# THE REWILDING F A R M

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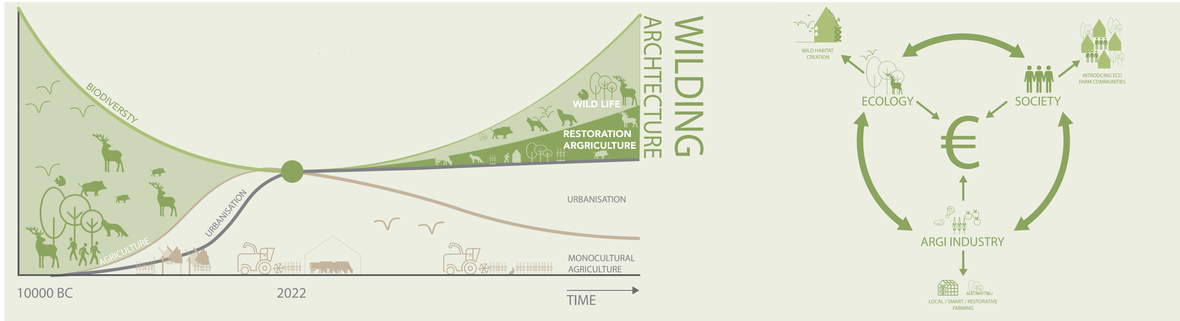
**The project "The (re)wilding farm" is a case study for a new balance between nature, agriculture and farming communities. The landscape is a wild habitat for animals, vegetation and people. It is a landscape that is a cohesive system that is self-regulated by the services of wildlife and humans. Architecture and landscape merge into new farm typologies for ecological food production. The whole regenerate the landscape with sustainable yields as an alternative to the current agricultural, recreational and urbanisation systems in rural areas. It is a system that benefits ecology, society and the economy. It is a place where a new ecological living paradise is being created.**







## THE CHALLENGE

Since the post-war agricultural industrialisation, the Dutch landscape has become further polarised and fragmented. Agriculture and wilderness have become enemies of each other. Nevertheless, both are inextricably linked. The current system keeps agribusiness and wilderness in a stranglehold on each other. Ultra-efficient farming is opposed to "the wilderness." Biodiversity policy frameworks force farmers to move away from industrial production. So farms must give way to the development of so-called "New Nature." Conversely, the small amount of wilderness/nature areas that the Netherlands has become inaccessible to people. As a result that people become alienated from the wilderness. A political discussion about housing and the densification of cities or building in rural areas interferes with this. Farmers are bought out and have to make way for new neighbourhoods at the expense of wilderness. At the same time, agriculture, the built environment and wilderness share the same challenge.

On top of that, farmers are dealing with crop failures due to climate change. Today, extreme weather plagues the Dutch landscape with long periods of severe drought or flooding. Improper anticipation of abiotic factors amplifies the effects of this extreme weather. Fields of crops located on low ground, steep slopes without Vegetation and barren fields of crops have become highly vulnerable due to climate change.

A paradise can be achieved when ecology, society, and economy must balance each other. So this means that agriculture, ecology, and living forms should not be opponents of each other but reinforce each other.
The [Re]wilding farm project reaches out to the three challenges at hand through a different design approach to landscape and architecture.





PROJECT SITE : LANDSCAPE OF AGRICULTURAL USE

PROJECT SITE : LANDSCAPE WATERMANAGMENT

PROJECT SITE : MONOCULTUREAL LANSCAPE

**PROJECT SITE :**
The project is located in a rural area between the Municipalities of Breda and Etten-Leur. It is a cultivated landscape located on the separation of: the high sandy soils and the low clay and peat soils. This indicates that the native landscape was most likely wetland on the boundary of the higher sandy soils.

The area is characterised by: a fragmentation of agriculture and nature reserves, overgrown peat pits, artificial interventions with steep slopes, such as the centrally located old garbage dump, and dikes, do not meet today's standards. Very remarkable, it has hardly any buildings.

Without human interference in this landscape, it would still be a wetland. Wetlands have an excellent water management system by nature. They are capable of retaining water and letting it slowly infiltrate the landscape.

WHAT IF:

**INDIGENOUS LANDSCAPE + AGRICULTURE + ARCHITECTURE=**

**A PARADISE FOR ECOLOGICAL FARMING COMMUNITIES**

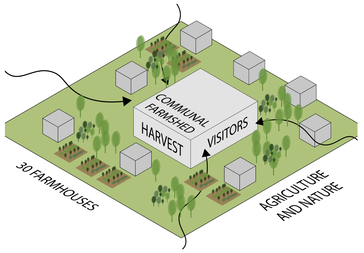
# LANDSCAPE TYPOLOGIES

**AMBITIONS:**
+ Reintroduce wetlands
+ Strengthen dike structure
+ Introduce LO-TEK [local-traditional ecological knowledge] & restoration farming methods
+ Enlarge the discipline of farming --> introduce new activities&functions
+ Introduce new farmhouse typologies

The adaptive indigenous landscape and contemporary artificial interventions result in three possible new living-farming environments.

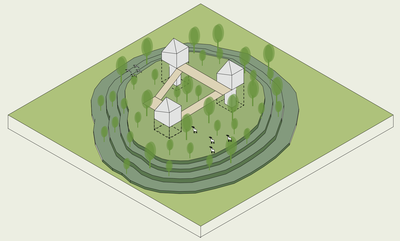
+ The raft: an on-water floating typology
+ The terp: a hill/terp-based typology
+ The ripple: a linear ripple in the landscape (the regional dike)

**PROGRAM:**
The program for this area is based on ecological food production and new business models for farms. Calculations of the maximal food production show that the productive landscape's maximal capacity can feed 400 - 600 inhabitants. Each landscape typology responds to agriculture, housing, nature, and climate adaptation.




LIVING:
+ 30 farmhouses per landscape typology (+/- 100 inhabitans)

FARMING/WORKING:
+ 1 farm shed for harvest processing and new activities, like tourism, markets and restaurant.
+ ecological agricultural landuse

Today's terp is characterised by steep slopes that do not benefit the water management of the terp and a considerable flat high ground.

The steep slopes are transformed into terraces. These terraces retain rainwater longer, giving the water a longer chance to infiltrate the terraced landscape. The gentle slope ensures that mineral-rich humus does not wash away.

The five-hectare vast plain of the terp lends itself to the realisation of multiple ensembles of farmhouses, which creates three small farming communities. They come together and work at the centrally located communal farm.

A second living environment is a few meters above ground level. This is the layer of farmhouses and elevated paths. Thereby the areal footprint of buildings can be minimised by elevating the buildings on poles or small cores. In this way, people interfere less with the natural ecosystem services on the ground level. This also gives visitors and inhabitants the unique experience of the layers of the food forest. They can experience from the canopy to the ground layers.

## LIFE AT THE TERP

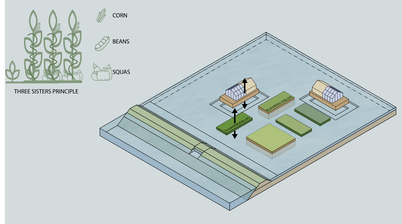
## LIFE AT THE RAFT


The life on a raft has a close relationship with the fluctuating water. The agriculture practised is inspired by Local - Traditional ecological knowledge, also known as LO-TEK. It is inspired on the elevated lands of the chinampa peoples, the floating fields from Bangladesh, the multi-layer cultivation principle like the three sisters used by various Native American peoples and the fishponds of the Tofinou people.

Water is the best friend of this typology; it is crucial for floating buildings. According to Archimedes' law, the mass of water displaced is equal to the maximum load on the Raft. In short, excavating creates a better foundation for the buildings. That is why drying out of the landscape must always be prevented.

The floating farmhouse typologies have greenhouses where the crops are strengthened before they are placed in the open ground of floating fields.

The main circulation infrastructure within this landscape is by boat. Inhabitants manoeuvre themselves, and their harvest is by small boats through the landscape.

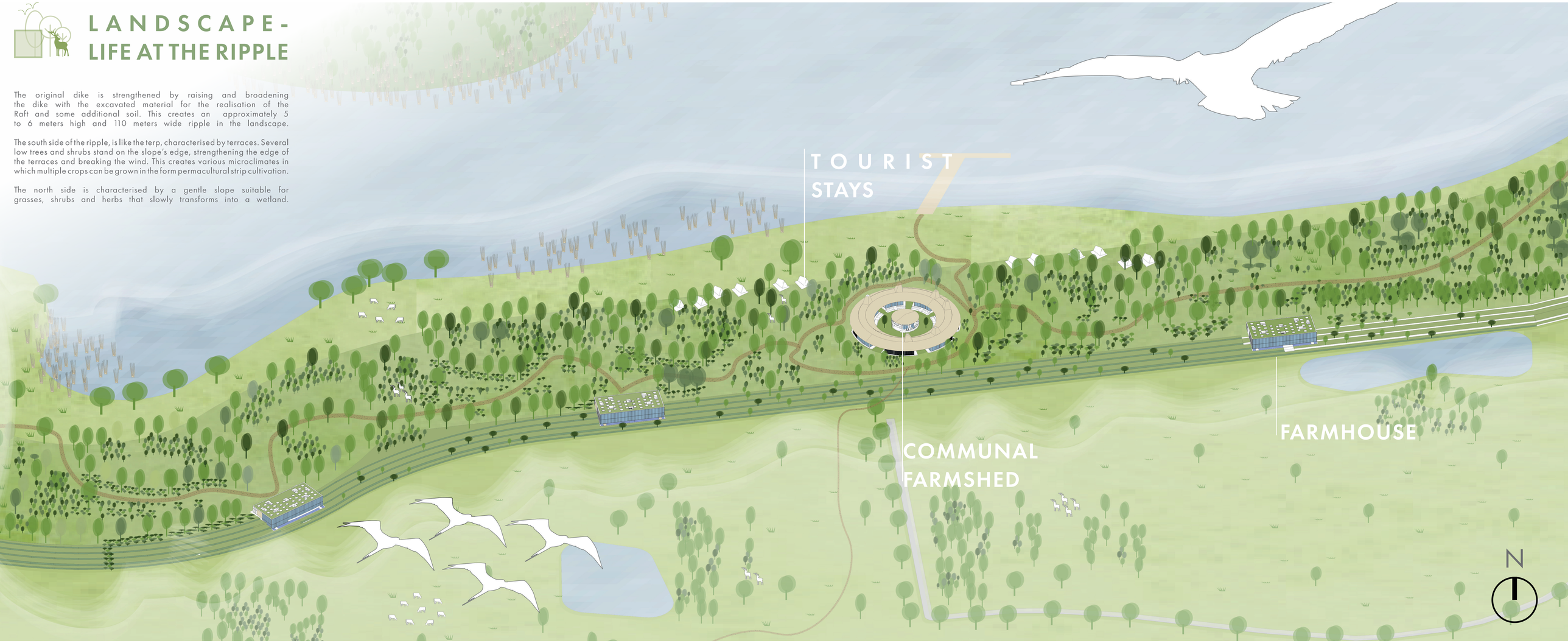


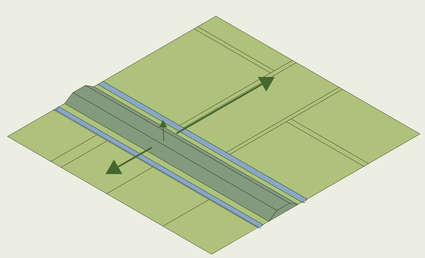

# LANDSCAPE - LIFE AT THE RIPPLE

The original dike is strengthened by raising and broadening the dike with the excavated material for the realisation of the Raft and some additional soil. This creates an approximately 5 to 6 meters high and 110 meters wide ripple in the landscape.

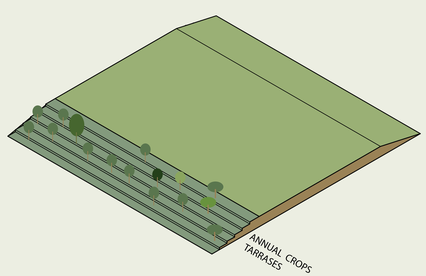
The south side of the ripple, is like the terp, characterised by terraces. Several low trees and shrubs stand on the slope's edge, strengthening the edge of the terraces and breaking the wind. This creates various microclimates in which multiple crops can be grown in the form permacultural strip cultivation.

The north side is characterised by a gentle slope suitable for grasses, shrubs and herbs that slowly transforms into a wetland.



ENLARGE THE DIKESTRUCTURE




DESIGN TARRASES


PROGRAM


INTRODUCE FARM TYPOLOGIES

A 3.5-kilometre long biodiverse food forest appears between the south and north lines of the ripple. The grassland and food forest are mostly maintained by the free grazing animals, that are reintroduced in the landscape.

Spread over the entire south line, ten farmhouses are realised. Four households live and work in between the germination processes of the various crops within the farmhouse.

In the middle of the ripple, a communal farmshed manifests itself where the farming community comes together to collect, process and trade the harvest. In this famshed, some residents of the community work daily on; for example: the various harvests from the forest are processed; visitors are received and guided through the area, workshops are given, and food is traded

On the north line of the ripple , 12 tourist accommodations for families who want to get acquainted with ecological farming, participate in workshops, and recreate in the biodiverse nature.

# FARMHOUSE DESIGN

## THE CONEPT

In the transition zone from food forest to terraces full of crops, the best of both worlds come together, and a modern interpretation of the farmhouse manifests itself here. The design of this communal farmhouse is based on four design principles:

+ Lifting the biodiverse landscape makes a roof full of the habitats for various species.

+ Embedding the building mass into the terraces has the consequense that the embedded spaces are one side orientated.

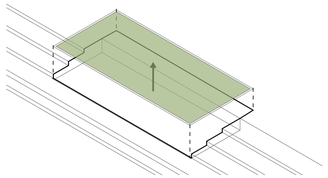
+ adding a system-based program, considering plant and crop cycles. This principle leads to a design. This is similar to the traditional farm, where living is subordinate to work. Therefore, living areas are surrounded by farmers' crafts. The building is organised according to the germination process.

+ perforation the of the roof for transmission from food forest to crops

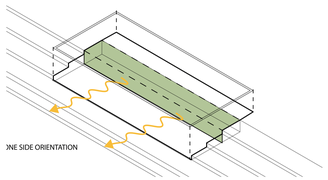
## THE PROCESS

The seeds that have been harvested are cooled in the concrete cold stores. This activates the seed's germination process by mimicking the "winter".

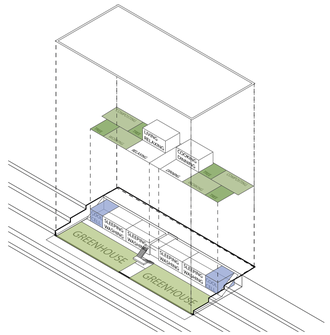
After some time, the seeds can be planted in pots with composted biomass. This fertile compost ensures that the young seeds will grow sufficiently. Due to the transparent facade and the open structure, a lot of daylight enters the greenhouse, which stimulates the growth of the plants. When these are strong enough, they can be planted in the ground to continue growing. As soon as the plants have grown sufficiently, they are planted outside on the terraces.



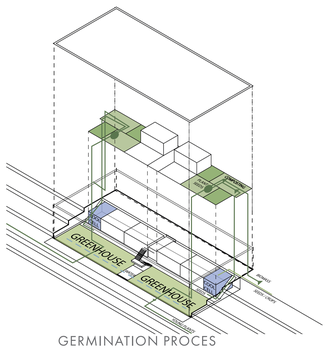
LIFITNG THE LANDSCAPE



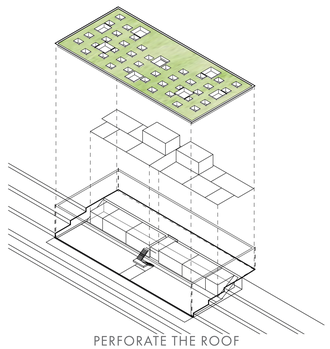

EMBEDDING > ONE SIDE ORIENTATED



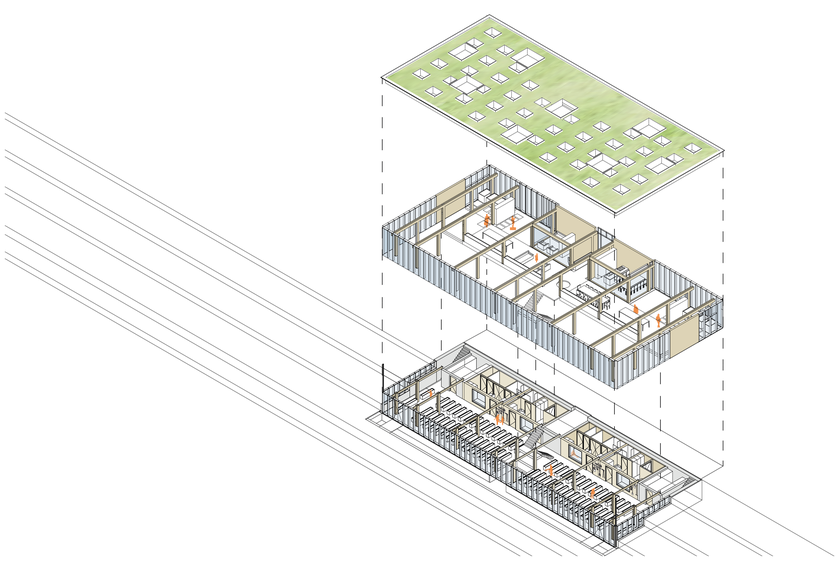

PROGRAM

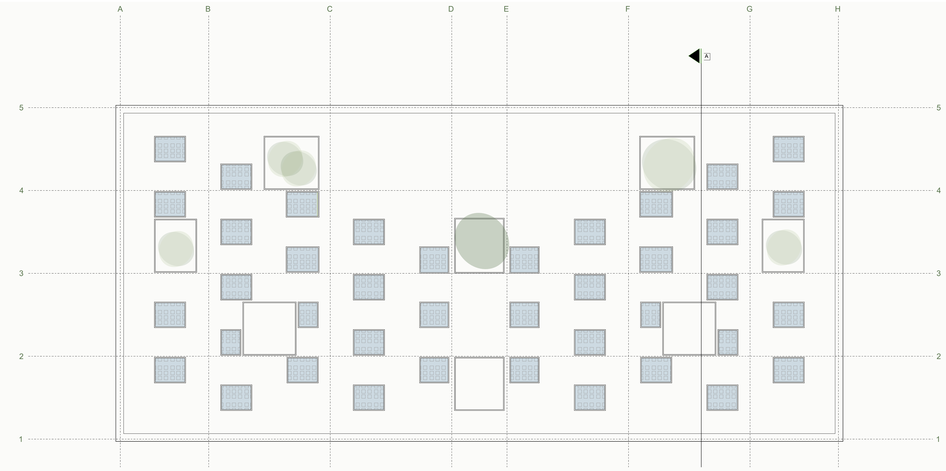



GERMINATION PROCES

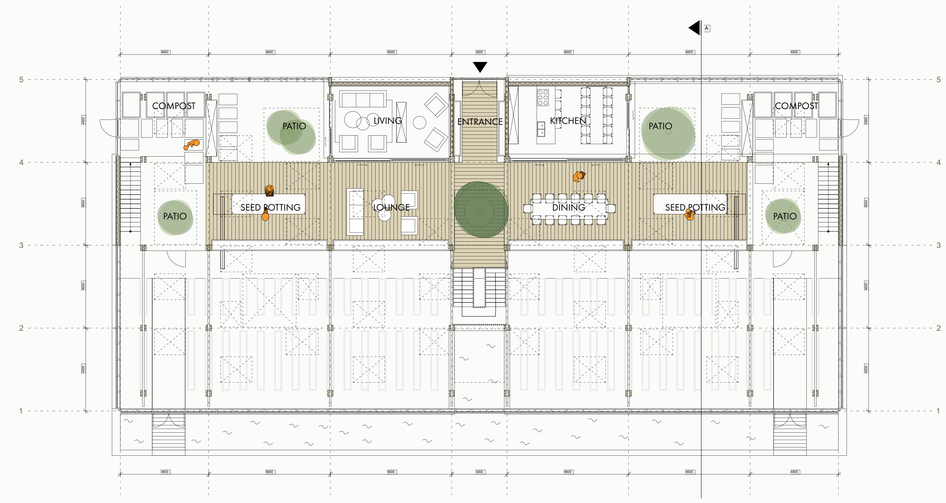


PERFORATE THE ROOF





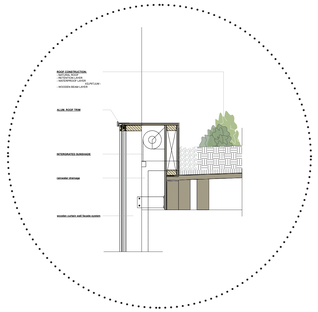
+1 ROOF



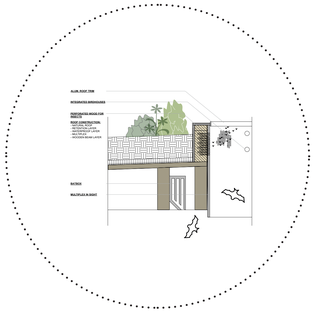

GROUNDFLOOR


-1 BASEMENT

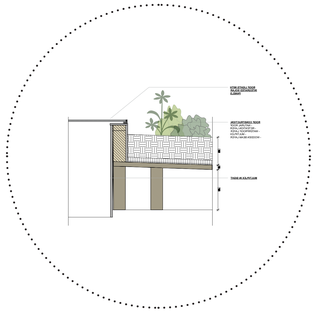
# DETIALS & MATERIALS



EAVES - CURTAINWALL
1:20



ROOF OPENING
1:20



SKYLIGHT
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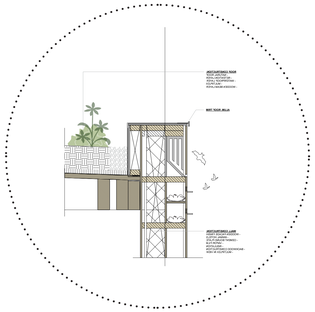
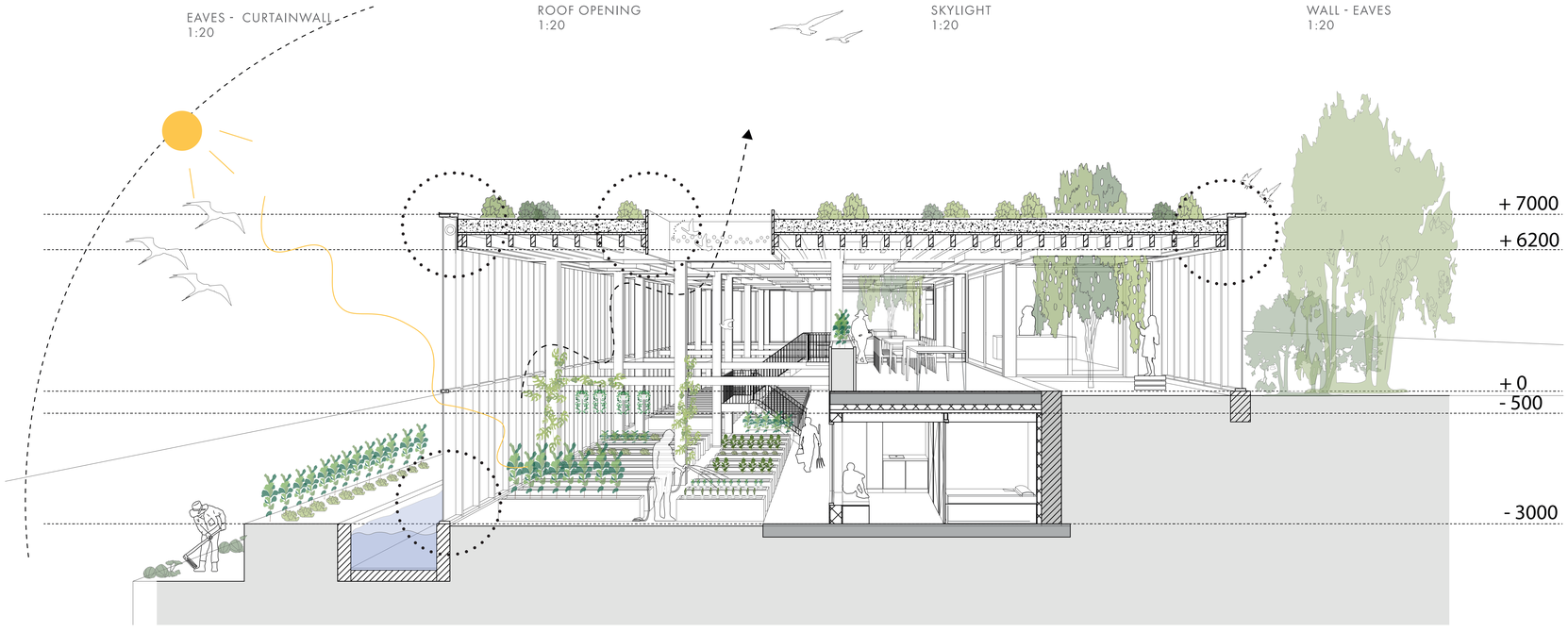
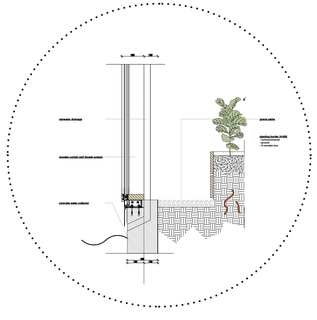


WALL - EAVES
1:20



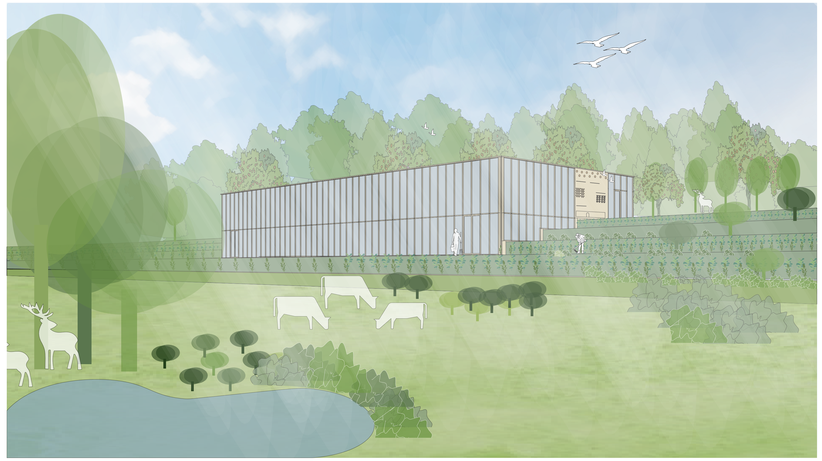
CURTAIN WALL - WATER COLLECTION
1:20

The modern farmhouse is characterised by its abstract and transpirational appearance. The wooden curtain wall provides plenty of daylight and enhances the horizontal character. In the roof edge solution, space has been created by a cove construction for a rollable sun screen. The slender eaves emphasise the abstract volume.

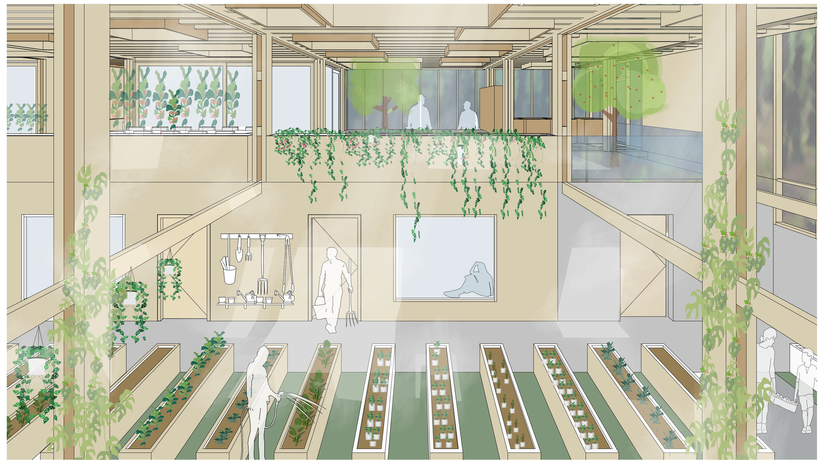
The exterior of the closed timber frame walls are equipped with nature-inclusive solutions. Different holes and cavities serve as habitats for various animals. The interior is characterised by simple and honest use of materials. Wooden trusses and panelling of timber frame construction walls ensure a lightweight, which benefits the foundation. The cold stores and basement walls and floors are made of concrete, and the mass of the concrete ensures a constant temperature.

The different households live within the farmhouse, each with its Appartement. Here you can sleep in a box bed, wash in a compact bathroom and rest on the sofa in the seat window. Above these units are a communal kitchen, living room and dining areas.


1: multiplex wood
2: concrete
3: glass:
4: aluminium



EXTERIOR IMPRESSION

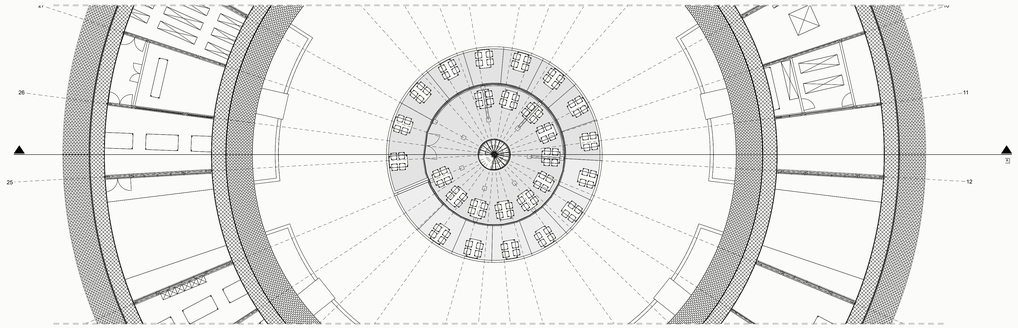


INTERIOR IMPRESSION: GREENHOUS

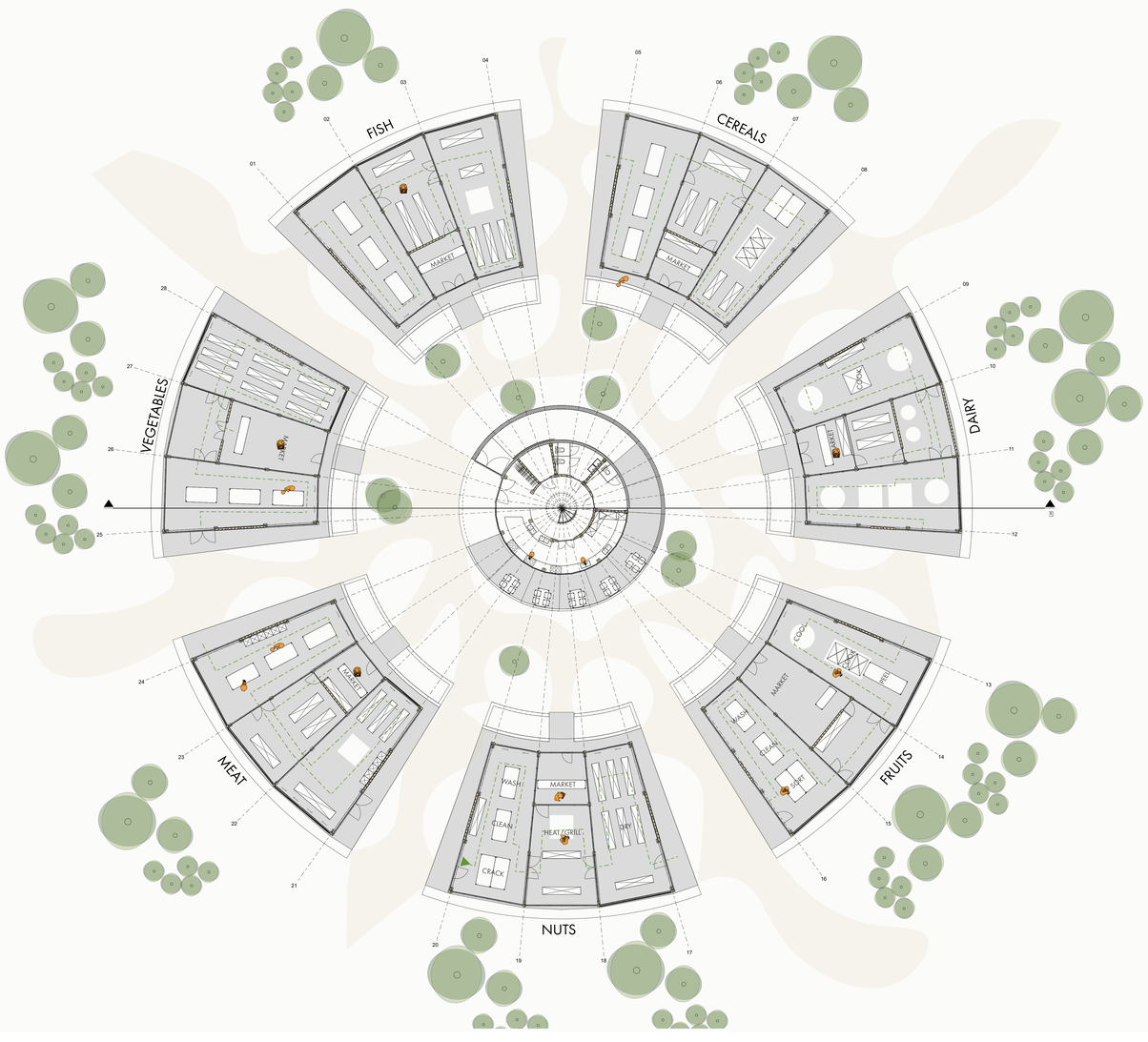
INTERIOR IMPRESSION: GREENHOUS

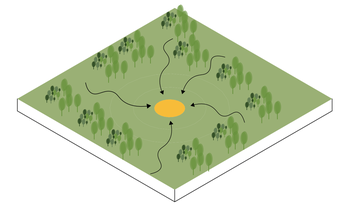
# THE FARMSHED

1 ST FLOOR

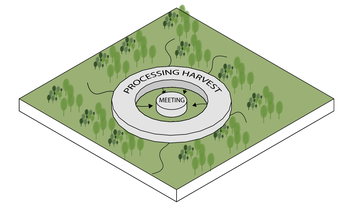


GROUND FLOOR

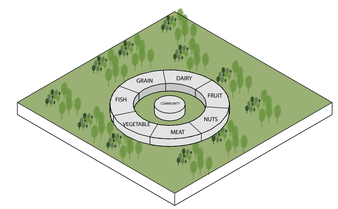


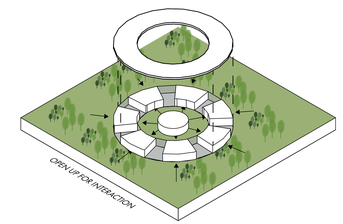
GATHERING AND COLLECTING




COMMUNITY STIMULATING AND




FOODTYPE SECTORS




OPEN UP AND CONNECT

The communal farm shed is intended for processing the harvest to the product. Like the farmhouse, a similar systematic approach is used during this design.

The design of this communal farm shed is build on four design principles:

1 community-oriented

The circular shape of the building provides a central meeting place for both the community and visitors and can be approached from all sides.

2 gathering harvest at one place
nuts, fruits, dairy, cereals, fish, vegetables, meat are harvested from the landscape and collected at one place

3 organising processes per food type

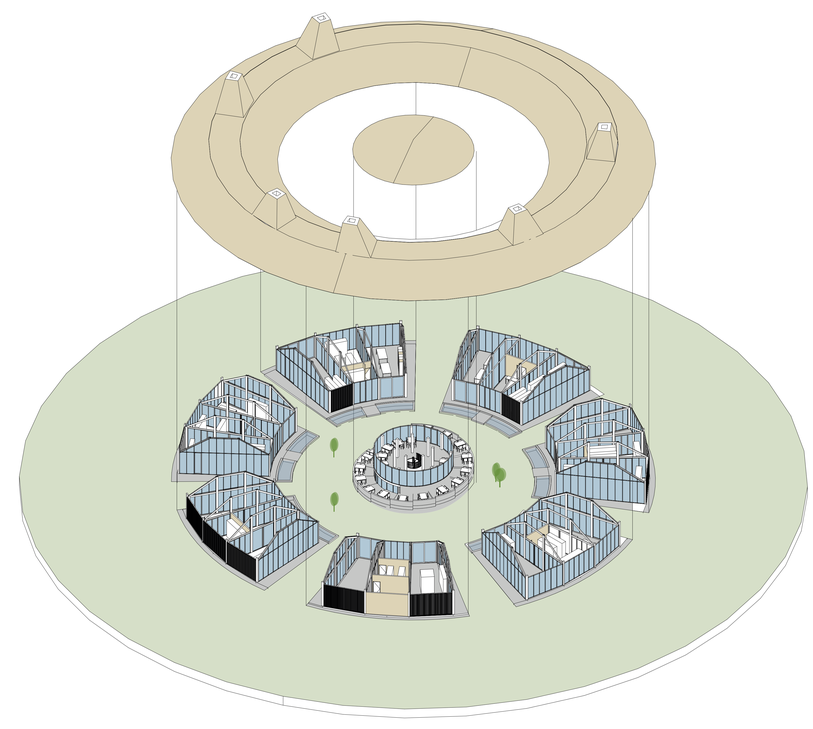
The processing of the harvest has different processes. These processes differ per food type, they are subdivided into seven sectors; meat, fish, cereals, dairy, fruits, nuts, and vegetables.

4) opening up to interaction

The transparent facades create an interaction with all the farmers' craftsmanships and markets. which are located in the building.

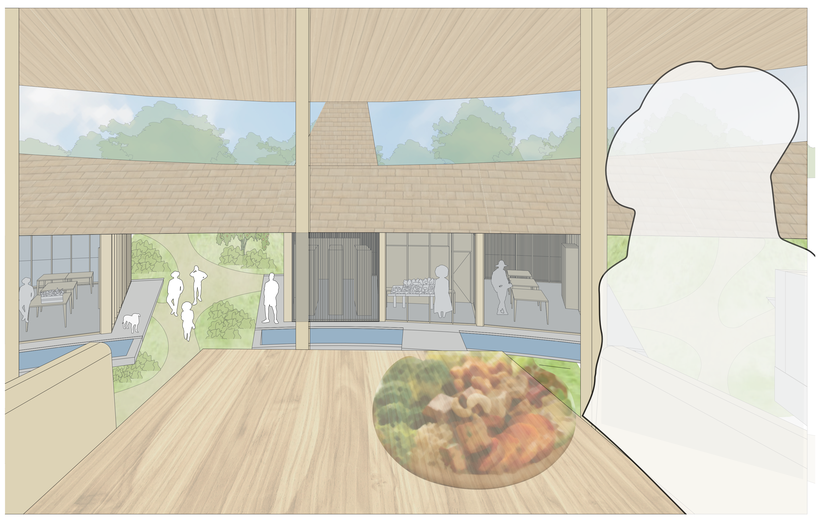
The processes per sectors are different. For example:

In the nuts sector: The nuts are dried, cracked or peeled and sometimes heated before consumption. While in the meat sector: The meat is skinned, sliced and dried or smoked.

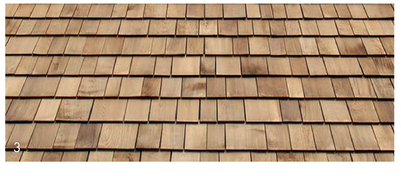


# DETAILS OF THE FARMSHED

EXTERIOR IMPRESSION: COURTYARD

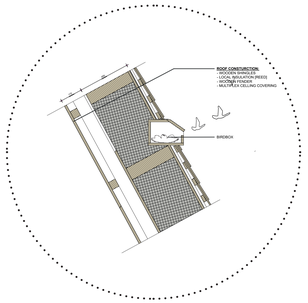


INTERIOR IMPRESSION: FROM THE RESTAURANT

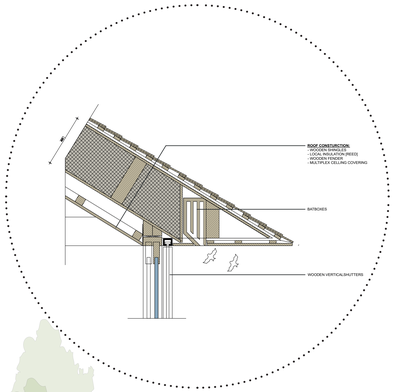




1: multiplex wood 2: concrete
3: wooding shingles 4: glass




ROOF-BIRDBOX
1:20




ROOF- EAVES
1:20

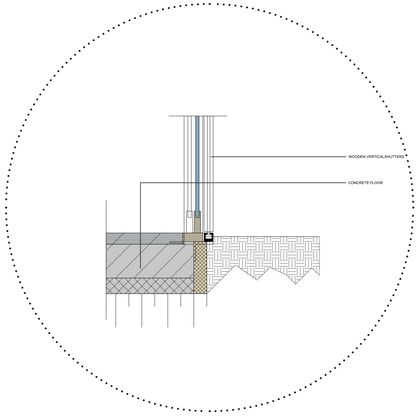

The products are then distributed to the farmers or sold to the customers in the markets. Part of the harvest is handed over to the restaurant, where visitors can taste fresh ecological food's benefits and fresh taste.

The rest of the harvest can be preserved in the underground concrete cooling tower. This and has constant cool temperatures due to the mass and depth of the tower. On top of the cooling tower, a multifunctional space and restaurant is created. From this space, you have a perfect view of all processes.

The unique design of the building contributes to the various processing processes and experiences. For drying products, the doors can be opened opposite each other, and slats can regulate the airflow. Also, the slats can be turned so direct sunlight can be blocked or embraced.

Several processes can perfectly be combined, like; Drying and heating/smoking, by using the chimney effect an extra airflow due to the rising heat created.

The flat concrete floor makes it an efficient workspace, which stays cool because of the mass and is also easily accessible with trolleys and carts. The lightweight construction on top of the floor consists of wooden trusses and columns that form an airy whole together with transparent parts. The closed roof connects all sectors and is made of wooden shingles that give the building a natural and abstract character.




FLOOR- SHUTTERS
1:20