



**CHALMERS**

## NATURUM SOMMEN

*A dialogue between structure and nature*

**master thesis**

chalmers architecture

MPARC

spring 2015

**Giulio Giori**

examiner: Morten Lund

supervisor: Claes Johansson



*a mio Zio Mario*





## ABSTRACT

The naturum has evolved in Sweden during the last 40 years and has emerged as a new architectural typology. The validity of these buildings and their relationship with the natural environment and the local institutions has been widely discussed and contested. The challenge with this master thesis is to give new life to the existing visitor centre located on lake Sommen, in southern Sweden. The lake famous for its clear water and uncontaminated woods, sustains a great variety of species of fish and birds.

Since 1999 Sommen has had a naturum. The building raised by the local community has struggled with the risk of closure multiple times, due to the lack of funds. Considering the extraordinary setting and the historical background naturum Sommen falls short of its potential. The exhibition is sacrificed in less than 130 m<sup>2</sup> and the building, not equipped for winter, functions only in the warm season.

The final result is a renewal project consisting of three different interventions across the lake borders. The ambition is to bring the focus less about the “one” building and more about the whole experience activating a larger area. A naturum should not be a house but a relationship between structures and landscapes. In this direction the design orbits around the concept of architecture that frames nature and establishes a visual contact. A place where the view is extended outside of the borders of the building and becomes an invitation to explore the surrounding landscapes.

Taking into account the different locations of naturums the conclusion is that not always a new building is the answer to support the local economy and preserve the institutions. This project is meant to be an example of an intervention generating new attractions able to coexist and assist the old ones.

**keywords:** *nature - culture - structure - framing*



fig 00  
*törpons färjälage*

*"I had brutally exploited nature and probably taken out more than I could put back in, at least in the short term, and I did not like that. There should be a kind of balance in things."*

- Doppler - (Loe, E. 2004)



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## INTRODUCTION

A new architecture typology has evolved in Sweden during the last 40 years; the challenge is to define what kind of relationship is between culture and the natural environment.

One of the most important aspects that architecture had always to deal with is “nature” and how to relate to it. Many have tried to give an universal answer to this question; the theorist Claes Caldenby affirms that architecture historically has always been something in between culture and nature, a “temporary boundary”; on one hand “shelters us from the forces of nature” on the other “takes place in the nature, transforming it in to culture”.\*

“There are plenty of hybrids where the nature/culture boundary line is not easily drawn”\*\*; this is where, according to their line of policy, a “*naturum*” takes place creating “*a kind of balance*”.

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\* Caldenby, C. (2013). Sveriges naturum / Naturum Visitor Centres in Sweden. p.19

\*\* *Ibidem*.

### fig 01

*postcards from törpons fårjaläge*

NATURUM

*a Swedish "thing"*

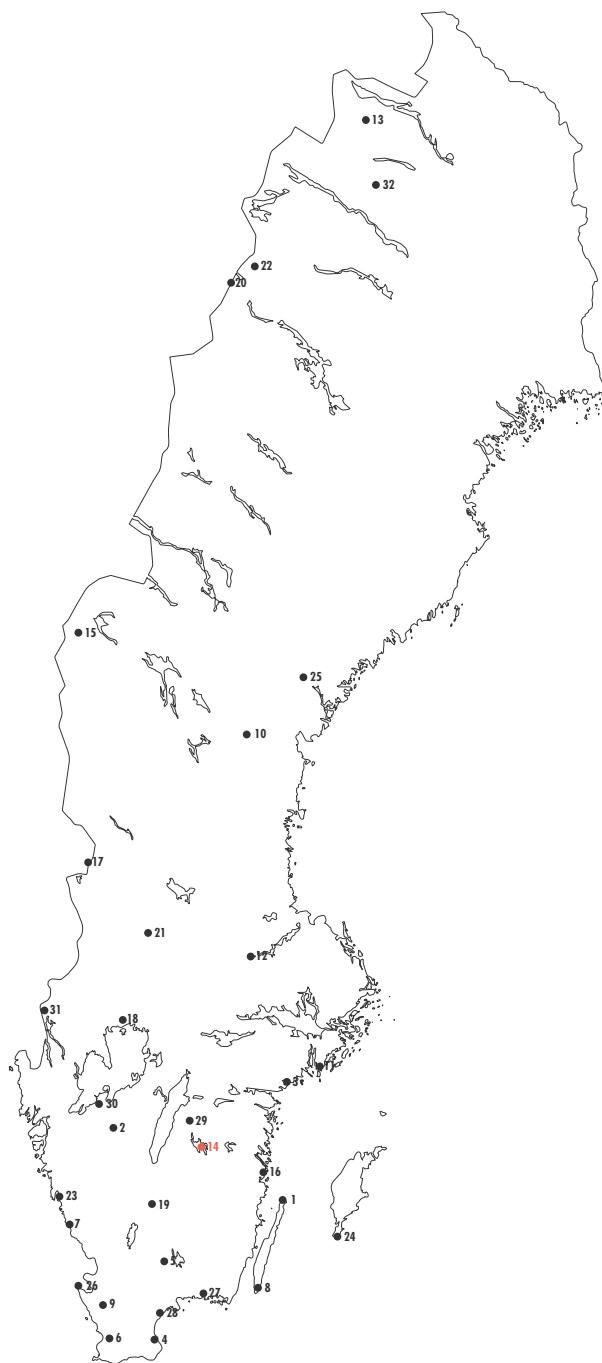


# naturum<sup>®</sup>

Your doorway to nature

*“A naturum is a visitor centre with activities and exhibitions, located at several of Sweden’s national parks and nature reserves. There, you will be welcomed by knowledgeable staff who will answer your questions and guide you through the area’s sights of interest.”*

1973	Trollskogen <sup>1</sup>
1974	Östergötland (closed & replaced by Tåkern)
1975	Vamlingbo Vicarage (closed)
1986	Hornborgasjön <sup>2</sup>
1993	Stendörren <sup>3</sup>
1994	Slenshuvud <sup>4</sup> Kronoberg <sup>7</sup> Skrylle <sup>8</sup>
1995	Getterön <sup>7</sup>
1996	Ottenby <sup>8</sup> Söderåsen <sup>9</sup>
1997	Ånge <sup>10</sup> Nationalparkernas Hus <sup>11</sup>
1998	Färnebofjärden <sup>12</sup> Abisko <sup>13</sup>
1999	Sammen <sup>14</sup> Välådalen <sup>15</sup>
2000	Västervik <sup>16</sup>
2001	Fulufjället <sup>17</sup> Värmland <sup>18</sup>
2003	Store Mosse <sup>19</sup> Hemavan <sup>20</sup>
2004	Dalarna <sup>21</sup> Ammarnäs <sup>22</sup>
2005	Competition for rebuilding of Stendörren (not built) Fjäras Bräcka <sup>23</sup>
2006	Gotland <sup>24</sup> Competition for Kosterhavet (not built)
2007	Höga Kusten <sup>25</sup>
2008	
2009	Kullaberg <sup>26</sup> Vattenriket <sup>27</sup>
2010	Competition for naturum Läckö (not built)
2011	Blekinge <sup>28</sup>
2012	Tåkern <sup>29</sup> Vänerskärgården <sup>30</sup>
2013	Kosterhavet <sup>31</sup>
2014	Snöfällan <sup>32</sup>
2015	Competition for rebuilding of naturum Trollskogen Competition for new naturum Örebro
2016	



## NATURUM VISITOR CENTRES

A “*naturum*” is an information and exhibition centre located in areas of outstanding beauty and/or scientific interest, often a national park or a nature reserve, where visitors can learn about the flora, fauna and history of that specific area. The intention with these buildings is to show and raise awareness of the natural and cultural history but most of all inspire visitors to explore the surroundings for themselves.

The name comes from the Latin “*domus naturarum*” (house of the natures) then was contracted in “*naturum*”. The word *naturum* is today found in the Swedish dictionaries with the definition of “*premises with information concerning a natural area*”.\*

Architecture is fundamental in this sense, it becomes part of the experience itself, and it's crucial that is of good quality in order to further develop the cultural heritage.

The building must comply with the standards of sustainable architecture and as far as possible try to have a small impact on the environment. The aim is to entice visitors from civilization into the wild in an educative journey.

Naturums are a trademark of the EPA (Swedish Environmental Protection Agency), in Swedish Naturvårdsverket, a government agency that is responsible for proposing and implementing environmental policies.\*\*

In its nearly 50 years of activity, EPA has been dealing with the matter of people seeing national parks as prohibited and restricted areas, instead of seeing them as resources with great possibilities.

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\*“*Naturum*”. (2011). Svenska Akademiens ordlista. p.607

\*\* Oscarsson, B. (2014). About the Swedish EPA. <http://www.swedishepa.se/>



fig 02  
*naturum trollskogen*



fig 03  
*naturum kronoberg*

## HISTORICAL CONTEXT

I believe that in order to fully comprehend what naturums has become today, its necessary to briefly go through their history.

The birth of naturums has a reference in the architectures of national parks of the United States, where from the first half of the 1900's with the "*parkitecture*" (National Park Service), the government has engaged in creating buildings that were placed in the natural environment, their purpose was to create visitor facilities without visually interrupting the natural or historic surroundings. Because of this reason architecture was often considered of less importance and this buildings have been defined as "camouflage" because of their tendencies to hide.

The difference with northern Europe is that these buildings have a sort of old fashioned "country style", which doesn't really meet the architecture ambition of modern naturums.

The naturum, instead, is a building that demonstrates ecology and respect of its context, but in this sense does not mean that has to be hidden, the goal is to focus on the qualities of nature through architecture. The first naturum centres were irrelevant and did not meet the original intent proposed by the EPA. They were little information booths, in many cases only temporary; like in Öland (1973) where the exposition has been arranged in a few caravans spread on the island.

The naturum built in Hornborga Lake (1986) was a turning point, is when architecture has become more important and more settled to its location. Before that there were no specific principles for designing, but since then, the following naturum have more or less followed a definite line of policy.

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\*"National Park Service: About Us. <http://www.nps.gov/aboutus/index>





fig 04  
*naturum snöfallän*



fig 05  
*naturum hornborga*  
fig 06  
*naturum kosterhavet*

## THE MODERN NATURUM

The building must be specific to the site and should take a cue from what surrounds it. Architecture should be contemporary and although the building is in the nature, doesn't mean that has to copy or blend in it. On the contrary, the building has to perfectly take place where it is, to communicate clearly and directly as a landmark, an articulation of the surrounding beauty.

The man works with nature, not against it, the building should inspire contact with nature. A very sustainable principle at foundation of the guidelines for the modern naturum is the possibility, that buildings, if one day not needed anymore, can be disassembled and dismantled. In this sense the use of local resources becomes very important.

The architecture of naturum has almost become a phenomenon in Sweden over the past years. No other authority in Sweden has announced as many competitions as the Swedish Environmental Protection Agency. They have let some of Swedish foremost architects interpret the surroundings and create architecture placed in the nature. This has boosted Swedish architecture and has been an investment for the whole country.\*

Today there are 32 naturums in Sweden, since the mid nineties EPA has built almost one a year. Remarkable is that the size of the buildings have been increasing since the early 90's together with their relative costs.

All things considered and in light of the clear differences between early and modern naturums, it must concluded that the most obvious form of intervention, to still work with this typology, is a refurbishment or extension of one of the first expressions; this will allow bringing all of them to the same standard and quality.

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\* Isitt, M. (2013). *Sveriges naturum / Naturum Visitor Centres in Sweden*. p.10

## THE SITE

*torpöns färjeläge*









## THE SITE

Sommen is situated at the border of Östergötland and Småland with the main part of the lake located in Östergötland. The largest towns close by are Tranås, Boxholm and Ydre. In general, the lake's surroundings is a sparsely inhabited wooden landscape. The entire area is mostly populated in the summertime.

The rocky and mountainous landscape has given the lake its irregular shape with numerous bays and islands.

Legend has it that the lake was created by an ancient cow "Sommakoa". The wizard who owned her tried to chain her to a fence to calm her fits of anger. Sommakoa broke loose from her chain, stomped her hoof very hard into the ground and then ran off. The foot print filled with water creating the lake.

Sommen has over 300 islands and there is an old saying that there should be 365 islands, one for every day of the year. The actual number is around 350. The largest island is Torpön. Most of the islands are mountainous and rocky, and so are the beaches around the lake.

Sommen is known for its clear, nutrient-poor water, which in good conditions has a visual depth of 8-10 meters. The lake is rich in species and is home to 22 different species of fish.

Sommen has had a naturum since 1999 in a close connection with the local restaurant and camping service Torpöns färjeläge.





fig 09  
*postcard from 1950*



fig 10  
*postcard from 1994*

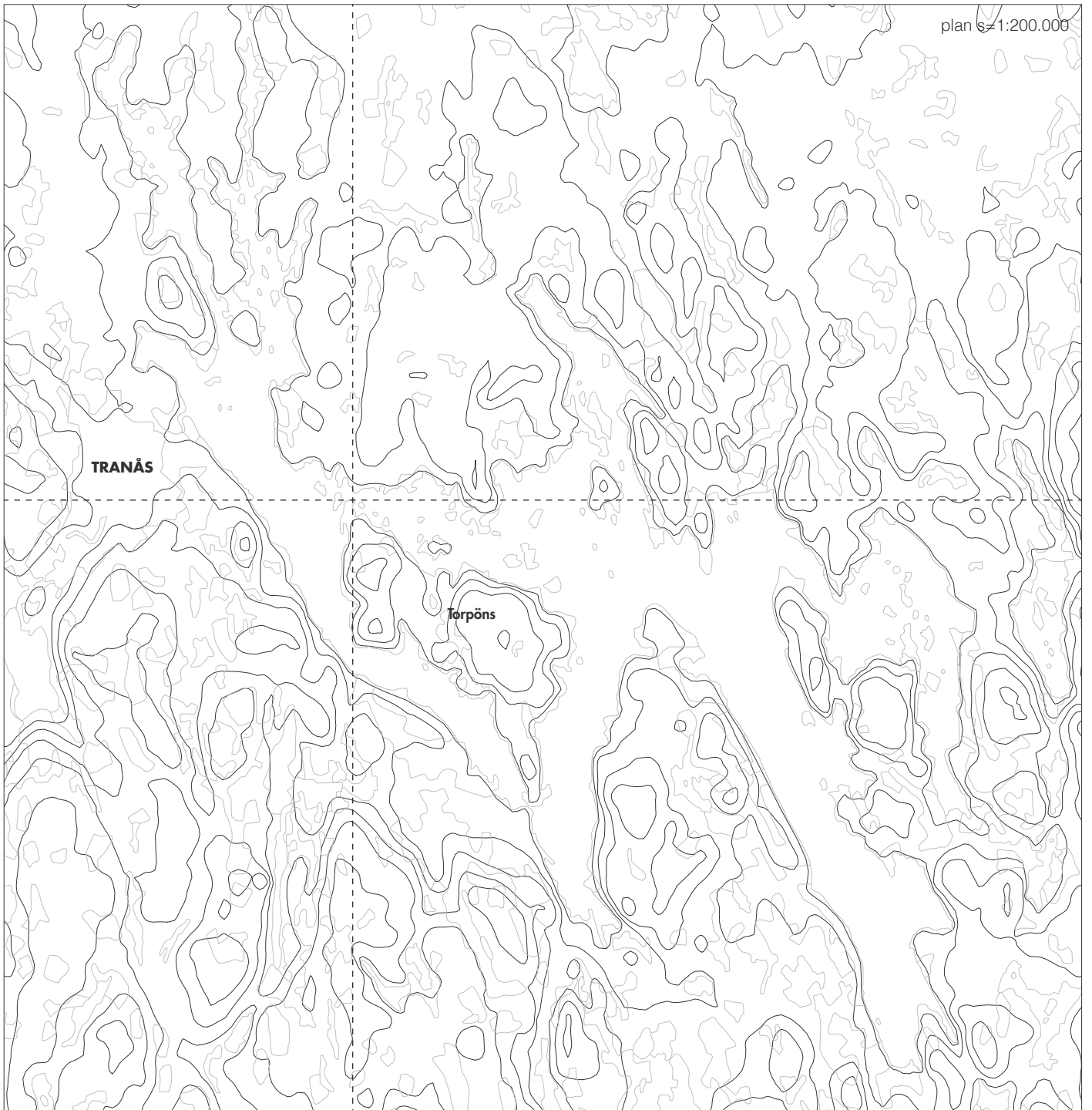






fig 11  
*north|east view*



fig 12  
*south view*

## THE EXISTING NATURUM

Reminiscent of the old wooden red boat houses very common on the lake, the building is placed at the edge of the lake. When the level of the water is high in the warm season the structure is mostly lifted above the water.

The building is composed by two exhibition halls. The first one and the east side is where the actual exhibition happens; the second one is completely filled by a 25m barge that was used in the past to transport wooden logs across the lake.

The naturum was build by the local community with the intention to create a space where celebrating and enhancing the lake. The building is functioning together with the restaurant in front, where all the services such as toilets café and shop are placed. The barge is often used by the restaurants for lunches and refreshments.

Considering the extraordinary setting and the historical background naturum Sommen falls short of its potential. The exhibition is sacrificed in less then 130 m2 and the building, not equipped for winter, functions only in the warm season.



fig 13  
exhibition



fig 14  
exhibition



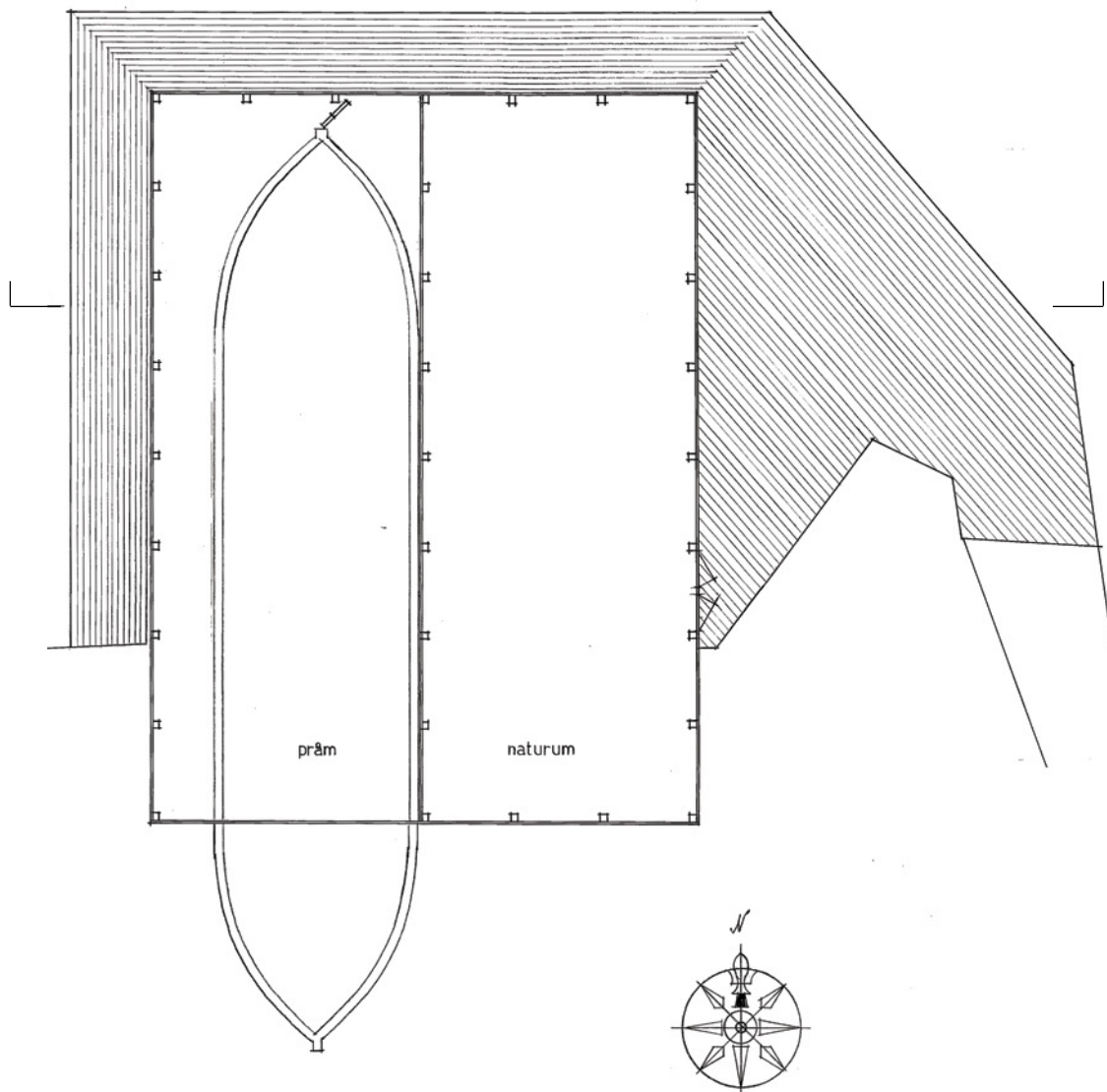




fig 15  
east view



fig 16  
north view





fig 17  
*barge*

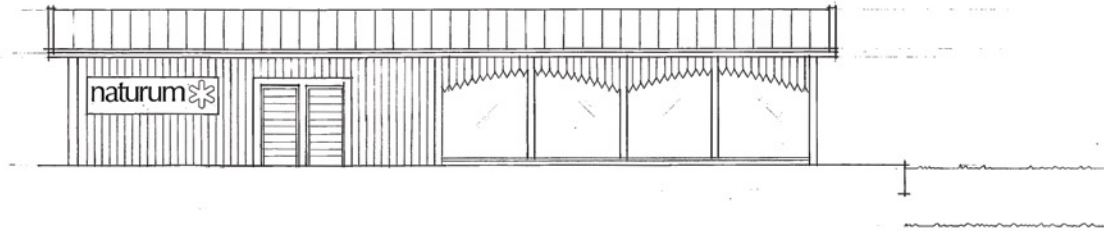


fig 18  
*fishing gear*

fig 19  
*exhibition*



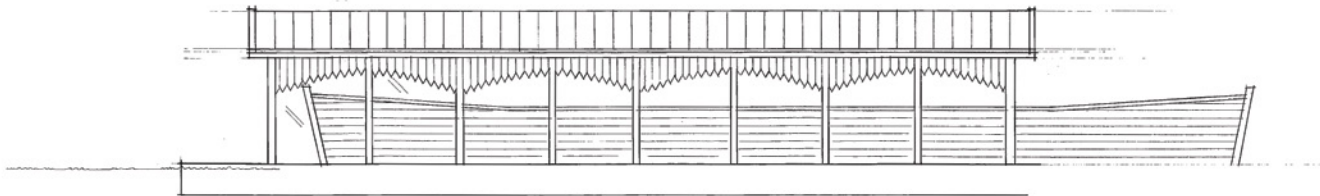
east elevation s=1:200



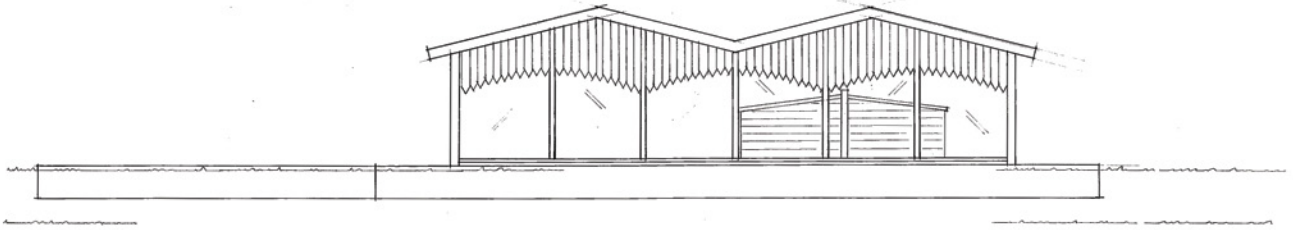
south elevation s=1:200



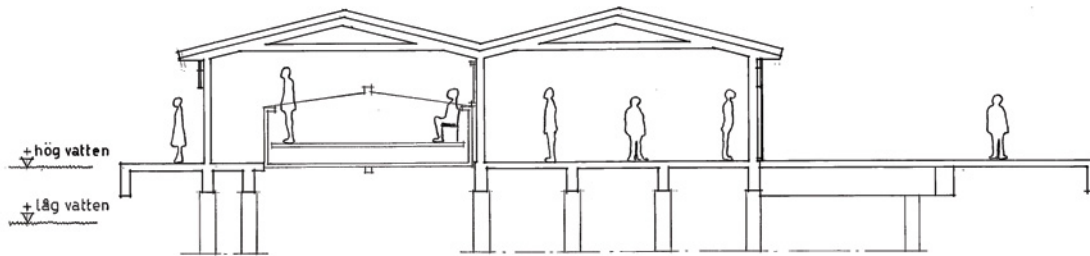
west elevation s=1:200



north elevation s=1:200



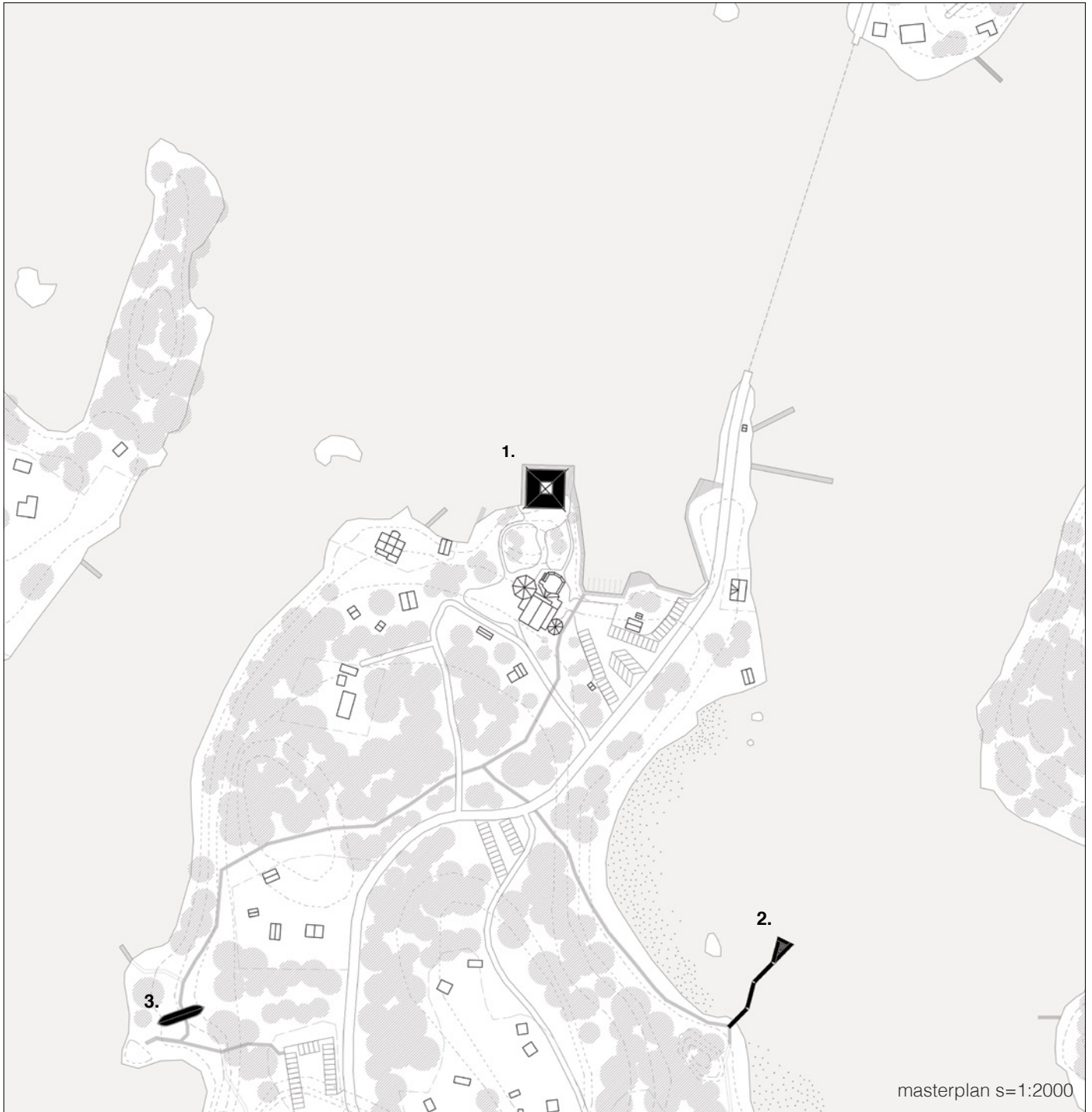
section s=1:200



*\*original hand-drawings by local architect Urban Tordsson*

## MASTERPLAN

*torpöns färjaläge*









## MASTERPLAN

The final result is a renewal project consisting of three different interventions across the lake borders. The ambition is to bring the focus less about the “one” building and more about the whole experience. Boardwalks connect the three projects, activating a larger area.

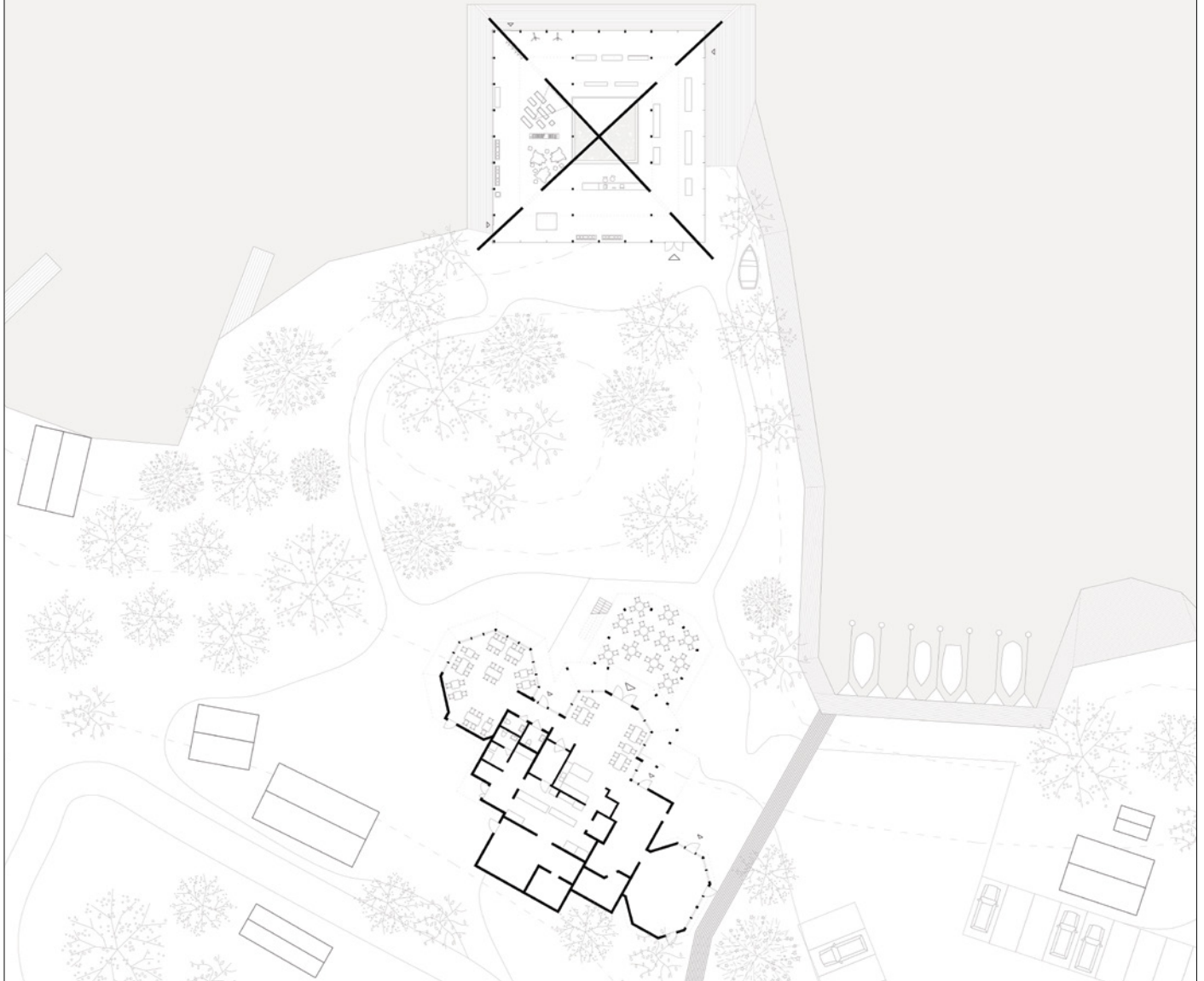
A naturum should not be a house but a relationship between structures and landscapes. In this direction the design orbits around the concept of architecture that frames nature and establishes a visual contact.

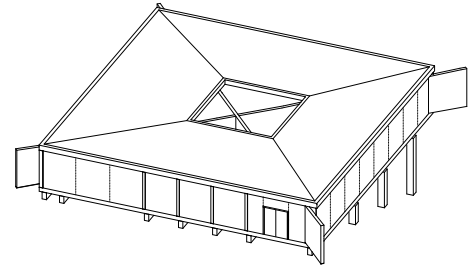
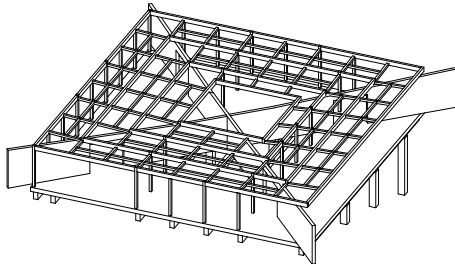
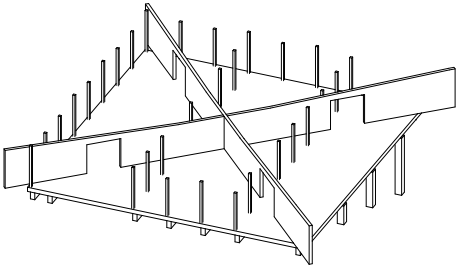
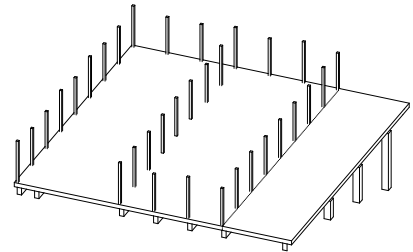
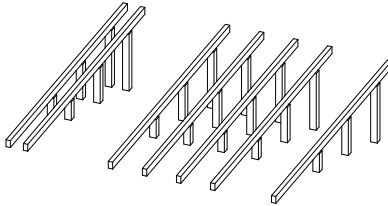
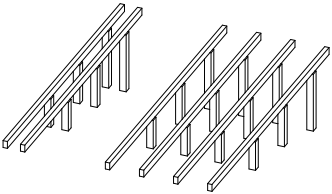
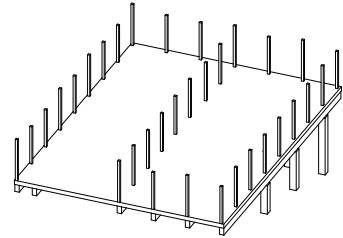
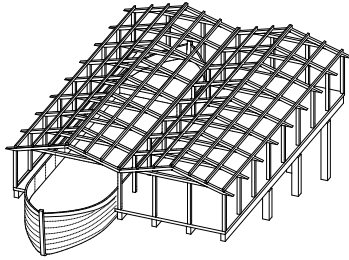
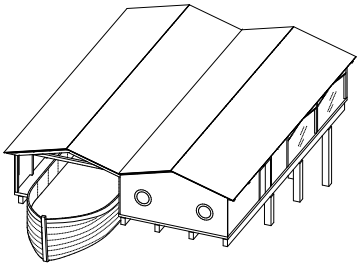
A place where the view is extended outside of the borders of the structure and becomes an invitation to explore the surrounding landscapes.

The projects have in common the use of wood and the ambition to frame nature in different ways.

PROJECT #1  
*the naturum*

siteplan s=1:500





## CONCEPT

The new building rises on top of the existing foundations. The original floor and columns are replaced by solid laminated wood. The footprint of the building is extended taking advantage of the structure of the current dock on the east side.

A new element finds its way through the columns; two perpendicular cross laminated timber walls that generate a X offset from the centre divide the space in four different halls. These walls are extended a little off the building borders directing the views also outside and to be more independent from the original structural framework.

The roof structure which is also made by laminated wood is exposed on in the interior. Slightly inclined towards centre the four roof slices merge on the main diagonals.

The central core is open to let the water and the light flow and enter the building, activating the lake inside the naturum.

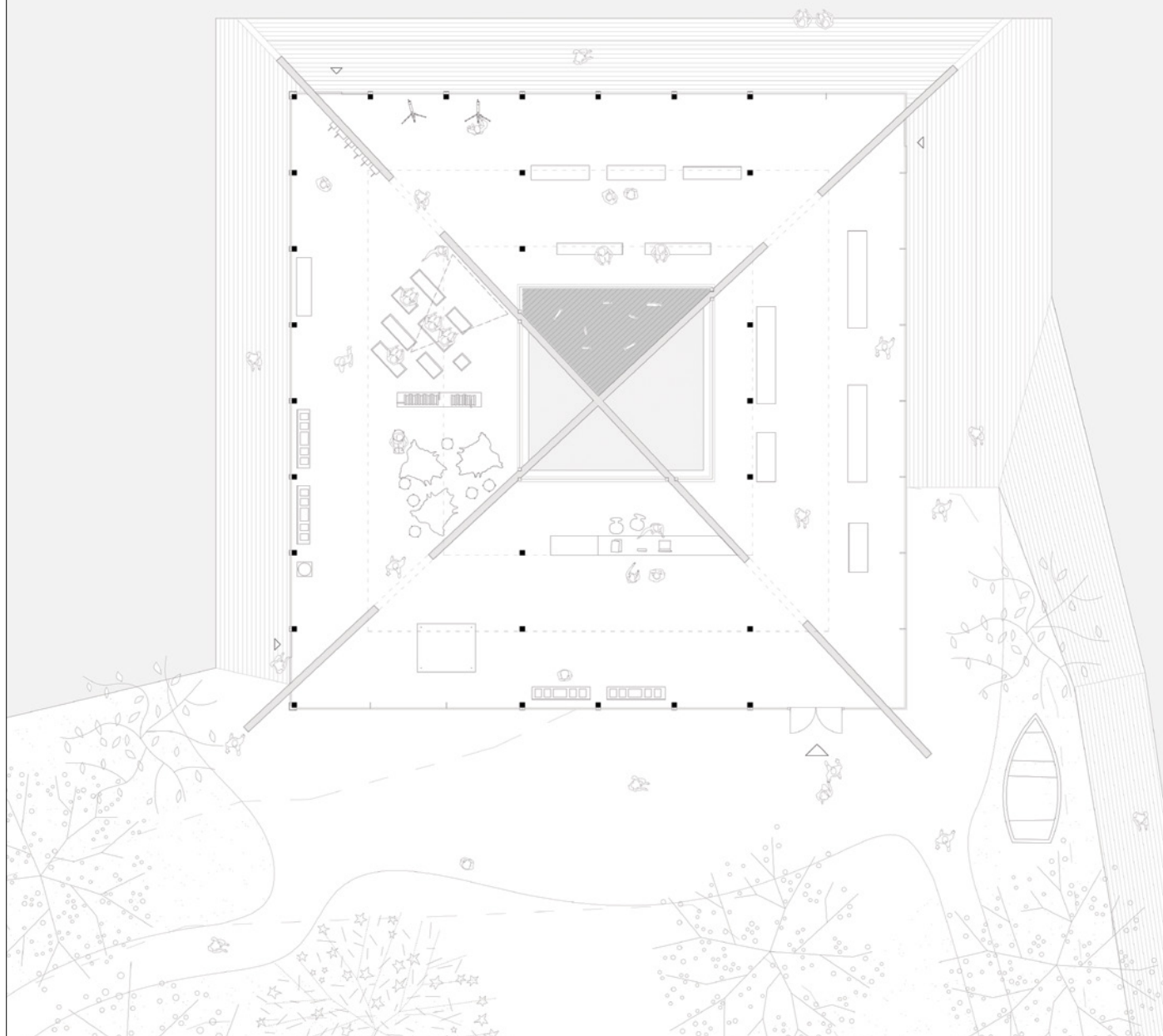
The façades are made by glass on every side generating 360° views. Thin laminated glass columns support the wide windows where the replaced wooden columns are not present.

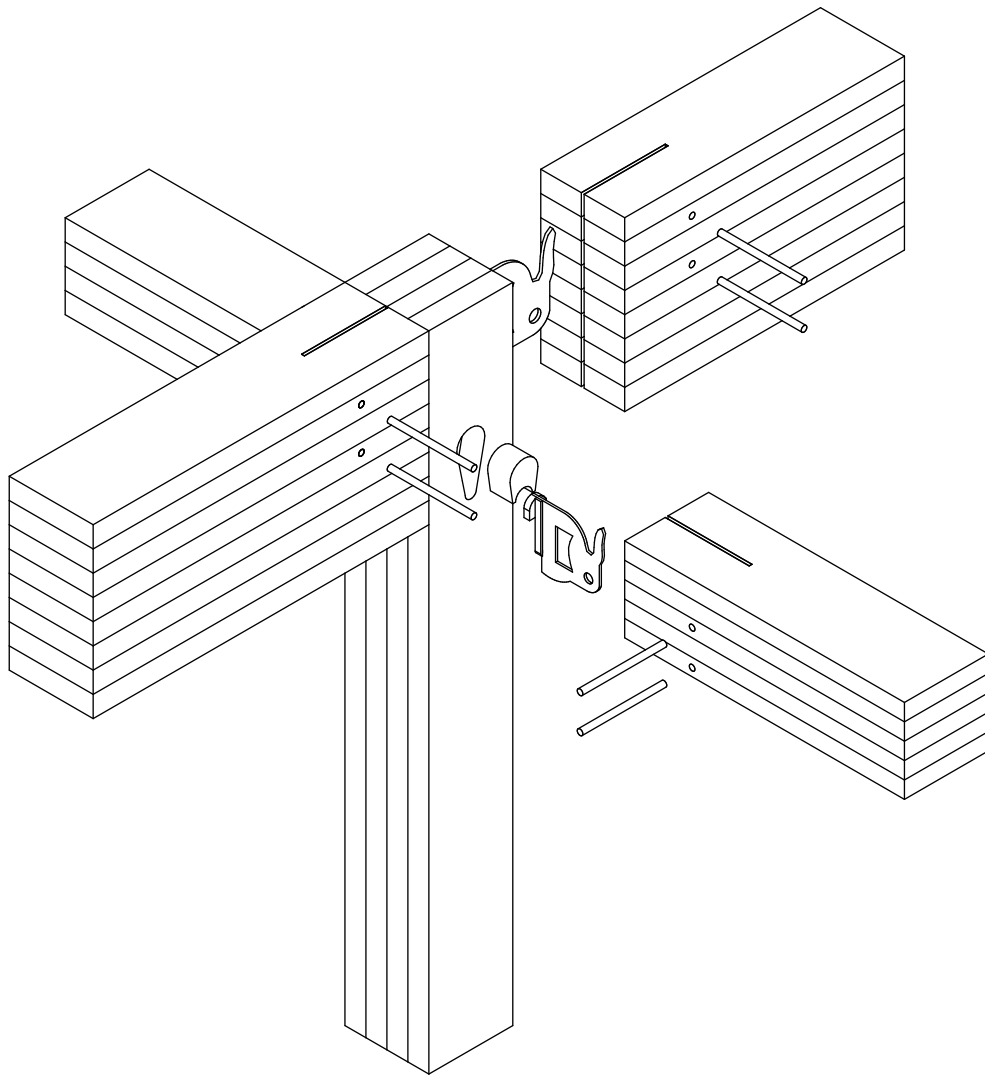


fig 21  
*north view*



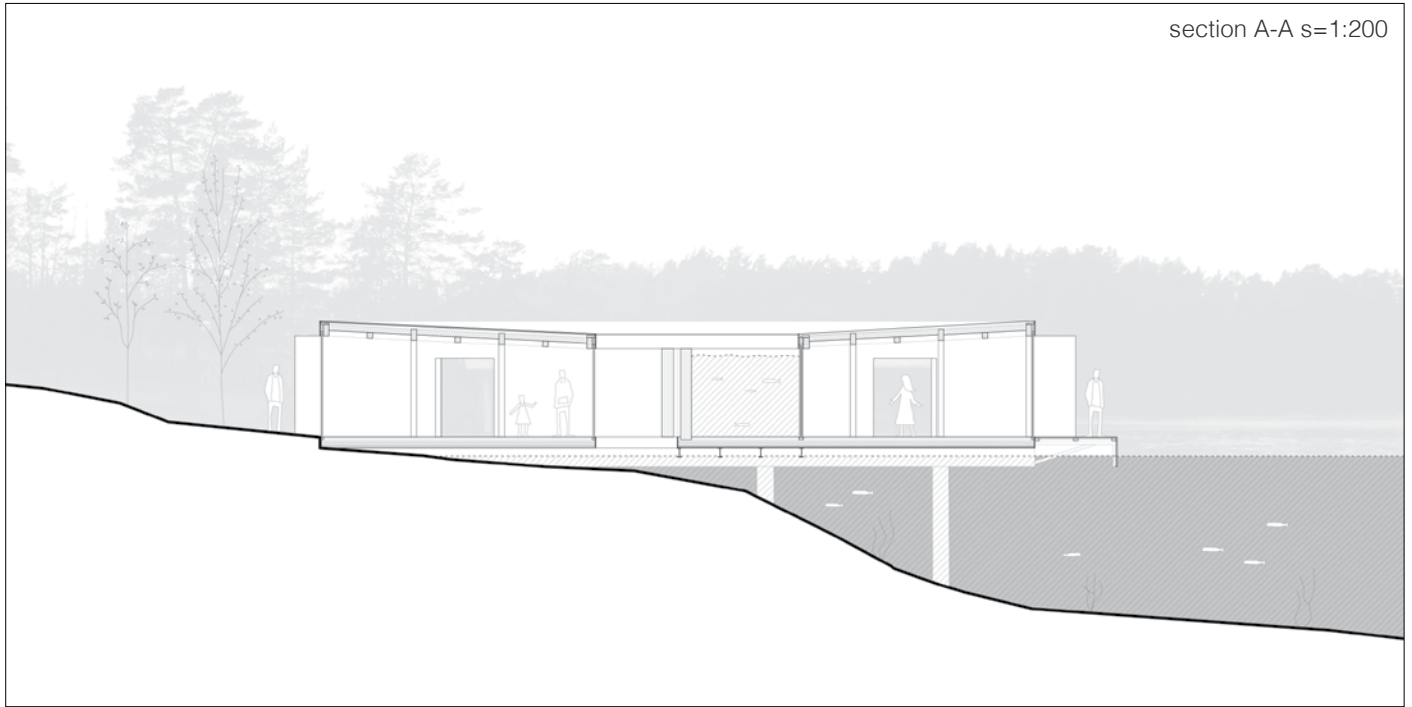
fig 22  
*east view*







section A-A s=1:200



section B-B s=1:200

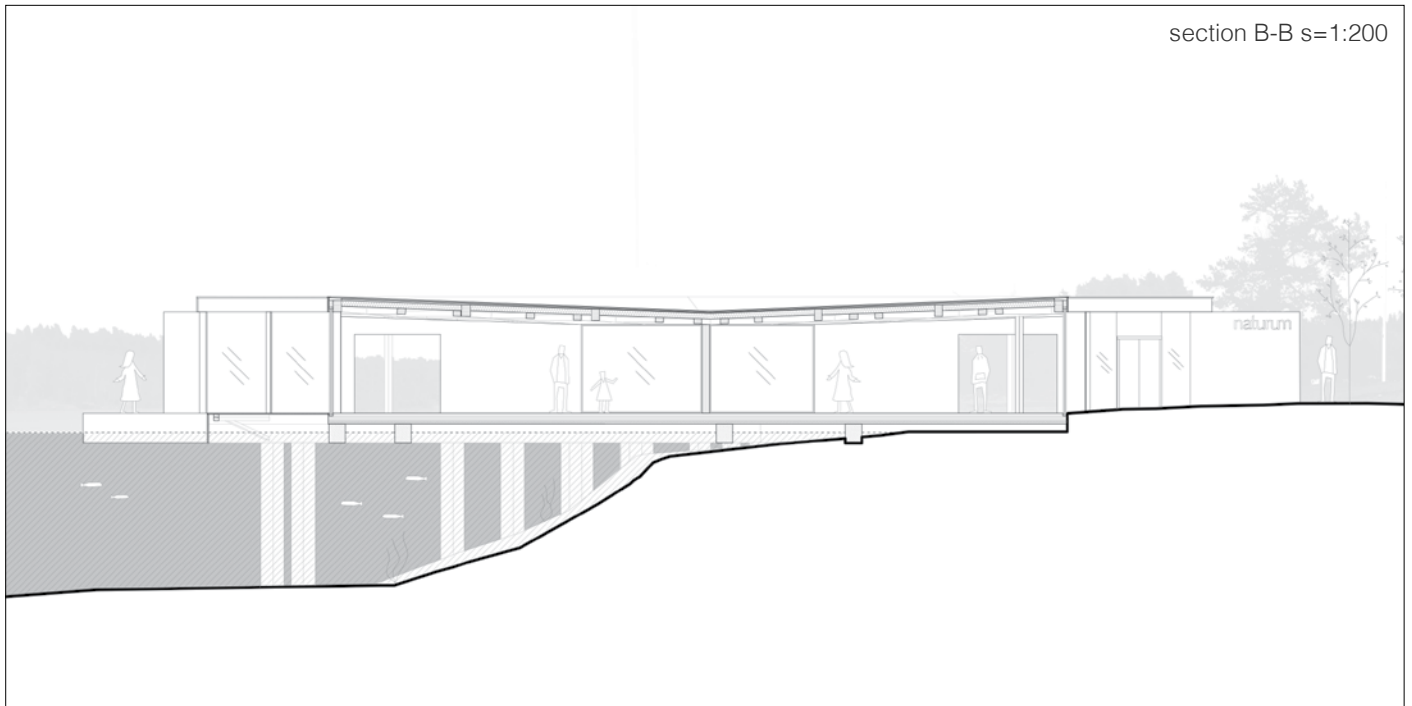




fig 23  
exhibition hall 2



fig 24  
exhibition hall 3

## THE EXHIBITION

The building is approximately 350m<sup>2</sup>, the exhibition is organized in 4 main halls all connected to each other.

The entrance is placed on the south room together with the reception/shop and a general introduction about the naturum and the exhibition.

Continuing to the second hall, on the west side is the widest rooms, the exhibition is dedicated to the forest. Here a space for lectures and a and a small library are located.

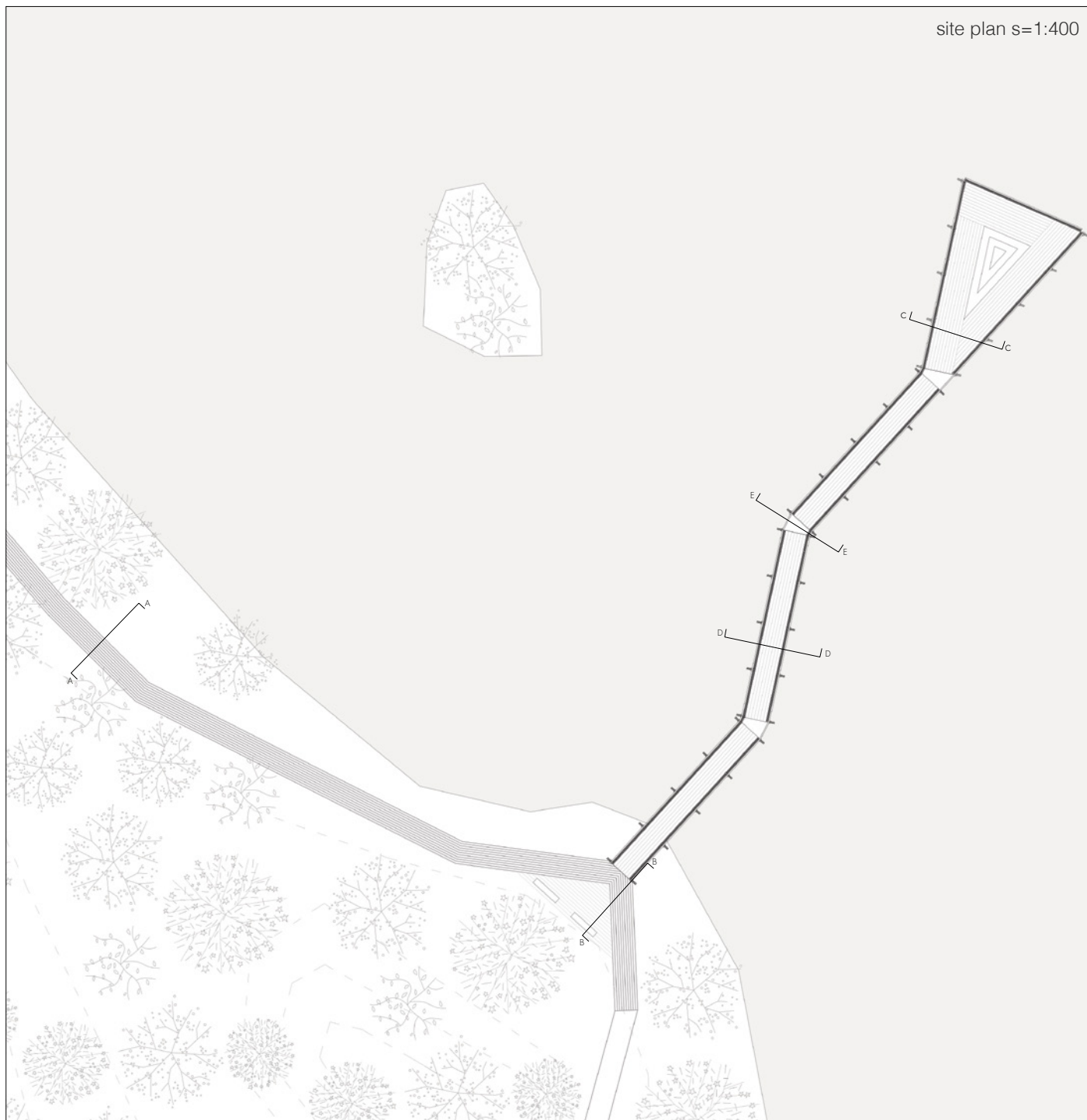
The third room is focused on the lake and its water life. A wide corner aquarium with fish from the lake and view points towards the open waters.

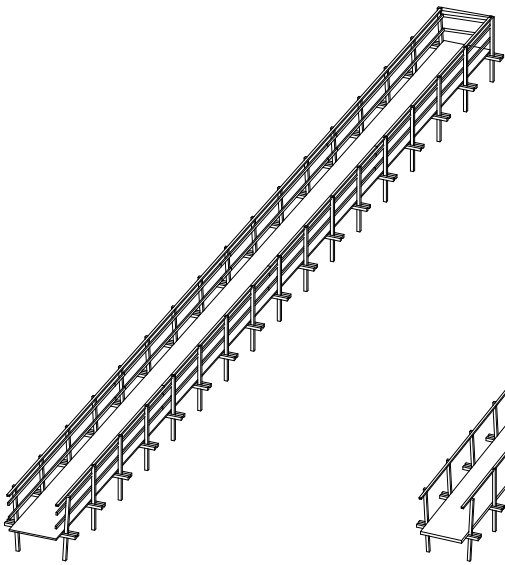
Finally in the last room are the informations about the local traditions of Sommen as the old fishing tools and nets and the typical boats designs.

In three rooms the central corner of the building shaped by the cross is open towards the lake water; in one room the corner becomes the is the aquarium.

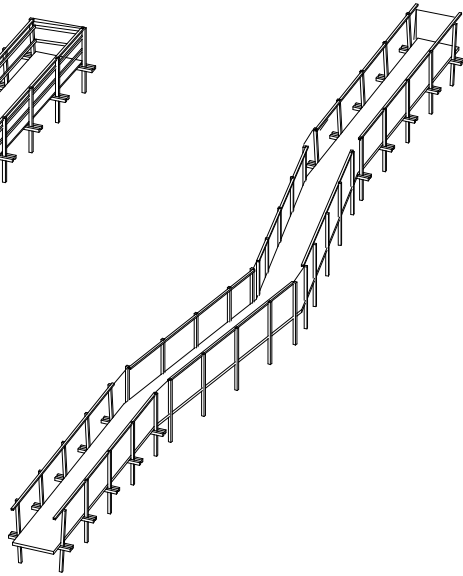
PROJECT #2

*the pier*

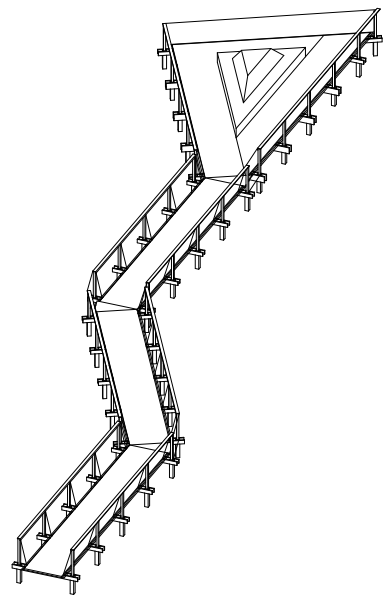




1.



2.



3.

## THE CONCEPT

The pier is placed where an old floating dock was and an is approximately long 50m is made by wood. The area was pointed out as particularly interesting for bird watching.

The intention with this project is to slow down the walk and make the walk part of the exhibition until the end where the dock opens up (as the building ) towards the open waters of the lake.

Starting from an ordinary straight dock the pier has been twisted in order to generate platforms pointing at the view and the bird life. This is also highlighted by the difference in material where the wood is replaced by glass.

The arrival point of the pier is a wider triangular platform that allows the walk to be continuous and also to generate a lifted area for sitting or standing without facing the railings.



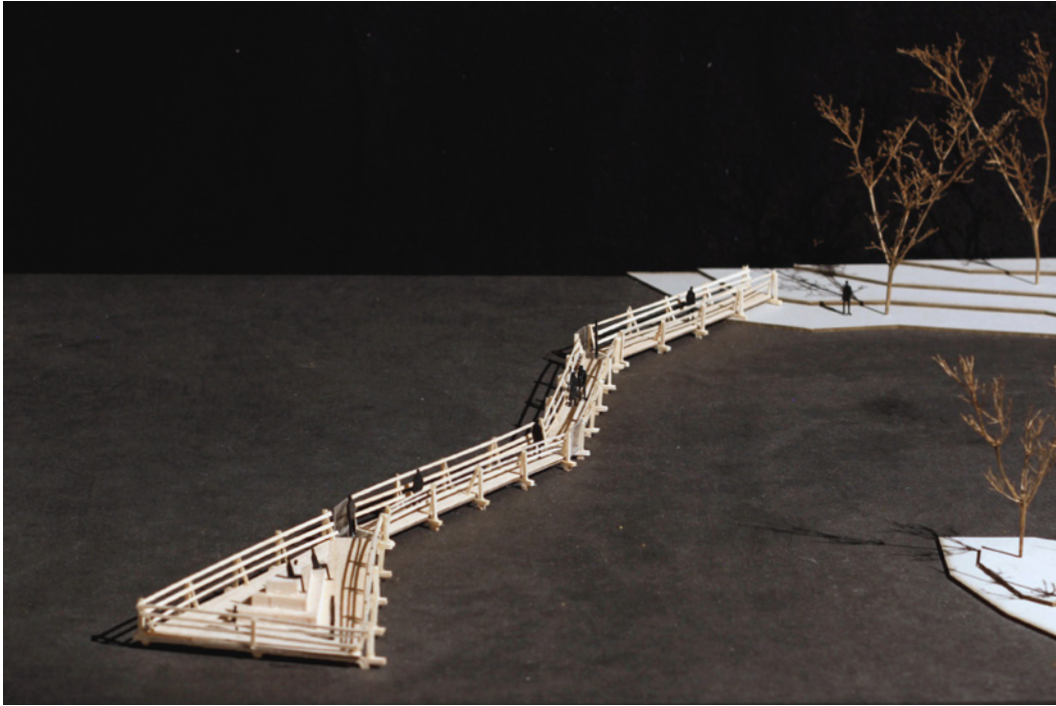


fig 25  
north|east view

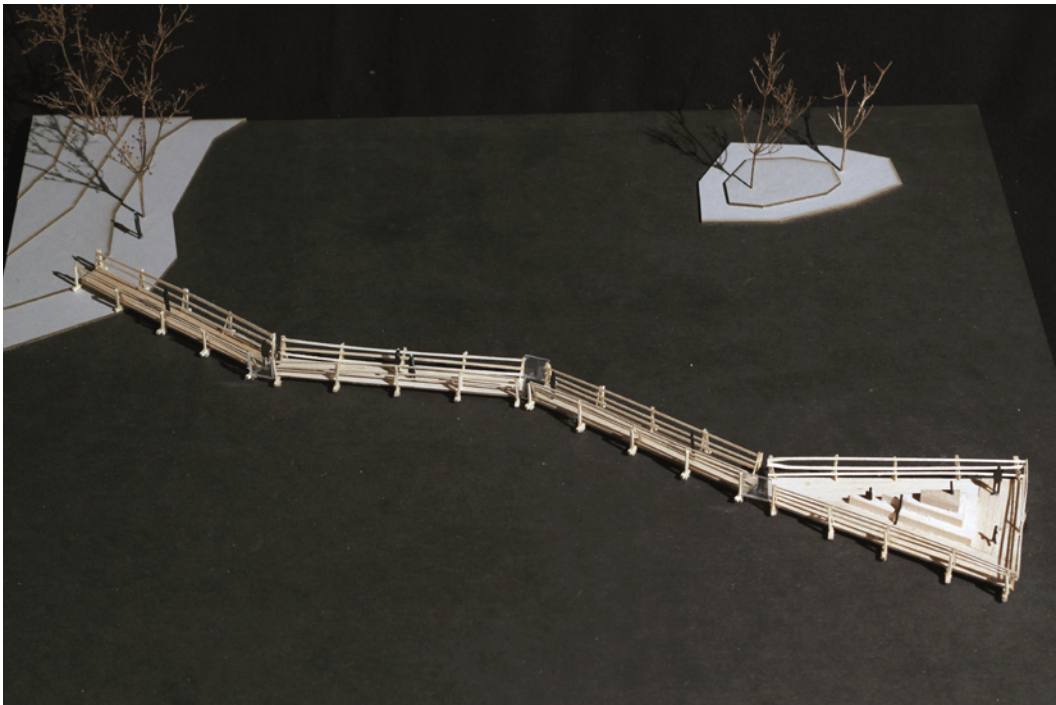
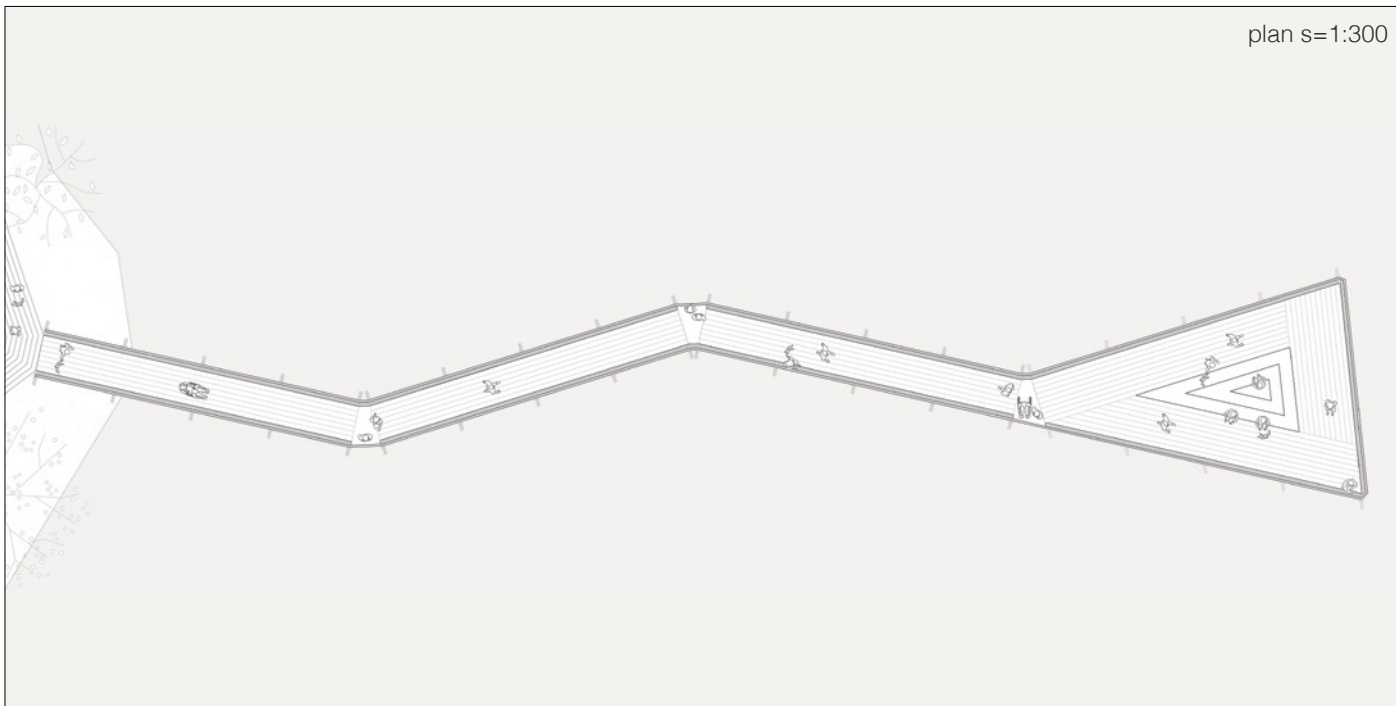


fig 26  
west view

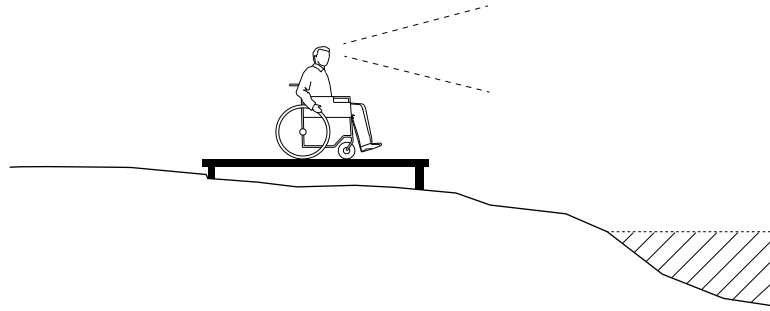
plan s=1:300



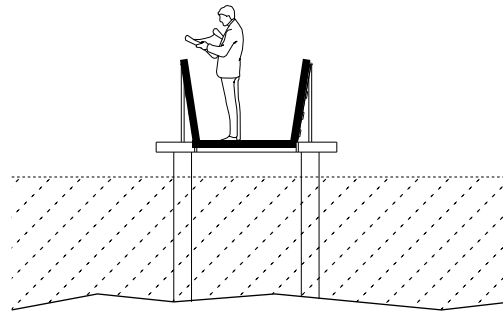
section D s=1:50



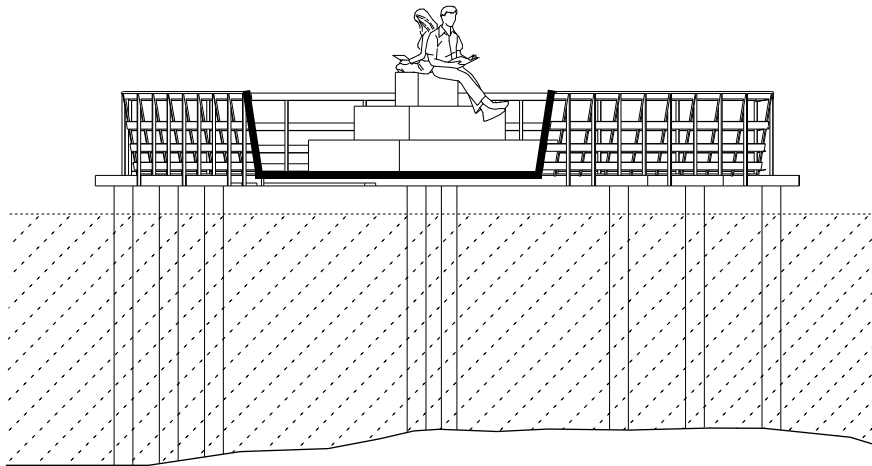
sections s=1:100



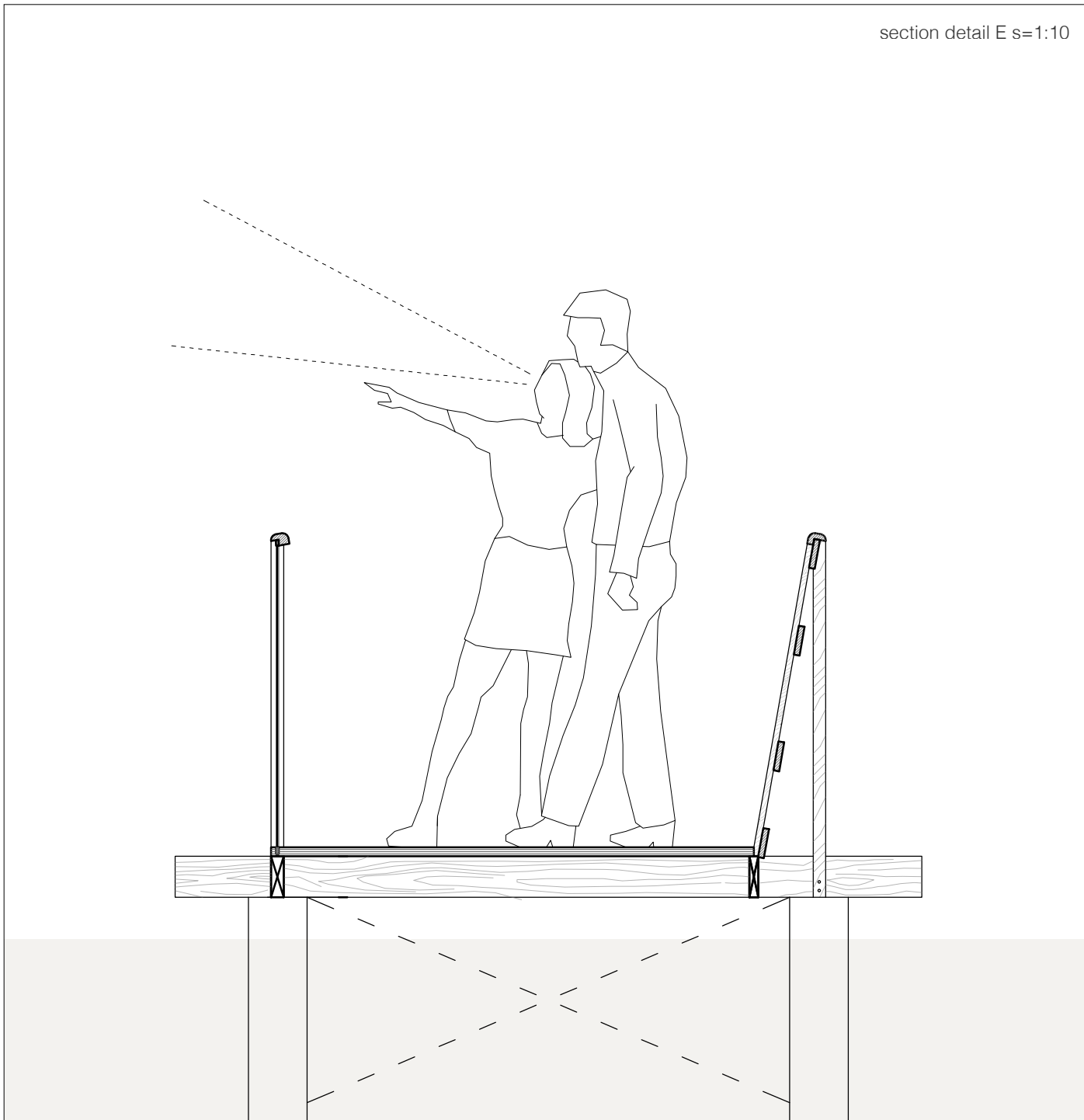
A



B



C

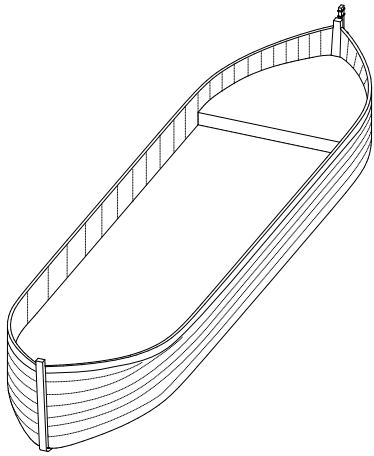


PROJECT #3

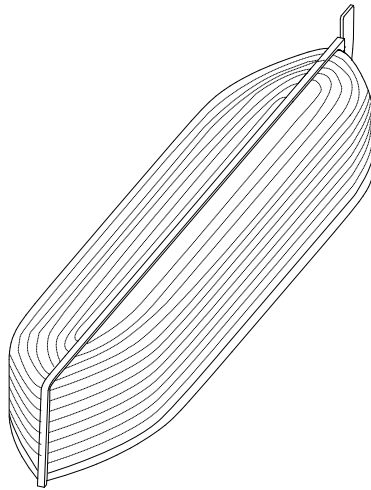
*the barge*



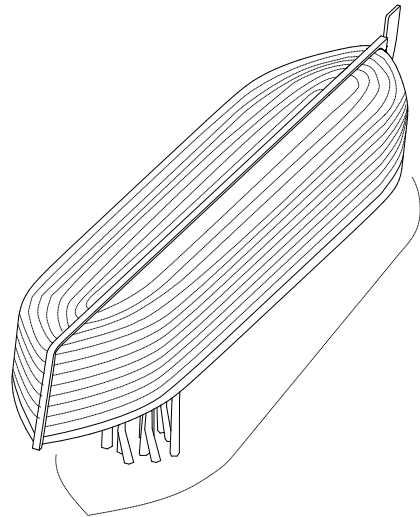




1.



2.



3.

## THE CONCEPT

The last project is a more of a statement, the existing old barge originally placed inside the naturum was moved approximately 500m from the naturum and placed in the middle of the forest not far from the lake border.

The boat is flipped and is standing on a cluster of wooden logs. This way the original purpose of the boat structure is completely revolutionized to create an installation able to both stand as part of the exhibition and at the same time become an open shelter and a reason to take the walk.

The environment created underneath the barge is in a way also framing the surroundings pointing at the water.

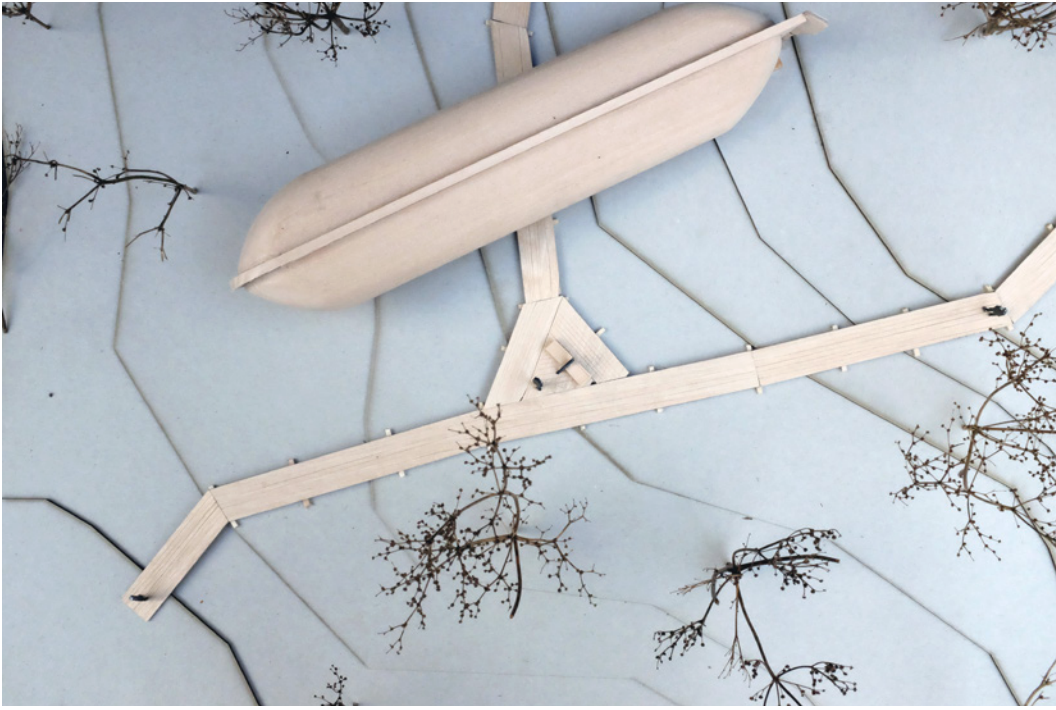
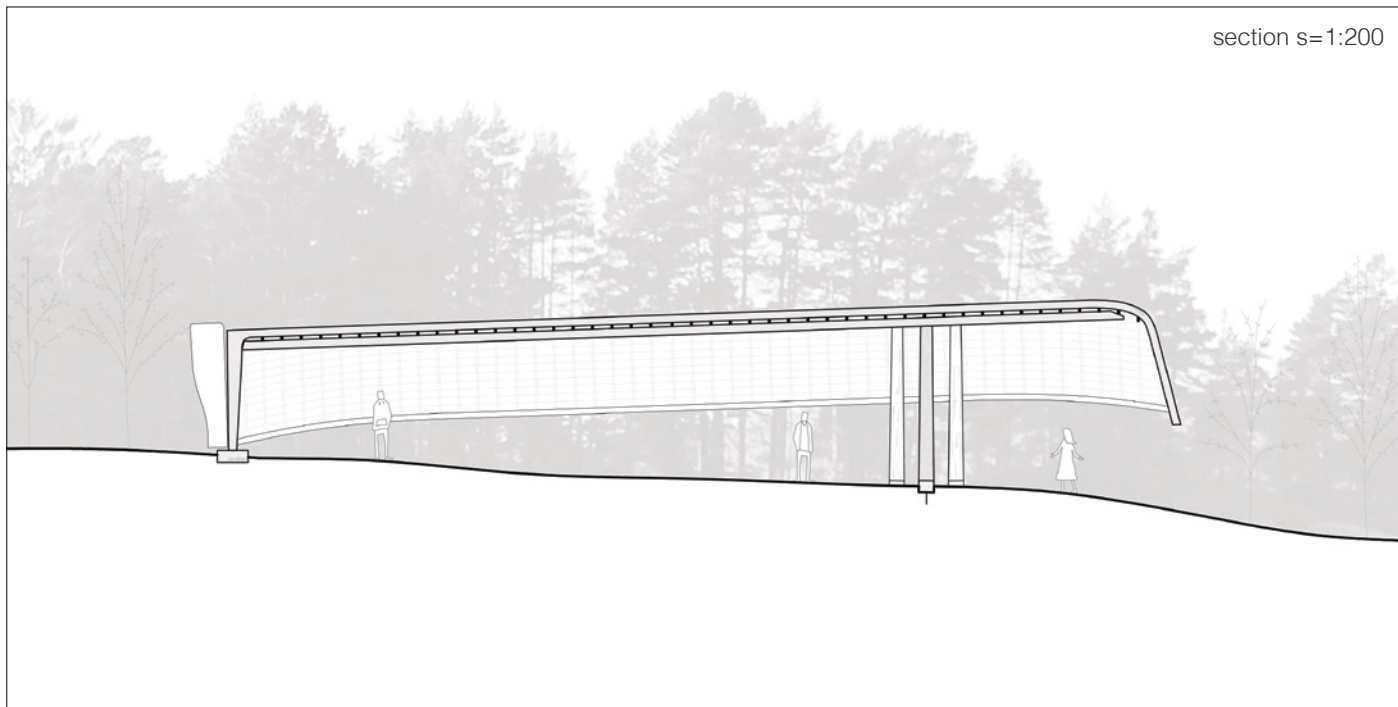


fig 27  
*fly view*

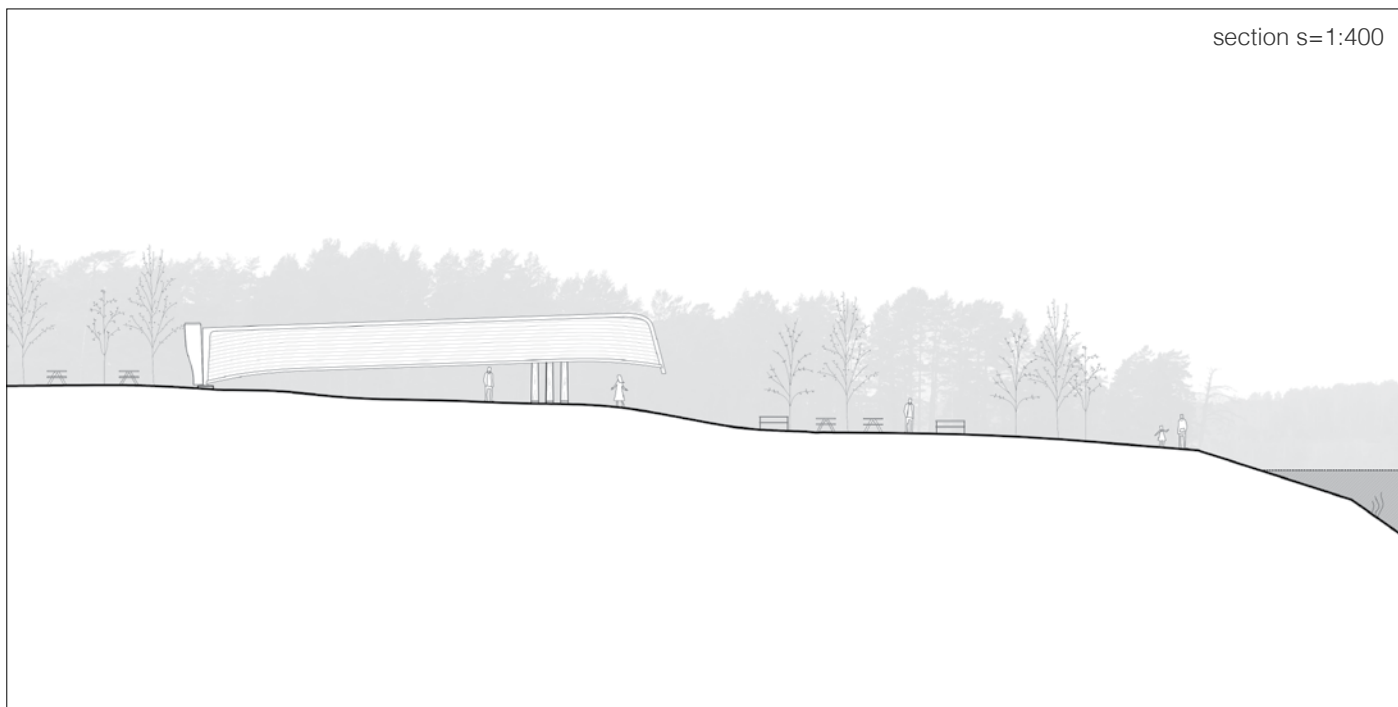


fig 28  
*south view*

section s=1:200

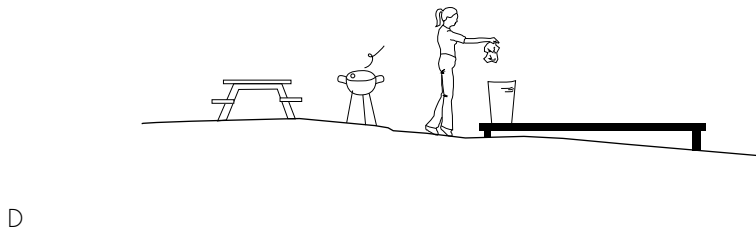
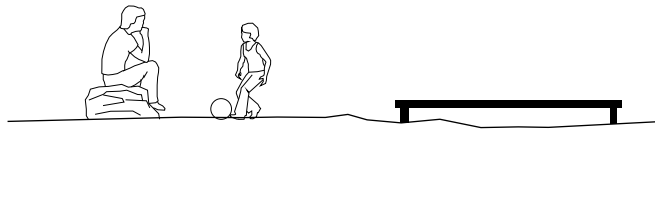
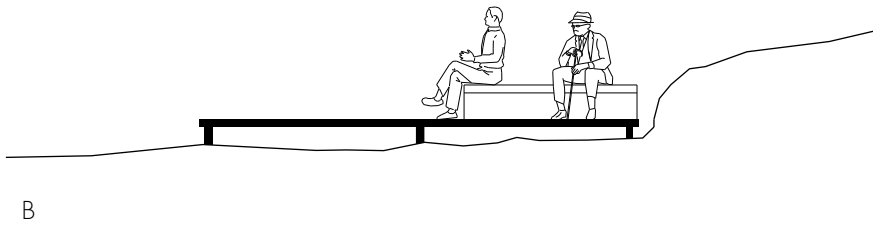
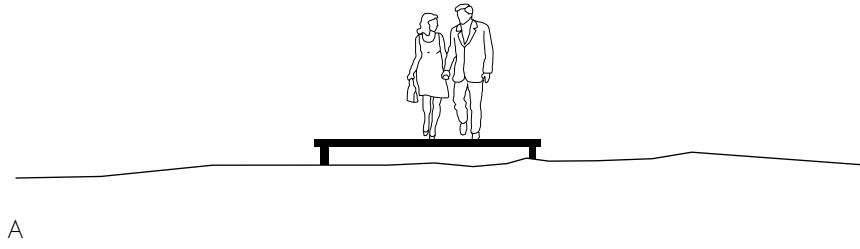


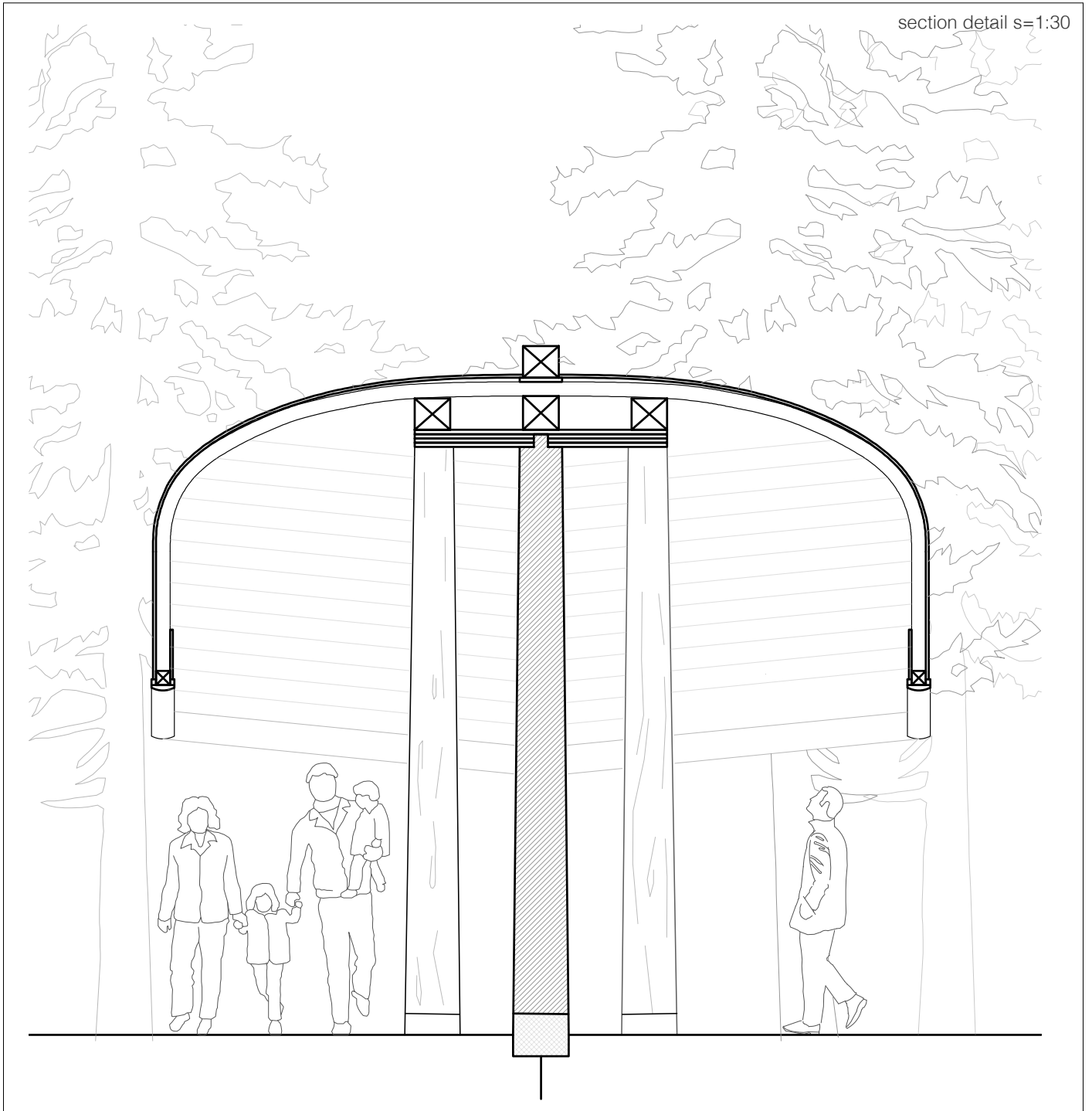
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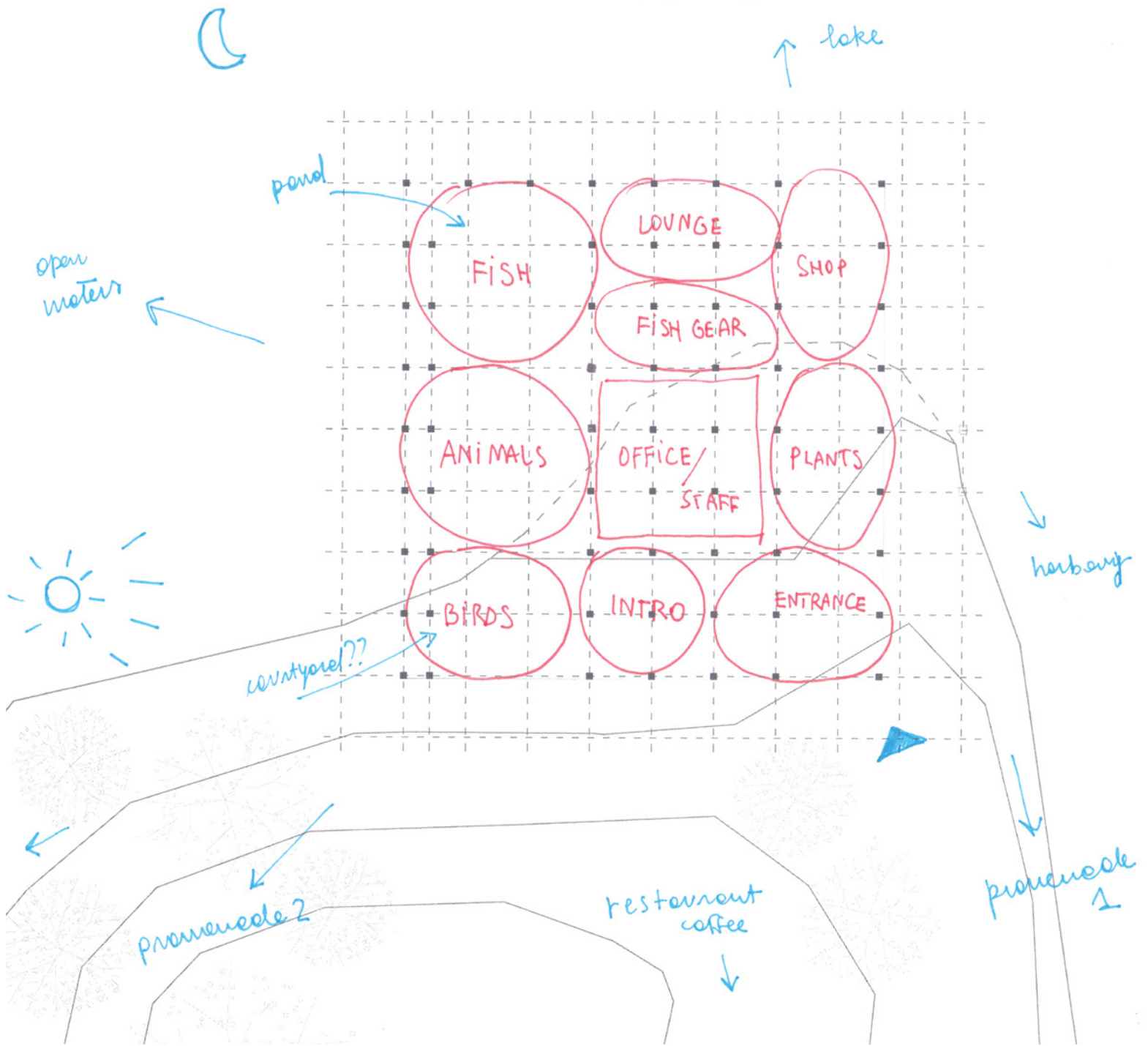


sections s=1:100





APPENDIX #1  
*the process*



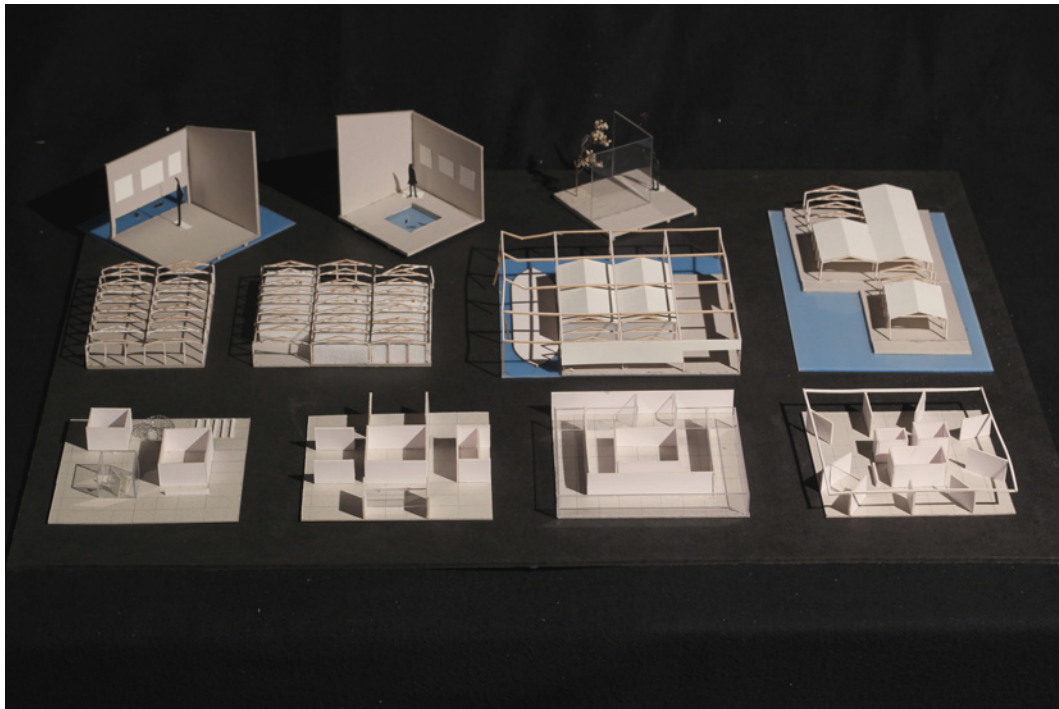


fig 29  
*concept models*

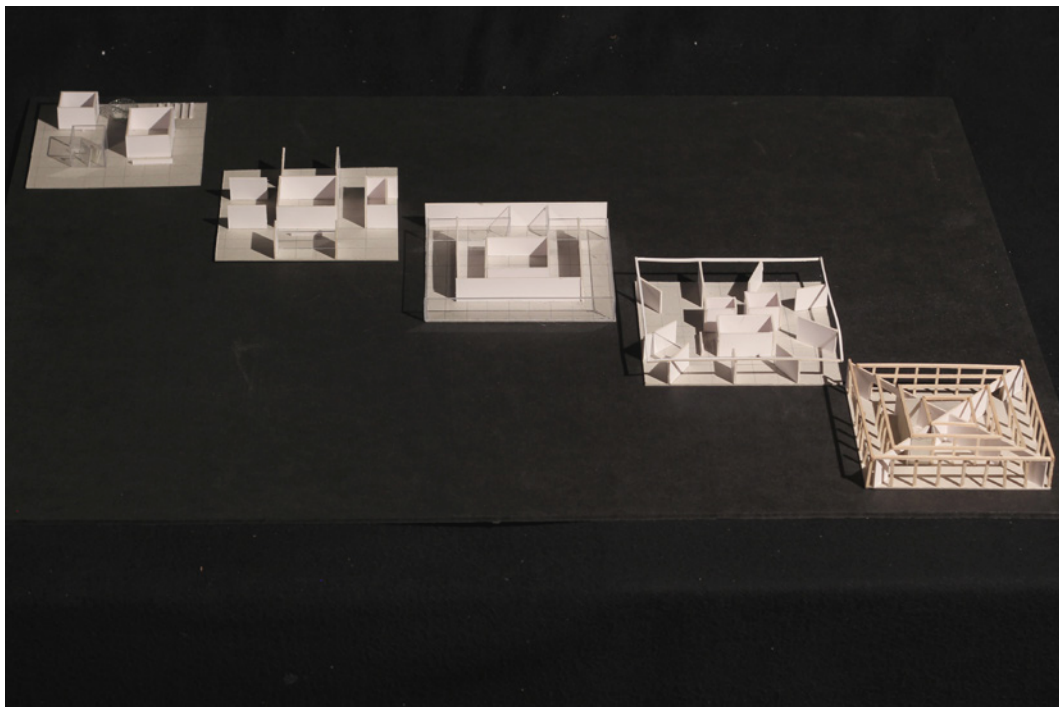


fig 30  
*concept models*



## SKETCH PHASE

At the beginning one of the ideas was to try to include the old building in a larger transparent skin and create semi outdoor spaces. The result was way larger then needed and was the new architecture was too weak. Another idea was to quote the existing concept of the boathouses.

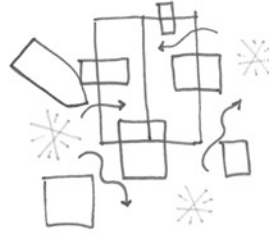
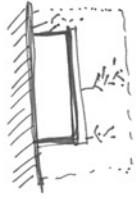
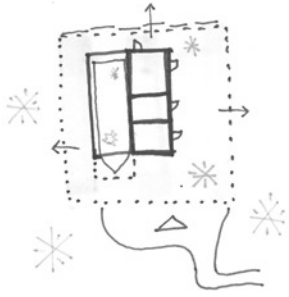
Later I had to take a stand and decide what I could keep from the existing building and what could be replaced. Considering the simplicity of the actual naturum, my final decision was to keep only foundations also taking advantages of the structure supporting the wide existing dock on the east side. This way the memory of the building is conserved in the new project and allowed me to have more freedom for the design.

Eventually I defined my final concept idea. How do you make an exhibition that is only a starting point to exhibit nature itself? How do I create a link between the building and the landscape?

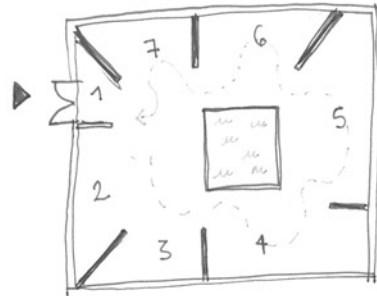
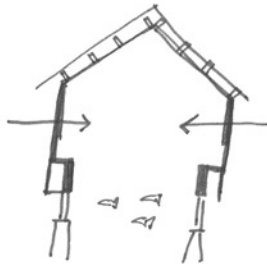
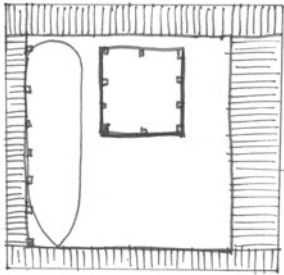
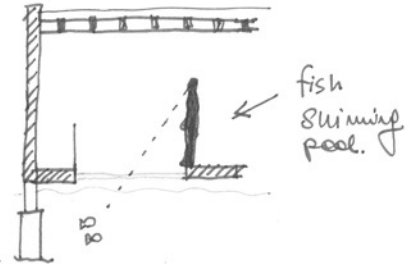
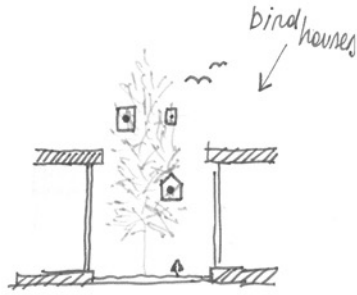
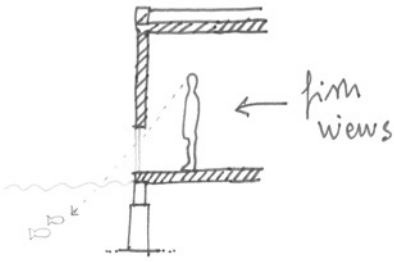
As already mentioned before; a naturum should not be a house but a relationship between a structure and the landscape. Taking advantage of the sitting I realized I could make a building that was open 360. I made the keyword for my project "*framing*". I started experimenting with walls along the columns and eventually I defined my final cross shape.

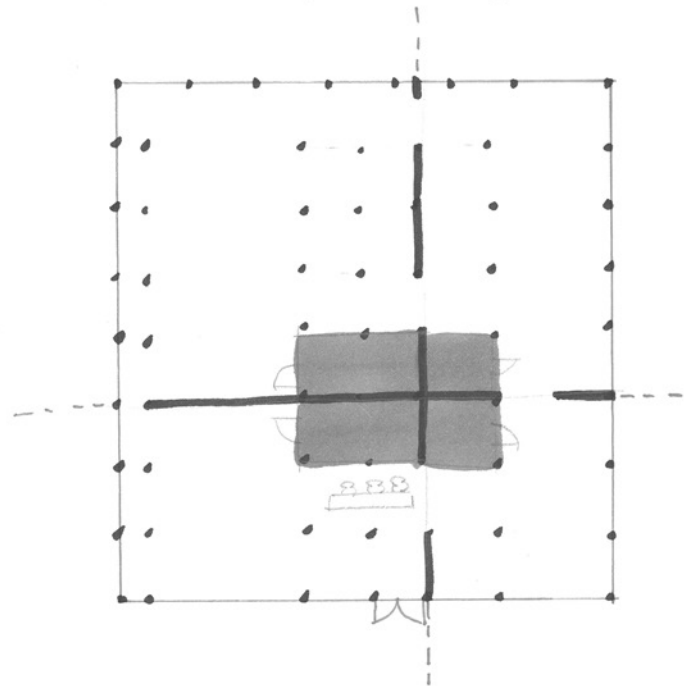
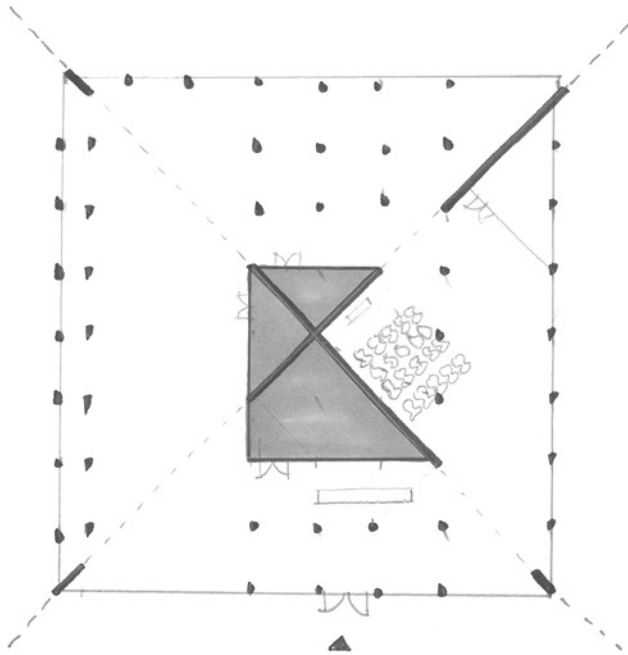
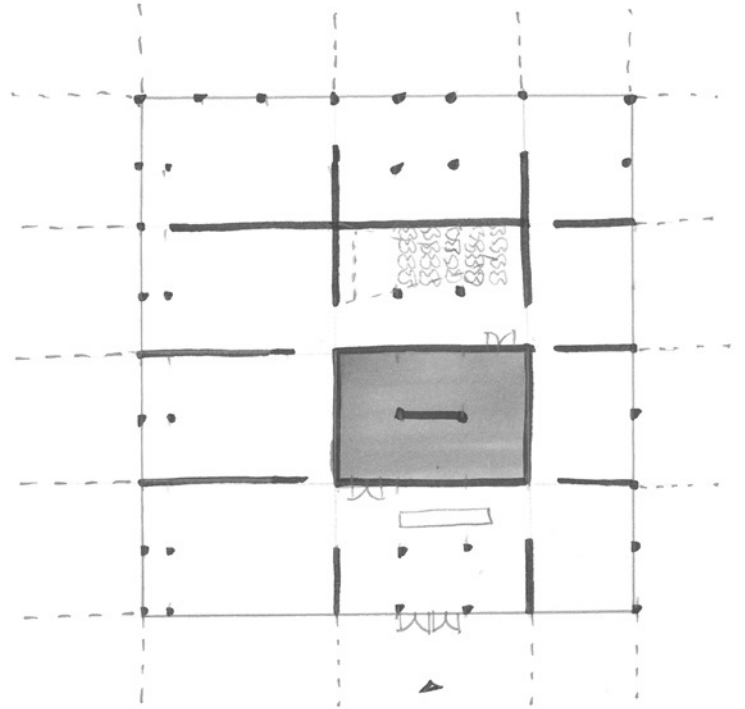
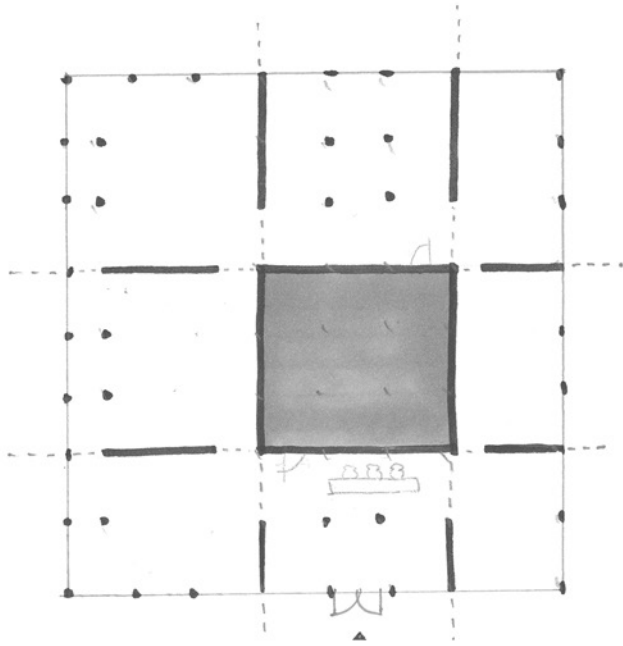
The cross shape allowed me to divide the space in 4 different rooms where the walls where extending to the infinite through the landscape. In an early phase the cross was limited inside the borders of the building then was extended outside and twisted in order to clarify the 2 different elements. I defined a core in the centre, were first I thought to locate all the functions.

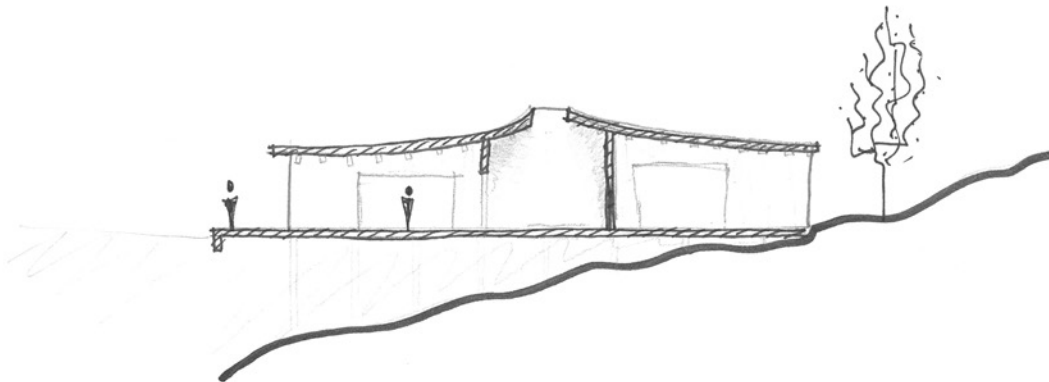
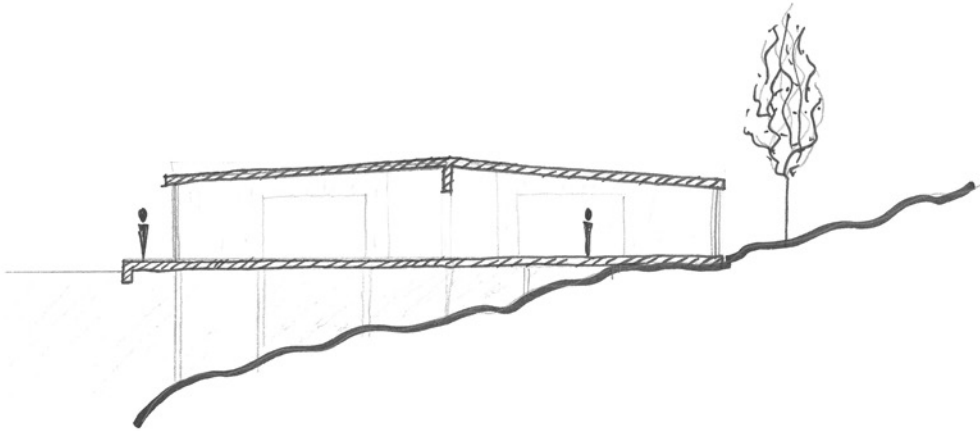
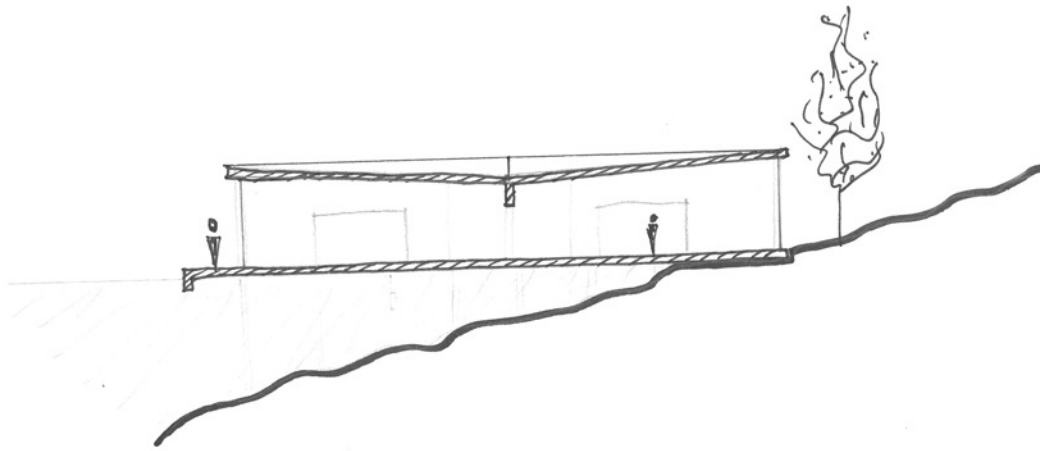
Since the early phase I experimented ways to bring the water inside the building attempting to activate the lake also inside the building.

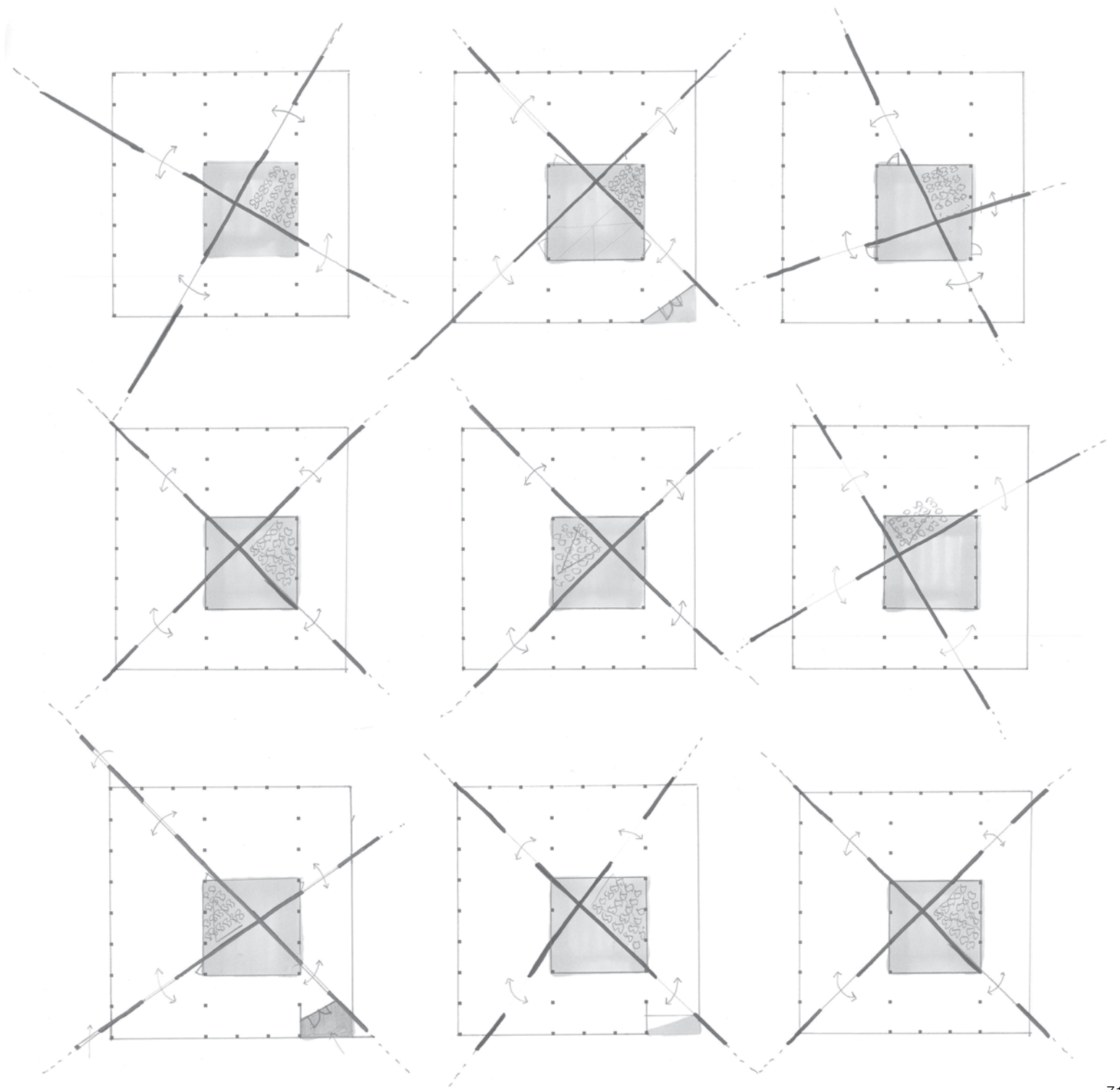


how to activate the bottom?!











APPENDIX #2  
*the debate*

## ACCESSIBILITY VS PROTECTION OF NATURAL AREAS

Tourism and recreational activities in a natural environment is a growing phenomenon all over the world, more and more people every year visit the Swedish national parks and there is need of facilities able to engage and guide them.

The raising cost for the realization of these exceptional buildings has brought up some questions: Is it wrong to spend the tax money to make nice architecture instead of investing directly in protecting the environment? Are this building really necessary to experience the nature better? Haven't these "invitation only" competitions become just a way for promoting the Swedish most famous firms?

Ecotourism is defined as "responsible travel to natural areas that conserves the environment and improves the well-being of local people." It's important to underline that from the beginning "nature-tourism" doesn't really rhyme with "nature-protection"; this association has generated a contradiction.

National parks are made to protect the uncontaminated nature; naturums are made to make sure nature is more accessible to the public. One of the main requirements for a naturum is its universal and absolute accessibility; by definition "being accessible" is not a characteristic that belongs to the wild nature.

During the past decade, the validity of this new typology has been widely discussed throughout the Swedish social medias.

Some have argued that building is a stress for the environment and its not the best way to take care of the nature, instead the government should invest in protecting the biodiversity and in implementing more sustainable politics. The Swedish journalist Mark Isitt, speaking about naturums high costs claimed that even in an American prospective, the government investment in naturums seems a bit over ambitious."

---

\* What is Ecotourism? (2014) Definition. <https://www.ecotourism.org>

\*\* Isitt, M. (2013). Sveriges naturum / Naturum Visitor Centres in Sweden. p.10



fig 31  
*naturum vattenriket*



fig 32  
*naturum tåkern*

## ACCESSIBILITY VS PROTECTION OF NATURAL AREAS

In an article from 2009 in Dagens Nyheter, the journalist Malin Siwe ironically nicknamed the Environmental Protection Agency as “Architectural Support Agency”, referring to the focus given to architecture, which she means has become more important than the context and the nature.<sup>\*</sup> She continues arguing that the attraction is the nature itself, not the exhibitions and those expensive buildings are just a speculation.

On the other hand is generally agreed that there is a strong value in making nature more accessible and of course this imply a cost. EPA claims that the presence of this visitor centres is crucial in order to educate people and future generations about nature and conservation; to them, most of all is important to show how our society gains from benefiting the environment.<sup>\*\*</sup>

A naturum should work as a symbol, showing that you can take care of the landscape and investigate in the nature and sustainable development.<sup>\*\*\*</sup>

It has been estimated that in the past years each naturum had circa 1 million visitors; it's really hard to determine how many of this visits are due to the presence of the centres. Certainly architecture can be seen as attraction itself, but is important to emphasize that the main focus still must be on the natural environment; naturums must not be seen as museums.

---

Siwe, M. DN Ledare. (2009). Obiliiga naturum. Dagens Nyheter, 13 april.

<sup>\*\*</sup> Oscarsson, B. (2014). About the Swedish EPA. <http://www.swedishepa.se/About-us/>

<sup>\*\*\*</sup> Svanell, A. (2013) Inget rum för landsbygden. p. 33





fig 33  
*naturum konsterhavet*



fig 34  
*naturum tåkern*



## ACCESSIBILITY VS PROTECTION OF NATURAL AREAS

In this way the design has a key role in the process; Architecture has to be of the finest quality. Several Swedish architects have been hailed this challenge in the past decades, White Arkitekter AB seems to have great skills in winning competitions for naturums; they are considered the main promoters of this relatively new architecture typology.

Mattias Lind, from White Architects, in an interview has pointed out how naturums are a very good investment for the whole country; Swedish nature is unique in its variety and with this new approach on experiencing nature, Sweden should become an example for the rest of the world. A naturum is a good promoter for branding the Swedish nature and compared to the income derived from that, the costs of the buildings are relatively small.

I believe beside these romantic but indisputable views about spreading the knowledge and protecting the nature and implicit that naturums are completely free for their visitors, there are also some secondary strong interests for the Swedish government in promoting their land and national architecture in order to stimulate economy and increase tourism.

Overall I think there should be a balance between environmental protection and high cost infrastructures, one should depend on the other. In this sense is important to say that some measures have already been taken; the budget of EPA has recently been limited to a maximum 20 million Swedish crowns for any new building.<sup>\*</sup> I believe naturums are a positive expression of human culture towards the natural environment and they carry out an important task in today's world; the enthusiasm and affluence demonstrated by visitors towards naturums makes me think that overall these buildings have successfully accomplished their original purpose.

---

\* Svanell, A. (2013) Inget rum för landsbygden. p. 32

APPENDIX #3  
*references*

## INFLUENCES AND REFERENCES

Several projects have influenced my design. First of all some of the previously mentioned modern naturums; *Snöfällan* by Wingårdh arkitektkontor and *Konsterhavet* by White Arkitekter.

For the wooden roof I've been inspired by the *Light Walls House* by the Japanese office MA style Architects.

On how developing the concept of framing views of nature from inside the building I have been influenced by the project *Spread House* by TNA Architects.

The *Royal Belgian sailing club* by Wim Goes Architectuur has been really relevant for the cross laminated timber walls and structure.

Finally the workshop addition to the *Kanagawa Institute of Technology* has been much of an inspiration for the use of glass and laminated glass columns and how to arrange an open space.

Many other projects have been influencing me but this four are probably the most noteworthy.

LIGHT WALLS HOUSE  
MA style architects



fig 35  
interior view



fig 36  
ceiling



fig 37  
plan

SPREAD HOUSE  
TNA Architects



fig 38  
external view

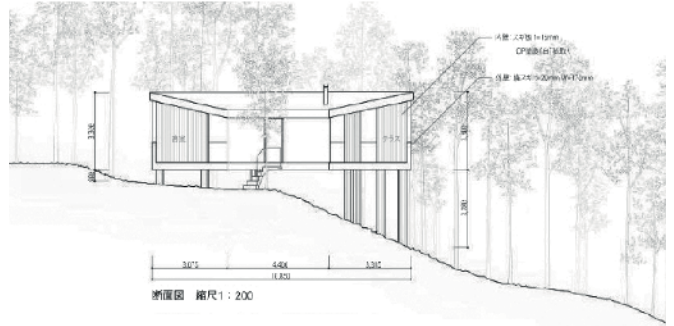


fig 39  
section

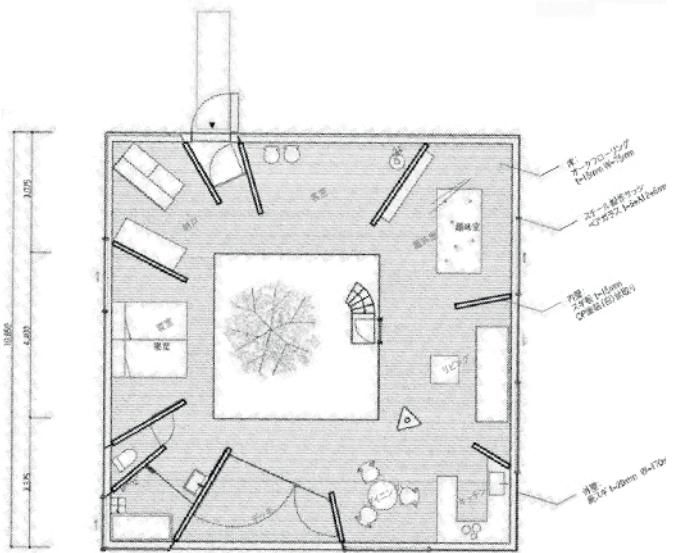


fig 40  
plan

ROYAL BELGIAN SAILING CLUB  
*Wim Goes Architectuur*



fig 41  
*exterior view*

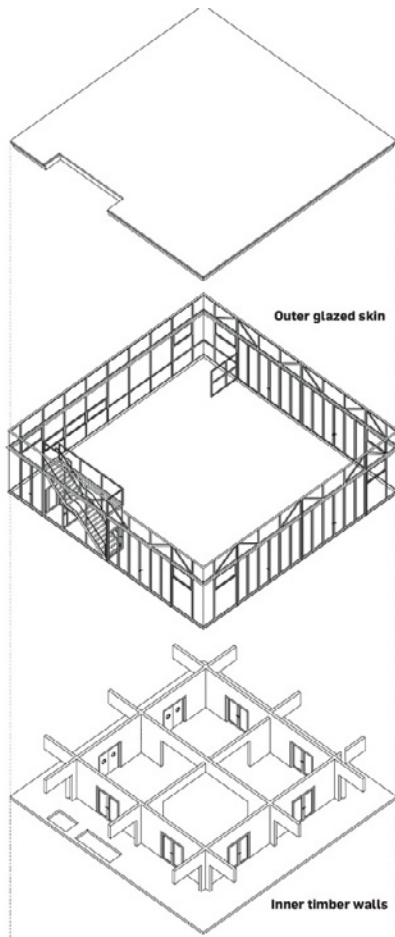


fig 42  
*exploded view*





fig 43  
*entrance*

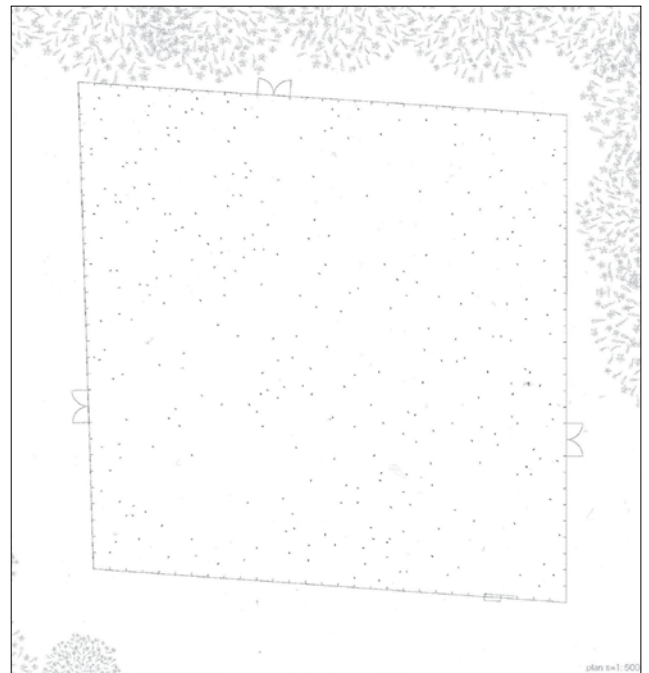


fig 44  
*plan*



## CREDITS

Naturum Sommen manager Anders Paulsson for welcoming me and my idea and supporting with all the material I needed.

Local community at Torpöns Färjeläge, for providing precious informations and material about the site. In particular Peter Sterne and Carl-Erik Andersson.

My examiner and mentor Morten Lund for the precious guidance and advices during the whole process. I believe the most influential professor along my architecture studies.

My tutor and supervisor Claes Johansson for being there punctually every week and helping me developing my ideas.

Maja Kovacs for the reassuring talks in the early stage.

Tabita Nilsson and Peter Lindblom for the assistance in the wood workshop.

My parents for giving me the possibility to study abroad and always supporting me and my choices.

Finally my girlfriend Louise and all friends and people I met during my wanders around the world.



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GIULIO GIORI

[giulio.giori@gmail.com](mailto:giulio.giori@gmail.com)

**THANK YOU!**

