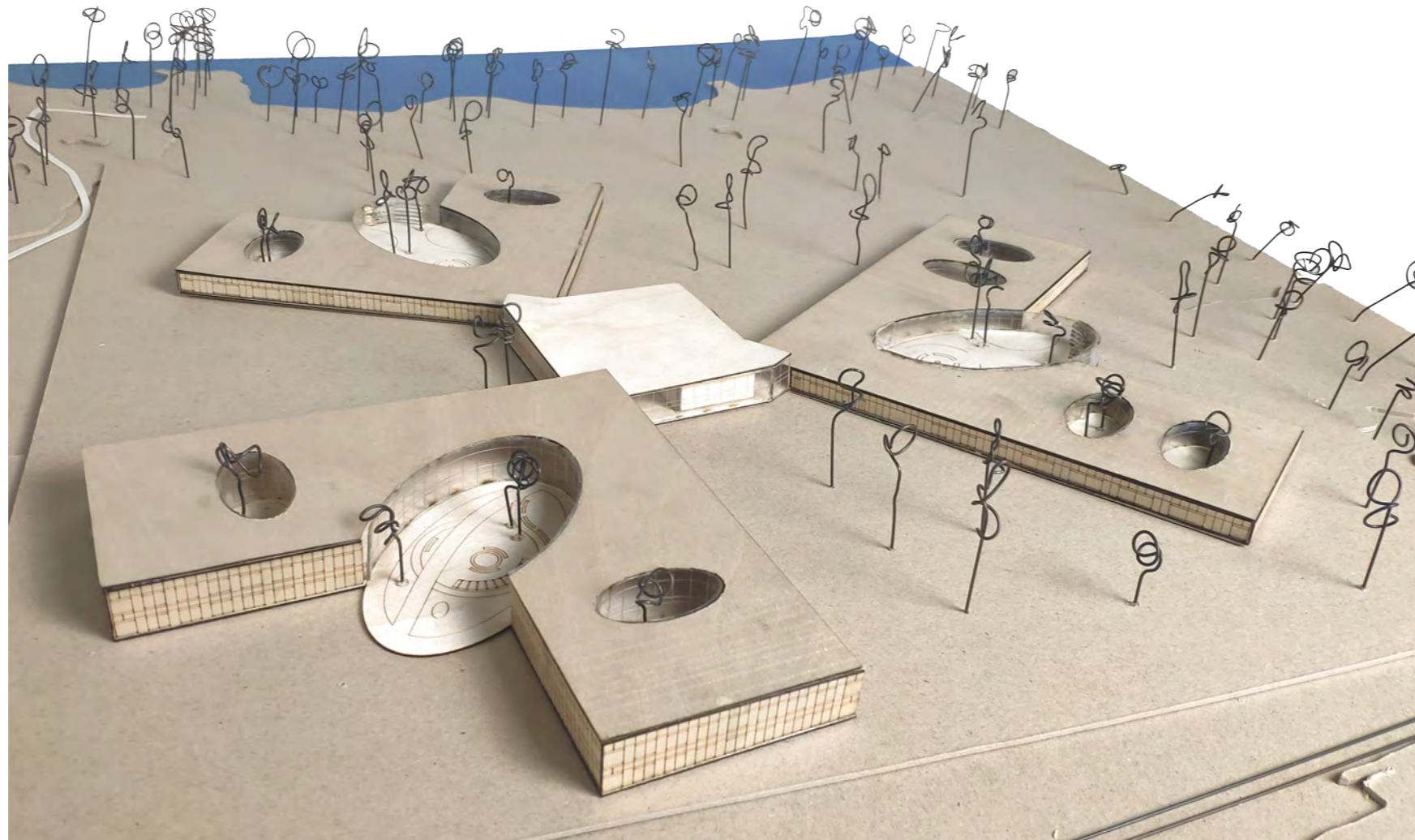


# COURTYARDS

VÄSTERVIK PSYCHIATRY FACILITY



Ark263 - Healthcare Architecture - 14.01.2019

Group 6 - Agnes Leo, Evelina Spaak & Yao Zhu

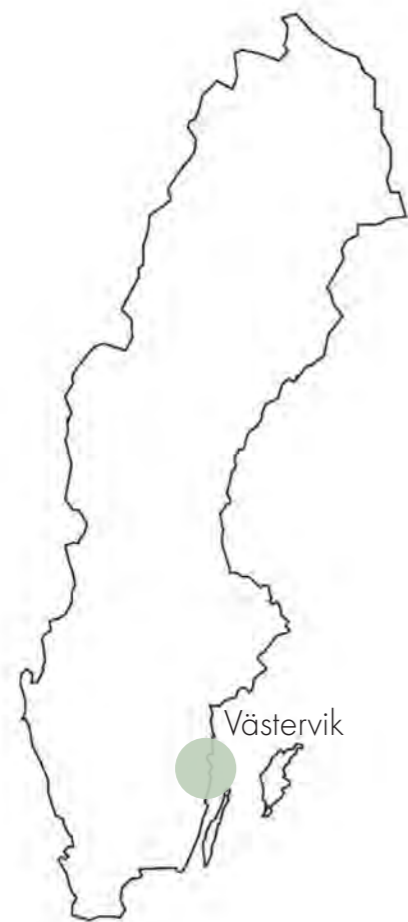
Teaching Team: Christine Hammarling, Elke Miedema, Lin Tan, Peter Fröst & Saga Karlsson

# BACKGROUND

## NEW PSYCHIATRIC BUILDING

The city of Västervik is currently planning a new psychiatric hospital. The building should contain wards for outpatients, BUP/ABC, inpatients and forensic patients.

The project will focus on how architecture can support health, and then apply this knowledge in to a building.



## THE SITE

The municipality of Västervik is located in northern Kalmar County in the north-eastern corner of Småland, and is one of southern Sweden's largest municipalities. Today Västervik offers specialized psychiatric care for three municipalities in the area which includes approximately 70 000 citizens.

The project site is located approximately 2 km from the city center. It's a rural site with close connections to the urban life. The somatic hospital is located in the middle of the city.

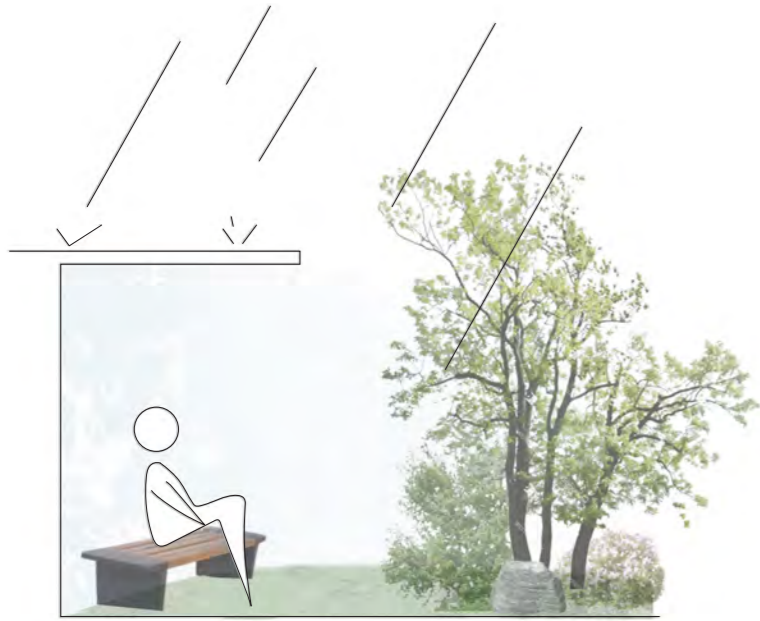


## PSYCHIATRY

Mental health issues are common and one in five person in Sweden experiences mental health issues. Care can be received from different caregivers depending on how severe it is or what kind of treatment or support the patient need. Majority however obtains care from the primary care system and patients in the need of specialist care are treated in a specialized psychiatric care, mainly in outpatient care. Patients suffering from mental health issues may have a shorter lifespan and have sometimes poorer living conditions and living habits than the average population. The conditions patients suffers from can sometimes be lifelong. Due to different psychiatric diagnosis, patients can display behavior of violence or self-harm.

Healthcare building design has developed positively during the last decade. Historically, hospitals have been built with an awareness of good architecture and access to nature as important parts of constituting a healing environment for the sick.

# CONCEPT



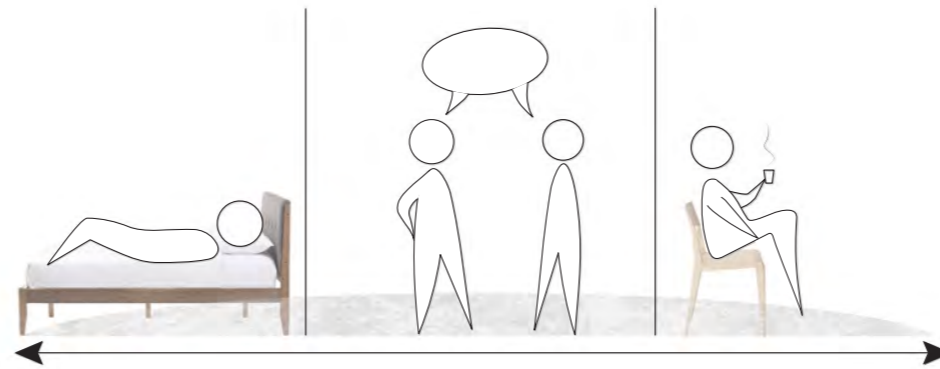
## ACCESS TO NATURE

### Why:

Evidence based design shows that easy access to nature, a lot of daylight and possibilities to be out in the wild promotes health and decreases the need for medication.

### How:

- By creating big and different courtyards in the building we bring the nature and the daylight into the building but also giving all the patients the opportunity to go out for a longer stay.



## ZONING

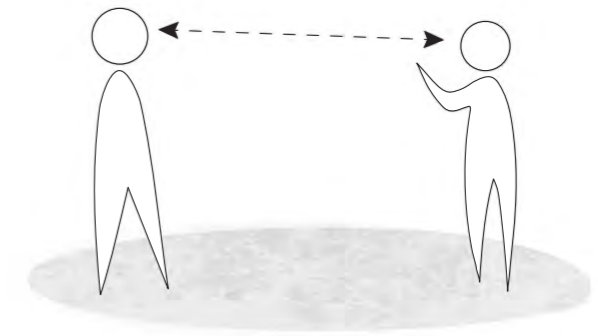
### Why:

Many people are visiting for the first time and therefore the wayfinding and zoning are important. It's also good that there are different grades of privacy and public, especially for the patients that are staying for a long time.

### How:

- By having all the public communication along the glazed walls we hope to improve the wayfinding.

- By designing the wards in a way that gives the patient's a choice to be both private and public.



## PATIENT CENTERED CARE

### Why:

To reduce the treatment time it's important to focus on the patient's wellbeing and not just the medical care. It's important that the patients feel safe and sound.

### How:

- By having a good overview both in the wards and the patient rooms we aim to achieve a feeling of security for the staff and safety for the patients.

- By choosing materials and colors that can give a calm expression.

- By giving the patients an opportunity to create, learn and play sports.



# SITE ANALYSIS



## THE SITE

The site is flat and open. It's surrounded by forest and fields. The existing villas that are there today will be removed.



## PUBLIC AREA

The site is close to a nature reserve with walking and running paths. We want the citizens to still have access to this so this part of the site will be untouched.



## RESIDENTIAL AREA

To the north there is a residential area with small-scale houses.



## POSSIBLE EXPANSION

If the psychiatric facility in the future needs to expand or be connected to other healthcare facilities there is place for that to the west.

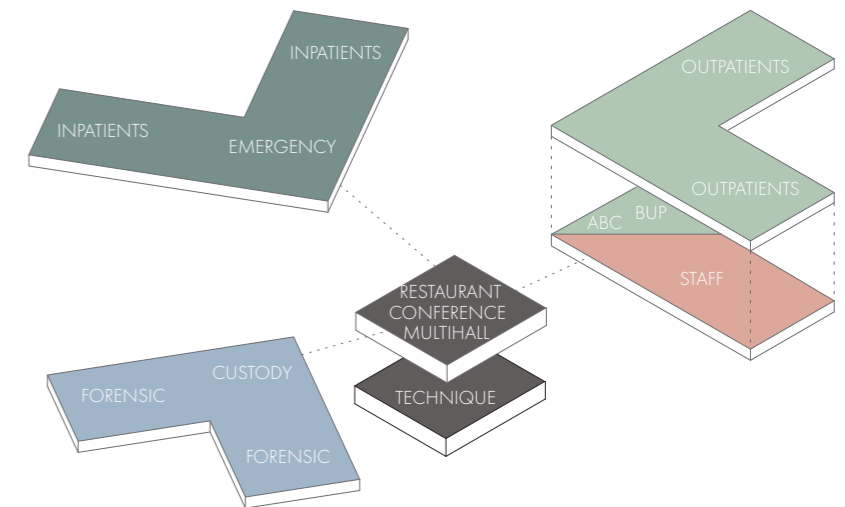
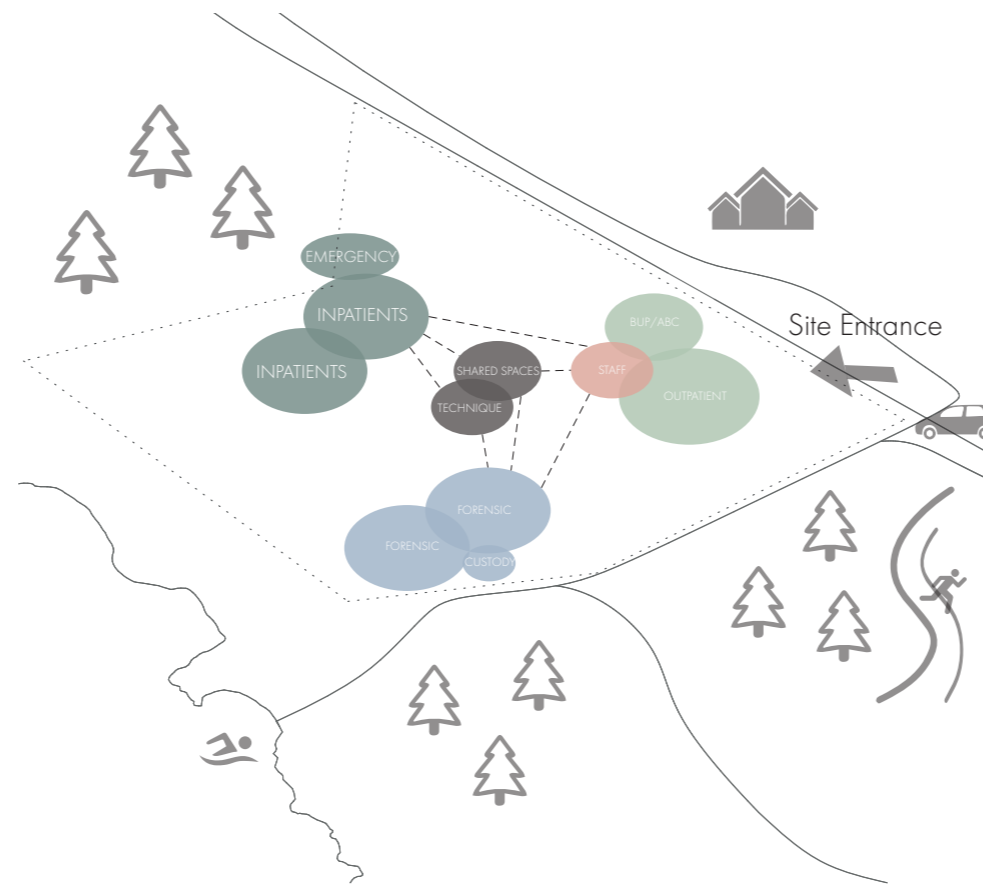
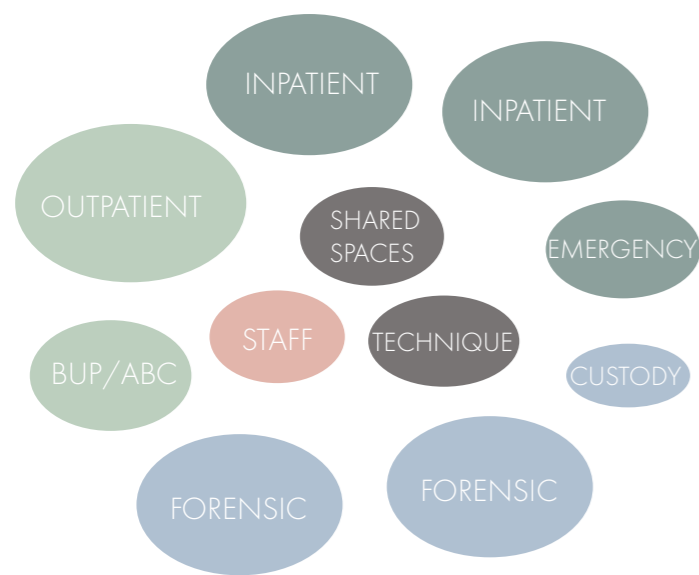


# PROGRAM

The design of a healthcare building is a complex process. To get an idea about how the program should be arranged we needed to know what parts that should be included and be close to each other.

We thought about which parts that should be connected, which departments that share staff and how to give each ward their special needs with separated entrances and flows. Also the location on the site was considered. The outpatient and the staff can be public while the inpatients and the forensic wards need to be more hidden. The movement for the staff between the wards are also important and should be as short and easy as possible.

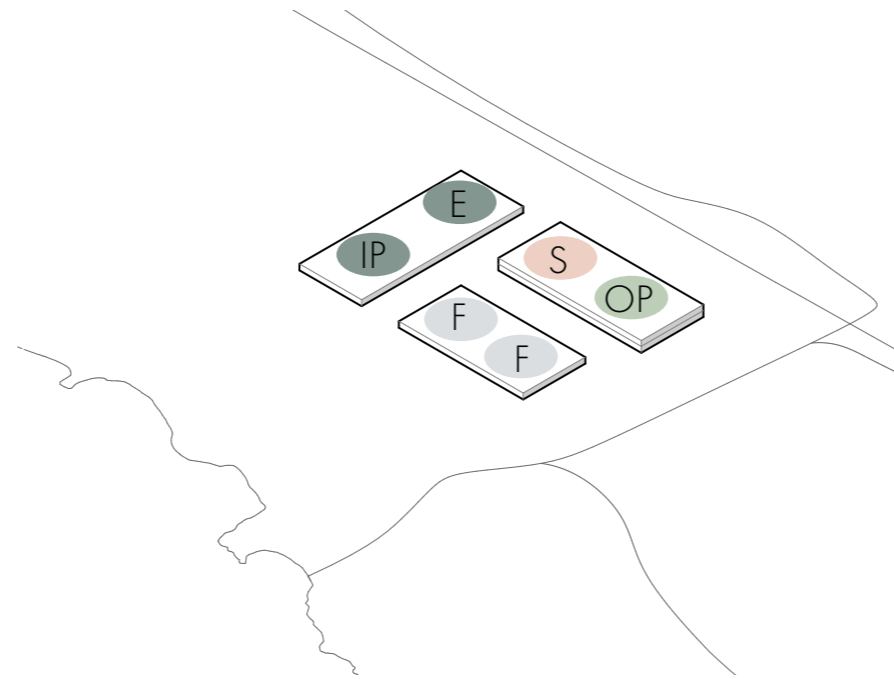
To fit the program we decided to place the outpatient wards in two different levels instead of two different parts.



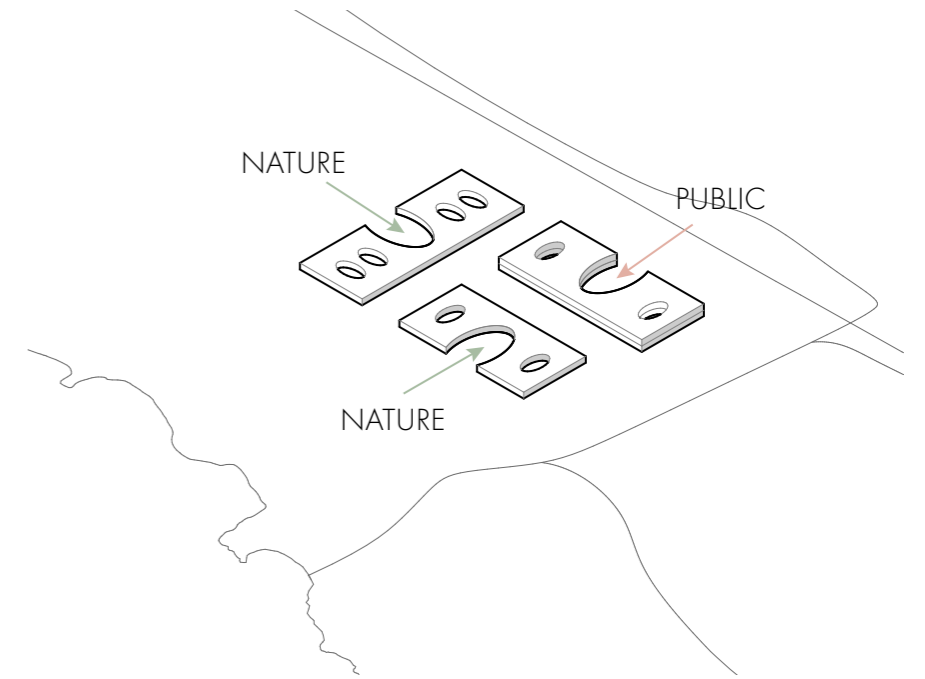
# SHAPE



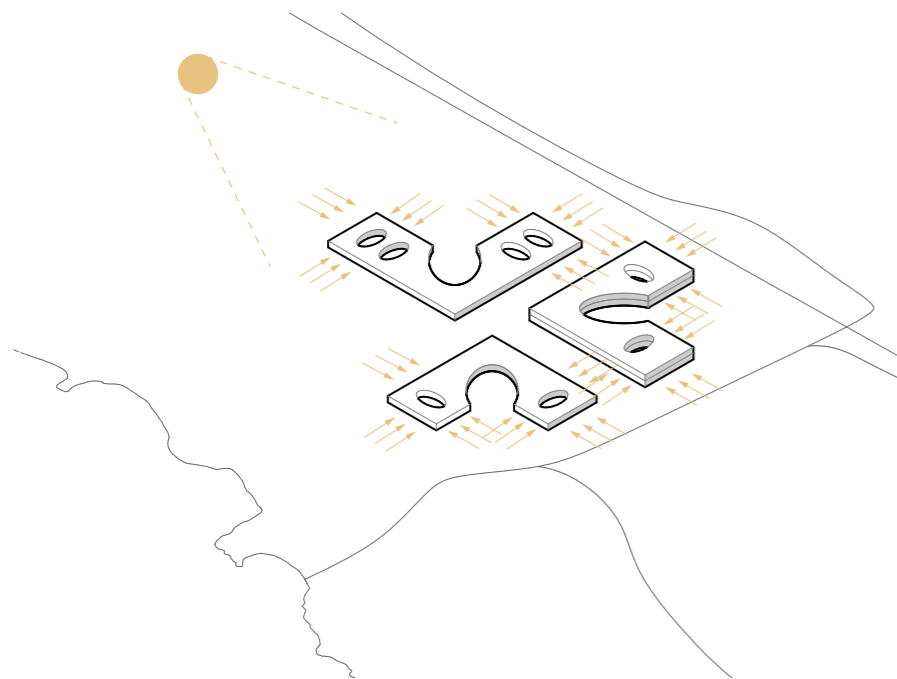
The site.



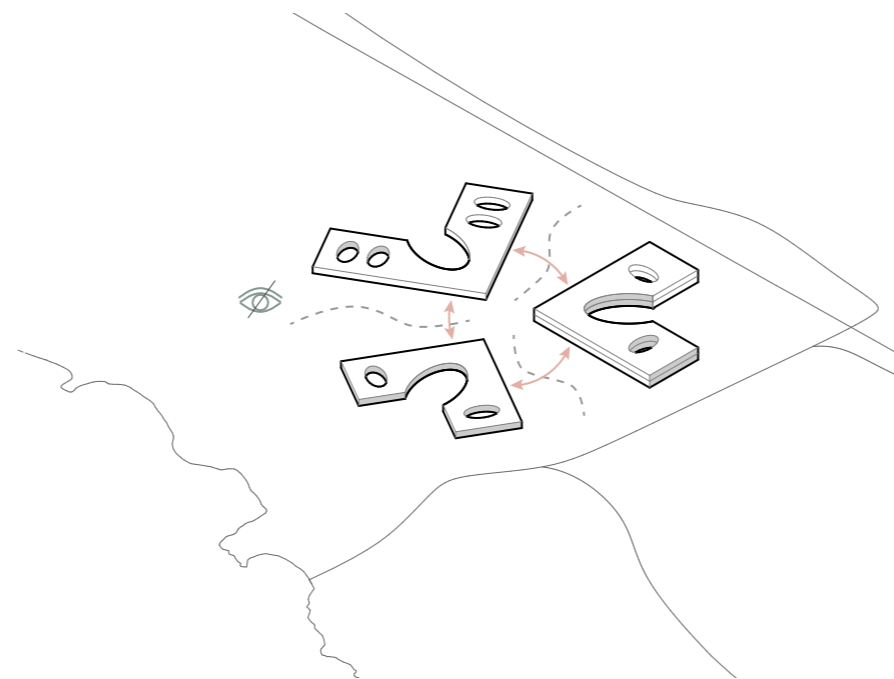
After designing the program the wards were placed. The inpatient and forensic is located closer to the forest to make them more private and the outpatient closer to the road and more public parts.



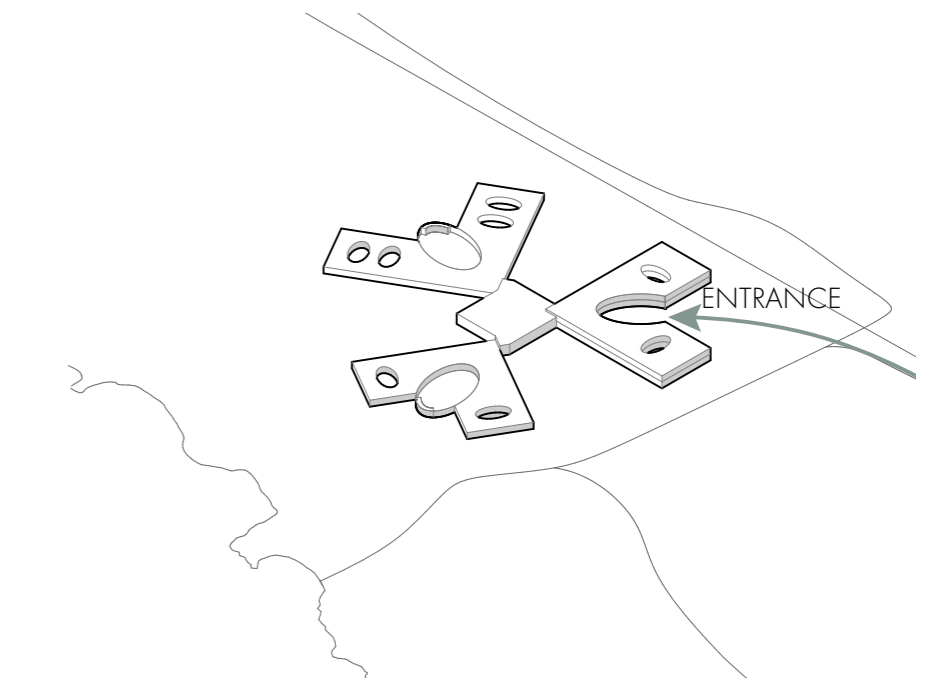
To bring in light and nature courtyards and atriums were added.



To give the patient rooms better daylight and orientation the rectangle form was broken up into an L-shaped form.



By rotating the shapes the wards were separated from each other and longer distances were created between the patient rooms.



To connect the different buildings a middle part with public and shared spaces was added.

# SITE

## PLAN

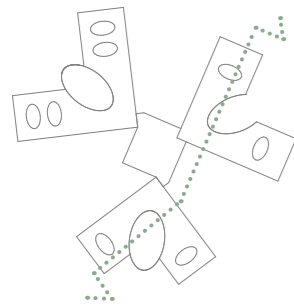
The train station, bus stop and parking area are all placed on the northeast part of the site where you also enter the building. The entrance is clearly visible from the road and from there the visitors can find their way to different wards.

Additional, more private entrances are located around the building and are separated from the main entrance flow. These entrances are used for ambulance, police cars and logistics.

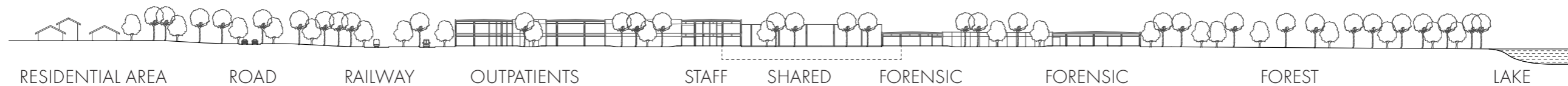
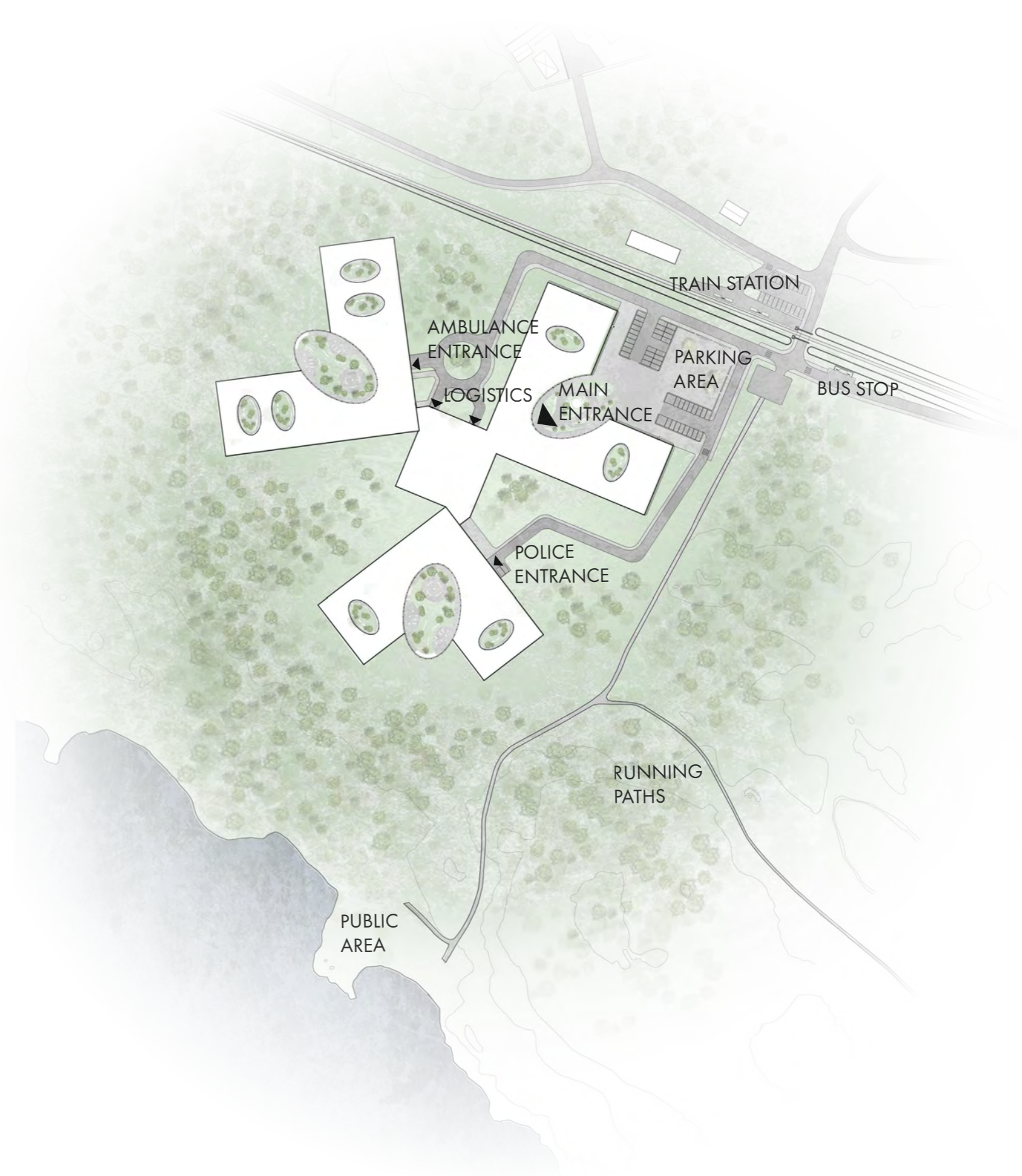
## SECTION

The section shows the building in relationship to the site. From the residential area and railway in the north, to the lake and forest in the south. The height difference between the north part and the south part of the site is about 2 meters.

It also shows how the courtyards bring the nature into the building and that the outpatient ward is in two stories.



Site plan 1:2500  
Site section 1:1500





# COMMUNICATION

PUBLIC TRANSPORT



CAR



POLICE



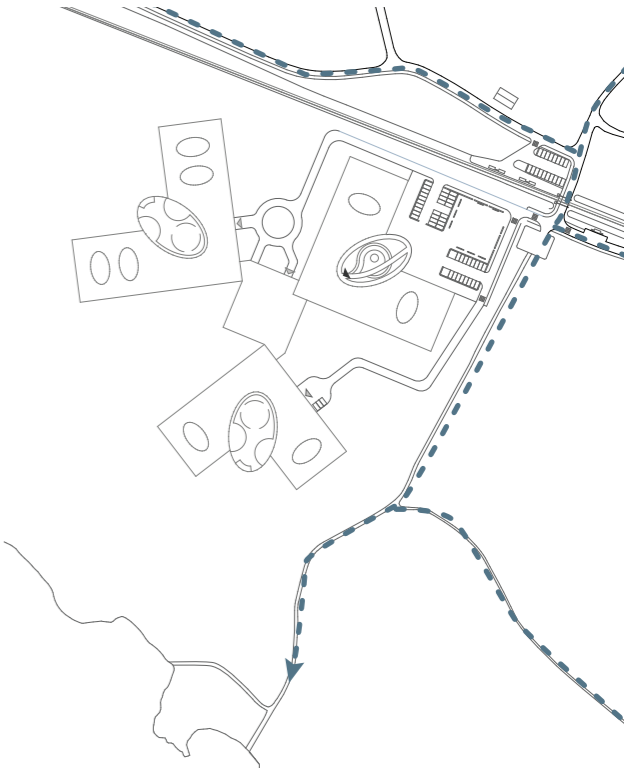
AMBULANCE



LOGISTICS



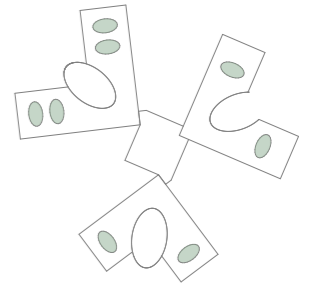
PUBLIC



# COURTYARDS

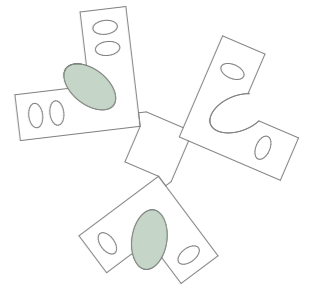
## GARDEN FOR SHORTER VISITS

In the smaller atriums within the wards the patients are staying for a shorter time. The patients have free access to these and they can go out there just for breathing fresh air or taking a smoke.



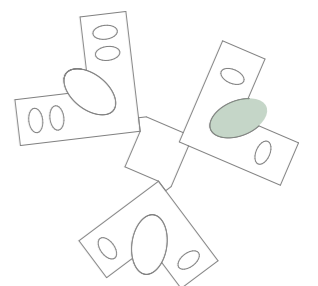
## GARDEN FOR LONGER STAYS

The big courtyards are for longer visits. In these the patients can both be private or socialize with other patient's. They can take a walk, sit down or planting new flowers in the green house.



## GARDEN FOR PASSING THROUGH

The garden for passing through is the entrance garden. This garden is public and most of the time people are just passing through to or from the psychiatry. Children could stay for a longer visit at the playground.



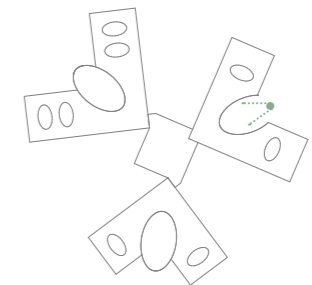


# COURTYARDS

ENTRANCE (GARDEN FOR PASSING THROUGH)



The entrance courtyard is public and there are spaces for walking, sitting and playing. Both the exterior and the outside area have a mix of hard and soft materials. From this perspective you can also see the glazed corridors on the inside of the building.





# BUILDING

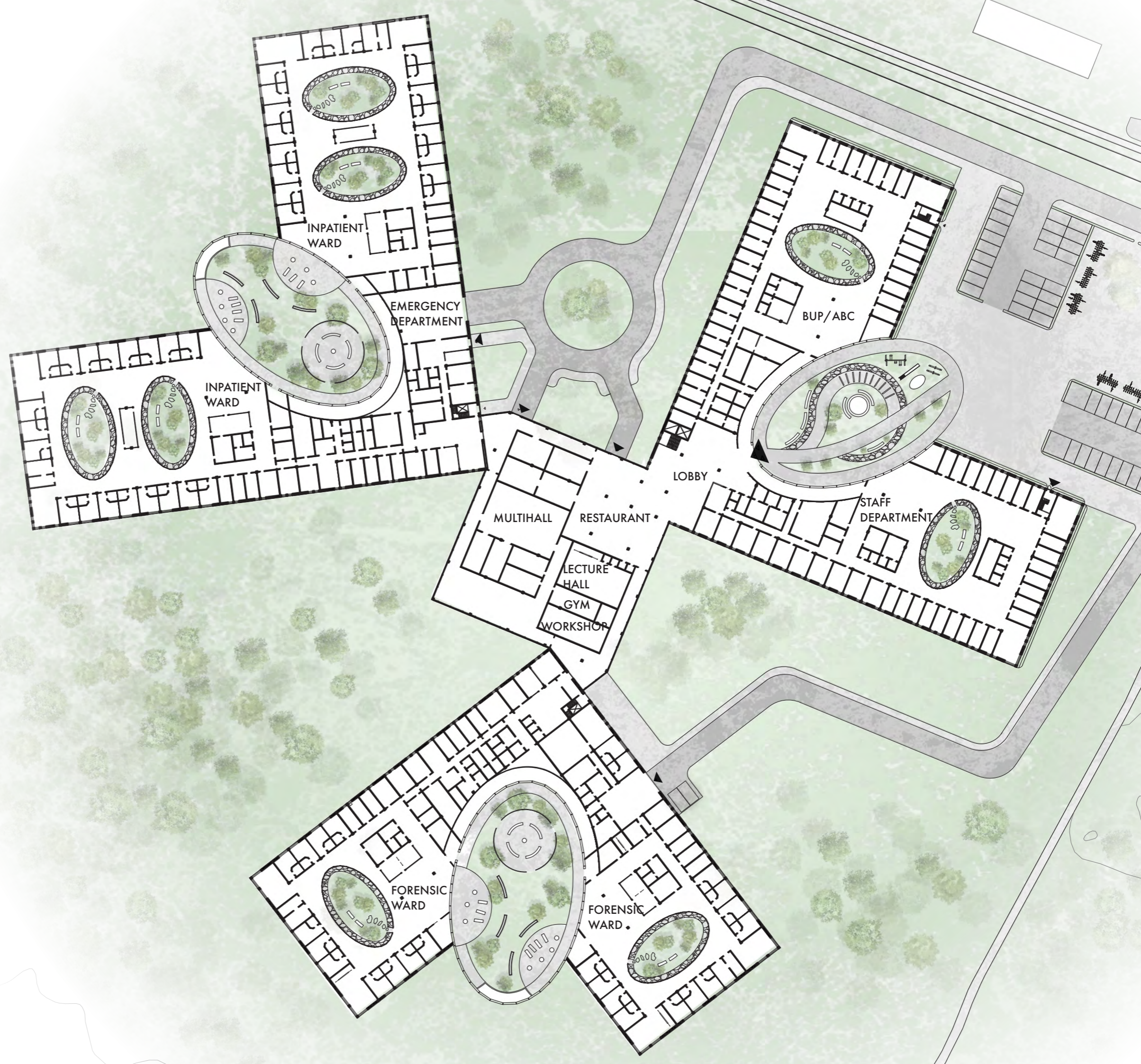
The entrance of the building is located in the public courtyard that's connected to the outpatient and staff ward. In here there is a main reception from where visitors are guided to the right ward.

The wards closest to the entrance, and therefore most public, are the staff, BUP/ABC and on the second floor, the outpatient ward.

From the main entrance the restaurant and lecture hall can be found. It is also through this middle part the inpatient and forensic wards can be accessed. The patient's multi hall, gym, workshop and library can only be accessed from the controlled entrance outside the wards.

BTA:  
Culvert: 1900m<sup>2</sup>  
Entrance floor: 15300m<sup>2</sup>  
Second floor: 4600m<sup>2</sup>

Plan, entrance floor, 1:800





# BUILDING

## ZONING AND FLOWS

- THE VISITOR ZONE

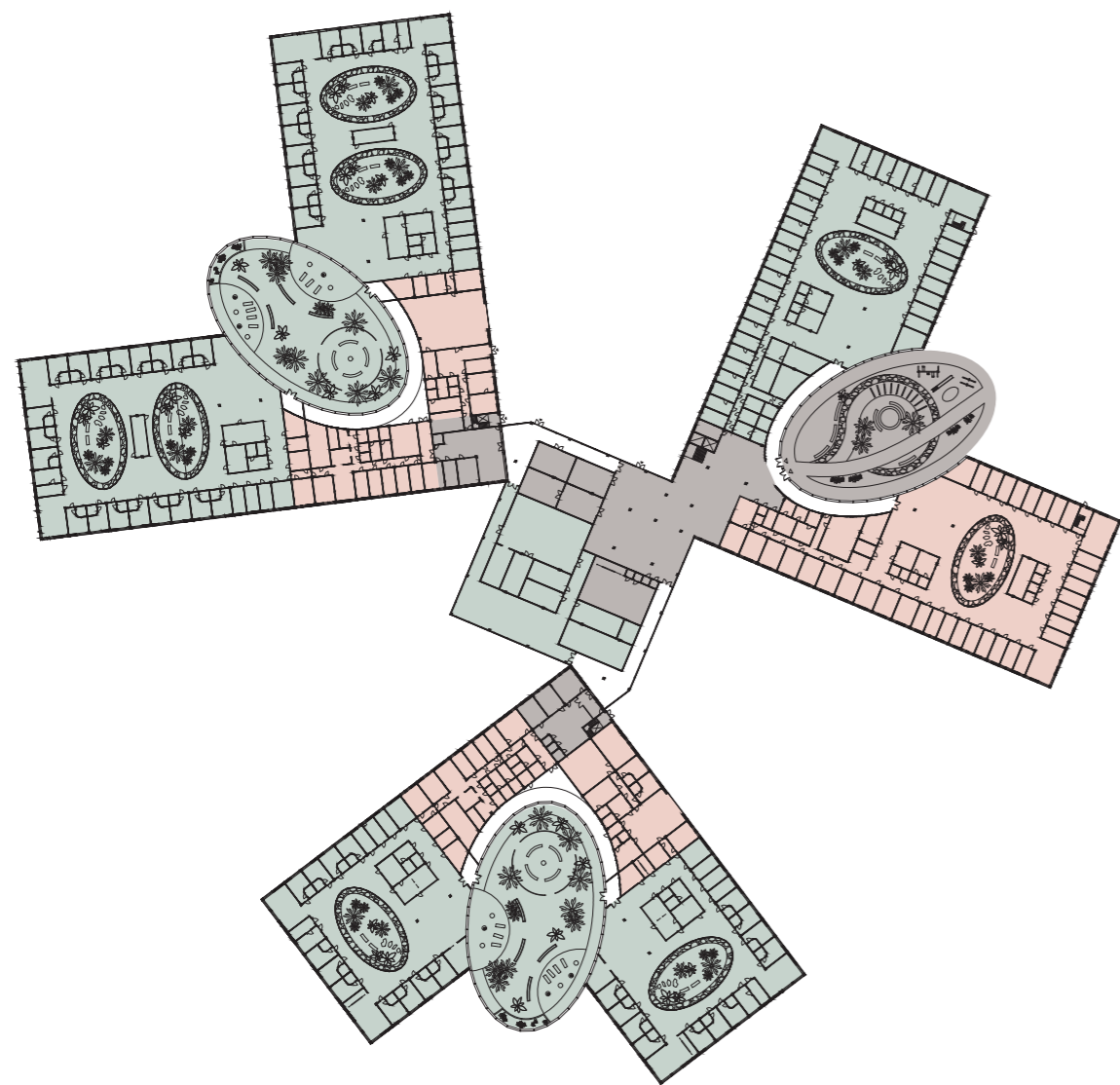
The more public zones can be found closest to the entrance of the building and also in the entrance of each ward.

- THE STAFF ZONE

The zone after that is the space that's mostly used by staff and where patients need company to access.

- THE PATIENT ZONE

The parts that belong to the patients are located furthest in the wards to create a sense of privacy.



- THE VISITOR JOURNEY

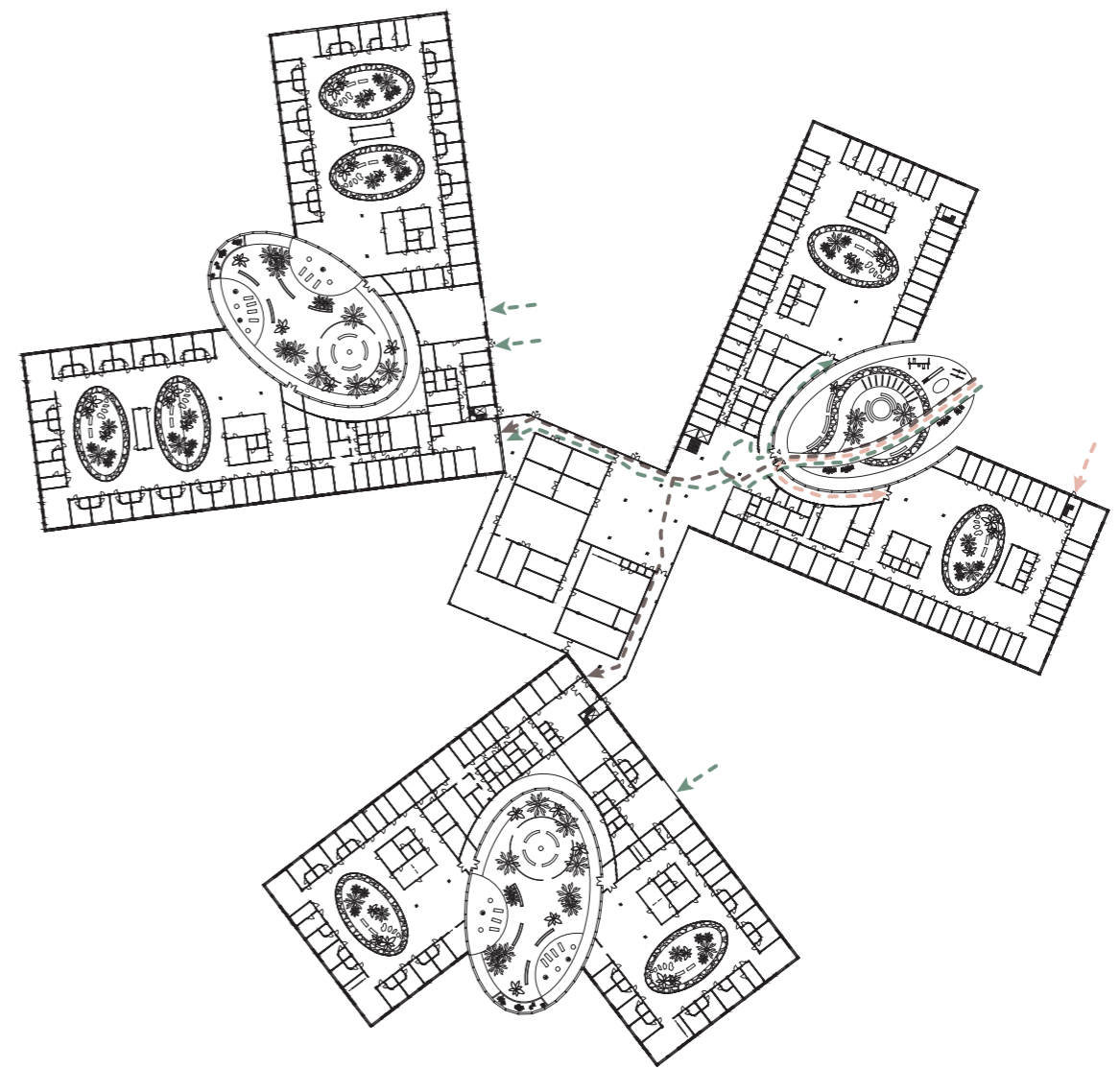
Visitors enter through the main entrance and from there they follow the glazed corridor to the ward they are going to visit.

- THE STAFF JOURNEY

The staff moves to their ward either through the main entrance or through other smaller doors.

- THE PATIENT JOURNEY

The patients arrive to their wards either through the main entrance or via ambulance/police-car hall. The emergency also has their own entrance for the ones who don't want to use the public main entrance.



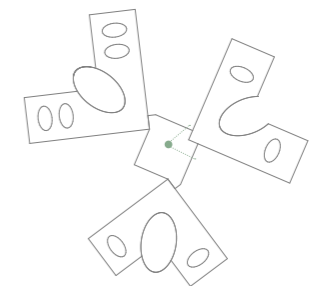


# BUILDING

RESTAURANT



After the main entrance, in the middle part, there is a public restaurant. It has views towards two directions that make this part of the building light and airy. The room has double ceiling height and the materials are mainly wood but the floor is made of green-tinted terrazzo.





# PSYCHIATRIC UNIT

## FORENSIC WARD

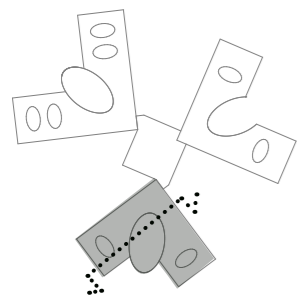
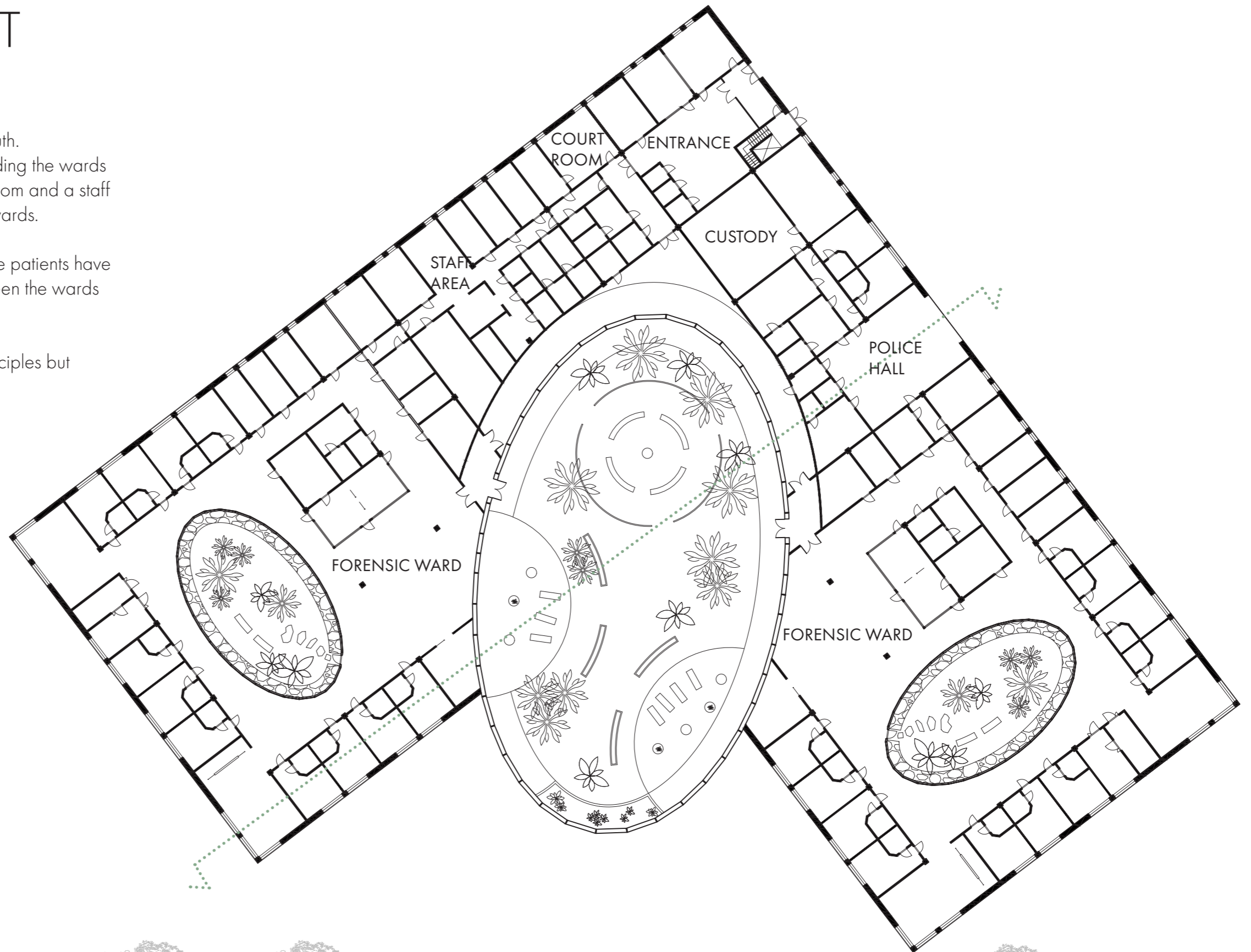
### PLAN

The forensic unit is located furthest down to the south.

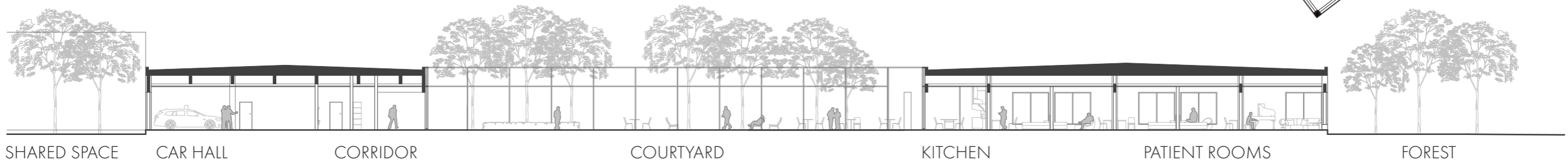
This unit is split up into two wards. The spaces dividing the wards from each other are a police hall, custody, courtroom and a staff department. These parts are used by both of the wards.

In each ward there is one smaller atrium. To this the patients have free access. The bigger courtyard is shared between the wards and has a controlled entrance.

The inpatient ward is designed after the same principles but adapted to the needs of that ward.



Forensic ward 1:400  
Forensic Section 1:300



# PSYCHIATRIC UNIT

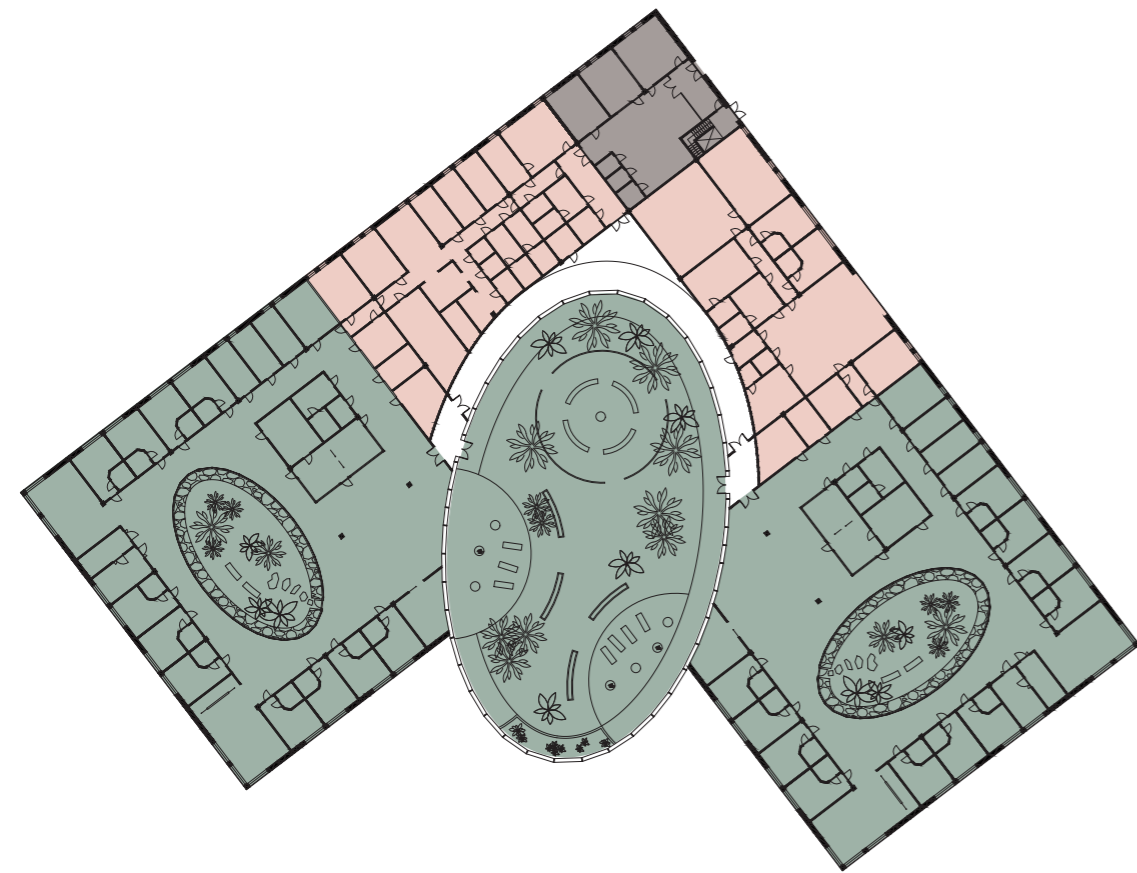
## ZONING AND FLOWS

### ZONES

For an easier understanding the unit is zoned in three different parts.

The first area is the entrance and visitor zone. The second area is used mostly by the staff and the last part that is used by the patients is the private one.

- VISITOR
- STAFF
- PATIENT



### FLOWS

To make the way finding better and increase the feeling of privacy we have separated the flows as much as possible. Everyone who's entering the forensic ward is going through the security passage.

#### ● THE VISITOR JOURNEY

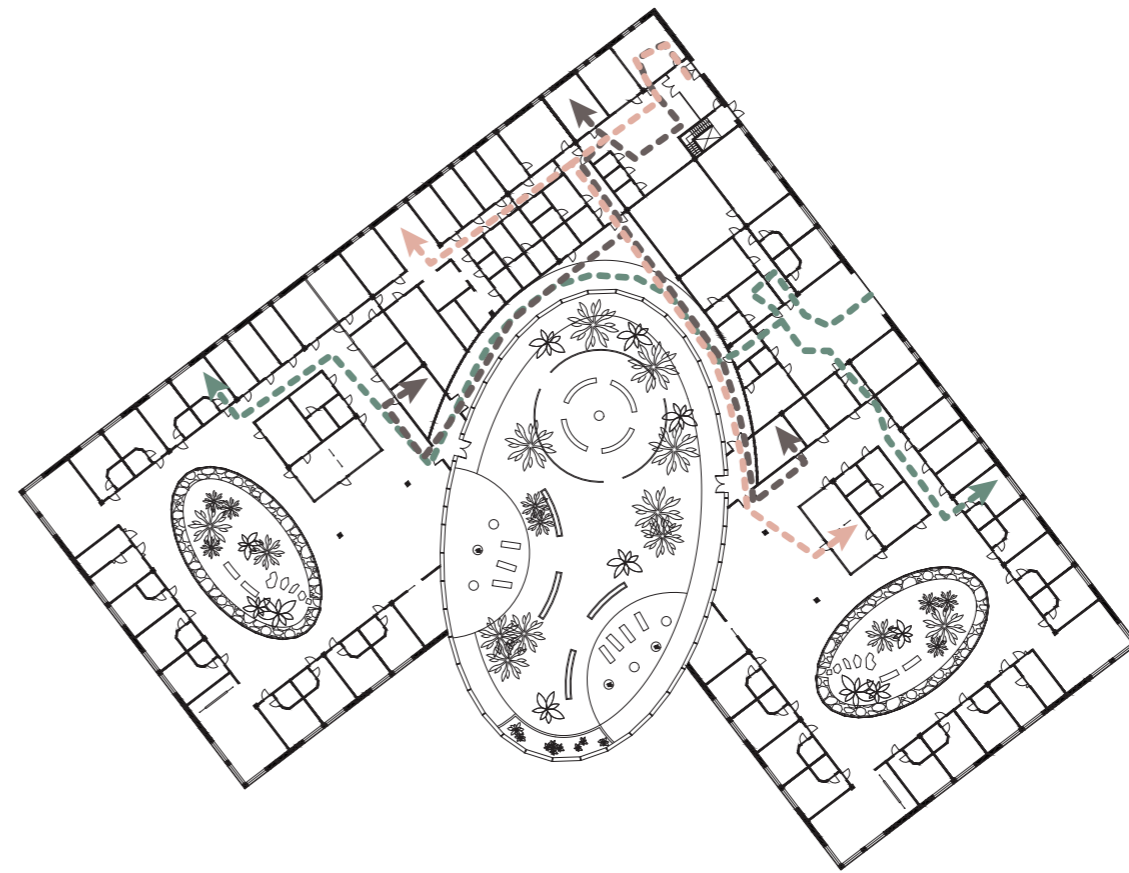
When the visitors have passed the security they talk to the person in the reception and then sit down in the waiting room. When visiting the patient they meet up in one of the visitor's room in the waiting area or can be escorted from the staff to the visitor room within the ward.

#### ● THE STAFF JOURNEY

After the security passage you either go straight in to the ward that you are working in or enter to the common staff spaces or in to one of the offices in the middle part of the ward.

#### ● THE PATIENT JOURNEY

When the patients come here for the first time they arrive to the car hall by police. After that they go through the body search and in to the custody before they are placed in to a room in one of the wards. Within the ward the patients can move from the patient rooms to the day rooms and activity rooms.



# PSYCHIATRIC UNIT

## IN ZOOMED WARD

When entering the forensic ward a security passage needs to be passed. After the security a reception is placed with a connected waiting room and visitor area.

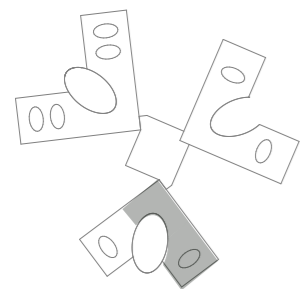
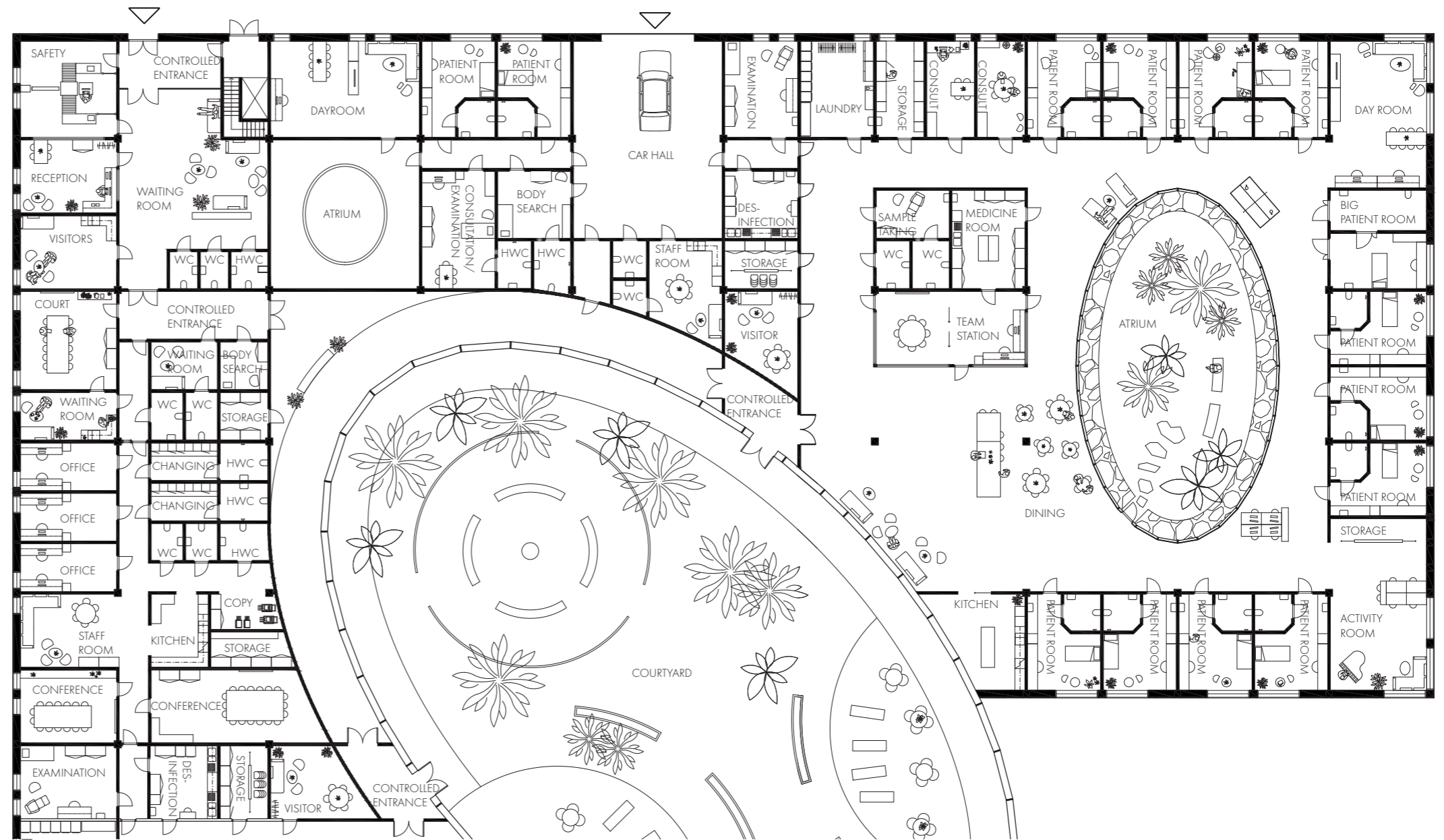
After the waiting room there is another security passage for entering the court, the staff area or the corridor that takes you to the wards.

In the staff area there is offices, smaller conference rooms and a smaller lunchroom connected to a kitchen. The bigger lunchroom is located in the staff building next to the outpatient department where all staff can meet and share knowledge.

The corridor connecting the wards is glazed and facing the large courtyard. This is for making the way for transportation more pleasant and less corridor-like.

The custody for the patients who has not yet been convicted is connected to one of the wards.

In each of the forensic wards there are 12 patient rooms, which are located around the smaller atrium. Around the atrium there is common spaces such as dining, activity and also the team station with good overview.



Forensic ward 1:300



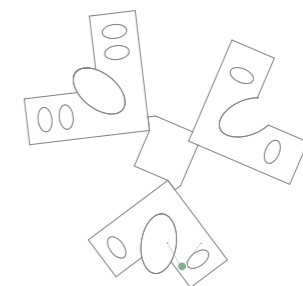


# PSYCHIATRIC UNIT

VIEW IN FORENSIC WARD

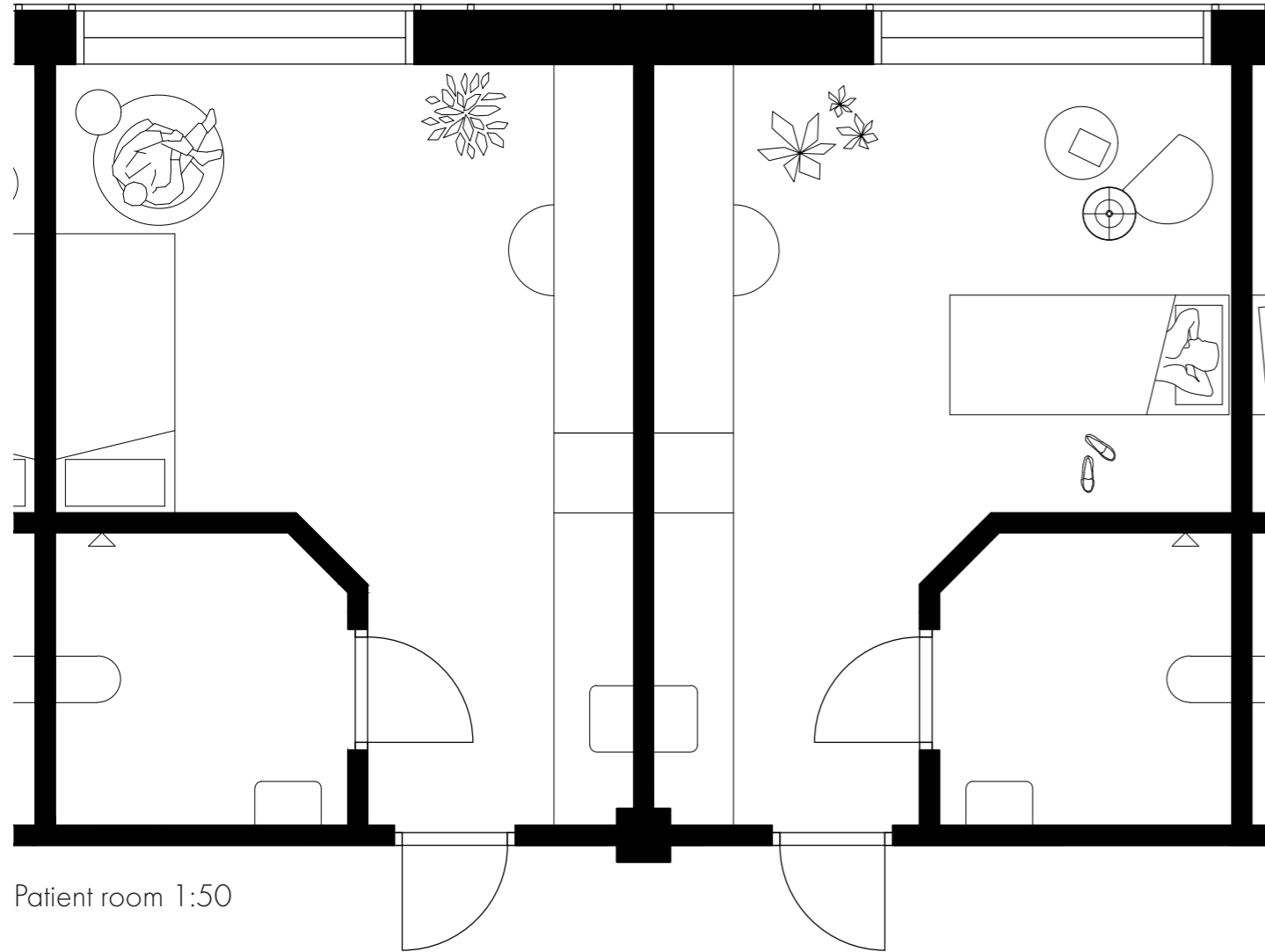


In the forensic ward there are views out to the big courtyard and through the smaller atrium. There is an open dining area and places to hang out in. The perspective also shows that the team station has a good overview over the ward.





# PATIENT ROOM



Patient room 1:50

All patient rooms are single patient rooms. From a patient perspective this could improve their privacy and sense of control. They have large windows to let in daylight with views over nature.

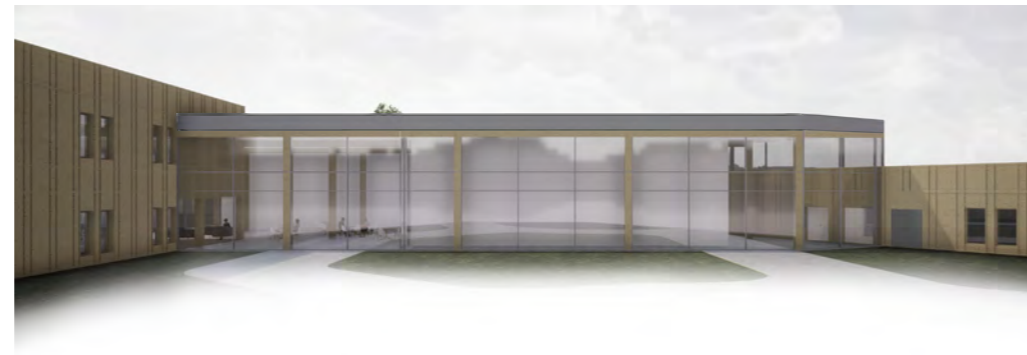
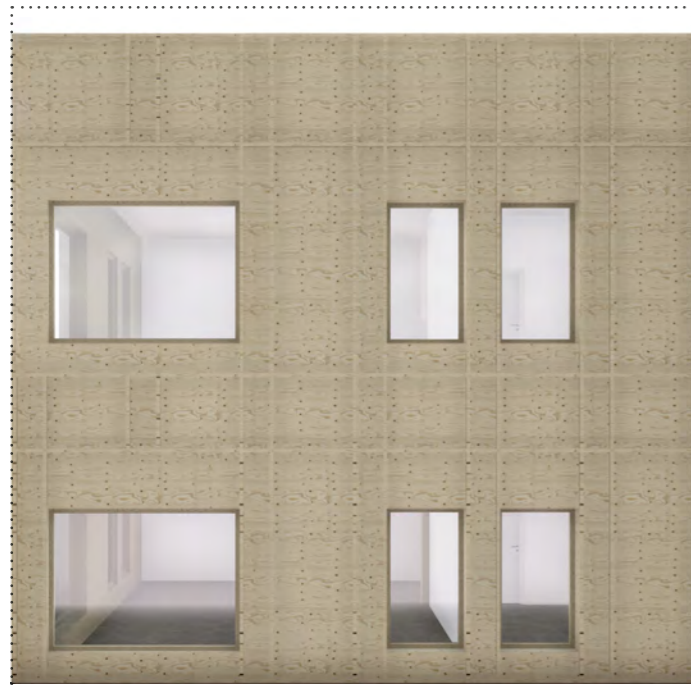
On one wall there is a built in furniture of cork that contains a sink for the staff, storage and a desk. The rooms can be furnished in different ways and they are also accessible to be used for somatic care.



To give the rooms a warm but light feeling the floors are wooden while the ceiling and walls are white. The built in furniture is made from cork to also give a soft impression but also because it is practical to be able to pin, for example photos, on it.



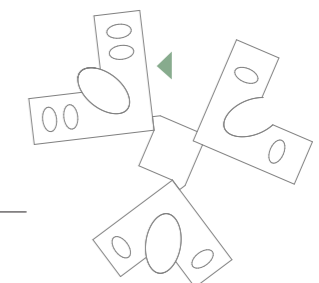
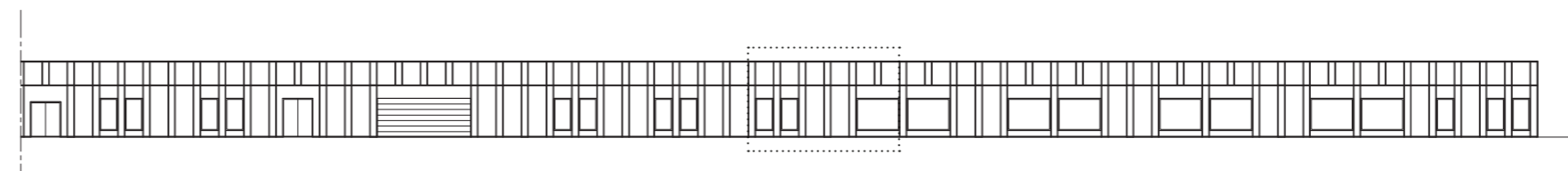
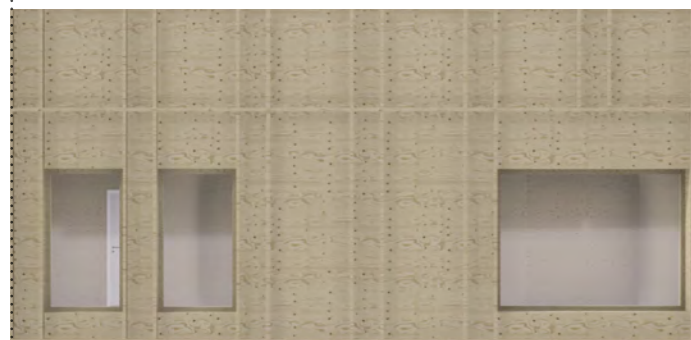
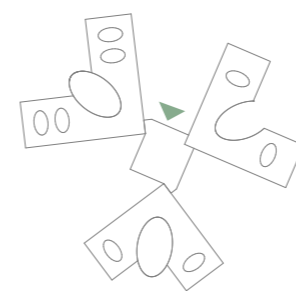
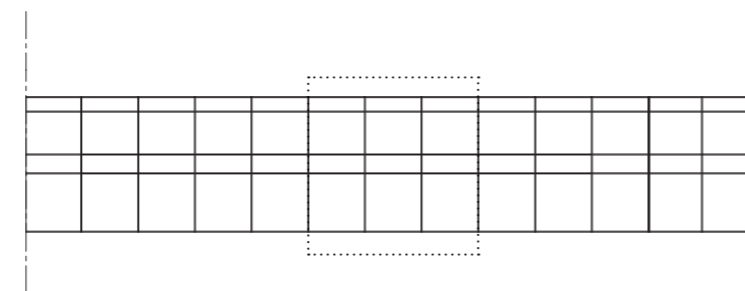
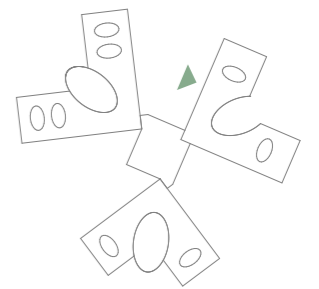
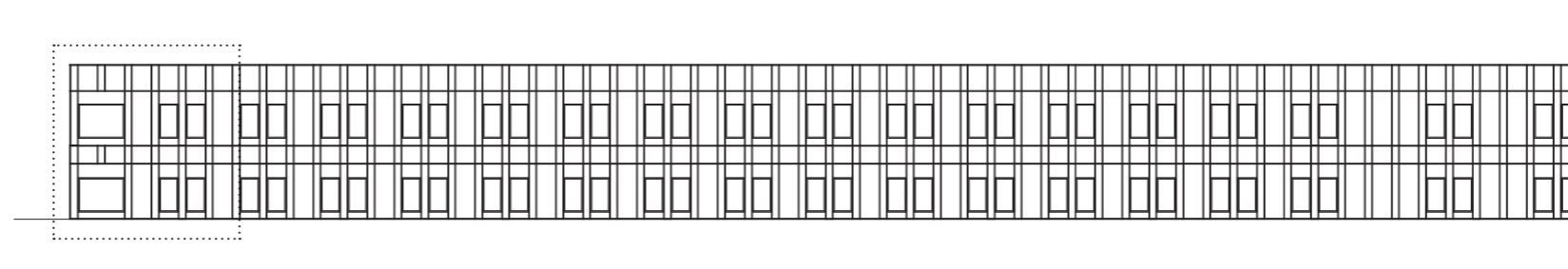
# FACADE



View of how the facades are connecting.

The facade is clad with plywood to show that the structure is made from massive wood. The facade is divided into sections to emphasize the division of the grid structure.

The courtyard and the building in the middle consist of glazed curtain walls to get a lighter expression and also to get in as much light as possible.



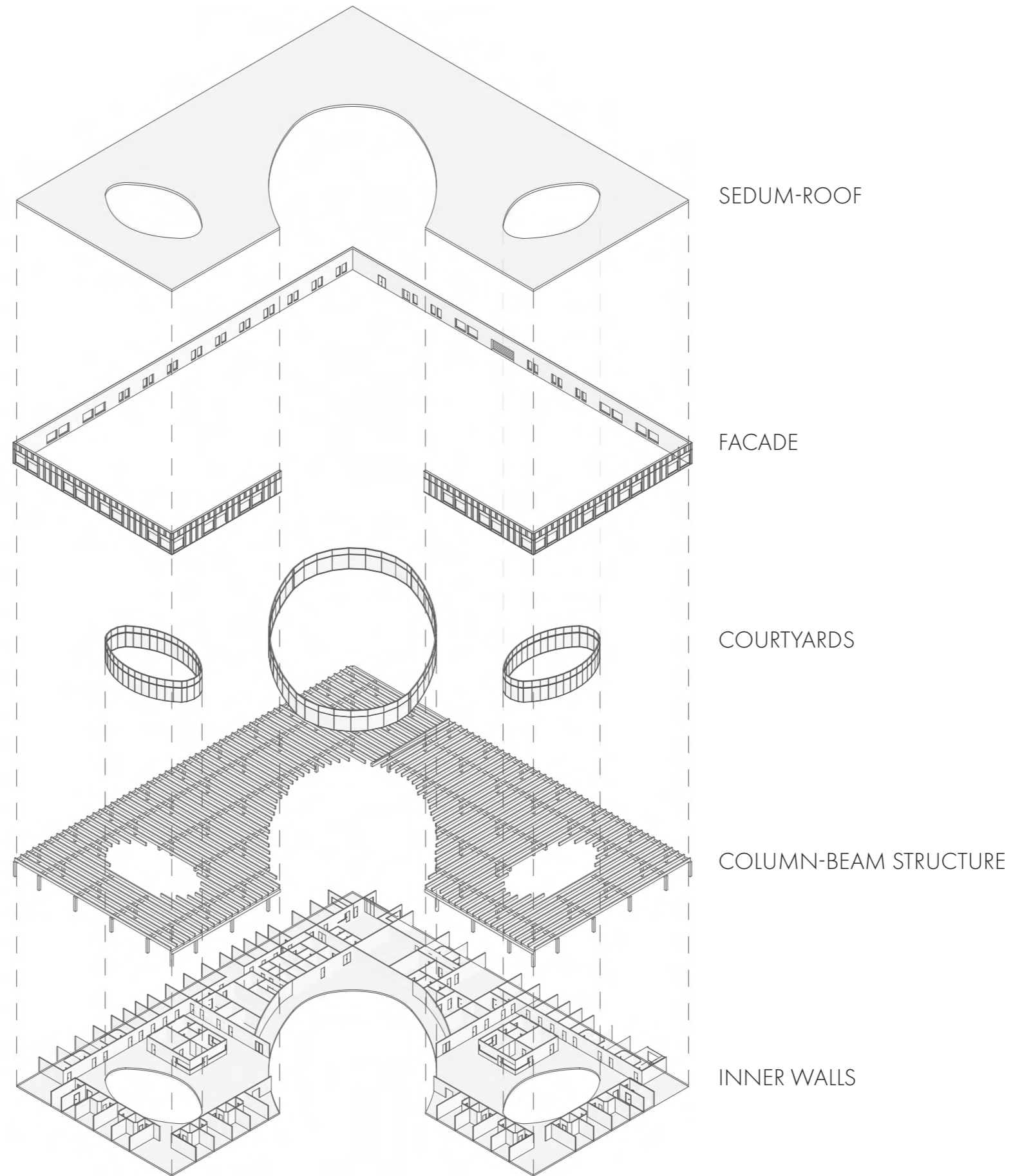
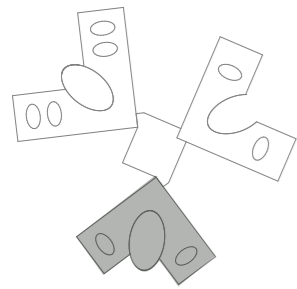
Facades 1:100

Facades 1:400

# STRUCTURE

The building structure is a column-beam system from massive wood to make the building more sustainable. This structure also allows freedom when placing walls within the structure.

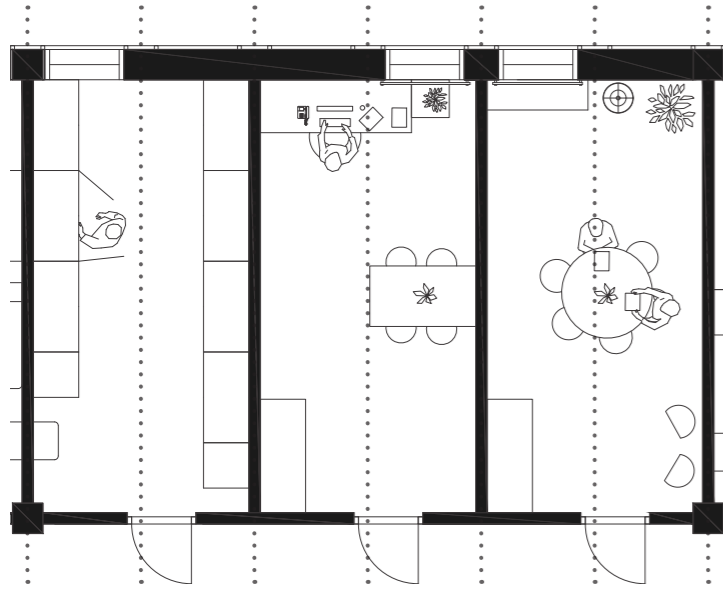
The roof of the wards will be sedum-roofs to help the treatment of the storm water. Some parts of the roofs will also be cladded with solar cells to provide the building with energy.



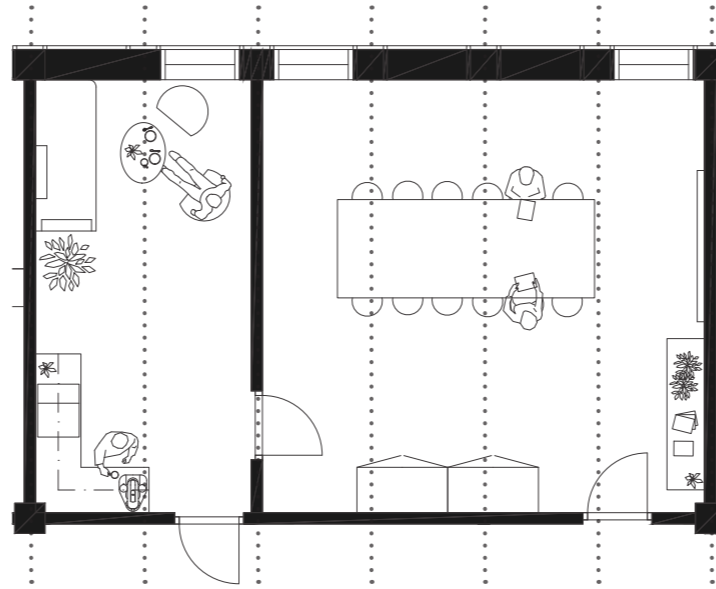


# STRUCTURE

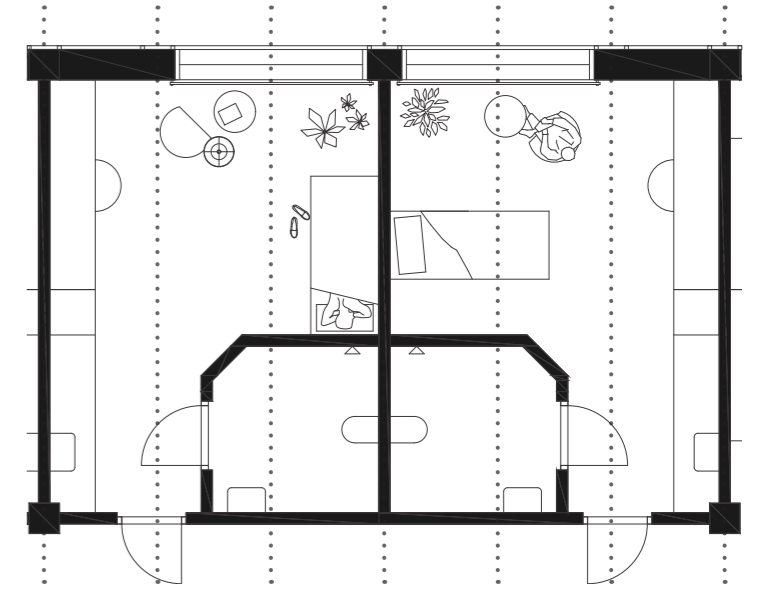
## THE GRID SYSTEM



Storage, consultation room and consultation room.



Staff space and courtroom.

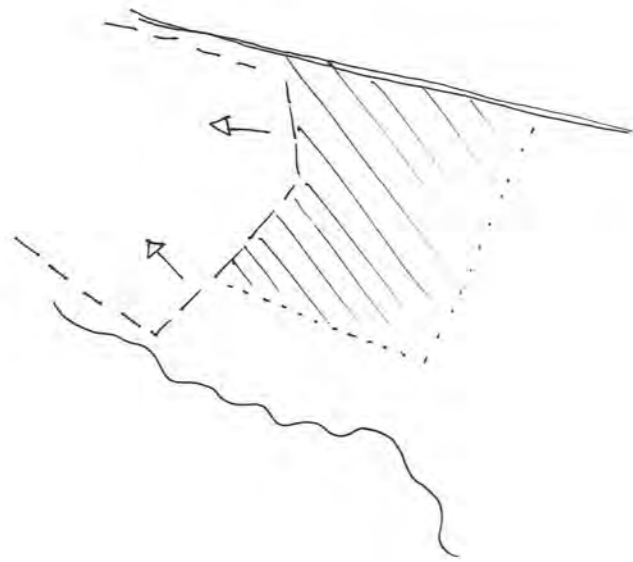


Patient room and patient room.

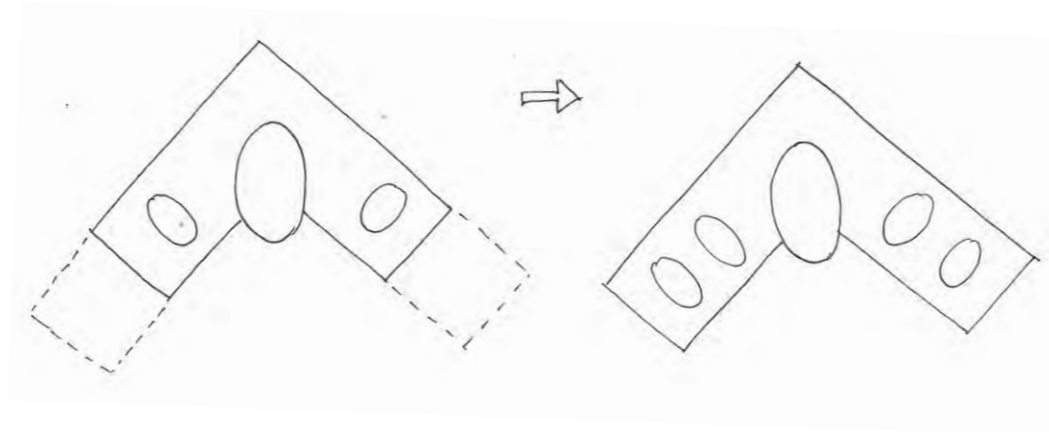
The grid allows the use of the room to be flexible. The walls can be moved if needed and can create different sized rooms. The placement of the windows also allows the rooms to change within the building.

# FUTURE PROOFING

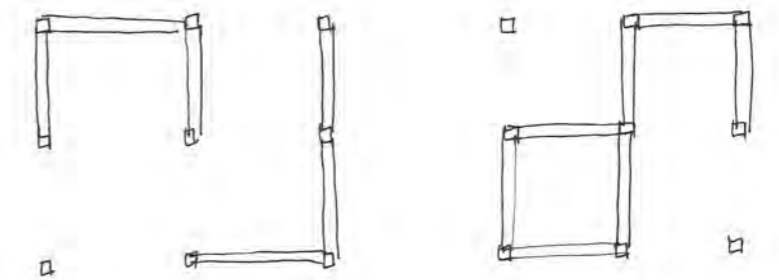
Future proofing is about how the project can adapt better to changes in the future.



The project site is big, so there are possibilities to build other healthcare facilities here and to expand the site to the west. If the somatic hospital has to move, there is space for it here and then the old buildings in the city can be reused for something else instead of being torn down.



Making the wards similar makes it easier to move between them in the future. For example if the forensic unit is moving out, it will be easy to change the functions of it in to an inpatient ward.



In the future, the function and sizes of the rooms may need to be changed because of changes in the psychiatric care. Flexible column structure provides the possibilities of re-arrange the interior walls and make rooms bigger/smaller without changing the structural system.



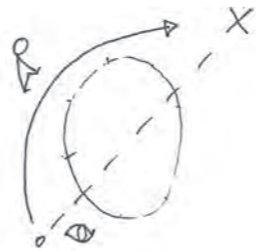
# EVIDENCE BASED DESIGN

The healing process is closely related to the design of the building. Psychiatric hospitals are more complicated because of the patients that are more sensitive and probably stays in hospital for a longer time. Therefore architects can't just rely on their own ideas of good designs, some spaces needs to be based on evidence and research.

From lectures with professor Roger Ulrich we thought that following statements are important in the design of a psychiatry.

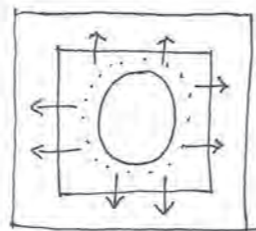
## GOOD WAYFINDING

Psychiatric patients needs clear wayfinding. They can easily become violent and stressed when they are lost.



## SHORT CORRIDORS

Long corridors in hospitals can make patients feel uncomfortable and stressful.



## GOOD OVERVIEW

Staff needs to observe the physical and mental state of the patients, so a good overview is important



## SINGLE PATIENT ROOMS

Rooms that are shared between patients may cause discomfort. Single patient rooms provides patients to have their own space, that will protect their privacy.



## ACCESS TO NATURE

If patients have nature to look at instead of a brick wall, they recover faster.

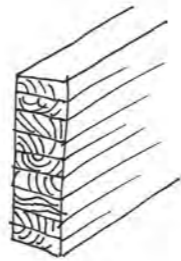


# SUSTAINABILITY

Nowadays our earth is facing enormous challenges. The traditional construction industry have caused a large amount of greenhouse gas emissions and use of resources. Therefore, the use of sustainable technology and material choices in buildings are very important and has great significance for the whole society.

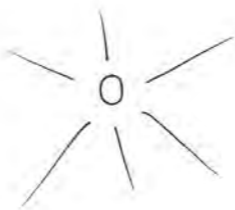
## RENEWABLE MATERIALS

By making the structure and most of the interior in wood we chose an environment friendly and a renewable resource.



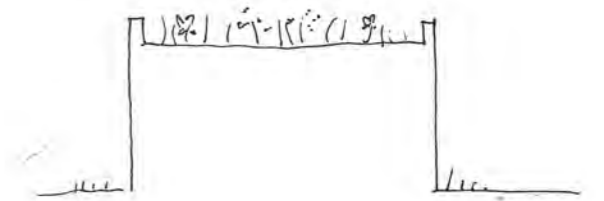
## DAYLIGHT

The courtyards bring daylight in to the interior spaces which reduces the use of artificial lights and resource consumption.



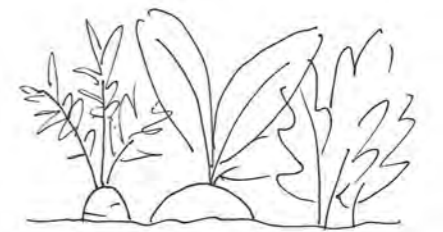
## GREEN ROOFS

By adding sedum roof we help the storm water treatment.



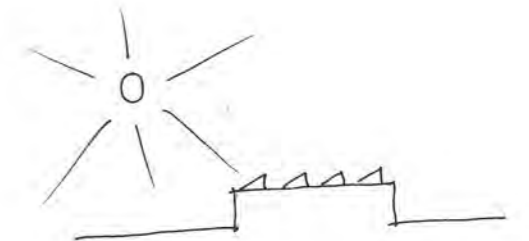
## GREEN HOUSE

In the big courtyards there are greenhouses. Here the patients have the opportunity to cultivate their own plants.



## SOLAR CELLS

On the roof there is solar cells to provide the building with energy.





# HEALTH PROMOTION

Psychiatric hospitals are very complex because there are so many different needs from different stakeholders. By designing for health promotion and implement that early in your design process you can achieve better environment for everyone.

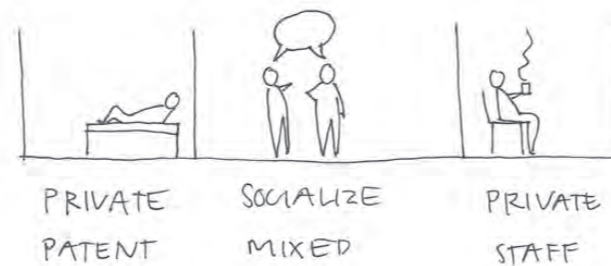
## ACTIVE WAITING ROOMS

Designing the waiting rooms to be something more than just sit and wait. You can chose if you want to walk around or look out to the nature.



## ZONING

The patients and the staff should have their own spaces. That also helps seperating the flows between employees, visitors and patients.



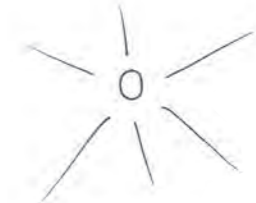
## ACCESS TO NATURE

By doing big courtyards and smaller atriums we bring in the nature. By adding a small roof we make them useable in all weather.



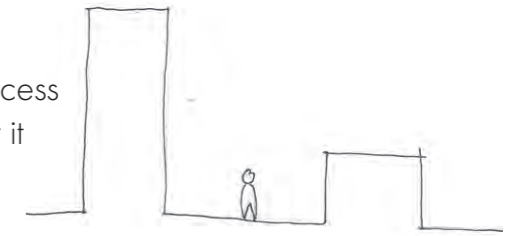
## MUCH DAYLIGHT

All the patient rooms are orientaded for the best possible daylight.



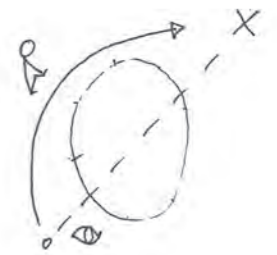
## HUMAN SCALE

By placing all the inpatients in one floor they have directly access to the nature. By doing almost the whole building in one floor it makes it easier to understand the whole building.



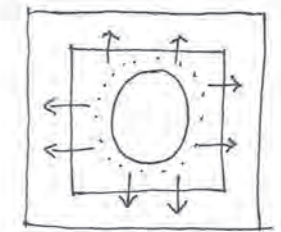
## GOOD WAYFINDNING

All the public corridors are located near the glazed facades. This can help people with the orientation and brings in light to the communication areas.

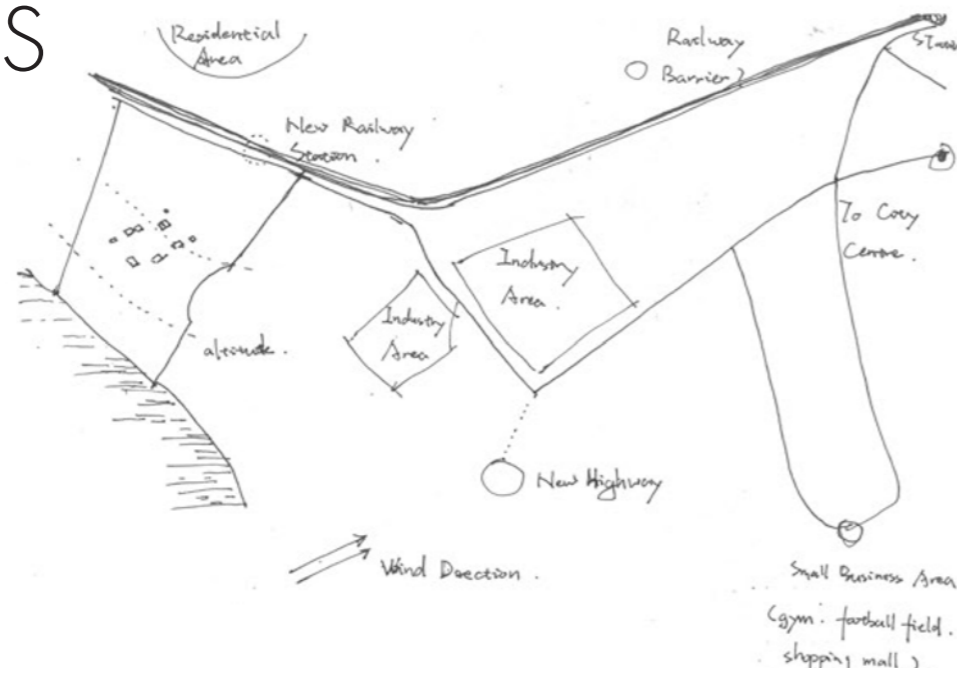


## SHORT CORRIDORS

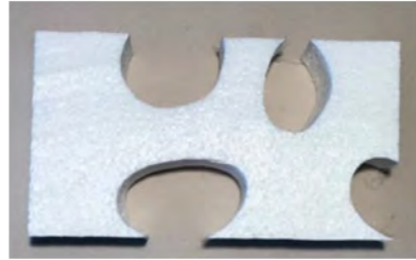
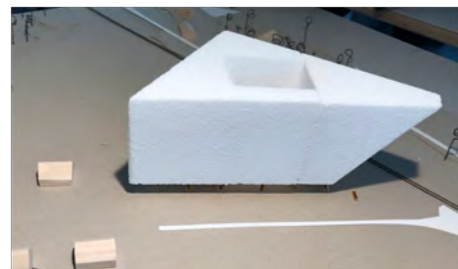
By designing short corridors you reduce the time spent walking.



# PROCESS



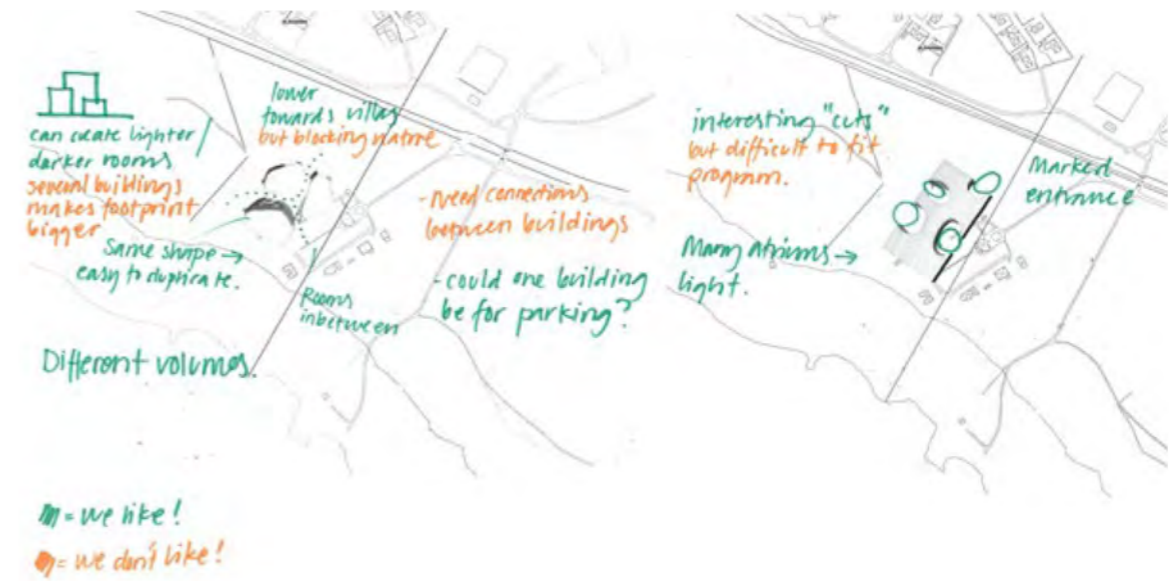
In the beginning, we analyzed the roads, railways, walking trails, surrounding communities and future planning of the site. From there, we had a preliminary understanding of the site, being ready for the subsequent architectural design.



In the first workshop, we discussed the most important ideas of the hospital with the teammates, and also made a completely opposite model. Then we tried many other shapes, guided by the keywords that we had figured out in the workshop.



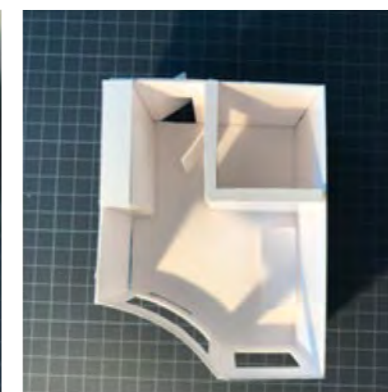
We also tried to put different shapes on the section for analysis. We can see from the section is that in the site we need a building in human scale.



We also put different shapes on the site plan in order to analyze the relationship between buildings and the site. Then we analyzed and compared the advantages and disadvantages of each product, which is good for the next step.



We analyzed program through stickers. On the one hand, we analyze the relationship between different wards, and on the other hand, we also analyze the relationship between the different rooms in the inpatient ward.



In the workshop we did 1:50 models of single patient rooms to learn about overview of the rooms and how to add our concept to patient rooms. At last, we wanted to combine the last two designs.



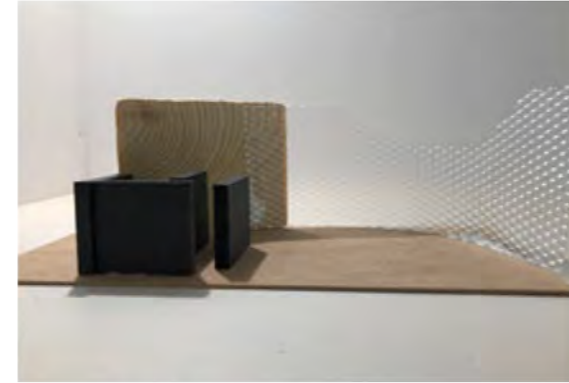
# PROCESS



Scale, contrasts, private - public



Connections, contrasts



Contrast dark/closed - light/open



Soft in square



Poetic



Public space, flow around and in



Creates clear backside



Layers private - public



Large forms but still airy



Public space, flow through



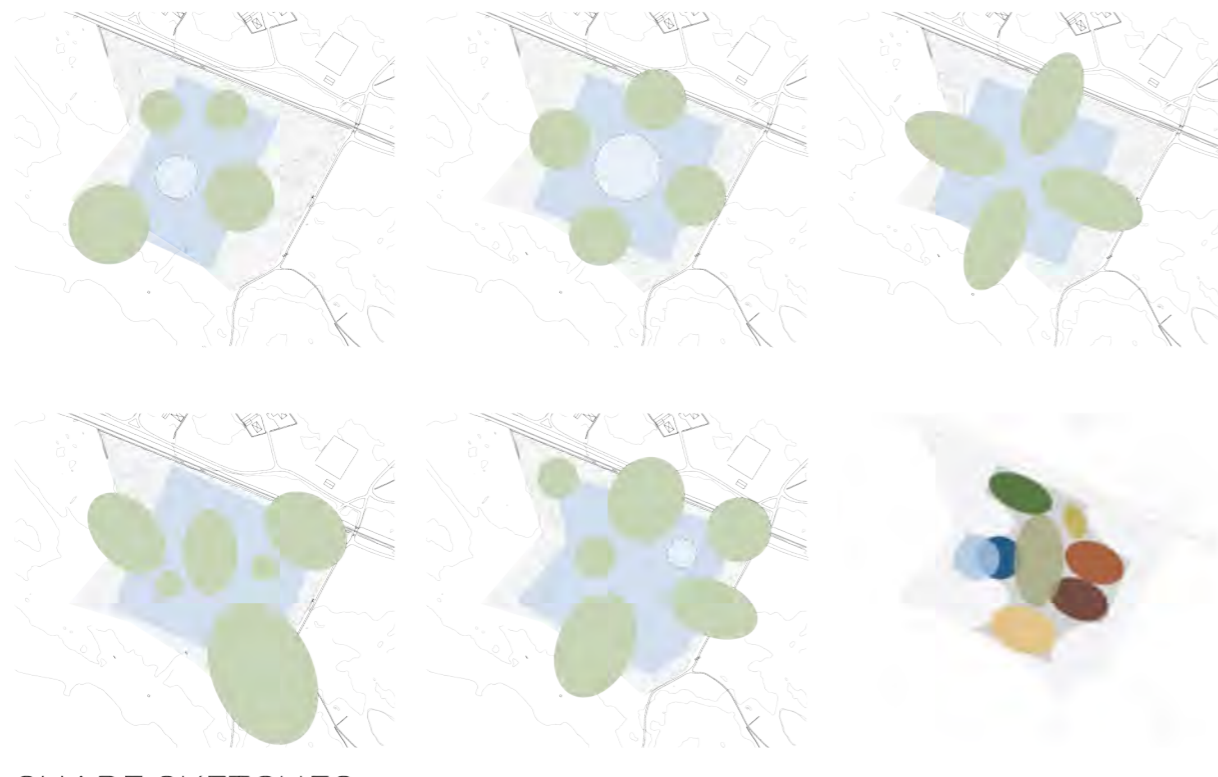
Tactile, rough



Corridors, unpleasant

In this workshop, we have made many small and simple models, in order to find which spatial forms and atmospheres we want. In the subsequent work, we created some of the spaces in the design.

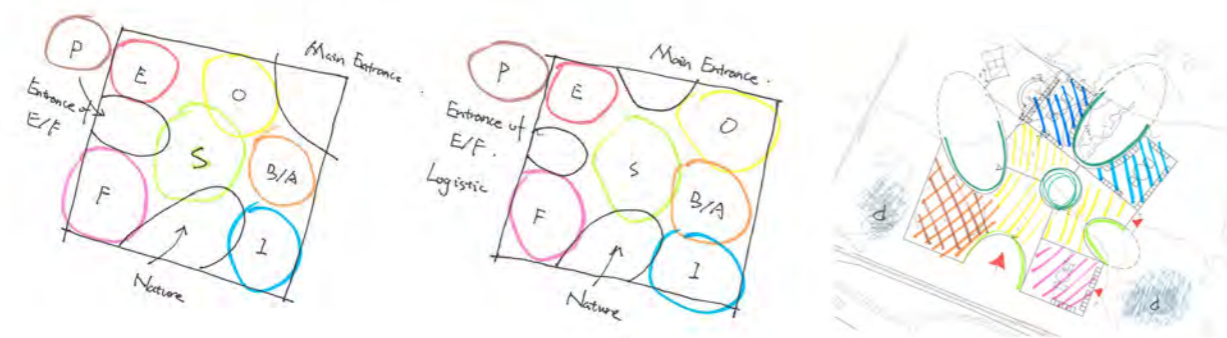
# PROCESS



In the beginning, we tried different garden spaces in a simple rectangle. We found that the cut by the courtyard have many interesting possibilities, and also affect the distribution of different wards and the wayding system. Then, we tried to do further design in one plan and made program analysis on that plan.



In the process of designing the shape, we were also learning about health promotion, and tried to use some sketches to express some ideas of how the room should be and what we need to focus on in the futher design.



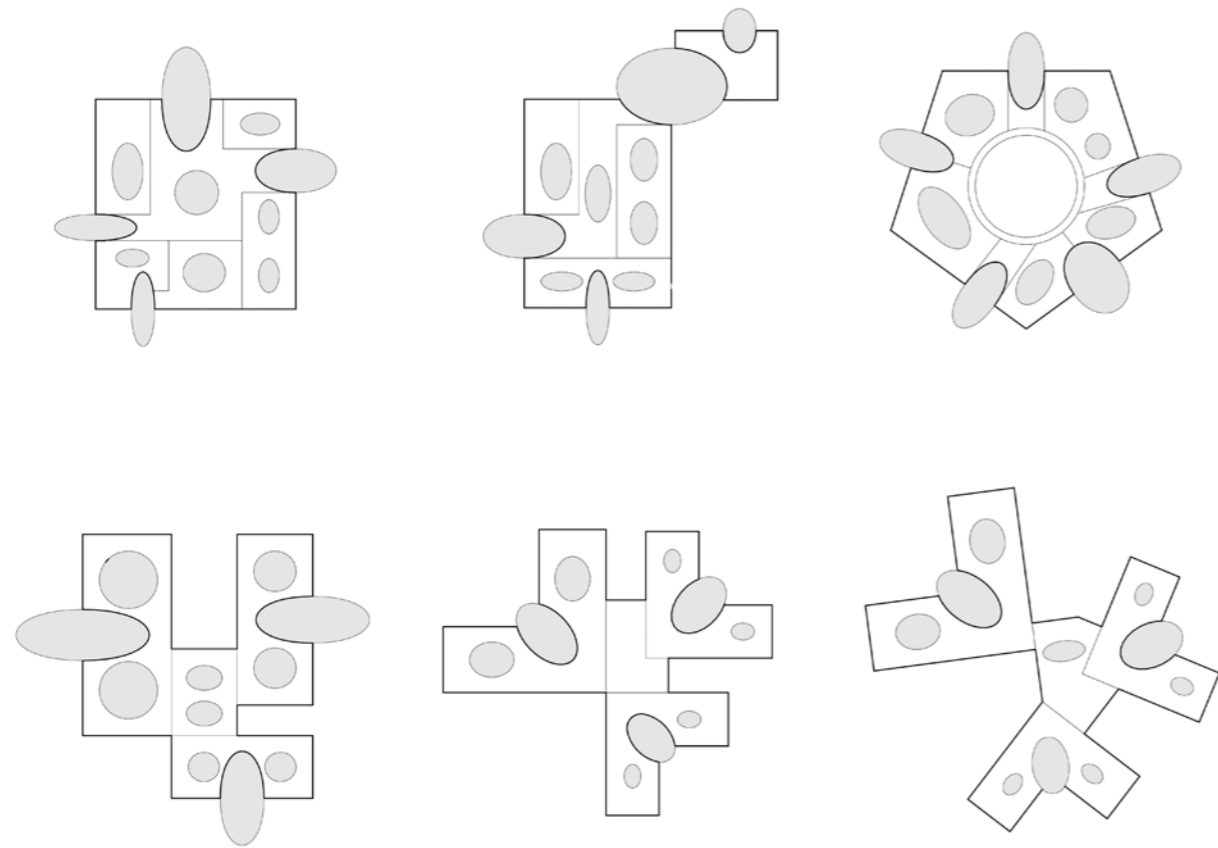
After that we further explored the possible program arrangements. We also compared the distribution of different entrances and the flows of different people.



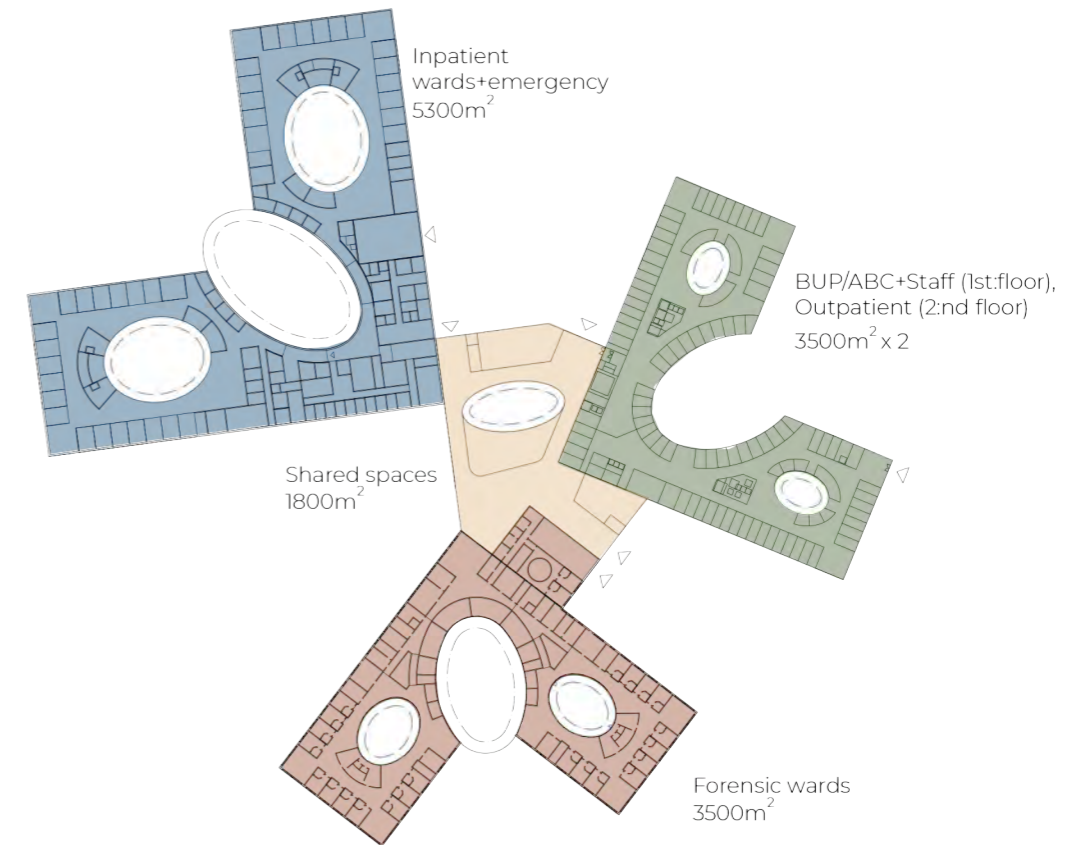
Because the plane of the rectangle would bring a lot of dark rooms in the middle, unless we used a courtyard with too large scale, we started to try more flexible forms to solve this problem.



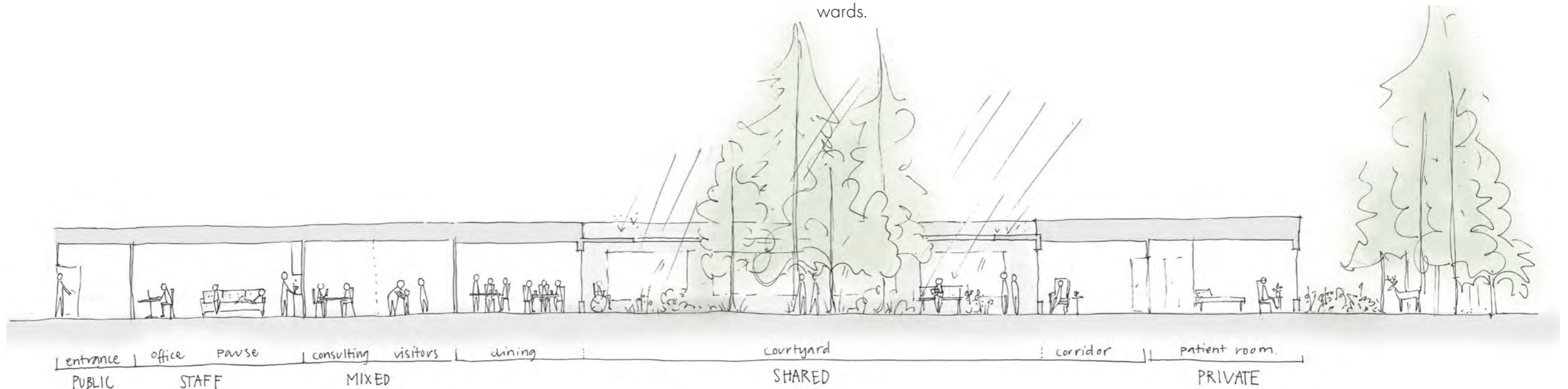
# PROCESS



This diagram can show how the shape grew on the basis of the previous studies. In this process, we had considered the location of the courtyard, the orientation and daylight of the ward, the areas of the wards, and the relationship between the building and the site.



This diagram can show what we think of the program. We want outpatient ward to be placed in the most open place in the northeast corner, while the inpatient ward and forensic ward are placed in a quiet place close to nature. In the middle, the shared space is used to connect the wards.



A sketch of the section of forensic ward to explain the zoning of the wards and how the courtyard improve the lives of patients