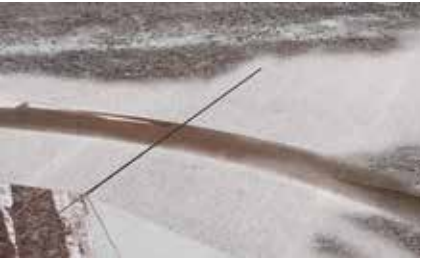


Figure 35, Wire saw.



Figure 36. Block removal in tricky corner.



Figure 37, Title. Drilling blasting holes



Figure 38, Block Removal. Dark blasted surface.

big block jumps out (fig. 37). The saw stitch is 1 cm, which means that you have to work the last side by the drill in order to be able to access, move and process the block in to smaller peaces.

We pass a stone worker who drills and wedges a smaller block. After he has wedged, the stone evenly breaks so that the unwanted surface can be straightened out of the finished block (fig. 31). This technique prevents unnecessary and expensive transportation of waste that are

no use for the customer. Jan tells that they are fully aware of how the mountain behaves and can read which parts that are damaged by natural movements in the mountain. In total, there are only 4 people working in the mountain that break 1500 cubic meters of stone per year.

I ask what are the pros and cons of using stone as building materials. Jan explains that the advantage of the stone is that it last forever. It is resistant to water and frost. It is excellent for facades.

The downside is that it's hard to work with. I wonder if it ever happens that stone is used as a bearing frame in a house and get the answer that it is too expensive; *"If you go out to the coast, then all older houses have stone walls and foundations out of massive stones unlike today, because it costs too much"*.

*Usually, all sorts of rocks are divided into three different groups, namely; magmatic/igneous, sedimentary and metamorphic rock. The sedimentary rocks comes out of stiffened sand or clay on the earth's surface whilst granite, which is a magmatic rock, is created by crystallized magma deep into the earth's crust. In other words, the granite has gone through harder bonding processes as a result of the high temperatures that melted the minerals together. The most common rocks which are excavated in central and southern Europe are sedimentary and over time they have shown to have a lower resistance in weathering and wear. This has resulted in an increased demand of the granite as an ornamental stone.

*The granite from Bohuslän is about 900 millions years old. It has a spreading that extends from Gullmaren in the southern parts of Bohuslän up all the way in big parts of northern Norway. The relatively low age of the granite has meant that it has managed to avoid all the major deformations that have occurred in the earth's crust. Thus, it does not have a clear foliation that can cause problems when cutting the stone into pieces.

When the granite stiffened after it climbed over the surface, tensions occurred in the earth's crust. This meant that the mineral grains ended up in a regular pattern. That's why the Bohusgranite so easily bursts into orthogonal blocks (Berglund & Ekman, 1989).

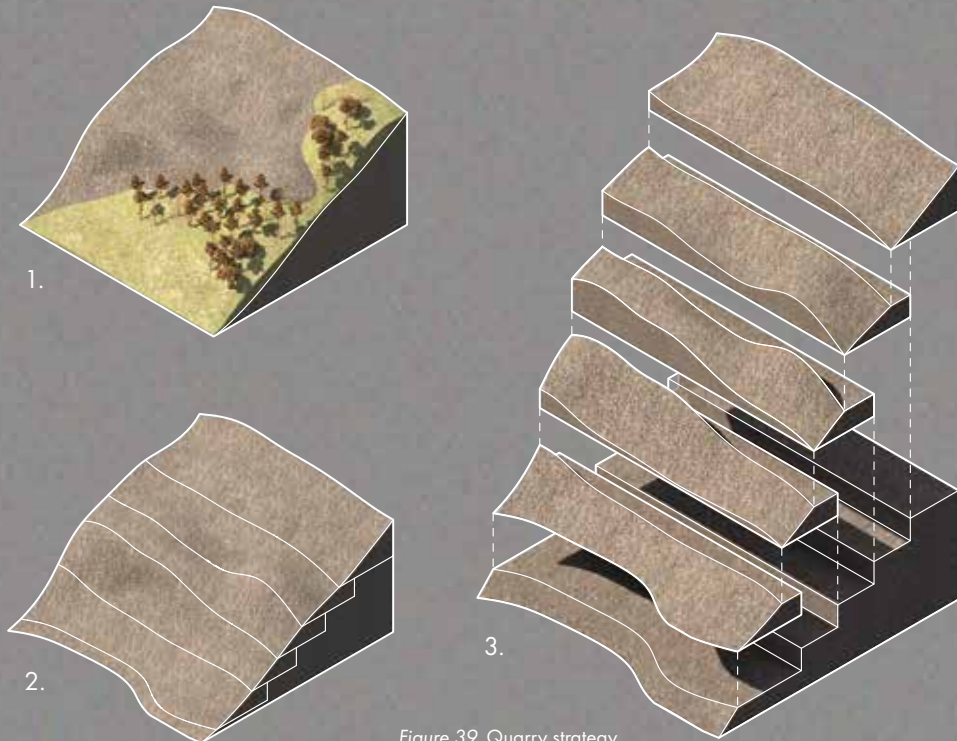
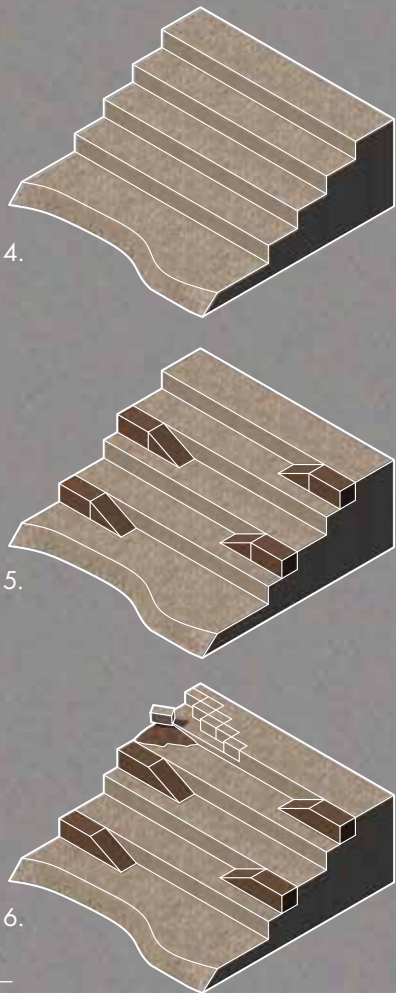


Figure 39, Quarry strategy



The block

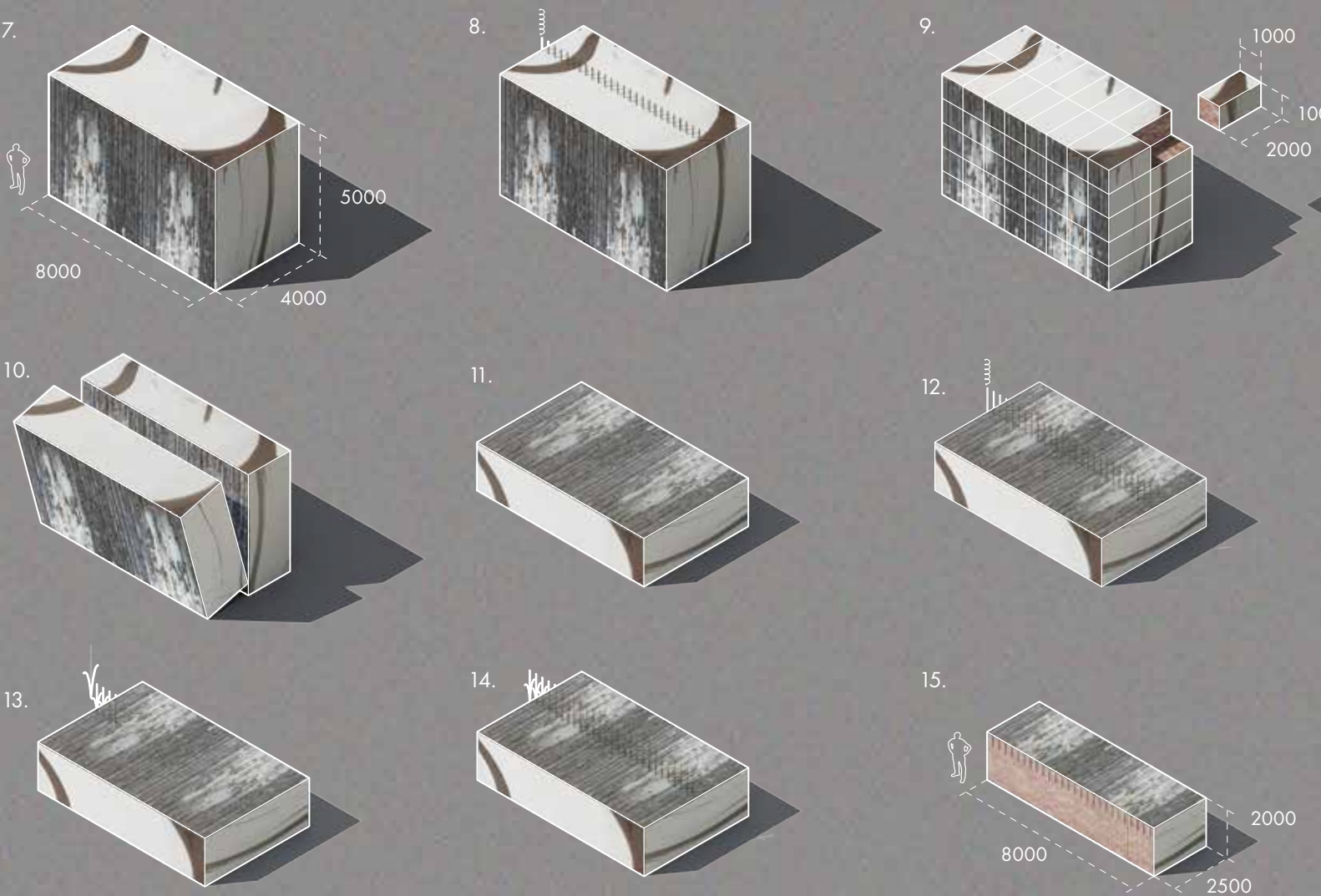
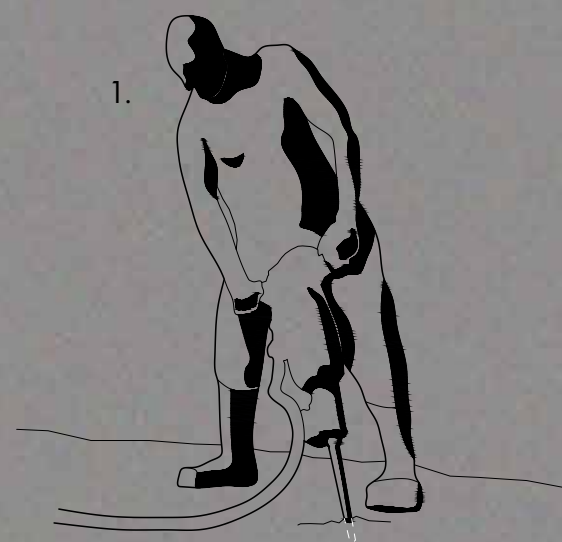


Figure 40, Block making.

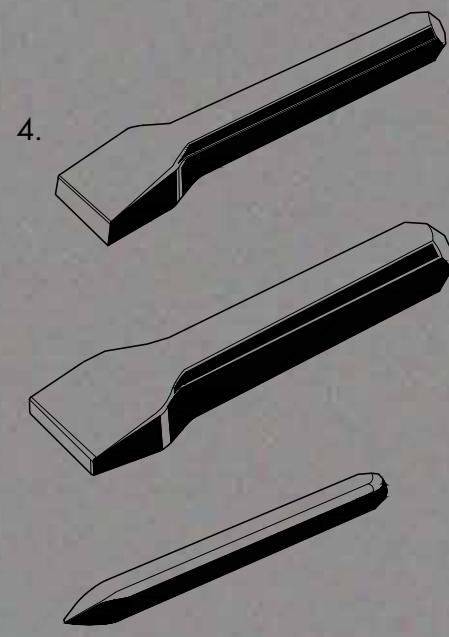


Figure 41, Plugs and feathers (a).

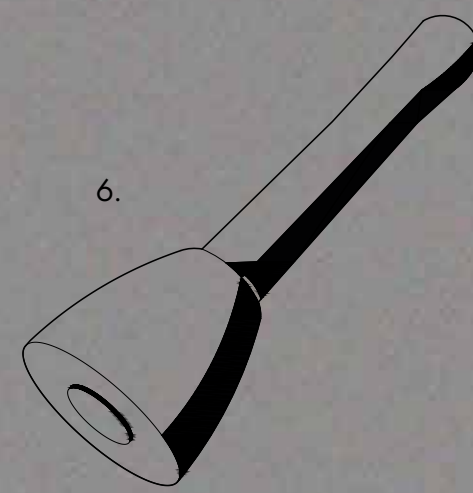
III. c. the craft



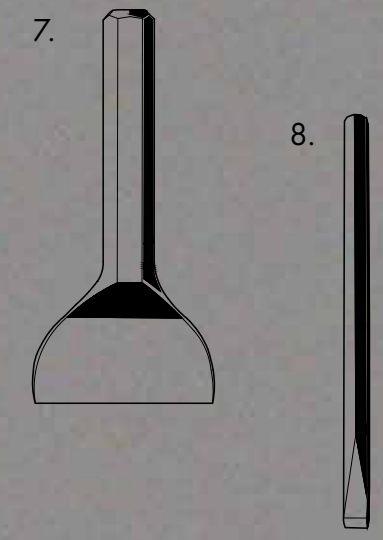
1. The pneumatic drill is used for drilling holes that fits the plugs and feathers (1). With a closer distance in between those holes the more evenly the stone cracks. A smaller piece of stone is harder to handle.



2. Using the plugs and feathers or wedges and chemns is an energy effective and analogue way of cracking the stone in order to create a natural face. The ear of the chemns are pointed in the direction of the break (3).



4. Masons Chipper, Handface and handpoint. The masons chipper is used for rock facing and reestablish a natural face to the stone's surface. It can be used for disguising and removing half-drove marks from wedges and



chims. The steeper you hold your chisel the steeper into the stone you will get a rock face (9). The hand face crushes and breaks out large amounts of unwished parts of stone. It is unique because of its flat squared blade which gives

two sharp corners. Using one edge until it becomes outworn - then turn to the other side. You never place it straight up and down. A slight angle determines the angle of the crack (9). The hand point is used for removing

high spots, knots and projections; unwanted material that you really cant reach with a flat blade of a normal chisel (14).

5-6. With a perfect hit on the center of the chisel the circular hammer distributes an even force. Once you miss the center of the chisel, the hammer roles of instead of smashing your knuckles.

The bushing tools (10-11) are pneumatic and are used for finishing textures. Shaping the stone by rousing it out. It gives a similiar face to the once that are treated by flaming (15). These surfaces gives a good shoe grip on a wet stone surface.

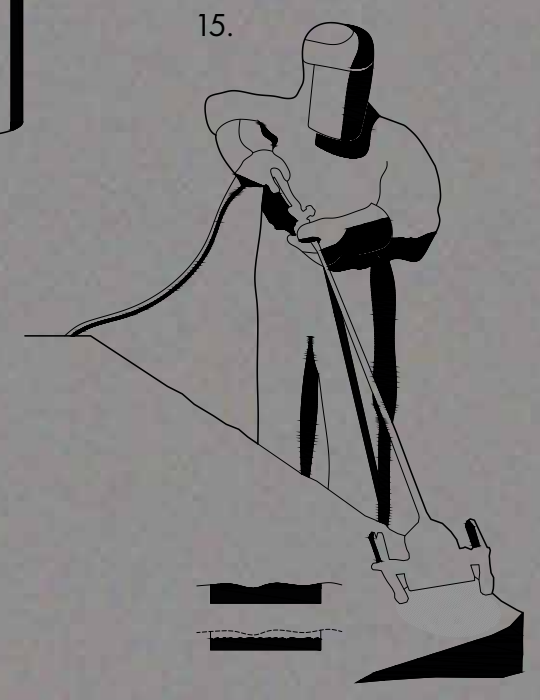
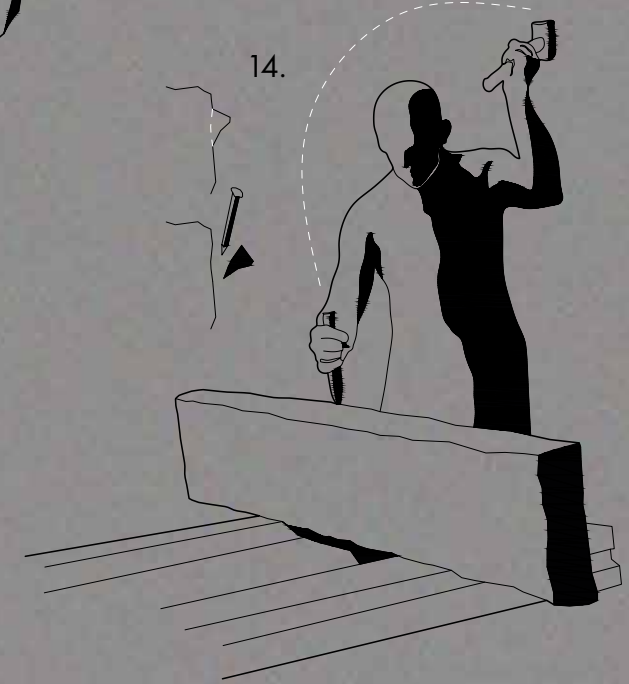
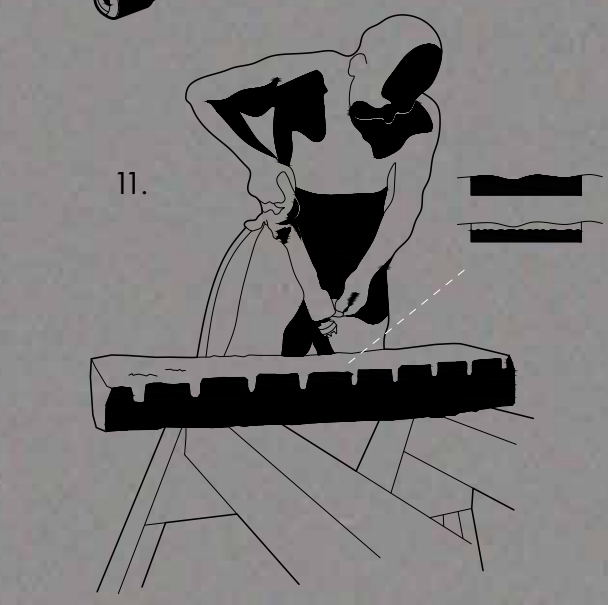
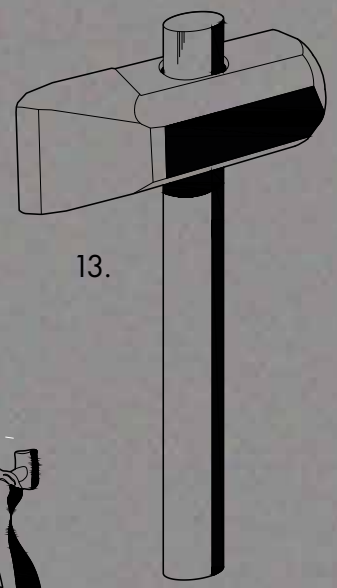
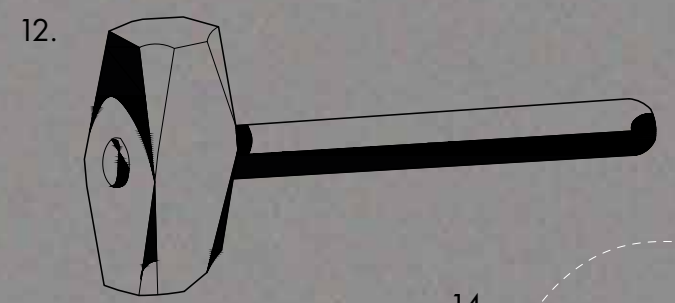
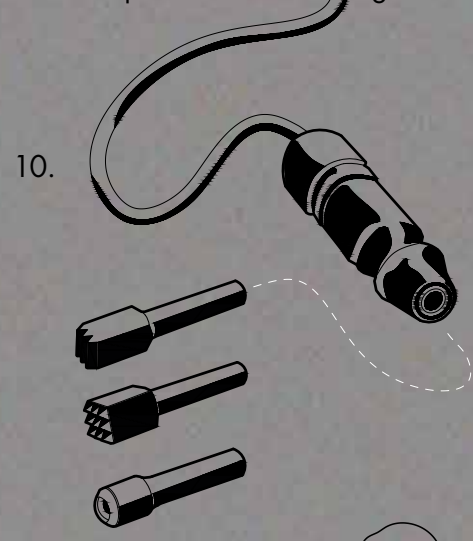
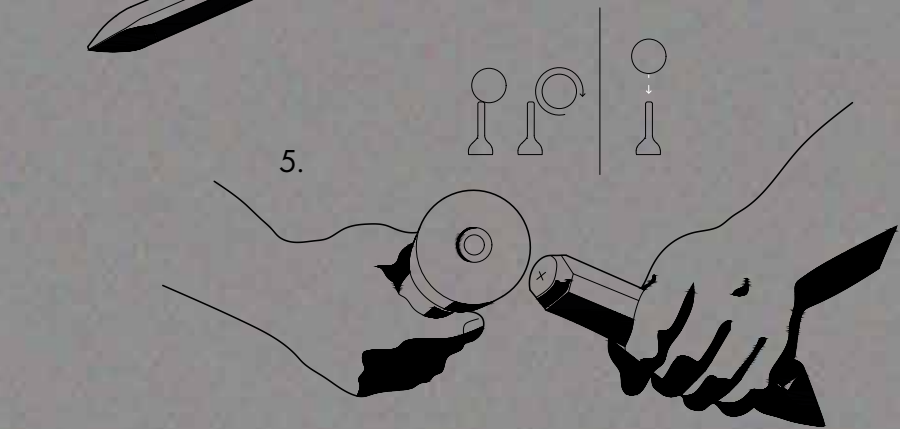
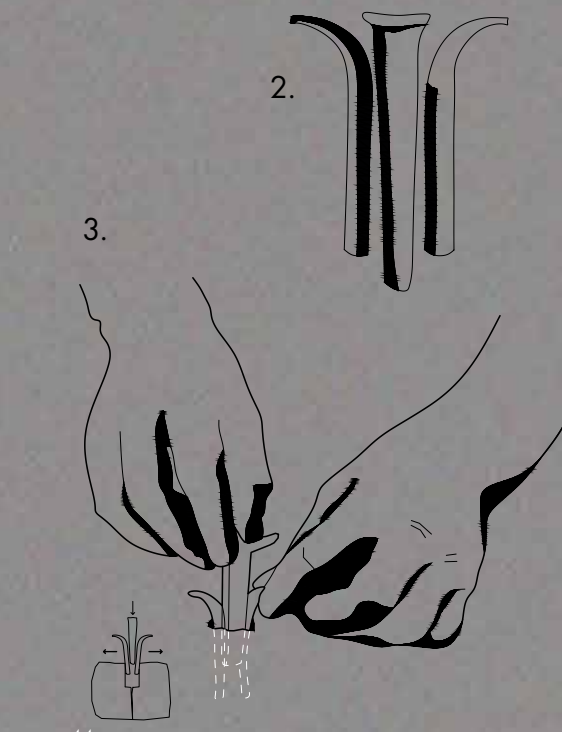


Figure 42, Tools.
The craft

Figure 42, Tools.
III. the stone

III. d. the workshop

During a clear and crisp October morning I meet Christer at KKV (Konstnärernas kollektivverkstad*). It is a shared workshop for artists and craftsmen north of Hunnebostrand. We walk around at the big courtyard while he tells that during low seasons there are a few craftsmen and artists that are working there at the same time. During the summers they can be up to 30 people. Many times in the winter, Christer has been completely alone. But he appreciates the loneliness. For him, a big part of the profession is to be outdoors, in the fresh air, along with the quiet stone that requires patience and restraint. *"If it gets really cold, you need to heat the stone before you can process it. Thus it can fill up water in its pores which makes it harder in cooler temperatures"*. I'm getting amazed by the thought of the stone as a porous, not solid material; *"Really? Is granite also a material that breaths moisture?"* Christer; *"Yes, one can not believe that the stone has such a capacity to soak in water. But it does. Unlike the concrete, it rarely bursts out of the frost. Only if there were natural cracks in the mountain that affected the block. But these cracks can often easily be discovered at the quarry"*.

Christer started working as a stonemason 30 years ago. He is soon to be retired but is working part time at the Ävja quarry. There he processes and refines the excavated stone so that it can be used for road works and building construction. Mainly it is curbs for pavements and retaining walls. It's still the only way to shape a curb into a curve - through old stone carving techniques. But he fears that the craft is about to be extinct; *"Today, the client expects the job to be done even before it has begun. Because the craft is compared to industrial speeds. It has also affected the performance and the aesthetics of the product. And in ten years there will be no one who can master the craft. Yesterday was different when the craft was the only option. Then the industrial production had not yet competed out all areas"*.

The morning sun covers our frozen ridges and the crispy air fills our lungs. We step into a heated barack were i get the chance to introduce my work and ask specific questions. I begin by asking him what he thinks are the major

benefits of the granite. He answer; *"It has a great ability to withstand humidity. However, there may be problems if you do not work with tight joints and fittings between two elements. It is the material of the joints that can cause problems. Although there are hundreds of adhesive products and iron plugs that are good. And if you want sustainable meetings between tailor-made profiles, industrial sawing could be a solution. Because they can manage a high precision"*.

We continue to discuss the dimensions of the blocks that are excavated and taken from the mountain. He responds in a similar way to what Jan Lindell did (p. 41) regarding the dimensions of the blocks; *"Block dimensions are governed by the customer demand. Then there are no maximal dimensions. Although the limits are set by the mountains qualities and conditions. It is also a matter of how these blocks are to be transported from quarries to construction sites"*. I show him my illustrations from page 42-45 that explain how the quarry and crafts work. He agrees and tells that blocks usually are processed as I am showing; through the center of the mass. The quarries usually work in equilibrium and symmetrical patterns. *"The blocks should preferably be divided through a "middle-by-middle" strategy. Too large masses on one side of the split can cause problems. If you try to break thin slices from a larger block, the disc may not be able to crack even. Instead, the big overcrowding piece of the block remains part of the disc."*

We get into talking about the structure of the granite, and Christer explains that the stone has different cleavability in different directions. However, the granite has a relatively even cleavability in all directions. There is a specific termonology for these directions and orientations. What you talk about in a quarry in Bohuslän is "svallen" and "tvären". The "svallen" or the "svallkloven" often follows the horizontal plane of the cliff, while the "ståkloven" follows the vertical plane. Perpendicular to these two is "tvären" (blasted surface in figure 38) where the stone has no natural cleavability, which may require a small amount of caution and precision when splitting in this direction.

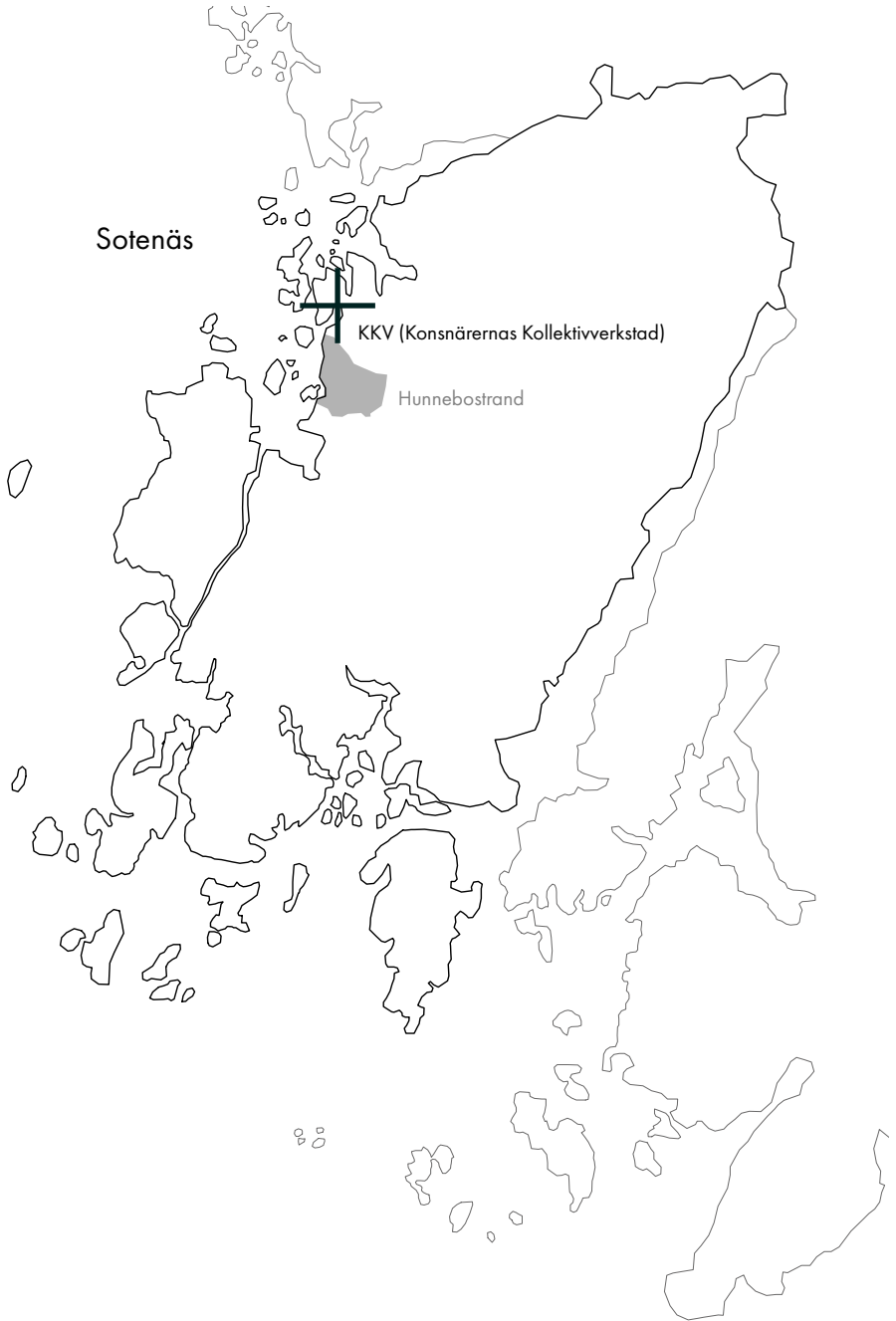


Figure 43, KKV location.



Figure 44, KKV open air workshop



Figure 45, KKV storing of artworks

III. e. the surface

After further discussions on how the block and building element would perform in my design, we step out in the heated indian summer air. We walk around among the various stone samples, which are stored outdoors; "The stone is always what survives on the west coast," says Christer, referring to the stone's resistance and durability. Its an advantage when storing.

Besides speaking the professional experience and physical characteristics of the stone, another purpose of the trip was that I should try to process the stone on my own. Therefore, we select a few stones from Christer's own storage of red and gray granite. We go through his tool store and he explains that the three chisels represented on page 44, (4) and a hammer are the tools that are of the utmost importance when working. We choose chisels, bushing tools, pneumatic drills and sledge hammers. Then we choose an outdoor workplace on the courtyard. Christer demonstrates and I repeat afterwards.

I realise that one of the stones I've chosen is far too big to handle on a presentation. Therefore, we choose to reduce its size. We pick up wedges and chemns (plugs and feathers) after we've drilled holes to which they should be placed. It is a more tricky procedure than one can imagine (fig.42, scene 9). When the wedge and the plug are then placed, a hammer is used to distribute strokes with even pressure in repeated order. When you force the plugs, the feathers will move outwards (fig. 42, scene 9) and eventually crack the stone will open (fig. 49). We hear a pleasant cracking sound that develops. Christer explains that *"you should not be in a hurry in this situation because there is a risk that the crack will not fall evenly, a large part of the stone work is to be careful and be patient, let the wedges work!"*. I am impressed that such a primitive and simple solution, with a pair of holes, can crack such large surfaces of such a hard rock. I continue to process the stone with various tools to get the most common surface treatments (figures 56-59). In a couple of hours, I have now obtained samples of stone faces showing how the different surfaces feel and looks in scale 1.1.



Figure 46, Pneumatic drill.



Figure 47, Drilling holes.



Figure 50, Flamed face.

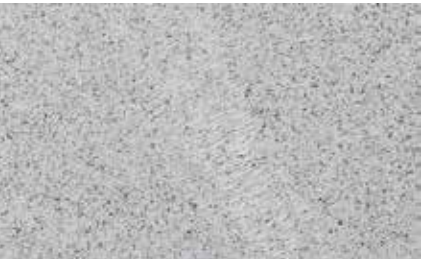


Figure 51, Sawn face.



Figure 52, Sawn face, larger scale.



Figure 53, Veins or "katrand" in swedish.



Figure 48, Bushing tools (a).



Figure 49, The crack is creeping.



Figure 54, "Råkilad".



Figure 55, Halfdrove marks.



Figure 56, Processed by chisels, wedges and chemns.



Figure 57, Bushing tools (b).



Figure 58, Bushing tools (c).



Figure 59, Wedged surface.

III. f. the joint

It is during a rainy and rough day as I take the bus down to Eriksberg and Claes Hake's studio. The facility was once used for burning ship waste from the old shipyard at Eriksberg. Then it had two large chimneys in the center of the plant. When Claes took over it he removed these but kept the generous workspaces, cranes and the large back yard because they were advantageous features when building such big sculptures as he does. He makes thorough preparations and mountings before the sculptures are being transported to the chosen location. In this way, Claes saves a lot of money.

I enter through a big gate, climbing a couple of spiral stairs before I get an eye on Claes who is currently moving a boat engine. The building is located in the mountain and on the backyard there are of numerous of stone sculptures in granite, diabas and even bronze. We introduce ourselves under big the roof by the loading platform before we step inwards.

Right next to the platform, Claes has a large supply of all the tools he has collected over the years. After we get through it, we reach out to a platform that hangs over the large indoor space of the main studio. It certainly is about eight meters in ceiling height. The southern wall, which Claes have chosen to dress in polycarbonate sheets, illuminates the space and gives a comfortable shine (figure 61). It echoes when we stomp down the spiral staircase that leads us down to the studio floor. There I get the opportunity to prepare my sketches and presentation material.

Claes is a recognised sculptor and artist through his several stone sculptures that are installed all over the country. Many of them are large-scale granite slabs that are composed into spatial sculptures. This enables the spectator to relate to the art by bodily experience. Which is why I reached out to Claes, in order to learn more about the techniques in joining large stone pieces against each other.



Figure 60, Backyard and workshop.



Figure 61, Claes Hake's atelier.



Figure 62, Claes showing models.



Figure 63, Old model, gypsum.

I show my sketches and explain my intentions of working with stone elements, and also the mapping (p. 42-43) of how the stone is being processed in the quarry. The large amounts of stone and the size of the blocks make Claes enter a more practical discussion that concerns transports and weights; "As long as you stay within 2.5 meters in width, a truck has no problem carrying these items". He also explains that because of the fact that the inland ice once pushed down the mountain, it caused natural cracks which is called "stick" in Swedish. That is, natural, horizontal cracks in the mountain. This makes it easier to split the mountain in that direction (svall in Swedish) in comparison with the vertical direction (tvär). Especially when the stone is frozen. The cleavability in different directions is something that one has to be taken into consideration when cleaving the stone using plugs and feathers. It's the technology that gives a rough and appreciated surface but more waste and higher risk of making a mistake. It is also a more expensive way to split the stone as the hand does more of the job than the machine. By using the wire saw, you do not need to take into consideration the natural cracks of the stone and you thereby you will get much less of waste. But, however; "you get a smoother surface that looks more like concrete than actual stone".

I ask Claes what he considers are the pros and cons in using the stone as building material. He first mentions the aesthetic value and the appearance. Then he concludes that the material is sustainable. The disadvantage is that it is heavy and thereby difficult to work with and transport.

Regarding the physical properties of the stone, we further discuss the stones ability on breathing moisture. That the pores suck the water deep into the material, as Christer Olsson talked about in the earlier episode. C; "There is no chance that frost can cause any alarming effects by blasting the stone open as long as it doesn't contain any internal cracks from the beginning". It leads us to the solidity of the material, which is strong in compressive forces and weak in tensile forces. C; "That weakness is what the plugs and feathers are using". So when working with joints and drill holes it is important to keep them dense and stainless in order to prevent blasting.



Figure 64, Lead joint.



Figure 65, Joint by a staple.



Figure 66, Lead filling.



Figure 67, Fixed crack.

We continue to discuss tolerances and precision and I ask the question how precise one can be in drawings that are to be sent to industries and the quarries. Claes fills in; "Extremely precise. I know that back in the days, all industries used to have measuring tables in diabases. It was a polished disc which was stiff and did not move like wood or steel. That was one thing that they really could rely on."

I continue to talk about how I imagine the joints in my project. Claes tells me that there are many different ways of working but that he prefers to drill holes and then cast studs between these elements. It is thus a rod that is fixed by mortar in a drilled hole. This is a cheap alternative and can be beneficial if the solutions are to be hidden inside the stone element (figures 117-118, pages 80-81). If the threadbar also is galvanized, it stands against rust that otherwise can expand and crack the stone open. Another technique is to "clamp" or "staple" together stones where the clamp acts as a thread in a sewn wound (fig. 65); "It's a technique used by the ancient Greeks where they knocked in these iron parts which were covered in lead. These solutions have survived in 2000 years. It is also possible to lower these details so that they are in line with the stone. And the lead can be replaced by a variety of metals. But what's good with lead is that it's beautiful, and it works well with the stone. One can easily force and shape the lead into a hole and thus prevents moisture from penetrating (fig. 64, 66).

Furthermore, we discuss how far one can drill along the long side of a building element. Then Claes mentions not to use impact drilling because it creates small microscopic cracks in the stone because it constantly punches through the material; "Instead, you can use a core drill. It is a pipe with diamonds that cylindrical drill down into the stone, which creates a waste product of a pipe in stone. After the holes are drilled, you can connect the stone and the threaded rod with a joint sleeve".

Claes continues to declare that tight fittings with as few materials as possible requires a higher precision thus higher demands on the builders. That also means more carefully carried out preparations and tighter conversations between the architect/sculptor and the builders. It is larger efforts which may

not yet be tested in the area of industrially processed building elements in stone. C; "Should such a project be realised, then one have to go to different places and wave with the wallet." So if the stakeholders and investors aren't willing to pay and gamble, it is necessary to reduce the tolerances, thus enabling cheaper and faster materials to seal larger openings; such as epoxies and other types of plastics. This of course has an impact on the final appearance and the sustainability.

After discussing the most important questions about different types of meetings between rocks, we walk among Claes's different studios and workshops. He shows me sketch models in his storages that he used for communication with everyone involved (fig. 63). It is inspiring to accompany an artist's 50-year old trip by listening to all the stories, behold and touch all paintings, and other work that Claes has done in addition to his stone sculptures. To me, Claes is an infinite creative artist who demonstrates a wide range of skills through different scales and media.



Figure 68, Claes Hake's sculpture *Hållö* in Hunnebostrands sculpture park.



Figure 69, *Hållö* joint by Claes Hake.

IV. The Bath

The fear of swimming in an open water continued until the early 19th century in Sweden. It was probably due to the poor swimming skills of the people but also because of the seamen’s stories of supernatural monsters. In addition, when 90% of the Swedish population lived in rural areas until the mid-1800s (Fridell Anter & Klarén, 2014, p.55), no wonder that there was a congenital fear and anxiety. The bathing took place in smaller watercourses, lakes and healing spas which were *a gathering place for the beauty, the pleasure, the fine living and the social talents* (Kindblom, 1995, p.12). For those who visited a healing spa, social life and enjoyment were at least as important as the medical treatment. Already in the 18th century, a British physician named John Floyer propagated for cold water cures and before that, during the 1700s, many doctors believed that it could cure mentally ill people and deafness (Dahlberg, Koller och Ravegård, 2004, p.11). In Sweden the first cold baths rarely occurred in open sea, although saltwater was known to be medicinal. If saltwater was used, it was pumped on land.

Soon Bohuslän was recognised as a modern seaside resort for the Swedish people. It was thanks to royal visits the rumours where spread. Gustavsberg outside of Uddevalla (the cross in figure x) was visited by the four-year Crown Prince Gustaf in 1804, and after that it has been called Sweden’s oldest bathing resort. In 1843, it was 14-year-old Oscar II’s turn to trip ashore in Marstrand as a midshipman. As a result, he made a visit to Marstrand as king 45 years later and regularly thereafter. Bathing centers like Marstrand, Gustavsberg, Lysekil and Strömstad were therefore getting popular (Schånberg, 1963, p. 55).

The oldest well known cold bathhouses where units on floating rafts in Gustavsberg, Uddevalla. These had cabins for changing clothes and swimming pools for safety reasons, but the rafts quickly changed into larger permanent bathing facilities. Some of the pools were available in height-adjustable variants, and there were also specially designed wooden boxes (like bales) *where women were able to swim in peace* (Kindblom, 1995, p.14).

The typical cold bathhouses were built as extensive palace-like houses with spires and thorns standing on piles, free in the water, connected with land through a jetty. One of them is the cold bath in Varberg (p. 60-61).

IV.a. excursions

During the summer of 2018 I did study trips along the southern coast of Sweden in order to get familiar with how modern and old cold bath houses are used today. In the upcoming chapter, photographs are presented along with personally documented analyzes and experiences that I have collected out of visiting five different locations. It follows the geographical trip from northwest to south east, namely; Lysekil, Varberg, Helsingborg, Malmö and Karlshamn. Some of the texts are integrated with interviews.

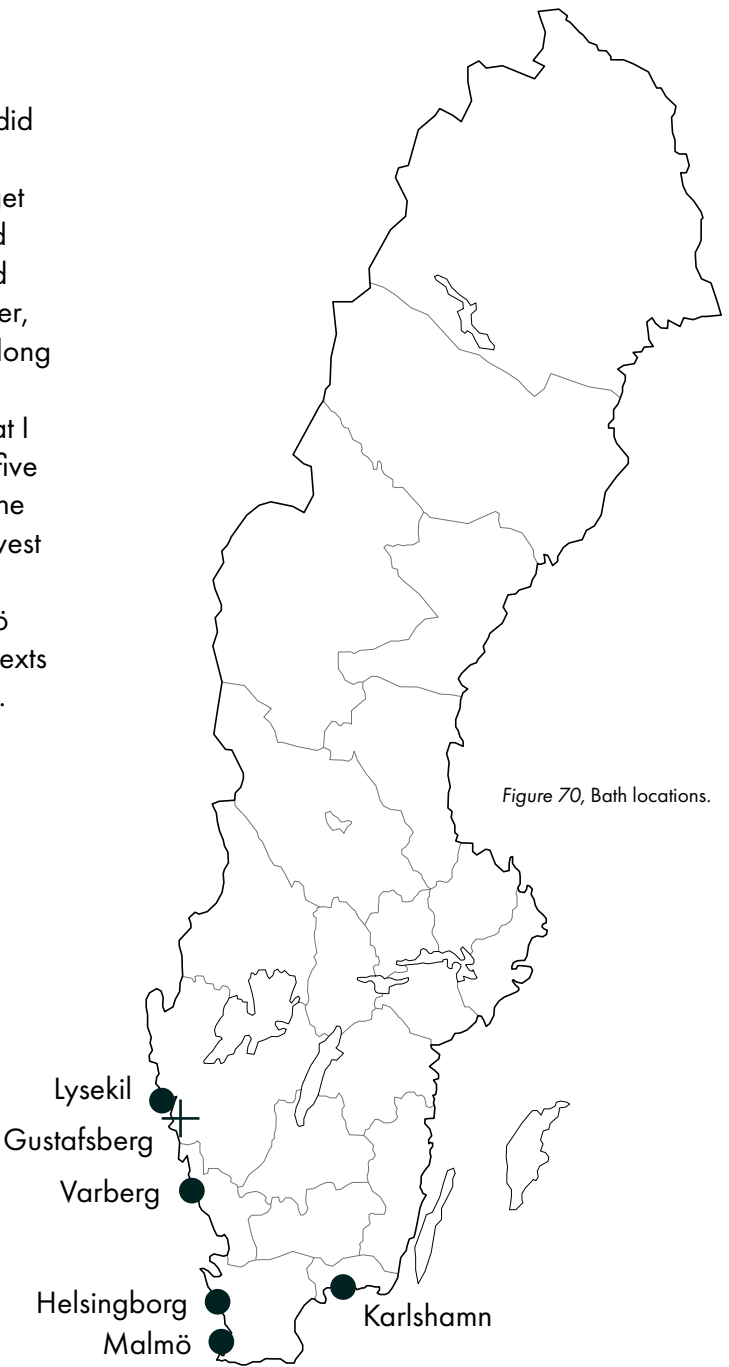


Figure 70, Bath locations.

The cold bath house in Lysekil is discreetly hidden behind the island Släggö, which is part of Lysekils southern headland. It is Wednesday the 25th of June and the summer is more than present. Under the bar, blue sky the promenade along the quayside, north of the cold bath house, is filled with sunburnt, ice-cream eating holidaymakers. Along the way passing the boat dock, I end up facing the big gate and the wooden wall that surrounds and protects the "pools" of the cold bath house. In a neighbouring

area by the quay there is an open platform as a part of the boat dock that is filled with families and bathers in swimwear. But inside the cold bath one has to be naked. I step into a dark and cool porch or vestibule that separates the different sexes in two different directions. I turn left while being struck by the bright sun that lights up the white woodwork. One can hear how the construction clonks when walking on it and soon I'll see the elegant layout of these small changeover booths in a row along the promenade that

leads on to the more southerly bathing area that reaches directly to the sea. This area has a sauna connected to it, which is the facilities latest addition. It is merged into one of the former vestibules. I notice a couple wiggling feet that stretches out from one of the booths and as I look closer I realise a man reading his newspaper. Here the wind and the time is absent.

After I have picked a booth and undressed I walk past the stone hills and integrated footbridges

into the social bathing area. There lies a bunch of bathers who gossip about one and the other. I choose to step into the sauna to appreciate more of what the ocean has to offer.

After a fresh dip with a few strokes and a glance at Fiskebäckskil, I step up and join the sun burned seniors. I end up being involved in discussions about weather and association routines. I greet Rolf and Lembit who have been bathing in Lysekil for decades. They tell that there are usually 2-5 men

who bath all year whereas there are 20-25 ladies. The ladies call themselves "elves" because they usually start their sessions around 11 pm.

Rolf always measures the temperature and document it so that people can see in the hallway to the entrance. A hot day like this he measured 23.4 celsius. I ask Rolf what is the lowest temperature that he has documented bathed in and he's filling in with; *"-4 degrees celsius. This has to do with the fact that the salty water does not freeze at 0 degrees. The worst about those days has not to do with the water itself, in fact it is quiet comfy compared to the act of climbing up into the awful winds afterwards. That's why it's nice with these pockets and booths that protects our fragile bodies. I'm not running into the sauna afterwards. It's cheating".*

In Lysekil one gets to experience the mountain and the landscape together with the architecture. The cliffs pop up among the footbridges and in many places you get the chance to lie and melt on a hot granite surface. This place feels neat and symbiotic.

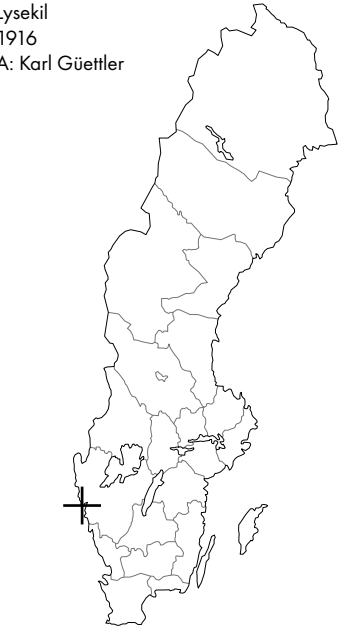


Figure 72, Bath location (a).



Figure 73, Pocket (a).



Figure 74, Stone and wood.



Figure 71, Lysekil cold bath (a).



Figure 75, Lembit and Rolf.



Figure 76, Granite support.

It is the 9th of August and the cold bath house in Varberg appears as a noble wide castle with two lanterns hovering over the water surface on their piles. I reach out through the extended bridge or pier that climbs over the beach. Children and adults are jumping around in the shallow water.

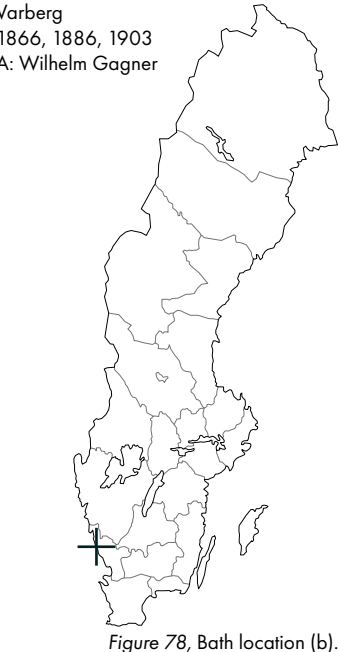
I am stepping through the national romantic entrance with beautiful carpentry and there's a dim dark café with a bar below the loft that fills the large room with double ceilings. After I have talked to the staff and payed for the entrance I step into the men's department on the right wing.

Since the eyes where in tune with the dark and dull environment I was struck by the bright courtyard. It encloses the water which is reflecting the bright sun beams. There I see people climb down on a stairway towards the shallow water and the sandy bottom. The changeover booths is a part of

the structure that frames the water. So far, I have no contact with the outer world. But after I have undressed and entered the sauna I experience the great view that is aimed towards the northern parts of Denmark (fig. 79).

After the bath in between the big piles on the soft sandy bottoms I settle down in a sunbed. There I start talking to a group of guys sitting and sunbathing and bathing at regular intervals.

After a while, I reveal the purpose of the trip and my thoughts about the upcoming master thesis project. One of the guys is discussing the importance of rigorous planning when a cold bath house is to be built. That there should be access to water near a sauna; *"A small detail as a washbasin with sufficiently high cranes to accommodate a bottle of water can be crucial in terms of comfort. And also to prevent crossing a dirty entrance with bare feet. I also want to mention the need of hiding in different directions that should be available since the wind turns so easily"*. For him, much is about routines and functionalities. But also that you should have the chance to feel at home and welcome in your local cold bath house so that you will visit it again; *"Same old man, same hook, same seat"*. This man asks to be anonymous in the presentation of my work.



Varberg
1866, 1886, 1903
A: Wilhelm Gagner

Figure 78, Bath location (b).

The advantage and disadvantage of Varbergs cold bath house is that you experience a large part of the design from below. You walk through the construction, under the building to reach the sea. It is a strange yet exciting feeling, and in some way it creates a distance to what goes on in the more social areas. Overall, a cold bathhouse like this could stand on any part of the west coast. It is not that tailored to its site. But it's impossible to avoid the beautiful carpentry and the pleasure of experiencing the water from different heights, planes and angles.



Figure 79, Varberg sauna.



Figure 80, Stairway 1.



Figure 81, Varberg cold bath house (b).

Figure 77, Varberg cold bath house (a).

Pälsjöbaden cold bathhouse in Helsingborg stretches far out from the beach standing on its tall wooden piles. A prickly silhouette is created by the pointy roofs that extends along the two wings of the bathhouse. It is the private dressing booths.

The pier ends in a y-shape that frames a small courtyard. There stands a copper sculpture on a rusty base that pops up above the surface (fig. 85). One can feel the height between the sea and the bare wooden deck.

Once inside the men's department, I realize that a large part of the bridge is under open air. The fund and the horizon is the seaside of Denmark, which is framed by the large square windows in the saunas. There are two saunas. On my way to the furthest i loan a bucket of water from the first one. After a while a calm yet curious man enters and introduces himself as Richard and we start chatting. Shortly I take the opportunity to tell more about my project. We discuss the phenomenon of the

cold bath and how the classic ritual looks like. According to Richard *"the first thing you do is to enter the sauna. There you wait until you are beginning to feel dizzy, almost dying. Then you need to stay for a little bit longer before you go out into the whining wind and climb down the long staircase. No matter how cold it is in the water, you have to endure the bath. Because the real reward comes afterwards. When the adrenaline starts pumping up on deck. That's what I am here*

for, the free rush. And many of us do wrong when going inside to early again".

He explains that there are two camps; one that prefer the dry and the other one that prefer the wet sauna; *"You are lucky that it was me that caught you, stealing the water bucket from the wet sauna, otherwise you would have had enemies for life. The first thing to consider when drawing is to decide who you draw for; the children's family or the classic*

bather. This makes it clearer in your design. A classic bather is looking for the feeling of a cold bath, but also the view of the sea. Not the excessive ornaments and loose stuff".

We continue our conversation for a while before I realise I begin to feel dizzy, almost dying. It was time to step out, into the salt water, down on the soft sandy bottom.

Back on the dock again I realise what Rickard was talking about. The rush.

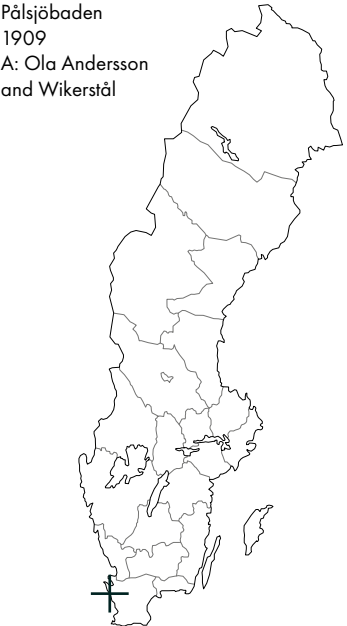


Figure 83, Bath location (c).



Figure 84, Richard.



Figure 85, Statue.



Figure 82, Pälsjöbaden cold bath house (a).



Figure 86, Gunilla and Pälsjöbaden.



Figure 87, Changing boots (a).

On Saturday, August the 25th, me and Gunilla are strolling down the long pier that stretches out of the sandy beach of Ribbergsborg. The promenade emphasizes the feeling of leaving land when one eventually arrive the deserted cold bathhouse which is partly protected by crushed stones that acts as a groyne (fig. 92). The bathhouse has undergone a number of renovations and repairs, not least due to storms (Ribbergsborgs Kallbadhus, 2018).

We step into a generous and vibrant restaurant that integrates a bar and a kitchen with the entrance desk to the cold bathhouse.

Here me and Gunilla split in separate directions because the facility is a nude bath. It has been so since the 1930s and that is why the different departments have been separated (Ribbergsborgs Kallbadhus, 2018). However, the outermost and centered sauna of the facility is shared between the sexes.

I open the door to a landscape shaped by woodwork which is surrounded by various huts and booths (fig. 91). These changeover booths frames two pools in varying scales. Some bathing spots are facing the open sea and Denmark. There is full movement in the facility, and most of the bathers are located in the outer part of the bath house, which consists of varying sauna facilities.

Once in the sauna It feels like I am a screw-nut in a machinery; sweating, surrounded by gossip and steam. Suddenly, I am alone out there in the ocean with Öresundsbrons silhouette in the background. There is this open, naked and honest communication with the site.

At one moment when splashing down in to the cool water I hear a distant shout and suddenly I notice the beige silhouette of a girl standing on the opposite side of the bathhouse. She is waving at me and then I realise it is Gunilla. It makes me realise that the feeling of being exposed and na-

ked does not necessarily mean the absence of foreclosure. It is also a matter of distance. And in this case, the distance between these two separated departments is a good reference to keep in mind when creating nudity and integrity without foreclosure - 45 m.

Bathing at Ribbersborg's cold bath house is an experience in different dimensions. One feels enclosed, sheltered and small in a vibrant and crowded environment. It is a place that has managed to capture that paradox. And it is a memory that I will keep my entire life.

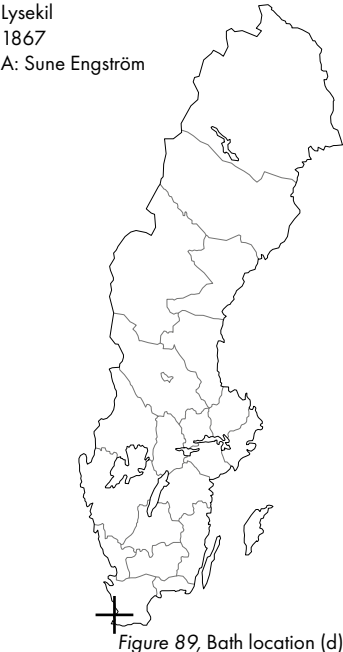


Figure 90, Poolyard 1.

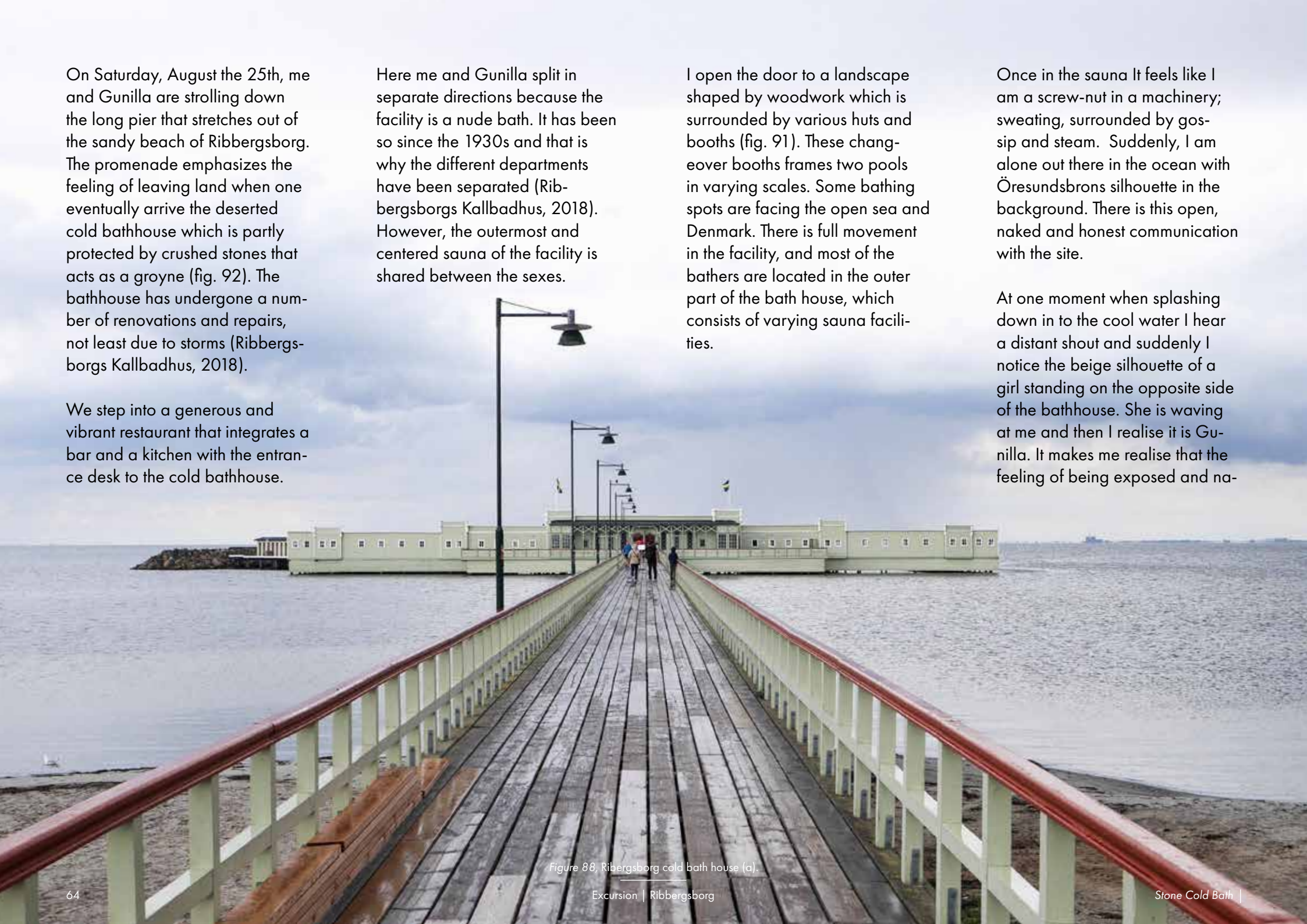


Figure 88, Ribbergsborg cold bath house (a).



Figure 91, Changing booths (b).



Figure 92, Groyne and deck.

I meet Glenn Broberg on the driveway right next to the bridge of kallbadhuset in Karlshamn on August 26th. In the neighbouring facility open air swimming contests are held at the open air swimming stadium. It is the older bathhouse that is customised for swimming and play. But the main purpose of the new cold bath house is to promote the social unity of Karlshamn according to Glenn. For him, the cold bath is about “the social life and the gossip in the sauna”. He is a board member of the association Kallbadhusets

vänner, who in 2015 had saved enough money to replace their floating sauna into a permanent facility. Today the association has 400 members.

We step out on the short bridge that leads us out to the building and I hear the description that the architect Sven Gustafsson used in a promoting video; *“The building looks like an flying UFO that land with its long legs carefully so that it creates a minimum footprint on the site. And then it stretches out a bridge connecting the building*

with the seafront”(Sven Gustafsson through White architects, 2015).

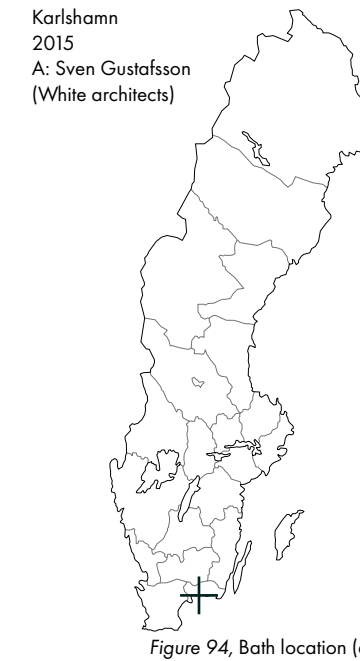
The building turns its back towards land and obscures the spectator’s ability to look out towards the bay and its opening. The centered space between the women’s and men’s areas divides the building into two smaller wings and a more open centered atrium with an optimized view through its funnel-shaped walls. I enter a dark and narrow changing room that has no contact

with the outside world. But at the end of the corridor, past the showers, the light penetrates the walls in order to direct the bather outwards towards the water. The features are logically arranged from changeover, shower, sauna to patio and water.

The consequence of the buildings discrete anchoring to its site is that one behold the landscape rather than physically experiencing it. To me, the ladder is like a dipping toe that gently examines the temperature of the water. In that sense this bathhouse is suitable for the toe bathing people.

Unlike the other cold bath houses I’ve visited, this one has smaller areas for the outdoors. There is no changeover booths or niches to crawl into. As Glenn told me, the association wished for a compact package of a sauna facility close to the water without superfluous surfaces and added features and that was what Sven Gustafsson came up with.

It is meditative to examine the seafront by the eye and behold the dancing trees in the wind while sitting in the sauna. It is a large and vibrant painting. But a painting without an endless horizon. The Baltic Sea is lika a forest that penetrates the water and I long for the bare cliffs and islands on the west coast.



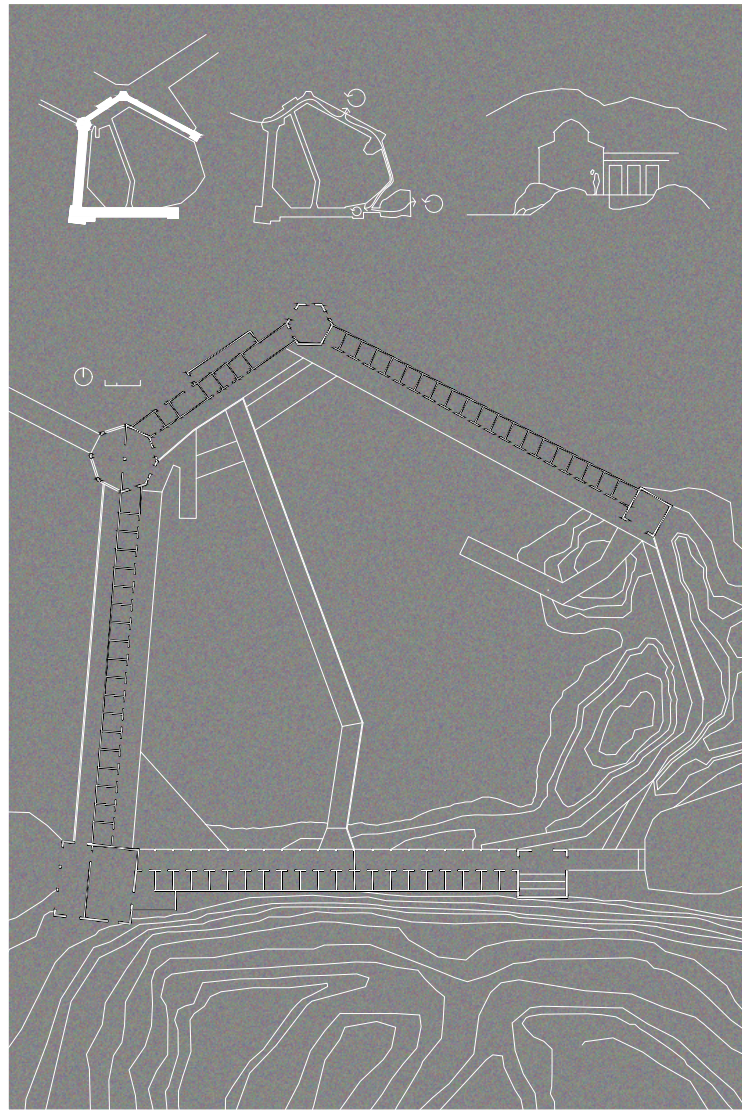


Figure 100, Lysekil

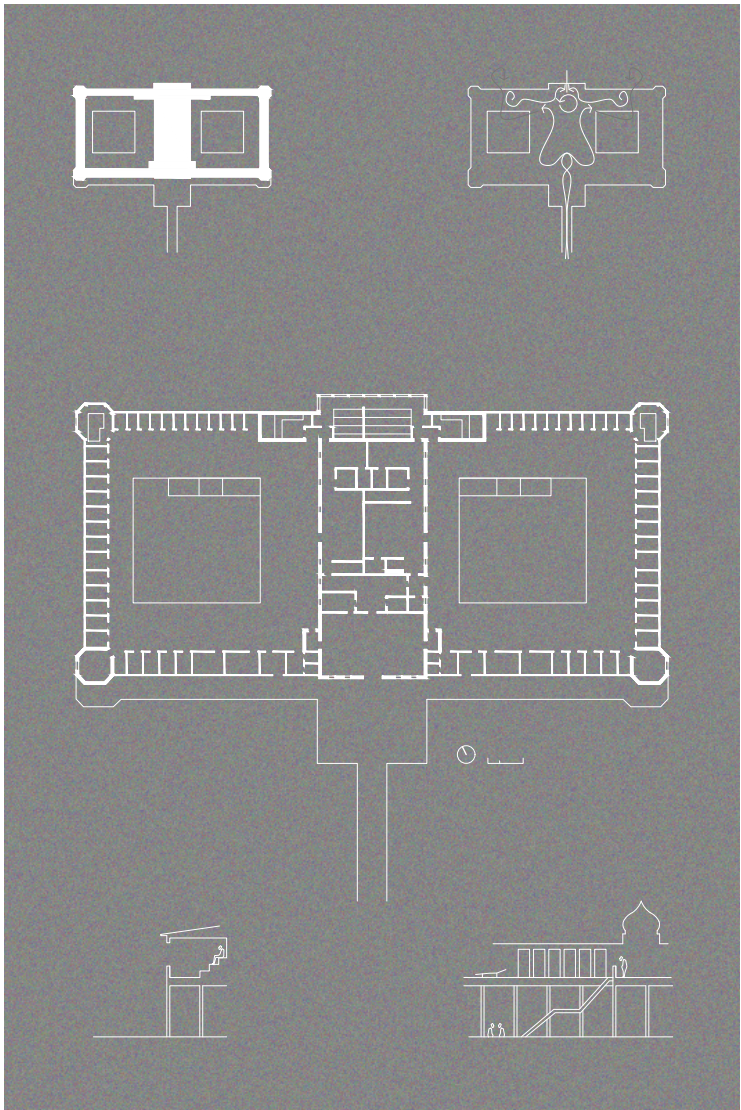


Figure 101, Varberg

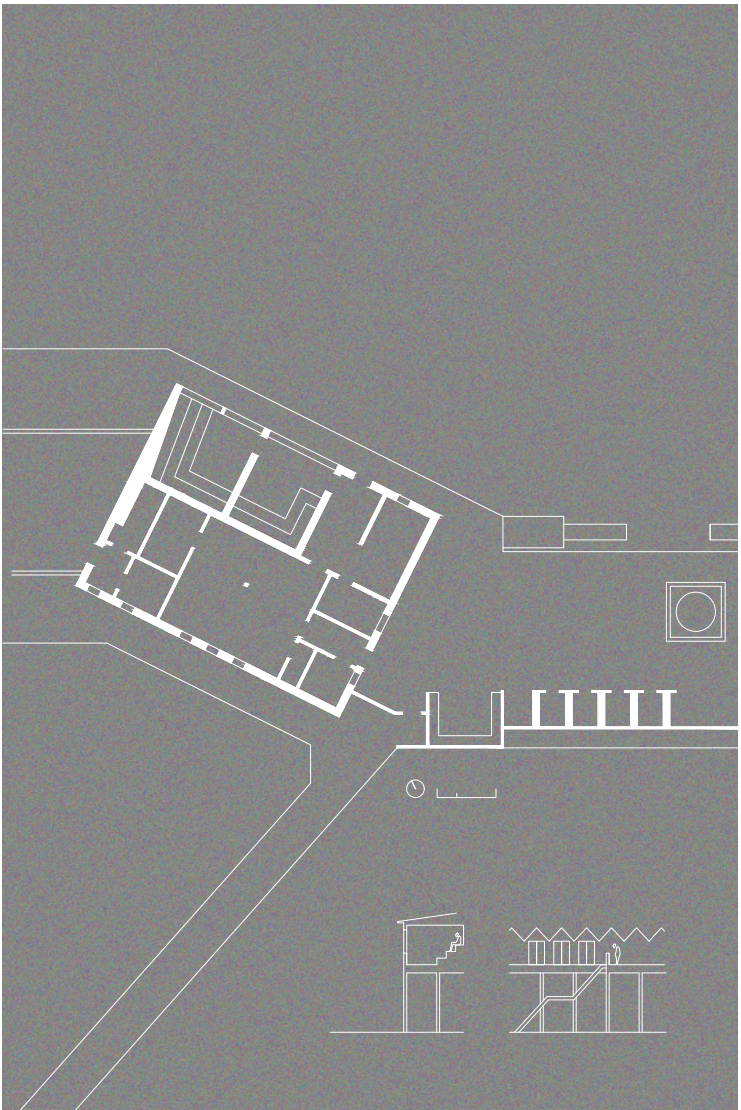


Figure 102, Pålshöbaden

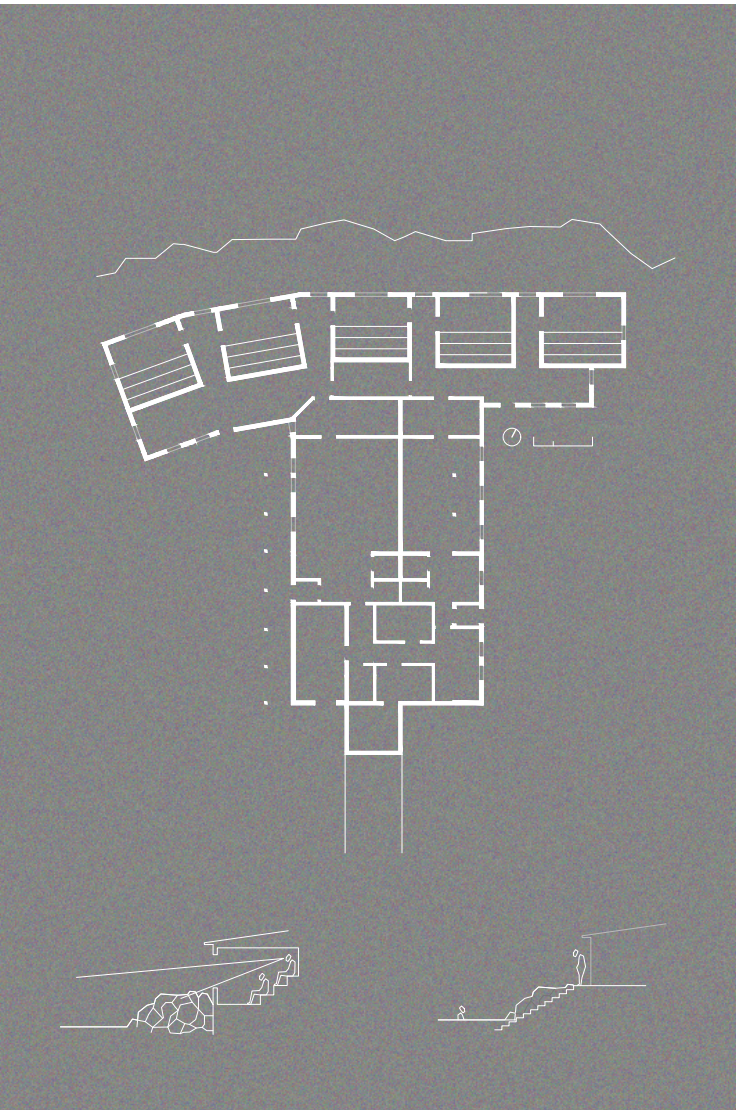


Figure 103, Ribergsborg

How can architecture speak about memory?

The topic about how memories can be communicated through architecture have similarities to the conversations that Mari Lending had with Peter Zumthor between September 2014 and August 2017. These talks were documented in a book called *A Feeling of History* (Lending, Zumthor, 2018), where they discuss how architecture can convey the story of a place in an alternative way. They talk about memories that are revived through a new physical space in a new context, containing elements from the past. According to Peter Zumthor, the emotional learning is beyond the factual learning. There is a deeper understanding in events than to categorise these through informative panels and charts in a museum. Our ancestors experienced the moments on site through its surroundings, through nature, the landscape, the tools, the artefacts and the atmosphere. A specific place can offer that experience from a lost time if the architects is using relevant means. Architecture is the right tool for it, Zumthor says. By his extension of the Los Angeles County Museum of Art, he tried to reconstruct and transform the conventional strategy of an exhibition hall.

“Scientific and academic categories are certainly a fruitful underlying tissue of knowledge that we can explore, but we should start with our direct, emotional encounter with the objects. So rather than leaving artefacts alone in the abstract environment of a black box or a white cube, my idea was to stimulate almost physical reactions between two bodies: the architecture and the artefact. That’s why the physical presence of the building is so important to me. It provokes an emotional experience, emotional learning.” (Lending, Zumthor, 2018, page 66)

This reasoning is similiar to the avantgarde group’s of artists back in the 60s and 70s which saw the use and exposure of the artefact as something different. They made large scale installations in a non-urban context which should be experienced on site, through your body, physically. They where ideas from that time when suddenly everyone could travel by airplane. To see the earth from above. As well as the rocket ships beholding earth as an object. The artists saw the earth as a white paper. Among them where Robert Smithson, Walter De Maria och Michael Heizer who established a landscape art genre that should act as a medium where architecture, nature, sculpture,

technology, archeology and photography where intertwined (Crump, 2018). Germano Celant, the art historian describes landart movement and their views on art as; *“The piece has to control you instead of you controlling the piece. Otherwise, it becomes an object, and they refused that.”*. They expected us to experience *the sculpture as place*.

After I visited the cold baths in Lysekil, Varberg, Pålshöbaden, Ribersborg and Karlshamn it made me realize that even the conventional cold baths have a distinct separation between what is natural and built, wet and dry. It would be interesting to try out these limits. Is it possible to create a thinner line between landscape and architecture? Would that stimulate more senses for the visitor? For me, the clear boundaries between sea and land in the conventional cold bathhouse are created because of safety aspects and comfort. But as a self-experienced swimmer on the west coast, I know that a large part of the bathing on the bare cliffs in the archipelago is far from safe. Streams make one realize that we are without chance against the forces of nature. The smelly, slimy and sticky seaweed hides sharp mussels and wobbly stones which tests the balance and tactile ability. These moments tests physical abilities and therethrough engage our perception. This means that you feel a greater sensation and relief when slipping out into the free ocean; in the absence of gravity. Thereby, there is another phenomenon to explore in the bathing area, which hopefully could bring one closer to the genuine experience of the natural archipelago. In the same way as there is a distinct separation between the artefact and the architecture of the conventional exhibition hall, There is an unclear relationship between the archipelago’s phenomenon and the conventional cold bathhouse.

These claims has a *phenomenological* character. That is, how the knowledge of the things is conveyed through the experience of them. Thus, by creating a broader communication with the user through the architecture, where more senses could be involved in the physical surroundings, there is a greater chance that it touches us and get us into a deeper understanding of the memories from Hästeden.

"...The art of the eye has certainly produced imposing and thought-provoking structures, but it has not facilitated human rootedness in the world. The fact that the Modernist idiom has not generally been able to penetrate the surface of popular taste and values seems to be due to its one-sided intellectual and visual emphasis; Modernist design at large has housed the intellect and the eye, but it has left the body and the other senses, as well as our memories, imagination and dreams, homeless." (Pallasmaa, 2012, p. 28)

The discussion about the importance of engaging all senses through the architecture is evident in Juhani Pallasmaa's book *The Eyes of The Skin* (1996). According to him, it is through our entire bodies that we experience the space. So, when more senses are stimulated through the given architecture, the experience is further extended into our memories. There is an awareness of the present and we archive the event in our heads. The amount of stimulus is thus the key ingredient in order to create a space which is memorable and personally valuable for the user. But that does not necessarily mean that all stimuli should happen at the same time, but rather at the same place. It also implies that stimuli comes from relevant material, and a relevant context so that you do not feel lost.

A varied stimulus can also revive old memories and sensations. That means that much of what we experience and remember is in constant change and exchange. The past and the present are therethrough linked and moulds a combined experience of momentum and emotions. This phenomenon can be a contributing factor to why we freeze when we become affected;

"When listening to a piece of music or walking on a beech wood forest in summer, something touches me, something that I seem to have experienced before. And now I experience it again in the new context of a particular moment, and then old and new sensations intermingle and the brain tries to understand. In these moments I'm looking for new intensities, I think". (Lending, Zumthor, 2018, p. 66)

VI. Reference projects

It has been difficult to find relevant reference projects which challenges the typologies *open air bath* and *museum*. The majority of the exhibition halls contains an architecture that is directly separated from the exhibited artworks. Also, there are many documentations of architecture that convey the memory of something, through the so-called *memorials*. However, many of these proposals are more of a monumental character containing a symbolism that often is complemented by texts, plates and statues. It is therefore less common that memorials frames and encapsulates memories through a full atmosphere. There are a few examples such as *Steilnest Memorial* (2011) or *The Allmannajuvet zinc mines* (2016) by Peter Zumthor. Both of these projects are discussed in the previously mentioned *A feeling of History* (2018). In The Allmannavet zinc mine, the story of the miner's living is explained from simple, craft-like constructions; the bare scaffoldings mounted with a screw and bolt. It creates a robust expression in the details, *which is not at all sophisticated*, Zumthor (2016) argues. But it speaks for the site and history itself.

What the projects in Allmannajuvet and Steilnest misses in relation to the discourse is the combination of programs; how different typologies can be represented by one and the same project that hopefully will lead to new ways of looking at the usage and relationship between a phenomenon and a user. This is something that *Herzog & de Meuron* explored through their 169th project *Schaulager* from 2009. There they were assigned to combine an exhibition hall, a warehouse and a research center in Basel for the *Emanuel Hoffman Foundation*. The foundation had until then used Basel's other art museums but wanted to expand in order to have their own space for storage, the choice of having freer exhibitions and a research hall. The result was a space that mainly served as a warehouse where the artworks occupied less space, side by side, unlike the conventional exhibition architecture where each individual piece has its own space and agenda.

To give the building a physical link to the site, they covered the box and storage-like space in a tailored suit. The concrete cover was mixed with gravel and clay from the soil of the site .

"...to give the building a physical connection to its context, as if the building had been extruded from the ground or exposed like an archeological dig". (A. Barreneche, R, 2005).

The pompous entrance covers the whole side of the box-like warehouse. A fence surrounds the museum and the gate is guarded by a small hut-like volume; *"The gabled form of the gate house makes it look like an artistic installation - an abstraction of an alpine hut rendered in the same concrete mix as the main building"*. (A. Barreneche, R, 2005).

In this way, Herzog & de Meuron challenged the typology of the conventional museum. The difference between what is the architecture and the art of the entrance makes it interesting because of the grey zone. In addition, the choice of materials has a strong connection to its site. Inside, new ways of showcasing art are explored, as the pieces of art gets random neighbours, different styles and intentions are meshed in to one layout. Suddenly, unintended effects occur when they get closer to each other and form an interesting palette unlike the conventional strategy where the artwork acts as the only color stain on the huge sterile white wall.

As mentioned earlier, the conventional cold bathhouse also has a distinct separation between the phenomenon and the architecture. A built-in project that I think contributes to the discussion about how a bathing establishment should interact with the landscape and the water is *Termas Geométricas Hot Springs Complex* by the architects *German del Sol* (2009). It is a complex of pools that extend along a mountain stream which extends over 1280 square meters. The pools collect the hot spring water through the wooden deck that also transports the water down the sloping promenade. As the water is warm, it helps to keep the wooden deck free from snow and slip in the varied climate. The landscape that encloses the promenade with its huge rock walls is also part of the performance of the various pools. In this way, the user is in close contact with the landscape of the site through the water. The water is embraced rather than separated from the architecture.

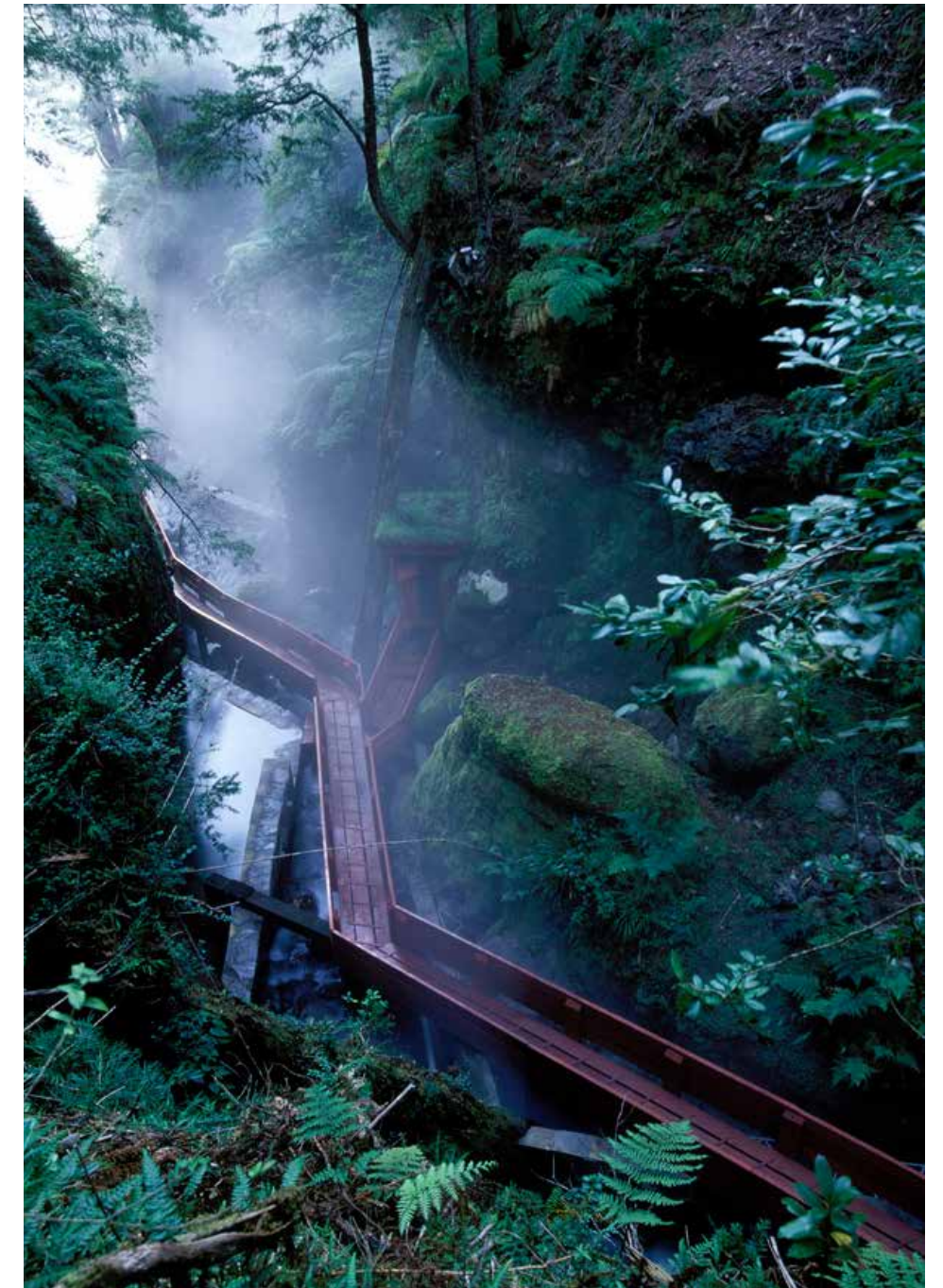


Figure 104, Termas Geométricas. Wenborne, G (2014). By permission.

VII. Process and method

What I realized after my visits to the existing cold bath houses was that the architecture were distant from the landscape and the place. Because many of these facilities, such as the one in Varberg were built during a time when people were really bad at swimming. They where protecting the visitor from the open water. That should not be the case today, thinking of our contemporary swimming skills. Why not elaborate with the typologi? There are so many other aspects of bathing that should be explored further, not least when thinking of materiality. Therefore, I thought that Lysekil's cold bath and Pål-sjöbaden to some extent had this interesting relation between the crumbled stones, or an island together with a repetitive structure. The stone felt more present, which it should be.

The fragile body in the immortal landscape became key words during my process. It affected the design and created a tension in between a strict, structural system and the crumbled stone. Although they where treated as counterparts, maybe more parts of the architecture could be made out of stone? It could be a benefit in this climate, thinking of sustainability as well as the precision.



Figure 105, sktech model view a.



Figure 107, sktech model view c.



Figure 108, Horizontal boards.



Figure 106, sktech model view b.



Figure 109, Vertical terrain.



Figure 110, Pocket (b).

VII. a. design strategy

Meanwhile the plan was to be designed, ideas for an industrially produced building kit in stone had been developed. Because the question was whether more parts of a conventional cold bath could be replaced from wood to stone? Hence precision and durability that comes with the stone actually overcome many of the physiological properties of the wood. These issues was previously discussed in chapter III through interviews with Jan Lindell, Claes Hake and Christer Olsson.

Another question was how industrially produced stone products could be used yet still be considered as attractive since the reduction of craftsmanship was a fact. Prefabricated elements of stone could result in cheap and long-lasting products.

Striving for prefabricated building kits by general and mass-produced detailing made an impact on the project's infrastructure and main building. Because it had to adopt to an orthogonal form. Furthermore, as mentioned in the discourse, the architecture should not entirely enclose the spaces in which the user where bathing. This cold bath house should not hide from the challenging landscape but give more opportunities to experience it. The result was a double cross-shaped plane that can be read in figure 112, at the middle bottom.

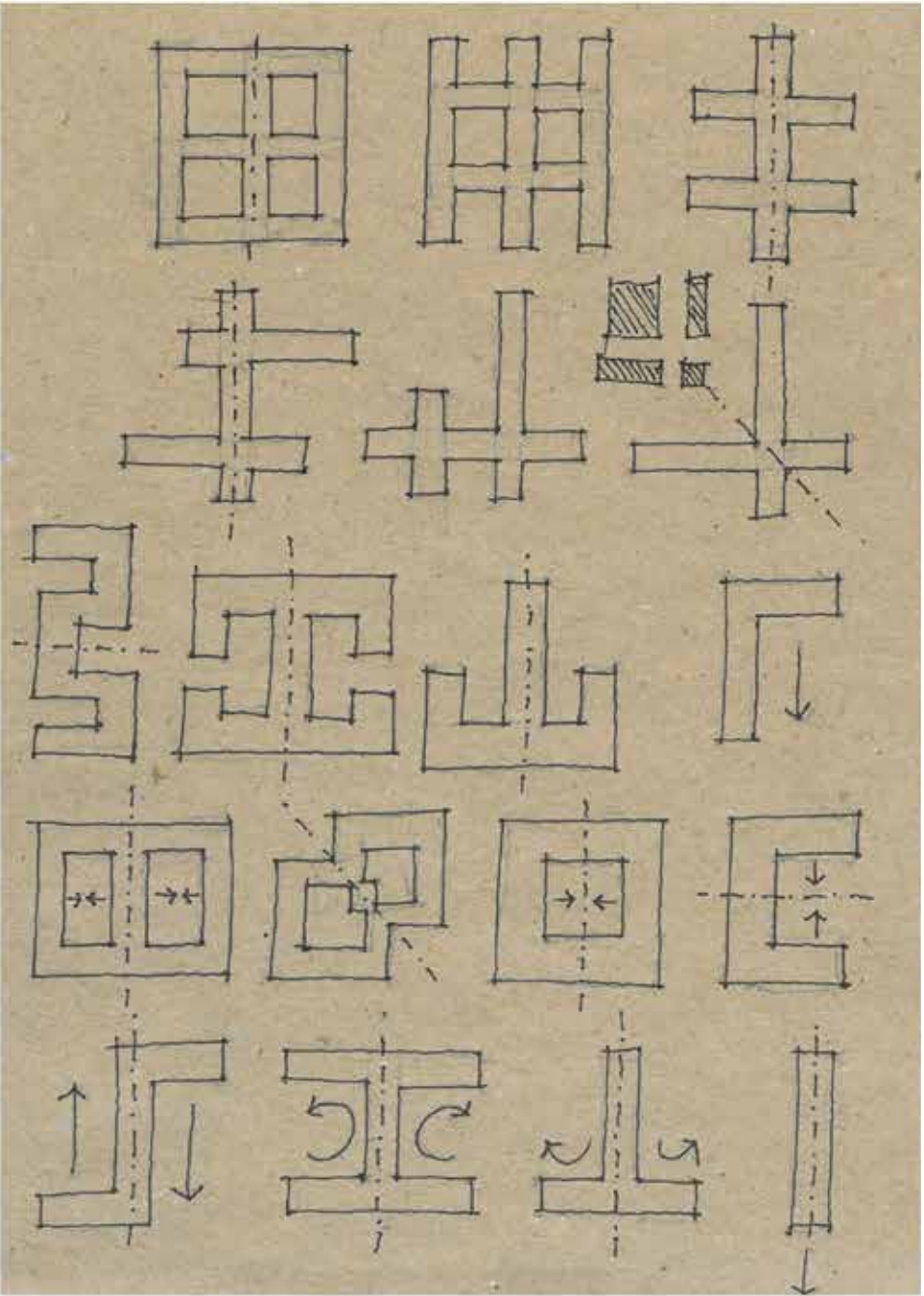


Figure 111, Plan sketches 1.

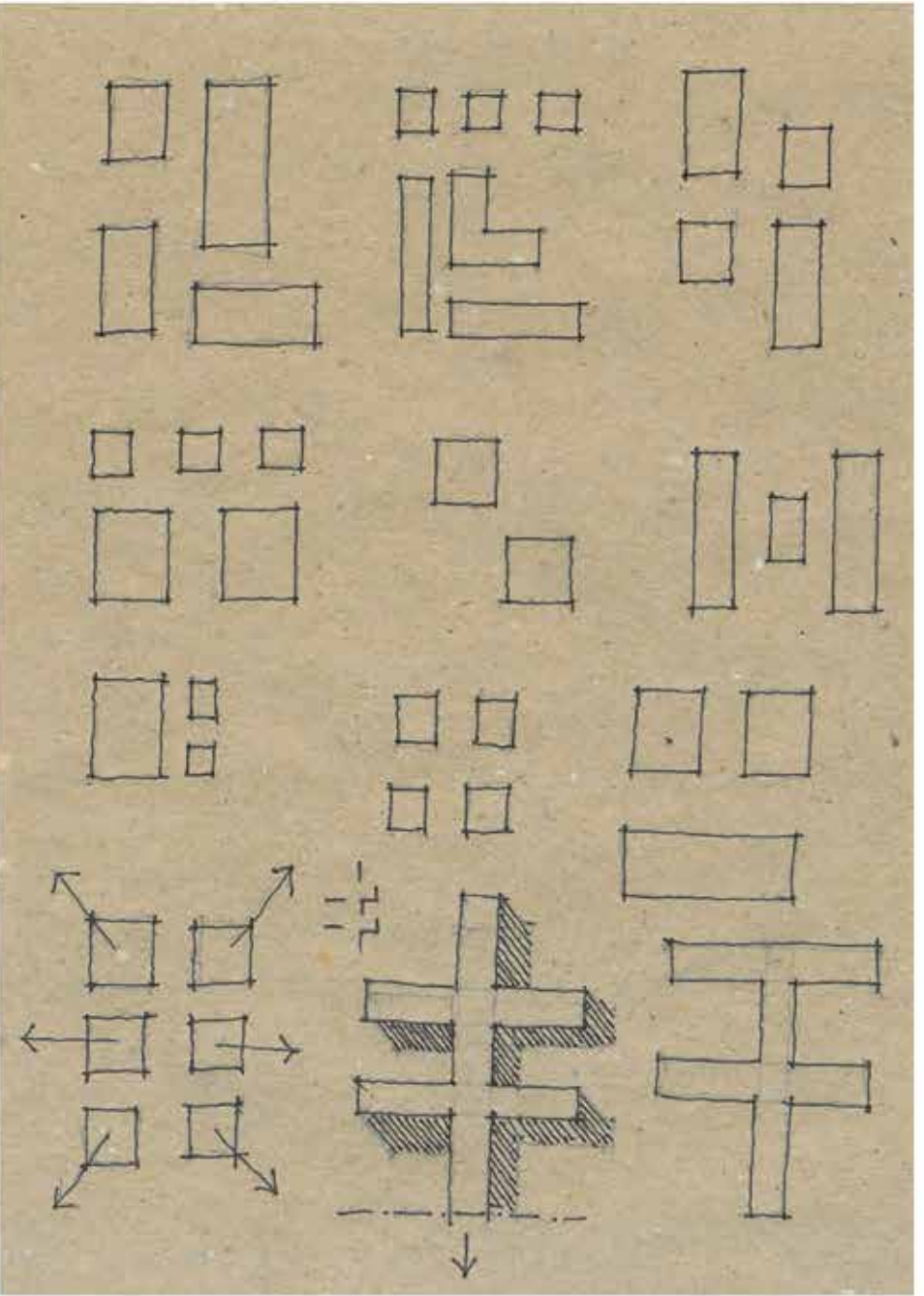


Figure 112, Plan sketches 1.

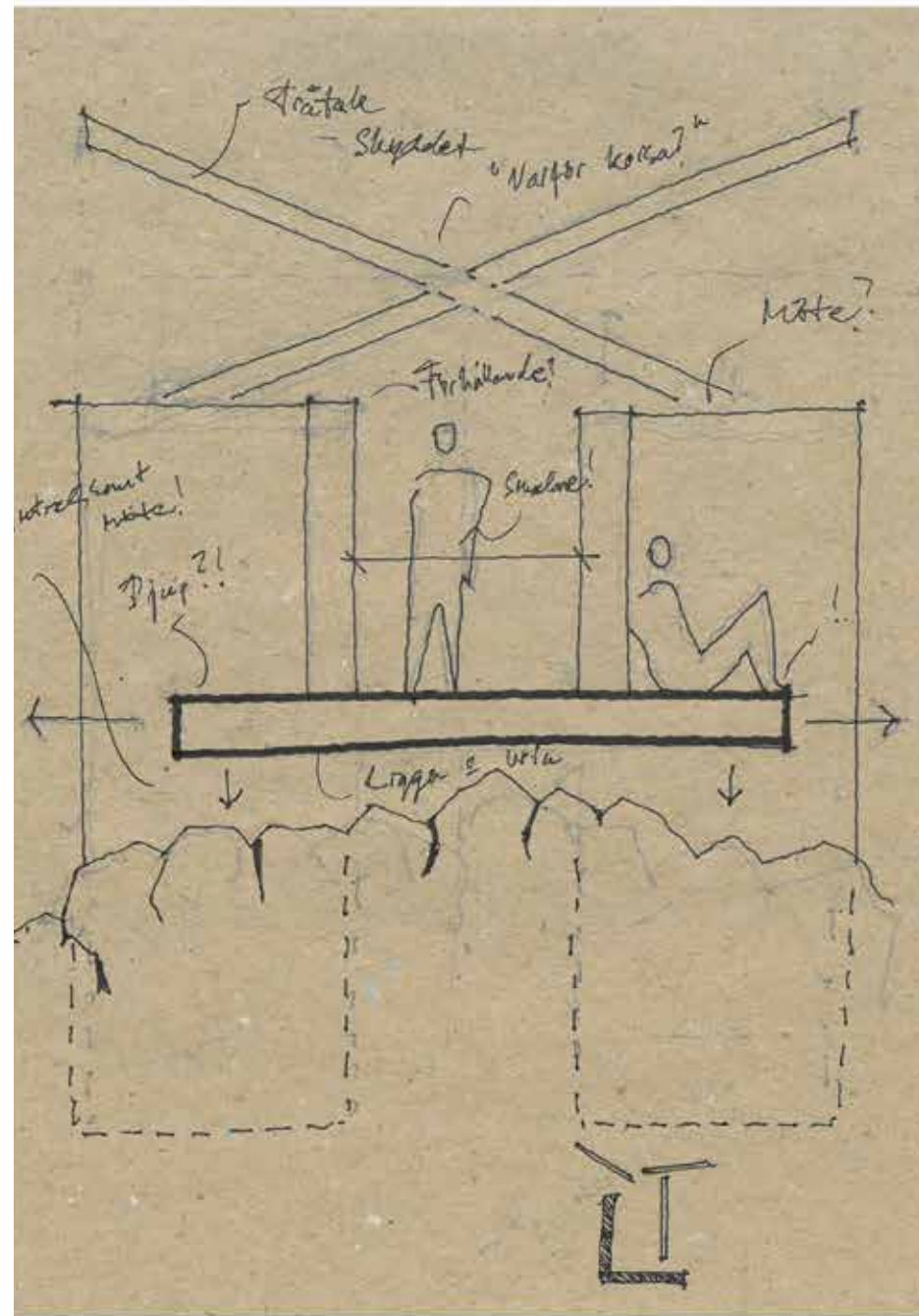


Figure 113, Building kit sketches 1.

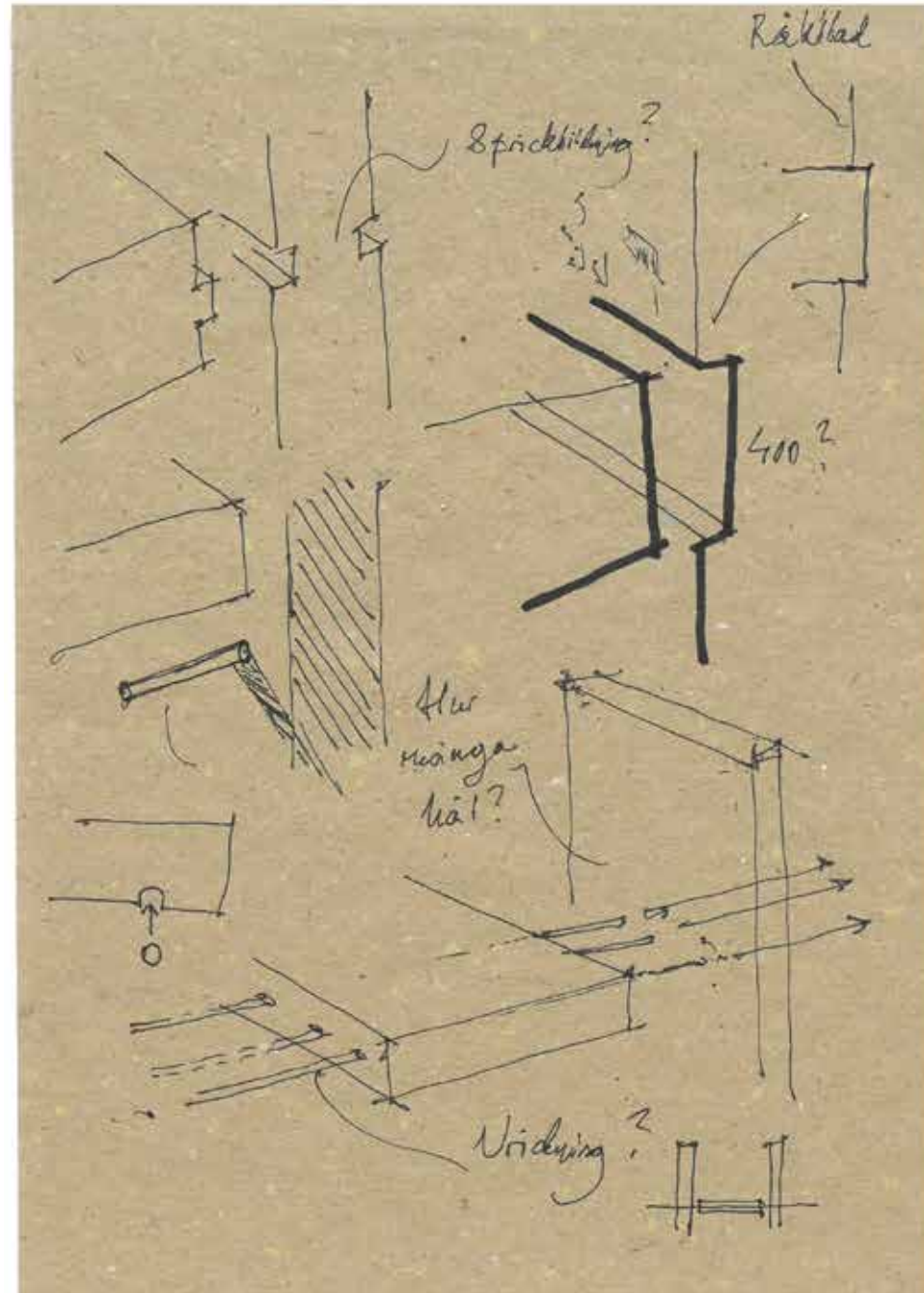


Figure 114, Building kit sketches 2.



Figure 115, Detail sketches 1.

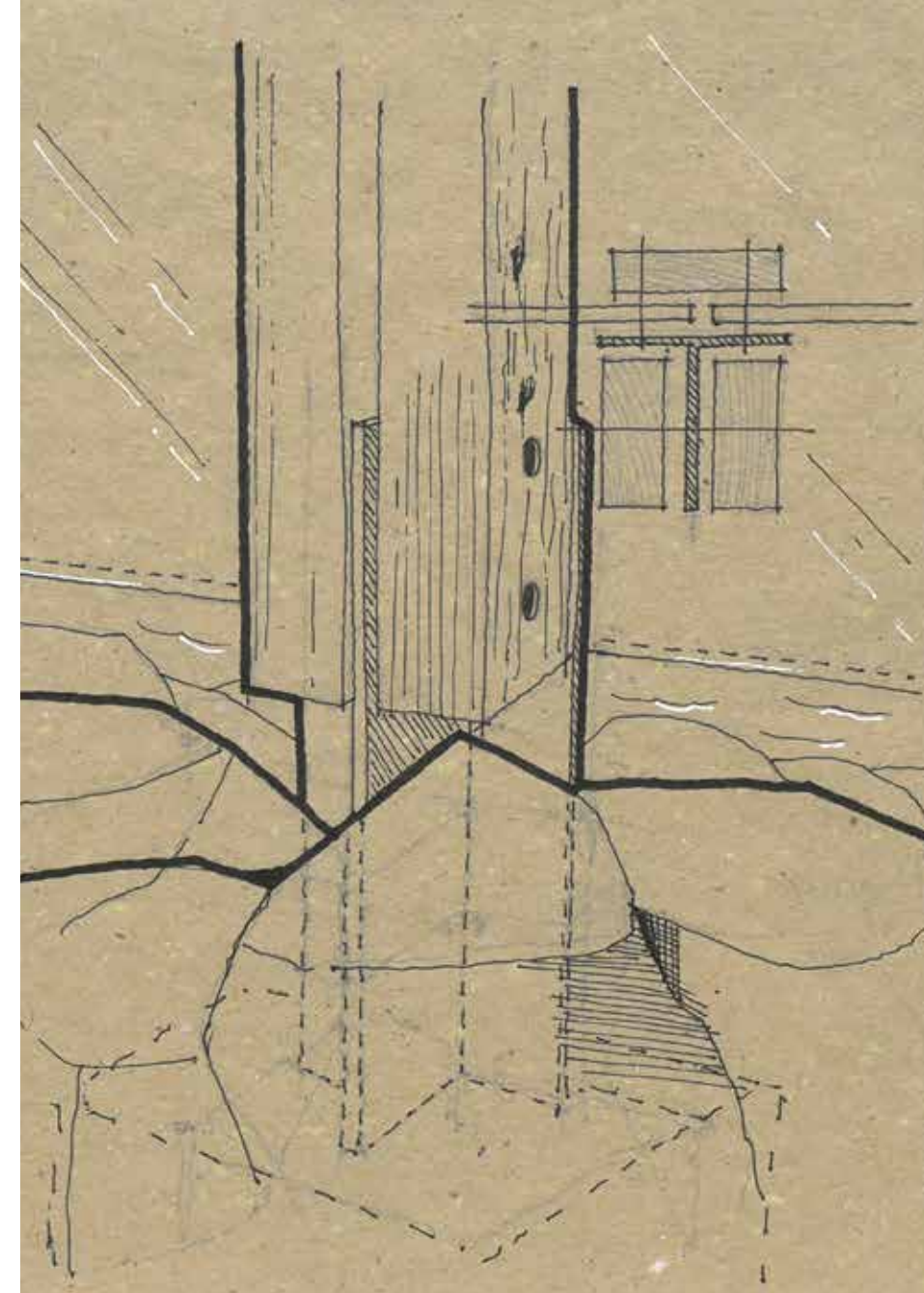


Figure 116, Detail sketches 2.

VII. b. assemblage

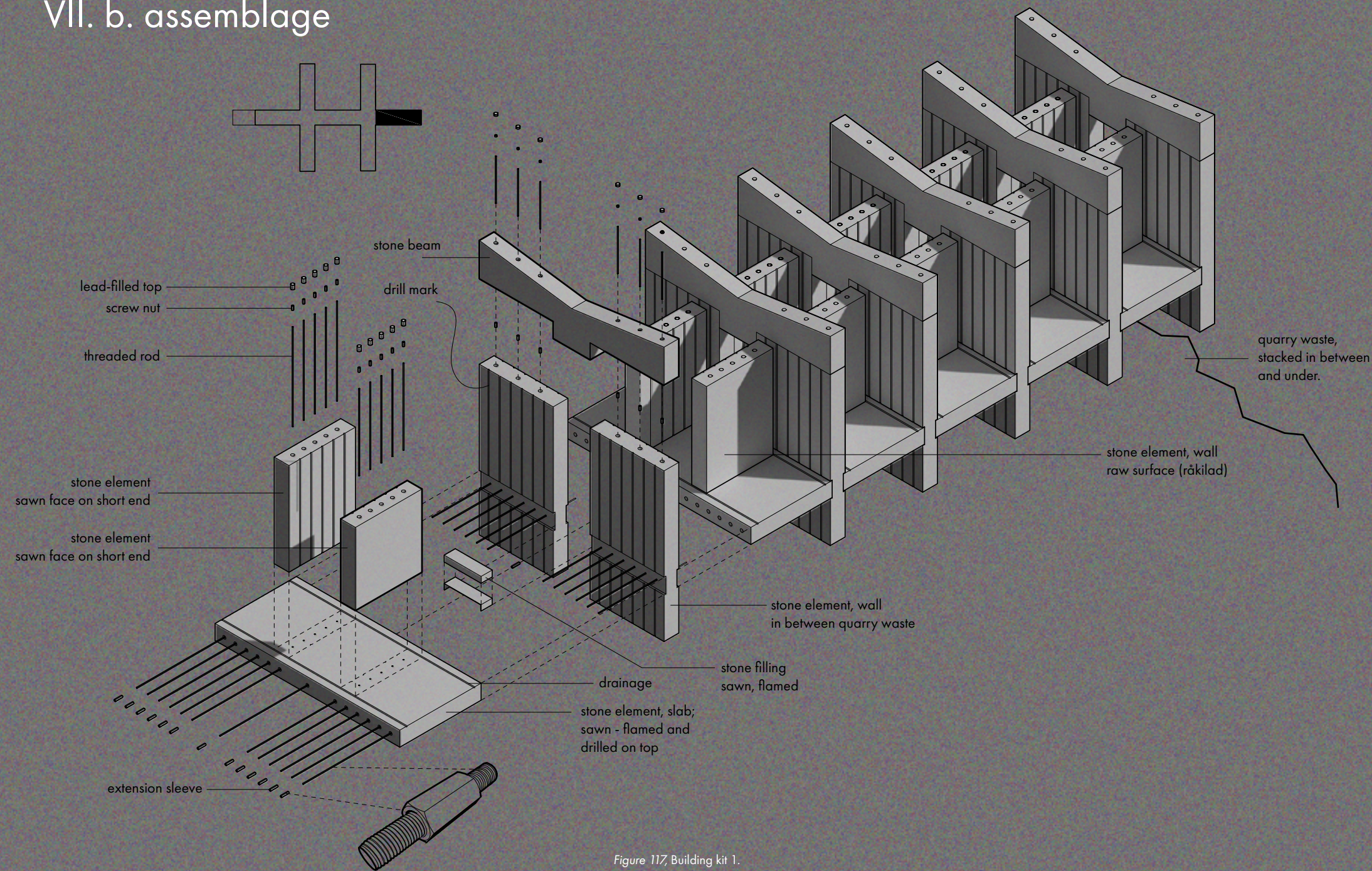


Figure 117, Building kit 1.

Building elements (proposal)

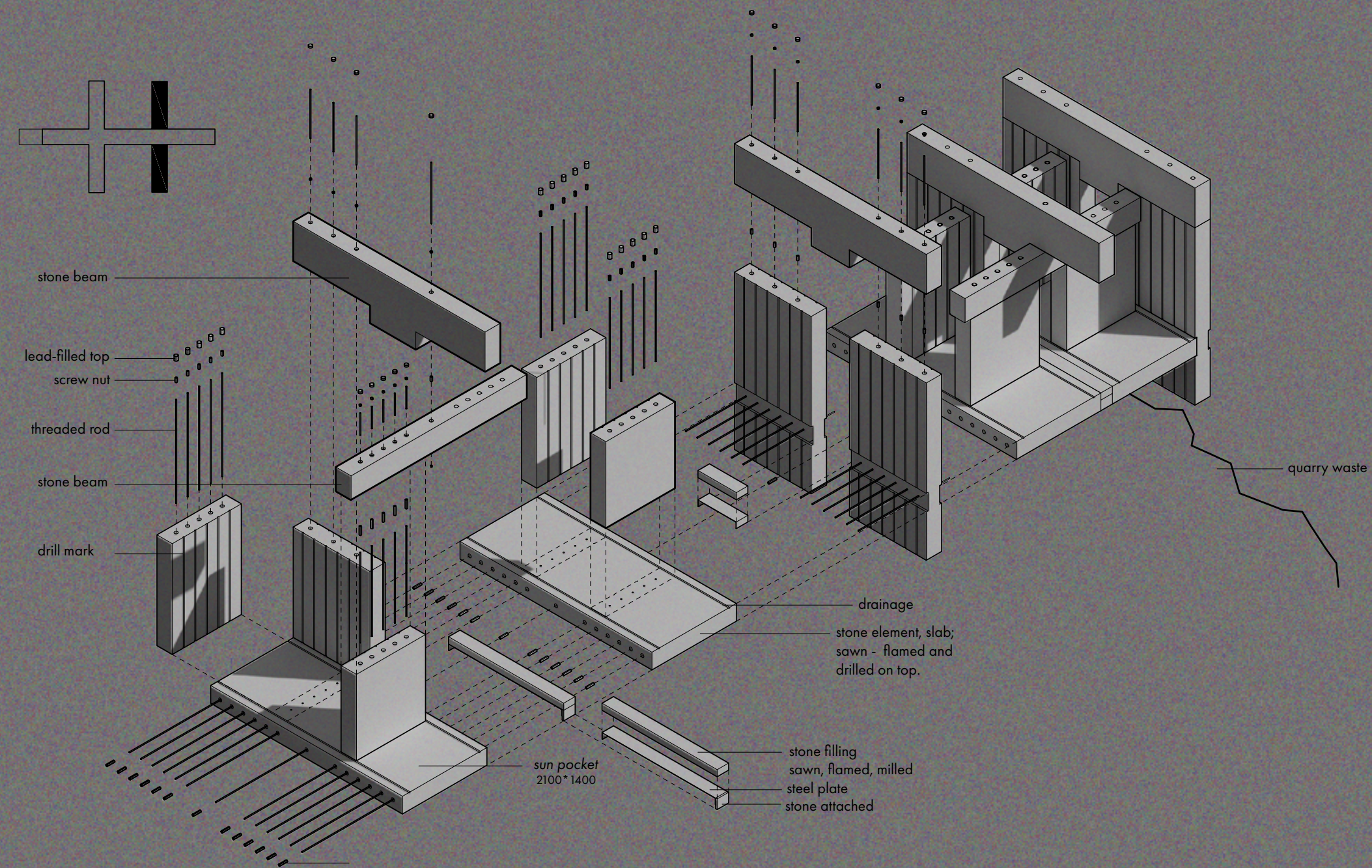


Figure 118, Building kit 2.

VII. process and method

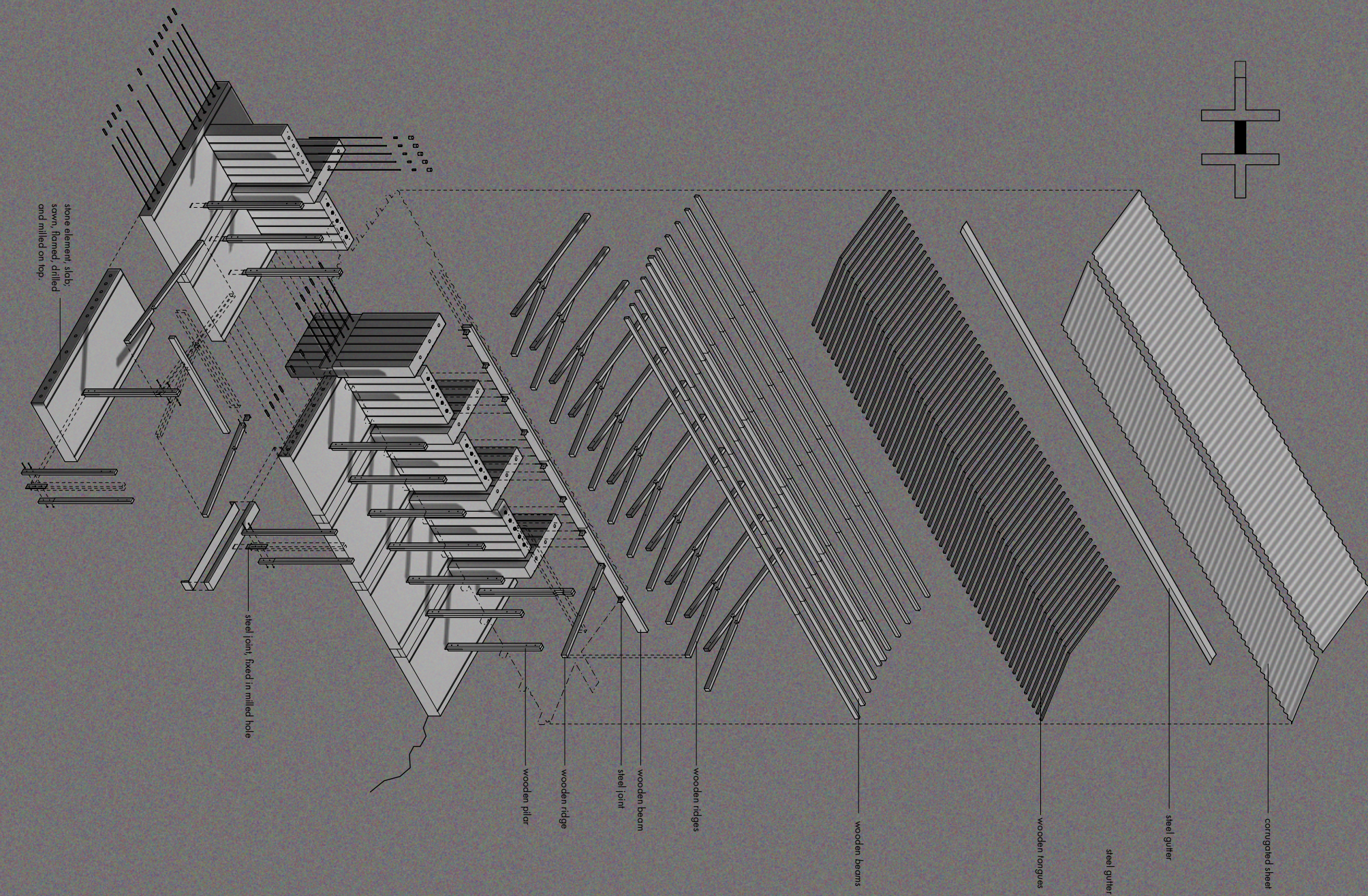


Figure 119, Building kit 3.
Building elements (proposal)

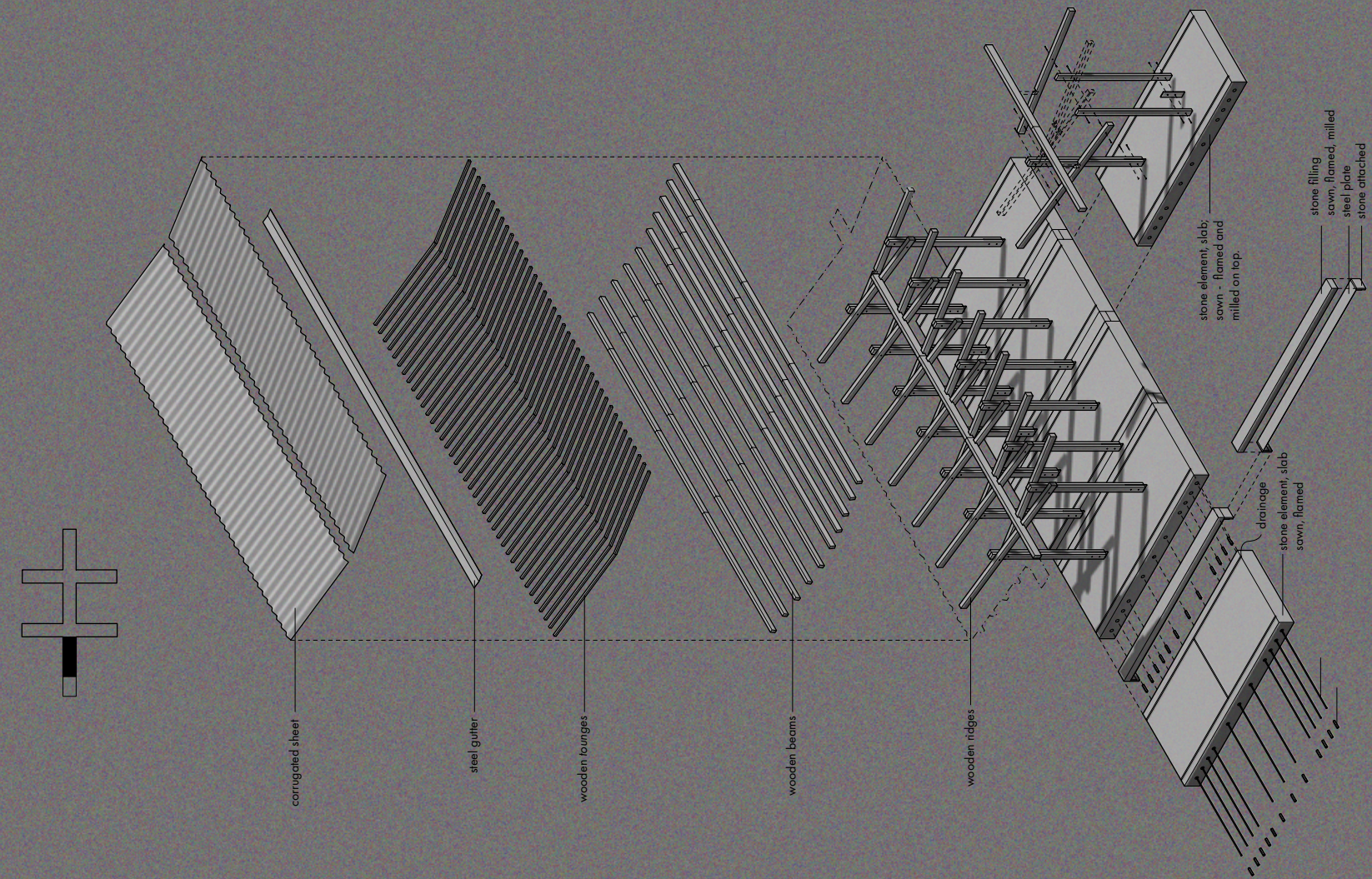


Figure 120, Building kit 4.
VII. process and method

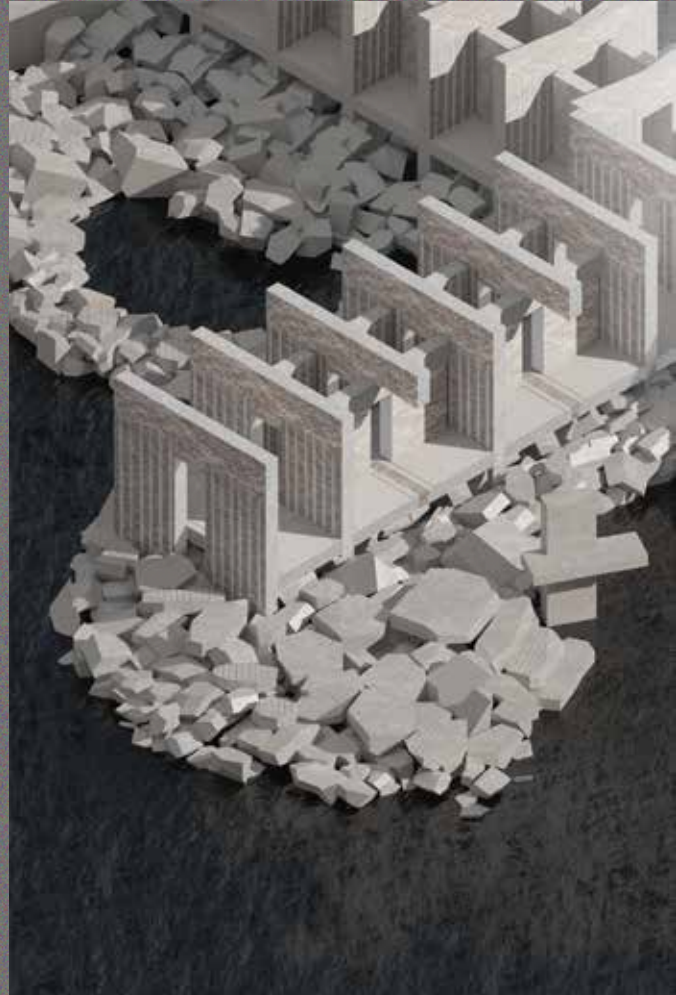


Figure 121, Stone wing iso.



Figure 122, Sauna wing iso.

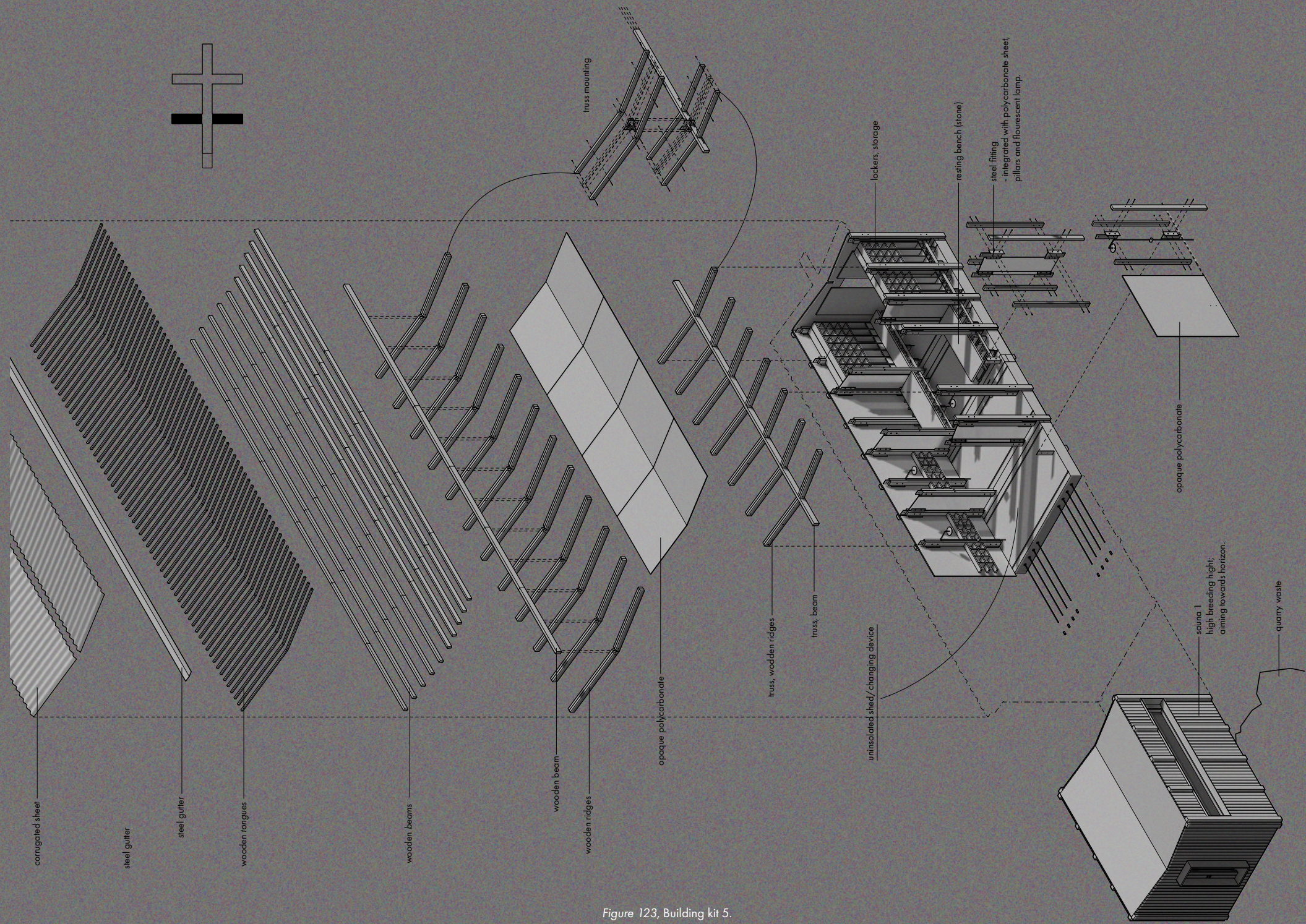


Figure 123, Building kit 5.

VIII. Proposal

When you arrive at this building (1) you will walk straight in to a massive, heavy and solid structure. It encloses you in a tight tunnel (2) facing the light where you get the chance to feel the vibrant and wavy character of the stone walls. When you touch, press or stroke a raw stone surface, you feel your own softness and weakness. It is an entrance that reminds us of our own mortality.

After you've reached the large atrium (3) you will get a good overview of the entire building. When walking through the first two connected wings (4-5), you may be attracted to the light that stretches out of the different niches, pockets that are located along the stone structure. They create a corner in the southwest where you can lay down, lean against the sun-drenched granite after a fresh bath among the crumbled stones. The crumbled stones are the waste products that comes from the nearby located quarries, such as Hallinden. They are scattered around and under the project and in these you can distinguish sculptures that pop up in the landscape and the same time the crushings act as a groyne.

If you continue to go further west, you will get the first contact with the wood. This colonnade (6) creates a view towards the pool yard and the northern sauna (7) without having to interfere with the ones that are bathing on the other side of the stone structure. It's a surprise when the walkway opens up where you suddenly get more contact with the outside world. It creates a memorable moment. Because you suddenly freeze and scan what you didn't expect. And when the building is introducing wood in this space you realize even more how the granite endures this climate. Wood is the counterpart that underlines the forgotten features and possibilities of the stone.

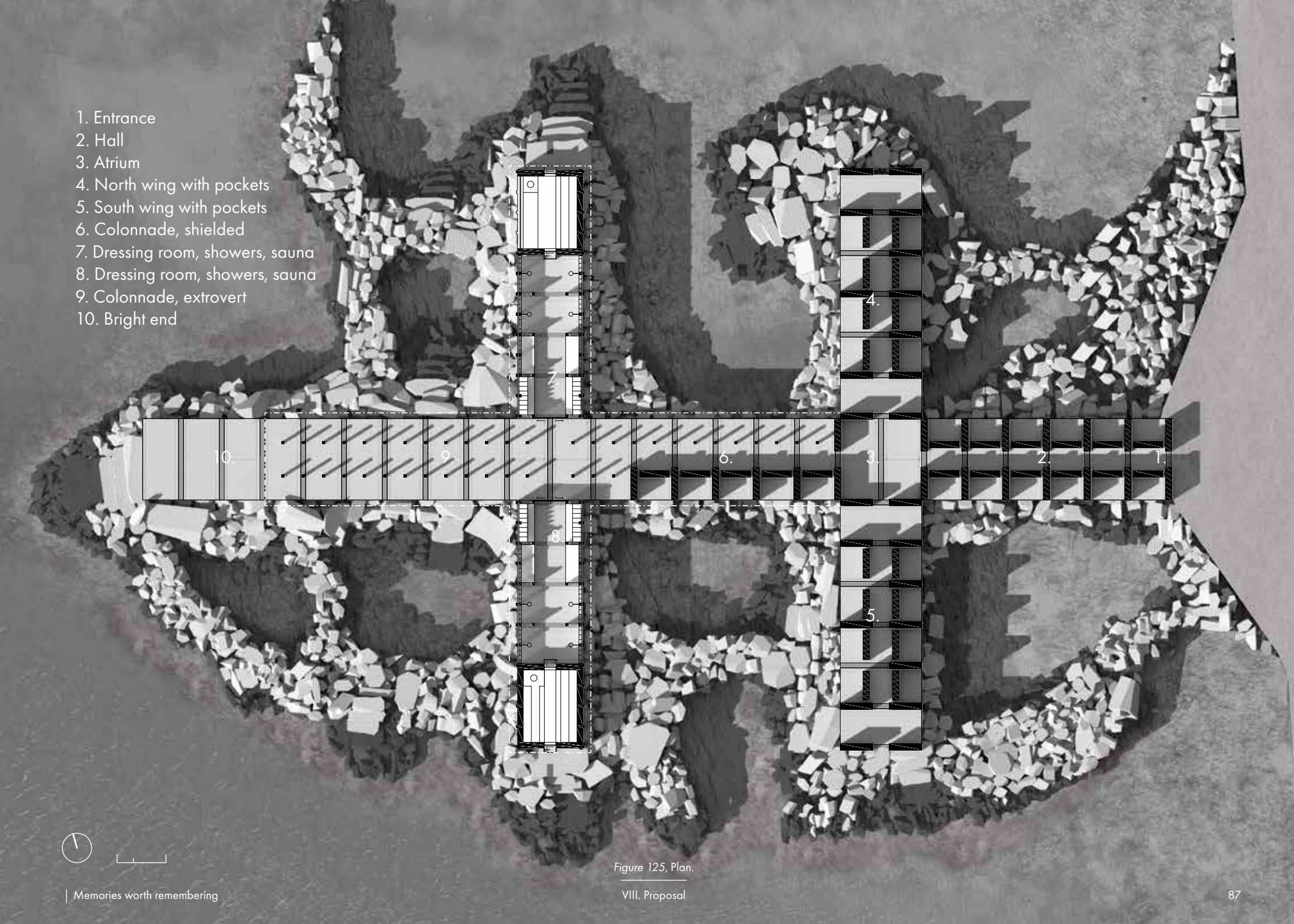
The last two wings are equipped with a dressing room, rest space and a sauna (7-8). In the northern sauna the panorama view frames *Knivsholmen* and *Roholmarna* in Hunnebostrand archipelago (see map on backside of booklet). The southern sauna has small windows and directs the user inwards.

The end of the building stretches out to the open landscape (9). Here you stand steadily on the stone but can feel the forces of nature itself (10). You realize how small you are and how open and raw the archipelago can be.

*Some of the quarry crushings use their drilled top face to communicate that they are stepping stones. Thus, they are flamed on that surface in order to prevent sliding with your bare feet (fig. 124).



Figure 124, The fragile body against the immortal landscape.



- 1. Entrance
- 2. Hall
- 3. Atrium
- 4. North wing with pockets
- 5. South wing with pockets
- 6. Colonnade, shielded
- 7. Dressing room, showers, sauna
- 8. Dressing room, showers, sauna
- 9. Colonnade, extrovert
- 10. Bright end



Figure 125, Plan.



Figure 126, Entering atrium.



Figure 127, Atrium.

An atrium that frames the sky will attract your view upwards. There's a surprise when you realize that the gutter is pointing towards you. This building embraces the water and directs it down on to the fine flamed surfaces that has a slight angle so that the water flows down along the milled drainage into the drilled holes (fig. 127).



Figure 128, South wing with pockets.



Figure 129, Proposal poolyard

The water reveals the stones secrets.

During the study trip at Hallindens granit AB (chapter 3, page 38), Janne Lindell spat on the granite surfaces in order to show that the granite was of red Bohus. The same phenomenon happens in this detail (fig. 130). When the stone has been exposed to rain and starts drying in the sun. The marks of the wire saw from the quarry pops out.



Figure 130, Detail 1 - Memories of wire saw



Figure 131, Shielded colonnade.

The stone doesn't move although it sucks moisture, it loves water. Thus, one as architect can be far more precise when drawing structures in stone and expect it to be far more precise in reality, by time. We often talk about Swiss wooden details as something precise and perfect - compared to what? And that's the overall theme that is reflected in to the detailing of this project.



Figure 132, Detail 2 - Wood vs stone.



Figure 133, Dressing room, showers, sauna.

The sheltered *barns* are the ones that makes it possible to protect oneself from storms, and feel enclosed in the small wooden shed during cold times - like the old stone masons once did. This space has features that we recognize - more human, soft, deadly and biological. The wood is the material that needs us. In somehow there is a another type of relationship between man and wood.

The bright light is needed while rubbing muddy parts of our skin, in contrast to the sauna space where inner thoughts and silence are more present.



Figure 134, Detail 3 - Shower.



Figure 135, The raw and bright ending.

Normally it is said that we should place end wood not closer than 30 cm to the ground. In this case it's 10 cm in order to strengthen my argument. The detail itself frames the everyday life of conventional buildings all around Bohuslän. Standard boards and planks that has to be replaced over time. In this case they are mounted, screwed side by side, on top of each other so that they easily can be swapped. And if there will be any local cracking it doesn't affect the entire structure, because of the short spans.



Figure 136, Detail 4 - Pole climber as chisel.

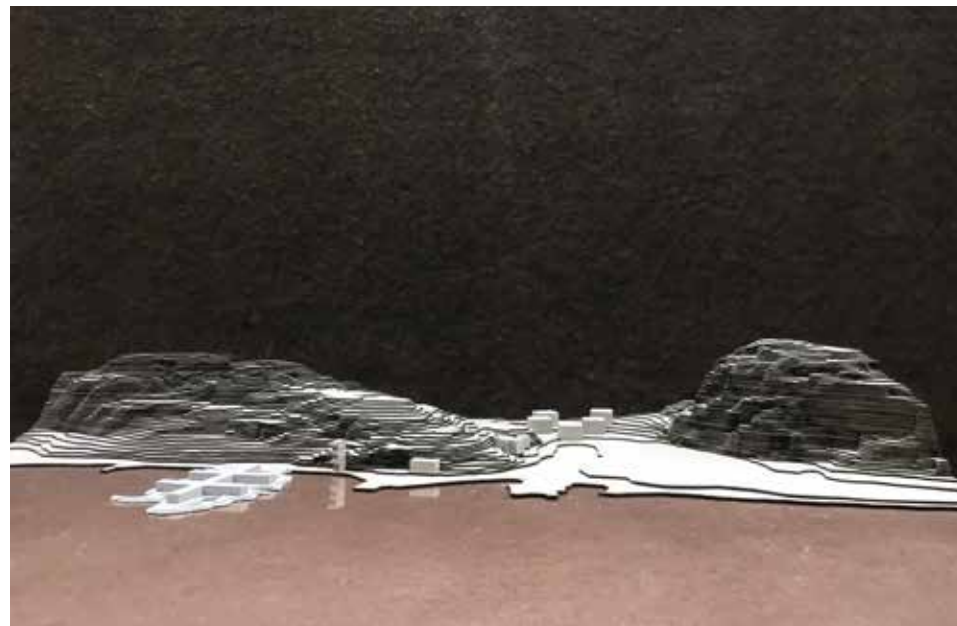


Figure 137, Site model view a.

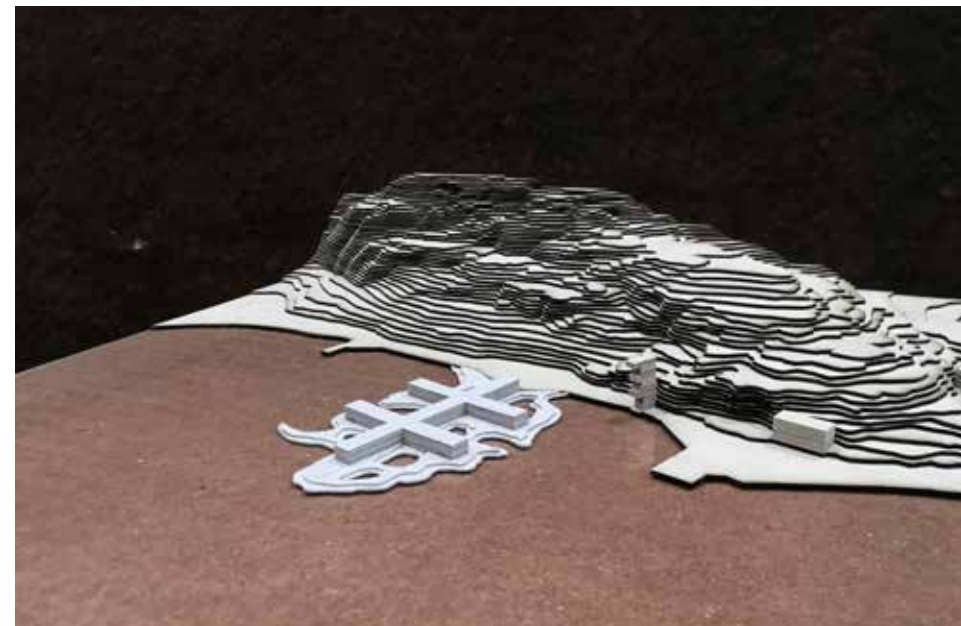


Figure 138, Site model view b.



Figure 139, Iso.
VIII. Proposal

VIII. Conclusion and discussion

The crafts and knowledge from the old stone masons are soon to be forgotten. According to Christer Olsson (p. 46) he is possibly one of the last stone masons in Sweden. We have no choice but to accept that we are entering a new era. This means that we need to explore the qualities and opportunities of the stone based on the delimitations we are facing. The industrial sawn stone has a millimeter precision that conquer any type of Swiss wooden detail. Thus one as architect can be far more precise when drawing structures in stone and expect it to be far more precise in reality, by time. Thus the granites unique ability to resist water.

If the *Stone Cold Bath* were to be realized, there would be high demands on the preparatory work and the planning process. Thus, the preparatory work on conventional buildings are often to vague in order for the meetings between different materials to be as successful as possible. A combination of speed and general standard solutions requires high margins and low accuracy. This leads to an extended use of sealants (epoxies) and short-lived material that act as an emergency solution which patches the building together. Many of these solutions stay fresh not more than 10 years before problems tend to appear. But it is expensive for the investors to prevent these problems according to Claes Hake (p. 54). Because the investors and construction companies acts in a system that allows short investments and quick delegations of responsibility.

Furthermore, it is known that many of the memories that are framed within this thesis have a strong connection to the physical traces on site, to the so-called wounds in nature. By highlighting these traces, as a part of the detailing, the user hopefully will experience the same or similar relationship between body and landscape as the old swimmers or stone masons did 100 years ago.

This project mapped the old stone processing techniques, together with the possibilities that an industrially produced stone product can offer. These were applied on to the projects building kit so that the detail and the *whole* would revive the stone's immortality in relation to the vulnerable wood.

Just as Peter Zumthor describes in the book *A Feeling of History*, the physical sensation of a material can be of greater importance when conveying a historical event or a forgotten memory. We live through what is physically present. Not by abstract facts and text. The surface of the matter speaks for itself. It is educational. Therethrough *the emotional learning is beyond the factual learning*;

"I am interested in the history that is stored and accumulated in landscapes, places and things. The things I can see and feel in the landscape are physical and real, no matter how mute, hidden and mysterious they might at first appear." (Lending, Zumthor, 2018, page 18).

So can architecture speak about memories? Yes I believe so. And it is through the underlying knowledge that can be found in the places of the old quarries, in this case - the simple things; the stone and the water and the vulnerable wood. Memories that comes out of the wounds in nature. That we experience old but well-functioning methods of processing materials that will enhance old but well-functioning activities - namely the bath and the exhibition.

Hopefully, the stone architecture has a self-evident place among public environments in the future. Even if the crafts and knowledge has an expiry date. The advantages that the stone and the industrially refined product can bring, in relation to the concrete and the wood, should be highlighted by more architectural pieces. Thus *"When the really long architectural history is written, stone monuments and ruins are the only proofs that we have left. No other building material has the same historical dimensions..."* (Wærn, R. Lindell, P. Page 5, 2011). Therefore the stone is the only material that can remind us of where we come from. When we put a biological life against a geological immortality, we learn to live with death.

X. Reflection

During my final examining presentation in December, the adjunct and doctoral student Frida Rosenberg from KTH (architecture) and the well-experienced architect Gert Wingårdh were present as external critics. Frida Rosenberg pointed out that I had an interesting way to conveying memories through the architecture. It enhanced a broader variety of memories than just my own experience. Often when architectural students perform a thesis project that deals with memories, they turn inwards and thus try to convey the individual experience by itself. This can lead to an introvert design that appear as excluding. Instead, this project has proven to reach an understanding of how the general surroundings of Hunnebostrand and the quarry were experienced and how common crafts and techniques were used throughout history. It is a different way of looking at memories in architecture and I have to thank the people I have interviewed for that. Without having interviewed these people and professionals, I had never reached the deeper knowledge and the underlying factors of what sets traces in our shared memories.

Gert Wingårdh pointed out the project's varying architectural expression and asked whether even fewer components could fulfill the purpose of moulding a functioning cold bath house. Could more details and parts of the cold bath house be created by the massive block and meetings in between different stone surfaces?

When I look back at the comments I received during my examining presentation, I realized that it was a well-worked-out project that maybe wanted too much? How had the end result been if I portrayed a cold bath house entirely in stone? What challenges would I come across and what could it mean for the entire concept? It certainly not would have put the stone in relation to another material. So the concept and the idea of *the fragile body against the immortal landscape* would have been irrelevant. But I would certainly then try out more solutions with the stone and perhaps gained even more in-depth knowledge. However I liked the idea of putting two opposites like stone and wood against each other in order to emphasize forgotten sensations of a certain material. *The wood is the counterpart that underlines the forgotten.*

Finally, It has been exciting to be given so much freedom during this thesis. I have learned a lot about myself and my method in understanding. I have become better in defining and applying my own knowledge. The meetings and interviews with different people, who have shared their personal experiences, have been the most inspiring phase during the process. I also know how much of the architectural profession that consist of conversations with other people, such as stakeholders. The conversations I had during this thesis evoked new personal interests within the field of stone architecture. This means that the method and the design of the project developed new interests and comfort that led to an extended use of stone in my project. Probably the stone had been used even more if I intended to continue my design.



Figure 140, Frontrow; Me, Morten, Frida and Gert.

XI. Bibliography

Associations

Hunnebostrands bildarkiv

The purpose is to preserve as much knowledge as possible about Hunnebostrand and Ulebergshamn, with photographs as a basis (Hunnebostrands Bildarkiv, 2009).

Hunnebostrands samhällsförening

An ideal association whose task is to work for Hunnebostrand's development and create a good community spirit and well-being (Hunnebostrands samhällsförening, 2016).

Kultur på udden

The association will work to widen cultural diversity and promote cultural life on Udden in Hunnebostrand, in support of the House of Culture, the sculpture project and Stenens Hus(Uddens skulptur, 2011).

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79. Fagrell, V. (2018). *Varberg sauna*. [electronic image]
80. Fagrell, V. (2018). *Stairway 1*. [electronic image]

81. Fagrell, V. (2018). *Varberg cold bath house (b)*. [electronic image]
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83. Fagrell, V. (2018). *Bath location (c)*. [graphical map]
84. Fagrell, V. (2018). *Richard*. [electronic image]
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128. Fagrell, V. (2018). *South wing with pockets*. [electronic image/rendering]
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130. Fagrell, V. (2018). *Detail 1 - Memories of wire saw*. [electronic image/rendering]
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Title : Stone Cold Bath
- *Reviving memories worth remembering.*

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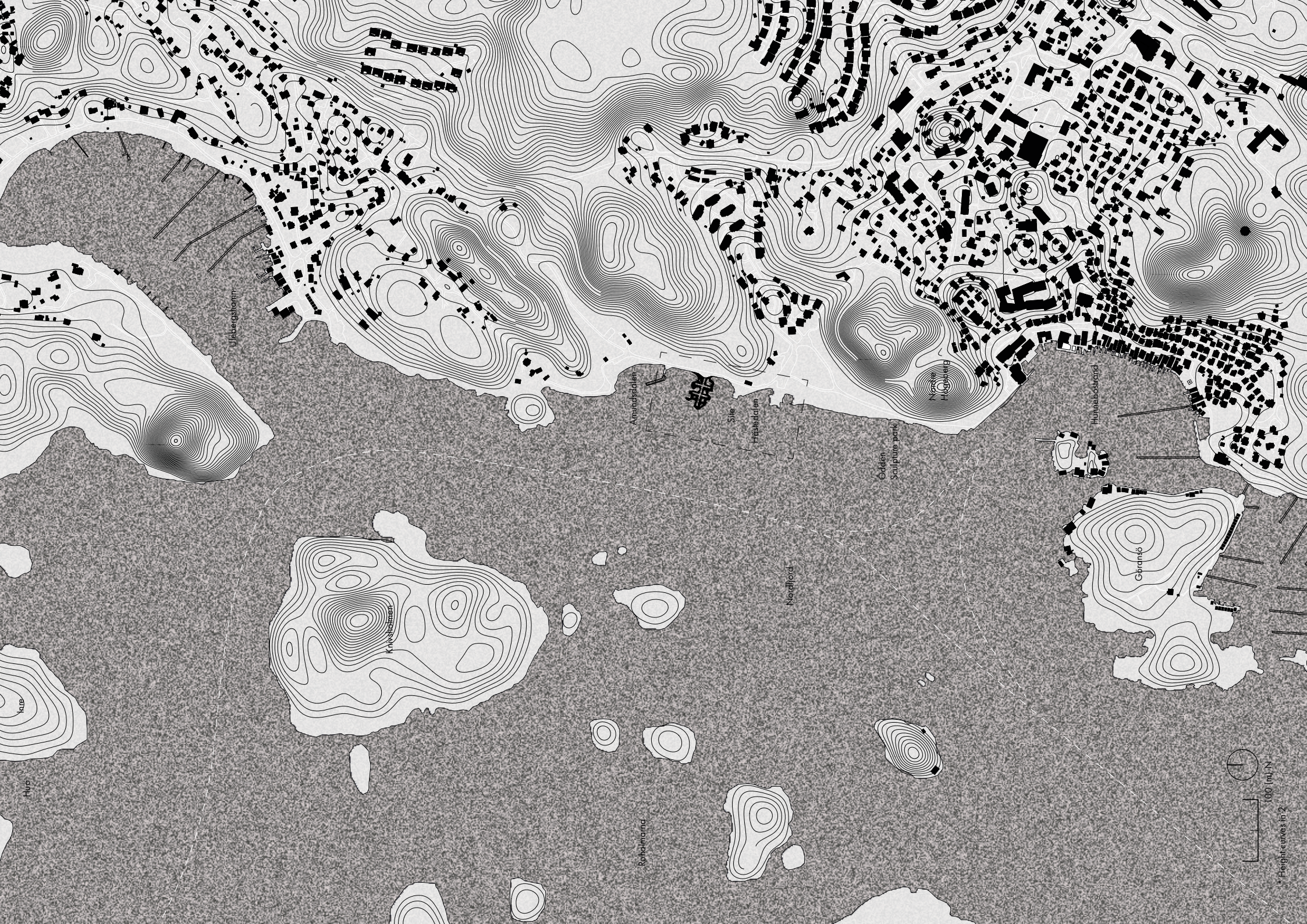
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Supervisor: Naima Callenberg

Master’s program: MPARC



*Figure 141, Map of Hunnebostrand with proposal



Ullensakerhamn

Amundsdalen

Site

Håbedalen

Ødden
Sculpture park

Hunnabakstrand

Gårandsø

Northford

Rohelmann



100 m

Height curves in 2