



# VÄSTERVIK PSYCHIATRY

## *GREEN IN-BETWEEN*

ARK263-Future Visions for Healthcare, Housing & Work  
Healthcare Architecture, MPARC Autumn 2018

Student Team 3: Xiayou Wei, Hanna Jörlén & Frida Bladin  
Examiner: Peter Fröst  
Tutors: Lin Tan & Saga Karlsson



**CHALMERS**

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# TABLE OF CONTENTS

*Green In-between*

Team 3 - Hanna J. Frida B. Xiaoyu W.

## INTRODUCTION

p. 4

## ANALYSIS

p. 5 - 6

MAIN VISIONS

SITE ANALYSIS

## SETTING

p. 7 - 9

CONCEPT

URBAN SETTING

COMPOSITION

## BUILDING

p. 10 - 21

PROGRAM & FLOWS

GREENERY CONCEPT

FLOOR PLANS

SECTIONS

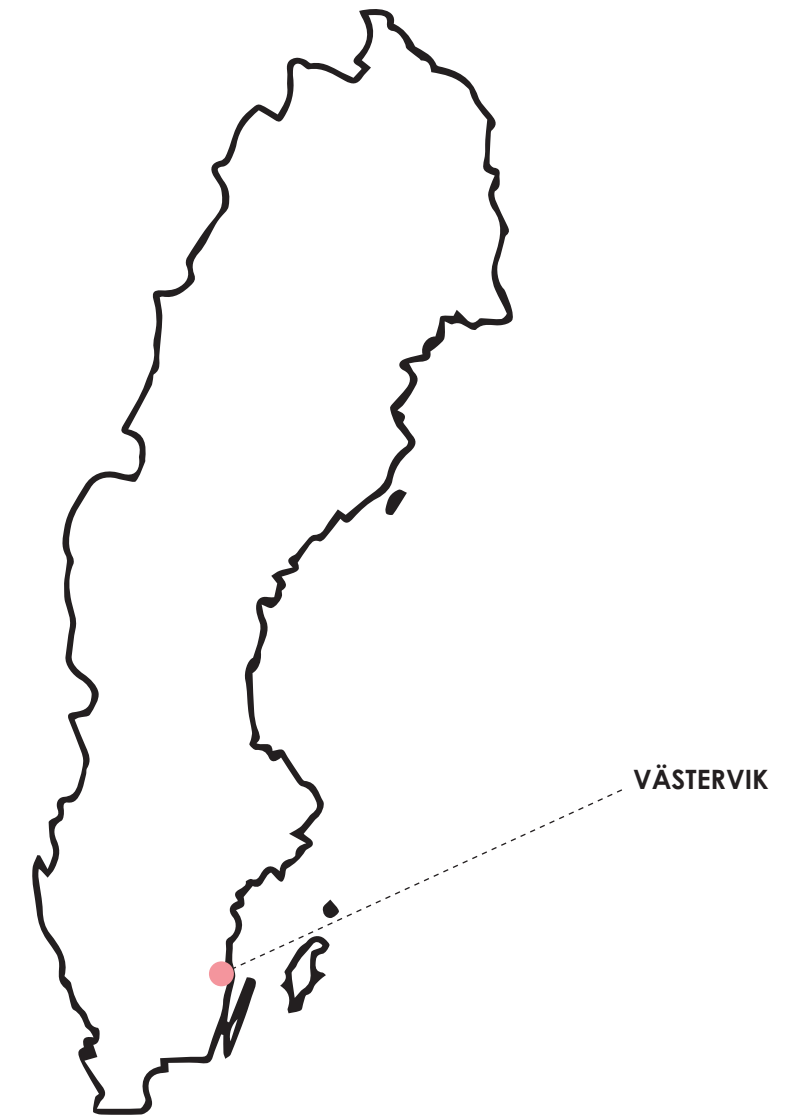
FACADES & MATERIALS

## DEVELOPMENT

p. 22 - 28

PROCESS

REFLECTION ON THEMES





# INTRODUCTION

## Green In-between

### TASK

This project is a proposal for a new Psychiatric Hospital in the Swedish city Västervik. The scope comes from the County Council of Kalmar and the goal is to gather all the specialist psychiatry care departments and gain coordination benefits.

The program of the psychiatric hospital includes: outpatient care, for both children and adults, inpatient care, an emergency reception and forensic care. Approximately 18 000 m<sup>2</sup> in total.

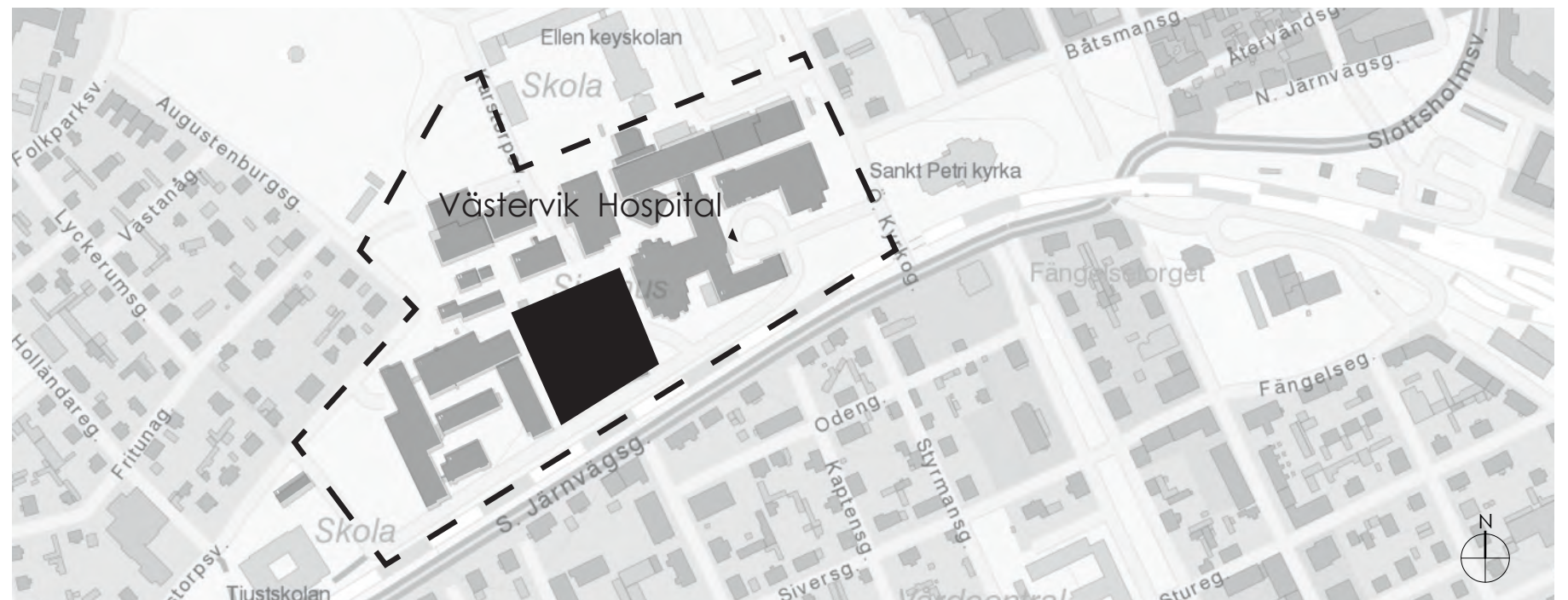
Psychiatry hospitals are healthcare facilities where the atmospheres and the architectural design is important for the healing of the patients, rather than using high technology equipment in the care. So, it is important to create spaces where people can feel safe and calm, but still have stimuli from the surrounding environments.

This project's theoretical base comes mainly from CVA Centre for Healthcare Architecture, at Chalmers University of Technology, and the pre-study for the site and the hospital, that was made by Tengbom architects Gothenburg.

### SITE

There were two optional sites to choose between: one located on the existing hospital site, close to public transport and the old psychiatric facilities and one in the outskirts of town, closer to nature and active paths.

We choose to work with the site situated at the existing hospital. The benefits of having a familiar site for the new facilities and making it easy to collaborate with the somatic care were the major factors for us choosing this specific site. There are challenges with the site though. The size of it is quite small for the large program of the building. There is therefore a need to work vertically with the building solution, even though generally you would like to work with lower buildings for psychiatric care.





# MAIN VISIONS

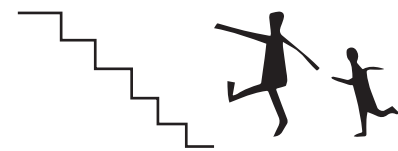
Green In-between

## HEALING ENVIRONMENT



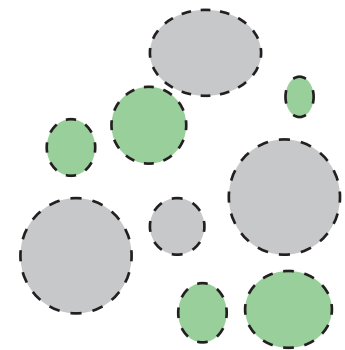
### Positive environments

Spaces that provides calmness and “positive distraction”, but also positive activities.



### Health promotion

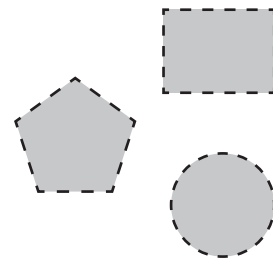
Guide people to make healthier choices by design solutions. Staff health as well as patients’.



### More greenery

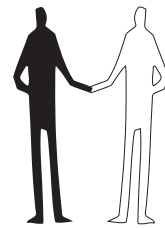
Add new green spaces, both indoors and outdoors, that are accessible for patients, public and staff.

## PUBLIC & PRIVATE



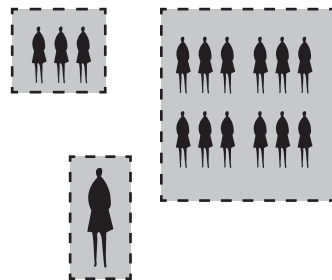
### Spaces for everyone

Spaces where staff, patients, visitors and others feel welcome to enter.



### Reducing the stigma

Change society’s view on psychiatry. Invite the public where it is suitable.



### Various social spaces

Create various types of spaces with different “social level” and activity. Also, with different levels of private and public.

## LONG-TERM BUILDING



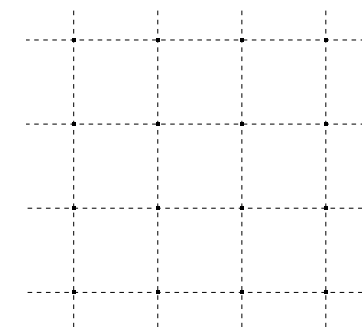
### Ecological sustainability

Robust building materials that are healthy and lasts long.



### Future proofing

Prepare for future changes and challenges.

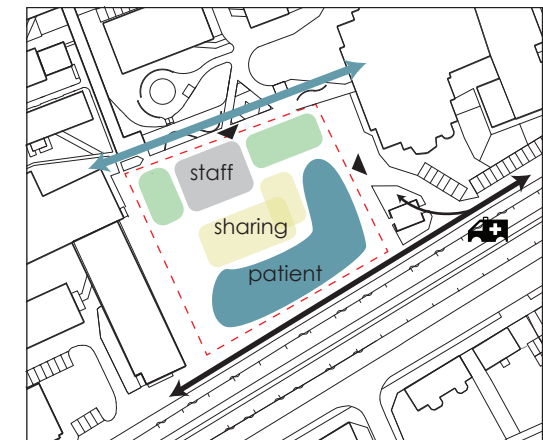
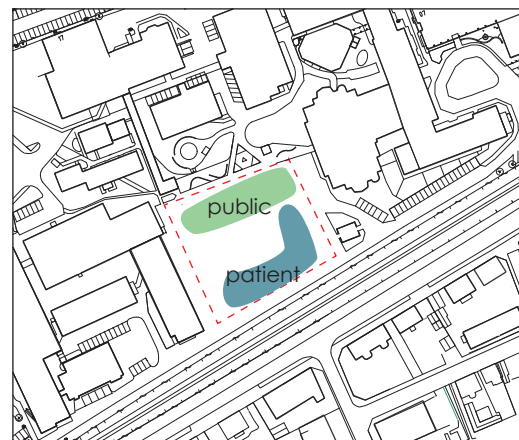
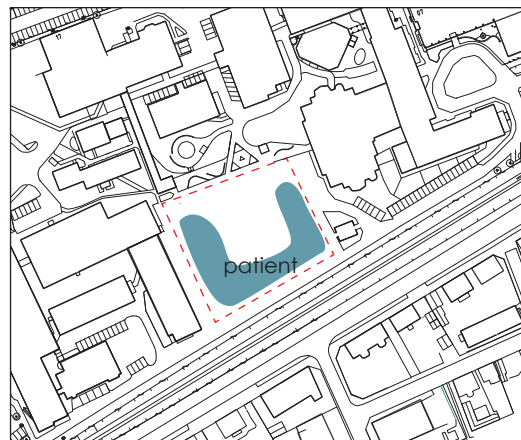
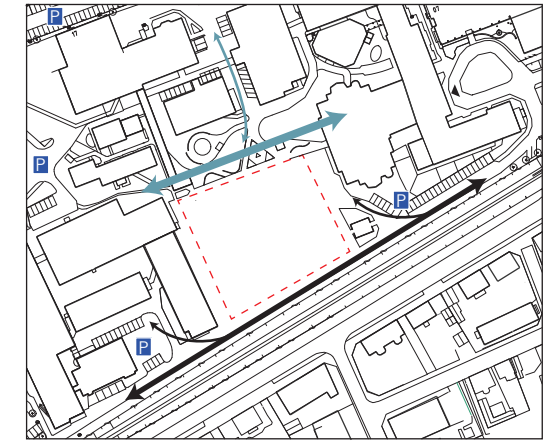
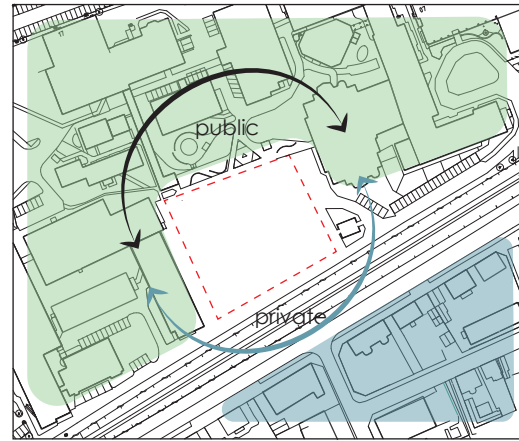
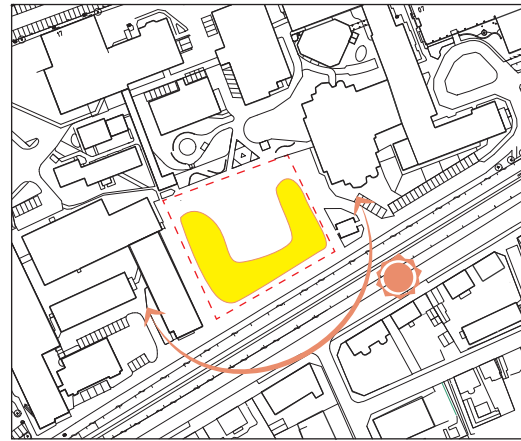


### Flexibility

Make a logic construction grid. Make building volumes that can be used separately and therefore adapt to changes.

# URBAN SITE: ANALYSIS

## Green In-between



### DAYLIGHT

South, west and east are the better locations for rooms that need daylight a bigger part of the day, such as patient rooms. This not only due to the sun path but also due to the surrounding buildings.

### ZONES

There is more privacy to the south and east part of the site because of longer distance to surrounding buildings and a railroad, which creates a barrier to the neighborhoods. The north side of the plot is more suitable for public parts because of the closer connection to the existing hospital and its main walking path that is crossing the site here.

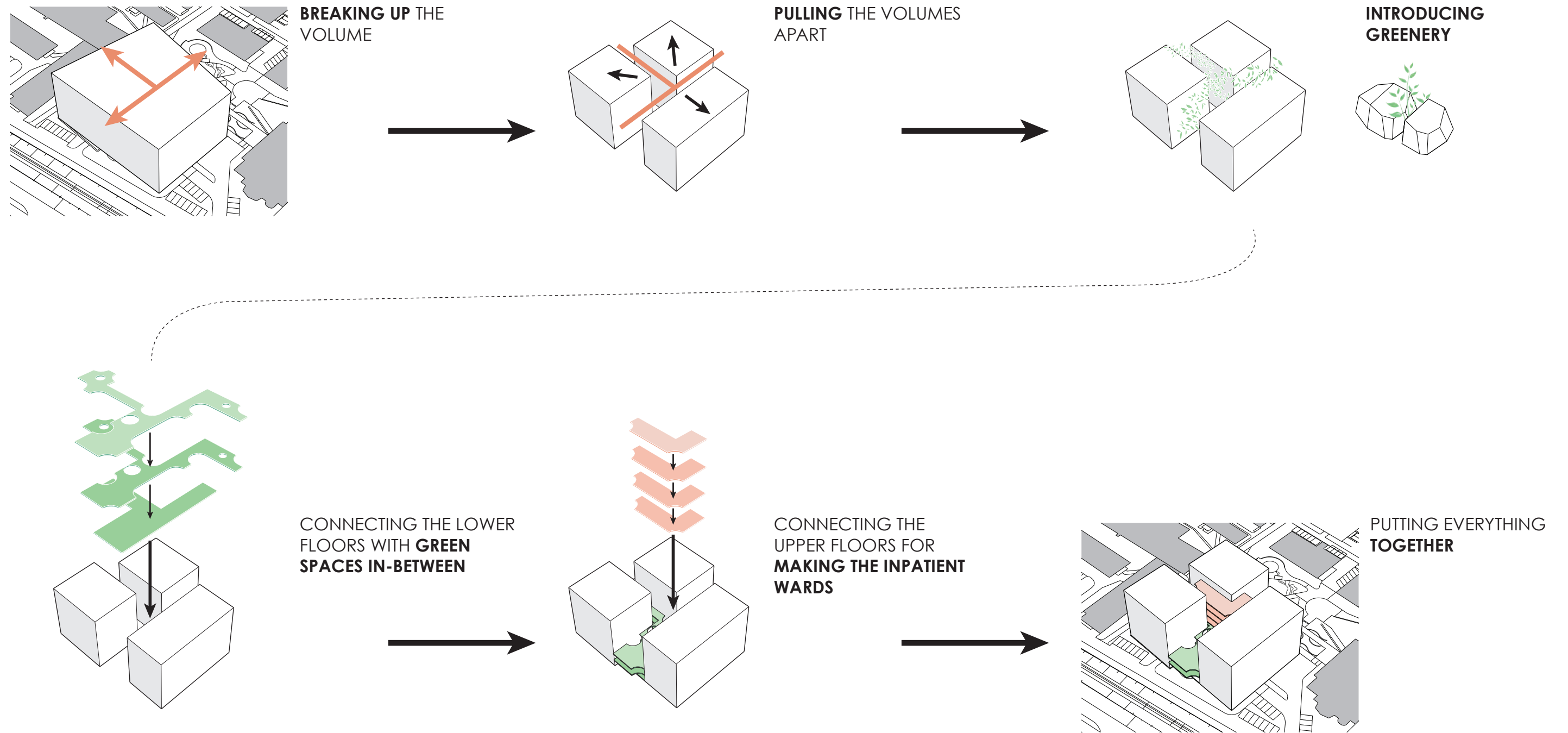
### ACCESS

The main walking path of the hospital in the north guides where to put the main entrance to the new building. In the east the emergency entrance and the ambulance entry are more natural, because of the existing car road that can lead traffic to the building without crossing walking paths.



# CONCEPT

Green In-between



# URBAN SETTING

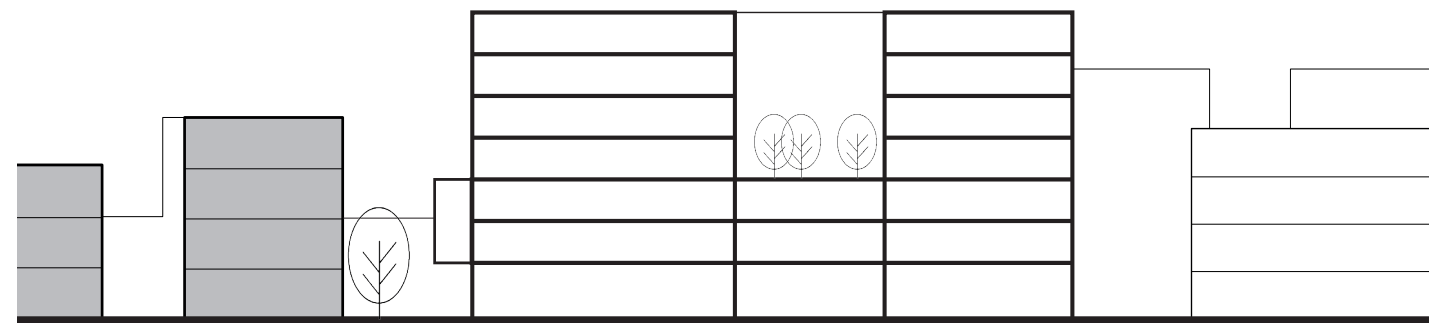
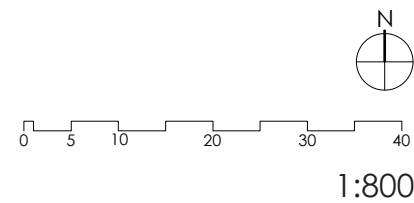
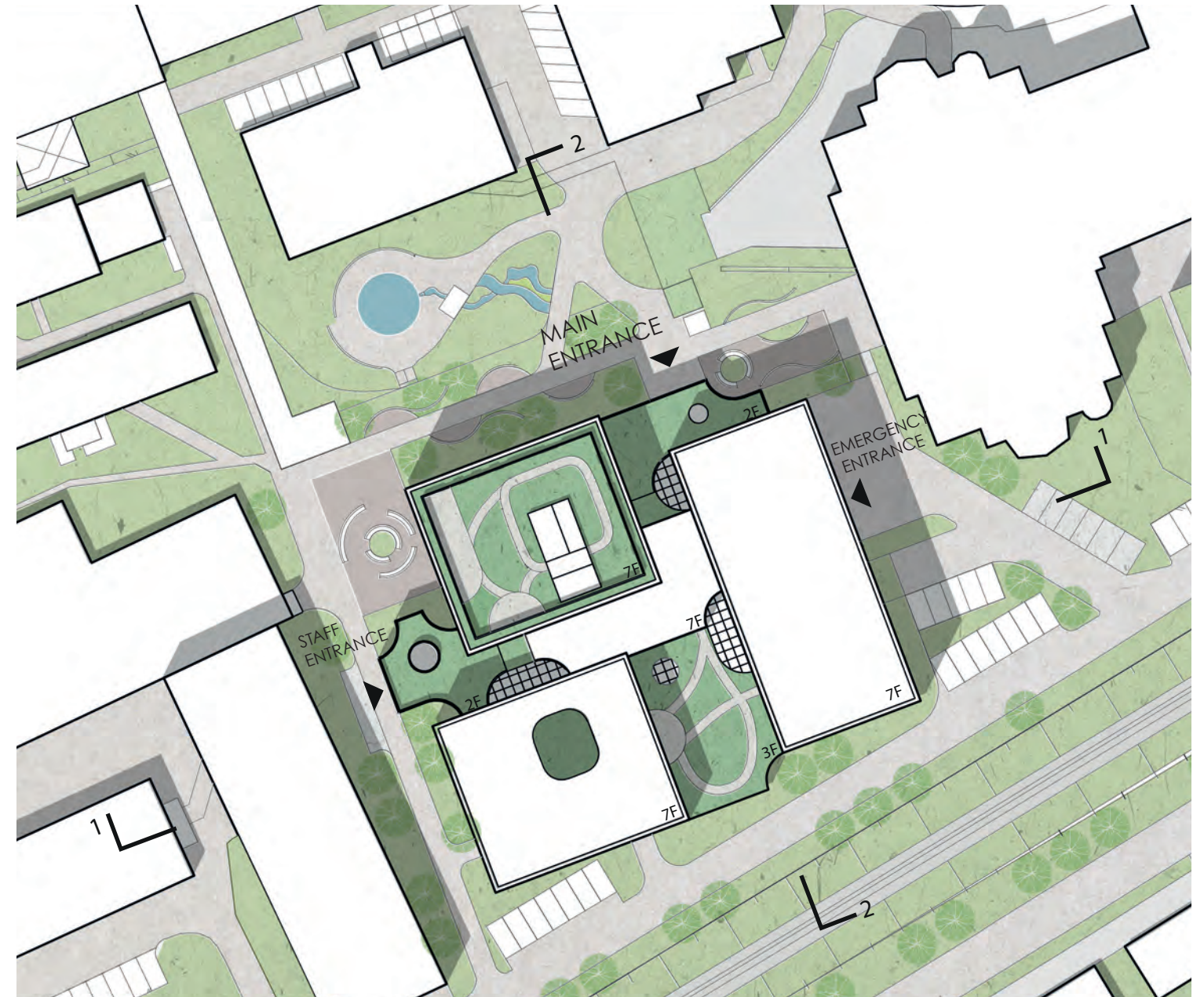
## Green In-between

### SITE PLAN

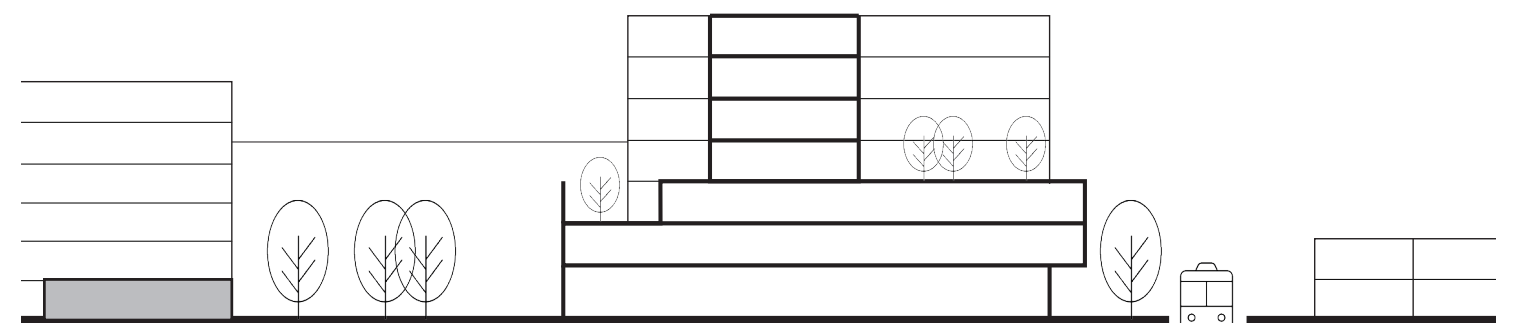
The building is placed on the plot so that the volume aligns to most of the buildings on the hospital site. The broken-up volume does also speak a language that suits the hospital's many spread out buildings on the site.

There is a connection to the existing green spaces and this proposal also expands them and makes them more visible. Green spaces in front of the main entrance and in-between the new and the existing is added. These places become social meeting spaces and relaxing areas.

Besides the main entrance and the emergency entrance there is a staff entrance on the west part of the building. This side is more private and narrow, which makes this entrance safer for staff to enter the building without being overlooked (mostly important for staff working at the forensic departments).



SECTION 1-1



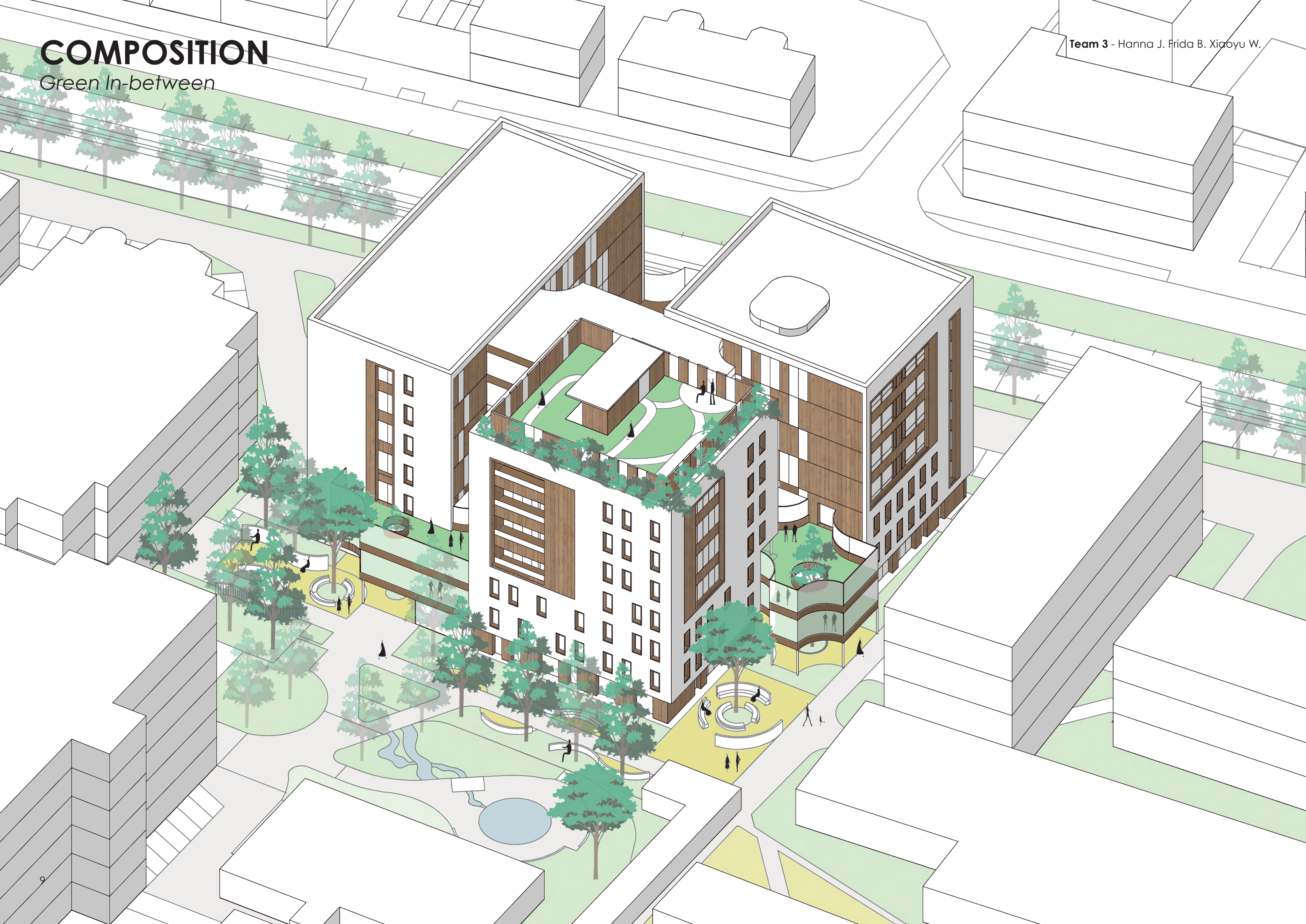
SECTION 2-2



# COMPOSITION

*Green In-between*

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# PROGRAM

## Green In-between

### PROGRAM

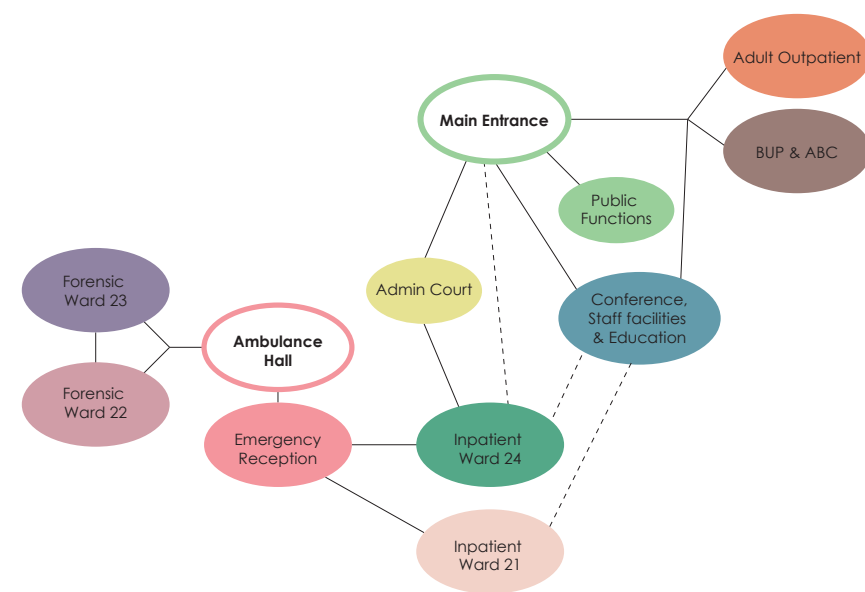
The building consists of seven floors and a basement level that connects to the existing hospital's culvert system.

The building is divided into three blocks, where one of the blocks is mainly for staff and the other two for patients and the different departments and receptions. Common spaces and greenery connect the three blocks.

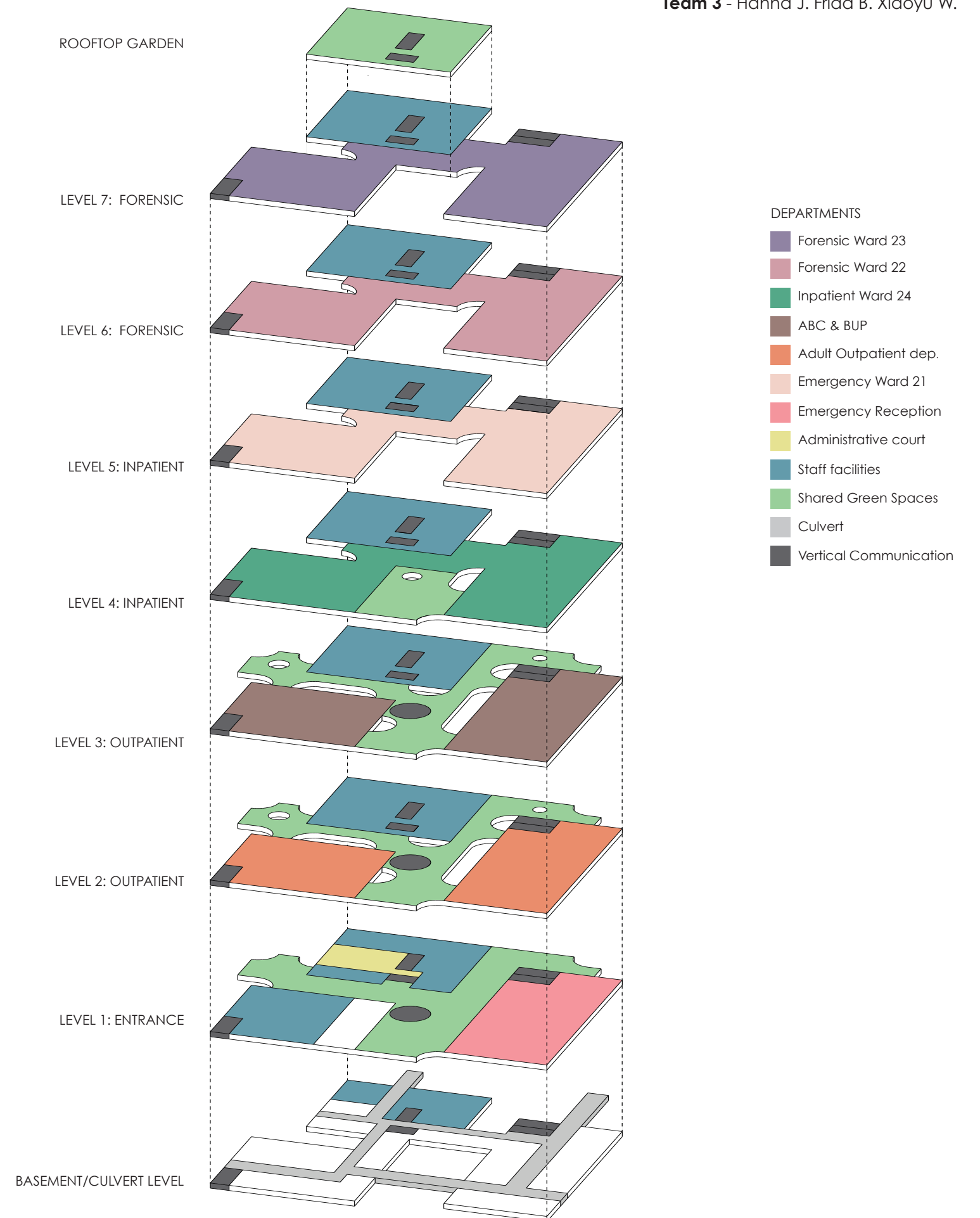
On the entrance level the main reception, public functions and conference spaces are placed to open the building for more users than just the patients. The emergency reception and the ambulance hall are also placed on this level because of their needs of easy access from outdoors.

The two following levels of outpatient departments are connected with a central main staircase, starting from the entrance hall of the building. They are placed on the lower floors for easy access from the main entrance and the public functions.

Level four until seven are occupied with different inpatient departments because of more privacy and less insight on the upper floors of the building. It also makes it possible for these departments to use the roofs for outdoor spaces.



MAP OF CONNECTIONS





# FLOWS

## Green In-between

### VERTICAL COMMUNICATION

The flows of the building are divided so that the emergency and the forensic patients can have a safe and secure transport up to their ward (or be transported down in the culvert and forward on to another department in the rest of the hospital). Two bed-elevators are therefore placed so they can be easily accessed from the emergency reception and the ambulance hall. The location of the elevators is also close to the culvert system and common storage spaces in the basement level. This way they can also be used for taking up beds, or other equipment, to the different wards.

The other two elevators are placed in the core of the building. One is used by staff, but also for transporting goods and waste. The other elevator is mainly used by outpatients, but also visitors for the inpatient wards. On the highest floor, where the forensic wards are located, this elevator is also used for taking patients up to the roof top garden.

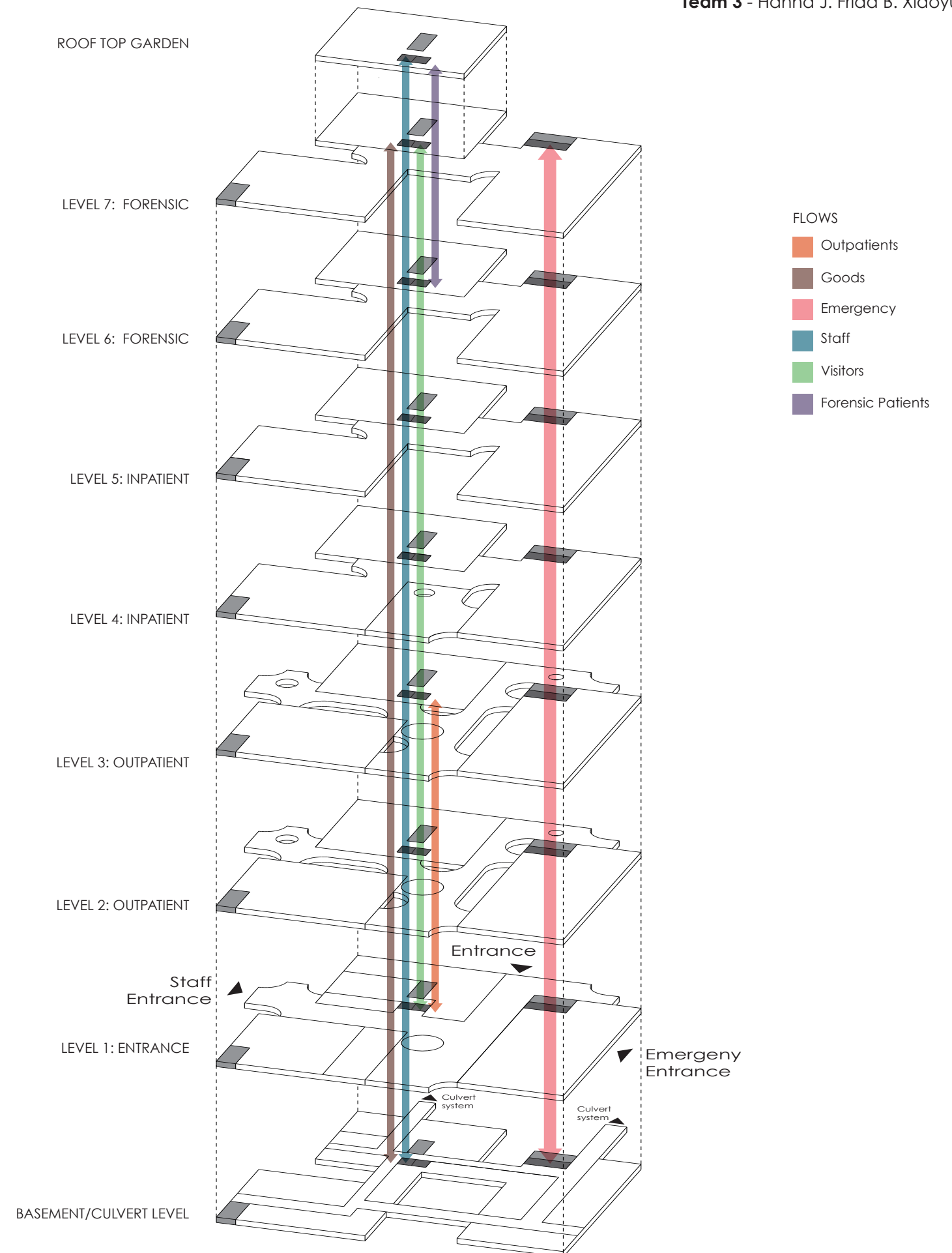
### NUMBERS

#### BTA (m<sup>2</sup>)

**Total:** 17725  
**Total (basement included):** 20125

**Basement:** 2400  
**Floor 1:** 2850  
**Floor 2:** 2660  
**Floor 3:** 2660  
**Floor 4:** 2360  
**Floor 5:** 2360  
**Floor 6:** 2360  
**Floor 7:** 2360  
**Floor 8:** 115

**Number of elevators:** 4  
**Number of staircases:** 4



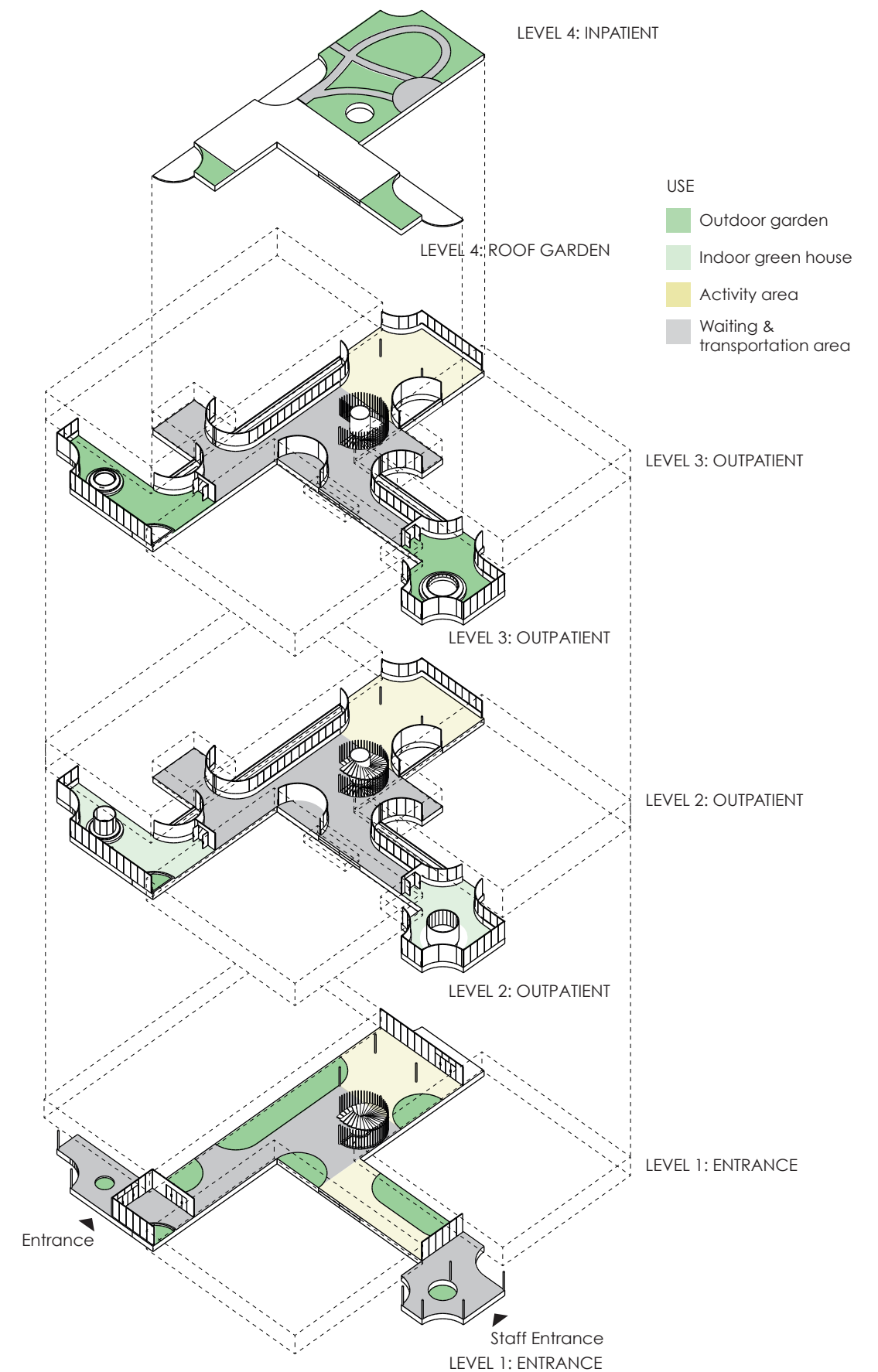
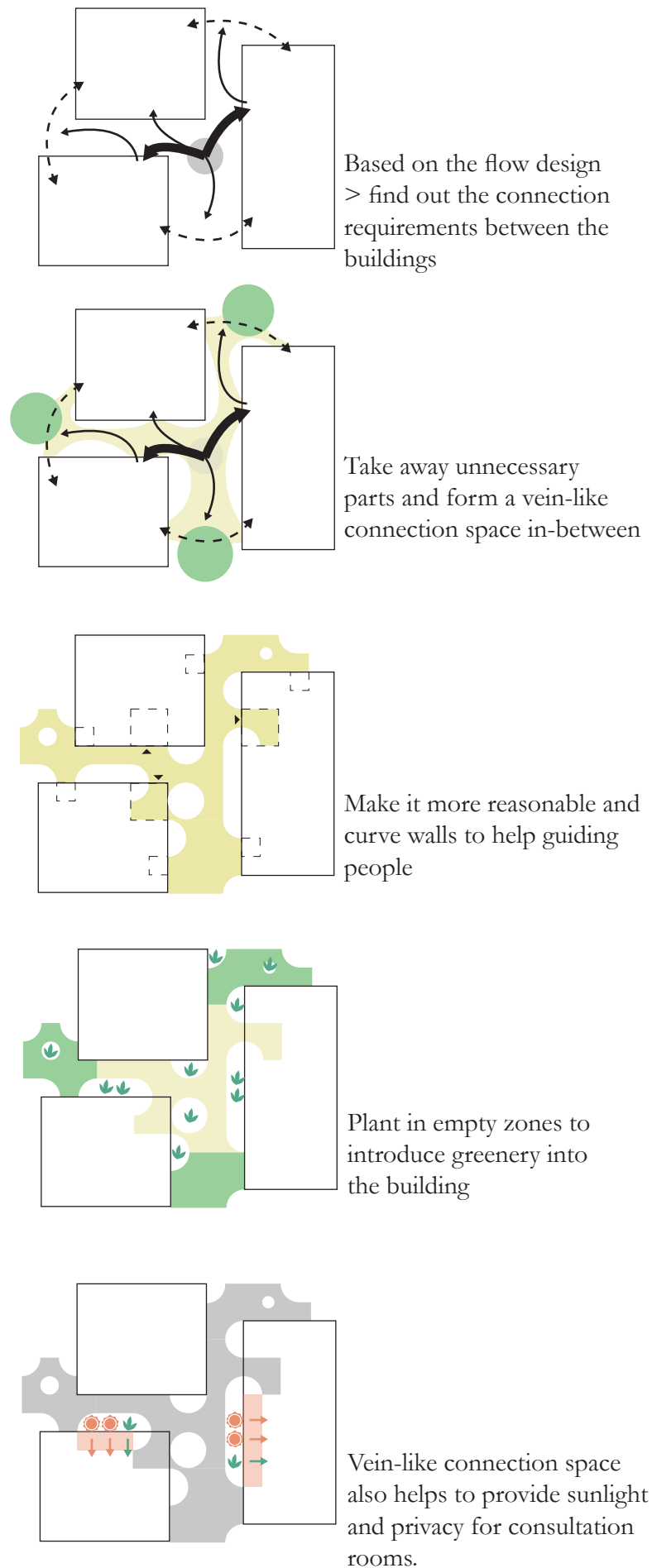
# GREENERY CONCEPT

## Green In-between

### GREEN IN-BETWEEN

What has been the main idea and concept all throughout our process are the green, flexible spaces, a “green in-between”, that works like a glue that attaches the three building blocks to each other. On one hand, it is the main part of the public space and we see it as a way of introducing greenery into an urban site. It helps to create a fluid and intimate atmosphere with varying types of spaces. On the other hand it is the main transportation path and needs to take care of the necessary communication in an efficient way, so that the movement between different departments will be convenient.

The functions of each part of the “green in-between” are determined by controlling their shape and size. The middle part is mainly used as transportation and waiting area, and the three ends are the more quiet and complete activity areas. They also provide the possibility of interconnecting each department or to extend the structure and connect to other parts of the hospital in the future.



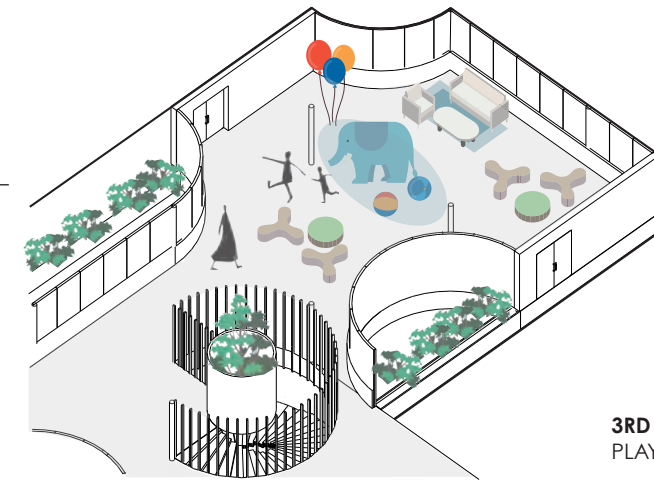
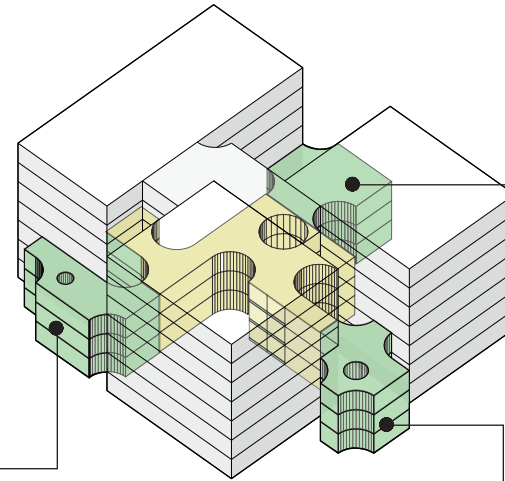


# GREENERY CONCEPT

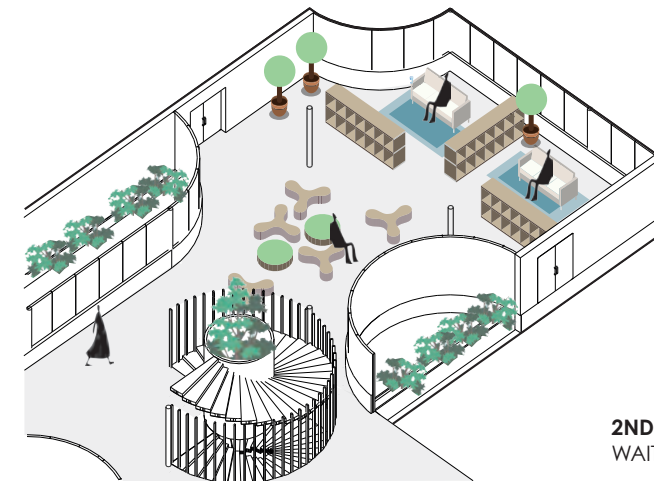
## Green In-between

### DIFFERENT WAYS OF USING SPACE

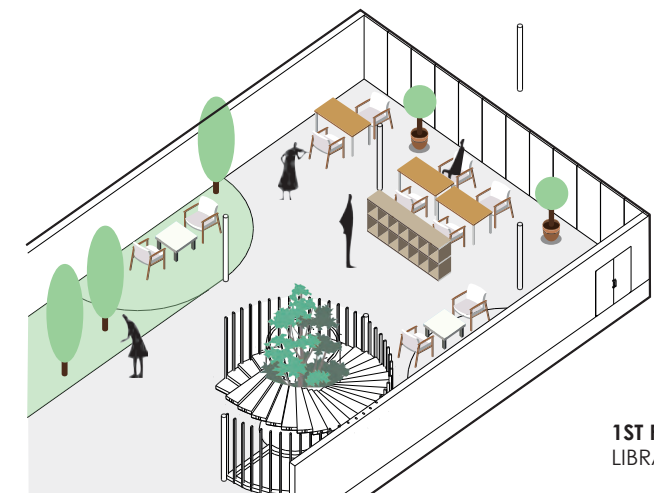
The three end-spaces have different qualities and functions, which showcases the concept of space and its flexibility. The largest space between the buildings is the main public activity area. At the end of the corridors there are two green spaces. The second floor is mainly for patients, and the indoor space can be used flexibly as greenhouses or semi-outdoor areas. It can also be expanded into a staff part in future or connect two departments into a closed one. The roof garden on the third floor lets staff and patients to relax in a green environment.



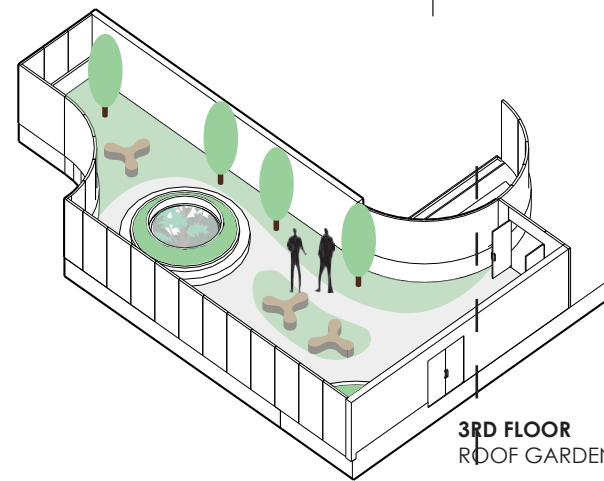
**3RD FLOOR**  
PLAY AREA FOR YOUNG PATIENTS



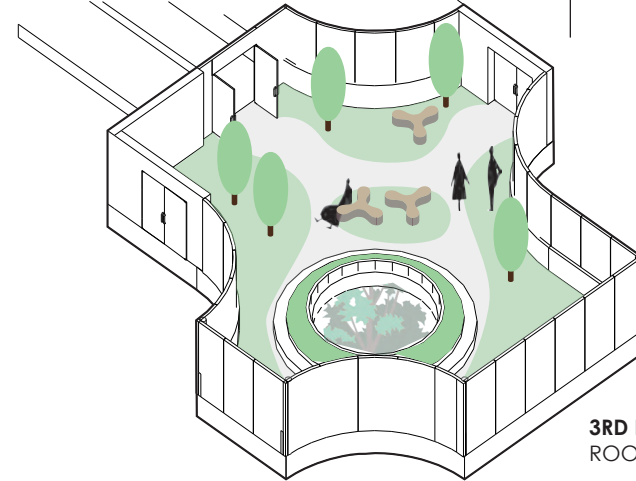
**2ND FLOOR**  
WAITING AREA FOR OUTPATIENTS



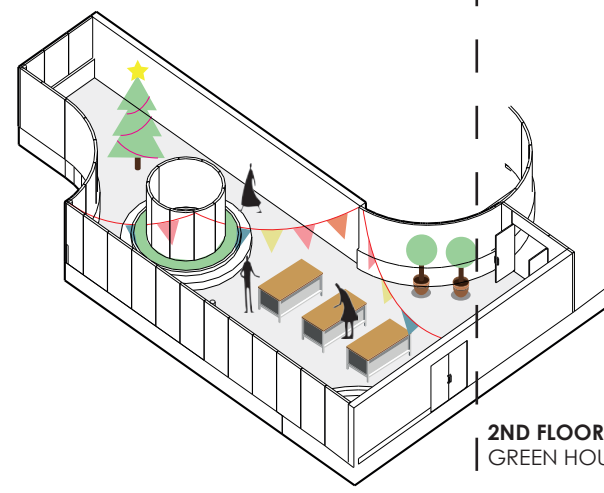
**1ST FLOOR**  
LIBRARY AND CAFE FOR EVERYONE



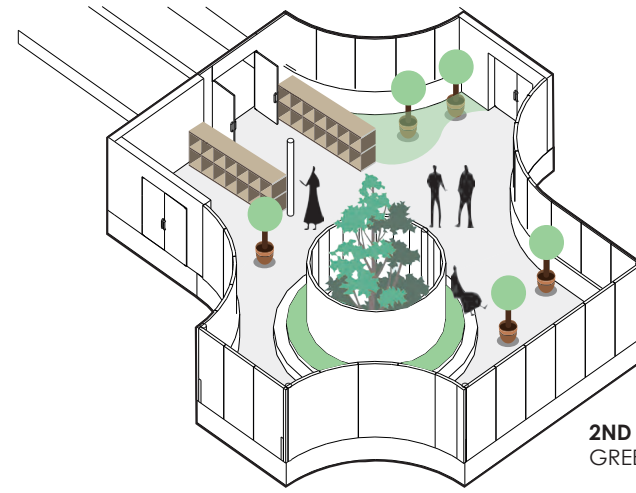
**3RD FLOOR**  
ROOF GARDEN FOR STAFF



**3RD FLOOR**  
ROOF GARDEN FOR PATIENTS



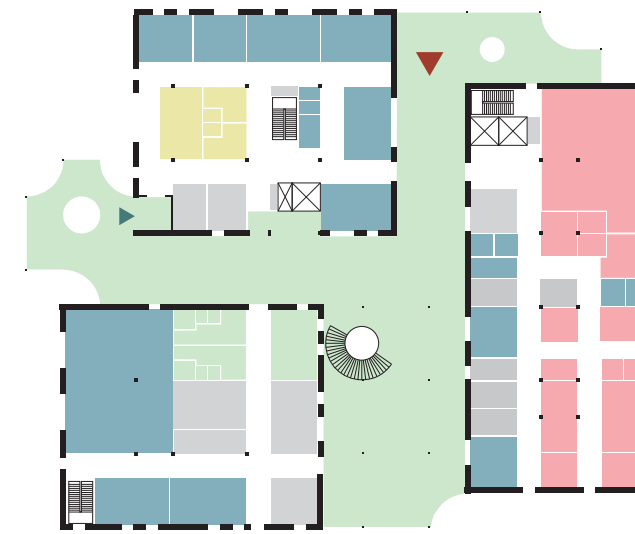
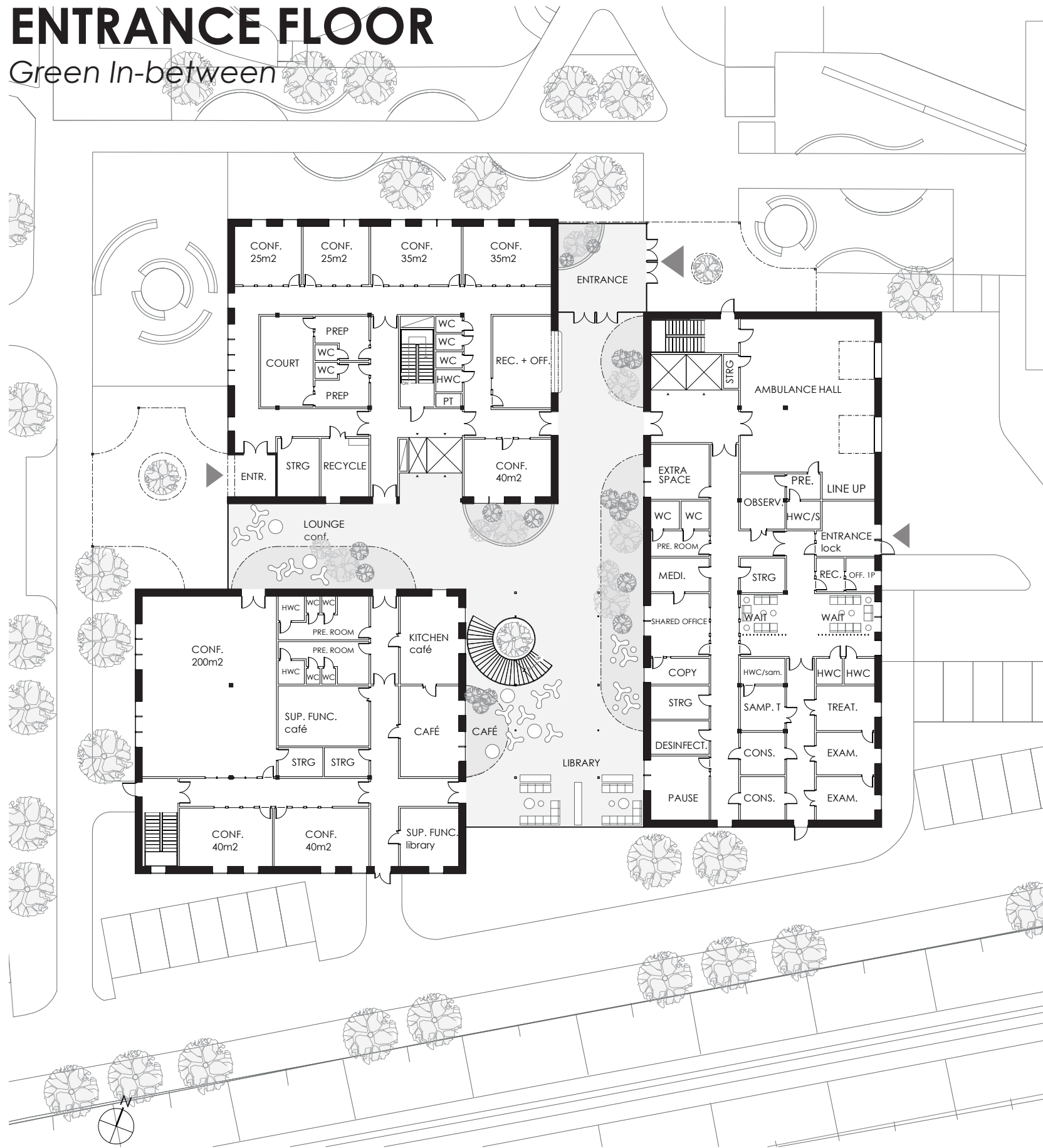
**2ND FLOOR**  
GREEN HOUSE FOR PATIENTS



**2ND FLOOR**  
GREEN HOUSE FOR PATIENTS

# ENTRANCE FLOOR

Green In-between



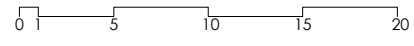
- ZONES
- Emergency Reception
  - Administrative Court
  - Staff & Conference
  - Support functions
  - Public

## ENTRANCE

On the entrance floor the main reception is located combined with public functions such as a café and a library, for inviting more people into the building to maybe have a coffee, a lunch or study in the library. There is also room for lounge areas that connects to the conference spaces and lecture halls. All these features are located in-between the three volumes.

The conference facilities are mainly concentrated on the west side of the building, close to the staff entrance. The administrative court is placed within these facilities for making it easy to use the court room as a conference room, when there are no ongoing trials. The court is also in close connection to elevators for making the patient transport, from the ward, easy and safe.

The emergency reception and the ambulance hall are also placed on the entrance floor. These functions are accessed from the eastern side of the building for separating the emergency patients flow from the outpatients, but also for having an easy access way for cars.



1:400



# ENTRANCE SITUATION

*Green In-between*

Team 3 - Hanna J. Frida B. Xiaoyu W.









# OUTPATIENT PERSPECTIVE

*Green In-between*

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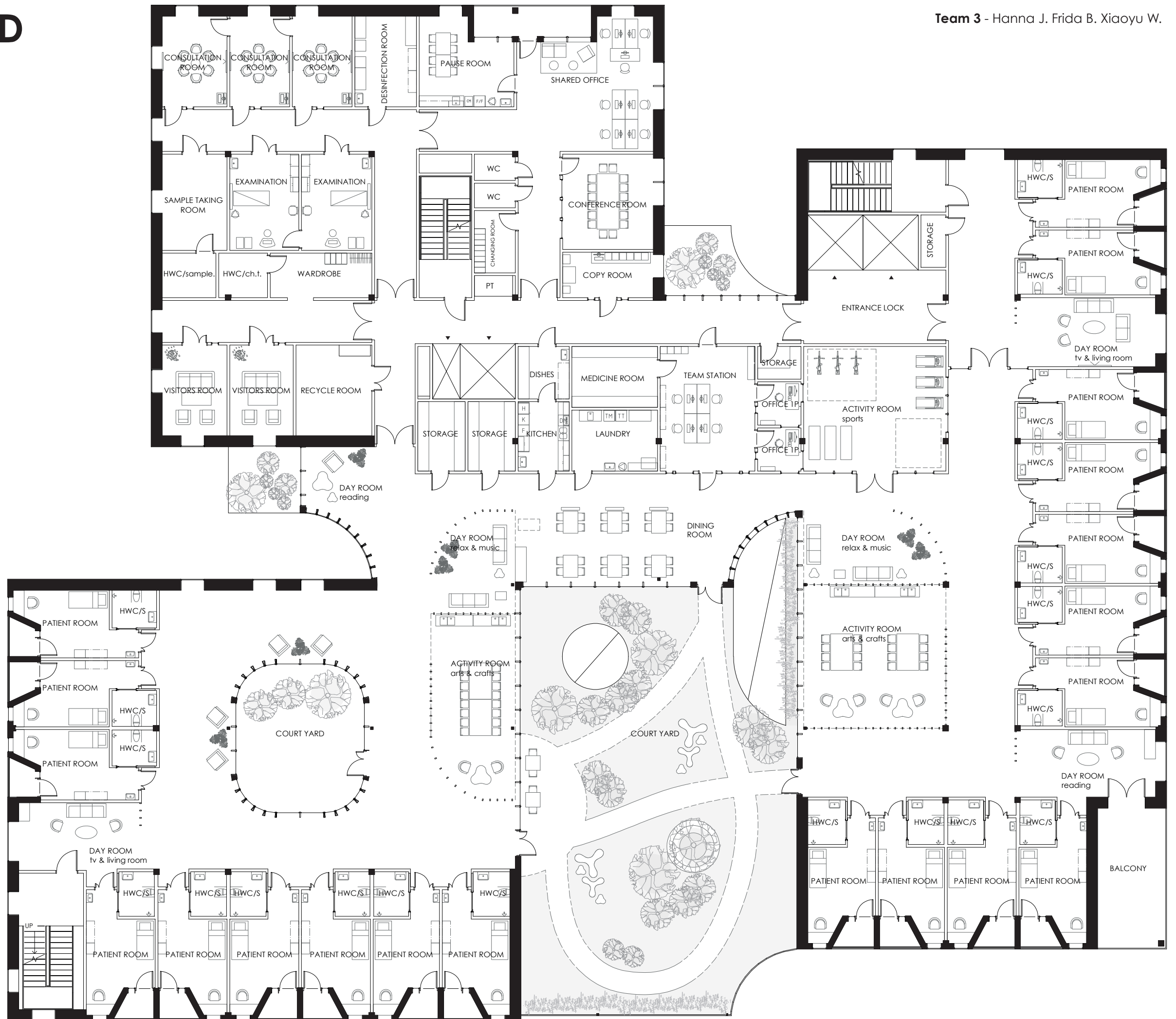




# INPATIENT WARD

Green In-between

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# INPATIENT WARD

## Green In-between

### WARD 24

The inpatient wards have most of their patient rooms facing east and south, because of the least exposure from surrounding buildings in these directions and good daylight conditions. All patient rooms have their own bathroom, bed, work/reading space and a small balcony.

The team station is placed so it has especially good overview over these rooms and the court yard. All the common rooms, with different activities, are placed in the middle of the ward, surrounding the outdoor yard. These rooms have an open feeling and are defined by half walls, glass walls or a wooden raster, to not reduce the overview in the ward.

Like all the other floors, the northern part contains most of the staff functions. Though there is also a part of this volume where the patients are going for having consultation talks or examinations. There is also room for a visitors zone, close to elevators, where relatives can enter and visit a patient.



PERSPECTIVE: DINING AREA

### ZONES

- |                   |                  |
|-------------------|------------------|
| Patient zones     | Patients & Staff |
| Visitors zone     | Common spaces    |
| Staff Facilities  | Outdoor areas    |
| Support functions | Team Station     |



# PATIENT ROOM

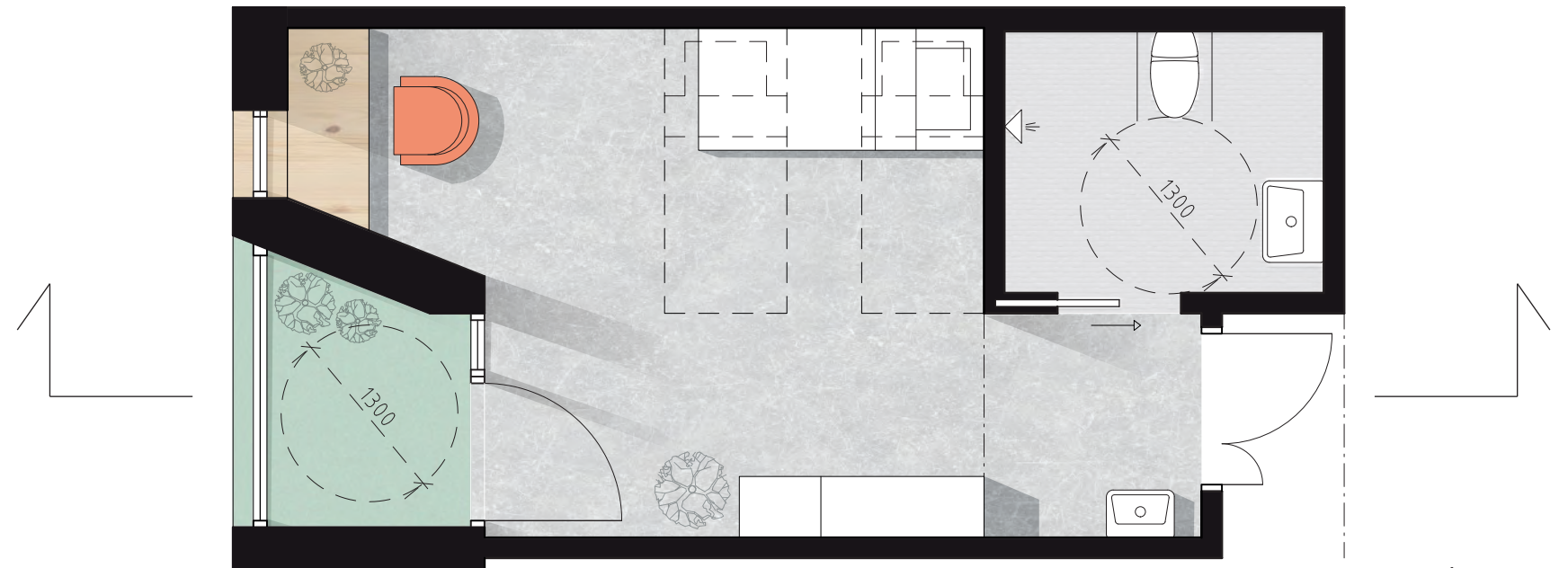
## Green In-between

### PATIENT ROOMS

All the patient rooms are single rooms. There is place for sleeping, storing personal clothes, writing/working and a bathroom with access from the patient room. Every room has a small balcony, so the patients can have a bit more connection to the outdoors. The balcony also creates a gradient between outdoors and indoors, between the patient's private space and the outside world.

The ceiling height is lower in the hallway of the room and outside of the room (in the entrance niche). This divides the patient room into different rooms without walls: a hall and a bedroom.

For staff the room is easy to overlook from the hall, but there is also some privacy for the patient.



PLAN



PERSPECTIVE: PATIENT ROOM



SECTION



1:50



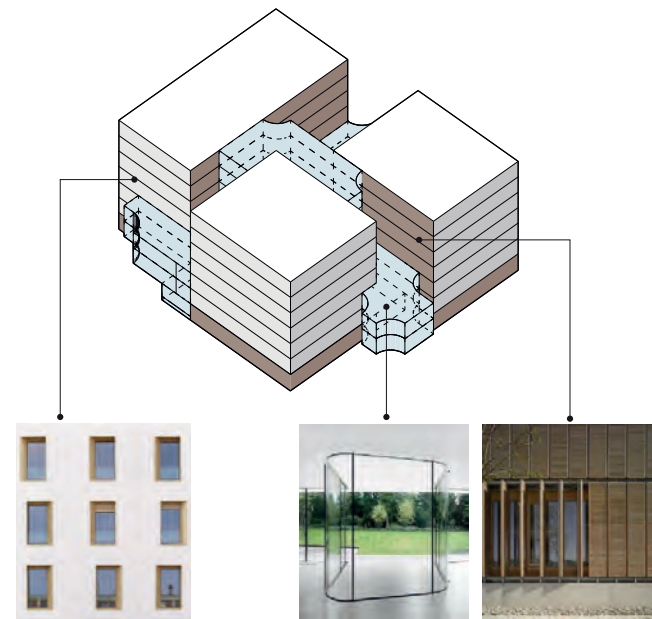
# FACADES

## Green In-between

### MATERIALS

The concept of the facade is to have the outer shell correspond to the existing hospital and the inner facade looking like “something new.” In this case the new is wood. The wood is also on the lowest floor, so the people will meet it when they enter the building. This for making the entry in more of a human scale.

The green floors that are in-between are covered with glazed facades so it will look like greenhouses coming out from the core of the volumes.



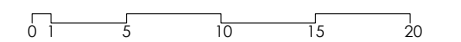
CONCEPT



NORTH FACADE



EAST FACADE

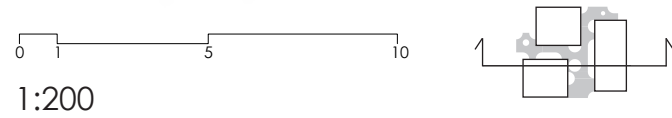


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# SECTION

## Green In-between





# SECTION

Green In-between





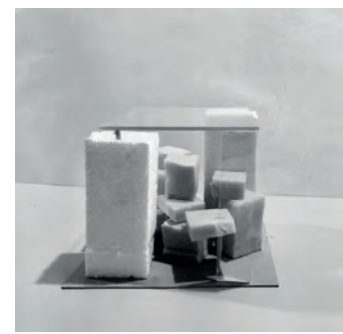
# PROCESS: COMPOSITION

Green In-between

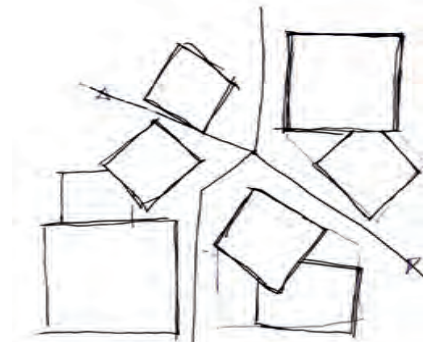
Team 3 - Hanna J. Frida B. Xiaoyu W.

## GENERATION OF THE VOLUME

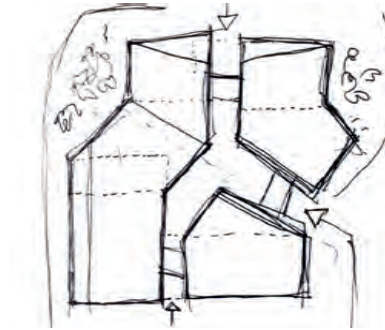
A development from a sketch model, into representative sketches, to volume testing, autoCAD drawings, volume again and so on. It has been twisting and turning in collaboration with ward unit-plan layout sketching.



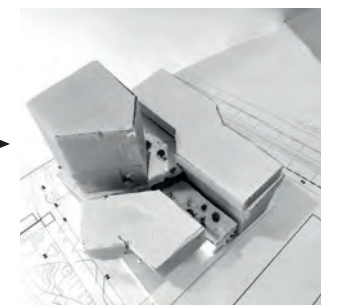
WORKSHOP 1



FOOTPRINT OF MODEL



RE-INTERPRETATION OF MODEL



SKETCH VOLUME



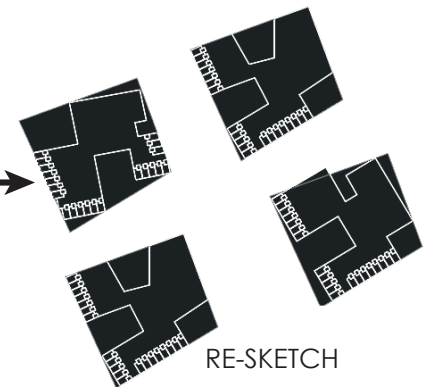
FIRST CAD SKETCH



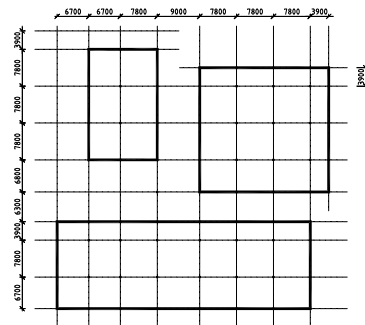
CONNECT VOLUMES



CONCEPT CRITIQUE



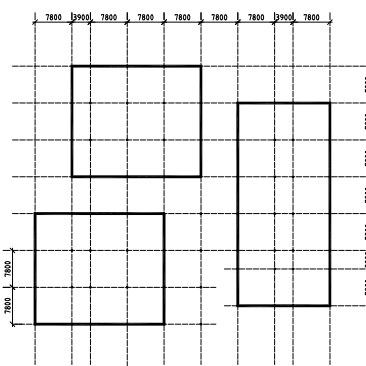
RE-SKETCH



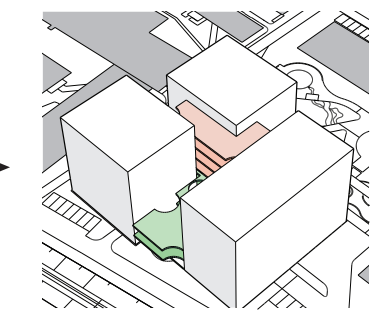
RATIONALIZE



SKETCH PROPOSAL



TURN THE COMPOSITION & RE-RATIONALIZE



FINAL PROPOSAL

# PROCESS: WARD 24

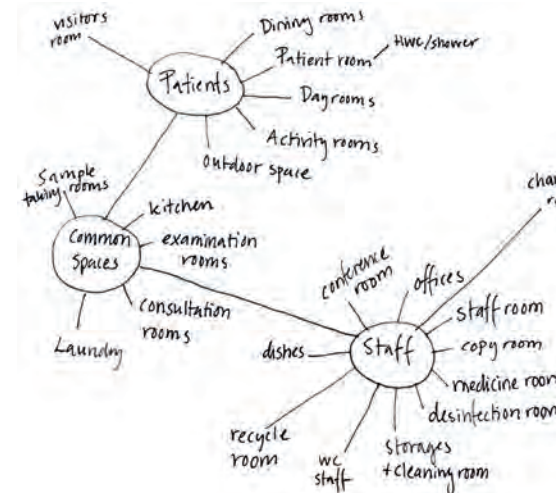
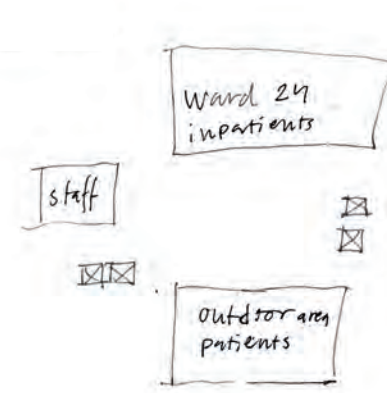
Green In-between

## GENERATION OF THE INPATIENT FLOORS

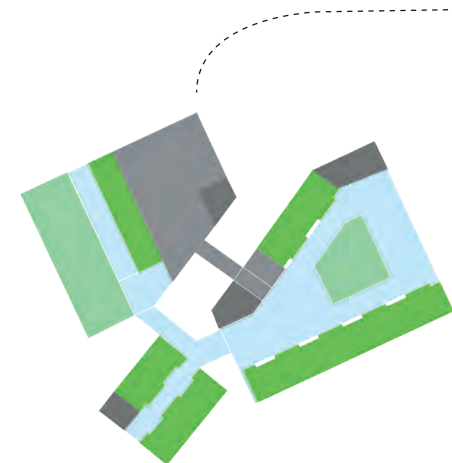
The focus in the development of the floor plans and zoning has been on the inpatient ward 24. Starting from the workshop about the psychiatric unit, developing into mind-maps about how to arrange spaces and then several iterations of ward lay outs were made.



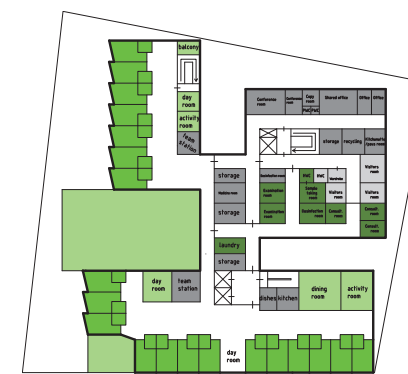
WORKSHOP 2



FUNCTIONS CONNECTION



CONCEPT CRITIQUE



SKETCH PROPOSAL



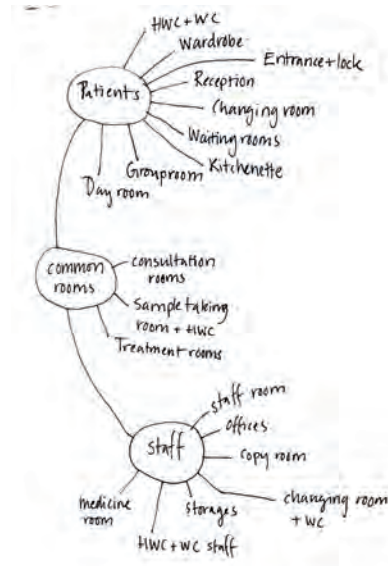
FINAL PROPOSAL



# PROCESS: IN-BETWEEN

Green In-between

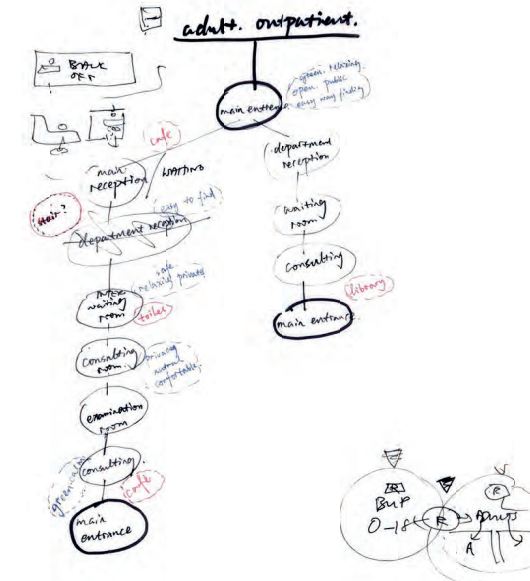
GENERATION OF THE OUTPATIENT FLOORS  
 In the design process of the outpatient departments, the focus has been on the in-between spaces rather than on the required rooms. These spaces have developed through several iterations of form testing, rationalization and also by walking around and looking at the model VR.



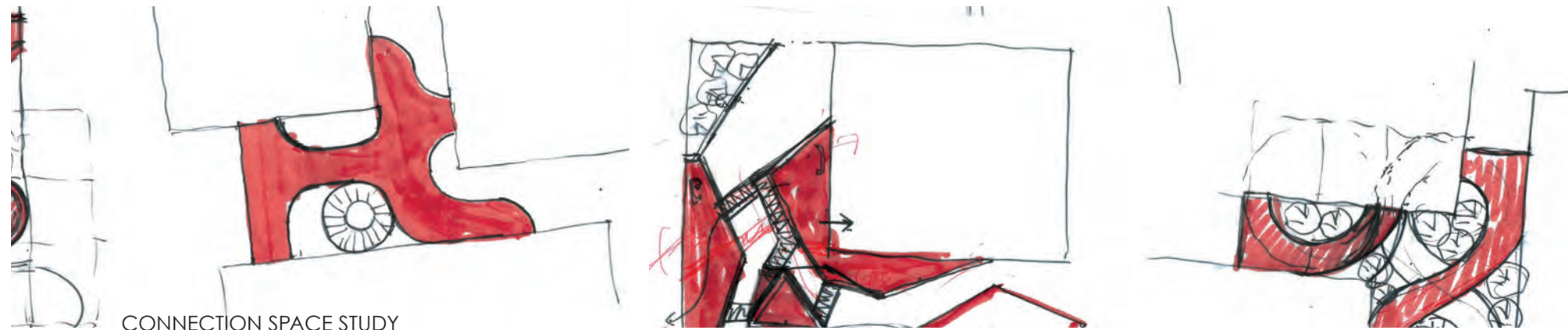
OUTPATIENT FUNCTION



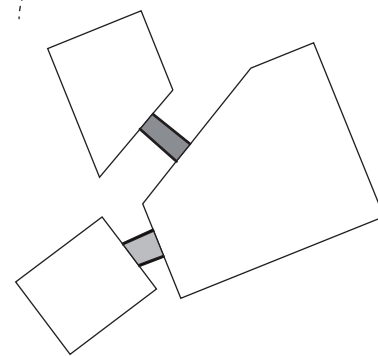
BUP PATIENT JOURNEY



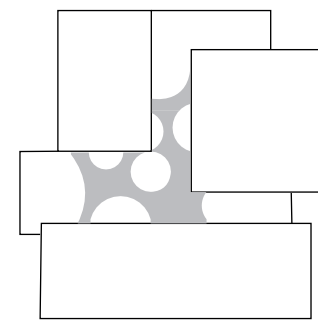
OUTPATIENT JOURNEY



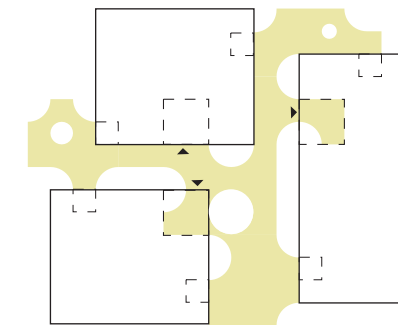
CONNECTION SPACE STUDY



CONCEPT CRITIQUE



SKETCH PROPOSAL



FINAL PROPOSAL



# PROCESS: REFERENCES

## Green In-between

### INFLUENCING IMAGES

These images have been guiding our process the most when it comes to form and atmospheres.



House of Arts and Culture (KAPUTT!), Beirut Libanon.

### VOLUME CONCEPT INSPIRATION



Methodist Hospital for Surgery (WHR Architects), Addison Texas US.

### ZONING BY FURNITURE & OTHER MATERIALS



The Willow House (Guz Architects), Singapore.

### GREENERY & FORM INSPIRATION



Proton Therapy Centre (aarhus arkitekterne), Aarhus Denmark.

### WAITING ROOMS WITH PLANTS



Södra Älvsborg Hospital (SÄS) Psychiatric Clinic (White), Borås Sweden.

### PATIENT ROOM ATMOSPHERE



"the living staircase" (Paul Cockledge Studio), London UK.

### MAIN STAIRS ATMOSPHERE



# THEME: HEALING ARCHITECTURE

## Green In-between

### REFLECTION

We believe that it is obvious that daylight, views on nature and to have single patient rooms is good for the care and the healing environment of the patients. But also, for all kinds of environments where humans should live and exist. Though there is a benefit to have it “written on paper” for showing clients who likes proofs for design solutions. Therefore, we think Evidence Based Design and Research Informed Design is a great asset when designing healthcare facilities, for making good decisions and great design.

To incorporate the facts and thoughts that comes from this theme has maybe been the easiest in the design process. Maybe because we believe in these things already as architects and that these factors have been playing big roles in previous projects too. Even if some of us hadn't been reading and learning about evidence-based design before.



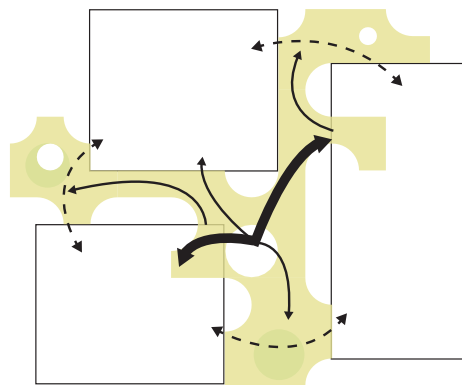
### VIEW ON NATURE

The building provides nature views both outdoors and indoors. It also brings the greenery to the people, so they can be in it and not only look at it. This based on the fact that seeing nature reduces the stress for both patients and staff. Also, for make the patients stimulated and use the greenery for activities such as gardening, walking or just sitting in the green spaces.



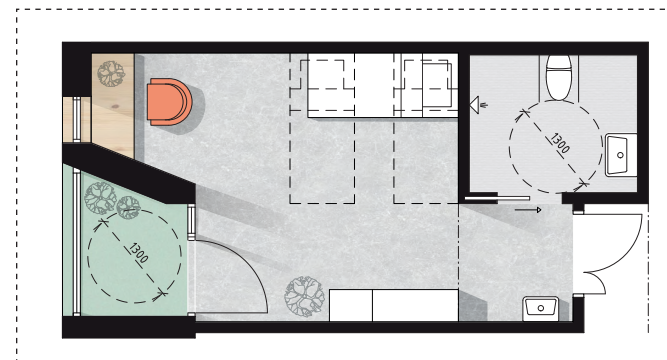
### FRIENDLY MATERIAL

The materials that are closest to the patients are natural and soft, like wood, for having a calm atmosphere but also for making the hospital more homelike.



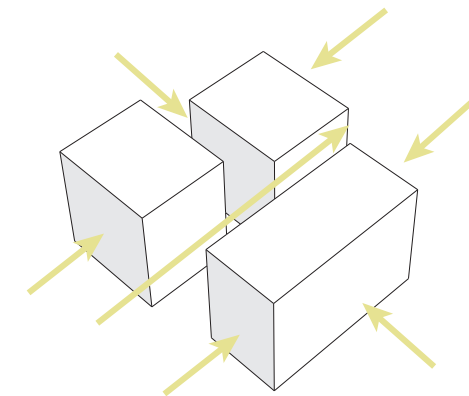
### WAY FINDING

Even though it can look like the building has a messy core, the entrances to the different volumes are in the same place on all floors. The curves of the holes (and walls) are also guiding people to follow them and be lead into the different departments. Inside of the departments the layout is logic and straight.



### SINGLE PATIENT ROOMS

All our patient rooms are single ones. This because it makes it easier for staff to communicate with patients, but also for making the patient feel that they have their own place where they can be alone if they have the need.



### DAYLIGHT

The building is providing daylight in all the rooms where it is required. Especially in rooms where staff or patients are staying in longer periods. This due to the split volumes which creates more façades that can let in day light. The fact that daylight can reduce depression and reduce the care time is the reason. It also helps people to have a regular daily rhythm.

# THEME: HEALTH PROMOTION

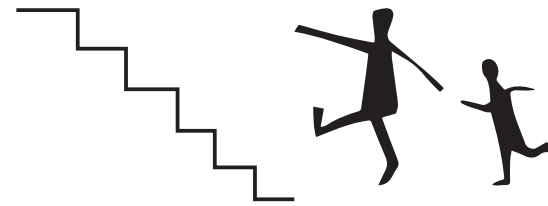
## Green In-between

### REFLECTION

This theme is really of great importance for the society of today. There is a lot of problems with inactive people and decreasing population physical health. Therefore, we think it is good to encourage people to have a healthier life style and move their body. But even more we believe in the other factors for gaining health, like the social part of life and the feeling of being meaningful. More of the mental part of health. The health promotion theme is about all these aspects: mental well-being, daily-functioning, social-participation, meaning-fullness, quality of life and bodily functions.

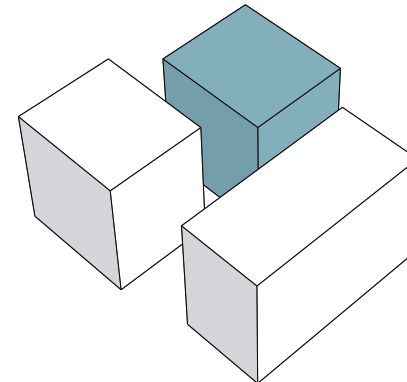
Though most of the examples that were brought up in this course, of how to incorporate this theme into the architectural design, was about the how to encourage the physical health of the users in a building. This we believe can be a problem for people who “shouldn’t be encouraged” to work out even more and harder. For example, if you are having an eating disorder (which someone in this project team has been dealing with previous in life) you would be really triggered if you come to a staircase that says “if you take the stairs you burn this amount of calories instead of no calories if you take the elevator”. This aspect is of great important when designing facilities where people with this type of disorders frequently will be in (in this project we have an ABC-department for example). There could have been more focus on the non-bodily functions aspects of the theme in this course, since we were supposed to design a Psychiatric Hospital.

So, we believe that you really should be careful about what message you want to send out to the building-users and think about who they can be. But we understand though that the physical health could be easier to encourage with architectural design than the social or mental aspect of health. Also, the physical health can help improve the mental health.



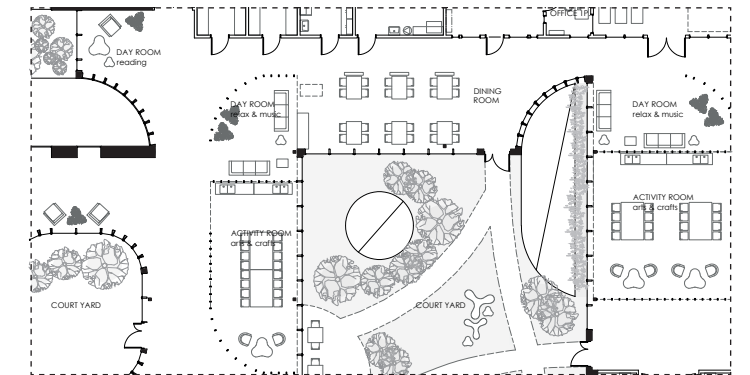
### WALK-ABLE SPACES

The building provides spaces where patient and staff can walk around. Both in the wards and in the public spaces. This is important for the physical health of the individuals.



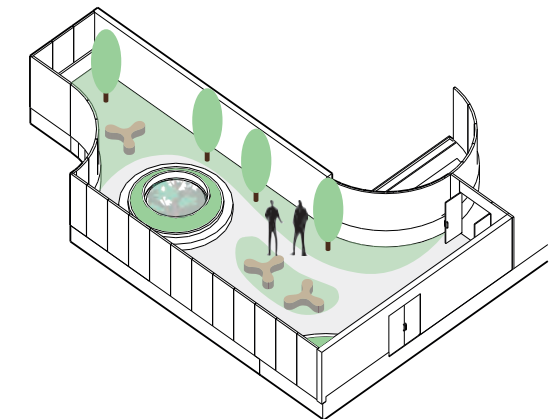
### STAFF HEALTH

In the building all staff relaxing parts are separated from the wards. The staff can then feel that they can calm down and not be where patients are. Also, they can meet colleagues from other departments and perhaps have meaningful social exchanges. The administrative parts are also common for making the work more concentrated and provide room for knowledge exchange.



### SOCIAL AREAS

It possible to choose in the wards how social you want to be, as a patient. There are smaller day rooms, larger ones and the own room. This for making patients to have a more social life step by step. By having a more social life people can have more meaningful conversations and feel part of a community. This is important for individual's health.



### OUTDOOR ACTIVITY

Different kinds of outdoor gardens are located in obvious positions. In this way people in the building will be encouraged to join in outdoor activities.



# THEME: FUTURE PROOFING

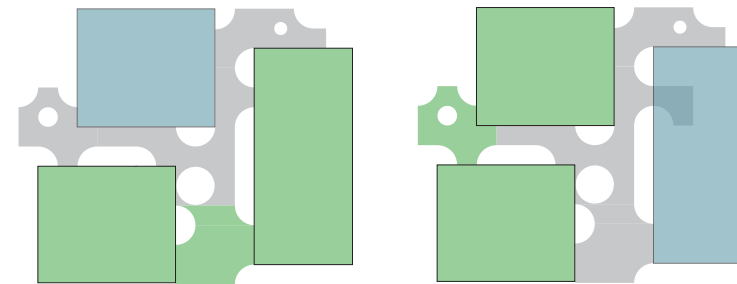
## Green In-between

### REFLECTION

Flexibility is important and necessary when building new, but it does also feel difficult to define. It is something that we as architects need to be better at consider when designing. The future proofing can be both big and small things. It is really up to creative thinking. Although it is hard (more likely impossible) to predict the future.

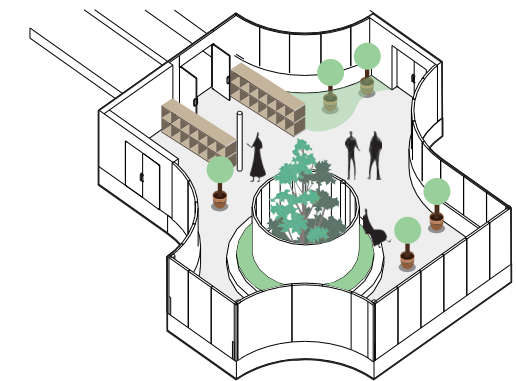
There is also a balance between future proofing and economy, but also generality. Generality can be good, but too general can be waste of money or not suitable for the use of today (or any good use). It can also be the wrong type of generality. Maybe the general solution works for one type of project and not in another.

But future proofing is more than flexible solutions in construction. We think it also goes hand in hand with sustainability and resilience. To be able to cope with changes in climate and society.



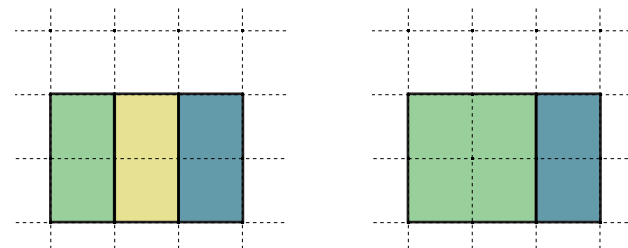
### FLEXIBLE VOLUMES

Since the building consists of three different volumes they can be combined in various ways. This allows the departments to change the area/form they take up in the future.



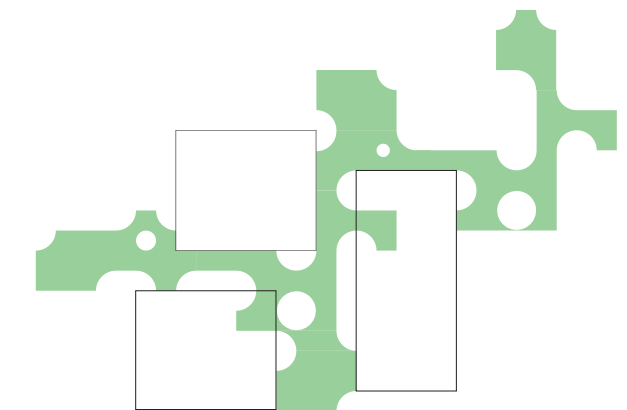
### GREEN INDOOR SPACES

The building provides "indoor outdoor spaces", like winter-gardens and greenhouses. This makes the building likely to provide green spaces even though the weather is bad. These bad weathers can be even worse in the future.



### FLEXIBLE CONSTRUCTION

The building has a general construction grid with pillars, no load bearing walls. The measurements of it allows rooms to change in the future. Two rooms can become three in the future, for example. This allows the departments to change the function and sizes of the rooms for future needs.



### FUTURE EXTENSION AND CONNECTION

The flexible public spaces have great possibilities for expansion. In the future, if the psychiatric hospital going to have more communication with other departments and the public, it can be easily opened and expanded from the connecting parts without affecting the independence of the building.

# THEME: SUSTAINABILITY

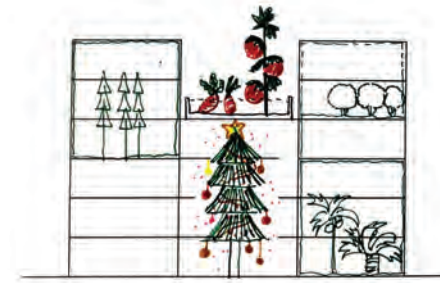
## Green In-between

### REFLECTION

The focus in this course haven't been so strong on this theme. There has been too little time to go into details about sustainable solutions and design. The other focuses have been many, new and complex. This is absolutely unfortunate because the sustainability aspects are the most important to work with, in any profession. The ideas we have about how our building can act and be sustainable is quite brief and is mostly about ecological sustainability, such as material choices, energy sources and biodiversity.

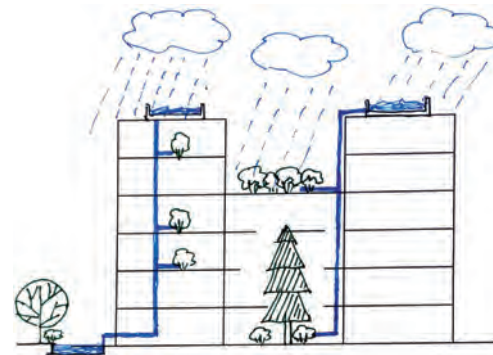
We of course believe that sustainability is more than these ideas. For making a project sustainable you need to work with it more deeply into details and come up with real solutions that are incorporated in the overall design. It is also important to take in the social and economic aspects of sustainability when working with architecture.

As we have mentioned before, sustainability aspects sometimes go hand in hand with future proofing. For example, aiming for a flexible design and to create as good opportunities as possible for future adapting. Which at the same time (hopefully) means that less material will be wasted during the building's existence.



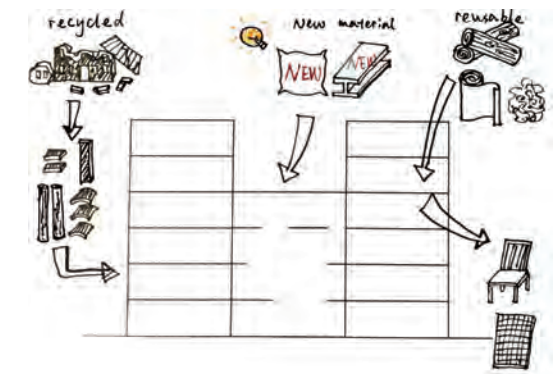
### VARIOUS GREENERY/BIODIVERSITY

The building provides different types of plants and various kinds of ways to incorporate the greenery in the design. There are possibilities for having winter green gardens and the plants can act as living filters for cleaning the air inside of the building.



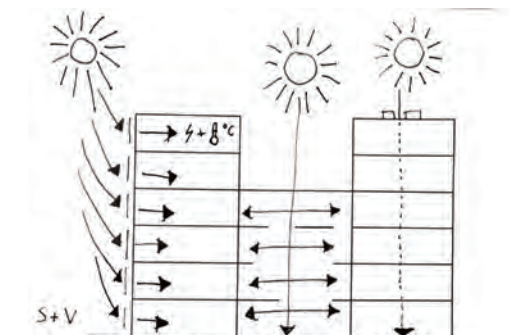
### WATER COLLECTION

There is an idea that the building could collect rain water on the roof so it can provide all the plants water in a natural way.



### RE-USABLE MATERIAL

The idea is that the building material choices in this project should be either re-used or re-usable. This for consume less energy resources. There is also an idea of having a construction that can be disassembled so the building doesn't need to be demolished completely in the future.



### SUN LIGHT & ENERGY

The introduction of sufficient sunlight through transparent materials and light shafts etc. can effectively save artificial lighting energy. Glass greenhouses make indoor space warmer and make sunlight using more efficient. On the roof spaces solar PV's and collectors can be placed in the future.