



Health on Track

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ARK 263 Future visions for healthcare, housing and work: Healthcare Architecture

Fall 2020

TASK

Fall 2020 Chalmers studio ARK 263 have received the brief of designing a healthcare centre in central Karlskrona. The Region of Blekinge is in need of new premises for a primary care centre in Karlskrona and has the intention to facilitate a new building that will meet the future development of modern healthcare. The project contains designing - in the environment of a UNESCO world heritage site - a proposal for a healthcare centre of 4500 sqm BTA that will host a primary medical unit, a dental care unit, a women's care unit, child care unit, and a rehabilitation unit.

Situation in Sweden and in the world

In Sweden there is an ongoing development of primary care. New creative solutions are required to meet today challenges. During 2020 the virus of COVID-19 has forced the healthcare system to be flexible and to be able to shift to a new way of working. This also means that the future designs of healthcare centres needs to be flexible to fit the needs.

Delimitation

There are some wishes from client and also rule about healthcare building in this region. We were asked to enhance Karlskrona's main axis, take care of history of the place, let Fribergsska dominate in scale, adapt to the city plan and the neighbourhood structure and considering that the site has no backsides. In addition, there are two rules about maximum height of 20 meters of the building pocket and the lowest height of the 3 meters above sea level of medical floors.

Goals and visions

"Health on Track" is about how a future healthcare centre can be a pandemic safe space but also a place where you can go and maintain your health by social activities. We believe that the future primary care centre will consist of mainly e-health. So, the conclusion we have made is that people will have less traditional reasons to visit a healthcare centre. That the future reason for visiting a healthcare centre is to get support to stay healthy. The elderly are already suffering from the technical advancement in society that some cannot keep up with. The exclusion is becoming painfully clear and tangible right now with the COVID-19 pandemic. This group of people, especially the ones with cognitive impairments is highly as risk of becoming completely socially isolated from society. Social contact is very important for human health. We are at this point not only dealing with the COVID-19 pandemic, but also a silent one.



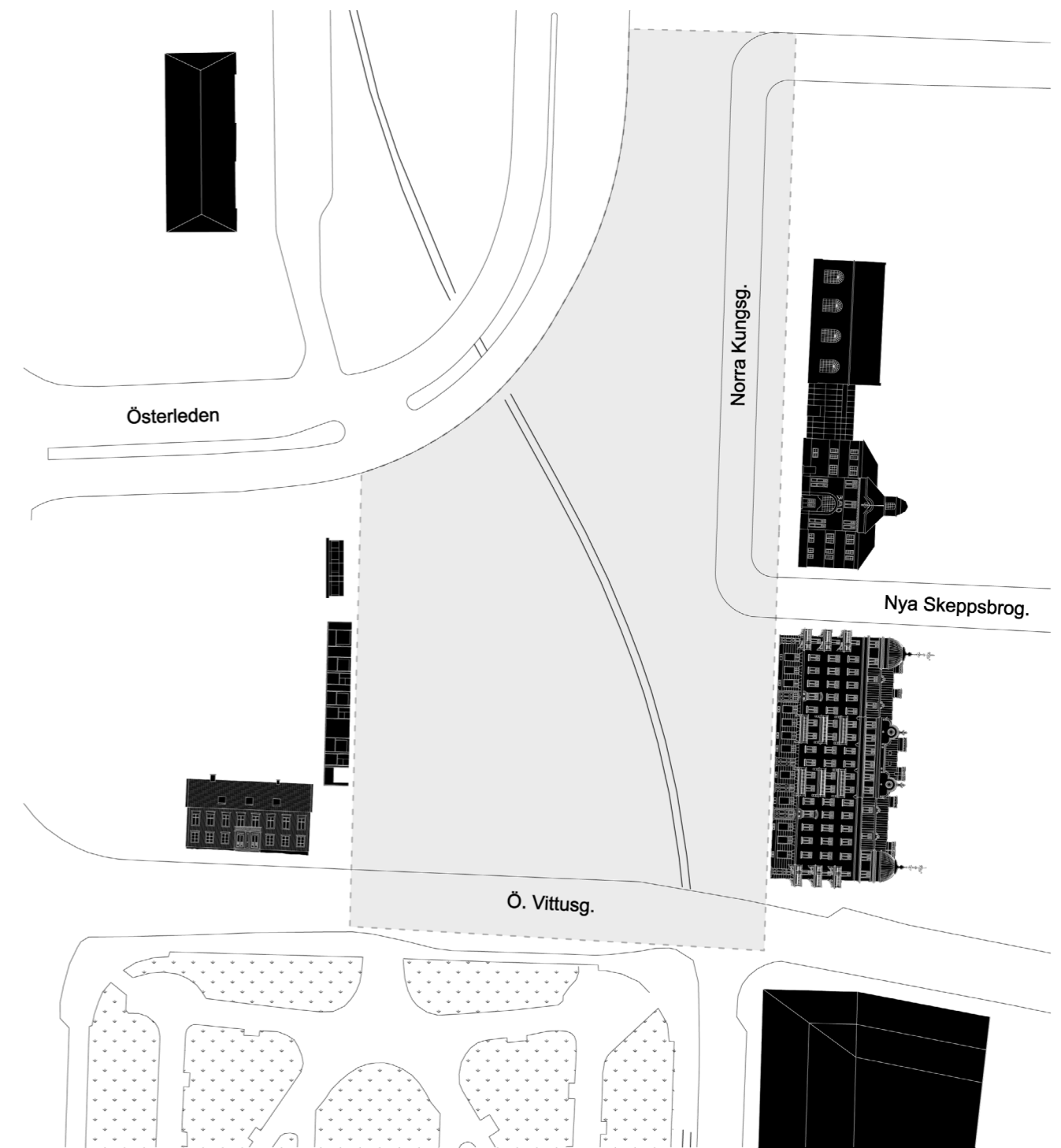
REGION BLEKINGE



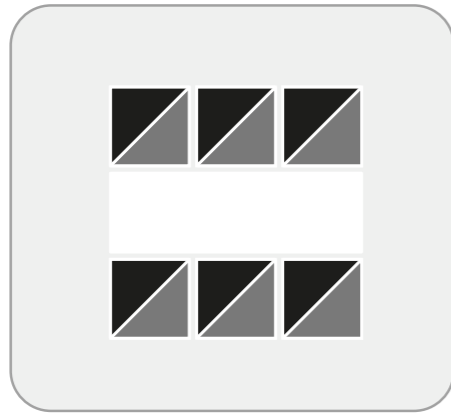
TROSSÖ, KARLSKRONA KOMMUN

SITE

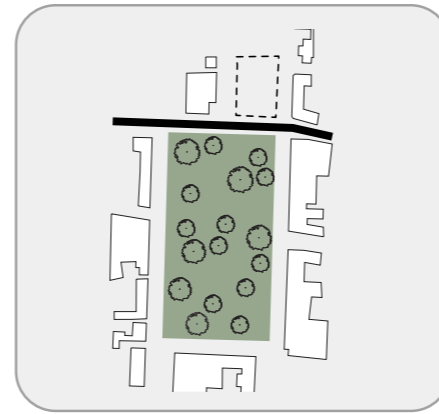
The site of Kungsplan was founded in 1886 and is located in the entrance of Karlskronas central island Trossö. The site lays along the main north axis of the baroque city plan. The plot consist of landfill from 1813 and in the site used to be a park. The is Neighbouring rich history from the area with he city park, Hoglands park in the south. To the east is Ehrnbergska gården from early 19th century and to the west is the house of Fribergsska from 1904. Connecting the site is also the public bath from 1903, the old power plant from 1907, adult education centre from 1970 and smoke restaurant from 2014. There is also a historical to the navy port that runs across the site.



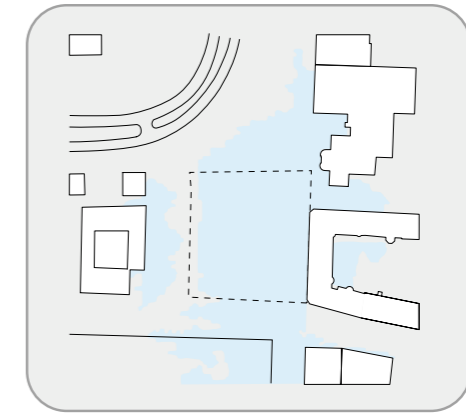
KUNGSPLAN



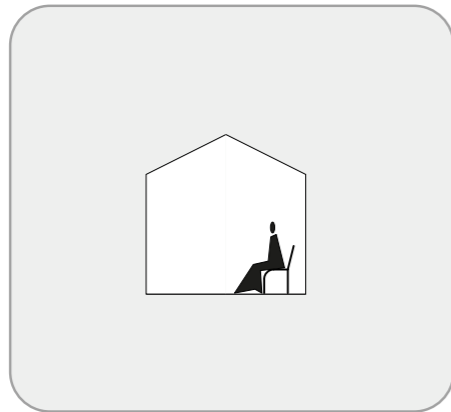
TRADITIONAL FLOWS
Traditionally patients and staff share flows and examination occur in the staffs personal office space.



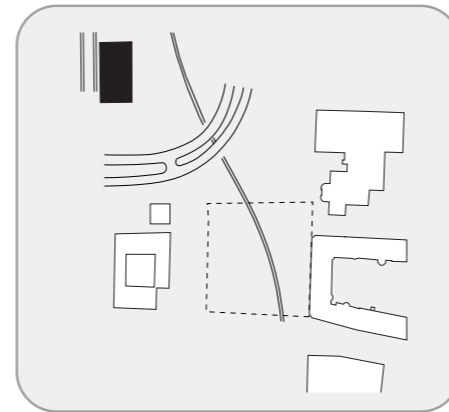
LACK OF GREEN SPACES
Today on Trossö there are few green spaces. Kungsplan used to be a park for a long time.



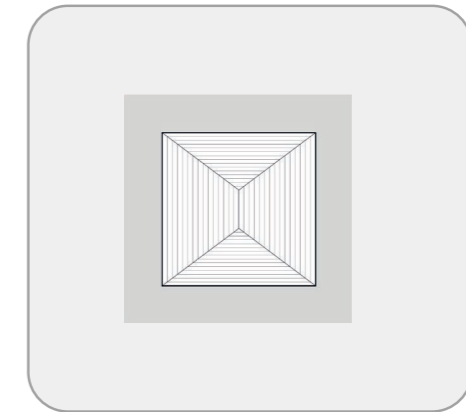
RISK OF FLOODING
The site is located in a risk-zone of flooding in the future.



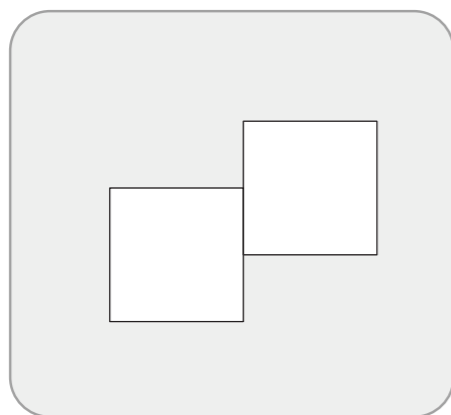
INDOOR WAITING SPACE
Today waiting spaces are usually indoors and hosts many people in one room.



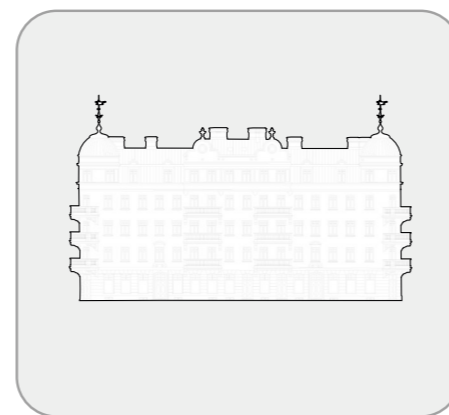
HISTORICAL RAILROAD
The plot is split by the historical railroad that becomes a pattern of the city.



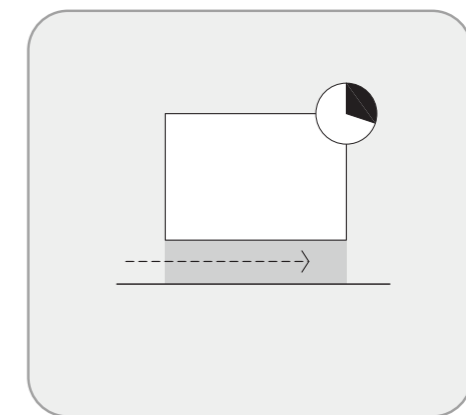
SOCIAL EXCLUSION
Many healthcare centres today only targets the people that are sick and not the public.



SEPARATED UNITS
Many healthcare centres have units that do not share any functions between them.

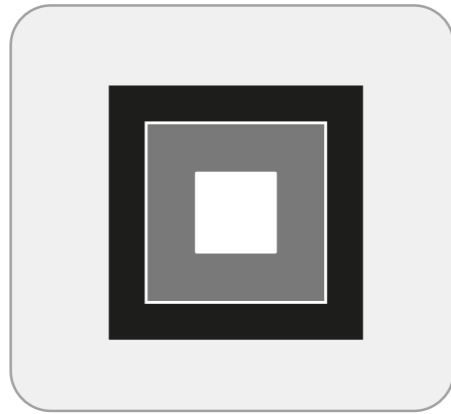


IMPORTANT BUILDINGS
Facing the site of Kungsplan are historical important building that are significant for the well preserved area.

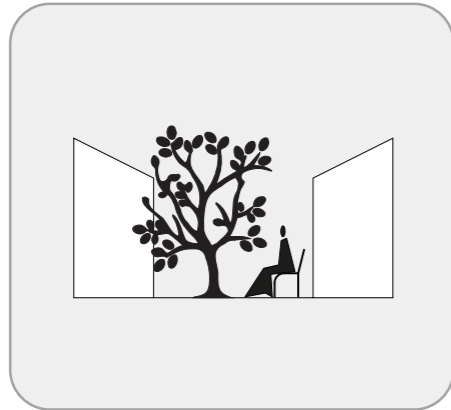


LIMITED BUILDING USE
Regular opening hours limits the use of space over the day.

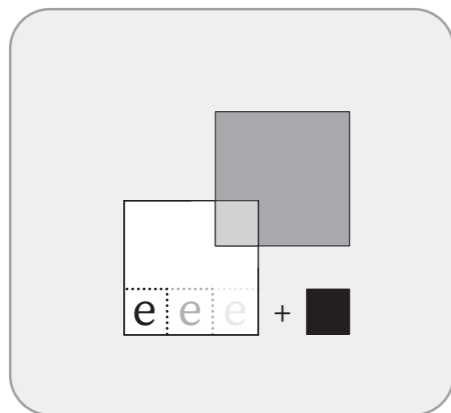
BRIEF & LOGISTICS & HEALTH PROMOTION



SEPARATED FLOWS
By separating staff, examination rooms and waiting space. The healthcare centre can adapt to a pandemic safe environment

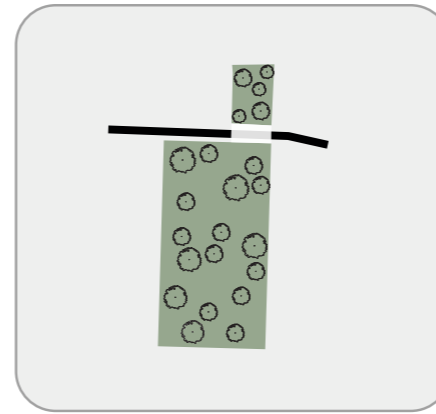


OUTDOOR WAITING SPACE
Risk of virus spreading in an outdoor waiting space is less and outdoor Environment has healing benefits.

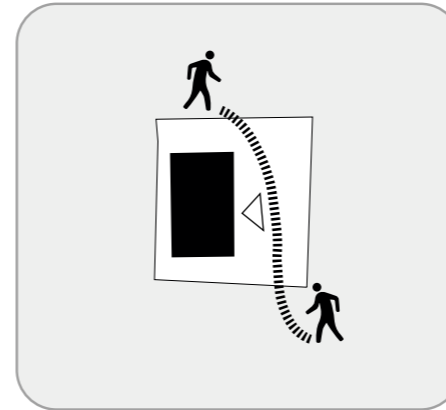


SHARED FUNCTIONS
By having shared functions between units the use of space can be more efficient and square meters can be saved.

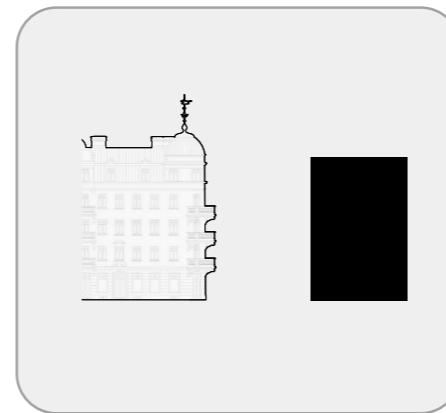
SITE & CONTEXT



EXTENDING THE PARK
To extend greenery on Trossö.

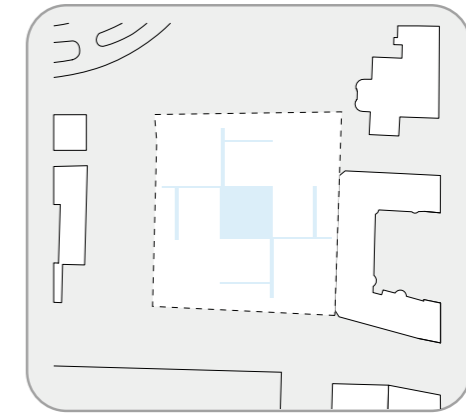


DIRECTING MAIN ENTRANCE
Letting the railroad act as a path to direct people to the main entrance of the building.

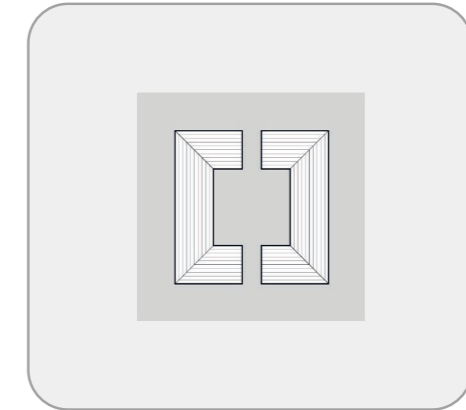


USE OF MATERIALITY
By having a facade that can contrast while reflect neighbouring houses

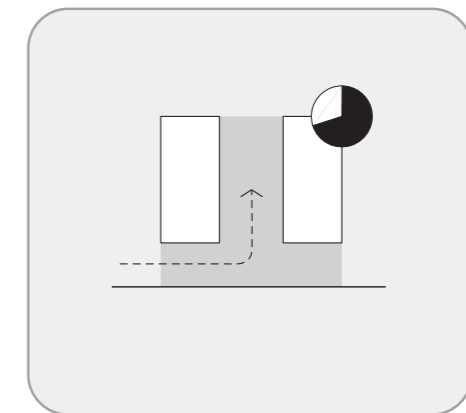
SUSTAINABILITY & FUTURE PROOFING



DESIGNING WITH WATER
Seeing floods as an opportunity to dealing with water by directing it to different places on the plot.



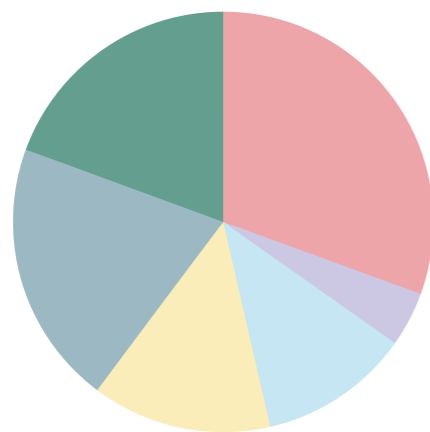
SOCIAL INCLUSION
Having public functions that are accessible for people where they can maintain their health.



MAXIMIZING BUILDING USAGE
By having areas in the building that can be reached when the healthcare opening hours are closed.

BRIEF FROM REGION BELKINGE:

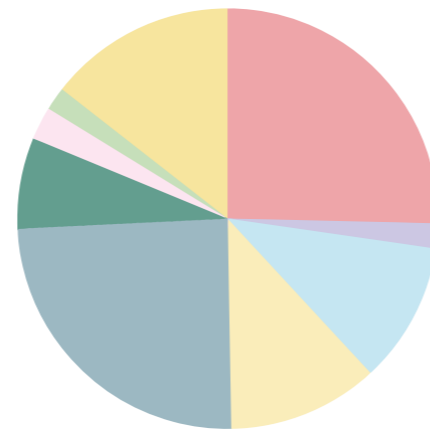
DEPARTMENT:	AREA:
■ MEDICAL CARE:	792 m ²
■ CHILD CARE:	109 m ²
■ WOMEN'S CARE:	301 m ²
■ REHABILITATION:	359 m ²
■ DENTAL CARE:	527 m ²
■ COMMON STAFF AREA:	+ 503 m ²
ADDED FUNCTION:	x
COMMUNICATION/ TECHNICAL	y



TOTAL BTA: 4500

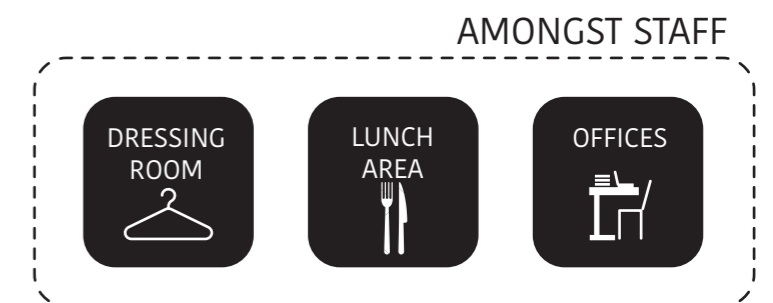
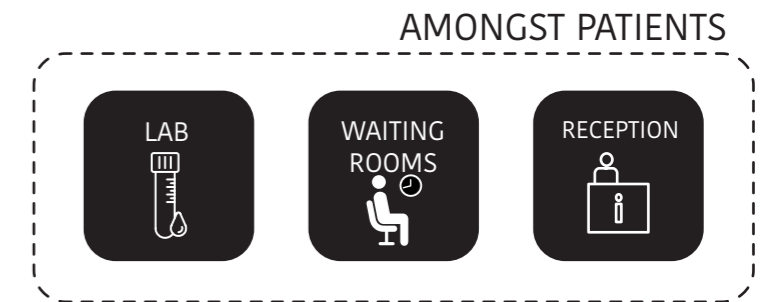
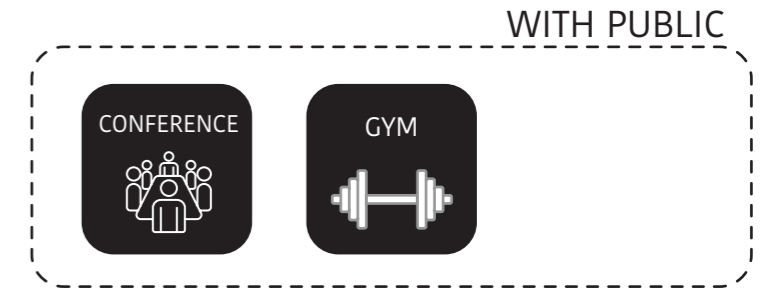
NEW BRIEF:

DEPARTMENT:	AREA:
■ MEDICAL CARE:	1152 m ²
■ CHILD CARE:	87 m ²
■ WOMEN'S CARE:	492 m ²
■ REHABILITATION:	527 m ²
■ DENTAL CARE:	1113 m ²
■ THERAPY:	+ 81 m ²
■ LAB:	+ 115 m ²
■ COMMON STAFF AREA:	+ 503 m ²
■ PUBLIC SPACE:	656

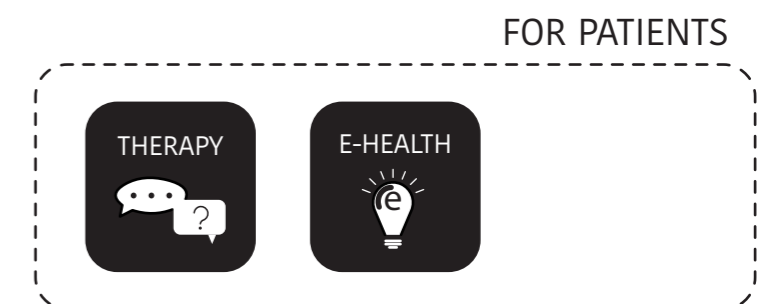


TOTAL BTA: 4541

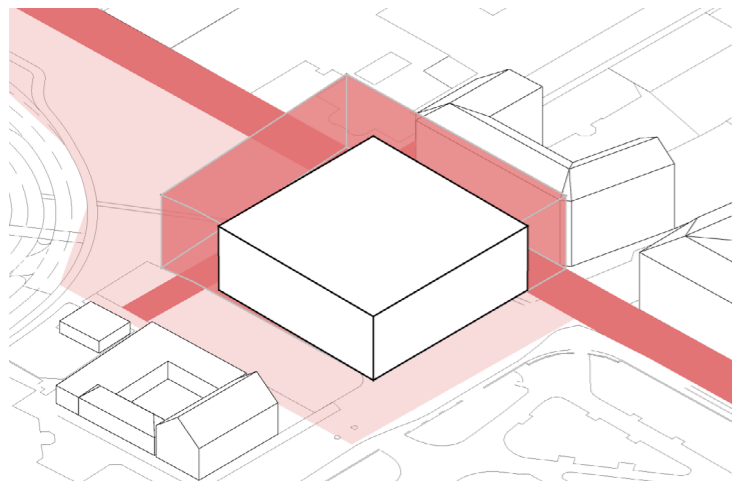
SHARED FUNCTIONS:



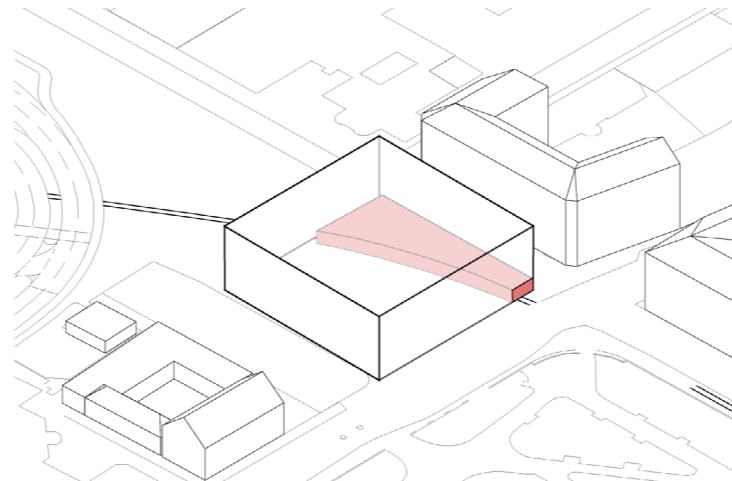
ADDED FUNCTIONS:



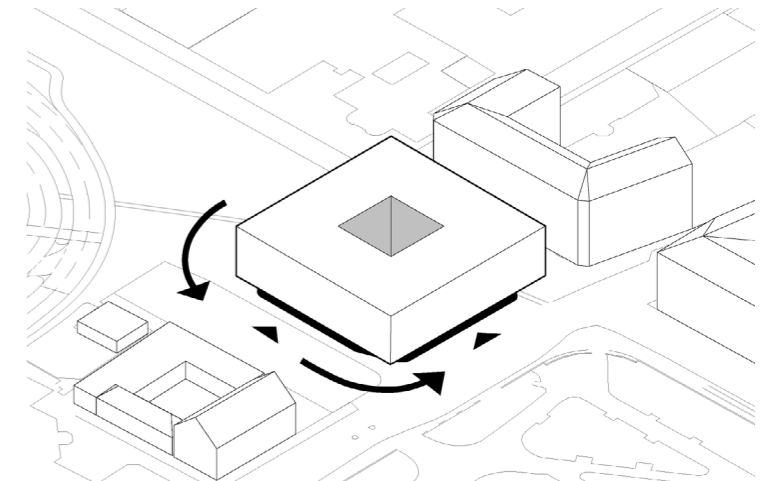
SHAPING THE BUILDING



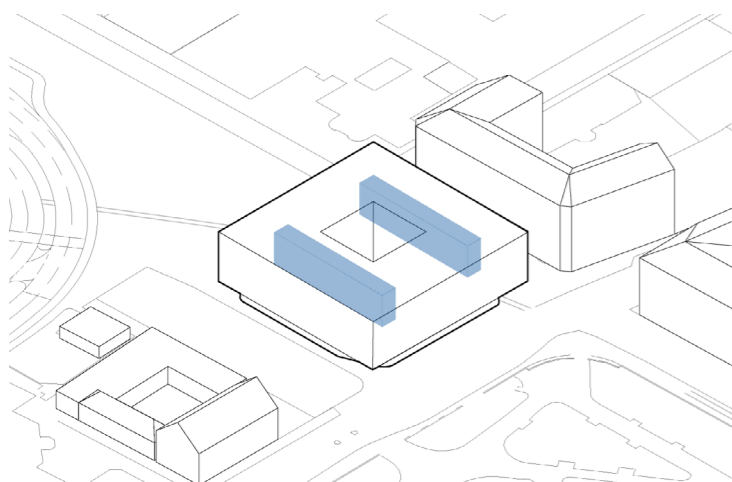
Aligning building to axis of the city structure and mimicking the length of Fribergkska huset and the bath from the west side of the plot.



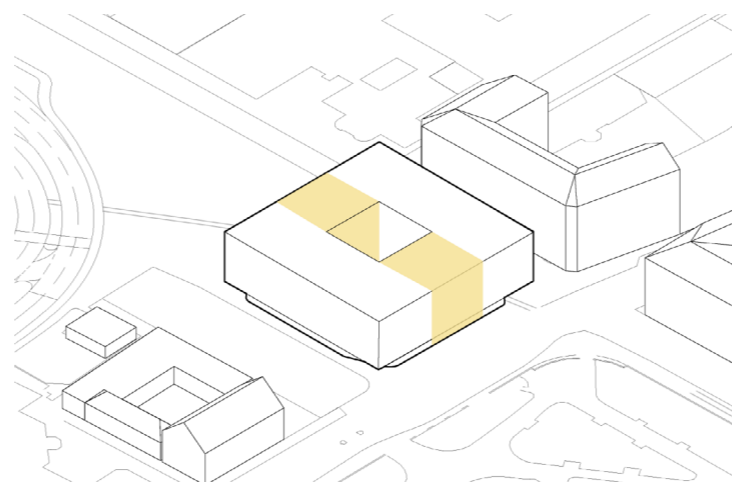
Cutting out a piece from the ground to give free room for the rail-road but also to give more room towards Fribergkska.



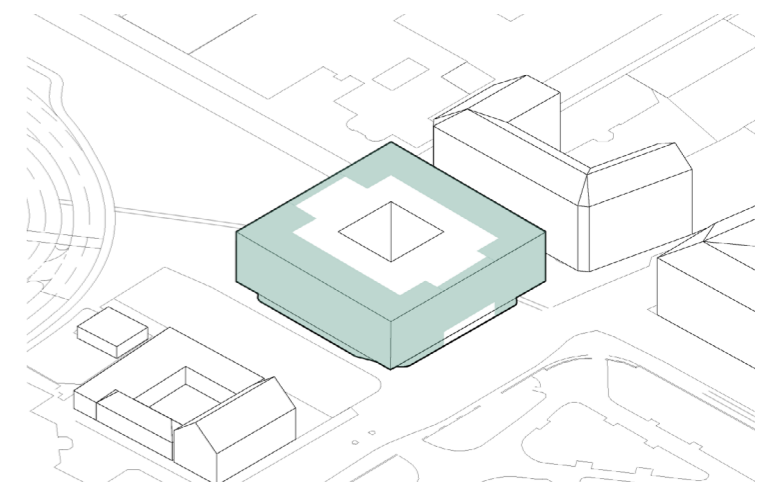
Placing a central courtyard to give direct access to the building from the railroad; also, façades are pulled in to get a better circulation around the building and make it appear lighter.



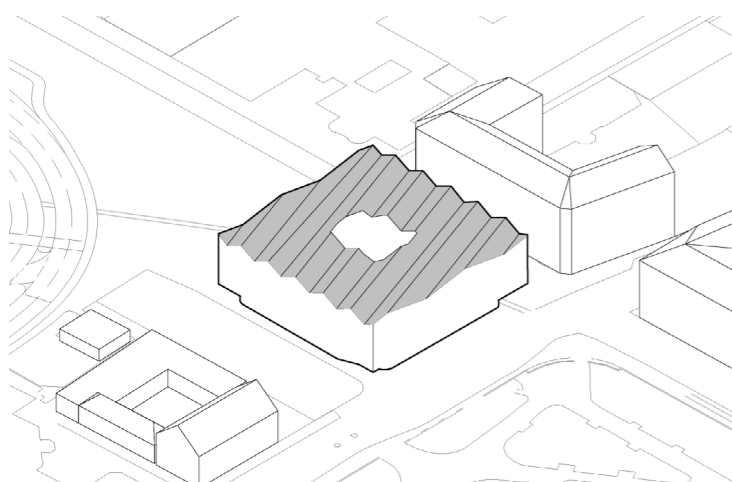
Placing the examination rooms in direct relation to the outdoor waiting room.



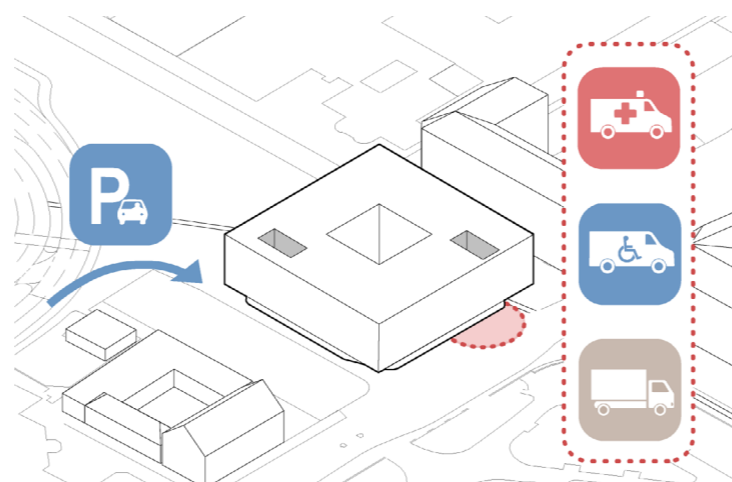
Placing public functions in the south and north to take benefit of the sunlight but also the visual connections to the building form afar.



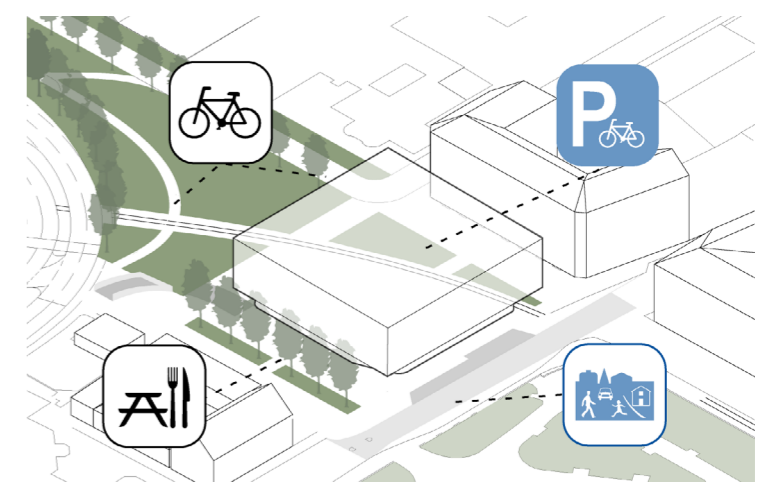
Placing staff functions in the outer layer of the building and connecting them in the north and south by a corridor.



Shaping the roof after the number of examination rooms and the public functions with a arrayed pitched roof.



Traffic to parking garage will come from Österleden in the north to minimise the impact on the site. Goods, drop-off and pick-up zones and ambulance placed by the south shaft.

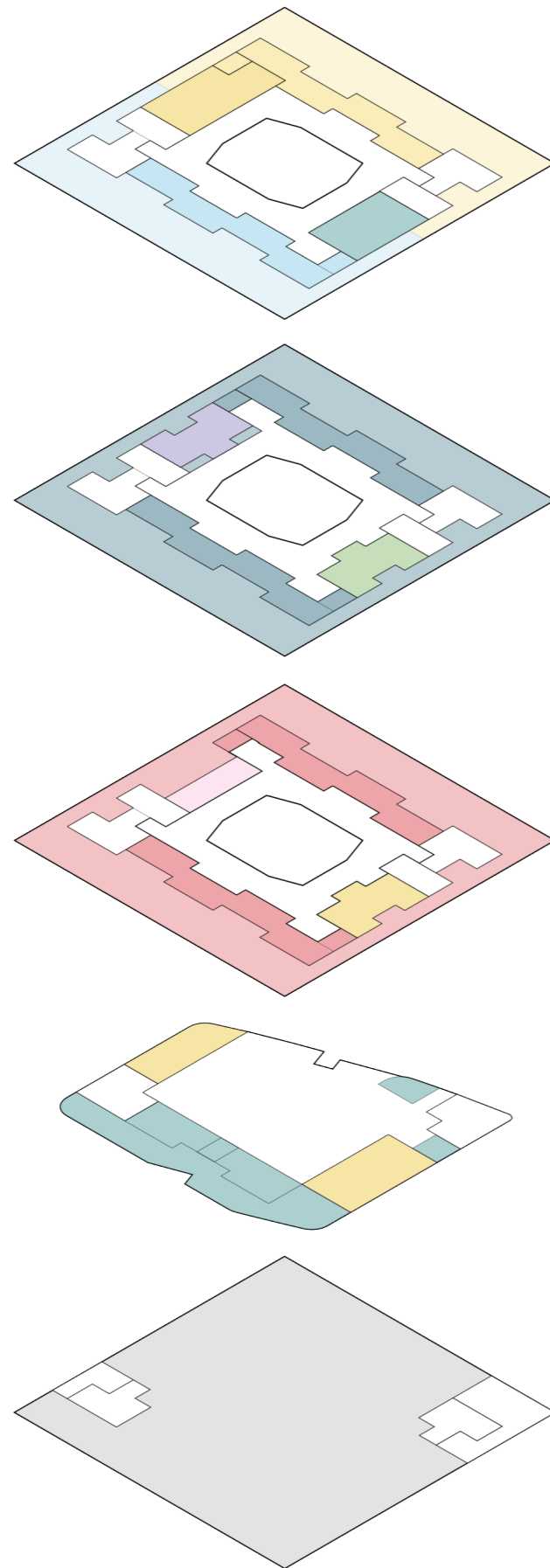


The bike path is split into two. Sheltered bike parking underneath the building. And areas for eating in the west to invite neighbouring restaurants into the site. A pedestrian speed road is made in the south to give better connection between the parks.

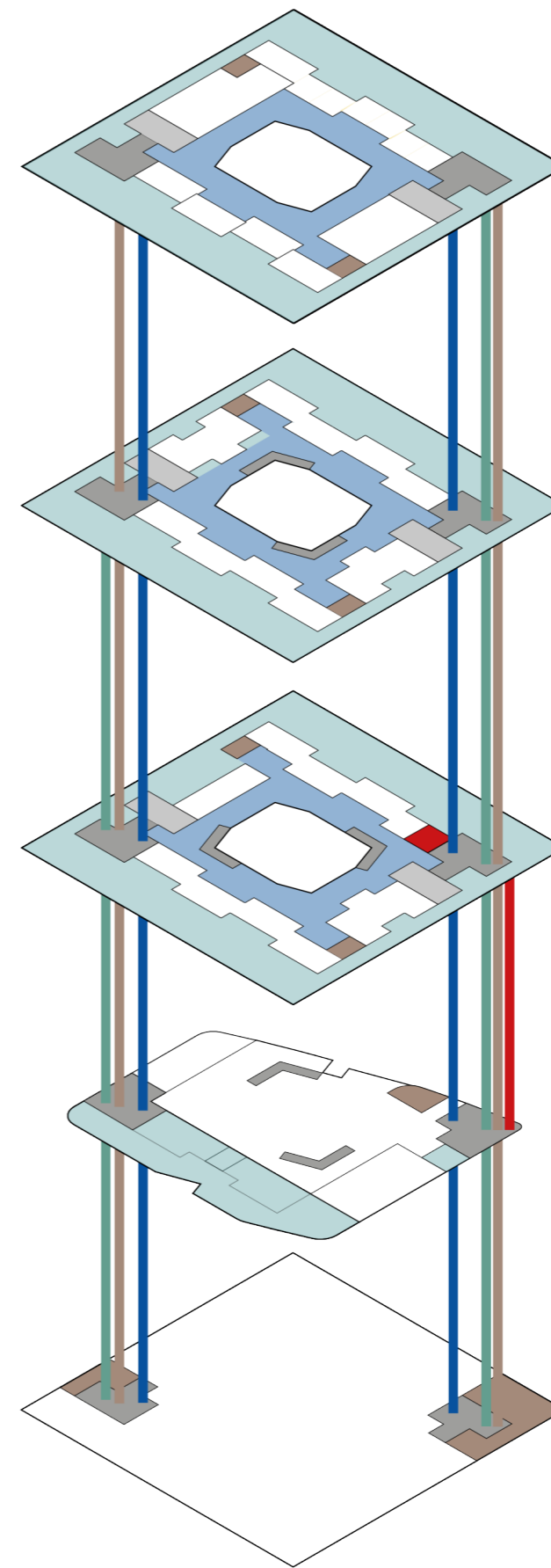


The most pedestrians are expected to come from train and bus stations in the north, but also there is a path along the main axis, which ends to central plaza. And, in addition, people can arrive from Hoglands park. The site is protected from flooding risk by supplying the shaped excavated terrain to collect storm water meanwhile it also contributes to live landscape for span of times.

- MEDICAL CARE
- CHILD CARE
- WOMEN'S CARE
- REHABILITATION
- DENTAL CARE
- THERAPY
- LAB
- PUBLIC FUNCTION
- PARKING



- PATIENTS
- STAFF
- ER.
- GOODS/TECHNICAL
- REST ROOMS
- VERTICAL COMMUNICATION

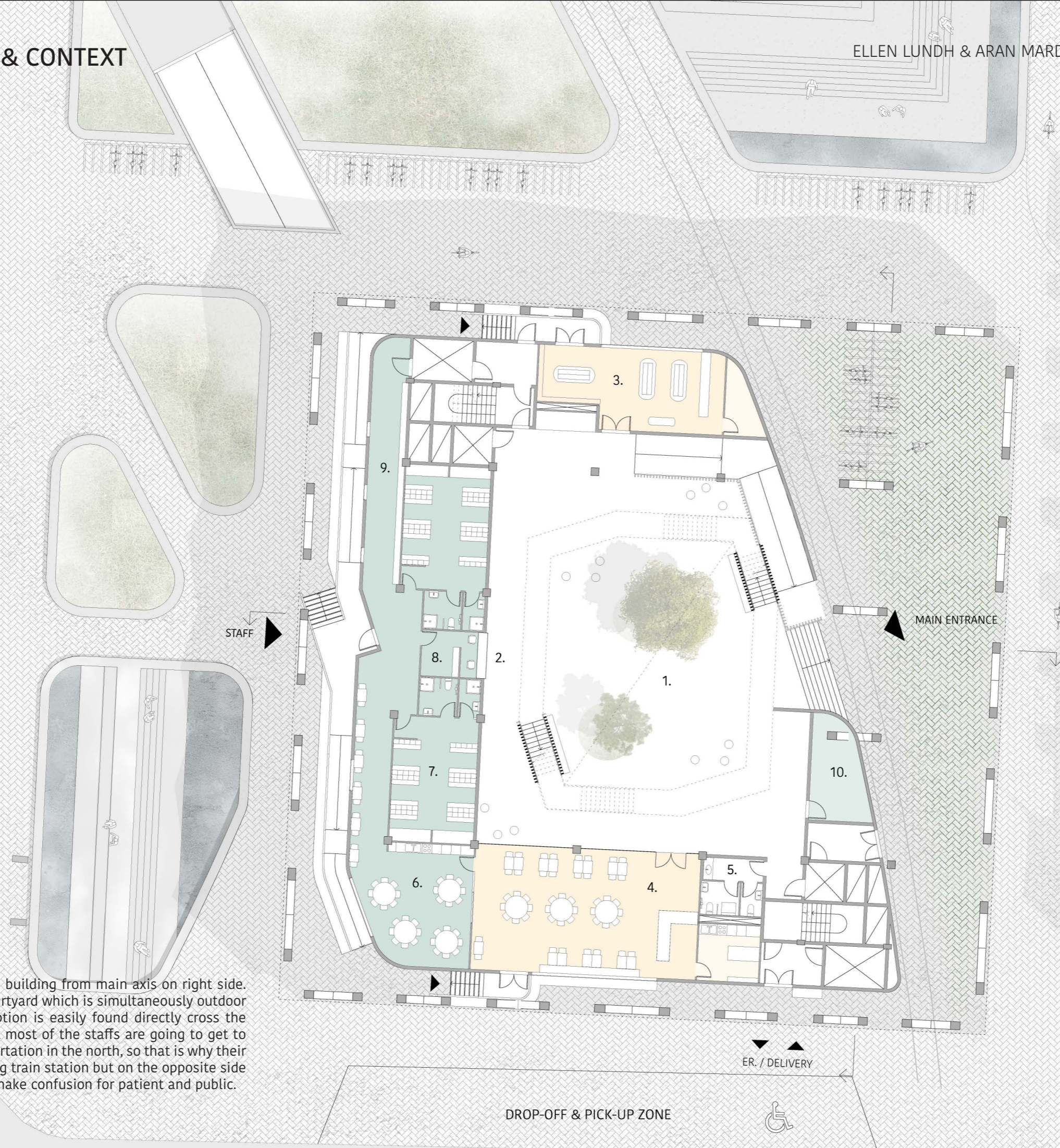


GROUND FLOOR & CONTEXT



- PUBLIC:**
- 1. OUTDOOR WAITING AREA
 - 2. RECEPTION
 - 3. PHARMACY
 - 4. CAFÉ
 - 5. WC & RWC

- STAFF:**
- 6. CAFETERIA
 - 7. DRESSING ROOM
 - 8. RECEPTION OFFICE
 - 9. LIBRARY WALL
 - 10. GARDENING STORAGE



Patients and public enter the building from main axis on right side. They directly arrive at the courtyard which is simultaneously outdoor waiting space, and the reception is easily found directly cross the courtyard. It is imagined that most of the staffs are going to get to the building by public transportation in the north, so that is why their main entrance is placed facing train station but on the opposite side of the main entrance to not make confusion for patient and public.

ER. / DELIVERY

DROP-OFF & PICK-UP ZONE



1:250

MEDICAL CARE:

- 1. OUTDOOR WAITING AREA
- 2. EXAMINATION ROOM
- 3. WC & RWC
- 4. ER.

LAB:

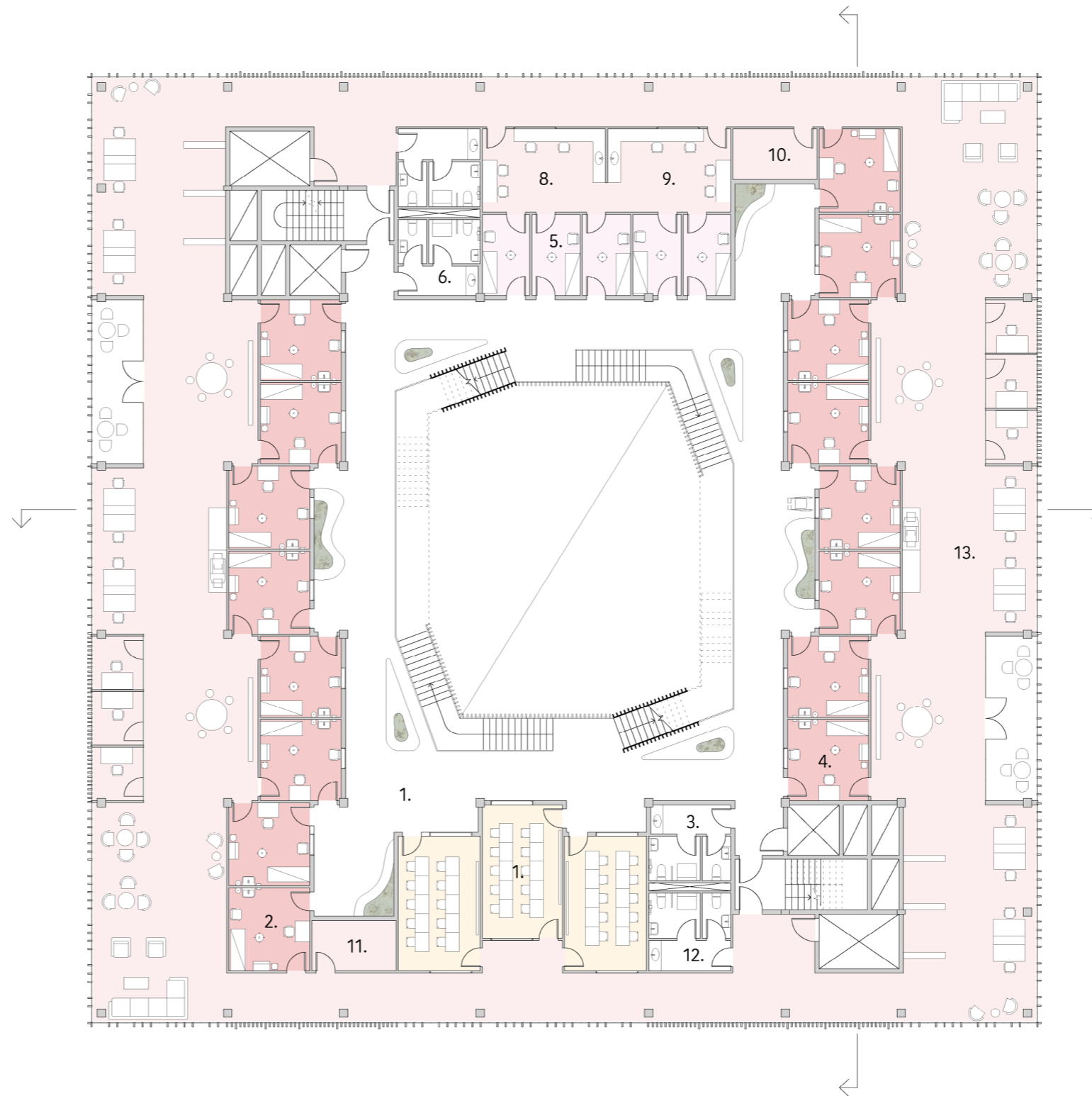
- 5. SAMPLING
- 6. RWC SAMPLING

PUBLIC FUNCTIONS:

- 7. CLASS ROOMS

STAFF:

- 8. ANALYZING ROOM
- 9. DENTAL LAB
- 10. STORAGE STERILE
- 11. STORAGE
- 12. WC & RWC
- 13. ACTIVITY OFFICE



All three floors in the healthcare centre has examination rooms directly connected with the outside space. This is because during the COVID-19 pandemic we have learned the risk of a virus spreading is higher in small, crowded indoor places with poor ventilation. The large outdoor waiting space will minimize the risk of any virus or bacteria outbreak.

The medical unit is located on the first floor so ER. and infectious patients have the shortest possible distance from the entrance to the rooms. During a pandemic or virus outbreak there is a possibility to close one of the two vertical connection to the floors, still making the healthcare approachable for the public.

1:250

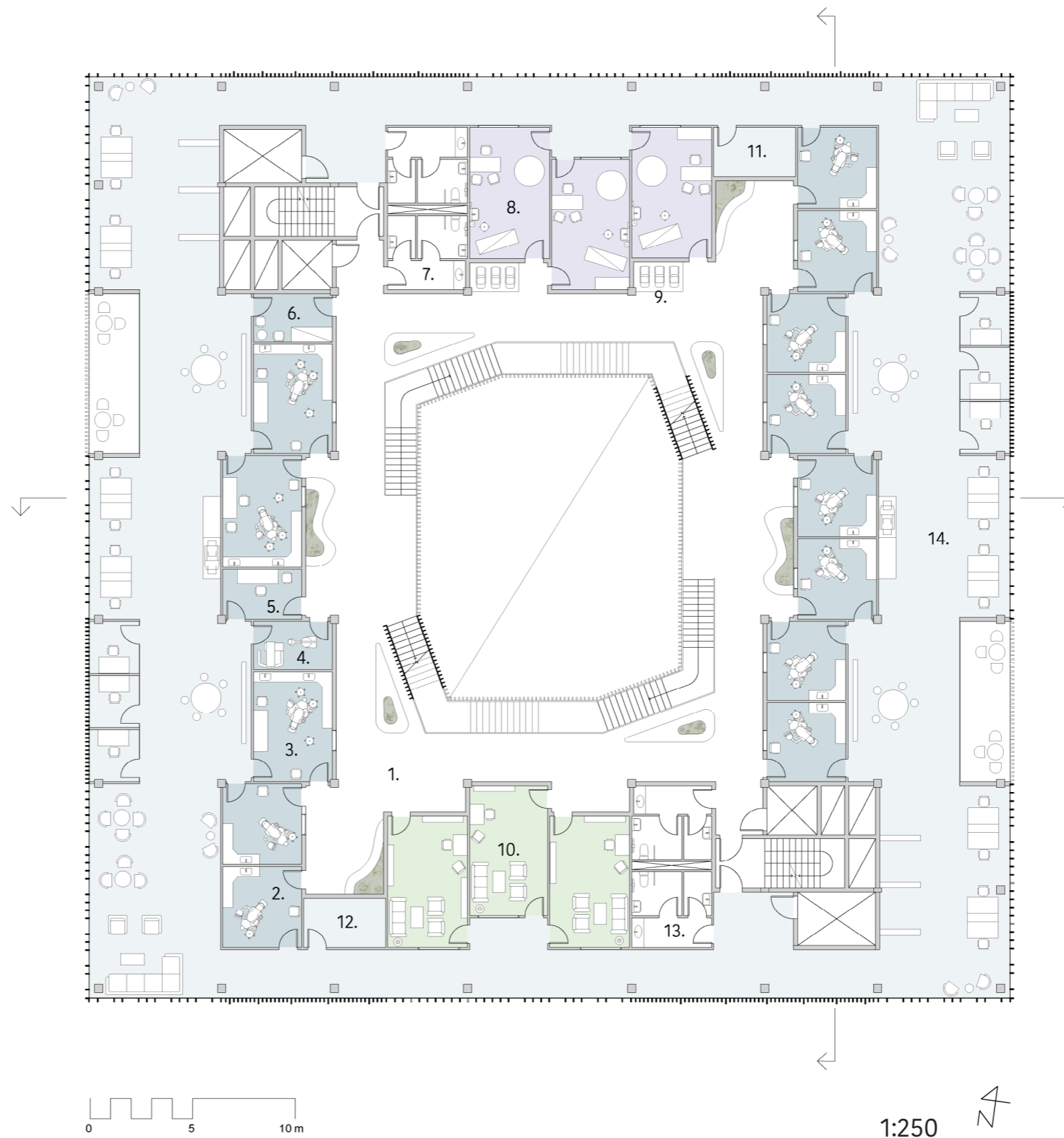


- DENTAL CARE:
- 1. OUTDOOR WAITING AREA
 - 2. TREATMENT A
 - 3. TREATMENT B
 - 4. X-RAY
 - 5. PHOTO LAB
 - 6. RESTING PATIENT
 - 7. WC & RWC

- CHILD CARE:
- 8. EXAMINATION
 - 9. STROLLER PARKING

- THERAPY:
- 10. TREATMENT

- STAFF:
- 11. STORAGE STERILE
 - 12. STORAGE
 - 13. WC & RWC
 - 14. ACTIVITY OFFICE



Second floor hosts three units with dental being the largest. The dental care unit has mainly regular check-ups on the east side and more advanced care in the west side. In the north the child care unit and in the south therapy.

WOMENS CARE:

- 1. OUTDOOR WAITING AREA
- 2. EXAMINATION
- 3. WC & RWC

REHABILITATION:

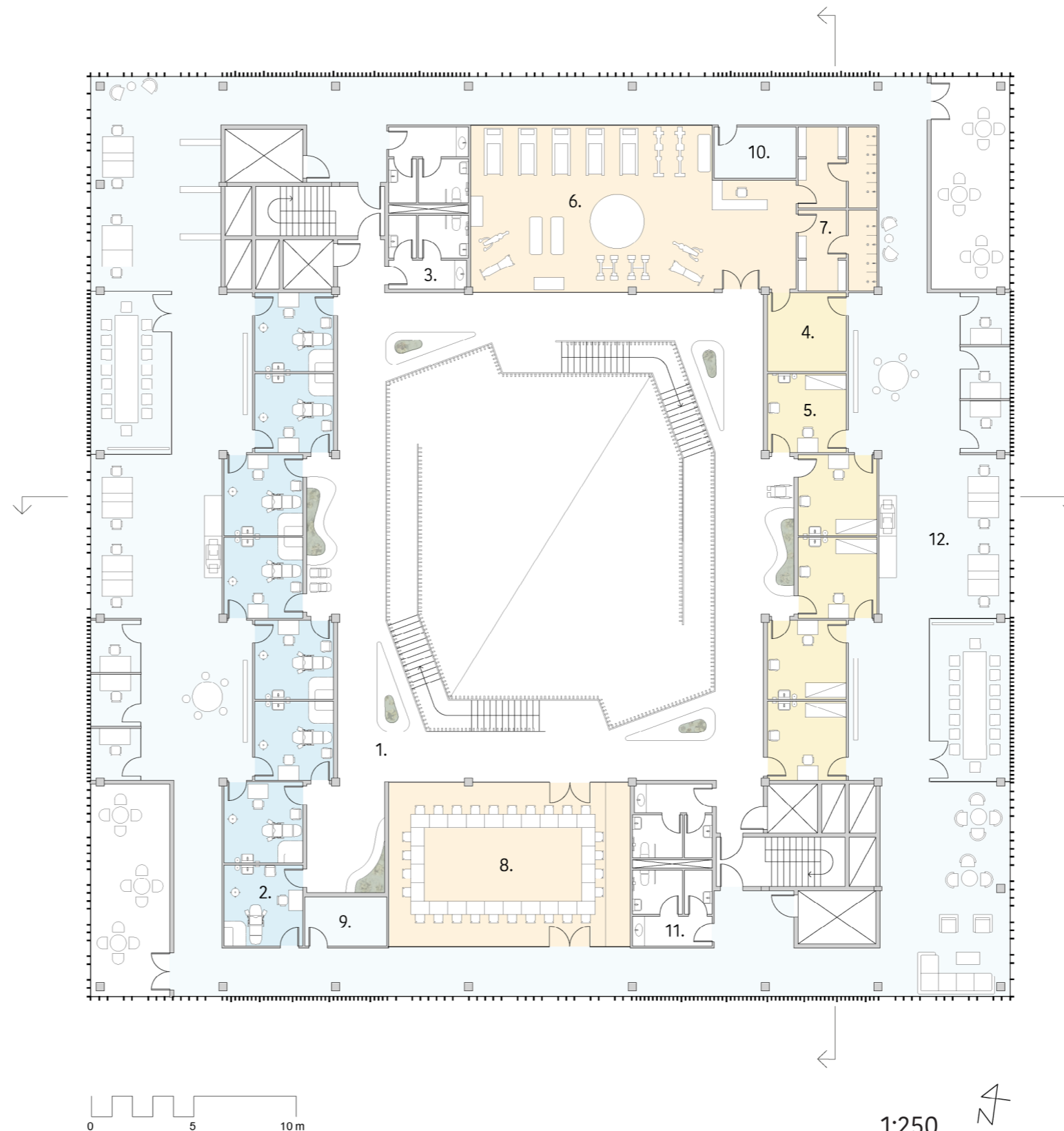
- 4. EQUIPMENT STORAGE
- 5. TREATMENT

SHARED FUNCTIONS:

- 6. GYM
- 7. CHANGING & SHOWER
- 8. CONFERENCE

STAFF:

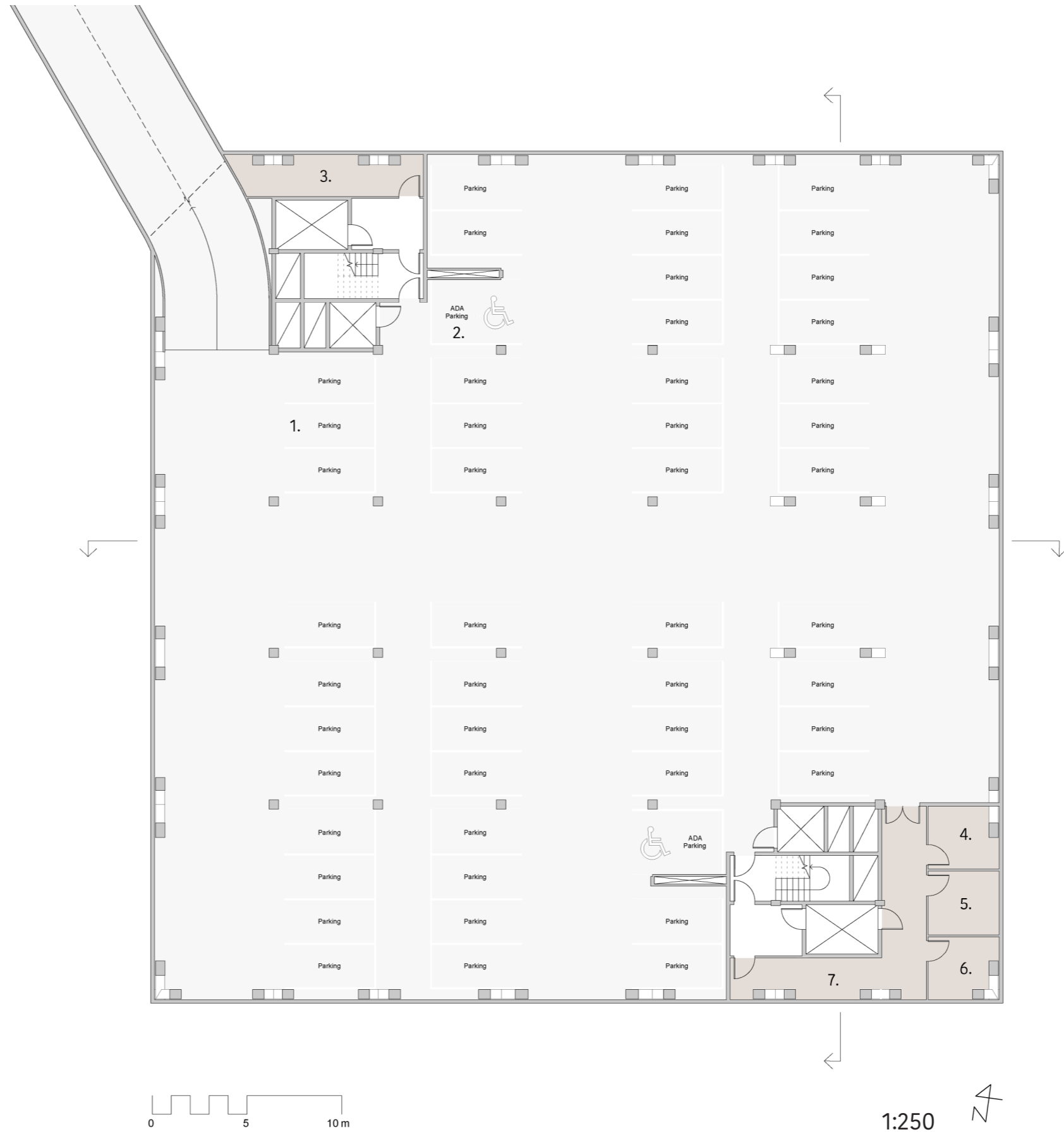
- 9. STORAGE STERILE
- 10. STORAGE
- 11. WC & RWC
- 12. ACTIVITY OFFICE



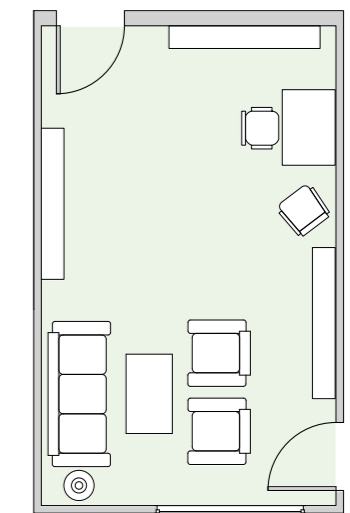
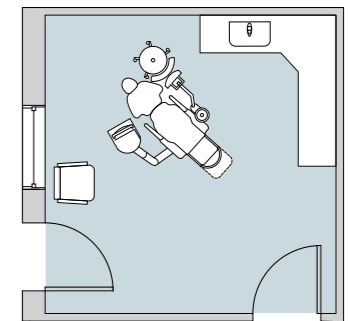
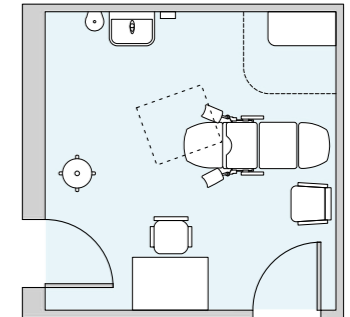
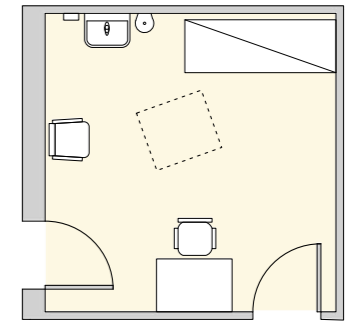
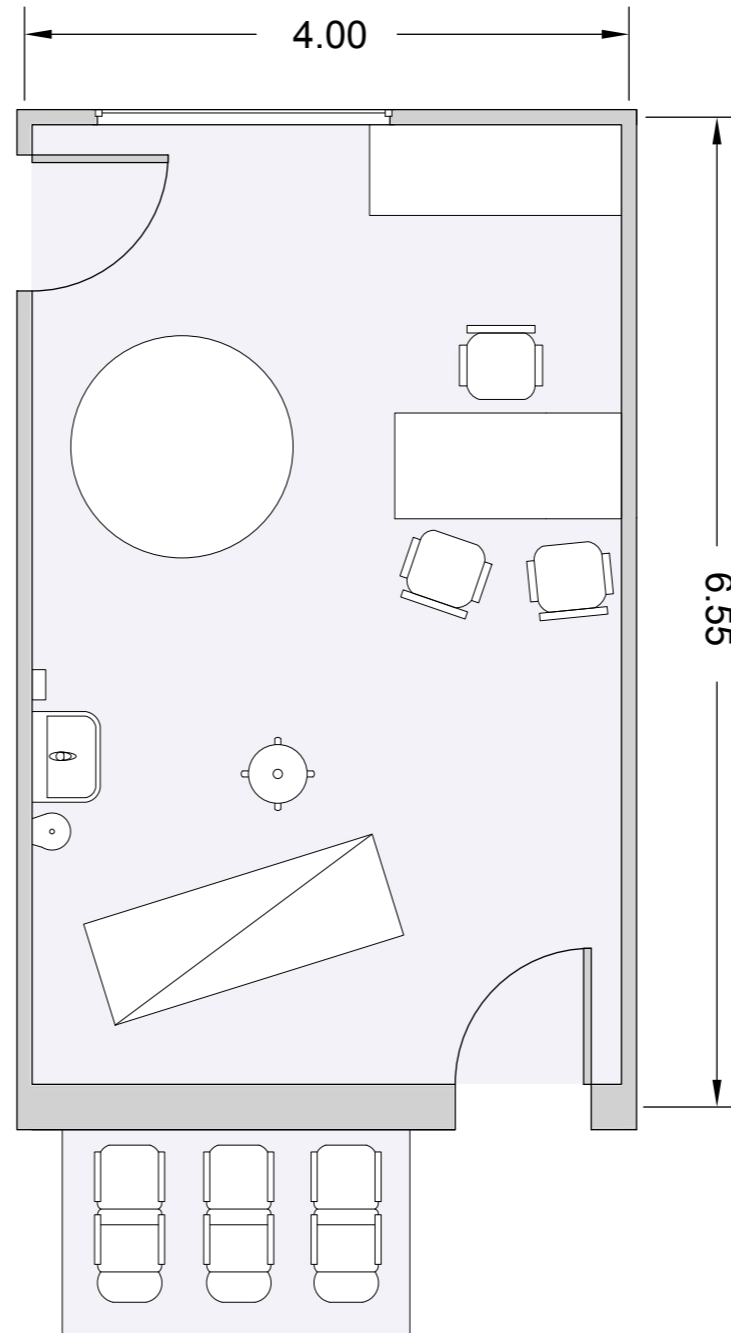
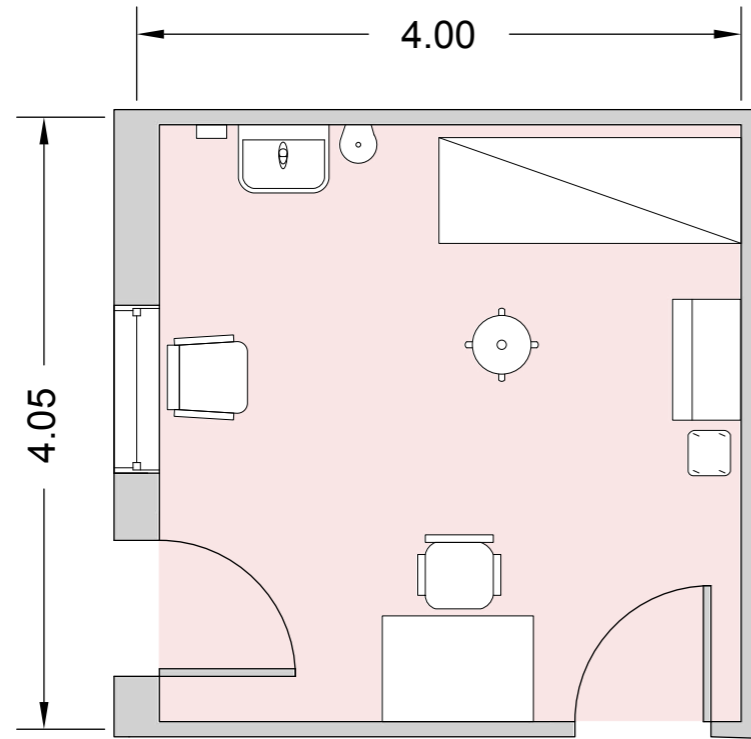
Third floor hosts the women's care in the west and the rehabilitation unit in the east. Light to the examination rooms enters from skylights in the roof. The rehabilitation has a shared gym with the public that can be accessible after working hours. In the south, there is a large flexible conference room which can also be rented by the public; it offers great views towards the centre of Karlskrona and Hoglands park.

BASEMENT

- PUBLIC:
1. CAR PARKING
2. ADA PARKING
- STAFF:
3. WASTE MANAGEMENT ROOM
4. STORAGE WOMENS CARE
5. STORAGE DENTAL CARE
6. STORAGE MEDICAL CARE
7. STORAGE



The basement has a parking garage for 50 cars which two is for APA closed by elevators. Part of storage spaces and waste room also taken place in this floor. Small delivery vehicles park close to the storage to deliver the goods.



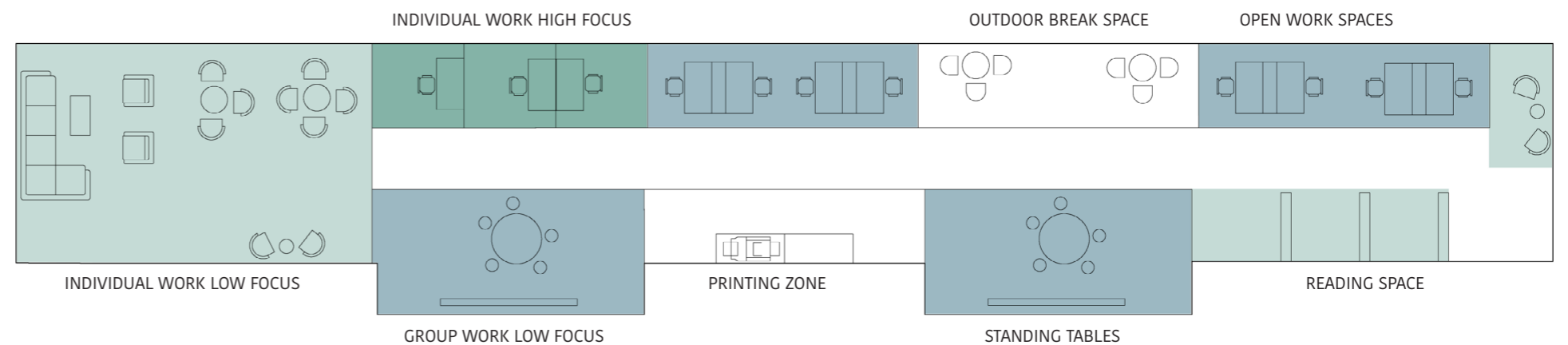
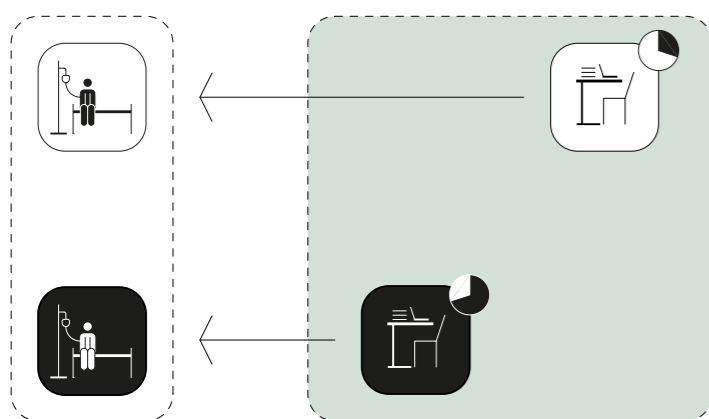
The examination rooms have two sizes. Which means that each medical unit can shrink and grow depending on future needs. The two larger ones are for child care and therapy. By giving extra room for child care the room has an area for a play, a niche area where strollers can be parked and extra space for storage. And therapy can benefit from having a similar layout as a small living room with comfortable furniture.



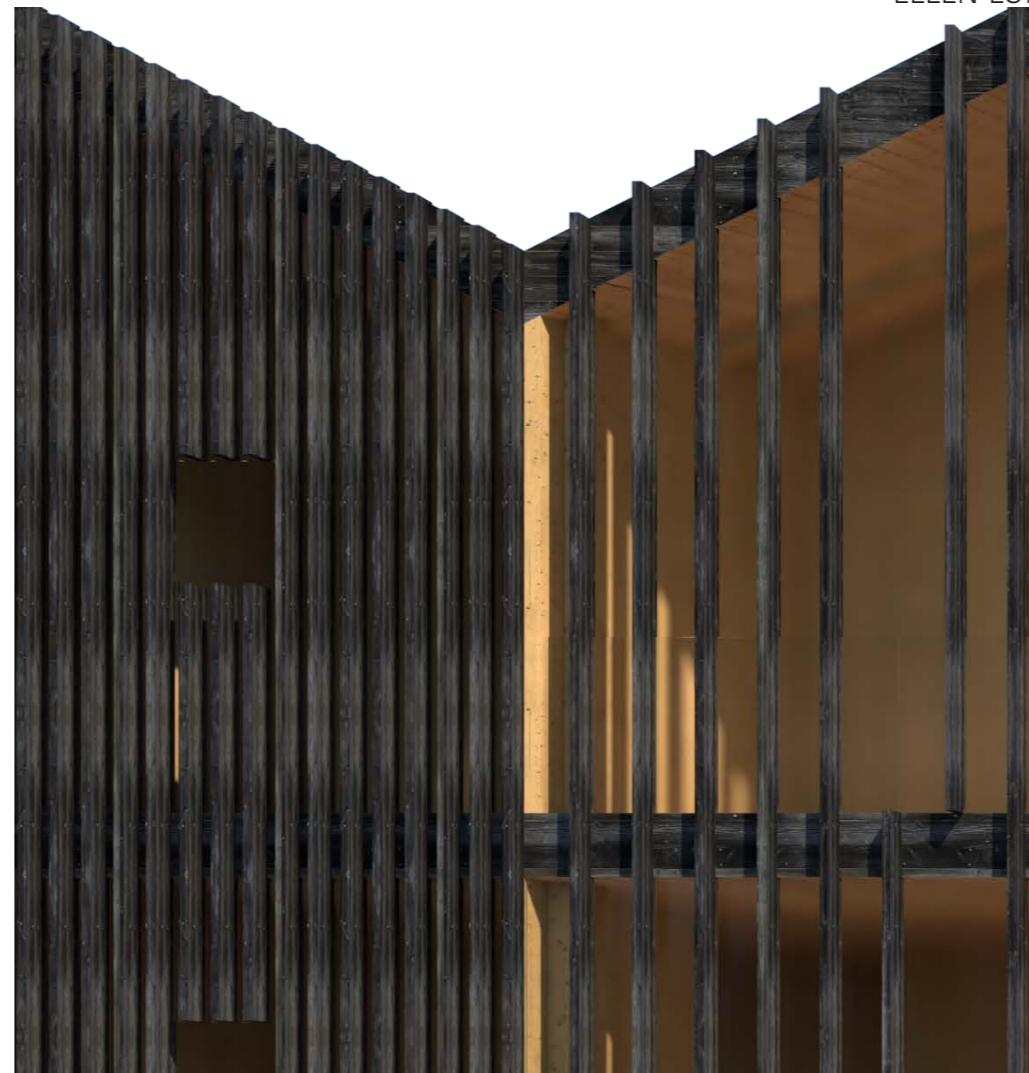
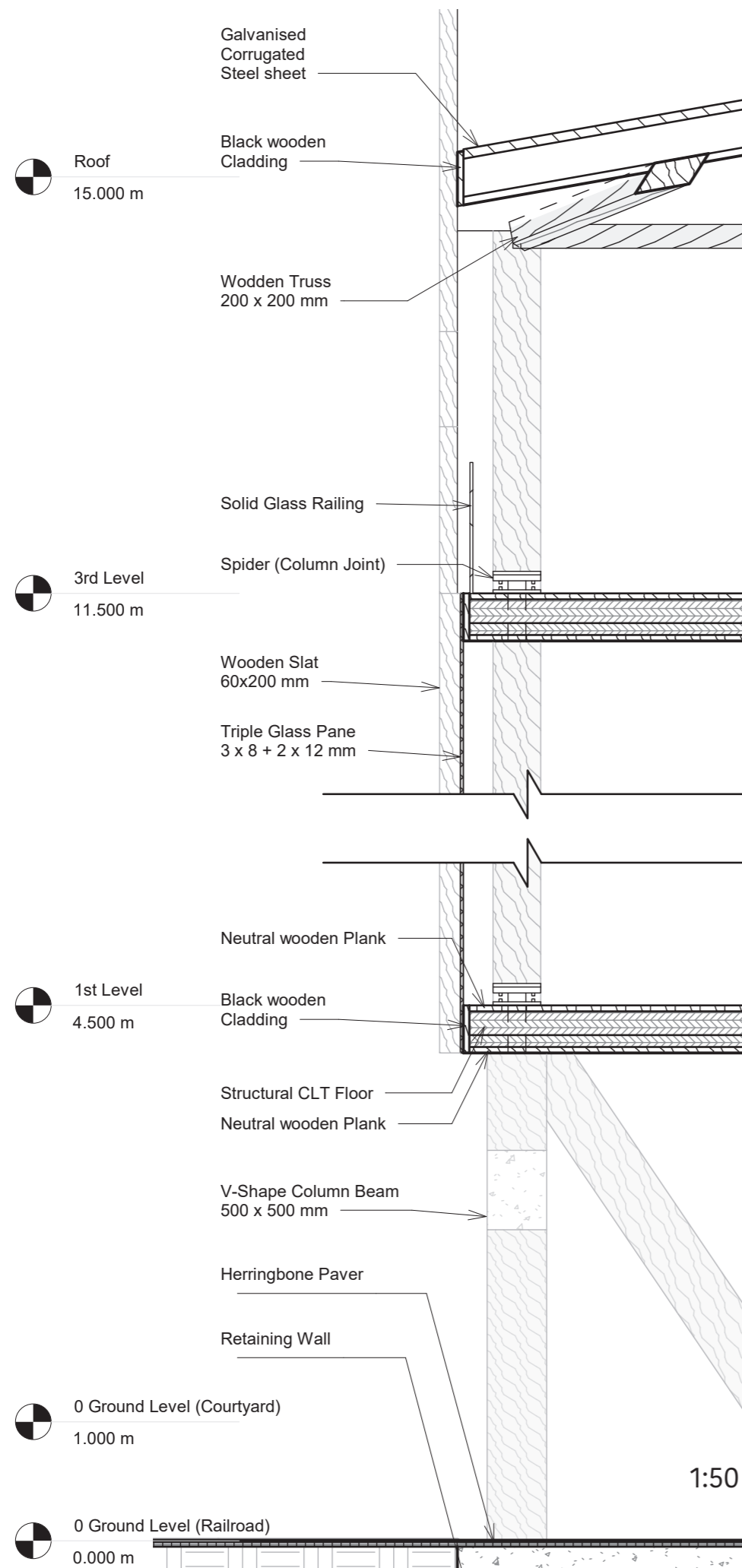
The outdoor courtyard allows people to interact with nature and offers therapeutic benefits. The two central sequential stairs are covered by glazed roof, not only for letting more light penetrates but also to protect it from rain. On first and second floors, there are two more private spaces, sheltered by more solid elements. Furnitures consist of warming system for colder seasons.



The utilization percentage of the examination rooms, in the study from “Administrativa Arbetsplatser” from Chalmers, is only 40 %; therefore, we have designed less rooms that will be shared amongst the staffs by a schedule. There is direct relation between keeping the administrative spaces closer to examinations rooms which helps to have higher rate of utilisation. Activity-based offices are zoned for particular purposes with both spaces for either individual or group activities.



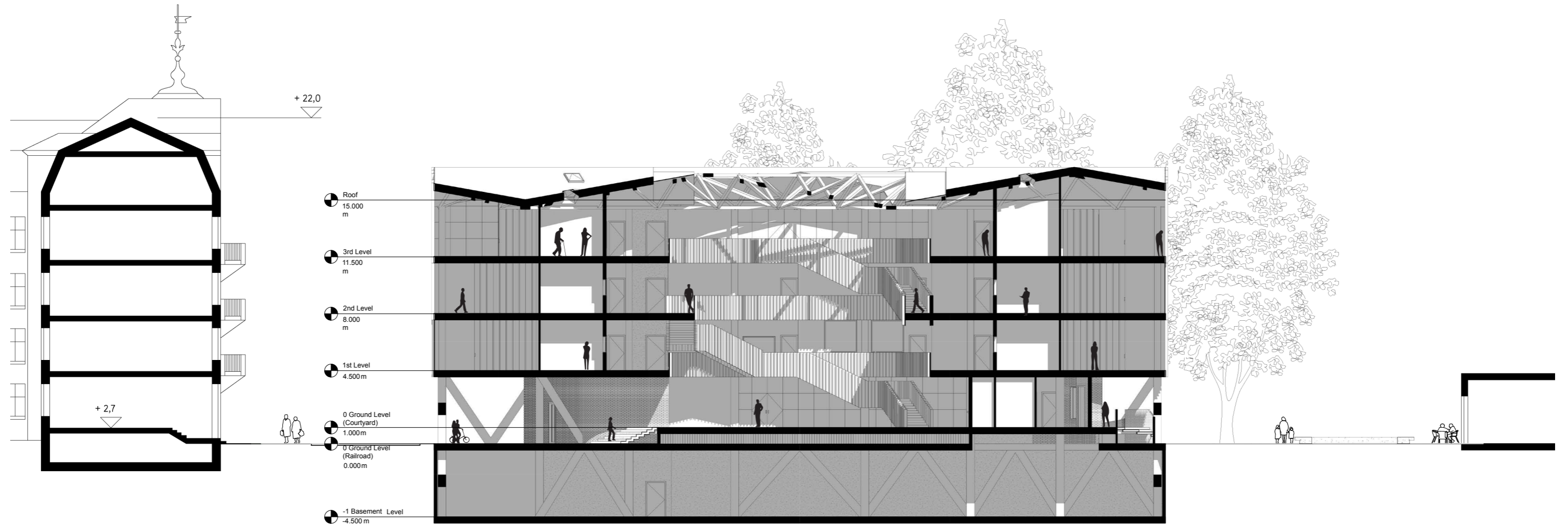
STRUCTURE & MATERIALITY



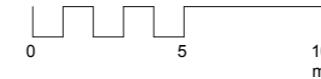
The material in the external facade is black wood combined with glazed curtain on the upper levels. While, the ground floor is in black brick, with in smooth wall corners.

Structure contains two parts: basement and ground floor stand on concrete columns, beams, and floors, in order to protect building from risk of water damage. In addition, from 1st level to top roof it is made of new tectonic beam-less system of timber, joined to structural CLT floors by a spider joint.

Roof structure is wooden trusses, covered by corrugated galvanised steel to be lighter and waterproof.



The east to west section, shows the relation of courtyard with surrounding rooms. In contrast to external façade, which is black, it is in neutral wooden slats, to offer brighter atmosphere.



1:250



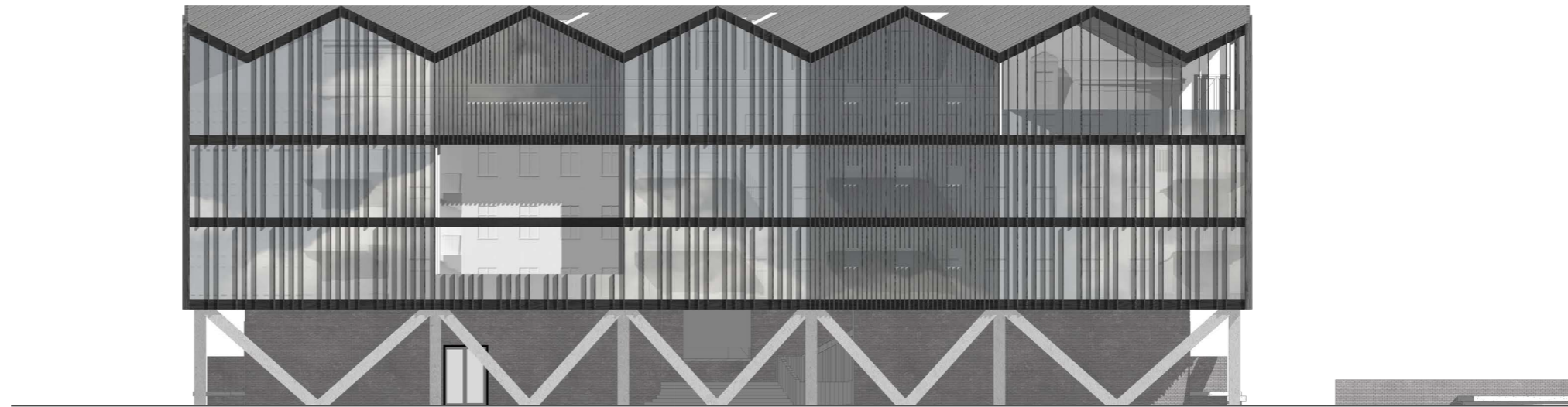
The north to south section, goes through examination rooms, and it properly reflects how shape of roof influenced by the number of examination room in each side.



1:500

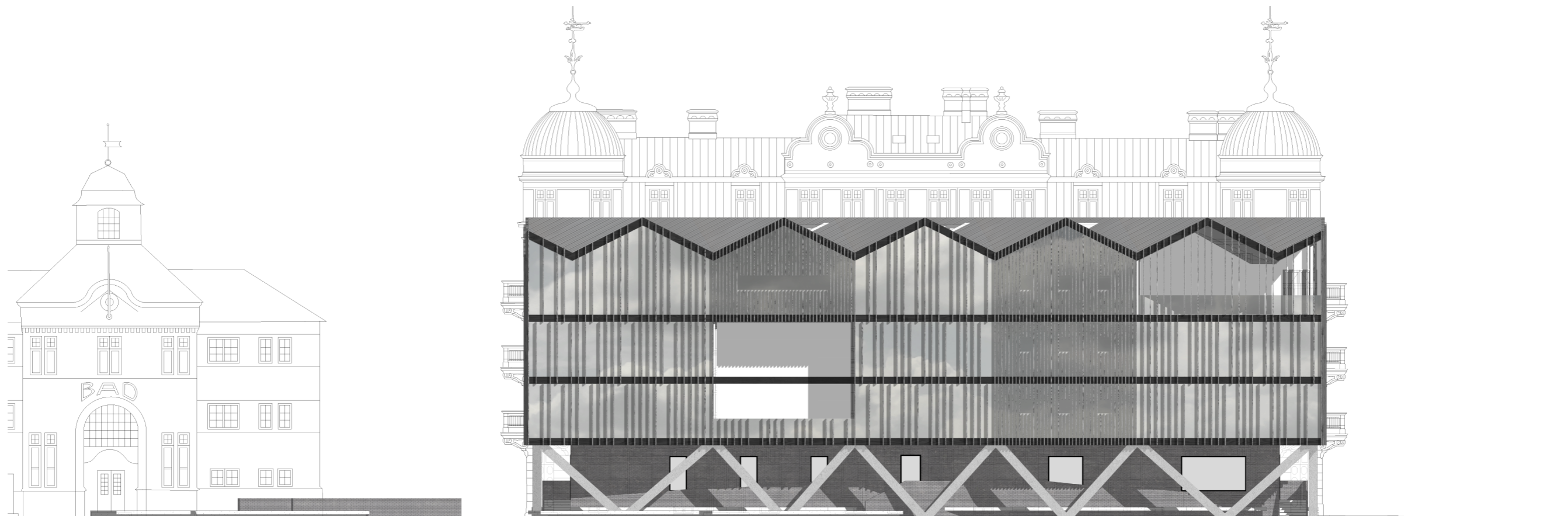


The angled trusses of the roof creates a more open space in the gym and the conference room. Coming to the gym and working out gives you an opportunity of looking towards the entrance of Trossö, as well as lights up the healthcare centre that can be seen from afar at night.



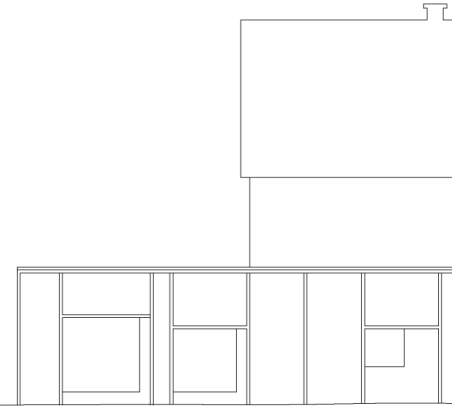
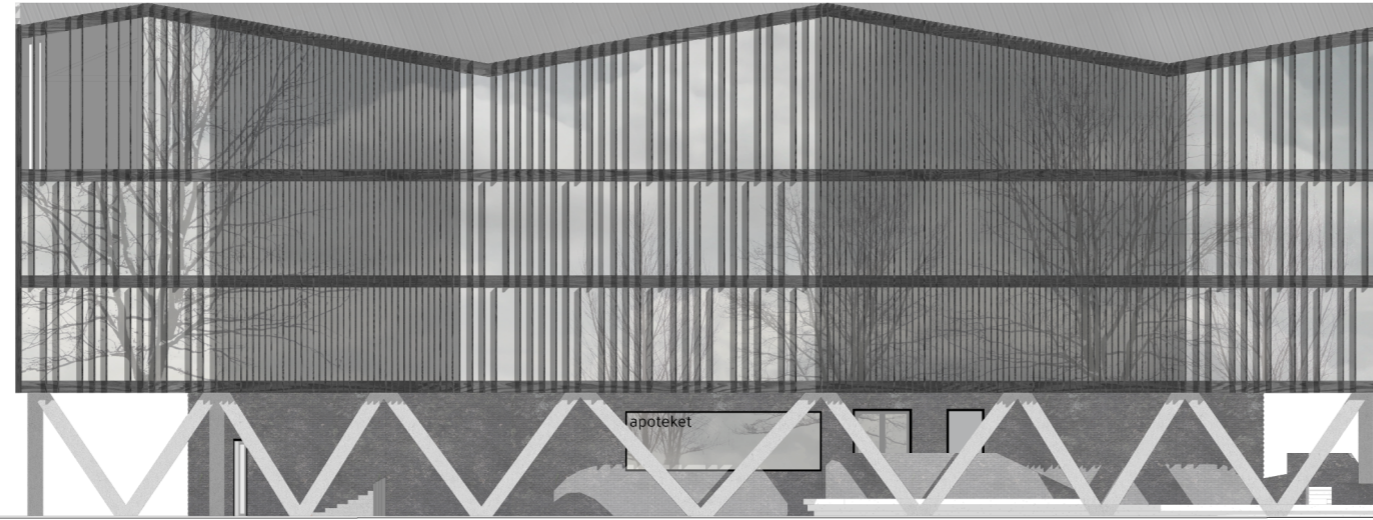
In east elevation, the glazed façade is meant to reflect Fribergsska huset. In both east and west façade, there are two balconies in the corners, for the staffs to have fresh air. The façade slats are continuous and wrap the balconies to meet the roof eaves.

East elevation 1:250



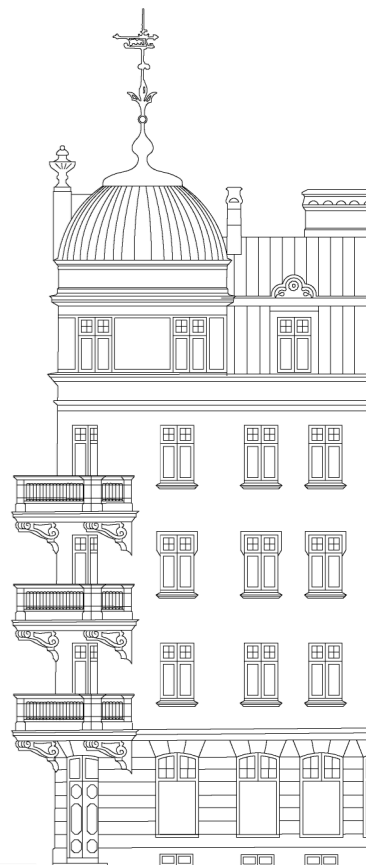
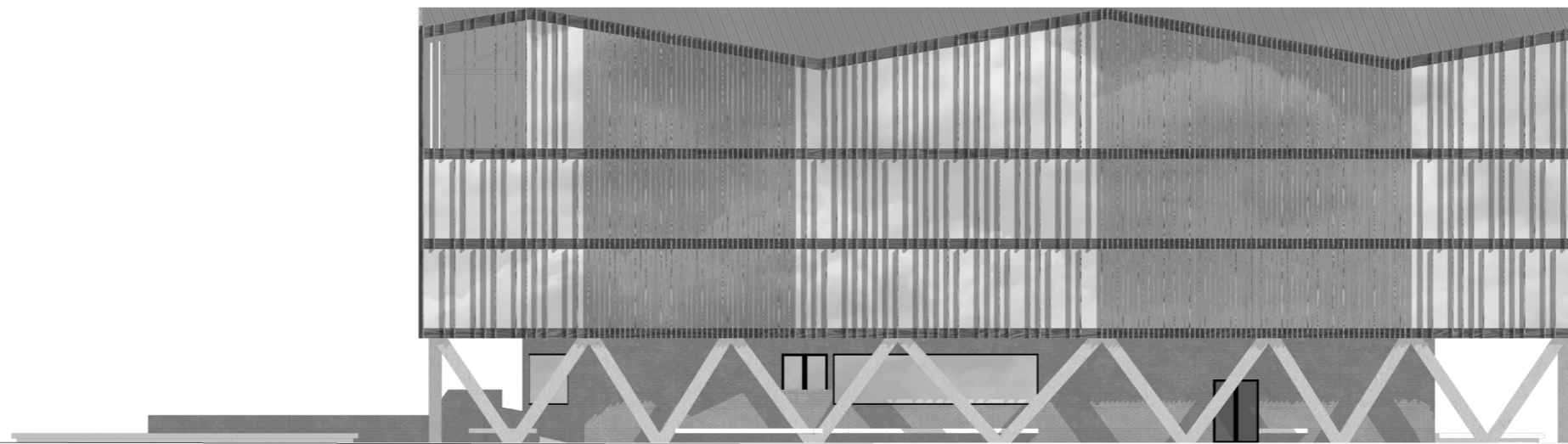
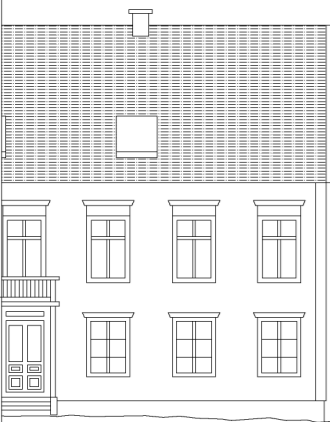
On the medical floor, staffs have access to two balconies with tall ceiling height which allow the sunlight enters deeper in that level. The density of slats is various depends on the activities inside behind it. Less density less focus space. More density, more privacy and higher focus.

West elevation 1:250



In north and south façades, the middle part is more transparent due to public functions inside. On the ground floor, connecting to the brick facade, casted concrete seating is prepared, in order to have it active.

North elevation 1:250



South elevation 1:250



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