Degree Project in Architecture
Second Cycle 30.0 hp

The Common Ground Workshop
Caring for Industrial Heritage in Viskafors

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Historical hydroelectric stations are part of an aging industrial heritage that is still extremely relevant today through its form of generating energy. Many stations built in the 20th c. are categorized as architectural heritage, therefore protected against demolition or radical change, thus also a radical expansion that would allow to modernize the station and allow for bigger energy output.

Viskafors power station in Borås (Sweden) built in 1917 for the former local textile factory, is a small-scale power station that is marked as architectural heritage, currently owned by Vattenfall. The town of Viskafors is one of many factory towns along the river and as the industry went bankrupt in the 1970-ties it has become a suburb to the city of Borås. The only public buildings in Viskafors are schools.

The town once defined by the industry is now left with an inaccessible waterfront and plenty of unused and unattainable space. The waterfront is blocked by the former factory grounds and the restricted area around the hydroelectric station, railway and regional road.

The latest renovation of the station happened in 2013, leaving the second floor and the lift tower empty. Forming another void in the total space that Viskafors has to offer. Can this void be used as leverage to explore the potential of formerly unattainable space within the station and in connection to the waterfront?

Keeping this in mind, this thesis aims to find meaningful ways to inhabit and repurpose formerly unattainable space as it is today; to find methods of organizing complex landscapes; initiate a discussion of new thinking of potential hybrid scenarios for the complexities of our future settlements.

Can the future be a link to the past and vice versa?
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Process documentation
The anonymity of the hydro stations in an architectural context is unique, for the most part, they are seen as part of general industrial architecture. The lack of experience of space within them positions these stations in the realm of objects. It is more like a bridge rather than a house. The contemporary classification of hydro stations as critical infrastructure solidifies their existing positioning as a thing to be looked at from a distance. In a way, it creates an air of mystery, a machine controlling a force of nature while extracting electricity. This volume is about control, its shape is a direct translation of control in the physical world. The theme of appearance and aesthetics vs. content within the typology presents a form of tension.

Positioning these stations in the larger architectural context of that time brings out this obsession with European architectural heritage and the image of power and stability. It seems like compared to the architecture of the time the Postparkasse by Otto Wagner, 1903-06, and the AEG turbine factory by P. Behrens, built 1908-9, Centetaru hall by Max Berg, 1912-13, it almost seems strange that the hydroelectric stations built within the same time frame took on a completely different form. What creates the biggest feeling of disjunction is the fact that these buildings in their shape were built to function seamlessly as a machine. In theory, the difference between the AEG Turbine factory and a hydroelectric station was very big, with demand for big spans and big windows, yet the approach to construction and visual representation was extremely different.

The tradition of building with local materials, status associated with the building material, the education of architects and engineers concerning new materials, the position of academia within design and architecture, and politics constitute a few of many arguments that can be used in understanding the disjunction. The fact that the hydroelectric station and water engineering building, in general, were paid for by tax money indicated that it indeed is a public building, built for the common good, therefore the aesthetics of the industry had a very delayed effect on the building traditions of the power plants.

Karsefors power station is the older, larger and more pompous of the two. It was completed in 1929 as one of the last works of the architect Hans Thyselius. It features Europe’s then largest kaplan turbine in the middle of the floor.
The whole building, the shape of it, not only the engine is part of the machine that is the hydro electric station. Therefore to wonder and speculate of the potential on these spaces feels like walking on a tight rope. If something were to be changed within existing stations it would need to be done with surgical precision, it would either have to gently replace the redundant or live like a parasite around the system, give a path through the unexplored. Another way of experiencing these unattainable spaces would be to reimagine them and create a twin.

There are several stations that either from the very beginning or later after being decommissioned had an alternate function rather than those typically associated with the work of hydroelectric plants.

1. Powerhouse villa in the true sense of the word Bergs Nedre i Korsån outside Storvik. It was designed in a way where the whole second floor was furnished and the upkeeper of the station would live there with their family.

2. Ebbes power station, built in 1906 exterior rebuilt in 1947. Decommissioned in 1968. Due to the location of the old power plant in a ravine, it was left standing and today it is a technology museum maintained by Hakarp’s hometown association. The machine park is almost untouched and has been described as unique. The building is partially culturally marked and culturally historically valuable.

3. Gryt’s power station 1935-36, Norrköping, architect Ragnar Hjort. This station was built adjacent to the factory building to supply it with electricity. The architect thought that it would be nice if the station had a accessible roof terrace for the factory workers.
Analysis of the spatial development of hydroelectric stations of 20th c.

1900's 1910's

- HISTORY
- SPATIAL ANALYSIS

Types:
- The Church
- The Castle

Types:
- The Villa
- The Småhus

- 1920-30 1940-50

- TYPES
- 1900's
- COTTAGE
- CASTLE
- TEMPLE
- THE BOX

Architecture starts designing power plants due to change in technology: the introduction of the eddycurrent and higher voltages. The size and shape of power stations had to change. Second stations are built near waterways in order to have supply of electricity from hydroelectric power plants. Stations gain their signature character, alcove in front and a tower to their side. Ceilings are made very high for ventilation needs and an alcove is added to the downstream facade to store the switchgear panel. Tower is added later for managing the electric network.

Architecture of power stations becomes embedded with ambitions of architects studying abroad, taking inspiration from ancient Greece. Because of change in turbine technology, it is possible to get rid of the tower and the alcove. Ventilation systems are improved.

Plan shifts back to a regular rectangle, a single room with overexaggerated high ceilings and large windows. Turbines were exhibited in the centre of the room like sculptures. Outer expression often was made similar to that of a Greek temple. These buildings were made to symbolize the utmost public good: power with an air of mystery, therefore the archetype of the Greek temple served well.

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After the WW2 the need to save resources and take safety measures lead to a more rational aesthetic approach to building public industrial objects. Finally reinforced concrete structures were deemed to be refined enough for building industrial spaces such as hydroelectric stations.

The power station was split into different buildings each performing a separate function, intake, processing, conversion, outlet. The turbine hall often was a box shaped space with a row of windows overlooking the downstream facade.
Viskafors is a small town of 6000 located within 12 km of Boras. Up until 1970's it was part of a booming textile industry. Like many other small towns located on the Viskan river it was a factory town that accommodated the workers of the rubber and cotton weaving factory of Viskafors and Svaneholm. The factories were active from 1900's till 1975, when the industry went bankrupt. As seen in the engraving made in early 20th century, the important qualities of the town are marked, the railway in a beautiful landscape, a factory and the electrification of formerly rural areas.

Characteristic of Viskafors is the natural waterfall and the opportunity to harness energy from the power of water. Before the power plant was built in its place was a simple water mill. The built up areas are sparsely occupied and consist of detached villas and cottages. There are few row houses built for the workers and a school built in the 1950's.

The landscape is divided by the steep river valley down north, and the regional road and railway built next to the river, cutting off access to the waterfront of the river. The East side of the river is part of the town centre while the left side is mostly untouched nature, forests and lakes.
Situation map, regional context

Gothenburg

Former textile industries of Borås

Viskan river

Viskaftors

Former factories of the Borås textile industries

Distance from Borås to Viskafors 12 km
16 min by car
30 min by public transport
Old dam of Viskafors
The railway station and the dam, 1915

Orthophoto of Viskafors
1925

Train tracks
1918

Cotton weaving factory of Viskafors
the machine and the worker, 1930
Transportation network and public buildings

Regional road
Former factories
Public buildings

Accessibility of Viskan river

Hydroelectric station
Blocked water access
The hydroelectric station

Bus and railway station

Old cotton/rubber factory

Church
THE EXISTING: Viskaforss Kraftverk

Photos from site visit 06.03.23

Photos from blog vonklopp.se
Viskafors hydroelectric system

- Water reservoir
- Water intake
- Dam / natural waterfall
- Second reservoir
- Overflow area / concrete ramp
- Natural stream
- Train / Bus stop
- The station
Analysis of the original volume - function relationship

Elevator tower for moving machinery
Alcove for stairs and switchboard
Transformer hall
Turbine hall

Out of service
Empty
New bigger service entrance
stairs are demolished

Original building plans and sections

Plan Rooftop + 11.8 m
Plan 2nd floor + 7.4 m
Plan balcony level + 2.5 m
Plan Ground floor +/- 0.00
Method, proposal

The project space stretches from the street level approaching the building to the rooftop, extends into the empty space of the second floor of the station and continues over the other side of the river.

The existing second floor space dimensions are 33 m x 11m x 5.5 m forming a box space.

In theory a box space this size holds infinite potential as long as it remains empty, has no walls, this project aims to explore the method of placing programmed pavilions/interventions as a space organizing method of work and extending the approach to the rest of the project site area.

The aim is to keep the hydroelectric station running while inhabiting the empty space surrounding it, learning how to live with it.
program: The common ground workshop

roof level: Entrance space from the street level, terrace for the visitors

second floor: Workshop, cafe

ground floor: Exit to the river level, turbine hall (restricted access)
Proposed interventions

- Elevator
- New staircase connecting the roof to river level
- New skylights cut in the existing prefabricated ceiling panels
- Roof terrace passage
- The Twins, roof extension and entrance
- Stairs connecting to the extension
- The gallery pavilion
- The Kiosk pavilion
- New openings in the North facade
- Footbridge, paths over the overflow area
- The Kitchen pavilion
Existing massing

Proposed massing
Outdoor interventions

1. The Twins
2. The Kitchen

Zoning for roof level

- Rooftop access from street
- Circulation, service area

Plan 1:100 Rooftop-Entrance
This intervention takes place on top of the existing lift tower. The proposal extends the width of the existing tower and duplicating the same dimension on the other side of the building creating a twin tower. Both towers create a border for the roof terrace and form a room for the pathways. These towers are entrance spaces to the workshop welcoming the visitor entering from the street level.
Façade detailing of the Twin view tower 1:50
View from the road towards the entrance bridge
This intervention is situated on the South bank of the river, directly across from the station. Its purpose is to serve as an informal outdoor kitchen, catering to visitors of the workshop or hikers. The kitchen comprises a platform and a tent, with the tent fabric functioning as a movable curtain depending on the requirements.

The kitchen is equipped with a stove and a sink, and the water supply is sourced from an onsite water collector to ensure availability.
View of the river valley
Scale model 1:20
Indoor interventions

3. The Gallery
4. The Kiosk
The Kiosk is a self-contained room with openings on both ends that are accessible during the workshop’s operating hours. Its primary functions are to serve as an information center and a cafe. Strategically positioned at the edge of the alcove's inner corner, the Kiosk acts as an extension of that axis, creating an illusion of a shorter space and providing a false ending.

The Kiosk is not just a mere room; it also serves as an architectural object. Instead of solid walls, it features fabric screens, allowing light to permeate and create a sense of openness. Additionally, a skylight positioned above the Kiosk ensures internal illumination.
Detail section of the Kiosk 1:30
View of the workshop
Scale model 1:20
30
The Gallery functions as a divided area featuring laptop working stations positioned next to the northern wall, alongside new windows that provide seating for reading. It serves the purpose of a conventional wall by separating spaces, yet it stands independently as an object that can be circled around. The fabric screens permit the passage of light, and its design directly references the textile industry, specifically the weaving machines.
Plan of the Gallery 1:30
View of the workshop
Pavilions scale models 1:20
Massing model photo, site model 1:500
**APPENDIX**

**BIBLIOGRAPHY**


Please note that the online sources are listed last and are cited using the website title and the date of publication.
PROCESS THROUGH SKETCHES

Concept sketch for movement

SCENARIOS for events

- * exhibition about textile / hydro power  *
- * wedding / graduation / concert / lecture *
- * book club meeting / knitting / bingo nights *
- * yoga / studio / dance / ping pong / yoga *
- * green house  *  
- * café / restaurant  *  
- * apartment *
- * ceramics studio *
- * office / chapel *
- * library *
- * bathroom

VISION

DAY 30
22.02 23

* Quick sketch for the scenarios

GAME NIGHT
Notes after site visit

- Communication tower
- Pedestrian walkway
- Accessible
- From this point possible to see the tower
- Concrete ramp
- Flat stone wall
- Flat pressures
- Path to the drain
- West (W) to East (E)
Massing tests for the roof extensions

Inside space before interventions
Exploration, how to make holes for skylight in the prefabricated ceiling system

Prefab ceiling panels

John Hejduk, Cathedral 1996 sketch (Canadian Center for Architecture)
Smiljan Radic, Nave exploded axo

Plan schemes

Concept sketch for site organization
Alvar Aalto,
Muuratsalo Experimental house
THE COMMON GROUND WORKSHOP,
CARING FOR INDUSTRIAL HERITAGE

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