

**inter naturas**

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This booklet is the complete collection of works done for the graduation studio Delta Interventions: Landscapes of coexistence at the faculty of Architecture at the TU Delft. The booklet contains the body of research done, provided with background information and additional drawings. To conclude the research, the proposed project will show the final results of design. All work is done under the name of the TU Delft.

enjoy,

Gerben

## *Inter naturas:*

### *Defining the threshold between nature and the artificial/natural and artificial environment*

*Climate change has been recognized globally as the perhaps the biggest threats facing the planet. In the Delta Urbanism studio: The North Sea, Landscapes of Coexistence, it was one of the main topics we as a group of graduations students did our research about. During the introduction and the first weeks of the studio, the research was based around the North Sea, in an attempt to get a grasp of the evolving and ever changing territories. The topics of flood risk management, migration patterns, sustainability & liveability and territorial and infrastructural spaces were explored through methods of mapping and narratives resulting in a final communal book and exhibition. By doing the research necessary to gain knowledge about these topics, a fascination started to rise. Building up our research through mapping, there was one question that would repeatedly come up;*

where does the data come from?

Although the question aimed towards the sources upon which the research was done, the question for me went beyond that. It became part of my research into the question,

What is the source of climate change data?

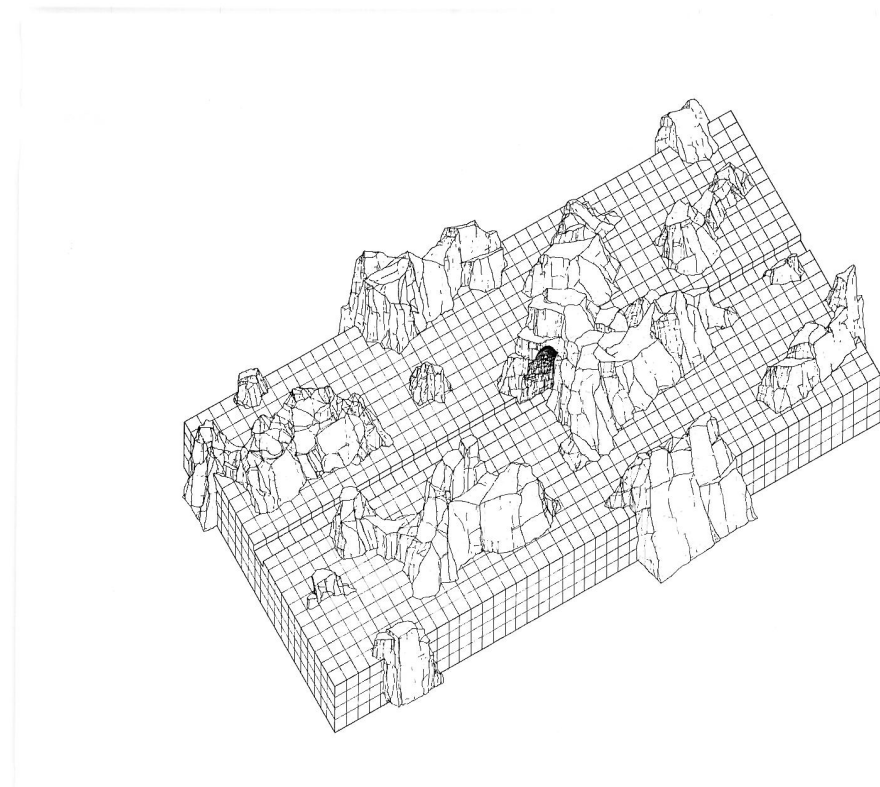
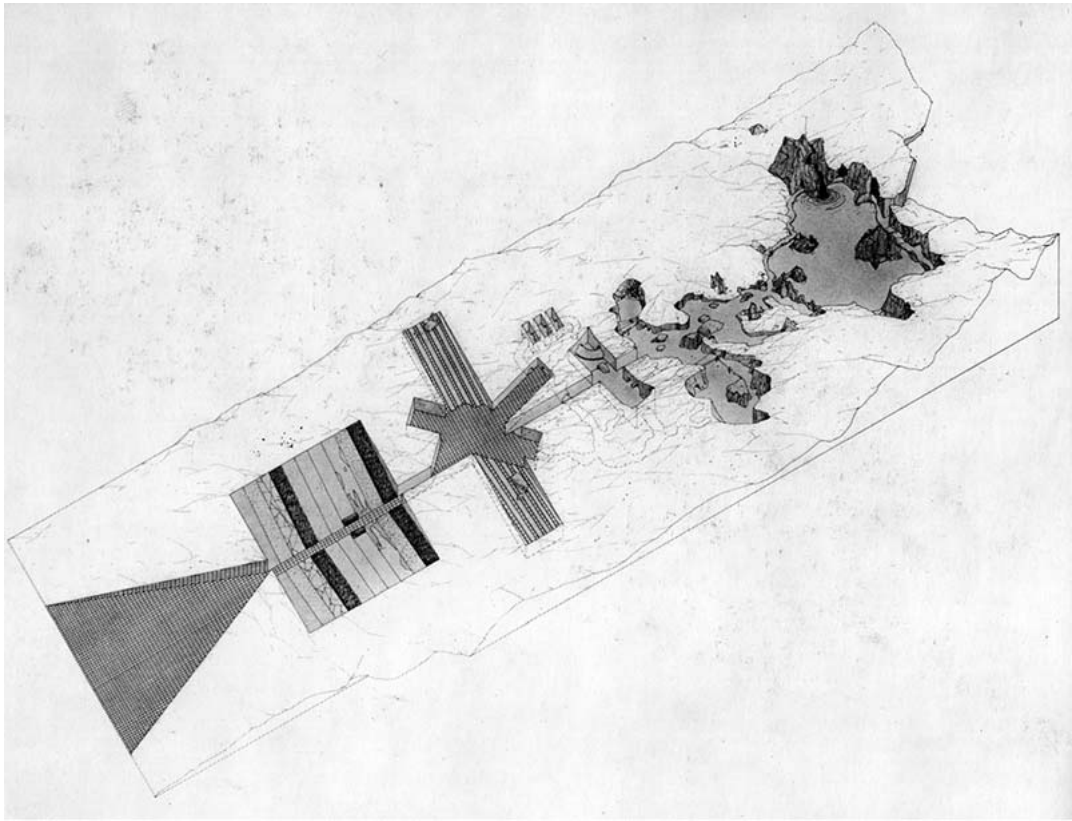
The first step was to look into the sequence in which we as humans translate the raw data into something we call knowledge. In other words, giving context to raw data and giving meaning to information to create knowledge.

Although this is an existing sequence, the concept provides the base upon which I further developed my research. Besides the basic sequence in which raw data is being turned into knowledge or wisdom, I found a similar sequence connecting the natural landscape as we know it, to the digital and immaterial artificial world of data.

It is of great importance to define the terminology being used here; the definitions are not self-explanatory. Therefore I will provide a lexicon, explaining the different term being used, and the way I interpret them.

#### Exploring the threshold

One artist I drew inspiration from is a German artist and landscape architect: Hans Dieter Schaal. His famous 1978 essay and accompanying sketches, *Paths and Passages, Investigations-reflections-planning*, are a synthesis of his previous work on continuous spaces and the fluid dynamics between the natural and the artificial. In his book: *Paths passages and spaces*, he describes one of his drawing as a landscape as 'a path from a scientific-technical environment to a romantic environment (seen in the drawing from right to left). To me, it establishes a certain relation between 'nature' or as Schaal names 'romantic' and the artificial environment, as Schaal names it the scientific-technical environment.

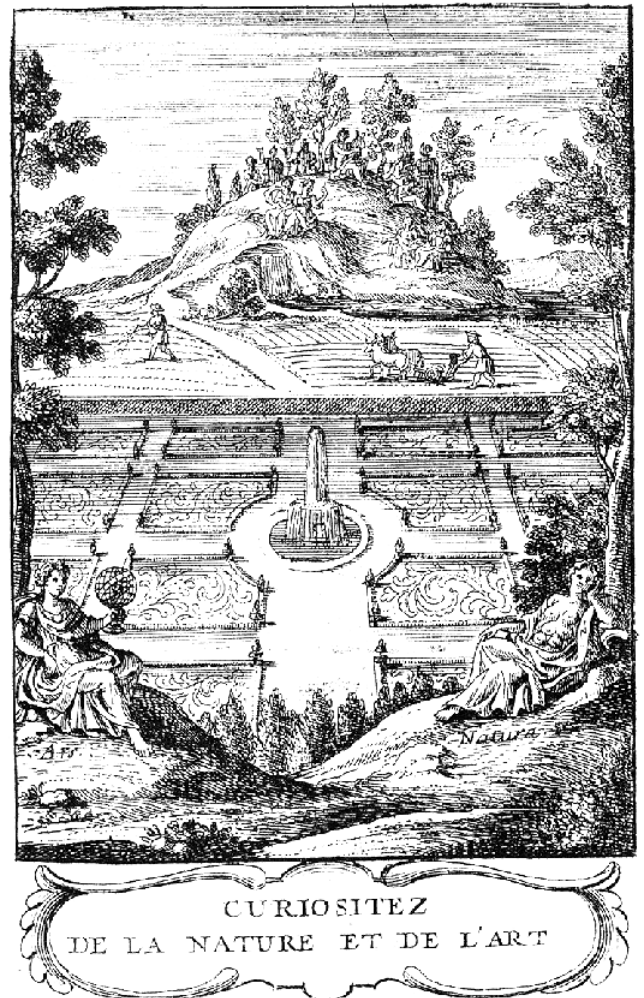


## First, Second and Third Nature

In *Garden Perfections: The Practice of Garden Theory*, John Dixon Hunt identifies the cultural landscape (agriculture, urban development, roads etc.) with Cicero's 'second nature.' In *De natura deorum* Cicero wrote "We sow corn, we plant trees, we fertilize the soil by irrigation, we dam the rivers and direct them where we want. In short, by means of our hands we try to create as it were a second nature within the natural world. The second nature is based upon transforming and framing the landscape by the use of physical borders.

" 'First nature' - wilderness - is the realm of the gods, but it is also the raw material for second nature. John Dixon Hunt thinks that Cicero's formulation would have been in the mind of Jacopo Bonfadio when he wrote in 1541 to a fellow humanist that gardens make a 'third nature, which I would not know how to name.' Later in the century, another humanist Bartolomeo Taegio also used the term 'terza natura' or third nature, in describing gardens. The third nature is therefor based upon having total control over nature, in what and how we exhibit nature through the human controlled design of a garden.

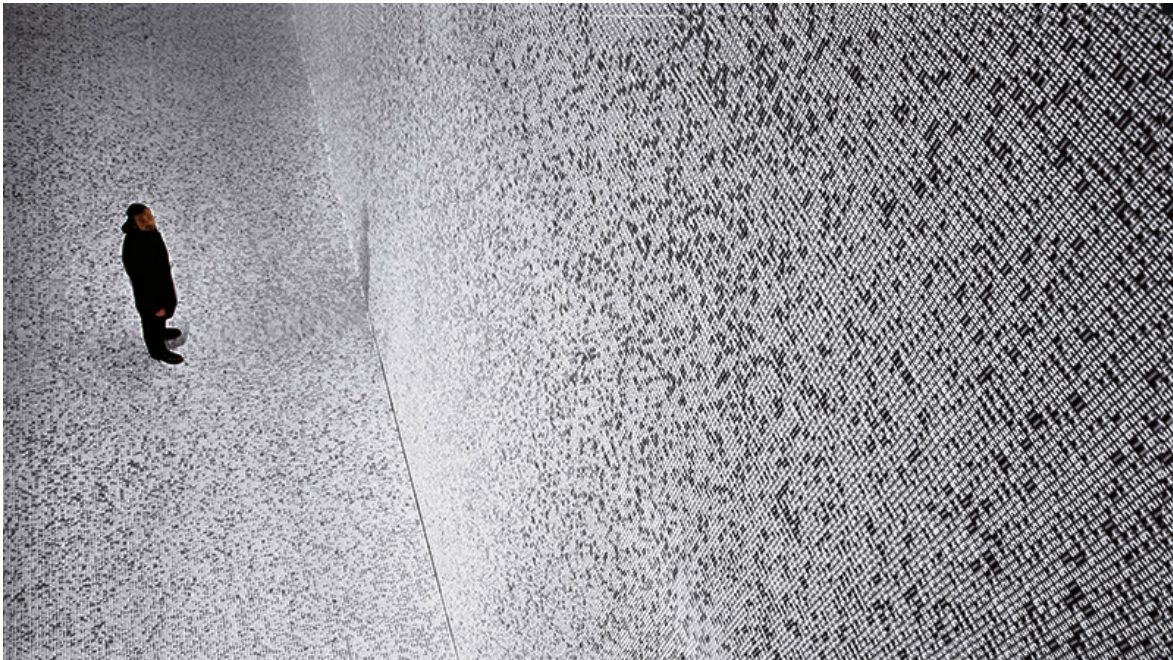
Using the concept of the first, second and third nature as an analogy, for the design the second nature is proposed to no longer the adaptation nature from which we extract physical resources, but rather to extract data. Secondly, the third nature is no longer the garden that Cicero describes as the manifestation and exhibition of nature, but rather a curated exhibition of the extracted data.





## Introducing the Fourth Nature

With the concept of the first second and third nature defined, it arose the question about a possible fourth nature. It is an environment furthest away from the first nature; the natural environment as we know it being present in the first second or third nature no longer exist. In the fourth nature, it is assumed that every part of the natural environment is translated into the digital world and therefor, the natural environment is no longer present. The complete absence of anything natural makes us relate back to the only thing that is still natural with that space; us human beings.





## The proposal

The project expresses the tail the concepts introduced in the research. In my proposal, I try to answer the two questions:

How can the introduction of the threshold as an frame be represented in a spatial experience?

*How can the concept of the three natures and the addition of the fourth nature translate and expressed through a spatial manifestation?*

1. Defining the threshold of the nature and human by a route through nature.

In the first part of the route towards the building, visitors will go through a sequence of architectural elements, each time trying to make the visitor aware of the threshold between the natural environment and the artificial environment. The sequence will build up in type of element and in space between the elements. The types of elements will intensify and emphasize this threshold by controlling the speed of the visitor, making them aware of the inside space versus the natural environment outside. It is important that the visitor becomes increasingly aware of the presence of this threshold leading up to the building.

2. Expressing the first up to and including the fourth nature through architecture. OF EXPRESSINGTHEMEANSOFARCHITECTURE THROUGH THE CONCEPT OF THE FIRST up to and including the fourth nature.

The final sequence of spaces that are essential to explain the concepts of the first, second, third and fourth nature are leading up to the building.

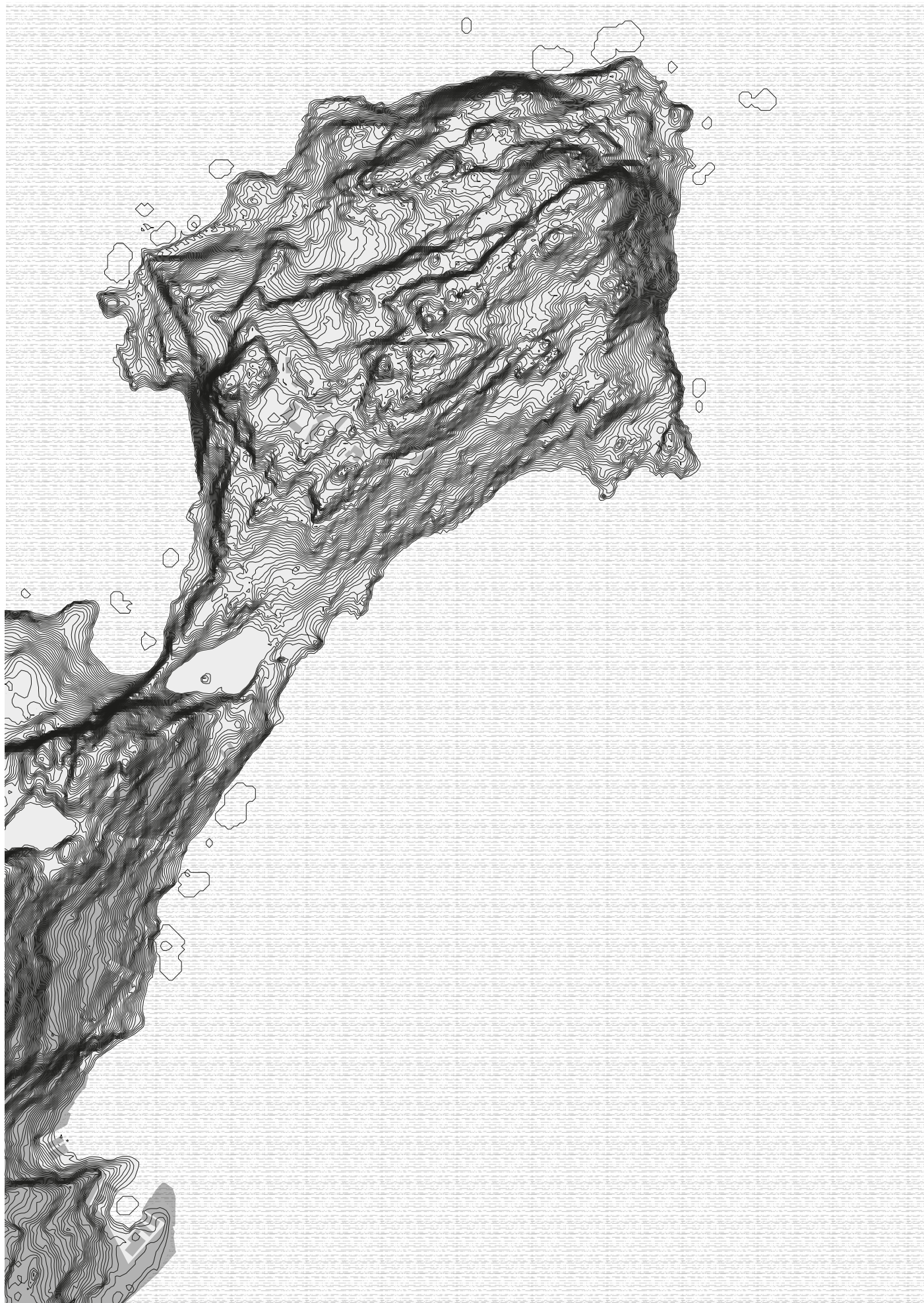
In the final sequence, the concepts of the first, second, third and fourth nature are expressed through a series of spaces aimed towards the specific natures.

### Location

The project is located in Harstad, Norway's 4th largest city. The city is approximately 2000 km north of Oslo, and lies officially in the Arctic Circle. During the 4 months of winter, the city is in almost complete darkness, while in summer, there is no darkness of the night.

Being this far north, the impact of climate change are bigger than the rest of the world. The melting of snow, rising of temperatures and changing of currents have detrimental effects in the arctic.







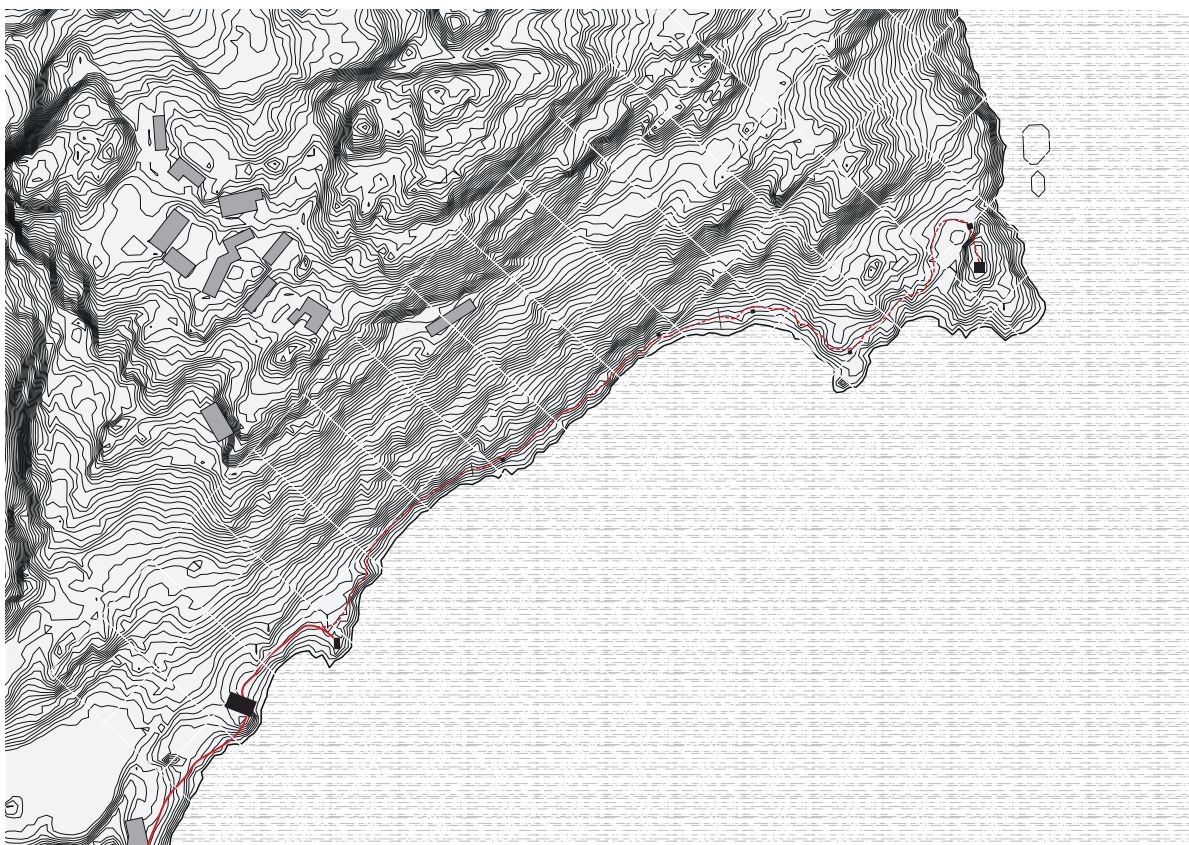
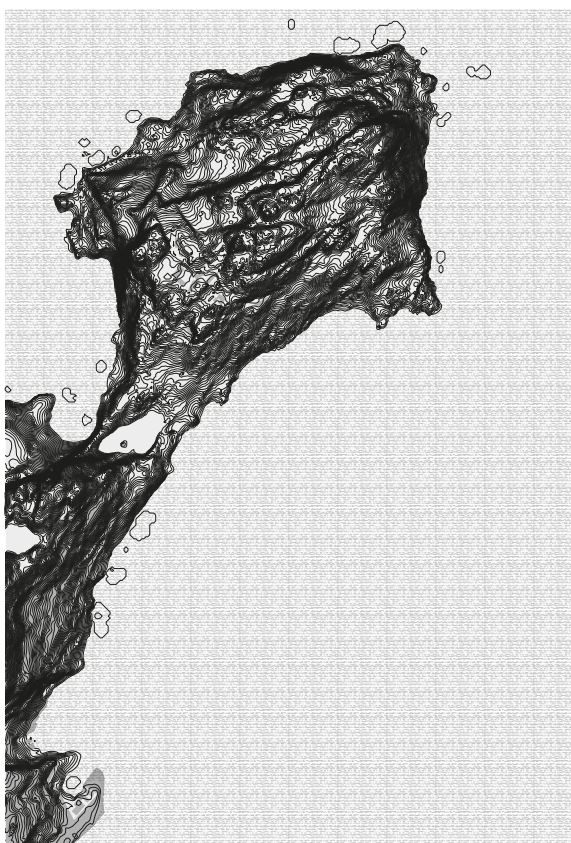


Site visit

### **Location**

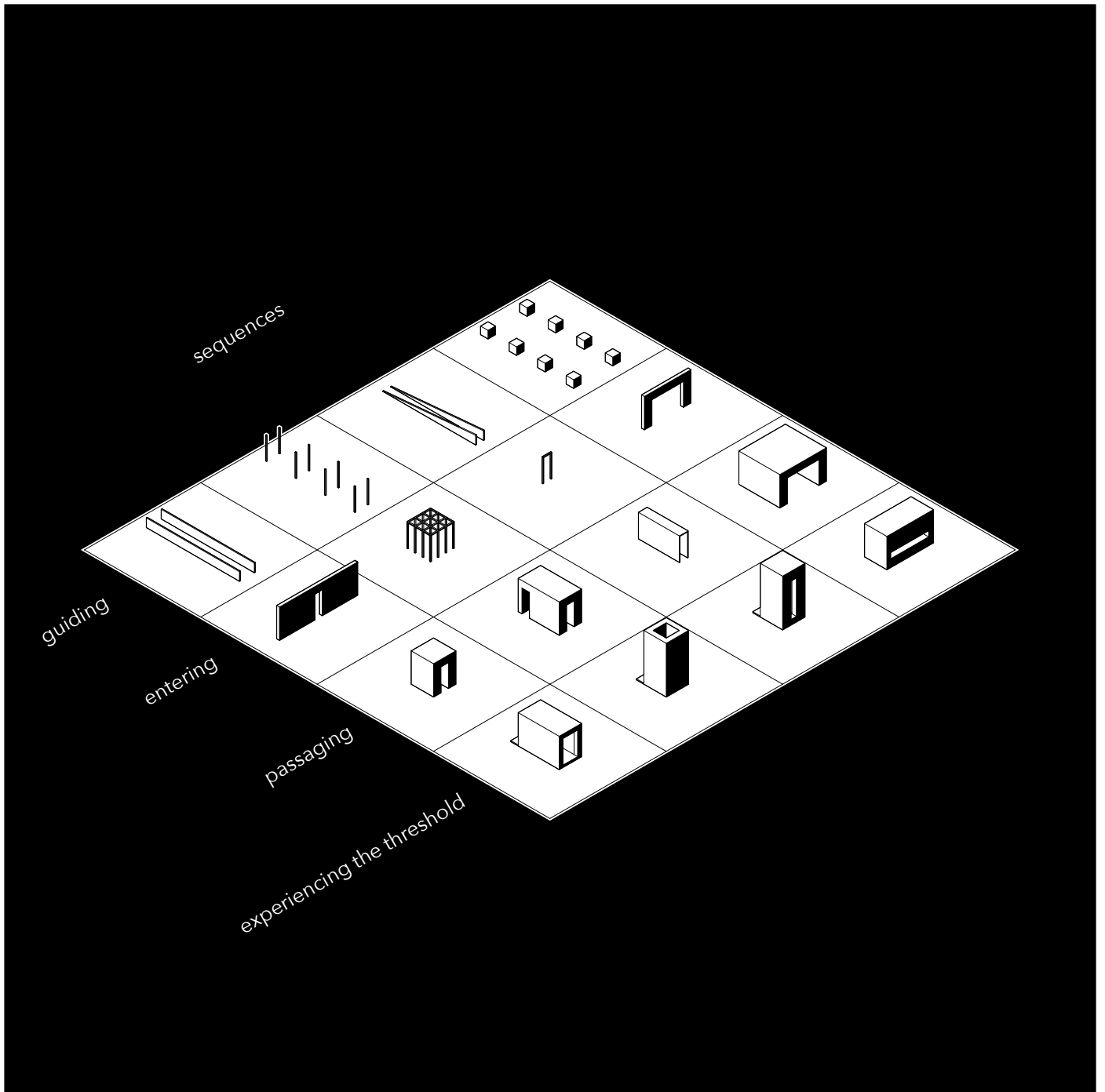
Along the coast of Harstad, the city is trying to regain the connection with the peninsula that lays in the north east. During the last few year, small elements and routs have been added by the municipality in order to attract local visitors towards the peninsula.

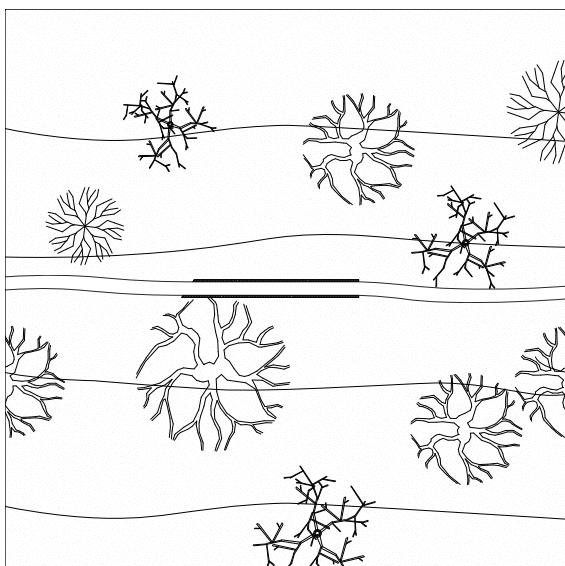




### **The introduction of the threshold**

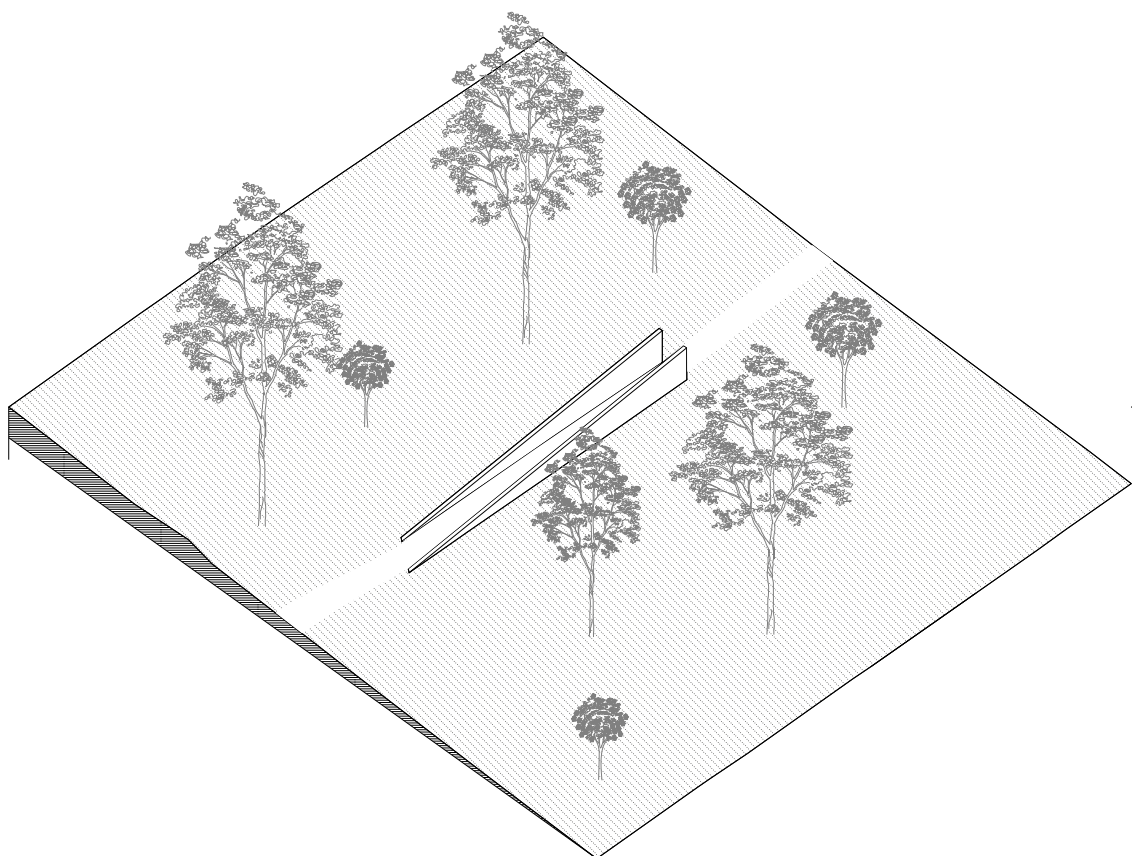
By designing and introducing a set of elements, a threshold can be introduced. Visitors are continuously engaged in the participation of a manifesto of elements. Each element is different, but have 4 same specific goals of treating the visitors: guiding them, giving them the feeling of entering, giving them the feeling of passing and finally, experiencing the threshold between artificial and nature.

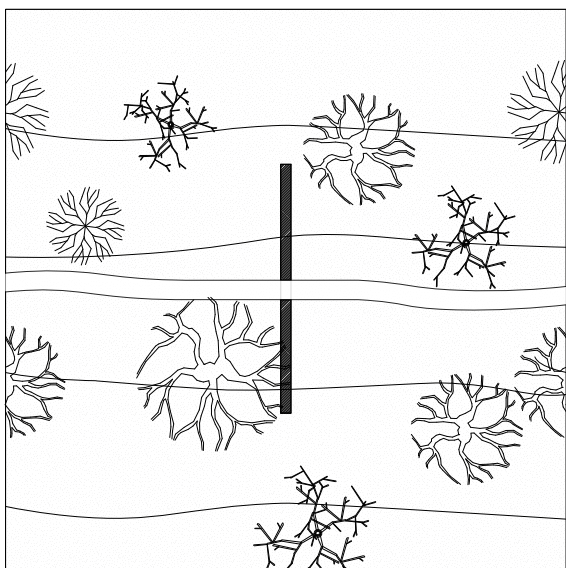




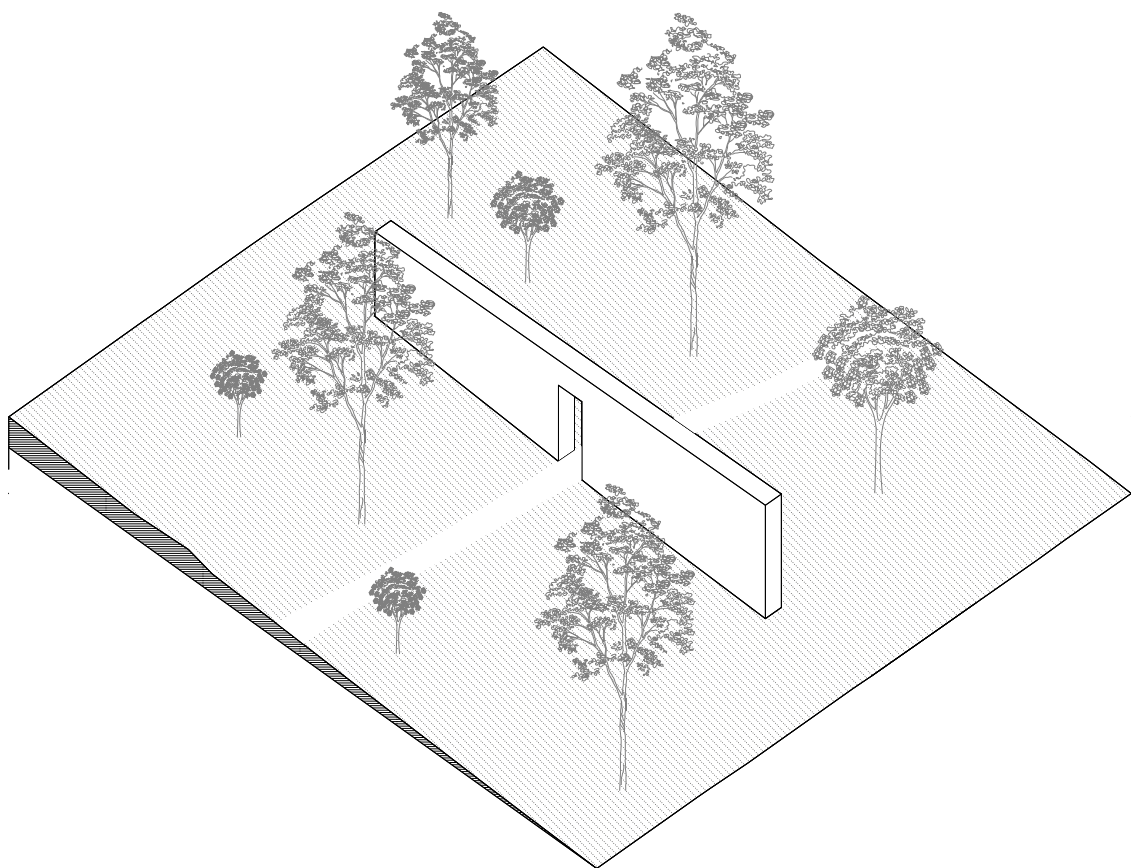
A set of walls, emerging from the land is one example of guiding the visitors. It is also the least impact of architectural intervention. It the first way of noticing threshold, limiting the visitors minimally.

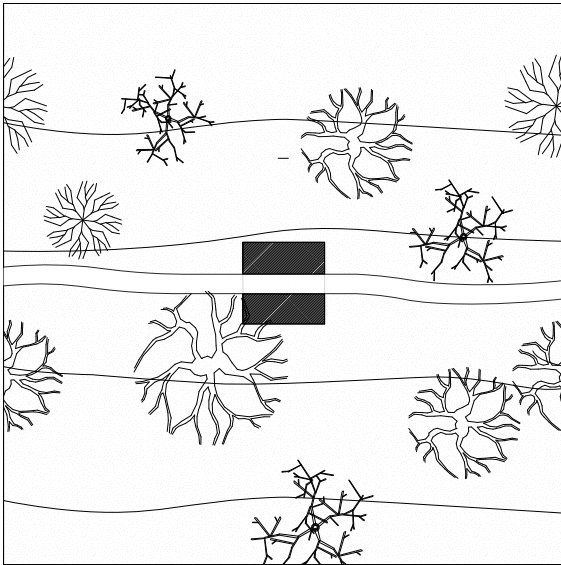




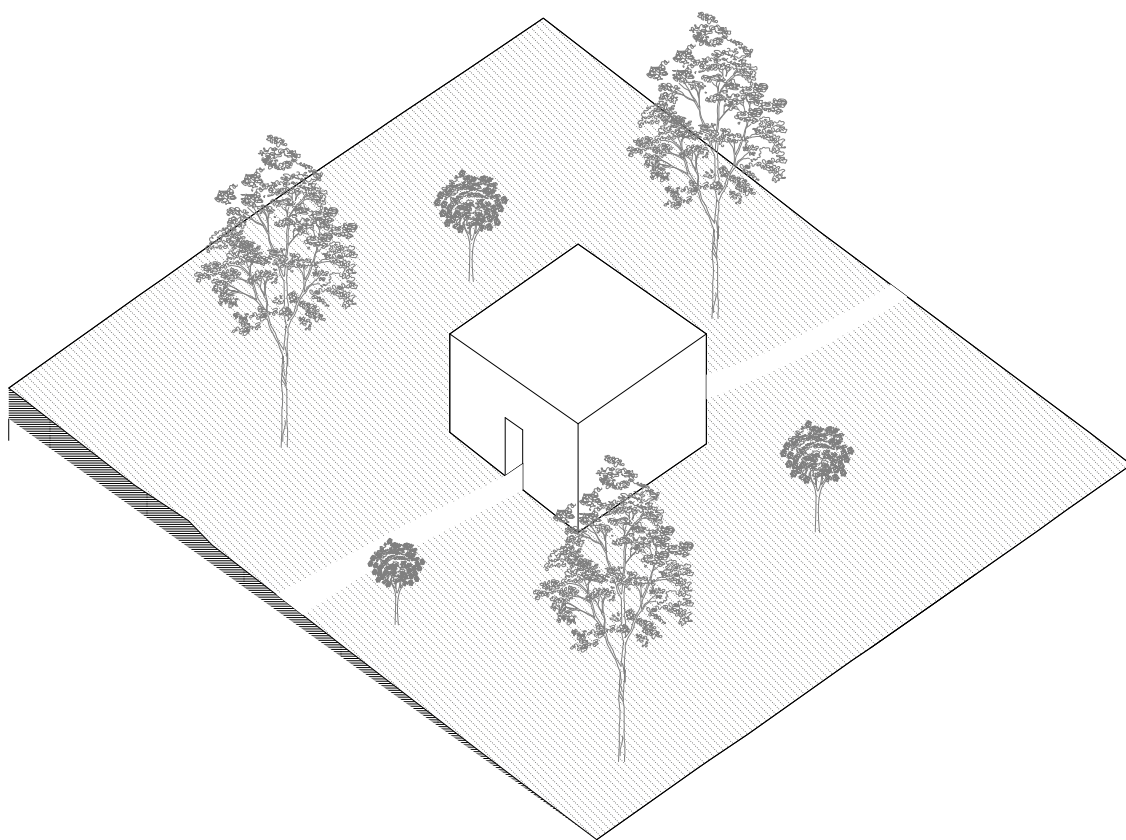


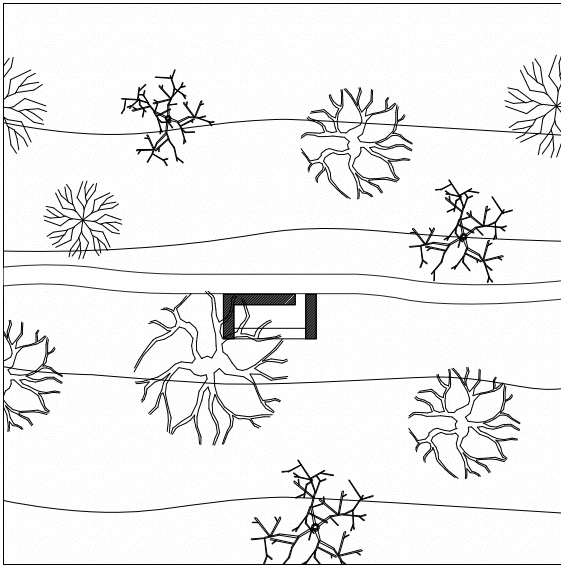
A sudden wall, introduces the visitor to the feeling of entering. The abrupt appearance makes visitors wonder, questioning the reason of placement, and giving them the first feeling of passing through a threshold.



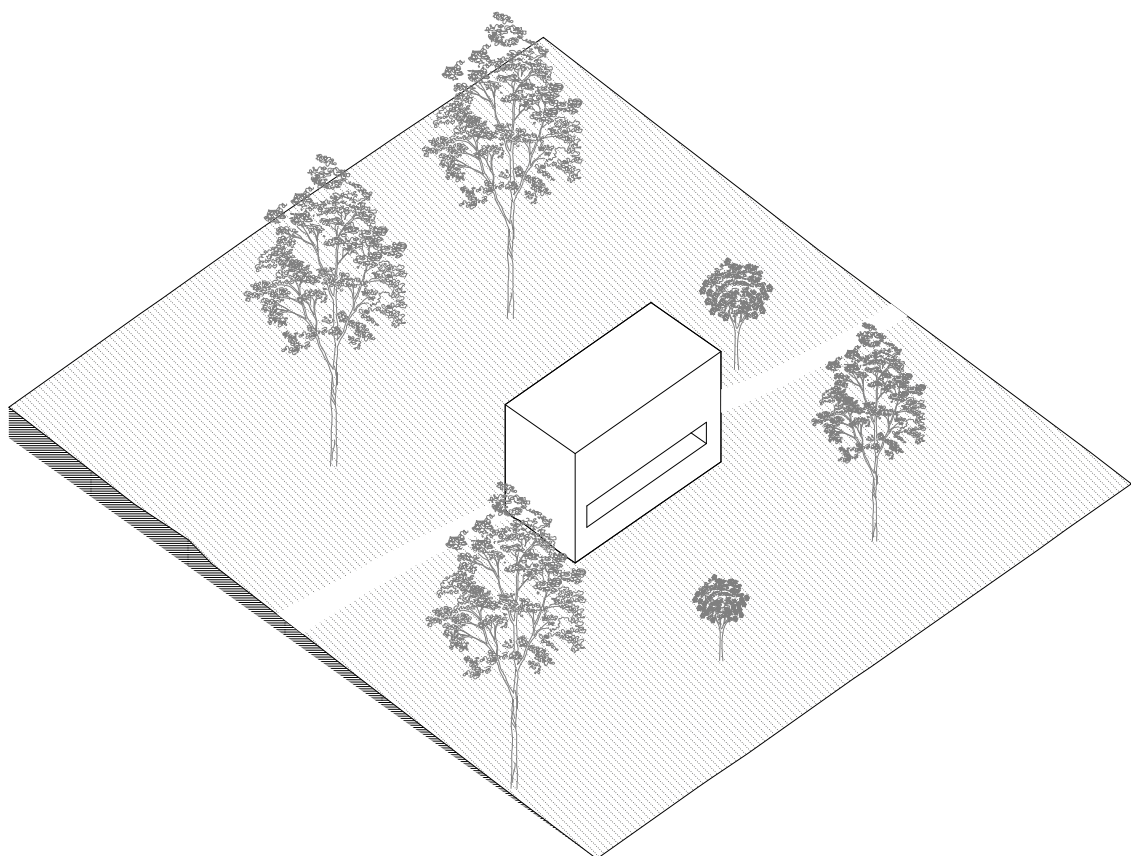


A passage then makes the visitors for the first time feel enclosed by the element. Their vision is almost fully taken over by the element, with only the frame of nature shimmering through at the exit.





Finally , there is a moment where the visitors come to a stand still. In this element, the visitor is invited to sit in front of a window, in which nature is framed through the means of architecture.





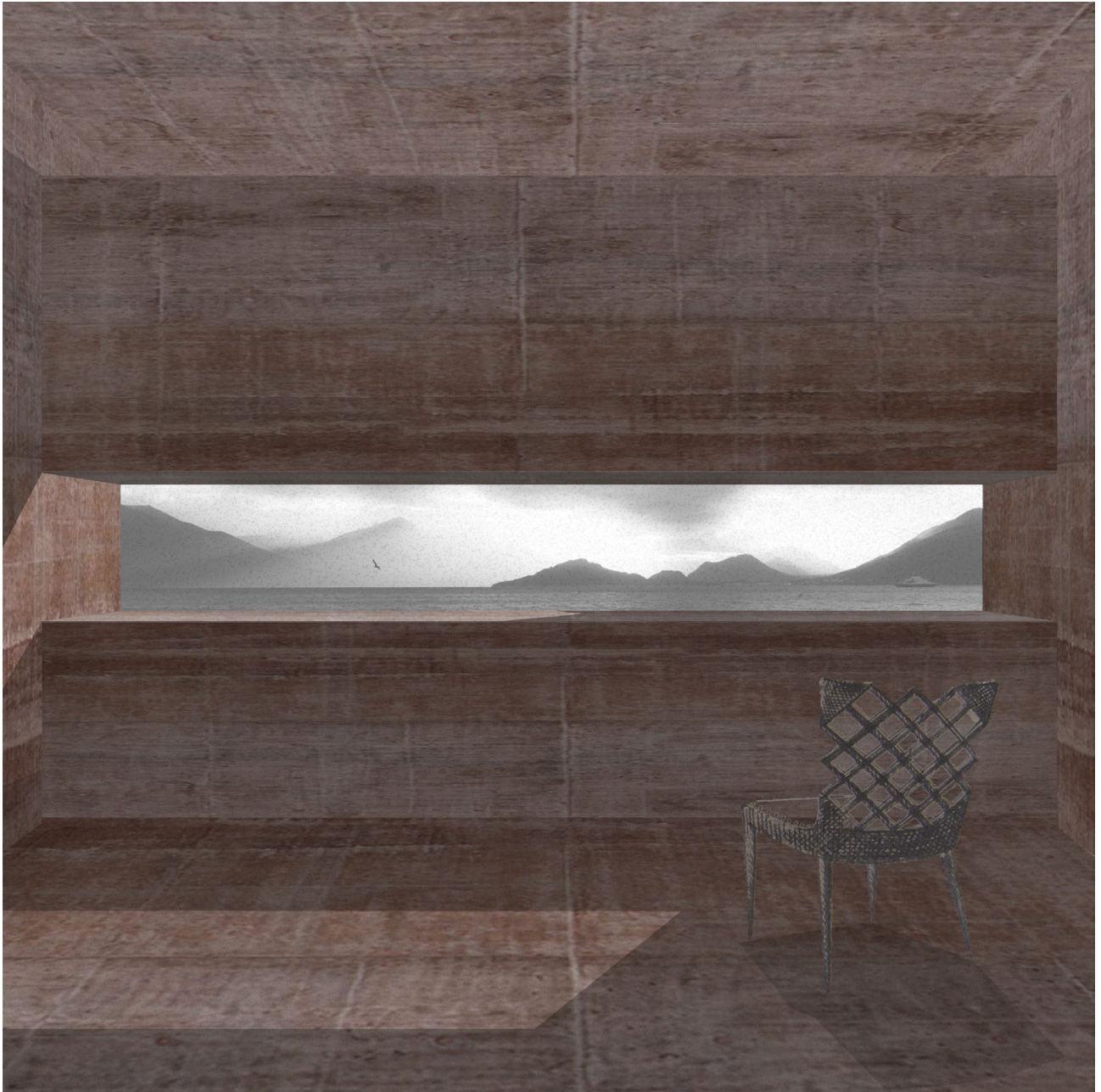








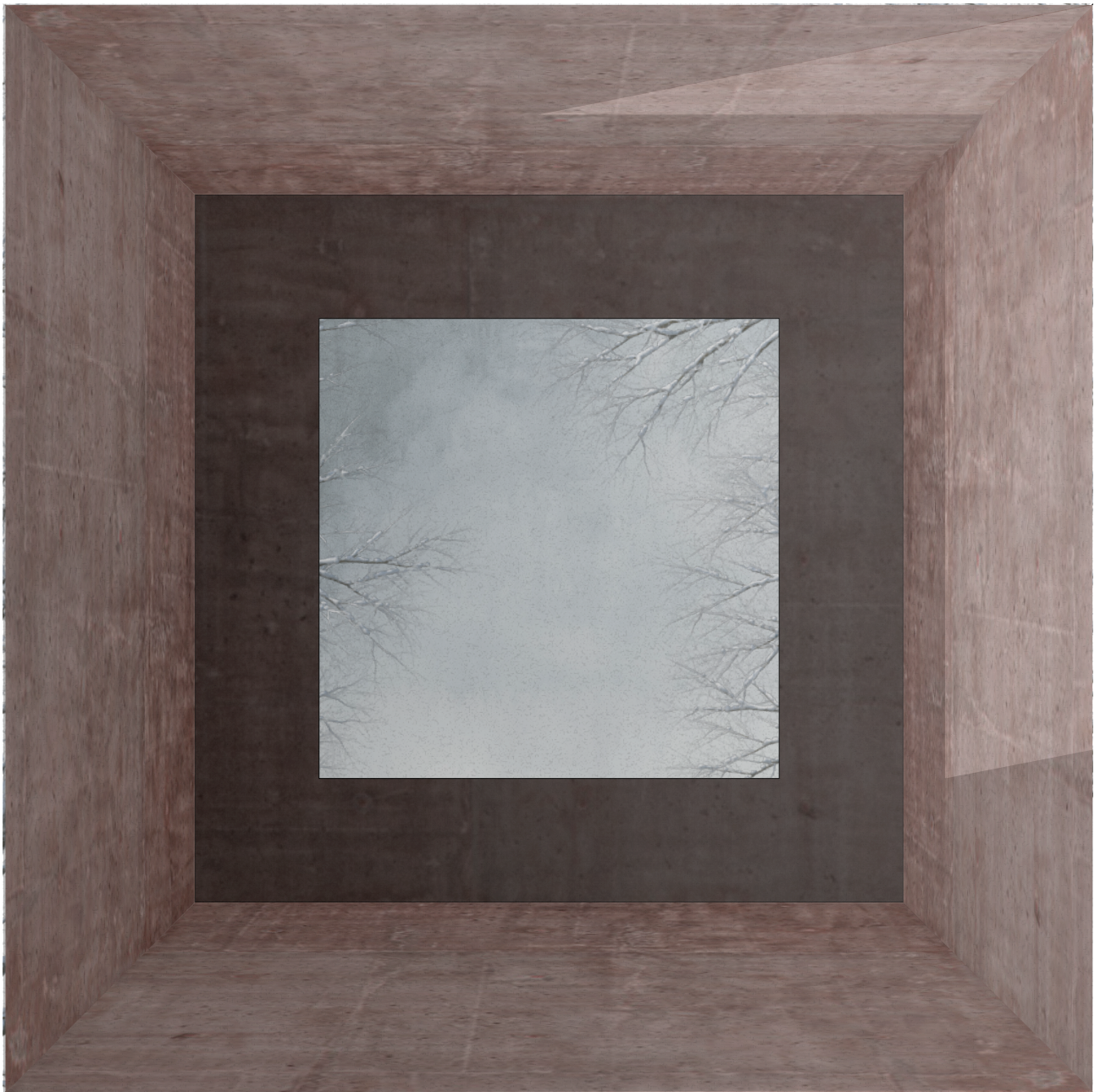






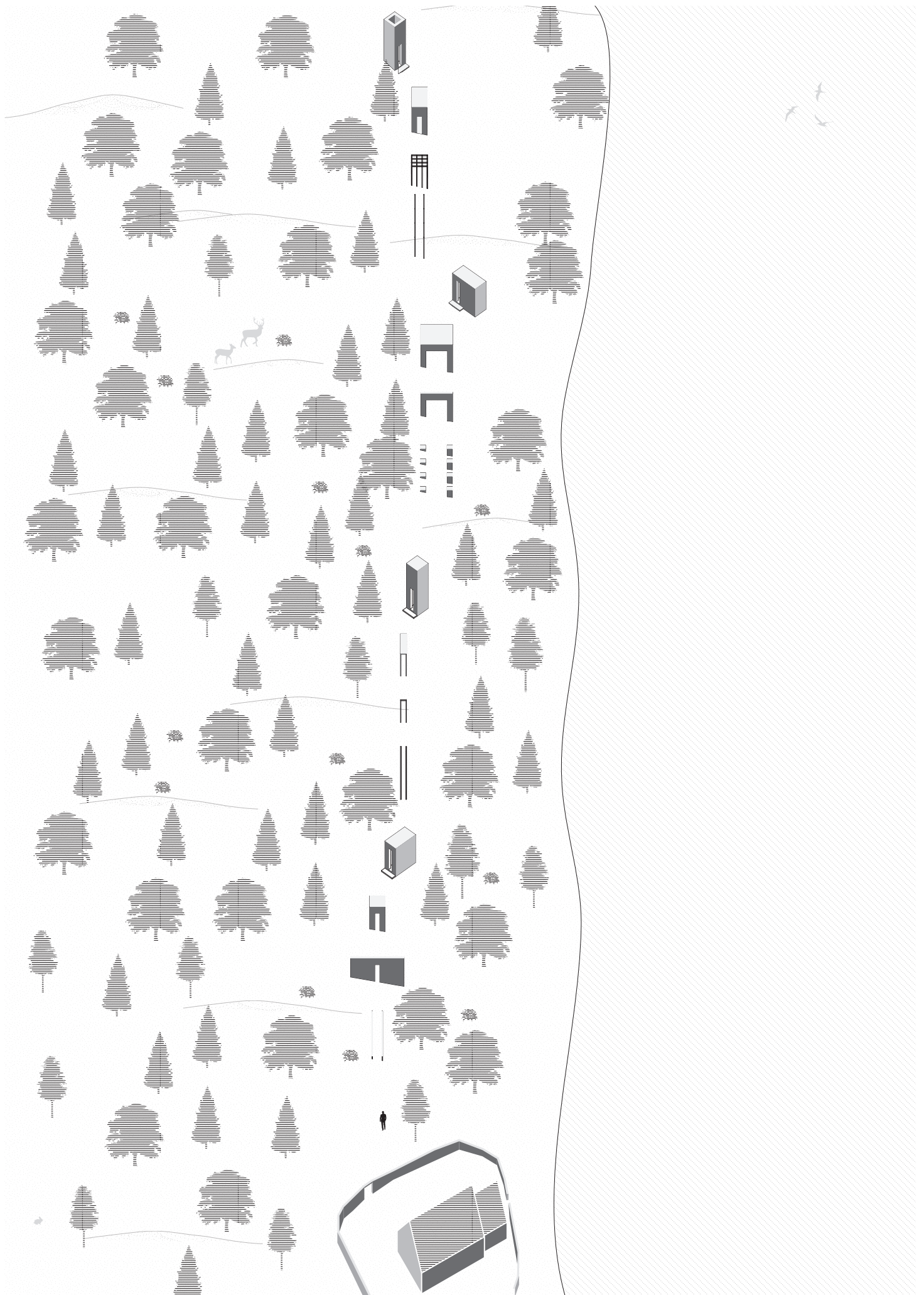


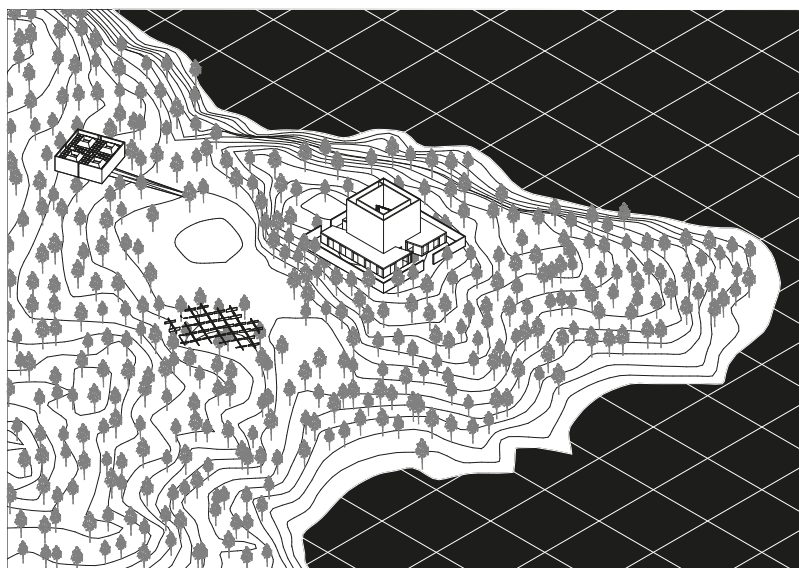




### The sequence of elements

In this drawing, the sequence of the previously introduced elements are shown along the full length of the path towards the site.





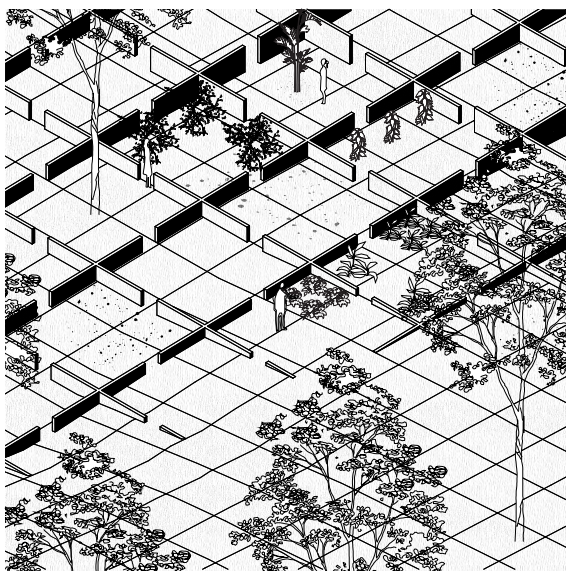
### Building site

The site sits at the far east point of the peninsula. It is approximately 1 kilometer by foot from the church, where the route started, and hosts the end of the manifestation of structures. The opening of the trees towards a watershed provides the point in the landscape suitable for the intervention of the second nature.





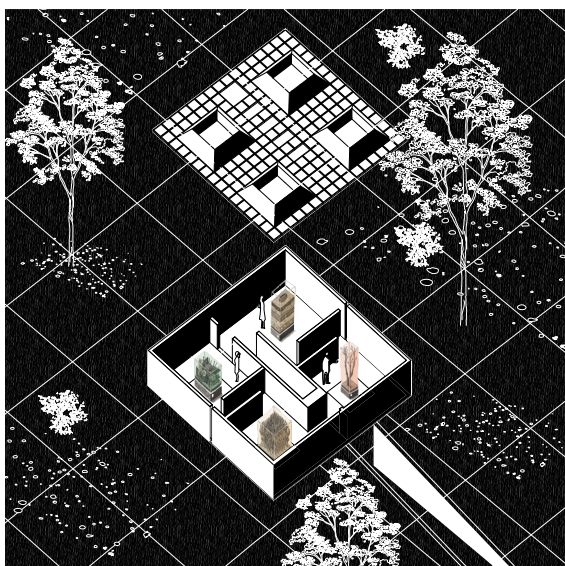




### The second: framing nature

Translating the concept of the second nature starts from the moment humans intervene in nature. For this manifestation, I chose to subtly let walls form a framing network onto the landscape. It gives the visitors a sense of feeling for the frame that is made, and shows the impact of human interventions in a natural landscape.





### The third nature: human in control

The concept of the third nature into a spatial manifestation is translated through an exhibition space. Entering the building takes the visitor underground, then walking up into the building the exhibition spaces. This way, the spaces become an exhibitional inner garden, guiding the visitors through the spaces by light from a break in the wall.

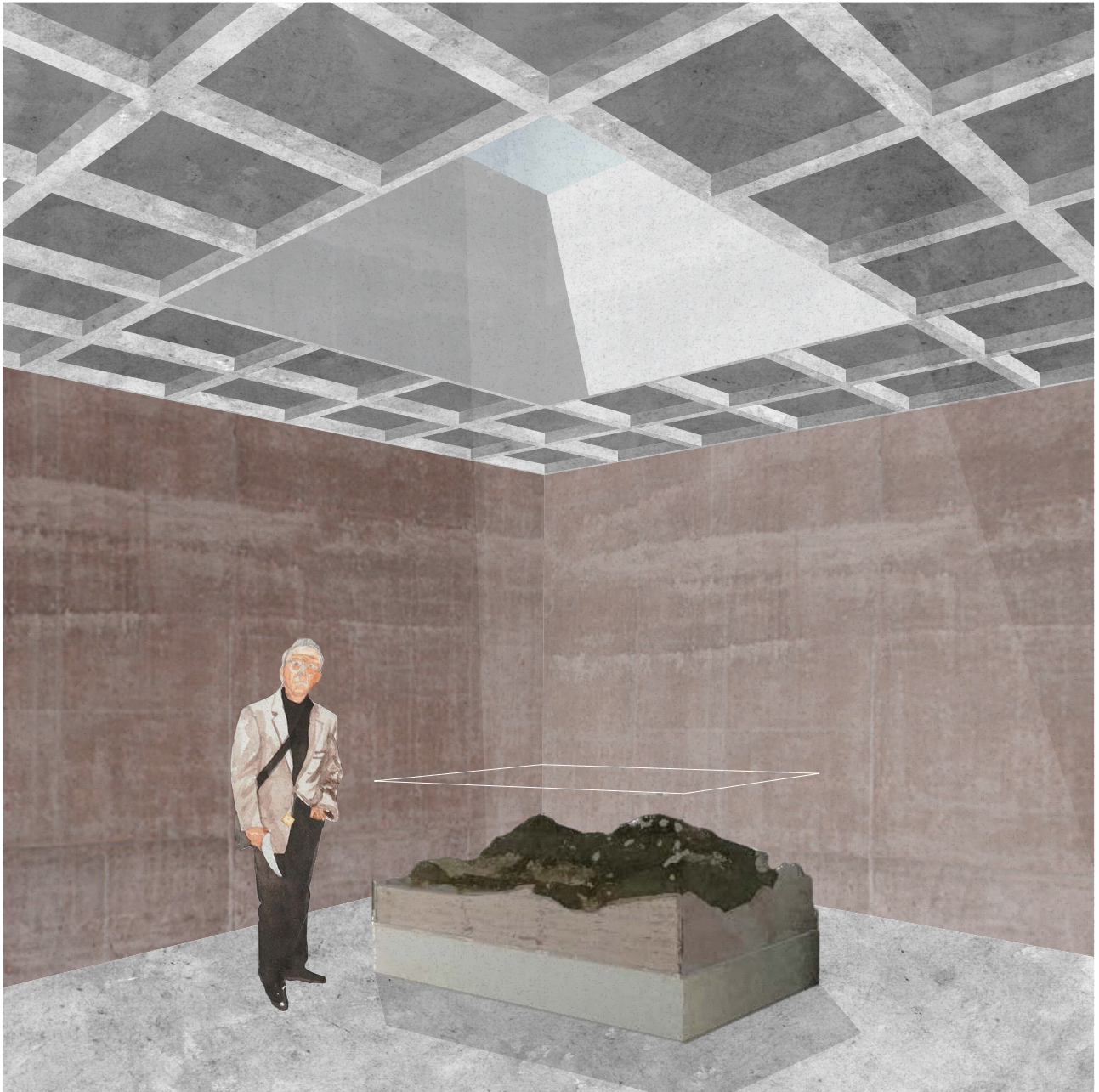
Natural lights coming in through holes in the roof form moments where there is exhibition material at display.





The room, and therefor the exhibited piece of nature is controlled by the spatial manifestation of the room. The single hole in the roof makes the light frame the piece of exhibition.







Visitors exit the exhibition space of the third nature through the underground passage. However, their frame is altered. The direction of the exit is directly towards the entrance of the main building.

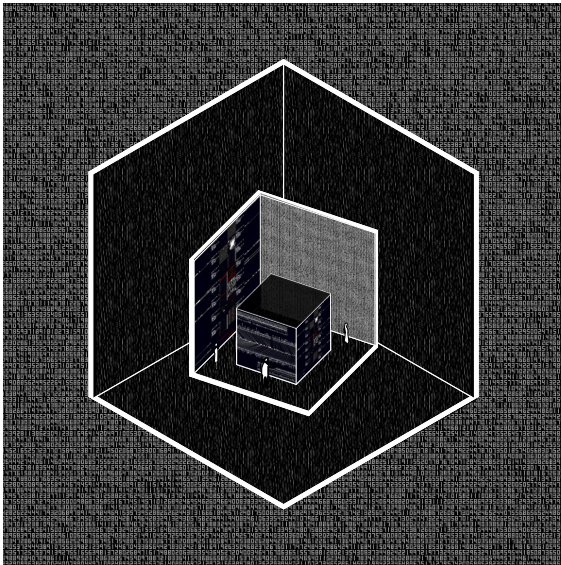




After entering the building, sloped walkways between two walls will guide the visitor towards the unknown. There is no visible connection to the natural environment outside of the building. Light that shimmers down through past the floors above guides the visitors. During darker days, additional lighting in the ceiling will help keeping the route enlightend.



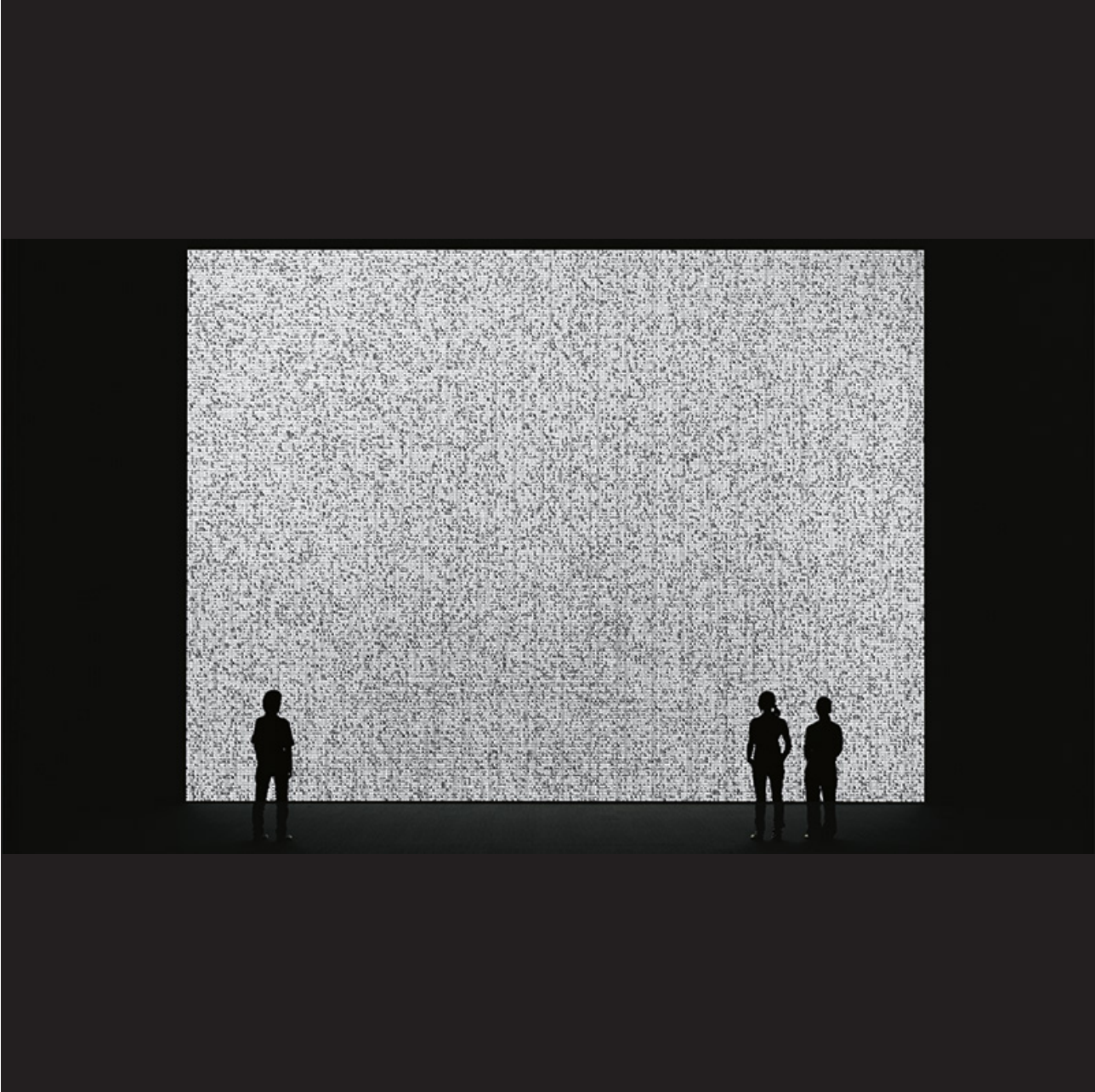




### The fourth nature as an exhibition

Hanging in the middle of the inner garden is the exhibition space of the fourth nature. After walking up the sloped ramps between the inner walls, visitors will enter the space through a narrow entrance. The room is a cube shape, measuring 8x8x8 meters. The 8 meter high inner walls will display binary and non binary codes taken from sensory measurements of data, giving the visitors an overwhelming feeling.





After leaving the fourth nature exhibition room, visitors will be guided further up, where there is the possibility to overlook the landscape and the journey that took them there.

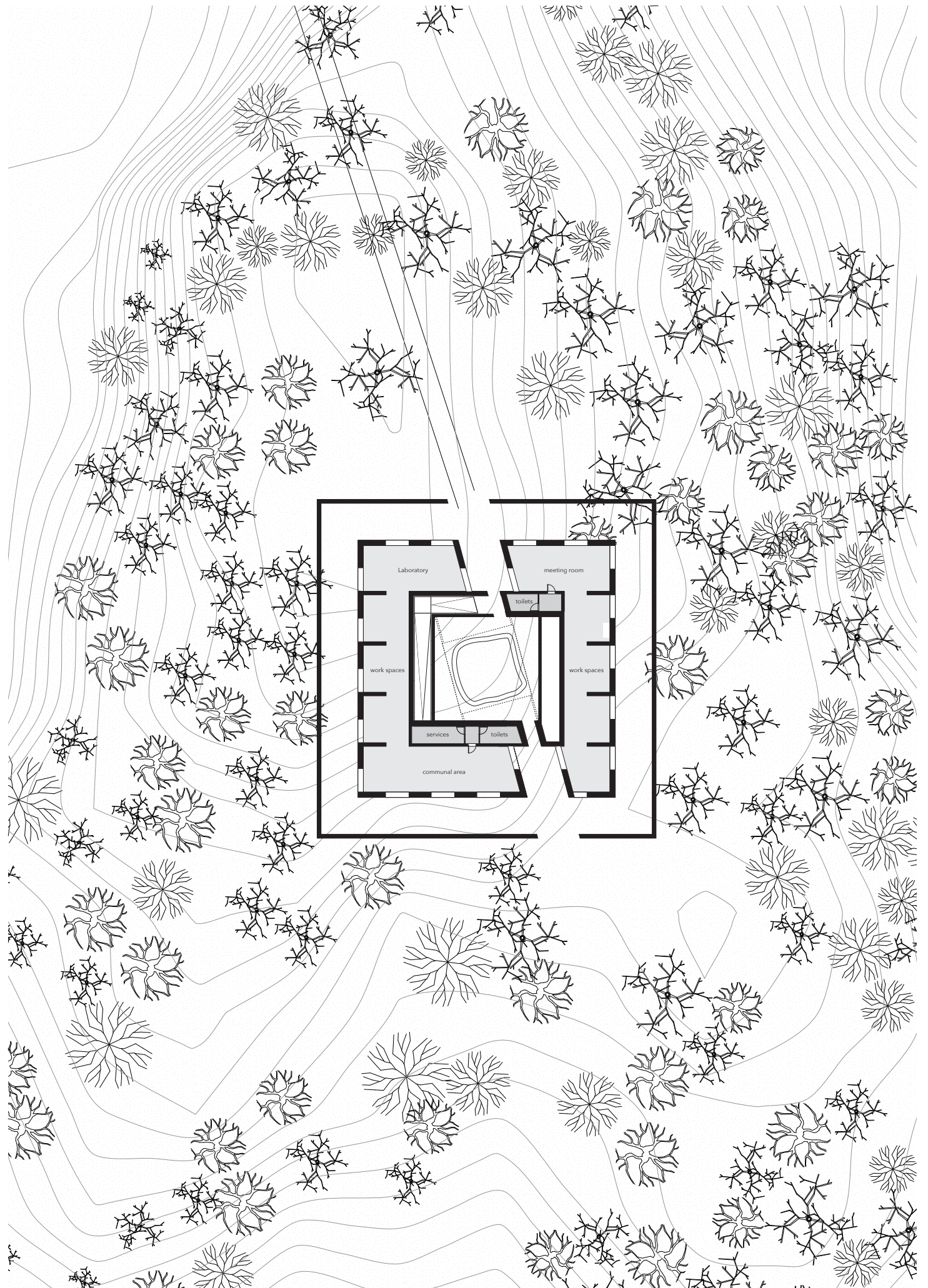


### Research center

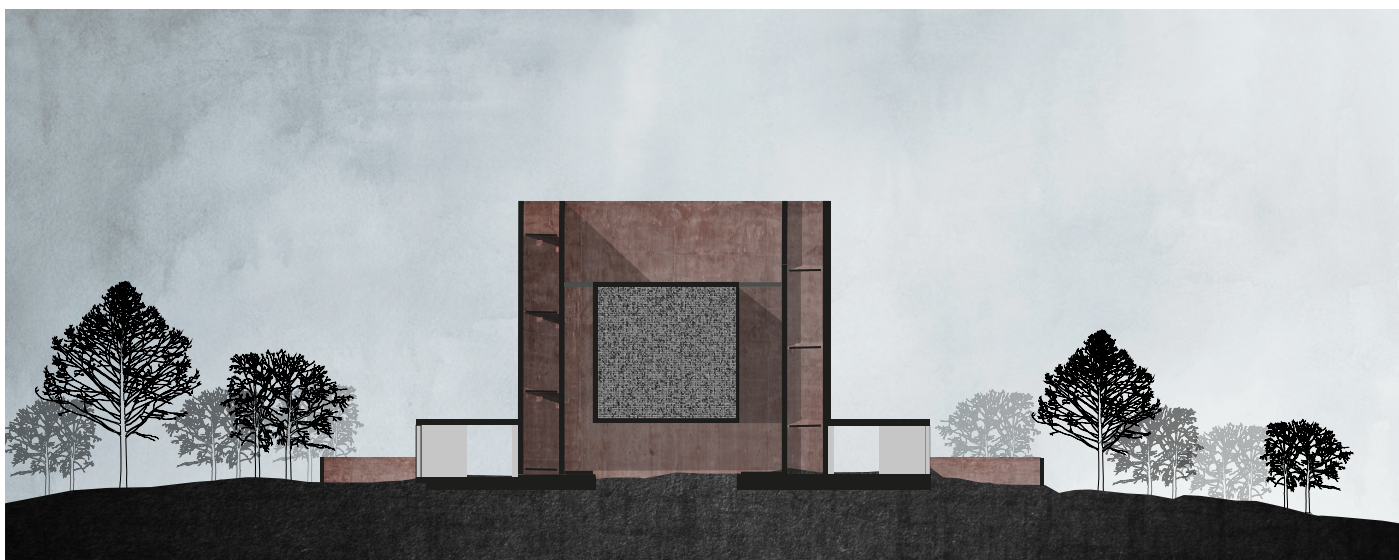
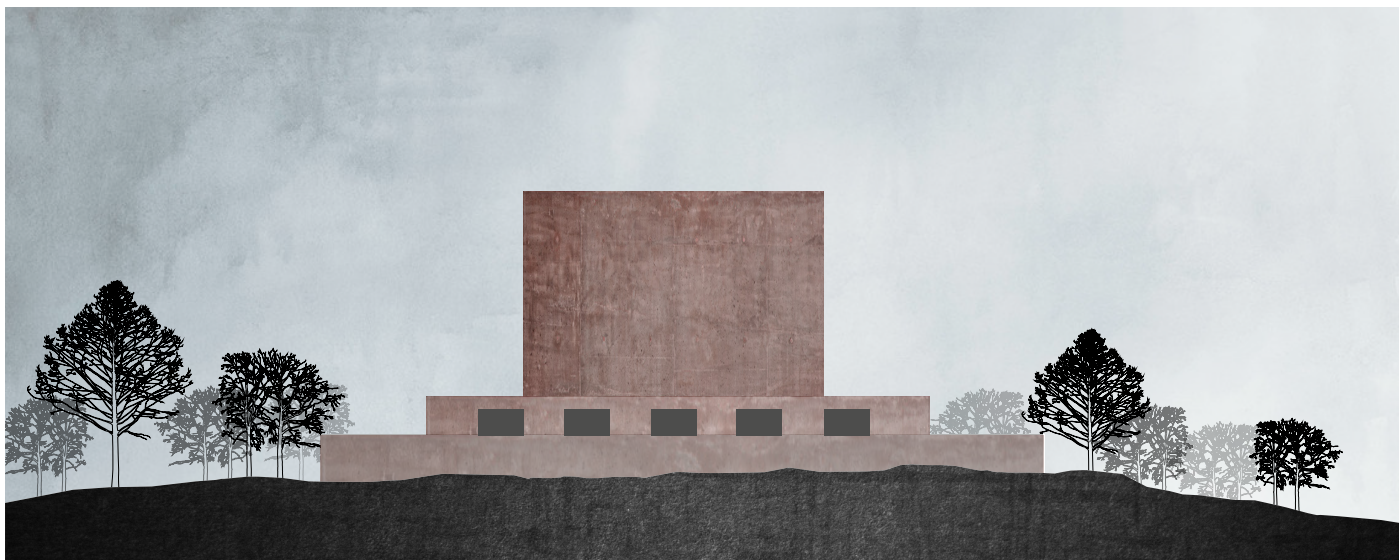
surrounding the inner garden and sloped walkways is the research center. Visitors are invited to walk around through the garden, looking in the work spaces of the scientists. To keep the interior of the research center one continuous space, the service and additional spaces are placed underneath the ramps.

After leaving the inner garden, visitors are released back into nature, following the path around the peninsula.



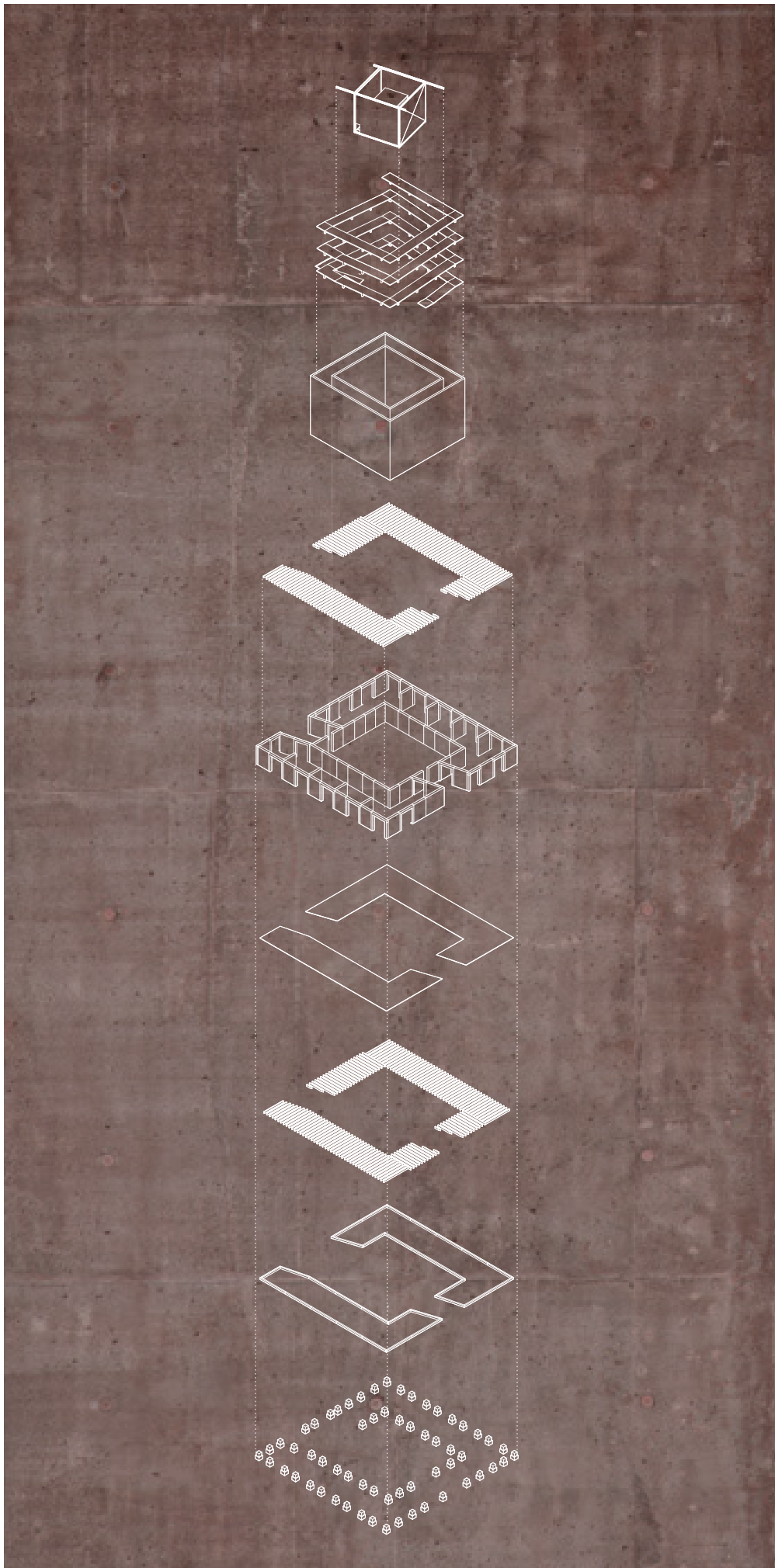



West elevation with corresponding section



Axonometric view of the building



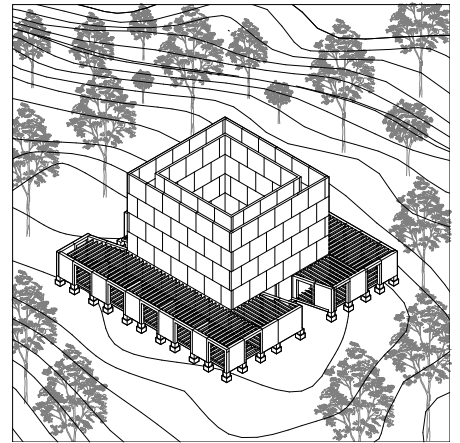
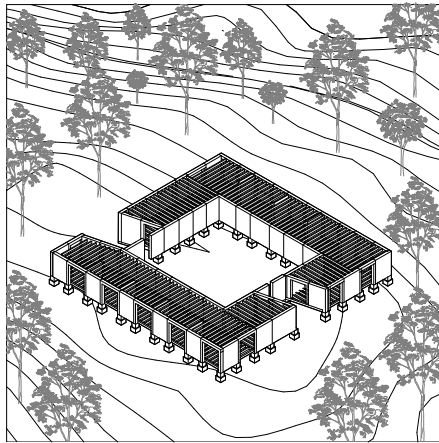
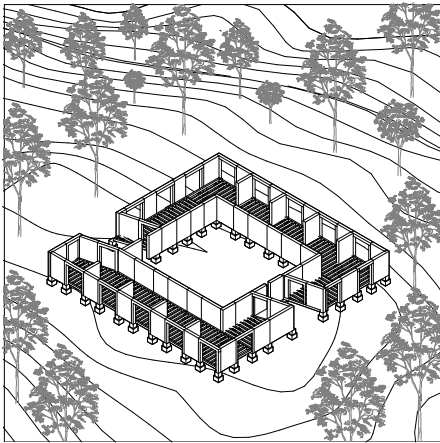
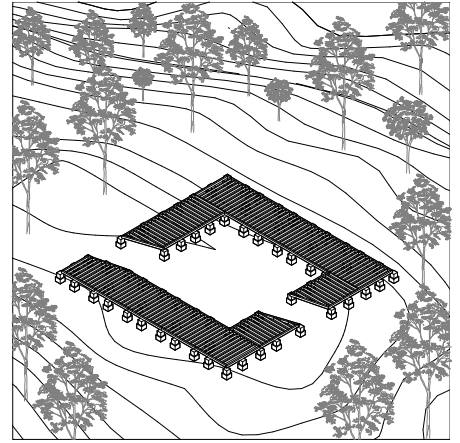
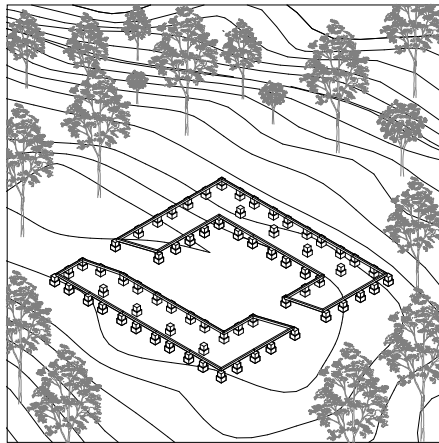
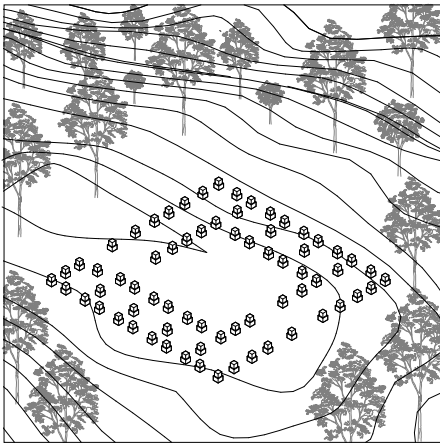


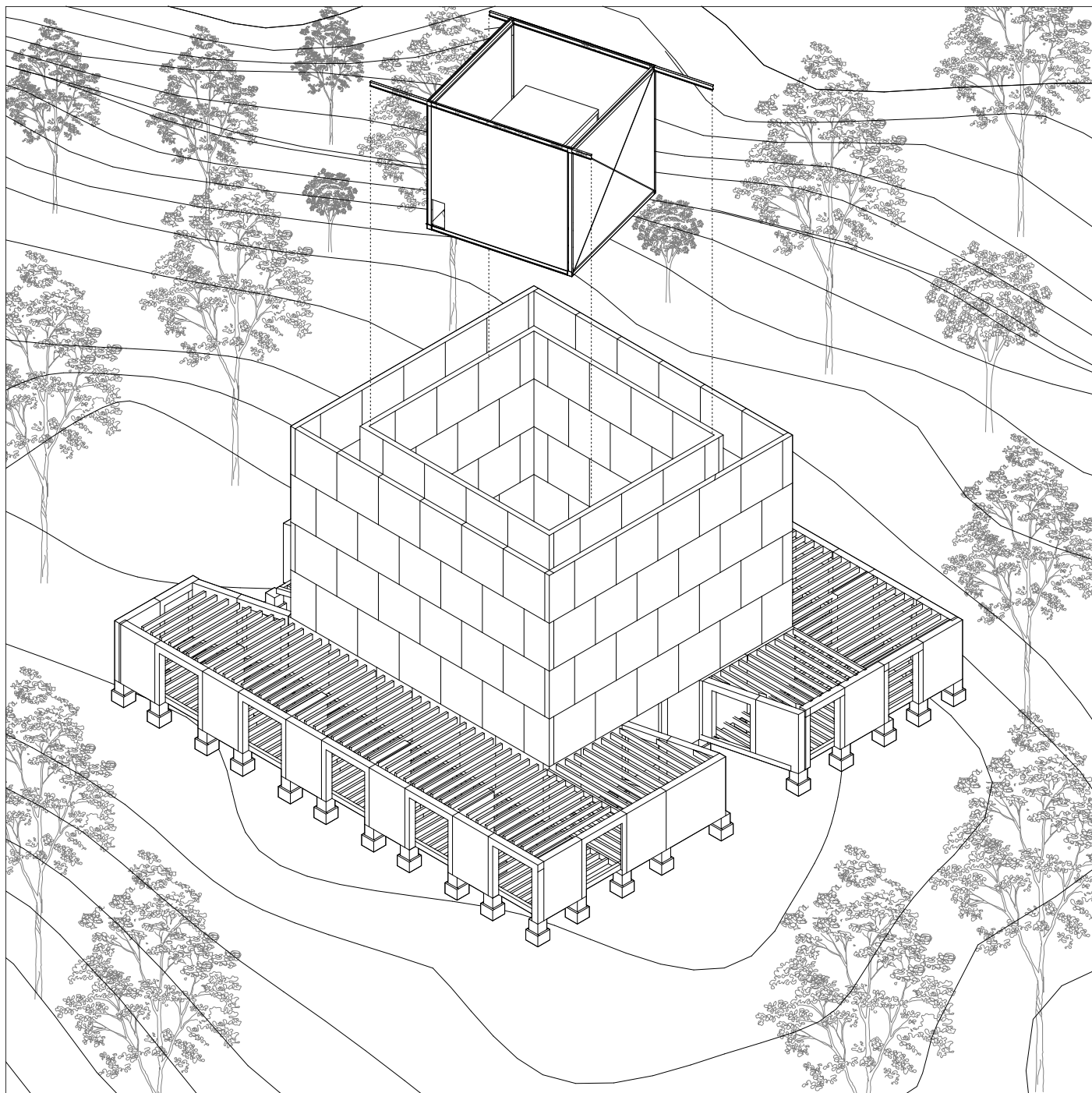
The image shows a large, minimalist interior space, likely a research center. The walls and ceiling are made of light-colored wood, creating a warm and natural atmosphere. The floor is a smooth, light grey concrete. In the background, a large window or glass wall reveals a winter landscape with snow-covered trees and a red concrete structure, possibly a bridge or a building, contrasting with the white snow. The overall design is clean and modern, emphasizing the use of natural materials and a connection to the outdoors.

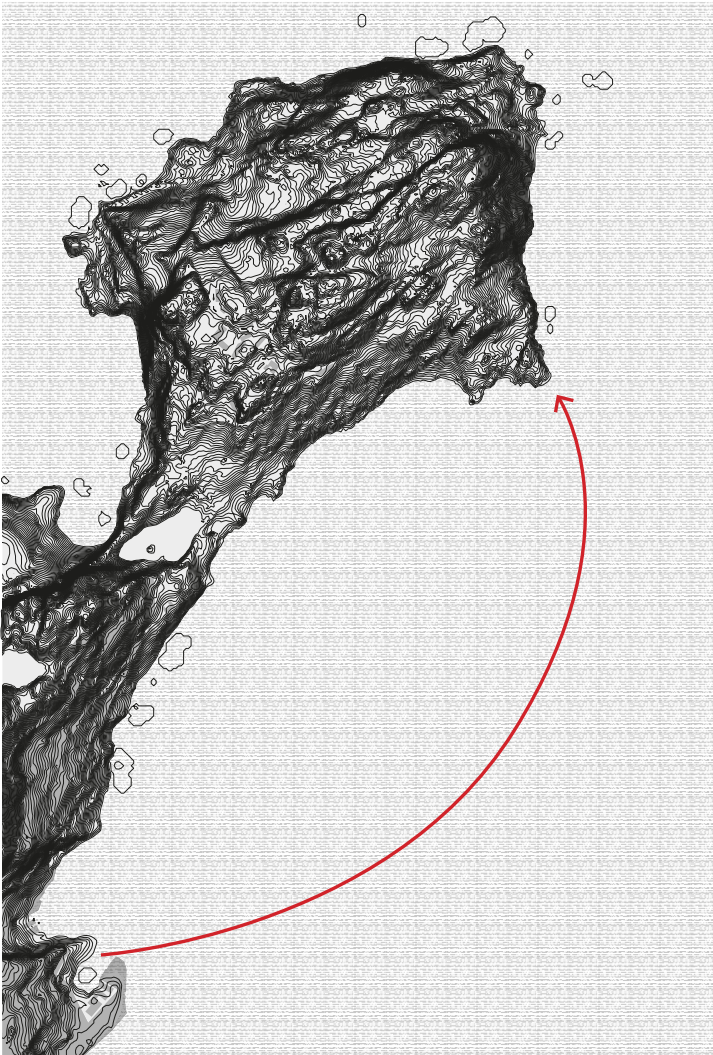
Interior view of the research center, showing the warm use of material with wood contrasting the grey concrete. In the back of the drawing the red concrete is contrasting the winter landscape.



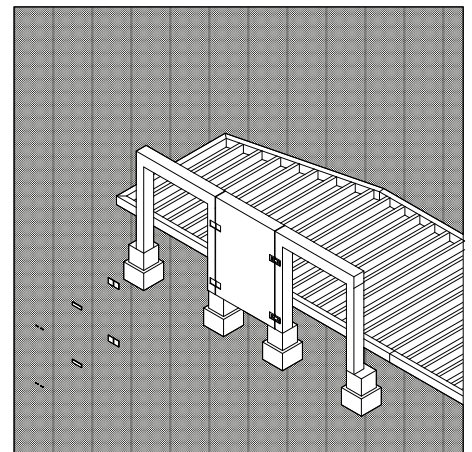
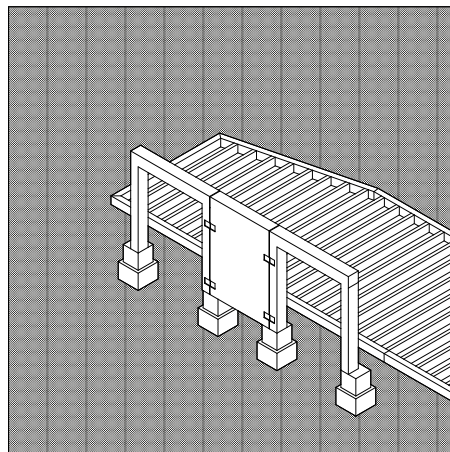
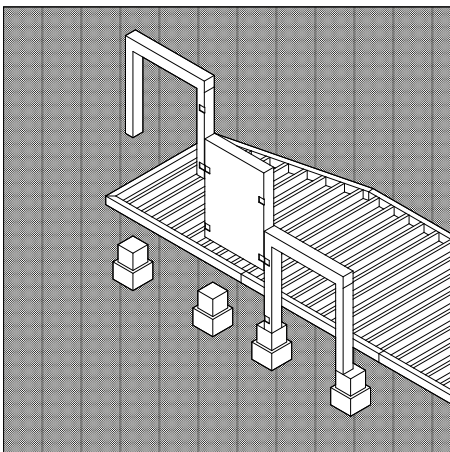
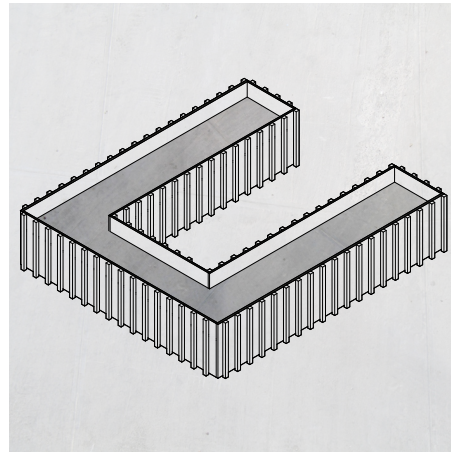
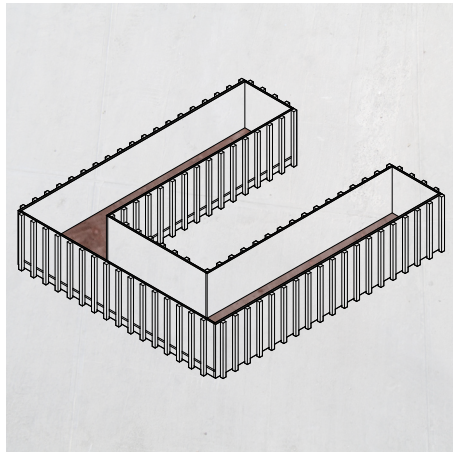






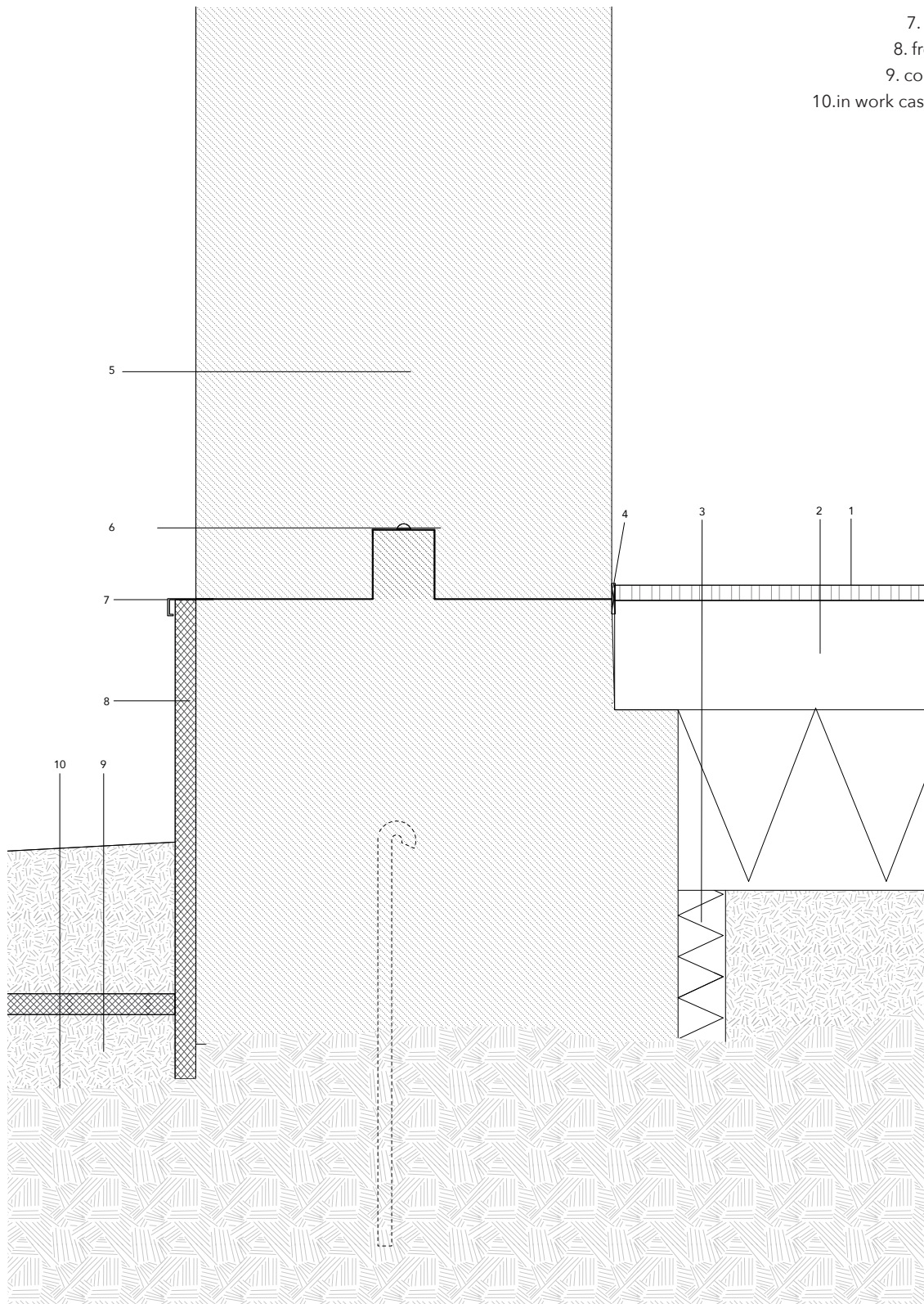


The feasibility of the project lays in the transport of the building material to the site. Because of the remote location, the choice is made to ship per boat. On site, raw materials arrive and will be casted into prefab elements. A small crane is then necessary to place the building blocks.

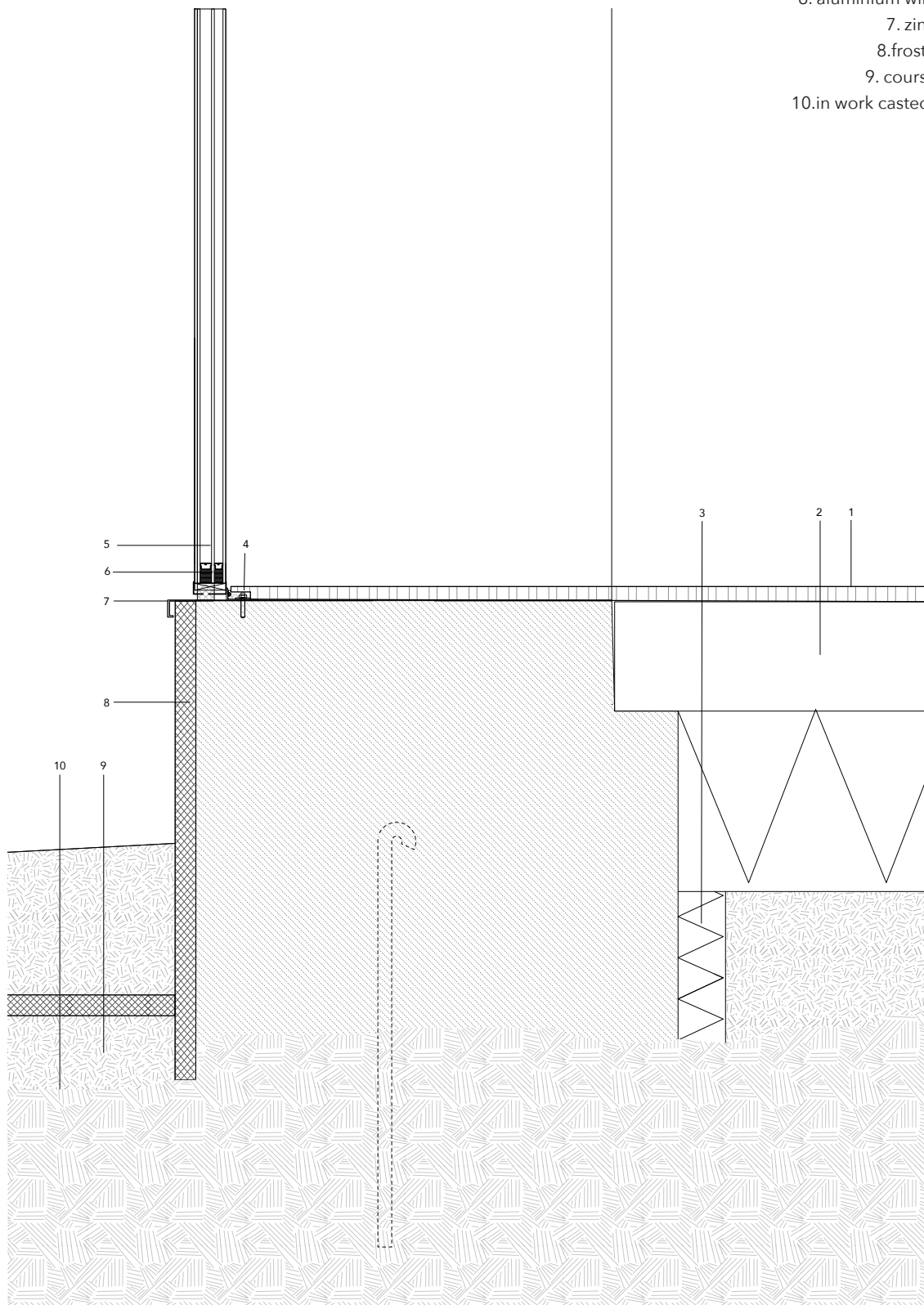


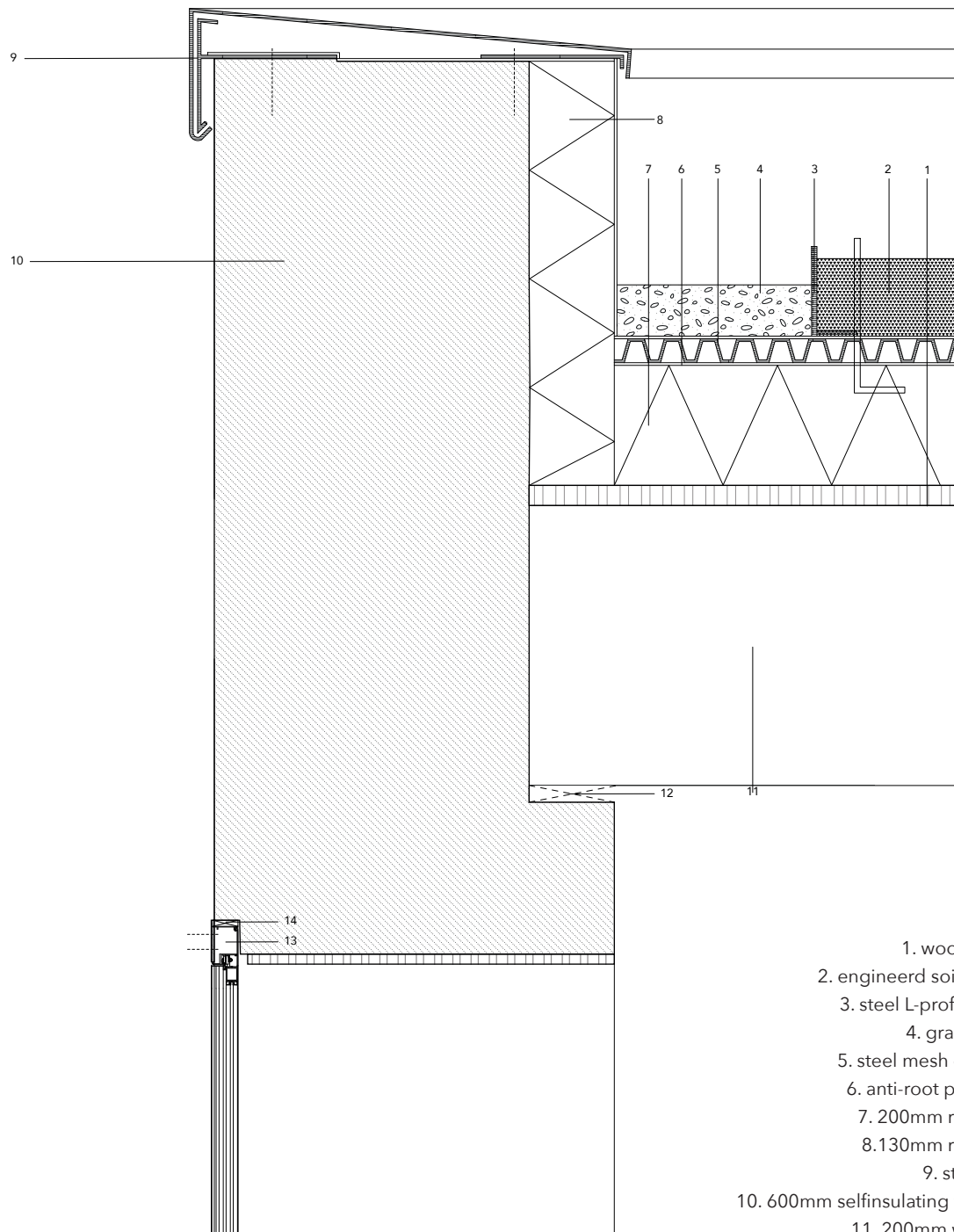


1. wood floor finishing
2. wood beam
3. 20 mm rigid insulation
4. seaming seal
5. 600 mm selfinsulating warmconcrete
6. rubber seal
7. zinc drip plate
8. frost prevention
9. coarse granulate
10. in work casted steel hook



1. wood floor finishing
2. wood beam
3. 20mm rigid insulation
4. steel L profile
5. triple insulating glass
6. aluminium window frame
7. zinc drip plate
8. frost prevention
9. coarse granulate
10. in work casted steel hook

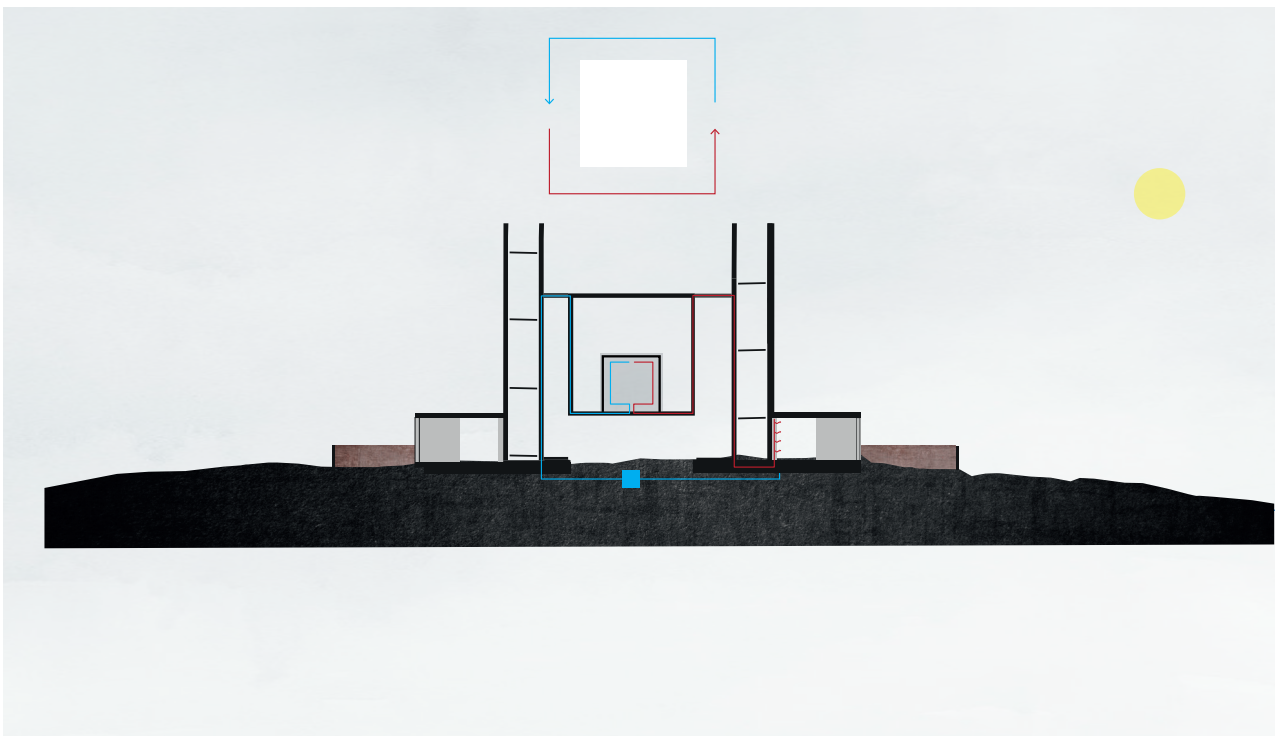




1. wood finish board
2. engineerd soil with planting
3. steel L-profile 120x60mm
4. granulate mixture
5. steel mesh drainage layer
6. anti-root protective layer
7. 200mm rigid-insulation
8. 130mm rigid-insulation
9. steel T-roof trim
10. 600mm selfinsulating warmconcrete
11. 200mm wooden beam
12. 10mm seating space
13. aluminium sliding door frame screwed in place
- 14.







During wintertime, heat generated from the datacenter will be used to heat up water. The water will then travel through the walls and floor of the main building, giving off the heat using low temperature heat exchange.

climate scheme winter situation



the flat roofs on the building have a sediment layer. The water is so naturally filtered and is then collected to be used for a grey water system.

grey water system