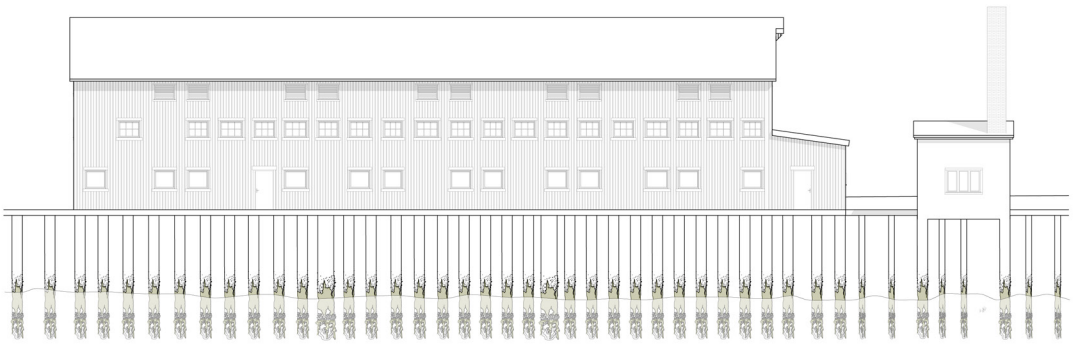
FANGST

ET FOREDLINGSANLEGG FOR FISK OG TANG

Project: Seafood processing facility



Diploma Spring 2023

Marie Mork Nielsen

BINDER 1

Marie Mork Nielsen

Oslo School of Architecture and Design

Diploma Spring 2023

Supervisor Tine Hegli

Note,
Unless stated otherwise all illustrations and images are by author.

PØBEL, In cod we trust
Photo: By author

CONTENTS

ABSTRACT

The fishing industry

With the case of Vardø, my diploma project investigates the current problems with the fishing industry in coastal communities in Northern Norway and suggests how to strengthen local settlement. Over the past couple of years, I have worked a lot with Vardø, a small island off the coast in Øst-Finnmark and developed a deep interest in the fishing industry. I was first introduced to Vardø through elective course Urban Preservation in spring 2021, later through studio course Climate Form fall 2022. I have subsequently worked with several fishermen and main actors in Vardø, as well as Vardø municipality.

As a consequence of overfishing in Norwegian waters from the 80s, the Norwegian government decided to regulate and reclaim most of the fishing quotas around year 2000[1]. As the rights to fish shifted hands from local fishermen to bigger investors, operative and flourishing fishing villages in the north were left depopulated, depressed and dilapidated. Most fishing villages along the Norwegian coast remain today as symbols of the past industry, while the actual industry takes place far off the coast, on the boats we cannot see.

Traditionally, fishing was synonymous with physically tough and dangerous work. Only men went to sea, while wives, children, youth and elderly contributed to the household and the industry on land. They were responsible for large parts of the fish production related to gutting, baiting, tying nets, drying fish heads, salting, drying fish etc. [2]. As the processing of fish was more or less removed from the fishing villages, so was the land-based workplaces and diversity within the industry. Major loss of workplaces led to depopulation, and the coastal villages have as a consequence been diminished mainly to drop off points of fish. With the aim of managing the settlement and strengthening the population growth in the north, I want to investigate how one can contribute to bring back local workplaces through architectural proposals and program. With Vardø harbor as a point of departure, the project investigates how a vacant harbor building can be transformed and reused to house future industry. To re-establish a connection to the mainland and secure future work and settlement.

1 Nofima: 2022
2 Balsvik: 2001, s 125-133

Photo: By author

Ocean cultivation

Being first and foremost a fishing village makes Vardø extremely vulnerable to political, economic and ecological changes. Traditionally the coastal people in the north subsisted through a combination of fishing and farming, in Norwegian called *fiskar-bonden*. In the harsh and rocky northern areas there was little nutrient-rich soil to cultivate, and fishing was a dangerous profession depending on ecological seasons. The combination of two sources of nutrition and income provided families with what they needed to secure the settlement. Diving into the past and learning from our history, my exploration for the future comes from an inspiration of these historical traditions. The project further investigates how the industry of small-scale fishing can be expanded and strengthened through symbiosis with a new, up and coming industry; seaweed farming. Hereby referred to as Ocean Cultivation.

Seaweed is one of the most unexploited natural resources on the planet, and the conditions in Finnmark, with its pure arctic water and midnight sun, are particularly good for high quality farming. As it is among the fastest growing plants in the world, packed with nutrients, there is a growing interest for cultivating seaweed in Norway today[1]. Research even indicates that the growth of seaweed is important for fish spawning and can strengthen the overall fish population[2]. Seaweed have traditionally been used in Varanger as animal feed and emergency supply, but somewhere along the way we have forgotten to include this macro-algae in our own diet. Through exploring a symbiosis between small-scale fishing and seaweed cultivation, the project aims to expand the seafood industry in a more diverse direction, that can bring back local workplaces for processing and open up for greater participation across gender and age.

1 Øverland: 2021
2 Barents Seaweed

Transformation and reuse

Due to decrease of population over the last decade, Vardø harbor is today characterized by a large proportion of abandoned buildings and massive decay. The backdrop of my diploma comes with the local urgency to reinhabit the harbor and preserve the use of harbor buildings for the fish industry. The project will look into transforming one of the abandoned buildings on the west side of the harbor into an operative facility for seafood processing. With the aim to reduce the carbon footprint of the entire industry, my architectural suggestion will focus on climate mitigation and adaptation through reusing existing structures and materials. My interest is how the merge between the traditional architecture and the new industrial demands can inform architectural space. I believe that the incorporation of seaweed farming as a part of the fishing industry is a method that can be turned into an important source of income for coastal communities. The end result is a first step towards yielding a sustainable change in the current fish politics, preserving the traditional small-scale fishing through a symbiosis with seaweed farming, all whilst transforming a vacant building that once was optimized for fishing.

THESIS

When the Norwegian government around year 2000 bought the fishermen out of the fishery to regulate declining fish stocks, coastal villages in the North were left unemployed and robbed from their livelihood.

With the case of Vardø, the diploma investigates a strategy to reinhabit and stengthen the coastal settlement through symbiosis between small-scale fishing and seaweed cultivation. With an urgent need to put the buildings in Vardø harbor back into operation, the project investigates how a vacant harbor building can be transformed and reused to house future industry to bring back local workplaces. How does the merge between the traditional coastal architecture and the new industrial demands inform architectural space?

Kystopprøret, Naturressursene tilhører alle
Photo: By author

METHOD

With this project I want be as hands on and investigative on site as possible. I have therefore planned to stay one month in Vardø to be close to the industry, the site and the context.

Through the following three steps, the project will look into transforming a vacant building that once were optimized for fishing to an operative ocean cultivation facility.

Step 1: Investigating the existing context and structure
Step one is to survey what is the current condition of the building and what urgent needs are missing. What does it take to maintain the building mass to be put back into operation and what possibilities does the construction offer for transformation?

Step 2: Understanding the programme
What does the new programme require? How is the production line and how does the differens functions follow this?

Step 3: Adding and adapting to the programme
What is the required programme and how can it be spatially designed for effectiveness and greater participation across gender and age? How much can be built from local and reused materials?

PROGRAMME

FISH INDUSTRY

PREPARATION	PROCESSING	PRODUCTION
Baiting	Mooring space	Shop for sale of products
Bait preparation	Crane for lifting catch to land	Smokehouse
Freezers for “stamper”	Reception of catch	Racks for drying fish
Storage for gear	Space for gutting and filleting fish	Salting facility
Workshop		Freezers
Break room with kitchen and bathroom		
Laundry		
Office space		

SEAWEED CULTIVATION

PREPARATION	PROCESSING	PRODUCTION
Office space	A lifting and rinsing space	Shop for sale of products
Storage for gear	Space to cut and sort the seaweed	Packing space
Workshop	Freezer storage	Production kitchen with a cold storage
Wardrobe with a shower and drying cabinet	Dripping spave	Freezers
Break room with kitchen and bathroom	Dry storage	
Laundry		
Lab with growing room		

SEMESTER SCHEDULE

January	February	March	April	May
Research programme - Fishing industry - Seaweed cultivation	Analytical Study building/structure Delevop architectural concept	Analytical/Project Stay one month in Vardø Take measurements, talk to fishermen etc.	Project Develop drawings, talk to engineer	Project/Presentation

AIM OF DELIVERABLES

- Site plan scale x : xxxxx
- General arrangement drawings
    - Plan 1:100
    - Section 1:100
    - Facade 1:100
- Tectonic principals (axo/model)
- Details 1:10/1:20
- Structure diagrams (iso perspective)
- Illustrations
- Model
- Cultivation process diagram (fish and seaweed)
- Concept diagram
- Project diagram
- Workbook

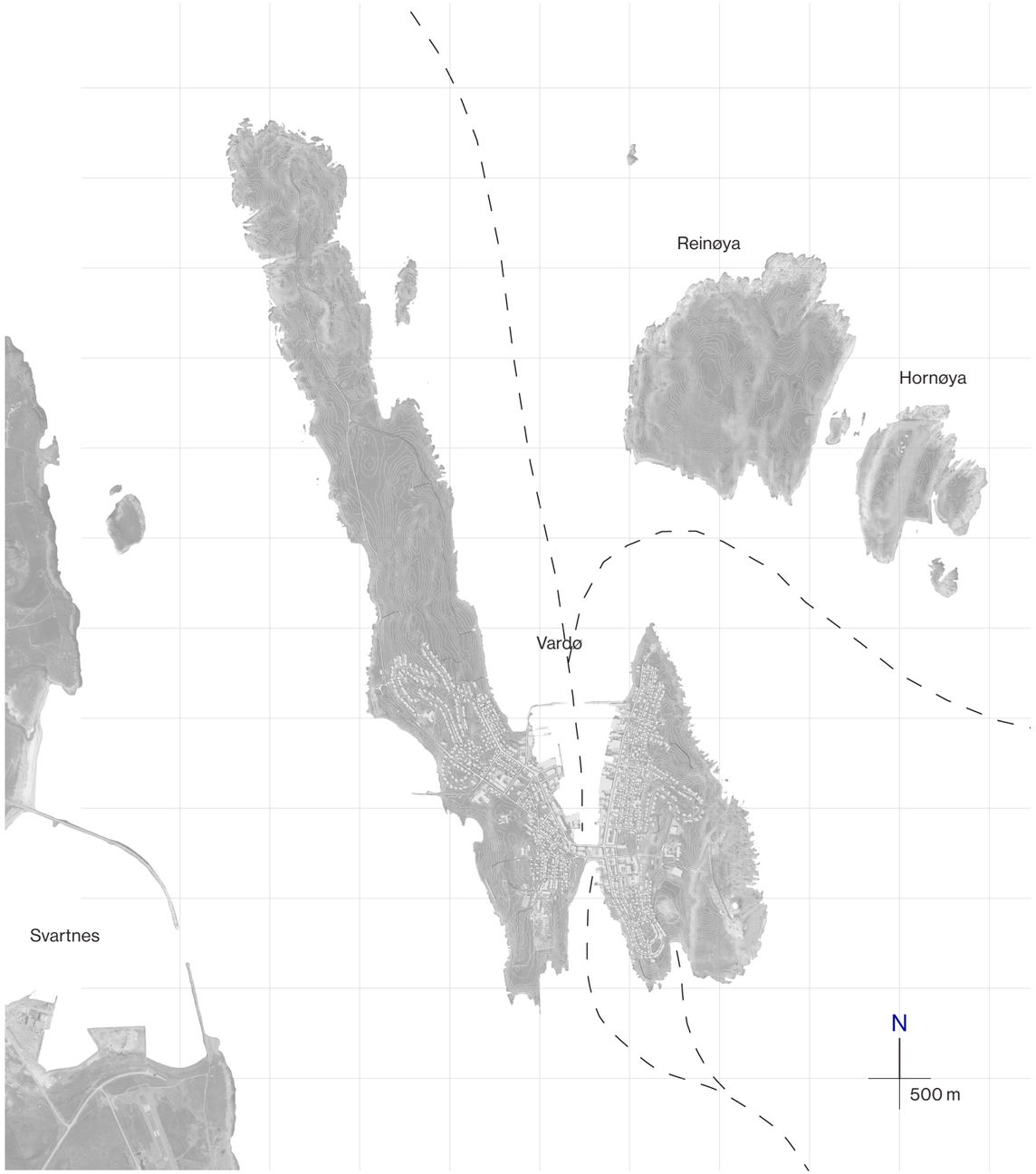
“The countryside is an amalgamation of tendencies that are outside our overwiev and outside our awareness. Our current obsession with only the city is highly irresponsible because you cannot understand the city without understanding the countryside.”

Rem Kolhaas
Icon Magazine, 2014

Distance from Oslo is approx 2000 km

THE HISTORY OF VARDØ - PAST & PRESENT

70° north, 31° east the lunge-shaped island Vardø is located. Situated on an island by the Varanger peninsula, off the mainland surrounded by the flourishing Barents Sea. Vardø is the easternmost settlement in Norway and one of oldest cities in Finnmark. It has a deep history of vernacular coastal settlements, Pomor trade and fishing traditions. It is a city, an island and a village. Vardø is located within the post arctic climate zone, and is quite unique with its long, cold winters and short, cool summers. A harsh environment with wind from all directions, characterized by a rocky landscape without trees. From the very first settlement people have lived from the sea. Norwegians started to settle in Vardø during the 14th century, and around this time the city's first church and fortress was built[1]. During the 16th century the demand for stockfish increased rapidly, leading to more people moving to Vardø[2]. Up until the 60s Vardøs history has been characterized by wealth and great trading culture. Today Vardø is portrayed as a ghost town. The harbor is mostly lacking in operation, and the society has suffered from recession and depression since the 90s



1 Varanger Museum IKS and Vardø Restored AS, Kulturminneplan, 2016: p. 6
2 Varanger Museum IKS and Vardø Restored AS, Kulturminneplan, 2016: p. 7

VARDØ HARBOR TODAY

Due to decrease of population over the last decade, Vardø harbor is today characterized by a large proportion of abandoned buildings and massive decay. From the 90s up until today the society has gone through a deep depression. Major parts of the harbor are still today non-operational and lacking critical infrastructure to become a self-sufficient port. To secure and strengten future settlements, there is a local urgency to reinhabit the harbor and preserve the use of harbor buildings for the fish industry. Even though there is a long way to go, the city have slowly over the last four years started to wake up again from it's deep coma thanks to local politicians and enthusiasts. The long tradition of Vardø as a fishery is deeply rooted in the local culture and manifested in vernacular architecture such as the traditional fish racks, piers and small scale production facilities. There is a great desire from the locals to preserve these buildings through use. Improvements must also be made to ensure a safe marina, and the municipality is waiting for the go to build a new outer breakwater.

Harbor buildings operative for fish industry

Historical fish buildings not operative/other programme

Demolised/burned down

N

Map: Gustav Cederblad Stamnes & Marie Mork Nielsen_UP 2021, updated by author

Han sa
Det ekke lenger lønnsomt
med fiske i nord
Jo! Hvis du vil skap
og hvis du har tro
på at lønnsomhet e mer
enn bare effektivitet
og jævli høy provisjon.
For effektivisering ekke verdt no
hvis fisken effektivt serveres bort
bli bortevekk
på frysehotell
Langt bort fra fiskehjell
dem som landa fisken
og dem skal foredle den
For edlere dela
fra norlige landsdela
må deles på flere
fileteres i lokalfjæra!
Sånn kan vi hindre
at kysten forelda
smuldra opp og bi historia
til Vårres foreldra

Ingvild Austgulen / slampoet

Paragrafkroken. Foto: Bertine Tønseth, Komafest

FISKARBONDEN

Traditionally the coastal people in the north subsisted through a combination of fishing and farming, in Norwegian called *fiskarbonden*. Fiskarbonden comprised two persons; a fisherman and his farmer wife. The two together formed the core in a type of household that included over ninety percent of coastal people until far into the 20th century. A couple of hundred years ago, almost the entire coastal population in the north were fishermen and farmers.

In a European context, Norway is a pile of rocks, and in the north of the country there are few places with enough land to cultivate. Fishing, in contrast, was a stable source of income, but also a dangerous profession depending on ecological seasons. The combination of two sources of nutrition and income provided families with what they needed to secure their settlement. For large parts of the year, the men were away - they fished in Lofoten or in Finnmarka. The wife ruled the farm and took care of livestock, children, housework and home fishing with *juksa*.

The *fiskarbonde* household was responsible for both harvesting, processing and consumption in the traditional coastal society, and was also an exporter of fish products. This adaptation thus created values that provided income for several levels of society, from the household and the parish to the citizenry and the administration[1].

Illustrations: Leidulf Olsrud

1

Flat racks, Vardø. Photo: Bredrup, Jakob Lauritz Smith / Finnmark Fylkesbibliotek

Flat racks, Vardø. Photo: Unknown, local photographer

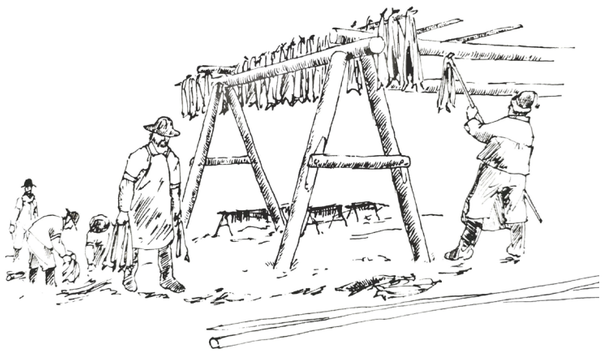


Illustration: Leidulf Olsrud

Illustration: Leidulf Olsrud

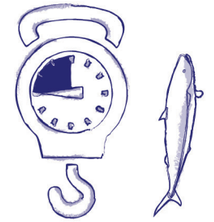
QUOTA POLITICS

Free fishery: The introduction of new technology such as sonar, power block and ring seine had made the fishing fleet very efficient, and the limits of what the fish stocks could withstand were reached. This led to the collapse of the herring stock in 1970 and huge variations in the overall fish stock in the 1980s[1]. Up until 1980 fishing was basically free of quotas. At this point the Norwegian government had to introduce fishing quotas to regulate the fishery. This gave the authorities much greater opportunities to intervene and regulate fishing when fish stocks were threatened with extinction. One strategy was not to allow new fishing vessels into the fishery, another was to set total quotas; a limit on how much of each species that could be catched each year.

Vessel quotas: To avoid overfishing during certain periods of the year, fishing had to be distributed over the whole year and participation limited. A system of vessel quotas was therefore introduced. When the size of the vessel determined the quota, it became attractive to acquire a larger boat. To avoid too many and too large vessels, each vessel was allocated a fixed share of the total quota. This provided predictability for the fishermen and simplified the distribution job for the authorities.

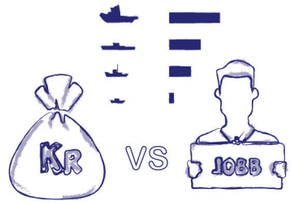
1 Balsvik: 2007

1970s: Herring crisis

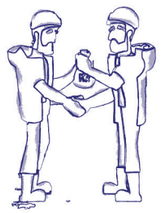


1980: Fishing quotas introduced

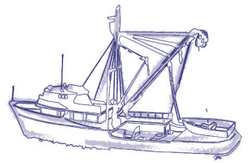
1990: Vessel quotas introduced

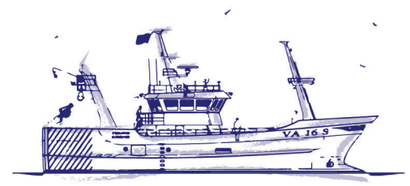


2003: The structural quota scheme



TODAY: Open and closed group





Source: Nofima
Illustration: By author

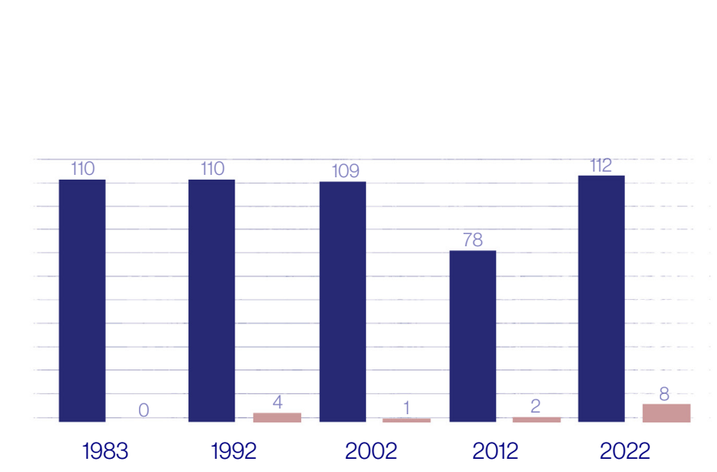
Local fishermen spend most of their time in the harbor maintaining their boats and equipment. Many have fished their quota already by April. Photo: Quentin Roche

Closed group: Although the vessel quotas solved several problems, fishing was still unprofitable because the quotas were distributed among too many vessels. To reduce overcapacity, the authorities started paying fishermen to condemn their fishing vessels. Essentially this was left to the fishermen to solve themselves, through the so-called “structural quota scheme”. If one vessel was taken out of the system, the quota could be transferred to another vessel that already had a quota. With fewer people to distribute the quotas, the remaining vessels received larger quotas, and the economy improved [1]. After years of strong restrictions on fishing, most Norwegian fish stocks were rebuilt, and quotas increased. Only the lucky ones with extra money could secure a quota in this group. These quotas are still today limited and are often referred to as closed group.

Open group: The open group has considerably less quota than the closed group but opened up to recruitment of new fishers with vessels up to 11 meters. Most of the remaining fishermen in coastal villages cling to this quota in order to survive. Everything caught is delivered to Norges Råfisklag and distributed [2].

1 Nofima: 2022
2 Holmen: 2021

Development in number of vessels - Vardø



Gender distribution in the fish industry - Vardø

Source: Fiskedirektoratet

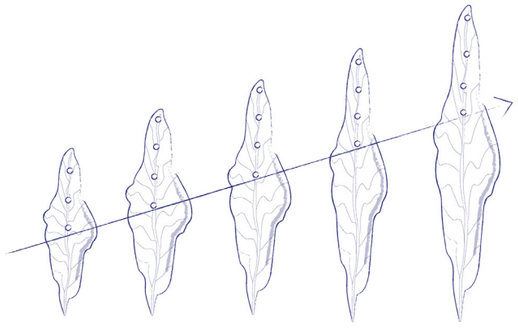
Drawing by: Brasø, Evy. Published in Finnmarken

SEAWEED AND KELP

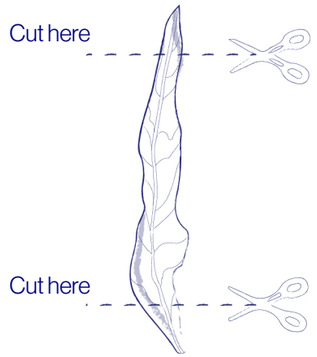
Seaweed is a type of macroalgae - a term that is used to decribe a diverse group of larger organisms that come in many shapes and sized. The largest species of marine algae can grow up to 60 m long, forming enormous kelp forests in the ocean. Different species of seaweed grow in different depths, but many species thrives particularly well in the tidal zone.

Seaweed is among the fastest growing plants in the world and one of the biggest unexploited natural resources we have. As it only needs seawater and sunlight to grow, seaweed has several advantages over land-based plants. Seaweed is also considered a *super-plant* as the most nutrient-rich plant in the world. It grows rapidly under the cold conditions in Norway and we see a growing interest in cultivating seaweed. Seaweed also binds large amounts of carbon from the water [1].

Varangerfjorden creates a perfect condition for growing seaweed – with it's pure arctic water and midnight sun. The constant daylight means that the vegetation grows rapidly. Seaweed blooms during the spring and can grow several meters over just a few weeks. Very few places in the world have the same growing conditions [2].



How seaweed and kelp grows: New leaf pushes the old in front of it. The longitudinal growth is measured by the distance from stem to holes. Holes are made for measuring growth. The stem also grows a little each year.



Source: Mann, 1973: 975-981
Illustration: By author

1 Øverland: 2021
2 Lofoten Seaweed

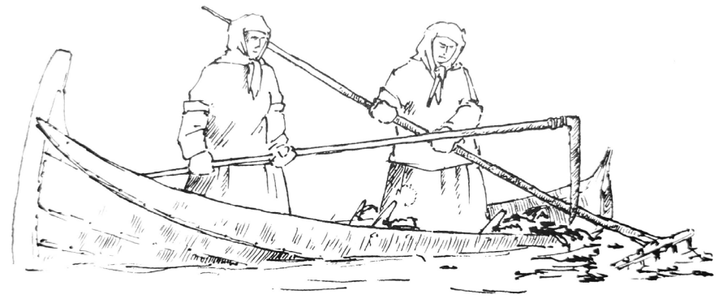
TRADITIONAL USE OF SEAWEED

Cultivation of seaweed and kelp has a long tradition among Norway's coastal population as a food supplement for people and livestock. Cutting kelp was most often done by the women on the farm. Kelp for fertilizer was piled by the shore and used when it had been desalinated. Almost all types of seaweed and kelp were used for animal feed and fertilizer[1].

The Sea Samis have long traditions of using and harvesting seaweed and kelp, mainly as animal feed. In the spring, kelp was collected, which was cut with a long-bladed scythe at a depth of 2-3 fathoms. Seaweed and kelp were usually cooked in the barn pot together with hay and fish waste[2].

During second world war several people survived by hiding under seaweed in the tidal belt. For this the award Tang- og taremedaljen for fremragende innsats in 2019. the seaweed is honored for its importance in coastal history the medal is made from casts of seaweed and kelp in tin using alginate.[3]

1 Snekkestad, 2022: p. 40
2 Kalstad, 1982
3 Johannessen, Tangboka: p. 62



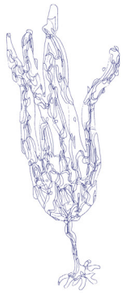
Women harvesting seaweed. Illustration: Leidulf Olsrud

Sheeps eating seaweed. Picture: Susan Swarbrick / The Herald

PROGRAMME RESEARCH

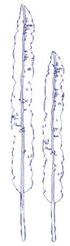
PRODUCTION LINE

MAPPING SEAWEED IN VARDØ

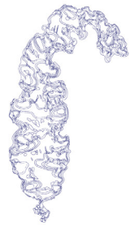


Cuvie
Stortare

Oarweed
Fingertare



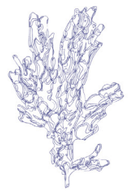
Winged kelp
Butare



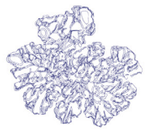
Sugar kelp
Sukkertare

Bladder wrack
Blæretang

Knotted wrack
Grisetang

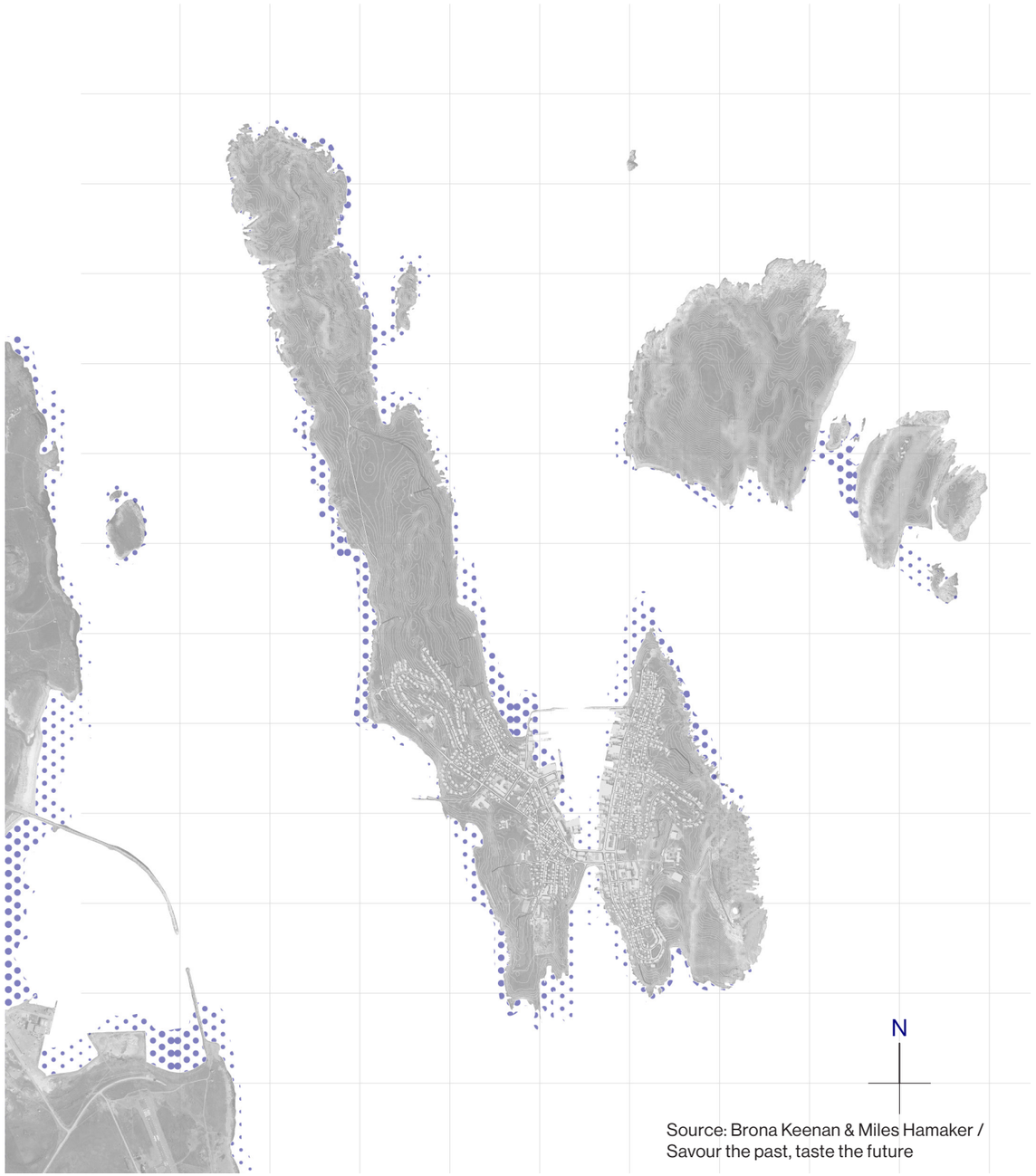


Dulse
Søl



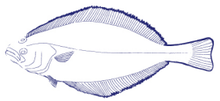
Nori
Fjærehinne

Source: Future North / Brona Keenan



Source: Brona Keenan & Miles Hamaker /
Savour the past, taste the future

SEASON SPECIES

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
 Capelin		—	—									
 Cod	—	—	—	—								—
 Haddock						—	—	—	—			
 Halibut						—	—	—				
 King crab	—	—		Illegal		—	—				—	—
 Seaweed - harvest				—	—							
 Seaweed - deployment									—			

Source: Conversation with local fishermen

SEASONS

JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC

FISH

Main spring season

Main summer season

Main winter season

SEAWEED

Harvest

Primary growth

Deployment

Transplant of sporophytes

Source: Conversation with local fishermen & Lofoten Blue Harvest

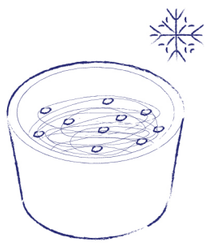
PREPARATION

FISH

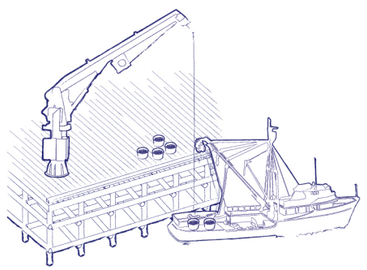
Bait fish supply

Bait preparation

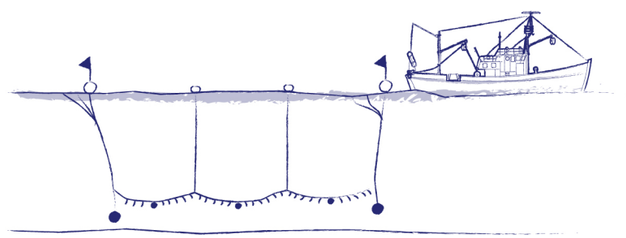
Baiting



Ready line

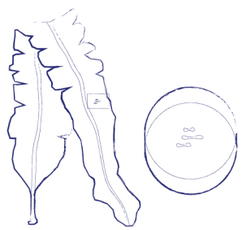


Load boat

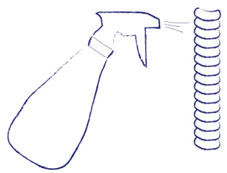


Set line

SEAWEED

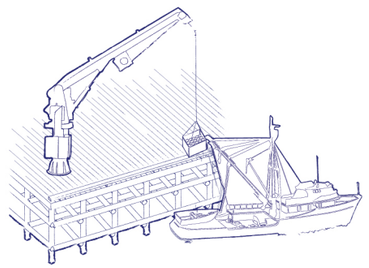


Growing spores from mother plant

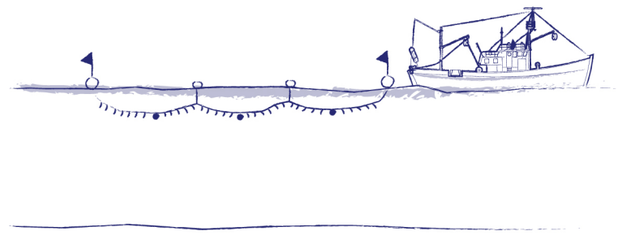


Spray to rope

Grow in lab



Load boat

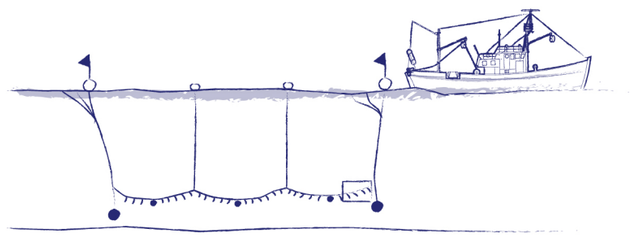


Set in growing field

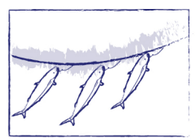
Source: Conversation with local fishermen & Lofoten Blue Harvest

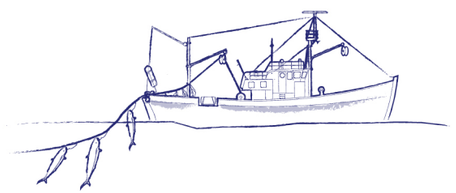
FROM SEA TO SHORE

FISH

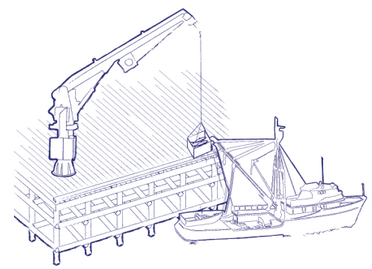


Line fishing



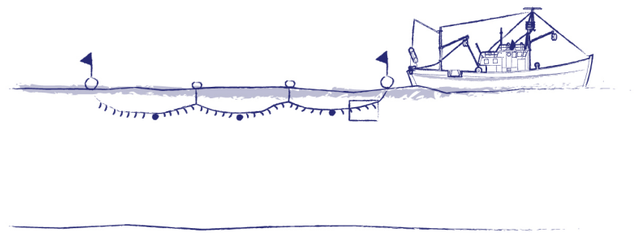


Harvest catch

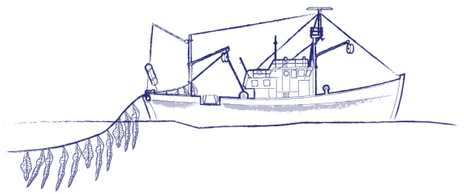


Lift to land

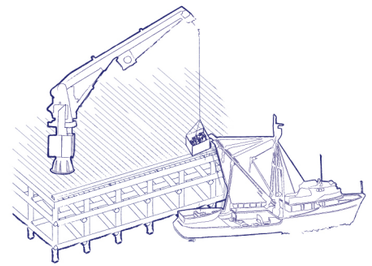
SEAWEED



Growing fields



Harvest crop

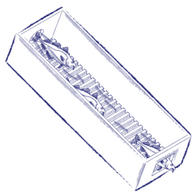


Lift to land

Source: Conversation with local fishermen & Lofoten Blue Harvest

PROCESSING FISH

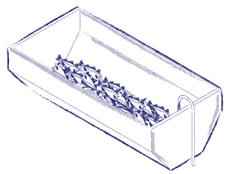
RECEPTION



Run off
Immediately

Weighing
Immediately

Gutting
Within few hours

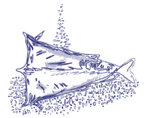


Rinsing
Within few hours

Today: Remote production + distribution

PROCESSING

SMOKED PRODUCT



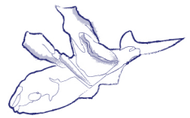
Salting
3 hours

Drying
3 hours

Smoking
5-10 hours

Packing/sale
2-3 days

FRESH/FROZEN PRODUCT



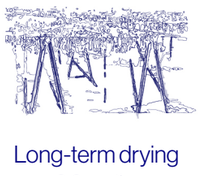
Filleting
Within the next day

Cutting
Within the next day

Fresh product / Frozen product
1-3 days

DRIED PRODUCT

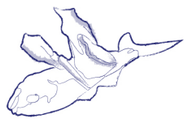
Filleting/ Round cut
Within the next day



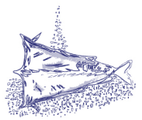
Long-term drying
3-6 months

Packing/sale
3-6 months

SALTED PRODUCT



Filleting/ Split cut
Within the next day



Salting
14 days each side

Packing/sale
1-2 months

UNPROCESSED SHIPPED PRODUCT

Icing
Immediately

Packing
Immediately

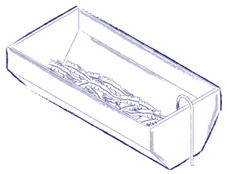
NORGES RÅFISKLAG

Receive salary directly, no local processing
Within few hours

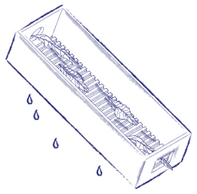
Source: Viktor Hansen, local fisherman

PROCESSING SEAWEED

RECEPTION



Rinse
Immediately



Bulk dripping
Immediately

Quality control
Within 12 hours

Cut and sort
Within 12 hours

PROCESSING

DRIED PRODUCT

Drying
2-6 days

Fine cutting
After drying

Weighing + packing
Weighed and split into portions

Sale/shipping
3-6 days

SMOKED PRODUCT

Smoking
5-10 hours

Weighing + packing
Weighed and split into portions

Sale/shipping
2-3 days

FROZEN PRODUCT

Weighing + packing
Wet seaweed is weighed and split into portions

Freeze
Within 12 hours

Freezer storage
1-2 days

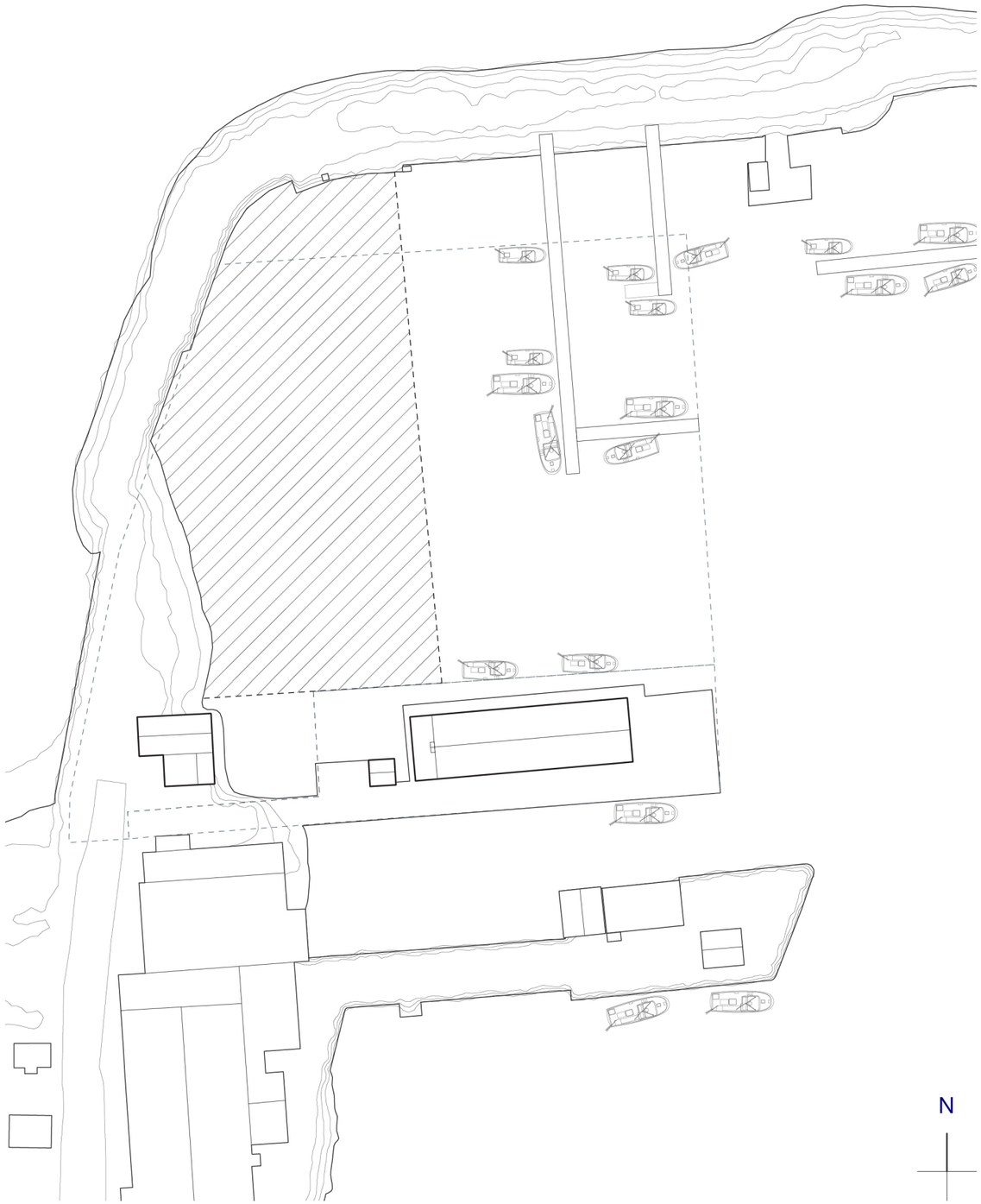
Source: Tangboka, Nordic Seaweed

FANGST

ET FOREDLINGSANLEGG FOR FISK OG TANG

MAPPING THE EXISTING

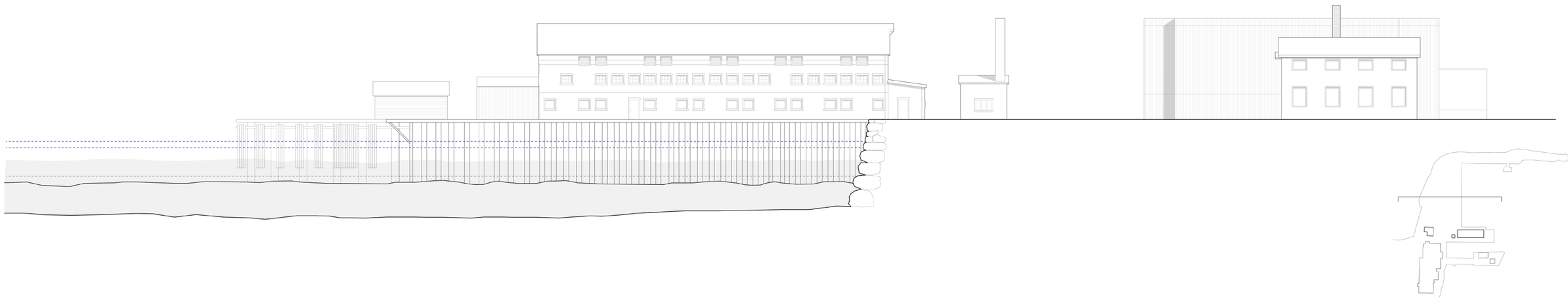
SITE PLAN

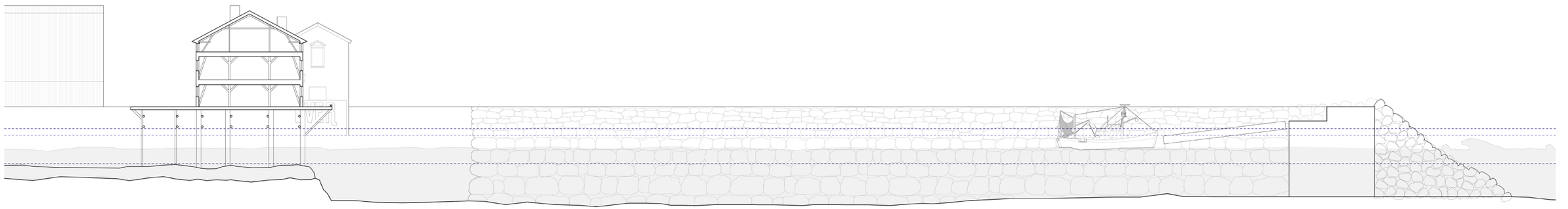


N

PICTURE FROM SITE

SITE SECTIONS





HISTORICAL PHOTO

Photo: Unknown

TIMELINE BUILDING

1955: The facility was built. A fishing facility consisting og two twin buildings, formerly called Fi-No-Tro

May 1973: The longest of the two buildings collapsed due to overload

1999: The quay was renovated with new logs, Seafood AS

2000-2012
No owner/maintenance

2012: Jørn Jensen bought the facility. Komafest - the builings was decorated with street art.

2013: Renovation starts
Outdoor paint, cover windows

2015: All roof insulation was removed to allow the structure to dry before maintenance

Photo: Ian Cox

Photo: Jørn Jensen

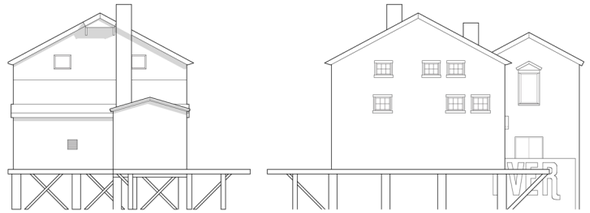
“Bygget hadde et tragisk forløp. Der det sto, var det en tragedie. Man står foran noe spennende når bygninger er på vei til å kollapse. På en annen side er det i grunnen det øyeblikk man ser en bygning dø, at ideen til en ny funksjon fødes.”

Sverre Fehn

Interview about Storhamarlåven

Photo: Ian Cox

ORIGINAL DRAWINGS



Facade west

Facade east

Facade north

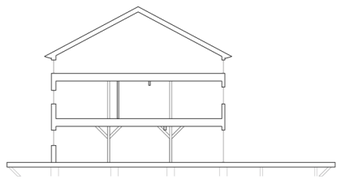
Facade south

The characteristics of coastal architecture:

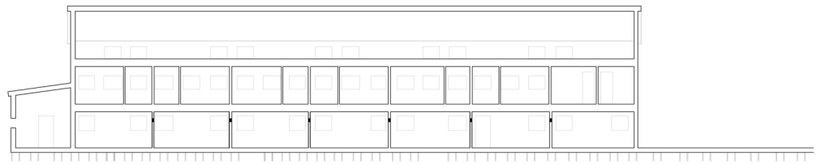
The symmetrically organized gable facing the sea and the salt roof above the large, unbroken volume is one of coastal architecture's significant form expressions. Openings with an overhanging winch in the central axis – symmetrical and well-ordered. Roof often covered with corrugated iron sheets. This pier type, with minor morphological variations along the coast, is formally distinct and easily recognisable. [1]

1 Ellefsen 2017: s. 98

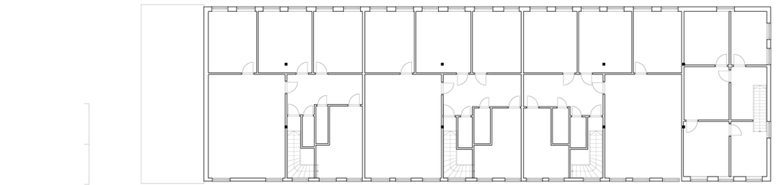
ORIGINAL DRAWINGS



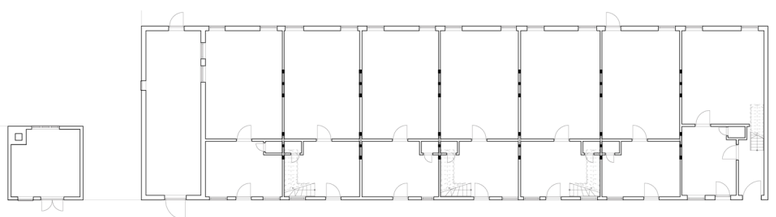
Cross section



Longitudinal section



First floor plan



Ground floor plan

Some discovered issues with the building for new industry:

- The ceiling height is not enough to tilt bulks inside the building. This is a requirement from Mattilsynet.

- The building consist today of seven divided sections. The closed rooms gives limited space and use for different activities. Very little of the beautiful construction is visible today

PICTURES FROM SITE

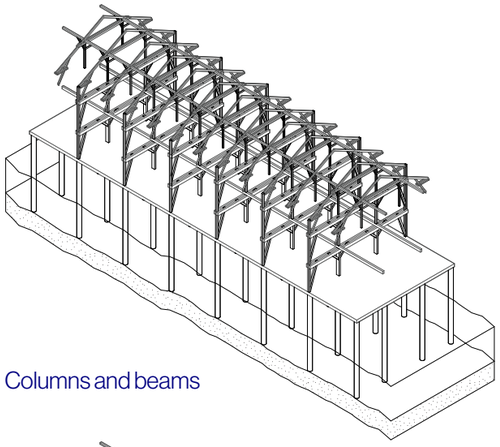
REUSING MATERIALS

PICTURES FROM LOFT

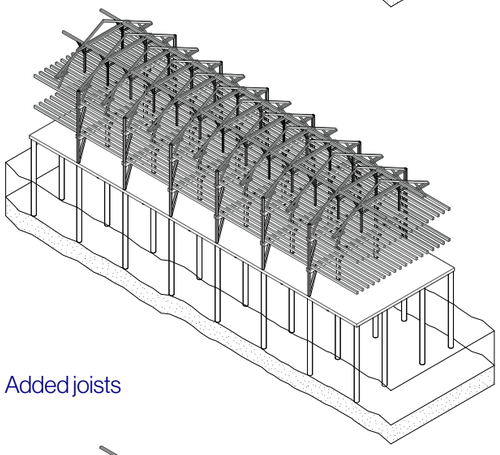
ARCHITECTURAL PROPOSAL

ISO CONTRUCTION

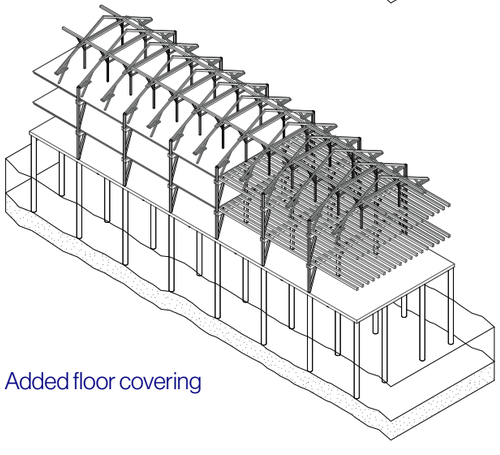
EXISTING STRUCTURE



Columns and beams

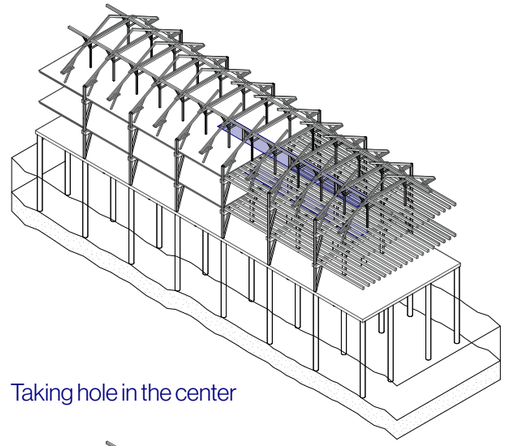


Added joists

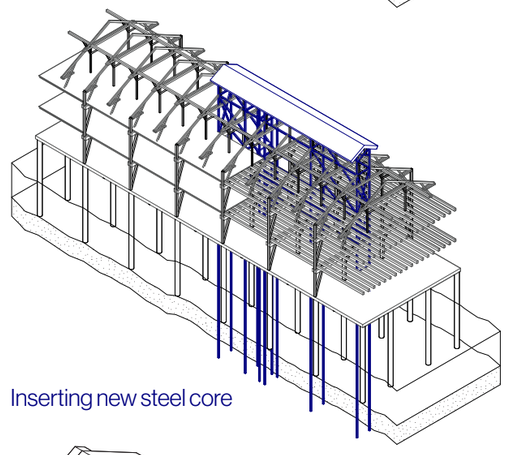


Added floor covering

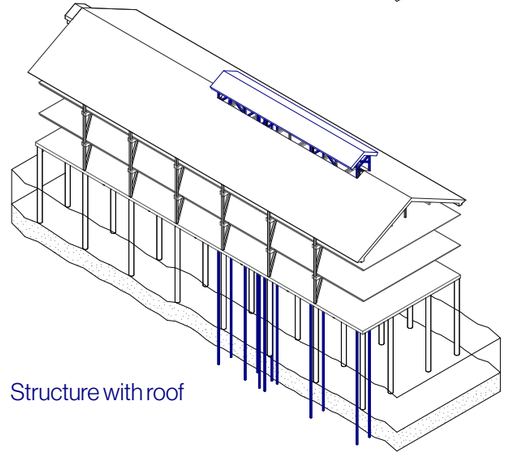
WITH ARCHITECTURAL PROPOSAL



Taking hole in the center



Inserting new steel core



Structure with roof

N/S

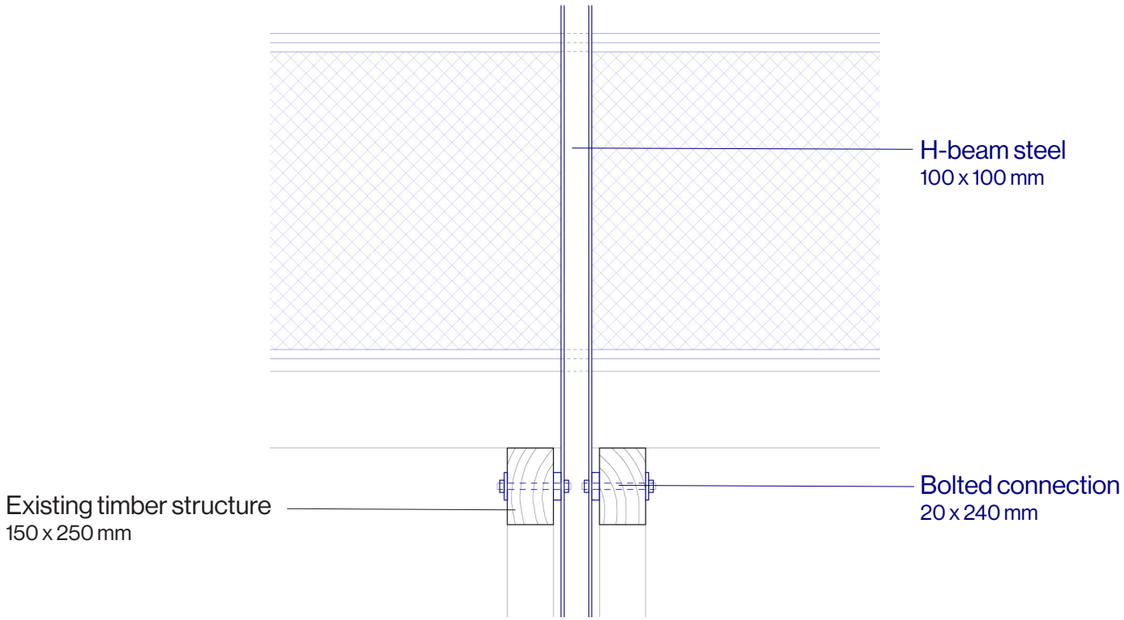
NOTHENG

The structure I add within the existing building is inspired by the vernacular structure *notheng* or *nothjell*. These structures used to be found all the way along the norwegian coast, even several in Vardø, and was used to hand and dry the not (a type of net used for fishing). Today only a few examples are still standing.

The nothjell was often built in the most simple way, often with whatever they had available of local materials, but all the different connections together made the structure properly stiff and resistant to the harsh coastal weather.

Notheng på Rasteby. Photo: Siri Urdal

DETAIL CONNECTIONS



Scale 1:20

AREA DISTRIBUTION

FISH

Preparation		Reception		Processing					Production		Supporting functions/administration								Sale of products	
Freezer for line	Baiting Bait preparation room	Reception of catch Mooring space	Runoff area Weighing	Packing Icing Filleting Sorting Rinsing Gutting	Freezer storage	Cold storage	Smoking	Production kitchen	Drying Long term storage	Salting	Equipment storage	Workshop	Technical rooms	Circulation	Office	Wardrobe	Lunch room	Laundry Sluice	Storage	Packing/Sale
15 m2 -18 °C	20 m2 19 °C	350 m2 Unclimatized	30 m2 15 °C	450 m2 15 °C	10 m2 -24 °C	9,5 m2 3 °C	20 m2 30 °C	23 m2 19 °C	350 m2 Unclimatized	30 m2 15 °C	100 m2 15 °C	25 m2 15 °C	40 m2 15 °C	110 m2 19 °C	20 m2 19 °C	20 m2 19 °C	30 m2 19 °C	30 m2 19 °C	55m2 15 °C	85m2 15 °C

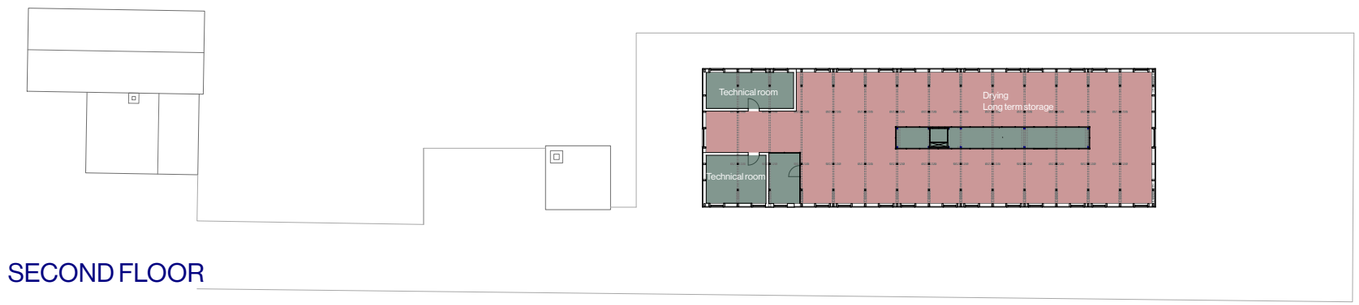
COMMON USE

Reception of catch Mooring space	Runoff area Weighing	Packing Icing Sorting Filleting Gutting Rinsing	Freezer storage	Cold storage	Smoking	Production kitchen	Drying Long term storage	Equipment storage	Workshop	Technical rooms	Circulation	Office	Wardrobe	Lunch room	Laundry Sluice	Storage	Packing/Sale
350 m2 Unclimatized	30 m2 15 °C	450 m2 15 °C	10 m2 -24 °C	9,5 m2 3 °C	20 m2 30 °C	23 m2 19 °C	350 m2 Unclimatized	100 m2 15 °C	25 m2 15 °C	40 m2 15 °C	110 m2 19 °C	20 m2 19 °C	20 m2 19 °C	30 m2 19 °C	30 m2 19 °C	55m2 15 °C	85m2 15 °C

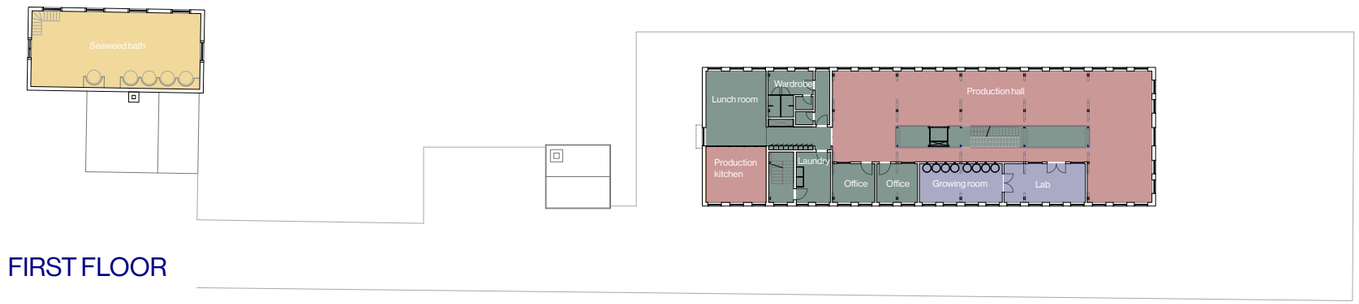
SEAWEED

Grow in lab Grow sporophytes	Salt water treatment	Reception of crop Mooring space	Rinsing Bulk dripping	Packing Freezzing Sorting Cuting Quality control	Freezer storage	Cold storage	Smoking	Production kitchen	Drying Long term storage	Cut-off processing	Equipment storage	Workshop	Technical rooms	Circulation	Office	Wardrobe	Lunch room	Seaweed bath	Storage	Packing/Sale
45 m2 21 °C	30 m2 15 °C	350 m2 Unclimatized	30 m2 15 °C	450 m2 15 °C	10 m2 -24 °C	9,5 m2 3 °C	20 m2 30 °C	23 m2 19 °C	350 m2 Unclimatized	40 m2 15 °C	100 m2 15 °C	25 m2 15 °C	40 m2 15 °C	110 m2 19 °C	20 m2 19 °C	20 m2 19 °C	30 m2 19 °C	55m2 15 °C	55m2 15 °C	85m2 15 °C

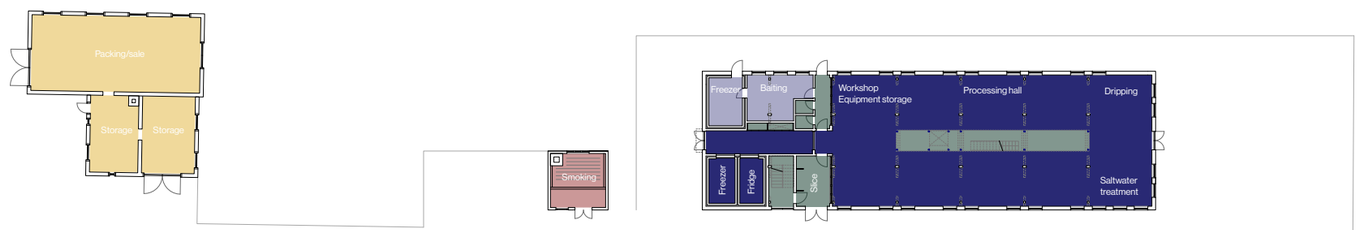
AREA DISTRIBUTION



SECOND FLOOR



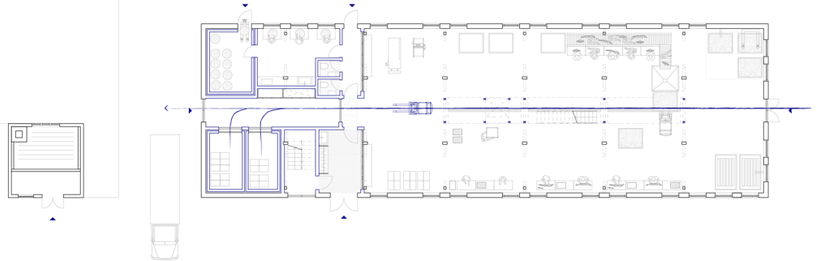
FIRST FLOOR



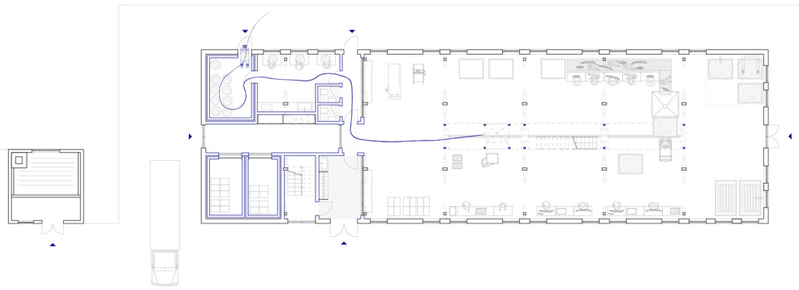
GROUND FLOOR

N/S

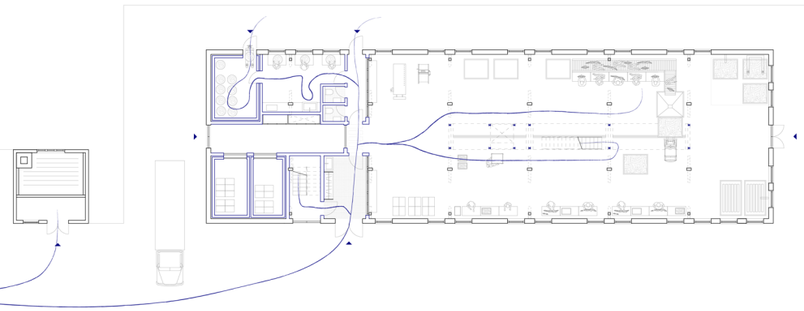
DIAGRAM LOGISTICS



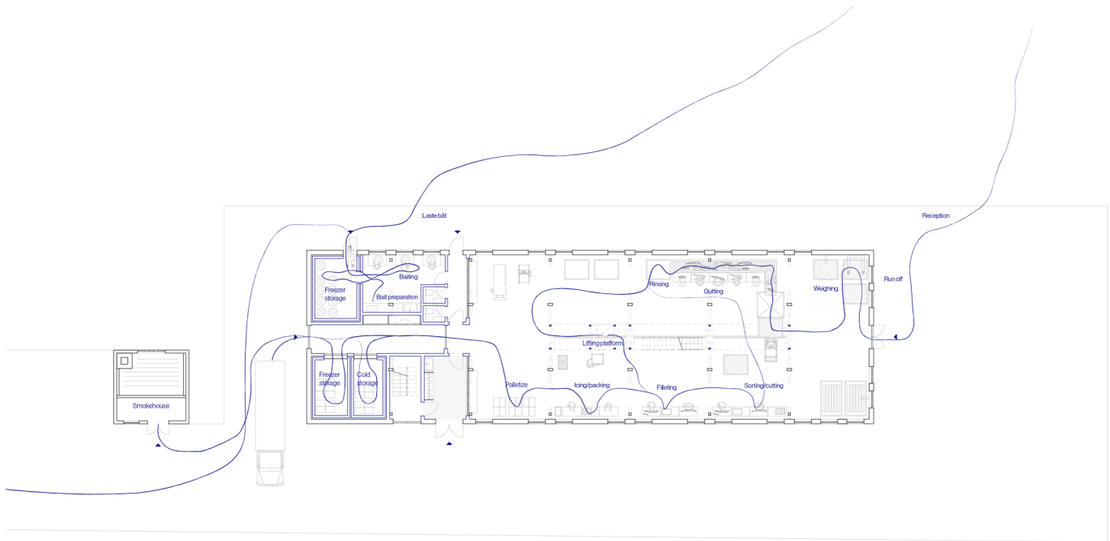
LOGISTICS FORK TRUCK



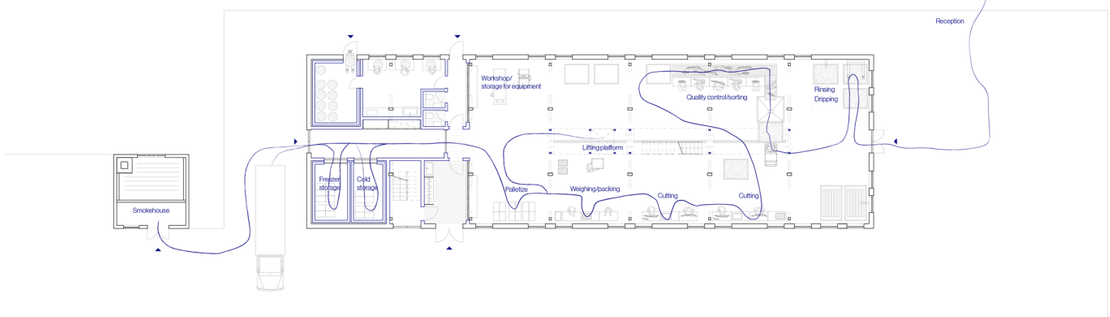
LOGISTICS JACK TROLLEY



LOGISTICS PEOPLE



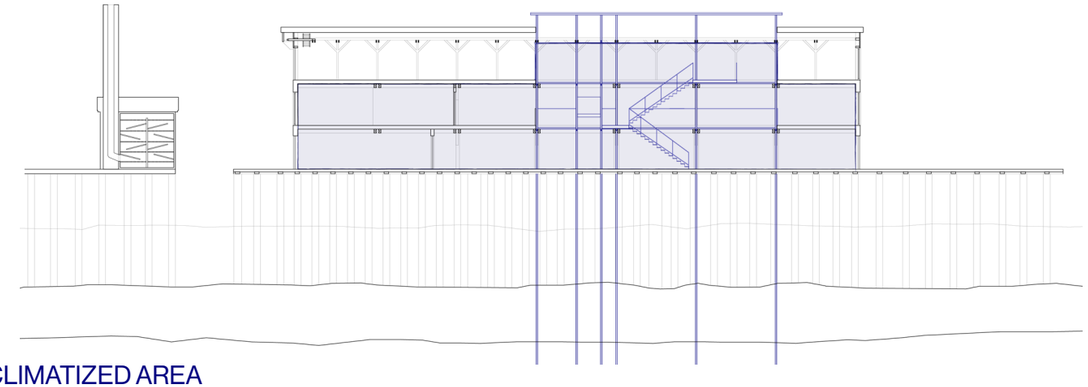
LOGISTICS FISH SEASON



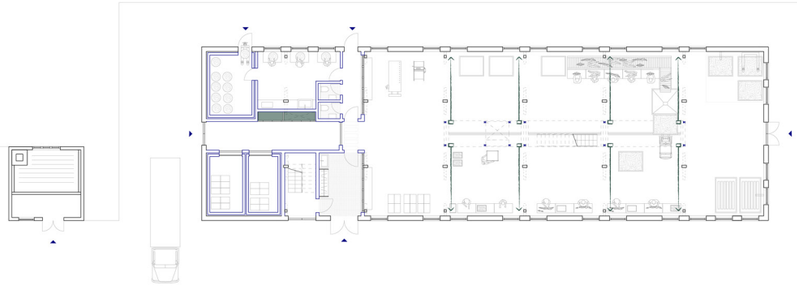
LOGISTICS SEAWEED SEASON

N/S

DIAGRAM TECHNICAL

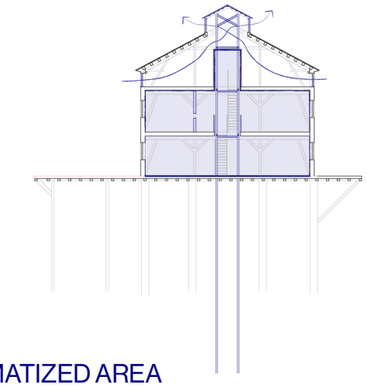


CLIMATIZED AREA

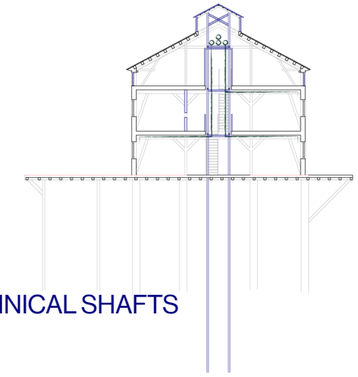


TECHNICAL SHAFTS

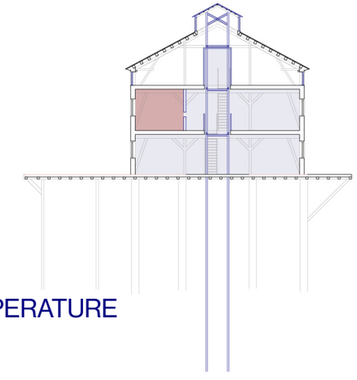
TEMPERATURE



CLIMATIZED AREA



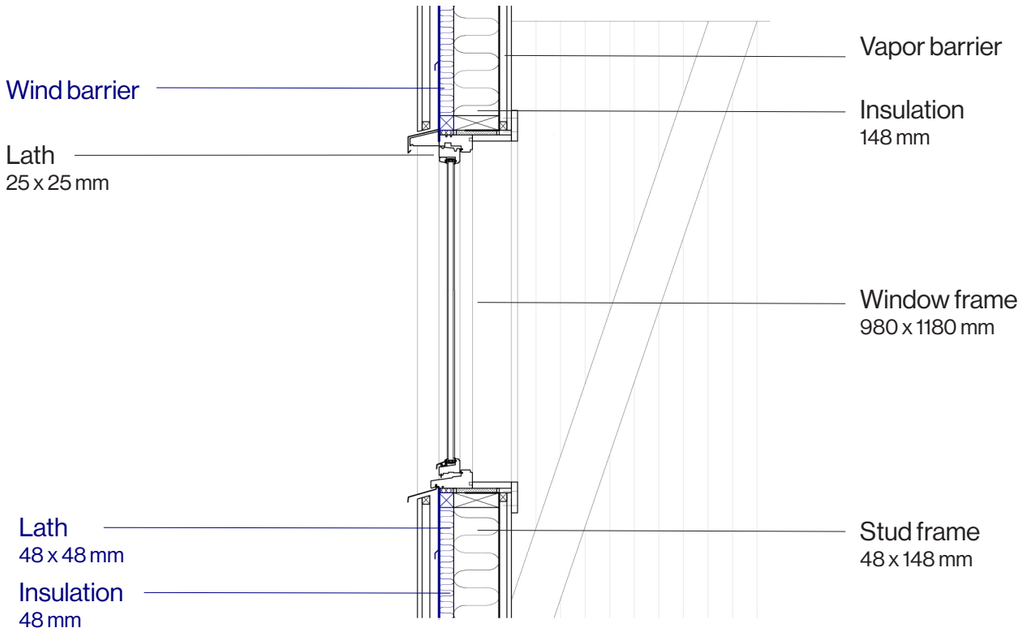
TECHNICAL SHAFTS

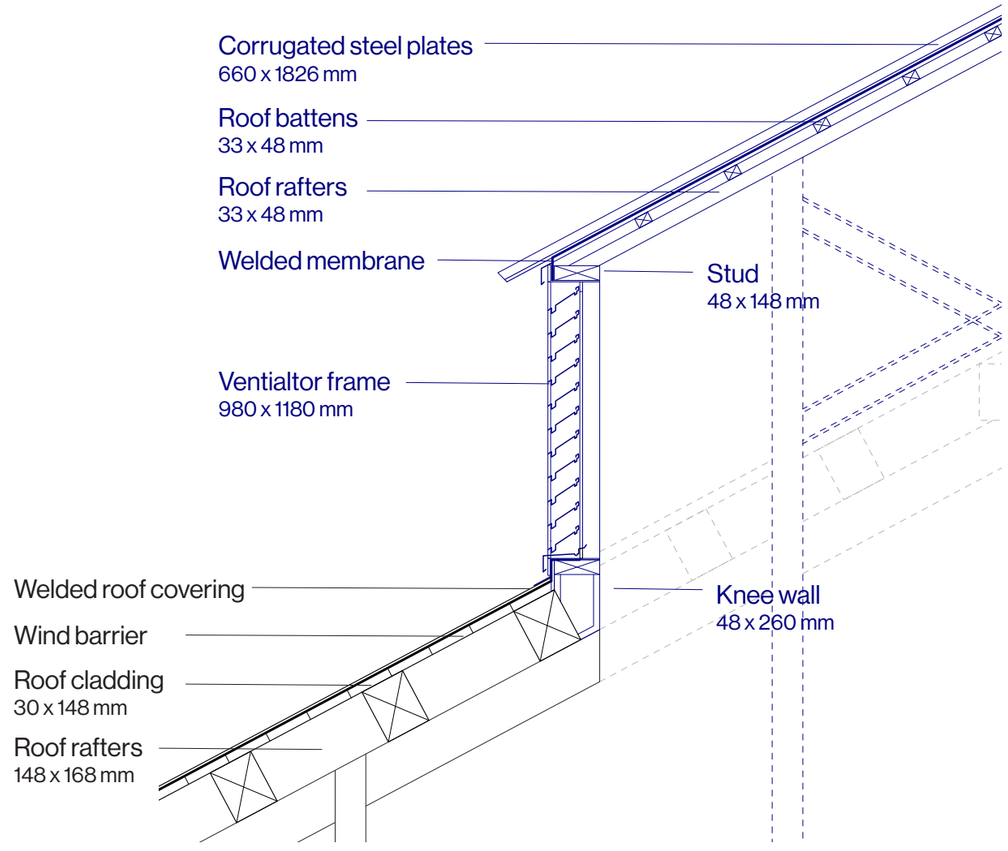


TEMPERATURE

N/S

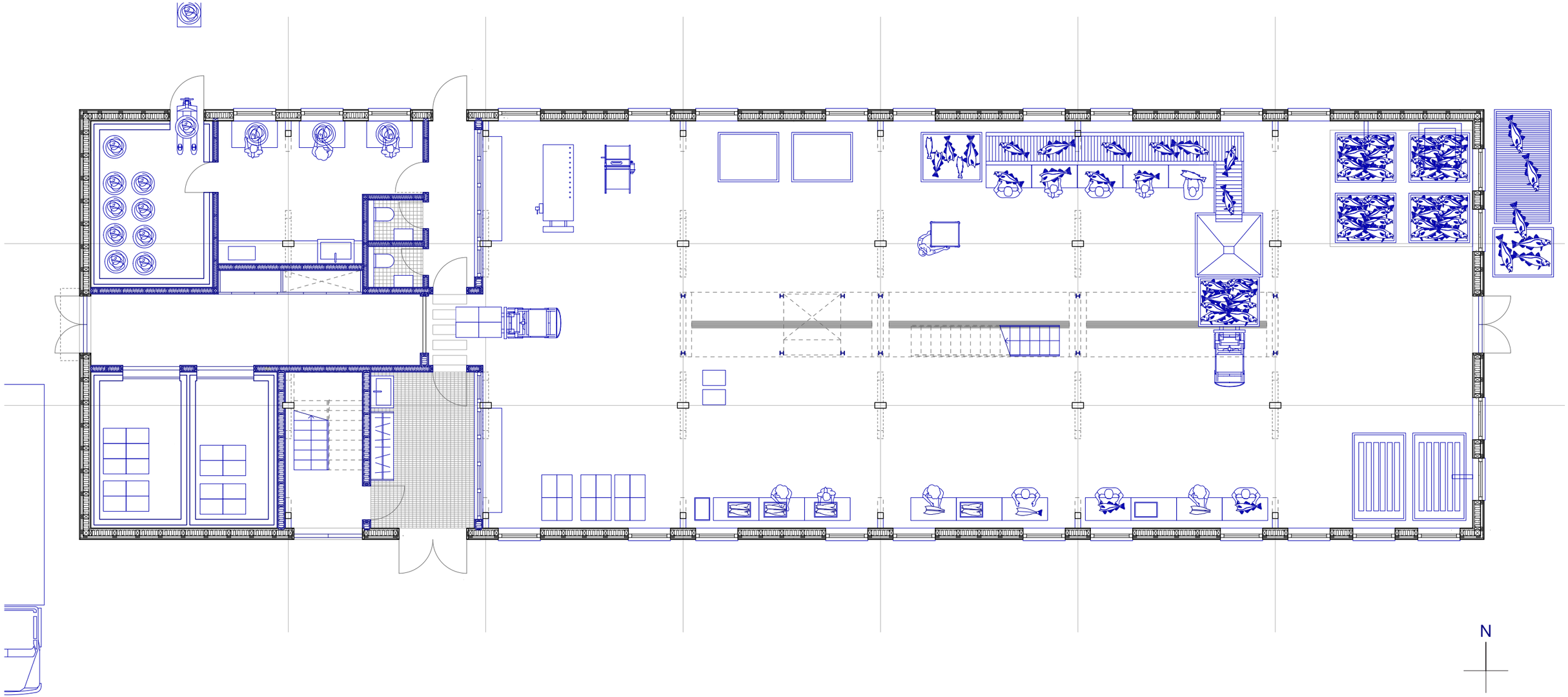
DETAILS





Scale 1:20

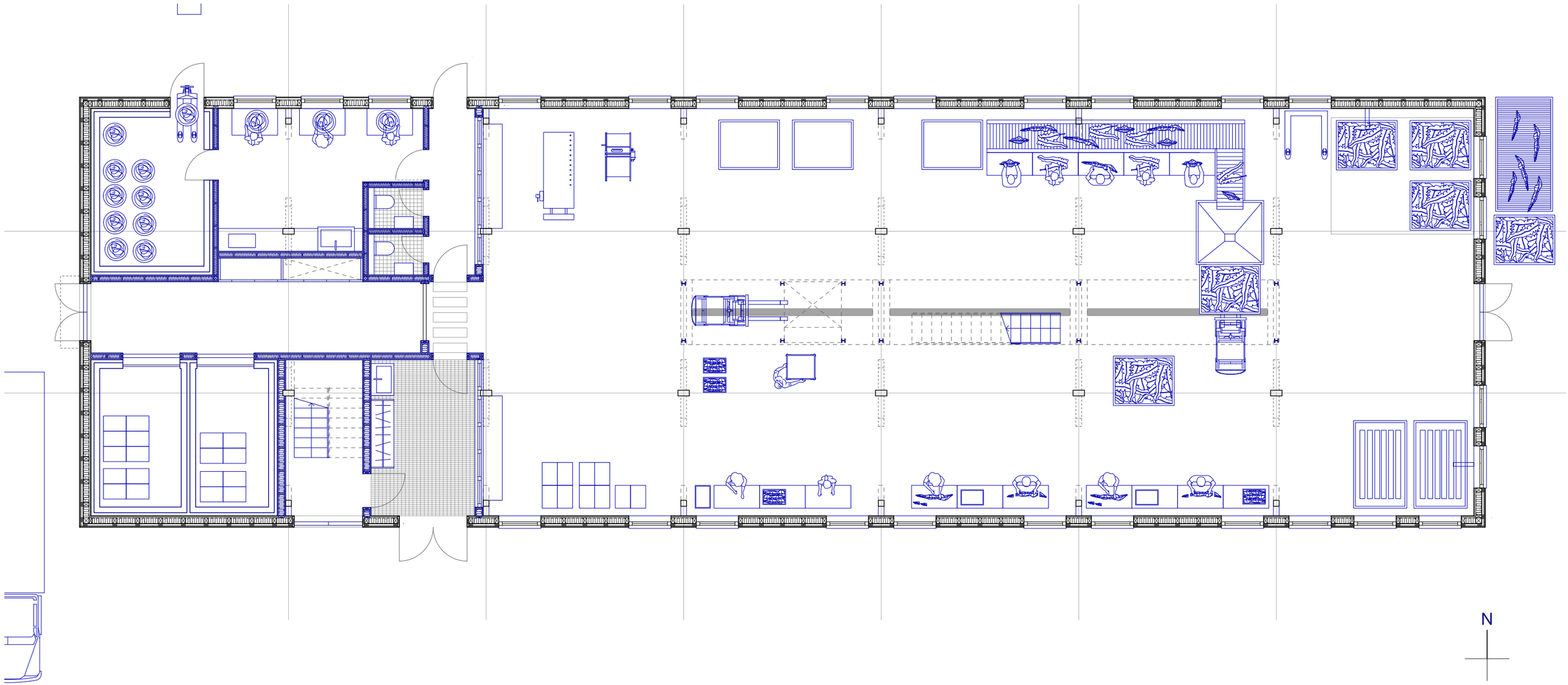
GROUND FLOOR PLAN
FISH SEASON



JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC

Scale 1:00

GROUND FLOOR PLAN
SEAWEED SEASON

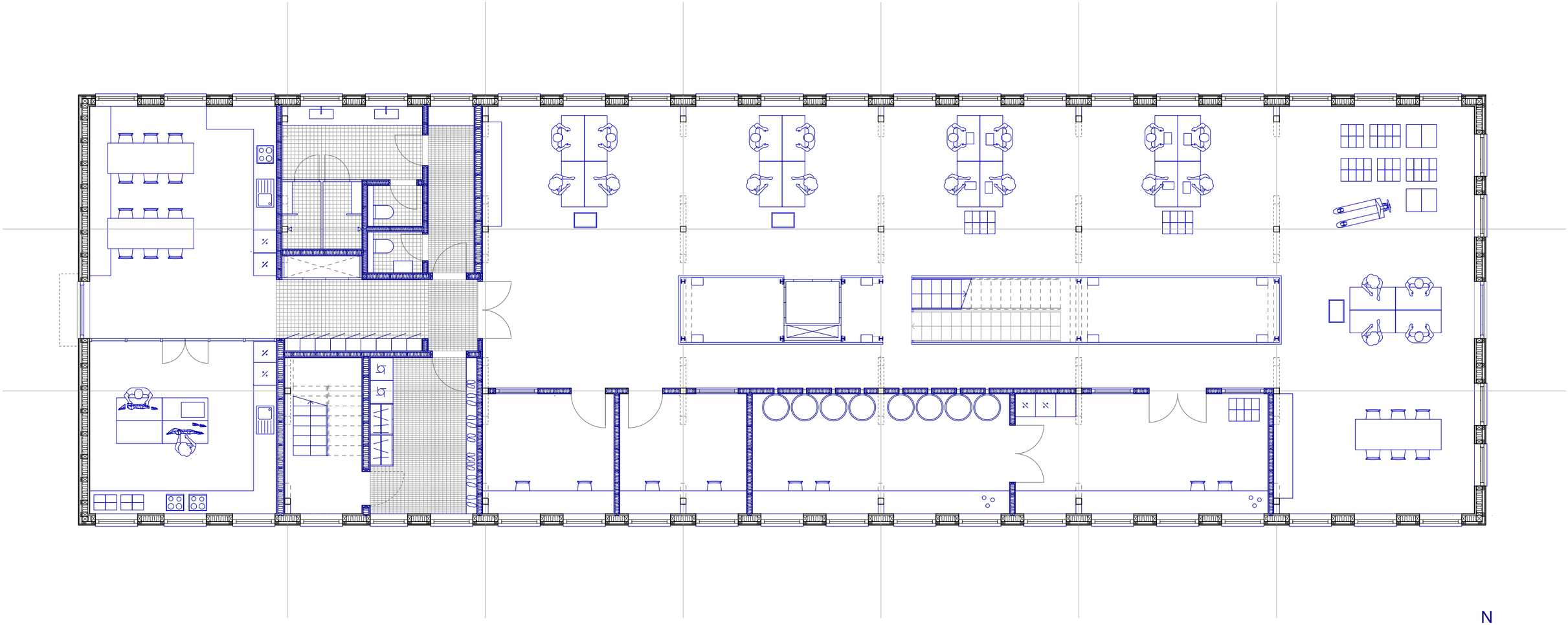


JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC

Scale 1:00

MODEL PHOTO
PROCESSING HALL

FIRST FLOOR PLAN

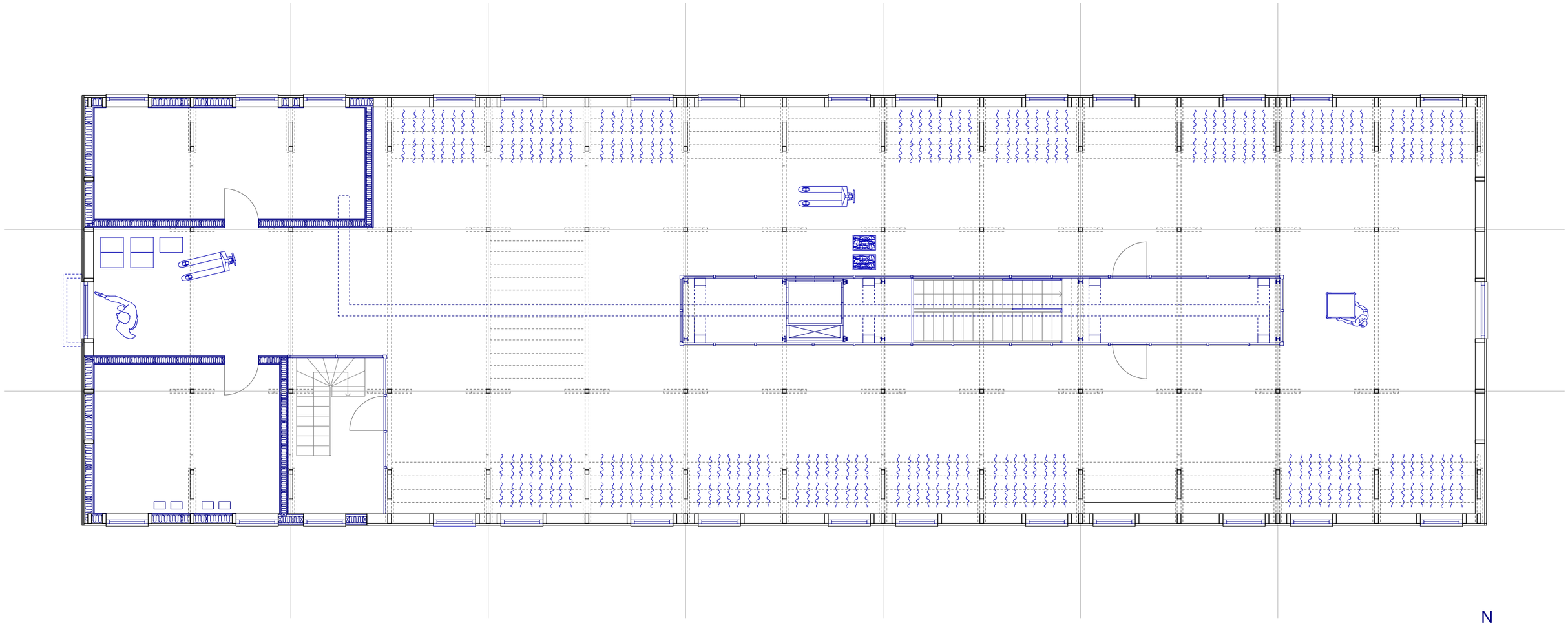


N

Scale 1:00

MODEL PHOTO
PRODUCTION HALL

SECOND FLOOR PLAN

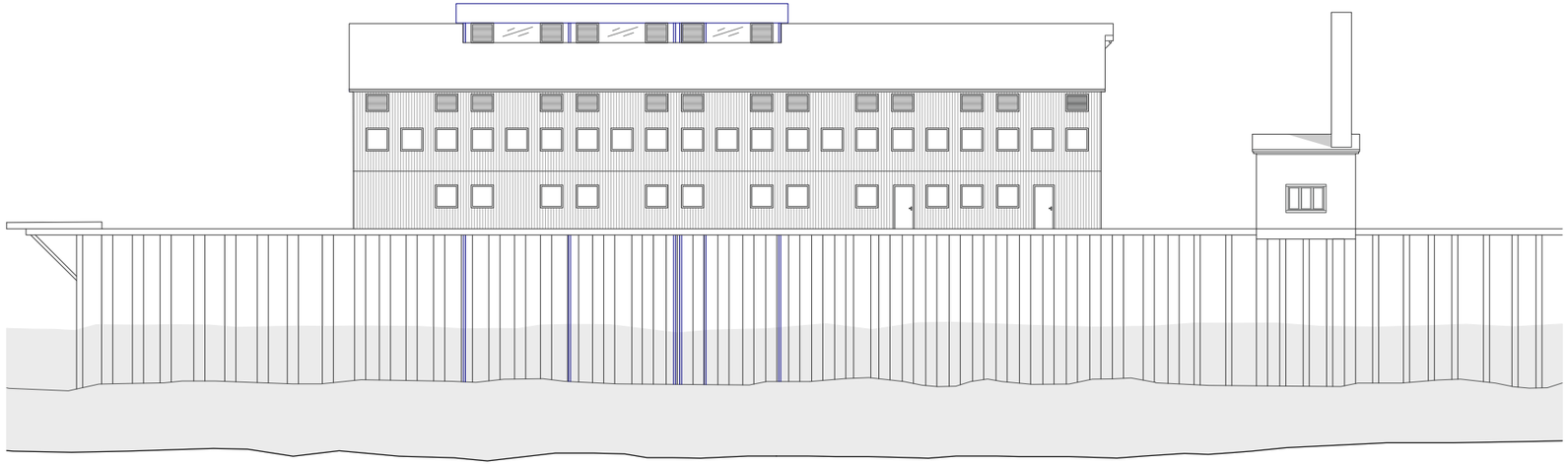


N

Scale 1:00

MODEL PHOTO
DRYING LOFT

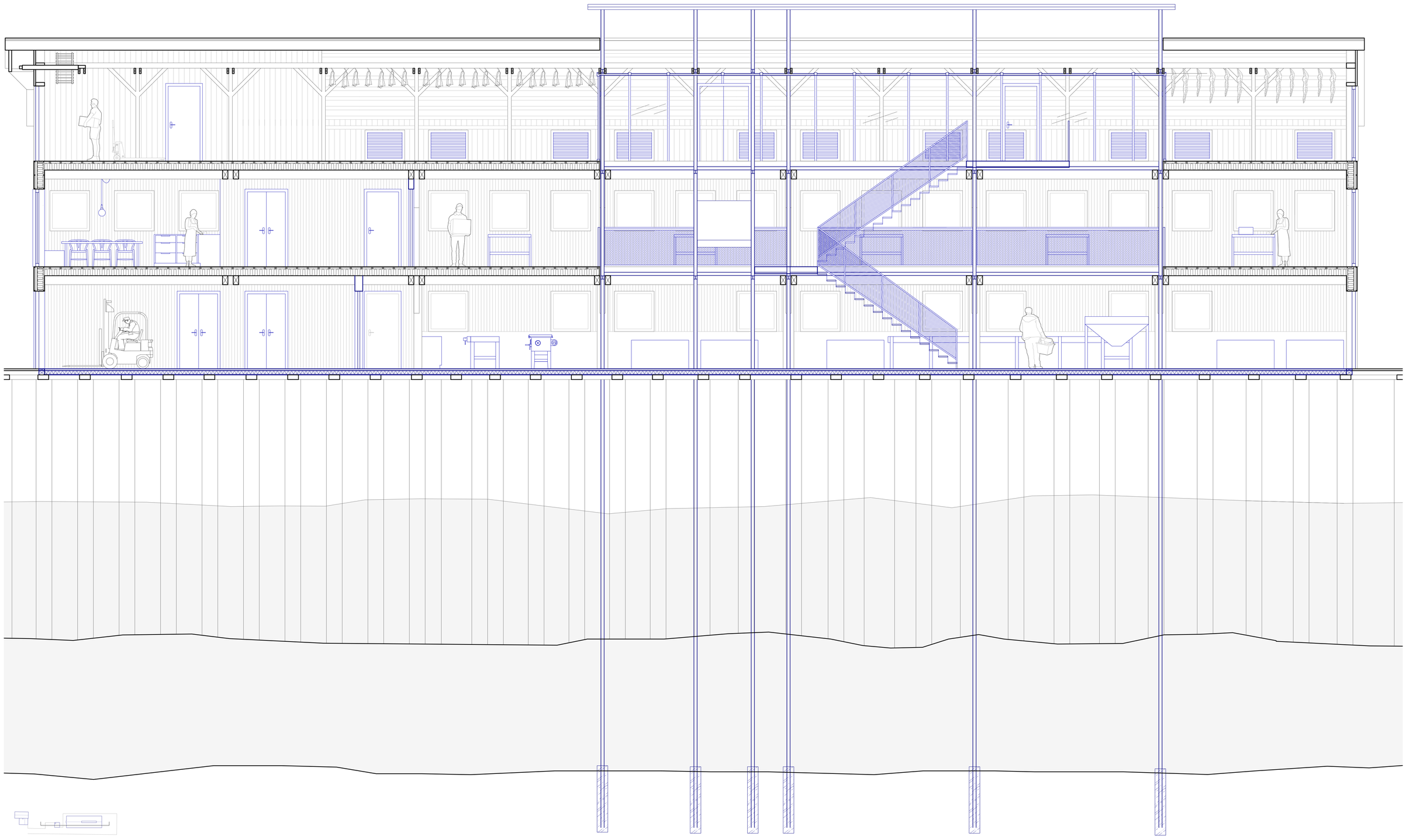
FACADE NORTH/SOUTH



FANGST

ET FOREDLINGSANLEGG FOR FISK OG TANG

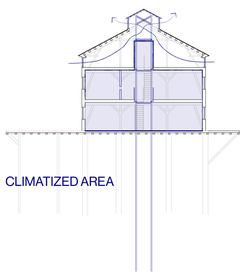
Candidate: Marie Mork Nielsen
Supervisor: Tine Hegli

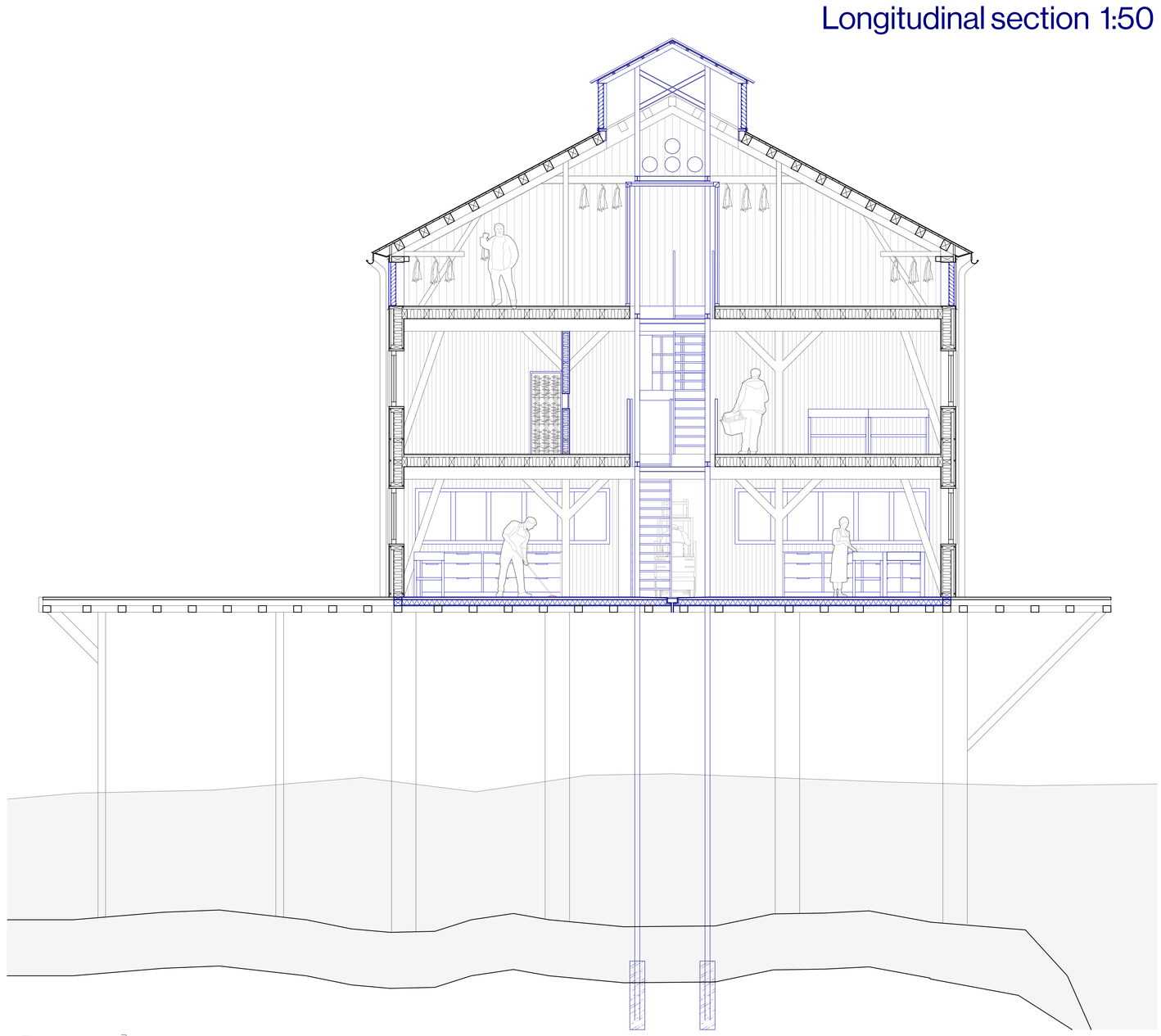


Longitudinal section 1:50

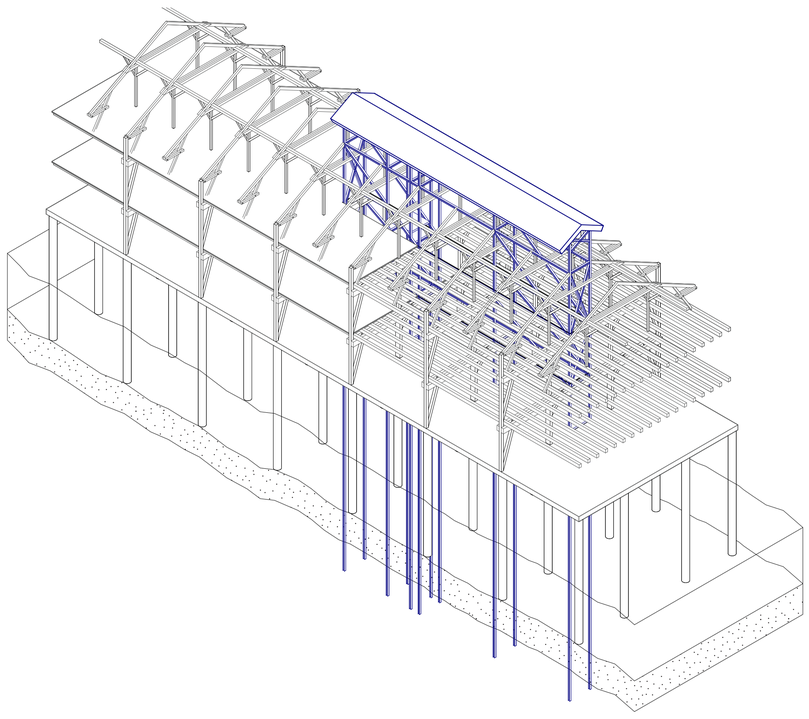
Han sa
Det ekke lenger lønnsomt
med fiske i nord
Jo! Hvis du vil skap
og hvis du har tro
på at lønnsomhet e mer
enn bare effektivitet
og jævli høy provisjon.
For effektivisering ekke verdt no
hvis fisken effektivt serveres bort
bli bortevekk
på frysehotell
Langt bort fra fiskehjell
dem som landa fisken
og dem skal foredle den
For edlere dela
fra norlige landsdela
må deles på flere
fileteres i lokalfjæra!
Sånn kan vi hindre
at kysten forelda
smuldra opp og bi historia
til Vårres foreldra

Ingvild Austgulen / slampoet



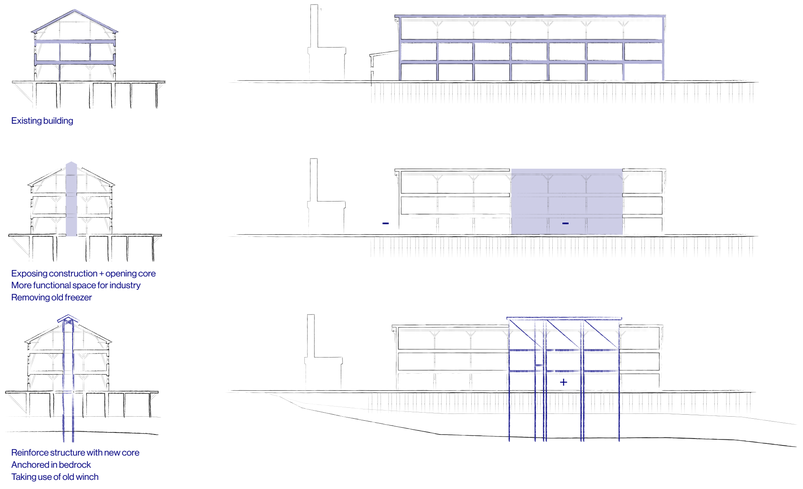


Cross section 1:50



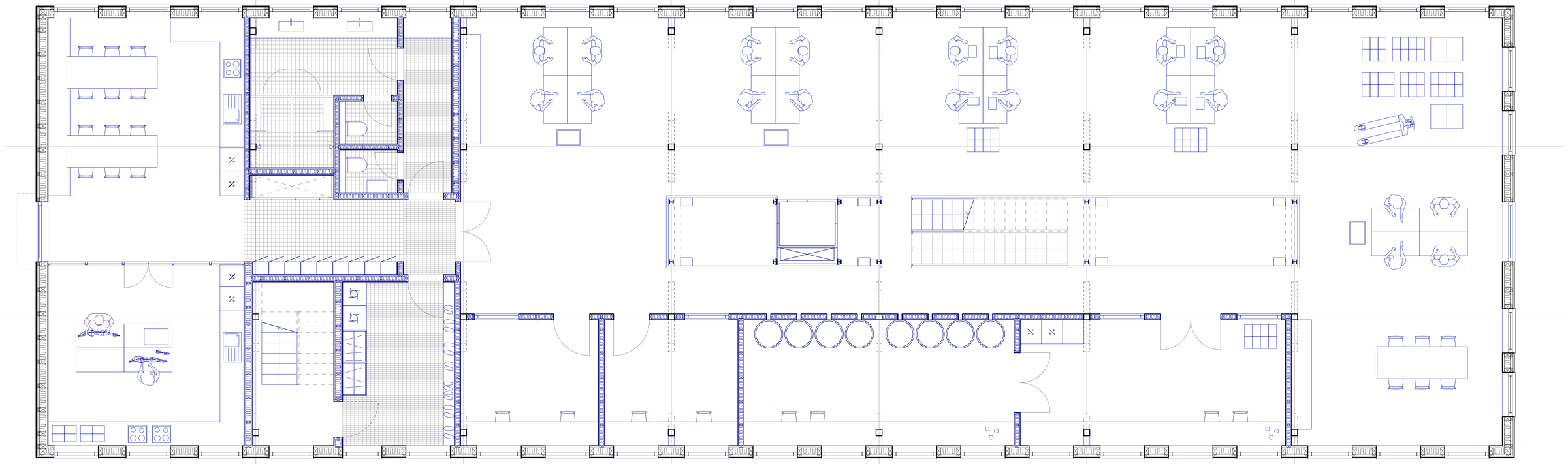
Iso construction

Model photo, interior

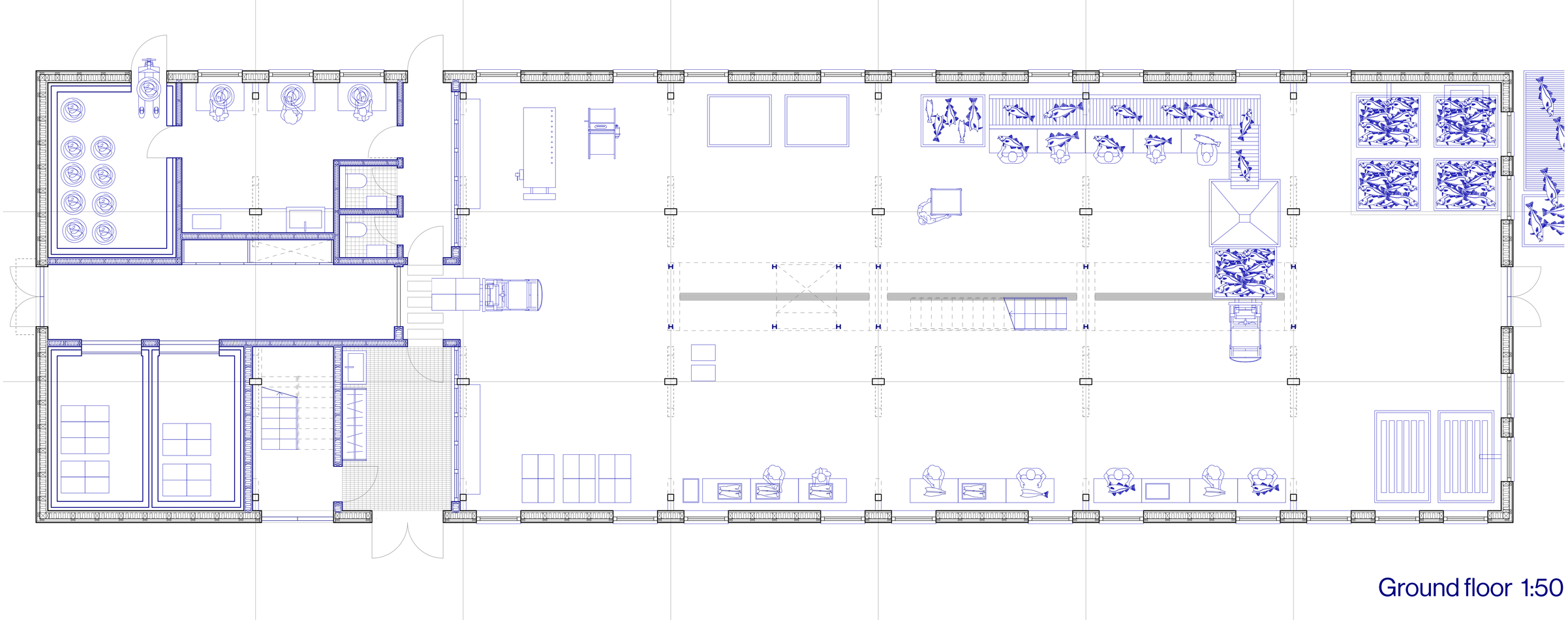


Architectural concept

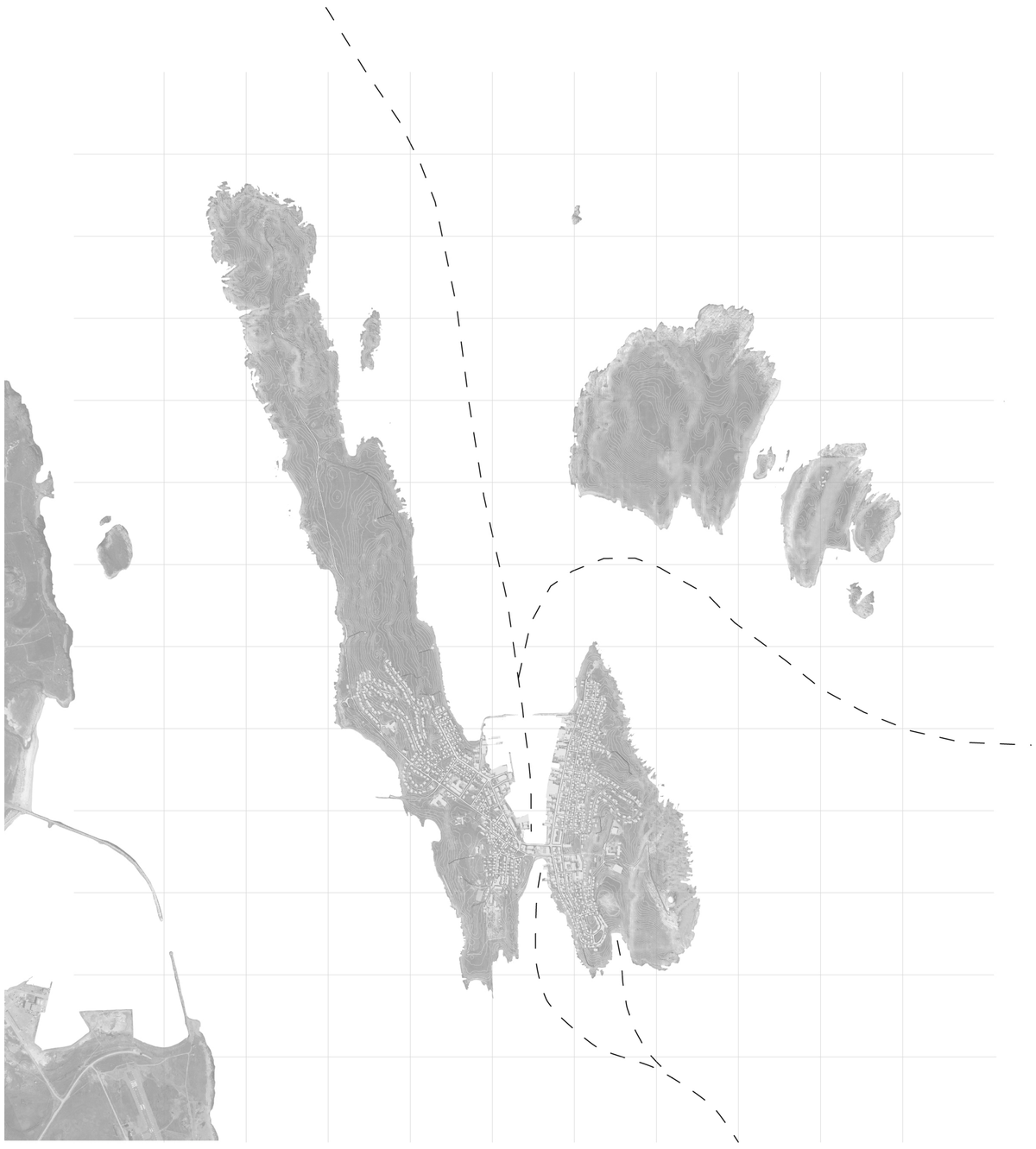
Model photo, processing hall



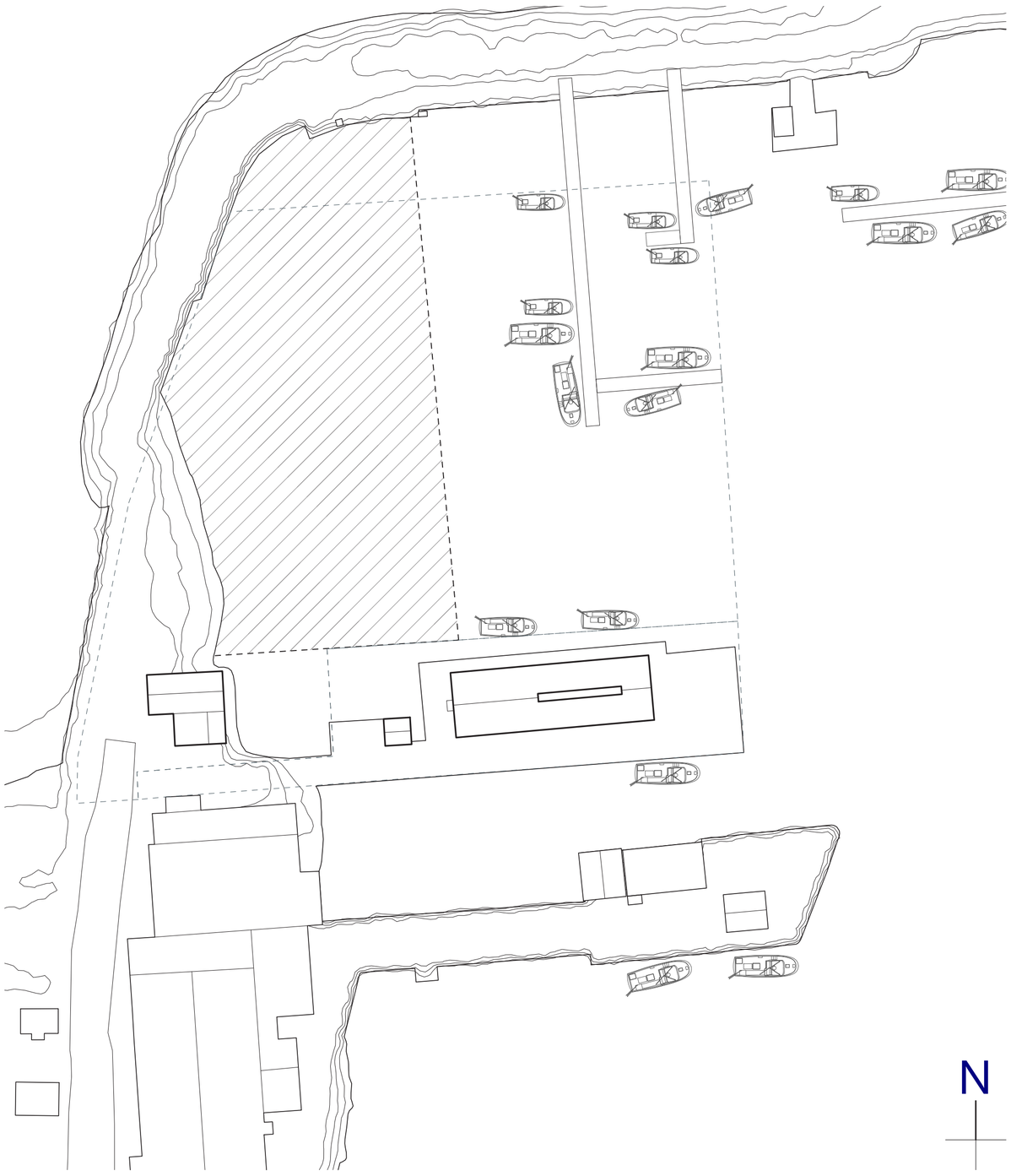
First floor 1:50



Ground floor 1:50



Vardø map N/S

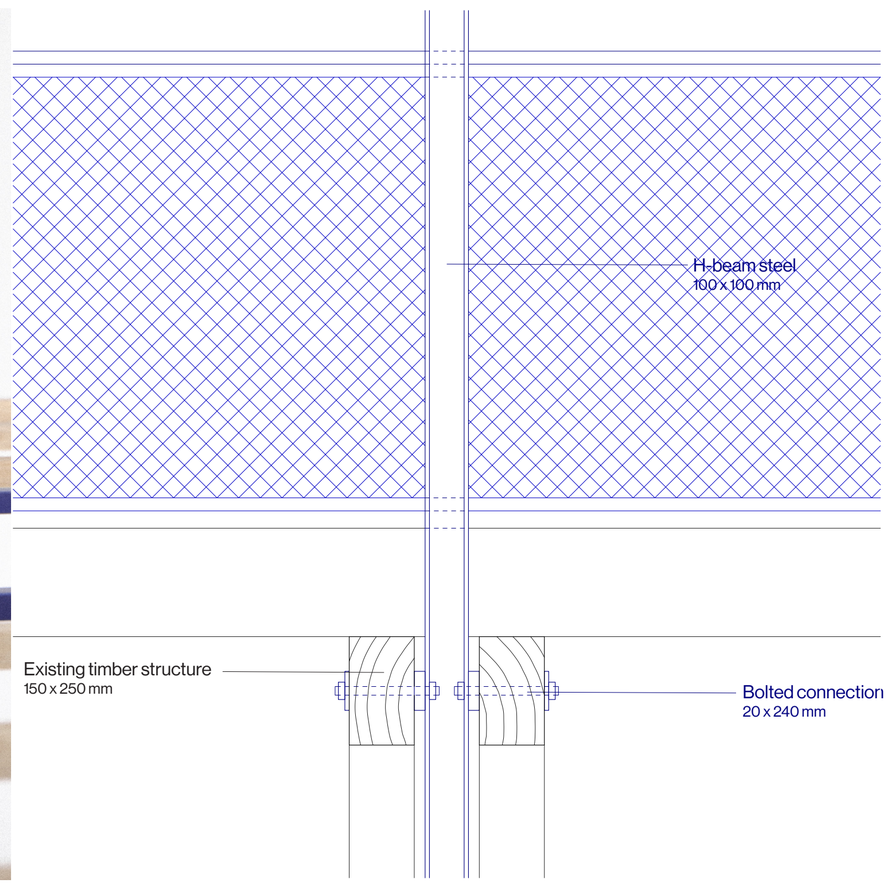


Site plan 1:1000

Model photo, Sea Fever

Illustration seaweed bath

Model photos, construction



Detail connection 1:10

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PERSONAL CONTACT

Kystopprøret (https://www.kystopproret.no/)
Institutt for bioteknologi og matvitenskap (emneansvarlig turid.rustad@ntnu.no)
Alex Johansen (fiskemottak med fokus på snegler, skalldyr etc)
Fiskeridirektoratet
Svein Harald Holmen (fisher)
Viktor Hansen
Janike Kampevoll Larsen
Caroline Haukeland, Polar algae https://www.polaralgae.no/about-us

Endnotes