



**GREEN
WALK**



ARK263 - HEALTHCARE ARCHITECTURE STUDIO

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PROJECT INFO

This project was initiated on behalf of Kalmar County Council with the task of creating a design proposal for a new psychiatry hospital in the city of Västervik. Västervik Hospital is facing a comprehensive development as many of the existing facilities is outdated and more space is required.

The overall purpose of the project is to move the forensic ward into the hospital area in a new modern facility. The County Council proposed two different sites for the project. The urban site within the hospital area and the nature site about 3 kilometres west of the city, where the entire hospital could be moved in a longterm strategy.

For this project, the urban site was chosen because it follows the original strategy from both The City Council and the Municipality of Västervik. This site also comes with more restricted boundaries due to its existing context and implies interesting challenges with its compressed size.

The area program for the new building is about 15 000 m².

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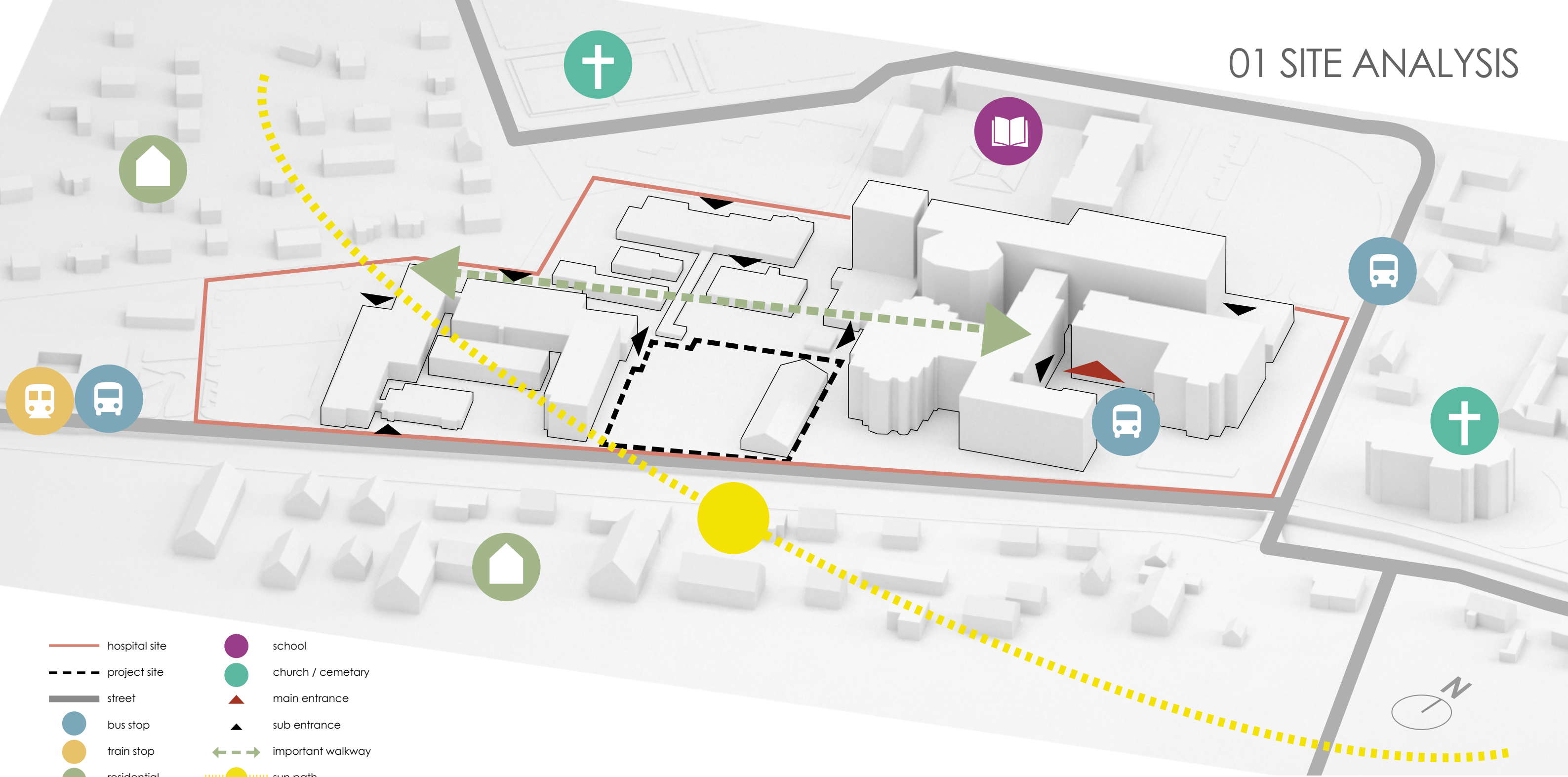
07 THEME 3 - HEALTH PROMOTION

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01 SITE ANALYSIS



- hospital site
- project site
- street
- bus stop
- train stop
- residential
- school
- church / cemetary
- main entrance
- sub entrance
- important walkway
- sun path



02 THEME 1 - EVIDENCE-BASED DESIGN & RESEARCH-INFORMED DESIGN

Like in healthcare the healthcare architecture should be based on credible research and well-tested experiences. The fields of Research-informed Design (RID) and Evidence-based Design (EBD) has recent years gained increased interest and become important parts of what can be called healing architecture. Architecture affects people in different ways and can contribute to promoting health. The architectural design that are expressed in the quality of daylight, different rooms, atmosphere, colors, noise and the ability to be private and safe can promote the healing that takes place both physically and mentally.

EBD vs. RID

While EBD is about decision-making based upon credible evidence, RID is the process of applying credible research (that is not yet evidence) to inform the design phase, with the goal to reach evidence in the future.

Our perception is that the focus in this studio has been on the field of EBD and the liability to credible evidence regarding healing architecture. Therefore initiatives supporting EBD is more represented in this project. Although some attempts are made to approach the field of RID.

EVIDENCE-BASED DESIGN IN HEALTHCARE ARCHITECTURE

Some of the important qualities that are mentioned in EBD are single patient rooms, positive distraction like nature, gardens, art and music, daylight and sunlight and wayfinding. All these things are important for both patients and staff as well as for visitors.

single patient rooms

The most important evidence based measure for hospitals, that affects the patient most, is to have one room for each patient. For instance it prevents infections between patients, harmful and costly movements of patients, less noisy rooms and it improves the communication between patient and staff and it enhances the patients integrity and privacy.

positive distraction

Research has shown that the lack of windows or a placement of the patient in a room with just empty white walls can increase stress and pain. The most effective positive distractions is things that have been important for people for thousands of years. Such as nature elements like trees, flowers and water, but also animals and kind faces.

nature & greenery

People who are visually exposed to real or simulated nature can have an easment of stress and pain. Patients that have a view of nature recover much faster from surgery than patients that have a view of a plain wall. The possibility to go outside is also a stress-reducing factor and increases satisfaction for both patients, staff and visitors. Internal green walls can absorb and clean pollutants in the air as plants take in CO2 and release oxygen.

daylight

A higher degree of exposure to daylight reduces depression and reduces the care time for depressed patients. Patients that have a room with much daylight light can leave the hospital much faster than a patient with less daylight. It could also be that the patient experience less pain and therefore needs less medication. Daylight also increases the well being of the staff and reduces stress.

wayfinding

Patients and visitors are often unfamiliar with the hospital building and is stressed, distracted and disoriented when coming there. Not knowing where and how to go to a certain place can increase these feelings. It is also very costly and time consuming for the staff not having a proper wayfinding system.

HOW WE WORKED WITH EBD & RID

Due to its compressed size and urban context, the site is challenging when it comes to implementing nature and outdoor spaces with good qualities.

Therefore this project specifically focuses on the importance of greenery and the positive outcomes showed through evidence-based design.

While much is mentioned about access to outdoor green spaces and views to nature, we recognize a lack of interior greenery.

It is our belief that this falls under the subject of research-informed design. Interior greenery is therefore seen as a feature that has informed our design phase with the goal of reaching credible evidence in the future.

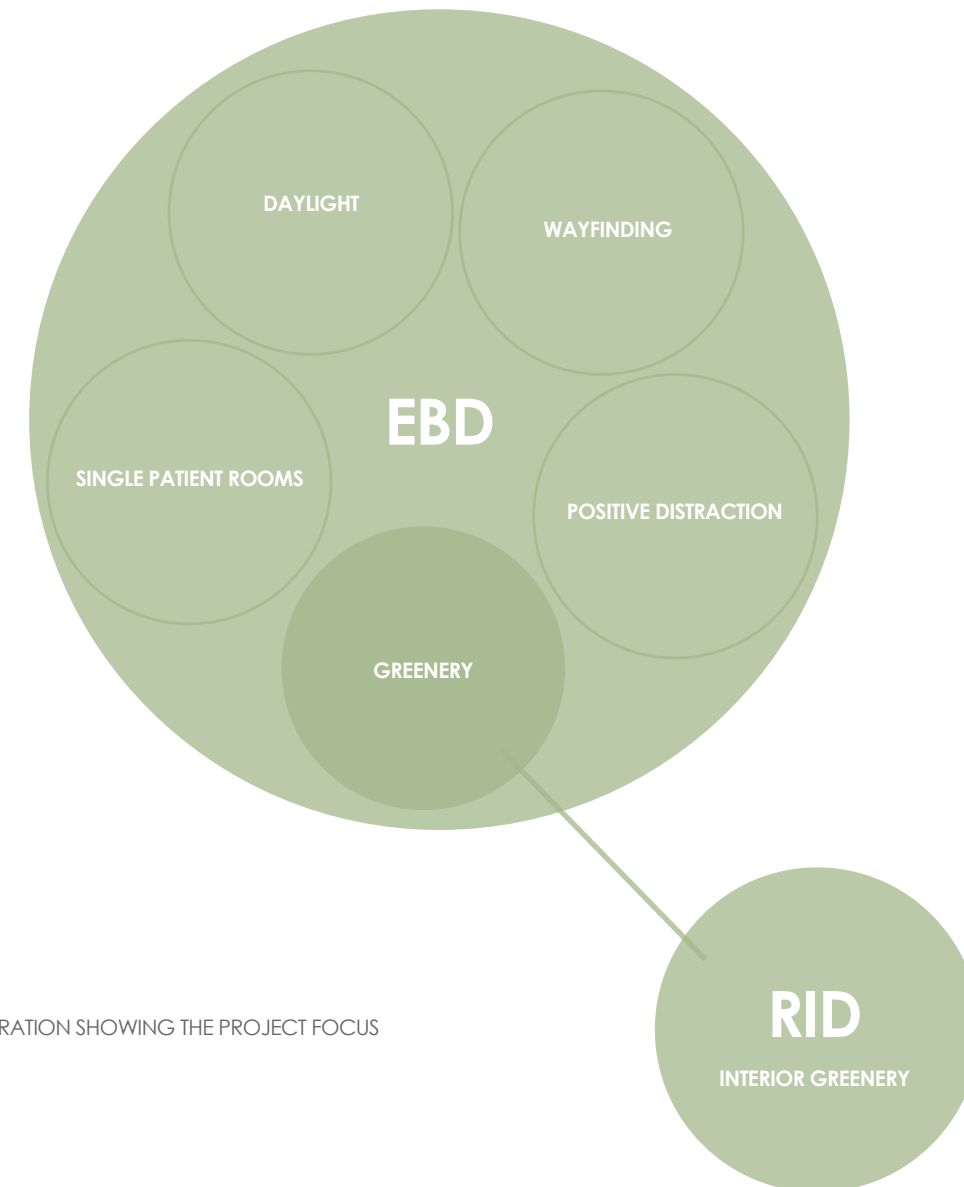
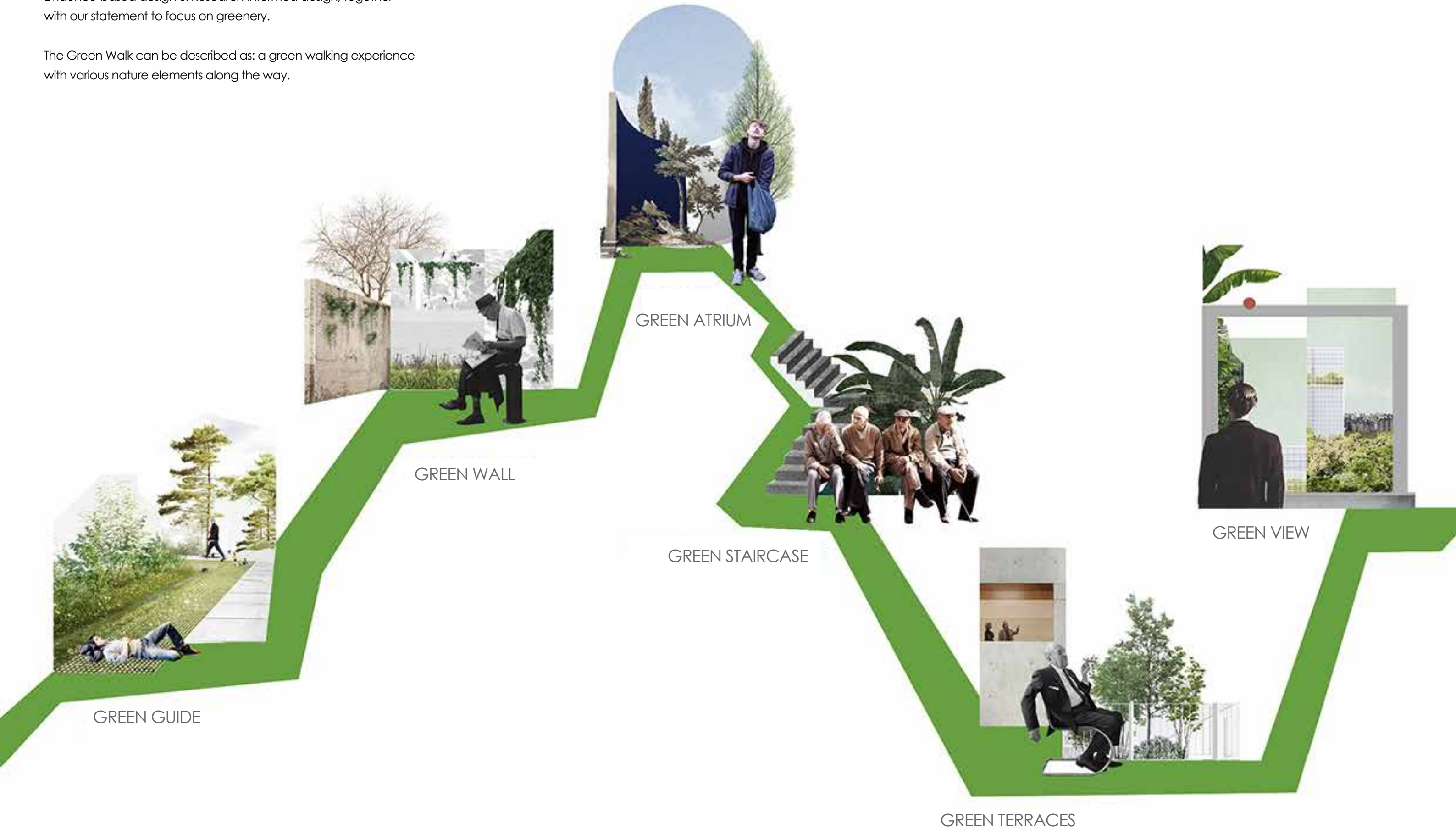


ILLUSTRATION SHOWING THE PROJECT FOCUS

03 THE GREEN WALK

The project concept is based upon the gained knowledge from Evidence-based design & Research-informed design, together with our statement to focus on greenery.

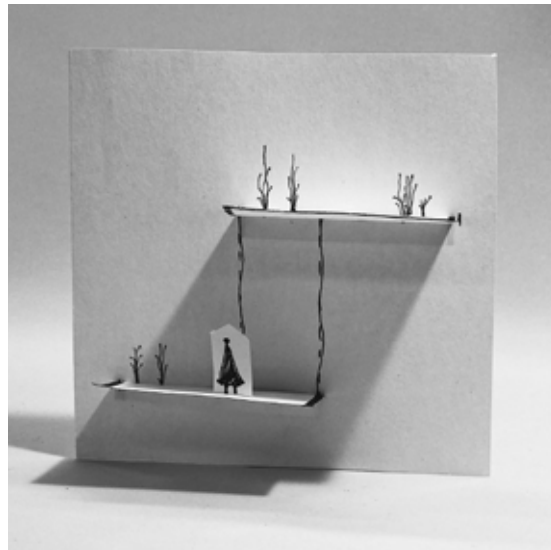
The Green Walk can be described as: a green walking experience with various nature elements along the way.



04 ATMOSPHERES

During a workshop a series of atmospheres/feelings were expressed by creating smaller spit models. The idea was to communicate various design features that could be implemented in the project.

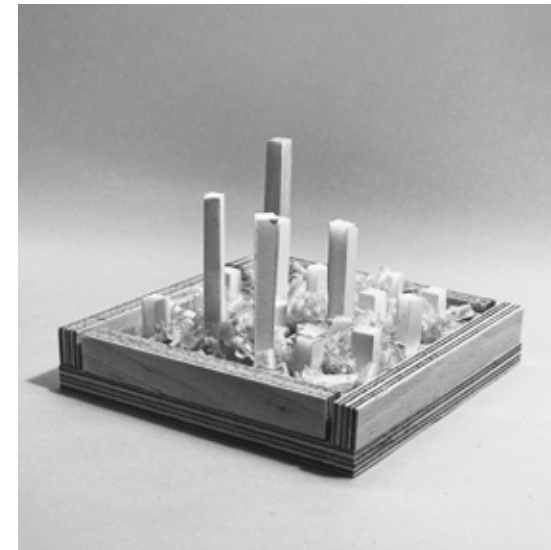
The images illustrates four atmospheres that were chosen and used as inspiration for the design proposal.



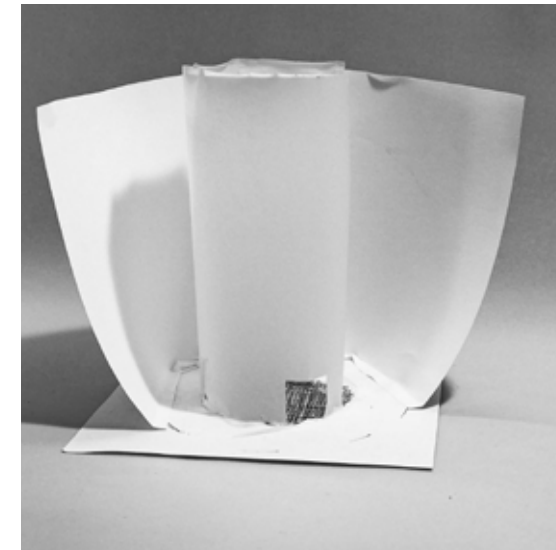
CLOSENESS TO GREENERY



WALKING EXPERIENCES



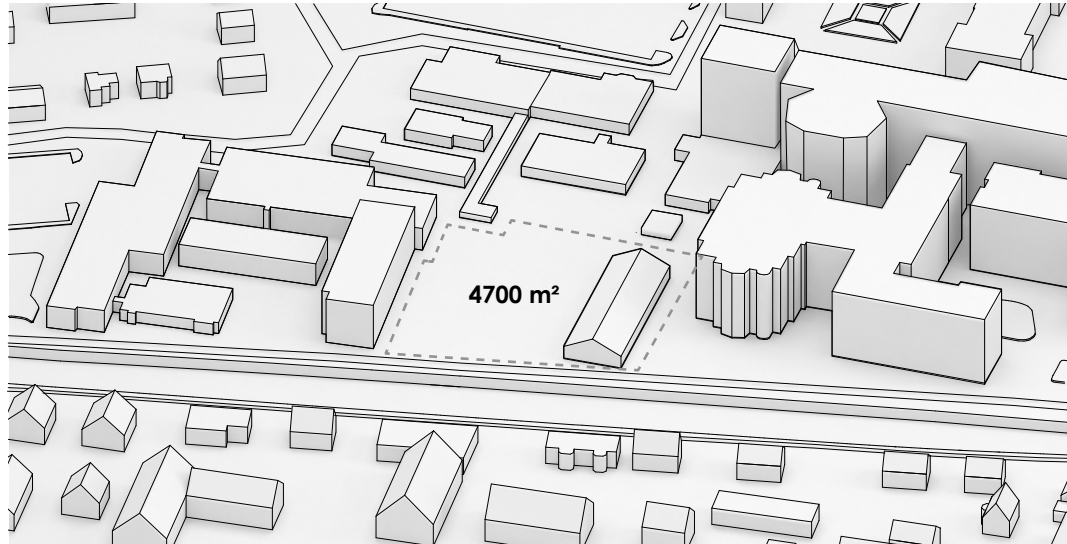
FOREST FEELING



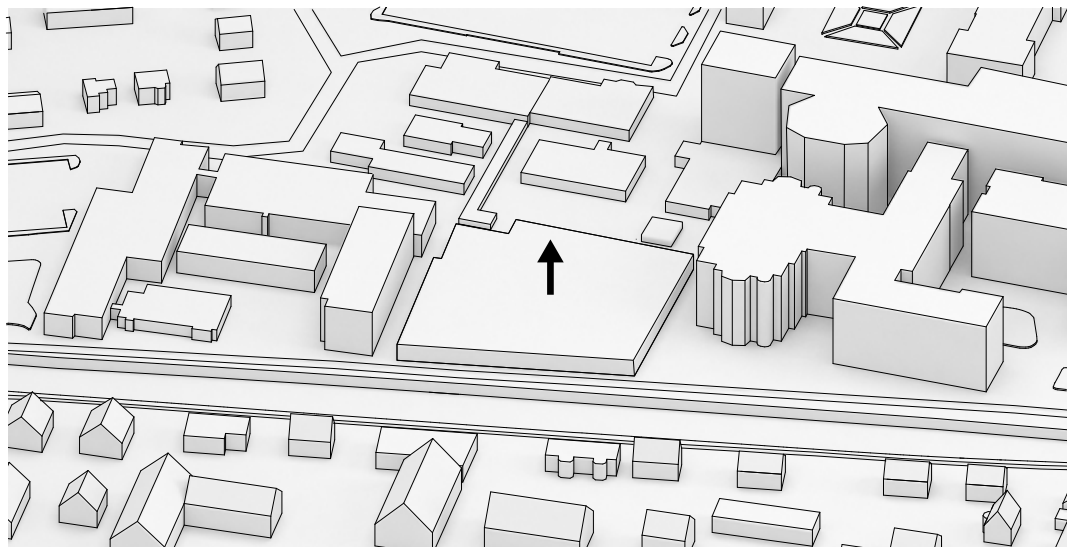
SOFT SHAPES

05 DESIGN PHASE

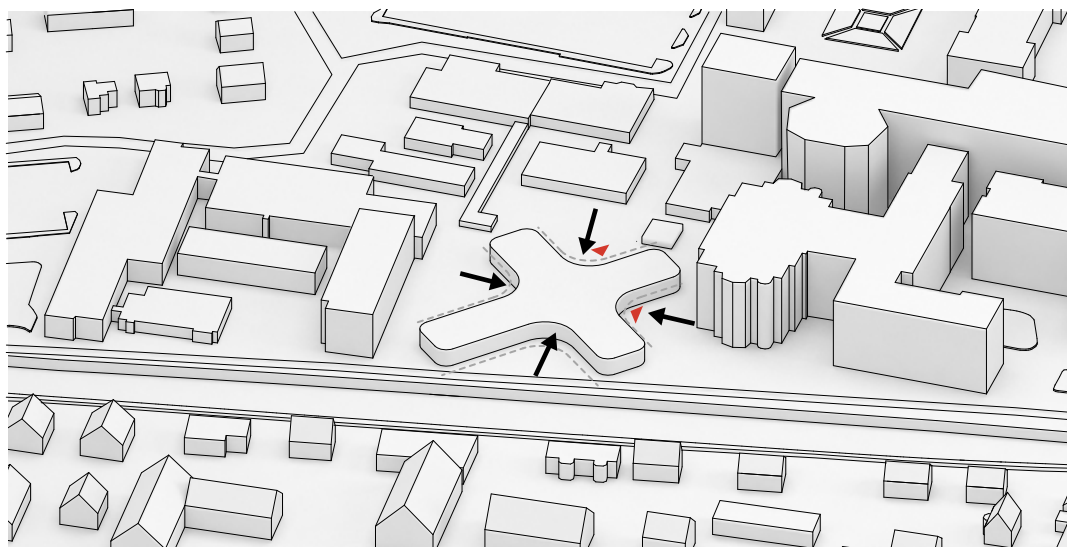
STEP BY STEP EXPOSITION OF THE DESIGN



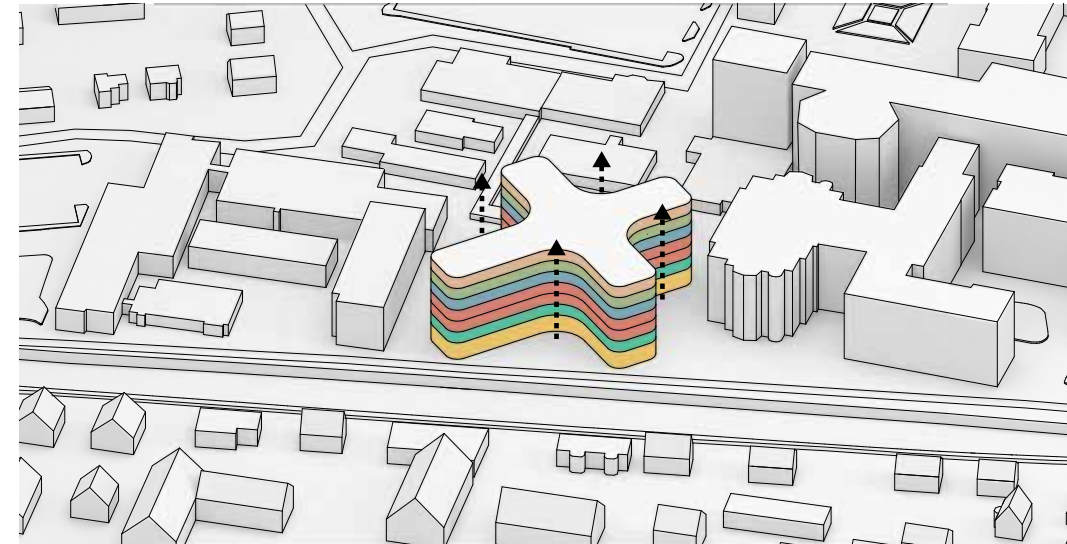
1. The site is approximately 4700 m².



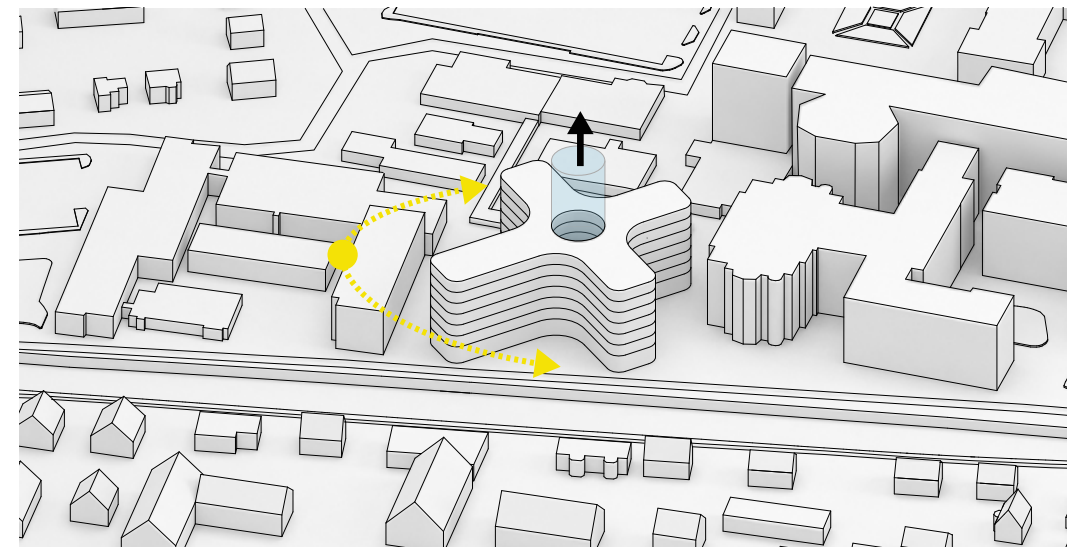
2. Existing building is demolished + maximal building footprint.



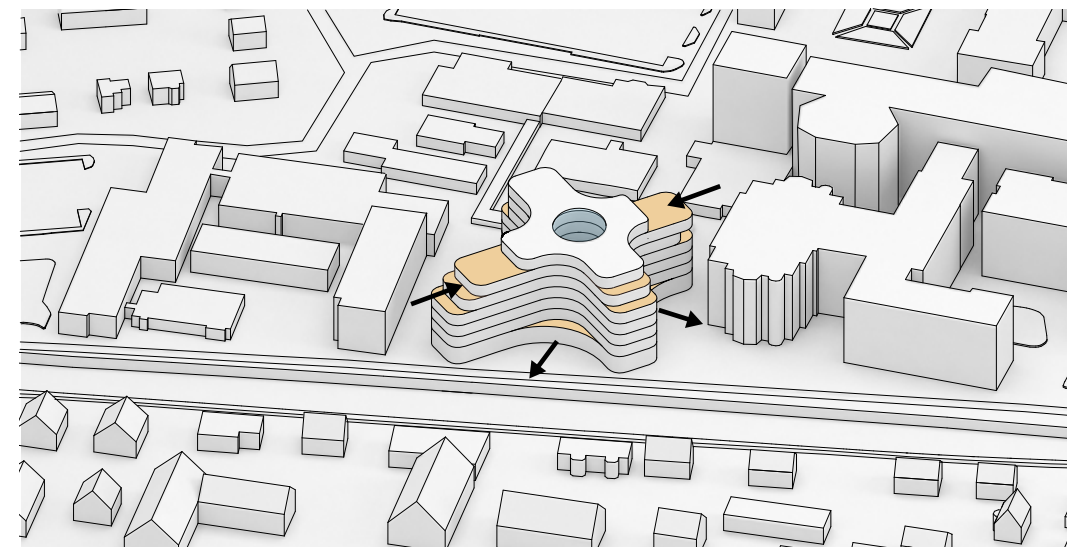
3. The volume gets an organic yet rational shape to create a soft exterior expression. Two main entrances with good visibility for both car traffic and pedestrians within the hospital area.



4. Program layout.
7. ADMIN. COURT & STAFF FACILITIES
6. INPATIENT WARD 24
5. FORENSIC WARD 22 & 23
4. ADULT OUTPATIENT
3. ADULT OUTPATIENT
2. BUP/ABC
1. ENTRANCE/EMERGENCY/OUTPATIENT



5. An atrium provides sufficient daylight into the building. The atrium houses all vertical communication resulting in good wayfinding for public visitors.



6. Roof terraces provides outdoor access and helps to scale down the building. The entrance floor is extended outwards.



STREET PERSPECTIVE

The organic form was inspired by the atmosphere of soft shapes.

SITE PLAN
1:1000



- site boundary
- ▲ new entrance
- ▲ existing entrance
- 14** building index



ENTRANCE PLAN

1:500

-  The Green Walk
-  traffic zone
-  pedestrians zone





RECEPTION

TOILETS

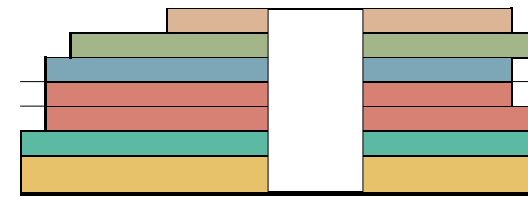
INFO
↑
↑
→

DISCUSSION HALL

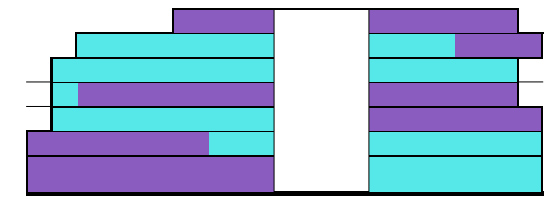
ENTRANCE HALL
inspired by the atmosphere of
closeness to greenery.

PROGRAM LAYOUT

An overview of how the area program has been distributed. To meet the request of more parking space, a parking garage is suggested at basement level. The emergency unit and ward 21 is located on the entrance plan along with a spacious entrance hall, reception and a lecture hall. BUP, ABC and adult outpatient departments are located at story 2-4 due to frequent visits to these areas. Forensic ward 22 & 23 and inpatient ward 24 is located at story 5 and 6 to provide the best daylight and views to the outside due to their inpatient situation. The top floor is dedicated to staff areas and shared facilities with large outdoor terraces. The administrative court is also located here.



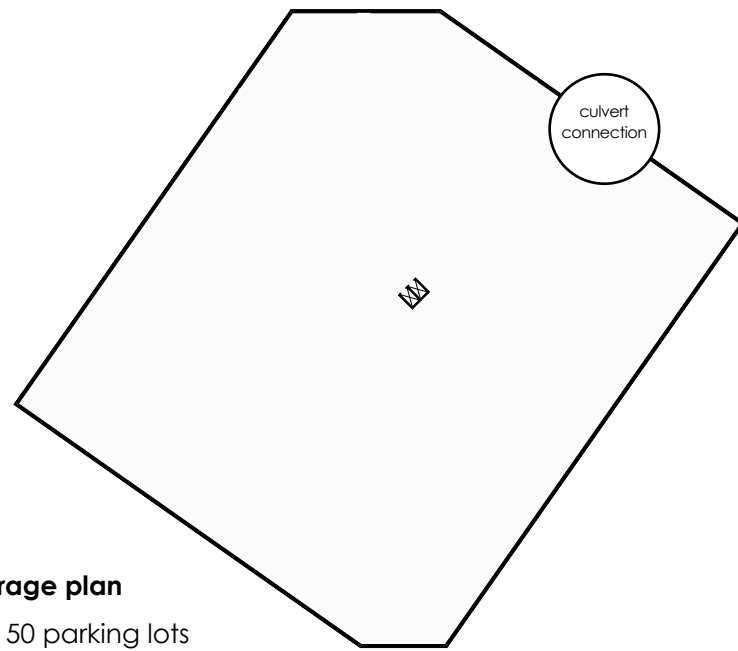
program layout



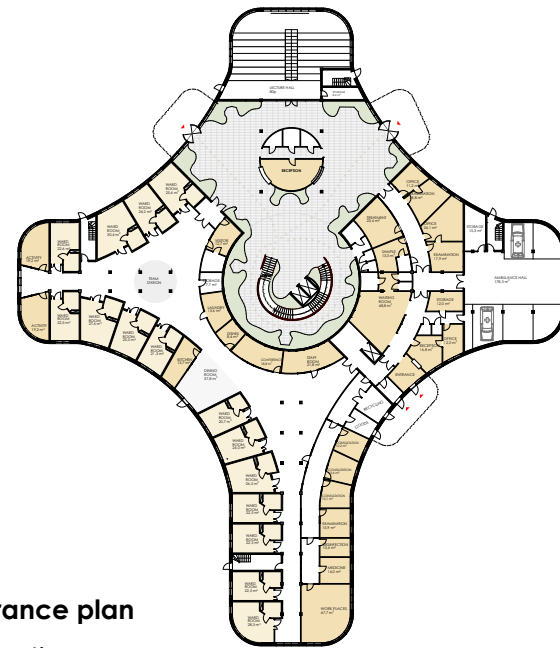
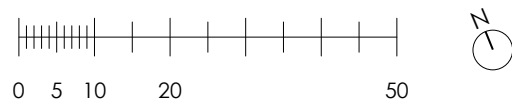
patients vs. staff

patients
staff

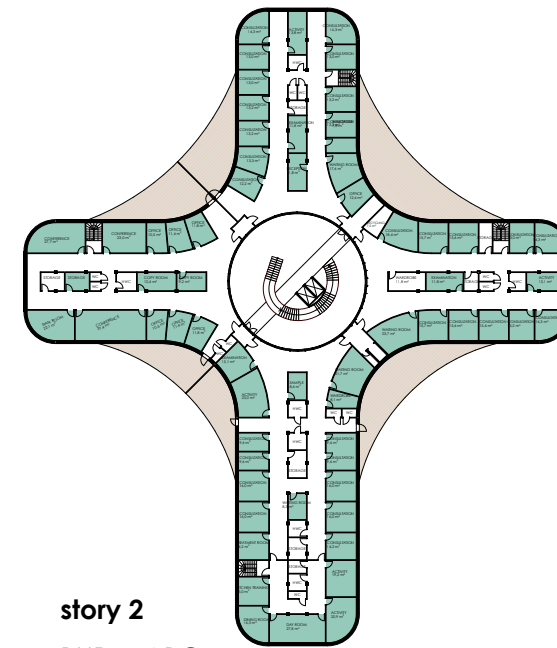
FLOOR PLANS - 1:1000



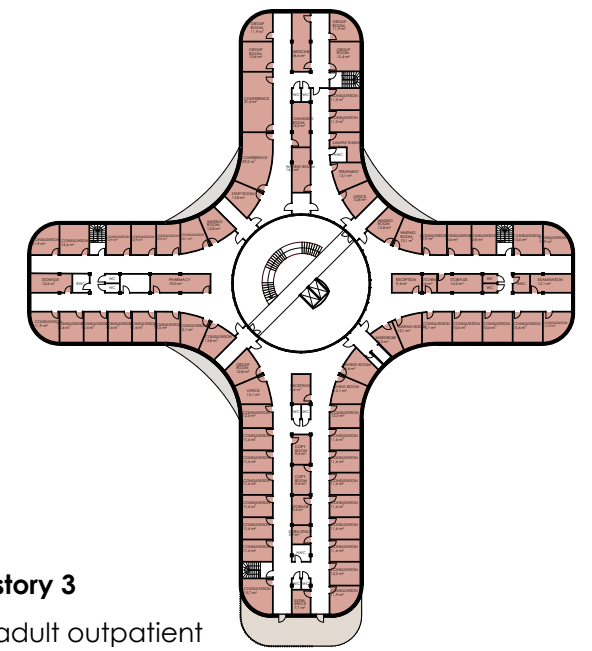
garage plan
≈ 150 parking lots



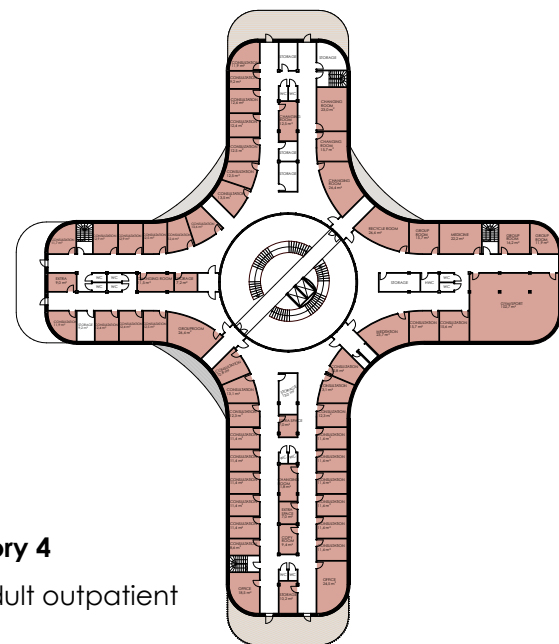
entrance plan
reception
emergency
inpatient ward 21



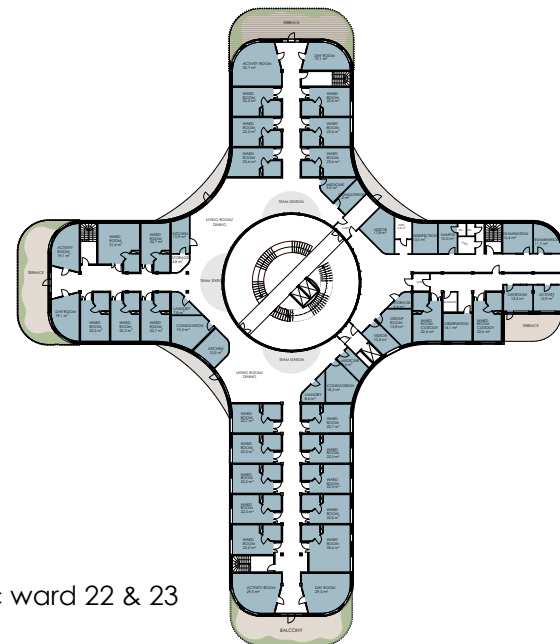
story 2
BUP & ABC



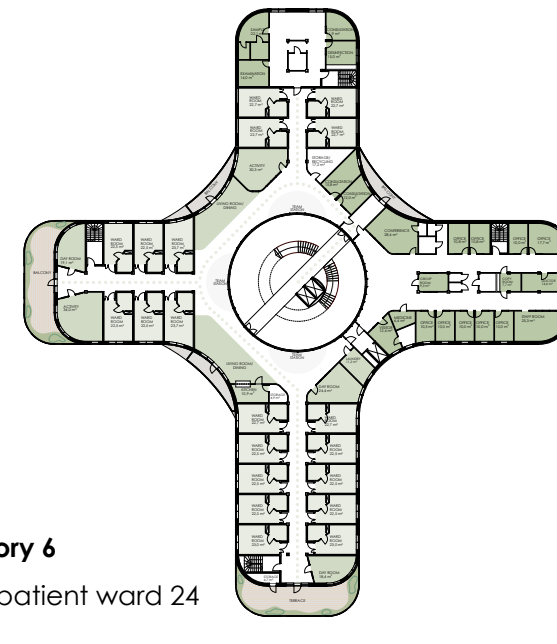
story 3
adult outpatient



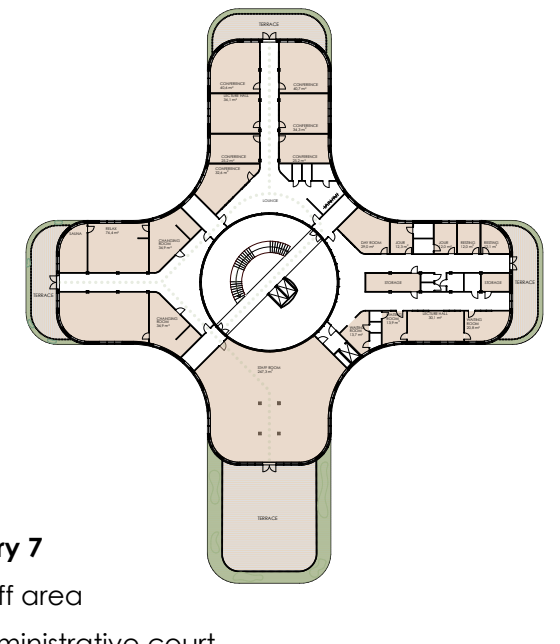
story 4
adult outpatient



story 5
forensic ward 22 & 23

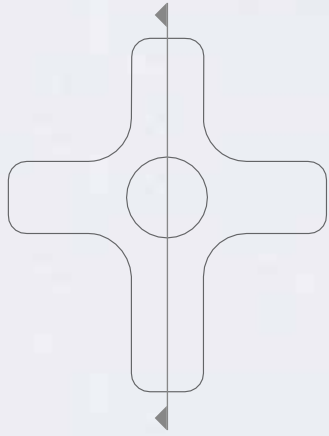


story 6
inpatient ward 24



story 7
staff area
administrative court
shared facilities

SECTION PERSPECTIVE



7. staff / admin. court
shared facilities

6. inpatient ward 24

5. forensic ward 22 & 23

4. adult outpatient

3. adult outpatient

2. BUP/ABC

1. reception
emergency
inpatient ward 21

0. parking garage
≈ 150 parking lots



ATRIUM

inspired by the atmosphere of a walking experience. Placing all vertical communication in the center of the building provides easy wayfinding and orientation.

06 THEME 2 - THE PSYCHIATRIC UNIT & PATIENT CENTRED CARE

The plan is divided between patient area, staff area and a shared area. The patient rooms, that are single bedrooms, is located in the wings. There are not to many rooms in a ward and the corridors are not to long.

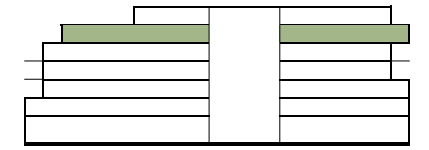
In the end of the corridors, facing the terraces, the activity rooms are. That is to lead the patient towards outside with fresh air and greenery. There are both small outdoor spaces, like the balconies, and bigger, like the terraces, so the patient can

decide if he or her wants to be alone or meet other people. The ward also offers different kinds of indoor spaces where the patient can decide with whom, where and how they want to spend their time. Like open day rooms or more closed activity rooms and patient rooms.

There are one visitor room where the patient and the visitor can meet by walking through a control entrance. By keeping the atrium free from rooms there is a good visibility through the whole floor

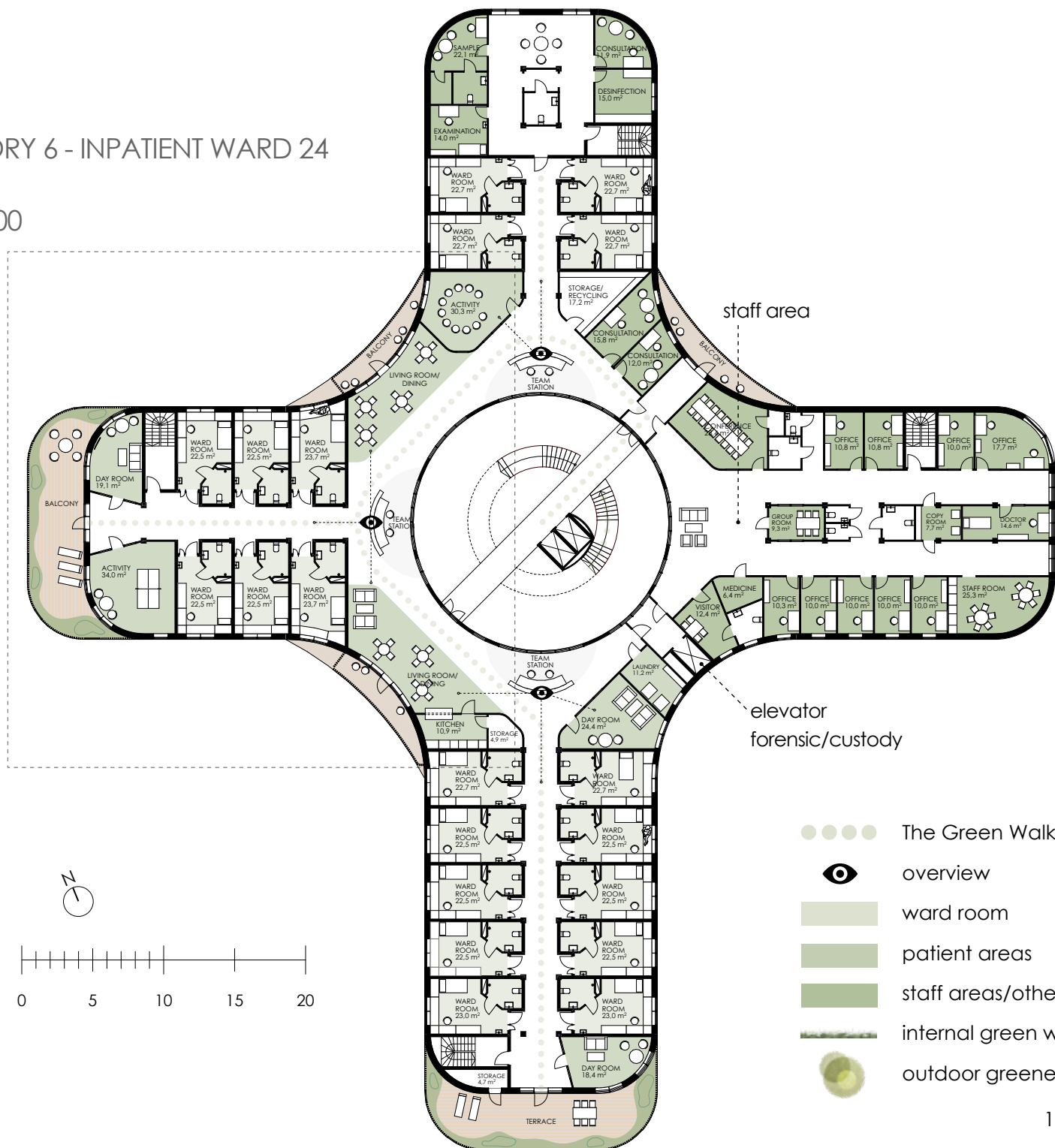
and daylight can come from many directions. Around the atrium there are three team stations with great overview.

The Green Walk starts when coming out from the elevator or the stair and continues inside the ward. Wherever you are you can see some sort of greenery. Either on the walls, plants or outside. The green walk leads to the terraces and outside.



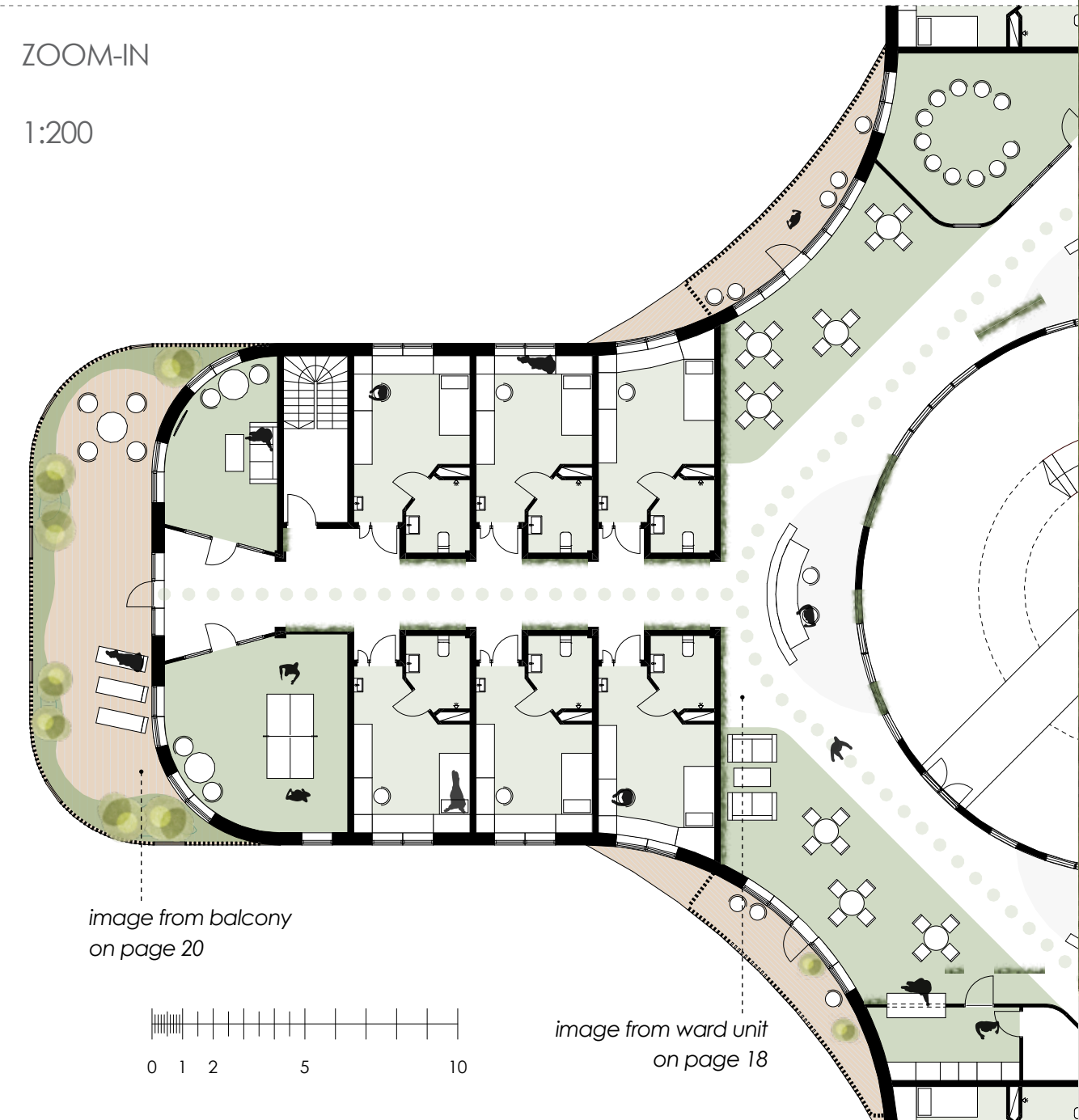
STORY 6 - INPATIENT WARD 24

1:400



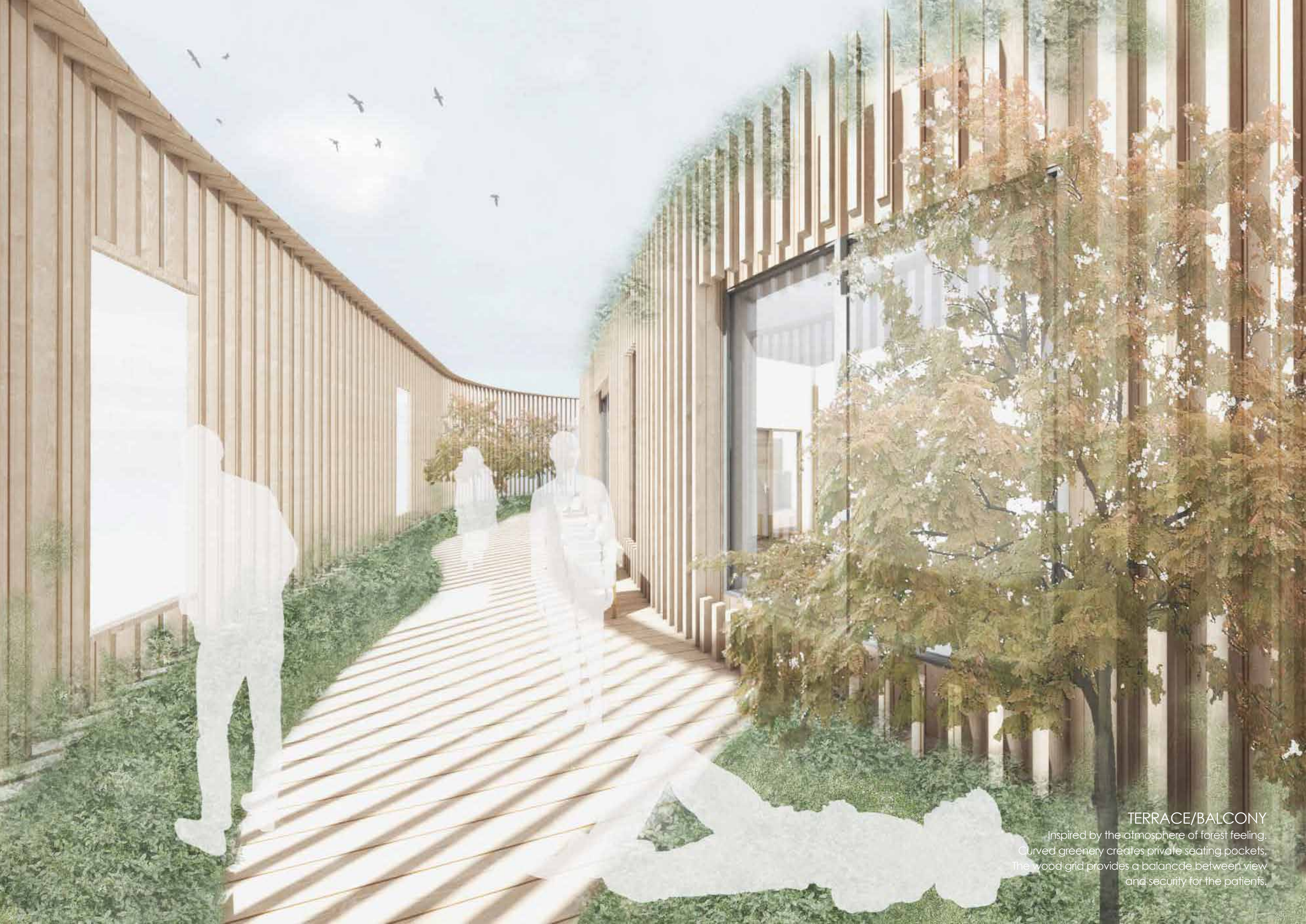
ZOOM-IN

1:200





LIVING ROOM / DINING ROOM
inspired by the atmosphere
of closeness to greenery and soft shapes.



TERRACE/BALCONY

Inspired by the atmosphere of forest feeling. Curved greenery creates private seating pockets. The wood grid provides a balance between view and security for the patients.

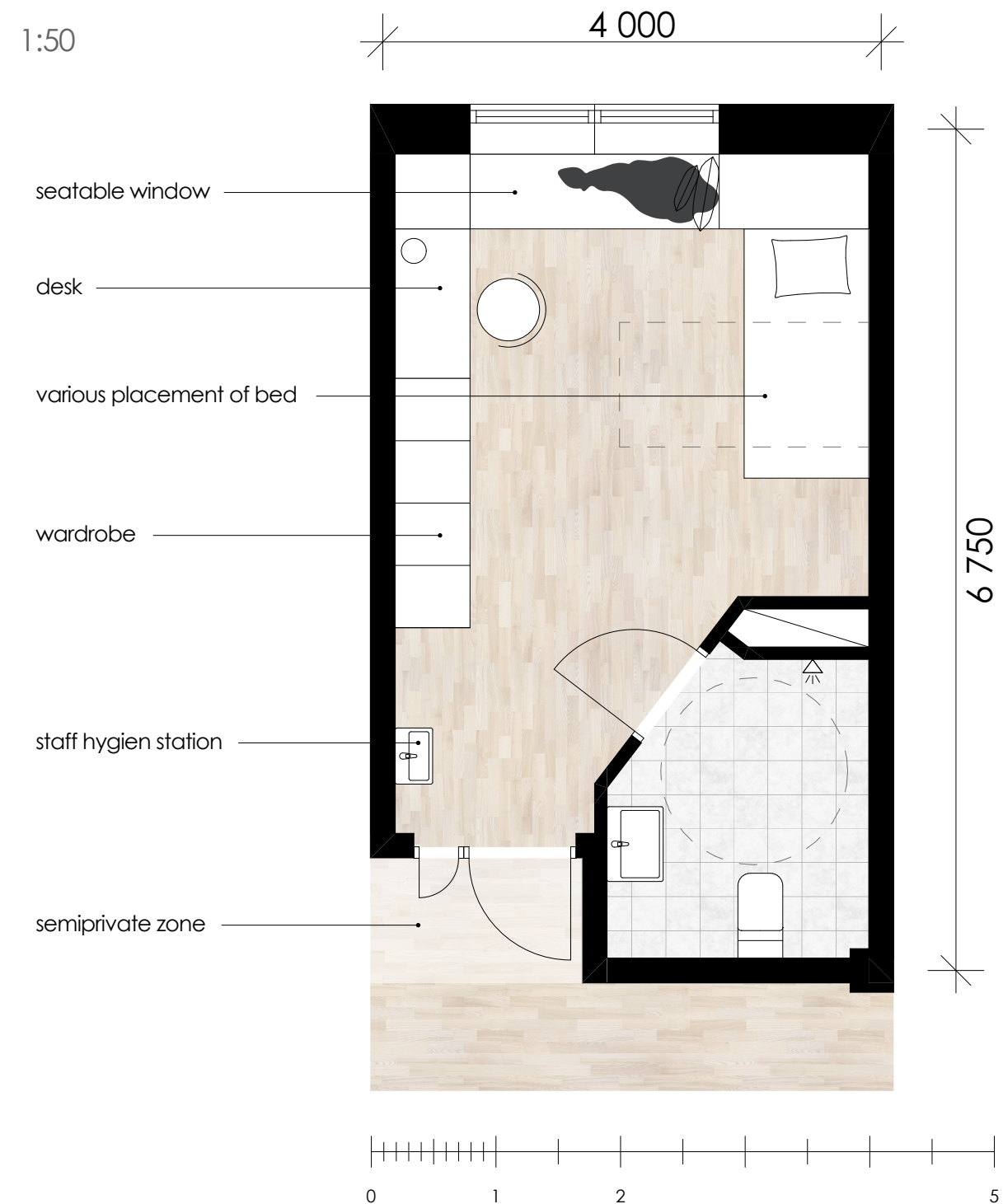
THE WARD ROOM

We wanted the ward room to have a home like feeling so that the patient could feel more comfortable. With warm natural materials such as wooden floor and wood panels on the walls it doesn't feel like a hospital. The room has a seatable window to rest in and look at the view. There's a place built wardrobe, open shelves for displaying personal items and a working desk. Staff has a good overview when looking through the door and there's a short distance to the toilet to prevent fall accidents. The ward has two different sizes of rooms, one small and one a bit bigger with a lift inside. Every room has a small area outside to create a semiprivate space and prevent the feeling of stepping right out in the corridor.

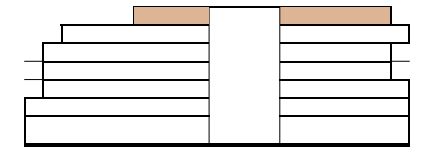
STANDARD ROOM

22,5 m²

1:50



07 THEME 3 - HEALTH PROMOTION



Within Evidence-based Design and Healing Architecture there is a conviction that architecture can have positive effects on peoples well-being through conscious design regarding floor plan structures, daylight, colors, sound etc. By working with these health promotive initiatives, hospitals can become more than just facilities for medical treatment, but healing buildings in itself through its design. For both patients, staff and visitors.

HOW WE PROMOTED HEALTH

The Green Walk is designed as a walking experience starting outside the building and leaping through it in closeness to various green structures. The hospital areas central location in the city gives the opportunity for the area to become part of the overall green structure in the city. Therefore the outdoor spaces are designed through a pedestrian perspective for the public to enjoy.

Inside the building the atrium is the main health promotive feature as an inviting walking experience, encouraging people to take the stairs instead of the elevators. Thanks to sufficient daylight the atrium can provide a feeling of being outside.

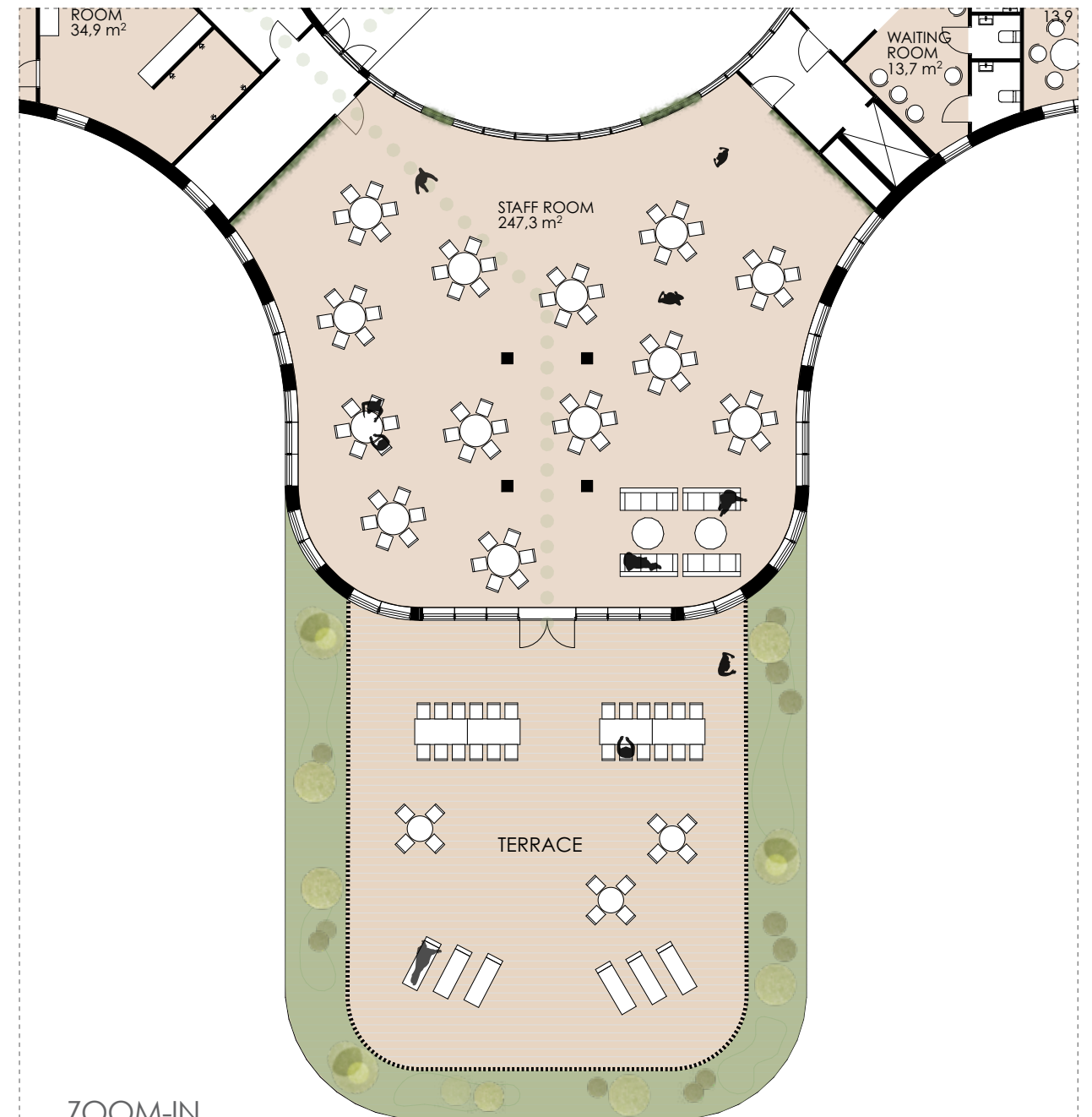
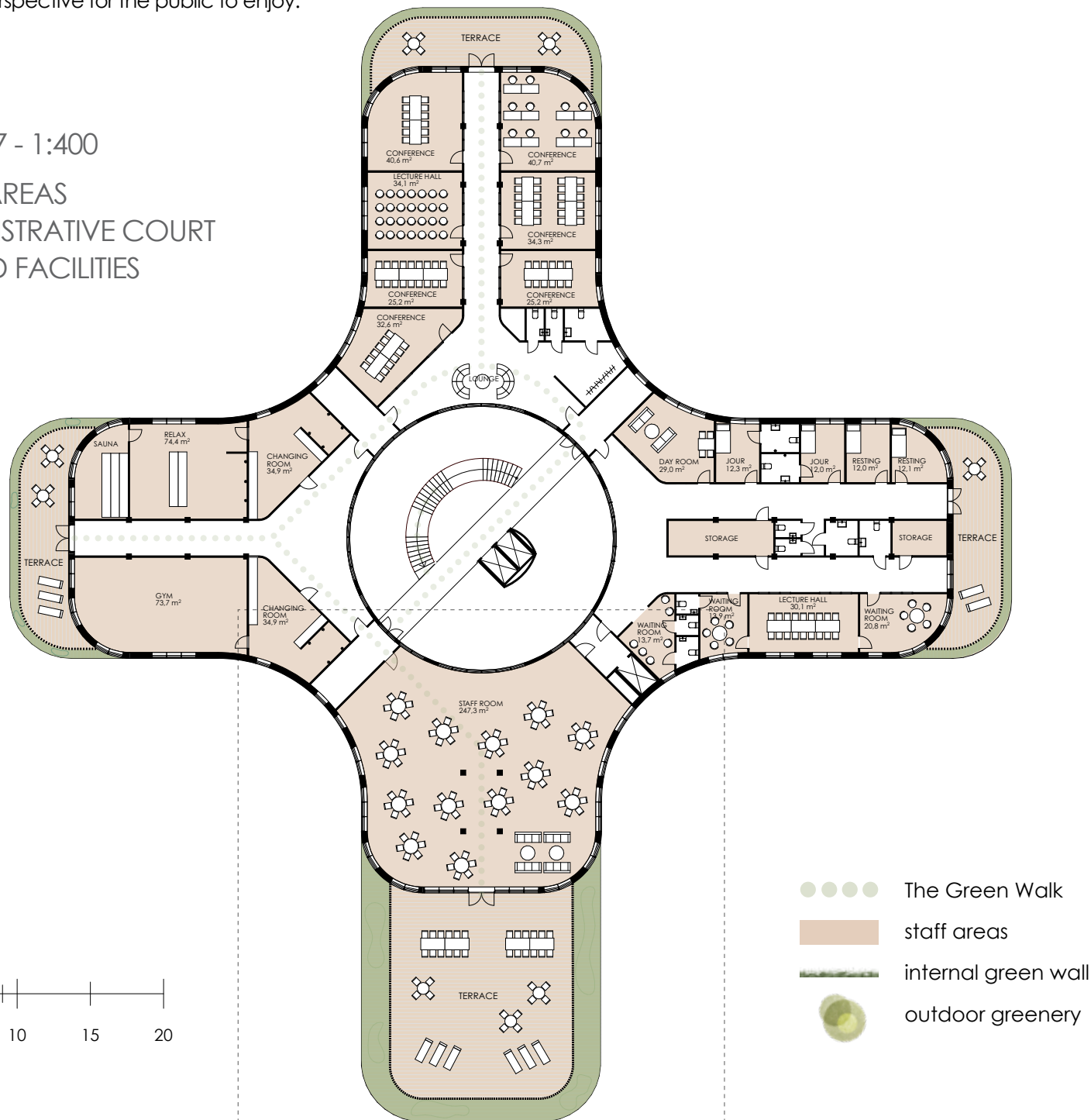
The staff working in healthcare tend to spend much time walking between different destinations. Therefore the top floor is designed as the staff home with the spacious staff room and the terrace as the main driving forces. Together with the gym, relax area, sauna, resting and conference rooms, the staff is promoted to visit this floor to rest and socialize with their colleagues.

STORY 7 - 1:400

STAFF AREAS

ADMINISTRATIVE COURT

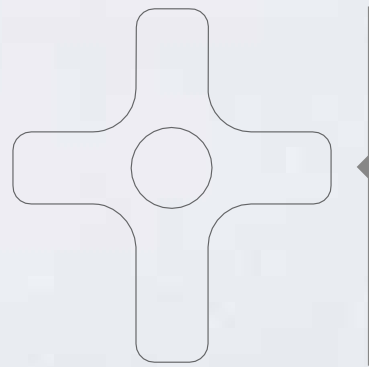
SHARED FACILITIES



ZOOM-IN

1:200

FACADE TO SOUTHEAST - 1:200

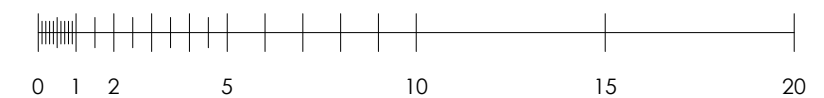


To implement our concept on the outside we wanted a green growing facade. With a wooden raster like a second skin the greenery can grow freely along the walls.

The raster continues out on the terraces and balconies and acts as a fall protection. At the inpatient wards the protection is 4m high to prevent patients from jumping. There are some windows for the view.

At the outpatient wards and staff areas, the protection is lower. The raster could also work as sun protection if it continues in front of the windows.

The first floor has no second skin, a higher roof height and is more transparent than the other floors to highlight it. The main entrance is marked with a protective roof. All windows are the same but the composition is different to create a difference in the facade.



inspiration



08 THEME 4 - FUTURE PROOFING

Healthcare architecture is generally about large projects and complex processes with long timeplans from political decisions to finished buildings. During these timeplans, changes occur regarding healthcare work modes, politics, technology etc. Working with future proofing strategies is therefore crucial to make sure that the programme and the building is adaptable for future change.

HOW WE WORKED WITH IT

In The Green Walk we worked with strategies and design features to meet some of the future changes.

The shape

Initially, a general grid of 4x4 metres was layed out and the building was designed around it. The overall shape of the building is considered to be highly rational, with four wings of equal width placed around an atrium where the main vertical communication is located. By working with a general structure, the floor plans are easier to change as ward units may grow or shrink later on. With the vertical communications in the center, new entrances can appear on new locations on the stories that will see changes.

Greenery

One major challenge with the project have been to provide green outdoor spaces in an extensive programme at a fairly tight plot. The idea of working with exterior and interior greenery has therefore been a lead motive in the building. Internal green walls can absorb and clean pollutants in the air as plants take in CO₂ and release oxygen.

Internal and external green walls combined with plants and trees on terraces/balconies is our contribution to a less polluted facility and hospital area.

Construction & materiality

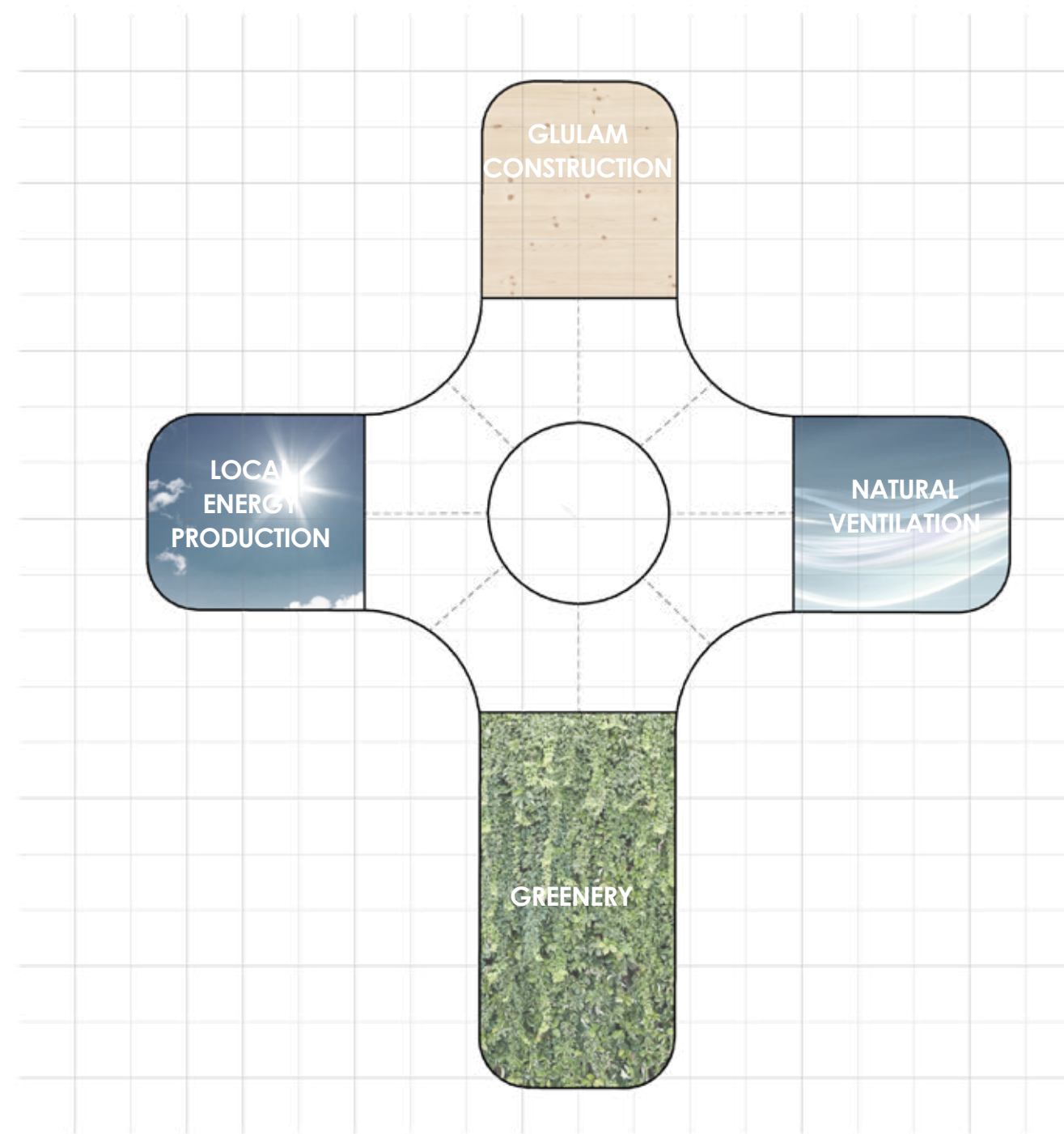
The building is proposed with a glulam wood structure. A gluelam structure implies wood as a renewable material, CO₂ storage, wide measure spans for more flexible floorplans, lighter structure compared to concrete and an effective building phase. It is also proven that humans tend to feel better in wood-constructed buildings.

Energy

The Green Walk is to be the first of many new facilities in the longterm development of Vösterviks Hospital. Local energy production trough a PV system is proposed to cover some of the facilitys energy demand. In a longer perspective the system will be integrated with the other new facilities in a smart system that distributes the production of electricity among the facilities depending on its needs.

Ventilation

The atrium provides the possibility of natural ventilation as are can let it through the glassed roof, create a subpressure and provide fresh air in the atrium and entrance hall.



AREA COMPILATION

BTA (incl. outer walls)

GARAGE PLAN	4790 m ²
ENTRANCE PLAN	2800 m ²
STORY 2	2100 m ²
STORY 3	2030 m ²
STORY 4	1890 m ²
STORY 5	1860 m ²
STORY 6	1890 m ²
STORY 7	1450 m ²

TOTAL BTA: 14 020 m²

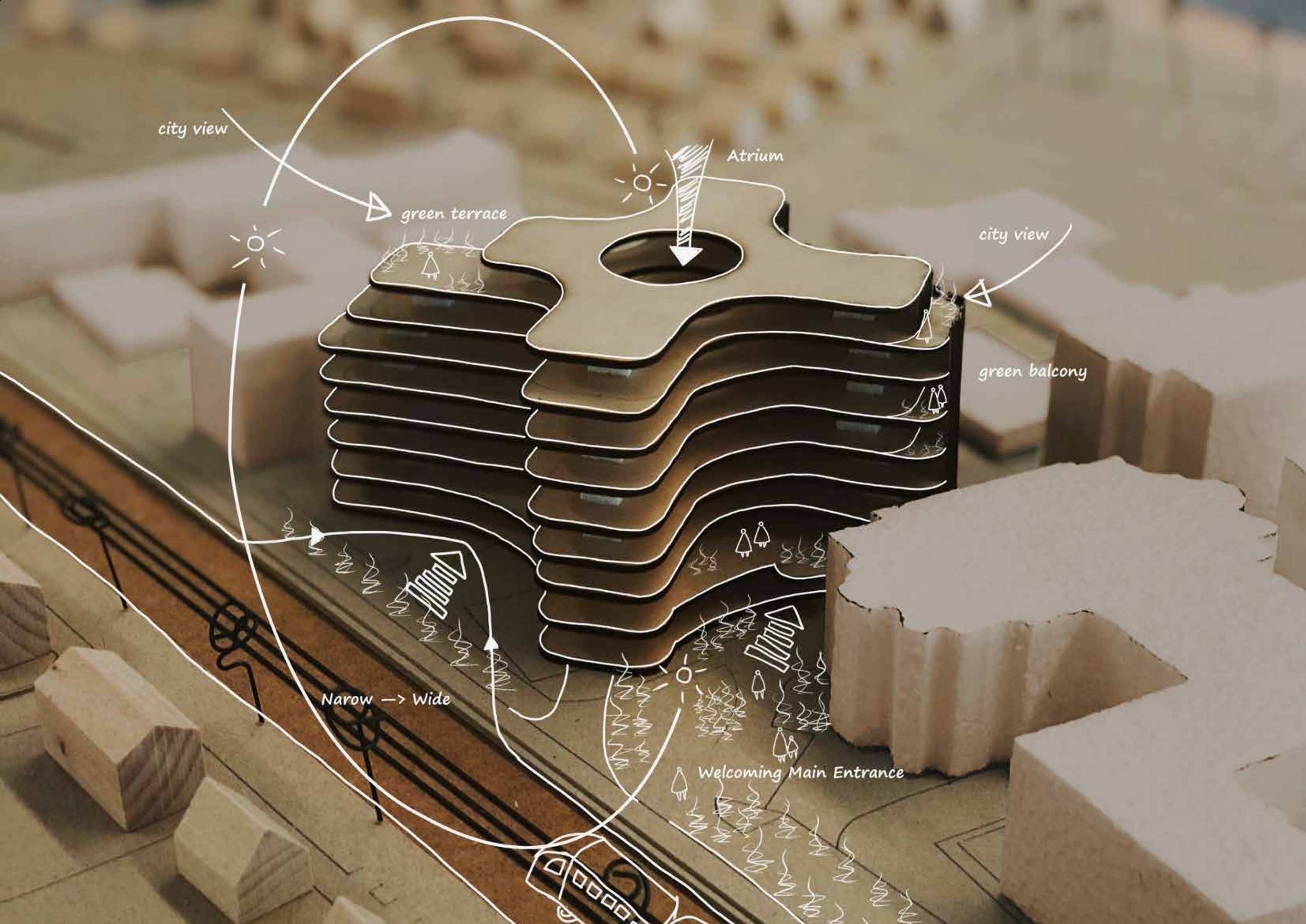
LOA (usable space)

GARAGE PLAN	-
ENTRANCE PLAN	2690 m ² (1005 m ² communication)
STORY 2	1975 m ² (635 m ² communication)
STORY 3	1915 m ² (600 m ² communication)
STORY 4	1790 m ² (535 m ² communication)
STORY 5	1790 m ² (340 m ² communication)
STORY 6	1790 m ² (415 m ² communication)
STORY 7	1350 m ² (210 m ² communication)

TOTAL communication space : 3 740 m² (28 %)

TOTAL LOA (excl. communication): 8 160 m²

TOTAL LOA (incl. communication): 13 300 m²



city view

Atrium

green terrace

city view

green balcony

Narrow -> Wide

Welcoming Main Entrance

09 DESIGN PROCESS

PHASE 1: INITIATION

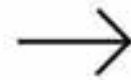
S STRENGTHS	W WEAKNESSES	O OPPORTUNITIES	T THREATS
connection infrastructure historical value already known location easy collaboration with various departments	infrastructure barrier lack of greenery difficult to reconstruct available area available parking places expensive difficult site no bus stop nearby	how to use outdoor importance of the urban space quality	traffic reflection on neighbor site

After the first site analysis was done, where we pinpointed strengths and weaknesses, we could decide what we wanted to start investigate in the project. We knew that our spot were limited and closed between two quite high buildings. There's a big lack of greenery and we needed to build a rather tall building to fit the program. Strengths as closeness to the city and that it's already a known location we could use to our advantage. The first weeks were about finding a shape that we liked and could work in a good way at the plot and for a hospital building.



URBAN SITE

FIRST MODEL ROUND - first thoughts about what qualities the building and plot needed



SECOND MODEL ROUND - four statments from the first round to develop



THIRD MODEL ROUND - bring all the good qualities into one model



Sunlight
City connection
Sightlines



Nature
Volumestudy
Connection with the surroundings



Sunlight
Greenery
Main entrance



Greenery
Each floor have their own rooftop garden and balconies. By doing this the building gets really high and the courtyard in the middle will be dark.

Skala upp dokument



Site connection
By deviding the plot into several buildings, many open places appears. There are som difficulties to divide the plot in to many buildings because of the program.



Sunlight and human scale
By using two different tyologies we can create an exciting building. The lower part makes it welcoming and the higher, more dense part can be used for the wards. Maybe the differences are to big?



We liked the human scale perspective and the organic form and continued with that concept by doing one lower part with a higher part on top of that. In this variant the higher part became to big and without a courtyard in the middle of the building it will be very dark.



Here we divided the top part into two different parts to get a courtyard in the middle of the building. Its hard to continue with this version aswell beacuse of the distance between the top buildings. The towers will be very high to fit the program.



We also found out that it will be pretty hard to use the organic form when it comes to the floorplan. Could we have the same expression with using soft corners?

PHASE 2: INSPIRATION

PSYCHIATRIC UNIT/ ROOM

At the workshop where we had to program an inpatient ward and work out the flows, we figured out that a star-shaped form has good qualities in different ways. Like the possibilities to divide the ward rooms into clusters, the staff can get a good overview over a good part of the ward when it's placed in the middle and the building can get daylight from many directions.



At the same workshop we tried out two solutions of ward rooms. One with angled walls and one with straight walls with a private balcony.



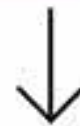
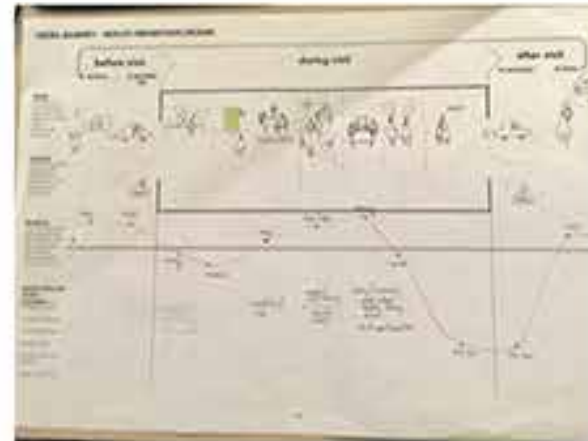
FOURTH MODEL ROUND - implementing the workshops into new models



After the workshop we started to work with the star-shape in different ways. The first picture shows a proposal where we kept the organic shape and adapted it to a kind of star-shape. The other proposal is a more strict version with straighter wings, but still a bit organic with the rounded corners. It also have the bigger first floor that we had tried before. To get light into the center of the building we made a lightshaft.

HEALTH PROMOTION AND CENTERED PATIENT CARE

By mapping the journey of the patient, staff and visitor we got a clearer picture of how the flows and which functions there should be in the building. Also how important it is to promote health, like using inviting stairs and walking pathways.



Dela

ATMOSPHERE - we started to think about what kind of atmosphere and qualities the patient and staff would like to have in the place they would spend much time in.



Big entrance hall and atrium



Corridors with happenings



Balconies for possibility to go out



Bring nature into the building

EVIDENCE BASED DESIGN

Some things that we brought with us from EBD is the importants of:

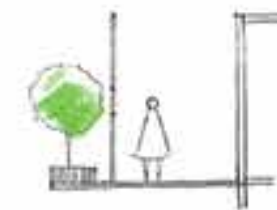
GREENERY - a closness to greenery, both inside and outside, can promote health.

SUNLIGHT/DAYLIGHT - the possibility to have direct daylight wherever you are can promote health.

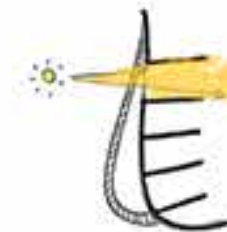
OUTDOOR SPACES - the possibility to go outside and have fresh air can promote health



We started to implemet these qualities into our new form and develop a concept that included these things.



Green balconies and terraces



Sunlight from many directions

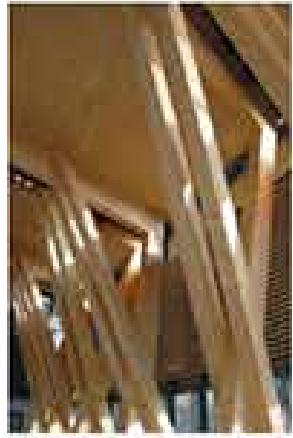


Green and light atrium



Outdoor spaces with much greenery

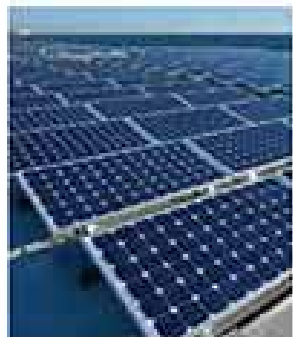
SUSTAINABILITY AND REFERENSES



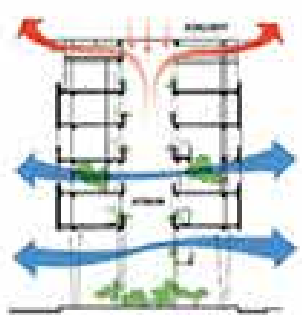
Wood construction



Greenery



Solar Panels



Natural ventilation



Green outdoor spaces



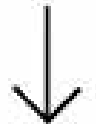
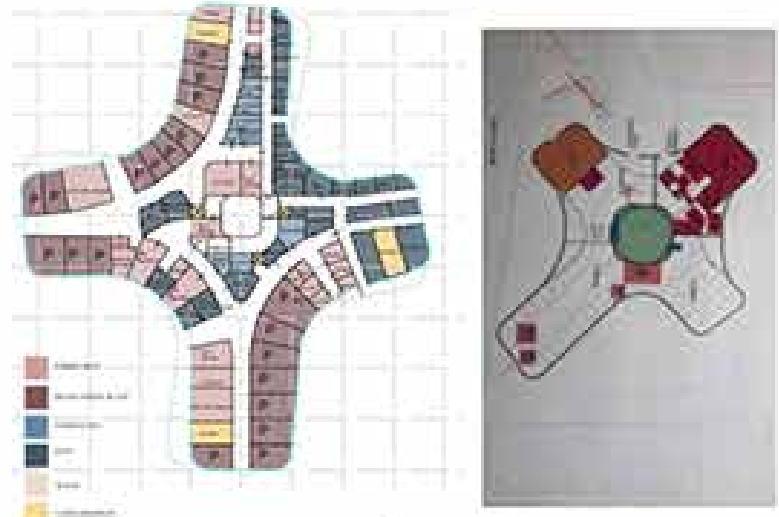
Wood



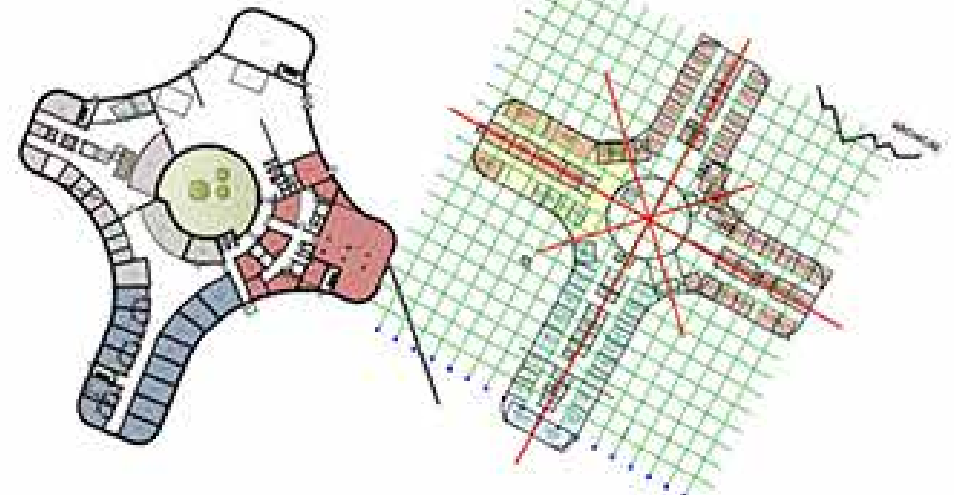
Marked first floor

FLOOR PLAN

Starting with the floorplan we worked with a grid that was 4.8m x 4.8m. We wanted to separate the staff from the patient by placing the ward rooms in one part and the offices in one part. Team stations round the atrium to get a good overview. With twisted plans we could create terraces on all wings. The entrance floor has a bigger footprint so you meet a lower scale when approaching the building.

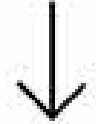


A second round with the floorplan led to a more rational plan with straight wings with the same length. A new grid, 4m x 4m. It's easy to divide the plan into many departments with this plan. The twisting disappeared to make the construction easier and the struggle with a terrace outside a ward room went away. Terraces are now in the end of each wing. The atrium have grown and changed form to a round one which you can walk around on all floors except the first. Communication is placed in two spots round the outdoor atrium.



CONCEPT DEVELOPMENT

We wanted to develop our concept and make it stronger and more understandable. Greenery and the closeness to green had been a following track for us so we started to think of how we could implement that into our project and our building.



Since we want the green to go trough the whole building we came up with a new concept:

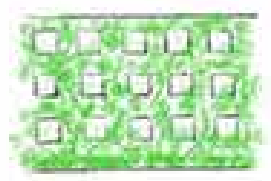
The Green Walk.

Ways to implement the Green Walk:

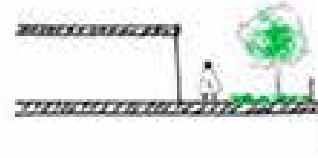
Green Pathway



Green Wall



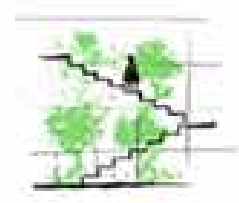
Terrace Garden



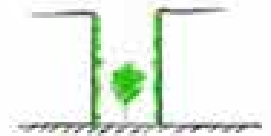
Visual & Sensible Green



Greenery View on Staircase



Green Atrium



PHASE 4: IMPLEMENTATION

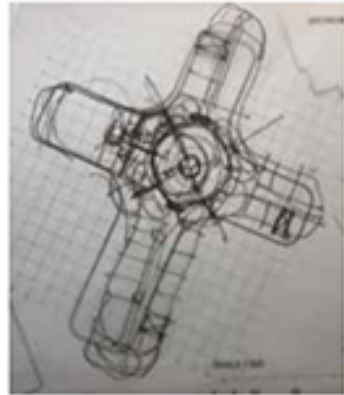
IMPLEMENTATION of CONCEPT

FLOORPLAN/WARD ROOM

After some more rounds with the plans the vertical communication moved to the middle part of the atrium to make it as flexible and changable in the future as possible. With bridges you can reach which wing you want on each floor.



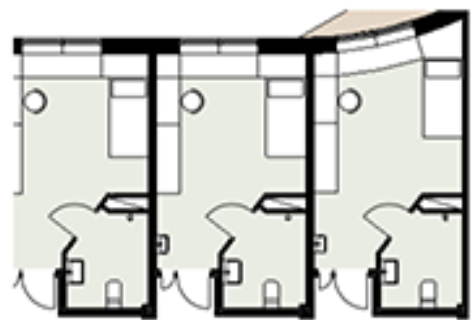
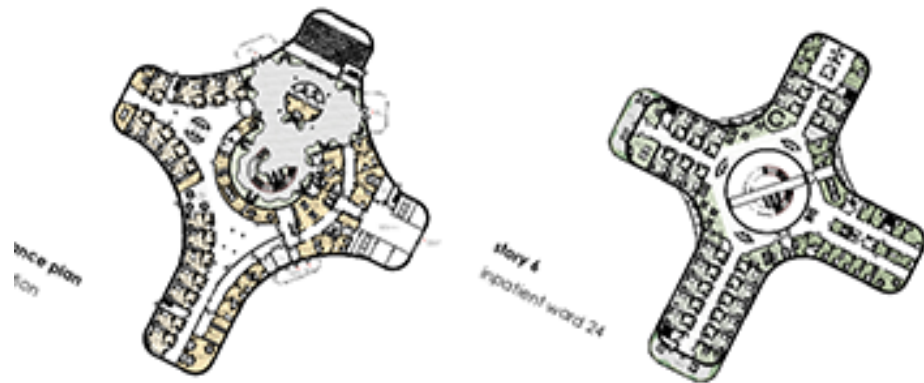
Communication round the atrium



Communication in the atrium



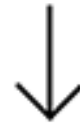
The entrance plan has now two equal main entrances with the same overview of the entrance hall. The typeplan is divided in a patient part, a staff part and a shared part between patient and staff. The rooms follows the form and the atrium is clear from rooms. Three team stations round the atrium that has good overview of the patient part of the ward.



The ward room ended up with straight walls without a private balcony. A seatable low window creates a place to sit except on the bed. Fixed wardrobe and desk. Niches outside the entrance for privacy.

SECTION/ATRIUM

To create outdoor spaces for the patient and the staff we stepped down the building, making the higher floors smaller. That made space for terraces in the end of the wings. In the outdoor atrium there is a garden for the patients in the emergency ward. Inside the atrium there are balconies the patients could go out to.



Small changes in the size of the floors to fit the program. A big roof terrace for the staff, and a bit smaller terraces for the patients. By replacing the atrium to a indoor space, the garden on the first floor disappeared. It's now outside the building. The vertical communication gets really visible from the entrances. A big stair winds up like a sculpture through the atrium and invite people to use that instead of the elevator.



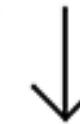
Before vertical communication and Green walk



After vertical communication and Green walk

FACADE

To implement our concept with the green walk we wanted a green facade. With wooden raster the green could grow freely on the facade. The first floor has a higher roof height and transparency than the other floors to highlight it. Squared windows with a low chest for the seatable windows continues through the whole building to make it flexible.



A glass dome on the top to protect the atrium. Changed the windows to more high and narrow ones to get a more vertical feeling, rather than horizontal, that it already has a lot of. The main entrance is now more marked with help of a canopies with a Main Entrance sign. The landscape is also more fixed and orientating.



To protect the inpatients from jumping from the terraces we have a 4m high wooden fence with windows in. At the outpatient wards and staff areas there is a lower fence.

