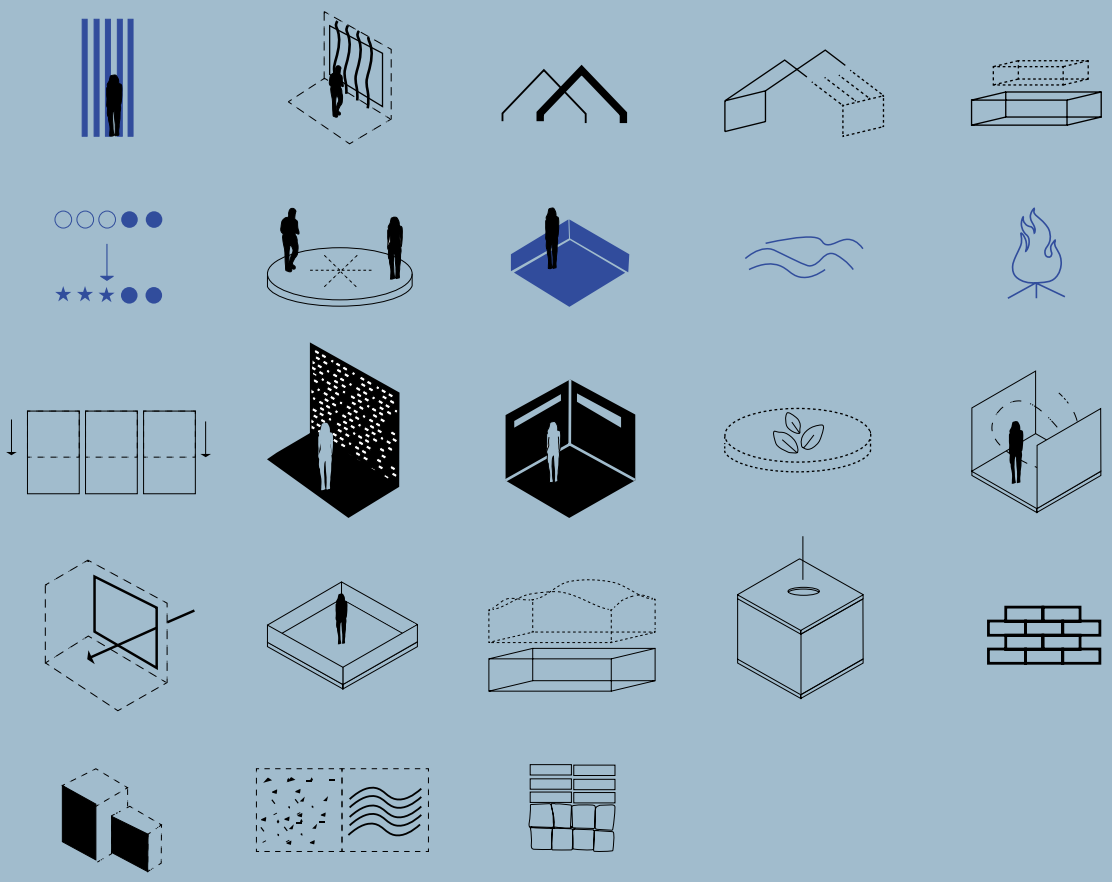
RESTORATION THROUGH ARCHITECTURE

MULTISENSORY PAVILIONS AND THE ADAPTIVE REUSE OF THE HARBOUR OFFICE ON GOTHENBURG'S COAST



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Master Thesis 2025

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CHALMERS

Restoration Through Architecture

Multisensory Pavilions and the Adaptive Reuse of the Harbour's Office on Gothenburg's Coast

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Architecture and Planning Beyond Sustainability

ABSTRACT

In today´s society individuals are expected to meet many demands, and as a result overwhelming stress has become increasingly common. These challenges are often amplified during winter in Sweden, where many self-reports "winter blues". To ease such symptoms it is often recommended to spend time outdoors, and research shows that being in, on, or near the sea has positive impact on wellbeing and reduces stress.

Gothenburg´s west mainland coast features several public bathing spots, all very popular in summer. However, there are currently no non-commercial public facilities that support extended stays by the seaside in the colder, more windy and rainy seasons.

The purpose of this thesis is to develop a site-specific design proposal that supports wellbeing in winter. Using a multisensory and adaptive reuse approach, the aim is to transform Fiskebäck, located on Gothenburg´s west mainland coast and currently lacking public facilities for winter, into a restorative public place that offers extended visits during winter. This thesis explores the following research questions:

How can spatial architectural interventions transform a public seaside site on Gothenburg's mainland coast to support wellbeing during winter?

How can the Harbour Office building in Fiskebäck be adapted to provide public use and sensory engagement during winter?

Theory and literature of multisensory architecture, adaptive reuse and wellbeing formed the theoretical framework for the thesis. The sensorial concepts explored are Light, Enclosure, Temperature of Space, Sound of Space and Smell of Space. Site-specific mappings of boundaries and landscape typologies identified key placements, transparency and tactile terrain qualities. Reference projects were studied to extract architectural features, which informed a conceptual design strategy toolbox. These tools were tested through iterative design development to answer the research questions.

The proposal includes four architectural interventions: The adaptive reuse of the Harbour Office building, and West, South and East Pavilions, each with distinct experential focus. Together they form a site journey and sequence of spaces where architecture becomes a medium to engage the human senses, support wellbeing and strenghten the relationship with the natural seaside environment in winter.

Keywords: Multisensory Architecture, Adaptive Reuse, Wellbeing, Phenomenology

Thank you to my examiner Marco Adelfio and supervisor Joaquim Tarraso for believing in my thesis and supporting me with their invaluable feedback.

Thank you to my friends for the motivation and for the laughter we shared throughout the studies.

Thesis Author Aylin Pektas

Educational Background

2023 - 2025 Msc Architecture and Planning Beyond Sustainability

Chalmers University of Technology

- *Sustainable transformation of a derelict industrial building*
- *Sustainable building transformation*
- *Colour and light in spatial contexts*
- *Design and performance optimisation in architecture*

2014 - 2016 Msc Design and Construction Project Management

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2009 - 2014 BArch Architecture

Istanbul Technical University

TABLE OF CONTENT

1 INTRODUCTION

Problem Description
Question, Purpose, Delimitation
Methods and Process

This chapter presents the introduction of the thesis: including Problem Description, Research Questions and the overall aim, as well as Delimitations and the applied Methods and Process.

PROBLEM DESCRIPTION

Stress and Mental Health in Winter

In today´s society individuals are expected to meet many demands, such as pursuing a high-level education, securing a job in an unstable market and building personal lives. These challenges often lead to overwhelming stress and feelings of being under constant pressure (Mental Health Foundation, 2021).

According to the World Health Organisation 27% of Europeans experience at least one mental-health disorder with stress being among the most common problem (WHO, 2023). These challenges amplify during winter, particularly in regions like Sweden where the long dark months can lead to the "winter blues" or Seasonal Affective Disorder (SAD). A study done in Sweden indicates that it is common for people to self-report recurrent depression during winter (RASTAD et al., 2005). In such cases it is recommended to try to manage the symptoms through spending more time outdoors (NHS, 2021). However, research highlights that factors like rainfall, darkness, wind and cold temperatures discourage people from being in outdoor public spaces during winter (Larsson & Chapman, 2020).

Sketch by author

Restoration by the Sea

Research show that people who spend more time outdoors by the sea have improved mental health and wellbeing. Being near, around or in the sea can engage multiple senses, and restore individuals ability to focus, reducing stress levels (Nichols, 2015). Engaging with the seaside environment is particularly beneficial in winter when mental health challenges peak and opportunities for restoration in nature are limited.

Architecture for Wellbeing

While many mental health conditions require medical care and personal circumstances can not be resolved through architecture, it can play a supportive role in easing the psychological stress on the human mind and body. Neurobiologist Semir Zeki (2011), in Splendors and Miseries of the Brain, explains that neuroscience has demonstrated a direct impact of the built environment on the human nervous system. This reinforces the idea that architecture influences how we feel, think and perceive space. A multisensory architectural approach grounded in human wellbeing can contribute to emotional balance and sensory restoration. This highlights the importance of a human-centered design perspective in architectural practise.

Opportunity in Gothenburg Mainland Coast

Gothenburg is a city with significant parts consisting of mainland coastlines, offering proximity to the sea for urban residents. Though there are several public spots by the west mainland coast, there are currently no non-commercial public facilities that support extended stays by the sea in the colder, more windy and rainy seasons.

This presents an architectural opportunity; to transform the west mainland coast urban environment in Gothenburg, into a place that offers people to spend restorative time by the seaside during winter. This thesis responds to that opportunity through site-specific architectural interventions and the adaptive re-use of the Harbour Office building in Fiskebäck.

By combining a multisensory design approach with adaptive reuse, this thesis explores how architecture can support wellbeing during winter by offering a restorative experience in the natural seaside environment in Fiskebäck, Gothenburg.

RESEARCH QUESTIONS

How can spatial architectural interventions transform a public seaside site on Gothenburg's mainland coast to support wellbeing during winter?

How can the Harbour Office building in Fiskebäck be adapted to provide public use and sensory engagement during winter?

Purpose

The purpose of this thesis is to develop a site-specific design proposal that supports wellbeing in winter.

Using a multisensory and adaptive reuse approach, the aim is to transform Fiskebäck, located on Gothenburg´s west mainland coast and currently lacking public facilities for winter, into a restorative public place that offers extended visits during winter.

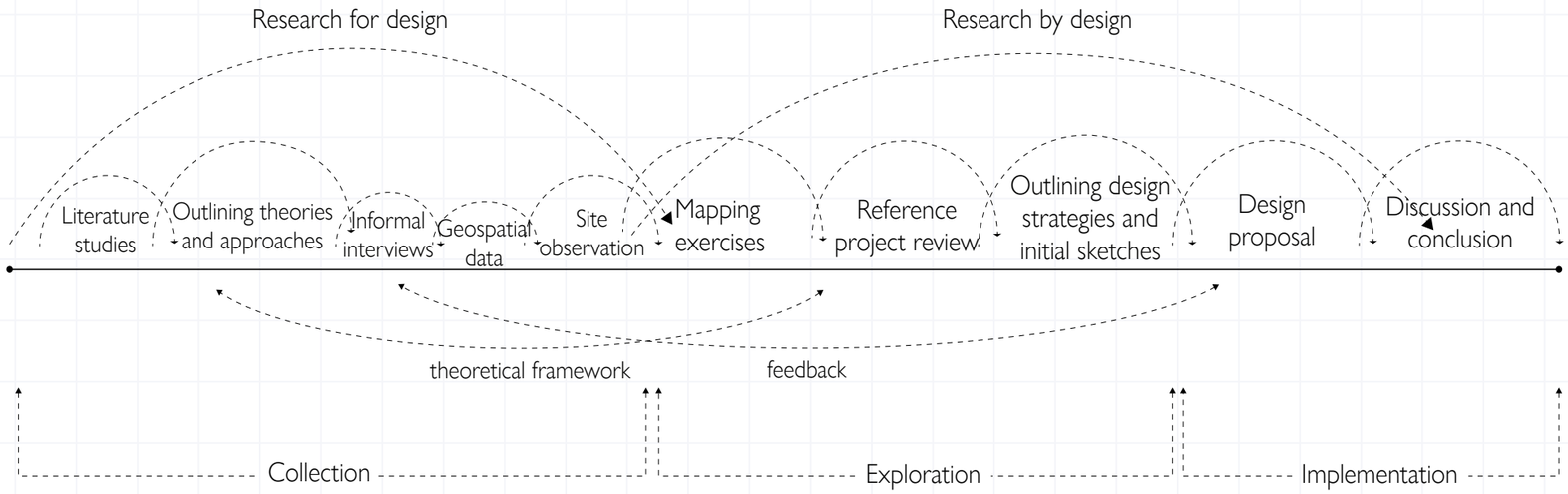
The proposal includes four architectural interventions: the adaptive reuse of a harbour office building, and three pavilions, each with distinct sensory focus. Together they form a site journey and a sequence of spaces where architecture becomes a medium to engage the human senses, strenghten the relationship with the natural seaside environment and reduce stress.

Delimitations

This thesis will not:

- Do a study evaluating the wellbeing impact of the coastal environment. This thesis builds its narrative on existing research on well-being and the seaside.
- Develop the transportation network to the seaside.
- Aim to increase the tourism to the seaside.
- Focus on the precise measurement of the factors contributing to human comfort outdoors, since individuals comfort zone varies depending on factors such as clothing, age, activity level and health.
- Do a life-cycle assessment. This thesis aims for a project with minimal ground intervention and considers building materials with lower environmental impact, though it is not the main focus.
- Present a financial funding plan for the intended non-commercial program, as there are similar examples in Gothenburg that is managed by the municipality.
- Include user behavior studies such as surveys, mappings, or evaluations.
- Address universal accessibility for all the four interventions included in the design proposal.

METHODS AND PROCESS



Key methods

Literature Studies

In addition to the *theoretical sources* on phenomenology and sensorial architecture, I also read *books* and *scientific reports* on mental restoration of being by the sea. This was important in order to ground my work on scientific evidence and have as a solid starting point in bridging to architecture.

Informal Interviews

During frequent site visits in the early and mid-stages of the thesis, *informal and causal conversations* were held with locals to gain insight into their lived experiences, opinions and expectations related to the site and seasonal use.

Mapping Boundaries

Mapping of the boundaries was done to get an understanding of the movements, guiding elements and perceived boundaries on site. It was based on subjective observations, documentations gathered through frequent site visits.

Mapping Landscape

Mapping of landscape means to document the natural landscape through physical inventories, such as the stones, vegetations and other defining characteristics of the site. This helps to show the diversity of natural typologies at the seaside.

Reference Project Review

I reviewed a selection of *reference projects* to better understand how multisensory experiences are applied in architectural practise and how existing buildings have been succesfully adapted. The review involved interpreting images and drawings and cross-referencing with literature on sensorial architecture.

Outlining Design Strategies and Initial Sketches

Following the review I outlined a set of *design strategies,* with a focus on material choices, spatial layouts, dispositions and sensorial intentions. I tested these strategies through *initial sketches*, which helped identifying combinations that worked cohesively within the site´s context.

Phases

Collection

The first phase of the thesis started with collecting qualitative and quantitave information that sets the foundation for the main work. The city centre and summer seaside settlements were observed to get an overview of the outdoor activities in summer and winter seasons. Casual interviews with locals and non-local architecture students gave valuable insights about the seasonal uses and experiences. Theories were outlined and a framework set. Literature were studied and geospatial GIS data was overlayered on maps of the mainland coast to understand the urban context.

Exploration

The second phase of the thesis began with mapping exercises of the site to explore site´s context. The overall approach is explorative, because of the experiential aspect of the research questions this thesis aims to answer. Mappings were done to identify the layers on site through inventories, aiming to understand the phenomenas that occurs on site and get results that will guide the design development. Following the findings of the mappings, reference projects were reviewed to get a better understanding of the sensory engagement correspondence in practise. Design strategies were outlined from these reference projects, forming a toolbox of strategies and early sketches were done within the site´s context.

Implementation

The last phase focused on synthesizing the findings from the prior phases into a final design proposal, implemented on the specific site. The design proposal consists of a developed program, conceptual and architectural drawings, visualising the outcome. Furthermore, critical reflections on the thesis process, methods, contextual work and design proposal are gathered, possible questions are raised and potential areas for further development are identified.

II CONTEXT

This chapter provides a contextual background to this thesis. It presents topics such as Outdoors in Winter, Intended Audience, Commercial facilities, the The Coasts of Gothenburg and the Choice of Fiskebäck, Harbour Office Building and Local Climate conditions. It concludes with site-specific mappings: boundaries and landscape.

CONTEXT

This chapter outlines seasonal activity patterns in Gothenburg, insights from casual interviews with locals, and the intended audience for the thesis. While Gothenburg offers essential public mainland shores, it lacks non-commercial public facilities to be on. The chosen project site Fiskebäck, is a visited seaside spot with proximity to urban transport and a Harbour Office situated at the inland edge. The chapter concludes with an overview of the local climate conditions followed by site-specific mapping exercises based in Fiskebäck.

Outdoors in Winter

Site Observations

To get an overview of the outdoor recreational activities in Gothenburg, I visited the city center and the shorelines during summer and winter season.

In September 2024, I visited Järntorget, Brunnsparken, Karl Gustavstorg and Stenpiren, all being busy public spots in Gothenburg. By the shoreline, I did observations at Saltholmen, Långedrag, Askim, and Fiskebäck. During warm weather people engaged in activities such as walking, sitting, reading, conversing and swimming. I noted that most of these activites overlapped in both at the city centre and at the coast.

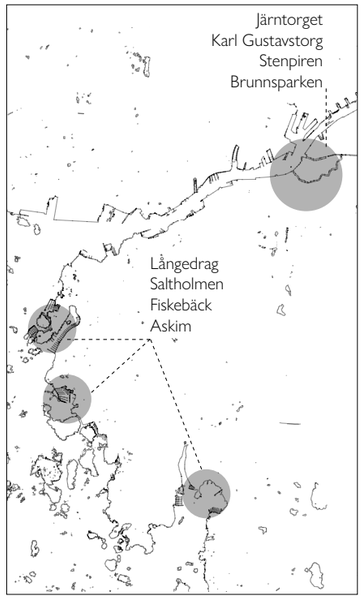
However, during visits to the same shoreline locations in November, December, January and February the weather was cloudy and sometimes rainy, and I observed that outdoor activities were significantly less. I encountered no people at all or occassionally saw individuals taking quick winter baths or walking. It appeared that the shoreline of the west mainland of Gothenburg was not much used daily during winter.

Interviews

To gain a better insight to the situation, I had informal interviews with locals and architecture students from my university. I asked whether they visited the seaside in winter. If so, what activities did they engage in. Most locals expressed that strong winds and the cold made it an unattractive option to visit since the stay would not be long enough to make the trip worthwhile. The architecture students, many of whom were non-locals, had never visited the mainland seaside in winter at all.

Nevertheless, a minority of interviewees stated that they regularly spent time by the coast regardless of the season.

Public life outdoors. By author, September 2024



Marked site locations on a map of Gothenburg.

Intended Audience

This project is for those who need a sense of comfort and safety to engage with the seaside. This thesis does not aim for the "nature lovers" who already feel comfortable spending time by the coast regardless of weather conditions. This thesis focuses on those who may feel restricted from spending time by the shoreline due to environmental and psychological barriers and would benefit from a facility.

Additionally, this project is for Gothenburg residents who do not feel a strong connection to the shoreline. While public access to the coast is ensured in Gothenburg, the presence of boat docks and waterfront homes can create a psychological barrier. Even if an area by the coast is not closed off, the perception of being in a semi-private space may discourage people from feeling a sense of belonging to be there freely.

Coastline. By author, September 2024

Commercial Facilities

During my site visits to Saltholmen, Långedrag and Fiskebäck I observed various commercial facilities, such as kiosks and ice-cream shops. These are primarily open during summer season (june - august) and closed during the rest of the year. I think these closed facilities contributes to a sense of abandonment in these areas and therefore a psychological barrier against being there.

At the same time I noted year around open cafe´s and restaurants. These offer indoor comfort with clear visual connections to the sea, allowing people to engage with the seaside in winter. However, I argue that this interaction comes with the condition to buy something, which creates a limitation. Firstly, it is not a realistic scenario to expect people to frequently want to spend money at these cafes. This limits in number of occasions and how the visit occurs, as a cafe would not necessarily provide a solitary and relaxing visit.

Furthermore, these observations highlight a gap in non-commercial public spaces that offer visits to the seaside in winter.

Closed kiosk. By author, September 2024

The Coasts of Gothenburg and the Choice of Fiskebäck

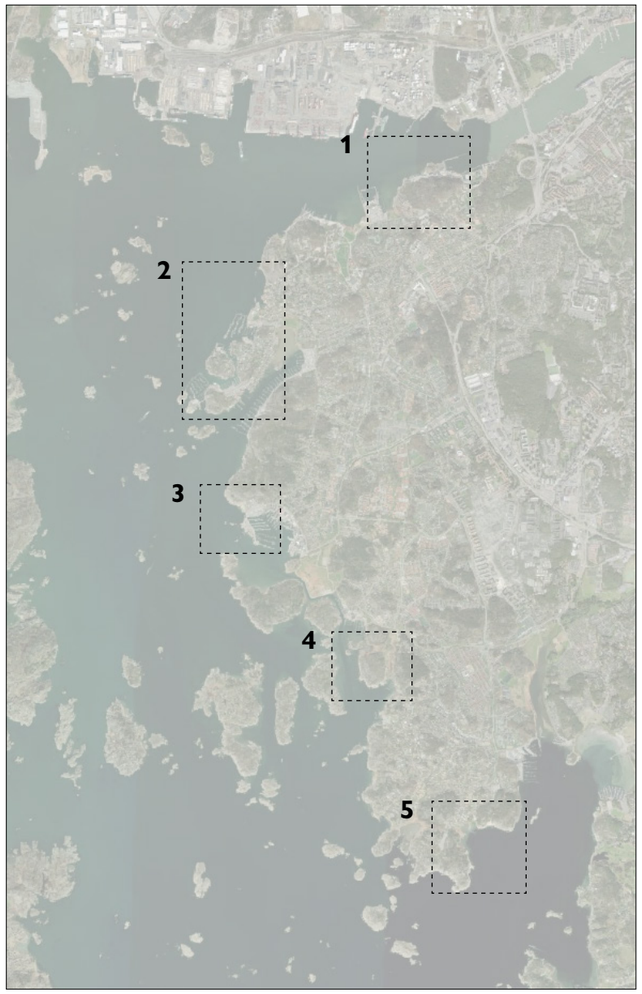
Spatial Analysis

To better understand the mainland coast I gathered GIS data and overlaid it on maps. I focused on five areas along the urban coast that are within close proximity: Älvsborg, Långedrag and Saltholmen, Fiskebäck, Rörvik and Näset.

The analysis showed dominance of public boat docks, the boat industry and private housings. While there are some summer bathing spots (green mark on map) and one commercial cold-bath house (black mark on map), there are none public non-commercial structure that would support an extended visit in winter. There may be lesser known points to the water, the map highlights the recognised and publicly marked bathing spots.

Interviews

During a visit to Fiskebäck in February 2025, I conducted informal interviews with individuals I came across with. I asked whether they spent time by the coast in winter and if not, what the causes were. The people I spoke to were locals living nearby and primarily visiting for a quick winter bathing and immediately leaving afterwards. Furthermore, they expressed a wish to stay longer, but found it too cold and the slippery cliffs made walking there difficult. The interviewees mentioned that a sauna would be good complementary to the bathing activity.



Map of west Gothenburg with marked site locations.

Site locations.

0 500 m

1: 15000

1 Älvsborg / Västra Frölunda
2 Långedrag / Saltholmen
3 Fiskebäck
4 Rörvik
5 Näset

Boat docks
Public bathing spots
Bathing facility commercial

The Harbour Office in Fiskebäck

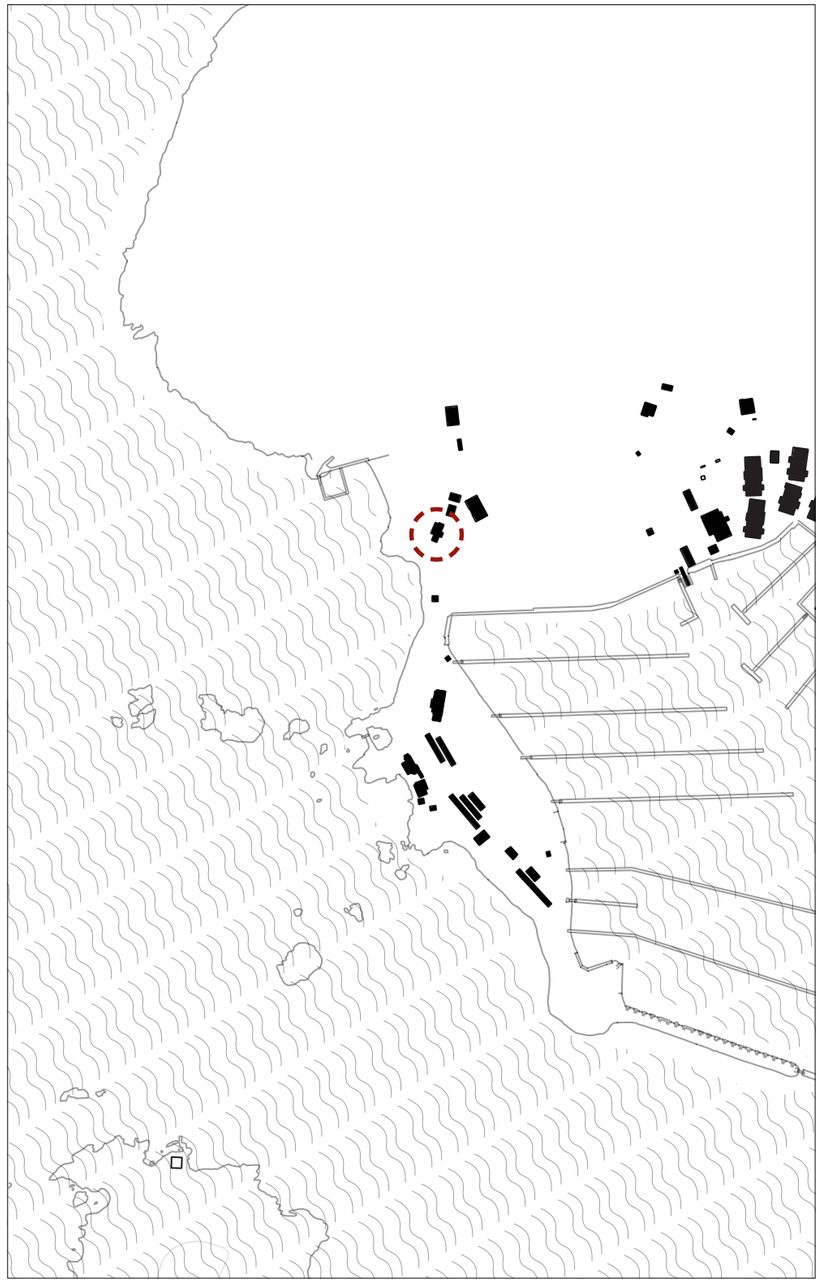
The Harbour Office, built in the 1980s, is one of the earliest structures along the Fiskebäck seaside. Since its establishment, it has served as the Harbour Association premises, with minor additions through the years.

Its visibility, accessability, modest scale and location at the threshold between land and sea make it suitable for adaptive reuse. The building is adjacent to public pedestrians paths and a popular summer bathing spot. Although currently private, the Office includes a sauna, office space with kitchenette and restrooms for its employees.

Given this location and role, this thesis proposes to adapt the building for public use while preserving its architectural character and original function.

With the construction industry contributing to nearly 70% of carbon emmissions and the urgency of the climate crisis increasing, architects have a responsibility to repurpose and adapt existing structures to meet new needs.

By author, april 2025



1: 5000

Map of Fiskebäck with The Harbour Office marked

Local Climate in Fiskebäck

To understand the winter context in which this thesis is situated, I looked into the local climate conditions of the project site Fiskebäck.

Because of the proximity to ocean, local climate in Gothenburg is described as cold-temperate to warm-temperate (SMHI, 2020). All climate data was retrieved from SMHI (Swedish Meteorological and Hydrological Institute) which collects data from a monitoring station in Gothenburg.

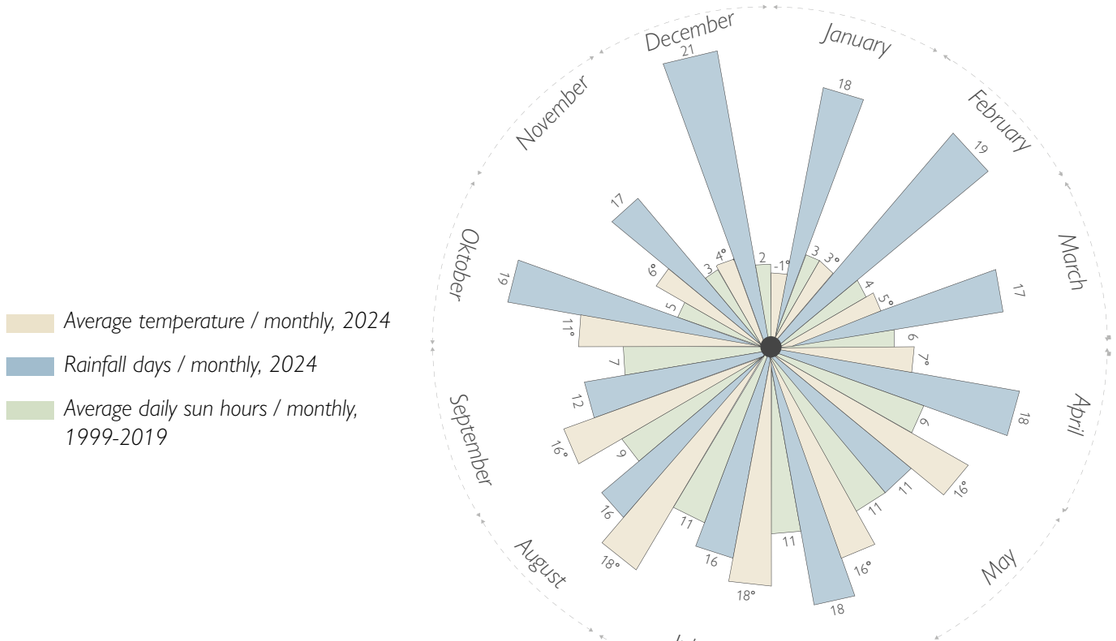
Wind patterns is dominant south-westerly throughout the year, with higher wind speeds generally around summer. This contributes to the characteristic Gothenburg weather when combined with sideways rainfall.

Average monthly temperature is approximately 10 °C with summer being the warmest. Though winters are mild, high humidity from the ocean and wind exposure can make it feel colder.

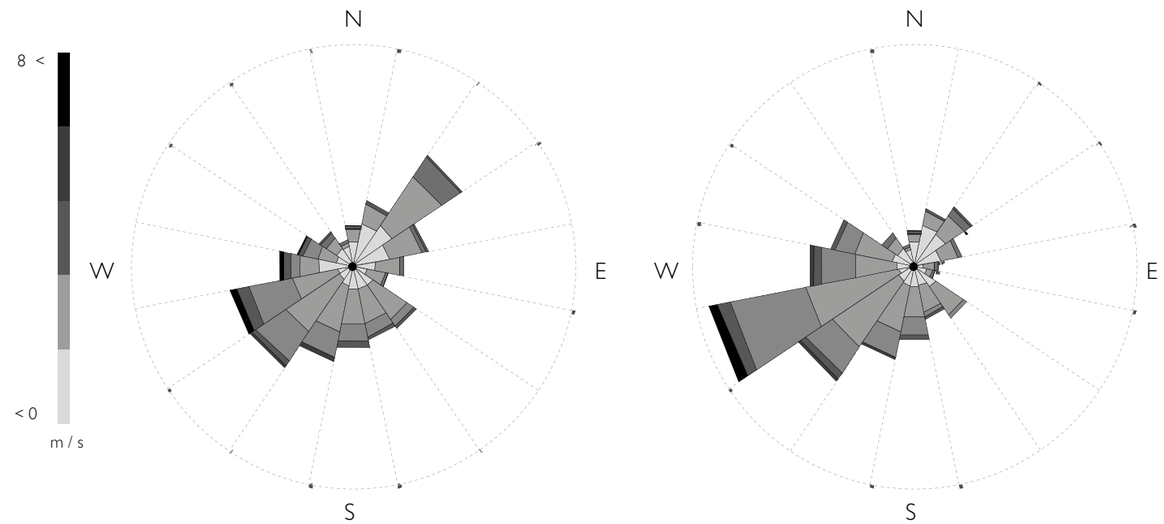
Rainfall is frequent throughout the year. On average, around half of the month is rainy, with winter being the most rainy.

Sunlight hours vary significantly between seasons. During winter daylight is remarkably reduced, contributing to the darkness. Summers are very sunny due to Gothenburg´s northern latitude.

By author, Fiskebäck January 2025



A diagram showing temperature, rainfall days and average sun hours



Wind rose diagrams showing wind direction and speed for winter (left) and for summer (right)

Mapping of Boundaries

2025.01.31 site visit

This exercise aimed to explore how perceived boundaries influence movement and experience across the site. Through on-site sketching and documentation, boundaries were classified by visual permeability and approximate height.

High and medium-high boundaries, such as buildings, fences and boats, are visually opaque and physically limiting direct access. Medium and low boundaries, such as bushes, cars and elevated terrain, allow for more transparency and passage, though in indirect and somewhat fragmented ways.

This resulted in a map that identifies the most used movement paths based on where physical and visual permeability align. The distance between these boundary types also influenced the movement. These observations informed the design decisions in the implementation chapter of the thesis.

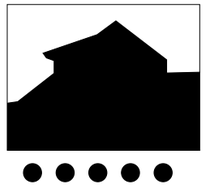
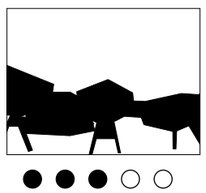
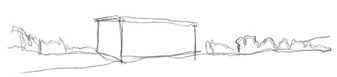
Sketches of perceived boundaries from site observation. View is located on the map. →	*Perceived visual permeability* ● *opaque* ○ *transparent*	*Approx. perceived height of physical boundaries (m)*
 **High boundary** *buildings*		> 4 meter
 **Medium-high boundary** *fences, boats*		> 3 meter
 **Medium boundary** *bushes, cars*		> 1.5 meter
 **Low boundary** *cliffs, elevated ground*		> 0.3 meter

Table showing boundaries analysed by height and visual permeability based on site observations

Map showing boundaries and movement routes in Fiskebäck

High boundary

buildings

Opaque,
Non-permeable

Medium boundary

bushes, cars

Semi opaque,
Non-permeable

Medium-high boundary

fences, boats

Semi opaque,
Non-permeable

Low boundary

cliffs, elevated ground

Transparent,
Semi-permeable

Most used path

As a result of the boundary mapping, the most used movement route is identified.

Mapping of Landscape

2025.02.13 site visit

The purpose of mapping the landscape was to gain a tactile understanding of the natural terrain, as it is relevant to the seaside experience. By categorising the ground into six dominant landscape typologies, I was able to construct an overview of the site's natural features and their distribution.

I incorporated 1meter terrain lines to reveal the elevation. This helped to identify the most walkable areas, the more flatter zones had potential for minimal interventions. A side note to this exercise is that I got an understanding of the impact the interventions would have to a natural landscape. I cross-referenced these typologies with orthophotos, supported by tactile notes and photos.

The result highlights areas where material qualities and slope conditions align for potential design placement. This mapping complements other analyses and serves as a natural inventory of the site´s landscape conditions.

Stone shore

* medium sized stones
* grey, white, yellow

softness ○○○○
hardness ●●●●

Sand beach

* sand, pebbles
* light brown

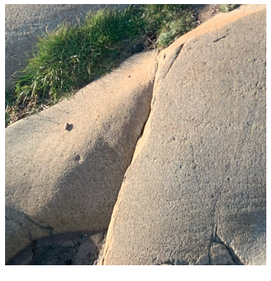
softness ●●●●
hardness ○○○○

Gravel path

* small gravel stones
* pink, grey

softness ●○○○
hardness ●●●○

Pink, yellow granite



* flat surface
* Pink, yellow, brown

softness ○○○○
hardness ●●●○

Grey bedrock

* bumpy surface, moss
* grey, green

softness ●○○○
hardness ●●●○

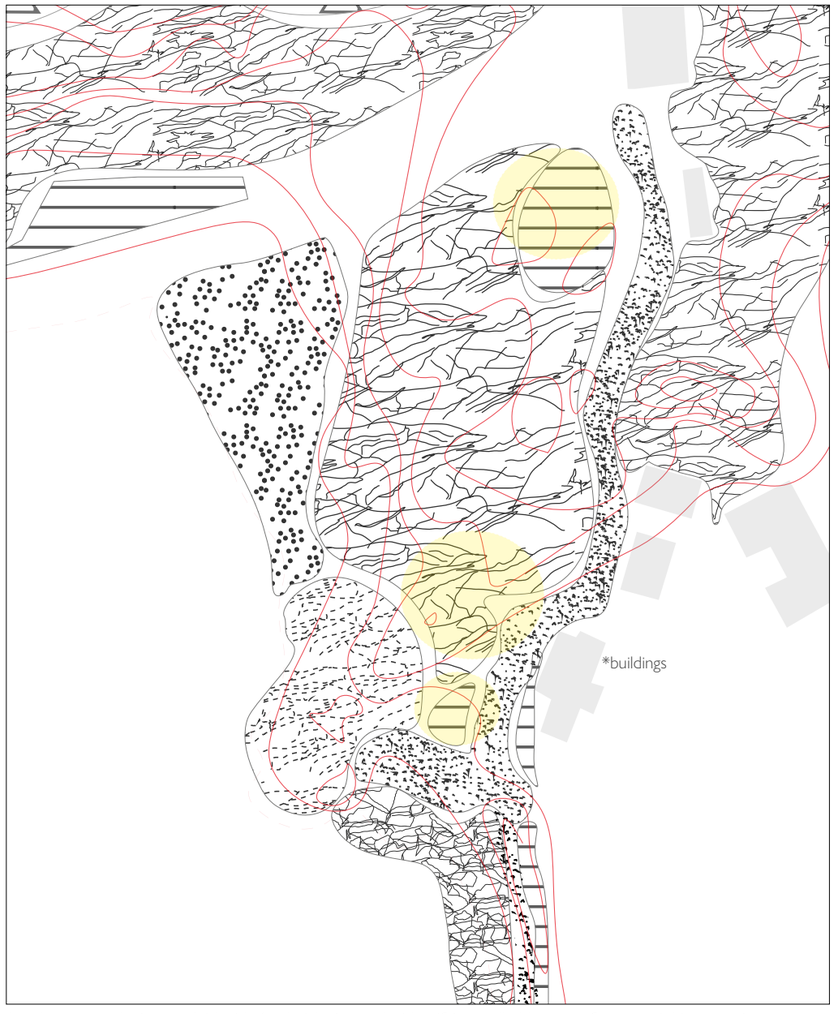
Grass, vegetation

* dry grass, meadow
* green, grey, white

softness ●○○○
hardness ●○○○

Table showing photos of typologies with associated tactile qualities and descriptions

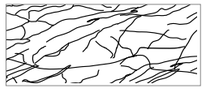
● *degree of softness / hardness*



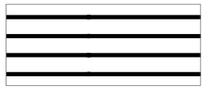
Landscape typologies overlaid with 1m height intervals, identifying walkable zones for potential interventions

1m interval, elevation shown in 1 meter steps

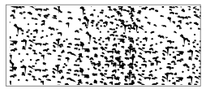
As a result of the map, walkable zones were identified as potential interventions



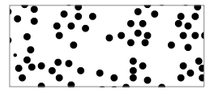
Grey bedrock



Grass, vegetation

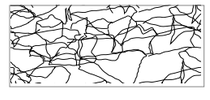


Gravel path



Sand beach

Pink, yellow granite



Stone shore

"Throughout history, people of all cultures have assumed that environment influences behavior. Now modern science is confirming that our actions, thoughts and feelings are indeed shaped not just by our genes and neurochemistry, history and relationships, but also by our surroundings."

(Gallagher, as cited in Nichols, 2015)

III THEORETICAL CONCEPTS

Multisensory Architecture
Adaptive Reuse
The Seaside and Wellbeing

This chapter presents the theoretical framework, focusing on multisensory architecture, adaptive reuse and on a summary of scientific literature on the positive wellbeing effects of spending time by the seaside.

Research highlights how the seaside supports human wellbeing through sensory engagement. Multisensory architecture and phenomenology offer a lens to explore architecture as an experience. This thesis connects these aspects by investigating how architectural interventions can support the sensory qualities of the seaside in winter.

While the focus is on building adaptation, grounded in adaptive reuse theory, strategies of sensory engagement remain central, positioning architecture as a medium to extend the site´s experiential character.

Multisensory Architecture

An individual´s perception of a place, and the positive or negative emotions that arise through interaction with it, is inevitably a subjective experience. No matter how curated it is, a spatial experience can not be completely controlled. Peter Zumthor (2006) that is the author of several phenomenology literature, argues that architecture can have a meaningful emotional impact because it forms part of our everyday reality.

Similarly, Juhani Pallassmaa emphasizes the importance of designing with the senses and emotions in mind, as places affect us physiologically and psychologically. He argues that the dominance of vision in architectural discource turns us into passive observers, detached from the experience. In contrast, engaging the senses of hearing, touch, smell and even taste, transforms us into participants instead (Pallasmaa, 2018). For Pallasmaa, the course of architecture is experiential and existential and must be encountered, lived, and felt rather than understood and analyzed intellectually.

The theory of *atmosphere* also highlights how architecture engages the senses to create spaces that resonates emotionally. Zumthor describes how people perceive the quality of a place through their sensory and emotional awareness.

Grounded by the writings of Zumthor and Pallasmaa I have approached my thesis by imagining atmospheres based on specific sensory intentions. From this foundation I have identified five recurring themes of sensorial architecture that are particularly relevant for this thesis.

Light

Zumthor (2006) emphasizes the role of "light on things" and he describes it as the intentional selection of materials, forms and openings with an awareness of how they receive, reflect and shape light. For him, daylight is not only about illumination, it is also an essential design element that brings out the tactile and emotional qualities of architecture. The way light creates shadows, reflections and highlights is kind of characterised with an almost spiritual dimension. It can be a subtle element that transforms the atmosphere.

Enclosure

Zumthor (2006) discusses the awareness that comes from being enclosed, where light filters in from above and horisontal visual connections is limited. This creates a space in which the visitor feels enveloped and gives a sense of privacy and introspection. To an outsider this type of enclosure often appears withdrawn and protected. The balance of between openness and enclosure is especially important at the threshold between land and sea, where maintaining a strong visual and sensory connection to the seaside environment becomes important. This idea relates to what Pallasmaa refers to as "bodily identification". He describes how we feel a sense of comfort, pleasure and protection when our body discovers its resonance within a space (Holl et al., 2006). Enclosed spaces support this physical and emotional grounding.

Smell of Space

Smell can evoke memories, emotions and a sense of place. Zumthor acknowledges the atmosphere as among the other elements, also being influenced b the lingering smells of materials, air and surroundings (Zumthor, 2006). This thesis does not focus extensively on olfactory design, it considers the placement of architectural elements in relation to the surroundings. For instance positioning seatings next to an exposed terrain in Gothenburg´s coast, can encourage people to spend time there and smell the specific scent.

Temperature of Space

The concept of "temperature of space" refers to both physical temperature and its perceived warmth or coolness through materiality and atmosphere (Zumthor, 2006). Materials affect our tactile and psychological perception. For instance, soft textiles can evoke a sense of lightness and warmth, while concrete can symbolise solidity and coolness. Furthermore, Zumthor argues that materials react to one another, and through their combination create a distinct atmosphere. He also emphasizes the potential of natural materials in architecture. Materials like wood, brick, stone reveal their texture, age and history and can awaken a deeper sense to them. As Pallasmaa (1996) notes these materials carry traces of their transformation and use through time, memories within architectural experience.

Sound of Space

A concept mentioned by Zumthor is "the sound of space" where he describes interiors like instruments, amplifying the sound and transmitting it. The specific shape of a room, along with the texture and density of its surfaces, influences how sound behaves and how its perceived. In one of his projects, Therme Vals (page 37), the presence of water becomes not only a sensory guide but also an acoustic element that defines the atmosphere through subtle echoes and resonance. He also discusses "acoustic intimacy", as the auditory qualities of a place contributes to the emotional tone. He writes "Sight makes us solitary, whereas hearing creates a sense of connection and solidarity". He says that sound has the ability to help us understand our closeness with space. (Holl et al., 2006). Even the simple act of walking, on stone, wood or gravel, produces sounds that anchor us physically and emotionally.

Adaptive Reuse

As cities grow denser and the environmental impact of new construction becomes more critical, adaptive reuse offers ways to take advantage of the existing. According to Plevoets and Van Cleempoel (2019) adaptive reuse is categorised in three main motivations: extending the life span of an existing building to meet the contemporary needs, reducing economic and material costs, and preserving cultural memory by keeping what has been standing through time.

This thesis applies adaptive reuse specifically to the existing Harbour Office in Fiskebäck, by integrating relevant concepts after thoughtful consideration from adaptive reuse theory. Building adaptation forms the overarching framework guiding the site-specific design strategies.

The concepts are primarily, building adaptation, where the building interior and exterior, material, function and structure is modified to met new needs. Elements of renovation are also included, addressing aesthetic needs in the exterior and comfort. Lastly, the idea of building in contrast is considered on a smaller scale, where new additions are made visually distinct from the original state, using contemporary materials and language.

The Seaside and Wellbeing

Architects shape physical realities and by doing so, they also shape neural, emotional and experiential realities (Juhani Pallasmaa, 2018). A key factor in shaping these realities is the human senses, especially vision, hearing, touch, smell and taste, which are closely linked to the nervous system that continously processess our surroundings. As Sternberg (2010) explains, we use the senses to gather information and interpret our surroundings.

Research shows that exposure and proximity to ´blue spaces´ is linked to positive mental health and wellbeing (Geary et al., 2023). Being on, in, around or near the sea has been shown to reduce stress and support mental restoration. Studies suggest that frequently spending time by blue spaces helps with relaxation and contributes to wellbeing (Nichols, 2015).

This thesis focuses on spatial architectural interventions that support wellbeing in winter by the seaside. To explore how architecture might support the positive effects in winter, I outlined the sensory engagements by the seaside. I reviewed literature and scientific studies on the wellbeing benefits of blue spaces, particularly the sea, and highlighted the environmental characteristic of the seaside and their connection to the senses.

However it is important to note that sensory engagement is one of many aspects to consider as an architect when designing with human experience in mind.

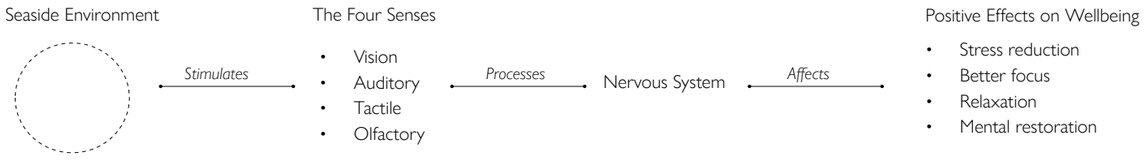


Diagram illustrating how the seaside supports wellbeing through sensory stimulation. By author.

Visual

The sense of *vision* plays an significant role in the context of the sea. The sea´s movement, reflectiveness and colors allows relaxation. According to the attention restoration theory the view of the ocean provides soft fascination, attracting just enough attention without demanding it, which allows for mental restoration.

Auditory

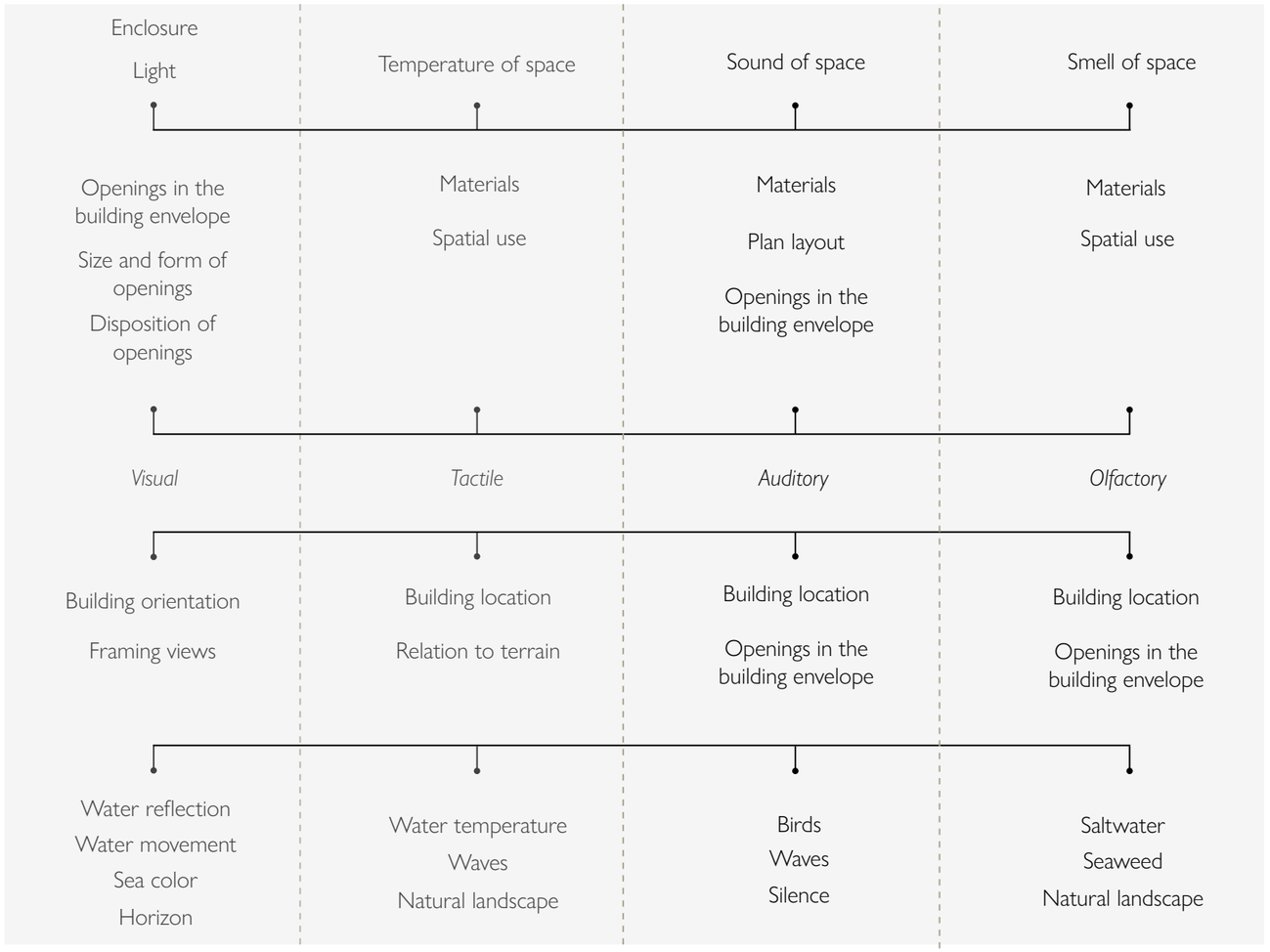
The sense of *sound* involves hearing the rhythm of waves, the sound of wind, distant birds and the silence that contrasts with urban noises.

Tactile

The *tactile* experience of water and natural elements is a key sensory interaction. Whether through swimming, feeling the movement of waves or the touch of the surrounding or building surfaces, these physical sensations contribute to the experience.

Olfactory

The sense of *smell* is closely tied to memory and emotion. The scent of saltwater, seaweed, rocks and surrounding vegetation is an important part of the olfactory interaction at the seaside that enables restoration.



An overview showing the wellbeing effects of architectural themes, their representations and the seaside environment on sensorial interactions

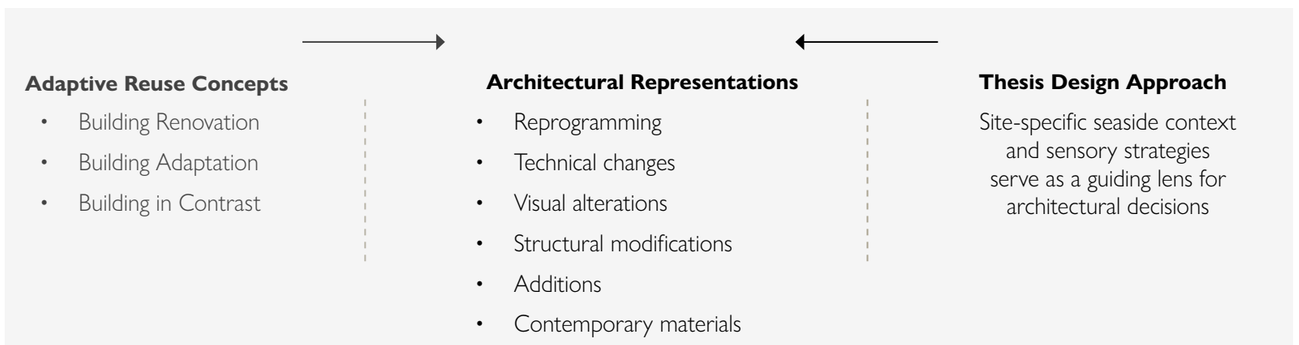


Diagram visualising the logic of applying adaptive reuse theory in this thesis. The seaside context remains central in guiding architectural decisions

IV REFERENCE PROJECTS AND DESIGN STRATEGIES

Design Strategy Matrix Across Built Projects
Design Strategy Toolbox
Concept Sketches

This chapter presents a matrix of design strategies across reference projects, and the design strategy toolbox. Lastly, conceptual sketchwork is presented.

Reference projects and Design Strategies

This chapter presents the reference projects that were selected through research on multisensory architecture and adaptive reuse, via online and library sources. By analysing visual material of each project, I identified architectural features that connect with the theoretical concepts and translated them into conceptual design strategies. These strategies formed a conceptual toolbox, presented on the following pages. The toolbox guided the design project development, elaborated in the implementation chapter.

The table *(right page)*, summarizes the selected reference projects, authors, locations and brief rationale for their relevance. During the selection of projects, I avoided selecting projects that would repeat the theoretical concepts and senses similarly. Furthermore, the projects were selected for their ability to highlight distinct sensory and theoretical concepts, while also revealing potential to be applied at the project site, Fiskebäck, and to support wellbeing during winter

Reference projects were analysed to form a design strategy matrix, which then developed into a toolbox and tested through conceptual sketching, leading into the Implementation chapter.

Project Name	Author, Year	Located	**Reason of Choice**
Saint Benedict Chapel	Peter Zumthor, 1988	Sumvitg, Switzerland	Small spiritual space with solid walls and high-level openings, emphasizing *light*, *enclosure,* and *vision*.
Serpentine Pavilion	Peter Zumthor, 2011	London, UK	High surrounding walls, emphasizing focus on the courtyard, and the olfactory, and *visual* senses and *theme of enclosure*.
Villa Kjaerholm	Hanne Kjaerholm, 1962	Rungsted, Denmark	Located by the coast with large openings towards the sea, *visual* connection. Material choices emphasize *thermal qualities*
Therme Vals	Peter Zumthor, 1996	Vals, Switzerland	Thermal bath designed to improve *wellbeing*. Contrast of materials and plan layouts engages *vision* and *touch*
Chapel of Music	Vector Architects 2023	Quinhuangdao, China	*Sound of Space*: Plan layout enriches *auditory* experience, integrating spatial form with acoustic quality.
Bruder Klaus Kapelle	Peter Zumthor, 2007	Mechernich, Germany	Small scale spiritual space with top-light placement, emphasizing *light* and the *theme of enclosure*
Kolumba Museum	Peter Zumthor, 2007	Cologne, Germany	Unique light qualities enhance the *visual* experience. The material choice of the added walls offers *tactile* depth
Coal Drops Yard	Heatherwick Studio, 2018	London, UK	Building adapted through added volume on roof, *visually* remarkable from existing structure, emphasizing the addition
Community Center	Strå Arkitekter, 2023	Orje, Norway	Barn form preserved in adaptation, with red façade, roof, and door aligned with the original character
Sterrenbos Youth Building	Atelier Vens Vanbelle, 2023	Nazareth, Belgium	Roof extension forms sheltered outdoor space, protecting from rain and *visually* emphasizing roof shape
Balenmagazin	TRANS architectuur, 2017	Gent, Belgium	Roof addition blending harmoniously with existing volume in adaptive reuse

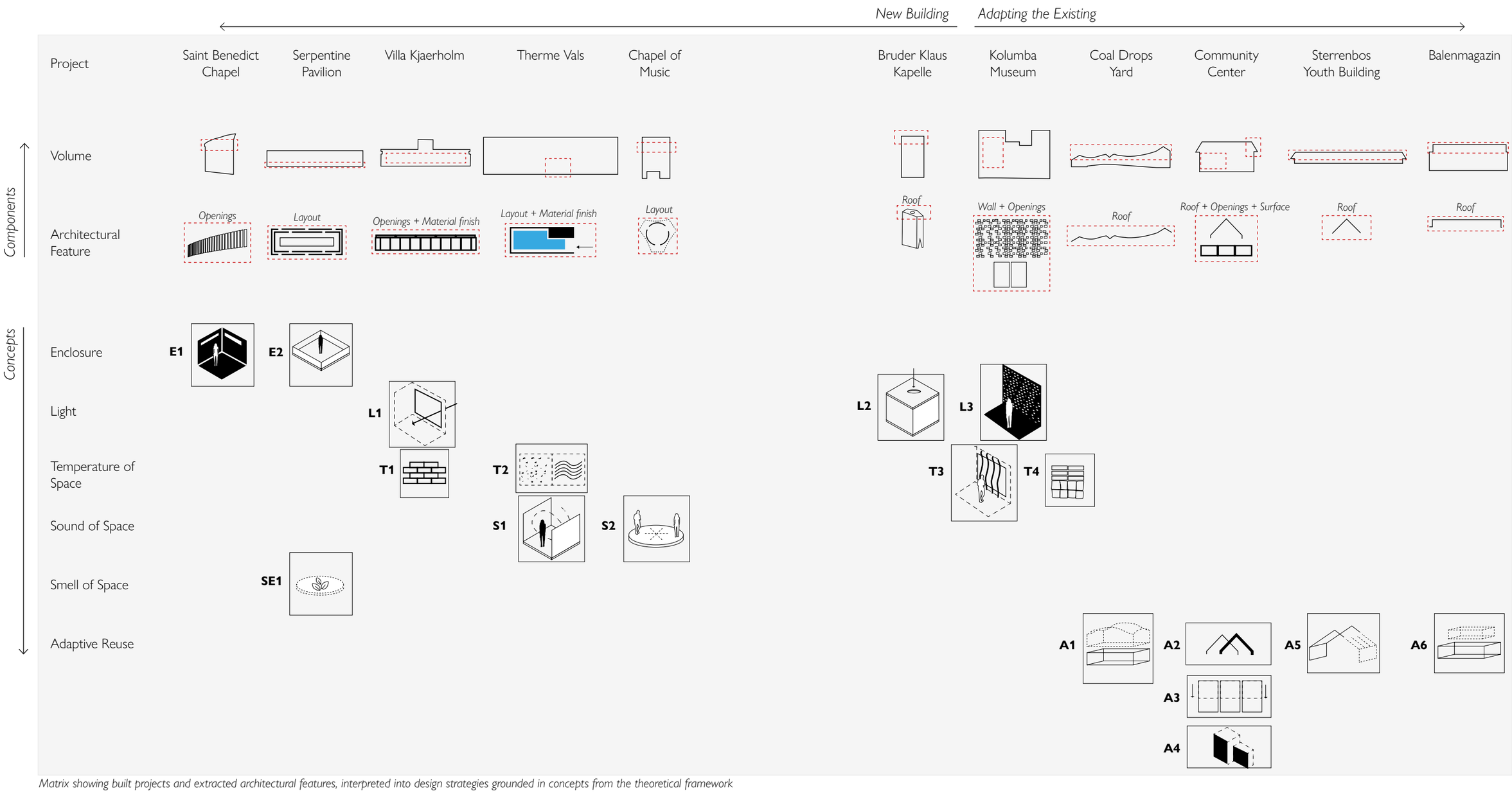
Table showing chosen reference projects due to relevant features to the outlined theoretical framework.

DESIGN STRATEGY MATRIX ACROSS BUILT PROJECTS

Through visual analysis of each project, I identified architectural features linked to the theoretical concepts and translated them into conceptual design strategies.

While the interpretations are subjective, the strategies were grounded by linking architectural components to the concepts outlined in the theoretical framework. To support this subjective approach, I imagined how these features might be experienced in use. This method combined both objective and subjective approaches, which was necessary given that the thesis focuses on architectural experience and human wellbeing.

The matrix shows each project and the extracted architectural features, marked in red on the reference volumes. These are linked to the concepts below, each represented by a symbolic sketch. On the following pages, these form a toolbox of design strategies.



Matrix showing built projects and extracted architectural features, interpreted into design strategies grounded in concepts from the theoretical framework

DESIGN STRATEGY TOOLBOX

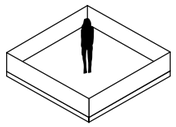
Design strategies translated from architectural features in reference projects (see matrix on previous spread)
Each design strategy engages one or more senses to support architectural experience and wellbeing.

Vision *Auditory* *Olfactory* *Tactile*

Mostly Solid Wall

Placing openings above eye level, with a higher proportion of solid walls than windows

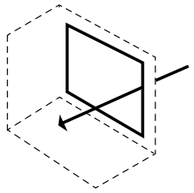
E1



Courtyard Focus

Creating a non-visual connection to the exterior, with a focus on the interior courtyard

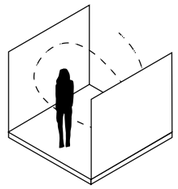
E2



Direct Visual Contact

Windows covering a large portion of the facade, offering views that enhance well-being

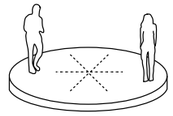
L1



Sound Contact

This strategy focuses on keeping one or two sound sources in the space to enhance the auditory experience

S1



Centralised Sound Source

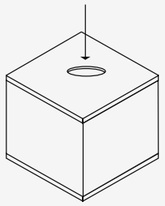
The sound source is placed centrally in the room, allowing participants to experience the sound from various directions

S2

Vegetation Contact

This strategy involves placing a garden or vegetation near areas of human movement, or viceversa, to enhance the sensory experience of smell

SE1



Top Light

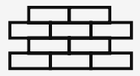
Light is introduced from above, enhancing the visual connection to the sky

L2

Unique Light Form

Brick placements allows unique forms of light to enter the space

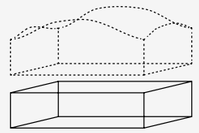
L3



Brightened Bricks

Painting the bricks white to create a lighter visual impression

T1



Contrasting Form

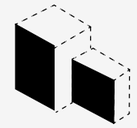
A new volume is added to the existing structure, with a form contrasts with or does not mimic the original

A1

Preserve Roof Form

The original roof form is preserved and respected through adaptive reuse

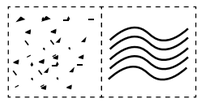
A2



Matching Exterior Color

This strategy involves painting the exterior to match the original color pallette

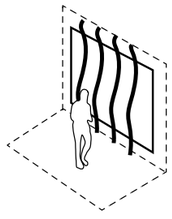
A4



Material Contrast

This design strategy combines hard materials with warm, softer elements. In the reference project, concrete and water are primary materials in the room

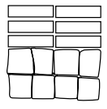
T2



Soft Textile

Long, semi-transparent curtains placed in front of large windows, allowing light to filter through and create a tactile, physical and psychological effect

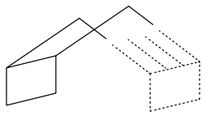
T3



Material Juxtaposition

This strategy adapts the existing building with modern materials, clearly distinguishing the original from the new additions

T4



Roof Structure Extension

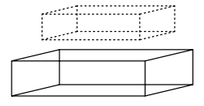
This strategy extends the original roof angle through the addition of a new structure

A5

Expanded Windows

This strategy involves extending existing windows to increase natural light and enhance the visual connection between indoor and outdoor spaces

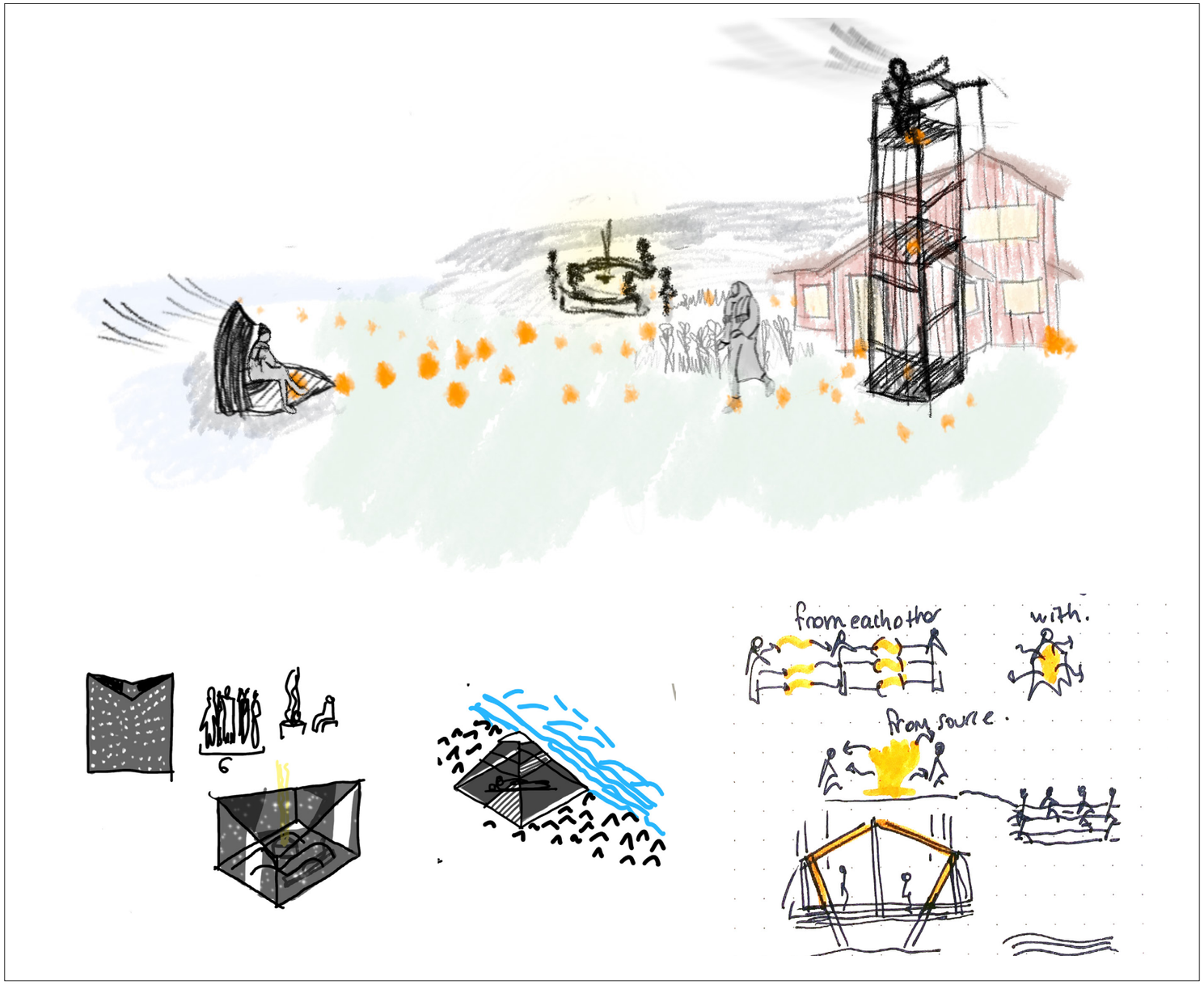
A3



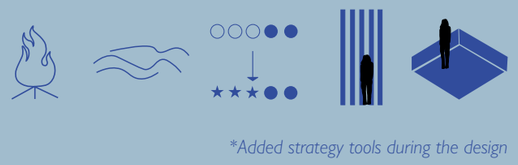
Harmonious Adaptation

The added extension closely mirrors the original structure´s shape

A6



Initial sketches developing the concept, exploring tool combinations, journey between placements, warmth and light



**Added strategy tools during the design*

V IMPLEMENTATION

West Pavilion
South Pavilion
East Pavilion
Harbour Office, Sauna and Shelter

This chapter presents the architectural interventions developed through the toolbox strategies. Each intervention reflects site-specific qualities *(boundaries and landscape mapping)*, applying selected design tools to support winter wellbeing through multisensory experiences. Three new pavilions and the adaptation of the Harbour Office form the project response to the research questions.

Pavilions are located along the most frequently used path, that was identified in the analysis *(context chapter paige 22-23)*. This placement aligns with the site´s real circulation patterns. Adapting the Harbour Office into a public facility is also positioned in relation to this most used path.

1

2

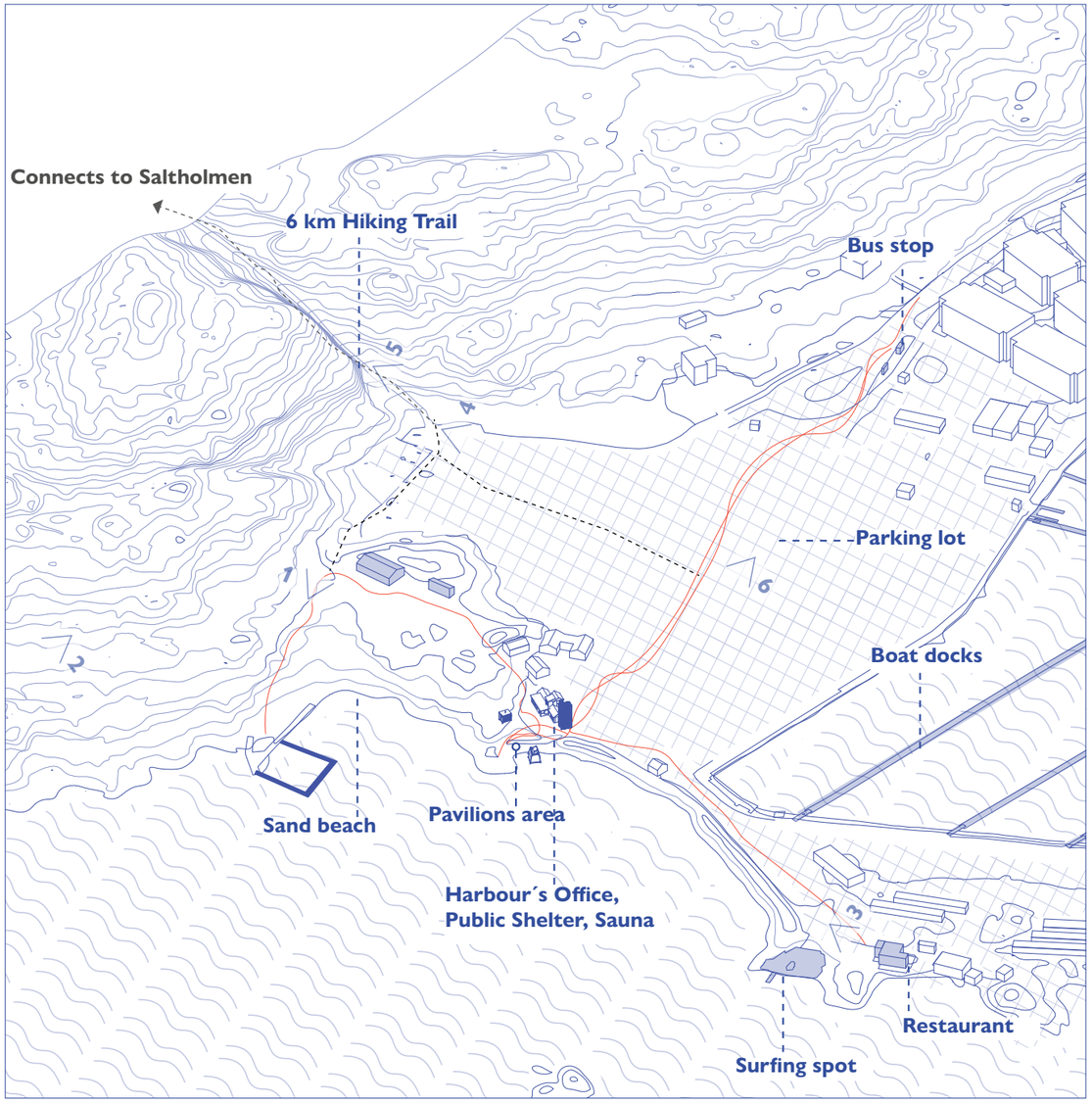
3

4

5

6

Photos located on map (right page), by author, January 2025



Map of Fiskebäck, showing surrounding buildings and connecting paths. Pavilions area and the Harbour´s Office is located along the most used path

Most used path

Pedestrian path

A winter day view of the site, showing the relationship between the pavilions and Harbour Office building with eachother and with the site. From left to right: South pavilion, West pavilion, East pavilion and Harbour Office (behind East pavilion)

The pavilions are located along the site´s most frequently used pedestrian path, specifiacally positioned on lower elevations to ensure easy accessibility. The South and West pavilions are similar in total height, intentionally kept low to preserve visual permeability across the site. *(Orientation, elevation and location are further elaborated on page 56-57 West pavilion, and page 62-63 South pavilion.)*

East pavilion, adjacent to the Harbour Office, Sauna and Shelter, complements it with verticality. As the tallest structure, its located at the inland edge. (*Further details East pavilion page 68-69).* Together, these interventions offer shelter, particularly valuable in the site's winter climate.

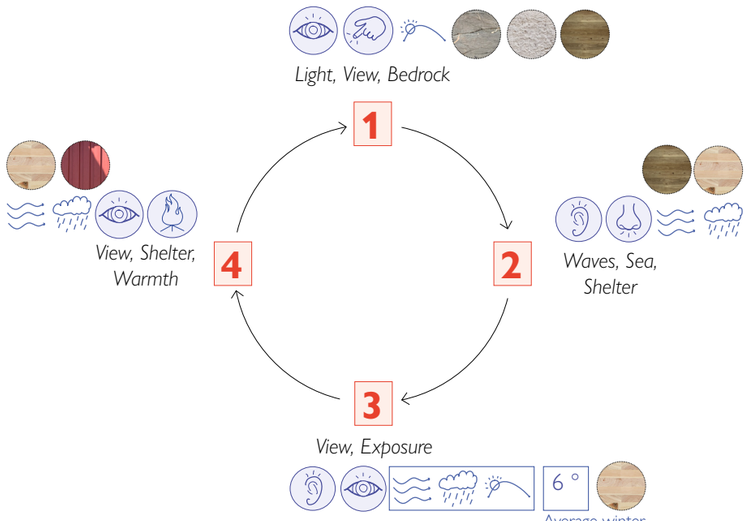


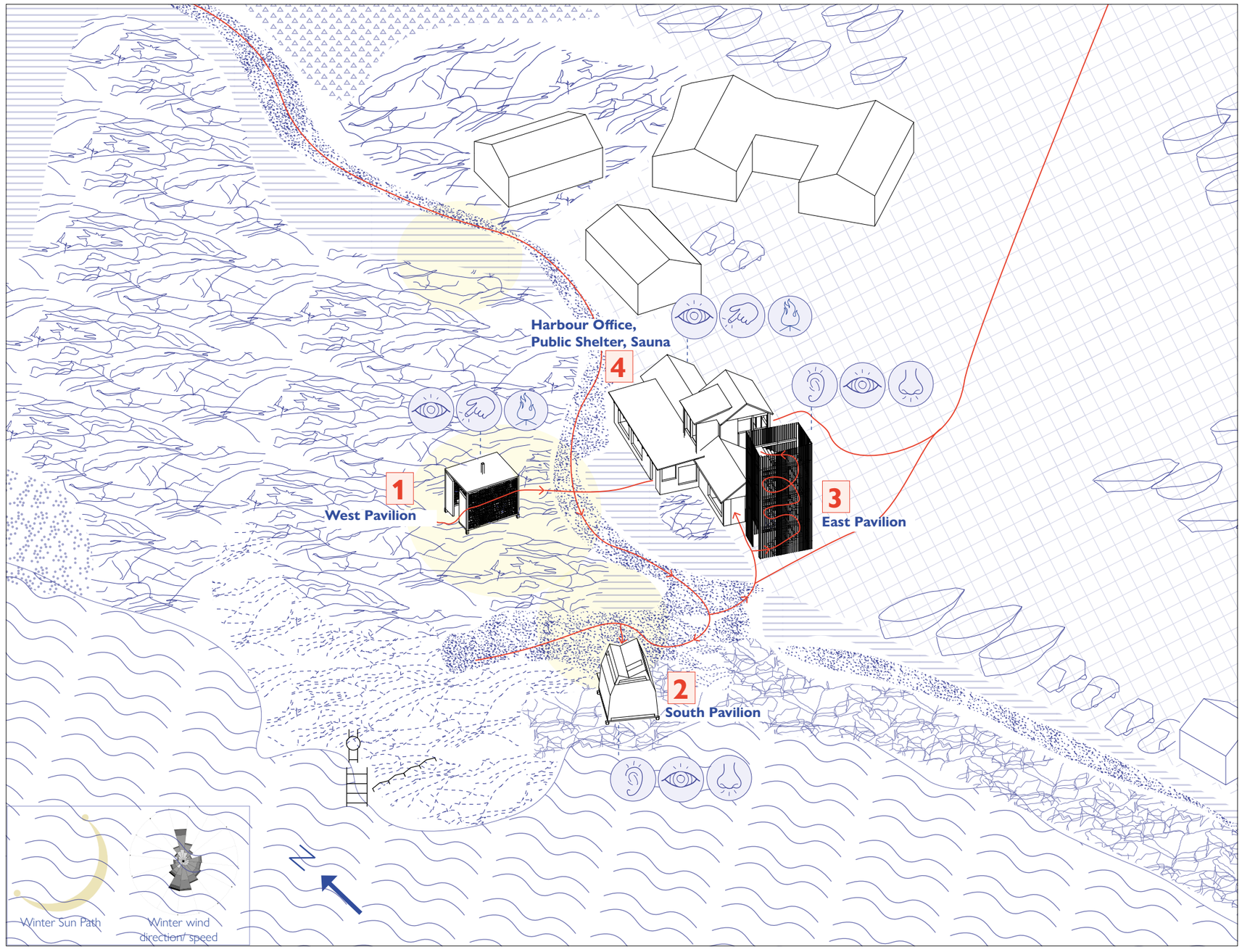
Diagram showing sequential journey among interventions for winter wellbeing (Architectural features - Seaside - Positive impact on wellbeing, page 32-33)

The interventions together form a continous sequential journey, beginning with semi-sheltered contact with bedrock, views and sea (1-2), to full seaside exposure at height (3) and to a sheltered building offering warmth, a sauna and visual + vegetation contact (4).

The most frequently used path guided the overall placements of the pavilions for alignment with the site´s real circulation patterns. West and South pavilions are placed according to walkable terrain and landscape typologies, identified in the analysis (*context chapter page 24-25*). The walkable zones correspond to the site's lowest natural terrain, where elevation is minimal and movement is most accessible.

The West pavilion is located on exposed grey bedrock for the tactile experience. The South pavilion sits closest to the sea, overlapping with the walkable zone and the auditory experience of the waves. The East pavilion is placed on flat asphalt, adjacent to Harbour Office, aligning with its design intentions (*east pavilion on page 68-69*).

Axonometric map of project site, showing Pavilions and Harbour´s Office and their relation to the landscape typologies, identified walkable zones and most used paths.



Vision Auditory Olfactory Tactile Warmth

Bedrock Brick Wood Timber Wood

Handrail

Rescue Station, Ladder

Most used path with added paths

Walkable zones

Sand beach *softness* ●●●●

Grey bedrock *hardness* ●●●○

Stone shore *hardness* ●●●●

Pink/yellow granite *hardness* ●●●○

Grass, vegetation *softness* ●●○○

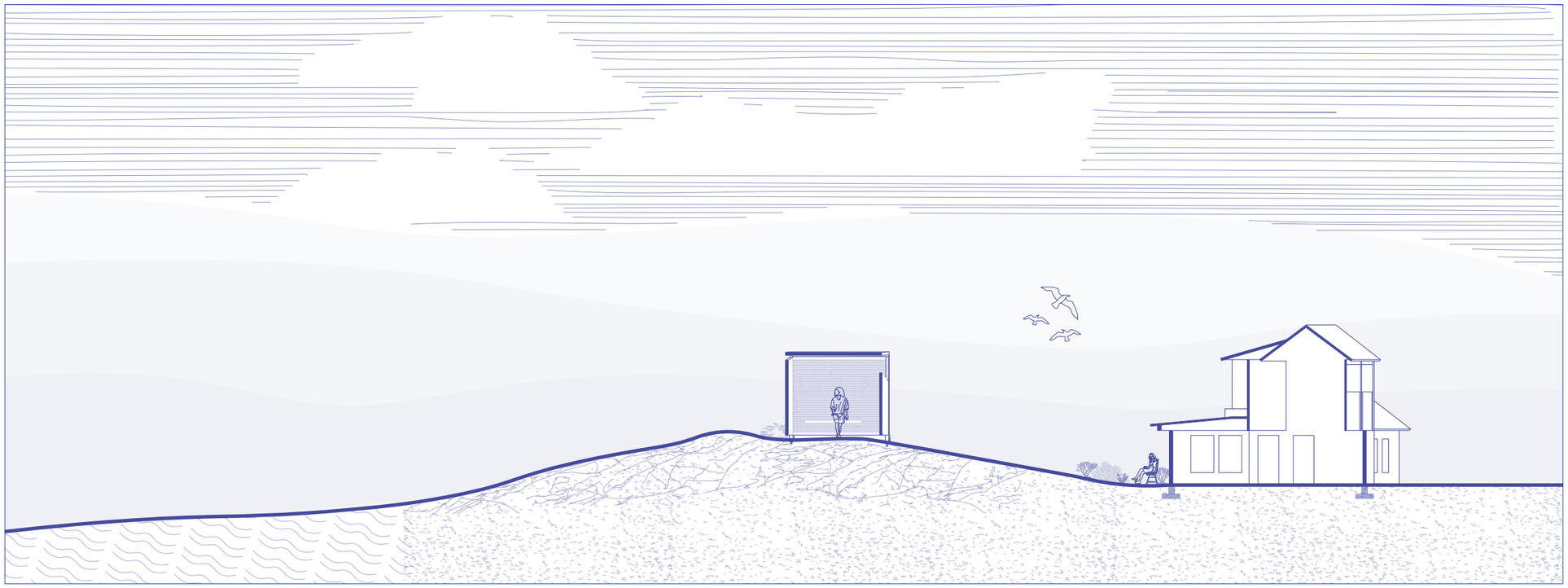
Bushes, low trees *hardness* ●○○○

Sea

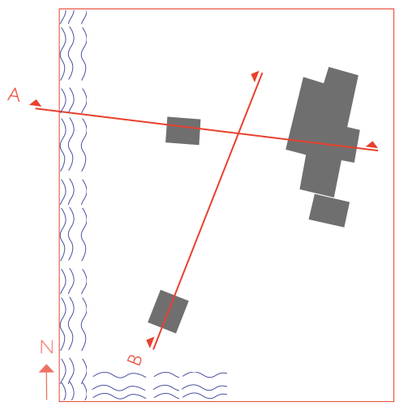
Gravel path *hardness* ●●

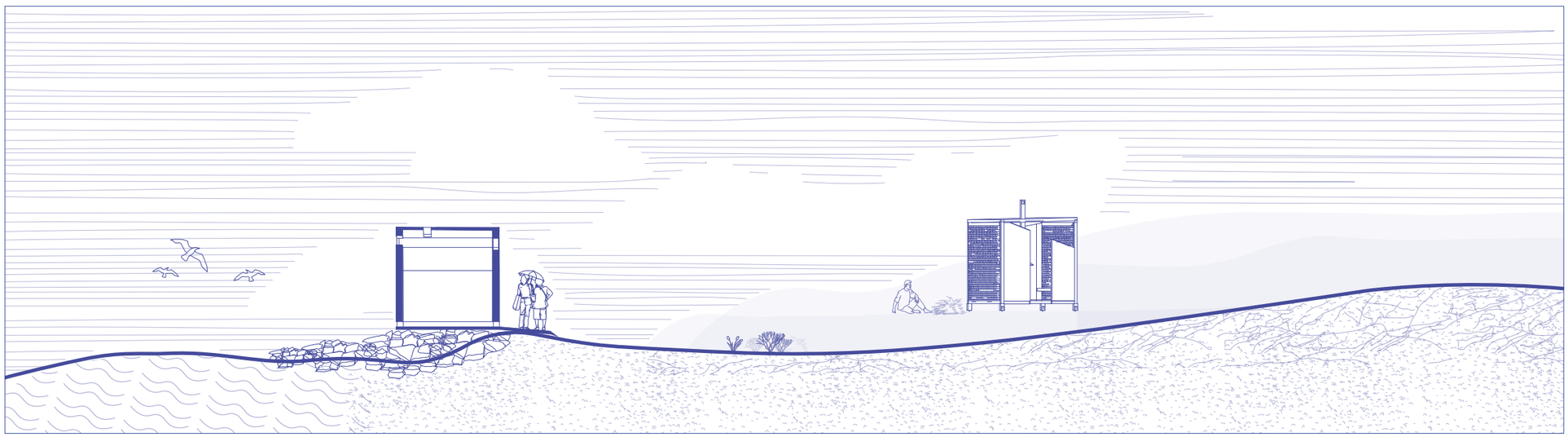
Asphalt *hardness* ●●●●

Perceived boundaries that guide the movement on site are shaped by elements like buildings (*context chapter page 22-23*). Visual permeability is affected by height and openings. This analysis informed the decisions to keep pavilion heights relatively low. Both pavilions shown here are lower in total height than the Harbour Office. The West pavilion, located on a higher terrain, aligns in elevation with the South pavilion.



SECTION A - From left to right *West Pavilion, Harbour Office Sauna and Shelter*





SECTION B - From left to right *South Pavilion, West Pavilion*

0 10 m

1:200 (A3) on spread

DESIGN STRATEGY TOOLBOX

The toolbox applied through a selection process

How can spatial architectural interventions transform a public seaside site on Gothenburg's mainland coast to support wellbeing during winter?

The seaside characteristic traits and sensory engagement *(The Seaside and Wellbeing, page 30-31)* are central to its positive impact on winter wellbeing. The toolbox, derived from reference projects with the lens of multisensory architecture and adaptive reuse concepts *(page 28-29)*, went through a selection process guided by the site´s context and thesis research questions, linking wellbeing in winter to specific architectural feature strategies.

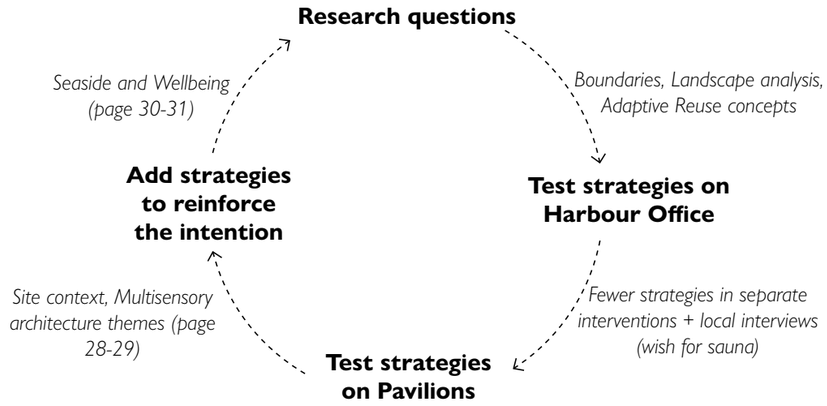


Diagram showing the toolbox application process

These strategic tools were added to reinforce the intention that is specific to the site context. *Fire Element* offers warmth in winter temperatures. *Terrain Contact* is grounded in natural terrain and its tactile qualities. *Function Continuity* is central because of locals expressing a need for a sauna, and the intention to transform the private office building into a public one. *Continuous Visual View* and *Minimal Enclosure*, are grounded in the perceived boundaries, as the east pavilion is the tallest structure, and in theoretical framework, particularly light and enclosure *(page 28-29)*.

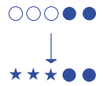
Added Strategies

Fire Element

Central fire element providing warmth and gathering point

Terrain Contact

Direct physical contact with the natural terrain



Function Continuity

Keeping some of the original functions after the adaptation

Continuous Visual View

Consistent transparency throughout.

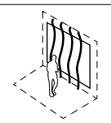
Minimal Enclosure

Physical exposure to the surrounding environment

Semi-shelter *(microclimate conditions)*
Landscape, Boundaries Analysis
Multisensory themes
Wellbeing-seaside literature *(view, natural landscape)*
→ Tool Selection → Design decisions

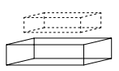
Diagram showing decision inputs applied for West pavilion (page 56-57)

Not Selected Strategies



Soft Textile

Preserve Roof Form



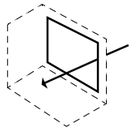
Harmonious Adaptation

Roof Structure Extension

Some of the strategic tools were discarded in the process, due to their weak connection to the site context, theoretical framework or the winter wellbeing focus this thesis aims to support.

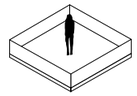
Selected Strategies from the Toolbox

Mostly Solid Wall

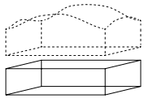


Direct Visual Contact

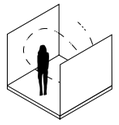
Vegetation Contact



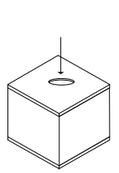
Courtyard Focus



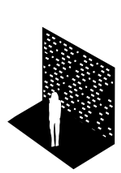
Contrasting Form



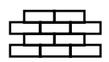
Sound Contact



Top Light



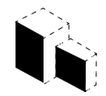
Unique Light Form



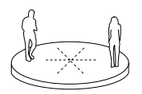
Brightened Bricks

Material Contrast

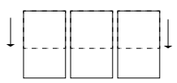
Material Juxtaposition



Matching Exterior Color



Centralised Sound Source



Expanded Windows

Testing the strategies in combination initially on the Harbour´s Office building revealed that the intention required new additions. This would contradict the adaptive reuse concepts and the boundaries analysis *(page 22-23)*, where lower height, transparency and placement guides the perceived boundaries on site. Therefore, fewer strategic tools were tested on separate pavilions. Grounded in the theoretical framework *(with a focus on the positive wellbeing impact, research questions page 30-31)*, tools that engage the senses and are site based were selected. Sun position, interaction to the landscape *(page 24-25)* shelter from wind and rain, warmth, and direction of light were prioritised.

WEST PAVILION

Vision *Auditory* *Olfactory* *Tactile*

1 *First sequence of winter site journey*

Unique Forms of Light

Space between bricks lets varied light in. Combined with Courtyard Focus, it enhances the theme of light and responds to low winter daylight.

Brightened Bricks

Light colored brick walls lighten the visual impression, supporting the theme Temperature of Space. Combined with Unique Forms of Light, they influence the perceived material warmth while allowing the bedrock to remain visually centered.

Courtyard Focus

Enclosure by walls enhances focus on the interior, supporting the Enclosure theme. It brings visual attention to changing daylight, terrain, fire, while providing shelter from the exposed seaside.

Sun position, wind, rain

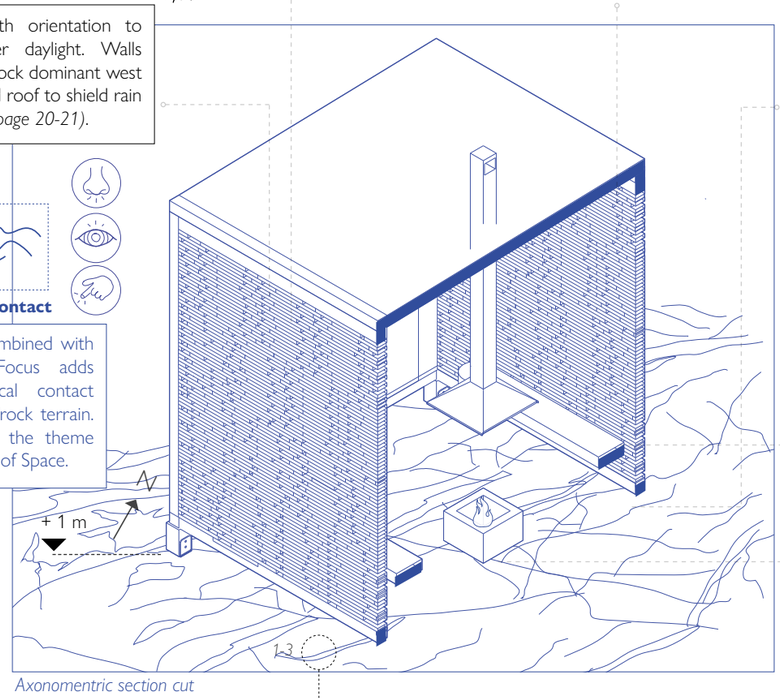
South - north orientation to benefit winter daylight. Walls oriented to block dominant west winds. Inclined roof to shield rain *(Local climate page 20-21)*.

Terrain Contact

This tool, combined with Courtyard Focus adds direct physical contact with the bedrock terrain. It relates to the theme Temperature of Space.

Material Contrast

Wooden bench, frame structure and brickwall offer visual and tactile contrast, supporting the theme Temperature of Space, through natural textures placed on the site´s bedrock.



Axonometric section cut

Fire Element

Combined with the other tools, Fire Element adds warmth to the cold seaside climate and offers a social gathering point. This tool supports the themes of Light, Temperature of Space, and Sound of space.

Landscape

The pavilion is placed on the bedrock with grass and water scattered across, and the elevation is at + 1 meter higher than the most used path. This placement makes it easier to access.

During casual interviews locals mentioned slippery terrains, therefore pavilion proximity to the most used path is prioritised.

Landscape

1 Bedrock
softness ○○○○
hardness ●●●●

2 Grass
softness ●●○○
hardness ●○○○

3 Water, Gravel
softness ●●●●
hardness ○○○○

Structural

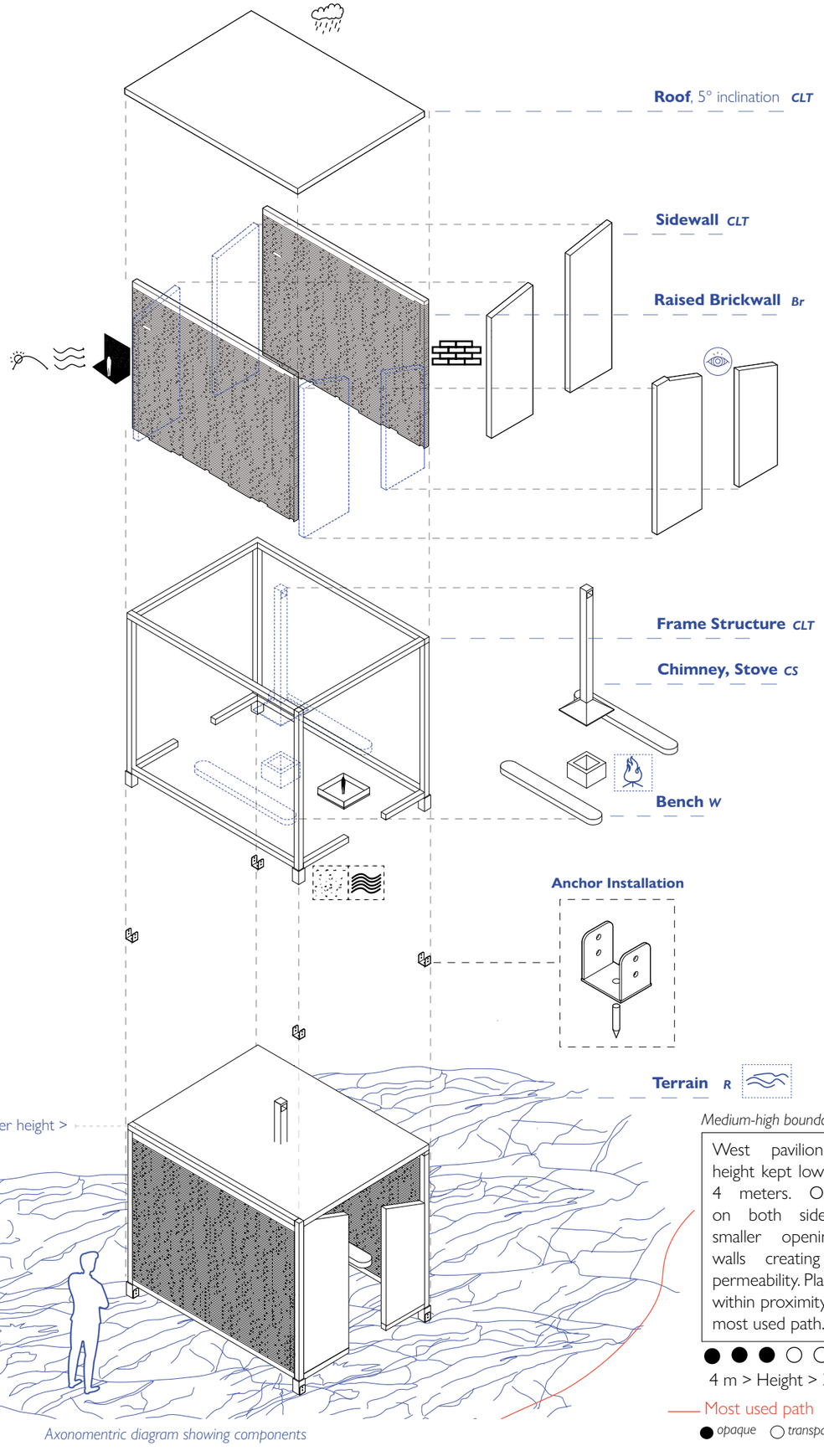
Cross Laminated Timber
Shortname in the axonometric: (right paige) ***CLT***

Corten Steel
CS

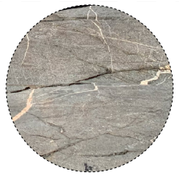
Wood Furnishing
W

Bright Brick
Br

Bedrock
R



Axonometric diagram showing components

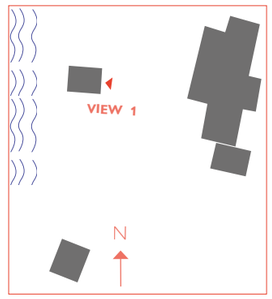


Bedrock

Bright Brick

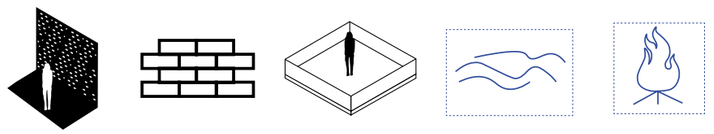
Wood Furnishing

Brick and wood contributes to a warm touch and perception, supporting the theme Temperature of Space.



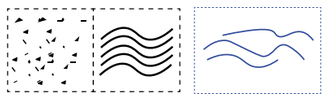
A winter evening view, showing unique forms of light, a direct view to the sea and people sitting by the warming fire by touching the bedrock

VIEW 1



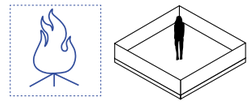
A day view, showing the west pavilion placement on terrain, with two people walking towards it for shelter, warmth and experience..

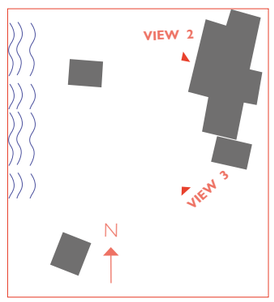
VIEW 2



A night view of the west pavilion, a source of warmth and light in the dark

VIEW 3





SOUTH PAVILION

Vision Auditory Olfactory Tactile

Top Light

Top light to see the sky directly and let light in from above. This tool supports the theoretical framework theme of Light. Combined with Mostly Solid Wall, it increases light and keeps visual connection to the seaside environment.

2 *Second sequence of winter site journey*

Mostly Solid Wall

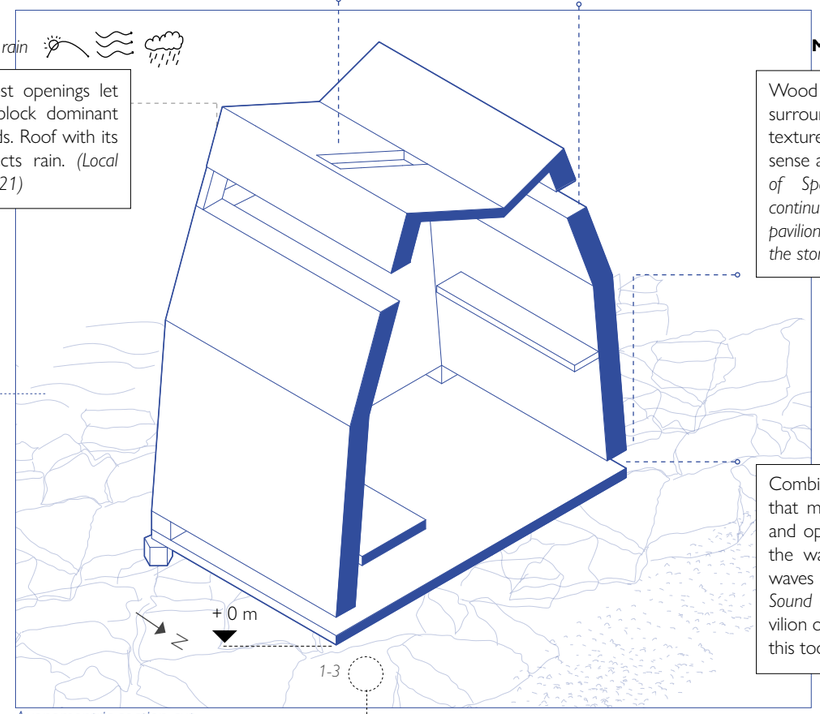
Small, enlosed space with high-level openings, minimizing outside distractions *(theme of Enclosure)*. Visual connection to interior and focus on oneself. Combined with Sound Contact, it centralises the sound of waves, where the pavilion is placed.

Sun position, wind, rain

South, east, west openings let light in. Walls block dominant west-south winds. Roof with its inclination deflects rain. *(Local climate page 20-21)*

Material Juxtaposition

Wood contrasts with the surrounding rocky terrain, adding texture varietyW for the tactile sense and visual depth *(Temperature of Space). These cutout stones continue along the coast. Placing the pavilion here brings people closer to the stones and the sea.*



Axonometric section cut

Sound Contact

Combined with Mostly Solid Walls, that minimises outside distractions, and openings on the lower part of the walls the sound and smell of waves enters the pavilion *(Theme Sound of Space)*. By placing the pavilion on stones, adjacent to the sea, this tool fits well.

Landscape

1 Stone — softness ○○○○ hardness ●●●●

2 Gravel — softness ●○○○ hardness ●●●○

3 Grass — softness ●●○○ hardness ●○○○

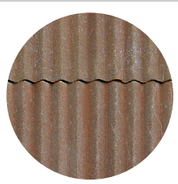
Landscape

The pavilion stands on a wooden floor set over stone, gravel, and grass, grounded in the natural terrain to provide texture and accessibility. It is at similar ground elevation with the most used path.

During casual interviews locals mentioned slippery terrains, therefore pavilion proximity to the most used path is prioritised.

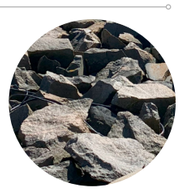
Structural

Cross Laminated Timber — ***CLT***



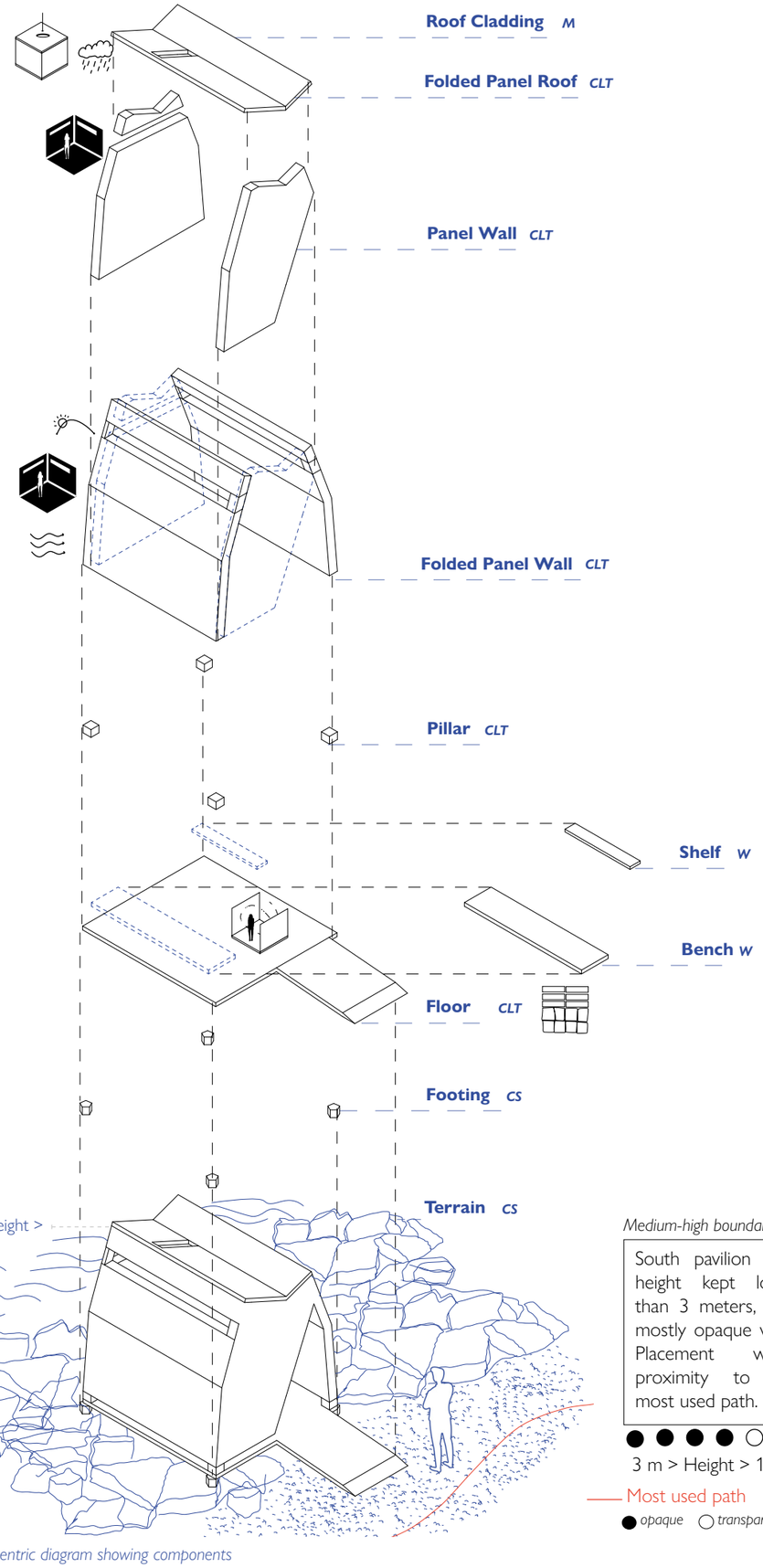
Metal Seam — ***M***

Wood Furnishing — ***W***



Stone — ***CS***

Shortname in the axonometric: (right paige)



Axonometric diagram showing components

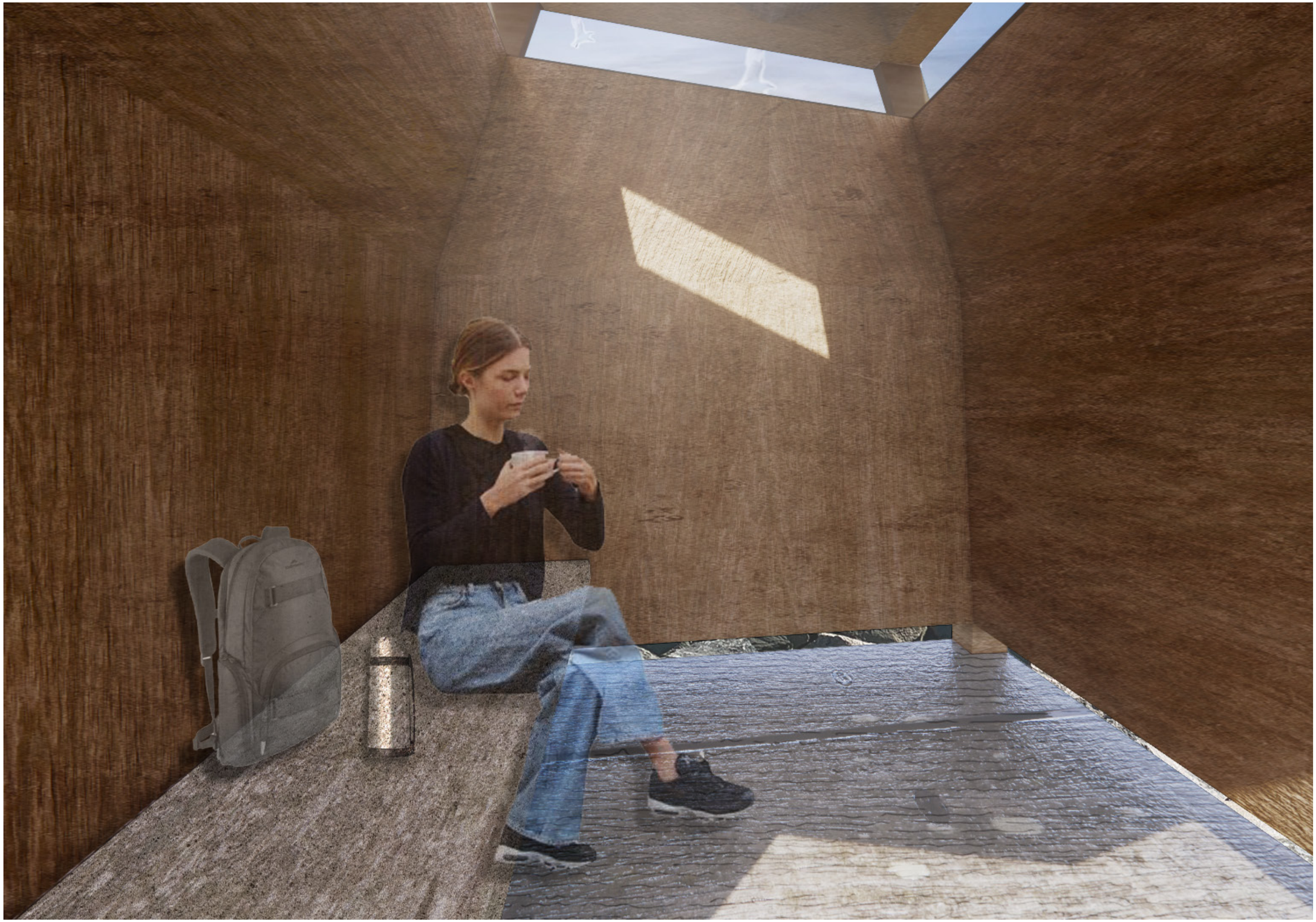
Medium-high boundary

South pavilion total height kept lower than 3 meters, with mostly opaque walls. Placement within proximity to the most used path.

●●●●○ 3 m > Height > 1.5 m

Most used path

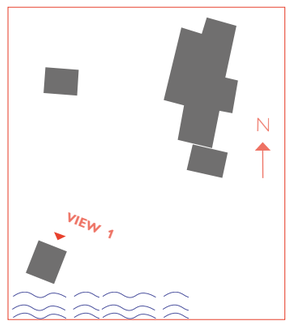
● *opaque* ○ *transparent*



Cross Laminated Timber

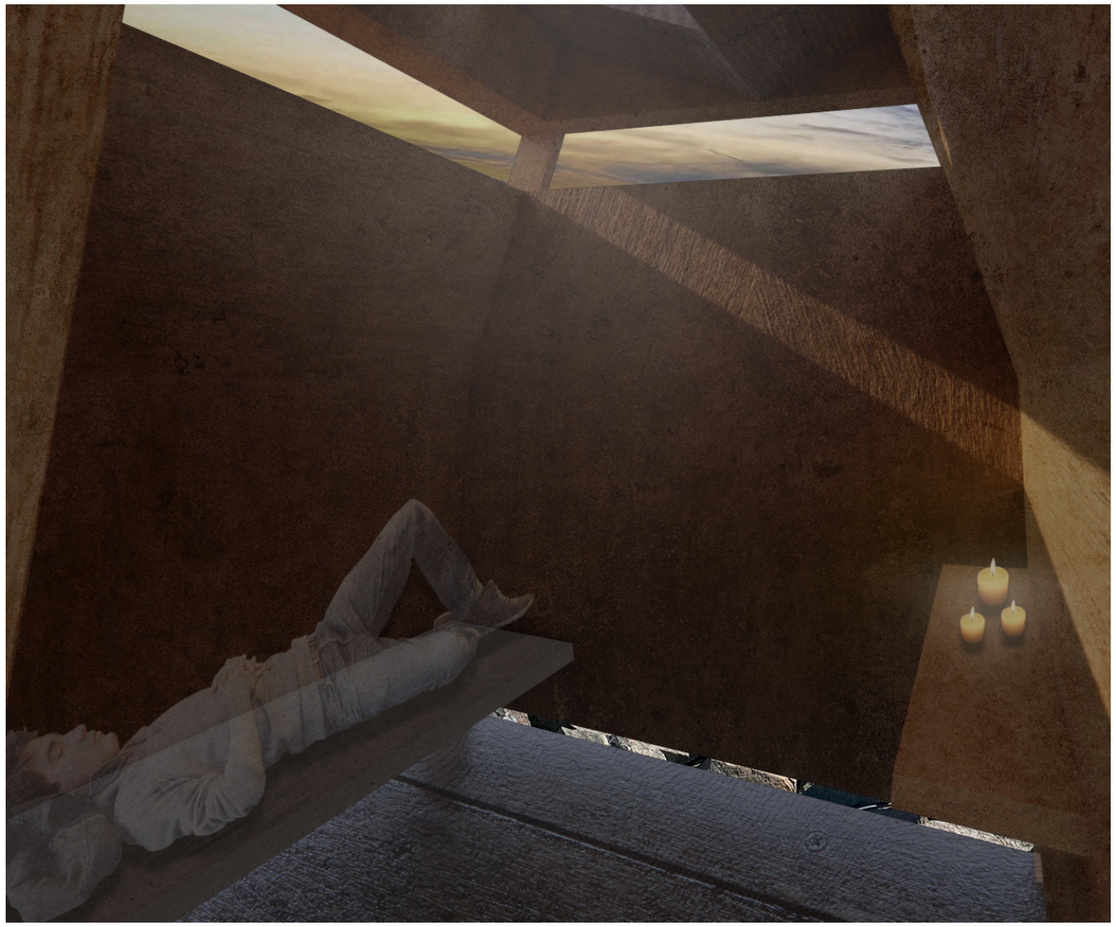
Wood Furnishing

CLT and wood contributes to a warm touch softens the top light, while shaping resonance of the sound of waves. This supports the theme of Sound of Space and Temperature of Space.



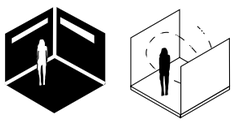
Interior view of the South pavilion, showing s a person having a pause with a cup of tea, sheltering from cold winter winds, hearing the sound of the sea.

VIEW 1



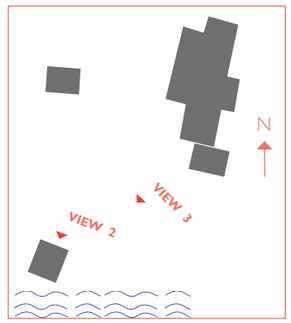
Interior evening view, a person lying down hearing the waves, having direct visual connection to the sky.

VIEW 2



Exterior view showing the South pavilion on site.

VIEW 3



EAST PAVILION

Vision *Auditory* *Olfactory* *Tactile*

3 *Third sequence of winter site journey*

Continuous Visual View

Uninterrupted gaps between the wooden ribs allows visual connection with outside throughout the ascent *(Theme of Light)*. This consistent transparency allows evolving views towards the seaside environment.

Minimal Enclosure

Through minimal enclosure at the top of the pavilion, the visitor is exposed to the seaside micro-climate. Combined with the Sauna below it (in the Harbour´s Office), this tool supports the theme of Temperature of Space. This also offers a birdview over the seaside, and auditory and olfactory experience unique to this height.

Sun position, wind, rain

South, east, west openings let light in. Ribs provide blockage from dominant west-south winds. The top is exposed due to choice of design tool *(Local climate page 20-21)*

Sauna

+ 0 m

Unique Light Form

Ribs placed with varying spaces between let light in the pavilion, while standing on the platforms. Combined with Continous Visual View, it enhances the theme of Light, and responds to winter daylight.

Axonomentric section cut

Structural

Cross Laminated Timber — ***Shortname in the axonometric: (right paige)*** **CLT**

Recycled Galvanized Steel — **St**

Asphalt — **A**

Landscape

Adjacent to the Harbour´s Office building, the pavilion stands on asphalt ground, located at the inland edge. It is placed on the same ground elevation with the most used path, which makes it easy to access.

hardness

During casual interviews locals mentioned slippery terrains, therefore pavilion proximity to the most used path is prioritised.

Vertical Frame Ribs *CLT*

40x40 mm *CLT*

Structural Frame 150x150mm *CLT*

Stair Assembly *St*

9 meter height >

Asphalt Ground *A*

Medium-high boundary

East pavilion height is 9 meter. However through its transparent vertical frame it is visually less opaque than a high boundary. Placement within proximity to the most used path.

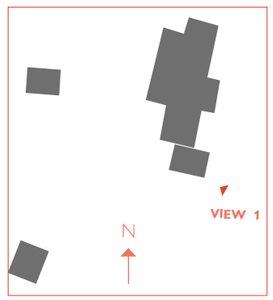
9 m > Height > 8 m

Most used path

opaque *transparent*

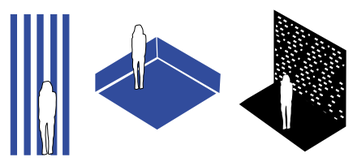
Axonomentric diagram showing components

The timber railings has a durable warm touch, in contrast to the exposed experience to the cold winter wind. (Theme of Temperature of Space)



View at the top of East pavilion, in the evening of a cold day, showing two people watching, hearing and smelling the seaside.

VIEW 1



THE HARBOUR OFFICE, SAUNA AND SHELTER

4 *Fourth sequence of winter site journey*

Vision *Auditory* *Olfactory* *Tactile* *Warmth*

This intervention applies adaptive reuse and multisensory strategy design tools to transform the Harbour Office into a partly public space. Its inland location, existing form, and coastal climate influenced each tool selection and intention. Casual interviews with locals, expressing a need for a sauna to complement winter bathing, directly informed the decision to retain and adapt parts of the building.

Adaptive Reuse Framework

Building Renovation
Addressing aesthetic, comfort and functional needs in the exterior.

Building Adaptation
The interior and exterior, material, function and structure is modified to meet new needs.

Building in Contrast
New additions are made visually distinct from the original state, using contemporary materials and language.

Multisensory Design Strategies

Vegetation Contact

Top Light

Direct Visual Contact

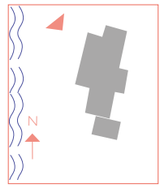
Adaptive Reuse Design Strategies

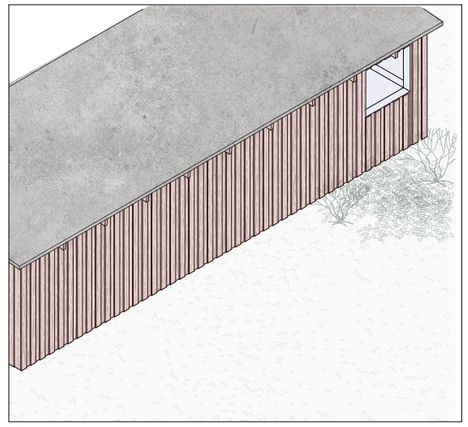
Matching Exterior Color

Expanded Windows

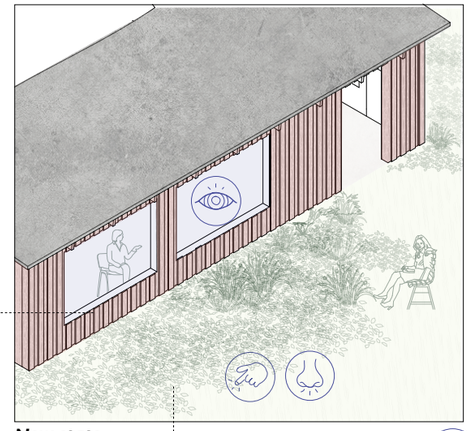
Function Continuity

Contrasting Form





Current state



New state

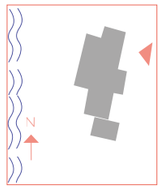
Direct Visual Contact

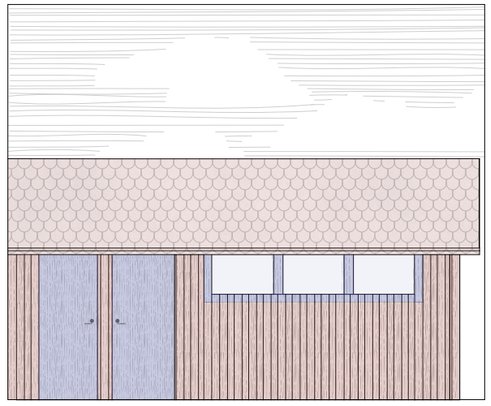
New openings face the sea, establishing direct visual contact with the seaside *(theme of Light)*. Openings on this facade face the most used path, and allows air to enter, bringing the scent of the sea.

Vegetation Contact

softness ●●●○
hardness ○○○○

A soft ground surface and planted vegetation at the facade integrate the new openings *(tool: Direct Visual Contact)* and entrance with the site. Visitors can sit here, to see, smell and touch the greenery. This is relevant to the theme Smell of Space and anchors the interior of the Office building with the environment.





Current state

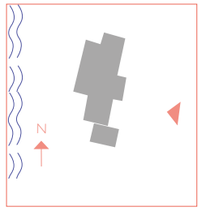
New state

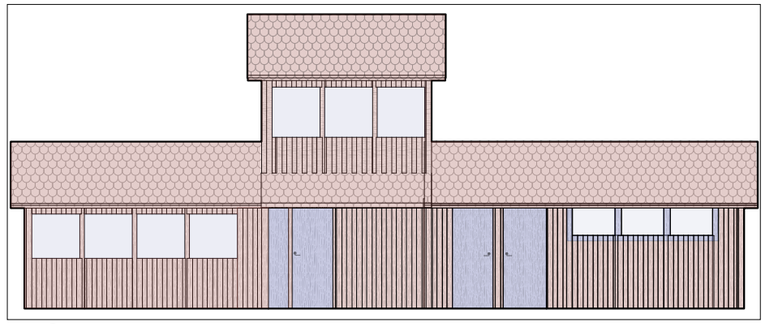
Matching Exterior Color

Facade is recolored with the original "falu" red to maintain continuity with its primary state, also replacing blue and white with the falu color. *(Adaptive reuse concept building renovation, page 29)*. This tool, combined with expanded windows, preserves the original exterior color and keeps the visual familiarity, while modifications are made.

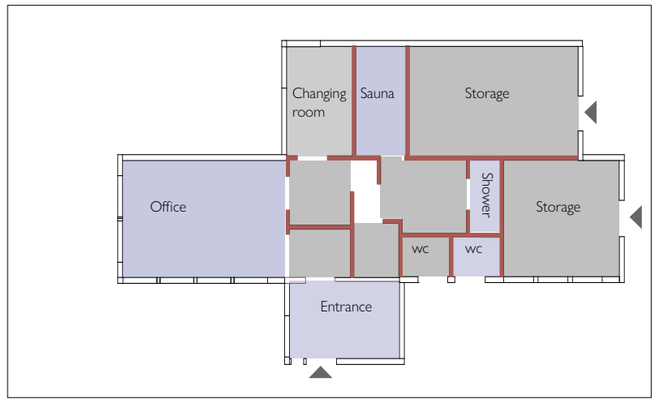
Expanded Windows

The openings are extended vertically to improve daylight while retaining their original width. This supports the concept of *Building Adaptation*, where modifications are made to meet the need for the new office. Bigger openings visually integrates the building to the parking lot side, where the most used path starts.





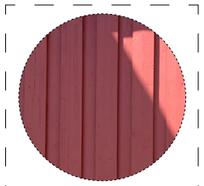
Current state



Current plan

Removed walls

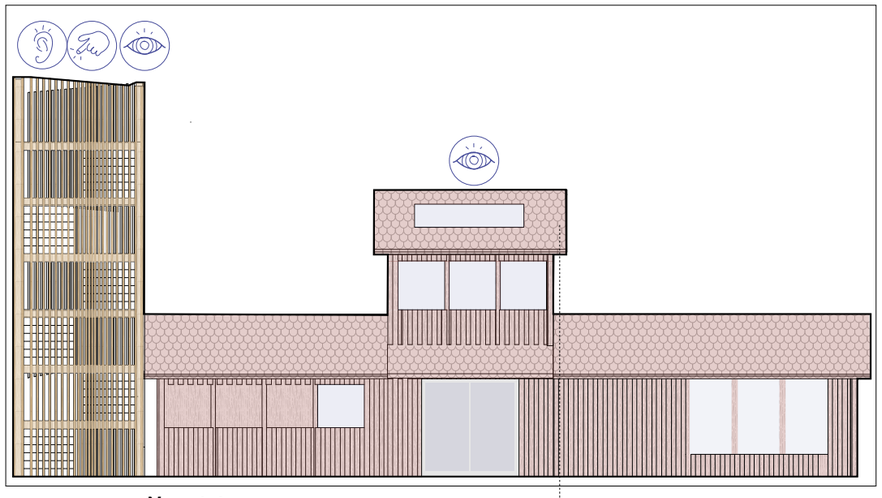
Kept functions



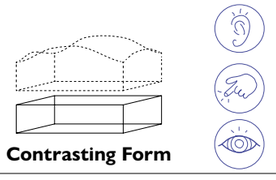
Existing facade

Cross Laminated Timber

Contrast in form while continous in materiality. East pavilion in timber next to wooden facade of the Harbour´s Office gives tactile warmth. (Temperature of Space)

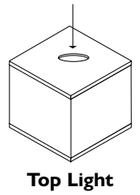


New state



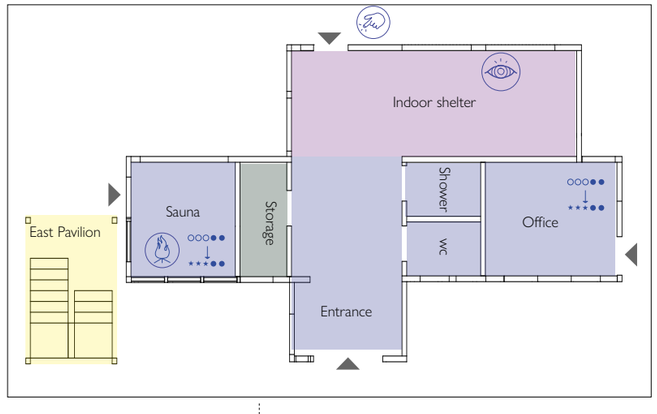
Contrasting Form

A new addition is built alongside the original structure, with a distinct volume and form (concept: Building in Contrast). This tool adds vertical movement to the Harbour's Office without modifying the original volume. Since the Harbour's Office is located on the inland edge, the contrasting form, East pavilion, provides a standpoint to visually, auditorily, and tactilely experience the seaside from that inland position.



Top Light

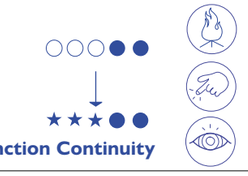
Roof openings improve daylight and create a visual connection to the sky at the center of the Harbour's Office *(theme of Light)*. This tool was selected because winter daylight is limited and low in angle (*Local climate page 20-21*). It enhances the experience when sheltered indoors, helping visitors stay connected to the changing sky.



New plan

"It would be great to have a sauna here to use right after my winter bathing"

Local on site, February 2025, page 16-17



Function Continuity

The Harbour Office adapts to new functions, sauna and indoor shelter, while retaining its original entry. This continuity of use preserves a sense of familiarity and anchors the new functions within the building's social memory and structure. Interviews revealed locals wish to have a sauna on site, and they already associate the building with coastal use. This supports its reuse as a winter public meeting point and the Function Continuity tool as a selected strategy.

DISCUSSION AND CONCLUSION

Research Questions

This thesis explores how architecture as a medium, through spatial interventions on the seaside in Gothenburg, can support wellbeing during winter. Building on the idea expressed in Healing Spaces (Sternberg, 2009), that the built environment can influence human responses and that spaces can be designed to improve health, the thesis uses research on health effects of the seaside environment. I answered the research questions through a site-specific process, the project site being on the seaside on Fiskebäck, where the initial intention of only adapting the Harbour Office evolved into a project of a sequential journey of four interventions. I used the research questions to direct the focus to wellbeing, and as a result I applied fewer tools in specific combinations during the tool selection process. This evolvement steered the project away from the risk of creating an overstimulating place.

Methods and Process

Objective Inputs:

Site analysis (Landscape, Boundaries, Climate)
Literature on Wellbeing, Architecure Theory
Built Examples Matrix
Toolbox

Subjective Inputs:

Empathetic Imagination (Tool combinations)
Sensory testing (Experience on site)
Minimal Ground Intervention
Respecting Harbour´s Office fabric

→ Integrated Design Decisions

The objective decision making proceeded circularly, particularly when applied for each intervention. While the thesis primarily presents the objective design process, a parallel layer of subjective inputs also shaped decisions. As the research questions centers human wellbeing in a winter seaside context, stemming from the human experience, it became necessary to me to include my empathetic imagination as a human participating in that experience while designing as an architect. This necessity for subjective input became more obvious while I tested tools in combinations, crosschecking if the tools support the intended architectural theme from multisensory architecture framework. Frequent site visits during winter months helped me empathise with the intended design ideas more. For instance, when I focused on integrating the auditory sense and the architectural theme Sound of Space, I imagined myself sitting in the South pavilion. As a result of that mental exercise, I decided that the Top Light tool would enhance the auditory sense rather than dilute it.

A parallel with the empathetic imagination that I applied during the tool selection process can be drawn to Pallassmaa´s notion. Pallassmaa describes that architecture is born from imaginative empathy, with senses interacting with each other, and that he treats himself as an architect that´s an instrument for measure when designing (Robinson & Juhani Pallasmaa, 2017). The nature of the thesis aim, centering experiential and human perspective, made it therefore more necessary to me to use subjective inputs for integrated design decisions.

Another subjective input not highlighted in the thesis, is the decision to respect the natural setting and aiming for minimal ground intervention. I made structural decisions to limit disruption in the landscape, like only anchoring the West pavilion on bedrock with raised walls, a removable South pavilion leaving no traces and the East pavilion requiring more ground intervention due to its structure but placed on asphalt, not intervening the natural landscape. During the process, I draw the conclusion that since the literature states that the natural seaside environment has essential positive wellbeing effects, it is essential for the environment to remain “natural” despite the interventions.

Due to the size of the toolbox and page constraints, explanations for why certain tools were not selected is necessarily brief. This editorial choice focused the reader of my thesis on the selected tools, with the exclusion of motivating why certain tools were discarded. The decisions were grounded in site and sensory logic. For instance, I did not choose Harmonious Adaptation, because a similar volume added to the Harbour´s Office was simply not necessary for the multisensory theme's activation. I discarded Soft Textile, because of its focus on interior and on the fabric itself, rather than the site context, which was the stated reason for wellbeing on the seaside according to literature. After all, the method process revealed that it could have benefited from a smaller toolbox.

The tools were inspired by built examples from unrelated contexts, only one of them near a seaside. However, this irrelevance of site didn´t matter, because combining the tools and adapting these to the site specificity made them relevant to Fiskebäck. Another learning outcome was when I initially treated all the senses equally important. But I found the sense of vision was easiest to apply in architecture because it was easier to justify in terms of wellbeing and because architecture projects is evaluated visually. The auditory and olfactory senses required more time and site testing to be integrated meaningfully. This highlighted a broader tendency in architecture to prioritise vision over other senses.

Design Process

During the exploration phase, the tools were formed with the research questions in mind, particularly the supporting wellbeing in winter. Therefore, the toolbox was already a reflection of that thought, even if all of them were not selected later on. This eased the design process of testing the tools and positioning them to the site context, such as the tool Vegetation Contact and Sound Contact, both contributing to wellbeing in winter and contextualised in Fiskebäck.

Since the tools were influenced by singular architectural features in various built examples, I decided it was enough to combine one tool with another tool, because the feature was already specific to the multisensory theme or adaptive reuse concept. For instance, when I combined the raised brick wall of Unique Forms of Light with Top Light, the impact was specific enough. Using fewer tools also responded better to the site specificity of the research questions, as keeping the height low, managing transparency for perceived boundaries, placements and microclimate conditions, all leading to interventions smaller in volume.

I found that the broadness of the toolbox limited the design process though, as it took time to test all of them, leading to less focus on the architectural design itself. So, a smaller and targeted toolbox, would have allowed for more variations and explorations in design iterations, likely resulting in a more refined design outcome.

My decision to use fewer tools also developed the project to a site journey with sequences, where I avoided repeating the sensory focus in each intervention. The aim with the journey was to engage all senses, meaningfully, with winter wellbeing as the central focus.

Adaptive Reuse

In a sensitive seaside context, adaptive reuse provides a sustainable alternative to new construction that would leave a larger footprint, and avoids disrupting the natural landscape. This thesis highlights a broader opportunity in Gothenburg to adapt existing coastal buildings into non-commercial public spaces. Such reuse would preserve architectural seaside heritage and provide a stronger relationship between people and the seaside during winter.

I applied the adaptive reuse framework through a wellbeing lens, while adapting the building for winter use and aiming for respecting the buildings fabric. I based the tool selection logic for the Harbour´s Office on respecting the existing building while supporting human wellbeing. For instance, I expanded the windows towards the seaside using existing openings, used the Top Light tool to improve interior without visible external alteration and matched exterior color with existing façade color. Decisions additionally came from from community input, leading to function continuity of a public sauna, which also complemented site journey with warmth. User input from the Harbour Office was not available during the thesis. However, I acknowledge that input from them would have strengthened the project in a more realistic aspect. Lastly, if given more time, I would further refine the details of old meeting new.

Multisensory Architecture

All multisensory tools were influenced by site and climate factors (e.g. wind, sun, rain, sea waves) making them specific to Fiskebäck´s context. While the seaside already engages the senses, the winter discomfort and lack of structures, makes the intentional sensory enhancement important for creating positive experiences.

I grounded the sensory based decisions in multisensory architecture theory and in science-based literature of seaside and wellbeing. However, while multisensory theory provided an analytical framework, design decisions inevitably integrated empathetic interpretation. Rather than being a limitation, this combination reflects the reality of sensory architecture, where theoretical structure and lived experience inform one another. Parallel to this, I found that there is limited research on human emotional responses to sensory design. For instance, I found myself asking, *do the tool Unique Forms of Light engage the senses due to novelty or because of its specific spatial qualities*? This observation highlights a broader research gap in distinguishing novelty effects from spatial qualities in sensory engagement. While the scope of this thesis did not allow empirical testing, the project´s site specific application of tools like Unique Forms of Light offers a case for future comparative studies.

Similarly, the built environment´s impact on human perception and wellbeing requires more research. For instance, I drew the Top Light tool from a sanctuary building, and this tool´s use would be further strengthened by empirical evidence indicating that light in a building that comes from the above has a sanctuary-like impact on humans.

Final Thoughts

Growing up by the Mediterranean shaped a strong connection to the sea within me and caused an awareness of the lack of winter-specific seaside structures in Gothenburg, that allow active participation rather than passive observation from a café by the shore. Even though the thesis began with a personal motivation, the process revealed a broader social relevance, indicated from interviews. This was a project where I shifted architecture´s role from being the object to a means for experience and placing humans at the centre of design decisions. In that aspect, it was a fulfilling last project in my architecture education where I learned much.

This thesis intersects architecture for wellbeing with the current climate crisis in terms of rapid urbanisation and the integration of built environments into natural settings. Although not the core main focus, the thesis addresses sustainability through adaptive reuse, natural materials and minimal ground intervention.

The developed toolbox and methodology offer a framework that can inspire architects designing for wellbeing in winter climates. The thesis also draws attention on wellbeing in winter heavy climates such as Sweden, where time spent indoors is high most of the year. Future work could deepen the exploration of individual sensory strategies, particularly how it would work in an urban context and engage users in evaluating experiences.

Through this process, I have demonstrated that minimal, site-specific spatial interventions, combined with adaptive reuse of existing structures, can support winter wellbeing at a public seaside site in Gothenburg. The project shows a sequential journey of interventions, each engaging the senses in distinct ways. The project further shows that the Harbour Office can be adapted to provide public use and sensory engagement in a way that respects both its architectural character and the surrounding natural setting.

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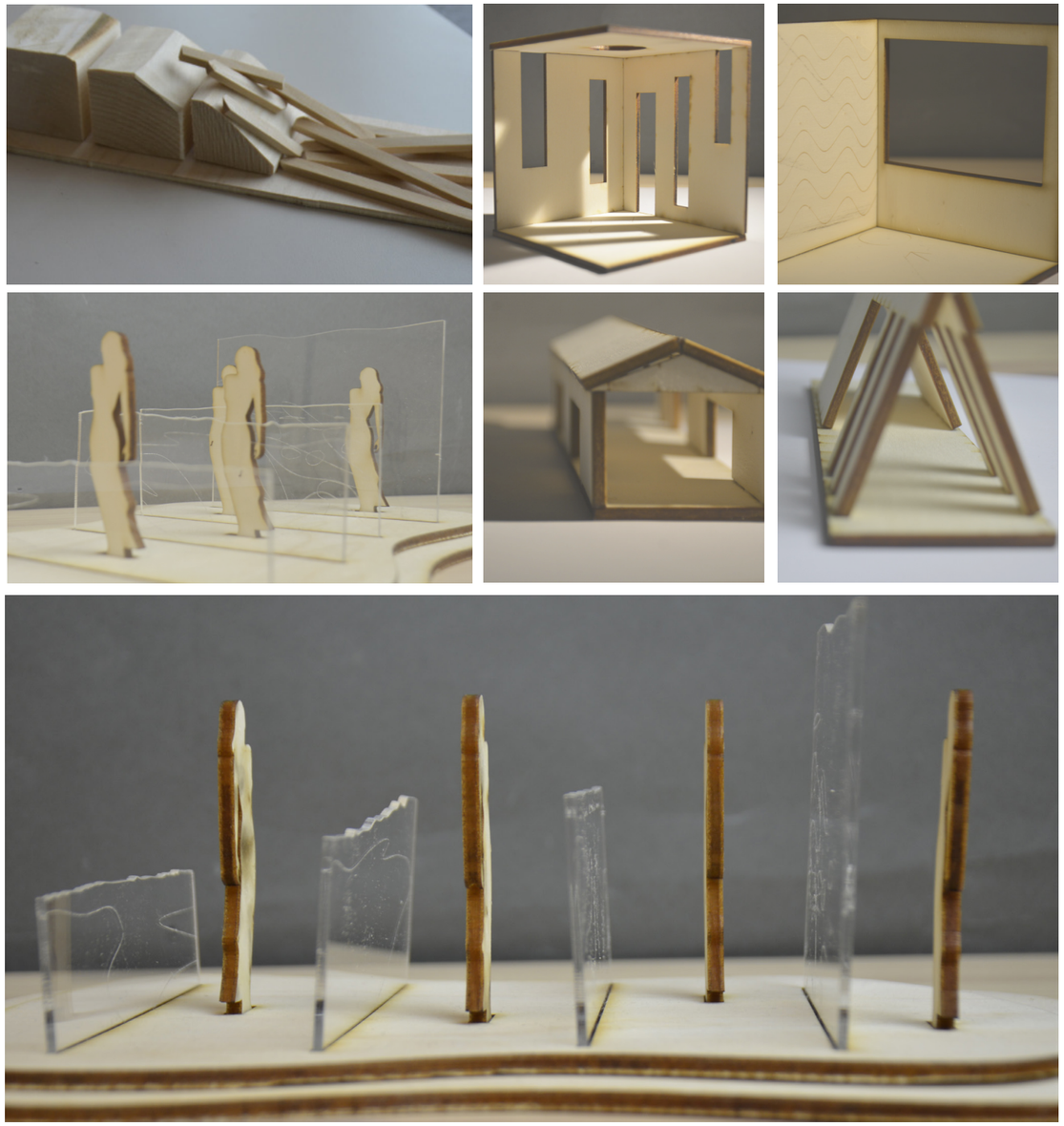
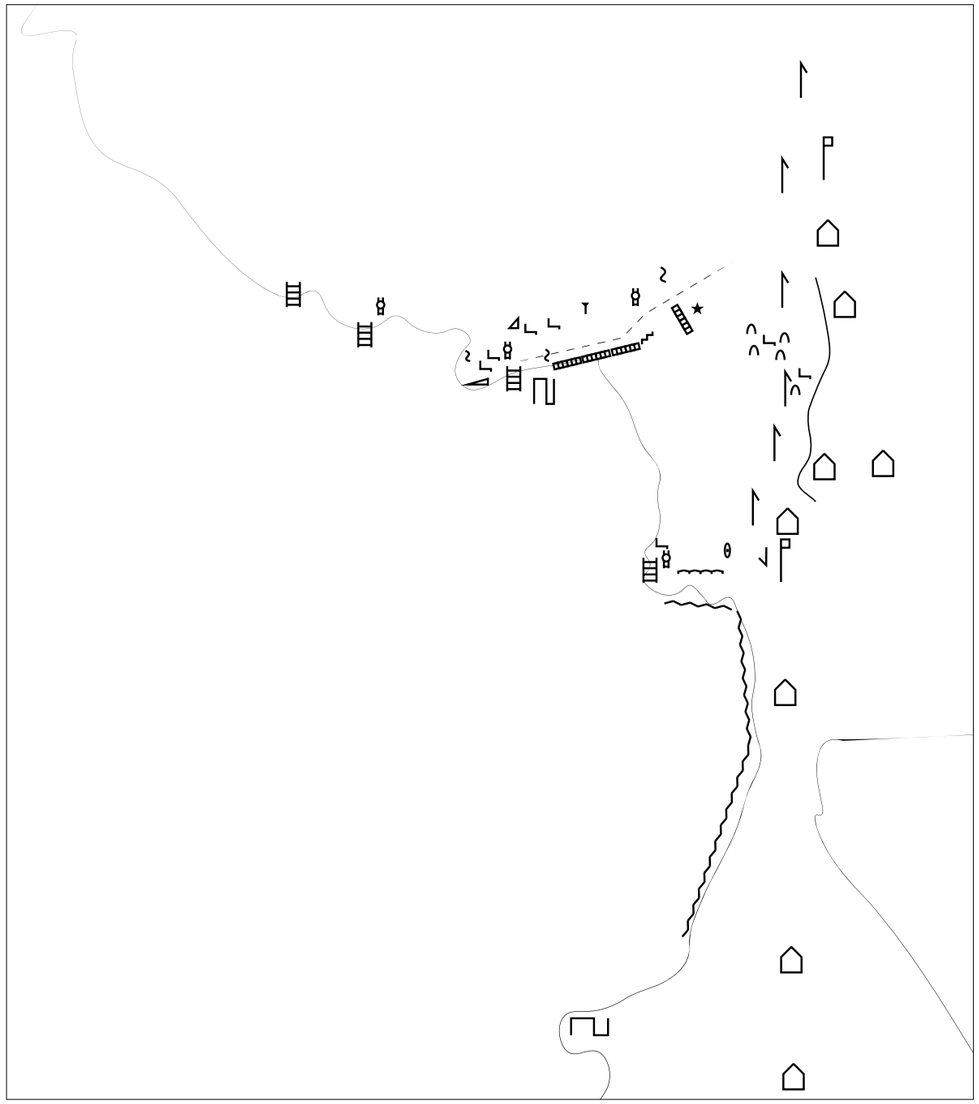
APPENDIX





pier
bench
asphalt path
sign
wind shield
anchor
ladder
stone wall
handrail
building
rescue
wooden
flagpole
object
barbeque
playground
stairs
path
plank
pipes, tubes
changing
power-pole

Intentional Artefacts

2025.02.27 site visit

Mapped artefacts

anchor

pier

wind shield

bench

handrail

flagpole

ramp

changing

building

object

path

power-pole

Other artefacts

bolts

marks

holes

cut out stones

All photos by author, Fiskeböck, February 2025

asphalt path

ladder

sign

rescue

stone wall

wooden

playground

pipes, tubes

barbeque

plank

bike station