

# The Thriving Paradise

“the paradise where one can connects with nature and oneself”

## ELEMENTS IN THE THRIVING PARADISE

- A

**THE WORKSHOP PAVILION**  
This is the machine of the area and serves as an educational purpose where the new residents learn the tricks of the process of growing, harvesting and processing hemp into insulation blocks. The building is mostly used from May til October, wherafter the blocks can be stored or directly be implemented into the residence of that person.
- B

**OCCUPIED RESIDENCES**  
This is where residents have settled. Together with the other residents they are part of the community and take care of the natural paradise and each other.
- C

**MEETING HUB**  
The HUB is where residents and visitors meet up over a cup of coffee and have a chat. It serves as the heart of the area. From the public road the HUB can be reached via the green lane and allows people to discover the area through elevated pathways.
- D

**SPORTSFIELD/ WATER BASIN**  
Around the HUB lays the sunken sportsfield which collects water after a heavy rainfall and cleanses the water through biofilters scattered around the area. This allows the water to be re-used in fountains for the kids to play with, flushing the toilets, but moreover so the site supports the municipality.
- E

**LOOKOUT TOWER**  
Here the user can have an overview of the area with the hemp field and workshop directly next to it. Further, a look can be given over the earth wall to the nearby road, Leypark and elderly residence.
- F

**GREEN LANE**  
Serving as the entrance of the paradise, this green lane consists of a wide road with grass tiles, allowing only emergency vehicles to enter the area up to the meeting HUB to shorten the distance for help. The lane holds multiple tree species and holds the purpose to clear the mind from negative thoughts of previous activities.
- G

**VACANT PLOTS**  
Certain plots will not become occupied by residents over the time period of 48 years, allowing the green paradise to stay in shape, heal itself and provide the calm and relaxing atmosphere while living here. With little interventions to attract species, the ecosystems present can become whole again.

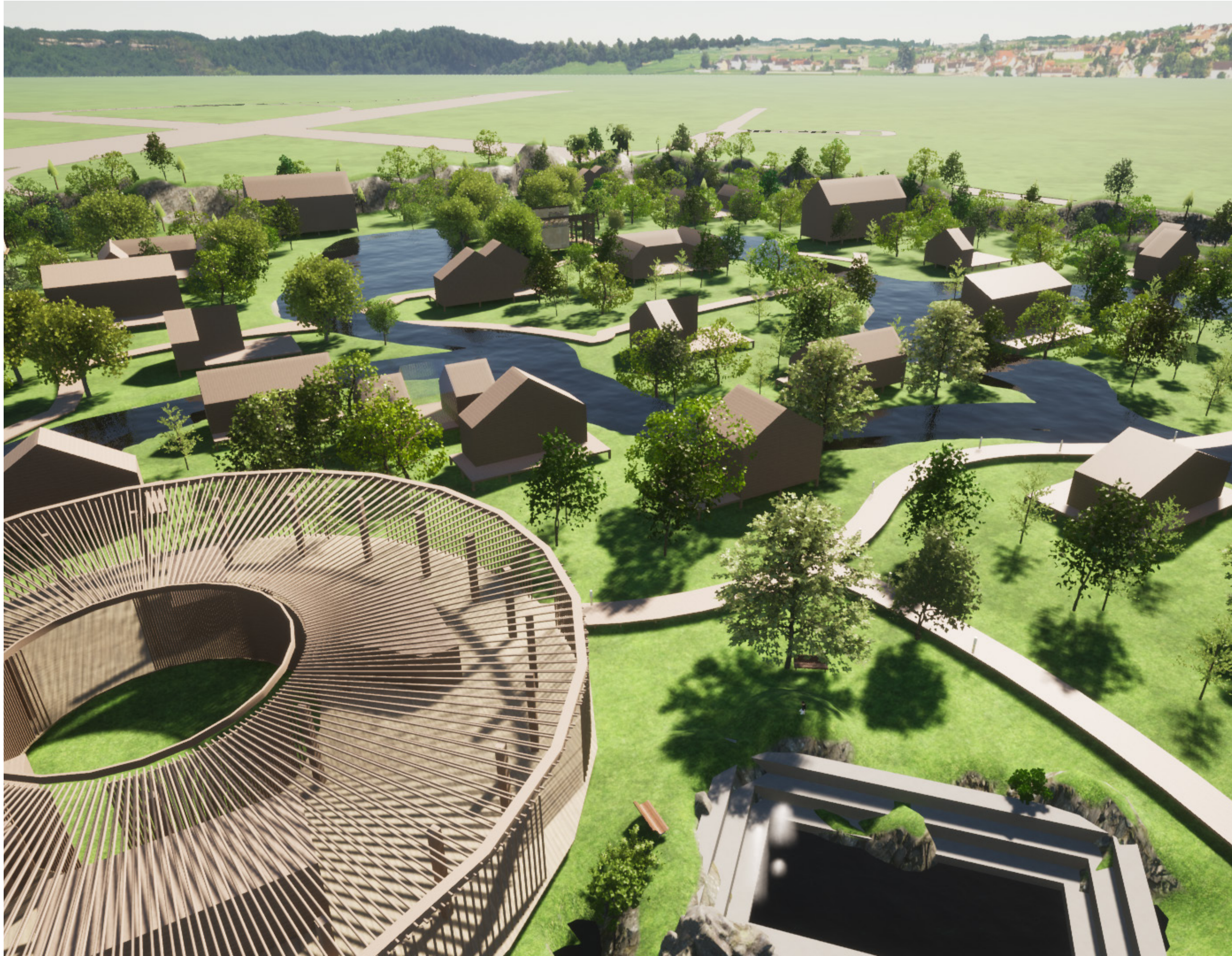




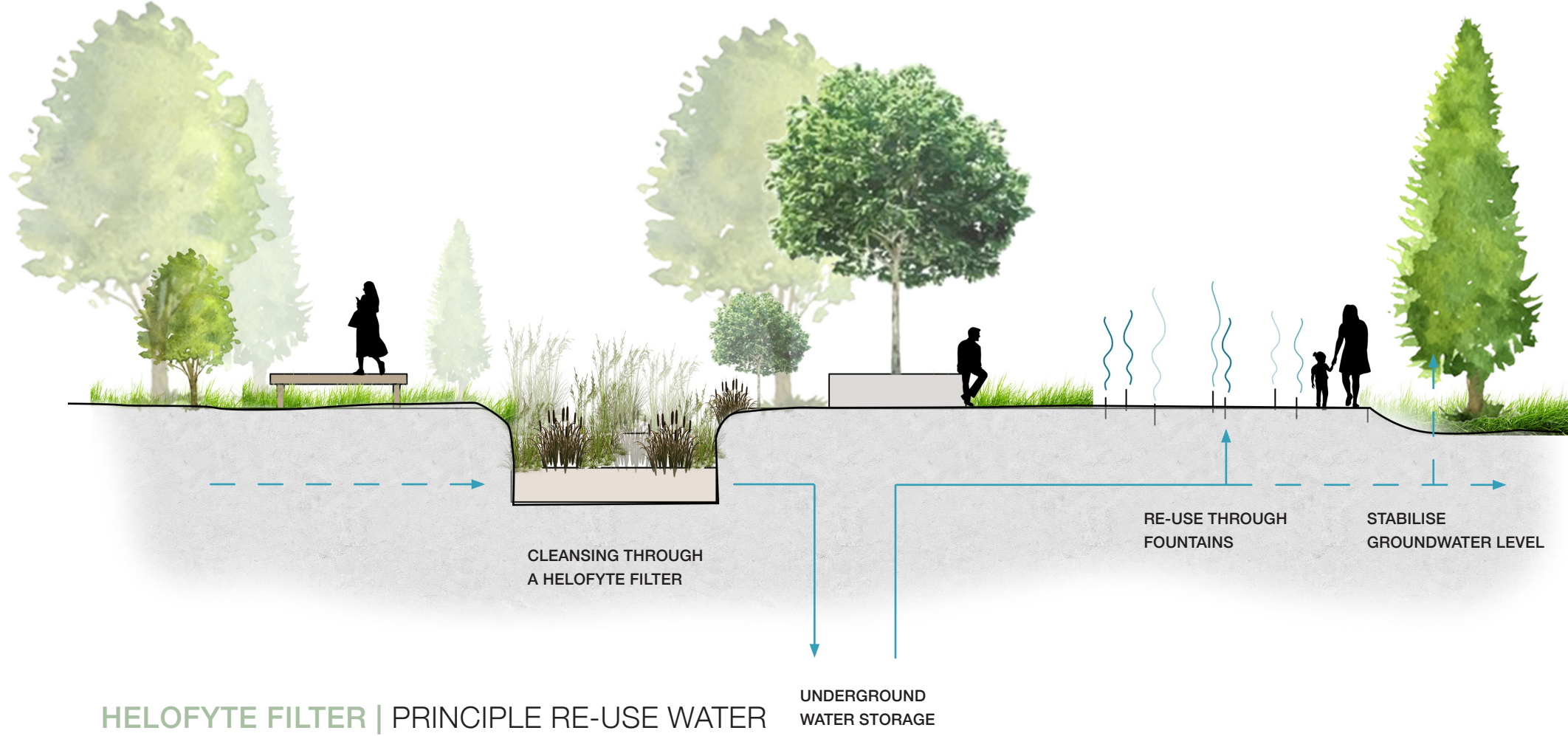




# THE PARADISE BY 2070



URBAN SECTION | KEMPENBAAN - AREA



## DESIGNING THE AREA

### MAIN PURPOSE CASE STUDY

Each location that will be transformed into a green paradise has the purpose of providing a social community between the residents as well as providing building materials for that site and its environment. By focussing on the single-person household and the starters the case study aims to decrease the problem on the housing market.

### PHYTOREMEDIATION AS THE BASE

After the first ten years of the transformation process, most contamination is dissolved via phytoremediation, however, the next couple of decades are needed to completely remove the heavy metals that require more time. The vegetation that needs to be harvested provides open spaces for the program to be realised on.

### GENERIC PROGRAM

Each case study will consist of individual homes made by the residents themselves and a workshop pavilion where a certain material will be grown, harvested and processed on site in order to become a local source of materials. For the chosen location the focus lies on the production of hemp as a bio-based insulation material which will be used along with a timber frame for the homes. The workshop pavilion is located on the northern part of the area and holds all spaces required for the indoor process of the hemp.

During the period that the pioneers are realising their homes, a few temporary cottages are placed near the workshop which function as housing. After the pioneers are settled these cottages can be used as flexible working spaces for those who would like to use them.

### SPECIFIC PROGRAM

The first step in creating a social community is teaching the new residents the tricks of the hemp process from settled residents. This dialogue continues over a cup of coffee at the social Hub, which lies in the heart of the area and is reached via the green lane from the public road. The Hub facilitates pop-up spaces that can be filled by the residents to allow them to express their hobbies. Near the Hub lies a sports area which can collect rainwater after a heavy storm.

The green lane is the only path that is permanent and allows the emergency services to come up the terrain a bit further, because cars are not allowed to enter the area.

A lookout tower can be found near the earth wall and hemp field, allowing both visitor and resident to take a look over the area.

### SAFETY AND EXPERIENCE

The area is closed off from the Kempenbaan and the motorway through a high earth wall along the west and south border of the site. This green wall has the purpose of protecting the area from unwanted visitors and becomes a part of the ecosystem and increase of the present biodiversity.

All the program is accessible through a wooden boardwalk which is elevated from the ground to avoid the destruction of the present vegetation by humans. At night, the solar powered lights will guide the user through the area and avoid accidents of people falling of the boardwalk.

### ADAPTING TO THE CLIMATE

Not only on individual level, but as a whole, the community needs to learn how our climate is changing and what benefits or consequences it gives us.

The heavy rainfall can therefore be collected in the basin which functions as the sports area. This gives the sewage system time to adjust to the weather. In times of drought the stored water can be re-used for the area, as well as through a fountain to cool off.

The excessive heat will be used by the trombe walls within the workshop and homes to heat the spaces. The sunlight will be captured through the solar panels and changed into electricity.

The heat-island effect will be decreased through the use of vegetation and the addition of running water through the area.

### THE HOMES

Each (yearly) season provides 25 m<sup>3</sup> of hemp insulation blocks. The average need of blocks for a home is 50 m<sup>3</sup>, which means each two years a new home will be realised. The homes are meant for the single-person household and the starters on the housing market. However, the thought is that they can grow old here, so expansions of those families are allowed.

## IMPRESSIONS & SECTIONS



THE EARTH WALL

1



THE WORKSHOP PAVILION

3



THE LOOKOUT TOWER

2

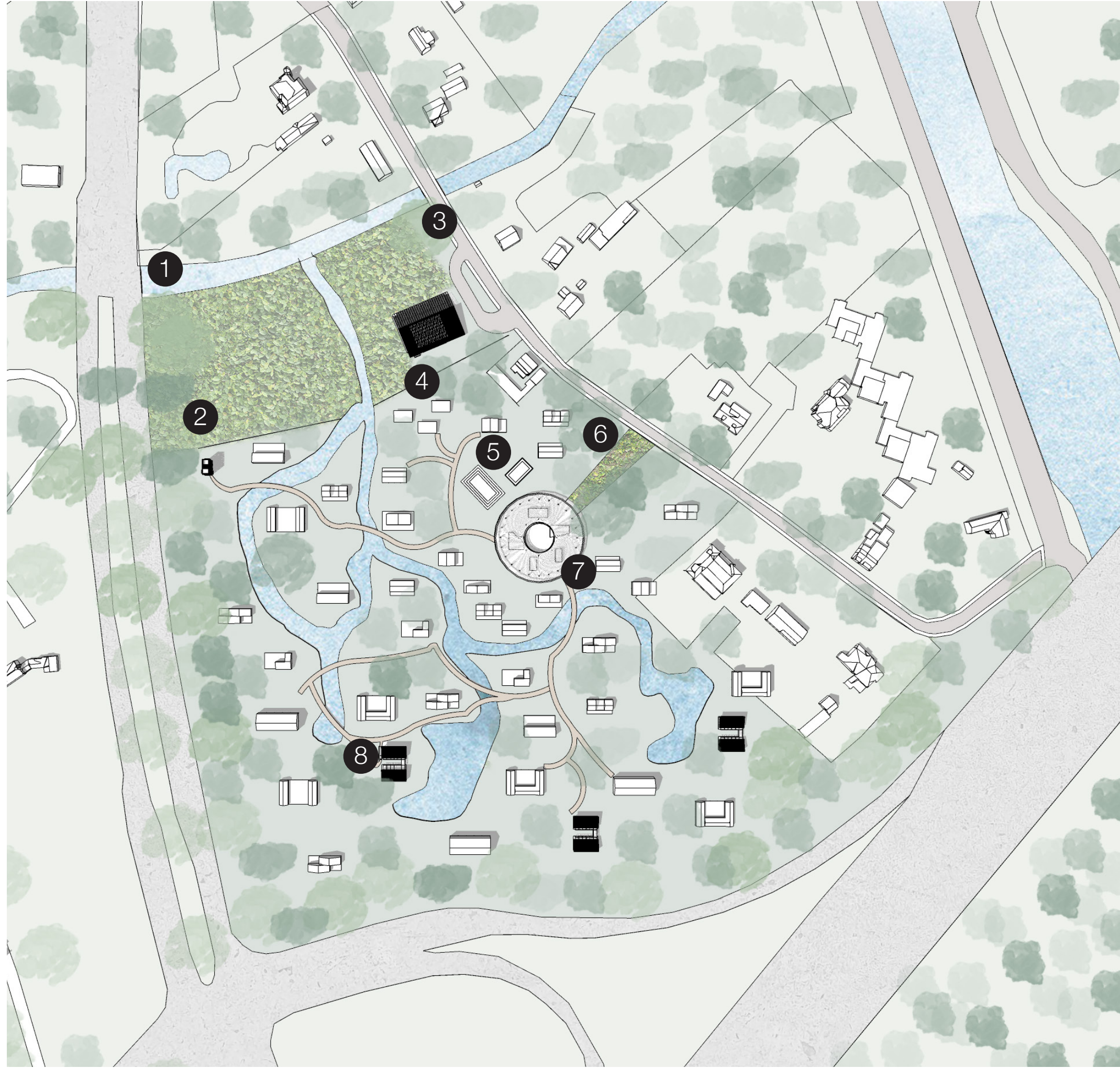


THE LOOKOUT TOWER

8



THE HOME



SITE PLAN | DEVELOPMENT  
1: 2000

4



THE FLEXIBLE WORKSPACES

5



THE SPORTS PIT

6



THE GREEN LANE

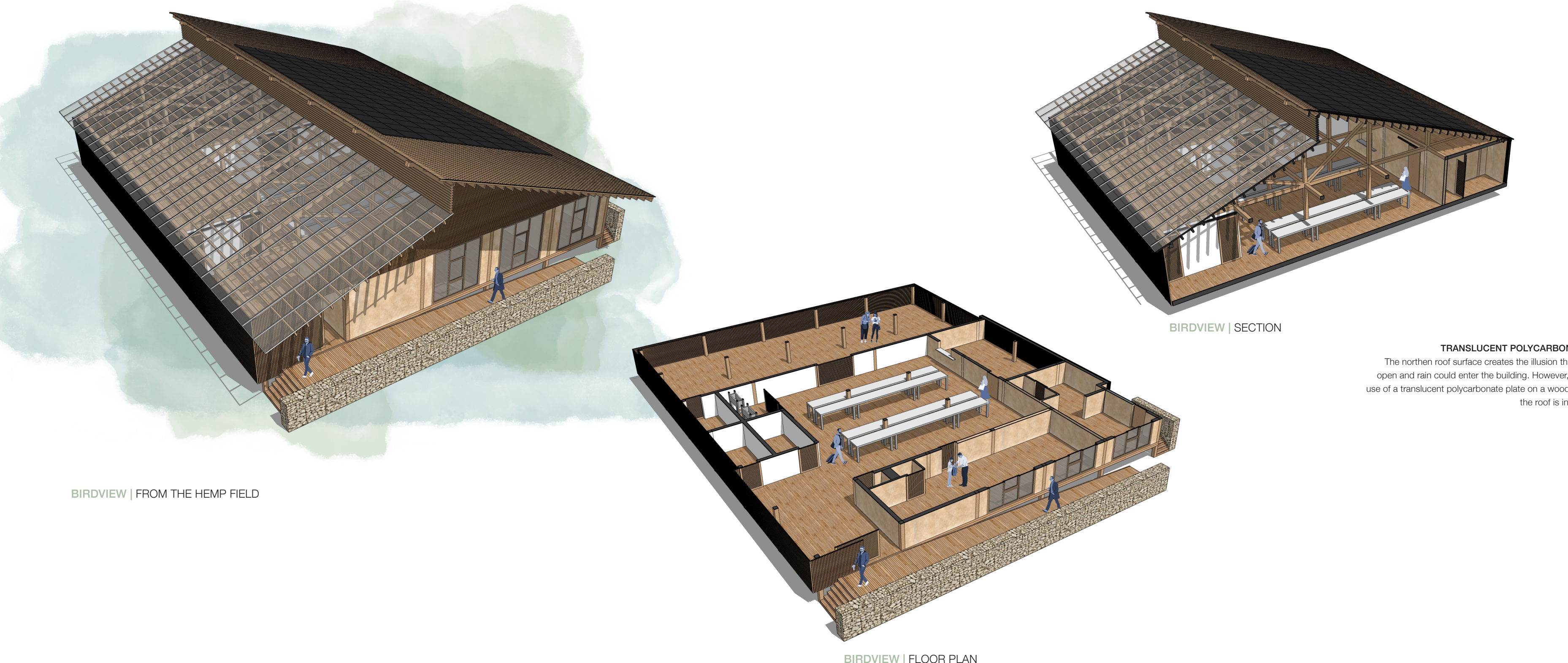
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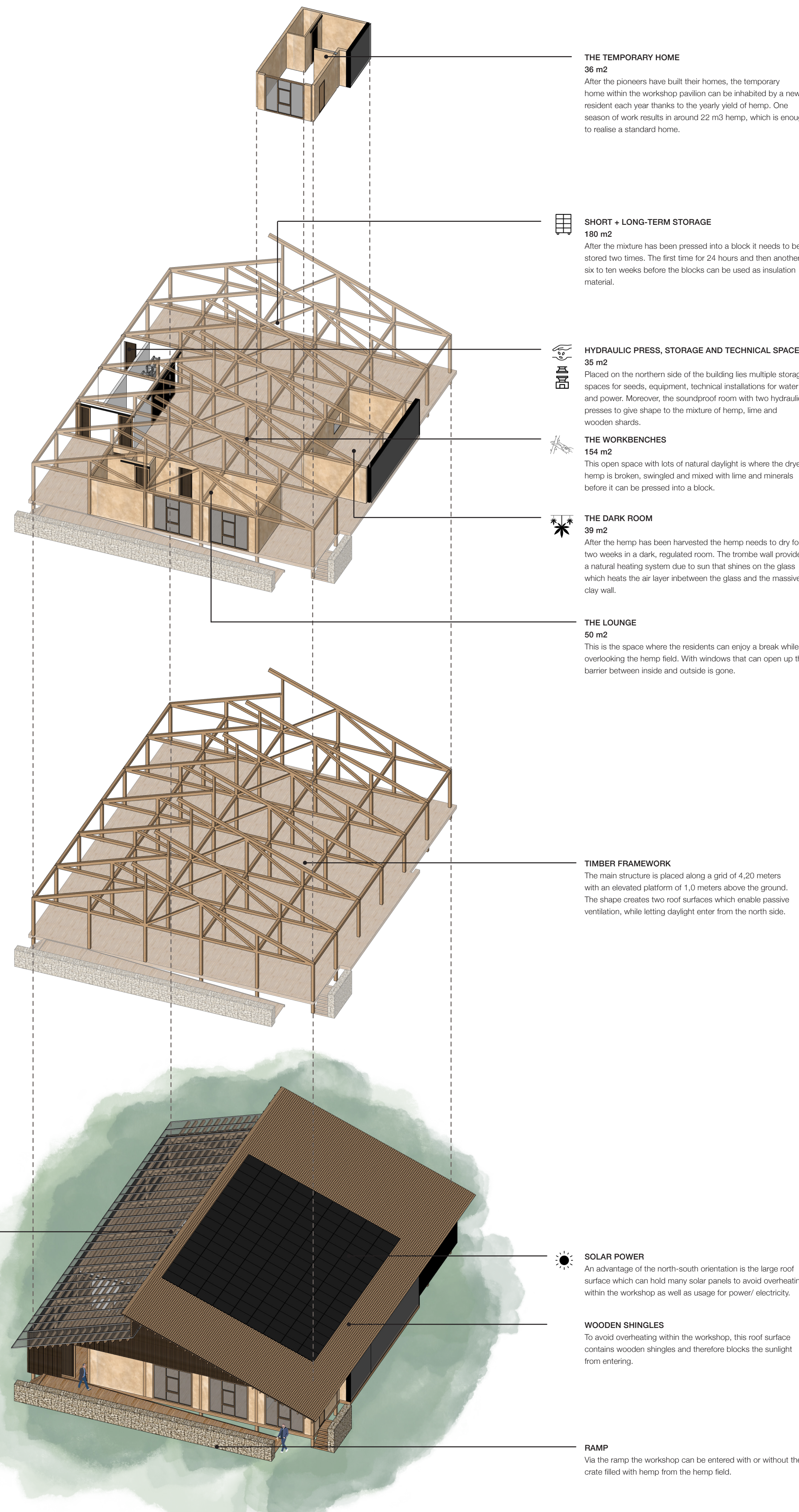
THE SOCIAL HUB



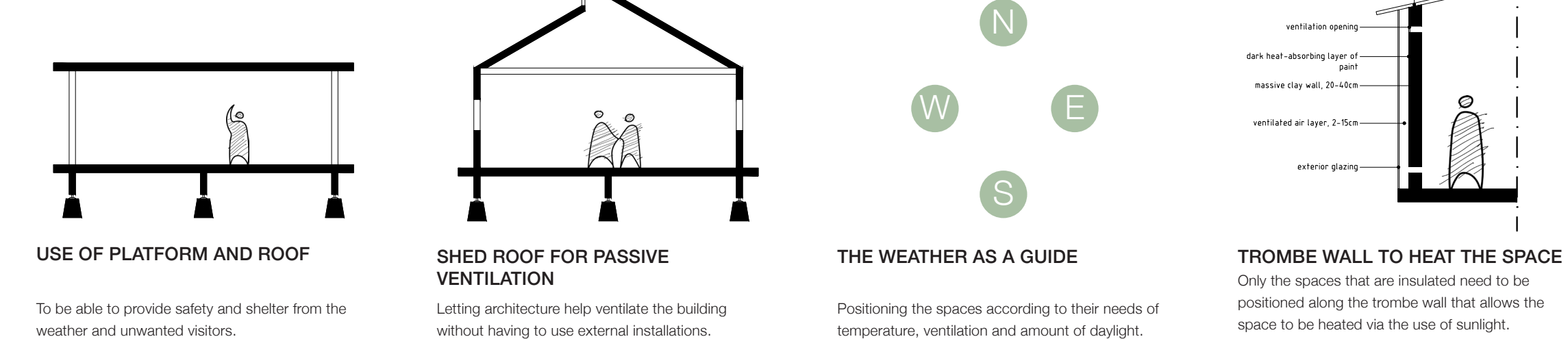
# THE WORKSHOP PAVILION



## THE STRUCTURE



## BASIC PRINCIPLES



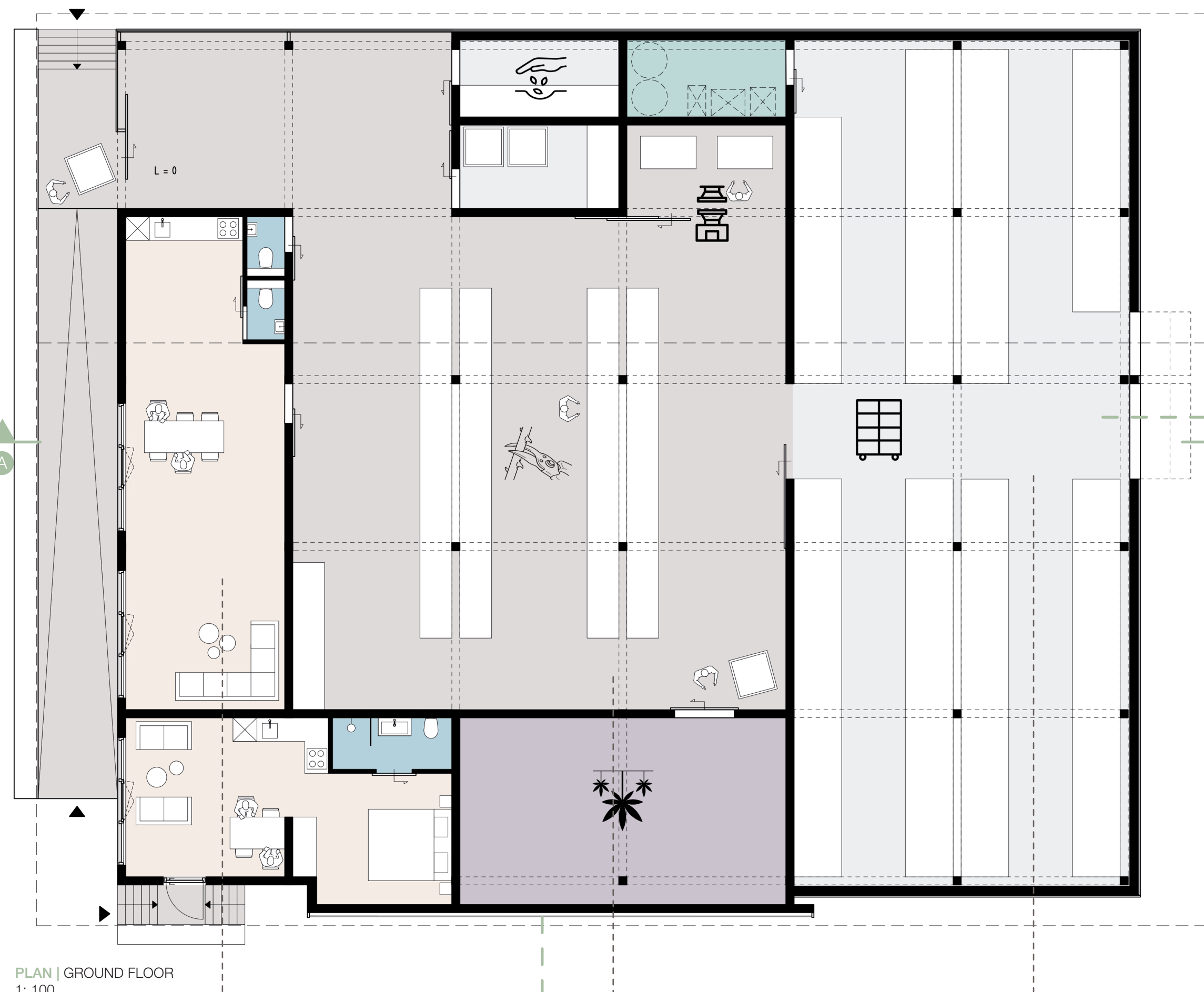
## THE WORKSHOP PAVILION

Located on the northern part in the thriving paradise is the workshop pavilion. The pavilion is the machine of the area where settled residents teach the new neighbours the tricks of growing, harvesting and processing hemp into insulation blocks to implement into their homes. Within the pavilion multiple spaces represent the different phases of the process after the hemp has been harvested from the field. In the right order, there is a dark regulated room where the hemp can dry, an open floor with workbenches to break and swing the dried hemp, a soundproof space with a hydraulic press to mold the mixture into blocks, storage space to dry the mixture blocks further before they can be used into the homes.

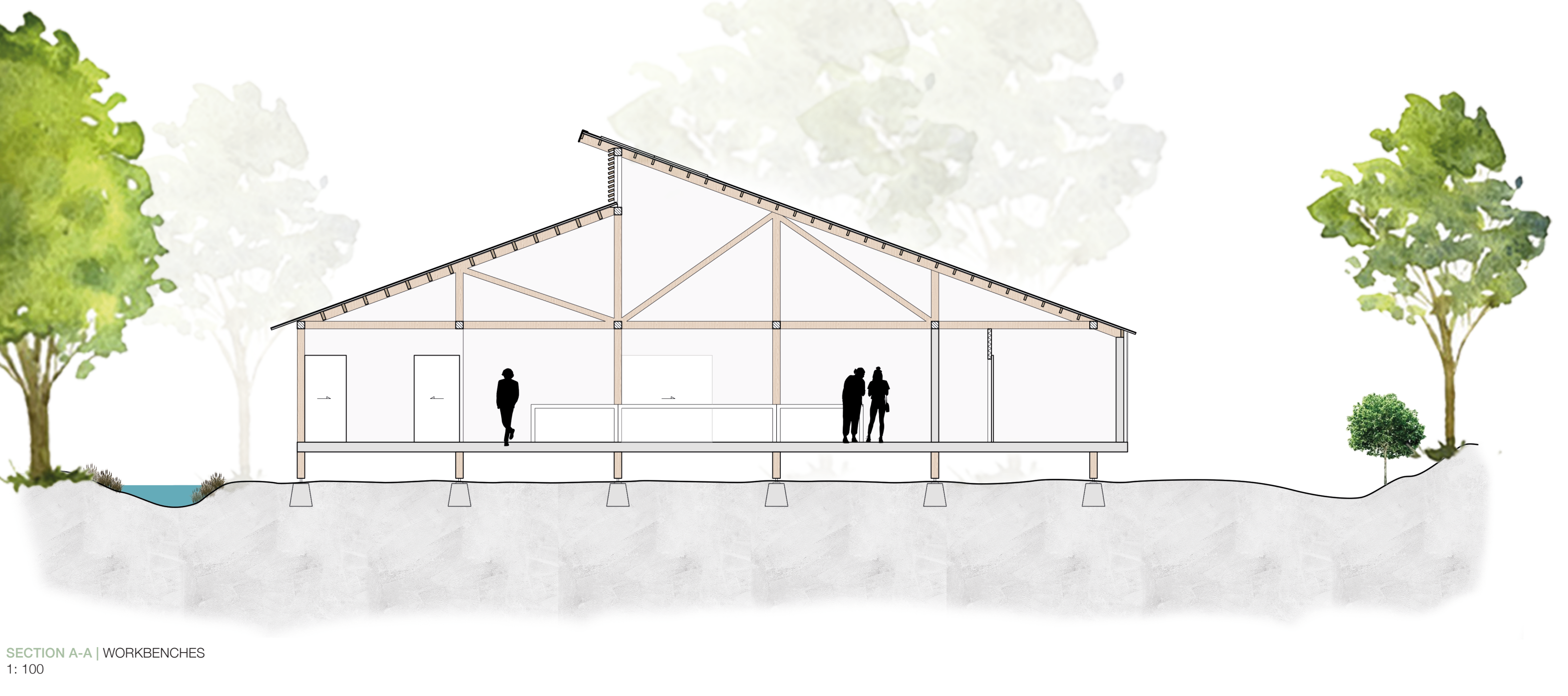
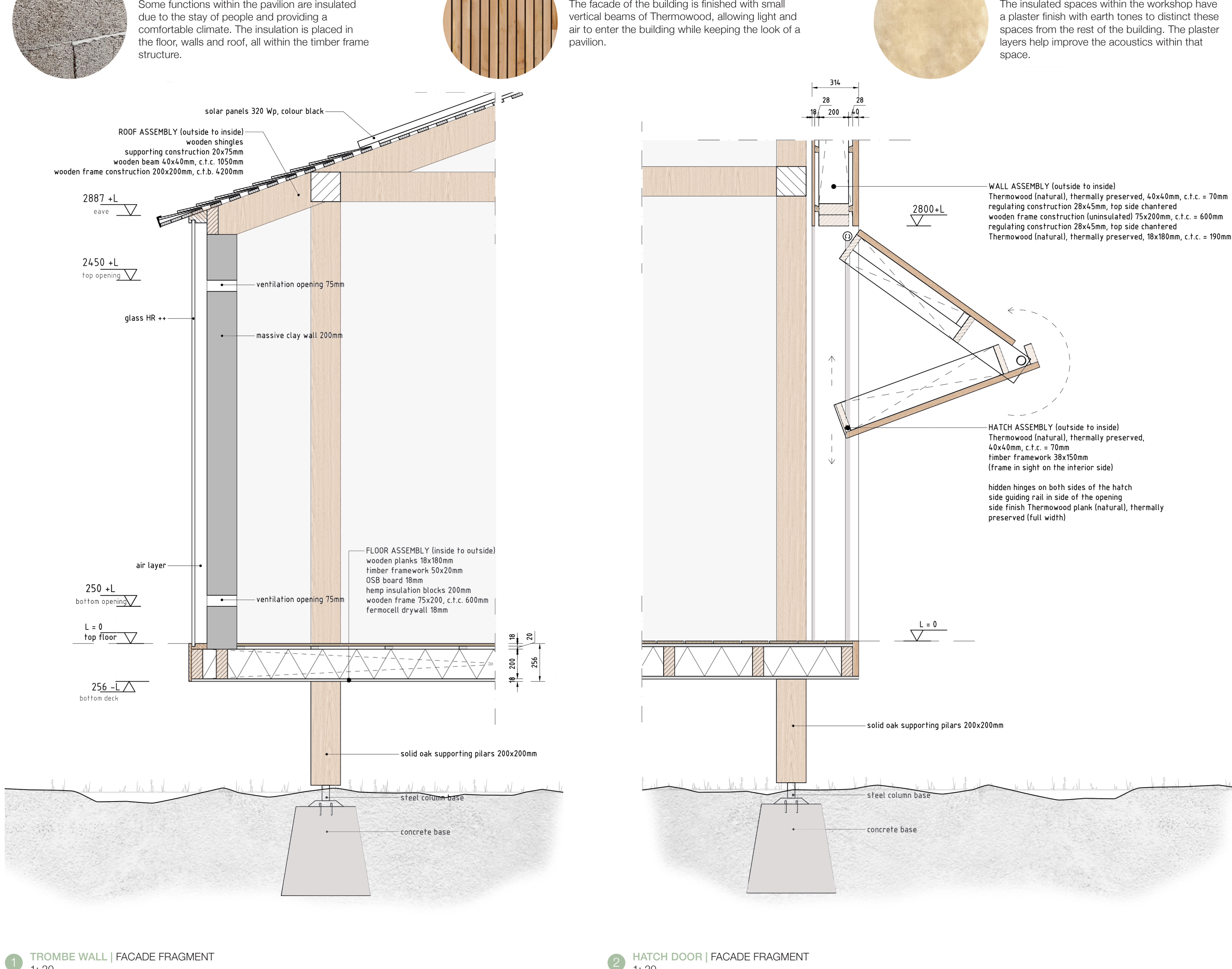
The purpose of the workshop is to provide locally made bio-based building materials, like insulation from hemp, to spread knowledge on ways to become more sustainable through learning. So in other words, the workshop has an educational role. Even when residents move to other locations, the knowledge will stay with them and hopefully will be passed on to others.

The pavilion is constructed out of an elevated platform and two shedded roof surfaces to provide safety and shelter from unwanted visitors and the weather. Through the opening between both roof surfaces, passive ventilation is enabled. Not all walls are insulated, only those that require a regulated indoor temperature.

The building has a north orientation providing natural daylight to enter through the roof, while keeping the storage spaces along this facade cool. On the east side are the short- and long-term storage positioned. Through the hatch and small trucks for the homes, as well as load the hemp for whenever it will not be used for this area. The south side contains the dark room and temperate home which have the need of a suitable indoor climate being enabled via the trombe wall from clay. The west side holds the ramp that serves as the entrance to the building, as well as the lounge from where the residents can have an overview of the hemp field while enjoying their break.

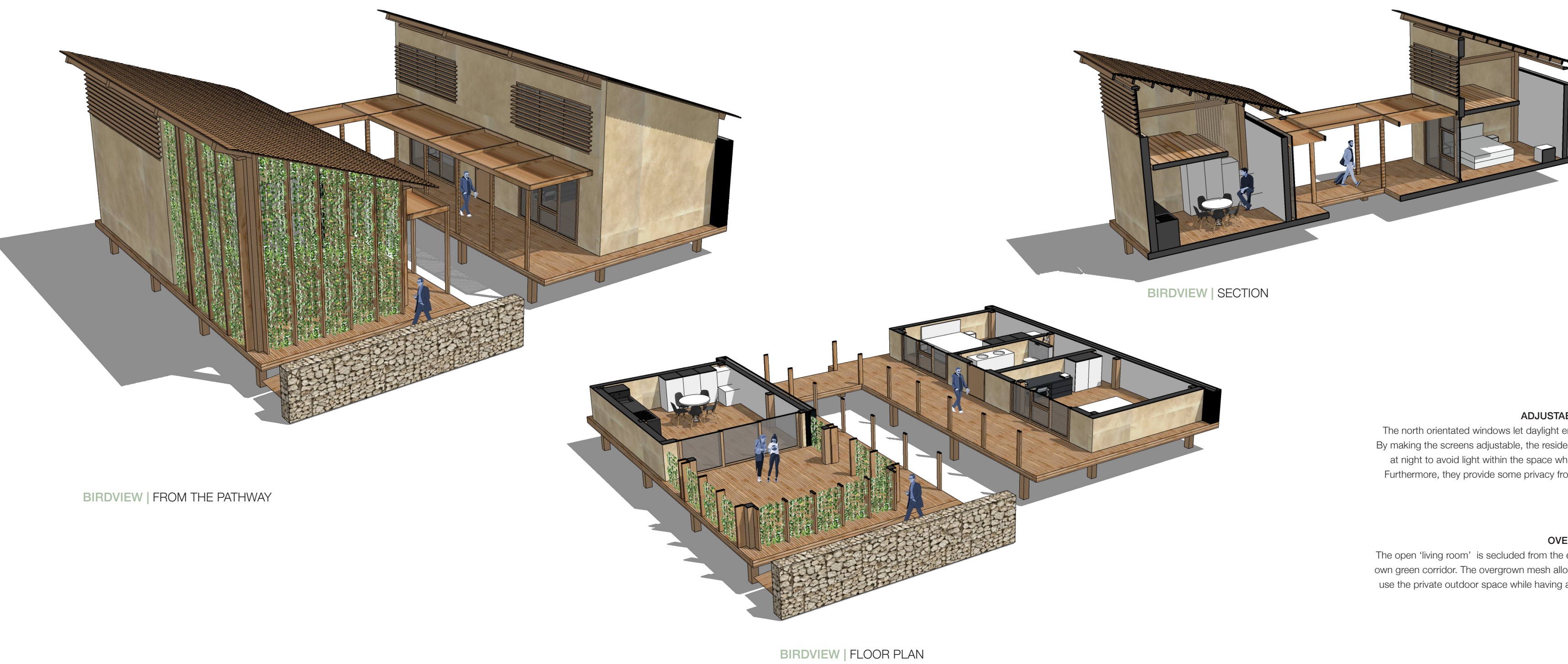


## MATERIALISATION & DETAILS





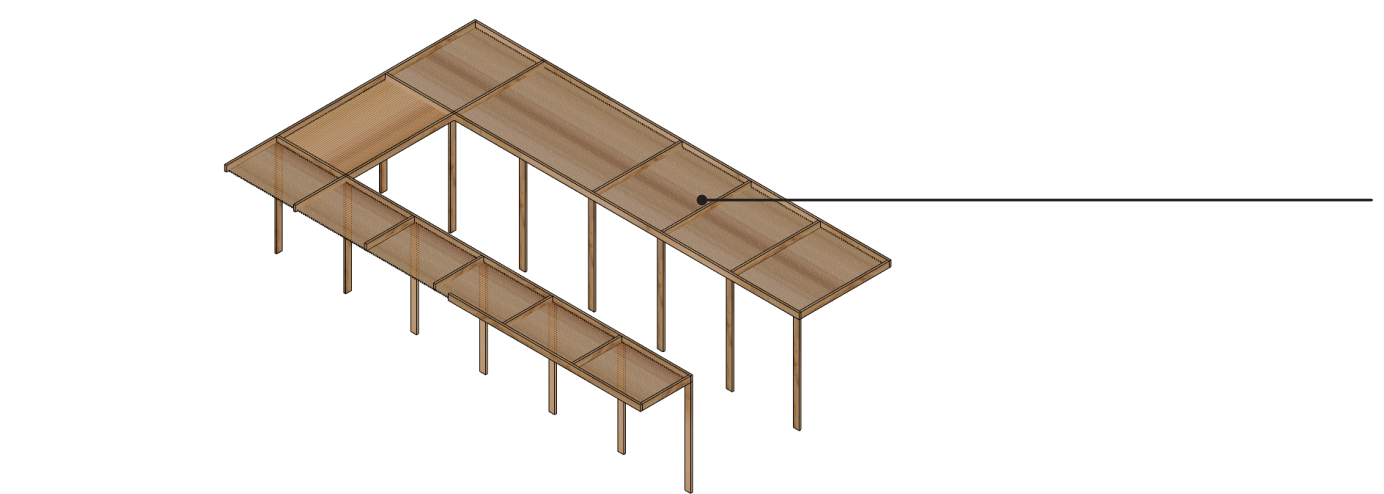
# THE LITTLE PARADISE



**ADJUSTABLE SCREENING**  
The north orientated windows let daylight enter the bedroom. By making the screens adjustable, the resident can close them at night to avoid light within the space when going to sleep. Furthermore, they provide some privacy from residents along the boardwalk.

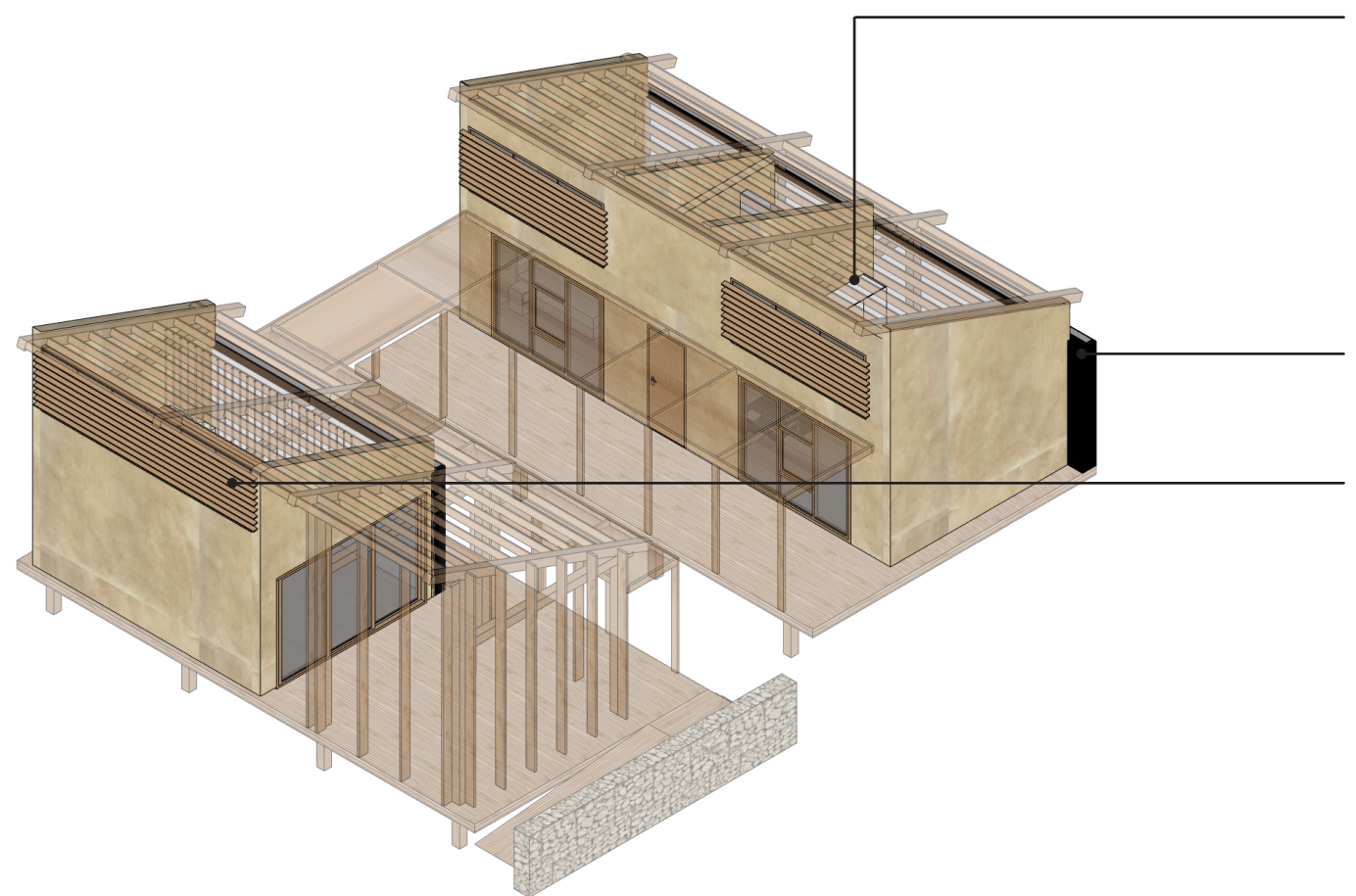
**OVERGROWN MESH**  
The open 'living room' is secluded from the environment by its own green corridor. The overgrown mesh allows the resident to use the private outdoor space while having a sense of privacy.

## THE STRUCTURE



**PERGOLA**  
The open pergola has a double purpose when implemented in the home. It provides shade from the sun while serving as a connecting element between the two building elements.

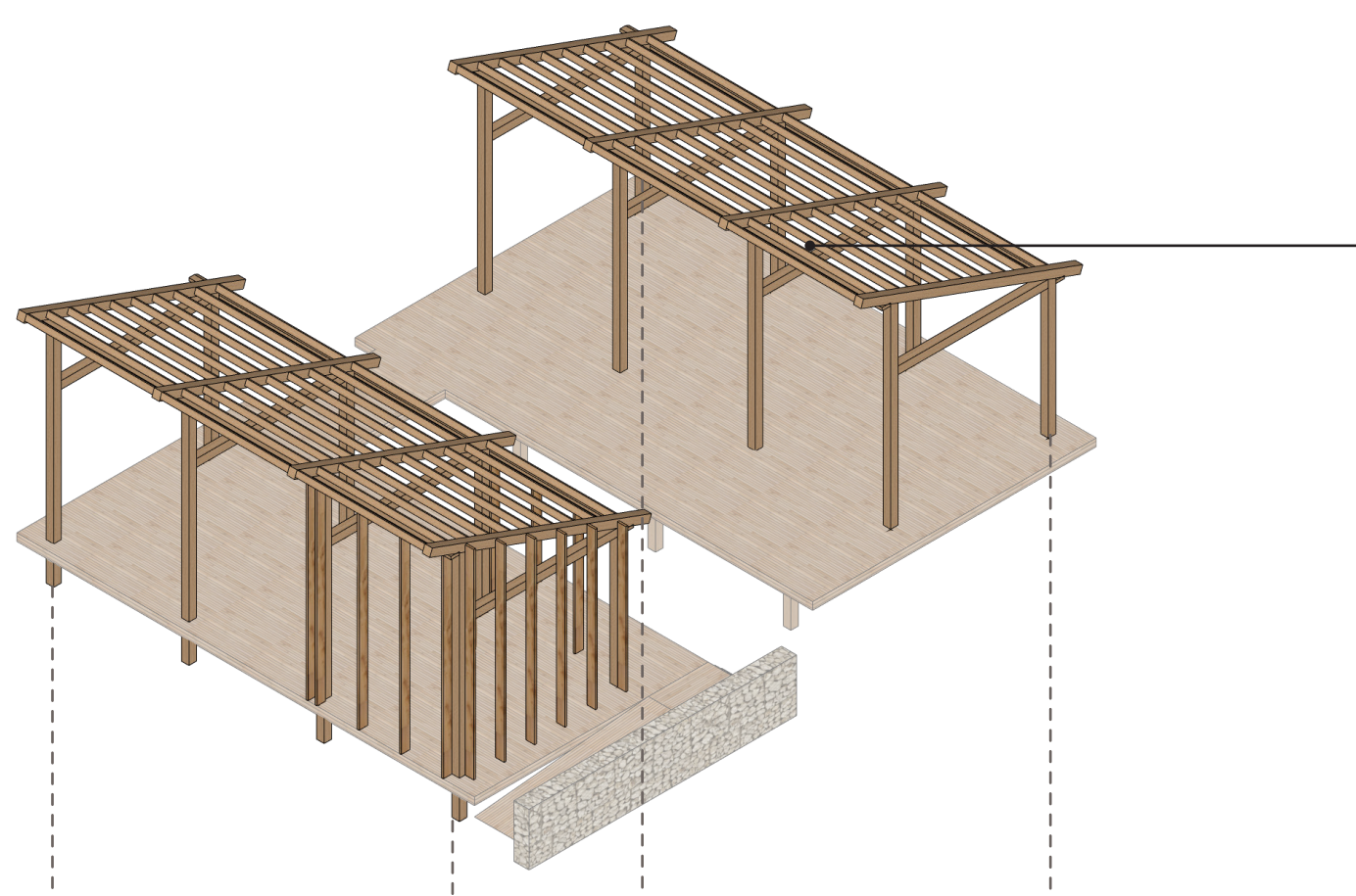
**USE OF PLATFORM AND ROOF**  
To be able to provide safety and shelter from the weather and unwanted visitors.



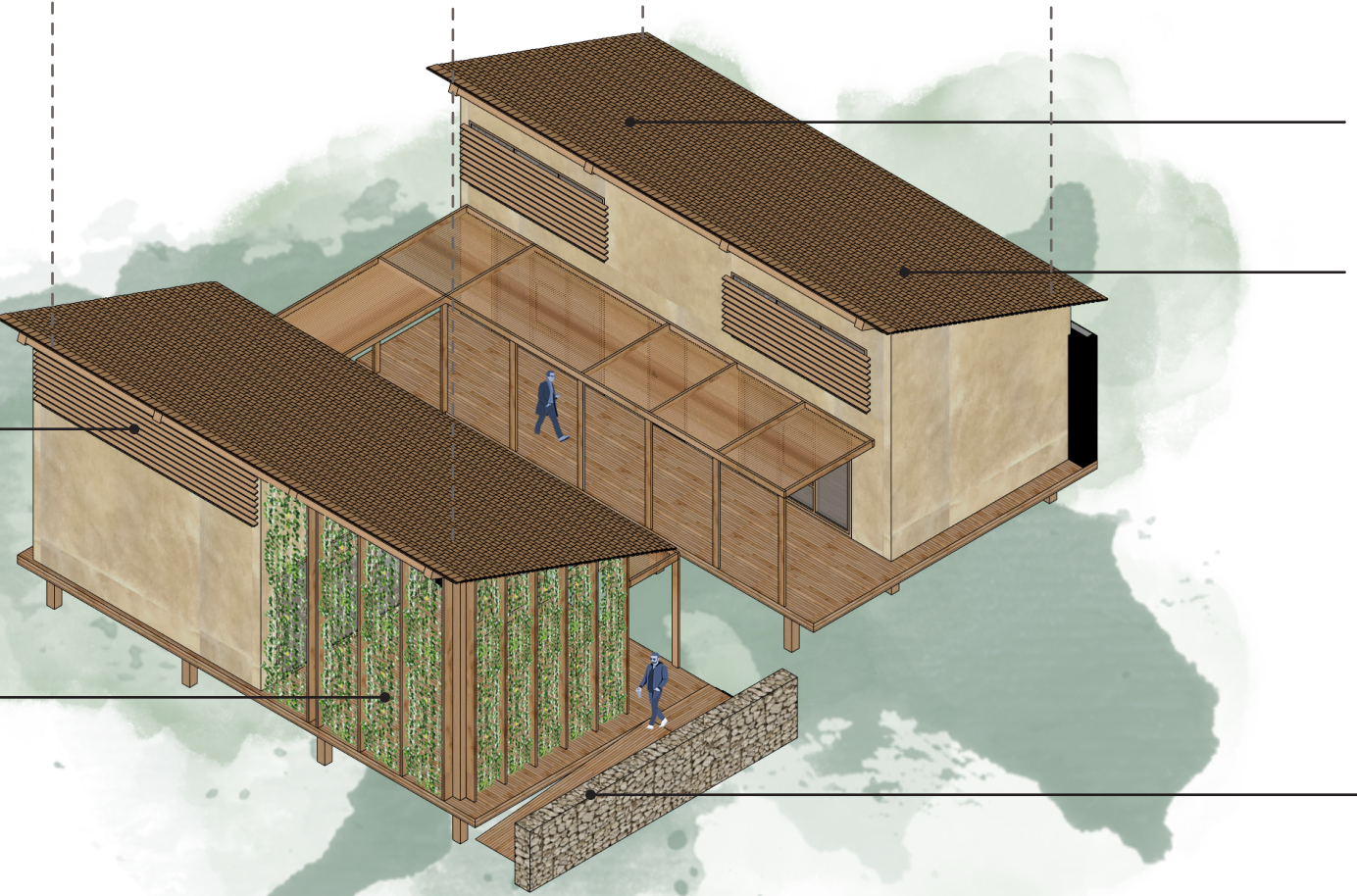
**SLEEPING QUARTERS**  
An advantage of the north-south orientation is the large roof surface which can hold many solar panels to avoid overheating within the workshop as well as usage for power electricity.

**TROMBE WALL**  
Both building elements are faced south to let the trombe wall heat the space through the heated air layer by using the sun.

**STUDY NOOK**  
The high ceiling allows the resident to build a platform above the kitchen to create a cozy study or hobby nook that looks out over the area.



**TIMBER FRAMEWORK**  
The structure is placed on a grid of 3,2 meters and uses a shed roof surface with a north orientation. The ground floor uses an insulated platform which is elevated from the ground and can be adjusted if construction was necessary.

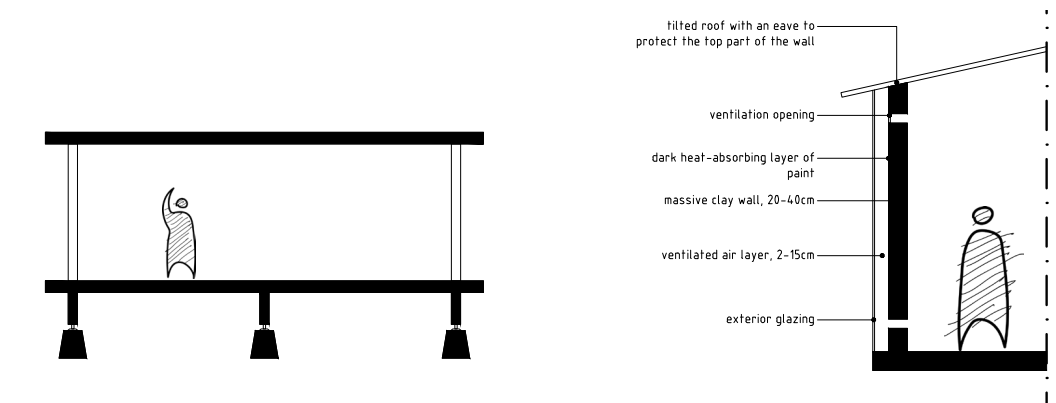


**WOODEN SHINGLES**  
To avoid overheating within the workshop, this roof surface contains wooden shingles and therefore blocks the sunlight from entering.

**SOLAR POWER**  
Due to the large solar surface on the workshop's roof each resident can add solar panels on their roof to add their part into the energy circuit.

**RAMP**  
Via the ramp the workshop can be entered with or without the crate filled with hemp from the hemp field.

## BASIC PRINCIPLES



**USE OF PLATFORM AND ROOF**  
To be able to provide safety and shelter from the weather and unwanted visitors.

**TROMBE WALL TO HEAT THE SPACE**  
Only the spaces that are insulated need to be positioned along the trombe wall that allows the space to be heated via the use of sunlight.

**TIMBER - GLASS - HEMP**  
No steel or brick will be used for the homes. The timber frames and glass will be ordered and kept storage at the workshop pavilion, while the hemp is being grown on site.

**ONLY PRIVATE IS INSULATED**  
Implementation of the changing climate allows only the private functions like the bath- and bedroom to be insulated.

**DIY LOFTSTYLE**  
On site, each resident will build their home themselves which must be in the style of a loft to make sure each home becomes a compact home.

## THE LITTLE PARADISE

One of the homes that will be realised is called the Little Paradise and can be found in the south of the area near one of the smaller lakes. Like all homes, it is south orientated to optimum use of the Trombe wall. It is made of a wooden framework, an elevated platform, and the shed roof, which can hold solar panels and is made of timber frame construction, hemp insulation and wooden window and door frames.

The grid for this specific home is placed on 3,6 meters, but any repetition along the line of 60 cm is allowed. This allows the resident to get materials from the local wood shop. Only the private functions are insulated, allowing the rest of the home to open up to its surroundings and must be placed along the Trombe wall to be heated.

This specific home is divided into two buildings but share the same construction shape and are connected via an open wooden pergola. The northern building contains a private outdoor area with a sense of privacy thanks to the overgrown mesh. Indoor lies the open living space with a small void that can serve as a study or little reading nook. Next to the kitchen is a space reserved for the required installations to become self-sufficient.

To become self-sufficient, those installation consists of 6 pv panels, 8 small batteries with a backup motor, a water tank and a water filter to perform reverse osmosis, a water treatment process that removes contaminants from water by using pressure to force water molecules through a semipermeable membrane. The contaminants are filtered out and flushed away during this process, leaving clean, delicious drinking water.

The southern building holds two bedrooms and a bathroom. Both bedrooms have a view with the accompanying window with adjustable shutters to let daylight enter or not if going to sleep.

The roof is made of wooden shingles and has eaves over the facade. Here the top of the facade is protected, while nesting boxes underneath help the biodiversity of swallows, bees, birds and butterflies. All facades are finished with lime plaster, for which the resident can choose the colour. These plaster layers improve indoor acoustics and protect the wall from the weather.



PLAN | GROUND FLOOR  
1: 100

PLAN | FIRST FLOOR  
1: 100

PLAN | ROOF SURFACE  
1: 100



SECTION A-A | BEDROOMS  
1: 100

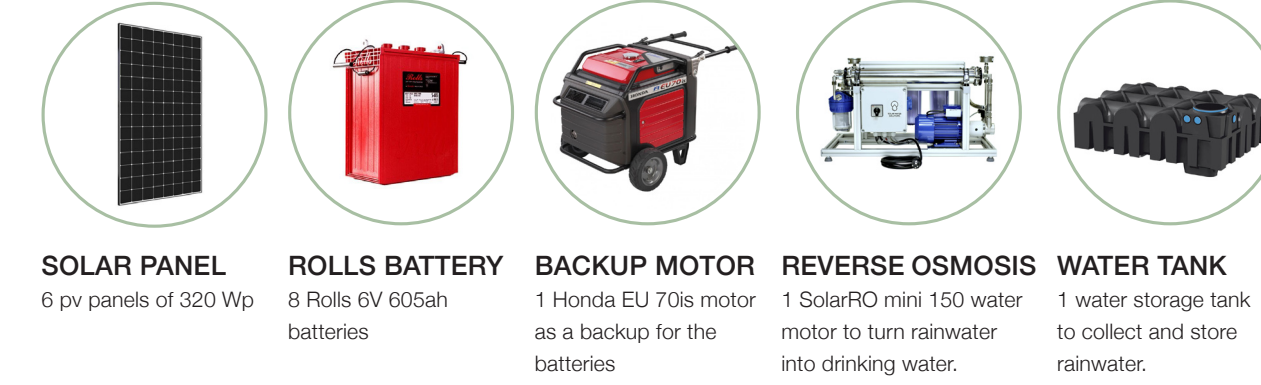


SECTION B-B | SHED ROOF  
1: 100

## MATERIALISATION & DETAILS

### SELF SUFFICIENCY IN POWER AND WATER

To be self-sufficient, each home contains the following installations in order to provide power and drinking water. A closed-off space within the home must reserved specifically for these.



**SOLAR PANEL**  
6 pv panels of 320 Wp

**ROLLS BATTERY**  
8 Rolls of 600Ah batteries

**BACKUP MOTOR**  
1 Honda EU 700s motor as a backup for the batteries

**REVERSE OSMOSIS**  
1 SpaM10 mini 150 water motor to turn rawwater into drinking water.

**WATER TANK**  
1 water storage tank to collect and store rainwater.

**LIME PLASTER**  
To provide an acoustic improvement and aesthetic pleasing surface, each hemp wall will be finished with a lime plaster for which the resident can choose the colour.

**HEMP INSULATION**  
Hemp provided by the workshop pavilion is used to insulate only the private functions.

### TO CHOOSE BY THE RESIDENT



**WOODEN SHINGLES**  
A low-tech method that works perfect on both roof and facade surfaces

**THERMOWOOD CLADDING**  
A vertical or horizontal wooden cladding that can be used for both facade as roof finish.

**POLYCARBONATE PLATE**  
A translucent plate ideal for pergolas and open spaces. Sunlight automatically heats the space underneath this surface.

**PERGOLA | ROOF STRUCTURE**  
1: 10

**WINDOW | FIRST FLOOR**  
1: 10

**BALUSTRA | FIRST FLOOR**  
1: 10

**PERGOLA | FOUNDATION**  
1: 10

**HOME | FOUNDATION + DOOR**  
1: 10