



COLLECTIVE PRODUCTION

- Processing facility for seaweed in the archipelago of Fitjar

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Introduction

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This is an investigation of the relationship between production and local community, worker and visitor. A leap into a new type of industry and how coastal communities can benefit from town production. Our strategy is to design the facility for seaweed, but at the same time adapt it to shared use. By looking at processing space as adaptable production halls with adjoining functions, like equipment storages, water stations and dry,-cold- and frozen storage, several food resources can be processed simultaneously.

A facility that combines production of high quality seaweed with processing of local food resources from the coastal district. Our interest is how the requirements of a production process can inform architectural space.

The factories forgotten architectural potential. One would rarely paint a factory today, unless it is abandoned and old. It is because we no longer see the beauty they bring to towns and its sign of progression. Old factories have the ability to withstand decades of wear and tear and have adapted to their site and local needs. We think a building that can withstand time both in use and expression is sustainable. To build structures that people take care of will only happen if the structure is perceived as beautiful, well built and useable over time.

You could argue that the reason a town became a town, is because of the relation between resources, people and the factories. When we place industry in a small coastal town, it is vital to look at how the production could benefit the coastal communities and how the locals interact with the production. We find this duality interesting as an architectural approach. The balance between the functional industry and the human factors like scale, light and materials.

Research

Seaweed

Seaweeds is an unexploited resource along the Norwegian coastline. With stable cold water temperature it is ideal for growing seaweed. A challenge with the seaweed industry is the short harvesting and processing period from March to June. During this period, the largest areas (the processing halls) will be occupied. This enable us to work with shared use the remaining months.



- Seaweed cycle:

*Hatchery and processing is on land.
Transplant, primary growth and
harvesting is on sea.*

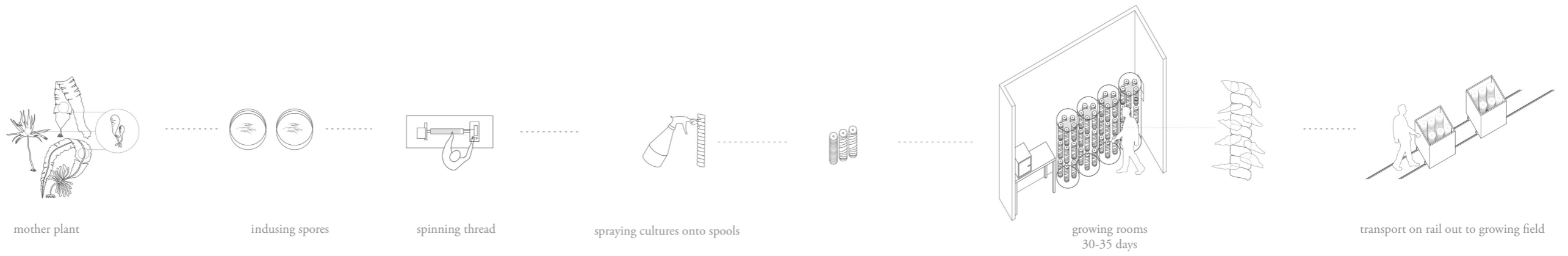
Through visiting different scales of seaweed companies we were taught about the seaweed production and how it is still in an early phase (in Norway). Today there is no permanent facilities. The industry use contemporary structures or existing facilities for other food resources.

For food production facilities its important to emphasise the history of the product and the connection to the local communities. As the world becomes more globalised, the road from raw material to consumer becomes blurry and complex. Focus on quality and authenticity gives however nurture to produce locally again, and therefor its a global tendency to focus on smaller production facilities. The story of the product gives an added value to the food experience. This is one of the reasons why the Norwegian brand is known for its high quality food and therefore competitive on the global market.

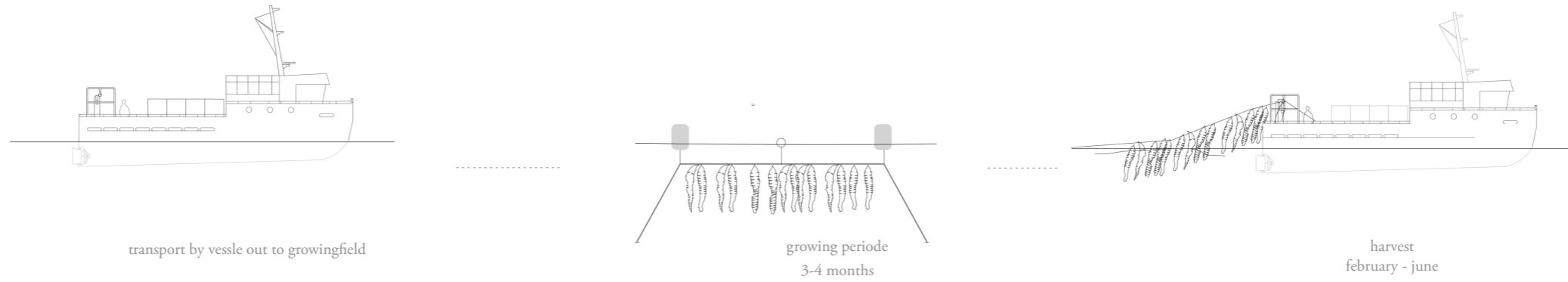


seaweed production line

land

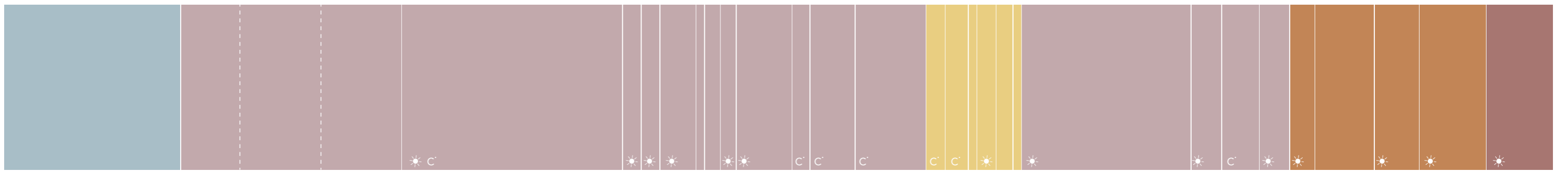
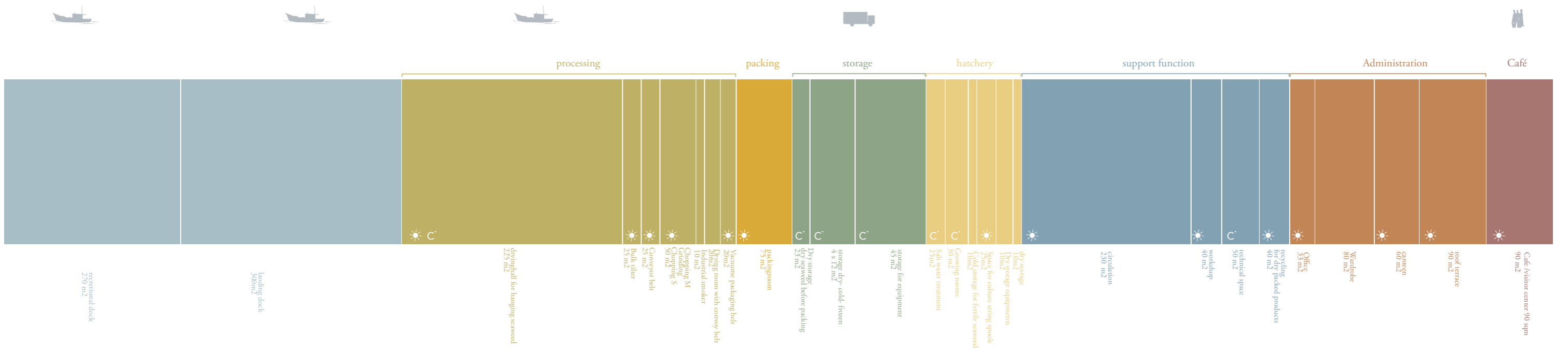


sea



land

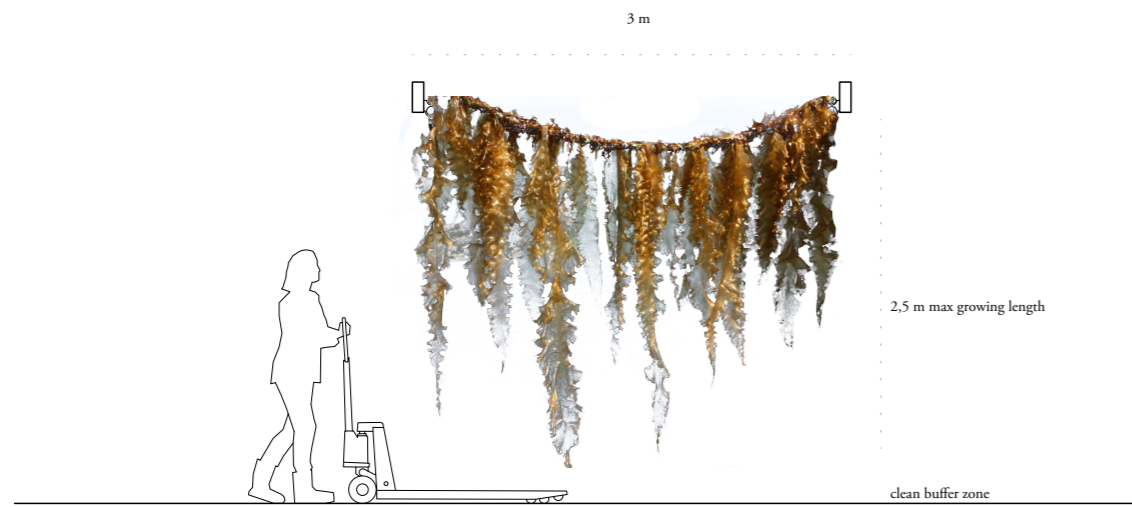




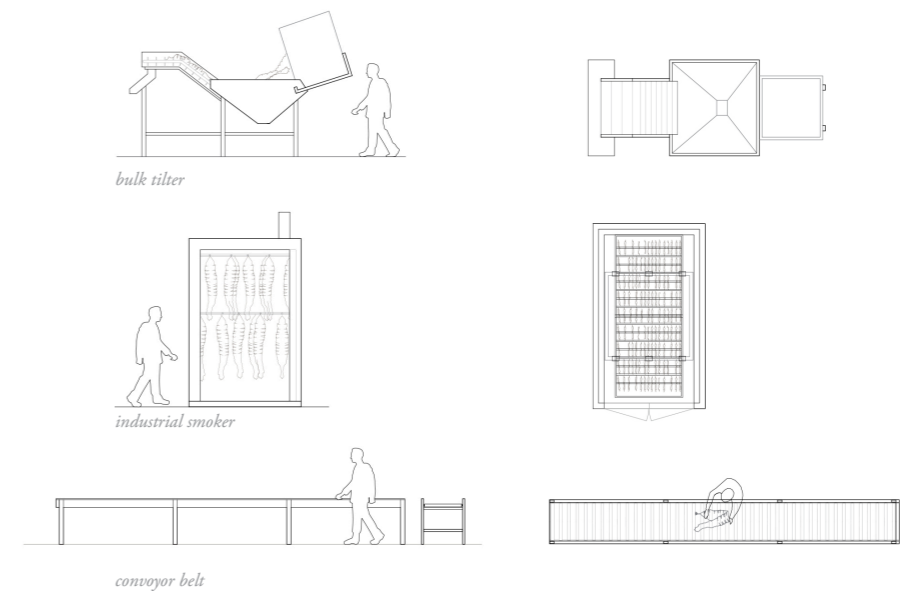
- C⁺ Regulated temperature
- ☀ Daylight
- 👤 Public / Visitors
- 🚚 Close to the road

Generality
adaptability for other food product

Trough our research of seaweed production the generality of rooms and requirements became present. Since this industry is fearly new in Norway, and the methods still are being developed, we thought it was logical to study the general needs and not tailor the facility to specific machines. This lead us to look at the facility for seaweed in a way that it could work for other resources. Because of the strict regulation in the meat industry it was hard to combine the production with seaweed so we choose other resources that was present in the region; fish, fruit, vegetable and berries.



- *Drying requirements for hanging seaweed. 3 meter span and the sugar kelp can grow up to 2,5 meters long in a few months.*



- *flexible machines and equipemnt in the new industry. Bulk tilter, industrial smoker and conveyor belt.*

Materials and food production

There has been studies on the use of timber in food production. In Denmark the food safety authority has considered it risk free to use nordic timber(pine, ash, birch and oak) in food industry.

- Schirmer, Bjørn. "Bruk av tre i kontakt med mat" nofima.no , 2010



collage study of atmosphere in dryinghall

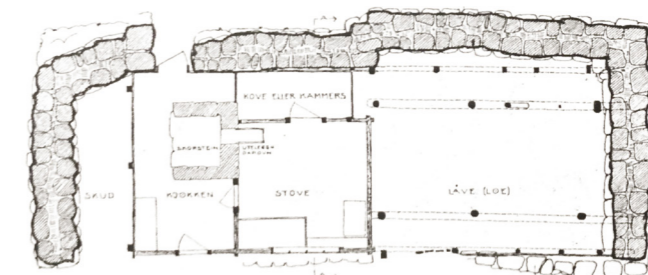
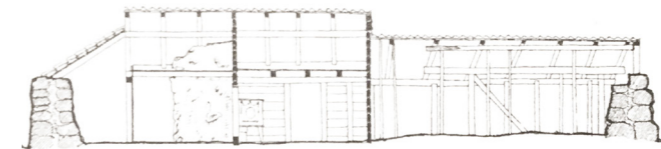
Local building traditions

We studied the local traditions and techniques in timber along the western coastline. Through our investigations we found some architectural themes, about materiality and structure, that we brought into our project.

masonry base - typically in stone or other robust materials

timber construction - ist traditionally to build in wood allong the west coast of Norway

The importans of gradually moving in and out of a building. To be protected by the wind, rain and sun.



traditional stone base loadbearing and protection

Norwegian politics

«The west coast has three advantages: the people, the nature and the resources. This is a good vantage point for local settlement and for economic growth over time. ...

Excessive believe in the market, large unit and increased centralization is not the way to go.»

- Hadia Tajik (politician) interview with Bergens Tidende, 2015

The Norwegian government has always been depend on the coastal communities and their supply of resources. The politicians encourage to build local businesses were the resources are located.



Conditions for location

through our strategy and seaweed requirements

01 town

The facility should be located in a town/municipality that are in need for new jobs.

02 infrastructure

close to existing infrastructure (E39 main road) for delivery and further distribution.

03 coastline

To reduce the distance for transport of seaweed and easy access to fresh salt water the facility should be located by the waterfront



Placement and site

Fitjar

We have chosen Fitjar municipality and town as our case study. Today Fitjar is a municipality with 3200 inhabitants and is dependent on new initiatives that can bring activity through jobs as well as tourism.

The will to create is a tradition and a necessity among the coastal life of Norway. From the islands there were a long and often wethers travel to the main land, resulting in self-sufficient and independent societies.

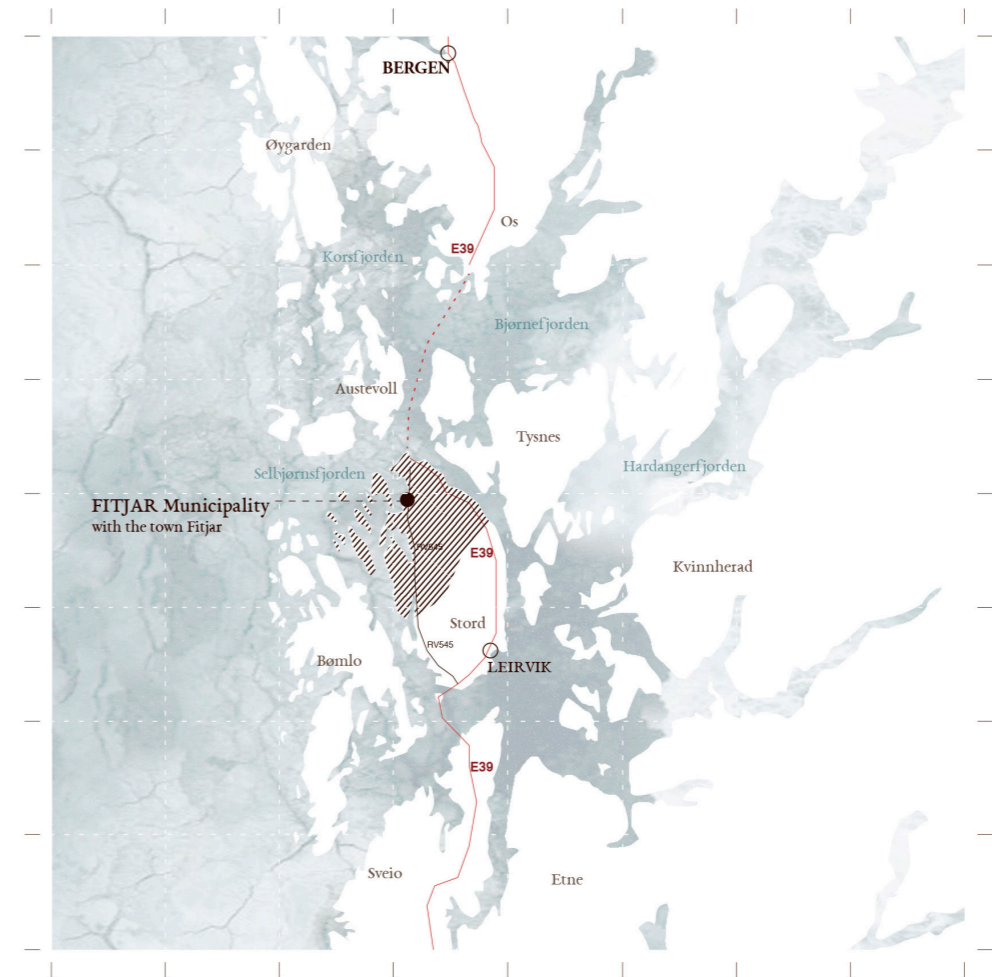
Fitjar has a long history with agriculture and marine culture. The district, Sunnhordaland, is known for its rich food diversity, and are now emphasising local produced food. Seaweed is a new resource with a growing interest in this culinary world.



Fitjar has Norway's largest windmill park, with 44 windmills, and it has become the symbol of Fitjar's silhouette.



Fitjar archipelago has 380 islands and is therefore a kayaking hotspot for locals and visitors.



59°55'08.7"N 5°18'19.8"E

- E39 is the main road in the district and is located approximately 2 hours south of Bergen.



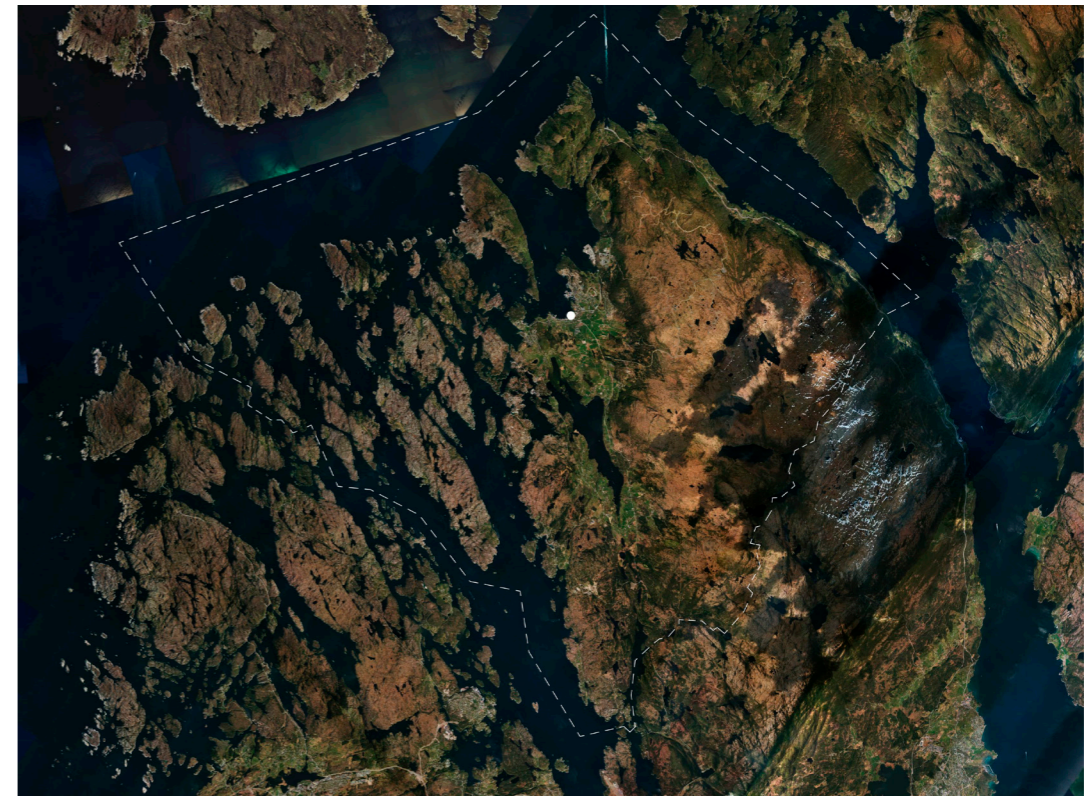
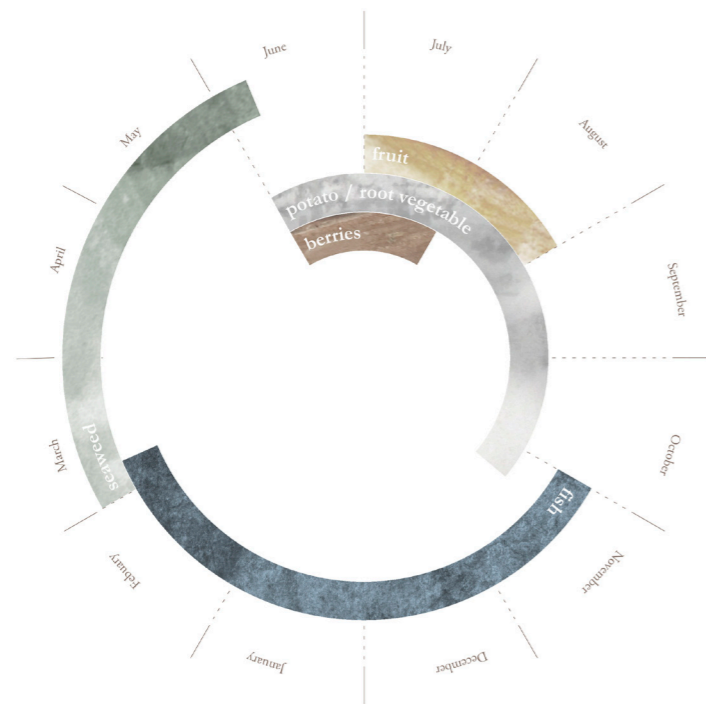
Mariculture - herring period



*Agriculture combine with renewable energy
Photo: Kråko posten*

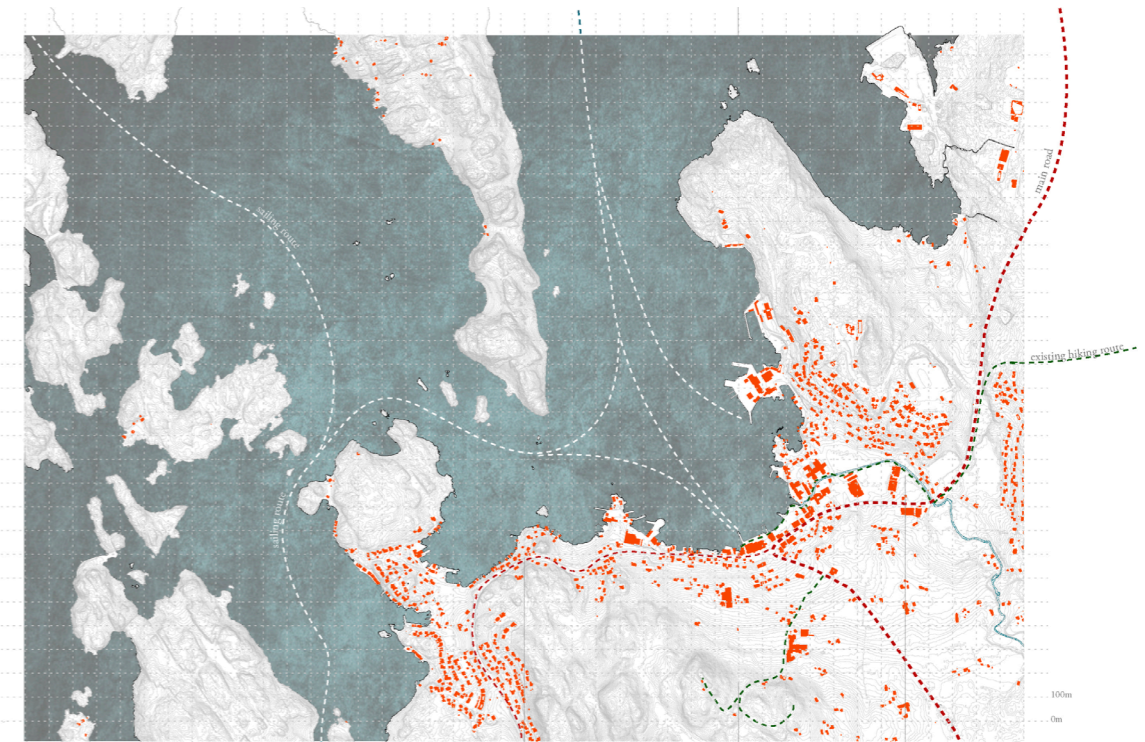


- From this district with 1,5 hours travel time from Fitjar, will the resources be delivered from.



Fijar's archipelago protects Fijar town from the Atlantic ocean and the harsh coast climate.

- *Shared use of the facility.
With resources from Sunnbordaland district fruit, berries, vegetables and fish.*



The municipality of Fitjar is proud to be a kayaking hotspot and emphasizes this attraction for tourism.



Kråko is a peninsula 5 minutes south of Fitjar center. Since 2011 there has been built 400-500 cabins at Kråko. This is the largest summer cabin area in the county of Hordaland and it brings a lot of activity and enthusiasm to the town of Fitjar.



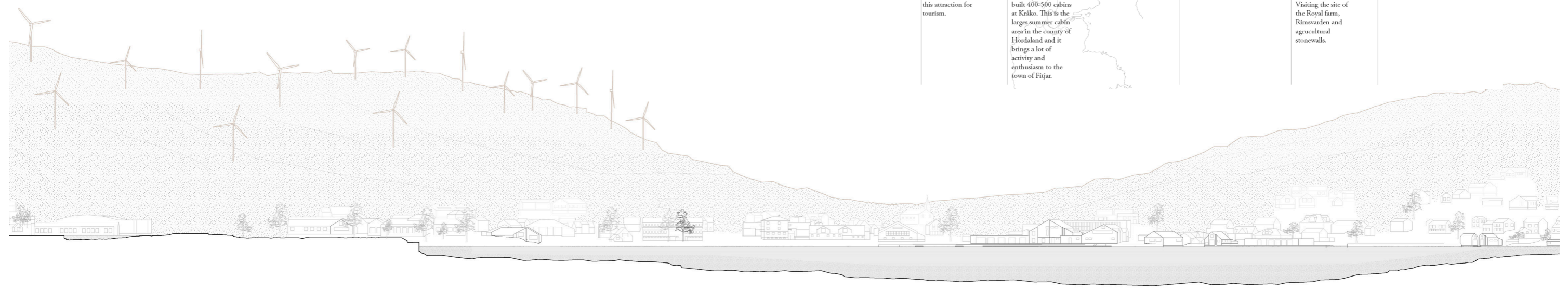
The local road around Storaavatnet connects the center with Kråko.



Fitjar's viking history contributes with a cultural route around Fitjar center. Visiting the site of the Royal farm, Rimsvardein and agricultural stonewalls.



There is a lot of popular hiking routes up to Middfjellet, 400 meters over the sea.



Our strategy for Fitjar center

01 Connecting the street (urban) with the waterfront (recreation).

02 Densification in urban area along the street with permanent dwellings for the workers and seasonal dwelling for workers and visitors.

03 Our project, production facility connects the two sides.



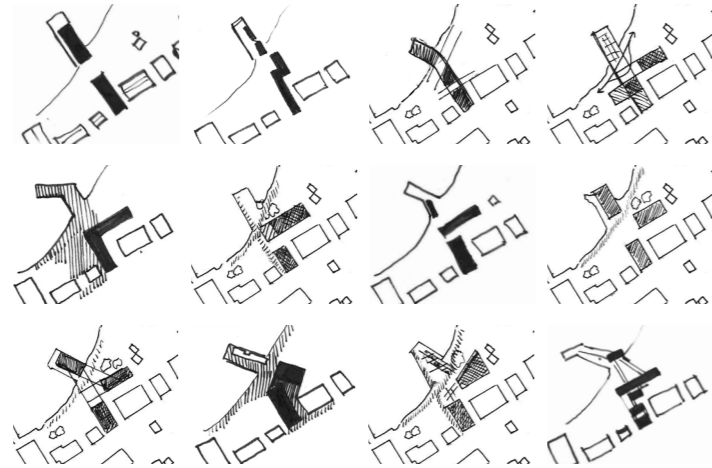
Destinations in Fitjar centre - site near the local high school



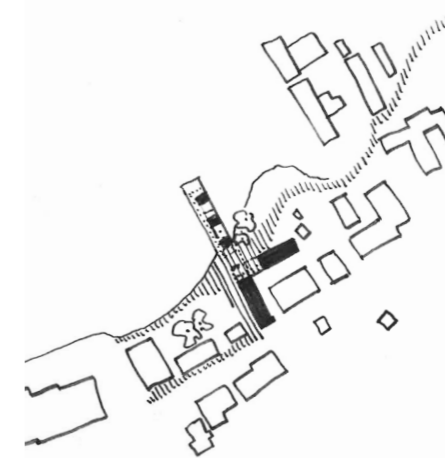
Activity along the road has created a backside towards the waterfront



Process



Sketches - connecting water and street and preserve the local pathway.



Concept drawing



site conditions



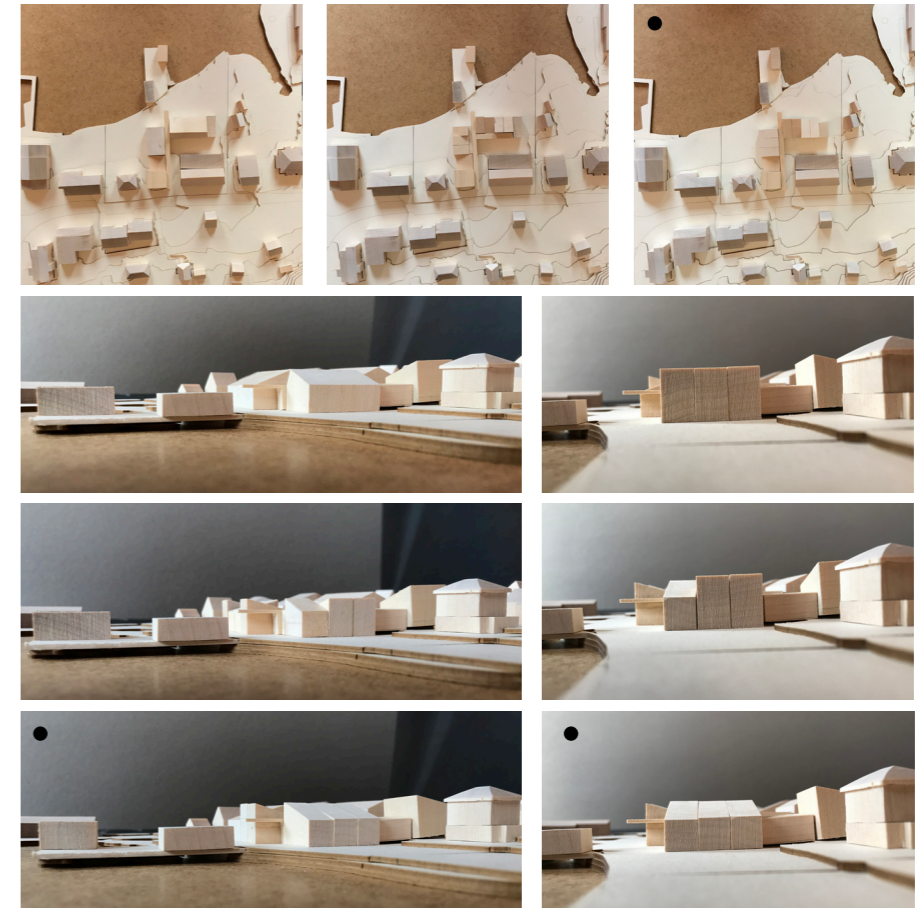
The site from the waterfront



The site from the street

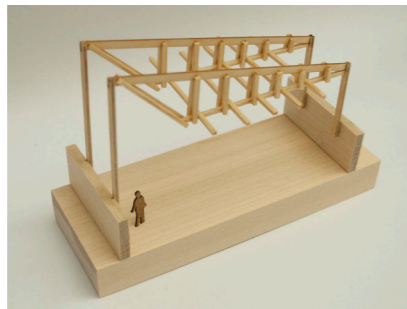
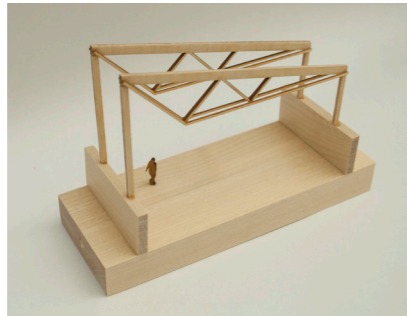
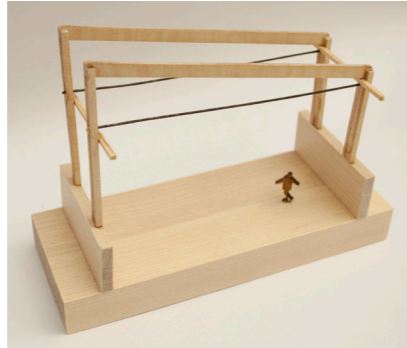
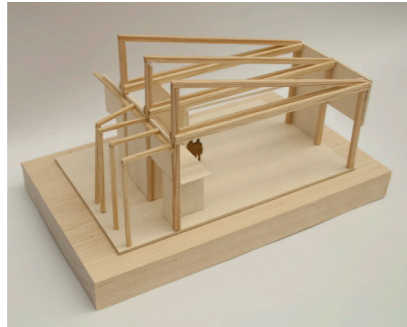


We tried to using existing driveways and transport zones to preserve the green area in south west along the waterfront. By developing the existing transport zone for the electronically store Euronic, we preserved the waterfront for recreation.



A roofscape study - to find the "Fitjar scale" - From beautiful site to integration of industry in an ordinary village site.

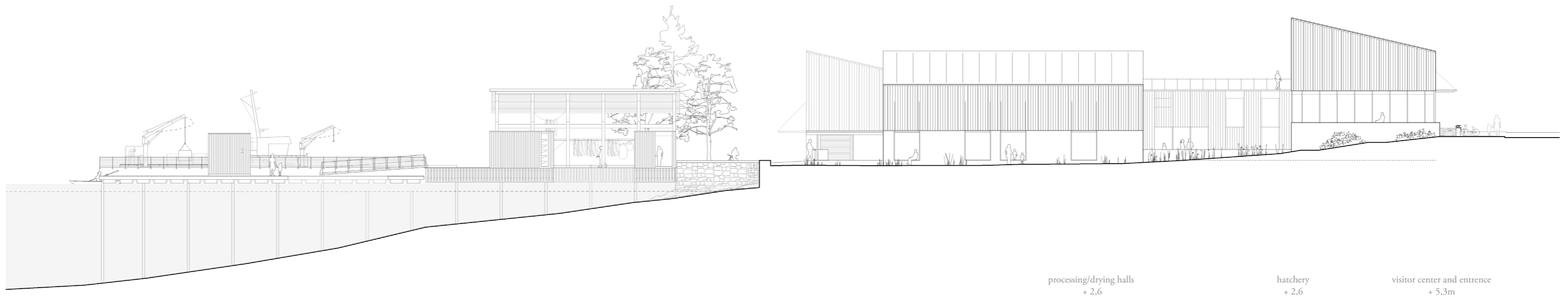
- *We landed on the volume that scales down towards the pathway*



Through our study of the timber structure, we searched for a construction that could span 12 meters and with the possibility to hang seaweed. We wanted it to be possible to read the seaweeds requirements through the timber structure. While the other food resources are processed, you can see the reminiscence of seaweed.

Collective production
processing facility

In our proposal we are connecting the town with the waterfront; the urban and the recreational area. The visitor center is located at street level, placed as a brick in the town structure. The processing floor and dock relates to the recreational area with a local pathway crossing the facility along the shoreline.



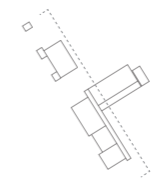
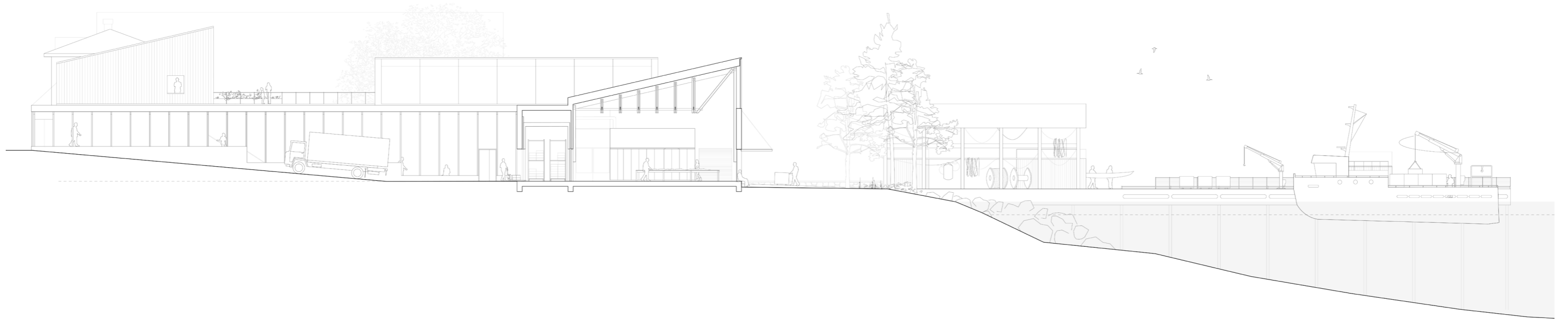
« Architecture can't force people to meet, it can only plan the crossing points, remove barriers, and make the meeting places useful and attractive. »

- Brown D, lecture at European Architectural History Network, 2010, Portugal

From the street level, the worker and the visitor arrives at the front porch before they enter through separate entrances.

The worker arrive in the circulation axis, they get an overview of the facility before they walk down through the wardrobe into the production floor. The concrete base follows the slope down to the processing floor and meets the repetitive timber structure that filter the light in to the circulation axis.

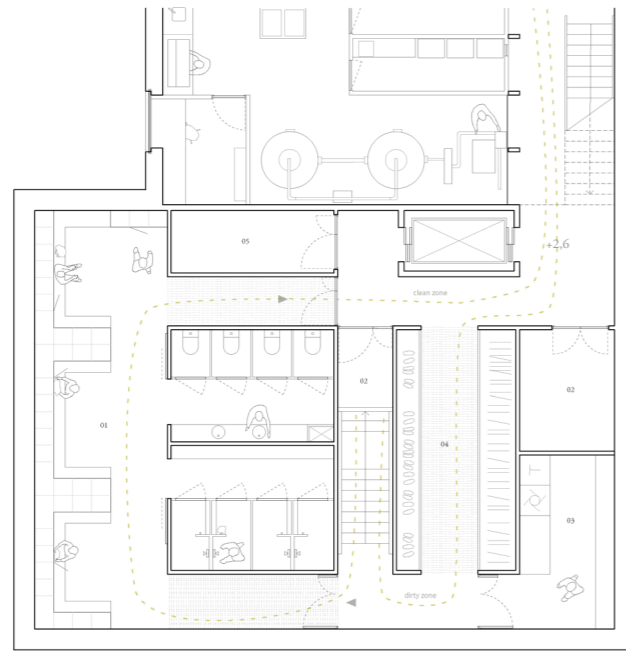




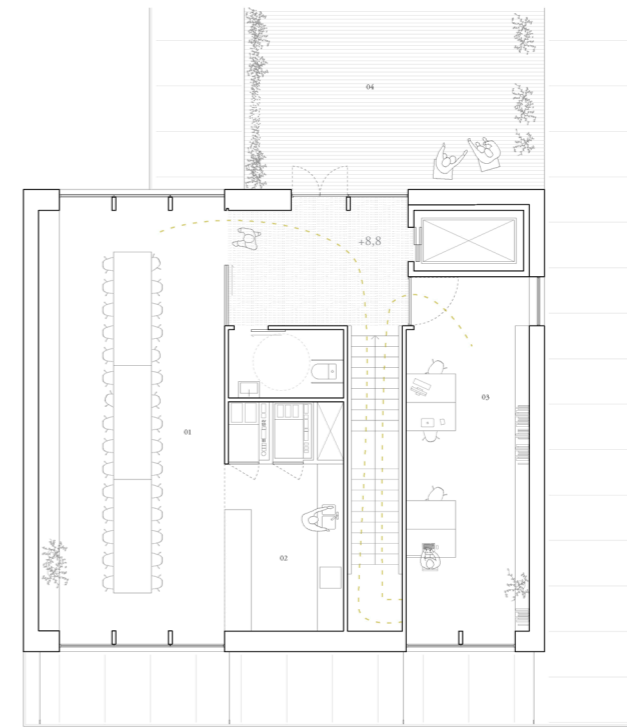
The first step in the seaweeds production line is the hatchery. This is a space for researching and growing seaweed spores before they are transported out to the growing fields. When its harvesting season, the seaweed is brought from the dock directly into the processing halls. One drying hall for hanging seaweed, and one hall for other processing methods. Then its transported to a space for packing, and moved to storages as finished products, ready for further distribution.



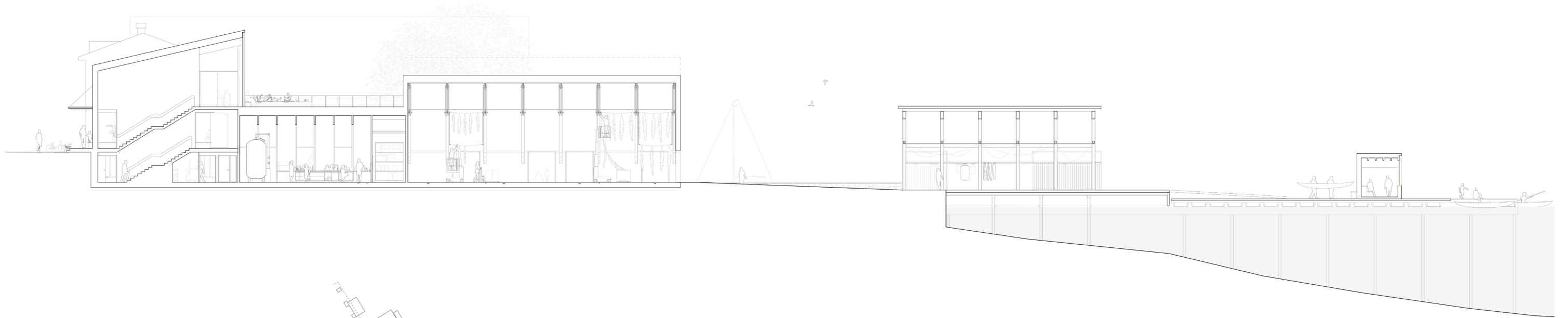


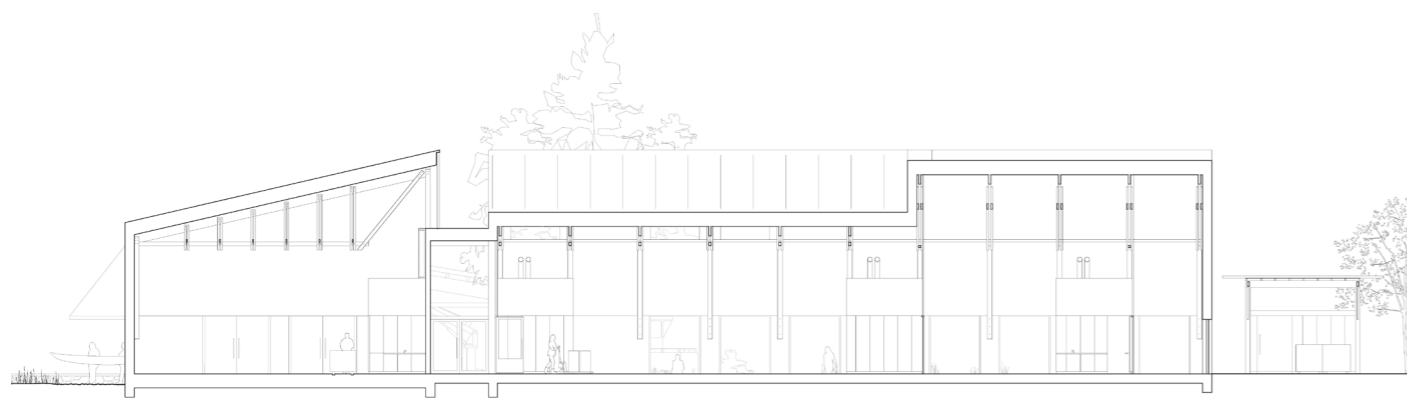


01. changing room 02. storage 03. laundry 04. work cloths

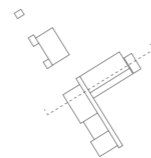


01. canteen 02. kitchen 03. office 04. roof terrace

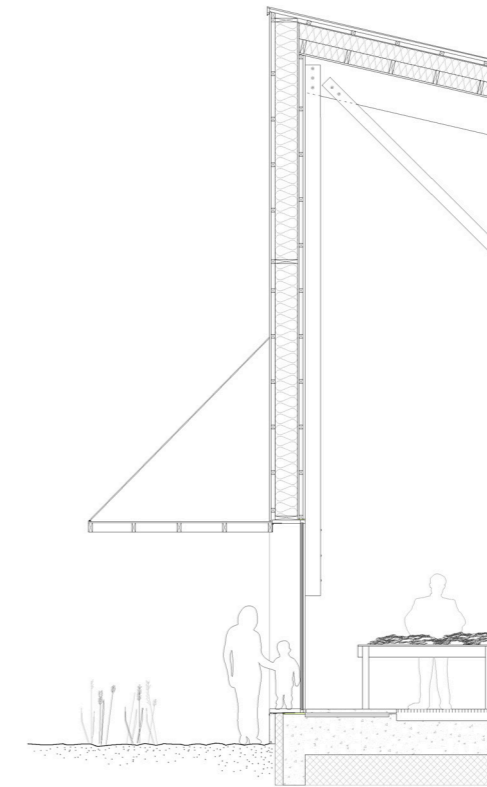
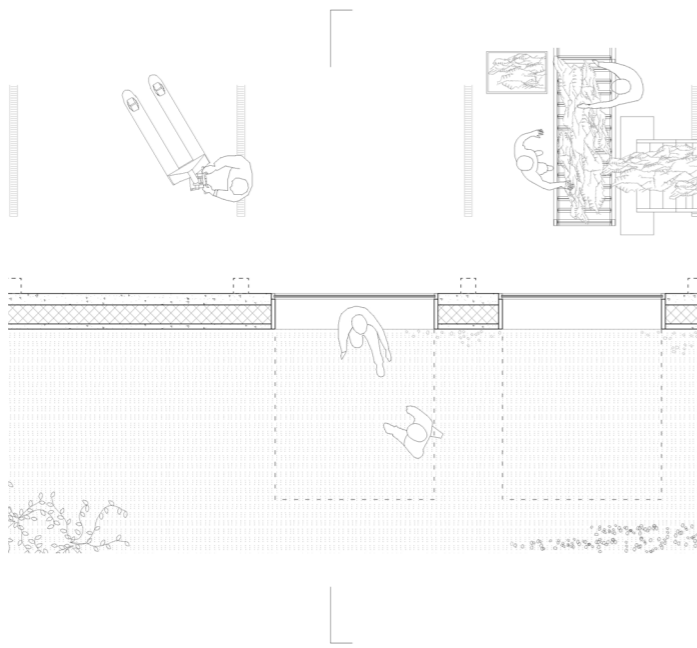




In the processing halls, we have worked with a robust base in exposed concrete that can withstand the moist and rough environment. A timber structure is hanging onto the 2,5 m high base with an overlap by 1 m, amplifying the role of the solid base in a rough industrial context. This preserve the floor more flexible and easy to clean.

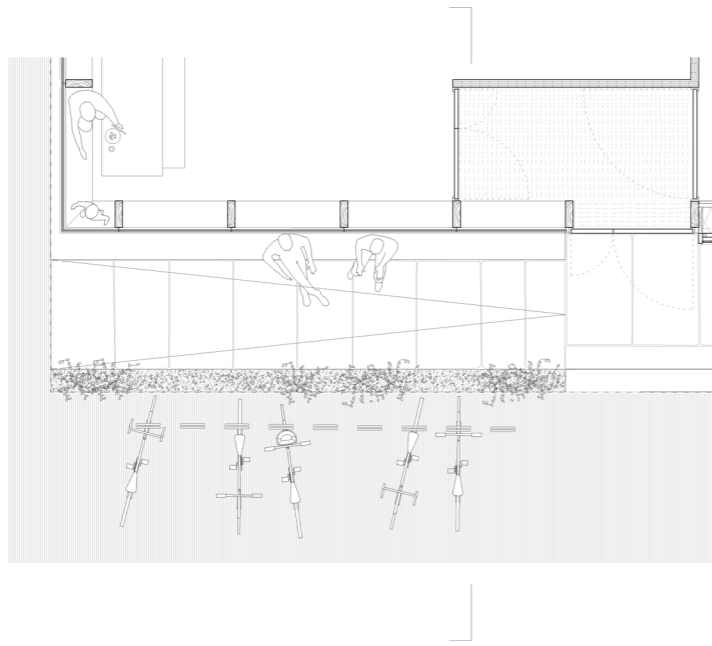
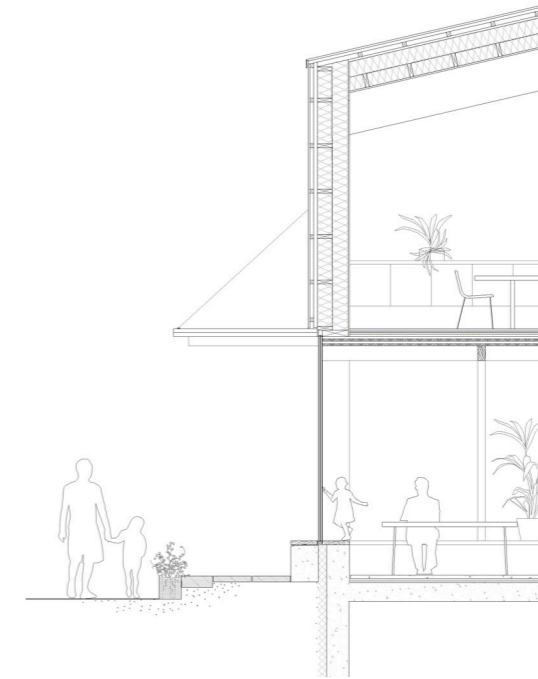


The exposed trusses create a second sealing with its dense system of horizontal and vertical timber elements. Through the windows above, the filtered light gives a distinct atmosphere in the workspace.



The openings in the walls extends the processing space to the outside, and is amplified with a hatch that protects from sunlight and the harsh weather. From the local pathway the production can be observed through these hatches with integrated benches.

The facility becomes the connection between community and industry. Its important to include the facility in the towns everyday life. The hatches is a part of this strategy. Here the informal meetings between local, tourist and worker happens. The building is enclosed by carbonized wood cladding on the upper part and the concrete base with the hatches integrated. The roof is oxidized zinc, as a matte black surface that meets the black cladding.



The centre becomes a destination for the locals and visitors. Its a place where you learn about seaweed and local resources, and how to include it in your every day life. Trough a open facade with timber columns the centre invites the public in. The timber structure integrates sitting niches to reduce furniture and preserve more flexibility. The space works as a cafe, lecture room for guided tours, arena for cooking classes with visitors and locals and as a industrial kitchen to develop of new products.

