

# LAYERS

## NEW HEALTHCARE CENTER IN ÖREBRO

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# VISION

We would love to propose a health-promotive healthcare center that intensively interacts with its neighbourhood and welcomes its community. We want people to feel comfortable coming and using the healthcare facilities, instead of being afraid. We propose a transition layer with health-promotive activities between the city and the core healthcare facility, making the interface softer and more welcoming



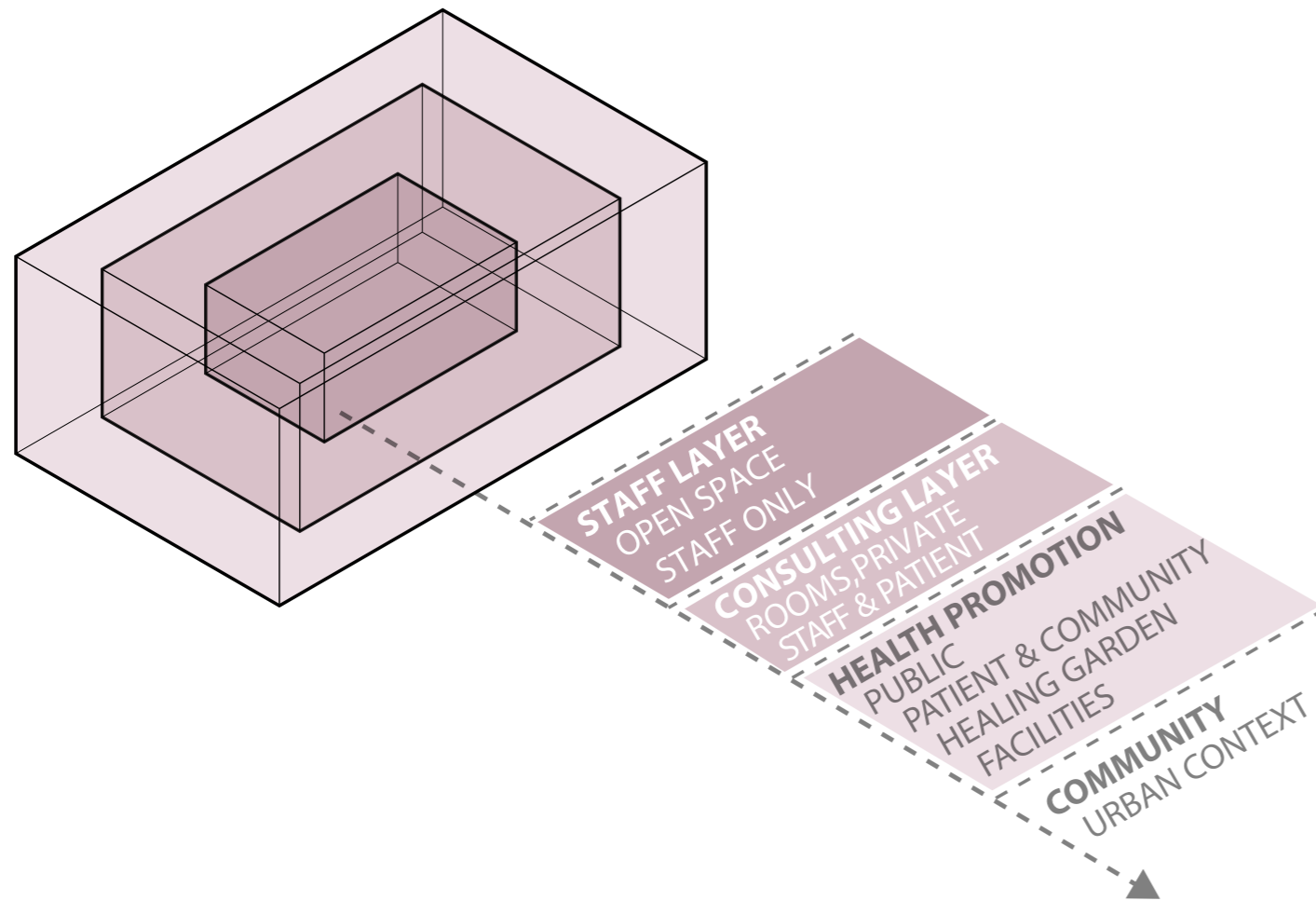
“Health-promotive hospital”  
defined by Hancock, 1999

*A health promotive hospital recognizes that its resources and status within the community can improve the health of the community and narrow the gap in health status within the community.*

1. high-quality comprehensive medical and nursing services;
2. a corporate identity that embraces the aims of health promotion;
3. health-promoting organizational structure and culture, including active, participatory roles for patients and all members of staff;
4. health-promoting physical environment;
5. Actively cooperates with its community.

# CONCEPT

Our concept is simplified as graphical diagram as below, which is about several layers wrapping together. From outside to inside, it includes a health promotion layer, a consulting layer and a staff layer. This concept shows our intension to work on the relationship between healthcare facilities and the community as well as patients and staff.



## Health Promotion Layer

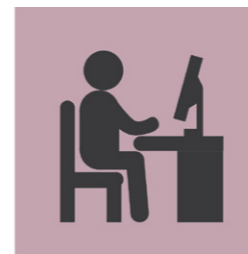
This layer acts as an interface between healthcare facilities and the community. With public health-promotive activities, it invites different people to take part in self-health-promotion, to understand healthcare facilities more and stop being afraid of it.

It also acts as waiting space for the patients, in which they could enjoy public facilities as other citizens and feel themselves less like patients.



## Consulting Layer

This layer is where the patients meet their doctors or nurses. There are consulting rooms with examination equipment and some supporting facilities such as toilets and storages in it.

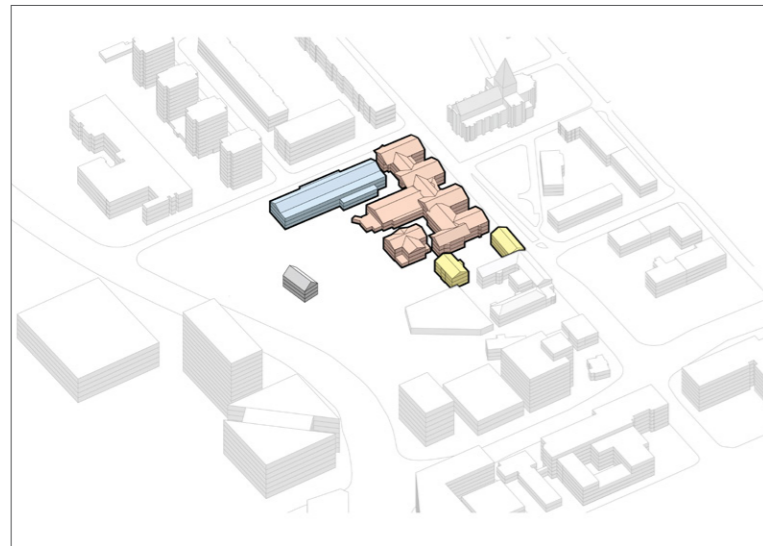
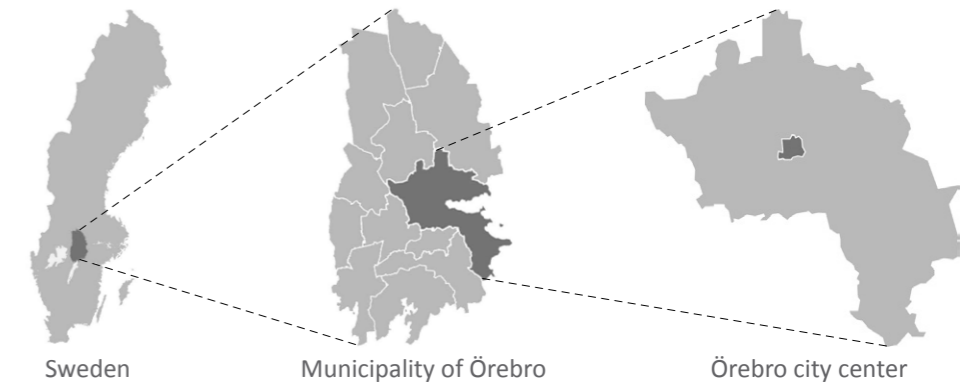


## Staff Layer

The staff has a separated flow from the patients in their specific layer. In this layer, they can do the administrative work, discuss with their colleagues and have some leisure time to ease stress.

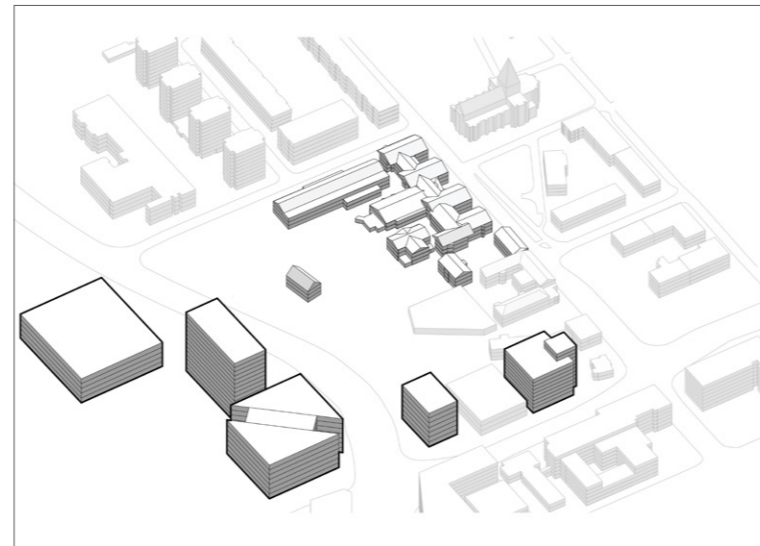
# CONTEXT

We look at the context to decide the relationship between the new healthcare center and the city, in terms of where to build it, how big the volume is, the character responding to the site and its connection to urban traffic system.



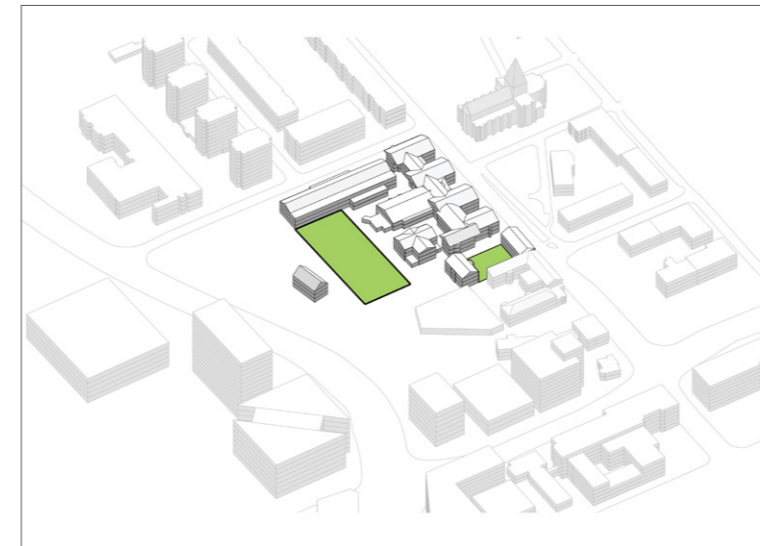
## Existing buildings to keep

- existing primary care
- residential
- healthcare in history



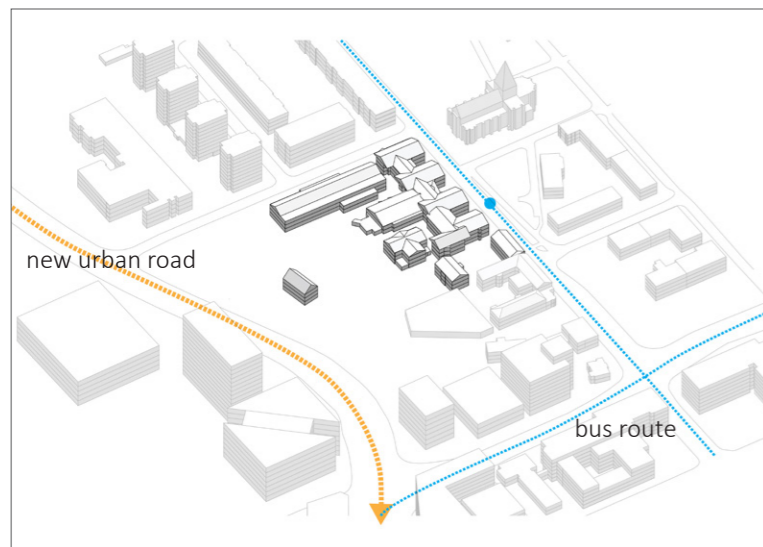
## Buildings in future planing

There will be buildings with bigger volume in the future, which the new healthcare center will be responding to.



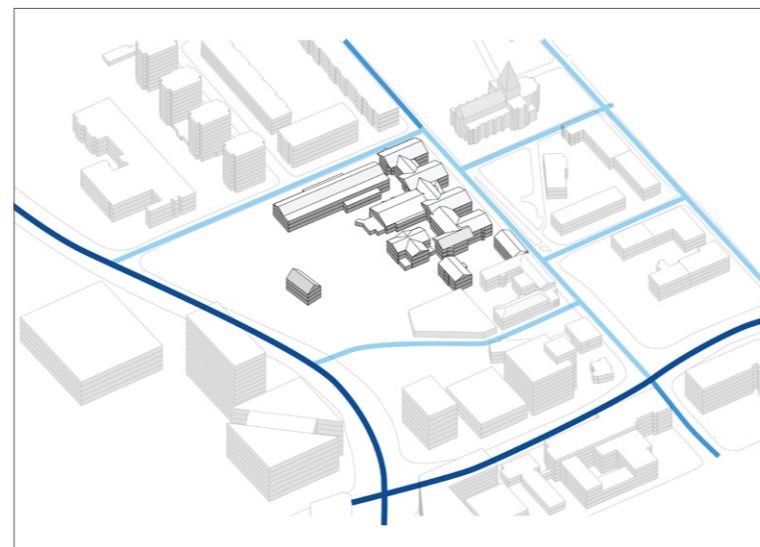
## Gardens

One lovely character of the site is its gardens, which we intend to keep in our proposal.



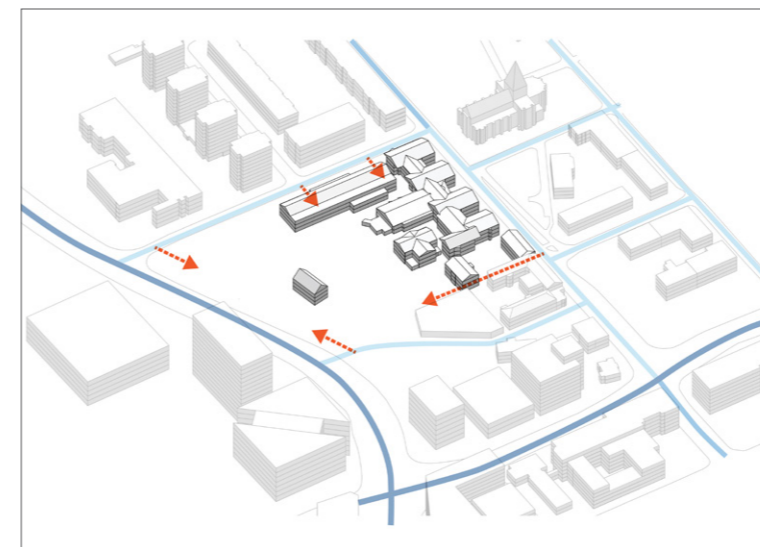
## New urban road and bus route

A new urban road is going to take place of the existing highway, where we could foresee more bus routes happen.



## Car flow

There are busier roads at the west and south side of the site and we could foresee them even busier in the future.



## Pedestrian flow in the site

Pedestrians are entering the site from several directions. The future entrances should respond to this regular routines.

## Conclusion

### Buildings & Volume

Keeping some of the existing buildings and proposing bigger volume for the new healthcare center.

### Site character & Gardens

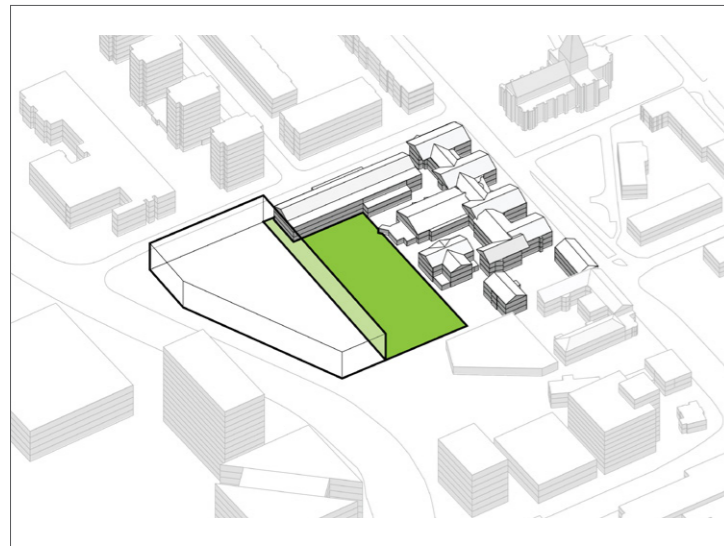
Keeping the gardens to maintain the memory and character of the site.

### Traffic & Entrances

Putting the main entrance along the new urban road and other entrances in different directions responding to pedestrians' regular routines.

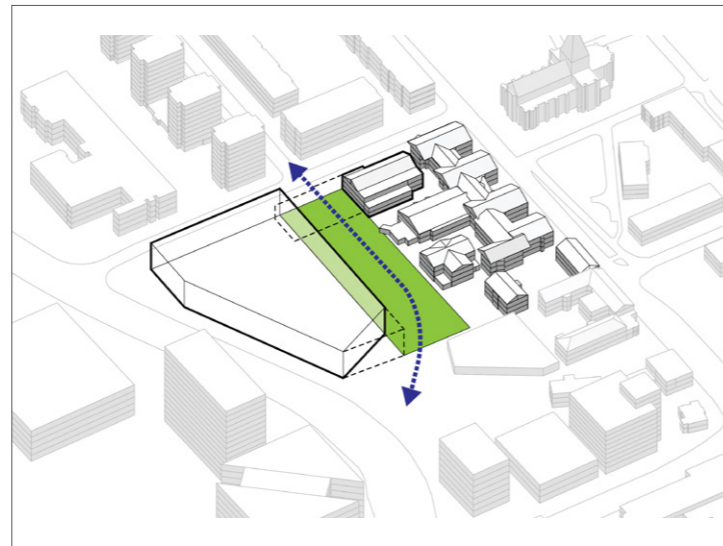
# BUILDING DEVELOPMENT

In this process, concept meets context. While dealing with the complex situations of the urban context, we stick to our concept of layers, making it logical to develop our proposal step by step.



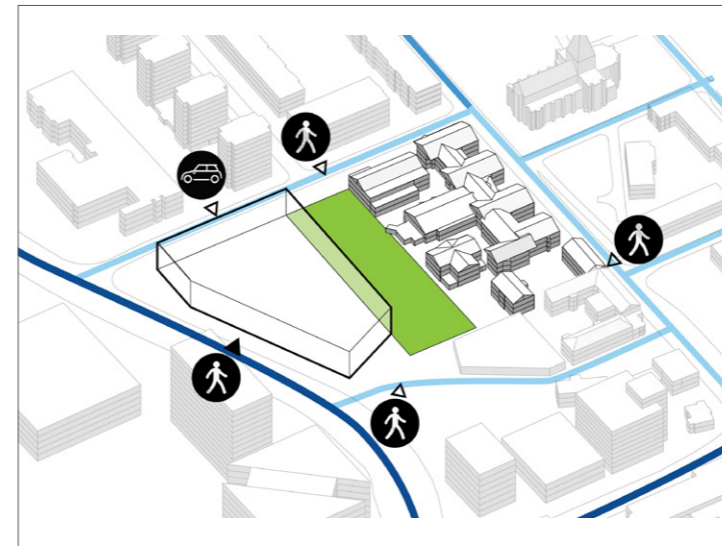
## 01. Building volume and garden

Proposing a building with bigger volume and has similar height to the nearby ones and keeping the gardens.



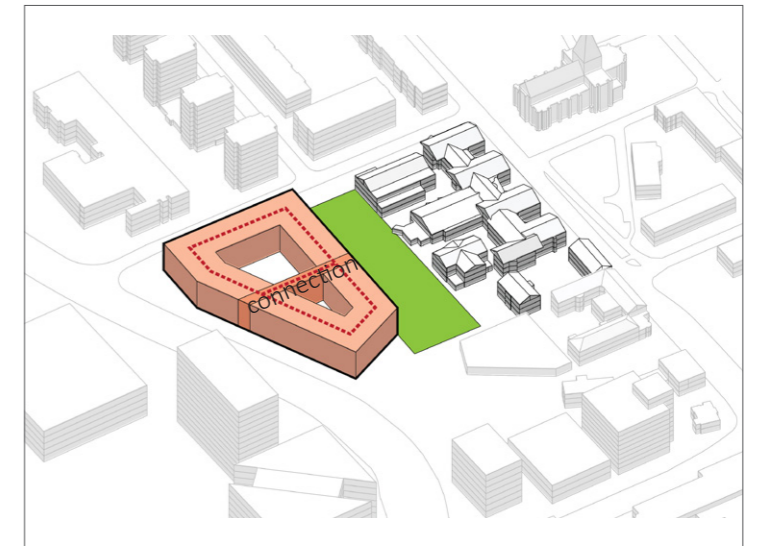
## 02. Opening the garden

Opening the gardens to invite the community to use it, reactivating the site.



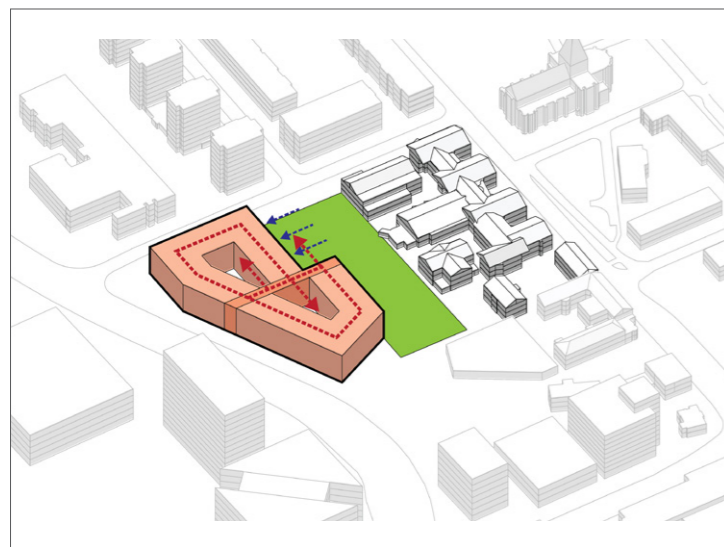
## 03. Entrances

Based on the traffic analysis, putting entrances in. The main entrance is along the new urban road.



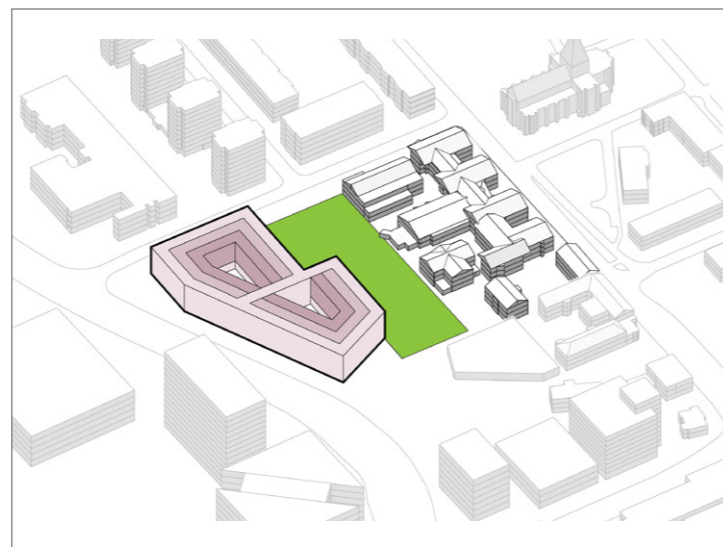
## 04. Structure of the building

Adding an efficient connection between the garden and urban and proposing a circulation with two loops.



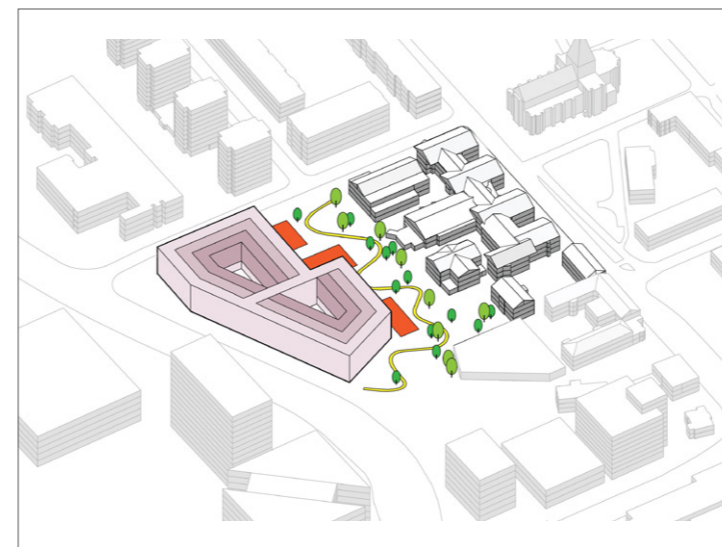
## 05. Shifting

Shifting to enrich the connection with courtyards and open space, which also makes way-finding easier.



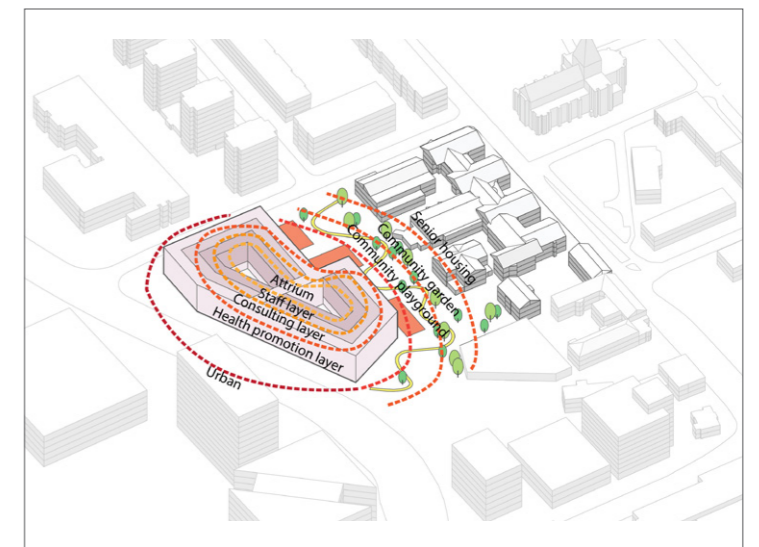
## 06. Conceptual layer

Putting the conceptual layers in with an open ground floor to visually connect the garden and the urban road.



## 07. Extension of the concept

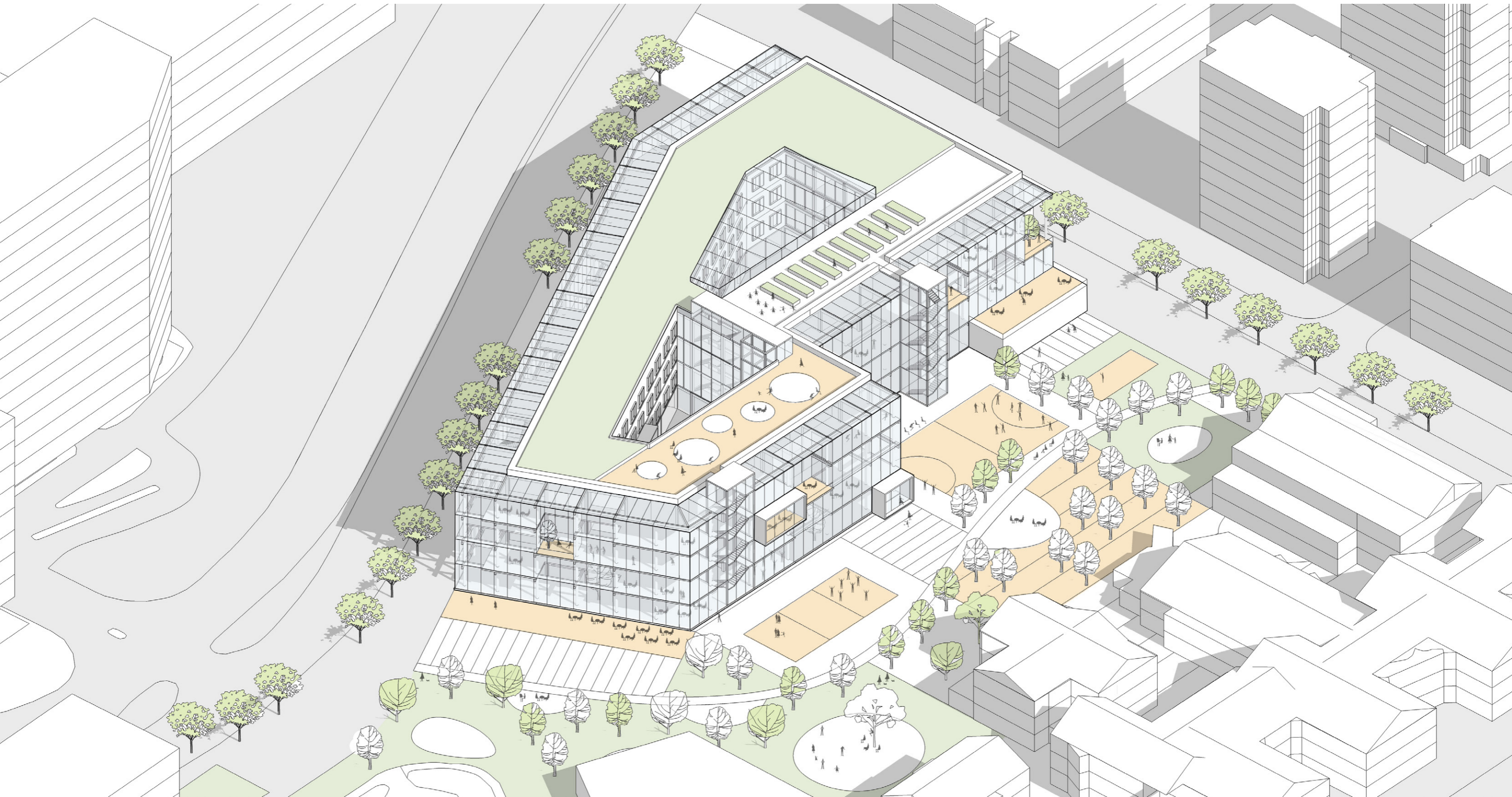
Extending the concept of layers outwards to the garden, using a path to divide it into playgrounds and gardens.



## 08. Conclusion

The new healthcare center has a boundary soften with layers, which is friendly and welcoming to community.

We propose a transparent health-promotive layer, which is visible to the community and even the city. It does not end with a facade, but extends to the garden and to the city, inviting people to take part into self-health-promotion and making themselves feel comfortable of using healthcare facility.



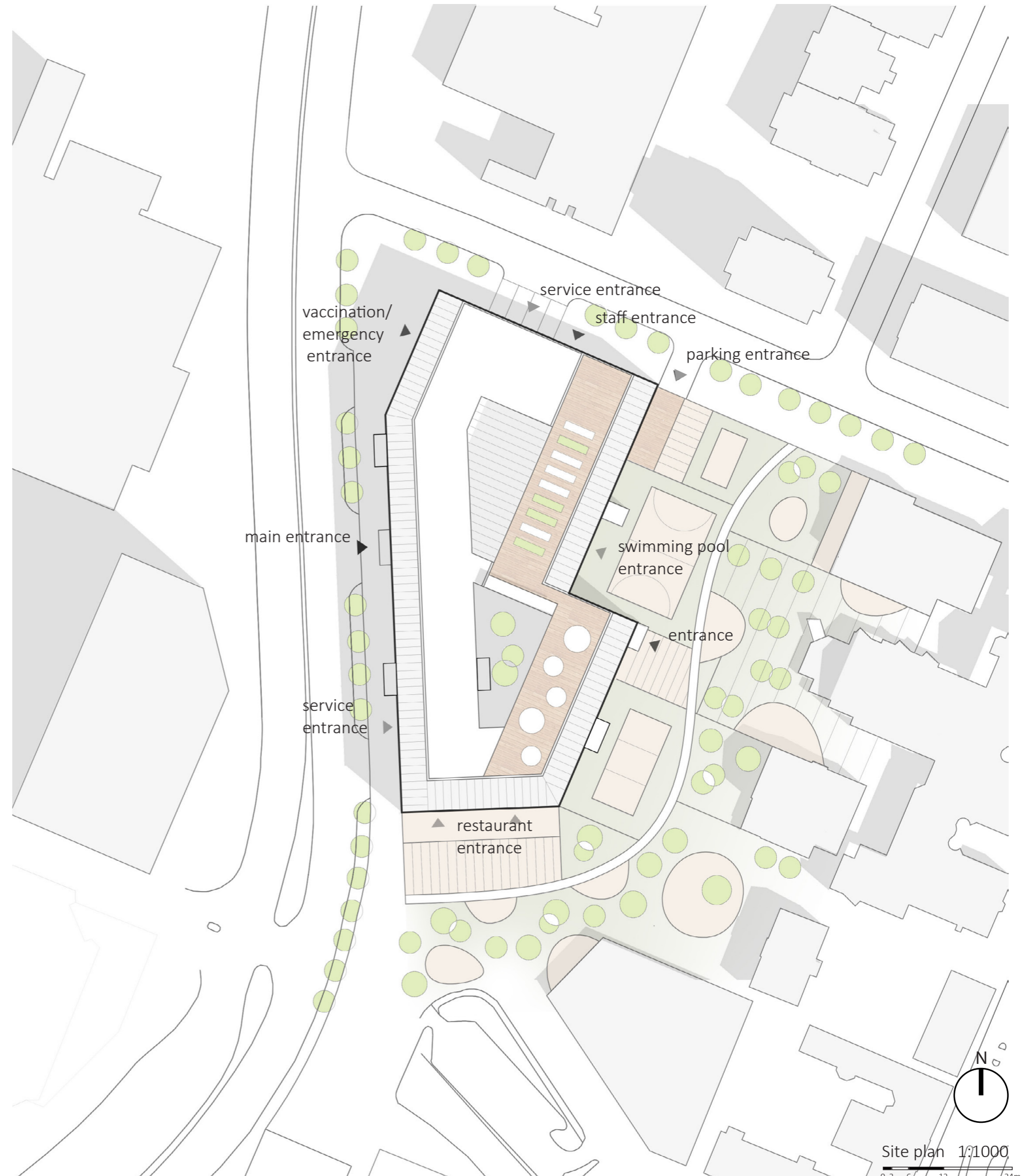
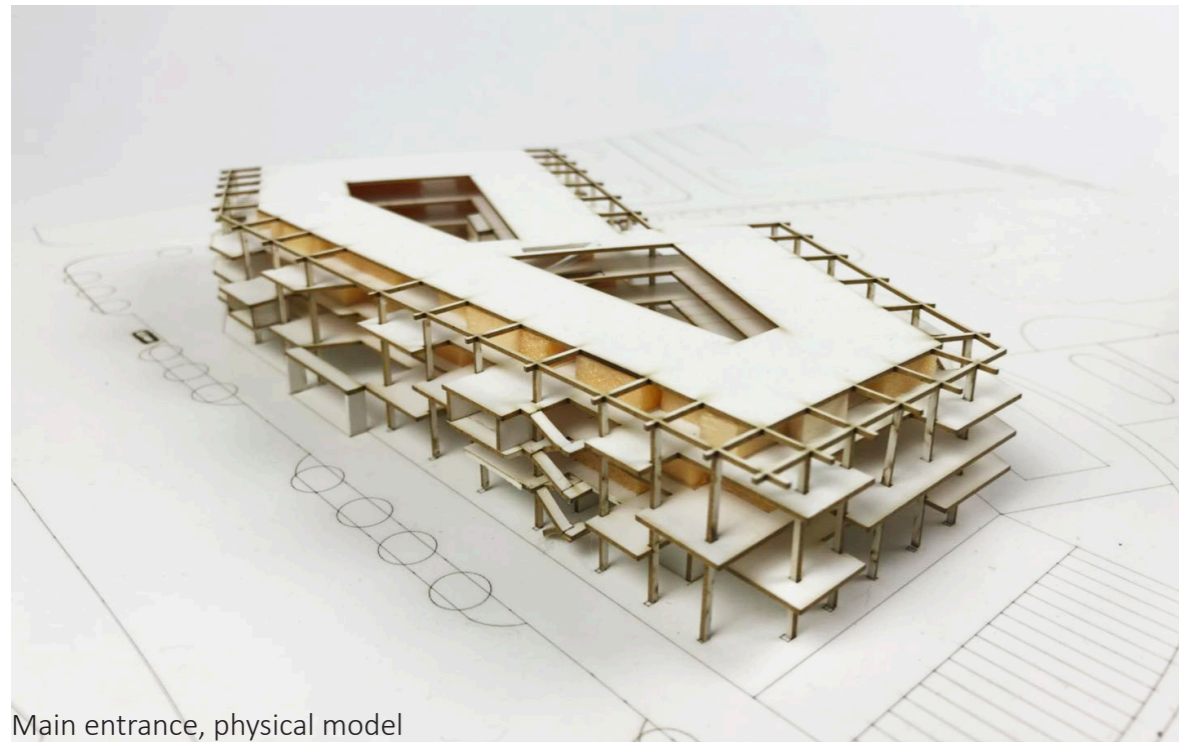
# SITE PLAN

Along the new urban road, the main entrance of the new healthcare center is visible as an extrusive box from the glazed facade. There is also an entrance for mass vaccination (daytime) and emergency department (nighttime) at the northwest corner of the building. People can also enter the building from the garden with another extrusive entrance. Both swimming pool and restaurant have their separated entrance directly linked to the community garden.

An entrance for the underground parking is at the northeast corner of the building. The staff can choose either enter the building from the north entrance on the ground floor or drive their car to the garage. The service entrance for the healthcare facility is also at the north while another service entrance for the restaurant and pharmacy is at the southwest corner.

## Area

Ground floor:	5256 m <sup>2</sup>
Typical floor:	4172 m <sup>2</sup>
Total using area (without basement):	17772 m <sup>2</sup>
Basement:	5470 m <sup>2</sup>
Corridor / typical floor:	26.9%
Core Healthcare area / typical floor:	56.4%

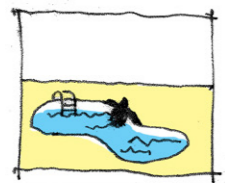




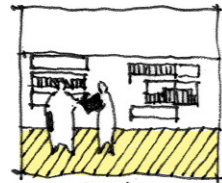
# GROUND FLOOR

Entering the ground floor from an extrusive box, an indoor atrium welcomes all the visitors, in which they can seek for help from the information desk or do self-check-in easily. Then they can choose either to lead themselves with the stairs to the core healthcare facility in the upper floors, or enjoy other health-promotive programs on the ground floor, which includes a library with medical and health knowledge, a swimming pool, a gym, a pharmacy and a restaurant that offers healthy and organic food. There is also an employment office and an insurance office. As for the staff, after entering the building, they can get dressed and go to their floors with elevator.

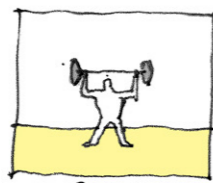
## Activities



SWIMMING/SPA.



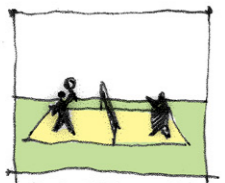
LIBRARY



GYM.



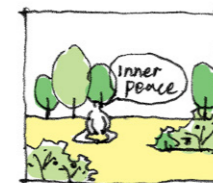
RESTAURANT



PLAYGROUND.



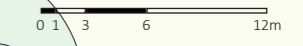
URBAN FARMING



HEALING GARDEN.



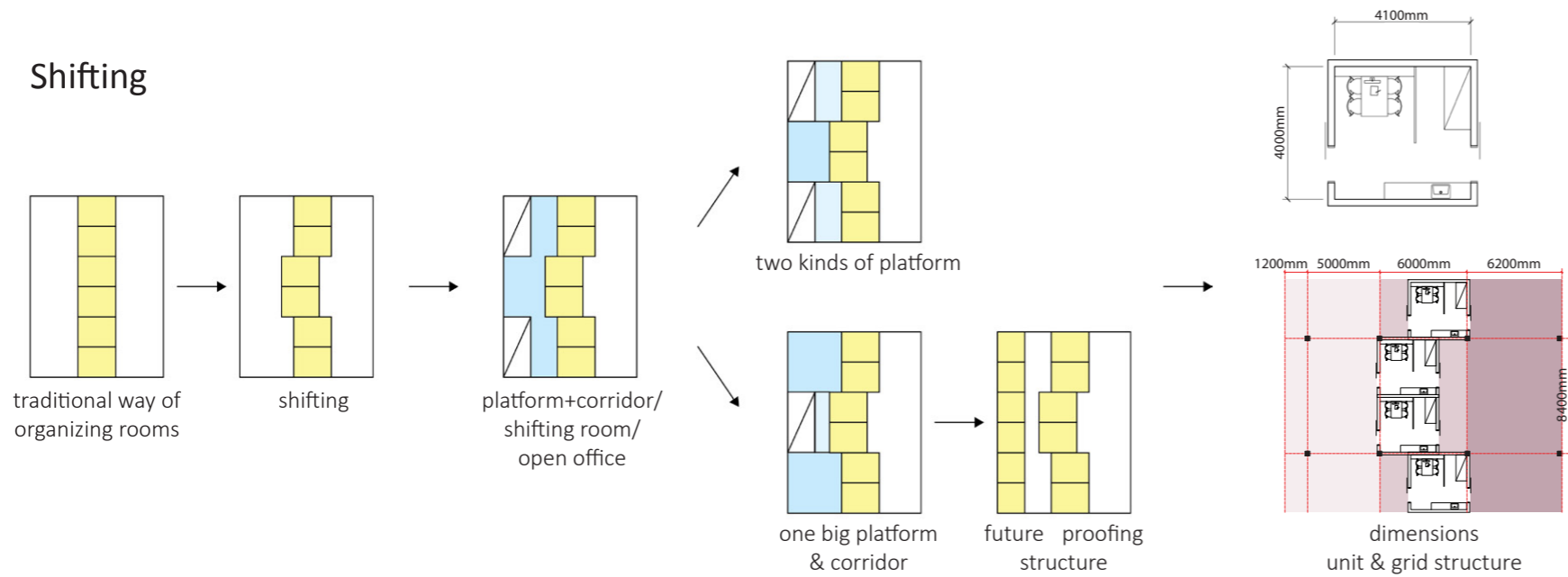
Ground floor plan 1:500



# TYPICAL FLOOR

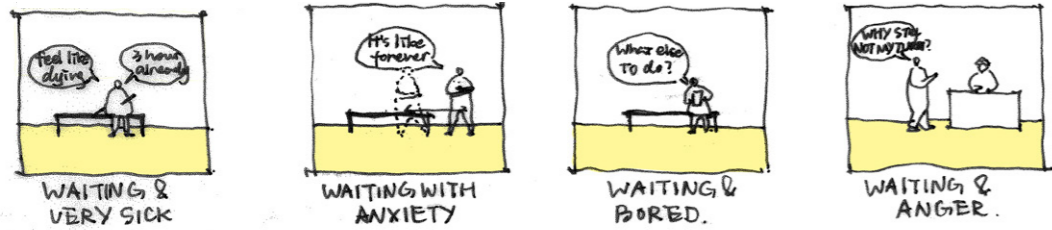
The typical floor plan is based upon the traditional way of separating patient and staff flow with two corridors, but imagining these corridors more like open floor plans. From first to third floor, every floor is divided into three layers as the concept and have efficient flow for patient and staff respectively. Shifting is making these three layers combined more organically.

## Shifting



## Activities in health-promotive layer

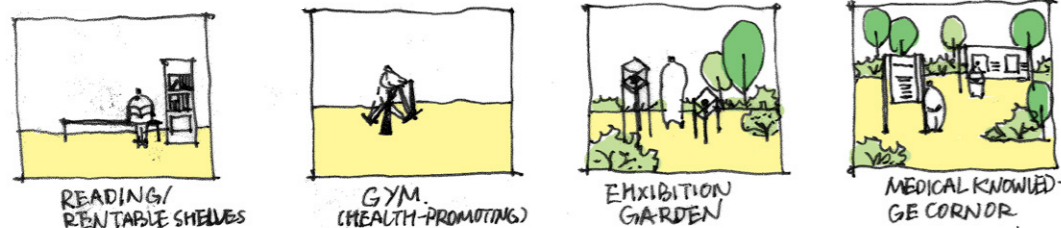
Problem 1: waiting



Solutions in terms of anxiety



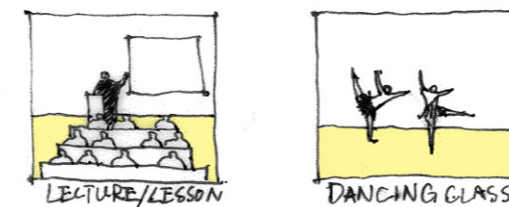
Solutions in terms of bored



Problem 2: feeling like patient

Patients easily feel uncomfortable and less confident about themselves being sick. We want to create an atmosphere to make them feel less like patient.

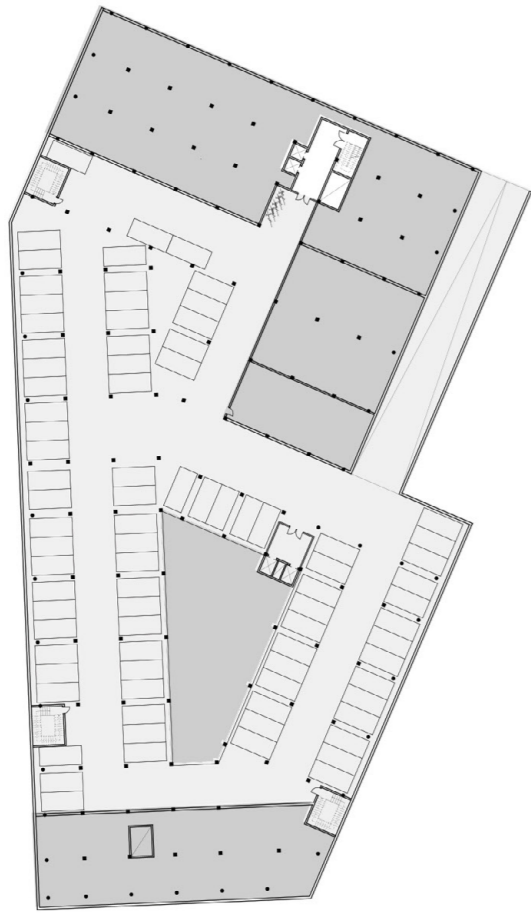
Solutions: involving other citizens



Second floor plan 1:500

0 1 3 6 12m

# FLOOR PLANS



**Basement**  
 garage  
 technical



**Level 1 (ground floor)**  
 public  
 emergency/  
 vaccination  
 1177  
 logistics  
 staff area



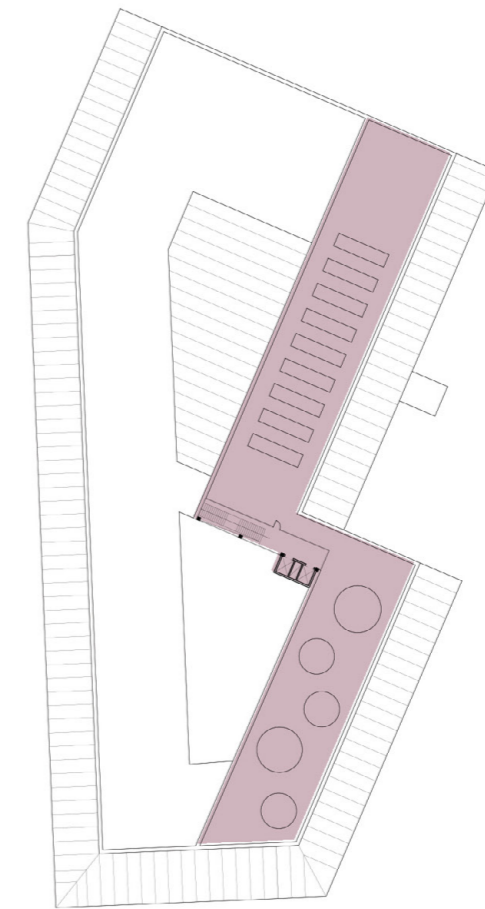
**Level 2**  
 public  
 staff area  
 primary care  
 orthopaedic  
 x-ray  
 ear, nose, throat  
 sampling



**Level 3**  
 public  
 staff area  
 family center  
 physiatrist  
 day care  
 surgery  
 rehab

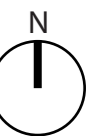


**Level 4**  
 public  
 staff area  
 dentist  
 gynecologist  
 operation  
 neurologist  
 pain

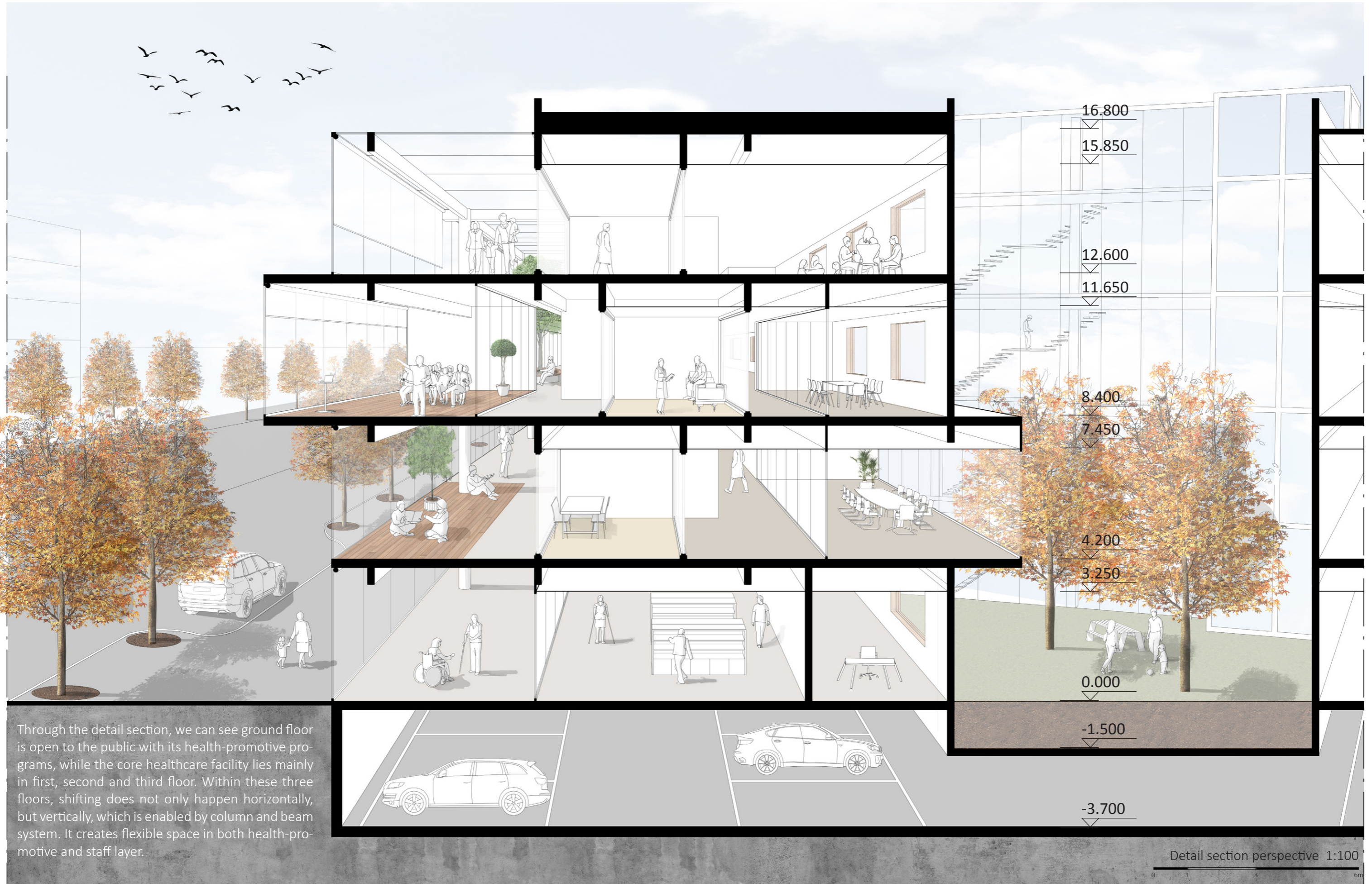


**Level 5**  
 rooftop garden

Floor plans 1:1000  
 0 5 15 30m



# DETAIL SECTION



Through the detail section, we can see ground floor is open to the public with its health-promotive programs, while the core healthcare facility lies mainly in first, second and third floor. Within these three floors, shifting does not only happen horizontally, but vertically, which is enabled by column and beam system. It creates flexible space in both health-promotive and staff layer.

Detail section perspective 1:100



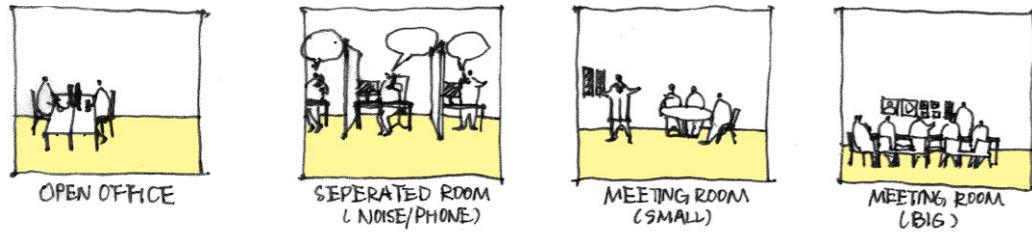
# CONSULTING & STAFF LAYER

The consulting layer is where the patient meets the doctor. It contains mainly consulting rooms, where the patients could consult about their health status as well as examine their body. But this layer is not continuous, with some openings that provides view connection between health-promotive layer and staff layer.

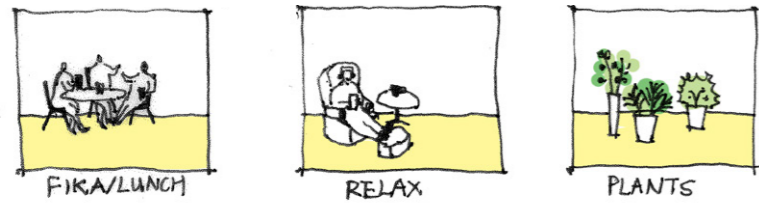
In the staff layer, we would like to propose an open and free office environment with natural sunlight. Through studying activities happening in the staff area, we get to know the space types and we are able to group different rooms into clusters, using the same modular grid.

## Activities in staff layer

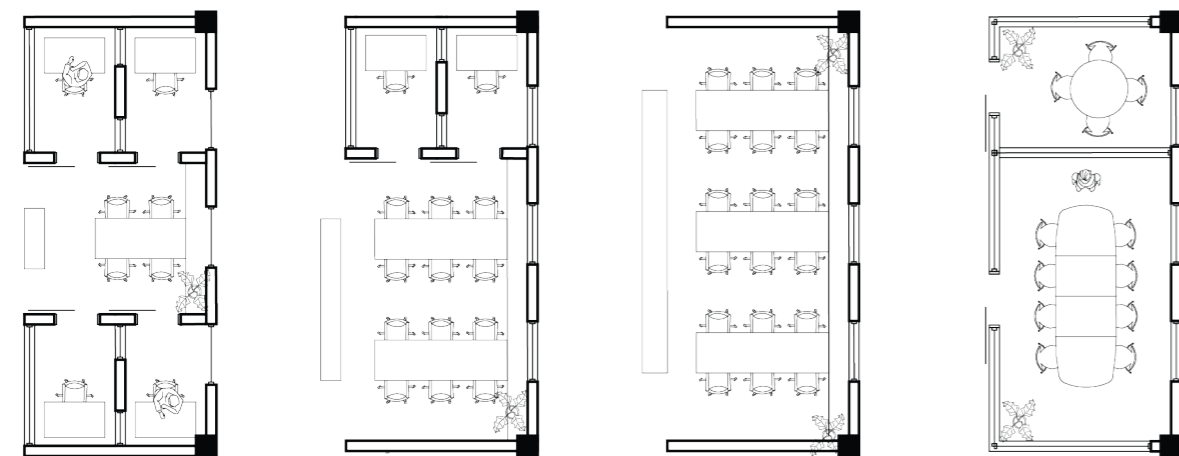
Working in different types of offices



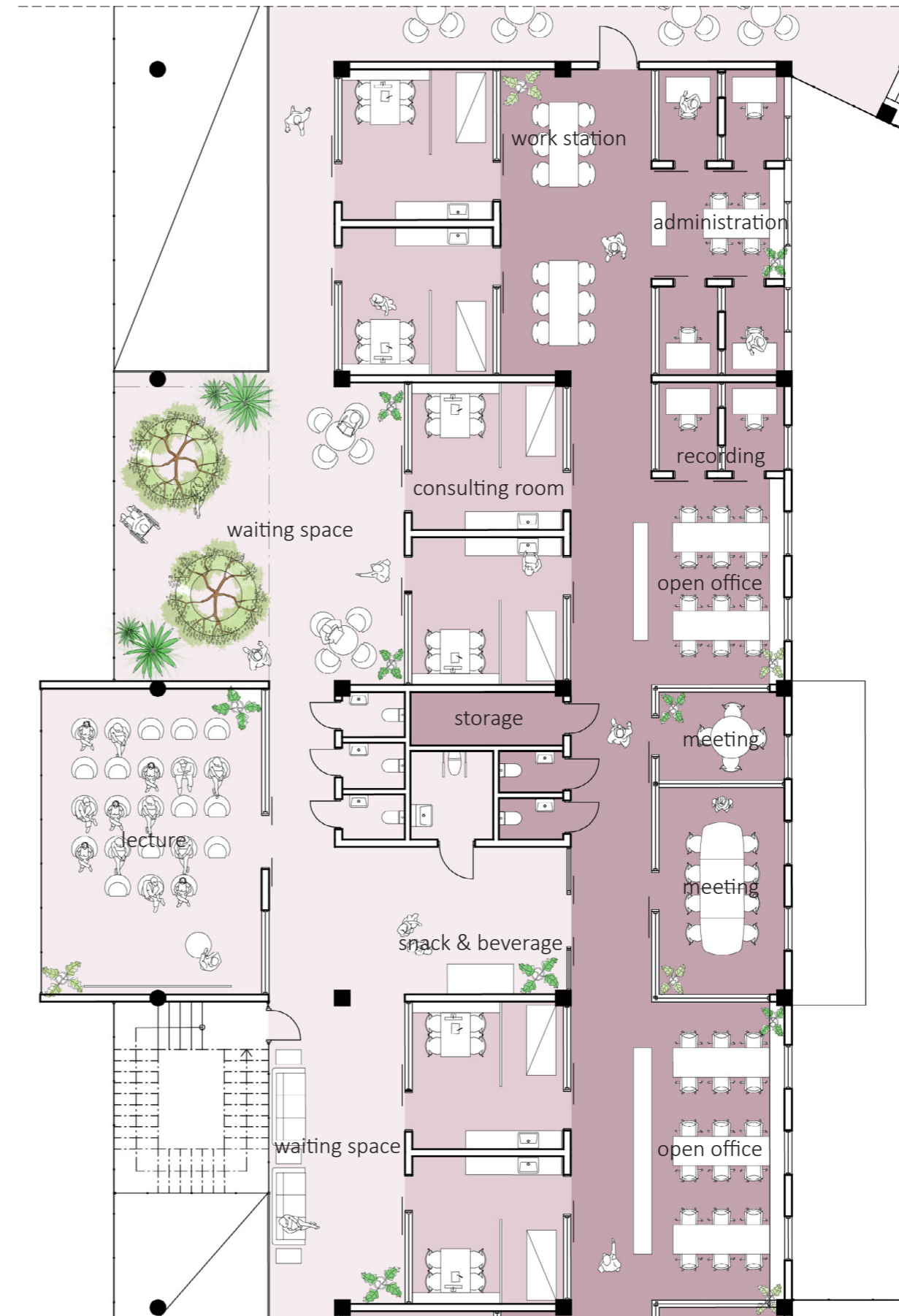
Solutions in terms of stress



## Cluster of office types



1. administration
2. recording+office
3. office
4. meeting room

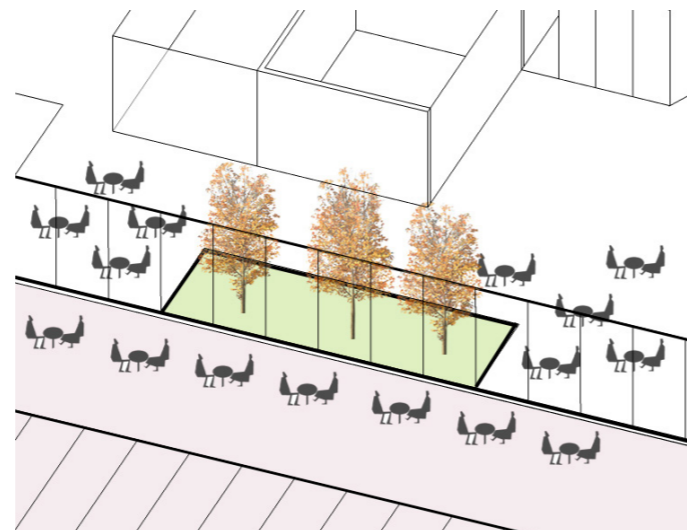
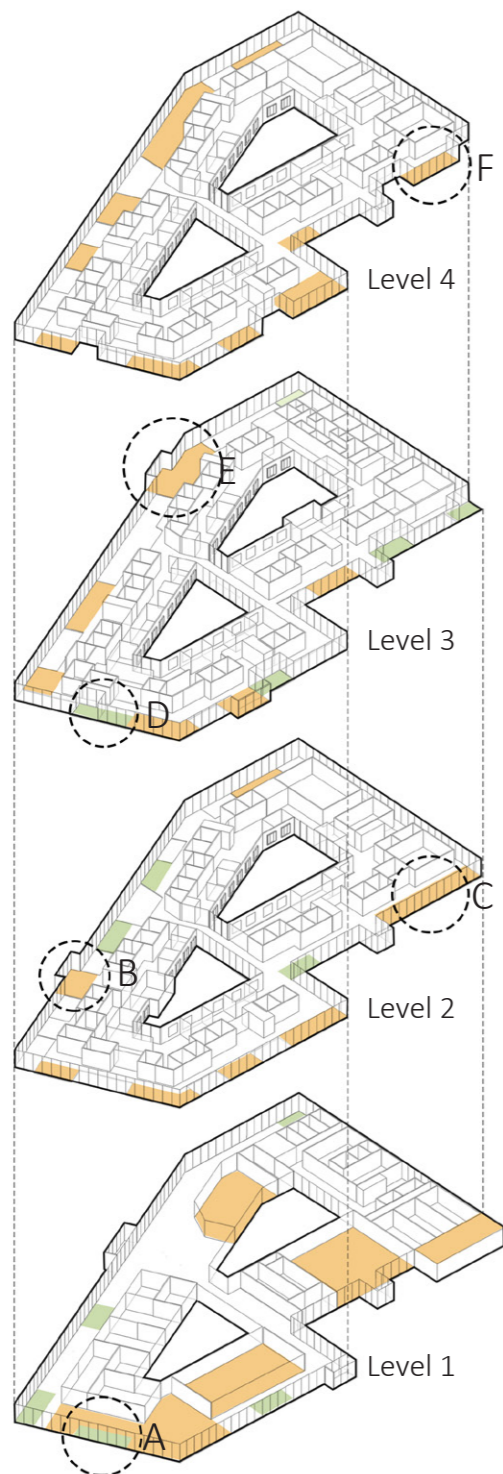


Detail plan: family center, level 3 1:150



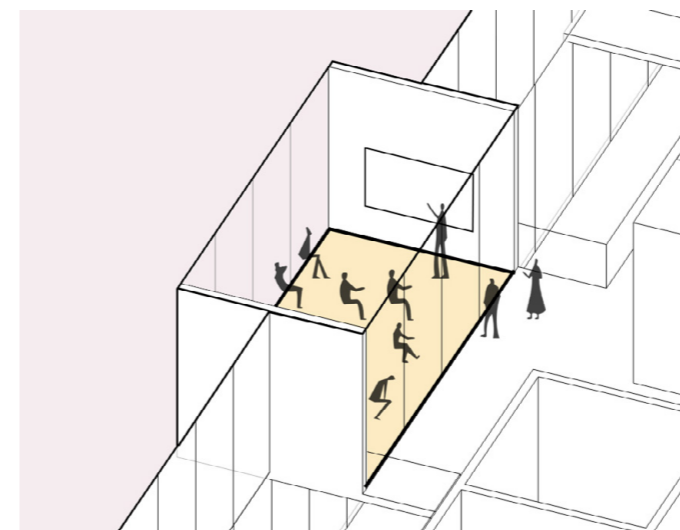
# HEALTH-PROMOTIVE LAYER

The first and foremost external layer focuses on health promoting activity meanwhile establishing a strong visual contact to the exterior public life. Placing a mix of different usages along the façade is appreciated by visiting patients as it exposes them to as much invaluable daylight as possible. The strong visual contact to the outside shifts the focus from a secluded interior hospital experience to a more integrated part of the city life.



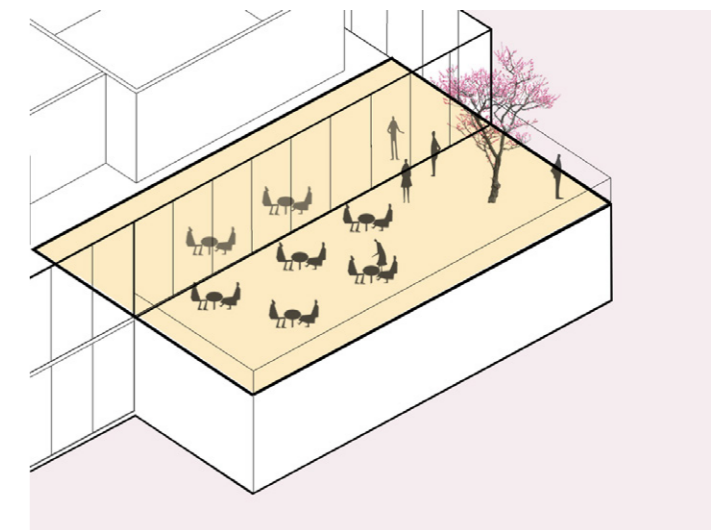
## A. Restaurant

The restaurant on south side takes advantage of the available daylight both on the inside and outside.



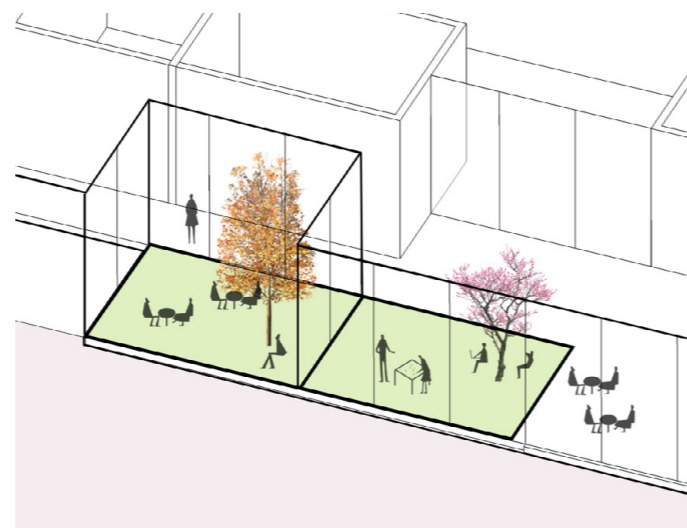
## B. Lecture hall

Lecture halls serves the function of creating both active life in the inside and interest from the outside



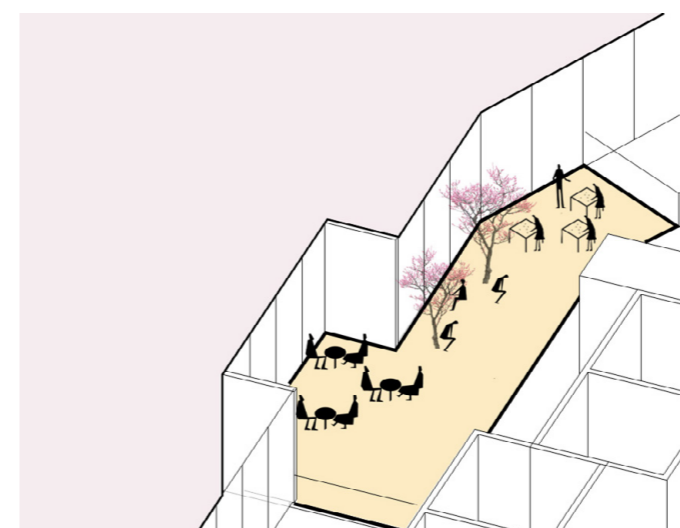
## C. Cafe

The café on level 2 has an terrace towards the community garden to attract visitors to the upper levels.



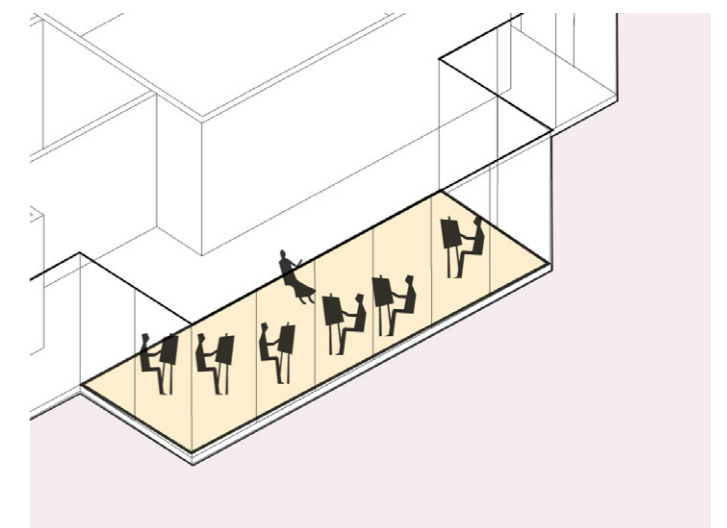
## D. Children playground

The children playground has both a climate protected and an exposed part, catering different activities.



## E. Waiting space

Waiting spaces with the visual connection creates a more comfortable and relaxing waiting experience for the visiting patients.



## F. Multifunctional space

Some extruding boxes in the façade can be used for a wide range of different activity however the hospital deems necessary.

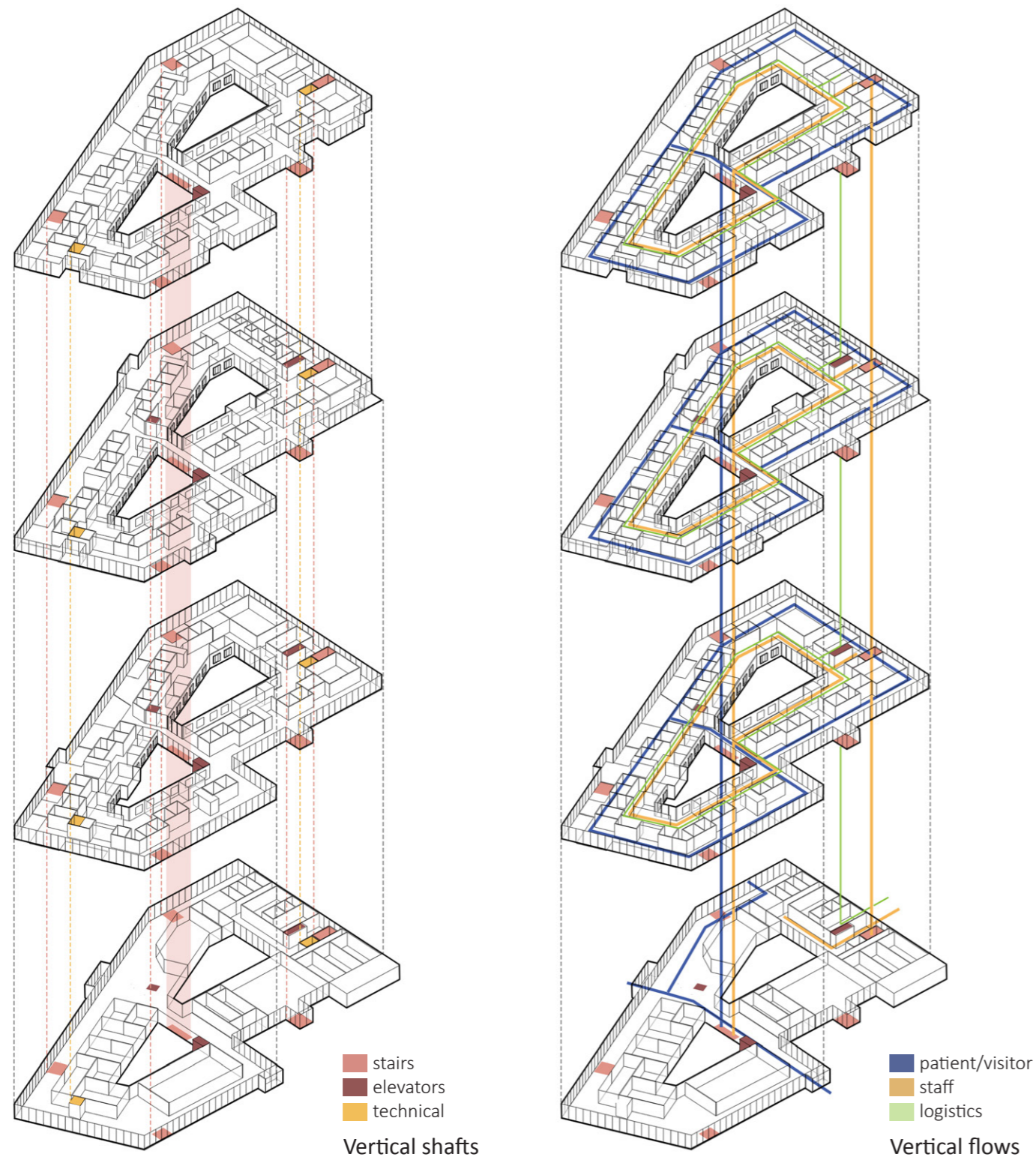
Walking along the facade, the patients will pass by a series of public or waiting space. They can choose either to sit and wait for their consulting slot while seeing the city view, or join the public activity with other citizens, making them feel less like patients.



# WAY-FINDING

## Vertical flow

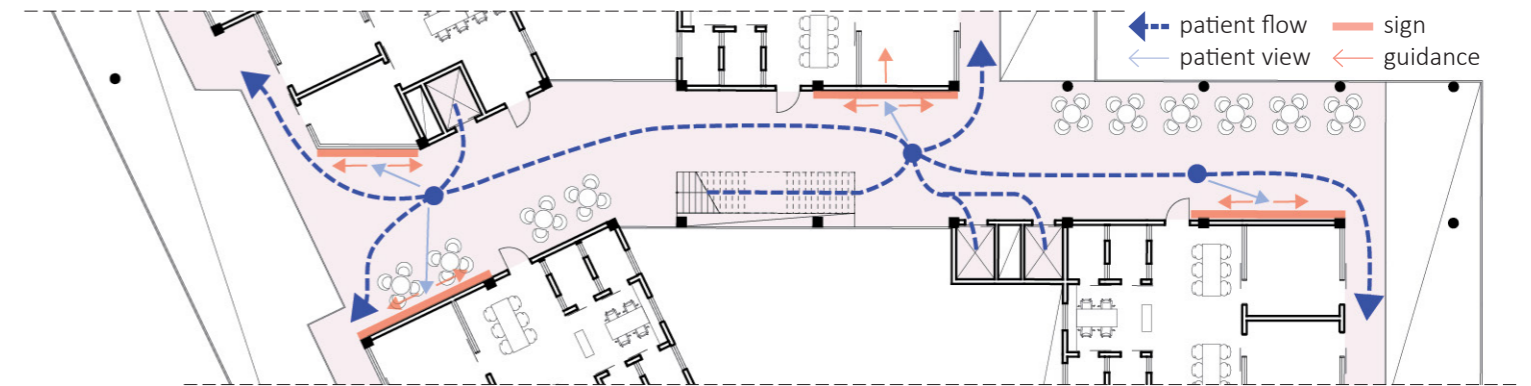
The vertical flow in the building consists of one main shaft in the centre which contains a main stair and three elevators. Another main shaft is at the north, serving as a vertical connection between each floors for logistics and the staff. There are four other shafts along the facade, helping people to exit the building in emergent situation.



## Navigation

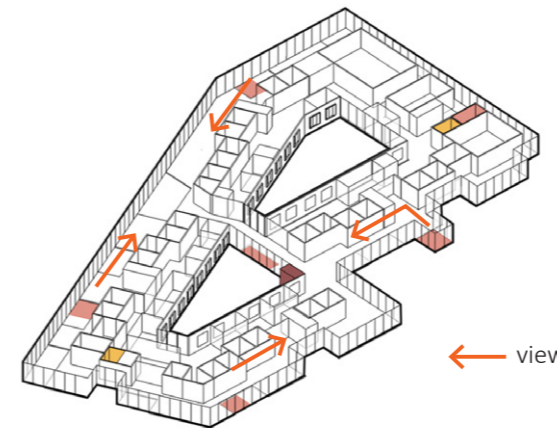
### 01. The connection

The vertical flows are strategically placed to help the horizontal orientation as there will always be an alternative route in every direction and corner of the hospital. The connections serves as the main shaft for all patients and visitors, with a clear guidance of navigation directly connected to people as they enter the floor.



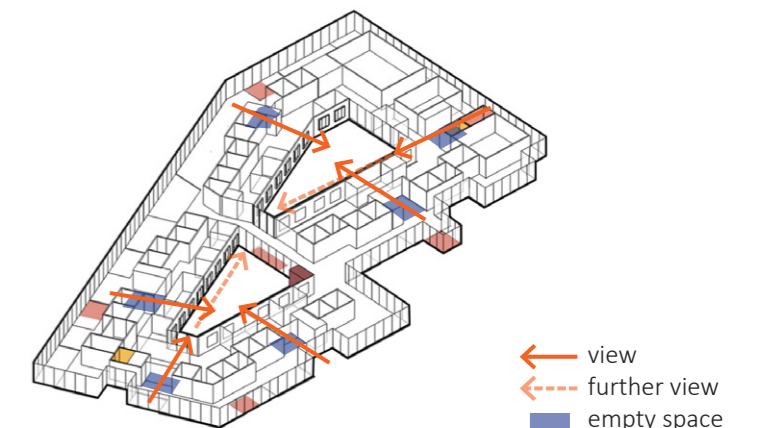
### 02. Other staircases

As stepping out from the other staircases, the patients will always find themselves face towards the connection.



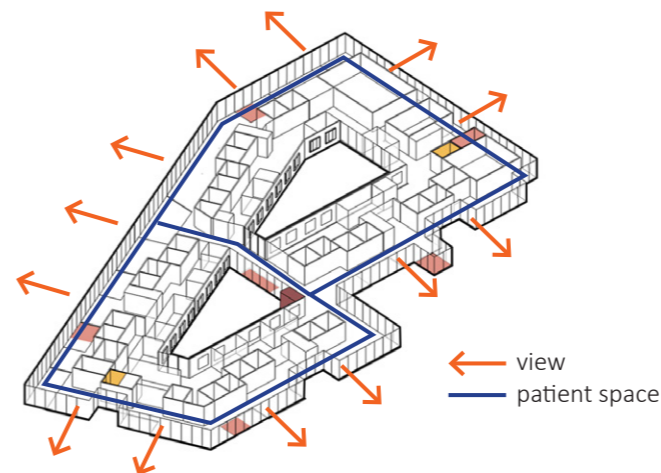
### 03. Atrium view as reference

The blue points are empty space in the consulting layer, which provides a penetration of view to the atrium.



### 04. Outside view as reference

The patients and visitors can use the outside street view to navigate themselves while moving along the facade.



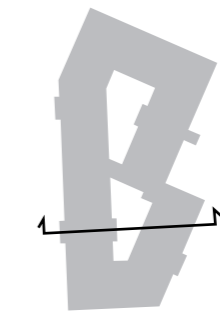
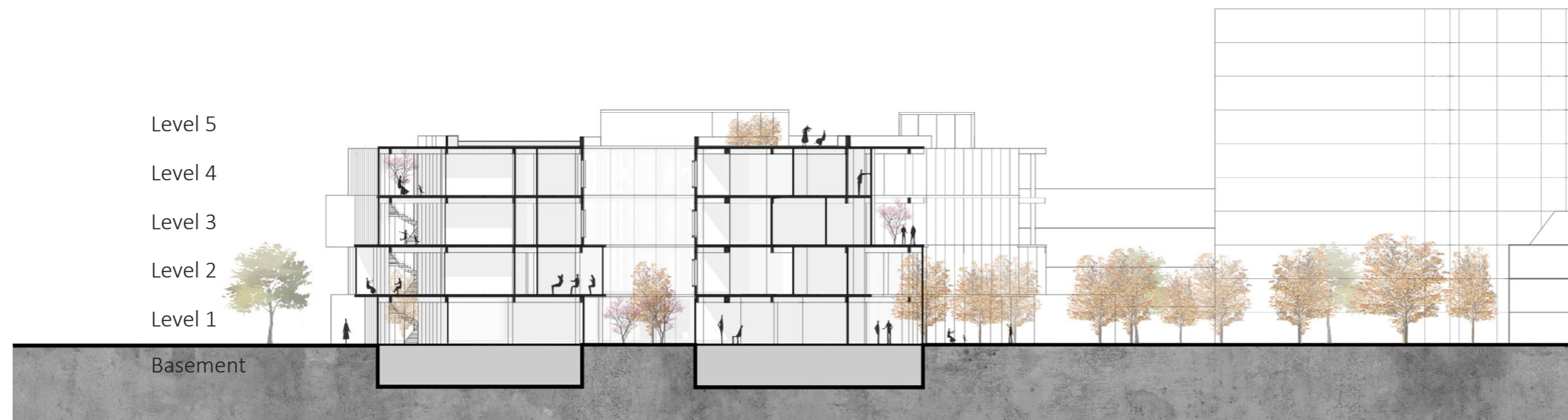
perspective of navigation



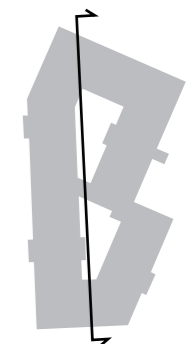


# SECTION

In the project, the floor heights of every floors are the same, 4.2m. The same floor height enables a flexibility of use in the future in terms of department change or program change. The space for the structure and installation is 0.7 meters. So the height for each floor from roof to floor is 3.25 meters.

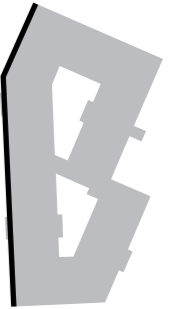


Section A-A 1:500  
0 1 3 6 12m



Section B-B 1:500  
0 1 3 6 12m

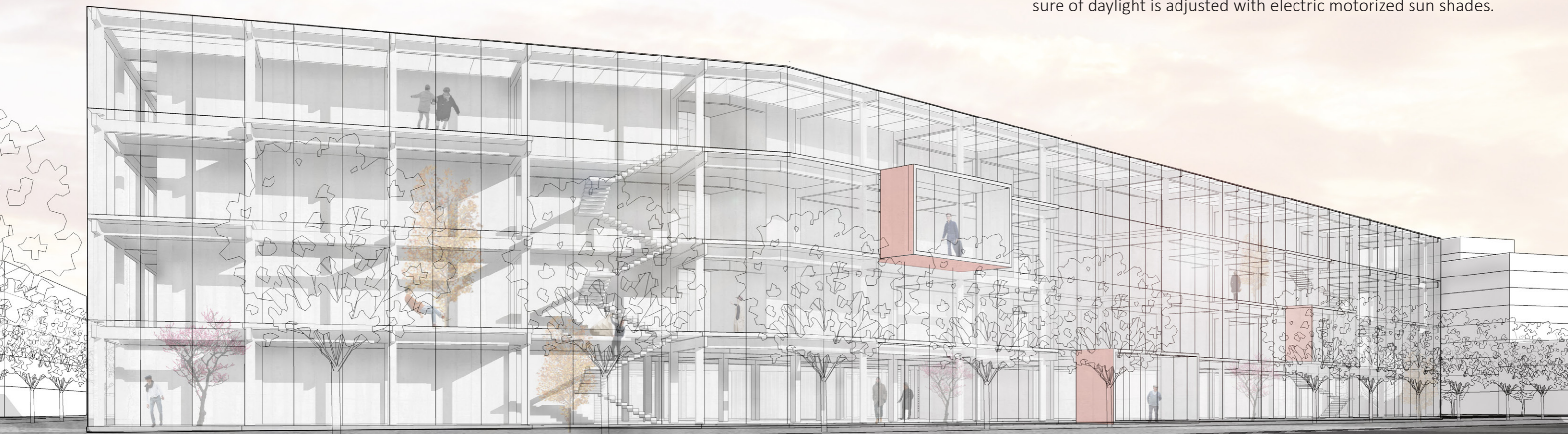
# FACADE



West facade 1:500

0 1 3 6 12m

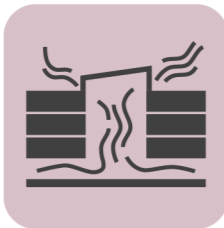
The translucent glazed façade is appreciated from the street as it effectively displays the hospital life. The large flat curtain wall accentuates the change of dynamics generated by the extruding boxes, which highlights interior activity even more with the streets. The semi translucent part of the first interior wall gives the viewer a slight hint of idea of activity in the deeper parts. The high exposure of daylight is adjusted with electric motorized sun shades.



Street view perspective

# SUSTAINABILITY

There are three dimensions in terms of sustainability, which are environmental sustainability, economic sustainability and social sustainability. We look into these three dimensions as we developed the project, to seek the rationality behind it. The picture below shows different aspects of sustainability in our project, in which pink represents environmental sustainability, blue represents economic sustainability and yellow represent social sustainability.



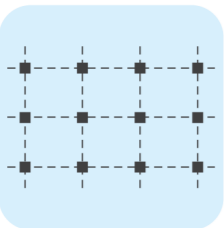
## Indoor atrium

The openable windows at the top of the north indoor atrium could be opened, helping the natural ventilation due to stack effect.



## Outdoor atrium

The soil beneath the atrium can help to collect rain water, which could be recycled and reused into the water system in the building.



## Modular system

The building has an economic modular system, which could also enable new adaptations in the coming future if needed.



## Electric sun shading

Dealing with the problem of too much sunlight, we choose to have electric sun shadings, keeping a transparent facade when it is off.



## Urban farming

The urban farming is located at the rooftop, which welcomes the community and other citizens to take part in growing healthy food.



## Compost

Compost from the restaurant and cafes will be collected, helping to fertilize both different gardens and urban farming.



## Health-promotive activity

Along the facade and in the community garden, there are different kinds of health-promotive activity, always inviting people to join.



## Expandable site

The volume of the building is compressed, there is still space for future expansion in the community garden, if needed.

# DAY & NIGHT

## Opening hour

Healthcare, pharmacy,  
insurance office,

employment office:

7:00 - 17:00, Mon - Fri

Transparent space:

7:00 - 23:00, Mon - Sun

Swimming pool:

6:00 - 23:00, Mon - Sun

## Day

The new healthcare center will be active in the daytime, welcoming visitors of all ages to get themselves into health-promotive activities. The vibe will not end by the weekend, but continues, as the health-promotive layer keeps opening for the citizens. The new healthcare center along with the community garden will be a popular spot for the nearby neighbours who are enthusiastic in a healthy lifestyle.



## Night

As night falls, the new healthcare center will not fall asleep, as the health-promotive layer will be on until 23:00, which encourages people to take part of health-promotive activity after their work or dinner. Also, the light from the building will be a "lantern" for the community garden and the surroundings, leading more people to discover and take part in various health-promotive activities.



# THEME 1 EVIDENCE-BASED DESIGN

Evidence-based design (EBD) is a way of using research results on for example the well-being effects on humans and use them in the designing of space. It's also a good way to make the client believe in your proposal, when there is supportive research behind the decisions, they will become more convincing. Evidence-based design has its roots in the healthcare area, but other areas are also using it, for example in: education, medicine, education, landscape design, interior design.



## “Health-promotive hospital”

*“A health promotive hospital recognizes that its resources and status within the community can improve the health of the community and narrow the gap in health status within the community.”*

1. high-quality comprehensive medical and nursing services;
  2. a corporate identity that embraces the aims of health promotion;
  3. health-promoting organizational structure and culture, including active, participatory roles for patients and all members of staff;
  4. health-promoting physical environment;
  5. Actively cooperates with its community.”
- Hancock, 1999

## “Healing garden”

*“The provision of healing gardens and access to nature seems especially important for hospitalized children, who are more susceptible to information overload, less able to process complex technological information, and may feel more comfortable in natural settings. In addition, the hospitalization of a child can be extremely stressful to parents and family members, who also could benefit from the provision of gardens on hospital grounds.”*

- HeD, 1988; Horsburgh, 1995

## “Connection with nature”

*“Based on our evolutionary past and the landscape features that were important for survival, research shows that humans have a deep need to connect to nature and that even a brief view of a garden or interaction with a water element, for example, can have immediate physiological benefits in terms of reducing stress and anxiety.”*

- Ulrich 1984; Ulrich 1999; Parsons and Hartig 2000

## “Create less stressful experience at the hospital”

*“Research indicates that speedier recovery time at home may occur as a result of a less stressful hospital experience. In fact, physical comfort in the hospital setting may even reduce mortality and morbidity. Patients in this setting may require fewer narcotic pain medications, have less anxiety and depression, and have fewer post surgical complications. A more comfortable, less stressful hospital experience leads to higher patient satisfaction which, in turn, is linked to increased patient compliance with drug regimens and recommended post surgical care, including follow-up visits — all of which potentially affect clinical outcomes.”*

- Kiecolt-Glaser et al. 1998

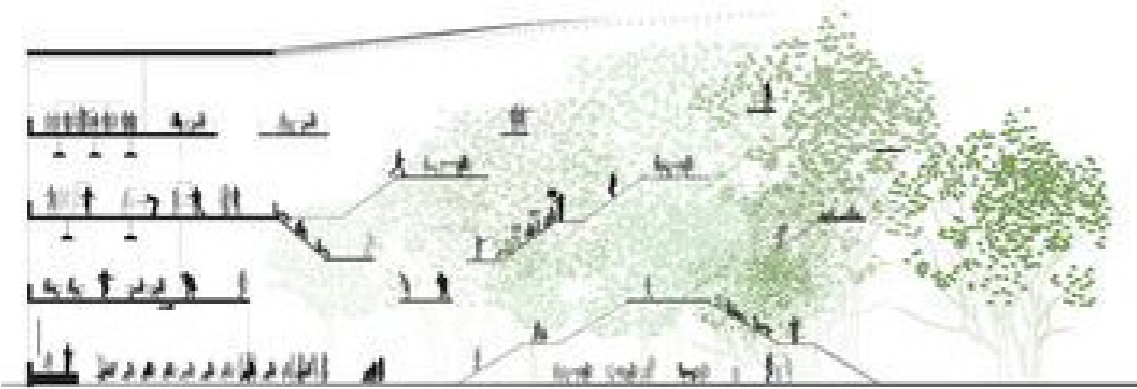
# THEME 2 REFERENCES

## Concept phase

Reference: Université Paris-Saclay building | Sou Fujimoto

During the concept phase, we took reference from Sou Fujimoto's project, a learning center in Paris, for we wanted to create a transition space between the solid building and the community garden.

### Concept section



### Perspective



## Building development phase

Reference: Shibaura Office Building | SANAA

While developing our concept, we find it extremely difficult to think of the transition space with staircases and void, so we rethought about the space created by solid platforms.

### Concept model



### Perspective



## Detail phase

Reference: various references

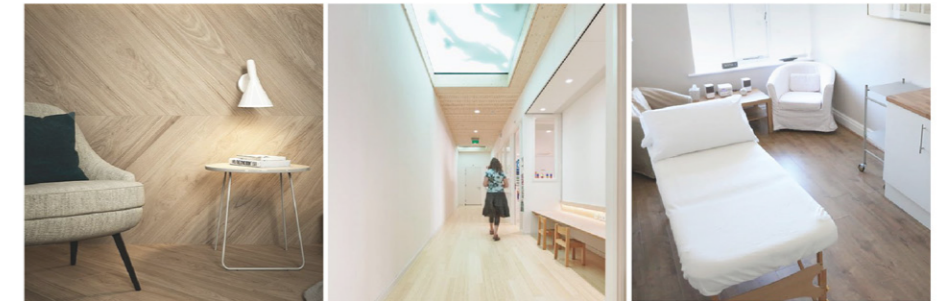
Zooming in into the details, we look at the atmosphere of different layers and the interfaces between them, with different references illustrating our intension of the spatial quality and materials.



dynamic transition space

clear glass corridor

frosted glass



consulting room

solid wall

examination room



facade with window

atrium

# THEME 3 HEALTH PROMOTION

This workshop encourages us to look into healthcare facility from different human perspective, based on the fact that people have different needs and worries due to their ages, careers, nationalities, hobbies, etc. With this workshop, we are able to create needed space for various scenarios.

## Workshop



Name: Lee  
 Age: 24  
 Gender: Man  
 Nationality: China  
 Marriage: Single  
 Profession: Urban plan (Internship)  
 Education: Chalmers  
 Hobby: Photographing  
 Company: Örebro Municipality  
 Working place: Newly-built office building nearby.

### 1. visitor

- Needs:
1. A place to relax and escape from stress.
  2. Somewhere to go in lunch time or for after work.
  3. Meet more people in the community instead of his colleagues.
  4. A nearby gym.
  5. Better view for his office.
- Worries
1. Will not be welcomed by the community and local people.
  2. Will disturb the peaceful life of local people.
  3. Too shy to take part in the sport activities.
- Activities
1. Having a cup of coffee or even dinner.
  2. Go to gym after work.
  3. Meet new friends and fika with them.
  4. Sit and relax for a while.
  5. Basketball/ Swimming/ Climbing/ Badminton/ Sauna/ etc.



Name: Anders  
 Age: 36  
 Career: Physiotherapist  
 Nationality: Swedish

### 2. staff/physiotherapist

- Needs:
1. Bright room for examination and show exercises for better recovery.
  2. Privacy for the patient.
  3. Secure parking space for bikes, weatherproof.
  4. Close to the public gym.
  5. Health promoting stairs.



Name: Emily  
 Age: 30  
 Career: Designer  
 Nationality: Swedish

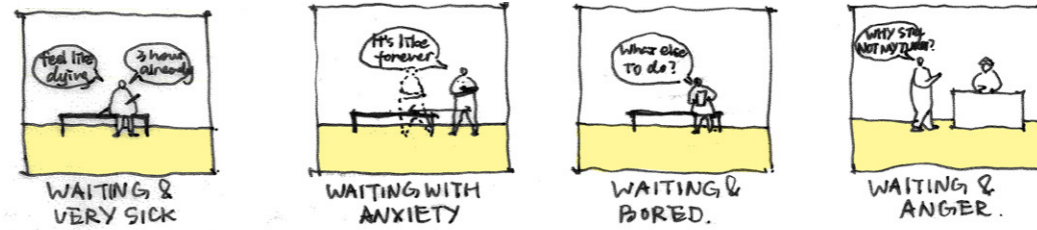
### 3. patient/mother

- Needs:
1. She needs guidance from midwives or doctors to get to know what a new mother should be aware of, in terms of lifestyle, activities, food & nutrition, etc.
  2. She also needs mental help or guidance from the professions since she needs to deal with different kind of stress from life and work.
  3. She needs privacy when consulting with the doctor
  4. She also needs space for accompany during consultation or examination.
  5. She wants a more relaxing and less clinic-like consulting room.
  6. If possible, video chat with her mother during the consultation can ease her anxiety.
  7. She wants to communicate with other mothers and to get experience from each other.
  8. Group exercises with other mothers for the preparation of labouring and taking care of babies.

## Interpretation in project

### Activities in health-promotive layer

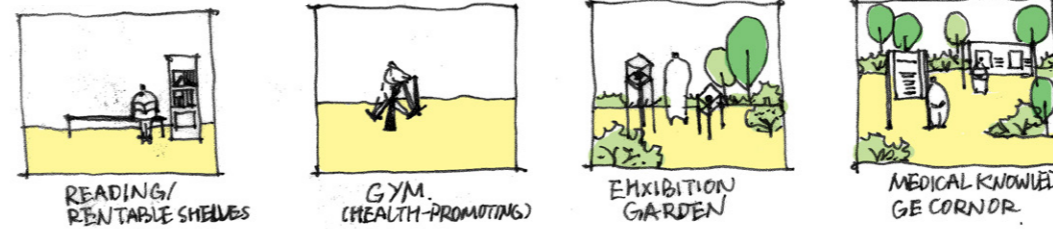
#### Problem 1: waiting



#### Solutions in terms of anxiety



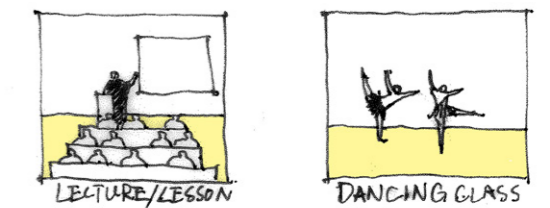
#### Solutions in terms of bored



#### Problem 2: feeling like patient

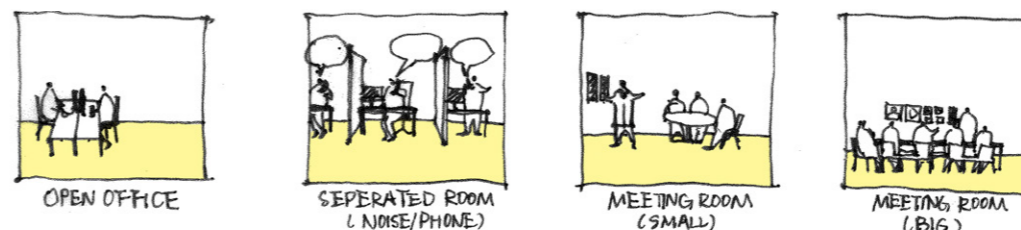
Patients easily feel uncomfortable and less confident about themselves being sick. We want to create an atmosphere to make them feel less like patient.

#### Solutions: involving other citizens



### Activities in staff layer

#### Working in different types of offices

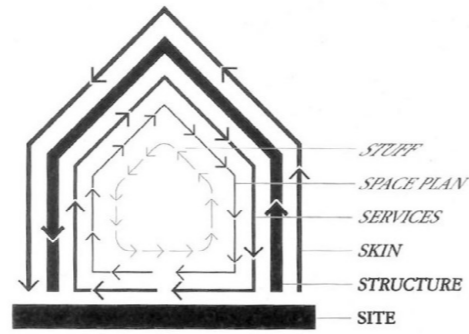


#### Solutions in terms of stress



# THEME 4 FUTURE-PROOFING

This workshop encourages us to look into the future and try to think about the building not just from right now but also the coming future. The future is hard to predict, but yet it is possible to design a building that could continue fulfil its function as time goes. We explored different ways in six different levels, which are respectively site, structure, skin, service, space plan and stuff. And with these levels, We are able to look at a building in a more complete way.



Brand, Stewart. *How buildings learn: What happens after they're built*. Penguin, 1995.

## Workshop

Future proofing approach: *Possible to expand.*  
Building level / operational: *Site.*

Future proofing approach: *Higher floor level*  
Building level / operational: *Structure.*

Future proofing approach: *Non-bearing facade.*  
Building level / operational: *Skin*

Future proofing approach: *Modular system*  
Building level / operational: *Space plan*

Future proofing approach: *Flexible plan*  
Building level / operational: *Space plan*

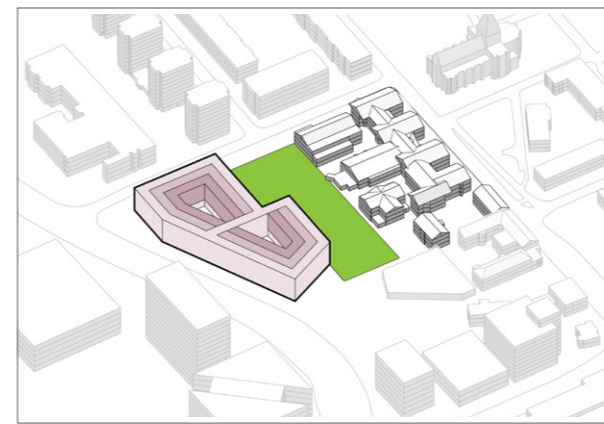
Future proofing approach: *Possible to expand.*  
Building level / operational: *Space plan*

Future proofing approach: *Changeable unit*  
Building level / operational: *Space plan*

Future proofing approach: *Bigger shaft.*  
Building level / operational: *Service.*

Future proofing approach: *Flexible furniture*  
Building level / operational: *Stuff.*

## Interpretation in project

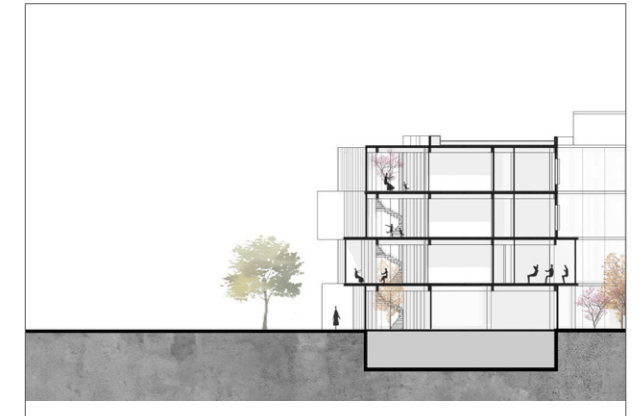
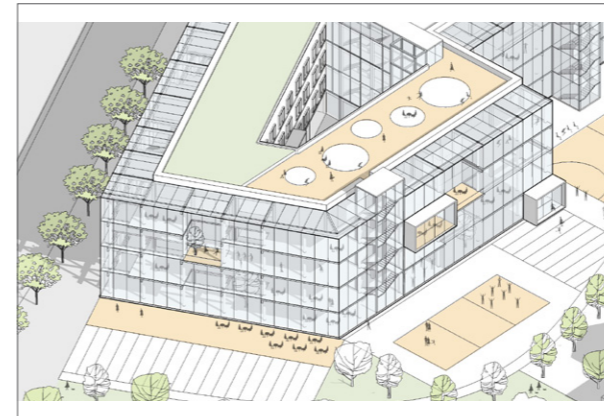


### Site: expandable

The volume is compressed and the community garden could be used as future expansion.

### Structure: modular system

We use a unit as a module to decide the grid of the building, efficient and flexible.

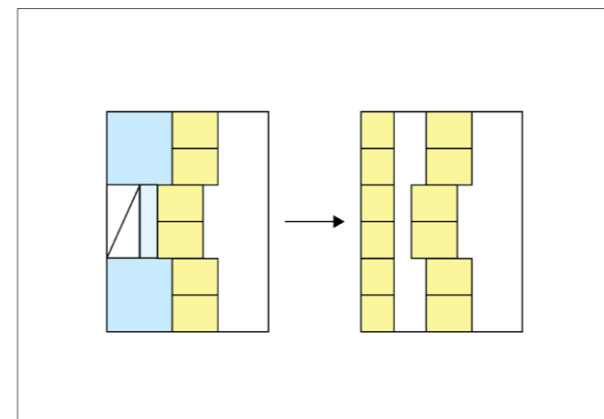


### Skin: non-low-bearing facade

The transparent non-low-bearing facade can be easily adapted into other forms if needed.

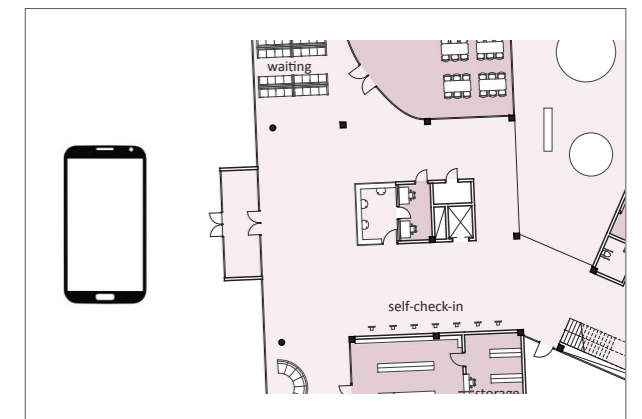
### Services: shafts & installation

The building has an average floor height of 4.2m and two 16-sqm-vertical shafts.



### Space plan: expandable

When designing the space plan, we also consider its possibility to expand in the future.



### Stuff: self-check-in

Taking advantage of technology, we propose a self check-in system.