

WHILE WE WAIT

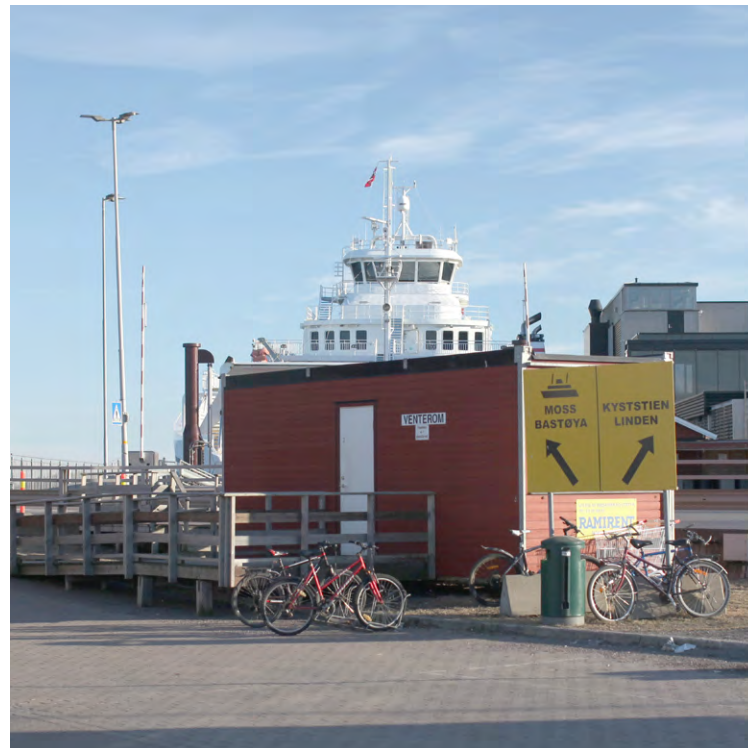
planning
for
obsolescence

Binder 1

Fall 2022
Diploma

Candidate
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Supervisor
Tine Hegli



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 leads to 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.



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.



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.



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.

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planning for obsolescence

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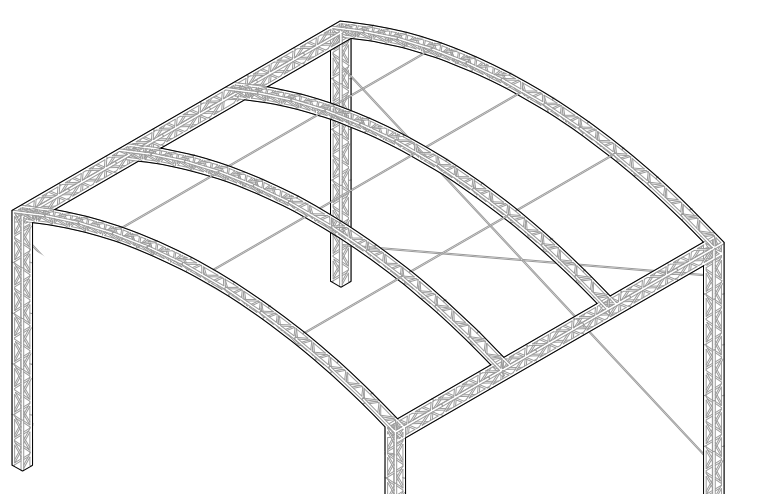
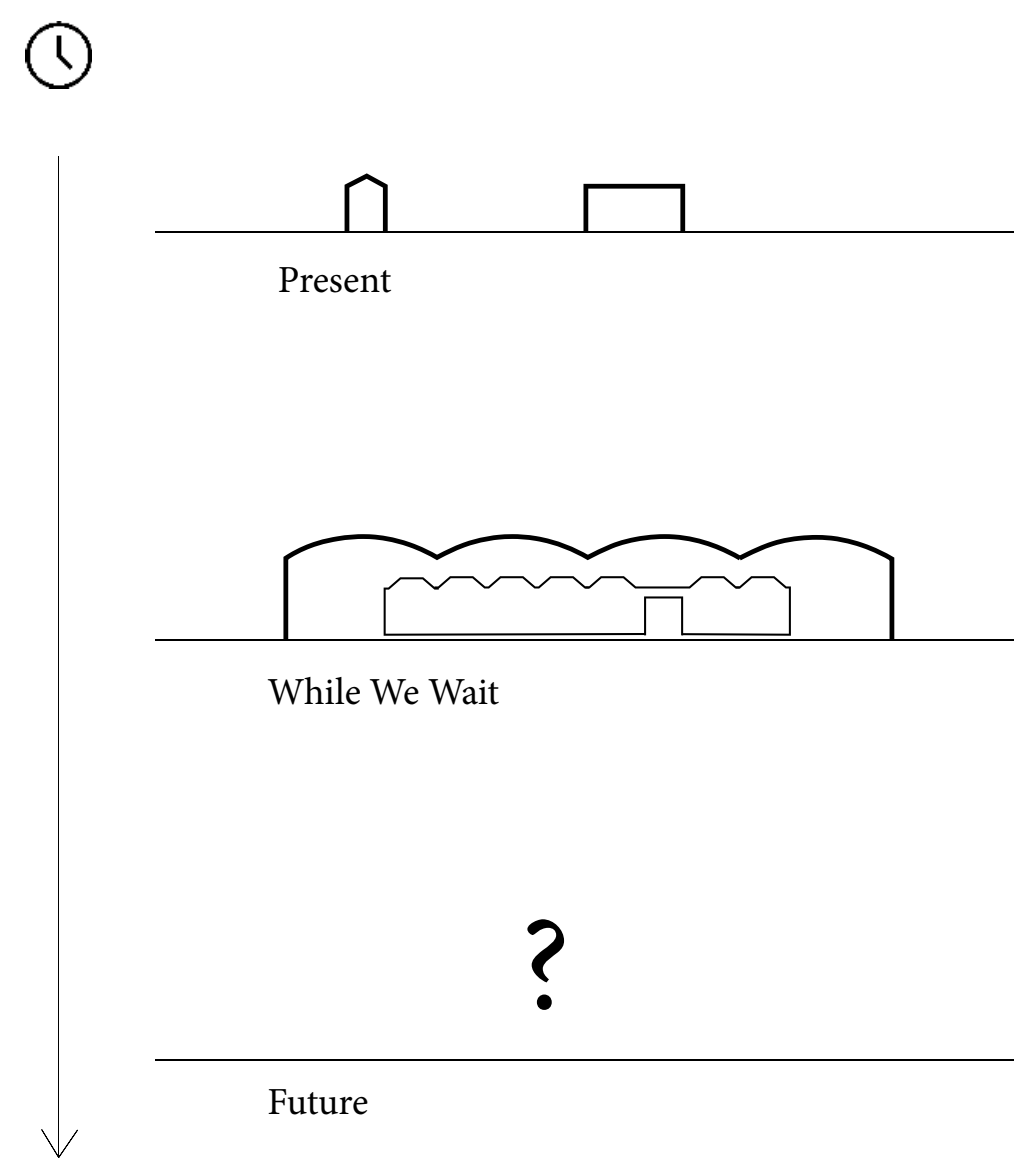
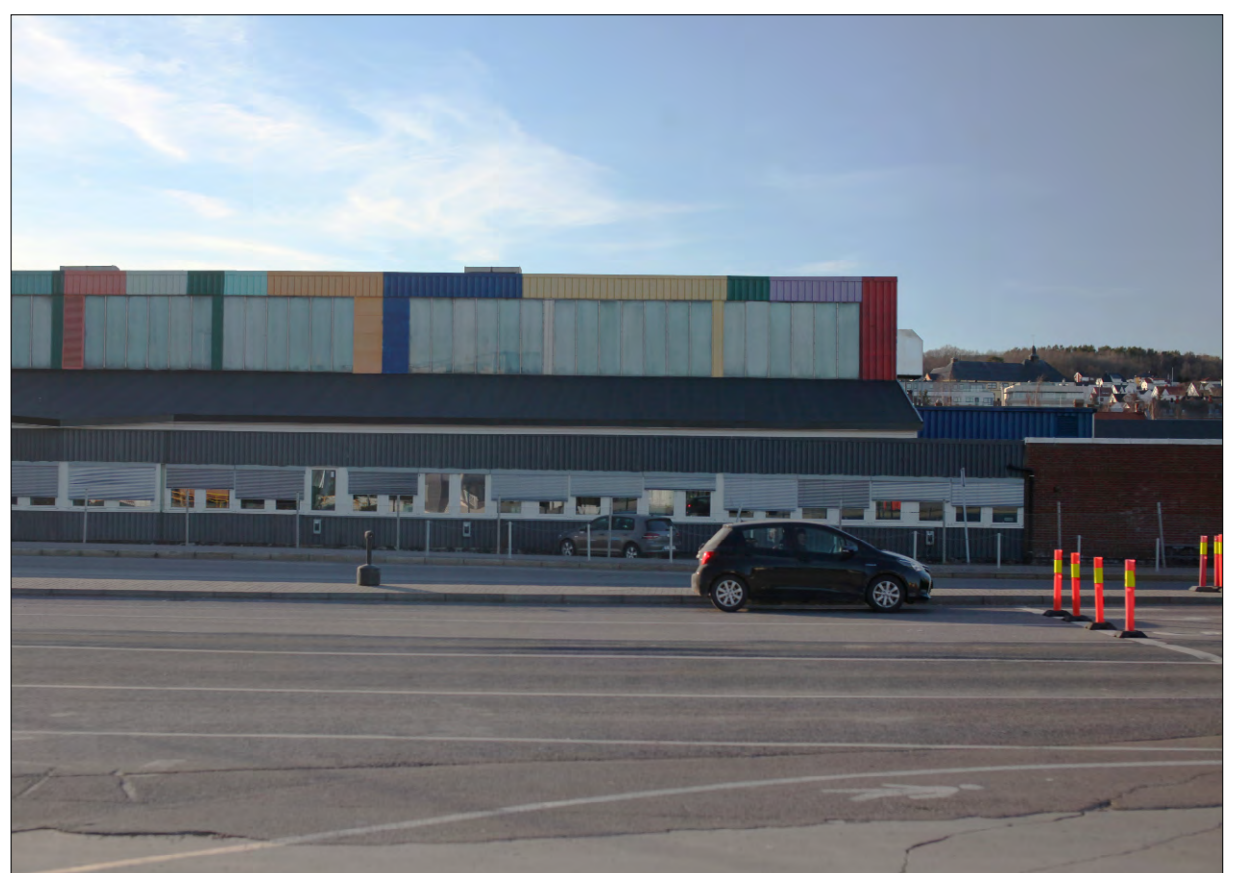
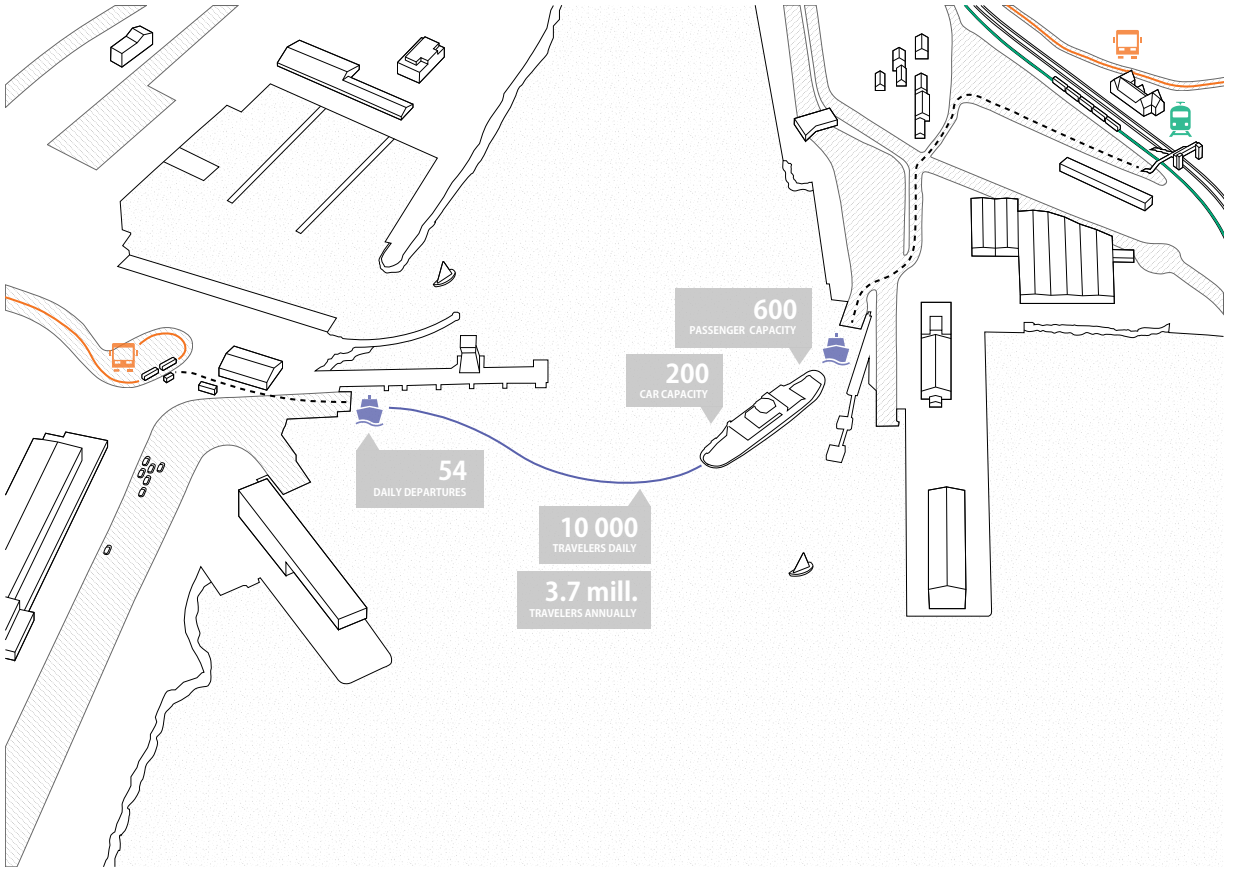
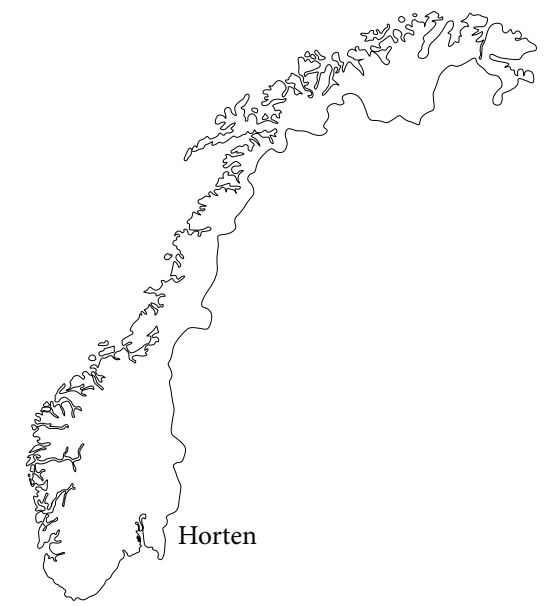
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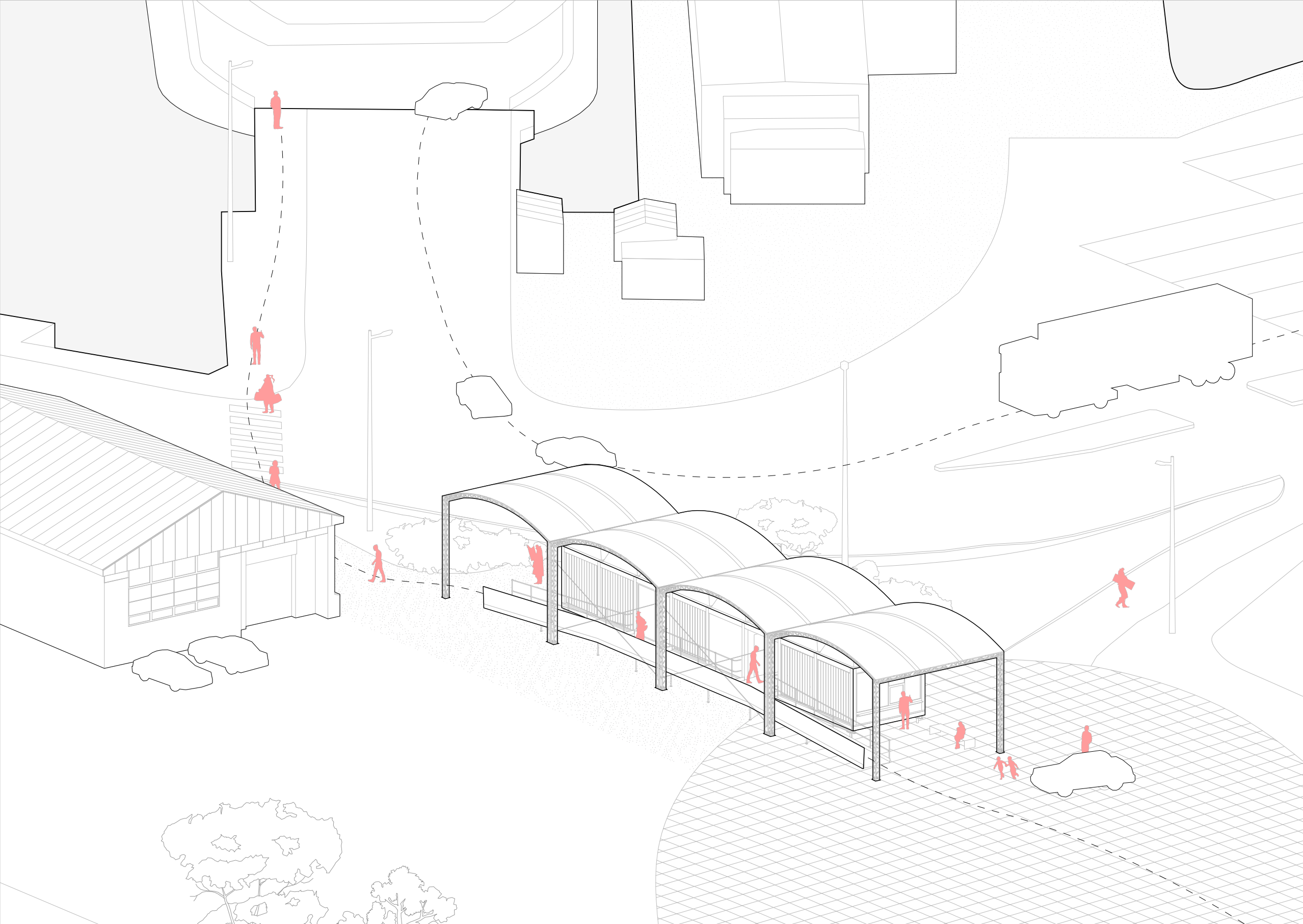
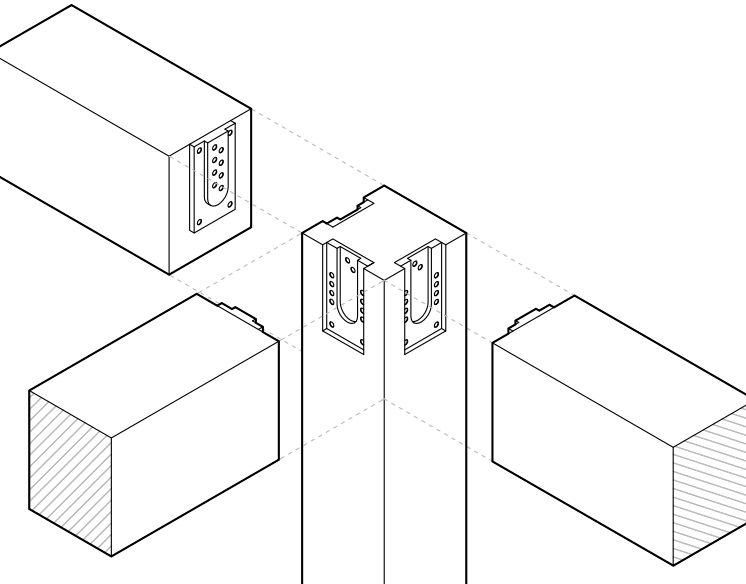
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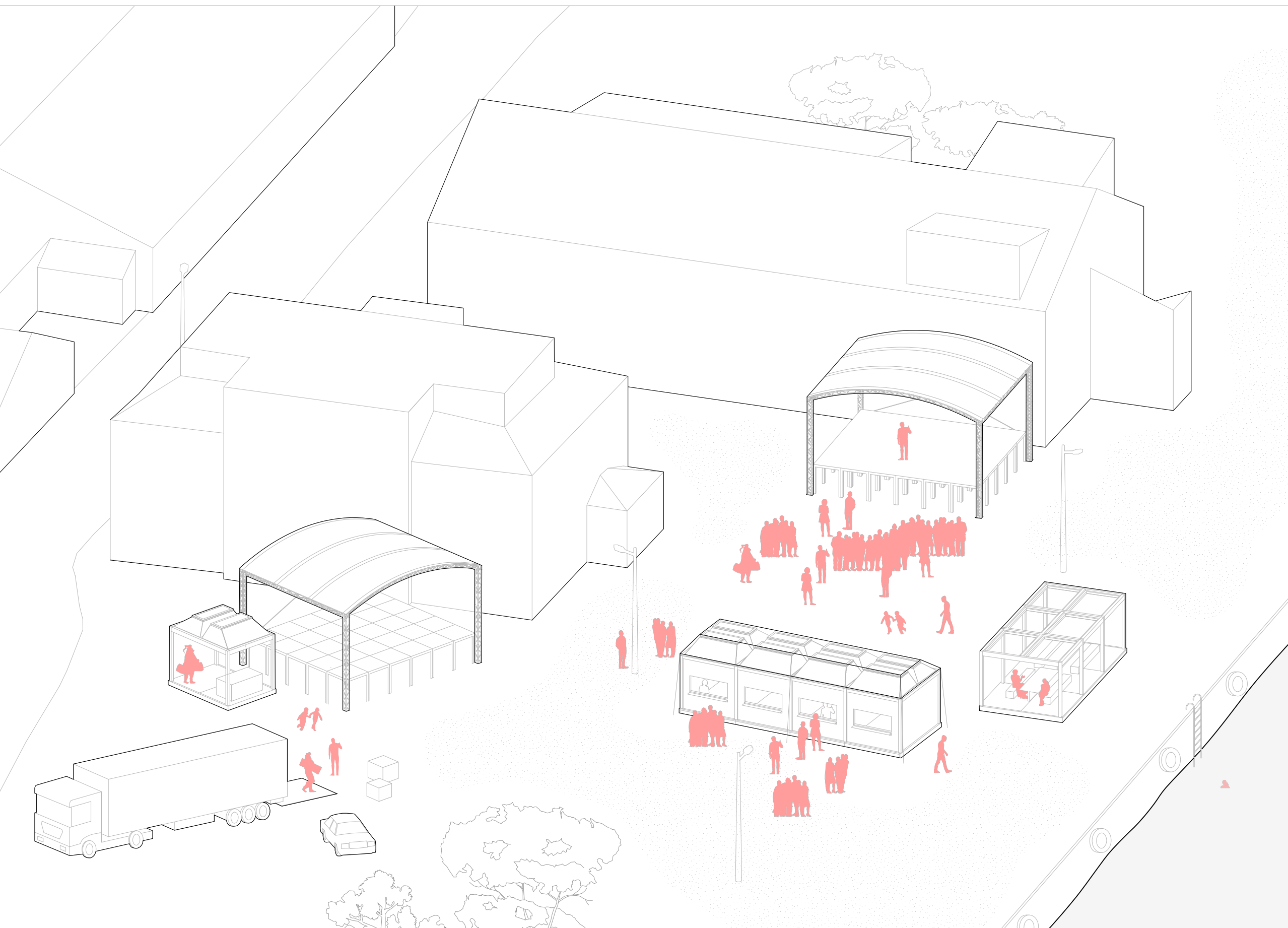
Protective skin



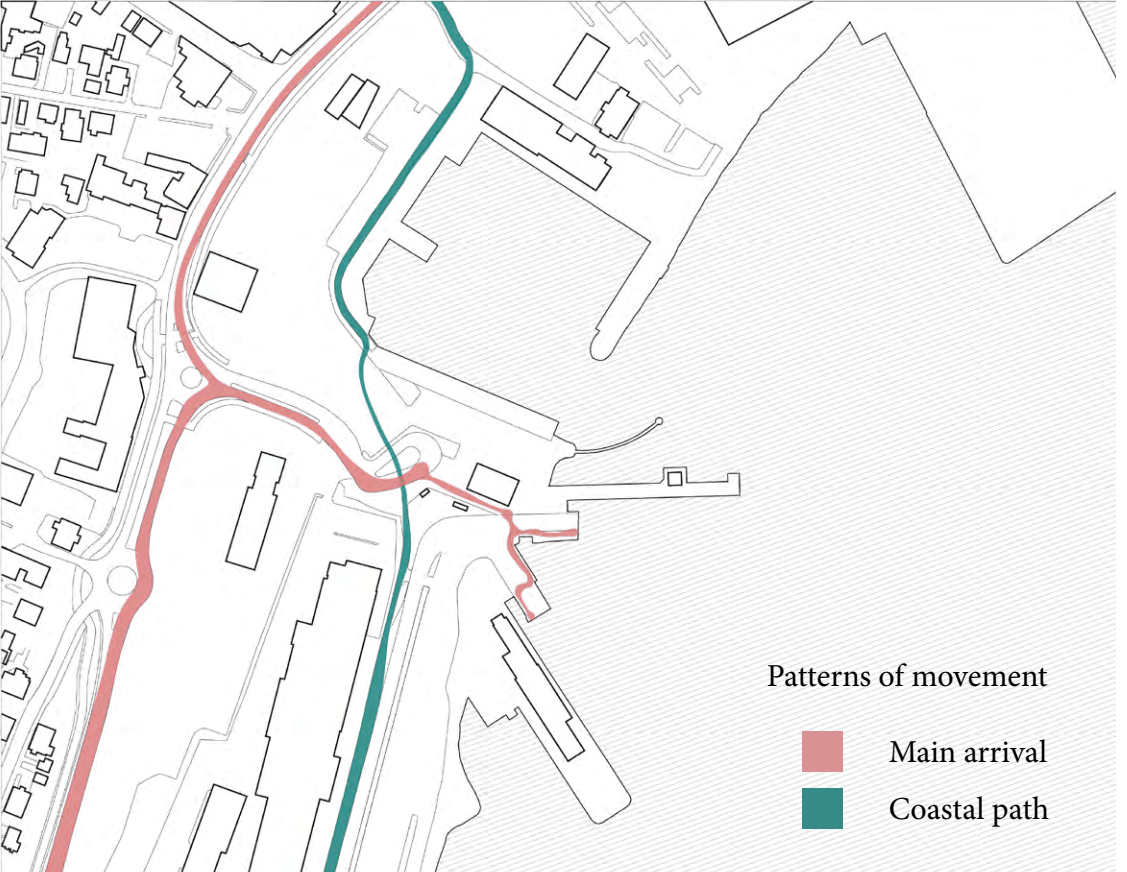
Inner structure



Scenario I



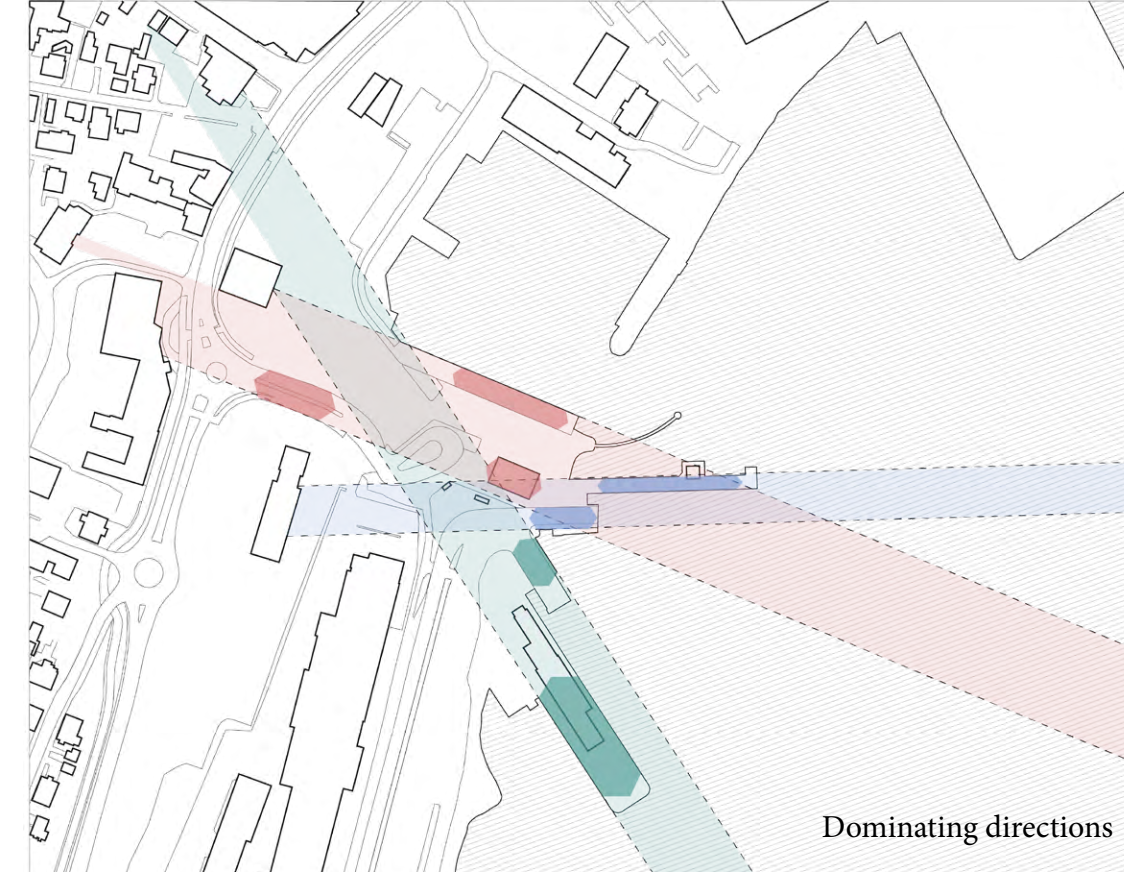
Scenario II



Patterns of movement

Main arrival

Coastal path



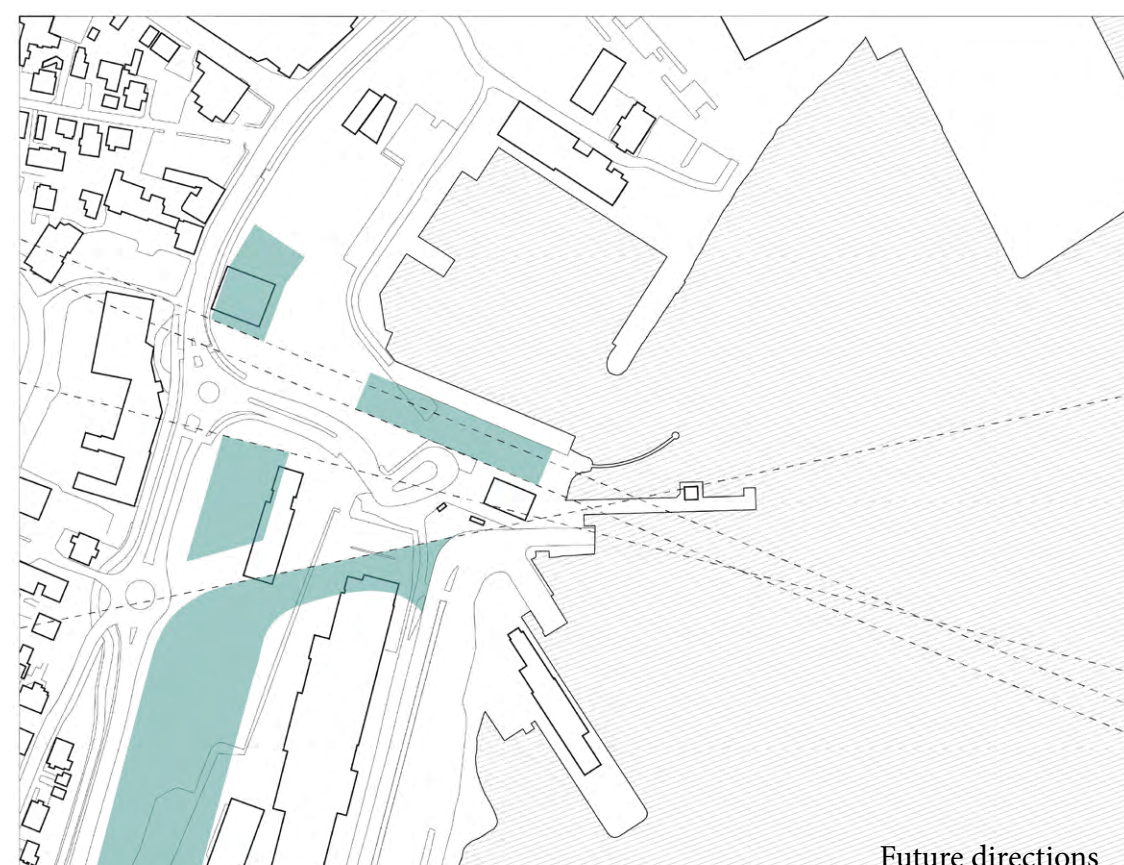
Dominating directions



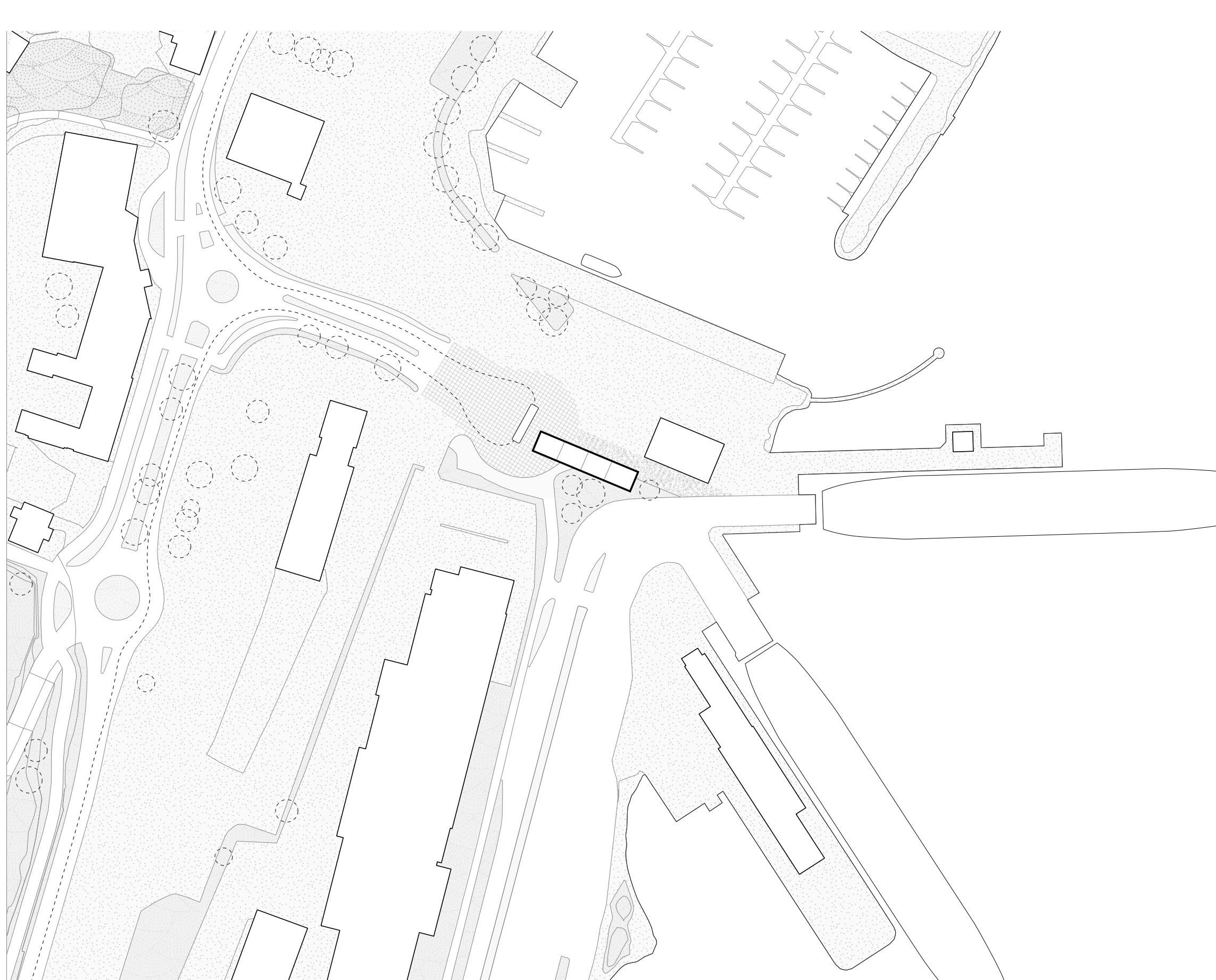
Perceivable borders

Elevated

Ground level

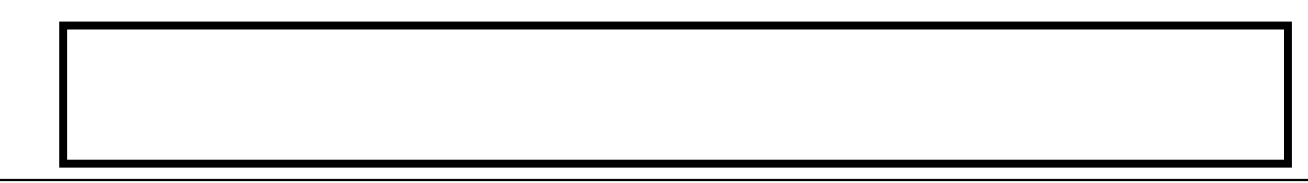


Future directions

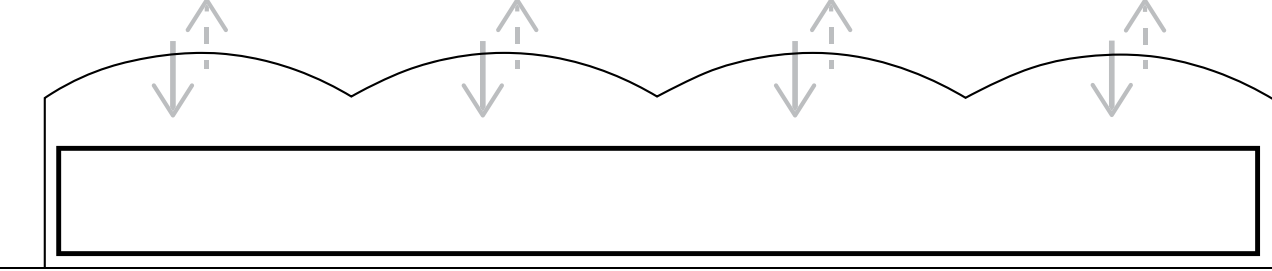


Situation 1:1000

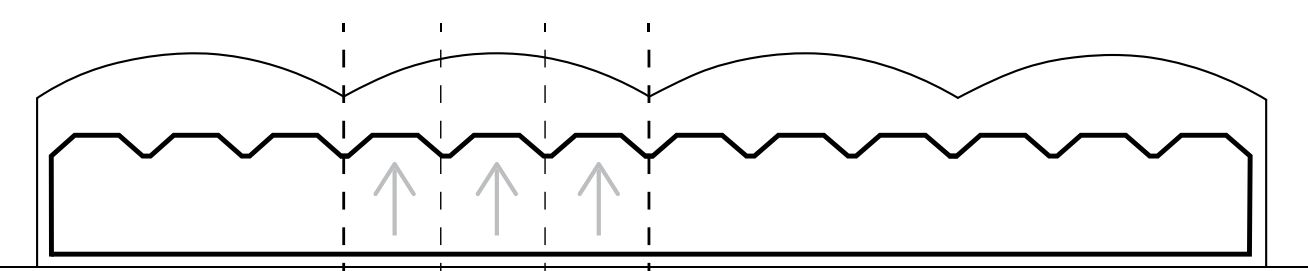
A long and narrow volume is oriented in the direction pointing between the two ferry guys and establishes an intuitive pattern of movement.



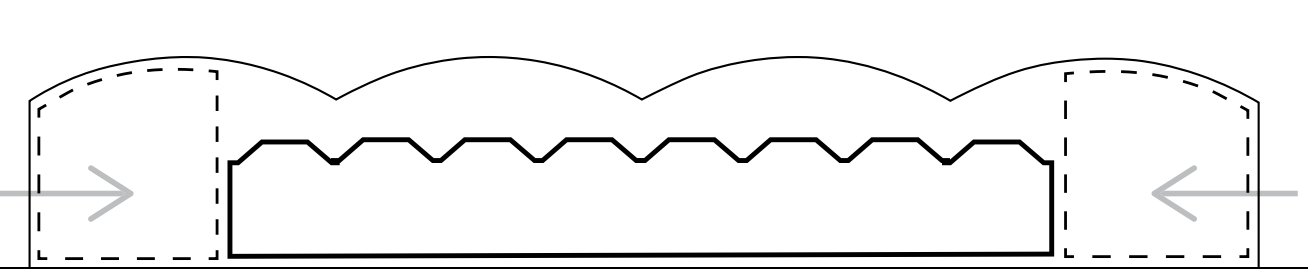
The water protective layer is separated from the climatized layer to facilitate simple deconstructable details in both parts. The outer shell is elevated to visually separate the two layers, and to gain desired spacial qualities.



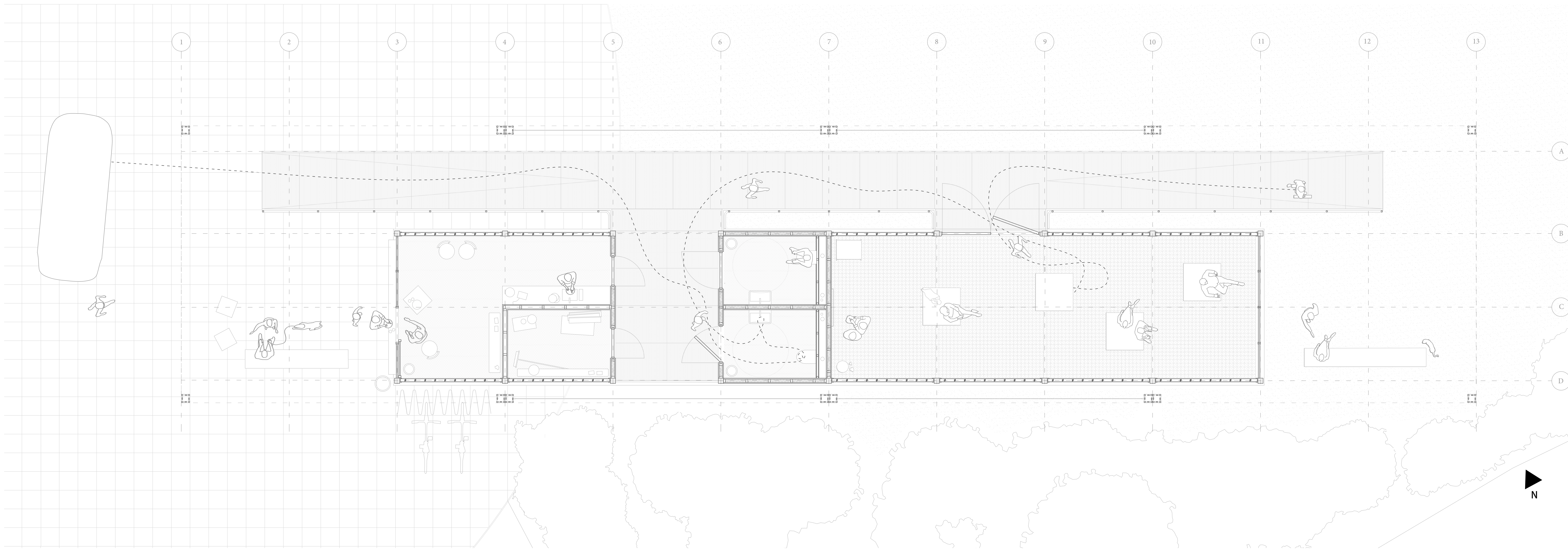
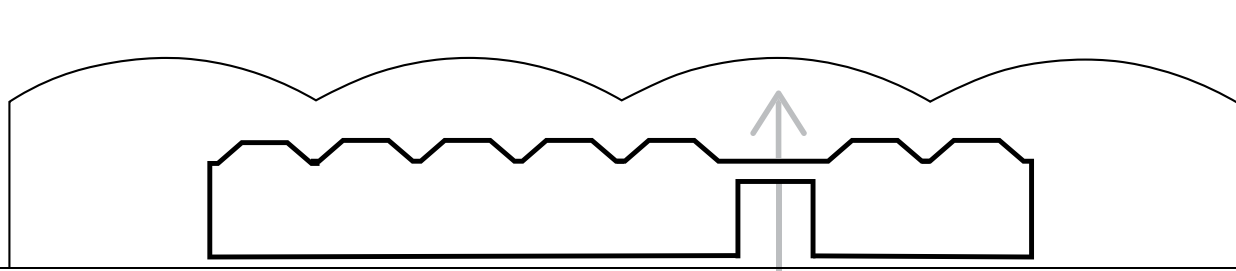
Implementation of a roof module filtrating skylight through the translucent membrane making a visual connection between the two layers.



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.



Plan 1:40



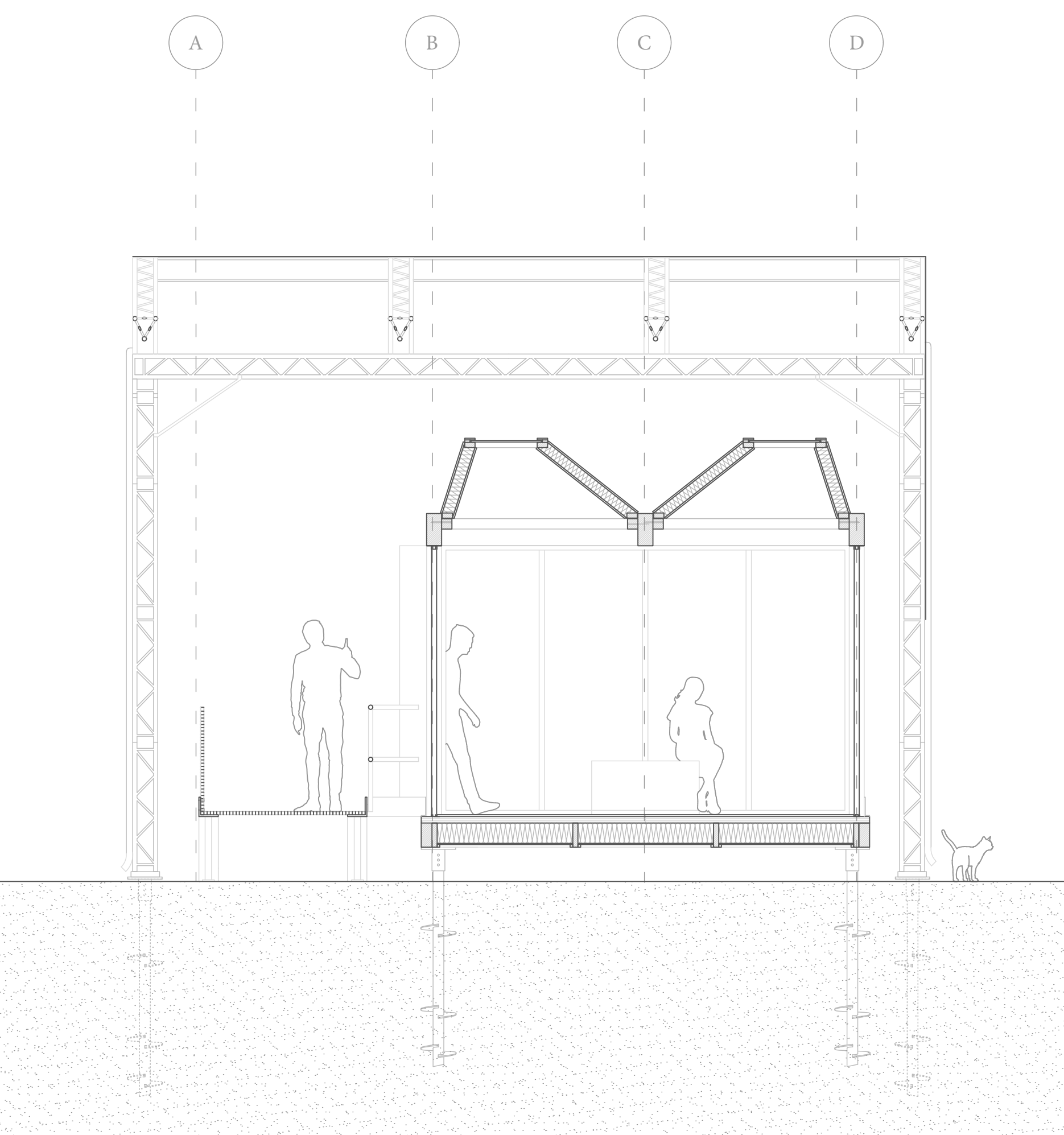
Model photo collage



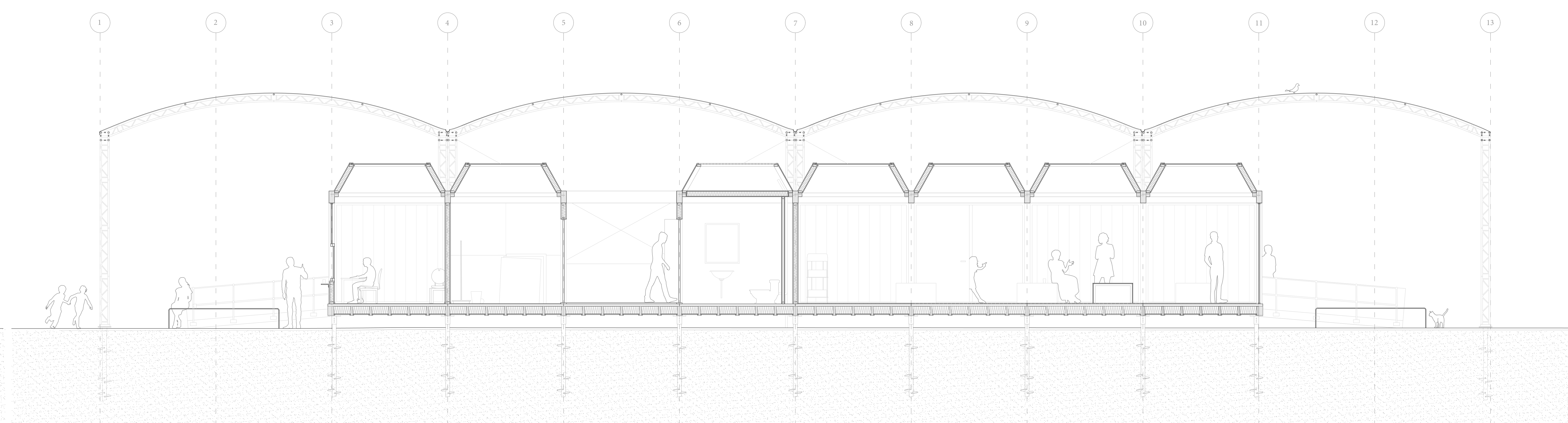
Model photo ramp



Model photo waiting room



Cross section 1:40



Section 1:40

Deconstruction



The ramp is dismantled to make the walls accessible. Staircase sized 1000 mm by 1500 mm elephant grate is removed from the angled steel and fed back into the cyclic system.



Each channel glass element is carefully removed before the aluminium profile is detached from the main construction.



Skylight modules are removed and stored for reuse.



The outer skin leaves enough space for a small crane to assist the mounting and dismantling of the roof modules. The structure will have to be alternatively braced while this is happening.



The gasket is removed and the wooden brackets are screwed out of the main construction.



Lunchbreak.



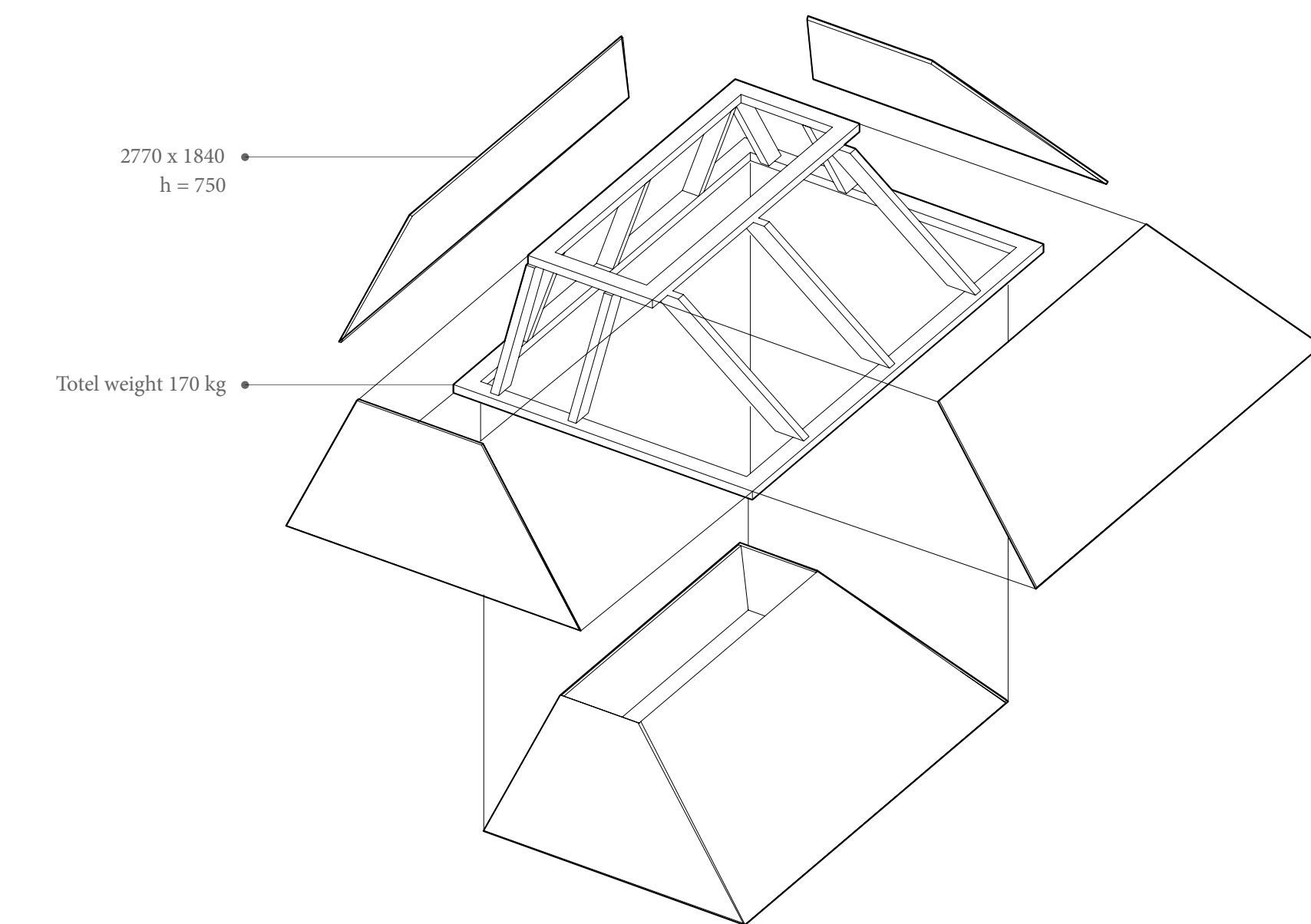
The purl connector facilitates easy dismantling of the main construction. The glulam elements are piled up and stored for the next project. The connectors can be left on or removed for reuse.



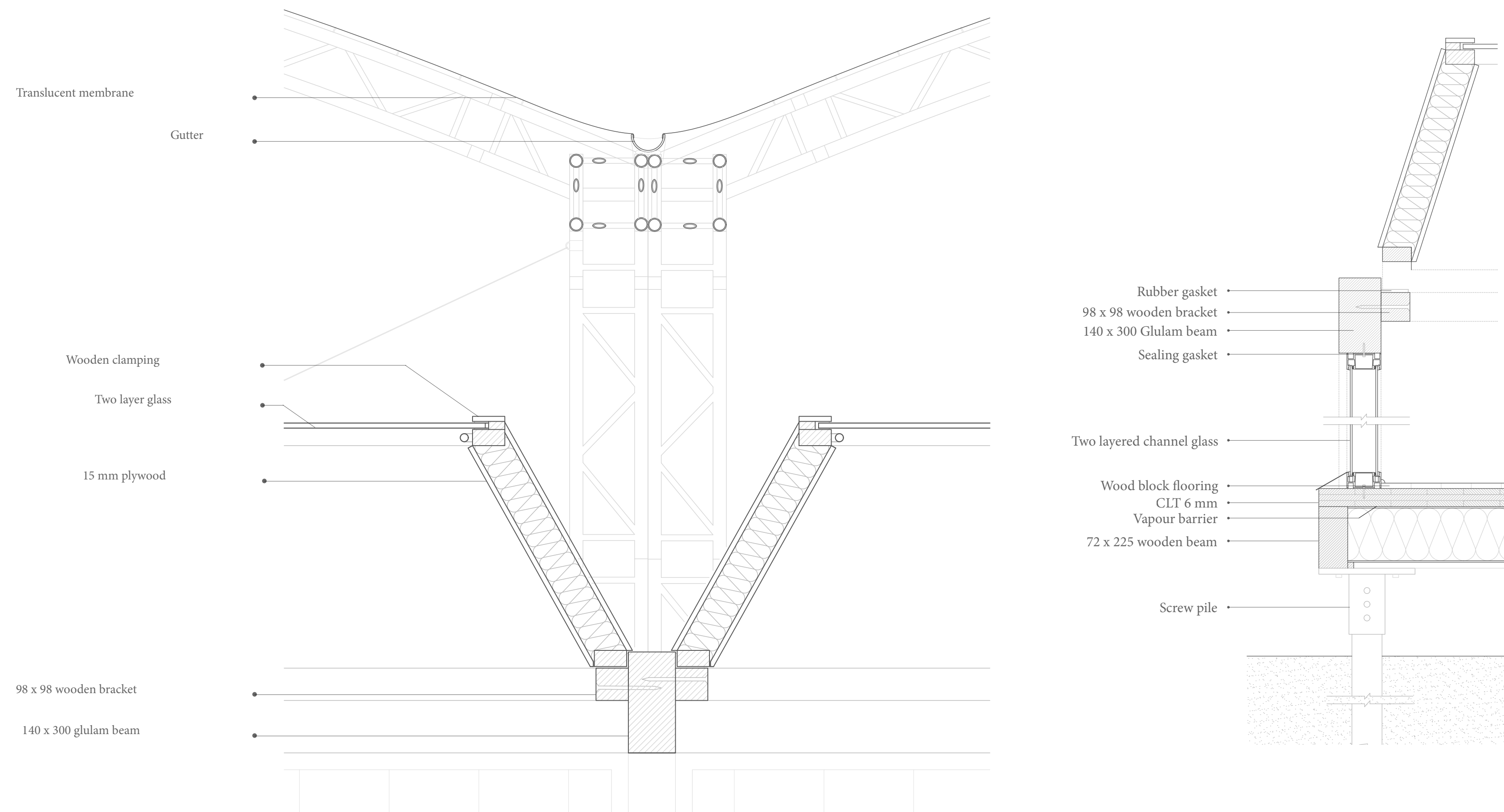
60 mm CLT sheets are detached from the prefabricated foundation elements leaving only the pile foundation behind.



The screw piles are screwed up from the ground and stored for reuse before the last protective layer is taken down.



2770 x 1840
h = 730
Total weight 170 kg



Translucent membrane
Gutter

Wooden clamping
Two layer glass
15 mm plywood

98 x 98 wooden bracket
140 x 300 glulam beam

Rubber gasket
98 x 98 wooden bracket
140 x 300 Glulam beam
Sealing gasket
Two layered channel glass
Wood block flooring
CLT 6 mm
Vapour barrier
72 x 225 wooden beam
Screw pile