

Bodies of water

Between infrastructure and atmosphere

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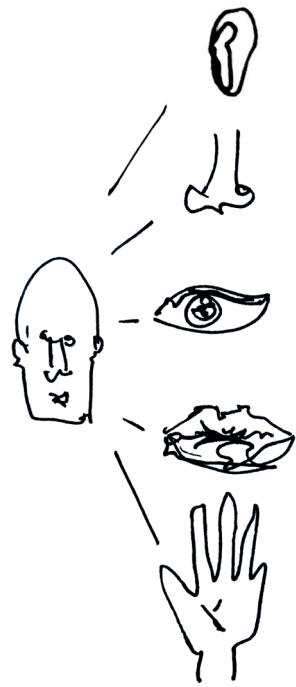
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Introduction



Our point of departure in architecture has always been humans. How we as architects and designers are able to control different parameters that affect how humans perceive a space. Both affecting the mind and the body. Setting a specific atmosphere, creating surprising experiences, making humans feel small, big, humble or mighty. A teacher once proclaimed, an architect touches things! This too is our favorite way of exploring our surroundings. Stimulating the haptic senses brings an important dimension to a project. It makes us aware of our own body. It can make us stop, just for a second, and touch. Even the smallest things could trigger us. A wood carved door handle, a textured wall surface or pebbles that succumb to the weight of our body. By bringing this awareness into the project, we wish to create a space that awakens the body.

Upon discovering the site, something just clicked. An excitement arose for this intriguing place. An urge to show it and tell the story of the architect Ib Lunding and his impressive architecture. Ib Lunding becomes an endless source of inspiration in his form language, his vibrant drawing style and his quirky interests in stars-signs, moons and ships.

Figure 1, Senses. Exploring through more than just eyesight.

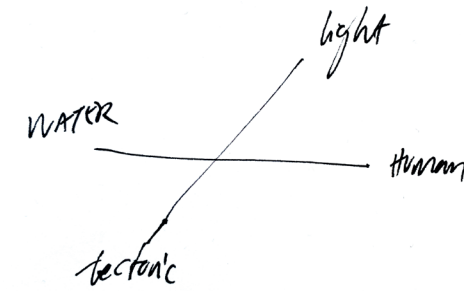


Figure 2, Figure of interest. Creating an interplay between light, water, materials and human.

The site has a great potential to become an exciting space open to the public. Even though the water reservoirs were first and foremost built as an engineering construction. There's a resemblance to the transition that Cisternerne in Søndermarken undertook. Like Cisternerne, it's an alluring architecture, because of its hidden nature underground. A perfect place for compelling light studies, working within a parameter of obscurity; between darkness and brightness.

To combine the intention of creating a space and architecture that will support the aim to create a connection to the body and the old history of the site, this project will create a space that fosters different sensations with the water. A health spa that will be an extension of Glasaxes existing swimming pool.

In a space intended for different sensations with water, it's essential to work with how the body meets surrounding surfaces. As we are undressed in bathing situations and a large part of our skin is exposed, we become more sensitive to heat, humidity and textures. We become vulnerable.

It is of the essence that the tectonic explorations will be as much about aesthetic and haptics sensations as durability with water. There should be a great consciousness in choosing new materials and combining them with existing ones. To tell the history of its prior function was a water chamber, in the rough in-situ casted concrete.

The project has the potential to become an interplay between light, water and materials. A study of how changing one parameter will impact on the others. Refractions of light in water, reflecting or absorbing it in surfaces and textures. And how all of that affects the atmosphere and the perception of the space. Wishfully finding that perfect balance in the end. Creating a space that is intended to sharpen our senses. A space for well being. A space that makes us stop for a second and just be.

Project statement

How to create a space for exploring the senses with water, light and tectonics. While keeping the qualities of the existing space.

This project will reveal the unexplored potential of the hidden infrastructure of the historical water reservoir in Tinghøj and transform it into a sensory and phenomenological experience with water.

The water reservoir was planned and built to be functional and to provide technology for distributing water that is so essential for life, but was never intended for people to explore. This thesis will create a space of calmness and contact with the body, as a response to our sometimes hectic society. Making an attraction in Gladsaxe that invites people to explore the secrets of the site, that has been hidden away in the landscape for decades. Entirely closed off to the public.

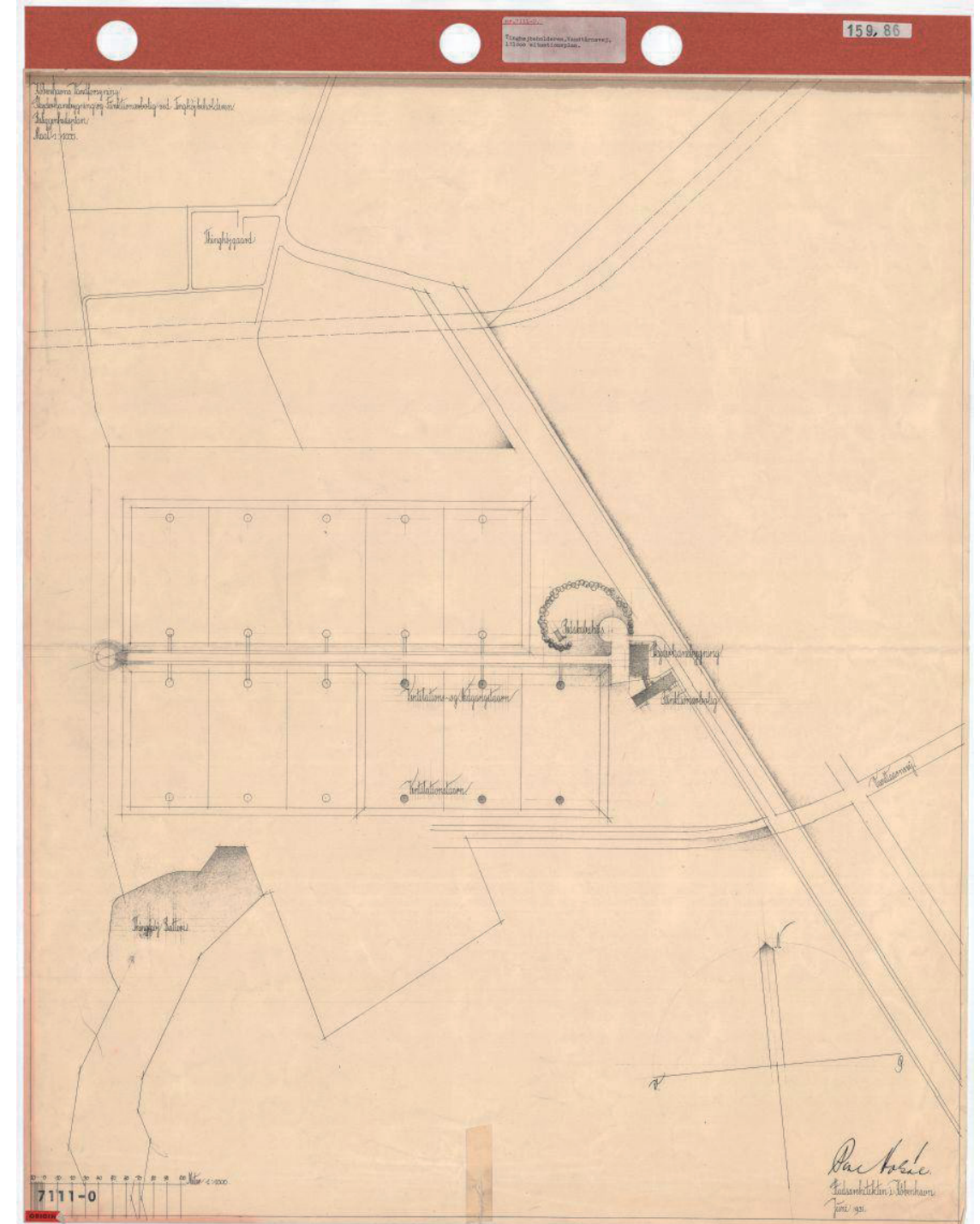
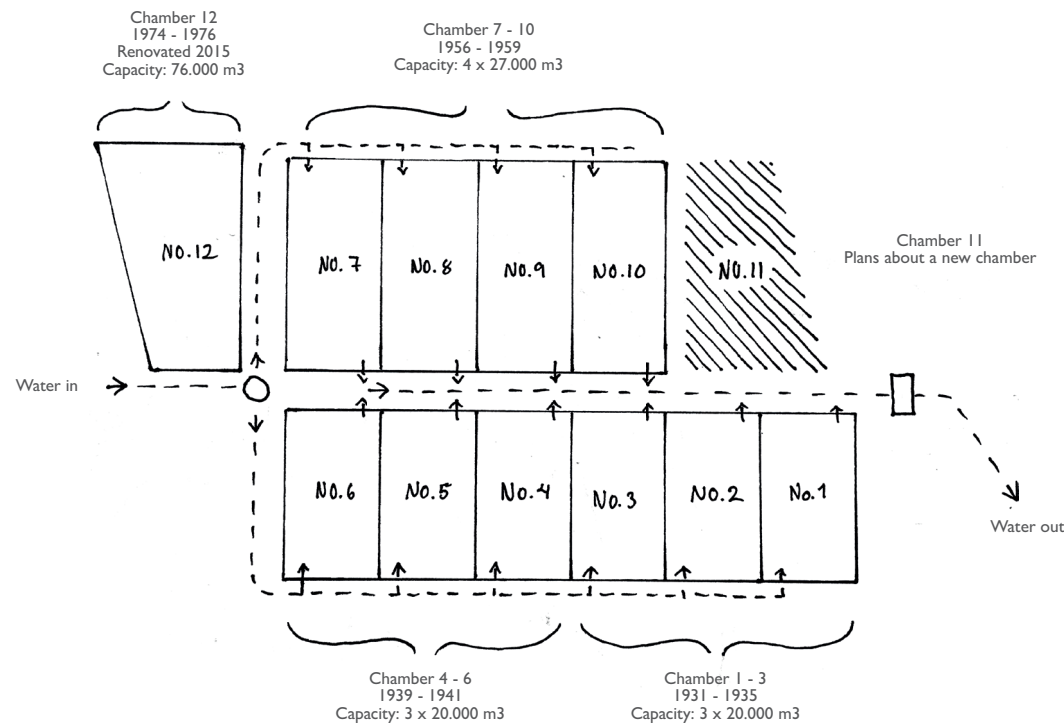


Figure 3, Historical site plan. Ib Lunding intended all the chambers to be equal. In reality chamber 7 - 10 are bigger than 1 - 6.

The site



The site is chamber I of Tinghøj Water Reservoir which is located on Vandtårnsvej in Gladsaxe. Chamber I was built as one of the first parts of the reservoir in the period 1931-35 and was carried out by architect Ib Lunding for the City Architect's Directorate.

Tinghøj Water Reservoir is Denmark's largest water plant. The facility supplied Copenhagen city with water for a number of years and has been expanded over time. The facility is located on a 10-hectare area enclosed by a red-painted fence. In the middle of the area, two 3.2 m high grassy plateaus rise above the surrounding landscape containing 10 water reservoirs, which is marked only by the small round, domed descent towers (1933), with their elegant combination of concrete, copper and steel, adorned with porthole-like windows forming alternating star constellations.

Figure 4, Diagram of the age, capacity and flow of water chambers.

Each of the old reservoirs could hold 20,000 -27,000 cubic metres of water and each reservoir has 264 concrete columns that bears the weight of the ceiling. Today and over the last decades, some of the reservoirs stand empty as the concrete roof is leaking in a way that contaminates the water, rendering them unusable as water reservoirs today. As the reservoirs stand empty it is possible to see how high the water has reached and how the waters and how, combined with the rise and fall of the water level, has adorned the concrete with layers of patina over time - leaving it with a beautiful deep orange color.

By the main entrance, lies the oldest valve building. Outwardly, it appears as a restrained functionalist building, with its yellow brick facade, and angled roof without eaves. It is adjoined by a curved wing, connecting to the crew building. The latter belongs to the oldest part of the building and is a simple single storey long in Better Building Practice style. At the opposite end (west) of the extensive building you will find valve building II (1943). It is a circular, brick building with a curved roof and circular windows.

All the buildings, except water reservoir 12, was protected in 1999. The reason for the protection is the architectural and cultural-historical values in the facility. Each of the individual buildings have been given their own architectural expression characterized by Ib Lunding's wide range of stylistic expressions, with many finely thought out and executed details. Especially the refined descent towers with the elegant combination of concrete, copper and steel. With their strict formation upon the grass embankment, they become a symbolic entity for the site as a whole.

Water reservoirs are still in use today, but the demand for water has decreased in line with Copenhagen's increasing environmental consciousness, including reduced water use and less wastage. The former water intensive industrial areas in central Copenhagen have closed down and moved outside of the city, whilst the remaining industry uses far less water today. Additionally, most of our private water fixtures and fittings, as well as home appliances are now equipped with water saving functions - all of which result in a decrease in demand for water. As a result, the majority of Copenhagen's water needs are supplied by water reservoir 12, containing 76,000 cubic metres of water.

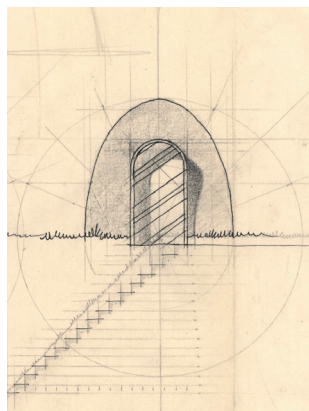


Figure 5, Domes
 Figure 6, Early drawing of dome
 Figure 7, Dome
 Figure 8, Dome and fence

When construction on the reservoir began, the use of reinforced concrete in Denmark was restricted by law to industrial architecture. Lunding took advantage of the situation as an opportunity to exhibit the material's expressive possibilities. A beautiful example of the refinement in the details can be seen in the access points: small parabolic domes that combine concrete, steel and copper, which periodically dot the enormous surface of the Tinghøj reservoir.

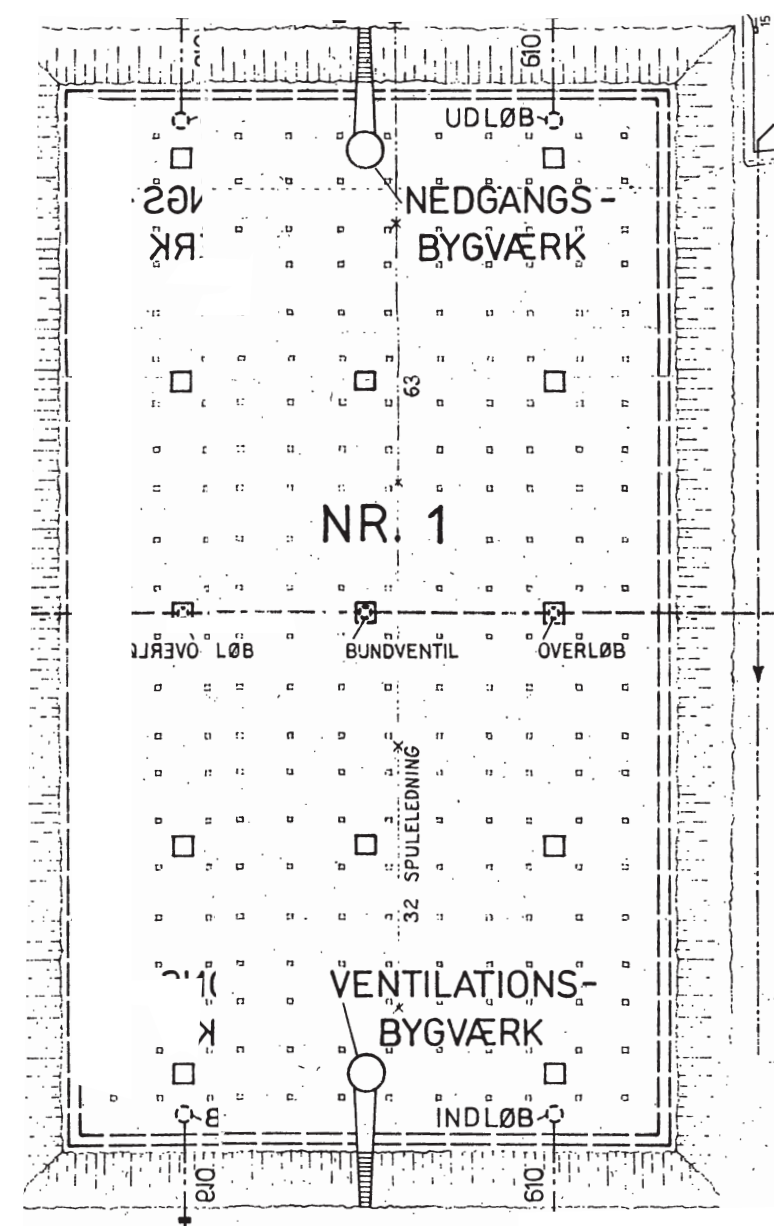
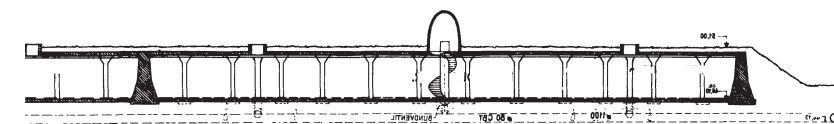


Figure 9, Plan and section of chamber I from technical drawing of the site.

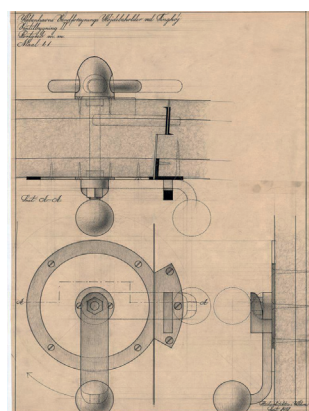
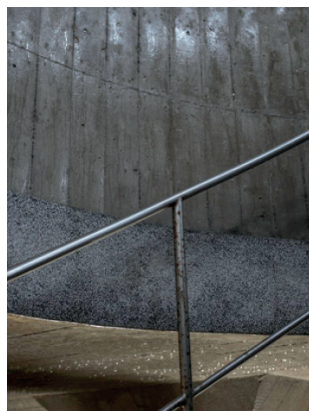


Figure 10, Stair to the reservoir
 Figure 11, Stair detail
 Figure 12, Detail drawing of door handle

Although this urban infrastructure was largely underground, Lunding approached the project with care, both at small and large scale, in the visible aspects and in the parts that would remain hidden. The design drawings are precise in their attention to the architectural details but also in the design of valves and pipe systems, and they stand out as a beautiful example of functionalism.

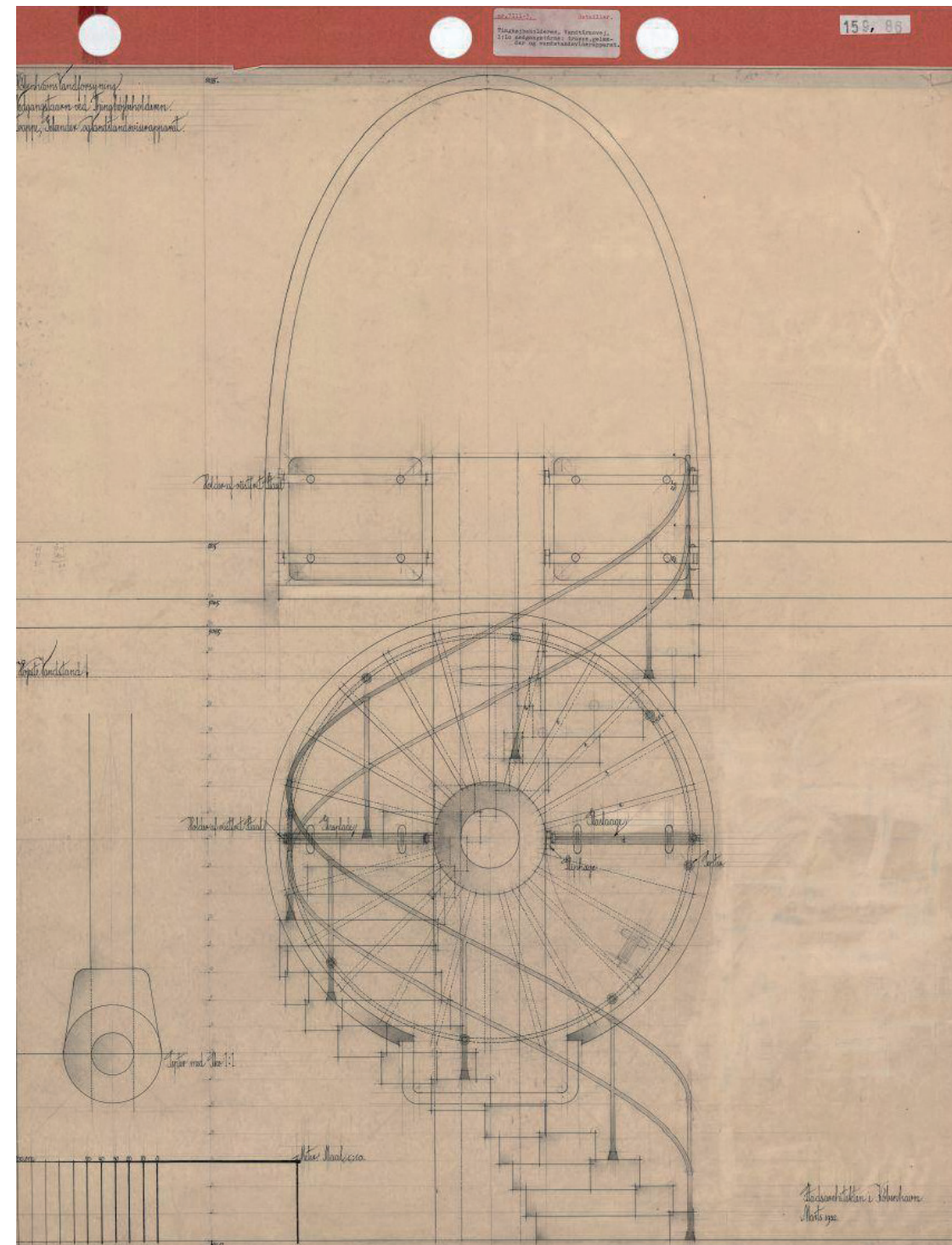


Figure 13, Plan and section drawing of dome. Draw as a furniture drawing, with overlaying views.

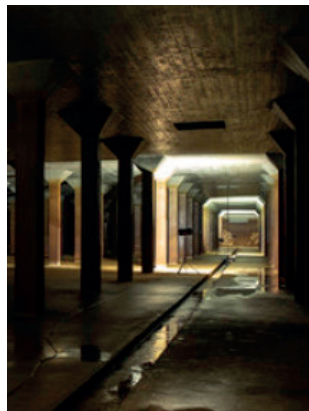


Figure 15, Deposits on the walls of the chamber
Figure 16, Undergrown chamber
Figure 17, Patinated concrete
Figure 18, Marking of the height of water rise columns

Today, some of the water chambers stand empty, leaving an impressive space with repetitive columns and walls. Over time, the walls and columns have gained a rusty red color from the water, which has colored them in unique layers.

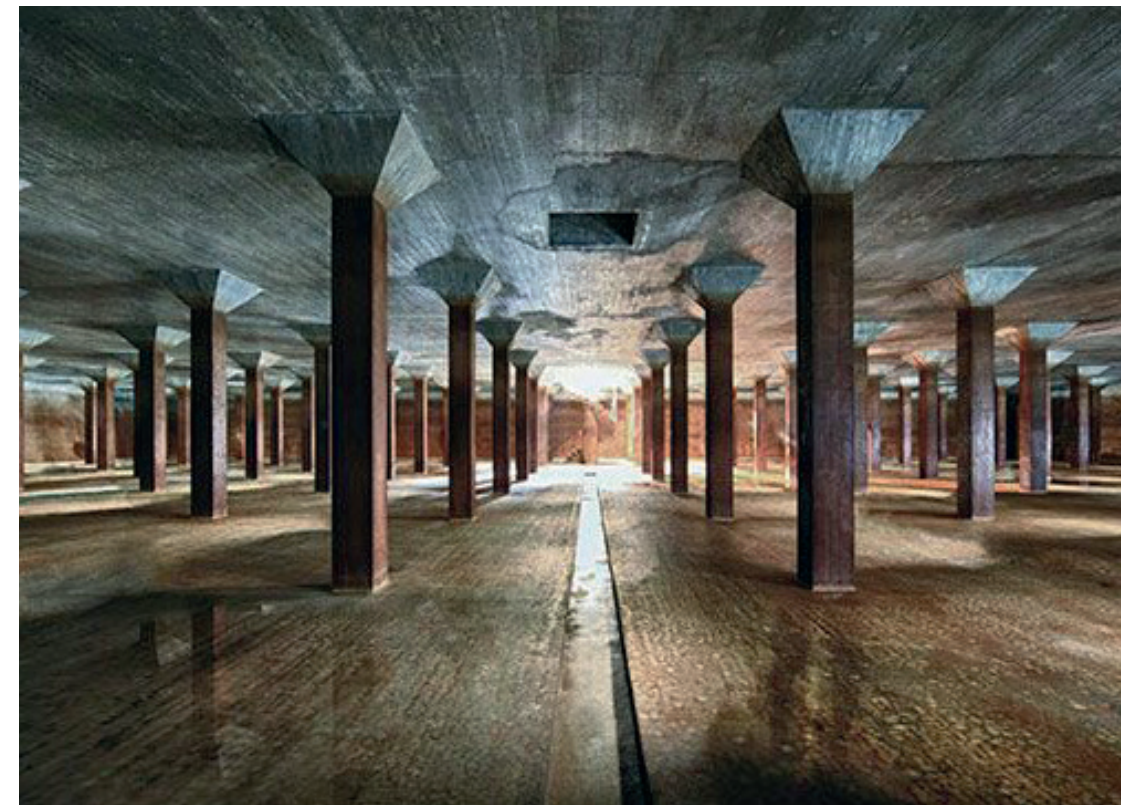
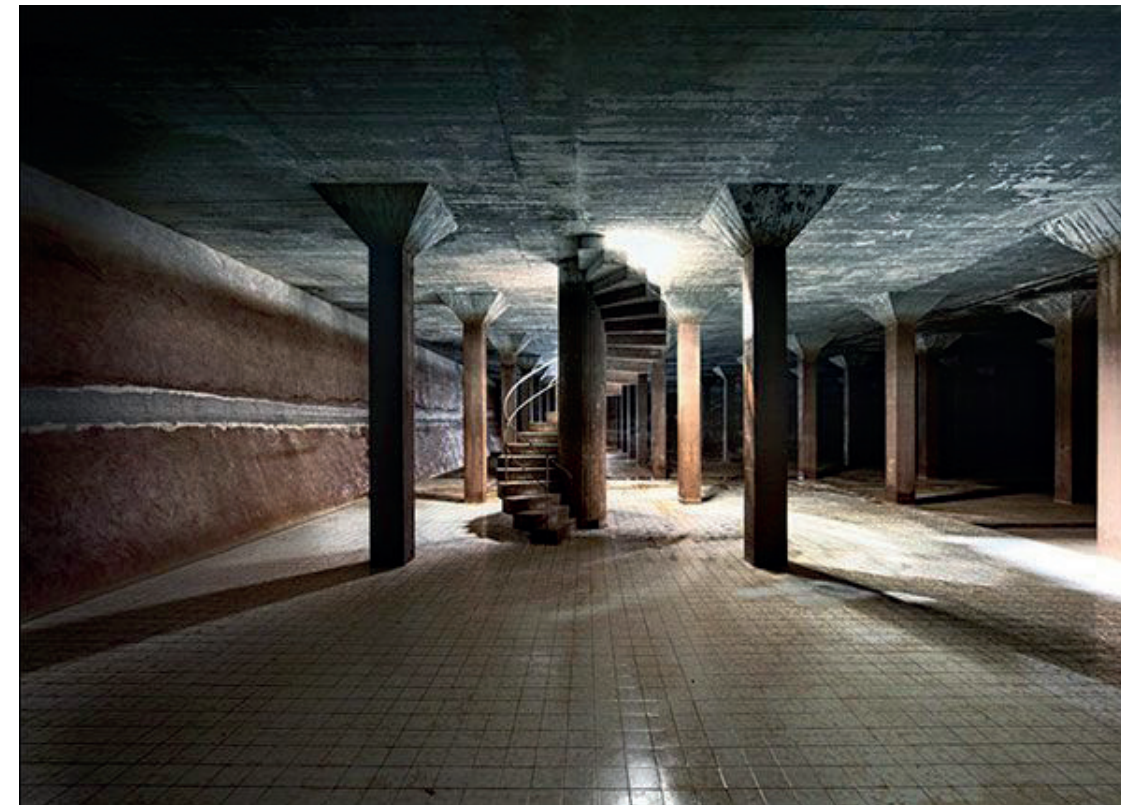


Figure 19, Stair
Figure 20, Gutter



Figure 21, Entrance port to valve build I.
 Figure 22, Window i valve build I
 Figure 23, Detail in the concrete
 Figure 24, Detail of the port

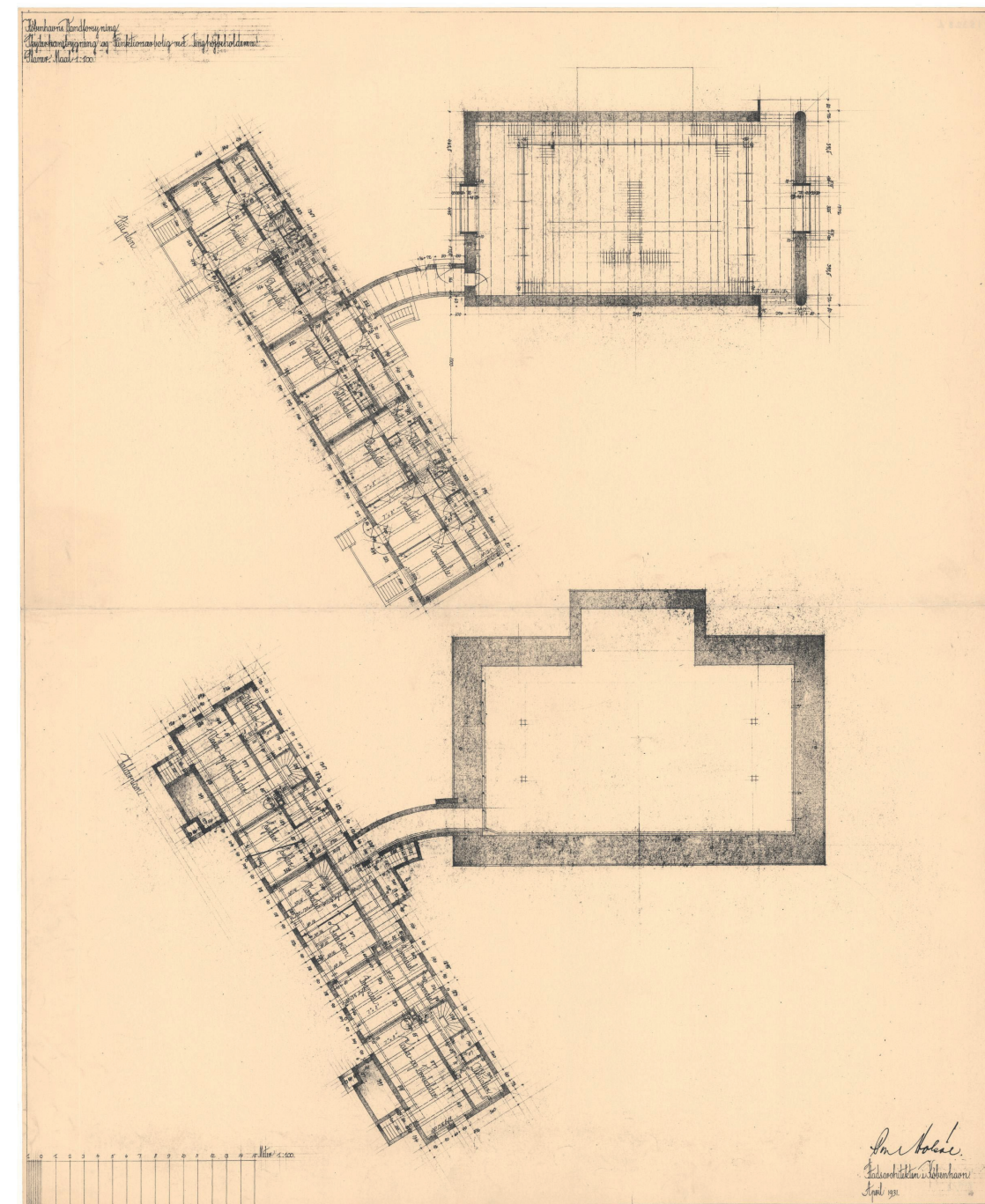
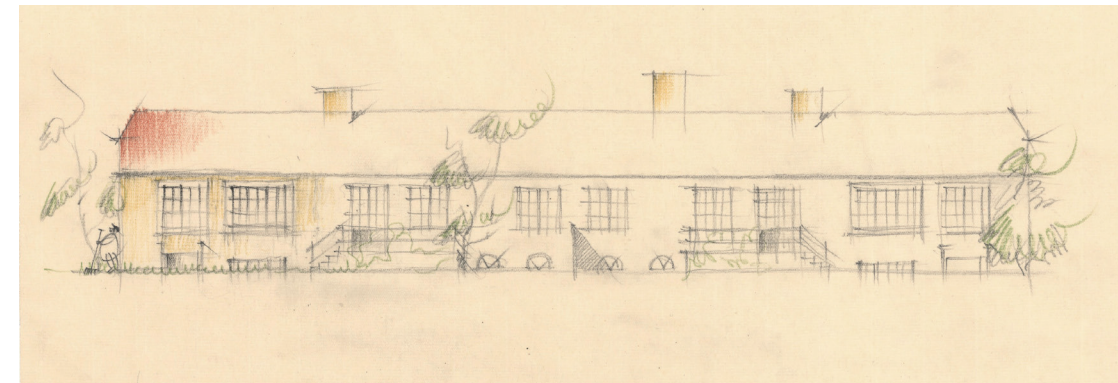


Figure 25, Historical drawing of the crew building
 Figure 26, Plan of valve building I



Figure 27, Window detail
 Figure 28, Valve building II
 Figure 29, Construction detail
 Figure 30, Window detail

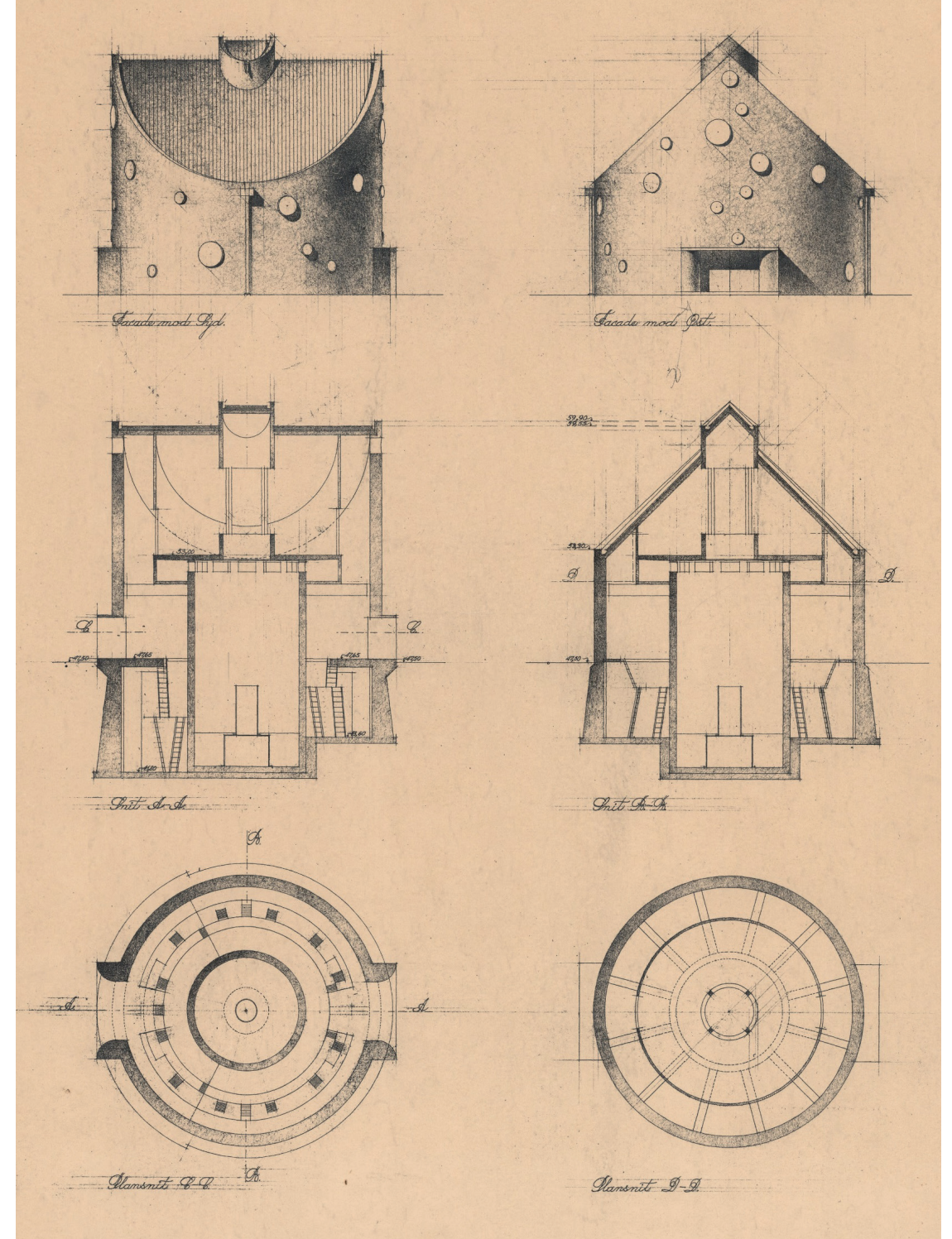


Figure 31, Historical drawing of valvebuilding II



Figure 32, Gladsaxe swimming pool
 Figure 33, Gladsaxe swimming pool
 Figure 34, Skating rink
 Figure 35, Badminton court
 Figure 36
 Sports arena
 Figure 37
 Gladsaxe sportcenter



Figure 38, Situation plan

- A: Tinghøj water reservoir
 - a.1 Chamber 1-3
 - a.2 Chamber 4 -6
 - a.3 Chamber 12
 - a.4 Ventilation I
 - a.5 Ventilation II

- B: Glasaxe sportscenter
 - b.1 Glassaxe swimming pool

C: Residential area

D: Industrial area

Ib Lunding

The danish functionalist architect Ib Lunding (1895 - 1983) worked on various projects during his lifetime. These projects includes a residential and industrial architecture, jewelry design, the copenhagen tram, furniture, graphic design and children's books. All whilst working at the architecture office of the municipality under the city planner from 1925 till 1965.

He was most widely known for the projects Champagnehuset (Copenhagen 1935-36), Hafnia House (Rønne 1934-1937) and Brønshøj Water Tower (Brønshøj 1928-1930).

Lundings design philosophy is based on basic geometrical shapes. The circle, the square and the triangle. These basic shapes are played with in endless combinations. His signature, the round windows, is present in most of his buildings. But the form also presents is self in pieces of furniture, cutlery, jewelry, staircases and a plan drawings. From the smallest details to the largest scale.

Throughout his career, an interest in stars, moons and mythology manifests itself. In his work for jeweler A. Michelsen the motives evolves through the years. Drawings from 1928 shows small silver and gold containers with star and star-signs motives. In 1942 the jewels collection 'the moon series' comes out, with the bracelets depicting a lunar cycle. Where earrings and brooches's appear to represent a lunar eclipse with stars or planets revolving around it.

Lunding also used circular shapes, stars and star-signs in Tinghøj Water Reservoir. It can be seen on each entrance of the water chambers. The rounded cones each have small circular windows embedded in the concrete. These windows combined creates the dots of a star-sign, so each chamber has thier own constellation.

Lundings drawings possesse a delicate sense detail and texture. This analogue drawings show a craftsmanship from his time that could be compelling to merge these with architectural representations of today.

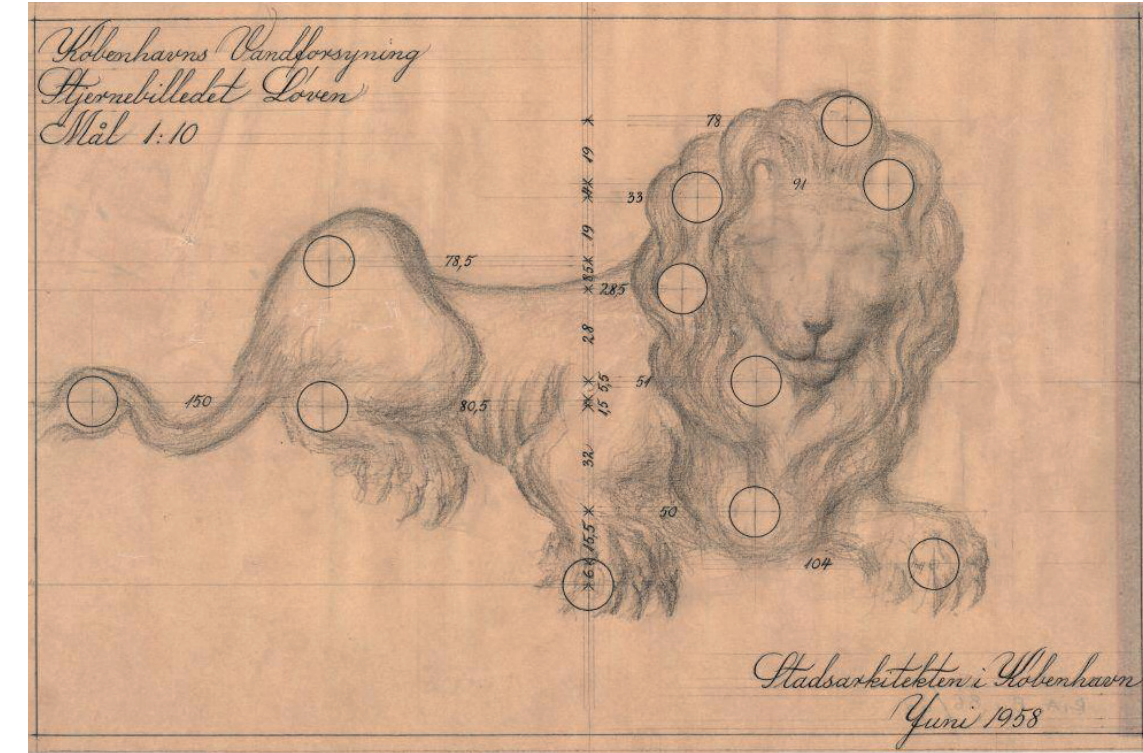
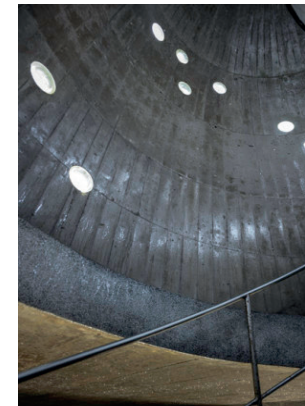
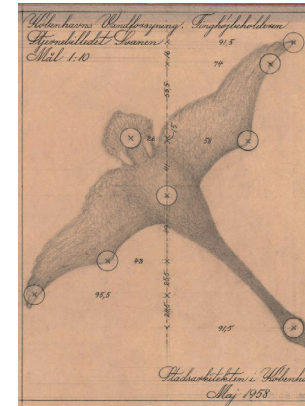


Figure 39, Christmas silverware and brooches 1923 - 1942

Figure 40, Zodiac sign
Figure 41, Glass windows
Figure 42, Zodiac sign in the glass windows
Figure 43, Zodiac sign

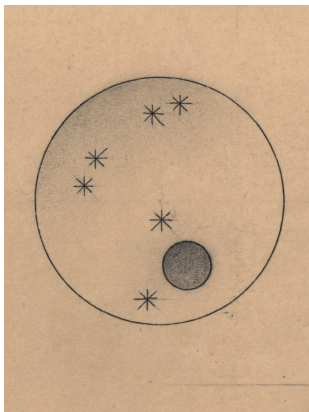
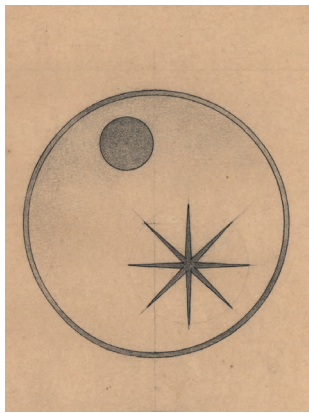
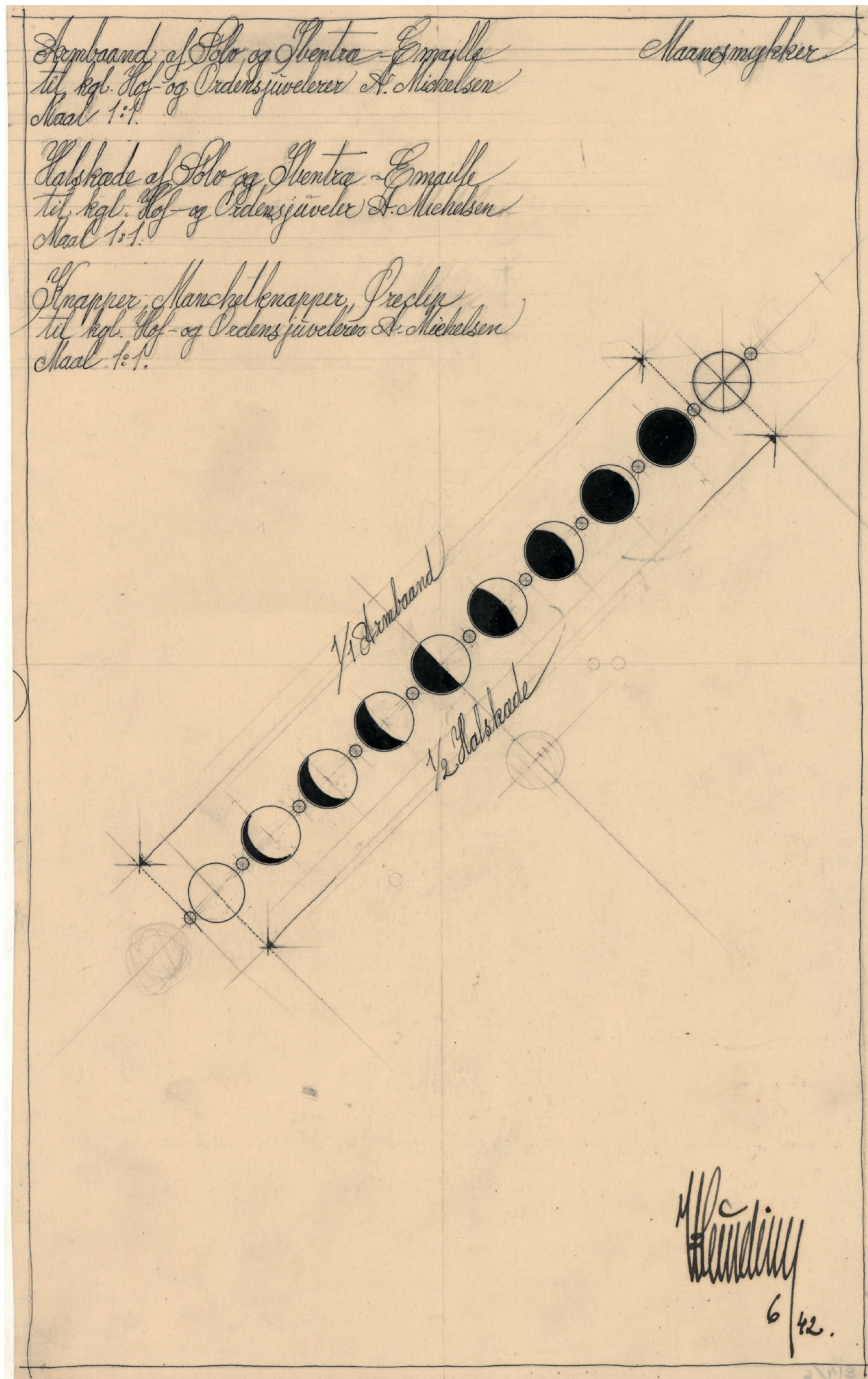


Figure 44, Lunar cycle bracelet 1942
 Figure 45, Jewellery design 1928
 Figure 46, Jewellery design 1928
 Figure 47, Jewellery design 1928

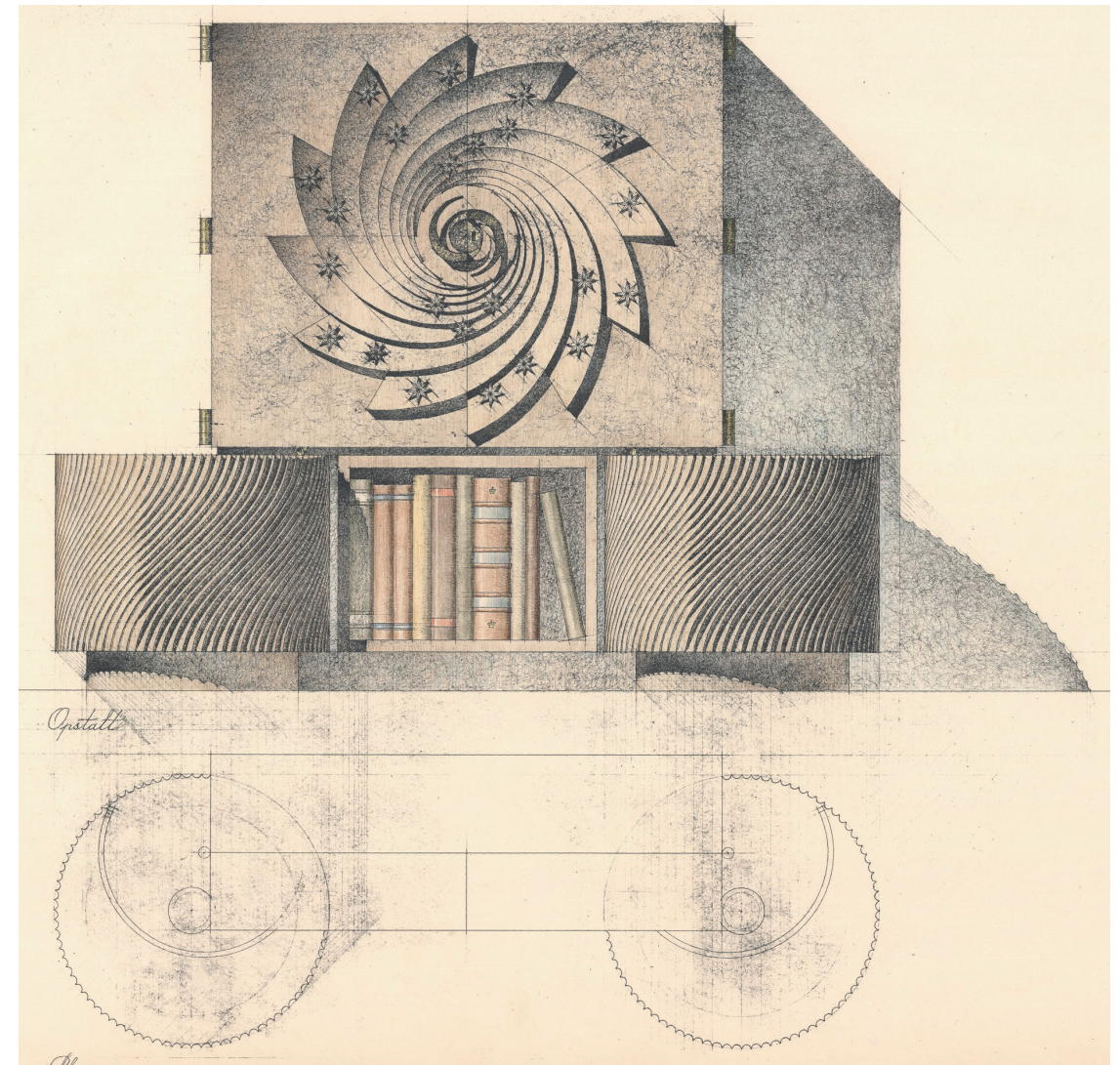


Figure 48, Desk by Ib Lunding

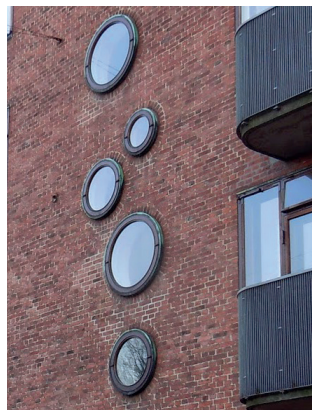
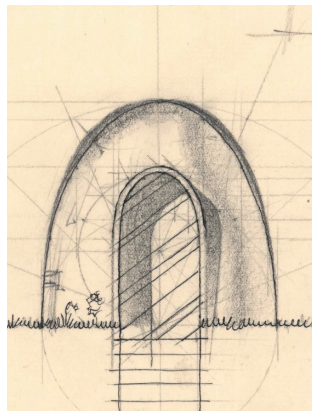
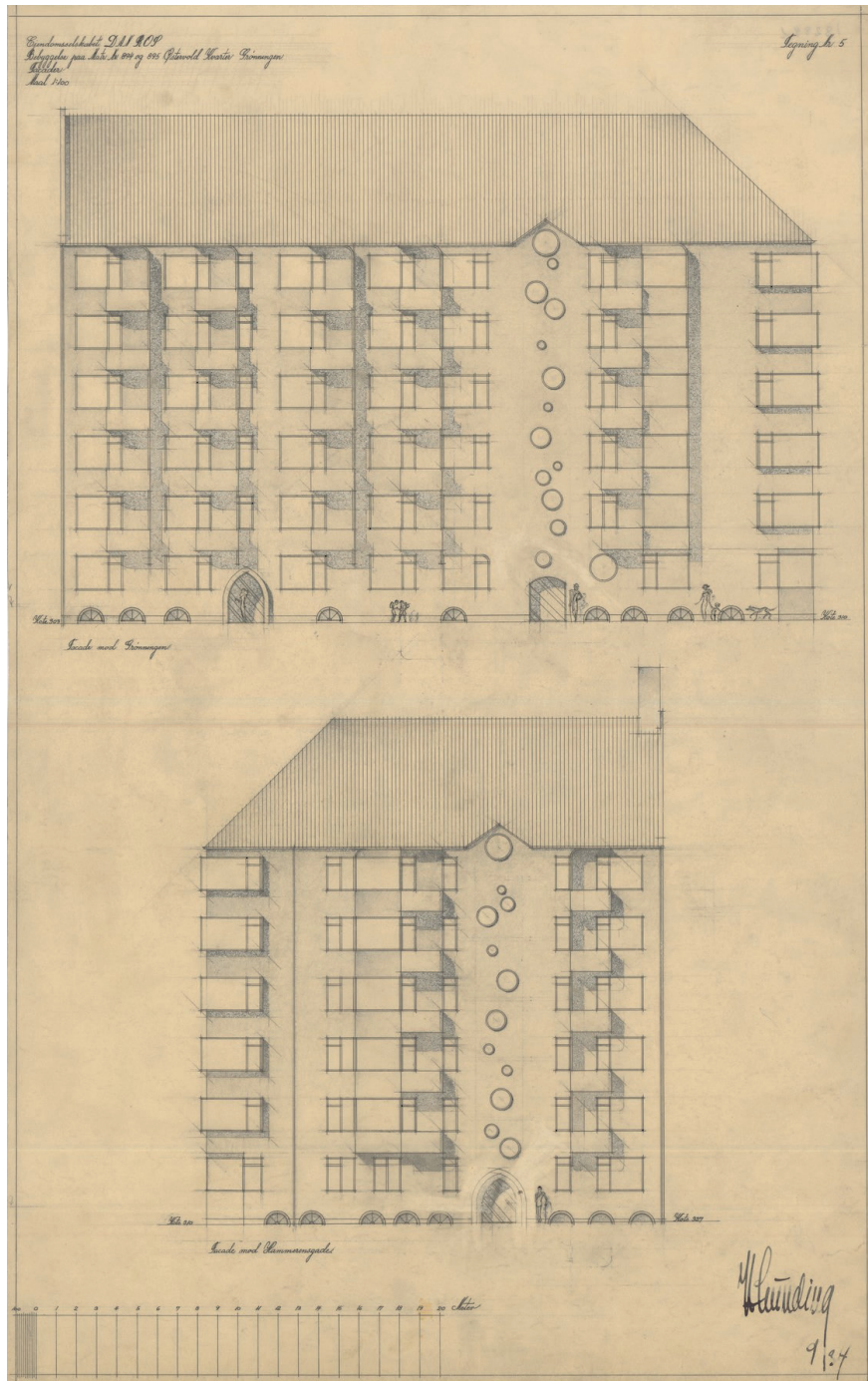


Figure 49, Champagne Huset
1936
Figure 50, Early drawing for
Dome
Figure 51, Detail of entrance
port to valve building I
Figure 52
Window detail of the cham-
pagne building

Door details are similar in both
Champagne Huset and Tinghøj.
The circular windows is
common in most Ib Lunding
designs.

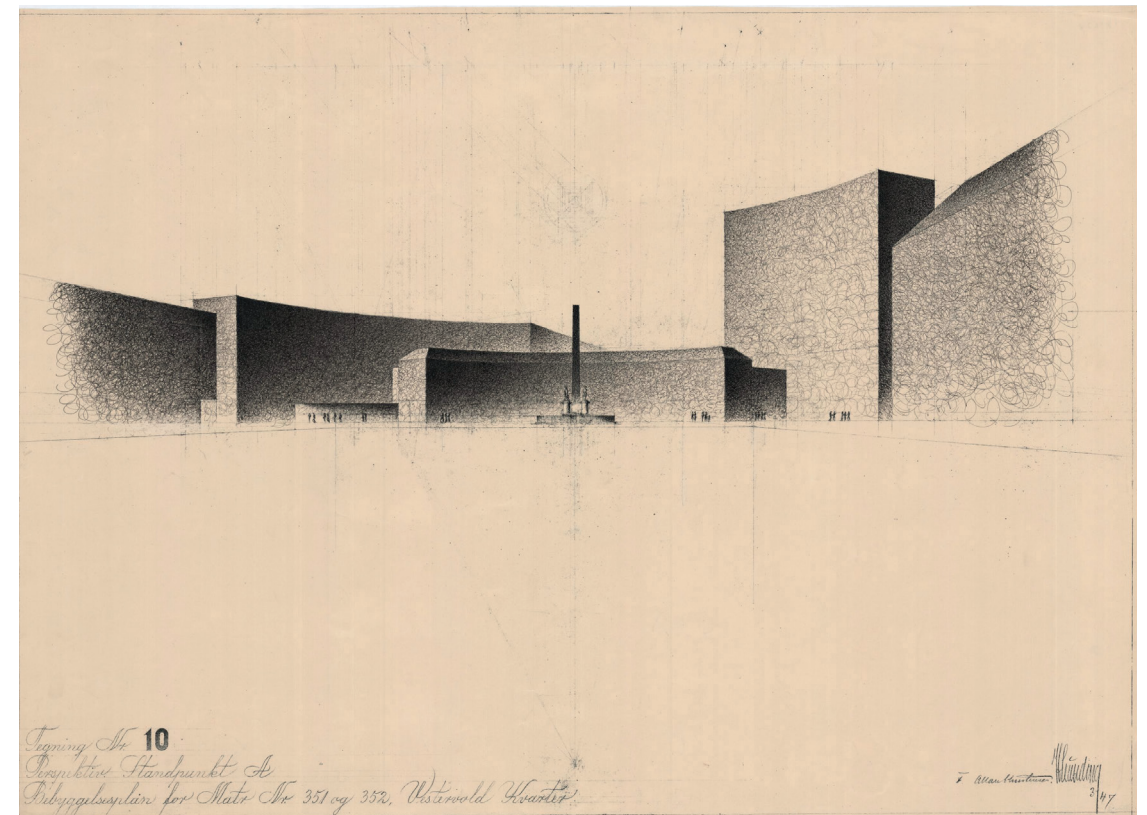


Figure 53
Competition drawing to
Banegårdspladsen

Project framing

The aim of the project is to create a place for bodily water experiences set in a historic water reservoir. The project aims to make interventions that rediscover and reinterpret the existing space. The project proposes a program for a health spa in chamber I of the water reservoir in Tinghøj, taking inspiration from the surrounding buildings namely the water reservoirs also designed by Ib Lunding. The project will mainly focus on a suggestion for the interior and have a great focus on tectonic and light as well as the interplay between the interior spaces and the end user. The project will consider a design for entering the space along with a connection to the surrounding landscape. However, a direct design proposal of these elements is not in the scope of this project. As the space is 6000m², it can be necessary to allocate some of the space to other purposes, that will not be a part of this project.

Bodily sensations

This project builds upon a phenomenological approach to architecture. How the human body relates to scale, tectonics and atmosphere. The project will embrace the human body and create a space of calmness. There's a focus on awakening the senses. To make the individual shift their attention from the mind to the body.

Change of function

The raw concrete forest of columns, in a humid somber chamber of the historical infrastructure, sets the stage of the project.

A place that is not design for people to explore, but yet so important for life, will be transformed to a place that can embrace people. In the water chambers original function, humans would only be able to access the space while the chamber was empty. The spiral staircases, is the only sign of humans being allowed in the space. The project aims to maintain the story of the cycle of the water. So the traces in the concrete, left by decades of water being passed through the chamber, tells the story of our water supply. So even when humans begin to inhabit, the former functions will clearly tell a story.

A hidden place

The water reservoir has never been available to the public before. Even though some of the chambers has been out of function for decades, the facility has been closed off because of a potential security breach. With the beautiful architecture of Ib Lunding, the project aims invite people inside the grass bunker, to experience a unique place. Focusing on a details and form language of a great functionalist architect.

Preliminary brief

Users

The spa will have a connection to Gladsaxe's existing swimming pool and similarly accommodate the adult citizens of Gladsaxe municipality and others who would like to explore the site. The entrance fee will be purchased as a ticket with an extra fee but will still be at a budget friendly price. The normal opening hours will be from 8-21 accommodating those wishing to use the spa after work hours, allowing them to unwind even on a weekday. The place will accommodate privacy and the number of guests will be approximately 100 people shared 50:50 on men and women.

Facilities

Accommodation of pools with different temperatures, saunas, sound pools, steam rooms and relaxation zones, baths, warm zones, cold zones, light therapy, foot baths, water massage, waiting areas, drinking options, toilets, dressing room, entrance, technical space.

Listing

The water reservoir was listed in 1999. In this project, we assume that The Agency for Culture and Palaces will provide dispensation to make the necessary changes to the building as the proposed design will require the building to be transformed from an infrastructure to a cultural institution for people.

Cisternerne in Søndermarken were granted a dispensation to allow for the construction of two new entrance pavilions.

The brief is preliminary and can change as research on bathing cultures will inform the project further.

Relevance

In 2019 Ina Strøjer-Schmidt, Parliamentary candidate for SF in Copenhagen, proclaimed that one out of four in Gladsaxe municipality have a high level of stress published in an article in Gladsaxe newspaper. ("Stressniveauet blandt borgerne i Gladsaxe Kommune," 2019). If true, this would indicate that initiatives such as a healing spa are entirely relevant in Gladsaxe, given their connection with a healthy and relaxed lifestyle.

Gladsaxe swimmingpool has two smaller heated pools, however they are only able to be booked in 30 minute allocations for elderly, disabled people or adults with kids under 4 years. Therefore, Gladsaxe Swimming pool has no other leisure offers, other than a larger but cooler pool intended for sports swimming.

Gladsaxe have taking initiatives to a development plan for sports and exercise facilities. In this report it states that Gladsaxes populations is growing, therefore The Culture, Leisure and Sports Policy developed four core target areas for the coming years:

- 1.** Activities, immersion and empathy for all.
A focus on greater diversity through broader participation in cultural, leisure and sports life than has been the case so far
- 2.** A green city with creative and active urban spaces
The goal is to create a more vibrant city, where green areas and urban spaces are used for physical manifestations.
- 3.** An arena for talent and elite
Gladsaxe Municipality wants to create a good framework and a good environment for the development of talent and elite.
- 4.** Cooperation and development
The aim is to make it easier to move from idea to realization.

Udviklingsplan Idræts- Og Bevægelsesfaciliteter, 2016

These goals indicates that the municipality of Gladsaxe wish for a broader level of activities. Whereas today they have a lot of high activity sports facilities. A spa would present the possibility of offering an activity with a lower tempo of activities and perhaps attract a broader range of people to go to the swimming pool. It would create an interesting intervention in the city and sauna and water training can be beneficial as healing and recuperation for talents doing exercise on a high level. And with the growing population it could be relevant to expand their water facilities.

Cultural institution and landmark

Due to its proximity to an S Train station, it is entirely likely that the project would attract visitors and guests from central Copenhagen and other municipalities - making the reservoir a regional cultural attraction.

Method

Parts & wholes

When working on a site with these dimensions, it is important to be focused upon scale. In our project, we would like to come as close to the human scale as possible. This means concentrating on scale ranging from 1:20 down to 1:1. In this scale we can tell the story of how the body relates to the architecture. Which surfaces you touch. How it feels to be there. However we won't be able to draw 6000 m² in detail. Therefore we will create an overall floorplan of where our interventions are placed. Then carefully selecting areas to show our design varying levels of detail.

Sketching & collages

Sometimes a sketch or collage can give you a sense of an atmosphere or thought that you are unable to communicate through words. Hand sketching and collages will be used to develop ideas and communicate them to each other. When working as a group, it becomes even more important to easily communicate your idea while discussing the project. We intend to inspire each other with our individual skills, especially within this method.

Models

We wish to explore sensorial and phenomenological experiences in the architecture, the materials and light created within the space. Model making has a particular potential to guide us through our project. Our interest starts in the interplay between light, water and tectonics, which are impossible to reconstruct digitally without extensive rendering skills. Still physical models have a more profound tactility and presence. So using the models, as a tool for understanding these phenomena and how they react to each other, can become essential in our process.

Due to Covid-19 it is uncertain if we will be able to see the site inside. Therefore a thorough model cast in scale 1:100 - 1:200 will give us an opportunity to study the spatial arrangement without having been there. The model will be a process tool and changeable, enabling us to study the cadence of the columns, light conditions, water reflections.

Section models in a smaller scale 1:20 - 1:1 will complement the larger model. This scale allows us to implement the human scale, show the meeting between materials and give a sense of surface and textures.

Sketch models and 3D models will be used to test out spatial arrangements, light and reflections and later refined presentation models will be used to create final visuals, collages or drawings.

1:1 material testing

To make meaningful material decisions, we wish to work with 1:1 material tests. This could give a greater understanding of surface qualities, tectonic junctions or water durability of materials.

Atlas

The drawing of Ib Lunding

We were unfamiliar with the architect Ib Lunding before going into this project. While researching, we discovered a whole universe of his devoted to architecture and design. We therefore wish to make an atlas with his drawings, of both Tinghøj Water Reservoir and other inspiring projects, to better understand the ideas, form language and techniques behind.

Anthropological research

We wish to get a better understanding of bathing culture. To do so, we want to interview people at relevant places. This could include questions about social behavior, tectonic qualities or physical and mental wellbeing in a bathing and spa situation. If the current restrictions of Covid-19 keep us from interviewing people in a bathing situation, we will conduct interviews with bathing guests depending on their memory.

With regards to bathing culture, we also intend to interview relevant staff members to get a better understanding of how they run such a place. Both in relation to the guest but also the technical aspects of cleaning the waters.

To get a better understanding of Tinghøj we wish to interview the utility company Hofo that manages the water supply. We wish to get a better understanding of why the chambers are currently unused, their history, how the water plant functions and future plans.

Due to the uncertainty of our exam situations, we will propose slight changes in the final presentation format and method for both a physical and a digital exam situation.

Digital examination

Being focused on materiality and working with a haptic approach to the project, a digital exam will make it more difficult for us to express our ideas and designs. Should a digital exam become inevitable, we will research ways of presenting the tactility of the project in another way. This could be done by looking into the film industries ways of communicating an atmosphere or how furniture companies advertising the tactility of their products. This could be communicated through video, stop motion and pictures.

Physical examination

If physical examination is allowed, we wish to make all sensors touch, taste, smell and listen to as much material as they want to. Making them experience a sense of our project proposal and proces.

The listed methods becomes a variety of tool to work from in the project. Some might seem irrelevant once getting deeper into the project. Others might be developed further. It is important to mention in relation to Covid-19, that making models and I:I materials can become more difficult than expected but we strive to make them a key element in our proces.

UN sustainability goals

Goal 3: Good Health and Well-being

This project facilitates a healing spa which aim is to promote wellbeing. It's an initiative to live up to goal 3, to ensure healthy lives and promote well-being for all. More specifically, goal 3.4, which focuses on reducing premature mortality from non-communicable diseases through prevention and treatment and promotion of mental health and well-being.

Goal 6: Clean Water and Sanitation

We wish to create awareness by opening the infrastructure of the old water reservoir and inviting people in to experience the colossal volumes that are needed to support the water supply of Copenhagen. It is our ambition that the project provides people with a greater awareness, that water is not an unlimited resource as well as making them conscious around their own water consumption. In the design of the facilities, water-saving techniques will be considered. This is done to ensure availability and sustainable management of water and sanitation for all by increasing water-use efficiency which is the goal of target 6.4.



Figure 54
FN Goals

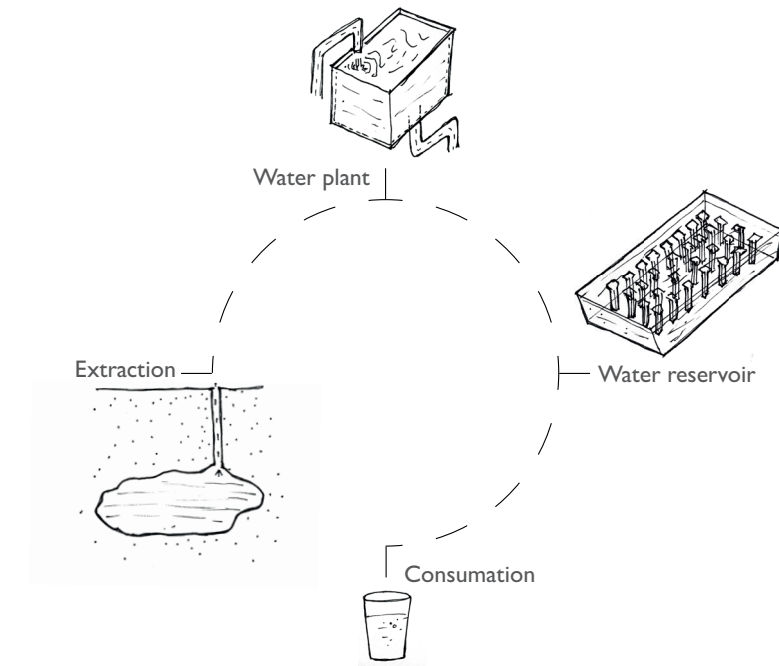


Figure 55
Water cycle

Goal 11: Sustainable Cities and Communities

Tinghøj Water reservoir is one of the first examples of design with reinforced concrete through which Ib Lunding challenged the material and put a great level of detailing into the design of the site. This project aim is to transform this infrastructure into a cultural site and in that sense protect and open one of functionalisms cultural heritages up and make it into a public space. Providing Gladsaxe a cultural attraction that can support the development of the municipality, and giving it an identity and attraction that can attract visitors from the surrounding area. This is initiative that can help support goal 11, that is to make cities and human settlements inclusive, safe, resilient, and sustainable. More specifically, this speaks into Target 11.4: Strengthen efforts to protect and safeguard the world's cultural and natural heritage, Target 11.7: to provide universal access to safe, inclusive, and accessible, green and public spaces and Target 11.a: to support positive economic, social and environmental links between urban, per-urban and rural areas by strengthening national and regional development planning.

Goal 12: Responsible Consumption and Production

The most sustainable building is the building that is not built. By repurposing the vacated water chamber, the encapsulated natural resources are once again out to good use, whilst resources that may have been consumed building a new spa elsewhere, are saved. This is in tune with the goal 12 and more specifically target 12.5: to reduce waste generation through prevention, reduction, recycling and reuse.

Deliverables

Provisional list of submission material for a physical examination.

Due to the uncertainty of our exam situations because of Covid-19, we will propose slight changes in the deliverable if examination will be digital.

Site research, photographs, historical background, sketches,

Context scale

1:5000 context drawing - the relation to Søborg

Diagrams

Building Scale

Axonometric - understanding the layers of the existing architecture and the intervention

1:100/1:200 Grand model

Intervention Scale

1:50/1:20 Section drawing - Perhaps grand drawing

1:20 Plans, sections & elevations

1:20 Physical models

Detail Scale

Axonometric

1:10/1:5 Sections & elevations

1:10/1:5/1:1 Physical models & material tests

Visualisations

Supporting documents

Project report

Atlas Drawings of Ib Lunding

Site registrations book

Process book

Material research book

Sketch books

Keywords:



Collection of ideas that could be developed further in the project.

Reference:

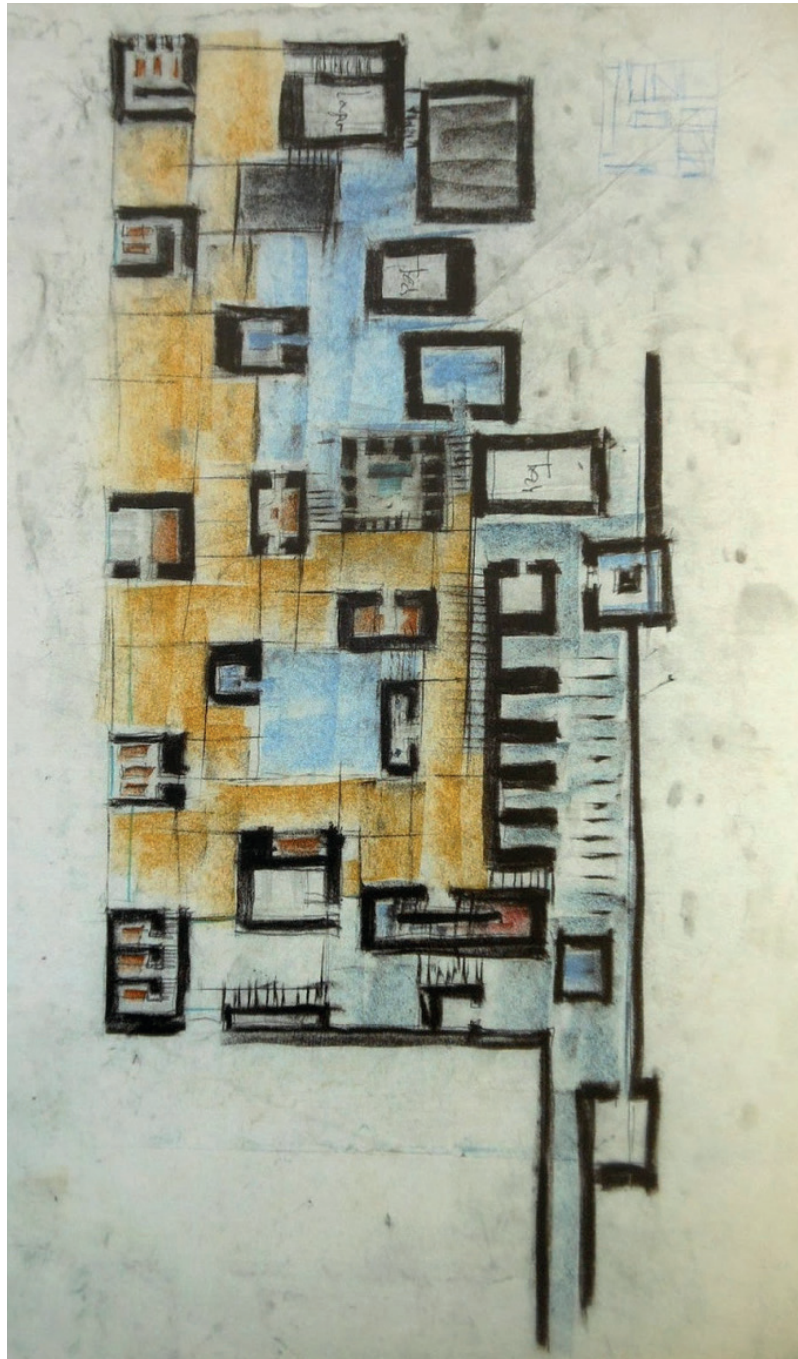


Figure 56, Peter Zumthor -
1996 Therme Vals
Keywords:
Climate zones. Privacy studies.
Getting lost.

Figure 57 & 58,
Carlo Scarpa - 1963
Fondazione Querini Stampalia
Keywords:
Water in architecture. Inten-
tional decay.

Figure 59, Yakuza Public Bath
Picture - 1974
Keywords:
Bathing cultures. Social activity.
Intimacy.

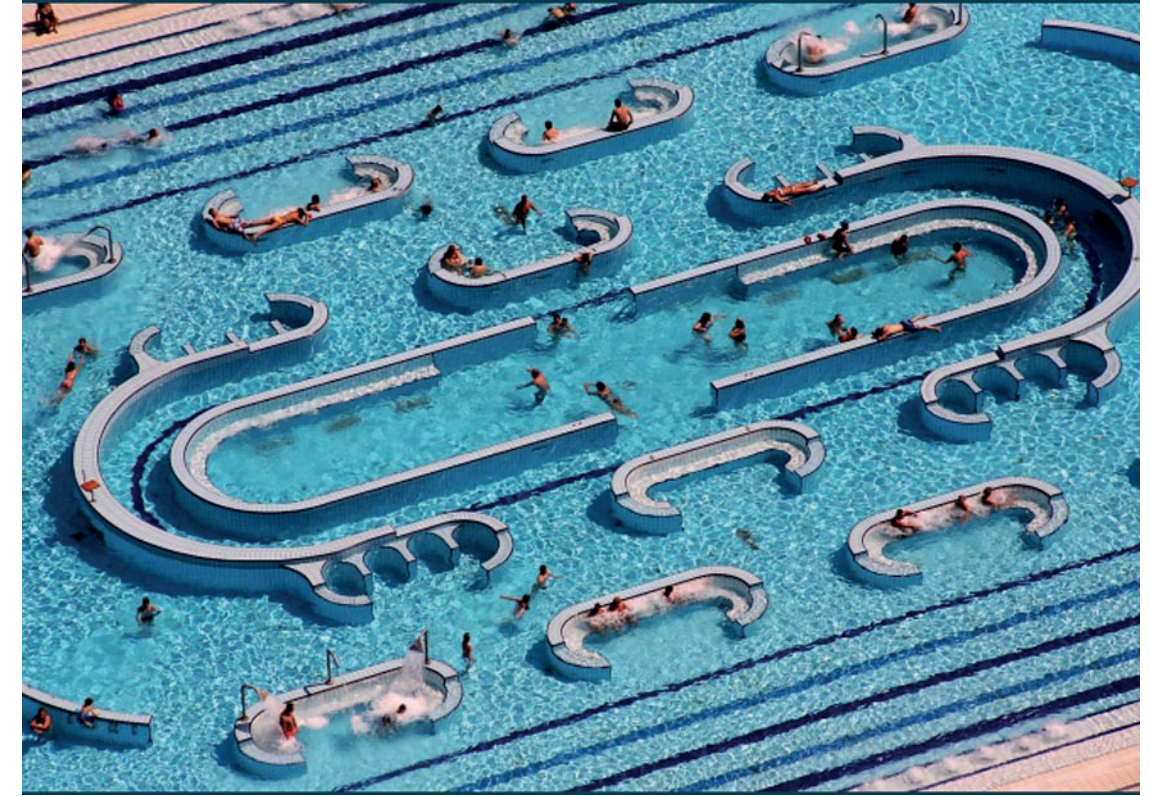


Figure 60, Palatinus Thermal
Baths - 1919
Keywords:
Interiority, fixed furniture.
Under water livingroom.

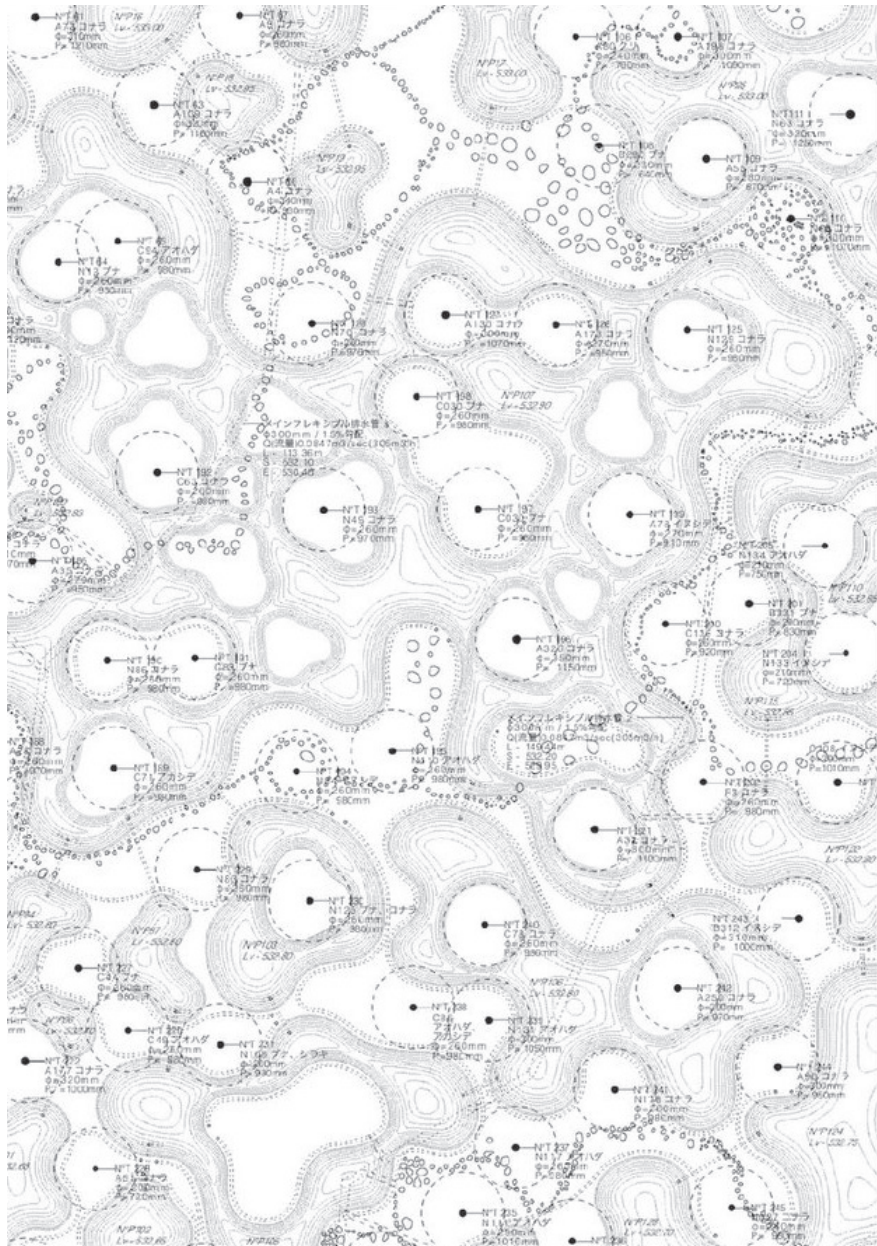
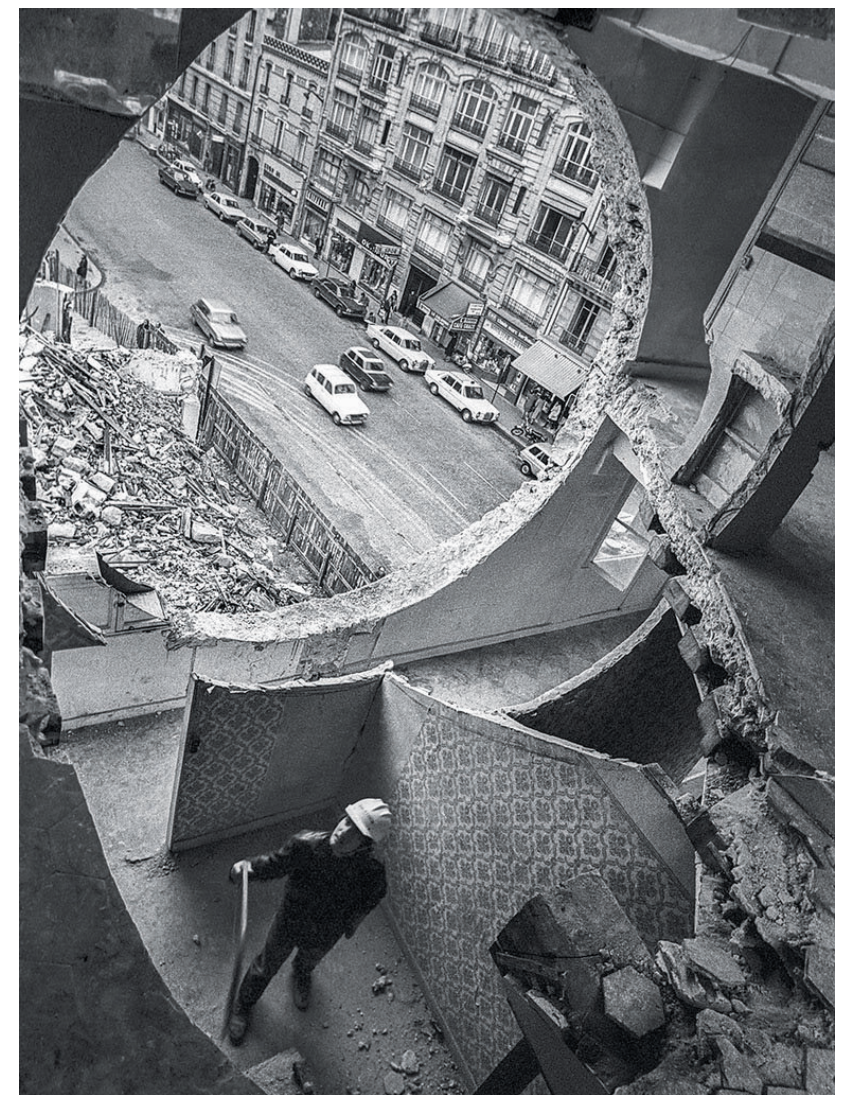
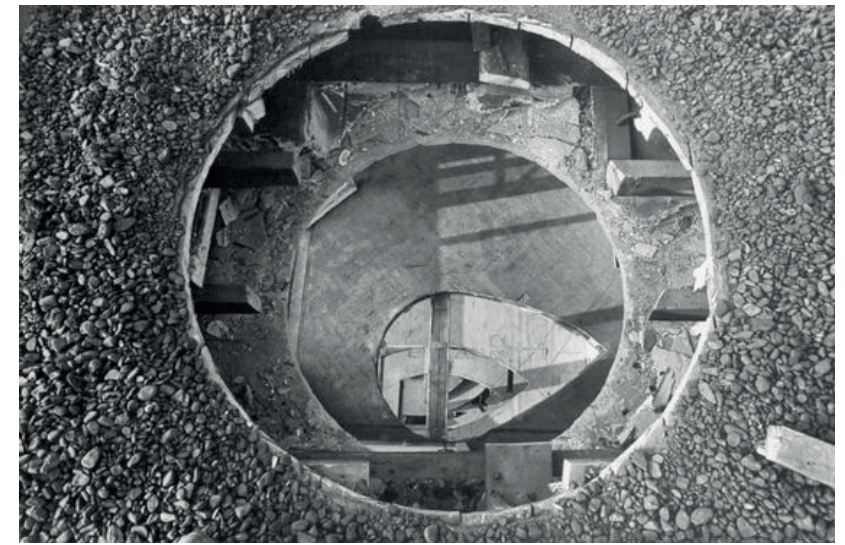


Figure 61, Junya Ishigami - 2018
Water Garden
Nasu Mountains
Keywords:
Landscaping. Path ways.

Figure 62, Robert Smithson
- 1971
Broken Circle/Spiral Hill
Emmen, the Netherlands
Keywords:
Landscaping. Nature culture

Figure 63, James Turrell - 2013
"Meeting"
MoMA
Keywords:
Fixed views, Curated nature.

Figure 64 & 65,
Gordon Matta-Clark - 1975
Conical Intersect
Photo: Marc Petitjean
Keywords:
Post industrial. Transforming
buildings into art.



Bibliography:

Benjamin, W. (1936). "The Work of Art in the Age of its Technological Reproducibility", in *The Work of Art in the Age of Its Technological Reproducibility, and Other Writings on Media*. pp. 19-56.

Borch, C. (2014), "Atmospheres, Art, Architecture: A Conversation between Gernot Böhme, Christian Borch, Olafur Eliasson & Juhani Pallasmaa", in: Christian Borch (ed.), *Architectural Atmospheres: On the Experience and Politics of Architecture*, Birkhäuser

Fascari, M., (1996). "The Tell-the-Tale Detail." In *Theorizing a New Agenda for Architecture: An Anthology of Architectural Theory 1965-1995*. pp. 500-514., Princeton Architectural Press.

Harlang, C., & Algreen-Petersen, A. (2015). *Om bygningskulturens transformation*. GEKKO Publishing.

Hauser, S., Zumthor, P., & Binet, H. (2007). *Peter Zumthor: Therme Vals*. Scheidegger & Spiess.

Macarthur, J. (2007). Introduction from "The Picturesque, Architecture, disgust and other irregularities", pp. 1-18.

Vindum, K. & Jensen, M. J. (2017). "The Waiting Room as Welfare Design", in: Kirsten Marie Raahauge, Katrine Lotz et. al. (ed.), *Forming Welfare*. pp. 237-251.

Loos, A. (1929) "Ornament and crime." in: Adolf Loos, *Ornament and crime: selected essays* pp. 167-176. Goins Court

Murphy, R. (1993). *Querini Stampalia Foundation, Venice 1961-1963*, Architect: Carlo Scarpa. Phaidon.

Ottomeyer, H, Schröder, K. A. & Winters, L. (2006), Introduction and selected chapters, pp44-55; pp148-185 in: *Biedermeier: The Invention of Simplicity*.

Pallasmaa, J. (2012). *The Eyes of the Skin, Architecture and the Senses*. Wiley.

Sternberg, E. M. (2009). *Healing spaces: The science of place and well-being*. Belknap Press of Harvard Univ. Press.

Stressniveauet blandt borgerne i Gladsaxe Kommune. (2019, April 2). *Gladsaxebladet*. <https://www.gladsaxebladet.dk/2019/04/stressniveauet-blandt-borgerne-i-gladsaxe-kommune/>

Take Action for the Sustainable Development Goals. United Nations Sustainable Development. Retrieved February 11, 2021, from <https://www.un.org/sustainabledevelopment/sustainable-development-goals/>

Tanizaki, J., Moore, C., Harper, T. J., & Seidensticker, E. G. (1977). *In praise of shadows*. Leete's Island Books.

Udviklingsplan idræts- og bevægelsesfaciliteter. (2016). <https://gladsaxe.dk/idraetsanlaegene/praktisk/facilitetsudvikling/udviklingsplanen>

Ursprung, P. (2012), "Concrete and the Unconscious of Swiss Architecture", in: Dietmar Eberle & Pia Simmendinger, *From City to House: A Design Theory*, pp.223-233

Virilio, P.(1975). "Monolith" in: *Bunker Archeology*. pp.37-49. Princeton Architectural Press

Picture reference:

Figure 1
Senses
Own illustration

Figure 2
Figure of interest
Own illustration

Figure 3
Historical situation plan
<https://www.arkitekturbilleder.dk/bygning/tinghoejbeholderen/>

Figure 4
Diagram of the age, capacity and flow of water chambers
Own illustration

Figure 5
Domes
https://trap.lex.dk/Det_%C3%A5bne_land_i_Gladsaxe_Kommune

Figure 6
Drawing of dome
<https://www.arkitekturbilleder.dk/bygning/tinghoejbeholderen/>

Figure 7
Dome
<https://100of20.innovaconcrete.eu/tinghoj-vandreservoir-tinghoj-water-reservoir-ib-lunding>

Figure 8
Dome and fence
Own photo

Figure 9
Plan and section of chamber I
Weblager.dk

Figure 10
Stair to the reservoir
<https://100of20.innovaconcrete.eu/tinghoj-vandreservoir-tinghoj-water-reservoir-ib-lunding>

Figure 11
Stair detail
<https://100of20.innovaconcrete.eu/tinghoj-vandreservoir-tinghoj-water-reservoir-ib-lunding>

Figure 12
Detail drawing of door handle
<https://kbharkiv.dk/110-aars-koebenhavnsk-arkitekturhistorie-med-sans-for-detaljen/>

Figure 13
Plan and section drawing of dome
<https://www.arkitekturbilleder.dk/bygning/tinghoejbeholderen/>

Figure 14
Plan and section drawing of dome
<https://www.arkitekturbilleder.dk/bygning/tinghoejbeholderen/>

Figure 15
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<https://100of20.innovaconcrete.eu/tinghoj-vandreservoir-tinghoj-water-reservoir-ib-lunding>

Figure 17
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<https://www.byggeplads.dk/nyhed/2020/05/arkitektur/betonhistorisk-vandreservoir>

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<http://www.dagensbyggeri.dk/artikel/106919-tre-danske-betonbyggerier-far-international-haeder>

Figure 19
Stair
<https://www.pinterest.dk/pin/386957792957675033/>

Figure 20
Gutter
<https://www.pinterest.dk/pin/386957792957675026/>

Figure 21
Entrance port to valve build I.
Own photo

Figure 22
Window i valve build I
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Figure 23
Detail in the concrete
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Figure 24
Detail of the port
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Figure 25
Historical drawing of the crew building
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Figure 26
Plan of valve building I
<https://www.arkitekturbilleder.dk/bygning/tinghoejbeholderen/>

Figure 27
Window detail
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Figure 28
Valve building II
<https://100of20.innovaconcrete.eu/tinghoj-vandreservoir-tinghoj-water-reservoir-ib-lunding>

Figure 29
Construction detail
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Figure 30
Window detail
<https://100of20.innovaconcrete.eu/tinghoj-vandreservoir-tinghoj-water-reservoir-ib-lunding>

Figure 31
Historical draing of valvebuilding II
<https://www.arkitekturbilleder.dk/bygning/tinghoejbeholderen/>

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Gladsaxe swimming pool
Own photo

Figure 33
Gladsaxe swinming pool
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Figure 34
Skating rink
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Figure 35
Badminton court
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Figure 36
Sports arena
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Figure 37
Gladsaxe sportcenter
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Figure 38
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Silverware
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Figure 40
Zodiac sign
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Figure 43
Zodiac sign
<https://www.arkitekturbilleder.dk/bygning/tinghoejbeholderen/>

Figure 44
Lunar cucle bracelet by Ib Lunding
<https://kbharkiv.dk/>

Figure 45
Jewlery design by Ib Lunding
<https://kbharkiv.dk/>

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Jewlery design by Ib Lunding
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Figure 47
Jewlery design by Ib Lunding
<https://kbharkiv.dk/>

Figure 48
Desk by Ib Lunding
<https://kbharkiv.dk/>

Figure 49
Champagne building by Ib Lunding
<https://kbharkiv.dk/>

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<https://www.arkitekturbilleder.dk/bygning/tinghoejbeholderen/>

Figure 51
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https://www.un.org/sustainabledevelopment/blog/2015/12/sustainable-development-goals-kick-off-with-start-of-new-year/?fbclid=IwAR3F9RjLJ5-ND6XEnENMF0f6zkyC9MG3QgzclIjrBM-2CynN_Y8l_tjeavto

Figure 55
Water cycle
Own illustratuon

Figure 56
Peter Zumthor, Therme Vals
<https://archdiario.wordpress.com/2016/07/07/peter-versus-peter-eisenman-and-zumthors-theoretical-throwdown/>

Figure 57
Carlo Scarpa, Querini Stampalia-Detail
<https://www.architecture.com/image-library/RIBApix/image-information/poster/fondazione-querini-stampalia-venice-detail-of-garden-water-feature/posterid/RIBA111859.html>

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Carlo Scarpa, Querini Stampalia-Entrance
http://www.querinistampalia.org/ita/home_page.php

Figure 59
Yakuza Public Bath
<https://www.mutualart.com/Artwork/Yakuza-Public-Bath/2E7650E78DEDD7AD>

Figure 60
Palatinus Thermal Baths
<https://blog.norwegianreward.com/en/travel/5-of-the-best-thermal-baths-in-budapest/>

Figure 61
Junya Ishigami Water Garden
<https://www.dezeen.com/2019/10/24/junya-ishigami-art-biotop-water-garden-obel-award/>

Figure 62
Junya Ishigami Water Garden
<https://www.dezeen.com/2019/10/24/junya-ishigami-art-biotop-water-garden-obel-award/>

Figure 63
Robert Smithson, Broken Circle/Spiral Hill
<https://www.woestenledig.com/woestenledig/2011/09/drenthe-krijgt-geen-genoeg-van-robert-smithson.html>
<https://publicdelivery.org/junya-ishigami-water-garden/>

Figure 64
James Turrell, "Meeting"
<https://hyperallergic.com/512156/james-turrell-skyspace-reopens-at-moma-ps1-after-6-month-closure/>

Figure 65
Gordon Matta-Clark, Conical Intersect
<https://publicdelivery.org/matta-clark-conical-intersect/>