Preserve Ritual through Performance

– Transformation of Liljeholmsbadhus by Repeating the Swedish Bath Traditions

Chalmers School of Architecture
Architecture and Urban Design of Architecture & Civil Engineering

06 - 2024

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Architectural Experimentation
Before and After Building

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ABSTRACT

The tradition of using public bathhouses has become a unique regional feature in Sweden. This may be potentially driven by their desire to eliminate inequality between individuals and spaces. After all the more naked you are, the less different you will be from the people around you. It's not sexual but rather fosters inclusiveness.

Liljeholmsbadhus is a public bathhouse located in Liljeholmsviken in Södermalm, Stockholm. It was closed in 2016 because of the city's concerns about its deteriorating condition and the incompatible renovation costs considered to the building's value. Recent decisions on demolishing it have caused public protests, for the bathhouse's cultural and historical significance.

Almost a century has passed till now since Liljeholmsbadhus was built, this place has been witnessing massive changes in Swedish society over the decades. As private bathrooms have become prevalent nowadays, traditional public bathhouses have become less relevant with the function of cleansing, shifting their focus from hygiene and health to recreational and fitness purposes.

History appears to be repeating itself, potentially culminating in the closure of Liljeholmsbadhus as its functions struggle to align with changing societal expectations again. Perhaps a transformation is needed for its survival, marking a necessary step forward in its journey.

So this project explored the behavior of bathing in Sweden and its interaction with architecture, reevaluating the contemporary local bathing scene and bathing facilities on a cultural and empathetic level.

People strengthen their sense of identity through collective behaviors. Participating and defending Liljeholmsbadhus may be the way for individuals to affirm their pride and love for their culture, uphold social norms and orders, and seek approvals.

The aim of this thesis is to initiate an architectural transformation as a method to protect Liljeholmsbadhus and prevent it from being demolished for sustainable use, and also to revitalize it for the local who has deep attachments to it.

Keywords

Public bathhouse, Public baths, Cold bath, Shared space, Architecture sequence, Architecture privacy, Rituals, Space equality, Inclusive design, Building transformation

CONTENTS

INTRODUCTION

Purpose

This thesis is about the behavior of bathing and its interaction with architecture on a local/regional range, explored how the behavior of bathing can be used in the architectural transformation.

The purpose of this project is to initiate architectural transformation as a method to revitalize a public bathhouse and prevent it from demolished for a suatianable use.

Background

Located in Liljeholmsviken near Hornstull Beach on Södermalm, Liljeholmsbadhus is a public bathhouse featuring various bathing and showering facilities, including an indoor swimming pool. Designed by architect Gunnar Leche around the 1930s.

Liljeholmsbadhus was closed in 2016 due to concerns over its deteriorating architectural condition and the high costs of renovation relative to its value. The city recently decided on its demolition.

This decision upsets the local community, causing public protests given its cultural and historical importance. The building has been recognized as architectural heritage by the city museum.

Originally, Liljeholmen was a working-class district in Stockholm, where lived many factory and industrial workers. With their apartments lacking private bathrooms, Liljeholmsbadhus was built to provide bathing and swimming facilities for these residents.

Over time, the bathhouse has evolved into a vital gathering and recreational spot for various groups, including the elderly, individuals with disabilities, and even autistic children. The local community holds emotional connections to the building and their bathing culture.

Thesis Questions

How can the integration of bathing rituals and its associated space help to revitalize a culturally significant building?

How does the divergence in privacy preferences dominate the sequence of architectural spaces, and how to finesse these spaces to coexist harmonically?

Can the partial changes in building attributes lead to a more equitable and inclusive public space?

Explorations

The project starts with a localized investigation of historical evolution of public baths, bathing traditions, and various bathing typologies in Sweden. Then investigate contemporary adaptations of popular bathing types and their corresponding architectural forms within Sweden.

These investigations determined the project should proceed with cultural, empathetic and local perspectives and how to express these attributes in the transformation.

Which resulted in formulating the cold bath ritual comprising various bathing steps, then ascertained the proposition of bathing types and public bathhouse designs with sustainable potential suitable for implementation at Liljeholmsbadhus.

Following this, I started another research on conducting an assessment of the current situation of Liljeholmsbadhus, scrutinizing potential problems ranging from structural issues to functional shortcomings. Architectural solutions are then proposed to address these identified problems.

Finally, the research results were gathered together to propose a cohesive and sustainable renovation strategy tailored specifically to Liljeholmsbadhus, which integrating the insights acquired from both historical bathing practices and contemporary architectural trends.

Theory

Architecture and Ritual: How Buildings Shape Society by Peter Blundell Jones
The Manhattan Transcripts by Bernard Tschumi

To find the motivation of why people continue using this place and why they are protesting for it. And to find the support of why using the cold bath tradition to help the transformation.

Case Study

Thermal Baths in Vals and Kolumba Museum by Peter Zumthor
Church of the Light by Tadao ando

Method

Research 1 - Qualitative research - Swedish bathing history

Through historical research, I investigated Liljeholmsbadhus' s place in history and local bathing history include Swedish bathing traditions and practices to answer the following questions, which were then documented and compared through hand-drawn illustrations.

Were rural and urban populations engaging in similar bathing types? What bathing types have become obsolete over time, and which ones persist to presence? Moreover, why do these enduring bathing traditions hold cultural significance? How could these traditions influence the future design strategy?

This research helps to understand the connection between changes in Swedish society and people's perspectives on bathing and the rationale behind their choices of bathing methods, on an empathetically level.

This research resulted in selected bathing types that are adaptable and have the potential to be implemented into Liljeholmsbadhus' s transformation.

Research 2 - Quantitative research - Cold bath and its corresponding architecture type

This research aims to discover what's trending in contemporary bathhouses and their operational methods. To summarize a pattern which Liljeholmsbadhus can simulate and potentially revitlize itself.

Then I started another research on public bathhouses featuring cold bath facilities across Sweden. This involved the analysis of their architectural design and functional aspects, revealed the contemporary bathhouse preferences.

This research aims to identify two distinctive architectural typologies exhibiting significant ritualistic potential and behavioral patterns. Additionally, I developed a contemporary framework for the cold bath ritual, delineating the procedural steps involved in undertaking a cold bath, and demonstrated the fundamental spatial preconditions.

Research conclusions presented by the architecture typology diagram and movement diagram.

Research 3 - Mixed methods research - Liljeholmsbadhus' s current architectural situation

This research is based on hundreds of historical construction drawings obtained from Stadsarkivet since 1930.

I translated 2D drawings to 3D model of Liljeholmsbadhus to demonstrate building elements and made practical speculations on unclear parts. An assessment of the current situation of Liljeholmsbadhus is conducted based on 3D model, scrutinizing potential problems ranging from structural issues to functional shortcomings.

The research results is presented by a serial of axonometric diagrams and a similar movement diagram on Liljeholmsbadhus related to the research 2, then conducted comparisons between them.

Reflections

Throughout each stage of research and design, I provided a series of reflections to elucidate the rationale behind my decisions and anticipate potential outcomes.

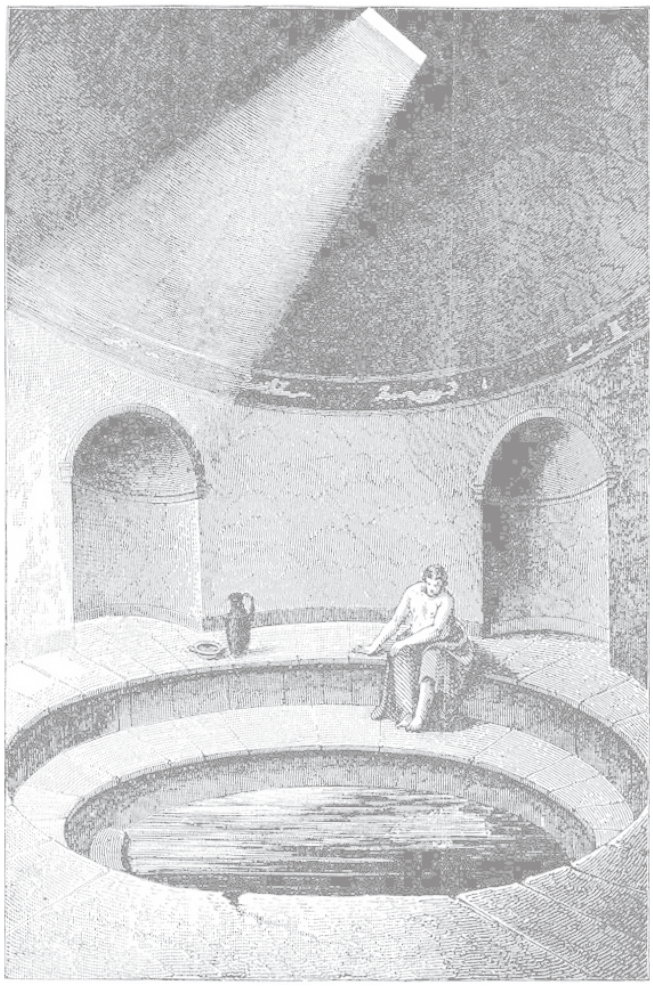
These reflections serve as the foundation for the theories and reference projects I examine and integrate into the research findings, thereby informing the design strategies moving forward.

Design Stategies

In this part design proposals are delivered individually on each architectural elements based on the research results and the assessment of Liljeholmsbadhus. Use different diagrams and drawings to reflect the insights acquired from both historical bathing practices and contemporary architectural trends.

References

Situations worldwide



The origin of bathing in public facilities

Public baths date back to the third millennium BC when private bathrooms were uncommon in households. The Romans embraced public bathing around 300 BC, making it a significant social activity in ancient Rome.

For numerous individuals, public bathhouses served as the only place to cleanse after a week of physical labor. Over time, the tradition of public bathhouses has transcended geographical boundaries, adapting to diverse cultural and social customs, such as the prevalence of saunas and cold baths in Scandinavia.

This points back to ancient Roman times when people already had the tradition of constructing cold bath facilities and establishing the sequence of bathing, which involved using the cold bath after the hot bath.

Figure 1. *Frigidarium of the Old Baths at Pompeii. (Overbeck. Wikimedia Commons. 1898)* Frigidarium was the cold bath in a Roman bathhouse, normally was used before and after bathing in the hot bath (caldarium).

Situations in Sweden

Figure 2. *A small bath hut in Fårhult. (Historisk bildbyrå. 1910)*

Changing attitudes towards bathing and cleaning

In the 1800s, industrialization in Sweden and a significant influx of immigrants to cities led to overcrowding in urban areas and poor waste management. Consequently, many people lived in poor conditions, resulting in rampant outbreaks of pandemics.

During this period, bathing habits differed significantly from modern practices. Private bathing facilities, such as bathrooms, were rare in 20th-century Sweden due to limited indoor water supply and underdeveloped sewage systems. Instead, individuals often bathed in tubs near kitchen stoves or in large barrels in barns or mills. Bathing frequency increased slightly during the summer.

Unlike their Finnish neighbors' tradition of sauna, Swedes viewed it as unfashionable and immoral, associating them with the spread of disease. Consequently, bathing was uncommon, with Swedes averaging only 1.4 baths per year in the early 19th century. When they did bathe, they often preferred cold baths in natural water sources.

It was around the 1860s that saunas were once again accepted by Swedes and began to gain popularity nationwide.

The origin and development of public bathhouse

In the mid-to-late 19th century, Swedes recognized the link between hygiene and the spread of diseases such as cholera and other plagues. To combat tuberculosis and improve preventive medical care, Swedish doctors recommended regular body cleansing and the establishment of public bathhouses. With the development of better drainage systems by the government, epidemics declined.

The bathing culture in Sweden changed significantly with the emergence of The Swedish Bathing Association (Svenska Föreningen för folkbad) in 1905. This organization aimed to educate people on low-cost bathing practices in public bathhouses to improve health and hygiene.

During that time, public bathhouses such as Liljeholmsbadhus were promoted as spaces for body cleansing, preventative healthcare and educational places for swimming.

The association remained active until the 1930s, coinciding with the inclusion of indoor toilets and bathrooms in residences.

Bathing types in history

a. Before 1800s
Surbrunn (Natrual Spring)
An sour well is a health well with carbonated water with a high iron content or natural spring.

b. Around 1830s
Sea basin / Swamp
The bathing structure was floating or firmly anchored in the sea. Around these were changing cabins and showers.

c. Around 1860s
The working class shower situation before the folkbad

c.1 Shower in laundry room/ kitchen
Rural family usually took shower in the brew house, laundry room, barn or the cottage kitchen. They use buckets or wooden tubs. There was usually a sequence of people when taking a shower since the water wouldn't be changed during this process.

c.2 Shower in factory / mill
Factory labors usually showers in the mill by the fireplace, and buncks. They use buckets and wooden tubs.
Few workers took shower together in one tub.

d. Around 1890s
Public bathroom and school bathrooms
Doctors felt that it was easier to educate the benefits of improved personal hygiene via the school children than to influence everyone in society.

e. 1905
Public bathhouse (Folkbadhus)
The origin of folkbad, a folkbad contains different bath types and space, cold bath is the precondition of a folkbad and also later became one of the consisting factors of it.

f. Till now and future
Different bathing types
The popular types nowadays are: hot baths, cold baths, saunas, private bathrooms, public swimming pools, and sunbaths.

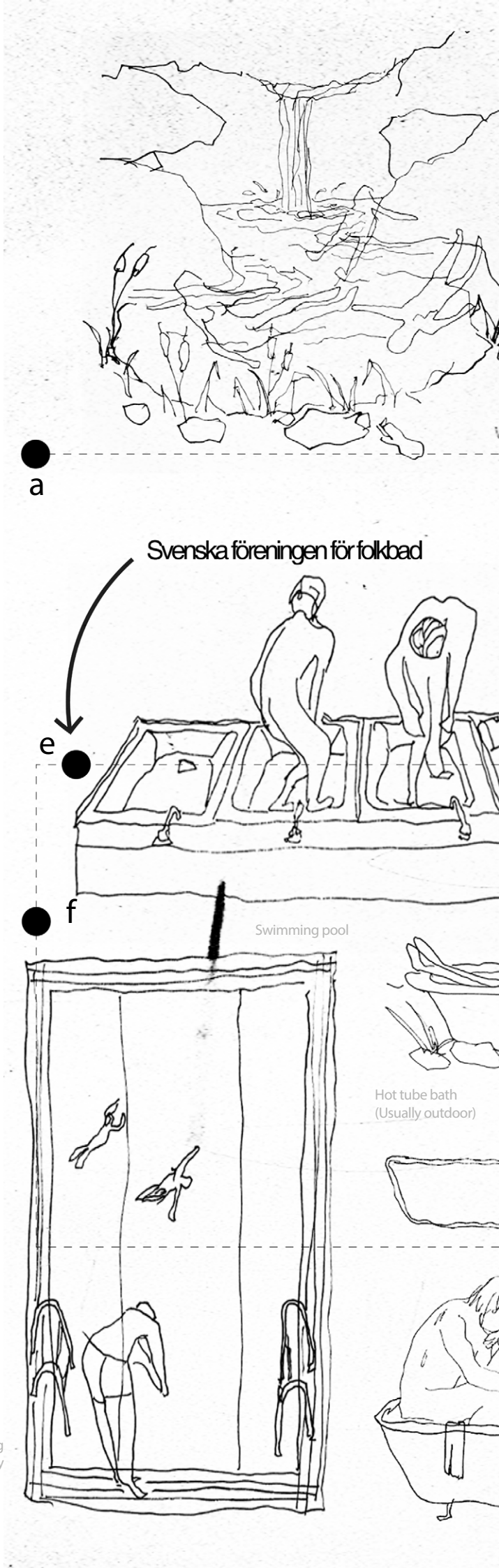
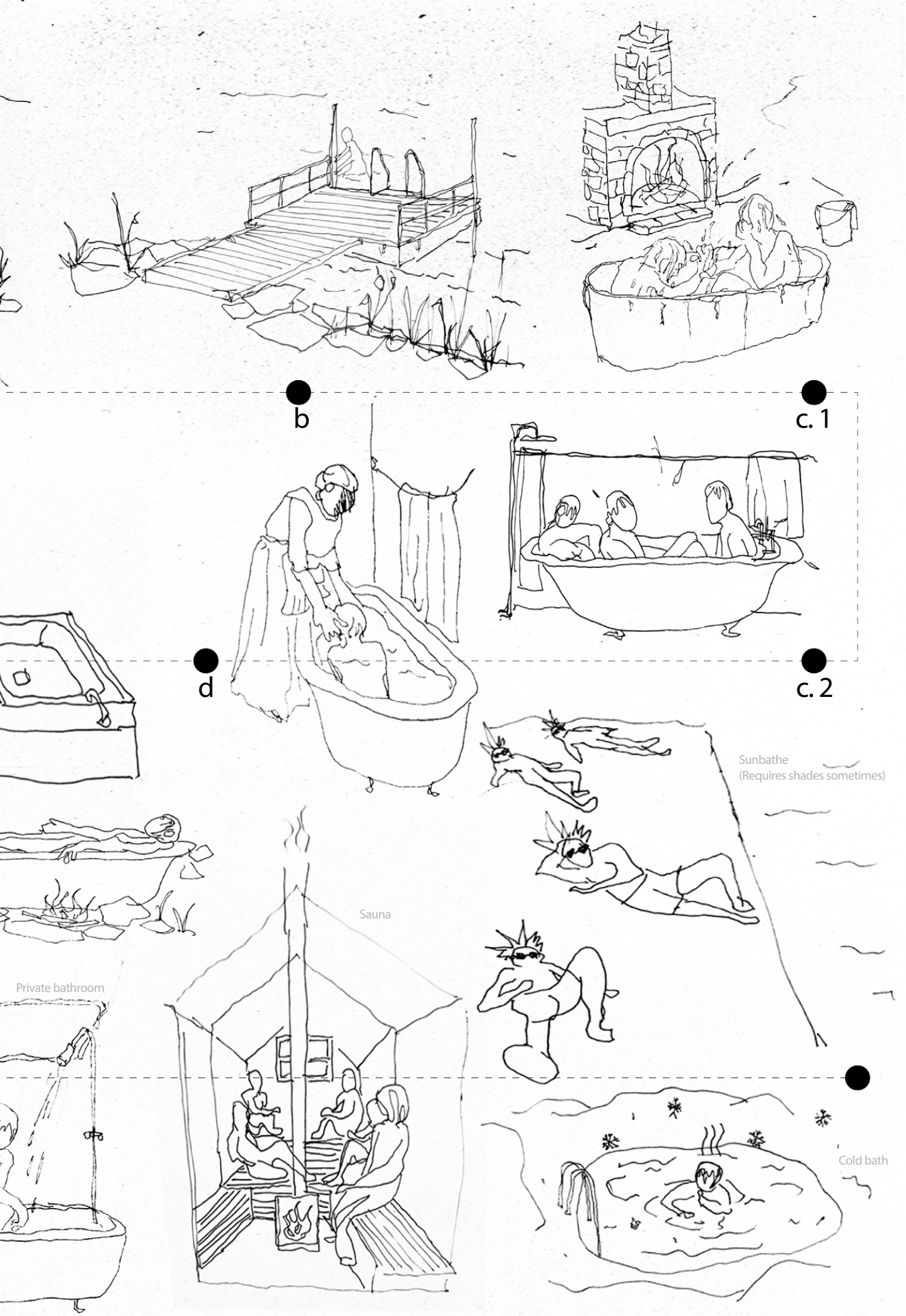


Figure 3. Swedish bathing types in history


b
c. 1
d
c. 2
Sunbathe
(Requires shades sometimes)
Sauna
Private bathroom
Cold bath

Updated Preferences in bathing

Bathing preference changed with the increased privacy needs

Before

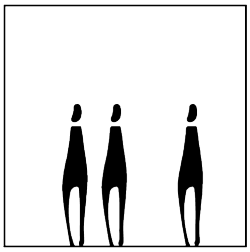


Figure 4.

Collective bathing was accpeted

Due to the poor bathing facility development, gap of wealth in the rural and urban areas, education levels.

Now

Figure 5.

Preference on solitay shower

Developed indoor shower facility and drainage system, more equal bwtween coountryside and city, awareness of personal space.

Similar preference for shared space remained or self-diverged flexible space

Before

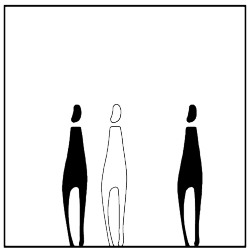


Figure 6.

Shared bathing space

Such as sauna and cold bath, number of people and gender difference were ignored sometimes.

Now

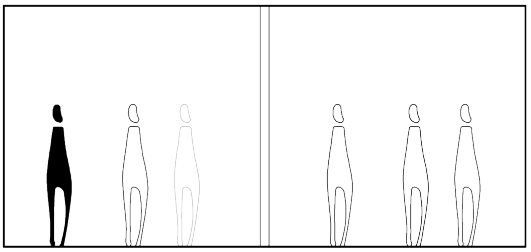


Figure 7.

Flexible space

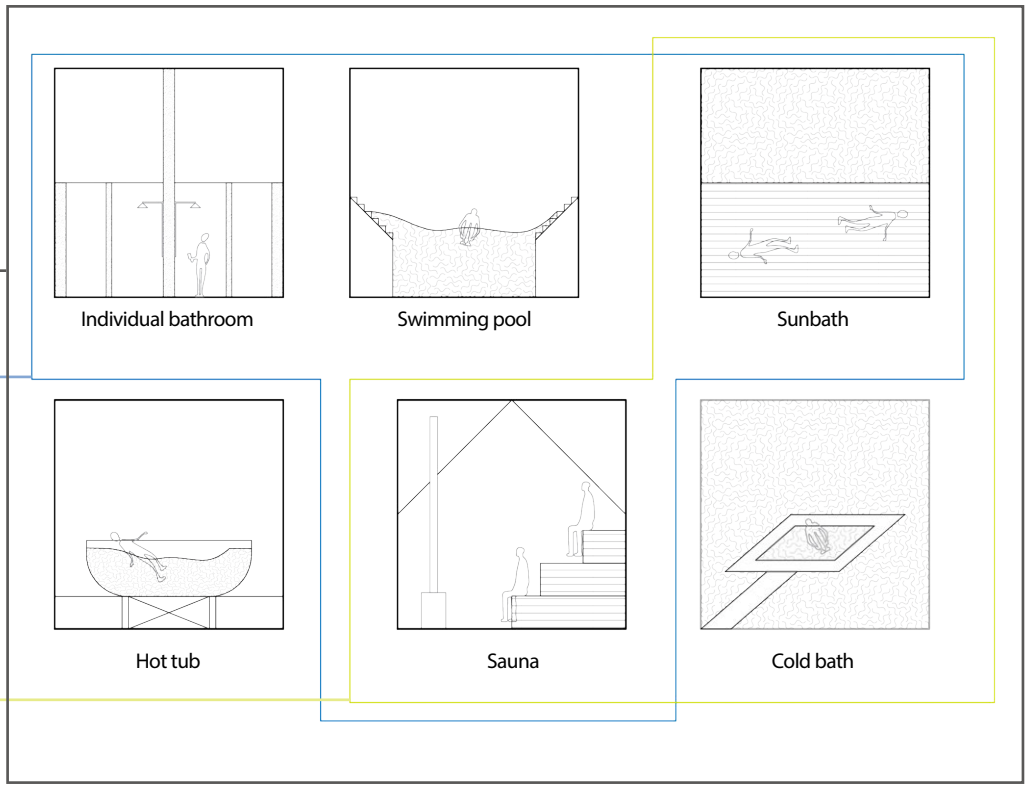
People nowadays prefer collective spaces that encompass various attached independent areas serving different needs.

Figure 8.

Typical bathing types in a Swedish public bathhouse (Folkbad)

Current bathing types Liljeholmsbadhus contains

It represents both Essenential bathing types to compose a contemporary cold bath house or Crucial types to potentially perform cold bath as a ritual



Functionality changes in public bathhouses over time

During the existence period of The Swedish Bathing Association, public bathhouses were promoted as "folkbadhus" (Public Bathhouse) by this association and various bathing types were all collectively referred to as "folkbad".

A folkbadhus typically provides several bathing types, including saunas, cold baths, hot tubs, sunbathing, swimming pools, individual shower compartments, and physiotherapy rooms.

Liljeholmsbadhus can be seen as a typical public bathhouse constructed during that time, but in a period when such architecture fell out of favor and became obsolete.

The emergence of the swimming pool in Liljeholmsbadhus also reflected a shift in societal needs and preferences - even though bathing in public space was no longer widely participated, a necessity remained, a recreational space to educate children about hygiene and swimming.

Now, almost a century has passed since 1930 when Liljeholmsbadhus was built, this place has been witnessing massive changes in Swedish society over the decades. History appears to be repeating itself, potentially culminating in the closure of Liljeholmsbadhus as its functions struggle to align with changing societal expectations again. Perhaps, transformation becomes vital for its survival, marking a necessary step forward in its journey.

Reflections for now and future of public bathing scene

As private bathrooms became prevalent, traditional public bathhouses have become less relevant with the function of cleansing, shifting their focus from hygiene and health to recreational and fitness purposes. This evolution in bathing culture in Sweden has led to a diversification of bathing spaces, with changes in bathing practices and privacy preferences.

In the past, communal bathing was common, with multiple individuals of the same gender sharing a bathtub. However, with people's growing self-awareness, modern preferences lean towards solitary showers in private bathrooms, reflecting a shift from communal cleansing to individual privacy.

While certain bathing spaces like saunas or cold baths still encourage communal nudity regardless of gender, this practice has become part of Swedish bathing tradition, fostering inclusivity and equality among bathers. More interactive space are expected too during the change.

However, the growing awareness of social distancing has also led to a desire for gender-segregated spaces in some instances. But certain bathing spaces like sauna or cold bath maintain a consistent consensus where individuals of any gender can participate and remain naked.

This habit has automatically merged into Swedish bathing traditions as a regional feature. This may be potentially driven by the desire to eliminate inequality between individuals and spaces. The more naked you are, the less different you will be from the people around you. It's not sexual but rather fosters inclusiveness.

The function evolves in response to societal and individual needs again, just like the appearance of the educational swimming pool, and the disappearance of natural cold baths as the rise of private bathing facilities - what is contemporary Swedish society expecting now?

So I started next research to discover what's trending in contemporary bathhouses and their operational methods.

To summarize a pattern which Liljeholmsbadhus can simulate and potentially revitlize itself, aiming to adapt existing spaces to contemporary needs while preserving elements of its historical significance.

In the investigation of contemporary bathhouses in Sweden, a noticeable bathing type emerged as being adopted by many bathhouses, leading directly to naming themselves after this activity as "Kallbadhus" (Cold bathhouse).

This direct association with the specific bathing type caught my attention, leading me to the deeper research of cold baths and its facility.

Figure 9. *Varberg kallbadhus.* (Björsell, 2022)

The tradition of "Kallbad" and its facility development

By end of the 19th century, there was a change of perspectives in personal hygiene and body care in Scandinavian countries. Nature-related medical treatments were gradually associated with health care and disease prevention, which led to the establishment of waterside facilities like coastal sanatoriums and spas.

In Sweden, simple bathing facilities near natural water sources began to emerge during this period. These typically consisted of small wooden huts built on the shore with rock foundations, creating a protected area in the sea for bathing and swimming. This particular form of outdoor bathing became known as "Kallbad" (cold bath), indicating bathing in natural or non-heated water with protective facilities.

The cold bath gradually became one of the earliest features in health resorts ("kurorter") in Sweden, viewed as a form of hydrotherapy with therapeutic benefits. The building term "Kallbadhus" (cold bathhouse) was used to describe these open-air bathhouses, with the first ones appearing around the end of the 19th century as the tradition of cold baths solidified.

Today, the term "Kallbadhus" has a broader meaning, encompassing buildings that offer open-air bathing facilities as well as public bathhouses or spas with various bathing types beyond just cold baths. These structures are most prevalent on the west coast and in the south of Sweden, offering a popular means of relaxation and recreation.

Reasons to chose the cold bath instead of other bath types

Continuing with the investigation into existing bathing facilities in Swedish public bathhouses, I discovered several popular types, including hot baths, cold baths, saunas, private bathrooms, public swimming pools, and sunbaths.

Among these, cold baths and saunas, deeply rooted in regional and cultural traditions, stand out as primary functions and are highly favored in Sweden. Many public bathhouses are specifically named after these functions, such as Varbergs kallbadhus and Lysekils kallbadhus.

The primary purpose of cold baths has evolved over time from mere cleanliness to a form of self-care and a deeper communion with nature.

Investigation shows that Liljeholmsbadhus unfortunately doesn't provide this popular type of bathing experience. I continued to explore the connections between the existing bathing options at Liljeholmsbadhus and cold baths.

Reflection

It's noteworthy that in these bathhouses, the tradition of cold bathing is almost being performed ritualistically. I wonder whether I could systematize a vaguely defined ritual, leveraging its cultural and local impact to Liljeholmsbadhus.

Despite the variety of bathing experiences available at a bathhouse, they all serve the common purpose - bathing. Even in an era where most people have private bathrooms at home, individuals still go to bathhouses like Liljeholmsbadhus and continue the historical scenes.

There might be a reason behind their continued visit. I want to find the behavioral motivations through the theory research, and also to support my proposal on using "cold bath" as the main feature of the transformation.

Theory Studies and reflections

Architecture and Ritual

This book is about how architecture shapes our experience without our conscious awareness and architecture upholds a way of organizing people and things silently and shapes our mutual understanding of society by giving context to our lives.

It tells one important idea for me in later design- Buildings are noticed not only through their appearance or design but primarily through their function and the significance created through human interaction with them.

In Jones's book he said "It is evident that spatial order reflects social order and helps to recreate it, for buildings preserve memories of relationships through their very organization, thus defining roles and identities." (Jones, Architecture and ritual: How buildings shape society. 2017. Page 342)

Maybe this explains the driving force behind their actions - the desire for their Swedish identity and acceptance. They engage in these local customs to affirm who they are and avoid feeling excluded from society.

Culturally - In recent years, with globalization and increased immigration to Sweden, differing opinions have emerged. Some believe these changes are inconsequential, while others see unexpected changes in social norms and orders.

Participating and defending Liljeholmsbadhus is a way for individuals to affirm their pride and love for their culture, uphold social norms and orders, and seek approval.

Individually - Because a lot of social minorities visit here frequently, perhaps this also explains the protests, serving as a defense against being ignored and a plea to remain part of a dynamic society, regardless of age or disability.

Socially - People strengthen their sense of identity through collective behaviors such as shared language, adherence to local laws or bathing in a public space.

In architecture, bathhouse has become as a sacred symbol to represent a part of their culture and go to a bathhouse is the way to honor the culture.

Such as attending Mass or being baptized, people gathering here can be seen as the religious gatherings at churches, where rituals are performed (bathing) to enhance their Swedish identity. (Figure 10)

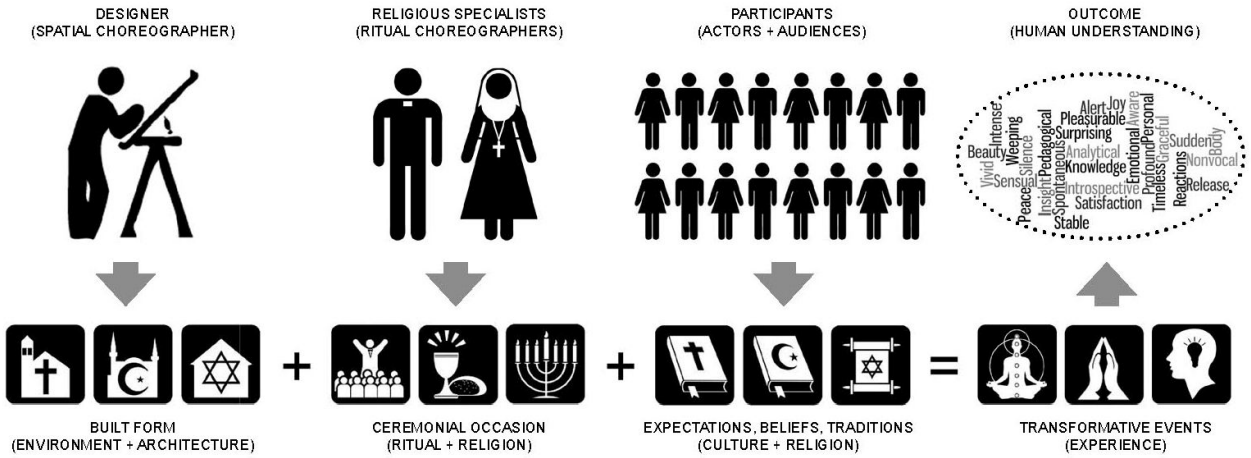


Figure 10. Ritual-Architectural Design process. Image shows the crucial involving factors when accomplish an architecture with strong ritualistic relation. (Ro, Ritual-Architecture Design Process. 2013)

The Manhattan Transcripts

Tschumi's transcripts explore the relationship between space and objects, anticipating the event through disjointed scenarios, revealing discrepancies between function, form, and social values.

"An architectural project is precisely where differences find an overall expression." (Tschumi, *Chapter 10: The Pleasure of Architecture.* 1978) Architecture reflects the integration of diverse needs, including privacy preferences and the integration of different groups. Addressing various needs and enabling individuals to "find the way back" have been influencing the transformation proposals.

This influenced my approach to setting cold bath ritual steps in later design. Although the differences between each space are subtle (enough to coexist harmoniously in a larger space), they are still significant enough to alter adjacent architectural attributes - for example, a small door could divide the external public space from the building's interior, or one wall could dramatically separate two gendered spaces.

"The spatial arrangement for almost any social context – where you have to be, how you have to move, how to behave – is bodily engaged and learned from early childhood, then taken for granted as part of the general order of things." (Jones, Architecture and ritual: How buildings shape society. 2017)

The spatial arrangement provided by walls allows individuals to easily reverse and find their way back within sequential space. "Finding the way back" not only refers to spatial order but also reflects locals' desire for traditional prosperity.

Changing the function of the bathhouse based on different social expectations could disrupt the coherence of Liljeholms architectural form and intrude upon it. Disagreements between the people and the government on the replacement of the old and the new may also symbolize attitudes toward social development and traditional culture.

This design seeks to inclusively accommodate marginalized groups (the elderly, disabled individuals, and sexual minorities) in architectural renovations, coexisting with development while preserving traditional Swedish social norms.

Therefore, revitalizing this historically significant building with another culturally significant practice (Kallbad) is necessary. This not only could be elevated and promoted to a lifestyle on a sustainable aspect, but also to mimic the history - just like once how it was promoted originally.

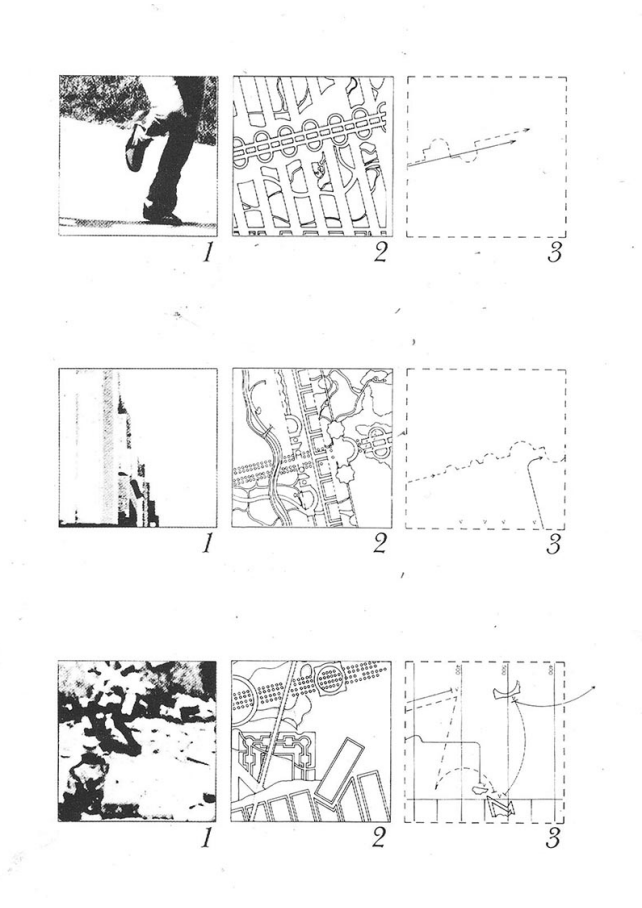


Figure 11. Drawings from The Manhattan Transcripts. The drawings employed a particular structure involving photographs that either direct or "witness" events (some would call them "functions," others "programs"). At the same time, plans, sections, and diagrams outline spaces and indicate the movements of the different protagonists intruding into the architectural "stage set." (Tschumi, *The Manhattan transcripts.* 1994)

Case Study I

7132 Thermal Baths and Kolumba Museum
Peter Zumthor

Figure 12. Indoor atmosphere and materials in the Thermal Baths in Vals by Peter Zumthor. (Guerra et al., Peter Zumthor's Therme Vals Through the Lens of Fernando Guerra. 2016. 32/49)

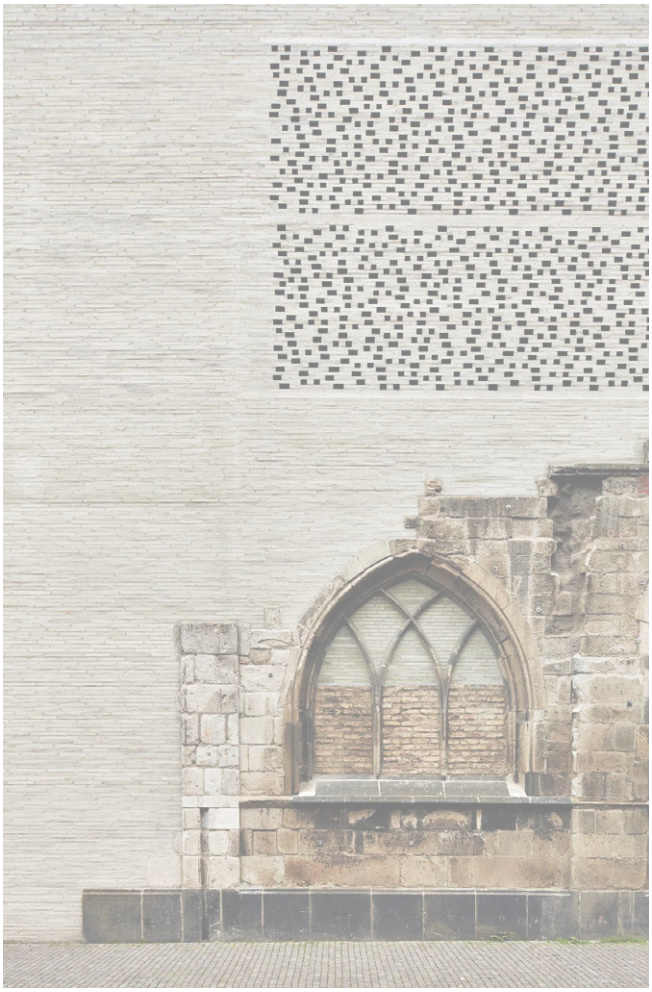


Figure 13. Kolumba Museum facade detail. (Berg, Kolumba Museum) Different facade materials merge together, created a natural blending, preserved the old building's identity but also minimized the intrusion of new materials.

- Therme Vals

Built in 1996, this spa is one of the most important works by the architect Peter Zumthor. The spa is well-known for providing a sensory experience involving variations in temperature, lighting, and materials.

The building resembles a cave in the mountains, with a structure that is partly buried in the hillside and covered by a grass roof, making it almost hidden from view. Its walls are constructed from locally crafted stone, arranged in layers to create different colored stripes.

- Kolumba Museum

Kolumba Museum is located in Cologne, Germany, and possesses many valuable Roman Catholic Archdiocese art collections. Zumthor aimed to revitalize the ruins of a Gothic church by renovating it into a museum while respecting its history and preserving its identity.

To adapt and connect the old with the new, the museum's layout follows the original church walls as they are further constructed. The walls show a contrast between the old and new by using different materials, such as bricks and clay plaster, to integrate the additions with the original ruins. This approach created a natural and calm architectural style.

Case Study II

Church of the Light
Tadao Ando

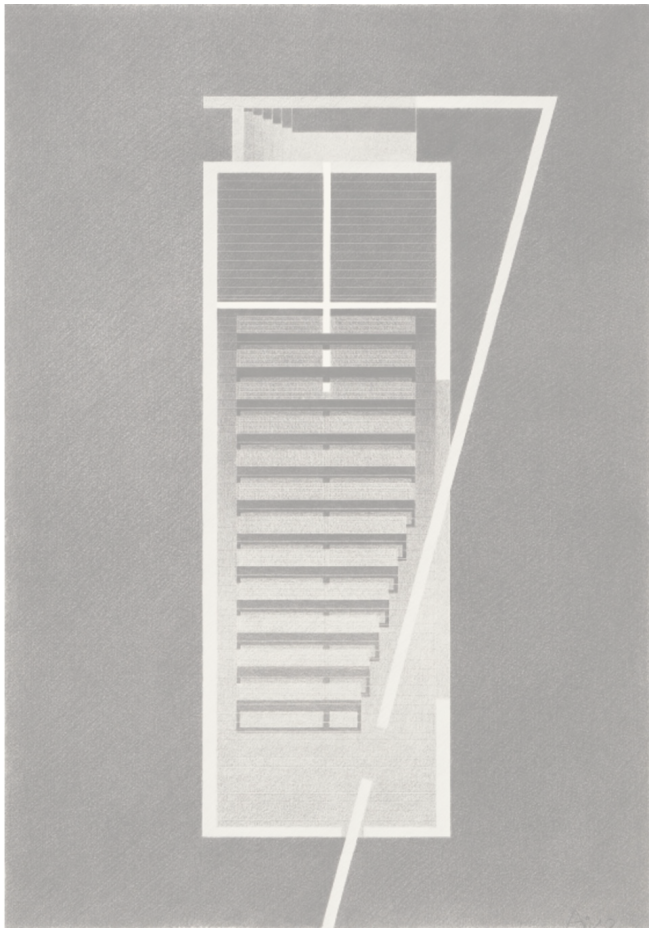


Figure 14. Unique pencil drawing of the "Church of Light" floor plan on lithograph. (Ando, Church of Light. 1989)

- Church of the Light

The plan of the Church of Light consists of a strictly rectangular structure intersected by a sharply angled wall, which cuts and divides the rectangular space, separating the church's interior from the passage area. People enter the church by following the path created by the angled wall and the height difference between the two walls.

The set of walls helped to shape the entrance of the church and also the start of religious activities.

The effect of light and shadow created by the interaction between the building and the sun in the Church of Light is also important in shaping the religious and architectural atmosphere.

Figure 15. Inside of Church of Light. (Morimoto, Inside of the Church of Light by Tadao Ando. 2021)

Reflection

Sweden has a tradition of using suatainable and durable materials such as natural stones and rocks in architectural design, seen in places like "Stenstan" in Sundsvall and Midsommarkransen in Stockholm. Because it is environmentally friendly and cost-effective, it allows buildings to blend smoothly with their surroundings.

Also in Zumthor's book "Thinking Architecture" he said, "So, I pay all my attention in my work to conceive my buildings as bodies, building them as an anatomy and a skin, as a mass, a membrane, as matter or cover, fabric, silk and shiny steel." His obsession of architectural materials and details inspired me of the selections on additional materials for Liljeholmsbadhus.

Ando's church inspired me to explore creating a sense of ritual by adjusting the arrangement of wall openings, altering the size of spaces, and designing the entrance to clearly separate the building from its surroundings.

Building materials help to create an atmosphere and a sense of ritual. Using local materials in renovation can be sustainable, economical, and practical, while also honoring the local architectural culture.

These examples show the important integration of architecture, culture, and nature. I want to reflect this connection through my work. Therefore, I aim to shape architectural spaces based on three aspects: materials, light (or openness), and scale.

Thesis Questions

How can the integration of bathing rituals and its associated space help to revitalize a culturally significant building?

How does the divergence in privacy preferences dominate the sequence of architectural spaces, and how to finesse these spaces to coexist harmonically?

Can the partial changes in building attributes lead to a more equitable and inclusive public space?

The meaning of ritualizing Cold Bath

My purpose of renovating this place is to create a space near the center of Sweden's largest city, a space that represents the country's culture authentically without resorting to cliché. I want to sell the activity as an "aesthetic" or a "lifestyle," avoiding being a simple athletic venue.

I think that if a building can bring profits, it's more difficult to face demolition or be replaced and nowadays people would rather spend a fortune on a "lifestyle". Some might criticize designing for money is kitsch but to me marketing or commercializing a culture not only perpetuates the culture but also preserves the space attached with. This symbiotic relationship between ritual and architecture may foster mutual benefit and sustainability.

I think that a tradition has the potential to evolve into a ritual, but this transformation is subtle and irreversible. A ritual may stem from a single tradition, or it can also emerge as an intentionally structured practice combining various traditions in deliberate sequences, perpetuated through repetition.

While private bathrooms have become indispensable in residential architecture, the tradition of cold bathing, deeply intertwined with nature, has persisted and remains widely embraced. It has been acknowledged by Swedes as a regional tradition, recognizing its benefits for both physical and mental well-being. This repetitive regional behavior also reflects their pride in their own bathing culture and their constant pursuit of equality in human society and shared environment.

Could ritualizing the practice of cold bathing, with its implicit commitment to permanence and timelessness, serve as a means to preserve a public bathhouse? By structuring the sequence of activities within the bathhouse, it is possible to establish cold bathing as a ritual, integrating it with the existing architectural situation to create a space suitable for performing this ritual.

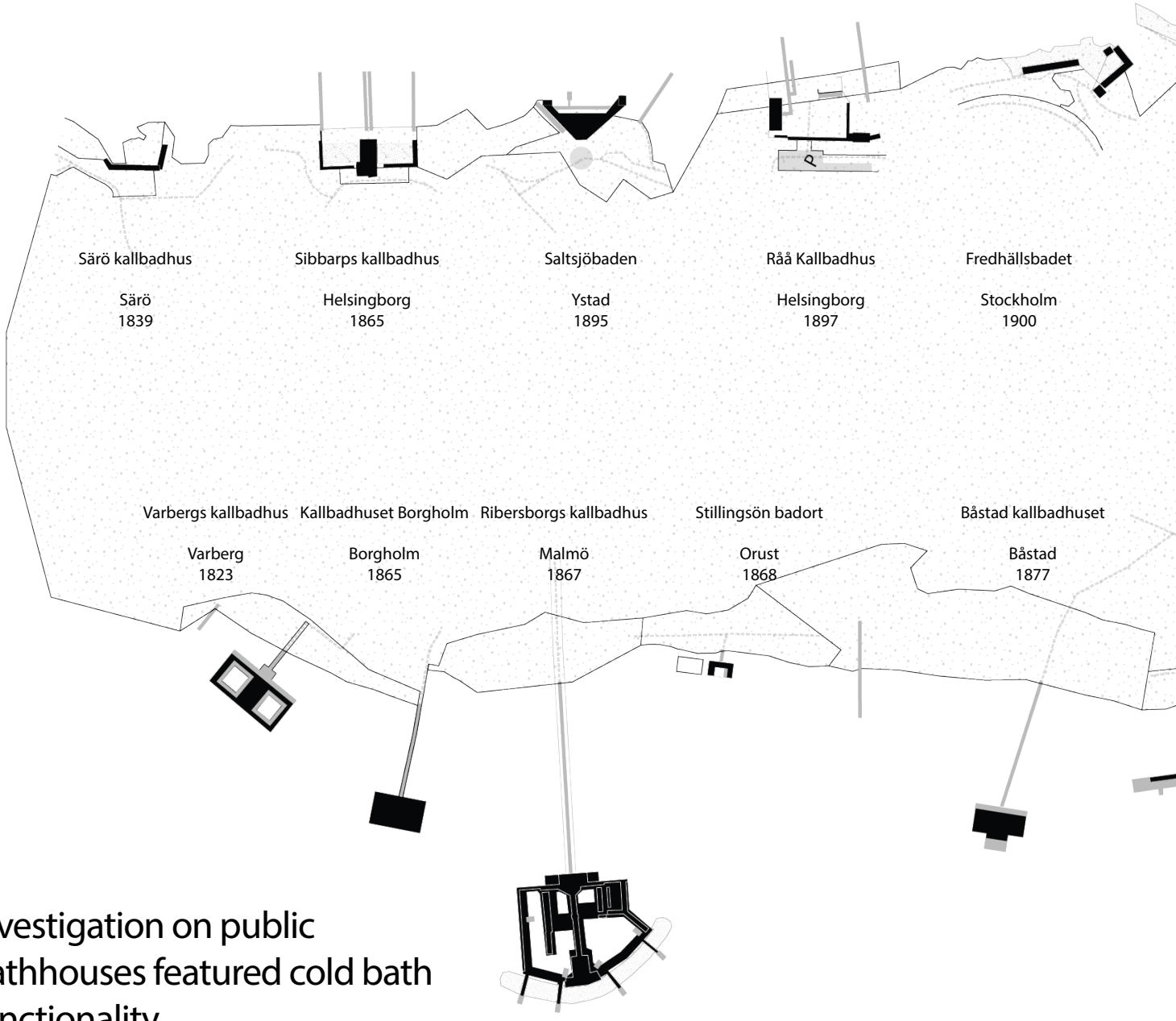
Potential future of the indoor pool in Liljeholmsbadhus

Swimming is not typically associated with therapeutic rituals; it's more commonly seen as a sport or fitness activity and carries less cultural significance compared to other forms of bathing.

The cold bath water stands distinct from a typical swimming pool, it has been regarded as a simple yet spiritually enriching bathing type. In contemporary Scandinavian countries, it is also known for their capacity to calm and boost immune system and mind, often linked with resorts and spa as a local tradition. Its inclusivity and deep intertwinement with nature have enabled its survival despite the widespread of indoor bathrooms, reflecting the Swede's fascination for the nature.

Additionally, most popular kallbadhus are located on the west coast and south of Sweden, with fewer options in the east or near Stockholm. By packaging and formalizing cold bathing as a ritual with rich cultural context, it can even be marketed alongside with the building, such as Liljeholmsbadhus.

Based on the previous design, I think it is an option to lower the presence of the swimming pool.



Investigation on public bathhouses featured cold bath functionality

Today, the term "kallbad" has expanded to encompass various bathing practices, leading to its ambiguous definition. To address this ambiguity, the next research aims to establish a formal definition of cold baths based on contemporary needs.

I started the building typology research on selected 22 contemporary bathhouses in Sweden, then made comparison diagrams to analyse their differences and similarities.

Continuing my research on public bathhouses offering cold bath facilities in Sweden, I conducted analyses of their architectural design and functionality and identified two distinct architectural constructions (Figure 17 and 18) with the strongest ritualistic potential, along with the behavioral patterns associated with each type on next pages.

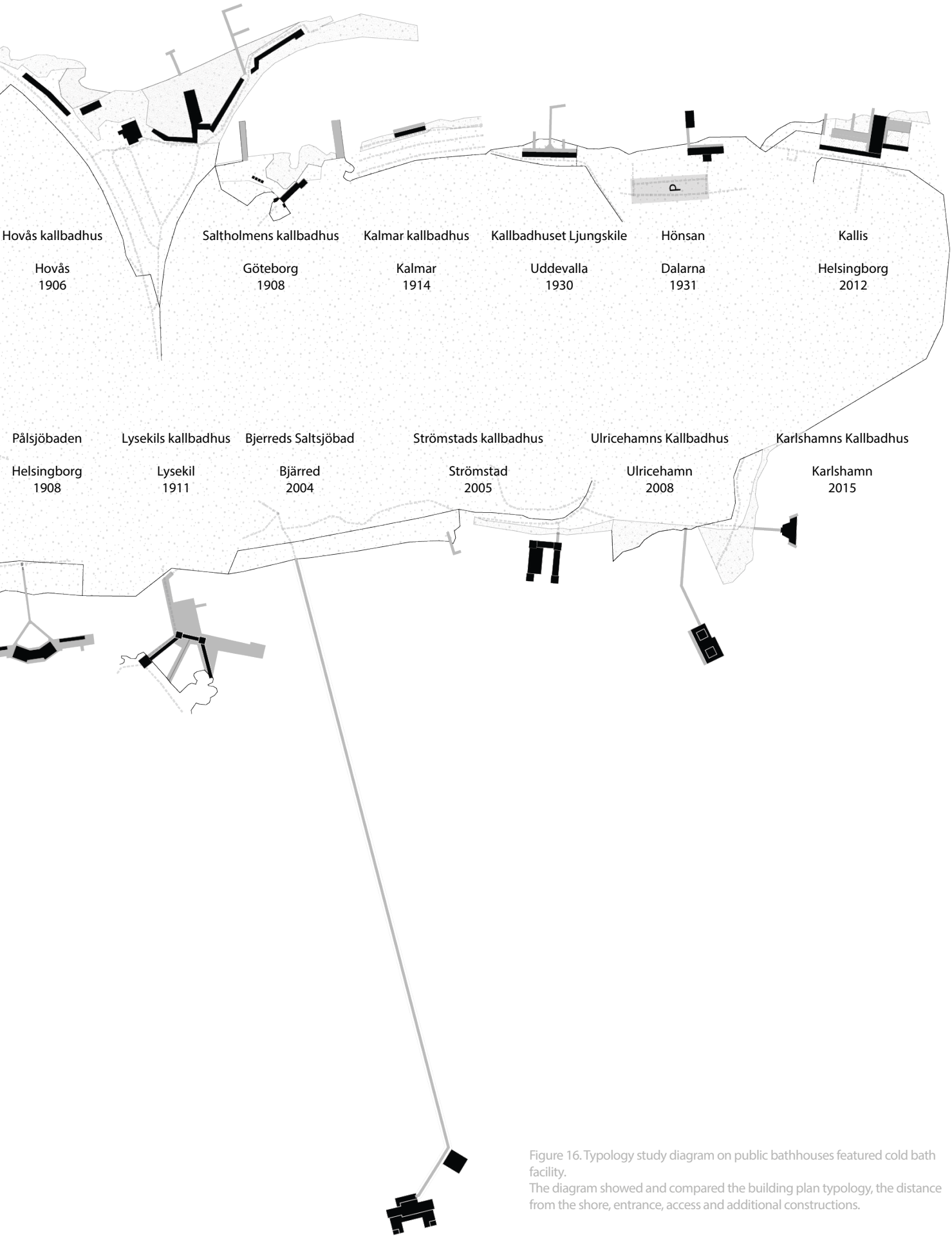


Figure 16. Typology study diagram on public bathhouses featured cold bath facility.
The diagram showed and compared the building plan typology, the distance from the shore, entrance, access and additional constructions.

Two kallbadhus types

Type a (Figure 17)

a. 1 Build on shore
a. 2 Equipped with independent changing cabins or rooms
a. 3 Equipped with multiple decks leading to the sea for bathers
a. 4 Bathers bathe in unprotected coastal waters
a. 5 There are walls around the main building to enclose a private land area for sunbathing

Type b (Figure 18)

b. 1 Built on the sea, foundation is not on land
b. 2 Have a main deck leading to the entrance to main building
b. 3 The building structure spontaneously encloses a safe water area for bathers to bathe
b. 4 The building is surrounded by decks as a sunbathing and communication area

Common attributes

c. 1 Symmetry architecture form mostly (For gender privacy differences)
c. 2 The facade has strong privacy protection (For general privacy between bathers and the public)
c. 3 Cold baths and saunas complement each other and normally do not appear alone, cold bath normally performed after sauna. (Lead to a sequential plan layout)
c. 4 Mostly wooden structures (Use local and sustainable materials)
c. 5 Provide simple drinks such as coffee (For recreational uses such as fika, there is a habit of bringing ones own alcohol)

Figure 17.

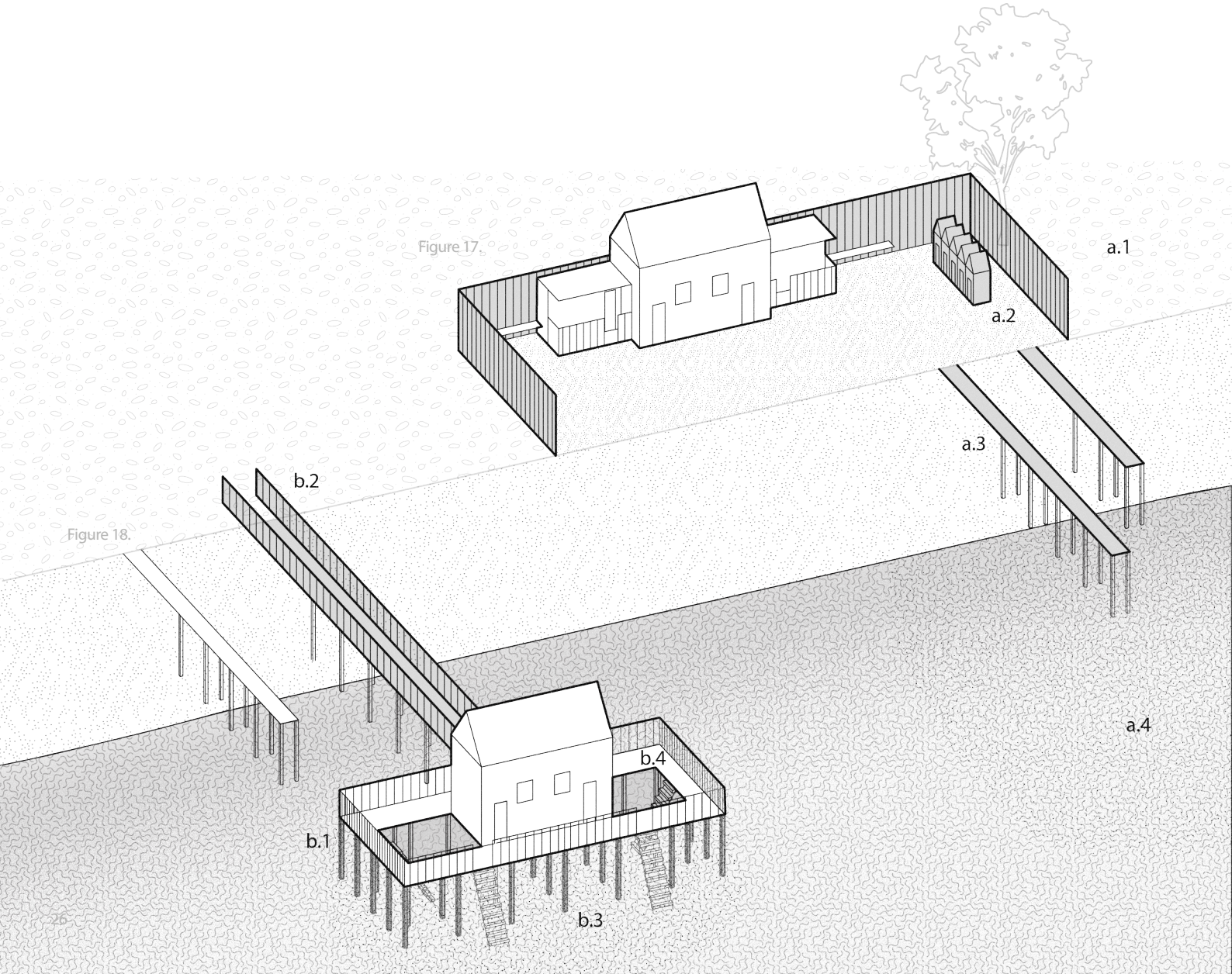


Figure 18.

Attributes of bathing behaviors

During this stage, I identified people's behavioral inclinations and spatial flow patterns through architectural attributes, understanding how architecture influences or directs human actions and choices. Simultaneously, spatial privacy hierarchy were analyzed based on gender differences.

Two definitions are formulated:

1. The clarification of cold bath.
Necessary steps and sequences for the cold bath ritual were clarified.

2. Privacy preferences.
Privacy was categorized into two types to provide guidance on the spatial reassemblage in the later transformation process.

The clarification of "Cold bath"

Cold bath is a bathing assemblage, referring a sequential process consisted of multiple bathing types and activities.

It is recommended to take a hot bath or sauna first, and then jump into the snow or the sea for a cold bath, a medium or transition space is desired for sunbathing lastly. This alternating stimulation of hot and cold is believed by doctors that it can boost the body's immune system.

Repeating these steps will formulate the crucial part/core of the cold bath ritual, which will influence the circulation design and space sequence of new Liljeholmsbadhus.

Privacy preferences

Due to differences in privacy needs, people prefer circular but non-intersecting action routes. I divided the privacy in public bathhouse into 2 types - general and gender.

General privacy can be seen as dividing the clothed and the unclothed, on architecture it divides the external environment (public) and the internal space (private). General privacy divergence usually occurs between the building envelope, where outside and inside are separated.

Gender privacy is affected by different genders between bathers. This type usually diverges itself in the internal space and environment of the bathhouse, influencing the orientation, size, scale and sequence between different functional partitions.

Ritualization

From the research outcomes, I identified 9 behavioral scenarios and interpreted them to demonstrate bathers' needs for fundamental functions. Then I transformed these into spatial layouts, considering factors like movement circulation and privacy preferences.

A cold bathing ritual with sustainable potential is enabled. (Figure 19)

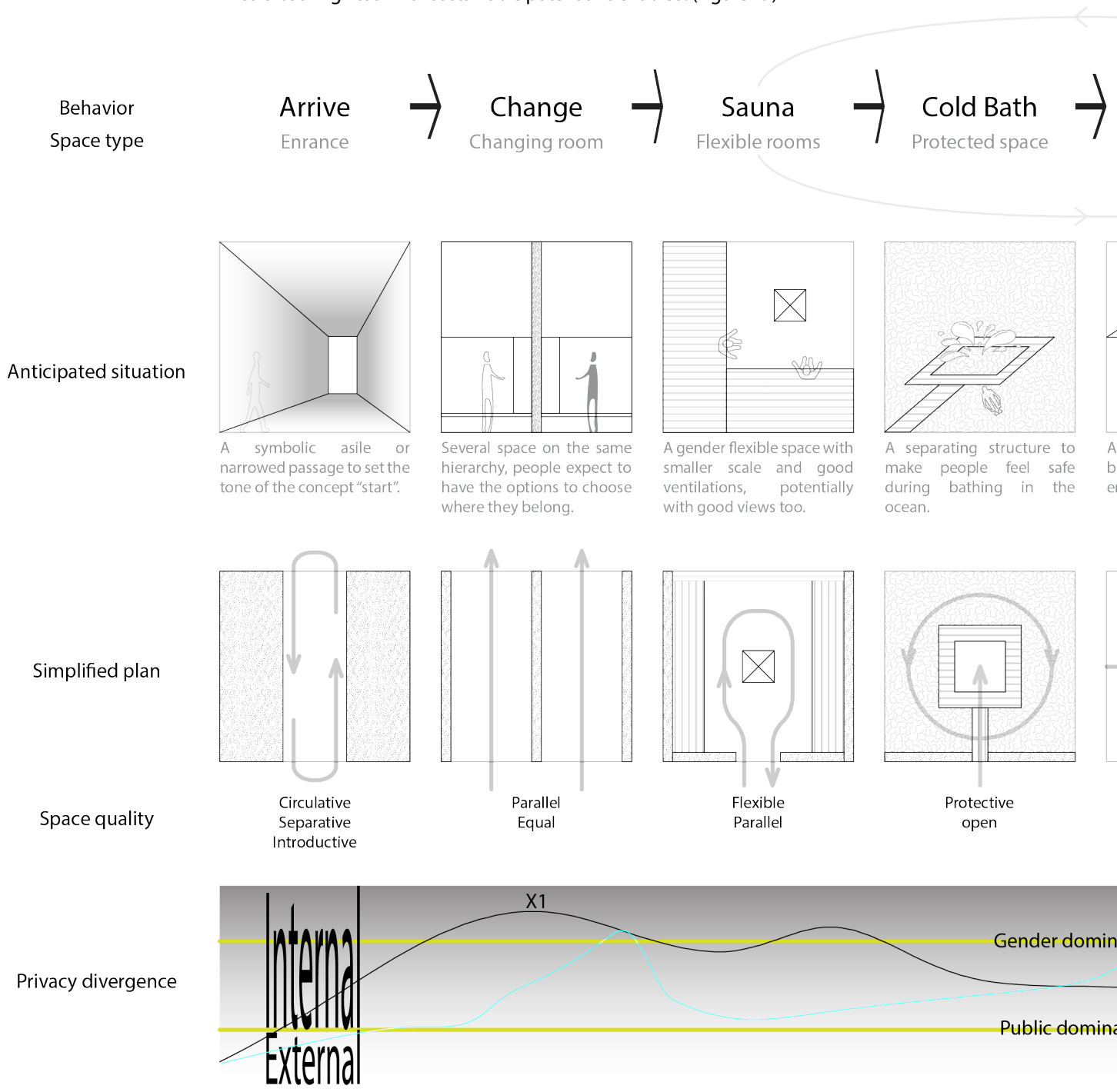


Figure 19

1. Gender Dominated Line (GD) separates different genders, mainly dominates the internal environment and space and the divergencecy of spaces.
2. Public Dominated Line (PD) separates the external "The clothed" (public) and internal "The unclothed" (bathers), can be seen as the envelope and the entrance of the bathhouse.
3. The space above GD is the space only for one-gender only.
4. The space above Public Dominated Line (PD) include the internall space of the public bathhouse, its external environment for protected cold bath and potentially exposed sunbathing area.
5. X1 and X3 represent the space with maximum privacy - private bathrooms.
6. X2 represents the potential minimum privacy space with exposing risks.

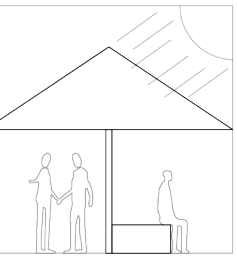
Fika
Transitional space

Sunbath
Open platform

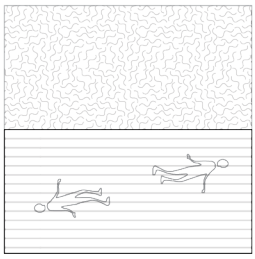
Shower
Private bathroom

Change
Changing room

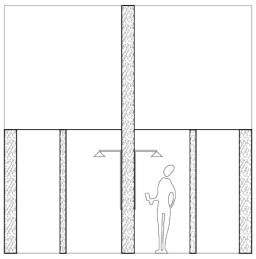
Leave
Exit



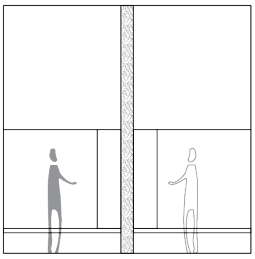
transitional space for uffering unwanted ncounters and rest.



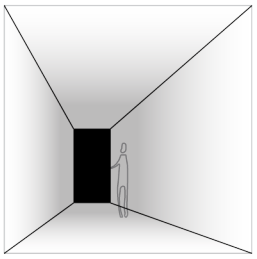
An open space with good ventilation.



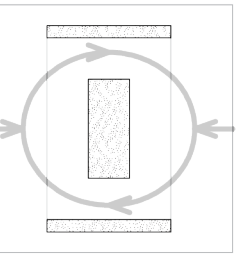
Private bathroom, should be included in the changing room with the same gender.



Should have openings on both end of the room for circulative routes.

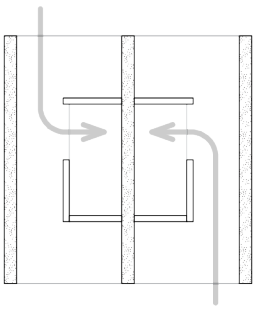


The end of the ritual.

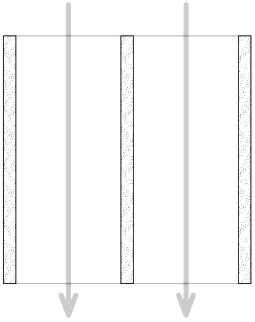


Transitional
Medium
Circulative

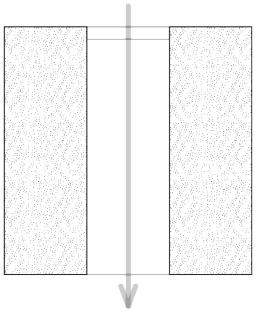
Boundary
Separative
Protective



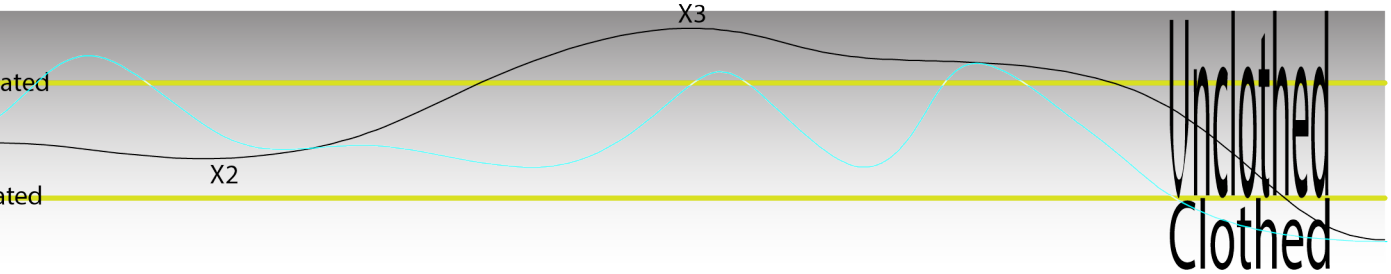
Included
Private



Returnable



Introductive
Preferably unreturnable



7. The black line indicates the anticipated privacy shifts dominated by the movement. The blue line is the anticipated movement flow in Liljeholmsbadhus now.
8. Privacy fluctuates in a relatively steady range. (Compared with the line in Liljeholmsbadhus, which will be presented in later research.)
9. Like the research results earlier, diagram shows contemporay needs - the collective spaces that encompass various attached independent areas serving different needs.
10. In the behavior diagram, the repeating grey arrows represent the 4 core steps of the Cold Bath Ritual, which are acknowledged by most of the public bathhouses with cold bath functionality.
11. Repeating these 4 steps are being regarded to have medical and healing effects on boost immune system.

Figure 20. Liljeholmsbadet at the inauguration in 1930, seen from Hornsgatan at Hornstull. (Malmström)

Figure 21. Current situation of Liljeholmsbadhus, shows the corrupted facade and sinking pontoon structure. (Zimmerman, 2023)

Liljeholmsbadhus' s current architectural situation assessment

Assessment started with using hundreds of historical construction drawings obtained from the Stadsarkivet dating back to 1930, I interpreted 2D drawings into a 3D model of Liljeholmsbadhus.

This modelling process allowed me to understand the building's structure, its surrounding environment, entrance conditions, internal spatial layout, and scale measurements.

By creating different 3D models representing different time periods, I was able to identify architectural elements that have changed over time and those that have remained consistent. I intend to use the most recent model, representing the current state of the building, as the basis for further transformation.

Subsequently, I created an analysis diagram covering the entire structure of Liljeholmsbadhus, from the roof to the foundation, based on the 3D model.

Lastly, I developed a speculative diagram focusing on the cold bathhouse aspect of Liljeholmsbadhus to anticipate its current state.

These diagrams aim to identify potential issues with various architectural elements that may have contributed to the shutdown of Liljeholmsbadhus. I then evaluated the values and potential preservation of these elements and proposed partial renovation strategies.

Does Liljeholmsbadhus provide cold bath facilities nowadays?

No. Currently, Liljeholmsbadhus offers only two main types of bathing facilities: sauna and indoor swimming pool. While individuals can swim in the water near the building now, there is no protective structure in place.

Historical drawings and photographs indicate that outdoor cold bath facilities were present in the early years of the building but were later removed during the initial renovation.

While cold water baths can technically be performed anywhere natural water is available, this project focuses on ritualizing cold baths within building facilities and structures to create a more interactive space, and eventually help to preserve the historical building with architectural methods.

According to the ealier defination of the contemporary cold bath ritual, this implies Liljeholmsbadet's current situation is not qualified with performing this ritual.

Considering the historical bathing options once available at Liljeholmsbadhus and reflecting on contemporary public bathhouses, I wonder is it possible to reintroduce similar bathing options as a starting point for revitalizing this building?

Figure 22. Current satellite photo (Google earth, 2024)

Potential problems

Form

In this part I will make an assesment on the architectural form aspect, include 3 sections: Entrance, Facade and Structure, indicating their potential problems separately and propose possible transformation strategies.

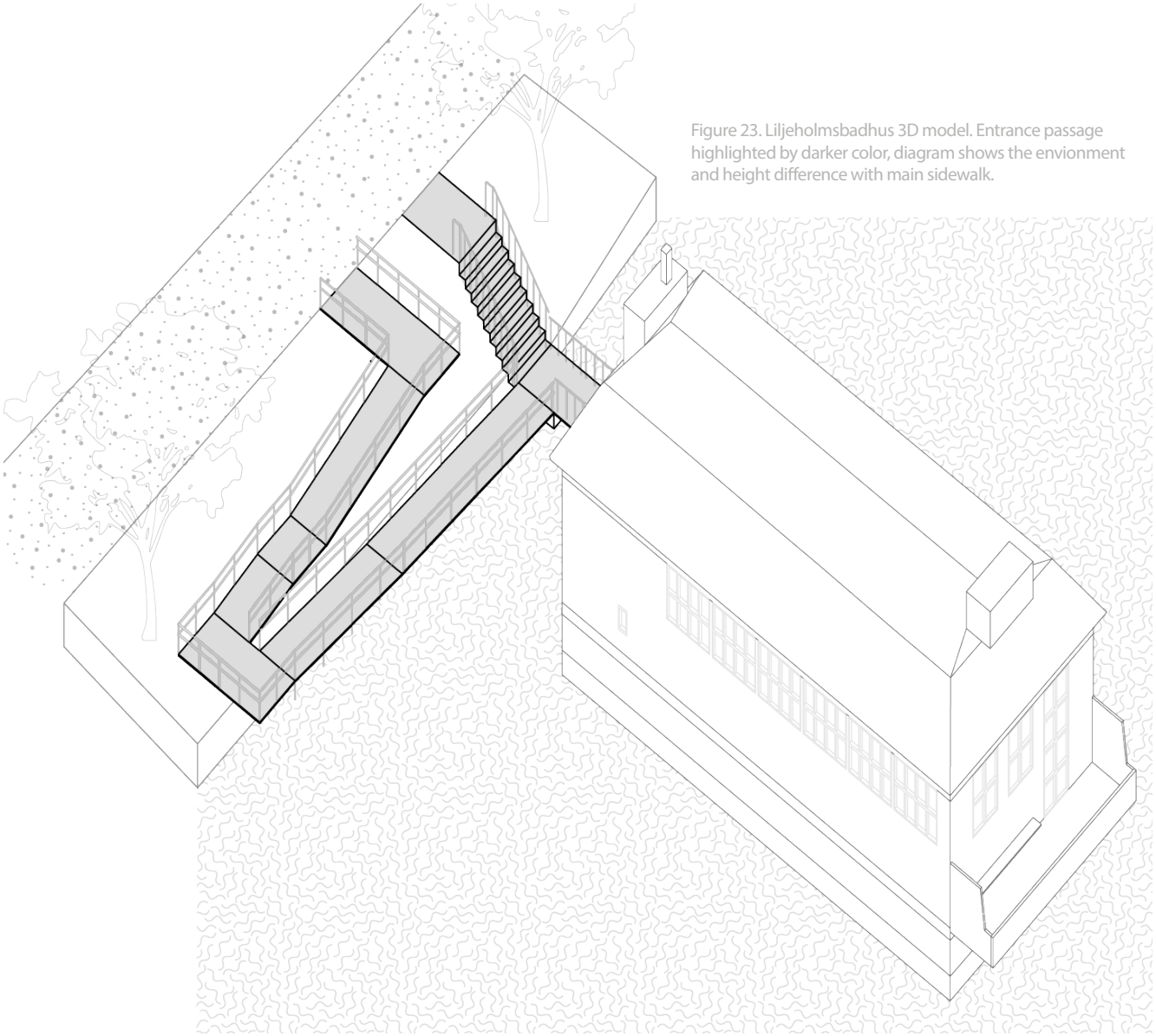


Figure 23. Liljeholmsbadhus 3D model. Entrance passage highlighted by darker color, diagram shows the envionment and height difference with main sidewalk.

Entrance and accessibility

The current entrance level of Liljeholmsbadhus is approximately 6.35m below the connected public sidewalk, requiring individuals to descend the outdoor stairs or use the barrier-free ramp to access the building.

This transitional area at the entrance serves **not only as a passage** but also as **a basic protective barrier**, separating clothed from unclothed bathers and **delineating the boundary** between indoor and outdoor public spaces.

However, the **disadvantage** is that it is the **only barrier-free** passage within the entire building, **limiting accessibility** throughout the facility.

Figure 24. Entrance of Liljeholmsbadet from the shore. (Ainali, 2012)

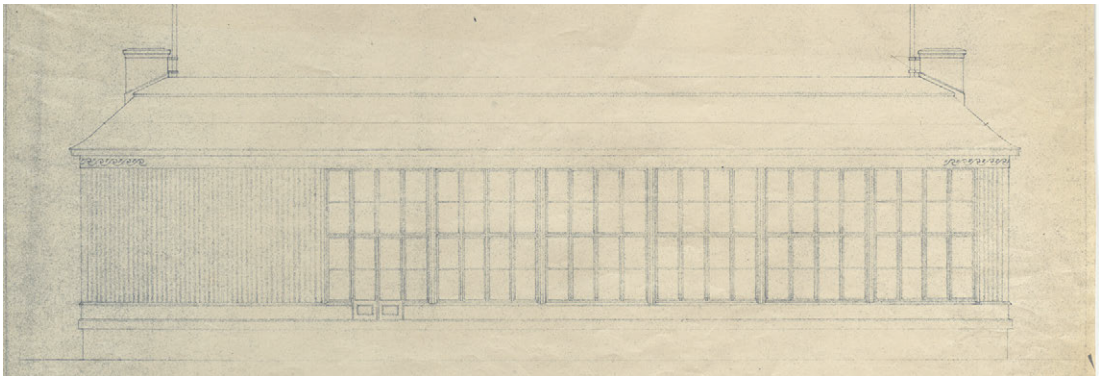


Figure 24. Long Fasade drawing in 1929. (Leche, 1929)

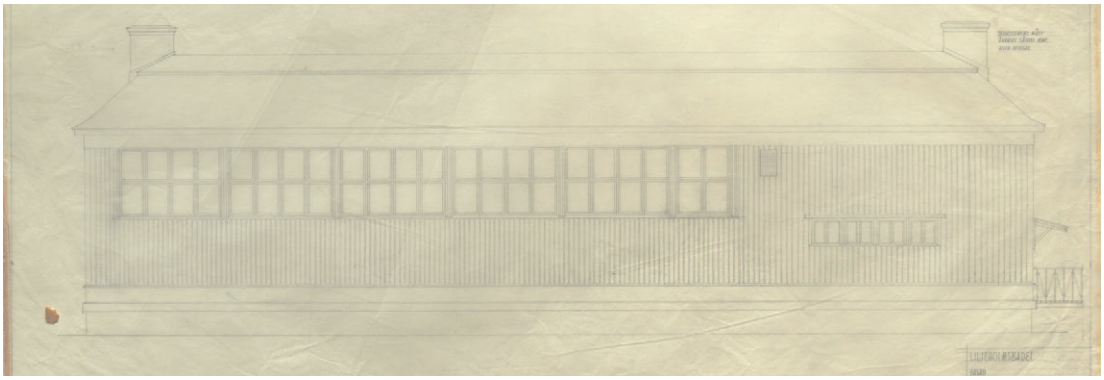


Figure 25. Fasade drawing. (1951)

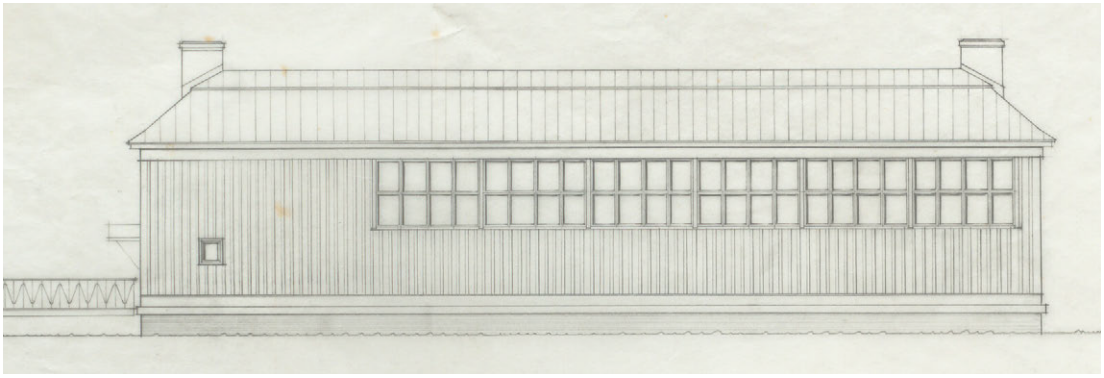


Figure 26. Fasade drawing. (Westlund, 1978)

Façade and Roof

In the past, Liljeholmsbadhus had large, tall windows that offered swimmers a panoramic view while swimming inside. (Figure 24, 25 & 26)

However, during the renovation, the internal functions of the building were altered, resulting in the removal of half of the tall windows. Only the windows on the second floor remained, with no openings on the first floor. While this change enhanced privacy, it sacrificed openness and connection with the outside environment.

Structure

The original pontoon structure has been in service for an extended period, leading to **material corrosion** from prolonged exposure to seawater. As a result, **the inflatable tubes have filled with water, rendering them incapable of supporting the floating structure.** Furthermore, the uneven internal spatial layout may lead to overloading near the shore, creating inconsistent forces at both ends of the building and hastening the risk of structural sinking.

Figure 27. Liljeholmsbadet sank. (Kjellström, 1950)

Figure 28. Liljeholmsbadet being renovated in Beckholmen. (Östring, 2000)

p12.

Figure 29. Liljeholmsbadet was towed to Beckholmen for renovation. (Epstein, 2015)

Potential problems

Function

In this part I will make an assesment on the architectural functionality level, include 4 sections: Space Boundary, Circulation and Building Scale and Environment, and indicating their potential problems separately.

Unclear boundary between space

The internal functional partitions in Liljeholmsbadhus are slightly disorganized, with areas serving similar functions not consolidated in one location.

This arrangement blurs the boundaries between different spaces. Each partition partially overlaps with another, lacking adequate transition areas, which could potentially lead individuals to unexpectedly transition from one space to another that may be less welcomed.

Figure 30. Inside envionment of Liljeholmsbadhus, shows the narrow corridor between the pool and locker room. (Stenlelle, 2008)

Incompatible building scale

The architectural scale of Liljeholmsbadhus falls slightly below contemporary expectations.

Despite undergoing several renovations since its construction in the early 20th century, alterations to functional partitions, specifications, and scale have been limited, resulting in a relatively compact space.

Nowadays, people prioritize adequate spatial scales, not only for accessibility but also to provide options for navigating within the space.

Environment and sun deck

The sunbathing deck attached to the building is insufficient to accommodate everyone, necessitating bathers to use the same entrance stairs to return on land after bathing or swimming. (No. 21, 22 and 23 on Figure 31)

Subsequently, they must walk a distance to reach the sun deck, located beneath the motorway. Since the entrance stairs directly connect to the public sidewalk, this arrangement risks unwanted interactions between pedestrians and swimmers, potentially causing their paths to intersect.

Despite the height disparity between the two platforms, there remains the possibility of unwanted privacy disturbance.

Figure 31. Inside envionment of second floor, shows the curtain-separated changing rooms. Indicating the potentially exposed privacy and limited transitional space. (Carina, 2012)

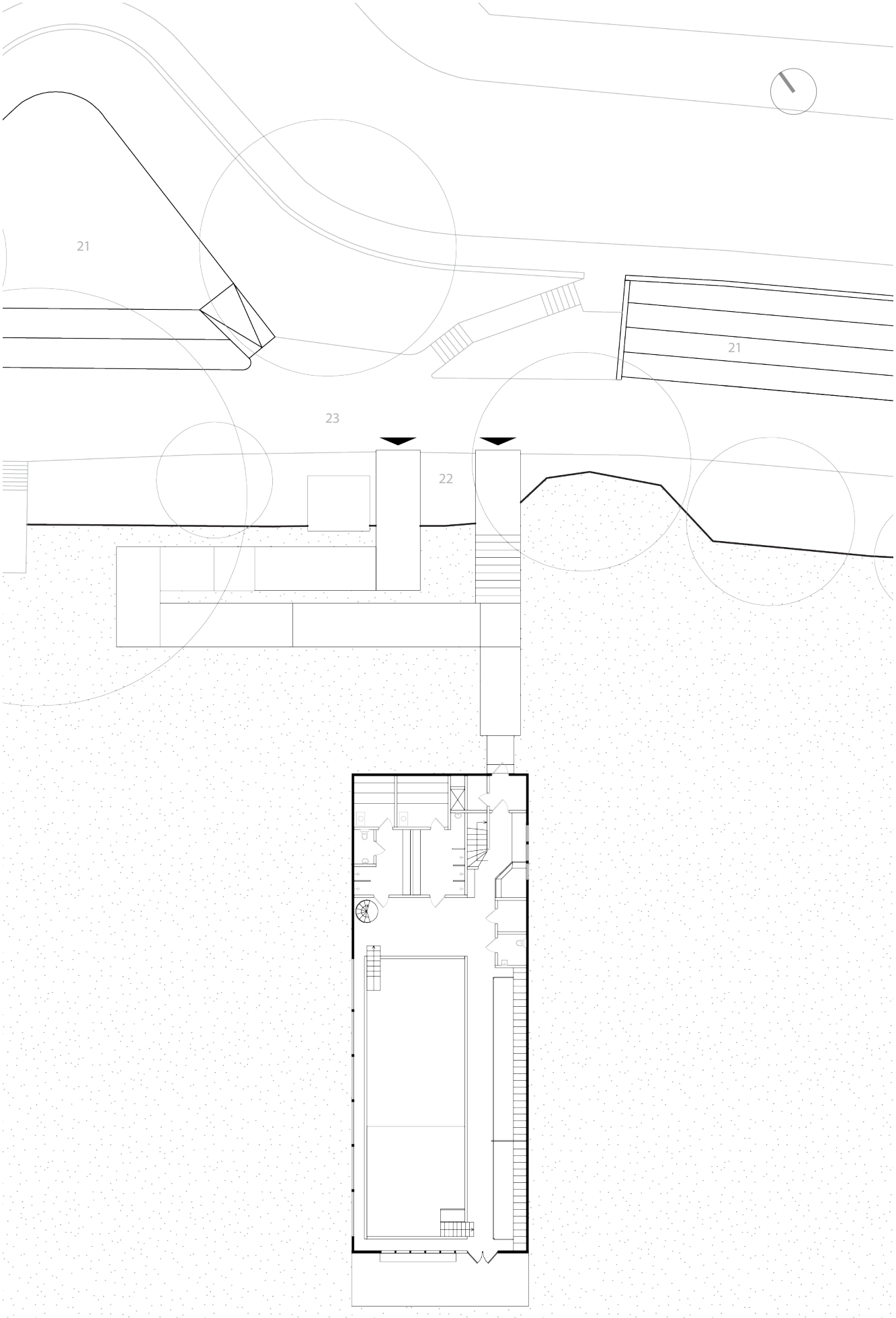


Figure 32 Current ground floor plan and environment situation

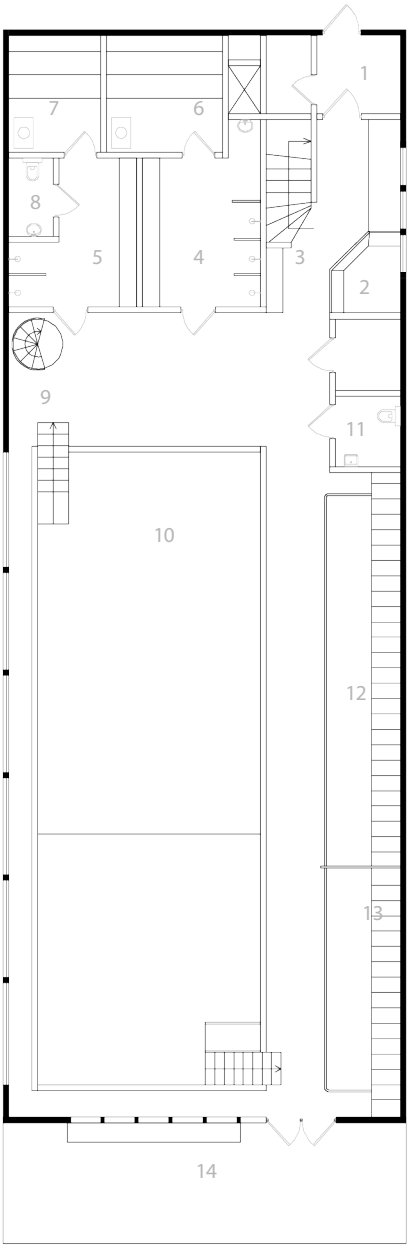


Figure 33. Gound floor plan

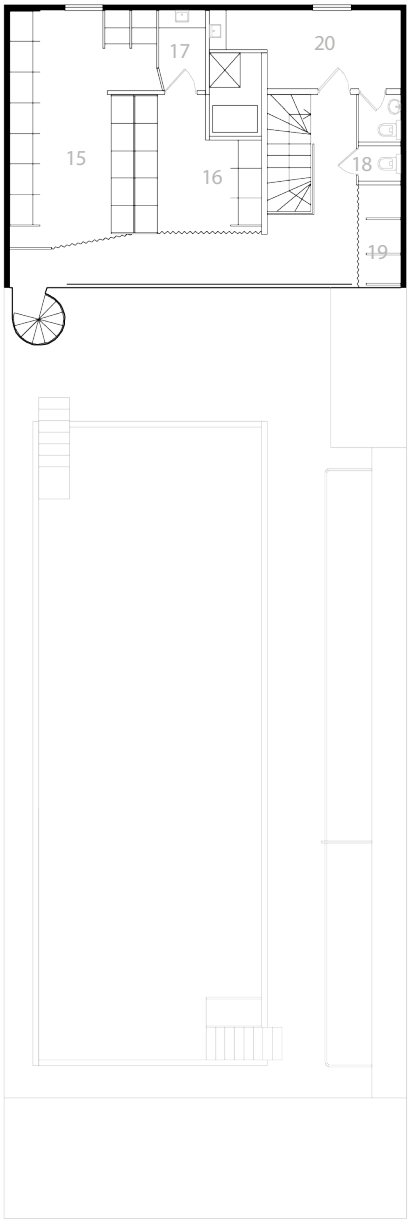


Figure 34. Second floor plan

1 Entrance
2 Reception
3 Staircase
4 Men's shower room
5 Women's shower room
6 Men's sauna
7 Women's sauna

8 Women's bathroom
9 Spiral staircase
10 Indoor swimming pool
11 Public bathroom
12 Men's locker area
13 Women's locker area
14 Sun deck

15 Women's changing room
16 Men's changing room
17 Men's bathroom
18 Public bathroom
19 Locker area
20 Operating office with bathroom

21 Sunbathing area (on land)
22 Entrance staircase
23 Public sidewalk

Overlapping circulation

Unclear functional partitions result in overlapping movements.

Entering from the entrance, bathers face two options (p. 28). The first is to choose the internal stairs near the entrance to reach the changing rooms (no doors, being separated with public corridor by curtains) on the second floor, then come down using the spiral staircase directly to the indoor swimming pool.

However, this route exposes "almost naked" swimmers in bathing suits to the view of "fully-clothed" individuals heading towards the changing rooms.

The second option is to enter directly into the changing rooms on the ground floor through the door next to the reception, located adjacent to the swimming pool and separated by a narrow passage. Yet again, the same issue arises – mutual disturbance.

Inadequate privacy and minimal transition space reflect the inequalities and lack of respect in this space.

Limited accessibility

This also affects accessibility. When two areas with the same function are situated at different levels, individuals typically gravitate towards the one at the lower level, as they are less inclined to exert additional effort for the same task.

However, the barrier-free passage in Liljeholmsbadhus only extends to the ground floor and does not provide access to all areas. Consequently, individuals in wheelchairs can only access the changing rooms on the ground floor, leading to overcrowding in this space as various groups of people congregate there.

The main bathing facilities, such as the sauna and swimming pool, are also located on the first floor, with minimal walls to clearly set boundaries.

This mixed-function layout may result in neglected needs, and all these unsatisfactory are compromised in a large room until they become unbearable.

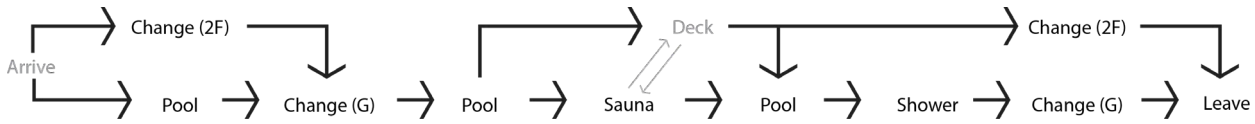


Figure 35. Anticipated current circulation in Liljeholmsbadhus

Figure 36. Inside layout model of Liljeholmsbadhus

a. The changing area, separated by curtains, occupies the second floor, offering a clear view of the situation on the ground floor.

b. Sauna areas are adjacent, including shower rooms and toilets, lacking transitional spaces, which leads to a risk of privacy disturbance.

c. The cramped entrance causes navigational confusion, while the narrow staircase scale may result in overcrowding.

d. Locker rooms, separated by curtains, are situated on the first floor, with gender-specific spaces closely positioned, increasing the risk of unwanted privacy exposure.

The overall layout reveals narrow aisles and dispersed spaces, potentially causing redundant and repetitive traffic routes.

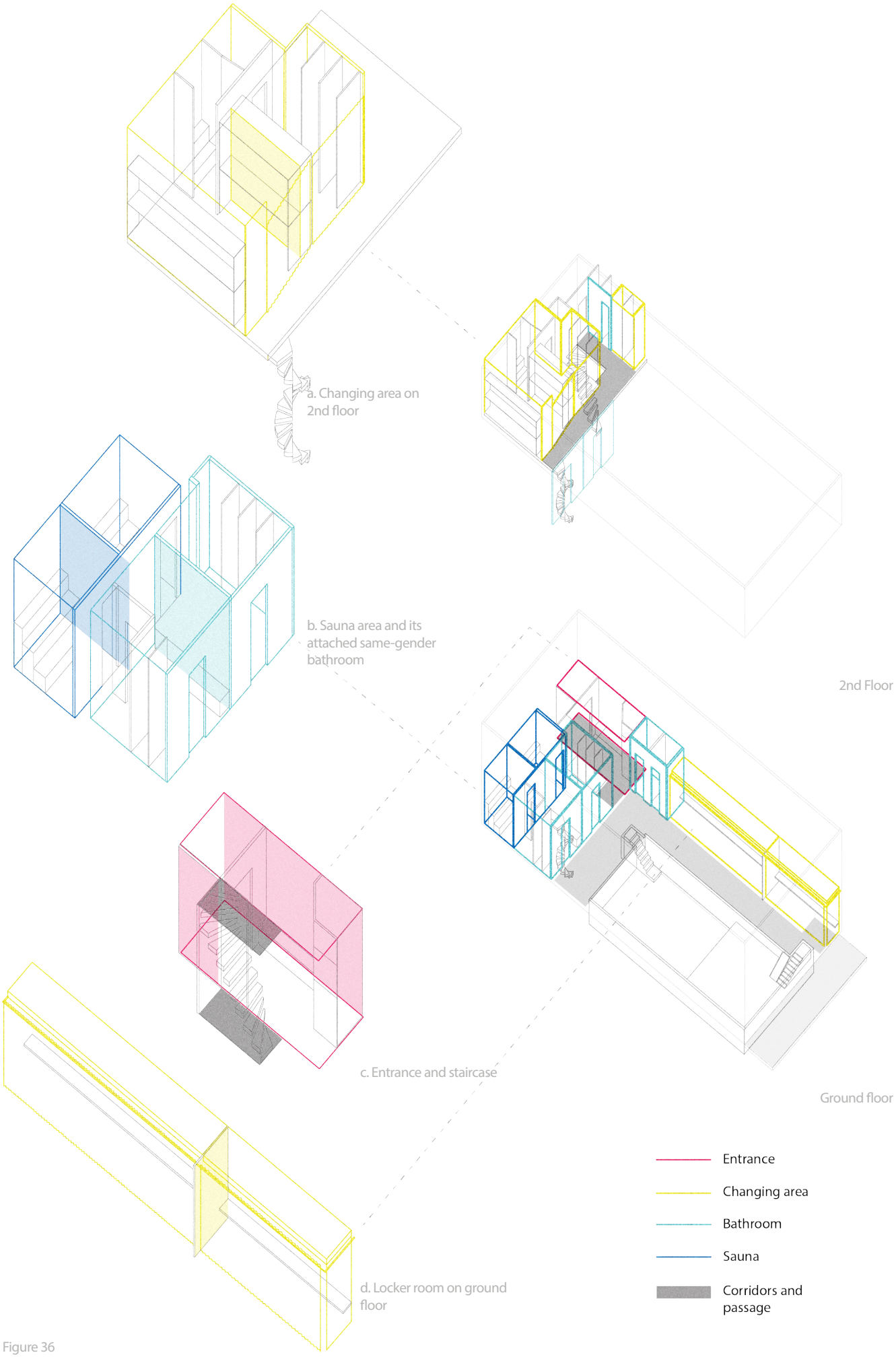

a. Changing area on 2nd floor
b. Sauna area and its attached same-gender bathroom
2nd Floor
c. Entrance and staircase
Ground floor
d. Locker room on ground floor
Entrance
Changing area
Bathroom
Sauna
Corridors and passage

Figure 36

Transformation proposals

Overall mass and functionalities

Moving between two open spaces may only necessitate a small door instead of a lengthy corridor acting as a divider.

Simplify the entrance by constructing a new addition (Figure 38) to integrate it within the building, thereby equalizing the height differential and conserving the entrance area.

The addition of the new building serves two purposes: concealing the stairs and addressing the functional space shortage in the existing building.

Removing the primary functional space toward the shoreline (Figure 39) also aims to relieve the responsibilities of the existing structure.

Facade and roof

- Original building

Facade
Remove most of the current beige wood facade

Roof
Replace original dark blue metal roofing materials with polycarbonate board.

Polycarbonate board is both lightweight and waterproof, while also allowing for partial transparency. This material is selected to construct a space that offers some protection without fully enclosing it.

Additionally, it enhances the openness of the roof by allowing more natural light to the areas where privacy is less of a concern.

- New building

Facade
To achieve a natural and organic blend with the natural surroundings, cost-effective materials such as stone walls (outside), stucco coating, similar wood, and meshed wires with climbing vegetations were selected sequentially from the shore to the water.

This approach maintains an uncomplicated and authentic aesthetic, encouraging bathers to engage more with the space. (Figure 37)

Simulating the slope angle meeting the shore, the new building's facade incorporates organic lines to delineate different materials, creating a harmonious integration. The allocation of facade materials corresponds to the functions of the internal spaces.

Roof
Use metal roofing material that closely resembles the original roofing of Liljeholmsbadhus

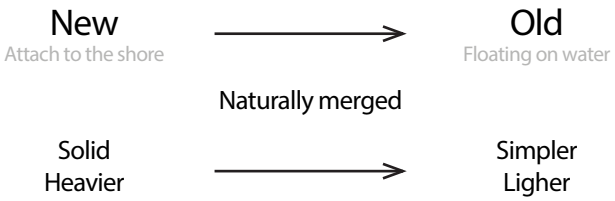


Figure 37. Material merging strategy

Add the new construction

Lift the entrance on the same height level with public sidewalk

Patially change the riginal bathhouse

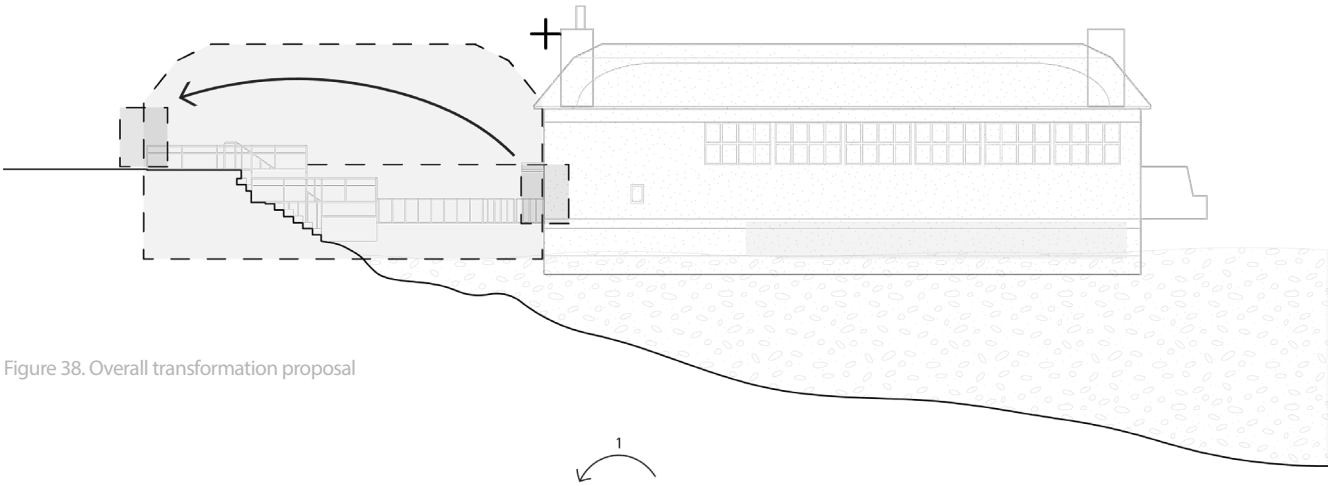


Figure 38. Overall transformation proposal

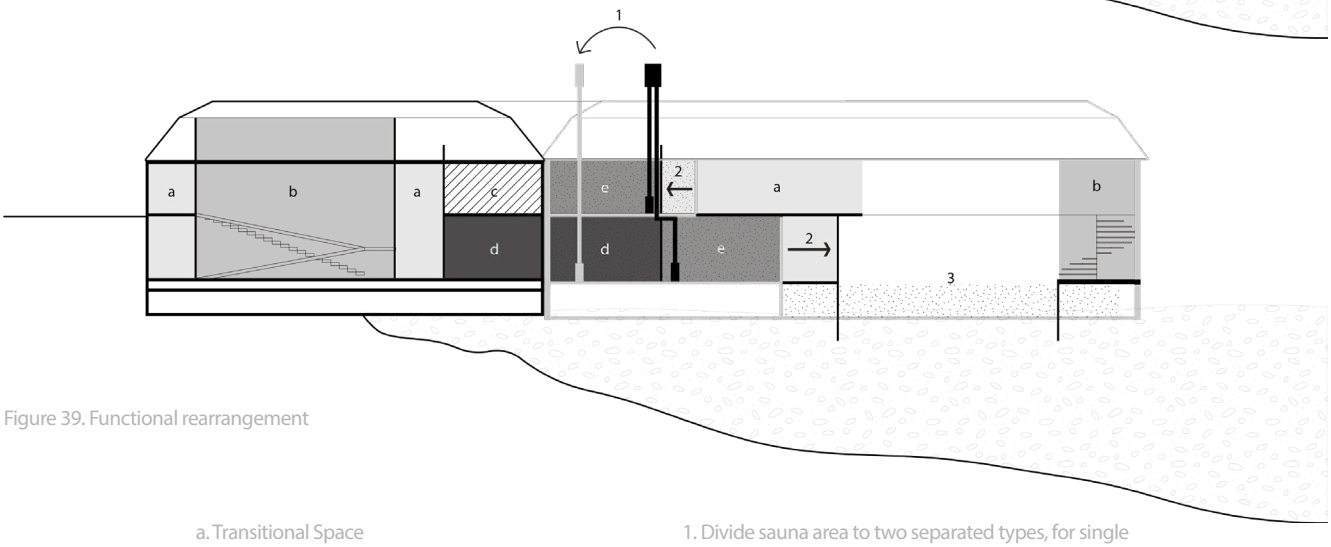


Figure 39. Functional rearrangement

a. Transitional Space
b. Staircases and barrier-free passage
c. Cafe and operating office
d. One-gender zone
e. Mixed-gender zone

1. Divide sauna area to two separated types, for single gender and mixed gender uses.
2. Slightly remove the wall to fit the new functions better.
3. Open the bottom of the original pool, to use the natural water for cold bath.

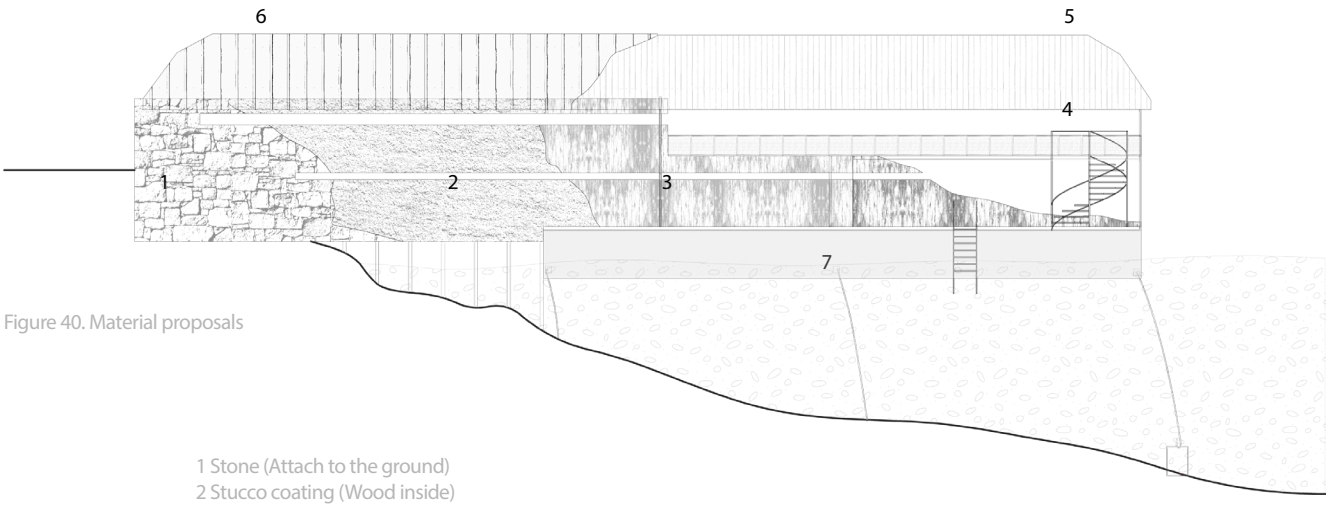


Figure 40. Material proposals

1 Stone (Attach to the ground)
2 Stucco coating (Wood inside)
3 Original wood
4 Meshed wires (With climbing vegetations)
5 Polycarbonate
6 Metal roofing (Simulate the original roof)
7 Concrete coating (To protect the structure)

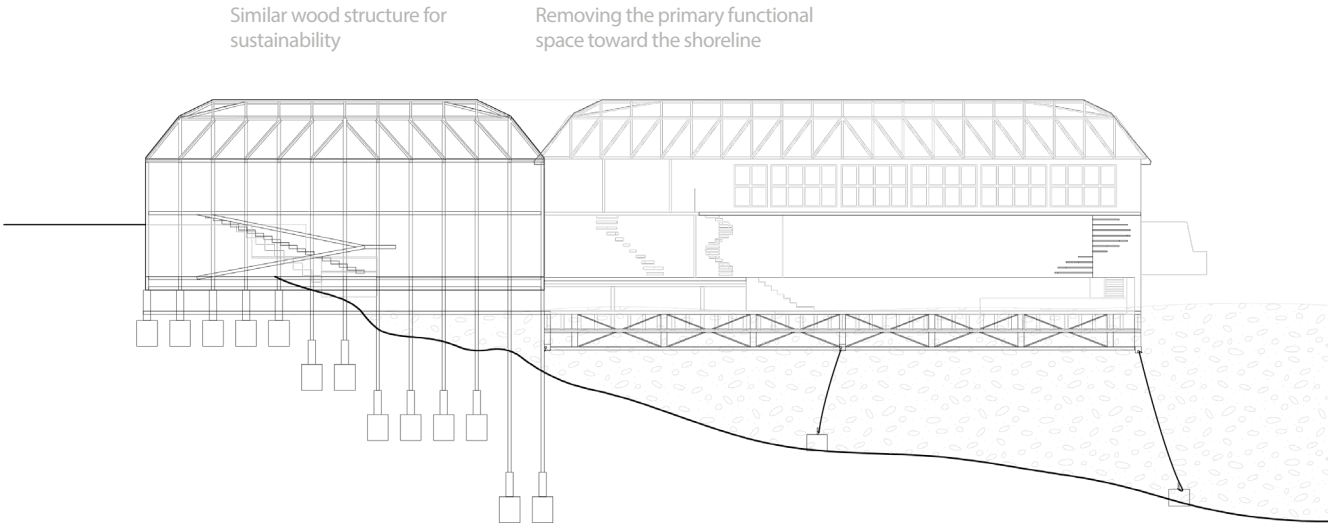


Figure 41. Structure Proposals

Mooring system / anchoring methods are used to keep the floating structure in water fixed. In this renovation, I used chains and steel for fastening and keep the floating structure steadily positioned on the waterbed.

Darker lines to indicate the new structure and lighter ones are the original structures.

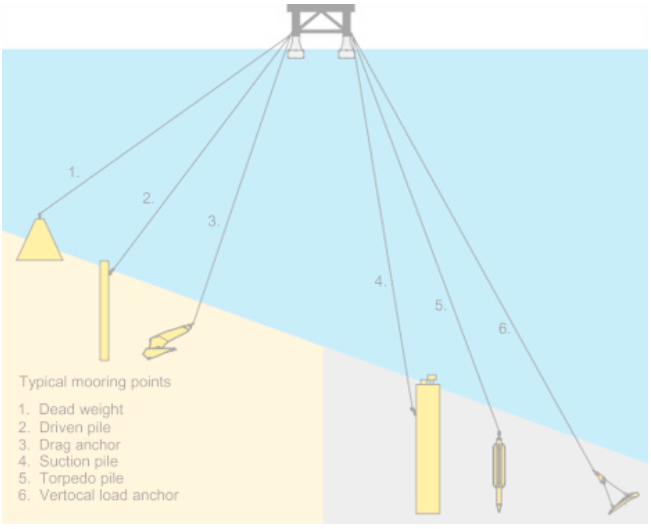


Figure 42. Anchor types for floating structures. (Vryhof, 2015)

Structure

The two buildings are closely linked with individual structures. The incorporation of a similar structure in the new construction aims to maintain consistency and achieve a natural transition from the new to the old.

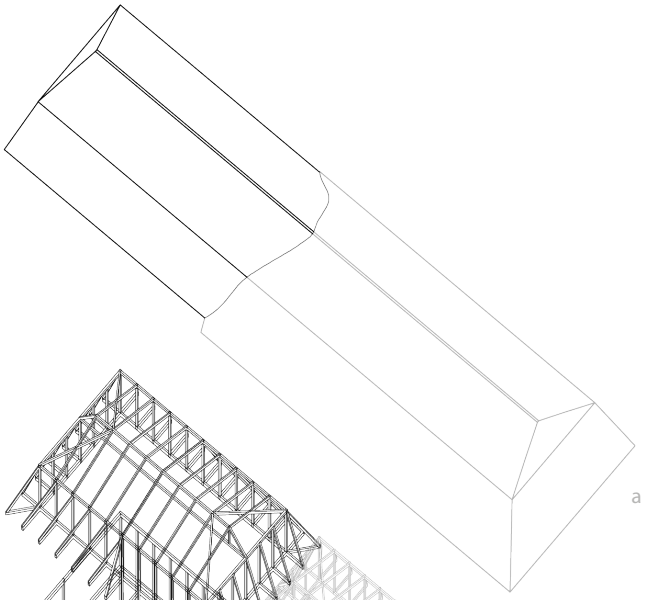
- New building

Simulating the timber frame structure of Liljeholmsbadhus, the new building utilizes a concrete slab foundation and piers to support the structure on land. A part of the facade will be attached to the ground, so rocks are chosen to blend between the soil and the stone wall.

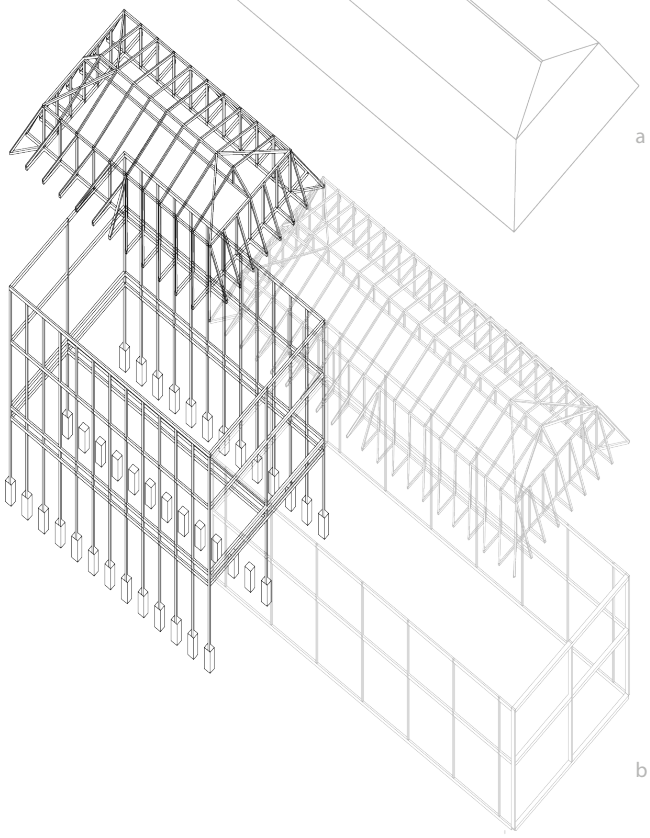
- Original building

The majority of the original wooden structure remains while enhancements are made to the existing floating structure at the bottom, including the replacement of deteriorated air tubes.

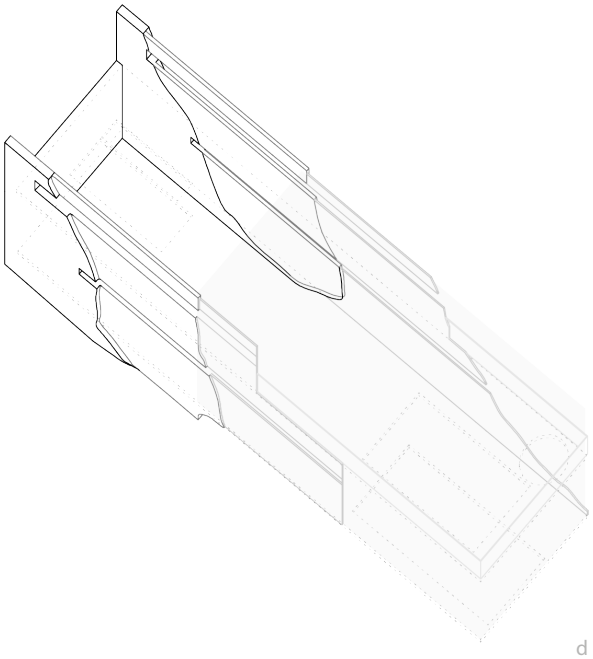
Figure 43. Illustration of current Liljeholmsbadhus



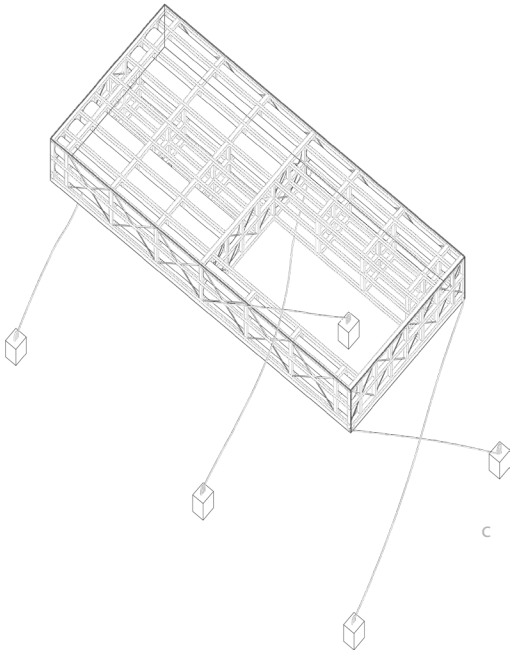
a



b



d



c

Figure 44. Structure and fasade proposals

a. Merged roofs

b. Individual building structures

c. Renovated pontoon structure (Use curved lines to show they use chains to fix the structure, but in reality it's tight and unmovable.)

d. Merged facade materials

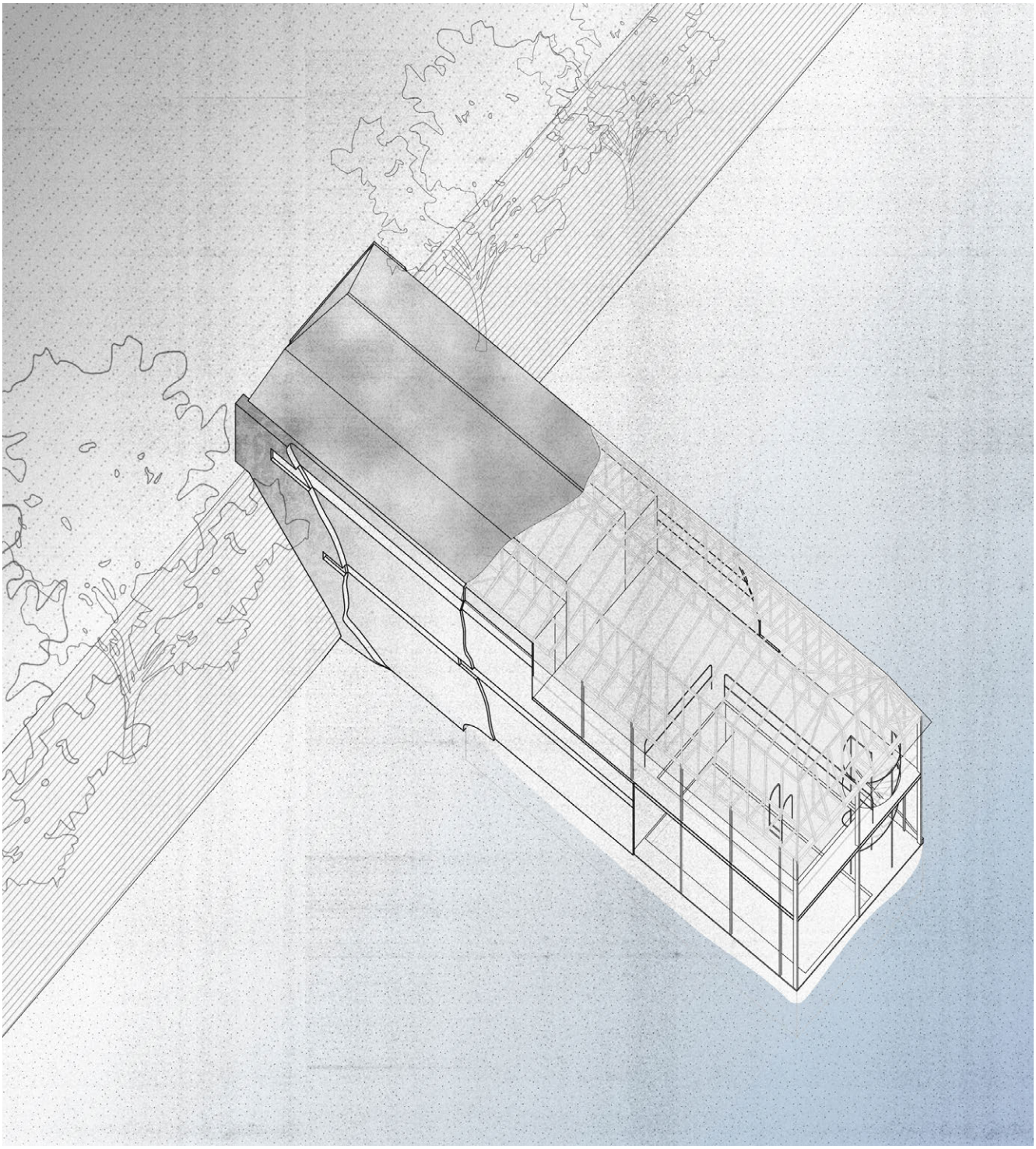
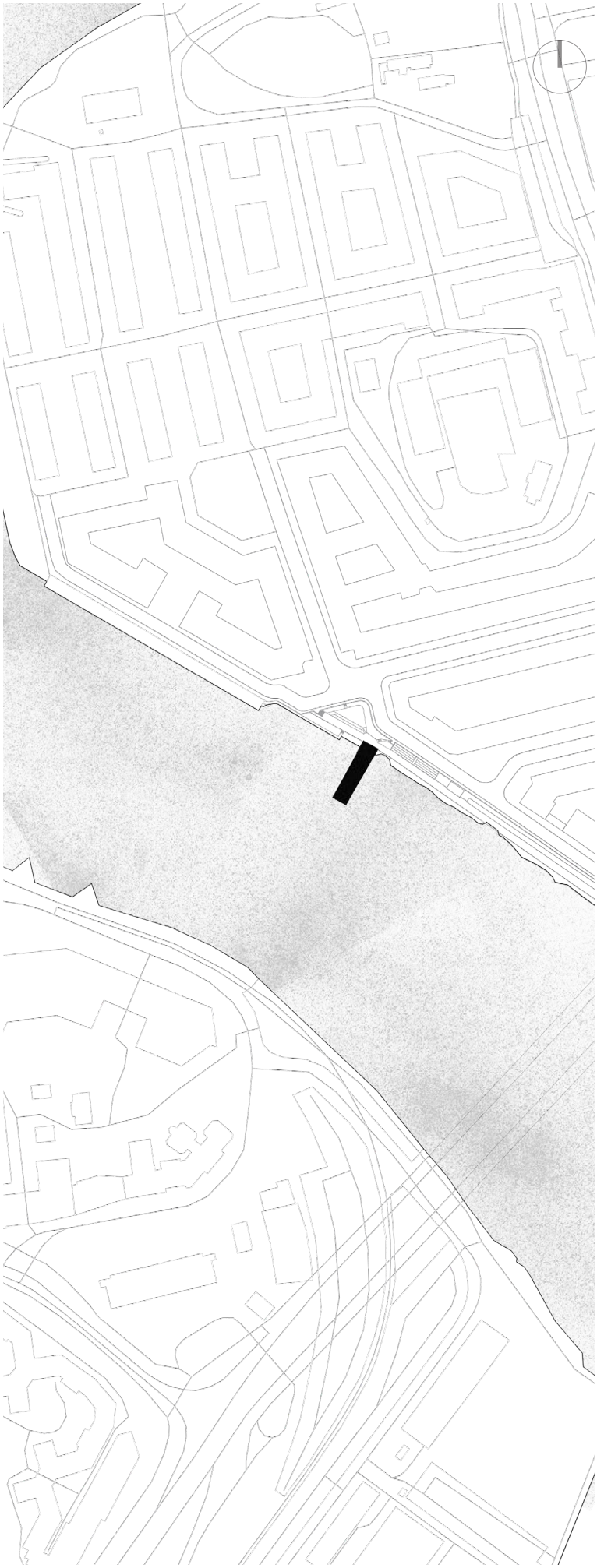


Figure 45. New Liljeholmsbadhus situation proposal. The overall look of new bathhouse and shows how it connects with the shore.



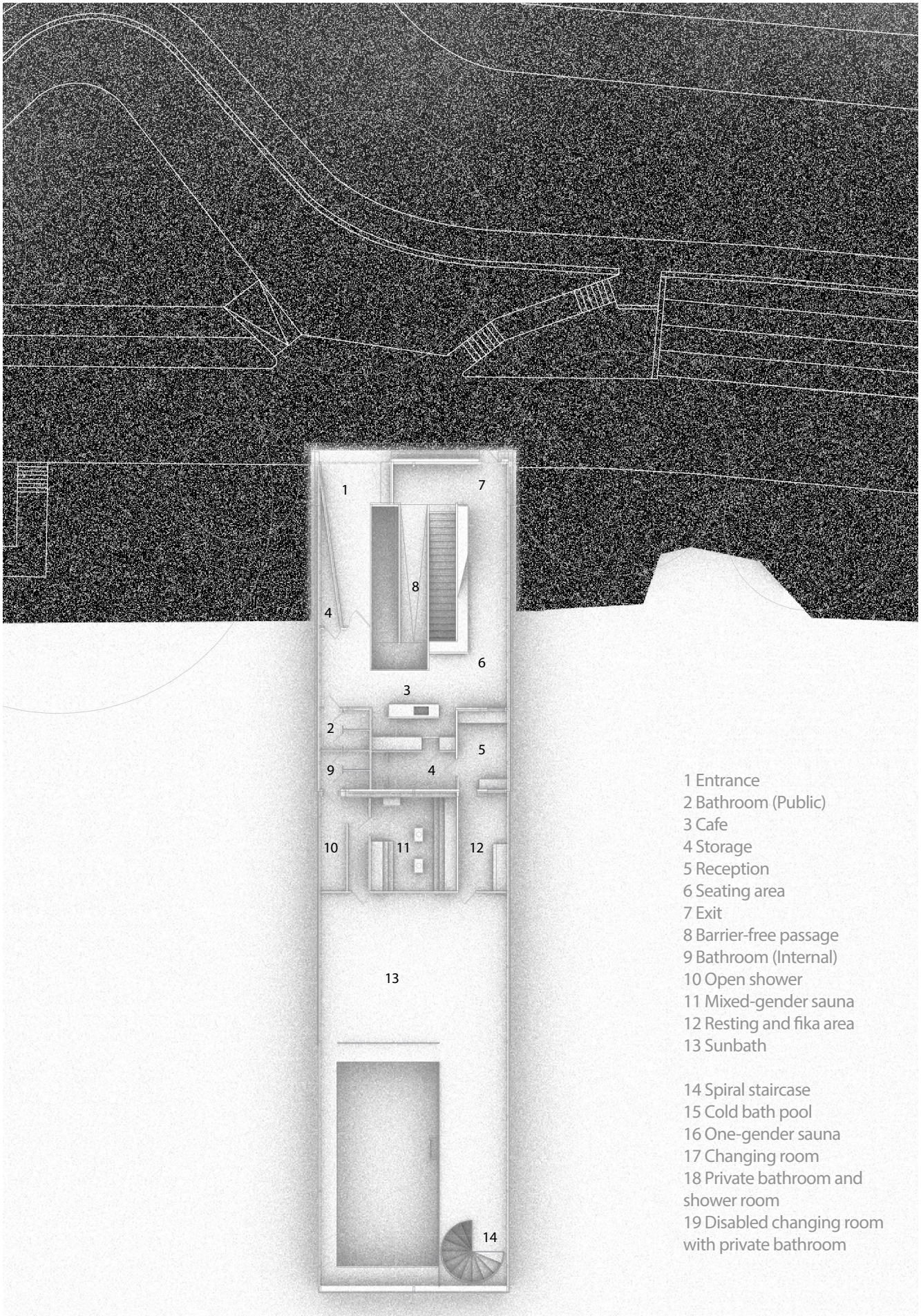
Design Strategies

In this part I will give my design proposals individually on each architectural elements based on the assessment of Liljeholmsbadhus.

The strategy is to reassemble existing space based on the privacy distinctions, integrating ritual necessities and simplify movements to establish clearer circulation paths.

Figure 46. New Site Plan

Figure 47. New entrance



1 Entrance
2 Bathroom (Public)
3 Cafe
4 Storage
5 Reception
6 Seating area
7 Exit
8 Barrier-free passage
9 Bathroom (Internal)
10 Open shower
11 Mixed-gender sauna
12 Resting and fika area
13 Sunbath

14 Spiral staircase
15 Cold bath pool
16 One-gender sauna
17 Changing room
18 Private bathroom and shower room
19 Disabled changing room with private bathroom

Figure 48. Ground Level (Entrance floor)

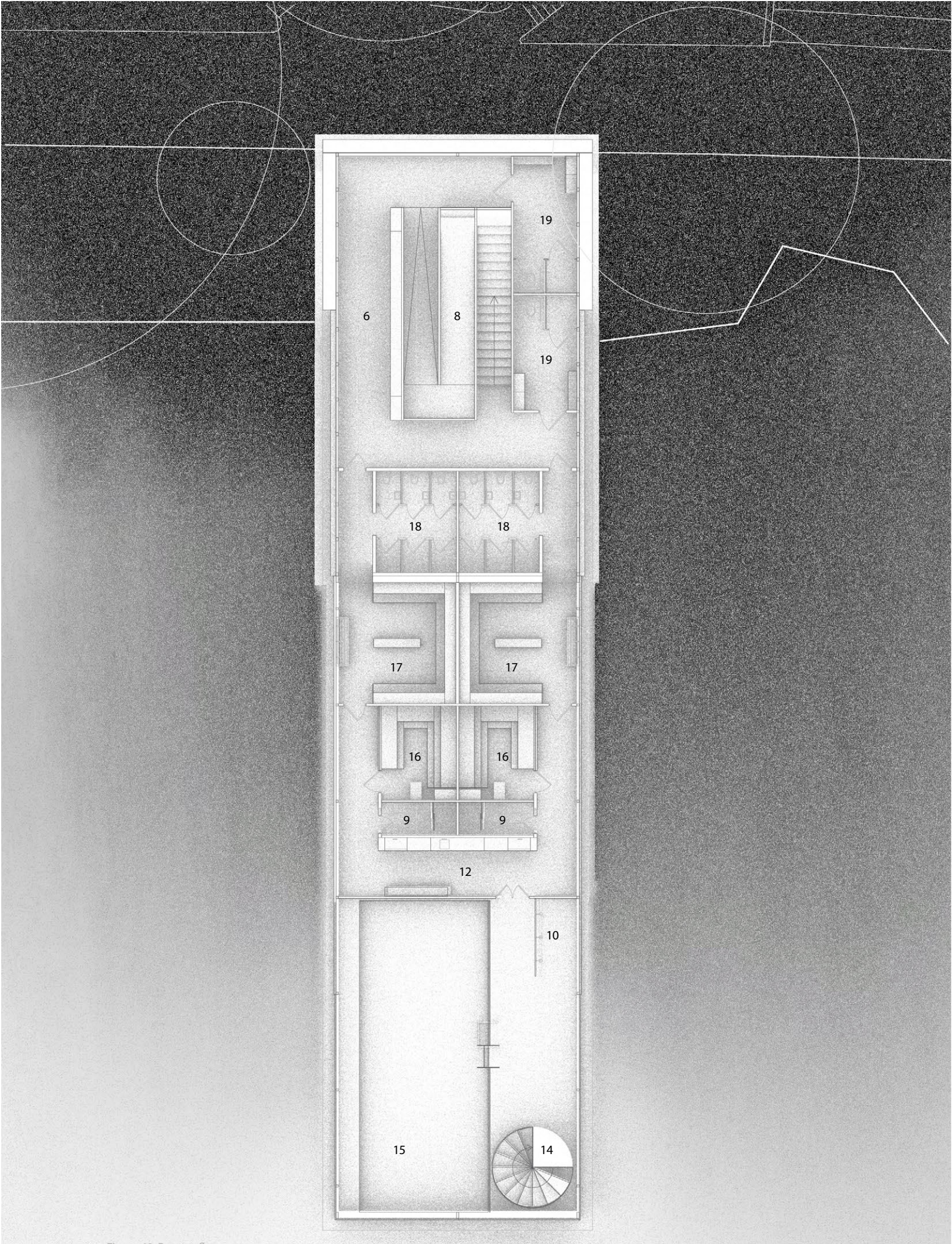


Figure 49. Bottom floor

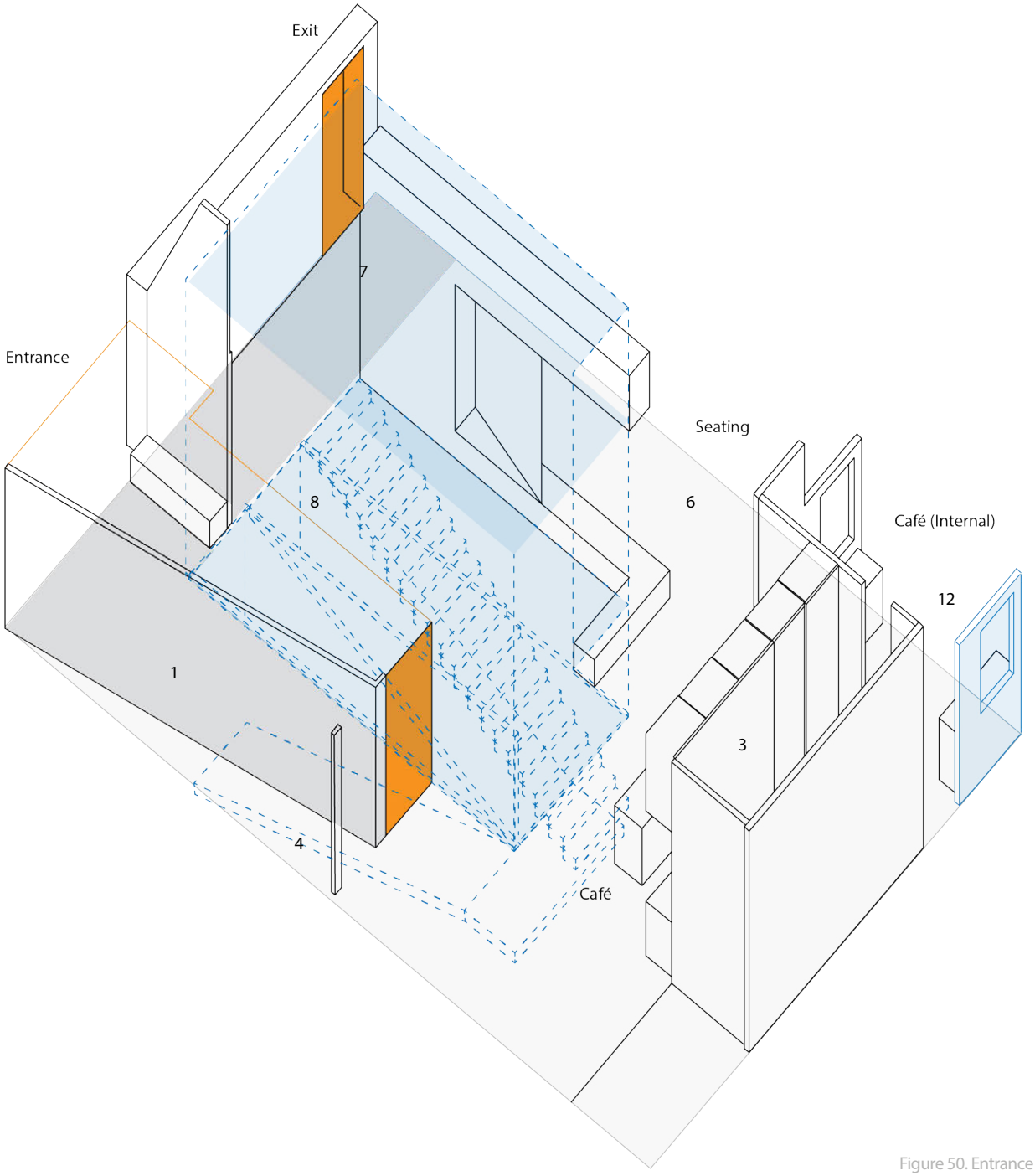


Figure 50. Entrance area

Entrance

The original entrance of Liljeholmsbadhus was situated on the ground floor, but it has been relocated on the second floor in the new design (1). An inductive arrangement is implemented at the entrance, featuring a tilted wall that culminates in a narrow passage guiding visitors into the building.

Exit

The return route mirroring the arrival route. Additionally, when bathers return to the entrance floor and prepare to leave, there's no need to make a large loop back to the entrance door. Instead, a door near the stairs is designated for exit only (7), ensuring bathers' movement follows a circular path without disrupting other circulation patterns. (Figure 53)

Fika area and reception (Transitional space)

Near the entrance, there is a compact open café (3) and reception area, furnished with limited seating (5) and public bathrooms.

The café is divided into two distinct sections, allowing for service to both external visitors and internal bathers, each accessible through double-faced openings. (12) This setup can be perceived as a barrier: whether one swims or not, all are welcome but confined within this area. Those who do not swim can exit the same way they entered, creating a closed loop for visitors who only come to visit and wait.

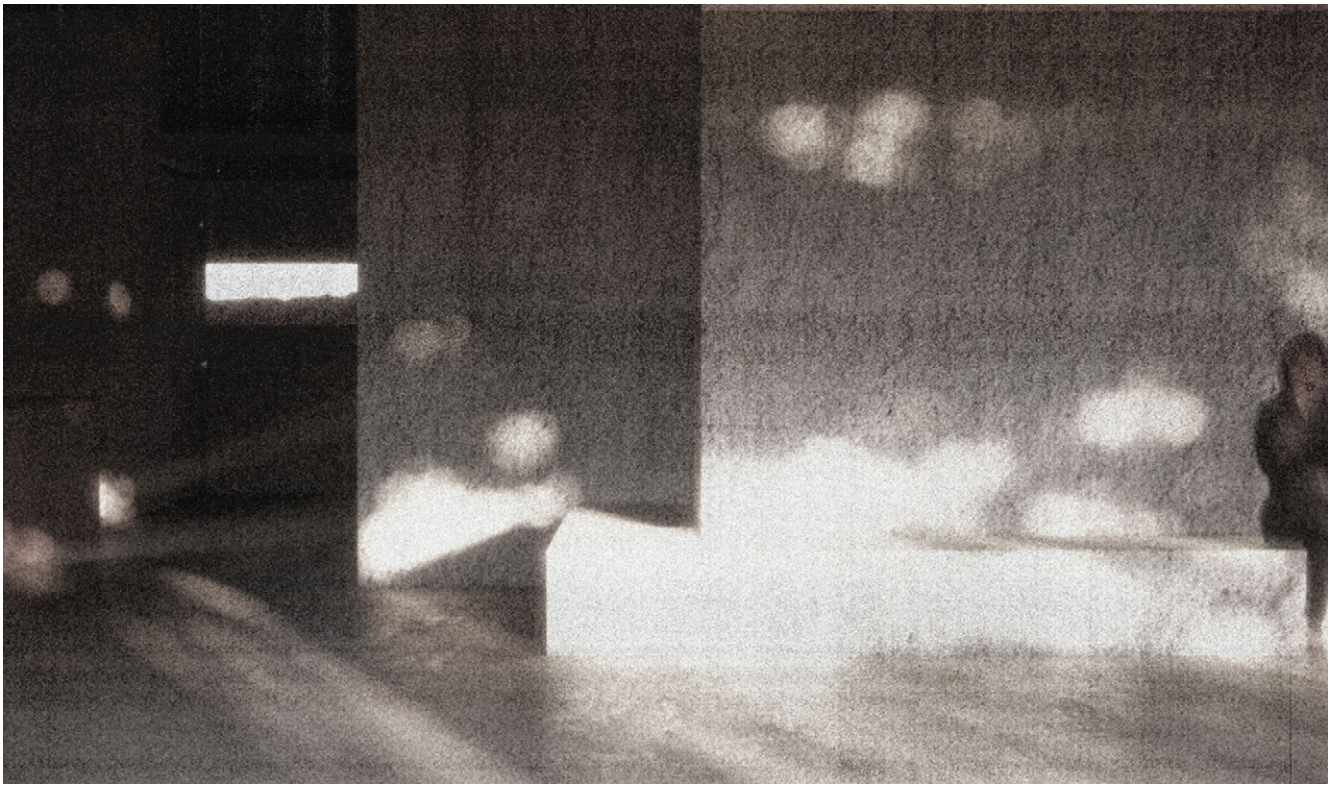


Figure 51. Seating area, on Entrance floor (6)

Figure 52. Transitional corridor, on Bottom floor (6)

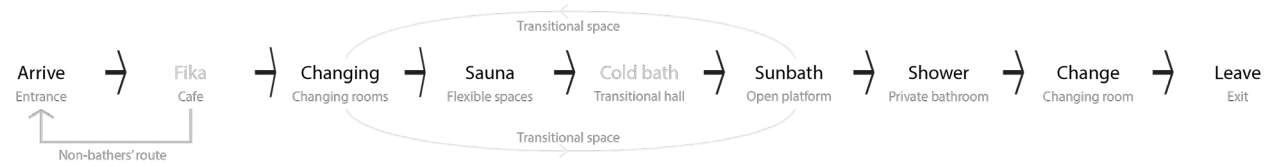


Figure 53. Anticipated new circulation in Liljeholmsbadhus.

1. The two new routes are individually for bathers and non-bathers to ensure each group undisturbed.
2. Using transitional space to separeate different functional zones and to maintain the different privacy preferences.
3. The grey arrows indicates the circulative possibilitites of the ritual.

Staircase and accessible passage

Bathers will traverse through the coffee area and be directed by the wall towards the stairs and barrier-free passage leading to the ground floor, which is exclusively accessible to swimmers.

This staircase and passage serve as the boundary between the public and the private (bathers). After entering the ground floor via the staircase, the dominating privacy type shifts to gender within the space.

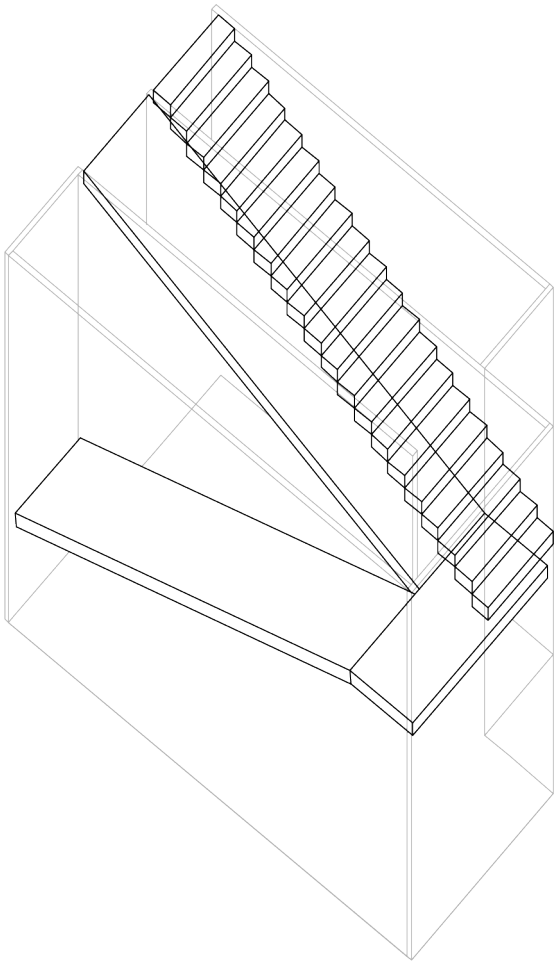


Figure 54. Staircase and barrier-free passage (8)

Transitional space and navigational options

There are three options available: two separate changing rooms designated for disabled individuals (19), a resting area (6) serving as a transitional space between different genders, and collective changing rooms for different genders (17). Each changing room is equipped with individual private bathrooms (18).

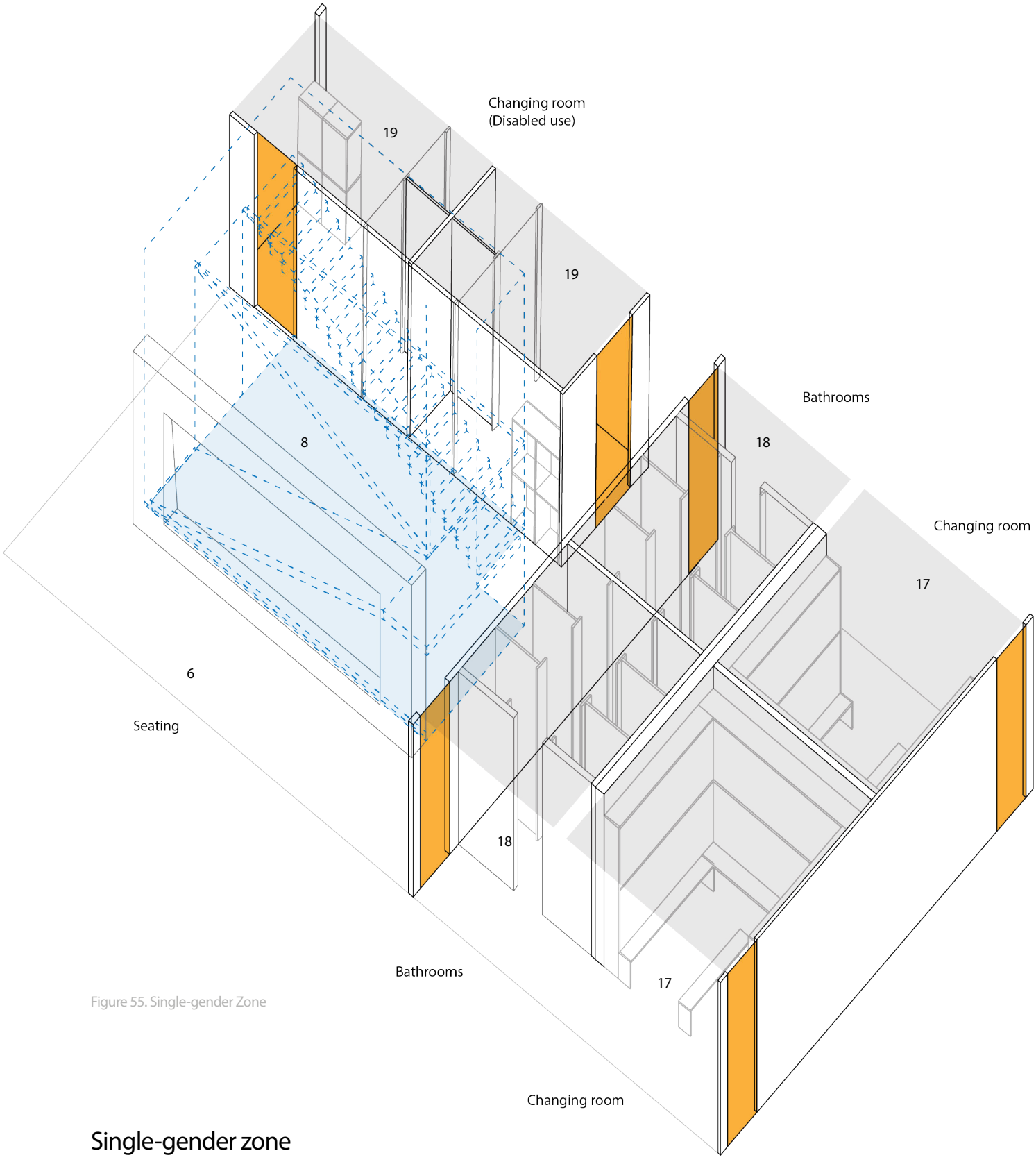


Figure 55. Single-gender Zone

Single-gender zone

This area include 3 different types of space set in sequence, including Changing rooms (17, 18, 19), Sauna (16) and Bathrooms (9).

The layout is centralized with passages positioned on both sides, resulting in a symmetrical plan. Private bathrooms are situated in the new building, while the dressing rooms occupy the original building's former entrance area, separated by a wall. Bathers proceed towards the door on the opposite wall and exit till next space.

After exiting the changing room, they encounter the sauna, which is accessible only to individuals of the same gender. The same-gender sauna is located near the original sauna room in the original building and is equipped with an individual toilet and shower.

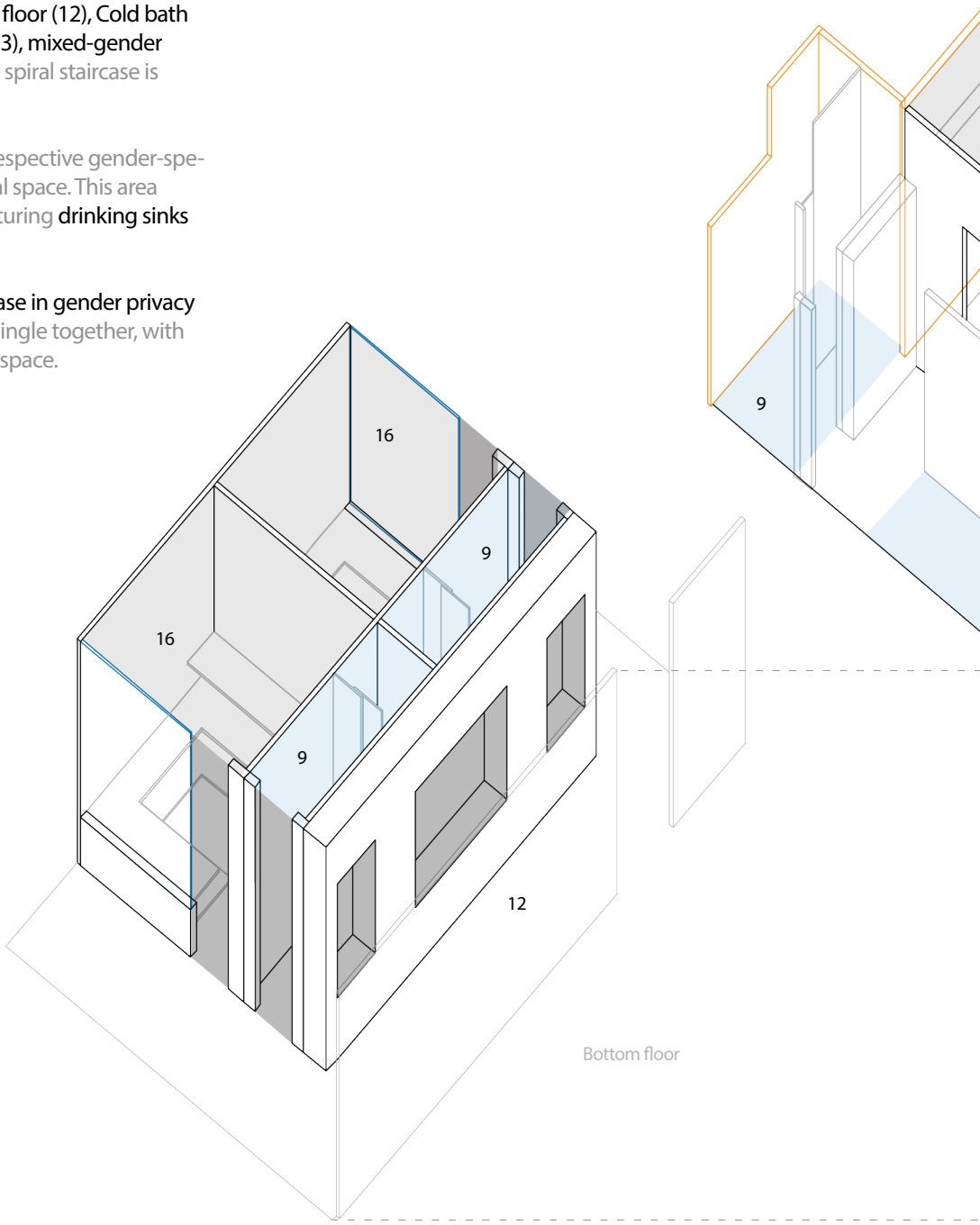
With a symmetrical layout, the doors of the sauna could open in opposite directions to maintain privacy between genders, allowing bathers to sauna in the traditional way of being naked.

Mixed-gender zone

This area include 5 different types of space set in sequence, including 2 individual Fika area on each floor (12), Cold bath hall (10, 13, 14, 15), 2 sunbathing area (13), mixed-gender sauna (11), all gender bathroom (9). The spiral staircase is included in cold bath hall (14).

As bathers moving forward from their respective gender-specific areas, they converge in a communal space. This area functions as a transitional zone (12), featuring drinking sinks and a small kitchenette for fika.

Additionally, it marks the gradual decrease in gender privacy levels. Here, individuals of all genders mingle together, with swimsuits being required in this shared space.



Sunbath and mixed-gender sauna

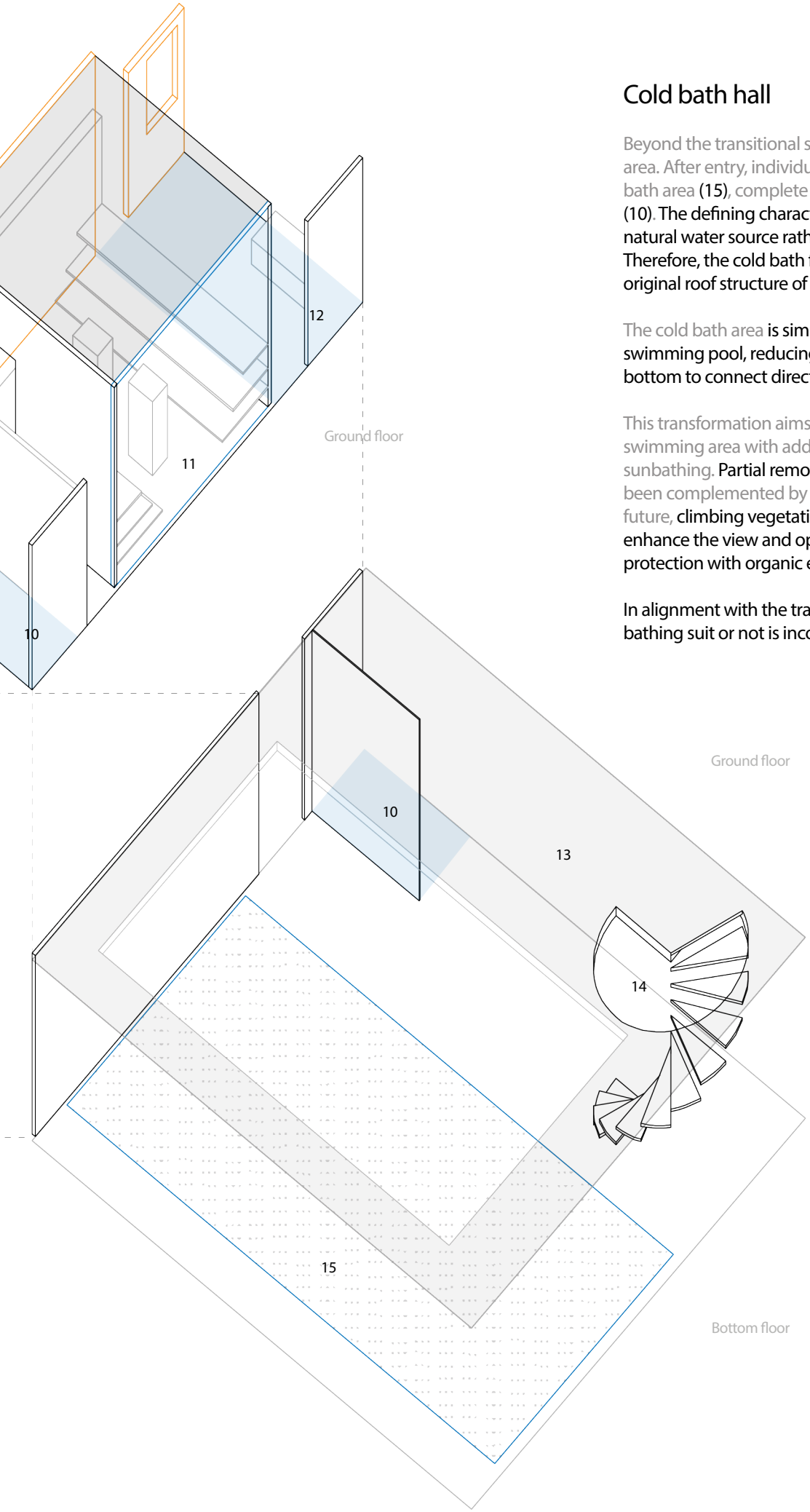
Come up via the spiral staircase located by the end of the pool to reach the entrance level again for sunbathing (13). This floor features a hole at its center, positioned directly above the cold bath pool.

Moving towards the center, there is a mixed-gender sauna (11), where the use of swimsuits is recommended and accessible to all genders.

Adjacent to the sauna's left side, facilities include open gender-neutral showers (10), a drinking sink, and a private bathroom (9).

The hole on the floor allows individuals who have completed their sauna session to jump into the cold sea, enhancing their ritual experience and interaction with the building.

The outer protection system uses the same wire mesh and plantings as seen on the ground floor.



Cold bath hall

Beyond the transitional space, a door leads to the cold bath area. After entry, individuals encounter a semi-outdoor cold bath area (15), complete with open, gender-neutral showers (10). The defining characteristic of a cold bath is its use of a natural water source rather than being enclosed under a roof. Therefore, the cold bath facility designed here preserves the original roof structure of Liljeholmsbadhus.

The cold bath area is simplified from the original indoor swimming pool, reducing its size by 1/3 and opening the bottom to connect directly to the sea (15).

This transformation aims to establish a safely enclosed swimming area with additional space for relaxation and sunbathing. Partial removal of the original building walls has been complemented by the installation of metal mesh. In the future, climbing vegetation can be planted on the mesh to enhance the view and openness while preserving a level of protection with organic elements.

In alignment with the tradition of nudity, the choice to wear a bathing suit or not is inconsequential.

Figure 56. Mixed-gender Zone

Fika (Transitional space)

On the opposite side of the sauna, there is a fika room for resting (12 on ground floor). This space connects to the double-sided café on the entrance floor through a window.

Here, bathers can enjoy a simple fika without needing to return to the dressing room and then back to the second floor.

Positioning the fika space adjacent to the sauna is intentional, as it reflects the research findings - the locals would bring alcohol to sauna.

Spiral staircase

At the end of the pool, there is a spiral staircase (14) ascending to the second floor. This staircase is installed to establish an internal, independent passage for uninterrupted circulation.

A similar spiral staircase has been present in Liljeholmsbadhus since 1930 (Figure 57 & 58) . Despite undergoing several renovations throughout history, the position of this staircase has been shifted multiple times but has never been removed. Therefore, by imitating the history, I relocated its position once again to preserve this architectural feature.

Reflections

Throughout the reconfigured ground floor, gender privacy requirements have progressively decreased, leading to a linear flow of movement.

Spaces are designated for single-gender use as well as for mixed-gender interactions.

The arrangement of various areas follows the process involved in completing the cold bath ritual, accommodating the repetitive circulation of the four core steps: sauna, transition area, cold bath, and sunbathing.

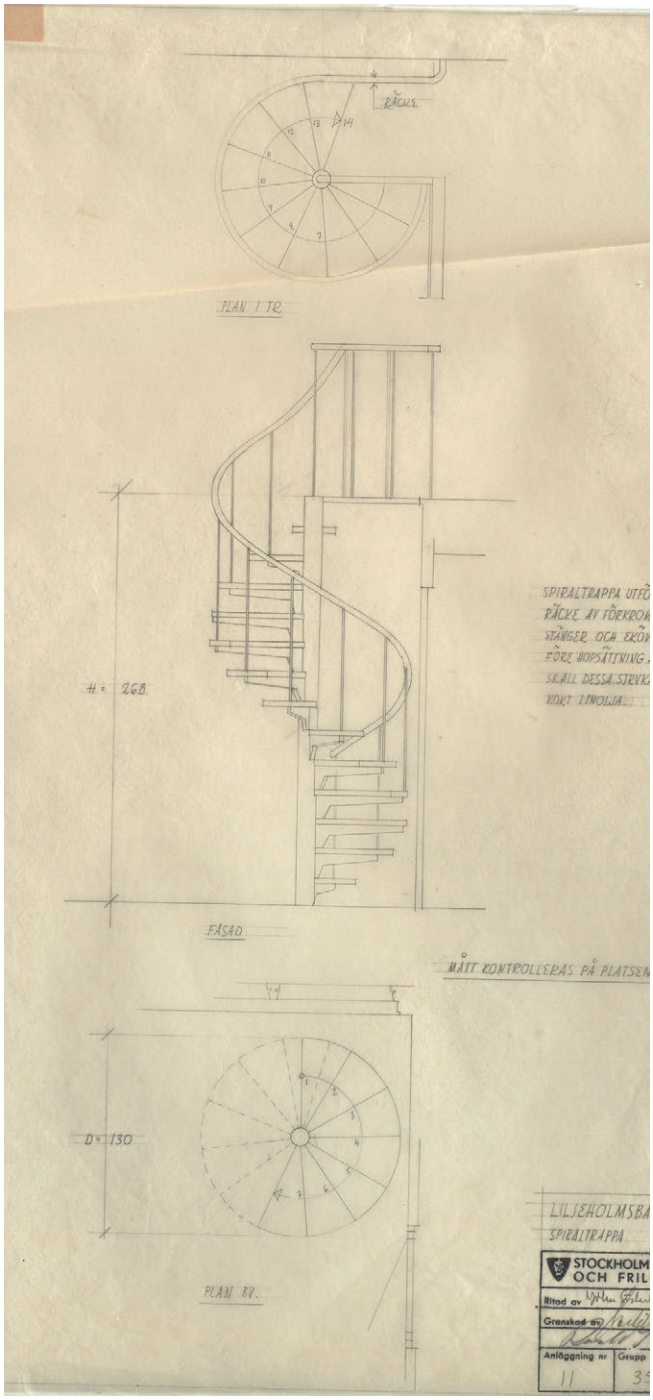


Figure 57. Spiral staircase drawings in Liljeholmsbadet. 1957.

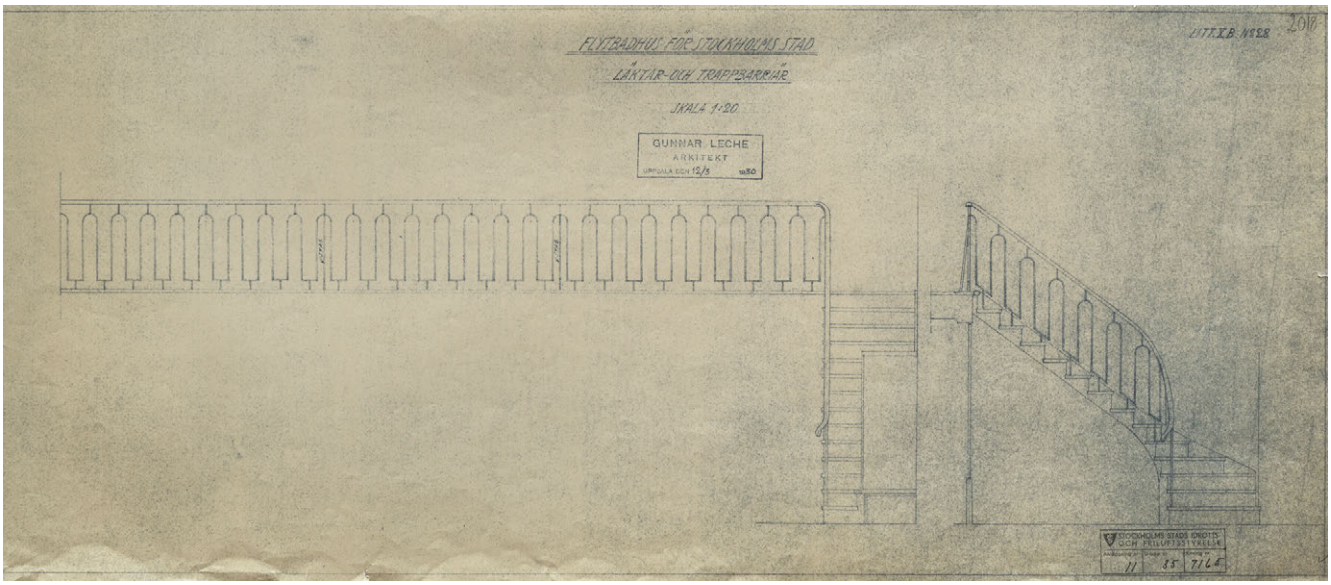


Figure 58. Drawing of the stand and stairs. (Leche, 1930)

Figure 59. Cold bath hall

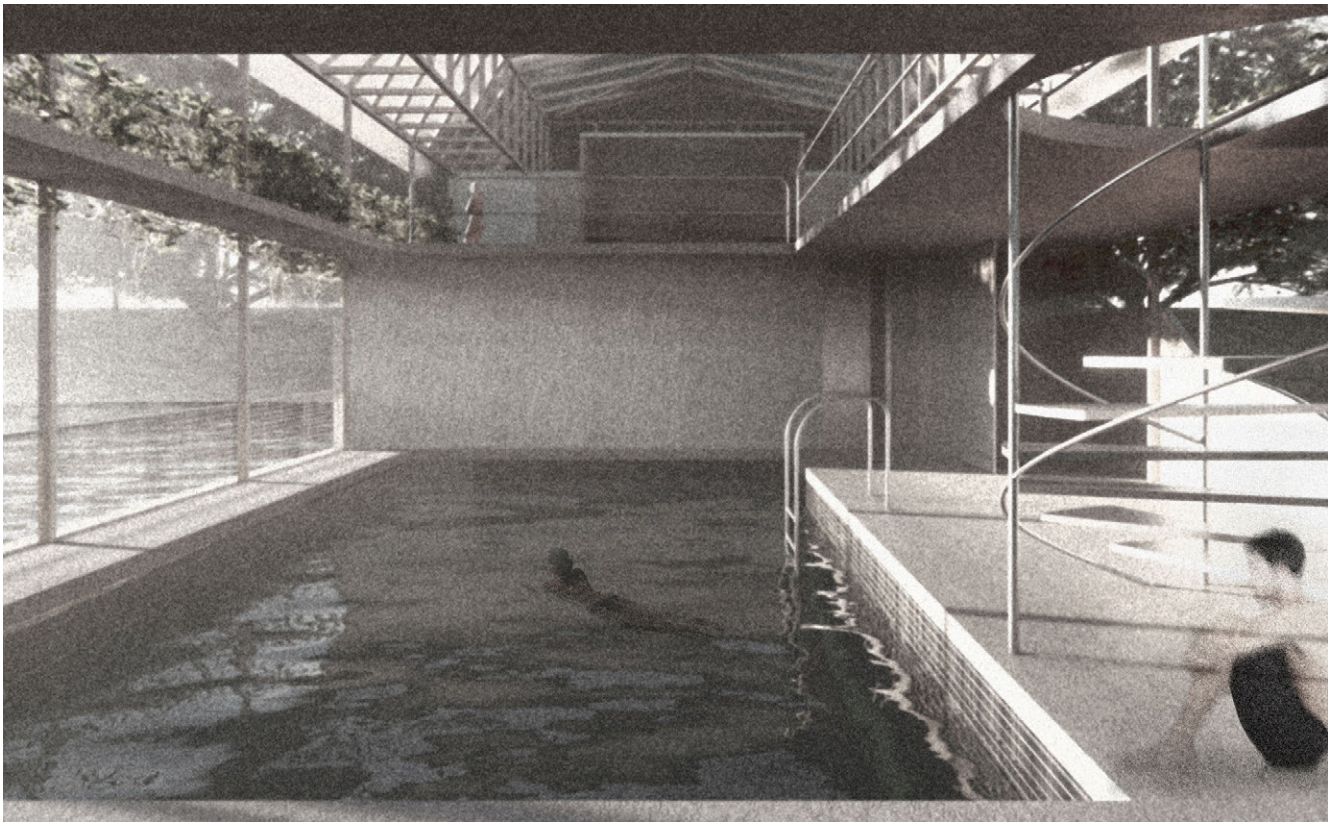


Figure 60. Cold bath pool

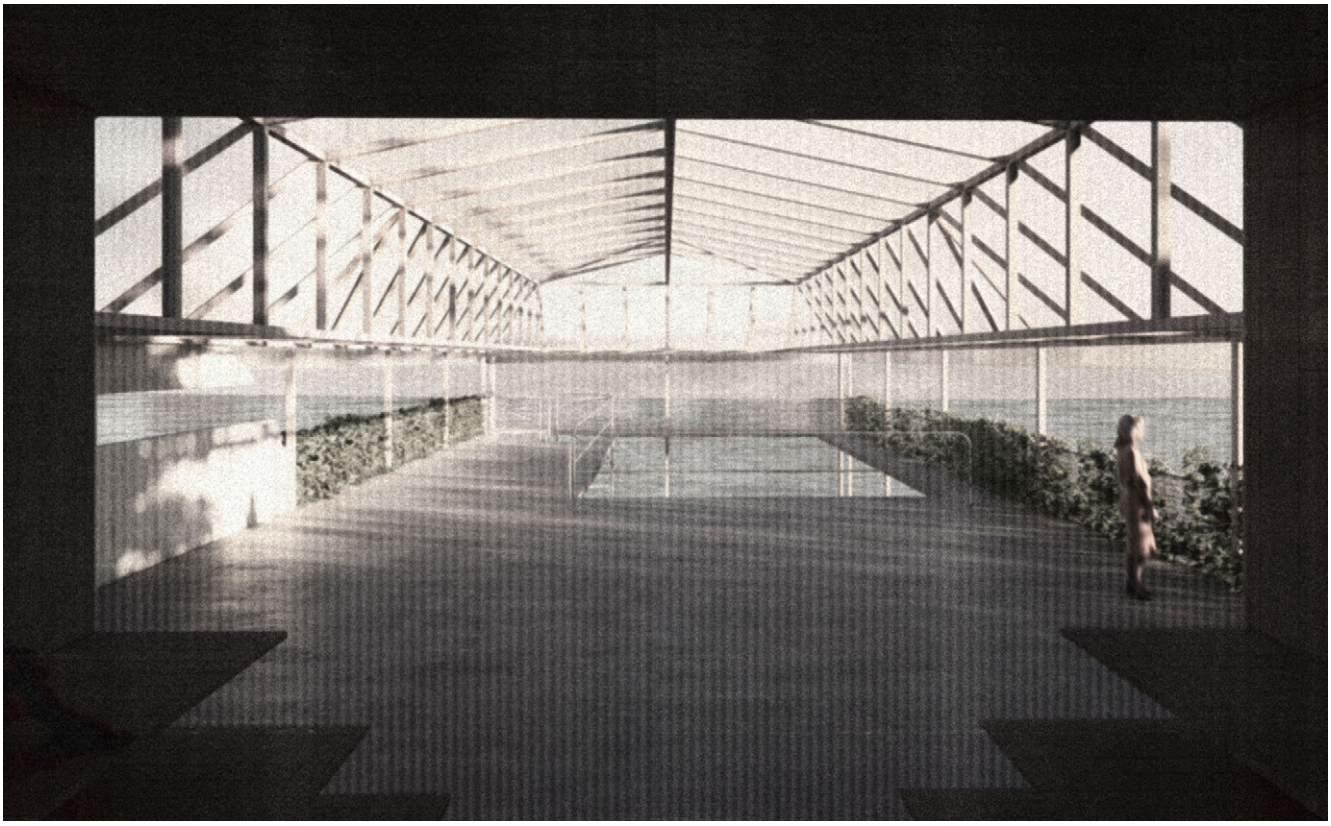


Figure 61. Sunbathing area, on ground floor

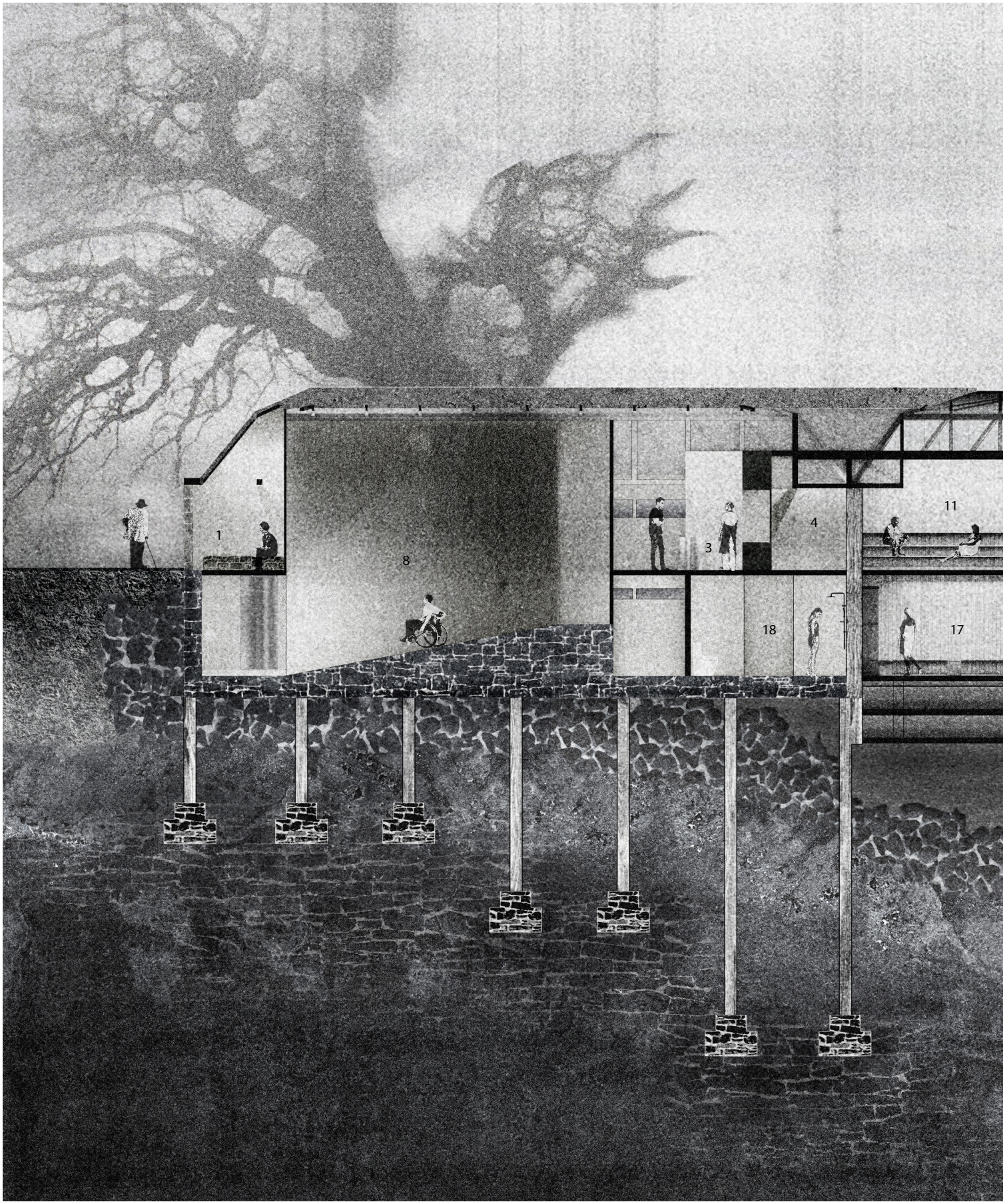
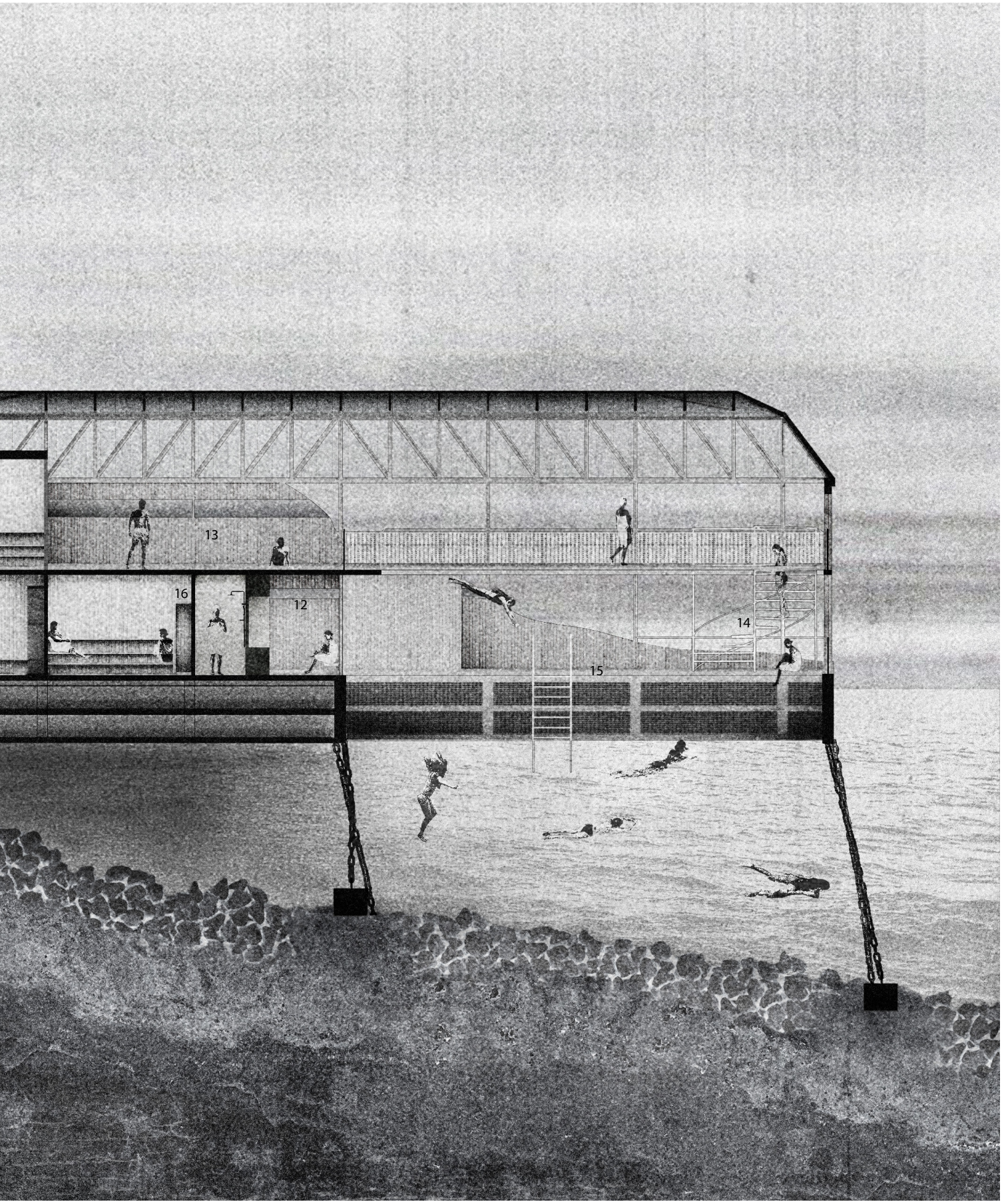


Figure 62. Section a - a.
This illustration demonstrates the way of the new building attachs to original bathhouse and separated structures.


13
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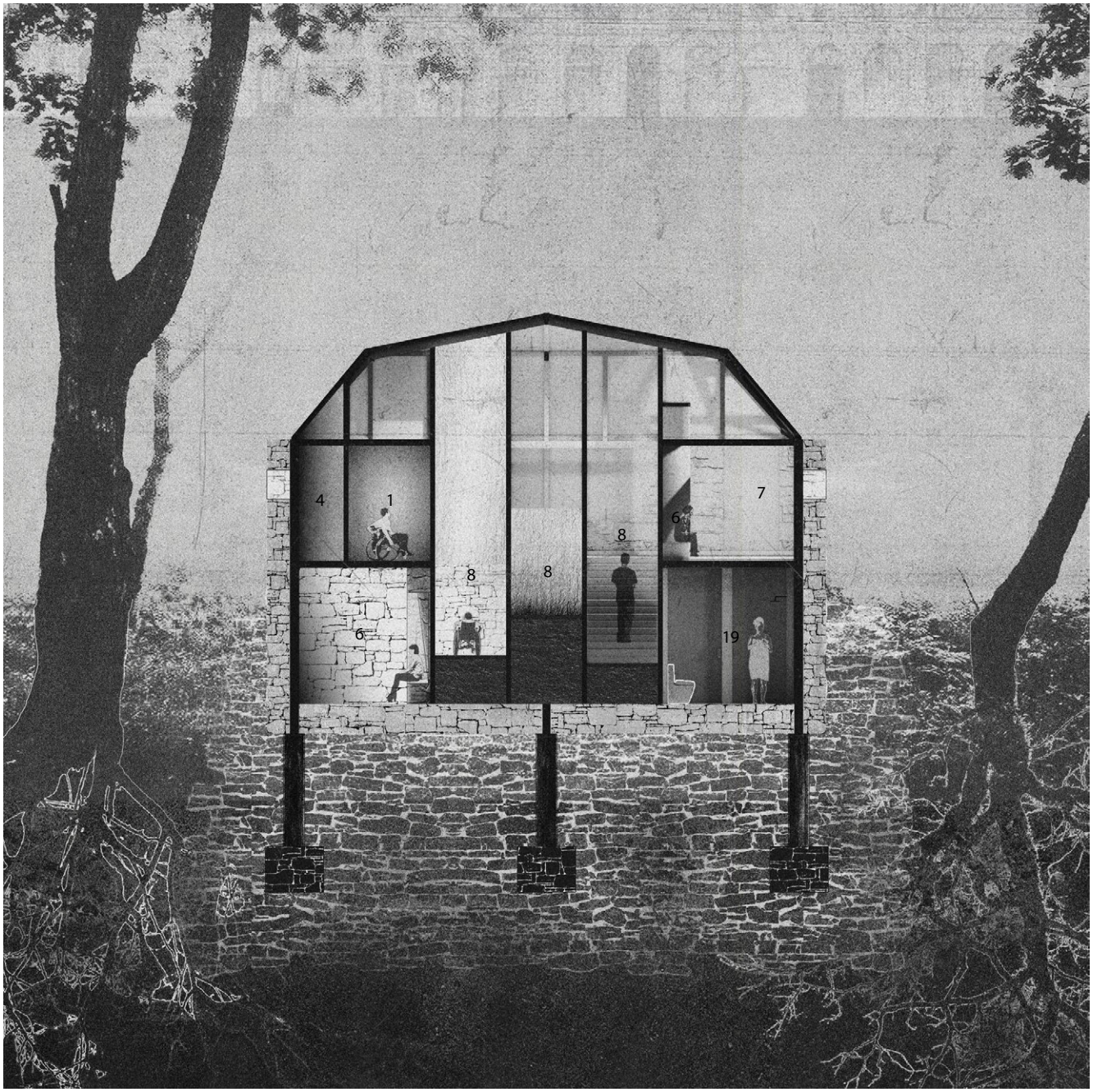

Figure 63. Section b - b.
This illustration demonstrates the new construction's foundation structure (on land), the material uses to the attachment with land soil, height differences from the background environment and surroundings.

Figure 64. New Liljeholmsbadhus

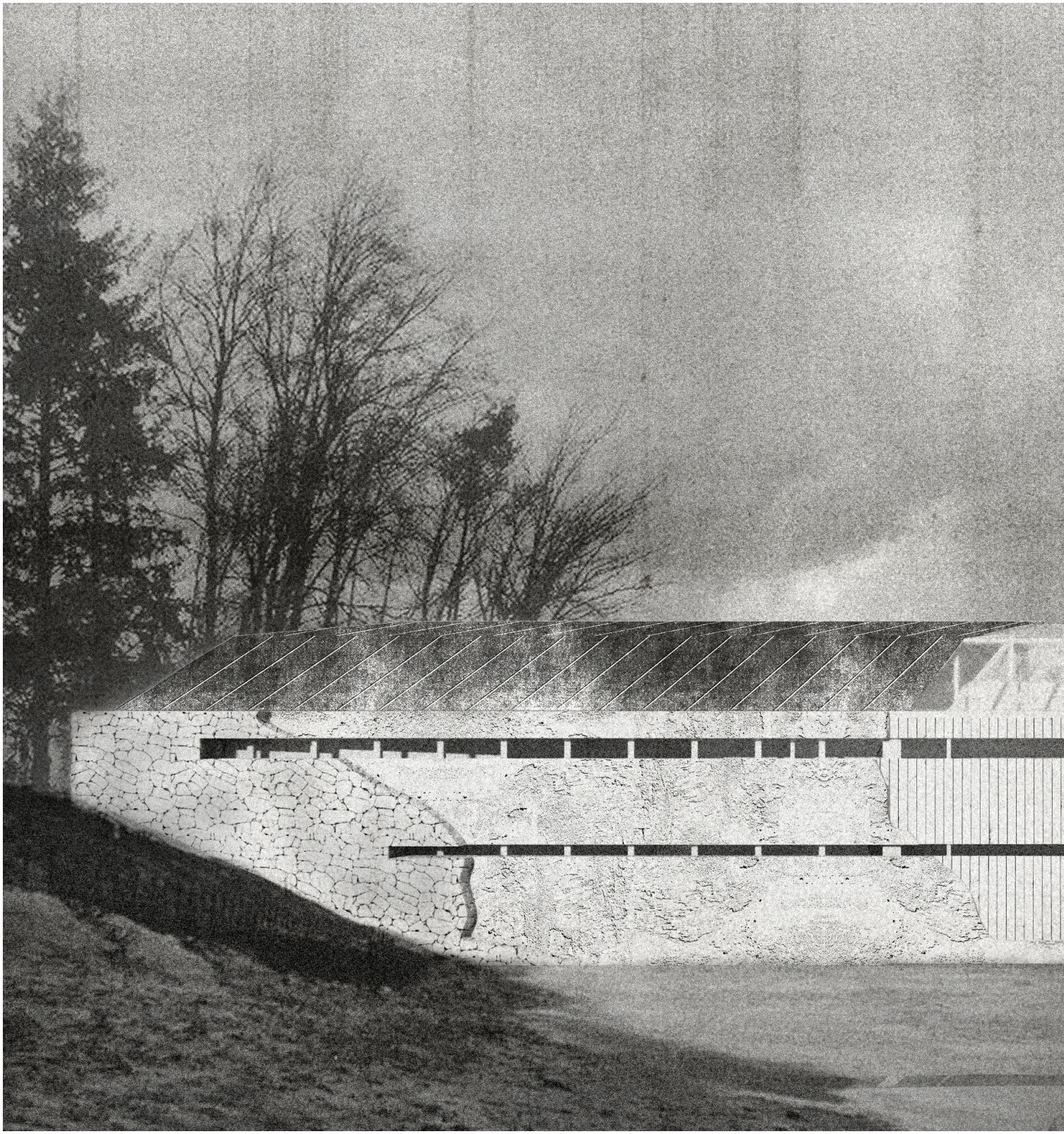

Figure 65. West Elevation

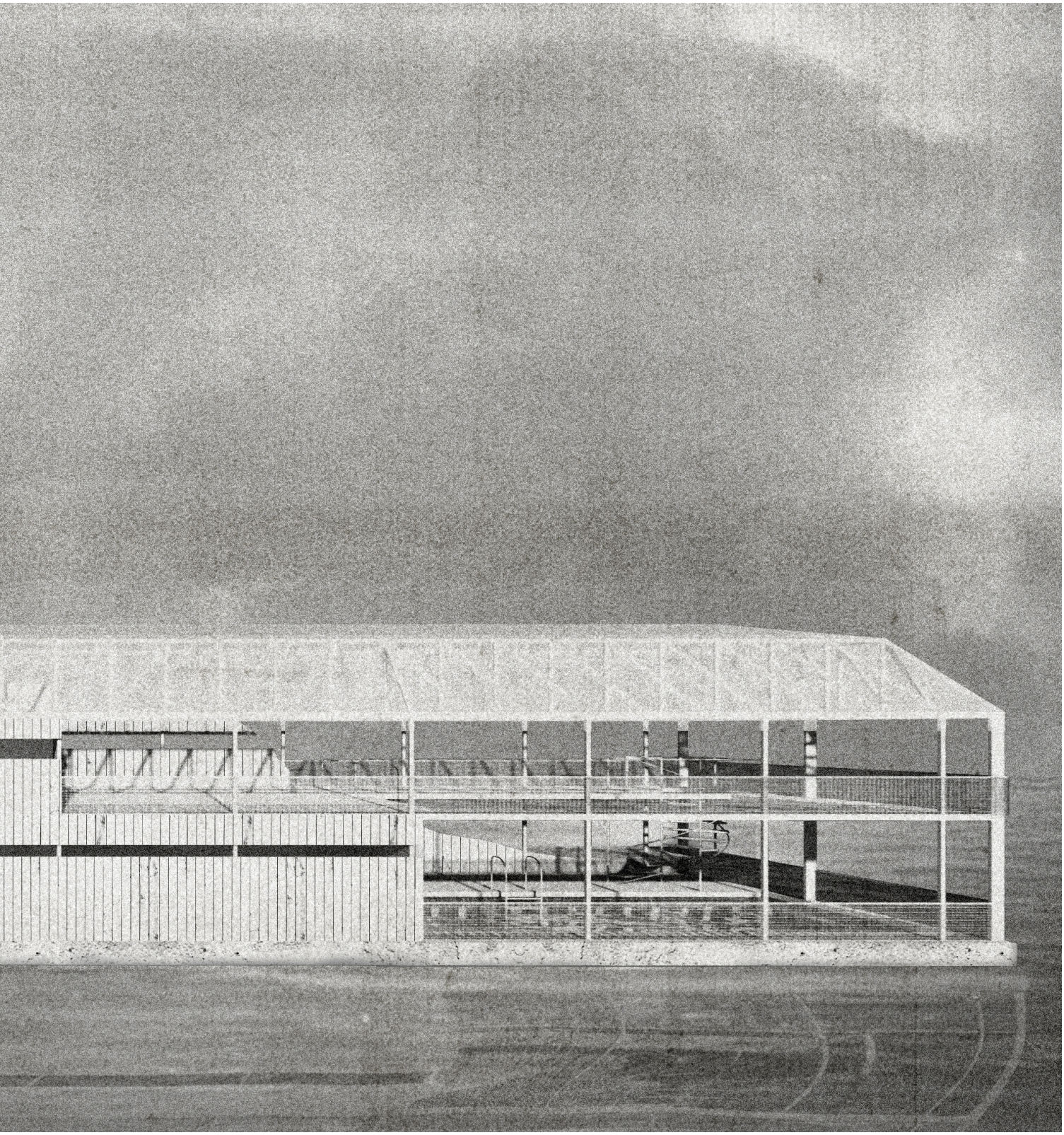

Figure 66. South Elevation

DISCUSSION

How have my design solved the thesis problems?

How can the integration of bathing rituals and its associated space help to revitalize a culturally significant building?

1. The tilted entrance wall sets the start for the ritual, setting the boundary between non-ritual space and ritual space.

2. Symmetrical forms evoke a traditional and sacred sense
3. Rustic building materials pay respect to the cold bath's connection with nature.

4. Spatial sequencing allows for the repetition of rituals, enhancing the overall experience.

Can the partial changes in building attributes lead to a more equitable and inclusive public space?

1. By integrating the traffic space and barrier-free passage at the entrance, the building's accessibility is increased, exclusivity is eliminated, and the tradition of mixed-gender nude bathing is preserved while remaining a single-gender space, creating a more inclusive public space.

2. Integrated the traffic space and barrier-free passage at the entrance enhances the building's accessibility, reduced exclusivity.

3. Kept the tradition of mixed-gender naked bathing area while preserving single-gender space, tailored a more equal public space.

How does the divergence in privacy preferences dominate the sequence of architectural spaces, and how to finesse these spaces to coexist harmonically?

1. Introduce several transitional spaces to facilitate smoother transitions between spaces with varying levels of privacy. These areas help individuals adjust to changes in space type and orientation, such as moving from the changing room to the cold bath hall or from the entrance to the stairwell.

2. Implement a partially symmetrical layout to guide movement in opposite directions within the space, thereby directing individuals along aisles that gradually increase or decrease in privacy. This layout helps eliminate space with different privacy preferences overlapping between different areas.

3. Select materials that offer transparency without complete visibility, such as polycarbonate, to serve as visual barriers for privacy control. Additionally, utilize natural barriers like the climbing vegetation on wire mesh to enhance the organic ambiance of the environment.

4. Strategically incorporate openings in the facade to actively regulate the surrounding environment and the privacy of the inside.

5. Use architectural scale to shape the ritual atmosphere and experience. For instance, adjust accessibility through the angle of walls in the entrance area to establish order.
6. Setting flexible spaces like the cafe at the entrance, which is open on both sides, serving as a medium between interior and exterior spaces without disrupting between the two areas with completely different privacy preference.

7. Utilize water itself as a natural barrier to separate bathers from pedestrians.

STUDENT BACKGROUND

EDUCATION

Chalmers University of Technology

Master of Science in Architecture and Urban Planning
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Architect Intern

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Personal dog trainer

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Tattoo artist apprentice

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Barista

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