SYMBOL

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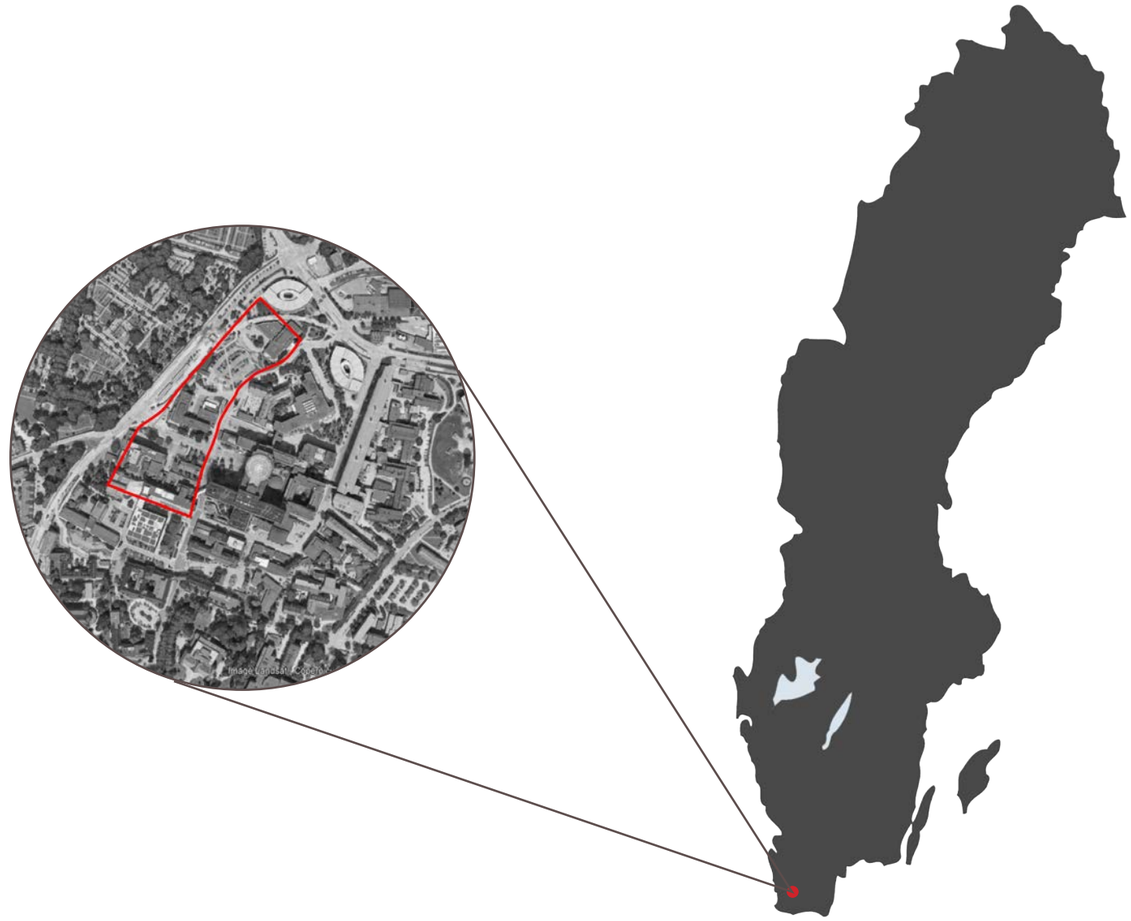
ARK263 - Healthcare architecture - 2019

CONTENT

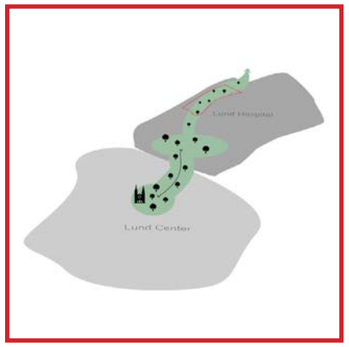
ARK263- HEALTHCARE ARCHITECTURE

This year's healthcare studio will focus on the design of Skånes University Hospital (SUS). The project site is located north of Lund city center and is an integrated and important part of the city's identity and urban fabric. The clients are Region Skåne and Lund University/Akademiska Hus. The vision is to create a lively, diverse and dense precinct that supports approximately 104,000 m2 of highly specialised healthcare facilities alongside research and education buildings. Strategic masterplanning of this area is one key aspect of the clients' brief and a sustainable approach to urban planning should reflect the qualities of Lund's environmental, historical, cultural and social values so as to create a safe and accessible meeting place for the entire community. The other key aspect is addressing a complex hospital program comprising: an operation department, an intensive care unit, inpatient wards, emergency department and additional support functions



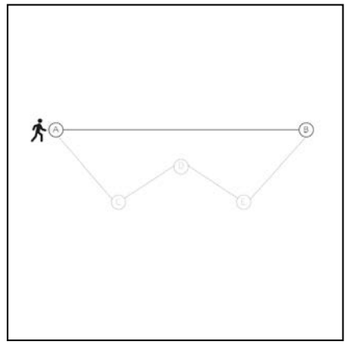
DESIGN STRATEGIES

SITE AND CONTEXT



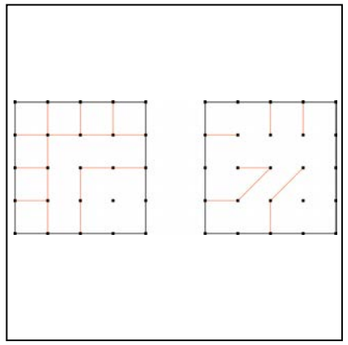
Create a connection with the center of Lund and the hospital, continuing the green spaces.

BRIEF AND LOGISTICS



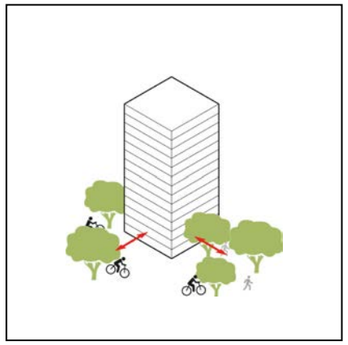
A simple and easy orientation through the spaces.

SUSTAINABILITY AND FUTURE PROOFING

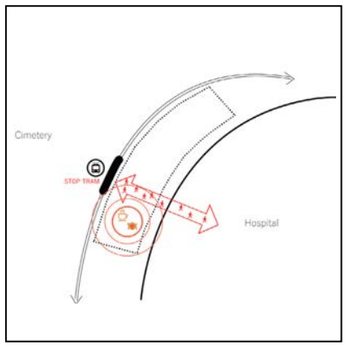


Create a main structural grid that can facilitate the organization of spaces according to the program.

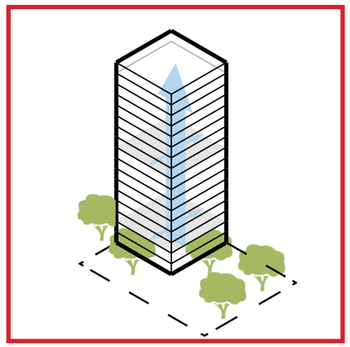
HEALTH PROMOTIVE ARCHITECTURE



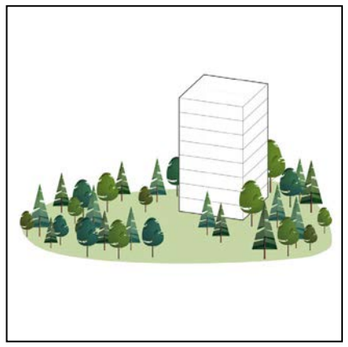
The interior spaces are related to the exterior spaces.



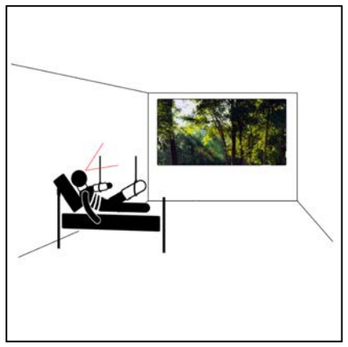
Create a real entrance for the tram stop, and facilitate its access.



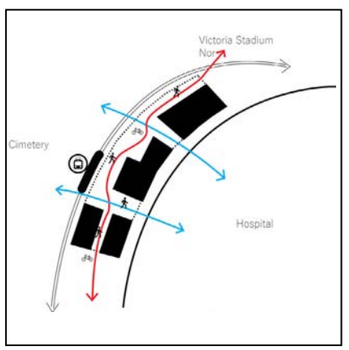
Minimize the footprint of buildings, by promoting vertical circulation.



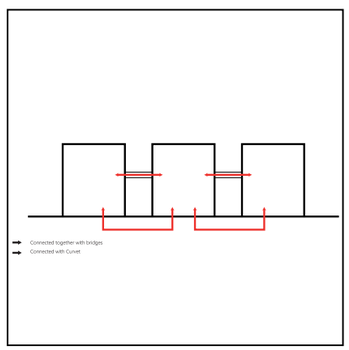
Develop and give real importance to green spaces.



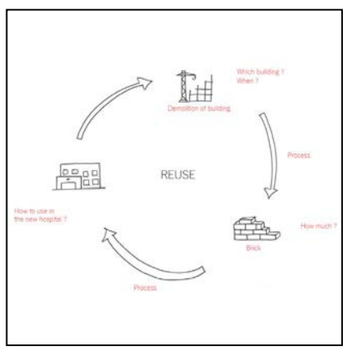
Provide a pleasant view for patient rooms, to promote their healing.



The site is no longer a barrier, but a space that can be crossed.



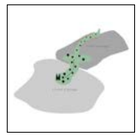
The buildings are linked together by bridges, to allow good circulation.



The bricks used for the construction of old buildings are used in the construction of the new project.

The park offers a multitude of spaces.

MAIN STRATEGIES

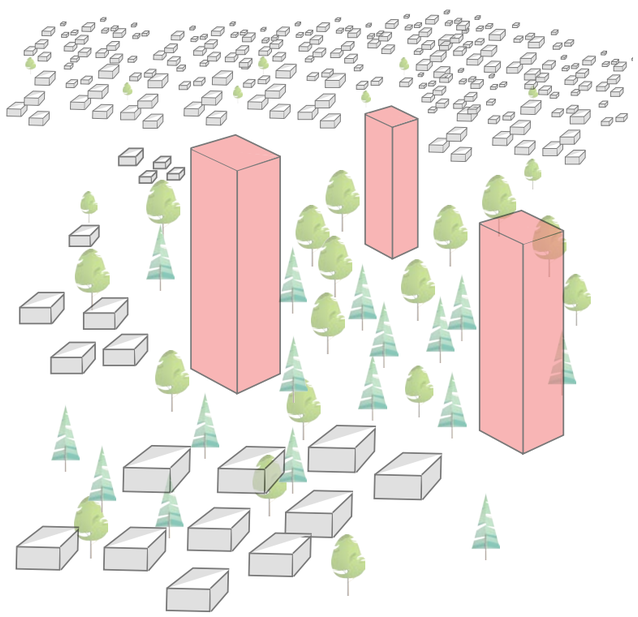


CREATE A CONNECTION WITH THE CENTER

Today, the link between central and northern Lund is not clearly legible. However, in the near future, the Lund hospital center and the north of the city tend to become an important space for the development of the city and the north of the country.
So we want to recreate a stronger and clearer link between the center and the north of the city by connecting them to each other, thanks to a green promenade comprising pedestrian and cycling axes.

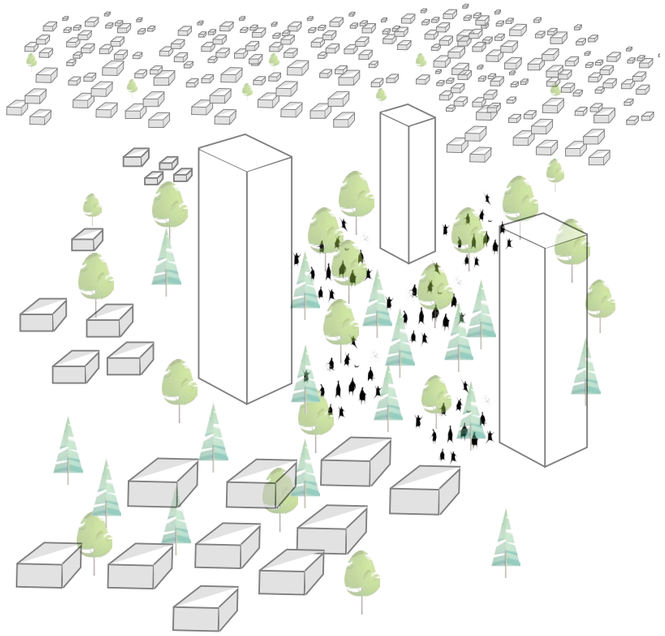
MINIMIZE THE FOOTPRINT OF BUILDINGS, BY PROMOTING VERTICAL CIRCULATION

In relation to the first strategy, which is to recreate a north-south link, this strategy proposes to have the smallest built footprint, in order to recreate a quality park around the new hospital. having to build high and develop the vertical connections.
The program is very important, the height of the project is substantial, compared to the other buildings in the city: this hospital will therefore be visible from all over the city and will therefore become one of the symbols of Lund.



THE PARK OFFERS A MULTITUDE OF SPACES

The footprint of the building being very small, the site has a very large percentage of undeveloped space to offer to the hospital.This new park, offers the hospital and the city of Lund, many activities, in order to recreate a link with the outdoors and nature.
For this, the park will offer play areas next to the children's hospital. Tables, seats, to eat and enjoy a green exterior, to create an active place.



MASTER PLAN

SITE SURFACE
32 205 sqm

BUILT SURFACE
9860 sqm

RATIO / POURCENTAGE
30 %

SCALE : 1/1000

PARK CONCEPT

1

Fruktträdgården
Area for urban farming, including fruit trees and small scale planting.

2

Ankdammen
Small pond for leisure and play.

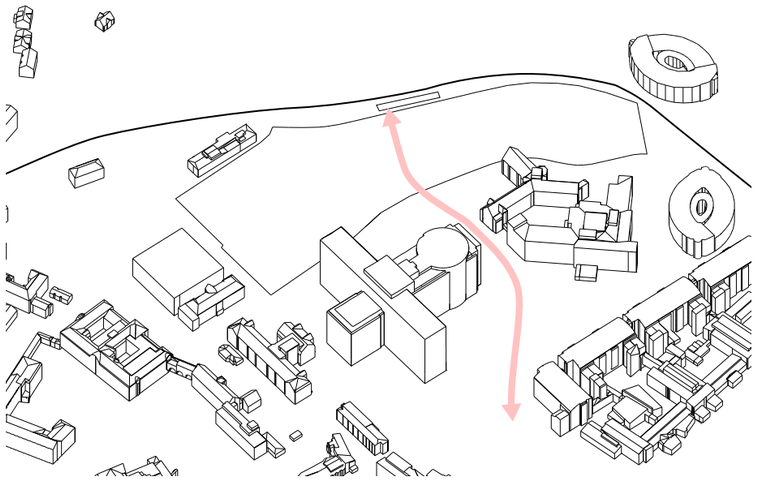
3

Lekparken
Play and sports area for both children and adults, including waterplay, playgrounds, outdoor gym etc.

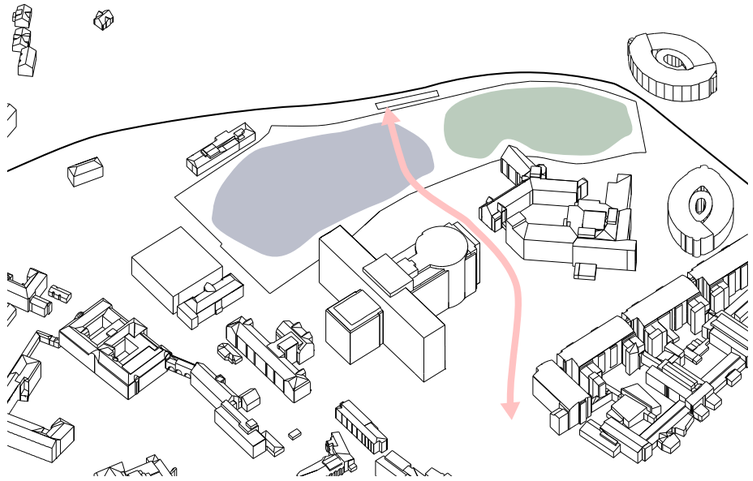
4

Blåbärsskogen
Forest area between the highest towers. Bridges pass through a forest out of pine trees and blueberry bushes.

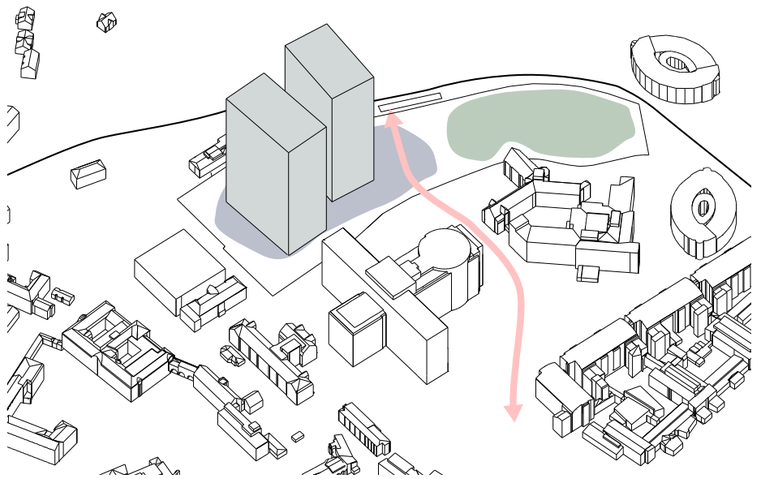
IMPLANTATION CONCEPT



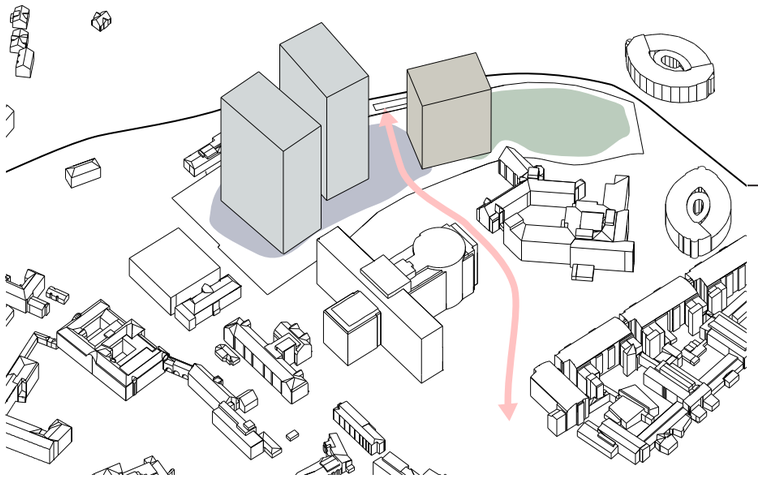
We would like to create a link between the tram stop and the road of knowledge.



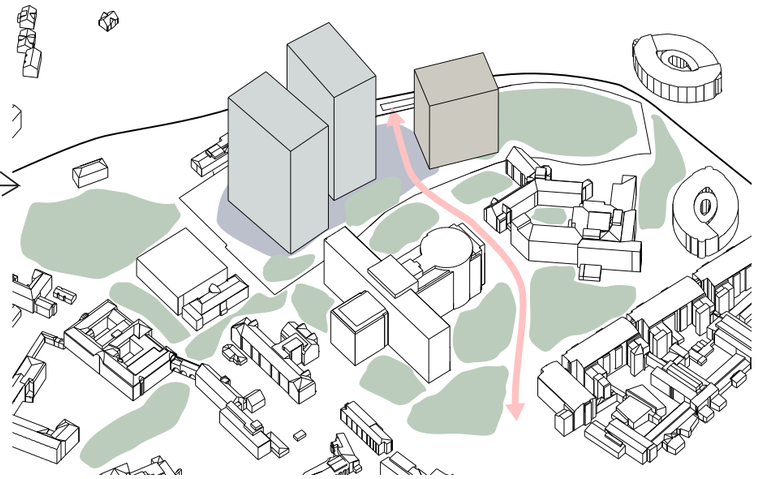
To the south we would like to put the whole program and to the north of the axis we would like to have a big public park.



In order to facilitate the orientation in the plot we would like to create in the south of the plot all the program related to the Hot floor, for this we would like to create 2 towers south of the axis.

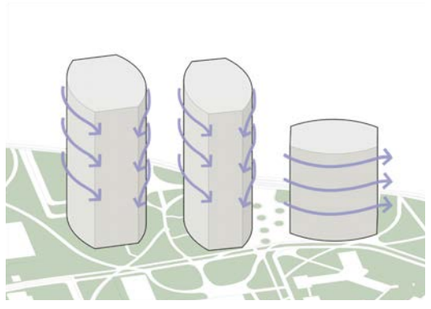


To the north of the axis a third tower is created for the mother and child programme which is linked to the children's hospital.

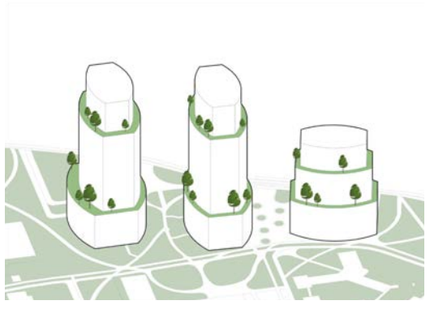


In order to recreate a link with the city we would like to put green spaces all over the hospital area.

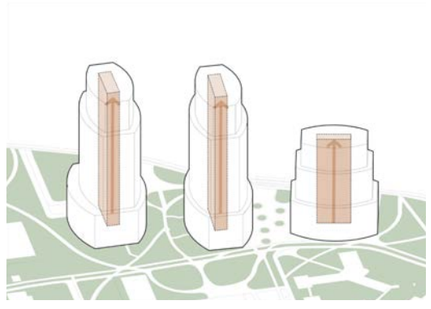
BUILDING CONCEPT



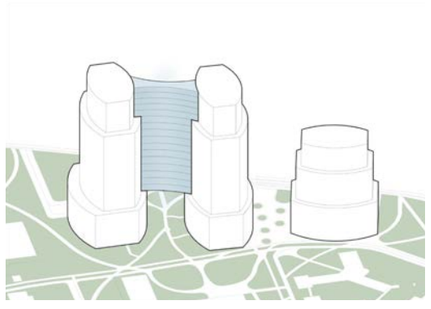
Shape
Rounded shape adapted to the wind and to facilitate movement on the ground.



Terraces
Slimming the volume and provide outdoor spaces for patients and staff.



Core
Central core with all the vertical connections, improve wayfinding and efficiency.



Bridge
Connecting the towers with a glass bridge, for horizontal flows between units of the hot floor.

Promenade
Outdoor space for patients and staff which encourage activity and movement. A tree top promenade.

PROGRAM LAYOUT

HELIPAD +110m

22th FLOOR +105m
Infection Ward - 3600 sqm

21th FLOOR +100m
Ward 5 - 3600 sqm

20th FLOOR +95m
Ward 4 - 3600 sqm

19th FLOOR +90m
Ward 2 - 3600 sqm

18th FLOOR +85m
Ward 1 - 3600 sqm

17th FLOOR +80m
Technical floor - 2800 sqm

16th FLOOR +75m
ICU - 2800 sqm
Vascular surgery - 2800 sqm

15th FLOOR +70m
ICU - 2800 sqm
Neuro surgery - 2800 sqm

14th FLOOR +65m
Technical floor - 2800 sqm

13th FLOOR +60m
ICU - 2800 sqm
Thorax surgery - 2800 sqm

12th FLOOR +55m
ICU
Central operation

11th FLOOR +50m
ICU - 3200 sqm
Central operation - 3200 sqm

10th FLOOR +45m
Technical floor - 3200 sqm
Central operation - 3200 sqm

9th FLOOR +40m
Imaging & Diagnostics - 3200sqm
Technical floor - 3200 sqm

8th FLOOR +35m
Imaging & Diagnostics - 3200 sqm

7th FLOOR +30m
Imaging & Diagnostics - 3200 sqm

6th FLOOR +25m
Technical floor - 3200 sqm

5th FLOOR +20m - PROMENADE
Imaging & Diagnostics - 3500 sqm

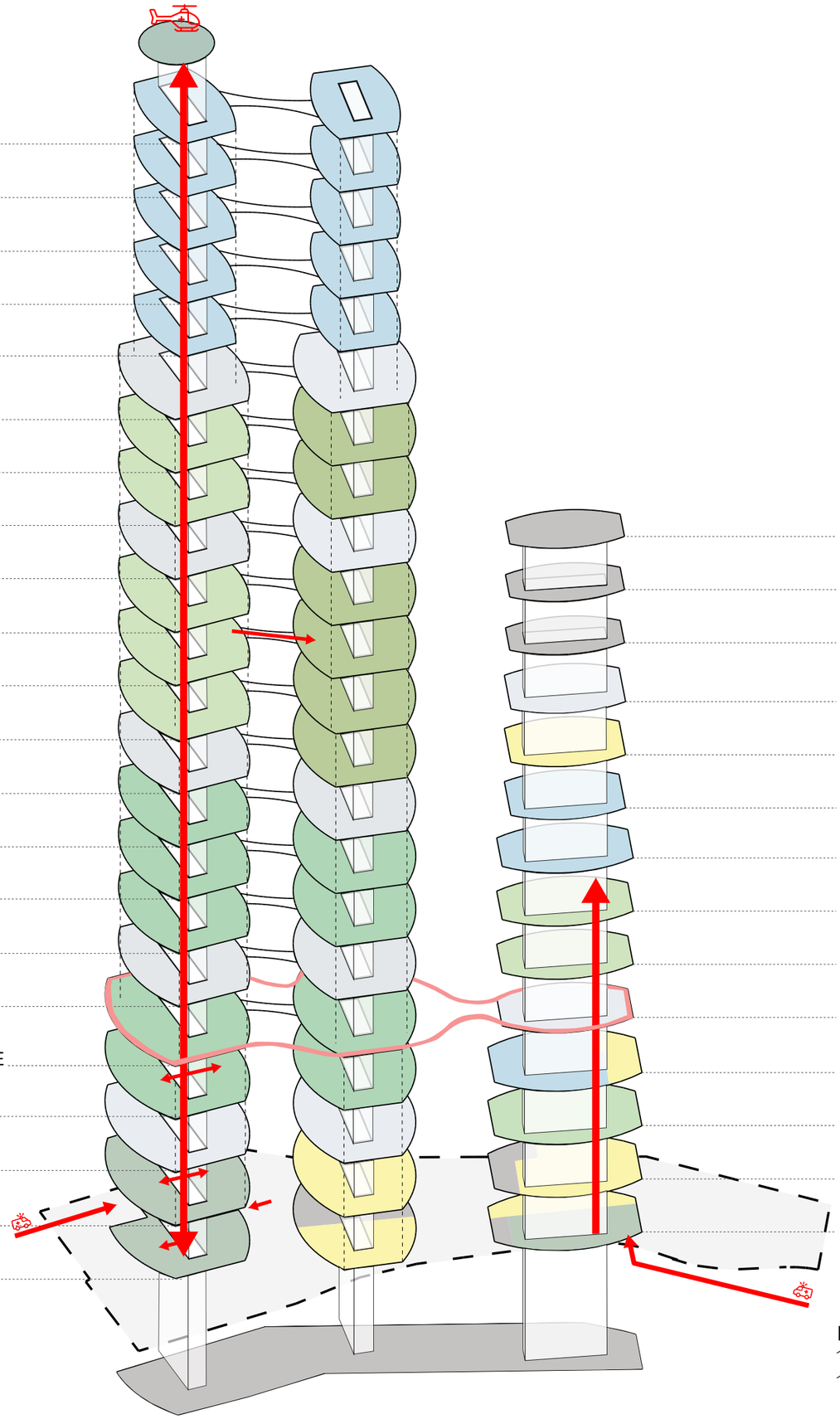
4th FLOOR +15m
Imaging & Diagnostics - 3500 sqm

3rd FLOOR +10m
Technical floor - 3500 sqm

2nd FLOOR +5m
Emergency - 3800 sqm
Kidney med - 3330 sqm

1st FLOOR +0m
Emergency - 3500 sqm
Entry - 1700 sqm
Kidney med - 1800 sqm

UNDERGROUND -5m
Dressing room
Storage
Cyclotron



14th FLOOR +65m
Patient hotel - 1406 sqm

13th FLOOR +60m
Patient hotel - 1406 sqm

12th FLOOR +55m
Patient hotel - 1406 sqm

11th FLOOR +50m
Technical floor - 1887 sqm

10th FLOOR +45m
Specialized mothercare - 1887 sqm

9th FLOOR +40m
Perinatal - 1887 sqm

8th FLOOR +35m
Perinatal - 2077 sqm

7th FLOOR +30m
Neonatal ICU - 2077 sqm

6th FLOOR +25m
Neonatal ICU - 2077 sqm

5th FLOOR +20m
Technical floor - 2077 sqm

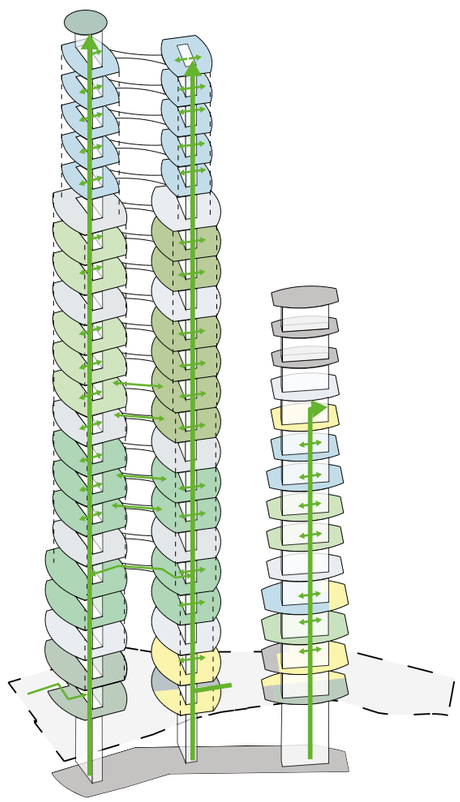
4th FLOOR +15m
Delivery surgery - 935 sqm
Delivery ward - 1976 sqm

3rd FLOOR +10m
Gynecology surgery - 2813 sqm

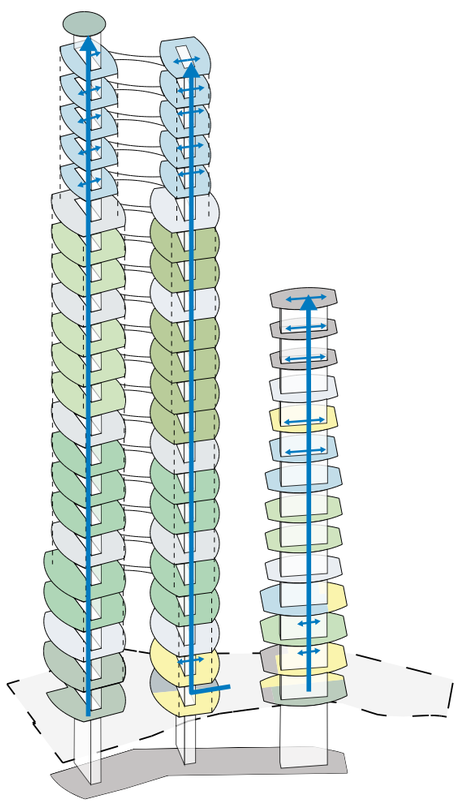
2nd FLOOR +5m
Research and teatching - 930 sqm
Gynecology ward - 1800 sqm

1st FLOOR +0m
Emergency - 1600 sqm
Research and teatching - 466 sqm
Primary health care - 820 sqm

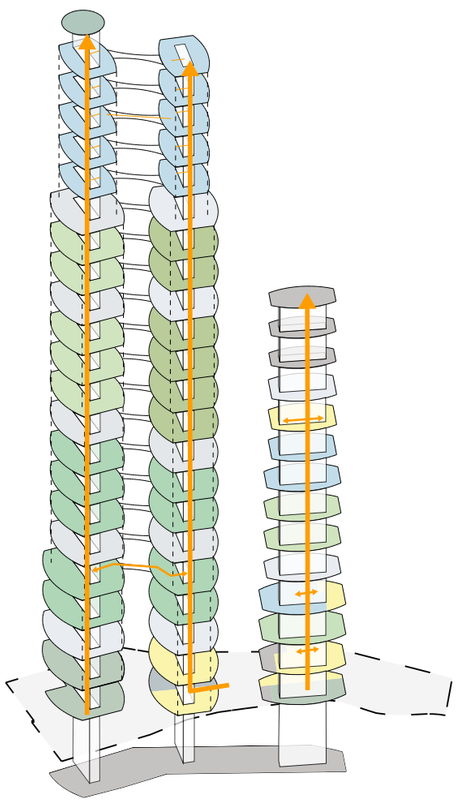
Emergency flows
1 special for the ward infection
1 special for the helipad



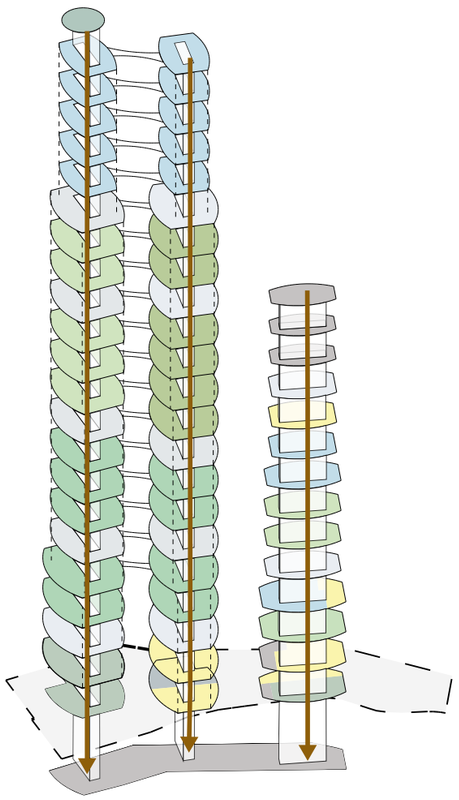
Staff flows
5 elevators per tower



Outpatients/Visitors flows
2 elevators per tower

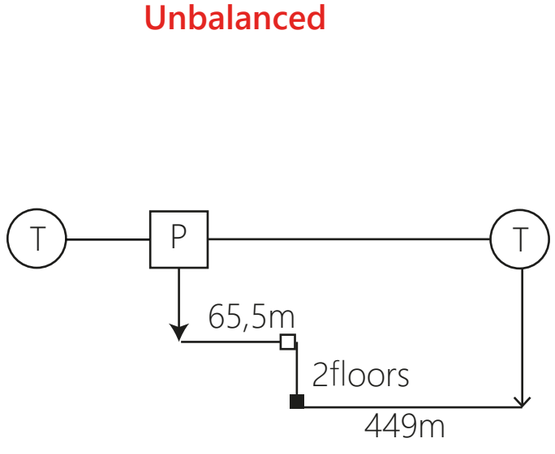


Patients in bed flows
3 elevators per tower

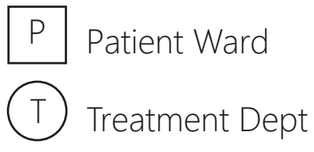


Goods flows
2 elevators per tower

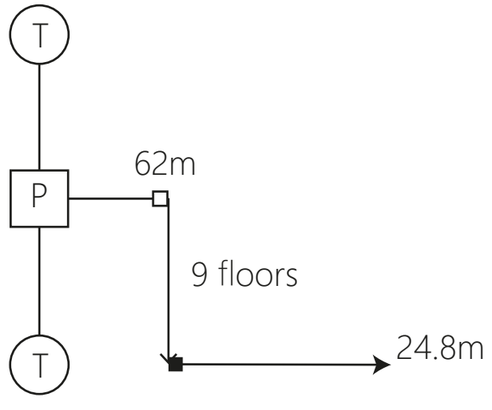
Unbalanced



9,15 minutes



Balanced



2,12 minutes

In the horizontal hospital, the distance between the patient service and the medical services is often extremely long. Patients will be tired and sometimes they feel like they are in a maze.

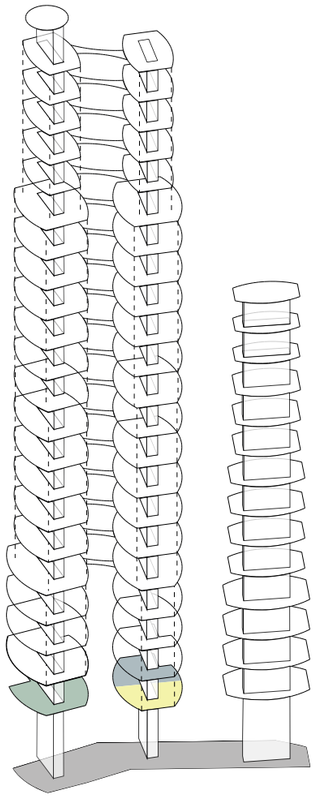
If we compare the distances travelled in a hospital between a patient's room and the examination area, we find that in a horizontal hospital, the distances will be greater and the time required to travel from point A to point B will be longer.

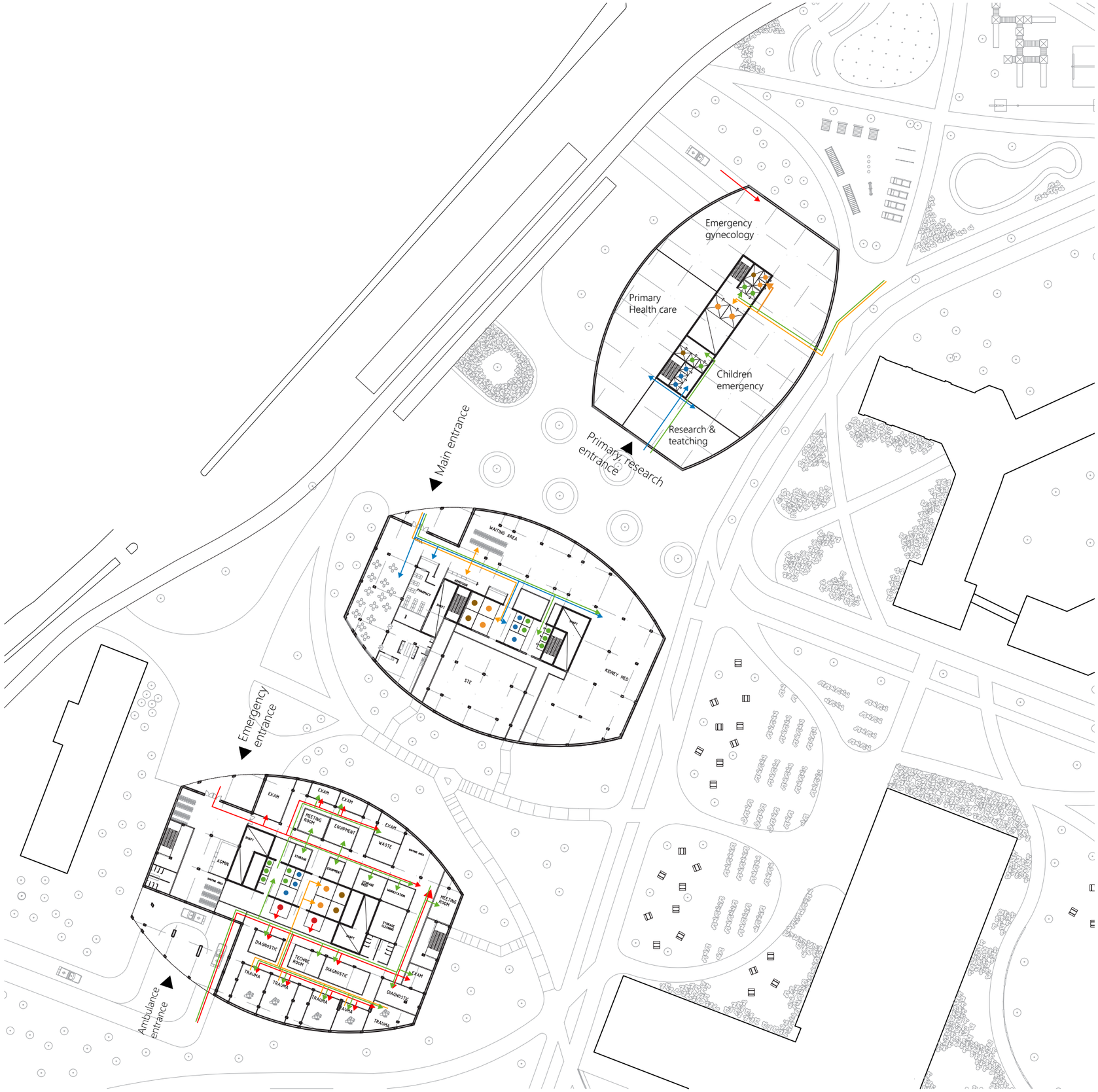
GROUND FLOOR

The site is divided into 2 parts: the northern part hosts green spaces, games,..., in the southern part is located the whole program. This is divided equally into two parts, one part dedicated to the hot floor in the 2 towers further south and in the third tower is the entire mother and child program. In order to facilitate the orientation of passers-by, it was decided to place the main entrance of the hospital in the tower closest to the tram stop, in the centre of the site. The emergency entrance is located in the second main tower further south of the plot, more connected to Blocket.

The main entrance is accessible from the tram. This entrance is partly double height. In this entrance there is the reception of the whole hospital, a restaurant and the entrance of the kidney med. To mark the entrance to the towers we decided to make porches, these porches are double height for the emergency entrance and the main entrance. A simple porch marks the entrance to the emergency room for ambulances. The main entrance is double height to provide a large space for patients, visitors. This entrance overlooks a park. We have divided the space into three parts. A first part for the commercial area with a restaurant accessible to all, a second part for admission to the hospital and finally a third part for the Kidney Med. To give a warm touch to this entrance we have decided to use wood.

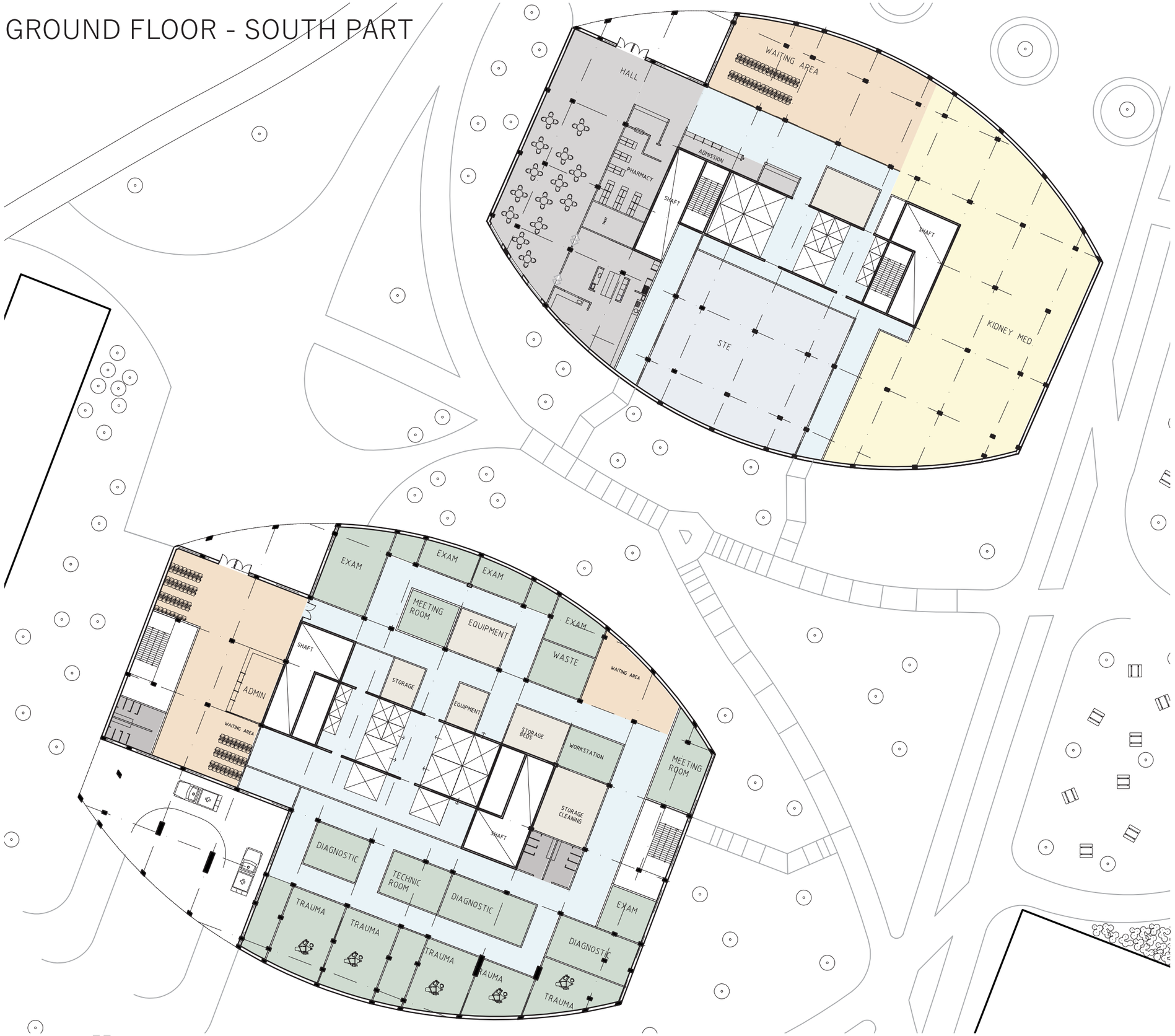
The ambulance entrance is from the south of the plot and the pedestrian entrance is from the north side of the tower, more connected with the rest of the city. For emergencies the program is also divided into several parts. A first part for the reception and admission of emergencies, a second part for the entrance of ambulances and trauma rooms and finally a third part for treatment and examination rooms.





SCALE : 1/1000

GROUND FLOOR - SOUTH PART



SCALE : 1/500

Emergency

Patient in bed

Outpatients/visitors

Staff

Goods

STAFF

STORAGE

STE

CORRIDORS

COMMON ROOMS / WAITING AREA

KIDNEY

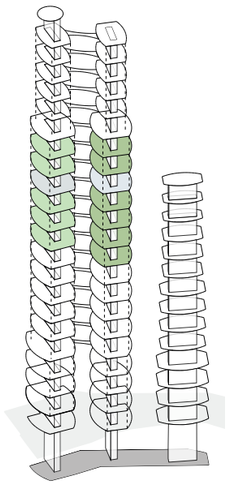
EMERGENCY

VIEW MAIN ENTRANCE FROM THE TRAM STATION

VIEW HALL - MAIN ENTRANCE

OPERATION / ICU PLAN

The operation and ICU are separated onto the two hot floor towers, directly linked through the bridge for fast and convenient access. Each of the united are arranged to house support functions (storage, disinfection, WC) around the dark core and main functions (intensive care rooms, operation theaters, post- and preop, offices, kitchens) along the facade to maximise daylight.
This plan shows half of the central operation / anesthesia unit with 7 operating theaters and one hybrid theater, as well as the general ICU with 12 intensive care rooms and the specialized ICU with 4 intensive care rooms. Directly located by the bridge there is a reception for people moving between the unites as well as for visitors of the patients in ICU.

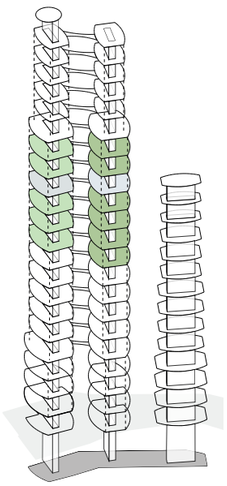


Emergency
Patient in bed
Outpatients/visitors
Staff
Goods

STAFF
STORAGE
WC
CORRIDORS
COMMON ROOMS / WAITING AREA
ICU
OPERATION

SCALE : 1/500

OPERATION / ICU - FLOW PLAN



- Emergency
- Patient in bed
- Outpatients/visitors
- Staff
- Goods

SCALE : 1/500

OPERATION PLAN

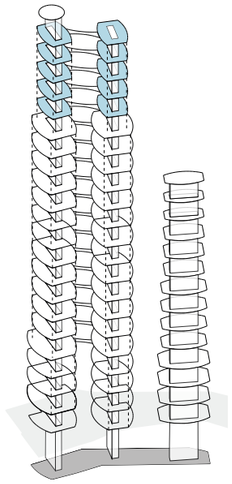
SCALE : 1/250

ICU PLAN

SCALE : 1/250

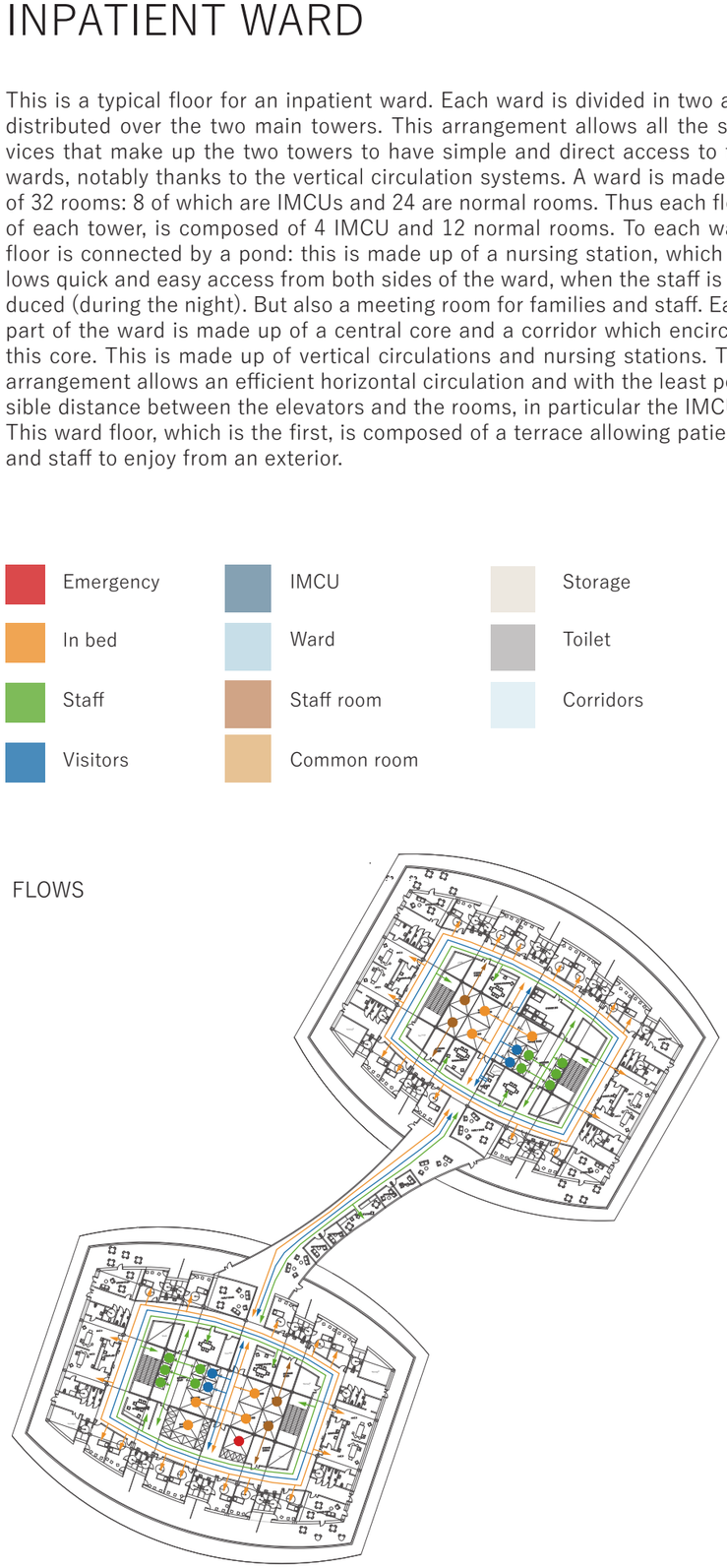
INPATIENT WARD

This is a typical floor for an inpatient ward. Each ward is divided in two and distributed over the two main towers. This arrangement allows all the services that make up the two towers to have simple and direct access to the wards, notably thanks to the vertical circulation systems. A ward is made up of 32 rooms: 8 of which are IMCUs and 24 are normal rooms. Thus each floor of each tower, is composed of 4 IMCU and 12 normal rooms. To each ward floor is connected by a pond: this is made up of a nursing station, which allows quick and easy access from both sides of the ward, when the staff is reduced (during the night). But also a meeting room for families and staff. Each part of the ward is made up of a central core and a corridor which encircles this core. This is made up of vertical circulations and nursing stations. This arrangement allows an efficient horizontal circulation and with the least possible distance between the elevators and the rooms, in particular the IMCUs. This ward floor, which is the first, is composed of a terrace allowing patients and staff to enjoy from an exterior.



- Emergency
- In bed
- Staff
- Visitors
- IMCU
- Ward
- Staff room
- Common room
- Storage
- Toilet
- Corridors

FLOWS



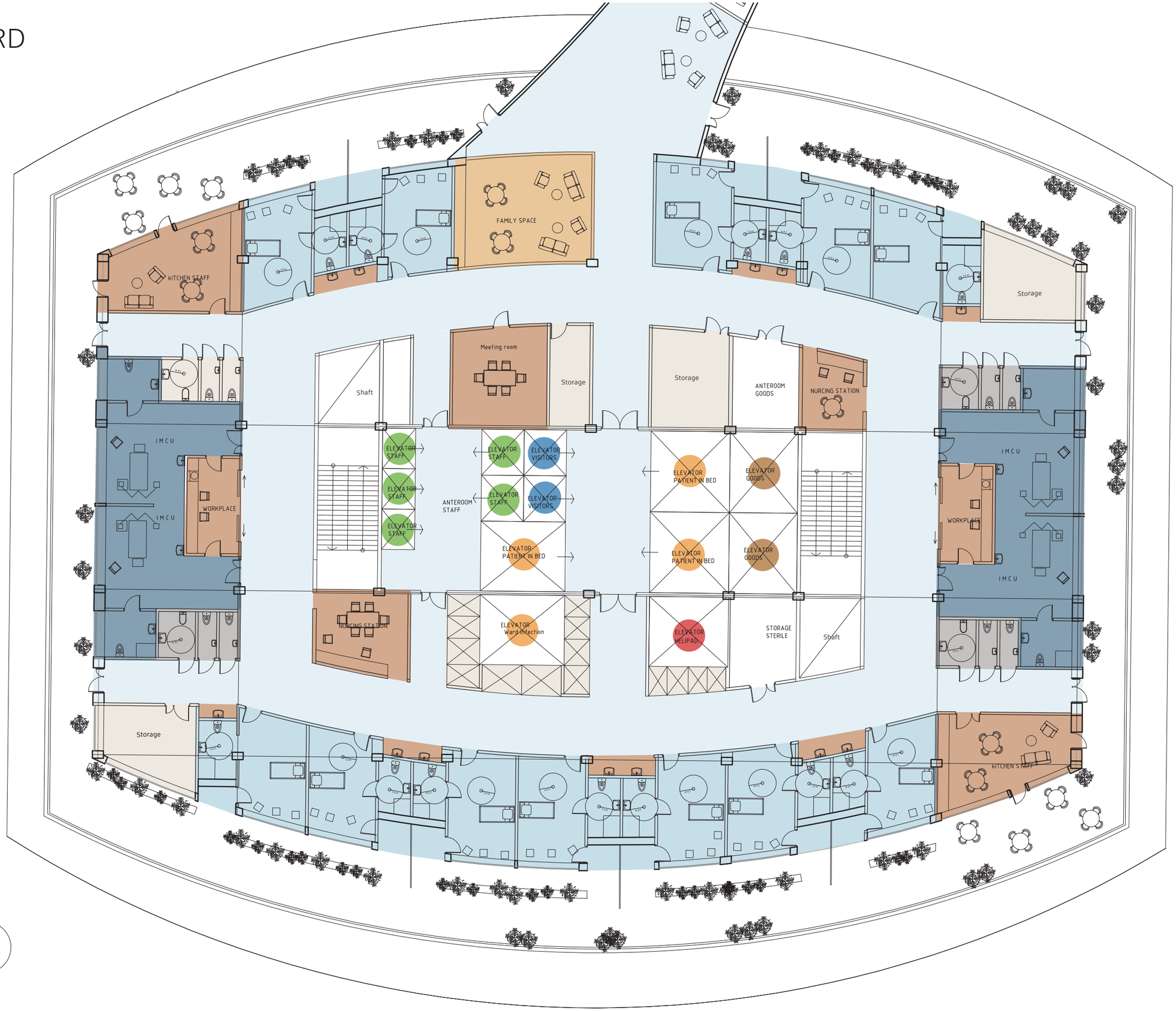
SCALE : 1/500

INPATIENT WARD

Goods
Emergency
In bed
Staff
Visitors

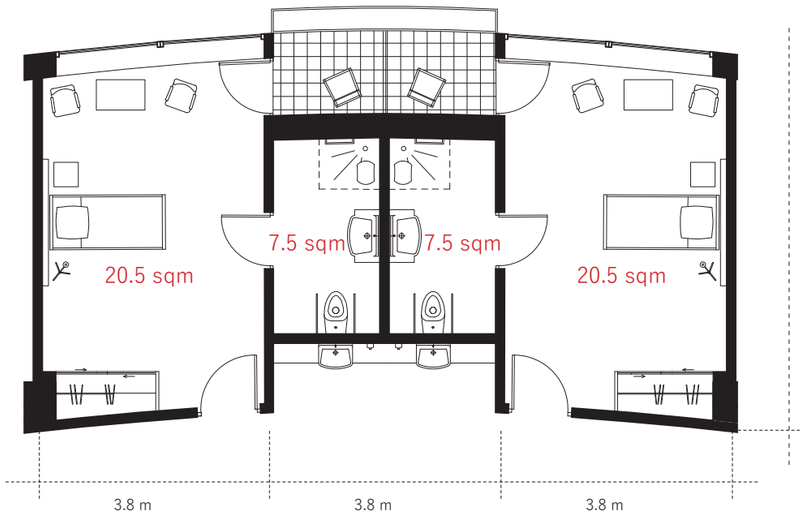
IMCU
Ward
Staff room
Common room

Storage
Toilet
Corridors

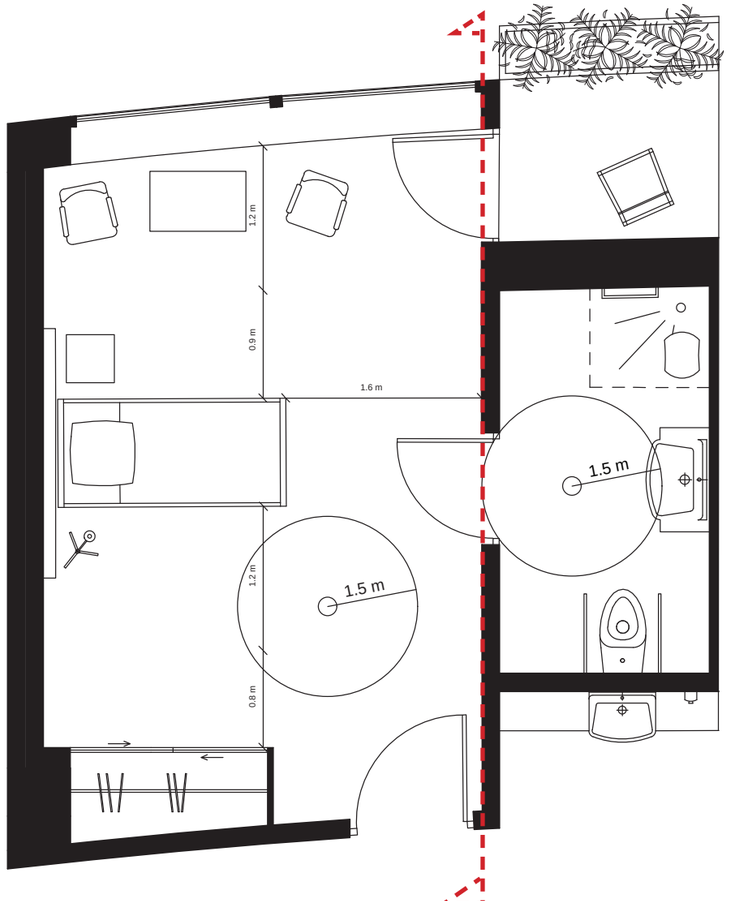


SCALE : 1/200

PATIENT ROOM



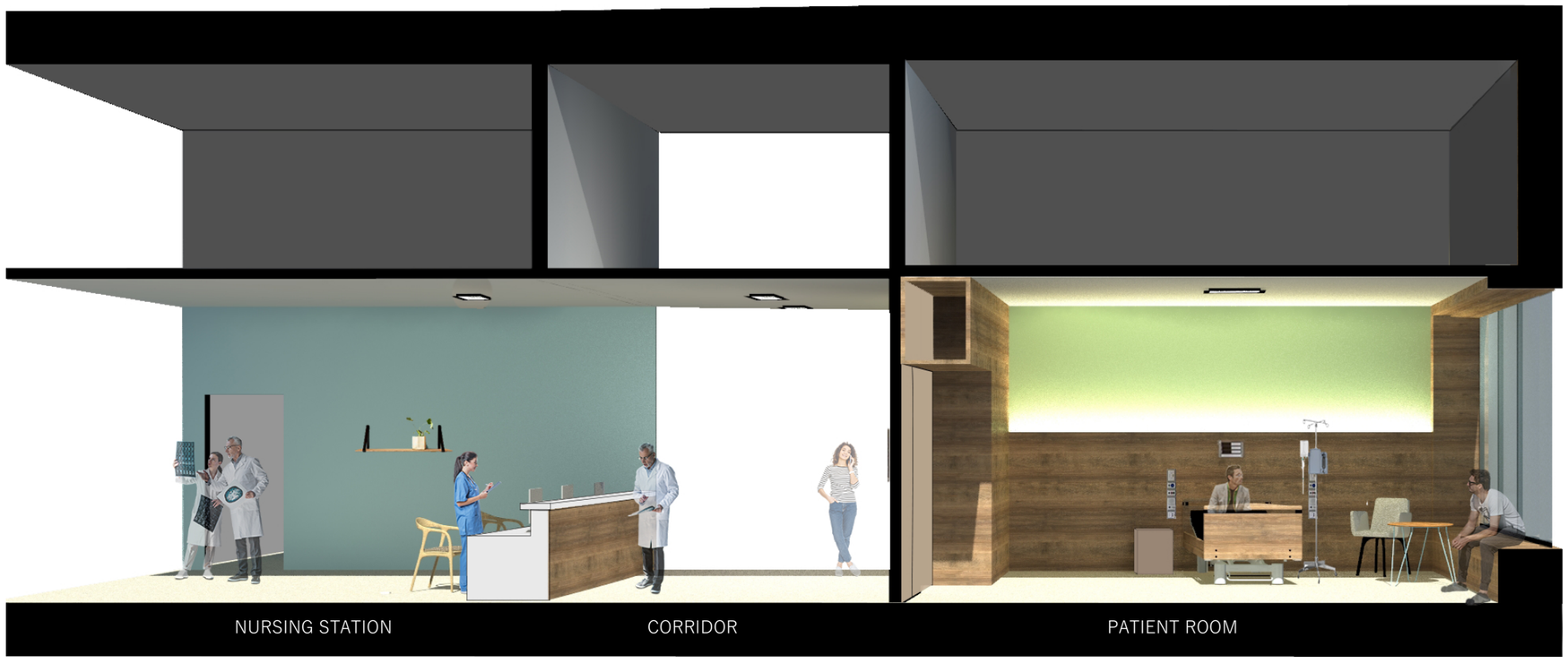
SCALE : 1/100



SCALE : 1/50

SCALE : 1/50

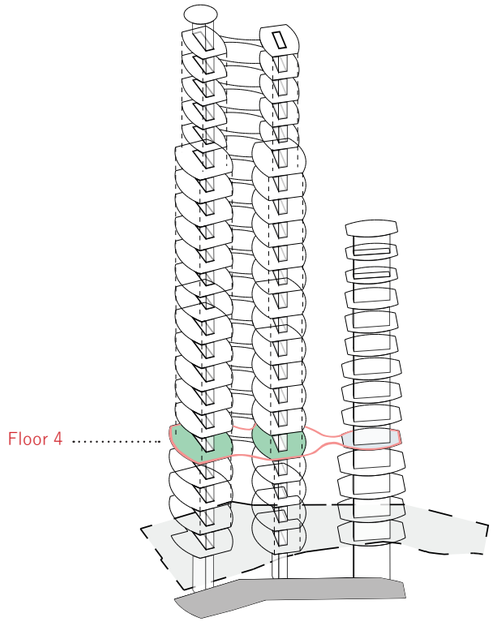
The rooms are organized by two. This allows for a central space between two bedrooms. This consists of a first space accessible from the corridor, allowing staff to wash their hands and prepare the various treatments before entering the room. Then we have two bathrooms. And finally a balcony with a vegetated bodyguard. This balcony allows the patient and their family to be able to go out and enjoy an incredible panorama of the city of Lund.
Each bedroom is organized to provide the best possible comfort to the patient and family: a large closet next to entry is available for the patient's belongings.
The window space is also very important: for this, each bedroom has a large window, which provides lots of light. This large window also allows the patient to observe the panorama from his bed. The window is also an important space for the family: for this, the window sill is also a space where one can sit and observe view.
The materials and the light that make up each room have also been chosen to bring maximum patient well-being: wood to be warm, bright paintings.

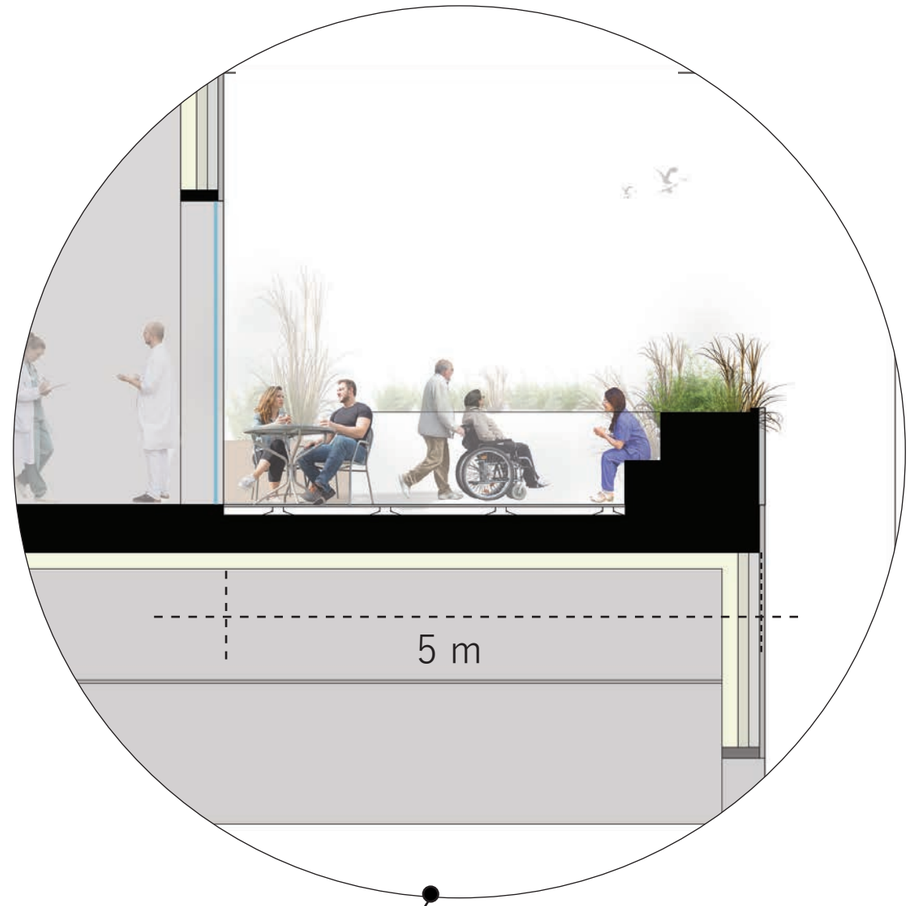


VIEW PATIENT ROOM

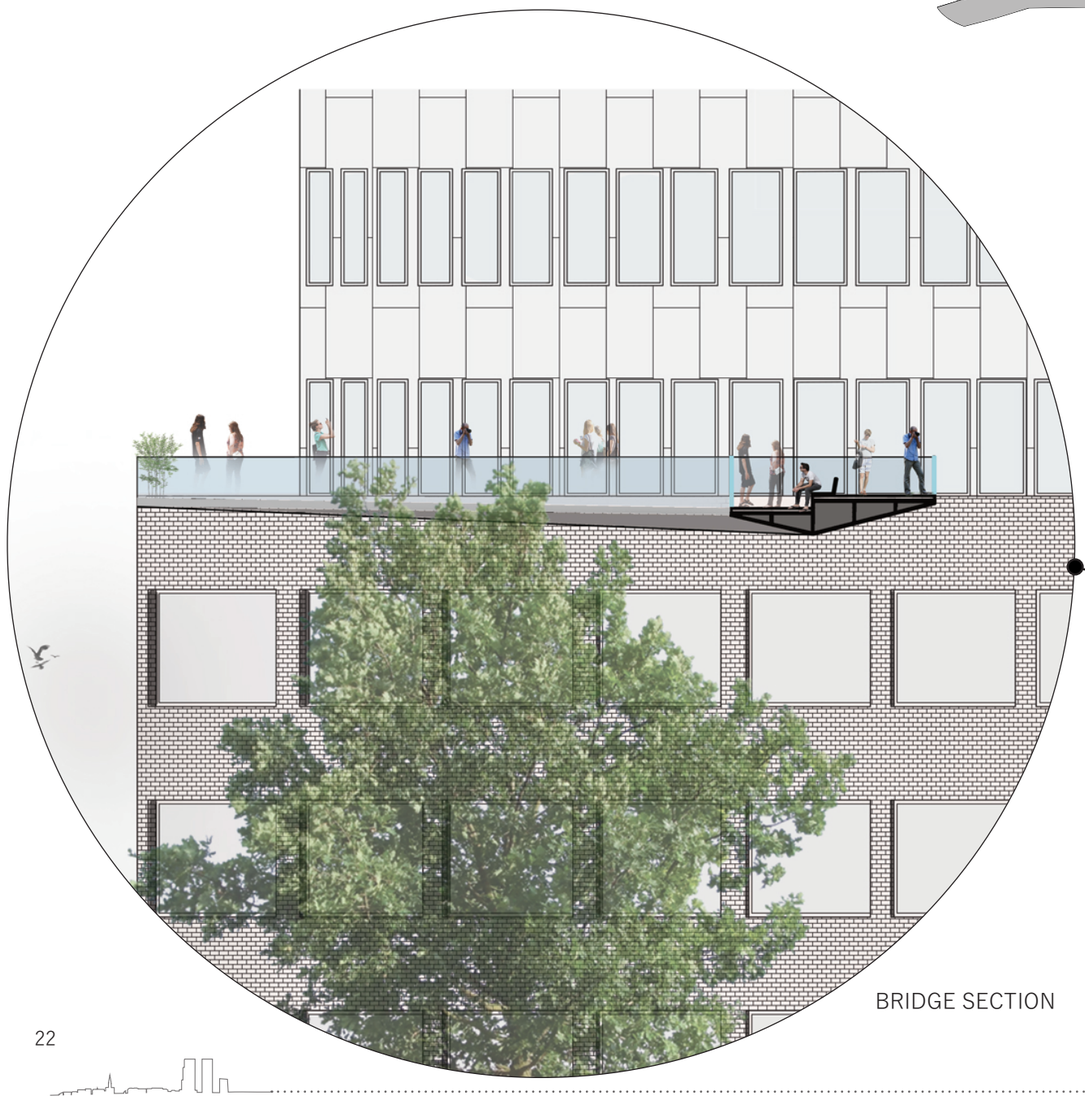
THE AERIAL PROMENADE

The walk is private, and is reserved for the hospital. Located on the fourth floor, above the foliage of the trees, it offers the hospital an outdoor space parallel to the park, to offer another view of the park. The walk is divided into two parts: a part located around the towers. This part is made up of benches and tables. The second part connects the towers together, and therefore takes the form of walkways.

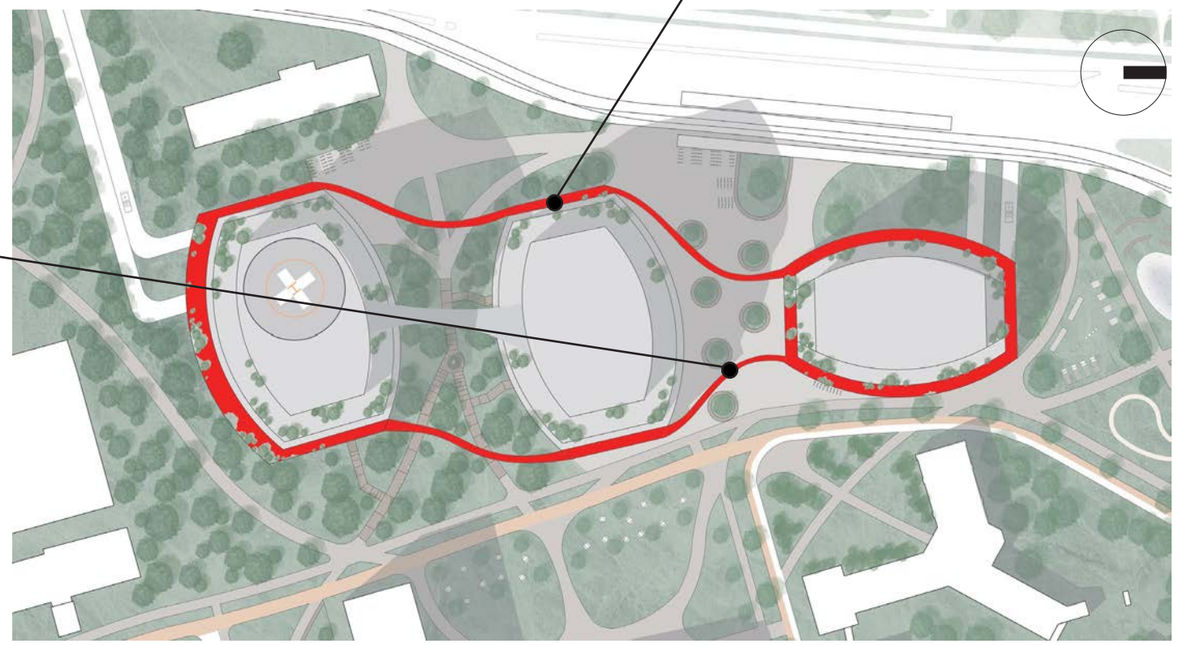




BUILDING SECTION

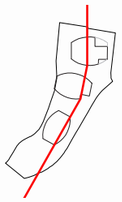


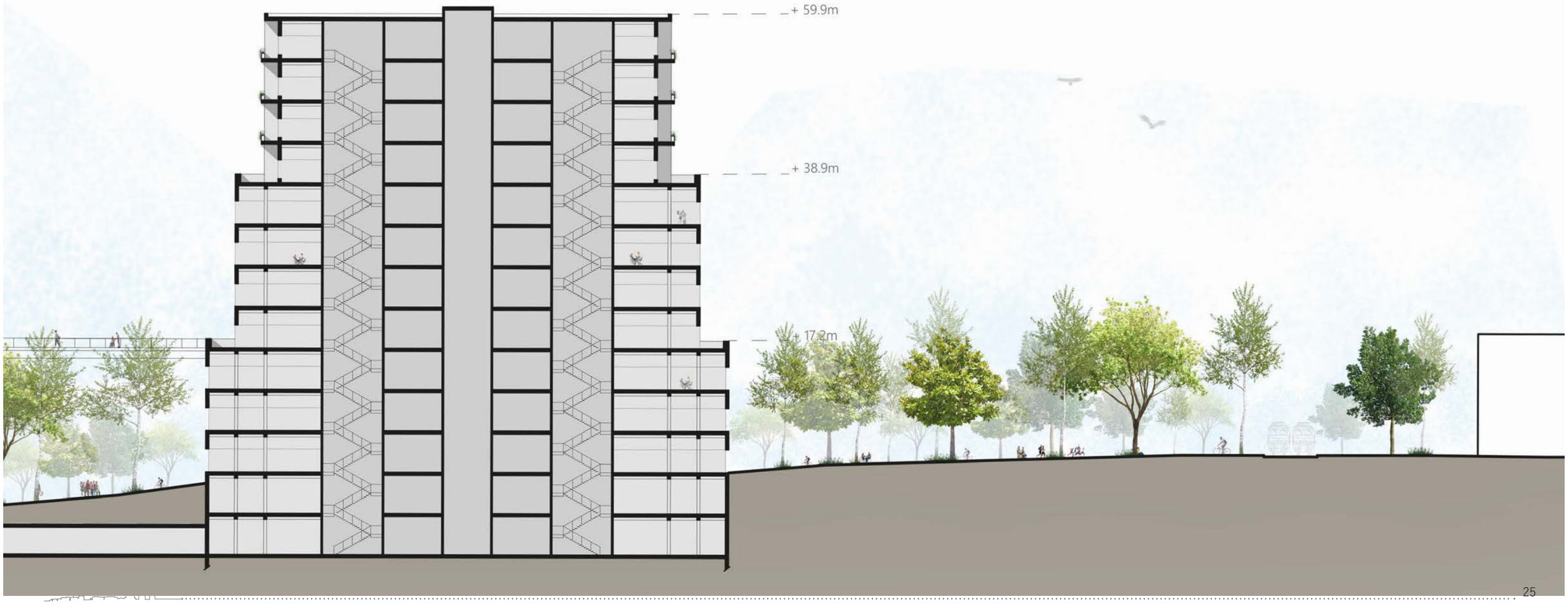
BRIDGE SECTION



VIEW AERIAL PROMENADE FROM BRIDGE

LONGITUDINAL SECTION

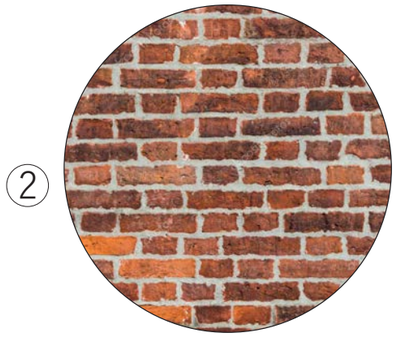



+ 59.9m
+ 38.9m
+ 17.2m

FACADES AND MATERIALS

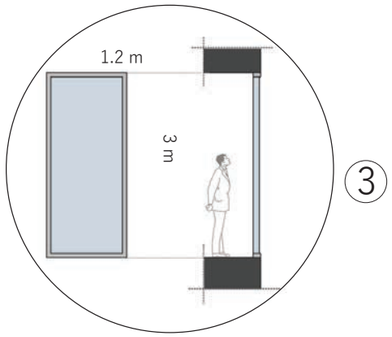
1

The main facades of the towers are clad in stainless steel panels. This material gives the towers a reflective but also contemporary effect to make a contrast with the brick.



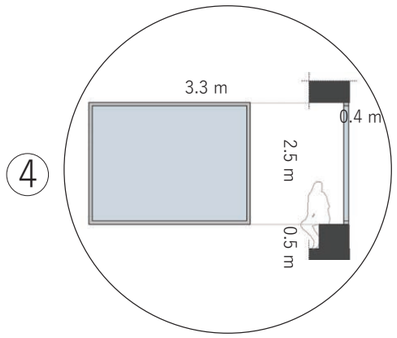
2

The bases of the towers are made of reused bricks after the demolition of the buildings present on the site.



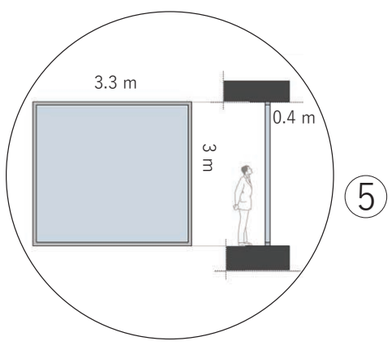
3

Thin windows were chosen for the main facades, to accentuate the verticality of the towers.



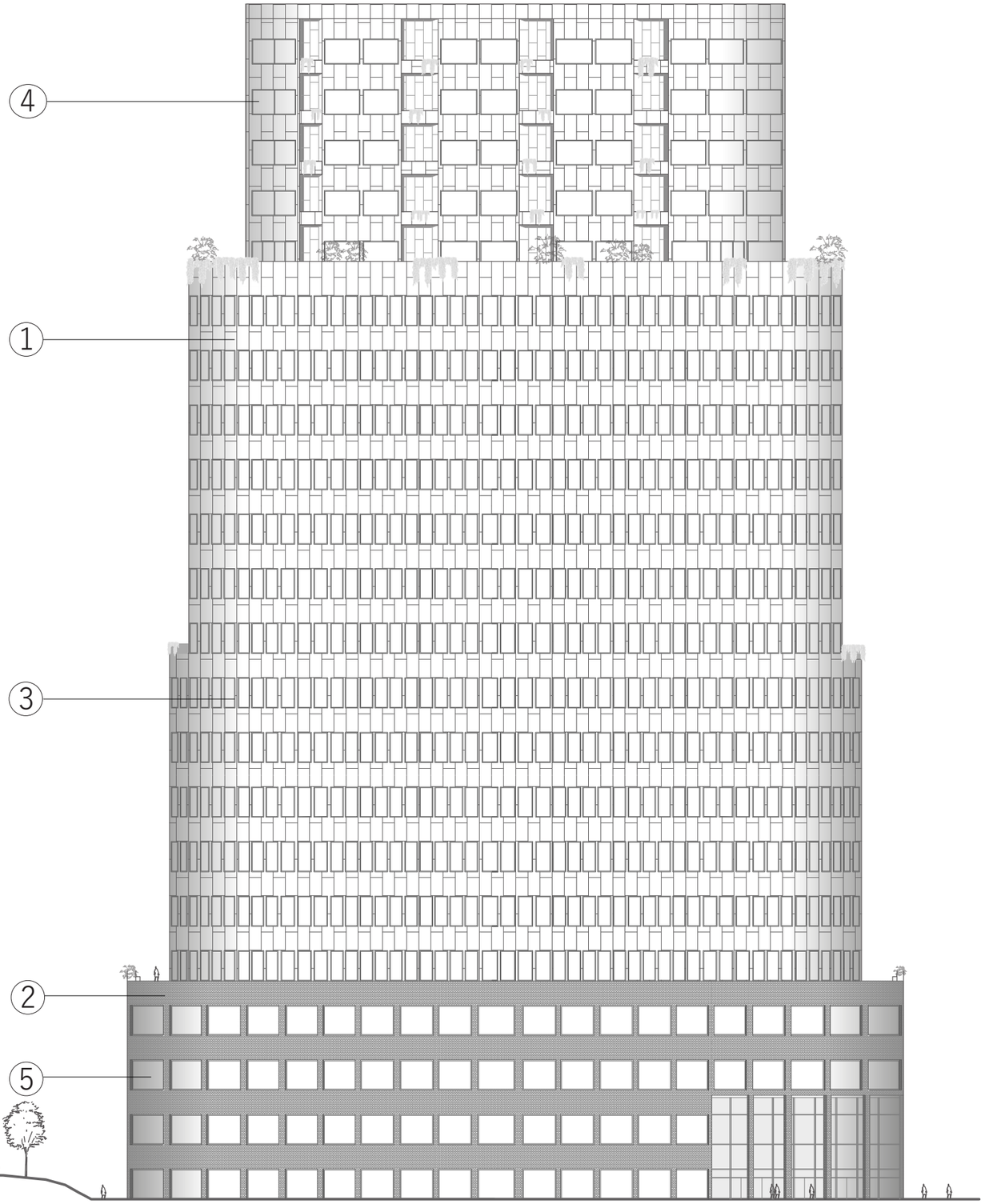
4

To the top of the tower. The windows have interior sills allowing you to sit and observe the landscape. Balconies protrude 40 cm from the facade, to give relief.



5

For the base of the towers, the windows are set back from the facades to bring out the posts, and give strength to the bases of the towers.



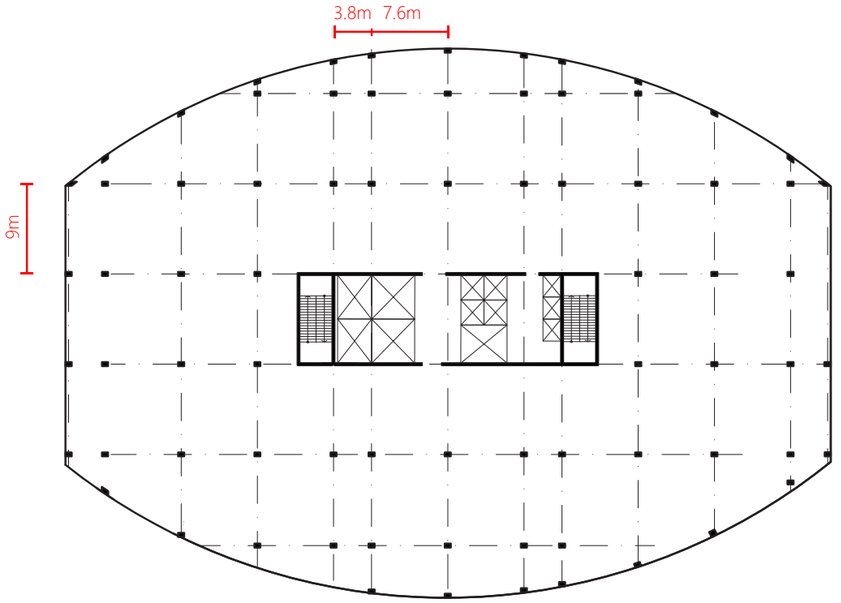
SCALE : 1/500

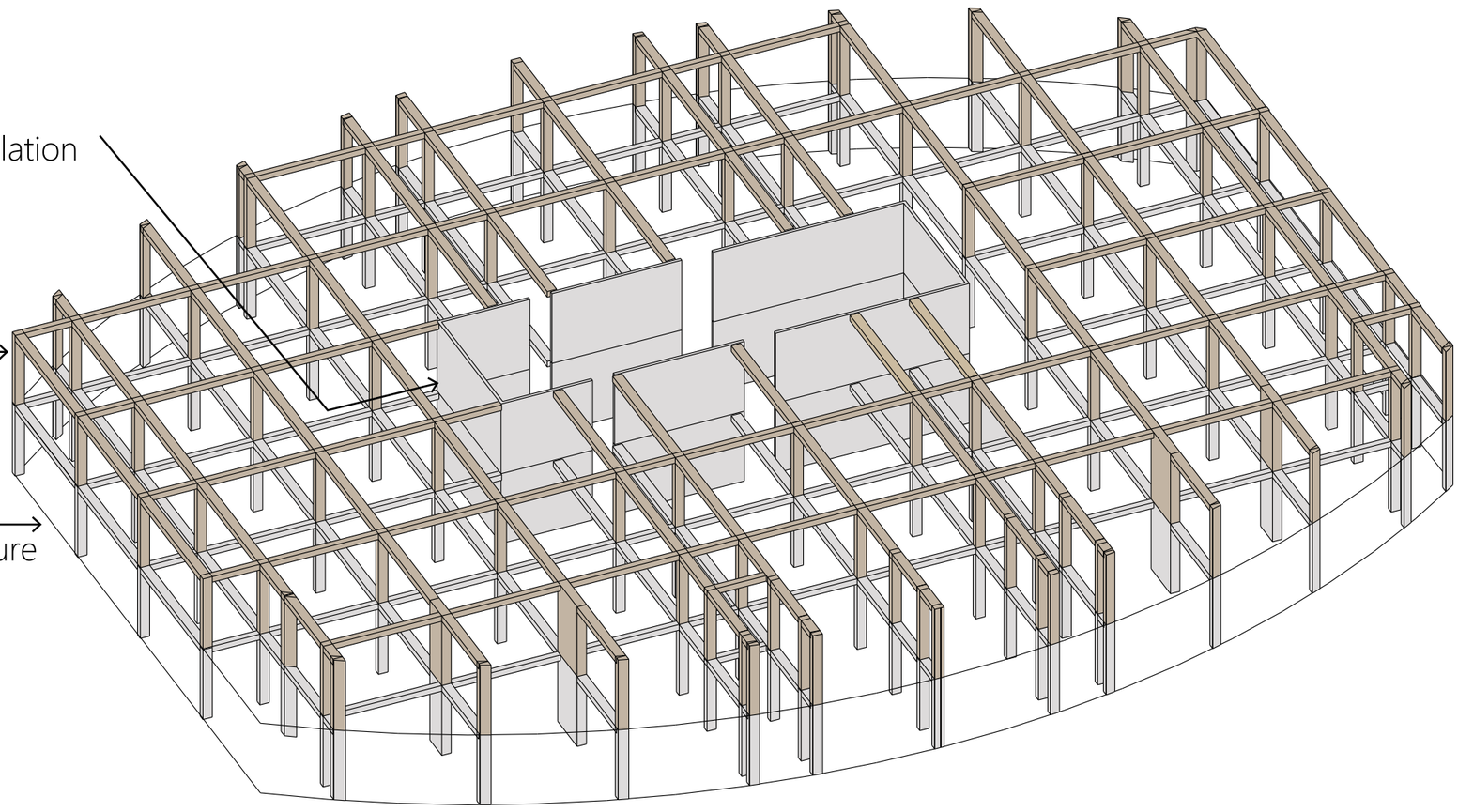
STRUCTURE

The structure of the buildings is a system of post-beams, to allow the flexibility of the building and to be able to arrange the interior partitions, according to the program and to accommodate different functions in the future.

The towers are composed of a central concrete core structural, for all vertical circulation.

The ground floors, as well as the first floor are made with a system of posts, beams, and concrete floor, in order to maintain the stability of the tower at this base. For the upper floors, the structure is made with a post, beam, floor system, made of glued laminated wood.





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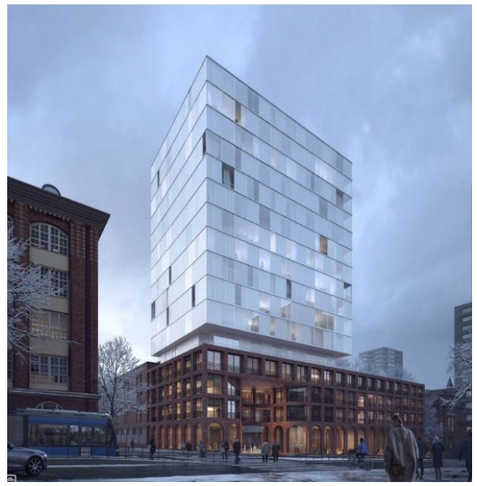
Cro&Co Architecture
Trinity Tower - Paris

White Arkitekter
Wins Competition with Brick Housing Development in Stockholm Royal Seaport



Schauman & Nordgren
Lead Competition-Winning Design for Mixed-Use Customs District in Finland

INSIDE

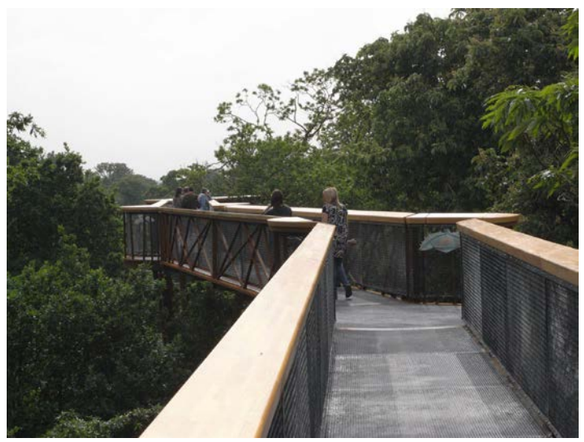
Life designers
Trousseaux hospital - Tours, France

Life designers
Trousseaux hospital - Tours, France

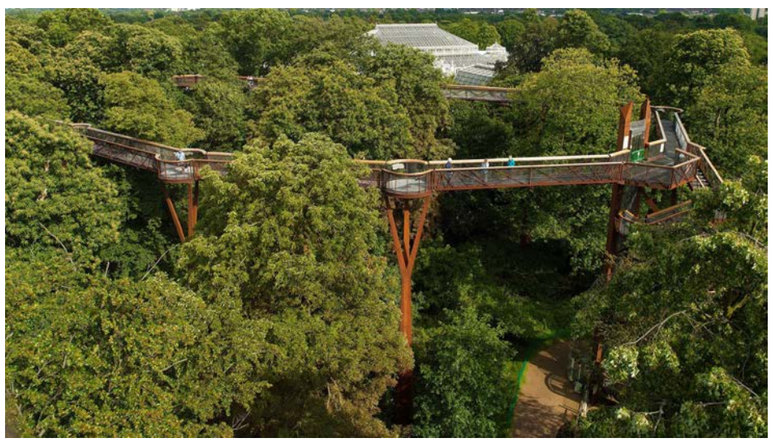
BRIDGE

New Uber office - San Francisco

PROMENADE AND PARK



Treetop Walkway - United Kingdom



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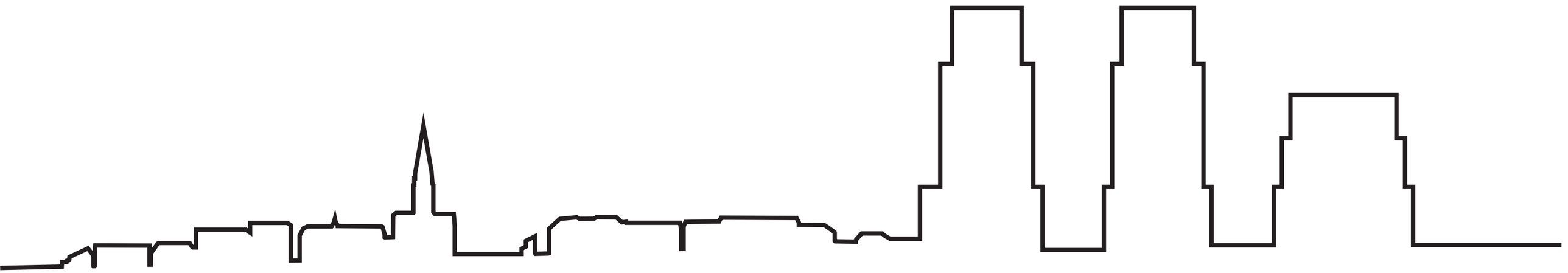

Project by group 8 : Matilda Emgård, Lucie Vincens, Charles Delarue