

M E D I A N

Katherine Luu & Rasmus Gabriellii

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Themes

Healthcare architecture is a complex branch of design and construction involving a multitude of factors and a diverse range of stakeholders. In order to simplify the design process the needs of healthcare architecture have been divided into four themes.



Healthcare & Architecture Today

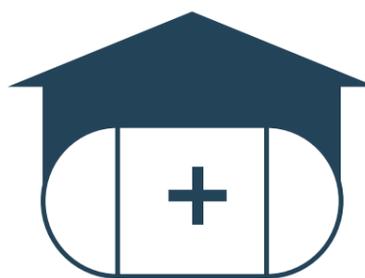
- Increasing age population
- Globalisation leading to increase multiculturalism
- Addressing in-hospital infections
- Increasing infrastructure for information technology in healthcare



Space & Healthcare Tomorrow

Healthcare will undeniably change in the next 20 years. The job of architects is to predict how these systems will operate and design infrastructure to support these systems.

- Breaking down patient-doctor hierarchy
- Increasing patient independence and the ability to help themselves
- Re-defining how healthcare is perceived
- Increasing collaborative work between doctors-nurses and doctor-patients



Healing Architecture

When designing healthcare facilities, the environment should play an important role in promoting health and diminishing ill-health.

- Connection to nature both artificial and real
- Art as a distraction tool
- Utilising landmarks as a way-finding tool



Future Proofing

Future proofing is of the utmost importance when designing healthcare especially in circumstances when the type of infrastructure needed in 20 years cannot be predicted. Flexibility is an important goal to achieve. By breaking down the different types, the design can ensure ultimate overall flexibility.

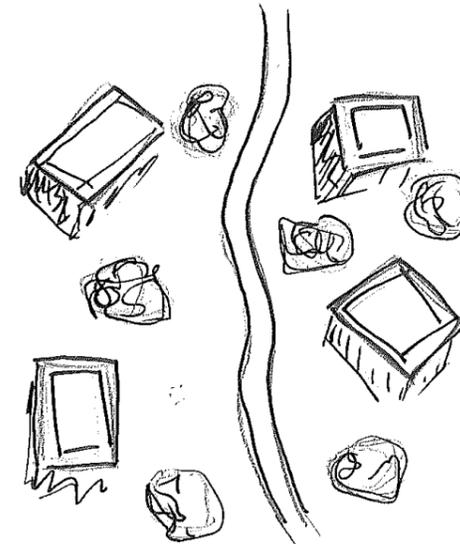
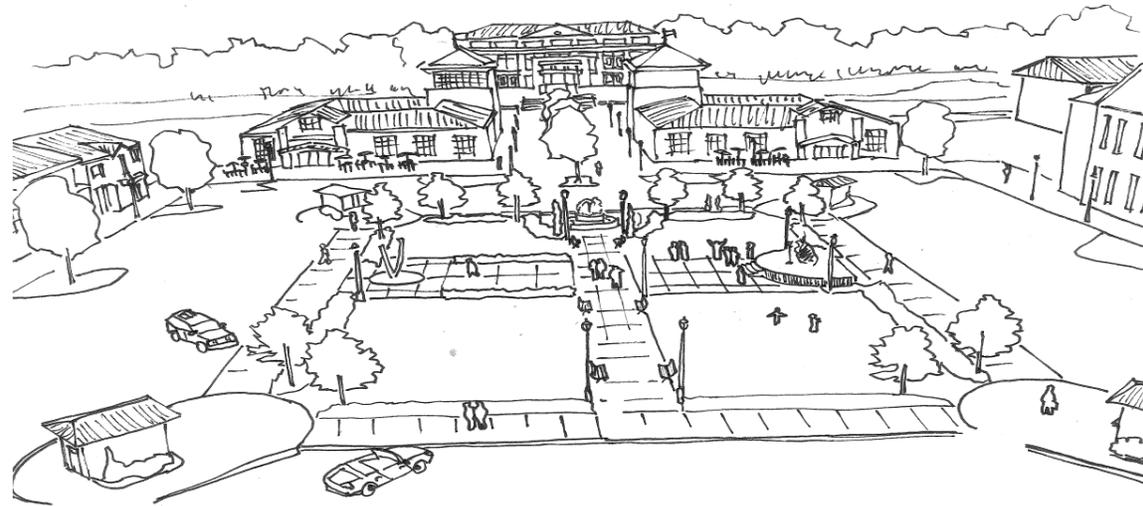
Levels of Flexibility:

- Daily Basis
- Weekly Basis
- Monthly Basis
- Yearly Basis

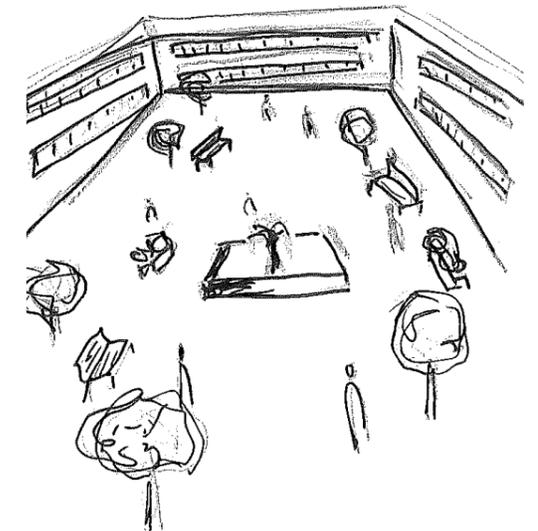
Flexible Infrastructure:

- Room Level
- Ward Level
- Building Level

Concept Development



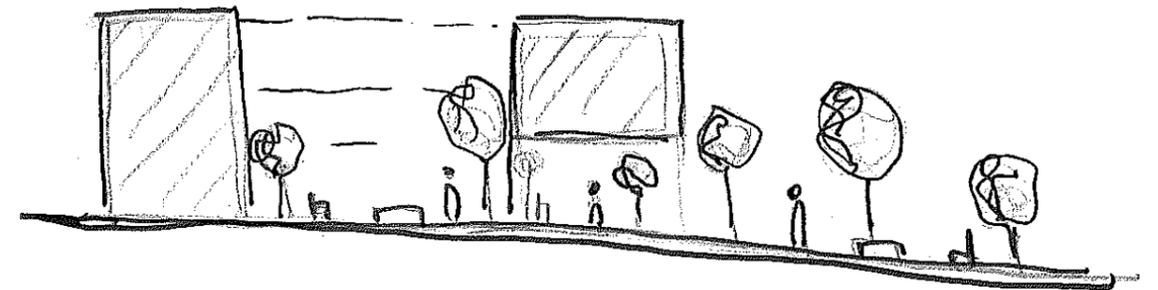
Hospital in a Square



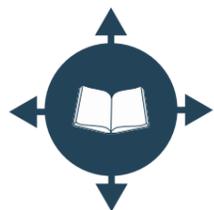
Square in a Hospital

HOSPITAL AS A SQUARE

In response to the complex demands of healthcare architecture and infrastructure, the concept of developing a core square was conceived. The hospital square is a fundamental space fulfilling the healthcare needs of the future.



FUNCTIONS OF THE SQUARE



Central Learning Centre



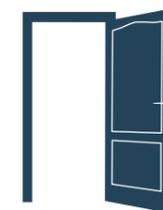
Connection to Nature



Way-Finding



Connecting to the Community



Strengthen Entrance 'Gateway'

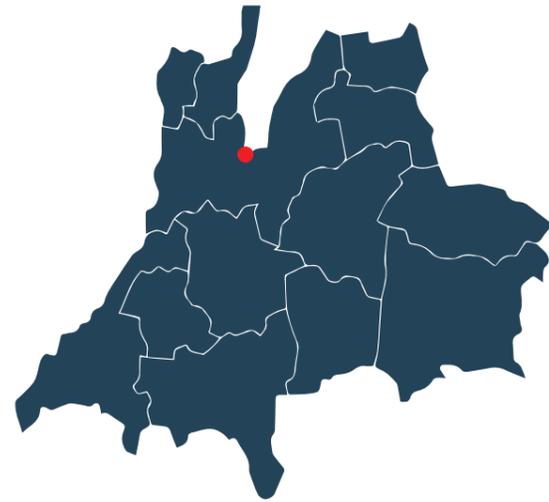


Promoting Healthcare

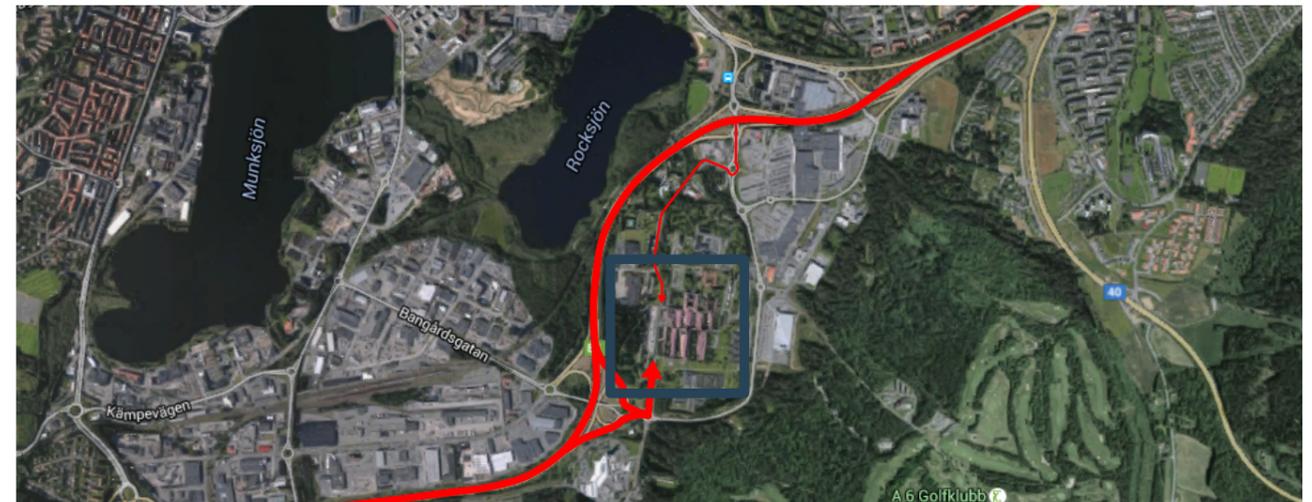
Site Analysis



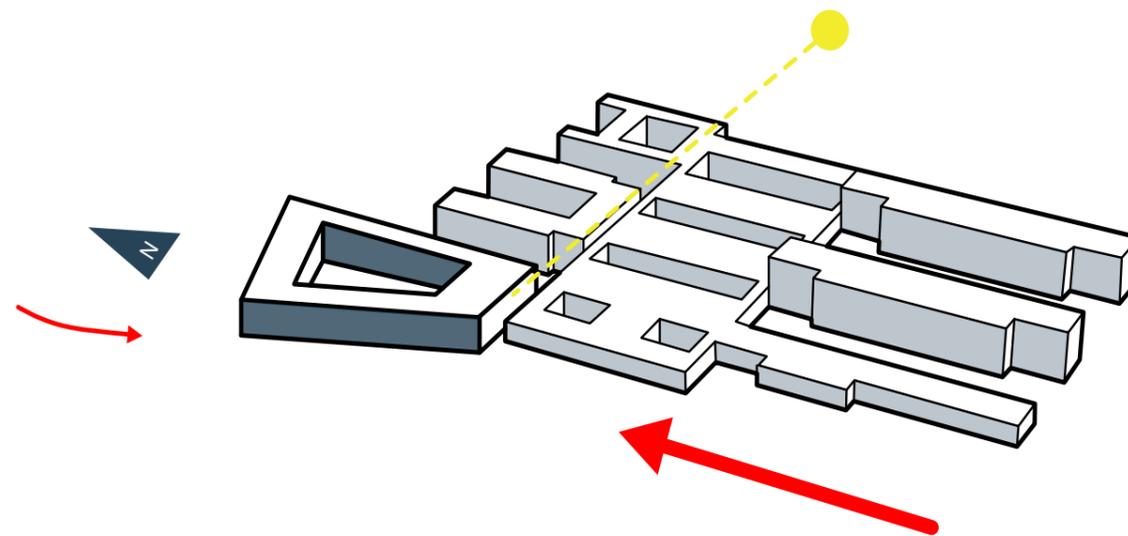
Sweden



Jönköping Region

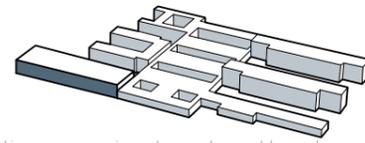


Ryhov Area

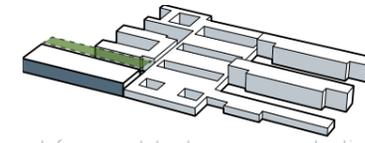


The main flow of traffic to Ryhov is from the south coming from the main highway E4, in the city of Jönköping. Included in the traffic flow are patients, hospital staff, ambulance and public transportation. Towards North-West another public transportation flow must be considered.

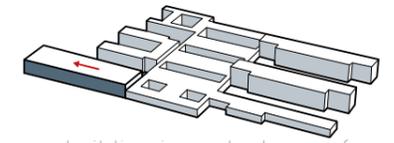
Design Development



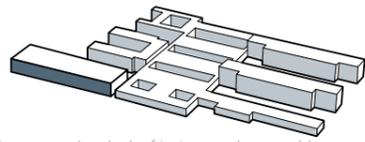
Building mass is placed on the chosen site



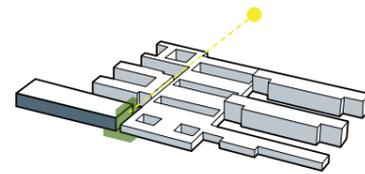
Moved forward to keep enough distance for light and privacy between the new and existing building



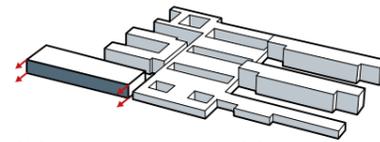
The new building is pushed away from the existing to emphasise its own architectural identity



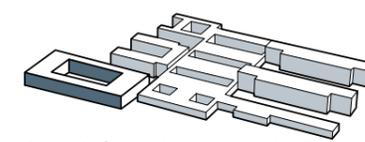
A gap is created defining where the new and old building meet



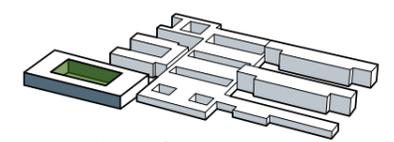
This allows light natural light to penetrate those levels below ground access



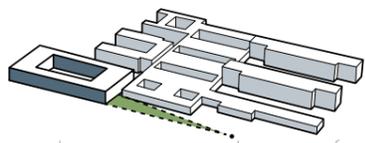
The solid mass is extruded to create a larger volume



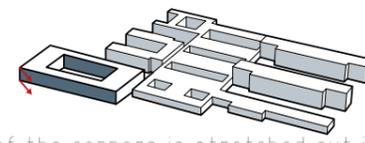
A void is cut from the mass to allow natural light through



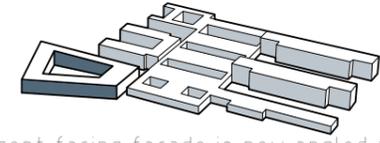
The large light shaft also acts as an internal garden bringing both sunlight and nature into the building



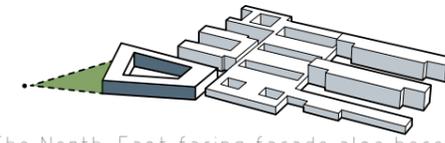
The new entrance can now be seen from the main road leading into Ryhov Hospital



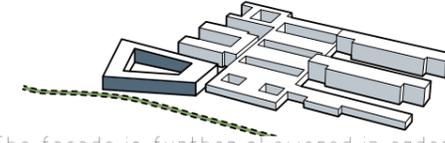
One of the corners is stretched out in order to increase visibility from the main road



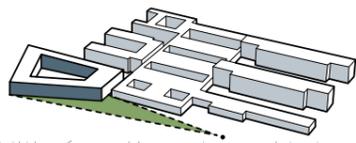
The front facing facade is now angled towards the main flow of patients generating a more inviting gesture



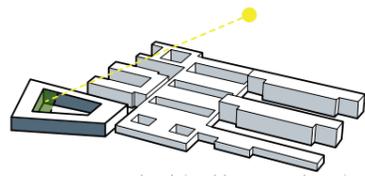
The North-East facing facade also becomes more inviting to those travelling via public transport and bike



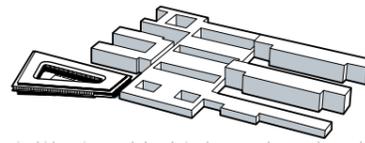
The facade is further skewed in order to follow the natural curve of the road



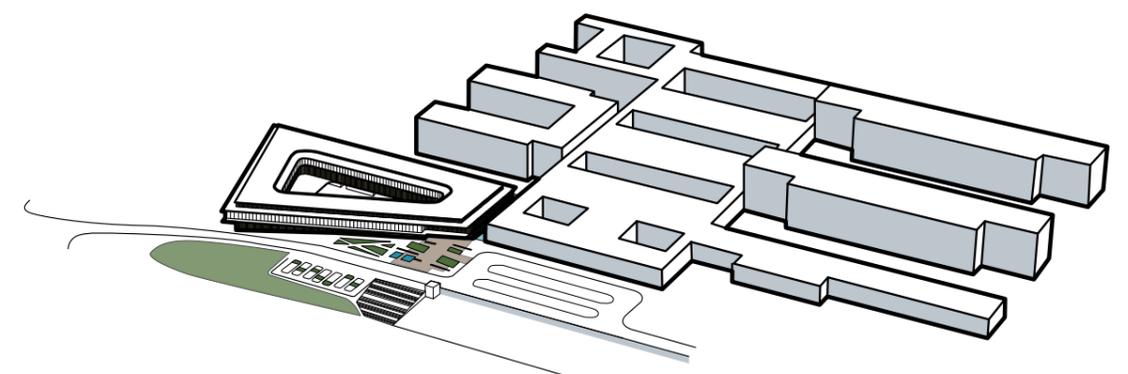
Visibility from the main road is increased



Terraces are created in the garden in order to maximise the availability of natural sunlight



Materiality is added internal and external in order to control levels of light and privacy



An external square is introduced which continues to flow through the entrance and down into the internal courtyard / garden. This creates an inviting and pleasant atmosphere that extends into the centre of the new hospital

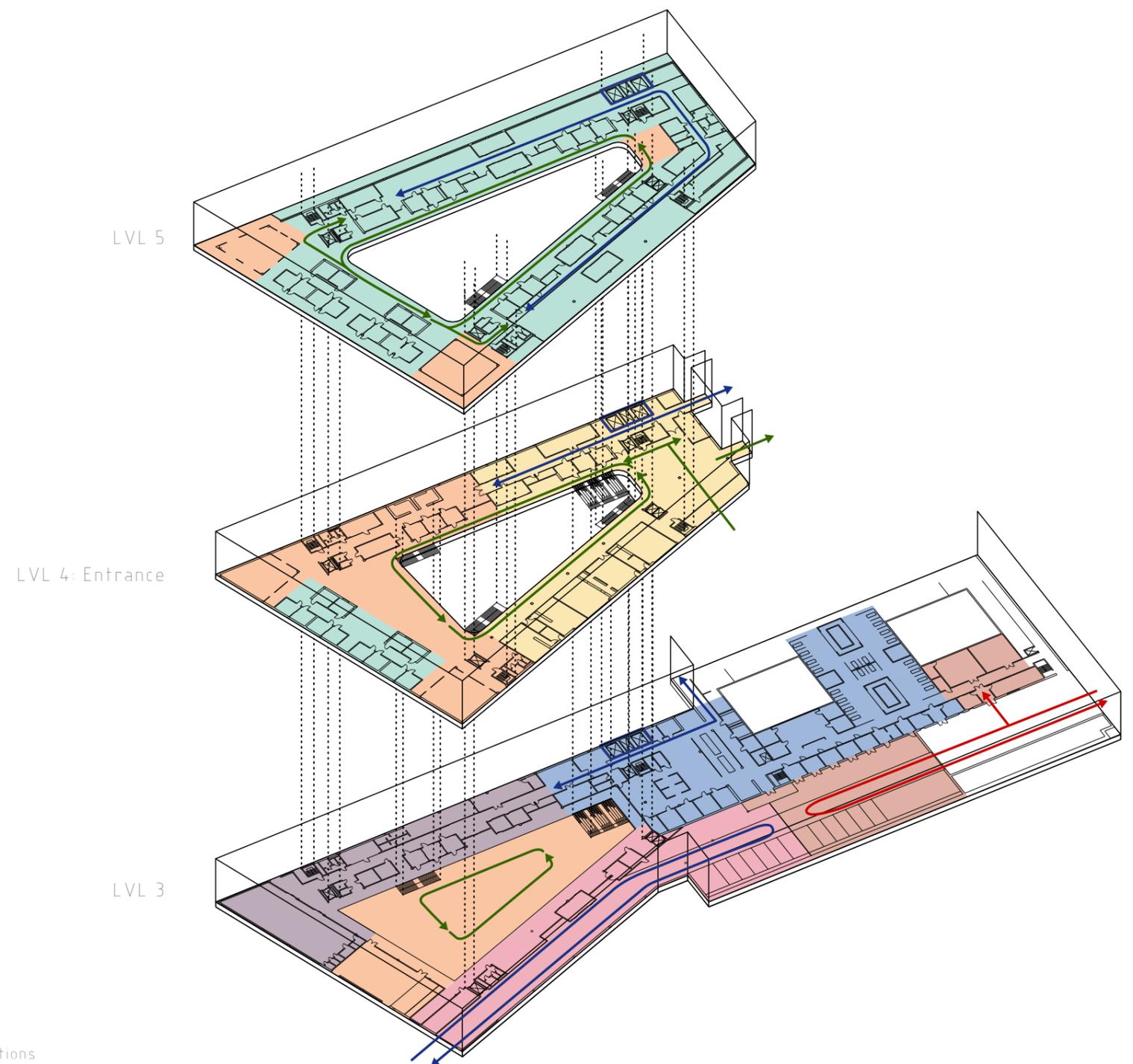
Departments & Flows

In many parts of the building, the patient and staff flows goes together, promoting a close colaboration. There are, however, areas where staff needs to be prioritized, in order to maintain efficiency.

On the fifth floor, the patients main flow is around the courtyard. Closer to the external facade, the staff is more and more prioritized as you get closer to the bed elevators, situated in the top corner.

Elevators and stairs are situated close to each corner of the courtyard, and the main stairs are sutuated in the courtyard. When patients enter the building and reach the reception, they can choose between the self - and assisted triage, and then have quick access to both investigation and acute. Visitors move mainly around the courtyard where they have a good overview of the building

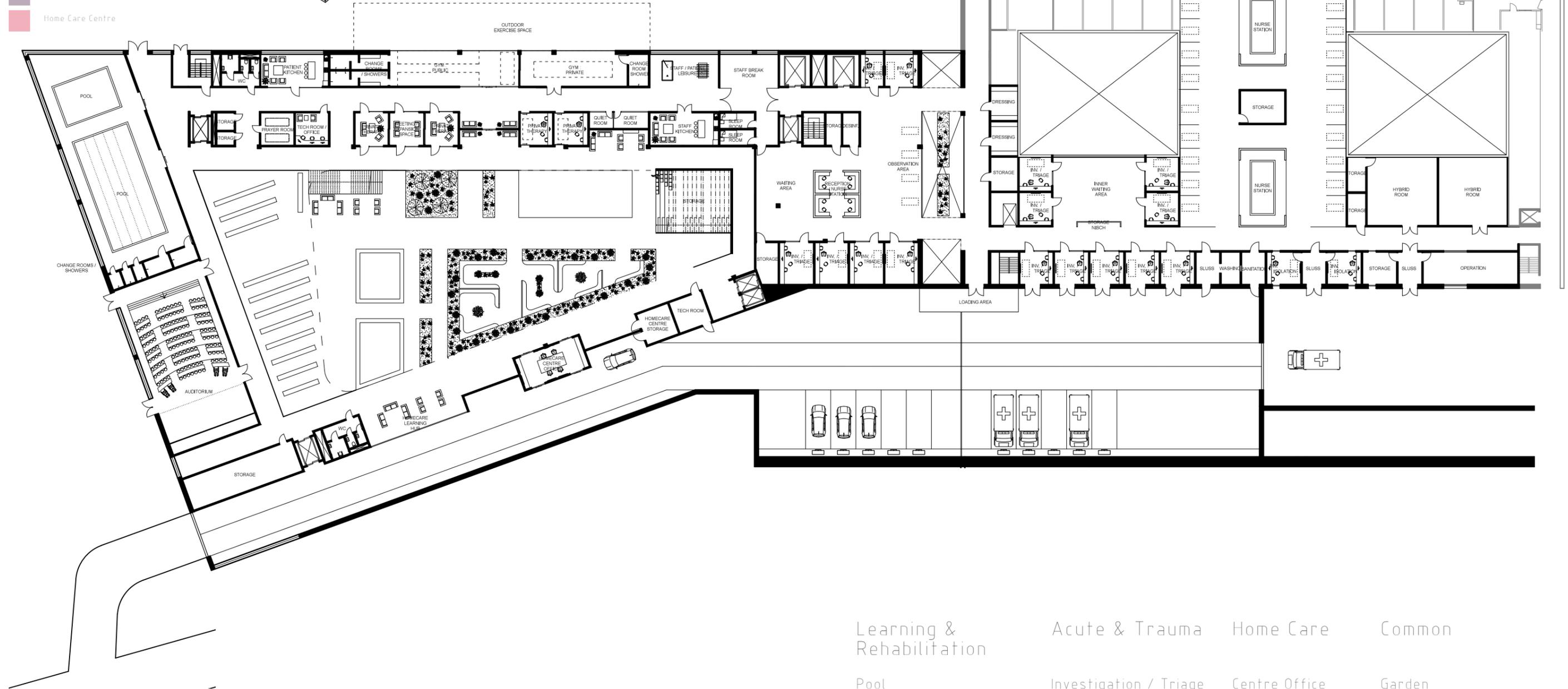
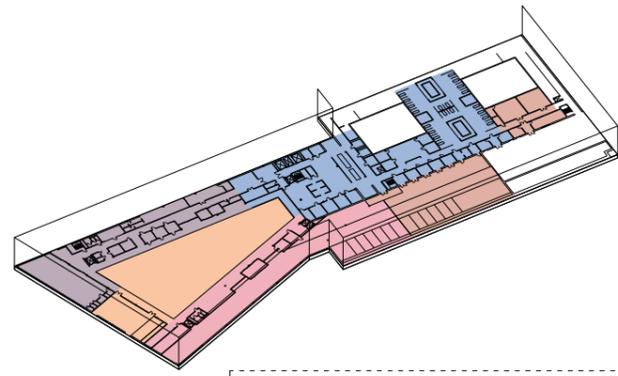
On the third floor, visitors casually walk around in the atrium that is the core of the learning centre, and also functions as a waiting area. The home care and ambulance garage is situated here, and in the acute the staff flows are prioritised.



Level 3

scale 1:500 (A3)

- Ambulance and Trauma
- Learning Centre
- Acute
- Rehabilitation
- Home Care Centre



Learning & Rehabilitation

- Pool
- Auditorium
- Library
- Patient Kitchen
- Prayer Room
- Gym (Public / Private)
- Private Therapy
- Expansion Rooms
- Staff / Patient Leisure
- Staff Break Room
- Outdoor Gym Space

Acute & Trauma

- Investigation / Triage
- Disinfection Room
- Waiting Area
- Reception / Nursing Station
- Observation Area
- Sluss
- Staff Sleep Room

Home Care

- Centre Office
- Learning Hub
- Garage
- Service Station

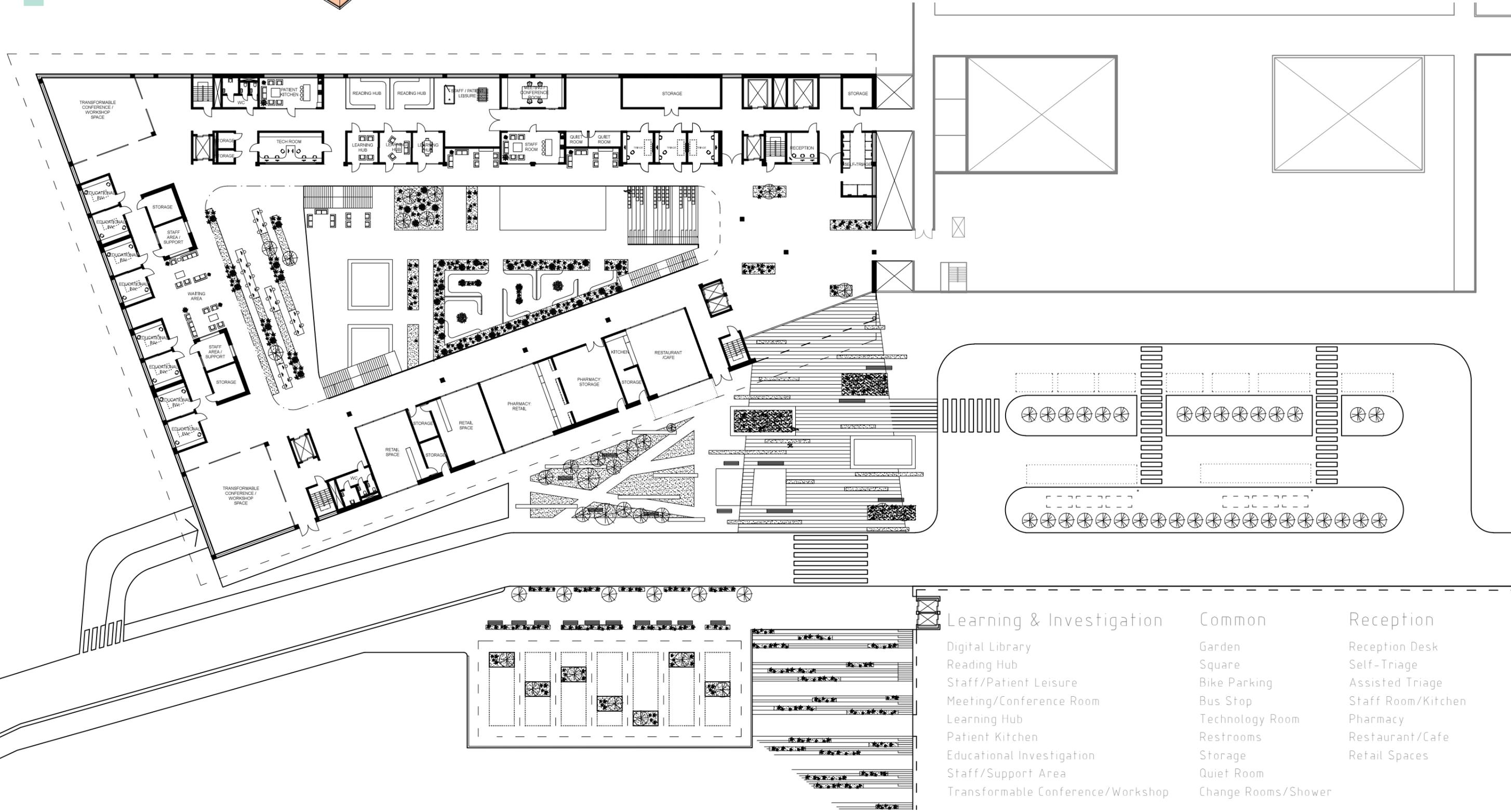
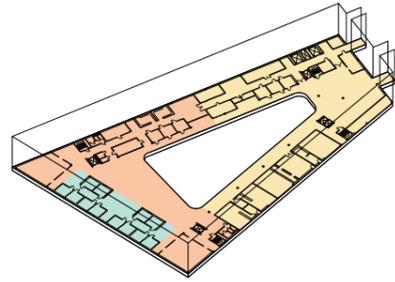
Common

- Garden
- Technology Room
- Restrooms
- Storage
- Quiet Room
- Change Rooms /Shower

Level 4

scale 1:500 (A3)

- Learning Centre
- Entrance + Public
- Investigation Unit

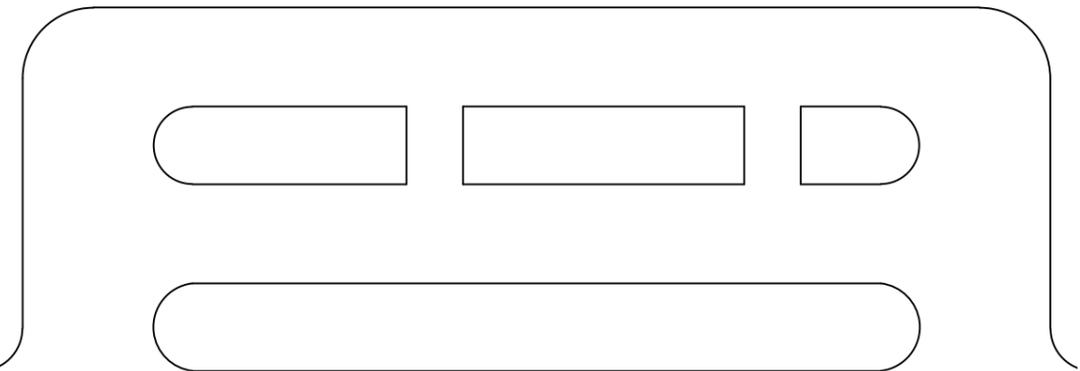
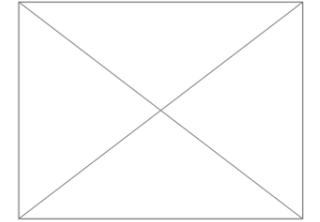
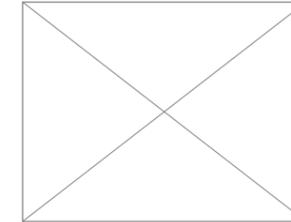
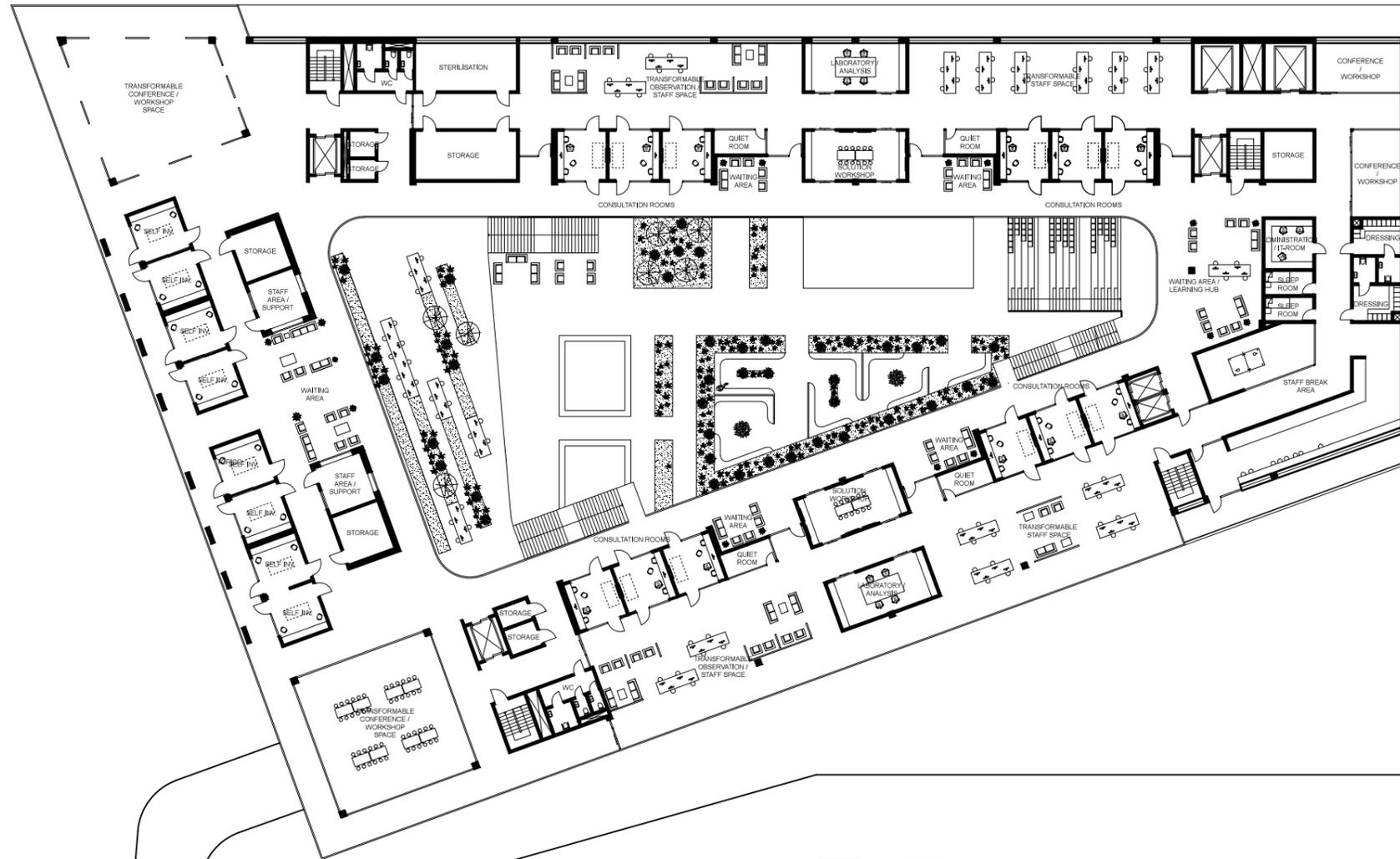
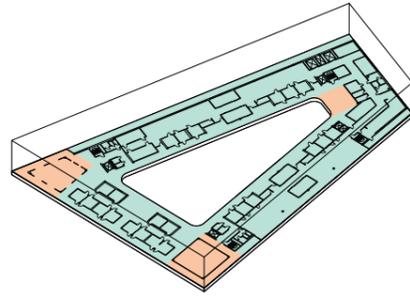


- | Learning & Investigation | Common | Reception |
|-----------------------------------|---------------------|--------------------|
| Digital Library | Garden Square | Reception Desk |
| Reading Hub | Bike Parking | Self-Triage |
| Staff/Patient Leisure | Bus Stop | Assisted Triage |
| Meeting/Conference Room | Technology Room | Staff Room/Kitchen |
| Learning Hub | Restrooms | Pharmacy |
| Patient Kitchen | Storage | Restaurant/Cafe |
| Educational Investigation | Quiet Room | Retail Spaces |
| Staff/Support Area | Change Rooms/Shower | |
| Transformable Conference/Workshop | | |

Level 5

scale 1:500 (A3)

- Learning Centre
- Investigation Unit



Investigation

- Consultation Rooms
- Self Investigation
- Investigation
- Staff Area/Support
- Waiting Area
- Sterilisation
- Solution Workshop
- Laboratory/Analysis
- Transformable Observation/Staff
- Conference/Workshop
- Staff Sleep Room
- Staff Break Area

Learning

- Administration IT Room
- Transformable Conference/Workshop Space

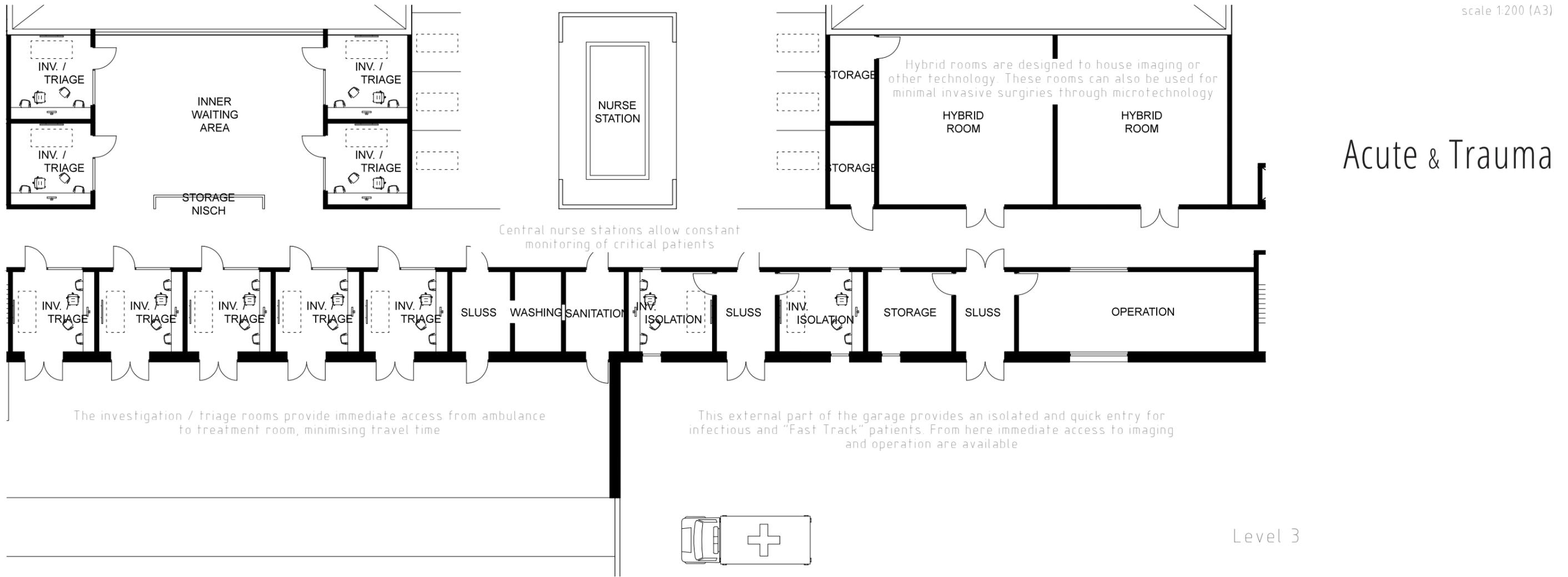
Common

- Technology Room
- Restrooms
- Storage
- Quiet Room

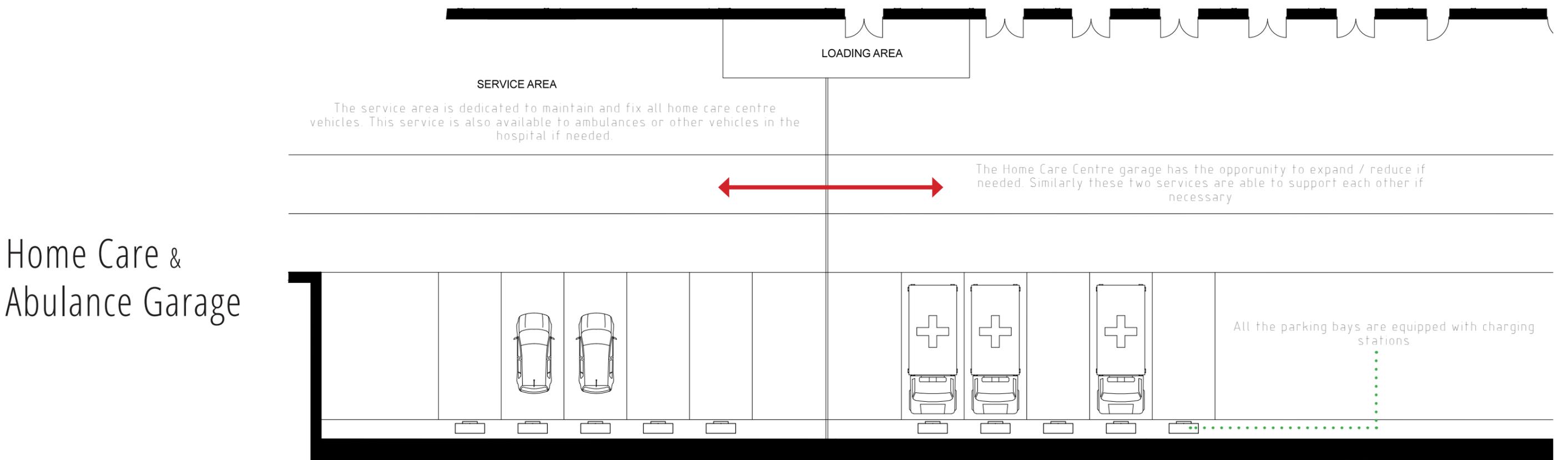
Longitudinal Section

scale 1:500 (A3)



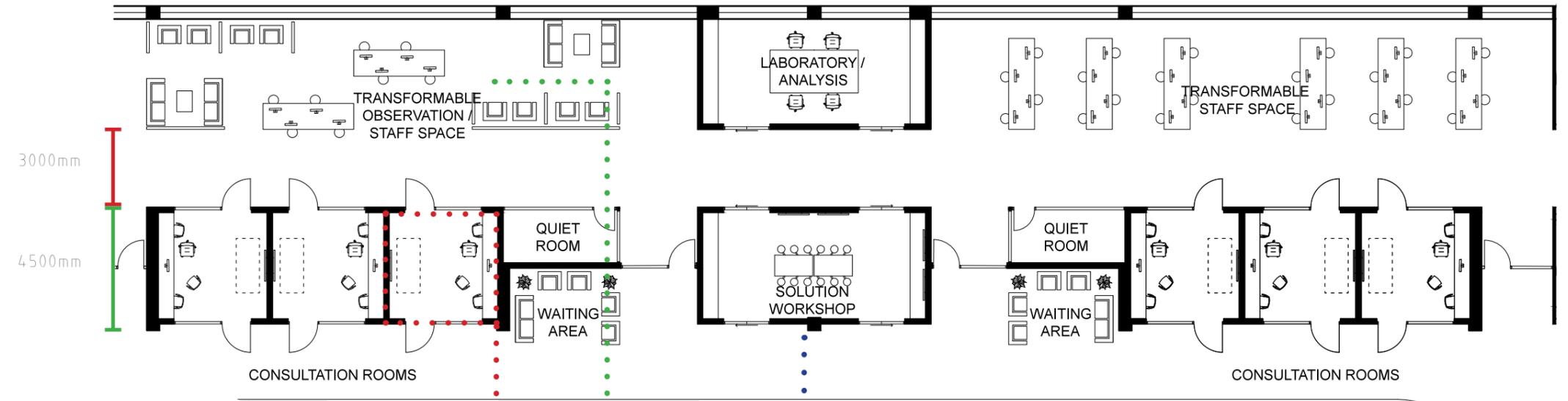


Level 3



Home Care & Ambulance Garage

Level 5



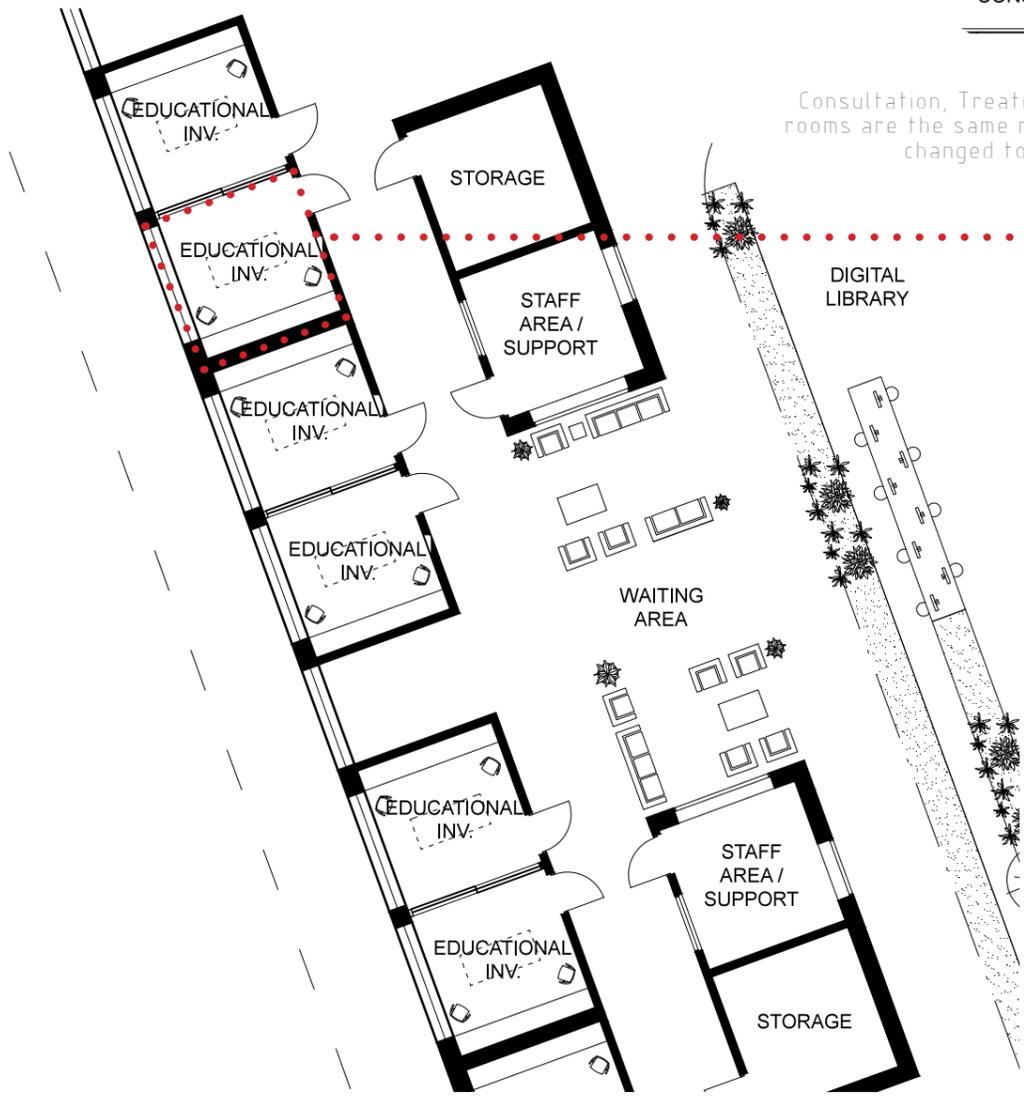
All corridors are 3000mm wide and all room widths are 4500mm. By following this format, any ward can easily be reorganised to serve another function in the future.

Consultation, Treatment, Triage and Self-Investigation rooms are the same room typology and thus can be easily changed to service another function.

• Solution workshops enable the patient to discuss with their support team including doctors, nurses, family and other patients with the same disease

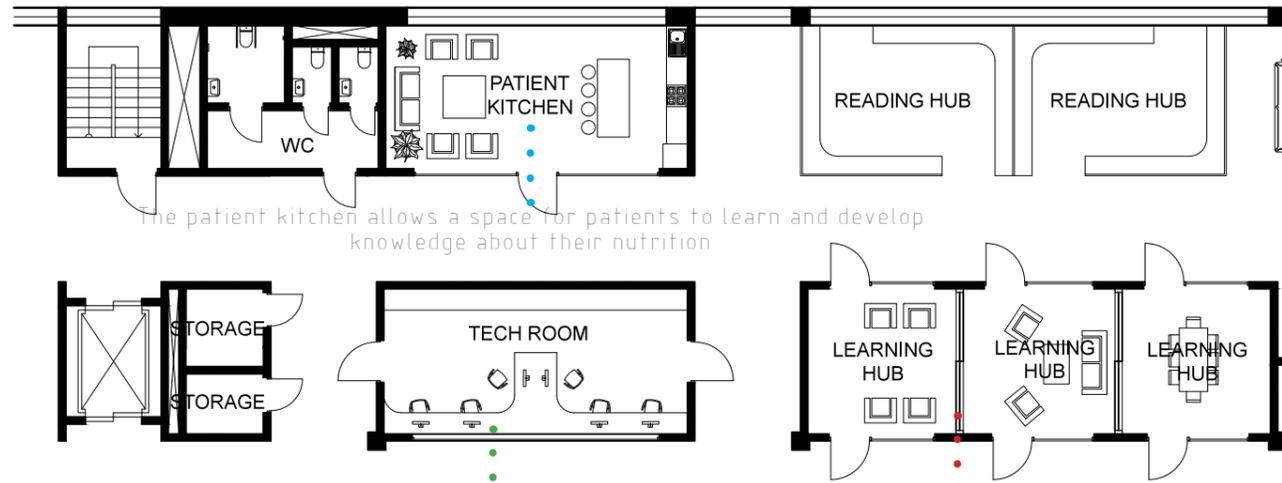
• The observation space functions as a reinterpretation of a day ward. This space is where patients post treatment will stay until they are able to leave the hospital. This room contains moveable, digital screens projecting images of nature or art

This part of the investigation is repeated on both level 4 and 5 on the Northern facade. The investigation unit on level 4 (entrance level) however supports self-patient treatment and diagnosis. It is heavily integrated with the learning centre, placed adjacent to the digital medical library



Level 4

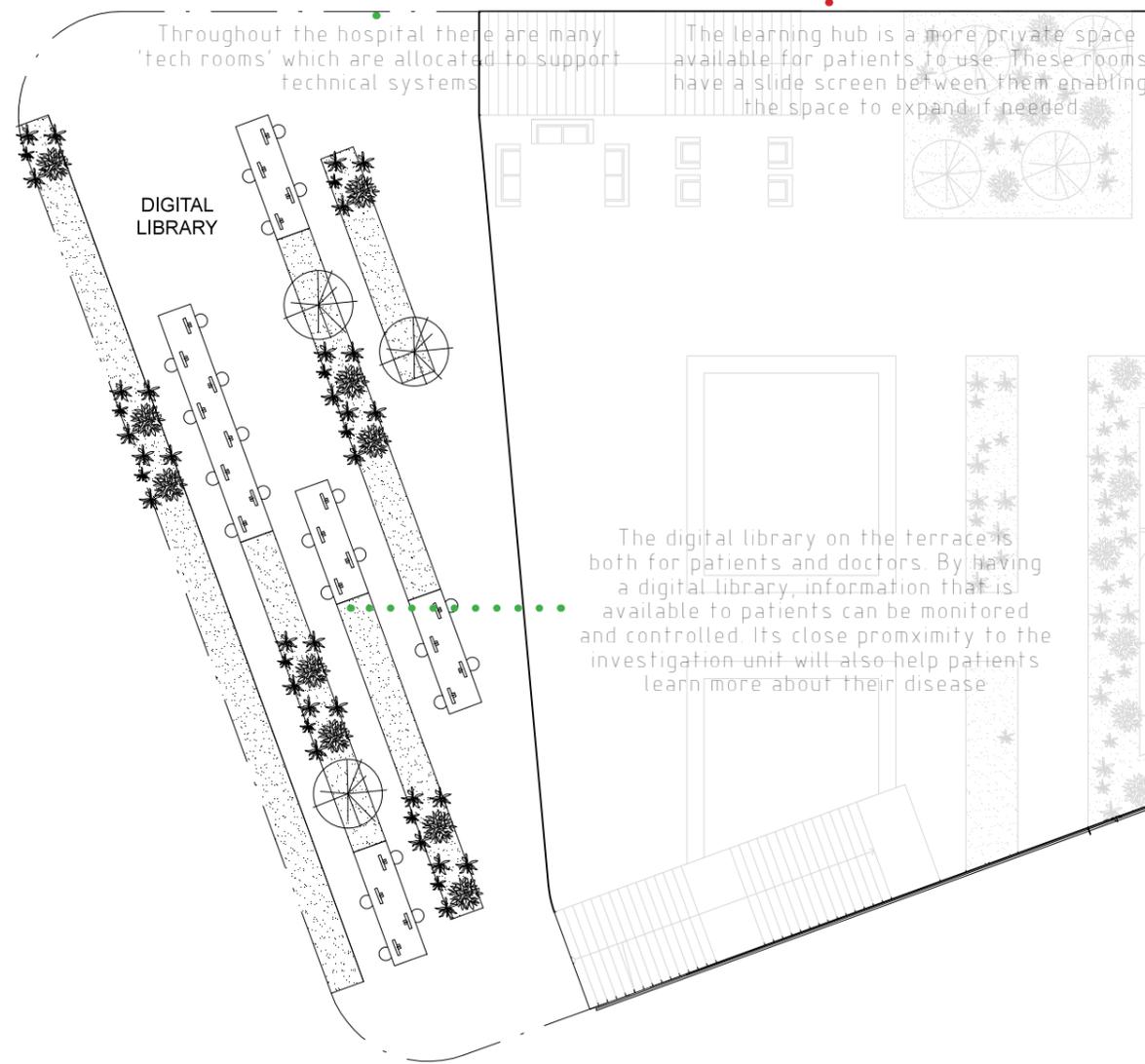
Investigation Unit



The patient kitchen allows a space for patients to learn and develop knowledge about their nutrition

Throughout the hospital there are many 'tech rooms' which are allocated to support technical systems

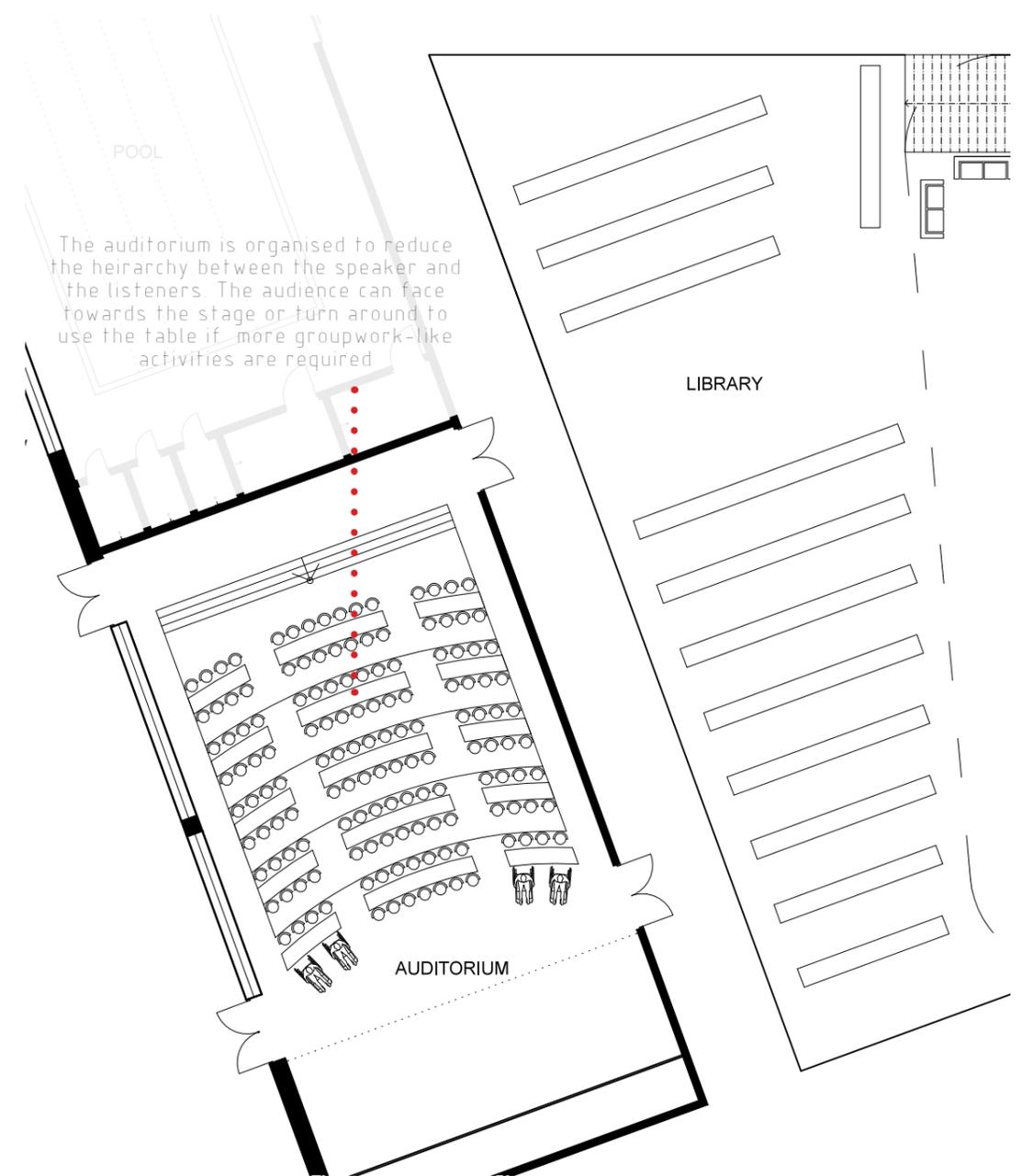
The learning hub is a more private space available for patients to use. These rooms have a slide screen between them enabling the space to expand if needed



The digital library on the terrace is both for patients and doctors. By having a digital library, information that is available to patients can be monitored and controlled. Its close proximity to the investigation unit will also help patients learn more about their disease

Level 4

Learning Centre

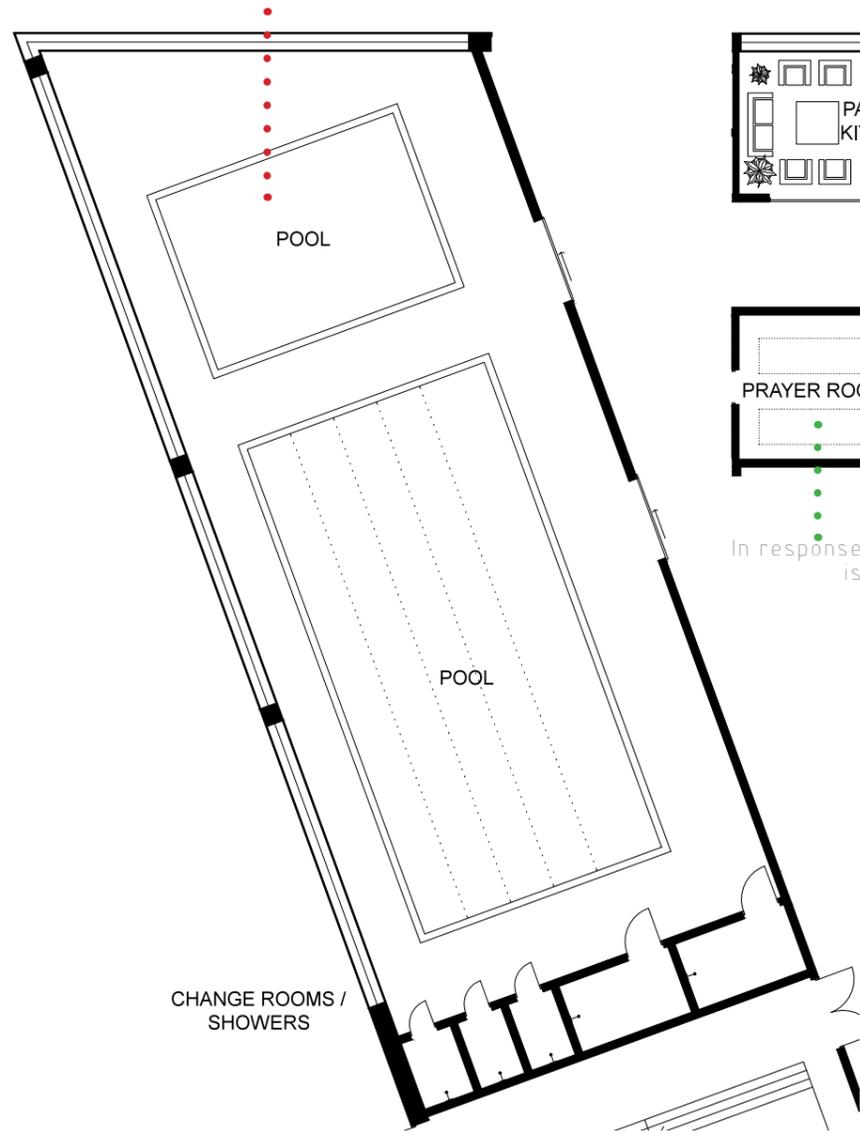


The auditorium is organised to reduce the hierarchy between the speaker and the listeners. The audience can face towards the stage or turn around to use the table if more groupwork-like activities are required

Level 3

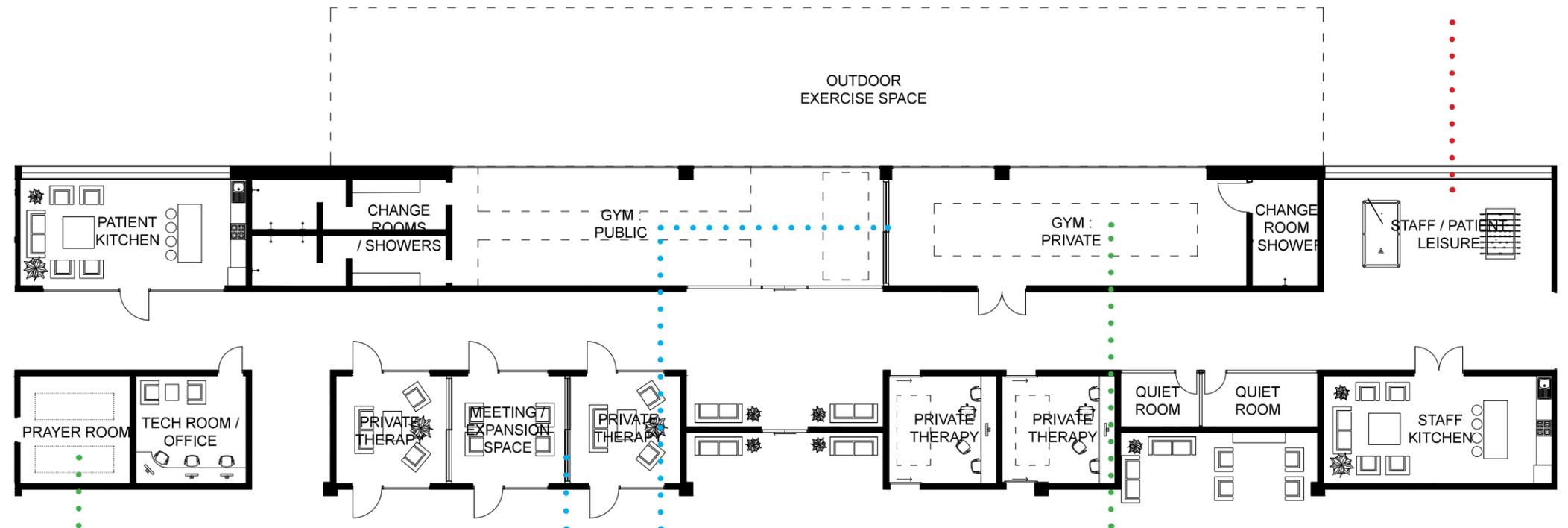
Rehabilitation

The smaller pool has an adjustable floor specifically designed for disabled persons



Level 3

There is a staff/ patient leisure space located on every floor, designed to reduce stress and formality between patient - doctor relations

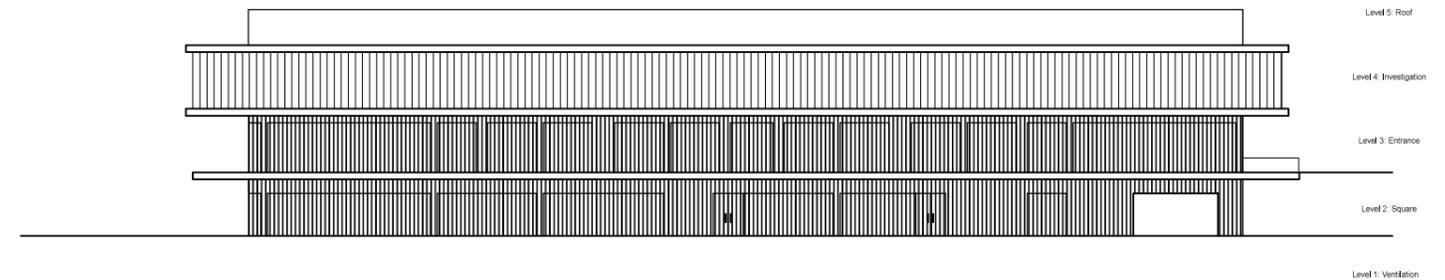


In response to increase multiculturalism there is a dedicated prayer room

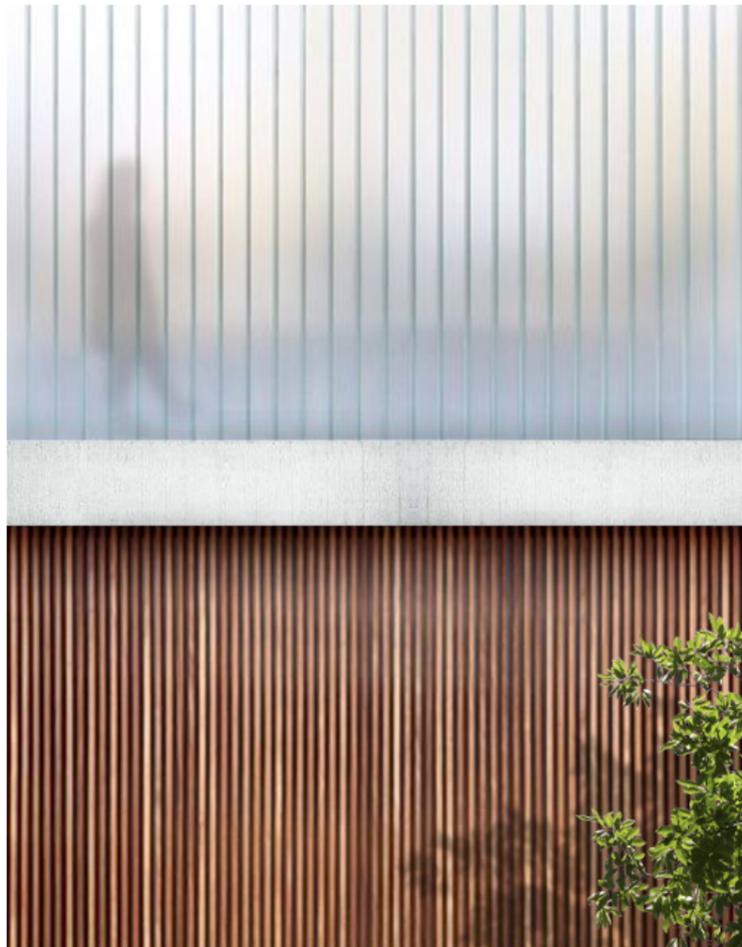
Expandable spaces

The private gym is only open to those undergoing physical therapy

materiality & sustainability & Expandability



The building is covered by mainly two materials; sand-blasted channel glass and wooden louvers. Both materials have the ability to change and control transparency, and with that comes several qualities.



PRIVACY

Privacy is a key part in a hospital building. The sand blasted glass is very suitable because it lets daylight into the building, but at the same time provides privacy by blurring what's behind. Different levels of sand-blasting can be used in different rooms, depending on how private you want it to be.

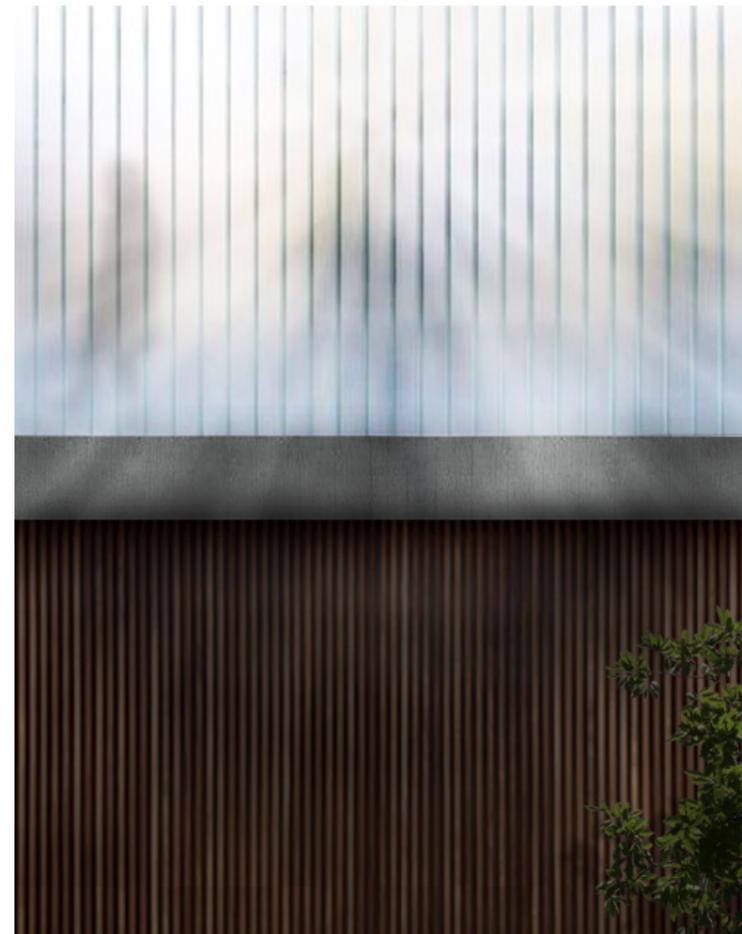
COHERENCY

The thing about channel glass is that the strips of glass connects to each other without the need of a frame, creating a very coherent expression.

The wooden louvers can vary in spacing also creating different levels of transparency, but in a completely different way. They can cover an entire floor and create that coherent expression.

CONNECTION TO NATURE

Connection to nature is enhanced as the facade is flexible, enabling the ability to have openings in areas with the greatest potential of natural views.



WAYFINDING

Through the different levels of transparency you are able to navigate in the building. The walls in the corridors of the different department are colour coded. When the walls are illuminated behind the channel glass, or louvers, you are able to see it through the outer material. A wayfinding system is created, without a complex mix of colours in the facade.

LIGHTSHOW

The building will offer interesting light for its visitors, and for people just passing by. Both during day and night, the materials will treat the light in characteristic ways, creating effects that is different from normal glass, which we all are used to. It will contribute a clean, almost sacred feeling, that expresses both hope and professionalism.



BENEFITS OF A GREEN ROOF

A green roof acts as an insulator, which reduces heating and cooling demands

Green roofs can reduce and slow stormwater runoff.

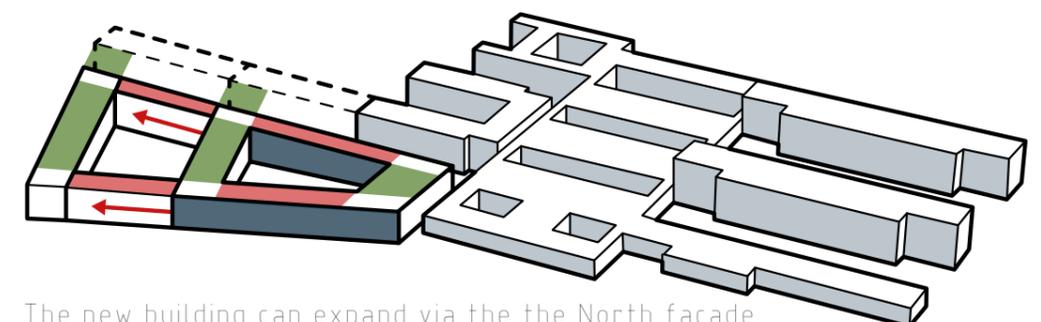
The rainwater can easily be collected, filtered and used.

Less air pollution and green house gas is produced as cooling demands are lowered.

Green roofs can beautify the area, as well as become a habitat for many different creatures.

To care about our environment is a must when designing a building. A large, public building like a hospital has a lot of demands, but can also fit many and big solutions. In this building, the green roof is prioritized.

EXPANDABILITY



The new building can expand via the the North facade







M E D I A N

Katherine Luu & Rasmus Gabrieli