NATURALLY ANIMATED

how can the SUN, WIND *and* RAIN *animate* ARCHITECTURE

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How can the Sun, Wind and Rain Animate Architecture

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CHALMERS

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HOW CAN THE SUN, WIND AND RAIN ANIMATE ARCHITECTURE

CONTENTS

ABSTRACT

Western Sweden is a popular destination for tourists. Sustainable and transformative tourism in wild and beautiful nature is increasingly in demand.

The Skåneleden Trail surrounds The Bjäre Peninsula on one of its five sub-sections and gives visitors the opportunity to experience extensive landscape views, dramatic rock formations and the region's varying, and at times dramatic weather. The weather – the sun, wind and rain – has a large impact on the experience of the place.

By placing interventions in well-chosen locations along The Skåneleden Trail, the project aims to frame and reinforce the weather phenomena. The structures meld with the region's landscape and weather elements, almost like a part of the earth. The proposal offers a sensory walk through a series of choreographed spatial sequences in connection to the hiking trail.

The thesis investigates how the natural movements of the sun, wind and rain can animate architecture and as a result enhance our experience of the weather at the site.

Early on, sensorial observations of the movements of the sun, wind and rain on the site are combined with findings generated from design experiments with physical models. By studying and working with the phenomena the possibility to become more familiar with the site is increased along with a better understanding of the context. The investigation then continues to explore practical ways in which weather can be used as a tool, component and parameter for design.

The outcome is a design proposal that challenges the implementation of otherwise conventional architecture bound to shelter yet distance visitors from the site. Instead a physical and sensory journey is proposed, that uncovers the site's phenomena, thereby presenting the architectural potential of bringing visitors closer to the peninsula's ever-changing weather.

KEYWORDS: THE BJÄRE PENINSULA, THE SKÅNELEDEN TRAIL, ECO-TOURISM, WEATHER ARCHITECTURE, PHENOMENA

DISCOURSE

WEATHER ARCHITECTURE

Weather Architecture is a term coined by Jonathan Hill, Professor of Architecture and Visual Theory, at the Bartlett School of Architecture in England.

As a discourse it entails to consider the weather as an architectural author that affects design, construction and use in a creative dialogue with other authors such as the architect and user.

The thesis focuses on the weather elements sun, wind and rain and investigates how the natural movements of these elements can animate architecture and as a result enhance our experience of the weather at a specific site.

By studying and working with the phenomena it is possible to gain a better understanding of the site. The investigation explores practical ways in which the sun, wind and rain can be used as a tool, component and parameter for design.

In doing so, the thesis can create an awareness and hopefully contribute to the discussion of weather architecture in a larger discourse while realizing the potential of how the sun, wind and rain can be more naturally integrated with architecture.

ECO–TOURISM

Eco-tourism is tourism directed towards exotic, often threatened, natural environments. It is intended to support conservation efforts while at the same time provide the opportunity for visitors to experience and observe nature.

Perhaps our fascination with nature stems from the totality of its sensory stimulation. It is ever moving and ever changing, and the endless cycles of nature creates beautiful events, such as autumn leaves, trees silvered with frost, the ebb and flow of tides – magnificent natural phenomena. All our senses are stimulated and together they create an intense feeling of reality, of the 'here and now'.

The weather is arguably even more 'here and now', in the sense of being both ever changing and everywhere. However, its omnipresence is often excluded from conventional architecture bound to shelter yet distance people from the forces of the natural surroundings.

By making the movement created by the weather more immediately noticeable in architecture the thesis aims to bring tourists closer to the site's unique character.

METHOD

ITERATIVE WALKS

In the thesis investigation I physically confronted the sites on many occasions during the process, over time and in different weather. During repeated walks the effect of the sun, wind and rain across the land were documented through photography and written notes. I experienced storms, sunshine and heavy rain amongst other phenomena.

In the interpretation of my physical encounters I valued my own senses in direct experience of the phenomena at the sites. This method helped me gain a better understanding of the sites. It became evident that the area is a mixture of different microtopographies and microclimates. Each one a product of the way the sun, wind and rain interacts with the landscape differently.

Weather defines and animates spaces in nature. Certain sites were more exposed to a particular weather phenomenon than another. These sites were chosen for the interventions in the design proposal. The result is a series of pavilions each animated by either the sun, the wind or the rain.

ITERATIVE DESIGN EXPERIMENTS

The design approach is to achieve knowledge by conducting design experiments with physical models. The findings in the experiments were implemented in the design through drawing iterations and a systematic work with references.

A physical model shows us not only a buildings form but also the movements of the sun, wind and rain. After experimentation and testing with models and physical experience on site I started the design process and formulated hypothesis, theories and opinions.

The results of the experimentation were then reflected into the design. In the interpretation of experimentation and in the design phase, I valued my own senses in direct experience of the phenomena at the site. This method helped me understand how to use the movements of the sun, wind and rain as a tool, component and parameter for the design.

DELIMITATIONS

This thesis considers climate as well as weather, but its principal focus is everyday experience so that environmental awareness is informed by context and history. Weather and climate differ in duration and scale. Unlike the weather, which we can see and feel at a specific time and place, we cannot directly perceive climate because it is an idea aggregated over many years and across a region.

THE BJÄRE PENINSULA

THE LANDSCAPE

The Bjäre Peninsula rises majestically from the sea covering approximately 220 square kilometres. Situated between two bays, the profile of the peninsula is visible from far away both on land and at sea.

The high ridge of Hallandsåsen reaches an altitude of 200 metres at the top of Hovs Hallar and forms one of the most prominent landmarks along the Skåne coast.

With four distinctive seasons, varying terrain, and a round geography surrounded by water on the majority of its border, the peninsula is an aggregation of extremely diverse microtopographies and microclimates.

The landscape includes sun-scorched summits, wind-beaten heaths and rain-weathered cliffs. These are areas that are under constant influence of nature and weather.

Man has also marked the land, shaping the surface from wilderness to cultivation. Everywhere, traces of man can be seen, from agricultural fields to abandoned military structures left in decay.

THE WEATHER

The weather on the Bjäre Peninsula is Powerful. The wind and waves have sculpted the coastline over the course of many thousands of years creating dramatic cliffs and rocky outcrops.

The character of the area changes with the weather, the time of day and the seasons. In summer, moments of sunshine become suddenly permeated with clouds and showers.

Fall and winter brings with it darkness, wind and heavy rain. Here the winter is not especially cold, but its arrival marks many months of violent weather with storms and high winds.

In spring, when the winds are gentle, the area if often subject to heavy fog and mist.

Site Map 1 : 50 000

TOURISM

The Bjäre Peninsula is a well-known tourist destination in Sweden. People come here to enjoy the landscape, the beaches, tennis, golf, sailing, or to see sports tournaments or to visit art festivals. The area is also known for its food and local produce.

In recent years tourism in the area has developed from being mainly centred around the summer season to include autumn and spring. Visitors can enjoy a holiday with activity that caters to their well-being both mentally and physically.

The Bjäre Peninsula has great potential and possibilities for developing eco-tourism. The combination of unique nature, art, culture and an entrepreneurial environment, makes it an interesting area to explore nature experiences even wider. By adding another layer of content in the experience of nature along the The Skåneleden Trail the area can become a destination that celebrates 'weather architecture' in Sweden.

THE SKÅNELEDEN TRAIL

The Skåneleden Trail surrounds the Bjäre Peninsula on one of its five sub-sections. Here the trail passes by wild and beautiful nature and areas rich with historical traces.

Military bunkers are located at strategic locations along the trail. They were a part of the so-called Skåne Line, a long line of light fortifications erected during World War II around the coast of southern Sweden to protect the country from a possible invasion.

Along the trail there are also traces of abandoned quarries. Together with the bunkers these interventions leave clear imprints in the landscape.

Today the bunkers and quarries are cherished picnic spots for hikers. The bunkers offer a much-needed comfortable, flat surface as well as a wonderful view.

Site Map 1 : 50 000

THE JOURNEY

Winding next to the sea The Skåneleden Trail passes by sun-scorched summits, wind-beaten heaths and rain-weathered cliffs. The weather – the sun, wind and rain – continuously animates the landscape on the peninsula. I therefore chose this area for the theme of my thesis: 'Naturally Animated Architecture.'

Repeated walks along the trail were an important part of the thesis investigation. I walked from the summit Knösen in the north to the old quarry Dagshög in the south-west and registered the effect of the sun, wind and rain across the land through photography and written notes.

After several walks it became clear that a certain phenomenon is more present in one place compared to another. The sun is present all day long on the heights of Hovs Hallar. The storms from north-west are powerful and leave traces in the landscape outside the village Torekov. The rain is collected in freshwater ponds around Dagshög.

The repeated walks were a method that helped me gain a better understanding of the peninsula and the sites. They helped me understand how to capture the phenomena and make them components of the design.

SKÅNELEDEN

Båstad – Torekov	24 km (6 h)
Båstad – Ängelsbäcksstrand	13 km (9,5 h)
Båstad – Knösen	13 km (3,5 h)
Norrviken – Knösen	7,5 km (2 h)
Knösen – Torekov	10 km (2,5 h)
Torekov – Dagshög	3,5 km (1 h)
Torekov – Ängelsbäcksstrand	13 km (3,5 h)

People tend to walk 1 kilometer within 15 minutes at a slow pace (4 km / hour)

1 hour is added for every layover

Knösen, Bjäre Peninsulas highest point

Birch forest

Juniper bushes and viewpoint

Viewpoint at Hovs Hallar, sun-scorched summit

Hovs Hallar , steep sided cliffs

Bunker in the landscape

Wind-beaten heath with juniper shrubs

Jagged rock formations

Nearby Torekov the wind is present

Running water meets the ocean

Burial Mounds from the bronze age

Terraced rock landscape meets the ocean

Natural ocean pool

The village Torekov in the horizon

Wind-beaten heath with fresh water pool

Dagshög, old ruin by quarry

Remains of old pier

Old quarry filled with rain water

Dagshög, viewpoint

Dagshög, old ruin by quarry

THE SITES

Sun intervention

Wind intervention

Rain intervention

EXPLORED WEATHER PHENOMENA: SUN, WIND, RAIN

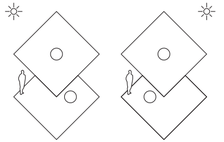
SUN— SELECTED SITUATIONS

The daily passage of sunlight over the earth's surface is perhaps the most familiar of all natural changes on our planet. Its earliest known practical application was in solar calendars, and the use of built structures for this purpose dates back at least as far as the late Stone Age.

The sun can transform and animate spaces due to the way the light changes over the course of a day. I have examined ways in which projected sunlight can be used as a component in design. These include changes in the position and form of isolated, distinctively shaped solar shadows and patches of sunlight.

I have also explored how patterns of light can be made by shading the sunlight.

1.



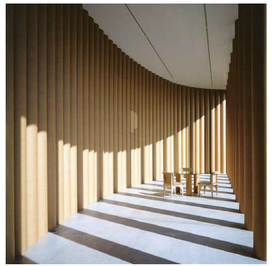
PROJECTED MOVEMENT
VISION

Sun animates light patch

Variations in position are easily noticed and these transformations are especially clear when a form is familiar.

A perceptively moving disc of light is reminiscent of the migrating sun.

This effect is also visible in overcast weather.



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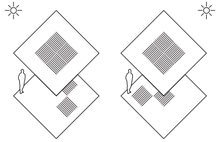


PROJECTED MOVEMENT
VISION

Sun animates shade pattern

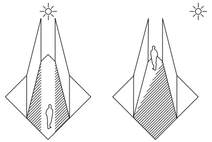
Changes in light and shade patterns are obviously seen.

Mainly because they include less competing glare, patches of sunlight on shaded surfaces tend to stand out more than equivalent shadows on brightly lit backgrounds.

This effect is less visible in overcast weather.

It works both in horizontal and vertical plane.

3.



PROJECTED MOVEMENT
VISION

Sun animates shadows

Changes in shapes are almost as obvious as changes in position and are especially clear when the shadows are well defined and moving over a regularly divided field.

These are the essential components of a sundial.

SUN— EARLY EXPLORATIONS

These model experiments were made early in the design process.
The purpose was to explore a phenomenon in a structure without a specific site in mind. How the design of the structure can enhance the phenomenon. Knowledge from this phase was integrated with later investigations on site and by looking at built references.

PROJECTED MOVEMENT
VISION

Sun animates light patch

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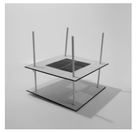

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PROJECTED MOVEMENT
VISION

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WIND— SELECTED SITUATIONS

The wind is something one can feel the effects of and watch the effects of, and yet we cannot actually see the wind. We are made aware of it through its impact on our bodies or watching the wind at work creating movement of naturally occurring forms in nature such as on foliage and water.

The wind can transform and animate spaces in response to variations in air flow. Even in cooler climates a breeze can often be welcome in interior spaces and can cause a curtain to flutter and sway.

I have examined ways in which the wind can be used as a component in design. These include transmission of wind-generated movement onto water surfaces that get distorted elastically in response to air moving just above it.

Unlike the sunlight, the movements of the wind can be revealed audibly as well as visually and through bodily impact.

Wind can be revealed by touch through contrasting shelter with various degrees of exposure to wind in a spatial sequence.

4.

TRANSMITTED MOVEMENT
VISION

Wind animates standing water

The ripples, or capillary waves, commonly seen on outdoor water surfaces are created by the interaction of moving air and surface tension of the water.

Few materials can rival a simple surface of water, which acts as a perfect mirror for changes in the sky high overhead and also distorts elastically in response to the wind.

5.

TRANSMITTED MOVEMENT
VISION

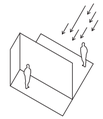
Wind animates waves

Waves are most commonly caused by wind.

These natural wave forms are less subtle than the ones that occur on standing water and differ in scale.

They also create sounds when they crash on the beach.

6.



BODY IMPACT
TOUCH

Wind revealed by touch

To feel the effects of the varying wind, one must remain in contact with the outside air.

This can be achieved by contrasting shelter with various degrees of exposure in a spatial sequence.

WIND— EARLY EXPLORATIONS

These model experiments were made early in the design process.
The purpose was to explore a phenomenon in a structure without a specific site in mind. How the design of the structure can enhance the phenomenon. Knowledge from this phase was integrated with later investigations on site and by looking at built references.

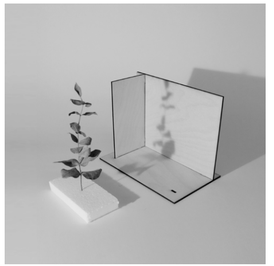
TRANSMITTED MOVEMENT
VISION

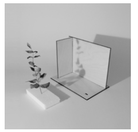
Wind animates reflected water caustics

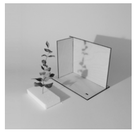
The wind can animate caustic patterns reflected on an interior ceiling from an outdoor water surface.

The most effective reflecting pools should be as shallow as possible and have a light-coloured bottom.

Even a gentle breeze can create wind-animated caustics.







TRANSMITTED MOVEMENT
VISION

Wind animates foliage shadows

Shadows of wind-disturbed foliage can animate both interior and exterior spaces.

In this case the wind creates movement of projected solar shadows.

Isolation on a largely static and light-coloured surface tends to make wind-animated foliage shadows more noticeable.

TRANSMITTED MOVEMENT
VISION

Wind animates foliage

Planting can be an effective source of wind-generated change in spaces.

To be affected by the wind, foliage needs to remain in contact with the outside air.

This can be done by locating planting in an internal courtyard designed to seem continues with the surrounding interior spaces.

RAIN— SELECTED SITUATIONS

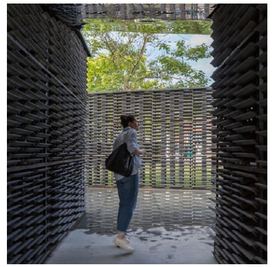
Rain can be experienced by all our senses. We are made aware of it through its impact on our bodies or watching rainfall or raindrops create movement of naturally occurring forms in nature such as on puddles and water.

I have examined ways in which the rain can be used as a component in design. Exterior water surfaces and runoff from roofs are the most effective means of visibly integrating the movements of rain in architecture.

Like the wind, rain can be revealed audibly as well as visually and through bodily impact.

The sounds of rain, and particularly its direct impact on building surfaces, can animate spaces and create a comforting sense of shelter for those inside.

Rain can be revealed by touch through contrasting shelter with various degrees of exposure to rain in a spatial sequence.



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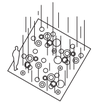


TRANSMITTED MOVEMENT
VISION

Rain animates surface reflection

Rain can cause changes in materials and alter them visibly when wet. In some cases, materials become more reflective during and directly after rainfall due to a thin layer of water on its surface.

In this case the reflections act as mirrors and distort elastically while disturbed by raindrops.

8.

TRANSMITTED MOVEMENT
VISION

Rain animates standing water

The ripples, or capillary waves, commonly seen on outdoor water surfaces during rainfall are caused by raindrop impact.

Few materials can rival a simple surface of water in terms of revealing the movement of rain.

In this situation standing and falling water can reveal one another.

9.

DIRECTED MOVEMENT
VISION

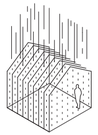
Rain animates roof runoff

Extended eaves on pitched roofs allows rainwater to fall directly from the roof without damage to the structure.

In the process a natural curtain is created that can be considered as part of the architecture.

RAIN— SELECTED SITUATIONS

10.



BODY IMPACT
TOUCH

Rain revealed by touch

To feel the effects of the rain, one must
remain partly outside.

This can be achieved by contrasting shelter
with various degrees of exposure
in a spatial sequence.

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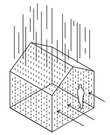
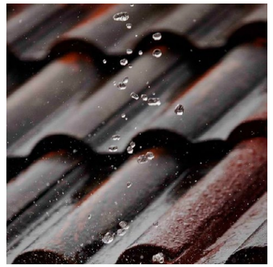


MOVEMENT AND BODY IMPACT
VISION AND TOUCH

Rain animates mist

Rain can sometimes form a mist.
Mist makes spaces mystical and undefined.

It also affects the sensation of touch.



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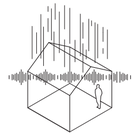


SURFACE IMPACT
SOUND

Rain animates auditory change

The sounds of rain, and particularly its direct impact
on building surfaces, can create a comforting sense
of shelter for those inside.

Since they do not depend on light,
such auditory changes can animate spaces
any time of day.

RAIN— EARLY EXPLORATIONS

These model experiments were made early in the design process.
The purpose was to explore a phenomenon in a structure without a specific site in mind. How the design of the structure can enhance the phenomenon. Knowledge from this phase was integrated with later investigations on site and by looking at built references.

PROJECTED MOVEMENT
VISION

Rain animates standing water

The ripples, or capillary waves, commonly seen on outdoor water surfaces during rainfall are caused by raindrop impact.

In this situation rain is visually experienced from beneath a glazed roof pond. The rain also animates projected caustic patterns on the interior floor from the water surface retained by the roof.

It has the merit of directly revealing
the sheltering role of the roof to those inside.

PROPOSAL

THE SKY LIGHT PAVILION

CONTEXT

The Sky Light Pavilion is located next to Hovs Hallar high above sea level.

The site belongs to one of the highest points on the peninsula in a big open space with a wide view of Hovs Hallar and the sea. The area is always subject to direct sunlight since there are no landscape elements or trees that cast shadows.

On this summit there is an abandoned observation bunker.

The Skåneleden Trail passes through the site. It is also easily accessed by visitors by car since a hotel is in proximity with a big parking lot.

Site Photos

CONCEPT

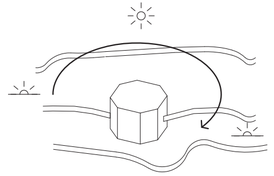
The intervention is organized as an addition on top of the existing observation bunker and takes on the form of an observation pavilion.

Movement is a key theme and concept in the intervention. The moving sunlight animates the pavilions interior and the visitors move through a choreographed spatial sequence. Each space enhances the daily passage of the sunlight in a different way.

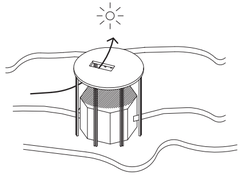
The pavilion can also be used as a platform to take in grand views of the landscape. At night the structure doubles as a stargazing lookout tower.

The pavilion is a hybrid between a weather shelter, an observation platform, a solar clock, a celestial observatory and a sculptural visitor attraction.
The structure also juxtaposes the past and the present.

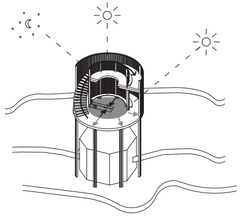
The environmental footprint of the intervention is minimized by utilizing the bunker as a foundation and constructing the tower out of timber. The old bunker will remain sealed.



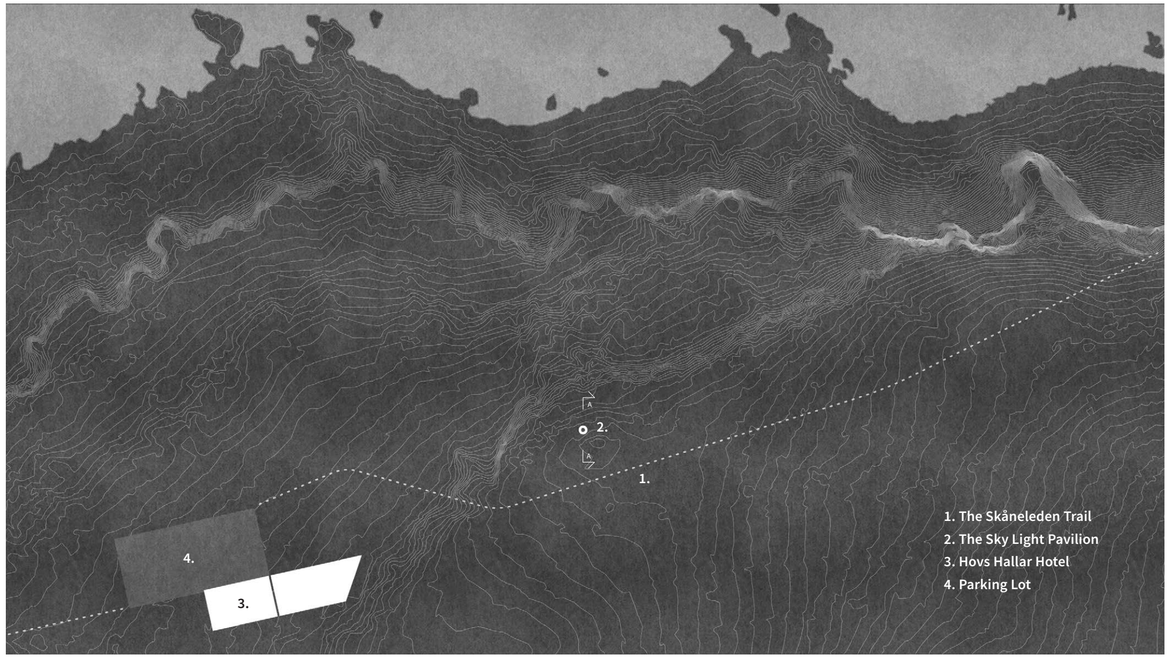
1. The bunker and the migrating sun – time



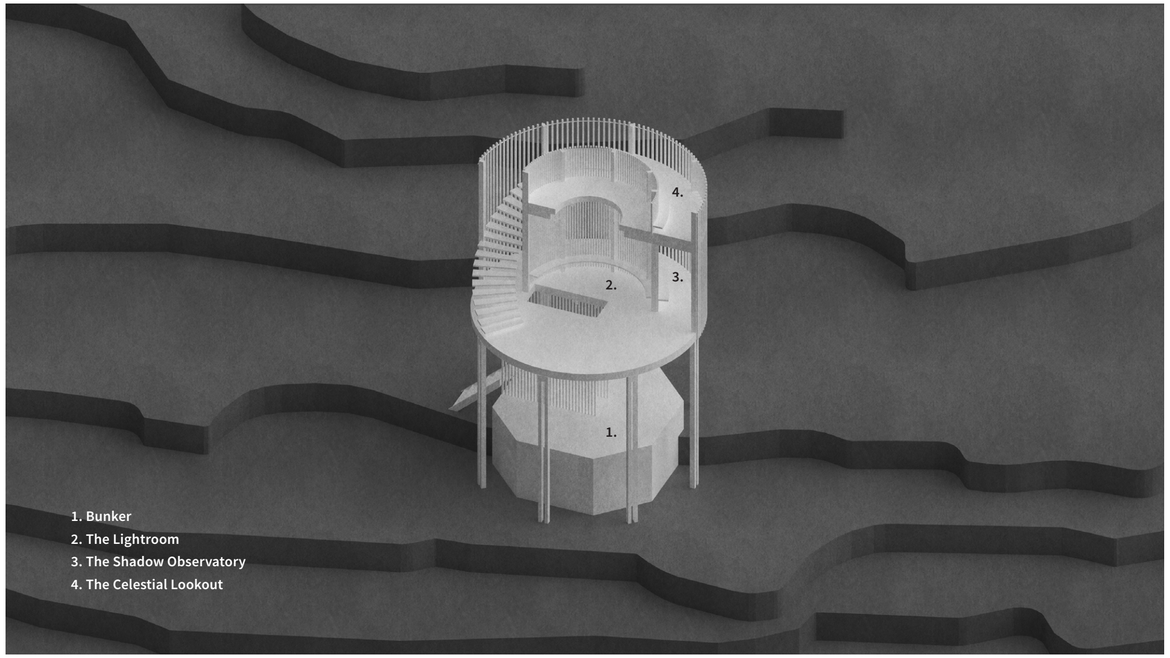
2. Movement towards the sun – walk



3. Introvert and extrovert spaces frames the phenomena



Site Map 1 : 3 000



Axonometry

THE ANIMATED WALK

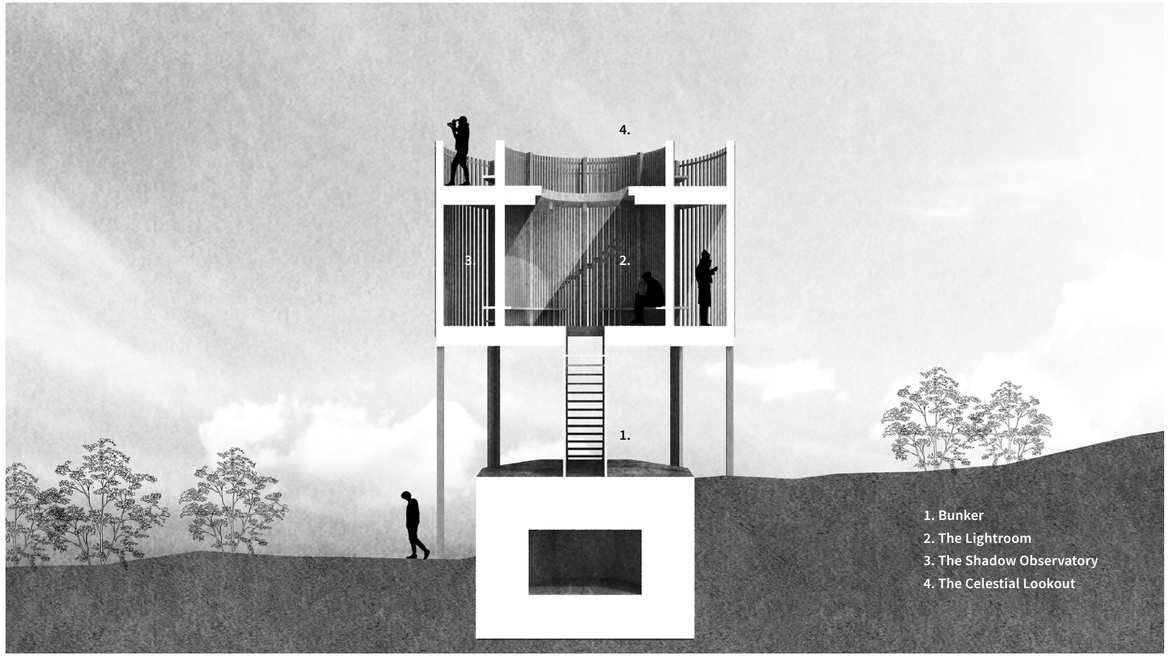
Upon entering the structure, a long semi-enclosed staircase directs visitors up to a confined room. The walk into the structure is a progression from light to darkness.

The staircase leads to an inner, dimly lit, room which has an opening in the ceiling, an oculus. Here visitors can observe the daily passage of the sunlight over the earth's surface in a semi-enclosed space. The suns movement animates a perceptively moving disc of light projected onto the interior walls and floor.

From the inner room visitors can continue through a curved corridor in an intermediary space in between the façade and the inner room in the core. Here fragmented light is filtered through a vertical lattice of timber slats. The vertical lattice blocks the sunlight to a certain extent – while it also softens the wind. The migrating sun creates a play of light and shadows in the space.

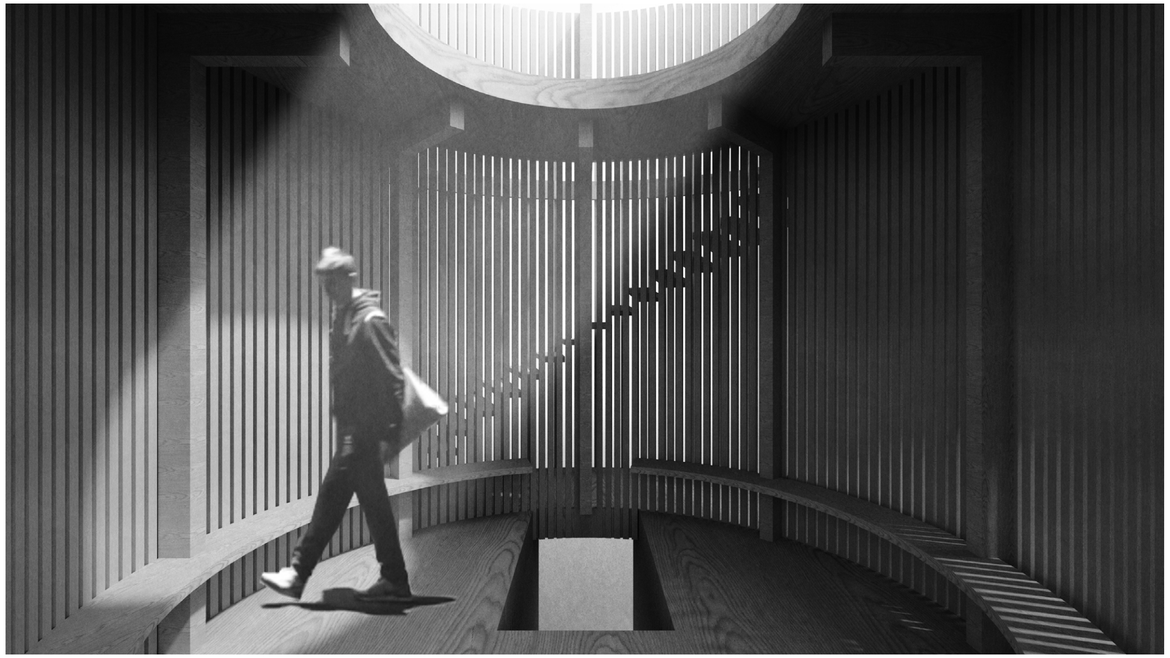
Another staircase directs visitors to a viewing platform on the pavilions roof. By contrast, the darkness is gradually relieved by daylight again. The passage culminates on a sun-drenched outdoor roof terrace with a grand view of the sea. Here visitors can soak up the solar heat with their bodies.

The Sun Observation Tower is a walk through a series of choreographed spatial sequences. The sunlight and the suns movement is used to create a sensory spatial experience.



Section A–A 1 : 100

The Sky Light Pavilion, exterior perspective



The Lightroom, interior perspective

The Shadow Observatory, interior perspective

The Celestial Lookout, perspective

THE WIND— AND WAVE BREAKER

CONTEXT

The Wind– and Wave Breaker is located slightly north of Torekov, an old fishing community.

Here the coastline is low-lying, wind beaten and barren. The wind and waves have sculpted the coastline over the course of many thousands of years. Like at Hovs Hallar, the rocks have been carved out to jagged shapes by erosion from the sea. The waves are omnipresent, forever lapping or pounding against the shore.

On the site there is an abandoned bunker.

The Skåneleden Trail passes through the site. It is also easily accessed by visitors by car since a small parking lot is located nearby.

Site Photos

CONCEPT

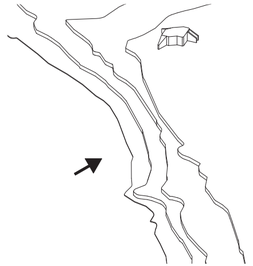
The intervention is organized as an addition in and around an existing bunker and takes on the form of a pavilion and an ocean platform for swimming.

Also, here, movement is a key theme and concept in the intervention. The moving wind and waves animate the intervention and visitors move through a choreographed spatial sequence. Each space either exposes or protects the visitor from the wind or waves. It can also be used as an observation platform to take in grand views of the landscape or witness the wind-generated movement of the waves.

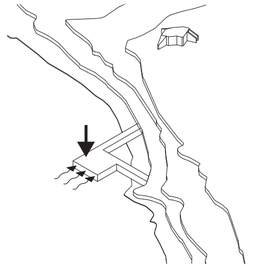
The visitor is made aware of the wind through its impact on their bodies in the medium of air and water, or via its visual effect on the ocean's surface.

The intervention is a hybrid between a wind shelter, an observation platform an ocean pool, a wave breaker and a sculptural visitor attraction. The structure also juxtaposes the past and the present.

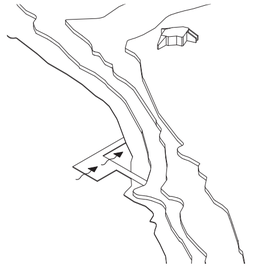
The environmental footprint of the intervention is minimized by transforming the bunker into a windbreak. The pavilion is carefully sunk into the landscape to not obstruct the ocean views from the hiking trail behind.



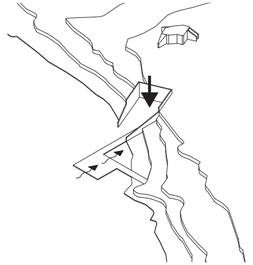
1. Wind intervention



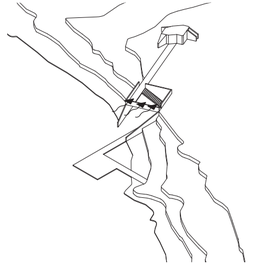
2. Protective wave breaker



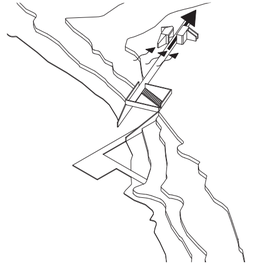
3. Exposed wave breaker



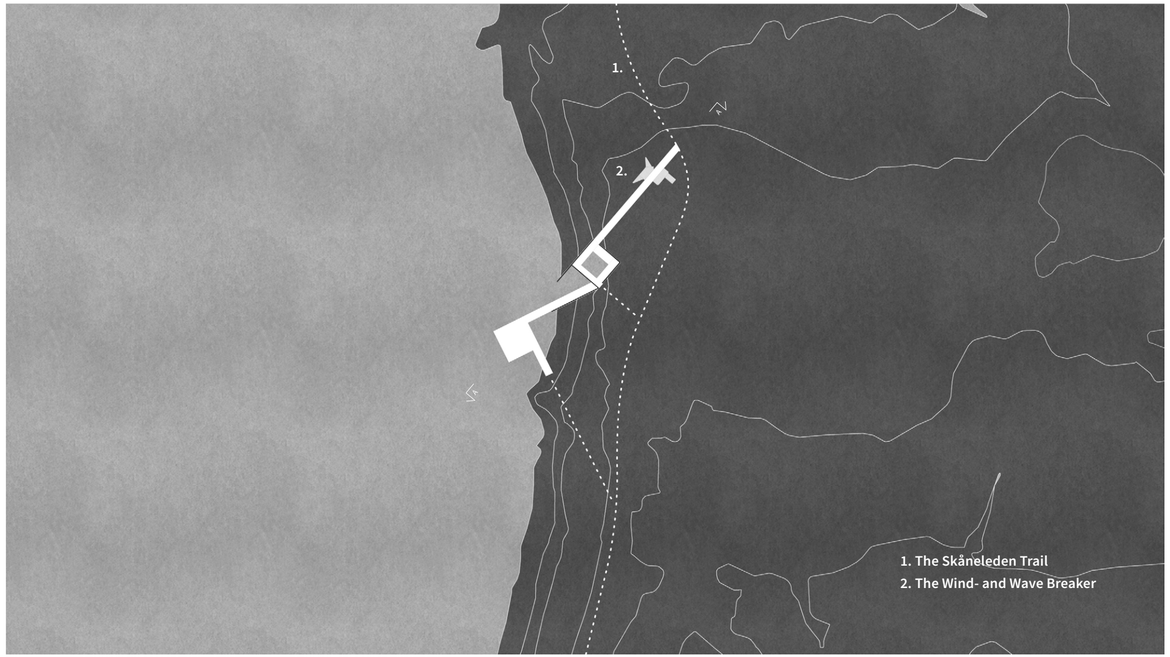
4. Sheltered ocean pool



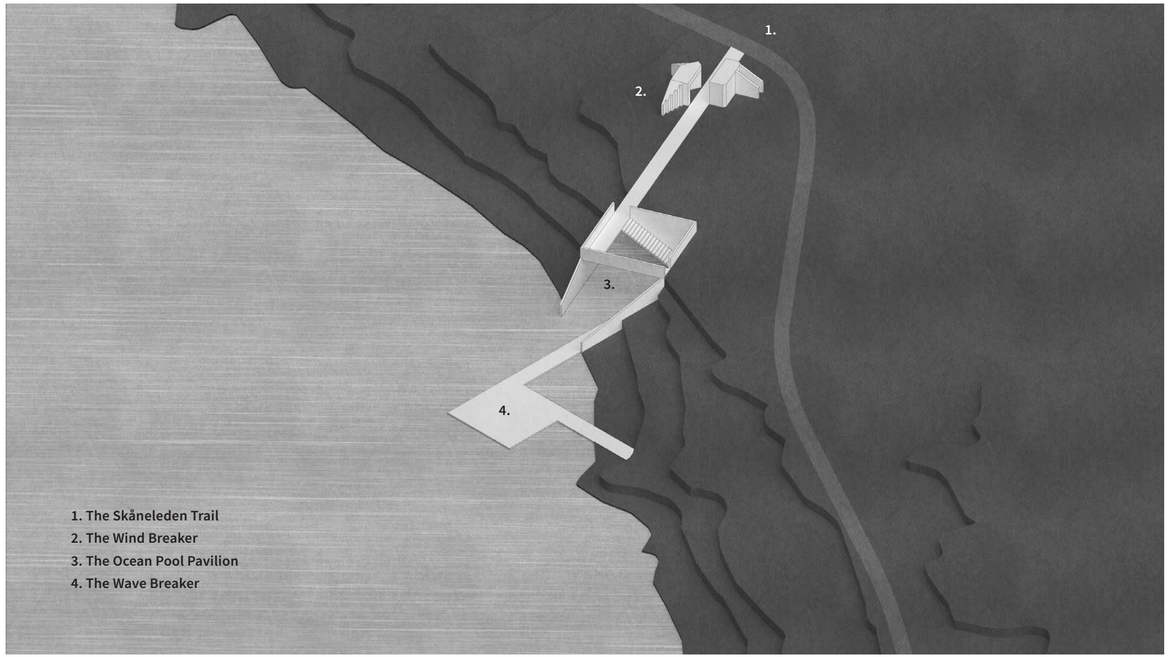
5. Exposed platform



6. Protected wind breaker



Site Map 1 : 1 000



Axonometry

THE ANIMATED WALK

Upon entering the intervention visitors pass through a portico directing them towards the shoreline.

The portico is an abandoned military bunker that has been sliced down the middle to reveal its insides. Visitors can choose to climb into the abandoned concrete structure that acts as a windbreak.

From here visitors continue to a newly constructed pavilion that is sunken into the shoreline. Visitors enter the pavilion via a roof terrace where they can take in grand views of the sea. The terrace is also an observation platform where they can experience wind-generated movement both through bodily impact and visually such as when the waves crash onto the shore.

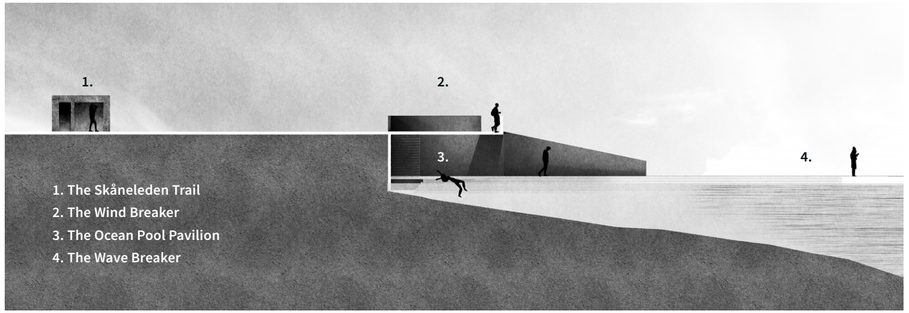
Visitors continue through the structure on a staircase that leads them down to a semi-enclosed space slightly above sea level. Here the path passes by a natural ocean pool inside the pavilion. Two walls protect the ocean pool from harsh winds. Visitors can swim in the semi-enclosed and tranquil ocean pool pavilion while watching the rough sea.

The walk culminates outside on a low-lying ocean platform that reaches out into the ocean. It acts as a wave breaker and separates the rough sea in the southwest from the calm sea in the northeast.

The ocean platform stands on the fluid, undulating, limit of the sea level and allows waves to roll over it and spill over into another outdoor ocean pool. It makes bathing in the rough sea more accessible to the visitor depending on their swimming skill level.

The movement of waves over the ocean platform blurs the boundary between the structure and the natural elements and allow them to intertwine and promote each other.

After the tour around the different swimming facilities a path leads the visitor back to the Skåneleden Trail.



Section A–A 1 : 300

The Wind Breaker, exterior perspective

The Ocean Pool Pavilion, exterior perspective

The Ocean Pool Pavilion, interior perspective

The Wave Breaker, perspective

THE RAIN PAVILION

CONTEXT

The Rain Pavilion is located slightly south of Torekov.

At the site there is an abandoned quarry called Dagshög. Today it is naturally filled with rainwater and has become a small lake.

Surrounding the abandoned quarry there are traces of building ruins and foundations of an ocean pier on the shoreline. These ruins are leftovers from the abandoned quarry activity on the site.

On the site there is a marsh with several freshwater pools. The rain, and water in its many forms, from sea water to freshwater has defined the landscape.

Site Photos

CONCEPT

The Rain Pavilion takes on the form of a semi-covered pier. It is a newly constructed pier that has been placed next to the foundations and remains of an old pier.

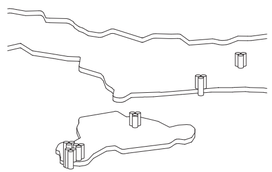
Once again, movement is a key theme and concept in the intervention. The movement created by the rain animates the pavilions interior and visitors move through a choreographed spatial sequence.

Each space either exposes or protects the visitor from the rain. It can also be used as an observation platform to take in grand views of the landscape or witness rain-generated movement.

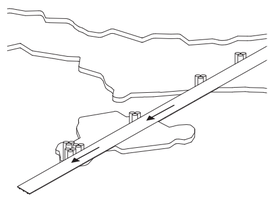
The visitor is made aware of the rain through its impact on their bodies, or visually by animating standing water.

The intervention is a hybrid between an observation platform, an ocean pier and a sculptural visitor attraction. The structure also juxtaposes the past and the present.

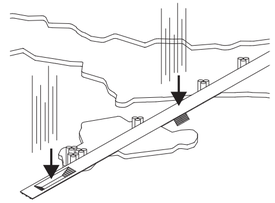
The environmental footprint of the intervention is minimized by placing the structure next to the remains of the old pier.



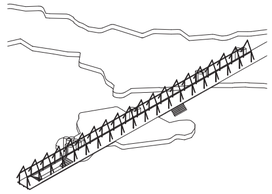
1. Rain intervention



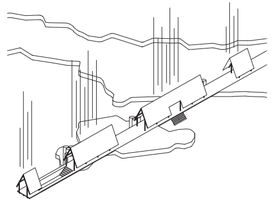
2. Exposed pier



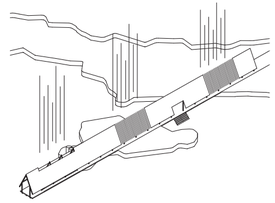
3. Exposed rainwater pool and descending stairs



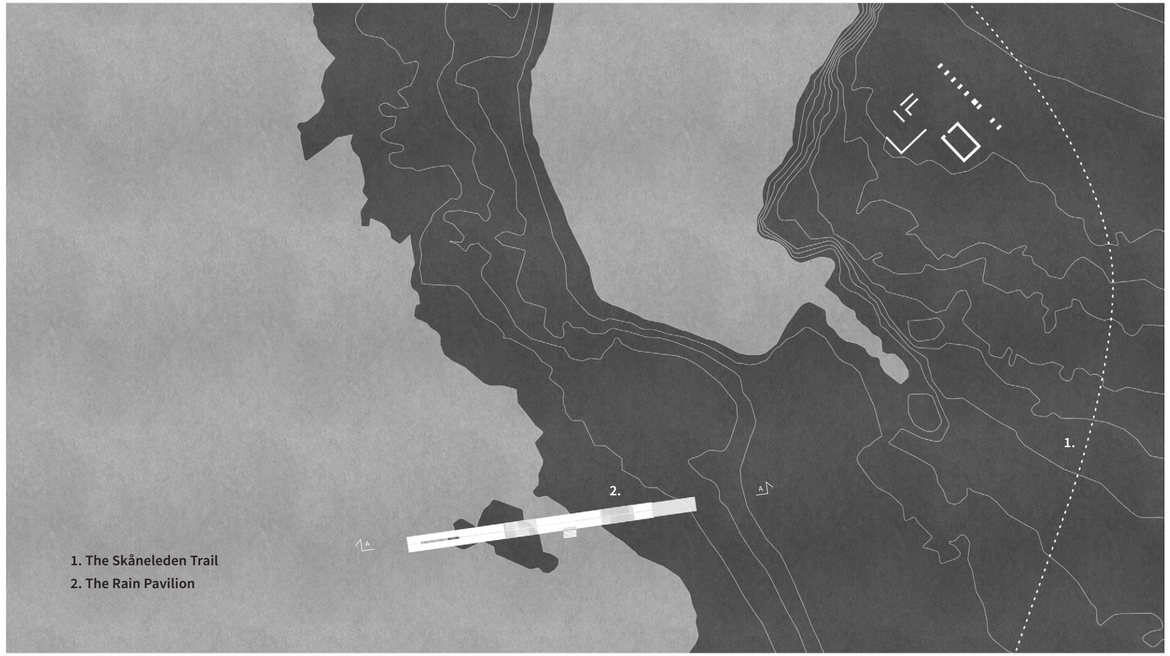
4. Structure



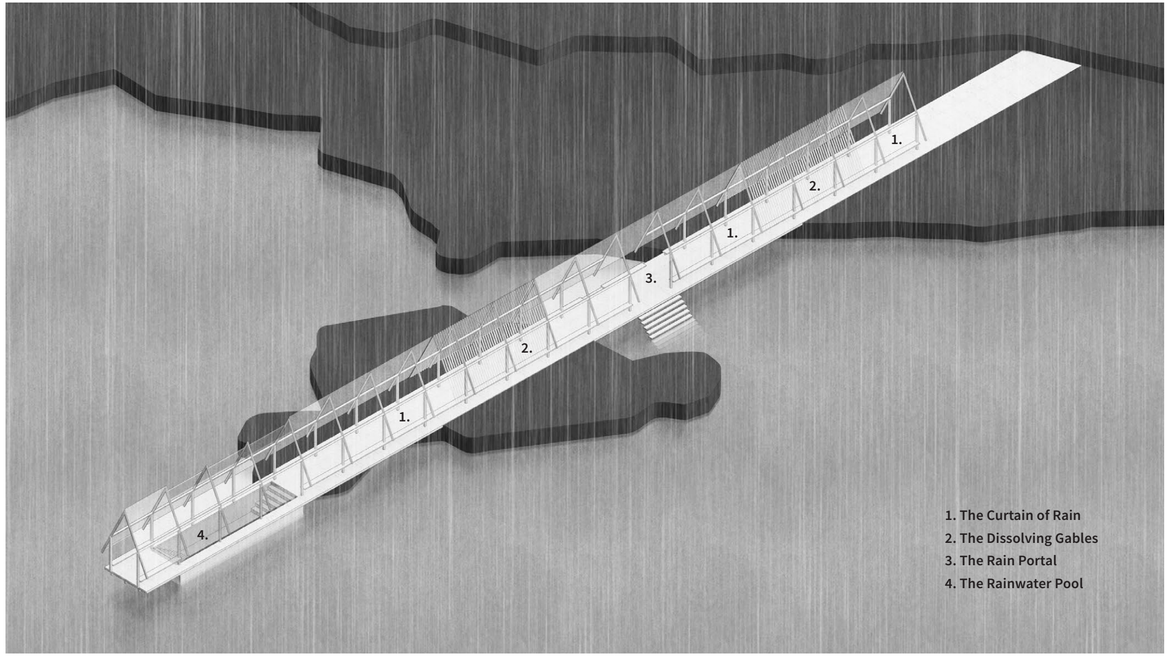
5. Sheltered walk



6. Exposed walk



Site Map 1 : 1 000



Axonometry

THE ANIMATED WALK

The pier is partly covered, partly exposed, by a sequence of roofs. Extended eaves on the covered parts of the pier allows rainwater to fall directly from the roof without damage to the structure, in the process creating a natural rain curtain that can be considered as part of the architecture.

Walking through the entire pavilion on a rainy-day visitors can observe the rain water curtain and experience a physical, body sensation between dry and wet.

The semi-covered part of The Rain Pavilion enhances the experience of rain through felt body sensation and sight. A series of suspended slats allows rainwater to filter through from above and the floor becomes a reflective surface when covered by water.

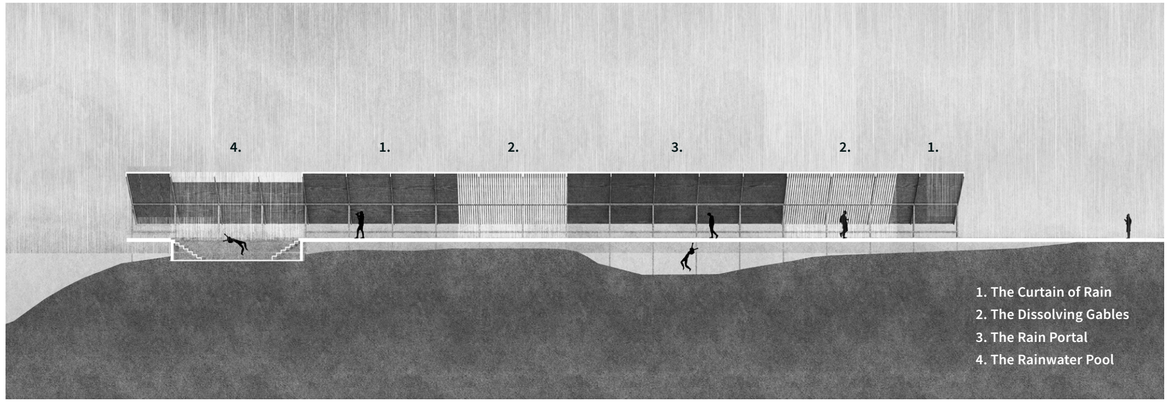
The contrast between cover and exposure along the spatial sequence makes the visitor conscious and present. Here the visitor both feels and sees the rain.

The covered part of the pavilion enhances the experience of rain through sight and sound. Protected by the roof the visitor can sit along the sides of the pavilion on benches and hear the impact sound of the rain on the roof and surrounding water. The visitors can also feel the moisture and mist created by the rain water curtain pouring from the low-lying eaves.

A portal directs visitors through the rainwater curtain to stairs that descend from the pavilion down to the ocean allowing visitors to swim. The rain portal works with contrasts to enhance the visitor's senses and creates an enclosed environment that frames the phenomena of rain.

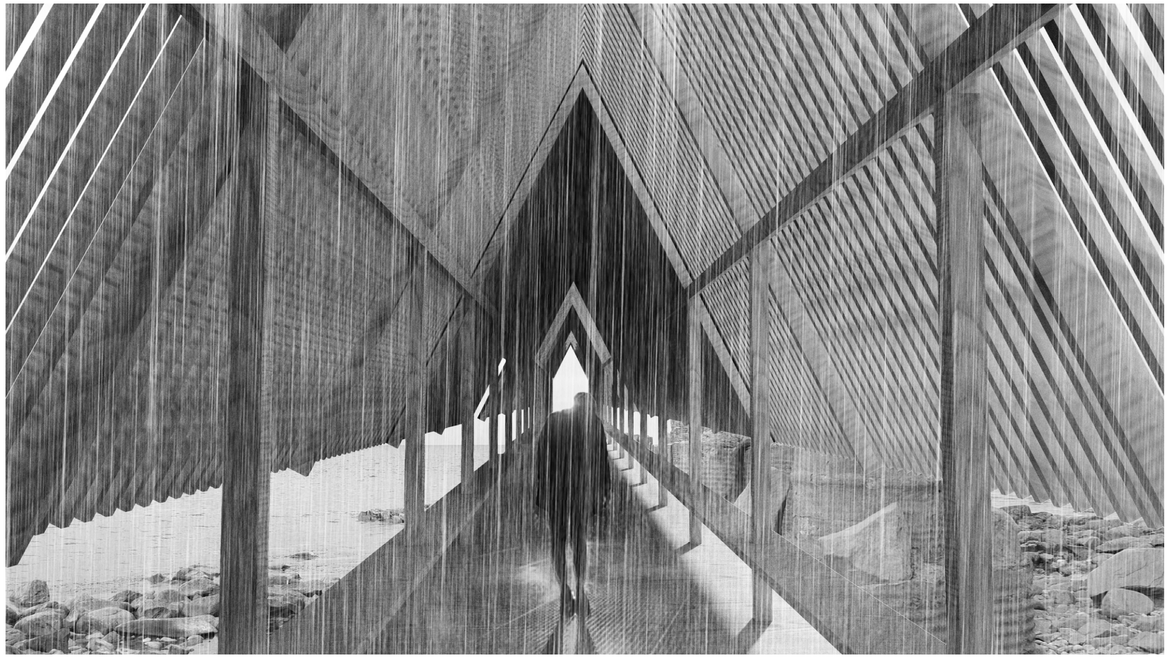
The final, semi-enclosed, part of the pavilion enhances the experience of rain through touch and sight. An opening in the roof makes the rain pour down and water is collected in a rainwater pool underneath.

Here the visitor can sit in the pool feeling and seeing the rain from above. The low-lying eaves of the roof creates an enclosed environment that frames the weather outside through its shape. Once again, the directed walk leads visitors through a sequence of contrasting spaces that triggers different senses.



Section A–A 1 : 300

The Rain Pavilion, exterior perspective



The Dissolving Gables, interior perspective

The Rain Portal, interior perspective

The Rainwater Pool, interior perspective

CONCLUSION

Weather defines spaces. The sun, wind and rain have a huge impact on the character, atmosphere and experience of a place.

In my opinion, to think about architecture involves considering the above-mentioned phenomena. Therefor I think it is important to physically confront and study the everchanging weather at a site and how the weather elements interact with topography and vegetation to create a certain character or genius loci at the site. In the thesis investigation I have made a point of visiting and studying the site on many occasions during the process, over time and in different weather.

The reading of the weather phenomena at a site is among my most pleasurable activities as an architect. By studying and working with them the possibility to become more familiar with the site has increased along with a better understanding of the context.

In the beginning of the design process I conducted experiments and testing with physical models. It has been a part of my methodology.

Countless demands arise from the physical, natural world. Many of which cannot be measured simply by speculation and calculation. A physical model can show us not only a buildings form but also the movements of the sun, wind and rain and provide clues to the design. Hypothesis, theories and opinions regarding the phenomena can be extracted from the models.

The results and knowledge gathered from the model experiments were reflected into the building designs combined with the knowledge and sensory experience generated form site visits. This method has helped me understand how to use the movements of the sun, wind and rain as a tool, component and parameter for the design.

By exploring how buildings can be designed to reconcile their traditional role as protection from the weather elements with the active inclusion of their movement, the thesis hopes to show how architecture has the potential to bring people closer to nature and its ever-changing weather. This can help improve the well-being of people while at the same time support the conservation efforts of natural environments through ecotourism.

The Bjäre Peninsula has great potential and possibilities for developing eco-tourism. The combination of unique nature, art, culture and an entrepreneurial environment, makes it an interesting area to explore nature experiences even wider. By adding another layer of content in the experience of nature along the The Skåneleden Trail the area can become a destination that celebrates weather architecture in Sweden.

My choice of methodology has supported the end results of this thesis in a positive way although I could perhaps have done more if I had the time. It would have been interesting to take the physical models to the site in the design process and do more experiments with them to further confirm within them the movements of the sun, wind and rain. I could also have conducted the experiments with models of a larger scale to get a more accurate reading of the phenomena.

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