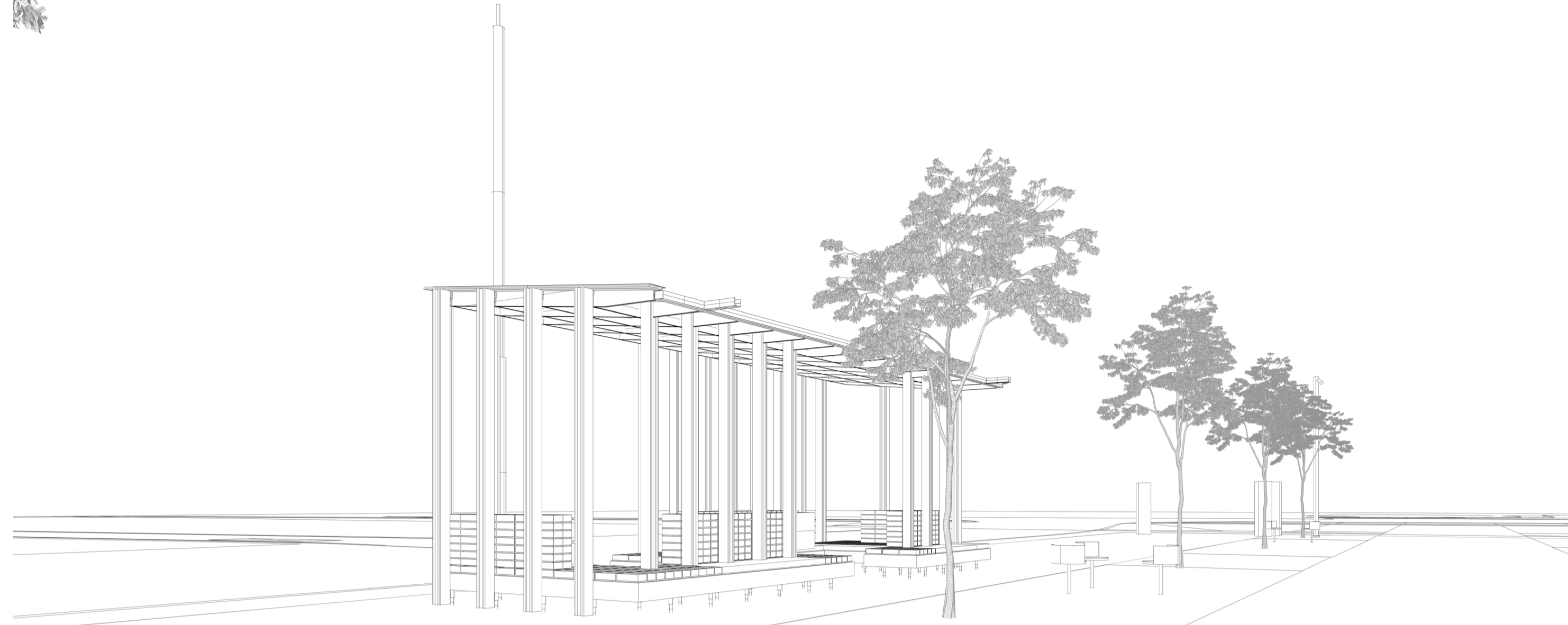


SILICATE DREAMS



Perspective view of the pavilion



Site axonometric scheme of proposed pavilion

MANIFESTO

Framing the unknown – experimental territories

Material production has provided us with great richness and a variety of materials and resources. Architectural response thus becomes very interesting from this standpoint. A good architect is willing to face the challenge of material. Pushing the boundary of the possibility. We are in the frame of the known, tradition, technique. However, there is always an exciting will to experiment, to reach a new level of quality. Perhaps to become better, more efficient, more meaningful. Going out of comfort – thus to give a new comfort – a new standpoint. In the context of TAB2024 we as architects are asked to propose position how to organize our resources in a better way.

The goal of SILICATE DREAMS pavilion is to show that material associated with strong mixed feelings in society can create a positive impact on public space if used creatively and appropriately. There is a reason behind this choice. It is very deeply rooted in Baltic collective memory. There are many people who have strong association with this material. It is quite specific. It is associated with “I grew up in the blockhouse” or term “khrushchovka”, an informal way to call block houses, at many times built with white silicate bricks. Childhood of many people, including the author of this work, has framed strong memory of this materiality.

At the same time there is a certain lack of quality in the use of this material which is a direct architectural challenge. These buildings are associated with low quality blockhouses or industrial buildings. SILICATE DREAMS pavilion is about using this material framework in favor of the pavilion and the user. To show that it is a beautiful material. It is just about finding the right way. There is an opportunity to direct this resource at hand to create new way of how we perceive it. Perhaps, we can achieve a new feeling about it. Step by step. Brick by brick.

This way, SILICATE DREAMS is a small experimental territory which is showing one way how to create a silicate brick architecture. However, it is not so easily done. On one hand there are multiple second hand offers which allow us to purchase this material. However, this involves active management of transportation and satisfying needs un quantity and testing for structural reliability. There is a chance to get it as a new material. It is still produced. However, in this case we are “taking the usual way”. Which at certain situations and contexts and scales could also be more appropriate decision. There are many challenges to dive into regarding this material.

SILICATE DREAMS PAVILLION.

Given the context of the newly realized landscaping project in front of the Station, the pavilion is taking an advantage of the active position and location of the site in one of the most active transportation hubs in Tallin. Pavilion is meant to address the wider community of the actual discussions in the theme of Biennale. In this proposal the materiality of the pavilion is a manifesto on how to answer the objection of the given theme of “Resources of the future”

Pavilion is designed to pure essentials to serve this public space. The main function is to give shelter and sitting spaces and pavilion can accommodate a small public event if needed. Platform type bench is provided which is subdivided into two parts to create inner space of the pavilion. Low retaining walls, which are not exceeding one meter height from ground are helping to give some support element behind the back and protecting lower back from the winds. The Bench element of the pavilion is covered with single slope roof and enclosed with equally arranged plywood columns. Thus, the façade gives visual permeability while at the same time is giving a consistent rhythm and harmonic look.

The strategy to implement reclaimed silicate brick – the main idea and material of the pavilion is in a certain sense reserved. Silicate brick is used as an infill material in the plywood frame. This way it is an indirect way to expose the silicate brick. It might be in first place even not noticeable. However, once one approaches the pavilion, one is for sure to recognize white brick material which is dominating the mass of the bench. It is a silicate brick solid hiding into light wooden frame. Wooden sitting surfaces are implemented to increase the comfort and give a signal of the preferred spaces to take a seat.

The plywood frame is built on multiple point type steel legs which is a strategy to avoid intrusive foundation solutions. The base element is built combining plate and beam elements which are hosting the structural columns around the perimeter of the pavilion. Brick infill is giving the mass, necessary dead load to ensure structural stability. Roof is solved as two-way structural beam system which allows more free arrangement of openings. It is hosting one slope corrugated steel roof sheet. A gutter is hosted on one side of the roof to direct the water drainage to two outlets which are offset of the facade.

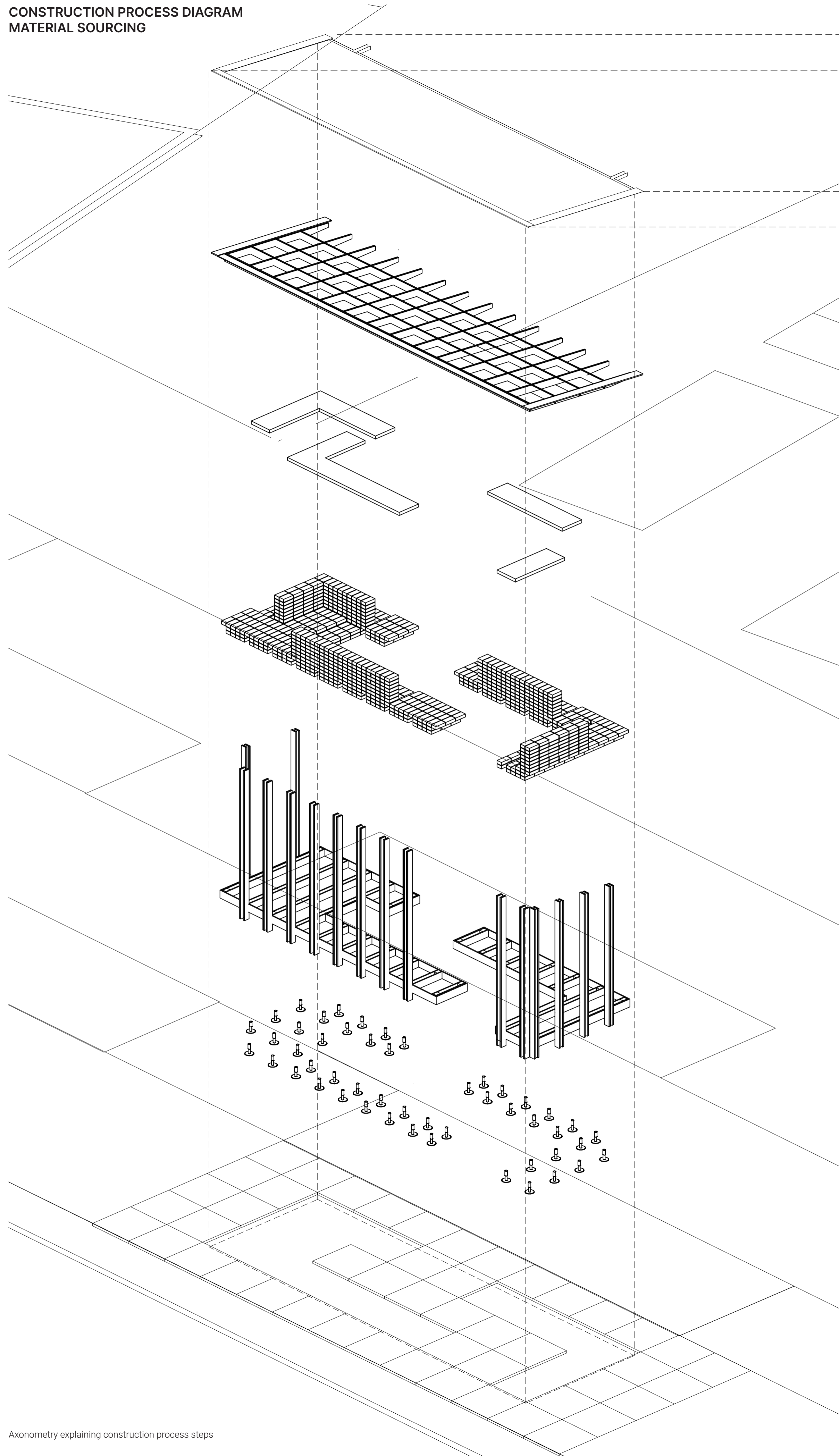
The pavilion is built in reclaimed materials. However, it is ordered in a manner to create a beautiful whole and to fully satisfy the need of the user at the space. The structure of pavilion proves the possibility to elegantly arrange different types of reused materials and gain some aesthetic qualities.



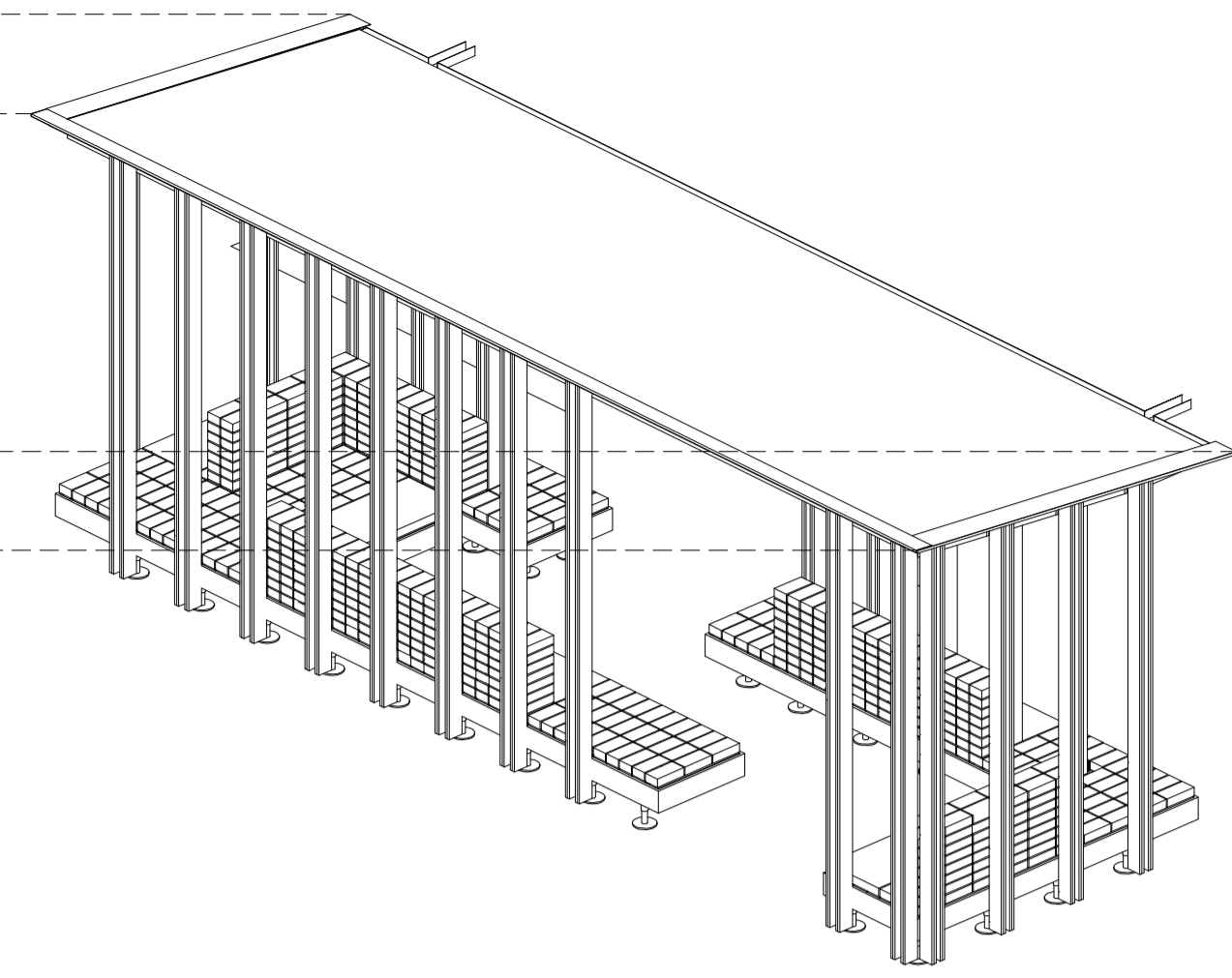
Site Plan
Scale 1:250



CONSTRUCTION PROCESS DIAGRAM
MATERIAL SOURCING



7
6
5
4
3
2
1



CONSTRUCTION PROCESS
STEP BY STEP

1. Preparation of the site and removal of existing slabs for punctual supports
2. Installation of punctual steel supports.
3. Building of plywood frames.
4. Laying the bricks as infill of the frame.
5. Installation of the benches
6. Installation of the roof structure
7. Installation of roof covering, flashings and gutter.

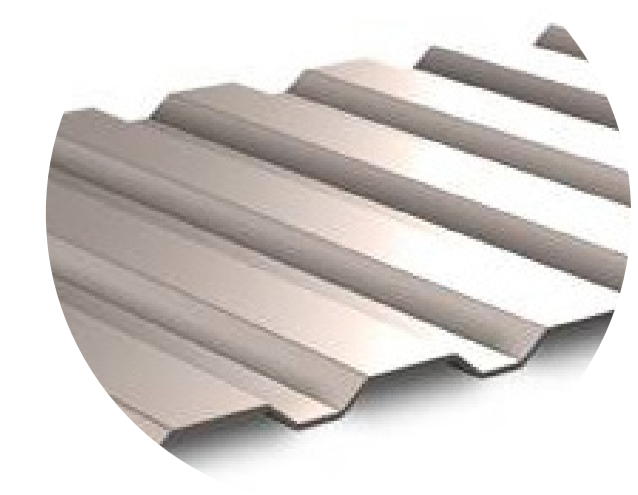
KEY MATERIALS



SILICATE BRICK



PLYWOOD



CORRUGATED STEEL SHEET

MATERIAL SOURCING

There are constant second hand offers of already disassembled palettes of silicate bricks and the prices are reasonably lower than those of new bricks. Challenge of reusing these bricks is that that portion of cavities and imperfections make them easier to be damaged. Disassembling process of brick wall is quite work consuming and there is always possibility to damage the brick while doing so.

Plywood plates could be possibly collectable at plywood suppliers, or building companies, or private owners. Positive point of the use of plywood is that assembling pavillion from multiple smaller pieces it is already using overleft materials which would otherwise go as waste. Plywood frame shall be assembled with dowel joints, using local points which are screwed.

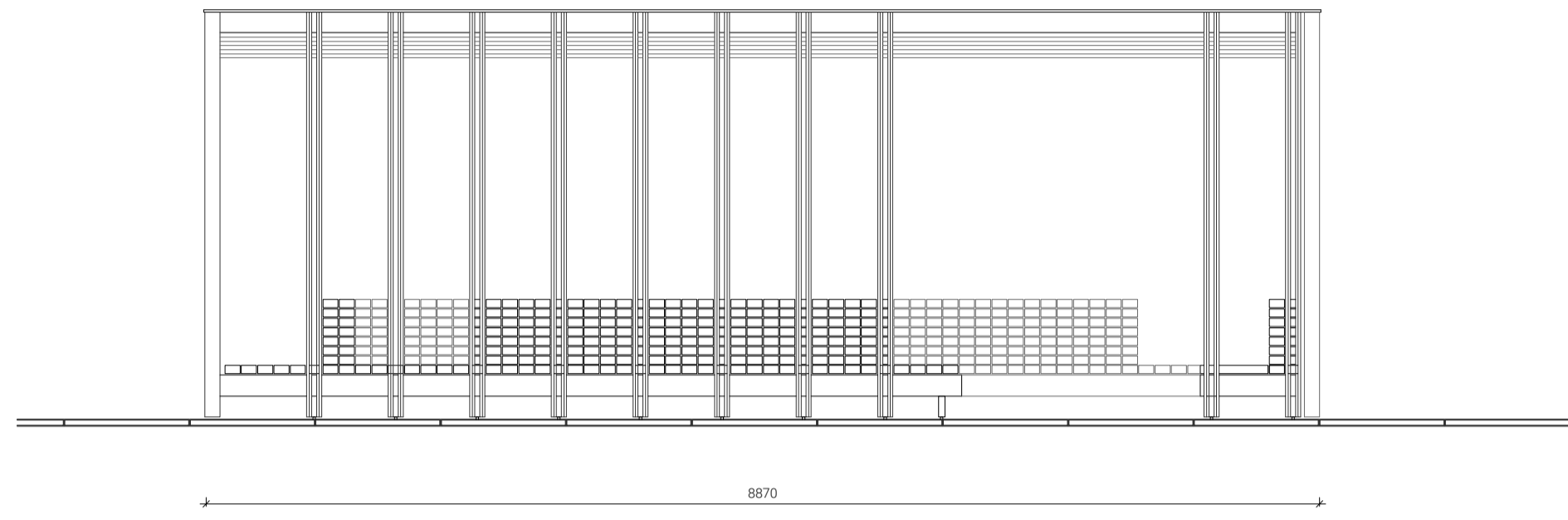
Common practice to fix steel sheet roofing is detachable connections, which shall provide a possibility to find a good second hand material which is in a good enough condition as reused steel sheet. The roof of the pavillion is intentionally made as single slope, thus sourcing shall be easier, and assembly fast.

REUSE AFTER THE PAVILLION

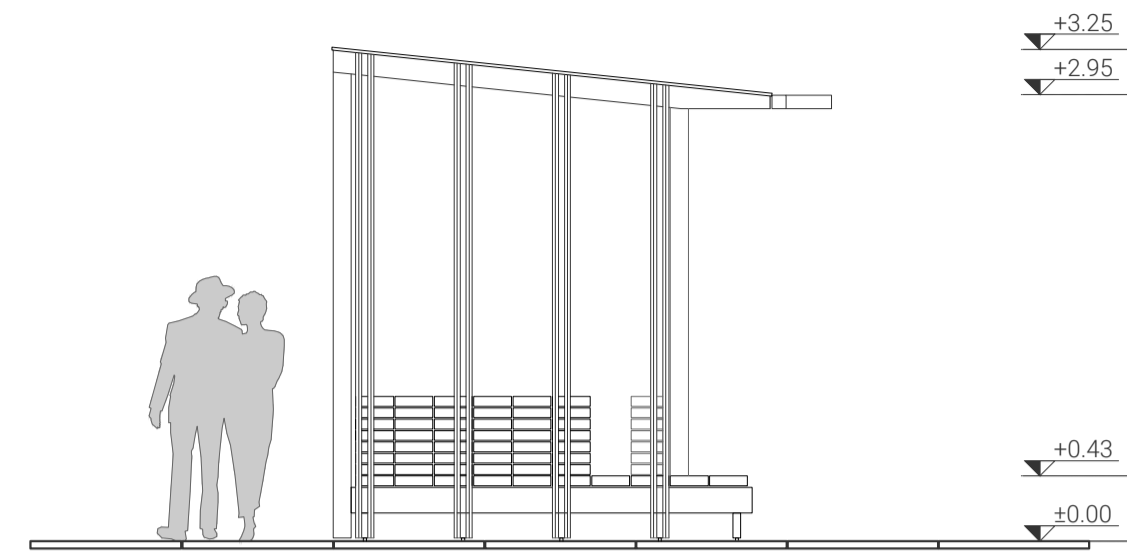
The reuse of the silicate brick is limited. Sand-lime bricks are not being recycled to make new bricks on an industrial scale. Focus on continued use is as brick recycle in other products. Silicate brick chippings can not be used as plant substratum. It can be used as an aggregate in terrazzo, concrete but no more than 10% of concrete volume.

Dowel and screw joints give possibility that the structure is fulfilling the principle of reversibility. This way the pieces can be reassembled multiple times, giving opportunity for the pavillion to be built in another place. However, we must consider that possible wear from the weather might bring some issues considering this and disassembly might damage partly the joinery. Main use of laminated wooden board at the end of its life is energy generation, it has high heating values.

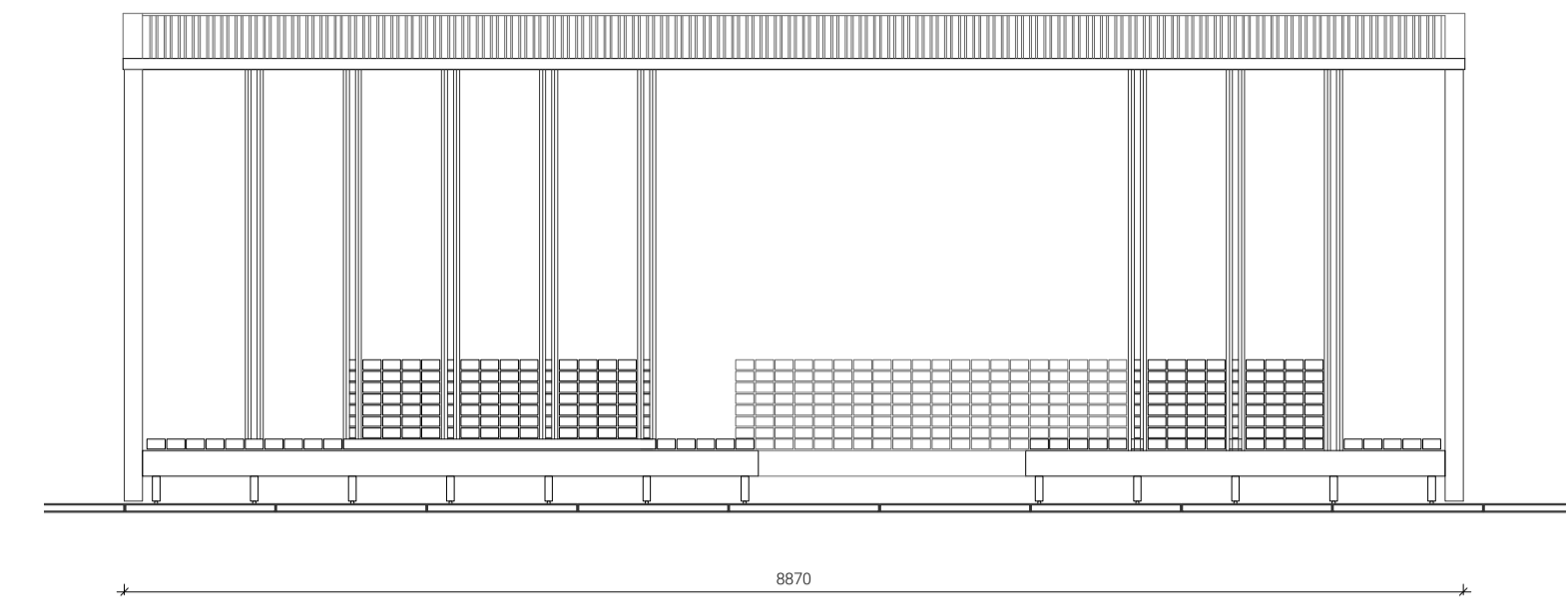
Steel roof plates is a simple solution which is chosen because of its and easy assembly and disassembly. The steel plates can be used for another built project or recycled, as steel is one of the most frequently recycled materials.



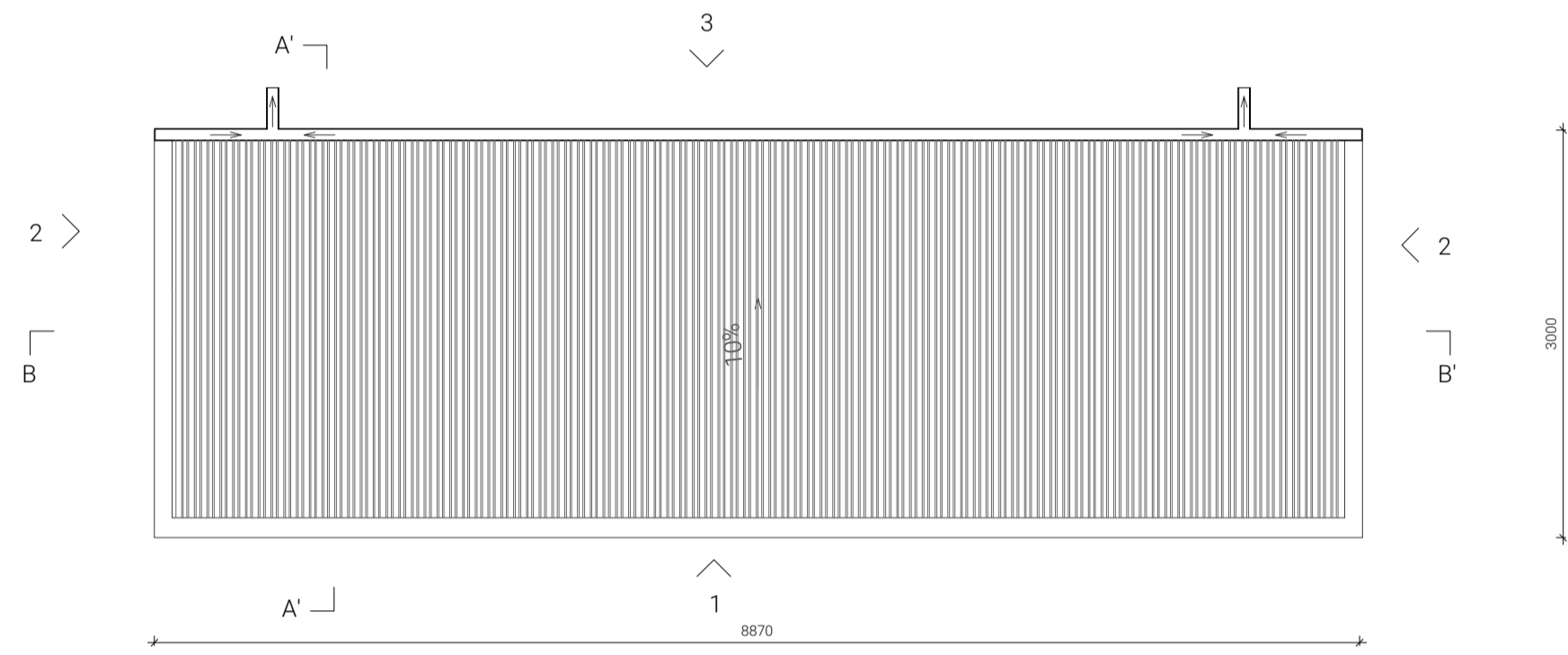
Facade 1
Scale 1:50



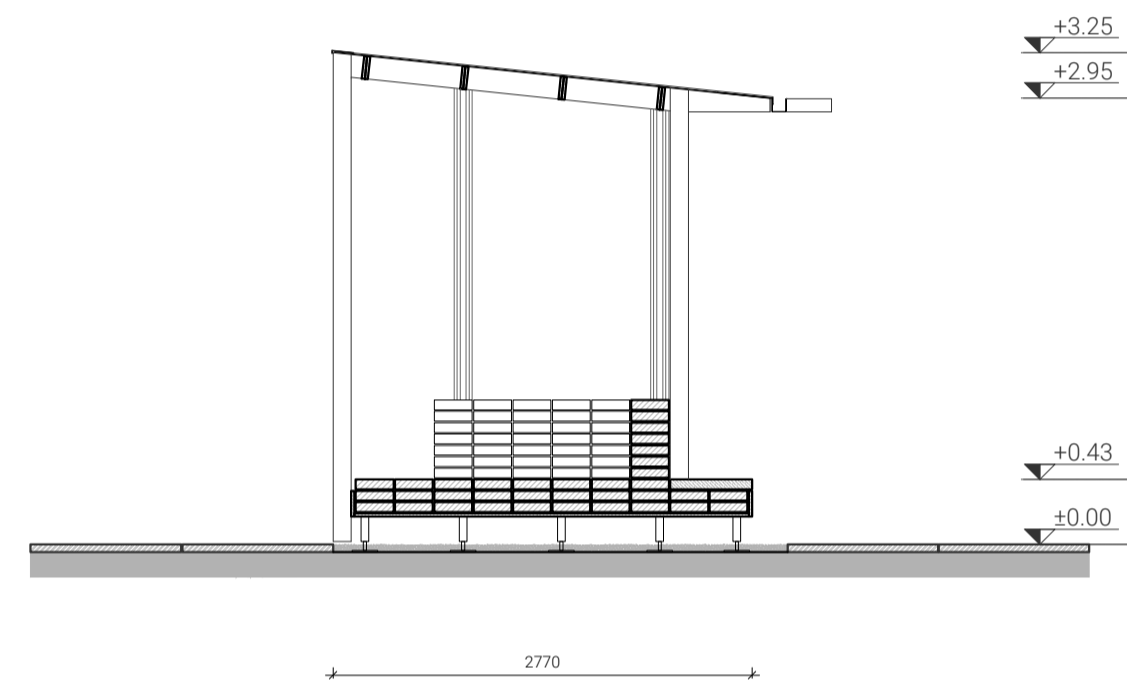
Facade 4
Scale 1:50



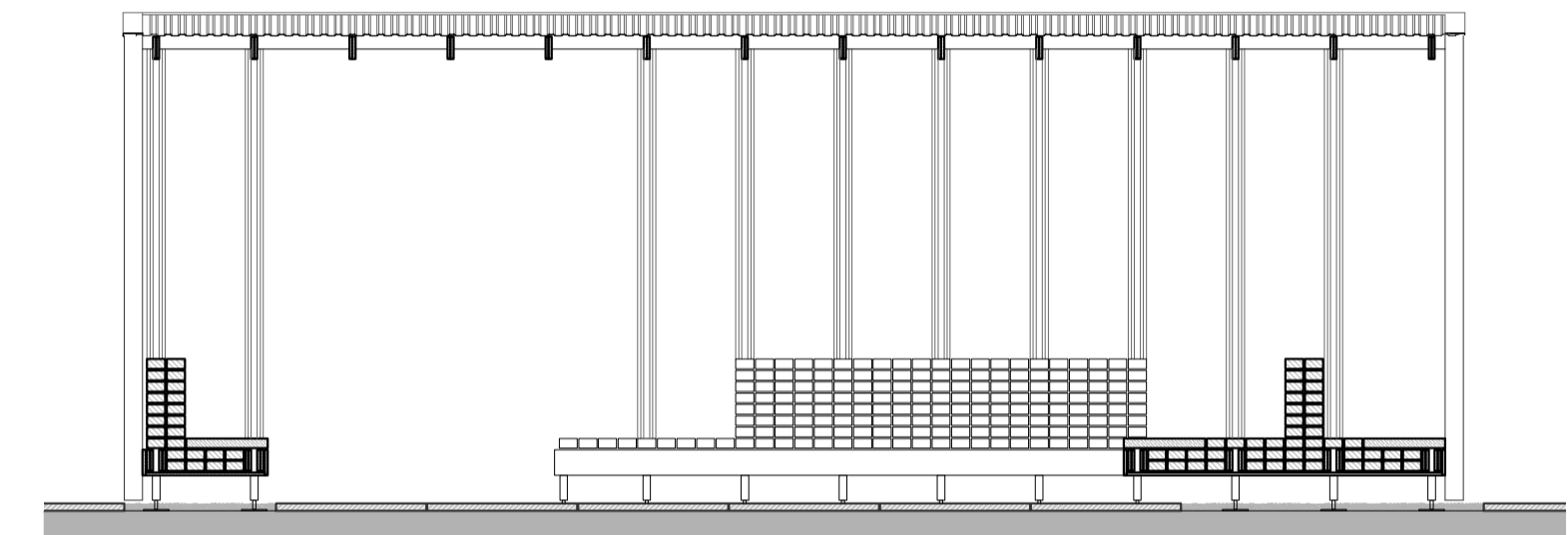
Facade 3
Scale 1:50



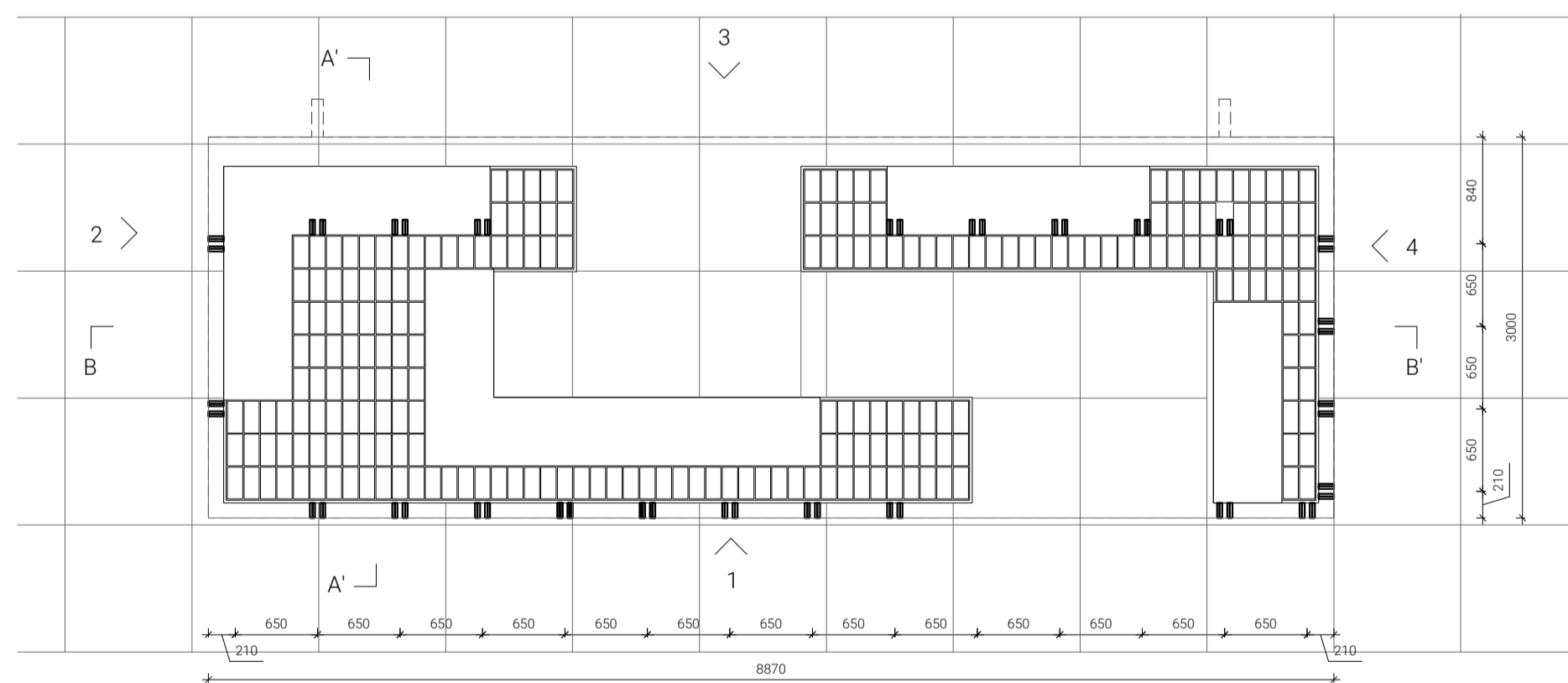
Roof plan
Scale 1:50



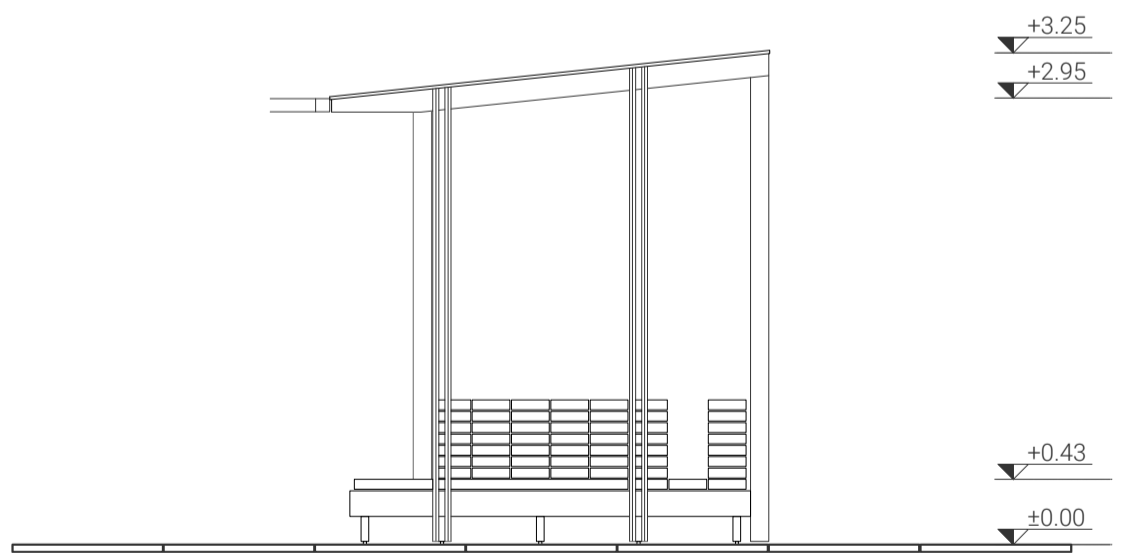
Section A-A
Scale 1:50



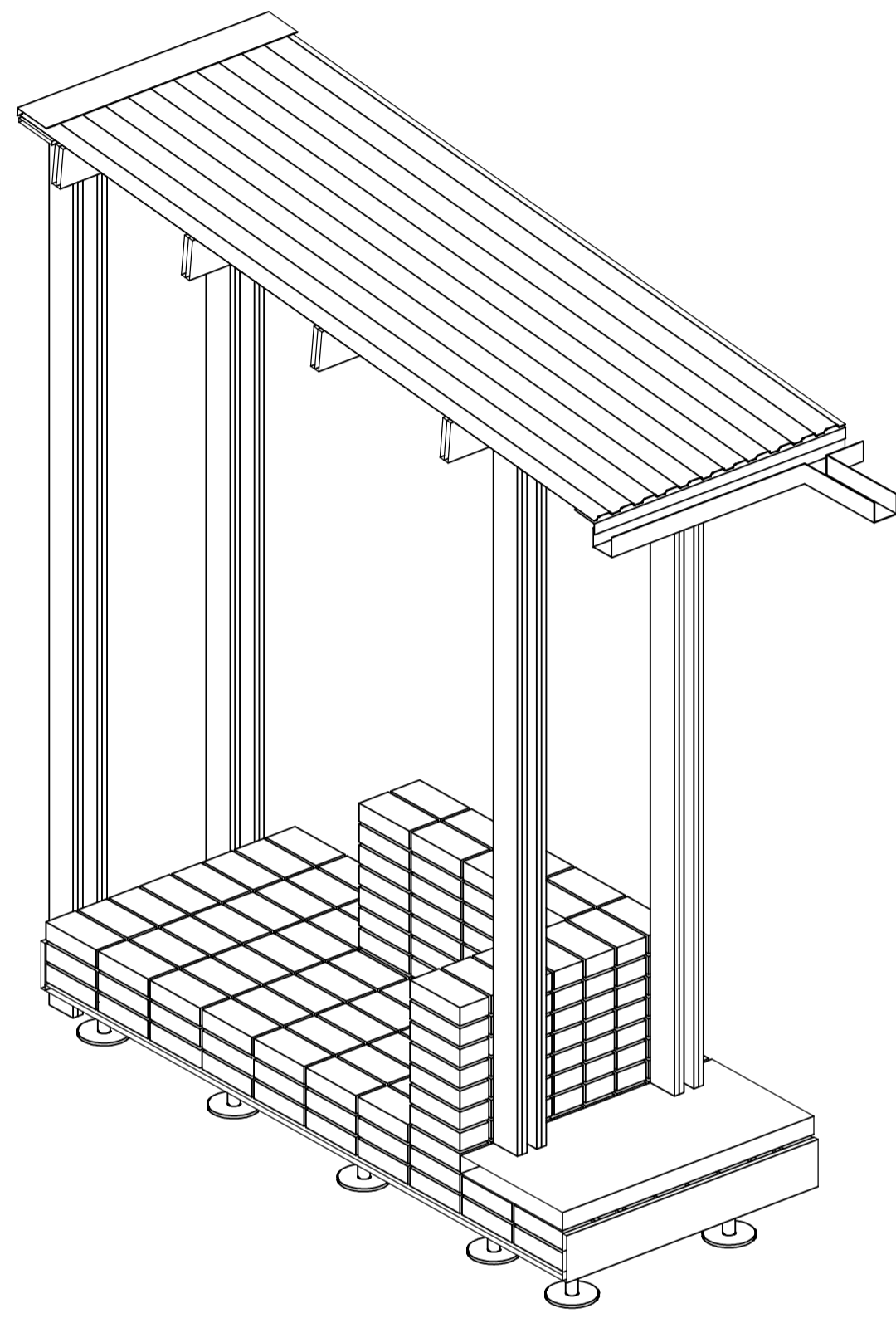
Section B-B'
Scale 1:50



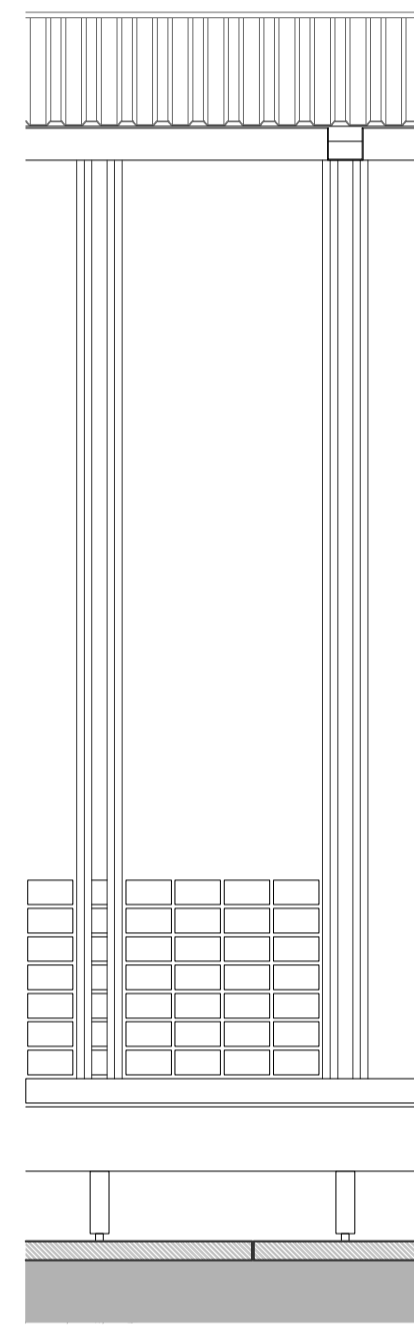
Floor plan
Scale 1:50



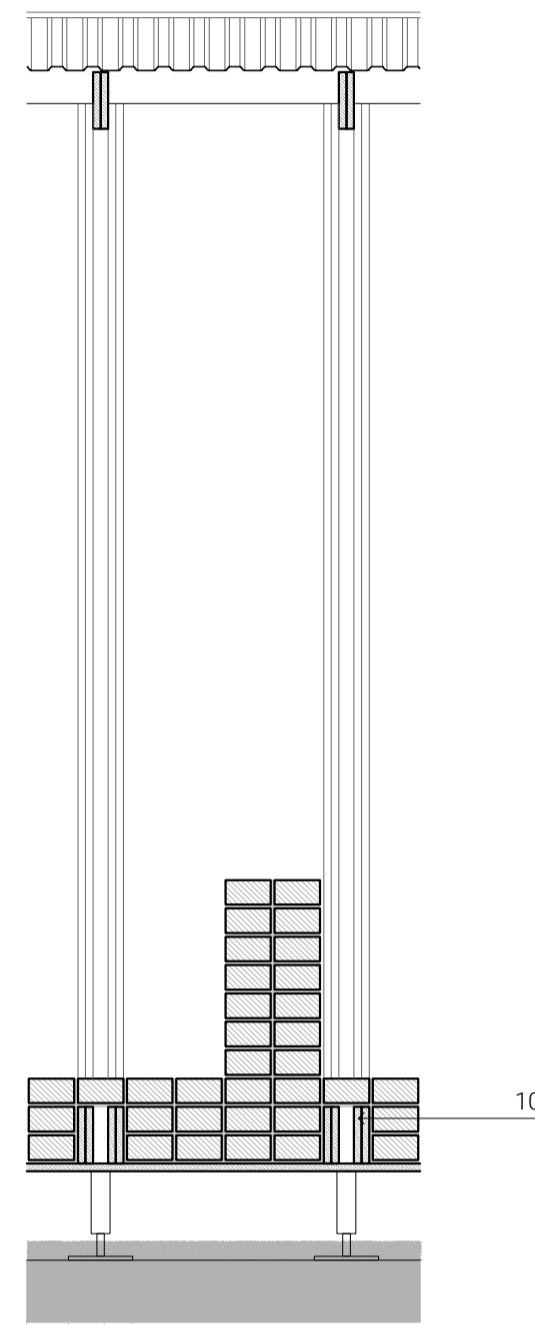
Facade 2
Scale 1:50



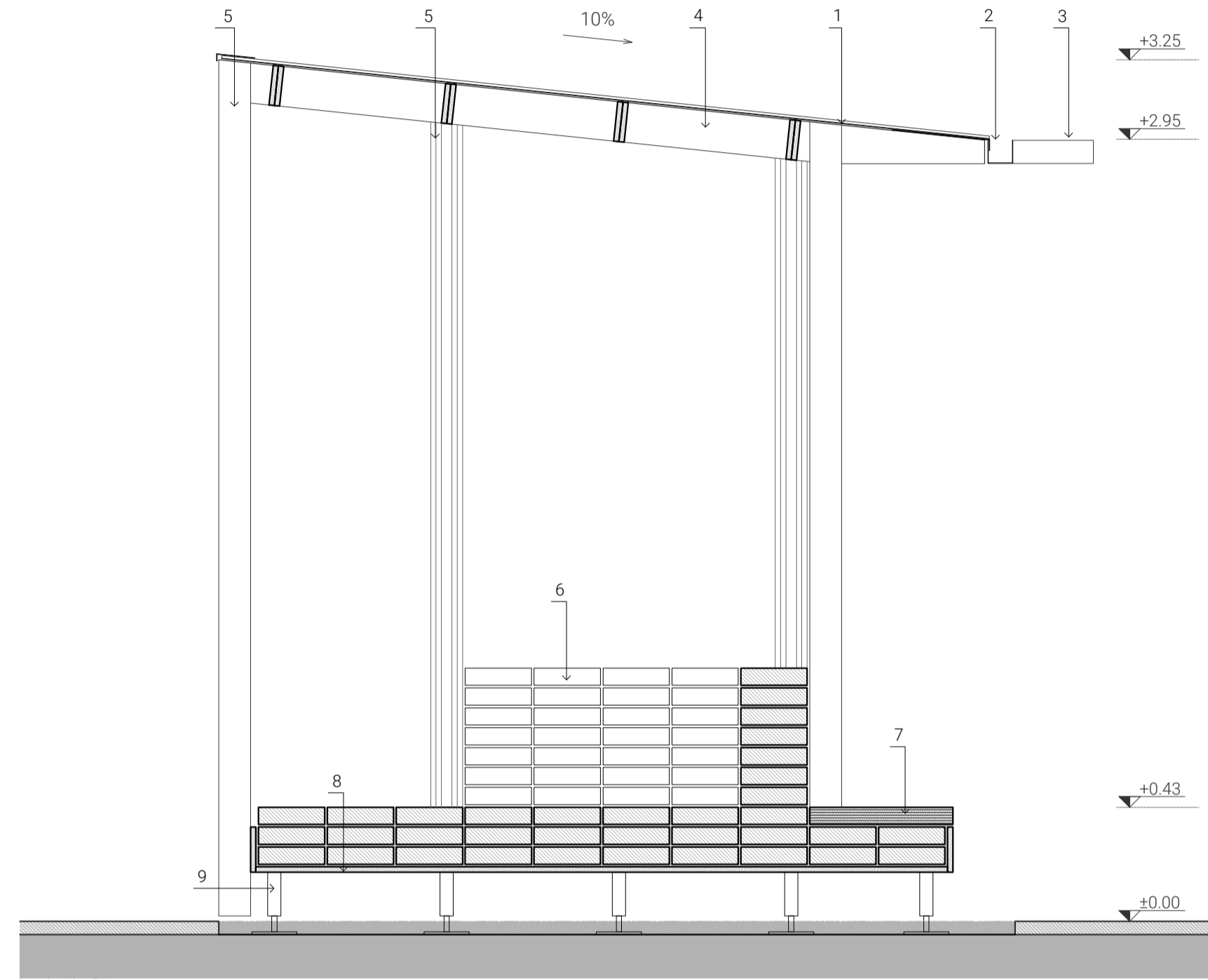
Detail axonometry
Scale 1:20



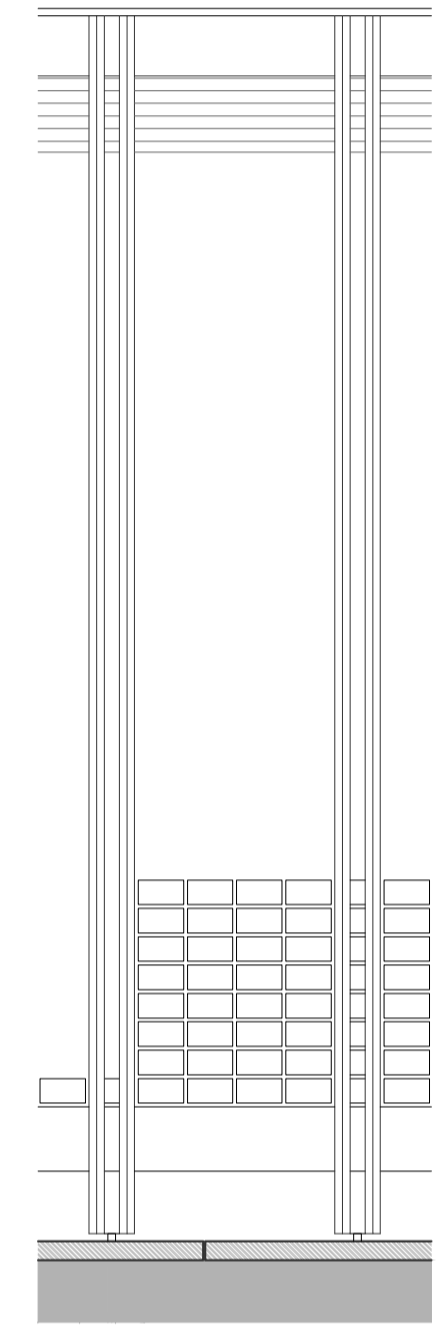
Facade 2 - Typical span
Scale 1:20



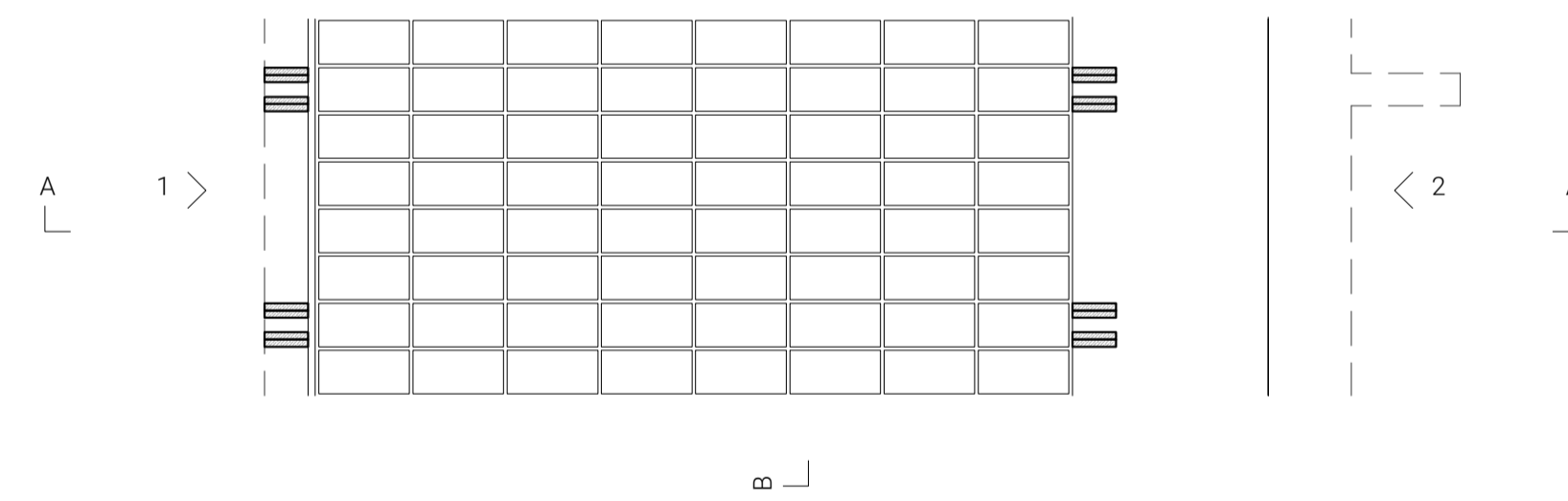
Section B-B'
Scale 1:20



Section A-A'
Scale 1:20



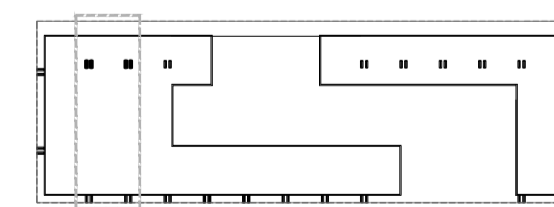
Facade 1 - Typical span
Scale 1:20



Floor plan - Typical span
Scale 1:20

LEGEND:

1. Corrugated steel sheet roof
2. Gutter
3. Drainage outlet
4. Plywood two - way roof structure.
5. Plywood column
6. Second hand silicate brick infill, bonded with lime mortar.
7. Solid bench, multiple layers of plywood.
8. Base plywood frame
9. Steel footing, allowing leveling
10. Transversal base beam.



Placement diagram

CASE STUDIES



Group of people watching video with a background of construction leftovers. Brick Bar, Riga, 2018



Used silicate bricks for sale, photo from advertisement site.



Acquisition of existing brick wall with aim to reuse it in new project. Lendager Studio - Resource rows, 2017



Kintsugi technique of joining broken pieces of ceramics with precious bond thus reuniting the whole.



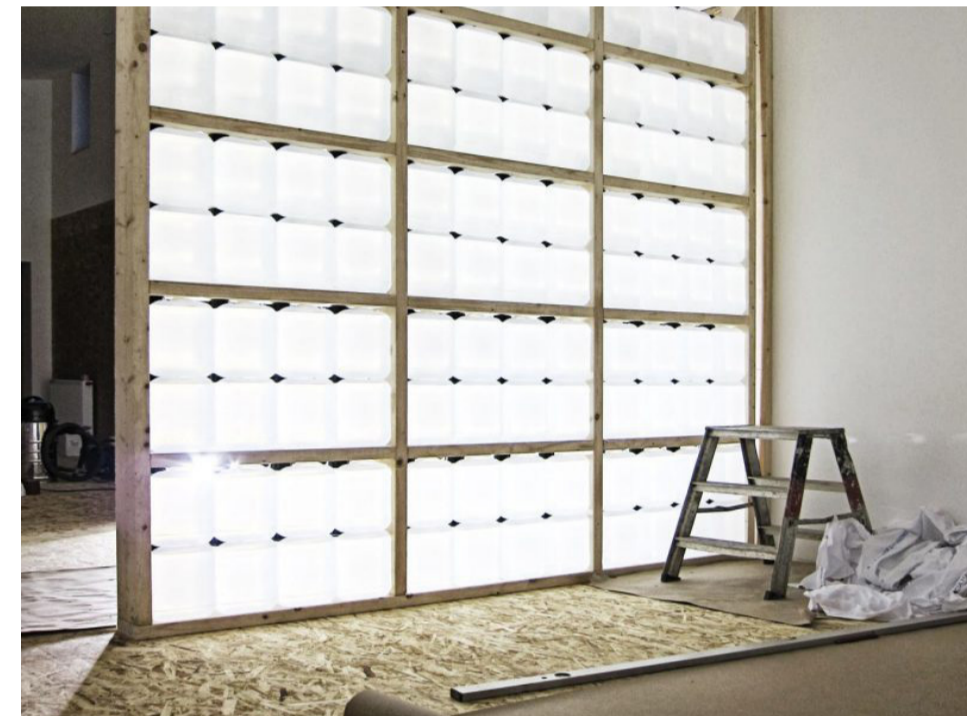
Example of plywood joinery with dowel joints. Sidewalk citizen solarium, Studio North. Double layer plywood connected with dowel joints, to form the joined shape of the structure.



Wooden infill structure at Archeological site of Ercolano, Italy, dated 79 AD. Note the original conserved black wooden part and the new brownish.



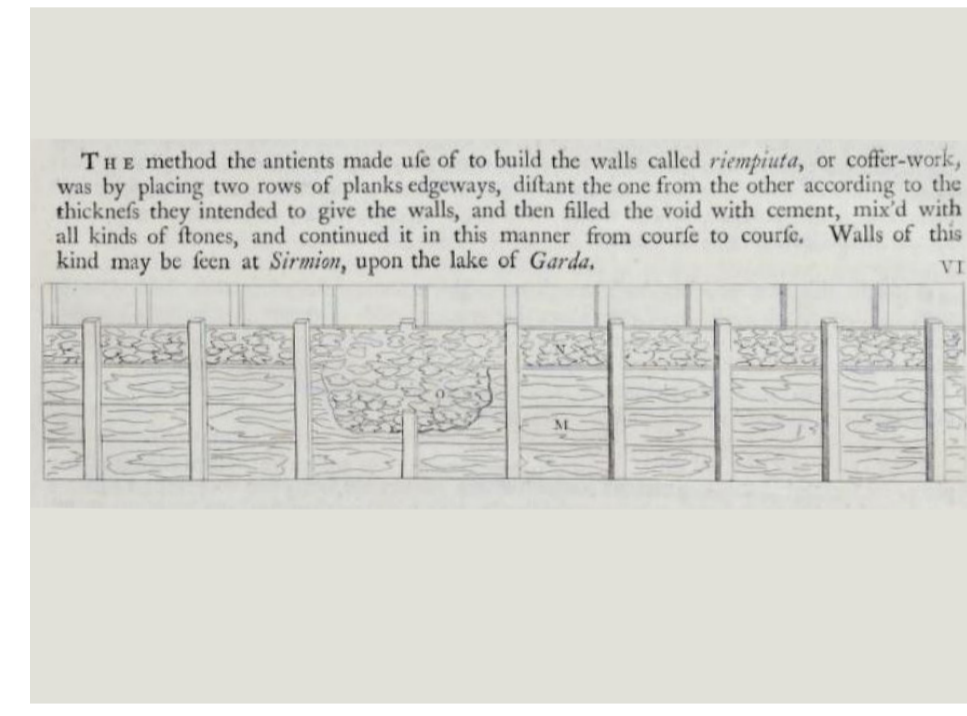
Sigurd Lewerentz - St Peter's Church, Klippan, 1962-66



Lendager studio - Upcycle house. Plastic bottle infill in wooden frame, 2013.



Flores & Prats - Facade closeup of Hotel Nuevo Triunfo, Barcelona, Spain, 1995



Excerpt from "Four books on Architecture" by a Andrea Palladio, 1738. London : Published by Isaac Ware



Frank Lloyd Wright - Textile block system. Started as an "experiment" the system was realised six houses. 1920-s.



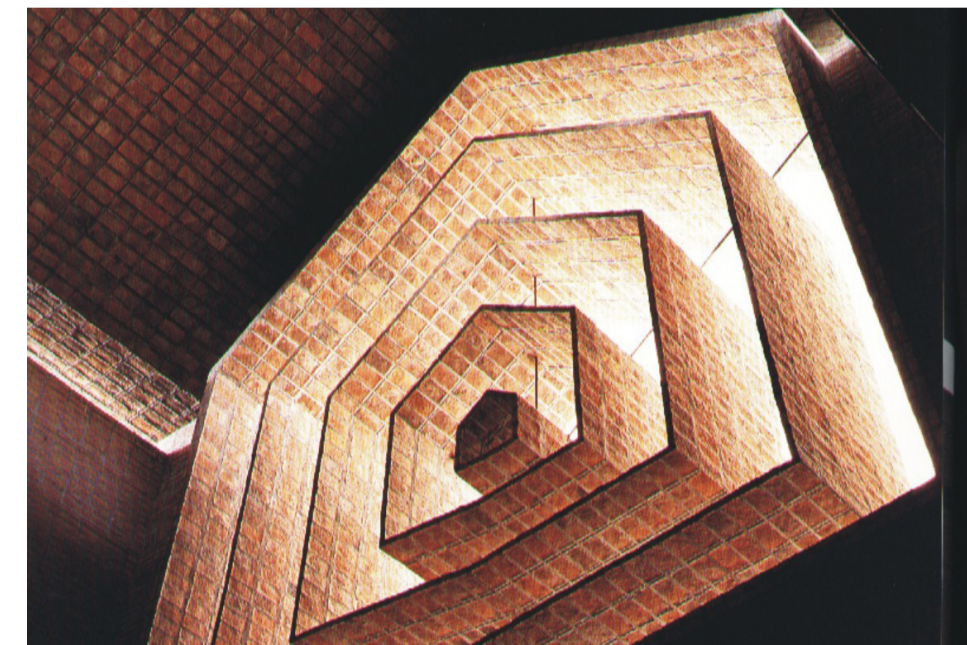
Sverre Fehn, Villa Norrköping, Norrköping, Sweden 1963



Roland Schwitter, La colonie du Four, 1971-1973



Muuratsalu experimental house - Alvar Aalto. 1952-1954



Eladio Dieste, Lauro Rocha - San Pedro Church. Opening Detail. 1969-1971