

WHILE WE WAIT

planning
for
obsolescence

Binder 2

Fall 2022

Diploma

Candidate

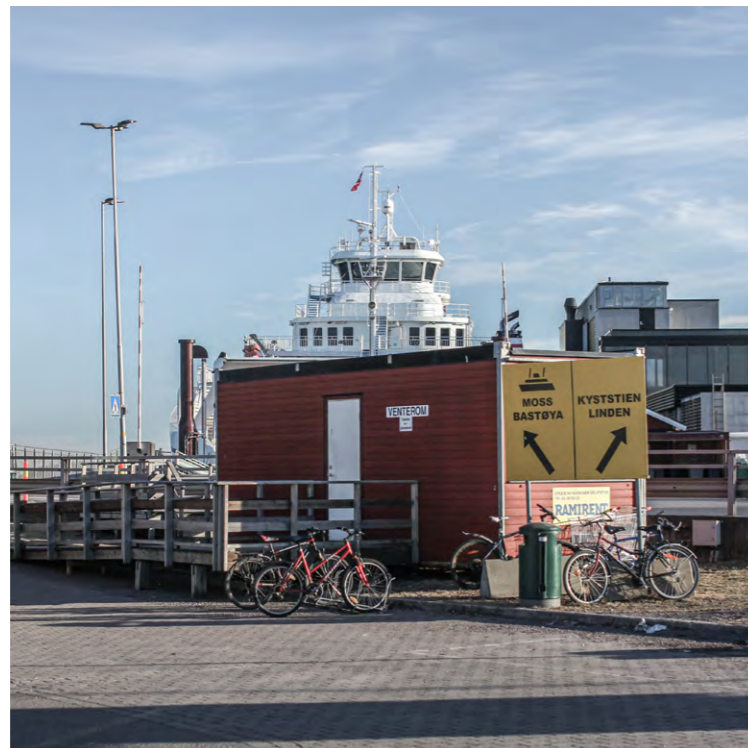
Matias Wikse

Supervisor

Tine Hegli

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INTRO

This diploma seeks to investigate the intersection between rational temporary structures and spatial qualities. How can ephemeral architecture serve as an example for a circular building practice where adaptable buildings are designed as material banks?

Historically, architecture has strived for permanence and monumentality. This resonates well with sustainable approaches seen today where resilient structures standing the test of time results in a lower environmental impact in the long run. That being said, change is happening rapidly and technological advances force fast obsolescence affecting both the things we own and the buildings we interact with. New needs appear, standards increase and programs change at a faster pace. This brings with it temporary solutions with no other qualities than being just this. Temporary.

In 1955 Lego launched their “system of play” implementing a system where all pieces fit together. A brick now has a value both as a part of a bigger creation, and as the single piece itself as it easily migrates to the next build. With this in mind we should start picturing a

world where renting or leasing building materials, components and services is as natural as renting the space they create. The materials are eventually fed back into a cyclic system, mimicking legos’ system of play, or more importantly, our planet’s ecosystem.

Transferring this way of thinking to our built environment requires an architectural strategy that not only takes into account the way everything is constructed, but the way it is preserved, deconstructed, transported and reused. Ideally all products used are to come out the other end as well kept sellable pieces of material moving to the next structure as naturally as the vehicles used to build it. In the near future we will need to see buildings gain the added function of acting like material banks as a part of a flow of materials changing owners when needed. This project aims at taking these factors into account while investigating the possibilities and limitations of planning short term structures with circular economy in mind.



CASE

For many the coastal town of Horten is mostly known for being one of the two stops of the Bastø Ferry. Local viking graves indicate that the area used to attract significant people from near and far. From then on Horten has worked up a strong maritime history from hosting the marines main establishment to producing hi-tec sonars and submarines.

The area surrounding Norway's busiest ferry correspondence is about to enter the early phases of a comprehensive development. The plans include a hotel by the seaside, housing and a refurbished coastal path binding it together. The hotel's close proximity to the ferry opens up the possibility to incorporate a ferry terminal on a permanent basis. When and if this hotel will be erected is still uncertain due to a series of external factors like financing, high material prices and slow political processes. While waiting for further action a temporary red barrack has been installed. Half a decade later it's still functioning as the main solution. A new temporary ferry terminal is used as a case to explore principles of a circular building practice.



1. *Godtfred demonstrates LEGO's "System of play", 1955*

STRATEGY

During the work with this project a set of rules has been established to secure a rational reversible structure.

The modules should all be moveable without special permits.

The weight of each element does not challenge the capabilities of a small mobile crane.

Modules are repeated for easy mass production and reuse.

The shape and placement on site is dictated by two main factors. The first one being the ability to operate while the development is ongoing by not overlapping either the potential building site or the planned restructuring of the car queue. The second one is securing free sight to both ferries while arriving from the main road. Based on this a long narrow volume is oriented in the direction extended from the point of arrival establishing an intuitive and efficient pattern of movement while sheltering the space from the heavy traffic.

The structure is split into two skins to facilitate simplified reversible details in both layers.

The building is grounded with a screwpile foundation that leaves no footprint. The piles are later reused. The outer structure consists of four modular aluminum truss systems initially made for building outdoor stages. The trusses are covered in a watertight translucent membrane functioning as a protective layer. The modular system secures easy deconstruction and makes it possible to take back the structure as four individual outdoor stages when the building is eventually taken down.



2. *Waiting for the ferry at the Falcon Tavern, James Tissot, 1874*

PROGRAM

The light and temporary character of a pavilion allows for untested and unusual architectural solutions. In what way can an interpretation of this typology be used to celebrate day-to-day travel?

Horten harbour calls for a new structure facilitating pedestrian travel to or from the bastø ferry. Users moving along the coastal path are at large considered potential users of the facility. The structure should aid as a node establishing clear directions on an otherwise indecisive site guiding passengers in the right direction. The project should extend to the outside creating sheltered and sun shaded areas providing clear overviews of the situation.

The structure will house a waiting room, restrooms, a utility room and a kiosk attached to a light kitchen. A total of 75 m² heated and semi-heated space in addition to 180 m² of sheltered outdoor space.



3. Charles Schridde "House of the Future" for Motorola, 1961

REFLECTION

Working with reversibility in architecture brings with it a lot of compromises. In many cases one will have to sacrifice the comfort of a perfectly sealed tempered structure. The architectural language we are familiar with materializes in a different way and the precisely tailored details are replaced with exposed bolts and screwheads. Where to draw the line between rationality and spatial quality to not end up with just another barrack has been widely discussed during the work with this diploma. How do you know if it's too rational, or too poetic? Timeless qualities like natural daylight, symmetry and spaciousness functions as a mediator between the two conflicting topics.

Site specificness has also been a topic of discussion. How does one ensure that a structure is site specific enough to serve its purpose properly, but not to the extent that qualities disappear when the program and location changes? The grid is based on a combination of rational moveable modules and the premises given by the site. The universal qualities of honest material use and natural skylight is passed on to the next site, but framed by different conditions.

In the case of the two codependent layers being separated from each other to serve different purposes one would have to provide vapor protection in other ways. This exemplifies that a change of program will force new ad hoc solutions with the given structure as a basis. This will result in an ever slightly changing structure based on the same framework. One can only design to a certain point.



4. Rome, 1656. "Ruins were sold like oxen for the meat-market"

BACKGROUND STUDIES

The concept of adaptive reuse and reclaiming of building materials is not at all a revolutionary way of thinking. Although the issue of global warming and resource scarcity has been a hot topic only the last couple of decades, reuse of building materials have traditionally been practiced as a default. In many less developed countries reuse of resources is a necessity.

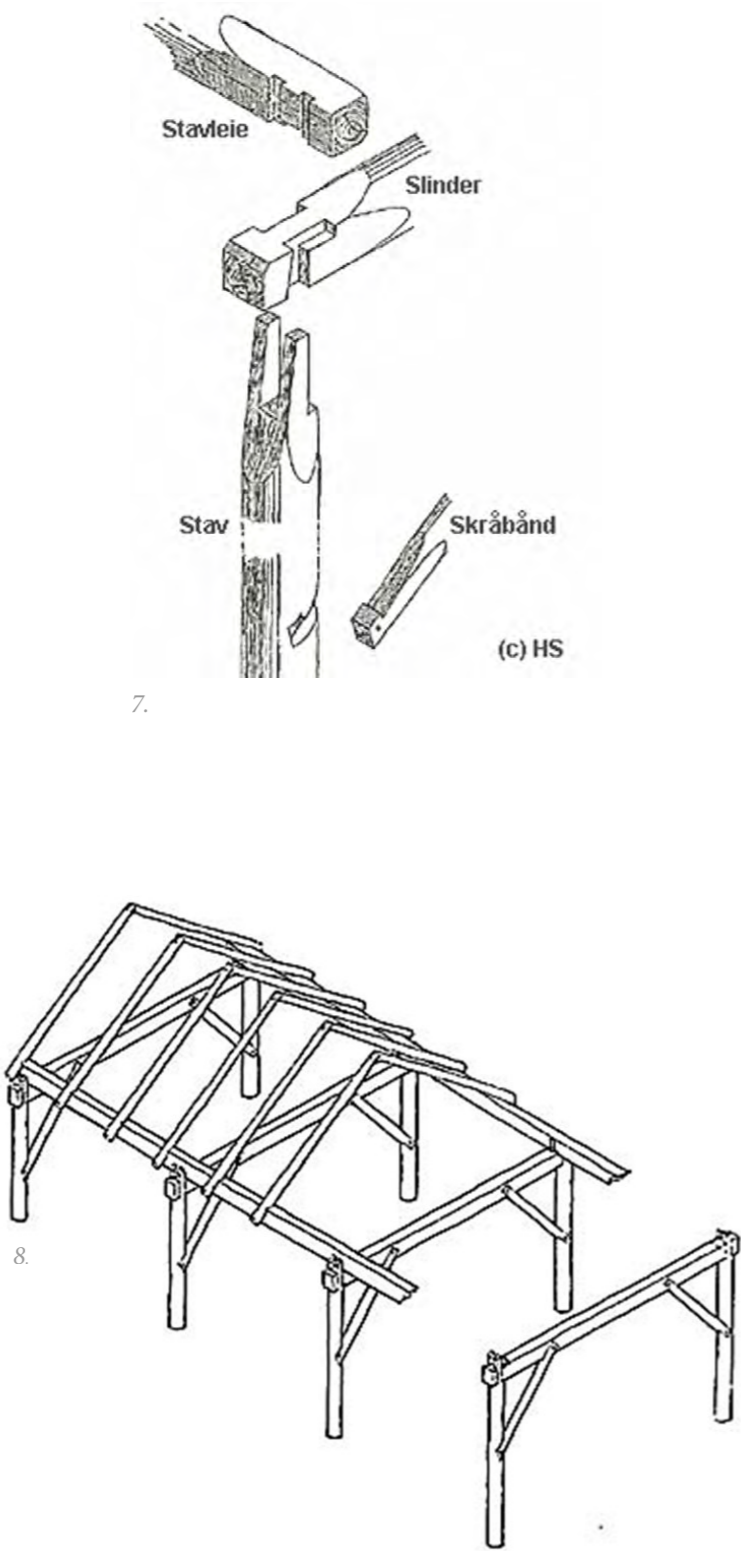
As the networks of transportation was not as exstensive as today, ancient Egyptians, Greeks and Romans used their manpower in reusing local dressed stones that no longer served its purpose due to earthquakes or war. This was both more time effecient and less labour intensive as the new materials in many cases would be hewed from quarries far away. Vitruvius also exspressed that the strongest materials are the ones that have already survived the ravages of the climate. ¹

Millions of tonnes of wrought iron were used by the romans during their time of reign yet close to nothing is to be found. Large amounts of it has been reused or reclaimed in one way or the other. Integrated into new buildings, in the industry, or used to make weapons. ²

from pre-diploma

1 Addis, *Building with Reclaimed Components and Materials*. (London: Earthscan, 2006), 9.

2 Addis, *Building with Reclaimed Components and Materials*. (London: Earthscan, 2006), 9.



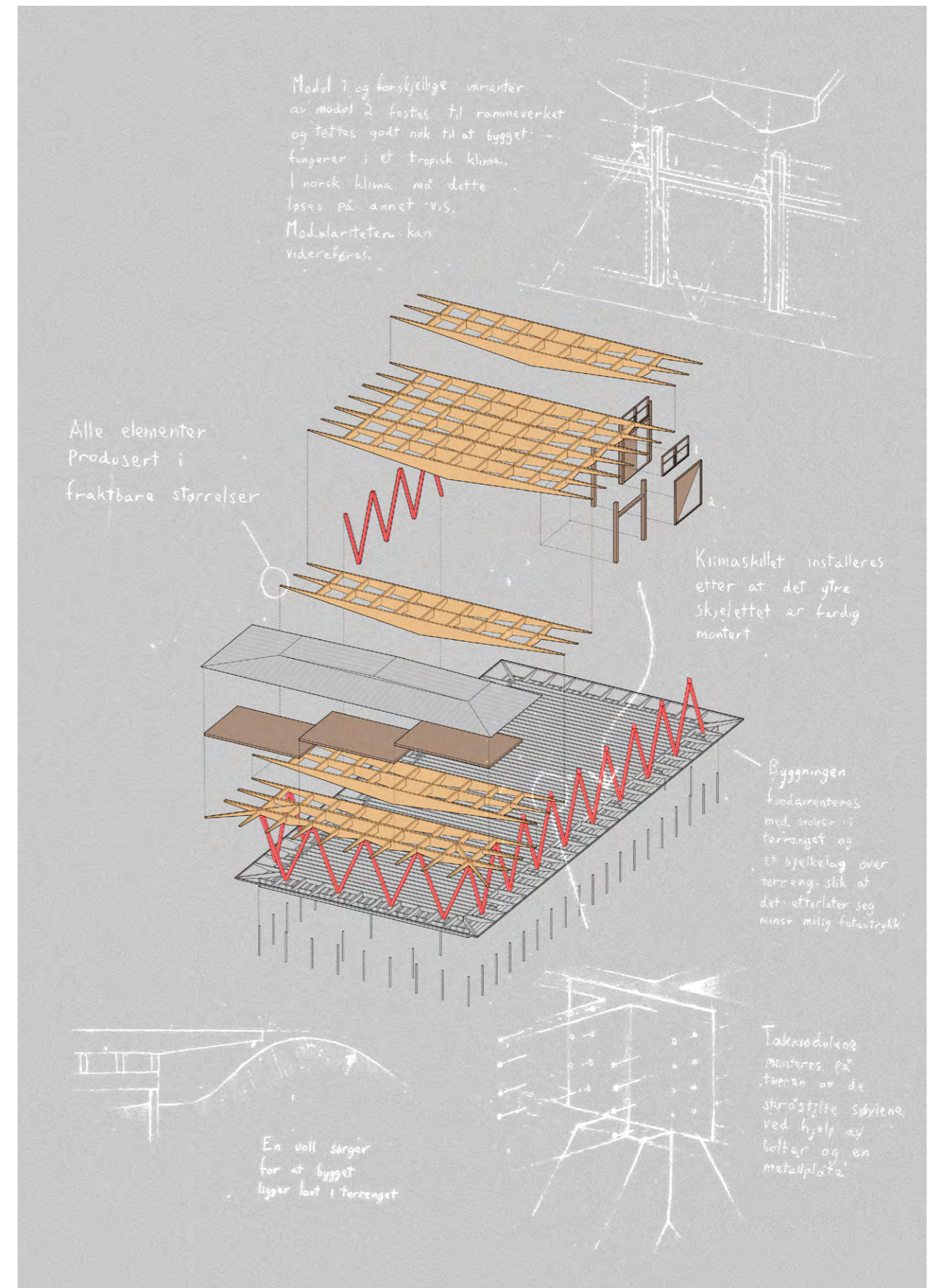
9.

REFERENCE

Macquaire University Incubator
North Ryde, Australia
Architectus

The incubator at Macquaire University was originally constructed as a temporary solution prior to a larger university development. Due to its high architectural ambitions for its purpose it now remains the main solution with no plans for deconstruction in the near future. With its easily accessible joints and modular design it can easily be deconstructed and put up in another location if need be.

Program, size and climate differs from what I have in mind for this diploma. The overall topic of investigation though, is highly relevant. The constructive strategy is studied through an exploded axonometry with supplementary sketches and comments to reveal what might be interesting strategies for further investigations.





5.



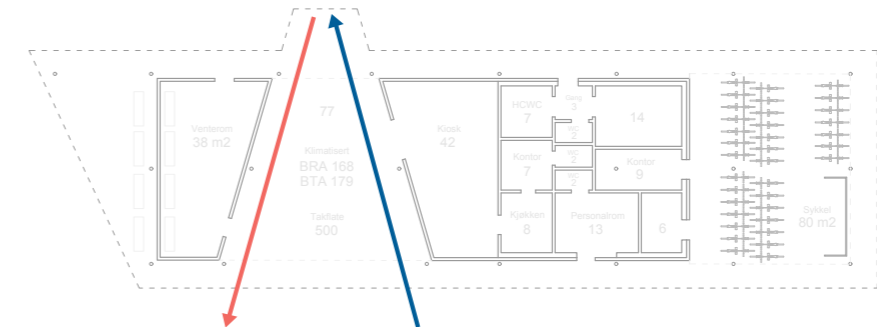
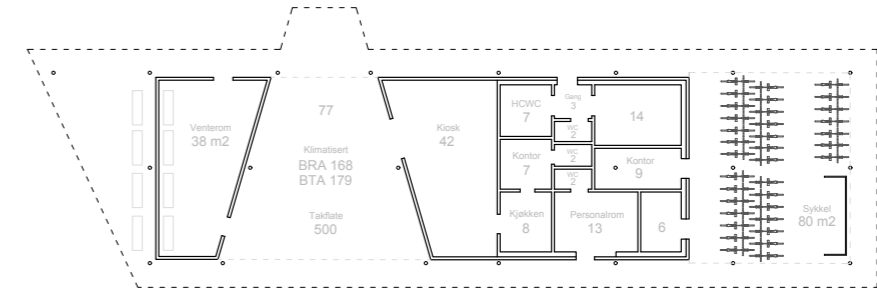
6.

REFERENCE

Nesoddtangen fergeterminal
Nesodden, Norway
Arne Henriksen/Noma Arkitekter

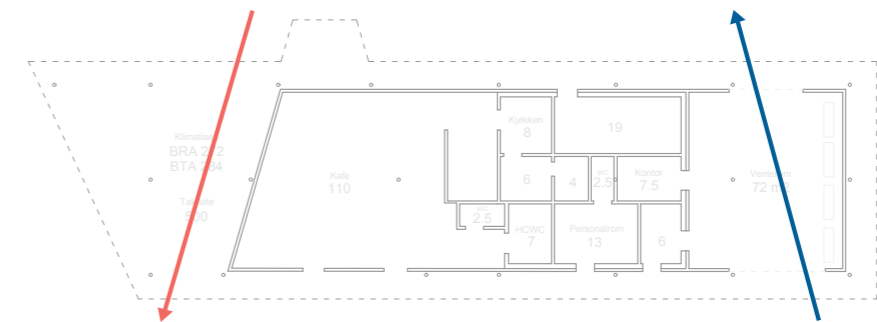
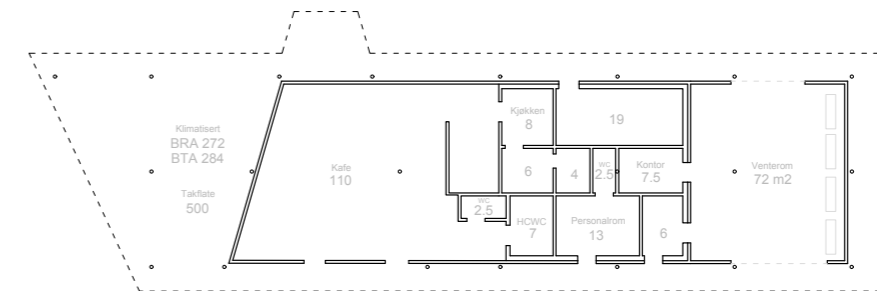
Nesoddtangen ferry terminal, originally drawn by Arne Henriksen did in 2009 go through a renovation to improve the passenger flow. Noma Architects closed off the funnel and moved the arriving and departing passengers to separate sides of the building.

The importance of an intuitive pattern of movement and easily accessible services is clearly readable in both projects.



Nesoddtangen bryggeterminal

Arne Henriksen, 2009



Nesoddtangen bryggeterminal

Noma Arkitekter, 2022



10.

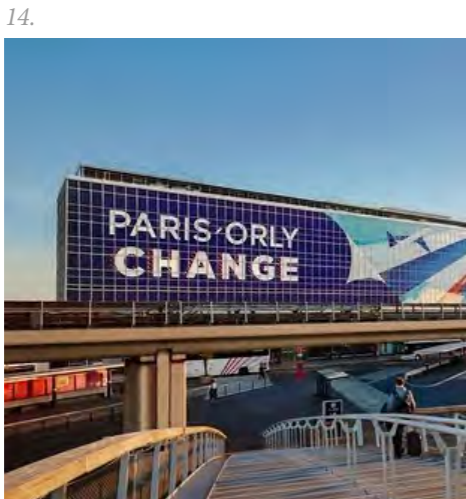
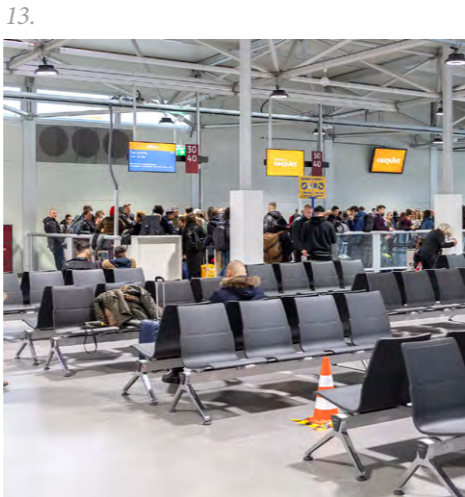


11.

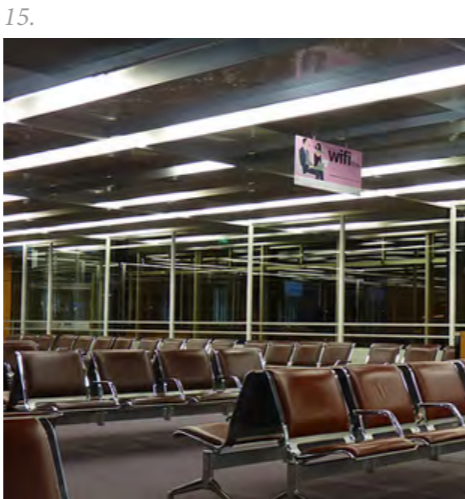
TRAVEL AS A NECESSITY
Architecture as a facilitator



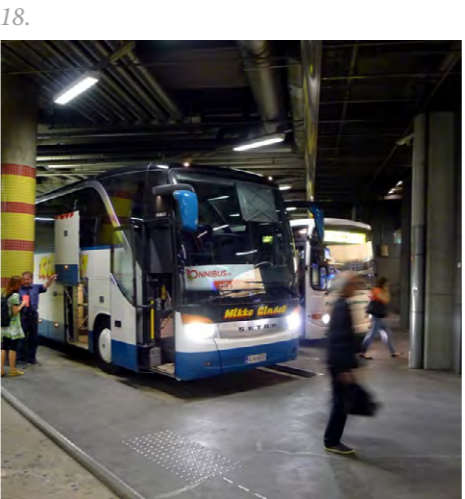
by plane in Berlin



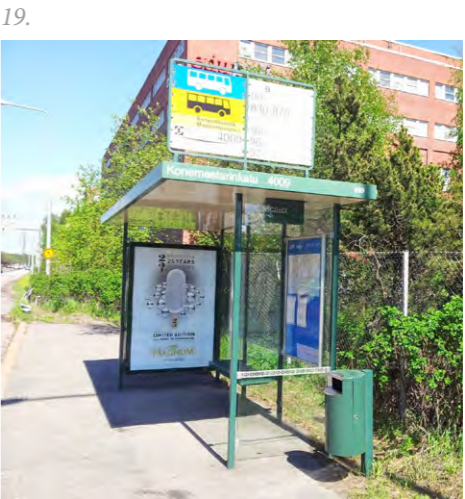
by plane in Paris



by metro in new york



by bus in Helsinki

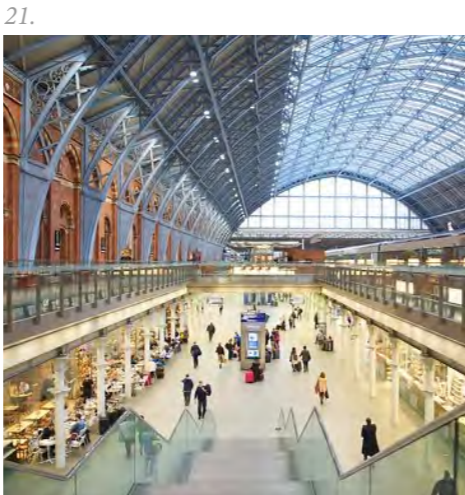


TRAVEL AS AN EXPERIENCE

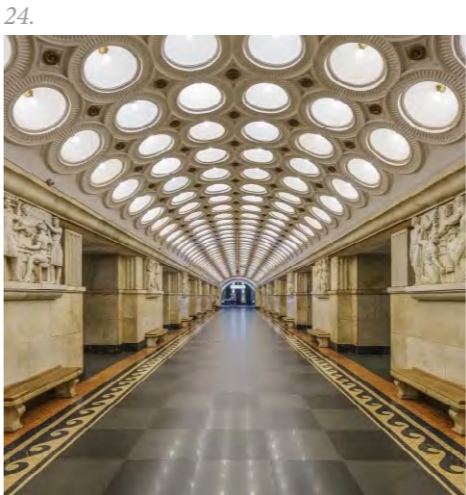
Representative architecture



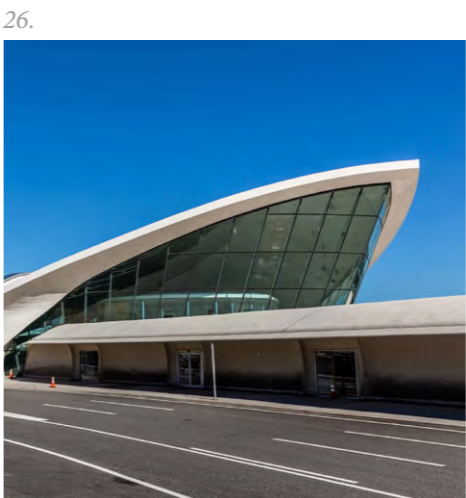
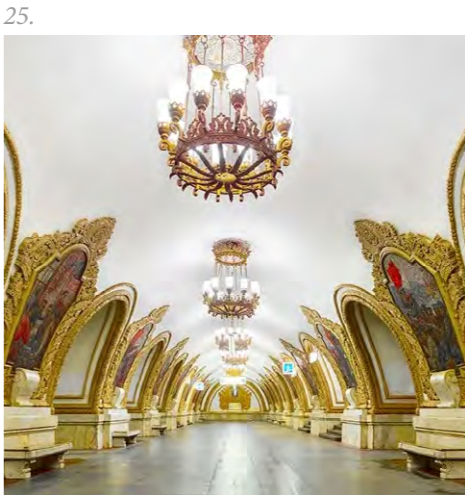
by train in London



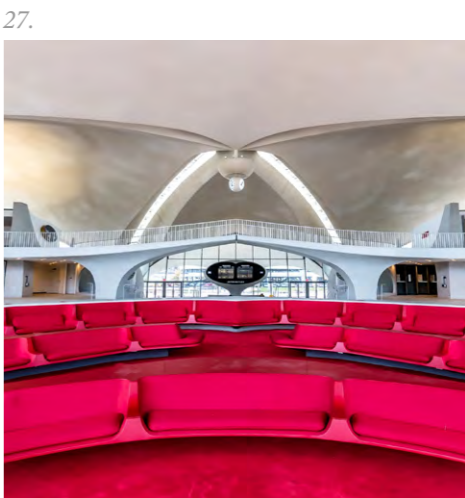
by bus in Sovjet



by metro in Moscow



by plane in the US



KIOSK

A space to arrive

A sheltered space to wait for the bus

A place that invites you further into the project and presents itself as an intuitive point of arrival



27.

Unknown railway kiosk, Melbourne



28.

Kiosk, Oslo

GALLERY

A sense of care and sheltering.

A space with direction, movement
and determination.

Protecting the facade from wear
and tear.



29.

gallery, Eidsborg stavkirke, norske-kirker.net



30.

Vitebsk Rail Station, 1904, saint-petersburg.com

WAITING ROOM

A place to slow down and observe.

A room with no movement.

Framed views in the direction you are heading.

Diffused skylight for an introvert space.



31.

Otaniemi Chapel, Espoo, Finland



32.

New University of the arts, London, Hufton + Crow

SHELTER

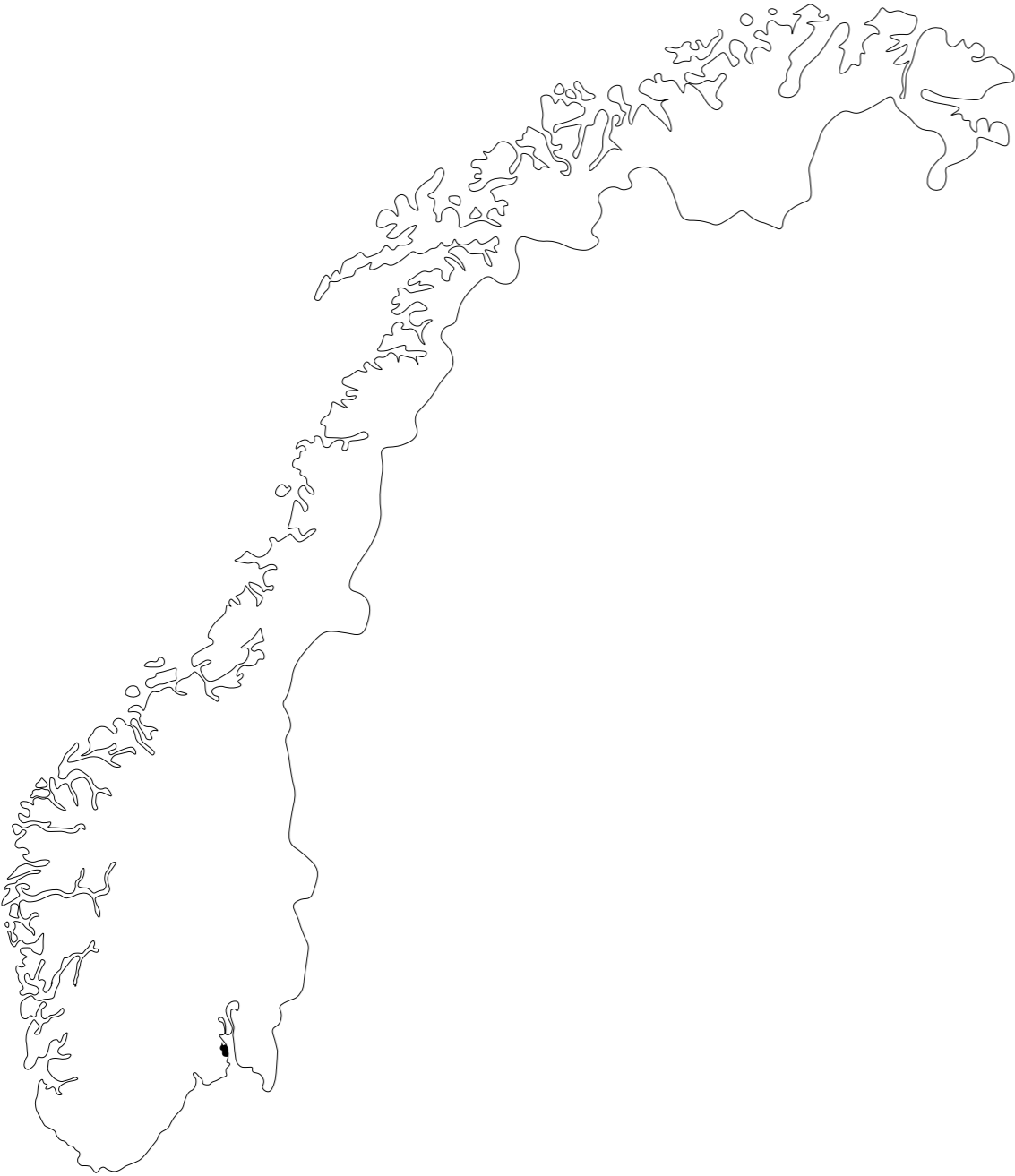
- A space that frames the direction of travel.
- A sheltered area that defining a space for short term waiting.
- A space that provides a clear overview.



33. Bergen Stasjon, Christer H



34. Bus stop in Shymkent, Kazakhstan, by Christopher Herwig



SITE

Horten Harbour, Norway







THE BASTØ FERRY

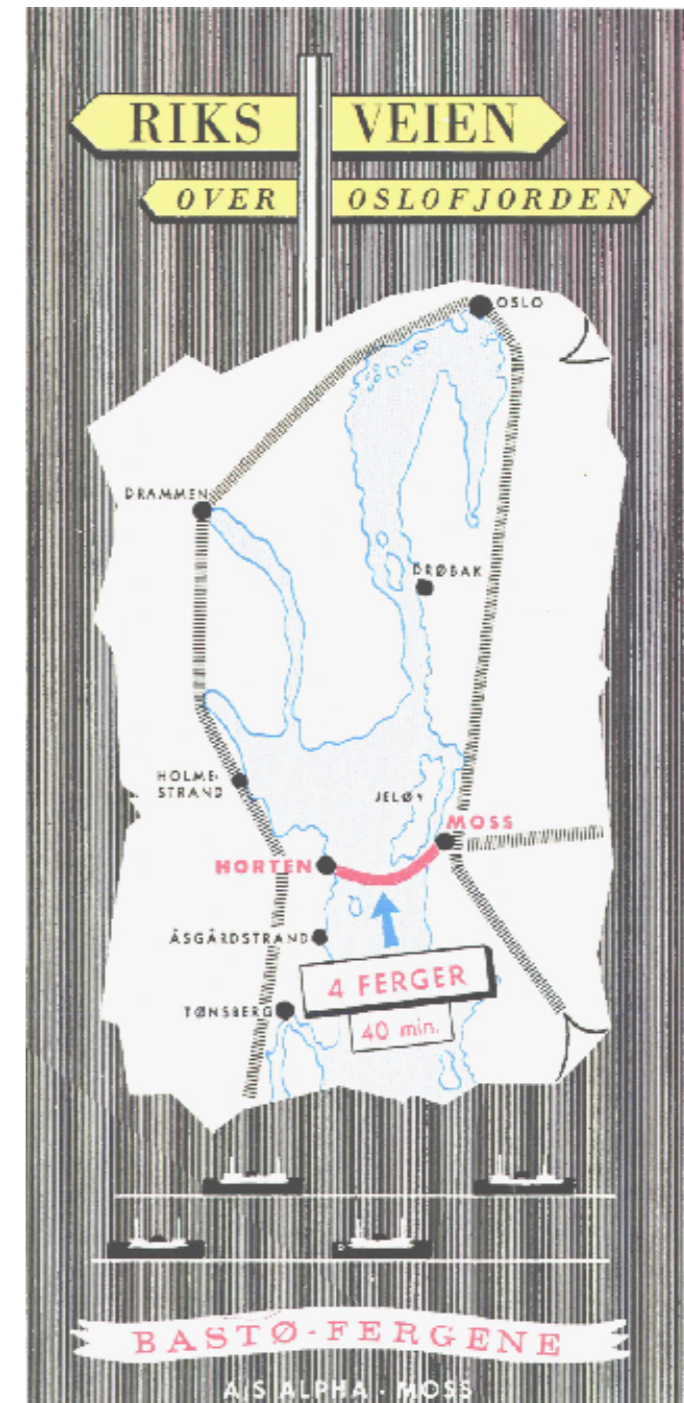
Teksts dating back to early 1580s mentions Horten-Moss as a common place for crossing the fjord. Although traffic of have existed here for hundreds of years, the Bastø ferry as known today did not appear until mid 1880s.¹

The crossing is Norways most trafficked, carrying roughly 3,5 million passengers a year doing an average of 51 departures every single day. From the time steamships ruled the waters a number of ships served their time between Horten and Moss, leading up to todays determined aim at automation and efficiency. The worlds biggest fully electrical ferry was put into operation in 2021. By the end of 2022 the operation is supposed to be fully electric. Driver-less ferries are currently being testet. The ultimate goal is to reduce impact on the climate.²

To pick up on the current ambitious development the relating architecture should be no less.

from pre-diploma

- 1 Schulstad, *Aktieselskapet Alpha gjennom 75 år*. (Moss: Moss boktrykkeri, 1967), 7.
- 2 Bastø fosen, "Verdens største elektriske bilferge i rutetrafikk på Oslofjorden."



35.

Brochure. 1961

END STATION

Only a couple of years before the bastøy ferry first started operating, the railwaystation of Horten opened just alongside the waterfront. This was the end station of a seven kilometer sideline made to connect the inner city to the inland railroads as a continuous railroad by the coast would lose passengers to the well developed network of steamships. Until 1967 it served both person and freight traffic, making the area a hub for transportation. ¹

By 1979 the HAC site south of the guest port was filled out and industrial halls were built. The trainline no longer transported passengers. In 2003 the freight traffic stopped. The area gradually drifted away from the human scale. By 2008 the tracks were turned into a bicycle and pedestrian path leaving only a few traces of what used to be. ²

The previous homage to transportation is no longer apparent in the area.

from pre-dipoma

¹ Skinnelangs, "Hortenlinjen"

² Skinnelangs, "Hortenlinjen"



36.

Horten station, 1950

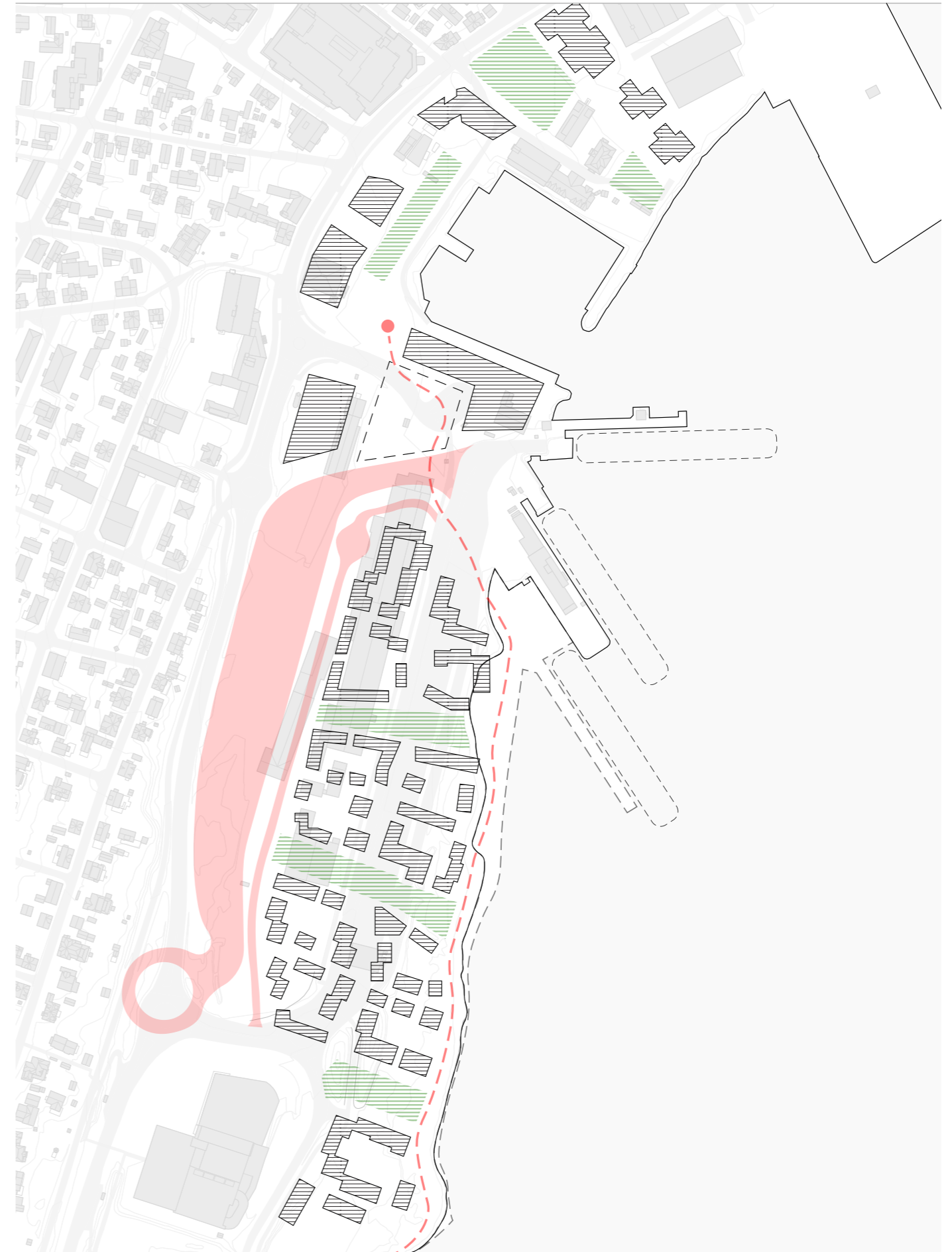
FUTURE SCENARIOS

The decision to create a third ferry pier opens up the possibility for a larger residential development on the site where the HAC building is situated today. The new traffic pattern can potentially create an intricate transitional period on which the pedestrian travelers are neglected.

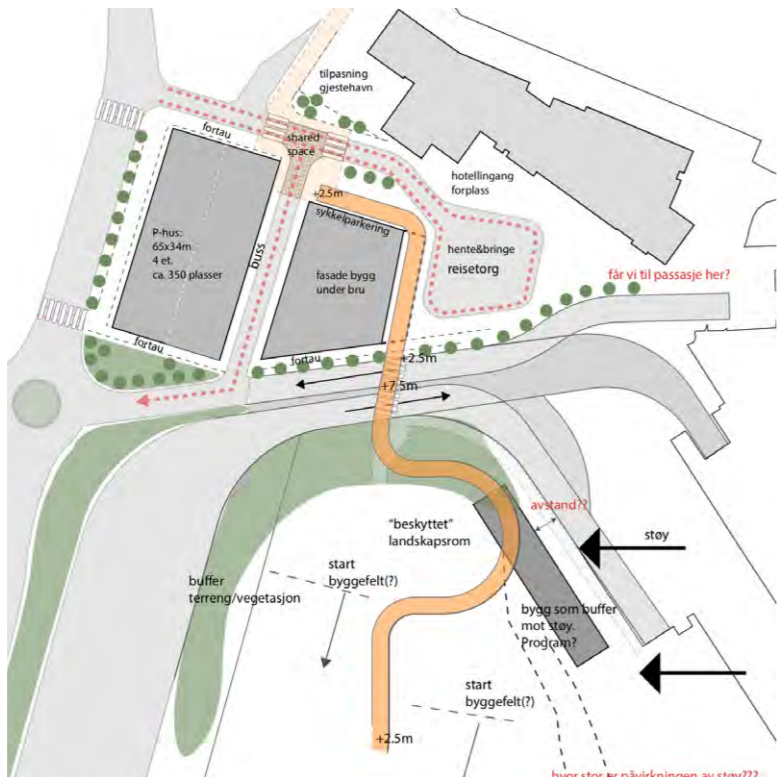
Located on the southern pier, a new head office for Bastø Fosen containing a fast charger for electrical ferries suggests a further investment in Horten harbour as a hub for transport. The level of ambition and progressiveness is not currently reflected in the surrounding infrastructure.

A proposed residential area enveloped by the ferry infrastructure and the guest port as a public mediator calls for a pedestrian friendly connection supported by human scale architecture. The flexibility of a temporary structure with the architectural quality of a permanent building will work as a flexible joint in an uncertain large scale development.

from pre-dipoma



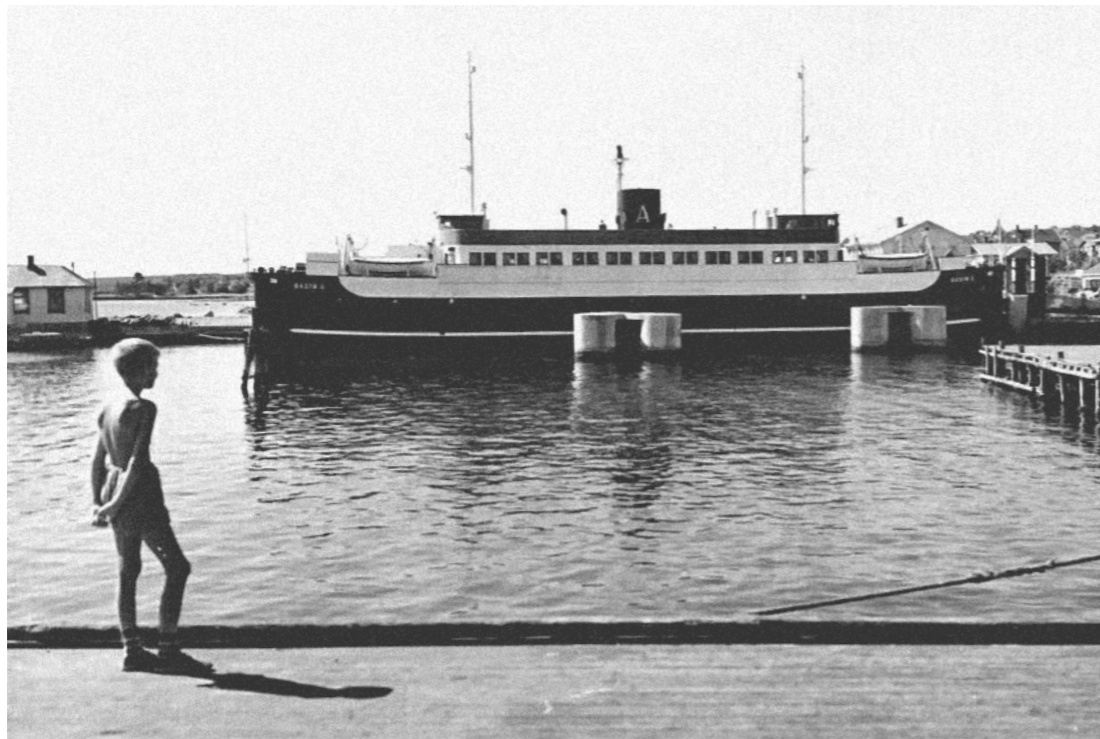
FUTURE SCENARIOS



37.



38.

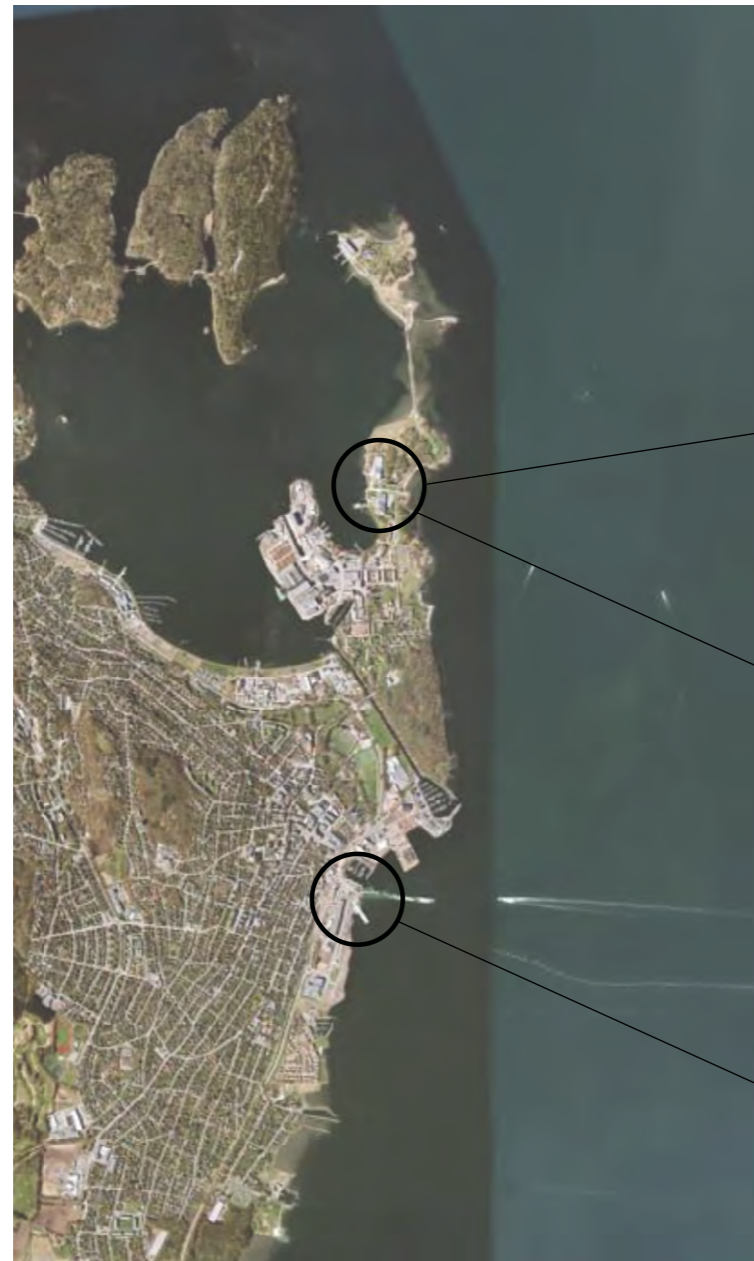


39.



40.

Waiting for the Bastø ferry, Horten, 1960



site



TO TØNSBERG

05:45	10:15	15:45
06:15	10:45	16:15
06:45	11:15	16:45
07:15	11:45	17:15
07:45	12:15	18:15
08:15	12:45	19:15
07:45	13:15	20:15
08:15	13:45	21:15
08:45	14:15	22:15
09:15	14:45	23:15
09:45	15:15	

WALK
1 min.

TO MOSS

04:45	11:20	16:45
05:15	11:35	17:00
05:45	11:55	17:20
06:15	12:15	17:35
06:45	12:30	17:55
07:15	12:50	18:15
07:45	13:05	18:30
08:00	13:25	18:50
08:20	13:45	19:05
08:35	14:00	19:25
08:55	14:20	19:45
09:15	14:35	20:15
09:30	14:55	20:50
09:50	15:15	21:15
10:05	15:30	21:45
10:25	15:50	22:15
10:45	16:05	23:00
11:00	16:25	23:45

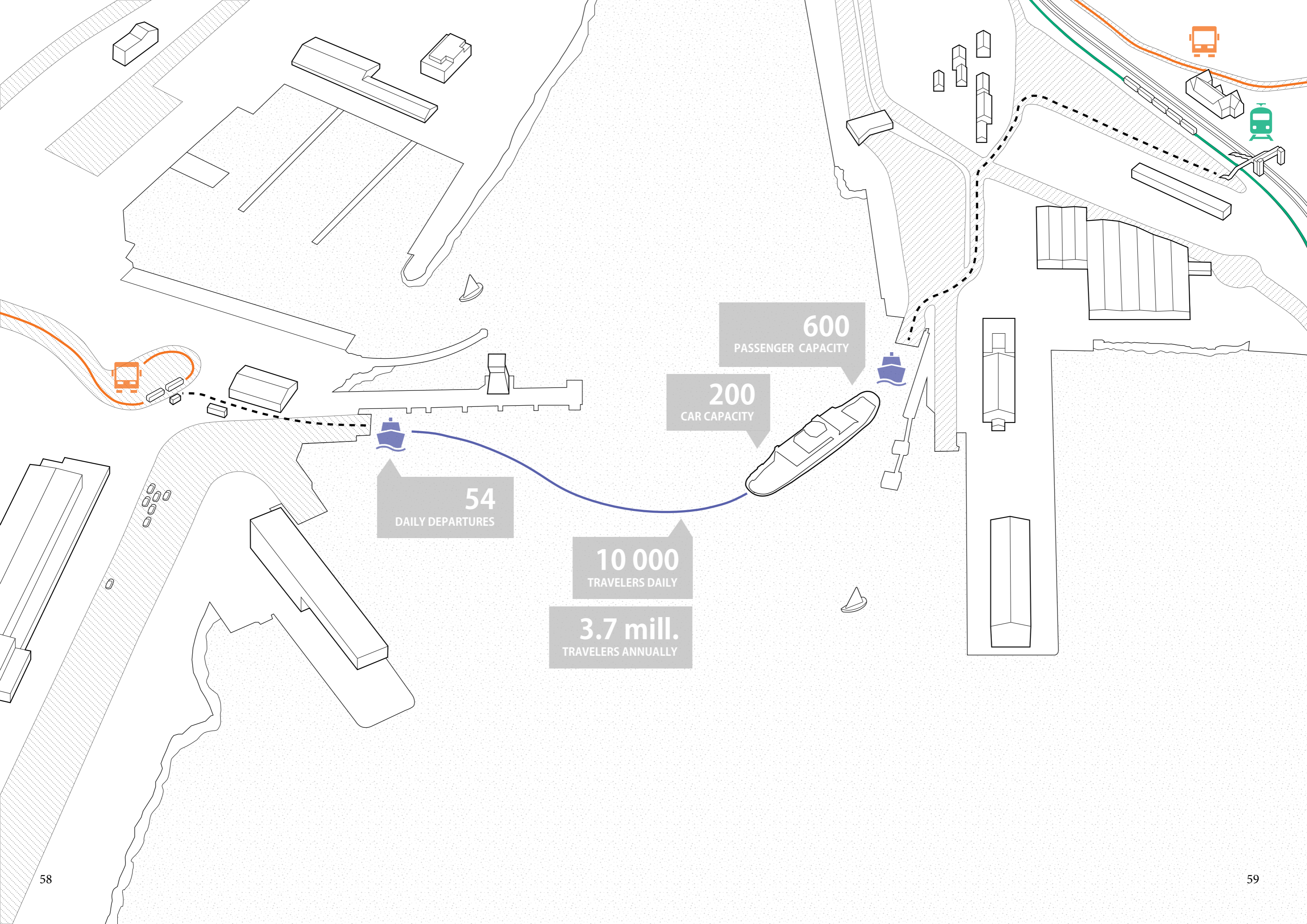
CROSSING
30 min.

OSLO
30 - 40 min.

WALK
6 min.

DIRECTION OSLO

04:56	10:26	17:12
05:08	10:56	17:26
05:26	11:12	17:56
05:56	11:26	18:12
06:08	11:56	18:26
06:26	12:08	18:56
06:40	12:26	19:12
06:56	12:56	19:26
07:10	13:12	19:56
07:26	13:26	20:08
07:40	13:56	20:26
07:56	14:08	20:56
08:08	14:26	21:12
08:26	14:56	21:26
08:40	15:12	21:56
08:56	15:26	22:08
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09:56	16:26	23:12
10:08	16:56	23:26



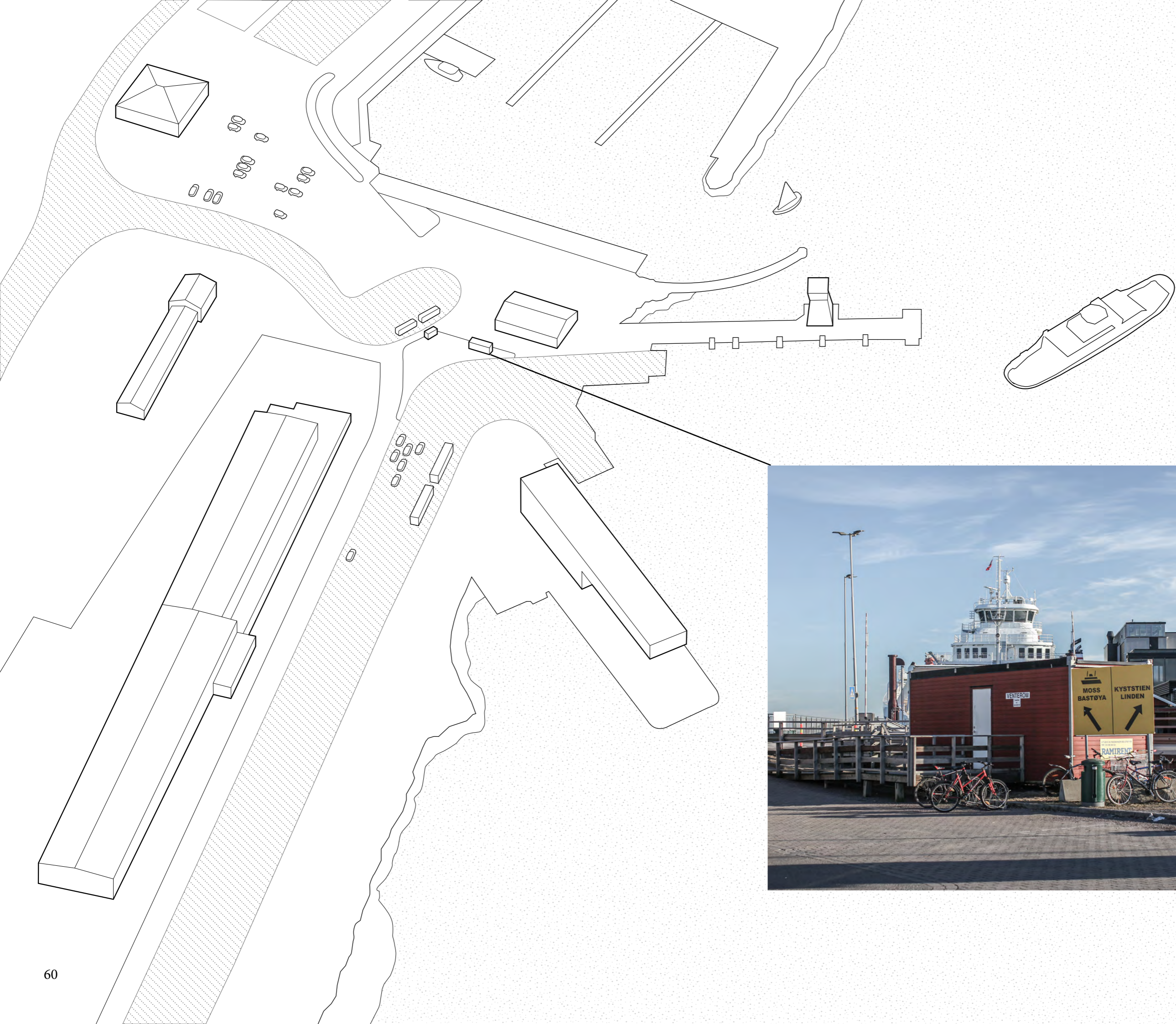
600
PASSENGER CAPACITY

200
CAR CAPACITY

54
DAILY DEPARTURES

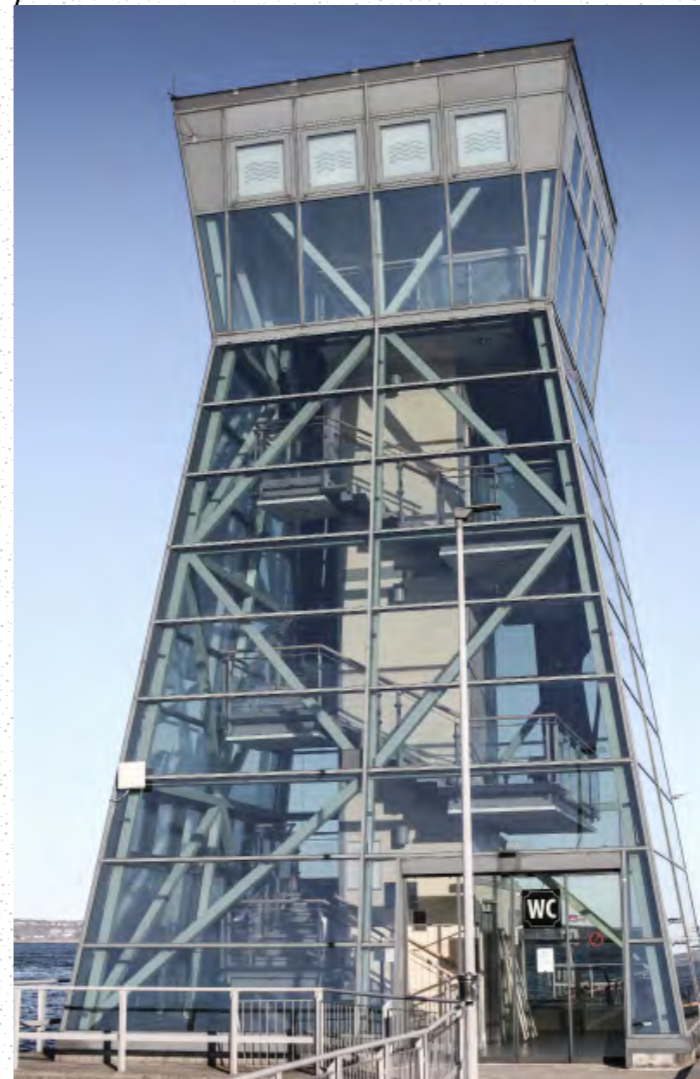
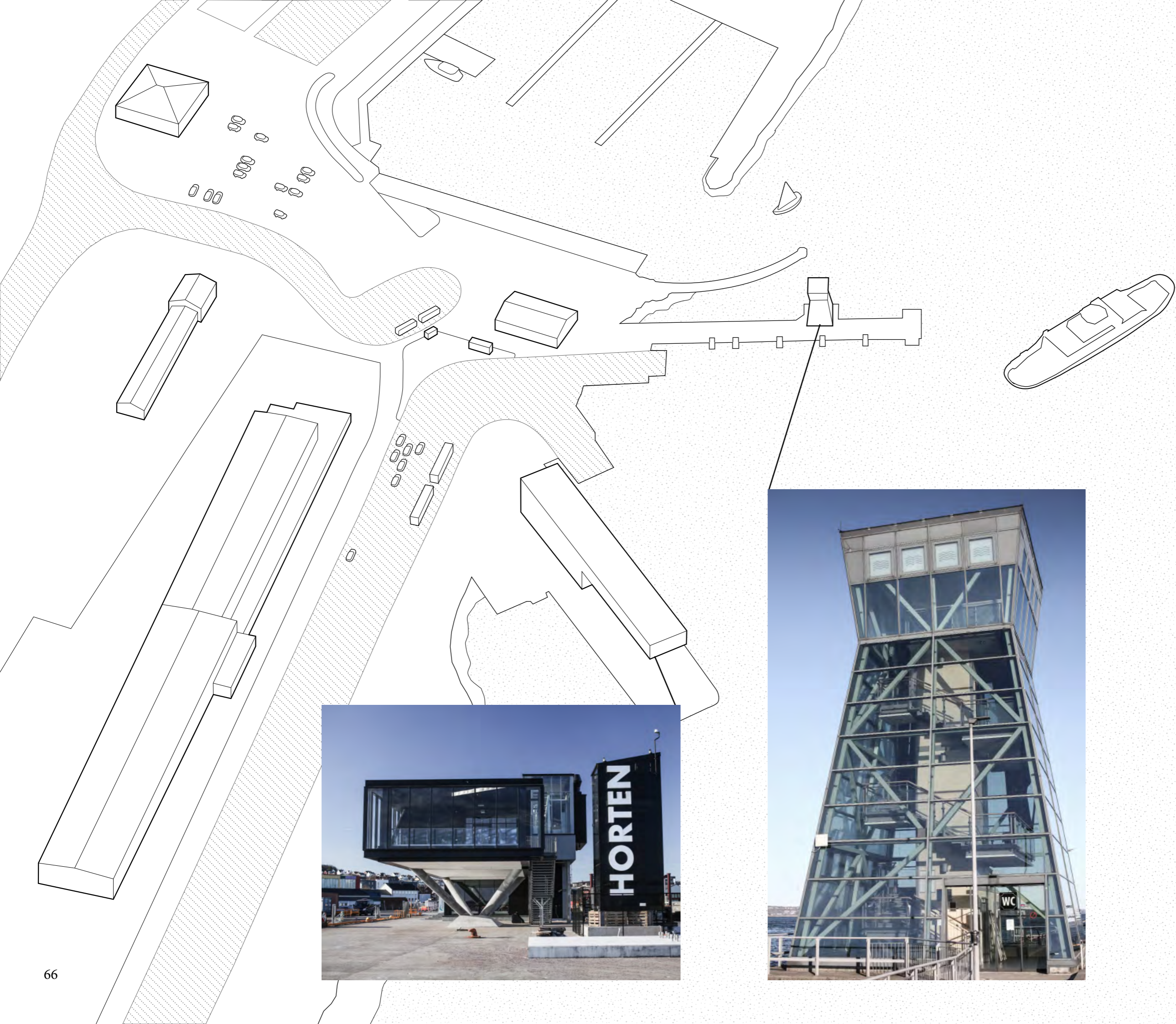
10 000
TRAVELERS DAILY

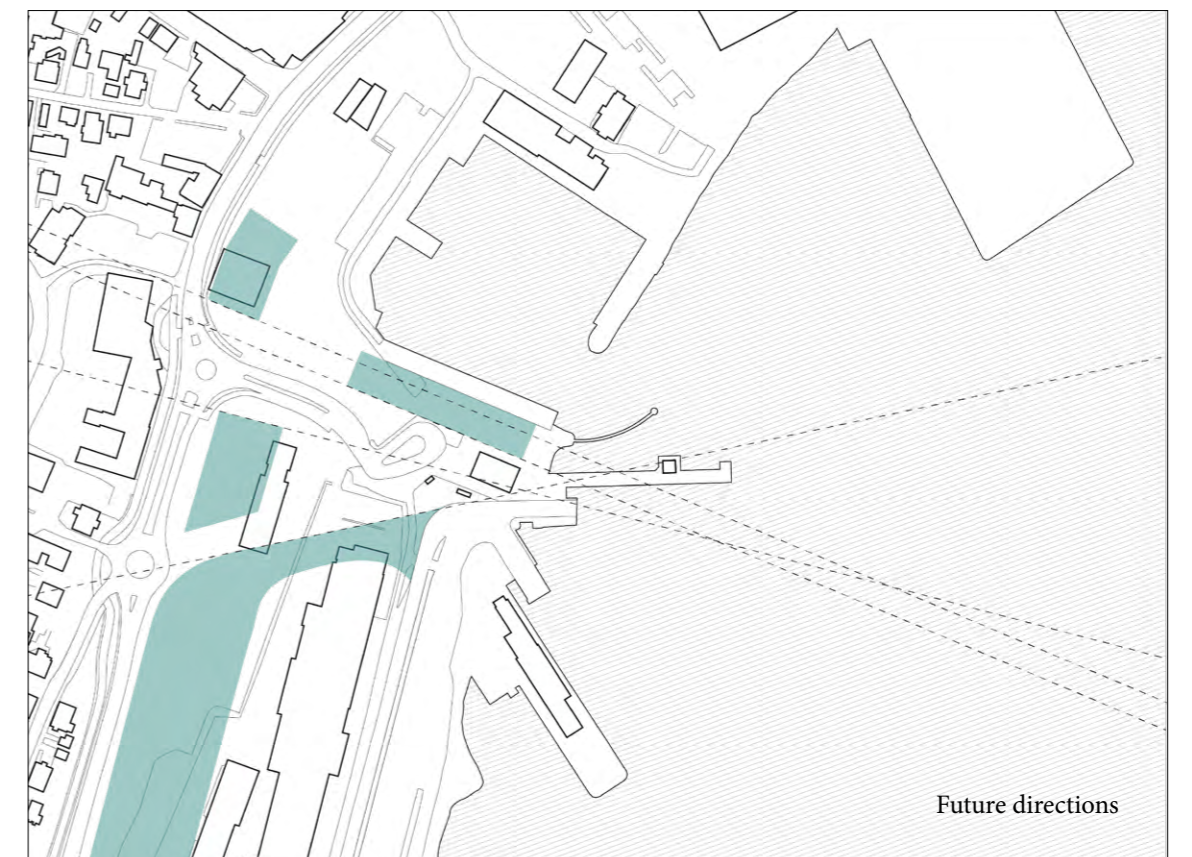
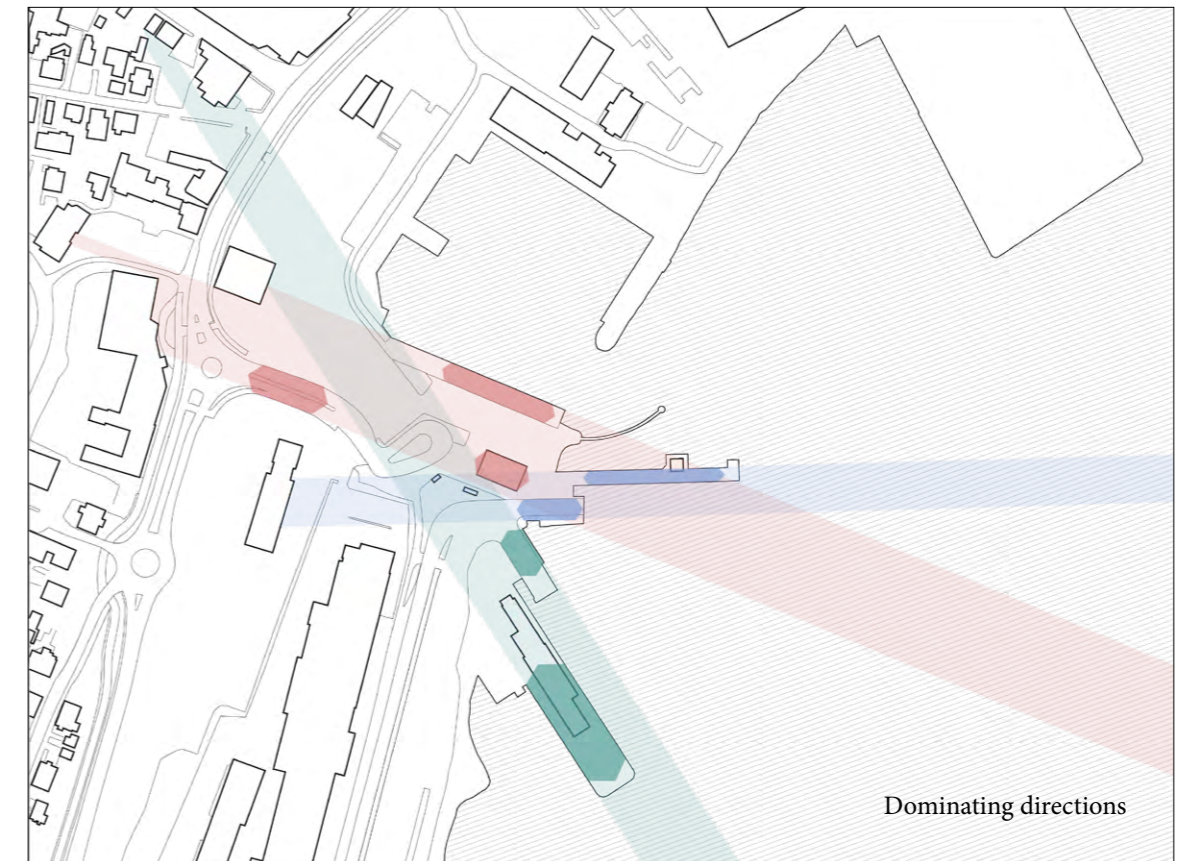
3.7 mill.
TRAVELERS ANNUALLY

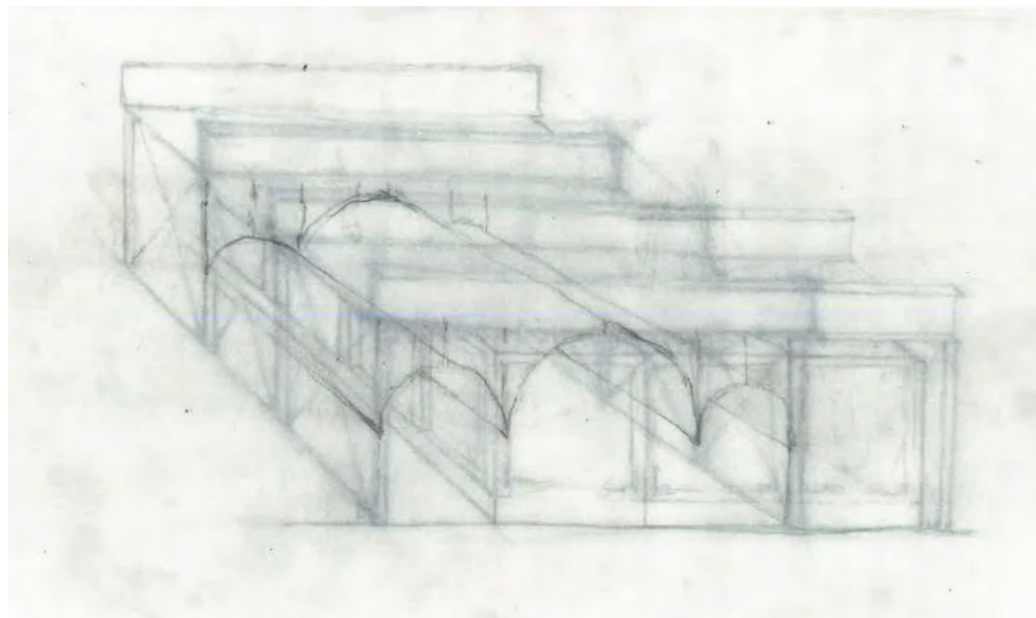










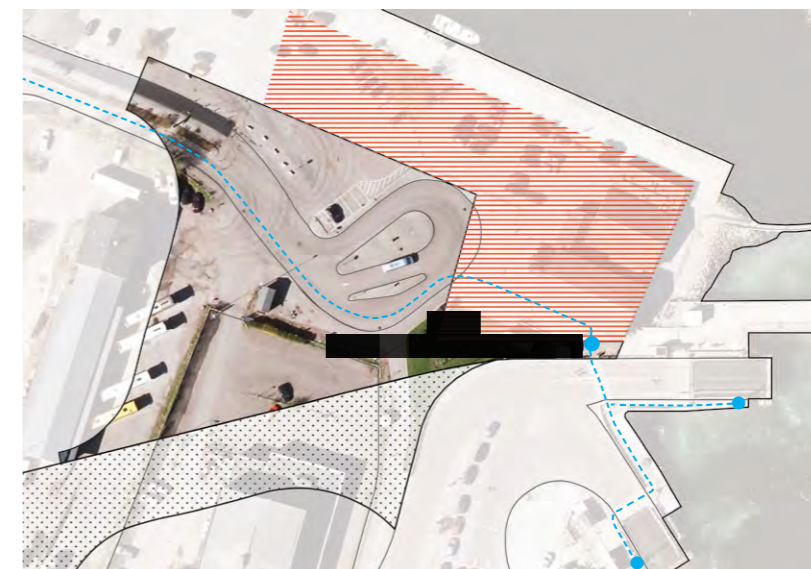
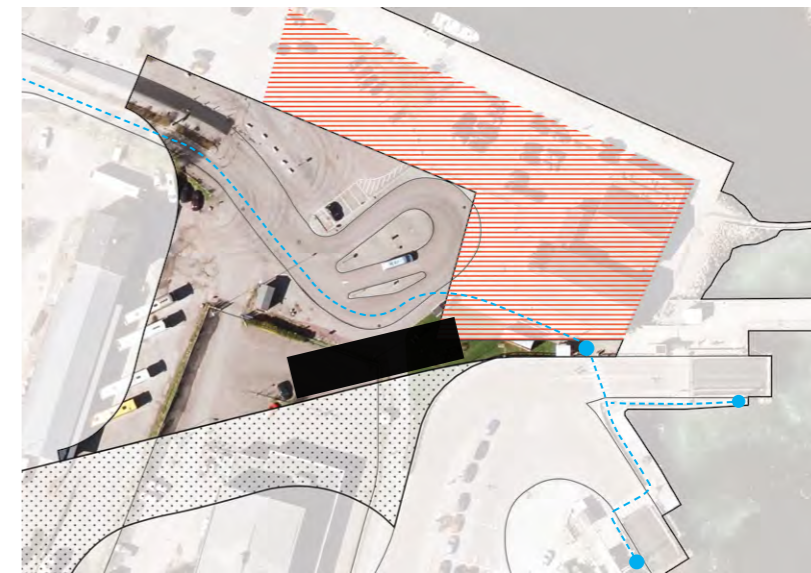
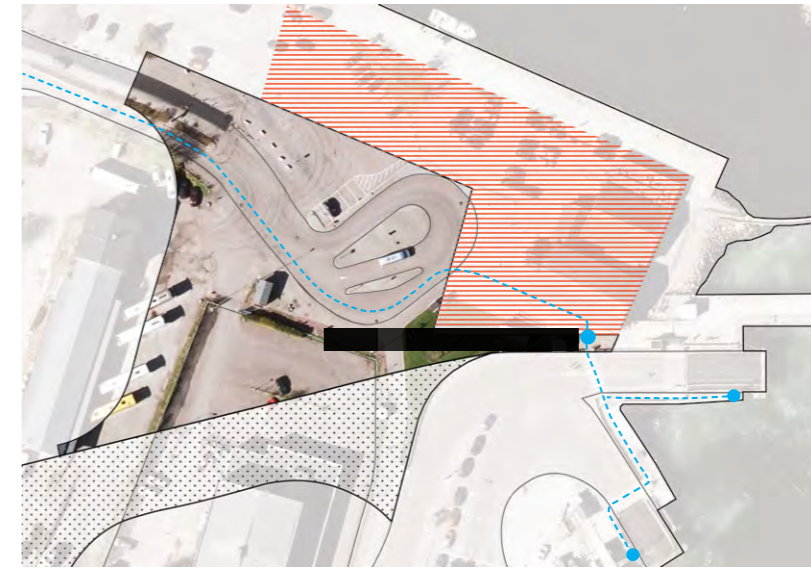


PROCESS

ON SITE

Early studies of placement on site. Investigating volumes in relation to the current and future situations.

Red hatch marks regulated hotel development. Dark dotted hatch marks projected restructuring of the road. Blue line marks the current path of arrival.





Concept models.
Metal as a protective layer.



Revised concept model.
Metal as a protective layer.
Two independent structures.

SPATIAL STUDIES

Rooms for waiting

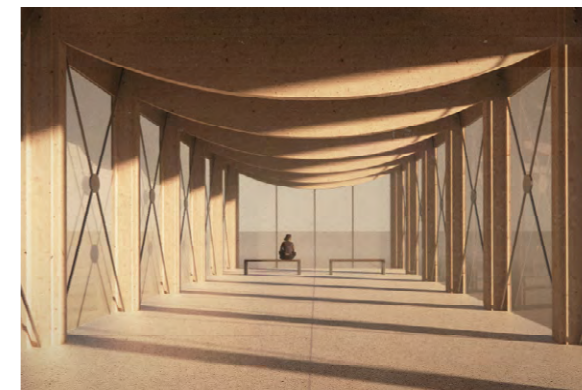


Waiting in a gallery

Concept model 1:20



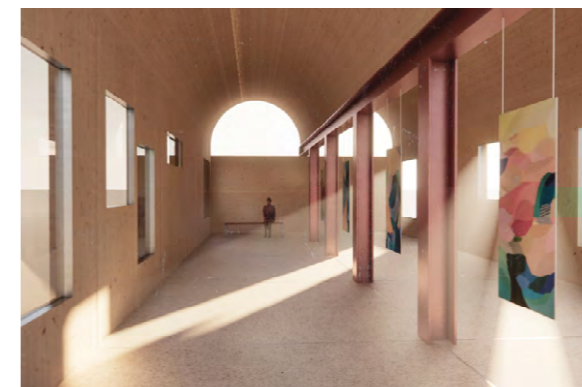
Waiting in an industrial structure



Waiting under a sagging beam

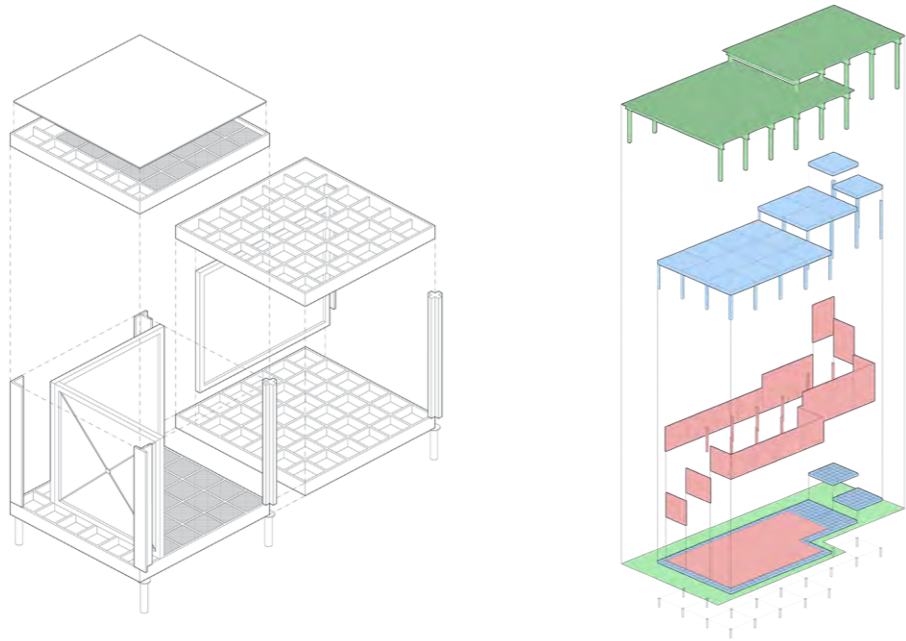
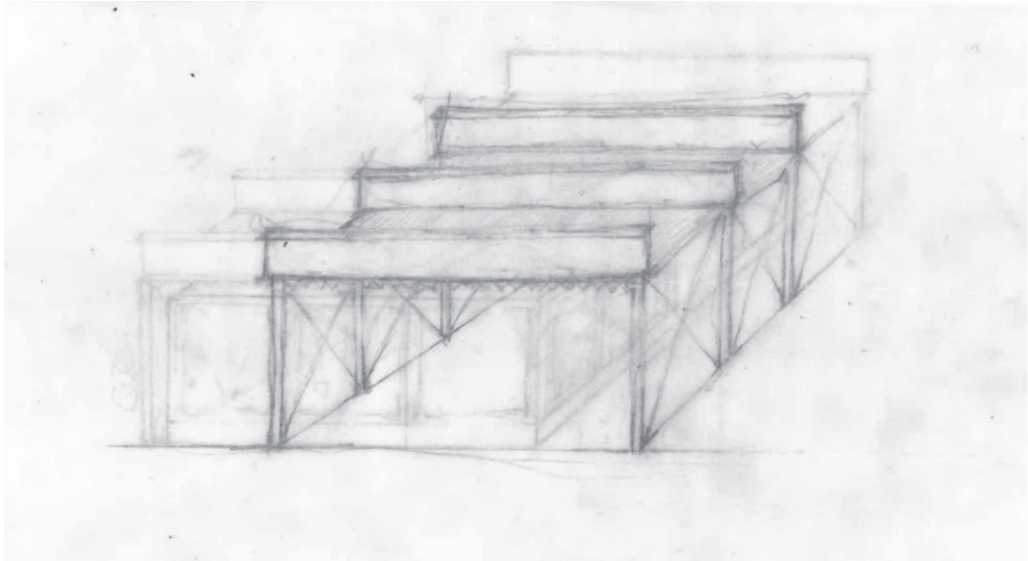


Waiting in a kindergarten

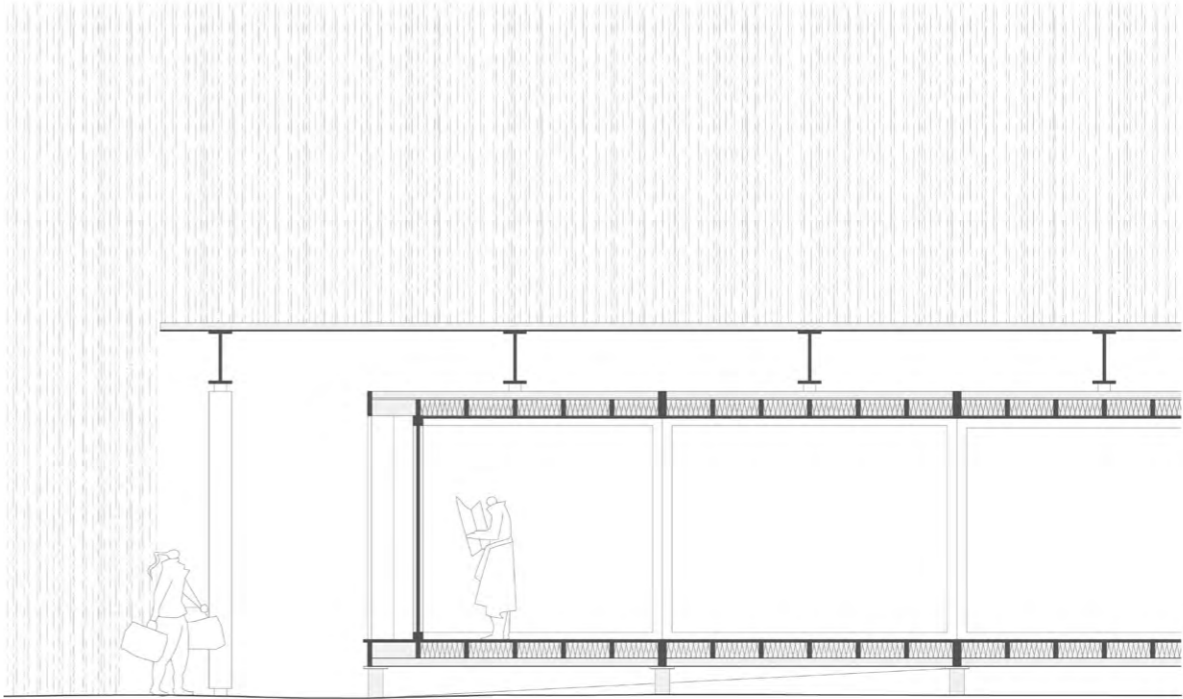


Waiting under a vault

VERSION I

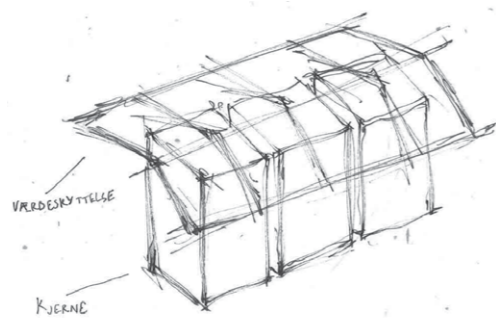


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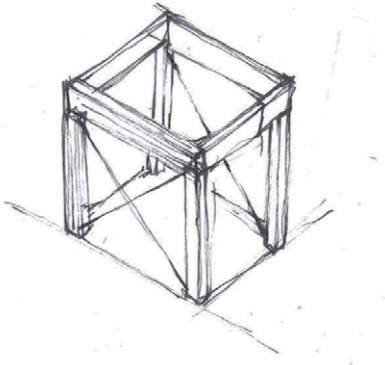
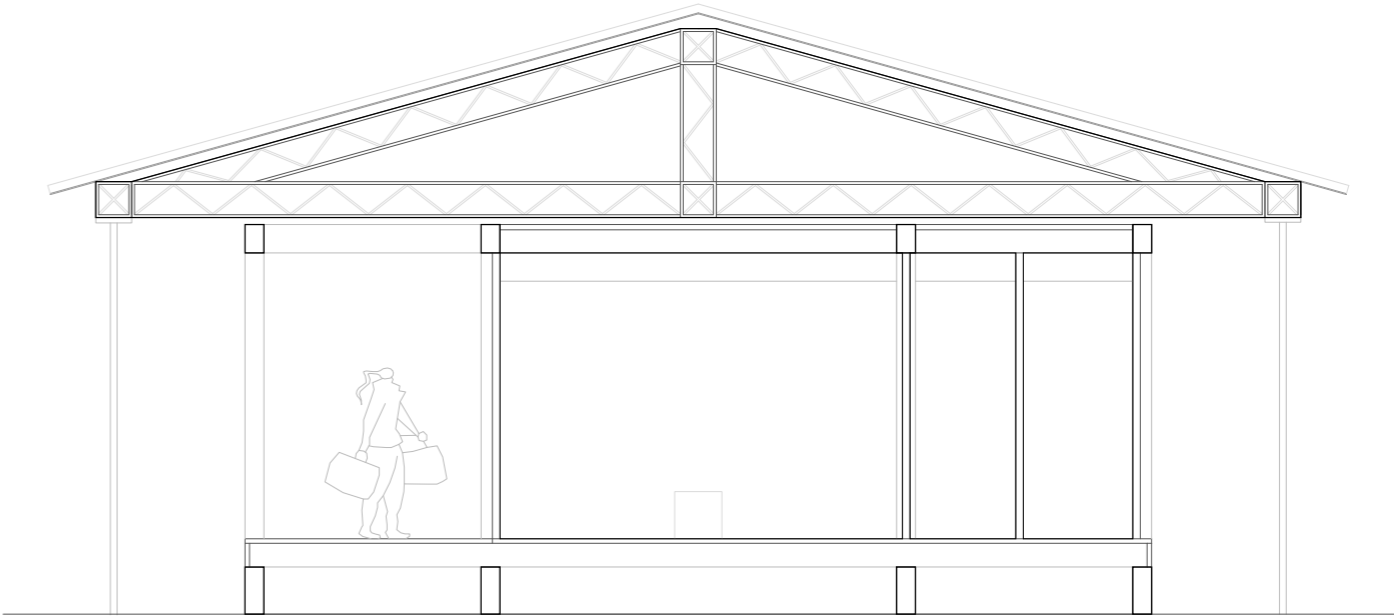


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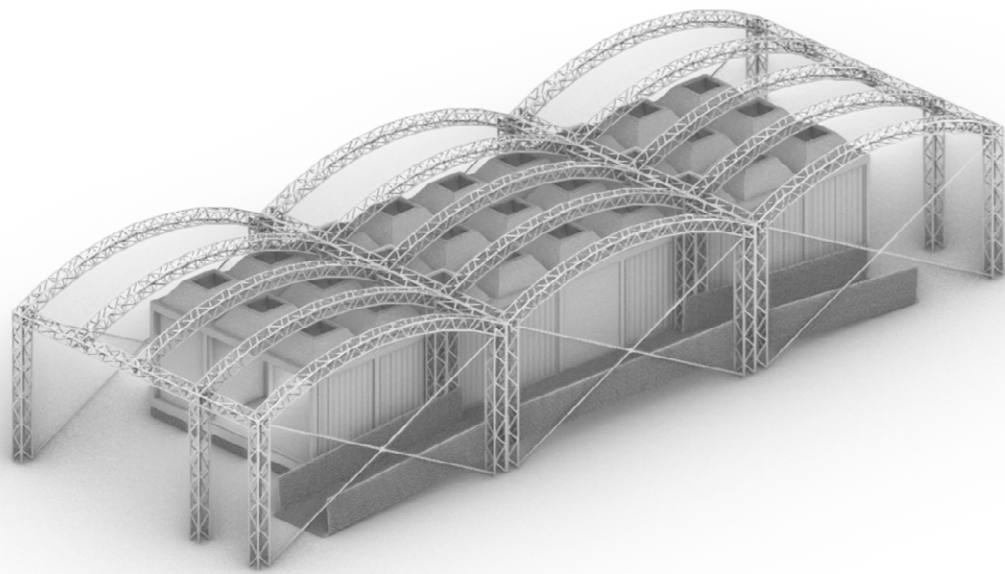
VERSION II



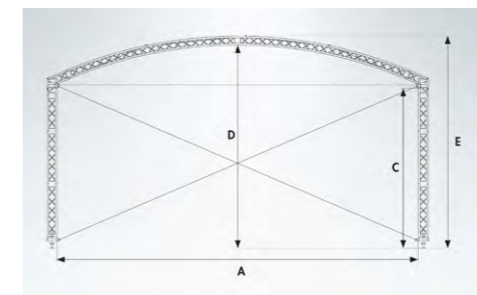
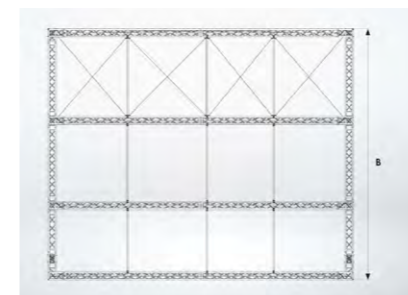
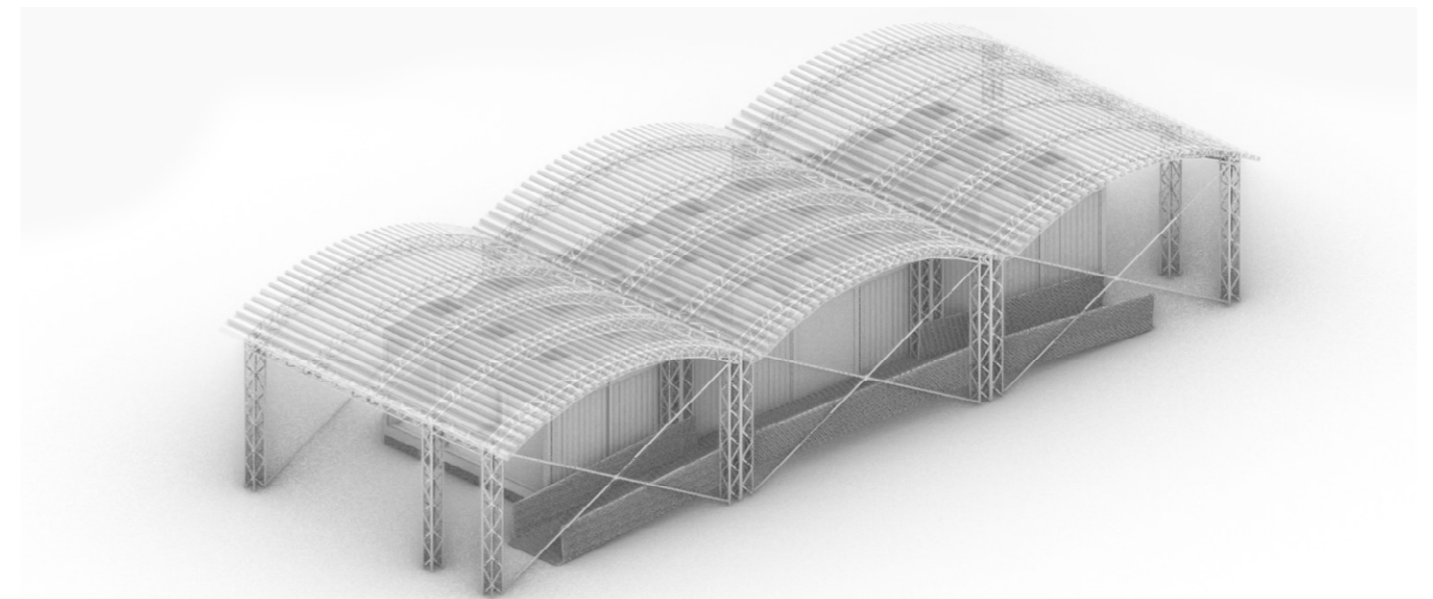
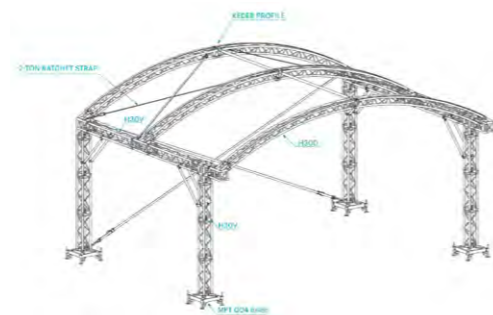
Note: ---

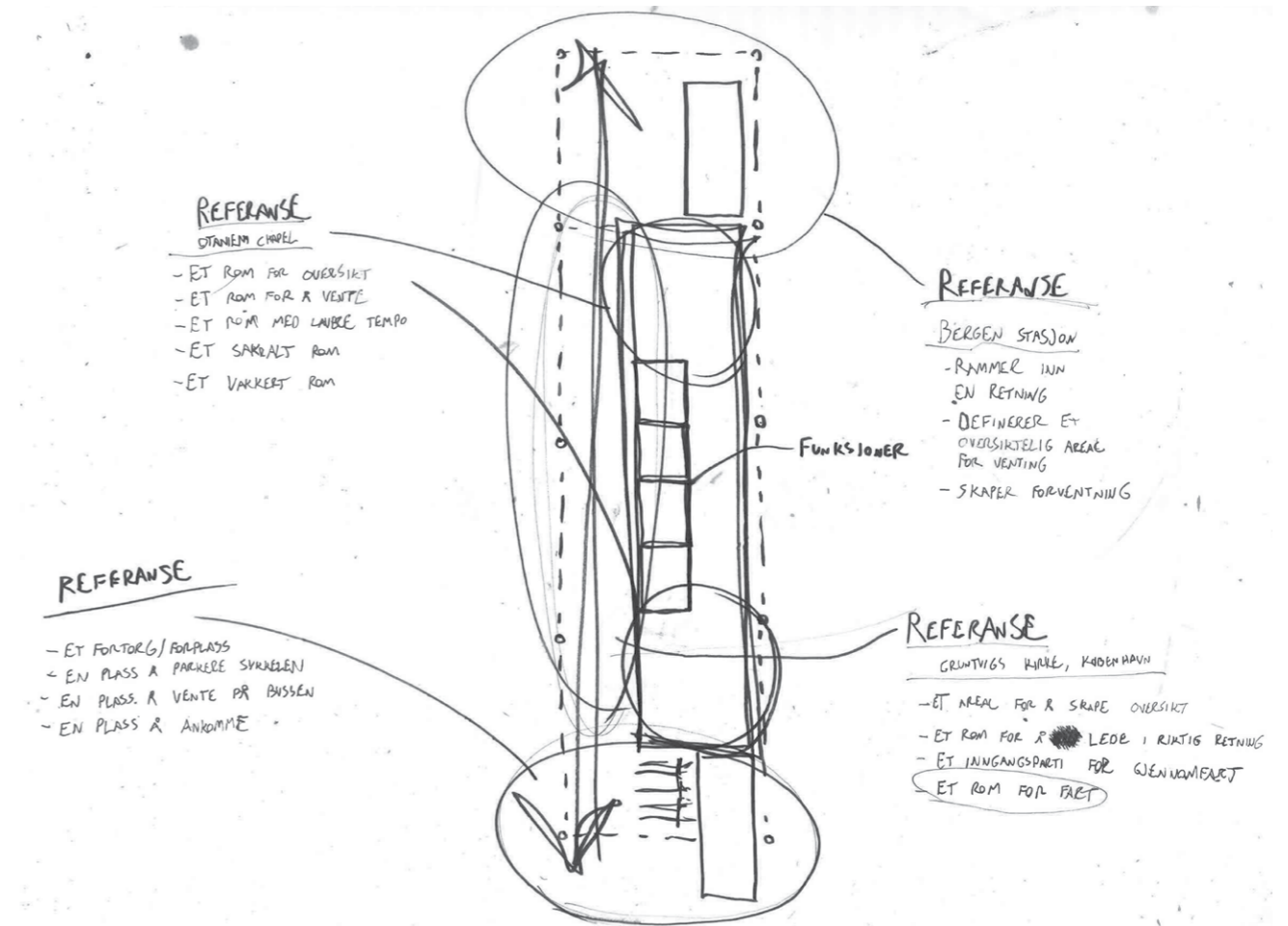
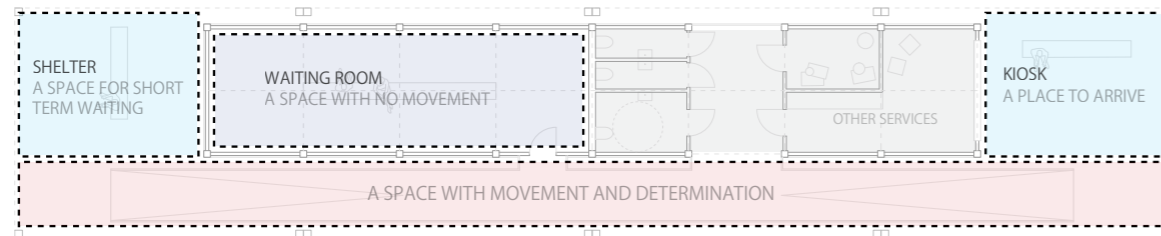
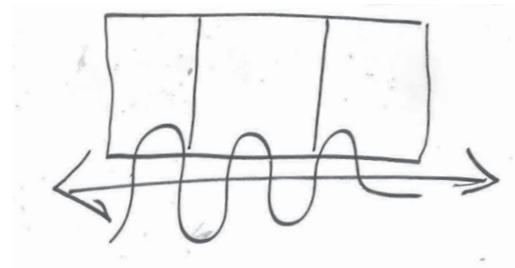
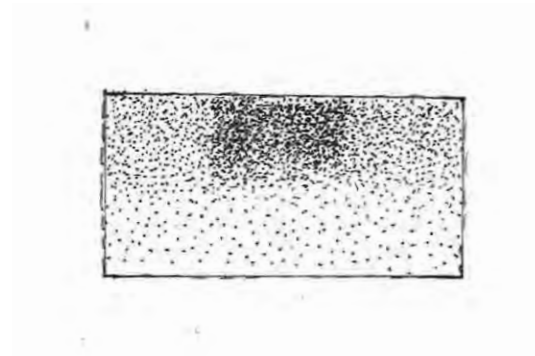
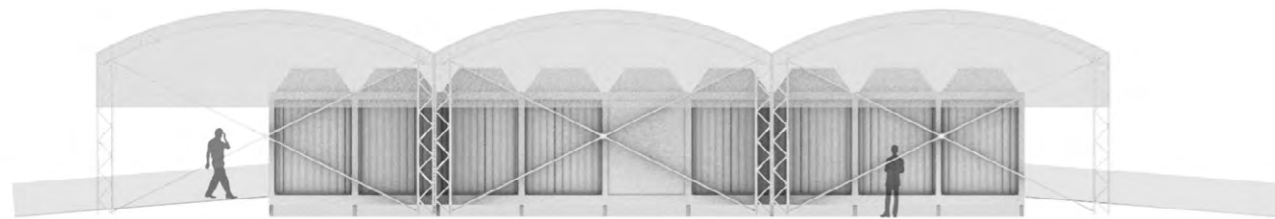


Note: ---

VERSION III

Note: ---



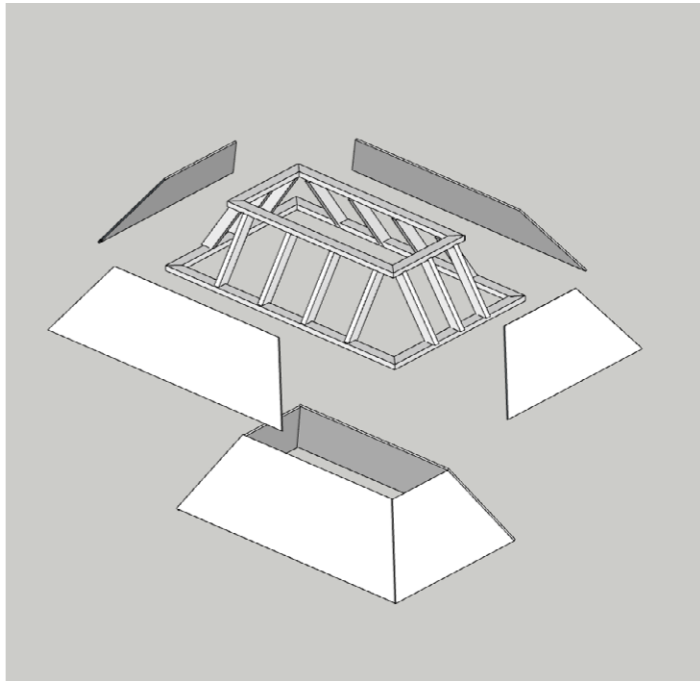




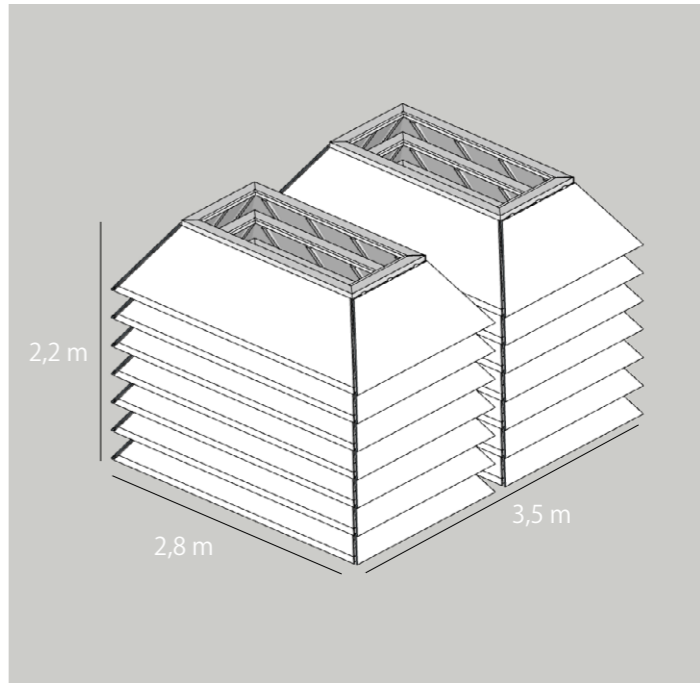
41.



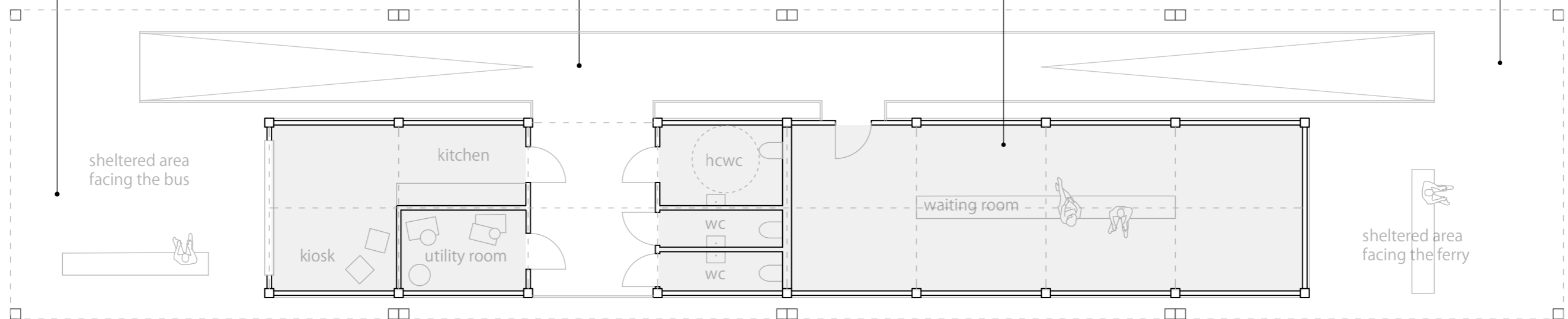
42.



Element dimentions: **2680 mm x 1700 mm x 750 mm**
Element weight: **170 kg**

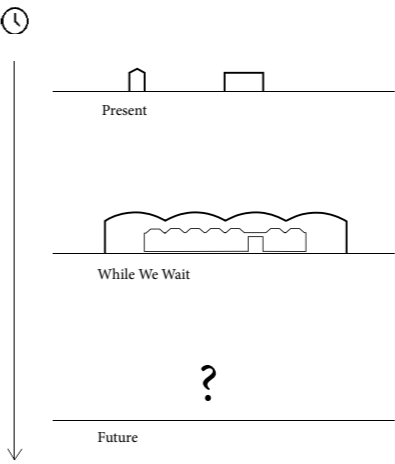


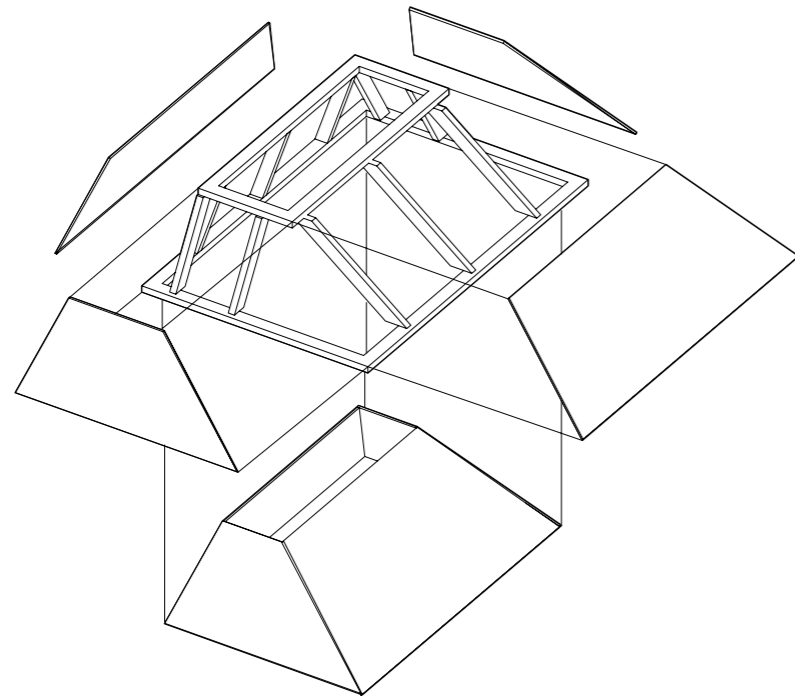
Storage need (7x2): **10 m2** (22 m3)





PROJECT

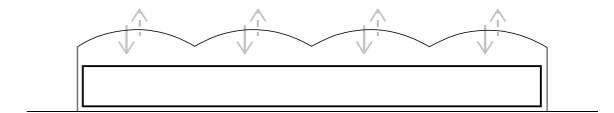




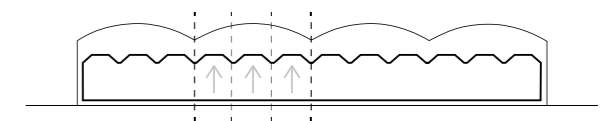
A long and narrow volume is oriented in the direction pointing between the two ferry quays and establishes an intuitive pattern of movement.



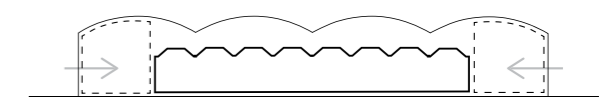
The water protective layer is separated from the climatized layer to facilitate simple deconstructable details in both parts. The outer shell is elevated to visually separate the two layers, and to gain desired spatial qualities.



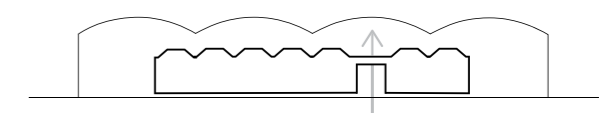
Implementation of a roof module filtering skylight through the translucent membrane making a visual connection between the two layers.



The core volume is shrunk to make space for a sheltered point of arrival and departure.



The walls of one module is removed to break up the structure framing a view towards the cars queuing for the ferry. A niche hosting easily accessible toilets is introduced.

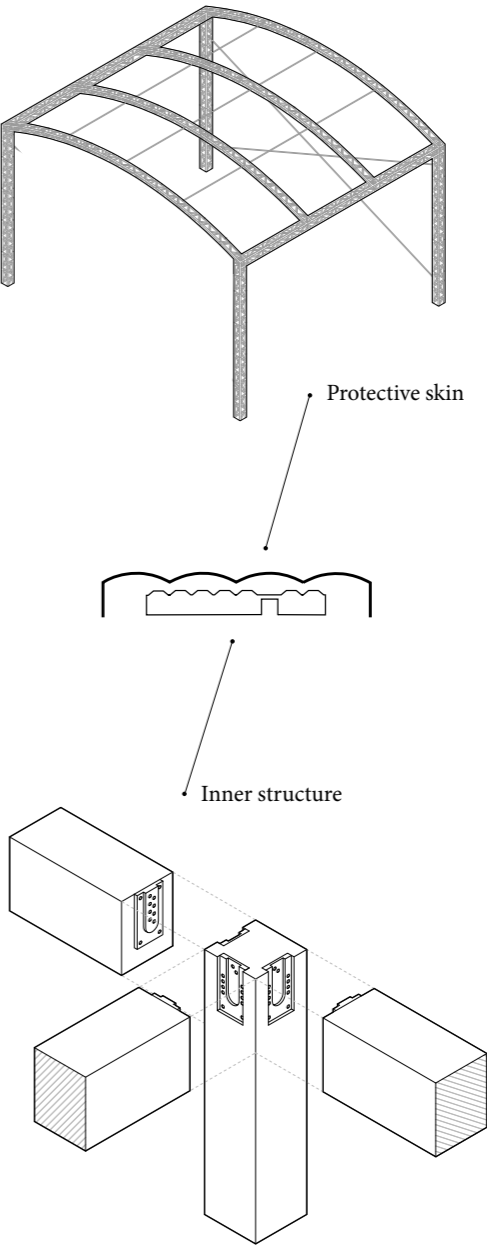


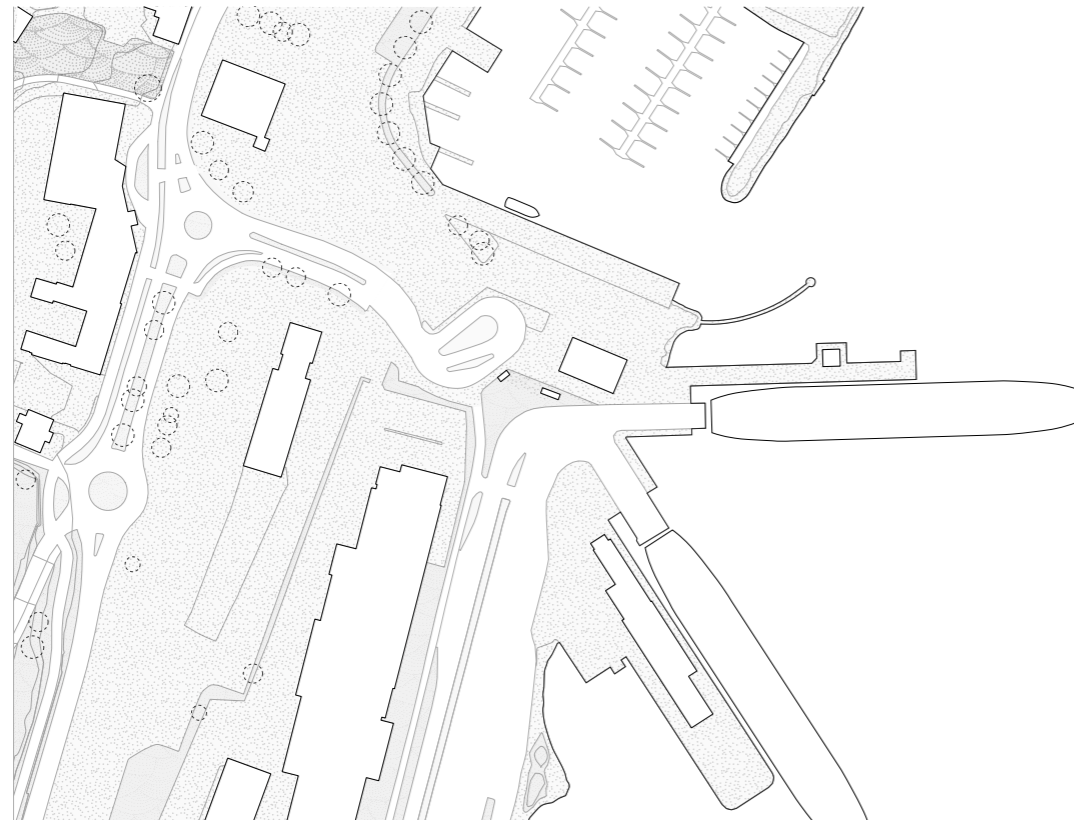


43.

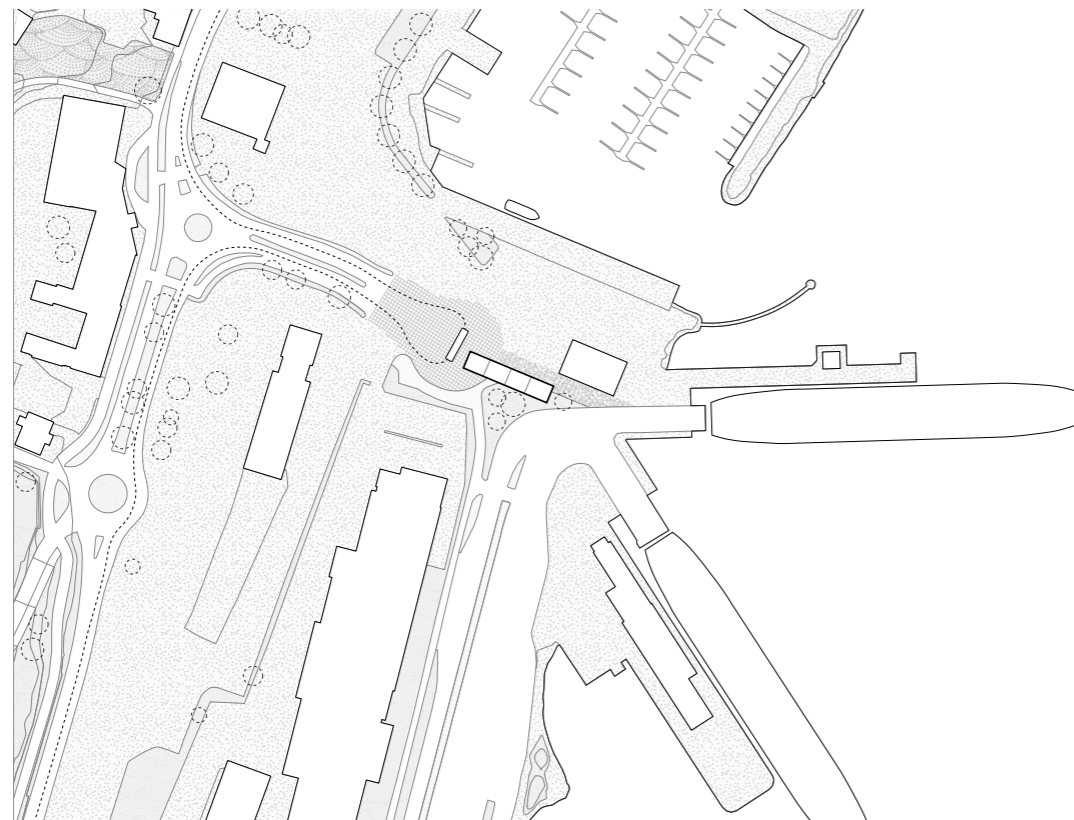


44.

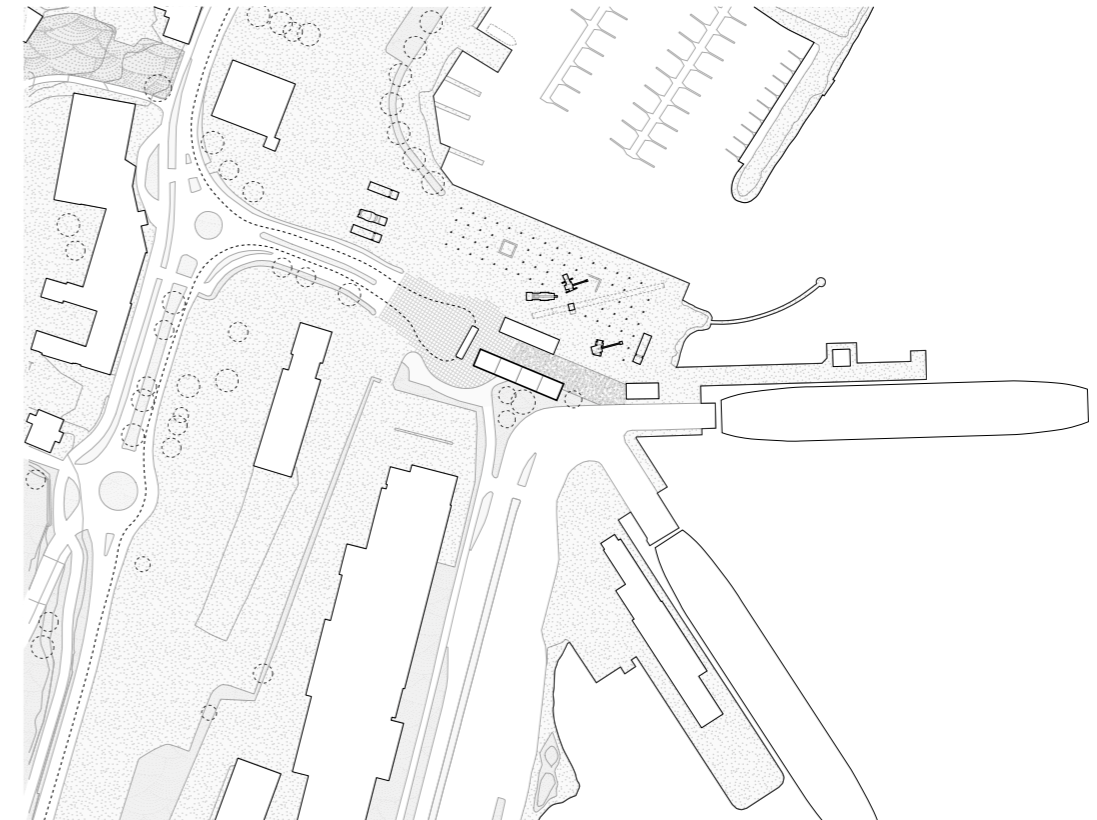




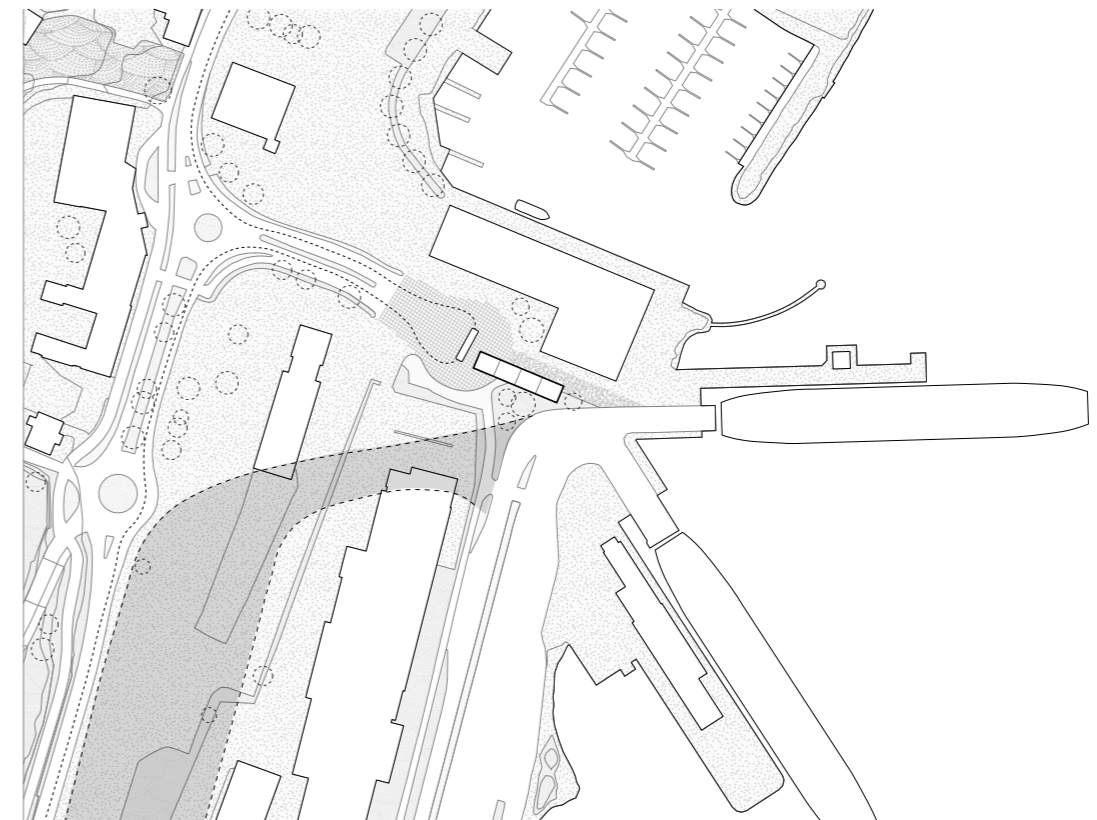
Current situation



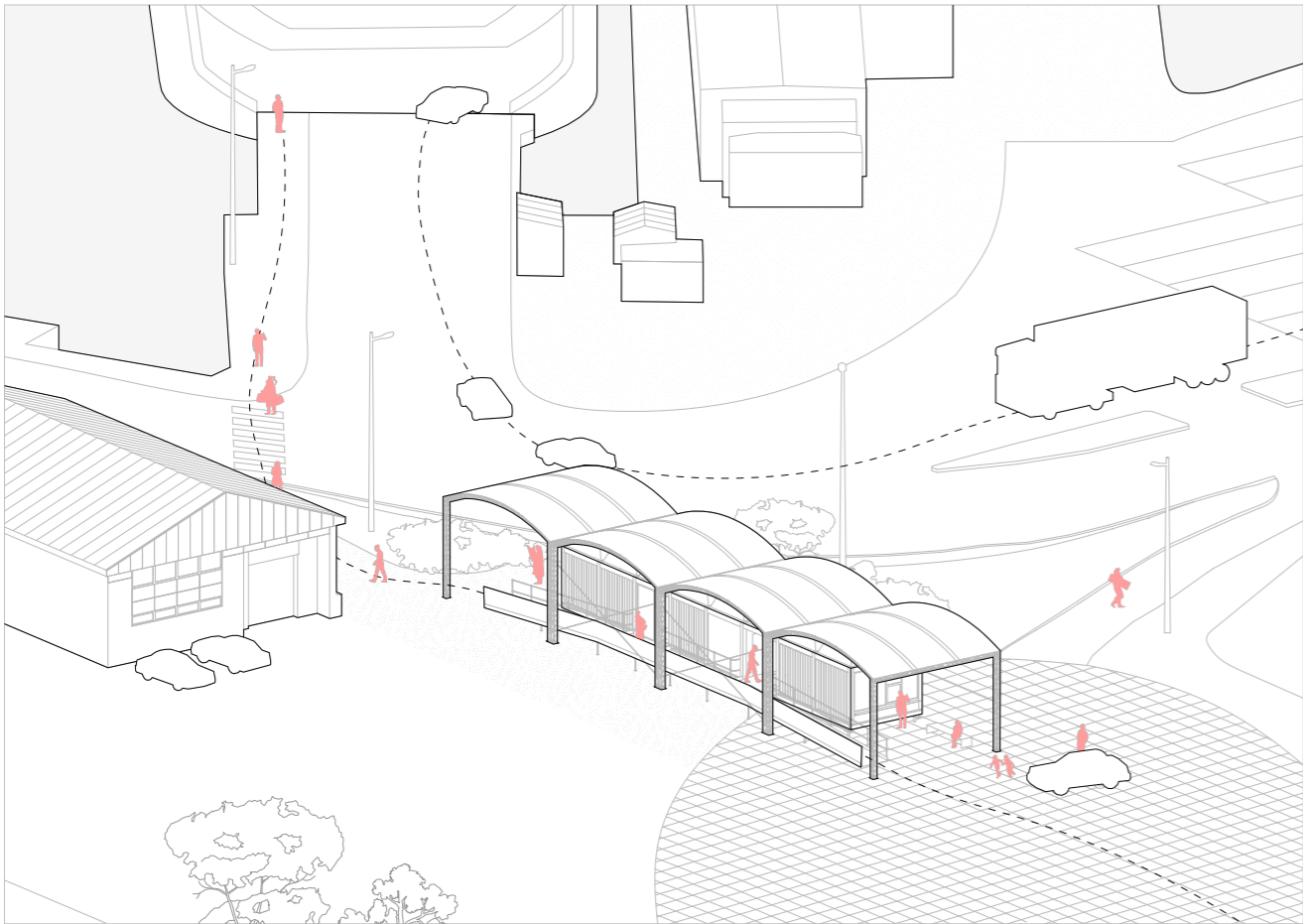
Planned situation



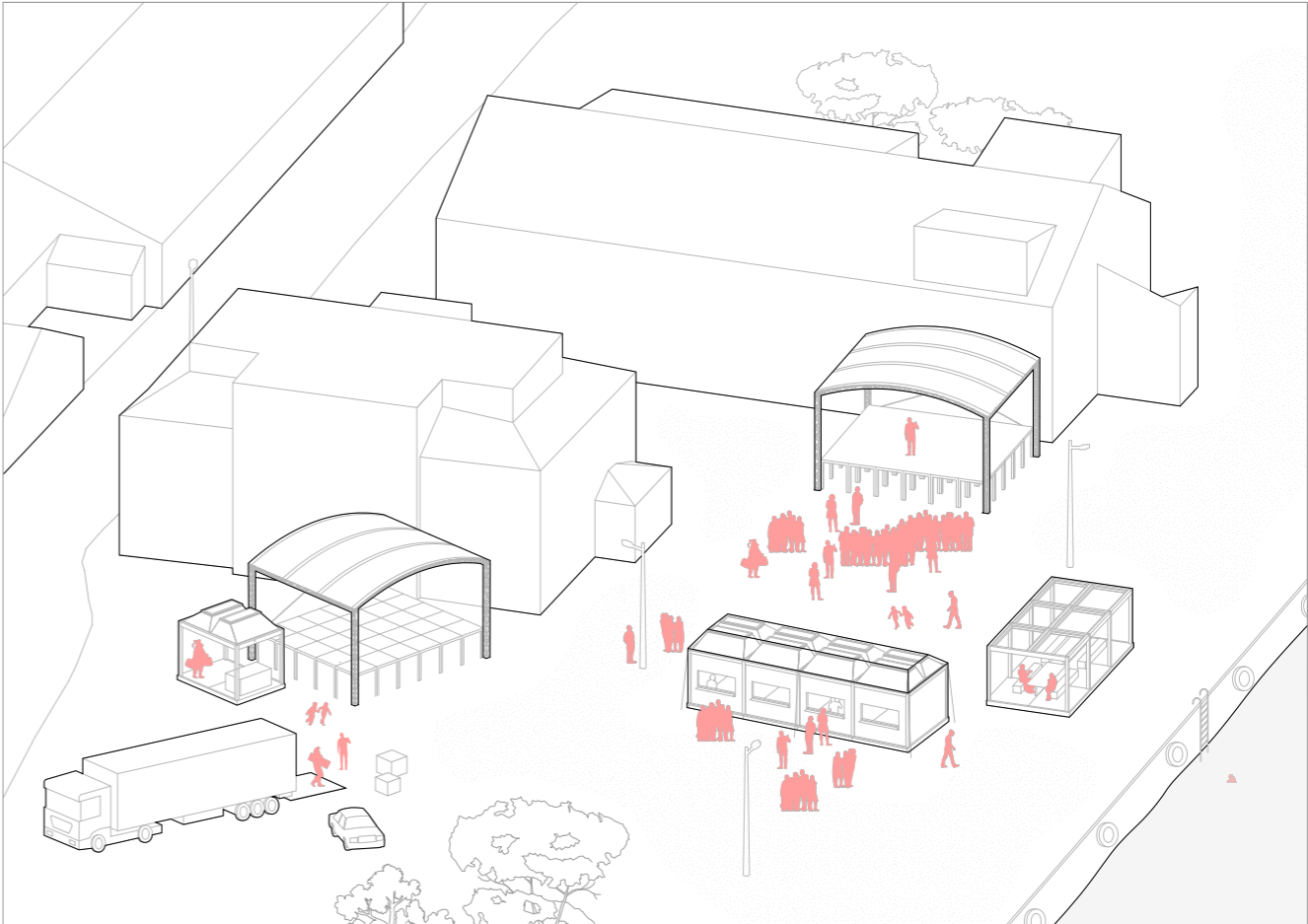
Hotel construction site



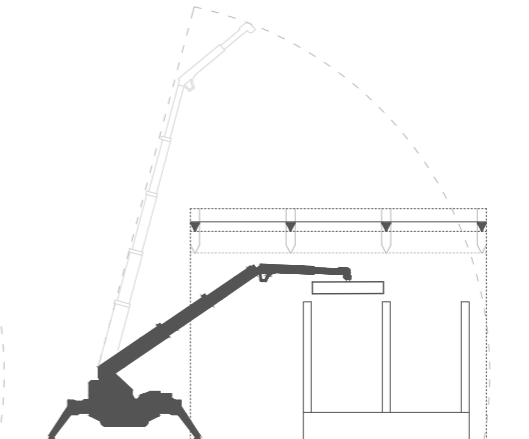
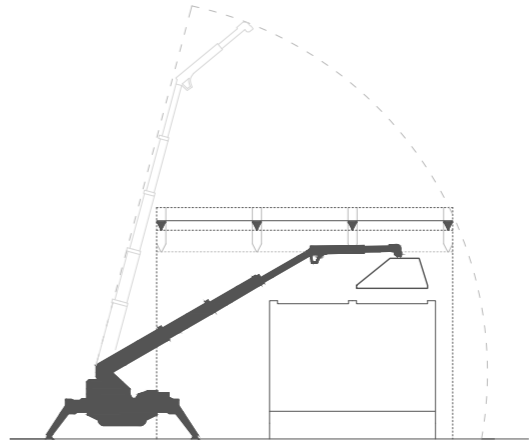
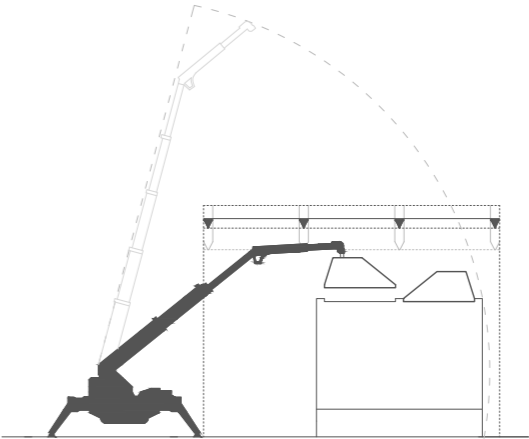
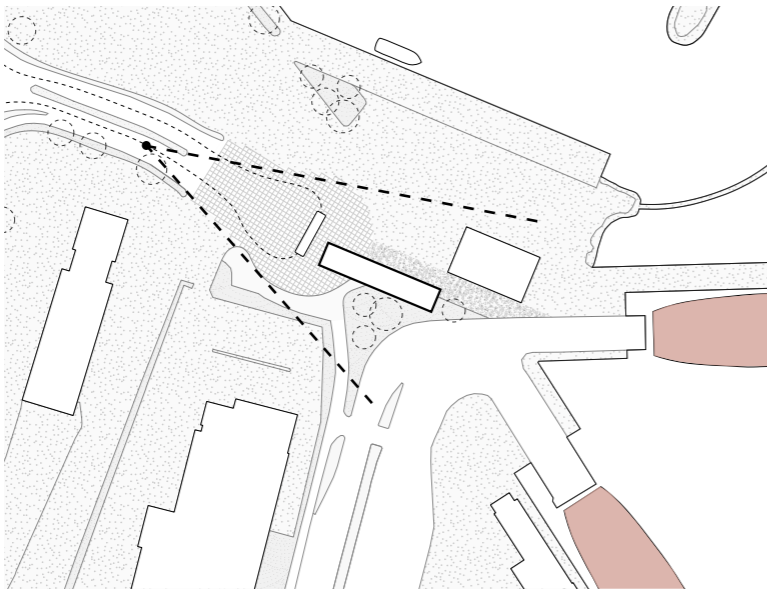
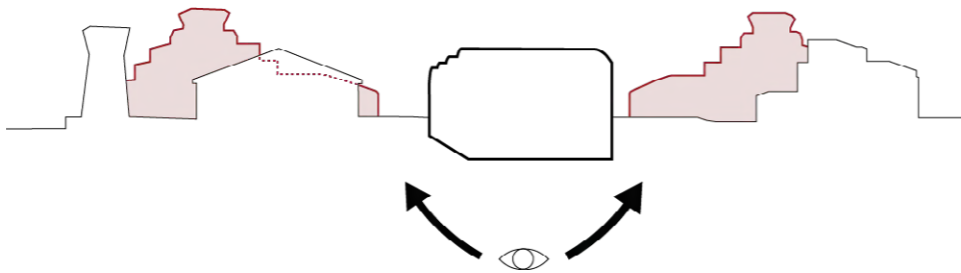
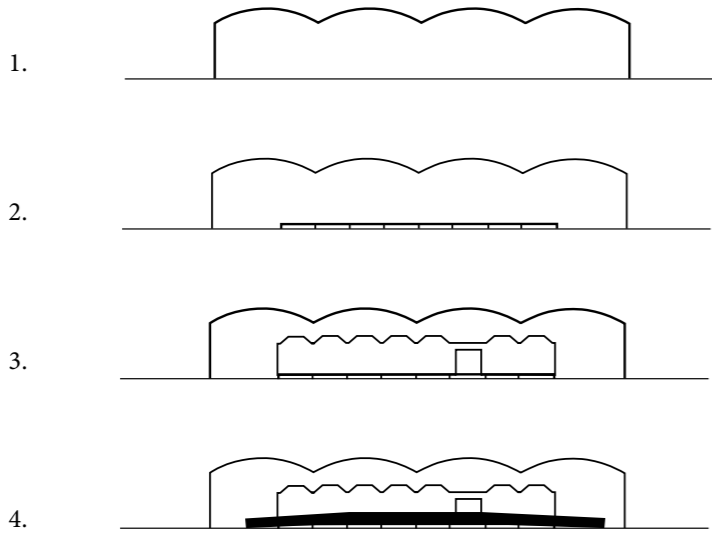
Hotel complete

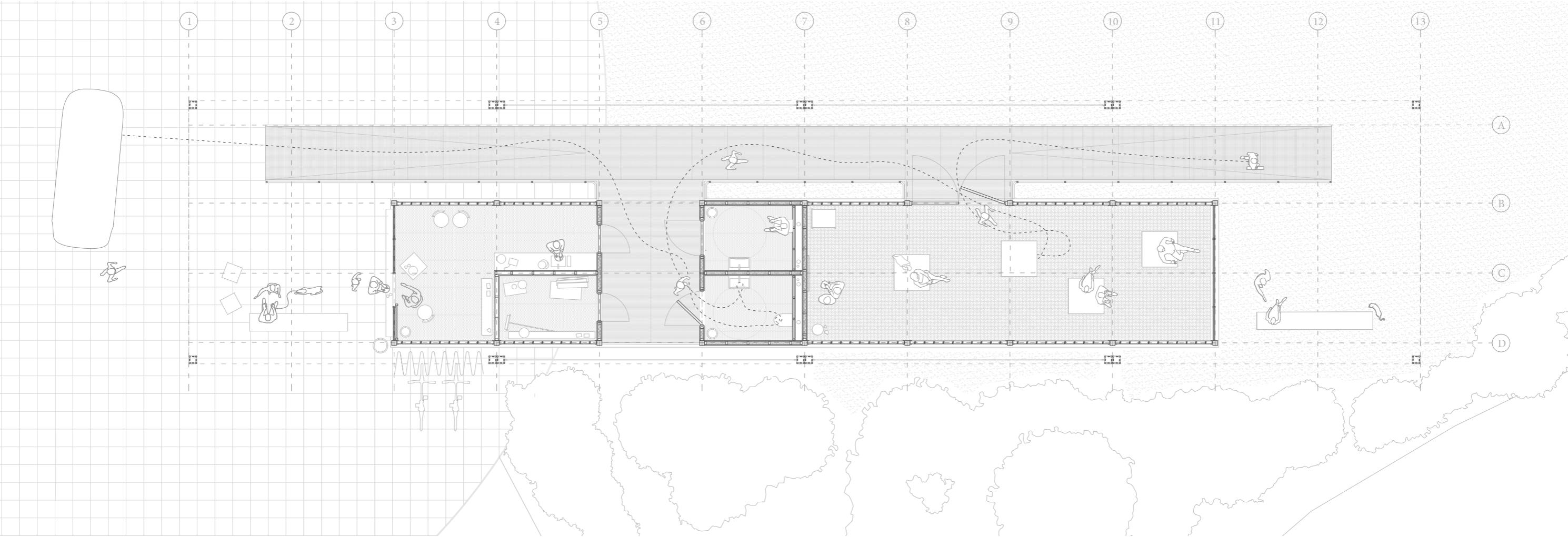


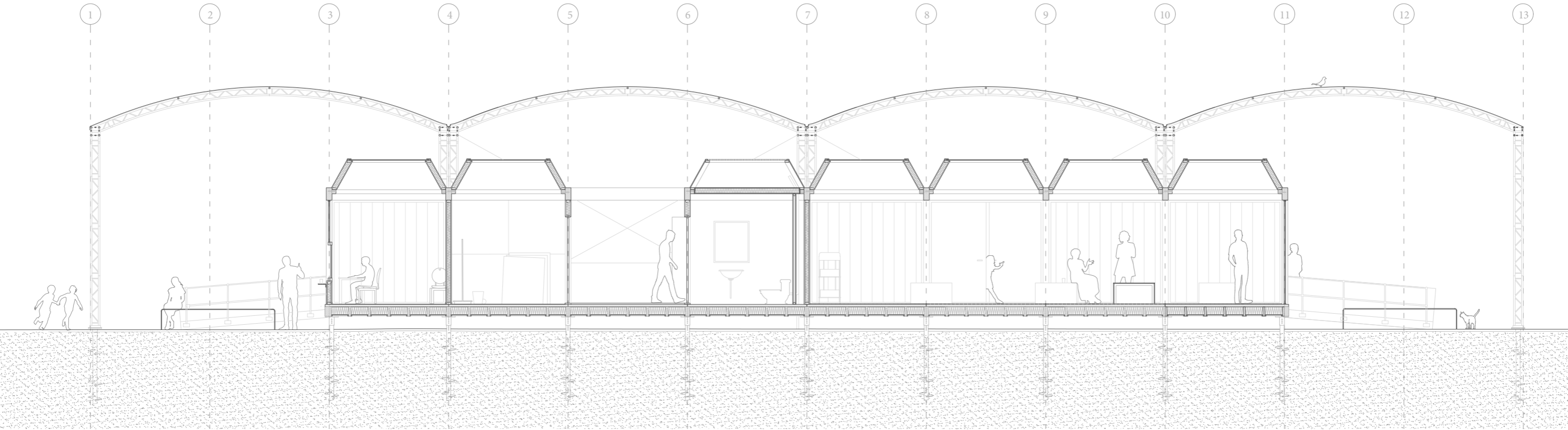
Scenario I

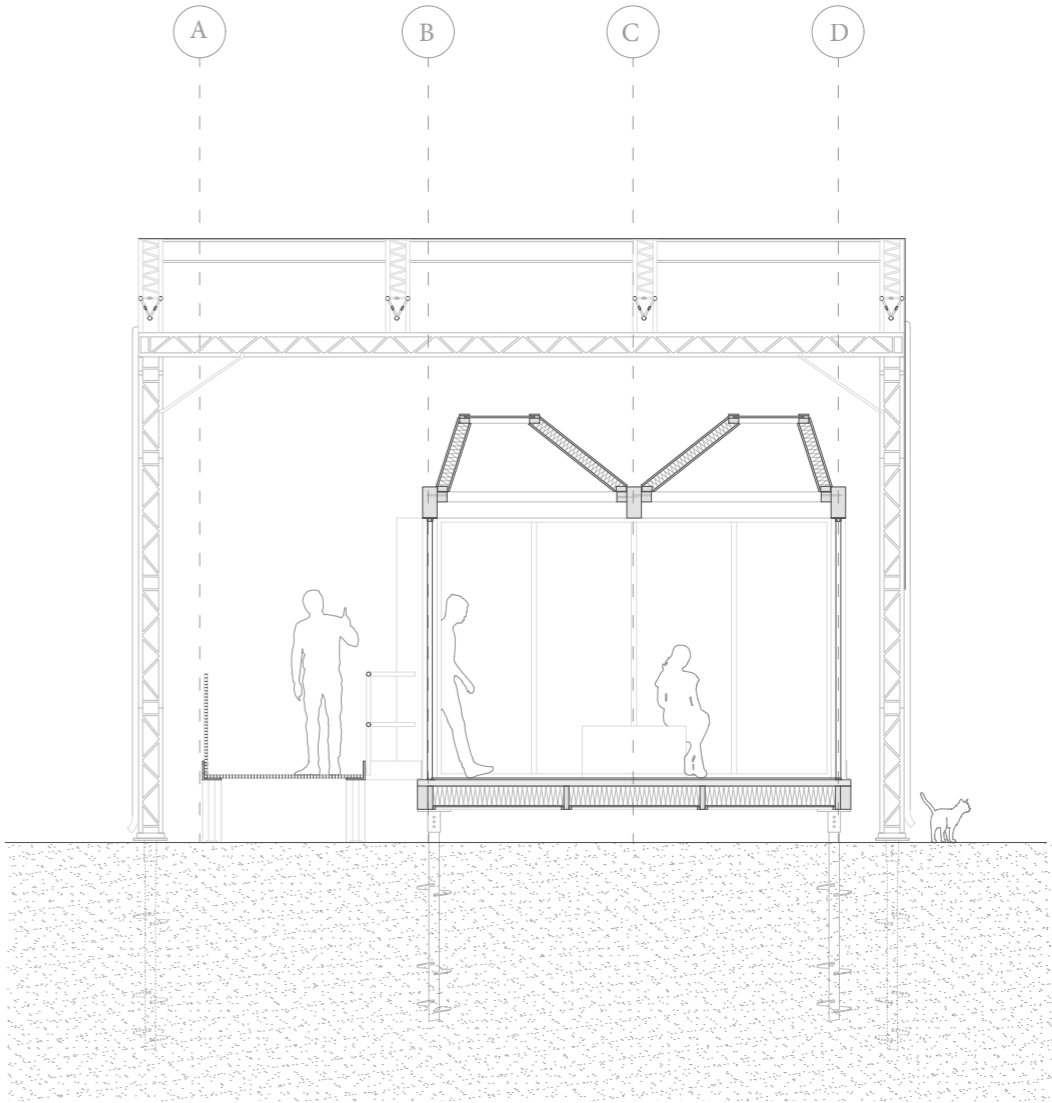
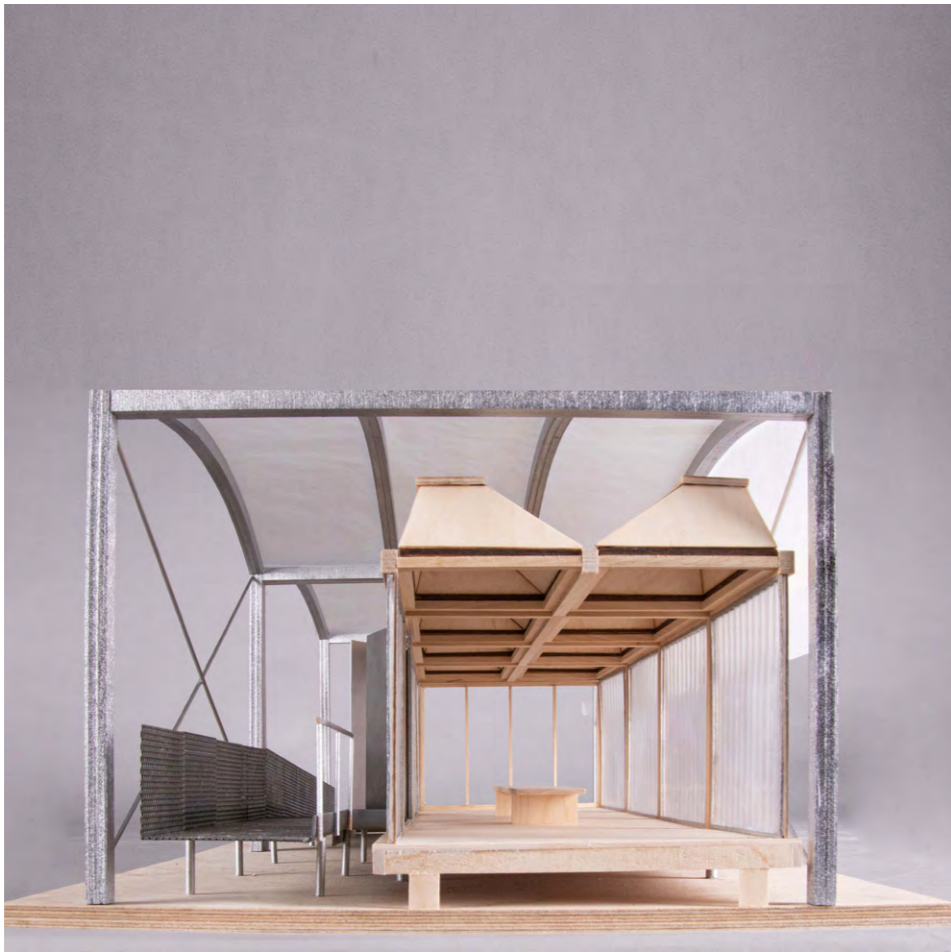


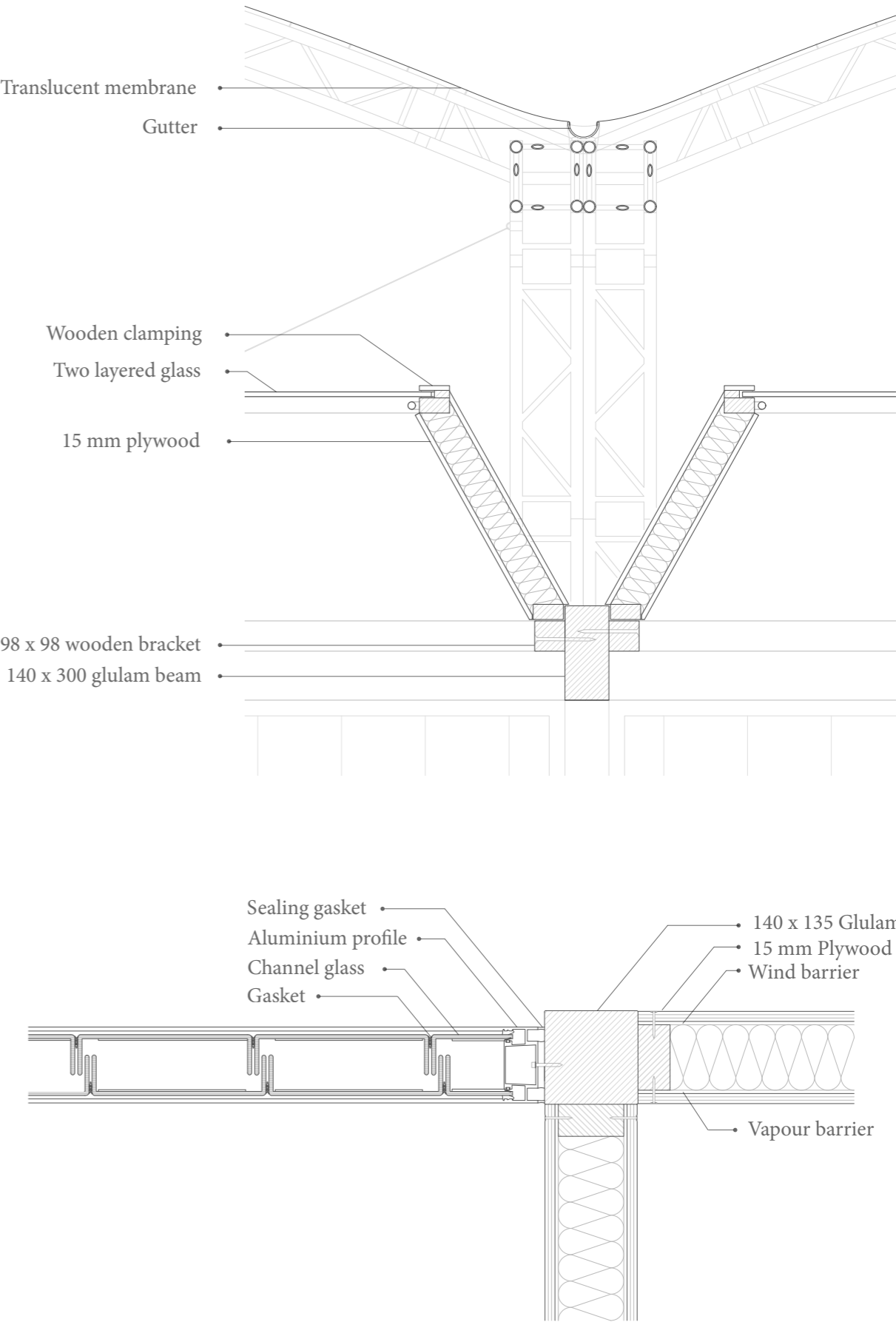
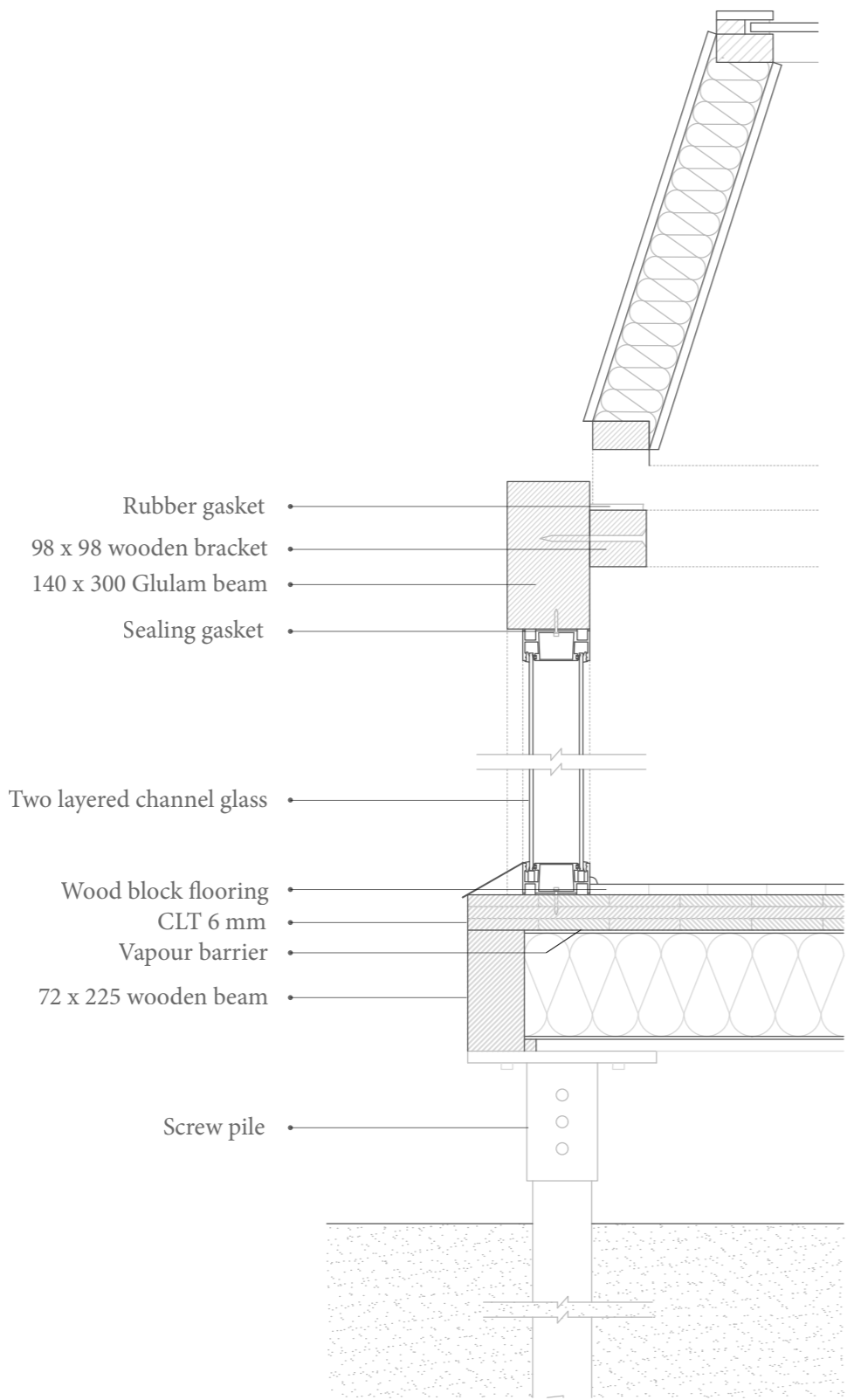
Scenario II











DECONSTRUCTION



1.



2.



3.



4.



5.



6.



7.



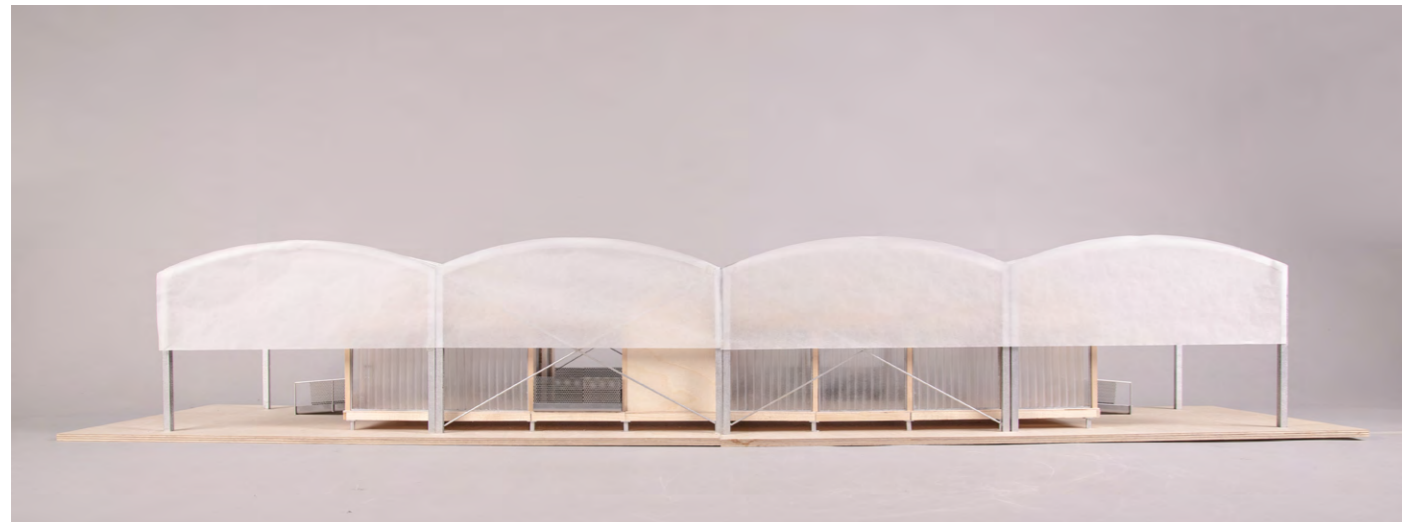
8.



9.



10.



Facade south



Facade north



Model photo ramp



Model photo waiting room



Eksterior model photo collage



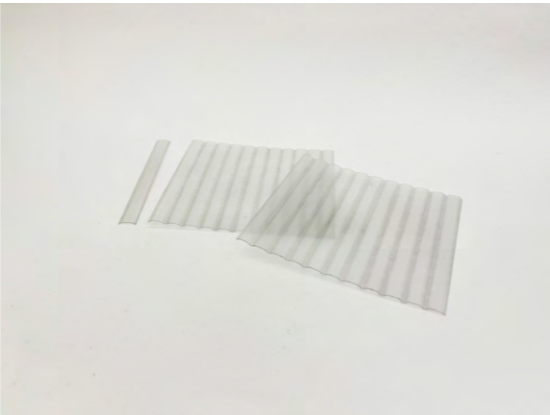
Model photo kiosk



Model photo shelter

MATERIAL QUANTITY

242 x channel glass elements



56 x wooden brackets



14 x skylight modules



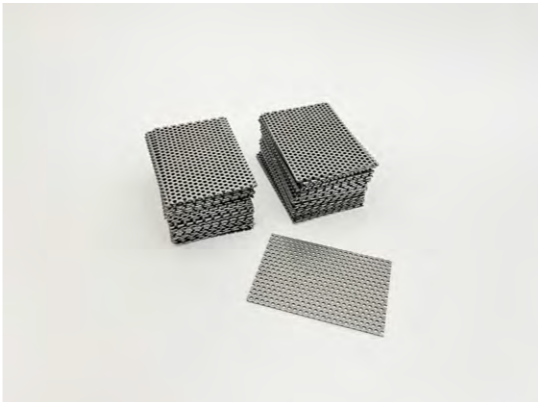
34 x screw-piles



32 x 140x300 glulam beams
18 x 140x135 columns



12 x 6mm CLT sheets



64 x elephant grits



8 x foundation elements

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