

**TWINS**  
*Censor booklet*

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This is a probe into the most fundamental relationship; that between two things. It delves into a personal obsession – the enigma of twins, the mystery and mythology of sameness. The two terminal buildings on the aerial tramway between Bjørvika and Ekeberg are structures that share the same DNA, and they must be born at the same time in order to fulfil their purpose. One is located on a dense urban site, one in the forest overlooking the city. The two plots allows for an exploration of symmetry, repetition, variation and ordering systems; one vertical, one horizontal – yet the structures make up the two halves of a whole.

## 2 The mystery and mythology of sameness

Myths about twins - as partners, rivals, opposites, or halves of a whole - are rooted in the basic mystery of sameness. Myths from around the world associate twins with complementary features of the natural world, such as sky and earth, day and night, sun and moon.

Twins in mythology are often cast as two halves of the same whole, sharing a bond deeper than that of ordinary siblings, like Castor and Pollux - or otherwise described as fierce rivals, like Jacob and Esau.

Many cultures have folkloric explanations for how twins are conceived. In Greek mythology, some twins were conceived when a woman slept with both a mortal and a god on the same day. One of her offspring thereafter had god like qualities, and the other was an ordinary mortal, such as Heracles and his twin brother Iphicles.

In modern times, twins have also appeared in supernatural or mythical roles. One well known example is Luke Skywalker and Princess Leia.



*Apollo and Artemis*

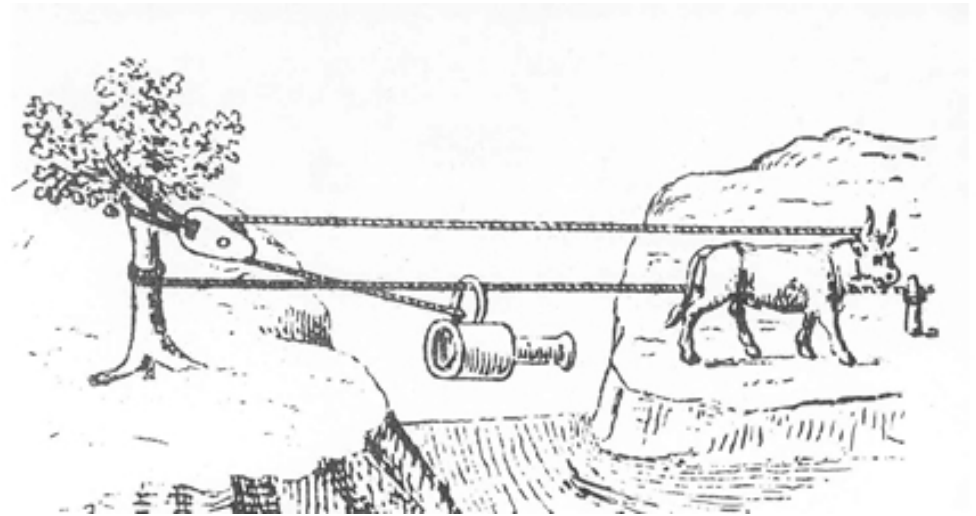
### 3 Technology

The first documentation of cable propelled transit technology dates back to 250 BC. For hundreds of years, rope propelled transit was used to move people and goods, such as minerals and ores. Simply speaking, cablepropelled transit is a transit technology that moves engine-less vehicles that are propelled by a cable. I find this machinery facinating because I believe this ancient technology has a potential to provoke unusual architectural form.

The aerial tramway in my proposal consists of two terminal buildings, one fixed cable called a track cable, one loop of cable called a haulage rope, and two passenger cabins. The fixed cable provide support for the cabin while the haulage rope is solidly connected to the wheel set that rolls on the track cable. An electric motor at the top terminal drives the haulage rope which provides propulsion. Aerial tramways are constructed as reversible systems; vehicles shuttling back and forth between two terminals, propelled by a cable loop which stops and reverses direction when the cabins arrive at the stations.

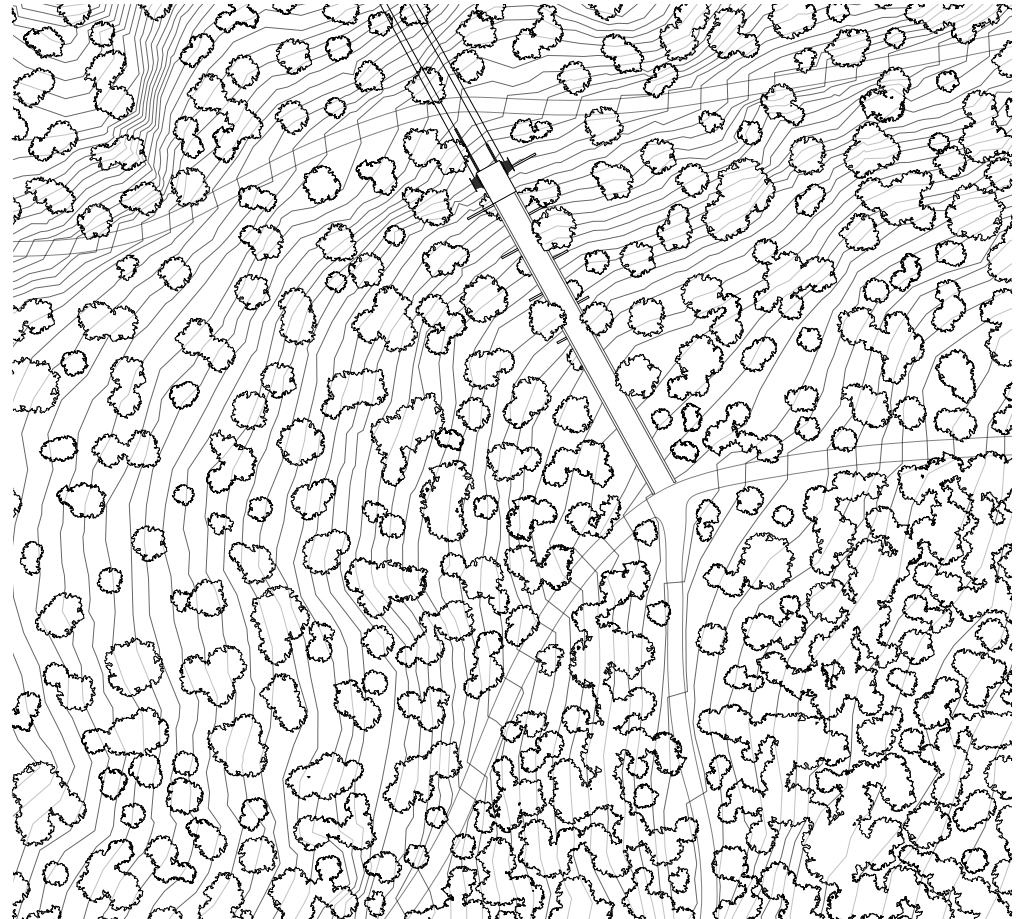
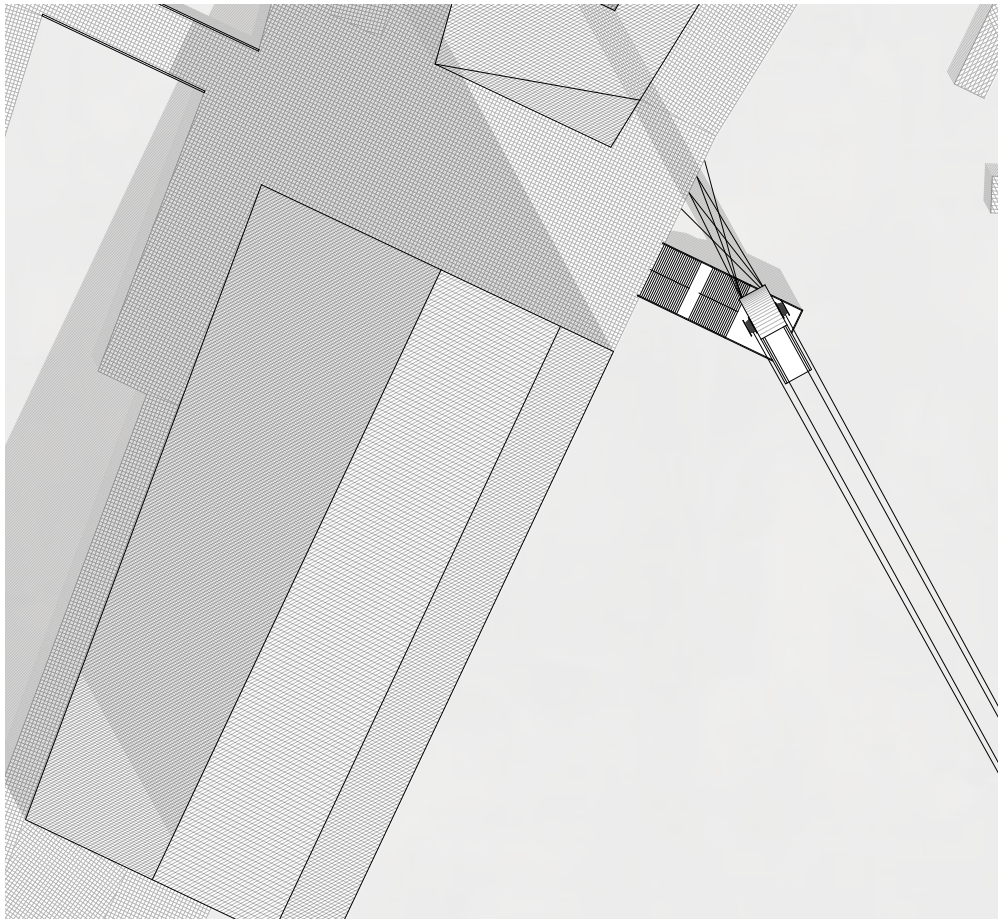
At the bottom terminal, a counterweight is balancing the weight differential when the cars are moving along the cable. This counterweight also acts as an elevator. The energy that is required to keep the track cable taut is harvested and used to move the elevator vertically - in direct relation to the cable car.

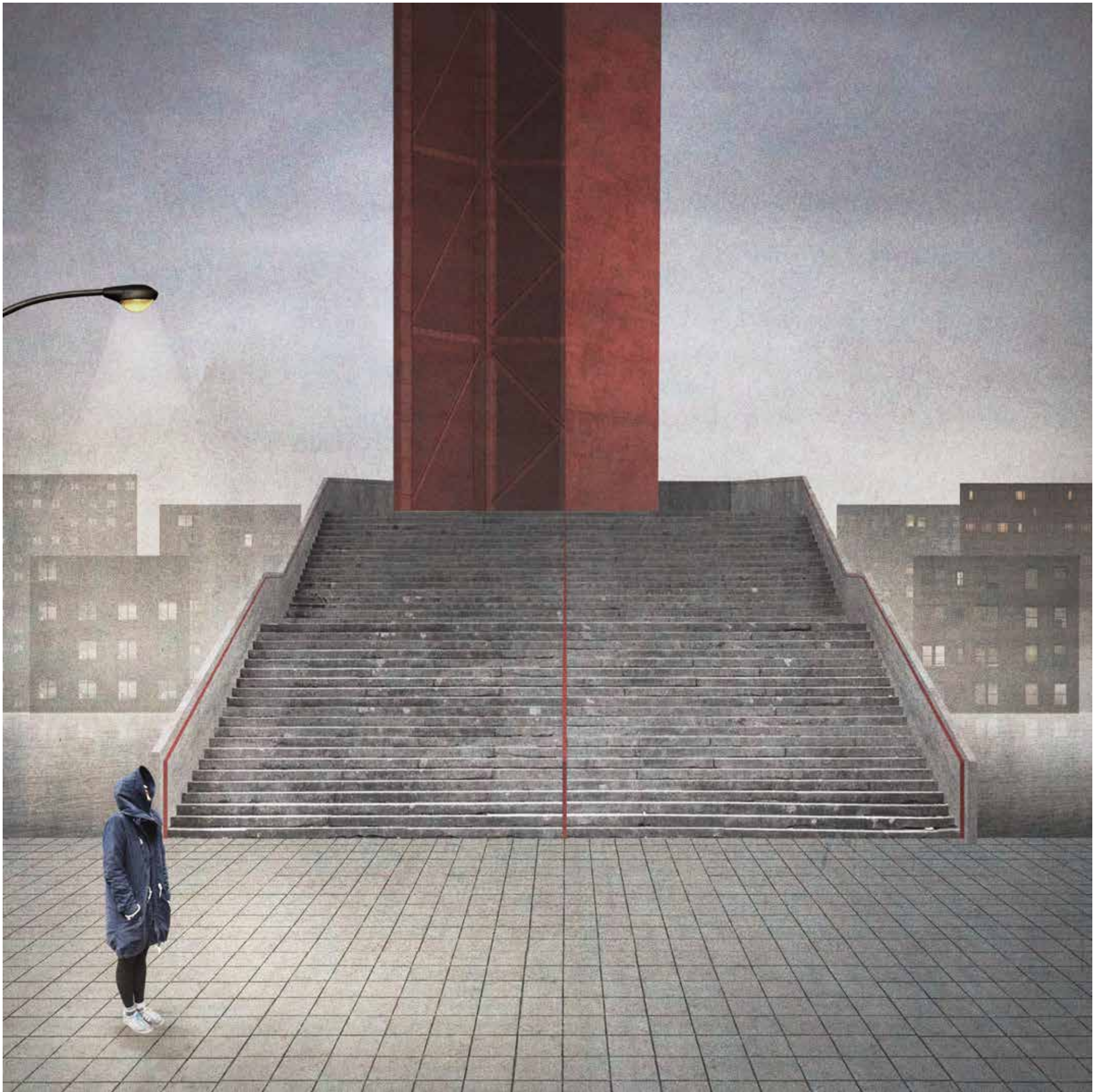
The cable stretch is just over 800 metres and the cabins are relatively small. This means that a bicable system with no pylons would be an appropriate solution.

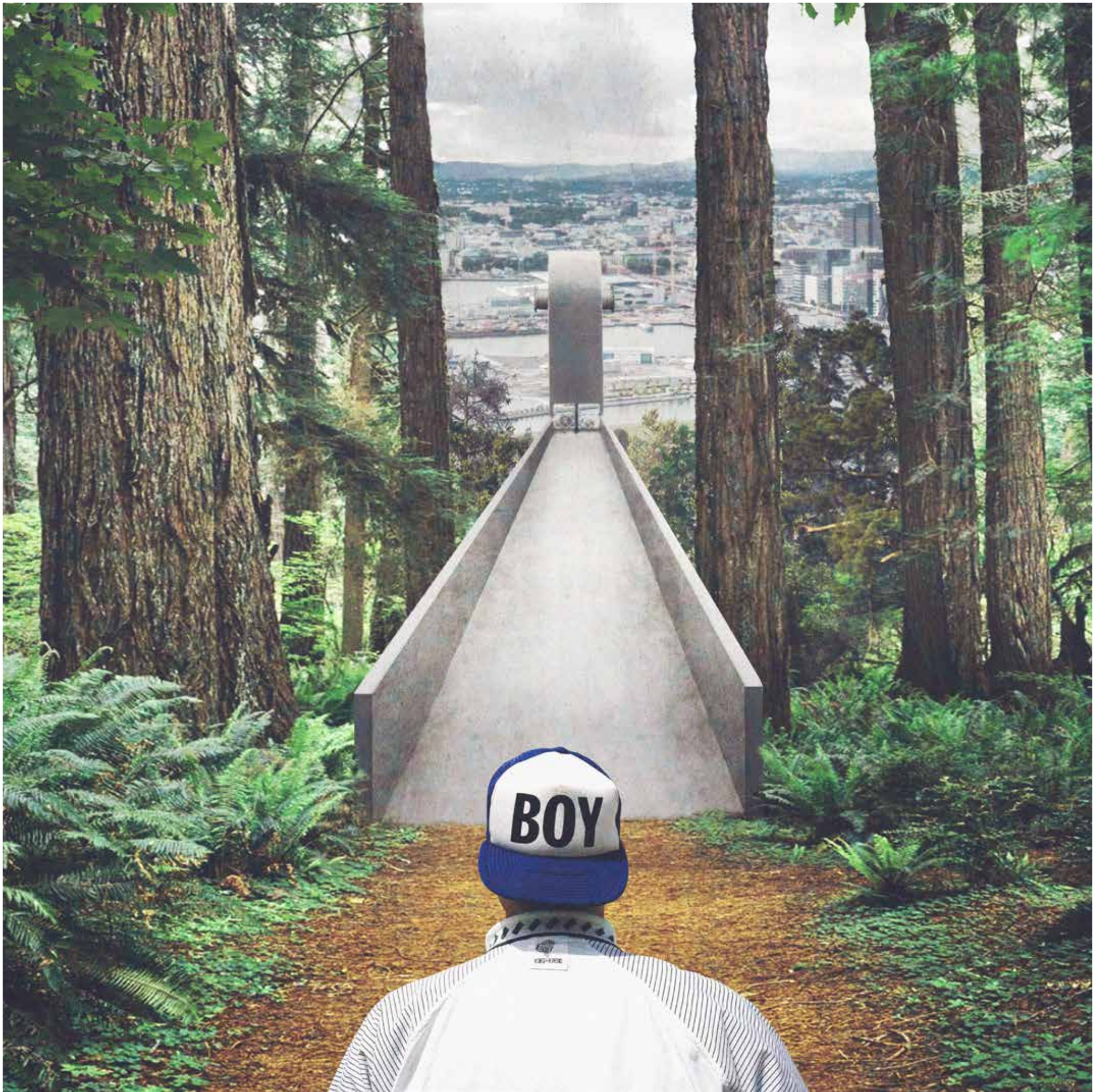


## 4 Sites and placement

The proposal is a result of a realistic development decided in the master plan for Oslo, combined with a personal interest in the architectural twins; duality, sameness and difference. In Bjørvika, the terminal is located where three different sightlines meet, and acts almost like an obelisk. In front of the terminal there is a wide stair that extends a public square, and works as an amphi that is accessible to everyone independently of the tramway. Likewise on Ekeberg, the structure acts as a public viewing platform among the treetops that seamlessly connects to a network of trails. Bjørvika is one of the few areas in Oslo where it is permissible to build above 42 metres. By proposing one horizontal and one vertical structure I try to accommodate both sites and the trajectory of the cabins.













## 5 Construction, materiality and tectonics

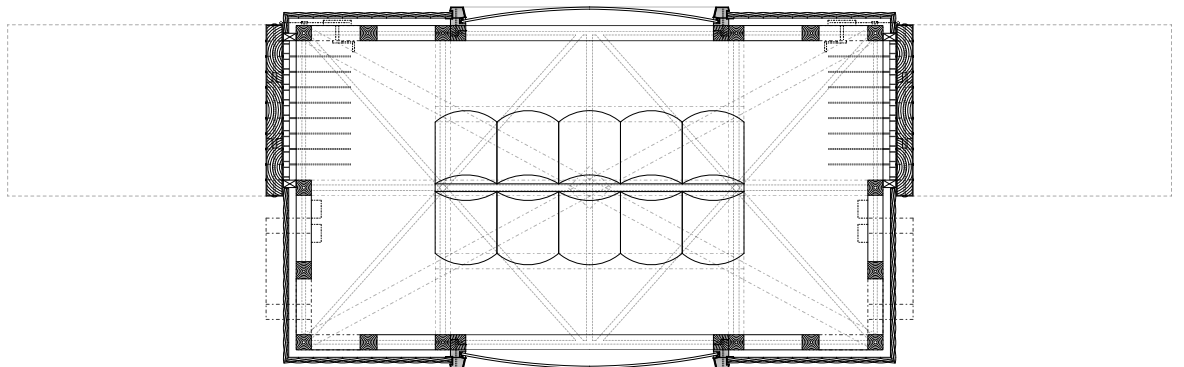
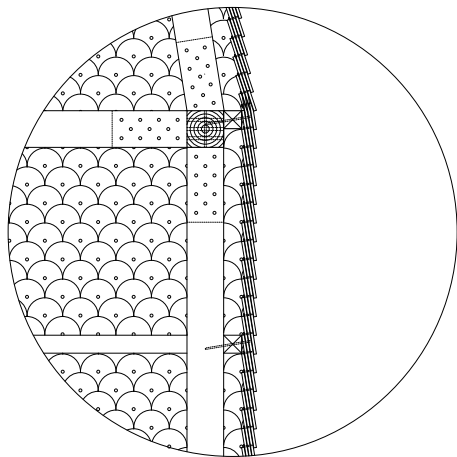
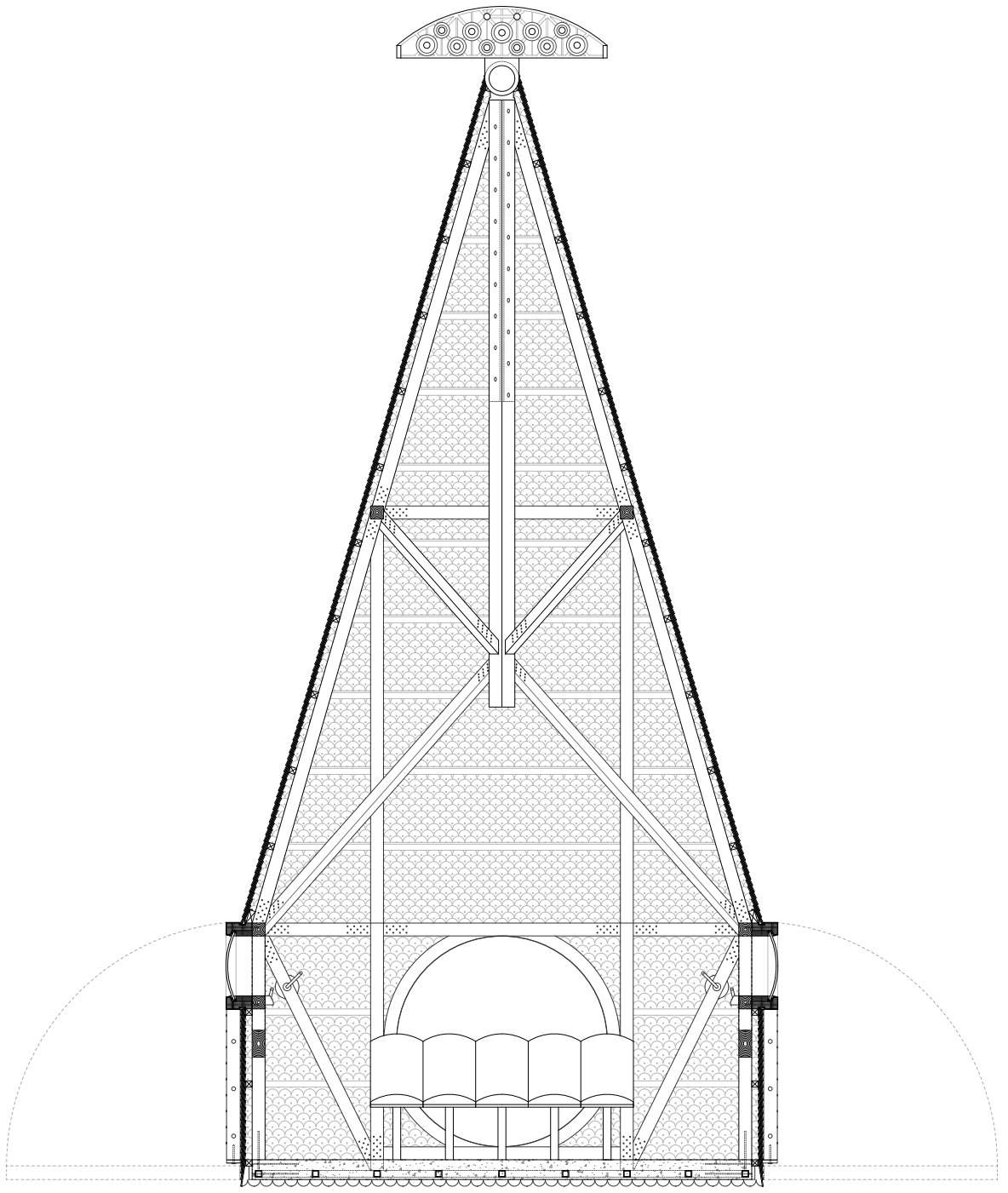
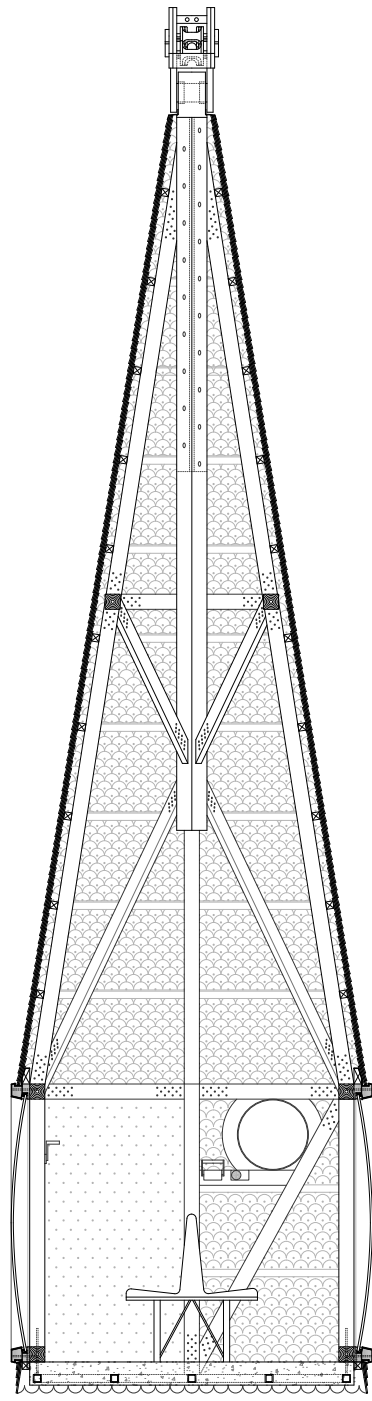
Terminal A has a massive concrete foundation that is piled into solid rock at 30 – 60 metres depth. On top of this is a steel construction with a total height of 60 metres. The elevator is made out of concrete and acts as a counterweight to the cable cars. These two have a direct relation and they reach the platform simultaneously. Terminal B is meeting the ground on many points to minimize the impact on nature. Here it is steel that is holding a concrete body - almost an opposite construction to terminal A.

The wooden construction in the cabins is hanging from only one point that is connected to the cable. It is bolted together with exposed copper bolts and has metal plates inside the joints. This construction connects to a steel frame that is cast in the concrete floor. This acts as a weight to increase stability. The wooden cladding has an almost paperlike quality to it - it is very thin and it is separated from the construction by a few centimetres. This outer skin is made from pine core wood that is treated with tar and held together by copper nails.







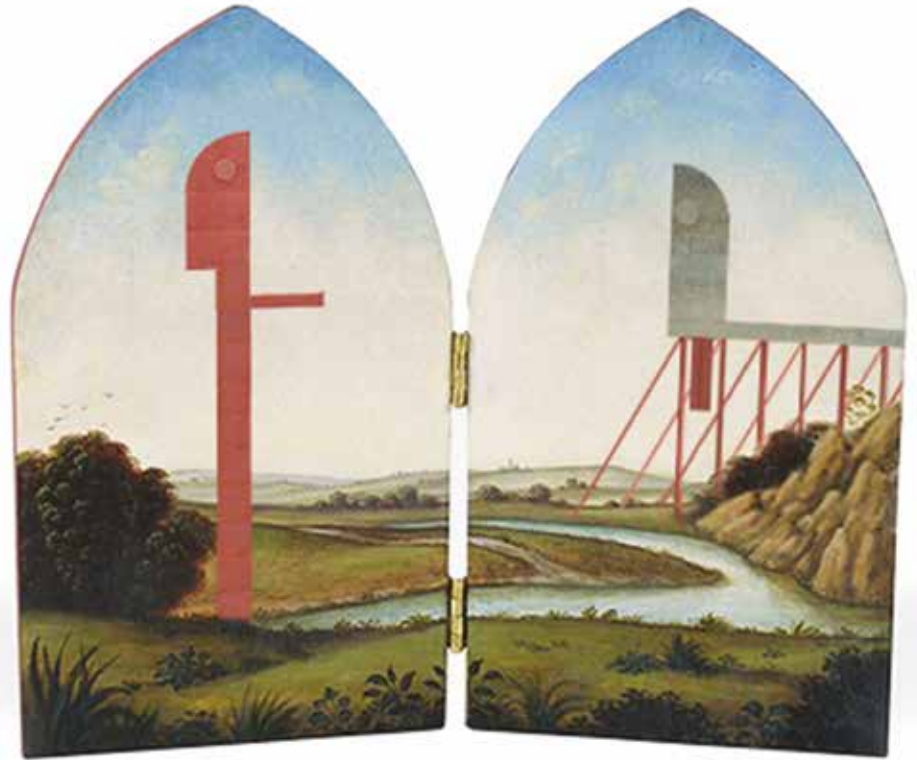




## 6 Strategies and methods

Together, the two terminal buildings form a diptych and become a singular artifact. However, the distance between them and their contrasting surroundings also makes them separate entities. Referencing to the other building automatically catapults the design into the fruitful field between the poles of analogy and rebuttal. Every design decision must clarify this fundamental question: Should it be more of the same, or something completely different? As a tool to help me decide the level of sameness and difference I have made three groups: Identical, similar and different. These groups have two subcategories - function and surroundings. The two cabins are identical; they perform the same task in identical surroundings. The terminal buildings are similar; they answer to different surroundings but they perform almost the same task. The foundations are different; they perform a different task and absorb the difference in the two sites.

I have tried to investigate how conditions given by the site - such as history, geology, light and other natural or man-made surroundings - can be a prerequisite for the architecture. Technology and machinery and construction has also been a driving factor in the proposal. But more importantly, and coherent with the theme of the thesis, I wanted to give these structures a strong identity that could form a bond between them. This strategy has given the structures a figurative quality that makes them instantly recognizable as close relatives.





## 7 Process



