

REACHING NATURE



Group 5
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Healthcare architecture studio; future visions for healthcare,
housing and work
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In 2012, the county council in Kalmar, Oskarshamn and Västervik initiated an investigation to determine the needs for new psychiatry facilities. Continual changes in health care, especially in specialist psychiatry, make great demands on the design in such a way that it must be both flexible and general.

The new psychiatric facility needs to be a good environment for both the people who work there but also for the patients. The facility should be a healing environment so that all patients can receive care and treatment.

Our assignment is to design this new facility for psychiatric care on one of two proposed sites. One of the sites is located on the existing hospital area and the other site is located in the outskirts of the town in a scenic environment connected to the lake Kvännaren and plenty of forest areas.

Our ambition is to create a healing environment for patients, staff and visitors. The environment should be safe for all users and provide a sense of integrity.

It's important for us to design a sustainable building, both in terms of materials, but also to future proof the facility so it can be flexible enough to change with future requirements.

We choose the rural site; a scenic location providing greenery and a possibility for generous outdoor areas for patients. We also see the relocation of the psychiatric healthcare facility from the hospital area as a possibility for the rest of the hospital to be able to grow within the hospital site.

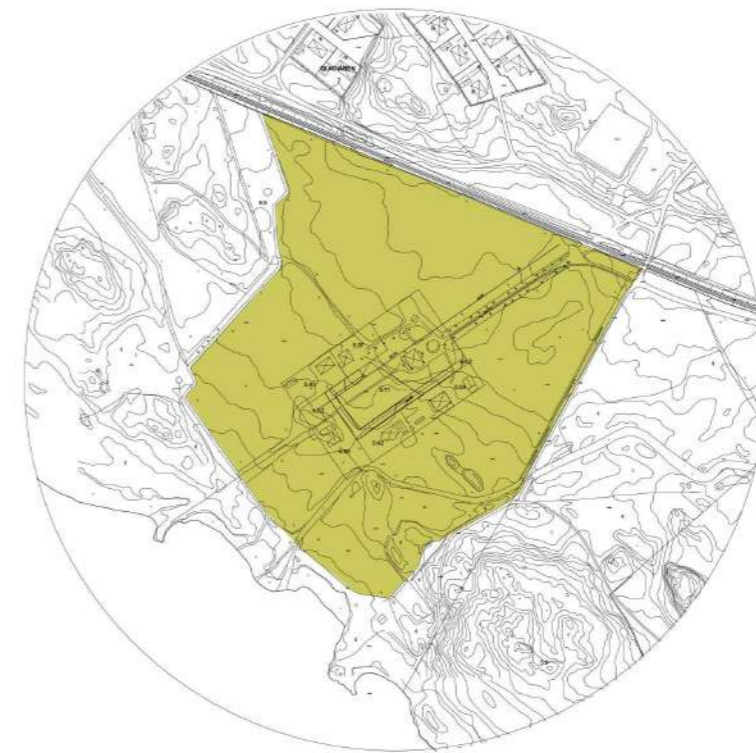
VÄSTERVIK PSYCHIATRY



Västervik is located at the Swedish east coast.



The hospital offers two sites for the new psychiatry building. One in the city center and one at a more rural area 2 km west from the city center.



The rural site, in the outskirts of Västervik. The site provides direct contact to nature, as the location is close to both forests and the lake Kvännaren.

- Rural site
- Urban site near city center

VISION

INTEGRATE NATURE

Calm and healing environments at the hospital are created through access to greenery and courtyards.

INTEGRITY

Creating integrity for the patients is necessary for the patients to feel safe. By placing the volumes so that patient rooms doesn't face each other, and using the facade as a tool to screen off unwanted observation, a sense of integrity is provided.

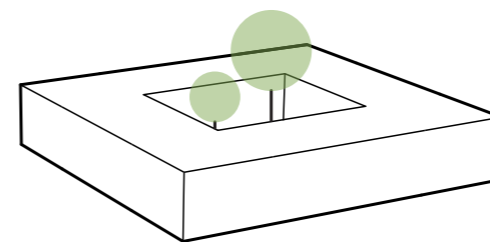
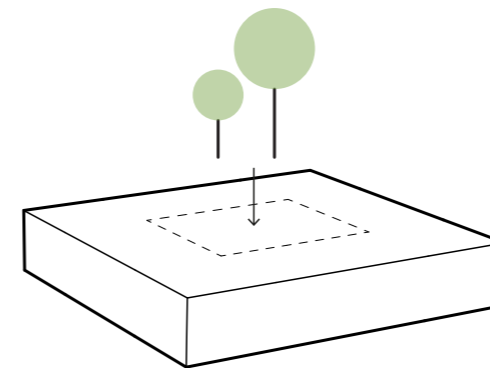
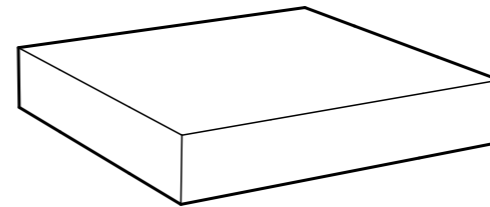
ADAPTABLE STRUCTURE

Since the requirement for healthcare might be different in the future it's important to build for change. By using a type unit that can be transformed to fulfill a different function the building is likely to have a longer life cycle.

IMITATION OF SOCIETY

To be able to create a homelike environment it's important to separate the space where the patients live from the treatment areas. Separating different functions results in a normalized situation where you have to leave your home to get treatment or participate in activities.

TOOL



USE

INTEGRATE NATURE

The type unit creates space for courtyards in every part of the building allowing nature to be an integrated part of the hospital.

INTEGRITY

The closed type unit creates safe spaces for patients and courtyards with high integrity.

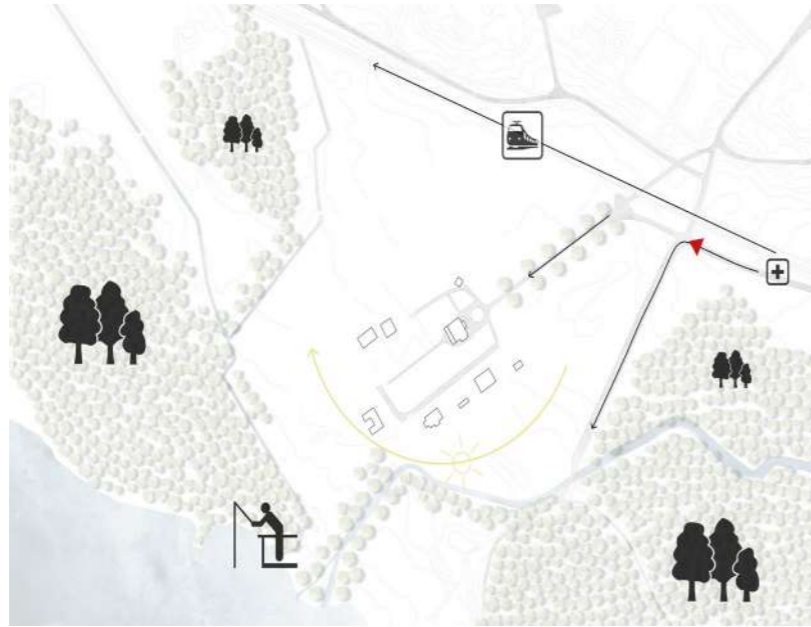
ADAPTABLE STRUCTURE

The type volume can be used for every ward, creating an adaptable structure that can meet the future needs of the hospital and the larger structural changes in the healthcare sector.

IMITATION OF SOCIETY

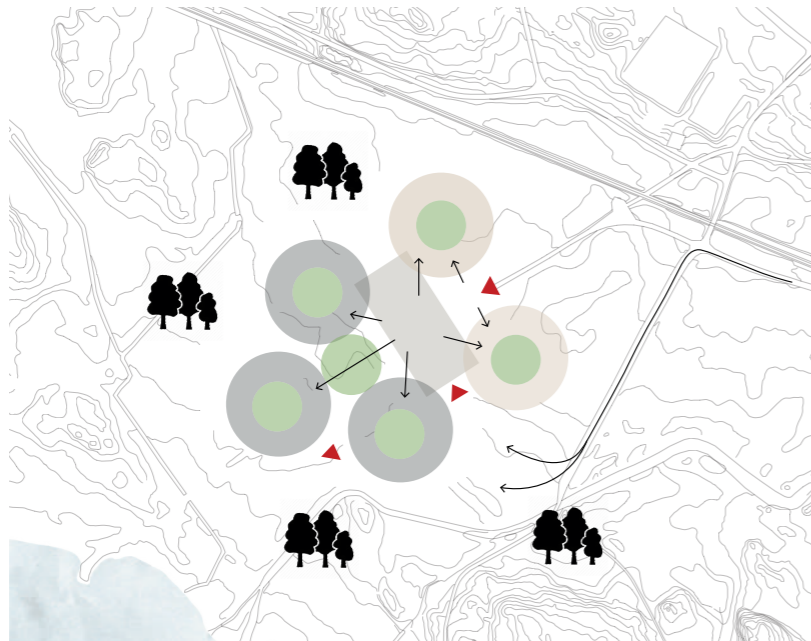
The volume can be divided into different zones that hold different types of functions, creating an interpretation of the different functions in the society that prepares the patients for the life outside of the hospital.

SITE ANALYSIS



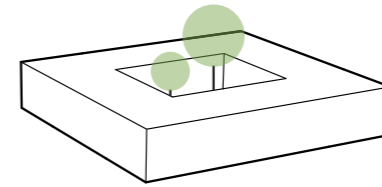
The site provides a close contact to nature with availability to both forests and the lake. The site is mainly meadowland providing the site with lots of daylight. Although the site is outside of the city centre of Västervik the communications are good. The railway is located right beside the site making it possible to add a new train stop.

By car and/or foot one accesses the site from the northeast through a colonnade of trees.



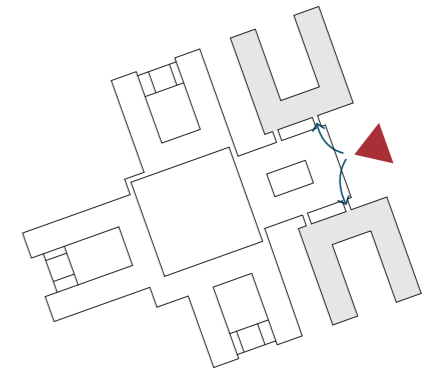
Based on the site analysis we want to take advantage of some of the existing qualities. Using the existing roads we place our entrances. We place the outpatient wards and BUP/ABC close to the access point of the site. The inpatient-, emergency- and forensic wards are placed into the more private location closer to the water. The staff area is located in the middle to give the staff as short distance as possible to all wards.

Breaking up the wards between each other, coggling the building into nature let's both light and nature views into the building.



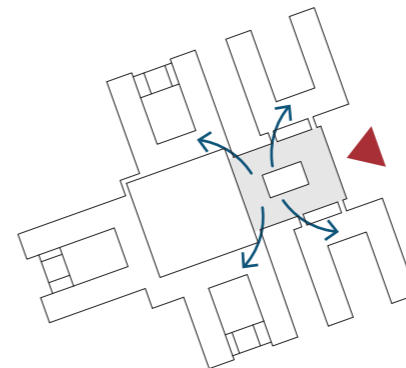
TYPE UNIT

The type unit is used to create the larger structure of the building.



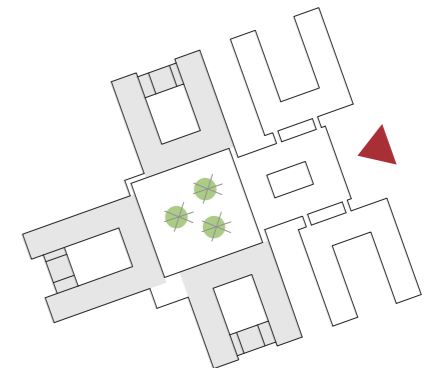
OUTPATIENT

Outpatient wards are placed in direct connection to the main entrance, creating a separate flow for children and adults.



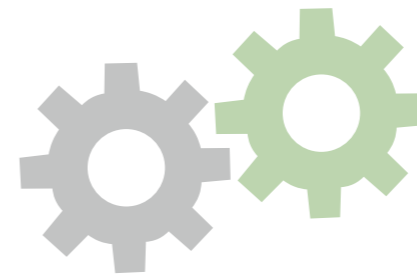
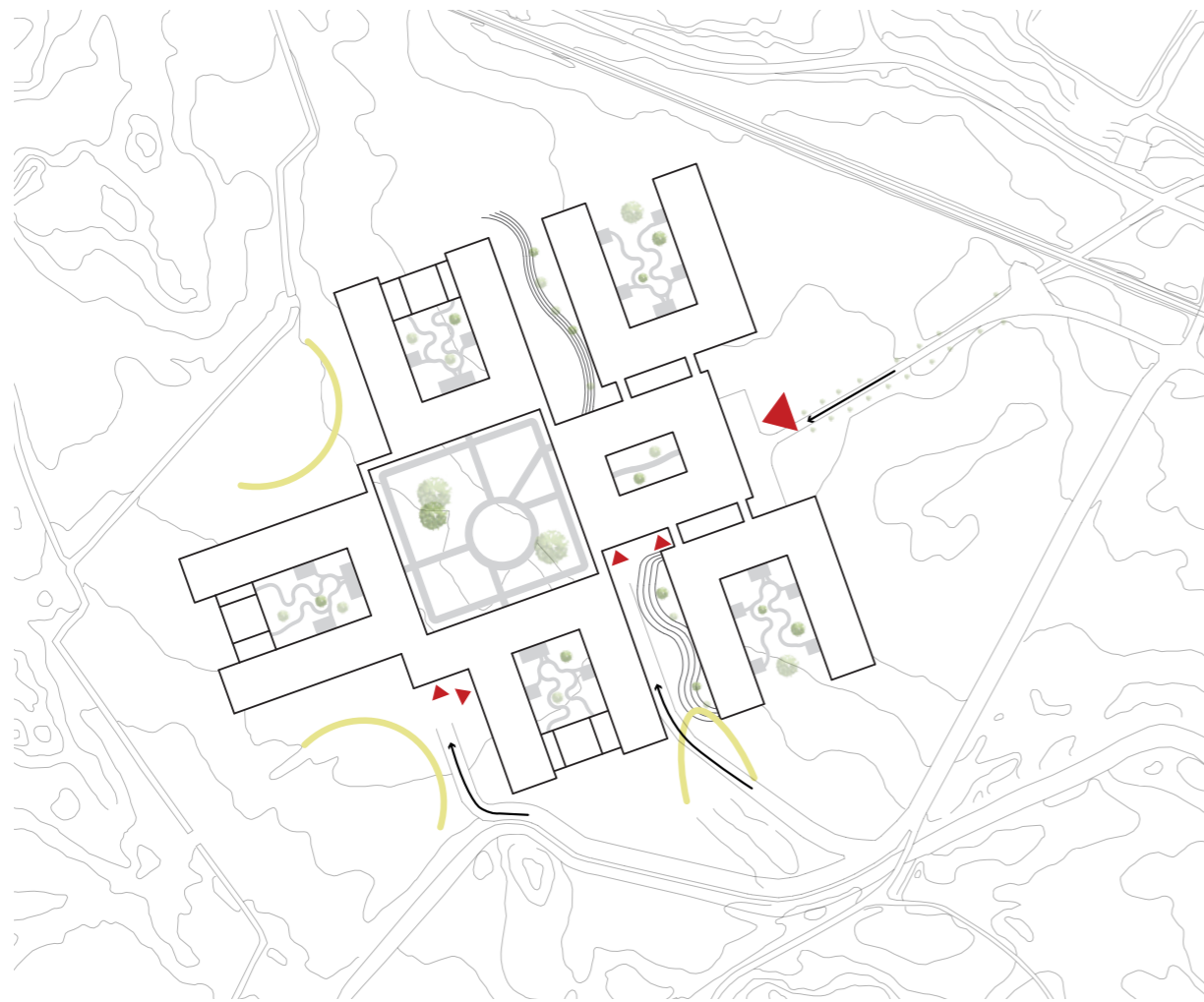
STAFF

With a central placement staff can easily access all wards.



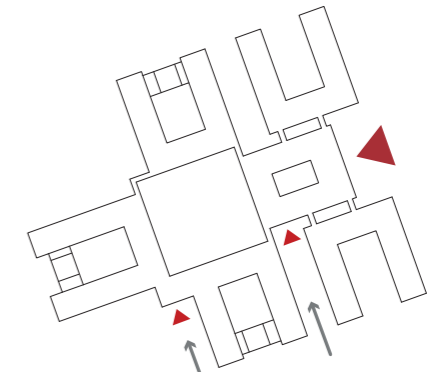
INPATIENT

Inpatient wards are placed separated from the outpatient wards and create a large closed courtyard and an environment with high integrity for patients.



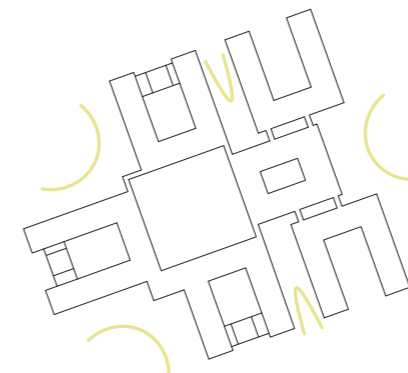
COGWHEEL

Using the cogwheel principle the volume is integrated on the site between nature, communications and daylight.



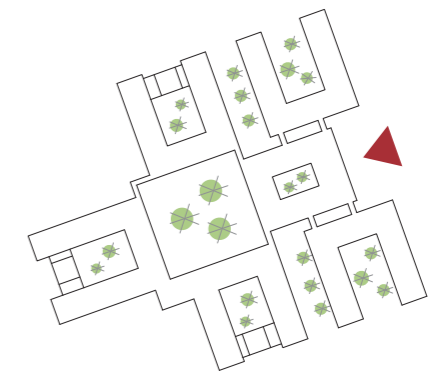
COMMUNICATION

Existing roads are cogged into the structure, creating a natural placement of entrances and easy access to the facility.



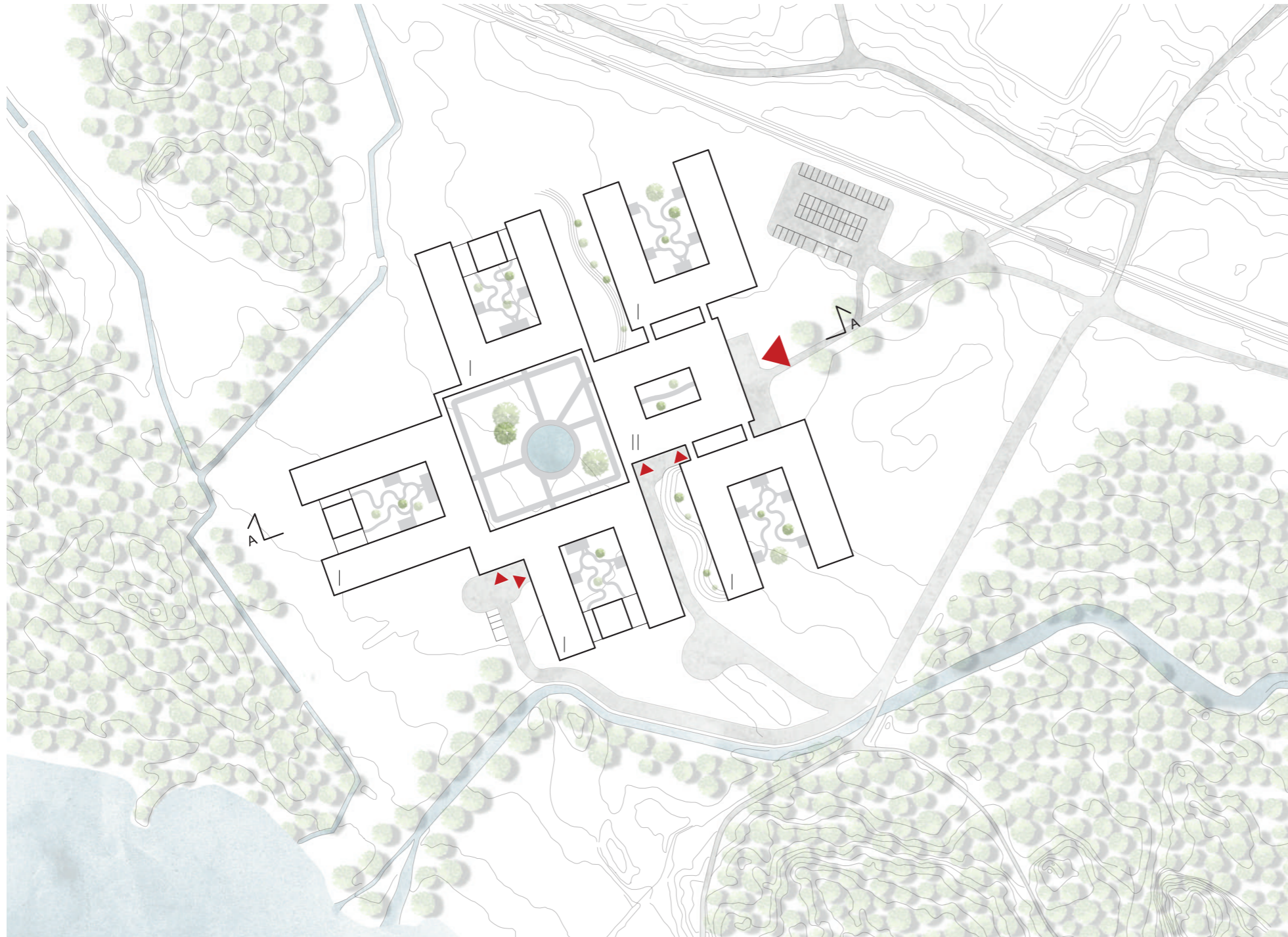
FACADE AND LIGHT

The volume provides a lot of facade area where the daylight are cogged into. It gives light into the building, creating a healing environment at the hospital.



COURTYARDS

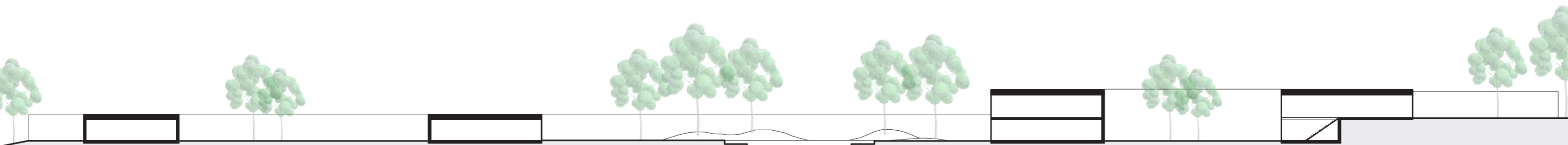
The self closing structure forms courtyards and closed outdoor spaces that provide confidential environments with high integrity for patients. Nature becomes an integrated part of the hospital.



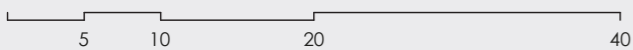
Site plan
Scale 1:2000



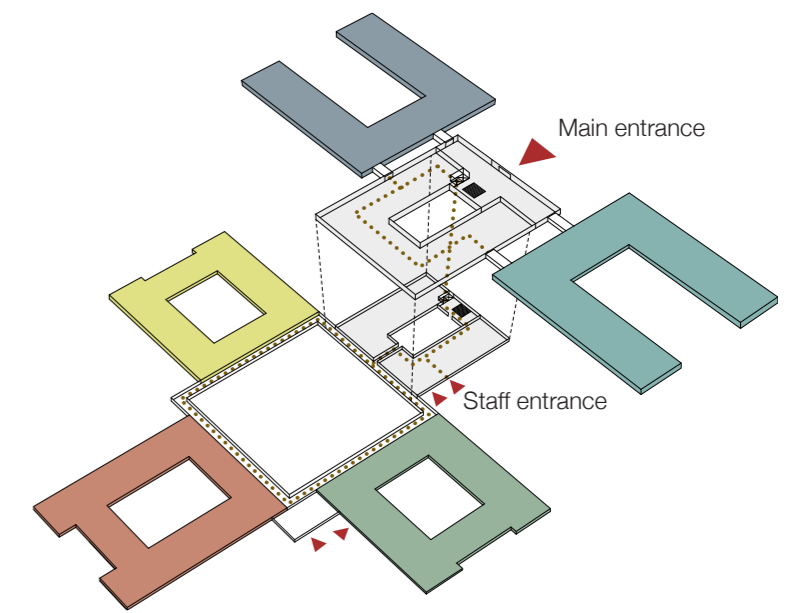
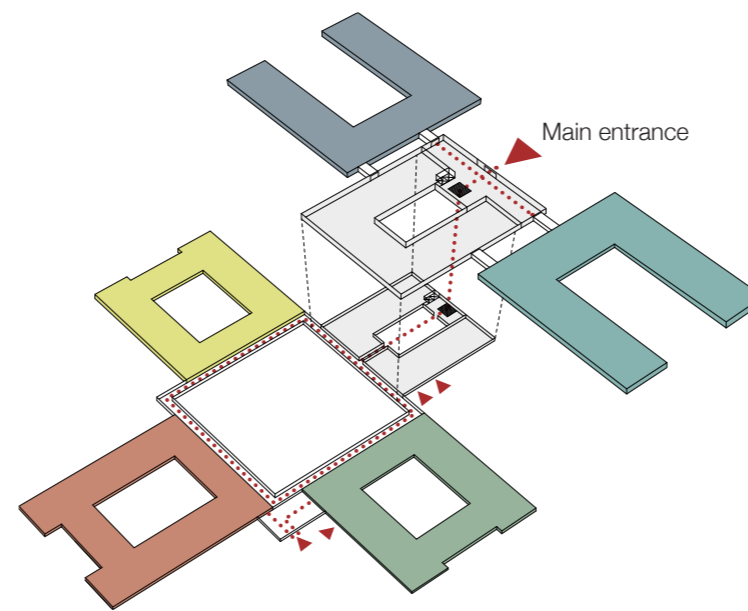
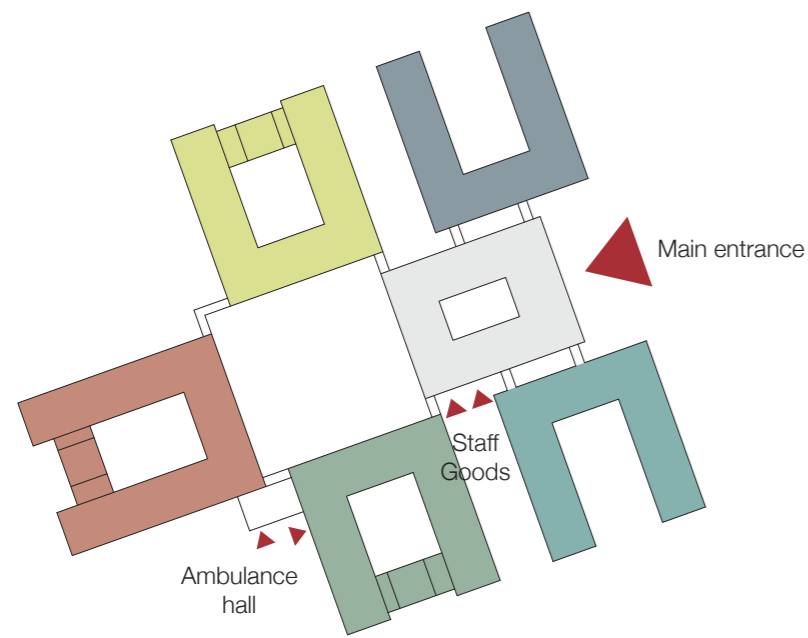
Height difference is handled through having the central building in two floors, connecting the entrance floor with the lower floor.









Section A-A
Scale 1:500



FLOWS



GROSS BUILDING AREA (GBA)

	BUP/ABC	2 110 m ²
	Outpatient ward	2 110 m ²
	Shared facilities	4 360 m ²
	Inpatient ward	2 200 m ²
	Forensic ward	2 420 m ²
	Emergency ward	2 290 m ²
	TOTAL AREA	15 490 m²

PATIENTS AND VISITORS

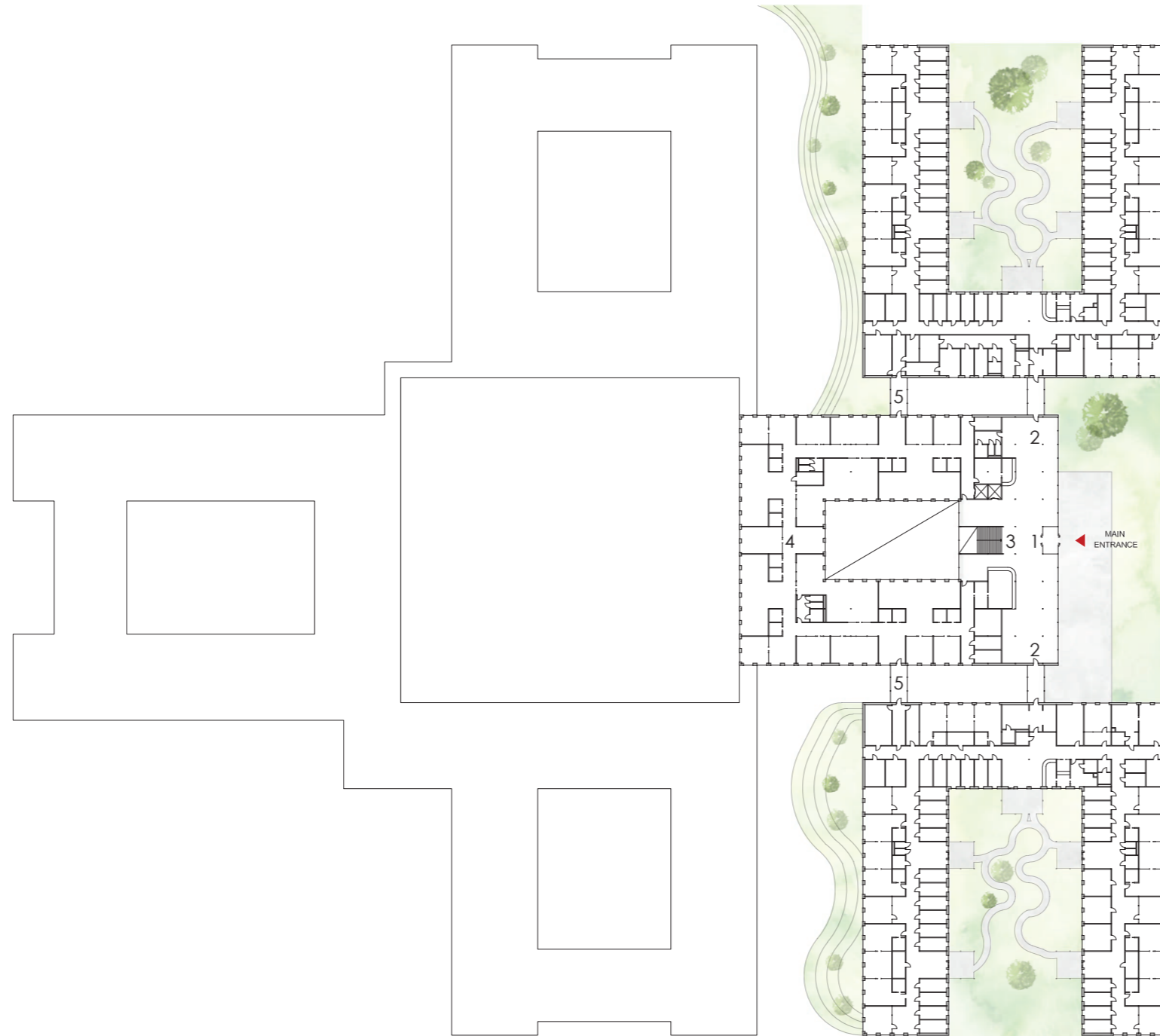
Patients and visitors enter through the shared main entrance, located in direct connection to the today existing road. Using a shared entrance create an environment with high integrity as everyone enters the building on equal terms. In the entrance the flows are immediately separated and the outpatient wards are easily accessed in close connection to the entrance hall.

An atrium with greenery is in the immediate view, creating a calm environment. A large staircase leads the way to the bottom floor where the inpatient wards are reached through a circular flow around the large courtyard.

Nature is constantly present along the paths of the hospital, providing a calm environment and the sightlines to the outdoor ease the way finding.

STAFF

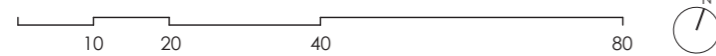
A View of nature meets the staff as they enter their workplace through the staff entrance in the center part of the building. Shared changing rooms are placed in close connection and via a corridor along the courtyard elevators reach the shared office space a floor up. The inpatient wards are reached from the bottom floor through a circular flow along the larger courtyard, where views of nature creates a calm working environment. Outpatient wards are reached directly from the office space on the top floor, creating a close flow between the patient centered tasks and the more administrative tasks employees has during the day.



1. **Main entrance** - the view of greenery meets the visitors as they enter through the shared main entrance.
2. **Outpatient wards** - the patient flows are directly separated in the entrance, with easy access to the adult outpatient ward and bup/abc.
3. **Staircase** - a large staircase leads the visitors to the inpatient wards at the bottom floor.
4. **Shared office space** - shared office space for the administrative work creates community and collaboration. A range of different spaces supports different types of work.
5. **Staff entrance wards** - outpatient wards are easily accessed from the shared facilities, creating a close flow for staff combining patient centered work and administrative work.

Entrance floor

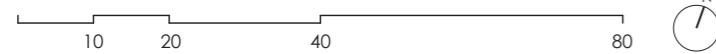
Scale 1:1000

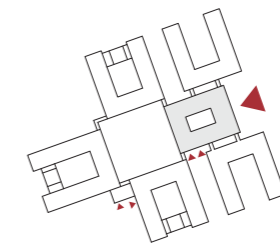




6. **Atrium** - from the large staircase visitors reach the inpatient wards through an atrium.
7. **Circular flow** - the inpatient wards are reached through a glassed corridor that provides views outdoor to ease the way finding. The corridor is semi protected with a raster for the integrity of the patients using the courtyard.
8. **Courtyard** - a large courtyard is shared between the inpatient wards. It can be used with a booking system or shared, depending on the needs of the hospital.
9. **Shared activity space** - shared activity space for patients are reached from the large courtyard.
10. **Greenhouse** - the courtyards at the wards are closed with lighter greenhouse structures, providing transparency and activity for the patients.
11. **Ambulance hall** - the ambulance hall are shared between the emergency and the forensic department.
12. **Staff entrance** - a view over the green atrium is what meets the staff as they enter the building.

Inpatient floor
Scale 1:1000



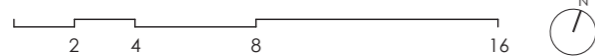


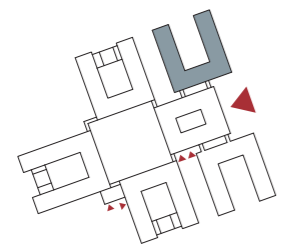
SHARED FACILITIES

The central building contains all of the shared facilities such as staff areas, entrance hall and a café. Entering the building through the main entrance you are quickly presented to a choice of path; outpatient ward, BUP/ABC or the inpatient wards. This makes the way finding easy for the visitors. The staff areas are located here as it's close to all of the different wards.

Shared facilities

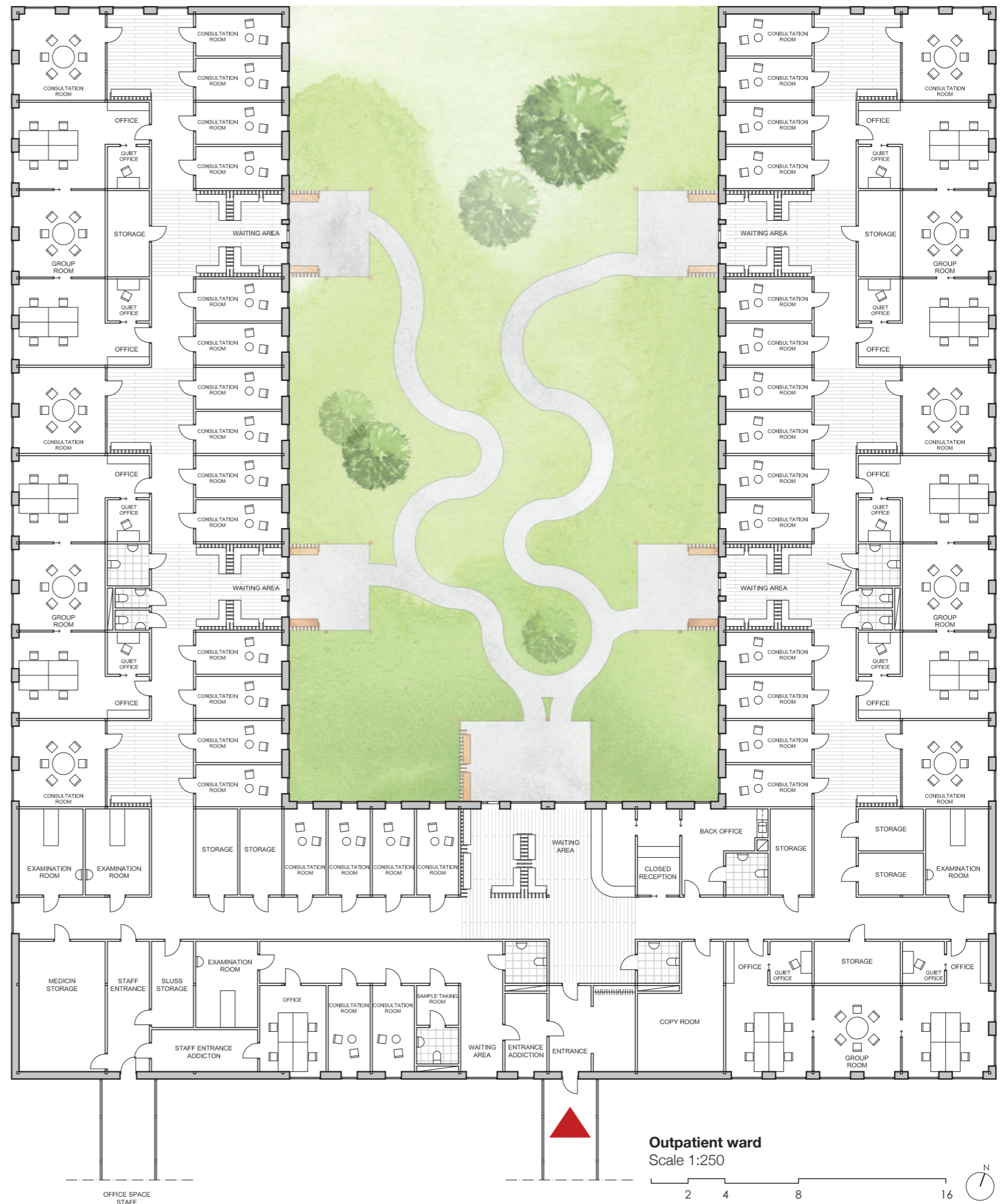
Scale 1:250

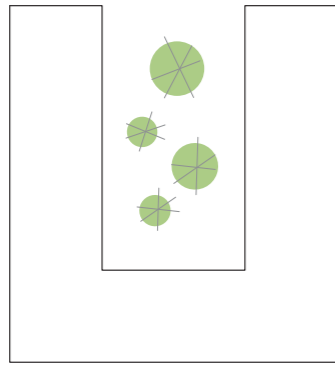




OUTPATIENT WARD

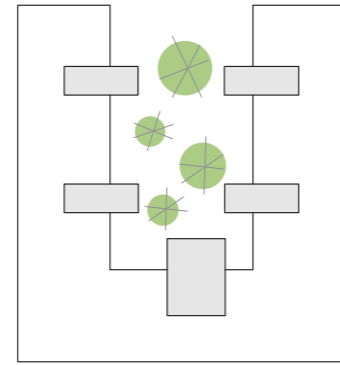
The wooden elements in the facade are used as an interior detail, creating fixed furniture in the waiting areas, connecting the waiting rooms with the courtyards both physically and visually. The open waiting spaces are also used as a way to break up the corridors.





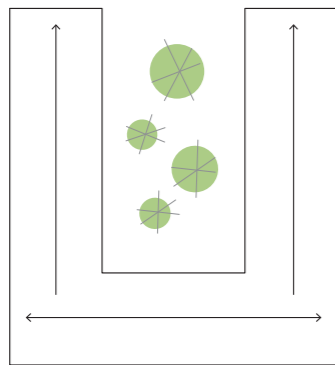
ENTRANCE

The greenery of the courtyard is the first thing that meets the eye while entering the ward.



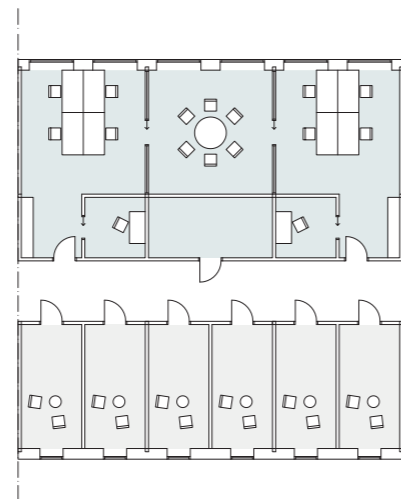
WAITING AREAS

Waiting areas extends into the courtyard, creating spaces for waiting in the nature.



SIGHTLINES

Windows at the end of corridors creates views and light.

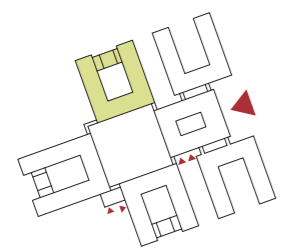


NEUTRAL ROOMS

The neutral design creates a range of different working spaces and the shared use enhances collaboration between staff. In the neutral consultation rooms patients and staff can meet on equal terms.



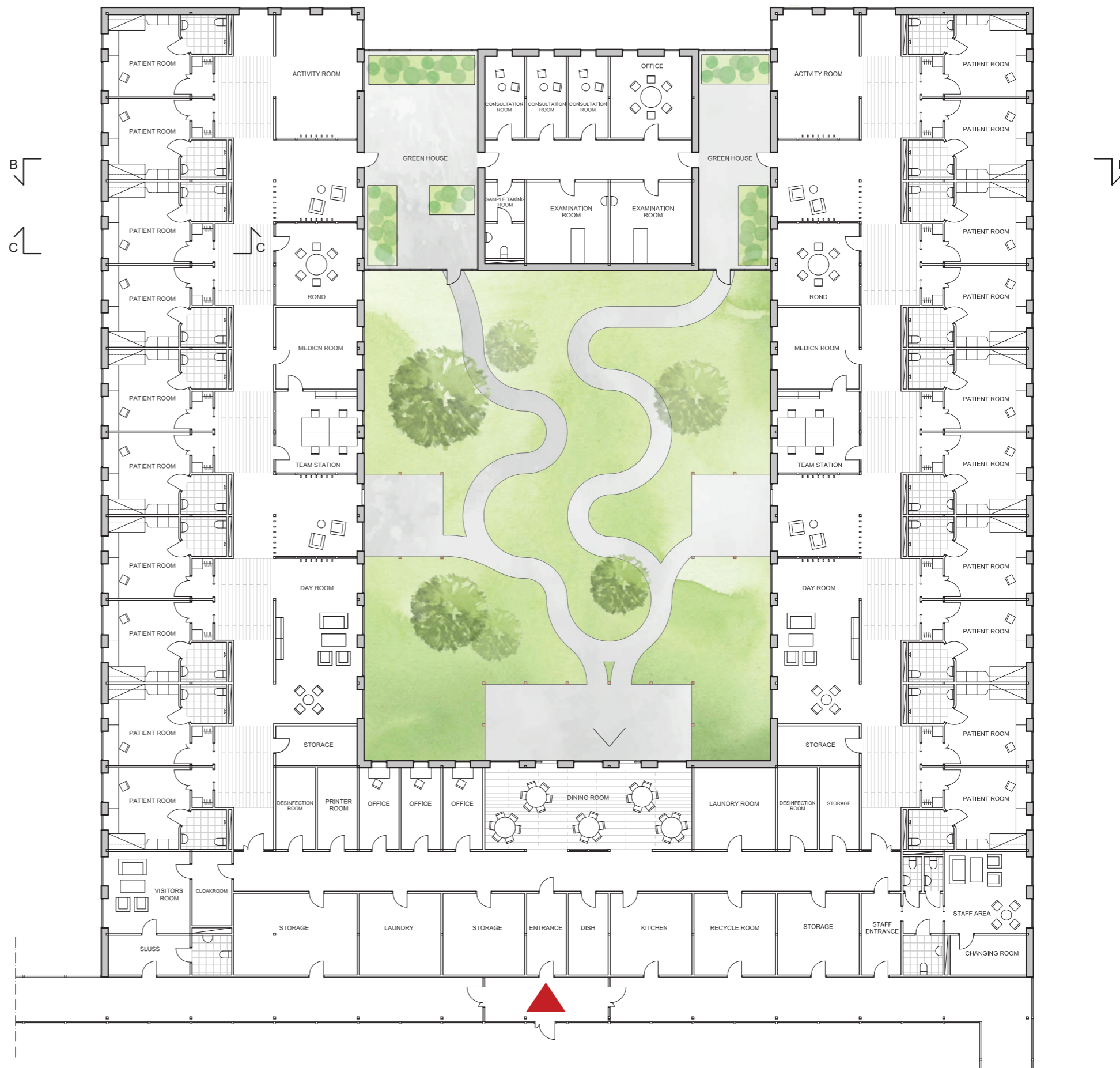
View over a waiting area, from which patients can access the courtyard.



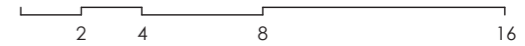
INPATIENT WARD

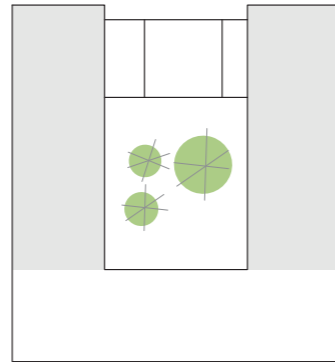
The patient rooms are located towards the outer facade, giving the patients maximal integrity. The shared areas are located towards the courtyard. The entrance to each patient room is indented to create a gradient between the private and the common.

The courtyards are closed off by green houses and a separate building containing the treatment areas. The ward is separated into two wings so that one wing could be closed when there are fewer patients at the ward.



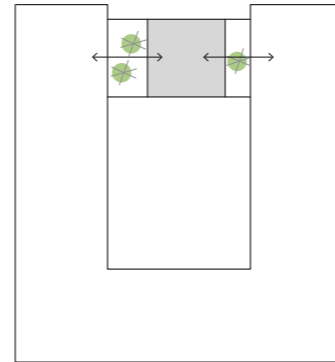
Inpatient ward
Scale 1:250





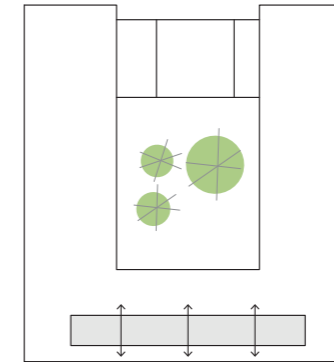
DIVIDE WARD IN TWO

The placement of the patient rooms allows a ward to work as two separate wards.



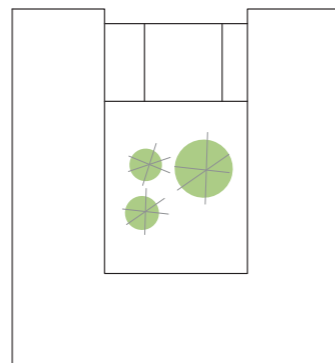
SEPARATE CARE

By placing rooms for care separate from the patient rooms, patients are encouraged to step outside and prepare them for the life outside the ward.



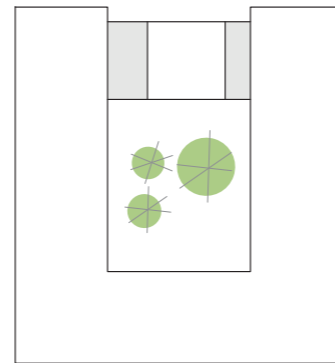
DARK CORE

A dark core creates a barrier where goods can be delivered without people stepping into the ward.



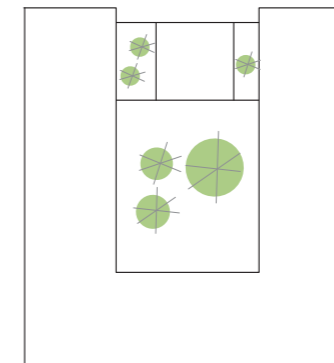
ENTRANCE

The greenery of the courtyard is the first thing that meets the eye while entering the ward.



GREENHOUSES

The courtyards are closed with greenhouses, creating activity space and transparency for the patients.

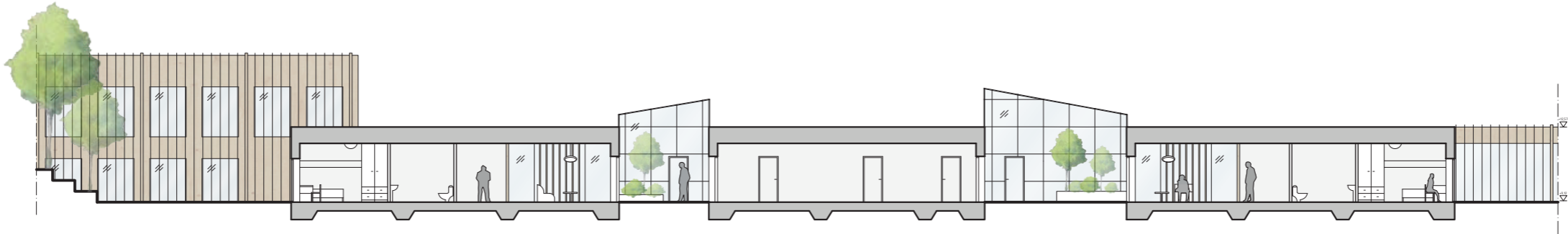


COURTYARDS

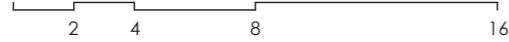
Patients can access three different types of outdoor spaces.

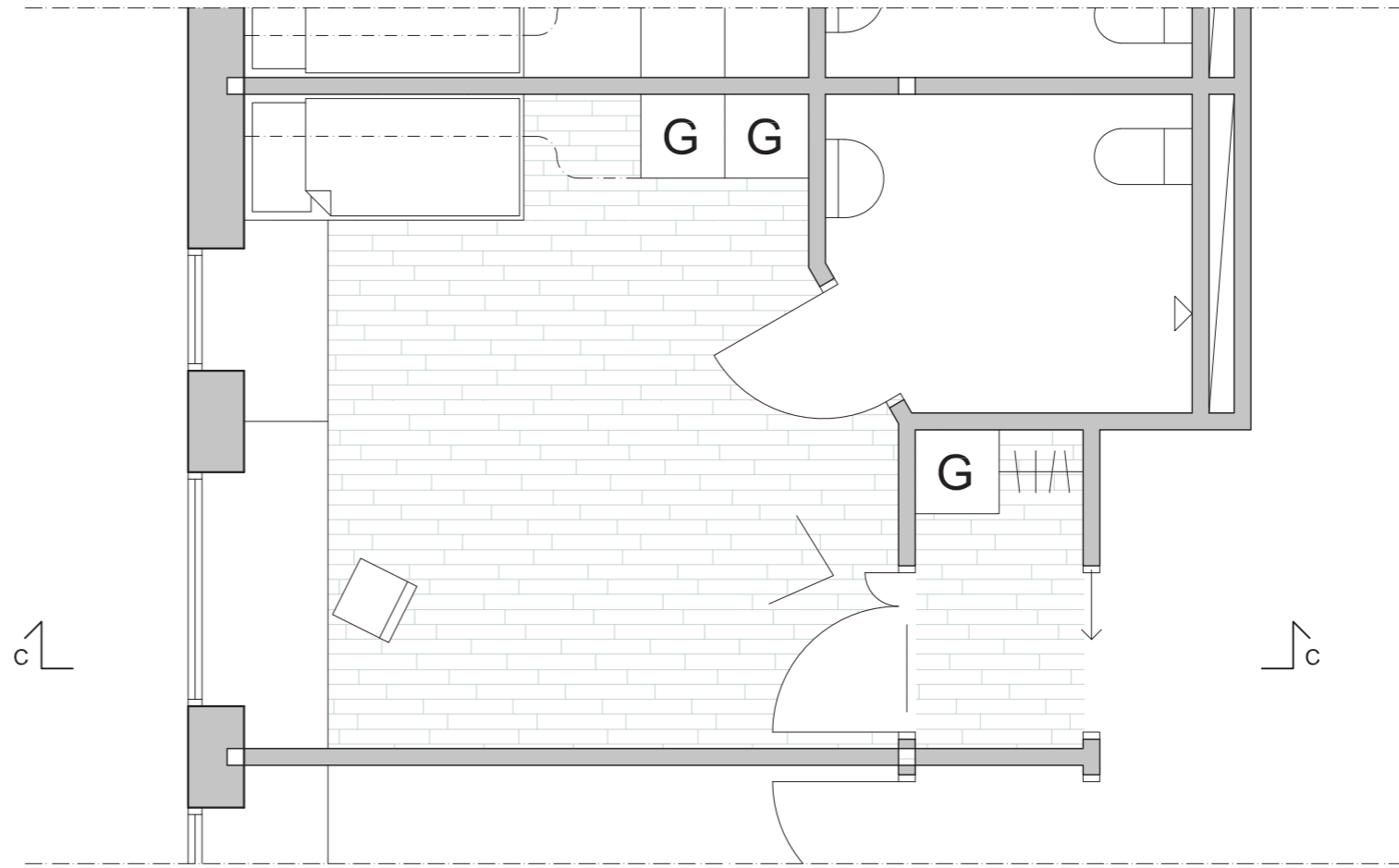


View over the courtyard in the inpatient ward.



Section B-B
Scale 1:250



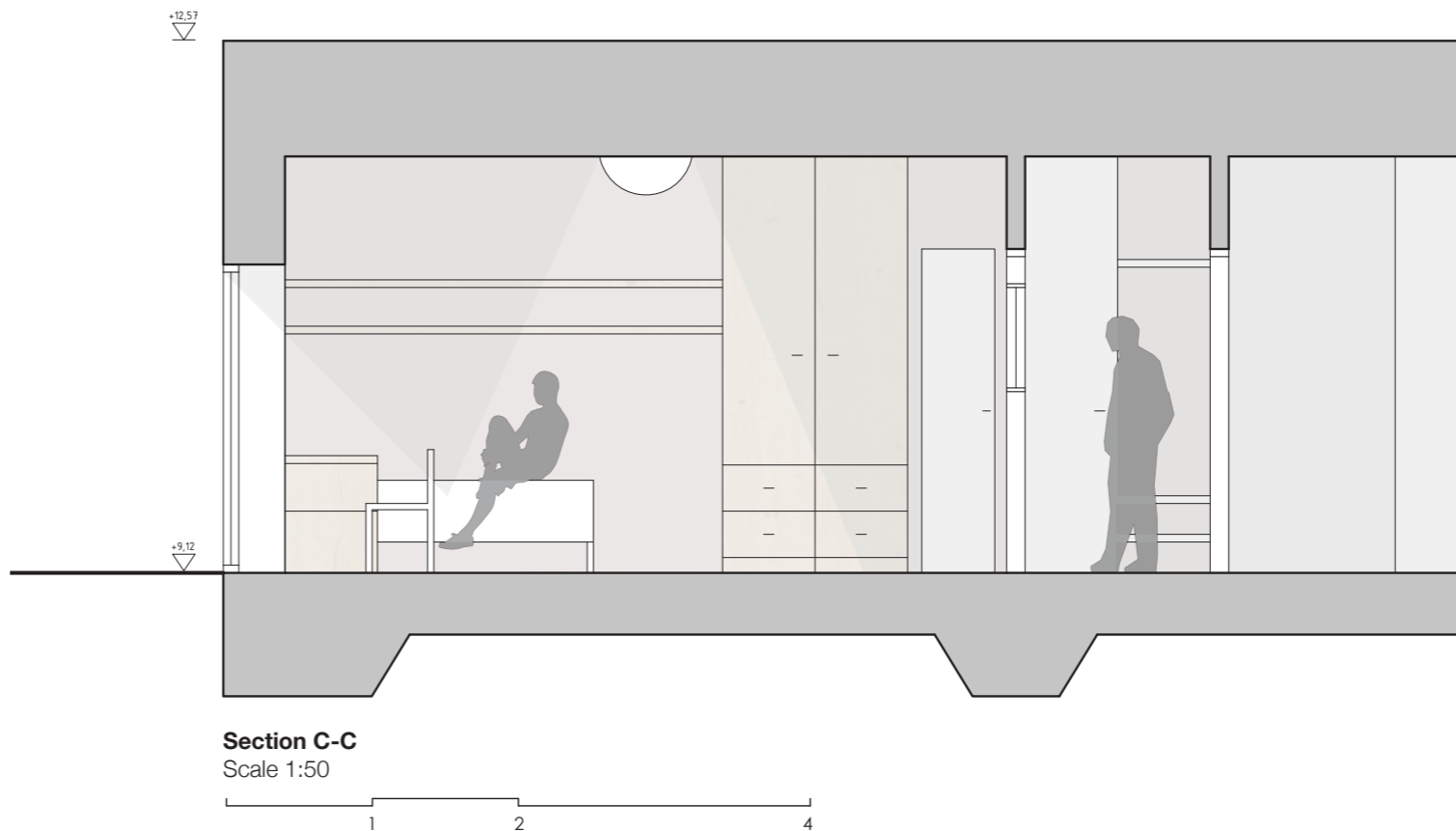


Patient room
Scale 1:50

PATIENT ROOM

To keep the integrity for the patients, all patient rooms has a second door with a glass window that creates overview for staff as well as keeping the integrity for the patient.

The entrance to the room is indented so the patients have a buffer zone between the private patient room and the corridor.
The atmosphere is designed to mimic a home like environment, with warm colors and a lot of wood. All patient rooms have built in furniture.



Section C-C
Scale 1:50

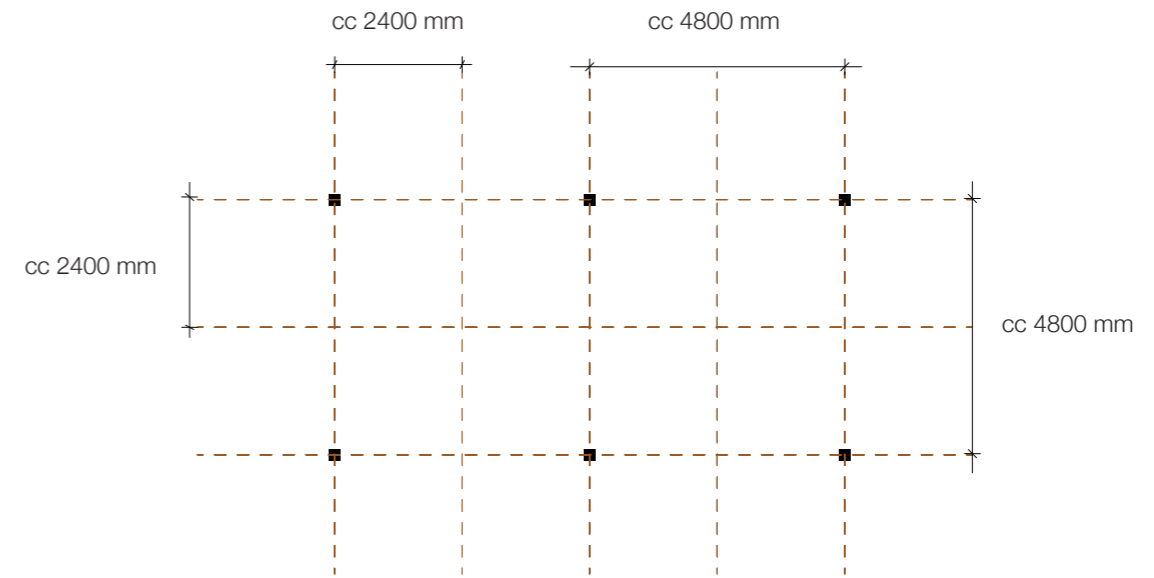


View over a patient room.

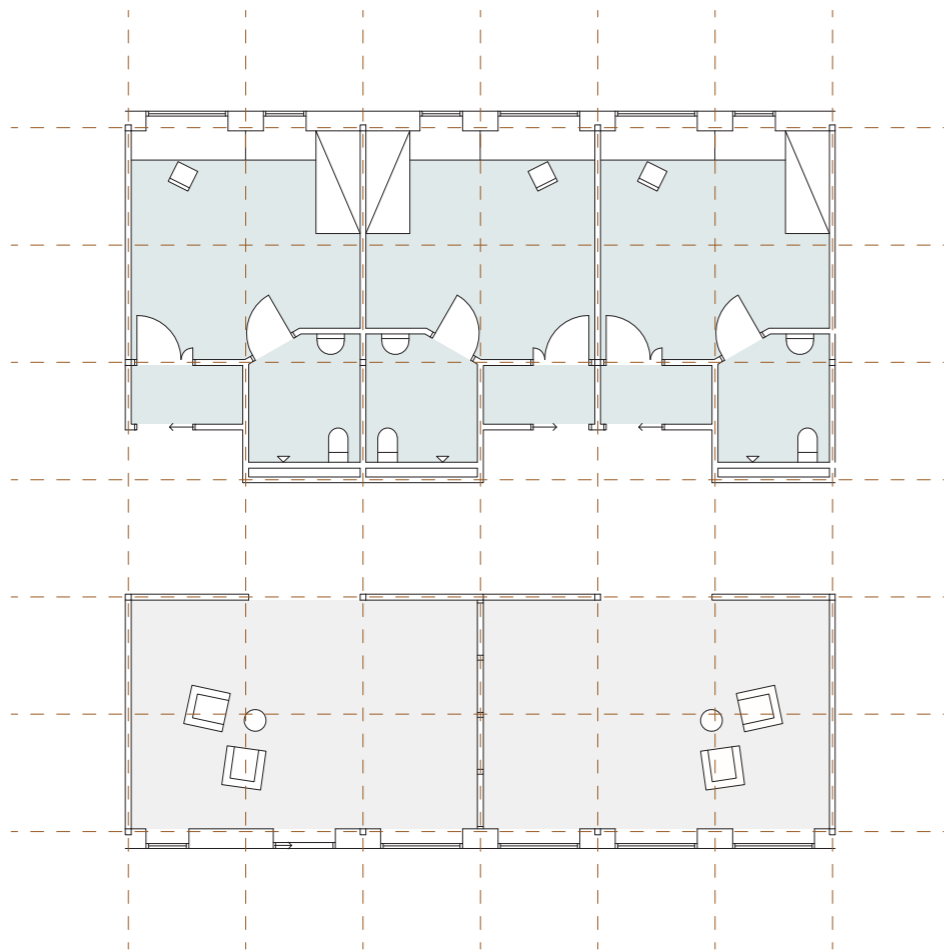
FUTURE PROOFING

To be able to meet future requirements of the psychiatric facility all wards are design to be able to change function.

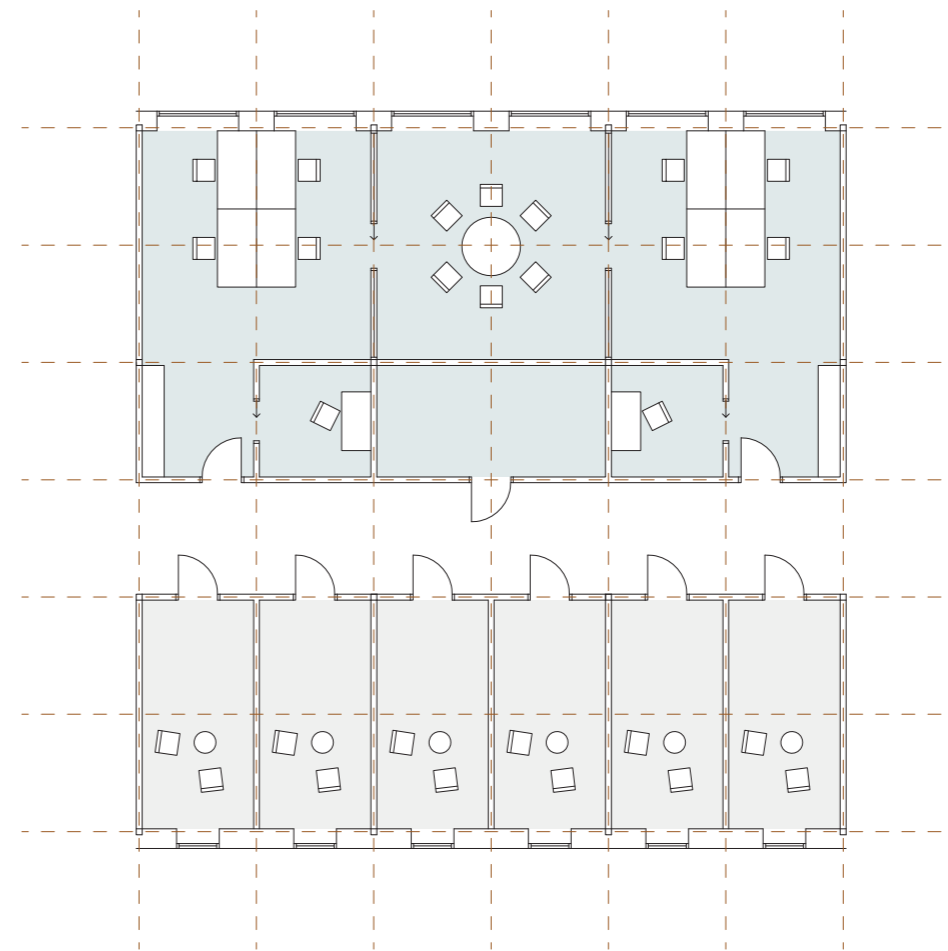
By using a grid measuring 2400 x 2400 mm, one ward unit have the possibility to change from one kind of ward to another. For example an inpatient ward is able to transform into an outpatient if the future requires it.



Pillar structure

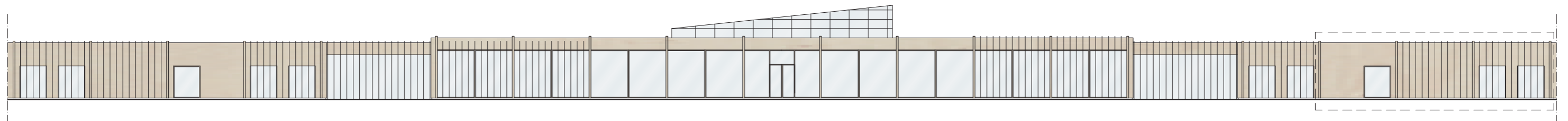


Inpatient ward

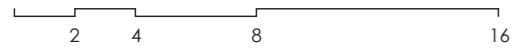


Outpatient ward

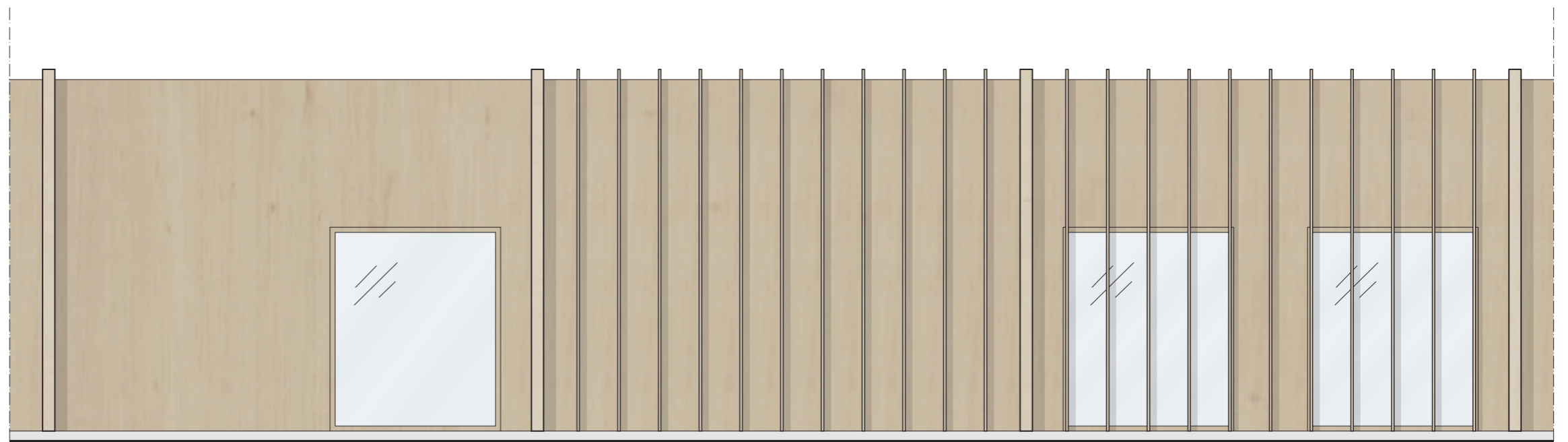
FACADE



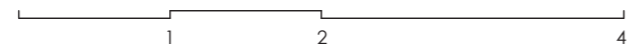
Facade toward east
Scale 1:250



The facade consists of two layers, one in massive wood that protects from the weather. The second layer consists of vertical ribs creating an exterior expression and provides protection from observation from people passing by. Based on the grid system, once every 4800 mm there is a thicker beam that breaks up the facade for a more relatable scale.



Facade zoom in
Scale 1:50





Model photos over facade, showing how the ribs can create integrity for patients as the view from outside are reduced from some angles.

ATMOSPHERE



INTERIOR

The interior is designed to mimic a home like environment. We use warm colors and tactile materials like wood to create this atmosphere. The vertical wood elements from the facade are also used as an interior detail to create semi-transparent walls.



EXTERIOR

We use two facade layers, one out of massive wood for weather protection and a second layer containing of vertical wooden ribs. The second facade layer protects the patients from observation from the outside since you only can see inside from some angles.

COURTYARDS

The courtyards are designed to offer a wide variety of different outdoor spaces. There are pavilions, green houses and more open areas. The vegetation is chosen to be green most parts of the year and we want to have a lot of different grass and meadow like greenery.

SUSTAINABILITY

Project objectives, our ambition is to create an attractive, welcoming environment and purposeful premises with high architectural values. The building should be designed in such a way that it is healthy for those living, working and visiting, as well as for the environment. The project will mainly work from a sustainability perspective through three different aspects; the selection of materials, integrate nature and our interpretation of future proofing.

FUTURE PROOFING

We believe that healthcare is in constant development and the approaches on psychiatric care have and will change. We want our building to be prepared for these changes and have therefore used general design solutions that allows for this continues development. With a pillar structure and the use of a single shape, all wards can change in use. Both regarding a different organization with in a ward, adapted for the needs of the future. But also on a more general level, where every ward can be transformed into a more outpatient ward solution as well as an inpatient one.

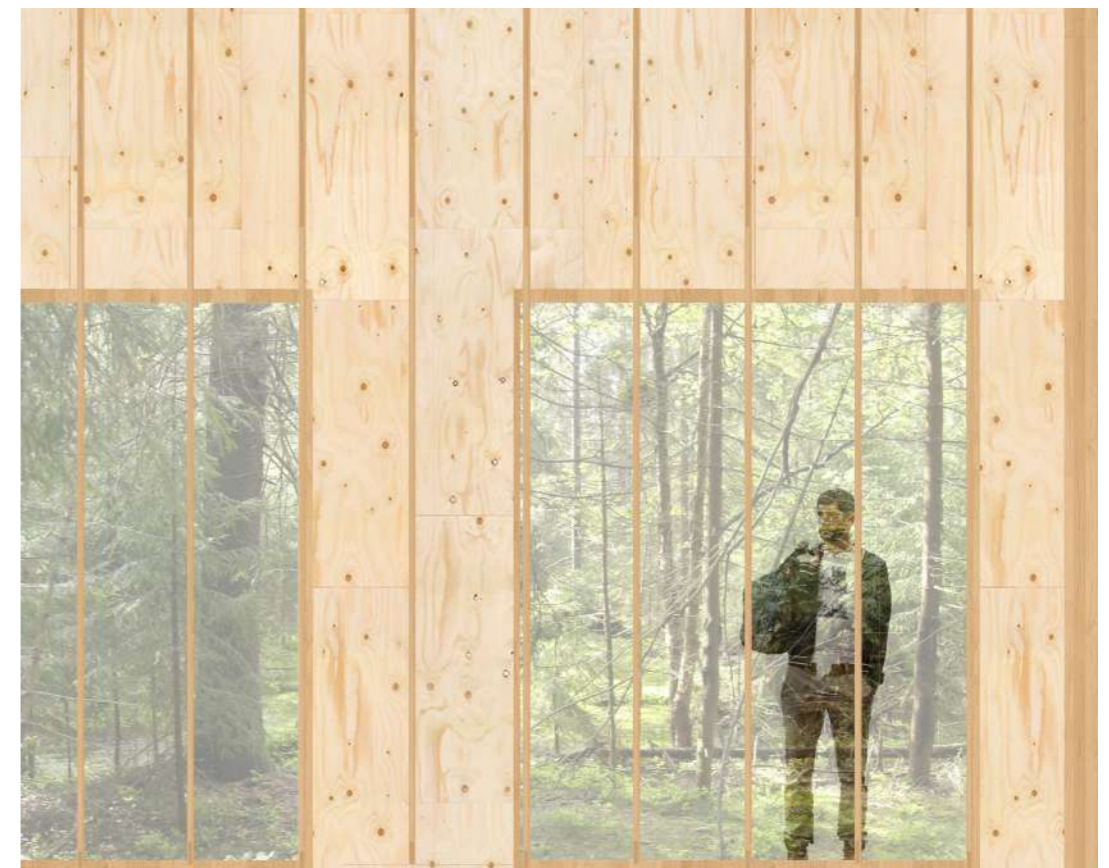
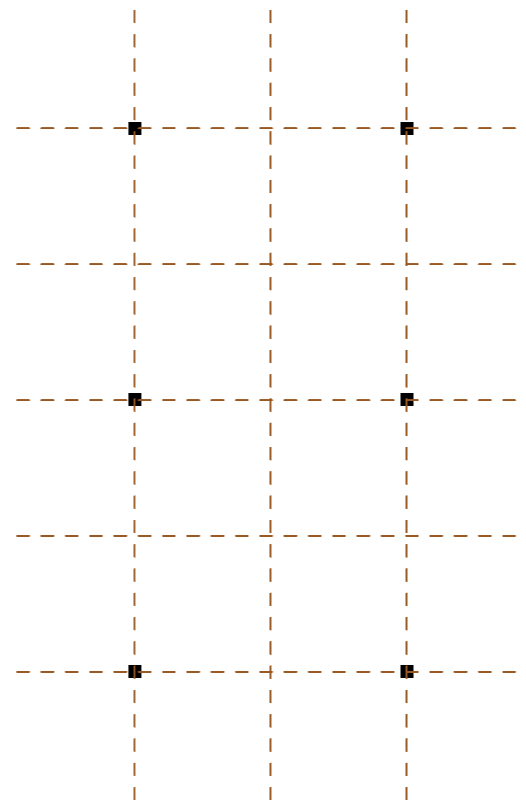
MATERIAL

The building will be designed to be made out of solid wood, which provides a very good indoor climate and is good for the environment. Wood is used in the load bearing structure as well as in facades, windows and interior details.

Green roofs are used as a way to handle rainwater and a pond on the larger courtyard can collect and delay storm water as well as being a natural design element in the courtyard.

NATURE

Greenery is a recurring element on the site and by protecting as much as possible of the existing nature biotopes can be protected. The today existing tree colonnade is kept to preserve recognizability on the site, allowing visitors to meet the site the same way as they do today. By adding more nature on the many courtyards a sustainable environment can be created.



HEALTH PROMOTION

As a healthcare facility it is important to provide a healthy environment and spaces filled with meaning. In our project nature and the outdoor spaces has a central role which provides stress reducing environments that are beneficial for the mental wellbeing.

MEANINGFULLNESS

To create a meaningful stay at the inpatient wards we have incorporated greenhouses to create a space for gardening. A larger shared facility for activities and a sport hall is also available as well as a larger shared courtyard.

MENTAL WELLBEING

A stress free environment is important for the mental wellbeing. By placing waiting areas next to the courtyards, allowing people to step outside, a stress reduced environment is created. Views of nature alongside corridors and the major flows in the building create an environment with a high level of way finding.

A large staircase displayed directly in the main entrance hall leads the way to the inpatient floor where a path through a green courtyard creates the major flow and makes it natural for people to move through green spaces.

SOCIAL PARTICIPATION

As a part of creating spaces with high integrity for patients, fixed furniture for waiting rooms creates different seating with different levels of privacy.

Different types of shared office space, including group rooms, promote collaboration. The shared staffroom creates an environment with possibilities for social interaction and community among staff.

Neutral rooms for consultation enhance the patient involvement in the care.



EVIDENCE BASED DESIGN

Several factors determine what a healing building and environments actually are. Modern healthcare environments are built on evidence-based design and proven experience. Today we are aware of some of the factors that create a healthy environment, both physically and mentally. In our project we have applied the following factors, mainly focusing on nature, daylight and way finding.

NATURE

Views of nature and nature elements are always present in the building. Large windows with beautiful views are throughout the entire building, both in patient rooms, staff areas and in public spaces. The beautiful views and access to the outdoors allow patients to move around in different types of spaces. This helps to divert from negative thinking patterns.

Nature views and accessibility to nature is also present in all of the waiting areas where the courtyards provide a calm second space for waiting.

WAY FINDING

The orientation of the building is very simple and smooth and with a central placement of staff, they can easily move between departments and the staff areas.

A key principle in the building is that every ward is entered with an outdoor view. Windows in the end of corridors and waiting areas along the corridors provides light and sightlines that enhance the orientation.

The major flows from the main entrance to the inpatient wards are along a glassed corridor by the large courtyard. The visibility of nature along the flows makes the orientation easy when visitors and staff can relate to the outdoors.

All departments and work spaces are very similar in floor plan and principle. This feature creates recognizability for patients that sometimes visit more than one ward in their contact with the care system.

DAYLIGHT

The presence of daylight has been very important and the shape of the building allows for a lot of windows and direct daylight. The corridors open up towards the facade to prevent dark and closed corridors.

The placement of the medicine rooms on the inpatient wards has direct daylight, reducing the risks of incorrect medication.

INTEGRITY

We have worked with single patient rooms only, which provide a place for retreat and a choice to be alone during the stay. To spend time alone gives the patient opportunity to reload. The single patient room also allows the staff and patient to interact in a safe space with high integrity, providing a good care for the patient.

OVERVIEW

All inpatient wards have two team stations in the middle of the ward, providing easy overview; both toward patient rooms, dayrooms and the inner courtyards. Patient rooms have a glass window in the inner door, providing easy access for staff to monitor patients without breaching the integrity of the patient.



VISUALIZATION OF THE PROCESS

Concept

We started by discussing and find out some keywords for our concept. We then used the keywords to make mood boards of atmospheres and references that we connected to the words. After giving our thoughts a more physical form we narrowed down our key themes to four main themes; activity based care, integrity, integrate nature and imitation of society. These have since then been further developed.



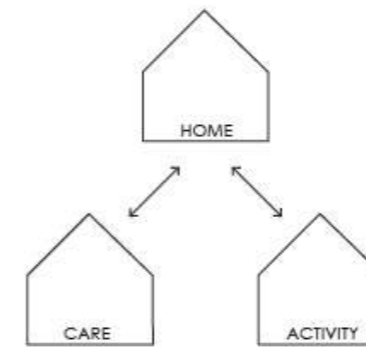
ACTIVITYBASED CARE



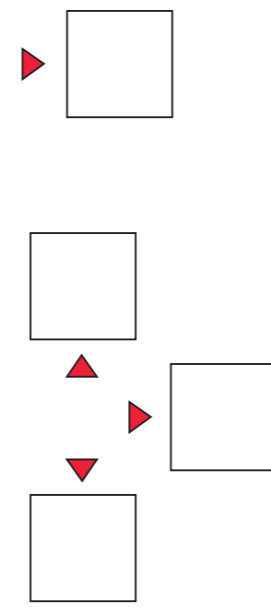
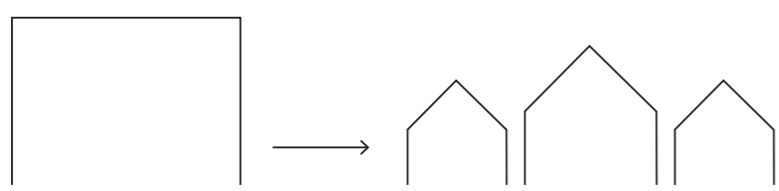
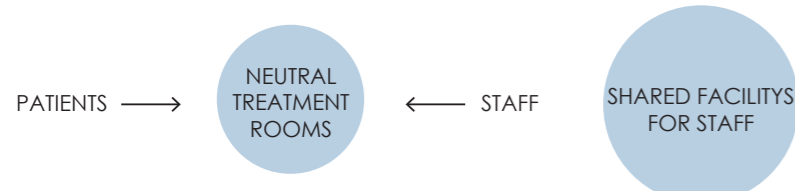
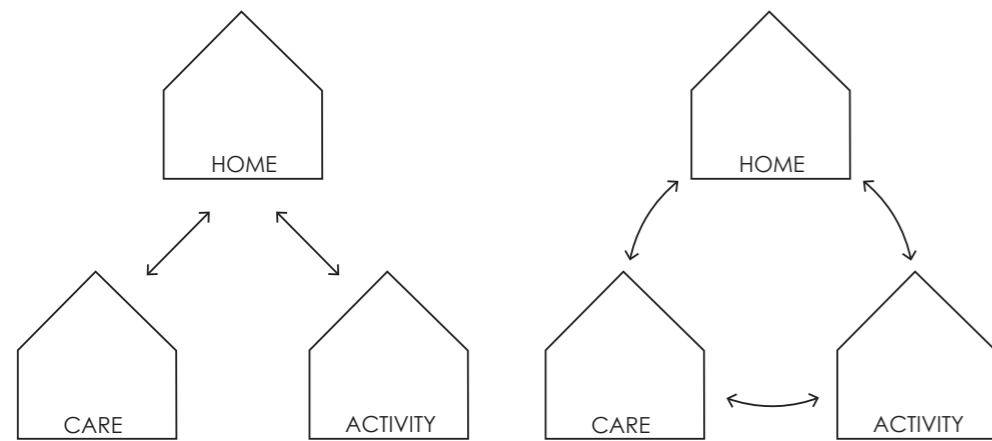
INTEGRITY



INTEGRATE NATURE



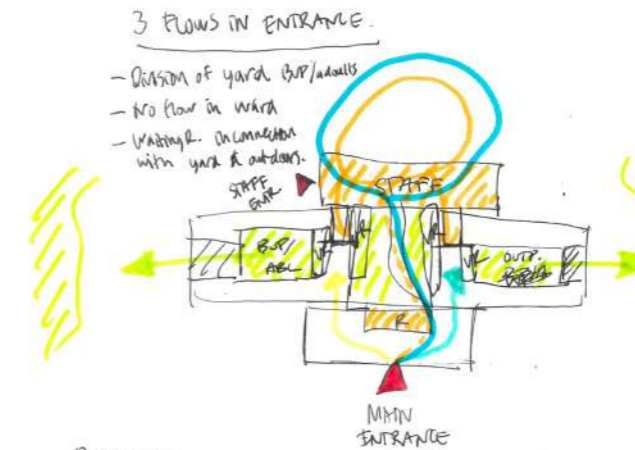
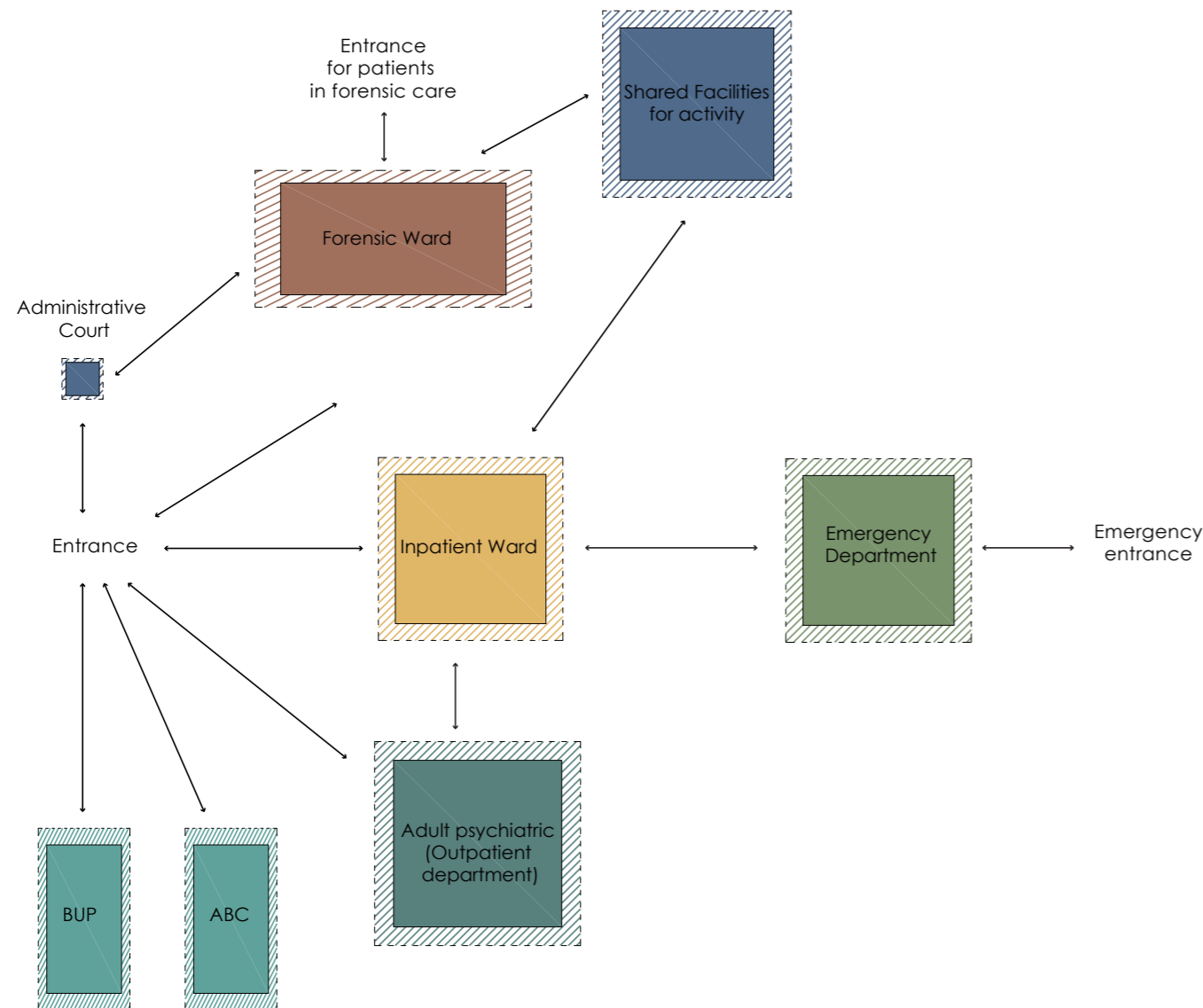
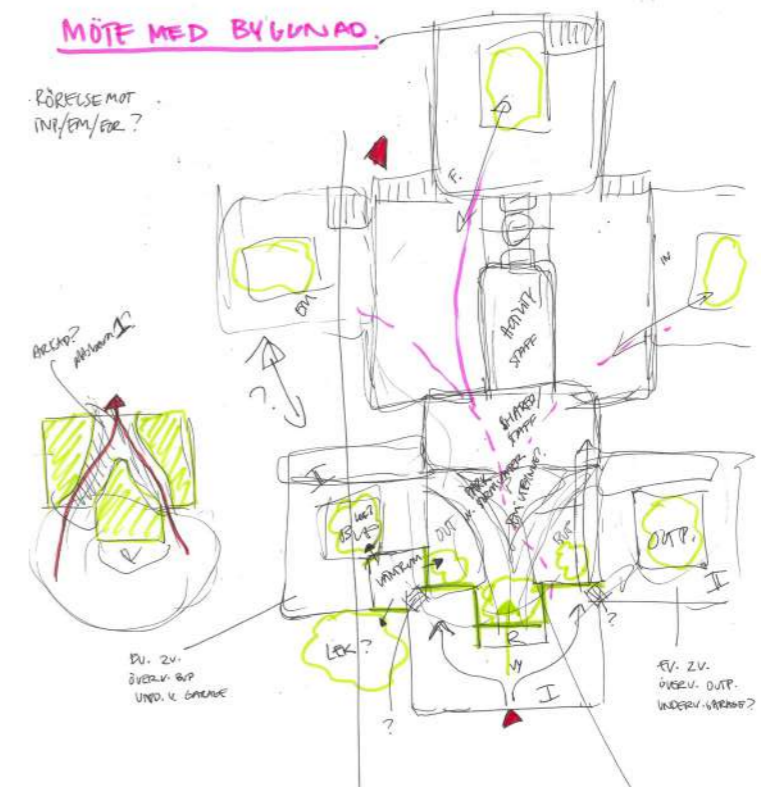
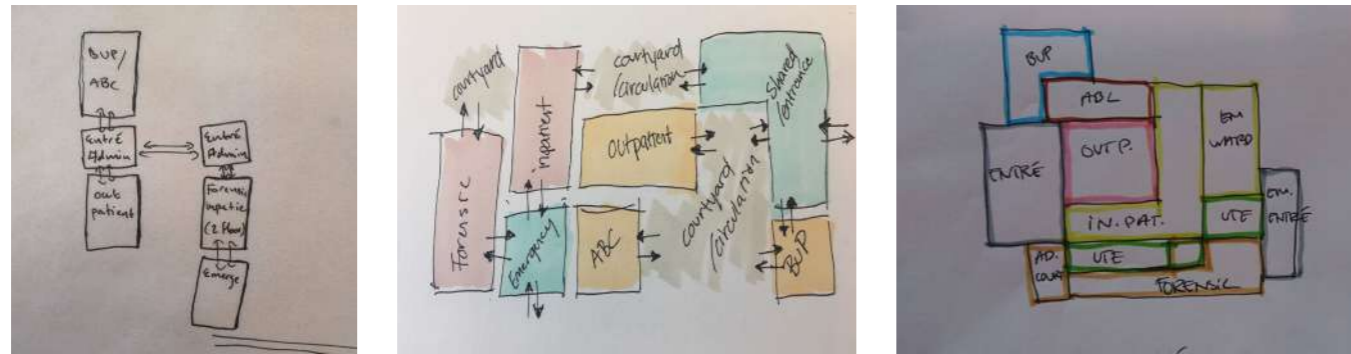
IMITATION OF SOCIETY



VISUALIZATION OF THE PROCESS

Flows and circulation

We started off the project by organizing the program by thinking about which wards should be close to each other. At first we draw diagrams individually to later on combine them. This gave us a good idea on how to structure the circulation within the building.



- PROBLEM?**
- 2 storage? connection to outdoors?
 - view from entrance to nature → vs. integrity for patients?
- MIN INTRANCE**
- P. BUP/ABC
 - P. OUTP. (adults)
 - VISITORS INPAT.
 - STAFF
 - OUTDOORS (through glass structure to pathways for outdoor circulation)

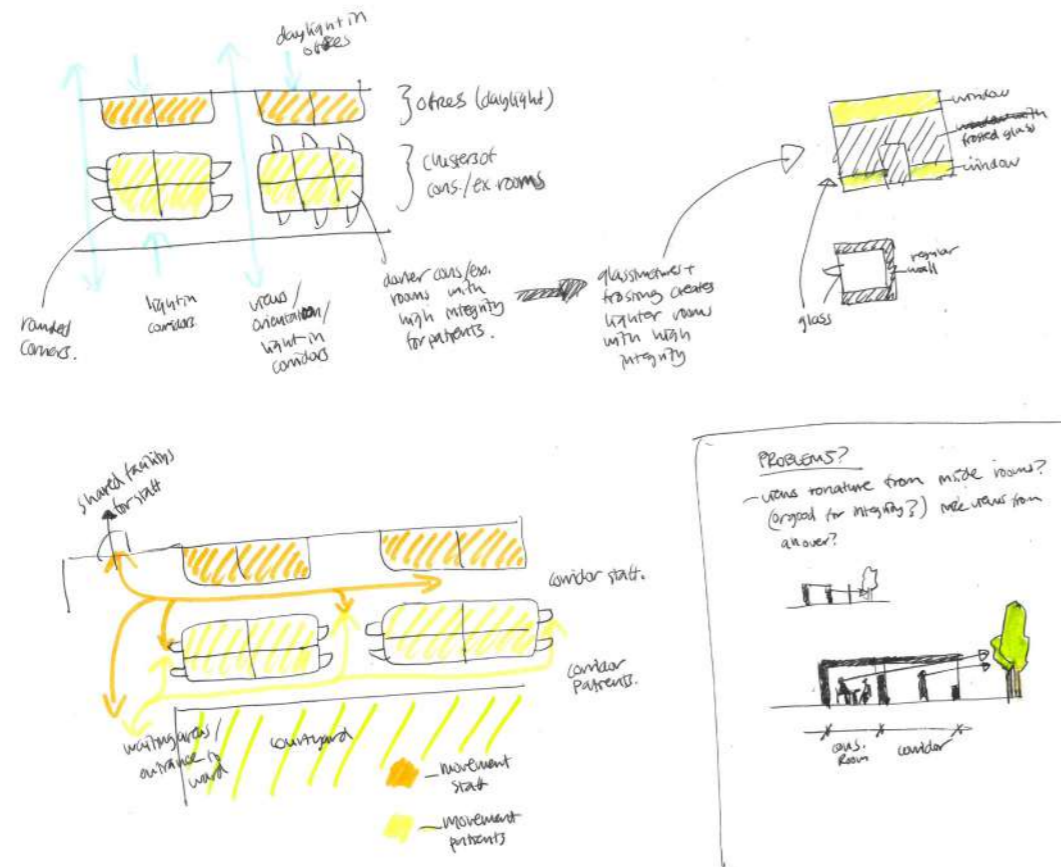
Använda växtstruktur i outp. delar för att gå ut & ha terapi i naturen?

VISUALIZATION OF THE PROCESS

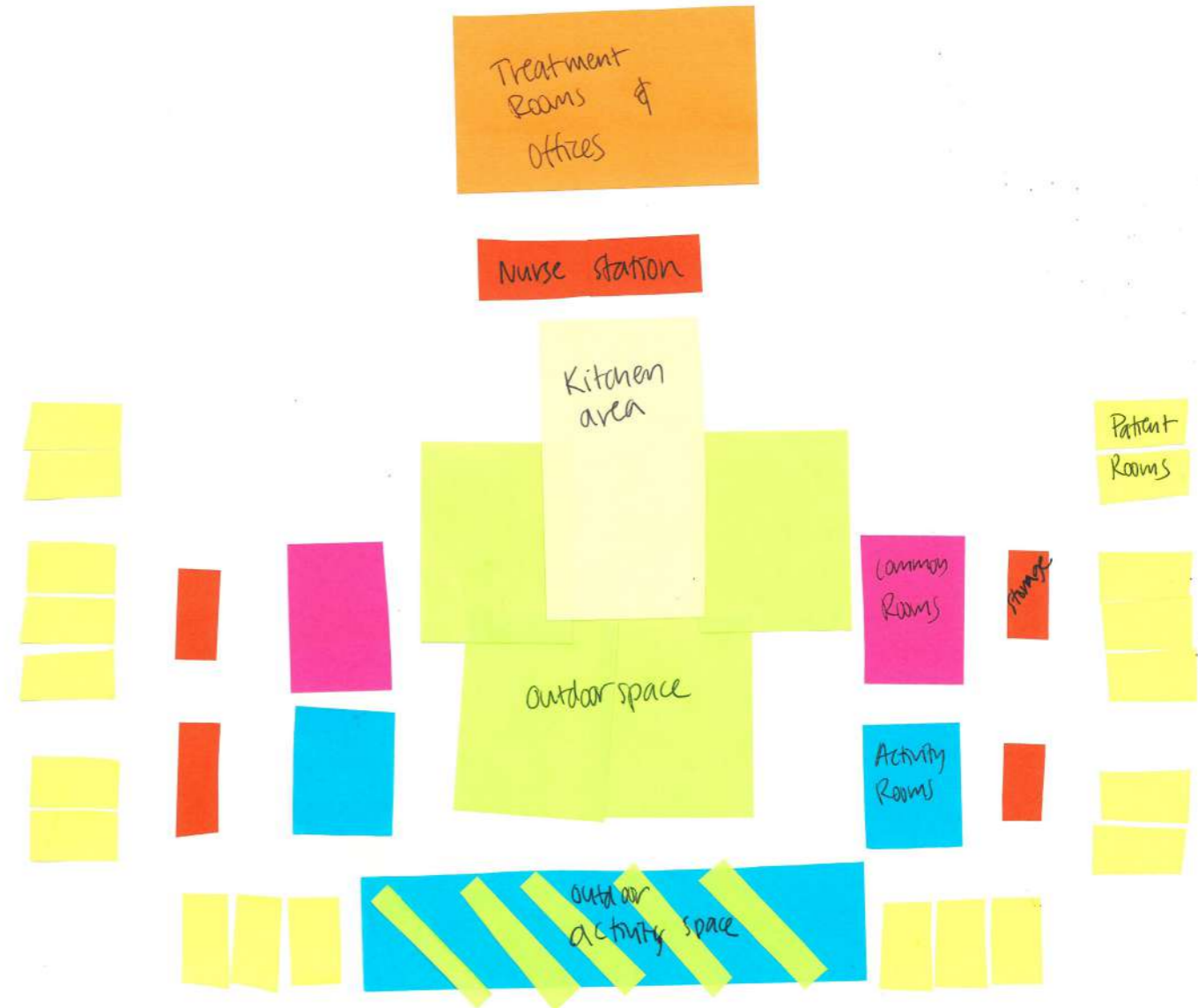
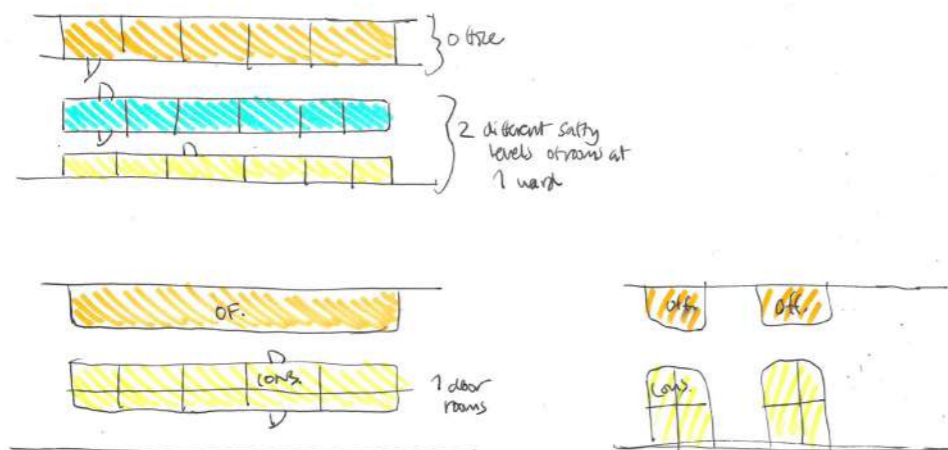
Ward unit

Investigating the internal flows and circulation within a ward by using colored paper, testing the area and connections between different rooms. We also did sketching on ideas for internal flows inside the wards.

We built patient rooms in models to test the space and combining our work led us to our final patient room.



CONSULTATION/EXAMINATION ROOMS.



VISUALIZATION OF THE PROCESS

Form and placement on site

We tested different options of the form by trying different volumes on the site model. Using physical tools gave us more understanding about the footprint needed on the site. We could also see that the existing buildings on the site would not fit on the site once the psychiatry is built.

