# THE THRIVING PARADISE

# “The Thriving Paradise”

***The paradise where one connects with nature and oneself.***

KEYWORDS

community in learning, half-climate, transformation, phytoremediation, bio-based materials, housing shortage, production

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## CATHELEIJN STAPS

Welcome to my graduation project of The Thriving Paradise. My name is Catheleijn and I am a 26 years old woman, born and raised in the south of the Netherlands. My interests are with architecture, travel and photography. Moreover, I like to express my creativity through these interests, but also in freehand drawing, playing the piano and learning new languages like Danish and sign.

Currently I am in my final year of the master's program Architecture in Tilburg, where I combine the educational program with working in a professional architectural practice in 's-Hertogenbosch. This combination has helped me in growing mentally to become a better designer, as well as a teamplayer to realise projects in the fields of residences, recreational parks and multifunctional buildings.

This Volume is intended to show and share a clear overview of my journey through the graduation studio. The Thriving Paraidse is a project that serves as a case study for the municipality of Tilburg, to show how the vacant industrial plot, formerly known as the Ha-Cas Verschuuren area, can transform into a green, healthy and thriving paradise where a community between residents will be created. At the start of each chapter an abstract can be read so the Volume can be followed easily.



## THE THRIVING PARADISE

A safe space to be yourself, where you can open up and let down the guard you hold up in your daily life. The aim of the project 'The Thriving Paradise' is to provide small scale dwellings for people that enjoy living in a thriving environment. These dwellings react on the changing weather and climate patterns and are placed in a paradise which looks like a jungle forest which used to be an industrial site.

I chose this subject based on my interests in our way of living, the lack of connection with our green environment and why we feel obligated to settle down in a concrete or brick box that we call a house. At the beginning of graduation my focus lied on the salutogenic principle of living, which stands for creating buildings to encourage health and a thriving environment. I feel that our standard is to repair diseases and illnesses which the building creates. That approach, I believe, is the wrong one. Through research the focus shifted from salutogenic architecture to the use of our weather as guiding principles for architecture.

My believe is that certain people, not all, thrive in an environment which helps them to charge their battery, where they can let down their guard and don't have to present to be fine when they aren't. To live in a green environment where nature is around you in all different forms, like greenery, species and sounds that stimulate our senses.

# THE THRIVING PARADISE

## LACK IN SYNERGY

Municipalities within the Netherlands struggle to keep up with the aspired number of new to built homes for 2030, set by the government (03). Especially the group of starters and the single-person household struggle even to obtain a suitable home since most homes are out of their budget. Moreover, with the constant increase of inhabitants of the Netherlands (01), the challenge to realise homes within the current city borders is reaching its peak. Therefore, municipalities of cities like Tilburg need to reach out to other plots available, like vacant industrial plots. However, these plots are the furthest away from a healthy living environment due to the present contamination within soil and groundwater (02).

The case study is a proposal for the municipality of Tilburg to transform the vacant industrial plot, formerly known as the HaCas-Verschuuren area, into a thriving, healthy environment where residents can live and grow old in a green and natural paradise. It is designed in response to the changing climate patterns and our way of living in the year 2070. Whereas now, the focus lies on spending time indoors, mostly glued to a screen, while a whole world awaits us beyond the hard border that is our facade. The goal is to provide municipalities within the Netherlands an alternative look on how to use the vacant industrial plots to help decrease the housing problem while staying within the current borders of the cities.

The case study stands for creating a community where people can live in a natural paradise, together and alone. How can our paradise be constructed with the site's materials, where the rugged border between inside and outside is being removed, allowing us to live in nature instead of looking at it through a window?

## THE CHANGE OF CLIMATE PATTERNS

Research shows that in the year 2070, which is just 48 years time difference, the Netherlands will have a climate similar to the city of Nocera Umbra, which lies north of Rome in Italy (07). In the future, summers will become more hot and dry, whereas winters will become milder. Rainfall will spread throughout the year, with more heavy rain in a short time. These changing weather and climate patterns require us to rethink how we are living and how we want to use the spaces within a home. I believe that the time spent indoors and outdoors will shift, whereas outdoor will take the majority.

### Opening up the hard border

Indoor and outdoor are separated due to the hard border between these spaces. This hard border is called the facade or our front door. There is no zone or space in-between present where we can get used to the other climate zone, whether colder or warmer than the one we came from. What if our home can open up the public functions and leave the most private part to be acclimatised and sheltered from weather influences? Do we then design a more flexible home so that we can move operations with the seasons? I believe that if the roof structure could shelter the resident from weather influences, the spaces underneath would have the flexibility to move around with the seasons. However, this requires thought to the position off, for example, installations, the kitchen and the bathroom due to the use of pipes that can't be moved around.

### Off-grid living

Collecting heat from the sun and cleaning rainwater can serve as a way to live off-grid and provide your power. Still, most of all, it can help the area to be prepared for the future climate with more drought, substantial floods, the increase in heat waves and the fact that water will become a precious source. The workshop pavilion and the homes can become self-sufficient when implementing the following installations: using 6 PV panels, eight small batteries with a backup motor, a water tank and a water filter to perform reverse osmosis, the method to purify water, so it becomes drinkable (08).

## SHELTER FOR HUMANS

Humans today are spoiled with how they live and all the services provided to them, such as access to the internet and watching tv for entertainment (09). However, these are all decorations of a home, not the essence. The primary function of a home is to provide safety from unwanted visitors, whether human or animal and shelter from weather influences, like rain, wind and sun-rays. 'The Primitive Hut' by Laugier (06) is a concept that explores the origins of architecture and its practice and contends that the ideal architectural form embodies what is natural and intrinsic. This gives intrinsic the meaning of a motivation that comes from within a person to have a particular purpose, whether for their mental or physical state or others. Here, the necessity for architecture lies in its underlying fundamentals, not its ornamentation.

Laugier described the Primitive Hut as a conceptual hut, not necessarily a material or physical hut. An abstract concept of a place created through man's response to the natural environment, where architecture acts as the mediator between man and nature (05). If that same 'hut' would be our way of living for the next generation, would it still suffice, or would we see that as 'going back to the basics? Essentially our basics are safety and shelter, but what do they look like in our consumerism way of living?

## EVOLUTION OF THE COMMUNITY

### Definition of paradise and nature

Paradise is a broad phenomenon; my perspective is that paradise is our mental state where one can be completely vulnerable, open up, and can disconnect from everyday life to restore their inner balance. Therefore paradise is not bound to a physical space. Nature, however, is the physical state of a thriving environment, filled with life in all forms and shapes that complete the present ecosystem. Do not mistake the green paradise with an allotment garden that is commonly known within the Netherlands. Here the residences or smaller buildings are placed in a repetitive structure or plot with clear zoning and lots of space for growing vegetables and fruit. The Thriving Paradise is meant as a green area filled with different species of vegetation and fauna where the human plays a visiting role at first. Then, over a while, they become synchronised with the area.

### Phytoremediation

The proposed site is located on the south side of Tilburg and currently holds no buildings, relief on the ground or vegetation. Furthermore, it is closed off on both the west and south side due to the wide concrete roads of the Kempenbaan and the exit of the motorway A65, which runs from Breda to Eindhoven and 's-Hertogenbosch. In the past, multiple industrial businesses were located here with their companies, resulting in contamination in both soil and groundwater.
Before humans can live healthy on those industrial plots, the present contamination within soil and groundwater needs to be cleaned, which can be done with phytoremediation. Phytoremediation is a plant-based approach involving using plants to extract and remove elemental pollutants or lower their bioavailability in the soil (04). While removing the contamination, it forms a base for the green paradise that will become the home for many residents.

**Germinating a paradise**
A thriving environment needs time, and with the contamination present, the first ten years of the evolution into a paradise will be used for creating relief on site, extending the stream The Lej through the area and for the phytoremediation process, letting the mineral oils and heavy metals be absorbed into the plants whereafter the plants will be harvested, completely removed or can stay due to their ability to convert the contamination.
After this first phase, young vegetation will be planted to give further shape to the environment, and the first pioneers will move to the area to build the workshop that will process hemp into building blocks to insulate the future homes.

**Community in learning**
Phase two consists of the pioneers that will build the workshop pavilion and start growing the primary building material of the homes: hemp. Each new resident will learn the tricks of the process from the settled residents, allowing them to gain knowledge and experience, which they will need when they teach the future residents this process. The workshop pavilion serves as a first step in creating the community, which will become stronger over time, thanks to the on-site public functions, such as a lookout tower, sports pit with a water basin, the Social Hub and a few flexible working spaces. These working spaces serve as temporary accommodation for the pioneers when the workshop pavilion is realised. The building is designed so that the structure can be taken down and rebuilt on another site, allowing that area to follow the example of the case study. Or, the pavilion can stay operative, providing insulation materials for other sites or people.

## THE RESIDENT'S PROFILE

This green paradise will not be for everybody, though. Each person is different and feels at home in different atmospheres. I do not want to exclude people based on age and income, but I want to provide a healthy environment and a healthy home for people who thrive in natural settings that want to be a part of this community. Therefore the residents need some qualities to collectively realise their community and paradise where they can grow old.
They must have a sense of responsibility to the area, their home and their neighbours. We all need each other. The same goes for our environment. We move to this area for a reason. We want to be surrounded by nature, by thriving vegetation. Every single person and starter can move to this area and, in the future, expand their household. To move to this location with a family above three is not allowed. The case study primarily focuses on accommodating the chosen target group.

## SYNERGY OF HUMANS AND PARADISE

I believe the case study of The Thriving Paradise can show the municipality of Tilburg, and hopefully, other cities as well, how vacant industrial plots can be used to decrease the housing shortage and provide more green and thriving environments for people and animals to call their home. Looking past graduation, I believe the connection with the surrounding neighbourhood can improve when life is brought back to this location. Using the weather as a guiding principle, we will become more connected with our environment and thrive as new people.

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## ABSTRACT

Nature is everywhere; every person lives near nature. Yet, we somehow have forgotten how to see it. Thanks to documentaries from people like David Attenborough, where nature is sexy, we have forgotten how to see nature right outside our door, the nature of the street tree.

As a person who values nature in all shapes and sizes, I find myself looking for other natural experiences when I travel to other countries. When I am away from my everyday life, I spend most of my time outdoors, but I spend most of my time indoors when I am back to my usual routine. So how come we slip back into this state of living where we are completely closed off from nature, where spending time outdoors is seen as the last priority of our day?

Is it impossible to break this hard border between inside and outside open and live more within nature instead of just looking at it?

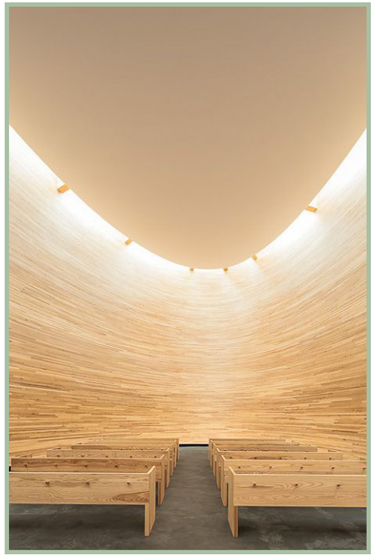
The proposed site, which is located in the south of Tilburg, will transform into a jungle-like paradise via phytoremediation, a method that uses plants to clean the soil and groundwater from any present contamination as a base for the environment. This natural paradise will not be for everybody, however. Every person is different and feels at home in different atmospheres. I do not want to exclude people based on age and income, but I want to provide a healthy environment and a healthy home for people who thrive in natural settings that want to be a part of this community.

A community where current and new residents go through a learning process to grow, harvest and process their building material, for this project, that is hemp.

# PARADISE

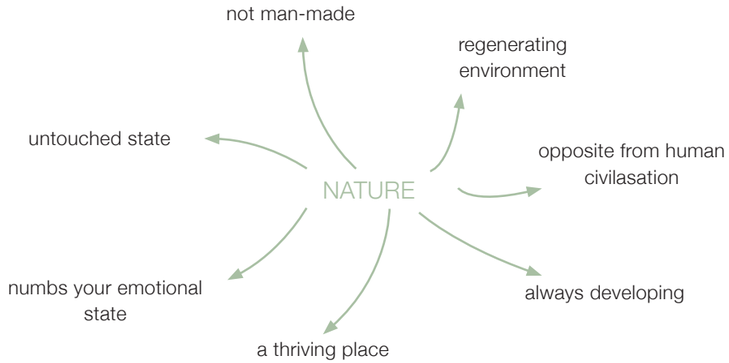
## PARADISE

Paradise is our **mental state** where one can be completely vulnerable, open up, and disconnect from everyday life to restore their inner balance.

## NATURE

Nature is the **physical state** of a thriving environment, filled with life in all forms and shapes that complete the present ecosystem.




## PLANTS TO CLEANSE CONTAMINATION

The case study stands for creating a natural paradise on former industrial sites. These sites cannot be built with homes directly due to the presence of contamination in the soil and groundwater. The cleansing process via plants, called **phytoremediation, is the perfect method to remove contamination while forming a base for the paradise that will be the site.**

Phytoremediation is a plant-based approach, which involves the use of plants to extract and remove elemental pollutants or lower their bioavailability in the soil.

Research into the presence of contamination from the municipality of Tilburg, in combination with the book Phtyo, provided me with the insight onto which plants help cleaning specific pollutants, and via which method: extraction, harvesting, or absorption within the plants itself regarding the required time.

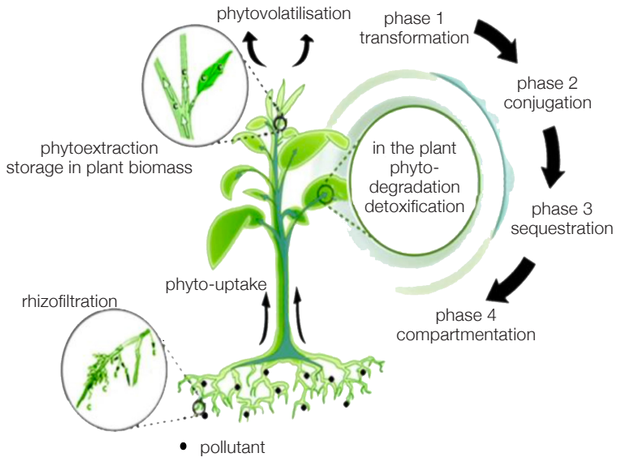
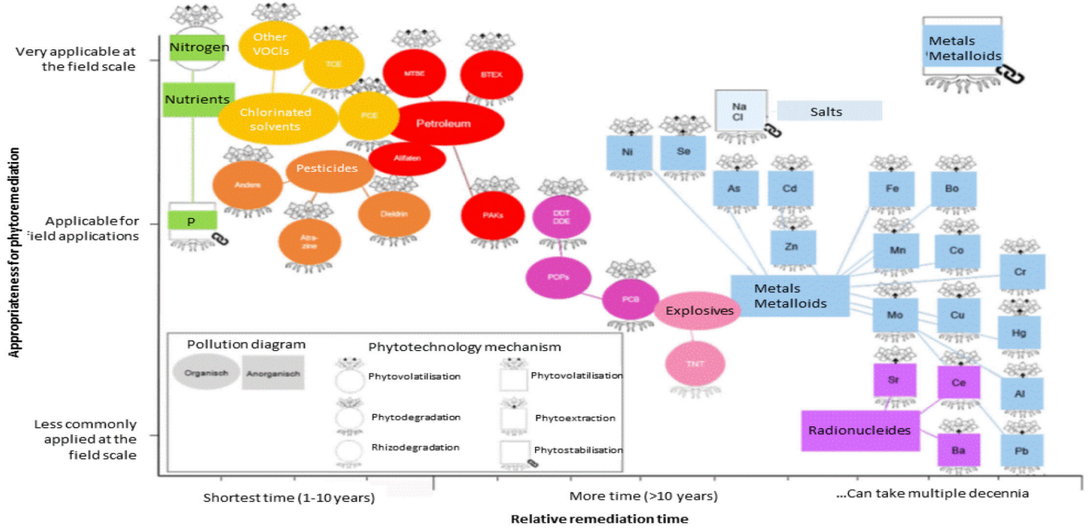
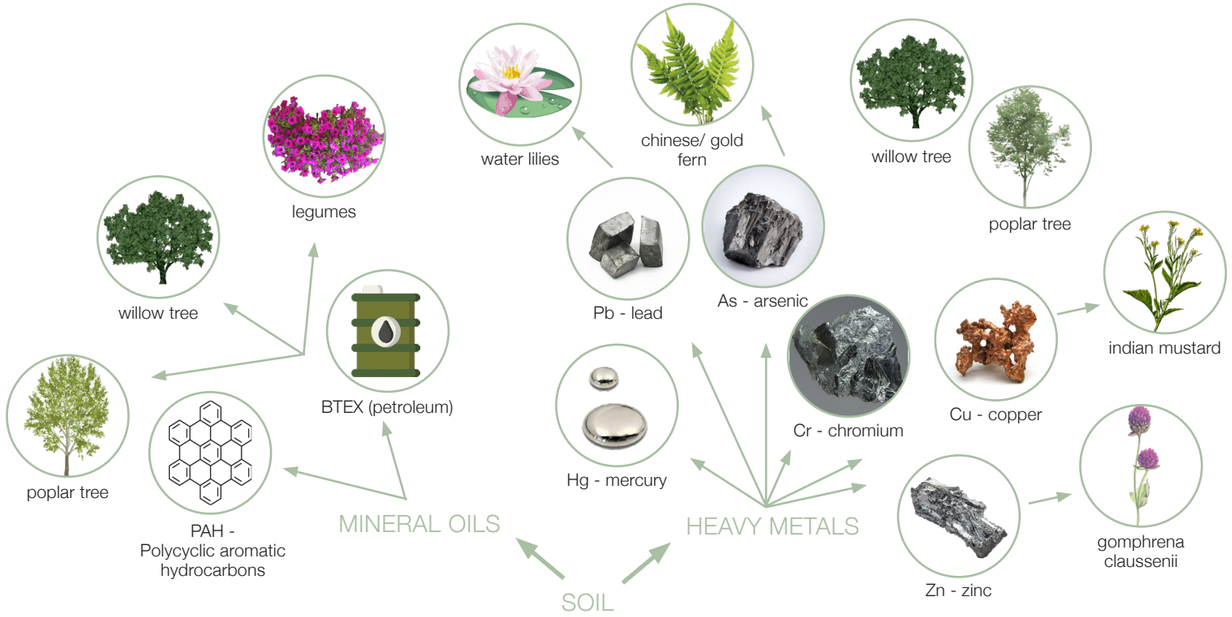



*diagram principle phytoremediation



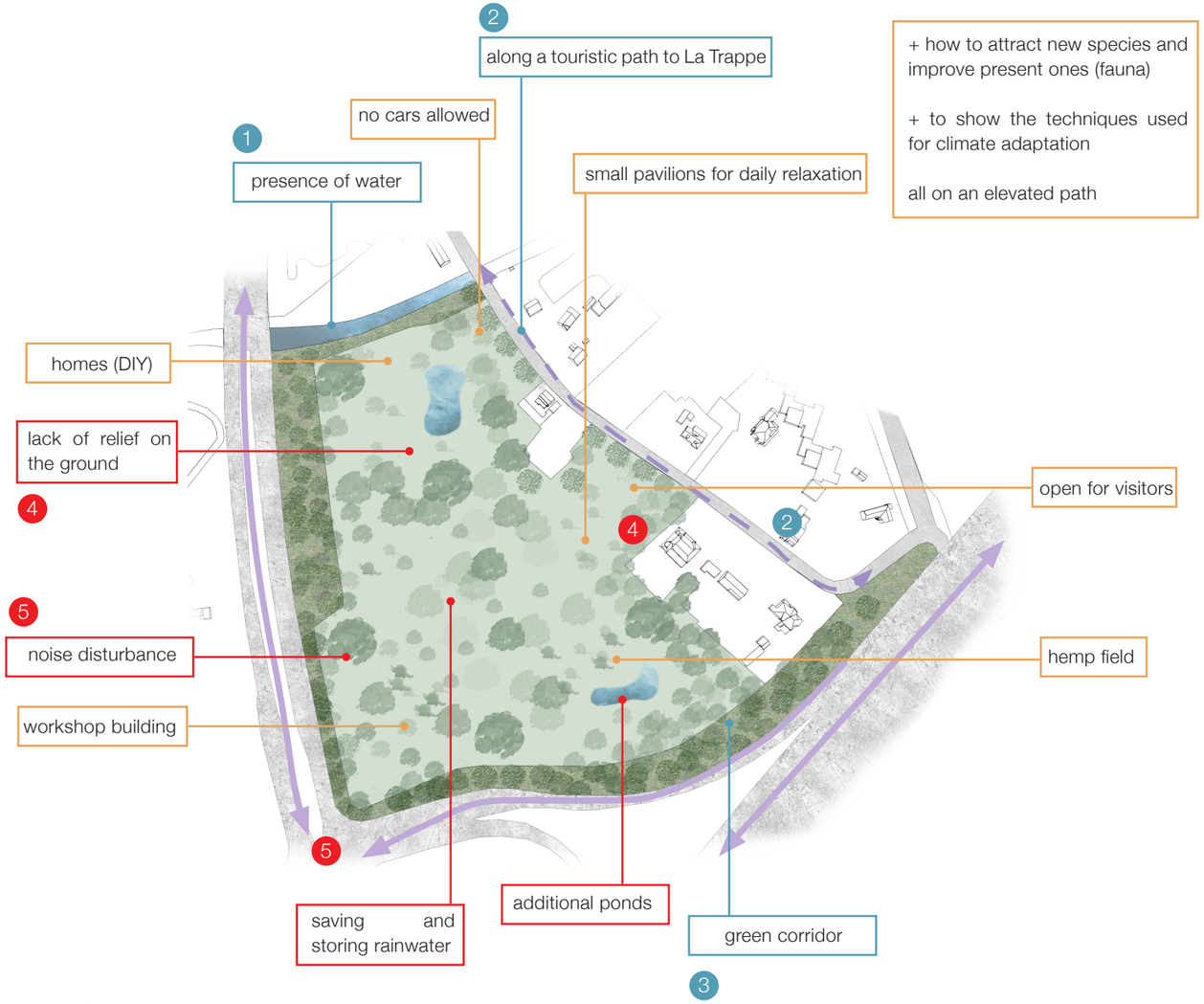

*book Phyto, overview of the phytoremediation potential of some contaminants and associated phytoremediation mechanism

## CLEANSING ASKS FOR TIME





*present contamination on the chosen site




## LEGENDA

- main road (car)
- destination traffic (car/ bus)
- quality
- to improve
- urban conditions

## BASIC INFORMATION

area size of 6,7 hectares
vacant industrial plot
located along the A65/A58 motorway
southside entrace to Tilburg

## IMPRESSION CURRENT STATE

In 2015, a big fire burned down a big part of the present buildings, leaving the site abandoned. Since then, the site has been sold to a prominent developer to realise a distribution box. This received some negative discussion from the neighbours and the municipality. However, the location and its size will be **beneficial for growing the primary building material** while having the possibility to both live and work on-site.

The goal is to integrate a community in learning how to provide your materials to realise your home with, but also to teach others this process and hopefully create a community of like-minded people who thrive in natural environments and pass this knowledge on to other sites within cities.


1


2


2


3


4

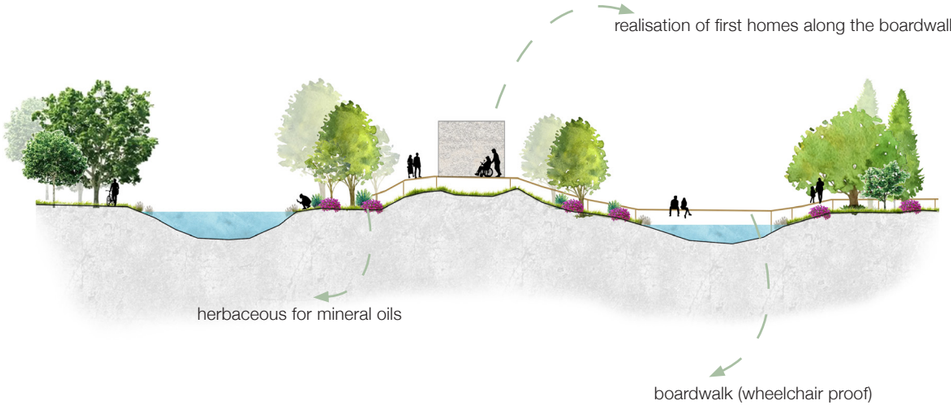

4


5


5

2032

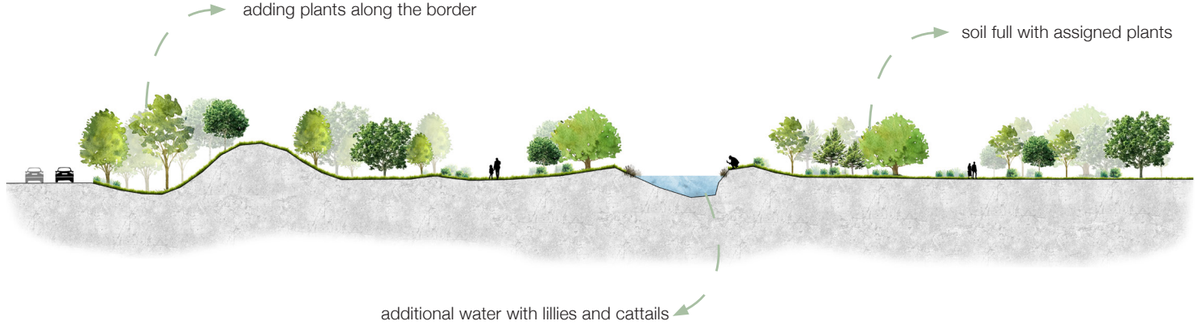

2048



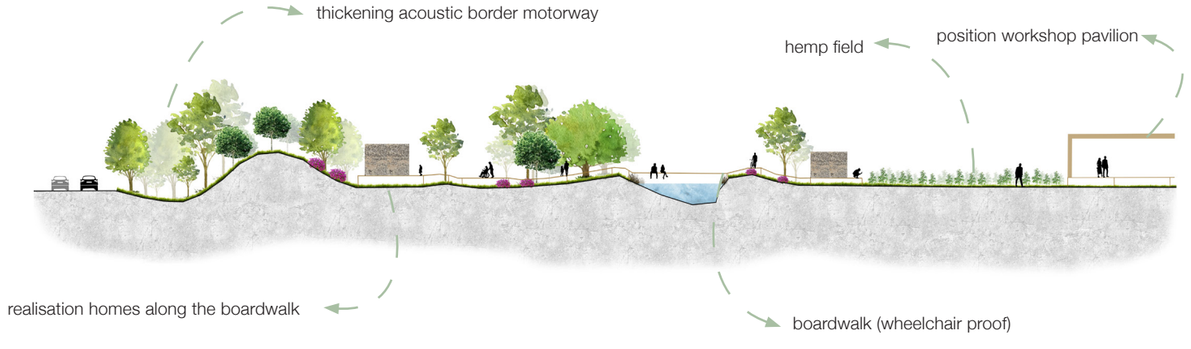

Phytoremediation takes time due to the presence of mineral oils and heavy metals, both in the soil as the groundwater. After 10 years, the first plants can be harvested, cutted or extracted in order to remove the contamination. **Removing plants gives the opportunity to grow new plants on this spot or to leave it open for the realisation of the homes and the aspired workshop pavilion** where hemp is being grown, harvested, processed and stored as a bio-based building material.

However, most heavy metals such as lead, copper and arsenic need up to 40 years to be completely dissolved.

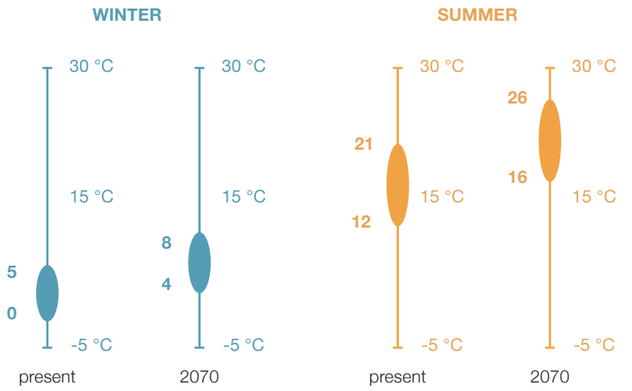
2048




2070




The present vegetation and the residents will maintain the characteristics of paradise. Residents must carry their plots to keep the area liveable, accessible and green. Therefore, new residents need to have a sense of responsibility.

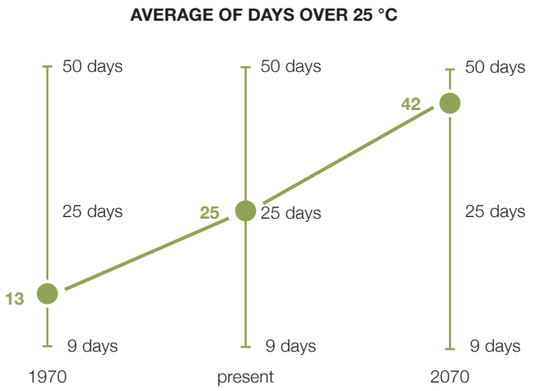



## INCREASE OF TEMPERATURE

Within the last decennia, the topic of ‘climate change’ has influenced many fields of work including the built environment, regarding emissions, the ozone layer and the worldwide global warming.

As a result, air temperature will rise much more as the climate changes further. **Even small increases in the average temperatures can significantly affect water resources, agriculture, infrastructure, but most of all how we experience our living situation.**

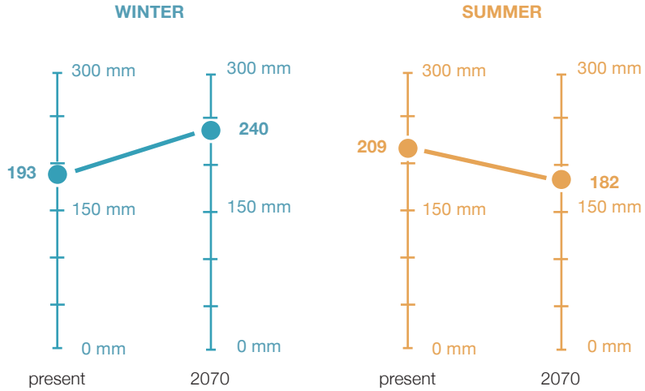
As an example, some cities will heat up significantly, others will warm only slightly. Hot and extrame temperatures will get even hotter, while averages can stay the same. Elsewhere, snow may turn to rain.




## INCREASE OF HEAT WAVES

The summer of 2019 goes down in history as a record in heat waves in the Netherlands. A heat event is a summers day with a temperature above 25 degrees. A heat wave is a sequence of these days that could result in **an extreme period of drought for agriculture, plant-life and the quality of air for our public health, which could resolve in higher death rates.**

Methods of reducing the urban heat effect by removing concrete, adding green in any way possible, moreover to implement fauna species to positively impact these ecosystems that we now overlook.



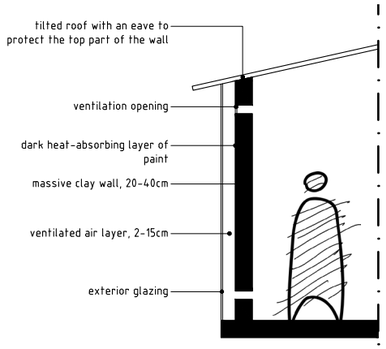

## WATER BECOMES A PRECIOUS SOURCE

Precipitation patterns across the world are expected to change, for example snow may turn to rain, less precipitation may fall altogether or at different times of the year, elsewhere, bouts of rain are projected to intensify.

Nevertheless, the swings between wet and dry almost everywhere gets more extreme, resulting in driving more substantial floods and fiercer droughts.
**As a result, water will become a precious source, and harder to manage.** The challenge will lie in saving and storing rainwater to re-use for daily life.

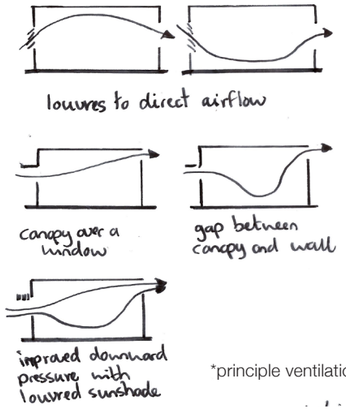
## WHAT PART CAN ARCHITECTURE PLAY TO POSITIVELY IMPACT OUR WOLRD?

By implementing the use of sun, wind and water into architectural elements such as solar panels, trombe walls, passive ventilation, and the storage and re-use of rainwater.




*principle trombe wall

*reference project - Bethemplein, Rotterdam




*principle ventilation

## ABSTRACT

The case study of The Thriving Paradise stands for **providing local bio-based materials** that will grow on site and create a community between the residents. The community will be created by giving a workshop pavilion where the new residents learn the tricks of the hemp process from settled residents. **The aim is to spread knowledge** on how these materials are grown, harvested and produced before they are implemented into our homes. In other words, the workshop pavilion has the purpose of **an educational role** in spreading knowledge among residents and serves as the first step in creating the community.

Besides the workshop pavilion and all the homes, **additional public functions** are spread throughout the site. Through a social hub, sports pit and a lookout tower, residents and visitors can enjoy the green paradise over a cup of coffee, a sporting match or a look over the area.

The **lost connection** between the area and its surrounding neighbourhood will be improved when this area is taken on, allowing more life to use the site.

# COMMUNITY


## THE LOST CONNECTION

Imagine a place surrounded by all sorts of plant life and animal species that find their home here. To hear the birds sing and see water running through the small stream along the elevated wooden boardwalk. Imagine that this place is your home, to live in a natural green paradise **where you can open up completely, be your authentic self and connect with nature**. That is The Thriving Paradise.

The case study focuses on 2070, only a 48 years time difference from 2022. The changing weather and climate patterns allow the rugged border between indoors and outdoor to open up more. That will enable us to shift how much time we spend indoors to outdoor, fully experiencing our environment instead of through the window.

Due to the constant evolvement of being online, I fear that the connection with nature will be completely lost. Already time is spent on our phones for most of the day. As a result of the last two years, working from home has become a new standard when possible. That changes our way of living even more.

For the year 2070, I believe a further division between online and offline will shape our cities. Physical stores will fade away due to the possibility of ordering online. All privacy-related information about you as a person will be stored on a general platform. For some, that will be handy. For others, it is their worst nightmare.

However, the architectural role of this period was to **restore that lost connection between people physically and mentally**. We need each other.

The standard building method will consist of using locally made bio-based materials. Prefab constructions or the ones you can build by yourself are more attractive. Implementing the weather will consist of lifting our homes due to flooding. This will result in an **alternate approach** to constructing our homes' base.

People in and around the year 2070 want to be independent of grocery stores and fashion stores and live more remotely. By growing, harvesting and processing their fruit and vegetables locally, they thrive on a more local approach to survival. I believe the scale of the industrial plots can be filled in with multiple functions to add to the production of raw and biological food, both vegetables as meat and fish.

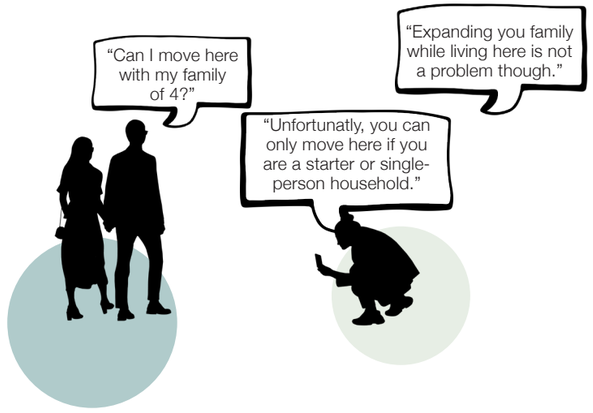
Local production works not only for food but also for power, freshwater, and our homes' temperatures. By living in a community with a central 'human-friendly' factory as a focus point, the residents can collect and store the gained power from water, wind, sun, and the earth.

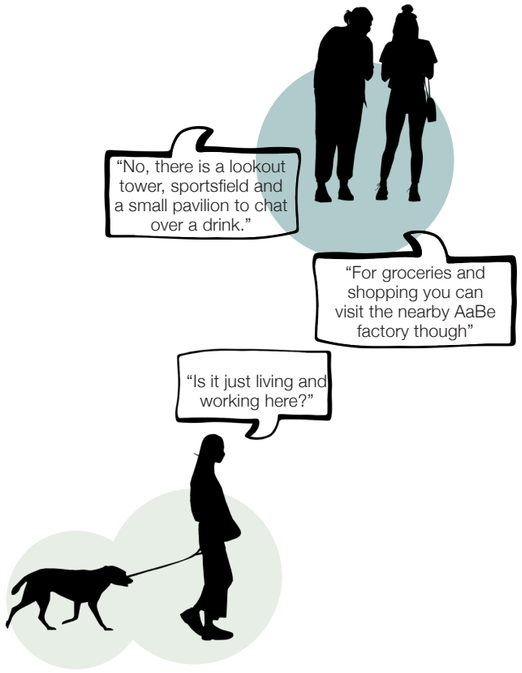
## TARGET GROUP

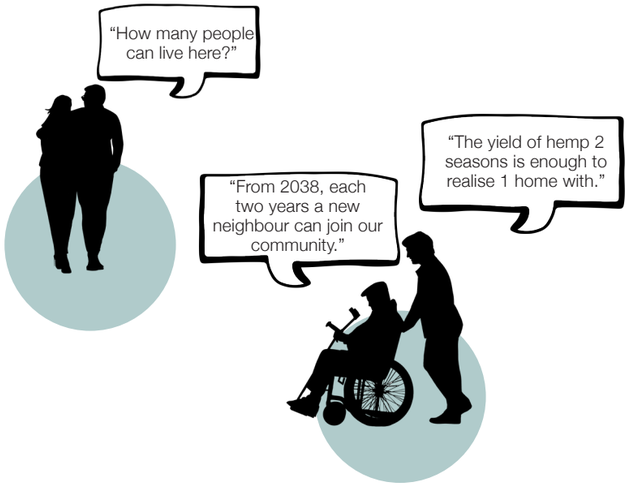
Currently, a specific group on the housing market struggles to find suitable, affordable housing: **the starters and the single-person household**. The case study focuses on realising a community, especially for them, where they can expand their family and grow old. It is not meant for families that search for a new home. On the contrary, raising the target group when already living on site is encouraged. By having multiple generations on site, the community will live up.

The primary stakeholders are municipalities, agricultural farmers, residents of all ages, depending on their housing situation and the province of Noord-Brabant.

To live here, the residents must **follow certain principles** and think about their part in processing the hemp, maintaining the area and using transport within site.

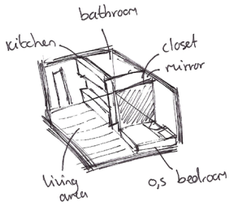



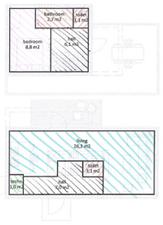



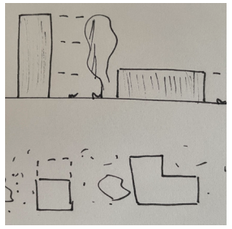






## OCTOBER 2021 1ST PRESENTATION





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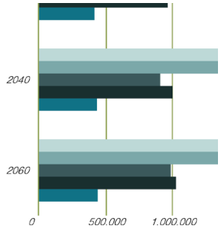
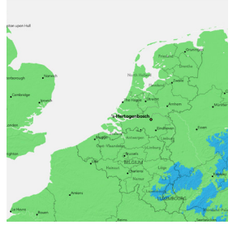
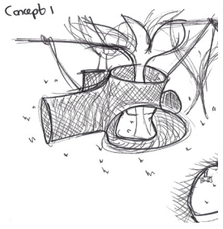
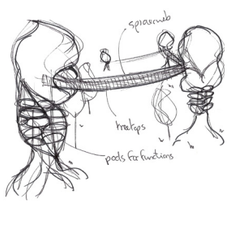


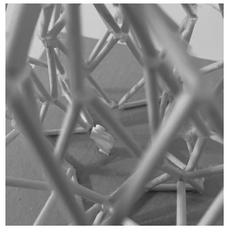


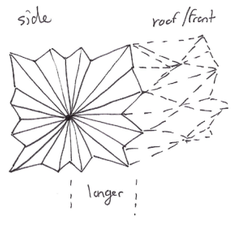


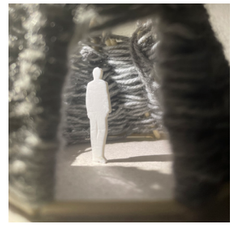
## DECEMBER 2021 CONCEPTUAL DESIGN

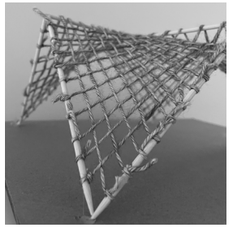


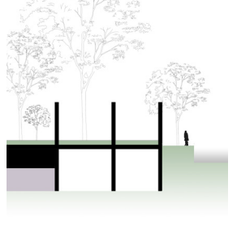



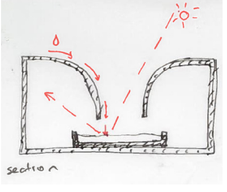


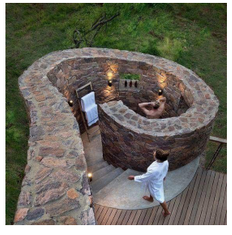



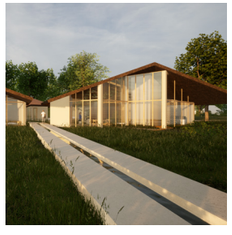


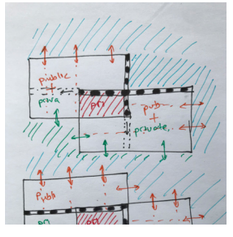


## JANUARY 2022 WORKSHOP WINTERSCHOOL

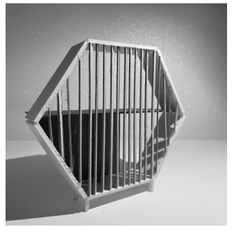



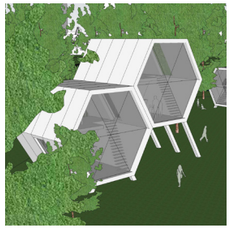



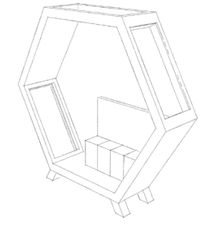





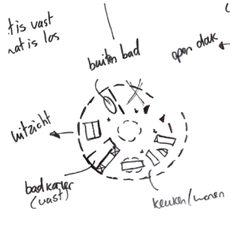

## FEBURARY 2022 PRELIMINARY DESIGN

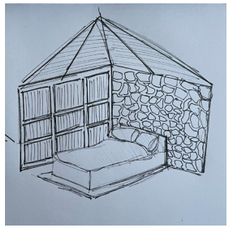




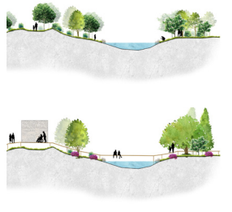


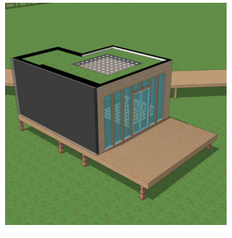



## APRIL 2022 DEFINITIVE DESIGN





## ABSTRACT

The case study stands for creating a healthy green environment where the future residents learn how to grow, process, and use hemp as a building material. Via the workshop pavilion, a first step in building a community is made.
Here, a pavilion can be seen as a roof surface with indidvidual spaces underneath that use the roof as a protecting element from the weather.

This workshop building consists of a structure in which the individual phases of the hemp production are being facilitated. Especially at the beginning of the transformation, the minimum capacity of workbenches is needed. The other space can then be used for temporary housing, providing the pioneers of this site stay within reach of the process.

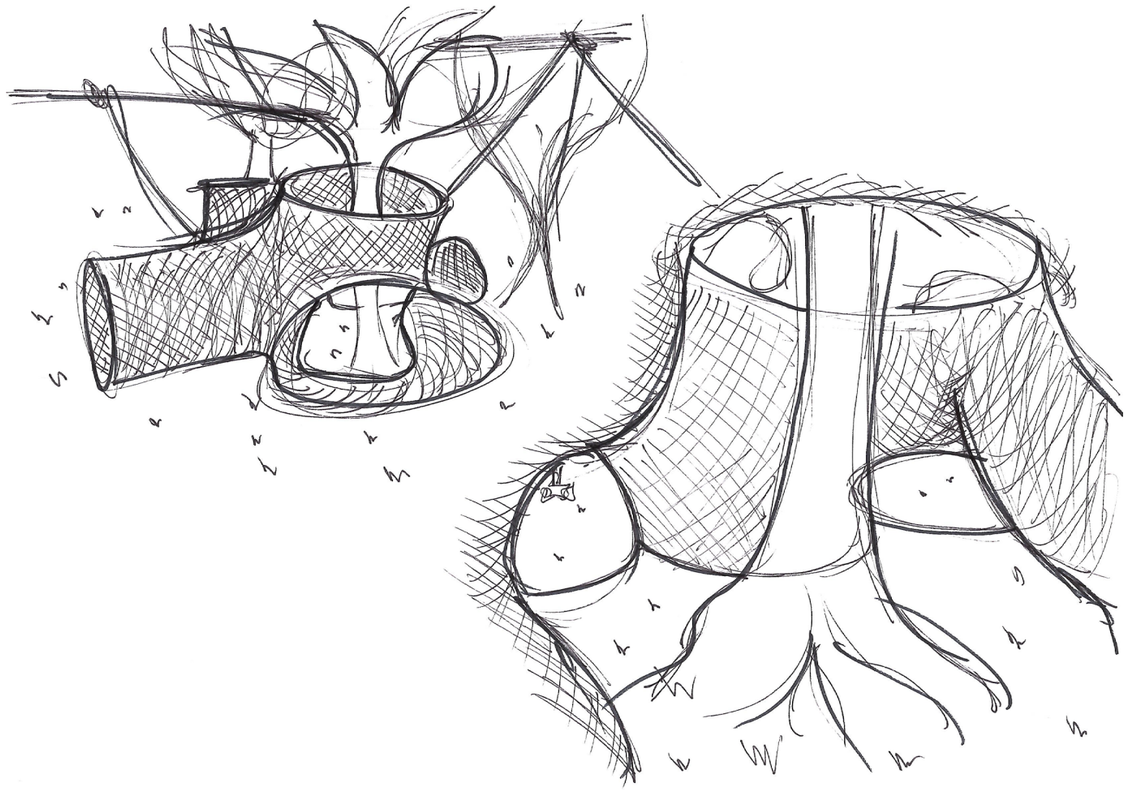
Besides the workshop, the project also lays down conditions for the homes which the residents themselves will build on site. These homes will differ from current homes due to the change in climate and weather patterns, making us rely more on the use and storage of sun, rain and wind.

Through the whole design process, the relation between the workshop, the homes and the environment is tested on how the social interaction between the buildings and the people that live here and come visit, are translated into architecture and visual representation.
For the representation, you can think about the visibility of the used techniques for climate adaptation, the path through the area and the constant remediation of the site.

The base principles and design directions were laid down via three conceptual designs. Each concept has a thought behind it and a proposal for developing it further. Two ideas were combined for the preliminary design phase to see how these could work perfectly on-site. Due to constant research on the whole as specific details, the design has taken turns for the better.

# DESIGNING

CONCEPTUAL - PRE-LIMINARY - DEFINITIVE

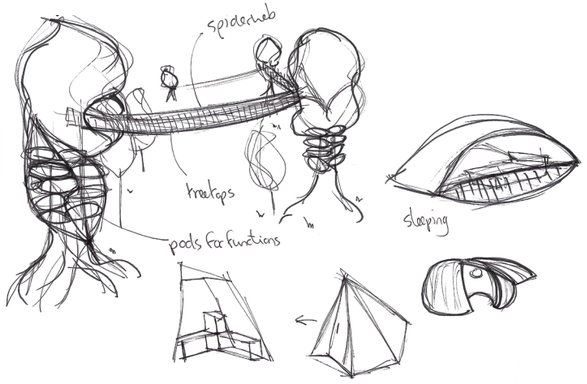


# CONCEPTUAL DESIGN

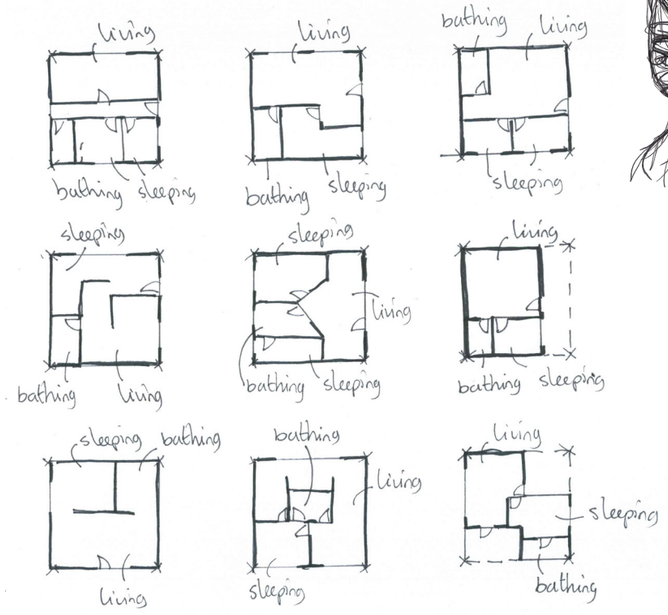
## NATURE OFFERS PROTECITON AND PLACEMAKING VIA ARCHITECTURE

The concept for “Thrive or Survive” is based on adding an artificial slab over the whole area to increase the available square meters on site. The underneath lying columns support the concrete slab, which will be replaced by branches of the trees that grow around them. The architecture here provides the base structure from where nature can overtake.

By working with the standard measurements in the building industry, a column must be placed every 7,2 meters. In this grid system, **multiple dwellings can be realised that can be expanded according to the size of the people who take residency**.


conceptual design 1 - “thrive or survive”

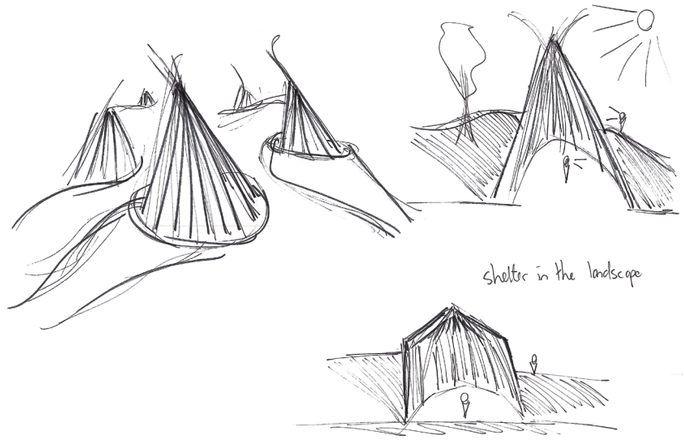


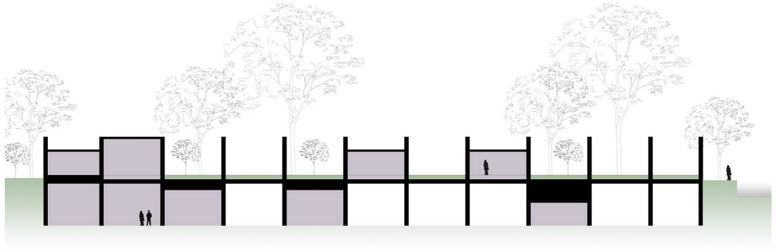

By focusing on a grid system wherein volumes can be placed and extended, people’s homes can be located above and underneath the artificial slab. This slab provides a double in available square meters.

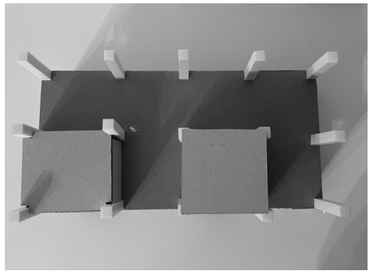
**Living under the ground** for people has not been done before, so research is lacking and creates problems on how to make this feasible and attractive for the next generation regarding **daylight, the growth of greenery and the creation of a suitable climate**.

## CONCLUSION

- The use of a grid system along a repetitive dimension. This allows improvements to be made afterwards be possible.



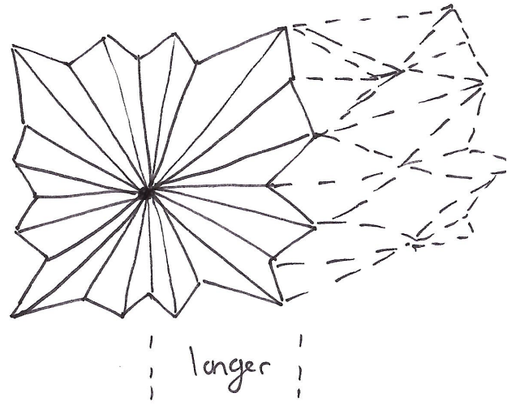


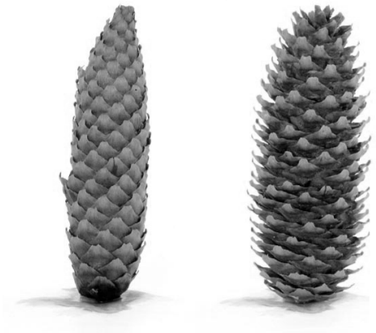
## ARCHITECTURE WHICH ACTS ORGANIC, BUT IS NON-ORGANIC

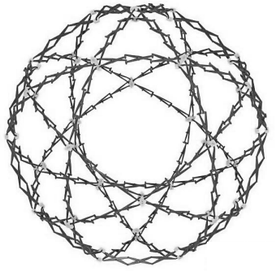
The concept for “Natural while technical” translates organic principles to architecture while being made out of non-organic materials. It is about intervening in the landscape but acting as it has always been there. The thought behind the concept is that the typologies show **a natural way of movement like breathing, the possibility to expand and contract the pod based on the required space to live comfortably**.

Typologies regarding the program are divided into 2 or 3 based on the required space. For instance, the sleeping pod has a circular shape that can expand and contract the need for one or two beds. On the other hand, bathing, cooking and living can be found in a square shape with a front opening that can be moved up and down regarding privacy.

conceptual design 2 - “natural while technical”



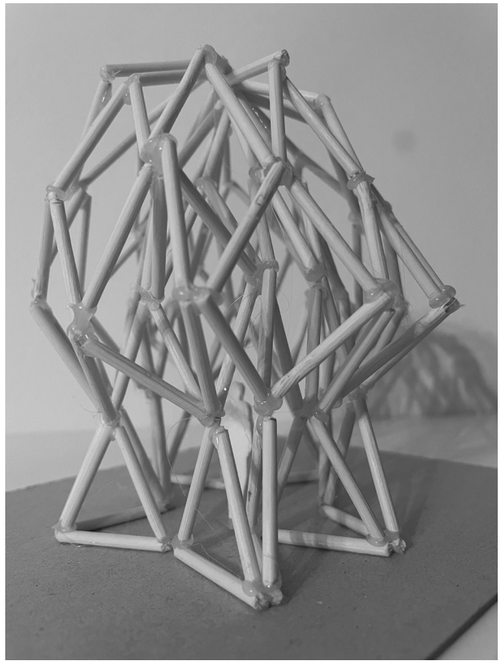



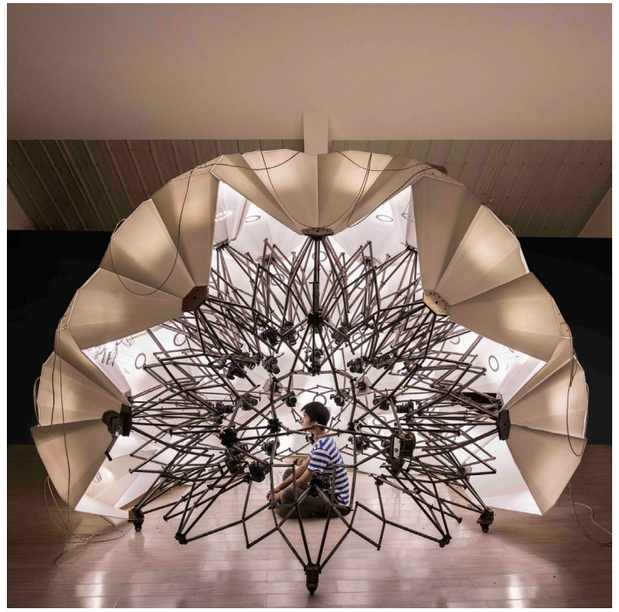


The challenge of this concept is to build a home from non-organic materials that acts like a ‘breathing’ structure. They are translating adaptability onto the structure itself and their possibility to expand and contract according to the resident’s needs. The difficulty this concept states is how to design a shape while keeping in mind the structure and movement. The **challenge of the materials lies in the flexibility to move along the structure while keeping their insulation qualities** to realise a suitable indoor climate. Moreover, how can this design be opened up to the climate?

## CONCLUSION

- The separation of spaces within the home to make optimum use of the environment;
- The ability to expand the home as a result of the situation per household.

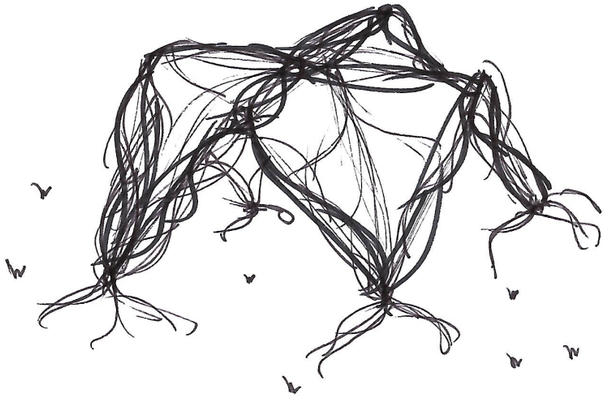


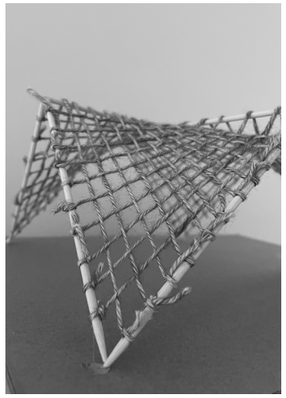


## ARCHITECTURE WHICH PROMOTES NATURE VIA COMPLETE SYNERGY

The concept for “Shaping Synergy” is based on promoting nature on-site via architecture, which translates into the complete synergy between architectural and natural elements weaved together. **Both need each other to bring out the best of themselves**.

Tree branches from poplar and willow trees will function as the base structure from where nature can grow, providing the structure. Meanwhile, the structure is growing, and architectural interventions will provide a suitable inner climate with heating, ventilation and power. Furthermore, **a production forest specifically for gaining materials used in the structures will be grown**. Materials such as wood, hemp and cork can function as buildings materials for the structures, insulation and facades. This wood forest is located along the borders on the south side, where they will be produced and harvested with zoom strokes whereby the climate within the forest will be maintained. In addition, the young trees get more protection against heat and frost. Both elements of a food and production forest serve as functional elements by closing the site from the wide roads on the south and west borders, but furthermore as a first step to survive and **give farmers a new perspective for their land use**.



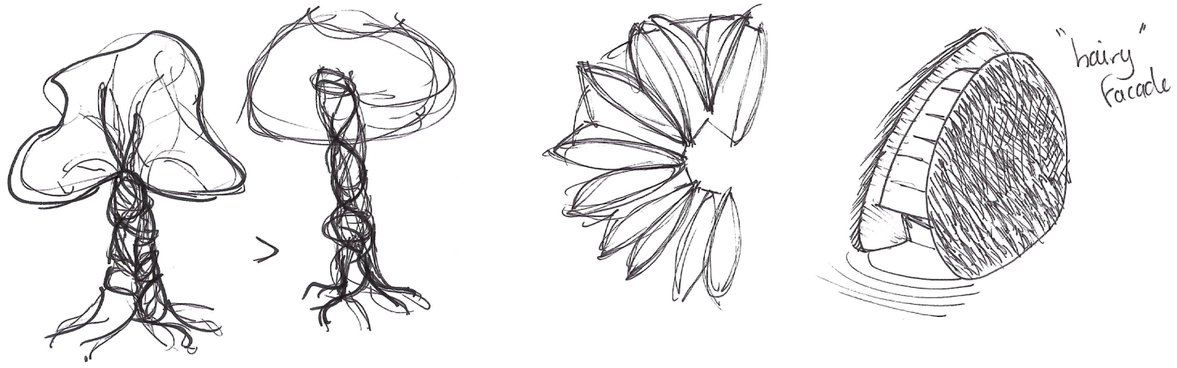


conceptual design 2 - “shaping synergy”

A home where the natural branches form the base structure where materials will be added or connected to create the overall shape is the aim of this concept. **Direct building from branches** is a technique used in pavilions but not with homes for people. The challenge, therefore, lies in the realisation of a suitable indoor climate and which branches/ materials work together well and can be implemented into the user’s adaptability.

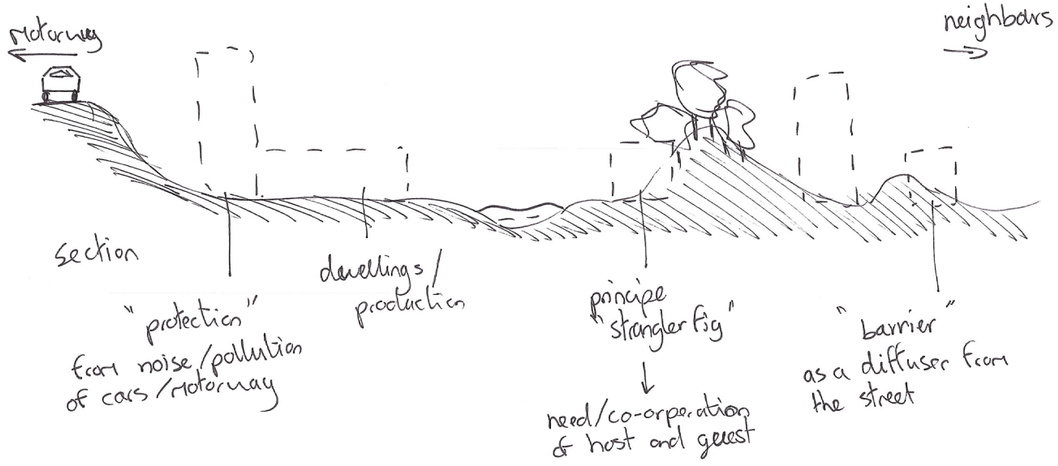
CONCLUSION

- Providing synergy between human, nature and architecture;
- The presence of a factory or workshop building where locally based (bio-based) materials will be grown and produced.




principe of the strangler tree → parasite → killing its host
→ co-operating → stronger defence against tornedo's / tsunamis (climate)

guided growth → base needed where the structure can grow on



## THE ROAD OF THE DESIGNS ON URBAN & ARCHITECTURAL LEVEL

Due to the size of the area, design principles on both urban and architectural scales need to be determined. Incorporating **climate-adaptive design** in both workshop and home, can add their part in saving and storing water, sun, and hopefully wind.

Elements that need to be taken into account are as followed:

### WORKSHOP

- A pavilion-like structure that can be rebuilt on another site;
- An universal timber frame structure to accompany each phase in the production process of hemp;
- Low-tech methods to heat/ ventilate a space;
- It most hold a space for relaxation;
- Designed on the measurement of multiple sixty centimetres;
- Eelevated with a platform;
- Differentiation in closed, translucent, transparent and open facades

### HOMES

- A high level of “Do It Yourself”;
- The construction consists of only hemp, timber frame and glass;
- Only the bathroom and bedroom are regulated via hemp insulation;
- The freedom of adding spaces/ structures according to their needs;
- Orientated to the south to make optimum use of the sun;
- Orientated along the east to west for natural ventilation;
- Elevated with a platform;
- Openings such as doors/ windows available via a checklist;
- The presence of an overhang along the hemp walls of 1 meter.

# PRE-LIMINARY DESIGN & DEFINITIVE DESIGN

URBAN - WORKSHOP - HOME

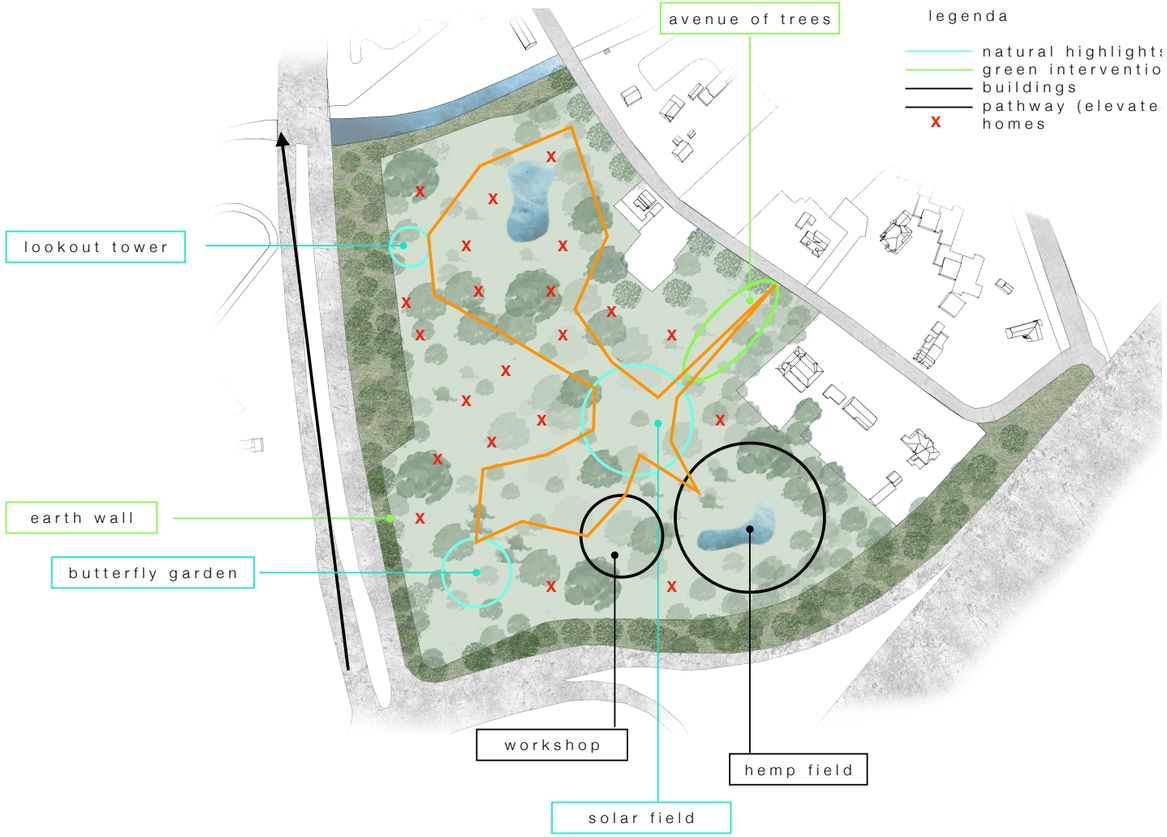
## PLACEMENT OF FUNCTIONS

Knowing which functions are needed to have a **lively and social area** is essential. Therefore possible positions are looked into for the site's entrance, the workshop pavilion, the homes, the hemp field, and the additional social functions, like the hub, lookout tower and sports field.

Based on logistics, transport, safety and the experience of the area, further development of the specific positions will follow.

## AMOUNT OF RESIDENTS

The number of residents is determined based on the **seasonal yield of hemp**. One hectare of hemp provides around 25 cubic meters of insulation blocks. Therefore, if an average small-scale house implements hemp as insulation for the floor, walls and roof, it is possible that a new neighbour can move to the area every few years.




## ECOLOGY

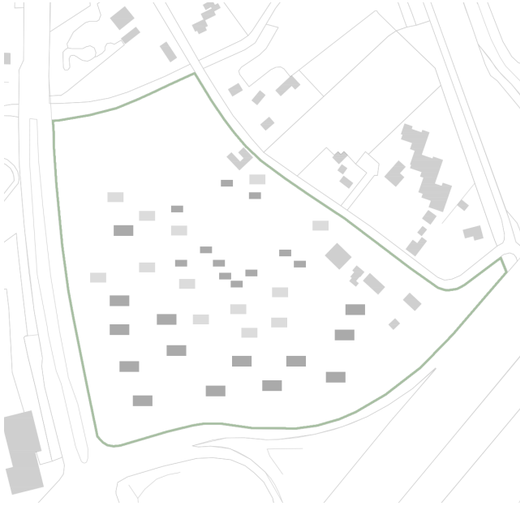
Adding water branches and vegetation through the area helps **reduce the urban heat-island effect**. Furthermore, they help purify the air and improve the air quality of our living environment.

## MIX OF FUNCTIONS

The community's social aspect will consist of **specifically chosen functions per site**. This location is a lookout tower to overview the area and its surrounding neighbourhood. A sports spit that functions are a sporting area and a water basin for the collection of rainwater after heavy rainfall.

*ecological improvements

*position of additional functions



*placement of homes

## HEMP INSULATION BLOCKS

Thanks to the size of the area, a workshop pavilion can be introduced. Based on the soil, hemp can be grown, harvested and produced within the pavilion into insulation blocks. These blocks will then be implemented into the homes by the residents.

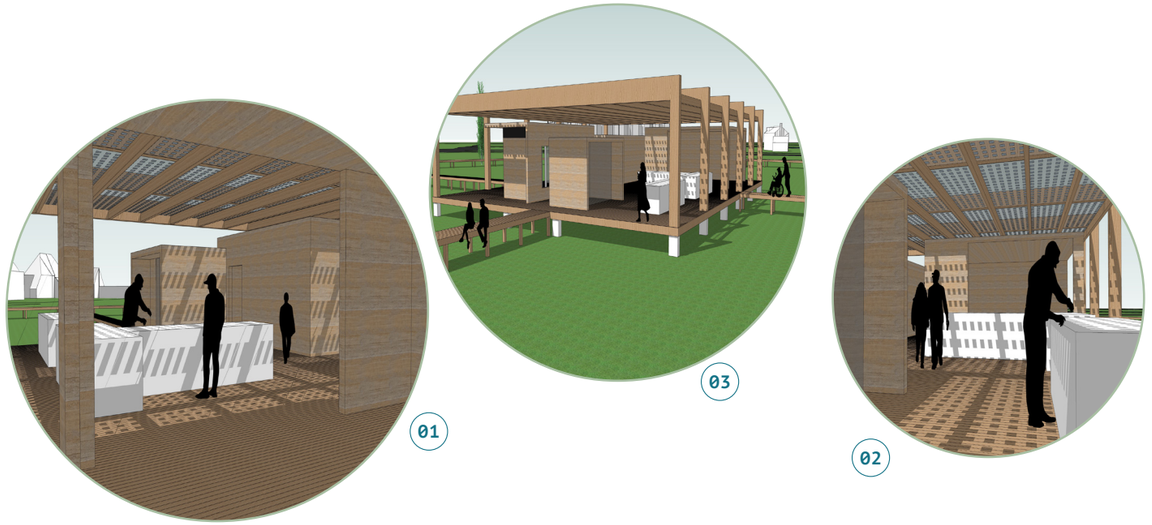
The pavilion must be designed so that after this area is fully occupied, it can have options regarding its function for the future. These options are as follows: to be broken down and rebuilt on a new industrial site. The vacant land can then be filled with the last homes of the previously produced hemp.
Or, the building can stay operative and provide insulation for others.

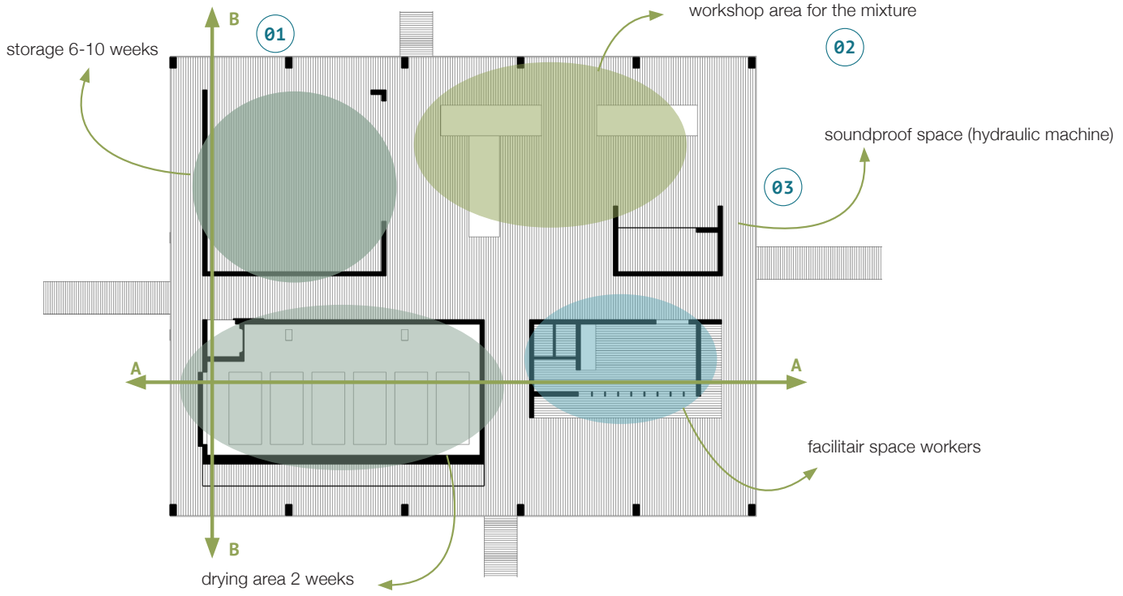
## A FARMERS MARKET

A spot for a community to come together mostly happens at the local farmers market. Multiple individual stalls where people can get their fruit, vegetables, bread, flowers, and more. A spot with individual products, but with a common goal: to make sure you have everything you need to take care of yourself.

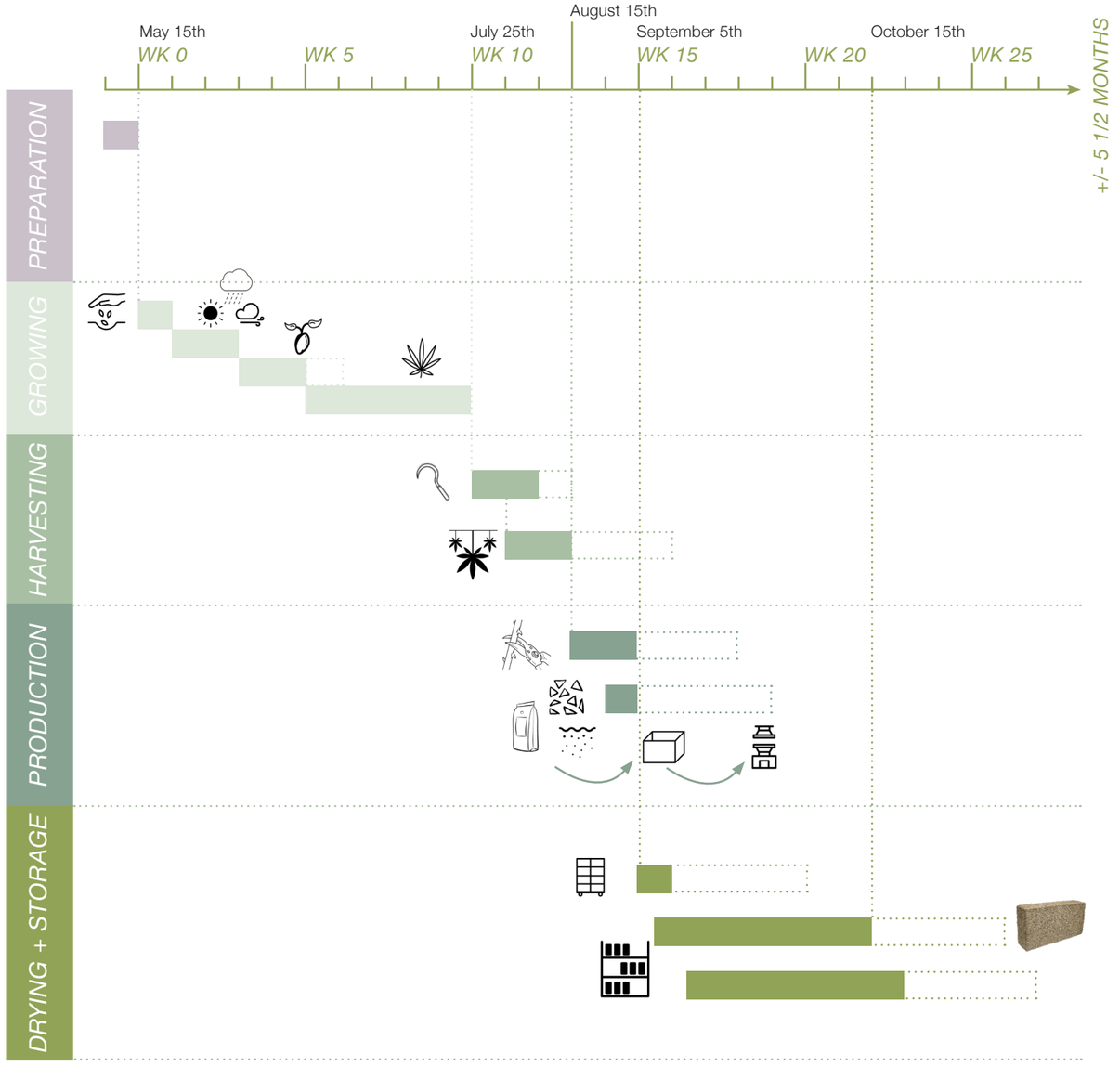
This approach has been projected onto the workshop as well. Each phase within the process of growing, harvesting, processing and drying the hemp before you can use it for realising your home, has been designed according to their needs. Think of a regulated temperature within a space, enough daylight to be able to use equipment, an elevated space for storage, but most of all the implementation of water and sunlight to power any necessary spaces.

## CAPACITY VS. USE

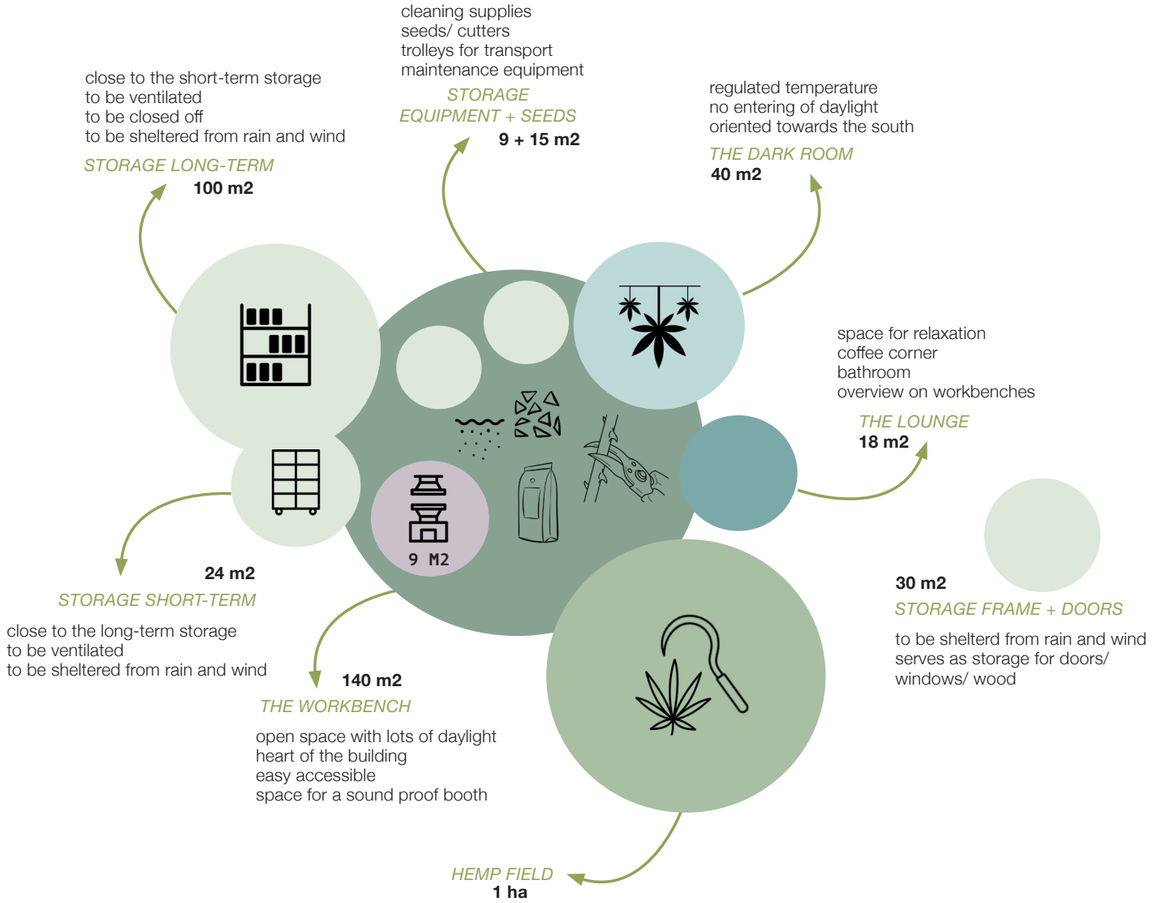



# ESTIMATION PROCESS FROM SEED TO BLOCK




# PROGRAM OF 370-530 M2




LEGENDA

- open spaces for storage of equipment/ seeds/ hemp blocks
- workbenches to break, swing and mix the dryed hemp into a mold
- facilities for the workers
- dark room to hang and let the hemp dry
- sound proof space to press the mixture according to the mold

## IMPLEMENTING THE WEATHER AS A GUIDING PRINCIPLE

Thanks to the size of the area, a workshop pavilion can be introduced. Based on the soil, hemp can be grown, harvested and produced within the pavilion into insulation blocks. These blocks will then be implemented into the homes by the residents.

The pavilion must be designed so that after this area is fully occupied, it can have options regarding its function for the future. These options are as follows: to be broken down and rebuilt on a new industrial site. The vacant land can then be filled with the last homes of the previously produced hemp.
Or, the building can stay operative and provide insulation for others.

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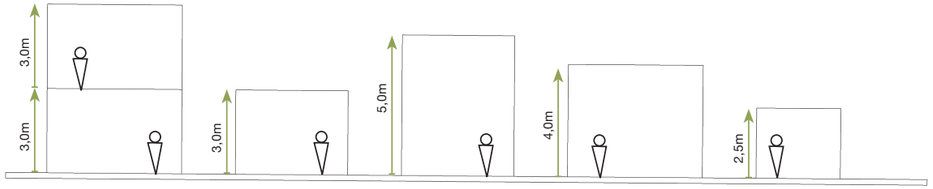
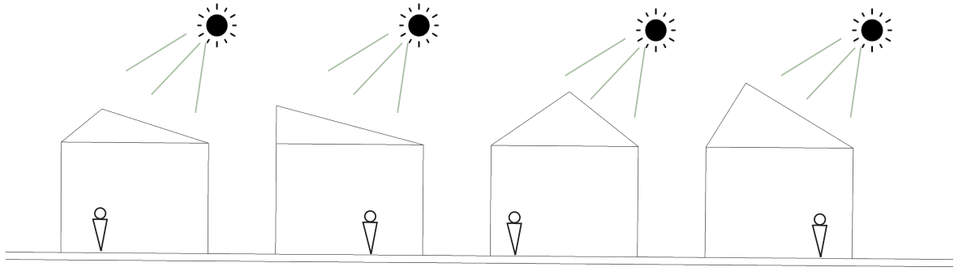
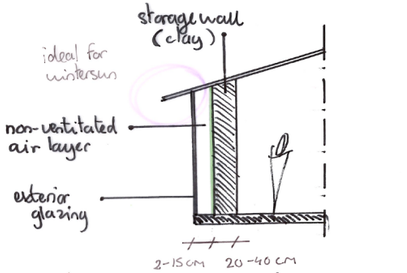



THE DARK ROOM THE WORKBENCH

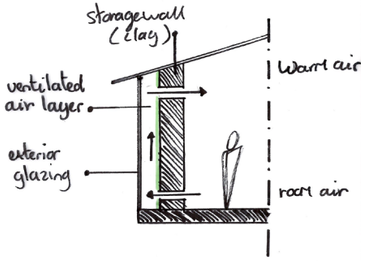
RESIDENCE STORAGE SOUND BOX



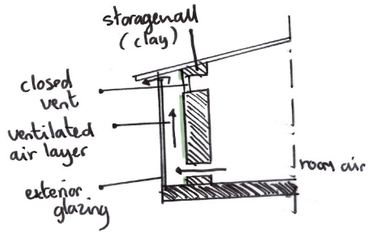
VARIANTION SHED ROOF



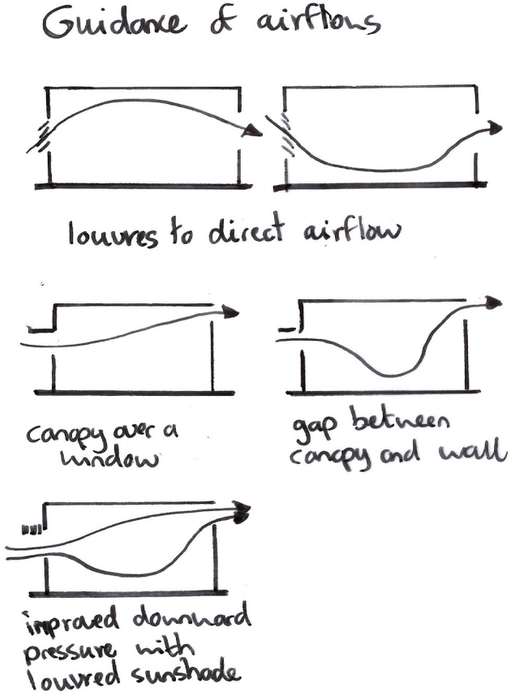

Trombe wall base
dark heat-absorbing colour of paint

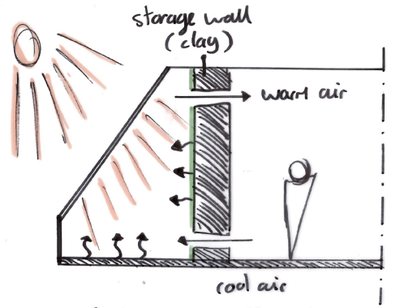



Trombe wall room heating
dark heat-absorbing colour of paint




Trombe wall ventilation
dark heat-absorbing colour of paint



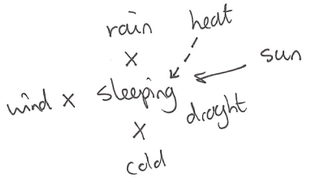



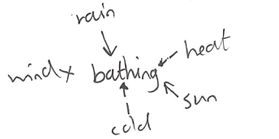

Trombe wall + attached sunspace
dark heat-absorbing colour of paint

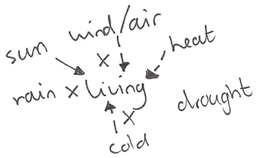
snail principle
regarding privacy

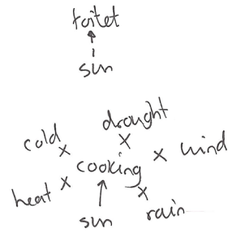
structure - climate

| | |
|---|---|
| sleeping | rain |
| bathing | wind / air |
| cooking | heat |
| living | cold |
| toilet | drought |

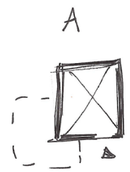


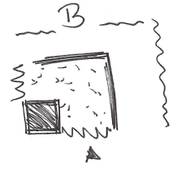



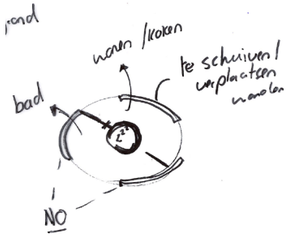

A day in the life of




classic home in the Netherlands

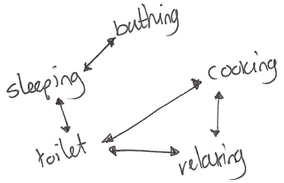



private - indoor
rooftop - outdoor
public - outdoor

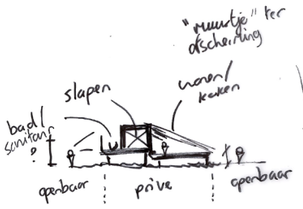


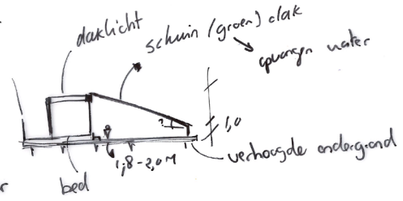


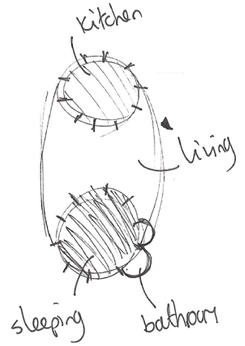
Functions regarding privacy

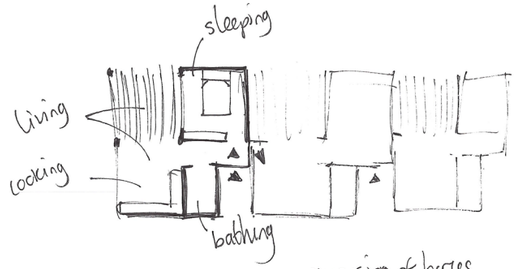



relations functions of a residence

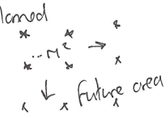


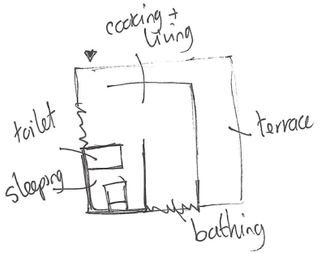



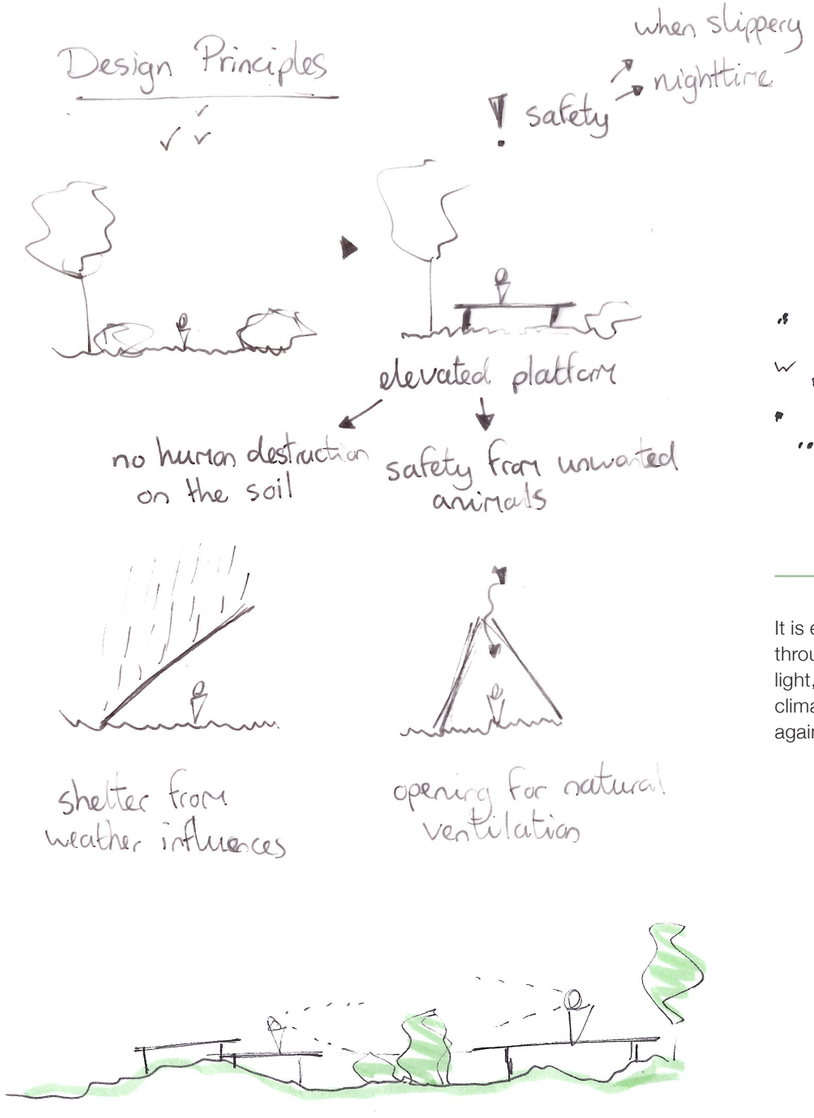

→ expansion of homes
X → to much planned
+ grid structure




Opening up our homes starts with how we perceive the functions we want inside our homes. I believe only the space for sleeping and where you bathe have to be secluded from the rest, **allowing the other spaces to open up thermally or aesthetically**.

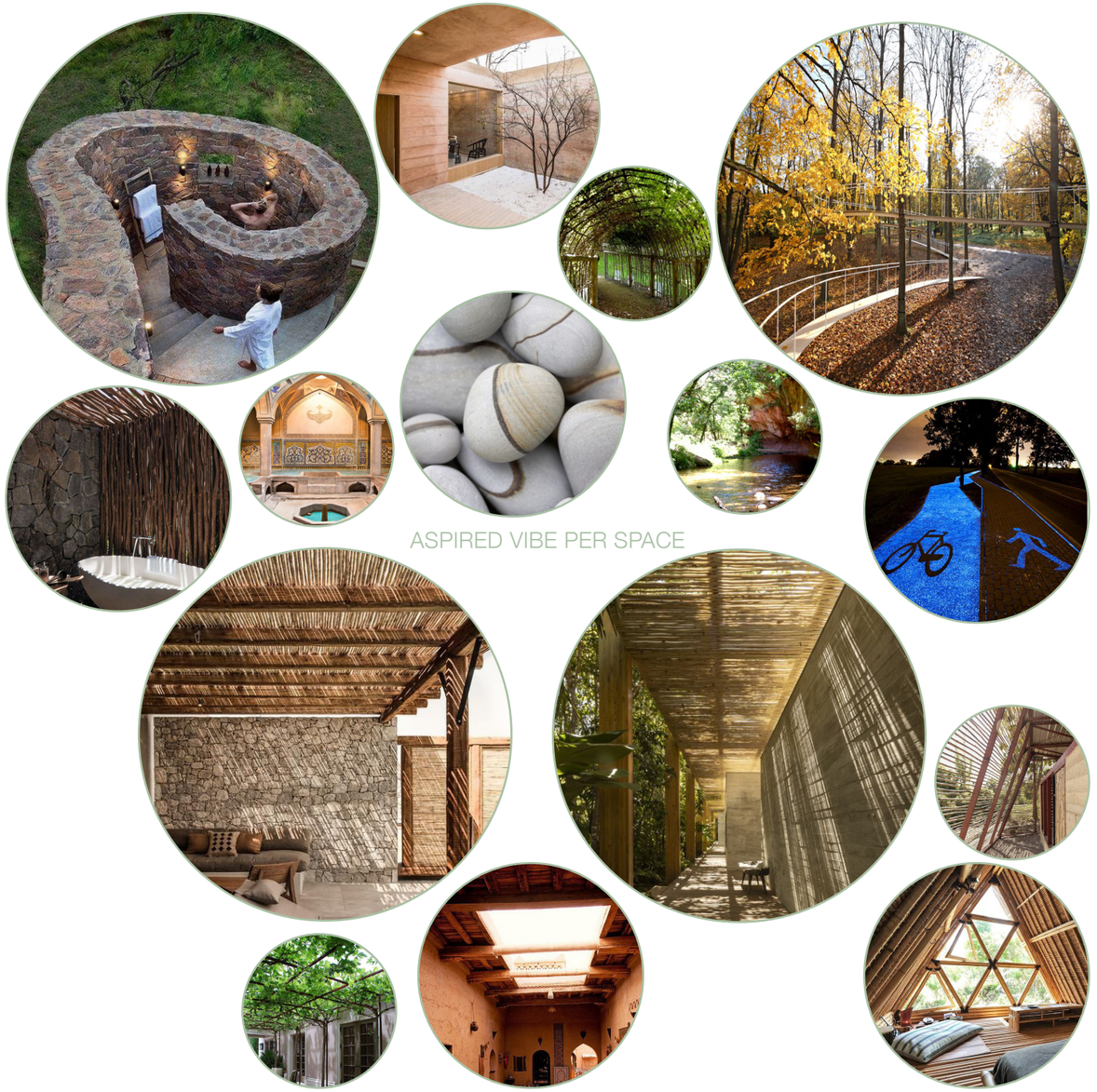
Besides opening up our homes, it is important that it can adapt to our household and, therefore, our needs. On the site, the single-person household and the starter can start their adventure living in a green paradise. If they want to expand their family, that is possible. The case study is not meant to send people away when they are over a specific limit of people within a household. On the contrary, it is intended to offer those groups with difficulty finding a suitable home a good place within cities.




## WHAT IS NECESSARY

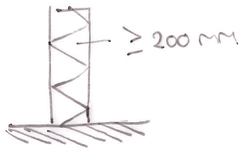
It is essential how a space is being experienced through the choice of materials, presence of light, use of the indoor-, half-, and outdoor climate, the orientation and the protection against unwanted weather and animals.

## ASPIRED VIBE PER SPACE



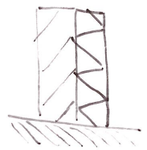
## Ways of constructing hemp

A



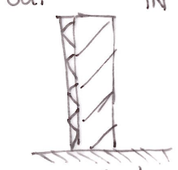

massive wall (non-bearing)

B



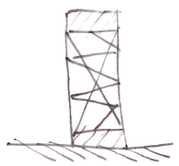
insulation for a bearing wall

C



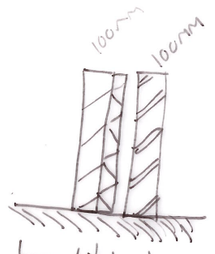

as plaster along 1 side

D

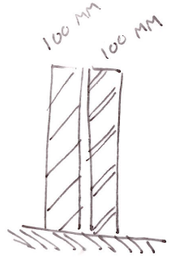


an insulation in a timber frame

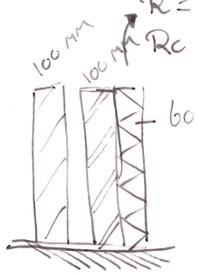
## How to built with hemp




traditional brick wall




uninsulated brick wall




+ 6-7 cm hemp lime (plaster)

the more fillment of the mixture in the walls and roof ▶ the longer the period of drying.


mixture hemplime for insulation
→ 50% hemp
50% lime

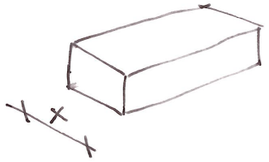

→ 75% hemp
25% lime

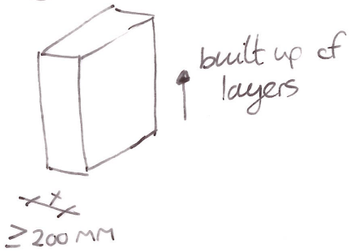

→ 90% hemp
≤ 10% lime

## Manufactor building blocks or casting

▼

### Isohemp




x available for width:

75, 90, 120, 150, 200, 250, 300, 360 mm

→ 300+360mm for rc of 4,7 m².K/W

Due to the increased temperatures in the following years, **the thickness of an insulated wall can become less**. Together with the use of the semi-climate, living in a green environment offers the opportunity to open up the house and remove the rugged border between indoors and outdoor.

## Finishes

▼ colour ▼ texture

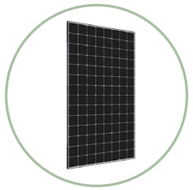
plaster
- → Tubag (PLP-L)
- → Saint Astier
- → Rc Kalei

paint
- → Calcatex
- → Calco
- → Silicon
- → Quick mix


→ Tierrafino Base and/or Finish

## SELF-SUFFCIENCY

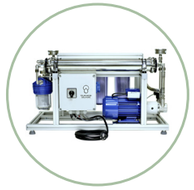
To be self-sufficient, each home contains the following installations in order to provide power and drinking water. A closed-off space within the home must reserved specifically for these.



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

**ROLLS BATTERY**
8 Rolls 6V 605ah batteries

**BACKUP MOTOR**
1 Honda EU 70is motor as a backup for the batteries

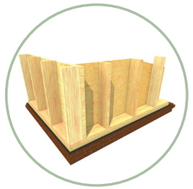


**REVERSE OSMOSIS**
1 SolarRO mini 150 water motor to turn rainwater into drinking water.

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

## DIY

Each resident will build their own home on site. Due to the presence of wooden boardwalks, this will mostly be done by hand. Each home will have a timber framework with glass, wooden window and door frames, and hemp insulation. Other choices of finishing the facades, indoor floors and the roof are open for the resident via a predesigned material palette.





THERMOWOOD NATURAL

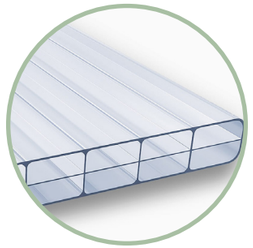
The facade of the building is finished with small vertical beams of Thermowood, allowing light and air to enter the building while keeping the look of a pavilion.

LIME PLASTER

The insulated spaces within the workshop have a plaster finish with earth tones to distinct these spaces from the rest of the building. The plaster layers help improve the acoustics within that space.

HEMP INSULATION

Some functions within the pavilion are insulated due to the stay of people and providing a comfortable climate. The insulation is placed in the floor, walls and roof, all within the timber frame structure.

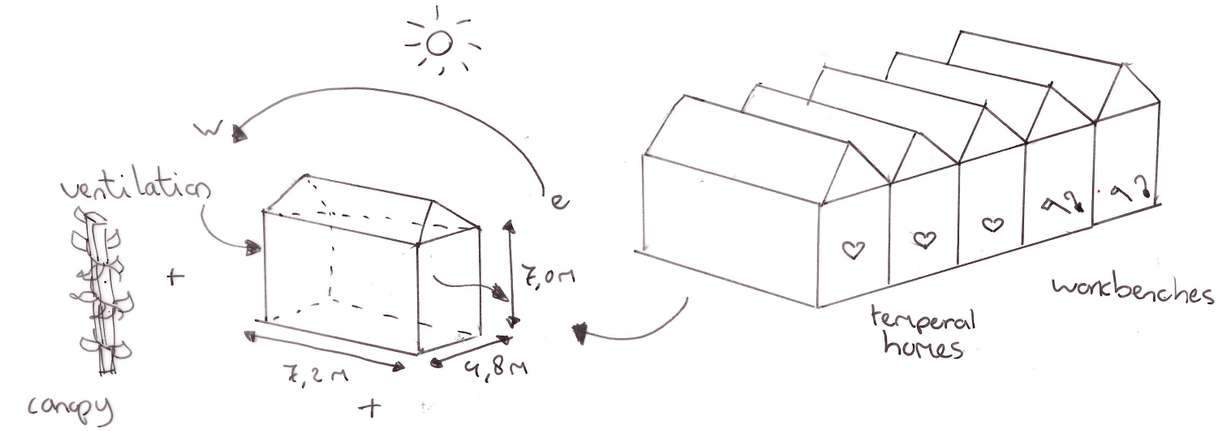


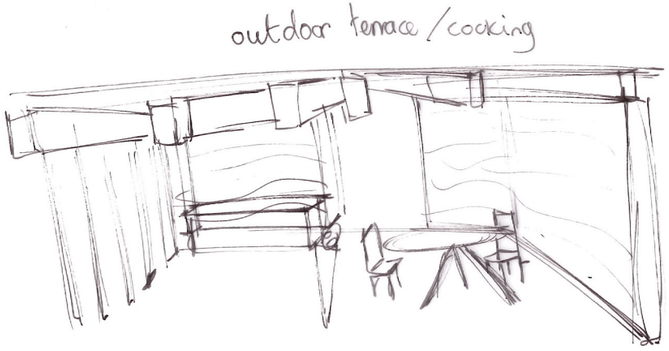
POLYCARBONATE PLATE

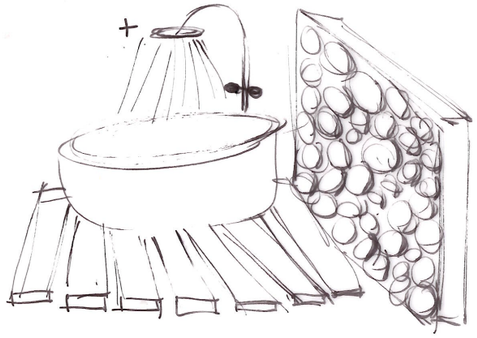
A translucent plate ideal for pergolas and open spaces. Sunlight automatically heats the space underneath this surface.

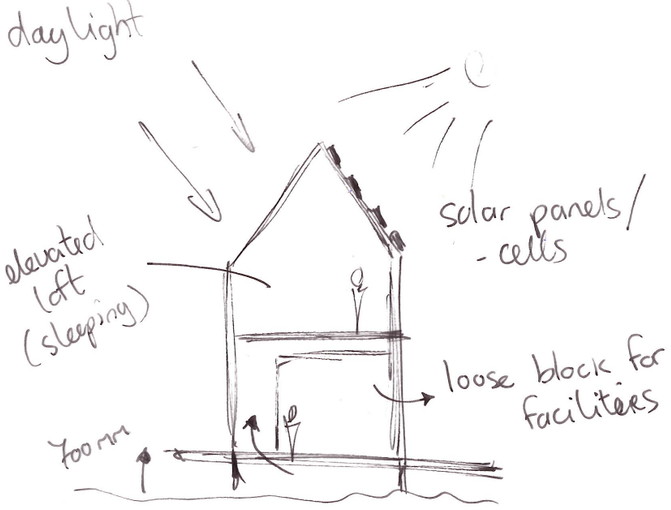
WOODEN SHINGLES

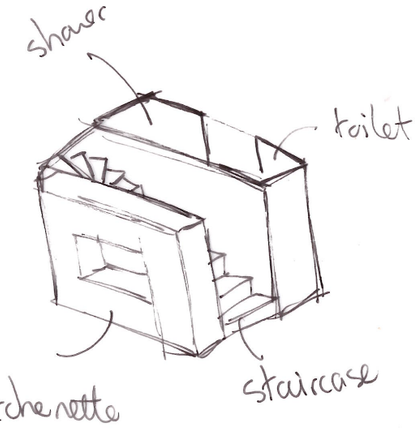
A low-tech method that works perfect on both roof and facade surfaces

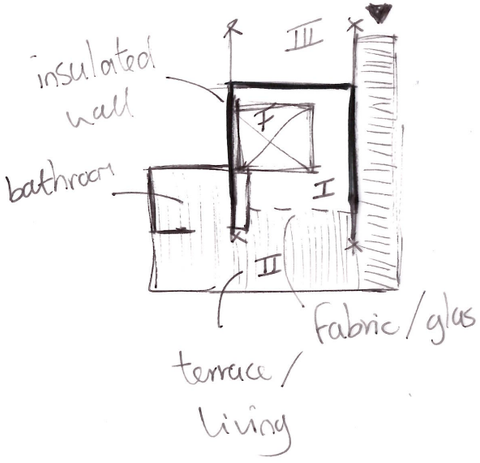

w
e
ventilation
canopy
7,0m
7,2m
4,8m
temperal homes
workbenches

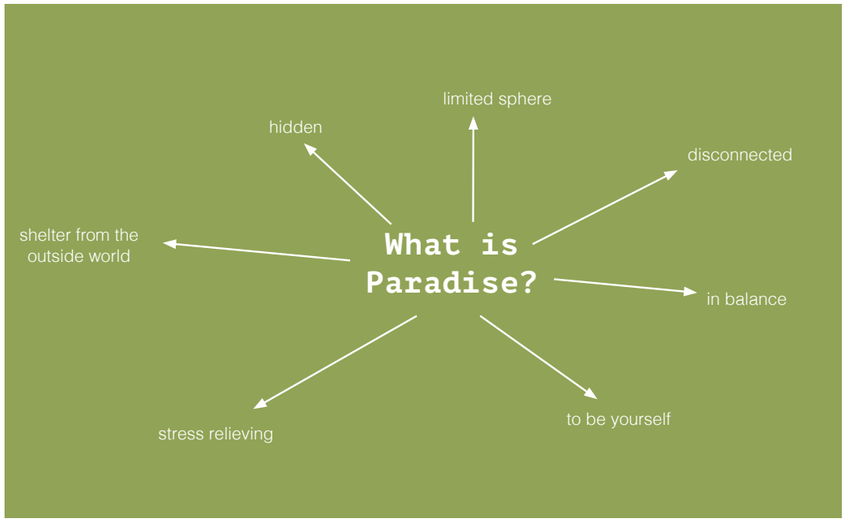

outdoor terrace / cooking


outdoor bathroom


daylight
elevated loft (sleeping)
solar panels / - cells
loose block for facilities
700 mm


shower
toilet
kitchenette
staircase


climates
I = regulated
II = half (covered)
III = outside
insulated wall
bathroom
Fabric / glas
terrace / living

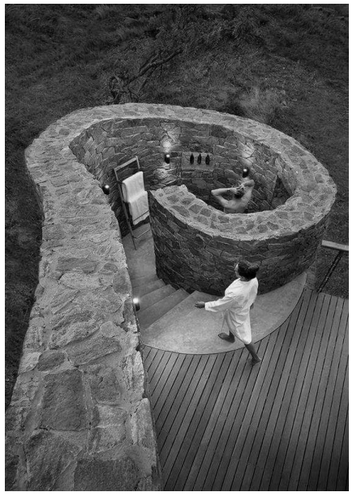


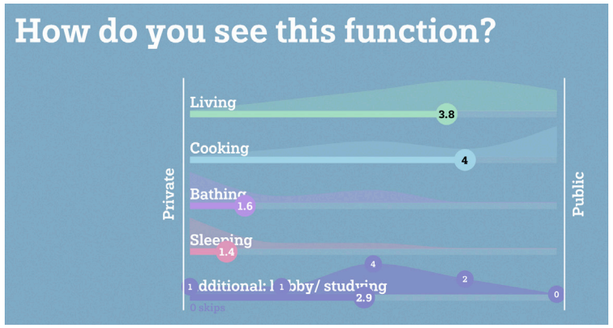

Due to the pandemic COVID-19 with the lockdown, which was active at that moment, it was not possible to have the winterschool physically take place. Therefore we used an online platform and Microsoft Teams. As a graduate student, I needed to prepare these days well so that my fellow students knew what to do, when and what I expected from them. In the end, they have realised a design themselves based on the exercises they performed in a short period.

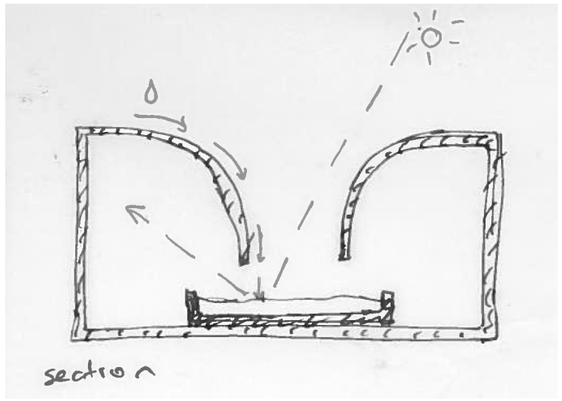
# WINTERSCHOOL

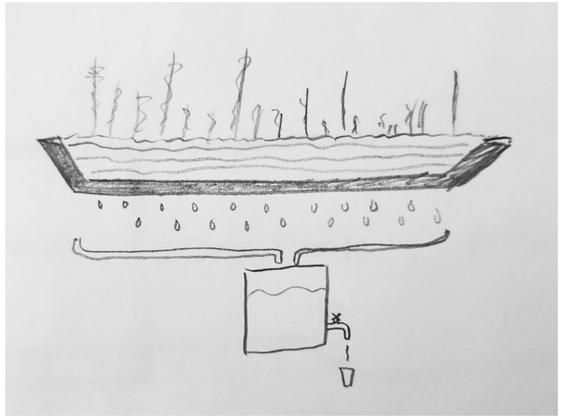
An interactive 3-day workshop. Here the fellow students of the previous years helped me by providing me with their knowledge, time and thoughts on my project.

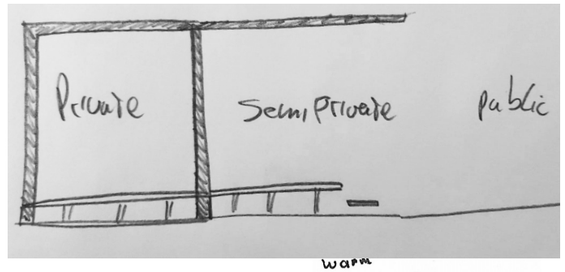
My goal for these days was to use their perspectives on living in a natural paradise. In addition, I wanted to discover how they would use architecture to implement natural elements into their designs.
By providing smaller exercises on multiple parts, I wanted to let them design their future home for 2070 and see how their vision of living in a different climate influenced the design.



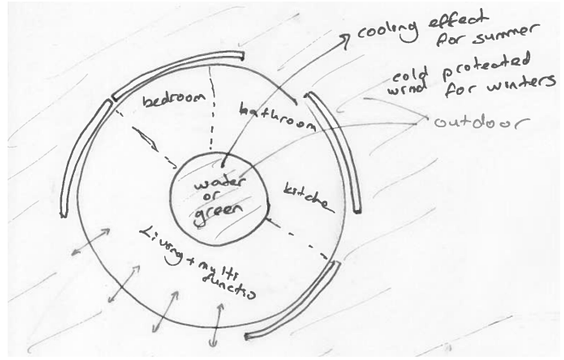


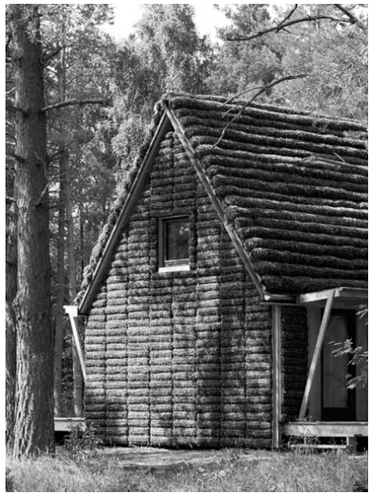


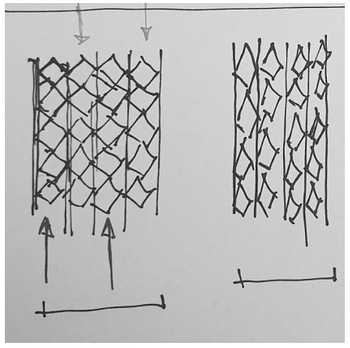


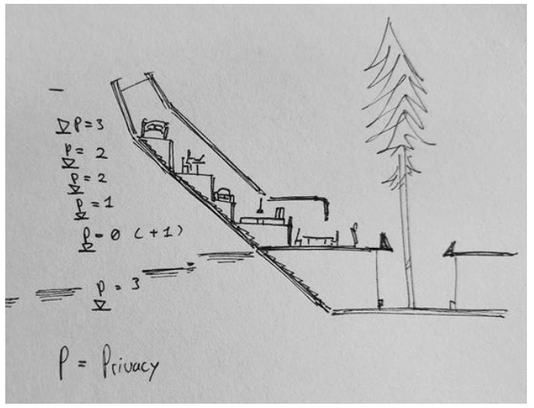


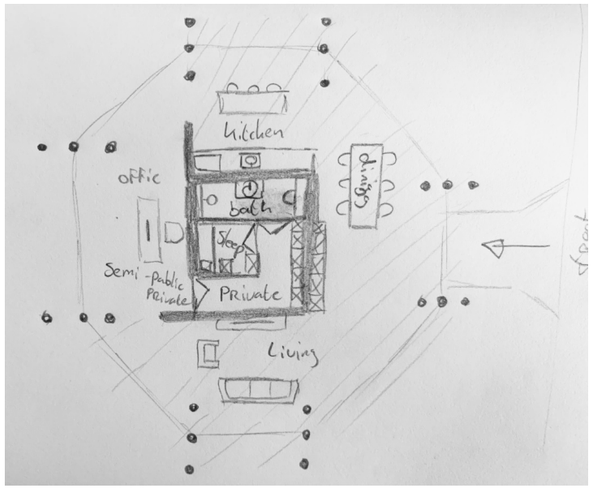

The beginning of this workshop consisted of **changing our mindset about nature** and what can be seen as nature and paradise. Moreover, I wanted to challenge my fellow students to see **how far our homes can be opened up according to the amount of privacy** they require by letting them answer a few questions and search for some examples of how you want to feel in that space.

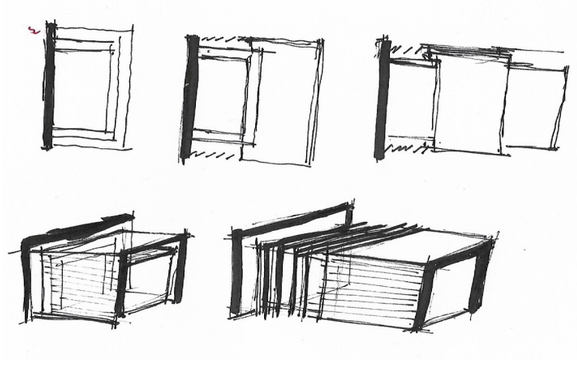
After the first part of the day, the focus lay on forming questions to create a persona for which the design typology could be answered. Furthermore, I wanted them **to sketch how natural elements, such as rain, heat, sun and win, can be translated into an architectural tool for the design**. Think about the shape of the roof and how rainwater can be stored.





During day 02, the focus shifted to innovative materials and the adaptability of the function present within our homes. How do you, as a designer, look at our everyday life when **the climate is the main design principle** we have to listen to? By challenging them in small exercises, I wanted them to experience another way to look at our homes in the current state.

From those exercises, sketched floor plans, and in the end, a whole 3D design was formed. Each student delivered a design where attention has been given to the amount of privacy a function has regarding its position on the plan. I was enthusiastic to see that those smaller exercises were taken to heart and were used exhaustively in their designs. From two designs, I can use **principles to form a new typology to live healthy in a natural paradise**.

# MEETINGS | TALKS

During the academic year of graduation, various meetings took place. These meetings occurred with the tutors (Jan-Willem van Kuilenburg, Pieter Feenstra and Aafke van Dijk) and experts I consulted during the project's design phases.

## Feedback Project Specs 03.09.2021

- generic container issues, where will they lead to, what will happen?
- set & programs that meet the criteria need to be established.
- analyse reference projects
- motivation & the tutors is generic.
- the site falls from the top; why, for what?
- check if all 14 specs components are included
- the mentioned materials/circularity/activities/activities/nature/place count for all buildings

## Feedback Project Specs 10.09.2021

- components of the specs are structured well, but the order of things is problematic; together with the dilemma of an ecosystem vs. architecture.
- why this location?
- conclusions should be told on page 01
- ecohealth suggests a far more fundamental integration of human facilities with ecosystems, in which the ecosystem is the starting point.
- the word 'nature' is abused
- will it be 'green washing' or ecohealthy?
- consider growing nature as a principle, as a fundamental process
- the supposed vital elements are not powerful
- find a way to change the order of things, where ecosystem is the start, instead of built substance, or where architecture and ecosystem really synchronise.
- the fundamental meaning of 'health' and 'home' for the upcoming generations must be redefined from the start.

## Feedback Project Specs 17.09.2021

- "dwellings will be placed on site" stands apart from the desire to grow structures from the soil.
- how will architecture fulfill its role in the process
- reference project shows homes that are built upon a readymade forest floor. If the assignment to go past camouflage, it requires more fundamental directions and findings

## Feedback Research 15.10.2021

- how fundamental is the assignment?
- is architecture part of the (natural) transition of the site or is it about placing dwellings in a readily prepared situation?
- is the growth of nature on site guiding people with paths, etc.?
- if forestry and housing are to be combined, research may be applied to adaptive strategies for both elements.
- a more professional framework for reference projects and layering of design components is needed to find a base for design in general, and for imaginative ideas like 'extending the outdoor space' and clustering of small-scale lifestyles in particular.
- the target group, ~~is it~~ is it mixed, individuals, or collective?
- what do the impacts of climate change deliver as design principles?

## Feedback Conceptual Design 10.12.2021

- the project is presented as a creative and intuitive project, yet the requirements and stakes are high.
- all three concepts may contribute, but this must be tried and tested. So, experiment is key, but within a good framework of criteria and involving different layers in the plan.
- the project must find its own design logic.
- good effort to create a structure for the Volume, more content welcome
- program of requirements for the single and starter households need to be established
- the main concept is about reconnecting with nature while the essay about the price-ranges of the homes
- the hypothesis needs to be rewritten

## Feedback Preliminary Design 11.02.2022

- don't forget that the Volume is a design instrument.
- references in the Volume could help a lot
- how will we live in 2040? Is it a poor/simple as today? How will live look like
- the predesign transmits a green + free approach to the site and the task of circular design in housing and selfbuilding
- the project focusses on a cocooning principle while connections to the natural context is supposed to be primary.
- the design of the units is still embryonic, whereas the Volume contains literature, references and design paradigms that urgently should be connected to steps in the design.

## Feedback Preliminary Design 11.02.2022

- the timeline is interesting together with a material balance and could be elaborated much more to become the driver of the whole design.
- more proof of research that delivers the design principles of biophilic design is required.
- clarity about the path of design would be helpful in placing the design principles at the core of the development and testing of qualities

## Feedback Definitive Design 21.04.2022

- English language skills are an example for the whole group.
- The presentation was convincing in framing the project as an authentic proposal for integrated biophilic building and site development.
- the design needs further elaboration, by testing several options in parallel mode, and continue the design process with conclusions derived from those tests.
- Further steps need to be made in outlining a design language which can bring together users/makers, site and architecture.
- the shown pavilion and studio still stand alone.
- the architectural design will prove what the timber frame construction and hemp can do for the project and what the site can do for the environment.
- the focus of the research can lead to a real design if conclusions are allowed to create principles and restrictions. Technical issues then lead to architecture.
- Mind that between interior and exterior there is a multitude of half climate options to consider
- add bold conclusions to the Volume to tell your discoveries. Diagrams need to be explained
- the essay can be improved by avoiding repetitions and deleting titles to paragraphs

## Meeting Miguelangel Cleric Parala — 16.10.2021

- do you try to reverse the climate change
- what are the regulations / rules of housing within the Netherlands?
- what is the habit of the political structure
- adaptive approach
- space is precious; how many people can live here
- the space can be an investment
- explain it as a case study!
- why is this project special (relevance / importance / uniqueness)
- make it relevant to you!

## Meeting Vincent v. Heesch (studio space) — 18.12.2021

- hoe kun je de community laten groeien via een organische manier
- wat wil ik oplossen en waarom hier?
- praktisch: hoe kan je een woning uitbreiden
- referentie Superlofts + Marc Kohlen
- is dit paviljoen mogelijk op elke locatie of alleen hier?
- adaptiviteit + bio-based
- contactpersoon Rydia Fraaije → biomimicry

## Meeting Luuk de Vetten — 29.03.2022

soil adviser → ecologist Cyclofoxx

- zware metalen: brassica
- waterverontreiniging: populier / wilg
  - om het jaar de knot verwijderen
  - trekken veel vocht aan
- organische verontreiniging: ondergloeiingen
  - de voedingsstoffen worden via de wortels teruggegeven aan de bodem en bevorderd het bodem leven
- opgenomen verontreiniging bij organische stoffen worden afgebroken in de plant zelf.
- 1e 50 cm = contactzone ter veiligheid
- wat is de aanwezige bodemverontreiniging
- yara sluiskil: difonten gras

## Meeting Roland Schravenus — 05.05.2022

- werk aan je layout van de posters i.c.m. grootte's van de tekst. Waar wil je dat de aandacht naartoe gaat?
- verleg de temperatuur van de hitte dagen naar 30°C, deze temperatuur gebruikje dan voor gelijk het ook met zoveel jaar geleden.
- laat je proces van zaadje tot bouwblok zien als een stroken planning en invulfase er ruimtebehoefte is gevraagd. Kunnen deze ~~ruimtes~~ processen dezelfde ruimten gebruiken
- maak een uitkenplan adv. de ruimtebehoefte. en stel eisen adv. de functie.
  - geconditioneerd
  - goed / dicht
  - hoeveelheid zonlicht
  - in de grond / erbaven
- hoe kun je low-tech deze eisen behalen.
- focus je nu eerst op de werkplaats en stel een visie voor de woning.
- wat gebeurt er als deze locatie volstaat met woningen, blijft de werkplaats dan in functie, wordt het afgebroken en ergens anders weer opgebouwd of krijgt het een andere functie?
- wat is het criterium aan de levensduur van de werkplaats: 1 structuur, 2 schil 3 inbouw

## Meeting Pedro Bernaton — 16.10.2021

- single person needs more investigation into the people in this region
- cycogeography
- urban entreopology
- political view
- how do you encounter with other people?

## Meeting Tobias Frenssen — 22.01.2022

- wat zijn je spelregels voor de woning, de mensen die er (gaan) wonen?
- denk meer vanuit erotie
- spelregels op vlakken
  - vormelijk
  - emotioneel
  - inhoudelijk
- wat zijn de fases op de locatie, levert het terrein iets op?
- Daan Roosegaarde: Van Gogh pad: lichtgevend wandel- / fietspad → ecologische verlichting
- Maak een tijdlijn wanneer wij moeten investeren
- neem de toekomstige bewoner mee in het proces
- hoe onderscheid met verblijven te maken? evt. met reliëf

## Meeting classmate — 08.04.202

- de fabriek / hoofdgebouw is de basis / de kern voor de ruimte te bouwen verblijven.
- de kern bevat het proces van grondstof tot bouwmateriaal;
  - hoe lang duurt dit
  - welke ruimtes / machines heb ik nodig
  - wanneer heb ik grondstof
  - hoeveel heb ik nodig voor 1 blok / 1 m³ en hoeveel kan ik per jaar oogsten
  - ↳ bepaalt de grootte van 1 woning

## Workmeeting Jan-Willem 12.11.2021

- natuur leidend ▶ architectuur nu uitgelaten
- natuur geeft aanleiding voor plekken in het gebied
- natuur als drager ▶ basis structuur
- beschutting / hidden gems in paradijs
- wat als architectuur zich volledig natuurlijk gaat gedragen
- C 1+2 serien ▶ leidend + placemaking
- C 2 (nieuw) architectuur interveniëerend, maar gedraagt zich organisch
- C3 synergie, vervlechten / vernieuwen natuur + architectuur

## Workmeeting Jan-Willem 19.11.2021

- referentie : houten stad in Weesp
  - toegankelijkheid brandweer
  - thermisch hout / accoya
- zoek gerealiseerde projecten en jouw project op een hoger niveau te brengen
- hoe kan ik me natuurlijk gedragen, maar bestaan uit niet-natuurlijke (synthetische) materialen
- stel kriteria op voor dit gedrag
- referentie : Bodyhouse, Monolab
- het hart van het gebouw is aangesloten op alles

## Workmeeting Aafke 17.12.2021

- zoek het 'aderen' in de levende natuur en zijn grondstoffen
- kijk naar M. Vermeulen ▶ Biesbosch museum
- zie de structuur in de adaptibiliteit
  → groeien a.d.h.v. ruimtebehoefte
- Job Verschroien → TU
- half klimaat (ref. Cappadocië), functies zouds koken is buiten
- Bruder Klaus kapel
- natuurlijke processen van materialen gebruiken en architectuur te maken
- doe een uitspraak over stedelijk vlees
- kijk naar zoning / droogte / hitte
- stel je programma vast

## Workmeeting Jan-Willem 21.01.2022

- stel je buren zijn er niet ; je omgeving biedt rust en jezelf te zijn
- schrijf een routine van een bewoner uit
- stel je hebt geen vaste wanden ▶ wat voor vastigheid heb je dan nog nodig?
- referentie Earos House
- is het een uitdaging om met standaard bouwmaterialen een woning te bouwen
  → natuurlijke producten
  → semi transparante producten
  → biologische producten
- wat is mijn definitie van paradijs en natuur
- wat zijn de thema's van je spelregels
- hypothese → definities P + N → spelregels → ontwerp

## Workmeeting Aafke 12.11.2021

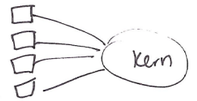
- wat is paradijs voor mij : wat is de sfeer, klimaat, lichtinval, gehoor, etc?
- wat zijn de architectonische componenten
  - veilig ▶ gevoel
  - rust (oase) ▶ klimaat / daglicht
  - verrassingselement
- prikkelen van de zintuigen : hoe doet de natuur dit
- concepten samenvoegen waar ze teveel overeen komen
  - natuur zijn gang laten gaan
  - biomimicry
  - biophilic → positieve invloed op ons

## Workmeeting Jan-Willem 26.11.2021

- architectuur → ← natuur
  nieuw
- Arch. → ← Natuur
  geschikt structuur
- case study : puur natuurlijke uitkomst
- fases per bebouwing
- wat is de kritische afstand van de boren / verbinden tot elkaar
- groeiende architectuur
- wat is de maximale loadcapaciteit als natuur de bron is

## Workmeeting Aafke 24.12.2021

- creëer persona's en typologiën aan te koppelen
- welk gevoel heb ik bij welke ruimte
  kern : afgesloten
  wanen : open en zichtbaar
- kijk naar het 'Wikkelhuis' qua aanpasbaarheid en modulariteit.
- waarom heb je voor deze locatie gekozen?
- bepaal de sfeer per ruimte en welke materialen hierbij horen




- hoe zijn deze verschillende ruimtes te verbinden
- wat is de positie t.o.v. de buurman
- analyseer Villa Fifty-Fifty ; een project van Zumthor / Dalko & Wright

## Workmeeting Pieter 28.01.2022

- referentie Charlotte Perriand lost holiday home
- oriëntatie buitenshuis
- 'indeling' : wat als de wanden niet tot het dak lopen
- wat is het gebied ; hoe kom ik binnen, structuur, hoe bouw ik de woning, hoe plaats ik meubels?
- test de typologieën
- vrijheid = key

## Workmeeting Aafke 28.01.2022

- natuur ≠ □, vormen (tralies) in de natuur zijn organisch, zodanig anders dan dat wij mensen gebruiken.
- Kijk/test hoe je de vorm kunt schakelen o.b.v. ruimtebehoefte

wat is het hart?

- breng de tijdsperiode in kaart met groeien, verbouwen en bouwen van gewassen en verblijven.
- schets de terreininrichting en je concept tijdlijn
- gebruik je materialen om te ontwerpen

## Workmeeting Pieter 04.02.2022

- welke materialen kunnen hier groeien?
- tweak het model; van welke kant kom je het verblijf binnen?
- is het interieur geïntegreerd of staat het los?
- houd de materialisatie voor nu simpel
- hoe bouw je een wand op (lagen 1,2,3)
- wat is de dynamiek op de locatie
- referentie Piet Hein Eek, Eindhoven Hbr extra functies die niet in je huis passen.

## Workmeeting ▸ Workshop 18.02.2022

- what is holding me back?
- define your points of departure from the preliminary design: what works, does not work, and needs to be developed.
- views: zooming in + out, how does it look like from a distance, and when I come closer.
- explore the model further
- analyse your previous work
- don't start/think about a shape, let the individual elements form a shape
- what if I want to shelter myself when in a foresty paradise
  → you elevate yourself
  → you provide a roof
- mindset: like a section
- think about your experiences of paradise
- where do you store your materials

## Workmeeting Aafke 11.03.2022

- kijk naar bladstructuren (kleur, nerven) en hoe dit vertaald kan worden in je verblijf.
- mogelijkheid tot toepassing van bamboe
- waterbassin ter opslaan water vanaf het dak.
- kern volledig geaccidentaliseerd, dus niet alleen een wand, maar ook een toegang + dak.
- maak er architectuur van!
- test de losse + vaste onderdelen uit middels een maquette.
- 2070: wat zijn de seizoens opstellingen qua open - dicht
- hoe/op welke manier is het verblijf uit-te breiden (horizontaal + verticaal gezien)

## Workmeeting Pieter 11.03.2022

- neem contact op met Nick v. Dijke (afgestudeerd en Ivan Westerveen Hbr kennis hennep.
- zorg voor uitbreidingsruimte in je ontwerp.
- referenties van ronde gebouwen
  L> principes!
- Melnikov house, jaren '30
- is rond een praktische vorm? → bekisting
- DDW → voedersilo
- documenteer je onderzoeken
- praktijkproeven → visites
- eigen ontwerp → combinatie - uitbreiding functies in de wand (sleuven kersteel)
- Buckminster Fuller
- gevoelskwaliteit = principes

## Workmeeting ▸ Workshop 18.03.2022

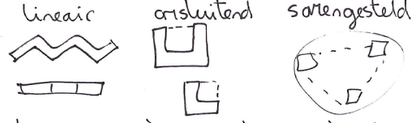
- alles wat je doet staat in het teken van het bevorderen van de biologie van je gebied.
- type begroeiing deels constructief/aankleding
- 3D model (sectie) van de boren/gewassen van fysieke mediatie, middels een fragmenten tijdlijn. (seizoen/jaren)
- de dichtheid van die begroeiing bepaalt waar + hoeveel verblijven kunnen worden gerealiseerd
- thema: Groei, test op welke manieren/richtingen dit kan vanuit de kern
- referentie: Diemerpark, Amsterdam.
- test je referentie projecten
- technische aspecten meer opzoeken/betrekken.
- contact met de natuur is belangrijk
- neem contact op met een biologe/ecoloog Hbr. verzoeken van water, hoogte strond, lichtinval, etc.
- materiaal is leidend voor jou
- complexiteit van het gebouw moet afstudeer-waardig zijn. Bij twijfel van spreken bereidt tot de laatste schoot.

## Workmeeting Aafke 18.03.2022

- hoe 'groeit' de natuur 
- spreek met een biologe + ecoloog
- verblijfsruimten ook in de winter op temperatuur maar hoe
- tussenruimte afsluitbaar + n.v.t. wand verwarming
- opp uit van extremen (verwarmen) obv klimaat
- functies + activiteit bepalen de routing van je plg

## Workmeeting Jan Willem 25.03.2022

- uitbreidingen vertalen naar 3/4 typologieën
- hoog DIY gehalte aanwezig, waarbij de mensen zelf kunnen (ver) bouwen
- typologieën




- materialen (DIY): glas - hennep - hout
- HSB - light
- klimaat bu.k. / hk. / bi k. → combi = interessant!
- kern wordt voorzien door de locatie
- passief bouwen
  - geïsoleerd watervat
  - warmtewisselaar (soort radiator)
  - warmtepomp
  - alternatief voor vorm pv-panelen
- je leven is afleesbaar aan je verblijf
- je kern ≠ material = leidend, waarom dan weggestopt in een hoek

## Workmeeting JW 01.04.2022

- doorsnede + tijdlijn is startpunt
- vlak of met verschillende hoogtes (M. Kouwenberg)
- DIY zacht voor eenvoud
- geen hout de grond in (niet levensduur)
  - hoogte wordt bepaald door de bruikbaarheid/onderhoud
  - grind - schelpen
- is leem praktisch → waar haal ik dit vandaan, is het klei/blokken
- functionaliteit, manier van leven en sociale aspecten bepalen het ontwerp.
- zones I - II - III
  - kern
  - buiten
    - theatrische/esthetische schil
- isderen voor nu of 2070 (ref. Frankrijk

## Workmeeting Aafke 01.04.2022

- helpt hennep om grond te reinigen
  - ↳ ja!
- veldlijnen zijn middels de 'Ikea' handleiding te realiseren → DIY gehalte
- wat kan ik met de beoogde materialen wel of niet verzorgen (dak/deur)
  - → 'paas'lijst met bestellingen
- leg je randvoorwaarden vast vanuit de materialen/het klimaat.
- het oogsten/verbouwen met de hand bepaalt de hoogtes, rastermaat van je constructie/materialen. DIY bepaalt de hoogtes van je verblijf.
- drs fytoremediatie + planten verkalen in je tijdlijn.
- referentie project Afrika naar hier halen → wat kan er dan nog wel/niet van?
- stel een bibliotheek op voor je elementen (kozijnen/deuren)
- doel: oplossen klimaatproblemen middels architectuur
- creëeren 2-3 communities als oriëntatie
- ~~Focus what~~ r
- vanuit waar ontwerp ik ref. Wikihuis
  - -beleving -klimaat
  - -uitstraling

## Workmeeting Pieter 08.04.2022

- spanningsveld natuurlijke omgeving met groei vs. de bouw/woonopgave
- community in learning: je wordt opgeleid middels het doen met de andere bewoners.
  - ↳ welke aspecten horen hierbij?
  - ↳ welke processen?
    - waar moet de architectuur aan voldoen?
- hoe maak ik het fronte/de ruimtelijke elementen voor de woning, de werkplaats en hoe dit gebouwd kan worden en later verbouwd?
- wat voor fronte
- ref: local community areas: The Machinga
- Definitieve Dissertatie: ruimtelijk voorstel met verschillende programma's


- cluster: geschakeld/lineair/rand n.t.b.

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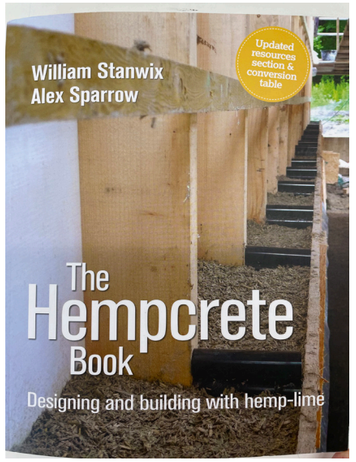
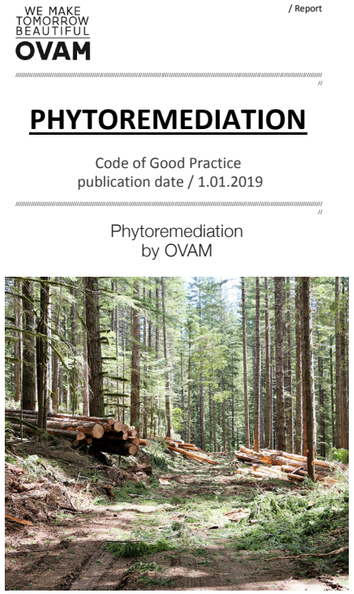
# LITERATURE


Circulaire gebouwen
by Duurzaam bouwend Nederland



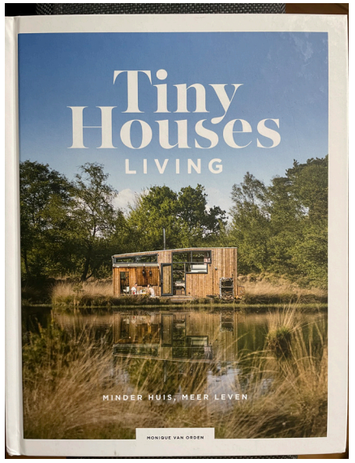

The Hempcrete Book
by William Stanwix & Alex Sparrow




Phytoremediation
by OVAM

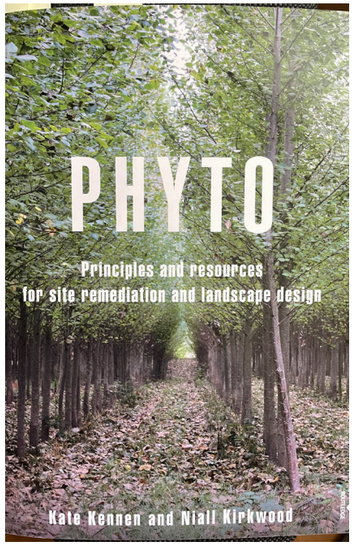


Bouwen met Bomen
by Studio Marco Vermeulen




Tiny houses living,
by Monique van Orden


Ruimte voor Biobased Bouwen
by Studio Marco Vermeulen




Phyto,
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