

GATEWAY SAHLGRENSKA
Sahlgrenska City of Competence

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Chalmers University of Technology

master thesis in architecture | spring 2012

**Chalmers
University of Technology**

**Göteborg Sweden
2012**

Master Thesis in Architecture
Danuta Czarnecka

examiner: Peter Fröst
tutor: Erik Nygren



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schedule

idea search

identify stakeholders
find examiner
work on the schedule

* the idea

planning report ready
registration 20.01.2012
* meet Peter 18.01.2012

develop the idea

research / analysis / contact the stakeholders

study the planning documents | visit Sahlgreńska | contact stakeholders

* meet Lennart / Sahlgreńska Hospital / 26.01.2012

study planning documents | contact stakeholders | research

reference projects | research | contact stakeholders | programme workshop

* meet Andreas / Inobi / 08.02.2012

Stockholm study visit | produce site model | urban studies | site distribution

* study visit Uppsala 13.02.2012
* study visit Karolinska Solna / Stockholm + meeting Christine / Tengbom / 14.02.2012
* meet Erik / White / 15.02.2012
* meet Peter 16.02.2012
* meet Bjorn 16.02.2012

desing

design frames | programme | urban studies | flow | light | public space
volume | sketching | model prototyping

programme | site distribution

site model | movement workshop | public vs. private workshop

transparency workshop | volume workshop | prepare for mid-term seminar

* meet fellow student for consultation 06.03.2012
* deliver material for mid-term seminar 08.03.2012

model prototyping | programme

* meet Lennart / Sahlgreńska Hospital / 13.03.2012
* meet Peter 14.03.2012

* mid - term seminar 15.03.2012

* meet Erik / White / 16.03.2012

model prototyping | volume - models and sketches

* meet Andreas / Inobi / 30.03.2012
* meet Erik / White / 06.04.2012

models / plans / sections / programme distribution

produce

layout | presentation | report | model

* send the report to jury 02.05.2012
* meet Erik / White / 02.05.2012

* final seminar 09-10.05.2012

* final presentation and exhibition 23.05.2012

go home and relax :)

Easter break

task

The topic of the master thesis concerns developing the area of Sahlgrenska Hospital – Medicinärberget – Annedalsbergen as a cluster of institutions for healthcare, research, education and business: Sahlgrenska – City of Competence. The task is to deliver a design proposal of a structure that connects the Sahlgrenska hospital and Medicinärberget (university's facilities, Sahlgrenska Science Park and others) over Per Dubbsgatan and becomes a central part of the whole area with a public transportation node, services, educational facilities and – most importantly – public spaces and places to meet and exchange ideas. The goal is to bring new common identity to the area and provide it with a central element that will become a common entrance to the university, Sahlgrenska Science Park and the hospital. The project is supported by Sahlgrenska Universitetssjukhuset.

vision

The Sahlgrenska – Medicinärberget area is to become a physical picture of the synergy of research, healthcare and business, and a platform for cross-border meetings. The building becomes a place of integration and effective communication, as well as a landmark giving a new identity to the area. It should attract users by delivering a variety of functions, easy access, high quality indoor and outdoor environment and architectural values. The project will focus strongly on identity in an urban environment, solutions for modern healthcare and education, their place in the society and its physical manifestation.

design guideline

The most important questions in the project concern mostly: movement and communication, integration and identity. A gate is what seems to embrace everything that shape the design process and describes the vision.
gate - gateway - entry to place - entrance - portal - door
– doorway - a way into a place - access - exit - opening - passage - port - way

key issues

There are several issues identified as important for the design process:

- integration | in organizational and physical terms
- attractiveness | high quality urban / indoor space
- identity | common entrance to Sahlgrenska and Medicinareberget
- proximity | effective communication in organizational and physical terms
- sustainability | general robust solutions, flexibility, efficiency

stakeholders

- me
- Peter Frost | examiner | Chalmers
- Erik Nygren | tutor | White
- fellow students | Chalmers
- Sven Magnus Sjögren | jury | Sjögren arkitekter
- Matts Heijl | jury | Chalmers
- Lennart Ring | Sahlgrenska hospital
- Fredrik and Andreas | Inobi (architectural office, authors of the development plan / strategy for Sahlgrenska - Medicinareberget in 2011)
- Tengbom (architectural office)

process stages

- searching for an idea

- analysis and background to the project
- reference projects
- study visits
- site analysis
- programme

- workshops
- urban perspective
- meeting and feedback
- design

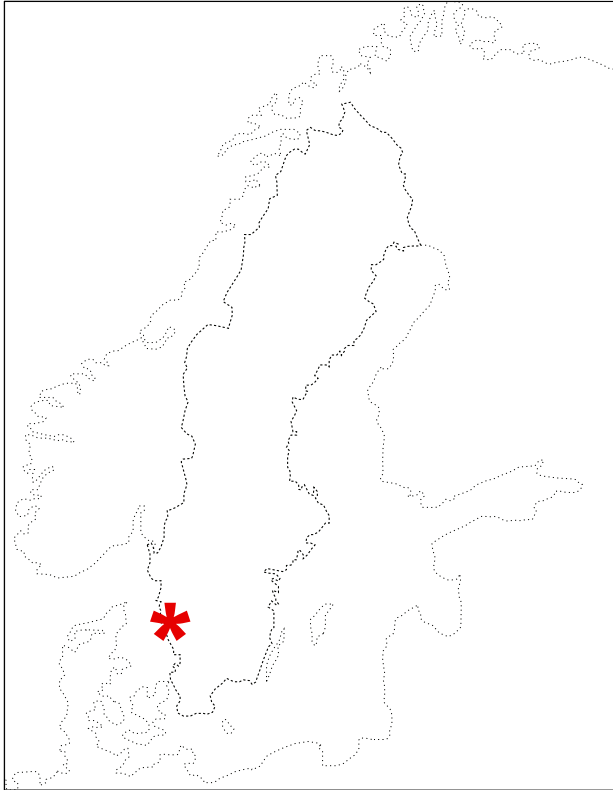
- layout | presentation

**analysis and background
to the project**

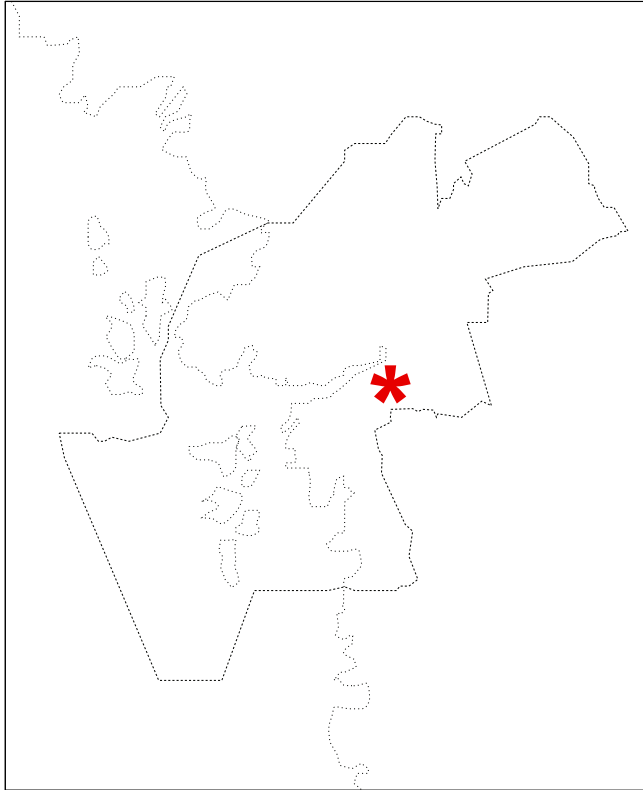
*Sahlgrenska and Medicinareberget: information and plans
for the area, analysis of the area*

where

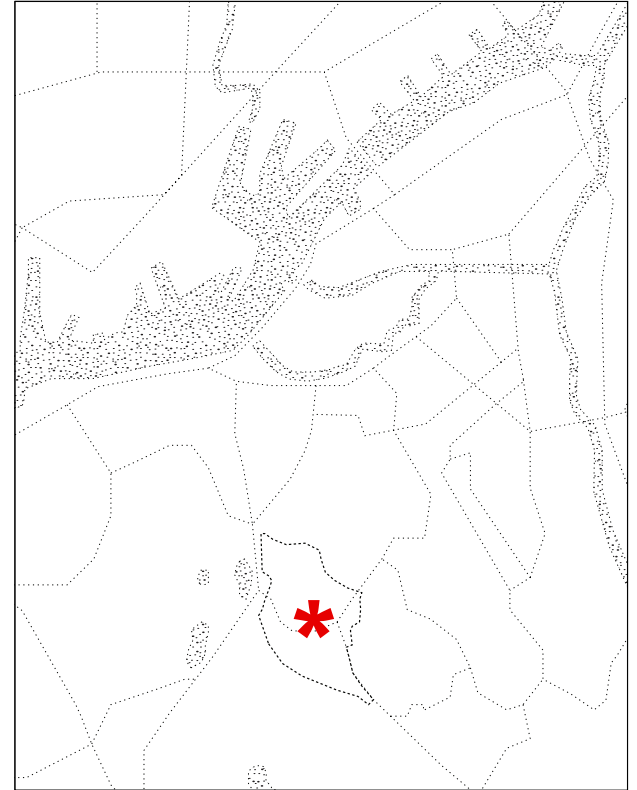
Sweden



Goteborg Kommun



Sahlgrenska



where

Sahlgrenska and Medicinareberget



facts

| information and history of Sahlgrenska and Medicinareberget

Sahlgrenska

The Sahlgrenska University Hospital (Sahlgrenska Universitetssjukhuset) is a hospital associated with the Sahlgrenska Academy at the University of Gothenburg in Sweden and is one of the largest hospitals in Northern Europe. The hospital was founded in 1772 following a donation by Niclas Sahlgren. Sahlgrenska University Hospital stands for basic medical care for the Göteborg region's 700,000 inhabitants and regional care for west Sweden with 1.7 million inhabitants, it also offers highly specialized medical care for the whole of Sweden. The total number of staff is 17,000. As a teaching hospital it is especially prominent in the cardiovascular-pulmonary area, endocrinology, transplantation, child care and orthopedics. The Sahlgrenska University Hospital has been operated by the Västra Götaland Regional Council since its formation in 1999.

Facts:

- Sahlgrenska University Hospital (SU) is Northern Europe's largest hospitals, Geographical areas: SU / Sahlgrenska, SU / Mölndal, SU / East, Queen Silvia Children's and youth house, SU / Högsbo and SU / Lillhagsparken,
- 2200 beds, 165 departments,
- the operation costs about 10 billion / year,
- 17 000 employees, of whom 8000 at Sahlgrenska,
- SU is responsible for the clinical training of nurses, medicine, occupational therapy, physiotherapy students and others
- SU has a close collaboration with the Sahlgrenska Academy and Gothenburg University.
- Many of SU's co-workers have combined services at the University of Gothenburg, and at the hospital.

Medicinareberget

Medicinareberget is the center for medical and Life Science research and teaching at the University of Gothenburg for approximately 5000 students and about 2,000 employees. The clinical research and teaching are primarily in the three hospitals which together constitute the Sahlgrenska University Hospital (SU Sahlgrenska, SU East and SU Mölndal).

Several facilities are located at Medicinareberget:

- teaching rooms and laboratories,
- Drug Center (LMC), a center for research into medicines and nutrition as well as for training of pharmacists and nutritionists,
- Experimental Medicine (EBM), the university's center for animal experimental research, with facilities for livestock, operating rooms and laboratories for animal experimentation,
- Academicum, Sahlgren – the Universities' portal and building and a student centre,
- Biomedical Library,
- Odontology with approximately 600 patient visits daily,
- Lundberg Laboratory, Department of Cell and Molecular Biology.
- Hasselblad Laboratory, Swedish NMR Centre, where the Nordic region's most advanced NMR instrument is recently installed,
- Department of Zoology.
- Conference Centre Wallenberg,
- Environmental Medicine Building, an occupational and environmental medical center,
- Learning Centre, facilities for the Care Scientific Faculty,
- Biotech Center, with facilities for research companies, and Sahlgrenska Science Park, with facilities for companies in the biotechnology field.

Illustration source: Byggnadsplan 2000. Sjukhusområdet kapacitet och möjligheter.

There are over 19 000 people coming to the area everyday:

- **8000 working at Sahlgrenska**
- **4000 visiting the hospital (patients, visitors, others)**
- **2000 working and visiting Medicinareberget**
- **5000 students.**



architecture

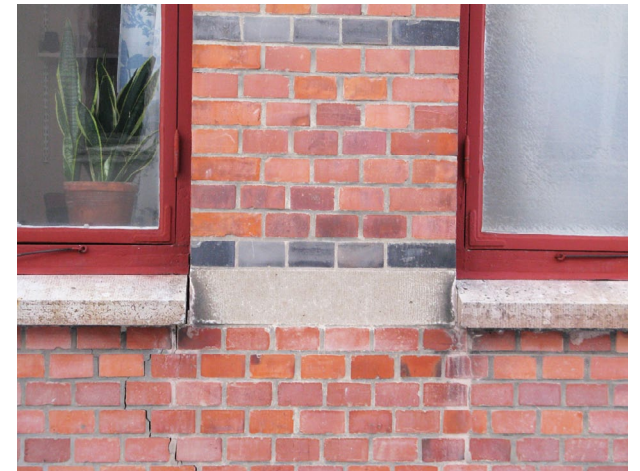
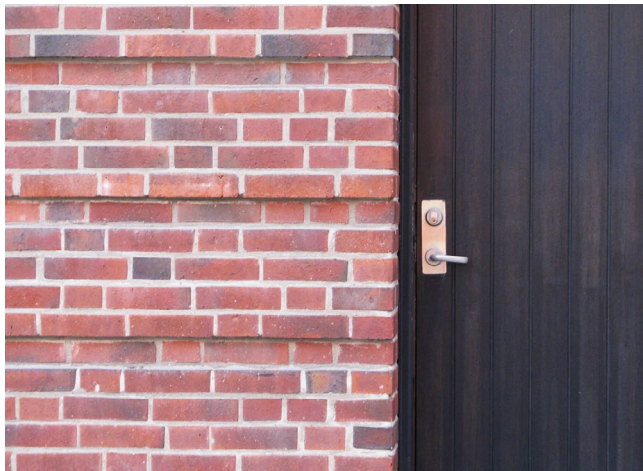
| materials | volumes | cityscape

The buildings at Sahlgrenska and Medicinareberget are characterized by a diversity of volumes, types and styles.

Sahlgrenska has been shaped from the 1800s to the present. The hospital gives a coherent and unambiguous impression, mainly by consistent use of materials: for roofing mainly copper and red brick for the walls and. The central complex, which is the largest building in the area, has a façade in red (to the south) and yellow (to the north) brick.

Medicinareberget seems unorganized and inaccessible from the street, mostly because of its location on the hill. The area has been developed since 1800s, yet initially only along Per Dubbsgatan / Guldhedsgatan. First buildings on the mountain were erected in 1950s. Street structure on Medicinareberget has its origins in 1950 and 1960s. There wasn't until 1992 when the area had its first development plan. The orientation in the area seems not easy; the site is characterized by differences of levels and proximity to green rocky areas. There is a variation in volumes and styles of the buildings, with many different materials used: brick, metal and plaster in various colors. There are fine examples of architectural styles as Art Nouveau, National Romanticism and 20th century classicism. A significant feature is the large car park at the entrance to Medicinareberget which seems strange in an environment that is otherwise characterized by relatively dense urban development.

In the western part of the area there is Annedalskyrkan, built in 1908, that has a lot of architectural values and becomes a landmark.



vision | a dynamic business-oriented meeting place

The ambition for Sahlgrenska – City of Competence is to become a leading international hospital and medical center of excellence in a well-integrated neighborhood where Sahlgrenska Hospital and Medicinareberget appear as a main growth factor and engine in the region for care, education and research. As a dynamic business-oriented venue for academia, private sector and public sector it becomes an internationally leading institution for innovation, research and education.

Sahlgrenska University Hospital, in collaboration with the Sahlgrenska Academy valued as an internationally leading hospitals and medical knowledge center:

- respects the patient and their needs
- become a natural choice for staff and students
- is the driving force in the Västra Götaland health care development

The goal is to strengthen the institutional position and attractiveness, invite innovation and enable integration through shaping the physical environment.

The vision for Sahlgrenska – City of Competence in the region is:

- an area with very high technical performance that enable advanced medical care and research with facilities that can accommodate advanced high-tech equipment,
- interaction between Sahlgrenska Hospital and Medicinareberget is increased by reducing the traffic at Per Dubbsgatan; the hospital connects better to the city and becomes a part of an urban tissue,
- dignified and welcoming Sahlgrenska Hospital is a district with buildings and public spaces worth preserving and developing, and it becomes attractive and save for patients, visitors, employees,
- robust hospital - improvement of technological supply meet both external and internal influences.

Shaping the vision

The vision of Sahlgrenska – City of Competence (Swedish: Kunskapsstaden Sahlgrenska) is gradually shaped throughout many years of planning and along with changing perspective on healthcare architecture and the place of healthcare facilities in the society.

In 2004 the boards of the Sahlgrenska University Hospital and Sahlgrenska Academy at Gothenburg University formulated A common vision for health care, research and education which described the necessity of stronger cooperation between health care in the hospital environment and education and research activities in the Medicinareberget. At the same time stakeholders active in Sahlgrenska and Medicinareberget draw a common vision and concept sketch Sahlgrenska – City of Competence (Kunskapsstaden Sahlgrenska) to make the overall potential visible in both institutional and physical aspects.

Environmental targets and “the robust hospital” contribute to the vision of *The Good Life in Västra Götaland* and other policies of Västra Götaland which describe a framework and aspirations for development in the region and thereby aim to strengthen Västra Götaland as a competitive region of a national and international perspective.

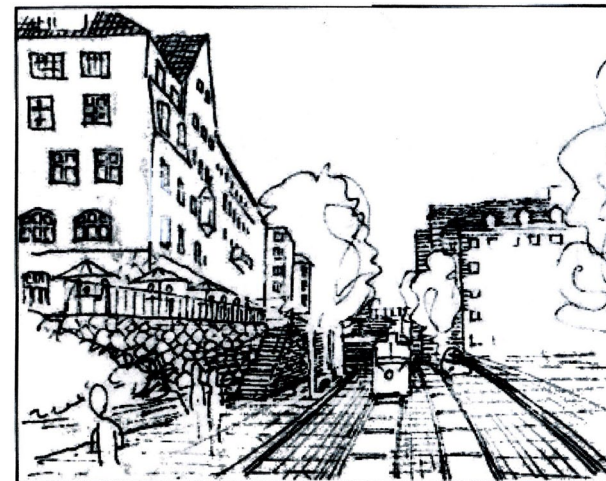
Goals and objectives

The planning documents aim to draw out the guidelines for long-term-preserved development of Medicinareberget and Sahlgrenska. Physical proximity and collaboration across organizational boundaries play a critical role in the development of knowledge in an increasingly competitive world. Medicinareberget and Sahlgrenska Hospital together comprise one of Sweden's strongest knowledge clusters. By integrating the university, hospital and business, in physical and operational terms, the goal is to strengthen the area further. The goal is to establish clearer and more functional links between the hospital and Medicinareberget and create good conditions for the development of Life Science activities in Gothenburg.

Representatives from all businesses and property owners have been involved in the ongoing planning process.

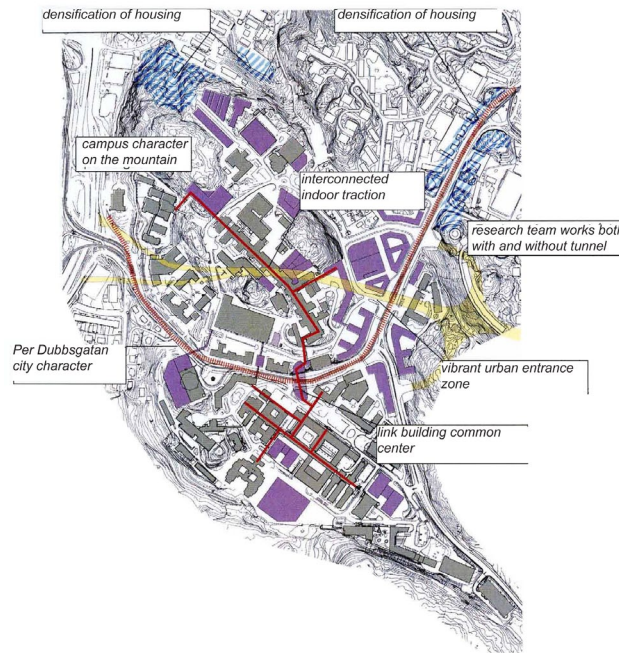
Several solutions have been proposed:

- Per Dubbsgatan / Guldhedsgatan develops into a vibrant urban street. The amount of traffic between Sahlgrenska Hospital and the Medicinareberget is reduced and the street made more attractive for pedestrians / cyclists, efficient public transport and ambulance transports,
- Sahlgrenska's main entrance area is turned into joint center with public transport node and building linking opposite sides of the street,
- Entrance to Medicinareberget develops into a vibrant urban intersection,
- The solutions are presented for Per Dubbsgatan / Guldhedsga and Medicinareberget entrance functions both in the short term and in a future (when a tunnel under the Medicinareberget will be built),
- Medicinareberget has a campus character. Height-parties are kept undeveloped and made available through new paths,
- The parking for the entire area is concentrated,
- Medicinareberget connected to Linneplatsen / Campus Linen and Guldhedsgatan / Chalmers and becomes better integrated with the city.



Vision for Sahlgrenska and Medicinareberget

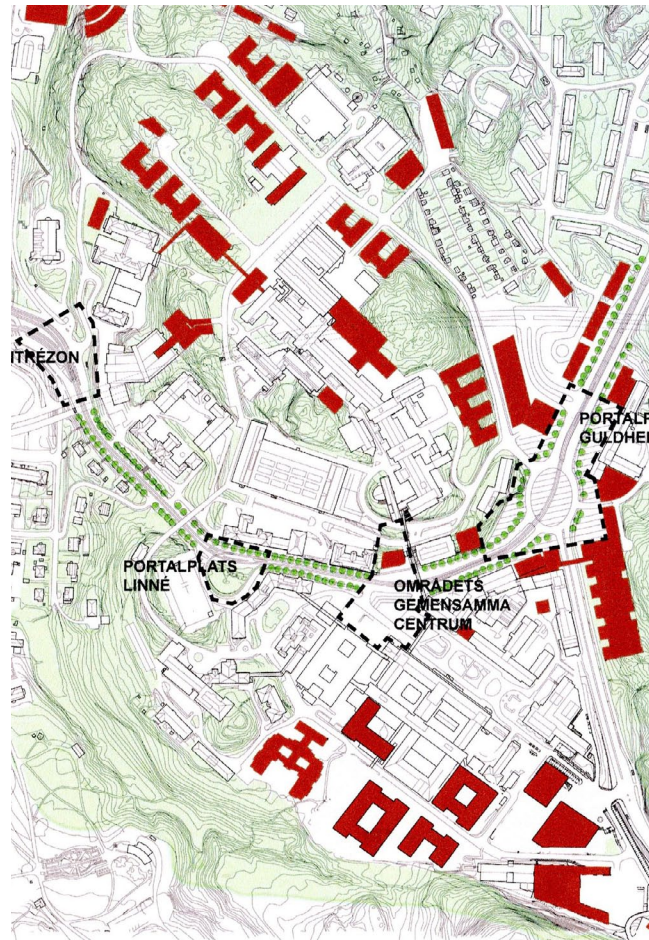
Illustration source: Medicinareberget och Sahlgrenska sjukhuset. Utvecklingsplan 2011



Important public spaces at Per Dubbsgatan / Guldhedsgatan - vision of Per Dubbsgatan / Guldhedsgatan

the street develops into a vibrant urban street. The amount of traffic between Sahlgrenska Hospital and the Medicinareberget is reduced and the street made more attractive for pedestrians / cyclists, efficient public transport and ambulance transports.

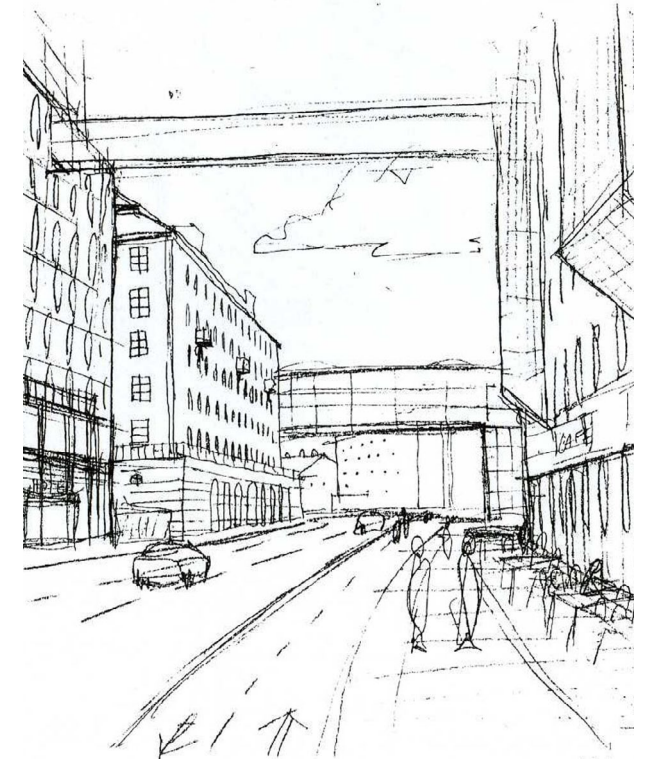
Illustration source: Utvecklingsplan for Medicinareberget 2004



Link building over Per Dubbsgatan / Guldhedsgatan - the topic of the master thesis

The building hosts public function and is available for patients, employees, visitors, students and business. It becomes the main entrance for both Sahlgrenska and Medicinareberget and creates a public space of high quality.

Illustration source: Medicinareberget och Sahlgrenska sjukhuset. Utvecklingsplan 2011



innovation and knowledge environments

| place for Life Science

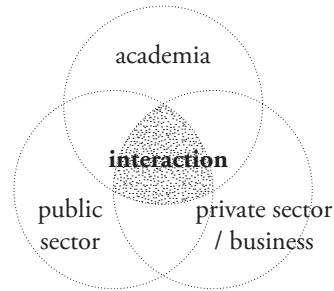
Along with globalization comes competition in a world context. For Sweden the ability to compete as a knowledge nation requires well-developed environments for innovation that are based on the ability to collaborate across traditional boundaries. An innovation results from cooperation of a set of actors, networks and institutions that are mutually dependent. The players are divided into three groups: (1) the structure of production (private companies), (2) knowledge infrastructure (university), and (3) the supporting structure (public sector). These are involved in a complex web of formal and informal networks, both within and between the different groups. Strengthening the innovation system requires bringing them all together and assuring close cooperation. The integration of research, education and innovation, the so-called knowledge triangle, needs to be improved to strengthen the institutions, provide greater competitiveness to the economy and contribute to society's development in general. The place for synergy is increasingly becoming a knowledge platform for cross-border meetings.

Knowledge clusters of tomorrow

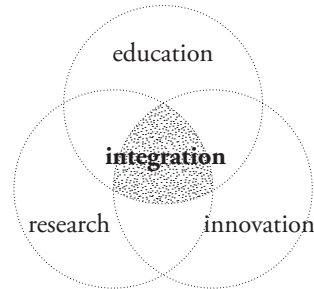
Medicinareberget and Sahlgrenska Hospital together comprise one of Sweden's strongest knowledge clusters and environments in Life Science*. It gives an opportunity to bring academia, healthcare and business together and shape a physical environment that will support development and integration within the city.

The physical environment plays a more and more important role in processes bringing people and disciplines together. Knowledge clusters in the future must become not only attractive working environments but also interesting places for leisure, culture and free time. Creating environments that connect people require a consciousness of how the physical environment and social factors interact. It's about planning for meetings and communication and that support rich social life, as much as for the excellent research, healthcare, and educational facilities.

Triple helix - an innovation system consists of the interaction between academia, business and public sectors. These are involved in a complex web of formal and informal networks.



Integration of education, research and innovation, the so-called Knowledge Triangle, is a fundamental requirement for today's and tomorrow's knowledge clusters, and ultimately necessary for the region's overall development.



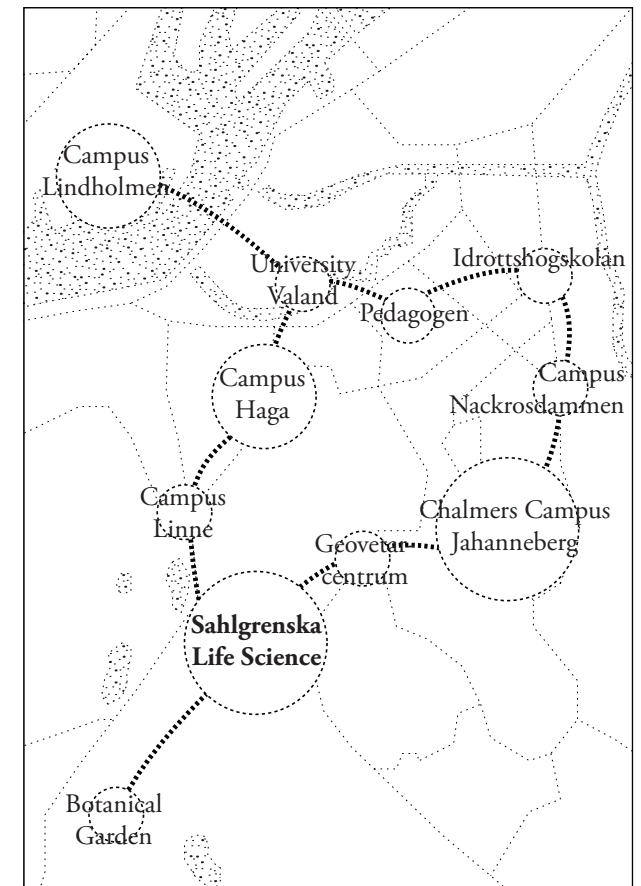
Stakeholders in the process

planning for future knowledge environment at Sahlgrenska and Medicinareberget demands cooperation above organisational borders. Planning becomes an ongoing process in which many actors are involved.

- Västra Götaland: Sahlgrenska University Hospital, Regional Utveckling - VGR,
- Sahlgrenska Science Park and companies in the fields,
- City of Gothenburg: Business Region Gothenburg, Stadsbyggnadskontoret
- University of Gothenburg: Sahlgrenska Academy, Faculty of Natural Sciences, others,
- Chalmers University of Technology,
- Property owners: Västfastigheter, Akademiska Hus, Real Estate Department of Gothenburg city, Higab, other property owners

Place for Life Science in Goteborg

Sahlgrenska Life Science as a part of City of Competence - Goteborg. Through the integration and cooperation between different actors both the city and the organizations become more attractive and have better chances for success in more and more competitive borders. The cooperation must work both in organizational terms and in the physical environment. It needs changes in the approach to urban / regional planning and understanding the importance of good connection with the city and demand for high quality urban space. With Life Science in this context means a large amount of scientific disciplines and business units with the common denominator is that they act on knowledge for better life and health. This may involve activities in healthcare, biotechnology, medical technology, biology, food, bio-energy, industrial biotechnology and more.





challenges | physical and organizational barriers

To develop as knowledge cluster and become a leading international centre for research and innovation Sahlgrenska and Medicinareberget have a number of organizational and physical obstacles to overcome.

Organizational challenges

To perform the change there is a need for strong cooperation and clear vision for all the stakeholders. The goal must be specific and an effective leadership for the process is a necessity.

Physical challenges

There are several strong physical barriers for the development of the area.

1. First challenge that emerged in the planning documents is a need to collect the academic activities of Medicinareberget. Working with the increased density and proximity is seen as important to create an active campus environment.
2. Second challenge is the heavy traffic at Per Dubbsgatan / Guldhedsgatan and Ehrenströmsgatan which becomes a powerful barrier against integration and hamper the hospital's ambition to be an open public area, well integrated with the city.
3. Third challenge is the difference of levels which very much limits accessibility to Medicinareberget and is a central obstacle to overcome while working on the link building.
4. Fourth challenge is the quality of Sahlgrenska's environment and public space. Several planning document underline the need to create a high quality indoor and outdoor environment in the hospital area, and to integrate it with the city, botanical garden and Medicinareberget.

Identity

It has been discovered that the name Medicinareberget does not reflect the area's character and its activities. Preferably, a new name could be found, for example Campus Sahlgrenska. This would strengthen the identity of the place and its position in the city. A collective name for all the activities were given in the planning documents: Sahlgrenska Life Science.

Sahlgrenska Hospital

| buildings
and activities

1. Kiosk
2. Main entrance to the hospital
3. Central complex
4. Jubileum Clinic (cancer treatment)
5. Pathology Clinic
6. Women's Clinic
7. Laryngology Clinic
8. Preschool
9. Skin Clinic
10. Rheumatology Clinic
11. Johannesvillan
12. In-patient wards
13. Acute ward
14. Dormitory
15. OP-lab
16. Psychiatry Clinic
17. Västfastigheter's (property owner) office building
18. Supply and delivery, office
19. Sahlgrenska Science Park
20. Garage and helicopter landing
21. Garage
22. Microbiology - research lab
23. Restaurant / kitchen

18



the site

Medicinareberget

| buildings
and activities

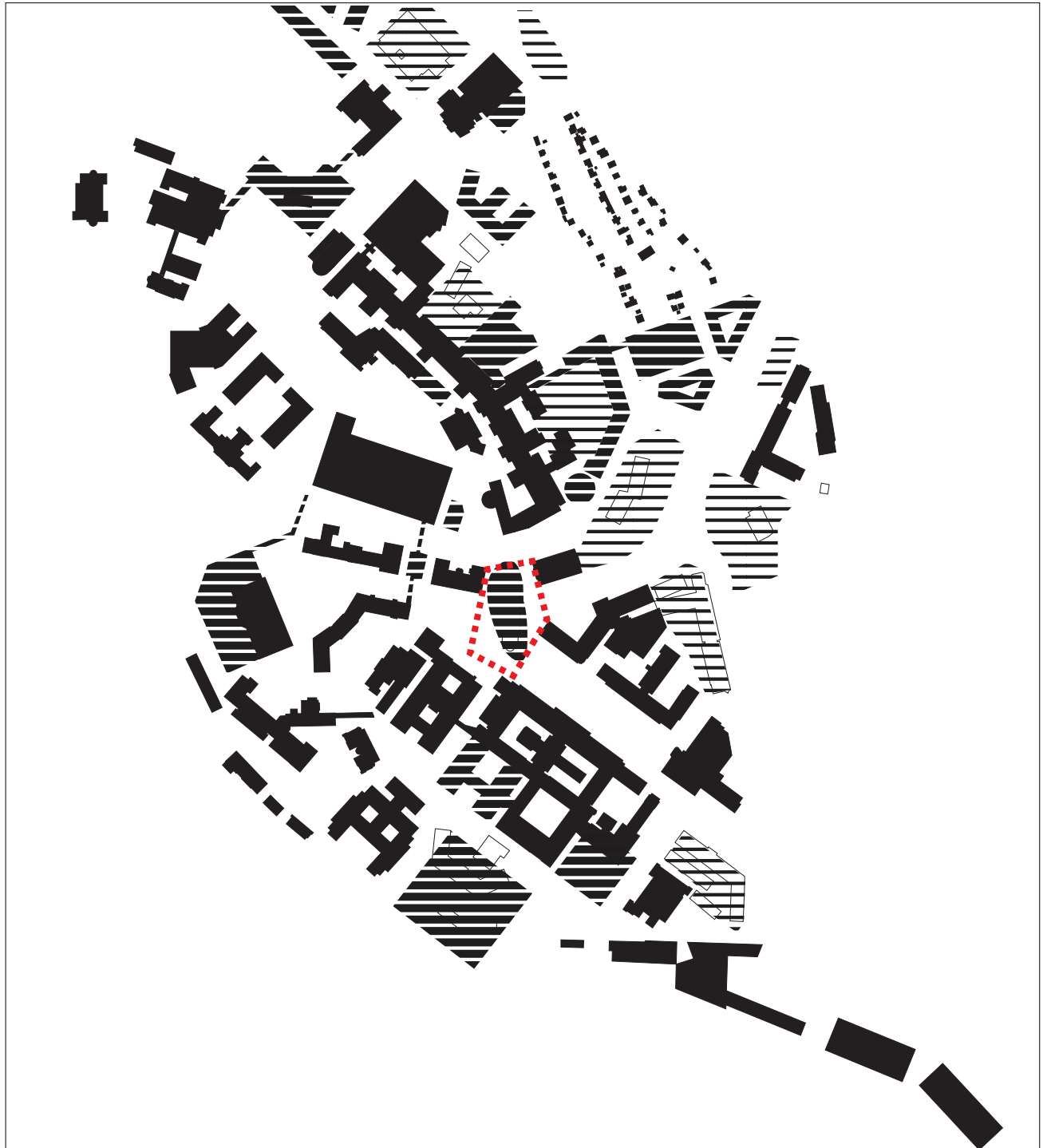
1. Academicum (conference, Student Union, information, etc.)
2. Library
3. Student housing
4. Odontology Clinic
5. Sahlgrenska Science Park
6. Hasselblad's Laboratory
7. Sahlgrenska Academy (Faculty of Health Sciences at the University of Gothenburg) and others - lecture halls, laboratories, etc.
8. Lundberg LABolatory (Faculty of Cell and Molecular Biology Science)
9. Änggardsbacken (elderly housing)
10. Biotech Centre
11. LNC (Nutrition Centrum at Sahlgrenska Academy)
12. EMB (Experimental Medicine)
13. Hälsovetarbacken (nurses school)
14. Environmental Medicine
15. Zoology
16. Garage
17. Wallenberg Conference Centrum



land development

| key features

1. Per Dubbsgatan / Guldhedsgatan developed into a city street. Buildings along the road are designed with services in the ground floors and opens towards the street.
2. A common center at Sahlgrenska: main entrance to Sahlgrenska creates common area with public transportation node and building linking opposite sides of the street.
3. Entrance zone to Medicinareberget: the area develops into a vibrant city intersection. Blocks of student housing and service functions in the ground floor create busy urban environment.
4. The solutions for Per Dubbsg./Guldhedsg. and Medicinareberget entrance zones functions both in the short perspective and in a future (when a tunnel under Medicinareberget is built).
5. The parking: the parking area is concentrated in a few points. Parking deck at Zoology is moved to the entrance zone of the Medicinareberget. Parking becomes an extensive double-deck structure connected to Medicinareberget through new pedestrian bridge.
6. Campus character: the goal is to emphasize contact with nature and create a campus character at Medicinareberget. The area's main axis - Medicinarelängans indoor corridor - extended and connected to both the hospital and the Hälsovetarbacken. New buildings designed in harmony with the steep topography, woods and the landscape. Top of the mountain is kept undeveloped.
7. The area is better connected to Linneplatsen.
8. Sahlgrenska Hospital – dignified and welcoming: an area of very high technical performance, containing facilities with advanced high-tech equipment and a robust hospital structure.

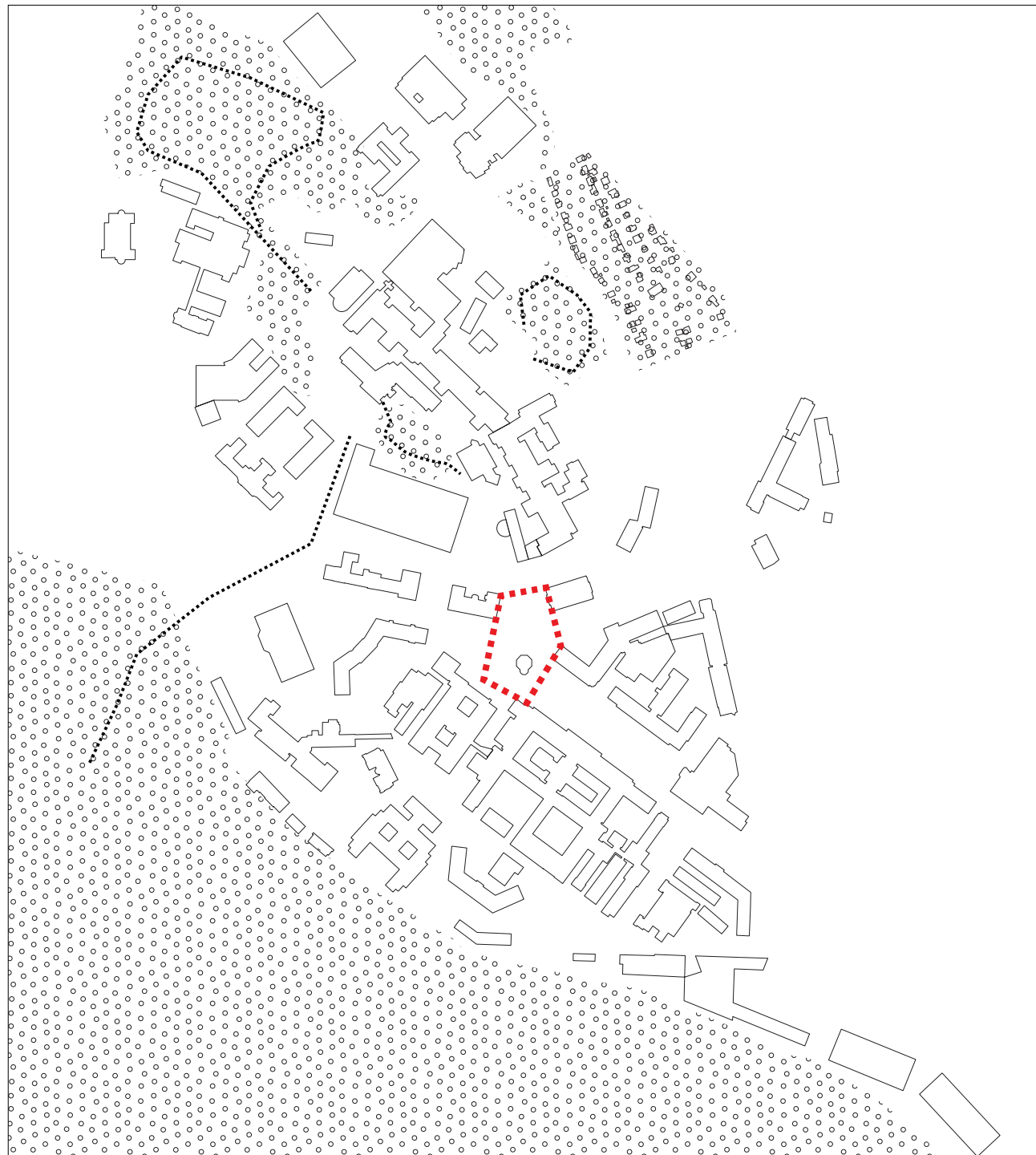


greenery

| green areas and recreation

Medicinareberget and Sahlgrenska Hospital are surrounded by large coherent nature areas. Änggårdssbergen, Botanical Garden, Castle Park and the green areas in northern and southern Guldheden brings great qualities to both the Sahlgrenska area and the city as a whole.

Medicinareberget undeveloped plateaus are an important resource for the creation of a stimulating knowledge environment. Hills, the views, colonial houses district and forests are valuable habitats and a make the area more attractive. New buildings should be placed gently on the terrain and assure maximum contact with nature. New walking paths should be designed to allow better access to the green areas and improve the internal communication. A pedestrian bridge shall connect Sahlgrenska and the Botanical Garden.



the site



walking paths



green areas free from development

traffic

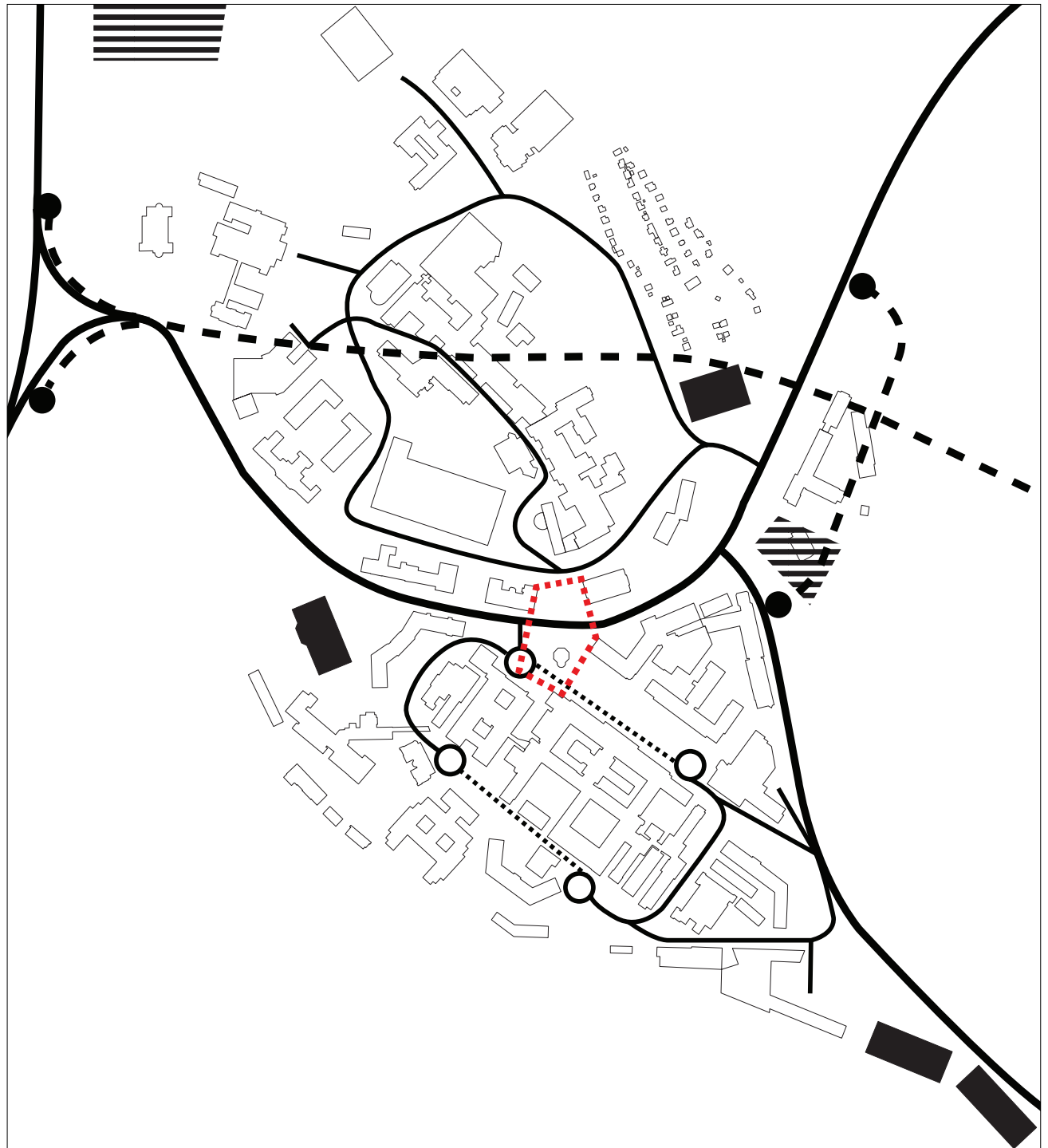
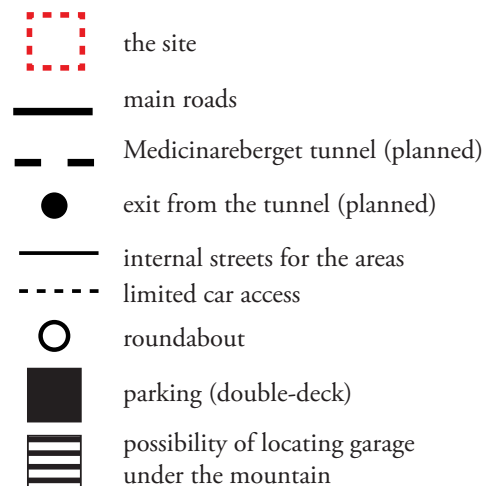
| car traffic and parking

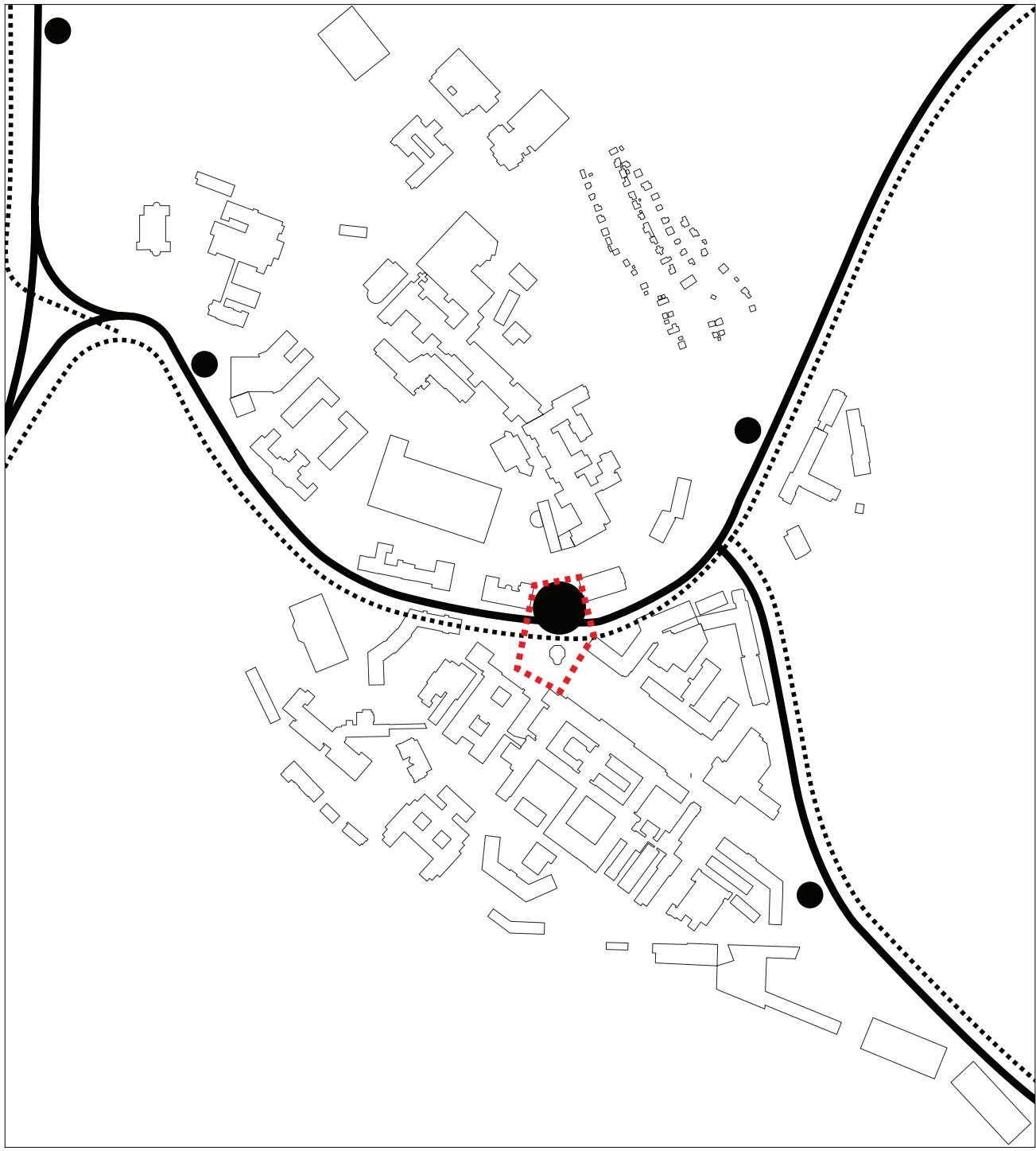
Car trafik

One of the main problems of the area is heavy traffic at Per Dubbsgatan. A tunnel under Medicinareberget is planned in order to create more urban and friendly environment along the street. The new parkings will help to lower the number of cars at the internal streets at Sahlgrenska and Medicinareberget. Main entrance to Sahlgrenska Hospital will become car-free high quality public space for pedestrians.

Parking

The area will be supported by a few strategically placed parking facilities. The studies in the planning documents helped to estimate the approximate needs for the parking area. The calculations show that Medicinareberget will have a deficit of about 500 parking spaces for all the planned expansion. There will be a possibility of expanding the parking house at Per Dubbsgatan and also of constructing underground garages in two locations.










public transportation

| routes and stops
and cycling paths

A reduction in car traffic on Per Dubbsgatan would mean a potential increase in capacity of public transport. The areas around tram and bus stops along Per Dubbsgatan will become more attractive with transformation into a vivid public spaces that are easy to access by walk. From Medicinaregatan stop the main entrance to Medicinareberget will be accessible. Bus and tram stop Sahlgrenska huvuden appears as a main public transportation node in the area with entrances to both Medicinareberget and Sahlgrenska Hospital and will become a center with high quality public space and services like kiosks, cafes, shops. Annedalskyrkan and Sahlgrenska sudra are two more stops that allow access to the area.






-  the site
-  cycling paths
-  tram / bus routes
-  tram / bus stops
-  tram / bus stop Sahlgrenska huvuden (main entrance)

internal connections | connections in the area and public spaces

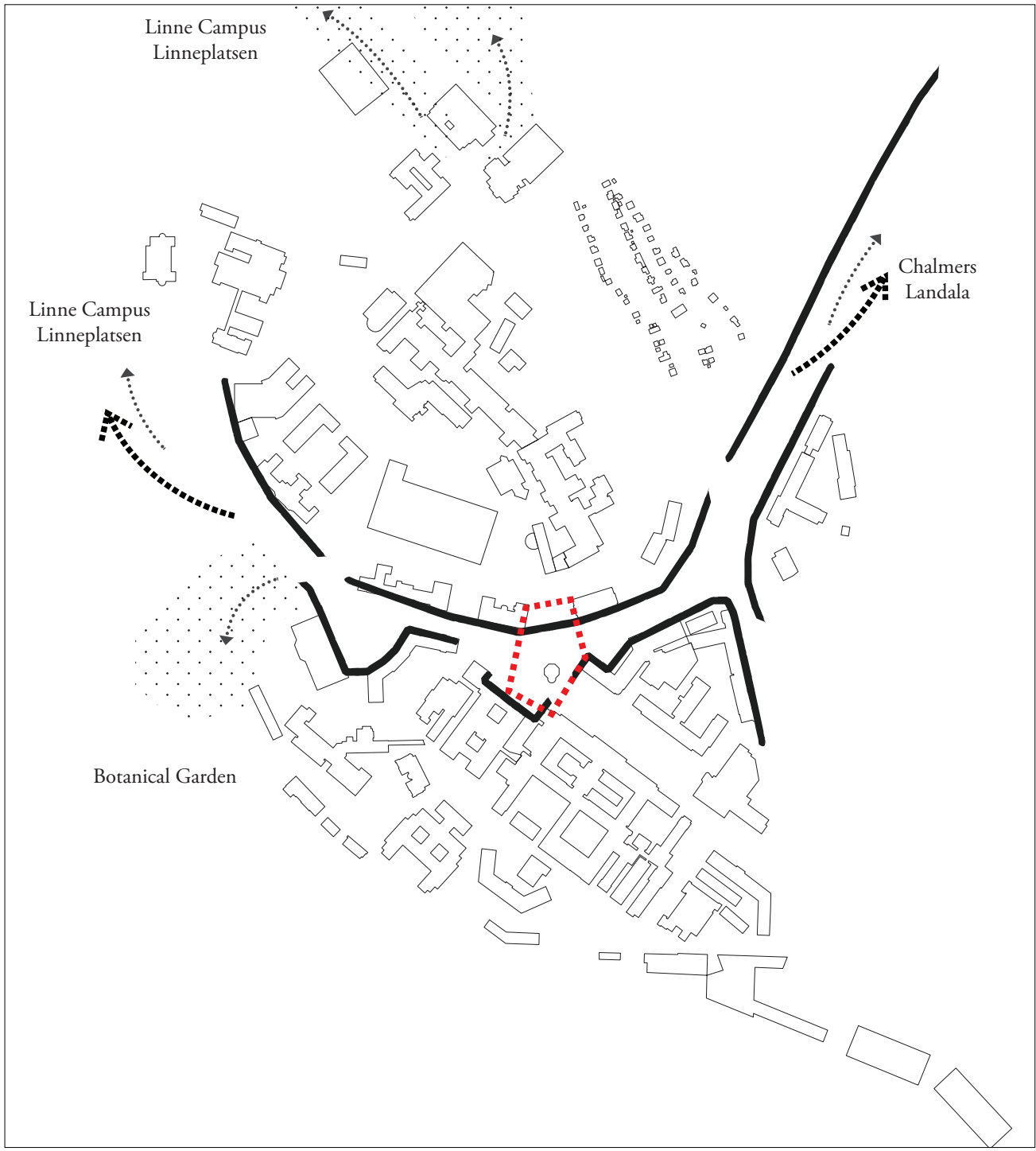
Social environments - meeting places and rooms for exchange of ideas - play an increasingly important role in the planning of the knowledge-intensive environment. Emphasis is laid not on the purely functional aspects but on the social activities. The focus on the meeting as a value-creating activity is essential to create possibilities for interaction between students, researchers, hospital staff, patients and the companies.

By creating a clear net of internal corridors that ties together most of Medicinareberget buildings and links directly to the Sahlgrenska central complex a series of indoor public spaces is created. This approach works instead of zoning rooms according to their functions - the design should seek a more dynamic interaction between places of different character.

24

-  the site
-  main connection - inner corridor - planned
-  main connection - inner corridor - existing
-  small node - public space
-  main node - central public space










external connections

| flow patterns

Per Dubbsgatan / Guldhedsgatan develops into a pedestrian-friendly urban street with open and inviting ground floor. It is a main communication road to Chalmers, Landala, Linneplatsen and center of the city. The flow patterns on the mountain must receive simple and efficient characteristics, both for pedestrians and traffic. New walkways on the mountain make the nature more available and invite people from outside the area.

The goal is to strongly define the urban character of Guldhedsgatan and develop the frontages along the street.

-  the site
-  cycle paths and sidewalks
-  road connection (car / public transport)
-  connections within environment with strong urban character (building's facades, etc.)
-  connections within environment more natural character (greenery, parks, etc.)

case studies and study visits

healthcare architecture / hybris / knowledge environments

In order to choose architectural references and inspirations I needed to specify the task more specifically. What will the building become and what is its purpose? How will the design process look like? The main point of the project is to create a place for social interaction and a learning and science centre that would encourage exchange of ideas. It will include both public space and more private space adjusted to a certain purpose (laboratories, general office, sport and leisure, etc.). The project is based in several areas: mixed-use complex building, healthcare, education and research in very specific urban context. I decided to search for inspiration in all these areas.

Therefore, the references are divided in three parts:

- *healthcare architecture*
- *knowledge environments*
- *hybris*

case studies

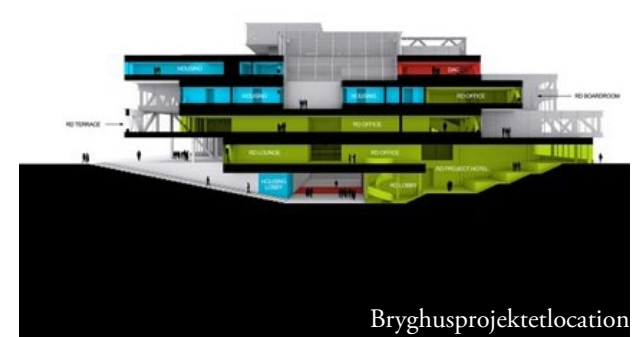
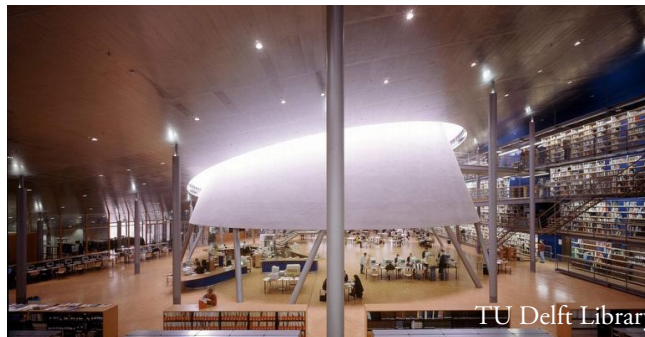
| architectural references

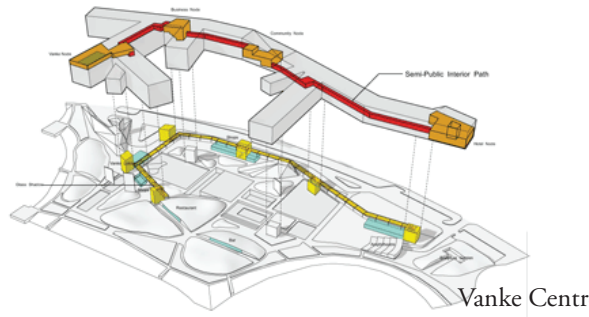
References according to the programme:

- healthcare architecture
- knowledge environments
- hybrid

Fields of interests:

- spatial qualities:
encourage exchange of ideas
social interaction
- programme:
both public space and more private space
mixed-use complex building
healthcare
education and research, learning and science centre
- very specific urban context
- difference of levels / heights
- high architectural qualities - strong identity





hybris

| case studies

Hybris is not a new idea, yet in a more complex urban context it has its renaissance. Hybrid buildings combine programs of entire town/cities and become micro-cosmoses and world on its own. Like in cities, different interests meet and need to cooperate, compete and interact. The variety adds life and action to the building and its surrounding.

- Linked Hybrid | location: Beijing, China | completion date: 2009 | design: Steven Holl Architects
- Royal Library | location: Copenhagen, Denmark | completion date: 1999 | design: Schmidt, Hammer, Lassen Architects
- Bryghusprojektet | location: Copenhagen, Denmark | project: 2008 | design: OMA
- E-WHA Campus Complex | location: Seoul, South Korea | project: 2008 | design: DPA Dominique Perrault Architecte
- Vanke Centre | location: Dapeng Bay, Shenzhen, China | completion date: 2009 | design: Steven Holl Architects
- Tour Signal | location: Esplanade de la Defense, Puteaux, France | project: 2008 | design: Jean Nouvel Ateliers

healthcare architecture | case studies

How is a modern space for Healthcare? Recent examples of high quality healthcare architecture in the world show new and more humanistic approach towards spaces for healing: there is more focus on patient and employees, informal meeting and good environment that helps in the healing process. There is also a growing trend in opening the hospital buildings towards the city and overcoming the stigma of “special buildings for sick people”.

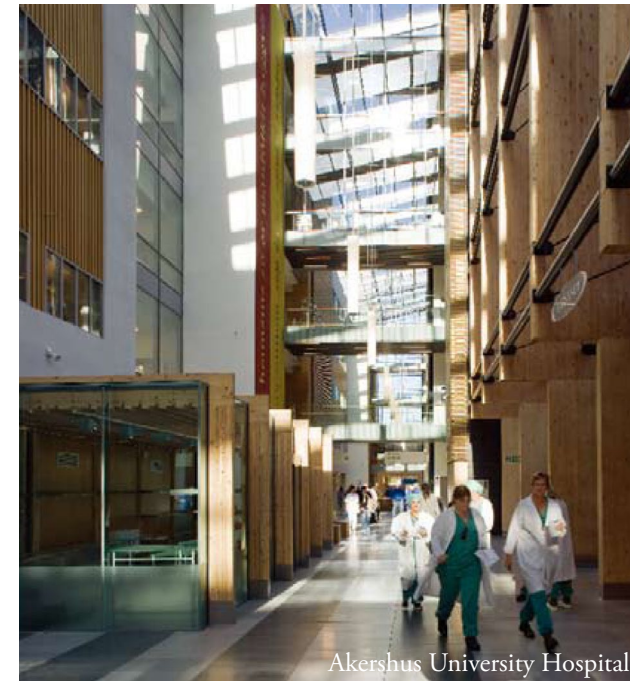
- New Karolinska Solna | location: Stockholm, Sweden | project: 2007 | design: White
- Clermont-Ferrand Hospital | location: Clermont-Ferrand, France | completion date: 2009 | design: Groupe-6
- Akershus University Hospital | location: Lørenskog, Norway | completion date: 2008 | design: C. F. Møller Architects
- Community Hospital North Expansion | location: Indianapolis, Indiana, USA | completion date: 2007 | design: RTKL
- New Victoria Hospital | location: Glasgow, UK | completion date: 2009 | design: HLM Architects
- Takekawa Hospital | location: Tokyo, Japan | completion date: 2007 | design: Kidosaki Architects
- Royal Alexandra Hospital | location: Brighton, UK | completion date: 2007 | design: BDP
- Radium Hospital | location: Oslo, Norway | completion date: 2006 | design: Henning Larsen Architects
- Vestfold Hospital 6th stage | location: Tønsberg, Norway | completion date: 2005 | design: C. F. Møller Architects
- Biomedicum Karolinska | location: Stockholm, Sweden | project: 2011 | design: C. F. Møller Architects
- Herlev Hospital in Copenhagen | location: Herlev, Denmark | project: 20011 | designer: Henning Larsen Architects



Nya Karolinska



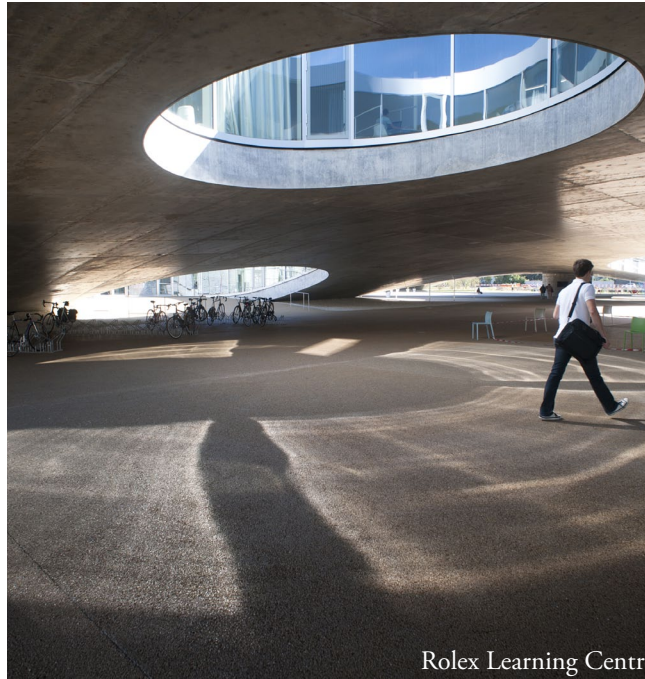
Vestfold Hospital



Akershus University Hospital



Herlev Hospital



knowledge environments | case studies

What space does learning, meeting and exchange of ideas need? What are the world's leading centers for excellency in research and education and how is their physical environments shaped? What are the key factors to support innovation and development?

- Royal Library | location: Copenhagen, Denmark | completion date: 1999 | design: Schmidt, Hammer, Lassen Architects
- Rolex Learning Centre | location: Lusanne, Switzerland | completion date: 2010 | design: SANAA
- TU Delft Library | location: Delft, the Netherlands | completion date: 1997 | design: Mecanoo Architecten
- Seattle Public Library | location: Seattle, Washington, USA | completion date: 2004 | design: OMA + LMN
- Milstein Hall Cornell University | location: Ithaca, NY, USA | completion date: 2006 | design: OMA
- Chu Hai College | location: Hong Kong | project date: 2009 | design: OMA
- New City Westminster College | location: Westminster, UK | completion date: 2011 | design: Schmidt, Hammer, Lassen
- West Bank Library | location: Sheffield, UK | completion date: 1959, 2010 | design: Gollius, Melvin, Ward; refurbishment: Avanti

study visits

| healthcare | research | education

Visited sites:

- Uppsala, University Hospital
- Uppsala, Campus1477, Blåsenhus - leisure centre and gym on the campus
- Uppsala, Institutionen för pedagogik, didaktik och utbildningsstudier
- Stockholm, New Karolinska Solna, NKS showroom and meeting with Tengbom
- Stockholm, Karolinska Huddinge, library and hospital area
- Göteborg, Sahlgrenska University Hospital
- Göteborg, Student Union Building, Chalmers, Johannebergs Campus



Institutionen för pedagogik, didaktik och utbildningsstudier, Uppsala



Campus1477, Uppsala

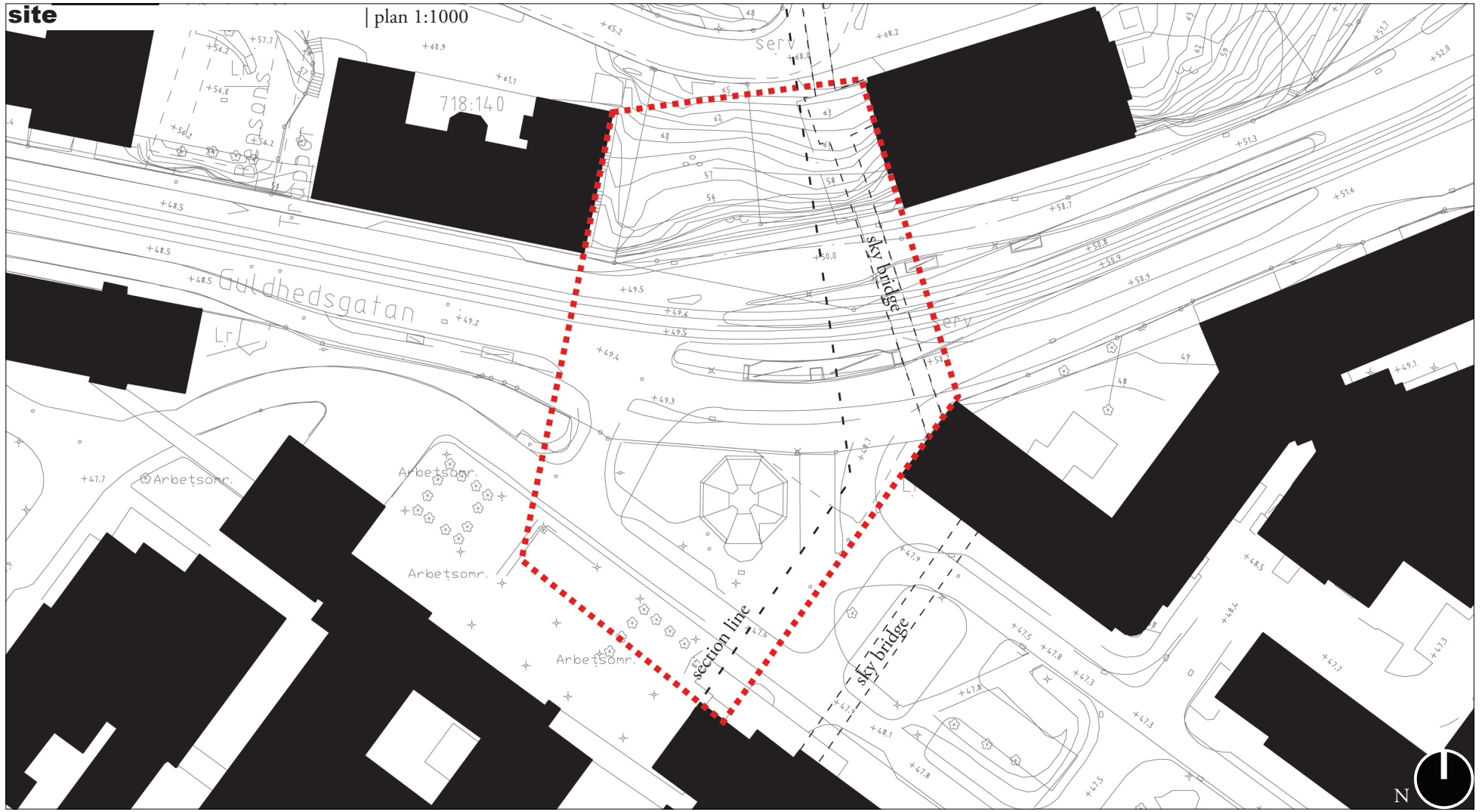


NKS showroom, Stockholm



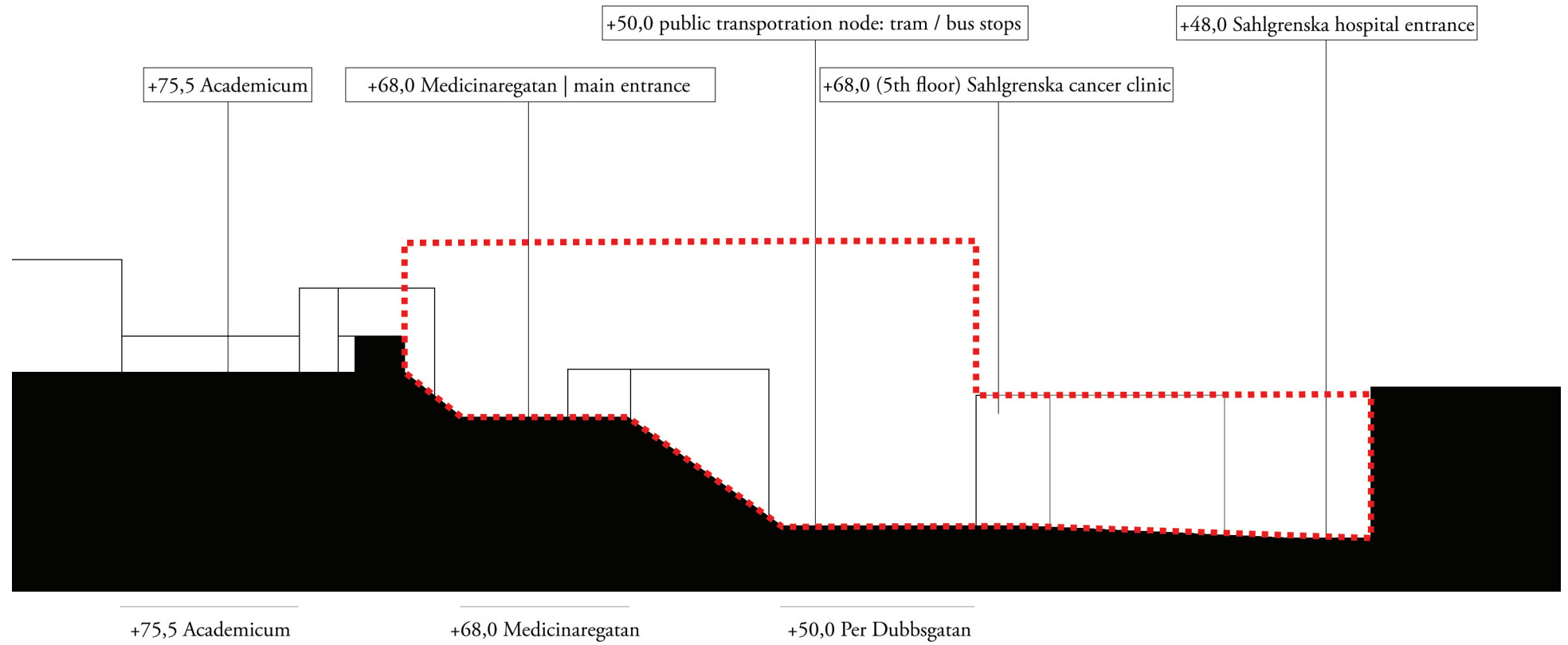
Chalmer Student Union Building, Göteborg

site



site

| section 1:1000







program

The program for the site, flows and connections needed, group of users.

development

| program formulation

The program was formulated according to information initially provided and revised by Lennart Ring (former Sahlgrenska Hospital) and Inobi (authors of the planning document for the area in 2011). As there was no program from the beginning and both the hospital and the university do not have formulated demands, the program could be altered and changed along with the development of the project. Also studies of the reference projects and consultations with the stakeholders in the process influenced the content of the program.

There was a high demand on increasing the floor area and using the land effectively, as there is generally strong limitation to the development of the hospital in the scale of the city.

goals

| ideas behind the program

Purpose for the program

The purpose of the program is to contribute to the area development and completing the vision for Medicinareberget and Sahlgrenska Hospital. The formulation and development of the program aimed for creating high quality attractive environment in the scale of the area and city and turning Guldhedsgatan into a vibrant urban street

The main goals for the development of the program were:

- integrate several functions that should increase the attractiveness of the building and area
- introduce new functions in the area that would increase the flow, invite new users and activities

- introduce functions that complete functioning of the institutions in the area
- integrate functions providing new special and functional qualities
- provide new identity among users
- use the land effectively
- provide commercial and office space
- provide high quality space for studying / meeting / lounge

users

| estimated users of the building

Current users of the area (~19 000/day):

- 8000 people working at Sahlgrenska
- 4000 visiting the hospital (patients, visitors, others)
- 2000 working at and visiting Medicinareberget
- 5000 students.

Future estimated users:

- clients of the commercial spaces (shops/ services/gym /leisure)
- employees
- Sahlgrenska Science Park companies employees
- Student Union
- Hospital's and GU's administrative office employees

connections

| flow patterns

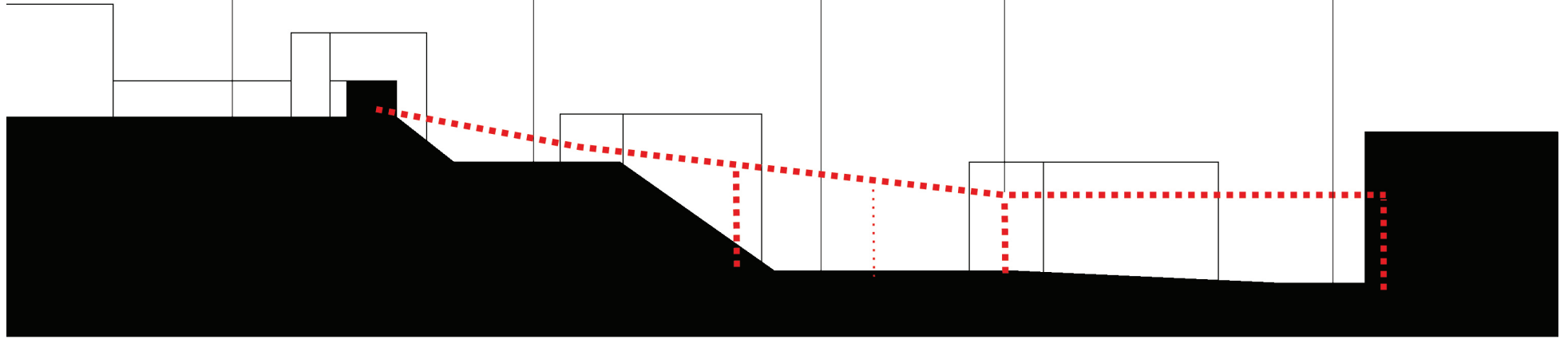
+50,0 public transportation node: tram / bus stops

+48,0 Sahlgrenska hospital entrance

+75,5 Academicum

+68,0 Medicinaregatan | main entrance

+68,0 (5th floor) Sahlgrenska cancer clinic



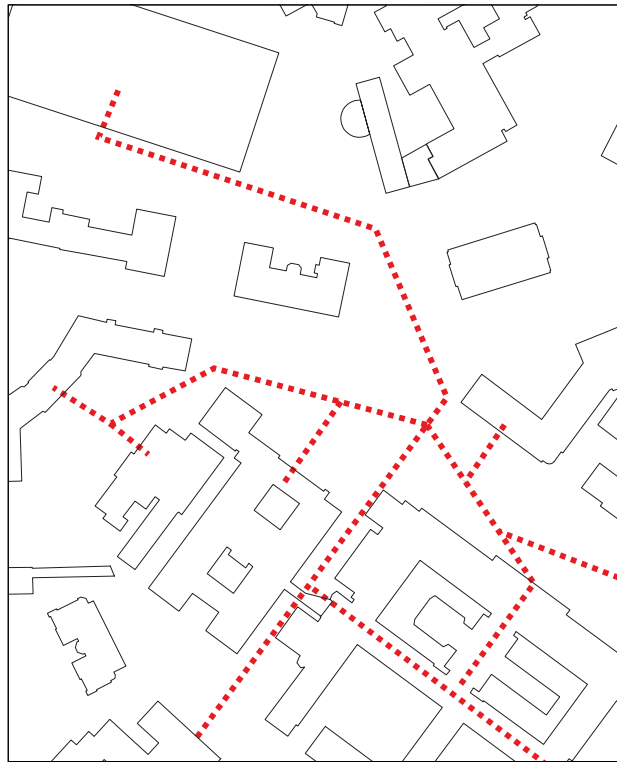
+75,5 Academicum

+68,0 Medicinaregatan

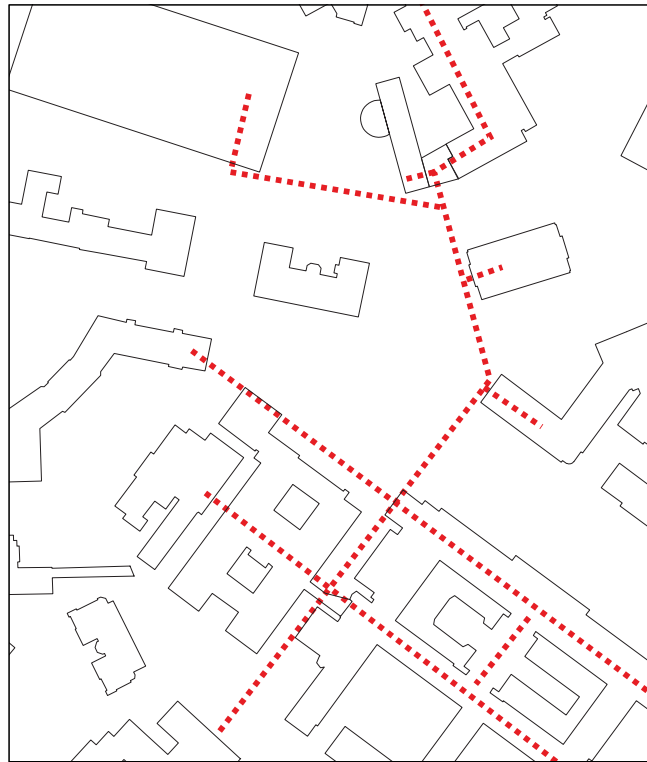
+50,0 Per Dubbsgatan

estimated flow

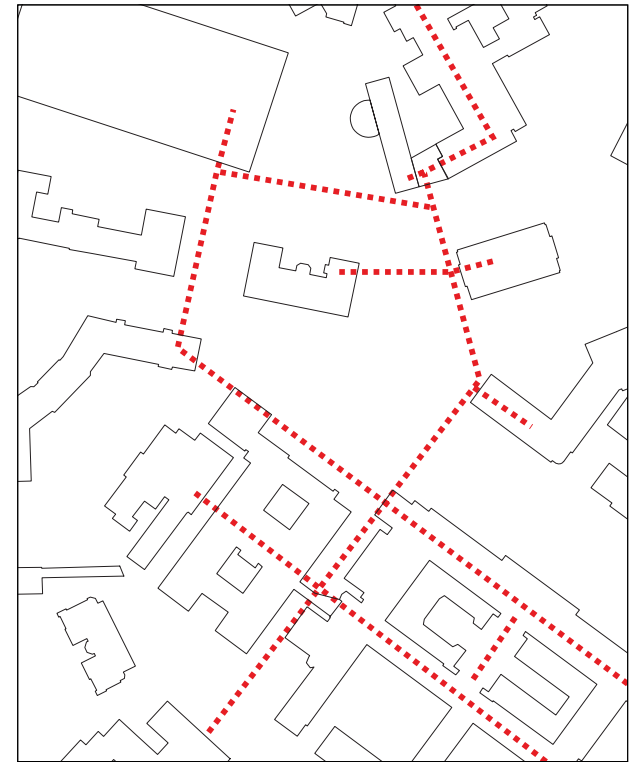
| patients

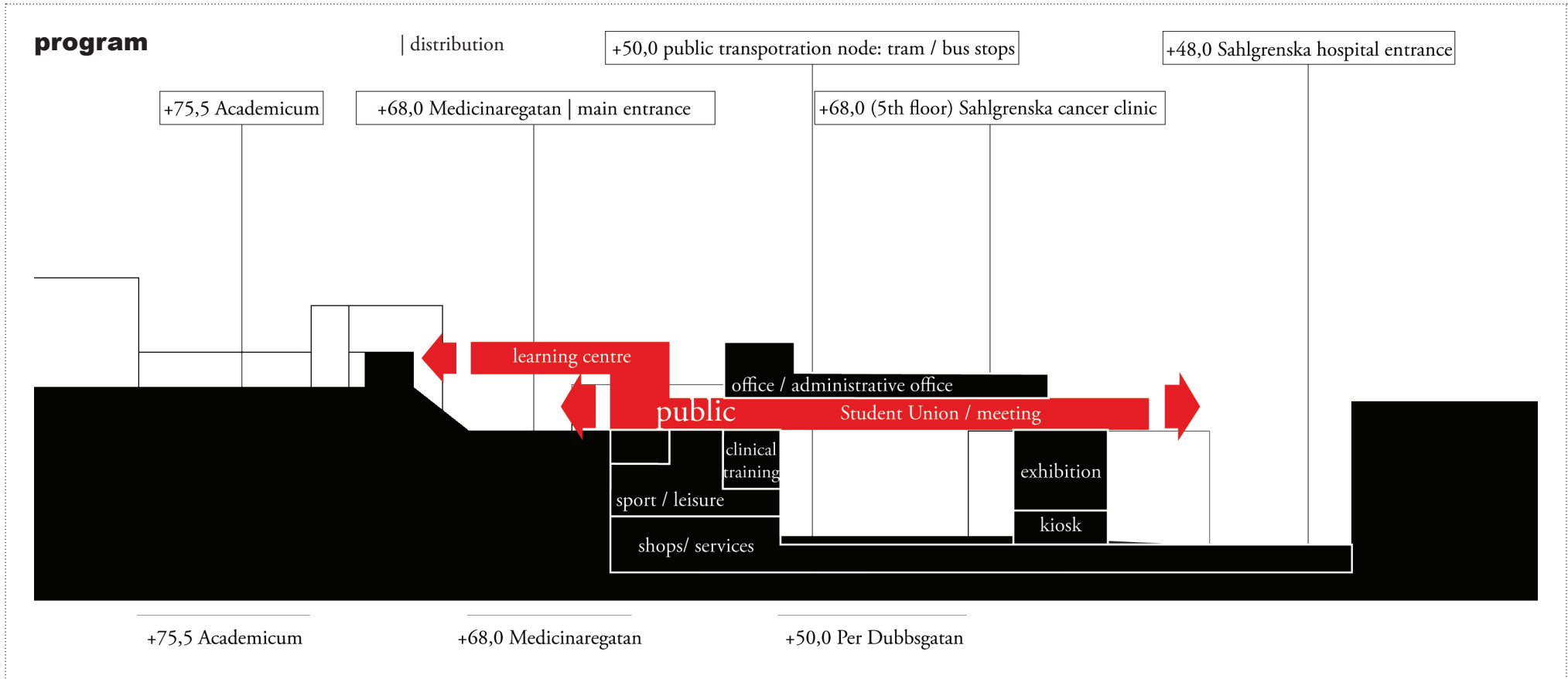


| students



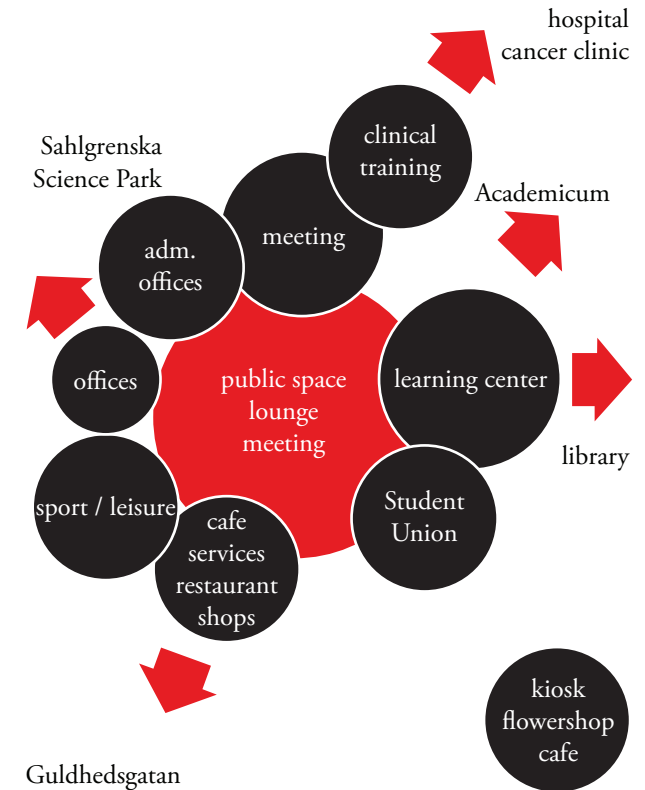
| doctors & employees





program

	facilities and demands		
general office space	~ 2 500 sqm	sport / leisure / gym	~ 1 500 sqm
<ul style="list-style-type: none"> • general office space • good connection with the Sahlgrenska Science Park building • good connection with public spaces and facilities like restaurants / lounges / etc. • good connection to science center • good connection to meeting rooms 		<ul style="list-style-type: none"> • attractive spaces possibly visible from the street • variety of activities inviting people from outside the area 	
administrative offices	~ 1 500 sqm	services / shops	~ 2 000 sqm
Student Union offices and rooms	~ 350 sqm	<ul style="list-style-type: none"> • lively / high quality environment at the street level • attractive for people from outside the area 	
		restaurant / cafe / lounge / student activities	~ 2 300 sqm
		<ul style="list-style-type: none"> • integrated with attractive public spaces • proximity to main communication pathes • attractive environment collecting variety of rooms / spaces for eating / meeting / studying 	
learning center	~ 900 sqm	clinical training	~ 1 250 sqm
<ul style="list-style-type: none"> • connection to the library, meeting rooms and lecture halls • attractive environment collecting variety of rooms / spaces for meeting / studing / teaching • computer labs • storages / lockers for students 		<ul style="list-style-type: none"> • general office space, labs (can be used with clinical research), classrooms, proximity to lecture halls 	
kiosk / flowershop / cafe	~ 50 sqm	exhibition space	~ 50 sqm
		technical space	~ 700 sqm
		GRAND TOTAL:	~13 000 sqm



urban perspective

The project must be perceived in urban perspective – in scale of the city, area and the street. Naturally the design solution for the site, because of the location and meaning, will have a strong impact of the further development of the area and appearance of Guldhedsgatan. The project must stress on contribution to the future vision of the city, area and the street.

character of the street

| defining elements currently

Defining elements






The analysis shows defining elements shaping the character of the street. Defining elements:

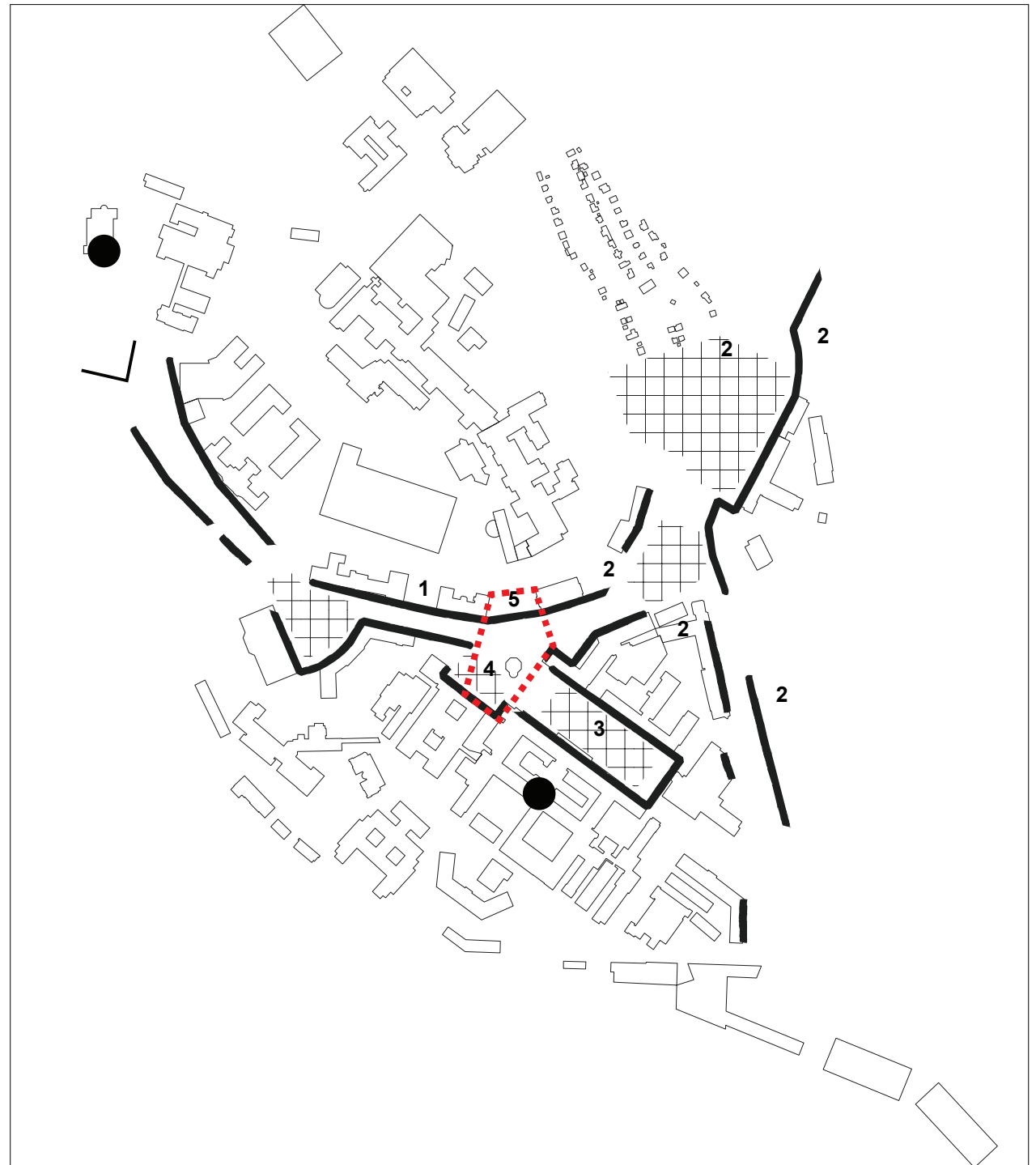
- leading lines and surfaces that provide a sense of direction: facades of the buildings, lines of tall trees, rock
- dominants that provide orientation and sense of identity: tall building and other objects
- visual openings that are points where leading lines or surfaces end and a broad view on a larger area is provided
- urban interiors that provide a feeling of being in a highly defined urban environment like square or plaza

Analysis

The analysis illustrates the defining elements shaping the character of Guldhedsgatan currently. The frontage of the street is incomplete, spaces like squares not defined and environment unattractive and hostile for pedestrians and bikers. The ground levels of the buildings along the street do not encourage urban life and activity. There are two main dominants in the area – the tall building of the main complex of Sahlgrenska Hospital and the church visible from some parts of Medicinareberget and from a part of Guldhedsgatan.

1. new patient hotel
2. new development areas
3. Central Garden
4. Entrance square
5. the link building

-  the site
-  leading line / surface
-  urban interior
-  dominant
-  visual opening








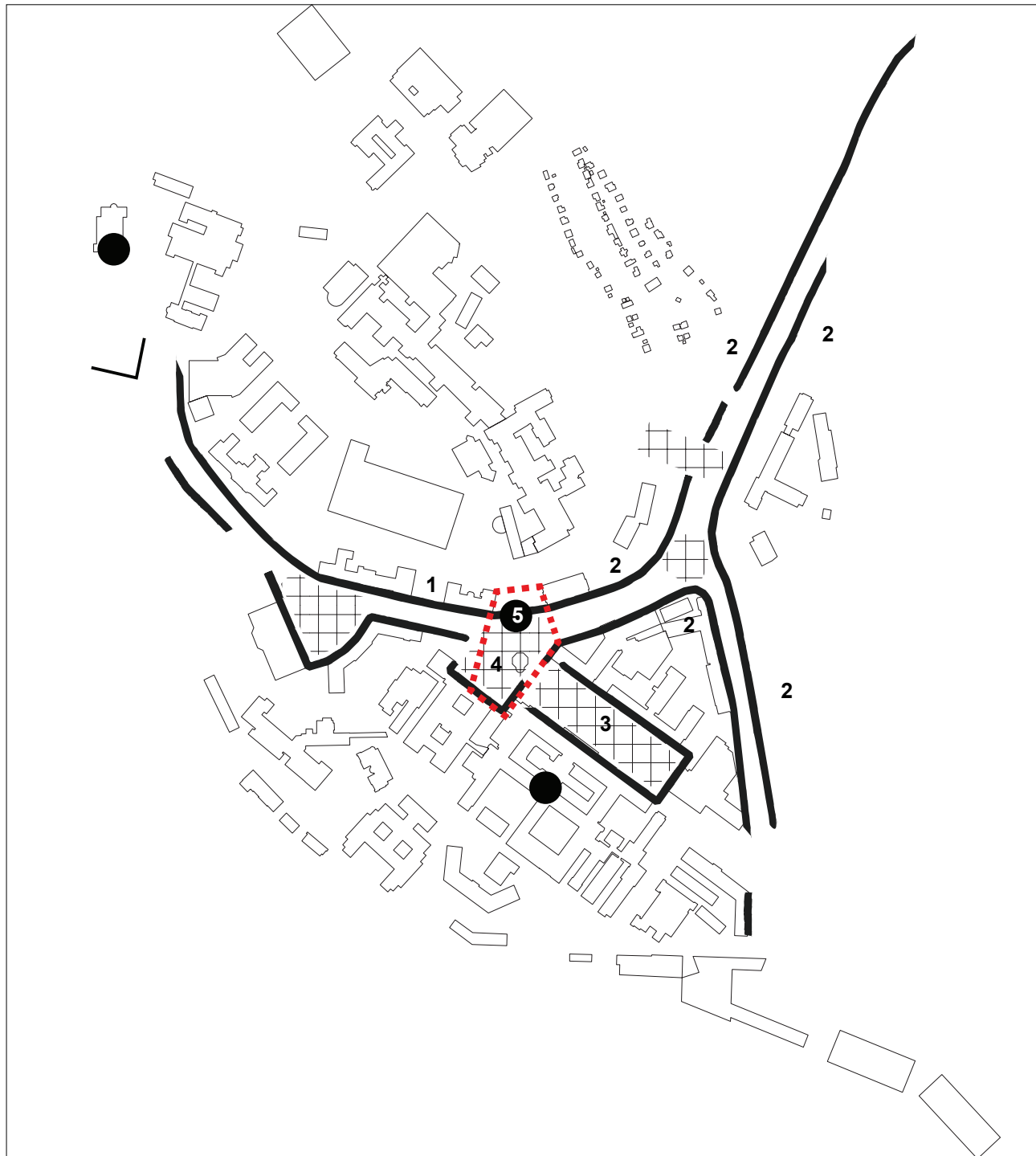
character of the street

| vision of Guldhedsgatan

The analysis illustrates the defining elements shaping the character of Guldhedsgatan in the future. The facades of the buildings create a strong frontage; the ground levels of the buildings open towards the street and invite activity in the area. There is a dominant object next to the bus / tram stops and the main entrance square. The Central Garden and the main entrance square are two connected yet independent and strongly defined spaces. The development along the streets helps to create a link with strong urban character between Sahlgrenska and Chalmers / Landala. It also shapes the squares distinctively.

1. new patient hotel
2. new development areas
3. Central Garden
4. Entrance square
5. the link building








-  the site
-  leading line / surface
-  urban interior
-  dominant
-  visual opening

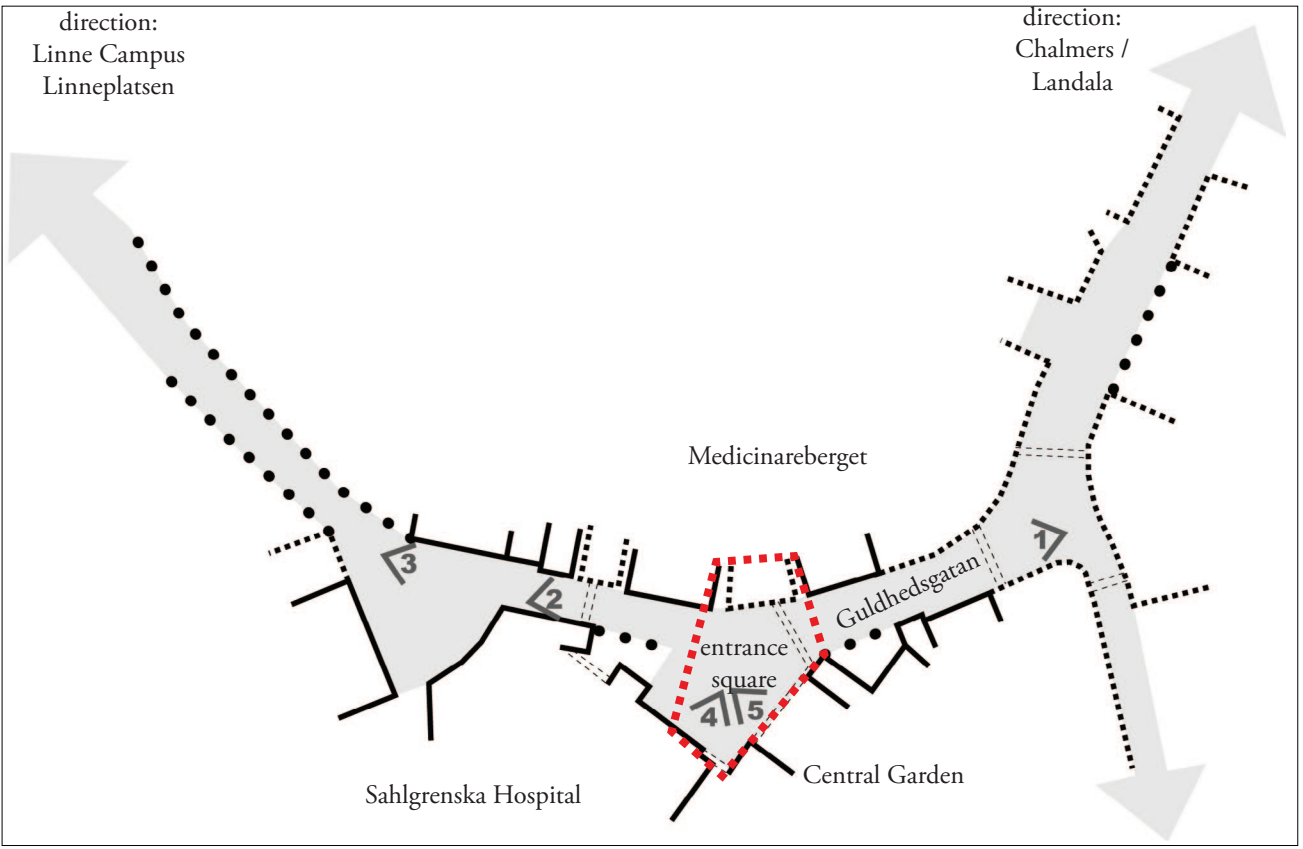


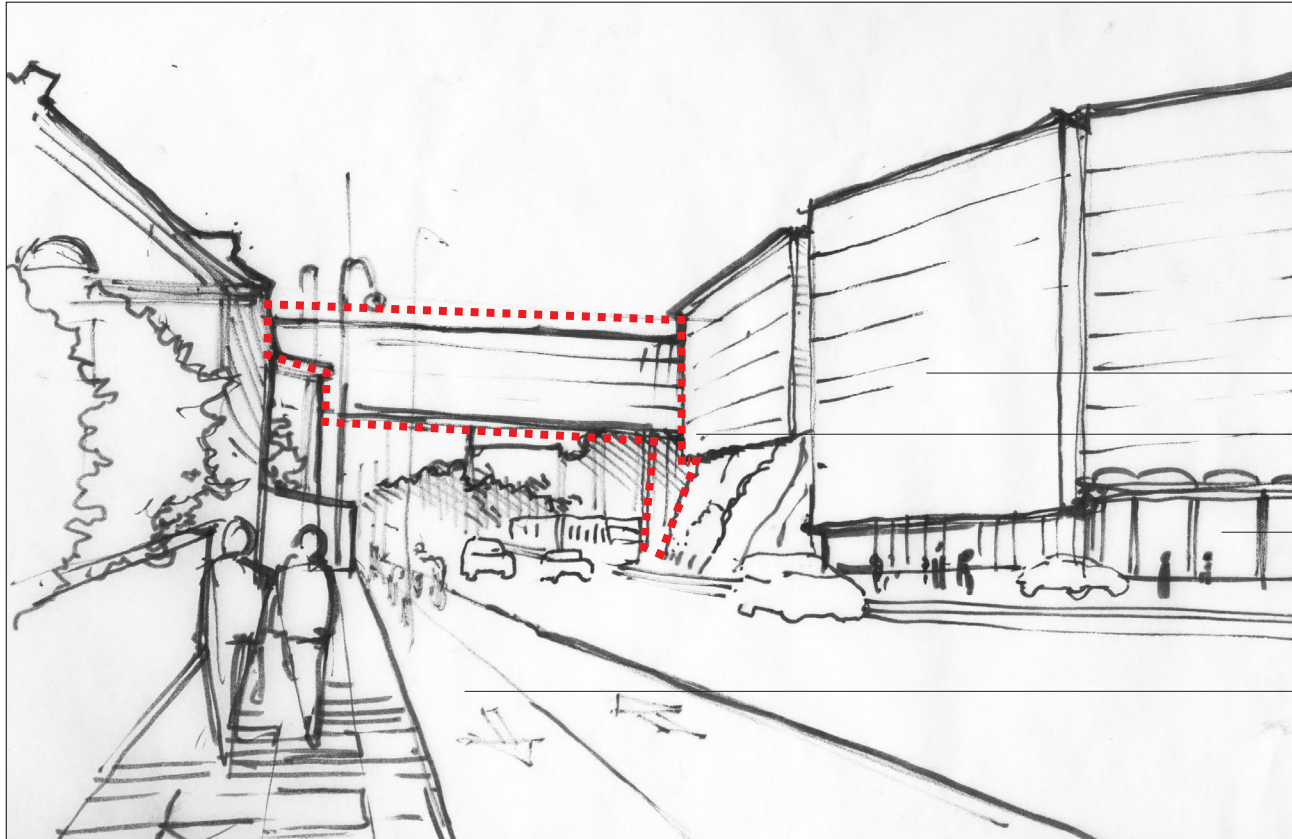
character of the street

| vision of Guldhedsgatan

The goal of the development along the street is to create an active urban environment within strong physical borders. The link building is supposed to complement this vision. Guldhedsgatan is to become a strong link between the parts of the city, with its own identity, integrate Medicinareberget and Sahlgrenska Hospital and become an axis for the two areas.

-  site
-  internal corridors / skybridges
-  leading lines / surfaces: existing buildings
-  leading lines / surfaces: natural elements
-  leading lines / surfaces: new development
-  the street
-  views





character of the street

| view 1

The street is pedestrian and bikers friendly, with broader pavements and bike paths. The traffic is decreased. There is new development along the street.

new development along the street

link building over the street

services in the ground floor

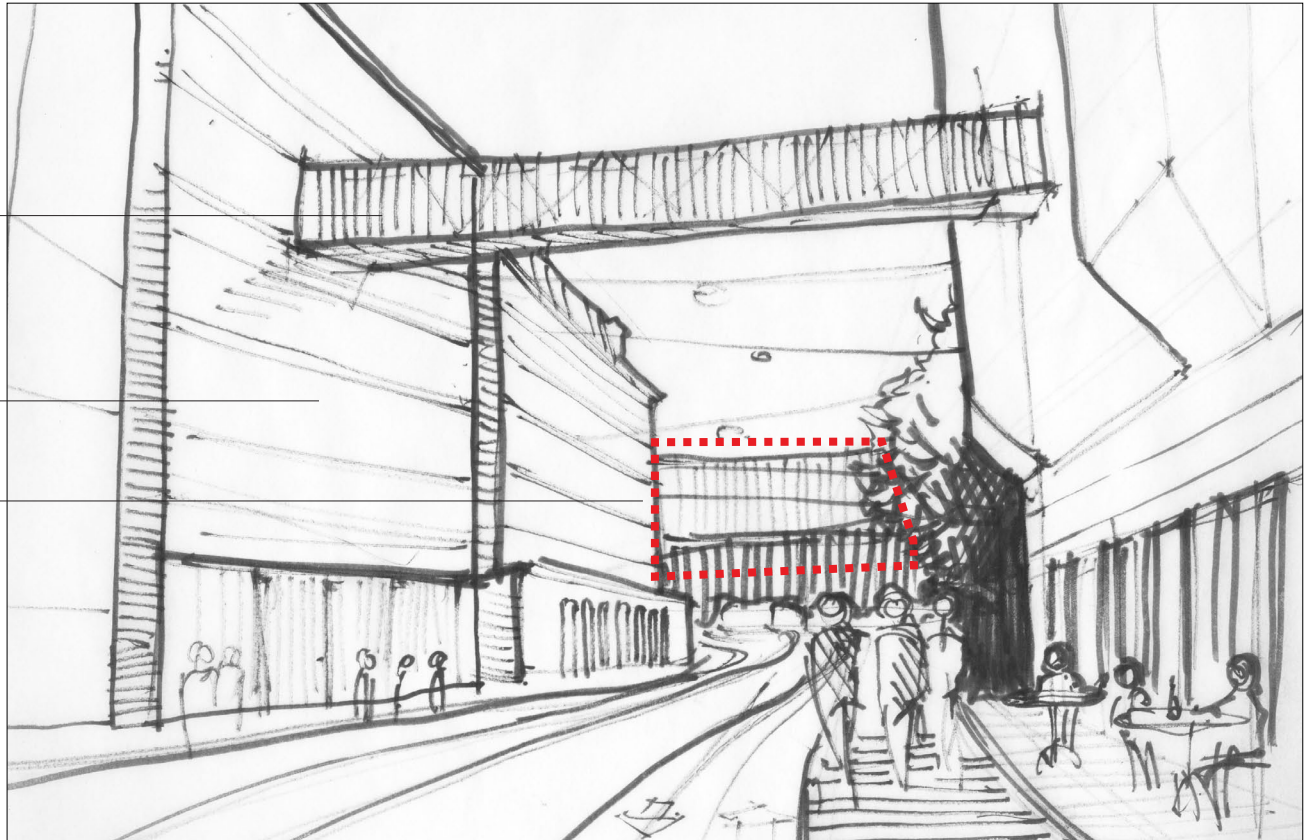
bike and pedestrian paths

character of the street

| view 2

There is a new patient hotel with a skybridge. Ground levels of the buildings are open and invite activity.

- skybridge
- new patient hotel
- link building





character of the street

| view 3

There is more activity along the street. The skybridges and the link building create the new character of Guldhedsgatan

skybridge

new patient hotel

link building

active ground floors of new and existing buildings

Central Garden

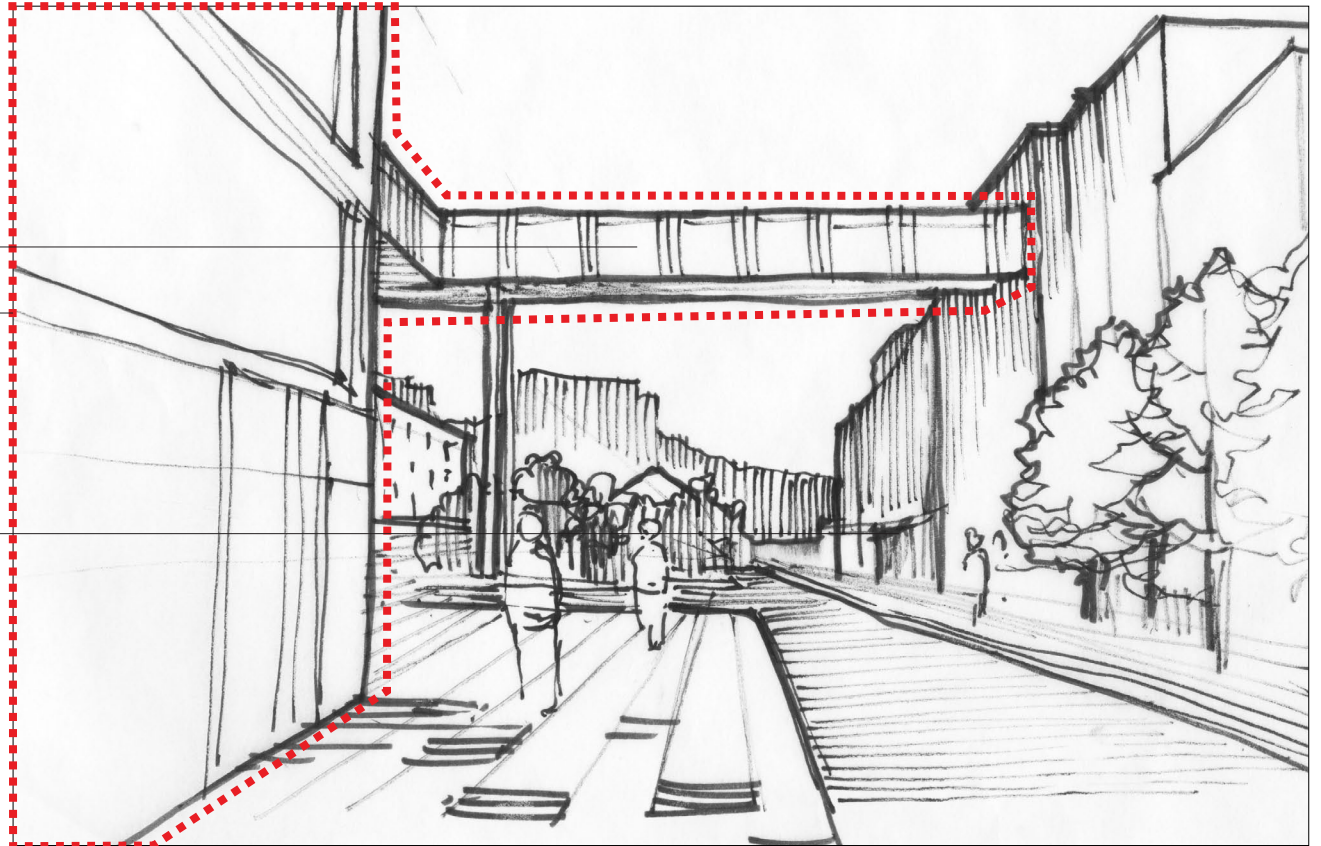
| view 4

The design for the Central Garden showed in the report (the square by the main entrance to the hospital complex) is made by White. Limited car access and vegetation will make the square an oasis of peace and relax.

skybridge

link building

main entrance to the hospital





entrance square

| view 5

The entrance square should become a place full of activity and movement, yet living space for relaxation and rest. Good sitting places with vegetation and good quality environment should be provided.

good lightning

calm sitting places with good views

bike parkings

possible solutions

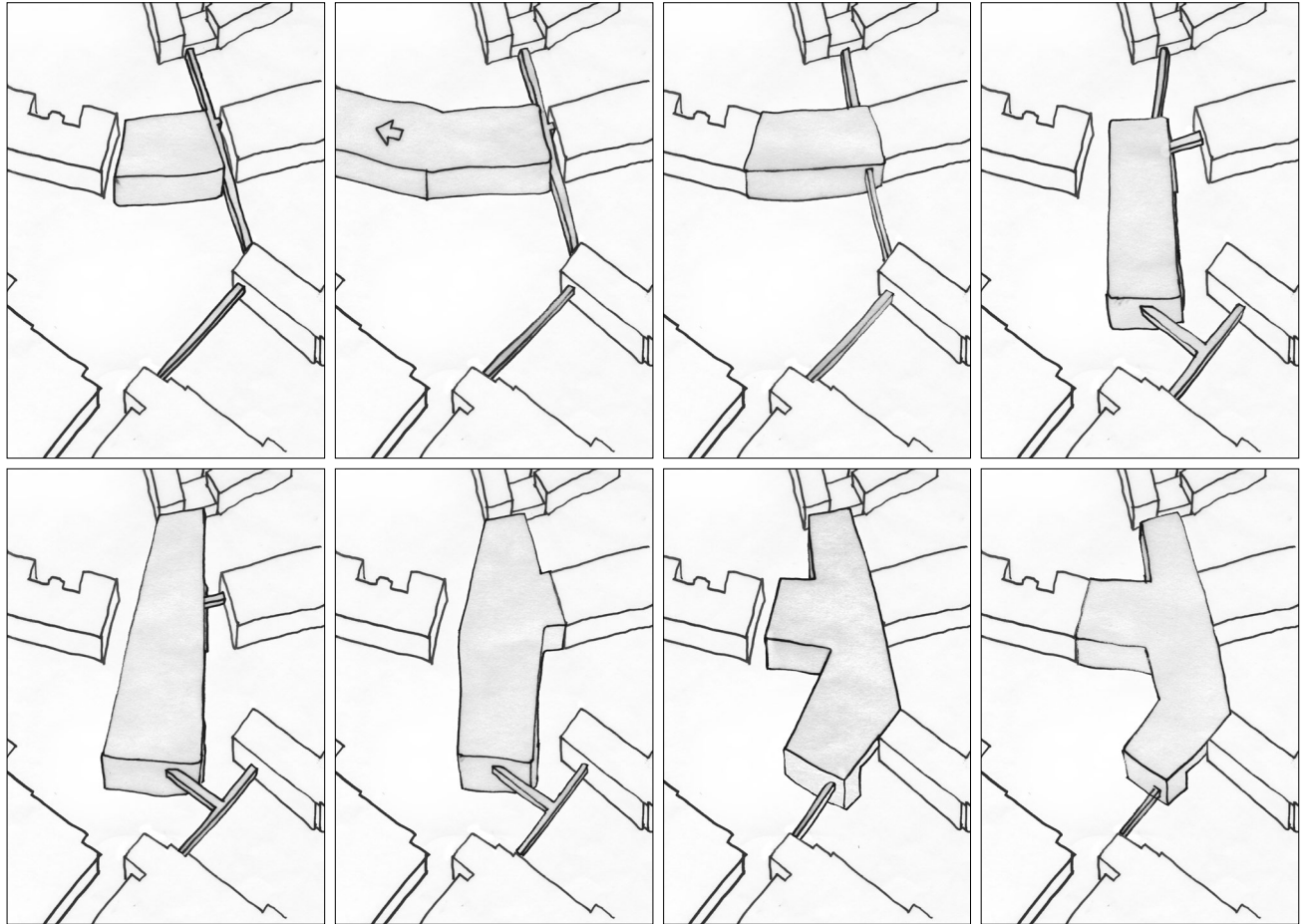
| solutions for the site

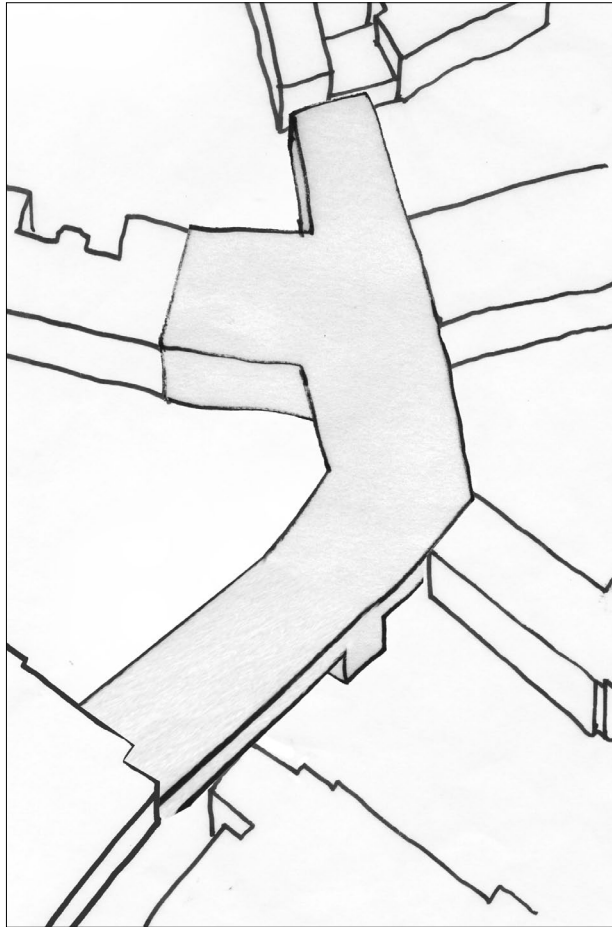
The diagrams show different possibilities for the site.

The building should be considered in current conditions, but making it a part of the future vision of the Sahlgrenska / Medicinareberget is of key importance. Therefore some solutions were only considered in the context of future development and possible scenarios for the area.

Key issues in the decision:

- connecting to existing buildings
- relationship with neighboring buildings (library and red brick building of Sahlgrenska Science Park)
- shaping the volume of the building
- appearance of the connections (sky bridges or volume)
- size and floor area appropriate for the program
- possible demolition of the Sahlgrenska Science Park building and expanding the site
- views from the street level, appearance of the new link structure and character of the street
- creation of good urban environment and defined urban spaces





solution for the future | solution for the site

The solution that appears as the best one connects to all the surrounding buildings in a form of solid / volume. The proposed solution allows using the site to its full to fit the program and create a strong architectural statement of unity between the organizations in the area.

The placement and purpose of the building should be indicated with a strong and brave design solution both in small and urban scale.

Advantages:

- strong architectural gesture – strong identity and indication of a center of the area (as sky bridges will appear in other places in the area, a solution to use different type of connection seems appropriate)
- connecting the facades creates strong frontage and contributes to urban character of the street
- size – big floor area (as one of the objectives of the project is to fit the reach program for the site)
- possibility of leaving the red brick building and connecting to it in the future
- division the entrance square from the Central Garden and defines both spaces distinctively
- “framing” the street and creation of a feeling connected to “entering” / gate
- best connection to all buildings increases flow

- footprint on both sides of the street – more services in the ground floor and contribution to lively attractive urban environment

Issues to consider:

- relationship with the existing buildings: the library and Sahlgrenska Science Park brick building: sunlight, connections, future use
- size of the building - possibly too large and heavy volume could become too overwhelming for the site
- lightning conditions under the building, quality of the urban environment

Visions for the future:

The solution must be appropriate for both current situation and for the future. It must support and complement vision of the area and the city. Therefore the chosen possibility must be seen in a broad context of the possible future scenario.

- it is assumed that connecting to the existing building seems best idea if they undergo renovation and their function / internal organization is altered, so they can be more integrated with the new structure
- the traffic solutions, design of the public outdoor spaces must complement the new building
- the focus in the design process must be on the future conditions, not on the current ones.

workshops

Workshops are short design exercises that focus on certain issues. To name topics of the workshops is necessary to identify key problems in the task. The workshops become a starting point for the design process.

Workshops:

- 1. Movement - horizontal vs. vertical, key directions and connections, flow*
- 2. Public vs. private - relations between public and semi-private spaces, programme*
- 3. Transparency - appearance, relation to the site and surrounding*
- 4. Volume - coherent vs. organized, identity, materiality, relations with the surrounding and site.*

workshop 1

| movement

The workshop focused on:

- communication,
- flow,
- connection,
- vertical vs. horizontal

Model 1 | obstructions:

1. connect all the points (buildings)
2. one line
3. no horizontal / vertical lines

Model 1 | evaluation:

+

- one way around, easy orientation,
- many meeting points on the way / many intersections - a chain,
- access to the streets on different levels,
- “gentle” ways of movements / flow,
- cut out from one element - the way is one line.

-

- long distance between Sahlgrenska Science Park and library,
- long distance between the clinic cancer and Sahlgrenska Science Park,
- no central meeting point.

Model 2 | obstructions:

1. one central point
2. shortest ways between connection points and central point
3. only horizontal / vertical directions

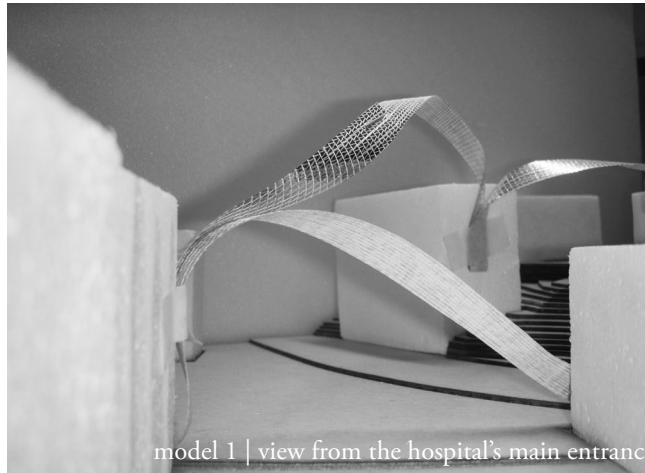
Model 2 | evaluation:

+

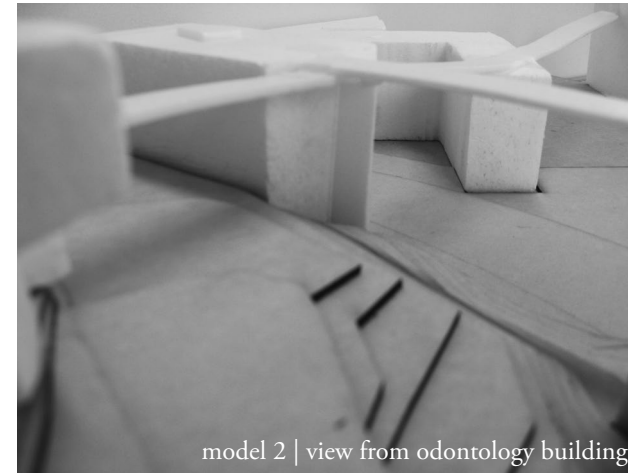
- one central meeting point - the node,
- short distances,
- one central point for vertical communication - close to the bus and tram stop - the node.

-

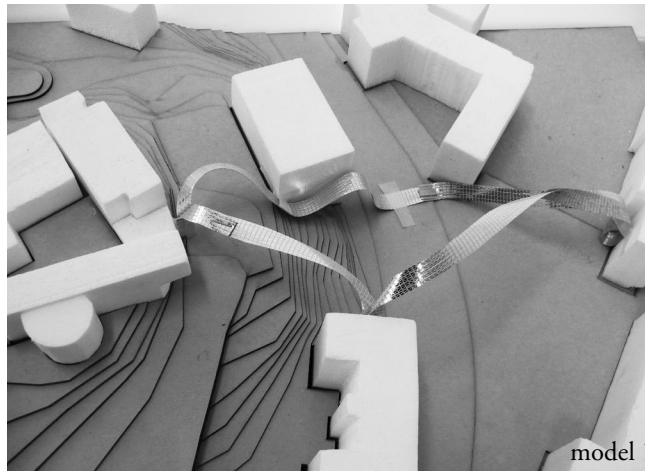
- long distance between Sahlgrenska Science Park and library, no central meeting point.



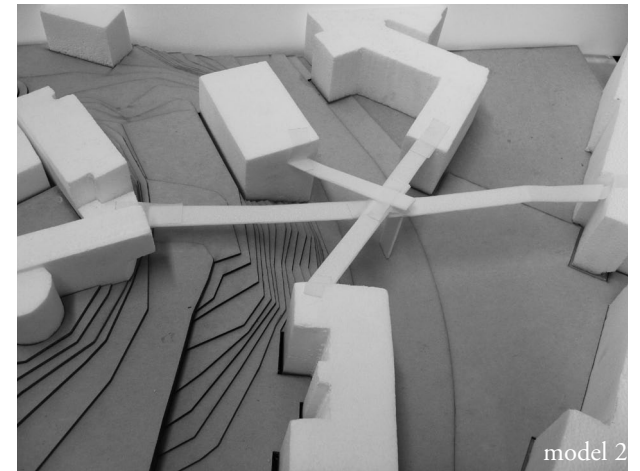
model 1 | view from the hospital's main entrance



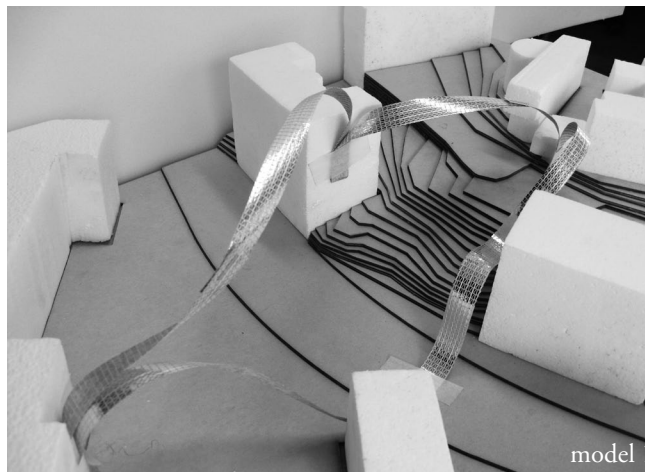
model 2 | view from odontology building



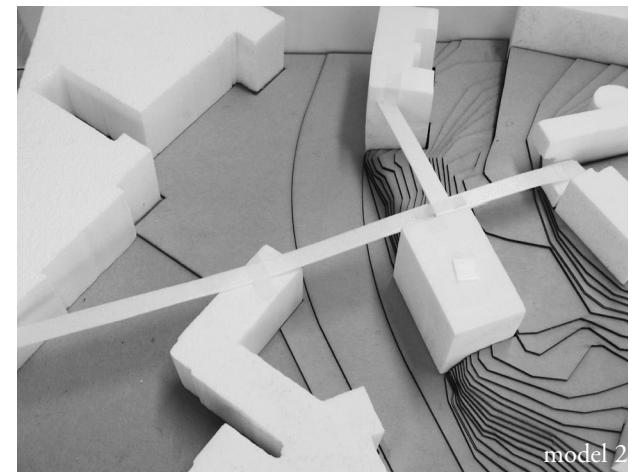
model 1



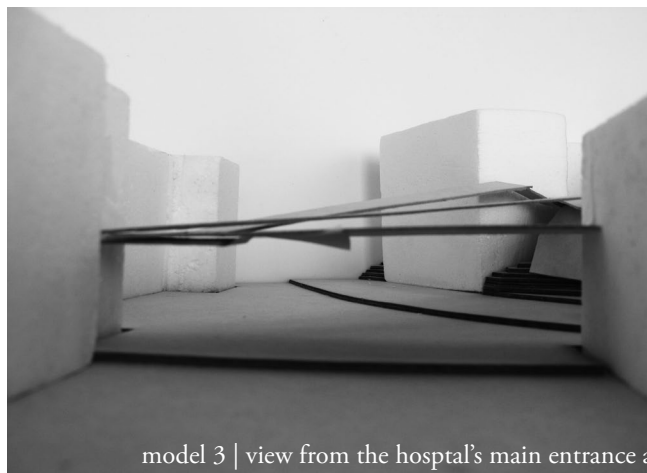
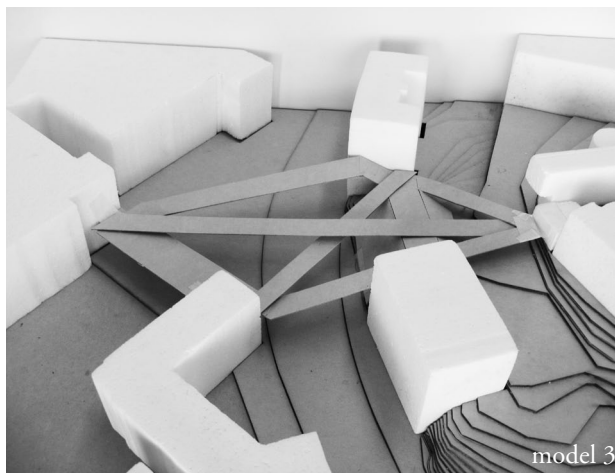
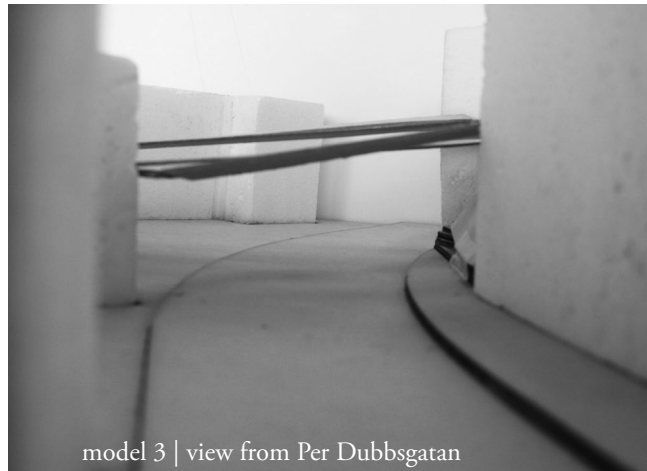
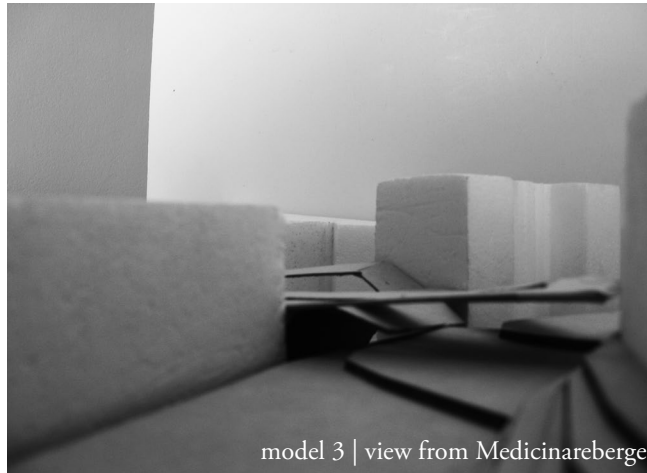
model 2



model 1



model 2



Model 3 | final model | obstructions:

1. good connections between all the points (buildings)
2. different leveling of the paths
3. cut the model out of one element / plane

Model 3 | final model | evaluation:

+

- good connections from model 1,
- qualities of the central meeting point from model 2,
- good connections between all the points (buildings),
- interesting views from the streets because of the different leveling of the paths,
- simple and easy to orientate - cut the model out of one element / plane.

-

- too many different pathes,
- no one strong / leading / dominant element in the structure.

workshop 2

| public* vs. private**

* “public” is a space that is supposed to be accessible for everyone and serve as a public space in the structure.

** “private” are elements of the programme that have particular functions and are accessible for a certain group of users.

The workshop focused on:

- relation between what is supposed to become a public space and semi private or private space (functions in the programme),
- relations between the programme and public space in the building with the surrounding,
- connections between public, private and surrounding.

Model 1 | obstructions:

1. private is surrounded by public
2. public mixes freely with the private
3. private does not touch the ground

Model 1 | evaluation:

+

- clear layout - easy to understand what is what and where,
- a lot of space for private,
- strong and recognizable form - landmark.

-

- somehow I do not like it... ,
- public only in the outside (like a skin), not inside.

Model 2 | obstructions:

1. public follows movement patterns from the previous workshop
2. private “grows” on public
3. organic structure

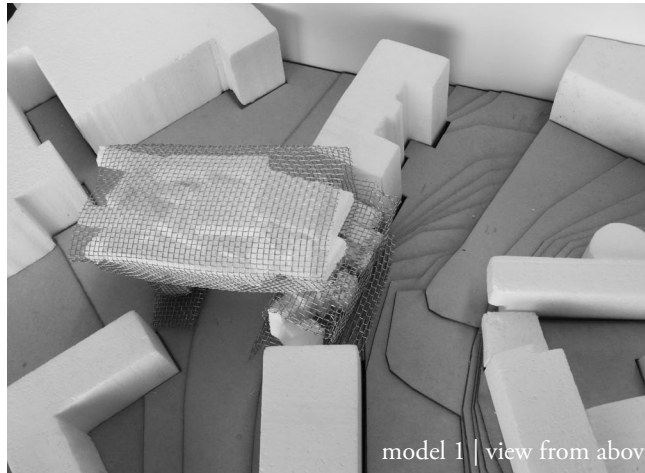
Model 2 | evaluation:

+

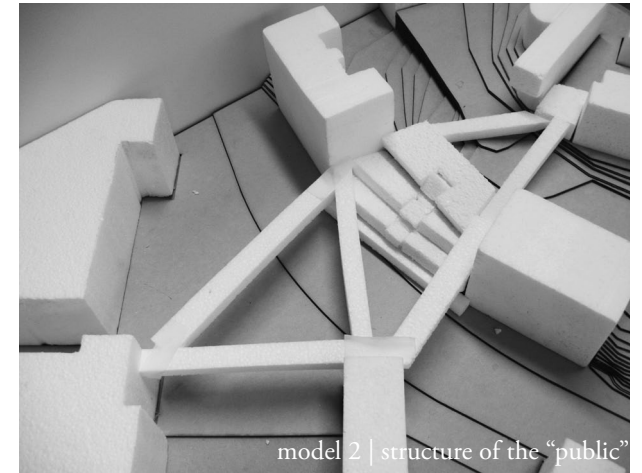
- clear structure of the public,
- concentration of public in one place,
- nice appearance of cascading public parts.

-

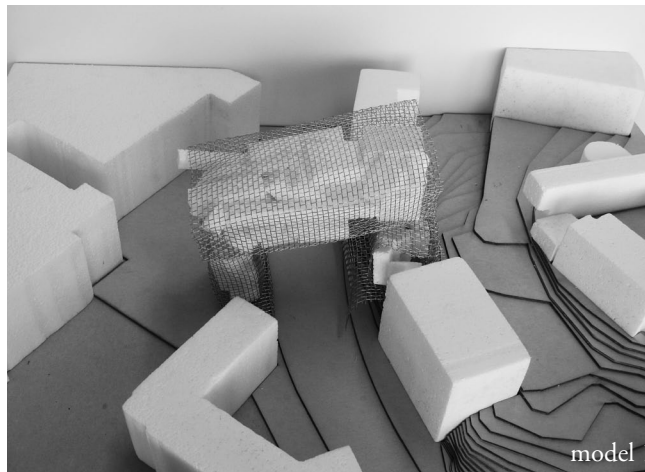
- gives a disorganised appearance / hard to understand.



model 1 | view from above



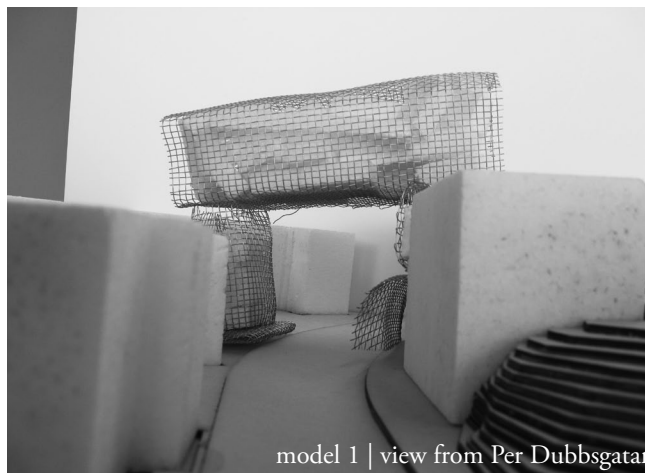
model 2 | structure of the “public”



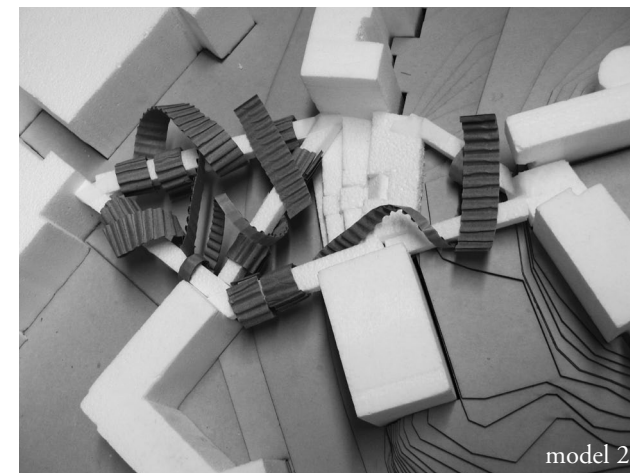
model 1



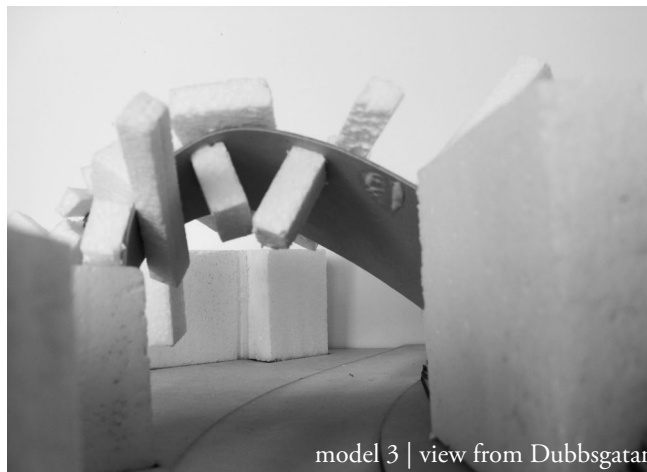
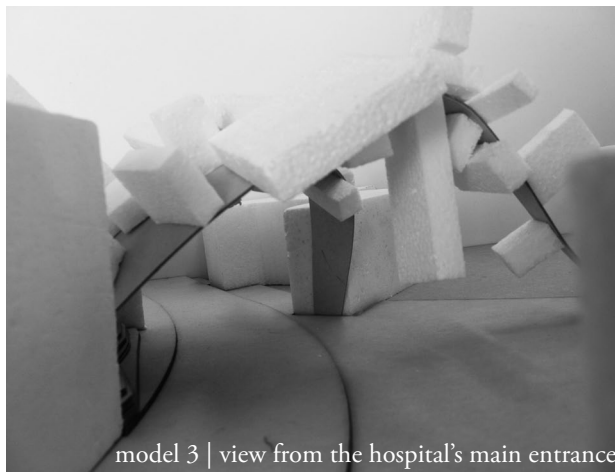
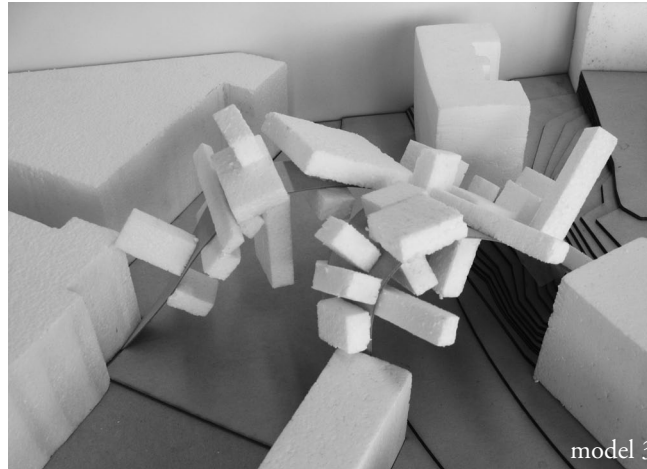
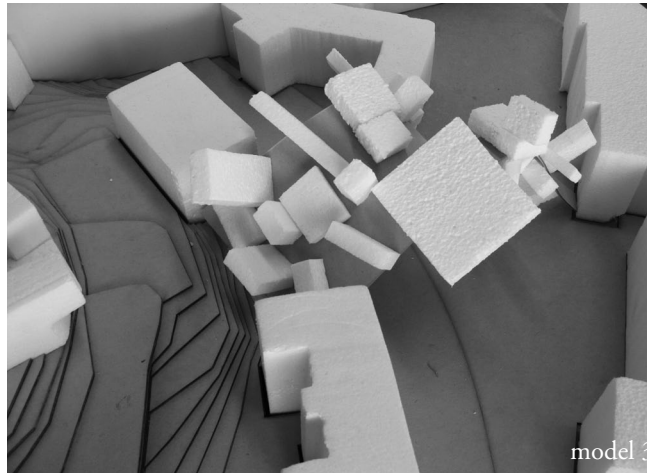
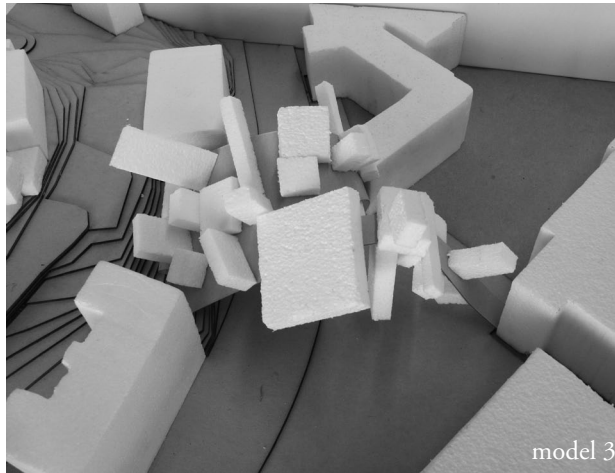
model 2



model 1 | view from Per Dubbsgatan



model 2



Model 3 | final model | obstructions:

1. public follows movement patterns
2. private "grows" on public
3. organic structure

Model 3 | final model | evaluation:

- +
- simple and understandable,
 - dynamic and strong shape - a landmark,
 - clear layout - good orientation of what is what and where,
 - lots of space for "private" elements,
 - lots of flexibility to layout the "private" elements,
 - contrast between the public (gentle bend) and private (rigid boxes).
-
- lost qualities of good connections between points

workshop 3

| transparency

The workshop focused on:

- open vs. close,
- density,
- visibility and appearance,
- relation with the surrounding.

Model 1 | obstructions:

1. organic structure
2. one element repeated
3. see through structure

Model 1 | evaluation:

+

- good relation with the surrounding - the structure sneaks between the buildings,
 - soft and floating,
 - high contrast between visibility (open) and solid elements (close),
 - clean directions,
- good urban qualities at Medicinaregatan and main entrance to the hospital.

-

- does not stand out - no landmark,
- too dense / overwhelming / massive

Model 2 | obstructions:

1. vertical direction stronger
2. gradient
3. tower

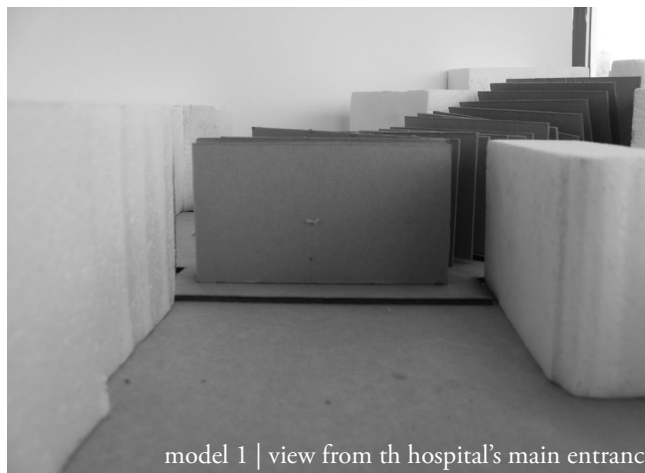
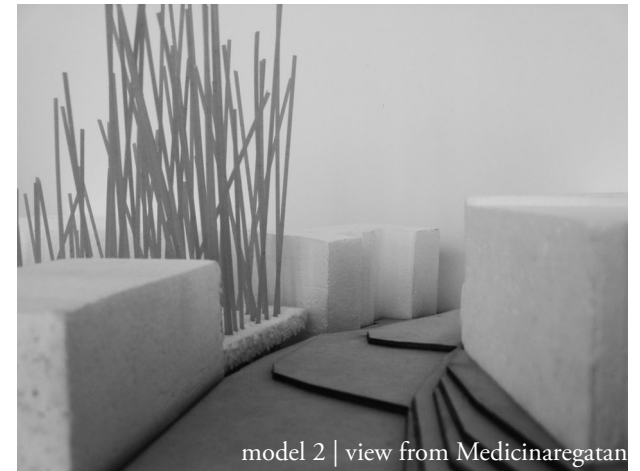
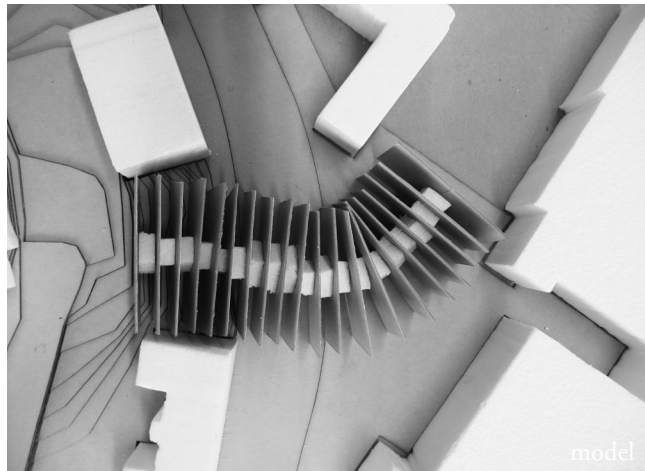
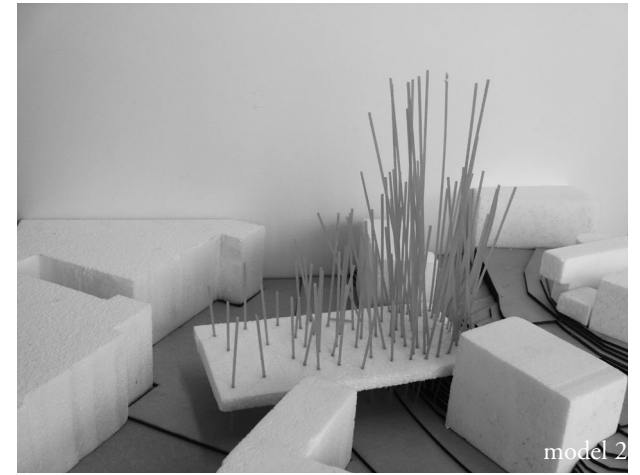
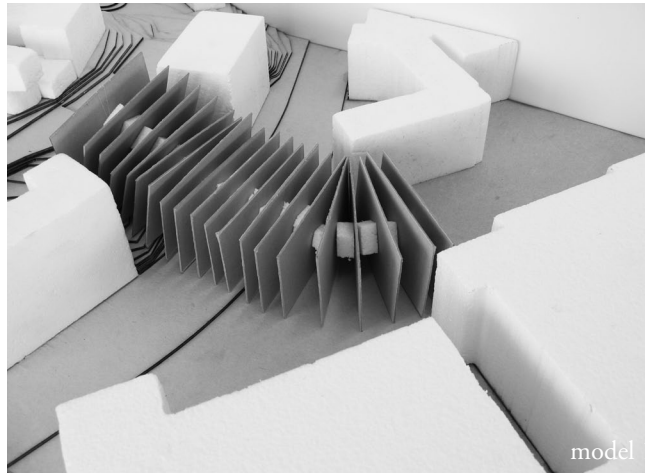
Model 2 | evaluation:

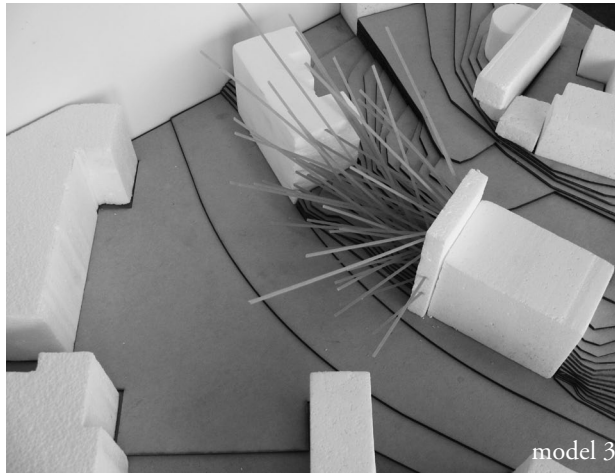
+

- interesting appearance of the gradient of density and height from Medicinaregatan to Sahlgrenska hospital,
- looks attractive from the street level,
- high contrast between horizontal / vertical,
- poetic and delicate.

-

- seems massive and shadows big area.

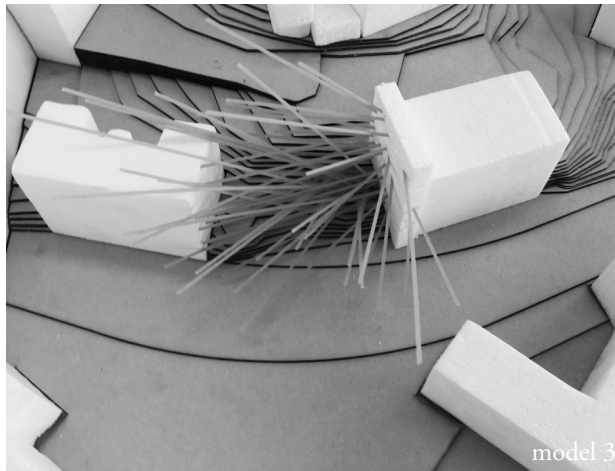




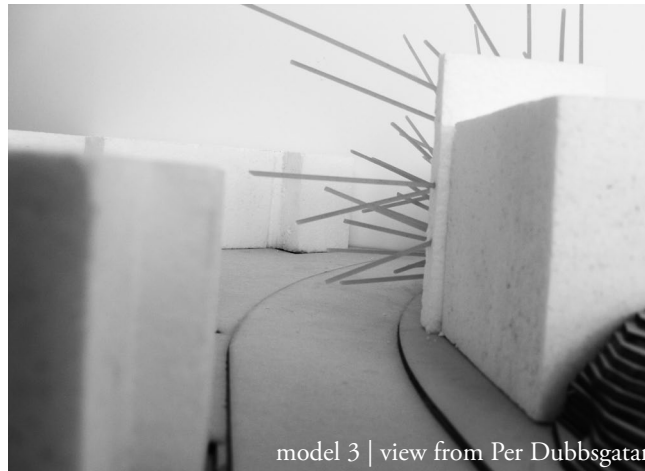
model 3



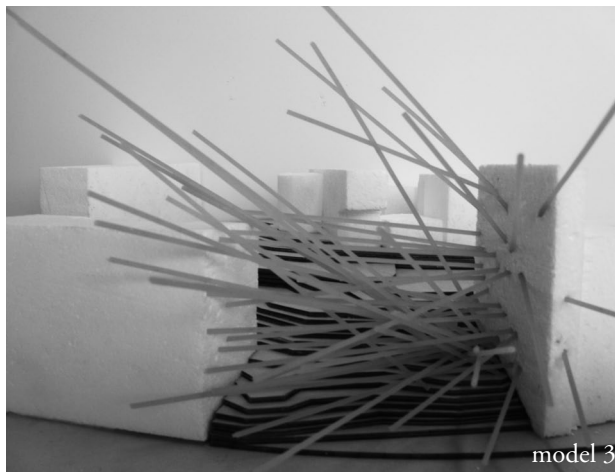
model 3 | view from Per Dubbsgatan



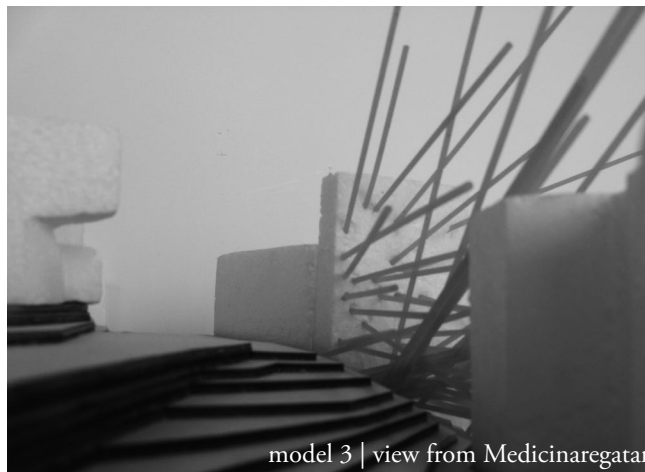
model 3



model 3 | view from Per Dubbsgatan



model 3



model 3 | view from Medicinaregatan

Model 3 | final model | obstructions:

1. gradient of density
2. delicate / light / soft appearance
3. dynamic

Model 3 | final model | evaluation:

+

- good scale / size,
- dynamic and outstanding - landmark qualities,
- elements focused in one point / density in one place.
- interesting views from Medicinareberget.

-

- too less elements at the hospital's side,
- weak visual connection between Medicinaregatan and the hospital.

workshop 4

| volume

The workshop focused on:

- identity,
- mass / matter,
- coherent vs. organised,
- relation with the surrounding.

Model 1 | obstructions:

1. horizontal
2. static
3. touches the ground in one point

Model 1 | evaluation:

+

- good connections with all the points,
- good view from Per Dubbsg. and Medicinareg.,
- very efficient in terms of filling with function,
- does not touch the ground on Sahlgrenska's side.

-

- boring and dull,
- shadows too much.

Model 2 | obstructions:

1. vertical elements
2. one element multiplied
3. organic structure

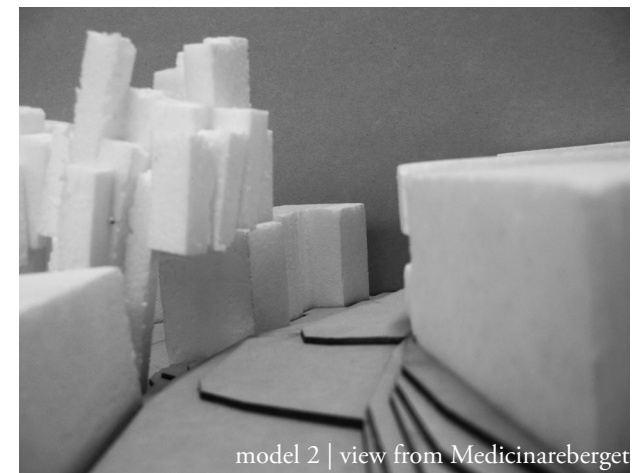
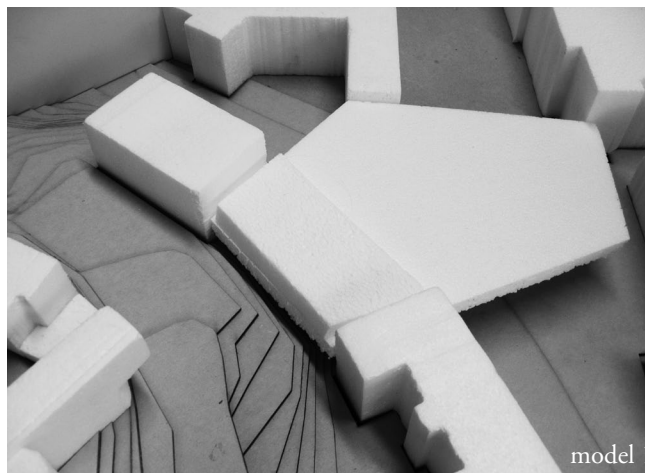
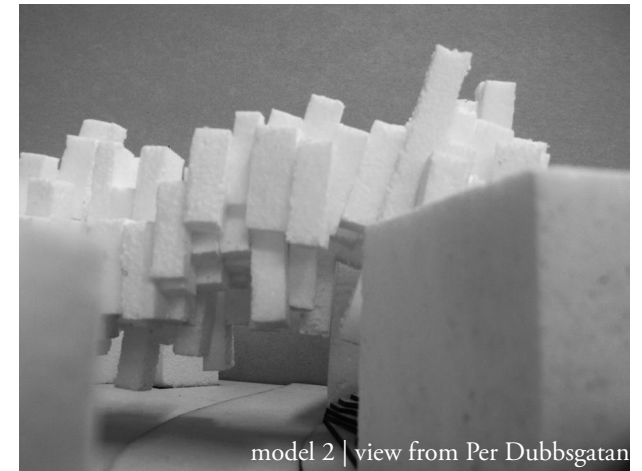
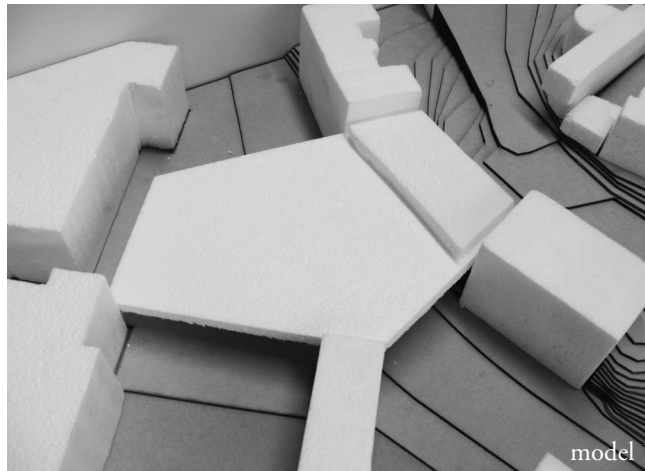
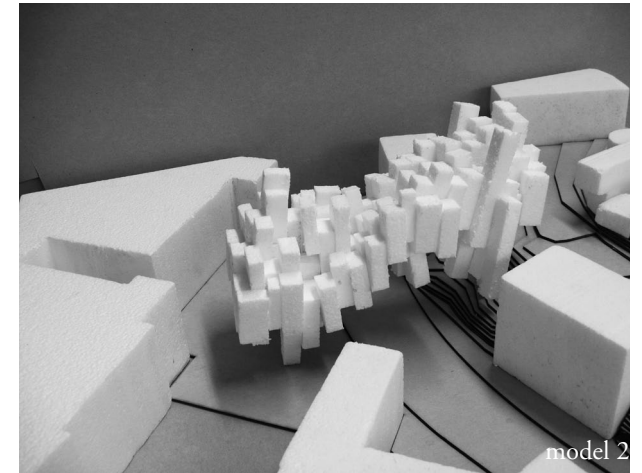
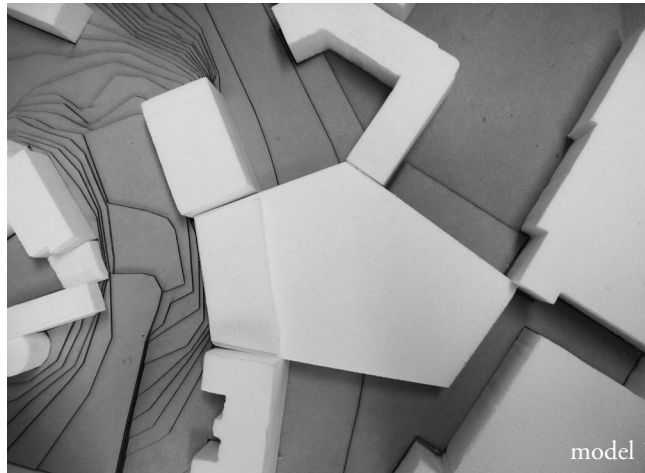
Model 2 | evaluation:

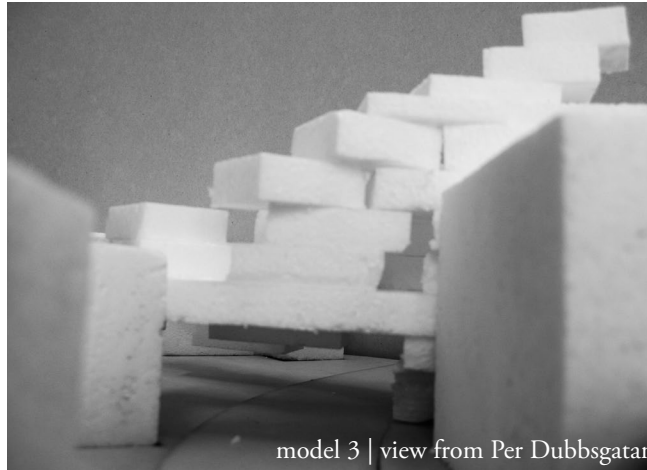
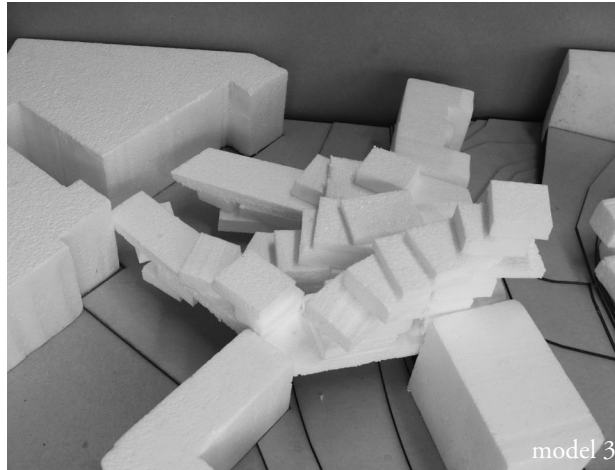
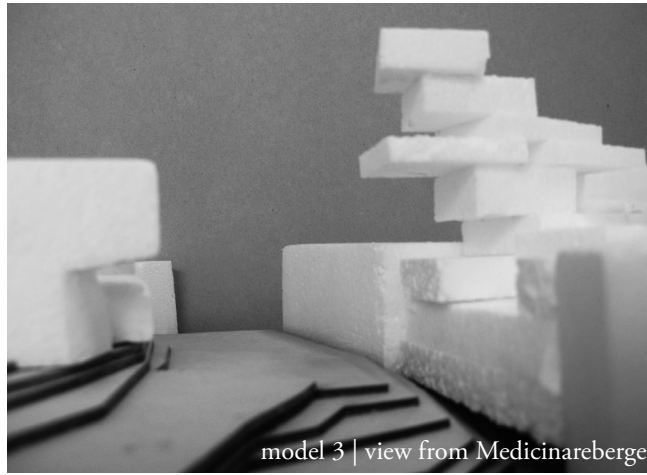
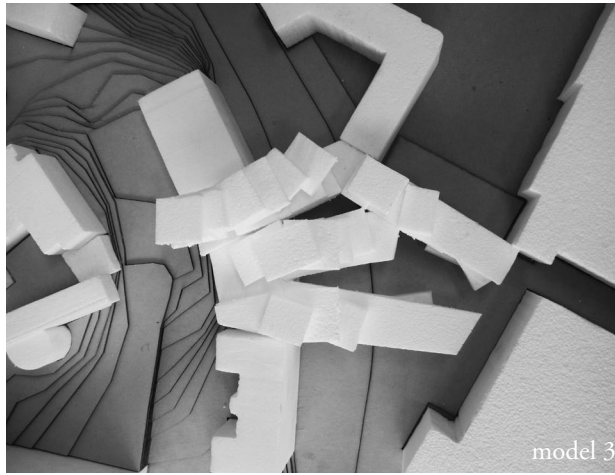
+

- beautiful / looks like a crystal,
- outstanding / landmark,
- follows the landscape,
- efficient in terms of structure,
- seems light inspite of the size,
- good views from the street levels,
- touches the ground very lightly / gently.

-

- too less contact with the ground on Medicinareberget,
- not connecting the points,
- blocks the view from Academicum.





Model 3 | final model | obstructions:

1. organic structure
2. touches the round in one point
3. dynamic growth

Model 3 | final model | evaluation:

+

- efficient in terms of communication / good connections,
- dynamic and outstanding - landmark qualities,
- efficient in terms of filling with functions,
- saves the view from Academicum.

-

- shadows too much,
- a bit too massive
- no attractive view from the hospital's main entrance.

conclusions

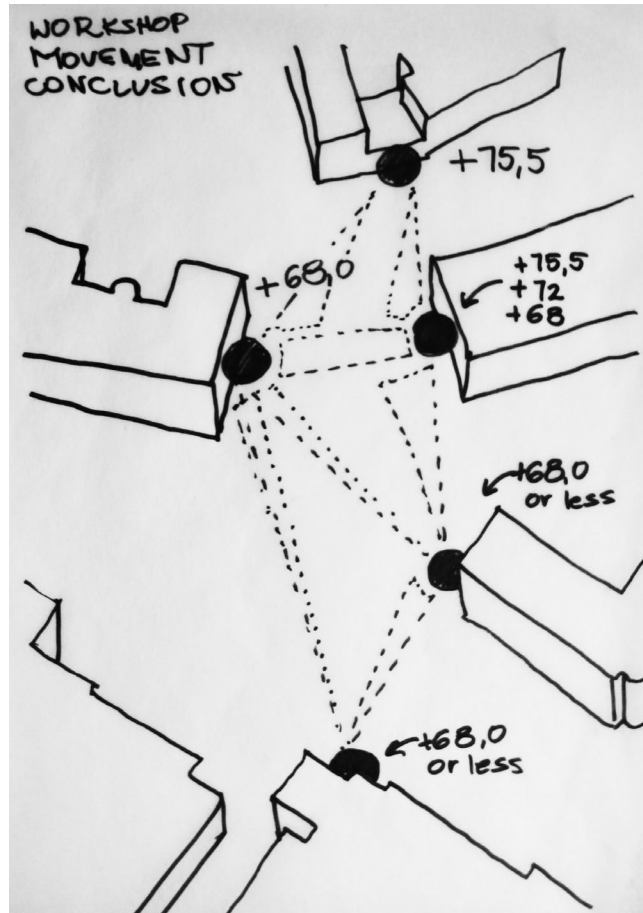
| workshops

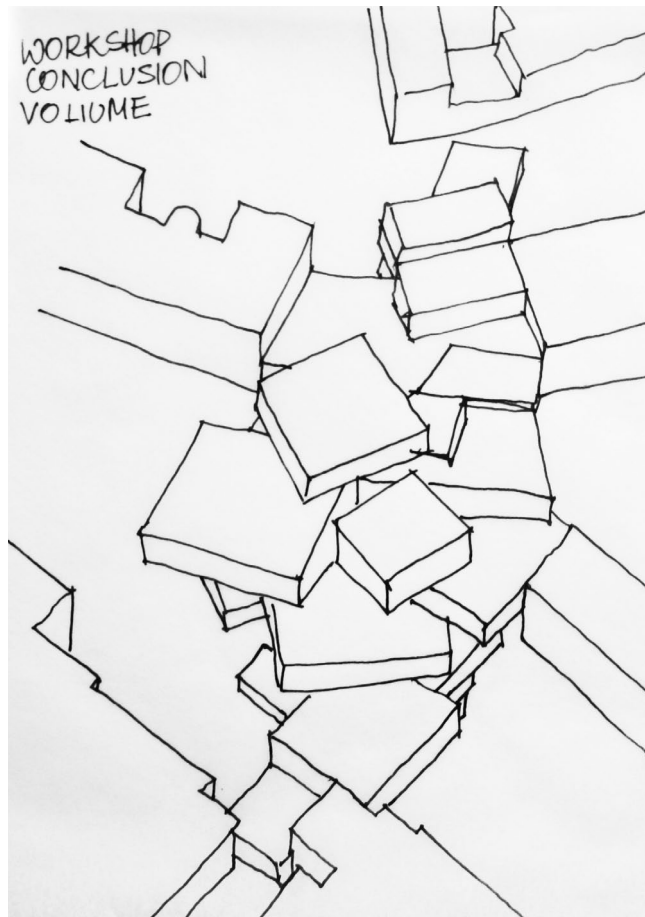
Workshop 1:

- most need communication patterns,
- points of connection,
- central / meeting points.
- heights of communication paths.

Workshop 2:

- a center where the public space “focus” - a centre of the building between the library and Sahlgrenska Science Park,
- placement of functions (private) and public and relation between private and public - public becomes a structure that supports private (functions).





Workshop 3:

- lightness of structure and more transparency over the street,
- less transparency, more density and mass on the slope (between the library and Sahlgrenska Science Park),
- create landmark qualities - height of the building, shape, volume,
- transparency / visibility provides quality of open environment and connection between the out and inside,
- identity created with help of transparency and visibility.

Workshop 4:

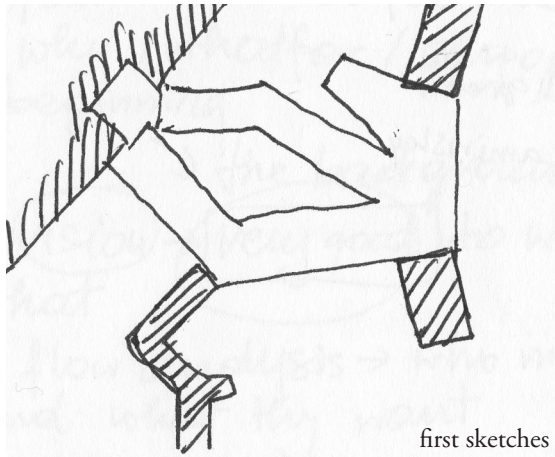
- directions shaping the volume of the building,
- landmark qualities - height and shape,
- lightness or gradient of density / massiveness benefits to the appearance of the structure,
- create an entrance - portal - qualities in Per Dubbsgatan and the entrance to the hospital,
- relation between vertical (lightness, landmark qualities, identity) and horizontal (communication, placement of functions) directions.

process

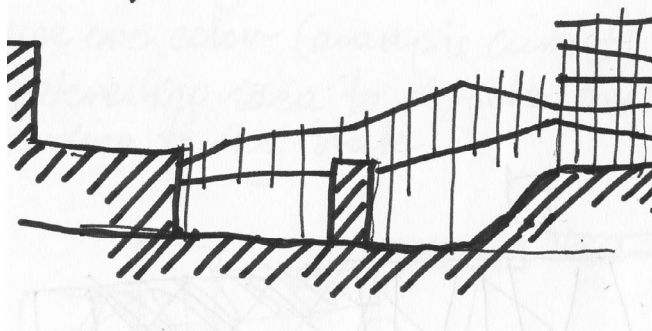
Sketches and models illustrating progress and stages of the project.

In the design process there has been focus on three issues:

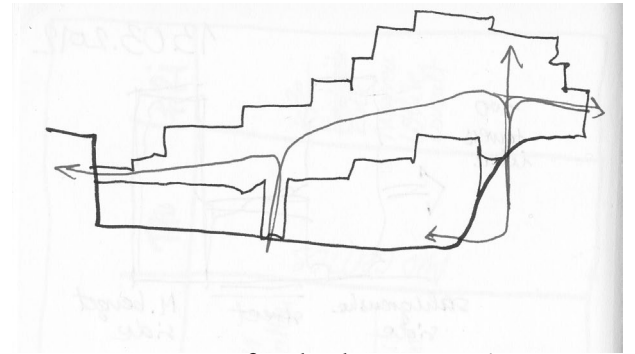
- *the urban context of the proposal: influence on the street, area and city,*
- *the building itself: the volume, program, flows, connections, indoor environment, etc.*
- *the “time” context: design for current situation as well as the future, and seeing the building as an active part of complementing the vision for Sahlgrenska – Medicinareberget as a knowledge cluster.*



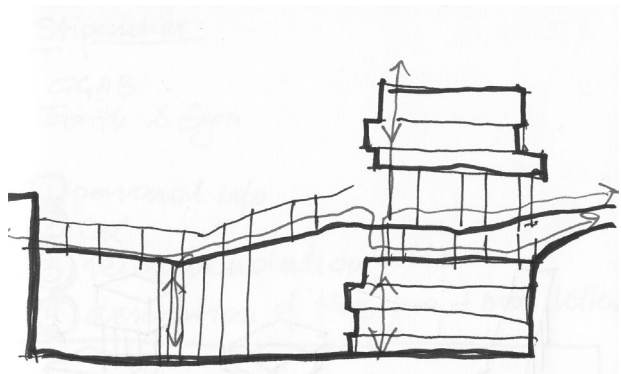
first sketches - plan



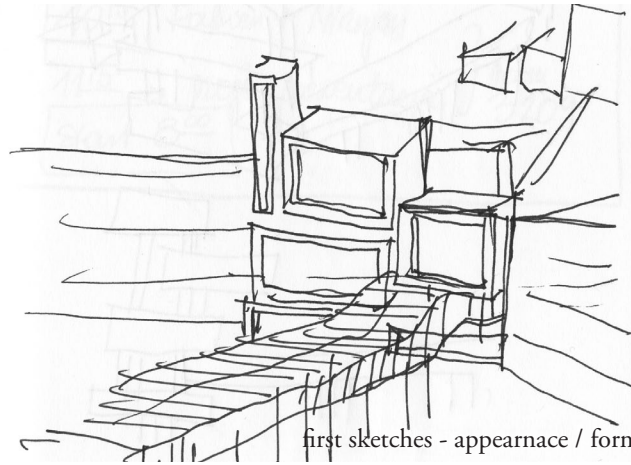
first sketches - sections / connections



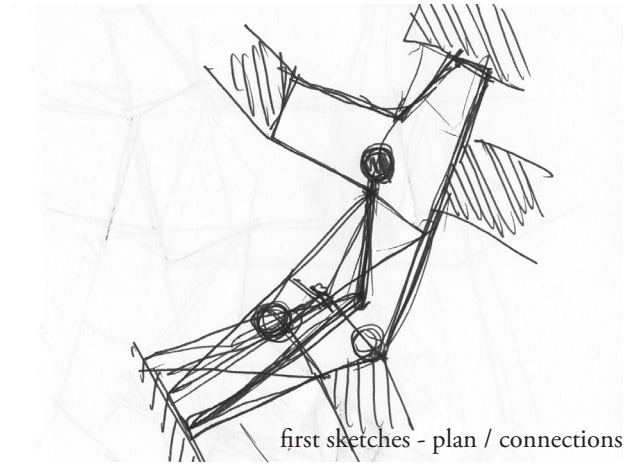
first sketches - sections / connections



first sketches - section



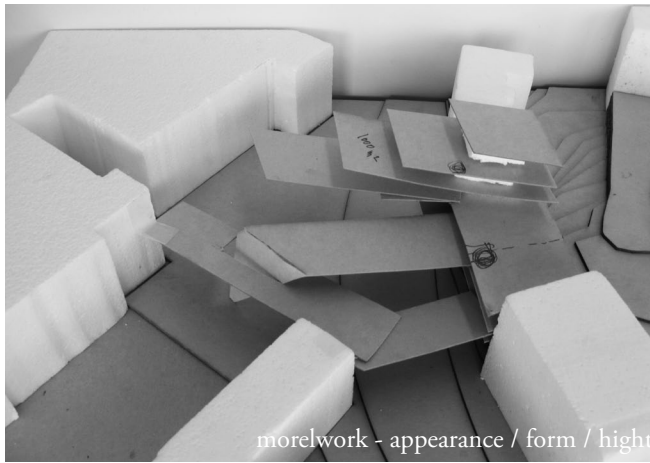
first sketches - appearance / form



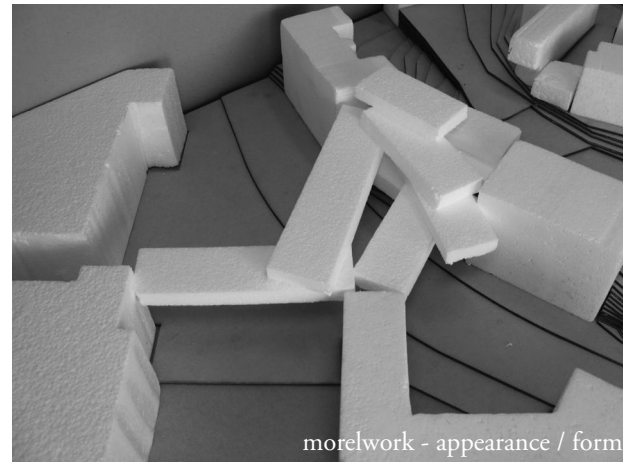
first sketches - plan / connections



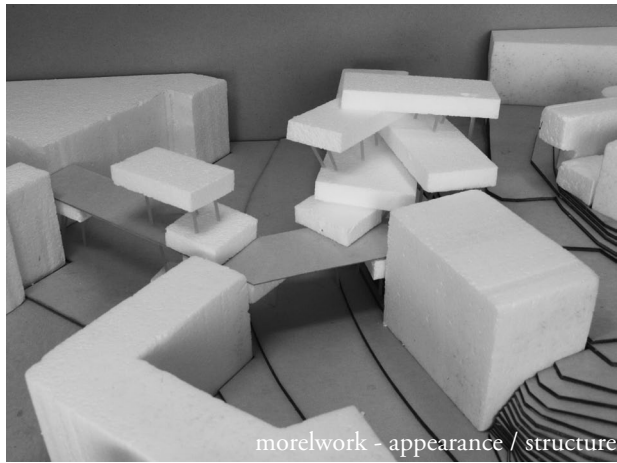
morelwork - connections



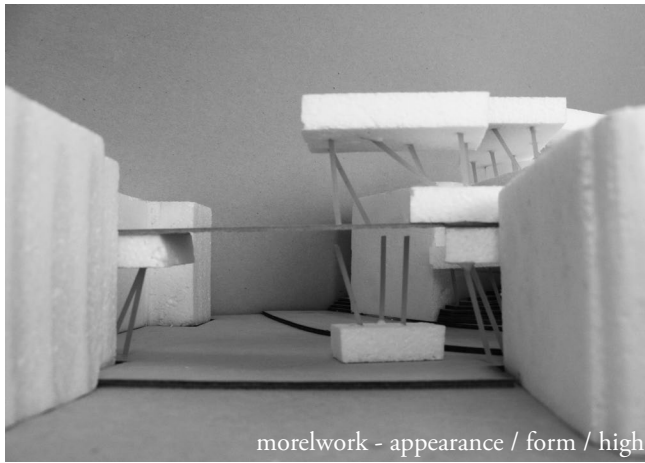
morelwork - appearance / form / height



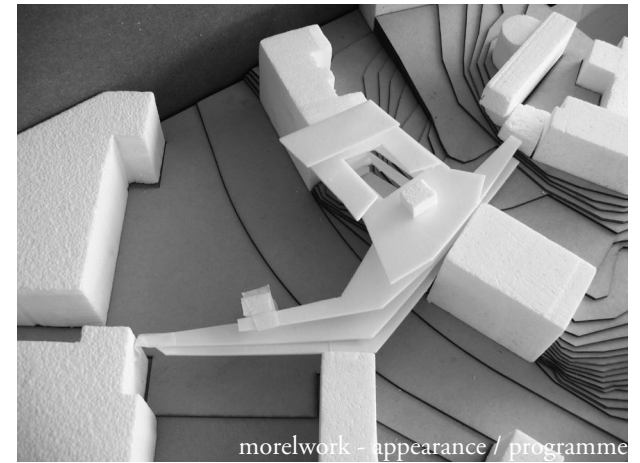
morelwork - appearance / form



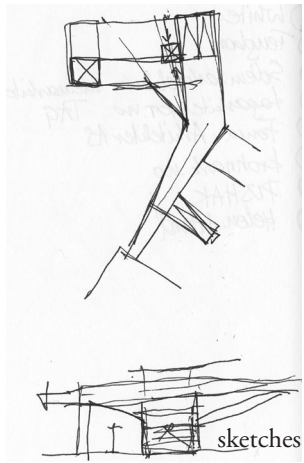
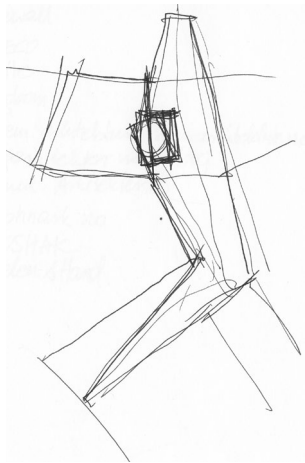
morelwork - appearance / structure



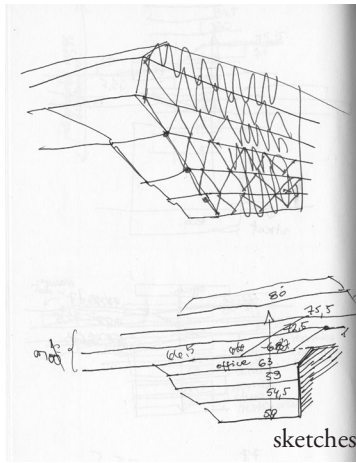
morelwork - appearance / form / height



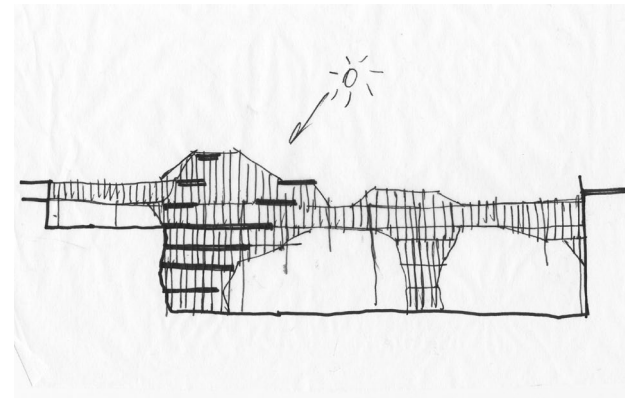
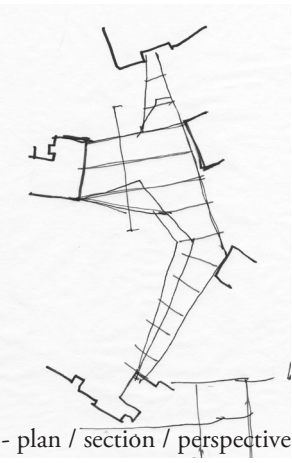
morelwork - appearance / programme



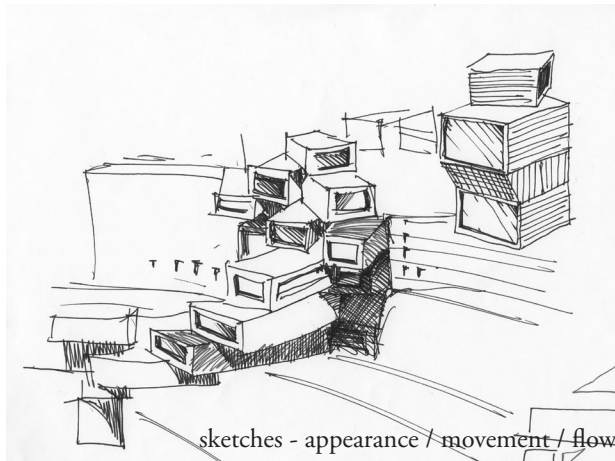
sketches



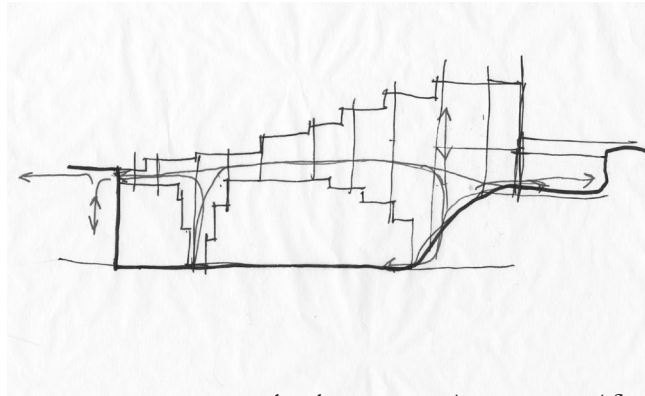
sketches - plan / section / perspective



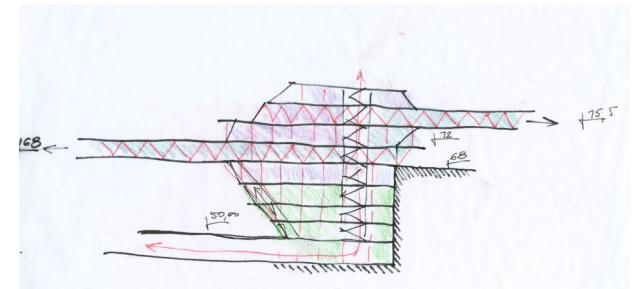
sketches - section



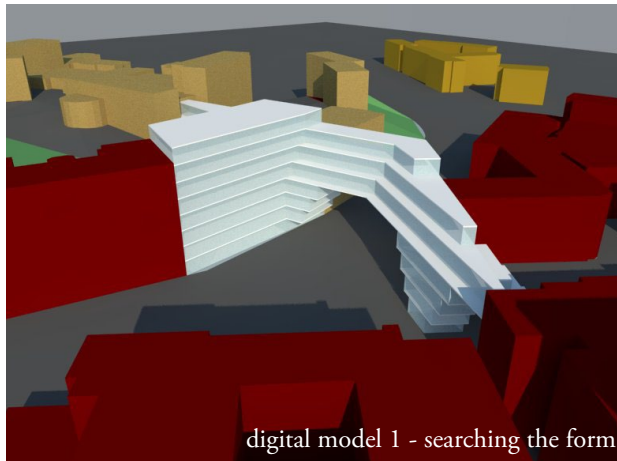
sketches - appearance / movement / flow



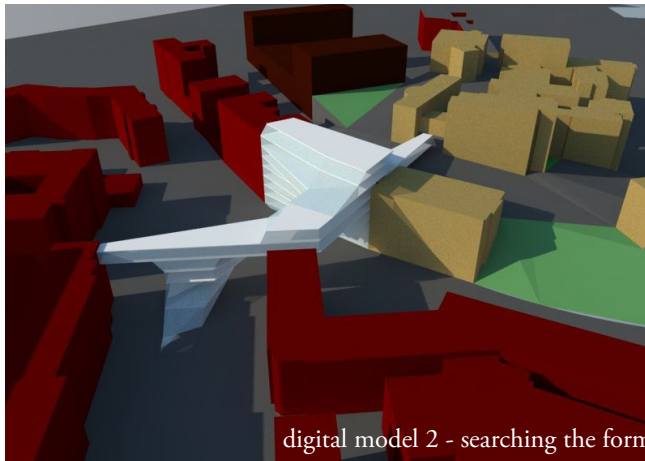
sketches - section / connections / flow



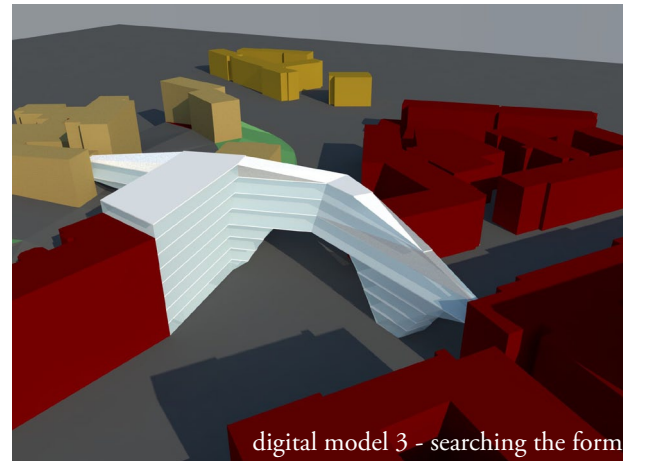
sketches - sections / programme / connections



digital model 1 - searching the form



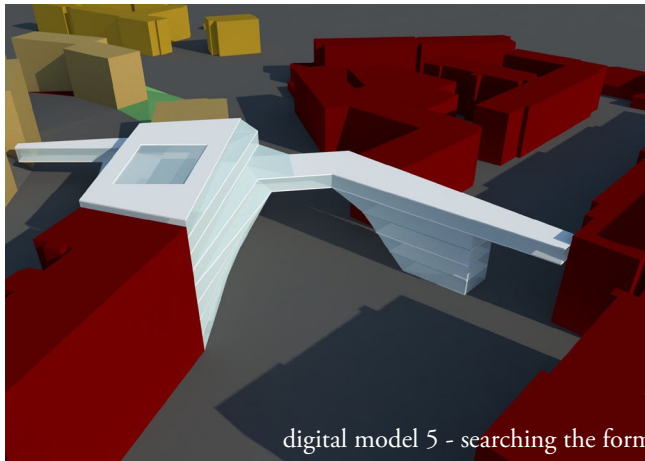
digital model 2 - searching the form



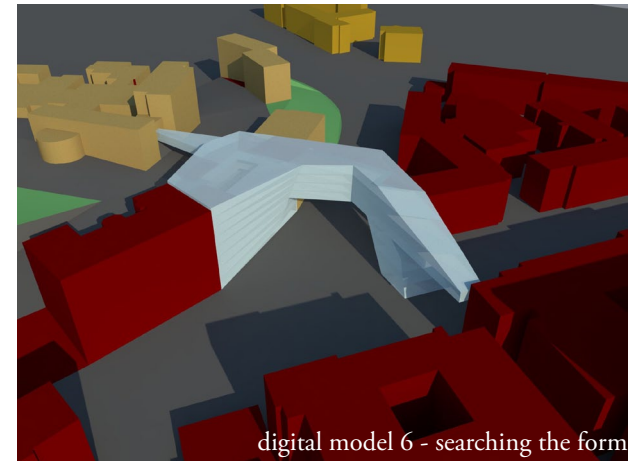
digital model 3 - searching the form



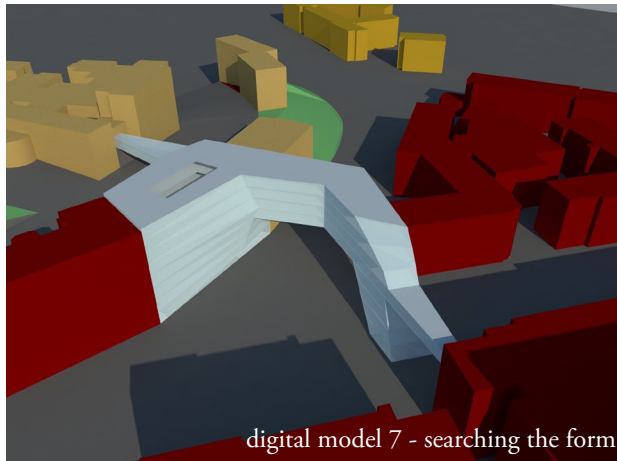
digital model 4 - searching the form



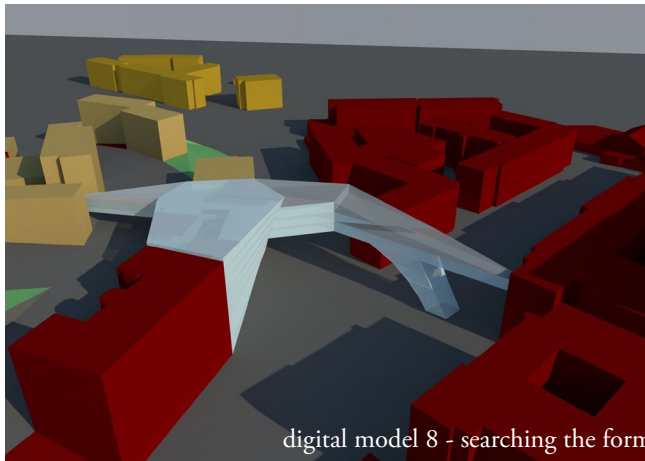
digital model 5 - searching the form



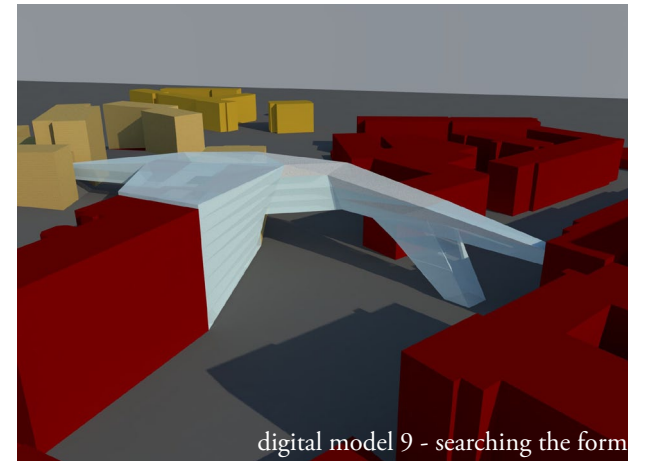
digital model 6 - searching the form



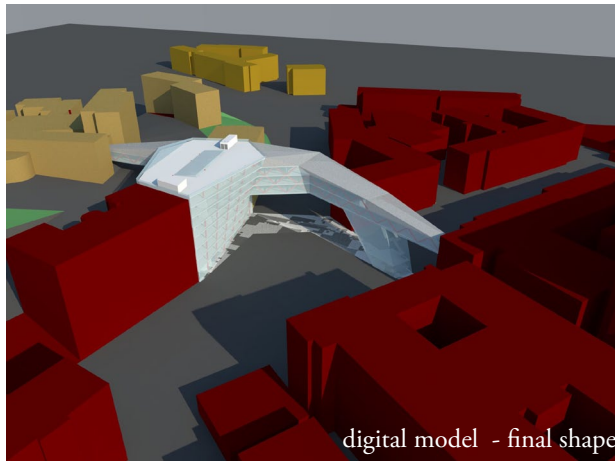
digital model 7 - searching the form



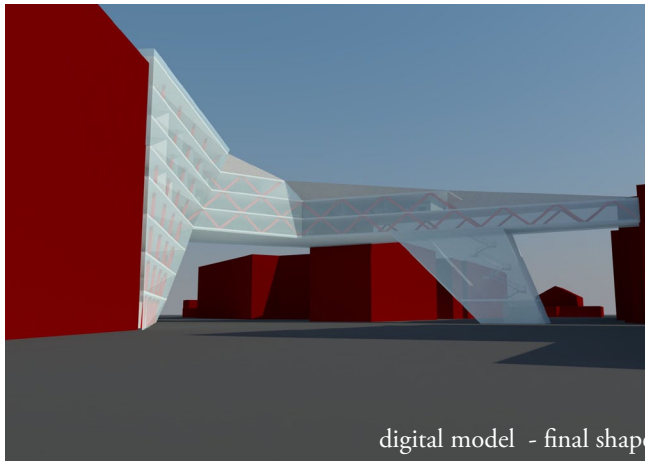
digital model 8 - searching the form



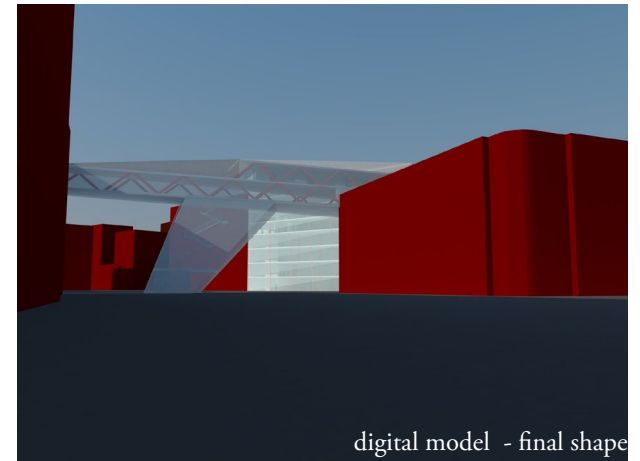
digital model 9 - searching the form



digital model - final shape



digital model - final shape



digital model - final shape

project

Final proposal

urban context

| cityscape

The final design solution must be seen in a broad spacial context. It becomes a part of the city and shapes the area of Sahlgrenska – Medicinareberget. In the scale of the street it becomes a central point and an entrance to Medicinareberget and Sahlgrenska. The strong architectural form and expression gives a new common identity.

The building has been design to be visible from the street, and become a statement of unity between organizations in the area. It also enables to visualize the activities in the building and make them an important part of the street life.

The building works best in the urban context with traffic solutions for the future: wide sidewalks, bike paths, new entrance road for the emergency intake. The current traffic solutions do not contribute to creating clear entrance zone and good outdoor environment. Therefore the building is shown with a new proposal for traffic solutions and design of the entrance square.

The formal solution for the building helps to crystallize the three important urban spaces in the area: the entrance square, which doesn't take any specific form today, the Central Garden by closing it from the western side, and Guldhedsgatan by creating a gate-like structure over it and building its frontage with the façade.

surrounding buildings

| relationship with the existing structure

The design proposal assumes connecting the new link building to the existing ones. The solution is only possible when some changes in the buildings are made and the structural and functional connection is enabled. There are several reasons for choosing such solutions, among them not only better connection between the existing buildings, but also bigger floor area of the new building, and others.

Sahlgrenska Science Park building

The building of Sahlgrenska Science Park (red brick) currently hosts office space for the science park. It is a building with high architectural values, yet lacking some qualities expected from good office space. It also does not contribute to the lively outdoor environment along the street, as the ground floor level from Guldhedsgatan is closed and hostile. For the proposed design solution to work there is a need to consider some alternation in the building, what would not only allow keeping the valuable piece of architecture, but also result in more usable and users-friendly working environment and better connection to the new link building (including solving the problem of lack of daylight from the eastern façade). The renovation of the building should also involve rearrangement of the ground floor. It seems that the changes in the building are inevitable if the vision for

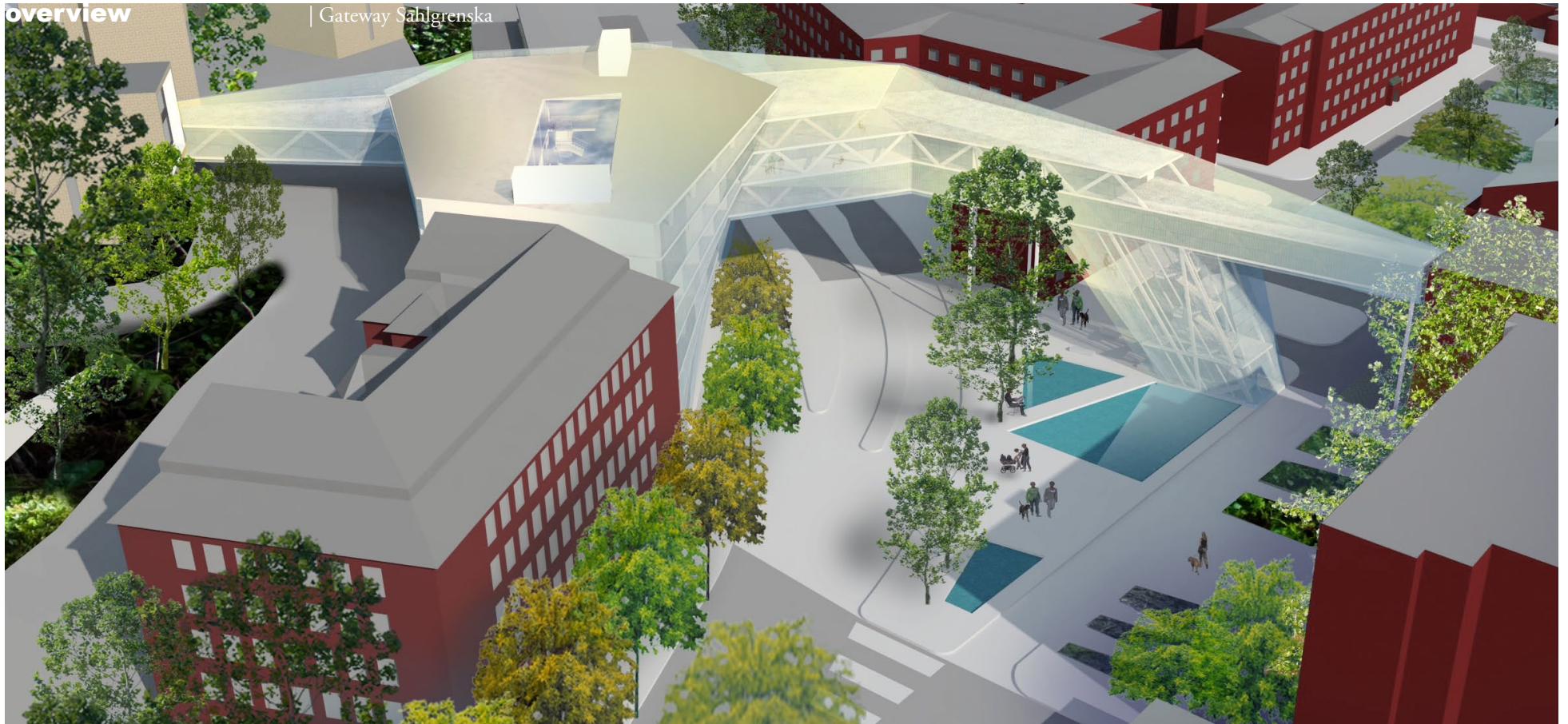
the future of the area is to be completed, and I see it as a part of the process of Sahlgrenska – Medicinareberget transformation.

Library building

The library (yellow brick) hosts the books storages on lover floors and the spaces for learning / reading / working and offices on the top two floors. The way of learning nowadays does not require the students to use the library very often and spending time in the library. Nevertheless the connection is desirable, as for current needs as for the future. Today there is a connection to the sky bridge and the outdoor lift on level (around) +72. The design proposal assumes keeping this connection, although it is possible that the library building will optain another function in the future and its internal structure may change.

overview

| Gateway Sahlgrenska



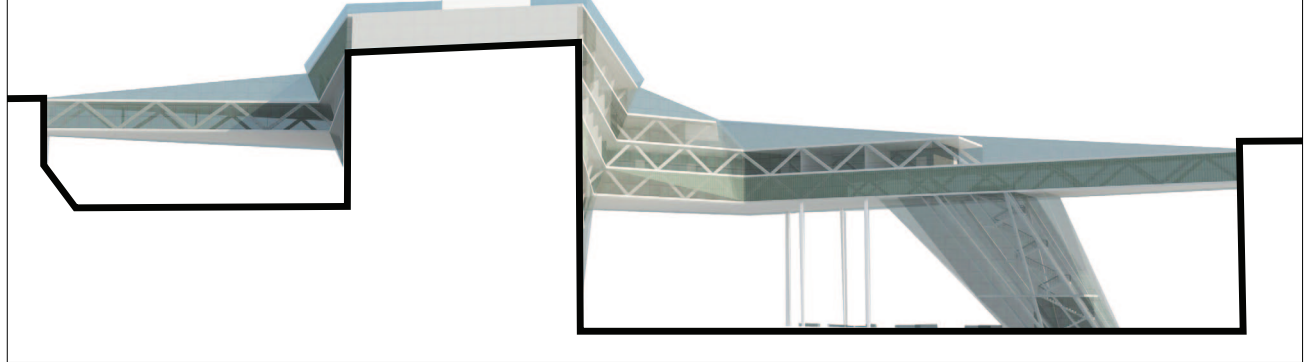
façade

|architectural expression

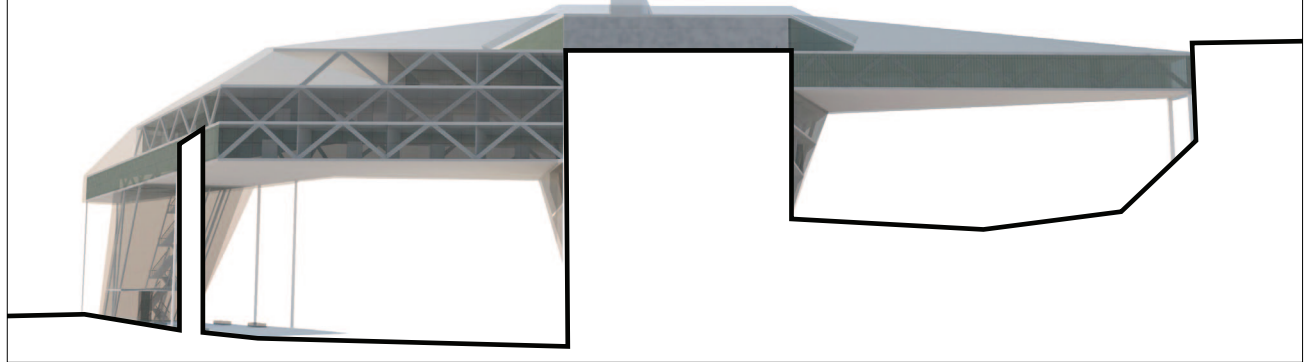
The façade will become one of the main features of the building, as it will be a medium through which the new structure communicates with the surrounding. The main characteristic of the façade is transparency, as the building is supposed to become a picture of the activities inside. Therefore, the main material for the façade is glass in a curtain wall. The façade consists of two layers because of the appearance, functional needs (various functions have different demands according to the outside wall), energy saving and indoor climate. The façade should allow the users regulation of air flow and sunlight penetration.

The outside layer is a curtain wall, while the inside consists of several layers, like sun blinds, shading elements, and glass that may block energy intake into the building. Over the roof gardens and installation space on the top of the buildings, panels of net or perforated metal are installed to give continuity to the shape of the building.

view on the western facade



view on the eastern facade



form and volume | architectural expression

The building's form and volume originate from the flows and nature of movement in the site. The communication becomes the key issue in the design process and the result underline the activities of the users.

The proposal takes for of a bridge overcoming the street. There are several reasons for such solution:

- practical reasons for enabling the existing communication and assumptions that the functions in the building will influence the flow and its intensity
- statement of unity between the organizations in the area – mostly Gothenburg University and Sahlgrenska Hospital
- transparency and visibility – displaying the activities in the building so they are visible from the street and become a part of its appearance
- creation of certain urban spaces: the entrance square, Central Garden, framing the street
- identity – crystallizing a clear picture of the area with strong and iconic architecture
- prominent form – there are several sky bridges planned over Guldhedsgatan, and as the link building becomes the highlight of the street its form needs to stand out deliberately from other connections.

program | functional scheme

The program was formulated according to the demands of Sahlgrenska Hospital, Gothenburg University and other stakeholders.

The commercial functions are located on lower levels and contribute to the lively street environment. Main public spaces for users from the area (learning centre, lounge, restaurant, meeting spaces) are located in the middle floors and along the main communication paths. Large area was intended for general office space, as there is a strong demand for such function from all the organizations in the area.

flow | communication

The flow and communication was a key feature in the design process. The building's main purpose is to enable and underline the movement in the area / building with its form.

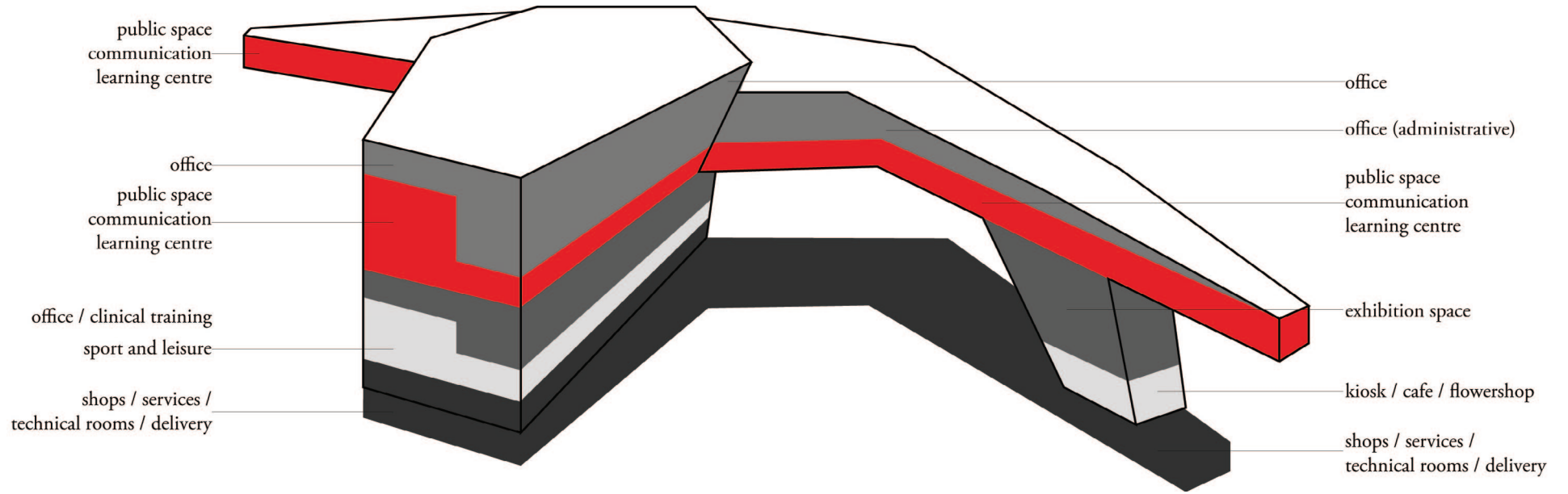
There are three vertical communication axes in the building. One of them is located in the southern part (in the "leg"), there is a glazed panoramic elevator and large staircase. The main vertical communication point in the building is a large staircase open towards the main atrium in the building. There is also one service staircase in the western part of the building.

The horizontal communication is organized according to current and future estimated flows that originate in the need to connect the buildings in the area and integrate their activities. The building allows bridging the street under the street level (level -1) and over it (level + 5). There is a connection to Academicum on level +8.

functions

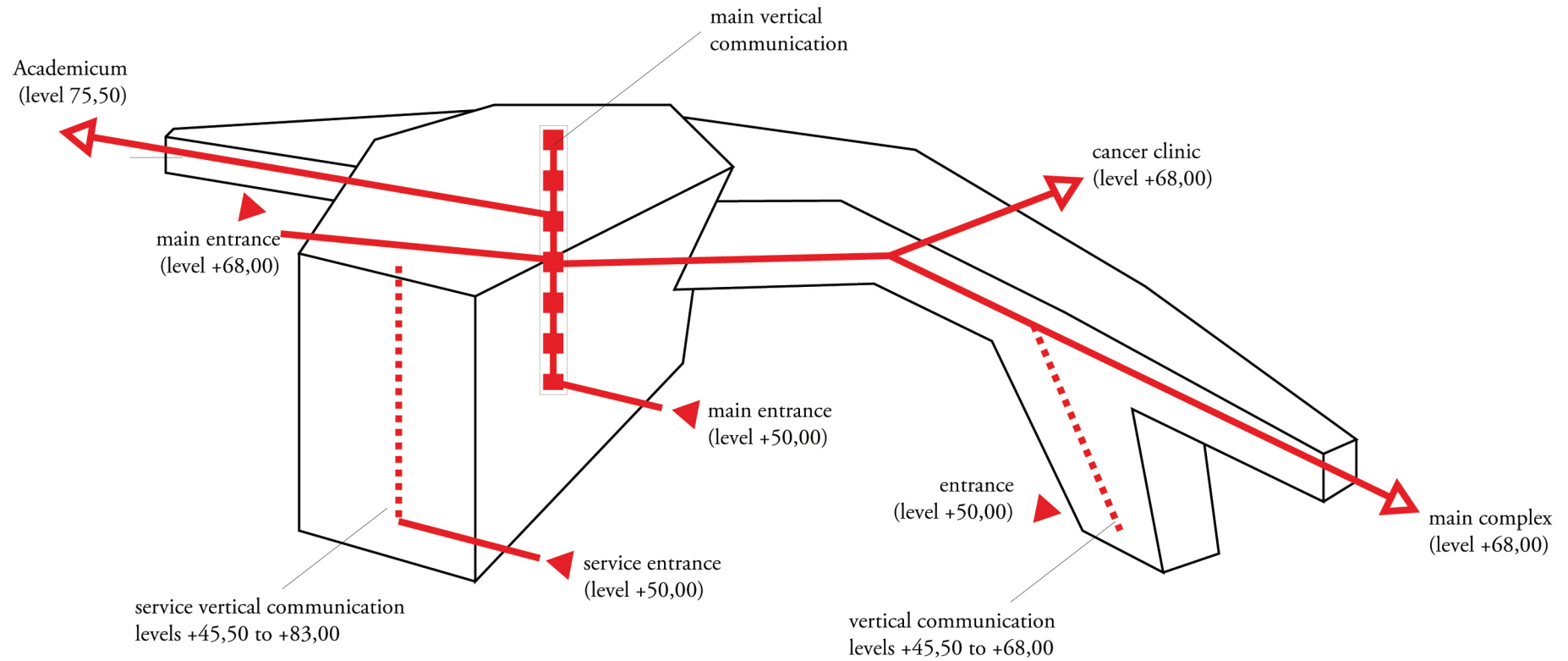
| scheme

90



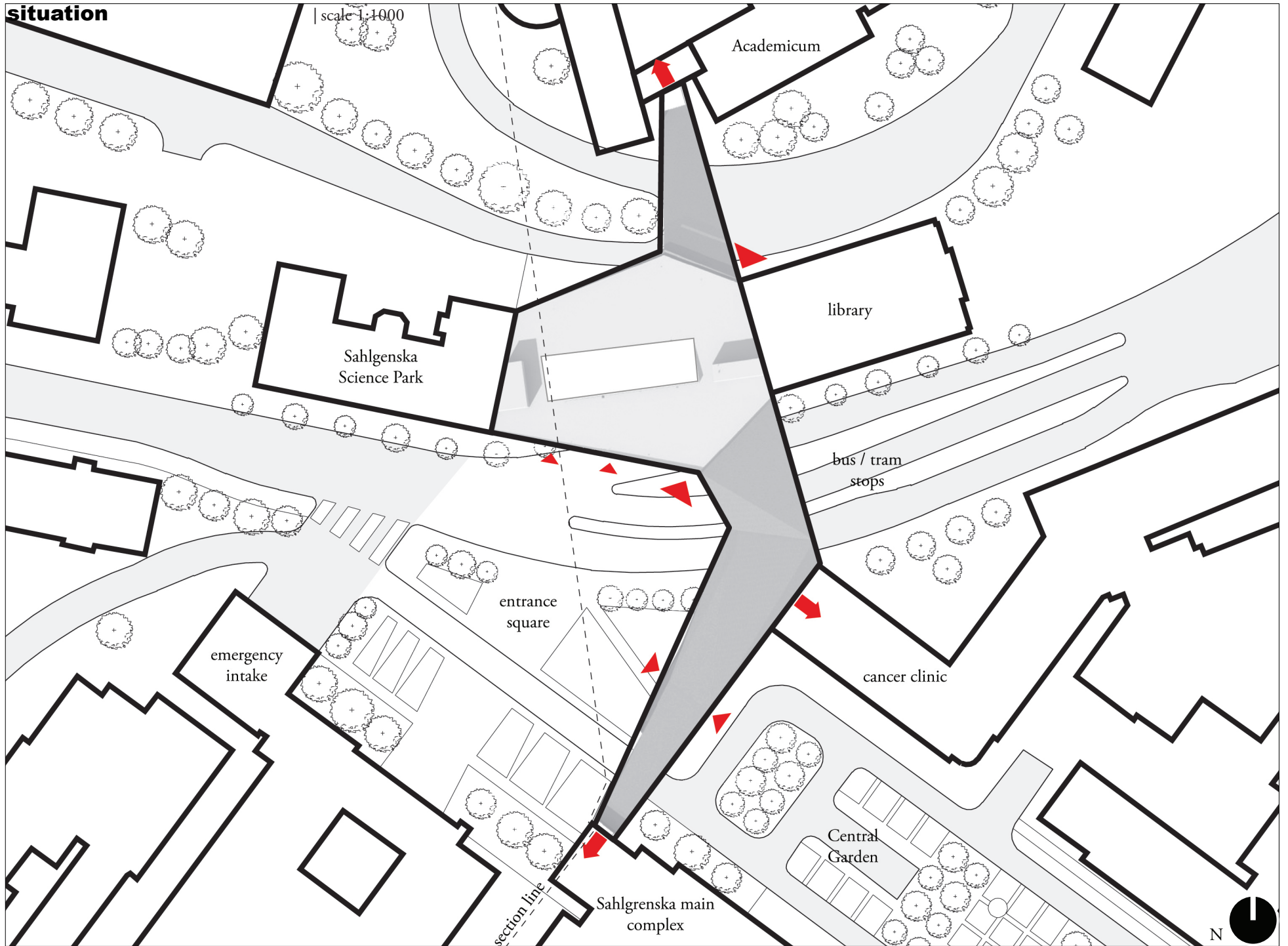
communication

| scheme



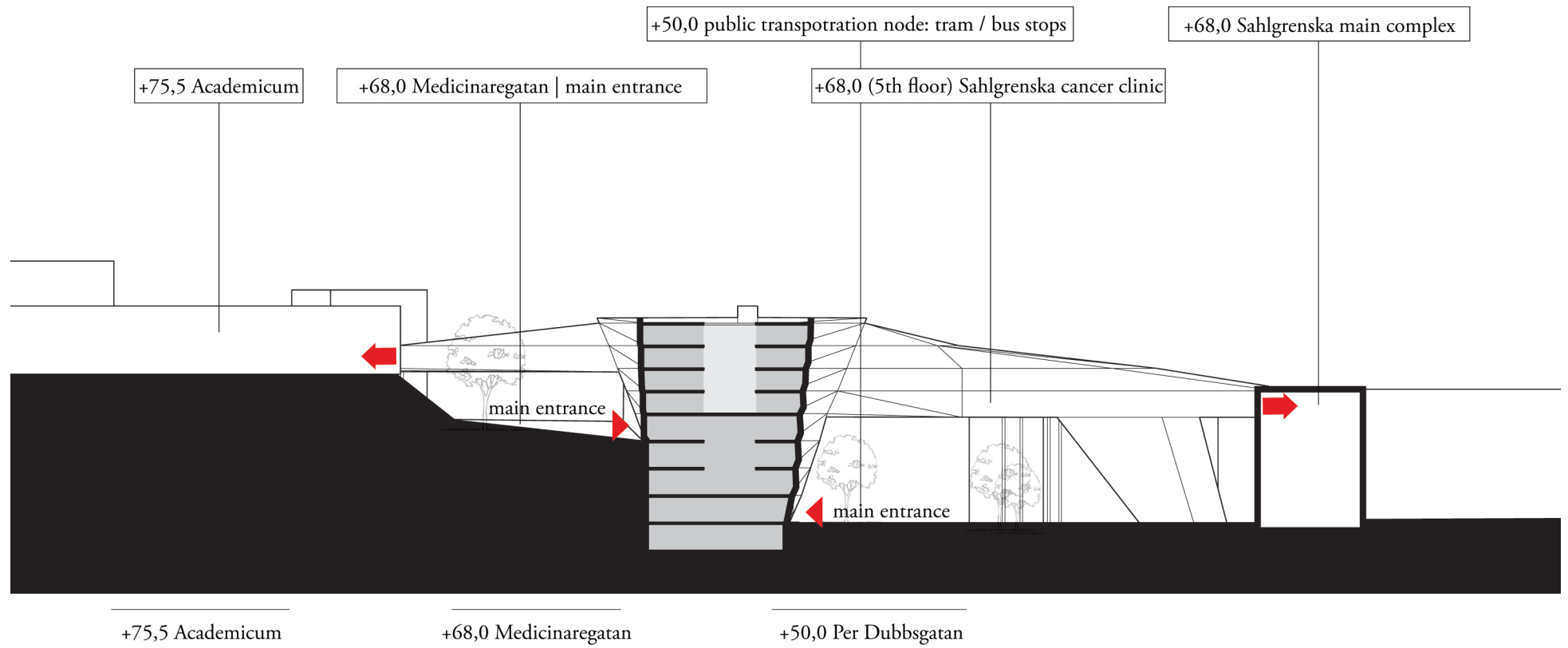
situation

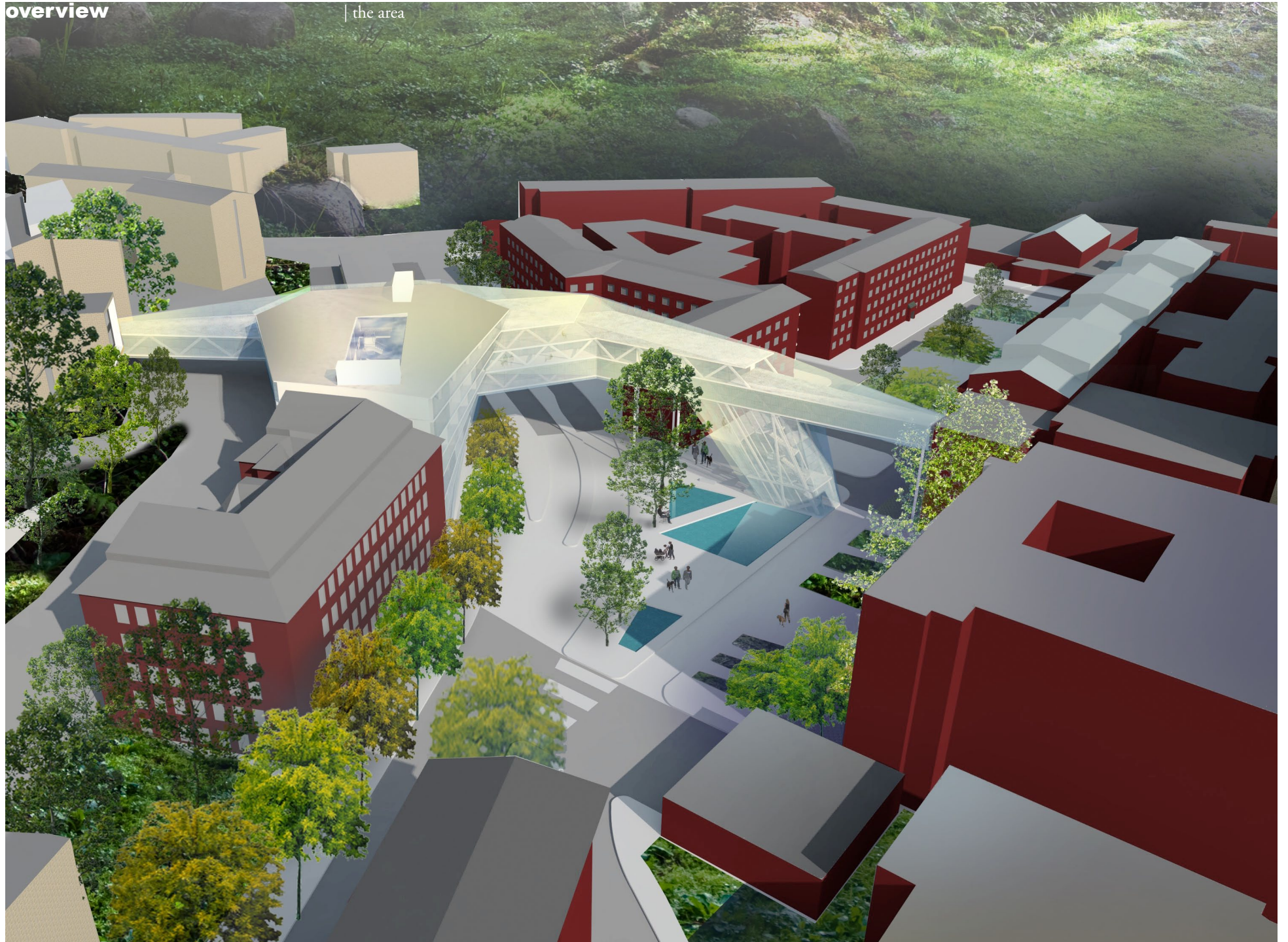
scale 1:1000



section

| 1:1000





entrance square

| view from the West







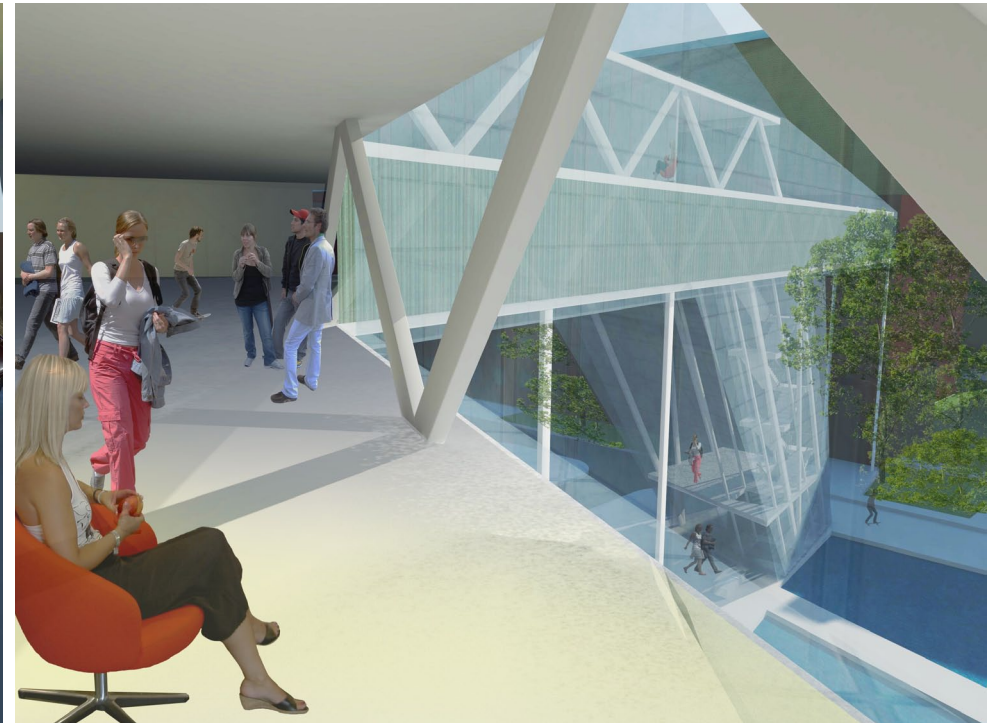
main staircase

| interior



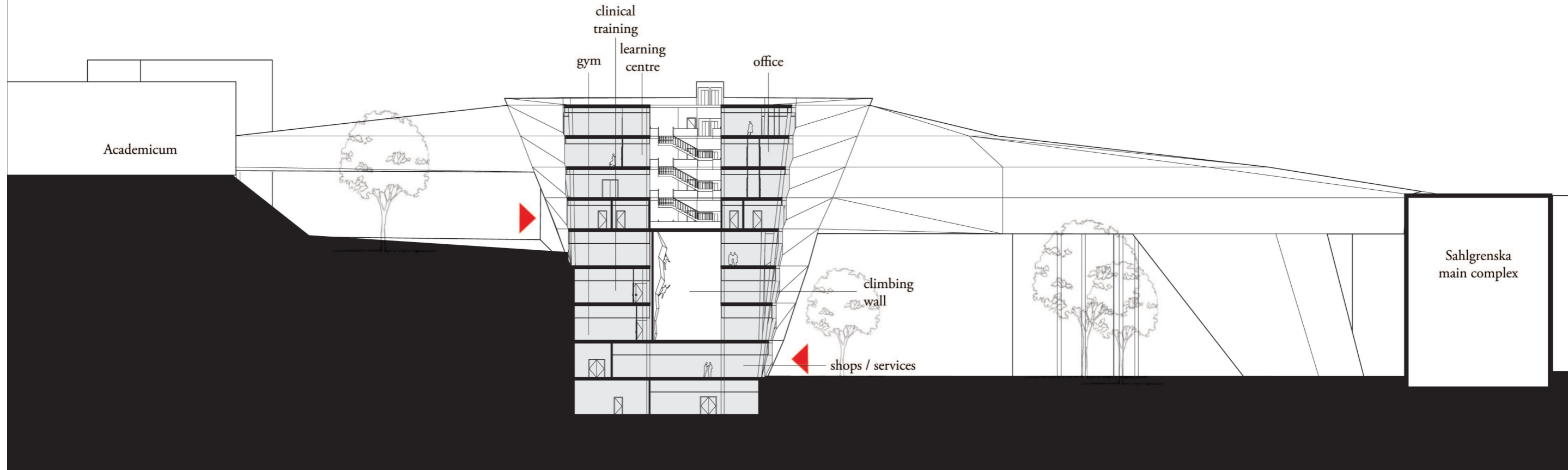
5th floor - bridge

| interior



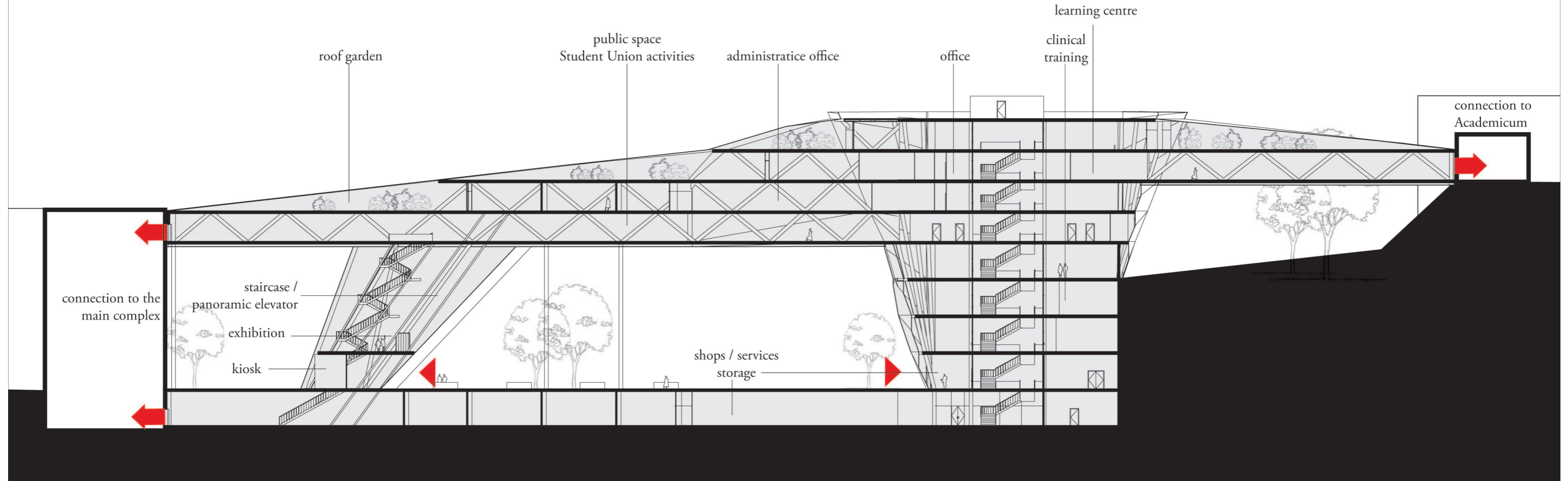
section A

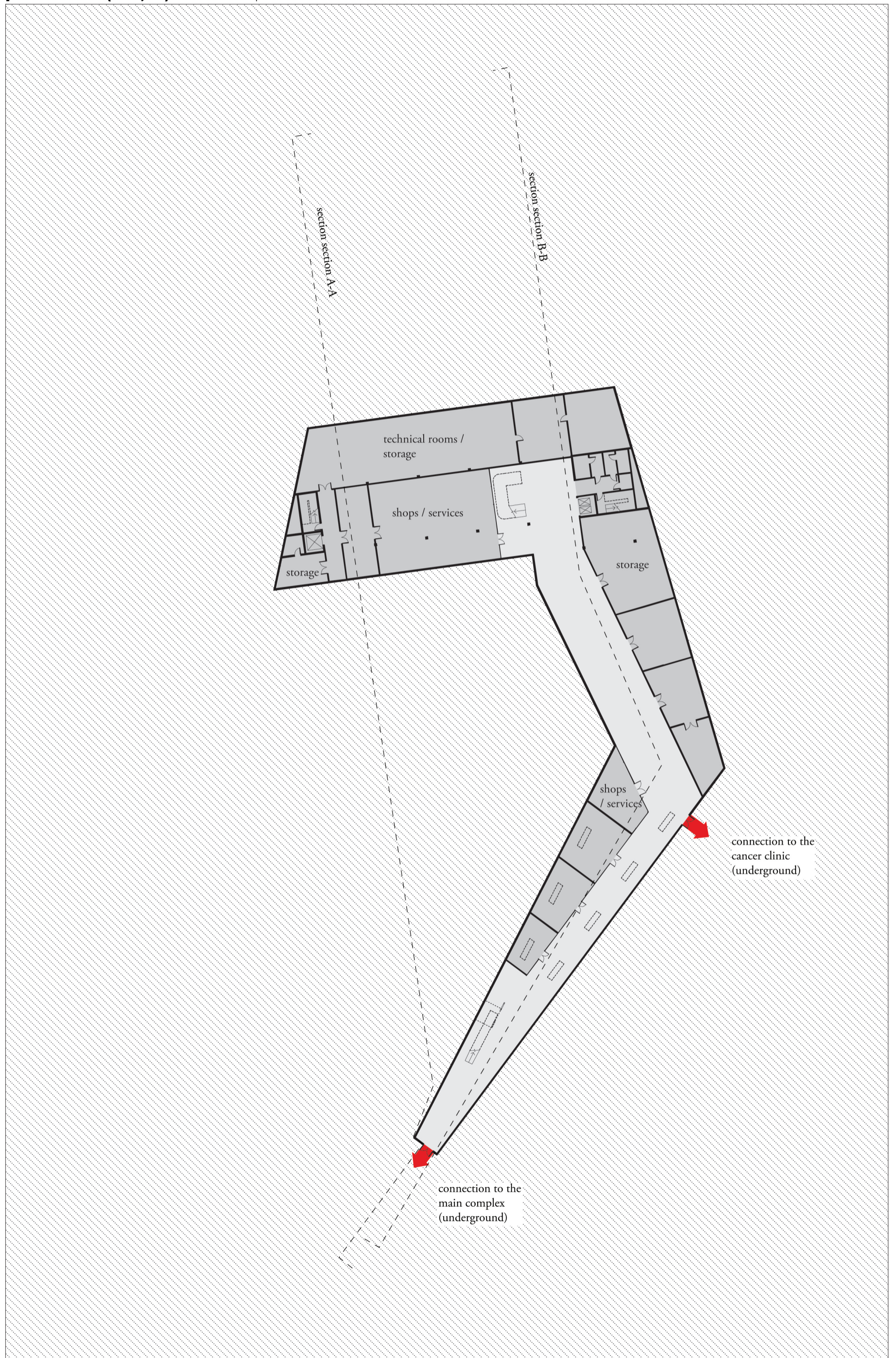
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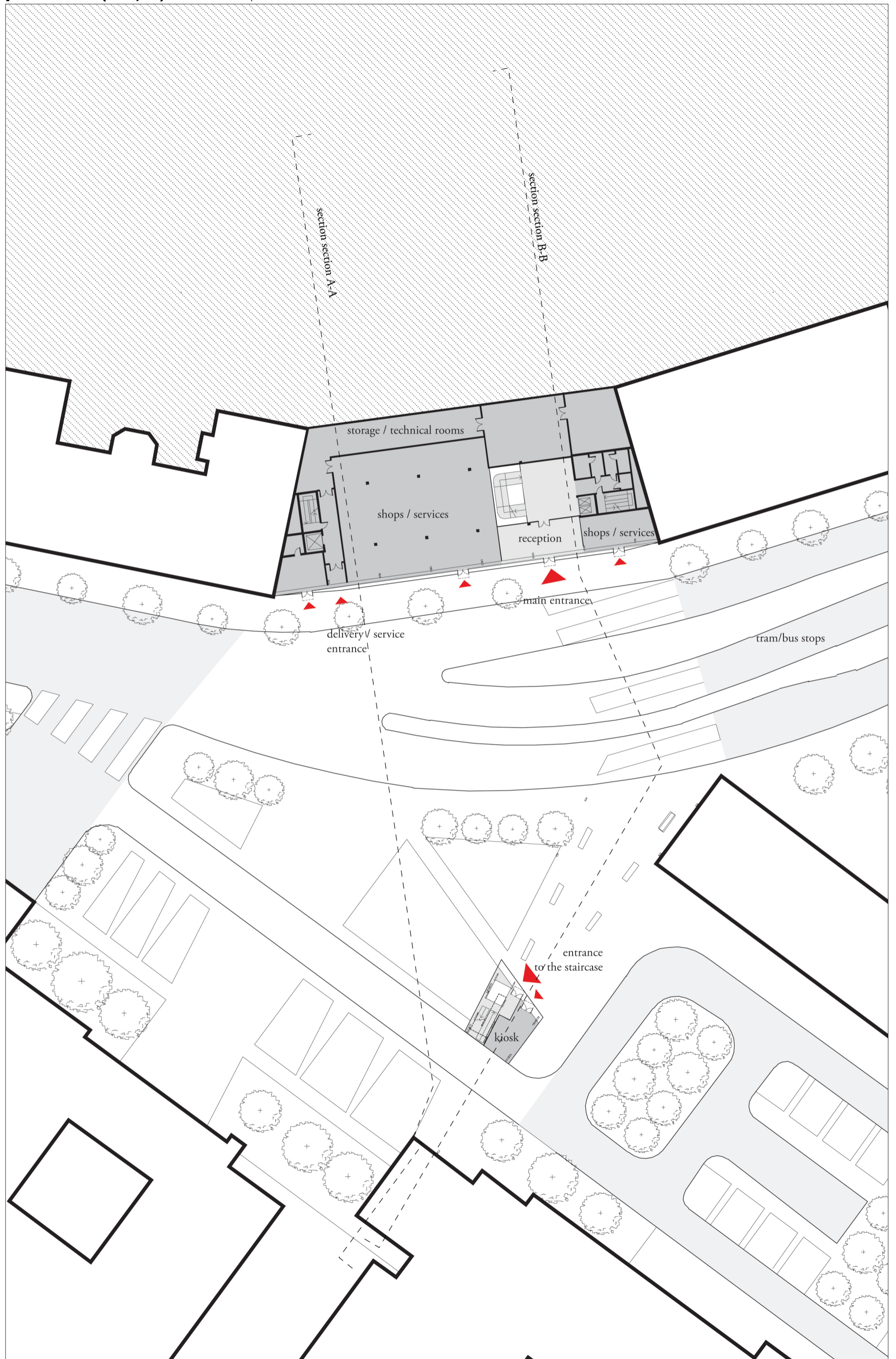


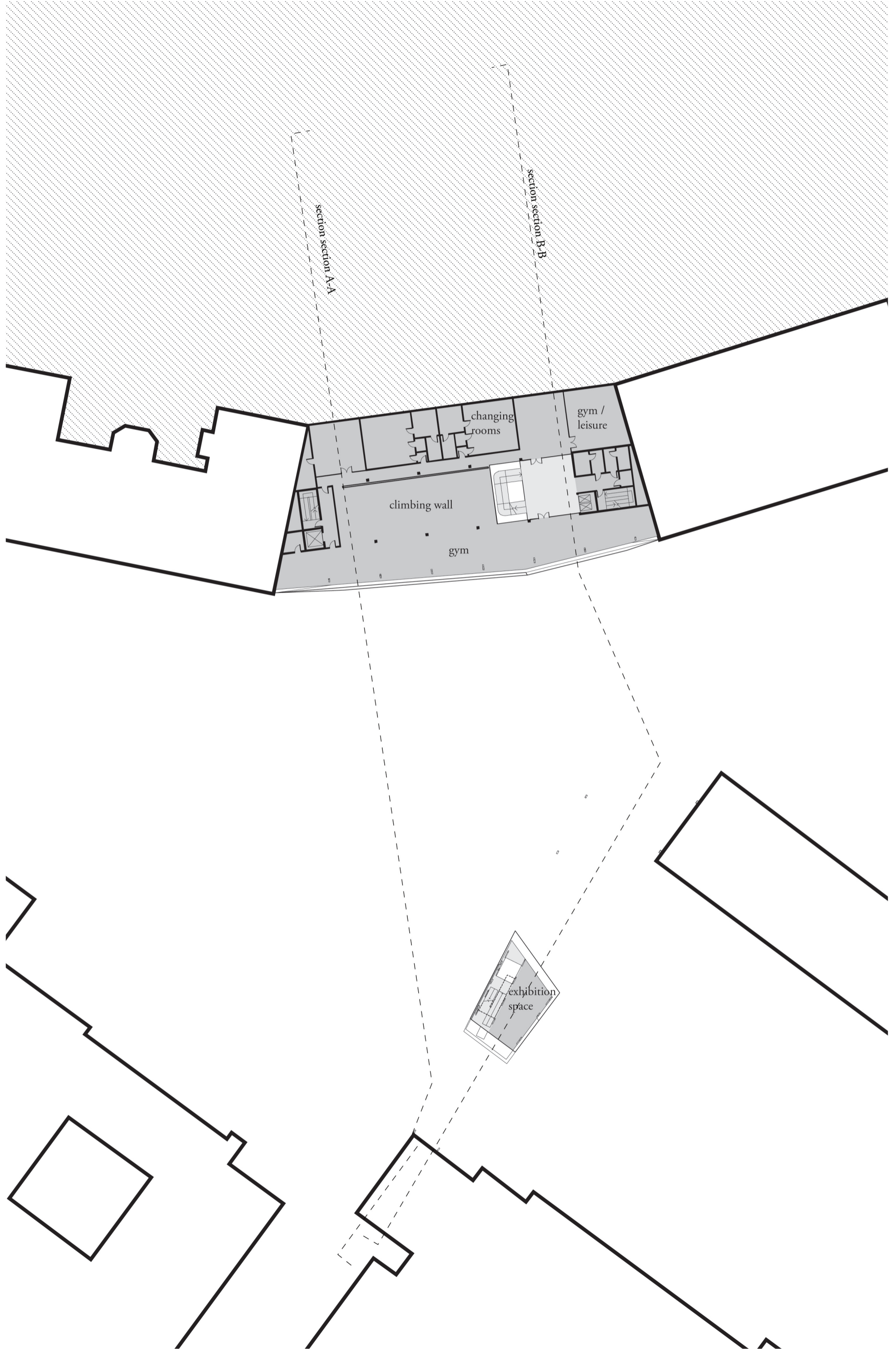
section B

| 1:500

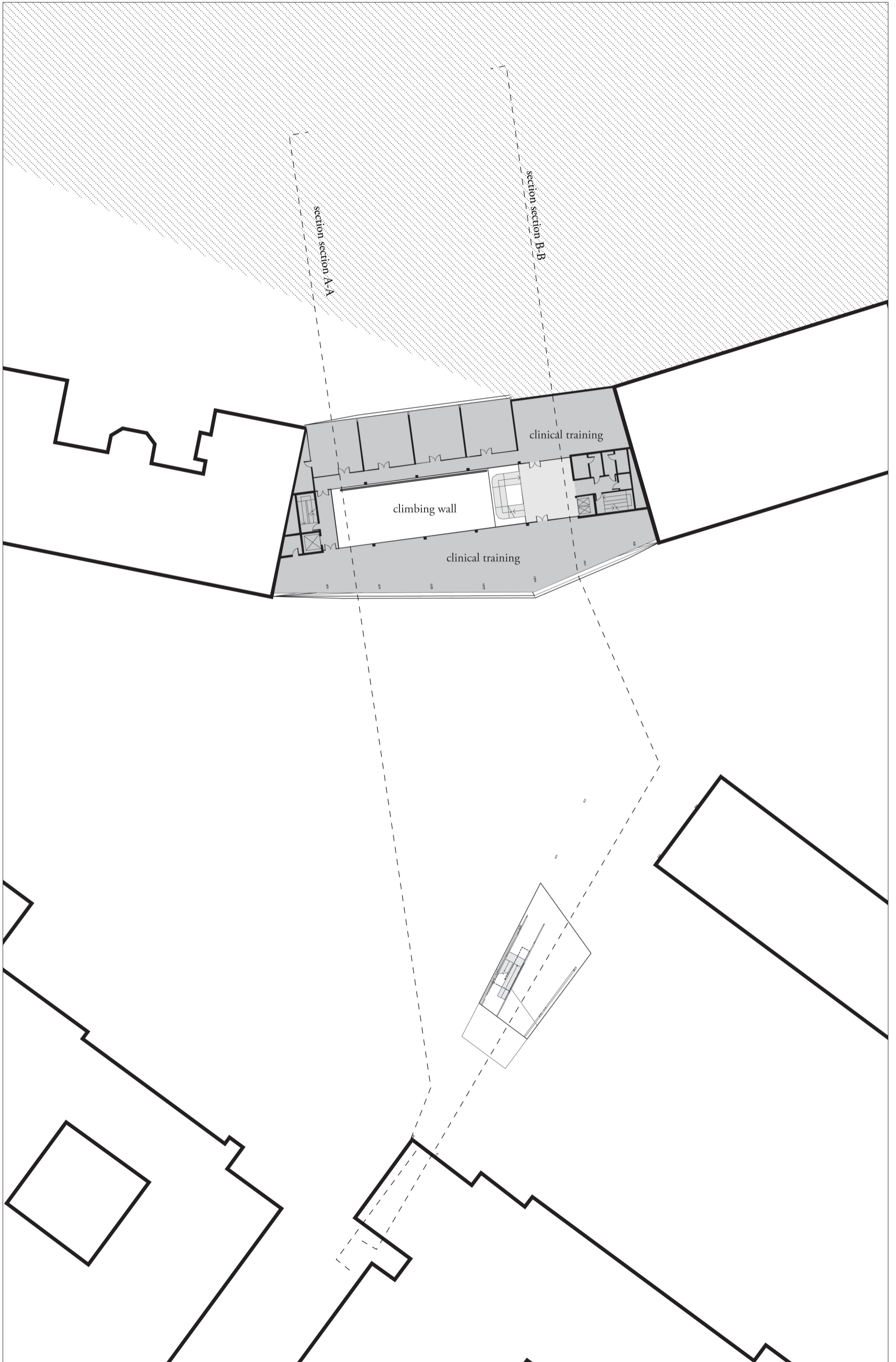


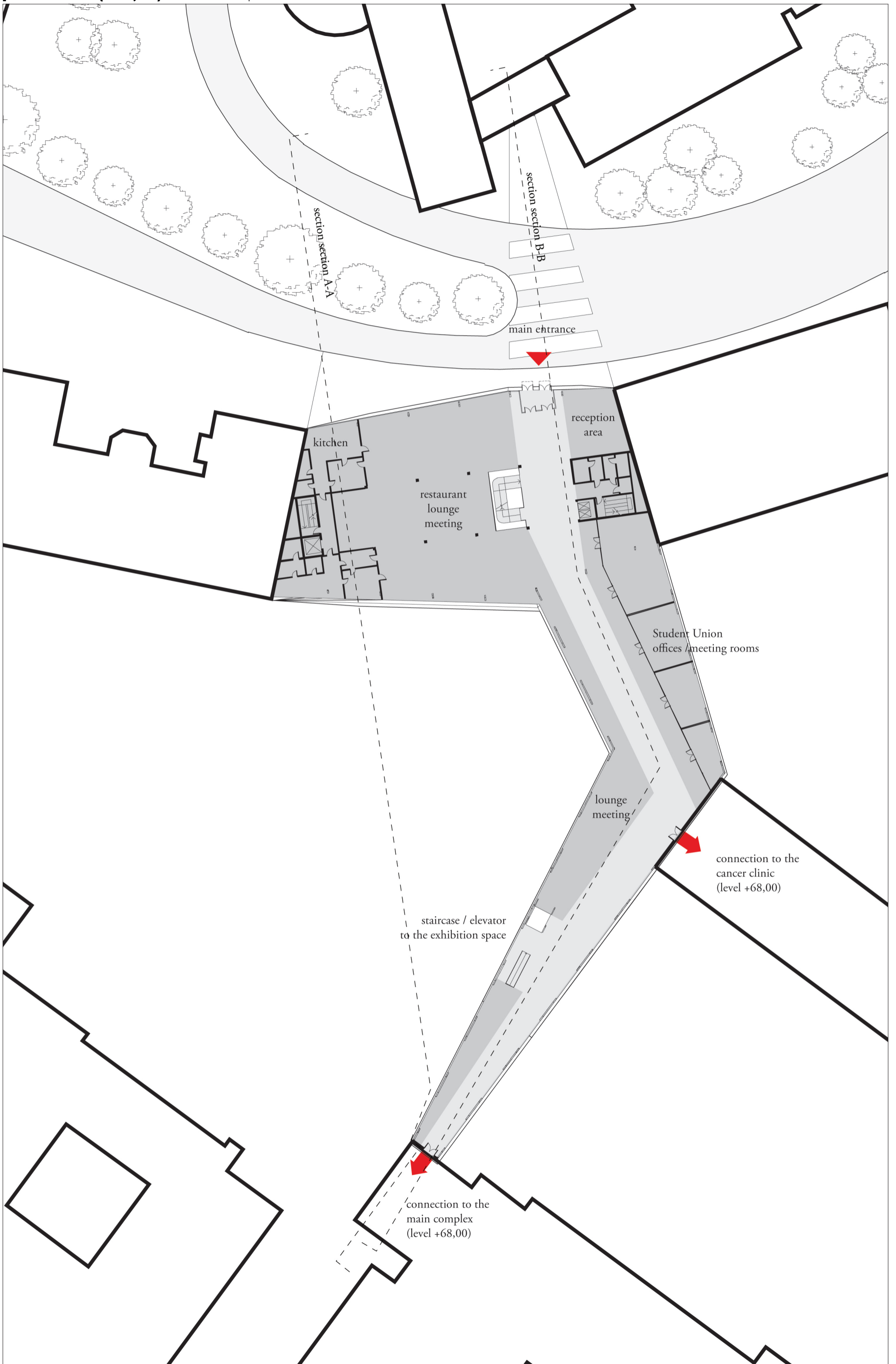


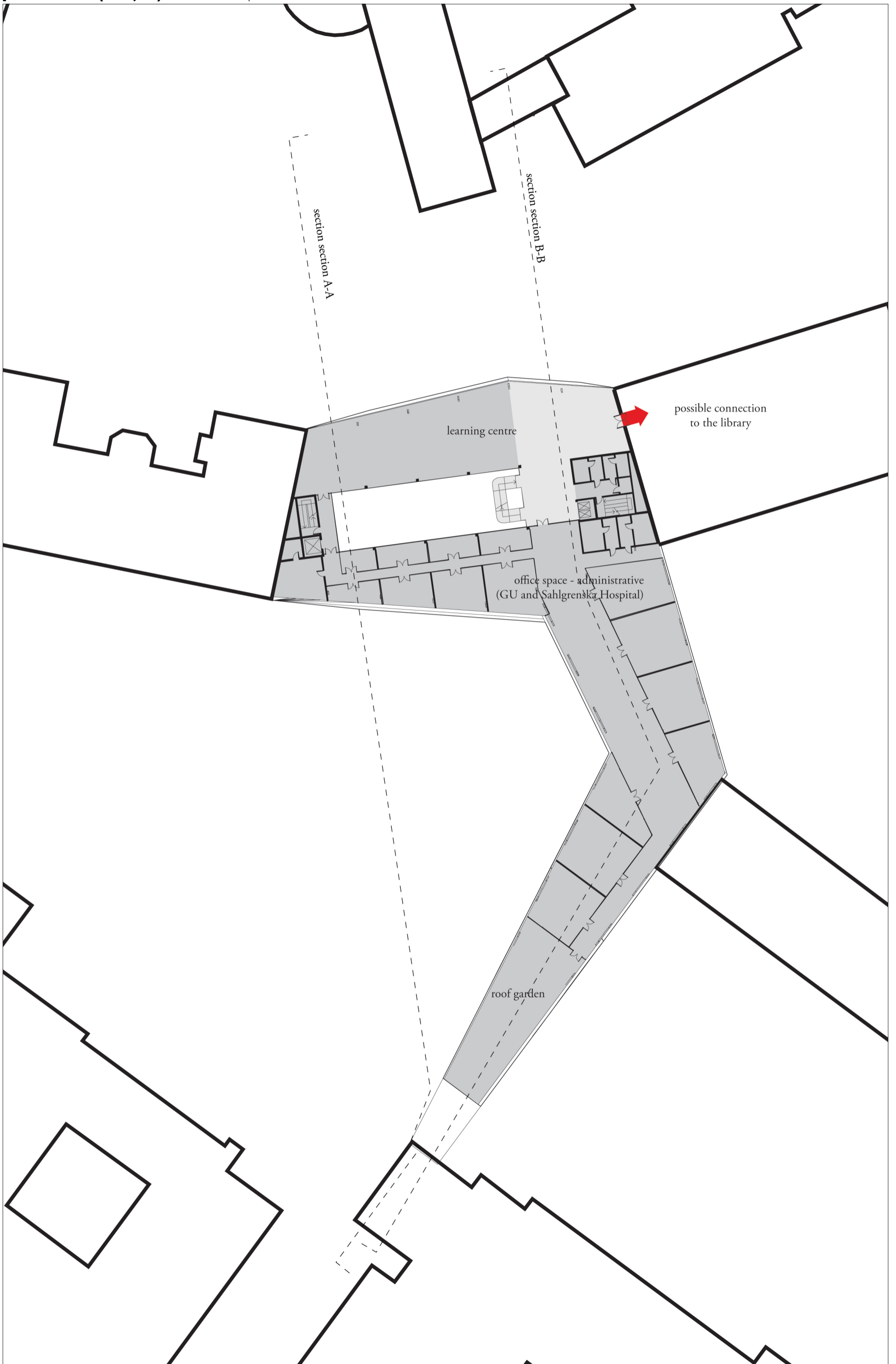


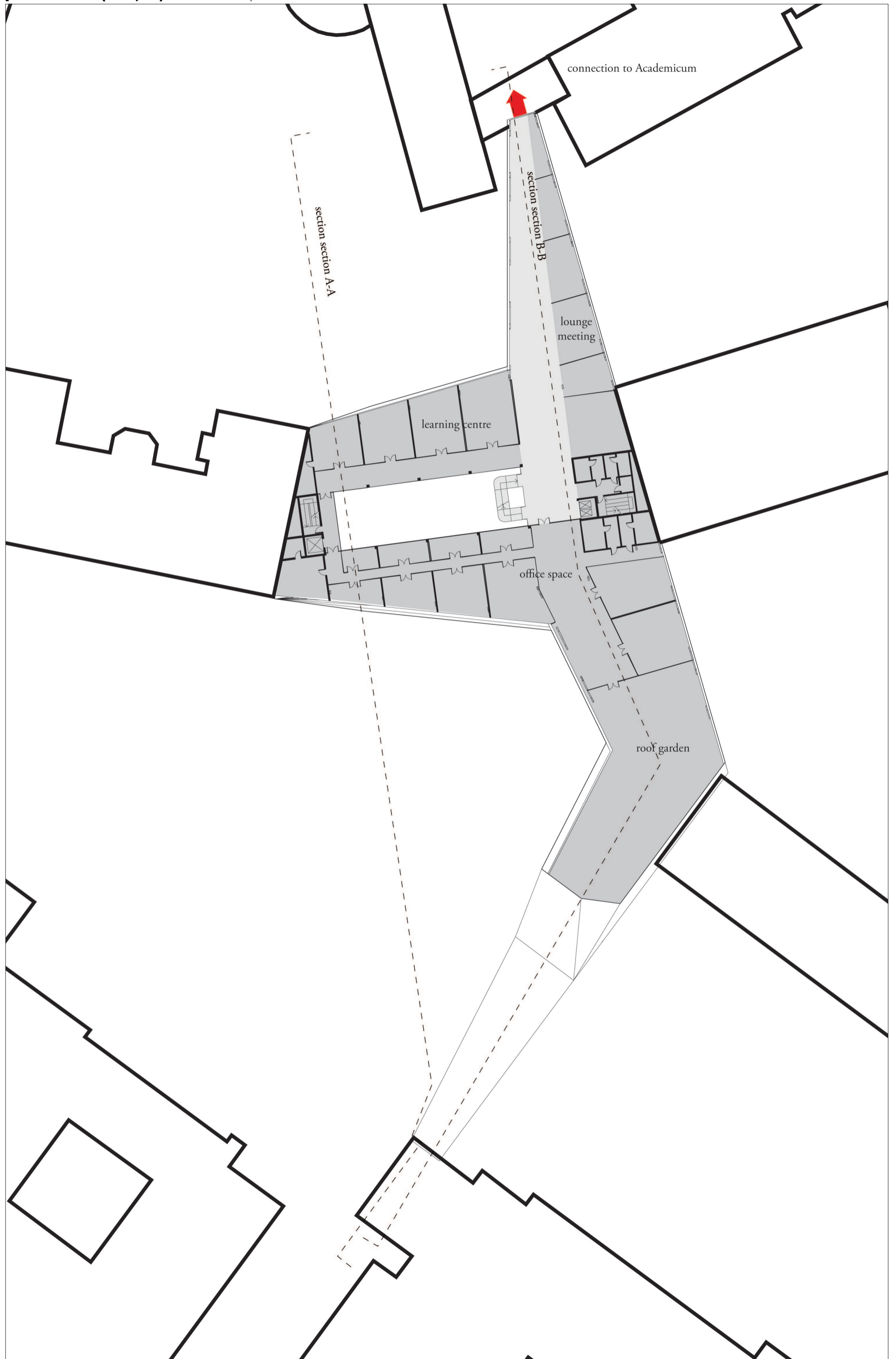


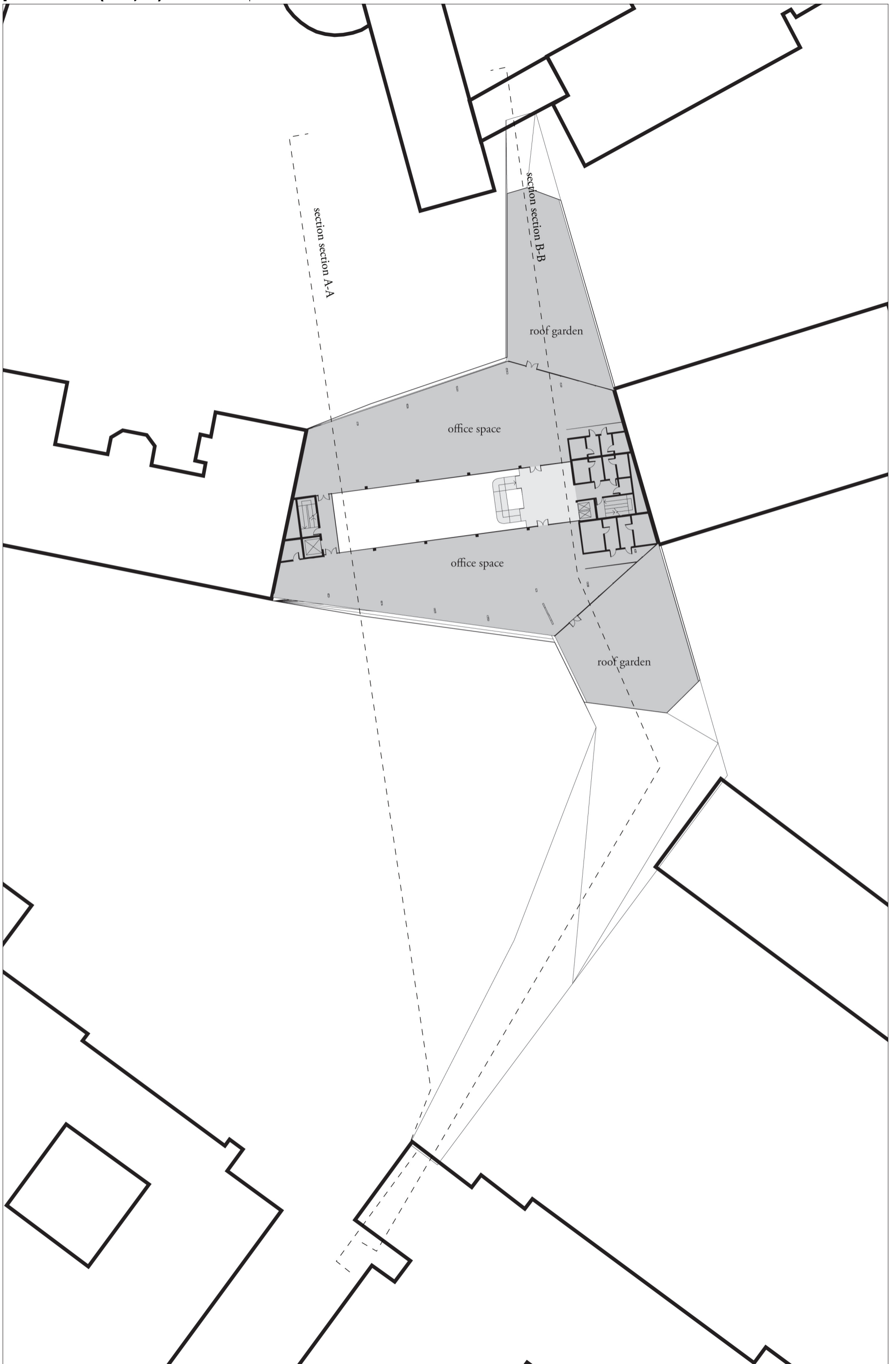












summary

| final conclusions

During the studies on the history of Sahlgrenska, Medicinareberget and Göteborg, I have seen many proposals for the site and the hospital's and university's area development. The task was therefore not a new one, although the idea of a link building bridging over Guldhedsgatan emerged only in 2011.

Therefore, the process and search for the design solution became a very education and developing experience for me, and I see the value of the master thesis not only in the final result, but also in knowledge and experience I gained on the way.

Any design solution in the centre of Sahlgrenska – Medicinareberget would become controversial and raise many discussions. My proposal aimed to solve problems that I and the stakeholders found most important, and it addressed issues that were in focus after the analysis and studies I made. I see the end result as a satisfactory answer for the questions raised in the process, although the solution may lack some qualities and characteristics expected from such work and may not be the only solution for the site. I prefer to see the end result not as a finished design proposal, but as an open question about the strategy towards the site and the area's development in the future.

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